



**WOOD BUFFALO  
ENVIRONMENTAL ASSOCIATION**

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**Wood Buffalo Environmental Association**

**MAY 2024  
MONTHLY REPORT**

CONTINUOUS MONITORING

June 28, 2024

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





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June 28, 2024

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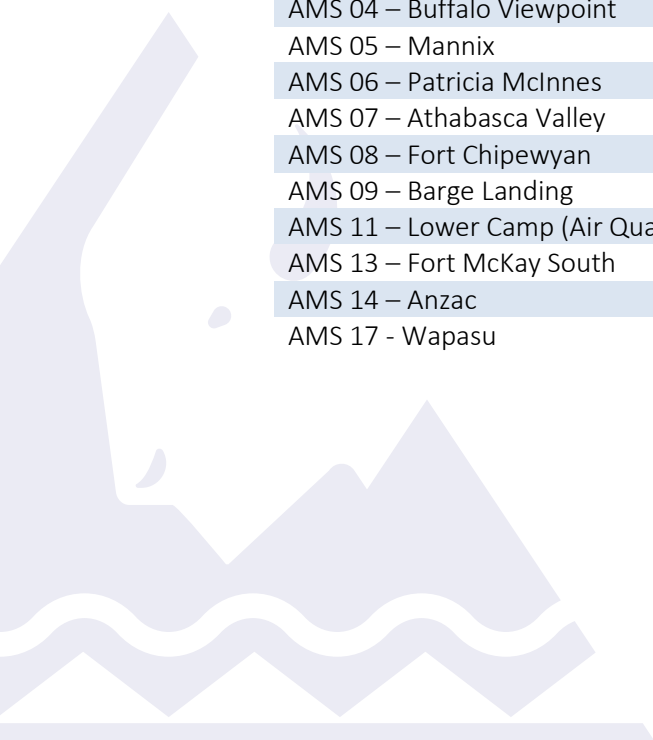
**RE: Monthly Ambient Air Quality Monitoring Report May 2024  
Wood Buffalo Environmental Association**

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

The continuous ambient air quality monitoring network stations are:

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



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

<b>Industry Operators</b>	<b>EPEA Approval No.</b>
Athabasca Oil Corporation	289664-00-00; 241311-00-00
Blackgold	246984-01-0
Canadian Natural	149968-01-00; 153125-01-00; 20809-02-00; 224816-01-00; 228044-00-00; 237382-00-00
Cenovus Energy Inc.	48522-01-00
ChemTrade Logistics	404827-00-00
CNOOC International	137467-01-00; 236394-00-00
Connacher Oil and Gas Ltd.	240008-00-00
ConocoPhillips	48263-01-00
Fort Hills Energy Corporation	151469-01-00
Hammerstone Corporation	189942-00-00
Harvest Operations Corp.	246984-01-00
H.J. Baker Sulphur Canada ULC	426549-00-00
Husky Oil Operations Ltd.	206355-01-00
Imperial Oil Ltd.	00046586-00-00
Inter Pipeline Ltd.	73203-02-00
Keyera Energy Ltd.	187-03-00
MEG Energy Corp.	00216466-01-00
Parsons Creek Aggregates	231302-00
PetroChina Canada Ltd.	254465-00-00
Suncor Energy Inc.	094-02-00; 80105-01-00
Sunshine Oilsands Ltd.	305529-00-00
Surmont Energy	318401-00-00
Syncrude Canada Ltd.	026-02-00
Titan Tire Reclamation Corporation	364232-00-00

**Government and Non-Government Organizations**

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

**Indigenous Communities**

Athabasca Chipewyan First Nation	Fort McKay First Nation
Chard Métis Nation	Fort McMurray 468 First Nation
Chipewyan Prairie Dene First Nation	Fort McKay Métis
Christina River Dene Nation Council	Lakeland Métis

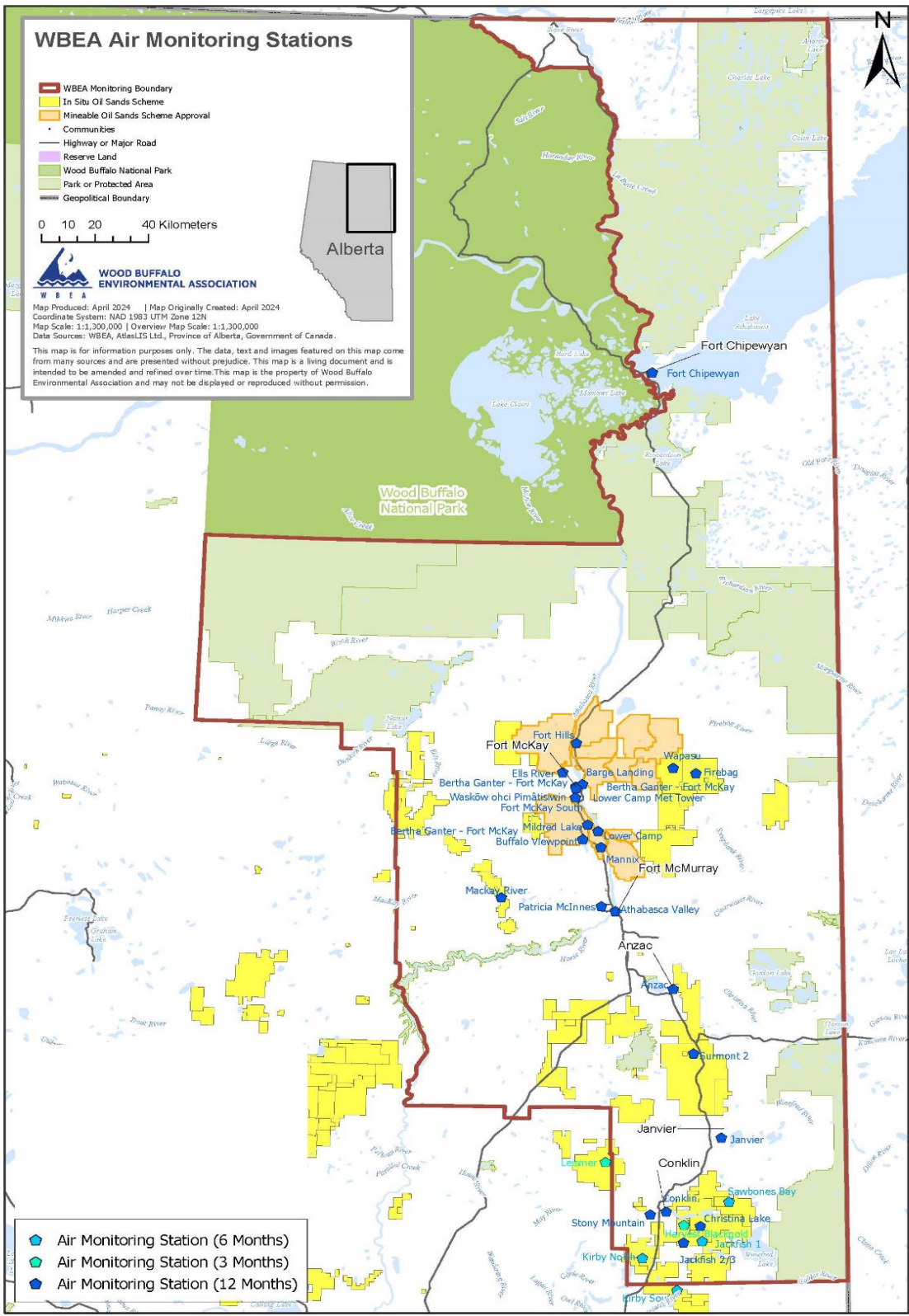


Figure 1. Map of WBEA Continuous Monitoring Network

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

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

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

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

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

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

There was one ground-level concentrations in excess of the 30-day dustfall guideline reported to AEPA; following data validation and processing, the exceedance was confirmed.

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Lower Camp	H <sub>2</sub> S	8May24, 22:00	427746	1-hr	36	36.2	exc
Lower Camp	SO <sub>2</sub>	8May24, 22:00	427747	1-hr	183	181.8	exc
Stony Mtn.	PM <sub>2.5</sub>	11May24, 24:00	428770	24-hr	29	29.4	exc
Janvier	PM <sub>2.5</sub>	11May24, 24:00	428771	24-hr	46	46.4	exc
Buffalo Viewpoint	PM <sub>2.5</sub>	11May24, 24:00	428772	24-hr	29	29.1	exc
Barge Landing	PM <sub>2.5</sub>	11May24, 24:00	428773	24-hr	33	32.6	exc
Bertha Ganter	PM <sub>2.5</sub>	14May24, 24:00	428774	24-hr	51	51.1	exc
Buffalo Viewpoint	PM <sub>2.5</sub>	14May24, 24:00	428772	24-hr	62	61.8	exc
Patricia McInnes	PM <sub>2.5</sub>	14May24, 24:00	428775	24-hr	40	40.0	exc
Athabasca Valley	PM <sub>2.5</sub>	14May24, 24:00	428776	24-hr	59	59.0	exc
Fort Chip	PM <sub>2.5</sub>	14May24, 24:00	428777	24-hr	95	94.9	exc
Anzac	PM <sub>2.5</sub>	14May24, 24:00	428778	24-hr	31	30.8	exc
Fort Hills	PM <sub>2.5</sub>	14May24, 24:00	428779	24-hr	53	53.0	exc
Ells River	PM <sub>2.5</sub>	14May24, 24:00	428034	24-hr	49	49.1	exc
Barge Landing	PM <sub>2.5</sub>	14May24, 24:00	428773	24-hr	62	62.3	exc

<b>Ft. McKay S</b>	PM <sub>2.5</sub>	14May24, 24:00	428781	24-hr	48	48.1	exc
<b>Wapasu</b>	PM <sub>2.5</sub>	14May24, 24:00	428782	24-hr	49	49.2	exc
<b>Bertha Ganter</b>	PM <sub>2.5</sub>	15May24, 24:00	428774	24-hr	54	53.6	exc
<b>Buffalo Viewpoint</b>	PM <sub>2.5</sub>	15May24, 24:00	428772	24-hr	58	57.5	exc
<b>Ft. McKay S</b>	PM <sub>2.5</sub>	15May24, 24:00	428781	24-hr	52	52.0	exc
<b>Anzac</b>	PM <sub>2.5</sub>	15May24, 24:00	428778	24-hr	81	81.5	exc
<b>Wapasu</b>	PM <sub>2.5</sub>	15May24, 24:00	428782	24-hr	39	39.3	exc
<b>Conklin</b>	PM <sub>2.5</sub>	15May24, 24:00	728783	24-hr	36	36.2	exc
<b>Janvier</b>	PM <sub>2.5</sub>	15May24, 24:00	428771	24-hr	45	44.8	exc
<b>Fort Hills</b>	PM <sub>2.5</sub>	15May24, 24:00	428779	24-hr	44	44.4	exc
<b>Patricia McInnes</b>	PM <sub>2.5</sub>	15May24, 24:00	428775	24-hr	63	63.0	exc
<b>Athabasca Valley</b>	PM <sub>2.5</sub>	15May24, 24:00	428776	24-hr	95	94.7	exc
<b>Fort Chip</b>	PM <sub>2.5</sub>	15May24, 24:00	428777	24-hr	39	39.4	exc
<b>Barge Landing</b>	PM <sub>2.5</sub>	15May24, 24:00	428773	24-hr	62	61.7	exc
<b>Surmont 2</b>	PM <sub>2.5</sub>	15May24, 24:00	428784	24-hr	69	69.2	exc
<b>Ells River</b>	PM <sub>2.5</sub>	15May24, 24:00	428780	24-hr	50	50.4	exc
<b>Anzac</b>	PM <sub>2.5</sub>	16May24, 24:00	428778	24-hr	40	40.2	exc
<b>Conklin</b>	PM <sub>2.5</sub>	16May24, 24:00	728783	24-hr	40	39.5	exc
<b>Janvier</b>	PM <sub>2.5</sub>	16May24, 24:00	428771	24-hr	42	41.7	exc
<b>Surmont 2</b>	PM <sub>2.5</sub>	16May24, 24:00	428784	24-hr	36	35.6	exc
<b>Bertha Ganter</b>	PM <sub>2.5</sub>	18May24, 24:00	428774	24-hr	31	-	ret
<b>Lower Camp</b>	H <sub>2</sub> S	23May24, 20:00	428337	1-hr	10	10.2	exc
<b>Bertha Ganter</b>	Dustfall		429184	30-day	90.5	90.5	exc

\*status legend:



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

## 2.0 Data Processing and Validation

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

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

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

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

## 3.0 Operational Status

### 3.1 Continuous Monitoring

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

Station	Parameter	Details
Stony Mountain	PM <sub>2.5</sub>	The PM <sub>2.5</sub> analyzer at Stony Mountain AMS operated less than 90% of May 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on May 24, 2024 (reference number 428349).
		On May 15, the PM <sub>2.5</sub> data flatlined, indicating the analyzer was not operating as normal. Routine maintenance was conducted, and the issue was temporarily addressed. On May 19, the issue reoccurred, and additional investigation determined the particulate matter heating stack was the cause. On May 21, the heating stack was replaced, the performance of the analyzer was verified, and the issue was resolved.

		<p>During the data validation process, a total of 157 hours of data were invalidated due to this incident.</p>
Mannix	SO <sub>2</sub> and THC/NMHC/CH <sub>4</sub>	<p>The SO<sub>2</sub> and THC/NMHC/CH<sub>4</sub> analyzers at the Mannix air monitoring station (AMS) operated for less than 90% of May 2024, which is a contravention of the Air Monitoring Directive (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on June 5, 2024 (reference number 428792).</p> <p>During the week of May 21, the Mannix AMS shelter was replaced due to its advanced age and as part of planned maintenance and upgrades of the network. Activities associated with the shelter replacement, including returning to normal operations resulted in over 90 hours of invalid data.</p>
Mannix	RH at 75-meter elevation	<p>The relative humidity (RH) sensor at the 75m elevation at the Mannix air monitoring station (AMS) operated less than 90% of May 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on June 5, 2024 (reference number 428793).</p> <p>During monthly data validation, it was determined that the RH measurements at the 75m elevation were over-ranging periodically, with the output signal of the sensor displaying values above 100%. The WBEA is reliant on a third-party contractor, and subsequently their schedule, to complete the sensor replacement. The contractor has been notified. Data was invalidated during periods when RH measurements were inconsistent with comparable sensors in the WBEA ambient network, resulting in a total of 99 hours of invalid data and 86.69% operational time for May.</p>
Barge Landing	THC/NMHC/CH <sub>4</sub>	<p>The THC/NMHC/CH<sub>4</sub> analyzer at the Barge Landing AMS operated for less than 90% of May 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on June 11, 2024 (reference number 429031).</p> <p>This instrument is a semi-continuous gas chromatograph that requires the CH<sub>4</sub> and NMHC peaks to remain within the data capture windows. On May 8, these peaks shifted outside of the optimal data capture windows and as a result, the baseline shifted outside of the normal range. Throughout May, the WBEA performed multiple maintenance activities, including adjustments of the optimal data capture window, replacement of a line tube due to a leak, and associated as founds and calibrations. Ultimately, the analyzer was replaced, and normal operation resumed on May 10, 2024. Following data validation, a total of 79 hours of data were invalidated due to this incident, resulting in an operational time of 88.84% for May.</p>
Lower Camp Meteorological Tower	WS, WD, WVS at 45-meter elevation	<p>The WS/WD/WVS sensor at the 45-meter elevation at the Lower Camp Met Tower operated less than 90% of April and May 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This letter is a follow-up to the verbal report to Alberta Environment and Protected Areas (AB EPA) on May 9, 2024 (reference number 427764).</p>





Throughout April, the WS/WD/VWS sensor at the 45-meter elevation experienced communication issues. The WBEA continued to troubleshoot and ultimately determined the sensor was defective as it was unable to maintain stable communication. On May 6, the sensor was replaced, its performance was verified, and the issue was resolved. During the data validation process, a total of 378 hours of data were invalidated; 249 hours for April and 129 hours for May.

### 3.2 Intermittent Monitoring

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

### 3.3 General Network Notes

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

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

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

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

The NH<sub>3</sub> analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. Additional time is required for stabilization after exposure to high concentrations of NH<sub>3</sub> gas, and this is an inherent behavior in the NH<sub>3</sub> analyzer operations due to the properties of the NH<sub>3</sub> gas. Data for 1 hour following the daily spans have been reported as invalid for a total of 31 hours this month.

Analyzer failure due to PMT cooler failure of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on May 7 and 8 resulted in 34 hours of invalid data. Subsequent maintenance to replace the analyzer and stabilization following the installation of the new NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on May 8 and 9 resulted in additional 23 hours of downtime.

Cleaning of the manifold on May 10 interrupted the normal operations of all gaseous analyzers, except CO analyzer, for 2 hours.



Analyzer failure due to water damage in the PM<sub>2.5</sub> analyzer on May 17 through 19 resulted in 45 hours of invalid data. Subsequent maintenance to replace the PM<sub>2.5</sub> analyzer on May 19 resulted in additional 1 hour of downtime.

Flatline in the output signal of the wind sensor on May 13 and 23 resulted in 3 hours of invalid data.

The surface leaf wetness sensor operated out of range on May 21 resulting in 2 hours of invalid data.

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

Operator maintenance to address issues for the THC/NMHC/CH<sub>4</sub> analyzer on May 10 and 30 resulted in 10 hours of downtime.

Flatline in the output signal of the H<sub>2</sub>S analyzer on May 14 and 15 resulted in 26 hours of invalid data.

Cleaning of the manifold on May 28 interrupted the normal operations of the SO<sub>2</sub> and THC/NMHC/CH<sub>4</sub> analyzers for 2 hours.

The station power failure on May 30 interrupted the normal operations of all parameters resulting in 6 to 7 hours of invalid data.

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

Failure to record data for all meteorological sensors on May 6 resulted in 1 hour of invalid data.

Failure to record data for the temperature at 20-meter elevation on May 31 resulted in 1 hour of invalid data.

Flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 45-meter elevation throughout the month resulted in 129 hours of invalid data.

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

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on May 14 resulted in 2 hours of downtime.

Cleaning of the manifold on May 30 interrupted the normal operations of all gaseous analyzers for 1 hour.

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

Note: The Mannix air monitoring station was replaced with a new shelter situated in its former site. The analyzers were relocated from the old shelter to the new one on May 21 through 25.

Unstable operation due to excessive baseline drift for the THC/NMHC/CH<sub>4</sub> analyzer on May 4 and 5 resulted in 3 hours of invalid data. Subsequent maintenance to replace the support gas cylinder on May 16 resulted in further 3 hours of downtime.



Maintenance associated with the station upgrade from May 21 through 25 interrupted the normal operations of all gaseous analyzers for 70-93 hours.

The relative humidity sensor at 75-meter elevation operated out of range throughout the month resulting in 99 hours of invalid data.

The relative humidity sensor at 90-meter elevation operated out of range throughout the month resulting in 41 hours of invalid data.

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

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

Unstable operation of the O<sub>3</sub> analyzer due to flatline in output signal on April 17 and 14 resulted in 31 hours of invalid data. Subsequent maintenances to reboot the O<sub>3</sub> analyzer on May 3 and 9 resulted in additional 4 hours of downtime.

Unstable operation of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer due to excessive baseline drift in the output signal on May 8 and 23 resulted in 2 hours of invalid data.

Unstable operation of the TRS analyzer due to flatline in output signal on May 8 and 10 resulted in 32 hours of invalid data. Subsequent maintenances to reboot the TRS analyzer on May 9 and 11 resulted in additional 5 hours of downtime.

Failure to record data of the PM<sub>2.5</sub> and SO<sub>2</sub> analyzer on May 23 resulted in 1 hour of invalid data.

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

Maintenance to replace the ozone scrubber for the O<sub>3</sub> analyzer and left to stabilize overnight on May 6 resulted in 19 hours of downtime.

Unstable operation due to flatline in analyzer output signal of O<sub>3</sub> analyzer on May 8 to 9 resulted in 23 hours of invalid data. Subsequent maintenance to reboot the analyzer and verify daily span check on May 9 resulted in additional 2 hours of downtime.

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

No operational issues to note.

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

Unstable operations due to excessive baseline drift and flatlining of the THC/NMHC/CH<sub>4</sub> analyzer on May 7 through 10 resulted in 72 hours of invalid data. Subsequent maintenance to recalibrate and troubleshoot analyzer on May 8 and 9 resulted in additional 7 hours of downtime.



Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on May 31 resulted in 4 hours of downtime.

Flatline in the output signal of the wind sensor at 10-meter elevation on May 4 resulted in 1 hour of invalid data.

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

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on May 31 resulted in 2 hours of downtime.

The relative humidity sensor operated out of range on May 14 resulting in 3 hours of invalid data.

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

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

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 8 hours of invalid data.

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

Cleaning of the manifold on May 10 interrupted the normal operation of all gaseous analyzers for 1 hour.

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

The relative humidity sensor periodically operated out of range on May 17 resulting in 3 hours of invalid data.

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

Maintenance to perform column conditioning for THC/NMHC/CH<sub>4</sub> analyzer on May 8 and 9 resulted in 19 hours of downtime.

Unstable operations and analyzer failure due to inconsistent response of the PM<sub>2.5</sub> analyzer throughout the month resulted in 112 hours of invalid data. Maintenance to conduct field troubleshooting and replace the PM<sub>2.5</sub> analyzer throughout the month resulted in additional 99 hours of downtime.

Flatline in the output signal of the wind sensor at 20-meter elevation on May 18 resulted in 2 hours of invalid data.

Failure to record data of the precipitation sensor on May 19 through 21 resulted in 55 hours of invalid data.

The relative humidity sensor operated out of range throughout the month resulting in 31 hours of invalid data.



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

Station operator activities interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer on May 14 and 17 resulting in 3 hours of downtime.

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

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

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

Cleaning of the manifold on May 9 interrupted the normal operations of H<sub>2</sub>S and NO<sub>x</sub>/NO/NO<sub>2</sub> analyzers for 1 hour.

The relative humidity sensor operated out of range throughout the month resulting in 72 hours of invalid data.

Failure to record of the relative humidity sensor on May 8 resulted in 1 hour of invalid data.

Flatline in the output signal of the wind sensor on May 4 and 13 resulted in 2 hours of invalid data.

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

An internal audit interrupted the normal operations of the THC/NMHC/CH<sub>4</sub> analyzer on May 1 for 4 hours.

Maintenance to replace the support gas cylinder for THC/NMHC/CH<sub>4</sub> analyzer on May 24 resulted in 4 hours of downtime.

Cleaning of the manifold on May 28 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub>, O<sub>3</sub>, SO<sub>2</sub> and THC/NMHC/CH<sub>4</sub> analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 13 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 May. Therefore, the calibrator zeros from the April and May multi-point calibrations were used to validate the analyzer baseline response.

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

Cleaning of the manifold on May 28 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub>, O<sub>3</sub>, and TRS analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor at the 20-meter elevation throughout the month resulted in 11 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 May. Therefore, the calibrator zeros from the April, May and June multi-point calibrations were used to validate the analyzer baseline response.

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

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

An internal audit interrupted the normal operations of TRS and NO<sub>x</sub>/NO/NO<sub>2</sub> analyzers on May 14 resulted in 1 hour of downtime.

Failure to record data for all parameters on May 16, 17 and 30 resulted in 4 hours of invalid data.

Maintenance to reinitiate the daily QA check on May 17 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub>, SO<sub>2</sub> and THC/NMHC/CH<sub>4</sub> analyzers for 1 hour.

Cleaning of the manifold on May 21 interrupted the normal operations of all gaseous analyzers for 1 hour.

An internal audit interrupted the normal operations of all air quality analyzers on May 30 resulting in 1 to 3 hours of downtime.

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

The station power failure on May 12 to 13 interrupted the normal operations of all parameters resulting in 34-36 hours of invalid data.

Cleaning of the manifold on May 29 interrupted the normal operation of H<sub>2</sub>S for 1 hour.

The relative humidity sensor operated out of range on May 7 to 8 resulting in 7 hours of invalid data.

Flatline in the output signal of the wind sensor on May 14 resulted in 1 hour of invalid data.

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

Cleaning of the manifold on May 23 interrupted the normal operations of NO<sub>x</sub>/NO/NO<sub>2</sub> and SO<sub>2</sub> analyzers for 1 hour.

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

A flatline in the output signal of the wind sensor on May 6 resulted in 2 hours of invalid data.

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

Cleaning of the manifold on May 13 interrupted the normal operations of H<sub>2</sub>S and NO<sub>x</sub>/NO/NO<sub>2</sub> analyzers for 1 hour.



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

Station operator activities on May 21 interrupted the normal operations of the NO<sub>x</sub>/NO/NO<sub>2</sub> analyzer for 1 hour.

Cleaning of the manifold on May 22 interrupted the normal operations of SO<sub>2</sub>, THC/NMHC/CH<sub>4</sub> and TRS analyzers for 1 hour.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 11 hours of invalid data.

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

Cleaning of the manifold on May 31 interrupted the normal operations of H<sub>2</sub>S and NO<sub>x</sub>/NO/NO<sub>2</sub> analyzers for 1 hour.

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

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

Maintenance to replace the SO<sub>2</sub> analyzer and subsequent stabilization following the replacement on May 1 and 2 resulted in 20 hours of downtime.

Maintenance to troubleshoot, replace the NO<sub>2</sub> analyzer and subsequent stabilization on May 1 through 4 resulted in 58 hours of downtime.

Station operator activities on May 1 and 2 interrupted the normal operations of the THC analyzer for 19 hours.

Unstable operation due to excessive baseline drift in the output signal of the THC analyzer on May 4 resulted in 1 hour of invalid data.



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

Yours sincerely,

**Wood Buffalo Environmental Association**

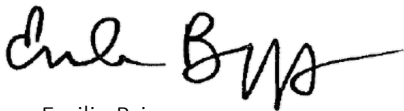
The representative of the Person Responsible for this monitoring program is Emilie Briggs, Operations Manager, WBEA.

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

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Wood Buffalo Environmental Association  
T: (780) 215-6000  
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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  
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Wood Buffalo Environmental Association  
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WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
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May 2024

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Created: June 27, 2024 12:00:00 MST

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	5	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00							
149968-01-00							
237382-00-00							
48522-01-00							
240008-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	ONE-HOUR AVERAGE MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	24-HOUR AVERAGE MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
48263-01-00	SO2(ppb)	1	100	30	0	2.4	0
224816-00-00	SO2(ppb)	2	99	37.3	0	6.6	0
151469-01-00	SO2(ppb)	4	100	26.8	0	3.2	0
189942-00-00	SO2(ppb)	5	88	44.9	0	13.1	0
206355-00-00	SO2(ppb)	6	100	27.4	0	5.0	0
46586-00-00	SO2(ppb)	7	100	9.8	0	2.0	0
73203-02-00	SO2(ppb)	8	100	1.6	0	0.6	0
216466-01-00	SO2(ppb)	9	100	25.9	0	2.2	0
137467-01-00	SO2(ppb)	11	100	181.8	1	14.0	0
236394-00-00	SO2(ppb)	13	100	35.8	0	3.5	0
254465-00-00	SO2(ppb)	14	100	7.3	0	0.8	0
094-03-00	SO2(ppb)	17	100	13.6	0	1.7	0
80105-01-00	SO2(ppb)	18	100	2.1	0	0.6	0
305529-00-00	SO2(ppb)	19	100	15.2	0	1.5	0
318401-00-00	SO2(ppb)	20	100	12.0	0	2.9	0
026-03-00	SO2(ppb)	21	100	1.8	0	0.5	0
364232-00-00	SO2(ppb)	22	100	1.7	0	0.3	0
228044-00-00	SO2(ppb)	23	99	11.6	0	2.2	0
247548-00-00	SO2(ppb)	25	95	28.0	0	2.4	0
231302-00-00	SO2(ppb)	26	100	15.5	0	4.0	0
246984-01-00	SO2(ppb)	27	100	10.1	0	2.5	0
153125-01-00	SO2(ppb)	29	100	2.1	0	0.4	0
	SO2(ppb)	30	100	17.1	0	3.7	0
	SO2(ppb)	505	100	11.7	0	4.5	0
	SO2(ppb)	507	97	10.0	0	4.1	0
	H2S(ppb)	1	100	1.3	0	0.4	0
	H2S(ppb)	2	96	7.0	0	1.4	0
	H2S(ppb)	4	100	4.1	0	0.5	0
	H2S(ppb)	5	91	6.9	0	1.4	0
	H2S(ppb)	11	100	36.2	2	2.6	0
	H2S(ppb)	17	100	0.7	0	0.2	0
	H2S(ppb)	19	100	3.6	0	0.4	0
	H2S(ppb)	20	100	3.2	0	0.6	0
	H2S(ppb)	25	95	1.4	0	0.3	0
	H2S(ppb)	26	100	1.4	0	0.3	0
	H2S(ppb)	27	100	2.2	0	0.5	0
	H2S(ppb)	29	100	0.4	0	0.2	0
	H2S(ppb)	505	100	1.0	0	0.5	0
	H2S(ppb)	507	100	0.7	0	0.2	0
	TRS(ppb)	1	100	1.7	0	0.7	0
	TRS(ppb)	6	95	1.9	0	0.7	0
	TRS(ppb)	7	100	1.1	0	0.3	0
	TRS(ppb)	8	100	1.7	0	0.6	0
	TRS(ppb)	9	100	2.9	0	0.8	0
	TRS(ppb)	13	100	2.8	0	0.8	0
	TRS(ppb)	14	100	1.2	0	0.3	0
	TRS(ppb)	18	100	0.6	0	0.4	0
	TRS(ppb)	21	100	0.8	0	0.5	0
	TRS(ppb)	22	100	0.6	0	0.4	0
	TRS(ppb)	23	99	1.2	0	0.2	0
	TRS(ppb)	30	100	1.2	0	0.6	0
	THC(ppm)	1	100	3.7	-	2.2	-
	THC(ppm)	2	97	2.8	-	2.2	-
	THC(ppm)	4	100	3.0	-	2.2	-
	THC(ppm)	5	87	2.9	-	2.3	-
	THC(ppm)	6	100	2.4	-	2.1	-
	THC(ppm)	7	100	2.5	-	2.1	-
	THC(ppm)	9	89	3.4	-	2.1	-
	THC(ppm)	11	100	3.2	-	2.2	-
	THC(ppm)	13	100	3.3	-	2.3	-
	THC(ppm)	14	100	2.9	-	2.0	-
	THC(ppm)	17	100	2.5	-	2.3	-

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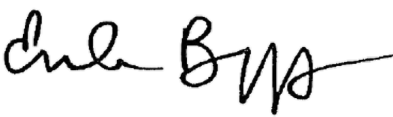
Created: June 27 2024 12:00:00 MST

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	5	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	THC(ppm)	18	97	2.2	-	2.1	-
48522-01-00	THC(ppm)	19	100	3.5	-	2.3	-
240008-00-00	THC(ppm)	20	100	2.8	-	2.4	-
48263-01-00	THC(ppm)	21	99	2.8	-	2.1	-
224816-00-00	THC(ppm)	22	100	2.3	-	2.0	-
151469-01-00	THC(ppm)	23	98	5.2	-	2.6	-
189942-00-00	THC(ppm)	29	100	2.7	-	2.4	-
206355-00-00	THC(ppm)	30	100	4.0	-	2.3	-
46586-00-00	THC(ppm)	507	97	2.9	-	2.5	-
73203-02-00	O3(ppb)	1	100	48.1	0	36.5	-
216466-01-00	O3(ppb)	4	100	57.7	0	40.3	-
137467-01-00	O3(ppb)	6	95	59.3	0	43.4	-
236394-00-00	O3(ppb)	7	94	58.8	0	42.3	-
254465-00-00	O3(ppb)	8	100	50.2	0	44.5	-
094-03-00	O3(ppb)	13	100	53.0	0	39.4	-
80105-01-00	O3(ppb)	14	100	55.5	0	41.9	-
305529-00-00	O3(ppb)	17	100	53.8	0	44.9	-
318401-00-00	O3(ppb)	18	100	53.4	0	45.5	-
026-03-00	O3(ppb)	21	100	56.0	0	42.5	-
364232-00-00	O3(ppb)	22	100	60.0	0	47.9	-
228044-00-00	NO2(ppb)	1	92	38.5	0	15.7	-
247548-00-00	NO2(ppb)	4	100	36.5	0	11.5	-
231302-00-00	NO2(ppb)	6	100	23.7	0	9.6	-
246984-01-00	NO2(ppb)	7	100	21.1	0	7.6	-
153125-01-00	NO2(ppb)	8	100	3.6	0	1.3	-
	NO2(ppb)	9	100	40.8	0	15.7	-
	NO2(ppb)	13	100	24.2	0	9.6	-
	NO2(ppb)	14	100	8.2	0	2.4	-
	NO2(ppb)	17	100	11.2	0	2.7	-
	NO2(ppb)	18	100	7.4	0	1.4	-
	NO2(ppb)	19	100	16.5	0	4.6	-
	NO2(ppb)	20	100	13.3	0	5.5	-
	NO2(ppb)	21	100	14.4	0	2.8	-
	NO2(ppb)	22	100	3.7	0	0.7	-
	NO2(ppb)	23	99	43.0	0	20.0	-
	NO2(ppb)	26	100	20.2	0	7.1	-
	NO2(ppb)	27	100	5.6	0	0.7	-
	NO2(ppb)	29	100	3.7	0	1.6	-
	NO2(ppb)	30	100	36.7	0	9.1	-
	NO2(ppb)	505	100	19.8	0	10.1	-
	NO2(ppb)	507	92	11.2	0	4.7	-
	CO(ppm)	1	100	0.7	0	0.4	-
	CO(ppm)	7	100	2.1	0	0.5	-
	CO(ppm)	8	100	0.5	0	0.3	-
	CO(ppm)	18	100	0.5	0	0.4	-
	CO2(ppm)	1	100	469.6	-	437.0	-
	CO2(ppm)	8	100	459.4	-	449.1	-
	CO2(ppm)	18	100	461.5	-	445.1	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	96	15.7	0	3.0	-
	PM2.5(ug/m3)	1	94	142.0	0	53.6	2
	PM2.5(ug/m3)	4	100	308.4	0	61.8	3
	PM2.5(ug/m3)	6	100	263.0	0	63.0	2
	PM2.5(ug/m3)	7	100	321.4	0	94.7	2
	PM2.5(ug/m3)	8	100	221.7	0	94.9	2
	PM2.5(ug/m3)	9	100	153.4	0	62.3	3
	PM2.5(ug/m3)	13	100	129.4	0	52.0	2
	PM2.5(ug/m3)	14	100	145.9	0	81.5	3
	PM2.5(ug/m3)	17	100	137.0	0	49.2	2
	PM2.5(ug/m3)	18	72	121.7	0	29.4	1
	PM2.5(ug/m3)	21	100	113.4	0	39.5	2
	PM2.5(ug/m3)	22	100	167.2	0	46.4	3
	PM2.5(ug/m3)	23	99	152.8	0	53.0	2
	PM2.5(ug/m3)	29	100	106.9	0	69.2	2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION  
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	MONTH	YEAR					
289664-00-00	5	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	PM2.5(ug/m3)	30	100	153.3	0	50.4	2
48522-01-00	WS(km/h)	1	100	-	-	-	-
240008-00-00	WS(km/h)	2	100	-	-	-	-
48263-01-00	WS(km/h)	4	100	-	-	-	-
224816-00-00	WS(km/h)	5	100	-	-	-	-
151469-01-00	WS(km/h)	6	100	-	-	-	-
189942-00-00	WS(km/h)	7	100	-	-	-	-
206355-00-00	WS(km/h)	8	100	-	-	-	-
46586-00-00	WS(km/h)	9	100	-	-	-	-
73203-02-00	WS(km/h)	11	100	-	-	-	-
216466-01-00	WS(km/h)	13	99	-	-	-	-
137467-01-00	WS(km/h)	14	100	-	-	-	-
236394-00-00	WS(km/h)	17	100	-	-	-	-
254465-00-00	WS(km/h)	18	100	-	-	-	-
094-03-00	WS(km/h)	19	100	-	-	-	-
80105-01-00	WS(km/h)	20	100	-	-	-	-
305529-00-00	WS(km/h)	21	98	-	-	-	-
318401-00-00	WS(km/h)	22	99	-	-	-	-
026-03-00	WS(km/h)	23	99	-	-	-	-
364232-00-00	WS(km/h)	25	95	-	-	-	-
228044-00-00	WS(km/h)	26	100	-	-	-	-
247548-00-00	WS(km/h)	27	100	-	-	-	-
231302-00-00	WS(km/h)	29	100	-	-	-	-
246984-01-00	WS(km/h)	30	99	-	-	-	-
153125-01-00	WS(km/h)	505	100	-	-	-	-
	WS(km/h)	507	100	-	-	-	-
							
SIGNATURE OF ASSOCIATION REPRESENTATIVE				FOR ALBERTA ENVIRONMENT USE ONLY			



## **WOOD BUFFALO ENVIRONMENTAL ASSOCIATION**

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

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

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY - BERTHA GANTER (AMS01)  
MAY 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	706	36	38	99.73	29.5	0	2.4	0
H2S(ppb) Average	705	37	39	99.73	1.3	0	0.4	0
TRS(ppb) Average	705	37	39	99.73	1.7	0	0.7	0
THC(ppm) Average	706	36	38	99.73	3.7	-	2.2	-
NMHC(ppm) Average	706	36	38	99.73	1.443	-	0.19	-
CH4(ppm) Average	706	36	38	99.73	2.8	-	2.1	-
O3 (ppb) Average	708	34	36	99.73	48.1	0	36.5	-
NO2 (ppb) Average	650	35	94	92.07	38.5	0	15.7	-
NO (ppb) Average	650	35	94	92.07	61	-	10.5	-
NOX (ppb) Average	650	35	94	92.07	91.9	-	18.5	-
NH3 (ppb) Average	666	45	78	95.56	0	0	0	-
PM2.5 (ug/m3) Average	693	3	51	93.55	142	0	53.6	2
CO(ppm) Average	709	35	35	100	0.7	0	0.4	0
CO2(ppm) Average	707	35	37	99.73	469.6	0	437	0
Temperature 2 m (C) Average	744	0	0	100	28.5	-	17.9	-
Temperature 10 m (C) Average	744	0	0	100	27.6	-	17.6	-
Relative Humidity (%) Average	744	0	0	100	98.4	-	95.6	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	32	-	19	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-
Precipitation (mm) Total	744	0	0	100	3.8	-	31.8	-
Leaf Wetness (% of range) Average	742	0	2	99.73	88.3	-	51.3	-
Global Solar Radiation (W/m2) Average	744	0	0	100	908.9	-	352.8	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT MCKAY (AMS01)  
MAY 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	706	0.51	2	-	0	0	0	0	0.1	0.8	29.5
H2S (ppb) Average	705	0.15	0.2	-	0	0	0.1	0.1	0.2	0.3	1.3
TRS (ppb) Average	705	0.48	0.2	-	0.3	0.3	0.4	0.4	0.5	0.6	1.7
THC (ppm) Average	706	2.04	0.2	-	1.9	1.9	1.9	2	2.1	2.2	3.7
NMHC(ppm) Average	706	0.041	0.105	-	0	0	0	0	0	0.1	1.443
CH4(ppm) Average	706	2	0.1	-	1.9	1.9	1.9	2	2	2.1	
O3 (ppb) Average	708	24.05	11.1	-	0.6	9.3	15.5	23.8	33.4	39.1	48.1
NO2 (ppb) Average	650	4.94	5.9	-	0	0.1	1.1	2.9	6.8	11.9	38.5
NO (ppb) Average	650	1.23	4.8	-	0	0	0	0.1	0.6	2.9	61
NOX (ppb) Average	650	6.17	9.2	-	0	0.1	1.2	3.3	7.8	14.8	91.9
NH3 (ppb) Average	666	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	693	9.16	19.4	-	0.4	2.7	3.1	4.1	6	13.2	142
CO(ppm) Average	709	0.28	0.1	-	0.2	0.2	0.2	0.3	0.3	0.4	0.7
CO2(ppm) Average	707	429.12	8.6	-	417.4	421.3	423.2	426.5	432.2	442.2	469.6
Temperature 2 m (C) Average	744	10.79	5.6	-	-2.4	4.1	6.3	10.4	14.4	18.4	28.5
Temperature 10 m (C) Average	744	10.76	5.2	-	-1.5	4.6	6.7	10.4	14.2	17.7	27.6
Relative Humidity (%) Average	744	62.14	23.7	-	15.8	29.8	41.6	61.3	84	94.9	98.4
Wind Speed 10 m (km/h) Average	741	9.2	6	-	0	2	4	9	13	17	32
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	106.86	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	742	9.82	17	-	0	0.6	1	1.6	7.7	37.6	88.3
Global Solar Radiation (W/m2) Average	744	197.86	249.4	-	0	0	0	75.1	328.6	651.3	908.9

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS (except CO)	10 May 2024 13:00	10 May 2024 14:00	2	Maintenance - sample manifold cleaned
NH3	01 May 2024 07:00	31 May 2024 07:00	31	Stabilization after daily QA check
NO2	07 May 2024 02:00	08 May 2024 11:00	34	Analyzer Failure - PMT cooler failure
NO2	08 May 2024 12:00	09 May 2024 10:00	23	Maintenance - stabilization post maintenance
PM2.5	17 May 2024 16:00	19 May 2024 12:00	47	Analyzer Failure - water damage
PM2.5	19 May 2024 13:00	19 May 2024 13:00	1	Maintenance - analyzer replaced
Wind Speed, Wind Direction	13 May 2024 04:00	13 May 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	23 May 2024 01:00	23 May 2024 02:00	2	Flat line in sensor output signal
Surface Leaf Wetness	21 May 2024 05:00	21 May 2024 06:00	2	Sensor operated out of range

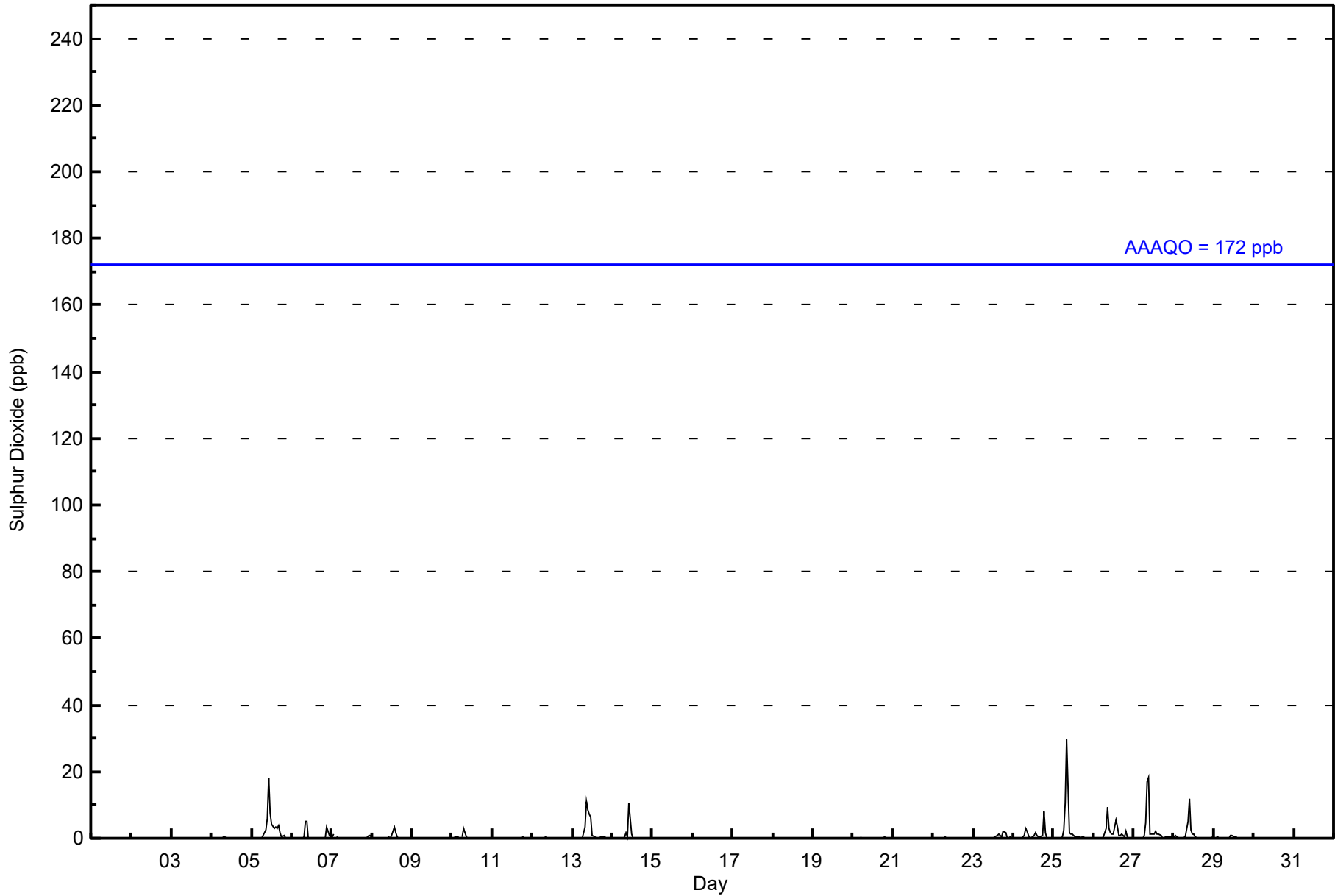






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	698	98.87	98.87
11 - 20	7	0.99	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: 706

Total Number of Hours: 744



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

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	101	125	33	23	23	22	30	78	52	23	25	18	15	38	51	39	696
11 - 20	0	0	0	0	0	0	0	5	1	0	1	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	101	125	33	23	23	22	30	84	53	23	26	18	15	38	51	39	704

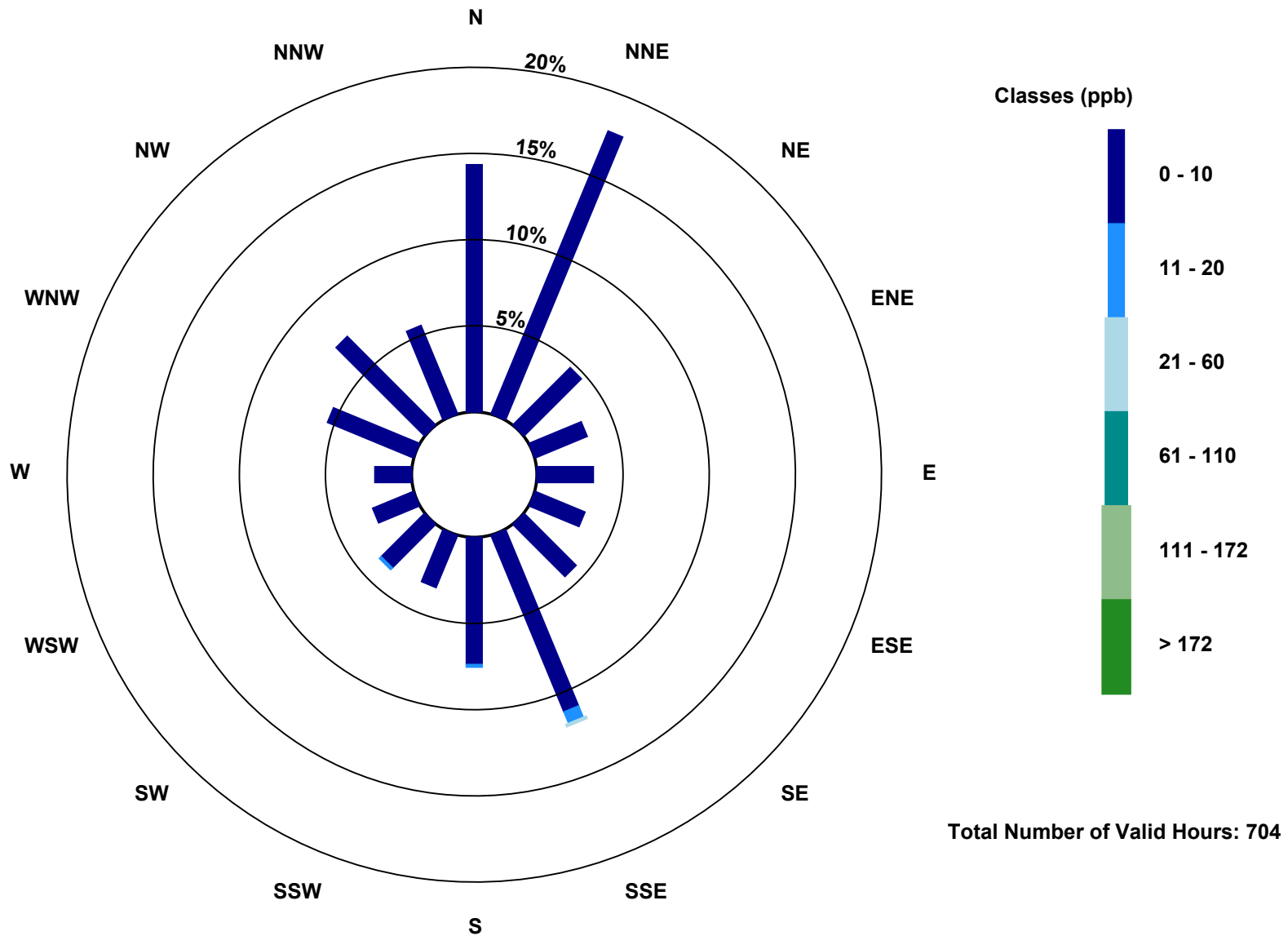
Total Number of Valid Hours: 704

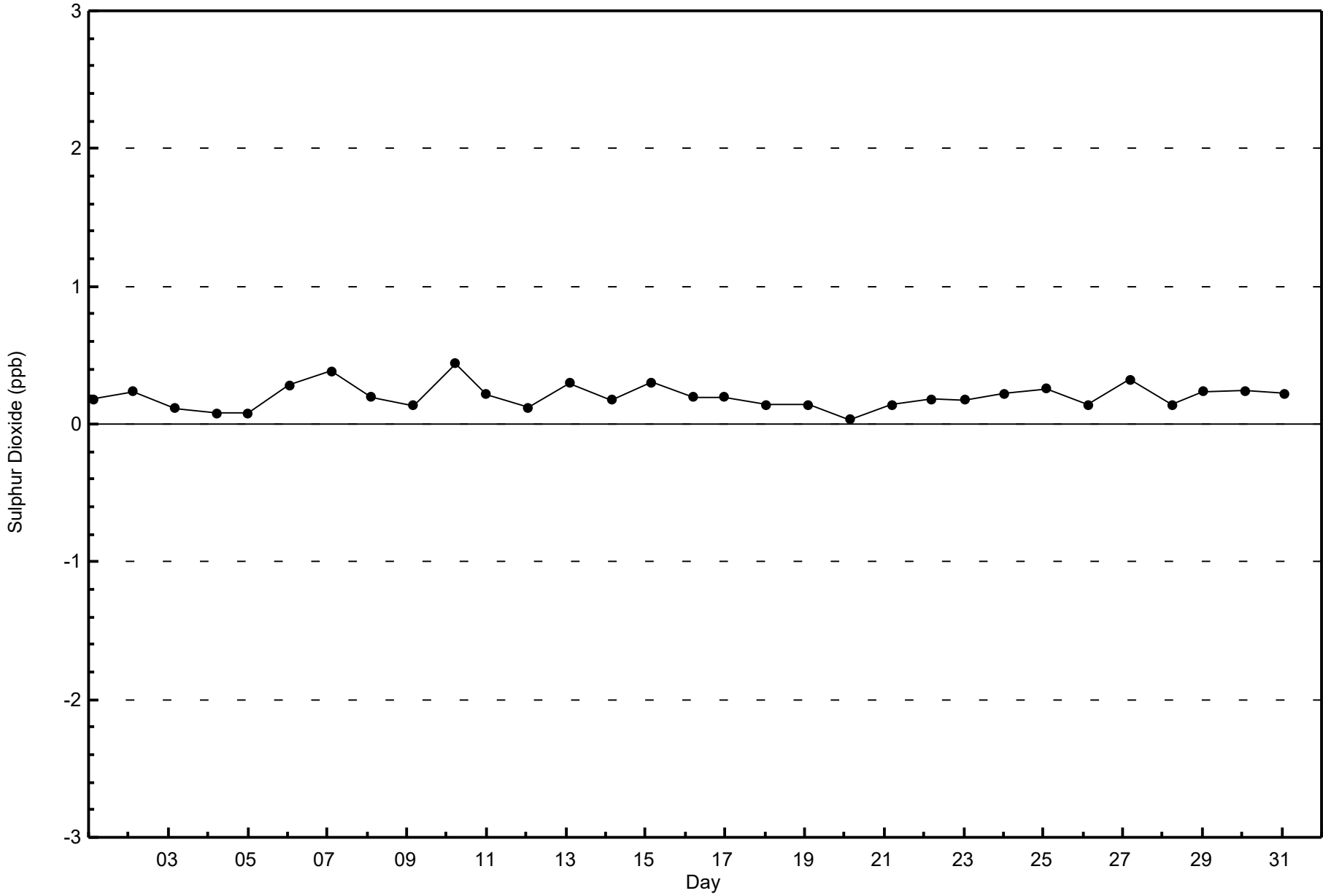
Total Number of Hours: 744

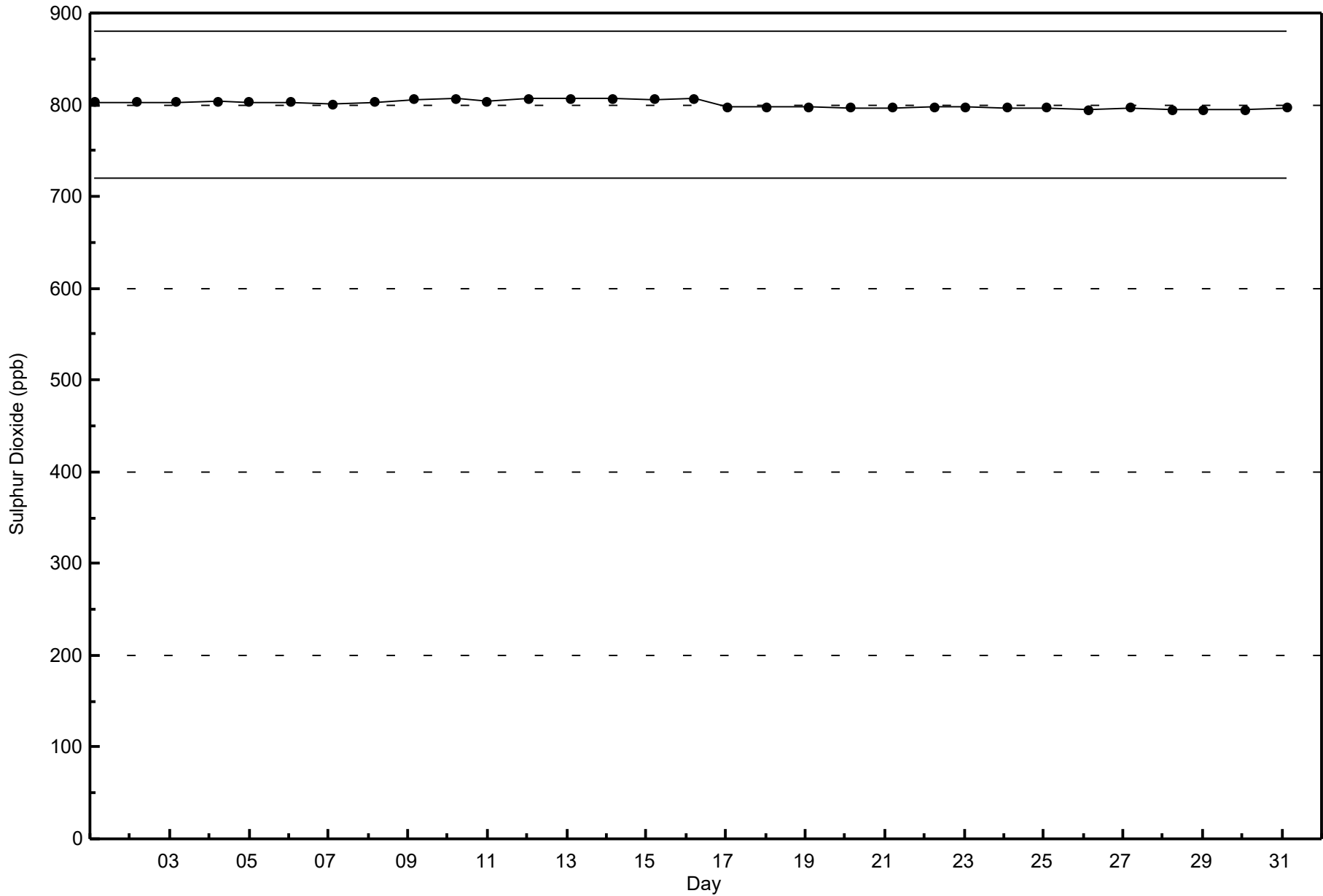


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.3 ppb on May 10 03:00	Maximum Daily Average: 0.4 ppb on May 10		Hours of Data:	705
Minimum Value: 0.0 ppb on May 23 13:00	Minimum Daily Average: 0.0 ppb on May 31		Hours of Missing Data:	39
Maximum Diurnal Average: 0.3 ppb at hour 8	Minimum Diurnal Average: 0.1 ppb at hour 17		Hours of Calibration:	37
Monthly Average: 0.15 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 1.1		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-May	0.0	0.0	0.0	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1
2-May	0.1	0.1	0.1	0.1	Z	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	0.0	0.0	0.0	0.0	0.1	0.1	0.1
3-May	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.2
4-May	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1
5-May	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.3	0.6	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
6-May	0.1	0.1	Z	0.2	0.3	0.3	0.3	0.1	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.4	0.2	0.2	0.4
7-May	0.3	0.4	0.4	Z	0.2	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	0.2	1.1	0.9	0.2	0.2	1.1
8-May	0.3	0.1	0.1	0.5	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.5
9-May	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
10-May	Z	1.2	1.3	1.1	0.9	0.7	0.7	1.2	0.3	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	1.3
11-May	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	0.0	0.0	0.0	0.2	0.4	0.5	0.6	0.8	0.6	0.5	0.4	0.2	0.2	0.8
12-May	0.3	0.3	Z	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4
13-May	0.1	0.1	0.1	Z	0.2	0.3	0.3	0.7	0.3	0.6	C	C	C	C	C	C	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.7
14-May	0.2	0.2	0.2	0.2	Z	0.3	0.5	1.0	1.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	1.1
15-May	0.2	0.2	0.2	0.2	0.3	Z	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.4
16-May	Z	0.2	0.3	0.2	0.2	0.1	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	0.1	0.1	0.1	0.1	0.1	0.1	0.3
17-May	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	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
18-May	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
19-May	0.2	0.2	0.1	Z	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2
20-May	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.5
21-May	0.1	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
22-May	Z	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3
23-May	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.3	0.3	0.1	0.1	0.3
24-May	0.2	0.2	Z	0.2	0.1	0.1	0.4	1.3	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	1.3
25-May	0.2	0.3	0.4	Z	0.6	0.8	1.1	0.9	0.7	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	1.1
26-May	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.9	0.6	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.9
27-May	0.1	0.2	0.2	0.2	0.3	Z	0.6	1.3	0.9	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	1.3
28-May	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.3
29-May	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2
30-May	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2
31-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

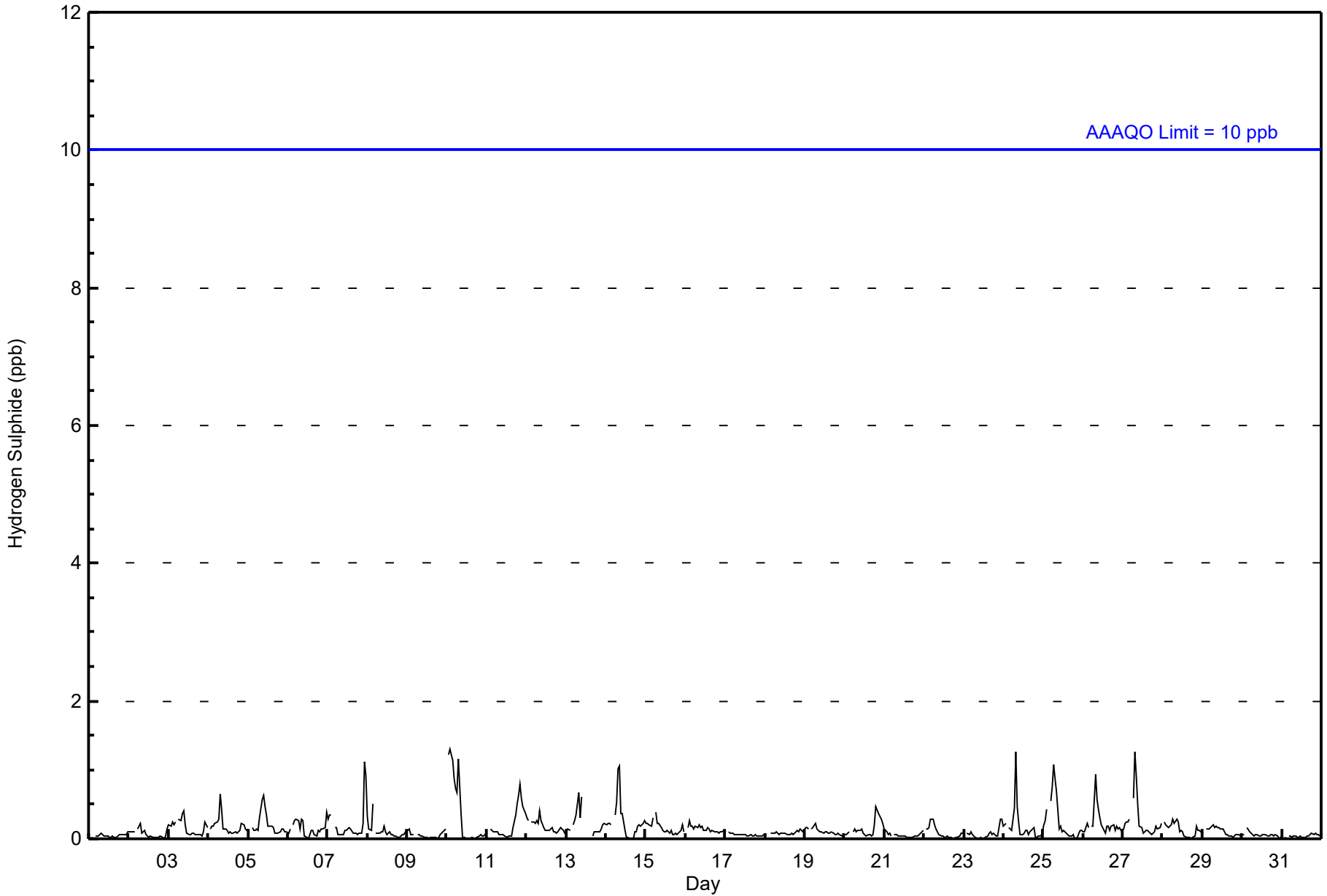
0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	Diurnal Average
0.3	1.2	1.3	1.1	0.9	0.8	1.1	1.3	1.1	0.6	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.8	0.6	1.1	0.9	0.1	0.1	0.1	Diurnal Maximum

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



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

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







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	105	128	33	23	23	21	31	80	54	23	27	15	15	36	49	41	704
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	105	128	33	23	23	21	31	80	54	23	27	15	15	36	49	41	704

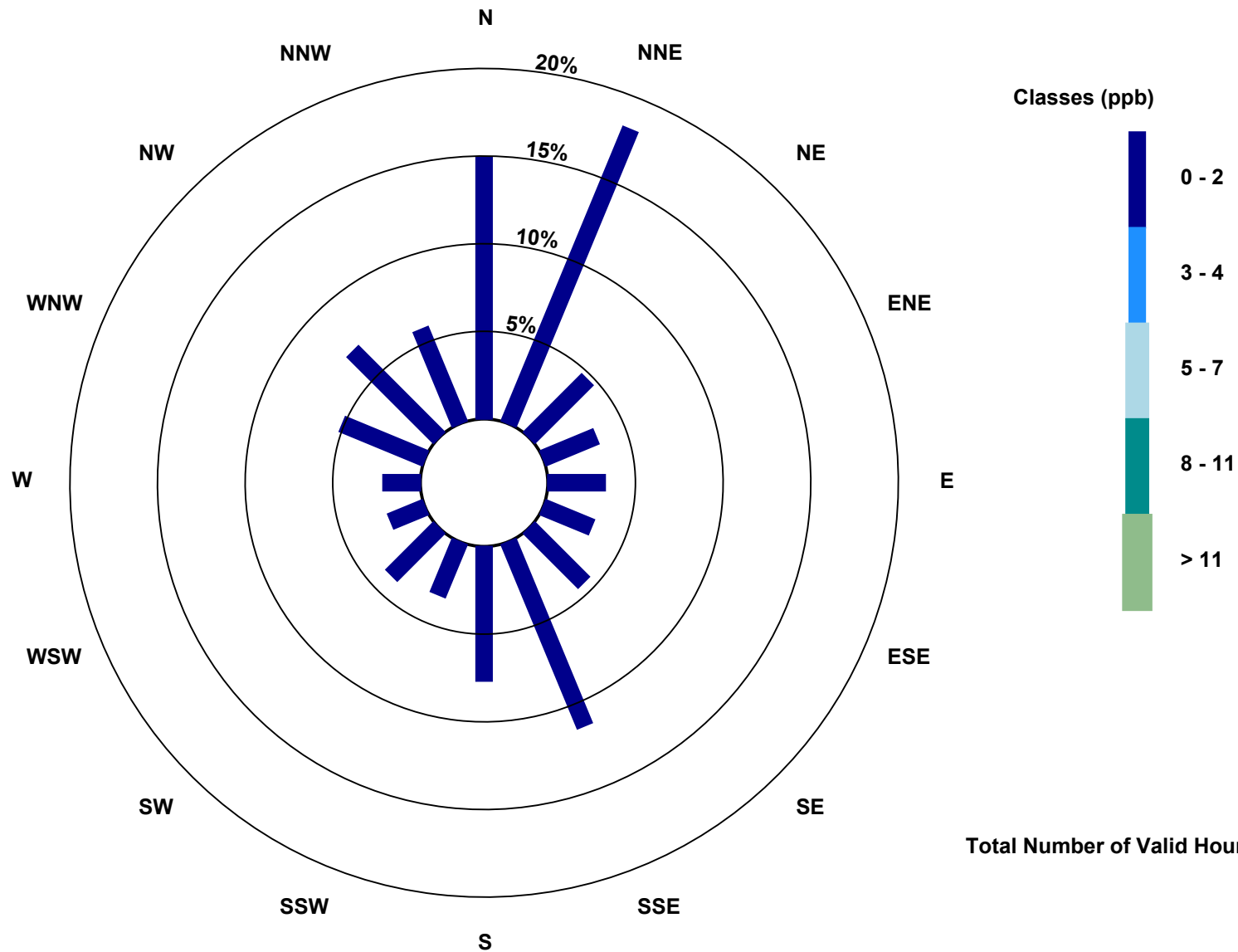
Total Number of Valid Hours: 704

Total Number of Hours: 744

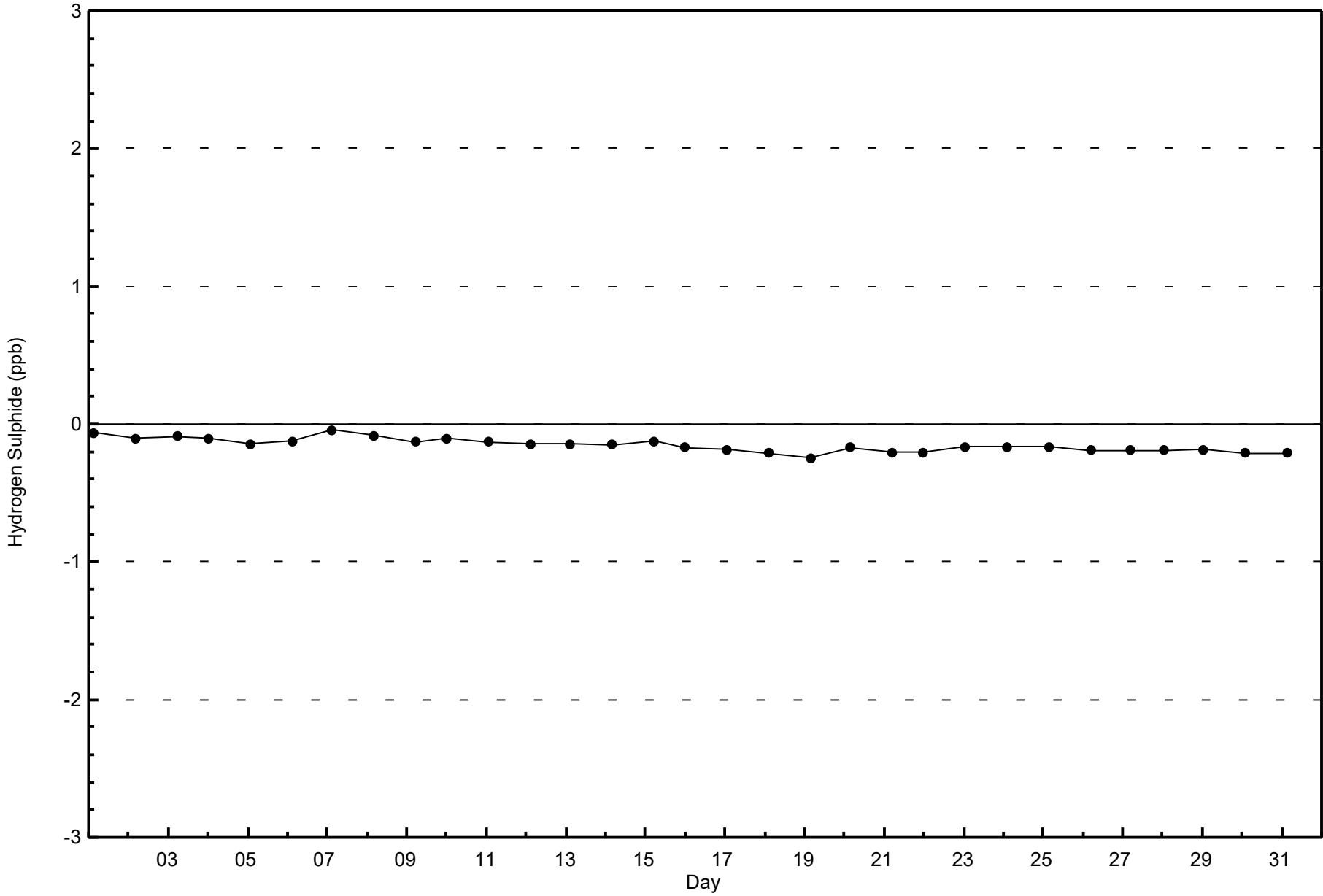


Wood Buffalo Environmental Association  
Wind Rose May 2024

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



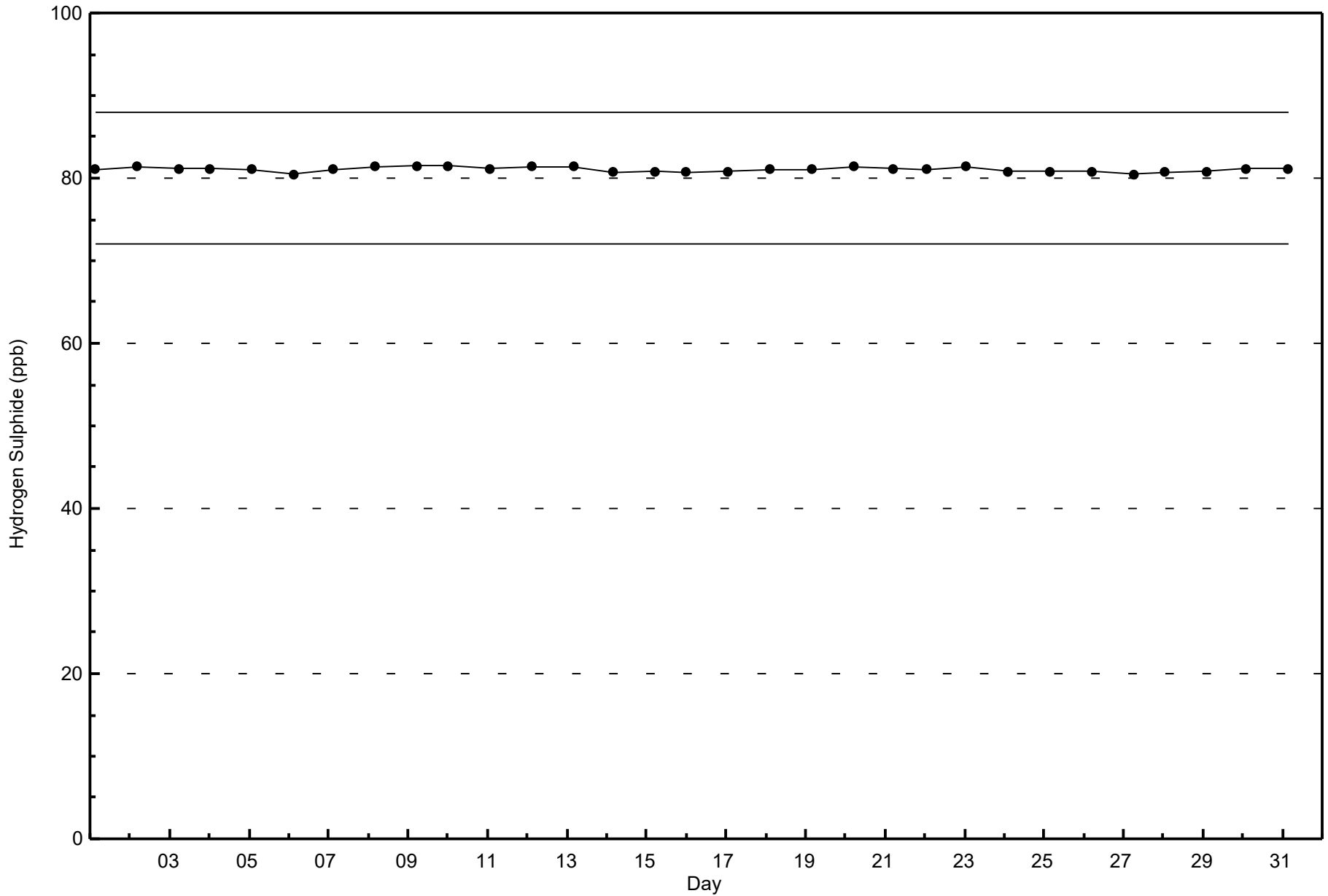
Total Number of Valid Hours: 704





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

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

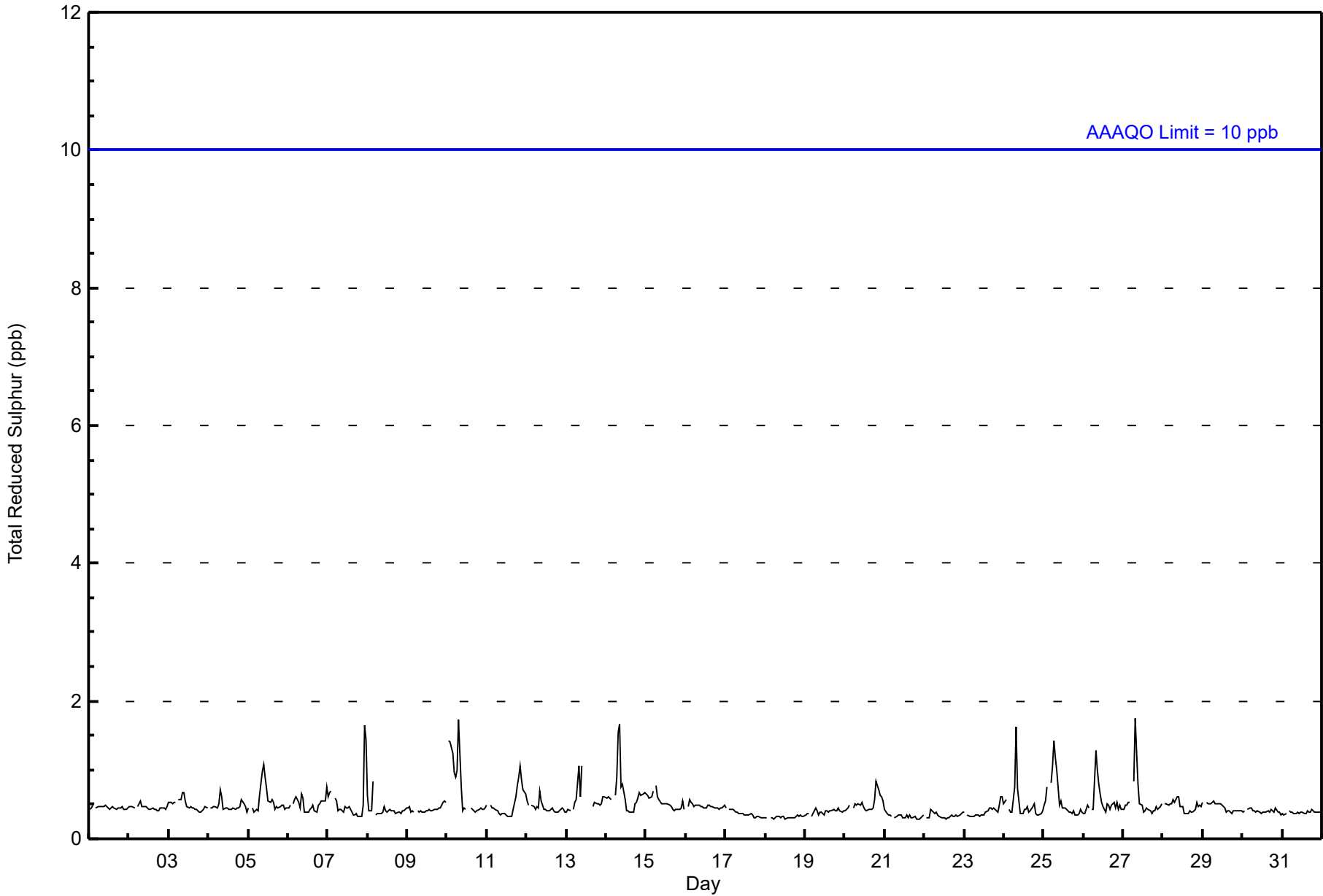






Wood Buffalo Environmental Association  
Hourly Averages

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	105	128	33	23	23	21	31	80	54	23	27	15	15	36	49	41	704
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	105	128	33	23	23	21	31	80	54	23	27	15	15	36	49	41	704

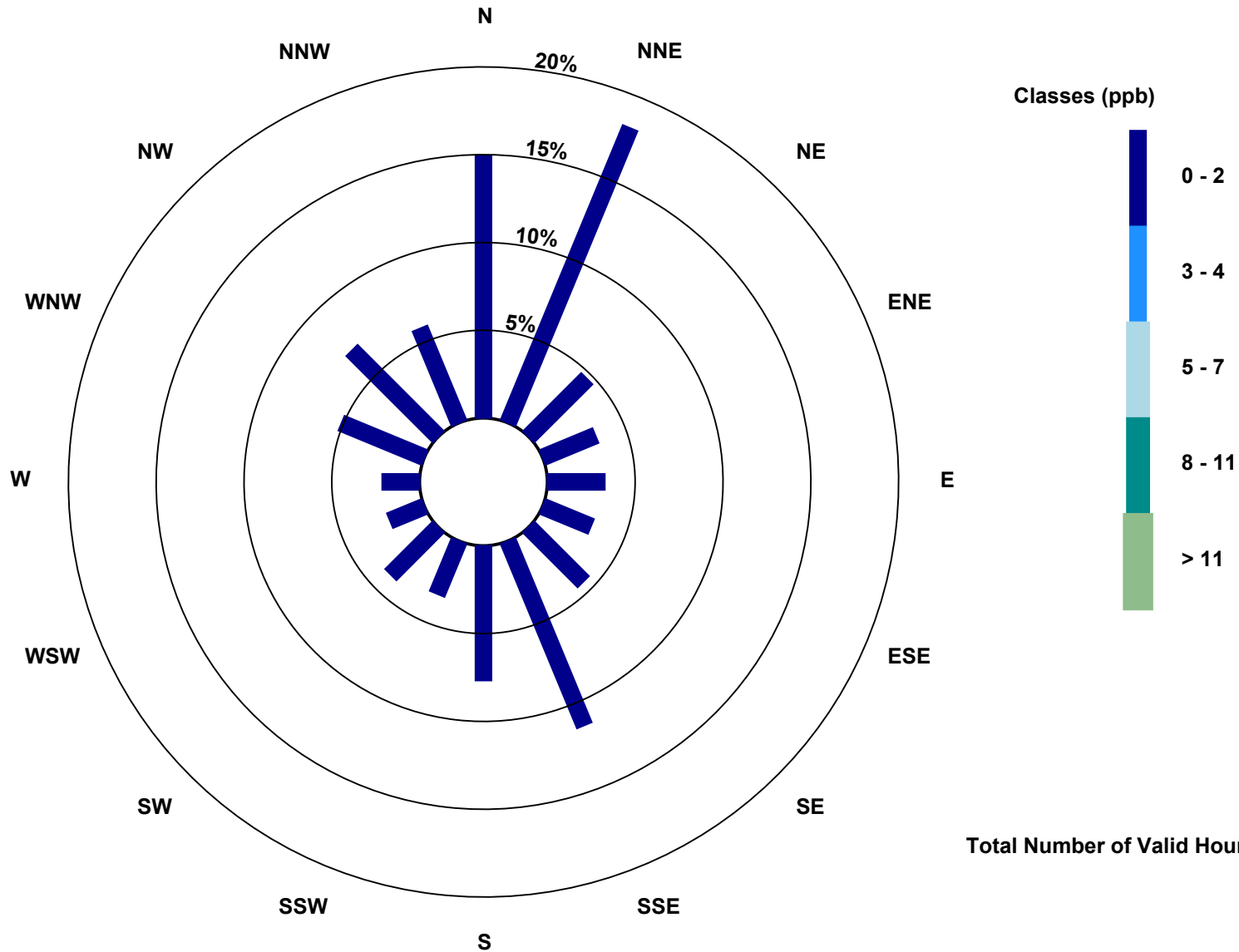
Total Number of Valid Hours: 704

Total Number of Hours: 744

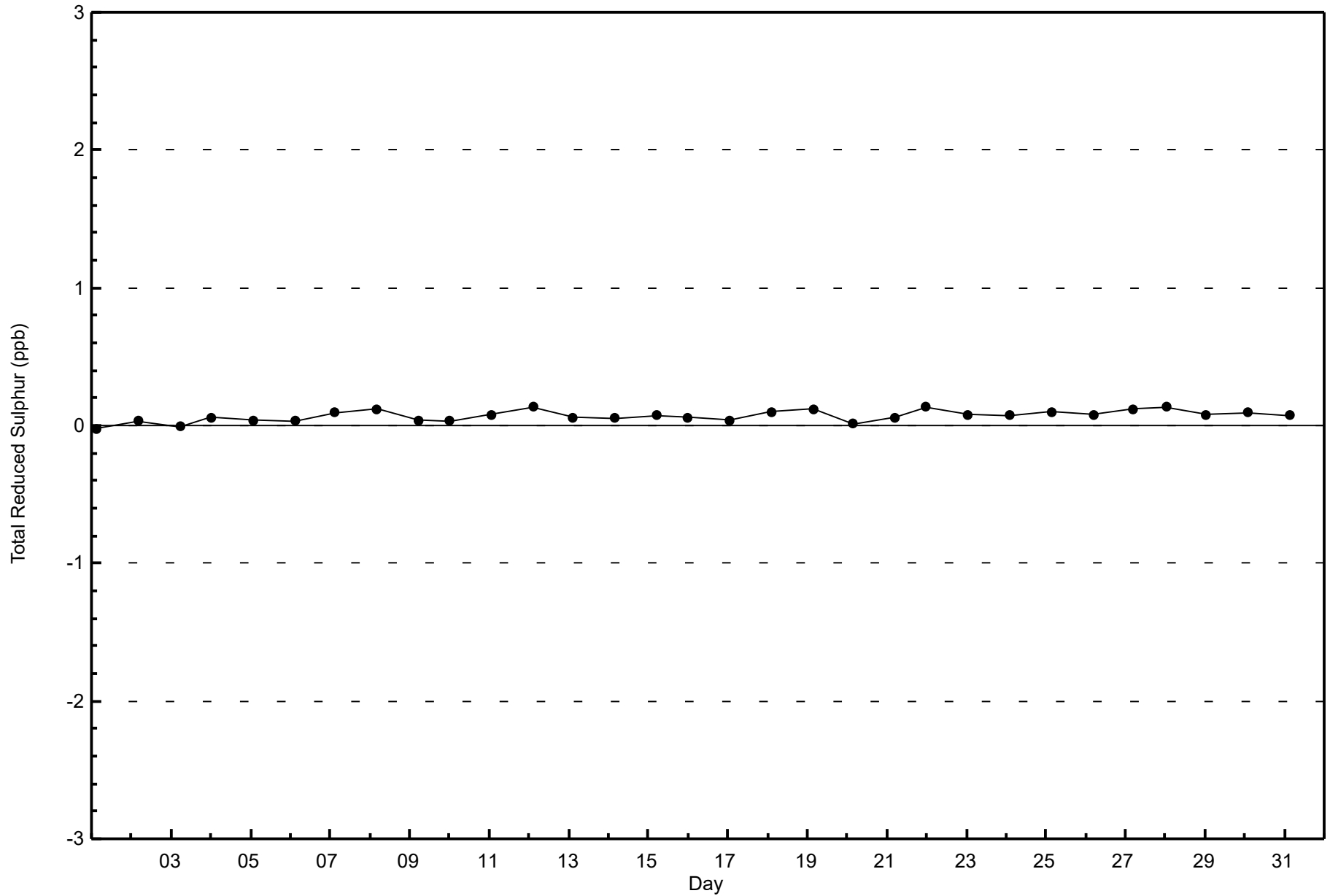


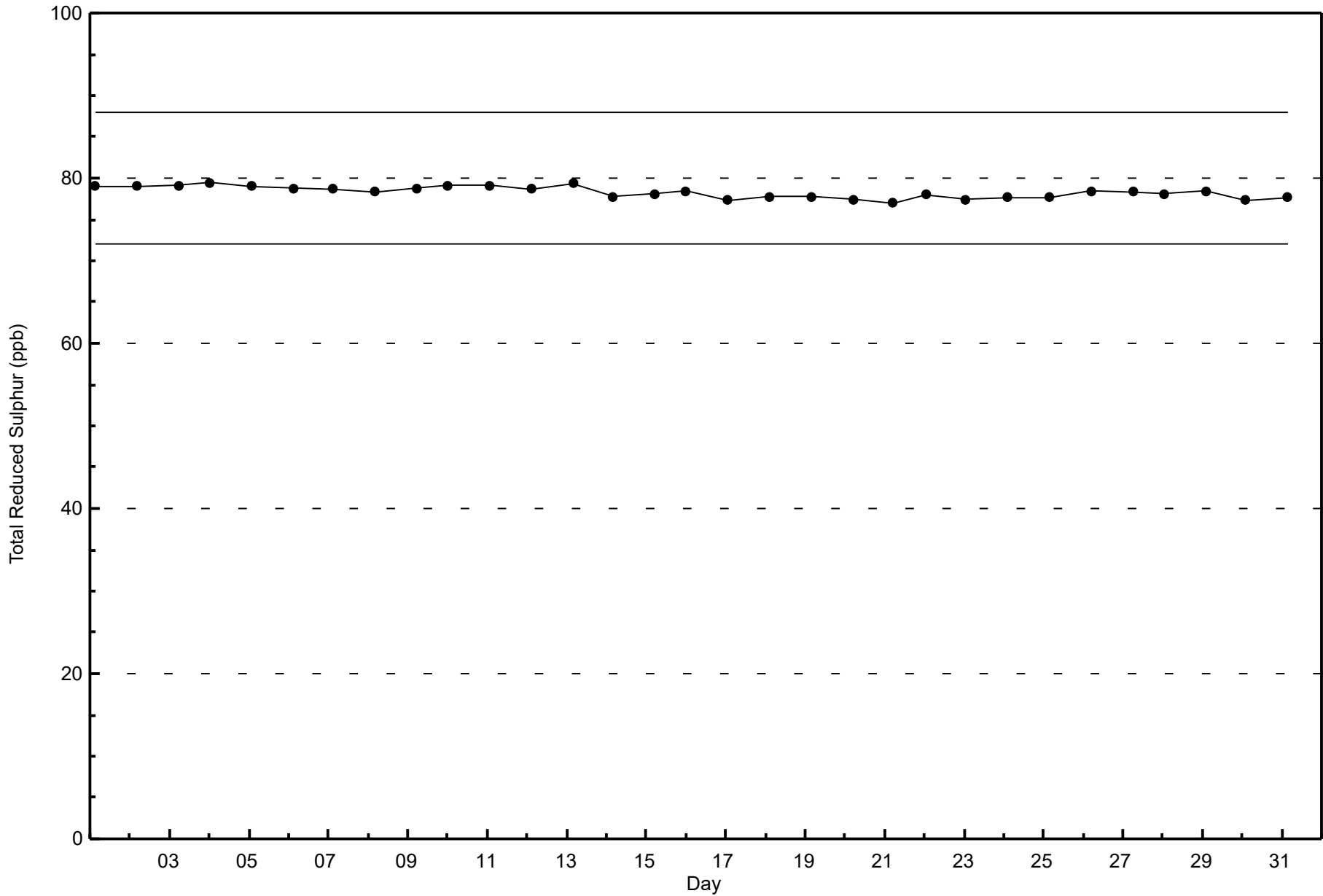
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 704





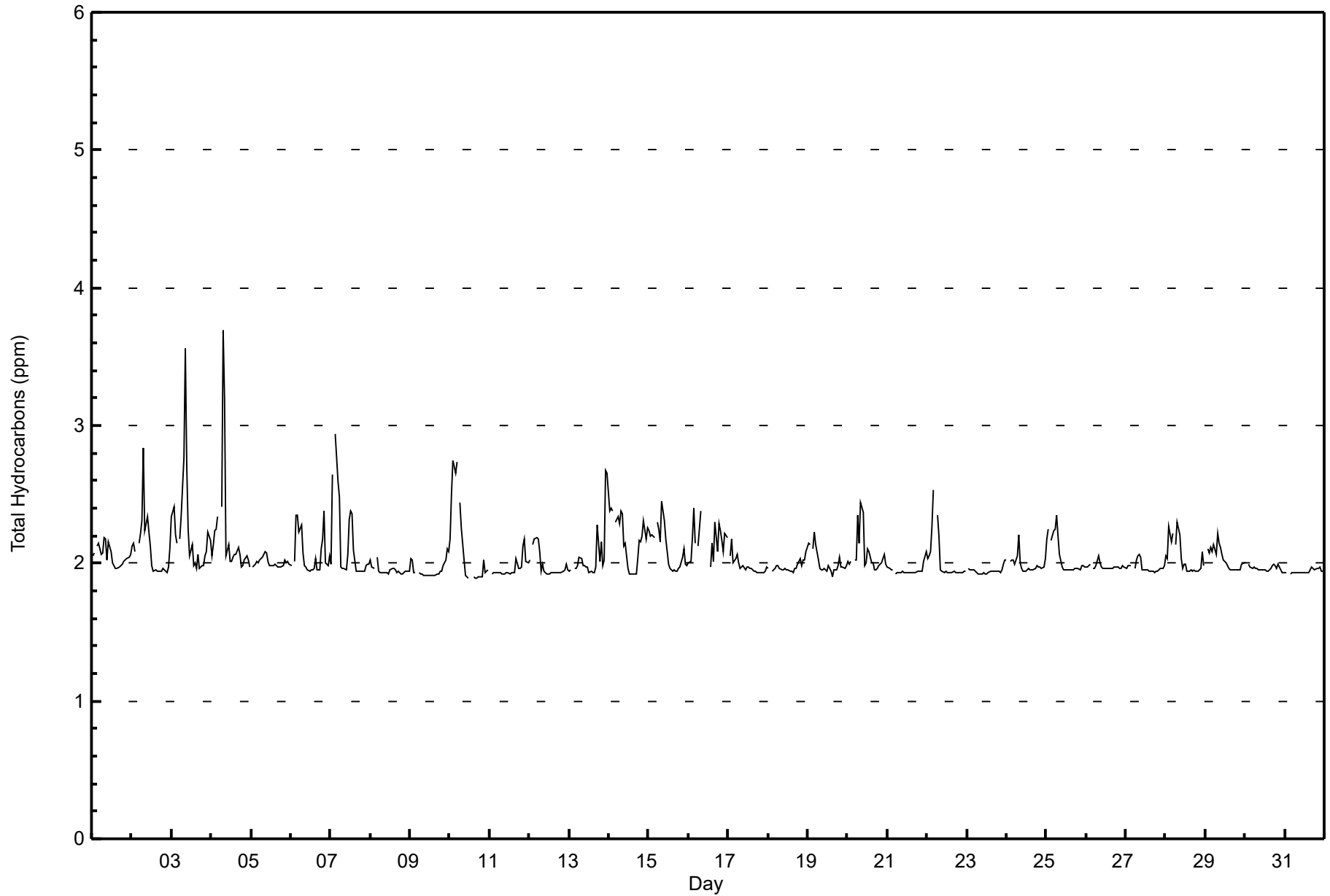


Maximum Value: 3.7 ppm on May 4 08:00																				Maximum Daily Average: 2.2 ppm on May 3					Hours in Service: 744					
Minimum Value: 1.9 ppm on May 10 17:00																				Minimum Daily Average: 1.9 ppm on May 31					Hours of Data: 706					
Maximum Diurnal Average: 2.2 ppm at hour 8																				Minimum Diurnal Average: 2.0 ppm at hour 16					Hours of Missing Data: 38					
Monthly Average: 2.04 ppm																				Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.7					Hours of Calibration: 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-May	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.0	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
2-May	2.1	2.1	2.1	Z	2.1	2.2	2.3	2.8	2.2	2.3	2.2	2.1	2.0	1.9	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.8
3-May	2.3	2.4	2.2	2.1	Z	2.2	2.3	2.8	3.6	2.7	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.2	2.2	3.6	
4-May	2.1	2.1	2.2	2.2	2.3	Z	2.4	3.7	3.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	3.7	
5-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
6-May	2.0	Z	2.0	2.4	2.3	2.2	2.3	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
7-May	2.0	2.6	Z	2.9	2.6	2.5	2.0	2.0	2.0	2.0	2.1	2.3	2.4	2.4	2.1	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	2.9	
8-May	2.0	2.0	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	
9-May	2.0	2.0	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1		
10-May	2.2	2.5	2.7	2.7	2.7	Z	2.4	2.3	2.0	1.9	1.9	1.9	M	M	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	1.9	1.9	2.0	2.7		
11-May	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.2		
12-May	2.0	Z	2.1	2.2	2.2	2.2	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.2		
13-May	1.9	1.9	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	1.9	2.0	2.3	2.0	2.2	2.0	2.0	2.7	2.7	2.1	2.1	2.1	2.7		
14-May	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.4	2.4	2.1	2.1	2.0	1.9	1.9	1.9	1.9	2.0	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.2	2.3	2.2	2.4		
15-May	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.5	2.3	2.2	2.1	2.0	2.0	1.9	2.0	1.9	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.5	
16-May	2.0	2.0	2.2	2.4	2.1	Z	2.1	2.4	C	C	C	C	C	2.0	2.1	2.0	2.3	2.1	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.4		
17-May	Z	2.1	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2		
18-May	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1		
19-May	2.1	2.1	Z	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	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	2.0	2.0	2.0	2.2		
20-May	2.0	2.0	2.0	Z	2.0	2.0	2.3	2.1	2.4	2.4	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	2.0	2.0	2.0	2.1	2.4		
21-May	2.0	2.0	2.0	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	1.9	1.9	1.9	2.1		
22-May	2.0	2.1	2.1	2.3	2.5	Z	2.3	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5		
23-May	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0	2.0		
24-May	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2		
25-May	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3		
26-May	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
27-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
28-May	2.1	2.0	2.3	2.2	2.2	Z	2.1	2.3	2.2	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3		
29-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.2		
30-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	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		
31-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0		
																								Diurnal Average						
																								Diurnal Maximum						
Z - zerospan      C - Calibration      M - Maintenance																														



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	517	73.23	73.23
2.1 - 3.0	186	26.35	99.58
3.1 - 10.0	3	0.42	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  
Fort McKay - Bertha Ganter - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	60	64	27	17	21	19	27	70	45	18	23	11	12	26	43	32	515
2.1 - 3.0	40	59	6	6	2	3	3	14	8	5	3	7	3	12	8	7	186
3.1 - 10.0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	101	125	33	23	23	22	30	84	53	23	26	18	15	38	51	39	704

Total Number of Valid Hours: 704

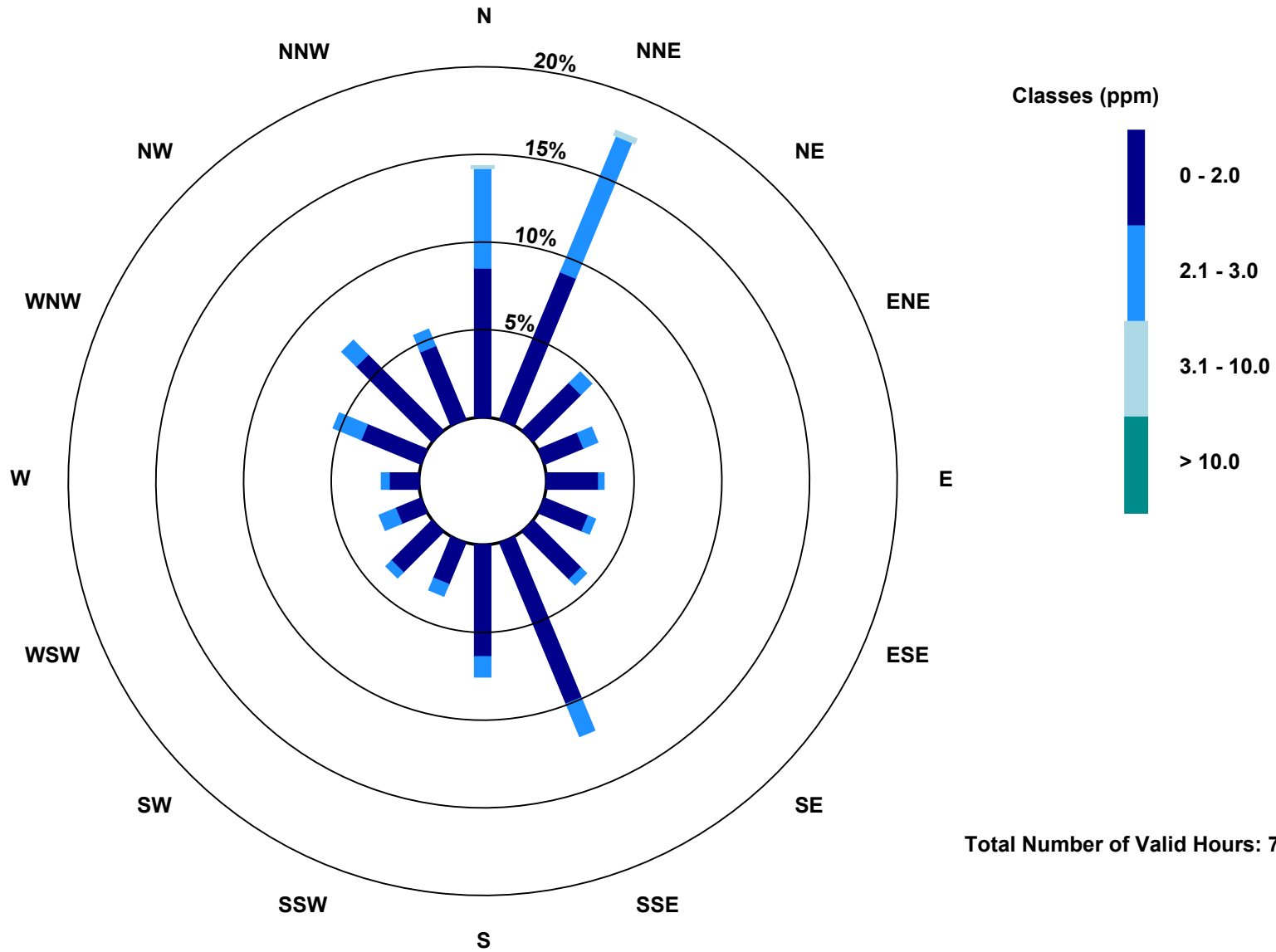
Total Number of Hours: 744

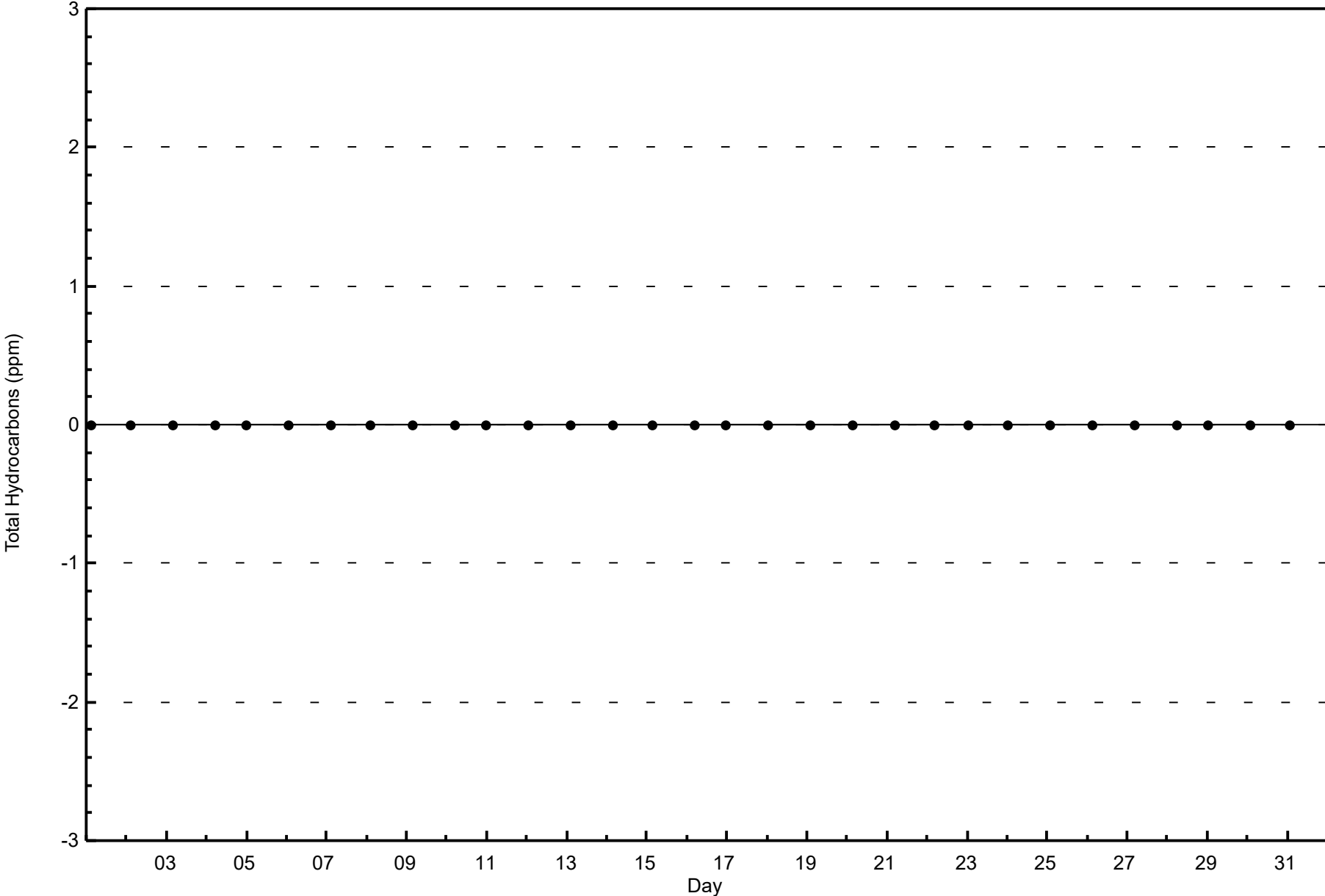


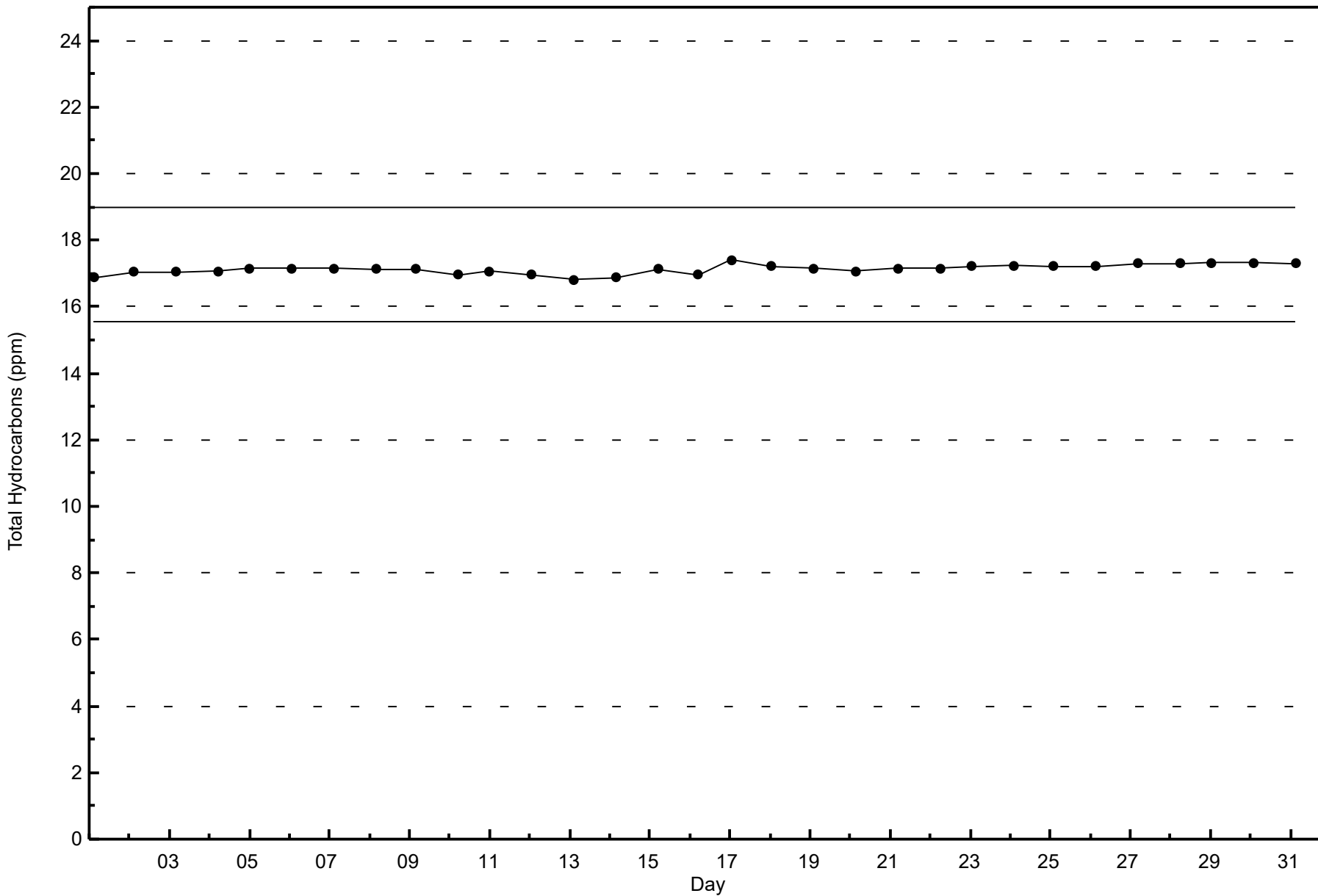


Wood Buffalo Environmental Association  
Wind Rose May 2024

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

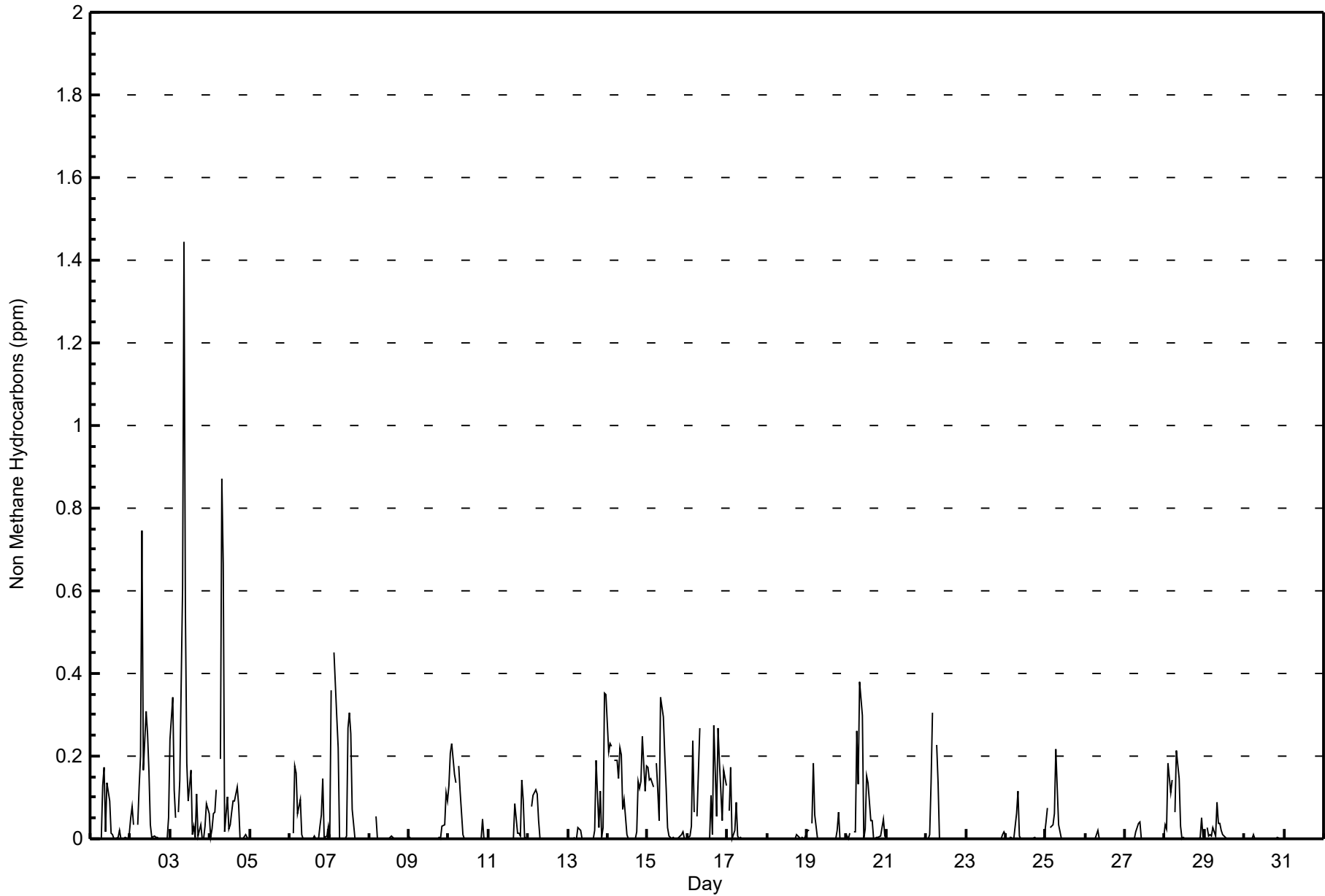








Maximum Value: 1.443 ppm on May 3 09:00		Maximum Daily Average: 0.190 ppm on May 3		Hours in Service:	744																						
Minimum Value: 0.000 ppm on May 1 01:00		Minimum Daily Average: 0.000 ppm on May 31		Hours of Data:	706																						
Maximum Diurnal Average: 0.125 ppm at hour 8		Minimum Diurnal Average: 0.005 ppm at hour 16		Hours of Missing Data:	38																						
Monthly Average: 0.041 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.4		Hours of Calibration:	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-May	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.130	0.173	0.017	0.135	0.091	0.014	0.010	0.000	0.000	0.005	0.020	0.000	0.000	0.000	0.004	0.001	0.015	0.027	0.173	
2-May	0.052	0.079	0.035	Z	0.035	0.126	0.199	0.747	0.165	0.308	0.254	0.162	0.033	0.005	0.006	0.003	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.050	0.098	0.747	
3-May	0.241	0.342	0.117	0.052	Z	0.065	0.144	0.607	1.443	0.553	0.185	0.090	0.165	0.009	0.029	0.004	0.109	0.008	0.033	0.000	0.000	0.032	0.083	0.059	0.190	1.443	
4-May	0.002	0.023	0.059	0.066	0.120	Z	0.192	0.870	0.664	0.018	0.102	0.022	0.032	0.064	0.090	0.091	0.126	0.081	0.000	0.000	0.000	0.011	0.002	0.000	0.115	0.870	
5-May	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	
6-May	0.000	Z	0.013	0.178	0.161	0.062	0.094	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.030	0.057	0.146	0.003	0.008	0.030	0.035	0.178	
7-May	0.002	0.358	Z	0.451	0.295	0.222	0.000	0.000	0.000	0.000	0.006	0.268	0.306	0.256	0.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.097	0.451	
8-May	0.000	0.000	0.000	Z	0.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.008	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.055	
9-May	0.002	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	0.003	0.000	0.029	0.033	0.111	0.092	0.012	0.111	
10-May	0.128	0.207	0.231	0.157	0.136	Z	0.177	0.115	0.009	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.001	0.049	0.000	0.000	0.001	0.058	0.231	
11-May	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	0.085	0.015	0.013	0.006	0.143	0.093	0.005	0.001	0.016	0.143	
12-May	0.000	Z	0.077	0.106	0.117	0.110	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.117	
13-May	0.000	0.000	Z	0.003	0.000	0.000	0.028	0.019	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.020	0.191	0.026	0.117	0.003	0.027	0.352	0.350	0.049	0.352	
14-May	0.211	0.231	0.224	Z	0.192	0.190	0.147	0.221	0.203	0.072	0.096	0.012	0.000	0.000	0.000	0.000	0.000	0.016	0.138	0.122	0.139	0.249	0.115	0.178	0.120	0.249	
15-May	0.173	0.144	0.147	0.125	Z	0.182	0.117	0.045	0.342	0.294	0.202	0.122	0.026	0.006	0.000	0.003	0.000	0.000	0.000	0.005	0.010	0.018	0.002	0.000	0.085	0.342	
16-May	0.001	0.007	0.029	0.237	0.063	Z	0.053	0.267	C	C	C	C	C	0.000	0.105	0.009	0.275	0.054	0.267	0.188	0.117	0.043	0.168	0.130	0.112	0.275	
17-May	Z	0.066	0.174	0.000	0.020	0.088	0.007	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.174	
18-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.004	0.000	0.002	0.000	0.005	0.001	0.009	
19-May	0.020	0.021	Z	0.038	0.184	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.064	0.001	0.001	0.000	0.000	0.018	0.184	
20-May	0.008	0.002	0.013	Z	0.018	0.016	0.260	0.132	0.378	0.297	0.001	0.023	0.152	0.135	0.043	0.043	0.002	0.000	0.005	0.005	0.008	0.026	0.048	0.007	0.070	0.378	
21-May	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	0.002	0.000	0.002	
22-May	0.000	0.000	0.010	0.136	0.306	Z	0.226	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035	0.306	
23-May	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	0.009	0.016	0.001	0.016	
24-May	0.009	Z	0.003	0.004	0.000	0.000	0.061	0.114	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.010	0.009	0.009	0.114	
25-May	0.040	0.074	Z	0.029	0.034	0.061	0.217	0.122	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.217	
26-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.019	
27-May	0.000	0.000	0.001	0.000	Z	0.000	0.016	0.026	0.036	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.005	0.005	0.042	
28-May	0.033	0.022	0.184	0.112	0.143	Z	0.066	0.214	0.145	0.031	0.000	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.049	0.002	0.044	0.214	
29-May	Z	0.029	0.007	0.009	0.006	0.028	0.008	0.089	0.037	0.037	0.020	0.010	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.089	
30-May	0.000	Z	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.003	0.000	0.000	0.000	0.001	0.010	
31-May	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
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	465	65.86	65.86
0.006 - 0.05	103	14.59	80.45
0.06 - 0.1	74	10.48	90.93
> 0.1	64	9.07	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay - Bertha Ganter - May 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	52	46	24	14	21	19	25	68	42	14	20	10	12	26	40	30	463
0.006 - 0.05	20	35	5	3	1	0	4	7	6	4	3	2	1	3	4	5	103
0.06 - 0.1	12	20	2	6	1	3	1	5	2	3	2	3	2	3	7	2	74
> 0.1	17	24	2	0	0	0	0	4	3	2	1	3	0	6	0	2	64
<b>Totals</b>	101	125	33	23	23	22	30	84	53	23	26	18	15	38	51	39	704

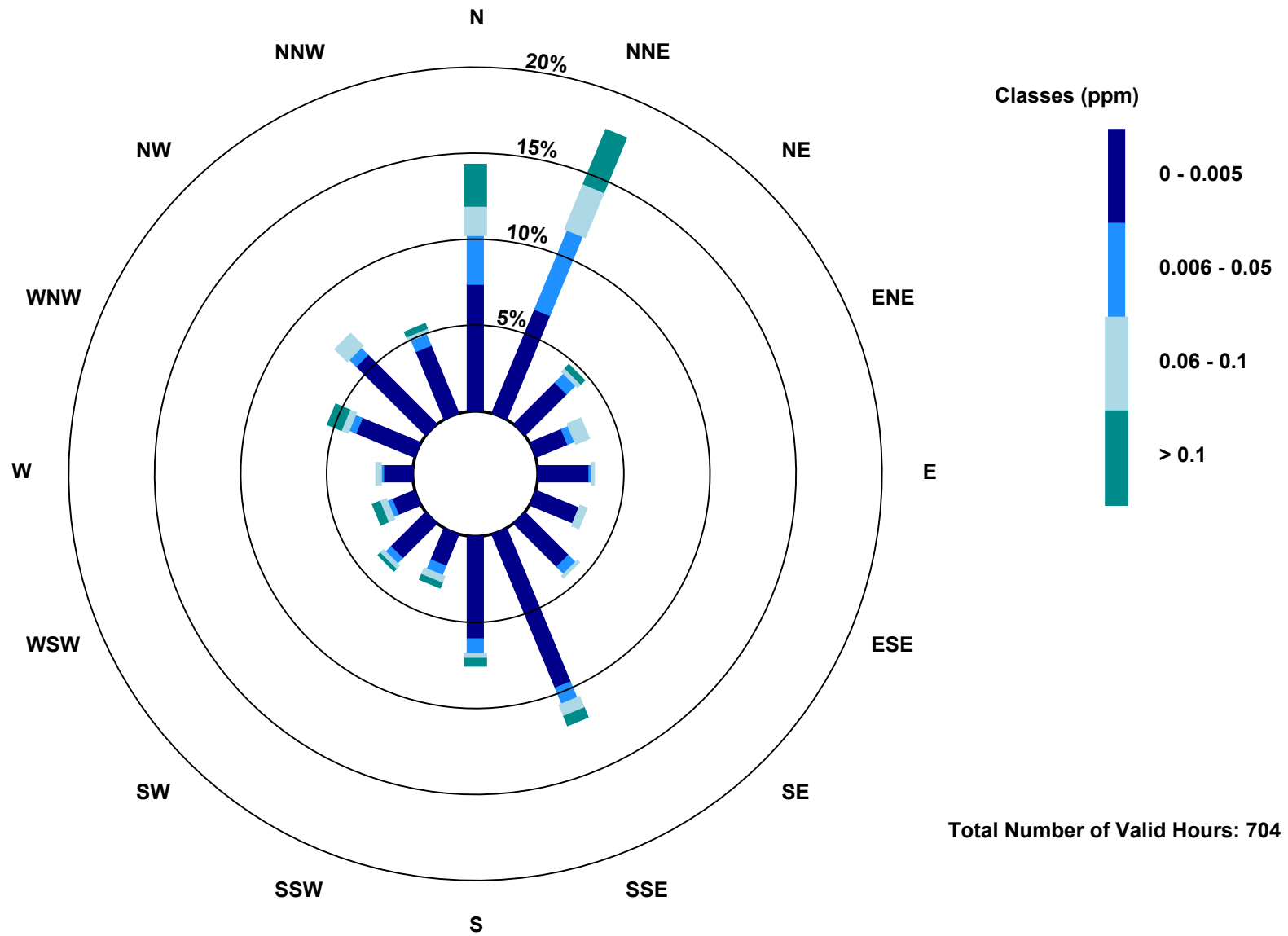
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

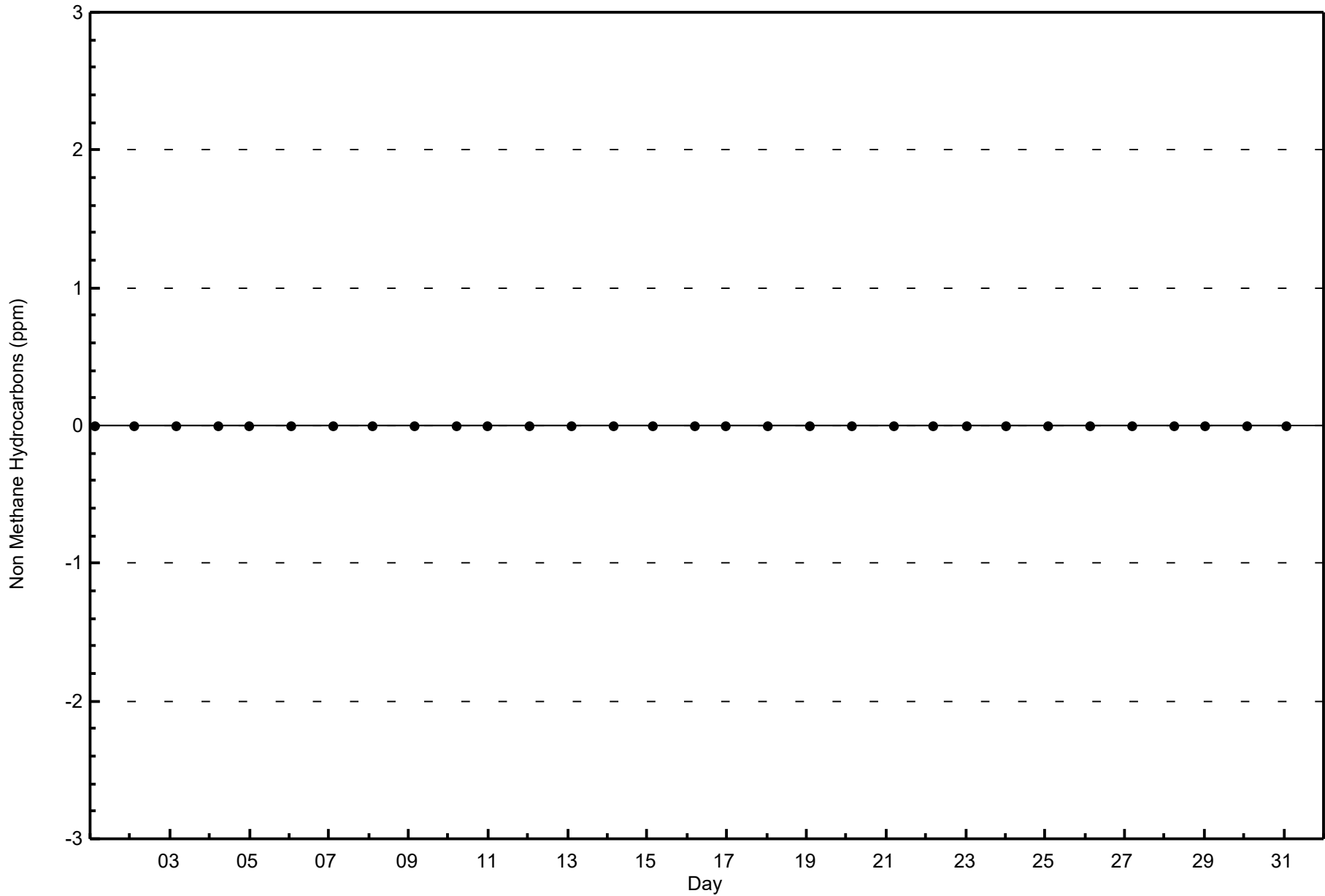


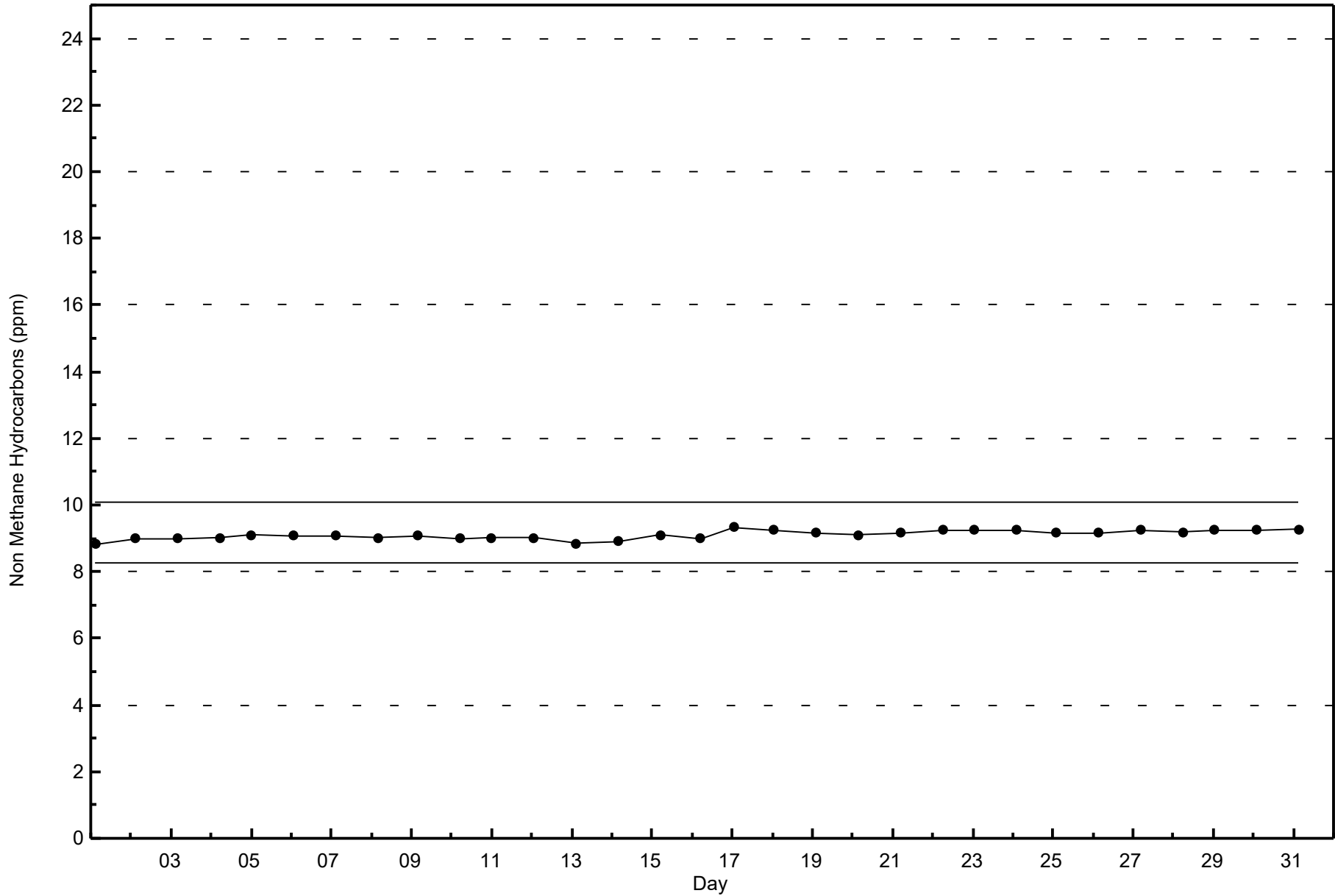




Wood Buffalo Environmental Association  
Zero Responses

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







Wood Buffalo Environmental Association

Summary of Hour Averages

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

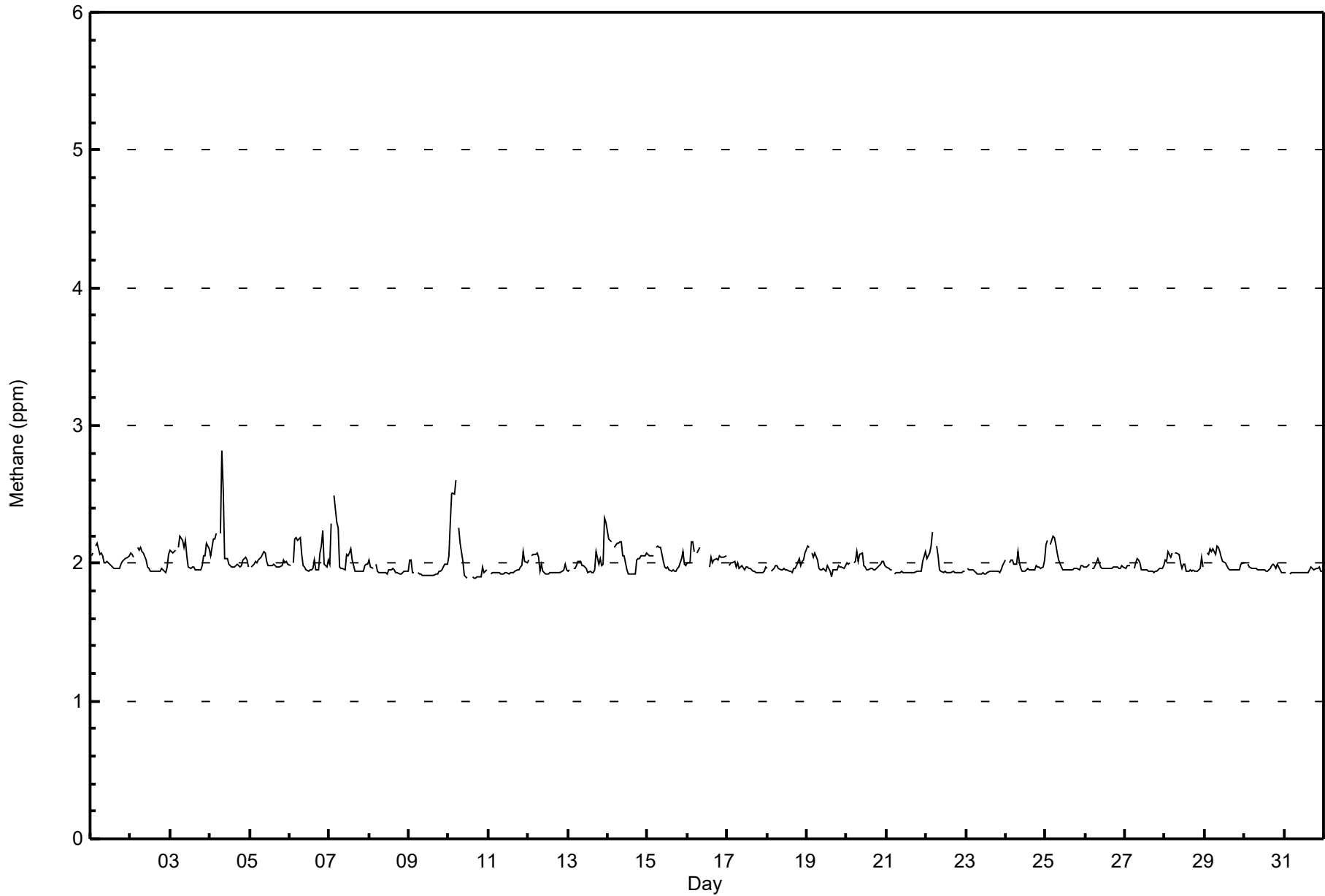
Fort McKay - Bertha Ganter - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744							
Maximum Value: 2.8 ppm on May 4 08:00		Maximum Daily Average: 2.1 ppm on May 4		Hours of Data: 706														706									
Minimum Value: 1.9 ppm on May 10 17:00		Minimum Daily Average: 1.9 ppm on May 9		Hours of Missing Data: 38														38									
Maximum Diurnal Average: 2.1 ppm at hour 5		Minimum Diurnal Average: 1.9 ppm at hour 16		Hours of Calibration: 36														36									
Monthly Average: 2.00 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.3		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-May	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	2.1	2.0	2.1	2.0	2.1
2-May	2.1	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.1	2.1	2.0	2.1
3-May	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2
4-May	2.1	2.1	2.2	2.2	2.2	Z	2.1	2.2	2.8	2.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.8
5-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
6-May	2.0	Z	2.0	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.2
7-May	2.0	2.3	Z	2.5	2.3	2.3	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.5
8-May	2.0	2.0	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
9-May	2.0	2.0	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	
10-May	2.1	2.3	2.5	2.5	2.6	Z	2.3	2.1	2.0	1.9	1.9	1.9	M	M	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.6	
11-May	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.1	2.0	2.0	1.9	2.1	
12-May	2.0	Z	2.1	2.1	2.1	2.1	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.1	
13-May	1.9	1.9	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	2.1	2.0	2.0	2.0	2.0	2.3	2.3	2.0	2.3	
14-May	2.2	2.2	2.2	Z	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	
15-May	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	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	
16-May	2.0	2.0	2.2	2.2	2.1	Z	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	2.0	2.1	2.1	2.2	
17-May	Z	2.0	2.0	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	2.0	2.0	
18-May	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
19-May	2.1	2.1	Z	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	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	2.0	2.1	
20-May	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
21-May	2.0	2.0	2.0	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	1.9	2.1	
22-May	2.0	2.1	2.1	2.1	2.2	Z	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	
23-May	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	
24-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
25-May	2.1	2.2	Z	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
26-May	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	
27-May	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	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	
28-May	2.0	2.0	2.1	2.0	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	
29-May	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	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.1	
30-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	
31-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	570	80.74	80.74
2.1 - 3.0	136	19.26	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**

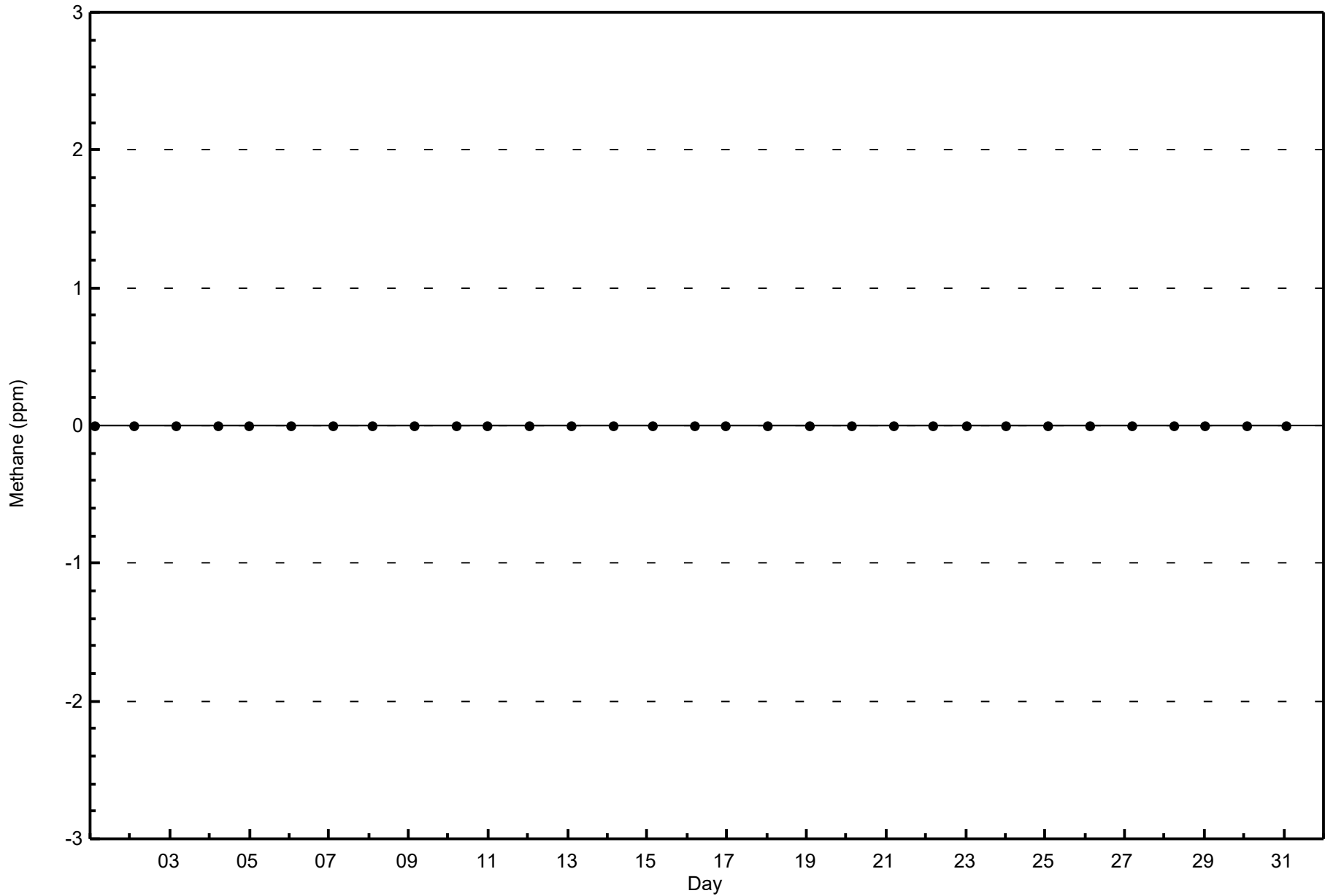
**Methane (CH<sub>4</sub>) - ppm  
Fort McKay - Bertha Ganter - May 2024**

<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	69	88	30	21	21	21	29	74	46	19	23	12	12	27	43	33	568
2.1 - 3.0	32	37	3	2	2	1	1	10	7	4	3	6	3	11	8	6	136
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>	101	125	33	23	23	22	30	84	53	23	26	18	15	38	51	39	704

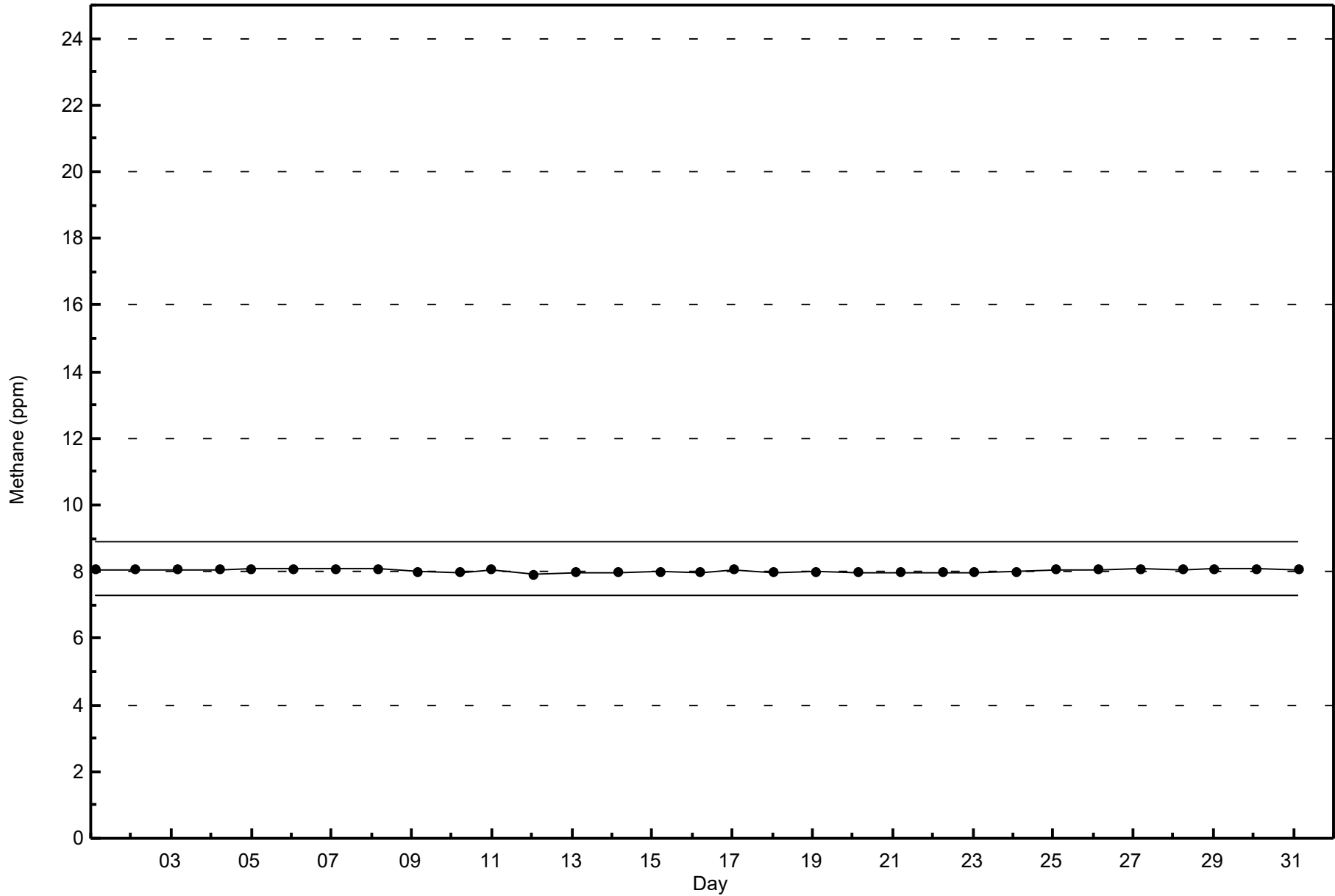
Total Number of Valid Hours: 704

Total Number of Hours: 744









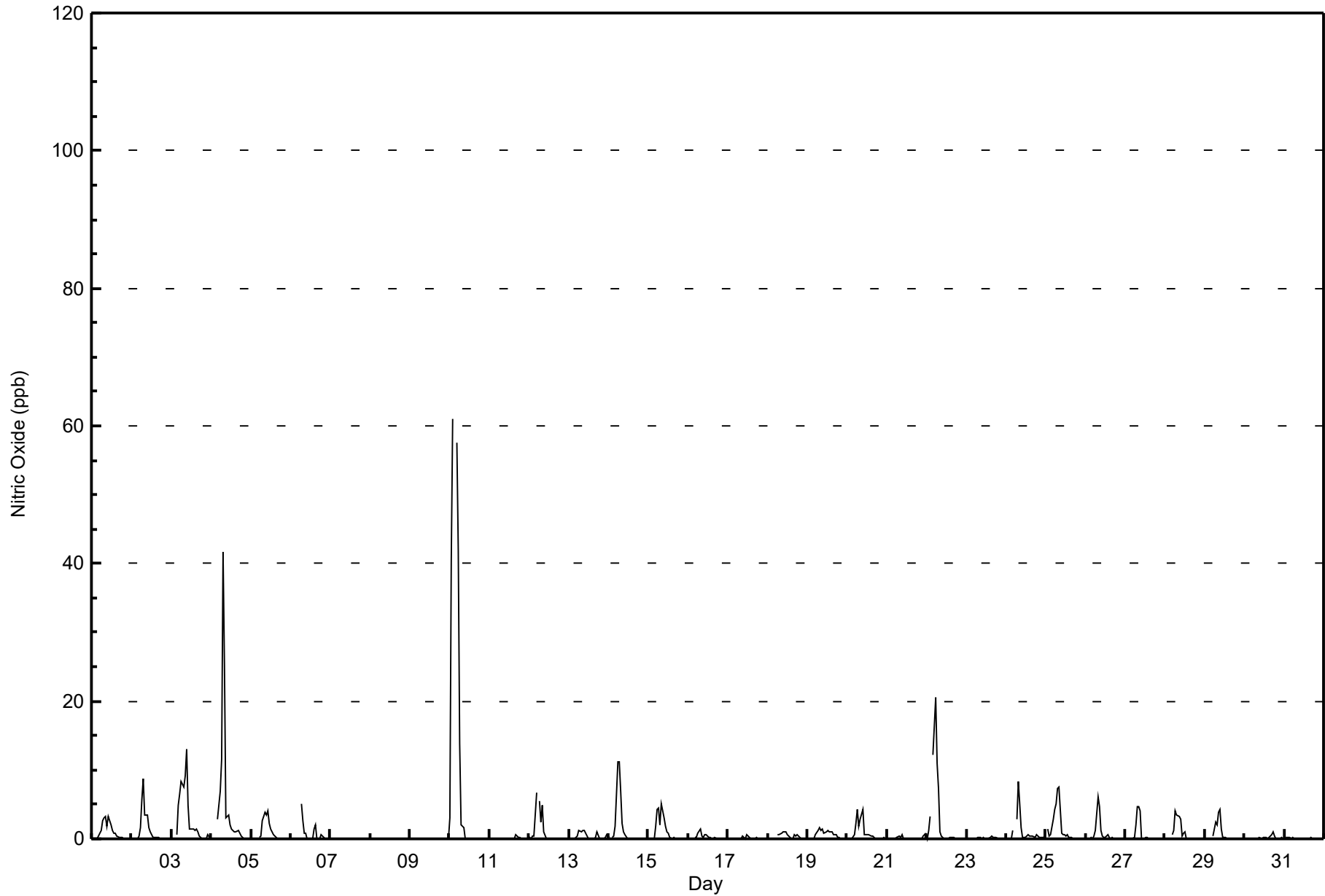


Maximum Value: 61.0 ppb on May 10 03:00		Maximum Daily Average: 10.5 ppb on May 10		Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 1 20:00		Minimum Daily Average: 0.0 ppb on May 11		Hours of Data: 650																							
Maximum Diurnal Average: 4.5 ppb at hour 6		Minimum Diurnal Average: 0.0 ppb at hour 22		Hours of Missing Data: 94																							
Monthly Average: 1.23 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 2.9 P <sub>99</sub> = 17.2		Hours of Calibration: 35																							
				Percent Operational Time: 92.1																							
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-May	Z	0.0	0.1	0.0	0.3	1.2	2.6	3.1	3.2	1.8	3.2	2.0	1.3	0.8	0.8	0.4	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.9	3.2	
2-May	0.0	Z	0.0	0.0	0.4	1.7	5.8	8.7	3.5	3.4	1.5	1.0	0.5	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	8.7	
3-May	0.0	0.0	Z	0.5	4.8	6.6	8.3	7.5	9.2	13.1	5.0	1.4	1.4	1.5	1.2	1.5	1.1	0.4	0.1	0.0	0.0	0.0	0.5	0.0	2.8	13.1	
4-May	0.0	0.0	0.0	Z	2.8	7.0	11.5	41.7	25.1	3.0	3.5	2.0	1.4	1.3	1.1	1.0	1.2	0.9	0.5	0.2	0.0	0.0	0.0	0.0	4.5	41.7	
5-May	0.0	0.0	0.0	0.0	Z	0.1	0.5	2.7	3.8	3.4	4.1	2.2	1.3	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.1	
6-May	0.0	0.0	0.0	0.0	0.0	Z	5.0	2.6	0.9	0.8	0.0	0.0	0.0	0.1	1.4	2.1	0.0	0.0	0.6	0.5	0.2	0.0	0.0	0.0	0.6	5.0	
7-May	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--	
8-May	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
9-May	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
10-May	3.0	40.4	61.0	Z	57.5	41.8	13.8	2.0	1.7	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	61.0	
11-May	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	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
12-May	0.1	0.0	0.3	0.4	6.8	Z	5.5	2.5	4.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	6.8	
13-May	Z	0.0	0.0	0.0	0.2	0.4	1.3	0.9	1.1	1.2	0.8	0.4	0.0	0.1	0.0	0.0	0.2	1.0	0.1	0.0	0.0	0.0	0.3	0.6	0.4	1.3	
14-May	0.1	Z	0.3	0.4	1.8	11.3	11.2	6.8	2.3	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	11.3	
15-May	0.0	0.0	Z	0.0	1.9	4.2	4.5	2.0	5.1	3.0	1.8	1.1	0.7	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.1	
16-May	0.0	0.0	0.0	Z	0.2	0.2	0.8	1.3	0.4	0.2	0.7	0.6	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
17-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.5	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
18-May	0.1	0.0	0.0	0.0	0.1	Z	0.6	0.6	0.9	1.0	1.0	1.0	0.6	0.1	0.1	0.1	0.6	0.4	0.5	0.2	0.1	0.1	0.0	0.0	0.3	1.0	
19-May	Z	0.1	0.1	0.0	0.0	0.5	1.3	1.5	1.2	1.4	0.8	1.0	1.3	1.0	1.1	1.0	0.6	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.6	1.5	
20-May	0.0	Z	0.0	0.0	0.5	2.3	4.2	1.9	2.9	4.2	0.7	0.7	0.5	0.6	0.4	0.5	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.9	4.2	
21-May	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.3	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.9	0.1	0.9	
22-May	0.1	1.2	3.3	Z	12.2	20.5	11.0	7.4	1.0	0.3	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	20.5	
23-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
24-May	0.0	0.0	0.0	0.1	1.2	Z	2.9	8.3	5.0	1.6	0.1	0.1	0.5	0.6	0.5	0.3	0.4	0.3	0.5	0.3	0.2	0.3	0.1	0.4	1.0	8.3	
25-May	Z	1.4	0.4	0.6	2.9	4.2	5.1	7.4	7.4	0.8	0.6	0.5	0.5	0.5	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.4	7.4	
26-May	0.0	Z	0.0	0.2	0.0	0.3	1.1	6.2	4.6	1.2	0.5	0.3	0.1	0.7	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	6.2	
27-May	0.0	0.0	Z	0.0	0.0	0.1	2.0	4.8	4.7	4.0	0.0	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.8	
28-May	0.1	0.0	0.0	Z	0.5	1.1	4.1	3.4	3.2	2.9	0.4	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.1	
29-May	0.0	0.0	0.0	0.1	Z	0.5	2.3	2.1	3.8	4.3	1.4	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	0.6	4.3	
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.3	0.2	0.1	0.1	0.3	0.5	0.9	0.3	0.0	0.1	0.1	0.2	0.1	0.1	0.9	
31-May	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
		0.2	1.8	2.7	0.1	4.1	4.5	3.8	4.5	3.4	2.0	1.0	0.6	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.1	Diurnal Average		
		3.0	40.4	61.0	0.6	57.5	41.8	13.8	41.7	25.1	13.1	5.0	2.2	1.4	1.5	1.4	2.1	1.2	1.0	0.6	0.5	0.2	0.3	0.5	0.9	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				AF - Analyzer Failure																	



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	644	99.08	99.08
21 - 40	2	0.31	99.38
41 - 80	4	0.62	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay - Bertha Ganter - May 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	100	125	31	21	22	17	25	78	48	18	23	10	10	25	48	40	641
21 - 40	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
11 - 80	0	1	0	0	0	0	0	0	1	2	0	0	0	0	0	0	4
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	101	126	31	21	22	17	25	78	49	21	23	10	10	25	48	40	647

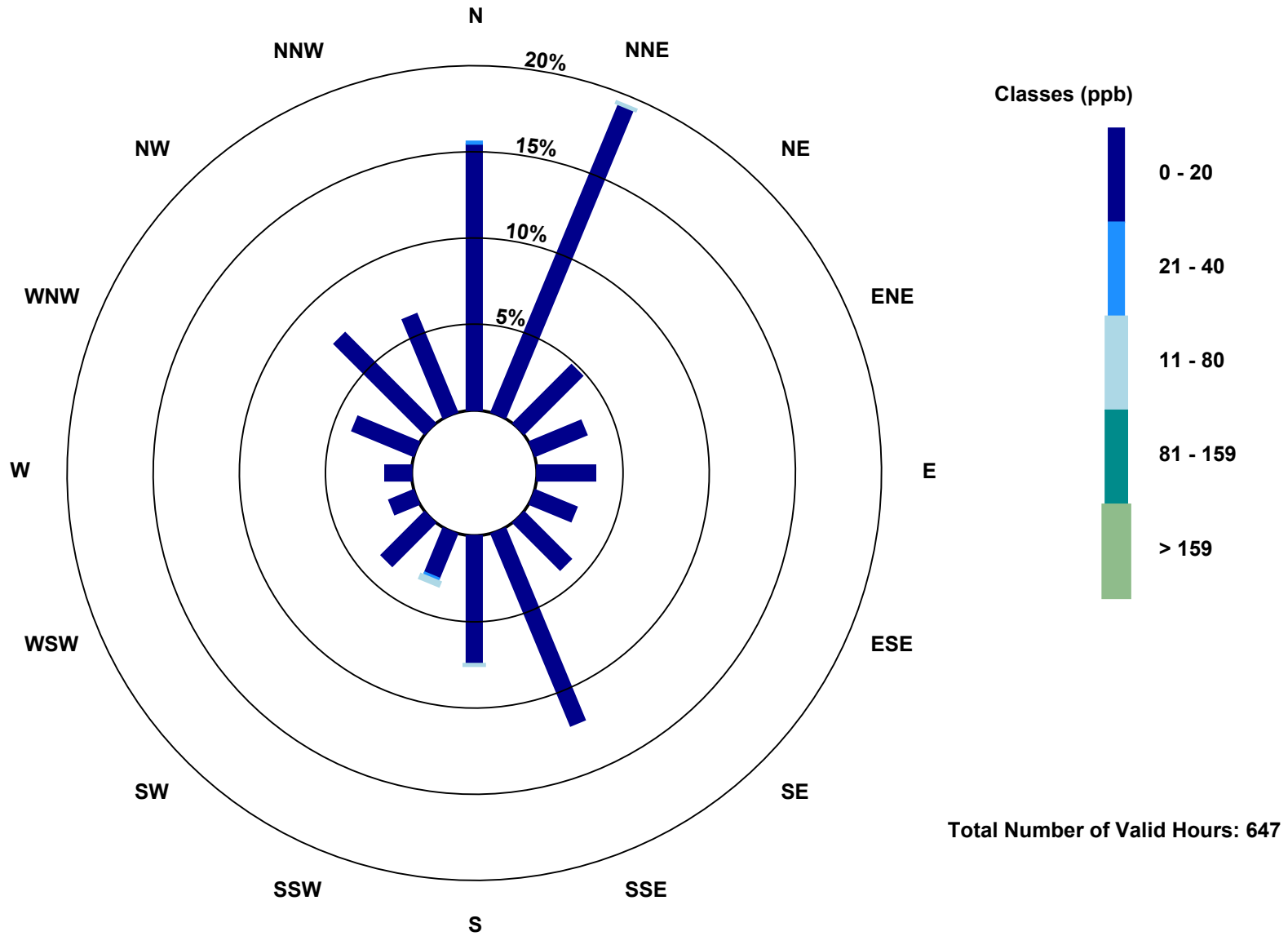
Total Number of Valid Hours: 647

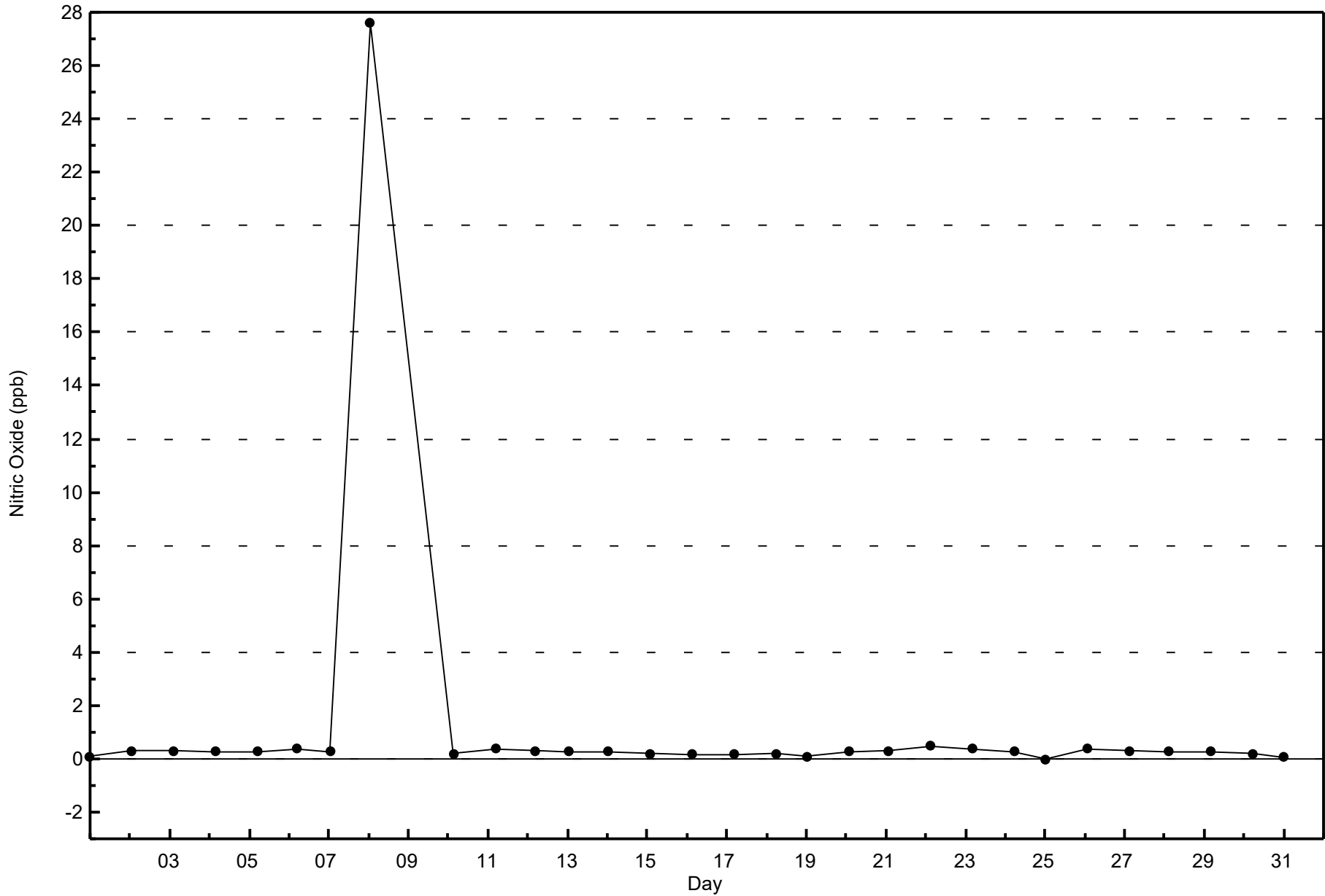
Total Number of Hours: 744

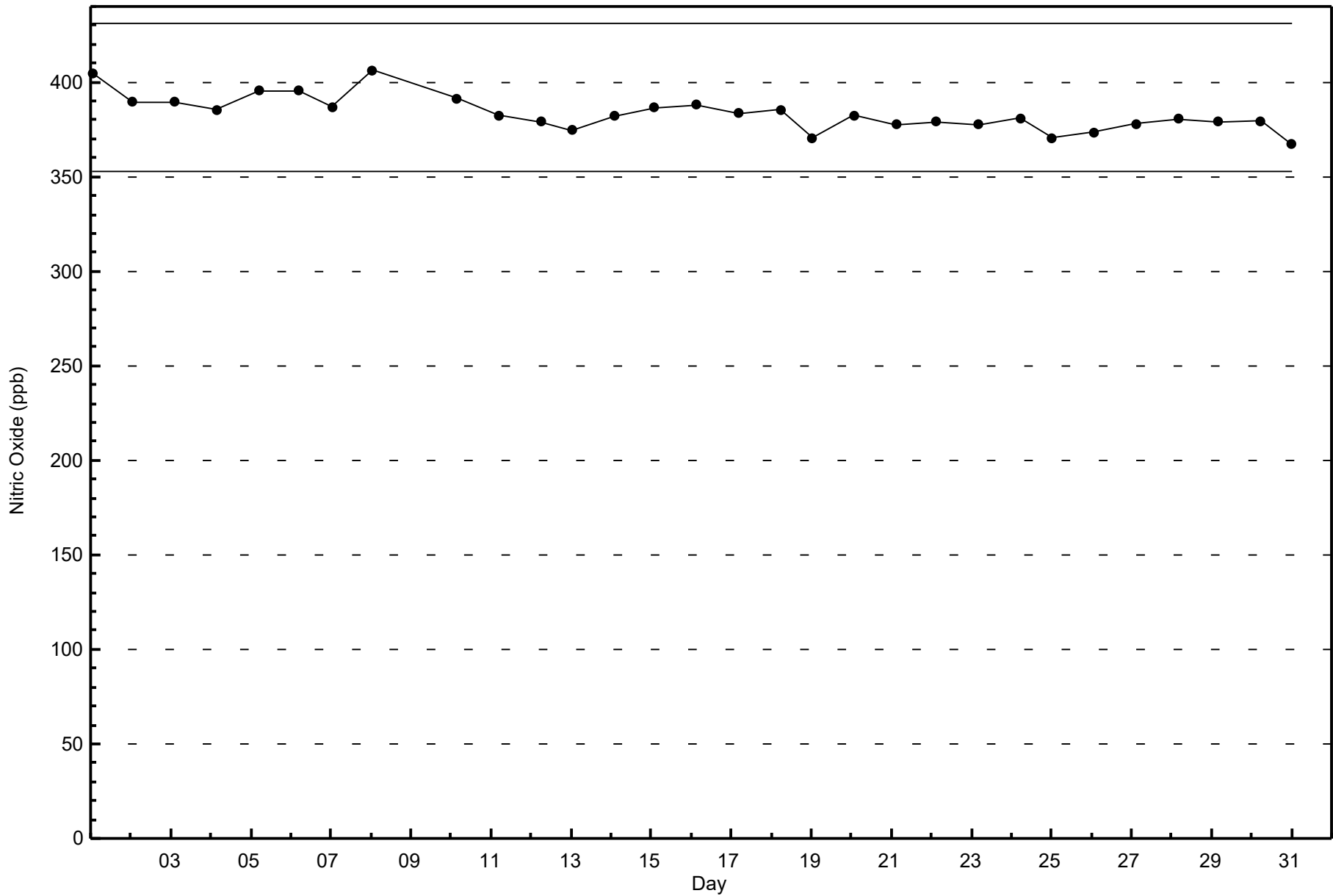


Wood Buffalo Environmental Association  
Wind Rose May 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

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

Fort McKay - Bertha Ganter - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 38.5 ppb on May 3 23:00	Maximum Daily Average: 15.7 ppb on May 3		Hours of Data:	650
Minimum Value: 0.0 ppb on May 10 10:00	Minimum Daily Average: 1.2 ppb on May 31		Hours of Missing Data:	94
Maximum Diurnal Average: 10.7 ppb at hour 5	Minimum Diurnal Average: 1.3 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 4.94 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 1.1 Median = 2.9 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 11.9 P <sub>99</sub> = 29.0		Percent Operational Time:	92.1

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-May	Z	6.8	11.9	8.4	13.4	9.0	9.2	6.8	6.2	3.6	4.6	3.3	2.3	1.8	1.6	1.4	1.2	2.1	3.6	3.8	6.4	10.7	12.1	20.2	6.5	20.2	
2-May	18.8	Z	17.5	17.0	21.8	15.1	13.1	15.4	7.6	7.2	4.2	3.3	2.1	1.2	1.5	1.3	1.2	1.1	1.0	5.0	4.0	0.8	7.3	24.3	8.3	24.3	
3-May	28.6	23.8	Z	31.8	30.4	27.7	24.7	21.4	23.6	21.3	12.0	4.7	3.9	4.1	3.6	3.2	3.4	2.7	2.1	4.2	6.5	13.5	38.5	24.6	15.7	38.5	
4-May	11.4	11.6	16.4	Z	19.4	17.9	17.9	29.4	25.0	6.7	7.9	4.3	3.8	3.2	2.9	3.1	4.1	3.7	3.9	5.4	7.2	15.4	8.3	3.6	10.1	29.4	
5-May	4.0	4.1	3.6	2.1	Z	2.3	2.7	7.2	9.7	7.5	7.6	4.6	3.7	2.7	2.6	2.9	2.5	1.5	1.0	1.8	2.7	4.0	2.6	1.4	3.7	9.7	
6-May	1.1	0.7	2.6	15.1	11.9	Z	12.9	6.9	4.3	4.8	0.9	0.6	1.0	1.8	2.8	6.7	0.9	0.6	10.1	11.9	17.3	2.4	3.6	4.9	5.5	17.3	
7-May	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--
8-May	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
9-May	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.3	0.4	1.6	2.0	3.3	6.9	7.8	7.9	--	7.9
10-May	18.7	27.3	30.9	Z	27.4	24.1	15.6	6.7	4.0	0.0	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.9	2.7	2.0	7.9	30.9
11-May	4.5	0.7	0.8	0.7	Z	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.6	2.2	3.4	5.5	9.3	6.3	7.5	2.0	9.3	
12-May	12.5	10.5	10.7	11.6	12.1	Z	6.7	5.7	8.5	3.6	0.4	0.4	0.1	0.0	0.0	1.3	1.0	0.6	0.1	0.6	1.1	1.6	3.8	2.5	4.1	12.5	
13-May	Z	2.6	4.0	3.9	3.2	4.3	5.2	7.1	6.7	4.7	4.3	2.9	0.9	1.2	0.7	0.5	2.7	10.8	5.6	8.8	4.8	7.1	31.0	32.3	6.8	32.3	
14-May	21.5	Z	16.7	12.4	9.7	8.7	9.3	10.0	7.6	4.9	3.8	1.0	0.0	0.0	0.0	0.0	0.0	3.3	8.8	8.0	8.7	10.2	8.1	8.3	7.0	21.5	
15-May	8.7	8.0	Z	7.1	15.7	16.0	16.0	12.2	16.2	10.2	6.4	4.2	3.2	2.6	1.4	1.6	0.9	0.8	1.3	2.7	6.8	7.8	4.9	5.1	6.9	16.2	
16-May	6.7	7.4	11.8	Z	18.8	15.3	13.9	13.9	7.8	5.4	8.6	8.2	5.3	4.7	5.7	3.9	6.7	4.3	7.3	5.6	4.8	4.5	3.8	5.2	7.8	18.8	
17-May	3.3	3.3	4.2	2.1	Z	3.2	2.3	1.2	3.0	4.0	1.3	3.5	2.6	1.7	0.9	0.9	1.5	1.2	2.3	0.8	0.0	0.0	1.9	5.2	2.2	5.2	
18-May	4.9	3.2	2.5	3.0	4.4	Z	4.8	3.0	2.8	2.3	2.4	2.3	1.2	0.2	0.0	0.0	2.7	2.2	4.4	4.9	5.2	6.8	2.7	4.8	3.1	6.8	
19-May	Z	9.8	7.8	11.4	8.0	7.3	8.5	6.5	4.4	4.5	2.3	2.5	3.1	3.0	4.2	2.8	3.3	3.4	1.0	3.1	4.5	6.7	5.6	7.0	5.2	11.4	
20-May	5.4	Z	4.7	6.7	8.2	6.6	8.5	3.8	6.2	7.1	1.5	2.0	2.5	2.2	1.9	2.1	1.8	1.9	1.3	2.6	2.2	2.6	3.2	3.2	3.8	8.5	
21-May	1.8	1.1	Z	1.0	2.1	0.3	0.4	0.4	0.4	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.5	0.7	0.4	6.3	13.0	1.3	13.0	
22-May	7.2	8.2	7.9	Z	9.2	12.1	13.1	9.1	4.0	2.4	1.5	2.0	0.9	1.0	1.4	1.3	1.6	0.7	0.2	0.1	0.3	0.6	1.9	0.6	3.8	13.1	
23-May	1.3	2.5	2.6	1.1	Z	0.7	1.3	1.3	0.8	0.0	0.3	0.0	0.0	0.5	0.9	1.1	1.2	1.6	1.7	0.7	0.8	1.8	2.8	3.3	1.2	3.3	
24-May	4.4	5.8	4.7	4.1	3.7	Z	5.2	9.8	6.4	2.9	0.8	0.6	1.3	1.7	1.9	1.9	1.8	1.2	3.6	2.8	3.0	2.0	2.1	6.1	3.4	9.8	
25-May	Z	14.5	9.1	9.3	9.7	6.1	7.4	8.5	9.1	2.1	1.6	1.7	1.7	1.7	0.8	0.5	0.4	0.6	0.6	0.3	0.2	0.8	2.5	3.5	4.0	14.5	
26-May	2.0	Z	1.3	1.4	1.5	1.6	2.8	9.1	7.2	3.3	1.7	1.2	1.1	2.9	1.6	0.9	1.2	1.3	0.3	1.4	1.6	2.4	2.4	1.7	2.3	9.1	
27-May	2.1	2.9	Z	3.2	1.9	1.8	6.2	10.9	10.4	9.1	0.7	1.1	0.6	0.9	0.6	0.9	0.4	0.0	0.6	1.2	1.2	2.2	2.4	2.9	2.8	10.9	
28-May	6.2	5.1	14.2	Z	11.7	7.7	9.6	7.3	6.9	6.5	2.0	3.4	3.9	0.3	0.0	0.1	0.3	0.3	0.0	0.0	0.0	0.0	4.3	2.4	4.0	14.2	
29-May	18.7	13.8	14.5	24.1	Z	10.4	10.7	8.3	8.5	8.0	5.8	4.3	2.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.7	5.9	24.1	
30-May	6.2	5.0	4.2	0.6	2.6	Z	0.9	1.2	1.3	1.8	1.7	2.7	1.7	1.0	0.0	1.5	3.4	6.3	3.2	2.4	6.9	2.7	0.1	0.1	2.5	6.9	
31-May	Z	0.4	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.0	1.6	3.6	2.5	1.3	3.5	3.6	3.0	3.5	2.1	1.2	3.6	

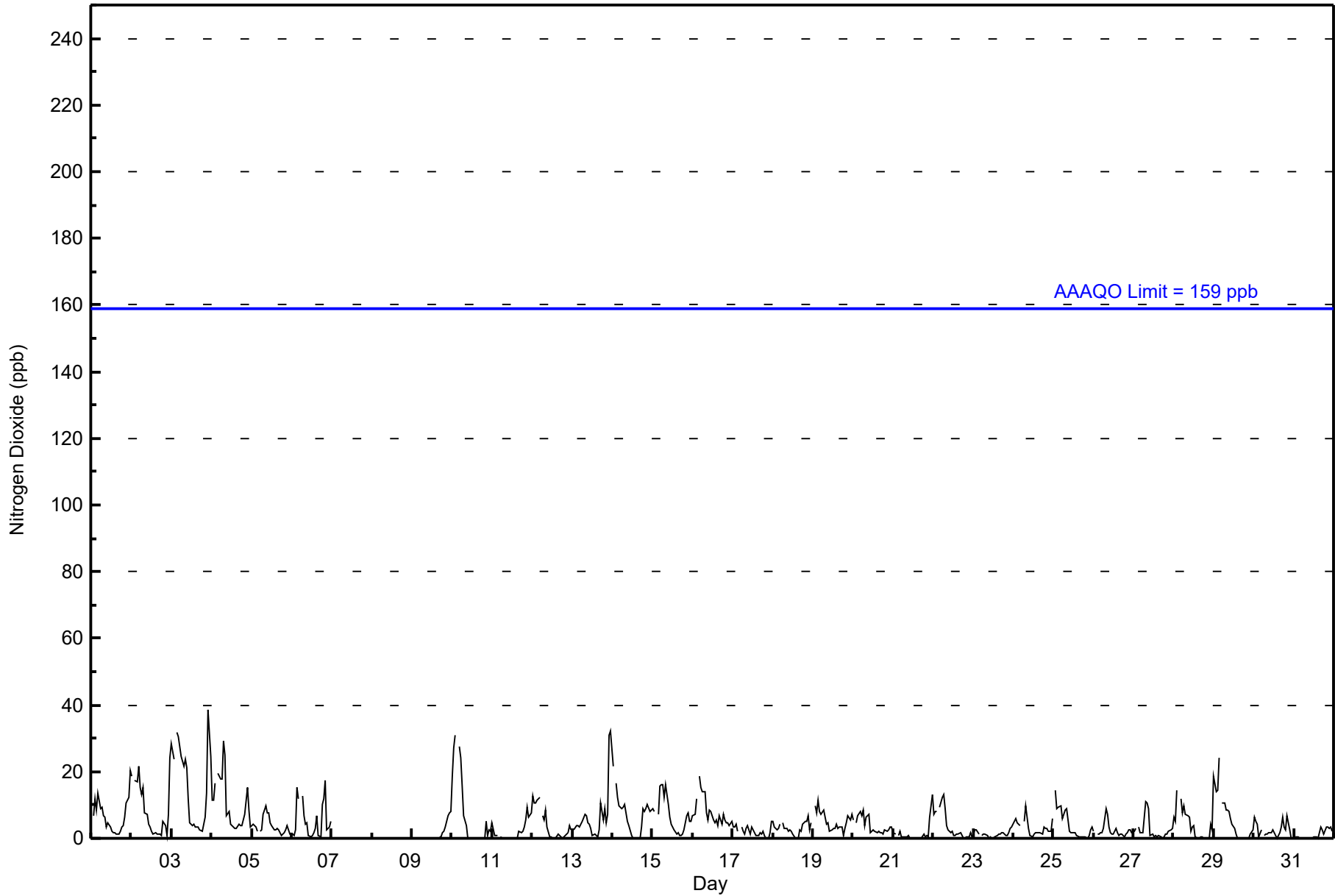
8.7	7.5	8.5	7.7	10.7	8.6	8.2	8.0	7.1	4.8	3.0	2.3	1.9	1.6	1.3	1.5	1.7	2.0	2.4	3.0	3.9	4.4	6.3	7.2	Diurnal Average	
28.6	27.3	30.9	31.8	30.4	27.7	24.7	29.4	25.0	21.3	12.0	8.2	5.3	4.7	5.7	6.7	6.7	10.8	10.1	11.9	17.3	15.4	38.5	32.3	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      AF - Analyzer 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 McKay - Bertha Ganter - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	627	96.46	96.46
21 - 40	23	3.54	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: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	93	121	31	21	21	17	25	78	48	18	23	9	10	22	47	40	624
21 - 40	8	5	0	0	1	0	0	0	1	3	0	1	0	3	1	0	23
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	101	126	31	21	22	17	25	78	49	21	23	10	10	25	48	40	647

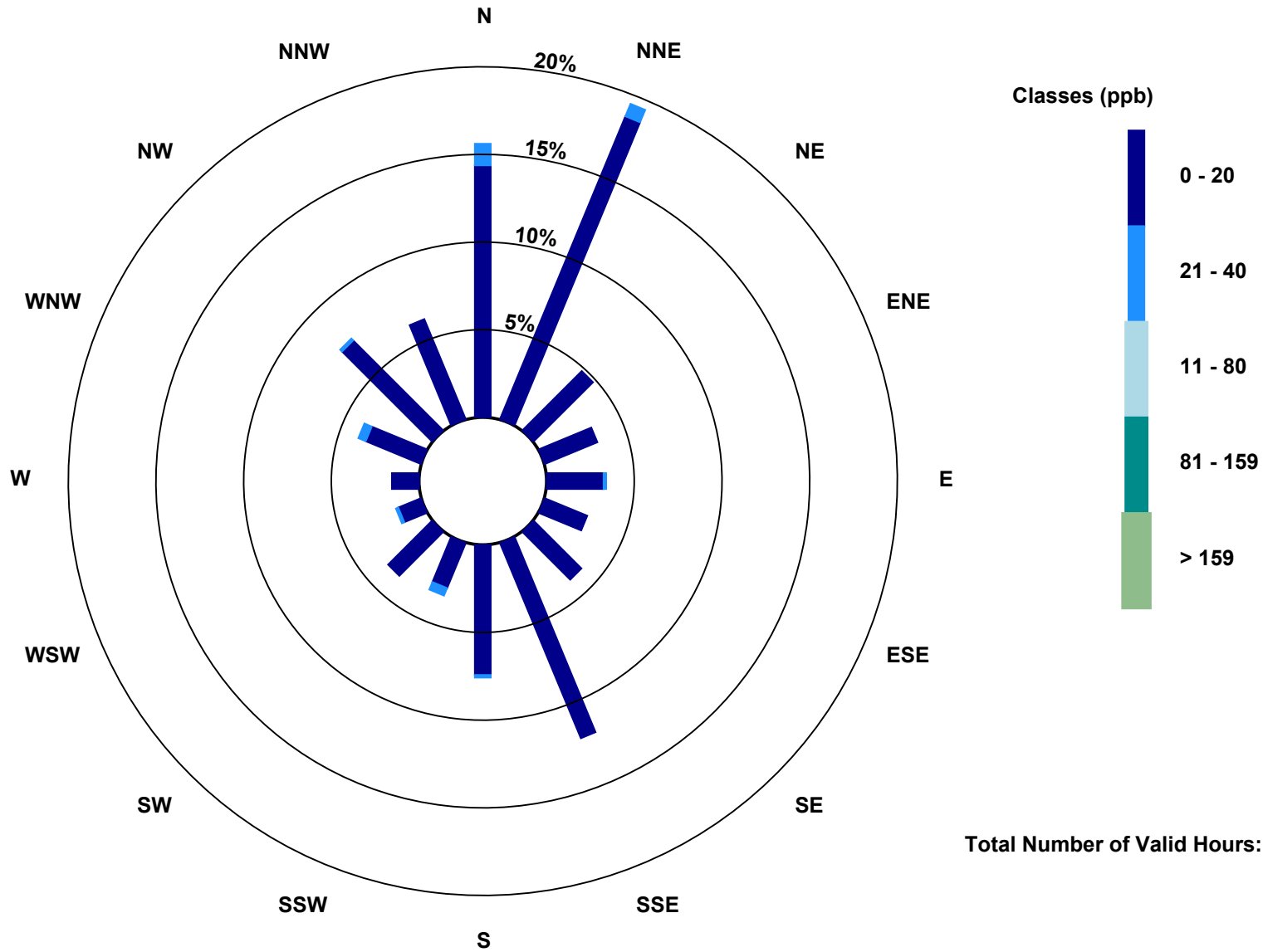
Total Number of Valid Hours: 647

Total Number of Hours: 744

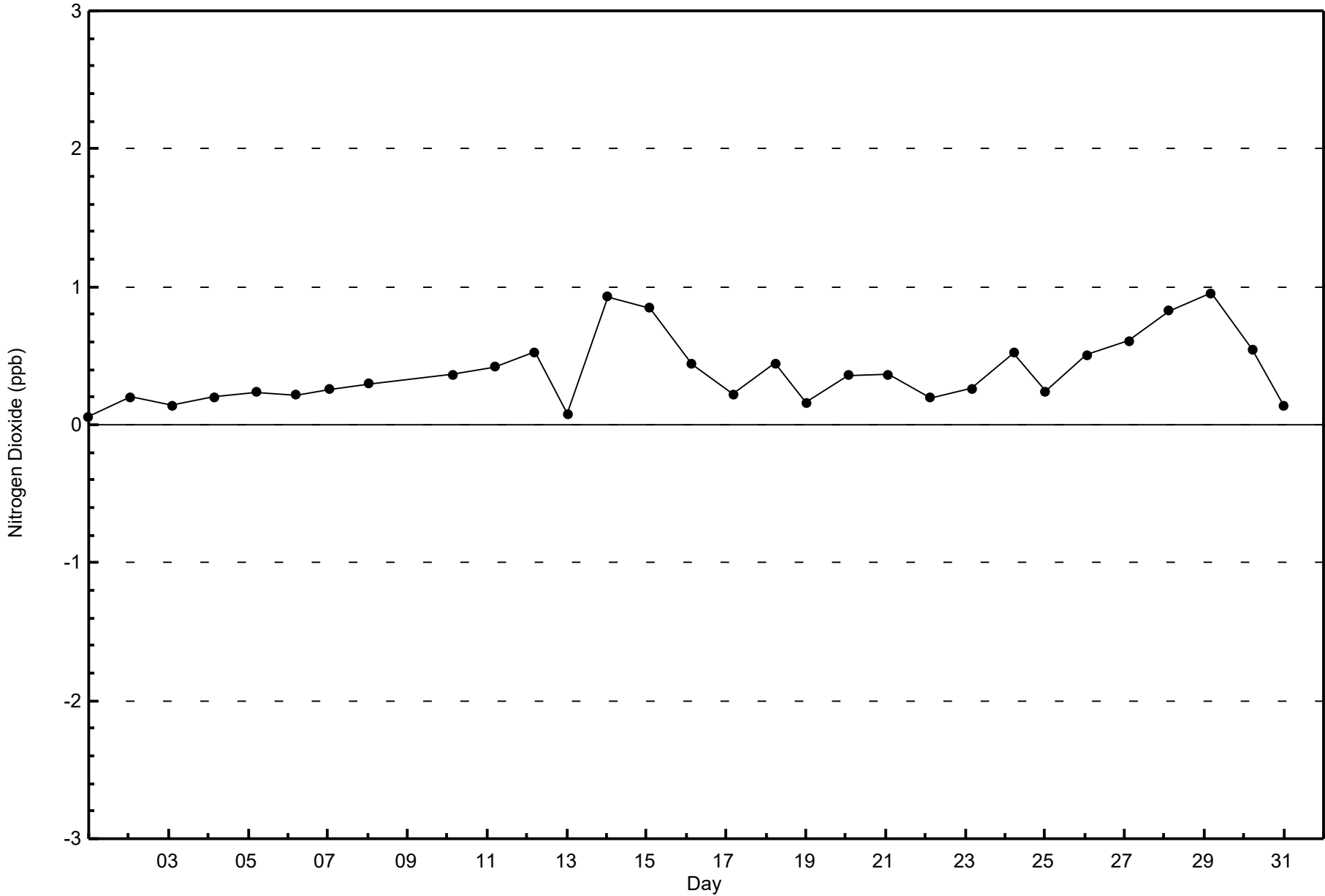


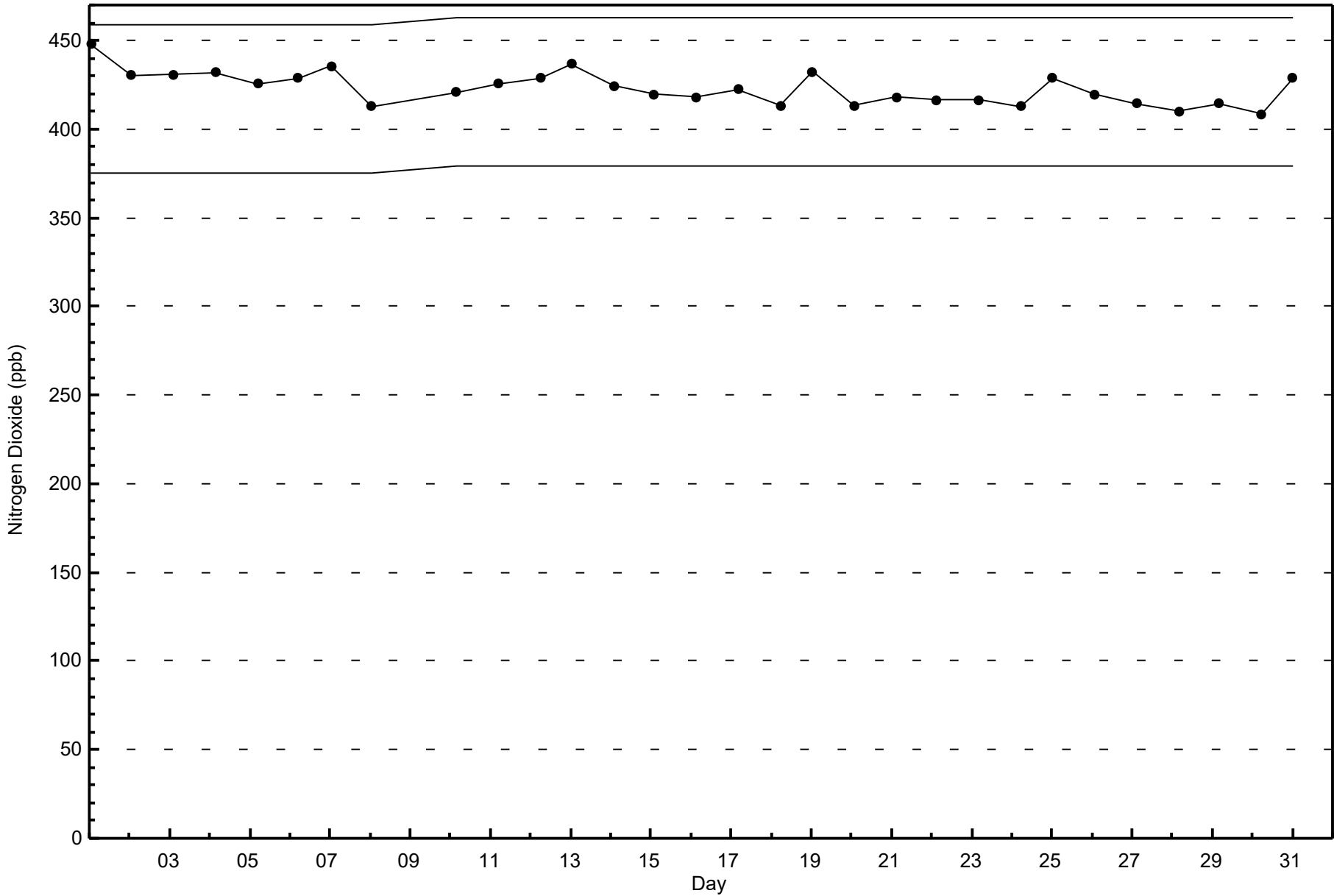
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 647







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

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

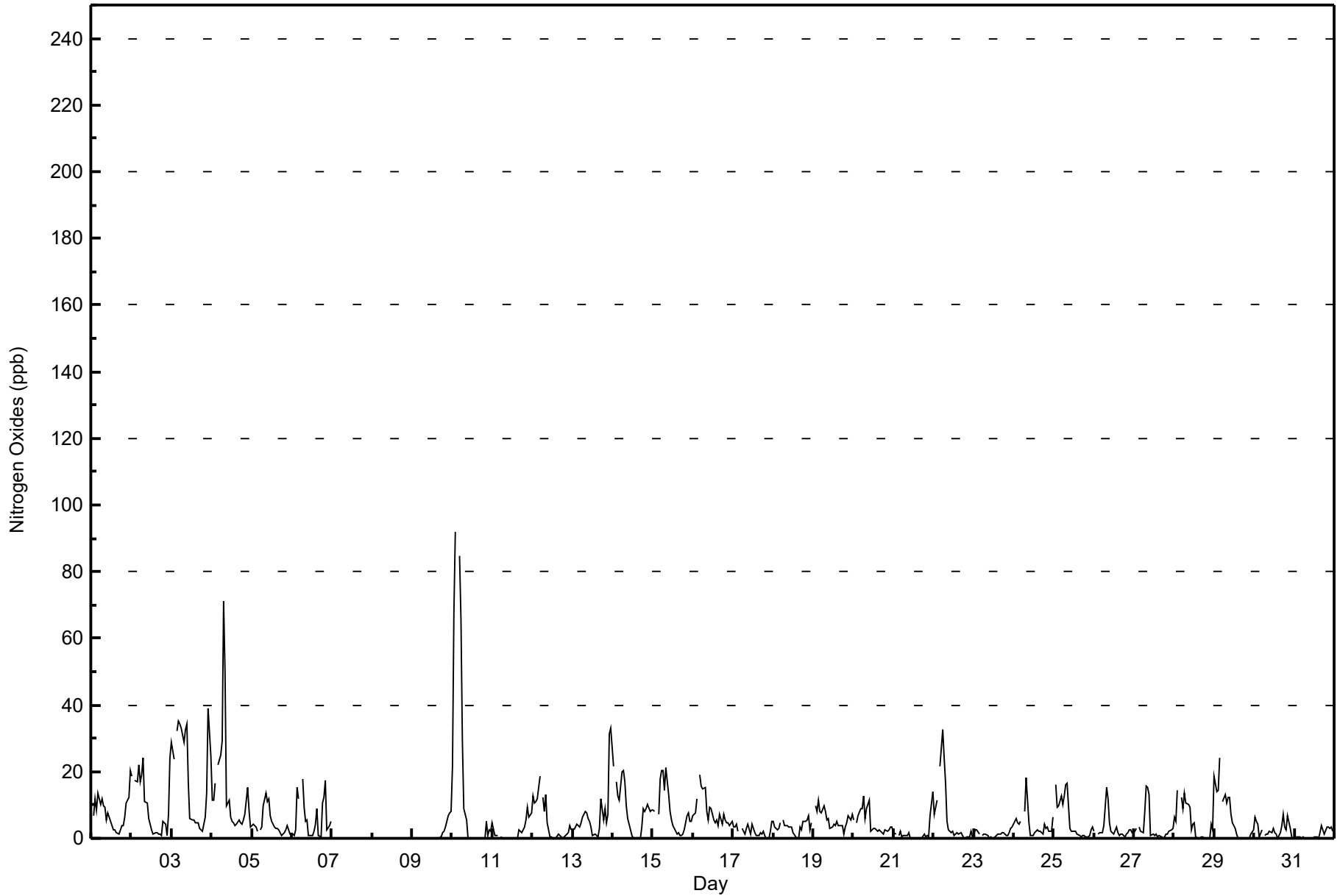
Maximum Value: 91.9 ppb on May 10 03:00																					Maximum Daily Average: 18.5 ppb on May 3					Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 10 10:00																					Minimum Daily Average: 1.2 ppb on May 31					Hours of Data: 650																							
Maximum Diurnal Average: 14.8 ppb at hour 5																					Minimum Diurnal Average: 1.6 ppb at hour 15					Hours of Missing Data: 94																							
Monthly Average: 6.17 ppb																					Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 1.2 Median = 3.3 Q <sub>3</sub> = 7.8 P <sub>90</sub> = 14.8 P <sub>99</sub> = 37.1					Hours of Calibration: 35																							
																					Percent Operational Time: 92.1																												
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-May	Z	6.8	12.0	8.4	13.7	10.2	11.8	9.9	9.4	5.4	7.8	5.3	3.6	2.6	2.4	1.8	1.4	2.4	3.7	3.8	6.4	10.7	12.1	20.2	7.5	20.2																							
2-May	18.8	Z	17.5	17.0	22.2	16.8	18.9	24.1	11.1	10.6	5.7	4.3	2.6	1.3	1.8	1.5	1.3	1.1	1.0	5.0	4.0	0.8	7.3	24.3	9.5	24.3																							
3-May	28.6	23.8	Z	32.3	35.2	34.3	33.0	28.9	32.8	34.4	17.0	6.1	5.3	5.6	4.8	4.7	4.5	3.1	2.2	4.2	6.5	13.5	39.0	24.6	18.5	39.0																							
4-May	11.4	11.6	16.4	Z	22.2	24.9	29.4	71.1	50.1	9.7	11.4	6.3	5.2	4.5	4.0	4.1	5.3	4.6	4.4	5.6	7.2	15.4	8.3	3.6	14.6	71.1																							
5-May	4.0	4.1	3.6	2.1	Z	2.4	3.2	9.9	13.5	10.9	11.7	6.8	5.0	3.2	3.0	3.0	2.5	1.5	1.0	1.8	2.7	4.0	2.6	1.4	4.5	13.5																							
6-May	1.1	0.7	2.6	15.1	11.9	Z	17.9	9.5	5.2	5.6	0.9	0.6	1.0	1.9	4.2	8.8	0.9	0.6	10.7	12.4	17.5	2.4	3.6	4.9	6.1	17.9																							
7-May	Z	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--																						
8-May	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--																						
9-May	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	C	0.4	0.4	1.6	2.0	3.3	6.9	7.8	7.9	--	7.9																						
10-May	21.7	67.7	91.9	Z	84.9	65.9	29.4	8.7	5.7	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.9	2.7	2.0	18.4	91.9																						
11-May	4.5	0.7	0.8	0.7	Z	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.9	2.4	3.4	5.5	9.3	6.3	7.5	2.0	9.3																								
12-May	12.6	10.5	11.0	12.0	18.9	Z	12.2	8.2	13.3	4.7	0.4	0.4	0.1	0.0	0.0	1.3	1.0	0.6	0.1	0.6	1.1	1.6	3.8	2.5	5.1	18.9																							
13-May	Z	2.6	4.0	3.9	3.4	4.7	6.5	8.0	7.8	5.9	5.1	3.3	0.9	1.3	0.7	0.5	2.9	11.8	5.7	8.8	4.8	7.1	31.3	32.9	7.1	32.9																							
14-May	21.6	Z	17.0	12.8	11.5	20.0	20.5	16.8	9.9	5.9	4.4	1.0	0.0	0.0	0.0	0.0	0.0	3.3	8.8	8.0	8.7	10.2	8.1	8.3	8.6	21.6																							
15-May	8.7	8.0	Z	7.1	17.6	20.2	20.5	14.2	21.3	13.2	8.2	5.3	3.9	2.8	1.4	1.7	0.9	0.8	1.3	2.7	6.8	7.8	4.9	5.1	8.0	21.3																							
16-May	6.7	7.4	11.8	Z	19.0	15.5	14.7	15.2	8.2	5.6	9.3	8.8	5.5	4.8	5.7	3.9	7.0	4.3	7.3	5.6	4.8	4.5	3.8	5.2	8.0	19.0																							
17-May	3.3	3.3	4.2	2.1	Z	3.2	2.3	1.2	3.0	4.3	1.3	4.1	3.1	1.8	0.9	0.9	1.5	1.4	2.3	0.8	0.0	0.0	1.9	5.2	2.3	5.2																							
18-May	5.0	3.2	2.5	3.0	4.5	Z	5.4	3.6	3.7	3.3	3.4	3.3	1.8	0.3	0.1	0.1	3.3	2.6	4.9	5.1	5.3	6.9	2.7	4.8	3.4	6.9																							
19-May	Z	9.9	7.9	11.4	8.0	7.8	9.8	8.0	5.6	5.9	3.1	3.5	4.4	4.0	5.3	3.8	3.9	4.0	1.3	3.2	4.5	6.7	5.6	7.0	5.8	11.4																							
20-May	5.4	Z	4.7	6.7	8.7	8.9	12.7	5.7	9.1	11.3	2.2	2.7	3.0	2.8	2.3	2.6	2.0	1.9	1.3	2.7	2.2	2.6	3.4	3.2	4.7	12.7																							
21-May	1.8	1.1	Z	1.0	2.1	0.3	0.7	0.7	0.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.5	0.7	0.4	6.7	13.9	1.4	13.9																							
22-May	7.3	9.4	11.2	Z	21.4	32.6	24.1	16.5	5.0	2.7	1.5	2.0	0.9	1.1	1.6	1.4	1.7	0.7	0.2	0.1	0.3	0.6	1.9	0.6	6.3	32.6																							
23-May	1.3	2.5	2.6	1.1	Z	0.7	1.3	1.4	0.9	0.0	0.4	0.0	0.0	0.5	1.1	1.4	1.3	1.8	1.8	0.7	0.8	1.8	2.8	3.3	1.3	3.3																							
24-May	4.4	5.8	4.7	4.2	4.9	Z	8.1	18.1	11.4	4.5	0.9	0.7	1.8	2.3	2.4	2.2	2.2	1.5	4.1	3.1	3.2	2.3	2.2	6.5	4.4	18.1																							
25-May	Z	15.9	9.5	9.9	12.6	10.3	12.5	15.9	16.5	2.9	2.2	2.2	2.2	2.2	1.1	0.7	0.4	0.7	0.6	0.3	0.2	0.8	2.5	3.5	5.5	16.5																							
26-May	2.0	Z	1.3	1.6	1.5	1.9	3.9	15.3	11.8	4.5	2.2	1.5	1.2	3.6	1.8	0.9	1.3	1.3	0.3	1.4	1.6	2.4	2.4	1.7	2.9	15.3																							
27-May	2.1	2.9	Z	3.2	1.9	1.9	8.2	15.7	15.1	13.1	0.7	1.2	0.7	1.1	0.6	1.0	0.4	0.0	0.6	1.2	1.2	2.2	2.4	2.9	3.5	15.7																							
28-May	6.3	5.1	14.2	Z	12.2	8.8	13.7	10.7	10.1	9.4	2.4	4.3	4.9	0.3	0.0	0.1	0.3	0.3	0.0	0.0	0.0	0.0	4.3	2.4	4.8	14.2																							
29-May	18.7	13.8	14.5	24.2	Z	10.9	13.0	10.4	12.3	12.3	7.2	4.6	3.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.7	6.5	24.2																							
30-May	6.2	5.0	4.2	0.6	2.6	Z	0.9	1.2	1.3	2.0	1.8	3.0	1.9	1.1	0.1	1.8	3.9	7.2	3.5	2.4	7.0	2.8	0.3	0.2	2.6	7.2																							
31-May	Z	0.5	0.4	0.2	0.1	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.6	0.5	0.0	1.7	3.9	2.5	1.3	3.5	3.6	3.0	3.5	2.1	1.2	3.9																							
																								8.8	9.3	11.3	7.9	14.8	13.2	12.0	12.5	10.5	6.8	4.0	2.9	2.3	1.9	1.6	1.8	2.0	2.1	2.5	3.1	4.0	4.4	6.4	7.2	Diurnal Average	
																								28.6	67.7	91.9	32.3	84.9	65.9	33.0	71.1	50.1	34.4	17.0	8.8	5.5	5.6	5.7	8.8	7.0	11.8	10.7	12.4	17.5	15.4	39.0	32.9	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				AF - Analyzer Failure																	





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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	616	94.77	94.77
21 - 40	28	4.31	99.08
41 - 80	4	0.62	99.69
81 - 159	2	0.31	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	90	119	31	21	21	17	25	78	46	17	22	9	10	20	47	40	613
21 - 40	10	6	0	0	1	0	0	0	2	1	1	1	0	5	1	0	28
11 - 80	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	4
81 - 159	0	0	0	0	0	0	0	0	0	2	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>	101	126	31	21	22	17	25	78	49	21	23	10	10	25	48	40	647

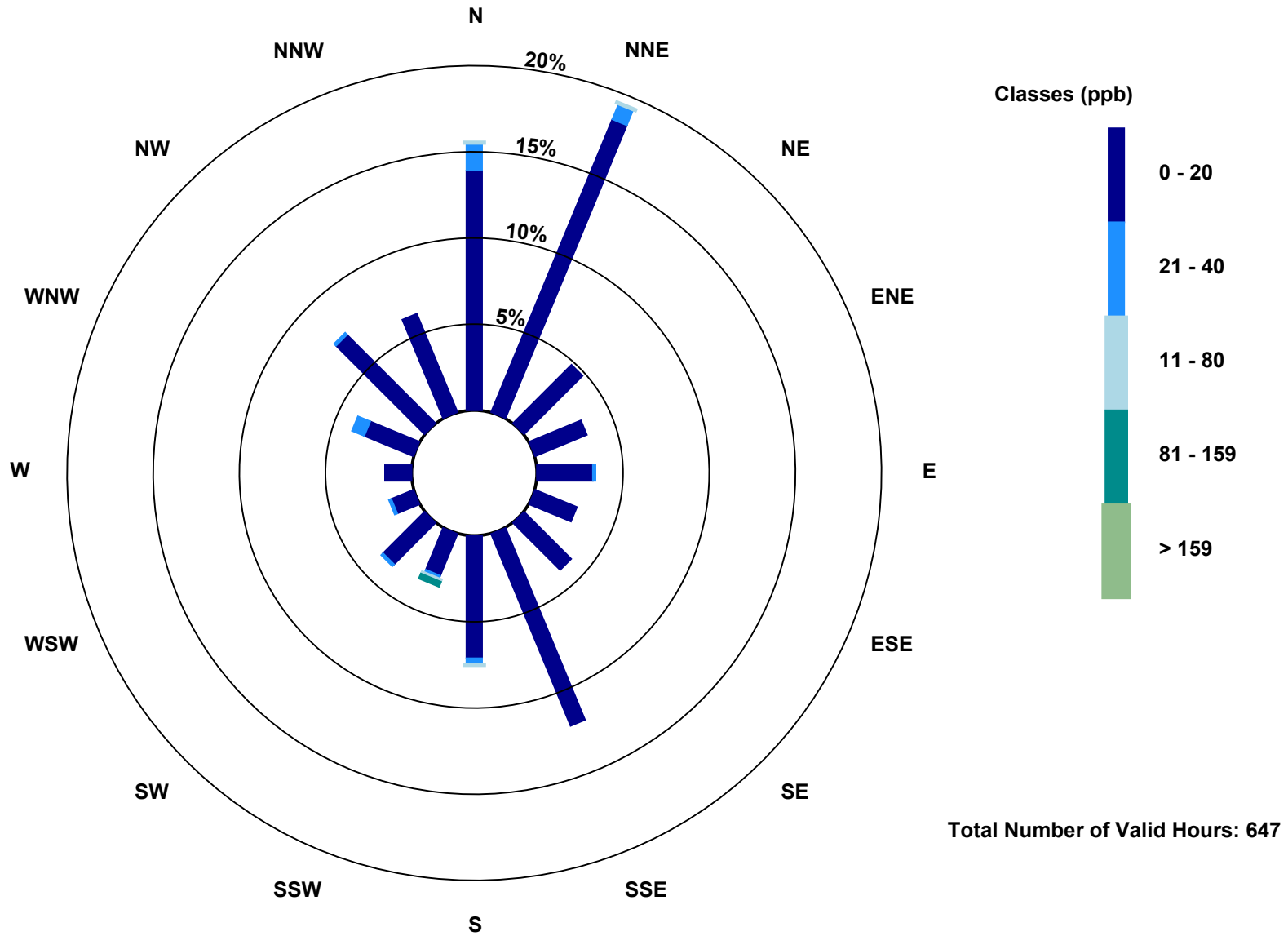
Total Number of Valid Hours: 647

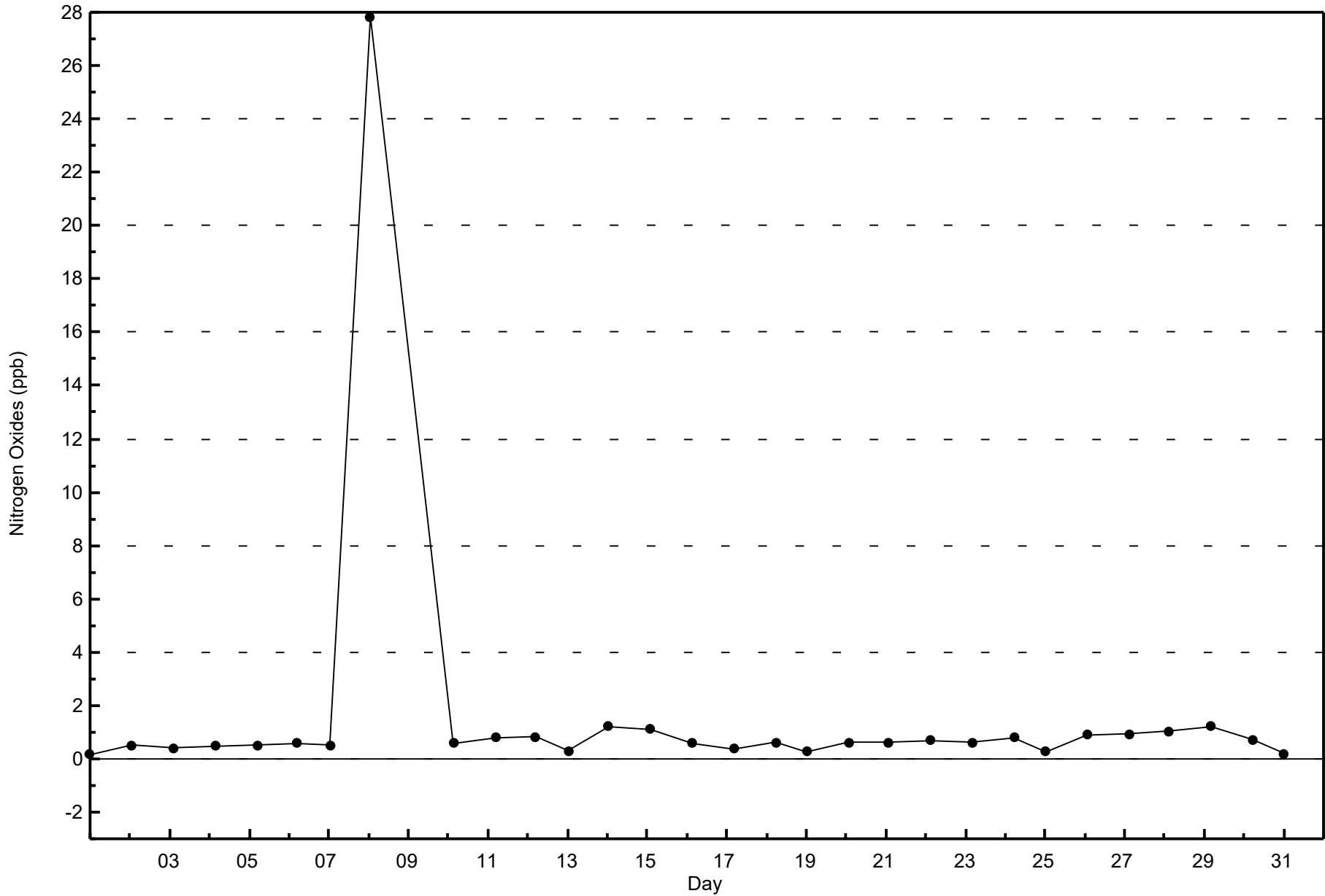
Total Number of Hours: 744

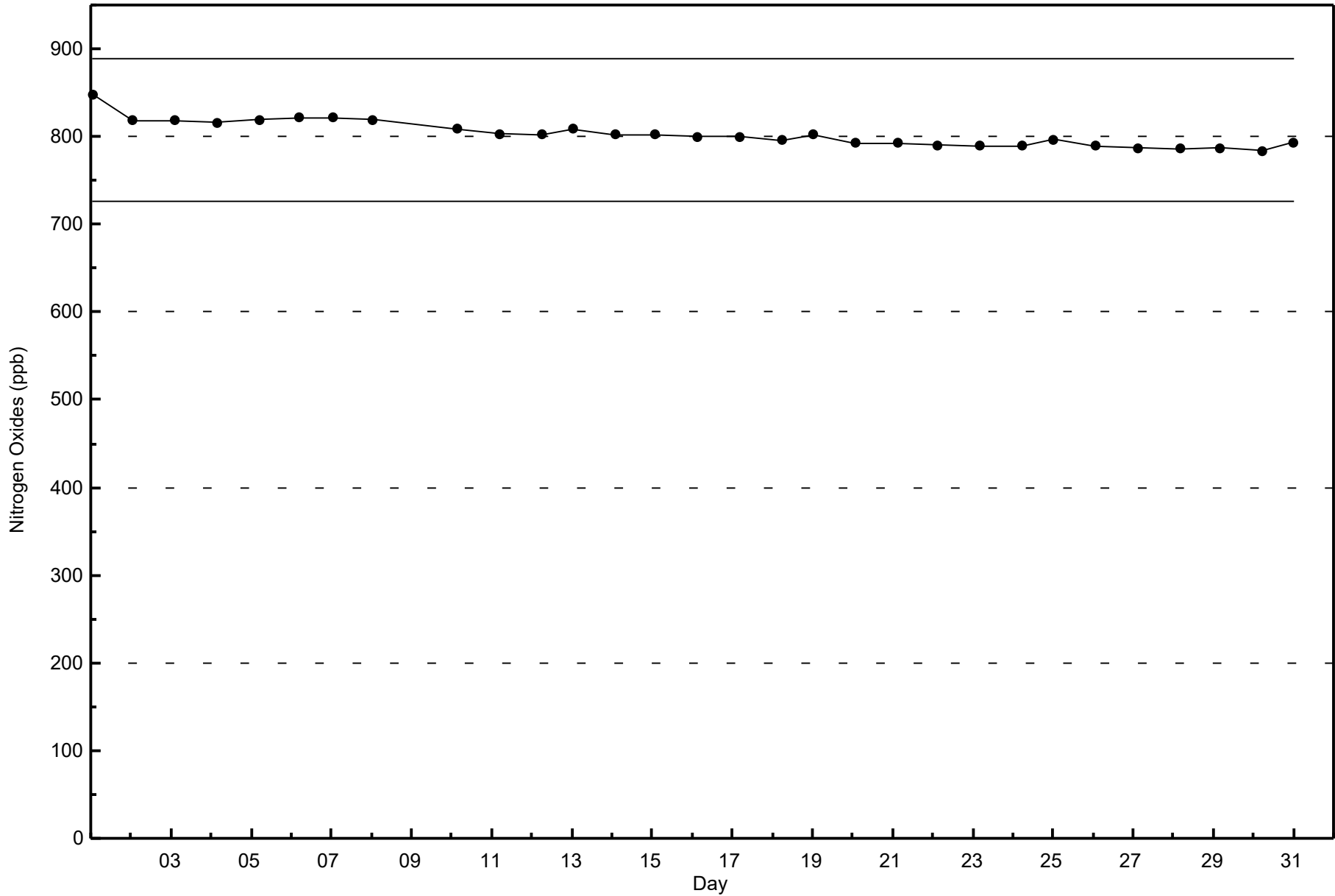


Wood Buffalo Environmental Association  
Wind Rose May 2024

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

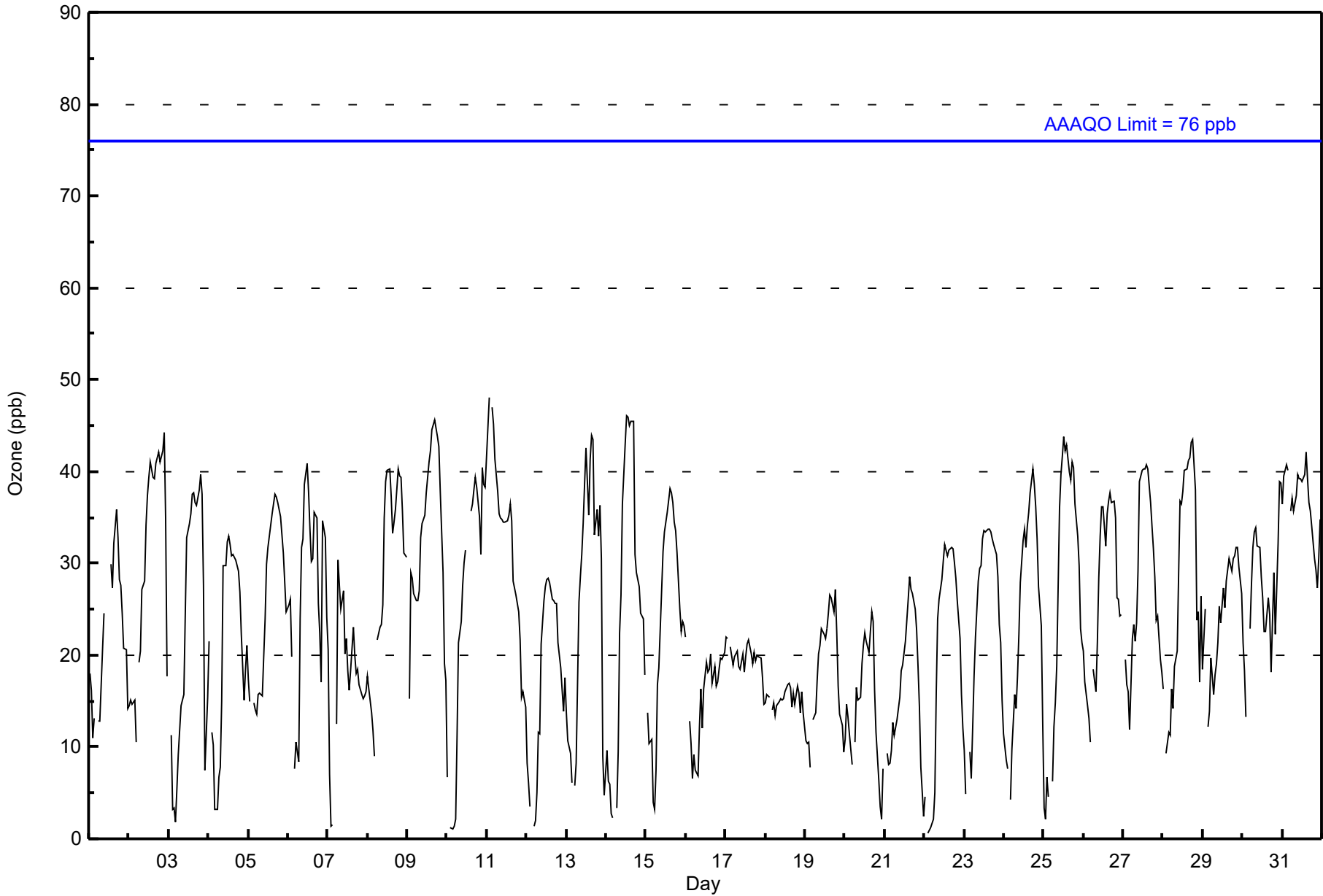
Fort McKay - Bertha Ganter - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 48.1 ppb on May 11 02:00	Maximum Daily Average: 36.5 ppb on May 31		Hours of Data:	708
Minimum Value: 0.6 ppb on May 22 03:00	Minimum Daily Average: 14.7 ppb on May 20		Hours of Missing Data:	36
Maximum Diurnal Average: 32.9 ppb at hour 16	Minimum Diurnal Average: 10.7 ppb at hour 5		Hours of Calibration:	34
Monthly Average: 24.05 ppb	Percentiles: P <sub>1</sub> = 1.4 P <sub>10</sub> = 9.3 Q <sub>1</sub> = 15.5 Median = 23.8 Q <sub>3</sub> = 33.4 P <sub>90</sub> = 39.1 P <sub>99</sub> = 45.2		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-May	18.1	16.1	11.0	13.1	Z	12.9	12.8	16.8	20.7	24.6	C	C	C	29.9	27.2	32.1	35.9	32.8	28.3	27.6	24.6	20.8	20.6	14.2	22.0	35.9
2-May	14.4	15.1	14.6	15.2	10.6	Z	19.2	20.5	27.1	28.1	34.1	37.4	39.3	41.0	39.3	39.2	40.8	41.5	42.1	41.1	42.3	44.3	34.8	17.7	30.4	44.3
3-May	Z	11.3	3.2	3.4	1.9	5.4	9.1	14.6	15.1	15.7	24.4	32.8	34.3	35.5	37.5	37.7	36.6	36.3	38.0	39.7	37.6	27.7	7.5	15.4	22.6	39.7
4-May	21.5	Z	11.5	10.2	3.2	3.3	6.7	7.8	15.0	29.7	29.7	32.3	32.9	32.0	30.8	31.0	30.3	29.7	29.1	26.9	22.3	15.1	18.4	21.0	21.3	32.9
5-May	17.3	15.0	Z	14.9	14.0	13.6	15.7	15.9	15.6	19.8	23.9	29.9	31.7	34.1	35.4	36.4	37.6	37.2	36.6	35.1	33.1	31.1	27.9	24.7	25.9	37.6
6-May	25.5	26.1	19.8	Z	7.7	10.5	8.5	23.9	31.7	32.7	38.6	40.8	37.9	33.7	30.2	30.6	35.5	34.9	25.6	22.5	17.0	34.7	32.9	24.2	27.2	40.8
7-May	20.6	7.0	1.4	1.5	Z	12.5	30.3	27.7	25.0	27.0	20.2	21.9	18.3	16.1	18.4	23.1	20.0	18.0	18.5	16.8	15.8	15.3	15.5	16.0	17.7	30.3
8-May	17.7	16.3	13.7	11.7	9.0	Z	21.7	23.0	23.4	25.5	34.9	38.9	40.1	40.2	37.3	33.3	34.4	35.8	40.2	39.5	39.4	35.7	31.0	30.7	29.3	40.2
9-May	Z	15.2	29.0	28.4	26.7	25.9	26.0	27.0	32.7	34.3	35.2	37.7	39.3	41.0	42.2	44.5	45.7	44.7	43.7	42.7	37.8	29.0	19.1	17.2	33.3	45.7
10-May	6.7	Z	1.3	1.0	1.3	2.2	11.4	21.3	23.6	27.6	30.0	31.4	M	M	35.6	36.4	37.9	39.3	38.3	35.0	30.9	40.5	38.6	38.2	25.2	40.5
11-May	41.4	48.1	Z	46.9	45.2	41.4	37.8	35.4	35.0	34.8	34.4	34.4	34.6	35.3	36.5	34.6	28.1	26.5	25.7	24.7	21.6	15.4	16.0	14.4	32.5	48.1
12-May	8.2	6.0	3.5	Z	1.3	2.0	5.1	11.6	11.5	21.2	25.9	27.4	28.2	28.4	27.9	26.1	25.9	25.6	25.6	21.4	18.6	16.2	13.9	17.6	17.4	28.4
13-May	13.7	10.7	9.3	6.1	Z	5.7	8.2	25.8	28.5	31.0	34.3	38.5	42.5	35.2	41.3	43.9	43.5	33.2	35.9	33.0	36.2	30.5	9.1	4.7	26.1	43.9
14-May	9.6	6.3	5.9	2.8	2.3	Z	3.4	9.5	22.4	26.5	36.4	43.0	46.1	45.9	45.1	45.5	45.4	30.9	29.0	28.2	27.4	24.5	24.0	17.9	25.1	46.1
15-May	Z	13.7	10.4	10.8	3.9	3.3	7.4	16.8	18.6	27.0	31.3	33.4	34.4	35.6	38.1	37.6	36.6	34.5	33.5	31.1	24.9	22.6	23.6	23.2	24.0	38.1
16-May	22.0	Z	12.8	10.3	6.6	9.1	7.4	6.8	12.3	16.3	12.1	16.3	19.2	18.1	18.5	20.1	16.9	18.7	16.6	17.2	18.5	19.6	19.6	20.2	15.4	22.0
17-May	21.9	21.7	Z	20.9	18.9	19.8	20.2	20.4	18.8	18.5	20.2	18.2	19.8	21.2	21.6	20.2	19.1	20.2	19.3	20.0	19.8	19.6	17.6	14.6	19.7	21.9
18-May	14.8	15.8	15.4	Z	14.1	14.9	13.5	14.5	14.9	15.3	15.2	15.3	15.9	16.8	17.0	16.4	14.4	15.9	14.6	16.6	15.9	13.8	16.1	13.8	15.2	17.0
19-May	10.7	10.3	10.6	7.8	Z	13.0	13.7	17.2	20.2	21.0	22.9	22.2	21.8	22.8	24.5	26.6	26.2	24.7	27.1	22.4	16.7	13.6	12.4	9.4	18.2	27.1
20-May	10.9	14.6	13.2	11.4	8.2	Z	10.6	16.5	15.1	15.4	19.0	21.1	22.4	21.5	20.3	22.5	24.7	23.6	16.2	11.5	6.3	3.4	2.1	7.7	14.7	24.7
21-May	Z	9.3	8.1	8.3	9.6	12.6	11.4	13.0	14.2	15.5	18.3	18.8	21.6	23.7	26.1	28.5	27.1	26.7	25.1	22.7	18.8	14.4	7.7	2.5	16.7	28.5
22-May	4.5	Z	0.6	0.9	1.2	2.2	5.0	15.9	23.9	26.1	28.2	30.1	32.1	31.4	30.8	31.4	31.7	31.6	30.1	28.4	25.9	21.8	15.7	12.1	20.1	32.1
23-May	9.7	4.9	Z	9.4	6.6	12.0	17.7	22.0	28.0	29.5	29.7	32.6	33.6	33.5	33.6	33.7	33.4	32.6	32.0	31.0	28.5	23.3	21.4	15.1	24.1	33.7
24-May	11.4	8.6	7.7	Z	4.3	9.8	15.7	14.2	17.6	22.2	27.9	32.5	33.8	31.7	34.1	35.5	37.7	40.3	38.6	36.1	32.6	27.4	23.1	12.5	24.1	40.3
25-May	3.4	2.2	6.8	4.6	Z	6.2	12.2	14.8	18.7	36.0	39.6	41.7	43.8	42.3	42.8	40.0	39.0	41.1	40.5	36.4	33.0	29.8	22.9	21.4	26.9	43.8
26-May	20.4	17.1	14.5	13.1	10.5	Z	18.4	16.0	21.4	28.4	33.0	36.2	36.2	31.9	35.4	36.8	37.7	36.7	36.8	35.0	26.3	26.2	24.2	24.4	26.8	37.7
27-May	Z	19.5	16.8	16.1	12.0	21.8	23.4	21.6	23.5	29.1	38.9	40.1	40.3	40.2	40.8	40.2	36.7	34.0	31.6	28.5	23.9	24.3	19.5	18.1	27.9	40.8
28-May	16.3	Z	9.3	11.6	11.2	16.3	14.1	18.7	20.5	28.8	36.8	36.5	37.8	40.2	40.2	41.2	41.5	43.2	43.5	38.0	23.8	24.7	17.1	26.3	27.7	43.5
29-May	18.4	24.9	Z	12.3	13.9	19.6	15.7	17.8	19.0	21.4	25.3	23.5	27.3	25.1	28.1	29.2	30.5	29.1	30.5	30.8	31.7	31.7	29.7	26.8	24.5	31.7
30-May	21.4	18.3	13.2	Z	22.9	27.7	31.7	33.4	33.8	31.9	31.7	28.5	26.2	22.5	22.6	26.3	24.4	18.1	23.6	29.0	22.3	32.1	38.9	38.8	26.9	38.9
31-May	36.5	39.5	40.8	40.1	Z	35.7	37.0	35.7	37.3	39.6	39.3	39.2	38.9	39.6	42.1	39.2	36.6	35.7	33.9	30.5	29.3	27.3	30.4	34.8	36.5	42.1

16.8	15.9	11.7	12.8	10.7	13.8	15.8	19.2	22.1	25.8	29.0	31.1	32.1	31.6	32.3	32.9	32.6	31.4	30.7	29.0	25.9	24.4	21.0	19.2	Diurnal Average	
41.4	48.1	40.8	46.9	45.2	41.4	37.8	35.7	37.3	39.6	39.6	43.0	46.1	45.9	45.1	45.5	45.7	44.7	43.7	42.7	42.3	44.3	38.9	38.8	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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	290	40.96	40.96
21 - 50	418	59.04	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 - Bertha Ganter - May 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	83	60	7	5	8	9	13	22	19	6	7	7	4	12	11	14	287
21 - 50	21	65	26	17	15	13	17	61	37	16	20	11	10	22	40	27	418
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>	104	125	33	22	23	22	30	83	56	22	27	18	14	34	51	41	705

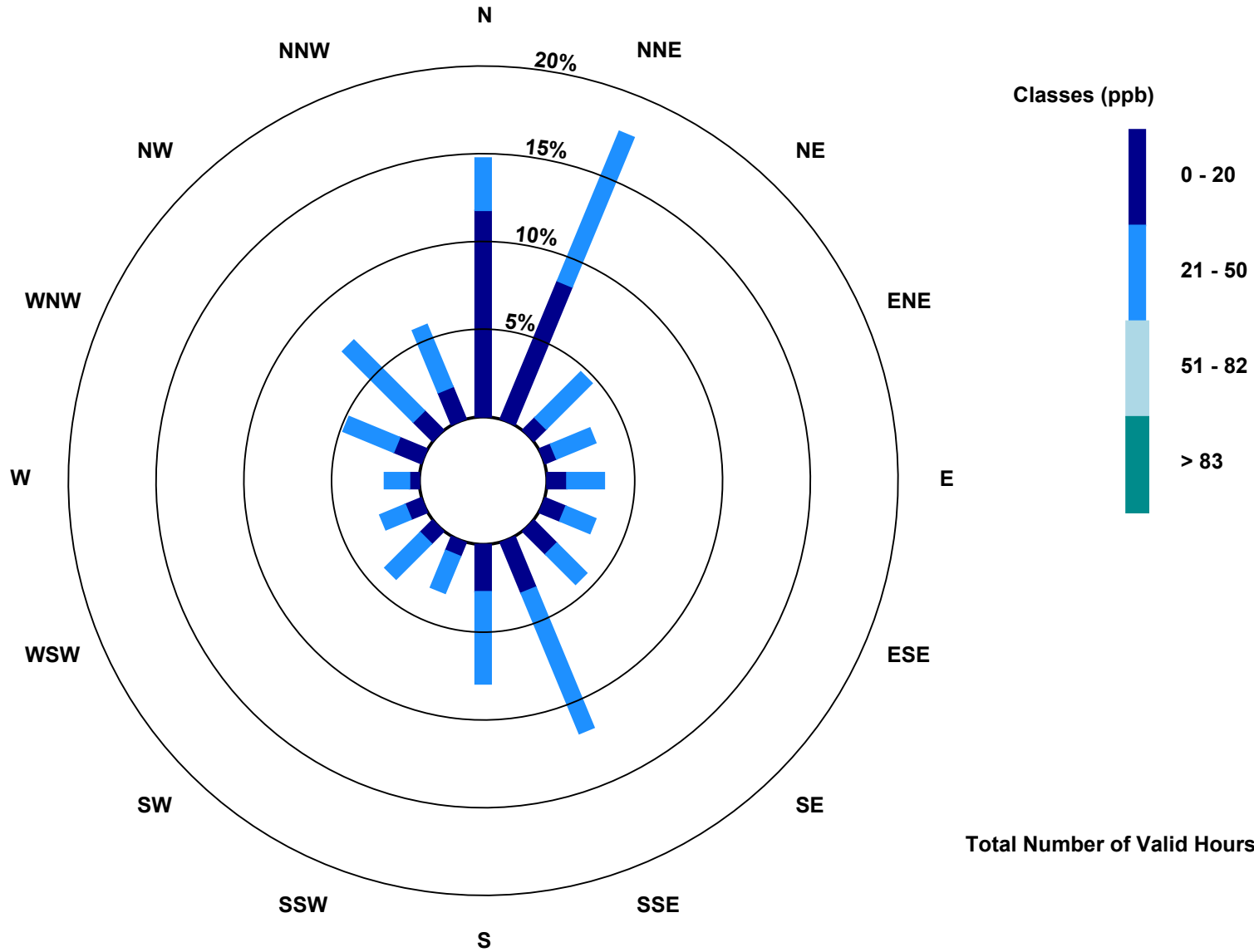
Total Number of Valid Hours: 705

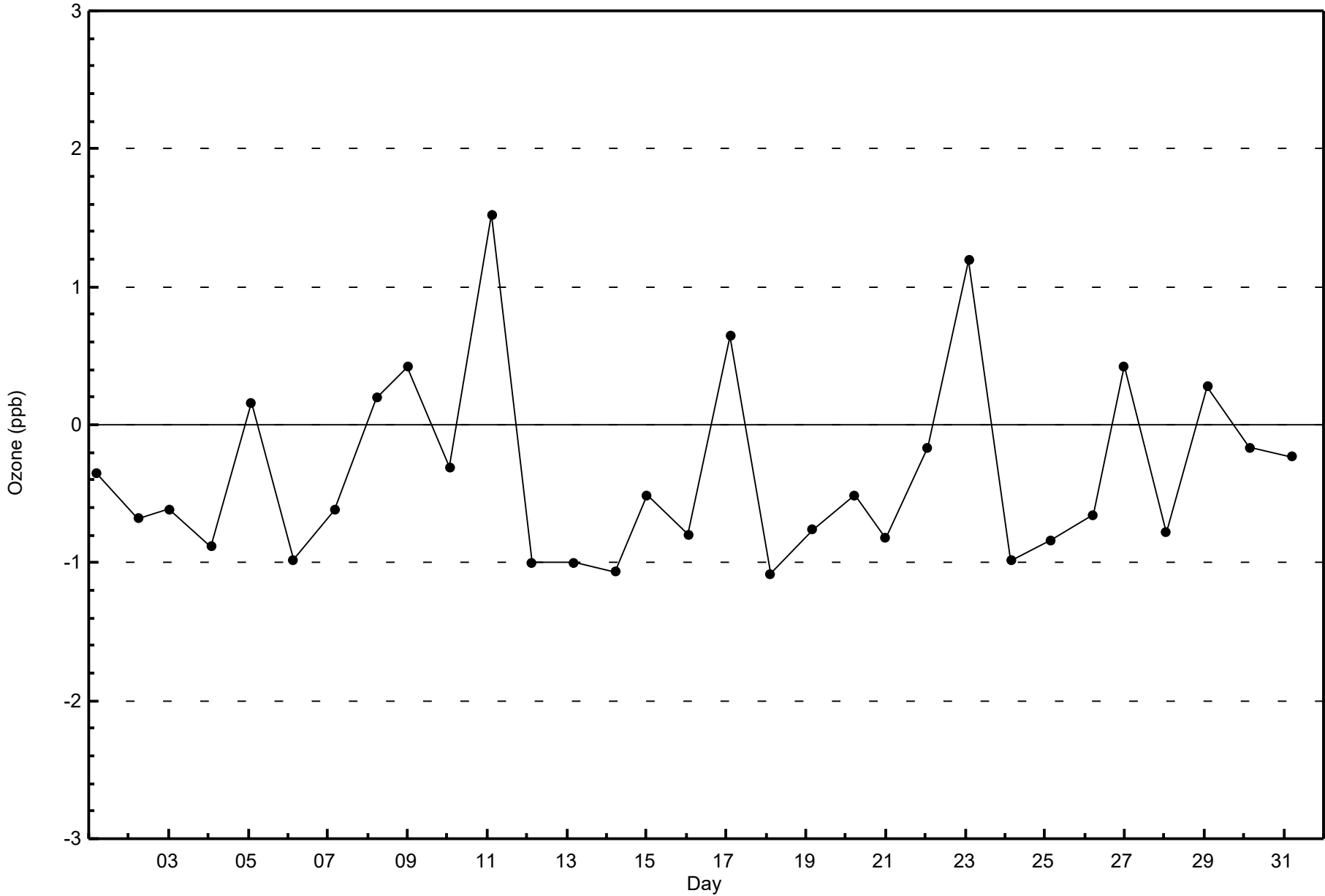
Total Number of Hours: 744

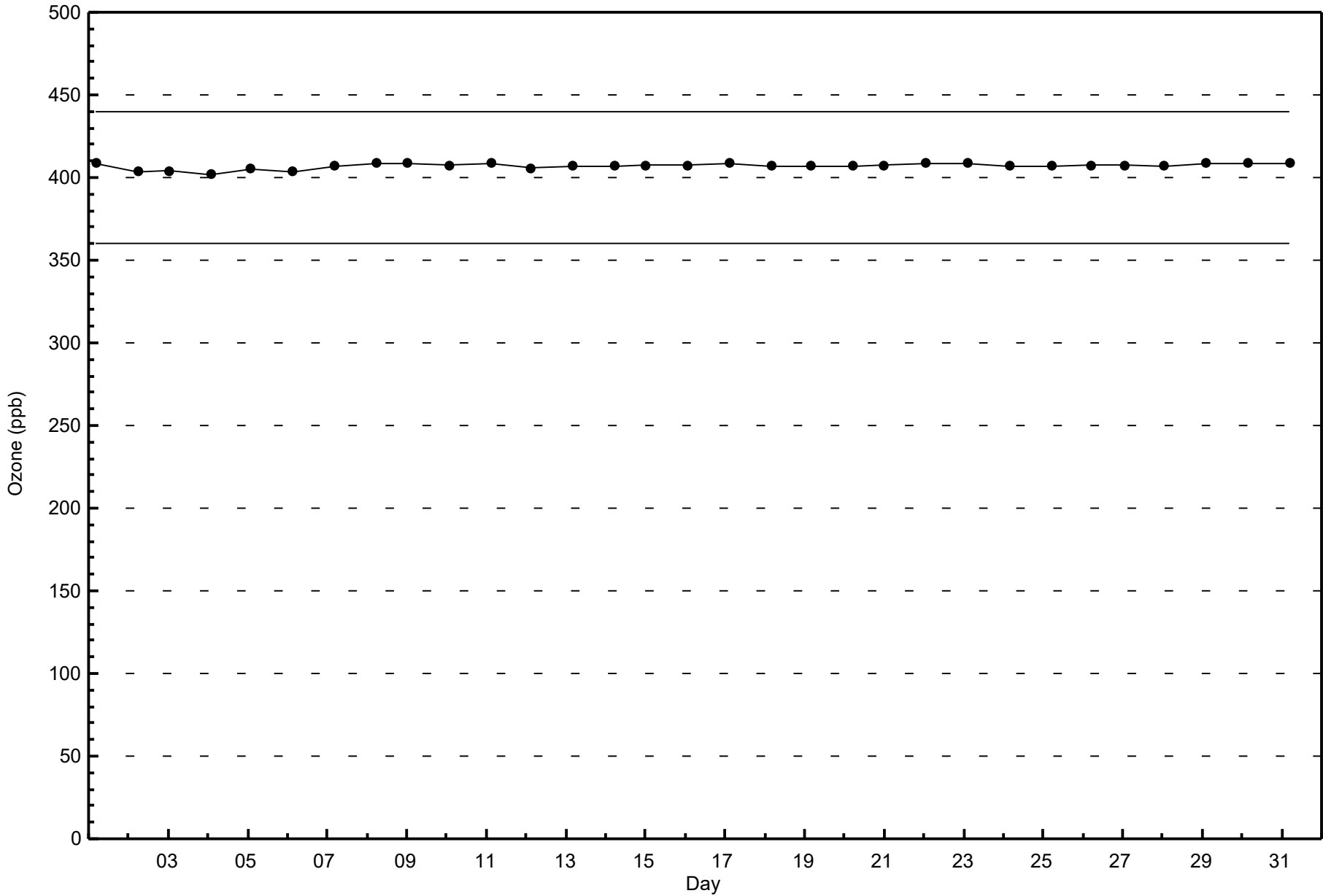


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









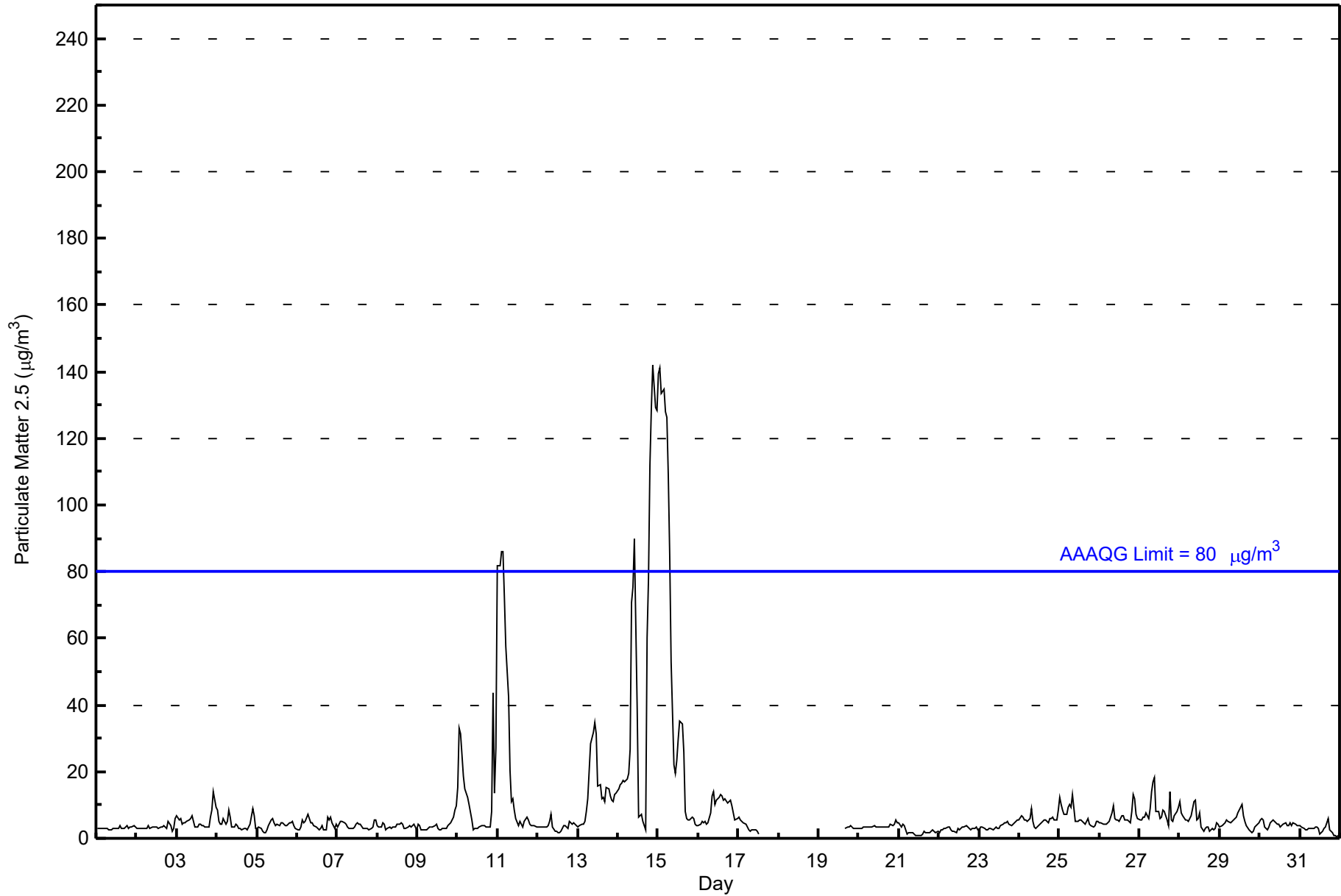
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Fort McKay - Bertha Ganter - May 2024

Number of Exceedences (AAAQO):		1-hr: 18		24-hr: 2		Hours in Service:		744																																									
Maximum Value: 142.0 µg/m <sup>3</sup> on May 14 22:00		Maximum Daily Average: 53.6 µg/m <sup>3</sup> on May 15				Hours of Data:		693																																									
Minimum Value: 0.4 µg/m <sup>3</sup> on May 31 23:00		Minimum Daily Average: 2.1 µg/m <sup>3</sup> on May 21				Hours of Missing Data:		51																																									
Maximum Diurnal Average: 13.2 µg/m <sup>3</sup> at hour 2		Minimum Diurnal Average: 4.5 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		3																																									
Monthly Average: 9.16 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 2.7 Q <sub>1</sub> = 3.1 Median = 4.1 Q <sub>3</sub> = 6.0 P <sub>90</sub> = 13.2 P <sub>99</sub> = 128.6				Percent Operational Time:		93.6																																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	2.8	2.9	3.1	3.0	3.0	2.9	2.8	2.7	2.6	2.6	2.8	2.8	2.8	2.9	3.6	3.0	3.1	3.2	4.0	3.1	3.2	3.4	3.7	3.6	3.1	4.0																							
2-May	3.1	3.1	3.1	2.8	3.0	3.0	2.8	3.7	3.1	3.5	3.5	3.4	3.2	3.1	3.3	3.5	3.9	3.2	3.1	4.9	3.7	2.1	2.9	5.9	3.4	5.9																							
3-May	6.7	5.6	5.8	4.2	4.5	4.6	5.0	5.3	5.9	6.7	5.0	3.4	3.5	4.4	4.2	3.8	3.6	3.3	3.2	3.2	6.5	8.4	14.0	9.2	5.4	14.0																							
4-May	8.6	5.1	4.4	4.4	5.9	4.3	4.9	8.4	6.4	3.5	3.3	4.1	3.9	3.0	3.0	2.7	3.0	3.0	2.7	3.6	4.1	8.9	6.6	2.9	4.6	8.9																							
5-May	3.0	3.6	2.9	2.2	1.9	1.8	2.4	3.7	5.5	5.8	4.5	3.9	4.4	3.9	4.5	4.5	4.1	3.7	3.8	4.7	4.7	5.0	3.7	2.9	3.8	5.8																							
6-May	2.8	2.7	3.3	5.4	4.8	5.1	7.3	5.8	4.5	4.8	3.7	3.4	3.1	2.6	2.9	3.8	2.8	2.7	6.5	5.7	6.4	4.8	3.1	4.1	4.2	7.3																							
7-May	3.5	4.3	5.1	5.1	4.6	4.3	3.3	2.9	3.0	2.9	3.6	4.4	4.8	4.4	4.0	2.9	3.0	3.0	2.8	2.8	3.0	3.3	5.6	5.4	3.8	5.6																							
8-May	3.7	3.4	3.5	4.6	4.3	2.7	3.1	3.2	3.1	3.3	3.3	3.5	4.1	4.4	4.5	4.4	3.1	3.0	3.3	3.6	3.2	3.6	4.4	2.4	3.6	4.6																							
9-May	4.1	3.6	2.5	2.5	2.6	2.7	2.8	3.4	3.2	3.3	3.6	4.0	3.0	2.7	2.5	2.9	3.1	3.2	3.8	4.1	4.5	6.5	8.5	9.9	3.9	9.9																							
10-May	15.2	33.0	31.2	18.9	14.8	13.4	12.1	10.0	5.4	2.6	2.8	3.0	3.1	3.5	4.0	3.9	3.6	3.3	3.3	3.4	7.8	43.6	13.5	27.1	11.8	43.6																							
11-May	81.7	82.0	85.8	85.8	72.7	57.5	42.2	20.4	11.1	12.0	8.6	6.0	3.8	4.9	4.2	3.2	5.1	6.4	5.6	4.2	3.6	3.6	3.9	3.3	25.7	85.8																							
12-May	3.4	3.2	3.4	3.2	3.5	3.4	3.9	5.1	7.2	3.3	2.1	2.0	1.8	1.7	2.3	3.8	3.6	3.4	3.1	5.0	4.1	4.5	4.3	3.7	3.5	7.2																							
13-May	3.5	3.6	4.2	4.4	5.2	7.9	11.8	28.5	30.2	31.8	34.9	31.4	15.7	16.2	11.9	12.5	11.1	15.1	14.9	12.9	11.5	10.9	13.3	13.7	14.9	34.9																							
14-May	14.8	15.9	16.5	17.3	17.1	17.6	19.5	26.8	70.8	75.2	89.8	38.7	6.2	7.0	7.1	5.0	2.7	60.1	78.1	111.8	128.9	142.0	129.2	128.6	51.1	142.0																							
15-May	139.4	141.3	133.7	134.7	127.8	126.5	108.9	85.0	52.8	22.1	19.4	23.4	29.7	35.1	34.4	26.0	8.1	6.0	5.7	5.5	6.2	5.8	4.1	3.7	53.6	141.3																							
16-May	3.8	4.3	4.9	4.6	5.0	4.1	4.8	7.4	12.9	14.1	10.3	11.3	12.1	13.1	12.9	11.5	11.7	10.5	10.9	11.3	9.8	7.4	5.4	6.0	8.8	14.1																							
17-May	6.2	5.7	5.1	4.6	4.0	3.4	2.5	2.2	2.3	2.7	2.2	1.2	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	6.2																							
18-May	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	--																						
19-May	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	C	C	C	3.1	3.4	3.5	3.7	3.3	2.9	3.0	3.1	--	3.7																							
20-May	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.3	3.6	3.6	3.4	3.4	3.3	3.3	3.3	3.2	3.4	3.4	3.4	4.3	3.9	4.2	5.5	4.7	3.6	5.5																							
21-May	4.5	3.3	4.4	3.9	2.7	1.1	1.5	1.5	1.6	1.3	1.1	1.0	0.9	0.9	1.3	2.2	1.8	1.5	1.9	2.3	2.6	2.2	1.8	2.2	2.1	4.5																							
22-May	1.9	2.5	2.5	2.9	3.1	3.4	3.3	2.7	2.2	1.9	1.8	2.9	2.6	3.0	3.5	3.5	3.7	3.3	3.1	2.6	2.9	2.8	3.2	2.5	2.8	3.7																							
23-May	2.7	3.3	3.5	2.8	2.7	2.6	3.0	2.8	2.7	2.9	3.2	3.0	3.1	3.8	4.4	4.8	4.7	4.9	4.2	3.9	4.2	4.7	4.9	5.3	3.7	5.3																							
24-May	5.6	7.0	6.4	5.5	5.5	5.1	6.0	9.0	5.3	3.6	3.1	3.7	4.1	4.8	4.9	5.4	5.5	4.8	5.8	5.7	6.2	5.5	5.5	8.3	5.5	9.0																							
25-May	12.2	10.2	8.7	7.2	7.2	9.4	10.0	9.4	13.3	5.1	5.0	5.1	5.5	5.5	5.1	4.4	5.0	5.8	4.3	3.7	3.5	3.6	5.3	5.0	6.7	13.3																							
26-May	4.5	4.5	4.2	4.1	4.4	4.6	4.9	7.6	9.9	6.0	5.5	5.5	5.1	6.7	6.7	5.6	5.4	5.4	4.7	7.9	13.2	11.7	7.3	6.1	6.3	13.2																							
27-May	5.4	5.5	6.2	6.2	7.7	5.9	8.9	14.1	16.8	18.4	7.9	8.0	6.1	6.5	8.5	8.2	5.6	3.8	14.0	5.7	5.2	6.8	8.0	9.5	8.3	18.4																							
28-May	11.1	7.8	6.6	5.3	5.6	5.1	6.0	6.6	11.0	11.3	5.4	6.1	7.6	3.3	2.3	2.9	3.3	3.4	2.0	3.1	2.7	3.2	4.8	4.4	5.4	11.3																							
29-May	3.5	4.0	4.1	4.5	5.4	5.1	4.9	5.1	5.4	5.8	6.5	7.8	9.2	10.1	6.6	5.1	3.6	2.8	2.2	1.9	2.2	3.4	3.9	4.6	4.9	10.1																							
30-May	5.7	5.9	5.6	3.4	2.4	3.6	4.6	5.2	5.7	5.2	4.3	4.1	3.3	3.6	4.4	4.8	3.9	3.9	4.5	3.9	4.7	4.3	4.0	4.0	4.4	5.9																							
31-May	3.9	3.4	2.8	2.5	2.7	2.8	2.8	2.8	2.8	3.2	3.5	2.9	1.2	2.1	2.8	3.6	4.5	5.8	2.7	1.5	1.0	0.7	0.4	0.8	2.6	5.8																							
																								12.8	13.2	13.0	12.4	11.6	10.9	10.3	10.2	10.7	9.3	8.8	7.1	5.5	5.9	5.8	5.4	4.5	6.4	7.3	8.3	9.2	11.0	9.8	10.1	Diurnal Average	
																								139.4	141.3	133.7	134.7	127.8	126.5	108.9	85.0	70.8	75.2	89.8	38.7	29.7	35.1	34.4	26.0	11.7	60.1	78.1	111.8	128.9	142.0	129.2	128.6	Diurnal Maximum	
C - Calibration																								M - Maintenance				AF - Analyzer 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 McKay - Bertha Ganter - May 2024**

<b>Concentration Ranges (<math>\mu\text{g}/\text{m}^3</math>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	479	69.12	69.12
6 - 15	158	22.80	91.92
16 - 25	15	2.16	94.08
26 - 80	23	3.32	97.40
> 81.0	18	2.60	100.00

Total Number of Valid Hours: 693

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 - May 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	59	85	23	18	22	18	26	43	34	15	11	12	14	24	42	30	476
6 - 15	15	30	3	3	1	1	5	33	15	5	15	5	3	8	6	10	158
16 - 25	0	2	0	1	0	1	0	2	6	0	1	1	0	0	1	0	15
26 - 80	2	3	0	1	0	1	0	6	2	4	0	0	0	3	1	0	23
> 81.0	4	1	0	0	0	1	0	1	0	0	0	1	0	4	4	2	18
<b>Totals</b>	80	121	26	23	23	22	31	85	57	24	27	19	17	39	54	42	690

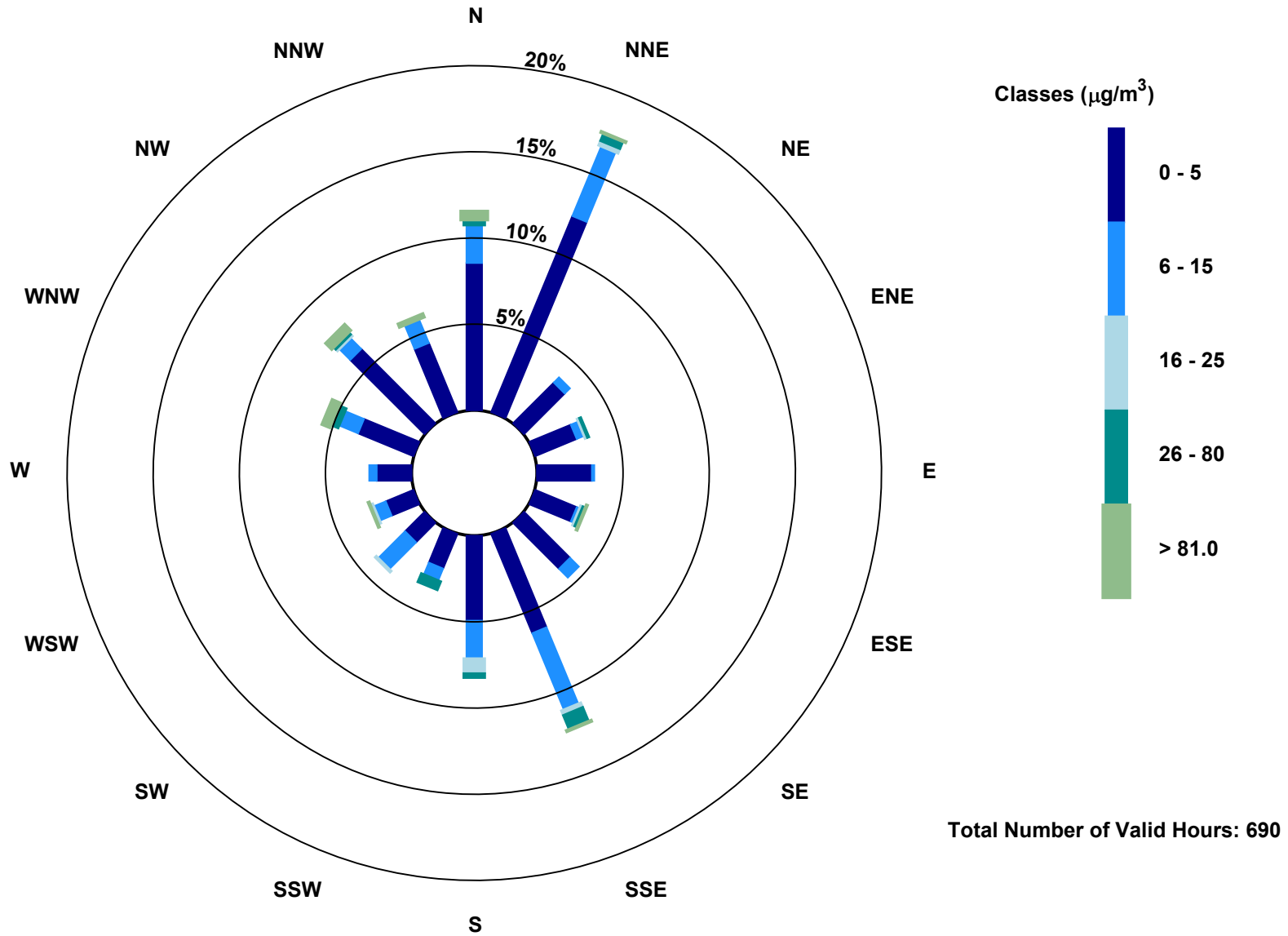
Total Number of Valid Hours: 690

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 0.7 ppm on May 14 11:00	Maximum Daily Average: 0.4 ppm on May 14		Hours of Data:	709
Minimum Value: 0.2 ppm on May 3 20:00	Minimum Daily Average: 0.2 ppm on May 9		Hours of Missing Data:	35
Maximum Diurnal Average: 0.3 ppm at hour 1	Minimum Diurnal Average: 0.3 ppm at hour 17		Hours of Calibration:	35
Monthly Average: 0.28 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> = 0.4 P <sub>99</sub> = 0.6		Percent Operational Time:	100.0

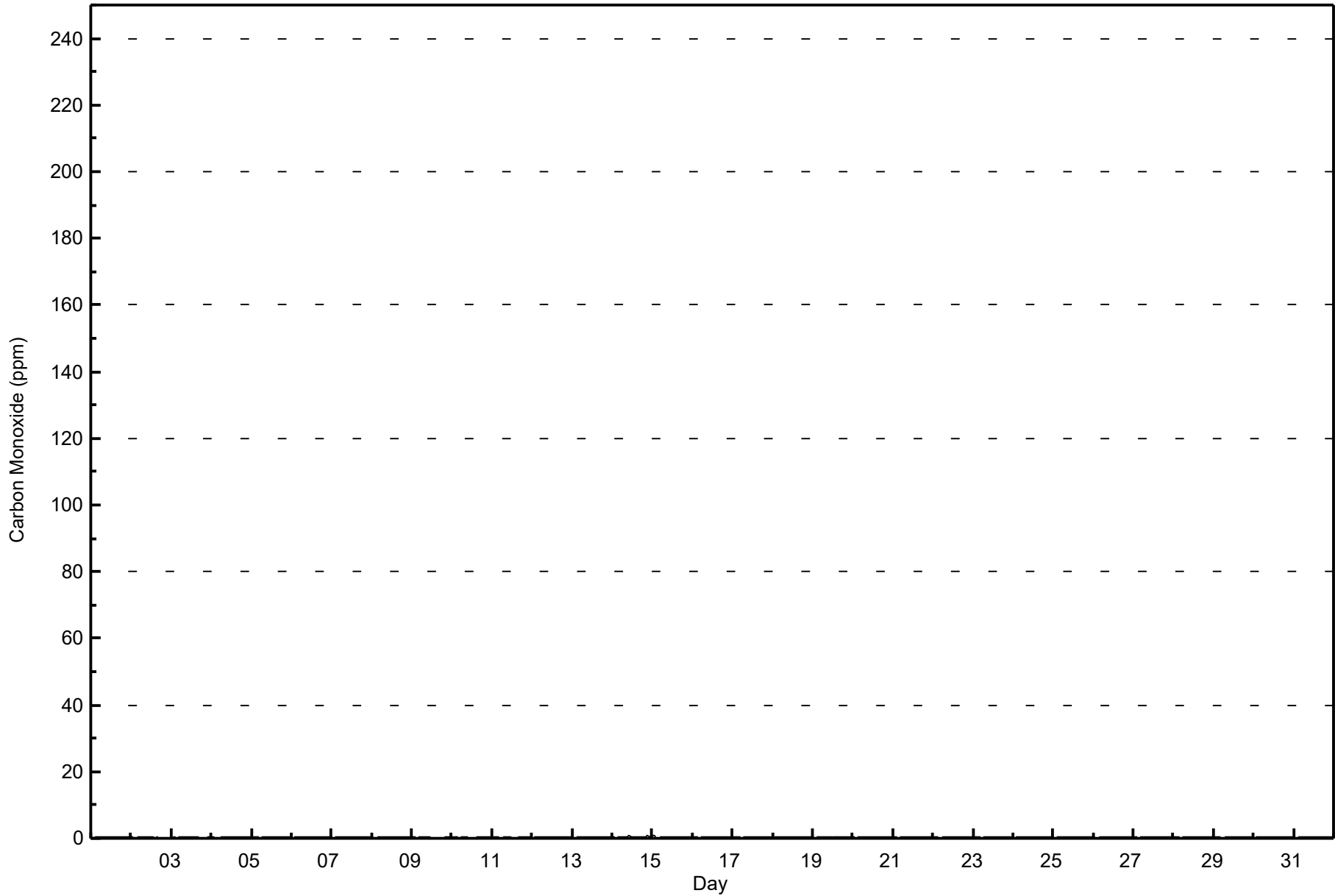
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3																							
2-May	0.2	0.3	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																						
3-May	0.2	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																						
4-May	0.3	0.2	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
5-May	0.3	0.3	0.2	0.2	0.2	Z	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2																						
6-May	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	0.3	0.4	0.3																						
7-May	0.4	Z	0.4	0.3	0.3	0.3	0.3	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	0.3	0.3	0.3	0.3	0.3																						
8-May	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	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3																						
9-May	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	0.3	0.3	0.3	0.2																						
10-May	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.2	C	C	C	C	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																						
11-May	0.4	0.4	0.4	0.4	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3																						
12-May	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
13-May	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.3																						
14-May	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.7	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.4																						
15-May	0.6	0.6	0.6	Z	0.6	0.6	0.6	0.5	0.4	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	0.2	0.4																						
16-May	0.2	0.3	0.3	0.3	Z	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
17-May	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	0.3																						
18-May	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																						
19-May	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																						
20-May	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	0.3	0.4	0.3	0.3	0.4																						
21-May	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																						
22-May	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3																						
23-May	0.3	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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																						
24-May	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3																						
25-May	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	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
26-May	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																						
27-May	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	0.4	0.4	0.4	0.4	0.3	0.3	0.4																						
28-May	0.3	0.3	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
29-May	0.4	0.3	0.3	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
30-May	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	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																						
31-May	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	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
																								0.6	0.6	0.6	0.4	0.6	0.6	0.6	0.5	0.5	0.5	0.7	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6

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



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	632	89.14	89.14
0.4 - 0.5	65	9.17	98.31
0.6 - 0.7	12	1.69	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 - May 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	87	117	31	20	19	18	29	76	51	21	19	14	14	29	46	38	629
0.4 - 0.5	12	10	2	3	1	3	1	8	3	2	3	2	1	6	5	3	65
0.6 - 0.7	2	1	0	0	0	1	0	1	0	0	0	1	0	2	2	2	12
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>	101	128	33	23	20	22	30	85	54	23	22	17	15	37	53	43	706

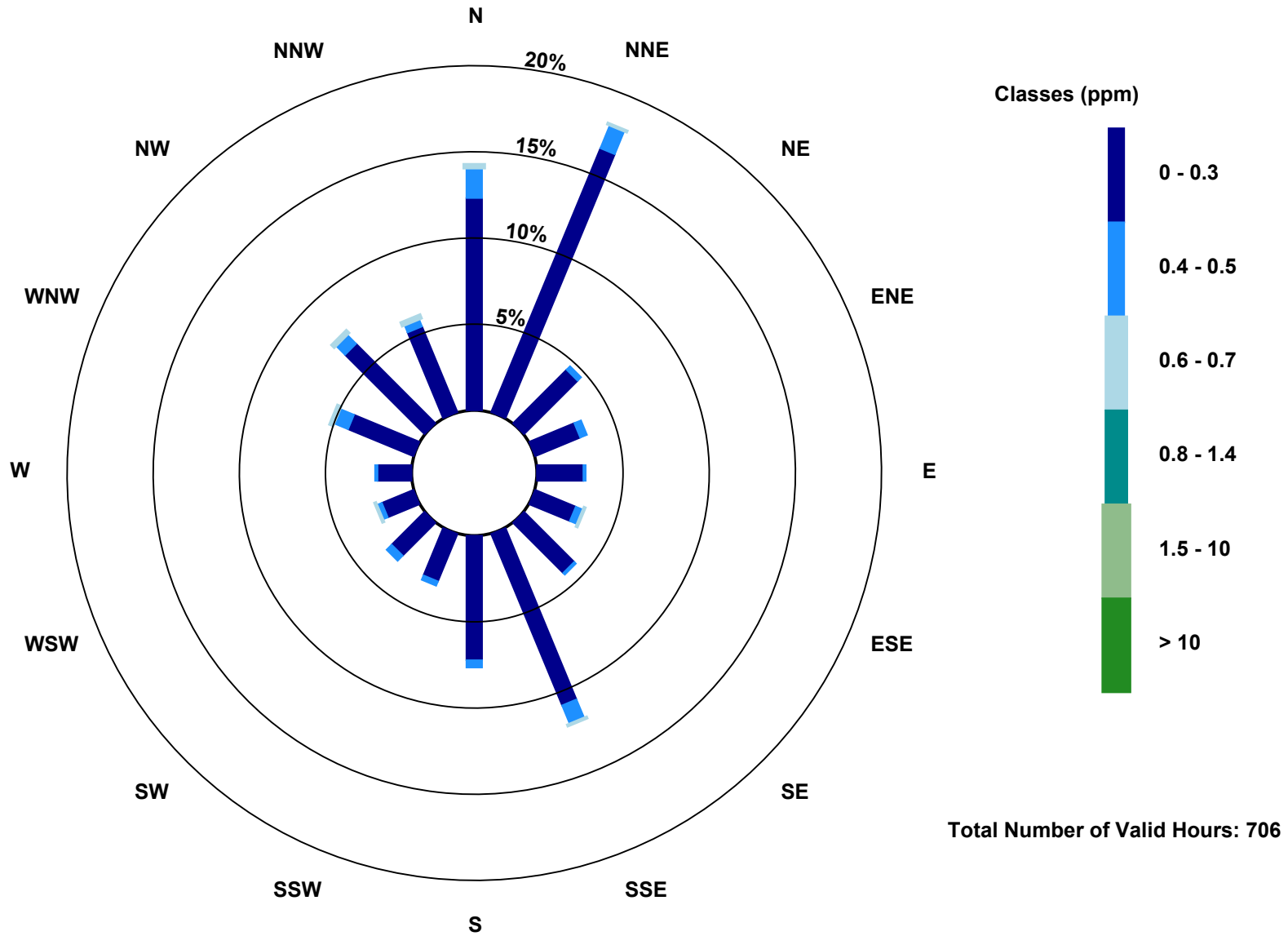
Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Carbon Dioxide (CO<sub>2</sub>) - ppm

Fort McKay - Bertha Ganter - May 2024

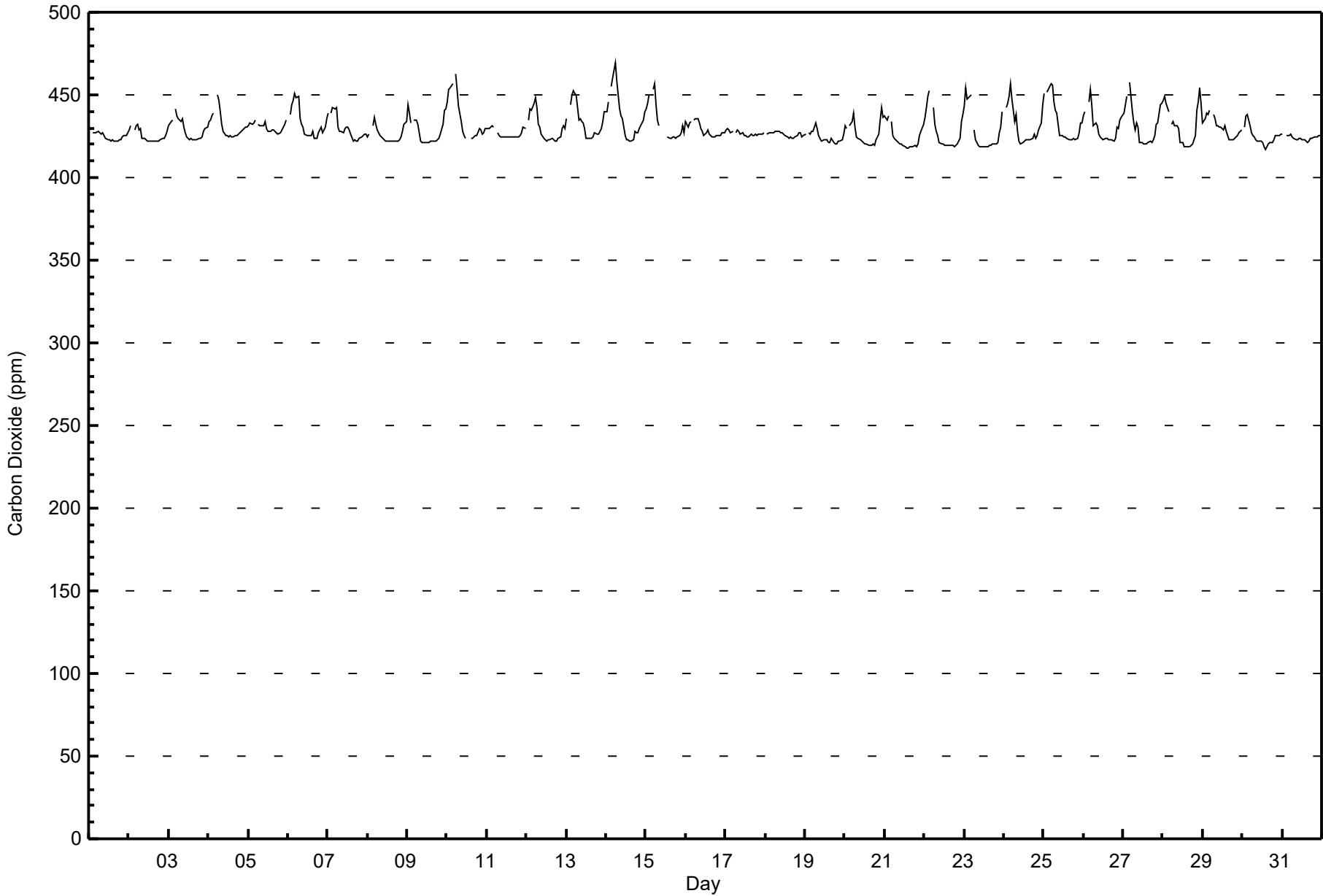
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 469.6 ppm on May 14 06:00		Maximum Daily Average: 437.0 ppm on May 14																	Hours of Data:	707							
Minimum Value: 417.4 ppm on May 30 15:00		Minimum Daily Average: 423.9 ppm on May 21																	Hours of Missing Data:	37							
Maximum Diurnal Average: 440.9 ppm at hour 5		Minimum Diurnal Average: 422.7 ppm at hour 17																	Hours of Calibration:	35							
Monthly Average: 429.12 ppm		Percentiles: P <sub>1</sub> = 418.5 P <sub>10</sub> = 421.3 Q <sub>1</sub> = 423.2 Median = 426.5 Q <sub>3</sub> = 432.2 P <sub>90</sub> = 442.2 P <sub>99</sub> = 456.8																	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-May	427.0	Z	426.9	427.2	427.5	427.9	427.4	426.5	427.1	425.7	423.9	423.2	422.6	422.3	422.7	421.9	421.7	422.1	423.2	422.7	424.7	425.5	425.2	426.9	424.9	427.9	
2-May	429.0	431.2	Z	428.5	431.1	431.9	429.2	429.9	424.0	423.7	422.9	422.4	422.0	421.9	421.9	422.2	422.2	422.2	422.4	423.1	423.4	424.0	425.3	428.3	425.3	431.9	
3-May	431.4	434.0	434.6	Z	441.5	437.4	435.9	433.7	435.4	430.8	427.0	424.4	422.8	423.4	423.2	423.2	423.1	423.4	423.5	424.9	428.1	429.7	430.6	428.9	441.5		
4-May	434.0	434.5	437.0	439.1	Z	449.7	446.4	439.6	431.9	427.6	425.8	425.1	424.4	425.1	424.9	424.4	425.0	425.3	426.5	426.9	427.7	429.4	430.8	430.4	430.9	449.7	
5-May	431.6	432.9	432.5	433.2	434.5	Z	432.2	430.9	431.5	421.4	433.8	429.6	428.0	427.8	429.1	429.0	428.2	427.0	426.5	427.5	428.8	430.3	432.1	434.5	430.6	434.5	
6-May	Z	437.9	443.9	446.3	450.9	448.1	449.1	435.5	432.1	430.8	426.1	425.2	425.1	425.2	425.6	428.0	423.8	423.7	427.3	428.4	430.4	427.3	430.4	435.8	432.9	450.9	
7-May	438.8	Z	439.2	442.4	441.9	442.2	430.3	428.2	428.3	427.1	429.7	430.2	430.8	429.2	426.4	422.4	422.6	422.2	422.1	423.4	424.8	425.4	426.0	426.0	429.5	442.4	
8-May	424.8	426.2	Z	431.2	436.8	432.6	428.8	425.7	424.3	423.4	422.9	422.2	421.7	422.4	422.3	422.3	422.0	422.3	422.4	422.9	424.8	428.2	431.8	434.1	425.9	436.8	
9-May	444.0	439.4	433.4	Z	434.8	434.3	432.2	427.2	422.2	420.9	421.0	421.3	421.4	421.4	421.6	421.9	422.0	422.3	422.6	423.5	426.0	432.6	440.5	441.9	428.2	444.0	
10-May	445.8	453.0	454.7	457.2	Z	463.0	453.7	443.5	434.2	428.3	425.1	424.1	M	M	423.6	424.1	424.8	425.0	425.3	429.4	428.5	426.5	427.0	429.8	435.6	463.0	
11-May	430.0	429.6	430.5	431.5	430.8	Z	427.4	425.3	424.7	424.5	424.5	424.3	424.2	424.2	424.2	424.3	424.6	424.8	424.7	424.8	425.4	426.9	430.6	429.3	426.6	431.5	
12-May	Z	434.5	441.1	440.6	445.3	448.1	442.4	432.3	430.3	425.9	423.8	423.1	422.4	422.5	423.1	424.0	422.8	422.4	422.1	423.6	424.8	429.8	431.4	429.7	429.8	448.1	
13-May	435.9	Z	444.4	449.6	452.5	450.6	450.0	434.8	435.9	433.8	432.7	429.3	424.0	424.1	423.5	423.6	424.7	427.5	426.6	426.4	427.9	429.6	433.7	440.2	434.0	452.5	
14-May	439.5	445.7	Z	455.2	460.2	469.6	458.4	450.1	441.2	437.6	436.0	425.8	422.7	422.5	422.5	422.5	423.2	427.9	427.2	427.0	429.7	431.8	434.6	439.5	437.0	469.6	
15-May	441.4	444.8	449.9	Z	453.0	456.4	444.1	435.1	431.1	C	C	C	C	424.2	423.3	423.6	424.3	424.5	424.1	424.6	425.3	427.3	431.4	426.8	433.4	456.4	
16-May	433.7	430.4	433.2	433.8	Z	434.5	435.9	435.5	432.7	429.9	427.8	427.0	425.7	427.4	428.6	426.4	425.5	424.5	424.6	425.4	425.5	425.7	425.5	427.0	429.0	435.9	
17-May	429.2	429.4	429.2	427.2	428.0	Z	427.1	428.9	427.8	426.6	427.0	425.5	425.0	424.5	424.3	426.5	425.3	425.6	425.9	425.7	426.2	426.2	426.7	427.2	426.7	429.4	
18-May	Z	426.7	427.0	427.1	427.4	427.0	427.7	427.8	427.8	427.5	427.3	426.4	425.3	425.0	423.9	424.2	423.7	423.4	425.0	425.6	426.8	427.5	424.3	425.1	426.1	427.8	
19-May	426.5	Z	427.3	426.5	428.0	428.3	432.7	429.3	425.1	423.6	422.3	422.7	422.9	423.1	421.0	421.1	424.0	421.5	420.0	420.2	421.8	421.8	423.1	425.9	424.3	432.7	
20-May	431.5	430.0	Z	431.8	434.0	438.9	430.5	424.3	423.3	422.5	422.3	421.1	420.4	420.3	419.7	419.4	419.9	419.9	419.2	423.0	426.1	434.5	442.7	436.7	426.6	442.7	
21-May	437.3	435.1	437.5	Z	433.8	425.5	423.8	422.3	420.9	420.6	420.4	419.6	418.4	418.0	418.2	418.2	418.5	418.6	419.6	418.9	420.2	425.8	427.6	431.8	423.9	437.5	
22-May	436.0	442.5	449.5	452.2	Z	442.2	432.1	427.9	425.7	420.8	420.2	420.7	419.7	419.6	419.8	419.4	419.4	419.2	419.0	419.2	420.0	424.1	433.8	438.2	427.9	452.2	
23-May	443.2	454.0	447.8	448.9	450.0	Z	429.2	422.8	419.6	418.9	418.6	418.4	418.5	418.6	418.9	419.6	419.7	420.0	420.7	420.3	421.6	427.3	430.5	439.9	428.1	454.0	
24-May	Z	442.5	445.0	449.4	456.9	447.5	434.3	437.9	428.2	422.2	420.4	421.2	422.2	422.5	422.9	422.5	422.9	423.4	426.1	424.1	425.5	428.9	433.0	443.9	431.4	456.9	
25-May	451.1	Z	451.9	453.7	456.8	456.3	445.4	440.6	438.6	425.1	425.1	425.1	424.7	424.3	423.7	422.8	422.5	423.1	423.6	423.1	423.9	426.7	433.4	433.4	433.7	456.8	
26-May	437.0	439.4	Z	445.9	453.0	444.0	431.0	433.0	431.1	426.5	424.3	423.8	423.3	423.8	423.6	422.6	422.8	422.6	421.9	423.8	430.5	429.6	434.9	436.2	430.6	453.0	
27-May	438.8	443.7	449.0	Z	457.9	440.1	432.9	428.8	432.9	430.7	421.0	421.4	420.7	420.7	420.4	420.9	421.7	420.8	422.8	425.1	431.9	432.9	444.4	444.6	431.5	457.9	
28-May	446.2	448.8	444.8	440.2	Z	432.6	433.6	431.3	431.2	429.4	421.3	421.6	421.5	418.9	418.4	418.8	418.6	419.2	420.7	425.7	441.0	445.7	454.2	444.9	431.7	454.2	
29-May	433.3	436.0	439.3	438.0	440.7	Z	437.8	435.6	430.9	431.3	430.3	430.6	428.7	431.1	427.7	425.7	423.1	422.7	422.7	423.5	424.8	425.4	427.3	428.6	430.2	440.7	
30-May	Z	430.7	437.1	438.5	431.5	427.4	425.3	424.2	423.1	422.3	421.7	421.6	421.0	418.9	417.4	420.5	420.9	420.9	421.3	422.5	425.8	425.4	425.0	425.9	424.7	438.5	
31-May	426.4	Z	425.3	425.4	425.3	426.4	424.8	424.0	423.1	423.2	423.4	423.3	423.3	422.9	421.9	421.6	422.0	423.7	423.8	424.6	424.7	424.9	425.2	425.7	424.1	426.4	
		435.5	437.3	438.9	439.2	440.9	440.9	435.2	431.4	428.9	426.4	425.0	424.0	423.3	423.2	422.8	422.8	422.7	423.0	423.3	424.1	426.3	428.2	431.4	432.9	Diurnal Average	
		451.1	454.0	454.7	457.2	460.2	469.6	458.4	450.1	441.2	437.6	436.0	430.6	430.8	431.1	429.1	429.0	428.2	427.9	427.3	429.4	441.0	445.7	454.2	444.9	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 - May 2024**





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
400 - 420	50	7.07	7.07
420 - 440	574	81.19	88.26
440 - 460	81	11.46	99.72
460 - 480	2	0.28	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  
Fort McKay - Bertha Ganter - May 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	7	2	5	10	5	4	4	7	4	0	0	0	1	0	1	50
420 - 440	96	115	28	15	10	16	21	72	39	13	20	13	11	32	44	29	574
440 - 460	5	4	3	1	0	1	5	8	7	6	3	5	4	4	9	13	78
460 - 480	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
480 - 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	101	126	33	21	20	22	30	85	54	23	23	18	15	37	53	43	704

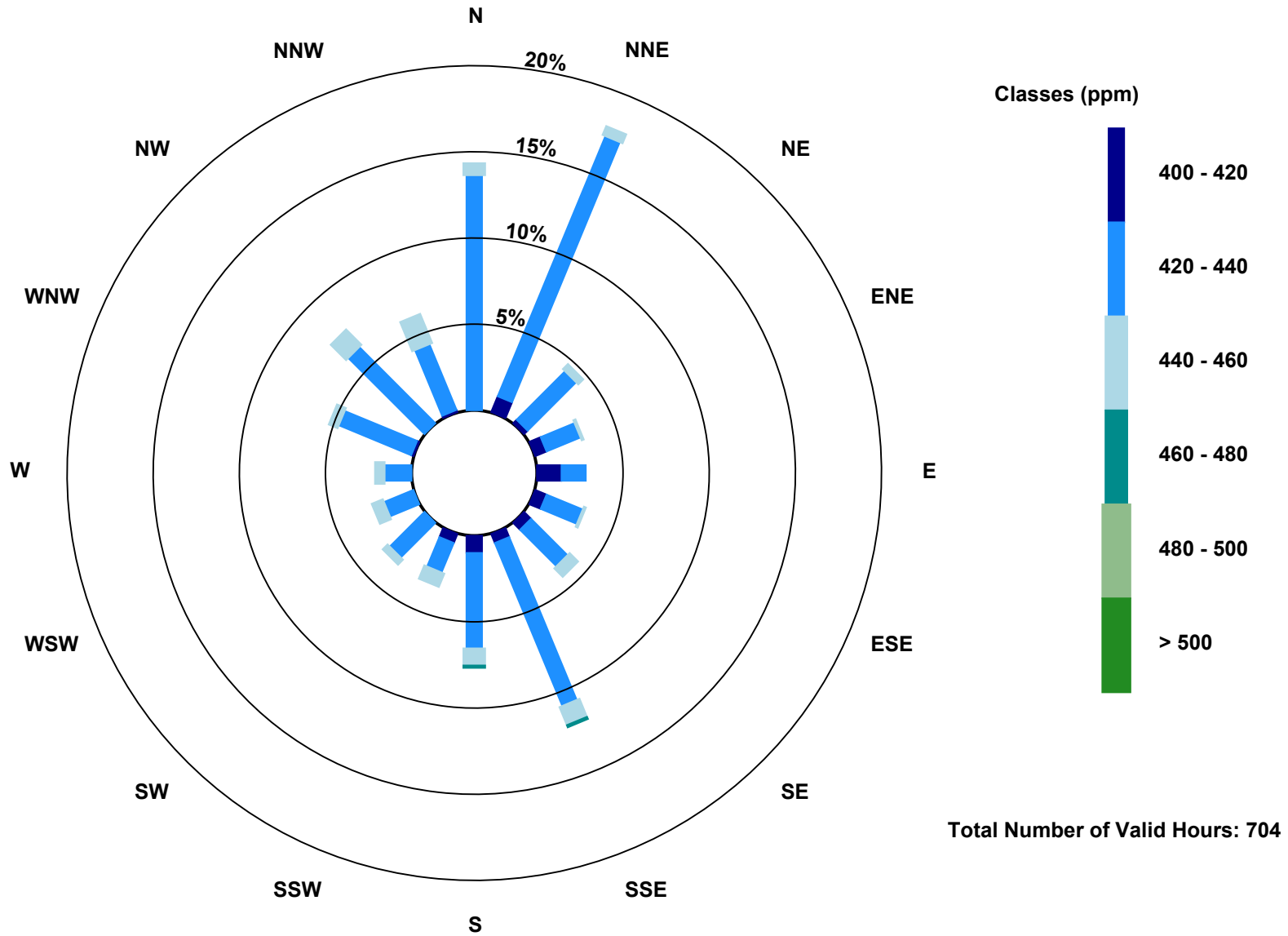
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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



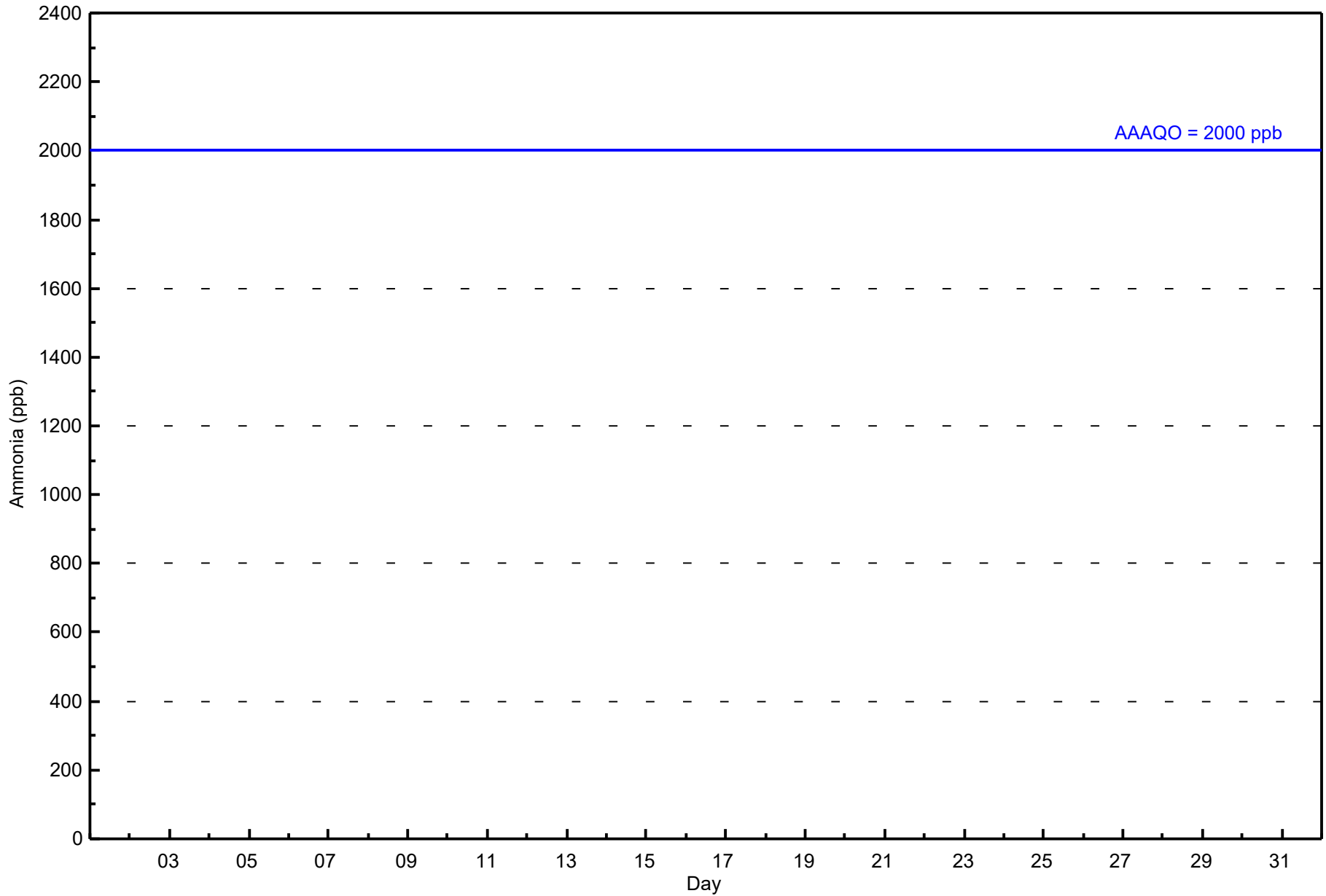


Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																			Daily Average		Daily Maximum												
Maximum Value: 0.0 ppb on May 1 01:00		Maximum Daily Average: 0.0 ppb on May 1																			Hours of Data: 666		Daily Maximum												
Minimum Value: 0.0 ppb on May 1 01:00		Minimum Daily Average: 0.0 ppb on May 1																			Hours of Missing Data: 78		Daily Average	Daily Maximum											
Maximum Diurnal Average: 0.0 ppb at hour 1		Minimum Diurnal Average: 0.0 ppb at hour 1																			Hours of Calibration: 45		Daily Average	Daily Maximum											
Monthly Average: 0.00 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.0																			Percent Operational Time: 95.6		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-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-May	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-May	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-May	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-May	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-May	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-May	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-May	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-May	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-May	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-May	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-May	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-May	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-May	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-May	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-May	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-May	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-May	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
22-May	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
23-May	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-May	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-May	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-May	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-May	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-May	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-May	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31-May	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average		Diurnal Maximum									
																								0.0		0.0									
																								0.0		0.0									
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 - May 2024**





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	666	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: 666

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ammonia (NH<sub>3</sub>) - ppb  
Fort McKay - Bertha Ganter - May 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	101	125	32	19	18	14	28	79	55	23	25	15	13	32	46	38	663
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>	101	125	32	19	18	14	28	79	55	23	25	15	13	32	46	38	663

Total Number of Valid Hours: 663

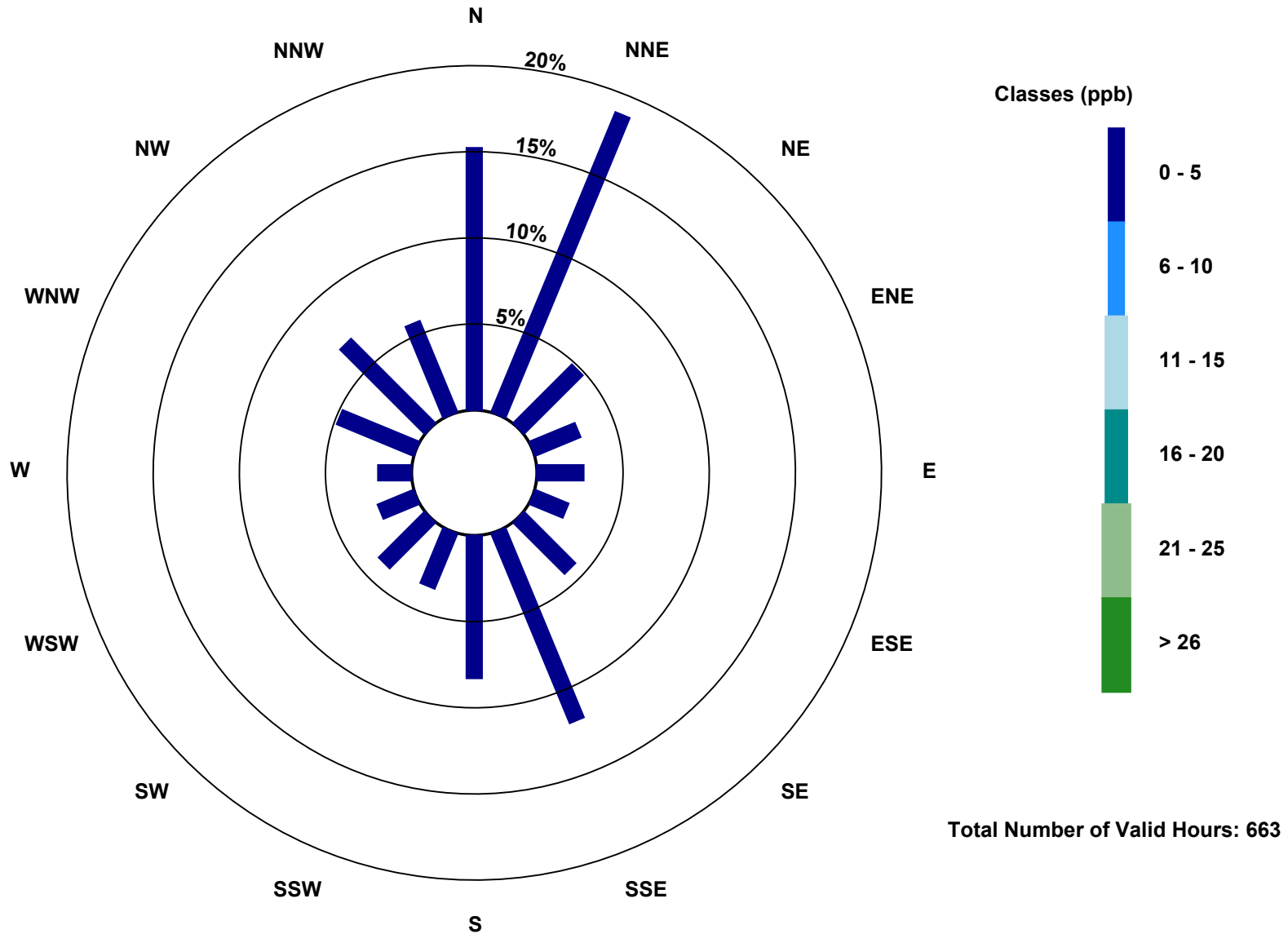
Total Number of Hours: 744

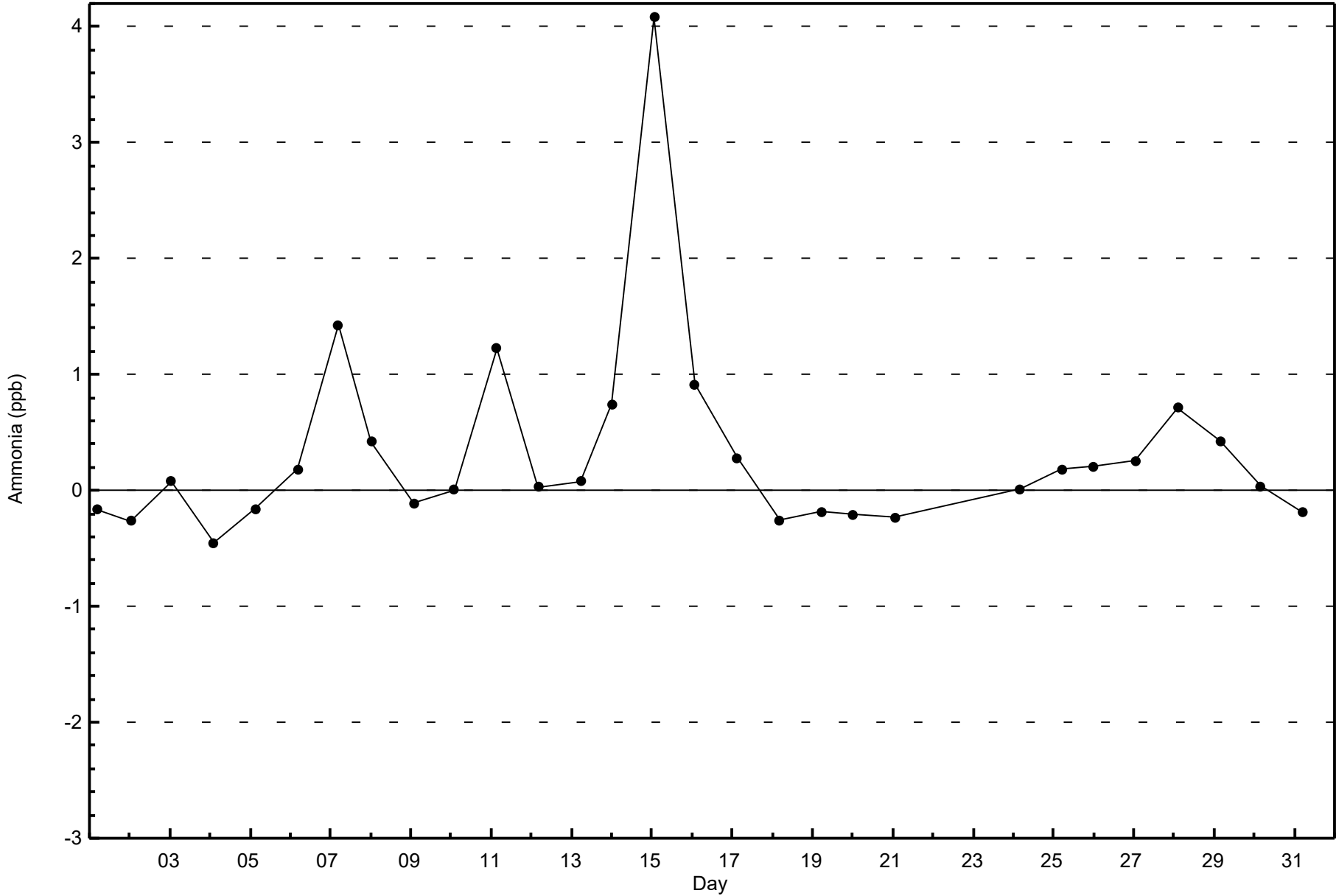


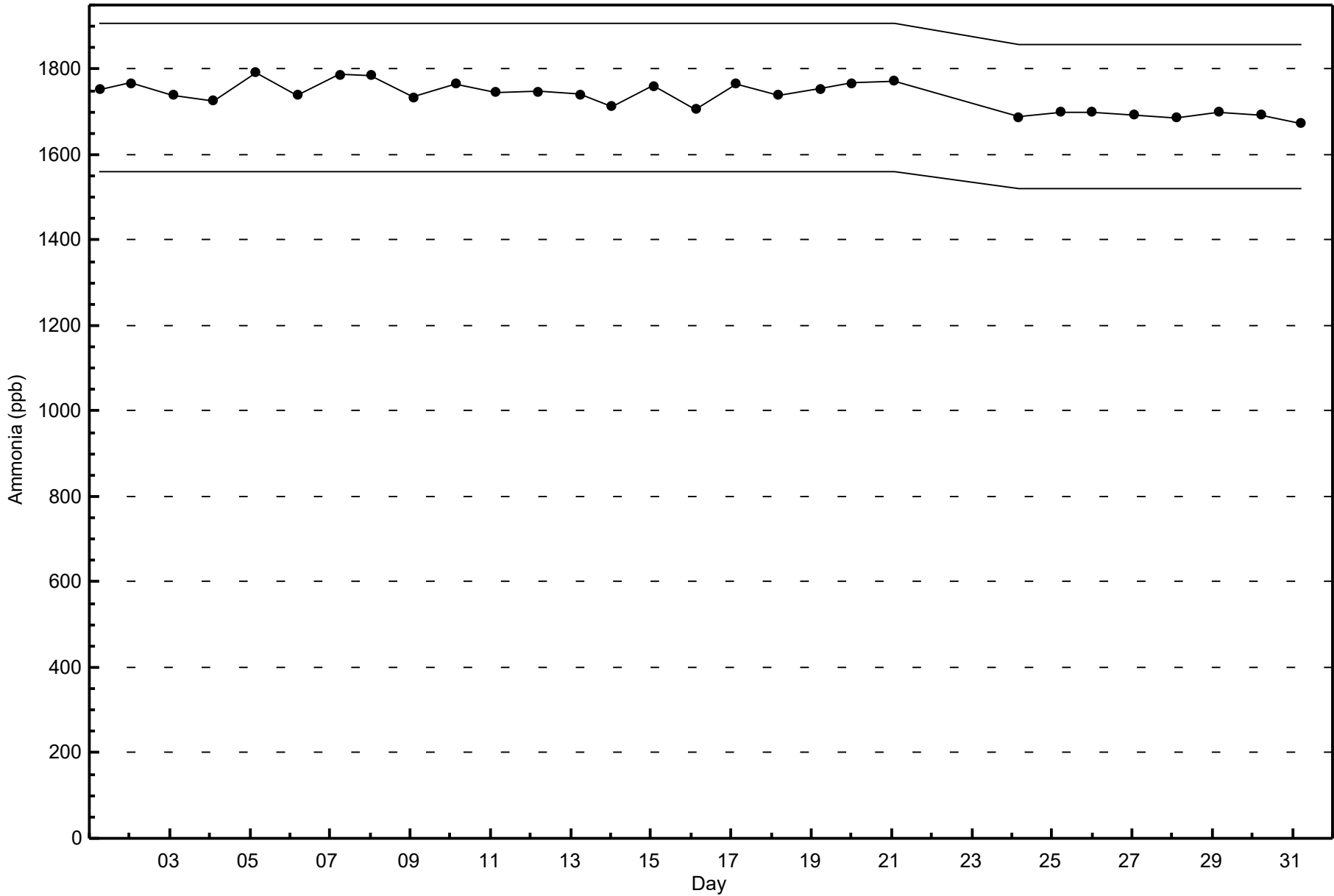


Wood Buffalo Environmental Association  
Wind Rose May 2024

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





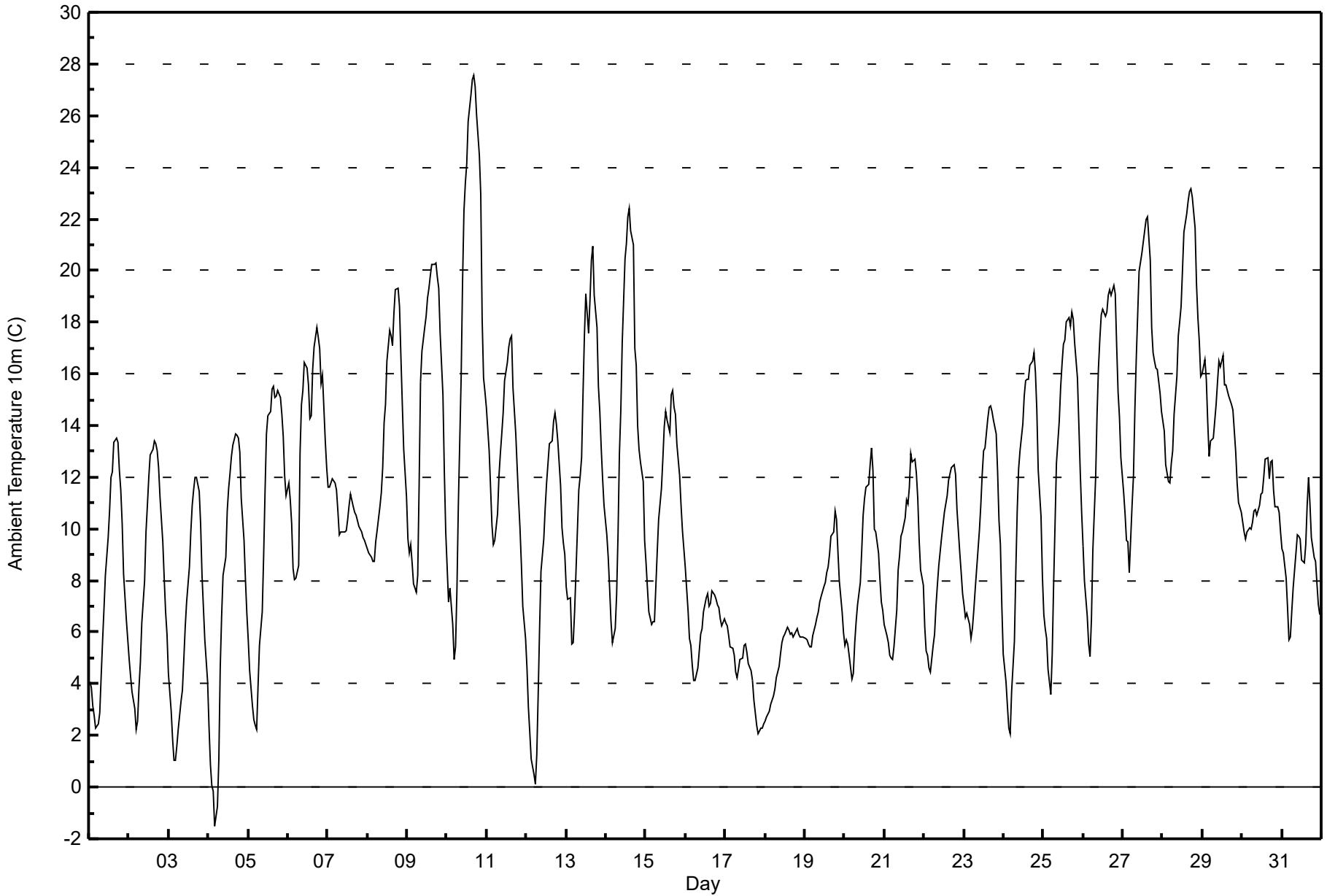




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

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

Maximum Value: 27.6 C on May 10 17:00		Maximum Daily Average: 17.6 C on May 28		Hours in Service: 744																							
Minimum Value: -1.5 C on May 4 05:00		Minimum Daily Average: 4.4 C on May 17		Hours of Data: 744																							
Maximum Diurnal Average: 15.0 C at hour 17		Minimum Diurnal Average: 5.6 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 10.76 C		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 4.6 Q <sub>1</sub> = 6.7 Median = 10.4 Q <sub>3</sub> = 14.2 P <sub>90</sub> = 17.7 P <sub>99</sub> = 23.8		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-May	4.1	3.9	3.1	2.7	2.3	2.4	2.9	4.3	5.6	6.9	8.2	9.6	10.7	12.0	12.2	13.3	13.5	13.3	12.2	11.5	10.2	8.2	6.5	5.7	7.7	13.5	
2-May	4.9	4.3	3.7	3.1	2.2	2.5	3.8	4.8	6.4	8.0	9.9	10.9	12.0	12.8	13.1	13.4	13.3	13.0	12.4	11.2	9.5	8.1	6.8	5.9	8.2	13.4	
3-May	4.4	2.9	1.8	1.0	1.0	1.6	2.3	3.3	3.8	5.0	6.2	7.2	8.5	9.9	10.9	11.5	12.0	12.0	11.4	10.2	8.2	6.9	5.7	4.0	6.3	12.0	
4-May	2.3	0.9	0.1	-0.2	-1.5	-0.7	1.0	4.6	6.6	8.2	8.9	10.7	11.6	12.1	12.8	13.3	13.7	13.6	13.5	12.9	11.2	9.6	8.1	6.7	7.5	13.7	
5-May	5.7	4.5	3.2	2.6	2.4	2.2	3.9	5.5	6.8	9.0	11.5	13.7	14.4	14.5	15.4	15.5	15.1	15.1	15.4	15.1	14.4	13.6	12.1	11.3	10.1	15.5	
6-May	11.8	11.1	10.2	8.5	8.0	8.1	8.6	13.0	14.8	15.3	16.4	16.2	15.6	14.3	14.4	16.1	17.0	17.8	17.4	17.0	15.6	15.9	13.4	12.3	13.7	17.8	
7-May	11.6	11.6	11.8	11.9	11.8	11.5	10.7	9.8	9.9	9.9	9.9	10.0	10.4	10.9	11.3	10.9	10.6	10.5	10.3	10.1	9.9	9.6	9.6	9.4	10.6	11.9	
8-May	9.2	9.1	8.9	8.8	8.7	9.5	9.9	10.9	11.4	12.3	14.1	14.8	16.5	17.7	17.5	17.1	18.3	19.3	19.3	18.6	16.7	14.8	13.1	11.2	13.7	19.3	
9-May	9.6	9.1	9.4	8.7	7.9	7.5	8.2	11.6	15.7	16.9	17.8	18.2	18.9	19.3	19.8	20.2	20.3	20.3	19.8	19.3	17.6	15.2	12.2	9.9	14.7	20.3	
10-May	8.5	7.2	7.7	6.3	4.9	5.4	7.7	10.9	15.9	19.6	22.3	23.4	24.1	25.8	26.8	27.4	27.6	27.1	26.0	24.4	22.9	18.1	15.8	15.3	17.6	27.6	
11-May	14.7	13.0	11.6	10.2	9.4	9.6	10.6	12.1	12.9	13.7	14.5	15.7	16.4	17.0	17.4	17.5	15.5	13.7	12.4	11.1	10.0	8.6	7.0	5.7	12.5	17.5	
12-May	4.6	3.1	2.1	1.1	0.5	0.1	1.2	3.6	6.1	8.4	9.6	10.8	11.8	12.6	13.3	13.4	14.2	14.5	14.0	13.4	11.6	10.1	9.4	9.0	8.3	14.5	
13-May	7.8	7.3	7.3	5.5	5.6	6.8	8.4	11.5	12.1	12.8	15.2	17.5	19.1	17.6	18.9	20.4	20.9	19.0	17.8	15.5	14.5	13.1	12.0	10.9	13.2	20.9	
14-May	9.8	8.9	7.7	6.4	5.6	6.1	7.4	9.8	12.9	14.6	17.2	20.5	21.1	22.1	22.4	21.6	21.0	17.0	16.3	14.0	13.1	12.6	11.8	9.6	13.7	22.4	
15-May	8.7	7.7	6.8	6.3	6.4	6.4	7.7	9.1	10.4	11.5	12.7	13.9	14.6	14.2	13.7	15.2	15.3	14.7	14.5	13.3	12.0	10.9	9.9	9.2	11.1	15.3	
16-May	8.5	6.9	5.8	5.5	4.7	4.1	4.2	4.6	5.3	5.9	6.1	6.8	7.4	7.5	7.0	7.1	7.6	7.5	7.3	7.1	7.0	6.5	6.2	6.5	6.4	8.5	
17-May	6.3	6.3	5.9	5.4	5.4	5.1	4.5	4.3	4.6	4.9	5.0	5.5	5.5	5.2	4.8	4.5	4.1	3.4	2.9	2.4	2.1	2.3	2.3	2.4	4.4	6.3	
18-May	2.6	2.7	2.9	3.2	3.4	3.5	3.8	4.2	4.7	5.2	5.6	5.8	5.9	6.2	6.1	5.9	6.0	5.8	5.9	6.2	5.9	5.8	5.8	5.8	5.0	6.2	
19-May	5.7	5.7	5.5	5.4	5.4	5.8	6.3	6.6	6.8	7.1	7.4	7.8	7.9	8.3	8.5	9.0	9.7	9.9	10.7	10.4	9.1	8.0	6.8	6.0	7.5	10.7	
20-May	5.5	5.7	5.5	5.1	4.2	4.4	5.6	6.4	7.1	7.9	9.2	10.5	11.2	11.6	11.7	12.5	13.1	12.3	10.0	9.9	9.1	8.0	7.2	6.8	8.3	13.1	
21-May	6.3	5.9	5.6	5.1	5.0	5.0	5.4	6.9	8.4	9.0	9.7	9.9	10.4	11.1	11.0	11.6	12.9	12.6	12.7	12.1	11.2	9.6	8.4	7.8	8.9	12.9	
22-May	6.2	5.3	5.1	4.6	4.5	5.5	5.9	7.0	7.8	8.6	9.6	10.2	10.6	11.0	11.3	11.9	12.4	12.4	12.5	12.1	10.7	9.1	8.3	7.5	8.8	12.5	
23-May	7.0	6.6	6.7	6.3	5.8	6.1	6.8	7.7	9.2	9.9	10.9	12.1	13.0	13.2	14.3	14.7	14.7	14.5	14.2	13.7	12.2	10.3	9.4	7.1	10.3	14.7	
24-May	5.1	4.1	3.2	2.3	2.1	3.7	5.6	8.3	10.7	12.3	13.0	14.1	15.2	15.7	15.8	15.8	16.3	16.5	16.8	16.0	14.6	12.2	10.5	8.2	10.8	16.8	
25-May	6.7	6.1	5.8	4.6	3.6	5.1	7.9	10.2	12.6	14.1	15.4	16.4	17.2	17.3	18.0	18.2	17.9	18.4	18.1	17.2	15.8	14.0	12.2	10.6	12.6	18.4	
26-May	9.3	8.0	6.6	5.5	5.0	6.5	9.2	12.0	14.4	16.2	17.3	18.3	18.5	18.3	18.4	19.0	19.2	19.0	19.4	19.1	17.1	15.3	14.3	12.7	14.1	19.4	
27-May	11.4	10.6	9.5	9.5	8.3	10.9	12.1	14.6	16.6	18.3	20.0	20.7	21.1	21.5	22.0	22.1	20.4	17.8	16.8	16.5	16.2	16.2	15.3	14.6	15.9	22.1	
28-May	14.2	13.8	12.5	11.8	11.8	12.5	13.0	14.5	15.9	17.5	18.0	18.6	20.0	21.5	22.2	22.7	23.1	23.2	22.8	21.6	19.5	18.2	17.3	15.9	17.6	23.2	
29-May	16.0	16.5	15.8	14.1	12.8	13.4	13.5	14.2	14.8	15.7	16.5	16.3	16.7	15.6	15.6	15.4	15.1	14.8	14.6	13.8	13.0	11.8	11.0	10.6	14.5	16.7	
30-May	10.3	9.9	9.6	9.9	10.0	10.0	10.2	10.7	10.7	10.5	10.9	11.3	11.4	12.0	12.7	12.7	12.0	12.6	12.6	11.5	10.9	10.9	10.6	9.9	11.0	12.7	
31-May	9.2	9.0	8.1	6.9	5.7	5.8	6.8	7.7	9.0	9.8	9.7	9.6	8.8	8.7	9.4	10.9	12.0	11.0	9.7	8.9	8.7	7.9	7.0	6.7	8.6	12.0	
		8.0	7.3	6.8	6.1	5.6	6.0	6.9	8.5	10.0	11.1	12.2	13.1	13.8	14.1	14.5	14.9	15.0	14.6	14.2	13.4	12.3	11.0	9.9	8.9	Diurnal Average	
		16.0	16.5	15.8	14.1	12.8	13.4	13.5	14.6	16.6	19.6	22.3	23.4	24.1	25.8	26.8	27.4	27.6	27.1	26.0	24.4	22.9	18.2	17.3	15.9	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 10m (AT10) - C  
Fort McKay - Bertha Ganter - May 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	3	0.40	0.40
0 - 10	351	47.18	47.58
10 - 20	354	47.58	95.16
> 20	36	4.84	100.00

Total Number of Valid Hours: 744

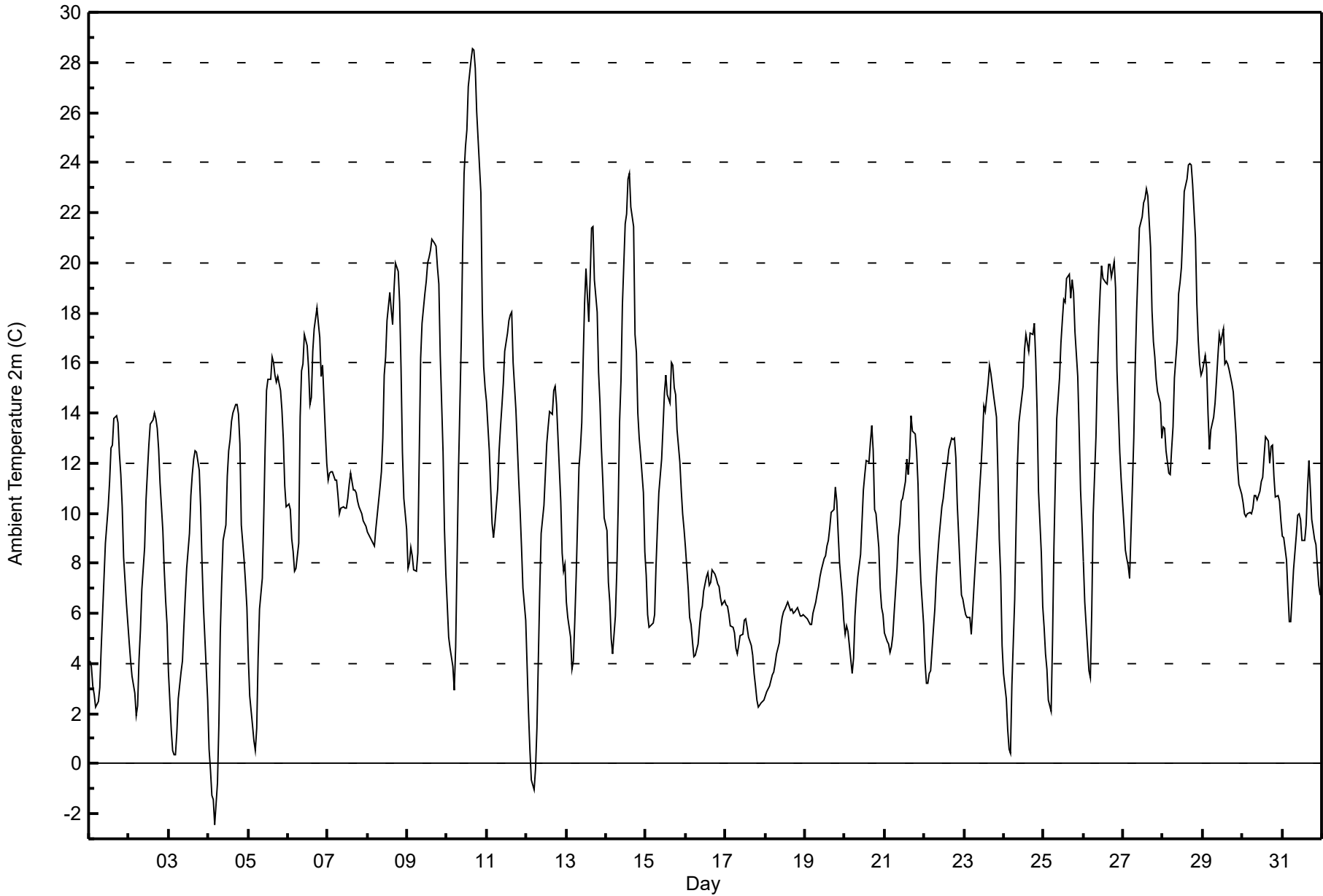
Total Number of Hours: 744



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

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

Maximum Value: 28.5 C on May 10 16:00 Minimum Value: -2.4 C on May 4 05:00 Maximum Diurnal Average: 15.5 C at hour 17 Monthly Average: 10.79 C		Maximum Daily Average: 17.9 C on May 28 Minimum Daily Average: 4.5 C on May 17 Minimum Diurnal Average: 4.9 C at hour 5 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 4.1 Q <sub>1</sub> = 6.3 Median = 10.4 Q <sub>3</sub> = 14.4 P <sub>90</sub> = 18.4 P <sub>99</sub> = 24.4		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	4.1	3.9	3.1	2.8	2.3	2.5	3.1	4.6	6.0	7.4	8.8	10.3	11.2	12.6	12.7	13.8	13.9	13.6	12.4	11.6	10.3	8.3	6.4	5.6	8.0	13.9	
2-May	4.8	4.1	3.5	2.8	1.9	2.3	4.2	5.3	7.0	8.6	10.5	11.6	12.7	13.6	13.7	14.0	13.8	13.4	12.5	11.2	9.3	7.7	6.5	5.6	8.4	14.0	
3-May	3.7	1.3	0.5	0.4	0.4	1.3	2.6	3.6	4.1	5.4	6.7	7.8	9.2	10.7	11.5	12.2	12.5	12.5	11.7	10.2	7.9	6.2	5.0	2.6	6.3	12.5	
4-May	0.6	-0.2	-1.3	-1.4	-2.4	-0.8	1.6	5.2	7.3	8.9	9.5	11.5	12.5	13.0	13.7	14.0	14.4	14.3	13.9	12.8	9.5	8.1	7.2	6.2	7.4	14.4	
5-May	4.2	2.7	1.6	0.9	0.5	1.4	4.2	6.2	7.4	9.8	12.6	14.9	15.3	15.4	16.3	16.0	15.5	15.2	15.5	14.9	14.1	13.0	11.1	10.2	10.0	16.3	
6-May	10.4	10.1	9.0	8.5	7.7	7.8	8.8	13.8	15.7	16.0	17.1	16.7	15.8	14.4	14.6	16.5	17.4	18.2	17.6	17.0	15.4	15.9	13.2	12.0	13.7	18.2	
7-May	11.3	11.6	11.6	11.6	11.3	11.3	10.7	10.0	10.2	10.2	10.2	10.2	10.6	11.2	11.6	11.0	10.9	10.8	10.5	10.3	9.9	9.7	9.6	9.4	10.7	11.6	
8-May	9.3	9.1	8.9	8.8	8.7	9.3	9.9	11.1	11.7	13.0	15.5	16.2	17.7	18.8	18.1	17.5	18.9	20.0	19.6	18.4	15.8	12.4	10.6	9.4	13.7	20.0	
9-May	7.8	8.0	8.6	8.3	7.7	7.7	8.4	12.3	16.2	17.6	18.7	19.3	20.0	20.2	20.5	21.0	20.8	20.6	19.8	19.1	16.3	12.5	9.3	7.6	14.5	21.0	
10-May	6.3	5.1	4.6	3.9	3.0	4.7	8.2	11.7	16.9	20.7	23.6	24.7	25.3	27.0	28.1	28.5	28.5	27.8	26.0	23.9	22.8	18.2	15.8	15.0	17.5	28.5	
11-May	14.4	12.5	11.0	9.6	9.0	9.6	11.0	12.5	13.4	14.3	15.2	16.5	17.2	17.7	17.9	18.0	16.0	14.1	12.7	11.3	10.1	8.6	7.0	5.7	12.7	18.0	
12-May	3.9	2.0	0.5	-0.6	-1.0	-0.2	1.4	4.1	6.9	9.2	10.3	11.6	12.8	13.4	14.1	14.0	14.9	15.1	14.3	13.0	10.5	8.4	7.7	8.0	8.1	15.1	
13-May	6.4	5.8	5.0	3.8	4.1	5.7	7.5	11.8	12.6	13.6	16.1	18.3	19.8	17.7	19.4	21.4	21.5	19.3	18.0	15.6	14.4	12.6	11.3	9.8	13.0	21.5	
14-May	9.3	7.2	6.4	5.0	4.4	5.9	7.7	10.3	13.6	15.3	18.3	21.5	21.9	23.3	23.6	22.2	21.5	17.1	16.4	14.0	13.0	12.3	10.8	8.5	13.7	23.6	
15-May	7.5	5.9	5.5	5.6	5.6	5.9	7.9	9.4	10.8	12.2	13.5	14.8	15.5	14.7	14.4	16.0	15.9	15.0	14.7	13.4	12.0	10.9	10.0	9.3	11.1	16.0	
16-May	8.7	7.0	5.8	5.6	4.9	4.3	4.3	4.8	5.4	6.1	6.3	6.9	7.5	7.6	7.1	7.3	7.7	7.6	7.4	7.2	7.1	6.6	6.3	6.5	6.5	8.7	
17-May	6.4	6.3	6.0	5.5	5.4	5.2	4.6	4.4	4.7	5.1	5.2	5.7	5.8	5.4	5.0	4.7	4.3	3.6	3.1	2.6	2.2	2.4	2.5	2.6	4.5	6.4	
18-May	2.7	2.9	3.1	3.3	3.5	3.7	4.0	4.4	4.9	5.4	5.9	6.1	6.2	6.4	6.3	6.1	6.2	6.0	6.1	6.2	6.0	5.9	5.9	5.9	5.1	6.4	
19-May	5.8	5.8	5.7	5.6	5.6	6.0	6.4	6.8	7.1	7.4	7.7	8.2	8.3	8.7	8.9	9.4	10.0	10.2	11.0	10.5	9.2	8.0	6.7	5.7	7.7	11.0	
20-May	5.1	5.5	5.3	4.7	3.6	4.2	5.9	6.8	7.4	8.3	9.7	10.9	11.5	12.1	12.0	12.8	13.5	12.5	10.1	10.0	8.7	7.0	6.2	5.9	8.3	13.5	
21-May	5.2	4.9	4.8	4.4	4.6	5.1	6.1	7.8	9.1	9.6	10.5	10.6	11.3	12.2	11.6	12.3	13.9	13.3	13.2	12.4	11.1	8.7	7.3	5.6	9.0	13.9	
22-May	4.0	3.2	3.2	3.6	3.7	5.4	6.2	7.4	8.2	9.0	10.3	10.6	11.2	11.7	12.0	12.6	13.0	13.0	13.0	12.2	10.4	7.9	6.7	6.6	8.5	13.0	
23-May	6.2	5.9	5.9	5.8	5.2	6.1	7.1	8.1	9.9	11.0	11.9	13.0	14.3	14.0	15.2	15.9	15.6	15.1	14.7	13.8	11.7	9.0	7.5	4.7	10.3	15.9	
24-May	3.6	2.6	1.4	0.6	0.4	3.2	6.6	9.5	12.0	13.6	14.1	15.0	16.5	17.2	16.8	16.5	17.2	17.1	17.6	16.1	14.1	10.8	8.4	6.3	10.7	17.6	
25-May	5.4	4.4	3.8	2.5	2.1	4.9	8.7	11.3	13.8	15.4	16.8	17.7	18.5	18.4	19.4	19.5	18.6	19.3	18.8	17.3	15.5	13.4	10.9	9.6	12.7	19.5	
26-May	8.1	6.5	4.6	3.7	3.5	6.1	9.9	13.1	15.6	17.5	18.9	19.9	19.4	19.2	19.1	19.9	20.0	19.4	20.0	19.0	15.7	14.1	12.4	11.3	14.0	20.0	
27-May	9.5	8.5	8.2	7.9	7.4	11.1	13.0	15.8	18.0	19.7	21.4	21.8	22.4	22.6	23.0	22.7	20.6	18.1	16.8	16.2	15.3	14.8	14.4	13.0	15.9	23.0	
28-May	13.5	13.4	12.5	11.6	11.5	12.6	13.5	15.4	16.9	18.7	19.2	19.8	21.2	22.9	23.3	23.9	23.9	23.9	23.1	21.0	18.4	16.9	16.0	15.5	17.9	23.9	
29-May	15.7	16.3	15.8	13.9	12.6	13.3	13.8	14.4	15.3	16.2	17.1	16.8	17.4	16.0	16.1	16.0	15.7	15.2	14.8	14.0	13.1	11.9	11.1	10.8	14.7	17.4	
30-May	10.4	10.0	9.8	10.0	10.0	10.0	10.2	10.7	10.7	10.5	10.9	11.3	11.5	12.3	13.0	12.9	12.0	12.7	12.7	11.5	10.7	10.7	10.5	9.7	11.0	13.0	
31-May	9.1	9.0	8.1	6.8	5.6	5.7	6.7	7.7	9.2	9.9	10.0	9.7	8.9	8.9	9.5	11.0	12.1	11.0	9.7	9.0	8.8	7.9	7.1	6.7	8.7	12.1	
		7.2	6.5	5.9	5.3	4.9	5.8	7.2	9.0	10.6	11.8	13.0	13.9	14.5	14.8	15.1	15.5	15.5	15.0	14.4	13.4	11.9	10.4	9.1	8.1	Diurnal Average	
		15.7	16.3	15.8	13.9	12.6	13.3	13.8	15.8	18.0	20.7	23.6	24.7	25.3	27.0	28.1	28.5	28.5	27.8	26.0	23.9	22.8	18.2	16.0	15.5	Diurnal Maximum	







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C  
Fort McKay - Bertha Ganter - May 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	8	1.08	1.08
0 - 10	343	46.10	47.18
10 - 20	350	47.04	94.22
> 20	43	5.78	100.00

Total Number of Valid Hours: 744

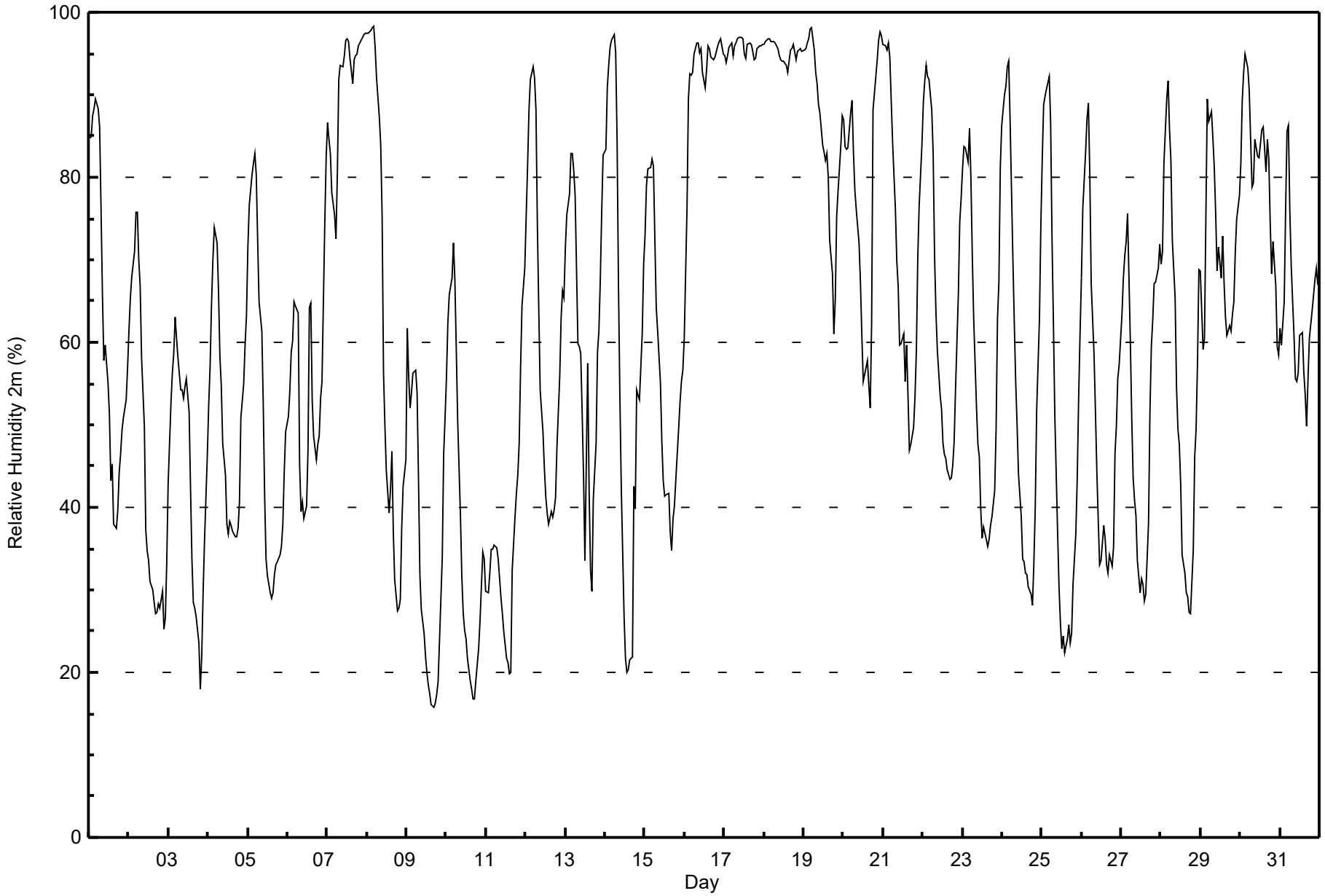
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Fort McKay - Bertha Ganter - May 2024**

Maximum Value: 98.4 % on May 8 05:00																						Maximum Daily Average: 95.6 % on May 17																						Hours in Service: 744	
Minimum Value: 15.8 % on May 9 17:00																						Minimum Daily Average: 34.8 % on May 9																						Hours of Data: 744	
Maximum Diurnal Average: 83.7 % at hour 5																						Minimum Diurnal Average: 45.8 % at hour 17																						Hours of Missing Data: 0	
Monthly Average: 62.14 %																						Percentiles: P <sub>1</sub> = 18.0 P <sub>10</sub> = 29.8 Q <sub>1</sub> = 41.6 Median = 61.3 Q <sub>3</sub> = 84.0 P <sub>90</sub> = 94.9 P <sub>99</sub> = 97.4																						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-May	84.8	84.9	87.5	88.4	89.5	88.3	86.1	76.4	65.9	57.8	59.7	55.1	51.3	43.2	45.3	38.0	37.5	39.6	44.3	46.4	49.4	50.8	53.1	57.0	61.7	89.5																			
2-May	61.5	65.4	68.0	71.0	75.8	75.7	70.1	66.7	58.1	49.8	37.4	34.7	33.6	31.1	30.0	28.4	27.1	27.3	28.3	27.7	29.8	25.3	26.6	33.4	45.1	75.8																			
3-May	42.9	52.5	56.2	58.6	63.0	60.6	58.1	54.2	54.3	53.3	54.6	55.6	51.5	42.4	33.7	28.5	27.8	26.8	23.5	18.0	21.9	29.7	35.9	46.3	43.7	63.0																			
4-May	52.4	57.0	64.5	69.9	74.0	72.1	66.2	58.4	54.7	47.7	43.8	37.9	36.8	38.2	37.7	37.1	36.5	36.4	37.5	40.6	50.8	54.9	59.7	63.2	51.2	74.0																			
5-May	71.5	76.6	80.4	81.7	82.9	80.4	72.4	65.0	61.4	52.5	41.4	33.8	31.6	29.7	29.0	29.7	31.9	33.1	33.5	34.2	35.3	37.9	44.3	49.1	50.8	82.9																			
6-May	51.1	54.0	58.9	60.2	64.9	64.4	63.6	45.3	39.5	40.7	38.6	40.2	46.9	64.2	64.8	53.0	48.7	45.7	47.6	48.6	53.2	55.3	74.4	82.5	54.4	82.5																			
7-May	86.7	84.6	83.0	78.2	75.4	72.6	80.5	91.9	93.6	93.3	94.8	96.6	96.7	96.4	94.5	91.4	94.3	94.7	94.9	95.9	96.6	96.9	97.2	97.5	90.8	97.5																			
8-May	97.4	97.5	97.7	98.1	98.4	95.8	92.0	87.4	84.0	75.3	56.3	49.8	44.4	39.3	42.2	46.7	37.0	31.1	27.5	27.9	28.9	37.5	42.6	45.8	61.7	98.4																			
9-May	61.7	55.8	52.1	53.8	56.3	56.7	54.0	43.6	31.9	27.6	24.8	22.1	20.0	18.5	17.5	16.1	15.8	16.2	17.3	18.9	23.7	33.8	46.4	50.9	34.8	61.7																			
10-May	55.7	62.4	65.8	67.8	72.1	67.7	59.4	50.7	38.9	31.5	27.1	25.2	24.1	21.7	19.0	18.0	16.9	16.8	19.1	22.9	26.3	30.5	34.6	33.8	37.8	72.1																			
11-May	29.8	29.7	32.0	34.9	35.0	35.4	35.1	33.8	31.3	28.9	27.1	24.9	21.7	21.1	19.9	19.9	32.3	38.8	41.6	44.0	47.8	56.9	64.3	68.9	35.6	68.9																			
12-May	75.2	81.3	88.1	91.8	93.4	92.0	88.1	74.2	64.0	54.2	49.2	44.7	41.3	39.3	38.0	39.5	38.9	39.6	41.2	47.3	55.9	63.0	66.2	65.3	61.3	93.4																			
13-May	71.3	75.4	77.9	82.9	82.9	80.8	77.8	59.9	59.4	58.6	51.8	44.0	33.5	57.4	42.1	32.4	29.9	41.0	47.8	58.8	61.3	67.7	75.8	82.7	60.5	82.9																			
14-May	83.3	90.8	93.5	95.7	96.6	97.3	95.1	84.6	66.7	53.5	42.4	26.7	21.7	20.0	20.4	21.5	21.8	42.5	39.8	54.2	53.6	53.1	61.2	69.5	58.6	97.3																			
15-May	73.1	78.9	81.0	81.1	82.2	81.3	72.5	64.2	61.3	55.1	47.9	43.3	41.3	41.6	41.7	36.9	34.8	38.6	40.1	43.4	49.5	52.6	55.3	56.6	56.4	82.2																			
16-May	60.3	76.3	89.4	92.6	92.3	92.8	94.8	96.3	96.3	95.2	95.5	92.7	90.8	93.0	96.0	95.6	94.6	94.3	94.5	95.3	96.0	96.4	96.8	94.9	92.2	96.8																			
17-May	94.7	93.9	94.7	95.8	96.3	94.8	95.9	96.2	96.8	96.9	96.9	96.8	94.9	94.5	96.2	96.3	96.0	95.2	94.2	94.4	95.6	96.0	96.0	96.1	95.6	96.9																			
18-May	96.1	96.4	96.8	96.8	96.5	96.5	96.5	96.3	95.6	94.8	94.2	94.1	94.0	93.6	92.8	94.1	95.5	95.7	96.0	94.3	95.2	95.4	95.7	95.3	95.3	96.8																			
19-May	95.4	95.6	96.3	96.8	97.9	98.1	95.5	92.8	91.4	88.8	87.9	84.0	83.1	82.1	83.0	80.1	72.3	68.3	61.0	65.1	75.3	78.4	83.8	87.5	85.0	98.1																			
20-May	87.0	83.8	83.5	83.6	87.8	89.3	83.1	78.4	76.0	72.1	67.3	60.9	55.2	56.1	57.8	54.7	52.1	62.4	88.1	90.2	94.2	96.6	97.6	97.1	77.3	97.6																			
21-May	96.2	96.0	95.5	96.3	94.5	89.3	84.2	76.1	69.9	66.8	59.7	59.8	61.1	55.2	59.7	53.5	46.9	47.6	49.7	53.5	59.0	70.4	76.6	84.0	70.9	96.3																			
22-May	89.1	91.7	93.6	92.2	91.9	88.2	82.9	70.5	63.5	59.0	53.6	51.9	47.8	46.4	46.0	44.6	43.4	43.5	45.1	47.9	54.4	65.8	74.6	77.5	65.2	93.6																			
23-May	81.0	83.7	83.6	81.9	85.9	79.8	70.4	62.8	52.0	47.7	46.2	39.9	36.2	37.7	36.2	35.2	36.2	37.9	38.8	42.0	49.5	62.8	67.3	81.2	57.3	85.9																			
24-May	86.3	90.0	91.1	93.3	94.1	87.0	70.3	62.3	55.3	50.0	44.1	38.8	33.8	33.4	32.0	31.9	30.3	29.5	28.1	33.2	40.0	51.8	62.9	74.3	56.0	94.1																			
25-May	82.1	88.9	89.8	90.6	92.2	86.6	72.4	62.3	51.1	36.7	30.3	26.0	22.9	24.5	22.4	24.0	25.8	23.6	24.7	30.7	36.7	43.4	53.1	60.9	50.1	92.2																			
26-May	67.8	76.3	83.0	87.2	88.9	80.4	67.1	58.6	51.9	44.6	38.6	33.1	33.5	37.8	36.1	33.1	32.1	34.2	32.8	35.3	46.4	49.8	55.5	57.3	52.6	88.9																			
27-May	63.3	67.8	70.6	72.2	75.6	60.1	50.7	43.6	40.8	38.9	33.5	29.6	31.4	30.7	28.6	29.5	38.1	51.5	59.4	62.7	67.1	67.3	69.0	71.8	52.2	75.6																			
28-May	69.4	70.9	81.8	89.6	91.8	85.7	82.1	72.4	65.4	54.5	49.4	47.7	42.7	34.2	32.0	29.7	29.2	27.2	27.1	34.9	46.0	49.5	57.5	68.8	55.8	91.8																			
29-May	68.7	59.1	60.5	75.2	89.5	86.8	88.0	84.7	81.1	75.6	68.6	71.5	67.7	73.0	67.3	63.1	60.8	62.1	61.4	63.4	65.0	70.9	74.8	77.9	71.5	89.5																			
30-May	81.7	89.3	92.6	94.9	93.3	90.5	84.6	78.8	79.4	84.5	82.5	82.4	84.1	85.7	86.1	80.7	84.6	82.2	74.5	68.3	72.3	66.7	59.6	58.5	80.7	94.9																			
31-May	61.6	59.7	64.9	75.9	85.5	86.2	76.1	69.3	60.8	55.6	55.3	56.3	60.9	61.2	56.5	53.7	49.9	55.5	60.5	64.0	65.7	67.6	69.1	66.9	64.1	86.2																			
	73.5	76.3	79.2	81.6	83.7	81.1	76.3	69.6	64.3	59.4	54.9	51.6	49.6	49.8	48.5	46.4	45.8	47.7	49.0	51.7	56.2	60.5	65.4	69.4		Diurnal Average																			
	97.4	97.5	97.7	98.1	98.4	98.1	96.5	96.3	96.8	96.9	96.9	96.8	96.7	96.4	96.2	96.3	96.0	95.7	96.0	95.9	96.6	96.9	97.6	97.5		Diurnal Maximum																			





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

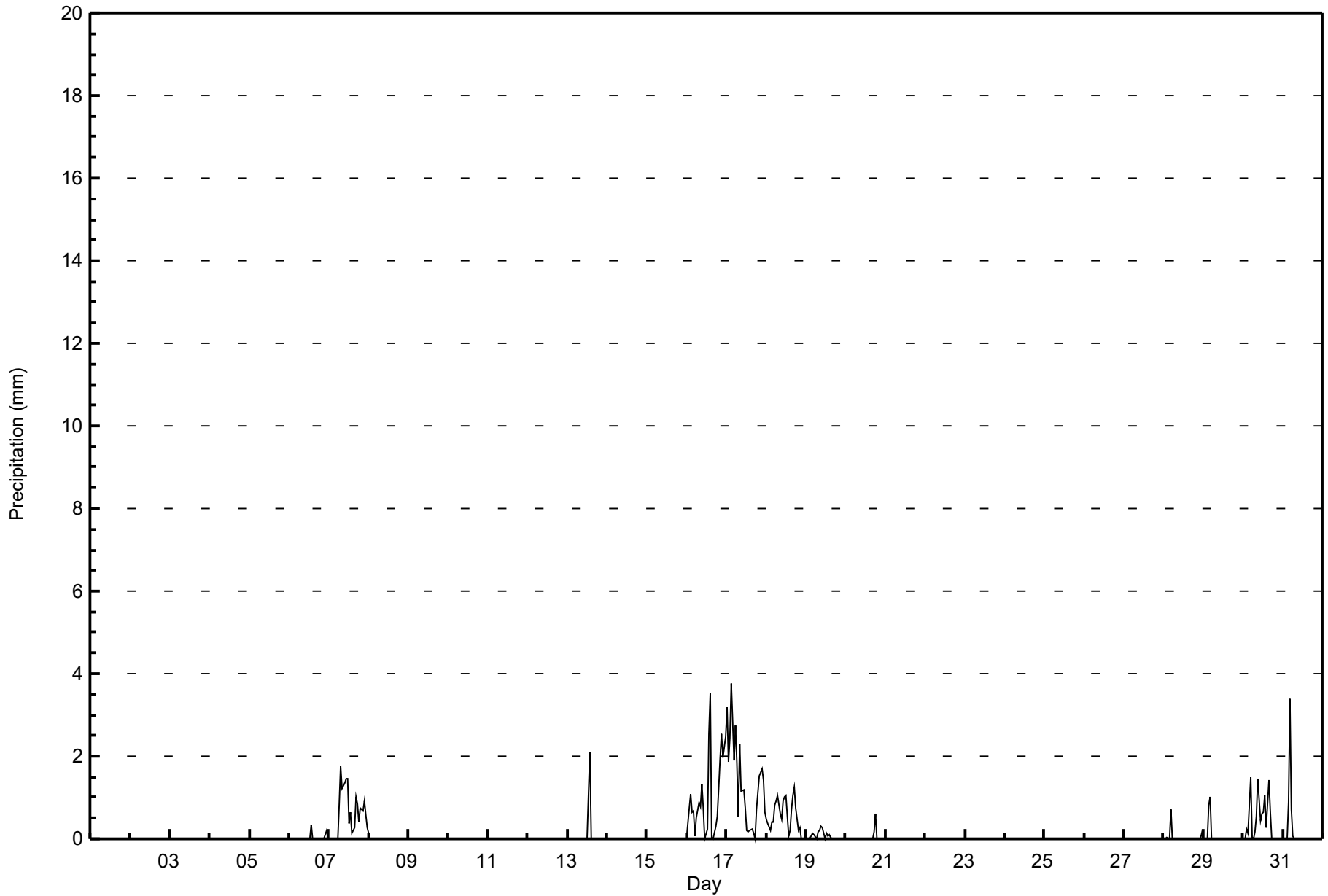
**Fort McKay - Bertha Ganter - May 2024**

Maximum Value: 3.8 mm on May 17 04:00		Maximum Daily Total: 31.8 mm on May 17		Hours in Service: 744																																													
Minimum Value: 0.0 mm on May 1 01:00		Minimum Daily Total: 0.0 mm on May 1		Hours of Data: 744																																													
Maximum Diurnal Total: 9.7 mm at hour 5		Minimum Diurnal Total: 2.6 mm at hour 18		Hours of Missing Data: 0																																													
Monthly Total: 106.86 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> = 0.5 P <sub>99</sub> = 2.5		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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	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	0.2	0.0	0.0	0.6	0.3																					
7-May	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.8	1.2	1.4	1.5	1.5	0.4	0.7	0.1	0.3	1.0	0.9	0.4	0.8	0.7	0.9	0.6	0.3	0.0	15.0	1.8																						
8-May	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																					
9-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	2.1	0.0	0.0																				
14-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.8	1.1	0.6	0.7	0.1	0.5	0.9	0.8	1.3	0.8	0.0	0.3	2.6	3.5	0.1	0.0	0.3	0.5	1.2	1.9	2.6	2.0	2.5	0.0	24.8	3.5																						
17-May	3.2	1.9	2.4	3.8	1.9	2.8	1.8	0.5	2.3	1.1	1.2	0.7	0.2	0.2	0.2	0.3	0.1	0.0	0.7	1.1	1.5	1.7	1.4	0.6	0.0	31.8	3.8																						
18-May	0.5	0.4	0.2	0.4	0.4	0.8	0.9	1.1	0.6	0.5	0.9	1.0	1.1	0.1	0.2	0.7	1.1	1.3	0.8	0.2	0.3	0.0	0.0	0.0	0.0	13.2	1.3																						
19-May	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.3	0.3	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	1.6	0.3																						
20-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.6																						
21-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.1	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.7	0.0																					
29-May	0.0	0.0	0.0	0.8	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.0	0.0																					
30-May	0.0	0.0	0.3	0.1	1.5	0.1	0.0	0.2	0.5	1.5	0.4	0.6	0.7	1.0	0.3	1.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	1.5	0.0																					
31-May	0.0	0.0	0.0	0.9	3.4	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	0.0	5.1	3.4	0.0																					
																								3.8	3.0	4.0	6.7	9.7	4.5	4.2	4.6	5.6	6.1	5.0	3.8	2.7	7.0	4.4	2.7	2.8	2.6	3.0	3.3	4.4	5.2	4.2	3.5	Diurnal Average	
																								3.2	1.9	2.4	3.8	3.4	2.8	1.8	1.8	2.3	1.5	1.5	1.5	1.1	2.6	3.5	1.4	1.1	1.3	0.8	1.2	1.9	2.6	2.0	2.5	Diurnal Maximum	



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

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





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

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

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	661	88.84	88.84
0.4 - 0.5	12	1.61	90.46
0.6 - 0.7	16	2.15	92.61
0.8 - 1.4	32	4.30	96.91
1.5 - 10	19	2.55	99.46
> 10	0	0.00	99.46

Total Number of Valid Hours: 744

Total Number of Hours: 744



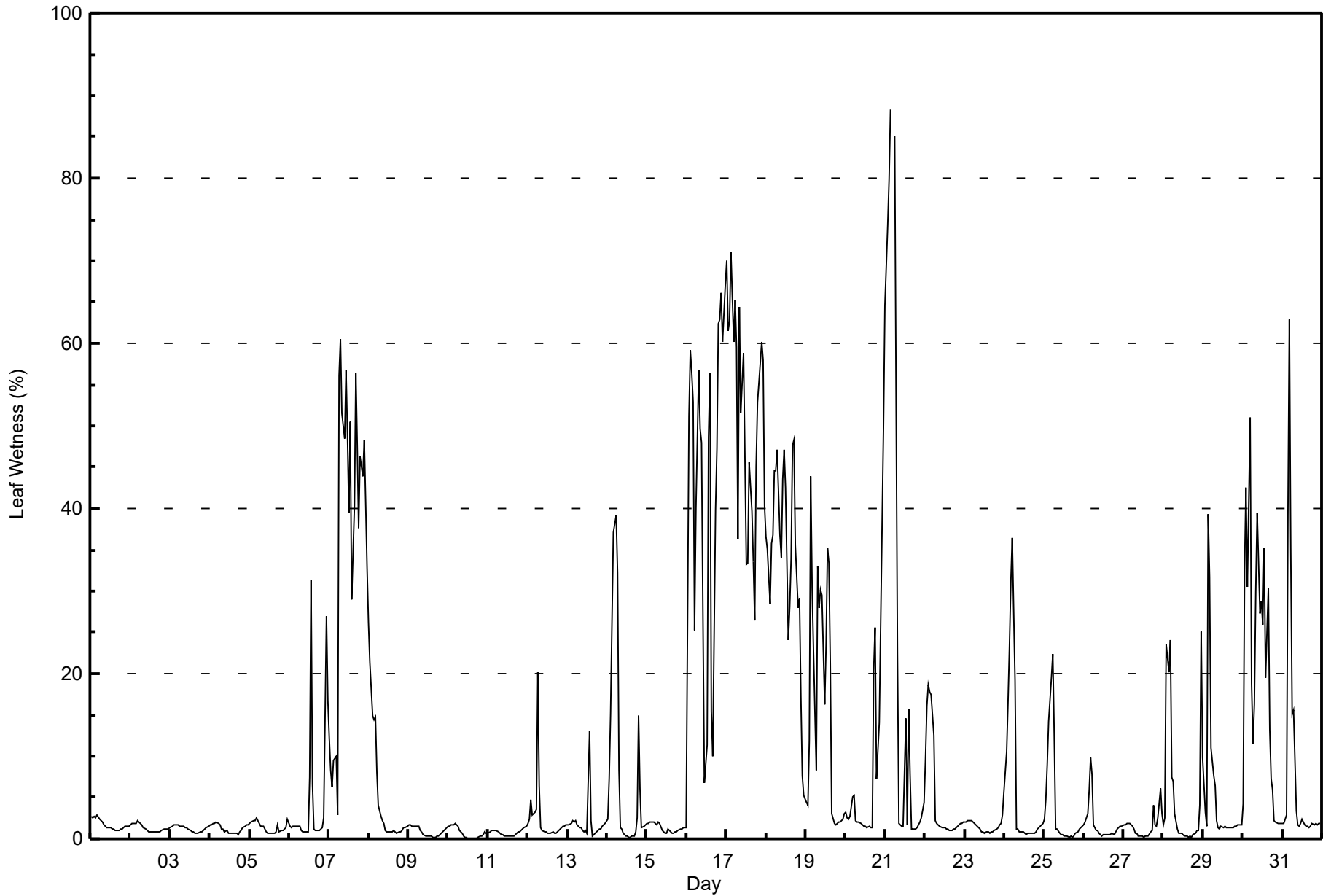
Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

Fort McKay - Bertha Ganter - May 2024

Maximum Value: 88.3 % on May 21 04:00		Maximum Daily Average: 51.3 % on May 17		Hours in Service: 744																																												
Minimum Value: 0.0 % on May 10 14:00		Minimum Daily Average: 0.7 % on May 10		Hours of Data: 742																																												
Maximum Diurnal Average: 18.3 % at hour 4		Minimum Diurnal Average: 5.9 % at hour 17		Hours of Missing Data: 2																																												
Monthly Average: 9.82 %		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.0 Median = 1.6 Q <sub>3</sub> = 7.7 P <sub>90</sub> = 37.6 P <sub>99</sub> = 65.7		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-May	2.8	2.5	2.6	2.6	2.8	2.4	2.3	2.0	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.0	1.1	1.2	1.3	1.3	1.4	1.6	1.6	1.7	2.8																						
2-May	1.7	1.8	1.8	1.9	2.1	2.1	1.9	1.6	1.4	1.2	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.1	1.2	1.2	1.2	1.3	2.1																						
3-May	1.4	1.6	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.3	1.3	1.2	1.0	0.9	0.8	0.7	0.7	0.8	0.9	0.9	1.0	1.2	1.3	1.5	1.2	1.7																						
4-May	1.6	1.7	1.8	1.9	2.0	1.8	1.7	1.2	1.1	0.9	1.0	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.9	1.1	1.4	1.6	1.7	1.7	1.2	2.0																						
5-May	1.9	2.1	2.3	2.3	2.5	2.1	1.8	1.6	1.5	1.2	0.9	0.7	0.7	0.7	0.6	0.7	0.8	1.7	0.9	1.0	1.0	1.1	1.3	2.4	1.4	2.5																						
6-May	1.5	1.4	1.5	1.5	1.6	1.6	1.5	1.0	0.9	0.9	0.8	0.8	7.5	31.4	6.6	1.2	1.1	1.0	1.1	1.2	1.3	2.6	27.0	16.7	4.7	31.4																						
7-May	12.2	8.3	6.4	9.5	10.1	2.9	56.1	60.6	51.5	48.5	56.8	49.1	39.4	50.5	29.0	40.4	56.4	47.7	37.7	46.3	43.8	48.3	40.9	32.9	36.9	60.6																						
8-May	26.2	21.3	15.0	14.3	14.7	8.1	4.1	2.7	2.2	1.8	1.1	0.9	0.8	0.8	0.9	1.1	0.9	0.6	0.8	0.9	1.0	1.3	1.4	1.5	5.2	26.2																						
9-May	1.7	1.7	1.6	1.6	1.6	1.6	1.5	1.0	0.8	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.5	0.7	1.0	1.2	1.4	0.9	1.7																						
10-May	1.5	1.6	1.7	1.8	1.8	1.8	1.5	1.1	0.7	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.5	0.8	0.8	0.7	1.8																						
11-May	0.8	0.8	0.9	1.0	1.0	1.0	0.9	0.6	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.8	0.9	1.0	1.2	1.3	1.5	0.7	1.5																						
12-May	1.8	2.3	4.8	2.8	3.3	3.6	20.2	6.5	1.3	1.0	0.9	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.8	1.1	1.3	1.5	1.6	1.7	2.6	20.2																						
13-May	1.7	1.8	1.9	2.2	2.0	2.1	1.7	1.4	1.4	1.1	0.9	1.0	0.6	13.1	2.3	0.3	0.4	0.7	0.9	1.1	1.3	1.5	1.7	1.9	1.9	13.1																						
14-May	2.4	7.3	15.1	26.3	37.1	39.1	32.3	8.3	1.4	1.2	0.7	0.4	0.3	0.1	0.1	0.3	0.3	0.9	2.5	15.0	6.0	1.3	1.5	1.7	8.4	39.1																						
15-May	1.8	1.9	2.0	2.0	2.0	1.9	1.7	2.0	1.9	1.0	0.9	0.6	0.6	1.2	0.9	0.6	0.7	0.8	0.9	1.0	1.2	1.3	1.3	1.3	1.3	2.0																						
16-May	1.4	51.2	59.1	56.4	52.9	25.3	40.0	56.9	49.7	47.9	26.9	6.8	11.3	48.6	56.4	15.4	10.1	39.8	47.2	62.4	62.9	66.1	60.2	67.2	42.6	67.2																						
17-May	69.9	61.6	62.7	71.0	60.1	65.2	59.5	36.3	64.4	51.6	58.7	46.3	33.3	33.3	45.6	39.7	33.6	26.5	45.1	52.9	55.2	60.2	58.0	40.3	51.3	71.0																						
18-May	36.6	35.1	28.5	35.8	36.8	44.6	44.5	47.2	36.8	34.1	43.5	47.1	42.5	24.1	28.1	33.9	47.6	48.2	35.5	27.9	29.2	17.1	7.6	5.3	34.1	48.2																						
19-May	4.4	4.0	11.8	43.8	30.5	22.8	8.4	33.0	28.0	30.2	29.4	16.3	23.5	35.2	33.4	21.2	3.1	1.9	1.8	1.9	2.0	2.1	2.4	3.1	16.4	43.8																						
20-May	3.3	2.5	2.4	2.7	5.1	5.3	2.2	2.1	2.0	1.8	1.7	1.6	1.5	1.4	1.5	1.4	1.3	20.3	25.7	7.4	14.1	26.1	37.9	49.8	9.2	49.8																						
21-May	64.5	74.3	79.9	88.3	OR	OR	85.1	22.4	1.8	1.7	1.5	1.6	14.6	1.7	15.7	7.8	1.2	1.1	1.3	1.4	1.6	2.0	2.6	4.5	21.7	88.3																						
22-May	9.6	16.1	18.6	17.8	17.4	12.5	2.2	1.9	1.7	1.6	1.4	1.4	1.3	1.2	1.1	1.1	1.1	1.1	1.2	1.3	1.6	1.8	1.9	2.0	5.0	18.6																						
23-May	2.0	2.1	2.1	2.1	2.2	2.1	1.9	1.7	1.3	1.1	0.9	0.9	0.7	0.9	0.8	0.7	0.8	0.9	1.0	1.1	1.4	1.7	1.9	2.8	1.5	2.8																						
24-May	5.6	10.6	16.6	23.3	31.1	36.5	19.2	1.2	1.2	0.9	0.9	0.9	0.6	0.5	0.7	0.8	0.6	0.7	0.6	0.9	1.1	1.4	1.6	1.9	6.6	36.5																						
25-May	2.4	4.8	9.0	14.3	19.4	22.4	12.5	1.2	1.1	0.7	0.5	0.5	0.4	0.4	0.3	0.2	0.4	0.2	0.4	0.7	0.9	1.1	1.3	1.5	4.0	22.4																						
26-May	1.8	2.1	3.0	6.0	9.9	7.8	1.7	1.1	1.0	0.6	0.4	0.3	0.5	0.5	0.6	0.5	0.5	0.6	0.5	0.8	1.1	1.3	1.4	1.5	1.9	9.9																						
27-May	1.6	1.7	1.8	1.8	1.8	1.5	1.2	0.6	0.6	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.8	1.0	4.1	1.6	1.4	2.6	6.1	3.0	1.5	6.1																						
28-May	1.7	2.5	23.6	20.2	24.1	7.5	6.9	3.1	1.1	0.7	0.7	0.6	0.5	0.3	0.3	0.2	0.3	0.3	0.4	0.7	0.9	1.1	4.1	25.2	5.3	25.2																						
29-May	9.9	3.2	1.5	39.4	31.7	11.0	7.7	6.4	2.3	1.3	1.2	1.5	1.4	1.6	1.4	1.3	1.3	1.4	1.4	1.5	1.5	1.7	1.7	1.8	5.6	39.4																						
30-May	4.3	32.5	42.6	30.5	51.0	18.8	11.5	16.3	29.9	39.6	27.3	28.9	26.0	35.2	19.5	30.3	13.3	7.3	5.9	2.3	2.0	1.9	1.9	1.8	20.0	51.0																						
31-May	1.9	1.8	2.9	39.4	62.8	35.3	15.1	15.5	3.4	1.6	1.5	1.8	2.5	1.6	1.6	1.5	1.4	1.5	1.9	1.7	1.8	1.8	1.8	1.8	8.5	62.8																						
																								9.1	11.7	13.8	18.3	17.4	13.1	14.5	11.0	9.6	9.0	8.6	7.0	7.0	9.3	8.1	6.6	5.9	6.8	7.3	7.7	7.8	8.3	9.0	9.1	Diurnal Average
																								69.9	74.3	79.9	88.3	62.8	65.2	85.1	60.6	64.4	51.6	58.7	49.1	42.5	50.5	56.4	40.4	56.4	48.2	47.2	62.4	62.9	66.1	60.2	67.2	Diurnal Maximum
OR - Out of Range																																																







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

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

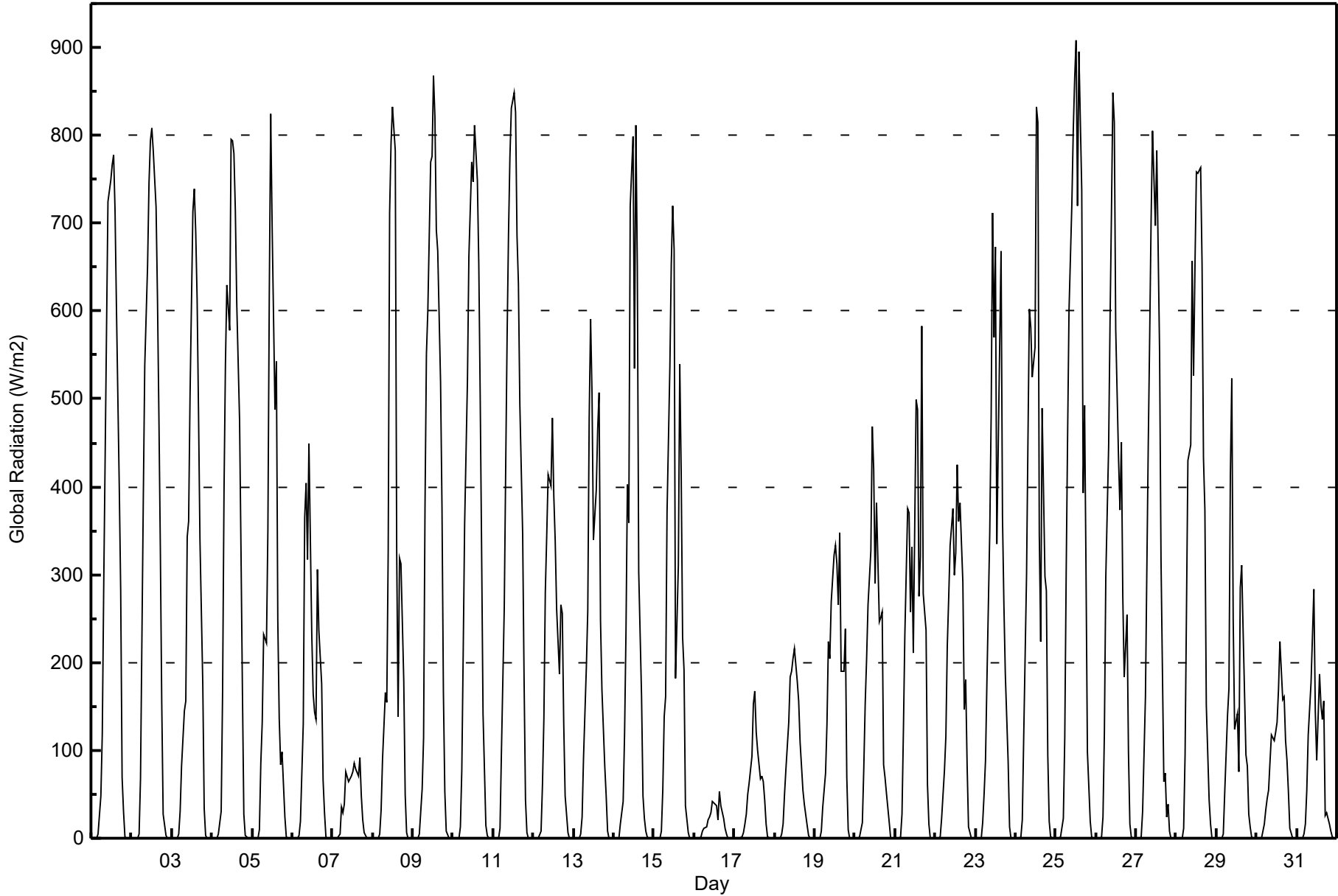
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	42	5.66	5.66
0.4 - 0.5	28	3.77	9.43
0.6 - 0.7	51	6.87	16.31
0.8 - 1.4	196	26.42	42.72
1.5 - 10	239	32.21	74.93
> 10	174	23.45	98.38

Total Number of Valid Hours: 742

Total Number of Hours: 744



Maximum Value: 908.9 W/m2 on May 25 13:00		Maximum Daily Average: 352.8 W/m2 on May 25		Hours in Service: 744																							
Minimum Value: 0.0 W/m2 on May 1 01:00		Minimum Daily Average: 15.6 W/m2 on May 16		Hours of Data: 744																							
Maximum Diurnal Average: 516.4 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 2		Hours of Missing Data: 0																							
Monthly Average: 197.86 W/m2		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 75.1 Q <sub>3</sub> = 328.6 P <sub>90</sub> = 651.3 P <sub>99</sub> = 831.6		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-May	0.0	0.0	0.0	0.0	5.5	48.3	119.3	285.7	432.3	579.3	725.2	748.1	766.1	778.4	714.4	603.6	398.9	281.6	69.4	30.5	1.2	0.0	0.0	0.0	274.5	778.4	
2-May	0.0	0.0	0.0	0.0	5.1	68.3	227.9	389.8	537.2	652.8	744.7	794.4	808.2	782.0	718.8	613.9	480.4	331.5	154.3	27.8	2.7	0.0	0.0	0.0	305.8	808.2	
3-May	0.0	0.0	0.0	0.0	4.2	30.4	82.0	144.1	155.8	343.2	359.9	504.5	714.0	739.3	690.7	614.2	483.0	340.1	176.2	33.7	3.0	0.0	0.0	0.0	225.8	739.3	
4-May	0.0	0.0	0.0	0.0	5.1	31.3	167.8	393.9	539.7	629.7	578.5	796.0	793.6	779.9	715.7	609.1	475.2	327.6	169.4	28.1	2.8	0.0	0.0	0.0	293.5	796.0	
5-May	0.0	0.0	0.0	0.0	10.0	85.8	131.4	232.6	221.9	351.6	621.6	824.3	695.9	488.0	542.8	247.5	137.1	84.3	97.7	24.6	2.0	0.0	0.1	0.0	200.0	824.3	
6-May	0.0	0.0	0.0	0.0	3.0	19.8	130.1	365.1	403.7	317.0	449.9	232.2	163.5	143.6	135.2	306.7	236.3	174.9	65.9	29.5	2.2	0.0	0.0	0.0	132.4	449.9	
7-May	0.0	0.0	0.0	0.0	4.5	35.3	28.9	39.4	75.5	64.0	67.9	71.4	75.1	86.1	78.7	70.6	91.6	48.3	21.2	6.4	0.5	0.0	0.0	0.0	36.1	91.6	
8-May	0.0	0.0	0.0	0.0	4.1	32.3	89.4	165.1	153.9	327.1	711.3	789.9	832.1	782.4	326.6	138.4	319.0	311.9	178.9	49.2	5.9	0.0	0.0	0.0	217.4	832.1	
9-May	0.0	0.0	0.0	0.0	5.4	55.7	114.3	377.0	551.3	601.2	770.3	776.5	867.6	820.5	692.6	668.1	518.7	377.1	165.3	53.3	8.5	0.0	0.0	0.0	309.3	867.6	
10-May	0.0	0.0	0.0	0.0	13.1	77.1	213.0	358.1	522.4	661.1	716.9	770.0	746.5	811.0	749.4	654.0	502.5	326.7	142.4	15.2	3.2	0.0	0.0	0.0	303.4	811.0	
11-May	0.0	0.0	0.0	0.0	11.5	98.2	262.8	420.2	569.6	687.2	775.7	831.5	849.1	826.1	685.5	630.8	493.8	346.0	179.7	44.2	5.8	0.0	0.0	0.0	321.6	849.1	
12-May	0.0	0.0	0.0	0.0	8.4	61.2	136.1	279.6	344.7	413.6	400.8	478.8	389.0	338.1	260.6	186.0	265.7	255.6	132.7	48.6	6.4	0.0	0.0	0.0	166.9	478.8	
13-May	0.0	0.0	0.0	0.1	5.5	23.9	92.4	195.0	259.0	478.6	590.4	505.6	339.8	396.4	464.7	507.4	247.9	169.3	81.7	48.4	8.6	0.0	0.0	0.0	183.9	590.4	
14-May	0.0	0.0	0.0	0.3	16.1	42.3	119.7	235.1	402.1	359.7	719.3	799.4	534.1	811.4	651.1	302.0	160.5	48.7	23.0	8.1	2.0	0.0	0.0	0.0	218.1	811.4	
15-May	0.0	0.0	0.0	0.0	8.6	55.0	138.4	160.7	370.1	536.5	653.3	720.2	669.9	181.4	310.7	538.9	416.1	228.1	191.9	37.6	6.0	0.0	0.0	0.0	217.6	720.2	
16-May	0.0	0.0	0.0	0.0	0.8	8.3	11.6	12.7	20.8	23.9	28.7	41.7	38.2	37.3	20.6	53.7	37.0	22.9	11.8	4.3	0.5	0.0	0.0	0.0	15.6	53.7	
17-May	0.0	0.0	0.0	0.0	1.4	7.0	16.6	27.4	50.7	62.5	93.2	153.1	167.1	121.2	99.5	66.9	70.1	63.9	43.7	15.7	1.8	0.0	0.0	0.0	44.2	167.1	
18-May	0.0	0.0	0.0	0.0	4.6	15.4	49.4	78.3	131.5	183.6	190.3	203.8	215.0	178.9	156.5	109.8	82.3	54.9	39.1	14.1	2.6	0.0	0.0	0.0	71.3	215.0	
19-May	0.0	0.0	0.0	0.2	8.6	35.2	74.6	131.0	223.2	204.9	269.5	321.9	333.5	311.7	266.5	348.2	189.7	190.5	238.3	68.9	9.6	0.0	0.0	0.0	134.4	348.2	
20-May	0.0	0.0	0.0	1.0	18.2	78.3	153.1	204.5	266.3	326.3	468.1	420.2	289.3	380.9	246.2	251.0	257.1	83.0	68.5	52.2	17.0	0.0	0.0	0.0	149.2	468.1	
21-May	0.0	0.0	0.0	0.9	27.5	122.4	231.0	374.9	369.9	257.4	332.5	211.2	498.7	487.8	275.4	319.7	582.6	278.3	237.1	60.5	15.9	0.2	0.0	0.0	195.2	582.6	
22-May	0.0	0.0	0.0	0.8	22.6	77.3	116.0	219.6	274.4	332.5	374.5	300.1	324.6	425.9	361.4	381.7	291.8	146.6	179.7	83.3	13.2	0.4	0.0	0.0	163.6	425.9	
23-May	0.0	0.0	0.0	0.6	17.1	50.1	88.0	179.3	347.7	481.2	712.5	570.2	672.9	334.2	557.9	667.8	365.5	266.3	186.9	86.6	13.4	0.7	0.0	0.0	233.3	712.5	
24-May	0.0	0.0	0.0	1.6	20.7	116.0	300.3	454.7	603.0	581.5	524.2	559.3	831.7	815.2	346.9	223.5	489.8	297.4	282.0	95.1	19.3	1.0	0.0	0.0	273.5	831.7	
25-May	0.0	0.0	0.0	2.0	22.2	114.9	300.4	457.9	599.9	721.7	805.5	865.4	908.9	720.5	895.9	738.2	393.6	493.5	307.2	98.5	18.7	1.4	0.1	0.1	352.8	908.9	
26-May	0.1	0.0	0.0	2.1	24.3	120.3	297.4	445.2	589.2	712.7	848.7	814.8	579.0	431.6	372.9	450.8	274.6	183.1	254.8	98.0	16.1	0.9	0.0	0.0	271.5	848.7	
27-May	0.0	0.0	0.0	1.2	30.5	161.6	306.8	448.8	571.3	703.6	804.7	696.6	782.4	668.5	552.3	316.4	64.9	73.6	24.0	37.9	7.4	0.1	0.0	0.0	260.5	804.7	
28-May	0.0	0.0	0.0	0.6	12.1	95.3	261.0	429.2	448.1	657.3	527.2	651.4	758.8	757.6	763.0	654.2	433.9	372.9	150.6	43.7	15.7	0.4	0.0	0.0	293.0	763.0	
29-May	0.0	0.0	0.0	0.1	5.3	51.1	139.4	169.9	414.2	522.5	248.1	123.5	141.5	75.1	284.7	310.3	237.4	95.0	81.6	27.4	12.9	1.3	0.0	0.0	122.5	522.5	
30-May	0.0	0.0	0.0	0.3	15.6	32.6	45.3	55.1	87.1	117.1	110.9	121.0	131.9	168.3	224.1	158.0	160.3	110.4	87.8	53.1	11.7	0.5	0.0	0.0	70.5	224.1	
31-May	0.0	0.0	0.0	0.5	5.1	16.9	54.8	116.7	176.4	230.7	282.9	144.3	89.0	187.3	152.1	135.5	155.5	25.9	28.7	15.3	7.6	1.0	0.0	0.0	76.1	282.9	
		0.0	0.0	0.0	0.4	11.2	60.2	145.1	253.1	345.6	423.3	500.2	511.0	516.4	479.6	429.5	383.1	300.4	206.8	131.3	43.2	7.9	0.3	0.0	0.0	Diurnal Average	
		0.1	0.0	0.0	2.1	30.5	161.6	306.8	457.9	603.0	721.7	848.7	865.4	908.9	826.1	895.9	738.2	582.6	493.5	307.2	98.5	19.3	1.4	0.1	0.1	Diurnal Maximum	





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

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

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	289	38.84	38.84
21 - 100	116	15.59	54.44
101 - 300	134	18.01	72.45
301 - 600	120	16.13	88.58
601 - 900	84	11.29	99.87
> 900	1	0.13	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

## Fort McKay - Bertha Ganter - May 2024

Maximum Speed: 32 km/h on May 10 22:00	Maximum Daily Speed Average: 16.9 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 4 07:00	Minimum Daily Speed Average: 1.9 km/h on May 28	Hours of Data: 741
Maximum Diurnal Speed Average: 4.8 km/h at hour 19	Minimum Diurnal Speed Average: 1.3 km/h at hour 13	Hours of Missing Data: 3
Monthly Average Velocity: 3.0 km/h 4.8 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 17 P <sub>99</sub> = 26	Percent Operational Time: 99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE10	NNE10	NNE8	NNE9	NNE10	NNE12	NNE13	NNE13	NNE12	NNE14	NNE17	NNE19	NNE21	NNE22	N25	NNE23	NNE18	NNE19	NNE17	NNE18	NNE18	N17	N12	N13	NNE15.3	N25
2-May	N9	N9	N8	N7	NNE5	N8	NNE9	NNE12	NNE13	NNE13	NNE15	NNE17	NNE17	NNE17	NNE19	NNE18	NNE22	NNE21	N20	N17	N13	N12	NNW12	N10	N13.2	NNE22
3-May	N4	WNW3	WNW4	N3	NW2	N5	NNE5	N8	NNE8	NNE10	NNE11	NNE9	N9	NNE9	NE10	NNE10	NNE10	NNE12	NNE14	NNE13	N10	NNW9	N6	WNW5	N7.4	NNE14
4-May	WNW4	WNW6	NW4	NW2	SW2	WNW1	N0	NNE4	N8	NNE8	NNE10	NE9	NE9	ENE10	ENE8	ENE8	NE8	ENE7	NE6	NE3	N3	NE2	SE5	SSE5	NE3.7	NNE10
5-May	SSE3	NNW2	N4	NNE5	NNW2	N3	S1	SSE7	SSE6	S7	SSE8	S17	S20	SSE17	SSE19	SSE16	S9	SSE14	SSE10	SE6	SE4	SE4	SSE4	ESE3	SSE6.5	S20
6-May	NE3	NNW3	NW3	N5	NNW4	NNW5	N4	SSE5	S12	S13	SE20	SE21	SE18	SE6	NNE7	NE10	E9	E8	NNE7	NNE8	ENE4	S16	SSW9	NW1	SE3.7	SE21
7-May	N6	NNE6	N6	NNE4	NE4	NE4	ESE8	ENE5	ENE4	NE4	NNE6	N7	N8	N4	ESE4	SE10	SE3	E4	ESE5	ESE4	SE6	SSE6	SSE8	S8	E2.8	SE10
8-May	S9	S9	S7	S6	W4	WNW8	WNW10	WNW8	WNW6	SW2	SE6	SE11	SSE12	S15	S4	WNW2	SSW4	SSW9	SW11	WSW6	WSW4	SW5	WSW4	W3	SSW4.3	S15
9-May	SSW3	WSW3	W7	W9	W8	WSW5	WSW5	WNW7	NW18	NW17	WNW16	WNW21	WNW22	WNW25	WNW22	WNW20	NW21	NNW20	NNW15	NNW10	N3	SW1	WSW3	SSW3	WNW10.6	WNW25
10-May	SSW4	SSW3	SSW4	WSW2	SSW2	S4	S8	SSE9	SSW9	SW11	SW11	WSW13	WSW12	W11	W12	W12	W13	W14	NW15	NW9	NNW17	N32	N13	NW11	W5.7	N32
11-May	NW15	NW12	WNW11	WNW11	WNW13	WNW13	WNW16	NW26	NW26	NW29	NW30	NW27	NW31	NW30	NNW29	NNW26	NNE21	NNE20	NNE19	NNE17	NNE15	NNE10	NNE8	NNE6	NNW16.5	NW31
12-May	N4	N4	NW2	NW3	WNW3	WSW1	NE1	ENE2	ESE3	E3	ENE5	E6	SSE8	SSE8	SSE8	SSE7	ESE6	ESE8	ESE6	E3	NNE3	NNE3	ENE3	S5	ESE2.3	ESE8
13-May	SSE2	N2	SSW3	UO	NNW2	NNE2	SE2	S13	SSE17	SSE17	SSE14	SSE15	S12	ESE2	S8	SSE6	NNW4	NNE6	NNE11	NNE13	ENE3	NNE6	N4	WSW4	SSE2.9	SSE17
14-May	WNW3	SW2	S2	S4	S4	SSE4	S5	SSE8	SSE10	S11	SSE15	SSW12	SW11	SW13	SW12	WSW11	WNW9	N16	N13	N13	NNE9	N4	ESE2	WNW4	SW2.3	N16
15-May	WNW1	NW2	NW3	N3	NNW1	WSW3	NNW2	N6	NNE9	NNE11	NNE11	ENE8	ENE9	NNE5	SSW6	ESE3	NE12	NNE14	NE14	NNE12	NNE13	NNE15	NE11	NNE10	NNE6.3	NNE15
16-May	NE9	NNE7	N7	N8	N14	N12	NNE9	NNE9	NNE10	NNE12	NNE12	NNE13	NNE12	NNE11	N16	N16	NNE15	N16	N13	N13	N14	NNE13	NNE14	NNE13	NNE11.9	N16
17-May	NNE14	NNE12	NNE14	N15	NNE14	NNE15	N17	N16	N16	NNE14	N16	NNE16	NNE18	NNE19	NNE18	N18	N20	N20	N19	N18	NNW15	N14	N12	N12	N15.6	N20
18-May	N12	N11	N10	N12	N13	N13	N13	N14	N15	N16	N16	N18	N19	N19	N20	N18	N16	N17	N12	NNE8	NE7	NNE6	NNE8	NNE8	N13.3	N20
19-May	NNE8	NNE8	N8	N9	N9	NNE7	NNE9	NNE10	NE10	NE9	NE10	NE11	NNE12	NE11	NE9	NE11	NE11	NE11	NNE12	NNE10	N15	N14	N8	NNE6	NNE9.7	N15
20-May	N7	N7	N7	N6	N3	NNE0	N4	N9	NNE9	N10	N11	N12	NNE11	NNE11	NNE11	NNE11	NE8	E6	S4	W1	ENE1	WNW0	SE1	SE3	NNE5.5	N12
21-May	SE3	E1	SSE2	SE3	SE5	SSE8	SE7	SSE7	ENE6	ESE4	ESE10	ESE9	ESE10	SE11	E9	ESE9	E9	E6	NE7	ENE6	E5	NNE3	N3	NNW2	ESE5.0	SE11
22-May	N3	W1	NW2	W2	WNW4	N5	N8	NE7	NE8	NE10	ENE10	NE11	ENE11	ENE12	E8	ENE8	E7	E6	SE6	SE9	SE7	ESE2	SSW1	NNW2	ENE4.2	ENE12
23-May	UO	UO	S3	ESE1	NNW3	E2	E2	E3	ESE4	E5	NNE6	E5	SSE7	S5	SSW4	S11	S10	SSE12	S10	S8	S4	S5	SSW3	SSE0	SSE3.7	SSE12
24-May	SW0	NNW1	NW2	NW1	W0	SE3	SSE5	SE4	S6	SSE9	SSE9	SSE13	S14	S9	S7	SSE8	SSE11	S9	SSW5	SW3	WSW1	S3	S4	S4	S5.1	S14
25-May	S2	SW3	SW2	WSW4	W2	SSE3	SSE7	SSE10	SSE12	SSE16	SSE16	SSE18	SSE18	SSE16	SSE17	SE17	SE12	SSE13	SSE12	SSE15	SE11	SSE6	SE4	SSE5	SSE9.5	SSE18
26-May	SSE5	SSE3	E1	NNW3	NW2	NNE2	SSE6	SSE8	SSE11	S14	SSE13	S13	S14	SSW10	SSE10	S9	S9	SSE7	SSE7	SSE6	ENE3	S4	SE5	SSE5	SSE6.2	S14
27-May	SSE2	SW2	SSE3	SW2	N3	SSE4	SE7	SSE6	S4	SSE10	SSE15	SSE15	SSE16	SSE16	SSE14	SSE13	W5	W9	NNE0	SSE3	WNW2	SSE3	SSE1	SE2	SSE5.1	SSE16
28-May	WNW8	NNW4	N5	ESE2	E4	N3	NW5	NW3	WSW2	SW4	S4	SSE9	S7	SSW8	SSW9	S10	SSW6	S9	SW5	N1	NNW3	NNW2	SE2	ENE2	SSW1.9	S10
29-May	NE7	NNE10	ENE8	E3	NNE5	NNE6	N5	N11	N12	N12	NNW4	SW4	SW3	SW9	SW13	SW13	WSW11	SW10	SW11	SW11	SW12	SSW10	SSW9	SSW9	WSW2.5	SW13
30-May	S9	S6	WNW2	WNW5	NW10	NW9	NW11	NW14	NW16	NW13	NW12	NW11	NW10	WNW5	NNW4	NNW13	NW10	NW8	NNW15	NNW13	NW9	NW12	NW15	NW11	NW8.9	NW16
31-May	NW11	NW18	NW23	NW19	NW14	WNW7	NW12	WNW13	WNW15	NW20	NW21	NW21	NW21	NW22	NW16	NNW15	NNW20	NNW22	NNW21	NNW15	NNW15	NNW18	NNW17	NNW16	NW16.9	NW23

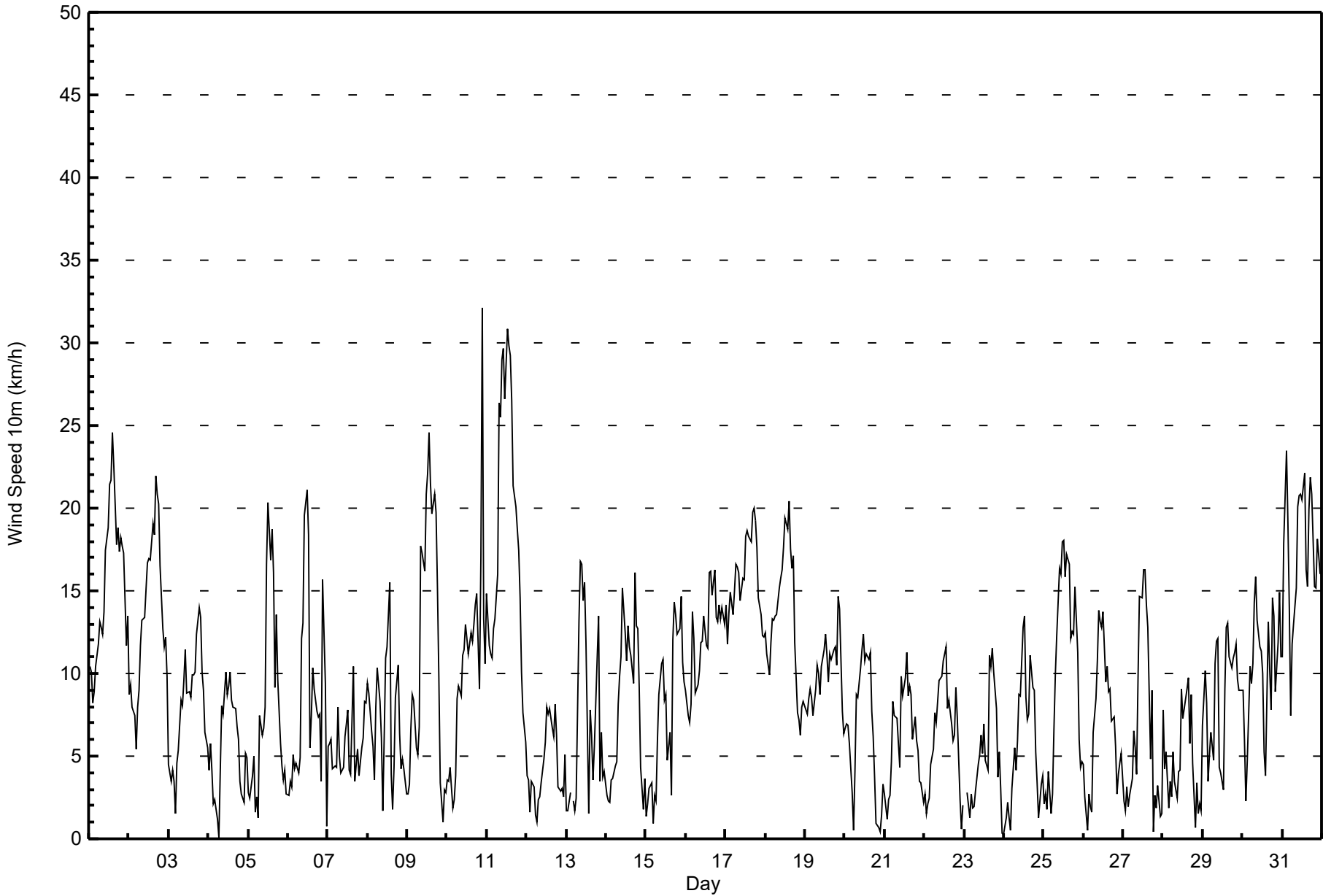
N2.5	NNW3	1	NNW3	2	NNW3	4	NNW3	5	N2.9	N2.5	N2.9	N3.0	NNE2.7	NNE2.8	NE2.1	NNE1.3	N1.8	N2.2	NNE2.7	NNE4.3	NNE4.5	NNE4.8	N4.6	NNE4.5	N4.1	N2.5	N2.1	Diurnal Average
NNW15	NW18	NW23	NW19	NW14	NNE15	NNE17	NW26	NW26	NNW29	NW30	NW27	NW31	NW30	NNW29	NNW26	NNE22	NNW22	NNW21	NNE18	NNE18	N32	NNW17	NNW16				Diurnal 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**  
**Fort McKay - Bertha Ganter - May 2024**





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	237	31.98	31.98
6 - 11	268	36.17	68.15
12 - 19	195	26.32	94.47
20 - 28	35	4.72	99.19
29 - 38	6	0.81	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Fort McKay - Bertha Ganter - May 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	24	16	7	10	13	13	15	21	19	12	14	14	8	17	13	21	237
6 - 11	33	55	25	12	10	8	12	35	26	11	8	3	5	11	12	2	268
12 - 19	47	55	2	1	0	1	2	29	11	1	5	2	4	6	16	13	195
20 - 28	5	7	0	0	0	0	2	0	1	0	0	0	0	5	10	5	35
29 - 38	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	6
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>110</b>	<b>133</b>	<b>34</b>	<b>23</b>	<b>23</b>	<b>22</b>	<b>31</b>	<b>85</b>	<b>57</b>	<b>24</b>	<b>27</b>	<b>19</b>	<b>17</b>	<b>39</b>	<b>54</b>	<b>43</b>	<b>741</b>

Total Number of Valid Hours: 741

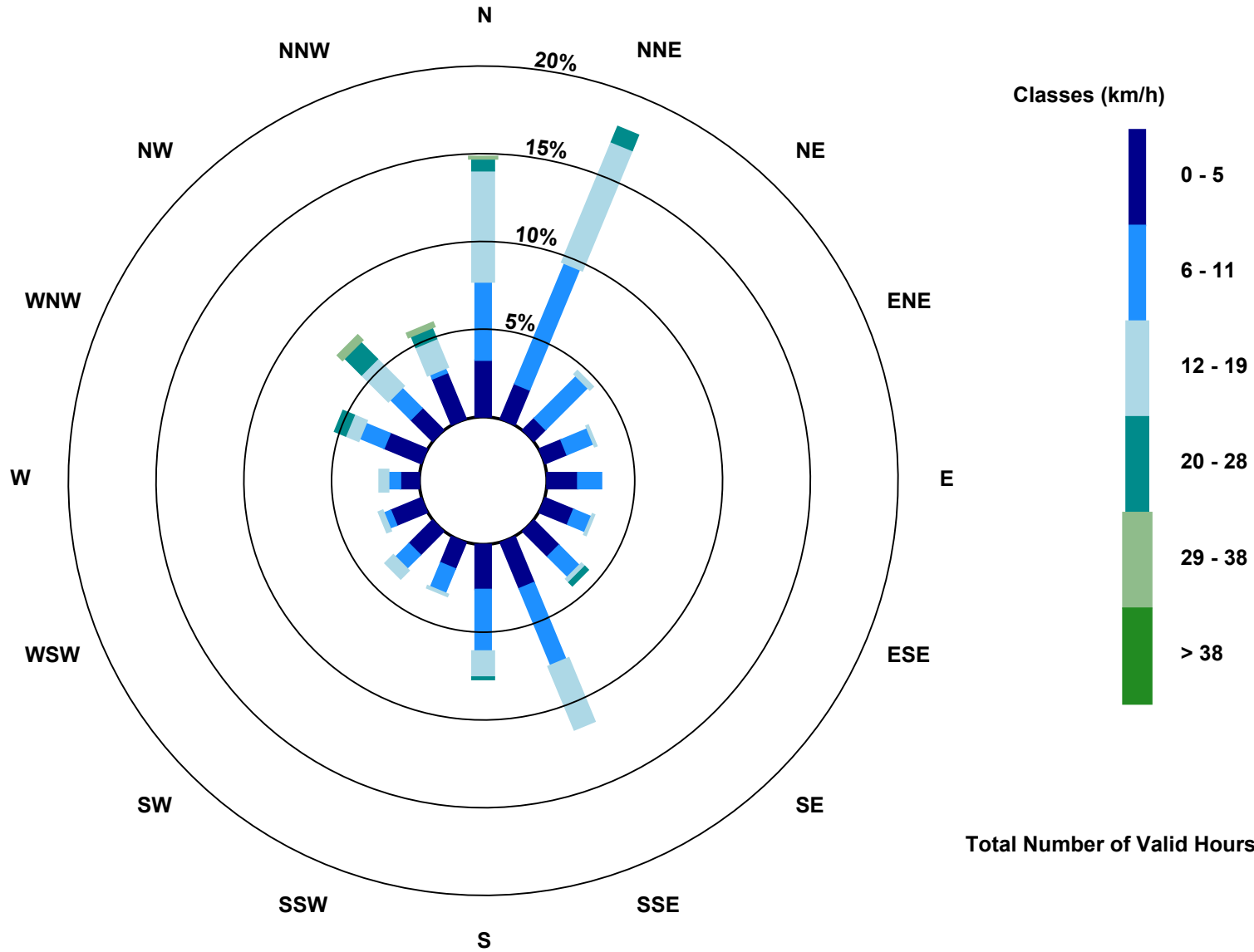
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 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 - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 13 19:00														Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6											
Minimum Value: 1 km/h on May 4 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> = 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-May	2	2	2	2	2	2	3	3	4	4	5	5	5	6	5	6	6	6	5	4	5	5	2	3	6
2-May	3	2	2	1	1	2	2	3	4	4	4	5	5	5	5	6	6	5	5	4	2	2	1	2	6
3-May	2	1	1	1	2	1	1	2	2	2	3	3	4	4	4	5	3	3	3	3	2	1	1	1	5
4-May	1	1	1	1	1	2	1	2	3	3	4	3	4	4	4	3	3	3	2	1	1	1	2	1	4
5-May	1	1	1	1	1	1	2	2	2	2	3	4	4	4	5	4	5	4	3	1	2	1	1	1	5
6-May	1	1	1	2	1	1	1	3	3	4	5	5	5	4	2	3	3	3	2	3	3	5	5	2	5
7-May	1	2	2	1	1	2	3	2	2	1	2	2	1	2	4	3	1	1	2	1	1	1	1	2	4
8-May	2	2	2	2	2	3	3	2	2	1	2	3	4	4	4	3	3	3	5	3	2	1	1	2	5
9-May	1	2	2	3	3	2	2	2	7	7	7	9	9	9	8	7	7	5	4	2	3	2	1	2	9
10-May	1	1	1	2	2	1	2	2	3	4	5	5	5	5	6	6	5	6	6	6	4	8	6	2	8
11-May	3	3	3	3	4	4	7	8	7	7	7	8	8	7	7	7	6	6	5	5	4	4	3	2	8
12-May	1	1	1	1	1	2	1	1	1	2	2	3	3	3	3	2	2	3	2	1	1	1	1	2	3
13-May	1	1	2	UO	1	1	2	4	4	3	3	4	4	4	4	3	6	3	9	5	2	2	3	1	9
14-May	2	1	2	1	1	2	2	2	2	2	3	5	5	5	5	5	4	4	4	4	3	2	2	2	5
15-May	2	2	1	3	1	2	2	2	3	3	4	3	3	4	2	3	4	4	4	4	4	4	4	3	4
16-May	3	2	1	3	2	3	2	2	3	3	3	3	3	3	5	3	3	3	3	2	3	3	3	3	5
17-May	3	3	4	3	4	3	4	3	3	3	3	4	4	4	4	4	4	4	4	4	2	3	3	2	4
18-May	3	2	2	2	3	3	2	3	3	3	3	4	4	4	4	4	3	3	3	2	2	2	2	2	4
19-May	2	2	2	1	1	2	2	3	3	3	4	4	4	3	3	3	4	4	4	3	3	3	2	1	4
20-May	1	1	1	1	2	1	2	2	2	3	3	4	3	3	3	3	3	4	1	1	1	1	1	1	4
21-May	1	1	1	1	1	2	2	2	2	3	4	3	4	3	4	3	3	3	3	3	2	1	1	1	4
22-May	1	2	1	1	1	1	1	2	3	3	4	4	4	4	3	3	3	2	3	2	2	2	2	1	4
23-May	UO	UO	2	1	1	2	1	1	2	2	3	3	3	3	3	4	3	3	3	2	1	1	2	1	4
24-May	1	1	2	1	1	3	2	2	3	3	3	4	4	4	3	2	3	3	3	2	1	1	2	1	4
25-May	2	1	2	1	1	1	3	2	3	3	4	5	5	5	4	5	4	4	3	3	3	2	1	1	5
26-May	1	2	1	1	1	1	2	2	2	3	4	4	4	4	3	4	2	2	1	1	1	2	1	1	4
27-May	1	2	2	1	1	3	1	2	2	2	4	4	4	4	4	3	3	4	2	2	1	1	2	2	4
28-May	4	2	2	1	2	3	2	1	2	3	3	4	3	4	4	4	4	3	3	1	1	2	3	2	4
29-May	3	3	3	2	2	2	3	3	3	3	3	2	2	5	5	6	5	4	4	4	5	4	3	3	6
30-May	2	3	1	2	3	3	3	4	5	4	3	3	4	2	2	5	2	2	4	4	2	4	4	4	5
31-May	3	5	7	6	6	4	3	4	5	5	7	6	6	6	5	5	5	5	5	4	4	4	4	4	7
														Diurnal Maximum											
UO - Unstable Operation																									



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

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

Direction of Maximum Speed: 6 deg on May 10 22:00															Hours in Service: 744	
Direction of Maximum Daily Speed Average: 321.1 deg on May 31															Hours of Data: 741	
Direction of Minimum Speed: 4 deg on May 4 07:00															Hours of Missing Data: 3	
Direction of Minimum Daily Speed Average: 1.9 deg on May 28															Percent Operational Time: 99.6	
Monthly Average Direction: 4.8 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-May	16	19	16	17	17	19	13	22	31	33	12	18	18	14	4	17	33	25	17	15	14	6	1	4	16.3
2-May	357	353	357	9	21	357	14	18	19	25	27	19	15	24	19	21	15	16	9	5	350	349	344	4	11.2
3-May	358	297	295	1	311	359	15	10	23	12	13	15	360	29	42	25	12	13	23	17	9	344	350	303	8.9
4-May	291	295	308	322	224	290	4	24	8	29	15	42	42	63	67	67	55	67	52	49	11	48	140	166	39.1
5-May	149	343	349	19	337	360	175	162	167	171	158	177	172	159	153	159	183	165	161	143	128	143	153	117	160.3
6-May	50	346	326	360	341	328	356	165	170	173	144	136	144	141	12	46	82	101	32	31	77	187	194	323	125.2
7-May	7	14	11	19	45	44	118	77	70	44	17	11	358	356	105	144	135	90	118	109	140	164	165	173	79.8
8-May	179	176	178	179	259	289	298	301	302	232	146	145	166	171	173	290	211	194	234	253	237	217	244	267	209.6
9-May	206	248	277	270	265	247	241	290	314	305	292	287	292	299	301	301	320	329	339	330	4	221	254	199	299.4
10-May	208	200	202	251	192	190	179	165	196	231	234	246	257	261	270	267	273	281	305	319	345	6	6	322	279.0
11-May	317	306	297	294	297	296	300	319	321	326	325	321	322	326	327	344	24	30	27	23	20	32	28	32	335.0
12-May	7	353	311	315	288	251	53	77	105	82	61	82	154	148	147	155	119	120	110	85	21	22	70	174	109.2
13-May	156	355	204	UO	343	22	141	171	168	166	163	163	182	119	187	154	328	33	14	19	66	15	356	253	152.4
14-May	301	215	174	186	185	165	171	167	168	169	157	197	234	224	226	240	285	11	11	355	25	11	117	283	214.4
15-May	285	314	320	9	328	251	340	356	26	14	25	59	67	24	200	114	36	28	38	32	32	33	40	32	29.8
16-May	36	26	2	353	2	11	16	17	27	21	16	22	27	29	3	7	13	8	11	10	11	15	13	23	14.5
17-May	20	27	13	9	22	21	11	4	2	12	5	14	17	16	12	0	356	5	2	354	344	357	5	4	7.6
18-May	5	4	6	4	1	359	356	356	0	1	360	3	355	354	356	354	1	359	4	23	42	28	19	23	2.4
19-May	17	22	9	4	8	19	23	28	36	43	36	39	32	36	38	40	37	43	33	15	5	2	355	14	24.5
20-May	10	8	359	352	10	25	10	5	14	6	9	11	26	24	13	15	35	84	188	264	58	290	132	131	16.8
21-May	129	94	161	142	144	148	136	148	70	115	119	103	119	145	90	106	90	97	54	77	89	29	4	335	108.6
22-May	354	266	305	274	296	349	1	40	34	55	63	45	69	72	81	76	80	88	132	143	128	115	202	339	63.4
23-May	UO	UO	175	112	336	100	94	91	121	98	24	85	152	179	210	171	172	164	173	186	191	181	211	147	158.6
24-May	234	330	326	318	259	134	157	145	174	167	164	156	169	170	171	163	167	178	187	201	230	244	181	176	172.0
25-May	177	215	218	241	262	148	158	152	159	161	162	160	165	160	167	142	124	150	165	157	143	155	134	159	157.9
26-May	148	153	100	330	318	17	160	163	164	169	166	172	177	197	154	179	170	158	162	149	78	190	146	151	165.8
27-May	163	226	153	230	356	150	146	164	182	153	164	157	159	156	153	162	268	276	29	155	289	158	158	141	165.1
28-May	298	342	349	114	85	11	321	304	239	215	178	156	179	213	205	180	198	181	232	358	338	348	140	68	208.9
29-May	47	26	59	95	14	29	1	351	3	9	346	236	220	225	219	230	243	220	220	228	219	212	201	196	249.5
30-May	177	176	297	296	314	316	316	319	316	315	314	322	316	299	332	342	317	315	329	330	326	318	311	307	315.8
31-May	306	317	313	306	308	302	311	303	303	319	314	317	318	318	319	337	339	335	328	330	335	345	329	330	321.1

357.1 347.2 337.8 338.8 339.8 352.0 357.0 2.2 4.7 13.1 24.8 45.1 27.3 4.7 0.7 21.0 13.0 22.8 11.5 11.0 11.4 5.0 359.6 352.8  
 Diurnal Average

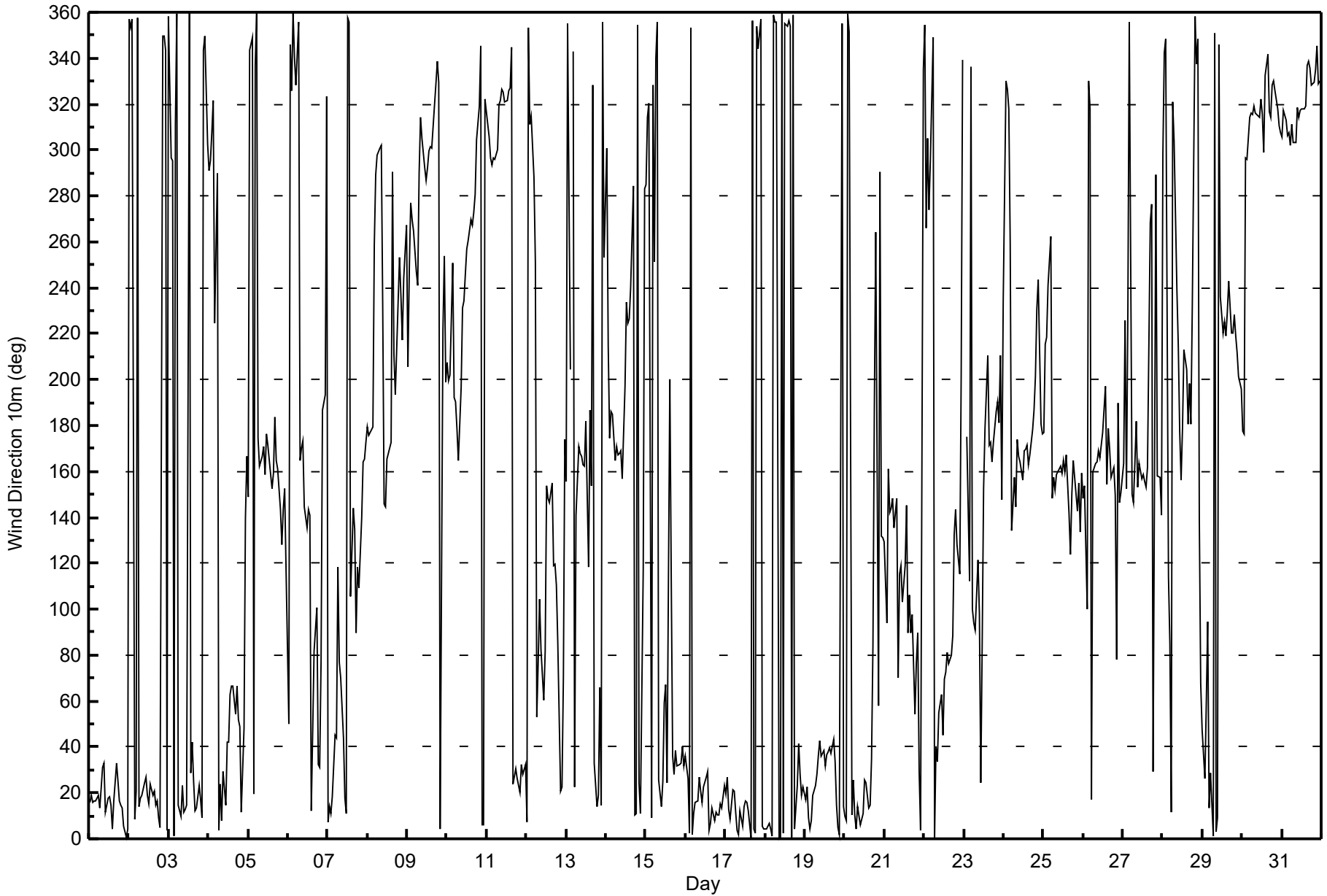
UO - Unstable Operation

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



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

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





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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 104 deg on May 27 19:00	Hours of Data: 741
Minimum Value: 8 deg on May 4 01:00	Hours of Missing Data: 3
Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 15 Q <sub>1</sub> = 18 Median = 24 Q <sub>3</sub> = 39 P <sub>90</sub> = 61 P <sub>99</sub> = 89	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-May	15	14	13	14	11	14	15	18	22	22	20	21	20	24	21	22	25	21	22	19	19	22	22	20	25
2-May	23	22	22	18	21	22	20	21	25	25	28	26	29	30	22	27	24	24	22	24	25	25	16	26	30
3-May	35	17	27	25	68	27	23	22	26	24	25	46	55	46	35	47	39	26	20	18	20	17	23	12	68
4-May	8	12	13	50	44	56	79	42	31	45	35	43	52	38	46	42	41	40	32	38	25	26	31	14	79
5-May	32	48	23	16	64	33	90	18	23	23	36	17	14	22	21	21	41	22	17	20	18	15	14	41	90
6-May	38	31	51	25	24	23	29	79	20	18	20	18	14	43	19	34	33	31	25	19	67	18	26	75	79
7-May	18	32	34	20	27	34	21	25	27	26	16	19	16	40	47	14	29	23	14	15	19	12	11	12	47
8-May	13	13	13	23	50	25	14	18	17	81	35	18	36	20	90	89	74	37	36	39	34	14	29	52	90
9-May	41	65	28	25	30	52	55	33	21	23	31	28	25	22	25	23	26	22	20	12	35	78	26	52	78
10-May	16	24	17	54	36	28	17	16	44	34	43	43	42	48	42	47	37	32	18	19	18	21	24	12	54
11-May	11	12	14	15	16	19	20	17	18	19	19	23	21	22	22	28	22	22	22	19	17	20	27	22	28
12-May	32	30	39	26	19	42	55	45	70	67	51	48	32	35	29	23	35	31	21	34	22	25	20	23	70
13-May	53	28	48	UO	35	61	62	17	13	15	17	17	29	82	41	62	96	63	39	22	48	20	39	26	96
14-May	31	59	63	13	20	28	43	18	20	16	15	47	46	40	45	44	45	19	22	29	22	63	75	49	75
15-May	65	48	56	28	94	55	64	27	30	27	33	46	42	75	43	87	29	21	23	19	19	19	26	20	94
16-May	23	30	19	21	18	17	15	16	17	17	15	17	18	19	15	15	13	15	15	14	15	15	14	16	30
17-May	15	17	16	14	18	16	15	15	15	14	15	14	15	15	15	15	17	16	16	16	12	16	16	15	18
18-May	15	14	16	16	16	15	15	15	16	15	16	16	16	18	17	16	17	15	15	17	26	22	14	15	26
19-May	16	15	14	12	13	15	15	17	22	24	22	22	19	24	25	24	24	26	23	17	15	14	17	11	26
20-May	14	13	13	16	37	85	21	19	20	18	22	21	25	26	22	20	29	53	33	79	61	93	57	17	93
21-May	16	36	22	41	18	14	20	23	46	74	25	25	33	27	35	34	37	46	31	30	27	32	23	31	74
22-May	27	62	67	66	21	22	14	32	29	35	39	34	36	36	45	36	36	33	34	22	12	37	85	26	85
23-May	UO	UO	58	66	20	59	32	46	46	53	60	62	50	64	74	23	24	19	20	19	21	16	35	81	81
24-May	93	70	30	19	71	41	25	60	49	32	26	23	23	43	32	25	18	26	26	32	35	61	30	33	93
25-May	78	46	76	16	34	25	24	19	17	16	20	19	17	23	20	25	25	29	20	15	13	17	23	24	78
26-May	15	64	89	22	52	62	23	18	21	19	21	24	22	41	19	33	20	14	17	17	42	48	19	25	89
27-May	42	71	50	75	36	48	13	36	63	22	20	18	17	18	19	19	62	42	104	68	71	21	75	69	104
28-May	24	60	38	66	61	85	18	65	77	75	77	39	58	62	49	40	71	25	57	60	26	78	85	75	85
29-May	36	22	40	55	42	43	56	15	18	20	56	67	65	47	38	43	46	38	37	41	36	39	28	27	67
30-May	16	28	44	25	15	18	18	15	15	16	15	15	19	27	51	19	15	18	14	10	9	18	17	16	51
31-May	20	17	17	20	19	29	19	20	22	17	20	16	18	16	16	18	16	14	15	14	16	15	15	14	29
	93	71	89	75	94	85	90	79	77	81	77	67	65	82	90	89	96	63	104	79	71	93	85	81	
	Diurnal Maximum																								

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS02 MILDRED LAKE MAY 2024**

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

June 20, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)  
 May 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	701	35	43	98.92	37.3	0	6.6	0
H2S (ppb) Average	677	35	67	95.7	7	0	1.4	0
THC (ppm) Average	690	35	54	97.45	2.8	-	2.2	-
NMHC(ppm) Average	690	35	54	97.45	0.378	-	0.036	-
CH4(ppm) Average	690	35	54	97.45	2.6	-	2.2	-
Temperature (C) Average	744	0	0	100	27.1	-	18.1	-
Relative Humidity (%) Average	744	0	0	100	100	-	99.3	-
Wind Speed 10 m (km/h) Average	744	0	0	100	36	-	20	-
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 - MILDRED LAKE (AMS02)  
MAY 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	701	1.12	3.4	-	0	0	0	0.1	0.4	2.7	37.3
H2S (ppb) Average	677	0.32	0.7	-	0	0	0.1	0.1	0.3	0.7	7
THC (ppm) Average	690	2.01	0.1	-	1.9	1.9	1.9	2	2	2.1	2.8
NMHC(ppm) Average	690	0.006	0.033	-	0	0	0	0	0	0	0.378
CH4(ppm) Average	690	2.01	0.1	-	1.9	1.9	1.9	2	2	2.1	2.6
Temperature 2 m (C) Average	744	10.85	5.3	-	-2	4.7	6.7	10.5	14.2	18	27.1
Relative Humidity (%) Average	744	61.86	24.1	-	15.5	30	41.1	60.3	83.2	97.7	100
Wind Speed 10 m (km/h) Average	744	10.6	5	-	0	5	7	10	13	17	36
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-



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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2/THC/NMHC/CH4	28 May 2024 13:00	28 May 2024 14:00	2	Maintenance - sample manifold cleaned
H2S	14 May 2024 09:00	15 May 2024 10:00	26	Unstable Operation - flatline in analyzer output signal
SO2/THC	30 May 2024 15:00	30 May 2024 20:00	6	Station power failure
THC/NMHC/CH4	30 May 2024 15:00	30 May 2024 21:00	7	Station power failure
THC/NMHC/CH4	10 May 2024 10:00	10 May 2024 14:00	5	Maintenance - station operator activities
THC/NMHC/CH4	30 May 2024 10:00	30 May 2024 14:00	5	Maintenance - station operator activities

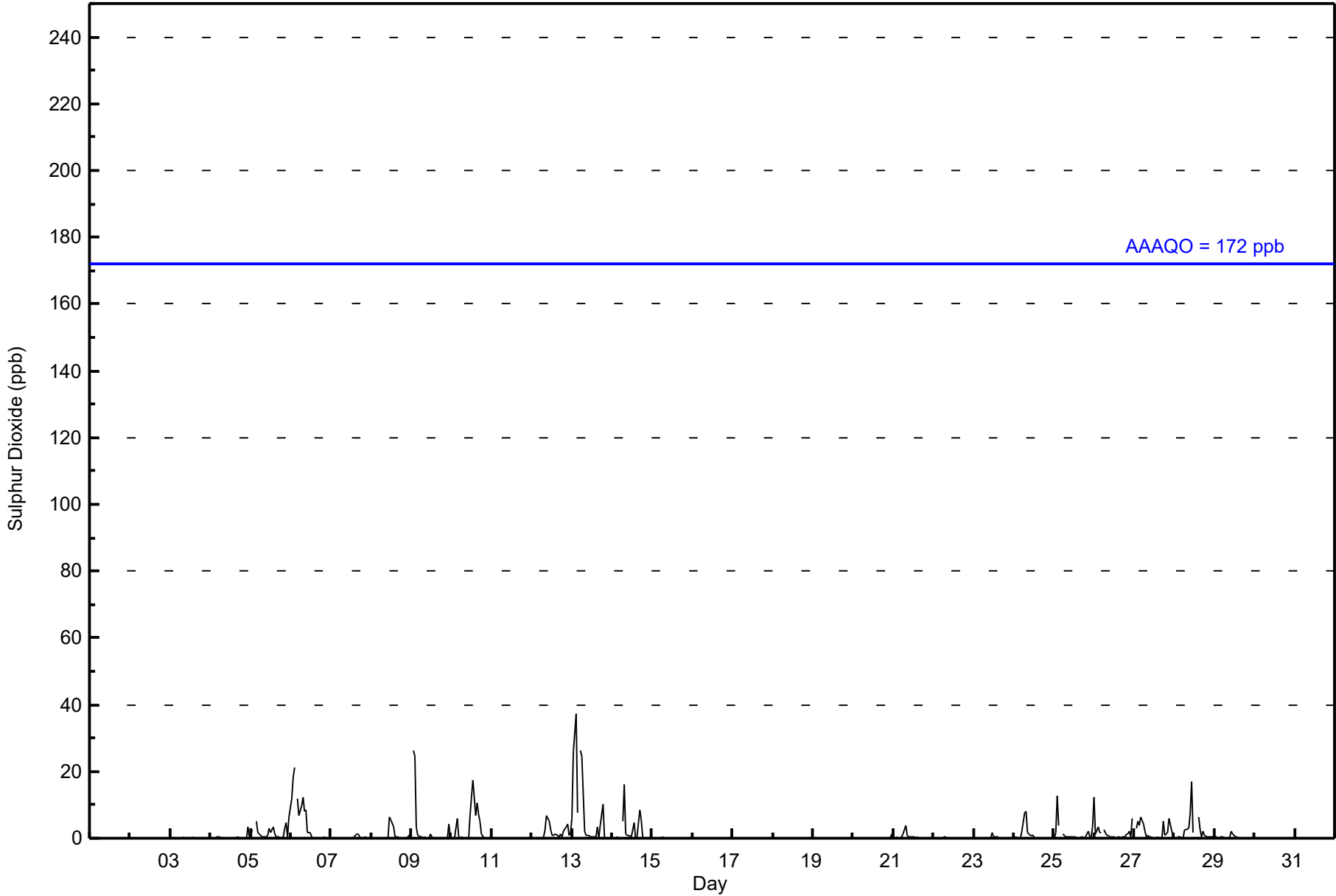


Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 37.3 ppb on May 13 03:00	Maximum Daily Average: 6.6 ppb on May 13		Hours of Data:	701
Minimum Value: 0.0 ppb on May 1 02:00	Minimum Daily Average: 0.0 ppb on May 11		Hours of Missing Data:	43
Maximum Diurnal Average: 4.1 ppb at hour 3	Minimum Diurnal Average: 0.3 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 1.12 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 2.7 P <sub>99</sub> = 18.1		Percent Operational Time:	98.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-May	0.0	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
2-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1
3-May	Z	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.5	C	C	C	C	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.5
4-May	0.0	Z	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.4	0.3	0.4	3.4
5-May	0.7	2.7	Z	5.2	1.9	1.4	0.7	0.4	0.3	0.6	0.9	2.8	1.5	3.3	1.5	0.6	0.4	0.2	0.2	0.5	2.9	4.7	0.5	6.3	1.8	6.3	1.8	6.3	
6-May	11.7	18.1	21.4	Z	12.0	6.7	9.6	12.3	8.2	8.3	1.6	1.7	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.1	0.0	0.1	0.0	4.9	21.4	4.9	21.4
7-May	0.0	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	1.4	0.3	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1	1.5
8-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.2	6.3	5.7	3.3	0.3	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.4	1.1	0.8	6.3	0.8	6.3
9-May	Z	26.4	24.4	3.6	0.7	0.4	0.4	0.1	0.2	0.2	0.2	1.1	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	4.3	1.0	2.8	26.4	2.8	26.4	
10-May	0.2	Z	0.1	6.1	0.3	0.1	0.3	0.1	0.0	0.0	0.0	6.6	12.3	17.3	6.6	10.5	7.4	5.0	1.3	0.0	0.0	0.0	0.0	0.0	3.2	17.3	3.2	17.3	
11-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12-May	0.0	0.0	0.1	Z	0.1	0.1	0.0	0.5	2.6	6.8	5.0	2.6	0.7	0.7	1.2	1.0	0.5	1.1	0.5	2.1	3.4	4.3	0.9	1.9	1.6	6.8	1.6	6.8	
13-May	5.9	26.0	37.3	7.8	Z	26.4	24.4	2.0	0.9	1.0	0.8	0.6	0.3	0.2	0.3	3.6	0.1	3.7	10.1	0.4	0.2	0.2	0.1	0.0	6.6	37.3	6.6	37.3	
14-May	0.0	0.0	0.1	0.4	0.1	Z	5.0	16.3	1.3	0.9	1.0	0.2	2.5	4.6	0.0	0.3	8.3	5.5	0.3	0.2	0.2	0.1	0.1	0.1	2.1	16.3	2.1	16.3	
15-May	Z	0.1	0.1	0.2	0.1	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	
16-May	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	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1
17-May	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2
18-May	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2
19-May	0.1	0.1	0.1	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
20-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	1.4	0.1	1.4	0.1	1.4	
21-May	Z	0.4	0.2	0.2	0.1	0.2	1.3	3.8	1.0	0.4	0.3	0.4	0.3	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.4	3.8	0.4	3.8	
22-May	0.1	Z	0.1	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
23-May	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.2	1.7	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.1	1.7	
24-May	0.2	0.4	0.1	Z	0.0	0.0	2.3	7.7	8.1	1.6	1.3	0.7	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	8.1	1.0	8.1	
25-May	0.0	1.6	12.9	3.9	Z	1.4	0.8	0.6	0.5	0.4	0.6	0.6	0.4	0.3	0.0	0.2	0.3	0.4	0.1	0.3	2.2	0.4	0.6	3.4	1.4	12.9	1.4	12.9	
26-May	12.5	1.4	3.6	1.5	1.6	Z	2.6	0.8	0.7	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.1	0.4	0.5	1.1	1.4	2.3	0.6	5.9	1.7	12.5	1.7	12.5	
27-May	Z	3.0	5.2	3.8	6.4	4.3	2.3	0.6	0.9	0.3	0.3	0.1	0.0	0.0	0.5	0.0	0.0	4.9	0.7	1.4	1.5	6.1	2.1	0.6	2.0	6.4	2.0	6.4	
28-May	0.5	Z	0.5	0.2	0.1	0.1	2.7	2.4	2.9	7.5	17.0	1.7	M	M	6.2	2.3	0.6	2.1	1.0	0.5	0.5	0.3	0.4	0.6	2.4	17.0	2.4	17.0	
29-May	0.4	0.5	Z	0.5	0.3	0.3	0.2	0.2	0.2	0.3	2.1	1.4	0.6	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.1	0.3	2.1	
30-May	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	PF	PF	PF	PF	PF	PF	PF	0.1	0.0	0.0	--	0.1	--	0.1	
31-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1.3	3.1	4.1	1.3	1.0	1.7	1.9	1.6	0.7	1.0	1.0	1.0	0.9	1.1	0.6	0.7	0.7	0.8	0.5	0.3	0.5	0.6	0.5	0.8	Diurnal Average	
12.5	26.4	37.3	7.8	12.0	26.4	24.4	16.3	8.2	8.3	17.0	6.6	12.3	17.3	6.6	10.5	8.3	5.5	10.1	2.1	3.4	6.1	4.3	6.3	Diurnal Maximum	

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	683	97.43	97.43
11 - 20	11	1.57	99.00
21 - 60	7	1.00	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: 701

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mildred Lake - May 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	136	60	31	26	34	45	60	71	29	15	38	10	9	33	38	48	683
11 - 20	0	0	0	0	0	4	2	1	0	1	0	2	1	0	0	0	11
21 - 60	0	0	0	0	0	2	3	0	0	0	0	2	0	0	0	0	7
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	136	60	31	26	34	51	65	72	29	16	38	14	10	33	38	48	701

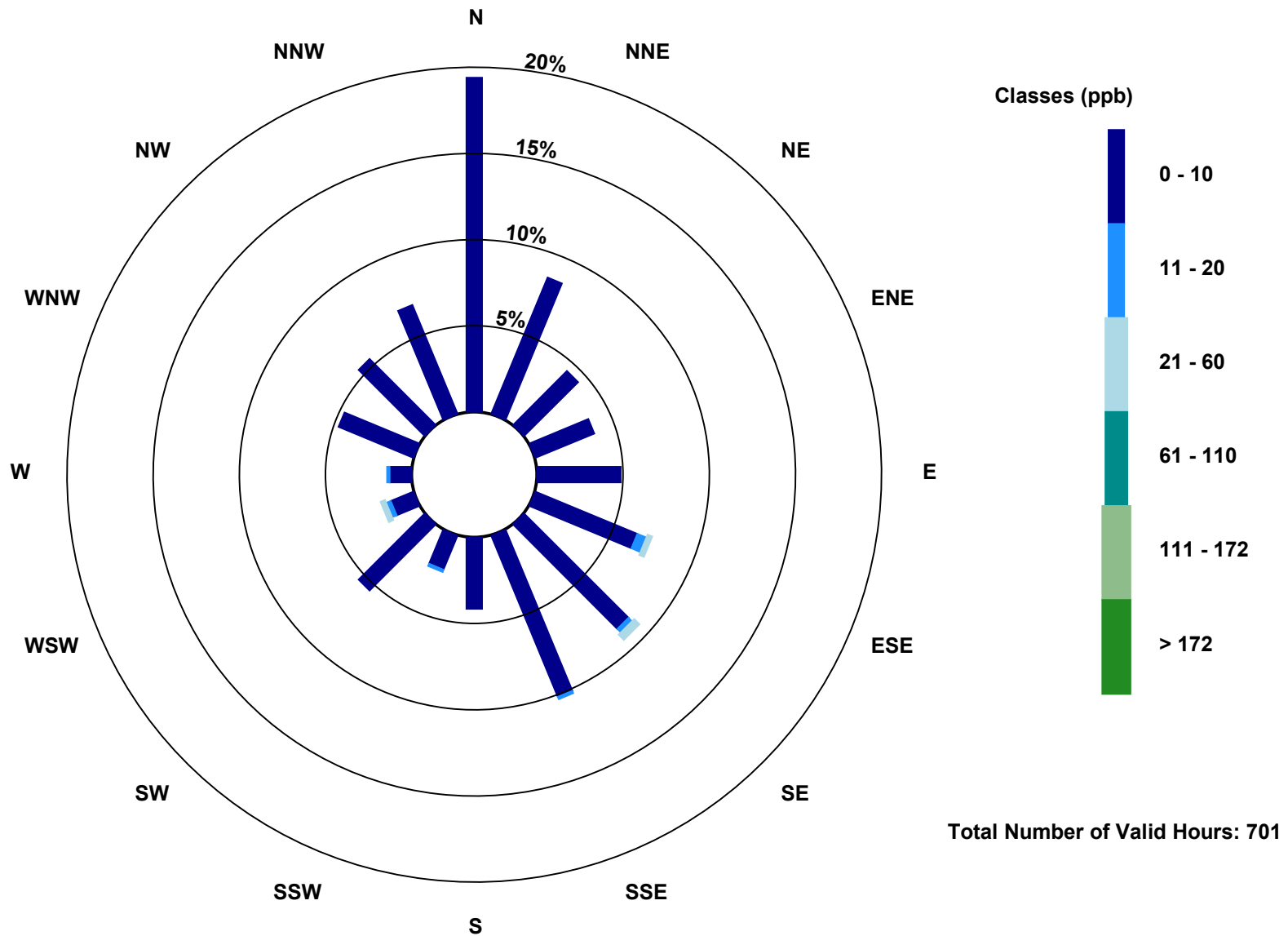
Total Number of Valid Hours: 701

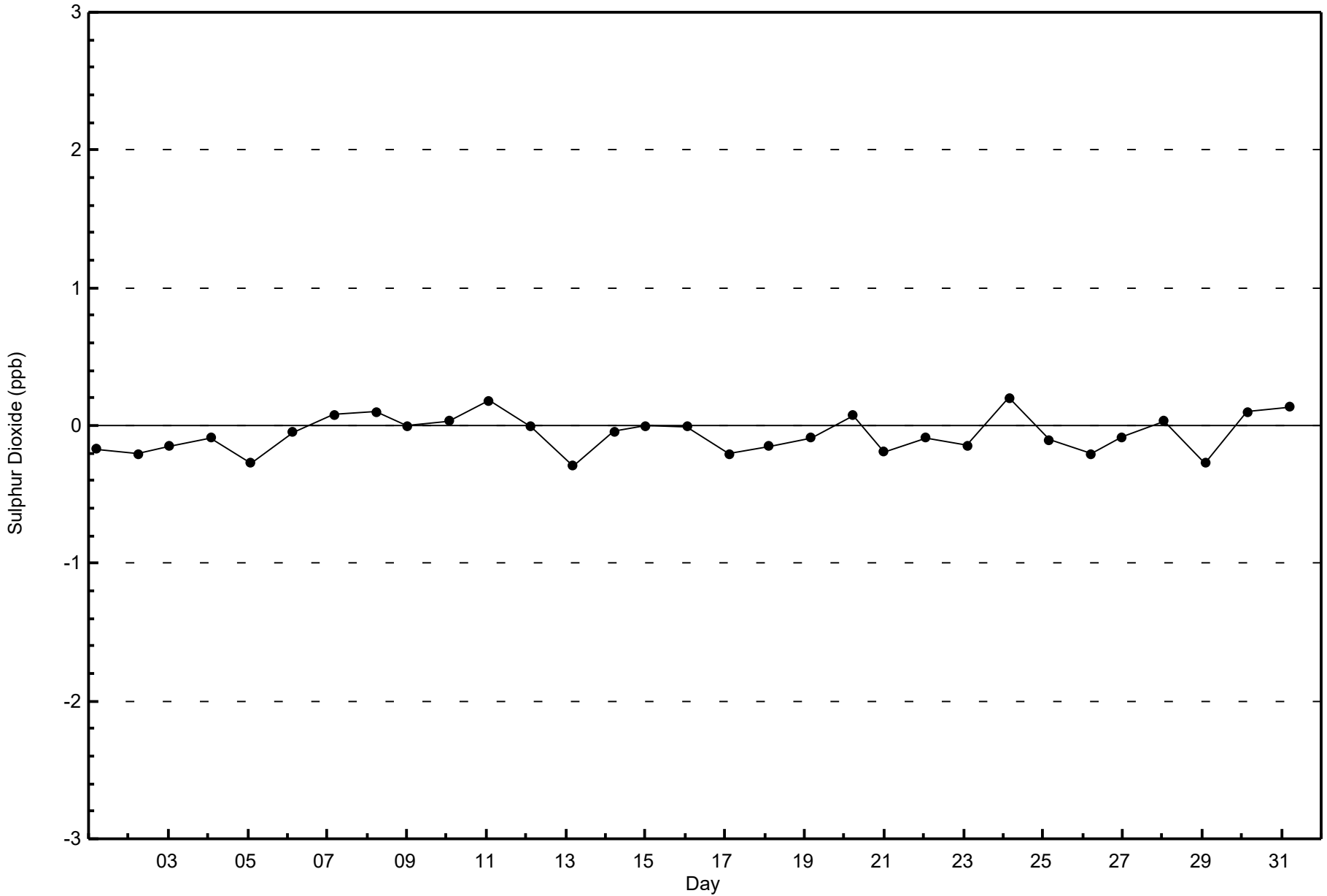
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

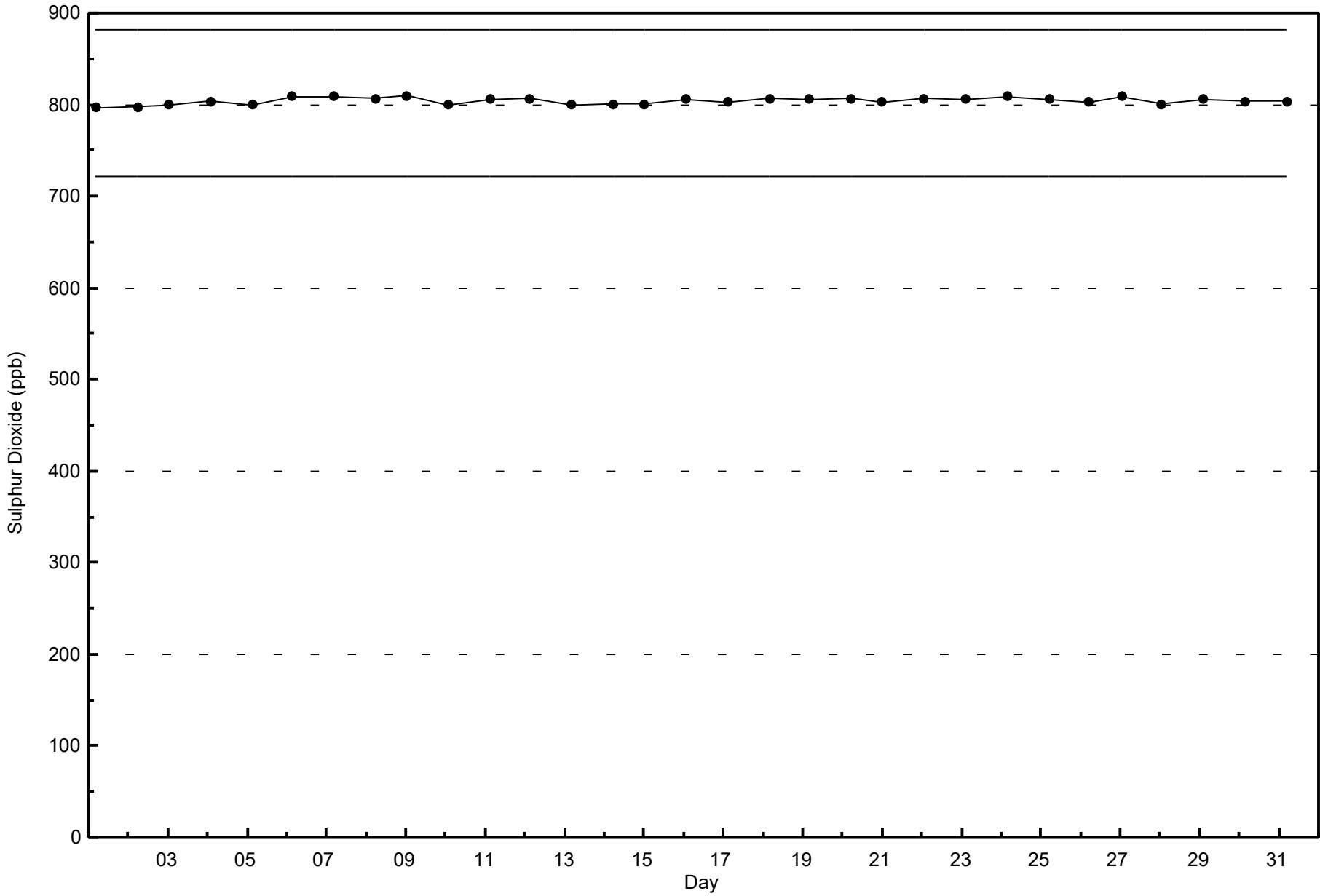






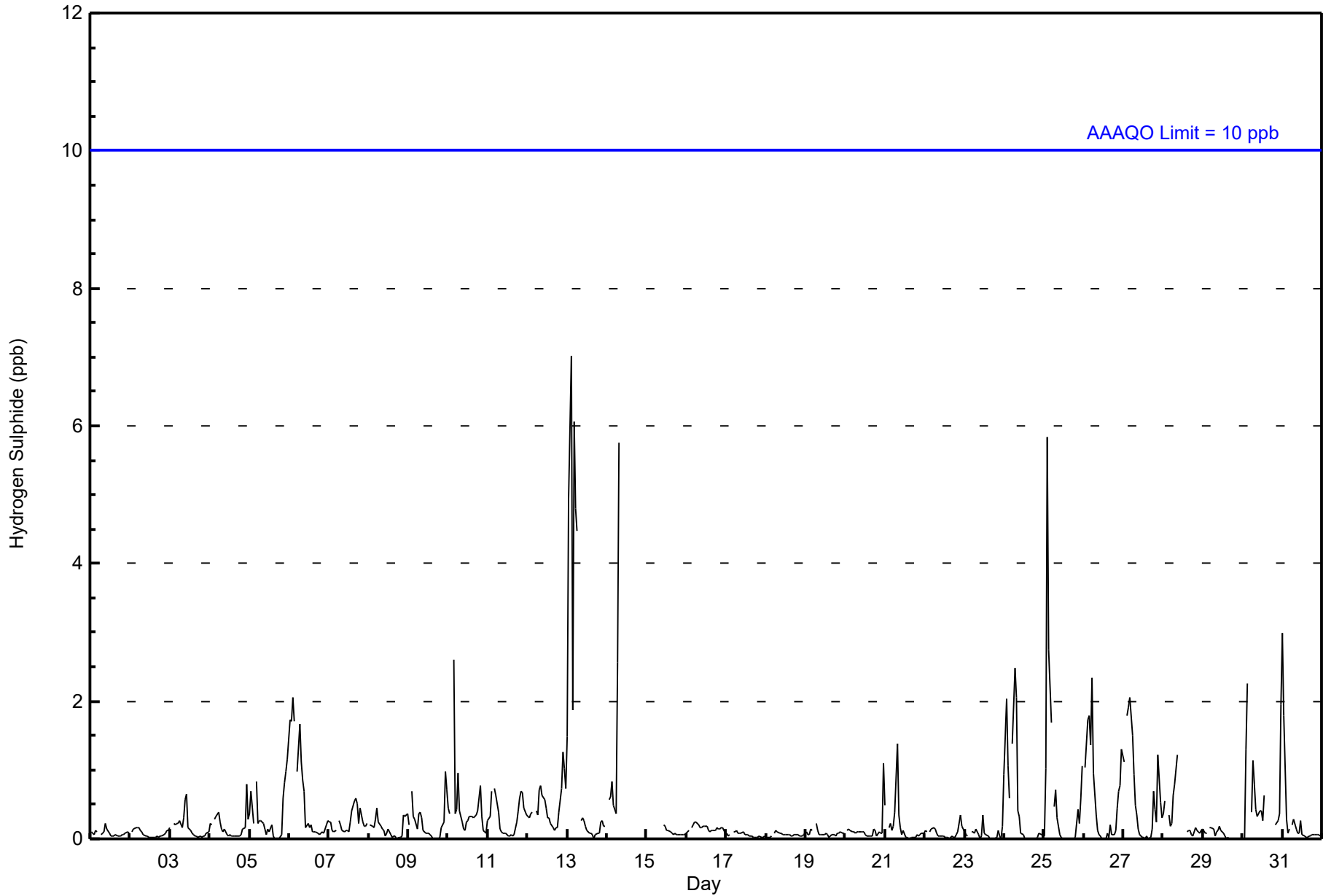
**Wood Buffalo Environmental Association**  
**Span Responses**

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











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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	666	98.38	98.38
3 - 4	5	0.74	99.11
5 - 7	6	0.89	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 744



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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mildred Lake - May 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	130	61	30	24	33	50	59	67	28	13	33	12	9	30	43	44	666
3 - 4	0	0	0	0	0	0	2	1	1	0	0	0	0	1	0	0	5
5 - 7	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0	0	6
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>	130	61	30	24	33	52	64	69	29	13	33	12	9	31	43	44	677

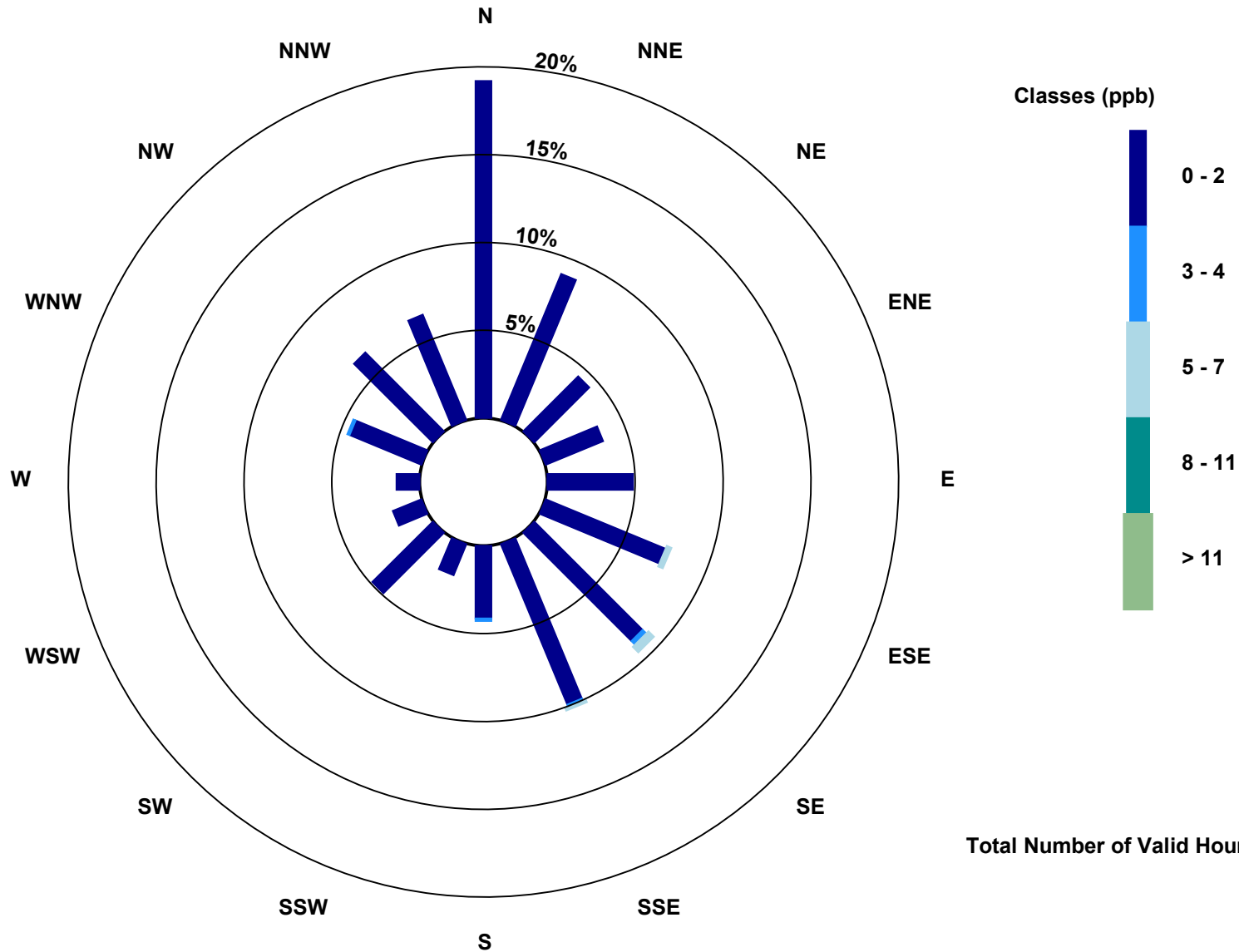
Total Number of Valid Hours: 677

Total Number of Hours: 744

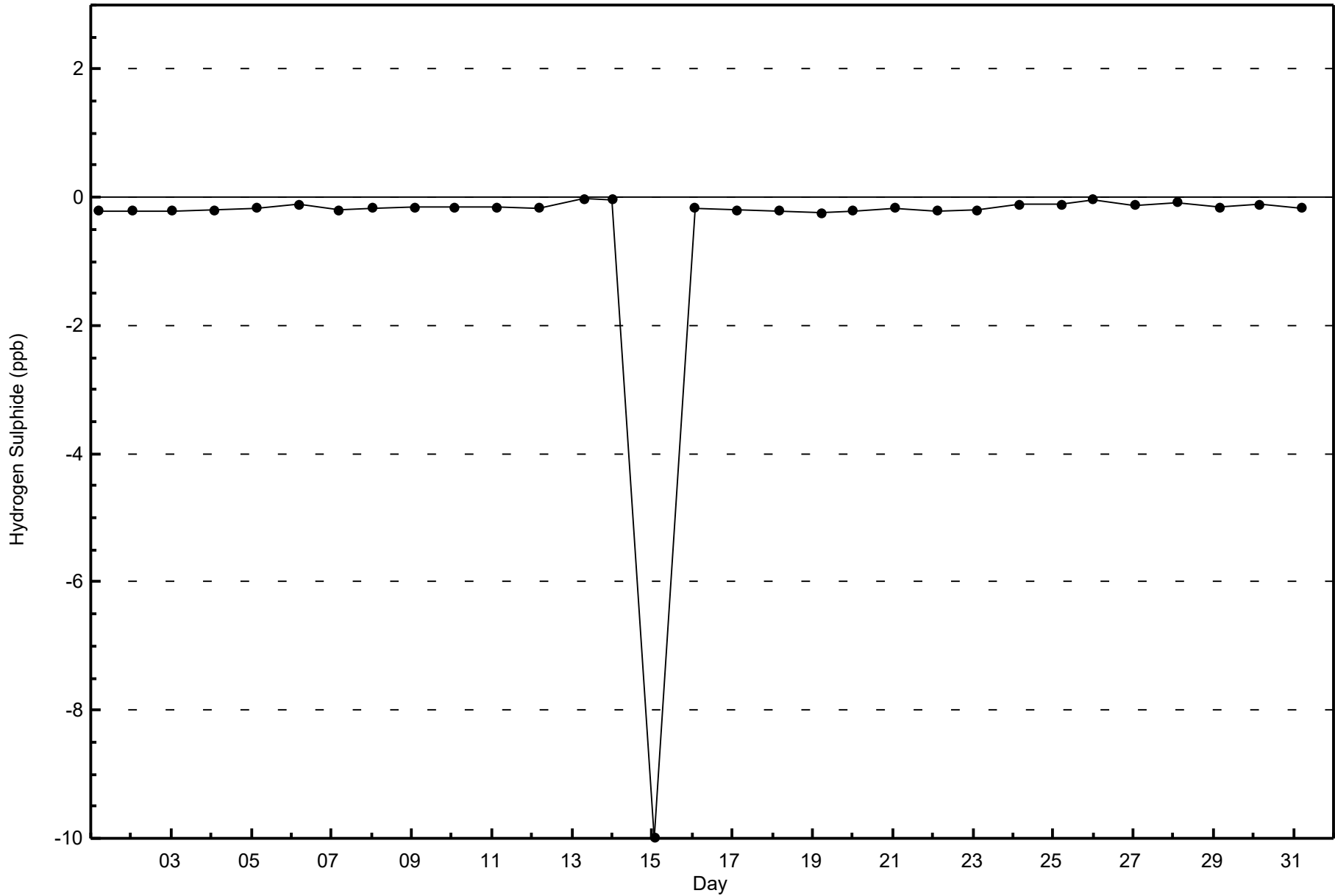


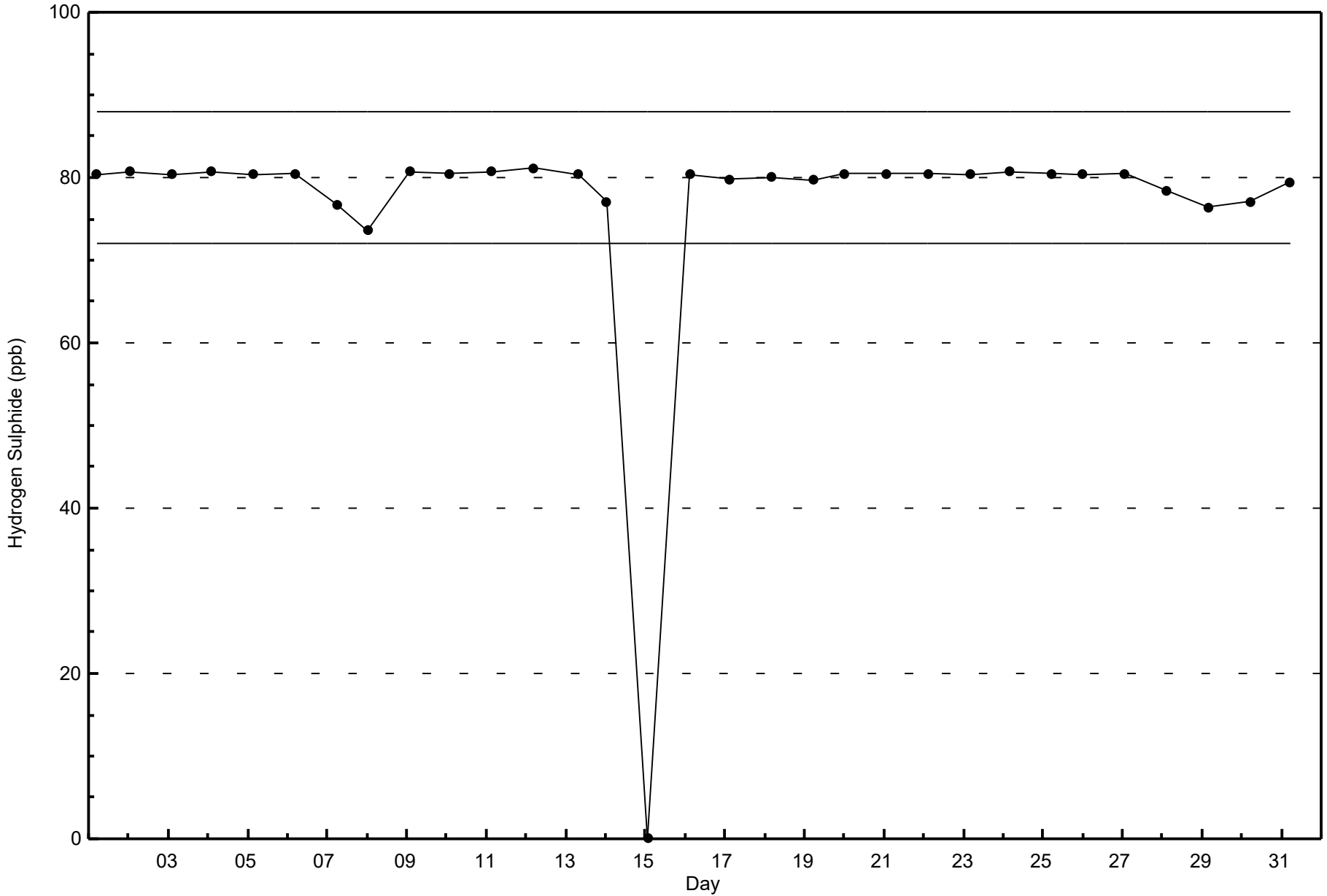
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 677







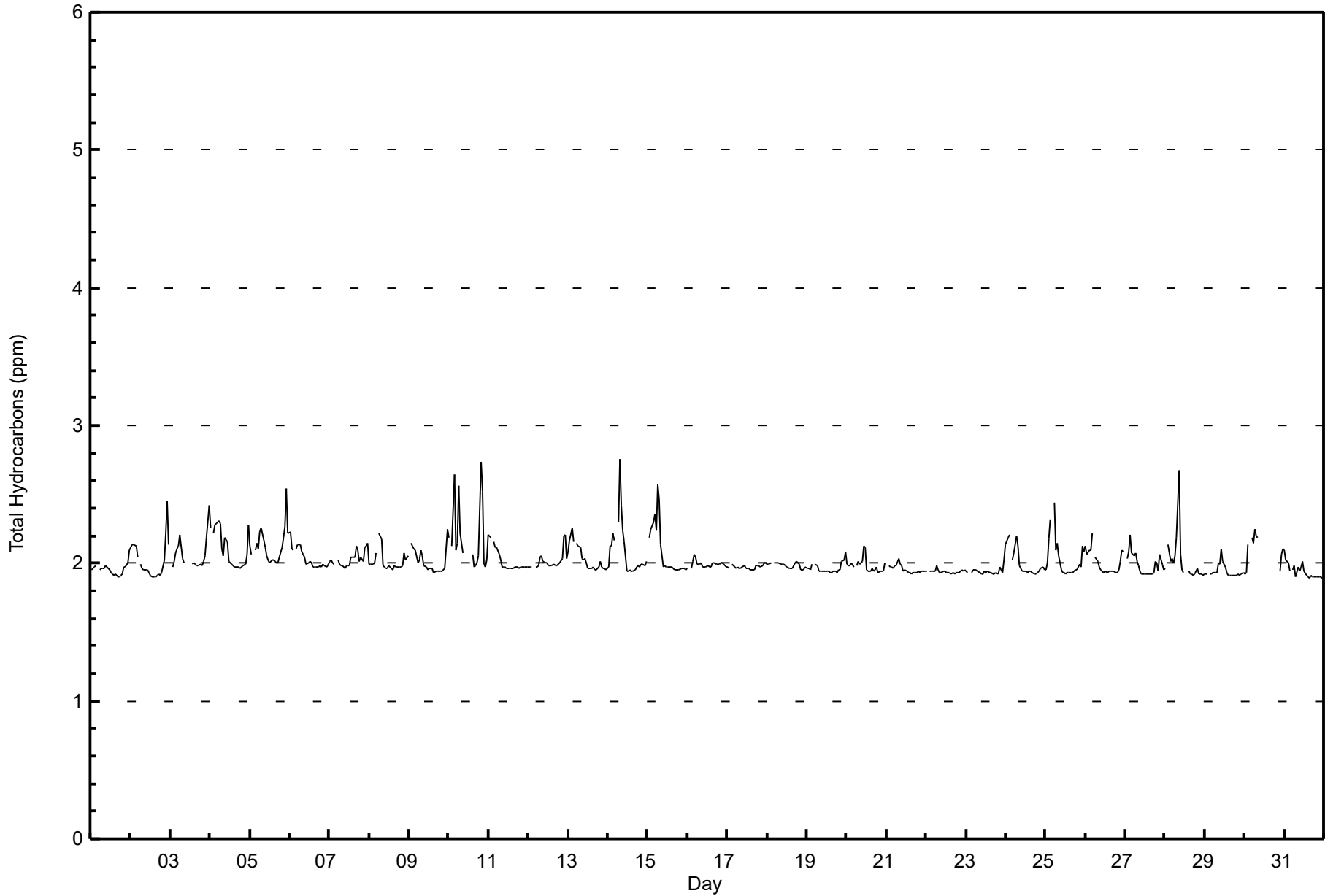
Maximum Value: 2.8 ppm on May 14 08:00		Maximum Daily Average: 2.2 ppm on May 10		Hours in Service: 744																							
Minimum Value: 1.9 ppm on Jun 1 00:00		Minimum Daily Average: 1.9 ppm on May 22		Hours of Data: 690																							
Maximum Diurnal Average: 2.1 ppm at hour 7		Minimum Diurnal Average: 2.0 ppm at hour 16		Hours of Missing Data: 54																							
Monthly Average: 2.01 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.5		Hours of Calibration: 35																							
				Percent Operational Time: 97.5																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.0	2.1		
2-May	2.1	2.1	2.1	2.1	2.0	Z	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.4	2.1	2.0	2.4	
3-May	Z	2.0	2.0	2.1	2.1	2.1	2.2	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.1	2.4	
4-May	2.3	Z	2.2	2.3	2.3	2.3	2.3	2.1	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.1	2.3	
5-May	2.1	2.1	Z	2.1	2.2	2.1	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.5	2.2	2.1	2.5	
6-May	2.2	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	2.0	2.0	2.2	
7-May	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	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	
8-May	2.0	2.0	2.0	2.0	2.1	Z	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.2	
9-May	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.0	2.2	
10-May	2.2	Z	2.1	2.6	2.1	2.1	2.6	2.2	2.1	M	M	M	M	M	2.1	2.0	2.0	2.0	2.1	2.7	2.5	2.0	2.0	2.2	2.7		
11-May	2.2	2.2	Z	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
12-May	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	2.2	2.2	2.0	2.0	2.2	
13-May	2.1	2.2	2.3	2.2	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	
14-May	2.0	2.1	2.1	2.2	2.2	Z	2.3	2.8	2.4	2.2	2.2	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.8	
15-May	Z	2.2	2.3	2.3	2.4	2.2	2.6	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.6	
16-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
17-May	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
18-May	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	
19-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
20-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.0	1.9	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	
21-May	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
22-May	1.9	Z	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	
23-May	1.9	1.9	Z	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	1.9	2.0	
24-May	2.1	2.2	2.2	Z	2.0	2.1	2.2	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.2	
25-May	1.9	2.0	2.2	2.3	Z	2.4	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.4	
26-May	2.1	2.1	2.1	2.1	2.2	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.0	2.0	2.2	
27-May	Z	2.0	2.1	2.2	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.1	2.0	1.9	2.0	2.2	
28-May	2.0	Z	2.1	2.0	2.0	2.0	2.1	2.2	2.7	2.1	2.0	1.9	M	M	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.7	
29-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	
30-May	1.9	1.9	2.1	Z	2.2	2.1	2.3	2.2	2.2	M	M	M	M	M	PF	PF	PF	PF	PF	PF	PF	PF	1.9	2.1	2.1	--	2.3
31-May	2.1	2.0	2.0	1.9	Z	1.9	2.0	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance      PF - Power Failure																											





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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	534	77.39	77.39
2.1 - 3.0	156	22.61	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Mildred Lake - May 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	115	60	30	25	32	33	39	47	20	11	32	6	6	12	30	36	534
2.1 - 3.0	21	0	1	1	2	18	26	25	9	4	5	5	4	18	5	12	156
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>	136	60	31	26	34	51	65	72	29	15	37	11	10	30	35	48	690

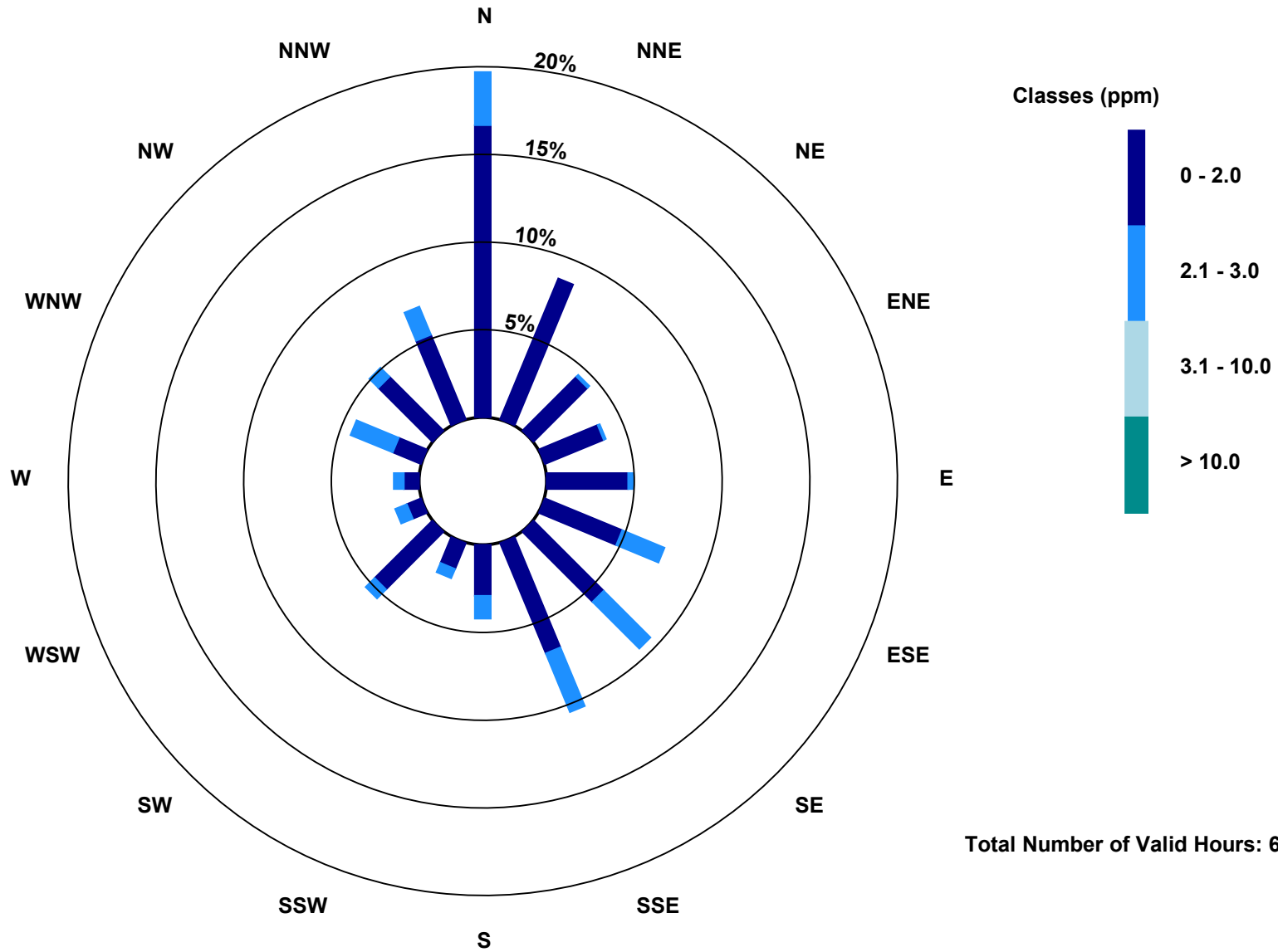
Total Number of Valid Hours: 690

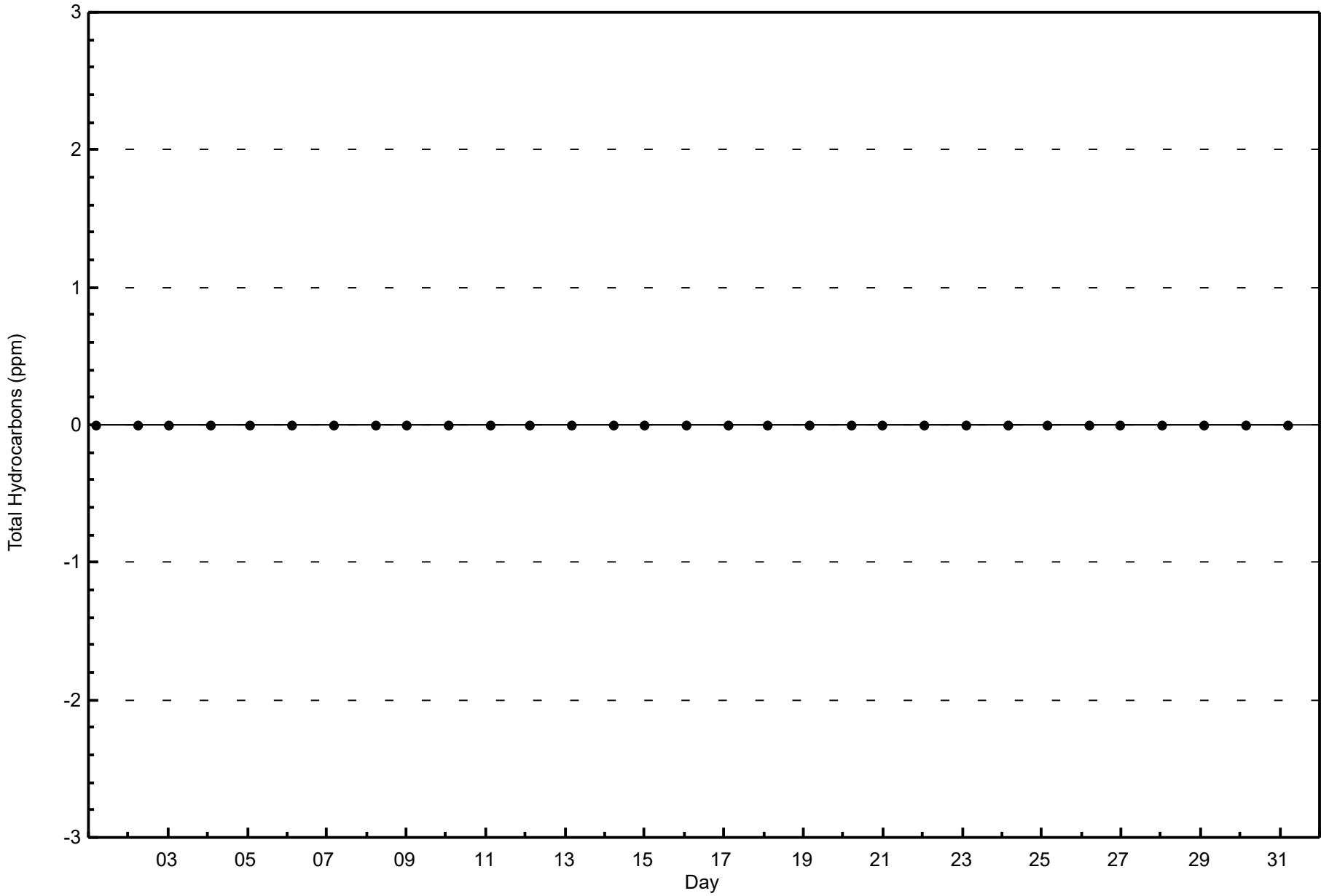
Total Number of Hours: 744

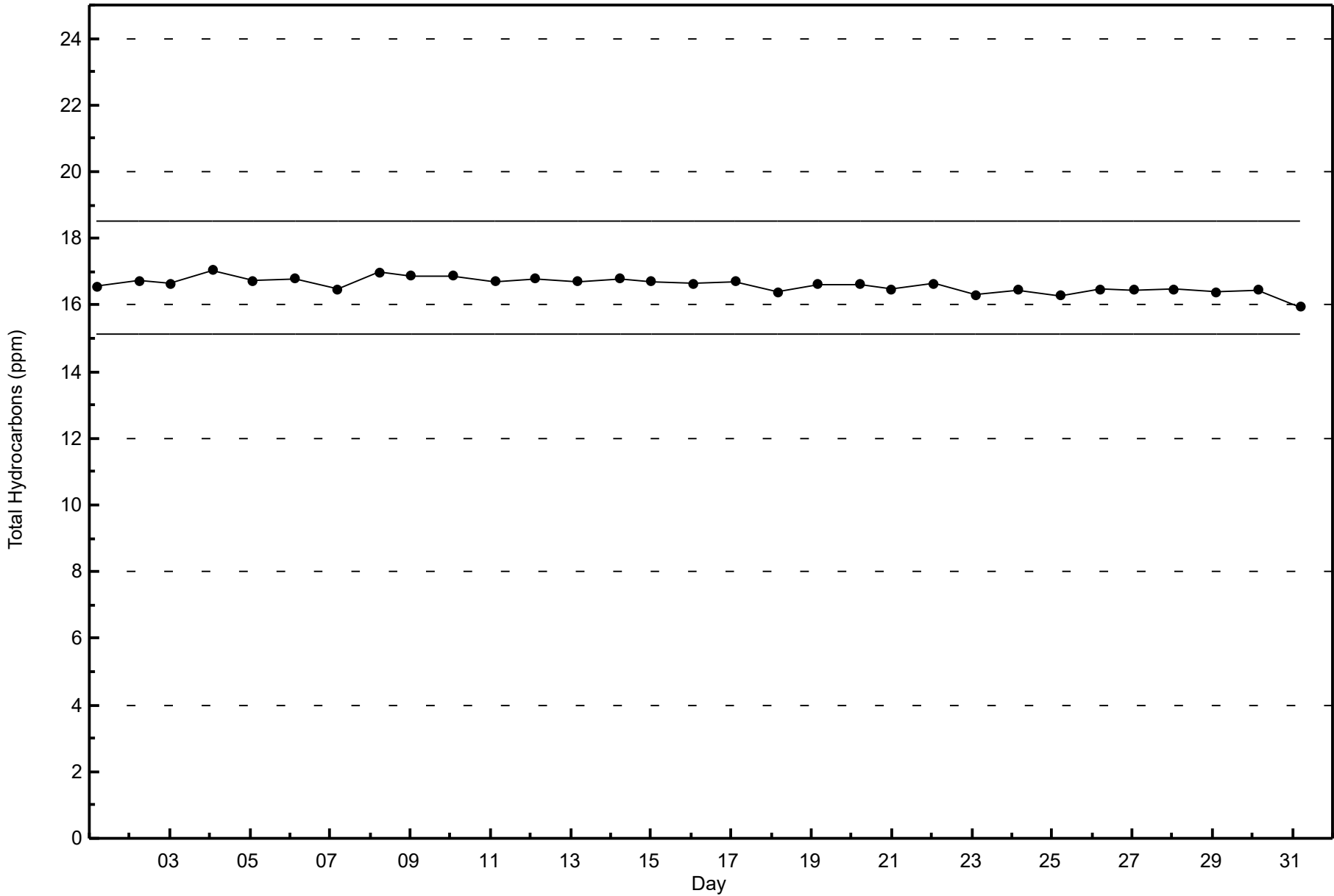


Wood Buffalo Environmental Association  
Wind Rose May 2024

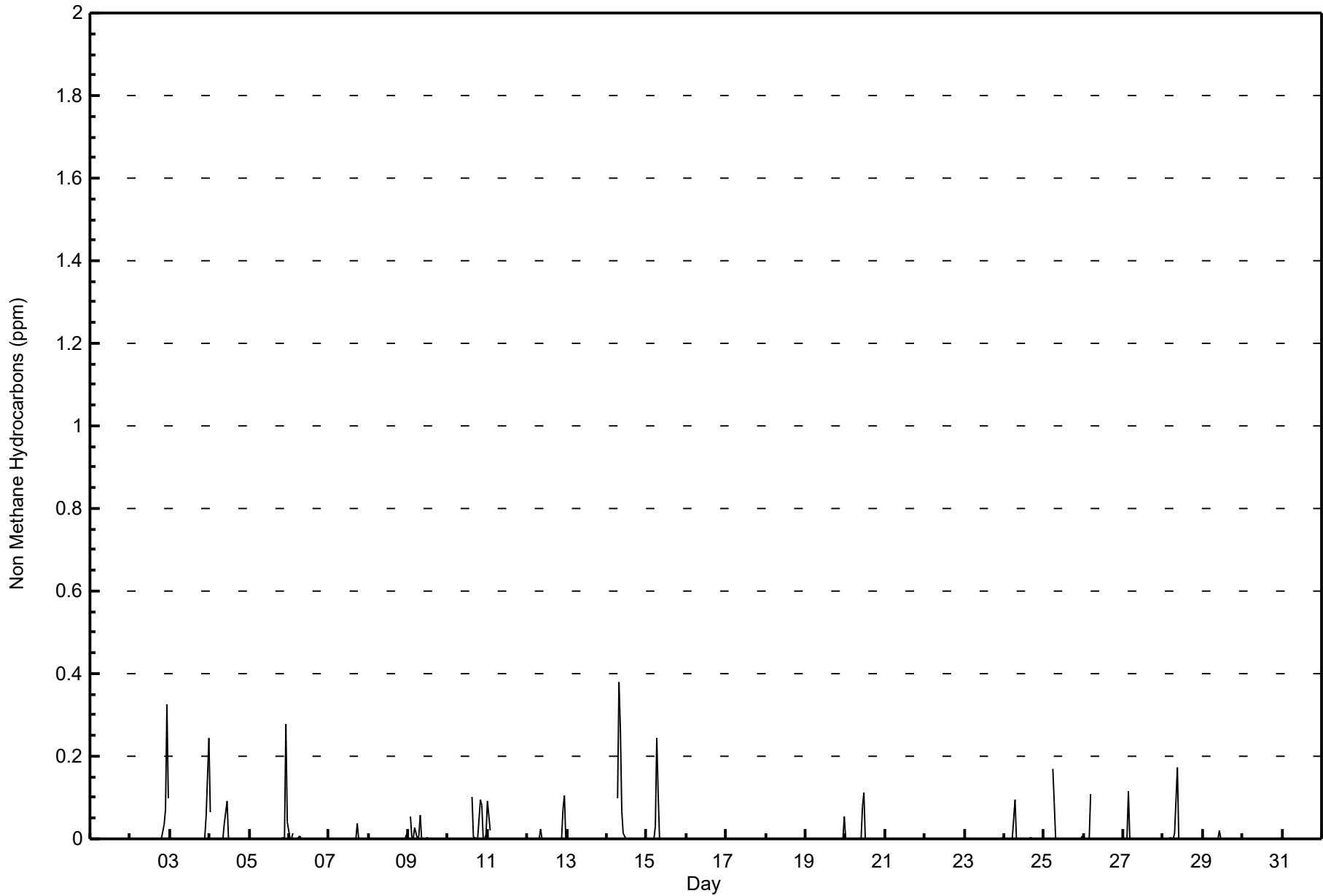
Total Hydrocarbons (THC) - ppm  
Mildred Lake















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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	642	93.04	93.04
0.006 - 0.05	18	2.61	95.65
0.06 - 0.1	22	3.19	98.84
> 0.1	8	1.16	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake - May 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	131	60	31	26	33	43	61	66	29	15	34	9	7	27	33	37	642
0.006 - 0.05	1	0	0	0	1	5	1	0	0	0	2	1	2	0	1	4	18
0.06 - 0.1	4	0	0	0	0	2	3	3	0	0	0	1	1	3	0	5	22
> 0.1	0	0	0	0	0	1	0	3	0	0	1	0	0	0	1	2	8
<b>Totals</b>	136	60	31	26	34	51	65	72	29	15	37	11	10	30	35	48	690

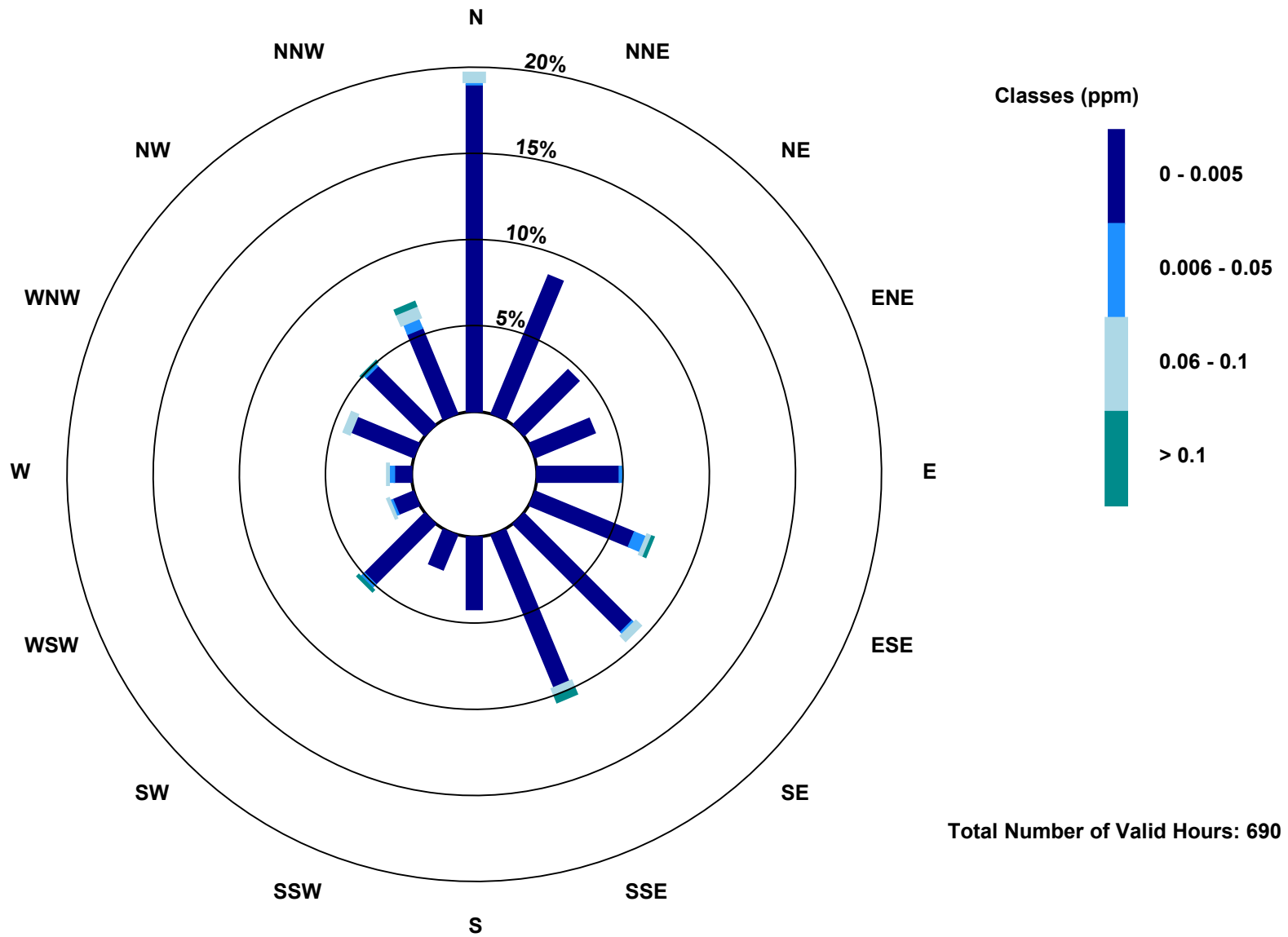
Total Number of Valid Hours: 690

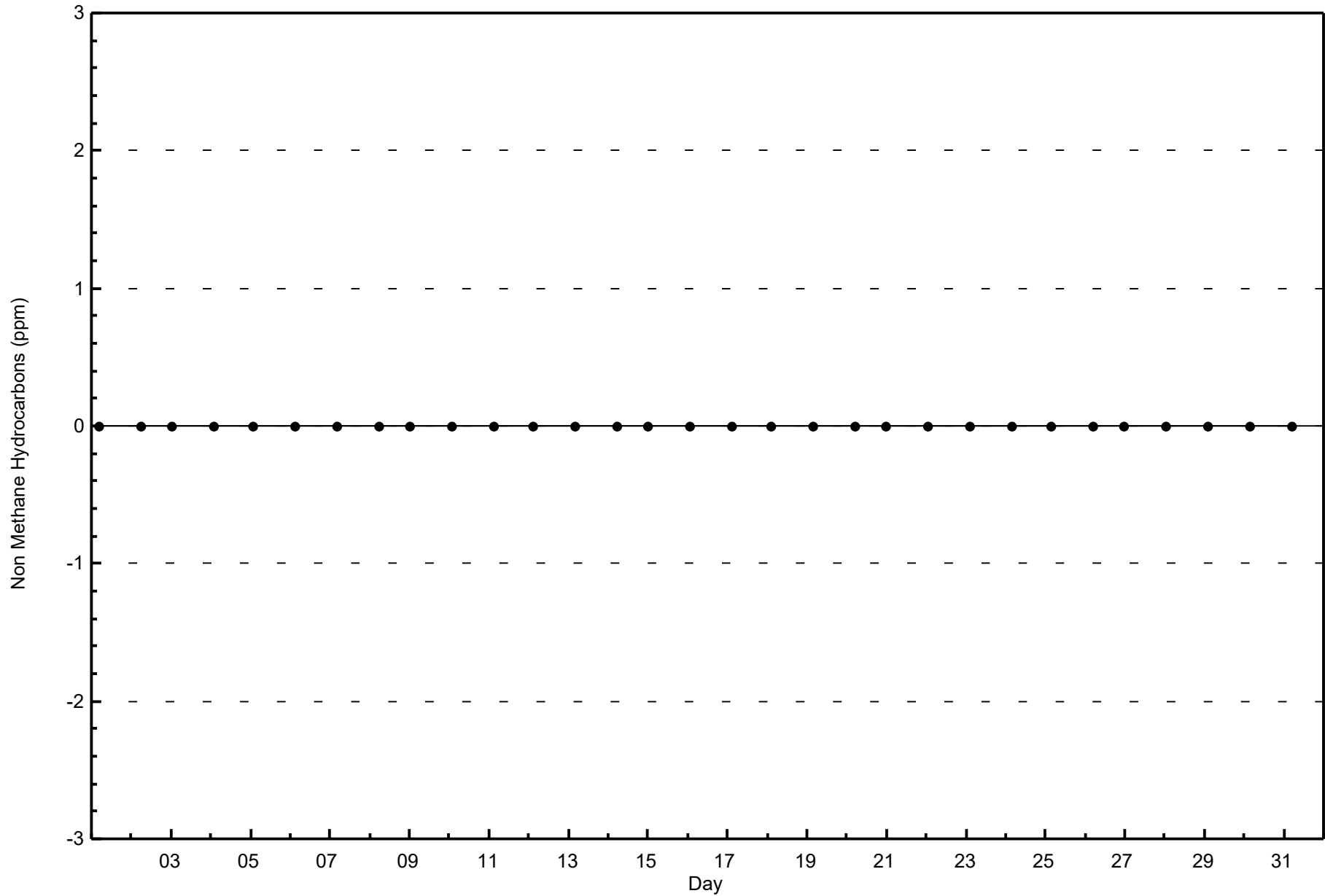
Total Number of Hours: 744

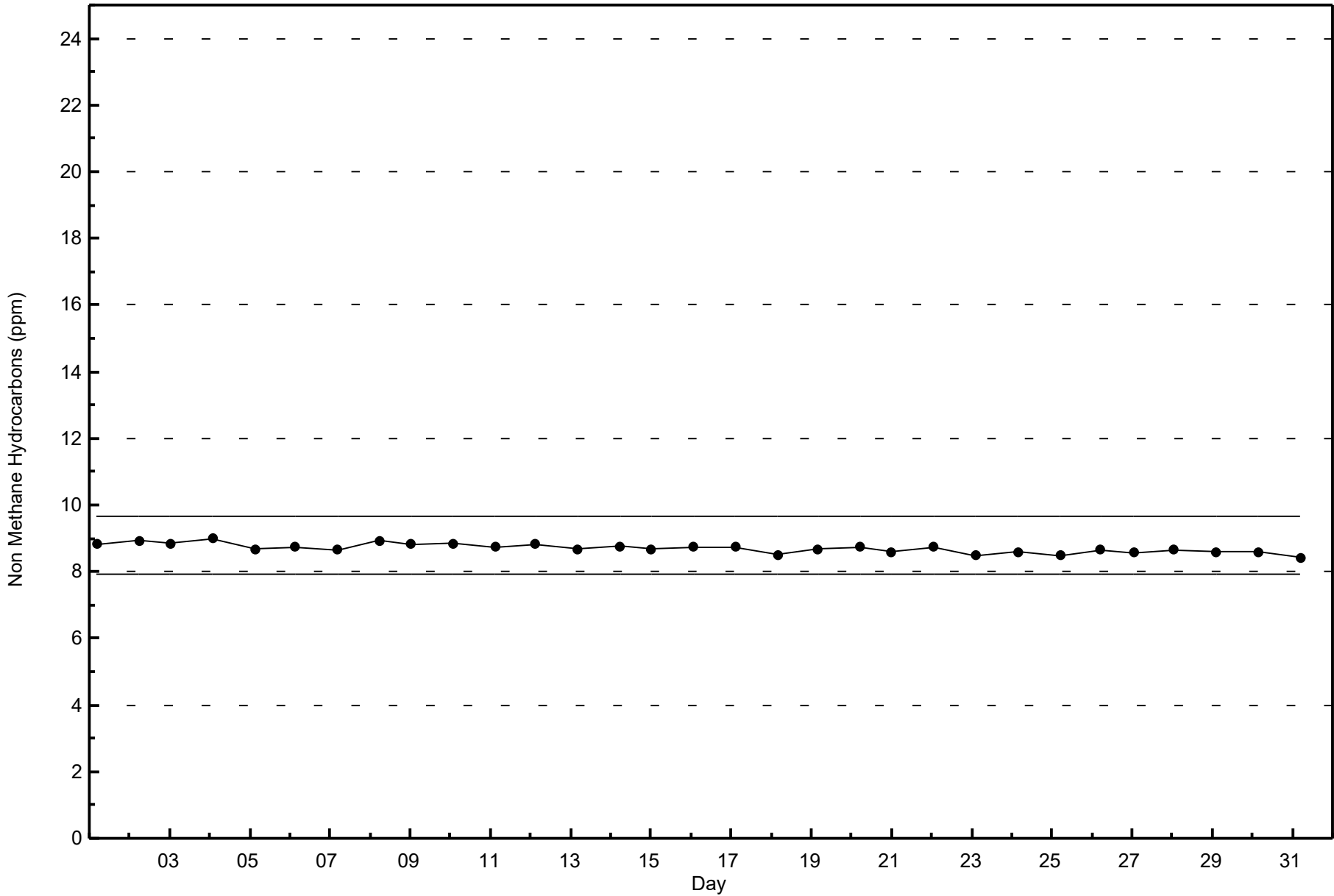


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mildred Lake









# Wood Buffalo Environmental Association

## Summary of Hour Averages

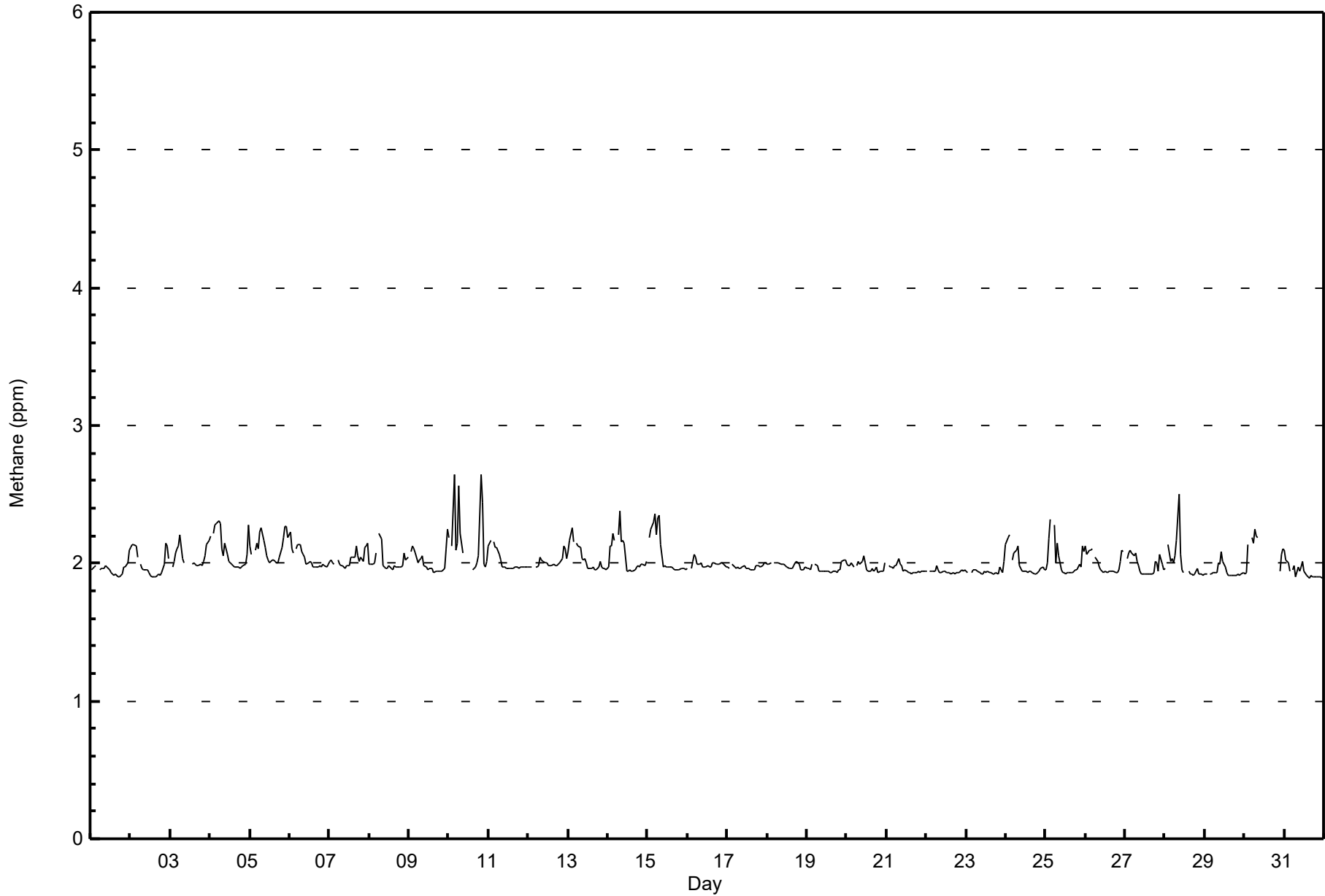
# Methane (CH<sub>4</sub>) - ppm Mildred Lake - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744				
Maximum Value: 2.6 ppm on May 10 04:00		Maximum Daily Average: 2.2 ppm on May 10																	Hours of Data:	690						
Minimum Value: 1.9 ppm on Jun 1 00:00		Minimum Daily Average: 1.9 ppm on May 22																	Hours of Missing Data:	54						
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 15																	Hours of Calibration:	35						
Monthly Average: 2.01 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.3																	Percent Operational Time:	97.5						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.0	2.1
2-May	2.1	2.1	2.1	2.1	2.0	Z	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.0	2.0	2.1
3-May	Z	2.0	2.0	2.1	2.1	2.1	2.2	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.2
4-May	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.1
5-May	2.1	2.1	Z	2.1	2.2	2.1	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.3	2.2	2.1	2.3
6-May	2.2	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	2.0	2.0	2.0
7-May	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	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1
8-May	2.0	2.0	2.0	2.0	2.1	Z	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.2
9-May	Z	2.1	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	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.0	2.2
10-May	2.2	Z	2.1	2.6	2.1	2.1	2.6	2.2	2.1	M	M	M	M	M	2.0	2.0	2.0	2.0	2.1	2.6	2.4	2.0	2.0	2.0	2.2	2.6
11-May	2.1	2.2	Z	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12-May	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1
13-May	2.1	2.2	2.3	2.2	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3
14-May	2.0	2.1	2.1	2.2	2.2	Z	2.2	2.4	2.2	2.2	2.1	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
15-May	Z	2.2	2.3	2.3	2.4	2.2	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	2.0	2.0	2.1
16-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0
17-May	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
18-May	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
19-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0
20-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	1.9	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1
21-May	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
22-May	1.9	Z	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0
23-May	1.9	1.9	Z	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	1.9	2.0
24-May	2.1	2.2	2.2	Z	2.0	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.2
25-May	1.9	2.0	2.2	2.3	Z	2.3	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.0	2.3
26-May	2.1	2.1	2.1	2.1	2.1	Z	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	2.1	2.1	2.0	2.1
27-May	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.1	2.0	1.9	2.0
28-May	2.0	Z	2.1	2.0	2.0	2.0	2.1	2.2	2.5	2.1	2.0	1.9	M	M	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.5
29-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
30-May	1.9	1.9	2.1	Z	2.2	2.1	2.3	2.2	2.2	M	M	M	M	M	PF	PF	PF	PF	PF	PF	PF	PF	1.9	2.1	2.1	--
31-May	2.1	2.0	2.0	1.9	Z	1.9	2.0	1.9	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan			C - Calibration			M - Maintenance			PF - Power Failure																	



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

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	541	78.41	78.41
2.1 - 3.0	149	21.59	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Mildred Lake - May 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	117	60	30	25	32	33	39	48	20	11	33	6	7	13	30	37	541
2.1 - 3.0	19	0	1	1	2	18	26	24	9	4	4	5	3	17	5	11	149
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>	136	60	31	26	34	51	65	72	29	15	37	11	10	30	35	48	690

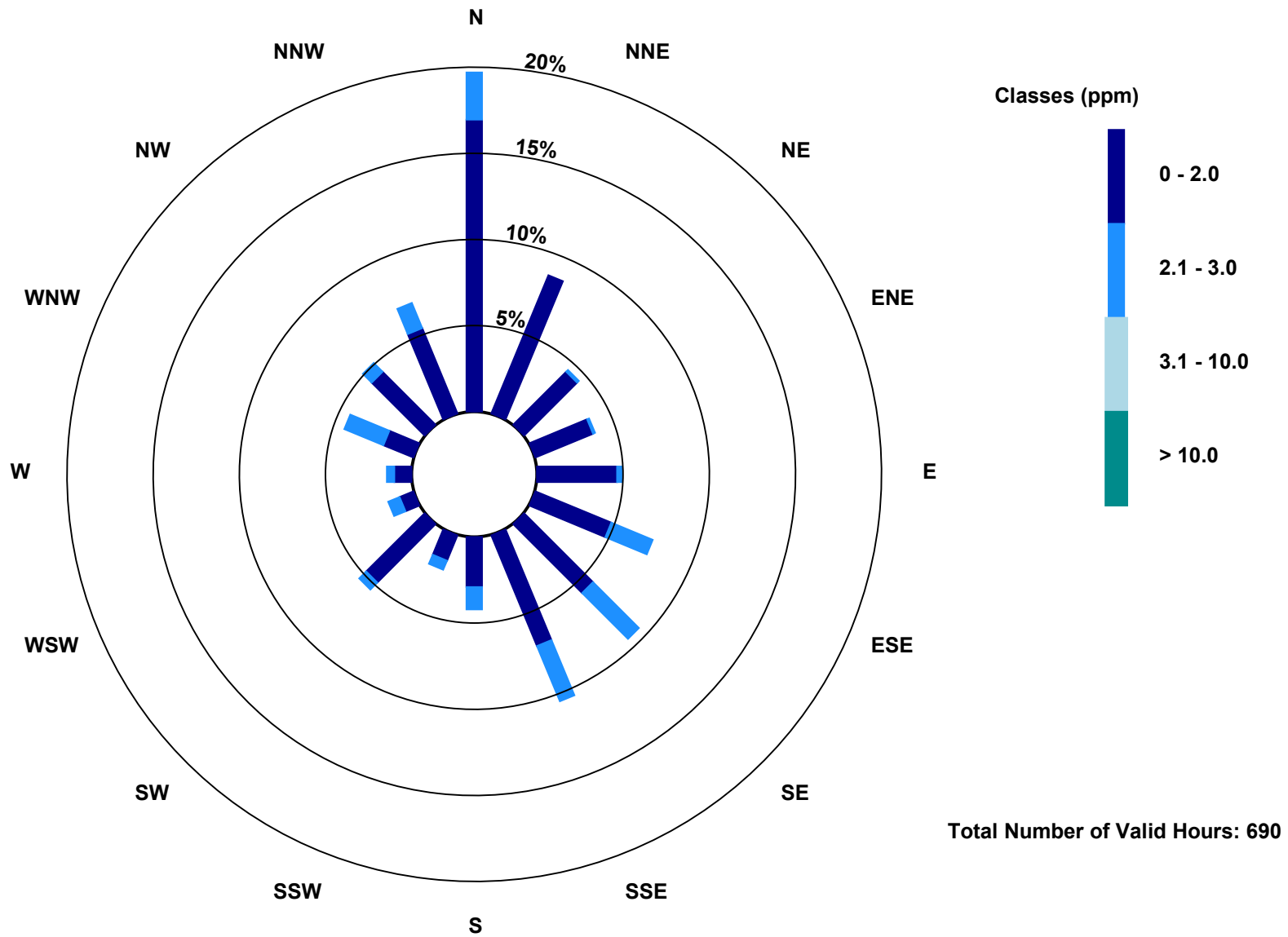
Total Number of Valid Hours: 690

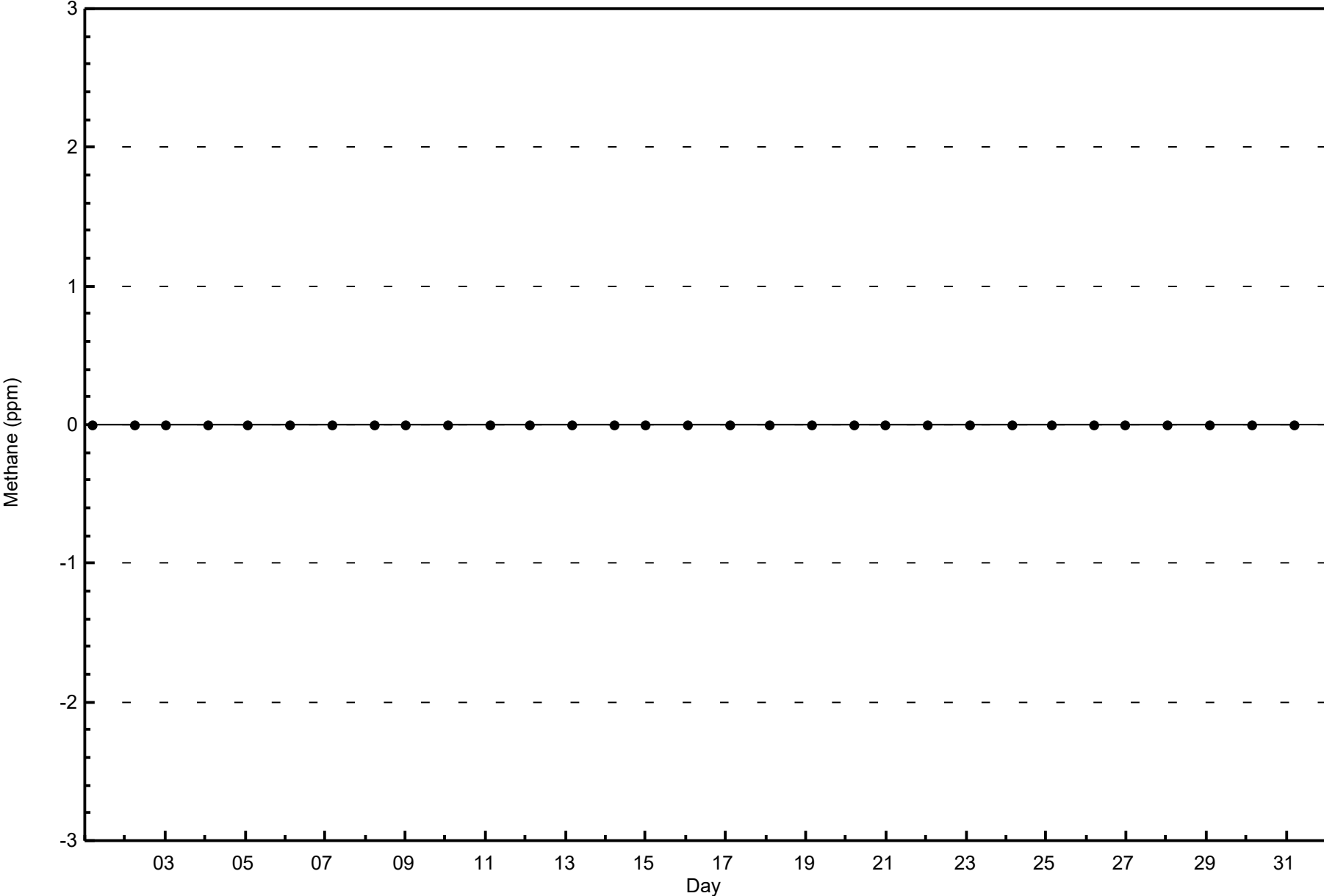
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

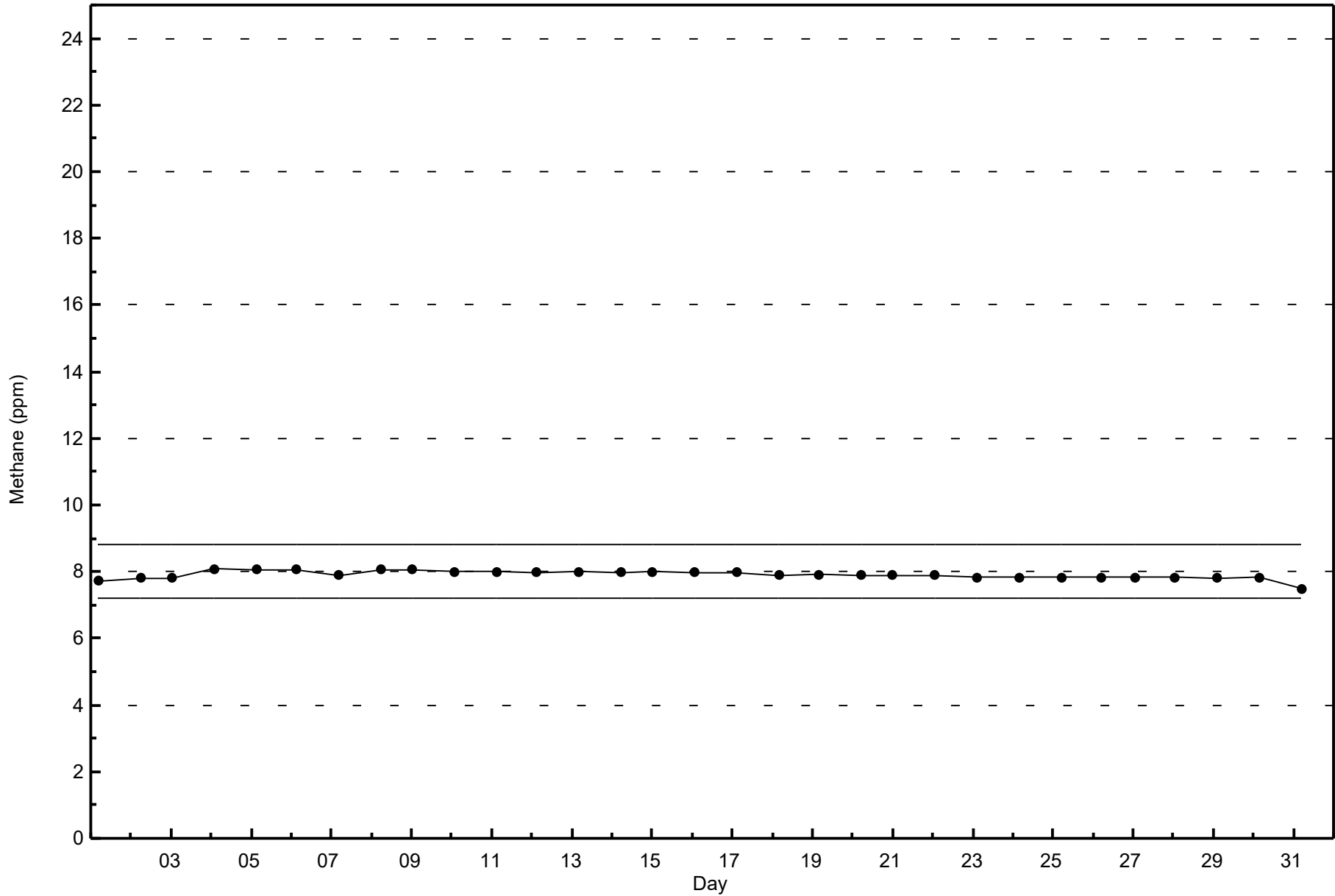






Wood Buffalo Environmental Association  
Span Responses

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





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

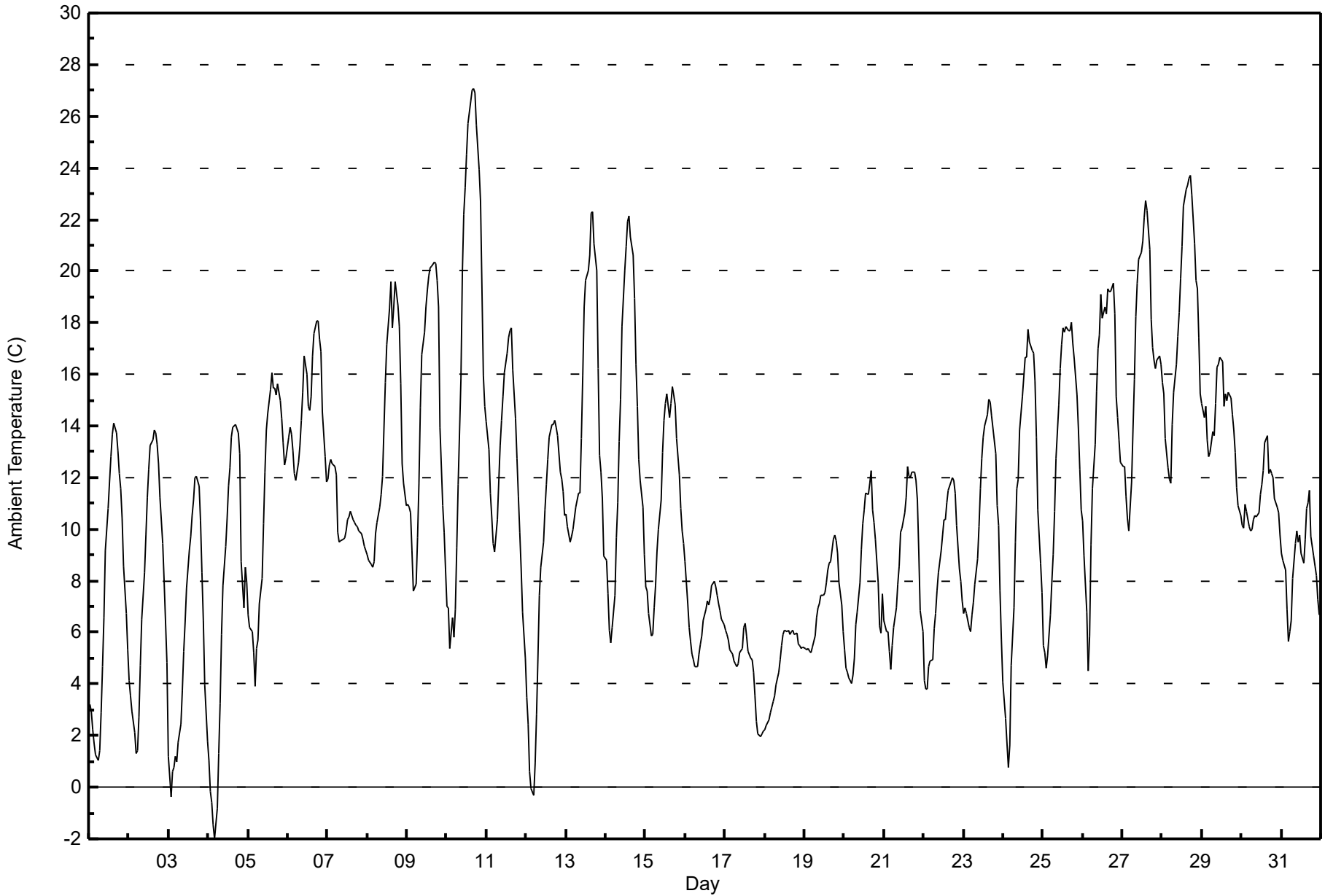
**Ambient Temperature (AT) - C**  
**Mildred Lake - May 2024**

Maximum Value: 27.1 C on May 10 17:00		Maximum Daily Average: 18.1 C on May 28		Hours in Service: 744																																												
Minimum Value: -2.0 C on May 4 05:00		Minimum Daily Average: 4.6 C on May 17		Hours of Data: 744																																												
Maximum Diurnal Average: 15.1 C at hour 16		Minimum Diurnal Average: 6.0 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 10.85 C		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 4.7 Q <sub>1</sub> = 6.7 Median = 10.5 Q <sub>3</sub> = 14.2 P <sub>90</sub> = 18.0 P <sub>99</sub> = 23.8		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-May	3.2	3.0	2.2	1.7	1.2	1.0	1.4	2.9	4.7	6.6	9.2	10.8	11.9	12.8	13.7	14.1	13.7	13.0	12.2	11.6	10.4	8.6	6.7	5.3	7.6	14.1																						
2-May	4.1	3.5	3.0	2.1	1.3	1.4	2.7	4.7	6.5	8.3	9.8	11.3	12.3	13.2	13.5	13.8	13.8	13.3	12.5	11.2	9.5	8.0	6.4	4.8	8.0	13.8																						
3-May	1.2	-0.4	0.6	0.8	1.2	1.0	1.7	2.5	3.8	5.3	6.4	7.7	9.2	9.7	10.6	11.1	12.0	12.1	11.7	10.3	8.3	6.4	4.0	1.8	5.8	12.1																						
4-May	1.1	-0.2	-0.6	-1.5	-2.0	-0.8	1.3	3.2	5.9	7.8	9.4	10.4	11.7	12.4	13.6	13.9	14.1	13.9	13.7	12.9	8.7	7.0	8.5	7.9	7.2	14.1																						
5-May	6.7	6.2	6.0	5.2	3.9	5.4	5.7	7.1	8.1	10.2	12.2	13.9	14.5	15.4	16.0	15.5	15.5	15.2	15.6	15.0	14.3	13.3	12.5	12.7	11.1	16.0																						
6-May	13.6	14.0	13.7	13.0	12.2	11.9	12.6	13.3	14.2	15.3	16.7	16.0	14.8	14.6	15.2	16.7	17.6	18.0	18.1	17.4	16.9	14.5	12.8	11.8	14.8	18.1																						
7-May	11.9	12.5	12.7	12.5	12.4	12.1	9.9	9.5	9.6	9.6	9.7	9.9	10.4	10.5	10.7	10.4	10.2	10.2	10.1	9.9	9.8	9.6	9.4	9.2	10.5	12.7																						
8-May	9.0	8.8	8.6	8.5	8.8	9.8	10.3	10.9	11.3	12.1	13.9	15.7	17.2	18.5	19.6	17.8	18.6	19.6	18.6	17.8	15.6	12.5	11.8	10.9	13.6	19.6																						
9-May	10.9	10.9	10.6	9.2	7.6	7.9	9.7	11.8	14.7	16.7	17.6	18.6	19.3	19.8	20.1	20.2	20.3	20.3	19.7	18.6	14.0	10.9	9.9	8.4	14.5	20.3																						
10-May	7.0	6.9	5.4	6.6	5.8	6.9	9.3	11.7	15.8	19.9	22.2	23.2	24.5	25.7	26.6	27.0	27.1	26.9	25.7	23.9	22.7	19.3	15.9	14.7	17.5	27.1																						
11-May	14.2	13.1	11.4	10.5	9.5	9.1	10.4	11.9	13.2	14.2	15.1	16.0	16.8	17.4	17.7	17.8	16.2	14.3	12.8	11.3	9.9	8.5	6.8	5.0	12.6	17.8																						
12-May	3.5	2.4	0.6	0.0	-0.3	0.9	2.8	5.1	7.4	8.5	9.5	10.8	11.7	12.7	13.5	14.0	14.1	14.2	13.9	13.6	12.2	11.9	11.4	10.5	8.5	14.2																						
13-May	10.6	10.1	9.5	9.7	10.0	10.4	10.8	11.4	11.4	13.5	15.9	18.6	19.6	20.0	20.6	22.3	22.3	21.0	20.0	16.2	12.8	12.2	11.2	9.0	14.6	22.3																						
14-May	8.8	7.5	6.1	5.6	6.2	7.5	9.7	11.0	13.4	15.0	17.9	20.0	21.0	21.9	22.1	21.3	20.6	19.0	16.4	14.8	12.7	11.9	10.8	9.0	13.8	22.1																						
15-May	7.8	7.6	6.7	5.9	5.9	7.0	7.8	9.1	10.0	11.1	13.0	14.2	14.9	15.2	14.3	14.9	15.5	15.2	14.8	13.5	12.1	10.8	9.9	9.4	11.1	15.5																						
16-May	8.7	7.1	6.2	5.6	5.1	4.9	4.7	4.7	5.2	5.6	5.9	6.5	6.9	7.2	7.1	7.3	7.8	8.0	7.7	7.4	7.1	6.8	6.5	6.3	6.5	8.7																						
17-May	6.1	5.9	5.7	5.3	5.1	4.9	4.8	4.7	4.8	5.2	5.4	6.2	6.3	5.9	5.3	5.0	4.9	4.5	3.5	2.6	2.1	1.9	2.0	2.2	4.6	6.3																						
18-May	2.3	2.4	2.6	2.9	3.1	3.3	3.5	4.0	4.5	4.9	5.5	5.9	6.1	6.0	6.1	5.9	6.0	6.1	5.9	5.9	5.6	5.5	5.4	5.4	4.8	6.1																						
19-May	5.4	5.3	5.4	5.3	5.2	5.4	5.9	6.6	6.9	7.1	7.4	7.4	7.6	7.9	8.4	8.7	8.8	9.6	9.8	9.6	9.0	7.9	7.0	6.0	7.2	9.8																						
20-May	5.3	4.6	4.4	4.2	4.0	4.3	5.0	6.3	6.8	7.9	9.2	10.2	10.8	11.4	11.4	11.8	12.3	10.7	10.3	9.6	7.9	6.2	6.0	7.5	7.8	12.3																						
21-May	6.5	6.0	6.0	5.3	4.5	5.5	6.2	6.9	7.9	8.6	9.9	10.1	10.6	11.2	12.4	12.0	12.0	12.2	12.2	11.9	11.1	9.1	6.8	6.0	8.8	12.4																						
22-May	4.1	3.8	3.8	4.6	4.9	5.0	6.1	6.7	7.6	8.3	9.2	9.8	10.3	10.4	11.0	11.5	11.8	12.0	11.9	11.4	10.2	8.5	8.0	7.2	8.3	12.0																						
23-May	6.8	6.9	6.7	6.2	6.0	6.7	7.2	7.9	8.9	10.1	11.5	12.7	13.5	14.0	14.5	15.1	14.9	14.4	13.9	12.9	10.9	10.2	7.6	5.7	10.2	15.1																						
24-May	4.1	2.7	1.7	0.8	1.6	4.7	6.9	9.5	11.6	11.9	13.8	15.2	15.9	16.6	16.7	17.7	17.3	17.0	16.8	15.7	13.6	10.7	8.7	7.6	10.8	17.7																						
25-May	5.5	5.2	4.6	5.1	6.7	7.9	9.0	10.7	12.7	14.8	16.2	17.1	17.8	17.7	17.8	17.7	17.7	18.0	17.2	16.6	15.2	13.9	12.3	10.8	12.8	18.0																						
26-May	10.3	9.0	6.8	4.5	5.9	9.4	11.5	13.3	15.3	17.0	17.5	19.1	18.2	18.6	18.4	19.3	19.2	19.2	19.5	18.3	15.1	14.3	13.5	12.6	14.4	19.5																						
27-May	12.4	12.4	11.3	10.4	9.9	11.8	13.9	15.8	18.2	19.5	20.4	20.7	21.1	22.1	22.7	22.3	20.8	18.1	17.1	16.6	16.2	16.6	16.7	16.4	16.8	22.7																						
28-May	15.7	15.2	13.5	12.4	11.9	11.8	14.1	15.3	16.4	17.5	18.4	19.7	21.0	22.5	23.2	23.3	23.6	23.7	22.9	21.1	19.7	19.3	17.4	15.2	18.1	23.7																						
29-May	14.8	14.3	14.7	13.4	12.8	13.0	13.8	13.6	14.9	16.3	16.4	16.7	16.5	14.7	15.3	15.0	15.3	15.1	14.4	13.8	13.0	11.6	10.9	10.5	14.2	16.7																						
30-May	10.1	10.0	11.0	10.7	10.1	9.9	10.0	10.4	10.5	10.5	10.6	11.3	11.7	12.3	13.3	13.6	12.2	12.3	12.2	12.0	11.2	10.9	10.6	9.8	11.1	13.6																						
31-May	9.1	8.8	8.4	6.9	5.6	6.0	6.5	8.1	9.4	9.9	9.5	9.8	9.0	8.7	9.6	10.8	11.0	11.5	9.7	9.0	8.6	8.2	7.3	6.7	8.7	11.5																						
																								7.8	7.3	6.8	6.2	6.0	6.6	7.6	8.7	10.1	11.3	12.4	13.4	14.0	14.4	14.9	15.1	15.1	14.8	14.2	13.3	11.8	10.6	9.5	8.6	Diurnal Average
																								15.7	15.2	14.7	13.4	12.8	13.0	14.1	15.8	18.2	19.9	22.2	23.2	24.5	25.7	26.6	27.0	27.1	26.9	25.7	23.9	22.7	19.3	17.4	16.4	Diurnal Maximum



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Mildred Lake - May 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	8	1.08	1.08
0 - 10	332	44.62	45.70
10 - 20	363	48.79	94.49
> 20	41	5.51	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

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

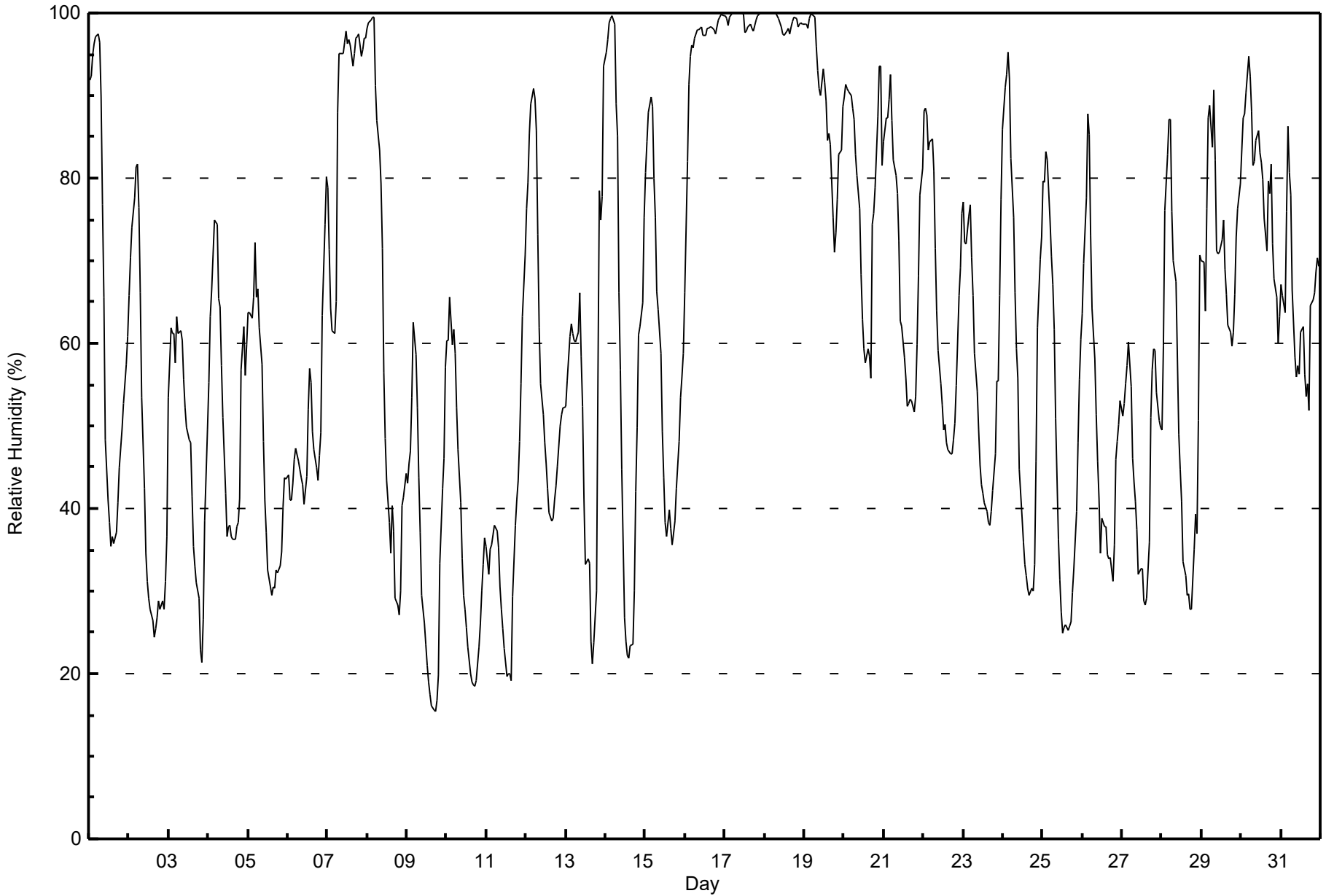
Maximum Value: 100.0 % on May 17 05:00		Maximum Daily Average: 99.3 % on May 17		Hours in Service: 744																								
Minimum Value: 15.5 % on May 9 18:00		Minimum Daily Average: 35.1 % on May 9		Hours of Data: 744																								
Maximum Diurnal Average: 80.6 % at hour 5		Minimum Diurnal Average: 46.4 % at hour 16		Hours of Missing Data: 0																								
Monthly Average: 61.86 %		Percentiles: P <sub>1</sub> = 19.0 P <sub>10</sub> = 30.0 Q <sub>1</sub> = 41.1 Median = 60.3 Q <sub>3</sub> = 83.2 P <sub>90</sub> = 97.7 P <sub>99</sub> = 100.0		Hours of Calibration: 0																								
				Percent Operational Time: 100.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-May	91.9	92.4	94.9	96.3	97.2	97.4	96.4	89.8	76.7	65.7	48.4	41.0	38.3	35.5	36.5	35.7	37.1	40.7	45.0	47.3	49.7	52.8	57.4	60.9	63.5	97.4		
2-May	65.7	70.4	74.1	77.7	81.4	81.7	76.4	66.2	53.4	42.4	34.6	31.1	29.2	27.8	26.5	24.4	25.4	26.8	28.7	27.8	28.9	27.9	31.1	36.6	45.7	81.7		
3-May	53.5	61.9	61.1	61.2	57.6	63.2	61.2	61.5	60.3	55.6	52.3	49.8	48.3	48.0	41.5	35.4	33.1	31.1	29.2	22.8	21.4	26.6	38.4	49.6	46.8	63.2		
4-May	55.2	63.2	66.4	70.6	75.0	74.4	65.4	64.4	57.3	51.1	41.9	36.6	37.7	37.9	36.6	36.3	36.3	37.8	38.2	41.2	56.8	62.0	56.0	59.8	52.4	75.0		
5-May	63.8	63.7	63.1	65.6	72.1	65.6	66.7	61.8	57.4	48.2	41.1	37.1	32.5	30.5	29.4	30.5	30.4	32.6	32.3	33.1	34.8	40.2	43.7	43.6	46.7	72.1		
6-May	44.0	41.0	41.0	43.0	45.9	47.3	45.8	44.8	43.7	42.8	40.4	43.8	52.1	56.9	55.2	49.4	47.2	45.0	43.4	46.4	49.2	63.4	74.4	80.2	49.4	80.2		
7-May	78.8	71.4	64.2	61.6	61.2	65.1	87.9	95.1	95.2	95.0	96.5	97.8	96.3	96.8	96.1	93.6	95.1	96.9	97.1	97.4	94.7	95.6	96.9	97.0	88.5	97.8		
8-May	98.2	98.8	99.2	99.6	99.4	91.3	86.9	83.4	79.3	71.6	56.4	48.6	43.3	38.2	34.5	40.4	37.3	29.2	28.3	27.1	30.0	40.4	41.3	44.3	60.3	99.6		
9-May	43.0	45.5	46.9	53.4	62.5	58.7	52.1	43.6	37.1	29.5	26.1	23.6	21.1	18.9	17.4	16.0	15.6	15.5	16.8	19.8	33.4	42.4	46.2	57.1	35.1	62.5		
10-May	60.3	60.3	65.7	59.9	61.7	58.9	52.2	47.1	40.6	33.9	29.5	27.8	25.5	23.2	20.1	19.1	18.6	18.5	19.1	23.1	26.2	29.9	33.2	36.5	37.1	65.7		
11-May	35.5	32.1	35.1	35.5	36.8	38.0	37.4	35.3	30.5	27.8	25.4	23.0	19.6	19.9	20.0	19.2	29.3	38.0	41.0	43.4	48.1	55.0	63.2	70.6	35.8	70.6		
12-May	76.2	79.6	85.5	89.0	90.9	89.7	85.8	73.3	61.9	55.1	51.4	48.0	45.5	42.4	39.5	38.6	38.9	41.1	42.7	45.1	50.0	51.3	52.2	52.1	59.4	90.9		
13-May	52.4	55.4	60.8	62.4	61.1	60.4	60.2	61.3	66.1	58.4	52.3	41.2	33.3	33.9	33.5	23.9	21.3	23.8	30.1	55.9	78.4	74.9	77.8	93.6	53.0	93.6		
14-May	95.3	96.7	98.7	99.4	99.7	98.6	89.0	85.2	66.2	56.8	44.8	26.8	23.9	22.2	21.8	23.4	23.5	30.1	42.0	49.9	60.9	62.1	64.9	75.2	60.7	99.7		
15-May	80.7	84.4	88.1	89.9	88.6	79.9	75.2	66.2	64.1	58.8	49.3	43.8	38.3	36.6	39.8	37.6	35.5	36.9	38.4	42.4	48.2	53.3	56.0	58.8	58.0	89.9		
16-May	66.1	82.0	91.3	94.8	96.0	95.7	96.9	98.0	97.9	98.2	98.3	97.3	97.3	98.1	98.2	98.3	98.3	98.0	97.4	98.2	99.2	99.6	99.9	99.7	95.6	99.9		
17-May	99.7	99.3	98.5	99.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	97.6	97.8	98.4	98.7	98.1	97.8	98.5	99.2	99.6	100.0	100.0	100.0	99.3	100.0		
18-May	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.4	98.8	98.4	97.4	97.4	97.7	98.1	97.4	98.3	99.0	99.6	99.4	98.3	98.7	98.8	98.6	99.0	100.0		
19-May	98.6	98.7	98.1	99.3	99.8	99.8	99.6	95.9	93.0	90.8	90.0	93.2	91.5	89.3	84.6	85.4	84.1	75.2	71.1	73.5	77.5	82.9	83.3	88.6	89.3	99.8		
20-May	89.9	91.4	90.8	90.6	90.0	88.5	87.1	83.0	80.3	76.2	68.3	62.8	59.3	57.6	59.2	58.4	55.8	74.4	75.8	78.8	87.4	93.6	93.5	81.5	78.1	93.6		
21-May	84.3	87.2	87.3	89.5	92.6	86.9	82.2	80.4	78.1	72.4	62.7	62.1	58.4	55.8	52.3	52.7	53.1	53.0	51.7	53.5	59.8	68.2	77.9	81.1	70.1	92.6		
22-May	88.2	88.5	87.6	83.4	84.4	84.8	80.8	71.6	63.9	59.1	55.1	52.6	49.6	50.1	48.0	47.1	46.6	46.6	48.4	50.4	54.9	65.8	69.1	75.7	64.7	88.5		
23-May	77.1	72.3	72.0	75.4	76.8	70.4	65.8	58.9	54.2	49.5	45.2	42.9	41.9	40.6	39.6	38.4	38.0	39.7	42.2	46.7	55.4	55.5	65.7	77.4	55.9	77.4		
24-May	85.9	91.0	92.6	95.2	92.0	82.4	75.2	66.1	59.4	55.8	44.7	38.9	36.0	33.1	31.8	30.4	29.4	30.3	30.0	33.2	45.8	61.8	70.2	72.8	57.7	95.2		
25-May	79.7	79.5	83.2	82.2	75.0	70.5	67.1	61.6	50.8	36.3	31.3	27.5	24.9	25.5	25.9	25.2	25.7	26.2	29.9	32.7	39.6	47.9	55.7	60.5	48.5	83.2		
26-May	63.6	69.7	77.6	87.8	85.2	73.0	64.3	58.1	51.4	45.8	41.2	34.6	38.8	37.7	37.7	34.4	33.9	34.0	31.2	35.6	45.9	48.1	50.2	53.0	51.4	87.8		
27-May	51.1	52.7	55.0	57.3	60.2	54.7	46.2	43.3	40.9	37.5	32.1	32.6	32.7	28.9	28.3	29.2	36.0	51.0	56.8	59.3	59.1	54.1	50.7	49.9	45.8	60.2		
28-May	49.5	59.7	76.0	82.9	87.1	87.1	75.9	70.0	67.4	58.1	49.0	44.8	40.9	33.5	31.8	29.5	29.6	27.8	27.8	35.1	39.4	36.9	50.7	70.6	52.5	87.1		
29-May	70.0	69.8	63.9	76.3	87.3	88.8	83.8	90.7	82.2	71.2	70.9	71.0	72.5	74.9	69.0	66.0	62.2	61.4	59.7	61.4	65.9	72.8	76.2	79.3	72.8	90.7		
30-May	83.3	87.3	87.8	90.4	94.7	92.4	88.1	81.5	82.0	84.5	85.8	83.1	81.9	79.8	75.1	71.1	79.7	78.2	81.6	72.0	67.7	65.5	60.1	63.3	79.9	94.7		
31-May	67.1	65.8	63.8	75.9	86.3	80.7	78.0	66.4	58.3	56.0	57.2	56.3	61.4	62.0	56.3	53.5	55.0	51.9	64.6	65.2	66.1	68.6	70.3	69.3	64.8	86.3		
		72.5	74.6	76.5	78.9	80.6	78.3	75.1	71.1	66.1	60.7	55.5	52.2	50.5	49.4	47.8	46.4	46.7	48.0	49.6	52.2	57.2	61.2	64.7	68.9	Diurnal Average		
		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	97.6	98.1	98.4	98.7	98.3	99.0	99.6	99.4	99.6	100.0	100.0	100.0			Diurnal Maximum	





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

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





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

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

Maximum Speed: 36 km/h on May 11 13:00	Maximum Daily Speed Average: 18.3 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 15 02:00	Minimum Daily Speed Average: 1.9 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 3.9 km/h at hour 20	Minimum Diurnal Speed Average: 1.3 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 2.1 km/h 6.3 deg	Percentiles: $P_1 = 1$ $P_{10} = 5$ $Q_1 = 7$ Median = 10 $Q_3 = 13$ $P_{90} = 17$ $P_{99} = 27$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	N13	NNE10	NNE11	N13	N14	N12	N12	N12	N12	N14	NNE15	NNE18	NNE18	NNE18	N18	NNE17	NNE18	NNE15	NE14	NNE11	N16	N14	N14	N13	N14.1	NNE18
2-May	N10	N12	N11	N10	N8	N10	NNE9	N9	N11	NNE12	N14	N15	N18	N19	N20	N18	N20	N19	N17	N15	NNW13	NNW11	NNW9	N7	N13.1	N20
3-May	N5	NNE5	NNW5	N6	NNW4	N4	N7	N8	N7	NW8	NW6	NW6	NW9	NNW10	NNW9	N9	NNE8	NE11	N14	N12	N10	N8	NNW6	NW4	N7.1	N14
4-May	NNW6	N6	NNW7	N3	SSW1	N2	N3	N5	N7	NNW8	N11	N11	NNW9	N7	NNW8	NW8	NW9	NE7	NNE5	N4	NNE5	ENE6	SE11	SSE12	N4.3	SSE12
5-May	SE10	SE13	SSE14	SE11	SE6	SE13	SSE11	SSE10	SSE10	SSE10	SSE10	SE14	SE17	SE18	SE17	SSE14	S11	SSE13	SSE11	SE10	ESE10	ESE9	ESE10	ESE10	SE11.3	SE18
6-May	SE12	ESE14	ESE12	ESE12	ESE9	ESE11	ESE13	SE16	SE15	SE14	ESE18	ESE17	ESE16	E11	NNE9	ENE14	E16	E11	ENE9	NNE7	SSE15	S15	S8	SSW1	ESE10.5	ESE18
7-May	NNE6	NNE6	ENE8	ENE9	E9	ESE10	E9	E10	E11	ENE9	NE7	NNE6	NE5	E3	ESE5	ESE8	ESE5	E4	E6	ESE6	SE14	SSE12	SSE11	SSE11	E6.4	SE14
8-May	SSE8	SSE7	SSE6	SSE6	W6	NNW10	NNW15	NW13	NW9	NNW6	ESE1	SSE7	S8	S9	SSW12	SW11	SSW8	SW14	SW12	SW12	WSW8	SW5	SW7	SW5	SW5.2	NNW15
9-May	WSW9	WSW11	WSW14	WSW9	WSW5	SW6	W8	NNW10	NNW14	NNW16	NNW21	W23	NNW22	NNW24	NNW25	NW29	NW23	NW22	NW17	NW8	NNE3	ESE2	SSW4	SSW4	NNW11.9	NW29
10-May	S5	SSW6	SSW4	S6	S6	S8	SSE9	SSE9	S10	SSW14	SW16	WSW17	WSW17	WSW16	W19	W20	W19	W16	NNW15	NNW7	NNW13	N26	N23	NNW6	WSW7.0	N26
11-May	NNW12	NW16	NNW12	NNW14	NNW16	NNW17	NNW18	NNW22	NW29	NW27	NW28	NW32	NW36	NNW31	NW27	NNW27	N19	NE19	NNE19	NNE17	N11	NNE8	NE7	NE5	NW16.5	NW36
12-May	ENE6	NE5	NNE4	N4	N4	NNE2	ENE4	E7	ESE7	SE9	ESE6	ESE8	ESE11	ESE11	SE11	SE11	SE12	ESE12	E7	ESE6	ESE5	ESE7	ESE8	SE9	ESE6.2	ESE12
13-May	SE8	SE8	ESE8	SE8	SE10	SE12	SE14	SSE16	SSE13	SE16	SE16	SSE15	SW12	SW11	SSW8	SW12	SW14	WSW14	NW8	NNW17	NNE12	N8	N6	N1	SSE4.8	NNW17
14-May	SSW3	SW0	S2	SSE3	S5	SSE6	SE5	SSE7	SSE8	SE9	SW13	SW14	SW15	SW17	SW17	W16	NNW12	N9	N14	N10	NNE4	ENE3	WSW3	SW3.6	SW17	
15-May	NW1	W0	ENE2	NNW1	N6	N5	NNW6	N6	N9	N10	N8	N10	NNE8	N10	NNW19	NNW9	NNE10	NNE13	NNE13	NNE11	NNE10	NNE11	ENE9	NE8	N7.6	NNW19
16-May	NE8	NNE7	NNE8	N9	N12	N10	N9	NNE11	NNE11	NE11	N10	N11	N9	N8	N13	N13	N12	N13	N12	N10	N10	N10	N10	N9	N10.1	N13
17-May	N9	NNE10	N11	N13	N11	N13	N13	N13	N12	N12	NNE12	NNE13	N15	N15	N15	N16	N17	N16	N16	N15	N13	N12	N12	N12	N13.1	N17
18-May	N13	N12	N10	N11	N11	NNW12	NNW12	NNW13	NNW14	NNW14	NNW15	NNW16	NNW16	NNW18	NNW19	NNW17	NNW15	NNW13	NNW12	N8	NE7	N7	N7	N8	NNW12.3	NNW19
19-May	NNE7	NNE8	NNE7	N8	N8	N8	N7	NE9	NE8	NE10	NE9	NNE10	NNE10	NE10	ENE9	NE8	NNE10	NNE10	NNE8	N6	N7	N12	N10	N11	NNE8.2	N12
20-May	N10	N10	N9	N9	NNE10	NNE10	N13	N11	NNE9	NNW10	NNW15	NNW14	NNE10	N12	N11	N9	NE6	SE13	S7	SW4	SSE4	SSE2	E4	ESE7	N6.0	NNW15
21-May	ESE7	E6	ESE7	ESE7	E6	E8	E9	SE8	S9	SE8	SE13	ESE12	ESE12	E14	E14	ENE10	ENE13	E11	E8	ENE6	E8	E5	ENE8	ENE5	E8.1	E14
22-May	NE4	NNE5	NNE6	NE5	N4	NNW6	N5	NE7	NE10	NE12	NE11	NE12	NE13	NE13	ENE14	ENE10	E9	E9	E8	ESE9	ESE8	E5	ESE4	ENE4	ENE7.1	ENE14
23-May	ENE5	E6	E7	E5	ESE6	ESE8	E8	E9	ESE8	ESE10	SE13	SSE12	SSE13	SSE15	SSE13	SSE11	S11	SSE12	SSE11	S9	SSE6	SSE9	SSE5	SE4	SE7.6	SSE15
24-May	SSE2	E3	NE2	NNE3	E1	S3	SE5	SSE8	SSE10	SE8	SSE11	SSE11	S10	SSE12	SSE9	SSE13	S10	S11	S10	S8	SW7	SSW4	S5	S6	SSE6.3	SSE13
25-May	SSE2	ESE5	ESE5	SSE5	SSE8	SSE10	SSE10	SSE11	SE13	SSE14	SE14	SE16	SE16	SE15	SE16	SE13	SE12	SE11	ESE11	SE12	SE11	SE11	SE7	ESE8	SE10.4	SE16
26-May	SE8	SE8	SE4	S4	SSE5	SE9	SE12	SE12	SSE14	SSE12	SSE12	SSE13	S13	S10	SSE9	S9	SSE7	SSE9	SSE7	ESE6	E6	SE5	SE6	SSE6	SSE8.1	SSE14
27-May	ESE8	SSE8	SE8	SE8	ESE5	SE5	SE13	SSE12	SSE9	SE10	SE13	SSE13	SE14	SE14	SE13	SE11	SSW11	WSW11	ENE1	E8	E8	ESE8	SE10	SE15	SE8.6	SE15
28-May	SSE7	W7	NNW9	N6	NE7	ENE4	SE1	W3	SW3	WSW4	SSW7	S7	S8	WSW11	SW10	WSW10	SW8	SW5	SW1	N4	NNE5	NNE6	NW4	NE6	WSW1.9	WSW11
29-May	NNE10	N10	NNE9	NE5	NE8	ENE7	NNE6	NNW12	NNW10	NW5	SW8	SW10	SW13	SW20	SW19	SW20	SW17	SW16	SW18	SW17	SW18	SW13	SW14	SSW13	WSW6.6	SW20
30-May	S11	SSW7	NNW9	NNW11	NNW10	NW10	NNW10	NNW12	NNW13	NNW14	NW13	NNW15	NW13	NNW14	NW14	NW17	NNW14	NNW11	W11	NW15	NW13	NW15	NW18	NNW11	NNW11.2	NW18
31-May	NNW13	NNW18	NW20	NW24	NW20	NNW18	NNW16	NNW17	NW20	NW21	NW22	NNW19	NW23	NW23	NW19	NNW15	N9	NNW20	NW22	NW20	NW18	NNW16	NNW17	NW19	NW18.3	NW24

NE2.0	NNE2.1	NNE2.7	N2.3	N2.5	NNE1.8	NNE1.9	NNE1.9	NNE2.0	NNE1.8	NNE1.7	NNW1.4	NNW1.6	NNW2.4	NW2.9	NNW2.8	N2.3	N2.3	N3.4	N3.9	NNE3.0	NNE3.0	NNE2.2	NE1.3	Diurnal Average	
N13	NNW18	NW20	NW24	NW20	NNW18	NNW18	NNW22	NW29	NW27	NW28	NW32	NW36	NNW31	NW27	NW29	NW23	NW22	NW22	NW20	SW18	N26	N23	NW19	Diurnal Maximum	

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



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

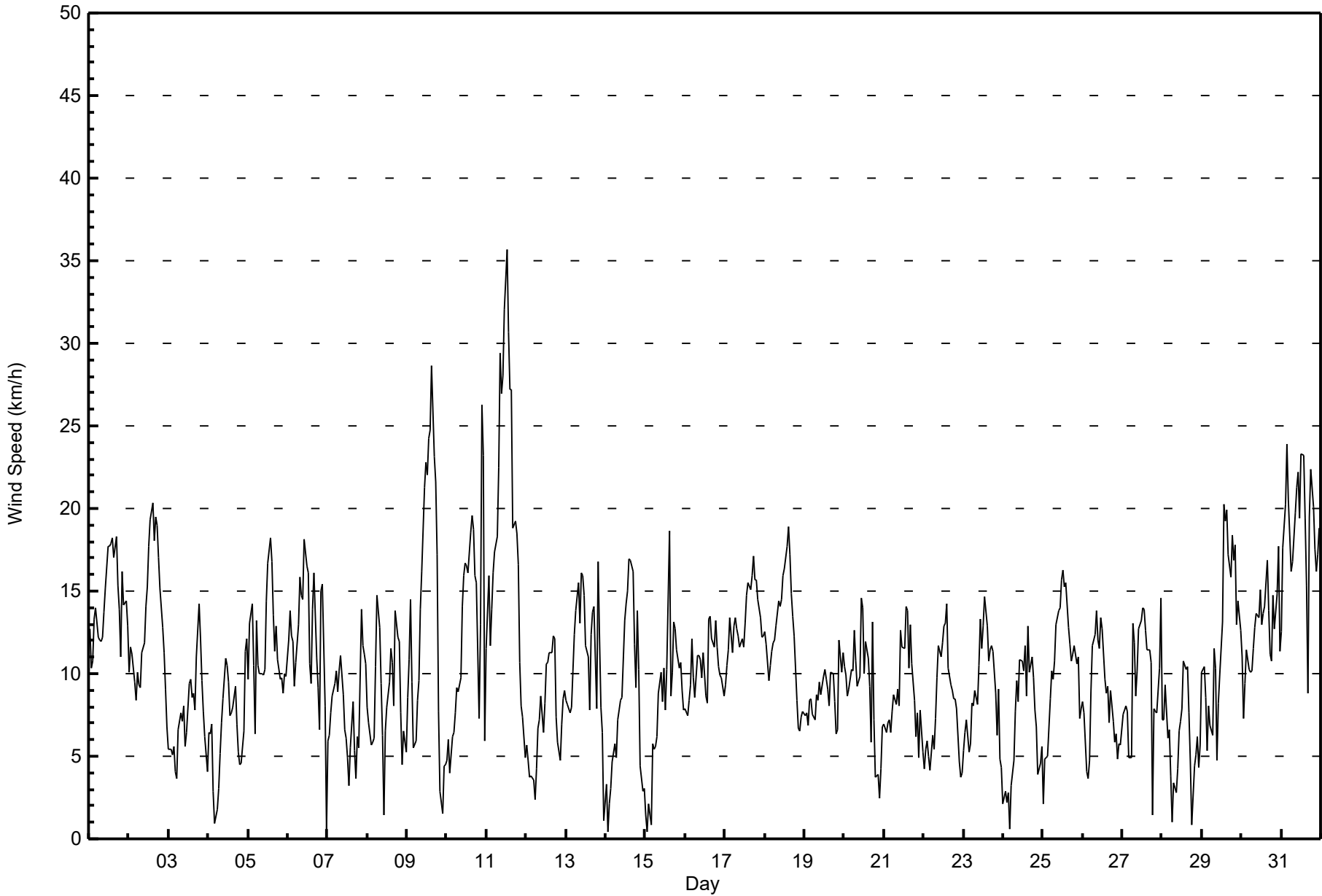
**Wind Speed (WS) - km/h**  
**Mildred Lake - May 2024**

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



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	103	13.84	13.84
6 - 11	358	48.12	61.96
12 - 19	248	33.33	95.30
20 - 28	30	4.03	99.33
29 - 38	5	0.67	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mildred Lake - May 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	10	6	9	8	9	7	8	6	7	7	3	2	1	4	2	103
6 - 11	70	40	20	13	25	33	30	40	22	7	8	8	4	9	10	19	358
12 - 19	56	15	5	4	3	12	30	27	2	3	21	5	4	22	14	25	248
20 - 28	4	0	0	0	0	0	0	0	0	0	2	0	2	5	15	2	30
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	144	65	31	26	36	54	67	75	30	17	38	16	12	37	47	49	744

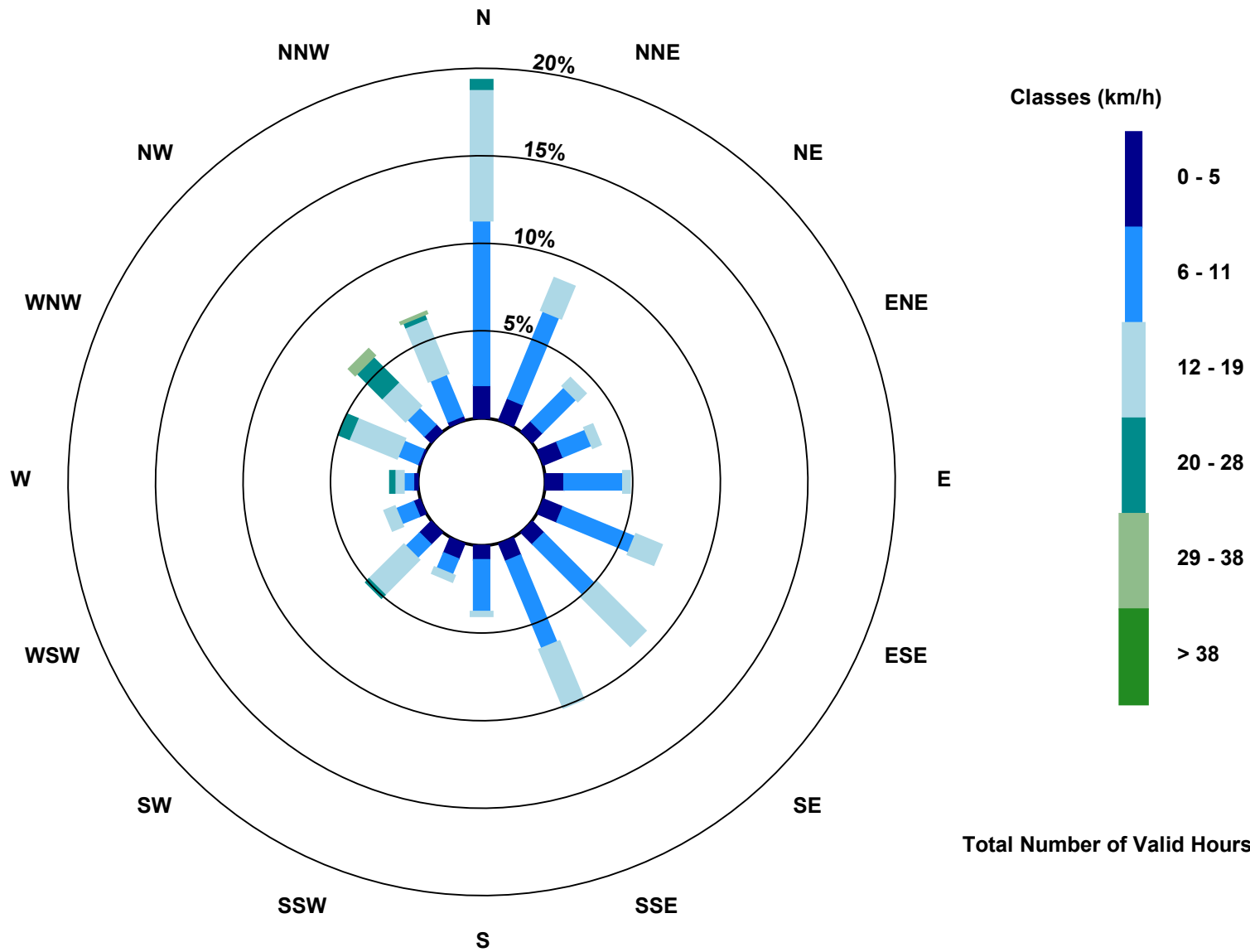
Total Number of Valid Hours: 744

Total Number of Hours: 744



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

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





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

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

Direction of Maximum Speed: 320 deg on May 11 13:00																					Hours in Service: 744				
Direction of Maximum Daily Speed Average: 312.6 deg on May 31																					Hours of Data: 744				
Direction of Minimum Speed: 268 deg on May 15 02:00										Direction of Minimum Daily Speed Average: 1.9 deg on May 28											Hours of Missing Data: 0				
Monthly Average Direction: 6.3 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-May	10	15	13	9	6	7	2	358	7	5	16	14	19	15	6	14	18	28	35	19	360	1	354	358	10.6
2-May	356	353	0	2	358	2	17	356	356	15	0	358	355	351	355	10	359	359	2	353	346	343	341	8	358.0
3-May	5	13	340	2	345	349	354	359	355	322	309	325	320	341	342	5	13	35	355	4	2	358	346	326	352.1
4-May	347	350	341	350	212	8	350	353	358	335	352	351	342	5	329	325	320	48	22	7	32	77	136	149	359.9
5-May	146	142	148	137	130	146	152	151	159	156	152	140	139	132	145	157	171	153	147	143	119	118	102	104	142.1
6-May	124	117	117	118	116	116	121	139	135	131	119	115	113	90	27	73	96	92	68	31	161	169	178	194	116.3
7-May	21	31	71	76	94	112	93	85	90	74	50	31	40	86	109	118	105	88	97	112	143	148	149	150	98.4
8-May	151	160	162	167	261	288	301	306	326	333	121	157	174	173	194	214	197	218	227	225	240	232	236	235	225.6
9-May	239	244	256	253	244	222	277	282	295	287	296	277	295	295	300	313	315	315	315	325	22	109	202	192	290.2
10-May	182	194	194	172	180	173	150	156	185	203	226	242	246	252	267	265	267	277	282	291	329	354	353	328	258.2
11-May	302	304	292	283	286	287	289	303	313	311	314	315	320	328	325	330	6	35	27	20	8	21	47	48	324.8
12-May	71	56	18	1	350	26	57	79	110	132	103	108	109	117	134	137	124	117	96	114	107	117	110	127	107.1
13-May	132	124	121	131	125	139	137	150	152	145	145	156	217	218	206	225	222	246	319	346	19	0	350	351	162.2
14-May	208	227	177	166	188	156	130	155	167	157	142	229	220	231	220	232	262	300	357	8	5	27	77	252	223.5
15-May	312	268	77	293	359	0	344	6	6	5	8	5	22	358	334	341	31	22	21	23	24	19	26	45	9.6
16-May	43	24	19	354	353	359	359	15	29	36	11	7	3	4	359	1	357	354	358	356	354	3	2	2	5.6
17-May	5	17	3	360	9	9	7	4	357	354	357	14	13	3	360	1	1	352	357	349	353	350	350	353	0.2
18-May	353	356	356	354	349	344	339	339	343	346	344	348	342	341	341	344	345	347	347	6	35	4	5	10	348.7
19-May	16	19	13	350	353	8	11	36	45	50	38	14	29	34	71	48	25	33	17	360	353	355	3	358	20.0
20-May	354	360	4	11	14	13	360	1	18	347	344	348	20	7	358	351	52	142	176	220	166	157	93	117	10.4
21-May	103	94	102	105	101	98	101	131	171	130	124	115	117	90	99	71	61	84	94	76	91	80	67	59	98.8
22-May	56	16	26	56	8	348	6	42	47	56	51	53	54	49	61	66	82	94	101	116	111	95	103	77	60.5
23-May	73	81	85	94	114	106	96	96	103	110	133	156	163	165	165	166	170	166	162	183	165	167	166	139	141.3
24-May	161	100	43	33	100	173	143	158	158	143	158	155	170	155	150	163	170	187	190	189	219	205	183	185	166.0
25-May	149	114	119	152	149	156	160	147	146	153	137	137	144	144	156	147	143	130	115	128	129	140	130	120	140.6
26-May	128	133	127	173	151	132	143	145	155	152	149	154	183	176	151	170	150	152	153	113	97	138	142	155	149.1
27-May	115	151	131	142	116	135	146	148	153	145	128	148	146	144	146	145	196	251	73	95	98	113	140	144	142.7
28-May	153	263	336	2	50	76	138	269	219	252	203	191	188	237	234	238	228	219	217	351	27	28	307	49	246.4
29-May	17	358	31	48	42	77	32	341	340	321	217	218	220	232	221	228	227	223	228	225	227	223	219	209	236.5
30-May	183	196	292	290	297	304	296	299	301	301	304	302	304	299	305	319	330	303	278	320	319	314	305	292	301.0
31-May	296	296	308	305	309	302	300	300	305	310	305	298	312	314	318	331	5	329	324	318	315	327	329	319	312.6
46.3 24.0 15.7 8.9 8.4 29.8 24.8 20.8 12.7 15.7 18.3 345.9 330.7 331.3 323.7 326.6 353.1 359.9 1.0 2.2 18.2 19.3 18.9 55.5																								Diurnal Average	
All monthly, daily, and diurnal averages have been calculated using vector methods																									

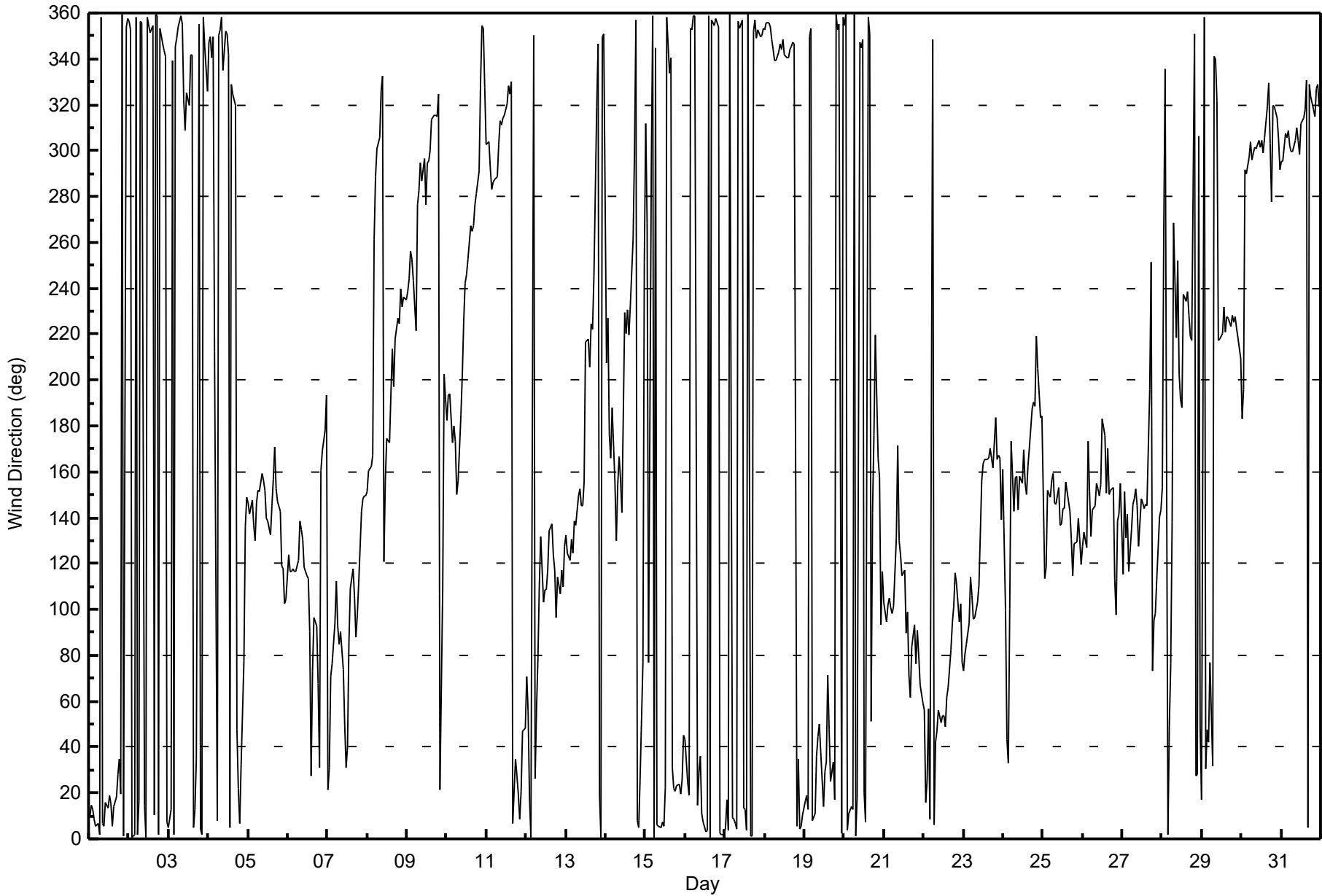




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on May 27 19:00 Minimum Value: 7 deg on May 21 23:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 13 Q <sub>1</sub> = 16 Median = 20 Q <sub>3</sub> = 25 P <sub>90</sub> = 36 P <sub>99</sub> = 82																			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-May	18	18	18	18	16	16	16	17	21	21	24	24	25	26	25	26	22	24	21	21	19	17	15	14	26
2-May	14	12	15	15	13	14	18	25	26	25	25	28	24	23	24	24	21	22	20	16	13	11	10	15	28
3-May	11	10	10	16	36	57	17	15	20	28	44	63	43	35	47	36	57	29	19	17	16	15	13	23	63
4-May	9	9	9	56	82	44	25	21	40	40	36	38	45	56	56	67	36	47	45	21	17	24	17	11	82
5-May	10	13	10	21	43	12	15	18	18	20	25	25	19	21	20	24	24	22	16	14	18	20	12	20	43
6-May	20	19	20	20	18	18	19	16	17	20	21	19	17	26	24	30	19	18	21	26	42	14	14	85	85
7-May	24	26	16	11	15	19	15	11	13	14	17	16	33	33	42	18	18	19	14	17	14	11	13	11	42
8-May	13	16	17	21	39	17	15	18	12	18	90	46	31	38	24	24	28	27	23	22	24	40	25	17	90
9-May	19	26	24	30	25	22	29	28	19	22	21	23	23	20	19	13	16	15	12	13	24	69	9	11	69
10-May	17	12	26	23	22	16	13	15	25	22	27	25	27	26	23	24	22	21	20	14	19	19	18	36	36
11-May	17	16	17	17	19	17	20	17	16	17	16	17	14	18	16	17	28	20	23	23	19	20	18	17	28
12-May	14	35	13	17	14	24	16	25	33	25	43	35	25	23	24	22	24	19	22	27	34	15	15	15	43
13-May	17	15	12	13	16	16	17	15	17	14	15	22	31	26	32	35	26	27	50	36	27	16	13	78	78
14-May	15	91	56	28	20	29	53	23	23	23	35	27	27	25	26	25	52	44	26	21	39	38	51	91	
15-May	62	86	44	82	12	19	20	23	24	24	44	38	53	34	25	33	35	23	21	20	19	19	21	21	86
16-May	20	24	21	18	13	14	14	19	19	20	18	17	15	20	15	16	13	14	16	14	14	16	17	16	24
17-May	16	20	17	15	18	17	17	18	14	14	14	19	20	18	17	18	18	15	17	15	14	13	14	13	20
18-May	14	14	14	13	13	13	14	14	14	15	15	16	15	14	14	15	15	15	13	30	21	17	17	17	30
19-May	18	18	23	13	13	16	20	19	22	22	22	21	22	21	24	27	20	22	22	15	15	13	16	14	27
20-May	13	14	16	17	18	19	16	20	22	22	17	18	26	24	19	17	34	16	25	28	14	38	22	16	38
21-May	11	11	12	12	10	15	22	33	19	36	22	28	27	22	22	30	22	22	17	21	14	25	7	19	36
22-May	25	22	21	48	34	12	20	26	23	24	28	23	22	23	24	33	22	22	20	20	17	16	18	19	48
23-May	13	9	9	18	22	18	16	17	27	29	28	28	23	19	21	27	20	19	17	16	20	14	16	19	29
24-May	28	22	37	23	72	22	22	26	25	29	29	33	25	29	39	25	28	21	22	19	21	20	14	13	72
25-May	37	19	11	46	15	15	19	17	16	19	23	23	21	25	17	18	18	23	21	20	19	14	32	16	46
26-May	14	10	52	31	37	30	16	16	18	25	24	25	24	29	28	31	25	18	22	18	8	52	27	29	52
27-May	18	18	16	13	36	18	12	16	25	24	24	22	18	21	28	22	44	29	96	12	13	17	16	12	96
28-May	63	31	24	31	22	66	81	48	74	61	31	33	41	35	38	29	38	47	84	22	12	26	75	53	84
29-May	23	17	25	33	20	24	31	12	19	72	43	24	25	23	25	25	26	25	24	25	22	24	23	26	72
30-May	19	35	25	19	20	16	19	18	18	18	18	17	18	18	19	21	21	27	23	15	12	17	18	19	35
31-May	19	19	17	17	16	18	17	19	18	16	19	19	16	14	15	14	20	14	15	12	14	13	14	11	20
Diurnal Maximum																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS03 LOWER CAMP METEOROLOGY MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
MAY 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	742	0	2	99.73	27.2	-	18.2	-
Temperature 45 m (C) Average	743	0	1	99.87	26.8	-	18.2	-
Temperature 100 m (C) Average	743	0	1	99.87	26.2	-	18.0	-
Temperature 163 m (C) Average	743	0	1	99.87	25.6	-	18.4	-
Relative Humidity 20 m (%) Average	743	0	1	99.87	98.8	-	95.9	-
Relative Humidity 45 m (%) Average	743	0	1	99.87	97.5	-	95.5	-
Relative Humidity 100 m (%) Average	743	0	1	99.87	96.8	-	95.4	-
Relative Humidity 163 m (%) Average	743	0	1	99.87	99.9	-	98.1	-
Wind Speed 20 m (km/h) Average	743	0	1	99.87	31	-	17.0	-
Wind Speed 45 m (km/h) Average	614	0	130	82.53	41	-	25.0	-
Wind Speed 100 m (km/h) Average	743	0	1	99.87	49	-	33.0	-
Wind Speed 163 m (km/h) Average	743	0	1	99.87	54	-	37.0	-
Wind Direction 20 m (deg) Average	743	0	1	99.87	-	-	-	-
Wind Direction 45 m (deg) Average	614	0	130	82.53	-	-	-	-
Wind Direction 100 m (deg) Average	743	0	1	99.87	-	-	-	-
Wind Direction 163 m (deg) Average	743	0	1	99.87	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	743	0	1	99.87	0.4	-	0.0	-
Vertical Wind Speed 45 m (km/h) Average	614	0	130	82.53	1	-	0.3	-
Vertical Wind Speed 100 m (km/h) Average	743	0	1	99.87	3	-	0.7	-
Vertical Wind Speed 163 m (km/h) Average	743	0	1	99.87	7	-	1.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
MAY 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	742	11.37	5.1	-	-1	5.4	7.6	11.1	14.6	18	27.2
Temperature 45 m (C) Average	743	11.33	5	-	-0.3	5.3	7.7	11	14.5	17.9	26.8
Temperature 100 m (C) Average	743	11.03	4.9	-	0.9	5	7.3	10.8	14.2	17.7	26.2
Temperature 163 m (C) Average	743	10.72	4.8	-	0.5	4.7	7.1	10.4	13.8	17.4	25.6
Relative Humidity 20 m (%) Average	743	59.66	23.3	-	14.4	28.9	40.2	57.2	80.4	93.7	98.8
Relative Humidity 45 m (%) Average	743	58.59	22.9	-	14.4	28.5	39.9	56.4	78.2	92.9	97.5
Relative Humidity 100 m (%) Average	743	56.83	22.4	-	14.7	28.2	38.8	54.6	74.5	91.3	96.8
Relative Humidity 163 m (%) Average	743	58.78	22.6	-	16.3	29.4	40.9	57.1	76.3	93	99.9
Wind Speed 20 m (km/h) Average	743	9.7	6	-	0	3	5	9	13	18	31
Wind Speed 45 m (km/h) Average	614	13.9	7	-	0	5	9	13	18	24	41
Wind Speed 100 m (km/h) Average	743	18	9	-	0	7	12	17	23	31	49
Wind Speed 163 m (km/h) Average	743	20.9	9	-	0	10	14	20	27	34	54
Wind Direction 20 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	614	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	743	-0.28	0.3	-	-1.5	-0.7	-0.5	-0.2	0	0.1	0.4
Vertical Wind Speed 45 m (km/h) Average	614	0.1	0.3	-	-1.3	-0.3	0	0.2	0.3	0.4	1
Vertical Wind Speed 100 m (km/h) Average	743	0.1	0.6	-	-2.1	-0.6	-0.2	0.1	0.4	0.8	3
Vertical Wind Speed 163 m (km/h) Average	743	0.42	0.8	-	-1.8	-0.4	0	0.2	0.8	1.5	7

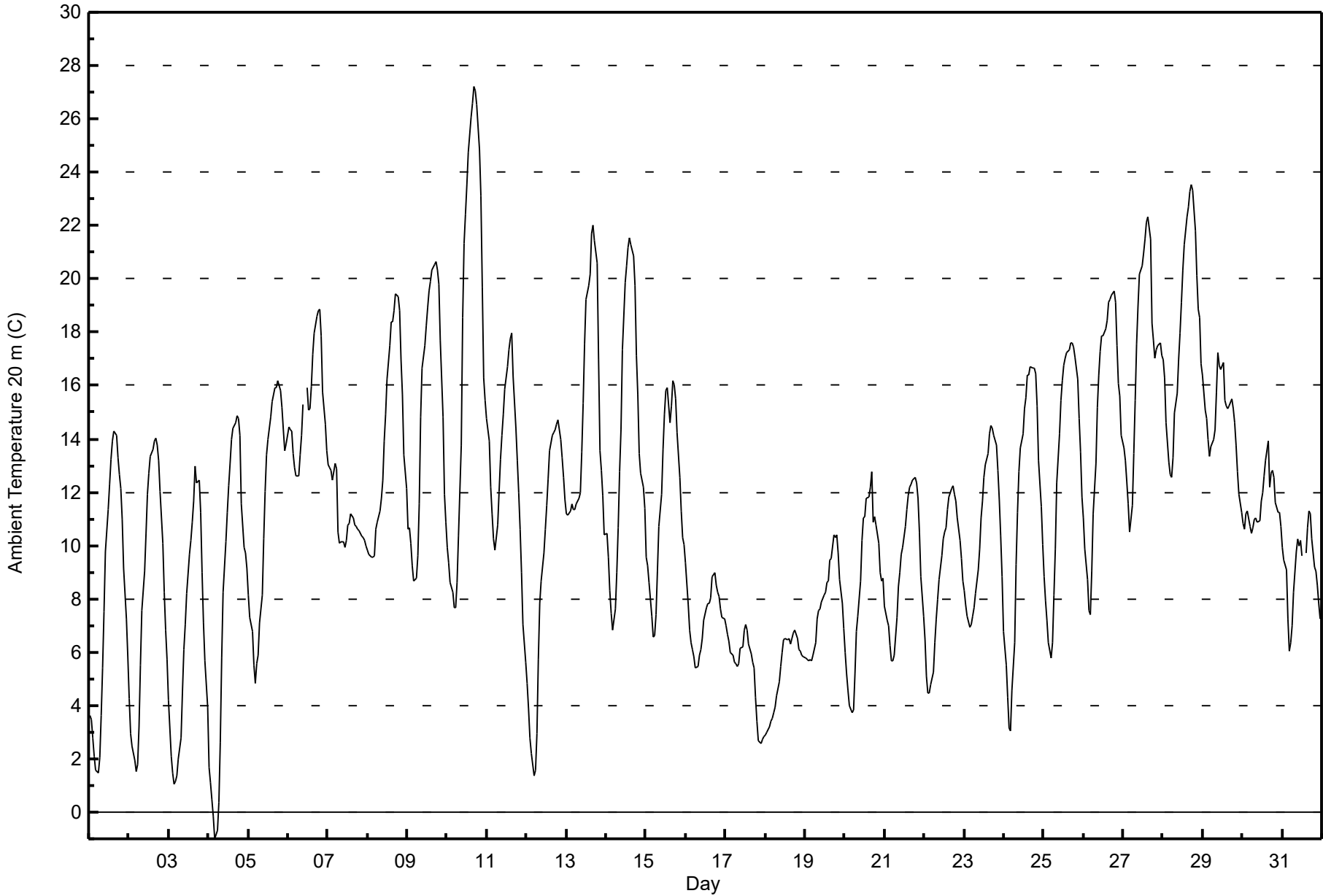
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL METEOROLOGICAL SENSORS	06 May 2024 11:00	06 May 2024 11:00	1	DAS Failure - data not recorded
Temperature 20m	31 May 2024 14:00	31 May 2024 14:00	1	DAS Failure - data not recorded
Vertical Wind Speed, Wind Speed, Wind Direction 45m	01 May 2024 01:00	06 May 2024 09:00	129	Flat line in sensor output signal



Maximum Value: 27.2 C on May 10 17:00		Maximum Daily Average: 18.2 C on May 28		Hours in Service: 744																						
Minimum Value: -1.0 C on May 4 05:00		Minimum Daily Average: 5.3 C on May 18		Hours of Data: 742																						
Maximum Diurnal Average: 15.3 C at hour 17		Minimum Diurnal Average: 6.7 C at hour 5		Hours of Missing Data: 2																						
Monthly Average: 11.37 C		Percentiles: P <sub>1</sub> = 1.2 P <sub>10</sub> = 5.4 Q <sub>1</sub> = 7.6 Median = 11.1 Q <sub>3</sub> = 14.6 P <sub>90</sub> = 18.0 P <sub>99</sub> = 23.6		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-May	3.6	3.5	2.8	2.1	1.6	1.5	2.0	3.6	5.4	7.5	9.7	11.3	12.3	13.2	13.9	14.3	14.2	13.3	12.7	12.1	11.0	9.2	7.3	5.8	8.1	14.3
2-May	4.3	2.9	2.5	2.0	1.5	1.8	3.2	5.5	7.6	9.1	10.4	11.9	12.7	13.4	13.6	13.9	14.1	13.8	13.2	12.0	10.1	8.2	6.8	5.7	8.3	14.1
3-May	4.2	2.1	1.5	1.1	1.2	1.4	2.0	2.8	4.5	6.1	7.0	8.2	9.7	10.2	10.9	11.7	13.0	12.4	12.4	11.2	9.0	7.1	5.7	3.9	6.6	13.0
4-May	1.7	1.1	0.5	-0.2	-1.0	-0.7	0.4	2.6	5.8	8.3	10.1	11.3	12.3	13.1	14.0	14.4	14.6	14.9	14.8	14.1	11.6	9.9	9.7	9.1	8.0	14.9
5-May	8.1	7.3	6.8	5.5	4.8	5.5	5.9	7.1	8.2	10.2	12.0	13.4	14.0	14.8	15.4	15.6	15.9	15.9	16.2	15.8	15.2	14.4	13.6	13.8	11.5	16.2
6-May	14.4	14.4	14.3	13.4	12.9	12.6	12.6	13.4	14.2	15.3	DF	15.9	15.1	15.1	15.9	17.2	18.0	18.6	18.8	18.9	17.9	15.8	14.5	13.5	15.3	18.9
7-May	13.1	12.9	12.8	12.4	13.1	12.9	10.5	10.1	10.2	10.1	9.9	10.2	10.8	10.8	11.2	11.0	10.8	10.7	10.6	10.6	10.3	10.3	10.2	10.0	11.1	13.1
8-May	9.8	9.7	9.6	9.6	9.6	10.6	10.9	11.3	11.8	12.5	13.9	14.9	16.2	17.5	18.4	18.4	18.8	19.5	19.3	18.8	17.0	15.7	13.4	12.1	14.1	19.5
9-May	10.6	10.7	10.1	9.3	8.7	8.8	9.6	11.6	14.8	16.6	17.5	18.2	18.9	19.6	19.9	20.3	20.6	20.6	20.3	19.8	17.7	14.8	11.9	10.9	15.1	20.6
10-May	9.9	9.3	8.6	8.2	7.7	7.7	8.6	10.4	13.8	18.5	21.3	22.4	23.6	24.7	26.1	26.6	27.2	27.0	26.5	24.9	23.1	19.7	16.3	15.4	17.8	27.2
11-May	14.8	13.9	12.2	11.2	10.3	9.8	10.8	12.1	13.2	14.1	14.9	15.9	16.7	17.4	17.7	18.0	16.3	14.4	13.2	12.0	10.6	9.0	7.0	5.6	13.0	18.0
12-May	4.8	3.9	2.8	2.2	1.4	1.6	2.9	5.7	7.8	8.7	9.7	10.6	11.5	12.5	13.6	14.1	14.2	14.3	14.6	14.7	14.0	13.3	12.5	11.7	9.3	14.7
13-May	11.2	11.1	11.3	11.6	11.3	11.3	11.6	11.8	12.0	13.5	15.3	17.6	19.2	19.7	20.2	21.7	22.0	21.4	20.6	17.0	13.6	12.8	11.9	10.4	15.0	22.0
14-May	10.4	9.6	8.3	7.4	6.8	7.6	9.0	10.6	12.8	14.4	17.3	19.8	20.5	21.2	21.6	21.3	20.9	19.8	17.1	15.7	13.5	12.7	12.2	11.4	14.2	21.6
15-May	9.6	9.3	8.6	7.4	6.6	6.6	7.4	9.0	10.7	11.9	13.6	14.9	15.8	15.9	14.6	15.3	16.2	16.0	15.5	14.2	12.5	11.3	10.3	10.0	11.8	16.2
16-May	9.3	7.8	6.8	6.3	6.1	5.8	5.4	5.4	5.9	6.1	6.5	7.2	7.7	7.8	7.8	8.0	8.8	9.0	8.5	8.3	8.1	7.6	7.3	7.3	7.3	9.3
17-May	7.0	6.7	6.4	6.0	5.9	5.6	5.6	5.5	5.6	6.2	6.2	6.8	7.1	6.8	6.3	5.9	5.6	5.4	4.3	3.4	2.7	2.6	2.7	2.8	5.4	7.1
18-May	2.9	3.0	3.2	3.4	3.5	3.7	3.9	4.4	4.9	5.4	6.0	6.4	6.5	6.5	6.5	6.3	6.5	6.7	6.9	6.5	6.1	6.0	5.9	5.8	5.3	6.9
19-May	5.8	5.7	5.7	5.7	5.7	5.9	6.3	7.2	7.6	7.6	7.9	8.1	8.2	8.6	8.7	9.5	9.5	10.4	10.3	10.4	9.7	8.7	7.8	6.9	7.8	10.4
20-May	6.0	5.2	4.6	4.0	3.8	3.9	5.2	6.8	7.4	8.6	10.2	11.0	11.1	11.8	11.8	12.2	12.8	10.9	11.1	10.8	10.1	9.0	8.7	8.8	8.6	12.8
21-May	7.7	7.2	7.0	6.2	5.7	5.7	5.9	7.3	8.4	9.0	9.7	9.9	10.7	11.3	11.9	12.2	12.3	12.4	12.5	12.4	11.8	10.5	8.8	7.3	9.3	12.5
22-May	6.4	5.1	4.5	4.5	4.8	5.2	6.4	7.2	8.0	8.7	9.6	10.2	10.5	10.7	11.4	11.8	12.1	12.2	12.0	11.7	11.0	10.2	9.5	8.7	8.9	12.2
23-May	8.3	7.8	7.3	7.0	7.1	7.4	7.7	8.2	9.1	9.9	11.0	11.7	12.6	13.0	13.5	14.2	14.5	14.4	14.1	13.8	12.8	11.7	10.4	8.8	10.7	14.5
24-May	6.8	5.5	4.3	3.2	3.1	4.6	6.4	9.3	11.2	12.8	13.7	14.2	15.1	15.5	16.4	16.4	16.7	16.6	16.7	16.4	15.2	13.2	11.5	10.0	11.4	16.7
25-May	8.8	7.9	7.2	6.4	5.8	6.4	8.2	9.9	12.3	14.2	15.5	16.2	16.8	17.0	17.3	17.4	17.6	17.6	17.4	17.1	16.3	14.8	13.5	11.8	13.0	17.6
26-May	11.0	9.9	8.7	7.6	7.4	9.1	11.2	13.1	15.2	16.4	17.3	17.9	17.9	18.1	18.4	19.1	19.2	19.4	19.6	19.1	17.5	16.1	15.6	14.1	15.0	19.6
27-May	13.7	13.2	12.4	11.5	10.5	11.5	13.5	15.4	17.5	19.0	20.2	20.5	21.0	21.5	22.1	22.3	21.5	18.4	17.7	17.0	17.4	17.5	17.6	17.1	17.1	22.3
28-May	16.9	16.3	14.6	13.2	12.7	12.5	13.3	15.0	15.7	16.9	18.0	19.1	20.3	21.3	22.3	22.7	23.3	23.6	23.3	21.8	20.1	18.9	18.5	16.8	18.2	23.6
29-May	16.4	15.1	14.8	14.0	13.3	13.7	14.0	14.3	15.7	17.2	16.7	16.6	16.8	15.4	15.2	15.2	15.3	15.5	15.1	14.6	13.8	12.7	11.9	11.3	14.8	17.2
30-May	10.8	10.6	11.2	11.3	10.7	10.5	10.7	11.0	11.0	10.9	10.9	11.6	12.0	12.6	13.2	13.9	12.2	12.7	12.8	12.5	11.6	11.2	11.2	10.7	11.6	13.9
31-May	9.9	9.5	9.1	7.3	6.1	6.3	7.0	8.3	9.8	10.2	10.0	10.2	9.6	DF	9.7	10.7	11.3	11.2	10.2	9.2	9.0	8.5	7.8	7.3	9.0	11.3
9.0 8.3 7.8 7.1 6.7 7.0 7.7 8.9 10.3 11.5 12.4 13.4 14.0 14.6 14.8 15.2 15.3 15.1 14.8 14.1 12.9 11.7 10.7 9.8																								Diurnal Average		
16.9 16.3 14.8 14.0 13.3 13.7 14.0 15.4 17.5 19.0 21.3 22.4 23.6 24.7 26.1 26.6 27.2 27.0 26.5 24.9 23.1 19.7 18.5 17.1																								Diurnal Maximum		
DF - DAS Failure																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

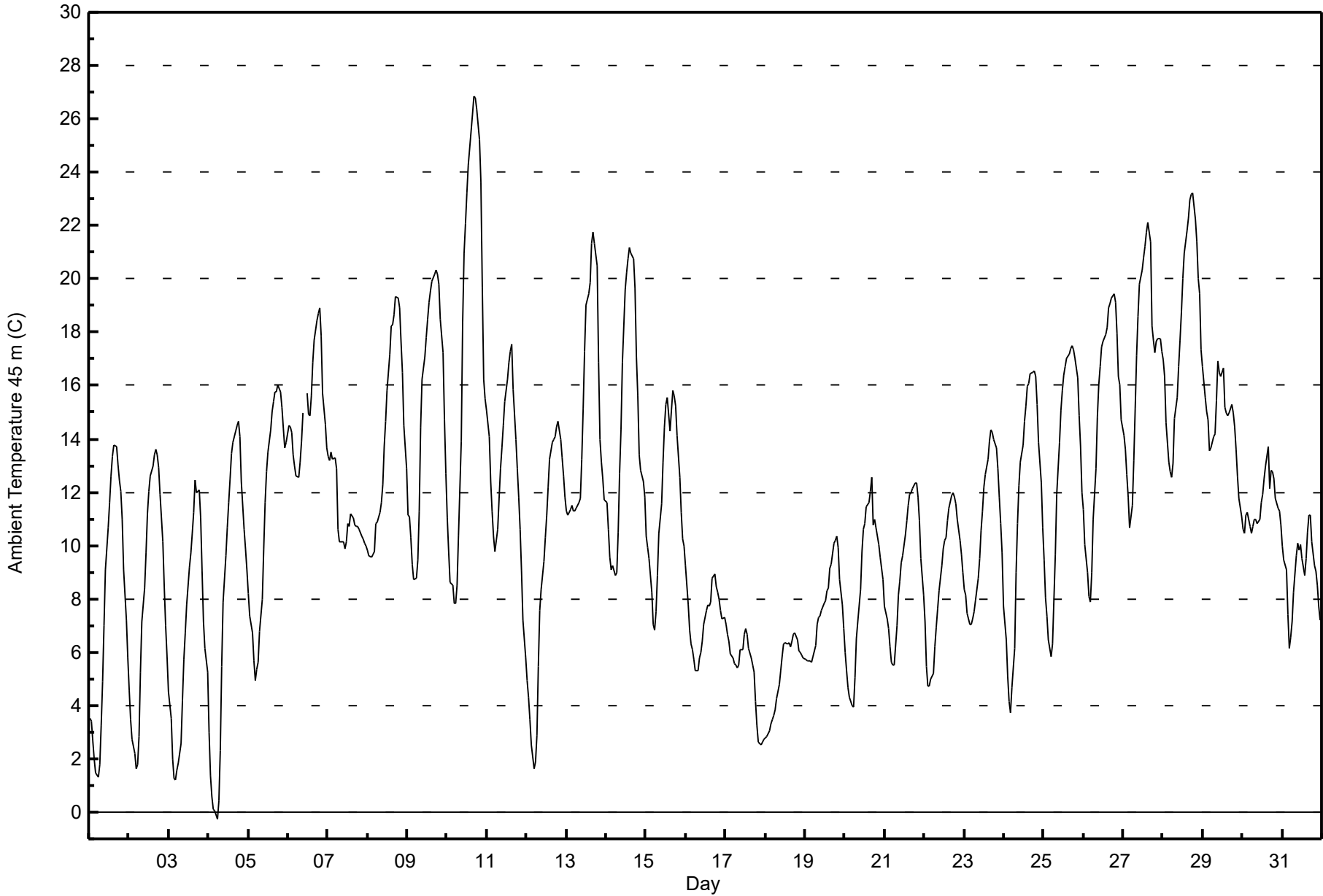
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	3	0.40	0.40
0 - 10	292	39.35	39.76
10 - 20	406	54.72	94.47
> 20	41	5.53	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Maximum Value: 26.8 C on May 10 17:00		Maximum Daily Average: 18.2 C on May 28		Hours in Service: 744																																												
Minimum Value: -0.3 C on May 4 06:00		Minimum Daily Average: 5.2 C on May 18		Hours of Data: 743																																												
Maximum Diurnal Average: 15.1 C at hour 17		Minimum Diurnal Average: 6.9 C at hour 5		Hours of Missing Data: 1																																												
Monthly Average: 11.33 C		Percentiles: P <sub>1</sub> = 1.3 P <sub>10</sub> = 5.3 Q <sub>1</sub> = 7.7 Median = 11.0 Q <sub>3</sub> = 14.5 P <sub>90</sub> = 17.9 P <sub>99</sub> = 23.5		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-May	3.5	3.4	2.7	2.0	1.5	1.3	1.8	3.2	4.9	7.0	9.1	10.7	11.6	12.6	13.3	13.8	13.7	13.0	12.5	12.0	11.0	9.1	7.2	5.8	7.8	13.8																						
2-May	4.6	3.5	2.7	2.2	1.6	1.8	2.8	5.2	7.1	8.4	9.7	11.2	12.0	12.6	13.0	13.4	13.6	13.4	12.9	11.9	10.2	8.5	7.0	5.8	8.1	13.6																						
3-May	4.5	3.5	2.0	1.3	1.2	1.6	1.8	2.5	4.2	5.8	6.7	7.8	9.2	9.7	10.4	11.3	12.4	12.0	12.1	11.0	9.0	7.2	6.1	5.3	6.6	12.4																						
4-May	3.0	1.4	0.6	0.1	0.1	-0.3	0.4	2.3	5.4	7.9	9.6	10.7	11.6	12.5	13.5	13.9	14.3	14.5	14.7	14.1	12.4	10.6	9.9	9.1	8.0	14.7																						
5-May	8.2	7.4	6.7	5.7	4.9	5.4	5.6	6.8	8.0	9.9	11.6	12.8	13.5	14.3	15.0	15.4	15.8	15.8	16.0	15.7	15.2	14.4	13.6	13.9	11.3	16.0																						
6-May	14.5	14.4	14.3	13.4	13.0	12.6	12.5	13.2	13.9	15.0	DF	15.7	14.9	14.9	15.6	16.9	17.7	18.4	18.7	18.9	17.9	15.7	14.6	13.7	15.2	18.9																						
7-May	13.3	13.2	13.5	13.3	13.3	12.9	10.6	10.1	10.1	10.1	9.9	10.1	10.8	10.7	11.2	11.0	10.8	10.7	10.7	10.6	10.4	10.2	10.1	10.0	11.2	13.5																						
8-May	9.8	9.6	9.6	9.7	9.8	10.8	10.9	11.2	11.6	12.3	13.7	14.7	15.8	17.2	18.2	18.3	18.6	19.3	19.3	18.9	17.6	16.5	14.5	12.9	14.2	19.3																						
9-May	11.1	11.1	10.3	9.3	8.7	8.8	9.5	11.3	14.5	16.3	17.1	17.8	18.5	19.1	19.5	19.9	20.2	20.3	20.2	19.8	18.5	17.2	14.7	12.7	15.3	20.3																						
10-May	11.0	9.8	8.6	8.5	7.8	7.8	8.5	10.3	13.9	18.4	21.0	22.1	23.2	24.3	25.6	26.2	26.8	26.8	26.4	25.2	23.7	19.7	16.2	15.5	17.8	26.8																						
11-May	15.1	14.1	12.4	11.3	10.3	9.8	10.6	11.8	12.9	13.7	14.5	15.4	16.2	16.9	17.3	17.5	15.9	14.0	12.9	11.8	10.6	9.0	7.2	5.8	12.8	17.5																						
12-May	4.9	4.3	3.5	2.5	1.6	1.9	2.9	5.4	7.6	8.4	9.4	10.3	11.2	12.2	13.2	13.9	14.0	14.1	14.5	14.6	14.0	13.3	12.6	11.8	9.3	14.6																						
13-May	11.3	11.2	11.3	11.5	11.3	11.3	11.4	11.6	11.8	13.2	15.1	17.3	19.0	19.5	19.9	21.3	21.7	21.3	20.5	16.8	14.0	13.2	12.5	11.7	15.0	21.7																						
14-May	11.6	10.6	9.6	9.1	9.3	8.9	9.0	10.5	12.7	14.3	16.9	19.6	20.2	20.8	21.2	21.0	20.7	19.6	17.1	15.6	13.4	12.8	12.4	11.8	14.5	21.2																						
15-May	10.3	9.9	9.5	8.2	7.0	6.8	7.5	8.9	10.5	11.6	13.1	14.4	15.3	15.5	14.3	15.1	15.8	15.6	15.2	14.1	12.6	11.3	10.2	10.0	11.8	15.8																						
16-May	9.2	7.8	6.8	6.3	6.1	5.7	5.3	5.3	5.8	6.0	6.4	7.0	7.5	7.8	7.7	7.9	8.8	8.9	8.5	8.3	8.0	7.6	7.3	7.3	7.2	9.2																						
17-May	7.0	6.7	6.4	5.9	5.8	5.6	5.5	5.4	5.5	6.1	6.1	6.6	6.9	6.7	6.1	5.8	5.5	5.3	4.2	3.3	2.6	2.5	2.6	2.7	5.3	7.0																						
18-May	2.8	2.8	3.1	3.3	3.5	3.6	3.8	4.2	4.8	5.3	5.8	6.3	6.4	6.3	6.2	6.4	6.7	6.7	6.5	6.0	6.0	5.9	5.8	5.2	6.7	6.7																						
19-May	5.7	5.6	5.7	5.7	5.6	5.8	6.3	7.1	7.3	7.3	7.6	7.8	7.9	8.3	8.4	9.2	9.3	10.1	10.2	10.4	9.9	8.7	7.8	6.9	7.7	10.4																						
20-May	6.0	5.3	4.7	4.3	4.0	4.0	5.0	6.5	7.1	8.4	9.8	10.6	10.8	11.5	11.6	12.0	12.6	10.7	11.0	10.7	10.0	9.5	9.1	8.7	8.5	12.6																						
21-May	7.7	7.3	6.9	6.2	5.6	5.5	5.5	7.0	8.1	8.7	9.3	9.6	10.4	10.9	11.5	11.9	12.0	12.2	12.4	12.3	11.8	10.9	9.5	8.2	9.2	12.4																						
22-May	7.1	5.5	4.7	4.8	5.0	5.2	6.2	6.9	7.6	8.3	9.3	9.9	10.2	10.3	10.9	11.4	11.9	12.0	11.8	11.6	11.0	10.2	9.7	9.0	8.8	12.0																						
23-May	8.4	8.1	7.4	7.1	7.0	7.3	7.5	7.9	8.8	9.5	10.6	11.3	12.2	12.7	13.3	13.9	14.3	14.2	14.0	13.7	12.9	11.8	10.8	9.7	10.6	14.3																						
24-May	7.7	6.5	5.1	4.1	3.7	4.7	6.2	9.0	10.8	12.2	13.1	13.8	14.7	15.2	15.9	16.1	16.5	16.5	16.5	16.3	15.3	13.9	12.3	10.7	11.5	16.5																						
25-May	9.5	8.1	7.4	6.5	5.8	6.3	8.0	9.7	12.0	13.9	15.1	15.8	16.4	16.7	17.0	17.2	17.4	17.5	17.3	17.0	16.3	14.9	13.7	12.0	13.0	17.5																						
26-May	11.4	10.1	9.0	8.1	7.9	9.0	11.0	12.8	14.8	16.0	16.7	17.5	17.7	17.9	18.2	18.9	19.1	19.3	19.4	19.1	18.0	16.4	16.0	14.7	15.0	19.4																						
27-May	14.1	13.6	12.6	11.8	10.7	11.5	13.2	15.2	17.1	18.6	19.8	20.3	20.8	21.2	21.8	22.1	21.4	18.2	17.7	17.3	17.6	17.7	17.7	17.3	17.1	22.1																						
28-May	17.0	16.3	14.6	13.1	12.7	12.6	13.1	14.8	15.6	16.7	17.7	18.8	20.0	20.9	21.8	22.3	22.9	23.2	23.2	22.2	21.4	20.0	19.4	17.3	18.2	23.2																						
29-May	16.7	15.5	15.0	14.7	13.5	13.7	14.1	14.2	15.4	16.9	16.5	16.3	16.6	15.2	14.9	14.9	15.0	15.3	15.0	14.5	13.6	12.6	11.8	11.1	14.7	16.9																						
30-May	10.6	10.4	11.1	11.2	10.7	10.5	10.7	11.0	11.0	10.8	11.0	11.6	11.9	12.5	13.0	13.7	12.2	12.8	12.8	12.5	11.8	11.4	11.3	10.8	11.6	13.7																						
31-May	10.0	9.5	9.1	7.4	6.2	6.6	7.2	8.2	9.6	10.1	9.8	10.0	9.5	8.9	9.5	10.5	11.1	11.2	10.2	9.3	9.0	8.5	7.7	7.2	9.0	11.2																						
																								9.3	8.6	8.0	7.4	6.9	7.1	7.6	8.7	10.0	11.2	12.1	13.0	13.6	14.1	14.5	14.9	15.1	14.9	14.7	14.1	13.1	12.0	11.0	10.2	Diurnal Average
																								17.0	16.3	15.0	14.7	13.5	13.7	14.1	15.2	17.1	18.6	21.0	22.1	23.2	24.3	25.6	26.2	26.8	26.8	26.4	25.2	23.7	20.0	19.4	17.3	Diurnal Maximum
DF - DAS Failure																																																





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

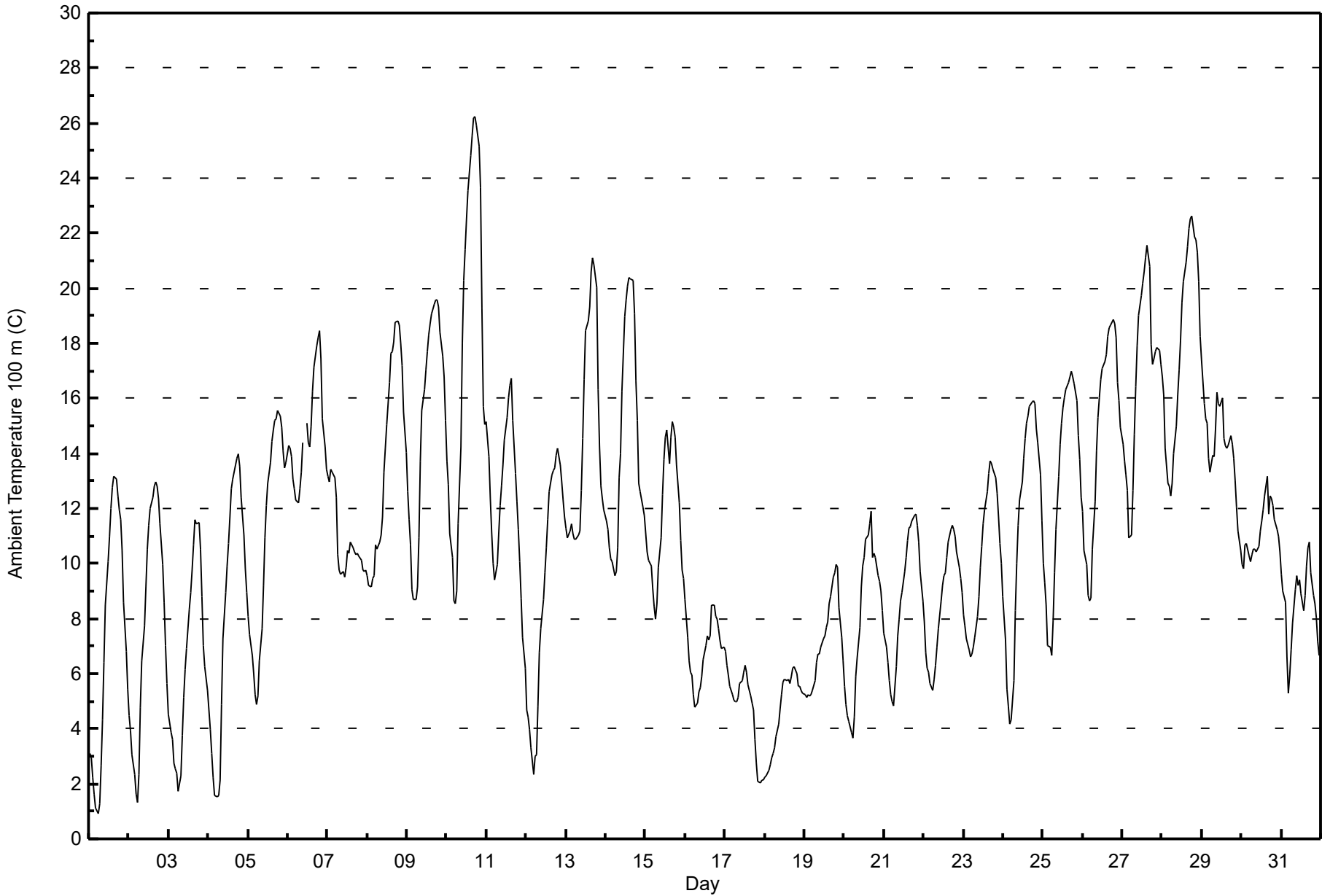
<b>Concentration Ranges (C)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
-50 - -20	0	0.00	0.00
-20 - 0	1	0.13	0.13
0 - 10	297	39.97	40.11
10 - 20	406	54.64	94.75
> 20	39	5.25	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Value: 26.2 C on May 10 18:00		Maximum Daily Average: 18.0 C on May 10		Hours in Service: 744																						
Minimum Value: 0.9 C on May 1 06:00		Minimum Daily Average: 4.7 C on May 18		Hours of Data: 743																						
Maximum Diurnal Average: 14.5 C at hour 17		Minimum Diurnal Average: 7.0 C at hour 6		Hours of Missing Data: 1																						
Monthly Average: 11.03 C		Percentiles: P <sub>1</sub> = 1.6 P <sub>10</sub> = 5.0 Q <sub>1</sub> = 7.3 Median = 10.8 Q <sub>3</sub> = 14.2 P <sub>90</sub> = 17.7 P <sub>99</sub> = 23.2		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-May	3.1	3.0	2.2	1.6	1.1	0.9	1.3	2.6	4.3	6.4	8.5	10.1	11.0	12.0	12.8	13.2	13.1	12.5	12.0	11.6	10.5	8.6	6.8	5.5	7.3	13.2
2-May	4.5	3.9	3.0	2.3	1.6	1.3	2.3	4.8	6.5	7.8	9.1	10.5	11.4	12.0	12.4	12.8	13.0	12.8	12.3	11.4	10.0	8.6	7.0	5.6	7.8	13.0
3-May	4.5	3.9	3.6	2.8	2.5	2.4	1.7	2.3	3.8	5.1	6.2	6.9	8.4	9.0	9.7	10.7	11.6	11.4	11.5	10.5	8.8	7.0	6.3	5.4	6.5	11.6
4-May	4.7	4.0	3.1	2.2	1.6	1.5	1.6	2.1	4.9	7.3	8.9	9.9	10.7	11.7	12.7	13.0	13.6	13.8	14.0	13.5	12.4	11.0	9.8	8.9	8.2	14.0
5-May	8.1	7.4	6.6	6.0	5.2	4.9	5.2	6.4	7.6	9.2	10.9	12.1	12.9	13.7	14.4	14.8	15.2	15.2	15.6	15.3	14.9	14.1	13.5	13.7	11.0	15.6
6-May	14.3	14.2	13.9	13.1	12.7	12.3	12.2	12.7	13.3	14.4	DF	15.1	14.4	14.3	15.0	16.3	17.1	17.9	18.2	18.5	17.4	15.3	14.2	13.4	14.8	18.5
7-May	13.2	13.0	13.4	13.3	13.1	12.4	10.3	9.7	9.6	9.7	9.5	9.9	10.5	10.4	10.8	10.6	10.4	10.3	10.4	10.3	10.1	9.8	9.7	9.8	10.8	13.4
8-May	9.6	9.2	9.1	9.5	9.5	10.7	10.5	10.8	11.0	11.7	13.3	14.2	15.1	16.6	17.6	17.7	18.1	18.8	18.8	18.7	18.0	17.2	15.5	14.0	14.0	18.8
9-May	12.6	11.6	10.7	9.1	8.7	8.7	9.2	10.9	13.7	15.5	16.3	17.0	17.7	18.3	18.7	19.1	19.4	19.6	19.6	19.3	18.4	17.5	16.8	15.2	15.2	19.6
10-May	13.8	12.9	11.1	10.2	8.6	8.6	9.0	11.4	14.2	18.0	20.3	21.4	22.5	23.6	24.8	25.5	26.2	26.2	25.9	25.2	23.6	19.3	15.7	15.0	18.0	26.2
11-May	15.1	13.9	12.3	11.1	10.0	9.4	10.0	11.1	12.1	12.8	13.6	14.5	15.3	16.0	16.5	16.7	15.2	13.3	12.2	11.2	10.1	8.8	7.3	6.2	12.3	16.7
12-May	4.7	4.4	4.0	3.3	2.3	3.0	3.0	4.8	6.8	7.6	8.7	9.7	10.6	11.6	12.6	13.2	13.4	13.5	13.9	14.2	13.6	13.0	12.3	11.7	9.0	14.2
13-May	11.3	10.9	11.2	11.4	11.1	10.9	10.9	11.1	11.2	12.6	14.5	16.7	18.4	18.8	19.3	20.6	21.1	20.9	20.0	16.3	14.3	12.8	12.4	11.9	14.6	21.1
14-May	11.5	11.2	10.6	10.2	10.1	9.6	9.7	10.6	13.1	14.0	16.3	18.9	19.6	20.1	20.4	20.3	20.3	19.1	16.6	15.2	12.9	12.6	12.1	11.8	14.4	20.4
15-May	11.1	10.4	10.1	9.9	9.1	8.5	8.0	8.5	9.9	10.9	12.5	13.8	14.6	14.9	13.6	14.6	15.2	14.9	14.6	13.6	12.2	10.8	9.8	9.5	11.7	15.2
16-May	8.7	7.3	6.4	6.1	5.9	5.3	4.8	5.0	5.4	5.5	5.9	6.5	7.0	7.4	7.2	7.4	8.5	8.5	8.1	8.0	7.6	7.2	6.9	7.0	6.8	8.7
17-May	6.8	6.3	5.9	5.5	5.2	5.0	5.0	5.0	5.1	5.7	5.7	6.0	6.3	6.1	5.6	5.2	4.9	4.7	3.6	2.7	2.1	2.0	2.1	2.1	4.8	6.8
18-May	2.2	2.3	2.5	2.7	3.0	3.1	3.3	3.7	4.2	4.7	5.2	5.7	5.8	5.8	5.6	5.9	6.2	6.2	6.0	5.5	5.6	5.4	5.3	4.7	6.2	6.2
19-May	5.2	5.1	5.2	5.2	5.2	5.4	5.8	6.4	6.7	6.7	7.0	7.3	7.3	7.7	7.9	8.5	8.8	9.5	9.6	9.9	9.9	8.4	7.3	6.5	7.2	9.9
20-May	5.6	4.9	4.5	4.3	3.9	3.6	4.4	5.9	6.5	7.7	9.1	9.9	10.2	10.9	11.0	11.4	11.9	10.2	10.4	10.2	9.6	9.4	9.0	8.3	8.0	11.9
21-May	7.5	7.0	6.4	5.7	5.2	5.0	4.8	6.3	7.4	8.0	8.7	9.0	9.7	10.2	10.8	11.3	11.4	11.6	11.8	11.8	11.4	10.8	9.7	8.7	8.8	11.8
22-May	7.9	6.8	6.2	6.1	5.6	5.4	5.8	6.3	7.0	7.6	8.7	9.2	9.5	9.7	10.2	10.8	11.3	11.4	11.2	11.0	10.4	9.9	9.4	8.9	8.6	11.4
23-May	8.1	7.7	7.2	6.9	6.6	6.7	7.0	7.3	8.1	8.8	9.9	10.6	11.4	12.0	12.6	13.3	13.7	13.6	13.4	13.1	12.6	11.7	10.7	10.0	10.1	13.7
24-May	8.8	7.2	5.5	4.8	4.2	4.3	5.8	8.3	10.0	11.4	12.3	13.0	13.8	14.6	15.1	15.4	15.7	15.9	15.9	15.8	14.9	14.4	13.2	11.5	11.3	15.9
25-May	10.0	9.3	8.5	7.0	7.0	6.7	7.9	9.7	11.2	13.2	14.3	15.1	15.7	16.0	16.3	16.6	16.8	17.0	16.8	16.5	15.9	14.7	13.8	12.4	12.9	17.0
26-May	11.9	10.5	10.0	8.8	8.6	8.7	10.5	12.3	14.1	15.3	16.0	16.7	17.1	17.4	17.6	18.3	18.5	18.7	18.9	18.7	18.2	16.6	15.9	14.9	14.8	18.9
27-May	14.4	13.7	13.2	12.7	10.9	11.0	12.7	14.7	16.4	17.9	19.0	19.7	20.2	20.6	21.1	21.6	20.8	17.9	17.2	17.5	17.7	17.8	17.7	17.2	16.8	21.6
28-May	16.8	16.1	14.2	12.9	12.8	12.4	12.9	14.0	15.0	16.1	17.0	18.1	19.5	20.3	20.9	21.5	22.2	22.5	22.6	21.9	21.8	21.3	20.2	18.3	18.0	22.6
29-May	17.4	15.8	15.3	15.1	13.8	13.3	13.9	13.9	14.9	16.2	15.8	15.7	16.0	14.5	14.3	14.2	14.3	14.6	14.3	13.9	13.0	12.0	11.2	10.5	14.3	17.4
30-May	10.0	9.8	10.7	10.7	10.3	10.1	10.3	10.5	10.5	10.4	10.6	11.2	11.5	12.0	12.5	13.2	11.8	12.5	12.3	12.1	11.6	11.2	11.0	10.4	11.1	13.2
31-May	9.6	9.0	8.6	6.6	5.3	6.0	6.9	7.8	9.1	9.5	9.2	9.4	8.9	8.3	8.9	9.9	10.6	10.8	9.7	8.9	8.6	8.0	7.2	6.7	8.5	10.8
9.4 8.8 8.2 7.6 7.1 7.0 7.3 8.3 9.5 10.6 11.4 12.4 13.0 13.4 13.8 14.3 14.5 14.4 14.1 13.6 12.8 11.8 11.0 10.2																								Diurnal Average		
17.4 16.1 15.3 15.1 13.8 13.3 13.9 14.7 16.4 18.0 20.3 21.4 22.5 23.6 24.8 25.5 26.2 26.2 25.9 25.2 23.6 21.3 20.2 18.3																								Diurnal Maximum		
DF - DAS Failure																										





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 100 m (AT100m) - C  
Lower Camp Met Tower - May 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	0	0.00	0.00
0 - 10	317	42.66	42.66
10 - 20	392	52.76	95.42
> 20	34	4.58	100.00

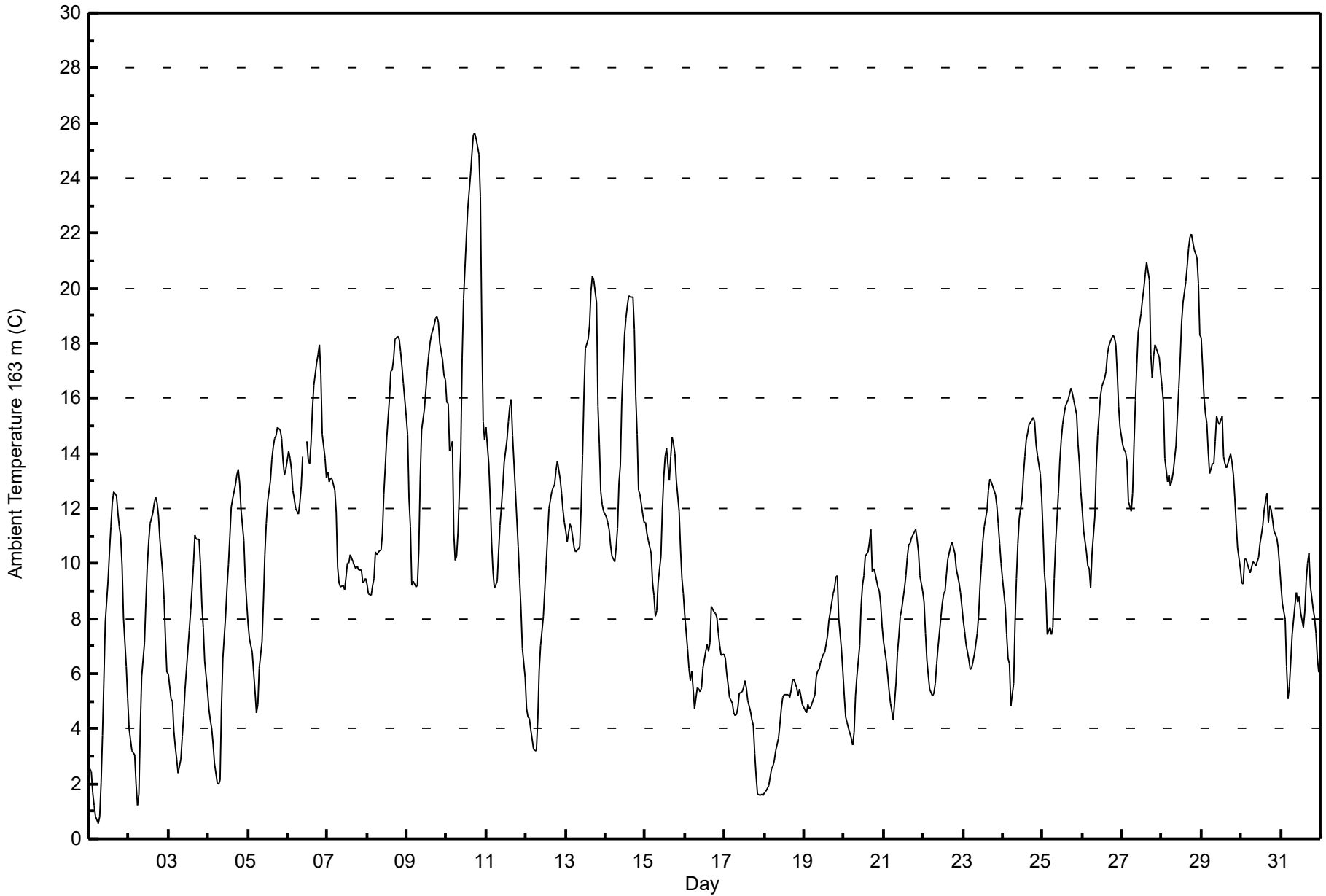
Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Value: 25.6 C on May 10 18:00		Maximum Daily Average: 18.4 C on May 10		Hours in Service: 744																																												
Minimum Value: 0.5 C on May 1 06:00		Minimum Daily Average: 4.2 C on May 18		Hours of Data: 743																																												
Maximum Diurnal Average: 13.9 C at hour 17		Minimum Diurnal Average: 7.0 C at hour 6		Hours of Missing Data: 1																																												
Monthly Average: 10.72 C		Percentiles: P <sub>1</sub> = 1.6 P <sub>10</sub> = 4.7 Q <sub>1</sub> = 7.1 Median = 10.4 Q <sub>3</sub> = 13.8 P <sub>90</sub> = 17.4 P <sub>99</sub> = 22.5		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-May	2.6	2.4	1.7	1.2	0.8	0.5	0.8	2.0	3.8	5.8	7.9	9.4	10.4	11.4	12.2	12.6	12.4	11.8	11.3	11.0	9.9	8.0	6.3	5.1	6.7	12.6																						
2-May	4.0	3.6	3.2	3.0	2.0	1.2	1.6	4.0	5.9	7.1	8.6	9.9	10.8	11.5	11.8	12.2	12.4	12.2	11.8	10.9	9.6	8.7	7.3	6.1	7.5	12.4																						
3-May	6.0	5.1	5.0	3.9	3.4	2.9	2.4	2.9	3.7	4.5	5.5	6.2	7.6	8.3	9.1	10.0	11.0	10.9	10.9	9.9	8.5	7.7	6.5	5.4	6.5	11.0																						
4-May	4.7	4.3	4.0	3.5	2.7	2.0	2.0	2.1	4.8	6.6	8.1	9.1	10.0	11.0	12.0	12.4	12.9	13.2	13.4	12.9	11.9	10.8	9.5	8.6	8.0	13.4																						
5-May	7.8	7.2	6.8	6.1	5.3	4.6	4.9	6.2	7.2	8.6	10.3	11.5	12.3	13.0	13.8	14.2	14.6	14.6	15.0	14.9	14.5	13.7	13.2	13.4	10.6	15.0																						
6-May	14.1	13.8	13.4	12.7	12.3	12.0	11.8	12.2	12.8	13.9	DF	14.4	13.8	13.6	14.4	15.6	16.5	17.3	17.6	18.0	16.9	14.7	13.8	13.1	14.3	18.0																						
7-May	13.3	13.0	13.1	13.1	12.7	11.8	9.9	9.3	9.1	9.2	9.1	9.5	10.0	10.0	10.3	10.1	9.9	9.8	9.9	9.8	9.8	9.3	9.4	9.4	10.5	13.3																						
8-May	9.3	8.9	8.9	9.2	9.5	10.4	10.3	10.5	10.5	11.1	12.5	13.5	14.5	16.0	17.0	17.0	17.4	18.1	18.3	18.2	17.7	17.1	16.5	15.4	13.7	18.3																						
9-May	14.7	12.4	11.4	9.2	9.3	9.2	9.2	10.5	13.1	14.9	15.6	16.3	17.0	17.5	18.0	18.3	18.7	18.9	18.9	18.8	18.0	17.4	16.9	16.7	15.0	18.9																						
10-May	15.9	15.8	14.1	14.4	11.1	10.1	10.3	11.1	14.1	17.5	19.6	20.8	21.9	22.9	24.1	24.9	25.6	25.6	25.4	24.9	23.4	18.7	15.1	14.5	18.4	25.6																						
11-May	14.9	13.6	12.4	10.8	9.7	9.1	9.4	10.4	11.4	12.1	12.8	13.7	14.5	15.2	15.7	16.0	14.6	12.7	11.6	10.6	9.5	8.3	6.9	5.8	11.7	16.0																						
12-May	4.7	4.4	4.4	4.0	3.3	3.2	3.2	4.3	6.1	7.0	8.1	9.0	10.0	11.0	12.0	12.6	12.8	12.9	13.4	13.7	13.1	12.5	11.9	11.5	8.7	13.7																						
13-May	11.2	10.8	11.4	11.3	10.9	10.6	10.4	10.5	10.6	12.1	13.9	16.1	17.8	18.1	18.7	19.9	20.4	20.3	19.5	15.7	14.4	12.6	12.1	11.9	14.2	20.4																						
14-May	11.7	11.5	11.2	10.7	10.3	10.1	10.6	11.3	12.9	13.6	15.9	18.3	18.9	19.4	19.7	19.7	19.7	18.5	16.0	14.7	12.7	12.5	11.8	11.5	14.3	19.7																						
15-May	11.5	11.1	10.8	10.4	9.3	8.8	8.1	8.3	9.3	10.3	12.0	13.1	13.9	14.2	13.0	13.9	14.6	14.3	14.0	13.0	11.9	10.5	9.4	8.9	11.4	14.6																						
16-May	8.1	6.9	6.2	5.8	6.1	5.4	4.7	5.5	5.4	5.3	5.5	6.2	6.8	7.1	6.8	7.1	8.4	8.2	8.2	8.0	7.5	7.0	6.7	6.7	6.7	8.4																						
17-May	6.5	6.0	5.6	5.1	4.9	4.6	4.5	4.5	4.8	5.3	5.3	5.5	5.7	5.5	5.1	4.6	4.3	4.1	3.1	2.3	1.6	1.6	1.6	1.6	4.3	6.5																						
18-May	1.7	1.7	2.0	2.2	2.5	2.6	2.8	3.2	3.7	4.2	4.7	5.1	5.2	5.2	5.1	5.4	5.7	5.8	5.5	5.2	5.4	5.2	4.9	4.9	4.2	5.8																						
19-May	4.7	4.6	4.9	4.7	4.8	4.9	5.3	5.9	6.1	6.1	6.4	6.7	6.8	7.1	7.4	7.9	8.2	8.9	9.1	9.5	9.5	8.0	6.9	6.1	6.7	9.5																						
20-May	5.2	4.4	4.2	4.0	3.6	3.4	3.9	5.2	5.9	7.0	8.4	9.2	9.6	10.3	10.4	10.8	11.3	9.7	9.8	9.7	9.2	9.0	8.5	7.7	7.5	11.3																						
21-May	7.2	6.5	6.0	5.4	4.9	4.6	4.3	5.7	6.8	7.4	8.1	8.4	9.1	9.6	10.2	10.7	10.7	10.9	11.2	11.2	10.9	10.4	9.6	9.0	8.3	11.2																						
22-May	8.6	7.5	6.5	6.0	5.5	5.2	5.3	5.7	6.3	7.0	8.0	8.6	8.9	9.0	9.6	10.2	10.6	10.8	10.6	10.4	9.8	9.3	8.9	8.4	8.2	10.8																						
23-May	7.9	7.5	7.1	6.5	6.1	6.2	6.5	6.7	7.5	8.2	9.2	10.0	10.8	11.3	12.0	12.6	13.1	13.0	12.8	12.5	12.1	11.4	10.7	10.0	9.7	13.1																						
24-May	9.5	8.5	7.4	6.5	6.3	4.8	5.6	7.8	9.5	10.7	11.6	12.3	13.2	13.9	14.5	14.7	15.1	15.2	15.3	15.1	14.3	13.9	13.3	12.4	11.3	15.3																						
25-May	11.1	9.7	9.0	7.4	7.7	7.4	7.7	9.4	10.7	12.6	13.7	14.5	15.1	15.4	15.7	16.0	16.2	16.4	16.2	15.9	15.4	14.4	13.6	12.6	12.7	16.4																						
26-May	11.9	11.2	10.4	9.9	9.8	9.1	10.4	11.7	13.5	14.6	15.3	16.1	16.4	16.7	17.0	17.6	17.9	18.1	18.3	18.2	18.0	16.9	15.7	14.9	14.6	18.3																						
27-May	14.3	14.2	14.1	13.7	12.2	11.9	12.6	14.3	15.9	17.3	18.4	19.1	19.6	20.0	20.5	20.9	20.3	17.6	16.7	17.5	18.0	17.8	17.5	16.9	16.7	20.9																						
28-May	16.4	15.8	13.8	12.9	13.2	12.8	13.0	13.3	14.3	15.4	16.4	17.4	18.7	19.5	20.2	20.8	21.4	21.9	22.0	21.4	21.2	21.1	20.2	18.3	17.6	22.0																						
29-May	18.2	16.1	15.5	15.1	14.1	13.3	13.6	13.6	14.4	15.4	15.1	15.0	15.3	13.9	13.6	13.5	13.6	14.0	13.7	13.2	12.4	11.4	10.6	9.8	13.9	18.2																						
30-May	9.3	9.2	10.2	10.2	9.8	9.7	9.9	10.1	10.0	9.9	10.2	10.7	11.0	11.4	12.0	12.6	11.5	12.1	12.0	11.6	11.2	10.9	10.6	9.9	10.7	12.6																						
31-May	9.2	8.5	8.0	6.3	5.1	5.5	6.5	7.4	8.5	8.9	8.6	8.8	8.3	7.7	8.2	9.3	10.0	10.4	9.2	8.3	8.0	7.5	6.6	6.1	8.0	10.4																						
																								9.6	8.9	8.5	7.9	7.4	7.0	7.1	7.9	9.0	10.0	10.8	11.8	12.4	12.8	13.2	13.7	13.9	13.8	13.6	13.1	12.5	11.6	10.7	10.1	Diurnal Average
																								18.2	16.1	15.5	15.1	14.1	13.3	13.6	14.3	15.9	17.5	19.6	20.8	21.9	22.9	24.1	24.9	25.6	25.6	25.4	24.9	23.4	21.1	20.2	18.3	Diurnal Maximum
DF - DAS Failure																																																







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 163 m (AT163m) - C  
Lower Camp Met Tower - May 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	0	0.00	0.00
0 - 10	339	45.63	45.63
10 - 20	380	51.14	96.77
> 20	24	3.23	100.00

Total Number of Valid Hours: 743

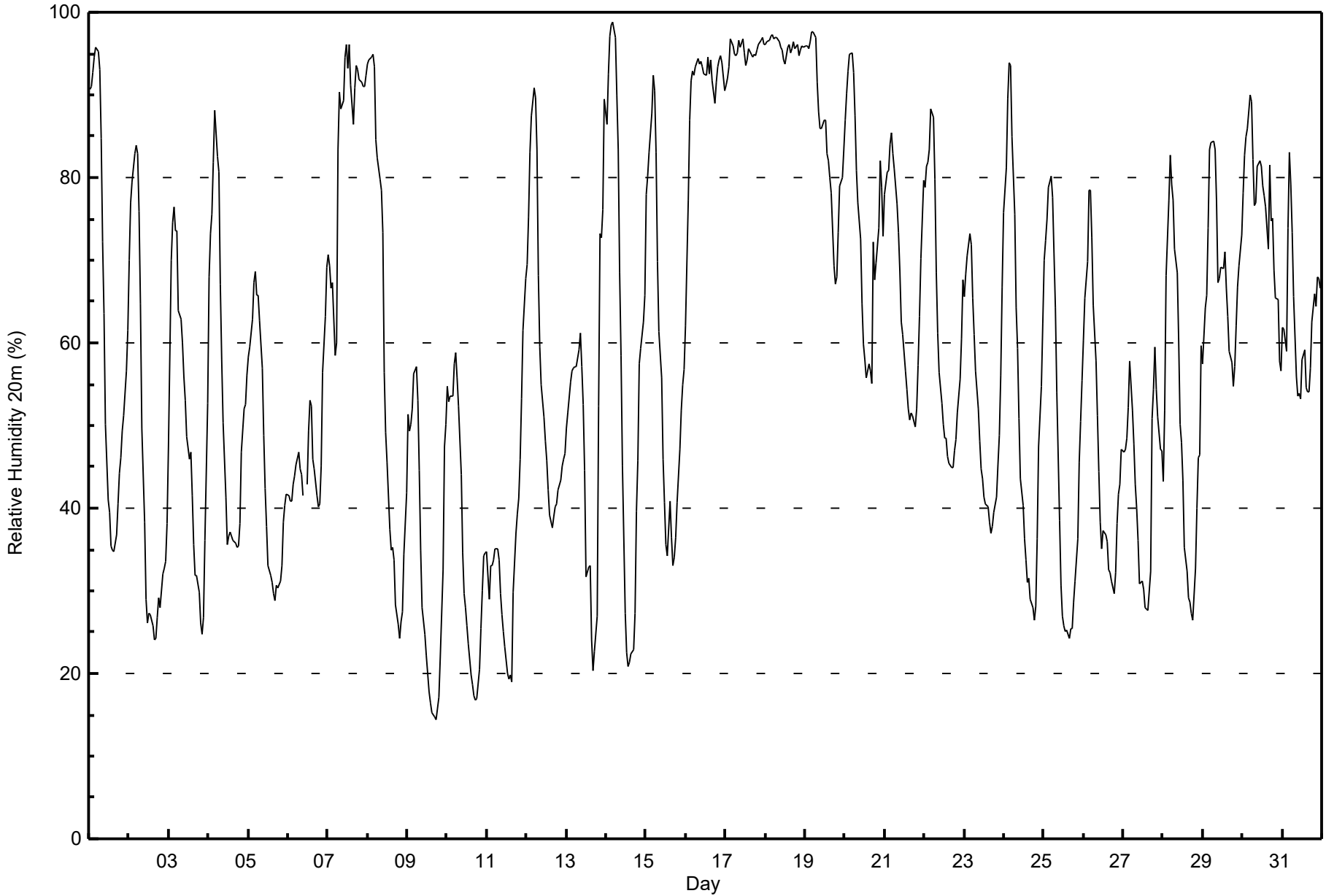
Total Number of Hours: 744



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

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

Maximum Value: 98.8 % on May 14 05:00      Maximum Daily Average: 95.9 % on May 18 Minimum Value: 14.4 % on May 9 18:00      Minimum Daily Average: 33.6 % on May 9 Maximum Diurnal Average: 79.5 % at hour 5      Minimum Diurnal Average: 44.8 % at hour 16 Monthly Average: 59.66 %      Percentiles: P <sub>1</sub> = 17.2 P <sub>10</sub> = 28.9 Q <sub>1</sub> = 40.2 Median = 57.2 Q <sub>3</sub> = 80.4 P <sub>90</sub> = 93.7 P <sub>99</sub> = 97.0																						Hours in Service: 744																								
																						Hours of Data: 743																								
																						Hours of Missing Data: 1																								
																						Hours of Calibration: 0																								
																						Percent Operational Time: 99.9																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-May	90.7	91.0	92.7	94.6	95.7	95.3	93.0	84.8	72.2	63.6	50.2	41.1	39.4	35.5	35.0	34.7	36.8	40.6	44.2	46.0	49.4	51.2	56.6	61.5	62.3	95.7																				
2-May	70.0	76.9	79.5	82.9	83.8	82.8	76.0	64.8	49.7	38.4	28.9	26.1	27.3	27.1	25.8	24.1	24.2	26.8	29.2	27.9	32.1	32.8	33.6	38.1	46.2	83.8																				
3-May	47.4	70.0	74.5	76.5	73.6	73.6	63.9	62.9	60.1	56.0	53.0	48.7	45.9	46.7	41.5	35.5	31.9	31.8	29.9	26.2	24.7	26.8	36.1	52.7	49.6	76.5																				
4-May	67.9	73.3	75.7	81.8	88.2	82.6	80.7	67.1	58.0	50.4	41.4	35.5	36.6	37.2	36.7	36.1	35.7	35.2	35.4	38.1	46.7	52.0	52.6	56.1	54.2	88.2																				
5-May	58.3	59.6	62.9	67.3	68.6	65.7	65.8	62.7	56.9	48.9	42.4	37.7	33.1	31.9	31.0	29.7	28.9	30.7	30.4	31.2	33.0	38.3	40.3	41.7	45.7	68.6																				
6-May	41.4	40.9	40.8	42.9	44.0	45.2	46.7	44.7	44.1	41.5	DF	42.9	49.4	53.1	52.4	45.8	44.7	41.5	40.2	40.5	45.1	56.4	63.2	69.1	46.8	69.1																				
7-May	70.7	69.4	66.6	67.3	58.5	60.0	83.4	90.4	88.3	89.3	94.5	96.1	93.2	96.1	91.1	86.4	90.8	93.6	93.1	91.9	91.6	90.9	91.0	92.4	84.8	96.1																				
8-May	93.7	94.3	94.5	94.9	93.4	84.6	82.4	79.8	78.5	73.4	56.5	49.1	45.6	37.5	34.9	35.2	33.8	28.3	25.9	24.2	26.3	27.4	34.4	41.8	57.1	94.9																				
9-May	51.3	49.3	50.2	52.0	56.3	57.1	53.0	44.5	34.9	27.9	24.8	22.2	20.0	17.8	16.4	15.2	14.8	14.4	15.7	17.2	22.0	32.6	47.5	50.1	33.6	57.1																				
10-May	54.8	52.9	53.5	53.5	57.5	58.8	55.8	52.3	44.1	34.5	29.7	27.9	25.8	23.5	19.9	18.7	17.3	16.8	17.0	20.5	25.4	29.9	34.2	34.6	35.8	58.8																				
11-May	34.7	28.9	33.0	33.1	33.8	35.1	35.1	33.7	29.6	27.1	25.0	23.3	20.0	19.4	19.8	19.0	29.8	36.9	39.4	41.3	46.0	53.2	61.5	67.7	34.4	67.7																				
12-May	69.5	75.2	83.0	87.5	90.9	89.7	83.5	68.2	59.4	54.9	51.0	48.2	45.8	42.2	39.2	37.6	39.0	40.2	40.6	42.2	43.4	45.1	45.8	46.7	57.0	90.9																				
13-May	49.6	51.6	55.2	56.6	56.9	57.1	57.1	59.2	61.2	57.1	52.5	44.5	31.8	32.8	33.0	24.1	20.4	22.7	27.0	52.3	73.3	72.7	76.1	89.5	50.6	89.5																				
14-May	86.5	92.5	97.1	98.4	98.8	97.0	90.0	83.4	68.4	58.5	45.1	27.2	22.5	20.9	21.3	22.4	22.8	27.2	39.6	45.8	57.5	59.3	62.6	65.7	58.8	98.8																				
15-May	78.0	80.1	83.1	87.9	92.3	90.5	83.0	69.9	61.3	55.8	46.0	40.7	35.6	34.3	40.8	36.5	33.0	34.1	36.4	40.7	47.1	51.9	54.9	56.8	57.1	92.3																				
16-May	62.1	77.3	86.9	91.8	92.9	92.3	93.4	94.4	93.7	94.2	93.4	92.6	92.3	94.6	92.5	94.3	91.7	89.0	91.5	93.4	94.3	94.8	93.9	90.6	90.8	94.8																				
17-May	91.2	92.0	93.4	96.7	96.0	95.0	94.8	95.1	96.7	95.7	96.8	95.1	93.6	94.2	95.7	94.9	94.6	94.9	94.7	95.5	96.1	96.7	97.0	96.1	95.1	97.0																				
18-May	96.1	96.4	96.6	97.0	97.2	96.8	96.9	96.9	96.5	95.7	95.4	94.3	93.8	95.7	96.0	95.2	95.6	96.4	95.6	96.0	94.7	95.3	95.9	95.8	95.9	97.2																				
19-May	96.0	95.9	95.5	96.4	97.6	97.6	97.0	91.6	87.9	86.0	86.0	87.0	86.9	82.9	82.0	80.0	78.1	69.2	67.0	67.9	73.4	79.0	79.9	83.4	85.2	97.6																				
20-May	86.9	90.2	92.9	95.0	95.2	92.8	87.4	80.9	76.9	72.6	64.8	59.9	57.9	55.7	57.5	56.7	55.1	72.3	67.7	69.7	73.9	82.1	78.8	72.8	74.8	95.2																				
21-May	77.9	80.7	80.8	84.0	85.3	82.9	81.0	76.8	73.3	68.6	62.5	61.0	56.6	54.5	52.1	50.7	51.5	51.2	49.8	52.0	57.2	63.2	70.2	79.7	66.8	85.3																				
22-May	78.8	81.4	81.8	83.4	88.3	87.3	79.8	68.4	61.3	56.4	52.7	50.2	48.4	48.5	46.3	45.4	44.9	44.9	46.9	48.2	51.6	55.6	60.4	67.6	61.6	88.3																				
23-May	65.6	68.3	70.4	73.2	71.8	65.5	61.0	56.6	52.0	48.2	44.7	43.5	41.3	40.6	40.2	38.4	36.9	37.8	39.5	41.4	45.2	48.9	56.2	66.8	52.2	73.2																				
24-May	75.7	81.2	89.6	93.9	93.6	85.0	75.5	64.3	59.4	50.9	43.5	40.4	36.3	33.7	31.0	31.5	29.0	27.9	26.4	28.1	36.3	47.5	54.8	62.3	54.1	93.9																				
25-May	70.0	72.3	75.0	78.9	80.2	77.6	70.8	64.2	54.1	38.4	30.6	26.9	25.8	25.1	25.3	24.2	25.3	25.4	28.6	31.2	36.4	45.7	50.4	55.4	47.4	80.2																				
26-May	60.3	65.5	69.8	78.5	78.5	72.7	64.6	57.9	51.1	44.3	38.4	35.1	37.2	36.7	35.9	32.5	32.1	31.3	29.7	32.2	38.2	41.8	43.0	47.1	48.1	78.5																				
27-May	46.7	47.1	48.5	52.1	57.9	51.9	47.8	42.9	40.0	36.1	30.8	31.2	30.2	28.0	27.8	27.6	32.4	50.9	54.5	59.4	54.4	51.1	47.1	46.9	43.5	59.4																				
28-May	43.3	51.8	68.1	77.4	82.8	79.2	77.4	71.3	68.4	60.1	50.2	48.0	43.3	35.2	32.3	29.2	28.7	27.3	26.5	32.8	40.0	46.2	46.4	59.6	51.1	82.8																				
29-May	57.5	64.3	65.8	73.9	83.4	84.2	84.4	83.3	77.1	67.3	67.8	69.1	68.9	71.0	66.6	63.3	58.9	57.5	54.7	57.2	62.1	66.8	69.4	73.1	68.7	84.4																				
30-May	78.1	82.8	85.0	86.0	90.0	89.2	82.2	76.7	76.9	81.4	82.0	81.4	78.9	77.8	76.4	71.3	81.6	74.7	75.1	68.8	65.5	65.3	57.8	56.7	76.7	90.0																				
31-May	61.8	61.6	59.1	74.0	83.1	79.1	73.5	65.5	55.9	53.6	53.9	53.3	58.0	59.2	54.5	54.1	54.1	57.0	62.5	66.0	64.4	67.9	67.8	66.6	62.8	83.1																				
																						68.2	71.4	74.2	77.7	79.5	77.6	74.7	69.5	64.1	58.9	54.5	51.0	49.1	48.0	46.8	44.8	45.0	46.1	46.9	49.2	53.1	57.0	60.0	64.0	Diurnal Average
																						96.1	96.4	97.1	98.4	98.8	97.6	97.0	96.9	96.7	95.7	96.8	96.1	93.8	96.1	96.0	95.2	95.6	96.4	95.6	96.0	96.1	96.7	97.0	96.1	Diurnal Maximum
DF - DAS Failure																																														





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

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	15	2.02	2.02
20 - 40	166	22.34	24.36
40 - 60	217	29.21	53.57
60 - 80	156	21.00	74.56
80 - 100	189	25.44	100.00

Total Number of Valid Hours: 743

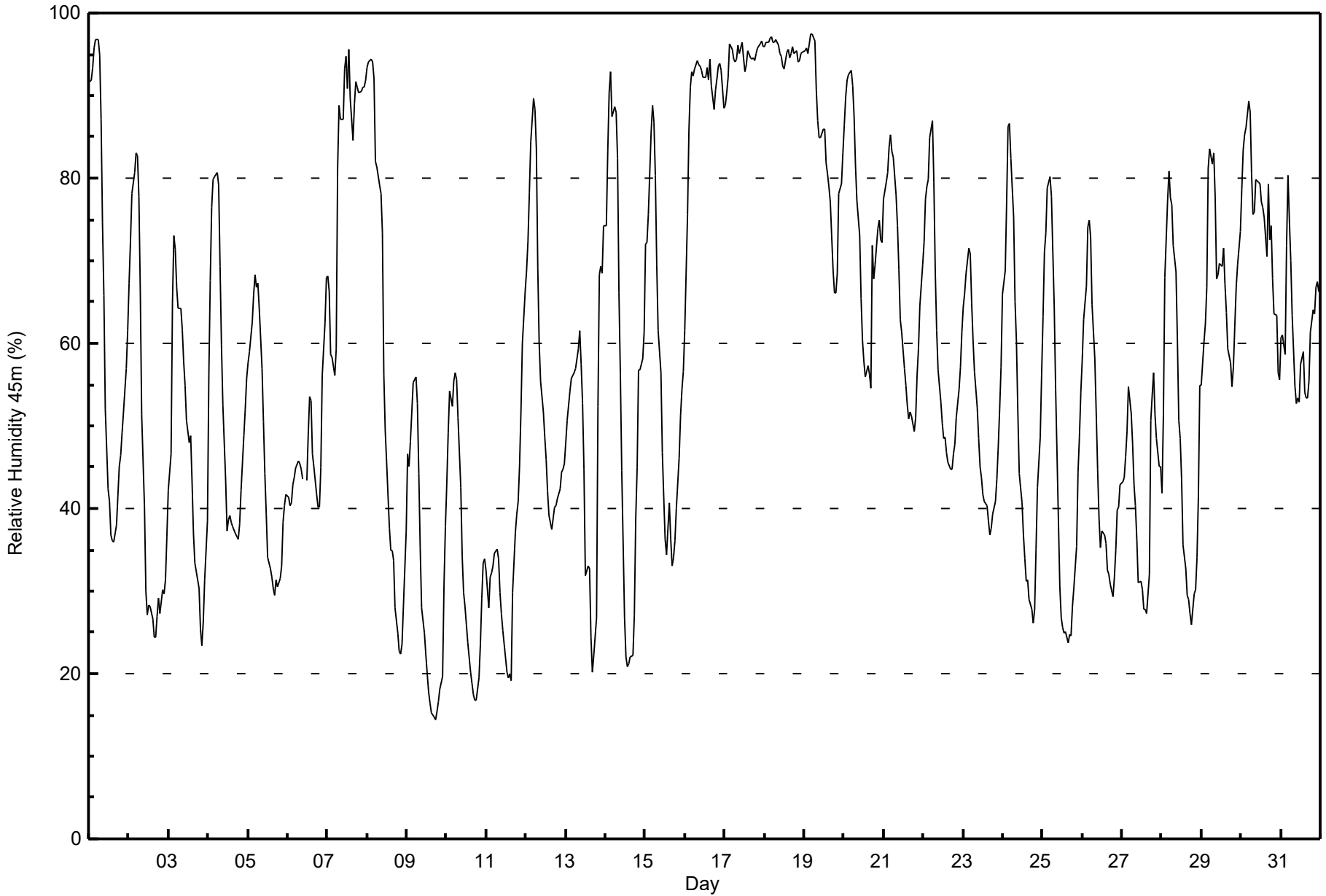
Total Number of Hours: 744



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

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

Maximum Value: 97.5 % on May 19 06:00      Maximum Daily Average: 95.5 % on May 18																						Hours in Service: 744 Hours of Data: 743																									
Minimum Value: 14.4 % on May 9 18:00      Minimum Daily Average: 31.1 % on May 9 Maximum Diurnal Average: 77.5 % at hour 5      Minimum Diurnal Average: 44.9 % at hour 16 Monthly Average: 58.59 %      Percentiles: P <sub>1</sub> = 17.1 P <sub>10</sub> = 28.5 Q <sub>1</sub> = 39.9 Median = 56.4 Q <sub>3</sub> = 78.2 P <sub>90</sub> = 92.9 P <sub>99</sub> = 96.6																						Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-May	91.7	91.9	93.5	95.7	96.9	96.8	94.9	87.1	74.7	65.7	52.0	42.4	40.8	36.7	36.2	36.0	38.0	41.6	45.2	46.4	49.2	51.7	56.9	61.5	63.5	96.9																					
2-May	67.4	72.3	78.1	80.7	83.1	82.7	77.8	66.4	51.4	40.1	30.0	27.0	28.3	28.2	26.6	24.5	24.5	27.0	29.1	27.4	30.2	29.7	31.4	36.5	45.9	83.1																					
3-May	42.2	46.6	65.0	73.0	71.3	66.9	64.2	64.2	61.7	57.8	54.9	50.7	48.0	48.9	43.3	36.9	33.3	32.3	30.3	25.5	23.4	26.3	31.3	38.5	47.4	73.0																					
4-May	56.3	67.7	76.5	79.8	80.1	80.7	79.1	69.3	59.8	52.5	43.3	37.3	38.6	39.2	38.3	37.8	37.0	36.6	36.3	38.1	42.2	48.8	52.0	55.7	53.5	80.7																					
5-May	57.5	59.0	62.6	65.9	68.2	66.8	67.3	64.2	57.0	50.6	44.2	39.4	34.1	32.7	31.7	30.3	29.6	31.3	30.6	31.4	33.1	38.3	40.4	41.7	46.2	68.2																					
6-May	41.4	40.3	40.7	42.9	43.8	44.9	45.8	45.4	44.8	43.6	DF	43.3	48.9	53.6	53.1	46.6	45.1	41.7	40.2	40.1	45.0	56.2	62.6	68.0	46.9	68.0																					
7-May	68.1	66.2	58.7	58.3	56.1	59.4	81.3	88.9	87.2	87.2	93.2	94.8	90.9	95.6	89.7	84.7	89.0	91.7	91.0	90.4	90.5	91.1	91.1	91.9	82.8	95.6																					
8-May	93.4	94.1	94.3	94.1	92.0	82.0	81.4	79.1	78.2	73.4	56.2	49.4	45.7	37.6	35.0	35.0	33.7	27.9	24.9	22.7	22.4	23.6	28.2	37.3	55.9	94.3																					
9-May	46.7	45.2	48.2	51.7	55.2	55.9	52.7	44.3	35.3	28.0	24.9	22.3	20.1	17.8	16.4	15.2	14.8	14.4	15.5	16.6	18.2	19.6	30.6	37.9	31.1	55.9																					
10-May	43.0	49.1	54.3	52.3	55.3	56.5	55.6	50.9	42.5	34.2	29.9	28.1	25.9	23.8	20.1	18.8	17.4	16.8	16.9	19.5	23.5	29.2	33.4	33.8	34.6	56.5																					
11-May	32.5	27.9	31.7	32.1	33.1	34.6	35.1	33.9	29.8	27.4	25.3	23.5	20.1	19.5	19.9	19.1	29.8	37.2	39.3	40.8	45.3	51.8	60.1	66.3	34.0	66.3																					
12-May	68.8	72.4	78.2	84.5	89.7	88.4	83.6	69.1	60.0	55.5	51.6	48.6	46.0	42.1	39.2	37.5	38.9	40.1	40.3	41.3	42.4	44.4	44.8	45.4	56.4	89.7																					
13-May	48.0	50.7	54.3	55.8	56.1	56.4	57.0	59.2	61.5	57.5	52.8	44.8	31.8	33.0	32.7	24.4	20.2	22.2	26.7	52.4	68.3	69.4	68.5	74.2	49.1	74.2																					
14-May	74.2	83.3	90.4	92.8	87.4	88.6	88.0	82.3	66.1	56.3	44.6	26.8	22.1	20.8	21.2	22.1	22.2	27.1	38.9	44.9	56.8	56.7	58.1	61.3	55.5	92.8																					
15-May	72.0	72.2	75.6	85.7	88.7	86.8	80.4	69.4	61.5	56.4	46.7	41.3	36.2	34.4	40.6	36.2	33.0	34.1	36.2	39.9	46.1	51.2	54.4	56.6	55.7	88.7																					
16-May	61.5	75.7	85.7	90.9	92.8	92.3	93.2	94.3	93.7	93.6	93.0	92.3	92.2	93.4	91.8	94.4	91.1	88.3	90.7	92.0	93.6	94.0	93.0	88.5	90.1	94.4																					
17-May	88.7	90.3	92.3	96.3	95.7	94.4	94.0	94.4	96.1	95.1	96.4	94.6	93.0	93.8	95.4	94.6	94.5	94.6	94.2	95.0	95.7	96.2	96.6	95.9	94.5	96.6																					
18-May	95.9	96.4	96.5	97.0	97.1	96.4	96.5	96.7	96.1	95.1	94.8	93.6	93.2	95.3	95.6	94.6	95.1	95.9	95.1	95.4	94.1	94.3	95.1	95.3	95.5	97.1																					
19-May	95.5	95.8	95.1	96.2	97.4	97.5	96.6	90.6	87.0	85.0	84.9	85.9	85.9	81.9	80.5	79.0	77.1	68.7	66.2	66.1	68.5	78.2	79.4	83.1	84.3	97.5																					
20-May	86.4	89.8	91.8	92.6	93.0	91.2	87.4	81.5	77.3	73.1	65.4	60.4	57.8	55.9	57.2	56.3	54.6	71.8	67.8	69.5	73.8	74.8	72.6	72.2	73.9	93.0																					
21-May	77.5	79.5	80.7	83.8	85.3	83.2	82.6	78.0	74.2	69.0	62.9	61.4	56.9	55.0	52.5	50.8	51.7	51.2	49.4	51.0	56.1	59.4	64.5	69.5	66.1	85.3																					
22-May	72.2	77.5	79.1	79.8	85.0	86.9	79.6	68.7	61.6	56.9	52.9	50.4	48.5	48.6	46.8	45.7	44.8	44.7	46.6	47.8	51.0	54.5	57.0	61.3	60.3	86.9																					
23-May	64.4	66.0	68.5	71.5	70.9	64.8	60.4	56.6	52.1	48.5	45.2	43.7	41.7	40.8	40.3	38.4	36.8	37.7	39.3	40.9	43.6	47.4	52.0	57.2	51.2	71.5																					
24-May	66.0	68.8	77.0	86.4	86.6	82.3	75.3	65.2	60.2	51.8	44.3	40.7	36.7	33.8	31.2	31.3	29.0	27.7	26.1	27.7	35.1	42.6	48.6	56.2	51.3	86.6																					
25-May	63.3	71.0	73.5	78.8	80.2	77.8	70.9	64.3	54.4	38.4	30.5	26.8	25.6	24.9	25.1	23.8	24.7	24.5	28.2	30.4	35.5	44.3	48.7	54.1	46.6	80.2																					
26-May	58.0	62.9	66.9	74.1	75.0	72.9	64.8	58.1	51.5	44.7	38.8	35.2	37.3	36.7	35.8	32.6	32.0	30.9	29.3	31.7	35.0	39.8	40.2	42.9	47.0	75.0																					
27-May	43.3	43.7	46.2	49.4	54.7	51.5	47.9	42.8	40.3	36.4	31.0	31.3	30.1	27.9	27.7	27.2	32.1	50.7	53.7	56.5	51.3	48.5	45.1	45.1	42.3	56.5																					
28-May	41.9	51.3	67.9	77.3	80.9	77.7	76.8	71.9	68.7	60.4	50.7	48.4	43.5	35.5	32.7	29.5	28.9	27.4	25.9	29.6	30.2	34.1	41.5	54.8	49.5	80.9																					
29-May	54.9	60.2	62.4	66.9	81.2	83.6	81.7	83.0	77.6	67.8	68.3	69.7	69.3	71.5	67.1	63.8	59.4	57.7	54.7	57.1	62.1	66.9	69.5	73.5	67.9	83.6																					
30-May	78.6	83.4	85.3	86.2	89.3	87.9	80.6	75.5	75.9	79.9	79.5	79.3	77.2	76.5	75.2	70.5	79.3	72.5	74.2	67.8	63.5	63.3	56.4	55.5	75.6	89.3																					
31-May	60.8	61.0	58.6	71.9	80.3	75.0	70.0	63.4	54.8	52.7	53.4	52.8	57.5	58.9	54.1	53.4	53.3	55.5	61.4	64.1	63.5	66.8	67.4	66.2	61.5	80.3																					
																						64.9	68.1	71.9	75.6	77.5	76.2	74.3	69.6	64.3	59.2	54.7	51.2	49.2	48.2	46.9	44.9	44.9	45.9	46.6	48.4	51.3	54.6	57.1	60.6	Diurnal Average	
																						95.9	96.4	96.5	97.0	97.4	97.5	96.6	96.7	96.1	95.1	96.4	94.8	93.2	95.6	95.6	94.6	95.1	95.9	95.1	95.4	95.7	96.2	96.6	95.9	Diurnal Maximum	
DF - DAS Failure																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	17	2.29	2.29
20 - 40	170	22.88	25.17
40 - 60	219	29.48	54.64
60 - 80	167	22.48	77.12
80 - 100	170	22.88	100.00

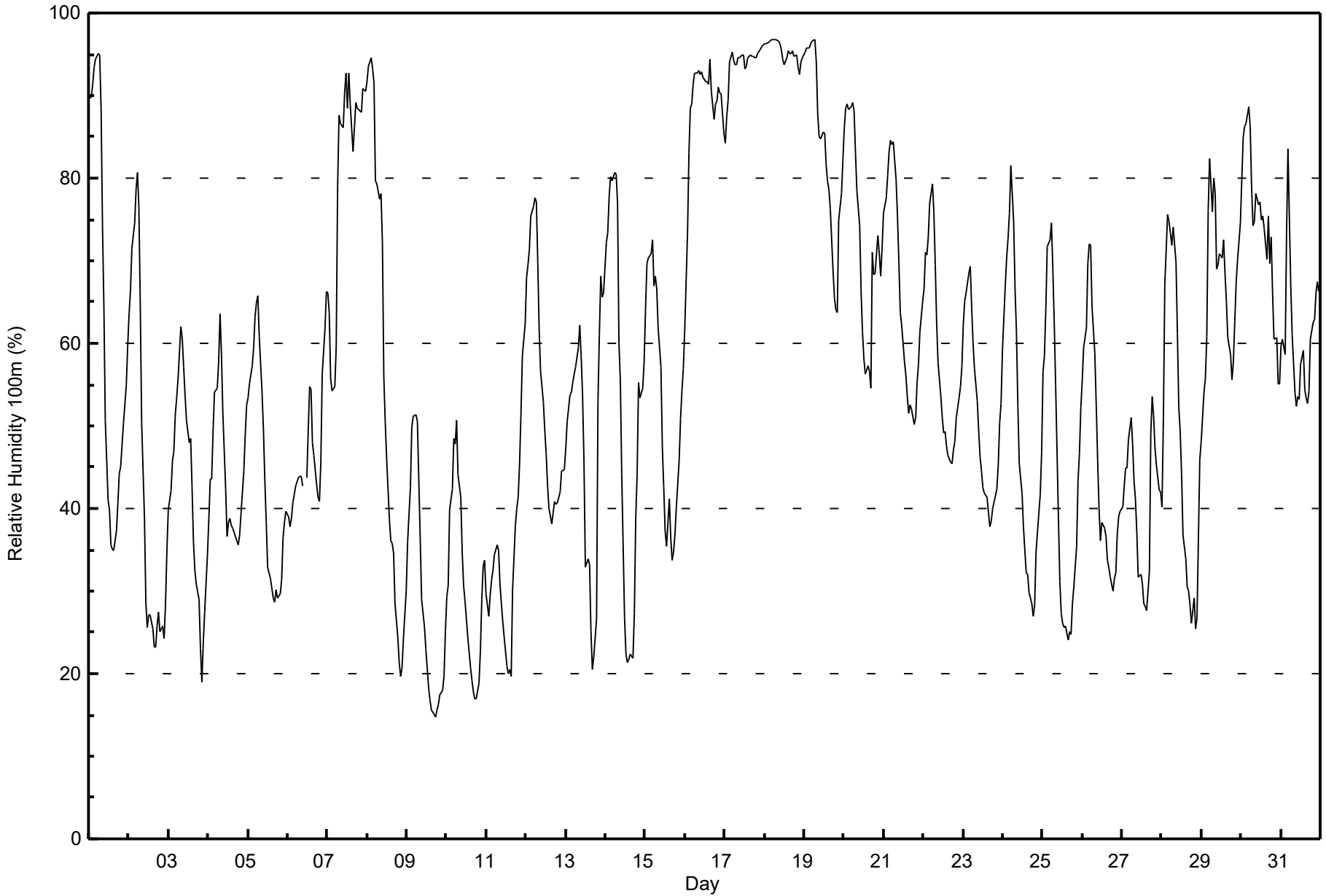
Total Number of Valid Hours: 743

Total Number of Hours: 744





Maximum Value: 96.8 % on May 18 06:00      Maximum Daily Average: 95.4 % on May 18																						Hours in Service: 744 Hours of Data: 743																											
Minimum Value: 14.7 % on May 9 18:00      Minimum Daily Average: 28.8 % on May 9 Maximum Diurnal Average: 72.2 % at hour 6      Minimum Diurnal Average: 44.8 % at hour 17 Monthly Average: 56.83 %      Percentiles: P <sub>1</sub> = 17.2 P <sub>10</sub> = 28.2 Q <sub>1</sub> = 38.8 Median = 54.6 Q <sub>3</sub> = 74.5 P <sub>90</sub> = 91.3 P <sub>99</sub> = 96.5																						Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	89.7	89.9	91.4	93.4	94.5	95.1	94.9	88.5	74.2	64.5	50.7	40.9	39.8	35.5	35.1	34.9	37.2	40.7	44.3	45.1	47.8	50.3	54.9	59.7	62.2	95.1																							
2-May	63.5	66.4	71.4	74.6	78.7	80.7	76.4	64.5	50.4	38.9	28.5	25.7	27.2	27.2	25.5	23.3	23.3	25.8	27.5	25.0	25.8	24.3	28.2	34.8	43.2	80.7																							
3-May	39.8	42.2	45.8	47.0	51.3	53.5	55.8	62.1	60.5	57.1	53.7	50.6	48.0	48.5	42.6	35.9	32.6	30.8	29.0	23.1	19.1	23.7	27.5	34.4	42.3	62.1																							
4-May	38.8	43.6	43.6	49.3	54.1	54.6	57.7	63.6	58.6	51.5	42.4	36.6	38.4	38.8	38.0	37.6	36.5	36.1	35.7	36.7	39.4	44.5	49.0	52.6	44.9	63.6																							
5-May	53.4	55.1	57.3	59.5	63.2	64.9	65.8	60.9	54.1	49.5	43.4	38.4	32.9	31.6	30.4	29.1	28.6	30.2	29.1	29.6	31.3	36.5	38.2	39.7	43.9	65.8																							
6-May	39.0	37.8	38.8	40.7	41.7	42.8	43.8	43.8	44.0	42.7	DF	43.8	49.5	54.8	54.4	48.0	46.5	42.9	41.3	40.8	45.7	56.2	61.8	66.3	46.4	66.3																							
7-May	66.1	63.8	55.8	54.2	54.7	59.7	79.0	87.6	86.6	86.2	90.3	92.7	88.4	92.7	89.0	83.2	86.2	89.2	88.5	88.4	88.0	90.8	90.7	90.6	80.9	92.7																							
8-May	91.7	93.6	94.6	93.3	91.5	79.6	79.2	77.4	78.1	72.2	55.9	50.5	46.2	38.7	36.1	35.8	34.6	28.5	24.4	21.3	19.6	20.6	24.2	30.0	54.9	94.6																							
9-May	35.9	39.4	42.5	49.8	51.1	51.4	50.6	43.3	36.4	29.0	25.7	23.0	20.7	18.4	16.8	15.6	15.2	14.7	15.5	16.2	17.5	18.0	19.6	25.1	28.8	51.4																							
10-May	29.3	30.7	39.8	42.4	48.6	47.8	50.7	44.0	41.4	34.7	30.7	28.8	26.6	24.5	20.7	19.2	17.8	17.0	16.9	18.9	22.7	29.0	33.1	33.8	31.2	50.7																							
11-May	29.7	26.9	29.6	31.3	32.5	34.3	35.6	34.9	30.9	28.4	26.3	24.4	20.8	20.1	20.5	19.6	30.1	38.0	40.1	41.4	45.4	51.6	58.4	62.3	33.9	62.3																							
12-May	68.0	69.4	71.4	75.5	76.7	77.6	77.2	69.9	61.5	56.5	52.9	49.5	46.7	42.7	39.9	38.1	39.4	40.8	40.5	40.6	42.0	44.6	44.5	44.7	54.6	77.6																							
13-May	47.3	50.5	53.8	54.0	55.3	56.2	57.2	59.5	62.2	58.4	53.8	45.7	32.8	33.9	33.2	25.1	20.6	22.1	26.6	52.9	61.0	68.2	65.6	66.0	48.4	68.2																							
14-May	72.2	73.4	77.7	80.2	79.7	80.6	80.4	77.0	59.9	55.5	44.1	26.9	22.3	21.4	21.7	22.4	21.9	27.3	38.9	44.3	55.3	53.4	54.6	57.9	52.0	80.6																							
15-May	64.2	69.7	70.3	70.8	72.6	67.0	68.1	66.6	61.9	57.2	47.5	42.5	37.2	35.4	41.2	36.5	33.7	34.8	36.8	40.2	45.7	50.9	54.3	57.0	52.6	72.6																							
16-May	61.8	73.3	83.0	88.6	88.9	91.3	92.7	92.7	93.0	92.5	92.9	92.2	91.7	91.6	91.3	94.4	90.6	87.1	88.9	89.3	91.0	90.4	90.2	85.5	88.5	94.4																							
17-May	84.2	87.5	89.5	94.1	95.3	94.3	93.8	93.7	94.6	94.5	94.9	95.0	93.2	93.5	94.7	94.9	94.7	94.8	94.6	94.6	95.2	95.6	96.0	96.2	93.7	96.2																							
18-May	96.2	96.3	96.4	96.6	96.7	96.8	96.8	96.7	96.6	96.3	95.7	94.4	93.7	94.5	95.5	95.1	95.2	95.5	94.8	94.9	93.4	92.5	94.0	94.6	95.4	96.8																							
19-May	95.3	95.7	95.7	95.8	96.3	96.7	96.7	94.1	87.8	85.2	84.8	85.7	85.5	81.8	79.6	78.6	76.2	68.7	65.4	64.0	63.7	74.9	78.2	82.3	83.7	96.7																							
20-May	86.1	88.4	88.9	88.4	88.7	89.2	88.2	83.0	78.5	74.3	66.3	61.4	58.2	56.4	57.4	56.6	54.6	71.1	68.3	68.5	73.0	70.9	68.2	71.5	73.2	89.2																							
21-May	75.8	77.6	80.3	83.2	84.6	84.0	84.3	79.8	75.4	69.9	63.7	62.3	57.7	56.0	53.5	51.6	52.6	52.0	50.1	51.0	55.3	57.5	61.3	65.0	66.0	84.6																							
22-May	66.7	71.0	70.7	72.9	76.9	79.3	76.0	69.4	62.4	57.7	53.6	51.0	49.2	49.4	47.6	46.4	45.5	45.4	47.1	48.2	51.0	53.4	54.7	57.2	58.4	79.3																							
23-May	62.2	65.0	66.1	68.4	69.2	64.4	59.9	56.9	53.0	49.5	46.2	44.6	42.6	41.8	41.3	39.5	37.7	38.6	40.0	41.5	42.3	45.3	50.3	52.7	50.8	69.2																							
24-May	59.2	67.0	70.3	72.8	75.8	81.5	74.7	66.6	61.3	52.5	45.5	41.8	37.7	34.9	32.1	32.0	29.9	28.5	26.9	28.3	34.8	37.1	41.7	46.8	49.2	81.5																							
25-May	56.6	58.5	64.3	71.8	72.6	74.5	68.9	62.5	54.9	38.9	31.1	27.4	26.1	25.6	25.7	24.1	25.0	24.7	28.5	30.5	35.4	43.4	46.7	52.2	44.6	74.5																							
26-May	55.5	59.4	61.9	69.6	72.1	71.9	64.5	58.9	52.5	45.9	40.0	36.1	38.3	37.7	36.6	33.7	32.9	31.8	30.0	31.5	32.3	36.7	39.0	39.7	46.2	72.1																							
27-May	40.2	42.7	45.0	44.9	48.3	51.0	47.8	43.3	41.1	37.2	31.6	32.1	30.8	28.5	28.2	27.6	32.3	49.2	53.6	51.1	47.2	45.2	42.2	42.0	41.0	53.6																							
28-May	40.2	51.0	67.1	75.6	74.7	73.4	71.9	74.1	69.8	61.1	52.2	49.3	44.0	36.8	33.9	30.5	29.9	28.2	26.2	29.2	25.4	26.8	36.2	46.0	48.1	75.6																							
29-May	48.1	54.0	55.7	60.9	76.0	82.4	76.0	80.1	78.2	69.1	69.4	70.8	70.3	72.6	68.4	65.1	60.7	58.7	55.5	57.9	62.7	67.4	70.2	74.5	66.9	82.4																							
30-May	79.9	84.9	86.4	86.7	88.6	86.3	79.0	74.2	74.8	78.2	76.7	77.2	74.9	75.5	73.9	70.1	75.4	69.7	72.8	66.1	60.6	60.7	55.0	55.0	74.3	88.6																							
31-May	59.6	60.5	58.6	73.3	83.5	75.0	66.9	61.0	54.1	52.3	53.6	53.2	57.5	59.2	54.5	53.5	52.7	54.3	60.6	62.6	62.8	66.2	67.4	66.2	61.2	83.5																							
																								61.2	64.1	66.6	69.6	72.1	72.2	71.3	68.7	64.1	59.3	54.8	51.4	49.3	48.4	47.1	45.1	44.8	45.7	46.4	47.5	49.4	52.5	54.7	57.5	Diurnal Average	
																								96.2	96.3	96.4	96.6	96.7	96.8	96.8	96.7	96.6	96.3	95.7	95.0	93.7	94.5	95.5	95.1	95.2	95.5	94.8	94.9	95.2	95.6	96.0	96.2	Diurnal Maximum	
DF - DAS Failure																																																	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	18	2.42	2.42
20 - 40	186	25.03	27.46
40 - 60	227	30.55	58.01
60 - 80	171	23.01	81.02
80 - 100	141	18.98	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

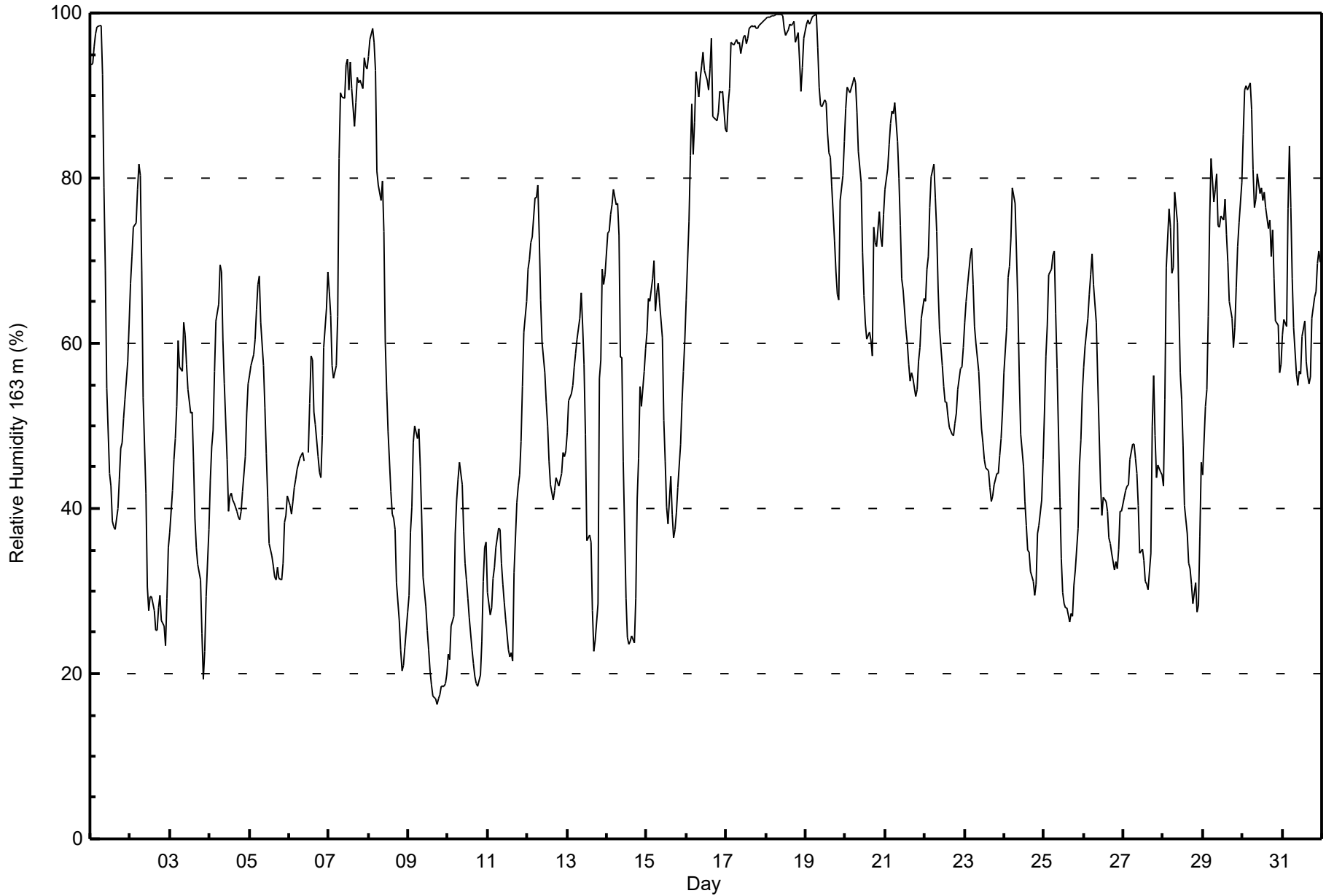
**Relative Humidity 163 m (RH163m) - %**  
**Lower Camp Met Tower - May 2024**

Maximum Value: 99.9 % on May 18 09:00		Maximum Daily Average: 98.1 % on May 18		Hours in Service:	744																						
Minimum Value: 16.3 % on May 9 18:00		Minimum Daily Average: 29.0 % on May 9		Hours of Data:	743																						
Maximum Diurnal Average: 73.0 % at hour 7		Minimum Diurnal Average: 47.4 % at hour 17		Hours of Missing Data:	1																						
Monthly Average: 58.78 %		Percentiles: P <sub>1</sub> = 18.6 P <sub>10</sub> = 29.4 Q <sub>1</sub> = 40.9 Median = 57.1 Q <sub>3</sub> = 76.3 P <sub>90</sub> = 93.0 P <sub>99</sub> = 99.7		Hours of Calibration:	0																						
				Percent Operational Time:	99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	93.7	93.9	96.0	97.5	98.2	98.5	98.5	92.5	78.8	68.8	54.6	44.3	42.8	38.4	37.8	37.5	40.1	43.6	47.3	48.1	50.8	53.2	57.9	62.4	65.6	98.5	
2-May	67.2	70.5	74.1	74.5	78.6	81.7	80.3	68.8	53.3	41.9	30.6	27.6	29.4	29.3	27.6	25.2	25.2	27.9	29.5	26.5	25.7	23.4	29.2	35.3	45.1	81.7	
3-May	37.2	42.2	46.0	48.4	52.3	60.4	57.1	56.7	62.6	61.0	57.5	54.4	51.5	51.8	45.7	38.8	35.2	33.3	31.4	25.0	19.3	22.7	29.4	37.4	44.0	62.6	
4-May	43.3	47.5	49.5	56.7	62.7	64.7	69.5	68.6	60.3	55.0	46.0	39.6	41.6	41.9	41.0	40.6	39.7	39.0	38.6	39.7	42.0	46.2	51.5	55.0	49.2	69.5	
5-May	56.2	57.3	58.6	60.5	64.1	67.1	68.2	62.6	57.2	52.3	46.5	41.4	35.7	34.2	33.0	31.7	31.3	32.8	31.6	31.4	33.3	38.2	39.2	41.6	46.1	68.2	
6-May	40.3	39.4	40.9	42.6	43.6	44.8	46.1	46.4	46.8	45.7	DF	46.9	52.7	58.4	58.1	51.6	50.1	46.2	44.5	43.7	48.7	59.4	64.2	68.6	49.1	68.6	
7-May	66.3	63.3	57.2	55.7	57.3	63.3	82.3	90.3	89.8	89.7	93.7	94.4	90.7	94.0	90.8	86.2	89.1	92.2	91.5	91.9	90.9	94.6	93.5	93.3	83.4	94.6	
8-May	94.7	96.8	98.1	96.4	93.1	80.9	79.2	77.3	79.7	73.6	60.2	54.3	49.3	42.1	39.3	38.8	37.5	31.1	26.4	22.8	20.3	21.0	23.3	27.4	56.8	98.1	
9-May	29.5	37.1	40.2	48.0	50.0	48.5	49.6	45.1	39.1	31.6	28.2	25.3	22.9	20.4	18.7	17.3	16.9	16.3	17.0	17.5	18.6	18.4	18.8	20.0	29.0	50.0	
10-May	22.4	21.7	25.8	27.0	36.9	41.1	43.6	45.6	42.9	37.3	33.3	31.3	29.1	26.7	22.9	21.2	19.7	18.8	18.4	19.9	24.0	31.1	35.2	35.9	29.7	45.6	
11-May	29.9	27.1	28.0	31.6	32.9	35.3	37.7	37.5	33.3	30.8	28.7	26.7	22.9	22.0	22.6	21.6	32.2	40.7	42.8	44.1	48.1	54.8	61.4	65.1	35.7	65.1	
12-May	69.0	70.2	72.1	73.0	77.6	77.6	79.2	73.0	65.3	60.2	56.4	53.0	50.0	45.8	42.8	41.1	42.3	43.8	43.2	42.8	44.2	46.8	46.3	46.9	56.8	79.2	
13-May	49.1	53.0	54.0	54.9	57.1	58.8	60.5	63.0	66.0	62.2	57.5	49.0	36.0	36.8	35.9	27.7	22.8	24.1	28.5	55.7	58.0	69.1	67.2	68.3	50.6	69.1	
14-May	73.4	73.5	75.5	76.8	78.7	76.7	77.0	73.0	58.3	58.4	45.8	29.2	24.5	23.6	23.9	24.5	23.8	29.2	41.1	46.1	54.8	52.4	56.6	59.4	52.3	78.7	
15-May	61.3	65.4	65.2	67.8	70.0	63.9	66.1	67.3	65.0	60.6	50.7	45.7	40.2	38.1	43.9	39.4	36.4	37.5	39.5	42.6	47.7	53.0	56.6	60.4	53.5	70.0	
16-May	65.3	74.7	82.7	88.9	83.0	86.7	92.8	89.8	92.0	93.5	95.2	93.1	91.9	90.7	93.3	97.0	87.5	87.1	86.9	88.0	90.5	90.3	90.5	86.0	88.2	97.0	
17-May	85.5	88.9	90.8	96.4	96.0	96.5	96.8	96.4	96.4	95.0	97.1	97.3	96.3	96.9	98.2	98.4	98.4	98.4	98.2	98.2	98.5	98.8	99.0	99.2	96.3	99.2	
18-May	99.3	99.4	99.5	99.6	99.7	99.7	99.8	99.8	99.9	99.9	99.6	98.1	97.2	98.0	98.7	98.4	98.6	98.9	96.4	97.6	94.2	90.5	93.4	96.9	98.1	99.9	
19-May	98.7	99.2	98.6	98.9	99.5	99.7	99.8	95.8	91.1	88.9	88.7	89.5	89.1	85.4	83.1	82.5	79.0	72.3	68.7	65.9	65.2	77.3	80.3	84.4	86.7	99.8	
20-May	88.5	91.0	90.7	90.4	91.4	92.1	91.5	88.0	83.3	79.6	71.0	65.8	62.4	60.5	61.4	60.3	58.5	74.1	72.2	71.8	76.0	72.8	71.7	75.5	76.7	92.1	
21-May	78.6	81.2	84.0	86.7	88.1	87.7	89.2	84.5	80.0	74.2	67.8	66.5	61.7	60.0	57.4	55.4	56.4	55.8	53.6	54.4	57.8	59.6	63.0	65.5	69.5	89.2	
22-May	65.0	68.9	70.5	76.4	80.2	81.7	77.6	73.6	66.6	61.7	57.3	54.7	52.8	53.0	51.1	49.8	49.0	48.8	50.4	51.5	54.3	57.0	57.0	59.5	61.2	81.7	
23-May	62.6	65.2	67.0	70.6	71.5	67.2	62.1	60.1	56.6	53.0	49.7	47.9	45.9	44.9	44.6	42.6	40.8	41.5	42.9	44.3	44.3	46.4	48.5	51.8	53.0	71.5	
24-May	56.5	61.9	68.0	69.2	72.7	78.8	76.9	70.9	64.6	55.8	49.0	45.1	40.8	37.9	35.0	34.7	32.5	31.1	29.4	30.8	36.9	37.9	41.0	45.9	50.1	78.8	
25-May	51.7	58.5	62.3	68.2	69.1	70.6	71.2	63.5	56.9	41.4	33.9	29.8	28.5	28.0	28.0	26.3	27.2	26.9	30.6	32.5	37.6	45.2	48.2	53.9	45.4	71.2	
26-May	57.1	59.7	63.0	66.0	68.3	70.9	67.2	62.5	55.9	49.4	43.2	39.1	41.4	40.8	39.6	36.5	35.8	34.6	32.6	33.6	32.8	35.1	39.7	39.6	47.7	70.9	
27-May	41.4	42.3	42.8	42.9	46.0	47.8	47.8	46.1	44.2	40.3	34.5	35.1	33.7	31.2	30.9	30.2	34.5	50.0	56.1	48.8	43.8	45.2	44.4	44.1	41.8	56.1	
28-May	42.6	53.2	69.2	76.3	74.1	68.5	69.2	78.3	74.5	64.9	56.5	53.2	47.7	40.3	37.0	33.4	32.7	30.9	28.4	31.0	27.4	28.2	36.6	45.6	50.0	78.3	
29-May	44.0	52.4	54.4	63.2	74.9	82.3	77.1	78.6	80.4	74.3	74.1	75.4	75.0	77.4	73.2	69.9	65.1	63.0	59.5	61.9	66.8	71.7	74.5	79.6	69.5	82.3	
30-May	85.2	90.6	91.1	90.7	91.5	88.3	80.9	76.5	77.5	80.5	78.1	78.9	77.3	78.3	76.4	73.8	75.0	70.5	73.7	67.8	62.7	62.3	56.4	57.5	76.7	91.5	
31-May	61.1	62.9	62.0	76.3	83.8	76.4	67.8	61.8	56.2	54.9	56.6	56.4	60.9	62.6	57.8	56.1	55.2	55.9	63.0	65.6	66.3	69.6	71.3	69.9	63.8	83.8	
		61.8	64.8	67.0	70.1	72.3	72.8	73.0	70.8	66.9	62.5	58.1	54.5	52.3	51.3	50.0	48.0	47.4	48.3	48.8	49.7	51.0	54.0	56.3	59.1	Diurnal Average	
		99.3	99.4	99.5	99.6	99.7	99.7	99.8	99.8	99.9	99.9	99.6	98.1	97.2	98.0	98.7	98.4	98.6	98.9	98.2	98.2	98.5	98.8	99.0	99.2	Diurnal Maximum	
DF - DAS Failure																											



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

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





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

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	14	1.88	1.88
20 - 40	161	21.67	23.55
40 - 60	225	30.28	53.84
60 - 80	191	25.71	79.54
80 - 100	152	20.46	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Speed: 31 km/h on May 29 15:00	Maximum Daily Speed Average: 15.3 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 15 03:00	Minimum Daily Speed Average: 2.0 km/h on May 28	Hours of Data: 743
Maximum Diurnal Speed Average: 2.3 km/h at hour 15	Minimum Diurnal Speed Average: 0.5 km/h at hour 23	Hours of Missing Data: 1
Monthly Average Velocity: 1.1 km/h 346.1 deg	Percentiles: $P_1 = 1$ $P_{10} = 3$ $Q_1 = 5$ Median = 9 $Q_3 = 13$ $P_{90} = 18$ $P_{99} = 26$	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-May	NNW8	N8	N8	NNW5	NNW7	NNW8	NNW8	N10	N12	N11	N16	N18	N18	N19	N20	N20	NNE18	NNE14	NE12	NNE11	N15	NNE13	NNW8	NNW8	N11.7	N20	
2-May	N5	NNW5	NNW7	N5	NW3	NNW4	N5	NNW6	NNW9	N13	NNE14	NNE14	N18	NNE17	NNE19	N19	N19	N20	N19	N18	N12	N10	NNW7	NNW2	N11.0	N20	
3-May	N4	NNW2	NNW3	NNW2	WNW1	NW3	NNW4	NNW3	NNW5	NNW6	N3	NW4	WNW7	NW10	NNW9	NNW7	N9	N11	N14	N11	N8	NNW5	NW2	NNW1	NNW5.3	N14	
4-May	NNW3	NW2	WNW3	WNW1	NNW1	NW3	NW2	NW3	NNW5	NNW9	NNW10	NW10	NW8	N7	NNW8	NNW8	N7	N4	N4	N3	E1	SE11	SE13	NNW3.2	SE13		
5-May	SE14	SE13	SSE11	E2	E1	ESE4	ESE5	SE6	SSE9	SE8	SE10	SE16	SE17	SE19	SE18	SSE17	S15	SSE18	SSE14	SSE12	ESE11	SE12	ESE9	SE14	SE11.0	SE19	
6-May	SE17	SE14	SE17	SE15	SE17	SE18	SE19	SE18	ESE15	ESE13	DF	ESE17	SE17	E8	NNE7	E12	E14	E10	ENE7	ENE7	SSE22	S23	S13	WNW2	SE12.1	SSE23	
7-May	NNW5	NNW5	N6	NNW5	E5	ESE10	E6	E6	ESE6	ENE4	N4	N6	N3	N3	ESE7	ESE9	E5	E4	E5	ESE8	SE10	SSE12	SSE16	SE14	ESE4.0	SSE16	
8-May	SE9	SE7	SE8	SE9	SW3	WNW11	WNW13	NW10	NW4	NNW3	NNE3	SE5	SE9	SSE12	S17	SSW17	SSW10	SSW18	SW18	SW15	SW12	SW11	WSW12	WSW9	SSW6.0	SW18	
9-May	WSW8	WSW14	WSW16	WNW6	WSW5	WSW8	WSW9	W7	WNW10	WNW19	WNW20	W26	WNW23	WNW23	WNW25	NW23	NW19	NW18	NW11	NW5	ESE0	SSE2	SSE3	SE3	WNW11.2	W26	
10-May	SE6	SE6	ESE8	SE11	SE10	SE9	SE10	SE14	SE13	SW10	WSW19	WSW22	WSW24	WSW19	W18	W22	W20	W20	WNW18	WNW7	NNW9	N26	N19	NW4	WSW5.9	N26	
11-May	WNW9	WNW15	WNW9	NW8	NW11	WNW18	WNW19	NW22	NW24	NW23	NW25	NW26	NW27	NW25	NNW24	NNW21	N21	NNE21	NNE20	NNE15	N8	NNE8	NE6	NE3	NNW14.8	NW27	
12-May	NE2	NNE3	NNW4	NNW4	NNW3	NNW1	NNW2	ENE3	SE5	SE8	SE7	SE12	SE13	SE14	ESE11	ESE12	ESE11	ESE11	ESE8	SE11	SE10	ESE10	ESE10	ESE9	ESE6.4	SE14	
13-May	ESE7	SE7	SE9	SE12	SE12	SE12	SE12	SE13	SE13	SE17	SE20	SSE14	SSW14	WSW10	W6	WSW13	WSW20	WSW17	W9	NNW15	N11	NW4	NNW2	SE3	S5.0	WSW20	
14-May	S1	ESE0	NNW1	S1	SE2	ESE4	SE6	SE6	SE12	SE9	SE9	WSW11	SW22	WSW21	WSW21	WSW22	WSW20	WNW16	NNW10	N13	N10	NW1	SE1	WSW3	WSW4.2	SW22	
15-May	NNW3	NNE1	NE0	N2	NNW4	NNW3	NW4	NNW3	NNW7	NNW8	N8	N9	N8	N11	NNW16	N6	N9	NNE10	NNE12	NNE11	NNE8	NNE8	NNE6	ENE4	N6.4	NNW16	
16-May	NE5	N7	NNW7	NNW6	NNW10	NNW6	N6	N9	NE4	NNE8	NNE9	NNE9	NNE7	NNW7	NNW14	NNW12	N9	N11	N10	N10	N10	N10	N9	NNE8	N8.2	NNW14	
17-May	N10	NNE10	N11	NNW11	N9	NNW9	NNW9	NNW9	NNW10	NNW11	NNW8	NNW8	N10	N12	N11	N12	N14	N15	NNW12	NNW12	NNW11	NNW10	NNW8	NNW8	NNW11	NNW10.3	N15
18-May	NNW11	N10	NNW9	NNW8	NNW8	NNW9	NW8	NW9	NNW9	NNW9	NNW11	NNW12	NNW14	NNW13	NNW14	NNW13	NNW10	NNW11	NNW8	N6	NNE5	N5	NNW5	NNW4	NNW9.0	NNW14	
19-May	NNW4	NNW3	NNW5	NNW5	NNW4	NNW3	NNW4	NE5	NE6	NE7	NNE7	NNE7	NNE8	NE7	NE6	NNE6	NNE8	NNE8	NNE7	N7	N4	NNW9	NNW7	NNW6	N5.3	NNW9	
20-May	NNW5	NNW4	NNW3	N3	NNE3	N3	NNW4	NNW6	NNW8	NNW7	NNW10	NNW10	N11	N10	N10	NNW7	ENE2	SE13	S9	SSW4	SW2	NNE1	ESE5	ESE8	N3.1	SE13	
21-May	ESE4	ESE3	ESE7	ESE7	E5	ESE7	E6	ESE7	SE8	ESE9	SE13	ESE11	SE10	E12	ESE11	E8	ENE9	E8	ENE6	E5	ENE5	ENE3	NNE4	NNE3	ESE6.4	SE13	
22-May	NE3	NNE4	NNE4	NNW4	NNW5	NNW5	N6	NNE5	NE7	NE8	NE8	NE9	NE10	NE11	NE9	NE8	ENE7	E6	ESE8	ESE7	ESE7	ESE6	E3	ENE2	NE5.1	NE11	
23-May	ENE2	ENE3	ENE2	ESE2	ESE3	ESE8	E9	E6	ESE7	ESE11	ESE9	SSE13	SE12	SE14	SSE17	SSE13	S17	SSE16	SSE15	S13	SSE12	SSE13	SE7	SE7	SE8.5	S17	
24-May	ESE3	ENE2	N2	N1	N1	E1	SE3	SE5	SE8	ESE9	ESE9	SE9	SE9	SSE13	SE10	SE13	SSE11	SSW15	S13	SSW12	SW11	SW4	SE3	ESE3	SSE5.5	SSW15	
25-May	SE3	SE6	ESE4	ENE3	E5	E4	ESE6	SE13	SE9	SSE12	SE16	SE18	SE16	SE17	SE20	SE16	SE13	SE11	ESE12	ESE12	SE14	SE9	SE8	SE9	SE10.3	SSE20	
26-May	SE7	SE5	SE4	NNE2	E2	NNE1	SE7	SE9	SE9	SE13	ESE13	SE13	S16	S14	SE9	SSE11	S11	SSE10	SE7	SSE6	ESE4	SE6	SE6	SE5	SE7.3	S16	
27-May	ESE7	ESE9	ESE9	SE6	ENE1	ESE1	SE3	SE8	SE9	SE10	SE9	S15	SSE16	SSE17	SE14	SE13	SSW18	W14	ESE1	ESE4	SE6	SE7	SE11	SE13	SE7.7	SSW18	
28-May	SE16	WSW11	NW6	NNW6	NW1	ESE3	ENE1	NNE1	SSE3	SW4	WSW4	ENE3	NNE2	WSW6	W10	W10	W6	WNW7	W0	NNW3	NNW4	NNE2	NW8	NE5	W2.0	SE16	
29-May	NNE8	NW6	NW6	NNW4	N4	E1	N6	NNW10	NNW8	NNW7	WSW13	WSW13	WSW15	SW28	SW31	SW28	SW27	SW23	SW25	SW22	SW22	SW17	SW20	SSW19	WSW11.7	SW31	
30-May	S17	S13	WNW5	WNW11	WNW11	WNW11	WNW13	WNW12	NW13	WNW13	NW13	WNW11	NW9	NW11	NW10	WNW11	W13	NW12	NW8	NW10	WNW16	WNW14			WNW9.3	S17	
31-May	WNW14	WNW17	NW19	NW23	NW19	NW16	NW16	NW13	WNW18	NW16	NW20	WNW18	NW19	NW20	NW15	NNW9	NNW9	NNW11	NNW16	NW14	NW14	NNW12	NW14	NW14	NW15.3	NW23	

E1.3 N0.6 N1.4 N1.8 N1.6 N1.1 N1.3 NNE1.4 NNE1.5 NNE1.7 N1.9 NNW1.1 NNW1.3 NNW2.0 NNW2.3 NNW2.0 NNW1.7 NNW1.9 NNW2.1 N2.2 NNE1.2 NNE0.8 NNE0.5 ESE1.2	Diurnal Average
SE17 WNW17 NW19 NW23 NW19 SE18 SE19 NW22 NW24 NW23 NW25 NW26 NW27 SW28 SW31 SW28 SW27 SW23 SW25 SW22 SW22 N26 SW20 SSW19	Diurnal Maximum

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



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

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

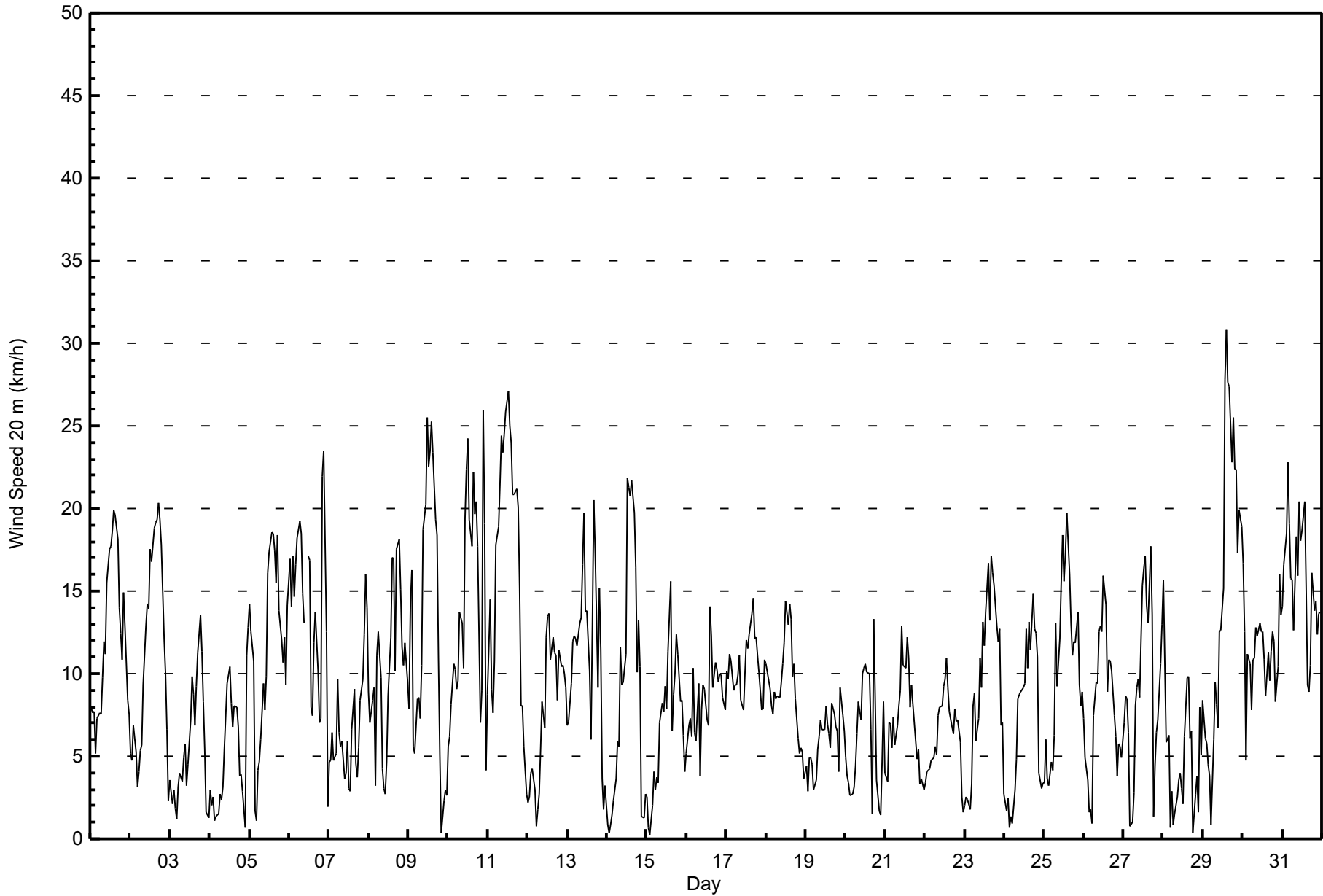
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 12 km/h on May 10 22:00														Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9											
Minimum Value: 1 km/h on May 24 04:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 9																									
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-May	4	3	3	2	3	3	3	3	4	4	5	6	6	6	8	7	8	6	5	4	5	5	3	3	8
2-May	1	2	2	2	1	1	2	2	3	5	5	6	7	7	6	7	7	7	6	5	3	2	3	1	7
3-May	1	1	1	1	1	1	2	1	2	3	2	3	4	5	4	4	4	4	5	4	3	2	1	1	5
4-May	2	1	1	1	1	1	1	1	2	3	5	4	4	4	5	4	3	4	2	2	1	1	4	4	5
5-May	4	4	2	3	2	3	2	3	2	2	3	6	6	7	6	5	5	6	4	3	3	4	3	5	7
6-May	5	5	5	5	5	6	5	5	5	5	DF	6	6	4	3	5	6	4	4	3	9	5	4	2	9
7-May	2	2	2	2	3	4	3	3	3	2	1	2	1	1	4	3	2	1	2	4	3	2	5	3	5
8-May	3	3	2	3	2	6	4	4	2	2	2	2	4	4	5	4	6	5	4	3	2	2	2	5	6
9-May	4	5	5	4	3	3	3	3	5	6	8	9	8	9	9	8	7	6	5	2	1	1	1	1	9
10-May	1	1	3	3	4	4	4	3	4	5	5	6	6	6	7	8	7	8	7	3	5	12	10	2	12
11-May	5	5	4	3	5	6	7	7	8	9	9	9	10	9	9	8	7	8	7	7	3	3	2	1	10
12-May	2	1	1	1	1	1	1	2	3	3	3	4	3	4	4	4	4	4	4	4	3	3	3	3	4
13-May	3	3	2	3	4	4	5	6	5	6	6	5	5	5	3	6	7	6	5	7	8	2	1	1	8
14-May	1	1	1	1	1	2	3	2	3	3	3	7	6	7	6	7	6	7	6	7	5	2	1	2	7
15-May	2	1	1	1	2	1	2	1	4	4	3	4	4	4	6	4	5	5	5	5	3	3	3	2	6
16-May	3	3	3	3	3	3	3	3	4	4	3	4	2	3	4	4	3	3	3	3	3	3	3	3	4
17-May	3	3	3	4	3	3	4	3	3	3	3	3	4	4	4	5	5	4	4	4	4	3	3	5	5
18-May	4	4	3	3	3	3	3	3	4	4	4	5	5	5	5	5	3	4	3	3	2	2	2	2	5
19-May	2	2	2	2	2	1	2	3	3	4	3	3	5	4	3	3	4	4	3	2	1	3	3	3	5
20-May	2	2	1	1	1	1	3	2	3	3	4	4	4	3	4	3	4	4	3	2	1	1	4	3	4
21-May	2	2	3	3	3	3	3	3	2	4	5	4	5	5	4	4	4	4	3	3	2	2	1	2	5
22-May	2	2	2	3	3	2	2	3	4	4	4	5	5	5	4	4	4	3	3	3	3	2	2	1	5
23-May	1	1	1	1	2	3	4	2	4	4	4	5	4	5	5	5	4	4	3	3	6	3	2	2	6
24-May	2	1	1	1	1	1	2	3	3	4	4	4	4	5	5	4	4	3	2	2	2	1	2	5	
25-May	2	3	2	2	2	2	2	3	3	4	5	6	6	6	6	4	5	4	4	4	5	3	3	2	6
26-May	2	2	2	1	2	2	4	3	3	5	5	5	5	5	4	5	3	3	2	2	2	2	3	2	5
27-May	2	2	3	2	1	1	3	2	3	4	4	5	5	6	5	4	8	7	2	1	2	2	3	4	8
28-May	5	5	3	2	2	2	2	1	2	3	3	2	2	4	5	4	3	3	1	2	2	2	5	3	5
29-May	4	2	2	2	2	2	3	3	3	3	4	4	6	7	6	6	6	5	6	5	6	4	4	4	7
30-May	3	5	4	4	4	3	4	4	5	4	5	5	6	4	4	6	5	4	5	5	2	4	6	5	6
31-May	5	5	8	8	7	6	6	4	7	6	7	7	7	8	7	3	3	5	7	6	5	5	6	5	8
														Diurnal Maximum											
DF - DAS Failure																									





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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	190	25.57	25.57
6 - 11	313	42.13	67.70
12 - 19	191	25.71	93.41
20 - 28	48	6.46	99.87
29 - 38	1	0.13	100.00
> 38	0	0.00	100.00

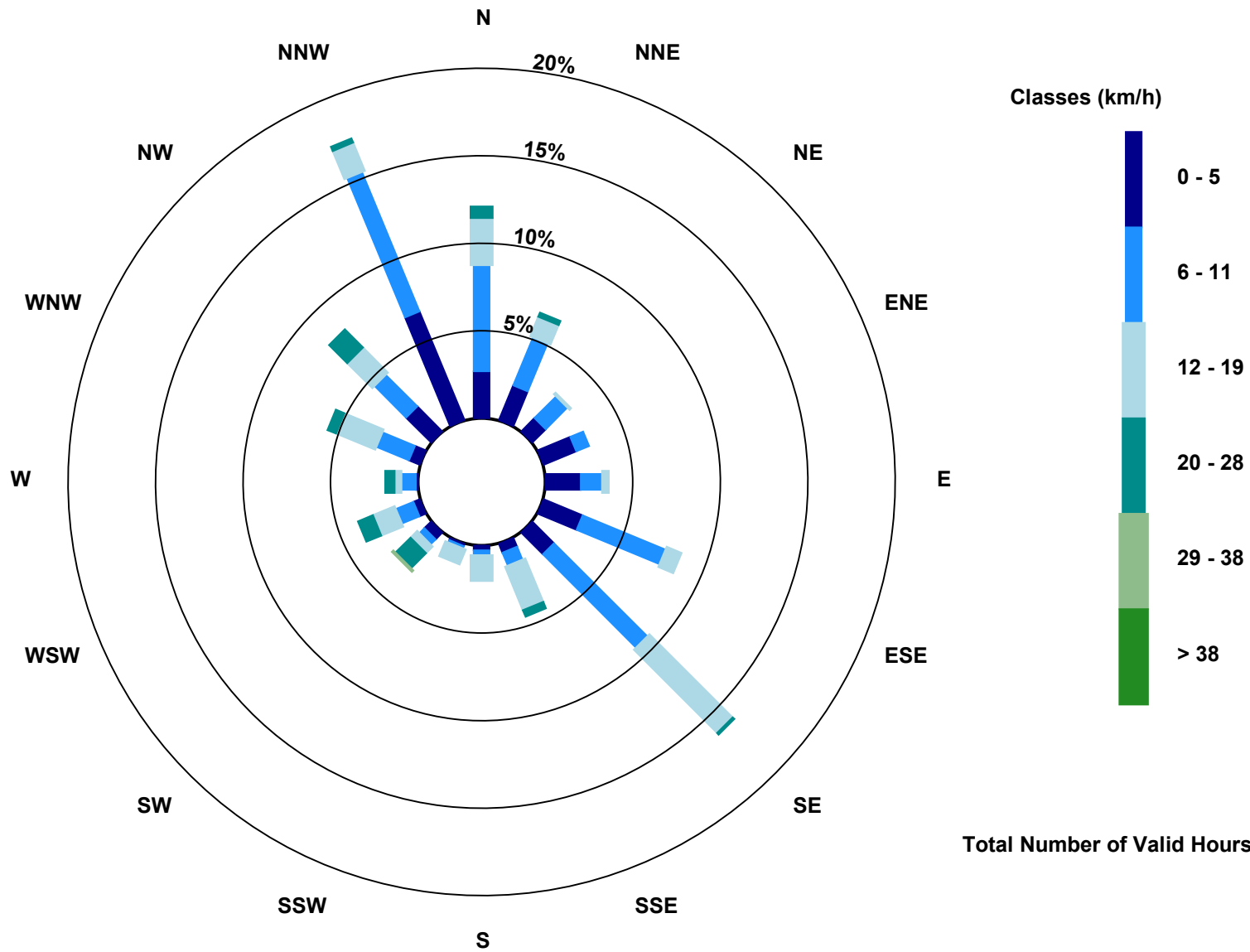
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

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

Maximum Speed: 41 km/h on May 10 22:00	Maximum Daily Speed Average: 22.7 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 24 04:00	Minimum Daily Speed Average: 2.5 km/h on May 28	Hours of Data: 614
Maximum Diurnal Speed Average: 3.6 km/h at hour 15	Minimum Diurnal Speed Average: 1.1 km/h at hour 2	Hours of Missing Data: 130
Monthly Average Velocity: 1.8 km/h 347.6 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 9 Median = 13 Q <sub>3</sub> = 18 P <sub>90</sub> = 24 P <sub>99</sub> = 34	Percent Operational Time: 82.5

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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
2-May	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-May	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-May	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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	ESE22	DF	ESE26	SE25	E12	NNE11	E18	E20	E15	ENE11	ENE12	SSE25	SSE27	S15	WSW3	---	SSE27
7-May	NNW7	NNW7	NE5	ENE4	E10	ESE15	E12	E11	ESE9	E6	N5	N8	NE4	N3	ESE11	ESE14	E8	E7	E11	ESE14	ESE16	SE15	SSE18	SE17	ESE7.3	SSE18
8-May	SE12	SE11	SE12	SE12	SW6	NNW19	NNW19	NNW15	NW6	NNW4	NNE3	SE5	SE10	SSE13	SSE18	SSW19	SSW11	SW20	SW22	SW19	SW17	SW17	SW18	WSW17	SW8.1	SW22
9-May	WSW13	WSW20	WSW25	W11	WSW10	WSW13	WSW13	W10	NNW14	NNW25	NNW27	W34	NNW29	NNW31	NNW33	NW32	NW27	NW25	NW17	NNW9	N4	ESE2	SSE4	SE8	NNW15.3	W34
10-May	SE10	SE11	SE12	SE14	SE13	SE11	SE13	SE17	SE13	SW12	WSW22	WSW27	WSW29	WSW24	W24	W30	W27	W28	NNW26	NNW12	NNW16	N41	N31	NNW7	WSW7.5	N41
11-May	NNW15	NNW22	NNW17	NW14	NW18	NNW26	NNW27	NW29	NW34	NW33	NW34	NW36	NW38	NW36	NNW33	NNW30	N32	NNE32	NNE30	N24	N13	NNE13	NE12	NE6	NNW21.8	NW38
12-May	ENE4	E2	N3	NNW5	NNW5	N2	N2	ENE3	ESE7	SE10	ESE8	SE14	SE16	SE17	ESE16	ESE18	ESE17	ESE16	ESE13	SE16	SE17	ESE16	ESE17	ESE16	ESE9.4	ESE18
13-May	ESE15	ESE13	SE14	SE17	SE20	SE20	SE17	SE19	SE16	SE20	ESE23	SE17	SSW16	WSW13	W9	WSW15	WSW25	WSW23	W12	NNW23	N20	NNW7	NNW6	SSE2	SSE6.0	WSW25
14-May	SSE1	SSE1	W1	SSE2	SSE5	ESE7	SE9	SE8	SE14	SE12	ESE13	WSW15	SW26	WSW25	WSW26	WSW27	WSW26	NNW23	NNW16	N21	N17	N3	E3	WSW4	WSW4.5	WSW27
15-May	NW3	N1	SSE1	NW3	NNW8	NNW6	NNW7	NNW4	NNW9	NNW11	N11	N12	N10	N15	NNW22	N8	N13	NNE15	NNE19	NNE18	NNE14	NNE14	NNE11	ENE7	N9.4	NNW22
16-May	NE9	N11	N11	NNW12	N16	N10	N9	N14	NE8	NNE13	NNE14	NNE15	NNE10	N10	N20	N17	N14	N16	N16	NNE15	N15	N16	N13	NNE12	N12.7	N20
17-May	NNE16	NNE15	N17	NNW16	N13	N14	NNW14	NNW15	NNW17	NNW13	NNW13	N14	N18	N18	N18	N20	N21	N18	NNW19	NNW18	NNW16	NNW14	NNW13	N16	N15.6	N21
18-May	N16	N15	N14	N12	NNW12	NNW15	NNW14	NW13	NNW14	NNW15	NNW17	NNW18	NNW22	NNW20	NNW22	NNW21	NNW14	NNW17	NNW13	N10	NNE8	N9	N9	NNW7	NNW14.1	NNW22
19-May	NNW7	NNW5	NNW8	NNW9	NNW8	NNW6	NNW6	NE9	NE11	NE12	NNE11	NNE11	NNE13	NE12	ENE11	NNE8	NE14	NNE13	NNE11	N11	N9	N14	NNW12	NNW11	NNE9.0	N14
20-May	NNW9	NNW8	NNW7	NNW6	N6	NNW6	NNW7	NNW9	N11	NNW10	NNW14	NNW15	N15	N14	N16	NNW10	NE2	SE19	S9	SSW5	SW3	SE1	ESE10	ESE14	N5.0	SE19
21-May	ESE8	ESE8	ESE12	ESE11	ESE11	ESE12	E8	ESE9	SE9	ESE12	SE16	ESE15	ESE14	E17	ESE15	E12	ENE15	E13	ENE9	E9	E9	E8	ENE4	ENE5	E10.4	E17
22-May	ENE5	NNE6	NE6	N5	N7	NNW8	N7	NNE8	NE13	NE13	NE13	NE16	NE16	NE19	NE15	NE13	ENE11	E9	ESE12	ESE10	ESE12	ESE10	E7	E6	ENE8.6	NE19
23-May	E3	ESE3	E5	ESE6	ESE7	ESE12	ESE14	E9	E11	ESE16	ESE12	SE15	SE15	SE16	SSE17	SSE14	S18	SSE17	SSE17	S14	SSE15	SSE16	SE10	SE11	SE11.0	S18
24-May	ESE8	ESE6	ENE1	N0	SSW1	SE1	ESE4	SE6	ESE11	ESE11	ESE12	ESE12	SE12	SSE14	ESE13	SE16	SSE12	S16	S13	SSW13	SW14	SSW8	SE5	SE5	SSE7.3	SE16
25-May	SE6	SE11	SE7	ESE5	ESE8	ESE6	SE9	SE15	SE12	SE14	SE20	SE22	SE20	SE21	SSE23	SE20	ESE18	ESE16	ESE17	ESE19	ESE21	SE14	SE12	ESE13	SE14.2	SSE23
26-May	ESE13	ESE10	ESE7	E2	ESE5	E3	SE10	SE12	SE12	SE16	ESE18	SE16	S17	S15	SE11	SSE12	S11	SSE11	SE9	SE7	E9	SE10	SE9	SE9	SE9.9	ESE18
27-May	ESE12	ESE15	ESE16	ESE11	ESE4	ESE2	SE5	SE10	SE11	SE12	SE10	SSE17	SSE18	SE20	SE18	SE17	SSW20	W21	E2	ESE8	ESE11	SE12	SE18	SE22	SE10.7	SE22
28-May	SE22	W15	NW10	NNW11	NNE4	E5	ENE1	NNW1	SSE2	SW4	WSW5	ENE3	NNE3	WSW7	W13	W13	W8	NNW9	NW1	N5	N8	NE6	NNW10	NE10	NNW2.5	SE22
29-May	NE17	NNW10	NNW9	N6	NNE6	E4	N8	NNW14	NNW11	NNW9	WSW15	WSW15	WSW19	SW34	SW35	SW32	SW31	SW26	SW30	SW26	SW27	SW21	SW23	SSW21	WSW12.7	SW35
30-May	S18	S14	NNW9	NNW17	NNW17	NNW12	NNW17	NNW17	NNW19	NNW19	NNW20	NNW19	NW18	NNW16	NW14	NW17	NW15	NNW18	W20	NNW19	NNW14	NNW17	NNW24	NNW21	NNW14.9	NNW24
31-May	NNW22	NNW24	NW26	NW33	NW28	NNW24	NNW23	NW18	NNW26	NW24	NW29	NNW25	NW27	NW29	NW23	NNW14	NNW14	NNW17	NNW26	NW22	NW22	NNW21	NW22	NW21	NW22.7	NW33

E2.4	N1.1	N2.4	NNW3.1	N2.7	NNW2.0	NNW2.6	N2.6	NNE2.7	NE2.4	N2.3	NW1.3	NNW1.7	NNW3.1	NW3.6	NNW2.8	NNW2.0	NW2.8	NNW3.1	N3.4	NNE1.9	NE1.8	NE1.3	E1.7	Diurnal Average	
SE22	NNW24	NW26	NW33	NNW28	NNW26	NNW27	NW29	NW34	NW33	NW34	NW36	NW38	NW36	SW35	NW32	N32	NNE32	NNE30	SW26	SW27	N41	N31	SE22	Diurnal Maximum	

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



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

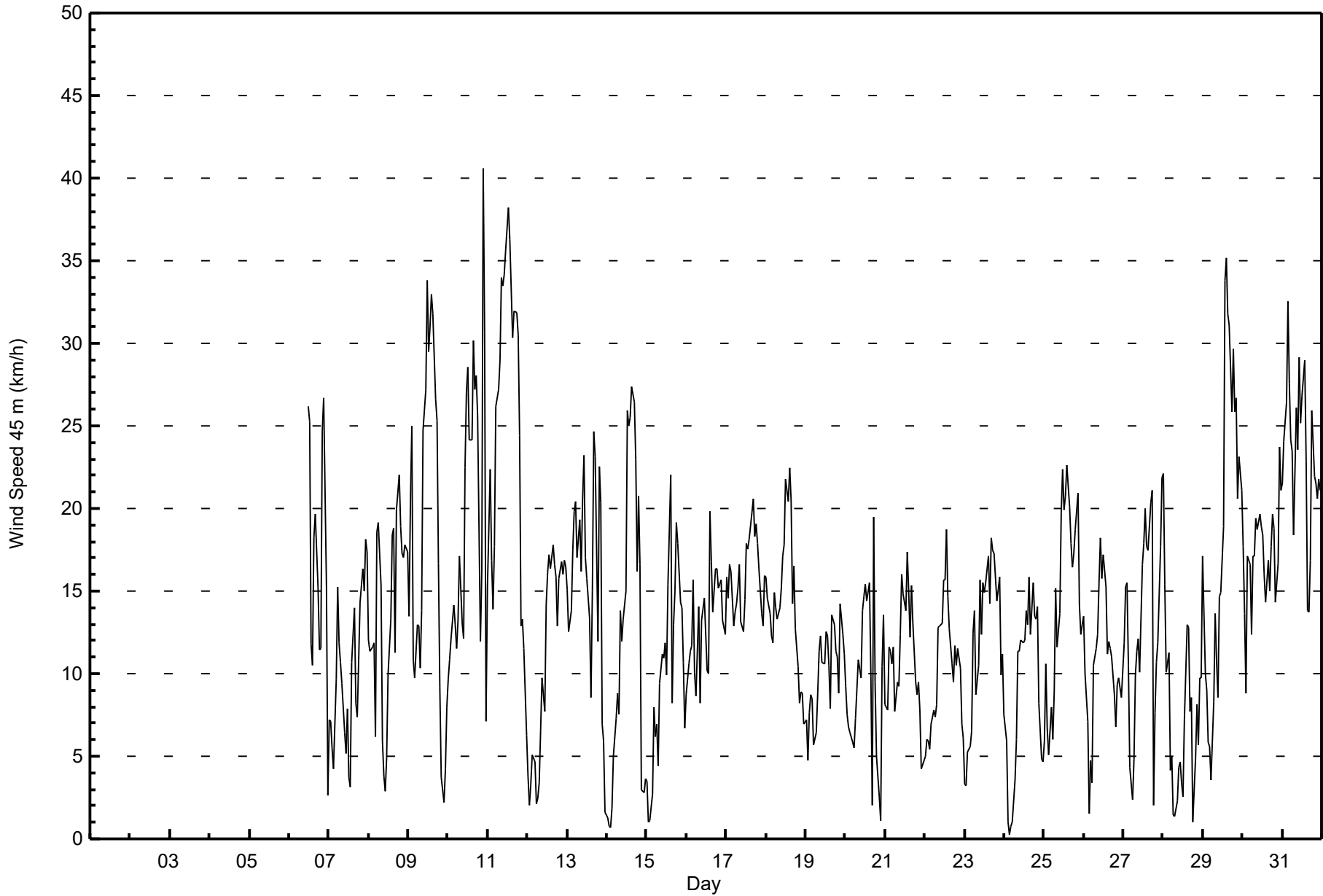
**Wind Speed 45 m (WS45m) - km/h**  
**Lower Camp Met Tower - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 15 km/h on May 10 22:00 Minimum Value: 1 km/h on May 14 03:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 9																		Hours in Service: 744 Hours of Data: 614 Hours of Missing Data: 130 Hours of Calibration: 0 Percent Operational Time: 82.5								
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-May	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	--
2-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-May	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	--
4-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
5-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	DF	6	6	5	3	6	6	4	4	4	8	5	5	3	8	
7-May	2	2	2	2	5	4	4	3	4	2	1	2	2	1	6	3	2	2	4	4	2	5	3	3	6	
8-May	3	3	2	2	2	6	5	4	2	2	2	4	4	6	5	6	6	4	3	2	2	2	7	7		
9-May	6	5	5	6	4	3	4	4	5	6	7	9	8	8	8	8	7	7	6	2	2	1	2	2	9	
10-May	2	2	3	2	4	3	4	2	4	6	5	5	6	6	7	8	8	8	7	3	7	15	12	3	15	
11-May	6	5	4	4	6	6	7	8	8	9	9	9	11	9	8	9	7	7	7	7	3	3	2	2	11	
12-May	2	2	1	1	1	1	1	2	4	3	3	4	3	3	4	4	4	4	4	3	3	2	3	3	4	
13-May	3	3	3	4	4	5	5	6	4	6	5	5	6	6	4	7	7	6	6	7	13	3	3	1	13	
14-May	1	1	1	1	1	3	2	2	2	2	3	9	5	6	6	5	7	8	7	7	2	2	2	3	9	
15-May	3	1	1	2	3	2	3	2	5	4	4	5	5	4	7	4	6	5	5	4	3	3	3	3	7	
16-May	3	3	3	3	3	4	3	3	6	4	3	3	2	3	4	4	3	3	3	3	2	2	2	3	6	
17-May	3	3	3	3	3	3	4	3	3	3	3	3	4	4	4	5	4	4	4	4	4	4	4	3	5	
18-May	5	4	4	4	3	3	3	3	3	4	4	4	5	5	5	5	3	3	3	2	2	2	2	2	5	
19-May	2	2	3	2	2	2	2	3	4	4	3	4	5	4	4	3	4	3	4	2	1	3	3	2	5	
20-May	2	2	2	2	2	1	3	2	2	3	4	4	4	3	4	4	4	6	3	2	2	2	5	3	6	
21-May	4	3	4	3	3	3	3	3	2	4	4	4	5	5	5	4	5	4	3	4	2	2	1	2	5	
22-May	1	2	2	4	3	2	2	3	5	5	5	6	5	5	5	4	4	4	4	3	3	2	2	2	6	
23-May	2	1	2	2	2	3	3	2	4	4	5	5	5	5	5	4	4	3	3	7	3	1	2	7		
24-May	2	3	1	1	1	1	2	3	4	4	4	3	5	4	5	5	4	3	2	2	2	1	2	5		
25-May	2	3	2	3	3	2	3	2	3	4	6	6	6	5	4	5	4	4	4	4	5	4	3	2	6	
26-May	2	2	2	2	2	3	4	3	4	5	4	5	5	5	4	5	3	3	2	2	4	3	3	2	5	
27-May	2	2	2	2	2	2	4	2	3	4	5	5	5	5	5	4	8	8	3	2	2	3	4	5	8	
28-May	6	6	3	2	3	3	2	1	2	3	3	2	2	4	5	4	4	2	2	3	2	3	8	5	8	
29-May	7	3	3	3	3	3	5	3	3	3	4	3	6	6	6	5	5	6	6	5	6	3	4	4	7	
30-May	3	5	5	4	4	3	3	4	4	4	5	4	7	5	5	8	6	4	4	5	3	4	6	5	8	
31-May	4	6	8	8	8	7	6	5	7	6	7	8	6	8	8	4	3	6	7	6	5	5	6	5	8	
Diurnal Maximum																										
DF - DAS Failure      UO - Unstable Operation																										



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	73	11.89	11.89
6 - 11	165	26.87	38.76
12 - 19	260	42.35	81.11
20 - 28	87	14.17	95.28
29 - 38	28	4.56	99.84
> 38	1	0.16	100.00

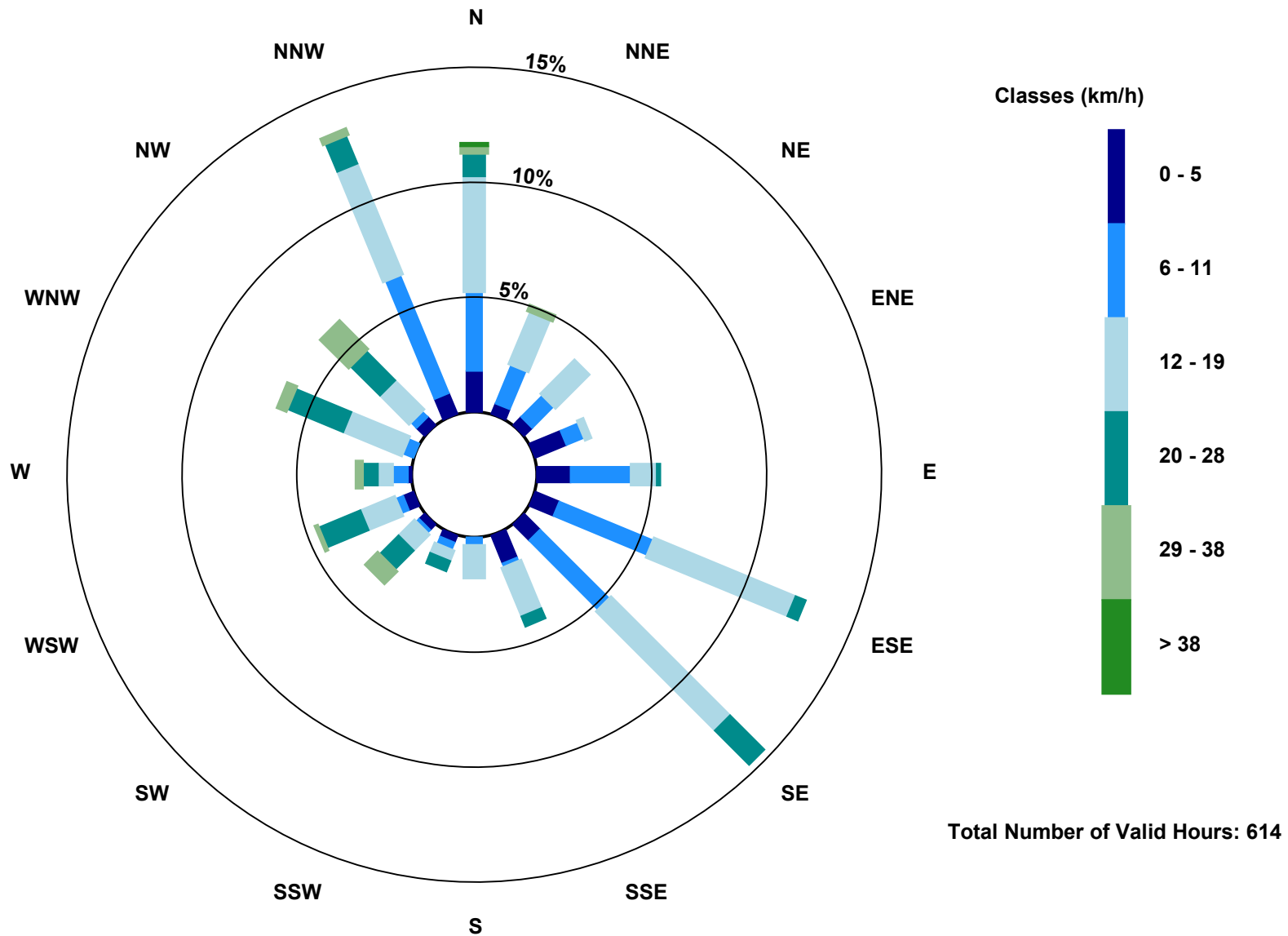
Total Number of Valid Hours: 614

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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







Maximum Speed: 49 km/h on May 10 22:00	Maximum Daily Speed Average: 30.1 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 12 06:00	Minimum Daily Speed Average: 2.8 km/h on May 28	Hours of Data: 743
Maximum Diurnal Speed Average: 6.2 km/h at hour 20	Minimum Diurnal Speed Average: 1.6 km/h at hour 6	Hours of Missing Data: 1
Monthly Average Velocity: 2.7 km/h 19.9 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 7 Q <sub>1</sub> = 12 Median = 17 Q <sub>3</sub> = 23 P <sub>90</sub> = 31 P <sub>99</sub> = 41	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	N18	N17	N19	N15	N17	N17	N16	N16	N17	N16	N24	N28	NNE28	N31	N32	N32	NNE30	NNE25	NE22	NNE21	N28	NNE24	N20	N17	N21.6	NNE32	
2-May	N16	NNW20	NNW22	N18	N13	N11	N8	N7	N13	N19	NNE21	NNE22	N27	NNE28	NNE31	N31	N32	N33	N34	N33	N27	N29	N19	NNE7	N21.5	N34	
3-May	NNE4	NE3	SSE1	NNW7	NW2	WNW3	NNW7	N6	NNW6	NNW7	NNW4	NW6	NW9	NW14	NNW12	N10	N14	N18	N23	N22	N22	N16	NNW13	N7	N9.1	N23	
4-May	N10	NNW12	NNW14	N9	NNW5	NNW3	N4	NNW4	NW5	NNW7	NNW14	NNW15	NW14	NNW12	N10	NNW11	NNW10	N9	N5	N8	NE11	ESE14	SE27	SE27	N5.4	SE27	
5-May	SE32	SE29	SE24	SE20	SE18	SE14	SE12	SE14	SE14	SE14	SE9	SE14	SE25	SE28	SE30	SE28	SSE25	S18	SSE25	SE21	SE16	SE24	SE25	SE23	SE30	SE21.2	SE32
6-May	SE34	SE27	SE26	SE27	SE32	SE33	SE33	SE32	SE28	SE26	DF	ESE32	SE31	E14	NNE11	E20	E23	E17	E14	E16	SSE31	SSE32	S21	SSW3	SE22.1	SE34	
7-May	NNE8	NNE7	E10	ESE14	ESE18	ESE20	ESE19	ESE18	ESE14	ESE11	ENE5	NE6	ESE7	E4	ESE16	SE20	ESE13	ESE13	ESE16	ESE21	SE25	SE19	SSE22	SSE23	ESE13.1	SE25	
8-May	SSE18	SSE15	SSE12	SSE11	WSW10	NNW28	NNW29	NW23	NW9	NW6	N2	SE5	SE10	SSE14	S19	SSW20	SSW13	SW22	SW27	SW25	WSW26	SW26	WSW28	WSW28	SW11.5	WNW29	
9-May	WSW24	WSW31	WSW37	W23	W17	WSW20	W17	WNW14	WNW17	WNW28	WNW32	W39	WNW34	WNW36	WNW38	NW39	NW32	NW31	NW21	NNW14	N9	NE5	SSE5	S9	WNW20.1	W39	
10-May	SSE13	SSE16	SSE16	SSE18	SSE15	SSE15	SSE13	SSE11	S11	SW15	WSW25	WSW31	WSW33	WSW28	W30	W37	W33	W35	WNW33	WNW19	NNW23	N49	N37	NNW11	W11.4	N49	
11-May	NW24	NW32	WNW28	WNW24	WNW28	WNW36	WNW34	NW35	NW42	NW42	NW41	NW43	NW47	NNW44	NNW40	NNW38	N36	NNE37	NNE34	NNE28	N17	NNE20	NE19	ENE13	NNW27.3	NW47	
12-May	E7	SE9	ESE5	SE1	NW3	ESE0	E4	E6	ESE8	SE10	ESE8	SE14	SE17	SE18	ESE20	ESE21	ESE20	ESE18	ESE18	SE20	SE23	SE21	ESE22	SE23	ESE12.7	SE23	
13-May	SE22	SE19	SE18	SE22	SE25	SE25	SE22	SE25	SE20	SE23	SE25	SSE19	SSW18	WSW16	W10	WSW17	WSW28	WSW27	WNW14	N27	NNE26	N10	N9	E3	SSE8.0	WSW28	
14-May	SE5	SW3	SW3	SSW3	SW7	S4	SE9	SSE11	SSE11	SE12	SE16	WSW18	SW29	WSW28	WSW29	WSW32	WSW32	WNW27	N20	N25	N23	N8	ENE6	SW5	WSW6.3	WSW32	
15-May	W7	WSW4	WSW1	SSE2	N10	N8	N12	NNW7	N11	N13	N13	N13	N12	N17	NNW25	N9	N14	NNE17	NNE22	NNE22	NNE23	NE22	NE17	ENE10	N11.3	NNW25	
16-May	NE11	NNE13	NNE14	N16	N19	N14	N11	NNE18	NE16	NE20	NNE18	NNE19	NNE12	N13	N23	N20	NNE18	NNE21	NNE22	NNE21	NNE19	NNE20	NNE17	NE18	NNE16.7	N23	
17-May	NE20	NE18	NNE19	N20	NNE17	N17	N18	N19	N19	N15	N15	NNE17	NNE21	N20	N22	N23	N25	N23	NNW25	NNW24	NNW22	NNW18	N18	N20	N19.1	N25	
18-May	N20	N19	N19	N18	NNW16	NNW20	NNW19	NNW19	NNW19	NNW20	NNW23	NNW23	NNW28	NNW27	NNW30	NNW27	NNW19	NNW22	N16	NNE14	NE12	NNE12	N12	N10	NNW18.7	NNW30	
19-May	N10	N8	N9	N12	N11	N9	N9	NE11	NE13	NE15	NE12	NE12	NNE15	NE15	ENE12	NE9	NE18	NNE16	NNE15	NNE16	NNE15	N22	N17	N15	NNE12.3	N22	
20-May	N13	N12	NNW12	NNW13	NNW12	N9	N11	NNW11	N12	NNW10	NNW15	NNW17	N17	N17	N19	NNW12	ENE4	SE22	S11	SW7	SSW5	ESE5	ESE18	ESE19	N6.4	SE22	
21-May	ESE15	ESE13	ESE18	ESE17	ESE17	ESE16	ESE11	ESE12	ESE10	ESE14	SE18	ESE17	ESE17	E20	ESE18	E15	ENE16	E14	ENE10	E12	E15	E15	E11	ESE12	ESE14.2	E20	
22-May	ESE9	E3	E9	ESE5	ENE5	N11	NNE9	NNE9	NE14	NE15	ENE15	NE18	NE18	NE21	NE16	NE15	ENE12	E10	ESE14	ESE13	ESE15	ESE15	ESE12	ESE12	ENE10.4	NE21	
23-May	ESE8	ESE6	ESE11	ESE12	ESE13	ESE16	ESE17	ESE10	ESE12	ESE18	ESE15	SE17	SE17	SE17	SSE18	SSE15	S19	SSE19	SSE19	S16	SSE21	SSE25	S14	SE14	SE13.7	SSE25	
24-May	SE13	SE11	SE6	ESE7	ESE9	SE4	SE6	SE8	ESE14	ESE14	ESE15	ESE14	SE14	SSE15	ESE15	SE18	SSE13	S17	S14	SSW14	SW17	SW14	SSW11	S12	SSE10.0	SE18	
25-May	S6	SE16	SE13	SE15	SSE15	SSE13	SE12	SE13	SE14	SE16	SE24	SE26	SE23	SE23	SSE24	SE22	SE20	ESE19	ESE22	ESE24	SE27	SE22	SE20	SE20	SE18.4	SE27	
26-May	SE20	SE18	SE17	SE10	SE13	SE12	SE16	SE14	SE16	SE18	ESE20	SE19	S19	S17	SE13	SSE14	S13	SSE12	SE10	ESE10	ESE18	ESE20	SE14	SE15	SE14.5	ESE20	
27-May	SE20	SE22	SE22	SE19	ESE14	SE8	SE10	SE11	SE14	SE14	SE12	SSE18	SSE19	SE22	SE20	SE21	SSW23	WSW26	E2	E14	ESE19	SE20	SE27	SE31	SE15.2	SE31	
28-May	SE29	W19	NNW15	N16	NE13	ESE8	SE4	W2	SW1	SW6	WSW6	E4	NNE2	WSW9	W15	W14	W9	WNW9	W2	NNE6	N14	NE14	WNW7	NNE16	NW2.8	SE29	
29-May	NE31	NNE15	NNE7	ENE8	ENE12	E9	NE8	N14	NNW11	NNW9	WSW15	WSW16	WSW21	SW37	SW38	SW34	SW34	SW29	SW34	SW29	SW30	SW24	SW27	SSW24	SW12.3	SW38	
30-May	S20	SSW16	NNW15	WNW23	NNW23	NW20	NNW24	NNW24	NW26	NNW25	NW27	NNW26	NW24	NNW21	NW20	NW22	NW23	NW24	WNW25	NW27	NW23	NW25	NW32	WNW28	WNW21.0	WNW32	
31-May	WNW29	NNW32	NW34	NW41	NW37	WNW34	WNW32	WNW26	WNW33	NW32	NW37	NNW32	NW34	NW37	NW30	NNW18	N18	NNW23	NNW34	NW30	NW30	NNW28	NW30	NW29	NW30.1	NW41	

ESE4.7	E1.8	NE1.9	NE2.1	NE2.5	NNE1.6	NNE2.4	NNE2.8	NNE3.3	NNE3.5	N4.1	N2.7	NNW2.5	NNW4.0	NNW4.8	NNW3.6	NNW3.6	NNW4.1	N5.2	NNE6.2	NE5.3	NE5.0	ENE3.1	ESE3.9		Diurnal Average
SE34	NW32	WSW37	NW41	NW37	WNW36	WNW34	NW35	NW42	NW42	NW41	NW43	NW47	NNW44	NNW40	NW39	NNE36	NNE37	NNE34	N33	SSE31	N49	N37	SE31		Diurnal Maximum

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



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

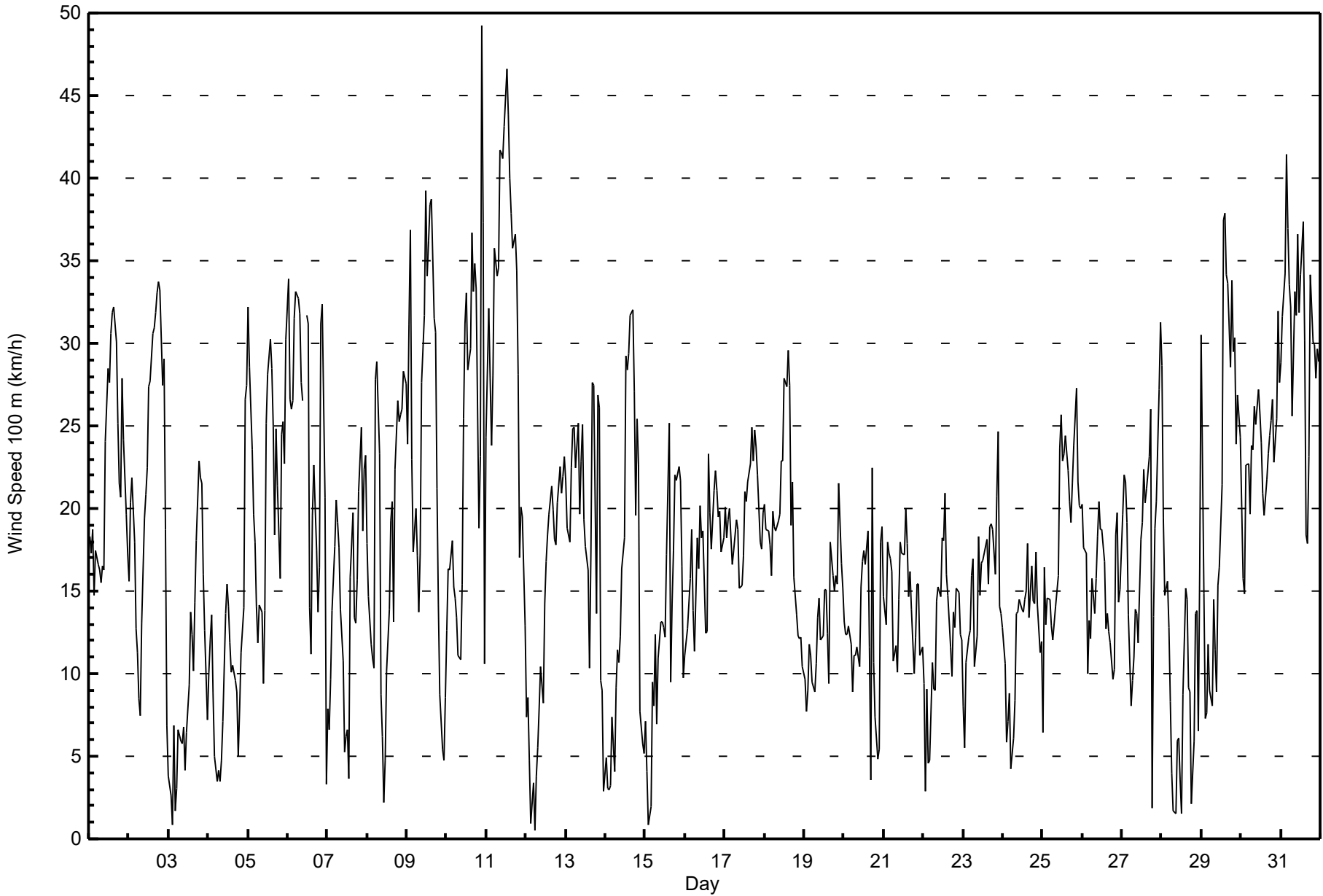
**Wind Speed 100 m (WS100m) - km/h**  
**Lower Camp Met Tower - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 15 km/h on May 10 22:00														Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9											
Minimum Value: 1 km/h on May 4 03:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 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-May	4	3	3	3	2	2	2	2	2	3	5	5	6	6	6	5	8	6	6	4	4	4	3	2	8
2-May	2	2	1	2	3	2	2	2	4	3	4	5	6	6	5	6	5	6	5	4	4	3	6	3	6
3-May	2	1	2	1	1	1	2	2	2	3	2	4	5	4	4	5	5	3	5	3	3	4	2	2	5
4-May	6	2	1	2	1	1	1	1	2	3	5	4	4	4	5	4	4	4	2	2	3	4	4	5	6
5-May	4	5	2	4	5	4	3	3	2	3	4	5	5	5	6	6	5	8	4	6	4	3	3	4	8
6-May	3	5	5	4	3	3	3	4	3	4	DF	6	5	5	3	6	5	4	5	5	7	5	6	5	7
7-May	2	2	3	3	4	5	4	4	5	3	2	2	2	3	7	3	2	2	1	4	3	3	5	3	7
8-May	4	3	2	2	4	6	5	5	2	2	2	3	3	4	6	4	6	6	4	3	3	3	2	5	6
9-May	6	5	3	8	3	3	3	3	6	6	7	8	8	8	7	8	6	6	6	2	2	2	1	2	8
10-May	3	1	1	2	2	3	2	2	3	7	5	4	5	6	5	8	8	7	7	3	7	15	12	4	15
11-May	8	5	3	4	6	6	6	6	7	8	9	9	10	10	8	8	7	7	6	7	3	2	3	2	10
12-May	3	3	2	1	1	1	1	2	4	2	3	4	2	2	3	3	3	3	4	3	2	2	3	3	4
13-May	2	3	4	3	3	3	4	4	4	5	4	4	6	6	5	6	5	7	6	7	13	3	2	1	13
14-May	2	1	1	2	1	2	4	2	2	3	3	9	5	5	6	5	4	7	7	6	7	4	2	5	9
15-May	1	2	1	1	3	2	3	2	4	3	3	5	5	4	7	5	7	5	5	5	3	5	4	3	7
16-May	3	4	4	2	2	4	3	4	8	4	4	3	3	5	3	3	4	4	3	3	2	2	2	3	8
17-May	3	3	2	2	4	3	3	2	2	2	2	3	3	3	3	4	3	3	4	3	3	3	3	4	4
18-May	3	3	3	3	3	3	2	2	3	3	3	4	4	4	5	5	3	2	2	2	2	2	2	2	5
19-May	2	2	4	2	2	2	2	3	4	3	3	3	5	4	4	3	5	3	4	3	2	3	2	2	5
20-May	2	2	2	1	1	2	3	2	2	3	3	4	3	3	3	3	5	5	3	1	2	2	3	2	5
21-May	3	4	3	4	2	2	3	3	2	4	3	4	4	5	4	4	4	4	2	4	3	3	1	5	5
22-May	4	3	4	3	3	2	1	3	5	4	5	6	5	5	4	4	3	4	4	2	3	2	1	1	6
23-May	3	2	3	2	3	4	3	3	4	4	5	4	4	4	5	4	4	4	3	2	8	3	3	2	8
24-May	1	2	2	2	2	2	3	3	4	3	4	3	5	4	5	5	4	4	3	2	2	1	3	4	5
25-May	2	2	3	4	2	2	2	1	3	4	5	5	5	5	4	5	3	4	4	4	5	5	5	2	5
26-May	2	3	3	2	2	6	4	3	4	4	3	3	4	4	4	4	3	3	2	2	5	3	3	3	6
27-May	4	2	2	2	2	4	3	2	3	4	5	5	5	4	4	4	9	9	3	3	2	3	3	4	9
28-May	6	5	3	2	5	4	2	1	1	4	2	2	2	4	5	5	3	2	2	3	2	3	10	7	10
29-May	8	4	4	3	3	3	3	3	2	3	4	3	6	5	6	5	5	6	6	4	7	3	3	4	8
30-May	3	5	5	3	4	3	3	4	5	4	5	4	8	5	5	9	5	3	4	5	3	4	5	5	9
31-May	5	6	10	7	8	7	6	5	7	6	6	7	6	7	9	4	3	7	6	7	5	4	6	5	10
Diurnal Maximum																									
8 6 10 8 8 7 6 6 8 8 9 9 10 10 9 9 9 9 7 7 13 15 12 7																									
DF - DAS Failure																									



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	48	6.46	6.46
6 - 11	121	16.29	22.75
12 - 19	290	39.03	61.78
20 - 28	189	25.44	87.21
29 - 38	84	11.31	98.52
> 38	11	1.48	100.00

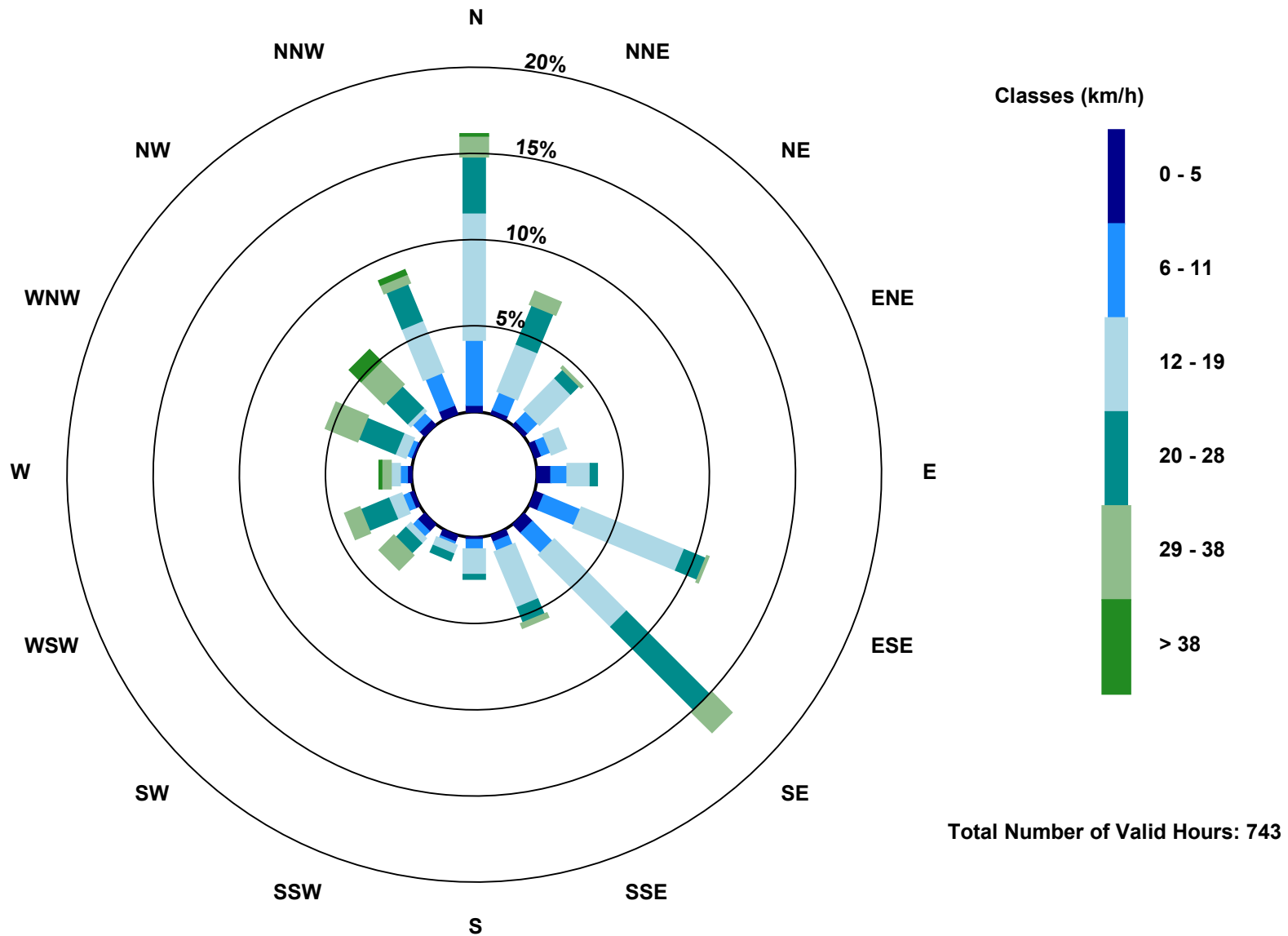
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

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

Maximum Speed: 54 km/h on May 10 22:00		Maximum Daily Speed Average: 35.0 km/h on May 31		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on May 28 13:00		Minimum Daily Speed Average: 2.8 km/h on May 28		Hours of Data: 743																						
Maximum Diurnal Speed Average: 7.8 km/h at hour 22		Minimum Diurnal Speed Average: 2.3 km/h at hour 13		Hours of Missing Data: 1																						
Monthly Average Velocity: 3.1 km/h 41.8 deg		Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 20 Q <sub>3</sub> = 27 P <sub>90</sub> = 34 P <sub>99</sub> = 44		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-May	NNE23	NNE23	NNE25	N20	N23	NNE21	N19	N16	N15	N16	N23	NNE28	NNE28	N31	N33	NNE33	NNE31	NE27	NE24	NNE25	NNE30	NNE30	N23	N22	NNE24.3	NNE33
2-May	N19	N24	N29	NNE30	NNE24	NNE18	NNE13	N8	N13	NNE19	NNE21	NNE23	NNE28	NNE29	NNE31	NNE31	NNE33	N34	N35	N36	N35	N40	NNE31	NE14	NNE25.4	N40
3-May	E7	SE7	S7	S1	SSE2	S4	WNW2	NNE3	NNE5	NNW6	NNW4	NW7	NW9	NNW14	NNW14	N11	N15	N19	N23	NNE22	NNE31	NNE31	NNE20	NE12	N8.9	NNE31
4-May	NNE8	NNE8	N10	N10	N8	NNE8	NE13	NNE9	N6	NNW7	NNW13	NNW16	NW14	NNW13	N10	NNW10	NNW10	N8	N5	NNE8	NE11	SE20	SE31	SE29	NNE5.9	SE31
5-May	SE34	SE31	SE28	SE27	SE28	SE20	SSE15	SE16	SE13	SSE11	SE14	SE26	SE29	SE32	SE30	SSE26	S20	SSE26	SE23	SE19	SE30	SE30	SE29	SE37	SE24.3	SE37
6-May	SE40	SE33	SE29	SE31	SE36	SE37	SE37	SE35	SE31	SE29	DF	SE34	SE34	E14	NE11	E18	ESE23	ESE18	E14	E19	SSE37	SSE37	S27	SSE5	SE25.3	SE40
7-May	ENE13	ENE11	ESE18	ESE22	ESE25	ESE24	ESE24	ESE23	ESE18	ESE15	E9	E9	ESE13	ESE9	SE19	SE22	ESE16	ESE16	SE20	SE24	SE28	SSE21	SSE27	SSE28	ESE17.8	SE28
8-May	SSE25	S19	S15	SSW12	W16	NNW35	NW39	NW30	NW14	NW9	N2	SSE4	SSE10	SSE15	S20	SW21	SSW14	SW23	SW28	WSW28	WSW30	WSW27	W33	W30	WSW13.3	NW39
9-May	WSW35	W40	W44	W30	NNW17	W18	NNW19	NNW16	NW19	NNW29	NNW33	NNW43	NNW37	NW39	NW41	NW42	NW35	NW33	NW24	NNW17	N12	NE11	ESE3	S13	NNW23.1	W44
10-May	S24	S28	S26	S26	S18	SSE21	S13	SSW11	SW13	SW17	WSW27	WSW33	WSW35	WSW31	W31	W39	W36	W38	NNW38	NNW24	NNW28	N54	N41	NNW14	WSW14.9	N54
11-May	NW31	NW41	NW37	NNW33	NNW38	NNW46	NNW40	NW36	NW45	NW44	NW44	NW46	NW51	NNW48	NNW43	NNW42	NNE37	NNE39	NNE36	NNE31	NNE21	NE24	ENE18	ENE12	NNW30.9	NW51
12-May	E13	ESE17	SE10	SE8	SSW3	SSW5	ESE5	ESE9	ESE8	ESE10	ESE8	SE14	SE16	SE18	ESE21	SE23	ESE22	ESE20	SE22	SE24	SE26	SE23	SE26	SE26	SE15.4	SE26
13-May	SE24	SE21	SSE25	SSE28	SSE27	SSE27	SE25	SE26	SSE22	SSE24	SSE25	SSE21	SSW19	WSW18	WSW12	WSW19	WSW29	WSW29	NNW15	N32	NE29	NE18	NNE12	ESE8	SSE9.8	N32
14-May	SSE8	SW7	WSW7	WSW5	SW11	SW10	SSE6	S12	S11	SSE12	SSE17	WSW20	SW31	WSW29	WSW31	WSW33	WSW34	NNW28	N21	N28	N28	N12	ENE11	SW2	WSW7.8	WSW34
15-May	WSW11	WSW9	WNW5	SW2	NNE10	NE16	NNE19	NNE11	N12	N14	N13	N13	N17	NNW26	N9	NNE14	NNE18	NNE24	NE27	NE32	NE32	NE23	ENE12	ENE12	NNE13.0	NE32
16-May	ENE13	NE15	NE19	NNE18	NE23	NNE18	NE13	NE22	ENE25	NE28	NE24	NE23	ENE12	NNE15	N26	NNE21	NE25	NE30	NE31	ENE22	NE23	NE22	NE21	ENE21	NE20.6	NE31
17-May	ENE19	ENE20	NE22	NNE20	NE21	NNE22	NNE21	NNE21	NNE21	NNE18	NNE16	NNE20	NNE23	NNE23	NNE23	NNE24	N27	N25	N27	N25	N24	N19	N21	N22	NNE20.7	N27
18-May	N22	N23	N23	N21	N18	N22	NNW20	NNW20	N22	N22	N26	N27	NNW31	NNW31	NNW34	N32	N22	N24	NNE16	NE15	ENE15	NE15	NE19	NNE16	N21.1	NNW34
19-May	NNE14	NNE12	NNE13	NNE16	NNE15	NNE14	NE12	ENE12	ENE14	ENE14	NE13	NE13	NE16	ENE15	ENE13	NE10	NE20	NE17	NNE18	NNE21	NNE20	N28	N23	N21	NE15.2	N28
20-May	NNE20	N18	N17	N17	NNE16	NNE14	N15	N11	N11	NNW10	NNW16	NNW18	NNE18	N17	N18	N13	ENE5	SE22	S11	SSW7	SSW6	SE11	SE20	SE21	NNE8.1	SE22
21-May	SE18	ESE17	SE21	SE21	SE21	SE19	SE16	SE14	ESE11	ESE16	ESE17	ESE16	ESE18	E19	ESE18	E15	ENE16	E11	ENE9	E14	E17	ESE21	ESE17	ESE16	ESE16.0	SE21
22-May	ESE18	ESE11	ESE16	ESE14	ESE10	NE7	NE9	NE9	ENE14	ENE15	ENE14	NE18	ENE18	NE20	NE17	ENE15	ENE11	E9	ESE15	ESE14	ESE16	SE15	ESE15	ESE15	E12.1	NE20
23-May	ESE14	ESE13	ESE17	SE16	ESE18	ESE20	ESE20	ESE12	ESE13	ESE19	ESE16	SE18	SE17	SE17	SSE19	SSE16	S20	SSE20	SSE19	S17	SSE24	SSE29	S23	SSE20	SE16.4	SSE29
24-May	SSE15	SSE15	SE11	ESE10	SE13	SE10	SE9	SE10	SE15	ESE15	ESE15	SE15	SE14	SSE15	SE15	SE18	SSE14	SSW17	S15	SSW15	SW18	SW15	SW15	SSW21	SSE11.9	SSW21
25-May	SSW17	SSE15	SSE18	SSE22	SSE20	SSE19	SSE12	SSE13	SSE16	SSE17	SE24	SE27	SE24	SE25	SE25	SE23	SE21	SE20	ESE24	SE27	SE31	SE27	SSE25	SE22	SE20.6	SE31
26-May	SE24	SE25	SE25	SE24	SE22	SE18	SSE14	SSE12	SSE15	SE15	SE14	S19	SSE20	SSE23	SE21	SE22	SSW25	WSW27	NNE2	ESE16	SE26	SE26	SE30	SE34	SSE18.3	SE34
28-May	SSE30	W21	NNW19	N20	NE18	ESE13	SE8	WSW4	WSW3	WSW8	WSW6	E3	W0	WSW11	W16	W15	W10	W9	W3	NNE6	N14	NNE14	WNW5	NNE18	NW2.8	SSE30
29-May	ENE33	NE25	ENE12	ESE13	ENE18	E16	E10	NNE10	N10	NNW9	WSW16	WSW17	WSW22	WSW38	SW38	SW36	SW35	SW30	SW36	SW31	SW33	SW26	SW29	SSW26	SW11.7	WSW38
30-May	SSW22	SSW17	NNW19	NNW27	NNW27	NW25	NW29	NW29	NW32	NW32	NW34	NW32	NW29	NNW25	NW23	NW24	NW30	NW30	NNW29	NW32	NW28	NW33	NW40	NNW33	NW25.9	NW40
31-May	NNW36	NNW38	NW39	NW46	NW43	NW41	NW40	NW32	NW38	NW36	NW41	NNW35	NW37	NW42	NW33	NNW23	N21	NNW29	NNW41	NW34	NW35	NNW32	NNW34	NW33	NW35.0	NW46
ESE6.5 ESE3.5 E2.7 E2.8 ENE4.0 ENE3.0 NE3.0 NE3.0 NNE3.6 NNE3.6 N4.2 N2.8 N2.3 NNW4.1 NNW4.8 NNW3.8 N3.8 N4.3 NNE5.6 NNE6.9 NE6.8 ENE7.8 E5.2 ESE5.4																								Diurnal Average		
SE40 NW41 W44 NW46 NW43 NNW46 NW40 NW36 NW45 NW44 NW44 NW46 NW51 NNW48 NNW43 NW42 NNE37 NNE39 NNW41 N36 SSE37 N54 N41 SE37																								Diurnal Maximum		
DF - DAS Failure																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



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

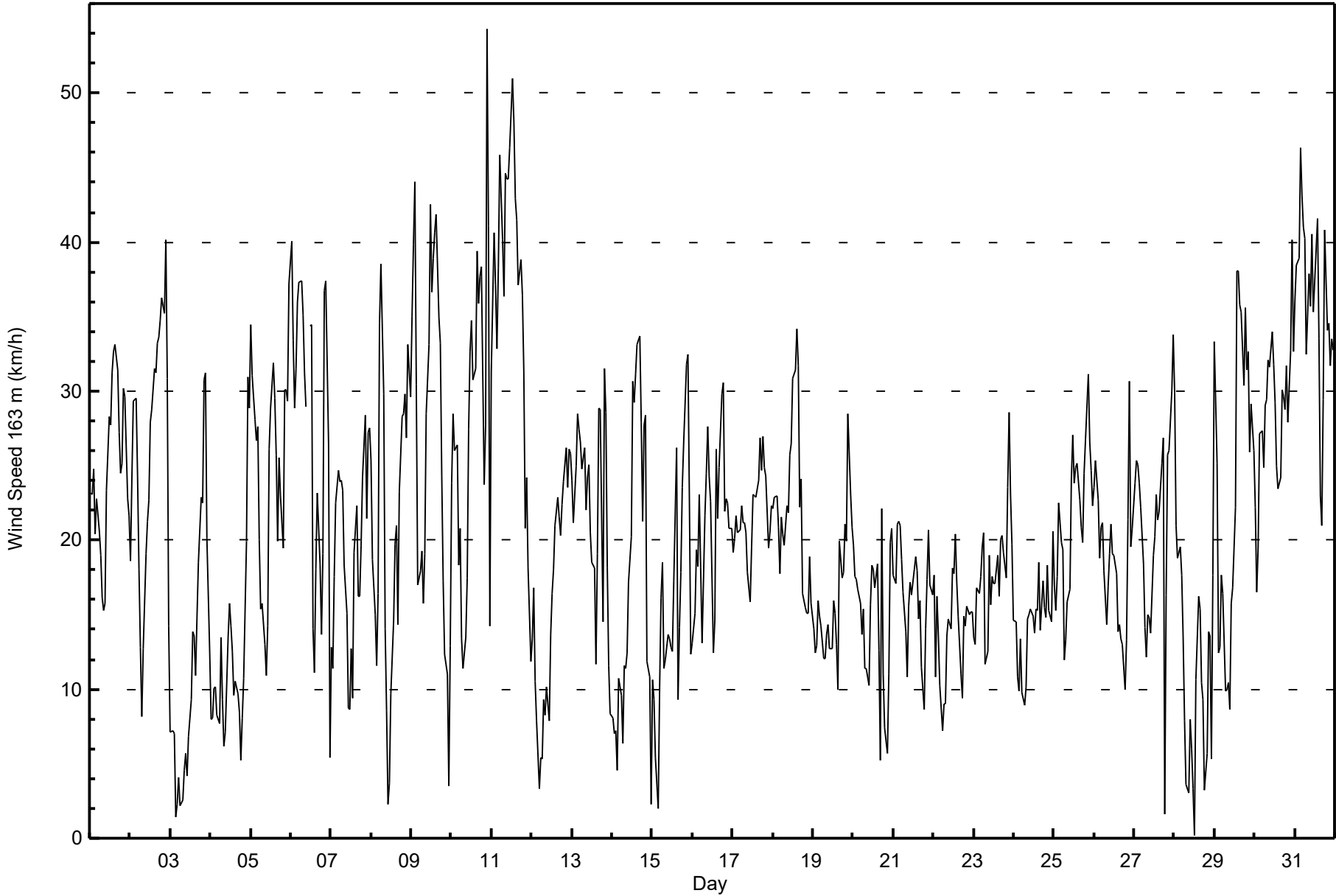
**Wind Speed 163 m (WS163m) - km/h**  
**Lower Camp Met Tower - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 14 km/h on May 10 22:00														Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9											
Minimum Value: 1 km/h on May 4 05:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 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-May	4	3	3	3	2	2	2	2	2	3	5	6	5	6	5	6	8	6	5	4	5	4	5	2	8
2-May	2	4	2	1	3	3	2	2	4	3	4	5	6	5	5	5	5	5	5	4	3	2	5	4	6
3-May	2	1	2	2	2	2	2	1	2	3	2	4	5	5	4	5	4	3	5	4	4	4	4	3	5
4-May	3	2	1	1	1	2	1	2	2	3	5	4	5	4	5	4	3	4	2	2	2	6	4	4	6
5-May	4	5	3	3	4	4	2	2	2	3	4	5	4	5	6	6	5	8	5	4	3	3	3	4	8
6-May	4	5	6	5	3	3	3	3	3	4	DF	6	5	6	3	7	6	5	6	7	6	5	6	5	7
7-May	4	4	4	3	4	5	4	4	6	3	4	4	2	4	6	3	2	2	2	4	3	3	4	2	6
8-May	2	4	2	2	6	5	5	5	3	4	2	3	3	4	5	5	7	5	4	3	4	2	2	3	7
9-May	5	6	2	8	3	3	3	4	6	6	7	8	7	7	7	7	6	5	6	2	2	3	1	4	8
10-May	4	2	1	2	2	3	2	2	3	7	5	4	4	5	5	7	7	6	6	2	6	14	12	4	14
11-May	9	4	2	4	5	5	7	6	7	7	8	9	9	8	7	8	7	7	6	7	3	3	2	3	9
12-May	5	4	1	2	2	2	3	2	4	2	3	4	2	2	3	3	3	3	4	3	3	2	3	3	5
13-May	3	3	4	3	4	3	3	4	4	4	4	4	6	6	5	6	5	6	5	7	8	5	2	2	8
14-May	2	2	1	2	2	4	3	2	2	2	3	9	4	5	5	4	3	7	7	6	6	4	3	4	9
15-May	1	2	1	1	5	2	3	2	3	3	4	4	5	5	7	5	7	4	5	5	2	4	4	4	7
16-May	3	5	3	2	1	4	3	5	6	4	3	4	3	5	2	2	4	3	3	4	2	3	3	3	6
17-May	3	4	3	2	4	4	3	3	2	3	2	4	4	3	4	4	4	3	3	3	3	3	4	3	4
18-May	4	3	3	3	3	3	3	2	3	3	3	4	4	3	4	4	3	2	3	3	2	3	1	2	4
19-May	2	3	3	2	2	2	2	3	4	3	3	3	5	4	3	3	4	3	3	4	2	3	3	2	5
20-May	3	2	2	2	2	2	2	2	2	3	3	4	3	3	3	3	5	5	3	2	2	4	2	2	5
21-May	1	3	3	3	2	2	2	3	2	4	3	5	4	5	5	4	4	4	2	5	3	3	2	3	5
22-May	3	5	6	4	3	3	1	3	5	4	5	6	5	4	4	5	3	4	4	2	3	2	1	1	6
23-May	3	2	2	2	3	4	3	4	5	4	5	4	4	4	4	5	4	4	3	2	7	2	3	2	7
24-May	2	2	1	1	1	1	2	2	4	3	4	3	5	4	5	4	4	4	3	2	2	1	2	1	5
25-May	3	2	3	3	2	3	2	1	3	4	5	4	5	5	4	5	3	4	4	3	4	5	6	3	6
26-May	3	2	2	2	2	5	2	3	4	4	3	4	4	4	4	4	3	3	2	2	5	3	4	3	5
27-May	4	3	3	3	2	2	2	1	3	4	5	5	5	5	4	4	9	7	3	5	2	3	4	5	9
28-May	5	5	4	3	5	4	4	2	2	4	2	2	2	3	5	4	3	2	2	4	1	2	8	6	8
29-May	4	6	5	4	5	5	4	3	2	3	5	2	5	5	5	4	4	5	5	4	6	3	3	4	6
30-May	3	4	5	3	3	2	4	4	5	4	4	5	8	4	5	9	5	3	3	4	3	4	6	5	9
31-May	4	6	11	7	8	7	7	4	7	7	7	7	6	8	8	4	4	8	5	7	5	4	6	5	11
Diurnal Maximum																									
9 6 11 8 8 7 7 6 7 7 8 9 9 8 8 9 9 8 7 7 8 14 12 6																									
DF - DAS Failure																									



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

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







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	27	3.63	3.63
6 - 11	88	11.84	15.48
12 - 19	247	33.24	48.72
20 - 28	218	29.34	78.06
29 - 38	130	17.50	95.56
> 38	33	4.44	100.00

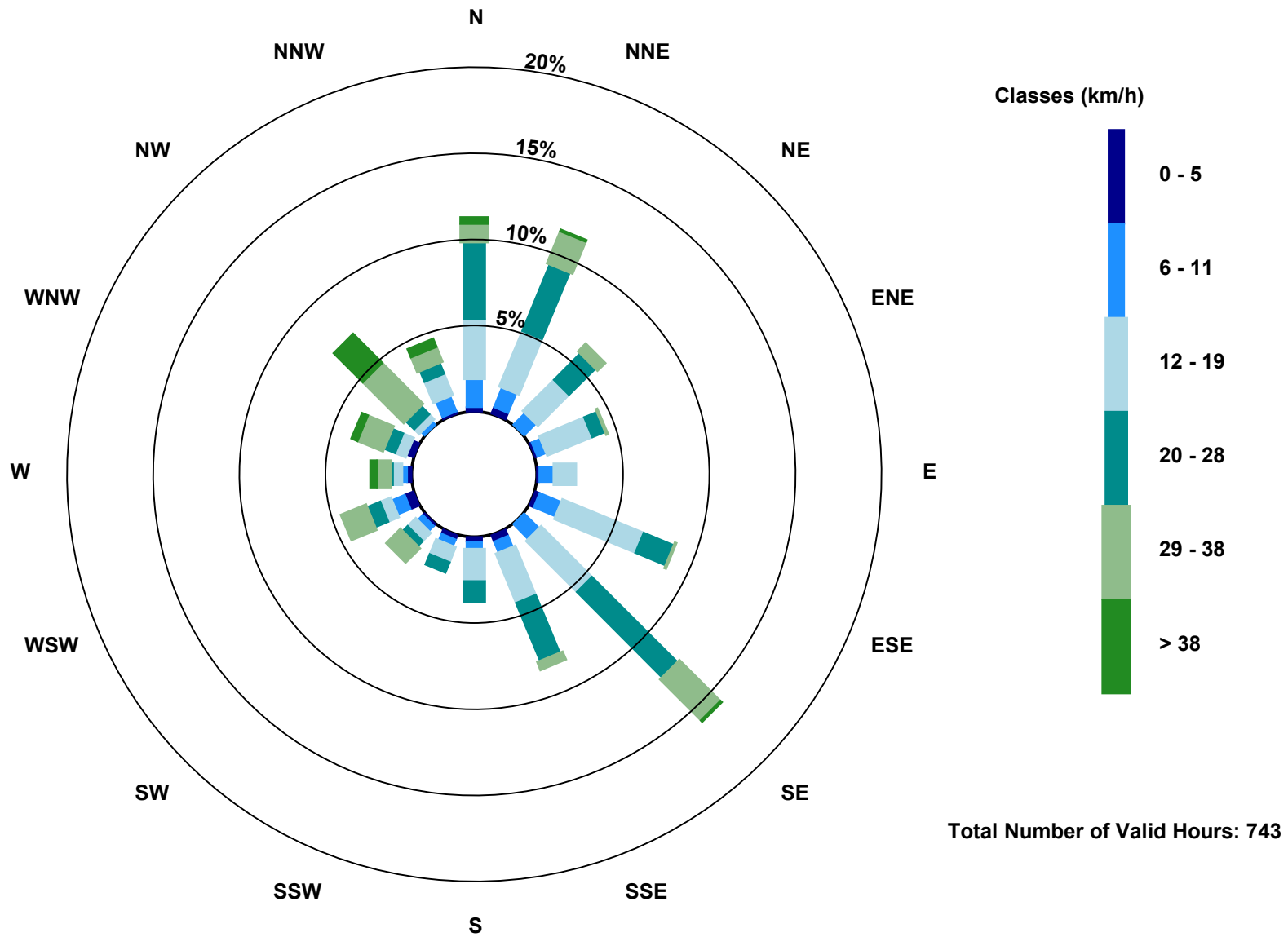
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

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

Direction of Maximum Speed: 230 deg on May 29 15:00															Hours in Service: 744											
Direction of Maximum Daily Speed Average: 313.3 deg on May 31															Hours of Data: 743											
Direction of Minimum Speed: 34 deg on May 15 03:00															Hours of Missing Data: 1											
Direction of Minimum Daily Speed Average: 2.0 deg on May 28															Percent Operational Time: 99.9											
Monthly Average Direction: 346.1 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-May	348	360	353	335	343	345	342	350	354	350	356	2	10	1	3	11	22	32	37	16	5	17	339	344	3.3
2-May	349	346	345	355	309	342	353	346	347	5	12	13	11	17	18	10	11	3	356	354	352	350	346	339	1.7
3-May	352	344	328	337	296	318	335	330	332	347	5	311	297	316	322	343	354	4	357	358	353	335	325	335	339.9
4-May	339	306	296	288	342	339	319	318	305	338	342	341	313	323	357	327	340	350	360	353	6	100	129	144	340.4
5-May	138	132	149	101	96	117	118	126	147	143	135	124	130	129	135	159	180	163	147	159	119	129	114	131	139.3
6-May	132	135	141	135	130	131	135	126	121	114	DF	121	127	92	18	85	96	94	69	71	166	169	175	282	127.7
7-May	330	336	0	348	91	111	91	90	102	75	357	350	5	356	114	121	93	79	84	108	127	147	152	146	101.7
8-May	141	132	135	136	215	286	302	305	325	342	33	133	132	154	170	207	210	213	234	231	234	219	244	253	212.1
9-May	253	251	254	284	256	244	257	271	296	290	291	279	297	300	302	316	316	317	323	324	103	167	166	147	289.7
10-May	143	132	123	132	138	134	126	132	133	214	238	242	239	248	265	261	270	273	290	284	331	350	351	321	250.7
11-May	298	303	300	320	313	294	294	306	313	320	320	318	318	326	327	333	9	20	19	13	9	17	42	37	329.2
12-May	55	18	346	332	338	348	339	78	130	139	129	139	142	138	118	119	115	117	115	141	126	119	112	121	121.5
13-May	122	125	134	139	132	131	130	134	145	143	146	149	207	257	268	246	238	246	270	339	358	326	334	135	172.3
14-May	169	116	328	182	138	113	131	130	133	132	124	248	233	241	241	246	249	297	341	355	355	314	141	258	242.7
15-May	342	22	34	350	344	344	317	329	343	344	1	350	355	349	338	359	3	14	20	18	17	19	25	58	0.2
16-May	44	357	346	334	343	343	353	357	37	23	12	16	12	348	346	345	355	2	6	9	359	1	3	12	0.2
17-May	8	15	356	342	360	345	342	341	344	344	342	5	4	3	352	350	350	346	337	333	330	331	335	345	348.6
18-May	345	353	348	347	332	331	325	322	327	333	330	333	332	329	331	334	336	334	342	358	21	352	348	337	337.1
19-May	339	330	330	335	329	331	332	36	41	47	29	23	18	47	56	17	29	24	19	6	5	346	335	337	10.1
20-May	332	333	344	8	17	353	343	344	347	340	346	338	1	359	353	343	77	137	172	207	226	12	107	114	0.4
21-May	115	105	113	107	100	105	97	119	135	122	137	112	126	99	117	98	62	79	66	79	77	61	12	32	102.7
22-May	47	12	15	347	340	342	356	23	45	49	55	45	51	46	44	55	71	87	115	118	107	104	82	71	53.1
23-May	67	70	71	104	107	118	100	98	102	116	119	148	131	145	168	163	170	163	160	187	164	167	130	129	144.9
24-May	104	68	350	7	352	79	126	130	127	112	109	127	129	162	127	144	160	192	176	193	216	231	129	114	151.5
25-May	126	126	122	74	98	85	123	139	136	150	139	142	135	151	156	145	129	124	117	114	126	142	129	125	133.8
26-May	126	126	126	18	86	33	142	141	136	140	115	138	172	173	130	167	173	160	146	153	113	146	136	140	145.1
27-May	115	122	123	124	78	116	125	136	132	131	141	170	162	151	135	134	199	259	103	111	128	137	135	131	145.9
28-May	144	258	321	327	321	105	78	16	155	223	250	58	26	237	262	262	276	288	269	337	342	33	310	41	277.8
29-May	28	322	320	337	350	95	353	345	327	344	237	241	240	236	230	228	228	225	228	230	233	232	226	203	239.5
30-May	179	178	294	290	289	301	293	294	299	299	305	302	310	296	320	326	322	301	276	314	316	310	301	296	295.8
31-May	296	299	310	310	310	304	304	310	302	311	309	301	311	312	319	340	346	341	328	319	314	329	324	317	313.3

91.4 356.5 351.7 349.5 352.5 354.4 350.7 26.3 33.4 25.6 353.9 329.9 298.1 292.0 315.1 297.5 302.8 315.0 346.5 350.6 12.0 24.1 26.7 120.8  
 Diurnal Average

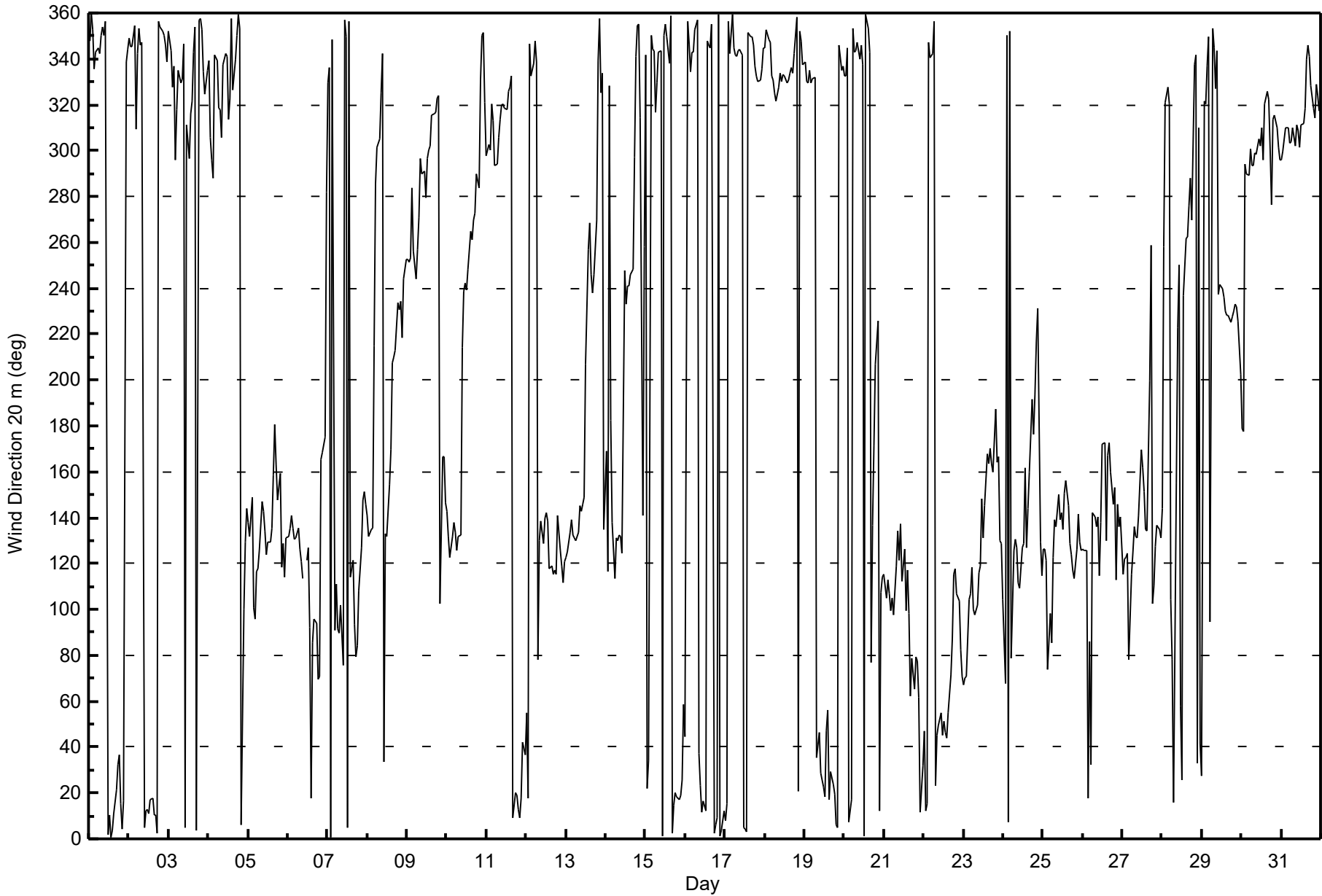
DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 107 deg on May 15 03:00 Minimum Value: 8 deg on May 6 22:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 14 Q <sub>1</sub> = 18 Median = 21 Q <sub>3</sub> = 31 P <sub>90</sub> = 51 P <sub>99</sub> = 93																			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-May	21	18	22	21	16	15	17	17	16	18	17	19	20	22	20	21	22	23	19	17	16	17	19	14	23
2-May	11	14	12	16	37	20	20	24	20	22	21	24	22	23	23	21	21	19	16	14	12	11	31	68	68
3-May	29	35	22	32	84	33	28	29	20	30	53	68	56	28	32	49	30	20	17	16	15	17	69	57	84
4-May	52	35	31	49	48	53	27	42	54	45	32	29	30	37	64	43	33	29	53	22	29	89	14	15	89
5-May	14	15	12	87	86	55	27	37	13	19	25	20	19	19	28	15	21	18	11	17	14	15	17	87	
6-May	14	15	15	16	14	14	13	14	16	26	DF	18	17	38	28	29	19	21	25	21	29	8	14	73	73
7-May	15	31	12	17	52	21	23	27	22	32	30	14	43	40	66	18	19	18	15	20	21	10	10	10	66
8-May	12	23	14	11	54	21	19	23	27	40	56	42	30	25	24	12	28	22	14	9	9	11	11	52	56
9-May	35	13	16	61	39	18	23	32	25	21	21	22	22	22	20	19	21	17	19	16	95	34	28	29	95
10-May	12	14	16	11	20	19	19	11	11	48	14	12	13	17	24	20	20	24	18	21	29	16	18	44	48
11-May	21	15	21	26	26	18	18	18	19	19	19	21	20	20	21	18	25	20	20	20	20	21	21	42	42
12-May	71	43	19	14	15	77	40	55	46	19	30	14	12	13	22	21	23	19	26	15	18	15	16	18	77
13-May	22	22	14	14	17	19	24	24	18	18	15	32	39	26	41	27	16	15	49	27	33	52	83	22	83
14-May	63	94	75	36	63	54	18	22	13	14	22	39	18	16	17	16	17	40	35	40	25	81	86	68	94
15-May	39	86	107	44	30	31	54	39	25	23	34	25	39	24	20	52	33	30	25	22	21	24	26	37	107
16-May	33	29	18	20	14	37	24	19	87	25	21	22	19	24	15	14	19	17	17	17	16	16	18	20	87
17-May	18	20	19	17	21	19	19	16	14	18	20	19	18	19	18	18	17	18	18	19	19	19	23	23	23
18-May	21	21	20	24	20	19	18	18	21	19	21	19	17	18	18	18	18	18	22	40	29	16	17	29	40
19-May	22	38	29	21	21	33	22	36	33	34	27	38	31	33	34	36	29	30	26	20	20	15	17	16	38
20-May	21	20	26	24	33	29	38	24	20	27	23	21	22	23	19	22	71	17	20	54	54	86	68	18	86
21-May	38	34	30	21	28	26	30	25	19	23	21	30	27	23	24	37	32	31	34	30	21	37	14	48	48
22-May	34	41	33	61	40	18	20	35	35	40	32	36	33	29	34	37	35	28	21	19	24	17	29	41	61
23-May	33	15	29	63	33	20	18	24	30	22	33	20	27	24	18	24	14	14	15	9	21	13	11	10	63
24-May	42	47	26	83	70	77	25	40	25	30	33	29	36	27	32	25	27	16	20	13	11	46	23	19	83
25-May	45	32	35	40	24	26	19	11	20	21	20	19	23	27	21	21	20	20	18	19	20	15	27	14	45
26-May	15	20	38	62	75	89	24	16	23	28	20	26	23	26	26	22	19	16	18	13	30	24	29	38	89
27-May	18	16	17	18	95	83	70	15	19	25	37	22	19	23	23	23	42	27	93	23	22	17	17	17	95
28-May	26	28	33	20	92	69	99	70	60	67	68	65	83	56	31	29	43	30	96	71	25	75	41	53	99
29-May	32	24	27	32	48	93	30	16	26	41	21	17	17	12	12	12	13	14	13	11	13	10	13	11	93
30-May	12	16	61	20	21	20	18	20	19	20	17	19	18	22	24	29	24	23	22	19	14	15	19	20	61
31-May	17	17	18	17	19	19	19	19	20	19	19	19	19	19	21	20	20	21	19	18	18	20	20	19	21
71 94 107 87 95 93 99 70 87 67 68 68 83 56 66 52 71 40 96 71 95 89 86 73																								Diurnal Maximum	
DF - DAS Failure																									





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

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

Direction of Maximum Speed: 352 deg on May 10 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 312.9 deg on May 31	Hours of Data: 614
Direction of Minimum Speed: 350 deg on May 24 04:00	Hours of Missing Data: 130
Direction of Minimum Daily Speed Average: 2.5 deg on May 28	Percent Operational Time: 82.5
Monthly Average Direction: 347.6 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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
2-May	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-May	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-May	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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	121	DF	120	124	91	22	85	97	97	72	78	163	168	173	246	--
7-May	342	342	41	57	99	110	98	97	103	85	7	356	38	6	114	121	101	90	96	109	123	140	149	146	103.6
8-May	142	137	137	138	221	287	299	302	321	330	30	126	131	152	168	209	212	214	231	229	231	214	235	250	216.5
9-May	249	247	251	266	251	242	255	272	295	291	291	280	295	299	302	315	317	317	322	331	4	122	157	130	288.5
10-May	127	130	127	133	133	135	127	131	138	218	240	242	239	249	265	260	271	271	289	291	329	352	354	335	258.6
11-May	296	303	294	306	305	292	292	306	313	320	319	318	319	325	328	332	10	19	19	11	7	19	46	46	329.2
12-May	74	82	356	343	347	351	357	78	121	130	120	132	135	132	116	117	112	115	114	136	124	118	113	117	117.0
13-May	119	118	130	133	128	127	127	129	142	138	143	145	206	255	266	246	237	244	278	345	9	343	340	164	158.3
14-May	165	153	275	149	147	121	127	125	130	130	121	247	233	241	240	244	248	298	348	358	1	353	80	251	244.6
15-May	321	10	159	322	342	338	330	333	348	348	5	351	357	350	339	359	7	19	23	22	20	23	29	59	3.0
16-May	46	2	352	339	349	354	357	3	42	28	12	17	14	356	349	349	1	7	11	14	3	5	9	20	5.3
17-May	14	21	0	345	3	355	347	343	346	347	342	5	6	3	357	354	354	350	338	336	333	335	343	351	352.1
18-May	351	355	355	353	337	334	329	326	333	335	334	335	334	331	332	334	339	337	344	3	27	359	354	348	340.5
19-May	347	345	340	343	337	342	343	43	44	47	32	31	22	47	62	26	35	26	20	8	8	352	342	341	14.9
20-May	341	343	347	346	349	348	348	345	349	343	345	339	4	1	354	344	52	131	172	213	217	133	108	115	2.4
21-May	106	105	108	108	102	107	97	113	127	115	130	109	120	95	112	93	62	80	68	82	83	88	64	78	100.2
22-May	78	26	39	8	355	348	2	26	49	50	55	45	51	45	44	54	73	87	110	115	108	108	99	93	57.9
23-May	87	117	98	102	108	118	103	99	101	111	115	142	127	139	164	159	169	162	157	187	166	167	140	129	139.6
24-May	114	107	63	350	207	137	114	126	122	111	108	120	125	157	121	138	154	190	176	192	219	211	146	142	147.3
25-May	127	128	126	109	116	105	124	134	133	145	131	137	130	145	152	138	123	120	113	114	123	131	129	121	129.5
26-May	119	115	118	85	111	96	128	131	127	132	114	131	171	170	129	162	172	159	143	136	101	125	138	142	135.9
27-May	123	120	118	122	116	116	130	129	130	126	134	168	160	145	129	127	199	259	94	103	117	126	128	127	138.6
28-May	137	260	324	334	25	98	72	343	157	229	254	60	28	243	264	264	274	285	306	3	10	41	303	35	299.6
29-May	37	344	333	350	25	91	5	348	328	342	238	243	239	235	229	227	228	225	227	229	232	231	225	205	240.8
30-May	180	180	289	291	290	297	295	295	300	297	302	300	307	294	317	325	319	300	277	312	315	310	301	295	296.9
31-May	294	299	311	309	309	302	300	307	301	311	307	301	311	311	318	338	348	341	329	318	313	330	325	317	312.9

81.5 1.7 353.4 345.5 353.8 344.2 343.1 9.9 19.7 37.2 349.7 313.2 287.6 288.5 306.4 291.0 300.6 307.4 343.2 0.8 31.5 36.2 35.7 98.8  
 Diurnal Average

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



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 101 deg on May 27 19:00	Hours of Data: 614
Minimum Value: 5 deg on May 10 08:00	Hours of Missing Data: 130
Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 9 Q <sub>1</sub> = 11 Median = 15 Q <sub>3</sub> = 22 P <sub>90</sub> = 38 P <sub>99</sub> = 79	Hours of Calibration: 0
	Percent Operational Time: 82.5

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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
2-May	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-May	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-May	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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	9	DF	11	9	30	21	21	12	12	16	13	28	7	11	75	
7-May	10	20	27	35	31	13	12	13	13	19	33	13	45	45	54	10	10	10	7	9	12	9	10	9	54
8-May	11	12	8	9	40	10	12	16	21	34	55	34	21	23	23	11	25	19	10	6	6	7	8	25	55
9-May	22	9	9	39	17	10	14	24	20	15	17	16	18	17	15	14	16	14	14	9	39	34	29	10	39
10-May	6	6	8	7	13	11	13	5	18	45	11	8	9	13	18	14	15	19	13	13	22	11	11	36	45
11-May	15	10	11	18	18	12	14	12	14	14	14	15	15	14	17	13	19	12	12	12	11	17	11	17	19
12-May	38	72	27	10	9	23	27	48	44	15	23	11	9	9	13	12	16	13	17	12	9	8	7	8	72
13-May	9	13	11	10	9	10	16	15	14	15	14	31	36	18	30	23	11	11	48	24	27	28	24	69	69
14-May	60	71	59	36	16	15	9	16	7	10	13	38	14	12	14	10	12	38	30	36	15	71	53	67	71
15-May	49	82	66	57	12	12	24	24	16	16	27	20	27	15	15	40	27	22	16	12	11	16	15	21	82
16-May	20	24	15	11	8	17	17	12	47	16	13	9	12	22	8	8	13	10	9	8	8	8	9	12	47
17-May	11	12	11	12	13	14	12	9	9	11	14	12	11	11	11	12	10	13	11	13	12	11	14	14	14
18-May	13	12	14	14	12	10	10	11	11	11	12	11	10	10	10	11	12	12	15	35	21	11	12	15	35
19-May	14	23	21	12	10	13	14	24	17	18	16	28	20	19	20	29	17	18	18	14	13	8	10	9	29
20-May	11	12	11	10	15	13	19	16	13	18	17	16	14	15	13	13	57	11	20	25	44	80	12	10	80
21-May	22	16	18	12	12	14	20	16	17	17	15	24	21	18	18	29	15	14	19	22	11	17	18	24	29
22-May	18	18	28	62	28	11	12	24	16	25	20	22	20	16	22	25	22	18	15	13	16	7	8	10	62
23-May	22	20	20	27	17	10	9	13	19	14	26	16	20	23	20	23	13	16	15	9	18	8	12	5	27
24-May	10	13	73	95	71	77	23	27	17	18	21	22	28	25	22	22	26	15	18	12	11	18	24	27	95
25-May	13	14	21	33	16	21	14	6	16	19	16	17	18	25	20	18	13	12	12	11	13	10	25	7	33
26-May	6	7	11	78	24	78	16	13	19	25	12	24	23	28	23	23	18	14	18	16	19	17	19	25	78
27-May	11	7	7	9	30	56	62	10	14	21	33	19	20	23	19	18	42	13	101	14	11	10	9	9	101
28-May	25	24	28	12	73	58	82	74	66	64	55	58	79	47	22	19	34	21	88	49	12	51	60	46	88
29-May	17	25	15	38	41	48	44	10	19	29	14	13	12	9	9	10	11	11	10	9	10	7	10	10	48
30-May	12	17	39	12	11	12	11	11	11	11	11	11	11	13	14	24	19	17	14	14	9	10	12	13	39
31-May	10	12	12	12	13	13	12	13	14	13	13	14	12	12	14	14	14	14	13	11	11	12	13	11	14
	60	82	73	95	73	78	82	74	66	64	55	58	79	47	54	40	57	38	101	49	44	80	60	75	

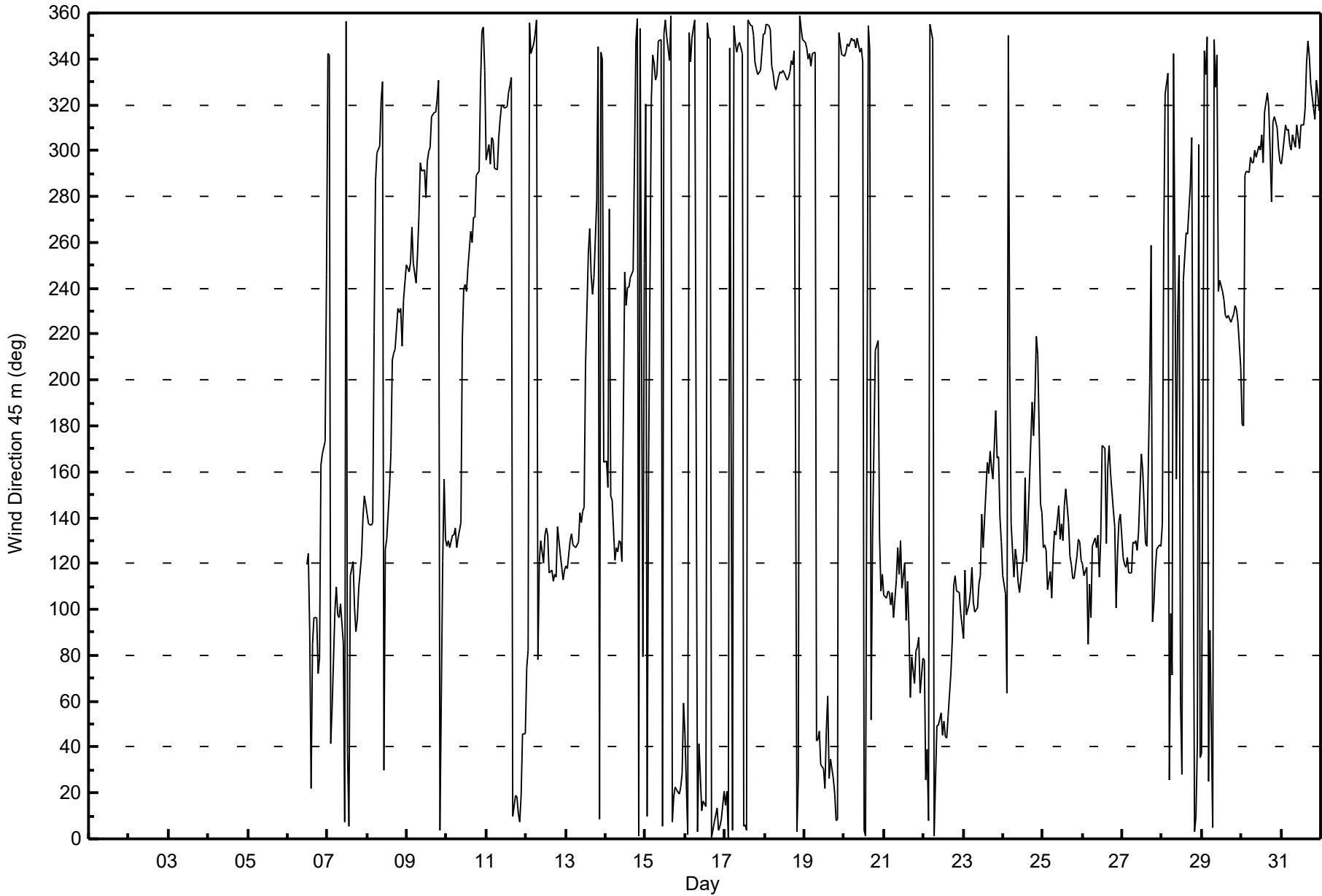
Diurnal Maximum

DF - DAS Failure UO - Unstable Operation



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

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







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

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

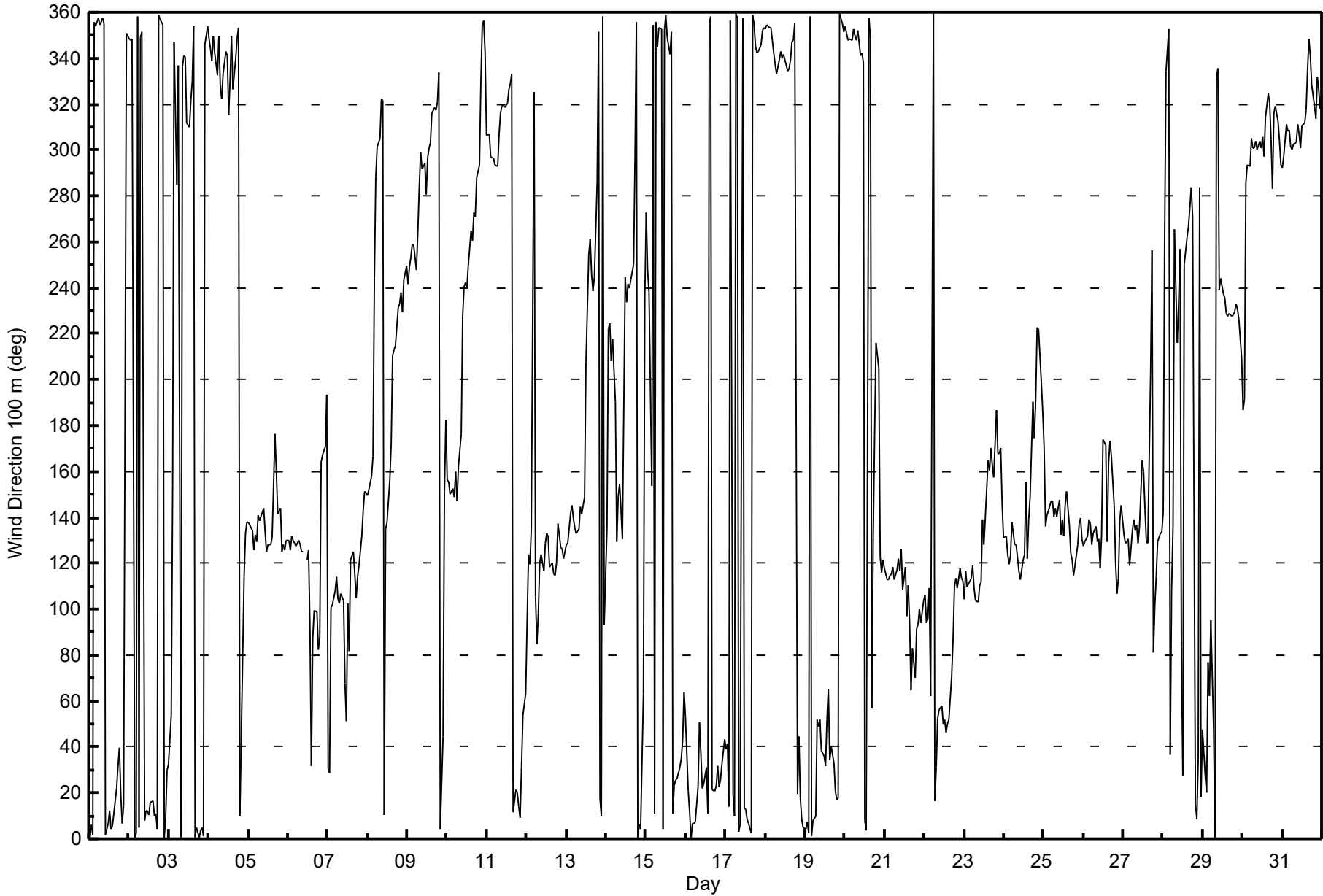
Direction of Maximum Speed: 354 deg on May 10 22:00																				Hours in Service: 744					
Direction of Maximum Daily Speed Average: 312.8 deg on May 31																				Hours of Data: 743					
Direction of Minimum Speed: 106 deg on May 12 06:00										Direction of Minimum Daily Speed Average: 2.8 deg on May 28										Hours of Missing Data: 1					
Monthly Average Direction: 19.9 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-May	1	6	2	356	354	357	355	356	358	355	2	7	12	4	6	11	22	32	39	19	7	15	351	350	7.1
2-May	349	348	348	1	3	358	5	349	351	8	12	12	10	16	17	10	11	4	359	357	354	1	9	30	3.8
3-May	32	54	154	347	316	285	337	0	336	341	341	312	310	321	330	354	1	5	0	4	5	1	346	354	350.6
4-May	349	344	339	350	342	333	350	329	322	333	343	341	316	331	350	327	340	349	353	10	45	114	133	138	359.2
5-May	138	137	134	126	132	129	141	138	142	144	133	125	128	128	131	153	176	160	141	144	125	128	126	130	136.1
6-May	130	126	132	130	128	128	130	128	125	125	DF	121	126	93	32	87	99	99	83	88	164	167	171	193	125.9
7-May	30	29	100	102	108	114	104	103	107	104	68	51	103	82	122	125	115	105	114	119	132	143	151	150	115.0
8-May	150	152	158	166	244	288	302	305	322	322	10	135	138	156	172	210	213	215	232	233	238	230	244	250	230.0
9-May	242	249	253	259	259	248	264	284	299	291	294	281	296	301	303	316	318	317	321	334	4	45	152	182	288.0
10-May	156	155	150	152	149	160	147	162	177	227	240	242	240	250	265	261	273	271	288	294	330	354	356	342	259.0
11-May	306	307	297	296	297	294	293	307	316	319	320	319	320	327	329	333	11	21	20	14	9	31	54	63	329.5
12-May	95	124	119	135	325	106	85	98	120	124	117	129	133	132	118	120	115	115	120	137	127	126	122	125	122.2
13-May	128	129	142	145	140	135	133	135	145	142	145	149	208	254	261	246	239	245	286	351	17	10	358	94	158.8
14-May	135	222	225	208	218	191	129	149	154	143	131	244	233	242	240	244	250	297	356	0	6	4	63	236	247.7
15-May	273	248	238	154	355	11	356	345	353	352	4	352	359	349	341	352	11	23	26	26	31	35	42	64	9.1
16-May	53	21	12	0	7	7	7	23	50	37	22	24	31	11	355	358	22	21	23	32	23	26	32	43	21.4
17-May	39	41	14	356	20	10	360	358	3	6	357	14	13	9	7	3	359	355	346	342	343	346	352	353	2.6
18-May	353	355	353	353	348	342	338	333	339	343	340	342	339	335	335	339	347	348	355	19	44	18	9	5	347.7
19-May	4	7	3	358	1	8	10	52	49	52	38	36	32	52	65	34	41	33	21	17	18	360	355	351	23.4
20-May	354	351	348	348	348	352	350	348	352	341	343	338	8	4	357	348	57	131	176	216	205	123	116	122	7.0
21-May	117	113	113	114	115	118	113	117	122	117	126	109	119	97	110	94	65	83	70	92	93	100	94	104	105.6
22-May	106	94	96	109	62	359	17	31	53	56	58	50	52	47	50	52	71	86	110	114	109	118	113	112	71.5
23-May	104	117	110	112	114	119	109	104	103	110	111	139	128	140	165	160	170	163	158	187	168	168	170	146	141.0
24-May	131	132	124	119	123	138	128	123	117	113	122	124	156	122	139	149	191	175	192	223	222	199	186	150.8	
25-May	170	136	141	143	147	147	141	144	140	148	132	139	132	145	152	136	124	121	115	119	128	137	140	130	136.0
26-May	127	129	132	139	137	128	133	136	129	130	118	132	174	171	130	163	173	167	145	120	107	114	138	145	137.0
27-May	133	129	129	130	119	134	139	134	137	128	136	165	160	143	129	129	202	256	81	101	114	129	133	134	139.5
28-May	142	260	334	353	37	109	136	266	216	233	257	84	28	250	261	266	274	284	271	15	9	35	284	18	314.5
29-May	47	27	20	77	62	95	48	0	332	335	239	244	238	235	229	228	229	228	228	229	233	231	226	209	235.5
30-May	187	192	285	293	293	305	301	301	304	300	304	301	306	297	314	324	320	304	283	316	319	312	304	294	300.1
31-May	292	297	311	308	309	301	300	303	303	311	307	301	311	312	318	335	349	341	328	319	314	332	326	318	312.8
102.1 89.1 42.6 36.1 44.4 24.3 15.7 23.9 24.2 23.8 0.1 357.0 340.9 327.3 337.4 331.5 345.1 342.4 2.0 14.0 37.2 50.9 74.0 114.4																								Diurnal Average	
DF - DAS Failure																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97 deg on May 27 19:00 Minimum Value: 2 deg on May 4 03:00 Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 17 P <sub>90</sub> = 28 P <sub>99</sub> = 80																		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-May	7	8	8	8	5	6	6	7	8	9	9	10	11	13	12	12	15	13	11	10	6	7	12	4	15
2-May	5	4	3	6	8	8	10	14	13	13	14	15	15	13	13	10	11	13	7	5	4	4	10	27	27
3-May	31	23	93	17	61	39	12	15	13	20	33	43	39	17	25	38	20	11	9	7	6	10	8	24	93
4-May	21	6	2	7	16	19	9	28	28	31	19	18	22	32	32	32	33	21	37	14	19	17	5	5	37
5-May	5	3	4	6	12	11	10	10	8	16	21	9	8	8	10	22	12	17	14	12	5	6	5	5	22
6-May	4	8	8	7	4	4	4	4	6	7	DF	9	6	26	21	18	8	12	12	9	27	6	8	82	82
7-May	17	31	17	9	9	10	9	8	9	12	30	29	20	60	37	6	6	6	5	5	6	8	8	6	60
8-May	8	8	9	11	37	6	7	10	13	26	72	38	20	19	20	9	25	18	9	5	4	4	4	5	72
9-May	7	5	5	12	8	5	11	18	16	12	14	13	15	14	13	11	12	11	12	7	25	18	26	10	26
10-May	6	5	4	5	9	9	13	12	25	30	8	7	7	9	15	13	12	17	9	7	21	8	7	24	30
11-May	6	6	6	10	10	8	10	9	10	11	11	11	12	12	13	10	19	9	9	10	8	13	7	6	19
12-May	22	18	18	81	17	95	16	29	30	11	18	10	7	6	8	8	12	9	13	11	6	5	4	5	95
13-May	4	6	10	7	7	7	11	10	13	13	13	29	34	13	31	20	11	11	49	21	22	24	19	43	49
14-May	30	28	11	25	20	45	13	17	11	15	10	39	12	10	12	7	11	38	24	33	13	52	34	64	64
15-May	16	21	77	54	25	14	17	15	16	13	19	16	18	14	14	30	24	17	12	9	8	11	12	15	77
16-May	17	22	17	8	6	8	10	11	17	10	9	7	13	24	6	8	10	9	7	7	7	8	9	9	24
17-May	10	11	13	7	11	11	10	8	9	11	12	10	9	8	8	9	6	8	7	8	7	8	9	7	13
18-May	7	7	7	7	9	7	7	7	9	8	8	8	7	7	6	7	9	12	13	30	15	10	9	11	30
19-May	13	17	22	8	9	10	12	20	13	12	14	21	16	13	16	26	15	14	16	14	14	5	7	7	26
20-May	9	8	6	6	7	8	9	11	10	15	12	14	13	12	9	13	47	8	19	15	33	37	5	7	47
21-May	6	10	6	6	5	9	13	10	10	14	12	20	17	13	15	24	14	12	16	20	6	7	5	8	24
22-May	11	49	29	39	43	10	8	23	13	17	17	17	18	14	20	22	18	15	12	9	13	5	4	5	49
23-May	17	15	13	7	7	7	6	10	14	9	22	12	16	22	19	21	13	14	13	7	12	5	8	7	22
24-May	6	10	6	8	7	18	17	14	11	12	15	17	21	25	17	23	13	16	12	11	4	16	22	25	25
25-May	25	7	8	11	8	13	11	9	13	18	12	13	16	21	17	15	10	8	8	8	11	7	20	5	25
26-May	4	5	5	12	7	37	7	11	13	18	8	20	23	28	21	20	15	15	19	14	6	10	12	22	37
27-May	8	4	4	4	6	16	16	9	11	18	29	17	19	21	14	16	42	12	97	9	7	6	5	4	97
28-May	20	20	22	11	27	46	61	82	73	48	29	51	83	33	17	14	23	18	70	40	7	30	84	35	84
29-May	7	24	46	37	16	20	34	13	16	24	14	10	8	7	8	8	9	9	8	8	8	5	9	8	46
30-May	12	17	28	8	7	8	8	8	8	8	7	8	8	10	9	20	13	16	10	11	5	9	9	10	28
31-May	7	9	9	9	8	9	8	10	10	9	9	11	8	8	9	12	10	10	11	8	8	8	11	7	12
Diurnal Maximum																									
DF - DAS Failure																									





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

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

Direction of Maximum Speed: 359 deg on May 10 22:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 315.5 deg on May 31		Hours of Data:	743
Direction of Minimum Speed: 278 deg on May 28 13:00		Hours of Missing Data:	1
Direction of Minimum Daily Speed Average: 2.8 deg on May 28		Percent Operational Time:	99.9
Monthly Average Direction: 41.8 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-May	12	18	15	11	11	12	11	6	6	6	9	15	19	11	11	16	27	37	44	26	13	19	6	9	16.2
2-May	8	3	6	15	20	21	25	360	358	15	18	19	16	20	22	16	17	9	4	3	0	7	20	55	13.1
3-May	91	129	184	190	156	171	297	25	23	343	341	313	313	330	340	0	8	10	5	12	13	18	16	38	8.0
4-May	29	14	7	6	7	30	37	29	355	334	345	343	324	336	352	331	341	351	357	18	52	126	138	143	22.7
5-May	142	141	141	135	139	137	149	146	146	158	139	129	130	131	134	156	177	163	145	145	130	132	131	135	140.4
6-May	134	125	128	128	130	131	133	132	132	130	DF	126	129	94	45	91	104	104	89	96	167	168	170	149	129.5
7-May	63	73	113	112	114	119	109	109	112	112	101	98	118	116	127	130	123	117	127	127	141	149	154	157	122.2
8-May	158	170	188	202	268	295	311	315	326	326	351	151	152	166	179	214	213	218	234	238	247	242	262	272	244.3
9-May	253	260	264	267	286	271	283	299	306	296	297	284	300	304	306	319	322	321	324	337	5	34	110	179	295.0
10-May	181	185	181	181	169	164	178	198	214	232	243	245	244	253	268	264	276	274	291	297	334	359	2	348	257.1
11-May	317	315	309	298	299	302	299	309	320	322	323	322	324	330	333	337	16	26	26	20	16	41	65	74	332.5
12-May	100	122	130	133	207	199	113	110	122	121	112	125	132	132	123	125	121	119	128	141	133	134	130	135	128.0
13-May	139	144	154	153	152	149	143	143	149	149	151	157	211	256	256	248	241	248	293	3	35	40	27	111	161.5
14-May	164	214	249	247	231	234	151	170	180	164	148	247	236	245	242	246	254	299	2	5	8	4	60	218	253.2
15-May	240	254	296	236	20	42	13	16	6	0	8	355	4	353	347	353	15	30	31	34	41	47	56	70	19.7
16-May	65	45	41	26	36	32	36	56	61	50	36	41	62	33	10	20	45	39	44	59	51	52	56	63	43.7
17-May	62	61	38	16	43	31	19	18	29	33	23	27	24	19	19	14	8	5	355	353	354	358	359	357	17.9
18-May	355	357	356	355	356	352	348	345	350	352	350	350	348	344	343	349	356	2	15	38	65	48	35	27	358.7
19-May	24	32	33	16	20	27	35	65	59	59	46	48	44	59	68	43	51	40	27	28	30	11	8	4	33.8
20-May	13	11	7	8	12	15	3	358	0	342	346	345	15	10	5	357	64	134	175	207	195	124	126	127	22.7
21-May	128	119	124	127	129	130	129	124	121	118	123	110	120	101	110	97	68	89	75	99	101	108	109	122	113.5
22-May	115	117	107	111	107	40	36	45	59	62	64	55	57	52	55	58	71	92	112	115	112	125	120	118	84.7
23-May	112	114	115	124	116	121	118	114	107	113	116	140	132	143	165	163	173	166	161	186	168	167	175	160	143.6
24-May	151	152	134	119	132	140	146	142	131	122	120	128	133	155	126	144	153	192	178	195	224	218	215	212	158.5
25-May	201	158	162	158	156	165	162	161	151	154	137	143	136	146	154	138	127	125	121	126	134	145	149	144	145.8
26-May	139	140	141	145	149	137	145	150	137	135	124	136	179	173	135	169	176	173	154	122	115	123	139	151	143.2
27-May	142	141	142	145	136	144	149	148	149	137	142	170	163	149	135	134	205	256	30	114	125	135	140	140	147.3
28-May	151	261	343	6	39	114	142	243	253	243	250	94	278	251	260	269	270	278	265	21	9	33	283	18	312.0
29-May	60	52	61	105	77	96	87	31	349	334	241	246	238	237	231	231	232	232	232	232	236	232	228	213	228.3
30-May	193	205	292	302	303	315	311	310	310	307	310	307	309	302	314	325	326	315	296	323	325	317	309	297	307.1
31-May	298	300	314	310	311	304	304	304	306	314	309	302	314	315	320	333	349	340	330	323	318	335	330	323	315.5

120.9	115.4	80.3	80.2	74.0	71.9	37.8	42.2	32.3	31.7	5.9	4.5	350.6	334.3	345.1	337.6	355.5	352.3	11.3	27.9	49.4	62.0	82.6	117.6
Diurnal Average																							

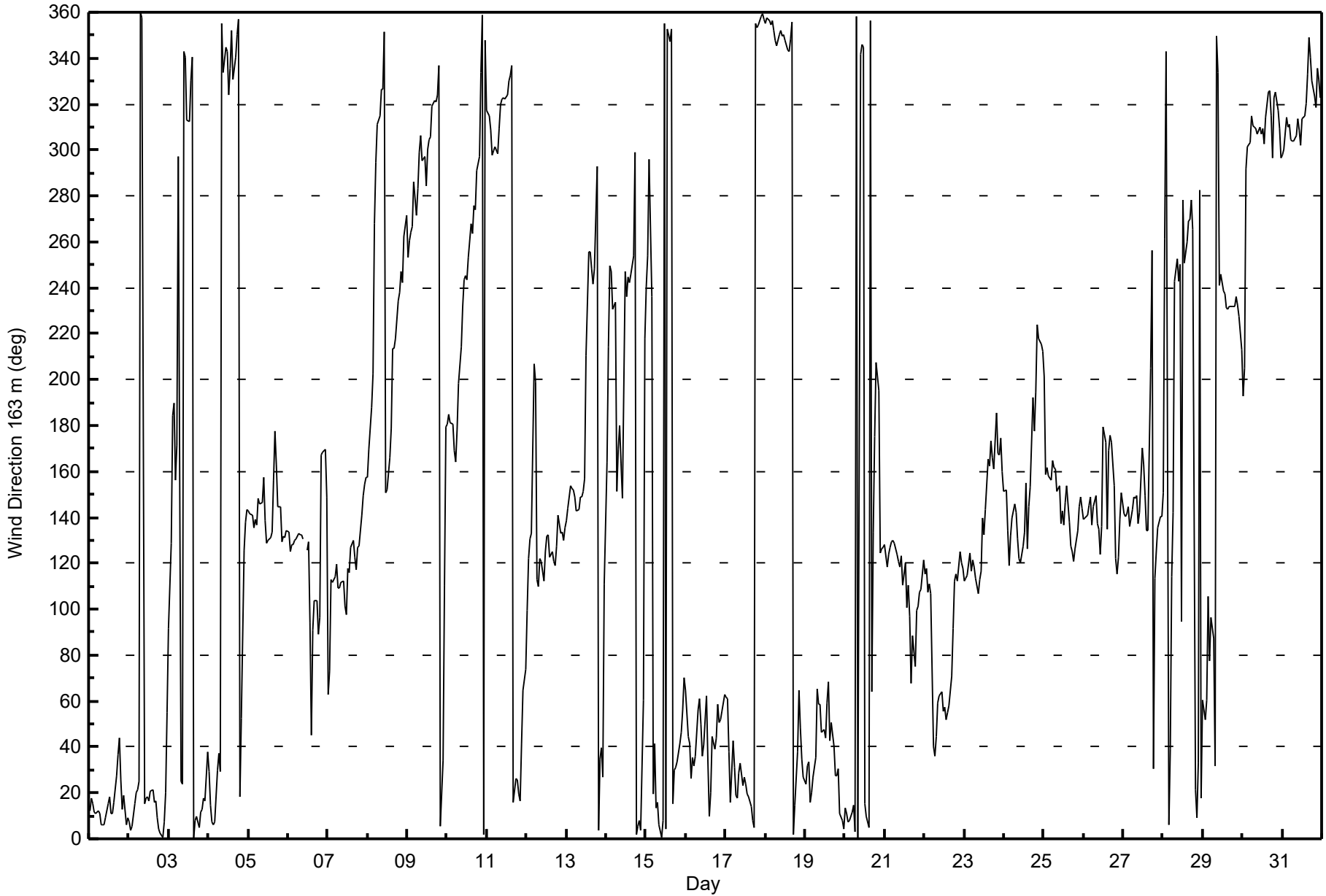
DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 108 deg on May 28 13:00 Minimum Value: 2 deg on May 2 03:00 Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 9 Q <sub>3</sub> = 15 P <sub>90</sub> = 22 P <sub>99</sub> = 58																	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-May	7	7	6	7	5	5	5	6	9	12	9	12	12	13	11	11	14	12	9	8	6	6	10	6	14
2-May	6	5	2	5	3	5	7	18	14	13	13	15	14	12	11	10	10	12	7	5	3	3	7	13	18
3-May	14	15	15	90	57	39	58	32	25	27	32	34	40	17	23	35	20	12	10	7	3	3	8	20	90
4-May	36	14	2	4	5	15	3	12	24	29	19	14	19	27	27	30	22	25	35	14	18	15	5	5	36
5-May	5	5	5	5	5	6	7	8	8	16	22	9	7	8	10	20	11	16	13	12	4	4	4	4	22
6-May	4	7	7	7	4	4	4	4	5	6	DF	8	4	22	21	17	8	12	11	9	24	6	4	55	55
7-May	11	18	9	5	6	8	8	7	8	9	14	18	13	20	15	5	7	7	5	5	5	8	6	5	20
8-May	5	8	9	10	31	6	5	6	8	22	72	58	23	18	19	9	23	18	8	5	3	4	5	7	72
9-May	5	5	3	6	8	7	11	14	14	10	13	12	15	12	11	9	10	9	9	7	21	9	30	7	30
10-May	3	3	6	8	11	8	15	11	16	17	7	6	6	8	14	11	11	16	8	4	21	8	8	19	21
11-May	4	3	5	6	7	6	8	8	9	9	9	11	10	10	11	9	18	8	8	8	7	11	7	7	18
12-May	13	10	8	8	39	20	27	11	22	10	16	12	7	6	7	7	11	8	11	10	5	4	4	5	39
13-May	4	9	7	5	7	7	9	9	10	12	12	27	30	12	21	17	8	12	48	13	14	13	21	24	48
14-May	27	12	11	21	14	21	15	13	11	17	14	36	12	9	10	7	10	40	22	32	13	19	19	76	76
15-May	10	16	11	45	39	6	16	9	14	12	16	16	18	16	16	25	28	15	11	8	5	6	8	10	45
16-May	13	19	14	8	4	8	14	8	10	6	6	7	13	23	6	14	5	5	6	5	5	7	7	6	23
17-May	8	10	12	9	8	10	10	8	9	10	10	10	8	8	8	9	6	8	6	7	7	8	8	6	12
18-May	6	6	5	7	8	7	7	7	8	7	6	7	6	6	5	6	8	14	12	26	6	10	4	7	26
19-May	9	13	22	7	7	7	11	13	11	11	11	17	15	11	14	22	13	12	14	12	9	4	4	7	22
20-May	8	7	5	5	6	7	8	10	10	14	11	10	14	13	9	16	35	8	18	14	22	14	4	5	35
21-May	3	8	6	5	3	7	8	8	9	13	14	19	14	12	14	19	13	11	10	17	7	5	6	8	19
22-May	8	10	12	8	13	26	11	20	13	15	16	17	16	14	17	19	16	16	10	8	12	4	3	5	26
23-May	5	5	9	5	6	6	5	12	12	8	20	11	15	22	18	19	11	13	12	7	9	3	4	6	22
24-May	5	5	6	9	7	7	9	10	11	9	13	14	22	22	16	16	21	13	13	10	10	3	5	7	22
25-May	9	14	11	6	5	5	10	12	12	16	12	13	16	18	15	14	9	7	6	6	10	8	15	7	18
26-May	7	4	4	7	5	6	6	13	12	17	9	18	22	28	19	18	15	12	21	11	6	5	10	16	28
27-May	8	5	6	6	5	5	7	9	12	18	26	17	17	18	14	15	40	13	75	10	7	5	6	5	75
28-May	18	23	21	7	16	20	31	33	43	31	28	57	108	22	14	13	18	18	64	40	7	31	88	32	108
29-May	4	9	16	25	7	13	17	26	21	29	13	11	7	6	7	7	8	8	7	8	7	4	8	7	29
30-May	11	19	21	7	6	7	7	7	7	6	6	6	7	9	8	18	9	16	8	8	4	8	7	10	21
31-May	6	8	9	8	7	8	7	8	9	7	9	10	7	7	8	9	8	9	10	7	7	7	9	6	10
Diurnal Maximum																									
DF - DAS Failure																									





Maximum Value: 0.4 km/h on May 3 12:00		Maximum Daily Average: 0.0 km/h on May 3		Hours in Service: 744																								
Minimum Value: -1.5 km/h on May 6 22:00		Minimum Daily Average: -0.7 km/h on May 31		Hours of Data: 743																								
Maximum Diurnal Average: -0.1 km/h at hour 4		Minimum Diurnal Average: -0.5 km/h at hour 14		Hours of Missing Data: 1																								
Monthly Average: -0.28 km/h		Percentiles: $P_1 = -1.2$ $P_{10} = -0.7$ $Q_1 = -0.5$ Median = -0.2 $Q_3 = 0.0$ $P_{90} = 0.1$ $P_{99} = 0.2$		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-May	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.2	-0.3	-0.2	-0.1	0.1	-0.2	0.0	0.1	-0.2	0.2	0.2	0.0	0.1	0.2	0.2	-0.1	-0.1	0.0	0.0	0.2	
2-May	-0.1	-0.1	-0.1	0.0	-0.2	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	-0.2	0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.3	-0.2	-0.1	-0.1	0.0	-0.1	0.0	-0.1	0.1
3-May	0.0	0.0	-0.1	-0.1	0.0	-0.2	0.1	0.2	0.1	0.0	0.3	0.4	0.0	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
4-May	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.2	0.1	-0.5	0.1	0.0	0.2	0.0	0.0	-0.2	-0.4	-0.3	-0.1	0.1	0.1	-0.1	-0.1	-0.3	-0.3	-0.1	0.2	
5-May	-0.4	-0.5	-0.5	0.1	0.0	-0.4	-0.2	-0.3	-0.5	-0.4	-0.3	-0.7	-0.6	-0.7	-0.9	-1.0	-0.9	-1.1	-0.6	-0.7	-0.5	-0.4	-0.3	-0.5	-0.5	-0.5	0.1	
6-May	-0.7	-0.6	-0.9	-0.6	-0.6	-0.8	-0.8	-0.9	-0.5	-0.2	DF	-0.5	-0.6	-0.1	0.1	-0.3	-0.6	-0.3	0.0	-0.1	-1.2	-1.5	-0.7	0.0	-0.5	-0.5	0.1	
7-May	-0.2	-0.1	0.3	0.1	-0.2	-0.2	-0.1	0.0	-0.2	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.3	-0.1	0.0	-0.1	-0.3	-0.2	-0.3	-0.3	-0.1	-0.1	-0.1	0.3	
8-May	-0.1	-0.1	-0.4	-0.2	-0.1	-0.4	-0.5	-0.2	0.0	-0.2	0.2	0.2	0.0	-0.6	-0.6	-0.7	-0.6	-0.9	-0.8	-0.4	-0.3	-0.1	-0.4	-0.3	-0.3	-0.3	0.2	
9-May	-0.5	-0.8	-0.7	0.3	-0.2	-0.4	-0.5	-0.1	-0.2	-0.9	-0.7	-1.0	-1.2	-1.0	-1.2	-0.7	-0.7	-0.6	0.0	0.0	0.0	0.0	0.0	0.0	-0.5	-0.5	0.3	
10-May	0.1	-0.1	-0.5	-0.3	-0.4	-0.3	-0.5	-0.8	-0.5	-0.6	-1.1	-1.2	-1.1	-1.0	-0.5	-1.0	-0.9	-0.9	-0.6	-0.3	-0.1	-0.6	-0.3	-0.2	-0.6	-0.6	0.1	
11-May	-0.5	-0.7	-0.2	0.0	0.0	-0.5	-0.6	-0.8	-0.8	-0.3	-0.6	-0.8	-0.7	-0.3	-0.8	-0.2	-0.5	-0.4	-0.2	0.1	-0.1	0.0	0.0	0.0	-0.4	-0.4	0.1	
12-May	0.0	0.1	0.2	-0.1	0.0	0.0	-0.1	-0.1	0.1	-0.2	-0.2	-0.7	-0.7	-0.6	-0.1	-0.5	-0.5	-0.3	-0.5	-0.3	-0.2	-0.4	-0.4	-0.3	-0.2	-0.2	0.2	
13-May	-0.2	-0.5	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	-0.5	-0.7	-0.9	-0.6	-0.7	-0.4	0.0	-0.7	-0.8	-0.5	-0.4	-0.4	0.0	-0.1	0.1	0.1	-0.4	-0.4	0.1	
14-May	0.0	0.0	0.0	0.0	0.0	0.1	-0.1	-0.4	-0.9	-0.4	-0.1	-0.5	-1.2	-1.2	-0.9	-1.1	-1.1	-0.8	-0.1	-0.4	-0.2	0.0	0.0	0.0	-0.4	-0.4	0.1	
15-May	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	0.0	-0.1	-0.1	-0.2	-0.7	-0.1	-0.4	-0.4	-0.2	0.1	0.1	-0.1	-0.1	-0.2	-0.1	-0.1	0.1	
16-May	-0.2	0.0	-0.1	0.0	-0.3	-0.1	-0.1	-0.3	0.1	0.1	-0.1	-0.1	-0.2	-0.1	-0.5	-0.6	-0.1	-0.1	0.0	0.1	-0.1	0.0	0.1	0.1	-0.1	-0.1	0.1	
17-May	0.0	0.0	-0.2	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	0.0	0.0	-0.1	0.0	-0.1	-0.2	-0.2	-0.4	-0.3	-0.1	0.0	0.0	0.1	0.0	-0.4	-0.1	-0.1	0.1	
18-May	-0.4	-0.3	-0.2	-0.1	-0.1	0.0	0.0	0.0	0.2	0.0	0.1	-0.3	-0.4	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3	-0.2	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.2	
19-May	-0.1	0.0	-0.2	0.0	0.1	0.0	0.0	-0.2	0.0	-0.3	-0.1	-0.1	-0.1	-0.2	-0.1	0.1	-0.2	-0.1	-0.2	-0.1	0.0	-0.3	-0.2	-0.2	-0.1	-0.1	0.1	
20-May	-0.1	-0.2	-0.1	0.0	0.0	-0.1	0.1	0.0	-0.4	-0.1	0.2	0.0	-0.3	-0.4	-0.4	-0.1	0.1	-0.4	-0.4	0.0	-0.2	0.1	-0.1	-0.3	-0.1	-0.1	0.2	
21-May	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.3	-0.2	-0.2	-0.3	-0.5	-0.5	-0.3	-0.6	-0.5	-0.3	-0.4	-0.3	-0.2	-0.2	-0.3	0.0	0.0	0.1	-0.3	-0.3	0.1	
22-May	0.0	0.1	0.1	0.0	-0.2	-0.2	-0.2	0.1	-0.2	-0.1	-0.4	-0.4	-0.5	-0.5	-0.4	-0.5	-0.2	-0.4	-0.4	-0.3	-0.3	-0.3	-0.1	0.0	-0.2	-0.2	0.1	
23-May	0.0	0.0	-0.1	0.0	-0.1	-0.3	-0.5	-0.3	-0.2	-0.3	-0.6	-0.7	-0.6	-0.7	-0.9	-0.6	-0.9	-0.6	-0.7	-0.4	-0.3	-0.4	0.3	0.3	-0.4	-0.4	0.3	
24-May	0.1	0.0	0.1	0.0	0.0	-0.1	-0.1	0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.6	-0.5	-0.3	-0.4	-0.5	-0.7	-0.5	-0.2	0.0	0.1	0.1	-0.2	-0.2	0.1	
25-May	0.0	-0.3	-0.2	0.1	-0.2	-0.4	-0.3	-0.9	-0.2	-0.4	-0.4	-0.7	-0.7	-0.6	-0.8	-0.7	-0.4	-0.4	-0.6	-0.5	-0.7	-0.2	-0.2	-0.4	-0.4	-0.4	0.1	
26-May	-0.3	0.0	0.1	0.1	0.0	-0.3	-0.3	-0.5	-0.1	-0.2	-0.5	-0.3	-0.9	-0.5	-0.2	-0.5	-0.5	-0.3	-0.4	-0.2	0.2	0.0	0.1	0.1	-0.2	-0.2	0.2	
27-May	0.0	-0.4	-0.3	-0.1	0.0	-0.1	-0.1	-0.4	-0.1	-0.3	-0.1	-0.7	-0.5	-0.7	-0.6	-0.7	-0.6	-0.6	-0.3	-0.1	-0.2	-0.2	-0.3	-0.2	-0.3	-0.3	0.0	
28-May	-0.7	-0.5	-0.1	-0.1	-0.1	-0.2	0.1	0.3	0.2	-0.1	-0.3	0.1	0.2	-0.3	-0.1	-0.6	-0.2	-0.3	0.1	0.0	0.1	0.0	-0.3	-0.2	-0.1	-0.1	0.3	
29-May	-0.1	-0.1	-0.4	-0.1	-0.1	-0.1	-0.1	-0.5	-0.3	0.1	-0.4	-0.6	-0.7	-1.0	-1.2	-0.9	-1.0	-0.6	-0.8	-0.7	-0.9	-0.6	-0.7	-0.9	-0.5	-0.5	0.1	
30-May	-0.5	-0.5	-0.1	-0.5	-0.4	-0.3	-0.6	-0.5	-0.7	-0.7	-0.7	-0.7	-0.8	-0.7	-0.2	-0.4	-0.4	-0.7	-0.3	-0.5	-0.3	-0.5	-0.9	-0.6	-0.5	-0.5	-0.1	
31-May	-0.8	-0.9	-1.0	-1.3	-1.0	-0.6	-0.8	-0.7	-0.9	-0.7	-1.0	-0.9	-0.9	-1.0	-0.2	-0.4	-0.2	-0.3	-0.2	-0.4	-0.6	-0.3	-0.4	-0.5	-0.7	-0.7	-0.2	
																								Diurnal Average				
																								Diurnal Maximum				
DF - DAS Failure																												



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 5.4 km/h on May 11 13:00																				Hours of Data: 743					
Minimum Value: 0.1 km/h on May 4 04:00																				Hours of Missing Data: 1					
Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.2 Median = 1.9 Q <sub>3</sub> = 2.5 P <sub>90</sub> = 3.1 P <sub>99</sub> = 4.6																				Hours of Calibration: 0					
Percent Operational Time: 99.9																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	1.6	1.4	1.6	1.1	1.4	1.4	1.6	1.7	2.2	2.2	2.8	3.4	3.4	3.6	3.8	3.6	3.6	3.0	2.5	2.0	2.8	2.4	1.6	1.2	3.8
2-May	0.6	0.6	0.9	0.7	0.4	0.8	1.2	1.5	2.1	2.7	2.8	3.0	3.4	3.5	3.7	3.6	3.7	3.5	3.2	2.9	1.7	1.3	1.1	0.6	3.7
3-May	0.3	0.2	0.2	0.2	0.2	0.4	1.0	1.0	1.2	1.7	1.6	2.0	2.5	2.3	2.1	1.7	2.3	2.1	2.5	2.1	1.3	0.9	0.4	0.3	2.5
4-May	0.5	0.2	0.2	0.1	0.1	0.3	0.5	1.1	1.5	1.7	2.3	2.4	2.6	2.3	2.3	2.4	1.8	1.7	1.2	0.8	0.4	0.5	1.9	2.2	2.6
5-May	2.5	2.2	1.4	1.1	1.2	1.3	1.3	1.7	1.4	1.8	2.1	3.2	3.4	3.5	3.2	2.6	1.8	2.5	2.1	1.3	1.8	2.2	1.4	2.6	3.5
6-May	3.0	2.5	2.5	2.5	2.9	3.3	3.0	3.4	2.9	2.6	DF	3.6	3.3	2.2	1.7	2.8	2.9	2.1	1.8	1.6	2.5	2.2	1.3	0.6	3.6
7-May	0.5	0.7	0.9	0.9	1.5	2.0	1.4	1.5	1.4	1.0	0.8	1.0	0.8	0.7	1.7	1.7	0.8	0.8	1.0	1.7	2.0	1.5	1.6	1.6	2.0
8-May	1.2	1.6	1.3	1.0	0.8	2.1	2.4	2.2	1.1	1.1	1.5	1.8	2.2	2.2	2.3	1.9	1.7	2.1	2.1	1.5	1.1	1.1	1.1	1.9	2.4
9-May	1.5	2.1	2.9	2.2	1.4	1.3	1.9	1.9	2.6	3.4	3.8	5.0	4.2	4.4	4.5	4.3	3.8	3.4	2.3	0.8	0.3	0.3	0.3	0.3	5.0
10-May	0.3	0.8	1.4	1.3	1.4	1.3	1.8	2.0	1.8	2.1	2.7	2.9	3.1	3.1	3.7	4.0	3.8	3.9	3.4	1.1	1.7	4.9	3.8	1.0	4.9
11-May	1.6	2.5	1.9	1.8	2.7	3.3	3.7	3.8	4.7	4.6	4.7	5.0	5.4	5.0	4.7	4.4	4.4	4.4	4.1	3.3	1.7	1.5	1.2	0.9	5.4
12-May	0.8	0.6	0.4	0.3	0.3	0.2	0.6	1.3	1.7	1.8	1.6	2.0	2.0	2.3	2.5	2.5	2.6	2.5	1.8	1.8	2.0	1.8	1.9	1.9	2.6
13-May	1.6	1.5	1.6	2.1	2.6	2.7	2.4	3.0	2.2	2.7	2.8	2.7	2.0	2.3	2.0	2.2	2.7	2.8	2.0	3.1	2.8	1.0	0.5	0.2	3.1
14-May	0.2	0.1	0.1	0.1	0.2	0.4	1.1	1.1	1.8	1.6	2.4	2.5	2.8	2.7	3.1	3.1	3.1	3.7	2.3	3.1	2.4	0.6	0.5	0.4	3.7
15-May	0.4	0.2	0.2	0.2	0.6	0.5	0.9	1.1	1.7	2.1	2.1	2.3	2.3	2.4	3.1	2.0	2.2	2.4	3.0	2.5	1.9	2.0	1.6	1.2	3.1
16-May	1.4	1.4	1.3	1.3	1.7	1.5	1.4	1.9	1.8	1.9	2.1	2.0	1.4	1.3	2.2	2.0	1.7	2.1	2.1	1.8	1.8	2.0	1.7	1.6	2.2
17-May	2.0	2.0	2.1	2.0	2.0	1.9	2.0	1.9	1.9	1.6	1.6	2.2	2.5	2.5	2.7	2.6	2.7	2.4	2.7	2.5	2.2	1.8	1.8	2.2	2.7
18-May	2.3	2.1	2.0	1.9	1.6	2.0	1.8	1.9	1.9	2.0	2.4	2.5	2.9	2.9	3.1	2.8	2.0	2.1	1.7	1.6	1.2	1.0	1.1	1.0	3.1
19-May	0.9	0.8	1.0	1.1	1.0	0.8	0.9	1.6	1.9	2.1	1.7	2.0	2.2	2.1	1.9	1.6	2.1	2.1	1.8	1.2	0.7	1.6	1.4	1.3	2.2
20-May	1.0	0.8	0.7	0.5	0.6	0.7	1.4	1.6	1.7	1.9	2.5	2.4	2.2	2.1	2.2	1.5	1.2	2.7	1.2	0.6	0.6	0.4	1.4	1.8	2.7
21-May	1.1	0.9	1.7	1.5	1.5	1.8	1.5	1.9	1.8	2.1	2.4	2.5	2.4	3.0	2.6	2.2	2.6	2.3	1.8	1.3	1.2	0.8	0.3	0.5	3.0
22-May	0.4	0.6	0.8	0.7	0.9	1.0	1.1	1.5	2.2	2.4	2.3	2.7	2.7	3.0	2.7	2.3	2.1	1.7	1.8	1.5	1.7	1.1	0.6	0.5	3.0
23-May	0.5	0.4	0.6	0.8	1.1	1.8	1.9	1.5	2.1	2.6	2.3	2.0	2.6	2.7	2.3	2.0	2.0	1.8	1.7	1.3	1.4	1.2	0.7	0.5	2.7
24-May	0.5	0.3	0.3	0.2	0.2	0.4	0.9	1.4	2.2	2.3	2.6	2.3	2.5	2.2	2.5	2.4	2.2	1.9	1.4	1.3	1.0	0.3	0.4	0.4	2.6
25-May	0.4	1.3	0.8	1.1	1.1	1.0	1.5	1.8	2.1	2.2	3.0	3.0	3.0	2.9	2.6	2.8	2.7	2.4	2.4	2.5	2.8	1.6	1.5	1.2	3.0
26-May	1.2	1.0	0.7	0.3	0.5	1.0	1.7	1.8	2.1	2.6	3.0	2.5	2.3	2.2	2.0	1.8	1.4	1.3	1.2	0.8	0.9	0.9	0.7	0.7	3.0
27-May	1.0	1.4	1.6	1.0	0.6	0.5	1.0	1.7	2.1	2.2	2.4	2.1	2.1	2.6	2.7	2.5	2.7	2.8	0.9	0.7	1.1	1.2	2.2	2.7	2.8
28-May	2.8	2.0	1.4	1.3	0.9	1.0	0.8	0.9	1.2	1.6	1.7	1.7	1.6	2.1	2.6	2.5	1.8	1.6	0.9	0.5	0.4	0.6	1.8	1.4	2.8
29-May	2.3	1.1	0.9	0.7	1.0	0.8	1.3	1.6	1.8	2.0	1.9	1.9	2.1	3.3	3.2	3.2	3.1	2.7	2.9	2.6	2.9	1.9	2.2	2.2	3.3
30-May	1.9	1.6	1.6	2.2	2.1	1.6	2.0	2.3	2.6	2.5	2.4	2.4	2.4	2.2	2.1	2.7	2.2	2.1	2.5	2.6	1.4	1.8	3.1	2.6	3.1
31-May	2.6	3.1	3.6	4.2	3.8	3.1	3.0	2.6	3.6	3.2	4.0	3.4	3.6	4.0	3.5	2.0	1.9	2.2	3.6	2.9	2.9	2.8	3.1	2.9	4.2
Diurnal Maximum																									
DF - DAS Failure																									





Maximum Value: 1.0 km/h on May 9 04:00		Maximum Daily Average: 0.3 km/h on May 7		Hours in Service: 744																							
Minimum Value: -1.3 km/h on May 9 15:00		Minimum Daily Average: -0.5 km/h on May 31		Hours of Data: 614																							
Maximum Diurnal Average: 0.2 km/h at hour 1		Minimum Diurnal Average: -0.1 km/h at hour 14		Hours of Missing Data: 130																							
Monthly Average: 0.10 km/h		Percentiles: P <sub>1</sub> = -0.9 P <sub>10</sub> = -0.3 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.8		Hours of Calibration: 0																							
				Percent Operational Time: 82.5																							
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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--	
2-May	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-May	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-May	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-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--	
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.4	DF	0.6	0.4	0.4	0.3	0.1	-0.1	0.0	0.0	0.2	-0.2	-0.7	-0.2	0.2	--	0.6	
7-May	0.0	0.0	0.2	0.2	0.2	0.4	0.3	0.5	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.5	0.6	0.7	0.7	1.0	0.3	1.0		
8-May	0.9	0.5	0.2	0.3	0.4	0.0	-0.1	0.0	0.1	0.1	0.5	0.8	0.3	-0.1	0.1	0.1	-0.2	-0.1	0.4	0.5	0.4	0.5	0.3	0.5	0.3	0.9	
9-May	0.4	0.0	0.1	1.0	0.3	0.4	0.0	0.2	0.4	-0.9	-0.4	-0.2	-0.7	-0.7	-1.3	-0.8	-0.6	-0.8	0.1	0.2	0.3	0.2	0.2	0.5	-0.1	1.0	
10-May	0.5	0.2	-0.4	0.0	0.2	-0.1	-0.2	0.0	0.0	0.3	-0.1	-0.1	0.1	-0.1	0.2	-0.1	-0.3	-0.3	-0.5	-0.1	0.2	0.2	0.3	0.0	0.0	0.5	
11-May	-0.2	-0.4	0.2	0.2	0.3	-0.2	-0.4	-0.7	-1.1	-0.7	-0.7	-0.7	-0.5	-0.7	-0.7	-0.1	0.3	0.1	-0.1	0.1	0.2	0.2	0.1	0.2	-0.2	0.3	
12-May	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.5	0.2	0.2	-0.2	0.3	0.1	0.2	0.3	0.4	0.2	0.3	0.7	0.2	0.1	0.2	0.4	0.2	0.7	
13-May	0.5	0.3	0.3	0.7	0.4	0.4	0.6	0.7	0.1	0.6	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.3	-0.1	0.0	0.5	0.1	0.3	0.2	0.3	0.7	
14-May	0.2	0.2	0.1	0.1	0.3	0.5	0.3	0.1	-0.3	0.1	0.4	0.2	0.0	0.0	0.4	0.0	0.0	-0.4	-0.1	0.2	0.3	0.2	0.2	0.2	0.1	0.5	
15-May	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.0	-0.2	0.0	0.0	-0.1	0.1	-0.3	-0.5	0.2	-0.3	0.2	0.0	0.2	0.4	0.2	0.1	0.0	0.0	0.4	
16-May	-0.2	0.1	0.2	0.3	0.3	0.5	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.1	0.1	0.2	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.5	
17-May	0.3	0.2	0.3	0.1	0.3	0.3	0.3	0.3	0.1	0.2	0.3	0.2	0.1	0.3	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.3	0.4	0.3	0.2	0.5	
18-May	0.4	0.4	0.6	0.5	0.2	0.1	-0.2	-0.1	0.3	0.0	0.1	-0.1	-0.3	-0.2	-0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.4	0.1	0.6	
19-May	0.2	0.3	0.0	0.3	0.3	0.3	0.2	-0.1	0.1	0.0	-0.1	0.2	0.3	0.2	-0.1	0.2	-0.1	0.1	0.1	0.2	0.3	0.3	0.1	0.2	0.1	0.3	
20-May	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	-0.3	0.2	0.2	0.0	-0.1	-0.2	0.2	0.0	0.1	0.4	-0.1	0.4	-0.2	0.1	0.3	0.2	0.1	0.4	
21-May	0.4	0.1	0.3	0.1	0.2	-0.1	-0.1	0.3	0.3	0.3	0.5	-0.1	0.4	-0.2	0.0	0.2	-0.4	-0.2	-0.3	0.0	0.0	0.2	0.0	0.2	0.1	0.5	
22-May	0.1	0.1	0.1	0.1	-0.1	0.0	0.2	0.2	-0.3	0.1	-0.4	-0.1	-0.5	-0.6	0.1	-0.1	-0.2	-0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.0	0.4	
23-May	0.2	0.2	0.2	0.4	0.4	0.2	0.0	-0.1	-0.1	0.0	-0.5	0.0	0.2	-0.1	-0.1	0.1	-0.1	0.2	0.1	0.4	0.4	0.1	0.8	0.8	0.2	0.8	
24-May	0.6	0.5	0.2	0.2	0.2	0.2	0.0	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.5	0.4	0.4	0.0	0.3	0.4	0.3	0.2	0.0	0.2	0.6	
25-May	0.3	0.2	-0.4	0.4	-0.3	-0.3	-0.3	0.0	0.2	0.1	0.4	0.1	0.2	0.1	0.2	-0.1	0.3	0.2	0.2	0.1	0.2	0.3	0.4	0.0	0.1	0.4	
26-May	0.2	0.2	0.5	0.1	0.2	0.2	0.3	0.2	0.5	0.6	0.2	0.4	-0.2	0.3	0.0	0.1	0.0	0.2	0.1	0.2	0.6	0.4	0.3	0.4	0.3	0.6	
27-May	0.2	0.1	0.2	0.4	0.1	-0.1	0.3	0.1	0.3	0.1	0.4	-0.1	0.4	0.1	0.1	0.2	0.4	0.1	0.0	0.3	0.2	0.3	0.5	0.5	0.2	0.5	
28-May	0.6	0.3	0.0	0.1	0.2	0.0	0.1	0.7	0.8	0.6	0.0	0.3	0.7	0.4	0.5	-0.2	0.2	-0.2	0.5	0.2	0.4	0.3	0.0	-0.1	0.3	0.8	
29-May	0.0	0.1	-0.2	0.0	-0.1	0.1	-0.1	-0.3	0.0	0.4	0.4	0.1	0.3	0.7	0.4	1.0	0.2	0.8	0.4	0.7	0.2	0.3	0.4	0.1	0.3	1.0	
30-May	0.6	-0.1	0.2	-0.1	-0.1	0.0	-0.2	-0.3	-0.3	-0.3	-0.4	-0.5	-0.7	-0.2	-0.2	-0.4	-0.3	-0.5	0.1	-0.4	-0.3	-0.3	-0.6	-0.5	-0.2	0.6	
31-May	-0.7	-0.6	-0.8	-1.1	-0.9	-0.5	-0.6	-0.7	-0.4	-0.4	-0.9	-0.3	-0.9	-1.0	-0.2	-0.1	0.0	-0.3	-0.5	-0.4	-0.7	-0.4	-0.3	-0.5	-0.5	0.0	
		0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	Diurnal Average		
		0.9	0.5	0.6	1.0	0.4	0.5	0.6	0.7	0.8	0.6	0.5	0.8	0.7	0.7	0.5	1.0	0.4	0.8	0.5	0.7	0.6	0.7	0.8	1.0	Diurnal Maximum	
DF - DAS Failure		UO - Unstable Operation																									



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

**Vertical Wind Speed 45 m (VW45m) - km/h**  
**Lower Camp Met Tower - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744							
Maximum Value: 5.6 km/h on May 11 13:00																				Hours of Data: 614							
Minimum Value: 0.2 km/h on May 14 03:00																				Hours of Missing Data: 130							
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.2 Median = 1.8 Q <sub>3</sub> = 2.4 P <sub>90</sub> = 2.9 P <sub>99</sub> = 4.8																				Hours of Calibration: 0							
																				Percent Operational Time: 82.5							
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-May	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	--	
2-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
4-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
5-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.5	DF	3.0	2.6	2.4	1.6	2.8	2.7	2.1	1.7	1.8	2.9	2.6	1.4	0.8	3.0		
7-May	0.5	0.9	1.0	1.2	1.7	2.1	1.3	1.7	1.5	1.2	0.8	1.1	1.0	0.7	1.6	1.4	0.8	0.8	0.9	1.4	1.8	1.6	1.9	1.7	2.1		
8-May	1.4	1.6	1.1	0.7	1.0	1.9	2.6	2.2	1.2	1.2	1.8	2.0	2.2	2.6	3.0	2.2	2.1	2.4	2.1	1.5	1.0	1.2	0.7	1.3	3.0		
9-May	1.5	1.8	2.5	2.7	1.5	1.3	1.9	2.0	2.9	3.4	3.9	4.9	4.2	4.8	4.7	4.6	3.9	3.6	2.6	0.9	0.4	0.3	0.5	0.5	4.9		
10-May	0.4	0.8	1.1	1.2	1.4	1.3	1.6	1.1	1.3	2.1	2.8	2.7	2.8	3.1	3.8	4.0	3.8	3.7	3.5	1.1	1.7	3.8	3.4	1.1	4.0		
11-May	1.5	2.5	1.9	2.4	3.1	3.5	3.7	3.9	4.7	4.7	5.0	5.2	5.6	5.1	4.8	4.5	3.7	3.9	3.6	3.0	1.6	1.2	1.1	1.0	5.6		
12-May	1.2	0.8	0.5	0.3	0.3	0.3	0.6	1.5	1.8	1.8	1.7	1.6	1.6	1.5	2.2	2.2	2.1	2.1	1.8	1.7	1.7	1.4	1.3	1.4	2.2		
13-May	1.4	1.5	1.5	2.0	2.3	2.3	2.5	3.0	2.5	2.6	2.9	2.6	2.6	2.2	1.9	2.6	2.3	2.3	1.9	2.9	2.5	1.3	0.9	0.3	3.0		
14-May	0.4	0.2	0.2	0.2	0.4	0.6	0.8	1.0	1.1	1.1	2.2	2.3	2.8	2.9	3.2	2.8	2.9	3.4	2.1	2.6	2.0	0.8	0.7	0.6	3.4		
15-May	0.4	0.3	0.3	0.2	0.7	0.4	1.0	1.1	1.5	1.9	2.2	2.3	2.6	2.5	2.9	2.0	2.0	2.3	2.7	2.3	1.8	2.2	1.7	1.4	2.9		
16-May	1.4	1.3	1.3	1.3	1.3	1.5	1.2	1.8	2.1	1.9	1.9	1.8	1.2	1.2	1.8	1.7	1.5	1.9	1.8	1.5	1.5	1.5	1.5	1.6	2.1		
17-May	1.6	1.9	1.7	1.7	1.7	2.0	2.0	1.6	1.5	1.3	1.5	1.9	2.2	2.1	2.3	2.3	2.5	2.3	2.5	2.4	2.2	1.9	1.8	2.1	2.5		
18-May	2.2	2.0	2.0	2.0	1.7	1.9	1.7	2.0	2.2	2.0	2.4	2.5	2.8	2.9	3.1	2.8	2.0	2.0	1.5	1.5	1.2	1.0	1.1	1.1	3.1		
19-May	1.1	1.1	1.1	1.1	1.0	0.9	0.9	1.6	1.8	1.9	1.6	1.8	2.0	2.1	1.8	1.6	1.9	2.0	1.6	1.1	0.6	1.5	1.3	1.1	2.1		
20-May	1.0	0.9	0.8	0.7	0.7	0.8	1.4	1.7	1.4	1.9	2.4	2.5	2.2	2.1	2.1	1.4	1.3	1.9	1.5	0.8	0.8	0.6	1.3	1.4	2.5		
21-May	1.1	0.9	1.6	1.4	1.4	1.7	1.5	1.8	1.8	1.9	2.3	2.3	2.3	2.8	2.4	2.2	2.3	1.9	1.4	1.2	1.1	0.9	0.5	0.7	2.8		
22-May	0.5	0.6	1.0	0.6	0.9	0.9	0.9	1.5	2.0	2.5	2.3	2.8	2.5	2.5	2.6	2.2	2.0	1.7	1.5	1.4	1.5	0.9	0.6	0.5	2.8		
23-May	0.7	0.6	0.9	1.0	1.2	1.4	1.5	1.5	1.8	2.4	2.3	1.9	2.6	2.7	2.8	2.4	2.6	2.4	1.9	1.4	1.7	1.4	0.9	0.6	2.8		
24-May	0.6	0.5	0.3	0.4	0.4	0.7	0.9	1.4	2.1	2.4	2.4	2.3	2.6	2.5	2.4	2.7	2.6	2.6	1.9	1.6	0.9	0.5	0.7	0.8	2.7		
25-May	0.6	1.4	1.1	1.3	1.3	1.3	1.6	1.1	2.1	2.4	3.1	3.3	3.0	2.8	2.9	2.4	2.3	1.9	2.3	2.1	2.3	1.8	1.7	1.0	3.3		
26-May	0.9	0.9	0.8	0.4	0.5	1.3	1.7	1.6	2.3	2.6	2.6	2.5	2.9	2.7	1.9	2.3	1.8	1.6	1.4	1.0	1.3	1.2	1.1	1.0	2.9		
27-May	1.2	1.0	1.2	0.8	0.9	0.7	1.1	1.3	2.0	2.2	2.5	2.8	2.6	2.9	2.5	2.4	2.9	2.4	0.9	0.7	1.3	1.2	2.0	2.4	2.9		
28-May	2.6	1.8	1.3	1.1	1.0	1.1	0.8	1.0	1.5	1.9	1.8	1.9	1.8	2.7	2.8	2.5	2.1	1.6	1.1	0.6	0.4	0.6	1.5	1.2	2.8		
29-May	2.4	1.3	0.8	1.0	1.3	1.1	1.1	1.3	1.9	2.0	1.9	1.8	2.0	2.9	3.0	3.4	3.2	2.9	2.9	2.6	2.6	1.7	2.1	2.4	3.4		
30-May	2.3	1.8	1.8	2.1	1.9	1.6	1.9	2.2	2.4	2.3	2.4	2.4	2.3	2.3	2.2	2.7	2.3	2.0	2.4	2.5	1.4	1.7	3.0	2.4	3.0		
31-May	2.5	3.1	3.8	4.3	3.8	3.2	3.0	2.7	3.7	3.5	3.9	3.6	3.7	4.0	3.5	2.0	1.7	2.3	3.6	2.8	2.9	2.7	3.2	2.9	4.3		
											Diurnal Maximum																
2.6											3.1											3.8					
4.3											3.8											3.5					
3.7											3.9											4.7					
4.7											4.7											5.0					
5.2											5.6											5.1					
4.8											4.6											3.9					
3.9											3.9											3.6					
3.0											2.9											3.8					
3.4											2.9											3.4					
2.9											2.9											2.9					
2.9											2.9											2.9					
2.8											2.8											2.8					
2.8											2.8											2.8					
2.7											2.7											2.7					
3.3											3.3											3.3					
2.9											2.9											2.9					
2.9											2.9											2.9					
2.8											2.8											2.8					
3.4											3.4											3.4					
3.0											3.0											3.0					
4.3											4.3											4.3					
DF - DAS Failure UO - Unstable Operation																											



Maximum Value: 3.0 km/h on May 9 04:00		Maximum Daily Average: 0.7 km/h on May 5		Hours in Service: 744																							
Minimum Value: -2.1 km/h on May 11 09:00		Minimum Daily Average: -1.1 km/h on May 31		Hours of Data: 743																							
Maximum Diurnal Average: 0.4 km/h at hour 4		Minimum Diurnal Average: -0.1 km/h at hour 14		Hours of Missing Data: 1																							
Monthly Average: 0.10 km/h		Percentiles: P <sub>1</sub> = -1.7 P <sub>10</sub> = -0.6 Q <sub>1</sub> = -0.2 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.8		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-May	0.4	0.6	0.3	0.3	0.2	0.3	0.2	0.1	0.0	-0.2	0.2	0.7	0.2	0.5	0.1	0.5	1.0	0.9	0.4	0.5	0.8	0.8	0.3	0.1	0.4	1.0	
2-May	0.0	-0.1	-0.1	-0.3	0.3	0.1	0.0	0.1	-0.1	0.5	0.1	0.8	0.6	0.4	0.5	0.3	0.6	0.2	0.5	0.1	0.4	0.8	0.9	0.3	0.3	0.9	
3-May	0.1	0.1	0.1	0.1	0.0	-0.2	-0.1	0.3	0.0	0.4	0.6	1.1	0.8	0.4	0.0	0.1	0.7	0.2	0.2	1.1	0.8	0.5	0.0	0.0	0.3	1.1	
4-May	0.1	0.0	-0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.5	-0.4	0.8	0.4	1.0	0.5	-0.5	-0.7	0.2	0.7	0.6	0.6	0.7	2.5	0.3	2.5	
5-May	1.8	1.2	1.6	2.6	1.9	0.9	0.4	0.2	-0.1	-0.1	0.7	0.1	0.4	0.7	1.1	0.5	-0.4	0.5	1.3	1.0	0.6	0.3	0.4	0.2	0.7	2.6	
6-May	0.1	0.5	0.5	0.5	-0.2	-0.1	-0.2	-0.3	0.4	-0.8	DF	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.2	-0.4	-0.7	-0.3	0.1	0.0	0.6		
7-May	0.0	-0.3	-0.2	0.3	0.6	0.7	0.2	0.6	0.2	-0.1	-0.1	0.0	0.0	0.3	-0.1	0.1	0.1	0.1	0.2	0.3	1.5	1.7	1.5	1.7	0.4	1.7	
8-May	1.4	0.7	-0.1	-0.2	0.3	-0.3	-0.2	-0.5	-0.1	-0.3	0.3	0.8	0.1	0.2	0.2	0.2	-0.6	-0.1	0.5	0.3	0.1	0.6	-0.1	1.0	0.2	1.4	
9-May	1.6	0.1	0.4	3.0	0.6	0.4	0.3	-0.2	0.1	-1.3	-0.6	-0.4	-1.0	-1.6	-2.0	-1.8	-1.1	-1.5	-0.2	-0.2	0.1	-0.1	0.1	-0.2	-0.2	3.0	
10-May	0.1	-0.5	-0.7	-0.1	0.8	-0.4	-0.1	-0.2	-0.4	0.3	-0.4	-0.5	-0.3	-0.2	0.2	-0.2	-0.8	-0.6	-1.1	-0.5	-0.2	0.1	0.2	-0.1	-0.2	0.8	
11-May	-0.7	-1.0	0.0	0.7	0.9	-0.6	-0.8	-1.5	-2.1	-1.8	-1.8	-1.5	-1.8	-1.3	-1.7	-0.5	0.1	-0.3	-0.5	-0.5	-0.1	-0.2	-0.1	0.4	-0.7	0.9	
12-May	-0.1	0.1	0.0	0.0	-0.1	-0.1	0.0	-0.2	0.4	0.5	0.0	-0.5	0.0	-0.4	0.4	0.3	0.8	0.4	0.7	1.5	0.4	0.0	0.3	0.6	0.2	1.5	
13-May	1.0	1.0	1.0	2.2	1.8	1.8	1.5	1.5	0.9	1.3	0.3	0.7	-0.2	-0.5	-0.3	-0.3	-0.3	0.4	-0.4	0.3	0.8	-0.2	0.0	0.0	0.6	2.2	
14-May	0.1	0.0	0.0	-0.1	0.1	0.0	0.0	0.4	-0.3	-0.1	0.6	0.1	-0.2	-0.3	0.3	-0.3	-0.2	-0.4	-0.3	0.1	0.3	-0.1	-0.1	0.1	0.0	0.6	
15-May	-0.1	0.0	0.0	0.1	0.0	-0.1	-0.1	-0.2	-0.6	-0.2	-0.1	-0.3	0.3	-0.3	-0.7	0.2	-0.4	0.9	0.1	0.3	0.1	0.1	0.1	-0.2	-0.1	0.9	
16-May	-0.5	-0.3	-0.2	0.2	0.3	0.7	0.4	0.2	0.9	0.0	0.1	0.1	0.1	0.2	-0.1	0.1	0.2	0.4	0.2	0.0	0.0	0.0	0.0	-0.2	0.1	0.9	
17-May	-0.3	0.0	0.1	0.3	0.3	0.5	0.5	0.3	0.1	0.2	0.0	0.1	0.0	0.1	0.7	0.4	0.5	0.7	0.1	-0.1	-0.1	0.1	0.8	0.5	0.2	0.8	
18-May	0.9	0.3	0.4	0.5	0.5	-0.3	-0.5	-0.5	-0.3	0.0	-0.5	0.0	-0.7	-0.7	-0.8	-0.4	0.1	-0.1	0.1	-0.1	0.0	0.2	0.2	0.3	-0.1	0.9	
19-May	0.0	0.3	0.0	0.3	0.3	0.4	0.3	0.0	0.4	0.1	-0.2	0.4	0.4	0.4	-0.3	0.0	-0.3	-0.1	-0.2	0.0	0.3	0.2	0.1	0.1	0.1	0.4	
20-May	0.0	0.0	-0.2	-0.2	-0.3	-0.2	-0.2	0.0	-0.4	0.5	0.1	0.1	-0.2	-0.4	0.3	-0.3	-0.1	0.6	-0.2	0.6	-0.5	0.1	0.5	0.4	0.0	0.6	
21-May	1.2	0.3	0.9	0.5	0.7	-0.3	0.2	0.3	0.2	0.3	1.2	0.1	0.7	0.4	0.4	0.8	-0.2	-0.2	-0.4	0.0	0.1	0.5	0.1	0.2	0.3	1.2	
22-May	0.1	0.1	0.0	0.1	-0.2	-0.1	0.1	0.5	-0.8	0.2	-0.6	0.2	-0.4	-0.6	0.4	0.0	-0.5	0.1	0.5	0.3	0.2	0.2	0.4	0.7	0.0	0.7	
23-May	0.3	0.0	0.3	0.9	0.7	0.0	0.0	-0.6	0.2	-0.4	-0.7	-0.1	0.2	0.2	0.5	-0.4	0.5	0.7	0.3	0.5	0.0	-0.3	0.6	0.1	0.9		
24-May	0.5	0.5	0.2	0.0	0.0	-0.2	-0.1	0.2	0.5	0.1	0.1	0.3	-0.1	0.6	0.2	1.5	1.0	0.4	-0.2	0.1	0.1	0.4	0.5	0.1	0.3	1.5	
25-May	0.0	0.8	-1.0	0.9	-0.3	-0.7	-0.5	0.1	0.2	0.7	1.2	0.3	0.7	-0.2	0.5	0.2	0.0	0.1	0.7	0.0	0.9	1.4	0.9	0.0	0.3	1.4	
26-May	0.2	0.6	0.9	0.4	0.5	1.4	1.0	0.5	1.1	1.3	0.2	0.7	0.1	0.5	0.0	-0.1	0.0	0.3	0.3	0.7	1.3	0.4	0.2	0.3	0.5	1.4	
27-May	-0.2	0.2	0.1	0.8	0.5	0.2	0.6	0.3	0.0	-0.2	0.7	-0.2	0.6	0.3	0.5	0.6	0.6	0.4	-0.1	0.2	0.1	0.4	1.2	1.1	0.4	1.2	
28-May	2.0	0.2	-0.4	0.1	0.3	0.0	-0.1	0.9	1.1	0.1	-0.3	0.4	0.5	-0.1	0.2	-1.0	0.0	-0.7	0.5	0.1	0.2	0.2	0.1	-0.2	0.2	2.0	
29-May	-0.1	0.3	-0.2	0.0	-0.4	0.0	-0.1	-0.4	0.0	0.4	0.0	-0.4	0.3	0.6	0.4	1.1	-0.1	0.9	0.6	0.7	0.3	0.2	0.2	0.4	0.2	1.1	
30-May	0.5	0.2	0.3	-0.5	-0.8	-0.5	-0.8	-0.8	-0.9	-0.9	-1.1	-1.0	-1.1	-0.7	-0.9	-0.8	-0.6	-0.8	-0.3	-0.8	-0.8	-0.7	-1.2	-0.9	-0.7	0.5	
31-May	-1.2	-1.3	-1.3	-1.7	-1.5	-1.1	-1.3	-1.3	-1.0	-1.1	-1.6	-0.7	-1.6	-1.7	-0.9	-0.6	-0.2	-0.3	-0.9	-0.9	-1.2	-0.8	-0.9	-1.1	-1.1	-0.2	
		0.3	0.1	0.1	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	Diurnal Average		
		2.0	1.2	1.6	3.0	1.9	1.8	1.5	1.5	1.1	1.3	1.2	1.1	0.8	0.7	1.1	1.5	1.0	0.9	1.3	1.5	1.5	1.7	1.5	2.5	Diurnal Maximum	
DF - DAS Failure																											



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

**Vertical Wind Speed 100 m (VW100m) - km/h**  
**Lower Camp Met Tower - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.2 km/h on May 2 16:00 Minimum Value: 0.1 km/h on May 4 05:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.1 Median = 1.8 Q <sub>3</sub> = 2.5 P <sub>90</sub> = 3.5 P <sub>99</sub> = 4.1																				Hours in Service: 744 Hours of Data: 173 Hours of Missing Data: 571 Hours of Calibration: 0 Percent Operational Time: 23.8					
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-May	1.5	1.8	1.7	1.3	1.0	1.1	1.1	1.3	1.4	1.8	2.5	3.5	3.8	3.8	3.6	4.0	4.1	3.6	2.8	2.1	2.5	2.4	1.7	0.9	4.1
2-May	0.8	0.7	0.4	0.8	1.1	0.9	0.8	1.7	2.2	2.9	3.3	3.3	3.7	3.9	4.2	4.2	4.0	3.3	2.7	2.1	1.4	1.1	1.0	1.3	4.2
3-May	0.7	0.3	0.3	0.4	0.3	0.4	0.6	0.7	1.0	1.7	1.9	3.0	3.7	3.2	3.0	2.8	2.8	2.0	2.4	2.1	1.6	1.4	0.9	1.0	3.7
4-May	0.5	0.2	0.2	0.2	0.1	0.2	0.2	0.9	1.5	2.3	2.8	3.0	3.8	3.6	2.9	3.4	2.5	2.2	1.7	0.9	0.5	1.1	1.9	2.2	3.8
5-May	2.0	1.3	1.4	1.1	2.1	1.7	1.5	1.6	1.3	1.8	2.8	3.0	3.0	3.6	3.2	3.2	2.8	3.8	2.5	2.1	1.3	1.8	1.3	2.1	3.8
6-May	1.9	2.5	2.3	2.1	1.9	1.8	2.1	2.1	2.2	2.1	DF	3.0	2.3	2.9	1.9	3.6	3.4	2.5	1.8	1.9	2.9	2.5	1.3	0.9	3.6
7-May	1.0	1.3	1.5	1.5	2.0	2.0	1.4	2.0	1.8	1.7	1.0	1.3	1.2	0.8	1.5	1.4	0.7	0.8	0.9	1.2	1.7	1.8	2.3	1.9	2.3
8-May	1.9	1.5	1.2	1.0	1.2	1.6	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	1.9
9-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
10-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
11-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
12-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
13-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
14-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
15-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
16-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
17-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
18-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
19-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
20-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
21-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
22-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
23-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
24-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
25-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
26-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
27-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
28-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
29-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
30-May	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--
31-May	NF	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																									
2.0 2.5 2.3 2.1 2.1 2.0 2.1 2.1 2.2 2.9 3.3 3.5 3.8 3.9 4.2 4.2 4.1 3.8 2.8 2.1 2.9 2.5 2.3 2.2																									
DF - DAS Failure NF - Not Flagged																									



Maximum Value: 7.0 km/h on May 9 04:00		Maximum Daily Average: 1.1 km/h on May 13		Hours in Service: 744																							
Minimum Value: -1.8 km/h on May 29 01:00		Minimum Daily Average: -0.2 km/h on May 31		Hours of Data: 743																							
Maximum Diurnal Average: 0.8 km/h at hour 4		Minimum Diurnal Average: 0.2 km/h at hour 9		Hours of Missing Data: 1																							
Monthly Average: 0.42 km/h		Percentiles: P <sub>1</sub> = -1.0 P <sub>10</sub> = -0.4 Q <sub>1</sub> = 0.0 Median = 0.2 Q <sub>3</sub> = 0.8 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.8		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-May	0.7	0.7	0.5	0.5	0.3	0.5	0.6	0.3	0.3	0.0	0.2	0.4	-0.1	0.7	0.0	0.3	0.6	0.5	0.1	0.5	1.0	1.1	0.8	0.4	0.5	1.1	
2-May	0.2	0.2	0.1	-0.3	1.2	0.5	0.4	0.5	0.0	0.7	-0.2	1.0	0.6	0.2	-0.1	0.2	0.1	0.2	0.7	0.1	0.7	1.2	1.9	-0.1	0.4	1.9	
3-May	0.3	0.1	0.0	0.2	0.1	0.1	0.2	0.1	0.1	0.8	0.8	1.3	1.1	0.8	0.2	0.7	0.6	0.1	0.5	1.4	1.3	2.0	0.3	-0.1	0.5	2.0	
4-May	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	1.1	0.0	1.8	0.7	1.7	1.0	-0.7	-1.0	-0.2	0.7	0.4	0.4	0.2	2.5	0.5	2.5	
5-May	1.8	1.0	1.4	2.8	3.1	1.6	0.7	0.0	-0.4	0.0	0.8	-0.8	-0.3	-0.5	0.8	0.9	-0.8	0.5	1.8	2.2	0.1	0.1	0.0	-0.1	0.7	3.1	
6-May	0.2	0.2	0.1	0.1	-0.7	-0.8	-1.1	-0.9	-0.2	-0.5	DF	0.4	0.0	-0.2	0.1	-0.1	-0.5	-0.2	0.0	0.3	0.5	0.6	0.4	0.4	-0.1	0.6	
7-May	0.1	-0.3	-0.2	0.4	0.8	0.8	0.0	0.5	0.1	-0.2	-0.1	0.2	0.2	0.9	0.1	0.1	0.0	0.1	-0.1	0.3	2.2	2.9	2.2	1.8	0.5	2.9	
8-May	1.8	1.6	0.3	0.3	1.2	1.0	0.9	0.6	0.1	0.1	0.3	0.3	-0.1	0.5	1.0	1.1	0.0	0.9	1.8	1.5	1.2	1.6	1.5	2.7	0.9	2.7	
9-May	4.5	2.3	2.5	7.0	1.5	1.5	1.5	0.4	1.0	-0.3	1.3	1.2	0.5	-0.3	-0.4	-1.3	-0.1	-1.0	0.3	0.2	0.4	0.1	0.2	0.2	1.0	7.0	
10-May	0.3	-0.4	-1.1	-0.7	1.1	-0.4	0.2	0.1	0.0	1.6	0.8	1.0	1.1	1.0	2.2	1.7	1.4	1.3	0.7	0.4	0.5	-0.1	0.0	-0.1	0.5	2.2	
11-May	0.2	0.1	1.2	3.1	3.1	0.8	0.6	-0.4	-1.2	-0.8	-1.0	-0.8	-0.9	-0.4	-0.8	0.4	-0.3	-0.8	-0.8	-0.8	-0.2	-0.3	-0.7	0.4	0.0	3.1	
12-May	0.1	0.3	0.3	0.2	0.4	0.3	0.1	0.0	0.5	0.3	0.0	-1.0	-0.4	-0.9	-0.1	-0.1	0.6	0.1	1.3	2.2	0.6	0.0	0.2	0.9	0.2	2.2	
13-May	1.3	1.7	1.7	2.5	2.4	2.5	2.4	2.6	1.5	1.8	0.4	1.2	0.5	0.3	0.5	0.3	0.8	1.8	0.1	0.5	0.8	-0.7	0.1	0.1	1.1	2.6	
14-May	0.2	0.4	0.6	0.4	0.8	0.7	0.3	0.7	-0.2	0.2	0.9	1.4	1.2	0.9	1.8	0.9	1.5	1.0	-0.6	0.2	0.5	0.0	-0.1	0.5	0.6	1.8	
15-May	0.7	0.5	0.2	0.3	0.1	-0.4	-0.2	0.0	-0.2	-0.1	-0.3	-0.4	0.2	-0.4	-0.3	0.2	-0.6	1.6	0.1	-0.1	-0.4	-0.4	-0.7	-0.2	0.0	1.6	
16-May	-0.7	-0.8	-0.4	0.3	0.4	1.1	0.3	-0.1	1.2	-0.5	0.0	-0.3	-0.1	0.4	-0.3	0.1	-0.2	0.0	-0.4	-0.9	-0.6	-0.6	-0.6	-0.7	-0.1	1.2	
17-May	-0.7	-0.6	-0.1	0.5	0.1	1.0	0.8	0.2	0.5	0.2	0.2	0.0	0.1	0.4	0.8	0.3	0.4	0.7	0.6	0.2	0.4	1.0	0.9	0.4	0.4	1.0	
18-May	0.7	0.0	0.2	0.4	1.1	0.0	0.0	0.0	0.1	0.5	0.2	0.5	0.1	0.2	0.2	0.2	0.4	0.2	0.4	-0.1	-0.4	-0.2	0.5	0.8	0.2	1.1	
19-May	0.0	0.3	-0.1	0.4	0.5	0.6	0.2	-0.1	0.1	-0.2	-0.4	0.2	0.2	-0.2	-0.3	0.0	-0.5	0.0	0.2	0.0	0.3	0.3	0.1	-0.1	0.1	0.6	
20-May	0.1	0.1	-0.1	-0.3	-0.2	0.0	0.0	0.1	-0.1	1.1	0.3	0.8	-0.3	-0.2	0.4	0.0	0.3	0.3	0.4	1.0	0.0	0.6	0.2	0.3	0.2	1.1	
21-May	1.1	0.2	0.9	0.6	0.8	-0.5	0.1	0.3	-0.1	0.0	1.5	-0.1	0.3	0.3	0.1	0.6	-0.5	0.0	-0.5	0.0	-0.1	0.2	0.2	0.2	0.2	1.5	
22-May	0.0	0.3	0.2	0.1	0.1	0.1	0.0	0.6	-0.9	-0.3	-0.2	0.1	-0.3	-0.9	0.5	-0.1	-0.6	0.2	0.2	0.2	0.0	0.2	0.4	0.6	0.0	0.6	
23-May	0.5	0.3	0.4	1.0	1.1	-0.2	-0.4	-0.7	0.0	-1.3	-1.0	-0.4	0.0	0.3	0.8	1.0	-0.1	1.1	1.5	0.8	1.4	1.3	0.2	1.0	0.4	1.5	
24-May	0.7	0.9	0.5	0.1	0.4	0.4	0.1	0.7	0.3	-0.6	-0.1	0.1	0.0	0.8	0.2	2.2	1.6	0.9	0.0	0.8	1.0	1.2	1.6	1.6	0.6	2.2	
25-May	0.7	1.2	-0.6	1.2	0.4	-0.3	-0.3	0.2	0.3	1.4	1.5	0.3	0.9	-0.2	0.8	0.5	-0.5	-0.2	0.6	-0.3	1.1	2.6	1.6	0.3	0.6	2.6	
26-May	0.5	1.1	1.3	1.4	1.1	2.5	1.3	0.8	1.8	1.7	-0.4	0.5	1.2	1.1	0.3	0.4	0.4	0.5	0.8	1.3	0.9	0.6	0.8	0.9	1.0	2.5	
27-May	0.0	0.4	0.3	1.2	1.1	0.9	1.6	1.0	-0.3	-0.4	0.5	0.4	1.4	0.6	0.6	0.5	1.7	2.1	0.1	0.1	0.0	0.6	1.3	1.0	0.7	2.1	
28-May	2.7	1.5	0.0	-0.1	0.2	0.2	0.2	0.9	1.3	0.2	0.1	0.5	0.5	-0.2	0.8	-0.6	0.2	-0.1	1.2	0.3	0.1	0.1	0.9	-0.1	0.5	2.7	
29-May	-1.8	0.0	-0.4	0.2	-0.6	0.2	0.1	-0.1	0.3	0.7	0.6	0.4	1.5	2.4	2.1	2.8	1.4	2.3	2.1	2.0	1.8	1.6	1.3	1.6	0.9	2.8	
30-May	1.1	1.1	1.5	0.6	0.1	0.2	0.2	0.0	-0.2	-0.1	-0.2	-0.2	-0.4	0.1	-0.1	-0.1	0.0	0.0	0.7	-0.1	0.1	-0.1	-0.3	0.1	0.2	1.5	
31-May	-0.4	0.2	0.1	-0.5	-0.4	0.2	-0.2	-0.2	-0.2	-0.3	-0.3	0.9	-0.7	-0.8	0.1	-0.1	0.0	0.2	-0.3	-0.3	-0.3	-0.2	-0.2	-0.2	-0.2	0.9	0.9
																								Diurnal Average			
																								Diurnal Maximum			
																								0.6 0.5 0.4 0.8 0.7 0.5 0.4 0.3 0.2 0.2 0.2 0.3 0.3 0.2 0.4 0.5 0.2 0.4 0.4 0.5 0.5 0.6 0.5 0.6			
																								4.5 2.3 2.5 7.0 3.1 2.5 2.4 2.6 1.8 1.8 1.5 1.4 1.8 2.4 2.2 2.8 1.7 2.3 2.1 2.2 2.2 2.9 2.2 2.7			
DF - DAS Failure																											



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 5.5 km/h on May 9 13:00																				Hours of Data: 743					
Minimum Value: 0.1 km/h on May 4 03:00																				Hours of Missing Data: 1					
Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.3 Median = 1.9 Q <sub>3</sub> = 2.8 P <sub>90</sub> = 3.6 P <sub>99</sub> = 4.7																				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-May	1.9	2.1	1.9	1.6	1.3	1.2	1.1	1.3	1.6	2.1	3.0	4.0	4.5	4.3	4.1	4.3	4.5	3.8	2.6	2.2	2.5	2.3	2.0	1.3	4.5
2-May	1.0	0.8	0.4	1.0	1.5	1.3	0.9	1.6	2.0	3.5	3.7	3.8	4.4	4.4	4.7	5.0	4.6	3.9	2.9	2.2	1.3	0.7	0.9	1.5	5.0
3-May	0.7	0.5	0.3	0.4	0.4	0.6	0.7	0.4	0.6	1.9	2.3	3.6	4.3	3.6	3.6	3.6	3.4	2.3	2.9	2.3	1.3	1.5	1.1	1.3	4.3
4-May	0.9	0.3	0.1	0.2	0.2	0.4	0.3	0.8	1.2	2.5	3.5	3.5	4.6	4.2	3.2	4.2	3.1	2.4	2.2	1.0	0.7	1.0	2.2	2.6	4.6
5-May	2.6	2.0	2.1	1.6	2.1	1.9	1.7	1.8	1.5	2.1	2.9	3.3	3.2	3.7	3.8	3.9	3.3	4.7	2.9	2.3	1.3	1.7	1.4	1.7	4.7
6-May	1.6	2.8	2.4	2.4	2.0	1.8	2.1	2.1	1.9	2.6	DF	3.0	1.9	2.5	1.9	3.5	3.4	2.4	1.6	1.8	2.5	2.4	1.2	1.1	3.5
7-May	1.1	1.3	1.9	1.4	2.1	2.1	1.3	2.0	1.7	1.7	1.0	1.4	1.2	0.7	1.5	1.5	0.7	0.8	1.0	1.2	2.2	2.1	2.6	1.7	2.6
8-May	1.5	1.4	1.1	1.0	1.2	1.5	2.0	1.5	1.5	1.2	1.9	2.1	2.6	3.5	3.9	2.3	2.9	2.7	2.2	1.3	0.7	0.6	0.7	1.6	3.9
9-May	1.9	1.0	1.4	3.0	1.2	0.9	1.7	2.3	3.9	3.7	4.7	5.0	5.5	5.1	5.3	4.4	4.1	3.0	2.7	1.0	0.5	0.4	0.3	0.7	5.5
10-May	0.6	0.8	0.6	1.3	1.7	1.7	1.3	1.3	1.9	2.9	2.4	2.4	2.6	2.7	4.2	3.5	3.8	3.6	2.7	0.8	1.6	4.1	3.7	1.1	4.2
11-May	1.1	1.6	1.1	2.5	3.0	3.0	3.6	4.1	4.5	4.7	4.8	4.9	5.2	4.7	4.5	4.7	4.4	4.3	3.9	3.0	1.7	0.7	0.8	0.5	5.2
12-May	1.1	1.3	0.6	0.5	0.4	0.6	0.4	1.1	1.9	1.6	1.8	2.0	1.8	1.4	2.4	2.3	2.6	2.2	2.1	1.9	1.6	1.5	1.4	1.6	2.6
13-May	1.7	1.7	1.7	2.3	2.6	2.7	2.6	3.0	2.9	3.5	4.1	3.5	3.3	2.2	2.0	3.1	2.4	2.2	2.6	3.2	2.4	2.1	1.3	0.5	4.1
14-May	0.5	0.3	0.3	0.4	0.6	0.7	0.6	0.9	1.4	1.3	2.2	2.2	3.1	3.2	3.5	2.6	2.1	4.1	3.3	2.7	1.7	1.3	0.9	0.8	4.1
15-May	0.8	0.6	0.7	0.4	0.7	0.7	1.6	0.9	1.6	2.1	2.7	3.0	3.3	3.3	3.0	2.3	2.8	3.5	3.0	2.4	1.0	1.7	1.8	1.9	3.5
16-May	1.5	1.5	1.4	1.4	1.1	1.2	1.1	1.6	2.1	1.4	1.7	1.3	1.1	1.4	1.2	1.3	1.1	1.7	1.2	1.0	1.0	1.2	1.5	1.4	2.1
17-May	1.8	2.2	2.0	1.7	1.7	2.5	2.6	2.0	1.7	1.6	1.7	2.2	2.2	2.2	2.5	2.4	2.3	2.3	1.8	2.0	2.2	2.0	2.5	2.1	2.6
18-May	2.2	1.8	1.8	2.0	2.4	2.0	1.7	1.4	1.9	1.9	1.8	2.1	2.2	1.8	2.1	1.9	1.9	1.6	1.3	1.2	0.6	0.6	0.8	1.3	2.4
19-May	1.5	1.7	1.5	1.4	1.3	1.2	1.3	1.5	1.9	2.2	1.8	2.4	2.2	2.4	1.7	1.6	1.8	2.0	1.7	1.1	0.6	1.3	1.1	1.4	2.4
20-May	1.4	1.3	0.9	0.7	1.1	1.1	1.3	1.4	1.5	2.7	3.1	2.7	2.6	2.6	2.4	1.5	1.5	1.7	1.6	1.0	1.0	1.1	1.0	0.9	3.1
21-May	1.2	1.1	1.5	1.2	1.2	1.4	1.3	1.7	1.6	2.3	2.9	2.9	3.0	3.2	3.4	3.1	2.8	1.9	1.1	1.2	0.6	0.8	0.6	0.9	3.4
22-May	0.9	0.8	1.3	1.2	1.4	0.8	0.7	2.0	2.5	3.3	3.3	3.5	3.4	3.3	3.3	3.1	2.6	2.4	1.7	1.4	1.1	0.6	0.4	0.6	3.5
23-May	0.7	0.8	0.8	0.9	1.2	1.4	1.3	1.7	2.4	2.8	2.9	2.7	3.5	3.7	4.0	3.6	3.5	3.6	3.1	1.7	1.7	0.6	0.7	1.2	4.0
24-May	0.9	0.8	0.6	0.6	0.6	0.5	0.8	1.2	1.9	2.8	3.6	3.1	3.1	3.9	3.5	3.5	3.7	3.0	3.1	2.1	0.7	0.2	0.5	0.5	3.9
25-May	1.2	1.1	1.2	1.7	1.3	1.5	1.3	1.3	2.4	3.3	3.9	4.5	4.5	4.1	4.6	3.7	2.7	2.3	2.0	1.5	2.4	2.4	2.0	1.9	4.6
26-May	1.6	1.3	1.4	1.2	1.4	1.6	1.8	2.1	2.8	3.1	3.0	2.9	4.3	3.8	2.8	3.2	2.8	2.6	2.2	1.2	0.8	1.0	1.8	1.5	4.3
27-May	1.8	1.8	1.7	1.9	1.1	1.1	1.3	1.4	1.9	2.8	3.3	4.3	4.3	4.2	3.8	2.9	3.1	2.0	1.4	0.8	1.0	1.4	2.4	2.7	4.3
28-May	3.1	2.8	1.3	0.9	0.9	1.1	0.6	1.2	1.6	2.0	2.2	2.2	2.0	3.1	3.0	2.7	2.8	2.0	1.3	1.0	0.5	1.0	2.2	0.9	3.1
29-May	1.7	2.2	1.1	1.7	1.6	1.6	1.4	1.4	1.8	2.6	2.3	1.8	1.9	2.7	4.1	4.1	3.5	3.2	3.1	2.6	2.7	1.7	1.8	2.2	4.1
30-May	1.8	1.6	1.8	1.7	1.3	1.4	2.1	2.3	2.4	2.4	1.8	2.3	1.9	2.1	2.3	3.0	1.6	1.5	1.8	1.9	1.0	1.5	3.1	2.2	3.1
31-May	2.3	3.3	4.1	4.5	3.6	3.5	2.9	3.0	3.5	2.8	3.8	4.4	3.3	3.5	3.7	2.0	1.6	2.7	2.9	2.3	2.6	2.0	2.9	2.5	4.5
3.1 3.3 4.1 4.5 3.6 3.5 3.6 4.1 4.5 4.7 4.8 5.0 5.5 5.1 5.3 5.0 4.6 4.7 3.9 3.2 2.7 4.1 3.7 2.7																									
Diurnal Maximum																									
DF - DAS Failure																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS04 BUFFALO VIEWPOINT MAY 2024**

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

June 28, 2024

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

MAY 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	33	34	99.87	26.8	0	3.2	0
H2S (ppb) Average	708	35	36	99.87	4.1	0	0.5	0
THC (ppm) Average	708	33	36	99.6	3	-	2.2	-
NMHC(ppm) Average	708	33	36	99.6	0.079	-	0.003	-
CH4(ppm) Average	708	33	36	99.6	3	-	2.2	-
O3(ppb) Average	708	35	36	99.87	57.7	0	40.3	-
NO2(ppb) Average	707	36	37	99.87	36.5	0	11.5	-
NO(ppb) Average	707	36	37	99.87	71.3	-	8.7	-
NOX(ppb) Average	707	36	37	99.87	107.8	-	20.2	-
PM2.5(ug/m3) Average	742	2	2	100	308.4	0	61.8	3
Temperature (C) Average	744	0	0	100	27.2	-	17.7	-
Relative Humidity (%) Average	744	0	0	100	98.6	-	97.8	-
Wind Speed 10 m (km/h) Average	744	0	0	100	31	-	21	-
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 - BUFFALO VIEWPOINT (AMS04)  
MAY 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

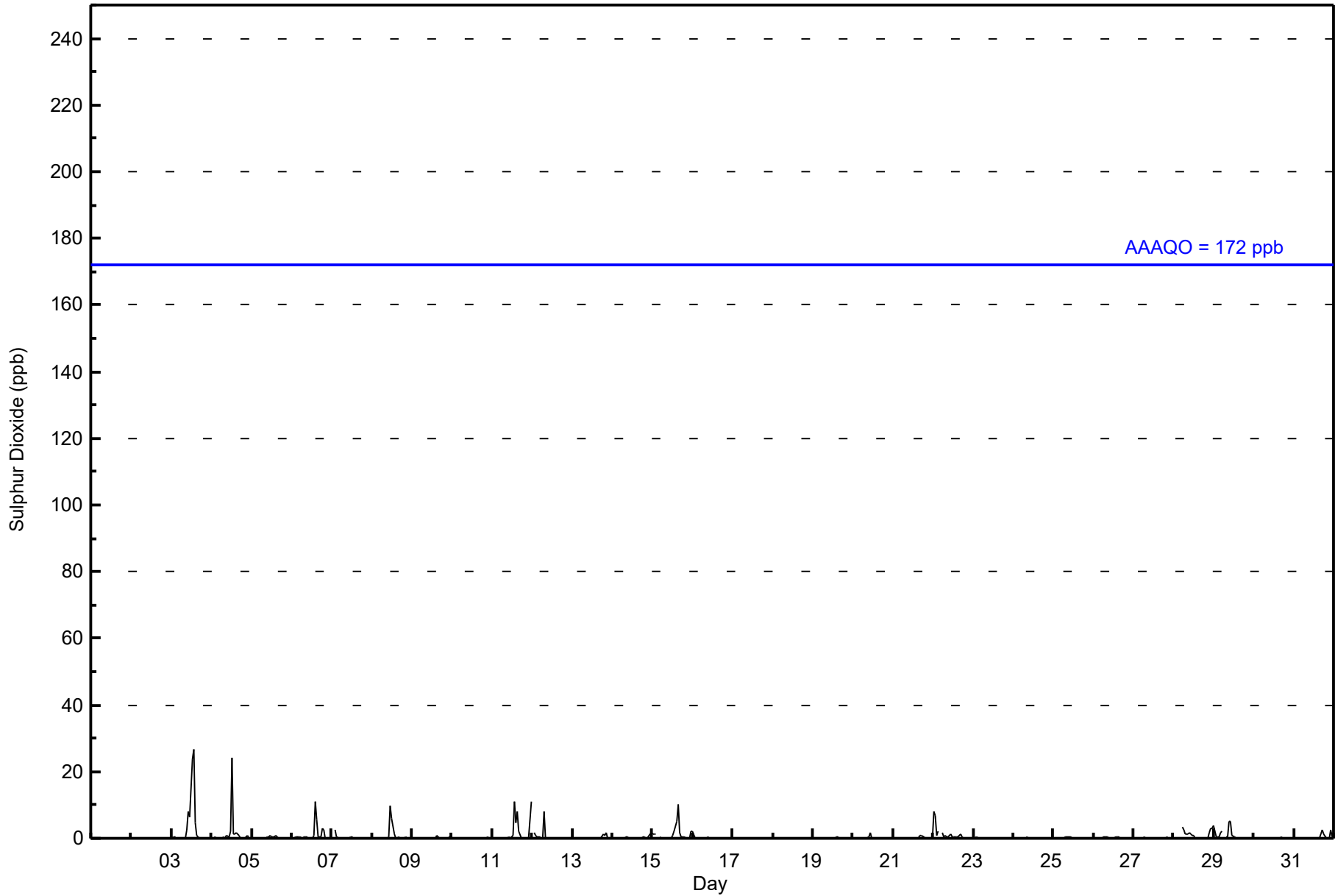
Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	710	0.5	2	-	0	0	0	0	0.2	0.8	26.8
H2S (ppb) Average	708	0.18	0.3	-	0	0	0	0.1	0.2	0.4	4.1
THC (ppm) Average	708	2.07	0.1	-	2	2	2	2.1	2.1	2.1	3
NMHC(ppm) Average	708	0	0.004	-	0	0	0	0	0	0	0.079
CH4(ppm) Average	708	2.07	0.1	-	2	2	2	2.1	2.1	2.1	3
O3(ppb) Average	708	30.53	11.3	-	2.3	15.5	21.6	30.9	39.6	44.7	57.7
NO2(ppb) Average	707	3.26	4.6	-	0	0	0.4	1.6	4.1	9	36.5
NO(ppb) Average	707	0.6	3.5	-	0	0	0	0	0.1	0.9	71.3
NOX(ppb) Average	707	3.86	7.2	-	0	0	0.4	1.7	4.4	10	107.8
PM2.5(ug/m3) Average	742	9.6	22.6	-	0.3	1.9	3	4	6.8	14.1	308.4
Temperature 2 m (C) Average	744	10.84	5.3	-	-1.2	4.4	6.7	10.4	14.3	18.1	27.2
Relative Humidity (%) Average	744	62.07	23.8	-	18.3	31	41.1	60.8	83.1	96.6	98.6
Wind Speed 10 m (km/h) Average	744	10.5	5	-	1	5	7	9	13	19	31
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	30 May 2024 08:00	30 May 2024 08:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	14 May 2024 08:00	14 May 2024 09:00	2	Maintenance - replaced support gas cylinder







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	704	99.15	99.15
11 - 20	3	0.42	99.58
21 - 60	3	0.42	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



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

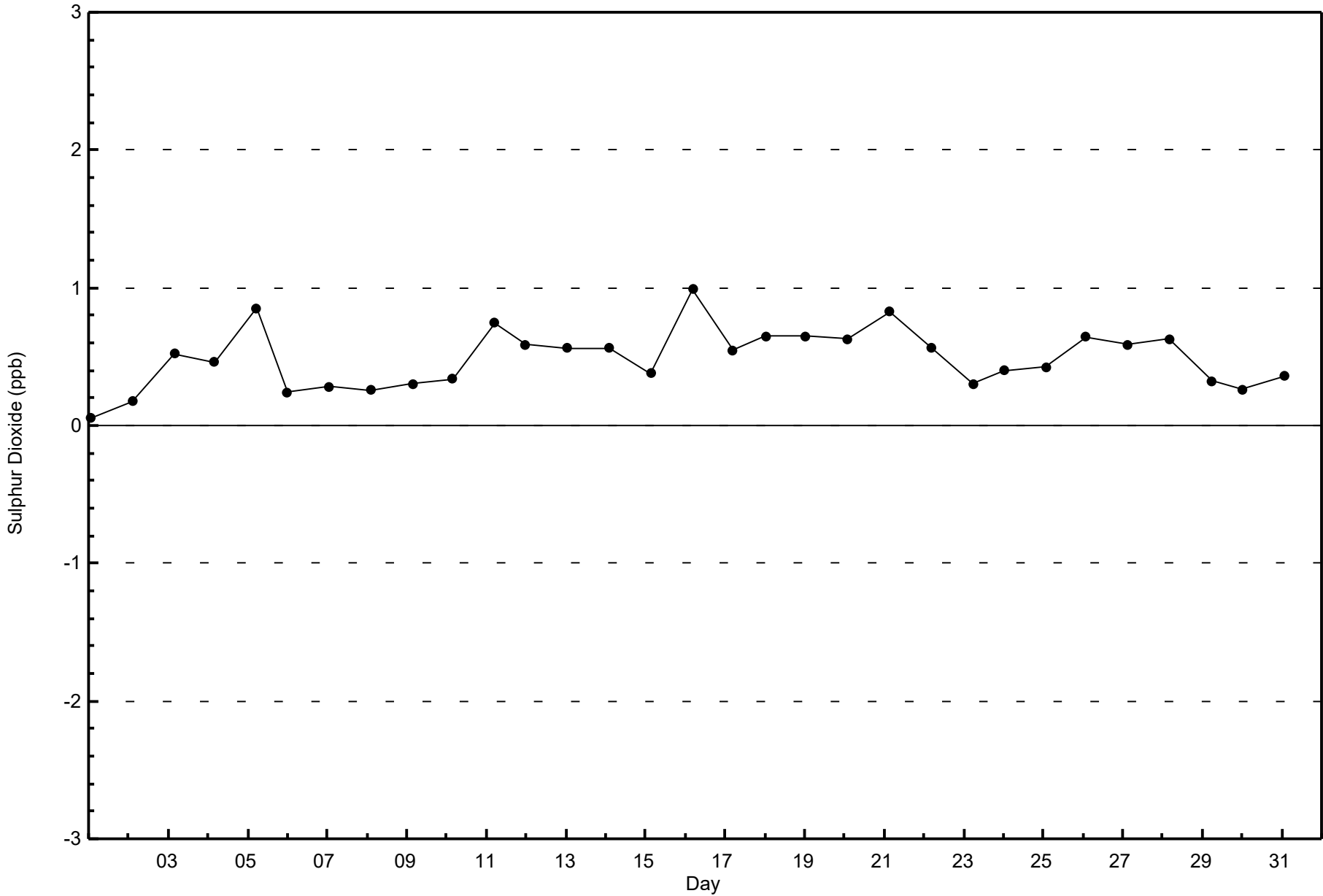
**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Buffalo Viewpoint - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	113	64	38	13	24	61	83	78	26	10	28	26	15	28	49	48	704
11 - 20	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	3
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	113	64	39	14	24	61	83	78	26	10	28	26	15	30	51	48	710

Total Number of Valid Hours: 710

Total Number of Hours: 744



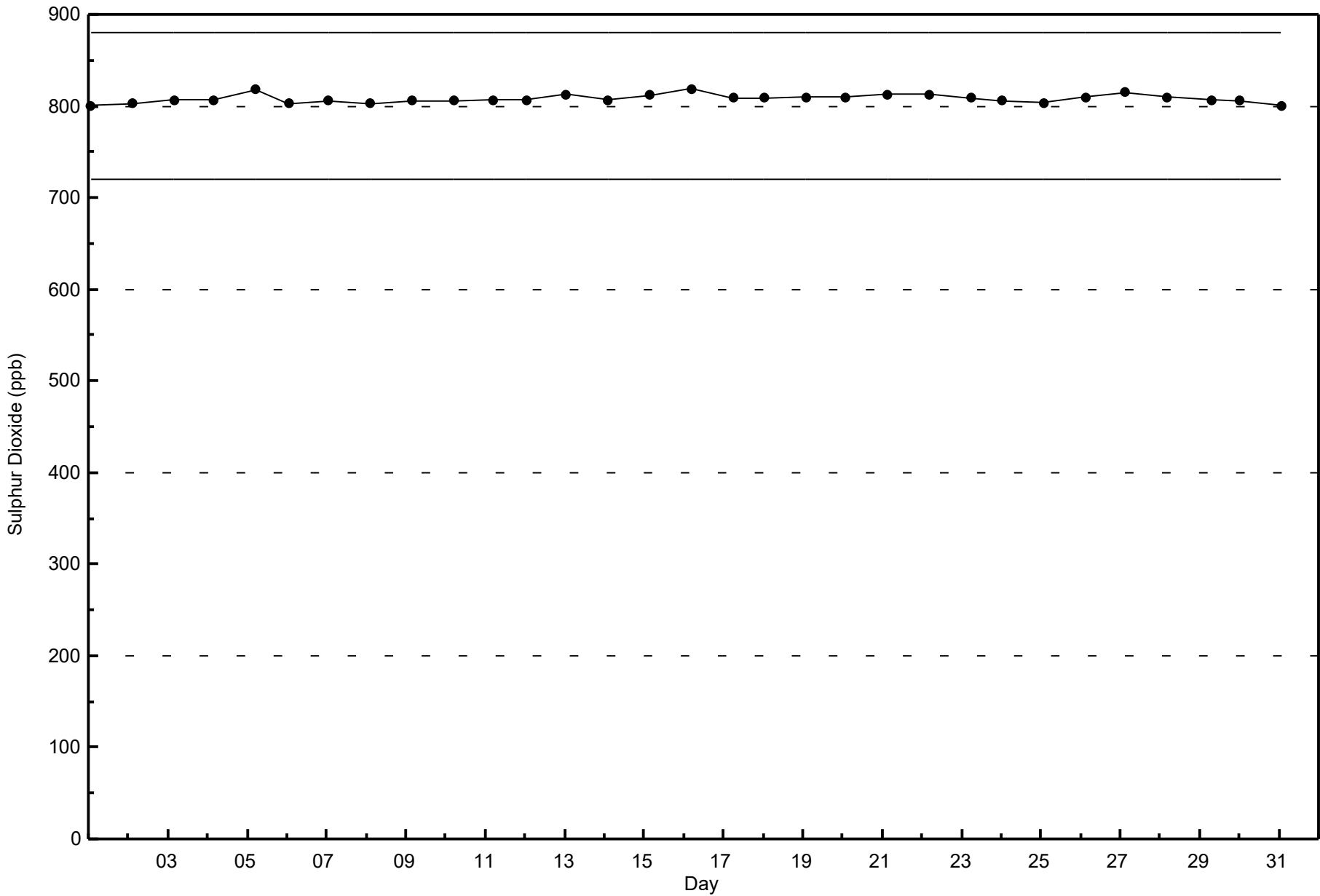




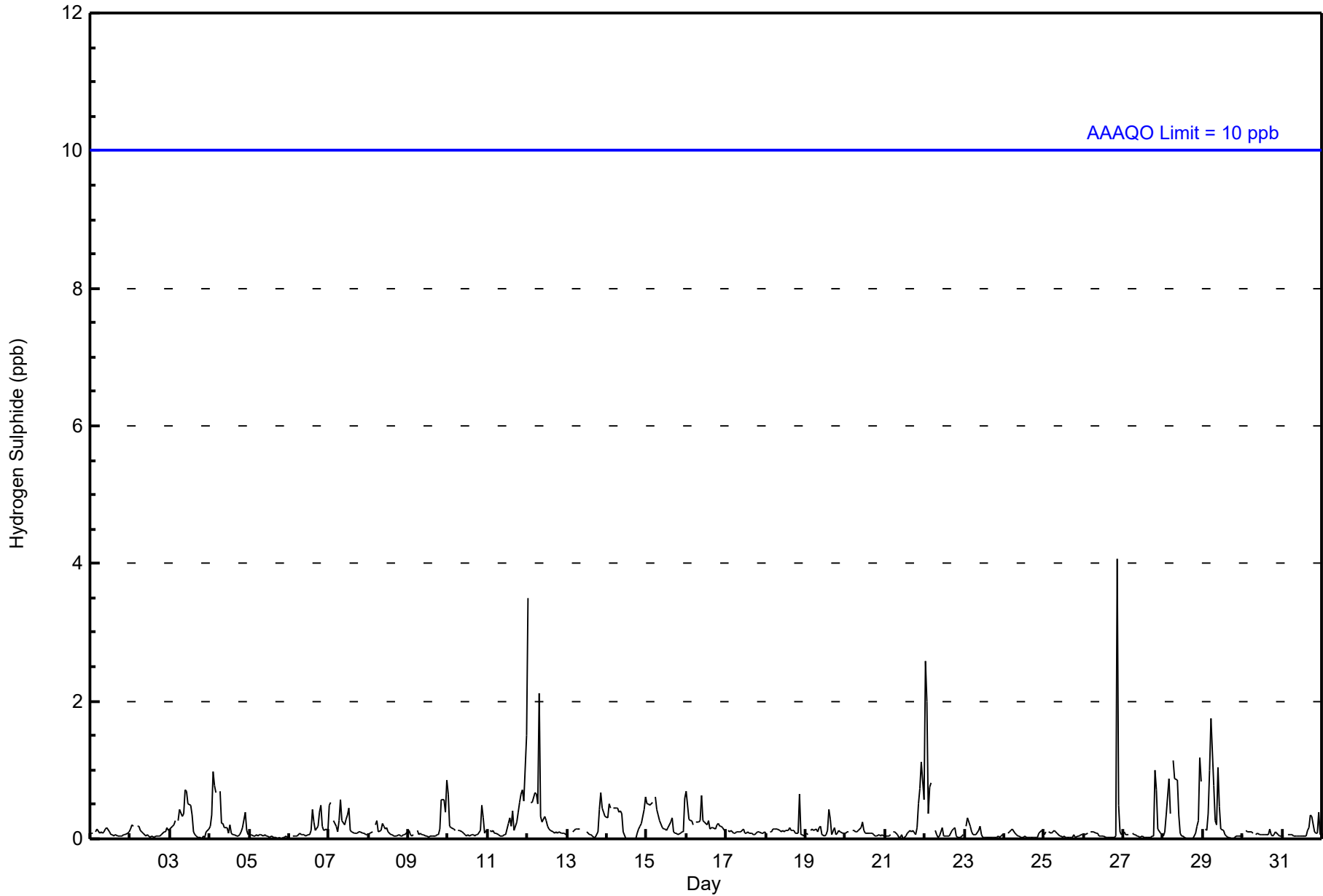


Wood Buffalo Environmental Association  
Span Responses

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









**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	705	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Buffalo Viewpoint - May 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	111	65	39	13	23	60	84	74	25	10	28	27	16	30	51	49	705
3 - 4	0	0	0	2	0	1	0	0	0	0	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>	111	65	39	15	23	61	84	74	25	10	28	27	16	30	51	49	708

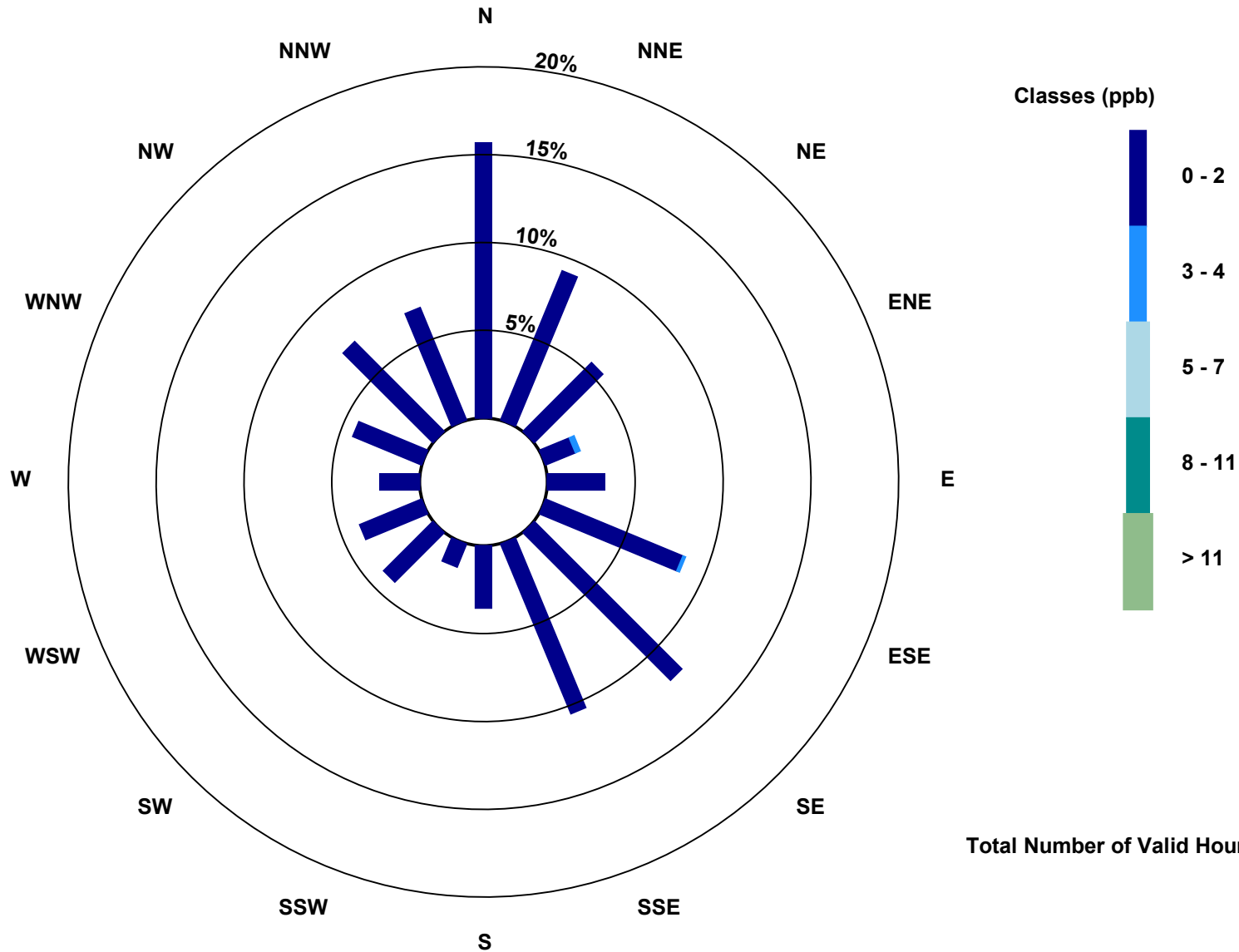
Total Number of Valid Hours: 708

Total Number of Hours: 744

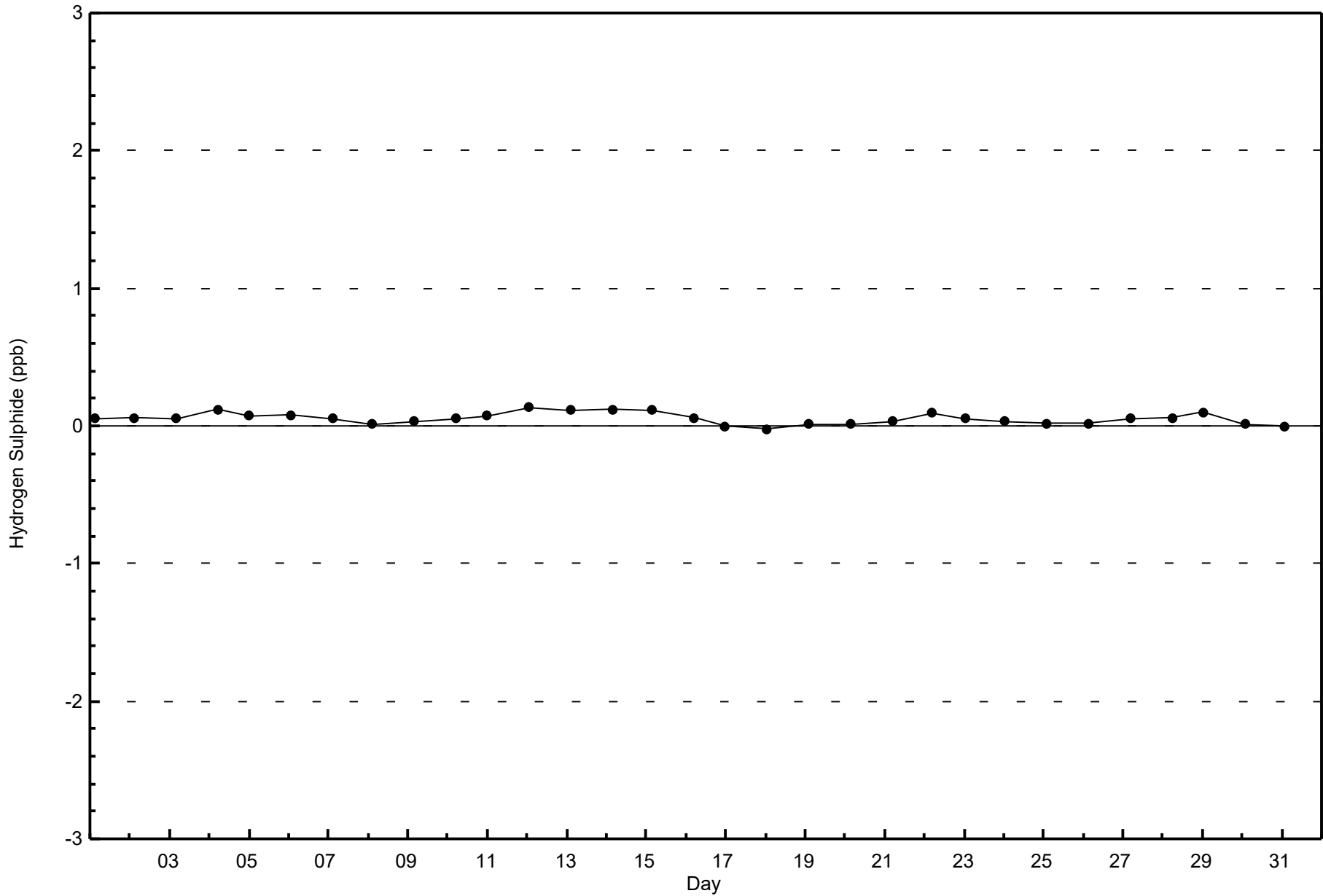


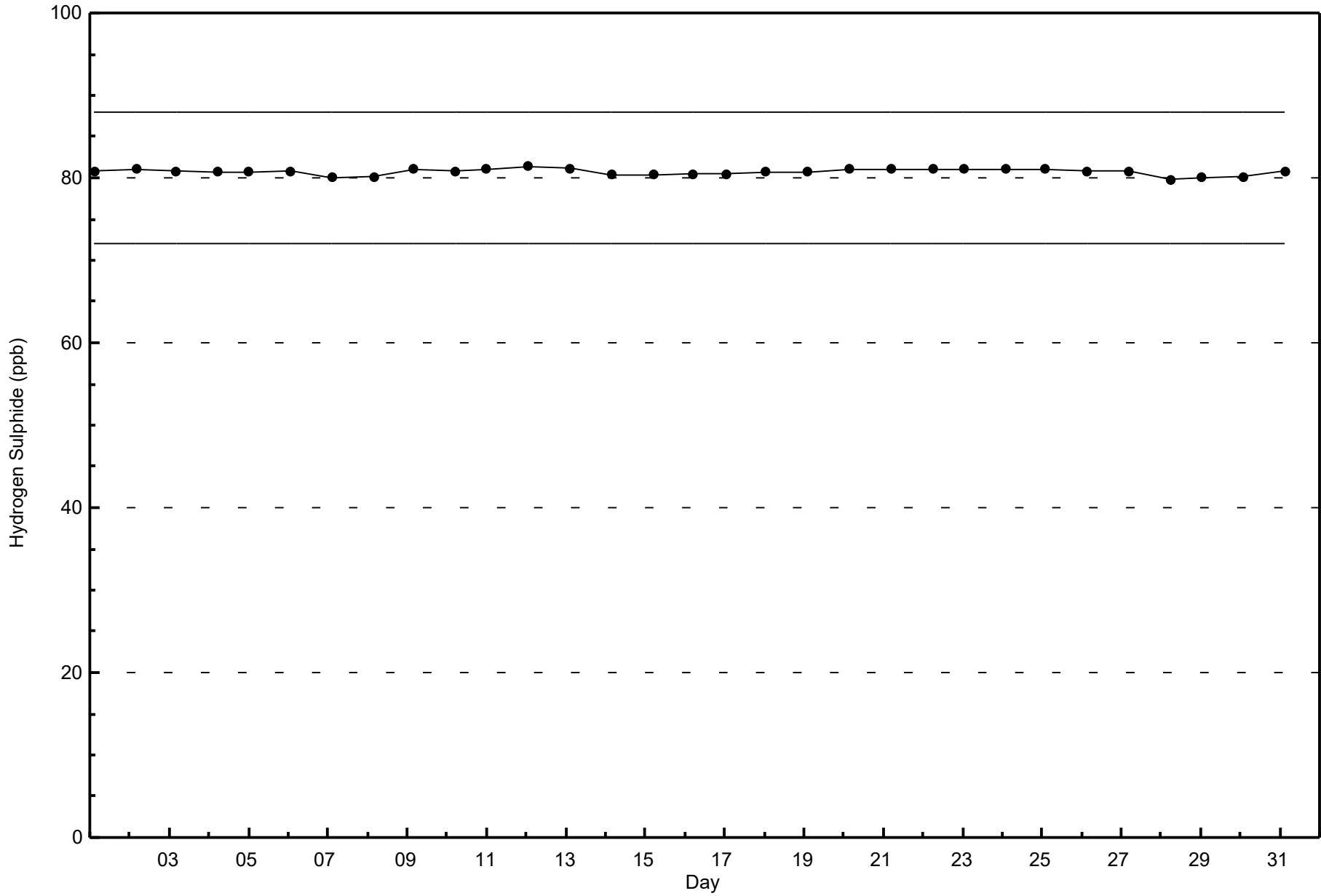
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 708







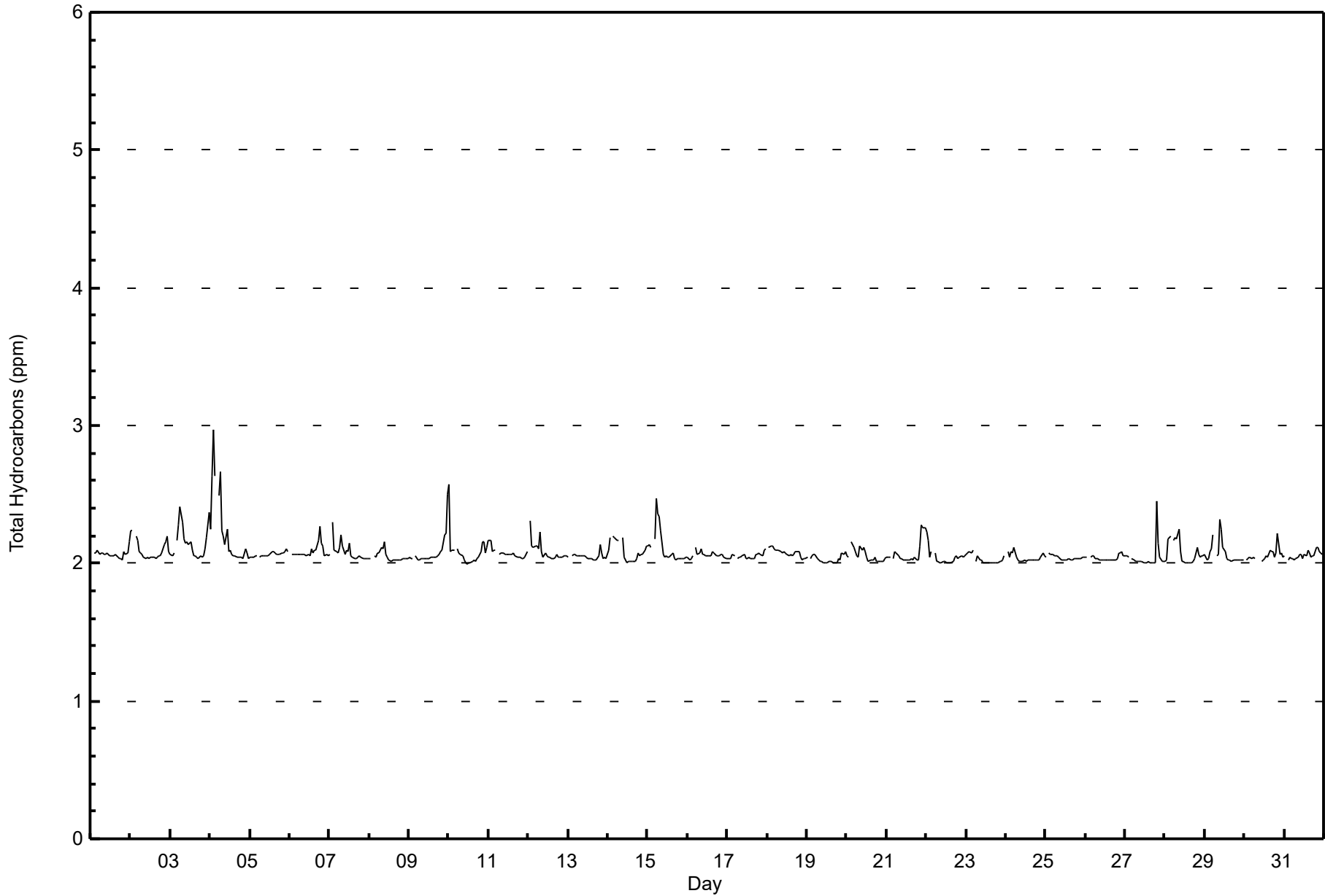


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

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

Maximum Value: 3.0 ppm on May 4 03:00		Maximum Daily Average: 2.2 ppm on May 4		Hours in Service: 744																						
Minimum Value: 2.0 ppm on May 10 12:00		Minimum Daily Average: 2.0 ppm on May 23		Hours of Data: 708																						
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Missing Data: 36																						
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.5		Hours of Calibration: 33																						
				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-May	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	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.2
2-May	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2
3-May	2.1	2.1	2.1	Z	2.2	2.3	2.4	2.3	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.4	2.1	2.4
4-May	2.2	2.6	3.0	2.6	Z	2.5	2.7	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.2	3.0
5-May	2.0	2.0	2.0	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
6-May	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	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3
7-May	2.1	Z	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.3
8-May	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
9-May	2.0	2.0	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.5	2.1	2.5
10-May	2.6	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	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.6
11-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2
12-May	Z	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.3
13-May	2.0	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	2.0	2.0	2.0	2.1	2.1
14-May	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.2	M	M	2.2	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
15-May	2.1	2.1	2.1	Z	2.2	2.5	2.4	2.3	2.2	2.1	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	2.5
16-May	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1
17-May	2.0	2.0	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1
19-May	2.0	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
20-May	2.1	2.0	Z	2.2	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.2
21-May	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.3	2.3	2.1	2.3
22-May	2.2	2.2	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	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.2
23-May	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1
24-May	Z	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1
25-May	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
26-May	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1
27-May	2.1	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.1	2.0	2.0	2.0	2.0	2.5
28-May	2.0	2.0	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.2
29-May	2.1	2.0	2.0	2.1	2.1	2.2	Z	2.1	2.1	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	M	C	C	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.1	2.0	2.1	2.2
31-May	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		

Z - zerospan      C - Calibration      M - Maintenance





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	347	49.01	49.01
2.1 - 3.0	361	50.99	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  
Buffalo Viewpoint - May 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	39	39	25	6	8	33	42	44	15	9	23	21	13	14	14	2	347
2.1 - 3.0	74	25	14	8	16	28	41	34	9	1	5	5	2	16	37	46	361
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>	113	64	39	14	24	61	83	78	24	10	28	26	15	30	51	48	708

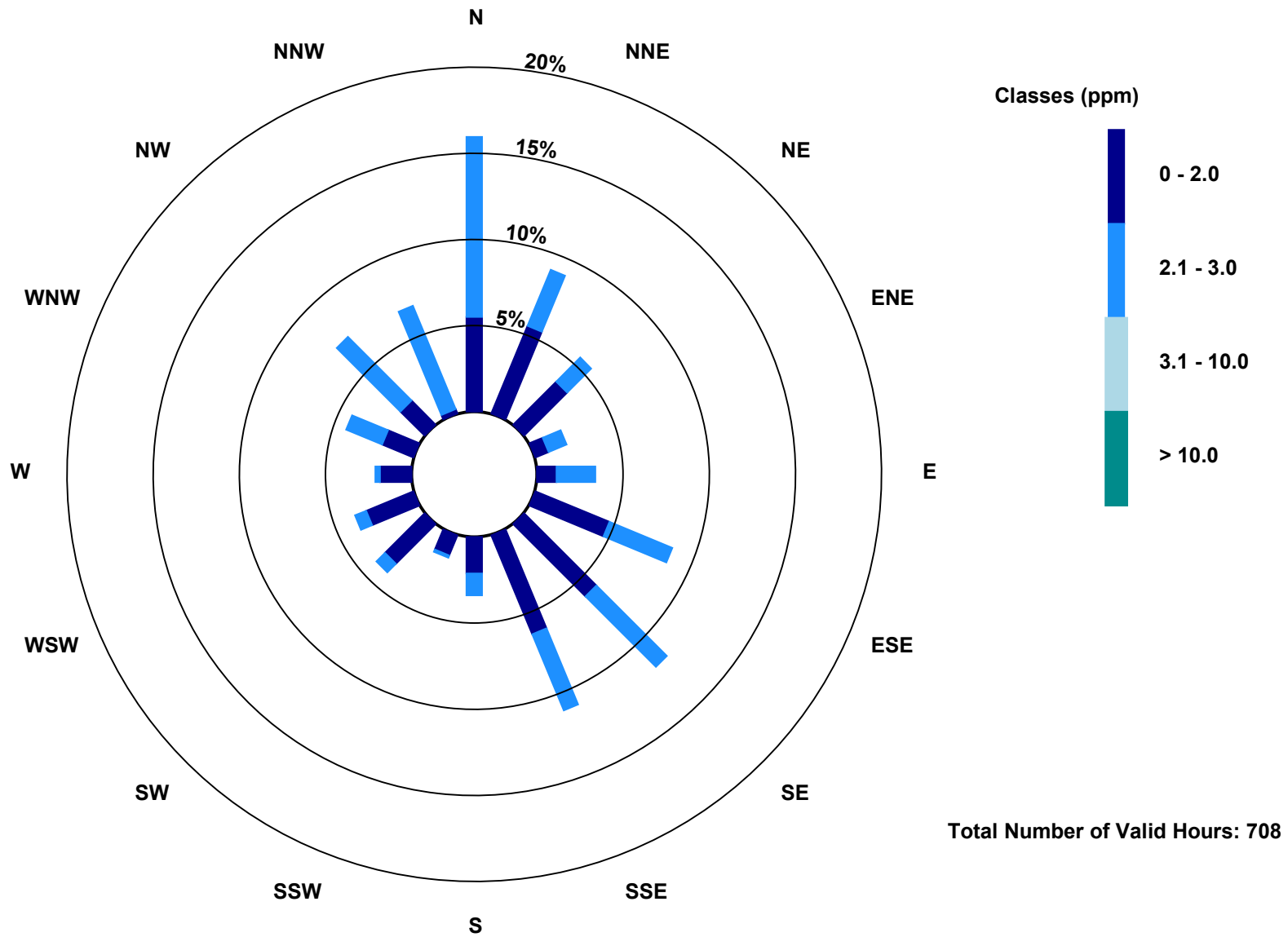
Total Number of Valid Hours: 708

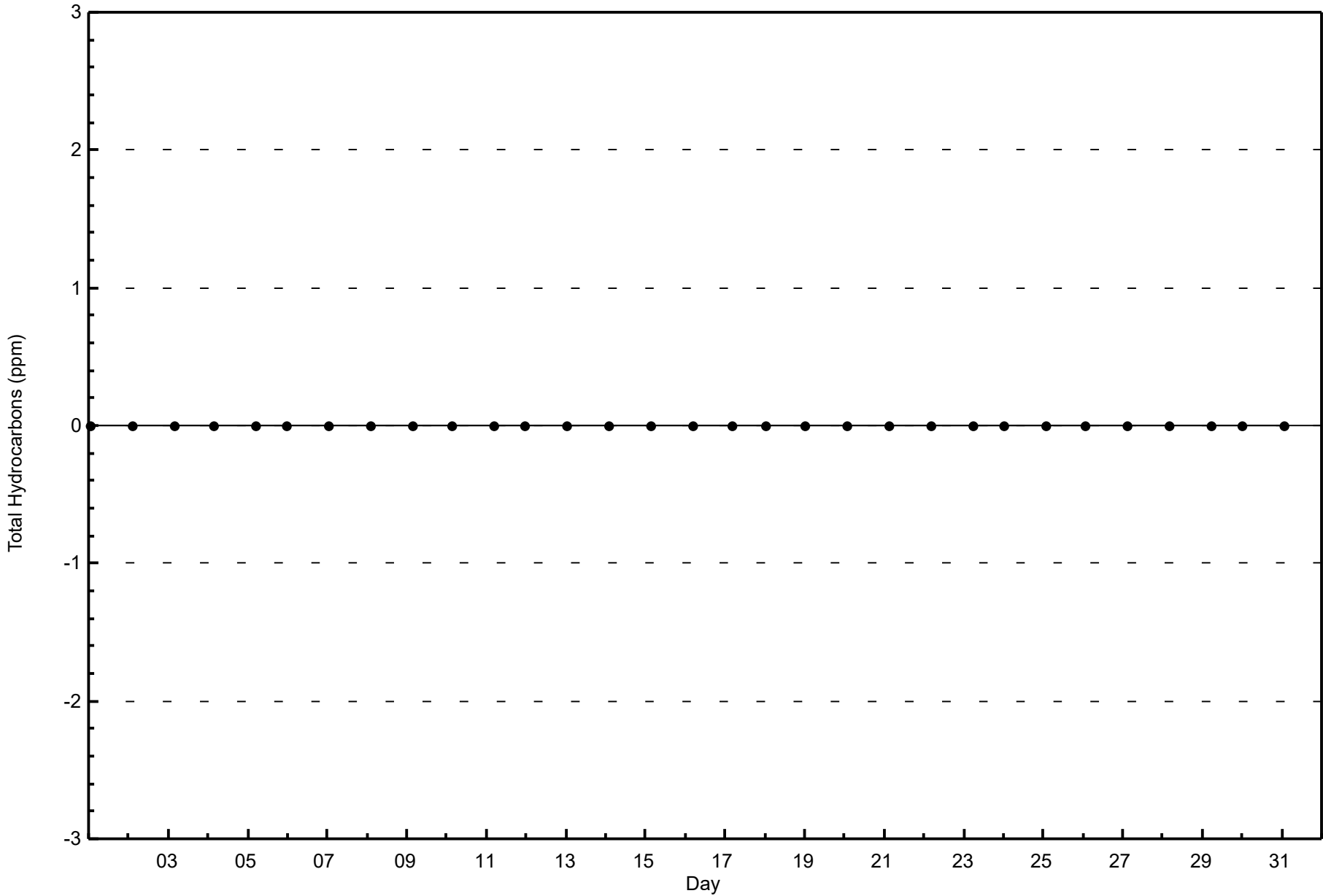
Total Number of Hours: 744

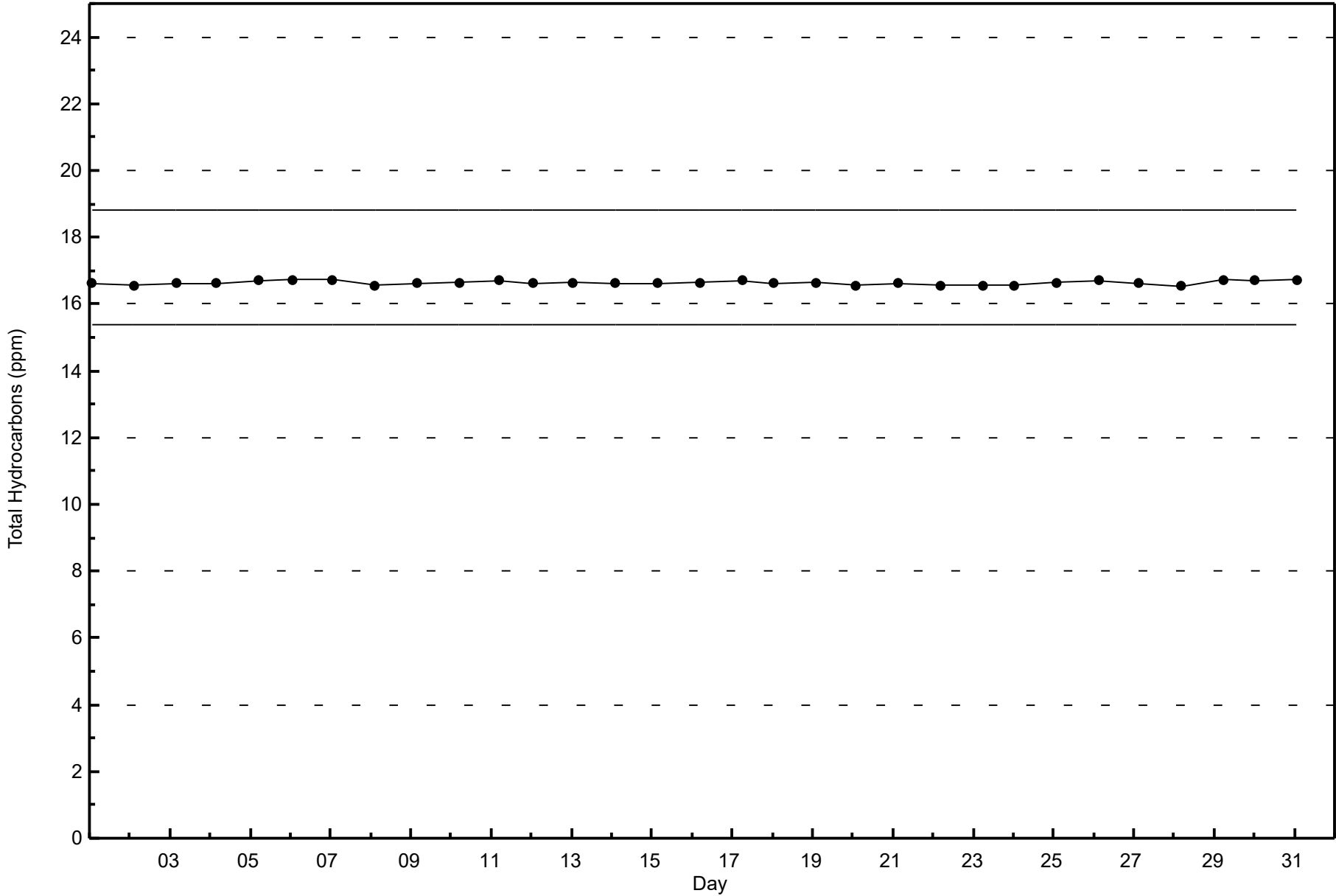


**Wood Buffalo Environmental Association**  
**Wind Rose May 2024**

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

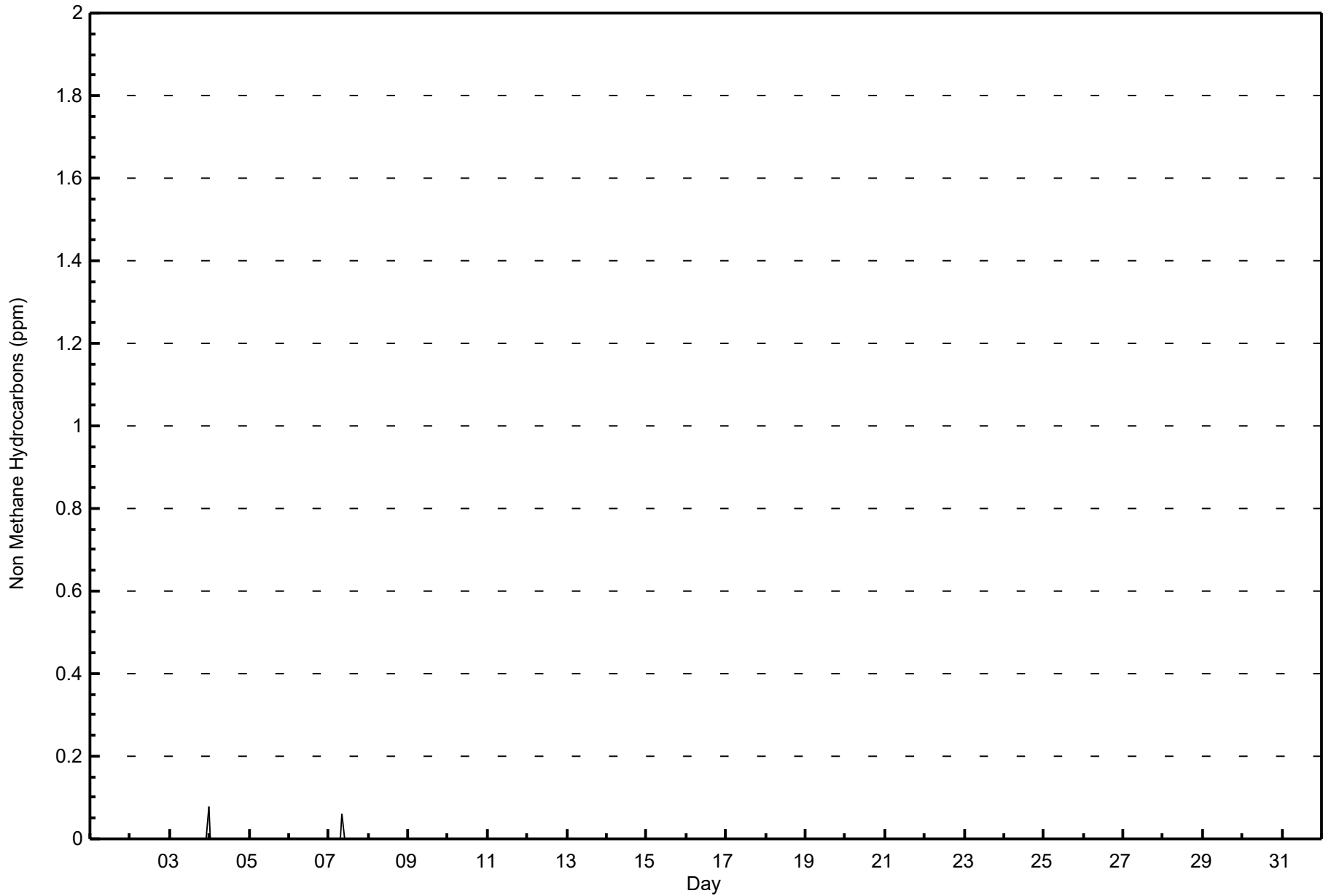














**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	706	99.72	99.72
0.006 - 0.05	0	0.00	99.72
0.06 - 0.1	2	0.28	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

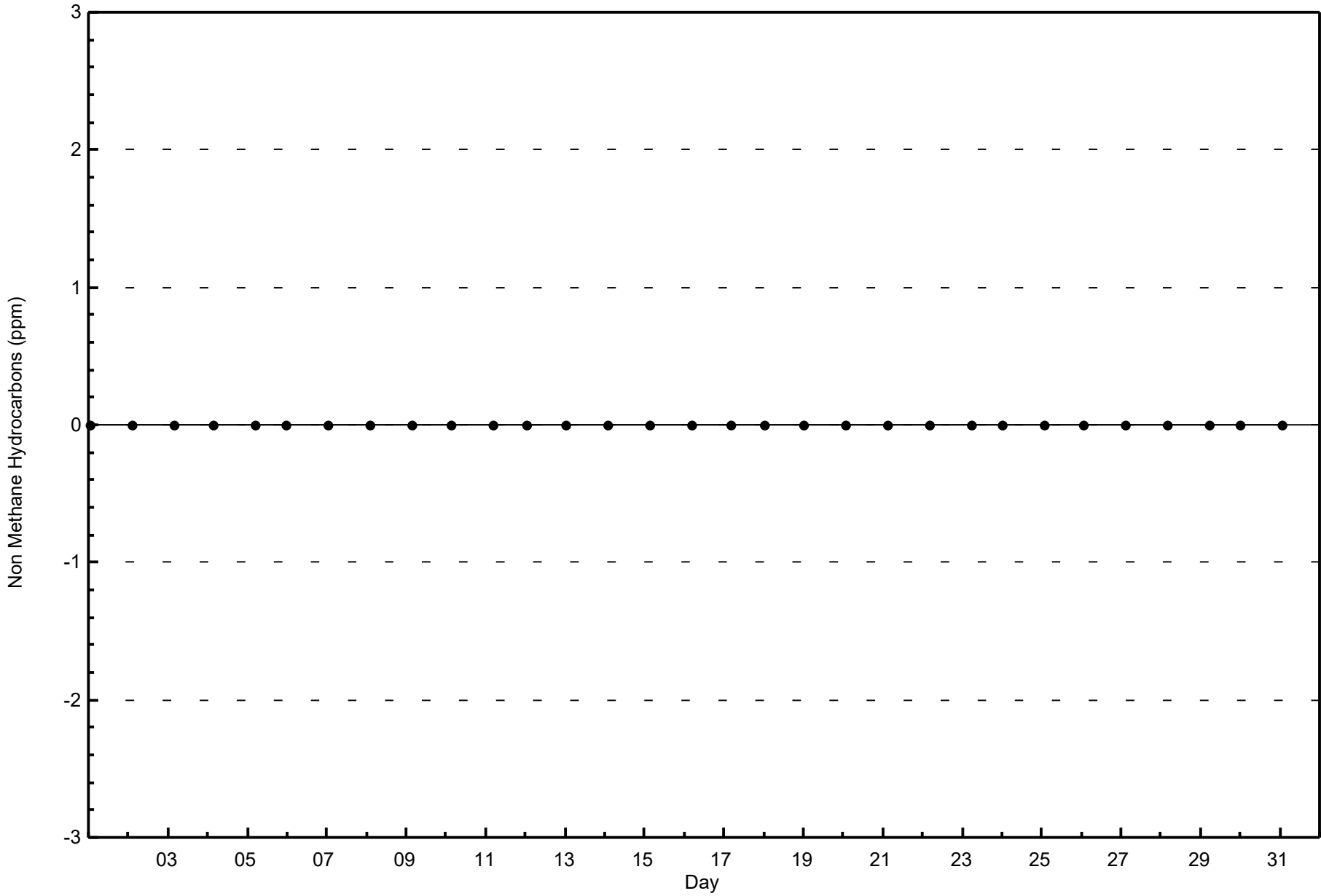
**Non Methane Hydrocarbons (NMHC) - ppm  
Buffalo Viewpoint - May 2024**

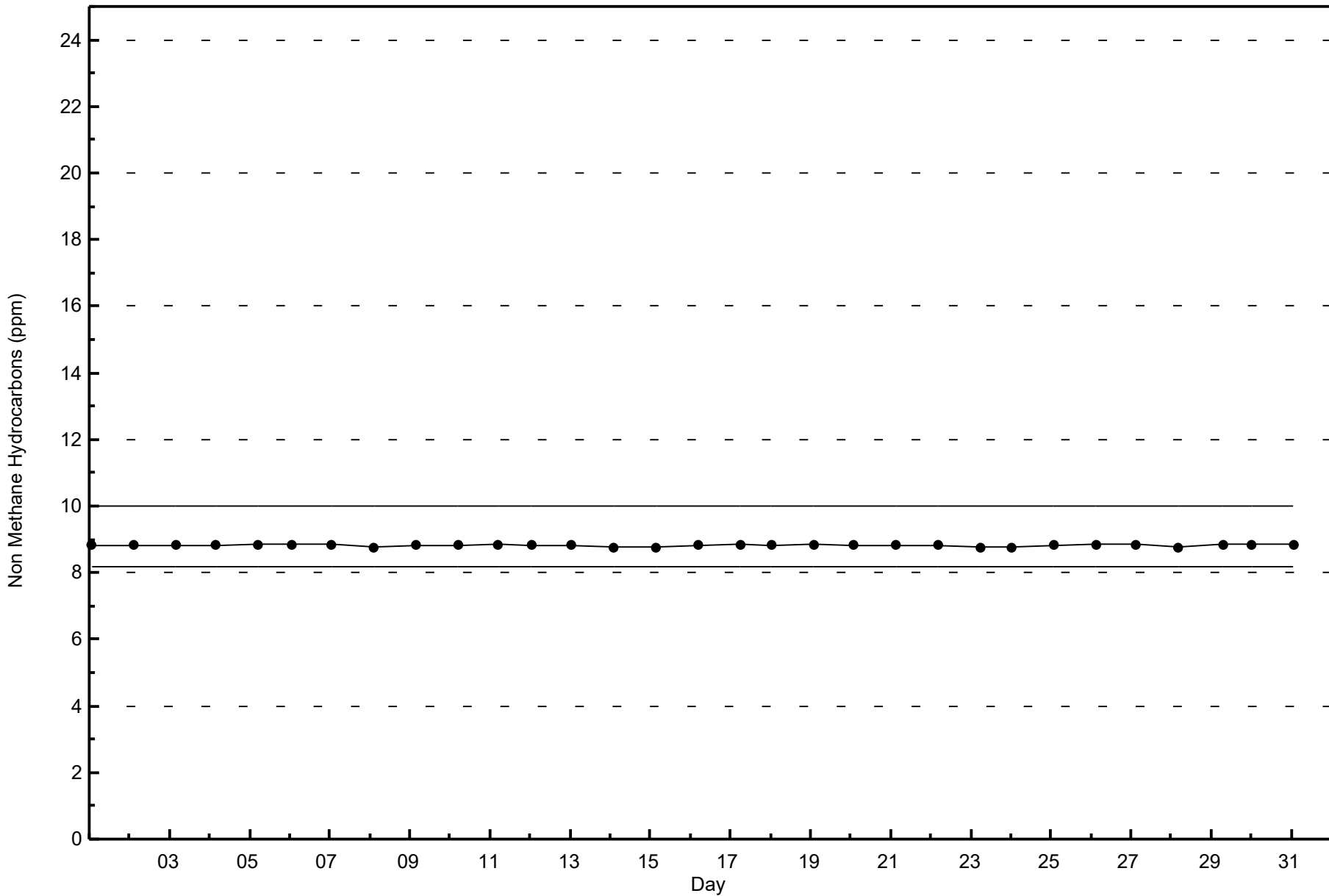
<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	112	64	39	14	24	60	83	78	24	10	28	26	15	30	51	48	706
0.006 - 0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.06 - 0.1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	113	64	39	14	24	61	83	78	24	10	28	26	15	30	51	48	708

Total Number of Valid Hours: 708

Total Number of Hours: 744









Wood Buffalo Environmental Association

Summary of Hour Averages

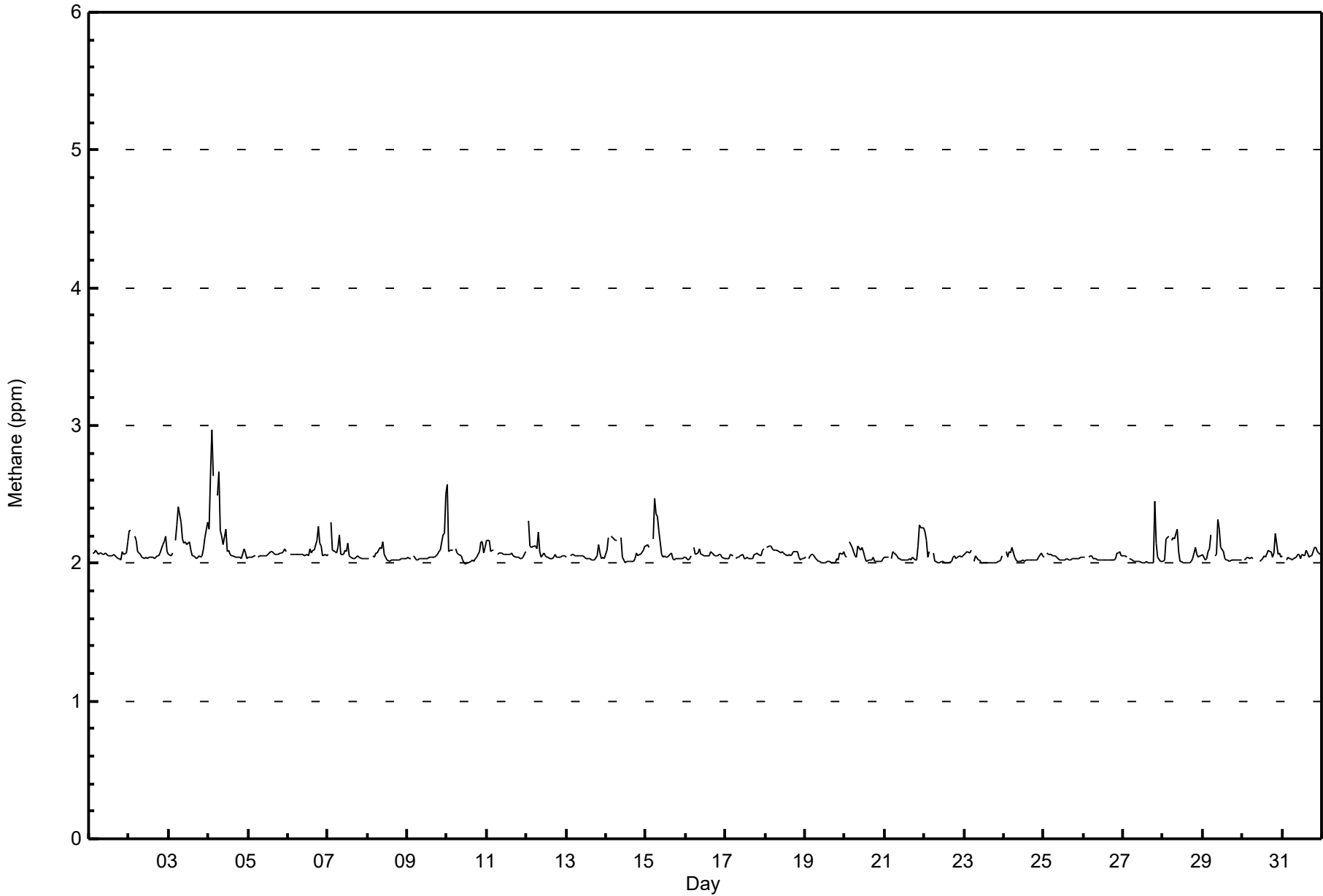
Methane (CH<sub>4</sub>) - ppm  
Buffalo Viewpoint - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum				
Maximum Value: 3.0 ppm on May 4 03:00		Maximum Daily Average: 2.2 ppm on May 4		Hours of Data: 708														Daily Average		Daily Maximum						
Minimum Value: 2.0 ppm on May 10 12:00		Minimum Daily Average: 2.0 ppm on May 23		Hours of Missing Data: 36														Daily Average		Daily Maximum						
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Calibration: 33														Daily Average		Daily Maximum						
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.5		Percent Operational Time: 99.6														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-May	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	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.1
2-May	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1
3-May	2.1	2.1	2.1	Z	2.2	2.3	2.4	2.3	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.1	2.1
4-May	2.2	2.6	3.0	2.6	Z	2.5	2.7	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.2	3.0
5-May	2.0	2.0	2.0	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
6-May	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	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3
7-May	2.1	Z	2.3	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.3
8-May	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
9-May	2.0	2.0	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.5	2.1	2.5
10-May	2.6	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	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.6
11-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2
12-May	Z	2.3	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.3
13-May	2.0	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	2.0	2.0	2.0	2.1	2.1
14-May	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.2	M	M	2.2	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
15-May	2.1	2.1	2.1	Z	2.2	2.5	2.4	2.3	2.2	2.1	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	2.0	2.5
16-May	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1
17-May	2.0	2.0	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1
19-May	2.0	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1
20-May	2.1	2.0	Z	2.2	2.1	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	2.0	2.0	2.0	2.0	2.0	2.0	2.2
21-May	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.3	2.3	2.1	2.3
22-May	2.2	2.2	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	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.2
23-May	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1
24-May	Z	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1
25-May	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
26-May	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1
27-May	2.1	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.1	2.0	2.0	2.0	2.0	2.5
28-May	2.0	2.0	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.2
29-May	2.1	2.0	2.0	2.1	2.1	2.2	Z	2.1	2.1	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	M	C	C	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.1	2.0	2.1	2.2
31-May	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
2.1																								Diurnal Average		
2.6																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				



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

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







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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	347	49.01	49.01
2.1 - 3.0	361	50.99	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**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	39	39	25	6	8	33	42	44	15	9	23	21	13	14	14	2	347
2.1 - 3.0	74	25	14	8	16	28	41	34	9	1	5	5	2	16	37	46	361
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>	113	64	39	14	24	61	83	78	24	10	28	26	15	30	51	48	708

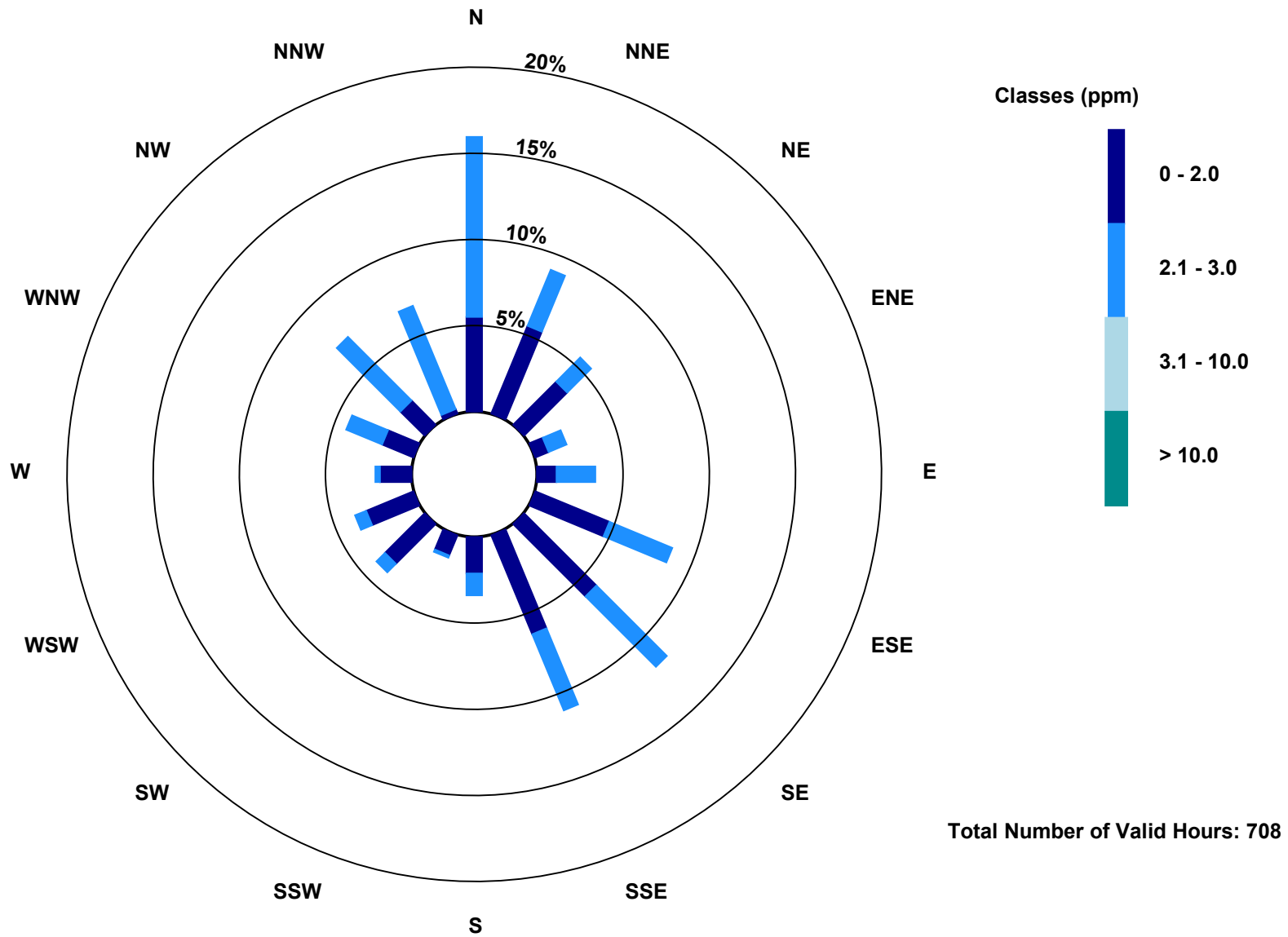
Total Number of Valid Hours: 708

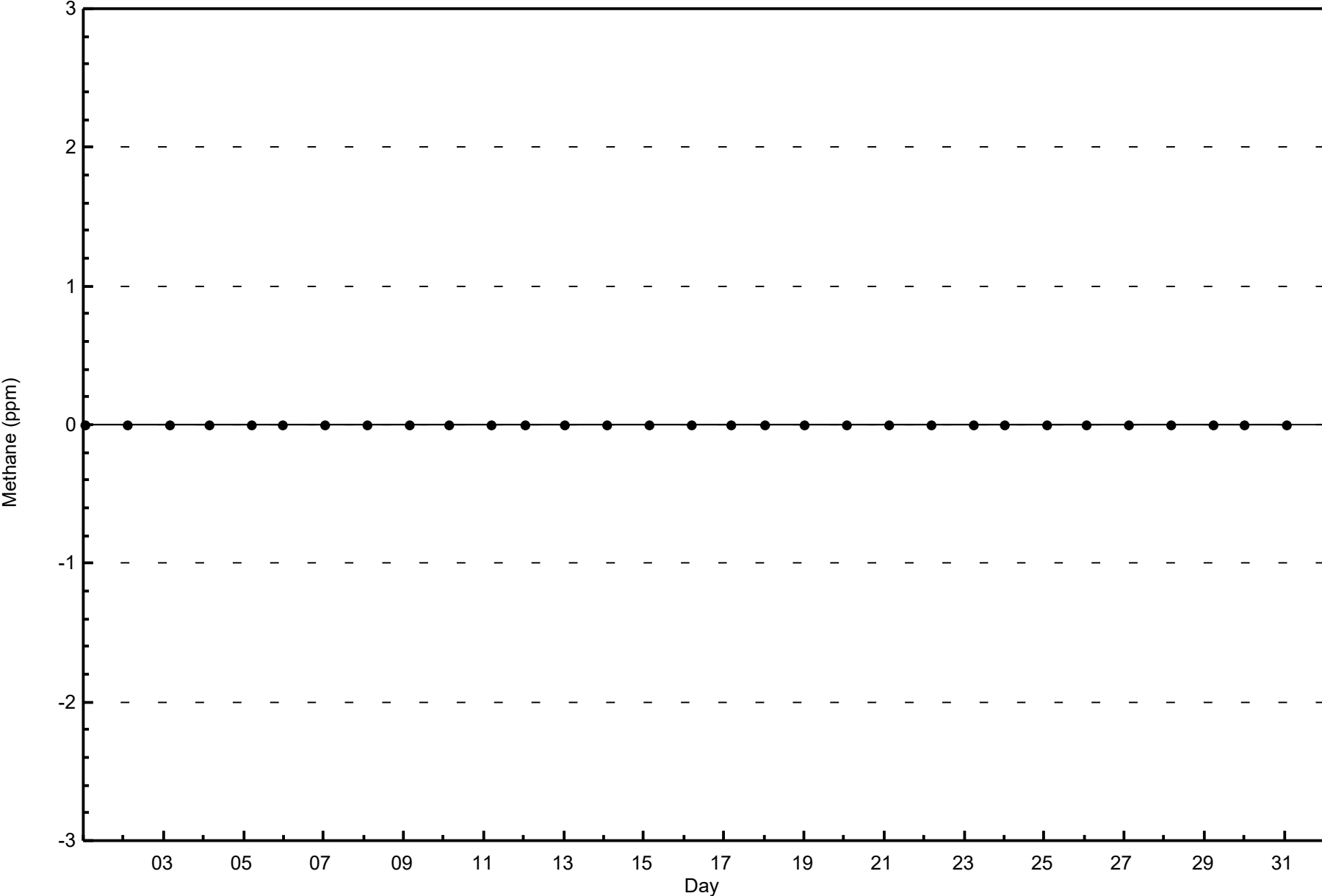
Total Number of Hours: 744

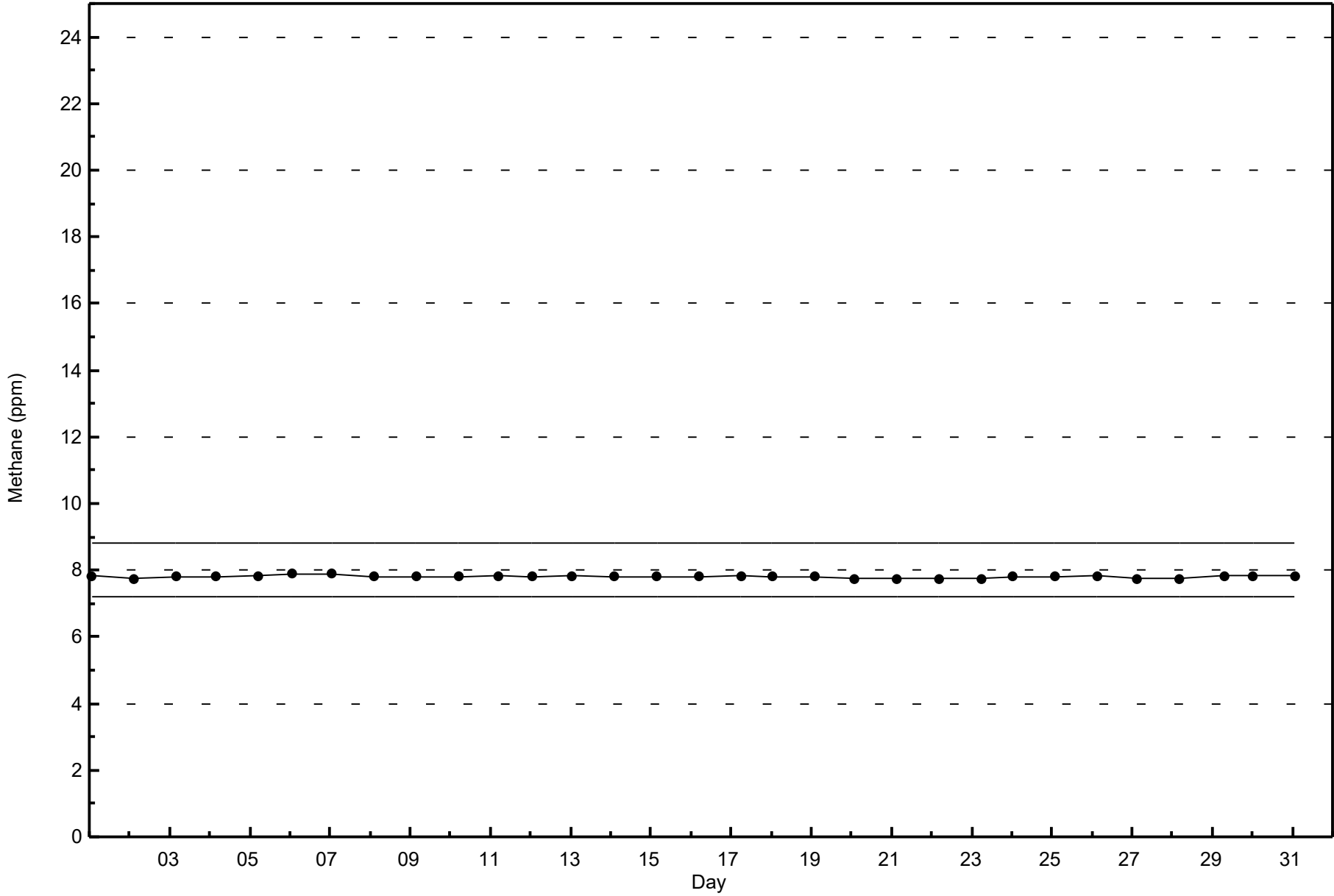


Wood Buffalo Environmental Association  
Wind Rose May 2024

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







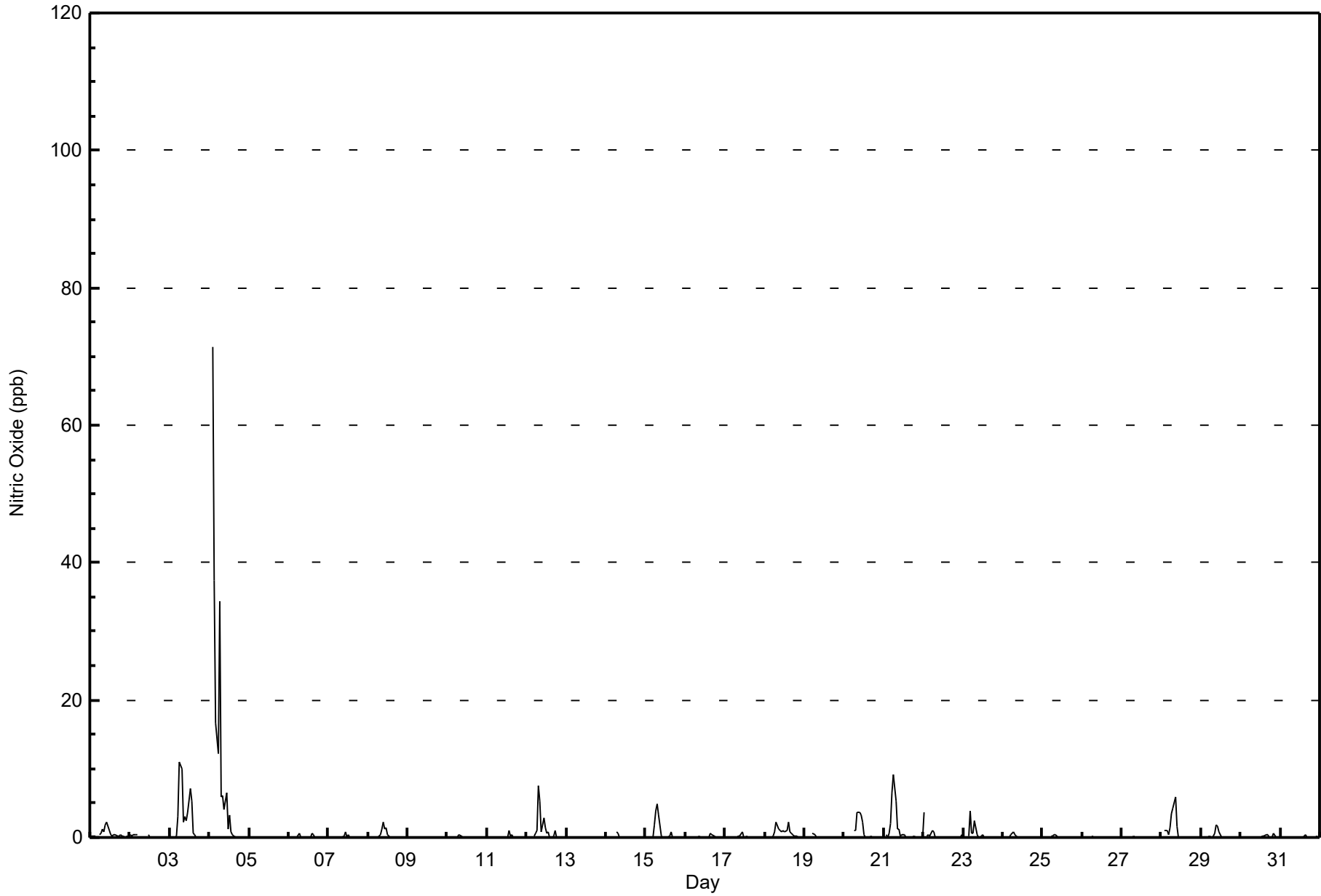


Maximum Value: 71.3 ppb on May 4 03:00		Maximum Daily Average: 8.7 ppb on May 4		Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 2 14:00		Minimum Daily Average: 0.0 ppb on May 5		Hours of Data: 707																							
Maximum Diurnal Average: 2.7 ppb at hour 3		Minimum Diurnal Average: 0.0 ppb at hour 22		Hours of Missing Data: 37																							
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 = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.9 P <sub>99</sub> = 9.1		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-May	0.2	0.2	0.3	0.2	Z	0.3	0.6	1.1	0.8	1.8	2.2	1.0	0.4	0.3	0.5	0.4	0.1	0.2	0.3	0.1	0.2	0.1	0.2	0.2	0.5	2.2	
2-May	0.3	0.3	0.3	0.4	0.5	Z	C	C	C	C	C	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
3-May	Z	0.1	0.0	0.0	0.2	3.1	10.9	10.0	2.3	3.0	2.5	3.7	7.1	5.3	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	10.9	
4-May	0.0	Z	71.3	37.3	16.8	12.3	34.5	5.9	6.0	4.1	6.6	1.2	3.3	0.8	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	71.3	
5-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-May	0.0	0.0	0.0	Z	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
7-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.7	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
8-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.3	1.2	2.3	1.2	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	0.3	2.3	
9-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
10-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	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	0.4	
11-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	
12-May	0.0	0.0	0.0	Z	0.2	0.7	1.0	7.5	5.3	0.9	2.8	1.3	0.7	0.8	0.0	0.0	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.5	
13-May	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	
14-May	0.0	0.0	0.0	0.0	0.0	Z	0.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	
15-May	Z	0.0	0.0	0.0	0.0	1.9	3.8	4.8	3.3	0.2	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.8	
16-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
17-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.8	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
18-May	0.0	0.0	0.0	Z	0.0	0.1	0.9	2.3	1.2	0.9	0.9	1.0	0.9	1.0	2.2	0.9	0.5	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.6	2.3	
19-May	0.0	0.0	0.0	0.0	Z	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
20-May	0.0	0.0	0.0	0.0	0.1	Z	1.1	1.0	3.6	3.7	3.3	2.2	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.7	
21-May	Z	0.5	0.0	0.7	1.9	6.6	9.2	5.4	1.1	1.2	0.3	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.2	9.2	
22-May	3.7	Z	0.2	0.4	0.3	1.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.7		
23-May	0.2	0.1	Z	0.2	3.9	0.6	0.7	2.3	0.4	0.0	0.1	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.9	
24-May	0.0	0.0	0.0	Z	0.1	0.5	0.8	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
25-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.4	0.3	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	0.4	
26-May	0.0	0.0	0.0	0.0	0.0	Z	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	0.1	0.0	0.0	0.3	
27-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
28-May	0.0	Z	1.1	1.1	0.3	1.4	3.4	4.3	5.9	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.9	
29-May	0.0	0.0	0.0	Z	0.0	0.2	0.0	0.2	0.7	1.9	1.6	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	
30-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	M	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.4	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.6	
31-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan		C - Calibration		M - Maintenance																							



Wood Buffalo Environmental Association  
Hourly Averages

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Buffalo Viewpoint - May 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	2	0.28	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**

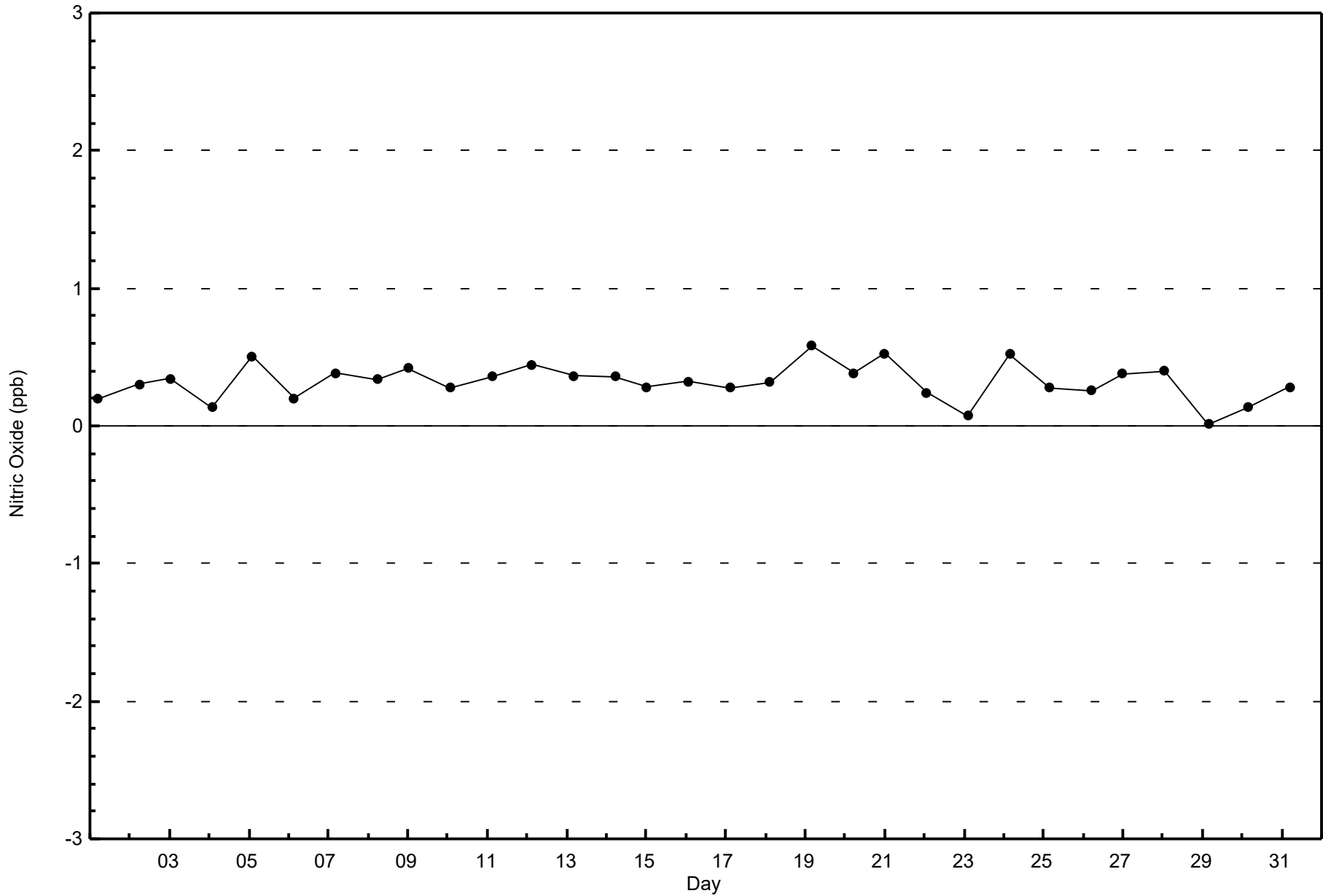
**Nitric Oxide (NO) - ppb**  
**Buffalo Viewpoint - May 2024**

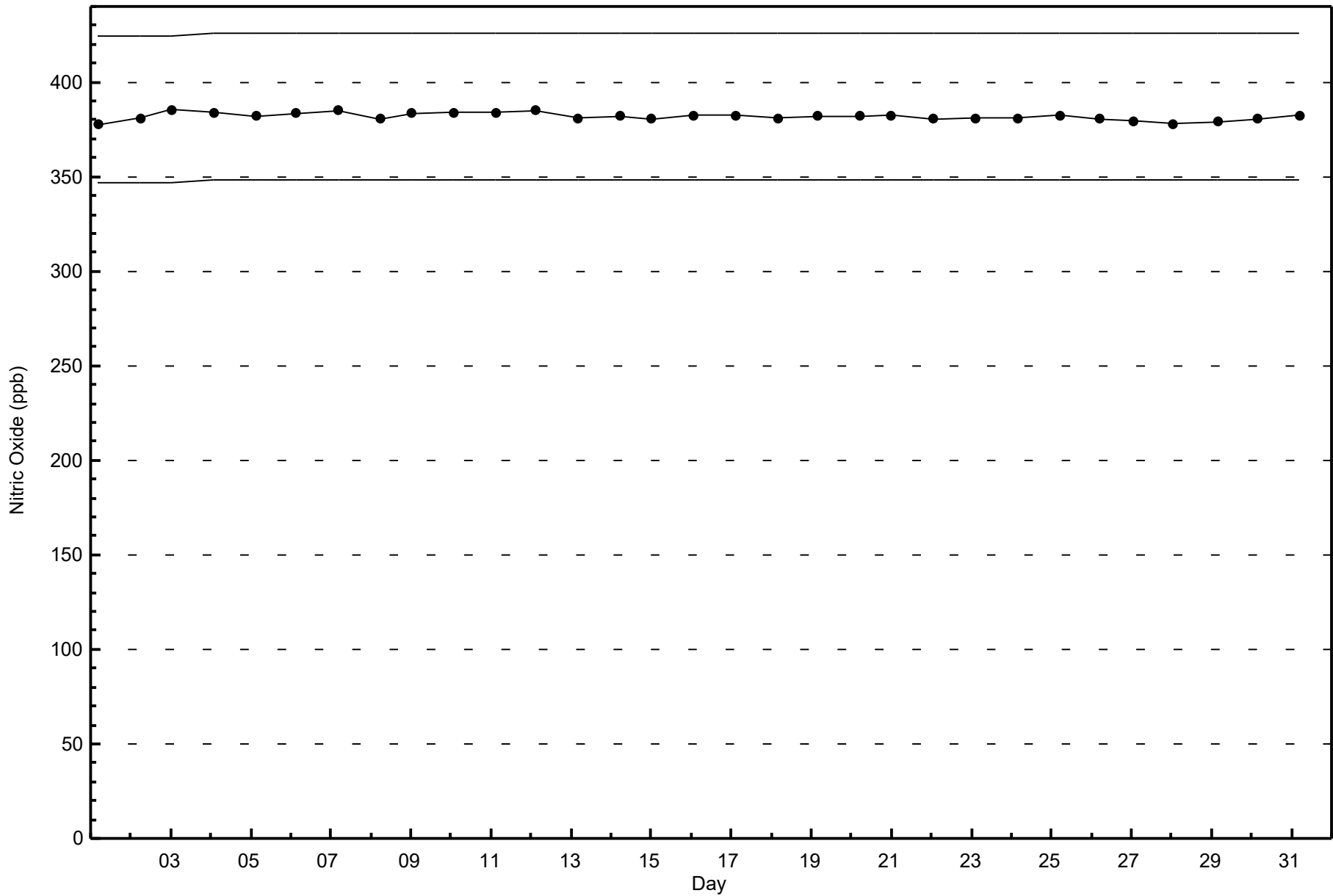
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	111	62	39	15	24	59	85	79	26	11	26	26	14	29	52	46	704
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	62	39	15	24	59	85	79	26	11	26	26	14	29	54	47	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

## Buffalo Viewpoint - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 36.5 ppb on May 4 03:00	Maximum Daily Average: 11.5 ppb on May 4		Hours of Data:	707
Minimum Value: 0.0 ppb on May 5 00:00	Minimum Daily Average: 0.9 ppb on May 25		Hours of Missing Data:	37
Maximum Diurnal Average: 6.3 ppb at hour 4	Minimum Diurnal Average: 1.1 ppb at hour 17		Hours of Calibration:	36
Monthly Average: 3.26 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.4 Median = 1.6 Q <sub>3</sub> = 4.1 P <sub>90</sub> = 9.0 P <sub>99</sub> = 20.9		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-May	1.4	1.5	3.9	5.5	Z	2.0	2.0	2.1	1.8	3.3	4.1	2.0	1.1	0.9	1.0	1.6	1.2	1.4	1.8	1.5	4.1	2.2	4.5	10.5	2.7	10.5
2-May	13.8	12.5	15.7	17.1	11.4	Z	C	C	C	C	C	1.1	1.2	1.0	0.8	0.6	0.6	0.9	1.7	3.3	5.8	12.3	20.5	9.4	7.2	20.5
3-May	Z	10.7	11.0	13.8	18.9	23.3	23.6	22.0	10.5	10.1	10.1	10.5	13.0	11.3	4.0	3.4	2.2	1.1	1.5	1.1	2.9	7.2	15.3	20.9	10.8	23.6
4-May	18.2	Z	36.5	35.5	25.6	20.4	25.9	16.7	11.5	9.7	14.6	5.8	9.0	3.5	2.5	2.5	1.9	1.6	1.1	2.4	5.1	8.1	5.3	0.0	11.5	36.5
5-May	0.0	0.1	Z	0.2	0.1	0.1	1.3	1.5	1.4	0.9	0.5	0.7	0.2	0.6	0.7	0.4	0.4	0.2	0.0	0.2	2.3	1.4	7.8	1.0	1.0	7.8
6-May	0.4	4.4	5.6	Z	6.5	6.0	8.6	1.5	0.7	2.5	0.4	2.2	3.0	3.1	6.3	3.6	2.5	1.7	2.7	3.6	0.7	0.2	0.7	1.6	3.0	8.6
7-May	7.3	6.7	5.0	3.5	Z	3.4	4.2	1.5	2.1	5.0	9.5	3.9	6.4	3.7	1.2	0.4	0.1	0.5	5.0	2.5	0.6	0.0	0.0	0.0	3.2	9.5
8-May	0.2	0.4	0.4	0.4	0.4	Z	1.1	4.2	9.0	9.0	4.7	5.3	3.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	9.0
9-May	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.5	0.9	0.8	1.8	7.6	4.8	7.4	10.9	11.9	2.1	11.9
10-May	5.4	Z	3.1	2.1	1.7	2.0	1.9	2.9	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	4.9	3.3	6.9	1.6	6.9
11-May	6.0	8.9	Z	1.4	2.0	1.0	0.4	0.7	1.0	0.8	1.0	0.8	0.7	3.3	1.7	2.3	1.3	0.5	0.6	0.6	0.3	1.0	1.1	3.6	1.8	8.9
12-May	8.6	5.6	10.6	Z	6.5	5.2	4.8	12.7	12.1	4.9	9.7	5.8	4.1	4.7	0.9	0.1	3.3	7.5	3.3	0.2	0.2	0.4	5.6	9.1	5.5	12.7
13-May	3.2	0.4	0.1	0.4	Z	1.9	1.7	1.5	1.7	1.6	1.1	0.6	0.3	0.1	0.1	0.0	0.0	0.0	1.2	7.0	5.0	2.9	3.5	3.7	1.7	7.0
14-May	3.0	3.1	4.6	4.8	3.7	Z	4.5	5.3	4.5	3.3	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.7	2.3	2.8	3.1	3.8	4.0	2.5	5.3
15-May	Z	3.6	3.3	4.4	2.5	13.3	16.9	19.3	14.0	3.2	0.8	1.6	1.2	1.8	3.7	5.7	1.3	0.7	1.0	1.2	0.8	0.5	0.8	1.2	4.5	19.3
16-May	1.0	Z	0.7	2.0	5.2	7.8	4.1	4.1	6.0	2.5	2.8	2.0	2.5	2.2	2.3	5.0	3.7	2.7	3.5	3.8	4.1	3.2	2.1	0.4	3.2	7.8
17-May	0.3	0.3	Z	2.6	2.3	1.0	1.4	2.3	2.8	2.8	5.0	1.7	1.0	1.9	1.7	1.6	1.5	2.2	3.8	3.3	3.1	1.4	3.5	4.2	2.2	5.0
18-May	3.6	3.3	3.7	Z	4.9	6.0	7.2	8.1	4.8	3.3	2.8	2.6	2.7	3.1	4.9	3.4	3.7	4.0	3.9	4.5	1.9	0.1	0.6	0.5	3.6	8.1
19-May	1.8	0.6	0.7	3.4	Z	5.8	4.1	1.3	1.2	0.3	0.0	0.2	0.5	0.5	0.6	0.8	0.5	0.6	0.7	2.4	2.4	5.6	6.0	5.7	2.0	6.0
20-May	3.4	1.8	1.7	4.5	3.1	Z	3.6	2.4	6.3	5.2	4.8	4.7	2.8	0.3	0.6	1.4	1.8	1.8	0.3	0.0	0.6	0.7	0.3	3.9	2.4	6.3
21-May	Z	11.3	7.2	15.4	12.0	10.0	8.3	4.5	1.6	3.1	1.0	1.2	1.0	0.2	0.0	0.3	0.3	1.1	1.7	1.6	1.0	1.3	3.4	4.0	4.0	15.4
22-May	13.8	Z	4.4	6.6	4.3	3.8	2.3	1.1	0.2	0.2	0.3	0.5	0.8	0.6	0.5	0.7	1.0	0.9	0.8	2.8	4.2	6.2	9.5	18.9	3.7	18.9
23-May	19.6	16.1	Z	12.1	17.9	7.2	5.4	9.4	1.8	0.2	0.3	1.0	1.3	0.6	0.2	0.1	0.0	0.0	0.1	0.0	1.0	0.5	1.8	3.9	4.4	19.6
24-May	2.9	2.7	2.4	Z	2.8	1.3	1.8	1.0	0.7	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.6	1.3	0.9	3.6
25-May	2.4	1.8	3.1	1.6	Z	1.2	1.2	1.0	1.1	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.7	1.3	2.6	0.2	0.1	0.1	0.2	0.6	0.9	3.1
26-May	0.3	1.3	0.7	0.3	0.4	Z	0.9	1.0	0.9	0.4	0.3	0.5	0.3	0.2	0.1	0.2	0.2	0.1	0.3	1.0	5.7	12.6	15.2	5.7	2.1	15.2
27-May	Z	1.6	2.2	1.0	0.8	0.7	0.9	1.1	0.7	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	3.7	7.8	5.4	1.1	1.8	1.3	7.8
28-May	1.2	Z	13.1	16.5	13.6	9.8	9.7	9.9	11.9	5.1	1.7	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.2	6.1	4.5	2.3	5.0	16.5
29-May	2.4	2.9	2.8	Z	5.0	4.6	1.7	2.8	3.1	5.9	9.1	4.5	2.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	9.1
30-May	0.0	0.0	0.2	Z	0.3	0.3	0.2	M	0.5	0.7	0.6	0.6	0.6	1.1	1.5	3.2	4.0	2.0	0.4	1.5	13.1	1.1	2.4	0.1	1.6	13.1
31-May	0.2	0.3	0.0	1.3	Z	0.6	0.0	0.4	0.5	0.8	1.4	0.1	2.2	1.5	2.7	3.8	2.4	2.2	2.0	3.7	4.7	5.9	4.3	2.9	1.9	5.9

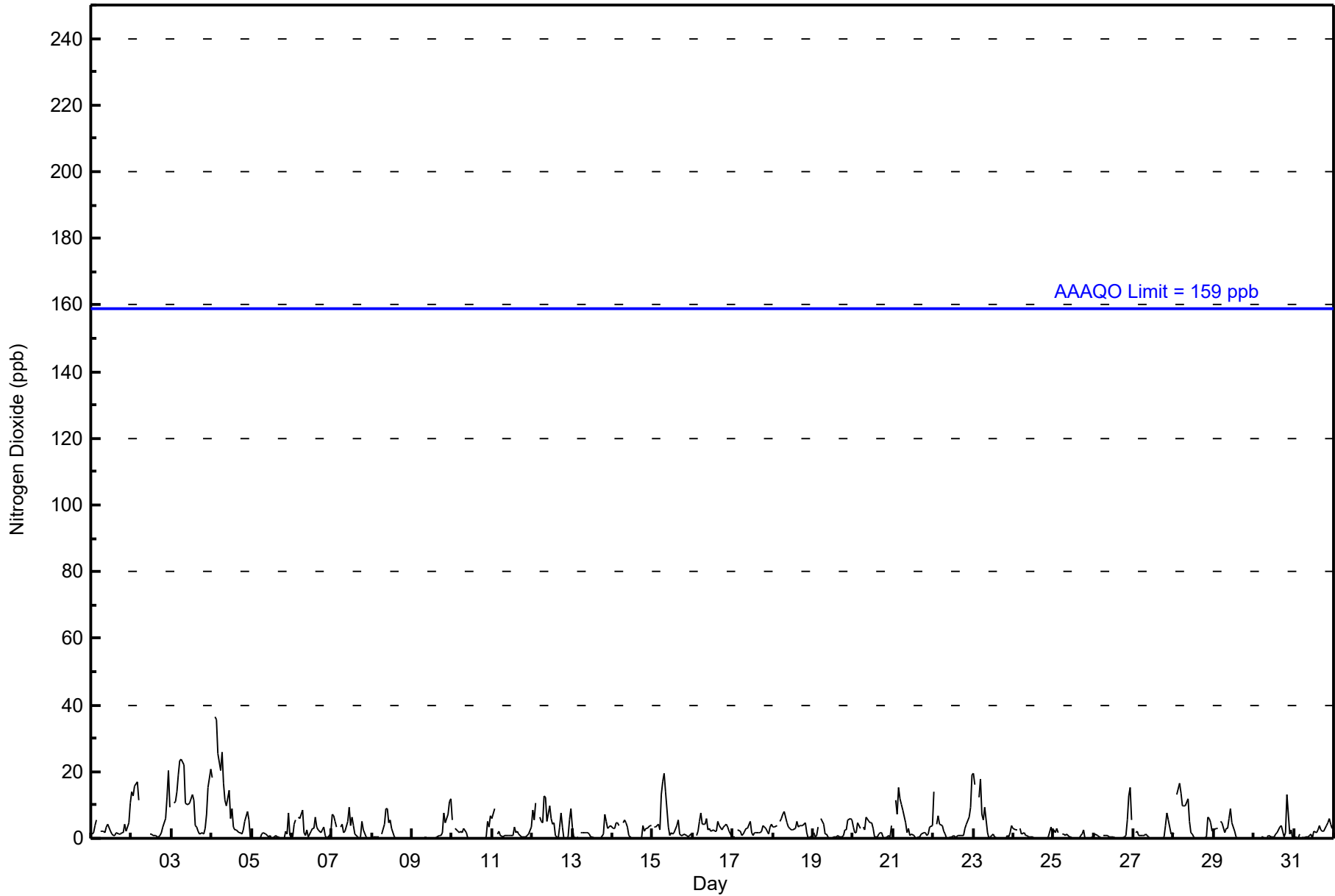
4.6	3.9	5.3	6.3	6.1	5.3	5.0	4.9	3.9	2.9	2.9	2.0	2.0	1.5	1.2	1.3	1.1	1.2	1.5	2.0	3.0	3.3	4.6	4.5	Diurnal Average	
19.6	16.1	36.5	35.5	25.6	23.3	25.9	22.0	14.0	10.1	14.6	10.5	13.0	11.3	6.3	5.7	4.0	7.5	5.0	7.6	13.1	12.6	20.5	20.9	Diurnal Maximum	

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



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	698	98.73	98.73
21 - 40	9	1.27	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	108	60	39	15	24	59	85	79	26	11	26	25	14	29	52	46	698
21 - 40	3	2	0	0	0	0	0	0	0	0	0	1	0	0	2	1	9
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	62	39	15	24	59	85	79	26	11	26	26	14	29	54	47	707

Total Number of Valid Hours: 707

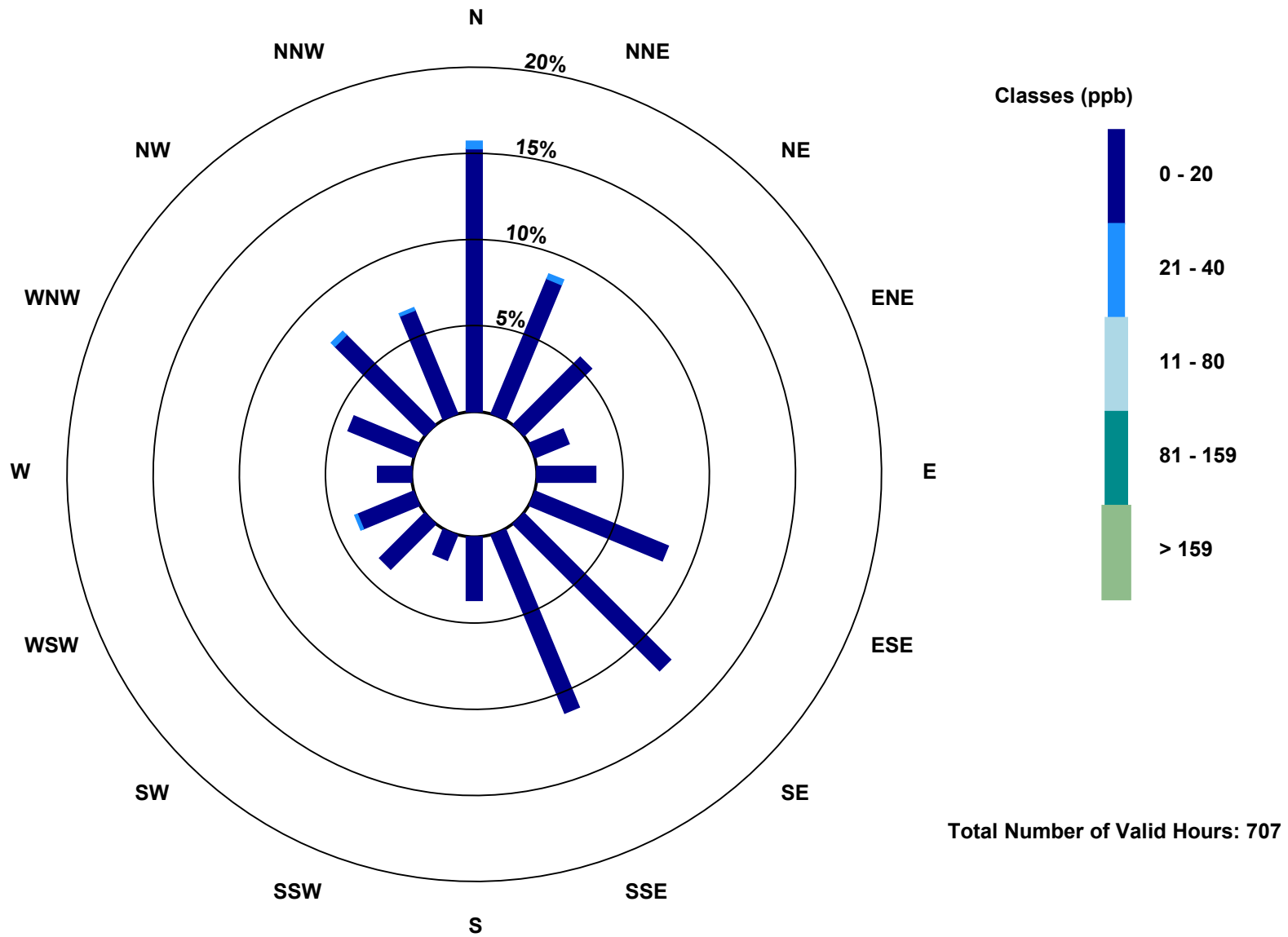
Total Number of Hours: 744

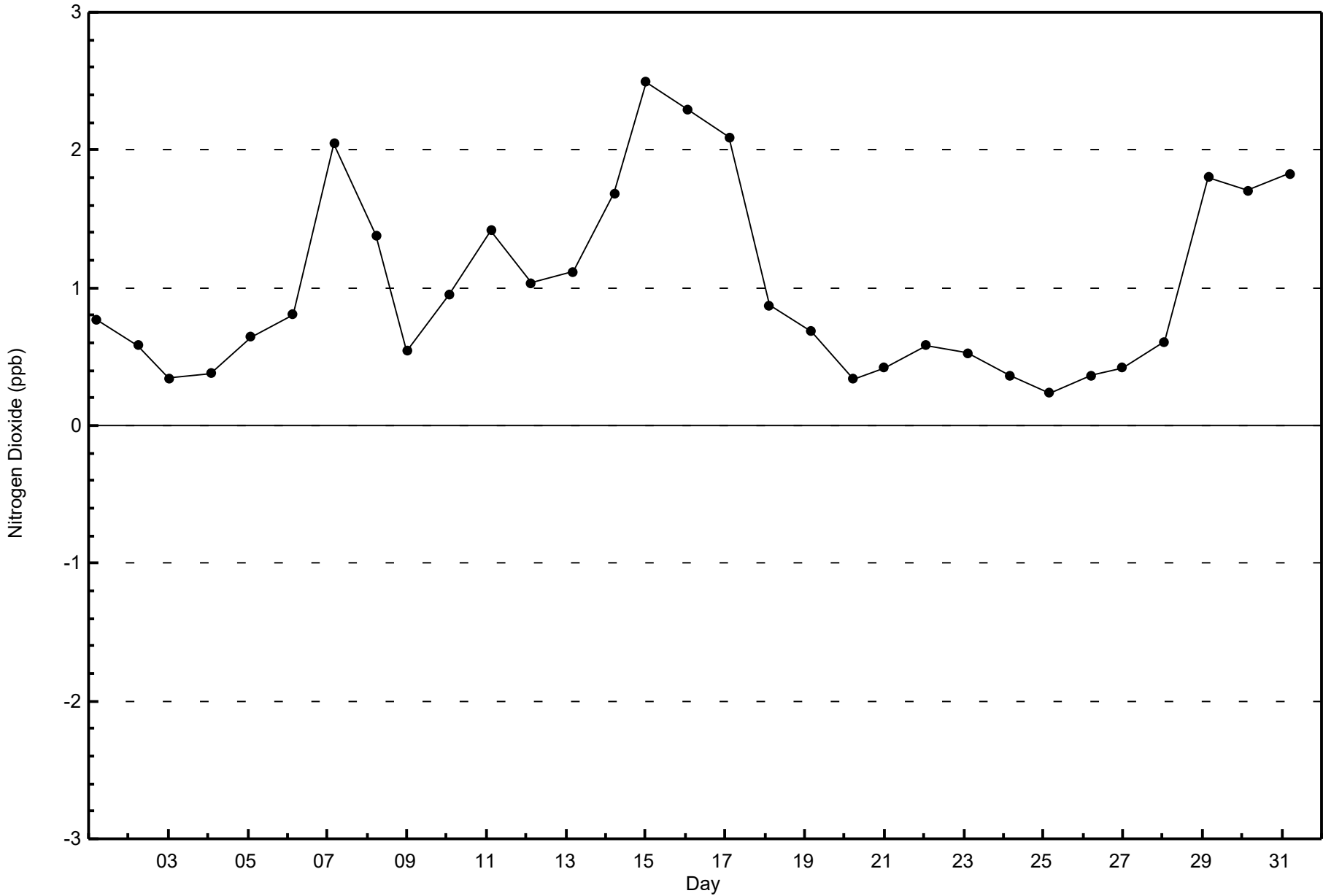


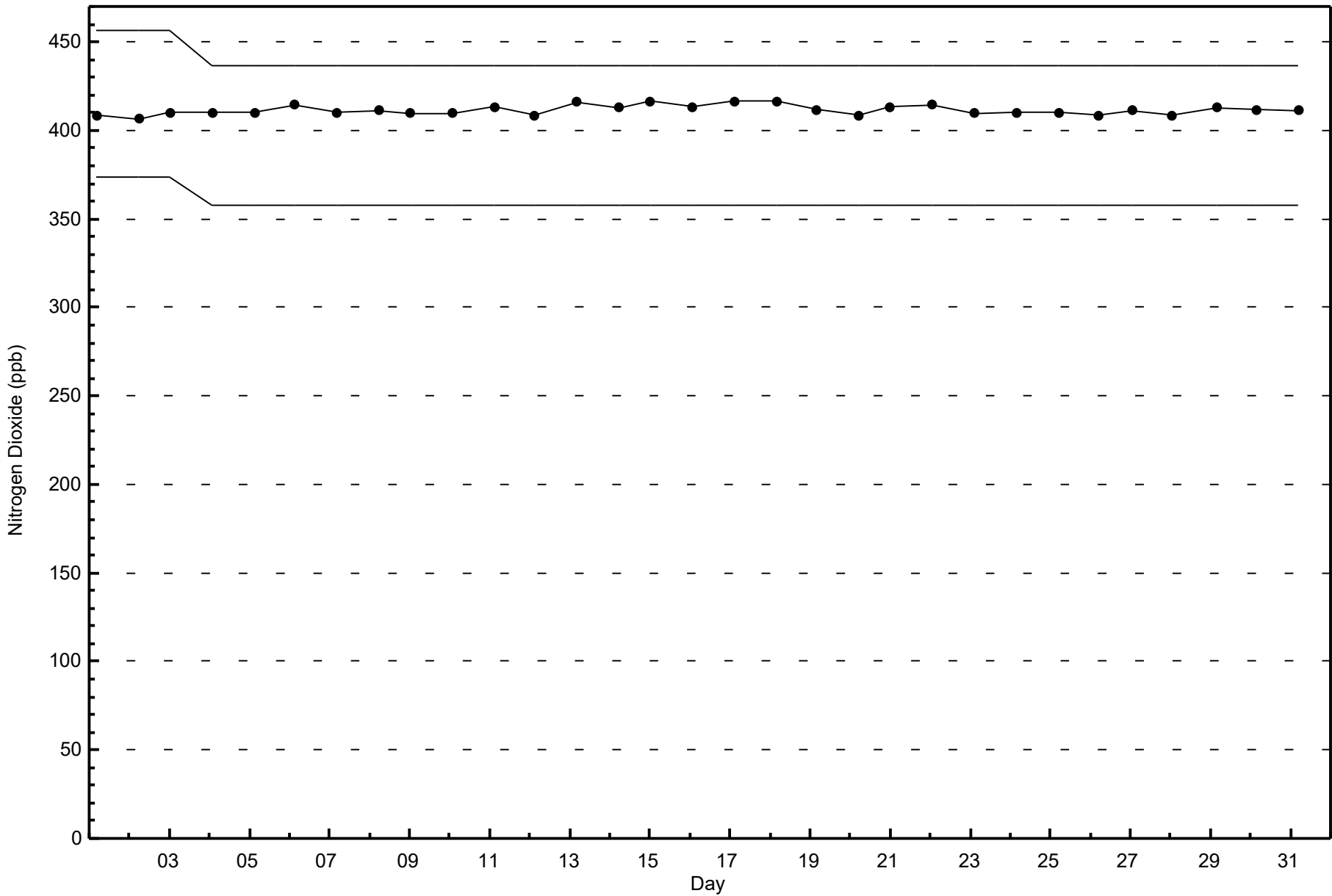


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









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

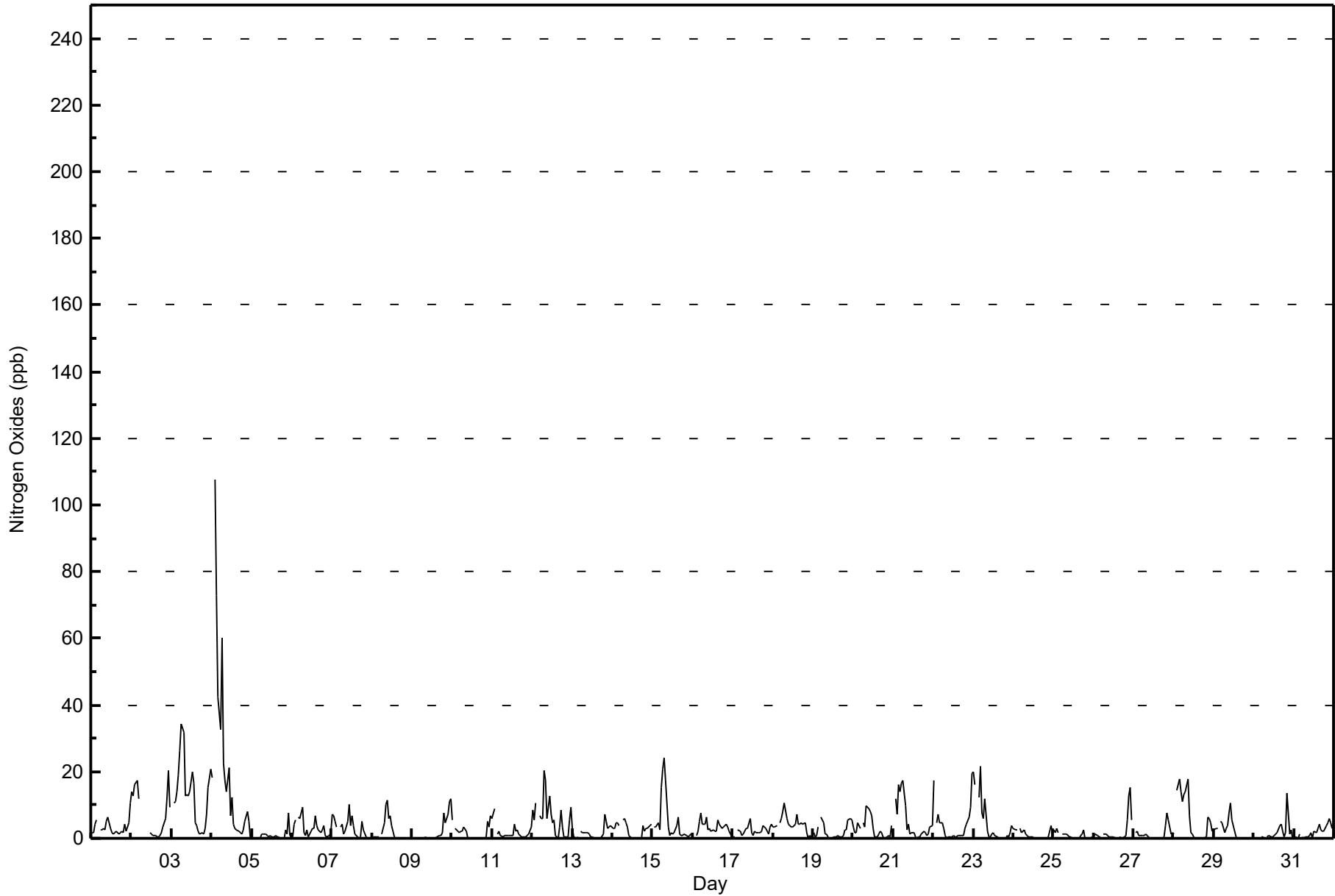
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Buffalo Viewpoint - May 2024**

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 107.8 ppb on May 4 03:00		Maximum Daily Average: 20.2 ppb on May 4				Hours of Data:		707																																									
Minimum Value: 0.0 ppb on May 5 19:00		Minimum Daily Average: 0.9 ppb on May 25				Hours of Missing Data:		37																																									
Maximum Diurnal Average: 8.0 ppb at hour 3		Minimum Diurnal Average: 1.2 ppb at hour 17				Hours of Calibration:		36																																									
Monthly Average: 3.86 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.4 Median = 1.7 Q <sub>3</sub> = 4.4 P <sub>90</sub> = 10.0 P <sub>99</sub> = 26.2				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-May	1.6	1.7	4.2	5.7	Z	2.3	2.6	3.2	2.6	5.1	6.3	3.0	1.5	1.2	1.5	2.0	1.3	1.6	2.1	1.6	4.3	2.3	4.7	10.7	3.2	10.7																							
2-May	14.1	12.8	16.0	17.5	11.9	Z	C	C	C	C	C	1.6	1.3	1.0	0.8	0.6	0.6	0.9	1.7	3.3	5.8	12.3	20.5	9.4	7.3	20.5																							
3-May	Z	10.8	11.0	13.8	19.1	26.4	34.5	32.0	12.8	13.1	12.6	14.2	20.1	16.6	4.6	3.9	2.2	1.1	1.5	1.1	2.9	7.2	15.3	20.9	12.9	34.5																							
4-May	18.2	Z	107.8	72.8	42.4	32.7	60.4	22.6	17.5	13.8	21.2	7.0	12.3	4.3	2.8	2.7	2.0	1.6	1.1	2.4	5.1	8.1	5.3	0.0	20.2	107.8																							
5-May	0.0	0.1	Z	0.2	0.1	0.1	1.3	1.5	1.4	0.9	0.5	0.7	0.2	0.6	0.7	0.4	0.4	0.2	0.0	0.2	2.3	1.4	7.8	1.0	1.0	7.8																							
6-May	0.4	4.4	5.6	Z	6.5	6.0	9.2	1.5	0.7	2.5	0.4	2.2	3.1	3.1	6.9	3.9	2.5	1.7	2.7	3.6	0.7	0.2	0.7	1.6	3.0	9.2																							
7-May	7.3	6.7	5.0	3.5	Z	3.4	4.2	1.5	2.1	5.2	10.2	3.9	6.9	3.7	1.2	0.4	0.1	0.5	5.0	2.5	0.6	0.0	0.0	0.0	3.2	10.2																							
8-May	0.2	0.4	0.4	0.4	0.4	Z	1.1	4.5	10.2	11.3	5.9	6.7	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.0	11.3																							
9-May	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.5	0.9	0.8	1.8	7.7	4.8	7.4	10.9	11.9	2.1	11.9																							
10-May	5.4	Z	3.1	2.1	1.7	2.0	2.0	3.3	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	4.9	3.3	6.9	1.6	6.9																							
11-May	6.0	8.9	Z	1.4	2.0	1.0	0.4	0.7	1.0	0.8	1.0	0.8	0.7	4.3	1.9	2.7	1.3	0.5	0.6	0.6	0.3	1.0	1.1	3.6	1.9	8.9																							
12-May	8.6	5.6	10.6	Z	6.7	5.9	5.8	20.2	17.4	5.8	12.5	7.1	4.8	5.5	0.9	0.1	3.5	8.5	3.3	0.2	0.2	0.4	5.6	9.1	6.5	20.2																							
13-May	3.2	0.4	0.1	0.4	Z	1.9	1.7	1.5	1.7	1.6	1.1	0.6	0.3	0.1	0.1	0.0	0.0	0.0	1.2	7.0	5.0	2.9	3.5	3.7	1.7	7.0																							
14-May	3.0	3.1	4.6	4.8	3.7	Z	5.4	5.9	4.5	3.3	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.7	2.3	2.8	3.1	3.8	4.0	2.6	5.9																							
15-May	Z	3.6	3.3	4.4	2.5	15.2	20.7	24.1	17.3	3.4	0.8	1.6	1.2	1.8	3.8	6.5	1.3	0.7	1.0	1.2	0.8	0.5	0.8	1.2	5.1	24.1																							
16-May	1.0	Z	0.7	2.0	5.2	7.8	4.1	4.1	6.3	2.5	2.8	2.0	2.5	2.2	2.3	5.5	4.1	2.8	3.5	3.8	4.1	3.2	2.1	0.4	3.3	7.8																							
17-May	0.3	0.3	Z	2.6	2.3	1.0	1.4	2.3	3.1	3.0	5.8	1.7	1.0	2.0	1.8	1.6	1.5	2.2	3.8	3.3	3.1	1.4	3.5	4.2	2.3	5.8																							
18-May	3.6	3.3	3.7	Z	4.9	6.1	8.1	10.4	6.0	4.2	3.7	3.6	3.6	4.1	7.1	4.3	4.2	4.5	4.1	4.6	1.9	0.1	0.6	0.5	4.2	10.4																							
19-May	1.8	0.6	0.7	3.4	Z	6.3	4.5	1.4	1.2	0.3	0.0	0.2	0.5	0.5	0.6	0.8	0.5	0.6	0.7	2.4	2.4	5.6	6.0	5.7	2.0	6.3																							
20-May	3.4	1.8	1.7	4.5	3.2	Z	4.7	3.4	9.9	8.9	8.1	6.9	3.2	0.3	0.6	1.4	1.9	1.8	0.3	0.0	0.6	0.7	0.3	3.9	3.1	9.9																							
21-May	Z	11.8	7.2	16.1	13.9	16.6	17.5	9.9	2.7	4.3	1.3	1.5	1.5	0.2	0.0	0.3	0.3	1.1	1.9	1.6	1.0	1.3	3.4	4.0	5.2	17.5																							
22-May	17.5	Z	4.6	7.0	4.6	4.9	3.0	1.1	0.2	0.2	0.3	0.5	0.8	0.6	0.5	0.7	1.0	0.9	0.8	2.8	4.2	6.2	9.5	19.4	4.0	19.4																							
23-May	19.8	16.2	Z	12.3	21.8	7.8	6.1	11.7	2.2	0.2	0.4	1.2	1.7	0.7	0.2	0.1	0.0	0.0	0.1	0.0	1.0	0.5	1.8	3.9	4.8	21.8																							
24-May	2.9	2.7	2.4	Z	2.9	1.8	2.6	1.3	1.0	0.4	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.6	1.3	1.0	3.6																							
25-May	2.4	1.8	3.1	1.6	Z	1.3	1.3	1.4	1.4	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.7	1.4	2.6	0.2	0.1	0.1	0.2	0.6	0.9	3.1																							
26-May	0.3	1.3	0.7	0.3	0.4	Z	1.2	1.1	0.9	0.4	0.3	0.5	0.3	0.2	0.1	0.2	0.2	0.1	0.3	1.0	5.7	12.7	15.2	5.7	2.1	15.2																							
27-May	Z	1.6	2.2	1.0	0.8	0.7	0.9	1.2	0.7	0.5	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	3.7	7.8	5.4	1.1	1.8	1.3	7.8																							
28-May	1.2	Z	14.2	17.6	13.9	11.2	13.1	14.2	17.8	6.8	1.7	1.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.2	6.1	4.5	2.3	5.8	17.8																							
29-May	2.4	2.9	2.8	Z	5.0	4.8	1.7	3.0	3.8	7.8	10.7	5.4	2.3	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	10.7																							
30-May	0.0	0.0	0.2	Z	0.3	0.3	0.2	M	0.5	0.7	0.6	0.6	0.7	1.3	1.7	3.6	4.4	2.0	0.4	1.5	13.7	1.1	2.4	0.1	1.6	13.7																							
31-May	0.2	0.3	0.0	1.3	Z	0.6	0.0	0.4	0.5	0.8	1.5	0.1	2.2	1.5	3.0	4.2	2.5	2.2	2.0	3.7	4.7	5.9	4.5	2.9	2.0	5.9																							
																								4.8	4.0	8.0	7.9	7.0	6.5	7.3	6.5	5.0	3.6	3.7	2.4	2.5	1.8	1.4	1.5	1.2	1.2	1.5	2.0	3.0	3.3	4.6	4.5	Diurnal Average	
																								19.8	16.2	107.8	72.8	42.4	32.7	60.4	32.0	17.8	13.8	21.2	14.2	20.1	16.6	7.1	6.5	4.4	8.5	5.0	7.7	13.7	12.7	20.5	20.9	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	692	97.88	97.88
21 - 40	11	1.56	99.43
41 - 80	3	0.42	99.86
81 - 159	1	0.14	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  
Buffalo Viewpoint - May 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	107	58	39	15	24	59	84	79	26	11	26	25	14	29	51	45	692
21 - 40	4	4	0	0	0	0	1	0	0	0	0	0	0	0	1	1	11
11 - 80	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	62	39	15	24	59	85	79	26	11	26	26	14	29	54	47	707

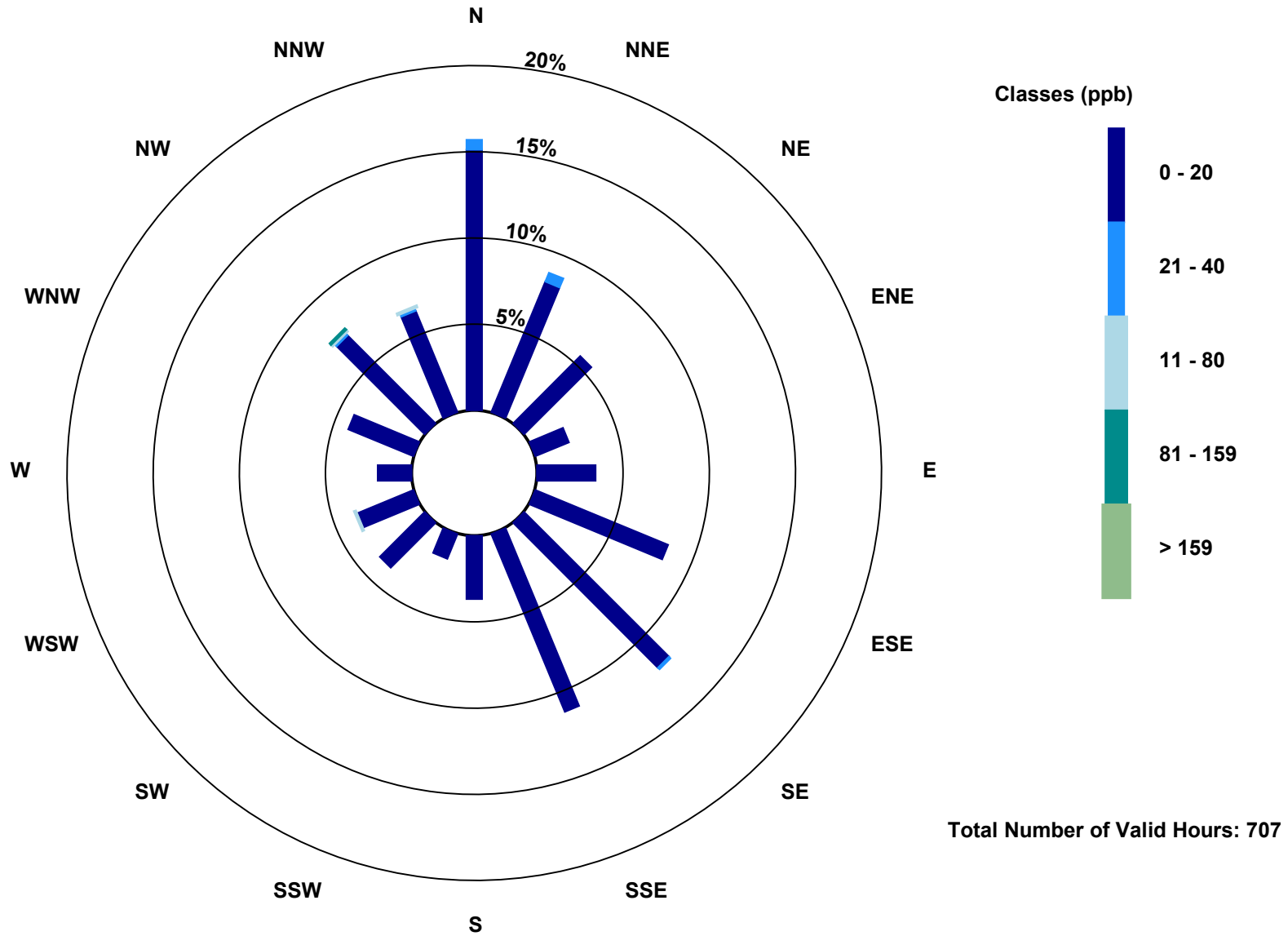
Total Number of Valid Hours: 707

Total Number of Hours: 744

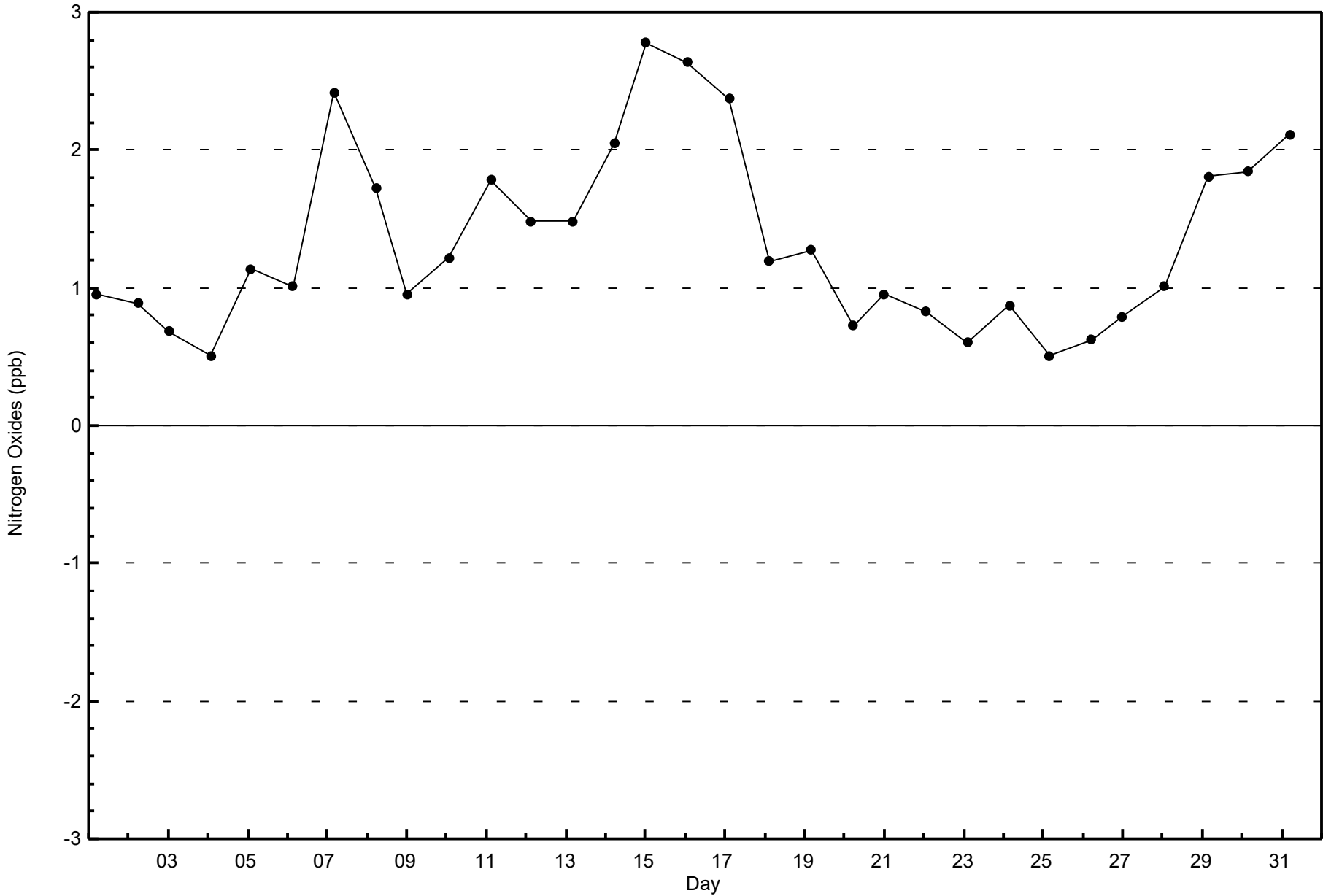


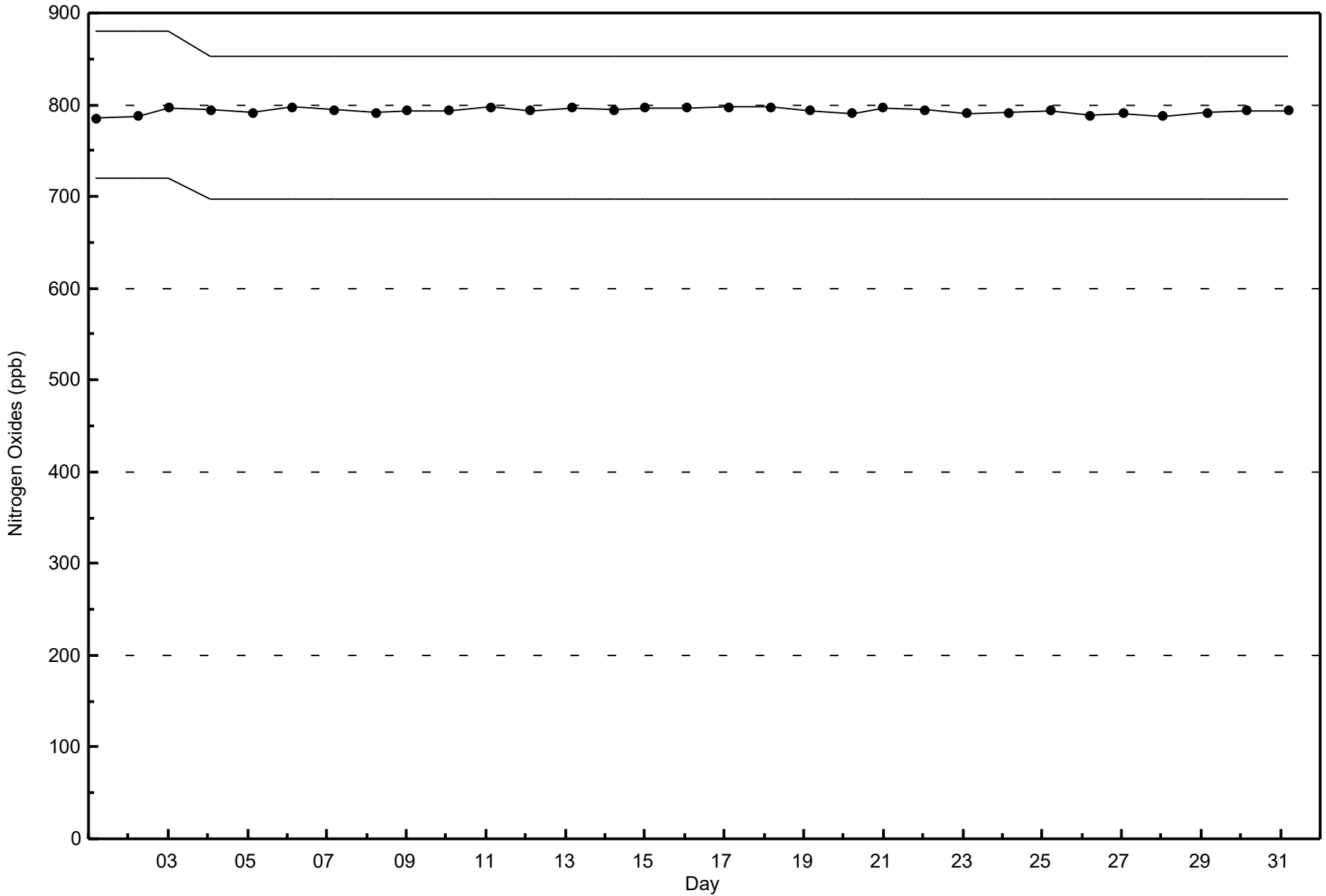
Wood Buffalo Environmental Association  
Wind Rose May 2024

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











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

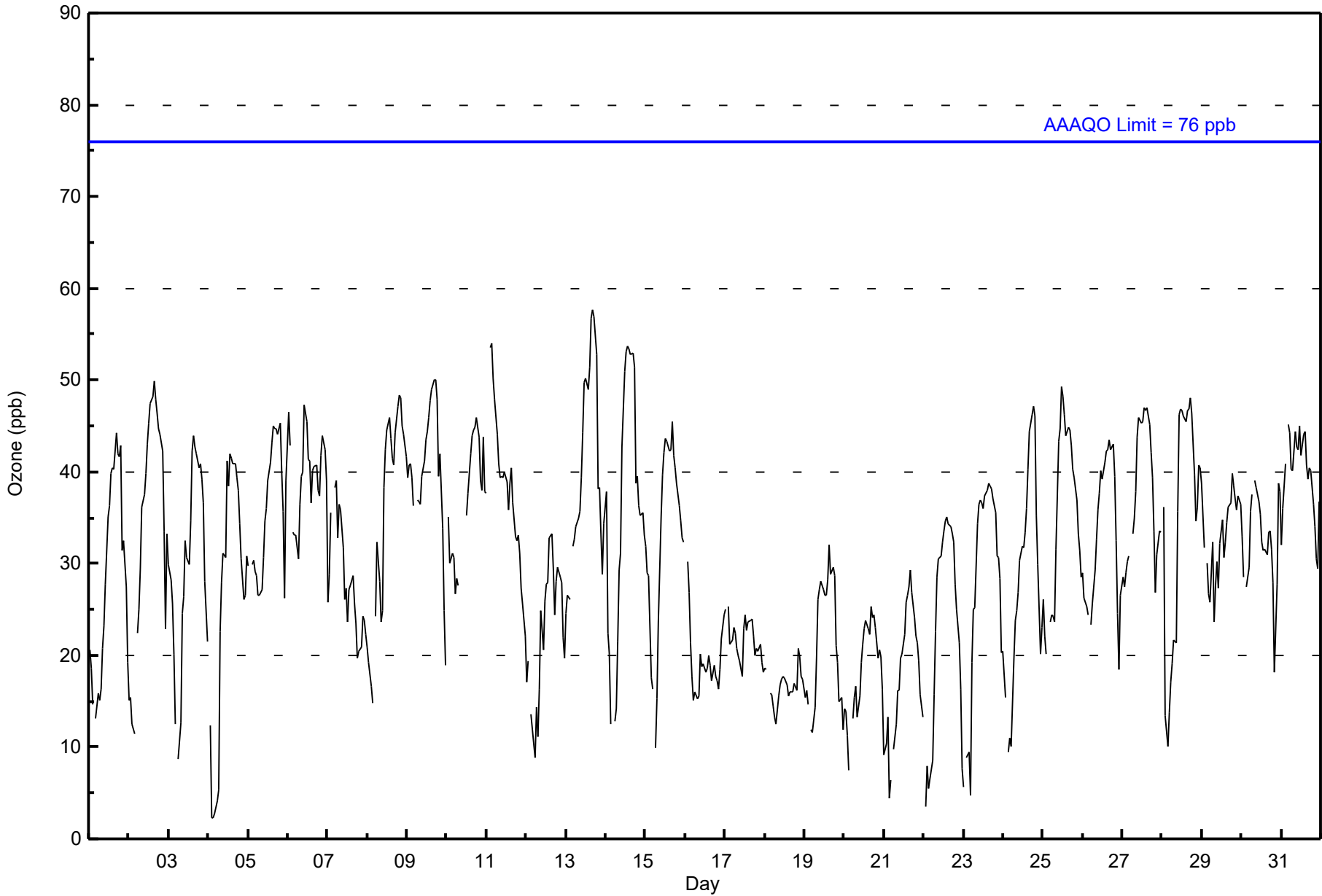
## Buffalo Viewpoint - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744																											
Maximum Value: 57.7 ppb on May 13 17:00				Maximum Daily Average: 40.3 ppb on May 13		Hours of Data:																708																											
Minimum Value: 2.3 ppb on May 4 03:00				Minimum Daily Average: 16.7 ppb on May 18		Hours of Missing Data:																36																											
Maximum Diurnal Average: 38.4 ppb at hour 17				Minimum Diurnal Average: 19.9 ppb at hour 4		Hours of Calibration:																35																											
Monthly Average: 30.53 ppb				Percentiles: P <sub>1</sub> = 5.4 P <sub>10</sub> = 15.5 Q <sub>1</sub> = 21.6 Median = 30.9 Q <sub>3</sub> = 39.6 P <sub>90</sub> = 44.7 P <sub>99</sub> = 53.0		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-May	20.6	18.6	14.6	Z	13.2	15.8	15.1	16.3	20.7	23.2	27.7	35.1	36.4	39.8	40.5	40.3	44.2	41.9	41.7	42.8	31.4	32.4	27.5	19.2	28.6	44.2																							
2-May	15.2	15.5	12.4	11.5	Z	22.5	25.0	29.4	36.1	37.5	39.8	43.1	45.3	47.4	48.1	49.8	47.9	46.4	44.7	44.1	42.2	33.6	22.9	33.3	34.5	49.8																							
3-May	29.9	28.2	25.7	20.2	12.5	Z	8.7	12.6	24.5	26.4	32.4	30.7	29.9	34.6	42.3	44.0	42.8	41.9	40.4	41.0	39.2	36.6	28.1	21.6	30.2	44.0																							
4-May	Z	12.4	2.3	2.3	2.7	4.1	5.4	22.5	28.0	31.1	30.6	41.2	38.5	41.9	41.4	40.9	40.9	39.3	37.9	34.3	30.5	26.1	26.5	30.9	26.6	41.9																							
5-May	29.8	Z	29.9	30.4	29.2	28.8	26.6	26.6	27.2	30.6	34.7	36.0	39.1	41.1	43.1	45.0	44.6	44.7	44.1	45.4	40.0	35.7	26.3	39.0	35.6	45.4																							
6-May	46.5	42.9	Z	33.4	33.1	33.1	30.5	36.5	39.6	40.0	47.4	45.5	41.4	41.2	36.6	40.1	40.5	40.7	38.0	37.4	41.9	44.0	42.4	39.1	39.6	47.4																							
7-May	25.8	28.8	35.5	Z	38.4	39.1	32.8	36.4	35.9	31.7	26.1	27.3	23.6	27.2	27.6	28.7	25.6	23.6	19.7	20.5	20.9	24.2	23.8	22.3	28.1	39.1																							
8-May	20.9	19.3	16.6	14.9	Z	24.3	32.4	28.1	23.6	24.9	38.4	42.4	44.5	45.9	43.6	41.4	40.7	44.2	47.2	48.4	48.1	45.0	44.0	41.6	35.7	48.4																							
9-May	39.4	40.8	40.9	39.4	36.3	Z	36.9	36.8	36.4	39.5	41.1	43.5	44.4	45.9	47.7	49.0	50.0	50.1	47.9	39.4	42.0	33.9	24.9	18.9	40.2	50.1																							
10-May	Z	35.0	30.1	31.1	30.7	26.7	28.4	27.6	C	C	C	C	35.2	37.7	41.9	43.9	44.6	44.9	45.9	43.8	39.1	37.9	43.9	37.8	37.2	45.9																							
11-May	37.6	Z	53.5	54.1	50.1	47.9	44.1	40.9	39.4	39.6	39.4	40.0	38.9	35.9	38.8	40.5	36.6	33.0	32.5	33.1	31.2	27.3	25.7	22.1	38.3	54.1																							
12-May	17.1	19.4	Z	13.5	10.3	8.9	14.3	11.2	16.3	24.8	20.6	26.0	27.8	27.9	32.8	33.3	29.4	24.4	28.0	29.6	28.5	27.9	21.9	19.6	22.3	33.3																							
13-May	24.5	26.5	26.2	Z	31.8	32.6	34.0	35.0	35.6	39.3	44.2	49.7	50.3	49.0	51.4	56.7	57.7	56.9	52.9	38.1	38.2	33.2	28.8	34.3	40.3	57.7																							
14-May	37.9	22.4	20.1	12.5	Z	12.9	14.1	21.5	29.4	31.2	42.7	50.9	53.1	53.7	53.3	52.8	52.9	51.5	38.8	39.5	36.3	35.3	35.5	33.2	36.1	53.7																							
15-May	31.8	28.9	28.7	17.5	16.3	Z	10.0	15.2	23.6	35.1	39.7	42.2	43.6	43.4	42.2	42.3	45.5	41.8	40.4	38.8	36.3	34.6	32.7	32.4	33.2	45.5																							
16-May	Z	30.2	26.8	21.3	17.7	15.2	16.1	15.3	15.6	20.2	18.7	19.0	18.2	18.6	19.9	19.0	17.2	18.9	17.8	17.3	16.3	18.5	21.8	24.4	19.3	30.2																							
17-May	25.0	Z	25.3	21.2	21.6	23.0	22.5	20.7	19.9	19.4	17.7	22.9	24.4	22.7	23.6	23.8	24.0	22.1	20.0	20.7	20.5	21.1	19.2	18.1	21.7	25.3																							
18-May	18.6	18.5	Z	15.9	15.7	14.5	13.3	12.5	15.5	16.8	17.4	17.6	17.6	16.8	15.5	16.1	16.0	16.1	16.9	16.2	20.8	19.8	17.6	17.3	16.7	20.8																							
19-May	15.4	16.1	14.7	Z	11.9	11.6	14.4	19.6	26.1	27.1	28.0	27.1	26.6	26.6	28.2	32.0	28.8	29.6	28.6	21.1	19.2	14.9	15.3	12.0	21.5	32.0																							
20-May	14.2	13.9	11.2	7.5	Z	13.1	15.4	16.7	13.3	15.5	19.2	21.2	22.9	23.8	22.8	22.3	25.3	24.1	24.4	23.1	19.7	20.6	19.8	16.3	18.5	25.3																							
21-May	9.1	10.4	13.2	4.4	6.5	Z	9.8	12.5	16.2	16.2	19.7	20.1	22.3	25.8	26.5	27.5	29.3	26.9	24.1	22.2	21.4	19.4	15.8	13.3	17.9	29.3																							
22-May	Z	3.5	7.9	5.4	6.6	8.5	15.8	22.6	28.6	30.5	30.8	32.4	33.6	34.7	35.0	34.4	34.0	33.3	32.3	27.7	25.0	21.3	16.3	7.6	23.0	35.0																							
23-May	5.6	Z	8.8	9.5	4.8	19.2	25.1	25.1	34.2	36.4	37.0	36.6	35.9	37.4	38.0	38.8	38.4	38.1	37.1	35.5	30.9	30.6	28.4	20.3	28.3	38.8																							
24-May	20.5	15.4	Z	9.5	10.9	10.1	19.7	23.8	24.8	26.8	30.4	31.9	31.7	33.4	36.1	40.3	44.4	46.1	47.2	46.1	47.2	35.3	29.9	20.2	23.1	28.6	47.2																						
25-May	26.1	22.1	20.2	Z	23.7	24.3	24.2	23.7	31.6	43.3	44.8	49.2	48.2	46.3	43.9	44.8	44.6	42.9	40.2	39.3	36.9	33.2	31.5	28.6	35.4	49.2																							
26-May	29.0	26.2	25.4	24.4	Z	23.3	25.6	29.3	32.6	35.9	37.7	40.2	39.2	41.1	42.3	42.4	43.5	42.4	43.1	39.5	32.6	24.5	18.4	26.6	33.3	43.5																							
27-May	28.5	27.4	29.0	30.2	30.8	Z	33.3	34.9	37.8	43.8	45.9	45.3	45.4	47.0	46.7	46.9	45.2	42.1	39.4	33.5	26.8	30.9	33.6	33.4	37.3	47.0																							
28-May	Z	36.2	13.4	10.0	13.8	17.1	19.0	21.6	21.4	35.7	46.2	46.8	46.6	46.0	45.5	46.7	46.8	48.0	46.4	39.6	34.7	36.1	40.7	40.5	34.7	48.0																							
29-May	38.8	31.7	Z	30.1	26.7	25.8	32.4	23.6	27.7	30.2	27.3	32.2	34.8	30.7	32.3	34.4	36.2	36.6	39.8	38.4	37.1	35.9	37.3	36.4	32.9	39.8																							
30-May	32.9	28.5	Z	27.4	29.6	35.7	37.5	M	39.0	38.3	36.8	35.3	32.4	31.5	31.6	31.0	33.4	33.5	31.6	27.9	18.1	27.7	38.8	37.8	32.6	39.0																							
31-May	32.0	36.0	40.9	Z	45.1	44.2	40.2	40.1	44.4	42.7	42.5	45.0	41.8	44.1	44.4	40.7	39.2	40.4	40.2	36.5	34.0	30.5	29.4	36.7	39.6	45.1																							
																								25.9	24.3	22.9	19.9	21.9	22.4	23.3	24.6	28.2	31.1	33.5	35.9	35.9	36.7	37.5	38.4	38.4	37.6	36.4	34.2	31.5	29.8	27.7	27.0	Diurnal Average	
																								46.5	42.9	53.5	54.1	50.1	47.9	44.1	40.9	44.4	43.8	47.4	50.9	53.1	53.7	53.3	56.7	57.7	56.9	52.9	48.4	48.1	45.0	44.0	41.6	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  
Buffalo Viewpoint - May 2024





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	157	22.18	22.18
21 - 50	537	75.85	98.02
51 - 82	14	1.98	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  
Buffalo Viewpoint - May 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	23	8	5	3	16	12	18	1	0	1	3	0	0	6	24	157
21 - 50	74	43	30	10	21	43	71	62	23	11	24	12	14	28	47	24	537
51 - 82	0	0	0	0	0	0	0	0	0	0	2	8	1	3	0	0	14
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	111	66	38	15	24	59	83	80	24	11	27	23	15	31	53	48	708

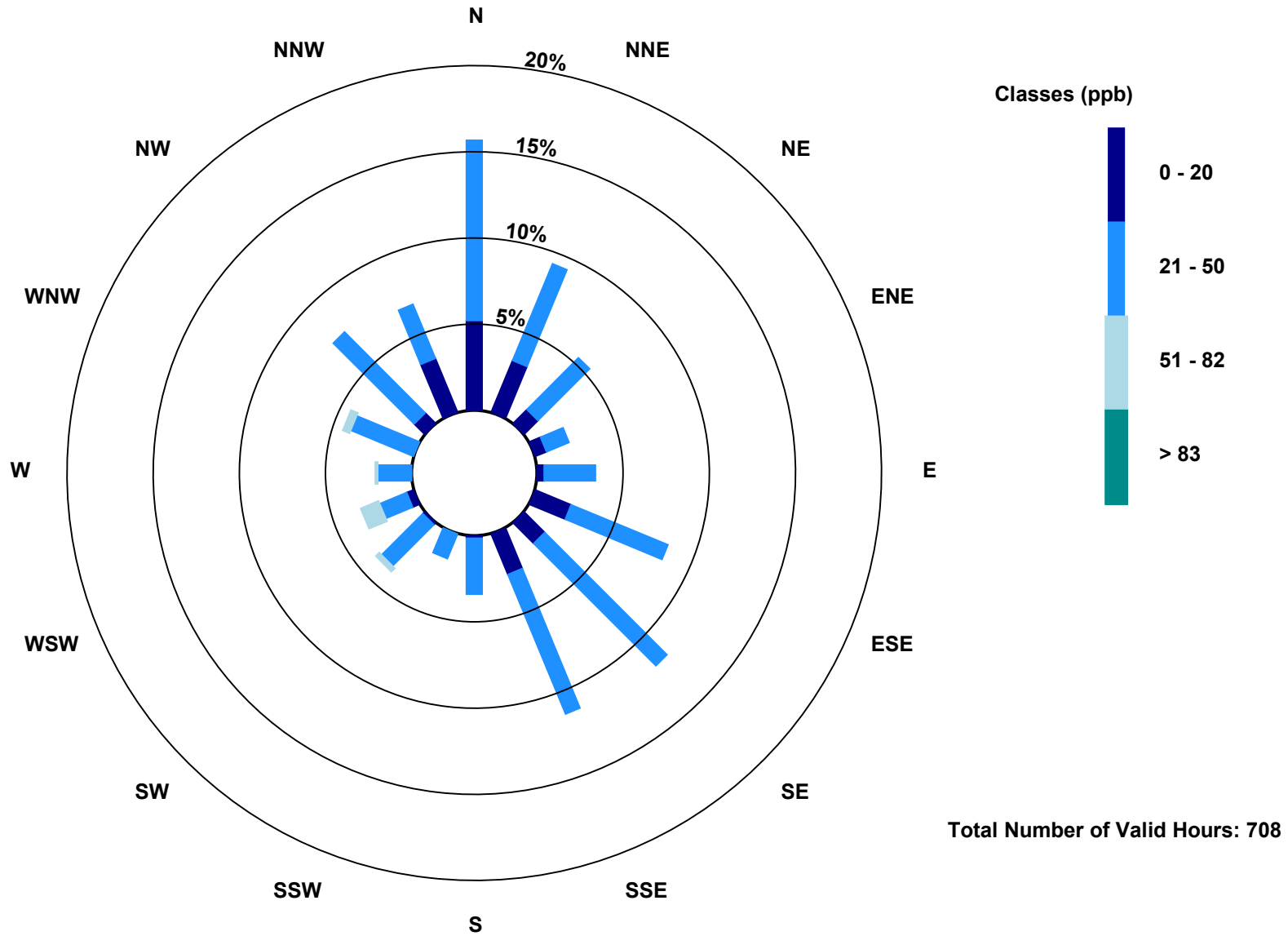
Total Number of Valid Hours: 708

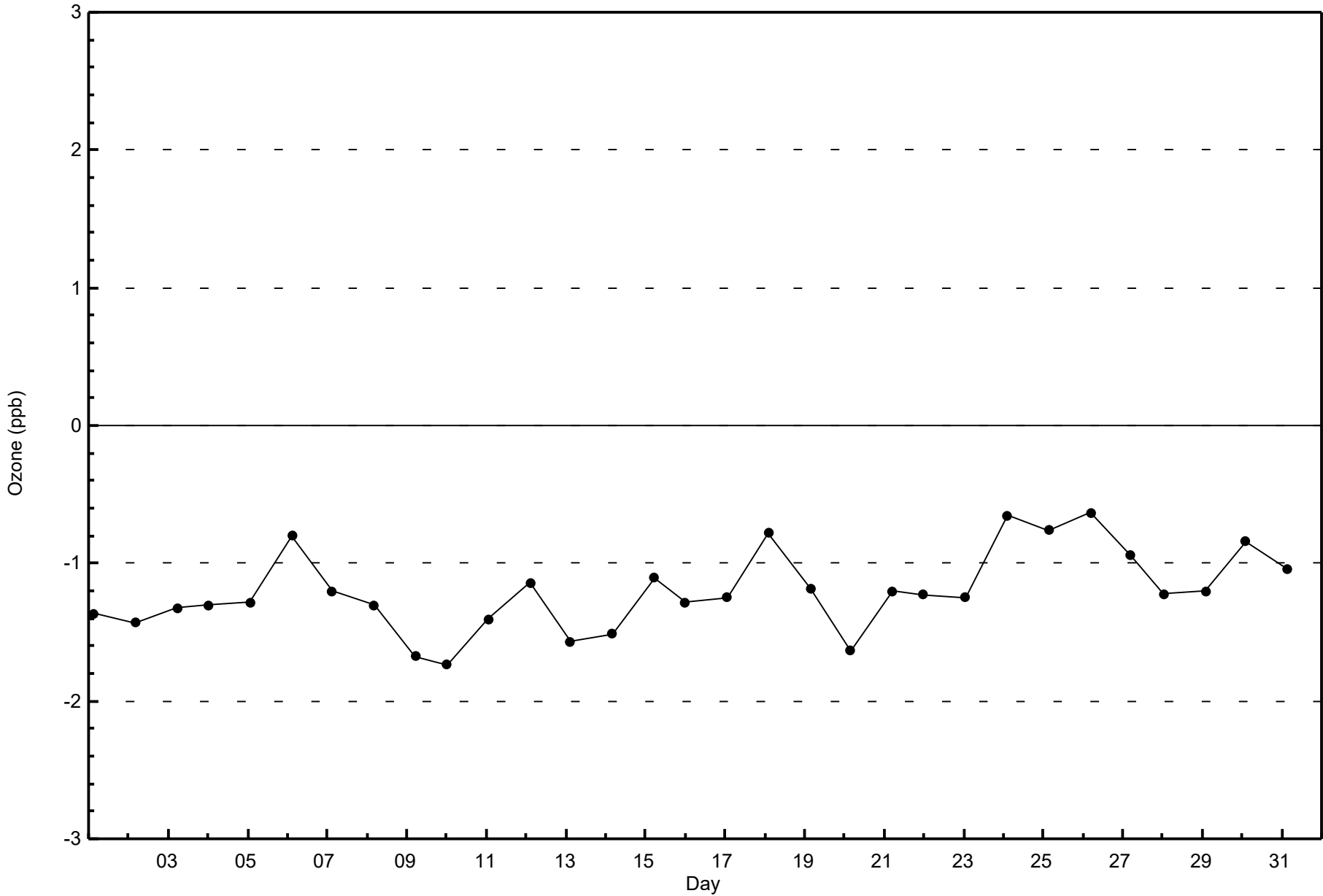
Total Number of Hours: 744



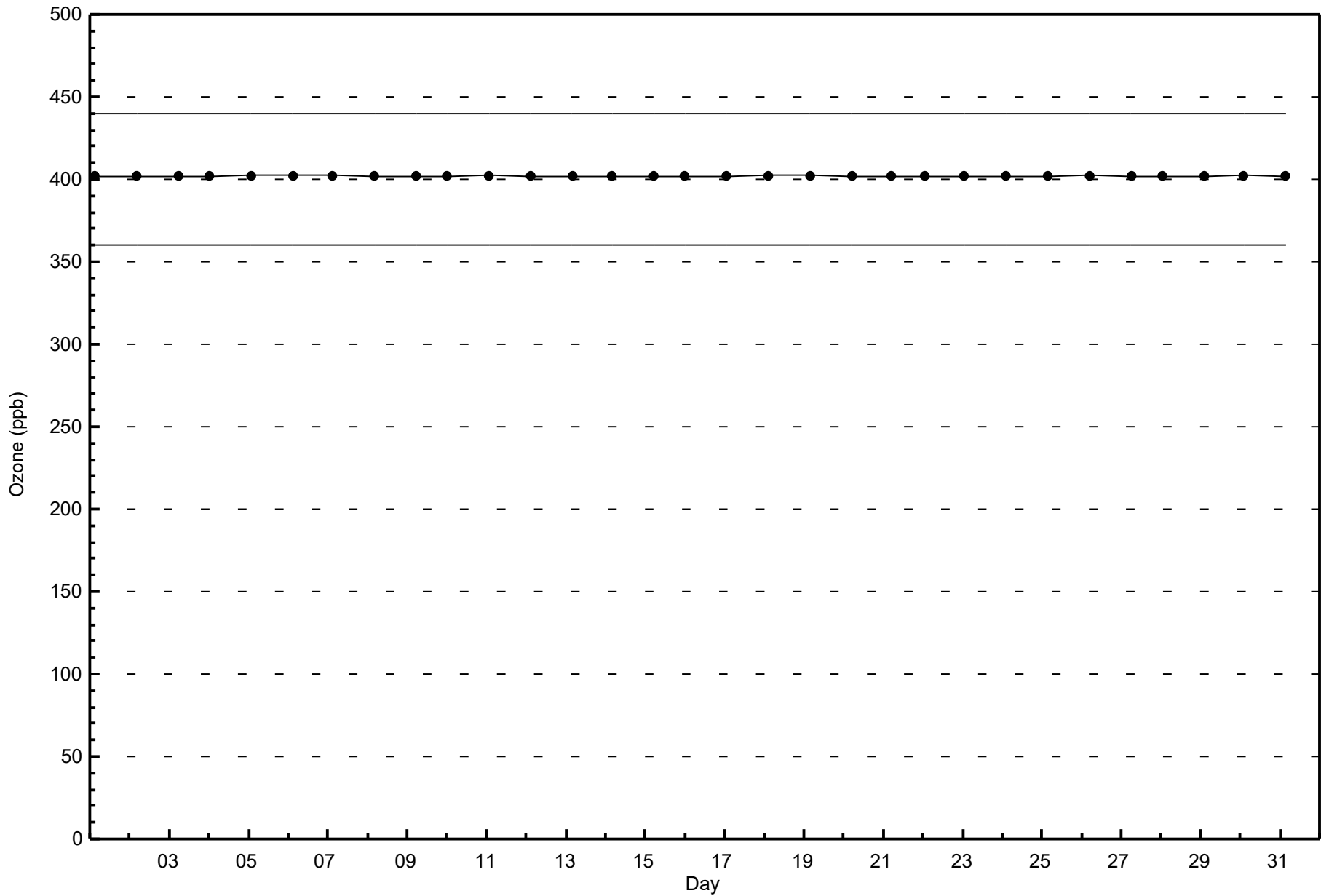
Wood Buffalo Environmental Association  
Wind Rose May 2024

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







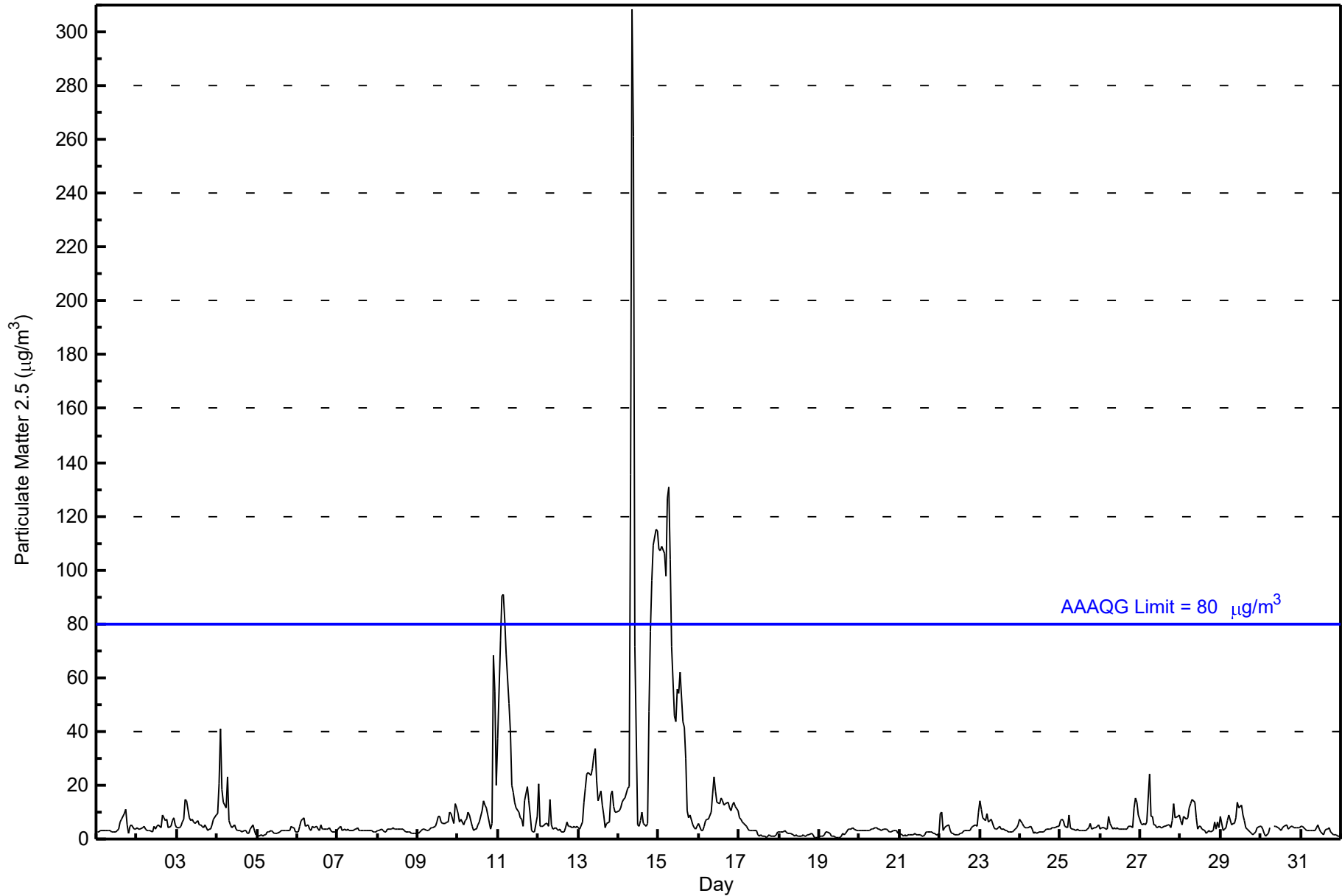




Summary of Hour Averages

Buffalo Viewpoint - May 2024

Number of Exceedences (AAAQO):		1-hr: 18		24-hr: 3		Hours in Service:		744																		
Maximum Value: 308.4 µg/m <sup>3</sup> on May 14 09:00		Maximum Daily Average: 61.8 µg/m <sup>3</sup> on May 14				Hours of Data:		742																		
Minimum Value: 0.3 µg/m <sup>3</sup> on May 18 22:00		Minimum Daily Average: 1.7 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		2																		
Maximum Diurnal Average: 17.7 µg/m <sup>3</sup> at hour 9		Minimum Diurnal Average: 5.4 µg/m <sup>3</sup> at hour 18				Hours of Calibration:		2																		
Monthly Average: 9.60 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 3.0 Median = 4.0 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 14.1 P <sub>99</sub> = 108.9				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-May	2.8	2.8	3.0	3.2	3.2	3.0	2.9	3.0	2.9	2.8	2.8	2.8	3.2	3.8	6.1	7.4	9.3	10.8	5.5	2.1	4.5	5.5	3.5	3.5	4.2	10.8
2-May	4.2	3.7	3.9	4.1	4.5	3.6	3.3	3.1	3.4	2.8	4.6	3.6	4.9	5.5	4.3	8.8	7.9	6.8	7.6	4.2	4.7	7.0	7.8	5.2	5.0	8.8
3-May	4.3	4.1	4.8	6.3	7.3	14.9	14.1	7.8	6.7	7.4	6.4	5.7	6.8	5.1	5.3	4.5	4.1	5.0	3.2	3.4	3.6	5.1	7.1	8.8	6.3	14.9
4-May	9.5	20.4	41.1	18.2	13.9	11.6	22.9	6.6	5.2	4.2	5.2	3.4	3.4	3.3	3.0	2.8	3.0	3.0	1.9	2.4	3.7	5.3	3.3	1.3	8.3	41.1
5-May	1.6	1.1	1.4	1.1	1.6	1.5	2.9	2.9	3.1	2.6	2.1	2.3	1.9	2.6	2.9	3.1	3.0	3.1	3.1	3.3	4.6	4.1	4.4	2.7	2.6	4.6
6-May	2.9	4.6	6.9	7.4	8.0	4.8	5.4	3.6	3.2	4.7	4.2	4.9	3.5	3.0	5.4	3.7	3.5	3.9	3.9	4.3	3.0	2.6	2.6	2.9	4.3	8.0
7-May	3.6	4.4	4.5	3.3	3.7	3.3	3.4	3.1	3.0	3.1	3.5	3.7	4.0	3.2	3.0	2.9	2.9	3.1	3.2	3.2	3.0	2.8	2.6	2.7	3.3	4.5
8-May	2.9	3.4	3.6	3.4	2.6	2.6	3.4	3.4	3.6	4.0	3.5	3.8	3.7	3.6	3.9	3.5	2.9	2.4	2.9	2.8	2.1	1.9	1.9	2.1	3.1	4.0
9-May	2.3	2.7	3.1	3.5	3.9	3.4	3.2	3.9	4.1	4.1	4.8	6.4	8.4	8.4	6.5	5.9	6.0	6.5	6.4	10.0	9.6	6.0	13.3	11.7	6.0	13.3
10-May	9.4	6.2	7.1	5.4	6.8	7.2	10.0	9.2	4.7	3.2	3.9	3.8	5.1	6.1	10.4	13.9	12.5	11.7	8.7	3.6	5.6	68.2	54.6	19.7	12.4	68.2
11-May	37.1	73.3	90.3	90.9	81.7	68.8	50.3	40.1	20.2	17.1	13.6	11.6	10.2	7.7	7.3	4.9	14.3	19.7	14.1	8.8	2.9	2.7	2.9	8.5	29.1	90.9
12-May	20.3	4.6	4.6	4.9	6.0	5.9	4.7	14.5	5.5	3.8	4.2	3.8	3.4	3.7	2.7	2.7	4.1	6.4	4.8	4.6	4.2	4.6	4.5	4.7	5.5	20.3
13-May	4.0	3.8	6.3	13.5	19.1	24.1	24.8	23.8	26.0	30.8	33.5	21.4	14.3	17.6	12.6	8.8	4.1	5.7	6.6	16.1	17.9	12.2	10.2	10.2	15.3	33.5
14-May	10.6	11.7	13.5	14.9	15.0	18.7	19.5	135.5	308.4	261.4	71.7	5.1	4.9	6.8	10.1	5.7	4.5	5.8	47.4	77.3	95.9	109.1	114.9	114.5	61.8	308.4
15-May	107.9	107.2	108.6	106.0	97.7	126.6	130.7	104.1	71.4	45.9	43.4	55.7	53.9	61.8	43.4	41.7	30.0	10.3	8.0	8.7	5.2	4.2	3.6	4.8	57.5	130.7
16-May	5.9	3.2	3.3	4.8	6.7	7.1	7.5	10.1	16.9	23.3	17.9	13.6	13.1	15.4	14.3	12.9	13.0	13.8	11.4	10.8	12.4	13.4	12.2	10.7	11.4	23.3
17-May	8.0	7.4	6.4	5.6	4.6	3.7	3.4	3.2	3.2	3.1	1.8	1.2	1.3	1.0	0.9	0.8	0.9	1.4	1.3	1.1	0.9	1.5	2.4	2.8	8.0	
18-May	2.7	2.6	2.6	3.0	2.5	2.3	2.0	2.0	1.5	1.3	1.4	1.3	1.3	1.1	1.6	1.1	1.3	1.7	1.8	2.0	1.7	0.3	0.4	0.6	1.7	3.0
19-May	1.2	1.0	0.9	1.8	2.6	2.4	1.9	1.3	1.0	0.9	0.5	0.5	0.7	1.0	2.1	1.7	2.2	3.4	3.5	3.7	4.0	3.5	3.1	3.3	2.0	4.0
20-May	3.1	3.1	3.1	3.1	3.2	3.3	3.3	3.4	3.7	4.0	4.1	3.8	3.7	3.4	3.6	3.6	3.5	3.0	2.8	2.9	3.2	3.2	3.1	2.0	3.3	4.1
21-May	1.8	1.7	1.2	1.4	1.1	1.5	1.7	1.7	1.8	1.9	1.6	1.4	1.5	1.1	1.2	1.5	2.5	2.7	2.6	2.4	2.3	1.9	1.8	1.7	1.7	2.7
22-May	9.3	10.0	3.4	4.4	4.9	5.2	2.9	2.3	2.1	1.5	1.8	1.7	2.3	2.2	2.6	3.2	3.4	3.1	3.0	4.0	4.6	5.0	4.9	9.9	4.1	10.0
23-May	14.0	10.8	8.1	6.8	9.5	6.1	7.0	7.4	4.3	3.5	3.5	4.3	4.7	3.7	3.5	3.2	3.0	2.9	2.8	2.8	3.0	3.6	4.0	5.4	5.3	14.0
24-May	7.5	5.9	4.6	4.3	4.2	4.2	4.9	3.5	2.4	2.5	2.3	2.6	2.7	2.6	2.7	3.3	3.9	3.7	3.6	4.0	4.3	4.3	4.9	4.8	3.9	7.5
25-May	6.7	7.2	7.0	4.7	4.0	8.9	4.0	3.9	3.7	3.2	3.5	3.4	3.2	3.3	3.0	3.2	3.8	4.4	5.5	3.8	3.9	4.4	4.9	5.1	4.5	8.9
26-May	3.5	4.1	4.3	3.6	3.9	8.3	5.7	3.7	4.0	3.8	4.0	3.7	3.7	3.6	3.7	3.9	3.8	4.6	4.5	4.4	11.8	15.0	13.9	8.7	5.6	15.0
27-May	5.6	5.4	5.9	5.4	6.1	24.3	8.4	8.6	5.5	5.2	4.4	4.6	4.4	4.4	4.6	4.8	5.0	5.5	4.0	6.6	13.0	8.1	8.4	8.9	7.0	24.3
28-May	6.6	5.3	8.4	7.1	7.7	11.7	13.3	14.5	13.5	7.9	3.8	4.6	4.8	3.7	2.9	2.3	2.8	2.9	2.6	3.1	6.2	3.8	6.1	4.1	6.2	14.5
29-May	8.2	3.2	3.6	4.2	7.0	8.8	5.2	5.6	5.6	8.0	13.6	11.3	12.7	9.1	6.6	4.4	3.5	2.6	2.4	1.8	2.3	2.9	4.0	4.6	5.9	13.6
30-May	4.5	3.8	1.9	1.2	1.9	4.0	C	C	4.9	4.9	4.3	3.7	3.2	4.2	4.8	5.1	3.7	4.0	4.6	4.7	4.2	4.2	4.2	4.4	3.9	5.1
31-May	4.6	4.6	3.7	3.0	3.0	3.0	3.2	3.1	3.0	4.4	5.1	3.7	2.6	1.4	3.1	3.9	3.8	4.0	2.7	1.8	1.7	1.4	0.9	1.0	3.0	5.1
																								Diurnal Average		
																								Diurnal Maximum		
10.2 10.7 12.0 11.3 11.2 13.1 12.5 14.6 17.7 15.4 9.1 6.6 6.4 6.6 6.1 5.8 5.5 5.4 6.0 6.9 8.1 10.2 10.2 9.1																										
107.9 107.2 108.6 106.0 97.7 126.6 130.7 135.5 308.4 261.4 71.7 55.7 53.9 61.8 43.4 41.7 30.0 19.7 47.4 77.3 95.9 109.1 114.9 114.5																										
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>) -  $\mu\text{g}/\text{m}^3$**   
**Buffalo Viewpoint - May 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	510	68.73	68.73
6 - 15	169	22.78	91.51
16 - 25	22	2.96	94.47
26 - 80	23	3.10	97.57
> 81.0	18	2.43	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>**  
**Buffalo Viewpoint - May 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	80	40	29	11	22	52	64	56	18	9	20	15	9	19	31	35	510
6 - 15	24	25	9	3	1	9	17	24	5	1	5	11	7	7	15	6	169
16 - 25	0	1	3	2	0	0	4	3	1	0	0	1	0	0	3	4	22
26 - 80	11	0	0	0	0	0	1	2	0	1	0	0	0	1	5	2	23
> 81.0	2	1	0	0	1	1	1	0	3	0	3	0	0	3	1	2	18
<b>Totals</b>	117	67	41	16	24	62	87	85	27	11	28	27	16	30	55	49	742

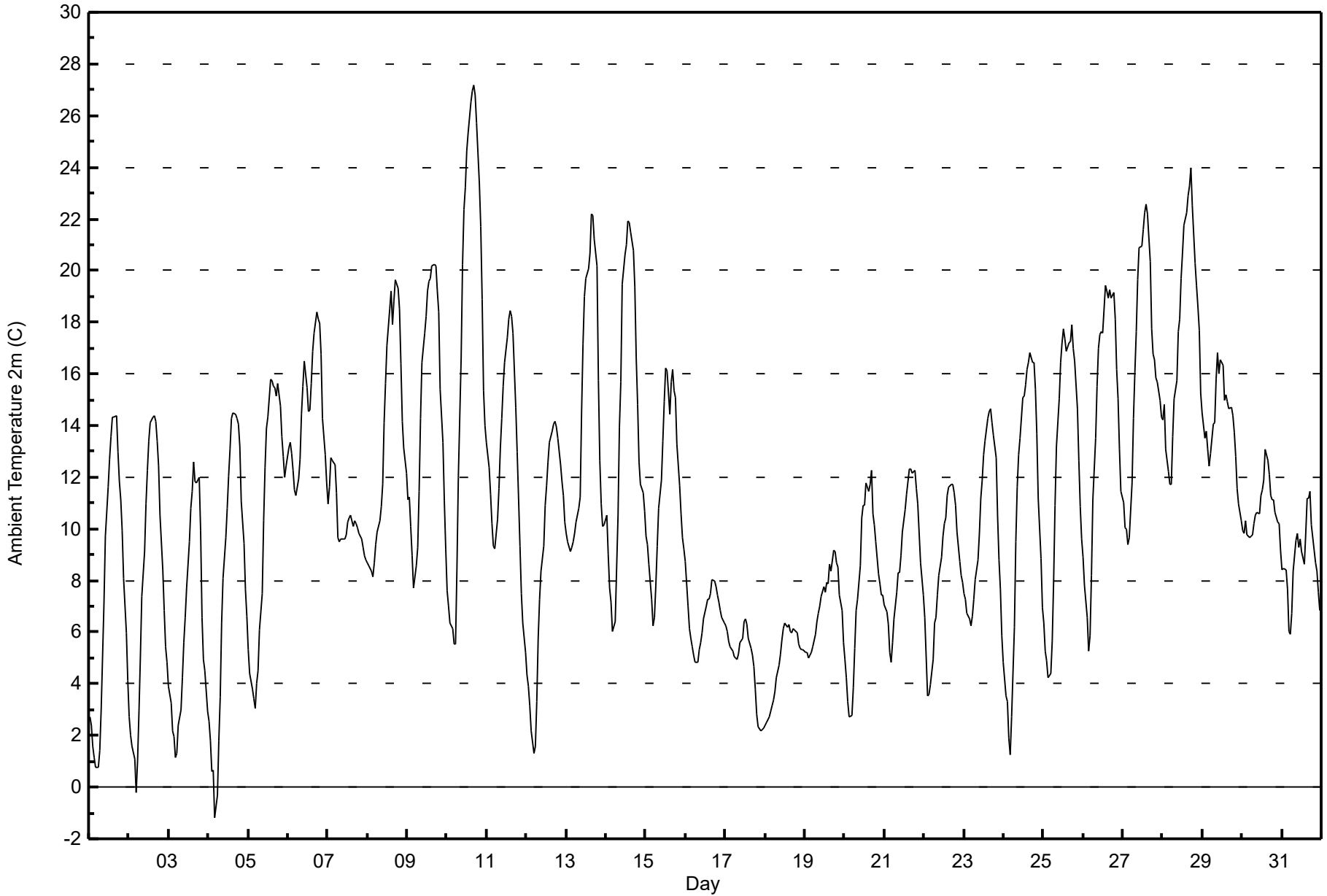
Total Number of Valid Hours: 742

Total Number of Hours: 744





Maximum Value: 27.2 C on May 10 17:00		Maximum Daily Average: 17.7 C on May 28		Hours in Service: 744																							
Minimum Value: -1.2 C on May 4 05:00		Minimum Daily Average: 4.8 C on May 17		Hours of Data: 744																							
Maximum Diurnal Average: 15.1 C at hour 16		Minimum Diurnal Average: 5.8 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 10.84 C		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 4.4 Q <sub>1</sub> = 6.7 Median = 10.4 Q <sub>3</sub> = 14.3 P <sub>90</sub> = 18.1 P <sub>99</sub> = 23.7		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-May	2.7	2.4	1.6	1.2	0.7	0.8	1.4	3.0	5.1	7.1	9.7	11.6	12.7	13.6	14.3	14.3	14.4	12.9	11.8	11.1	10.0	8.1	6.0	4.1	7.5	14.4	
2-May	2.7	2.0	1.6	1.1	-0.2	1.0	2.9	5.0	7.4	9.1	11.0	12.3	13.4	14.1	14.4	14.4	14.1	13.4	12.4	10.5	8.4	6.8	5.4	4.8	7.8	14.4	
3-May	3.9	3.2	2.2	2.0	1.2	1.3	2.4	3.0	4.2	5.6	6.6	7.7	9.5	10.8	11.5	12.6	11.8	11.7	12.0	9.9	6.6	5.0	4.5	3.0	6.3	12.6	
4-May	2.6	1.8	0.6	0.7	-1.2	-0.3	1.8	3.5	6.3	8.1	9.7	10.8	12.1	13.1	14.3	14.5	14.4	14.3	14.1	13.2	11.1	9.5	7.7	6.6	7.9	14.5	
5-May	5.3	4.4	3.8	3.4	3.1	4.0	4.5	6.1	7.5	10.3	12.4	13.9	14.4	15.8	15.7	15.5	15.5	15.1	15.6	14.8	13.6	12.8	12.0	12.4	10.5	15.8	
6-May	13.1	13.3	12.9	12.3	11.5	11.3	11.9	12.7	14.5	15.5	16.5	15.5	14.6	14.6	15.6	16.9	17.6	18.4	18.1	18.0	16.8	14.3	12.9	11.8	14.6	18.4	
7-May	11.0	11.6	12.7	12.6	12.5	11.4	9.7	9.5	9.6	9.6	9.6	9.8	10.2	10.4	10.5	10.1	10.3	10.2	10.0	9.8	9.6	9.3	9.0	8.8	10.3	12.7	
8-May	8.7	8.6	8.3	8.2	8.7	9.4	9.9	10.3	10.9	11.7	14.1	15.6	17.1	18.5	19.2	17.9	18.8	19.7	19.3	18.5	16.4	14.1	13.2	12.1	13.7	19.7	
9-May	11.1	11.2	10.1	9.0	7.7	8.6	9.3	11.5	14.3	16.4	17.6	18.2	19.2	19.6	19.7	20.2	20.3	20.2	19.2	18.4	15.4	13.4	11.1	9.3	14.6	20.3	
10-May	7.6	7.0	6.3	6.2	5.5	5.5	8.5	12.0	16.6	20.2	22.4	23.2	24.6	25.3	26.5	27.0	27.2	26.8	25.7	23.4	21.7	18.9	15.3	14.0	17.4	27.2	
11-May	13.4	12.4	11.4	10.2	9.3	9.2	10.4	11.6	13.1	14.3	15.5	16.4	17.4	18.1	18.5	18.3	17.6	14.7	13.0	11.2	9.3	7.5	6.3	5.2	12.7	18.5	
12-May	4.3	3.9	3.2	2.2	1.3	1.6	3.3	5.8	7.3	8.4	9.4	10.9	11.6	12.6	13.4	13.8	14.0	14.2	13.9	13.5	12.5	11.8	11.3	10.3	8.9	14.2	
13-May	9.8	9.5	9.1	9.3	9.5	9.8	10.2	10.8	11.3	14.6	17.1	19.0	19.7	20.1	20.7	22.2	22.1	21.2	20.2	15.7	12.6	11.0	10.1	10.2	14.4	22.2	
14-May	10.5	9.0	7.7	7.2	6.0	6.4	8.5	10.5	13.9	15.7	19.5	20.6	21.0	21.9	21.9	21.5	20.8	19.4	16.6	14.8	12.6	11.7	11.4	10.7	14.2	21.9	
15-May	9.7	9.4	8.6	7.3	6.2	6.6	7.8	9.4	10.8	11.9	13.4	14.9	16.2	16.1	14.4	15.7	16.2	15.3	15.1	13.3	11.7	10.6	9.7	9.3	11.6	16.2	
16-May	8.7	7.0	6.1	5.8	5.4	5.1	4.8	4.8	5.3	5.6	6.0	6.5	7.0	7.3	7.3	7.5	8.0	8.0	7.8	7.4	7.2	6.8	6.6	6.4	6.6	8.7	
17-May	6.2	6.1	5.7	5.4	5.2	5.0	5.0	5.0	5.1	5.6	5.7	6.4	6.5	6.3	5.7	5.4	5.1	4.7	3.8	2.8	2.3	2.2	2.2	2.3	4.8	6.5	
18-May	2.4	2.5	2.7	3.0	3.2	3.4	3.7	4.2	4.7	5.2	5.7	6.2	6.4	6.2	6.3	6.0	6.0	6.2	6.1	6.0	5.5	5.3	5.3	5.3	4.9	6.4	
19-May	5.2	5.2	5.0	5.1	5.2	5.5	5.9	6.4	6.7	7.0	7.4	7.8	7.6	7.9	7.9	8.6	8.3	9.2	9.1	8.7	8.5	7.4	6.8	5.6	7.0	9.2	
20-May	4.9	4.3	3.3	2.7	2.7	3.8	5.4	6.8	7.3	8.6	10.4	10.9	10.9	11.8	11.4	11.7	12.3	10.6	10.1	9.5	8.3	7.9	7.4	7.4	7.9	12.3	
21-May	7.0	6.8	6.3	5.2	4.8	5.6	6.5	7.6	8.3	8.3	9.0	9.9	10.7	11.3	11.8	12.3	12.3	12.2	12.3	11.5	11.0	9.8	8.7	7.4	9.0	12.3	
22-May	6.6	5.0	3.6	3.6	4.0	4.9	6.4	6.6	7.4	8.2	8.9	9.7	10.2	10.4	11.3	11.6	11.7	11.7	11.4	10.9	9.9	8.7	8.2	7.9	8.3	11.7	
23-May	7.5	7.3	6.7	6.5	6.2	6.6	7.3	8.0	8.8	9.8	11.2	11.9	12.9	13.4	14.3	14.6	14.6	14.1	13.6	12.7	10.5	8.8	7.7	5.9	10.0	14.6	
24-May	4.8	3.5	3.3	1.9	1.3	2.7	6.2	9.5	11.6	12.9	13.5	15.1	15.1	15.6	16.2	16.4	16.8	16.5	16.4	15.4	13.7	11.2	8.8	6.9	10.6	16.8	
25-May	6.4	5.3	4.9	4.2	4.4	5.6	8.0	10.9	13.2	15.0	16.5	17.2	17.7	17.3	16.9	17.2	17.3	17.9	17.0	16.5	14.7	12.6	10.9	9.6	12.4	17.9	
26-May	8.9	7.8	6.6	5.3	5.8	8.2	11.1	13.5	15.5	17.0	17.5	17.7	17.6	19.4	19.2	18.9	19.2	18.9	19.1	18.1	16.2	15.1	13.1	11.5	14.2	19.4	
27-May	11.0	10.0	10.0	9.4	9.7	11.8	14.3	16.1	17.6	19.7	20.9	20.9	21.6	22.2	22.5	22.2	20.4	17.8	16.8	16.5	15.8	15.7	15.0	14.3	16.3	22.5	
28-May	14.2	14.8	13.1	12.2	11.7	11.7	13.6	15.0	15.7	17.6	18.1	19.7	20.7	21.7	22.2	22.9	23.3	24.0	22.5	20.3	19.4	18.6	17.7	15.2	17.7	24.0	
29-May	14.5	13.5	13.8	13.1	12.4	12.9	14.0	14.1	15.8	16.8	16.0	16.5	16.3	15.0	15.2	14.9	14.6	14.7	14.4	13.7	12.8	11.6	11.0	10.3	14.1	16.8	
30-May	9.9	9.8	10.3	9.8	9.7	9.7	9.8	10.2	10.5	10.6	10.6	11.3	11.5	11.9	13.1	12.7	12.1	11.3	11.1	11.1	10.6	10.3	10.2	9.2	10.7	13.1	
31-May	8.4	8.5	8.4	7.7	6.0	5.9	6.7	8.4	9.6	9.8	9.3	9.6	9.1	8.6	9.8	11.2	11.2	11.4	10.1	9.2	8.7	8.4	7.6	6.8	8.8	11.4	
		7.8	7.3	6.8	6.2	5.8	6.3	7.5	8.8	10.2	11.5	12.6	13.5	14.0	14.6	14.9	15.1	15.1	14.7	14.2	13.1	11.7	10.5	9.4	8.5	Diurnal Average	
		14.5	14.8	13.8	13.1	12.5	12.9	14.3	16.1	17.6	20.2	22.4	23.2	24.6	25.3	26.5	27.0	27.2	26.8	25.7	23.4	21.7	18.9	17.7	15.2	Diurnal Maximum	







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

**Ambient Temperature 2m (AT2) - C**  
**Buffalo Viewpoint - May 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	3	0.40	0.40
0 - 10	345	46.37	46.77
10 - 20	354	47.58	94.35
> 20	42	5.65	100.00

Total Number of Valid Hours: 744

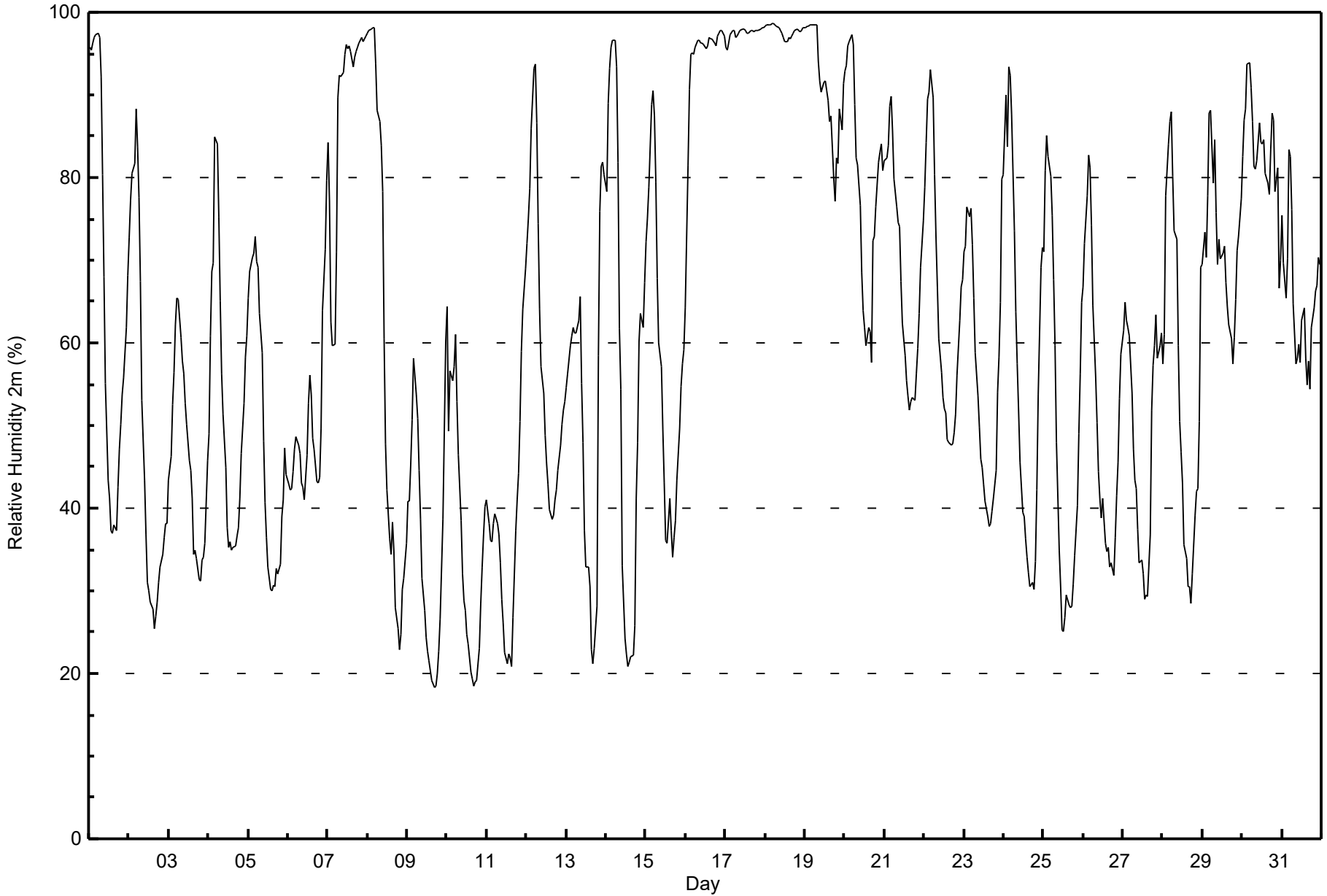
Total Number of Hours: 744



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

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

Maximum Value: 98.6 % on May 18 05:00      Maximum Daily Average: 97.8 % on May 18																						Hours in Service: 744 Hours of Data: 744																											
Minimum Value: 18.3 % on May 9 17:00      Minimum Daily Average: 35.2 % on May 9 Maximum Diurnal Average: 81.3 % at hour 5      Minimum Diurnal Average: 46.9 % at hour 17 Monthly Average: 62.07 %      Percentiles: P <sub>1</sub> = 20.0 P <sub>10</sub> = 31.0 Q <sub>1</sub> = 41.1 Median = 60.8 Q <sub>3</sub> = 83.1 P <sub>90</sub> = 96.6 P <sub>99</sub> = 98.4																						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-May	95.8	95.4	96.3	96.9	97.3	97.4	97.0	92.2	80.3	68.0	55.1	43.5	41.1	37.2	37.0	37.9	37.3	42.5	47.2	50.1	53.7	55.8	61.9	68.1	66.0	97.4																							
2-May	72.7	77.3	80.5	81.6	88.3	83.7	77.6	67.4	53.0	43.4	36.7	31.0	30.0	28.6	27.9	25.3	26.9	28.6	31.0	32.9	34.5	36.4	38.2	38.2	48.8	88.3																							
3-May	43.4	46.3	52.6	56.4	62.2	65.4	65.2	60.7	57.8	56.3	52.8	50.2	45.8	44.6	41.2	34.4	34.9	33.8	31.3	31.2	33.7	34.1	35.7	45.8	46.5	65.4																							
4-May	49.0	60.9	68.7	69.6	84.9	84.1	75.2	65.1	56.3	51.4	44.8	37.7	35.3	35.9	35.0	35.2	35.5	36.5	37.7	41.2	46.7	52.8	58.4	60.9	52.5	84.9																							
5-May	65.4	68.6	70.4	70.8	72.9	69.9	69.2	63.5	58.8	48.1	40.7	36.4	32.9	30.1	30.0	30.6	30.5	32.7	32.0	33.2	38.9	41.0	47.2	44.1	48.3	72.9																							
6-May	42.8	42.3	42.3	44.5	47.1	48.6	47.6	46.6	43.0	42.6	41.1	46.4	52.7	56.1	53.7	48.5	47.0	43.3	43.1	43.7	49.6	63.9	71.3	79.6	49.5	79.6																							
7-May	84.2	77.1	62.6	59.6	59.9	71.0	89.7	92.4	92.2	92.8	94.9	96.1	95.6	95.9	95.2	93.3	94.6	95.3	95.8	96.2	96.9	96.5	96.8	97.2	88.4	97.2																							
8-May	97.5	97.8	98.0	98.1	98.1	93.8	88.2	86.8	84.0	78.3	60.6	47.8	42.3	36.2	34.5	38.4	34.7	27.9	25.3	22.8	24.8	30.3	31.6	35.8	58.9	98.1																							
9-May	40.9	40.8	45.2	50.7	58.1	53.8	50.8	44.5	38.6	31.6	27.6	24.5	22.8	21.5	20.3	19.1	18.3	18.4	19.9	22.6	26.6	38.7	49.4	60.2	35.2	60.2																							
10-May	64.4	49.3	56.6	55.4	57.1	61.0	52.8	46.4	38.4	32.0	28.9	27.7	24.8	23.6	20.2	19.4	18.5	18.9	19.2	23.1	28.4	32.9	36.9	40.2	36.5	64.4																							
11-May	41.0	38.2	36.1	35.9	38.1	39.2	38.1	36.8	33.4	29.0	26.1	22.5	21.2	22.3	21.8	20.9	26.7	37.2	41.0	44.3	50.6	59.1	64.1	69.0	37.2	69.0																							
12-May	72.1	75.0	78.7	86.0	93.2	93.8	86.6	74.4	64.1	57.1	53.9	48.9	45.4	42.9	39.8	38.6	39.1	41.0	42.3	44.5	47.6	50.1	51.9	52.9	59.2	93.8																							
13-May	54.5	56.2	59.6	60.8	61.8	61.2	61.1	62.7	65.5	55.1	48.0	37.3	32.9	32.9	30.5	22.9	21.2	23.1	28.1	58.5	76.0	81.4	81.9	80.3	52.2	81.9																							
14-May	78.3	88.9	93.2	95.8	96.6	96.6	93.4	81.8	61.7	54.5	33.0	24.2	22.4	20.8	21.4	22.1	22.3	25.8	41.1	48.0	60.2	63.5	61.9	67.3	57.3	96.6																							
15-May	72.3	75.1	78.9	88.8	90.5	87.5	79.5	67.8	60.1	57.1	49.5	43.1	36.1	35.8	41.1	37.3	34.0	36.4	38.4	43.4	49.7	54.7	57.5	59.2	57.2	90.5																							
16-May	64.3	81.5	90.7	94.9	95.1	95.0	95.8	96.6	96.6	96.3	96.2	96.1	95.5	95.9	97.0	96.9	96.8	96.3	96.0	97.0	97.5	97.9	97.9	97.2	94.2	97.9																							
17-May	95.7	95.4	96.2	97.3	97.8	97.8	97.0	97.2	97.5	97.8	98.0	97.8	97.4	97.5	97.7	97.8	97.6	97.7	97.8	97.8	98.0	98.1	98.2	98.2	97.5	98.2																							
18-May	98.3	98.4	98.5	98.5	98.6	98.6	98.5	98.4	98.2	97.8	97.4	96.9	96.5	96.5	97.0	96.8	97.2	97.5	97.7	97.9	97.8	97.7	97.9	98.1	97.8	98.6																							
19-May	98.2	98.3	98.3	98.4	98.4	98.5	98.5	98.4	94.1	91.8	90.3	91.6	91.7	90.5	89.4	86.9	87.5	80.0	77.0	82.4	81.6	88.3	85.8	91.4	91.1	98.5																							
20-May	92.9	93.6	95.9	96.5	97.3	96.0	88.8	82.4	81.6	76.6	68.5	64.0	61.9	59.7	61.9	61.3	57.6	72.4	72.8	76.4	81.8	83.0	84.0	80.8	78.7	97.3																							
21-May	82.0	82.4	84.0	88.6	89.9	85.6	79.8	76.5	74.6	74.0	67.4	62.4	58.5	55.4	53.5	51.9	52.9	53.5	53.1	56.4	59.3	63.5	69.1	74.8	68.7	89.9																							
22-May	78.8	84.3	89.6	90.3	93.0	89.7	80.3	72.9	66.7	60.4	56.4	53.5	52.0	51.4	48.3	47.9	47.6	47.8	49.2	51.4	56.2	62.6	66.8	67.6	65.2	93.0																							
23-May	71.0	71.8	76.5	75.3	76.2	71.9	65.5	58.7	53.6	49.9	46.0	44.8	42.9	40.8	39.0	37.7	38.1	39.6	41.3	44.6	54.0	58.3	64.9	79.8	55.9	79.8																							
24-May	80.4	89.9	83.8	93.3	92.4	87.6	73.6	63.7	57.5	51.6	45.7	39.5	38.9	36.2	34.0	32.1	30.5	31.1	30.1	33.6	42.2	53.7	69.2	71.5	56.8	93.3																							
25-May	71.0	80.8	85.0	82.6	80.3	75.4	67.6	59.6	48.0	35.0	30.4	25.2	25.0	26.8	29.5	28.3	28.0	28.1	30.9	34.3	40.4	48.9	56.3	65.0	49.3	85.0																							
26-May	66.8	72.1	77.8	82.7	81.2	74.3	64.5	55.9	50.3	44.5	41.3	38.7	41.3	35.8	34.7	35.2	32.9	33.4	31.8	36.5	41.5	45.6	53.3	58.7	51.3	82.7																							
27-May	61.5	64.9	62.6	61.9	60.8	53.9	47.1	43.4	42.4	37.4	33.5	33.7	32.0	29.0	29.5	29.3	36.8	51.8	57.3	59.7	63.3	58.1	59.7	61.1	48.8	64.9																							
28-May	57.5	61.0	77.8	84.1	86.8	87.9	80.2	73.6	72.5	59.7	50.5	46.9	43.0	35.6	33.9	30.5	30.5	28.5	32.0	39.1	42.1	42.4	50.5	69.1	54.8	87.9																							
29-May	69.5	73.4	70.3	77.8	87.9	88.2	79.2	84.7	75.8	69.5	72.5	70.2	70.8	71.7	67.2	64.5	62.2	60.5	57.4	60.7	65.3	71.2	72.9	77.5	71.7	88.2																							
30-May	82.5	86.9	88.2	93.7	93.9	90.8	86.8	81.3	81.1	82.1	86.6	84.2	84.1	84.6	80.5	79.2	77.9	83.4	87.8	87.0	78.2	81.1	66.6	70.1	83.3	93.9																							
31-May	75.4	69.6	65.5	70.1	83.3	82.6	76.0	64.8	57.5	58.2	59.8	57.6	62.7	64.2	58.1	55.0	57.7	54.5	61.8	64.2	66.2	66.9	70.4	69.5	65.5	83.3																							
																								71.6	74.0	76.1	78.6	81.3	80.0	75.9	70.9	65.7	60.6	55.9	52.3	50.8	49.6	48.4	46.9	46.9	48.3	49.9	53.4	57.5	61.6	64.8	68.7	Diurnal Average	
																								98.3	98.4	98.5	98.5	98.6	98.6	98.5	98.4	98.2	97.8	98.0	98.0	97.8	97.4	97.5	97.7	97.8	97.6	97.7	97.9	97.8	98.0	98.1	98.2	Diurnal Maximum	





Maximum Speed: 31 km/h on May 11 12:00	Maximum Daily Speed Average: 20.0 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 14 00:00	Minimum Daily Speed Average: 2.8 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 4.5 km/h at hour 20	Minimum Diurnal Speed Average: 1.2 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 2.6 km/h 358.6 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 19 P <sub>99</sub> = 26	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	N13	N11	N12	N13	N13	N13	N12	N14	N13	N11	N15	N19	N20	N19	N22	N21	NNE21	NNE17	NNE16	NNE13	N18	NNE17	NNE15	N10	N15.3	N22
2-May	NNW9	N11	N8	N9	N9	NNE11	NNE10	N9	N11	N12	N12	N15	N16	N20	N22	NNE20	N22	N23	N21	N18	N16	N15	NNE12	NE11	N13.9	N23
3-May	NE9	NE7	N4	N5	N4	N2	N4	NNE5	N6	NNW6	NNW4	N6	WNW9	NNW9	NNW9	NNW9	N8	NNE9	N14	N13	N11	N8	NNW5	N6	N6.3	N14
4-May	N6	NNW5	NW6	NW4	WSW3	NW2	NNW3	N5	NNW3	NNE6	NNE7	NNW7	WNW7	NE6	NNW6	NNW5	N5	N6	N5	NNE4	NE6	E7	SE8	SSE8	N3.1	SE8
5-May	SSE8	SSE8	SSE8	SE7	SSE7	SSE8	SSE8	SE8	SE6	SE7	SE7	SE10	SE12	SE13	SE15	SE15	S10	S9	S11	SSE8	SE7	ESE8	SE8	SE8	SE8.7	SE15
6-May	SE9	SE11	SE11	SE12	SE11	SE11	SE13	SE12	SE10	ESE11	ESE18	ESE17	ESE15	E11	NE10	E11	ESE12	E11	E10	E12	SSE13	SSE13	S8	ESE2	ESE10.0	ESE18
7-May	NNE6	NE9	E8	ESE8	ESE10	ESE12	E7	E10	ESE10	E7	ESE4	NE4	E4	SE4	SE6	SE8	SE5	SE4	ESE5	SE4	SE7	SSE8	SSE8	SSE7	ESE5.8	ESE12
8-May	SSE7	SSE7	SSE6	SSE6	WSW8	NNW10	NW16	NW12	NW8	WNW5	WNW3	SSW5	S6	S9	SSW13	SSW11	SW10	SW14	SW14	SW12	SW9	SSW9	SW11	SW7	SW6.0	NW16
9-May	SW9	WSW19	WSW19	W15	WNW8	WSW14	W14	NNW13	NNW15	NNW18	NNW19	NNW26	NNW22	NW22	NW21	NW22	NW23	NW18	NW15	NNW10	NNW8	SE4	SSE7	SSE8	WNW12.7	WNW26
10-May	SE8	SSE7	SSE7	SSE9	SSE8	S7	SSE6	SE6	S5	SW15	WSW17	WSW19	WSW22	W22	W23	W22	W24	W18	WNW19	WNW9	NW11	N29	N26	NNW6	W8.0	N29
11-May	NW11	NW15	NW15	NNW14	NNW15	NW19	NNW23	NW26	NW24	NW27	NW26	NW31	NW29	NW22	NW23	NNW24	N20	NNE23	NNE20	NNE19	N13	NNE9	NE9	ENE8	NNW16.2	NW31
12-May	ENE8	ESE4	SE3	WSW1	WSW3	SE1	ESE3	E3	ESE6	ESE8	ESE7	ESE10	ESE12	ESE12	ESE11	ESE10	ESE11	ESE14	SE9	SE7	SSE5	SE6	SE7	SE7	ESE6.5	ESE14
13-May	SSE7	SSE7	SSE7	SSE9	SE9	SE10	SE11	SSE12	SSE10	SE11	SSE11	S13	SW12	WSW12	WSW9	WSW14	WSW14	WSW16	WNW9	NNW18	NE9	NNE9	N7	SE1	SSW3.8	NNW18
14-May	SW4	SSW5	SE4	SSE5	S6	SSE5	SE6	S6	S6	SE6	SSW10	WSW15	SW16	SW17	WSW18	WSW21	WSW20	W18	N9	N13	N14	E5	ESE3	SW6	SW5.1	WSW21
15-May	SW3	SW4	NNW1	S3	NW5	N5	NNW6	NNE7	N9	N9	N9	N8	N10	N10	NNW19	NNW9	N7	NNE14	NNE15	NNE16	NNE12	NNE13	NE10	NE7	N7.5	NNW19
16-May	NE9	NNE10	NNE10	N10	NNE10	NNE10	NNE10	NNE13	ENE6	NE12	NE12	NNE11	NE9	NNE8	N14	N15	N13	NNE15	NNE13	NNE12	NNE11	NNE12	NNE12	NNE10	NNE10.9	N15
17-May	NE11	NE13	NNE12	N13	NNE13	NNE15	NNE14	N12	N14	N14	N14	NNE14	N17	N18	N20	N19	N20	N20	N17	NNW17	N15	N14	N13	N12	N14.6	N20
18-May	NNW12	N12	NNW12	NNW13	NNW14	NNW13	NNW14	NNW13	NNW16	NNW16	NNW17	NNW18	NNW19	NNW20	NNW21	NNW20	NNW16	NNW16	N14	N11	ENE9	NE6	NNE7	NNE7	N13.7	NNW21
19-May	NNE8	NNE8	NNE6	NNE9	NNE8	NNE7	NNE7	NE8	ENE9	NE10	NE10	NNE11	NNE13	NE11	NE8	NE8	NNE11	NE11	NNE10	N7	N6	N14	NNE13	N10	NNE8.9	N14
20-May	N11	N9	N9	N9	N8	N9	N12	N11	N9	NNW8	NNW12	N13	NNE12	N10	N13	N11	NNE7	ESE11	S6	SW5	SSE4	SE3	SE2	ESE7	N6.0	N13
21-May	ESE6	ESE7	ESE7	SE7	SE6	ESE7	ESE8	ESE9	ESE9	ESE8	ESE10	ESE10	ESE11	E13	E11	E11	ENE11	E10	E8	E7	E7	E6	E6	ENE4	ESE7.9	E13
22-May	ENE6	NE6	NNE6	ENE1	NW1	N5	NE6	NE8	NE10	NE12	ENE9	ENE11	NE12	NE13	NE13	NE11	ENE9	E8	E7	SE7	SE7	SE5	SE3	SSE3	ENE6.2	NE13
23-May	E2	ESE4	ESE3	SE4	SE4	SE7	SE7	ESE8	ESE9	E11	E10	SE10	ESE10	SE11	SE10	SE11	SSE9	S9	S9	S6	SSE5	SSE5	SSE5	SSE5	SE6.5	SE11
24-May	SSE5	S5	SSE5	SSE5	SSE5	SSE4	SSE6	SSE7	ESE8	ESE11	SE9	SE8	S3	SE7	SE9	SSE9	SSE10	S8	S6	SSW7	SW6	S5	SSE7	SSE7	SSE6.1	ESE11
25-May	SSE7	SE7	SSE6	SE7	SSE6	SSE5	SSE7	SE7	SE11	SSE12	SE13	SE14	SE12	ESE13	ESE12	ESE12	ESE12	ESE12	ESE10	ESE10	SE9	SE7	SE7	SE6	SE9.0	SE14
26-May	SE7	SE6	SSE4	SSE4	SSE5	S6	SSE8	SSE9	SSE10	SSE10	SSE8	SE9	S10	SSW11	SE8	SE7	SSE6	SSE7	ESE6	ESE6	ESE6	S6	SE7	SSE5	SSE6.6	SSW11
27-May	SSE4	SSE5	SE6	SSE5	SSE5	SSE6	SSE7	SE7	S6	ESE10	S9	SSE10	SSE10	ESE11	SE11	SE10	SW12	WSW12	SSE2	ESE6	SE5	SSE5	SSE5	SSE7	SSE6.0	SW12
28-May	S6	W9	NNW7	N5	NE7	SSE1	SW2	W4	WNW5	WNW7	NE3	N5	NNW6	W6	WSW8	WSW8	W5	NNW6	N3	N5	NE7	NE8	NW6	NE10	NW2.8	NE10
29-May	NE11	NNE8	NE6	ENE6	NE9	E6	ENE7	N7	N7	NW6	WSW8	WSW9	SW13	WSW19	SW19	SW19	SW16	SW16	SW19	SW14	SW15	SW10	SW13	SSW12	WSW6.1	WSW19
30-May	SSW9	SSW5	W14	W13	NNW13	NW15	NNW14	NNW15	NW17	NW17	NNW16	NW17	NW13	NW14	NW12	NW15	NW15	NNW12	NNW11	NW12	NW11	WNW11	NW17	W14	WNW12.4	NW17
31-May	W13	NNW18	NW22	NW26	NW25	NNW21	NNW18	NW21	NW24	NW20	NW25	NW23	NW21	NW24	NW18	NNW15	N9	NNW22	NNW27	NW23	NW21	NW20	NNW19	NW21	NW20.0	NNW27

ENE1.5	NNE1.3	N1.6	N1.3	N1.7	N1.4	N1.9	N2.7	N2.9	N3.2	N2.7	NNW3.1	NNW3.3	NNW3.4	NNW4.3	NNW3.9	NNW3.5	N3.7	N4.3	N4.5	NNE3.5	NNE3.1	NNE2.5	ENE1.2	Diurnal Average	
W13	WSW19	NW22	NW26	NW25	NNW21	NNW23	NW26	NW24	NW27	NW26	NW31	NW29	NW24	NW23	NNW24	W24	N23	NNW27	NW23	NW21	N29	N26	NW21	Diurnal Maximum	

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



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

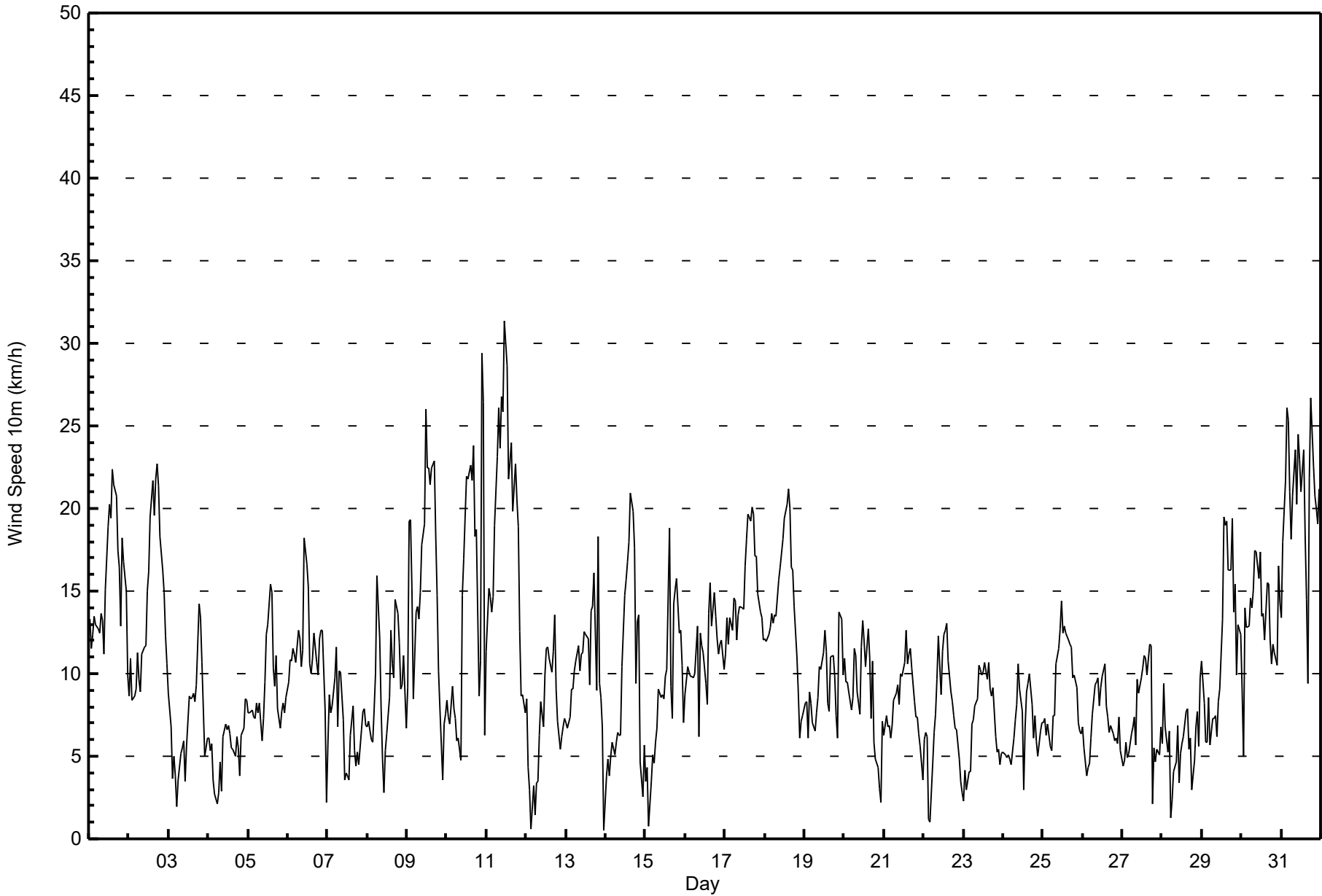
**Wind Speed 10m (WS10) - km/h**  
**Buffalo Viewpoint - May 2024**

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



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

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





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	107	14.38	14.38
6 - 11	374	50.27	64.65
12 - 19	202	27.15	91.80
20 - 28	58	7.80	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  
Buffalo Viewpoint - May 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	3	1	3	3	8	16	28	4	3	4	4	2	3	4	7	107
6 - 11	44	34	33	12	20	41	61	53	22	6	8	6	2	9	8	15	374
12 - 19	45	26	7	1	1	13	10	4	1	2	16	14	8	16	17	21	202
20 - 28	13	4	0	0	0	0	0	0	0	0	0	3	4	4	24	6	58
29 - 38	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	117	67	41	16	24	62	87	85	27	11	28	27	16	32	55	49	744

Total Number of Valid Hours: 744

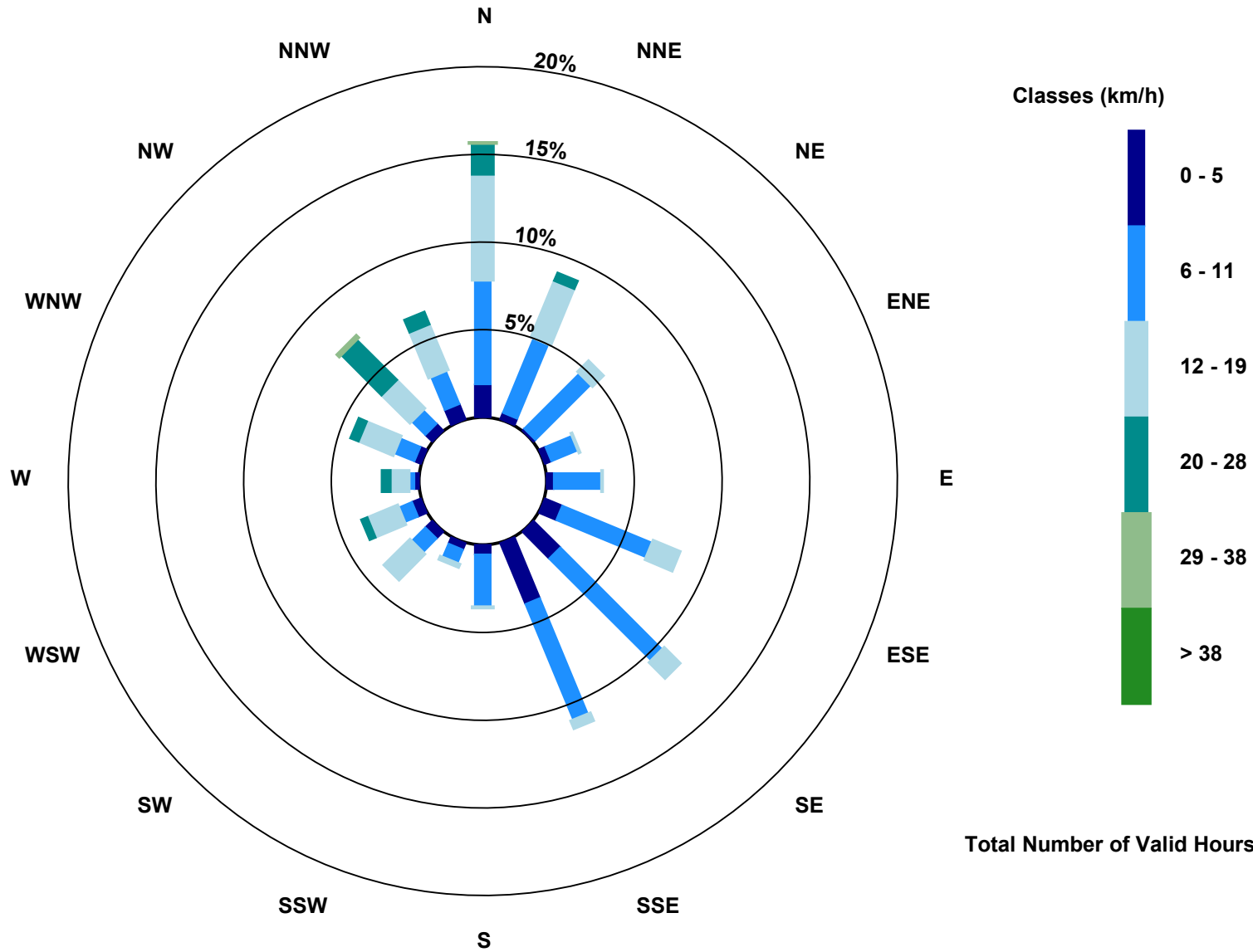
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

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





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

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

**Buffalo Viewpoint - May 2024**

Direction of Maximum Speed: 324 deg on May 11 12:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 315.2 deg on May 31		Hours of Data:	744
Direction of Minimum Speed: 128 deg on May 14 00:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 2.8 deg on May 28		Percent Operational Time:	100.0
Monthly Average Direction: 358.6 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-May	353	0	355	3	5	9	4	5	0	4	4	8	6	7	3	3	16	26	29	22	2	13	12	355	7.3
2-May	335	351	354	10	5	14	18	8	359	4	351	352	357	352	356	13	358	355	358	353	350	353	15	41	359.9
3-May	46	50	352	11	9	2	350	18	6	343	333	8	292	308	328	335	360	27	356	4	360	5	343	352	356.5
4-May	355	327	320	320	257	315	343	3	347	22	19	343	291	35	343	347	356	4	11	25	41	96	143	152	3.4
5-May	150	153	149	144	154	149	152	144	142	141	144	126	126	128	128	173	175	175	149	137	123	132	129	133	143.0
6-May	142	131	135	139	139	142	134	135	140	118	117	116	114	97	36	81	105	96	80	79	166	163	171	120	121.5
7-May	31	43	91	108	110	122	100	98	102	101	102	54	92	130	130	130	132	125	121	133	146	160	153	156	113.0
8-May	161	154	156	154	253	293	315	319	324	293	287	210	178	181	208	213	217	220	229	236	228	210	227	226	230.2
9-May	231	250	254	265	291	256	261	287	302	303	300	285	292	306	304	318	321	318	322	327	343	136	168	148	291.2
10-May	144	159	152	160	162	175	161	145	190	235	251	253	256	265	271	273	263	279	288	287	316	357	357	342	268.3
11-May	305	312	304	290	289	305	301	309	313	317	320	324	325	325	324	330	3	31	32	22	10	15	47	63	330.5
12-May	57	106	124	237	247	141	108	81	117	116	119	120	114	112	115	114	110	115	133	139	153	144	131	145	119.0
13-May	147	148	150	148	142	144	145	156	151	143	150	180	232	249	243	252	238	250	299	343	35	18	1	128	191.6
14-May	236	192	142	159	170	151	139	179	182	142	205	242	236	235	240	249	256	278	353	9	4	96	122	234	235.2
15-May	235	221	344	176	323	349	348	17	3	357	358	359	353	354	342	348	10	17	18	20	30	33	37	52	6.8
16-May	48	27	19	7	20	16	19	27	60	39	36	23	35	25	2	3	9	19	22	21	14	19	24	30	22.1
17-May	39	37	17	1	16	25	20	11	3	3	3	13	10	5	2	360	3	356	352	346	351	351	349	349	4.9
18-May	345	351	347	345	346	347	346	345	346	348	346	347	345	345	344	345	345	347	352	359	59	42	14	20	350.4
19-May	14	20	20	14	14	18	27	52	63	50	40	20	27	35	54	46	31	37	27	3	10	360	14	0	26.1
20-May	2	7	353	2	353	356	359	0	6	342	344	352	13	9	358	353	14	120	180	214	153	145	131	123	5.9
21-May	120	109	118	131	131	118	109	110	118	119	119	122	104	97	96	95	62	79	80	83	92	92	81	73	102.0
22-May	65	34	22	57	318	359	39	42	34	46	59	60	43	42	44	47	65	91	101	130	128	134	129	147	58.5
23-May	79	119	108	139	138	124	124	117	103	95	101	125	121	142	143	142	166	177	170	175	151	162	155	150	135.1
24-May	159	169	160	158	165	163	151	147	114	114	126	144	181	134	133	161	150	184	174	200	227	184	149	160	154.5
25-May	147	136	148	144	158	168	159	142	146	148	136	132	133	118	115	117	110	117	114	122	133	144	151	135	133.3
26-May	144	144	156	150	153	170	158	167	157	161	163	143	189	194	139	139	163	157	113	113	108	180	128	163	154.2
27-May	150	156	143	168	150	157	154	138	190	118	173	154	158	122	130	129	217	256	160	112	131	148	154	164	154.8
28-May	175	264	328	354	50	159	219	281	295	303	34	356	337	263	246	246	265	329	7	355	36	37	304	50	321.5
29-May	42	15	38	60	50	101	74	357	356	322	258	244	232	237	230	227	230	231	226	228	230	231	222	213	237.2
30-May	194	203	270	270	291	304	299	302	306	307	302	304	304	306	304	315	321	300	287	306	319	302	310	268	297.8
31-May	274	291	304	315	312	303	301	304	312	313	314	305	314	315	324	328	360	335	329	321	320	324	332	324	315.2
56.5 18.5 348.8 354.4 352.5 355.2 5.0 9.1 5.3 10.6 357.0 344.0 334.0 339.3 339.1 336.2 343.5 350.6 0.9 3.4 13.3 25.0 24.3 66.7																									
Diurnal Average																									

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



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

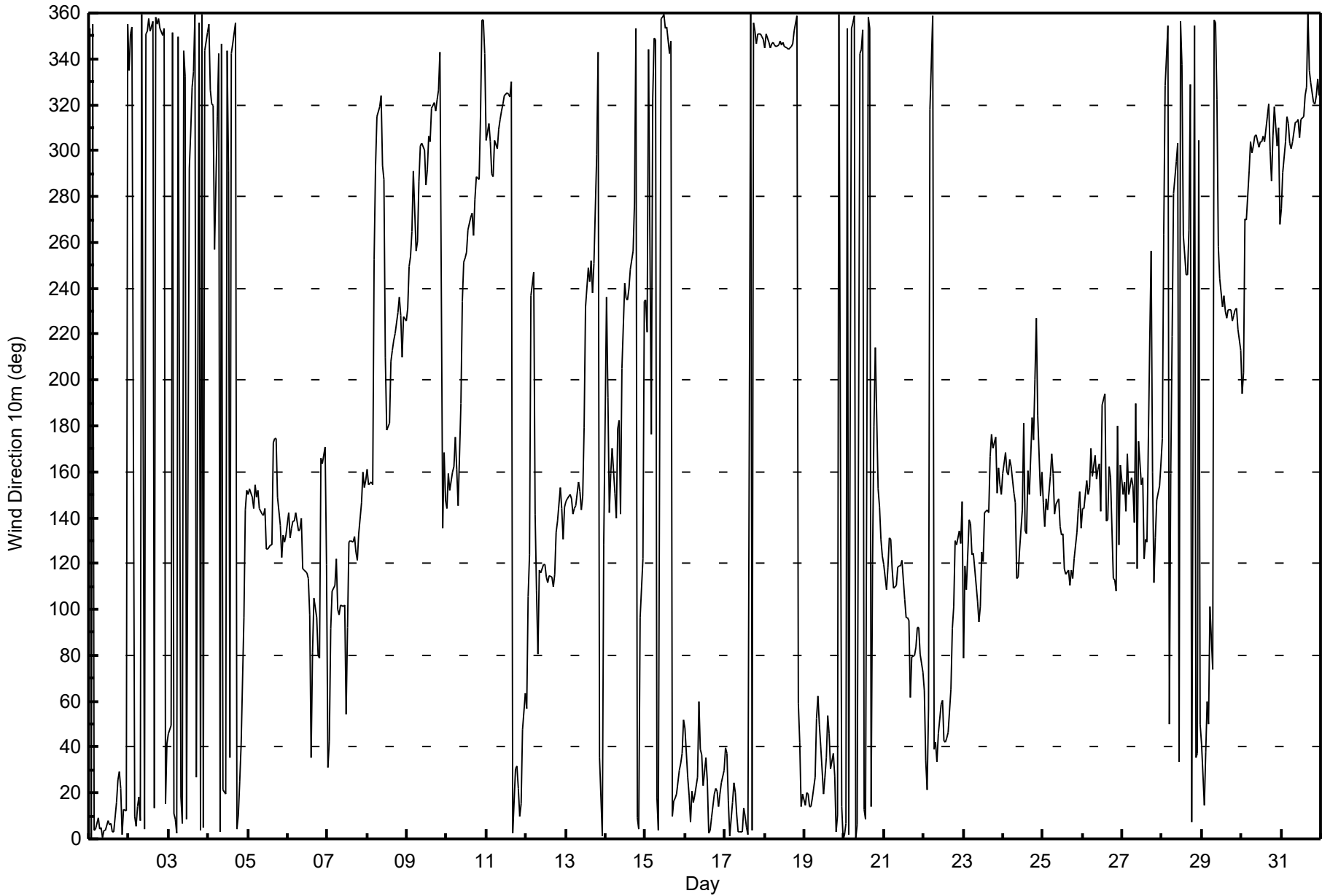
**Wind Direction 10m (WD10) - deg**  
**Buffalo Viewpoint - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 88 deg on May 24 13:00 Minimum Value: 7 deg on May 25 00:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 17 Q <sub>1</sub> = 19 Median = 23 Q <sub>3</sub> = 29 P <sub>90</sub> = 40 P <sub>99</sub> = 80		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-May	18	17	16	17	15	17	17	20	20	21	24	22	24	25	24	24	24	22	19	20	20	19	16	19	25
2-May	11	12	16	16	13	14	17	21	21	23	29	25	24	22	23	25	22	21	23	20	18	16	22	13	29
3-May	8	7	26	30	39	78	39	24	26	30	59	50	37	38	35	37	29	34	22	19	14	13	20	12	78
4-May	18	23	10	34	38	40	31	25	75	40	39	53	50	67	55	56	49	29	23	9	35	27	26	75	
5-May	27	24	28	28	27	29	27	27	32	37	34	31	33	33	27	39	32	32	31	26	21	21	24	25	39
6-May	30	26	27	27	26	28	25	26	28	26	23	22	22	26	32	33	23	21	17	13	38	27	25	60	60
7-May	13	15	23	18	22	27	22	19	20	19	24	29	40	49	42	26	26	23	23	25	30	29	26	26	49
8-May	26	24	21	24	34	20	17	18	17	32	84	65	65	39	23	18	39	22	20	18	15	9	16	34	84
9-May	21	14	13	21	30	12	14	24	21	22	22	21	25	22	24	20	19	20	17	14	16	47	8	12	47
10-May	8	10	18	17	17	19	25	28	51	23	23	20	20	19	21	19	18	21	22	18	40	24	22	34	51
11-May	21	18	18	19	21	19	20	20	21	20	20	20	19	23	22	20	34	21	21	21	19	22	14	17	34
12-May	12	28	36	80	29	70	26	57	28	25	33	26	23	24	24	23	20	21	28	26	24	25	24	25	80
13-May	27	25	28	26	26	29	29	30	29	33	39	36	29	29	40	28	24	25	39	22	30	18	13	83	83
14-May	18	13	23	27	18	31	26	24	34	35	35	24	28	23	22	22	19	29	49	38	21	48	59	17	59
15-May	47	49	82	49	31	21	23	21	24	24	26	35	28	42	23	31	43	23	21	19	20	18	21	21	82
16-May	16	22	23	19	18	16	17	21	33	17	21	21	19	31	20	21	21	19	18	18	19	20	20	20	33
17-May	20	20	21	21	21	19	19	22	20	20	20	21	20	21	20	21	20	20	19	18	19	18	18	17	22
18-May	18	18	18	18	17	19	18	19	18	19	19	19	19	19	18	18	19	19	19	22	17	21	18	18	22
19-May	17	18	16	16	16	19	20	21	22	21	22	25	21	26	20	32	22	23	23	19	20	19	17	18	32
20-May	17	15	14	11	11	15	18	20	22	27	25	21	26	26	20	19	26	28	31	18	25	18	26	24	31
21-May	22	19	22	21	23	23	21	24	25	27	28	28	27	26	25	23	27	22	18	27	16	14	23	39	39
22-May	21	16	23	83	82	25	27	23	26	24	30	28	24	22	25	27	24	25	20	29	24	18	15	24	83
23-May	47	10	25	18	17	25	27	26	32	26	32	34	41	35	40	34	42	32	30	22	26	23	22	16	47
24-May	20	20	11	13	15	18	27	32	30	28	38	46	88	54	41	41	35	33	35	24	15	16	12	7	88
25-May	17	17	16	17	21	21	28	33	34	33	35	32	39	33	23	24	23	22	22	24	26	26	25	23	39
26-May	25	27	44	25	32	28	34	33	36	37	37	37	28	35	47	41	39	33	23	17	12	40	18	34	47
27-May	41	29	30	33	28	33	35	31	43	36	40	38	40	32	36	33	44	19	68	16	19	30	30	27	68
28-May	54	29	25	40	39	81	74	50	31	33	77	59	53	53	43	47	55	36	41	19	17	32	79	36	81
29-May	17	19	42	43	19	48	16	23	29	47	27	22	21	21	22	21	21	21	19	21	20	20	20	21	48
30-May	23	47	16	16	21	20	20	20	21	21	21	20	20	21	21	19	21	22	21	23	19	21	22	16	47
31-May	19	22	20	20	22	22	21	22	19	21	19	21	21	20	18	19	25	20	18	19	18	19	19	18	25
Diurnal Maximum																									



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

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





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS05  
MANNIX  
MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
MAY 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	620	31	124	87.5	44.9	0	13.1	0
H2S (ppb) Average	638	36	106	90.59	7	0	1.4	0
THC (ppm) Average	609	36	135	86.69	2.9	-	2.3	-
NMHC(ppm) Average	609	36	135	86.69	0.894	-	0.276	-
CH4(ppm) Average	609	36	135	86.69	2.6	-	2.1	-
Temperature 2 m (C) Average	744	0	0	100	27.9	-	18	-
Temperature 20 m (C) Average	744	0	0	100	26.4	-	17.9	-
Temperature 45 m (C) Average	744	0	0	100	26.1	-	17.7	-
Temperature 75 m (C) Average	744	0	0	100	25.8	-	18.1	-
Temperature 90 m (C) Average	744	0	0	100	25.7	-	18.4	-
Relative Humidity 2 m (%) Average	744	0	0	100	98	-	97	-
Relative Humidity 20 m (%) Average	744	0	0	100	99	-	97	-
Relative Humidity 45 m (%) Average	744	0	0	100	98	-	96	-
Relative Humidity 75 m (%) Average	645	0	99	86.69	97	-	77	-
Relative Humidity 90 m (%) Average	703	0	41	94.49	100	-	88	-
Wind Speed 20 m (km/h) Average	744	0	0	100	34	-	23	-
Wind Speed 45 m (km/h) Average	744	0	0	100	45	-	32	-
Wind Speed 75 m (km/h) Average	744	0	0	100	48	-	35	-
Wind Speed 90 m (km/h) Average	744	0	0	100	50	-	36	-
Wind Direction 20 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 45 m (deg) Average	744	0	0	100	-	-	-	-
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	1.2	-	0.7	-
Vertical Wind Speed 45 m (km/h) Average	744	0	0	100	2.1	-	0.9	-
Vertical Wind Speed 75 m (km/h) Average	744	0	0	100	2.8	-	0.7	-
Vertical Wind Speed 90 m (km/h) Average	744	0	0	100	3	-	0.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
MAY 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	620	1.96	5.4	-	0	0	0	0.1	0.9	5.6	44.9
H2S (ppb) Average	638	0.52	0.8	-	0	0	0.1	0.2	0.6	1.4	6.9
THC (ppm) Average	609	2.09	0.1	-	1.9	2	2	2	2.1	2.3	2.9
NMHC(ppm) Average	609	0.036	0.109	-	0	0	0	0	0	0.1	0.894
CH4(ppm) Average	609	2.05	0.1	-	1.9	2	2	2	2.1	2.1	2.6
Temperature 2 m (C) Average	744	11.26	5.4	-	-0.8	5	7.1	10.6	14.7	18.9	27.9
Temperature 20 m (C) Average	744	11.06	4.9	-	1	5.2	7.5	10.5	14.1	17.8	26.4
Temperature 45 m (C) Average	744	10.84	4.8	-	1	5	7.3	10.4	13.8	17.4	26.1
Temperature 75 m (C) Average	744	10.68	4.7	-	0.8	4.8	7.1	10.3	13.7	17.2	25.8
Temperature 90 m (C) Average	744	10.73	4.7	-	0.9	4.9	7.1	10.3	13.7	17.2	25.7
Relative Humidity 2 m (%) Average	744	60.2	23	-	16	29	40	59	80	94	98
Relative Humidity 20 m (%) Average	744	58.8	23	-	16	29	40	58	76	94	99
Relative Humidity 45 m (%) Average	744	58.2	22	-	16	29	40	57	75	92	98
Relative Humidity 75 m (%) Average	645	53.3	19	-	17	29	39	53	68	79	97
Relative Humidity 90 m (%) Average	703	56.2	21	-	16	29	39	55	71	88	100
Wind Speed 20 m (km/h) Average	744	13	6	-	1	6	9	12	16	21	34
Wind Speed 45 m (km/h) Average	744	17.3	8	-	1	8	12	17	21	27	45
Wind Speed 75 m (km/h) Average	744	18.7	9	-	1	9	12	18	24	30	48
Wind Speed 90 m (km/h) Average	744	19.6	9	-	1	9	13	19	26	31	50
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 75 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 90 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	744	0.1	0.5	-	-1.5	-0.7	-0.3	0.1	0.6	0.8	1.2
Vertical Wind Speed 45 m (km/h) Average	744	0.11	0.6	-	-1.4	-0.6	-0.3	0.1	0.5	0.8	2.1
Vertical Wind Speed 75 m (km/h) Average	744	0.25	0.5	-	-1.1	-0.3	0	0.2	0.5	0.8	2.8
Vertical Wind Speed 90 m (km/h) Average	744	0.29	0.6	-	-1.7	-0.4	-0.1	0.2	0.7	1.1	3

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	04 May 2024 13:00	04 May 2024 13:00	1	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	05 May 2024 19:00	05 May 2024 20:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	16 May 2024 10:00	16 May 2024 12:00	3	Maintenance - replaced support gas cylinder
ALL GASEOUS ANALYZERS	21 May 2024 12:00	25 May 2024 08:00	70-93	Maintenance - shelter replaced
Relative Humidity, 75m	01 May 2024 01:00	01 May 2024 08:00	8	Sensor operated out of range
Relative Humidity, 75m	07 May 2024 11:00	07 May 2024 15:00	5	Sensor operated out of range
Relative Humidity, 75m	07 May 2024 18:00	08 May 2024 05:00	12	Sensor operated out of range
Relative Humidity, 75m	16 May 2024 08:00	16 May 2024 17:00	10	Sensor operated out of range
Relative Humidity, 75m	16 May 2024 20:00	16 May 2024 23:00	4	Sensor operated out of range
Relative Humidity, 75m	17 May 2024 03:00	19 May 2024 08:00	54	Sensor operated out of range
Relative Humidity, 75m	30 May 2024 02:00	30 May 2024 06:00	5	Sensor operated out of range
Relative Humidity, 75m	31 May 2024 05:00	31 May 2024 05:00	1	Sensor operated out of range
Relative Humidity, 90m	07 May 2024 23:00	08 May 2024 03:00	5	Sensor operated out of range
Relative Humidity, 90m	17 May 2024 11:00	17 May 2024 13:00	3	Sensor operated out of range
Relative Humidity, 90m	17 May 2024 16:00	17 May 2024 18:00	3	Sensor operated out of range
Relative Humidity, 90m	17 May 2024 21:00	18 May 2024 12:00	16	Sensor operated out of range
Relative Humidity, 90m	18 May 2024 14:00	18 May 2024 18:00	5	Sensor operated out of range
Relative Humidity, 90m	19 May 2024 01:00	19 May 2024 07:00	7	Sensor operated out of range
Relative Humidity, 90m	30 May 2024 04:00	30 May 2024 05:00	2	Sensor operated out of range





Summary of Hour Averages

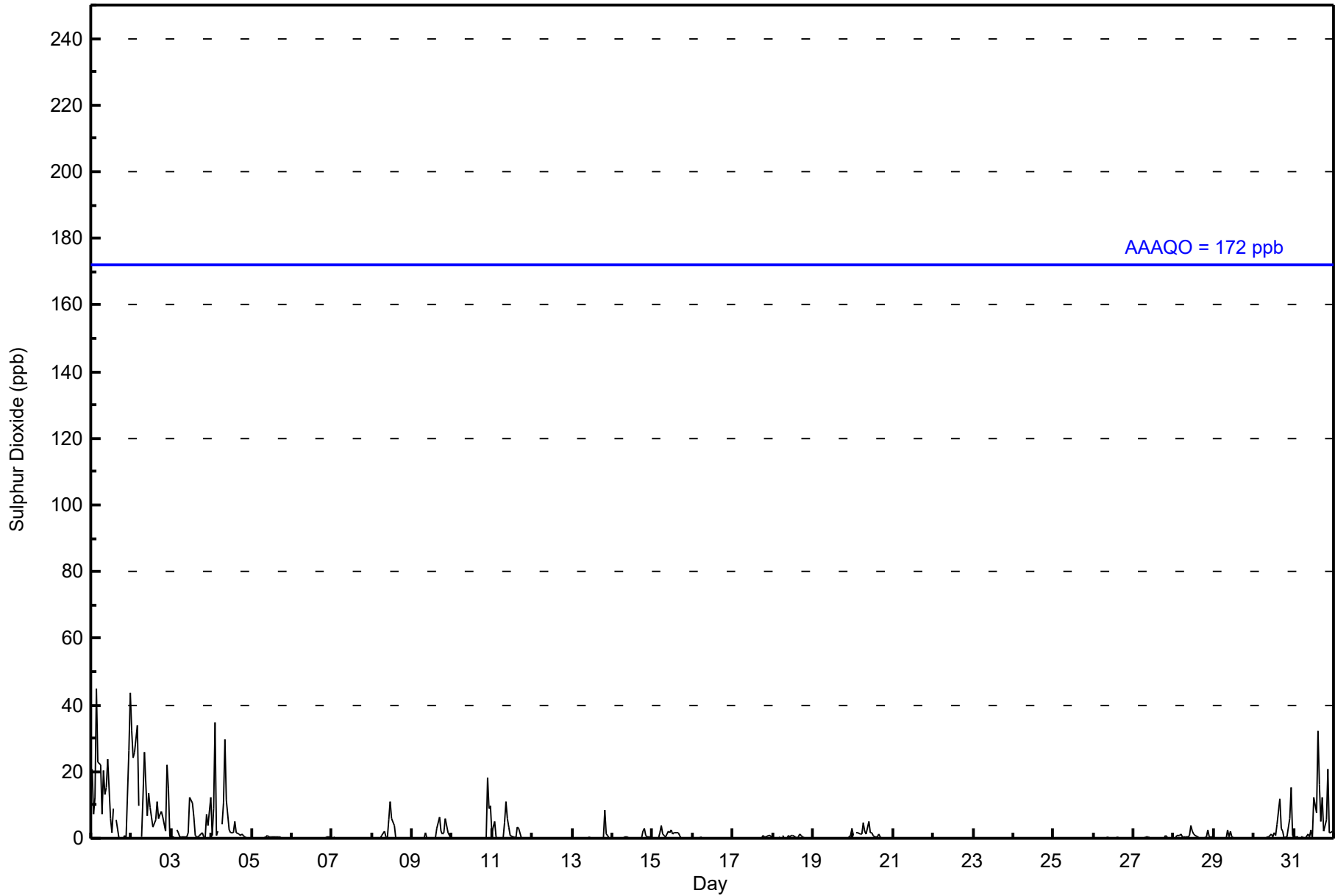
Mannix - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 44.9 ppb on May 1 04:00	Maximum Daily Average: 13.1 ppb on May 1		Hours of Data:	620
Minimum Value: 0.0 ppb on May 5 04:00	Minimum Daily Average: 0.0 ppb on May 12		Hours of Missing Data:	124
Maximum Diurnal Average: 3.6 ppb at hour 4	Minimum Diurnal Average: 0.7 ppb at hour 19		Hours of Calibration:	31
Monthly Average: 1.96 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> = 0.9 P <sub>90</sub> = 5.6 P <sub>99</sub> = 28.8		Percent Operational Time:	87.5

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-May	20.9	7.0	12.1	44.9	22.9	22.1	7.2	20.1	13.3	15.4	23.6	5.8	1.7	8.8	Z	5.5	0.1	0.0	0.0	0.0	1.0	0.0	26.1	43.6	13.1	44.9
2-May	32.2	24.3	25.7	33.8	9.8	Z	0.6	12.6	26.0	6.7	13.7	9.5	6.2	3.5	5.4	10.9	5.8	7.0	8.2	6.5	2.0	21.8	14.9	0.2	12.5	33.8
3-May	0.4	0.5	Z	2.6	1.7	0.5	0.6	0.4	0.3	0.4	1.7	12.4	10.5	6.3	0.6	0.6	0.5	0.8	1.5	0.5	0.1	7.3	3.8	12.4	2.9	12.4
4-May	0.7	9.0	34.7	0.9	1.9	Z	4.2	10.8	29.5	11.4	2.7	1.5	1.8	1.7	5.0	1.7	1.3	1.0	1.3	1.0	0.6	0.1	0.1	0.1	5.3	34.7
5-May	0.1	0.1	0.1	0.0	Z	0.1	0.1	0.2	0.4	0.8	0.3	0.6	0.3	0.6	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.8
6-May	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.2	0.4
7-May	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
8-May	0.0	Z	0.0	0.0	0.0	0.0	1.0	2.0	0.5	0.1	5.5	11.2	5.8	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	11.2
9-May	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.2	2.9	6.3	2.1	1.5	1.6	5.9	1.5	0.9	0.0	1.1	6.3
10-May	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	0.2	18.4	8.9	9.8	1.6	18.4
11-May	1.6	5.2	0.3	0.0	Z	0.0	0.0	4.5	11.2	6.1	3.4	0.7	0.2	0.3	0.1	3.3	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	11.2
12-May	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
13-May	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	1.2	0.7	0.0	0.0	0.5	8.5
14-May	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.8	0.7	0.3	0.2	0.1	0.3	2.8
15-May	0.1	0.2	Z	0.1	1.9	3.8	1.3	1.0	0.6	1.9	1.5	2.3	1.1	1.6	1.9	1.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	3.8
16-May	0.0	0.0	0.0	Z	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
17-May	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	0.9	0.5	0.6	1.0	0.9	0.4	0.2	1.0
18-May	0.4	0.1	0.1	0.0	0.5	Z	0.7	0.1	0.1	0.7	0.6	0.7	0.7	0.4	0.1	0.5	1.2	1.0	0.4	0.1	0.0	0.0	0.0	0.0	0.4	1.2
19-May	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	0.7	2.9	0.2	2.9
20-May	0.9	Z	1.8	1.7	1.4	1.4	4.7	2.0	1.3	4.9	1.5	1.6	0.9	0.5	0.3	1.1	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	1.2	4.9
21-May	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	--	0.1
22-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
23-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
24-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
25-May	M	M	M	M	M	M	M	M	M	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0
26-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2
27-May	0.1	0.1	0.1	0.1	0.2	Z	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.3	0.1	0.1	0.0	0.2	0.6
28-May	Z	0.1	1.0	0.9	1.1	0.3	0.4	0.4	0.4	0.9	3.9	2.3	1.2	0.9	0.6	0.1	0.0	0.0	0.0	0.2	2.6	0.3	0.2	0.6	0.8	3.9
29-May	0.1	Z	0.2	0.0	0.1	0.0	0.0	0.0	2.5	0.6	1.9	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	0.3	2.5
30-May	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.2	0.5	1.4	0.4	1.8	0.7	4.2	12.0	3.0	2.1	0.2	0.3	0.6	5.7	15.3	0.9	2.2	15.3
31-May	0.3	0.3	0.3	Z	0.4	0.4	0.2	0.1	1.4	0.5	2.3	0.2	12.4	7.7	32.2	16.2	5.2	12.5	1.9	5.6	20.6	1.5	1.6	1.9	5.5	32.2

2.5	2.1	3.5	3.6	1.8	1.4	0.8	2.1	3.4	2.0	2.4	1.8	1.7	1.4	2.0	2.1	1.0	1.0	0.7	1.1	1.4	2.2	2.8	2.7	Diurnal Average	
32.2	24.3	34.7	44.9	22.9	22.1	7.2	20.1	29.5	15.4	23.6	12.4	12.4	8.8	32.2	16.2	6.3	12.5	8.2	8.5	20.6	21.8	26.1	43.6	Diurnal Maximum	

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	582	93.87	93.87
11 - 20	21	3.39	97.26
21 - 60	17	2.74	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: 620

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mannix - May 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	44	80	23	29	16	24	111	52	9	14	30	23	16	49	25	37	582
11 - 20	8	4	0	0	0	1	0	0	0	0	0	0	0	4	4	0	21
21 - 60	13	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	17
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	85	23	29	16	25	111	52	9	14	30	23	17	54	30	37	620

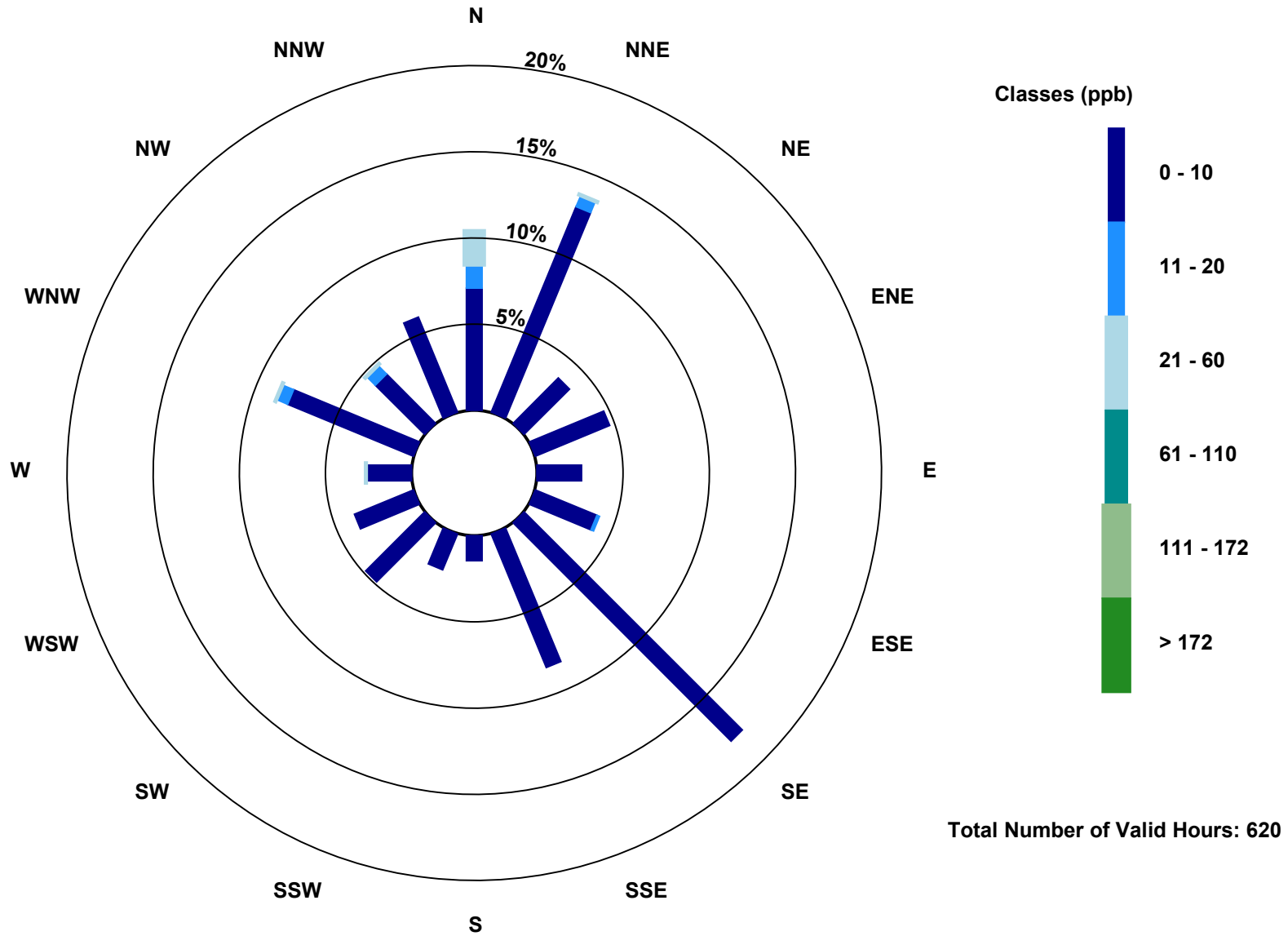
Total Number of Valid Hours: 620

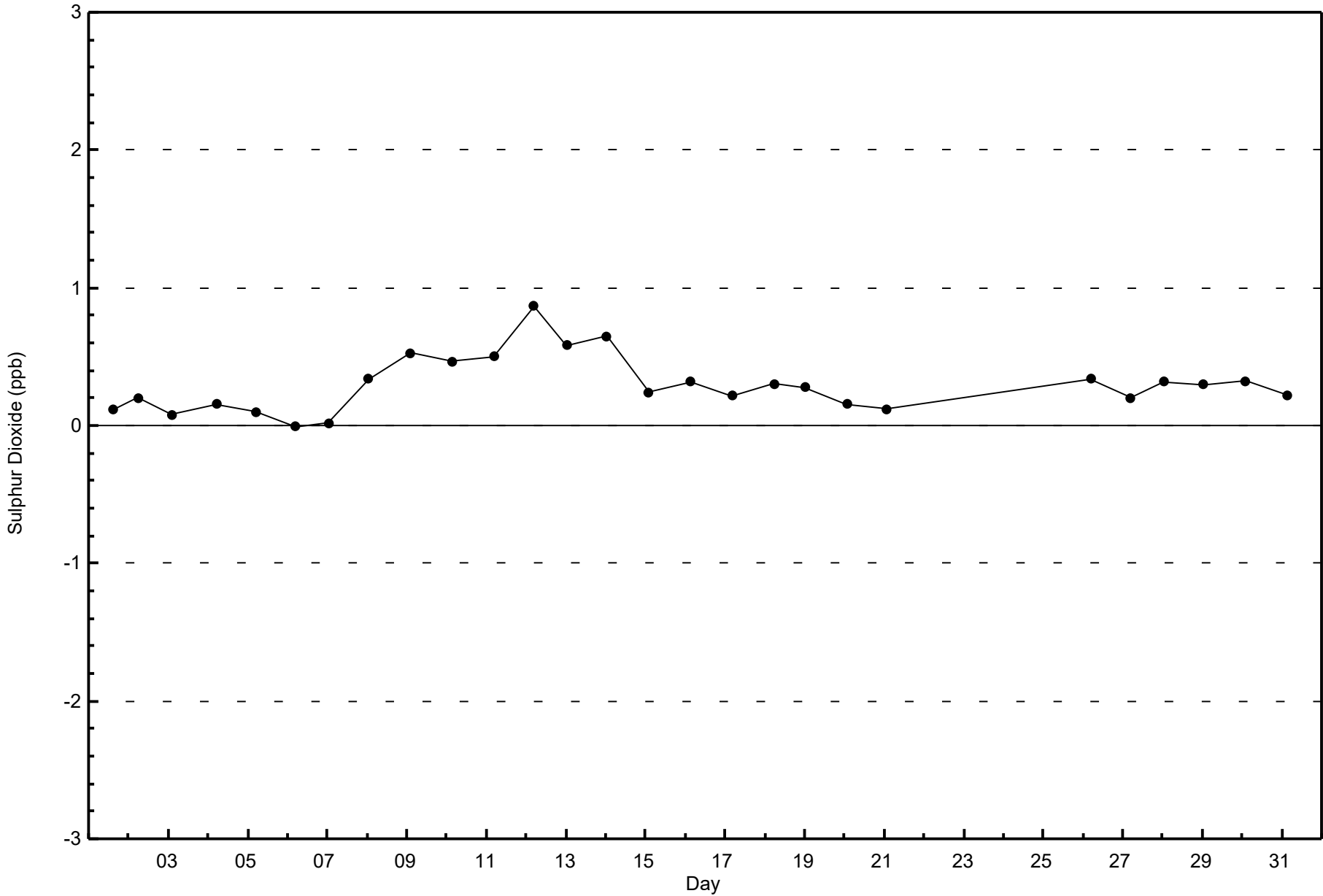
Total Number of Hours: 744

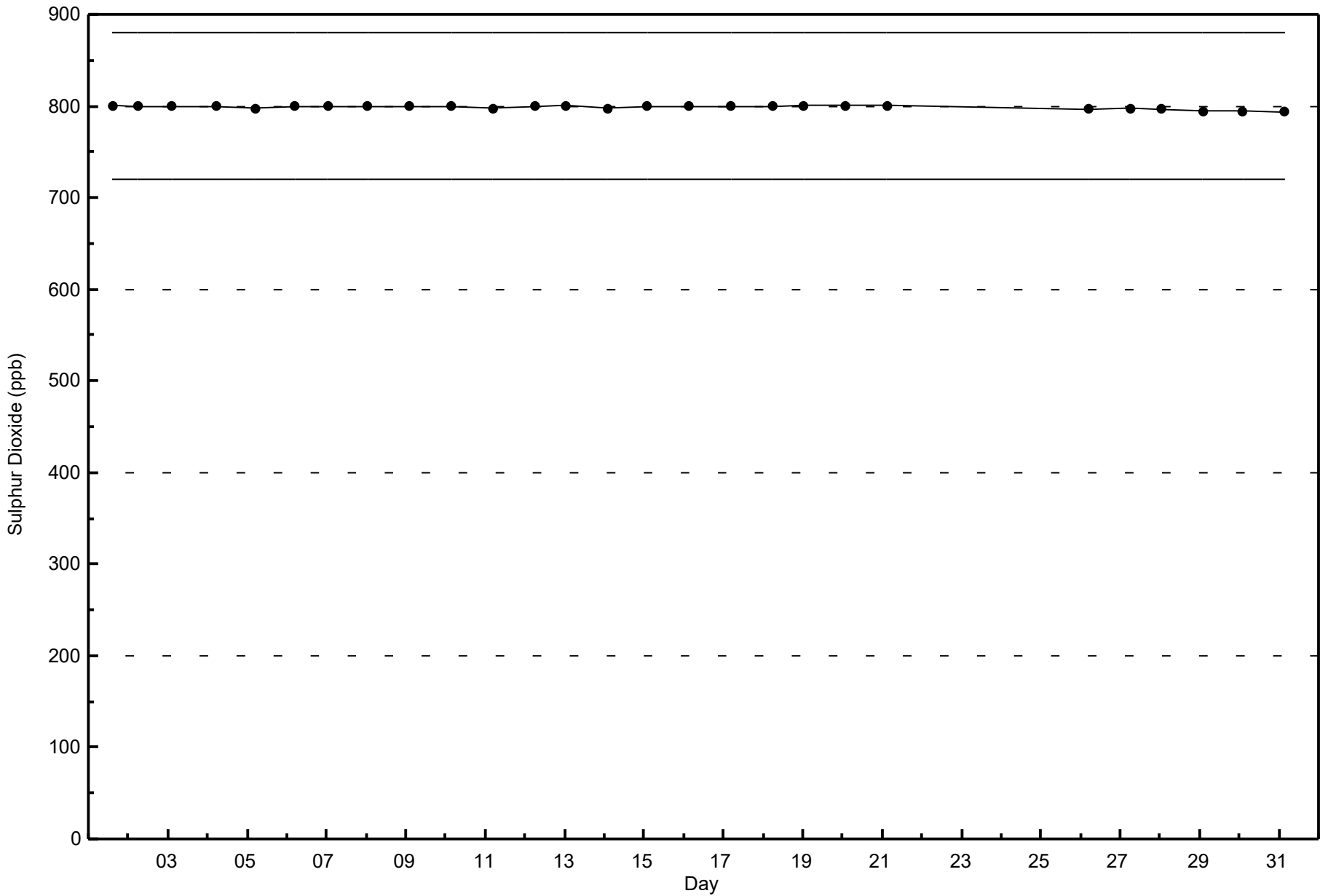


Wood Buffalo Environmental Association  
Wind Rose May 2024

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





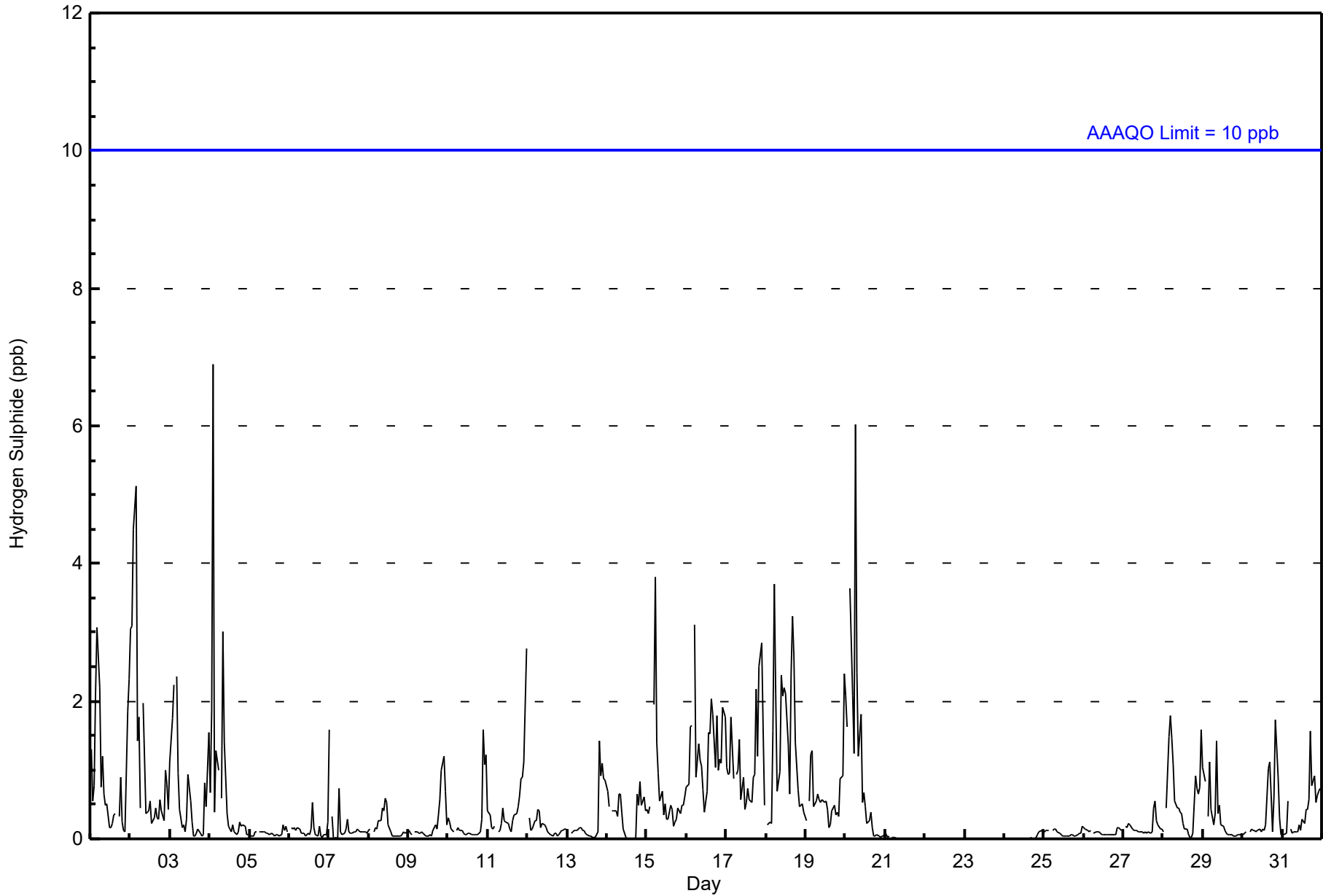




Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 6.9 ppb on May 4 03:00		Maximum Daily Average: 1.4 ppb on May 18		Hours of Data: 638														Hours of Missing Data: 106		Hours of Calibration: 36							
Minimum Value: 0.0 ppb on May 14 13:00		Minimum Daily Average: 0.1 ppb on May 25		Hours of Calibration: 36														Percent Operational Time: 90.6									
Maximum Diurnal Average: 0.9 ppb at hour 6		Minimum Diurnal Average: 0.2 ppb at hour 15		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.4 P <sub>99</sub> = 3.5																							
Monthly Average: 0.52 ppb																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	1.3	0.6	0.8	2.1	3.1	2.2	0.8	1.2	0.6	0.5	0.5	0.2	0.2	0.2	0.3	0.4	Z	0.3	0.9	0.2	0.1	0.1	1.8	2.3	0.9	3.1	
2-May	3.1	3.1	4.5	5.1	1.4	1.8	0.5	Z	2.0	0.4	0.4	0.4	0.6	0.2	0.3	0.4	0.3	0.3	0.6	0.4	0.3	1.0	0.8	0.4	1.2	5.1	
3-May	1.1	1.7	2.2	Z	2.4	1.0	0.4	0.2	0.2	0.1	0.3	0.9	0.6	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.8	0.5	1.5	0.6	2.4	
4-May	0.7	1.9	6.9	0.4	1.3	1.0	Z	0.6	3.0	1.4	0.4	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.8	6.9	
5-May	0.1	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	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.2	
6-May	Z	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.5	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.5	
7-May	1.6	Z	0.3	0.0	0.0	0.0	0.7	0.1	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	0.2	1.6	
8-May	0.1	0.1	Z	0.1	0.2	0.1	0.3	0.3	0.5	0.4	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.6	
9-May	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	0.2	0.1	0.4	0.6	1.0	1.2	0.7	0.2	0.2	1.2	
10-May	0.3	0.2	0.1	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.6	1.1	1.2	0.3	1.6	
11-May	0.4	0.3	0.2	0.1	0.2	Z	0.1	0.1	0.2	0.4	0.3	0.2	0.2	0.1	0.1	0.3	0.3	0.4	0.5	0.6	0.9	0.9	1.1	2.8	0.5	2.8	
12-May	Z	0.3	0.1	0.1	0.3	0.3	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
13-May	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	0.0	0.0	0.0	0.0	0.0	0.1	1.4	0.9	1.1	0.9	0.8	0.3	1.4	
14-May	0.7	0.5	Z	0.4	0.4	0.4	0.3	0.7	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.8	0.5	0.6	0.4	0.4	0.8	
15-May	0.4	0.4	0.5	Z	2.0	3.8	1.4	0.9	0.6	0.7	0.4	0.5	0.3	0.3	0.5	0.4	0.2	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.7	3.8	
16-May	0.8	0.8	1.6	1.7	Z	3.1	0.9	1.4	1.1	1.1	0.7	0.4	0.7	1.5	1.5	2.0	1.8	1.0	1.8	1.0	1.2	1.1	1.9	1.8	1.3	3.1	
17-May	1.0	0.9	1.0	1.8	0.9	Z	0.9	1.0	1.4	0.6	0.9	0.4	0.5	0.7	0.6	0.5	0.9	0.9	2.2	1.2	2.5	2.8	1.6	0.5	1.1	2.8	
18-May	Z	0.2	0.2	0.2	1.6	3.7	2.1	0.7	1.0	2.4	2.1	2.2	2.1	1.4	0.7	2.4	3.2	2.6	1.4	0.7	0.5	0.5	0.5	0.4	1.4	3.7	
19-May	0.3	Z	0.5	1.2	1.3	0.5	0.5	0.7	0.6	0.5	0.6	0.5	0.5	0.4	0.2	0.2	0.4	0.5	0.3	0.4	0.3	0.9	0.9	2.4	0.6	2.4	
20-May	2.1	1.6	Z	3.6	2.1	1.2	6.0	2.4	1.2	1.8	0.5	0.7	0.5	0.2	0.3	0.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.1	6.0	
21-May	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.1	
22-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
23-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
24-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
25-May	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	
26-May	0.2	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	
27-May	Z	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	0.5	0.6	0.3	0.2	0.1	0.1	0.2	0.6	
28-May	0.1	Z	0.5	1.5	1.8	1.5	1.1	0.5	0.5	0.4	0.4	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.9	0.7	0.7	0.8	1.6	0.6	1.8	
29-May	1.0	0.8	Z	0.3	1.1	0.4	0.2	0.4	1.4	0.4	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.3	1.4	
30-May	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	1.0	1.1	0.6	0.1	0.6	1.7	0.9	0.3	0.1	0.4	1.7	
31-May	0.1	0.1	0.1	0.6	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.4	0.4	0.6	1.6	0.8	0.9	0.5	0.6	0.7	0.7	0.4	1.6	
																								Diurnal Average		Diurnal Maximum	
																								0.7		3.1	
																								0.6		3.1	
																								0.9		6.9	
																								0.9		5.1	
																								0.9		3.1	
																								0.9		3.8	
																								0.7		6.0	
																								0.5		2.4	
																								0.6		3.0	
																								0.5		2.4	
																								0.4		2.1	
																								0.3		2.2	
																								0.3		2.1	
																								0.3		1.5	
																								0.2		1.5	
																								0.4		2.4	
																								0.4		3.2	
																								0.3		2.6	
																								0.4		2.2	
																								0.4		1.4	
																								0.5		2.8	
																								0.6		1.9	
																								0.6		2.8	
																								0.7		2.8	

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







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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	621	97.34	97.34
3 - 4	14	2.19	99.53
5 - 7	3	0.47	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 638

Total Number of Hours: 744



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

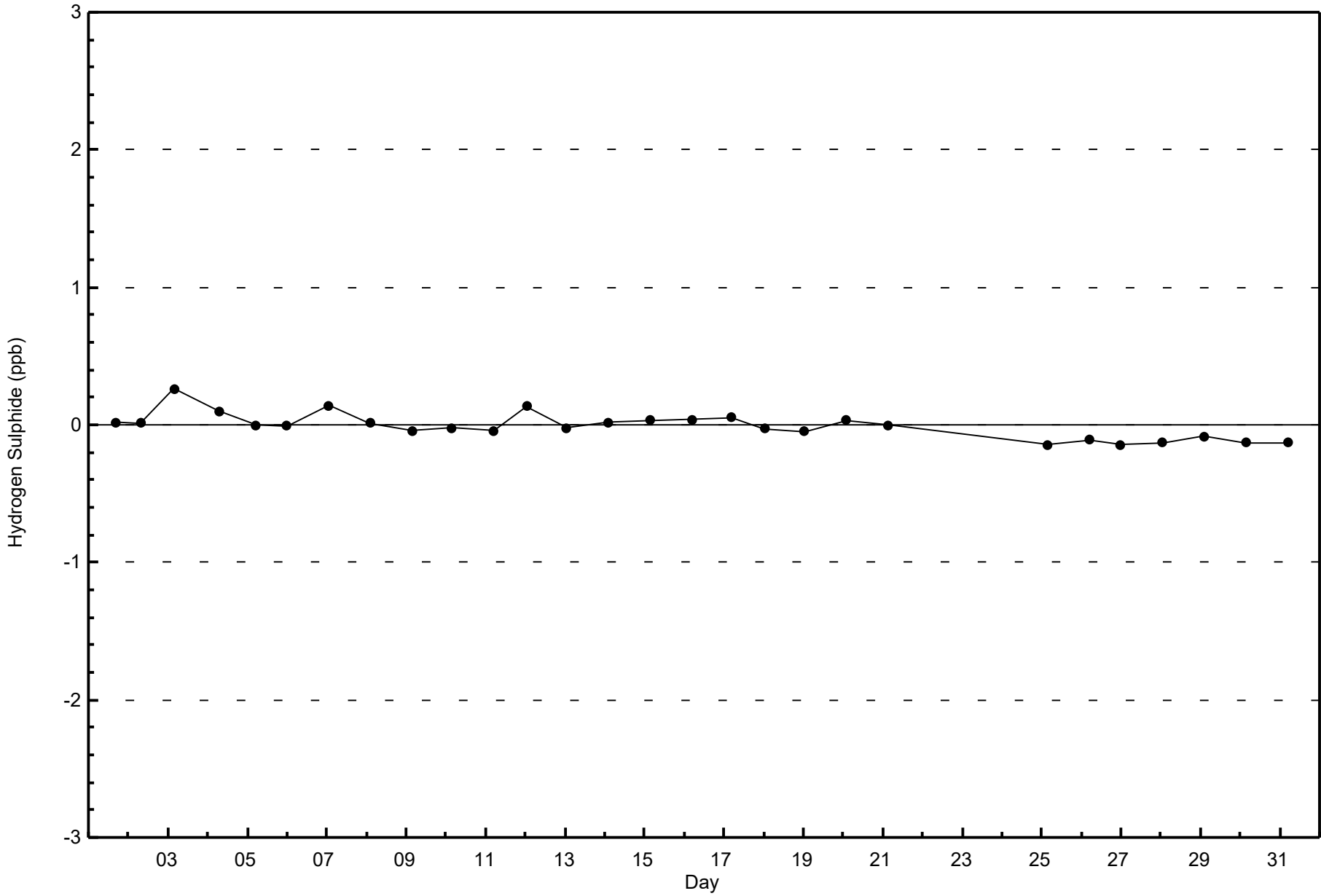
**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mannix - May 2024**

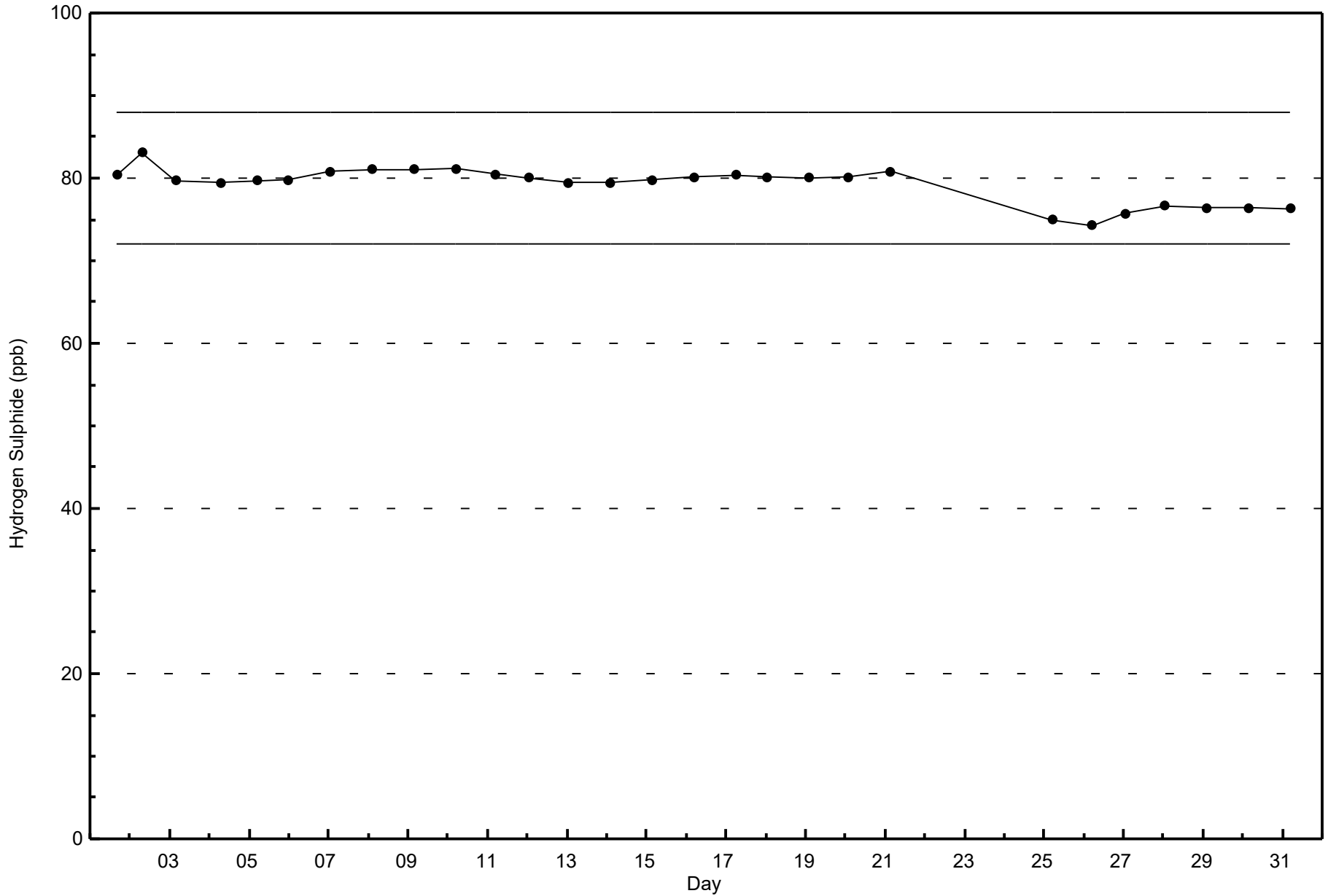
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	61	78	24	26	16	27	113	61	14	14	32	22	17	53	31	32	621
3 - 4	4	3	0	1	0	0	0	0	0	0	0	0	1	0	0	5	14
5 - 7	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	82	24	27	16	27	113	61	14	14	32	22	18	53	31	37	638

Total Number of Valid Hours: 638

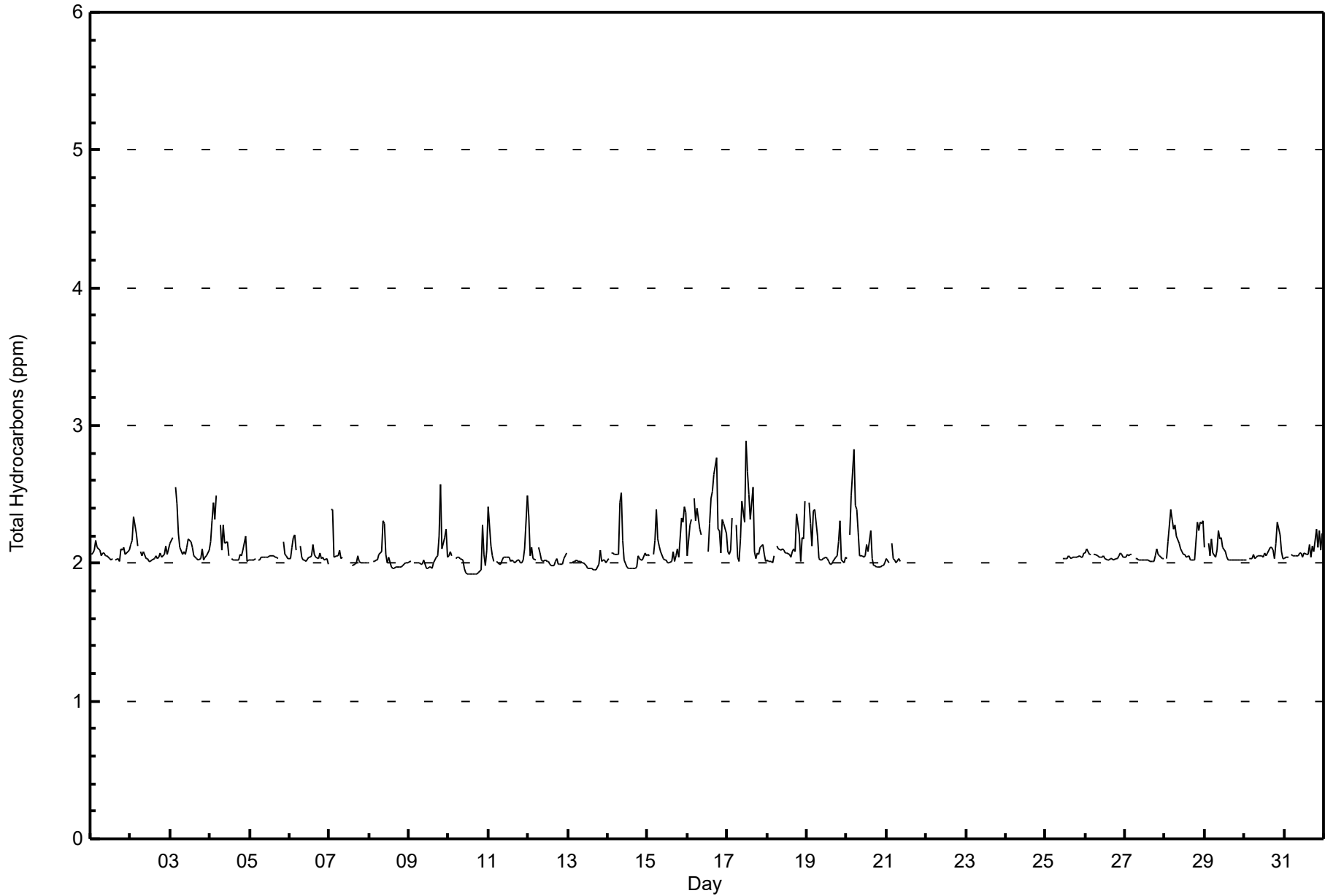
Total Number of Hours: 744















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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	316	51.89	51.89
2.1 - 3.0	293	48.11	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 609  
Total Number of Hours: 744



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

**Total Hydrocarbons (THC) - ppm**  
**Mannix - May 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	26	21	8	11	6	18	71	37	6	11	24	18	15	24	8	12	316
2.1 - 3.0	39	62	14	18	9	5	38	13	3	3	6	5	2	30	21	25	293
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	83	22	29	15	23	109	50	9	14	30	23	17	54	29	37	609

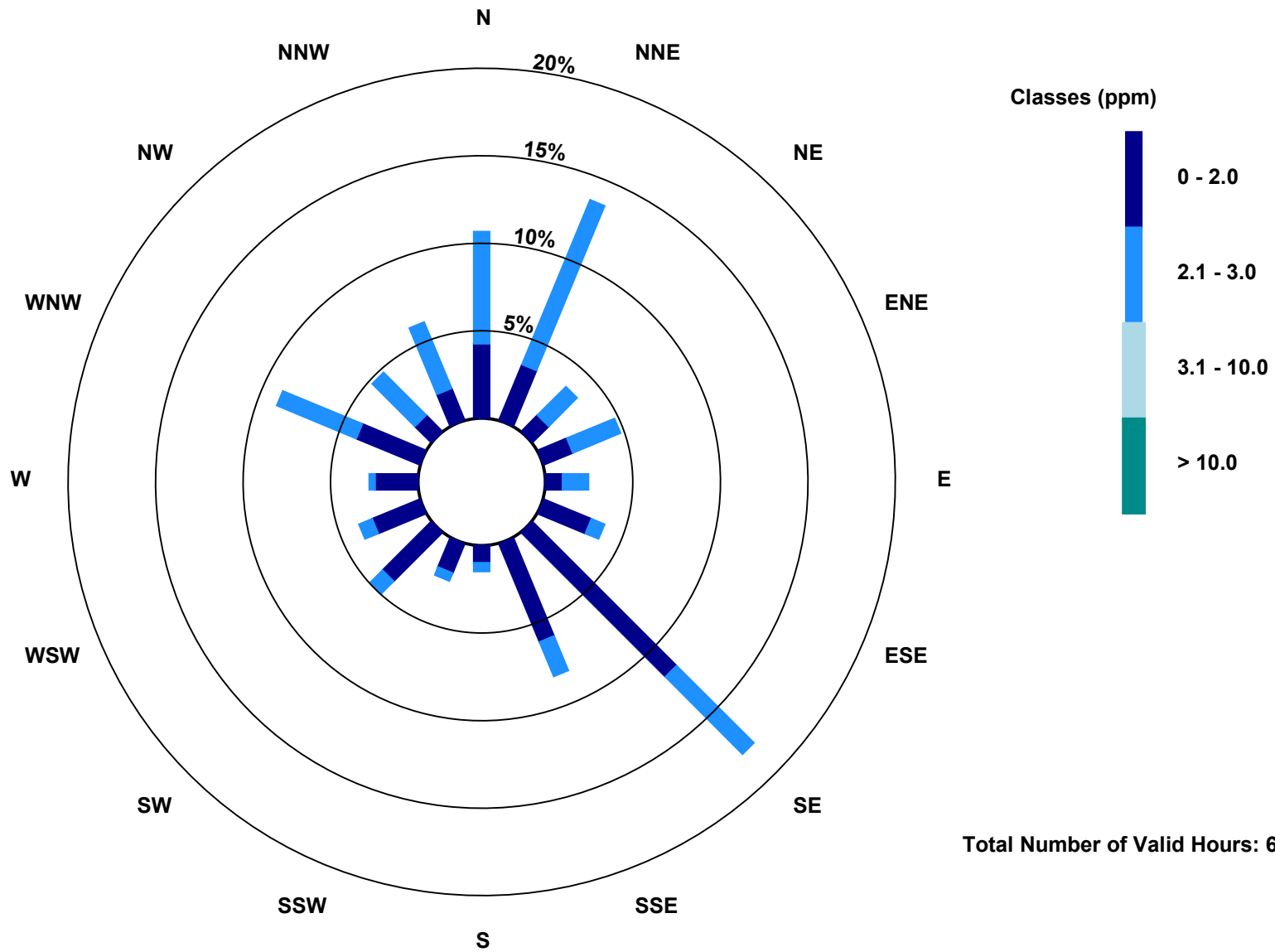
Total Number of Valid Hours: 609

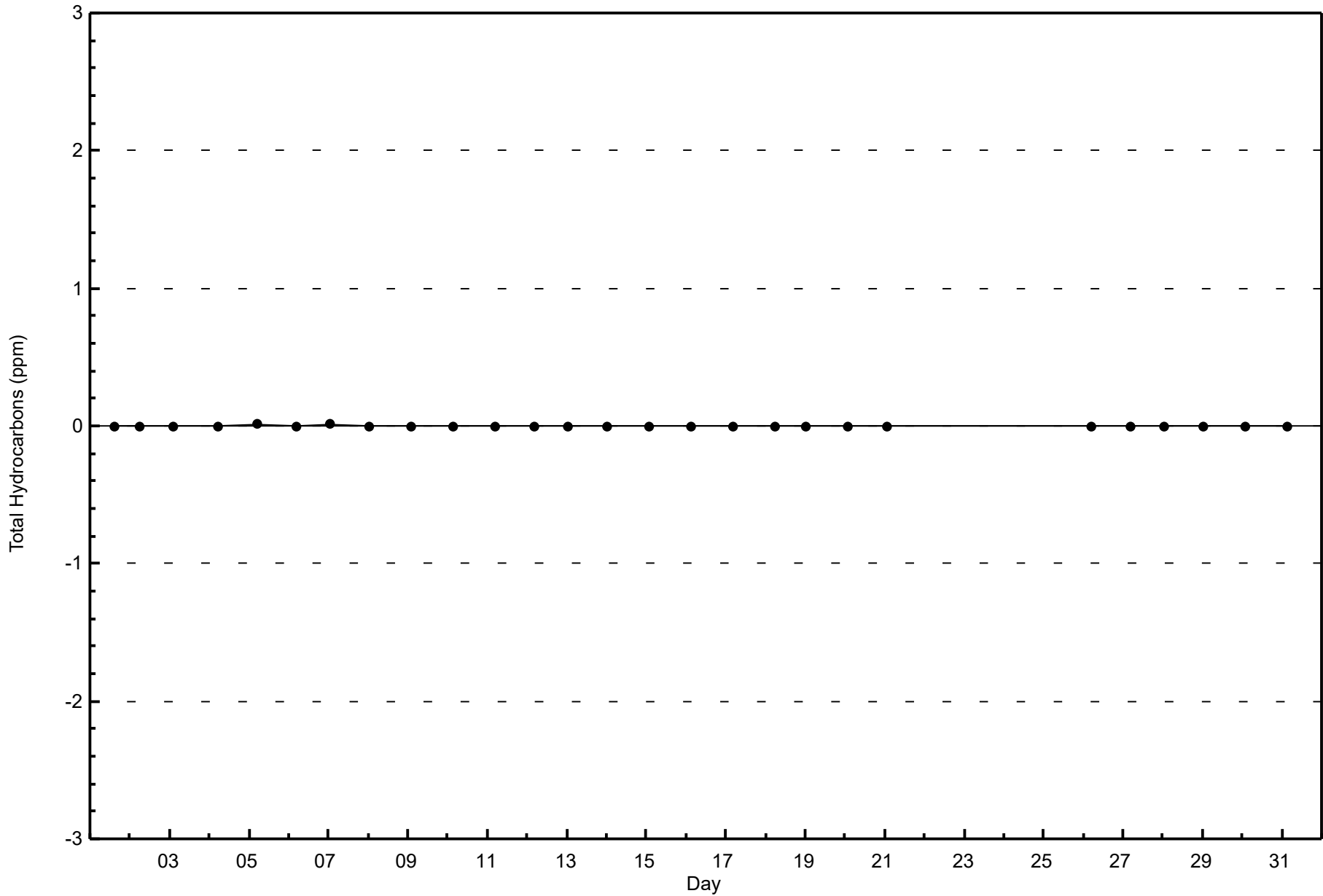
Total Number of Hours: 744

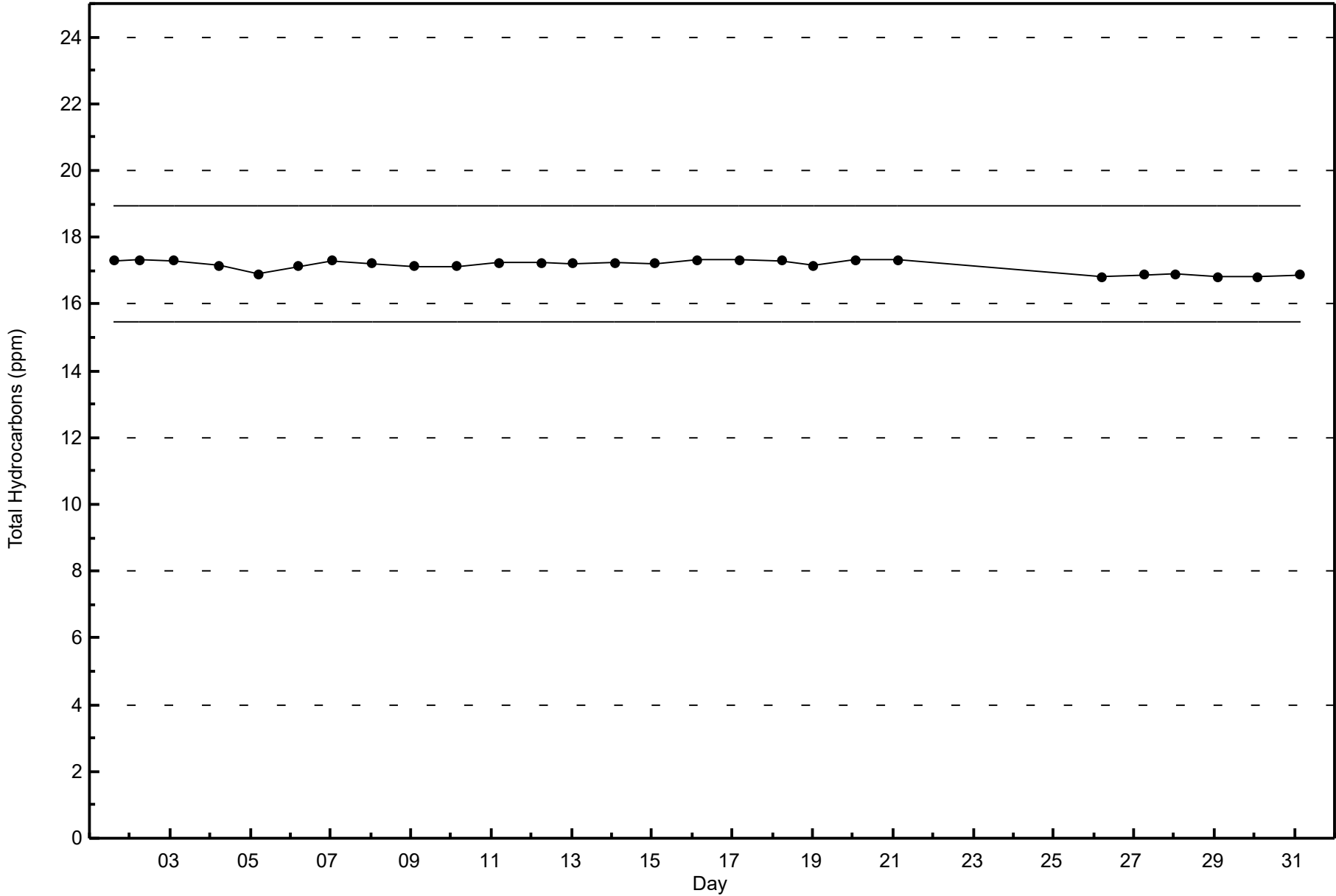


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Mannix





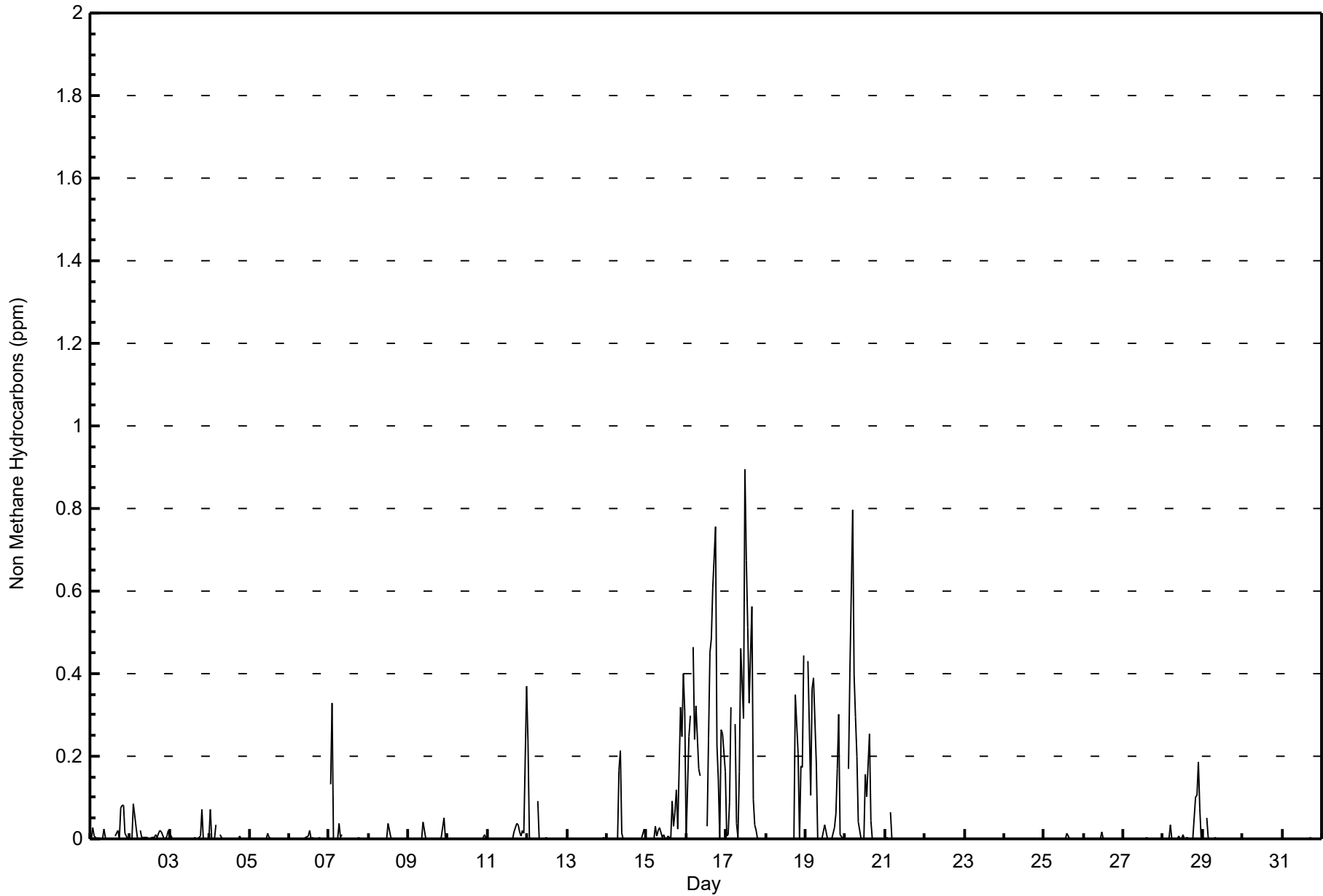




Summary of Hour Averages

Mannix - May 2024

Maximum Value: 0.894 ppm on May 17 12:00		Maximum Daily Average: 0.276 ppm on May 16		Hours in Service: 744																						
Minimum Value: 0.000 ppm on May 1 01:00		Minimum Daily Average: 0.000 ppm on May 30		Hours of Data: 609																						
Maximum Diurnal Average: 0.073 ppm at hour 5		Minimum Diurnal Average: 0.012 ppm at hour 11		Hours of Missing Data: 135																						
Monthly Average: 0.036 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.1 P <sub>99</sub> = 0.5		Hours of Calibration: 36																						
				Percent Operational Time: 86.7																						
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-May	0.000	0.026	0.007	0.002	0.000	0.000	0.000	0.000	0.022	0.002	0.000	0.000	0.000	0.000	Z	0.006	0.020	0.000	0.076	0.080	0.080	0.013	0.000	0.000	0.015	0.080
2-May	0.000	0.000	0.086	0.027	0.000	Z	0.019	0.002	0.002	0.002	0.003	0.000	0.000	0.002	0.005	0.010	0.002	0.013	0.019	0.017	0.000	0.000	0.006	0.022	0.010	0.086
3-May	0.015	0.000	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.008	0.073	0.000	0.000	0.000	0.000	0.004	0.073
4-May	0.071	0.000	0.000	0.000	0.033	Z	0.010	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.006	0.071
5-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.002	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	0.000	0.000	0.000	0.001	0.013
6-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.002	0.007	0.022	0.000	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.022
7-May	Z	0.133	0.330	0.000	0.000	0.000	0.039	0.003	0.011	C	C	C	C	C	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.029	0.330
8-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.036	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.036
9-May	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.051	0.000	0.000	0.004	0.051
10-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.009	0.000	0.000	0.009
11-May	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	0.016	0.037	0.034	0.018	0.007	0.019	0.012	0.369	0.022	0.369	
12-May	0.232	0.002	0.000	0.000	0.000	Z	0.090	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.232
13-May	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	0.003	0.000	0.000	0.000	0.003
14-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.165	0.213	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.000	0.018	0.213	
15-May	0.000	0.000	Z	0.000	0.000	0.032	0.006	0.021	0.027	0.002	0.011	0.000	0.000	0.007	0.000	0.090	0.031	0.066	0.118	0.024	0.318	0.247	0.399	0.309	0.074	0.399
16-May	0.000	0.249	0.298	Z	0.463	0.242	0.324	0.169	0.153	M	M	M	0.030	0.244	0.452	0.484	0.605	0.757	0.228	0.142	0.002	0.266	0.254	0.162	0.276	0.757
17-May	0.007	0.010	0.087	0.319	Z	0.279	0.036	0.002	0.164	0.461	0.292	0.894	0.676	0.513	0.330	0.561	0.094	0.033	0.021	0.000	0.000	0.000	0.000	0.208	0.894	
18-May	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	0.348	0.205	0.000	0.175	0.173	0.444	0.058	0.444
19-May	Z	0.430	0.275	0.106	0.362	0.389	0.184	0.000	0.000	0.000	0.000	0.035	0.018	0.000	0.000	0.001	0.001	0.027	0.060	0.170	0.300	0.011	0.002	0.005	0.103	0.430
20-May	0.006	Z	0.170	0.405	0.795	0.396	0.295	0.200	0.040	0.000	0.000	0.000	0.156	0.102	0.256	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.124	0.795	
21-May	0.000	0.005	Z	0.065	0.000	0.000	0.000	0.000	0.000	C	C	M	M	M	M	M	M	M	M	M	M	M	M	M	--	0.065
22-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
23-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
24-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
25-May	M	M	M	M	M	M	M	M	C	C	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	0.015	
26-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.018	
27-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
28-May	Z	0.000	0.000	0.000	0.033	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.010	0.000	0.004	0.000	0.000	0.000	0.000	0.100	0.106	0.187	0.074	0.000	0.023	0.187
29-May	0.000	Z	0.049	0.002	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.049	
30-May	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
31-May	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	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
		0.014	0.037	0.059	0.039	0.073	0.064	0.037	0.021	0.023	0.022	0.012	0.039	0.038	0.033	0.041	0.044	0.029	0.035	0.035	0.032	0.030	0.036	0.035	0.049	Diurnal Average
		0.232	0.430	0.330	0.405	0.795	0.396	0.324	0.200	0.213	0.461	0.292	0.894	0.676	0.513	0.452	0.561	0.605	0.757	0.348	0.205	0.318	0.266	0.399	0.444	Diurnal Maximum
Z - zerospan		C - Calibration					M - Maintenance					UO - Unstable Operation														





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	468	76.85	76.85
0.006 - 0.05	64	10.51	87.36
0.06 - 0.1	21	3.45	90.80
> 0.1	56	9.20	100.00

Total Number of Valid Hours: 609

Total Number of Hours: 744





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Mannix - May 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	38	16	8	16	11	21	103	46	9	13	30	23	17	52	29	36	468
0.006 - 0.05	19	17	5	9	2	2	4	3	0	1	0	0	0	2	0	0	64
0.06 - 0.1	4	10	3	1	1	0	1	0	0	0	0	0	0	0	0	1	21
> 0.1	4	40	6	3	1	0	1	1	0	0	0	0	0	0	0	0	56
<b>Totals</b>	65	83	22	29	15	23	109	50	9	14	30	23	17	54	29	37	609

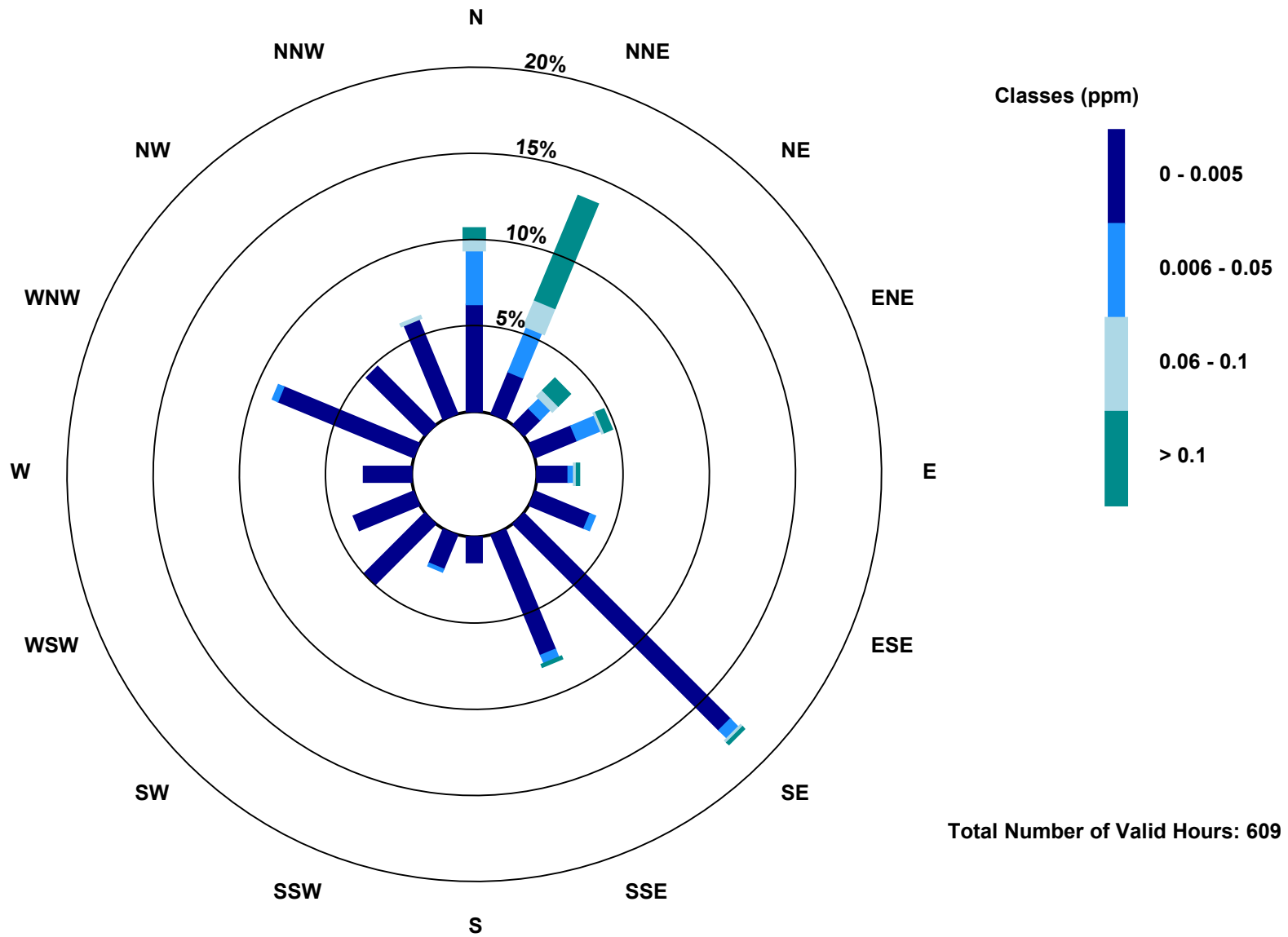
Total Number of Valid Hours: 609

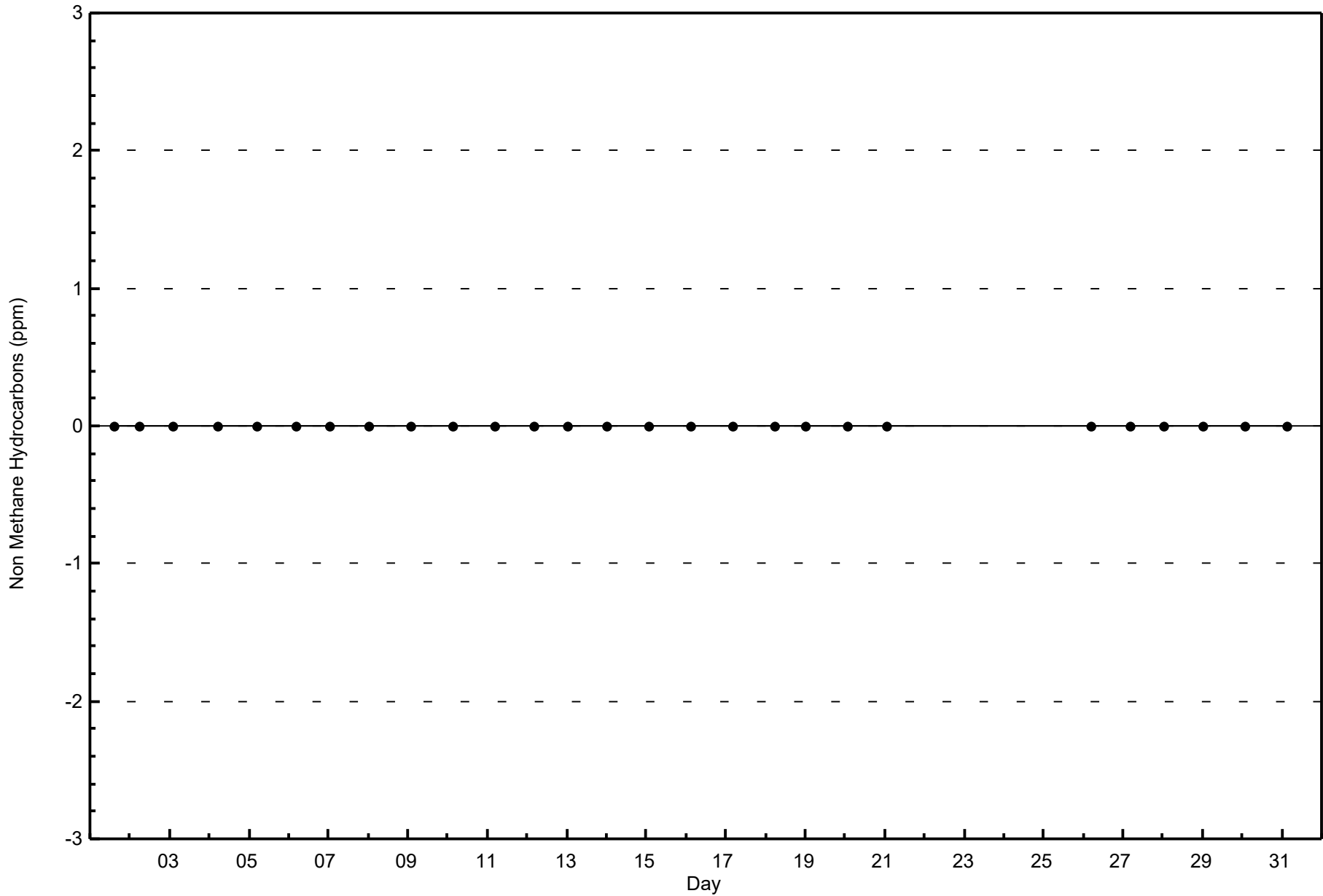
Total Number of Hours: 744

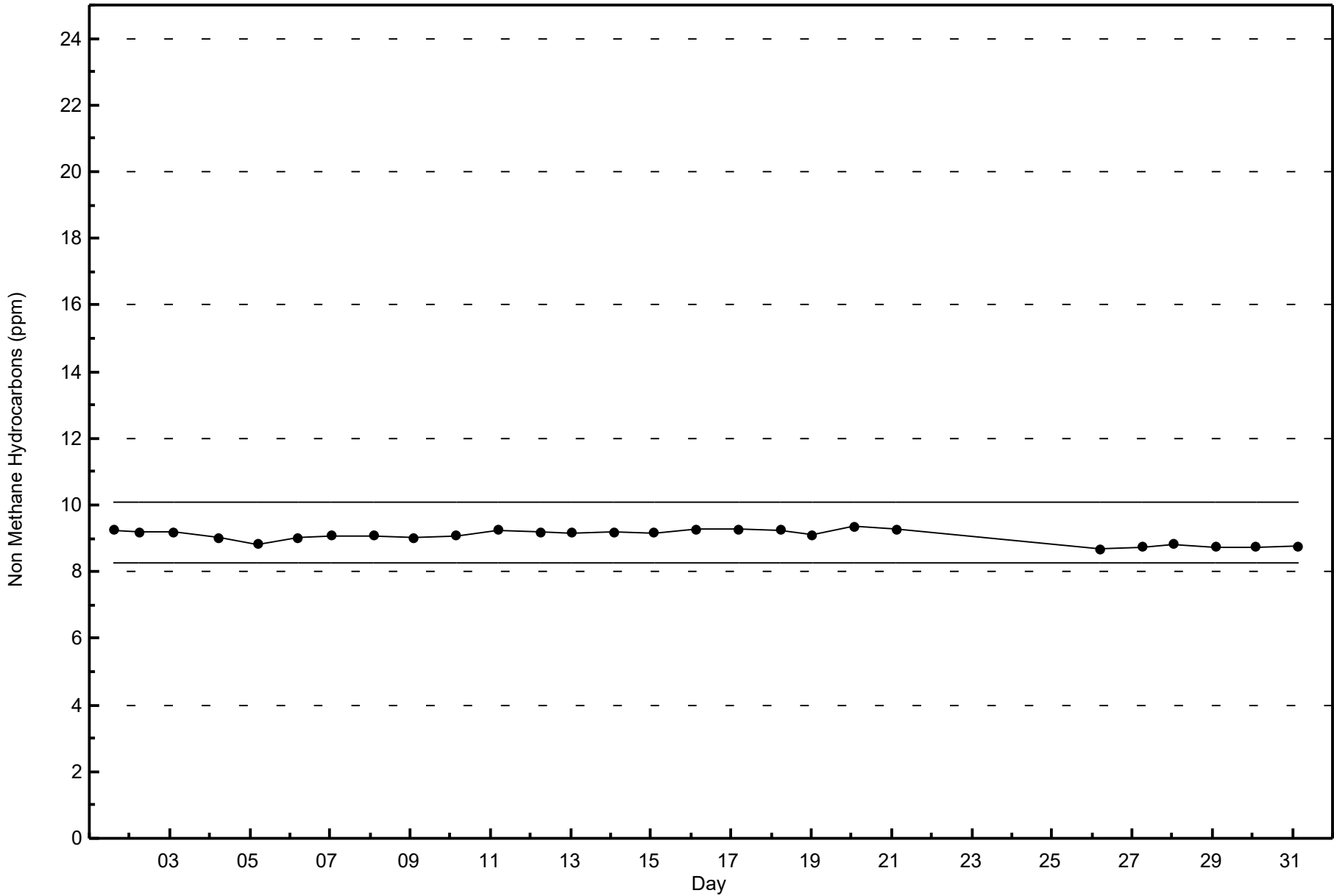


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Mannix





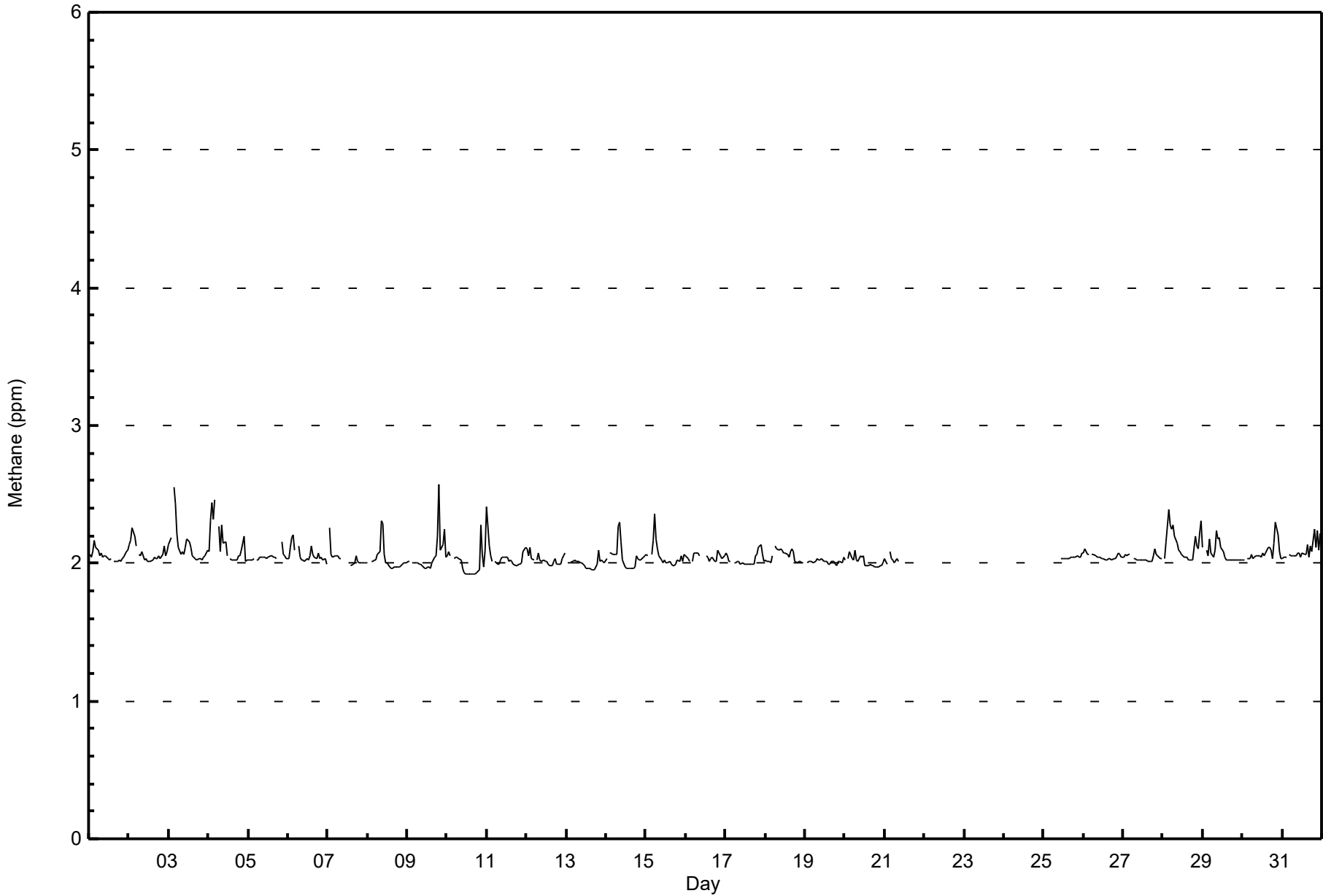






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	377	61.90	61.90
2.1 - 3.0	232	38.10	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 609

Total Number of Hours: 744



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

**Methane (CH<sub>4</sub>) - ppm**  
**Mannix - May 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	37	65	10	11	7	18	73	38	6	11	24	18	15	24	8	12	377
2.1 - 3.0	28	18	12	18	8	5	36	12	3	3	6	5	2	30	21	25	232
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	65	83	22	29	15	23	109	50	9	14	30	23	17	54	29	37	609

Total Number of Valid Hours: 609

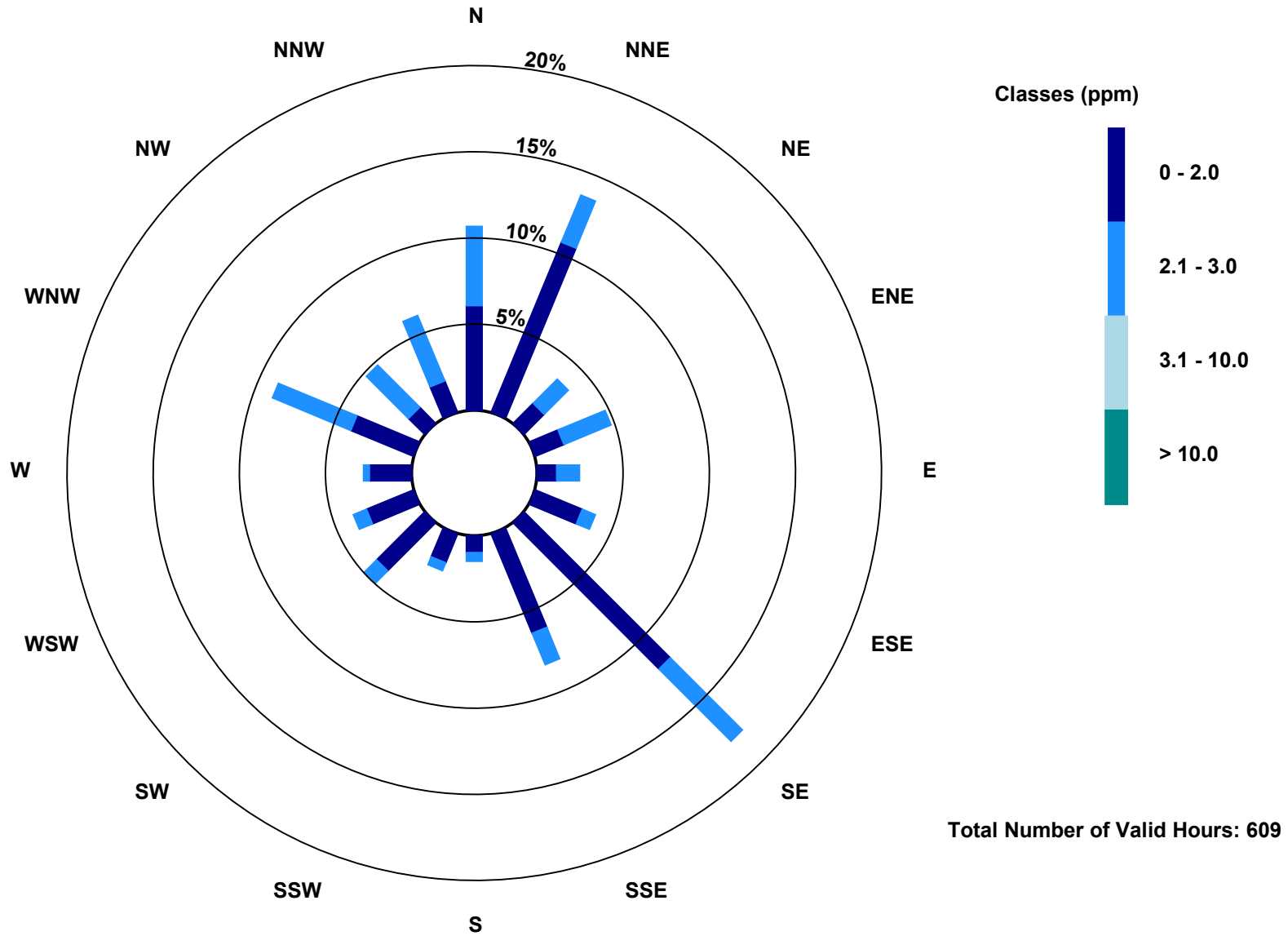
Total Number of Hours: 744

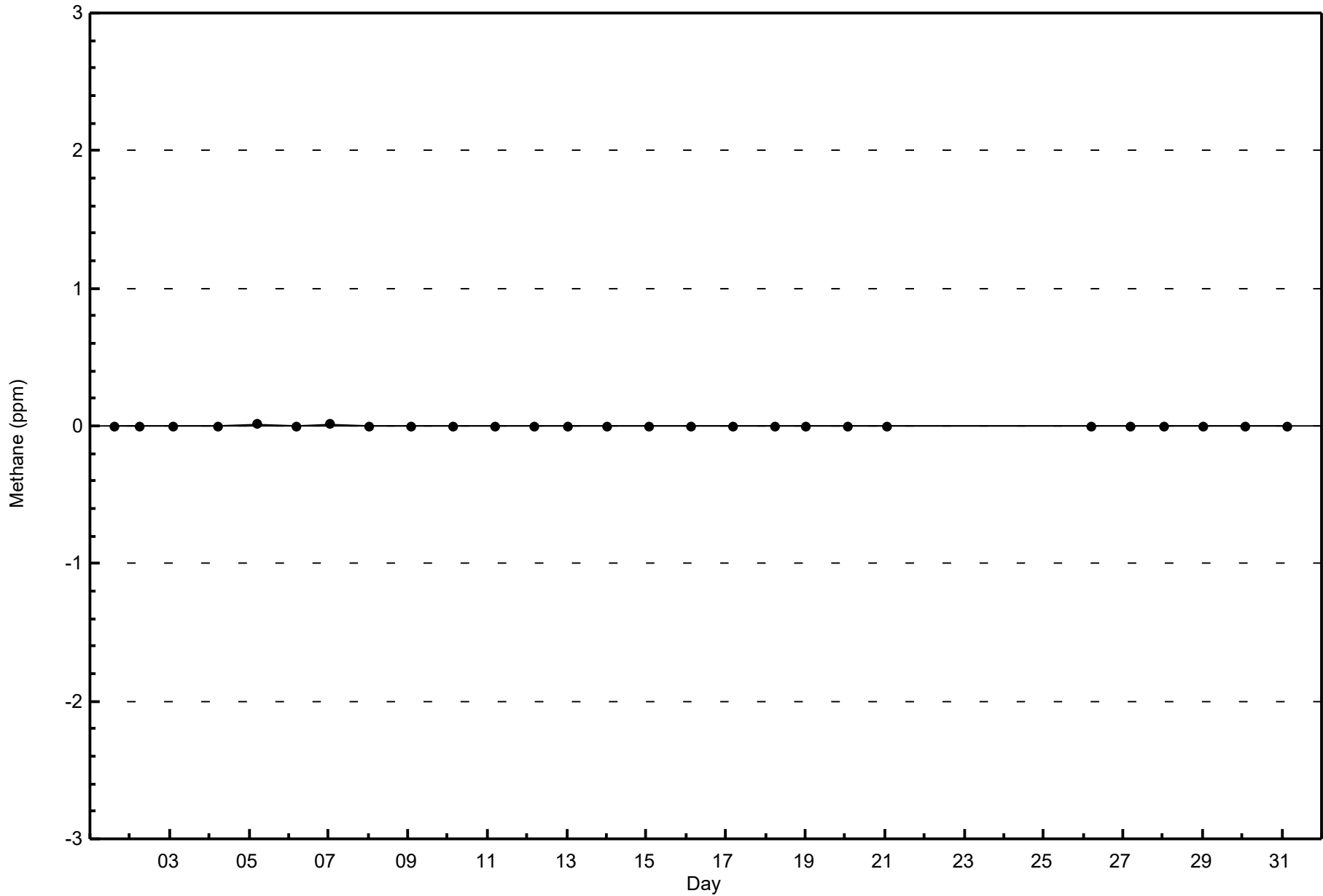


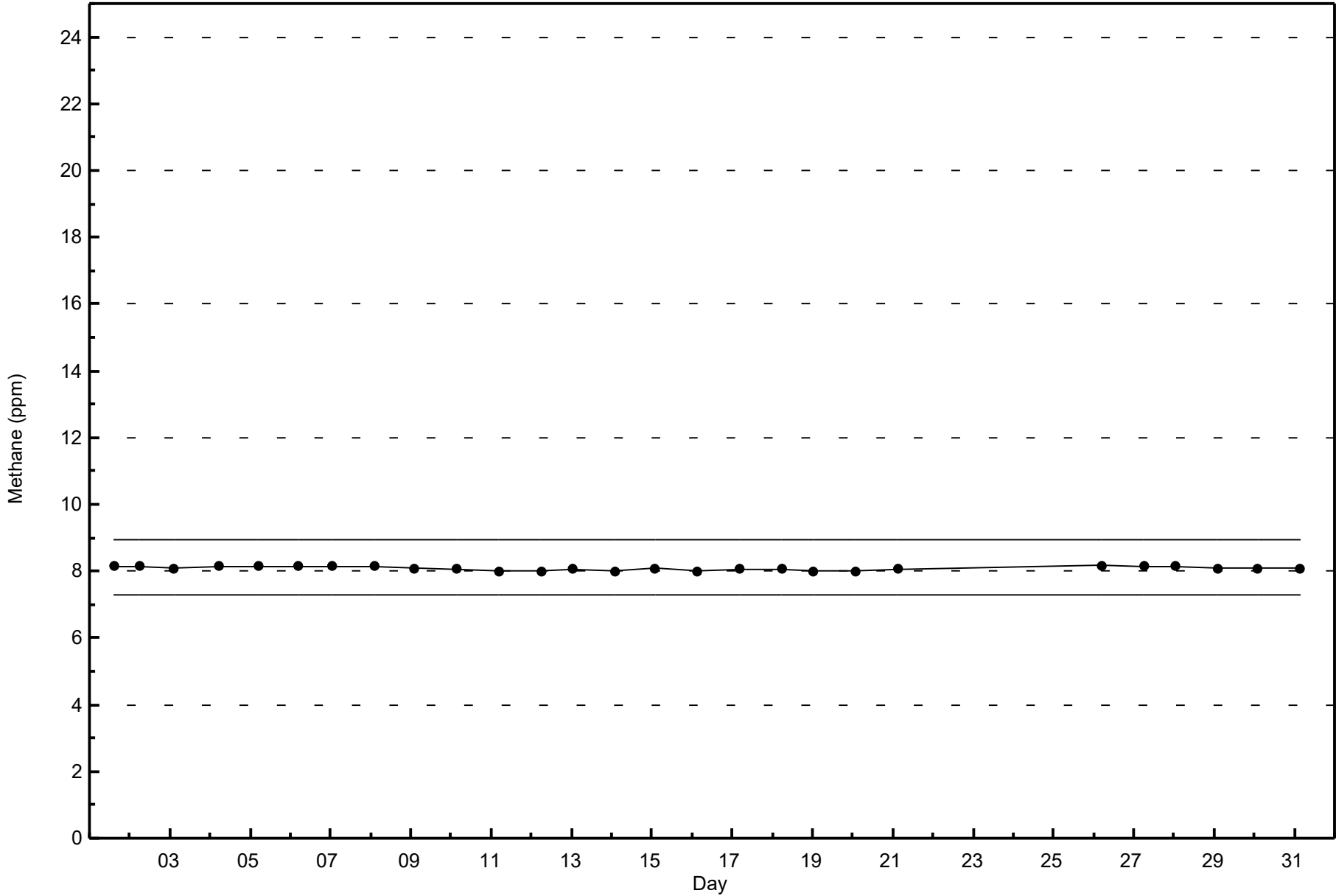


Wood Buffalo Environmental Association  
Wind Rose May 2024

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

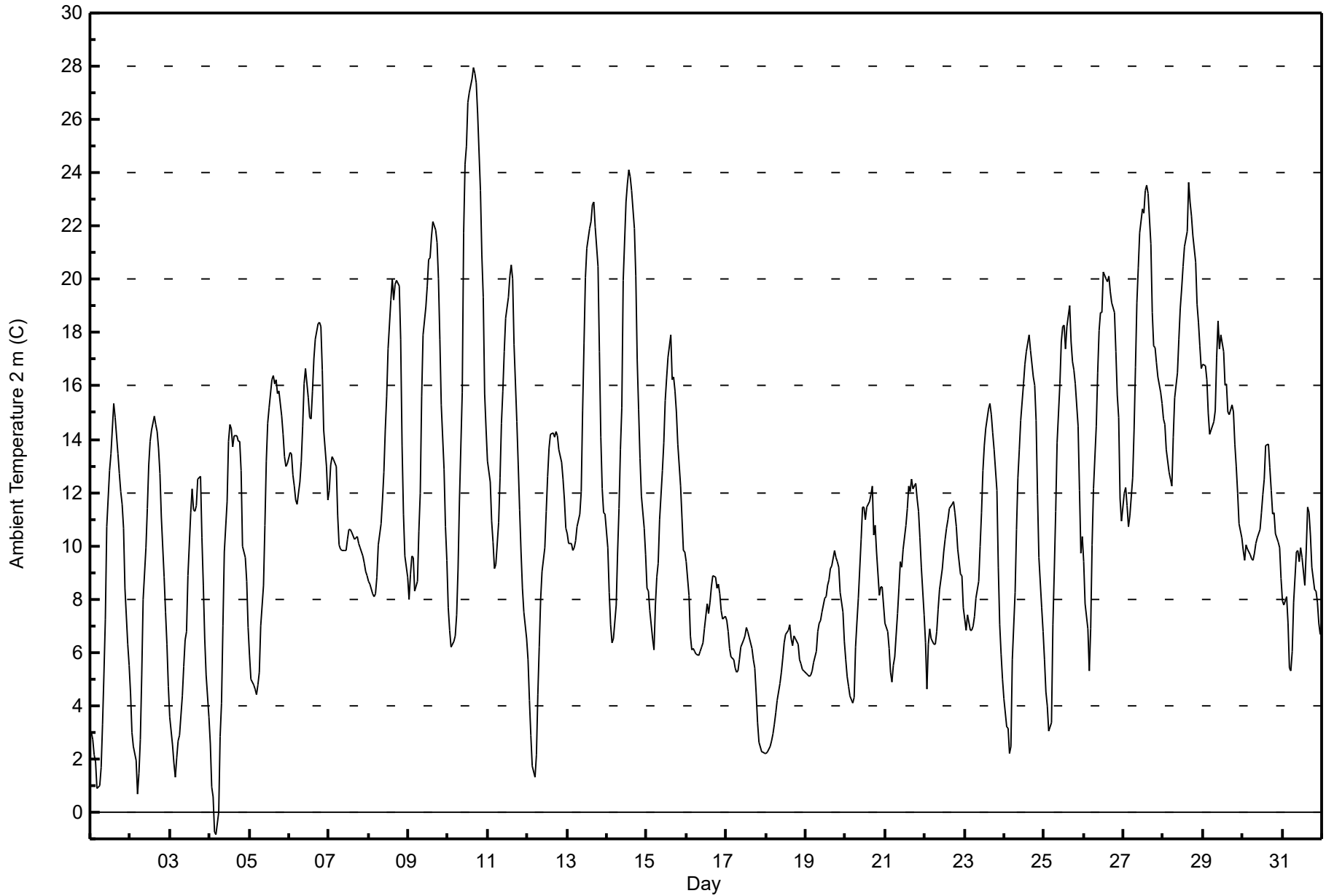








Maximum Value: 27.9 C on May 10 16:00		Maximum Daily Average: 18.0 C on May 10		Hours in Service: 744																							
Minimum Value: -0.8 C on May 4 05:00		Minimum Daily Average: 5.0 C on May 18		Hours of Data: 744																							
Maximum Diurnal Average: 15.8 C at hour 16		Minimum Diurnal Average: 6.3 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 11.26 C		Percentiles: P <sub>1</sub> = 1.1 P <sub>10</sub> = 5.0 Q <sub>1</sub> = 7.1 Median = 10.6 Q <sub>3</sub> = 14.7 P <sub>90</sub> = 18.9 P <sub>99</sub> = 24.7		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-May	3.0	2.7	2.1	1.9	0.9	1.0	1.7	3.3	5.2	7.2	10.7	12.8	13.4	14.4	15.3	14.8	13.5	12.7	12.0	11.5	10.7	8.4	6.3	5.5	8.0	15.3	
2-May	4.4	3.0	2.5	2.0	0.7	1.5	2.7	5.1	8.0	9.9	11.4	13.1	13.9	14.4	14.8	14.5	14.3	13.7	12.7	11.1	8.8	7.5	6.3	4.7	8.4	14.8	
3-May	3.6	2.5	1.9	1.3	2.0	2.7	2.9	4.3	5.4	6.4	6.8	8.9	11.2	12.1	11.3	11.3	11.5	12.5	12.6	10.3	8.5	6.5	5.2	3.6	6.9	12.6	
4-May	2.6	0.9	0.6	-0.7	-0.8	0.0	2.8	4.1	7.0	9.8	11.7	13.9	14.5	14.4	13.7	14.1	14.1	13.9	13.9	12.8	10.0	9.6	8.7	7.0	8.3	14.5	
5-May	5.9	5.0	4.8	4.6	4.4	4.8	5.2	7.0	8.5	10.8	13.2	14.6	15.2	16.2	16.4	16.1	16.2	15.7	15.8	14.9	14.2	13.3	13.0	13.1	11.2	16.4	
6-May	13.5	13.5	12.6	12.3	11.7	11.5	12.4	13.2	14.5	16.1	16.6	15.6	14.8	14.8	15.8	17.0	17.8	18.3	18.4	18.3	16.6	14.3	13.0	11.7	14.8	18.4	
7-May	12.1	13.0	13.3	13.2	13.0	11.1	10.0	9.9	9.8	9.8	10.2	10.6	10.6	10.6	10.5	10.2	10.3	10.4	10.1	9.9	9.6	9.4	9.1	8.9	10.6	13.3	
8-May	8.7	8.6	8.2	8.1	8.2	8.8	10.0	10.8	11.7	12.8	14.3	15.6	17.4	19.2	20.0	19.2	19.8	20.0	19.7	17.7	13.8	11.2	9.6	8.8	13.4	20.0	
9-May	8.0	8.9	9.6	9.6	8.3	8.7	10.6	12.0	15.6	17.9	19.0	19.7	20.8	20.8	21.6	22.2	21.9	21.4	20.0	17.8	15.3	12.9	10.7	9.5	15.1	22.2	
10-May	7.7	6.8	6.2	6.4	6.6	7.4	9.2	11.7	15.8	21.7	24.3	25.0	26.6	27.0	27.6	27.9	27.8	27.4	26.2	23.3	20.9	19.3	15.7	14.4	18.0	27.9	
11-May	13.2	12.4	10.9	10.2	9.2	9.3	10.9	12.6	14.6	15.8	17.3	18.6	19.3	20.1	20.6	20.0	17.6	14.6	13.0	11.4	9.8	8.4	7.5	6.5	13.5	20.6	
12-May	5.7	4.2	2.9	1.7	1.3	2.1	4.4	6.2	8.0	9.0	9.9	11.3	12.6	13.6	14.2	14.3	14.1	14.3	14.2	13.6	13.1	12.5	11.7	10.7	9.4	14.3	
13-May	10.5	10.1	10.1	9.8	9.9	10.2	10.7	11.2	12.1	15.1	17.6	20.1	21.2	21.9	22.2	22.8	22.9	22.0	20.5	17.3	14.1	12.1	11.2	11.2	15.3	22.9	
14-May	9.9	8.3	7.0	6.4	6.5	7.8	9.8	11.4	13.6	15.2	20.0	22.9	23.6	24.1	23.8	23.3	21.9	20.1	17.0	15.1	13.3	11.9	10.7	9.7	14.7	24.1	
15-May	8.4	8.3	7.6	6.5	6.1	7.8	8.8	9.3	11.0	12.8	13.8	15.4	16.3	17.1	17.9	16.2	16.3	15.8	15.0	13.8	12.3	11.0	9.8	9.8	12.0	17.9	
16-May	9.4	8.1	6.6	6.1	6.1	6.1	5.9	5.9	6.1	6.2	6.4	6.9	7.8	7.5	7.9	8.4	8.9	8.8	8.4	8.6	8.2	7.6	7.3	7.3	7.3	9.4	
17-May	7.2	6.8	6.2	5.8	5.7	5.4	5.3	5.3	5.7	6.2	6.4	6.6	6.9	6.8	6.6	6.2	5.7	5.4	4.5	3.4	2.6	2.3	2.2	2.2	5.3	7.2	
18-May	2.2	2.2	2.4	2.7	3.0	3.3	3.7	4.2	4.8	5.3	5.8	6.4	6.7	6.8	7.0	6.5	6.3	6.6	6.5	6.3	5.7	5.6	5.4	5.3	5.0	7.0	
19-May	5.2	5.2	5.1	5.2	5.3	5.6	6.0	6.8	7.1	7.2	7.5	8.0	8.1	8.5	8.7	9.1	9.2	9.8	9.6	9.4	9.2	8.2	7.5	6.4	7.4	9.8	
20-May	5.7	5.1	4.7	4.4	4.1	4.3	6.2	7.2	8.0	10.2	11.4	11.4	11.0	11.4	11.7	11.9	12.2	10.4	10.8	9.8	8.1	8.5	8.5	7.8	8.5	12.2	
21-May	7.1	6.8	6.2	5.3	4.9	5.5	5.8	7.4	8.4	9.4	9.2	9.9	10.8	11.4	12.2	12.0	12.5	12.1	12.4	11.7	11.3	10.3	9.2	7.4	9.1	12.5	
22-May	6.4	4.6	6.3	6.9	6.5	6.3	6.3	6.8	7.6	8.4	9.1	9.7	10.3	10.7	11.0	11.4	11.6	11.7	11.2	10.7	9.9	8.9	8.9	7.7	8.7	11.7	
23-May	7.3	6.9	7.4	6.8	6.8	7.0	7.3	8.0	8.7	10.0	11.3	12.8	13.8	14.4	15.1	15.4	14.9	14.3	13.6	12.1	9.2	7.0	5.9	5.0	10.0	15.4	
24-May	4.2	3.2	3.1	2.2	2.4	5.7	8.2	10.6	12.5	13.6	14.7	16.1	16.8	17.3	17.6	17.9	17.4	16.3	16.0	14.7	11.9	9.6	7.7	6.8	11.1	17.9	
25-May	5.7	4.5	4.0	3.1	3.4	7.1	9.1	11.3	13.9	16.1	17.6	18.2	18.3	17.4	18.3	19.0	17.6	16.9	16.6	16.1	14.5	12.1	9.7	10.3	12.5	19.0	
26-May	9.4	7.8	6.9	5.3	6.9	10.1	12.1	14.5	16.5	18.1	18.8	18.7	20.3	20.0	19.9	20.1	19.5	19.1	18.7	17.3	15.7	14.8	11.8	10.9	14.7	20.3	
27-May	12.0	12.2	11.5	10.7	11.1	12.6	14.4	16.7	19.1	20.4	21.8	22.6	22.5	23.3	23.5	23.2	21.3	18.7	17.5	17.4	16.8	16.3	15.8	15.4	17.4	23.5	
28-May	14.8	14.5	13.6	12.8	12.5	12.3	14.1	15.6	16.5	17.8	18.9	19.6	20.5	21.2	21.8	23.6	22.9	22.4	21.7	20.7	19.1	18.4	17.5	16.7	17.9	23.6	
29-May	16.8	16.7	16.2	15.0	14.2	14.4	14.6	15.1	17.1	18.4	17.4	17.9	17.3	16.0	16.1	15.0	14.9	15.3	15.0	13.8	13.0	12.0	10.8	10.3	15.1	18.4	
30-May	9.8	9.5	10.0	9.9	9.7	9.5	9.5	9.7	10.1	10.3	10.6	11.2	11.9	12.5	13.8	13.8	12.9	12.1	11.2	11.2	10.4	10.1	9.9	8.8	10.8	13.8	
31-May	7.9	7.8	8.1	7.1	5.4	5.3	6.0	7.9	9.8	9.8	9.4	9.9	9.6	8.5	9.8	11.4	11.2	10.4	9.2	8.4	8.3	7.9	7.1	6.7	8.5	11.4	
		8.0	7.4	7.1	6.5	6.3	6.9	8.0	9.2	10.7	12.2	13.3	14.3	15.0	15.3	15.7	15.8	15.5	14.9	14.3	13.2	11.8	10.6	9.5	8.7	Diurnal Average	
		16.8	16.7	16.2	15.0	14.2	14.4	14.6	16.7	19.1	21.7	24.3	25.0	26.6	27.0	27.6	27.9	27.8	27.4	26.2	23.3	20.9	19.3	17.5	16.7	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2 m (AT2m) - C  
Mannix - May 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	2	0.27	0.27
0 - 10	339	45.56	45.83
10 - 20	346	46.51	92.34
> 20	57	7.66	100.00

Total Number of Valid Hours: 744

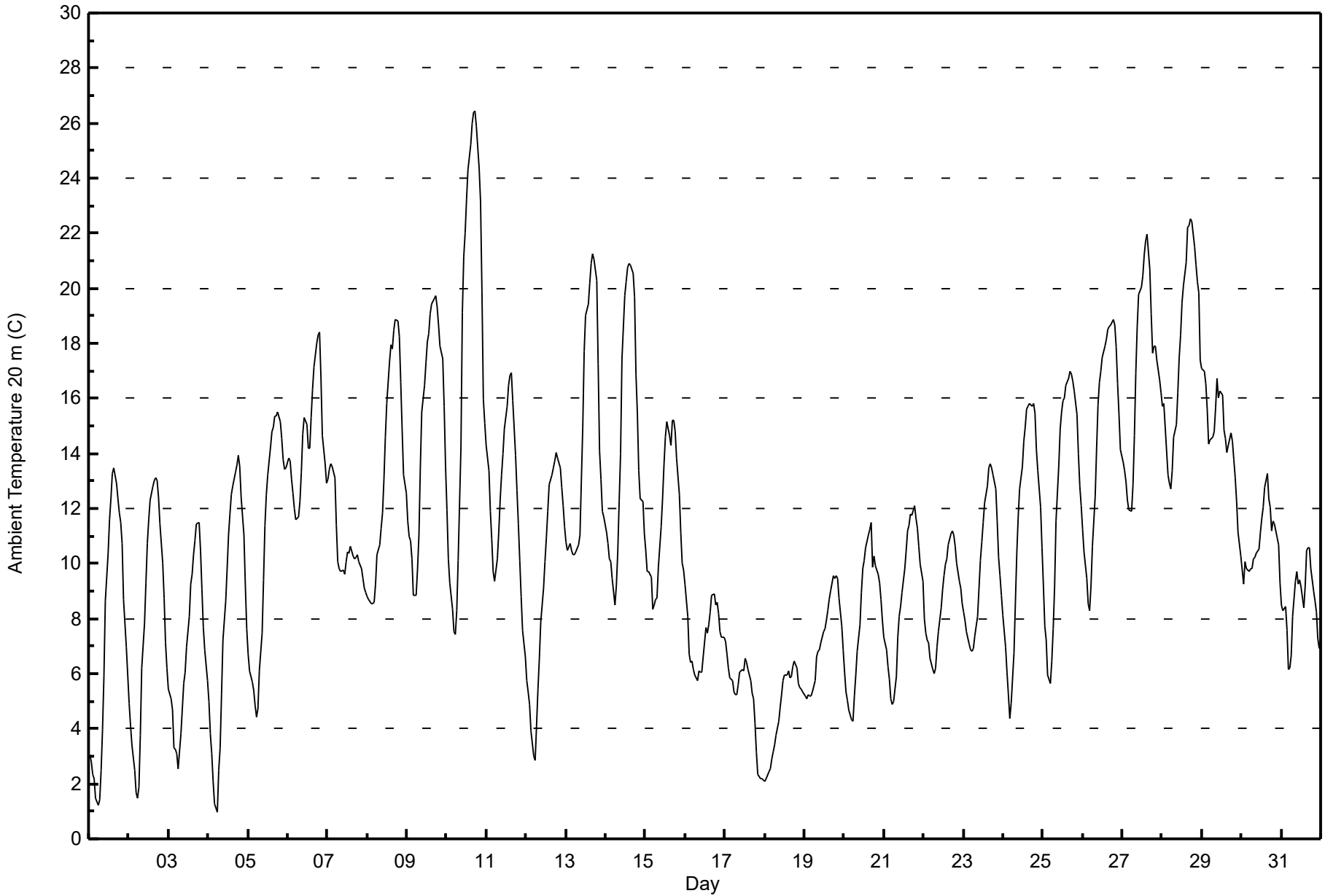
Total Number of Hours: 744



Summary of Hour Averages

Mannix - May 2024

Maximum Value: 26.4 C on May 10 18:00		Maximum Daily Average: 17.9 C on May 28		Hours in Service: 744																							
Minimum Value: 1.0 C on May 4 06:00		Minimum Daily Average: 4.7 C on May 18		Hours of Data: 744																							
Maximum Diurnal Average: 14.6 C at hour 17		Minimum Diurnal Average: 7.0 C at hour 6		Hours of Missing Data: 0																							
Monthly Average: 11.06 C		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 5.2 Q <sub>1</sub> = 7.5 Median = 10.5 Q <sub>3</sub> = 14.1 P <sub>90</sub> = 17.8 P <sub>99</sub> = 23.2		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-May	3.0	2.8	2.3	2.2	1.5	1.2	1.4	2.5	4.0	5.9	8.6	10.4	11.6	12.4	13.3	13.5	12.9	12.4	11.8	11.5	10.7	8.7	7.0	6.0	7.4	13.5	
2-May	4.9	4.1	3.4	2.5	1.7	1.5	1.9	3.8	6.2	7.9	9.3	10.7	11.6	12.3	12.8	13.0	13.1	13.0	12.4	11.4	10.0	8.8	7.1	6.2	7.9	13.1	
3-May	5.4	5.1	4.7	3.3	3.3	3.1	2.5	3.8	4.7	5.6	6.0	6.9	8.1	9.2	9.6	10.3	10.8	11.4	11.5	10.5	9.1	7.7	6.9	5.7	6.9	11.5	
4-May	5.0	3.8	3.1	2.1	1.2	1.0	2.5	3.3	5.2	7.2	8.6	9.8	11.0	11.8	12.5	12.8	13.3	13.6	14.0	13.5	12.4	11.0	9.2	7.6	8.1	14.0	
5-May	6.7	6.1	5.7	5.4	4.8	4.4	4.7	6.1	7.4	9.4	11.4	12.5	13.2	14.2	14.8	15.0	15.4	15.4	15.5	15.2	14.5	13.8	13.4	13.5	10.8	15.5	
6-May	13.8	13.7	13.1	12.6	12.0	11.6	11.7	12.2	13.3	14.7	15.3	15.0	14.2	14.2	15.3	16.3	17.1	18.0	18.3	18.4	16.8	14.6	13.6	12.9	14.5	18.4	
7-May	13.1	13.4	13.6	13.5	13.1	11.4	10.1	9.8	9.7	9.8	9.6	10.1	10.4	10.4	10.6	10.3	10.1	10.2	10.3	10.1	9.8	9.4	9.1	8.9	10.7	13.6	
8-May	8.8	8.7	8.5	8.6	8.6	9.3	10.3	10.7	11.3	11.9	13.1	14.6	15.8	17.4	17.9	17.8	18.5	18.8	18.8	18.3	16.6	14.8	13.2	12.5	13.5	18.8	
9-May	11.5	11.0	10.8	10.2	8.9	8.9	9.8	11.0	13.5	15.5	16.5	17.3	18.0	18.3	19.0	19.4	19.6	19.7	19.3	18.6	17.9	17.4	15.7	13.5	15.1	19.7	
10-May	11.9	10.1	9.3	8.3	7.5	7.4	8.3	10.1	14.2	19.1	21.2	22.0	23.3	24.3	25.2	26.0	26.4	26.4	25.9	24.4	23.1	19.9	16.0	15.1	17.7	26.4	
11-May	14.3	13.4	11.9	10.9	9.7	9.3	10.2	11.1	12.3	13.2	14.0	14.9	15.7	16.5	16.8	17.0	15.9	14.0	12.7	11.4	10.1	8.8	7.6	6.6	12.4	17.0	
12-May	5.8	5.3	4.9	3.9	3.0	2.9	4.1	5.5	6.6	7.9	9.1	10.1	10.9	11.9	12.8	13.2	13.5	13.7	14.1	13.8	13.5	12.8	12.1	11.4	9.3	14.1	
13-May	10.8	10.5	10.7	10.5	10.3	10.3	10.4	10.7	11.0	13.0	15.0	17.7	19.0	19.4	20.2	20.9	21.3	21.1	20.3	17.2	14.1	13.1	11.9	11.7	14.6	21.3	
14-May	11.1	10.7	10.2	10.1	9.4	8.5	9.2	10.4	12.3	14.0	17.4	19.7	20.2	20.8	20.9	20.9	20.5	19.7	16.9	15.5	13.4	12.3	12.3	11.1	14.5	20.9	
15-May	10.5	9.7	9.7	9.5	8.4	8.5	8.7	8.7	9.9	11.4	12.3	13.6	14.6	15.2	14.6	14.3	15.2	15.2	14.8	13.9	12.5	11.1	10.0	9.8	11.7	15.2	
16-May	9.3	8.1	6.7	6.4	6.5	6.2	6.0	5.7	6.1	6.0	6.1	6.6	7.7	7.5	7.8	8.2	8.8	8.9	8.5	8.6	8.2	7.5	7.3	7.3	7.3	9.3	
17-May	7.2	6.7	6.2	5.8	5.8	5.4	5.2	5.2	5.6	6.0	6.2	6.1	6.6	6.4	6.1	5.7	5.3	5.1	4.2	3.1	2.4	2.2	2.2	2.1	5.1	7.2	
18-May	2.1	2.2	2.4	2.6	2.9	3.2	3.4	3.8	4.3	4.8	5.3	5.7	6.0	6.0	6.1	5.8	5.9	6.3	6.5	6.2	5.6	5.5	5.4	5.4	4.7	6.5	
19-May	5.2	5.1	5.3	5.2	5.2	5.4	5.8	6.6	6.8	6.8	7.1	7.5	7.6	7.9	8.3	8.7	9.0	9.6	9.5	9.5	9.5	8.7	7.7	6.9	7.3	9.6	
20-May	6.1	5.3	5.1	4.7	4.3	4.3	5.2	6.0	6.8	7.8	8.9	9.8	10.1	10.6	11.0	11.3	11.5	9.9	10.3	9.9	9.6	9.3	8.7	7.9	8.1	11.5	
21-May	7.3	6.8	6.3	5.8	5.1	4.9	5.0	5.9	7.3	8.1	8.4	9.0	9.8	10.5	11.2	11.4	11.8	11.7	12.1	11.7	11.3	10.6	10.0	9.4	8.8	12.1	
22-May	8.0	7.5	7.2	7.1	6.5	6.1	6.0	6.2	7.0	7.5	8.4	9.1	9.6	9.9	10.2	10.7	11.1	11.2	11.0	10.6	10.0	9.4	9.1	8.5	8.7	11.2	
23-May	8.2	7.9	7.5	7.0	6.9	6.8	6.9	7.4	8.1	9.1	10.1	10.8	11.5	12.2	12.8	13.5	13.6	13.5	13.2	12.7	11.6	10.2	9.6	8.8	10.0	13.6	
24-May	8.2	6.9	6.0	5.2	4.4	4.9	6.8	8.6	10.4	11.7	12.7	13.5	14.5	15.0	15.6	15.7	15.8	15.7	15.8	15.5	14.1	13.4	12.1	10.6	11.4	15.8	
25-May	9.2	7.7	7.2	6.0	5.6	6.5	7.6	9.2	11.5	13.6	14.9	15.5	15.9	16.0	16.4	16.8	17.0	16.9	16.7	16.3	15.4	14.0	12.8	12.1	12.5	17.0	
26-May	11.3	10.4	9.4	8.5	8.3	9.2	10.6	12.5	14.2	15.8	16.6	17.0	17.5	17.9	18.1	18.5	18.6	18.6	18.9	18.7	17.8	16.5	15.4	14.2	14.8	18.9	
27-May	13.7	13.4	13.0	12.3	12.0	11.9	12.9	14.7	16.9	18.6	19.8	20.0	20.5	21.2	21.7	22.0	20.7	19.0	17.7	17.9	17.9	17.4	16.7	16.2	17.0	22.0	
28-May	15.7	15.8	15.0	13.2	12.9	12.7	13.4	14.6	15.1	16.2	17.5	18.3	19.5	20.1	20.9	22.2	22.3	22.5	22.4	21.5	20.8	20.2	19.9	17.4	17.9	22.5	
29-May	17.1	17.0	16.5	15.6	14.3	14.5	14.6	14.8	15.7	16.7	16.0	16.3	16.1	14.8	14.5	14.0	14.3	14.7	14.4	13.8	13.1	12.2	11.2	10.3	14.7	17.1	
30-May	9.7	9.3	10.1	9.8	9.7	9.8	9.8	10.1	10.2	10.4	10.5	11.1	11.7	12.0	12.8	13.3	12.4	12.1	11.2	11.6	11.5	10.9	10.7	9.3	10.8	13.3	
31-May	8.5	8.3	8.5	7.6	6.1	6.2	6.7	8.1	9.3	9.7	9.3	9.4	9.1	8.4	9.2	10.5	10.6	10.6	9.8	9.0	8.6	8.3	7.3	6.9	8.6	10.6	
		9.1	8.6	8.2	7.6	7.1	7.0	7.5	8.4	9.6	10.8	11.8	12.6	13.3	13.7	14.2	14.5	14.6	14.5	14.1	13.6	12.6	11.6	10.7	9.9	Diurnal Average	
		17.1	17.0	16.5	15.6	14.3	14.5	14.6	14.8	16.9	19.1	21.2	22.0	23.3	24.3	25.2	26.0	26.4	26.4	25.9	24.4	23.1	20.2	19.9	17.4	Diurnal Maximum	







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 20 m (AT20m) - C  
Mannix - May 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	0	0.00	0.00
0 - 10	327	43.95	43.95
10 - 20	381	51.21	95.16
> 20	36	4.84	100.00

Total Number of Valid Hours: 744

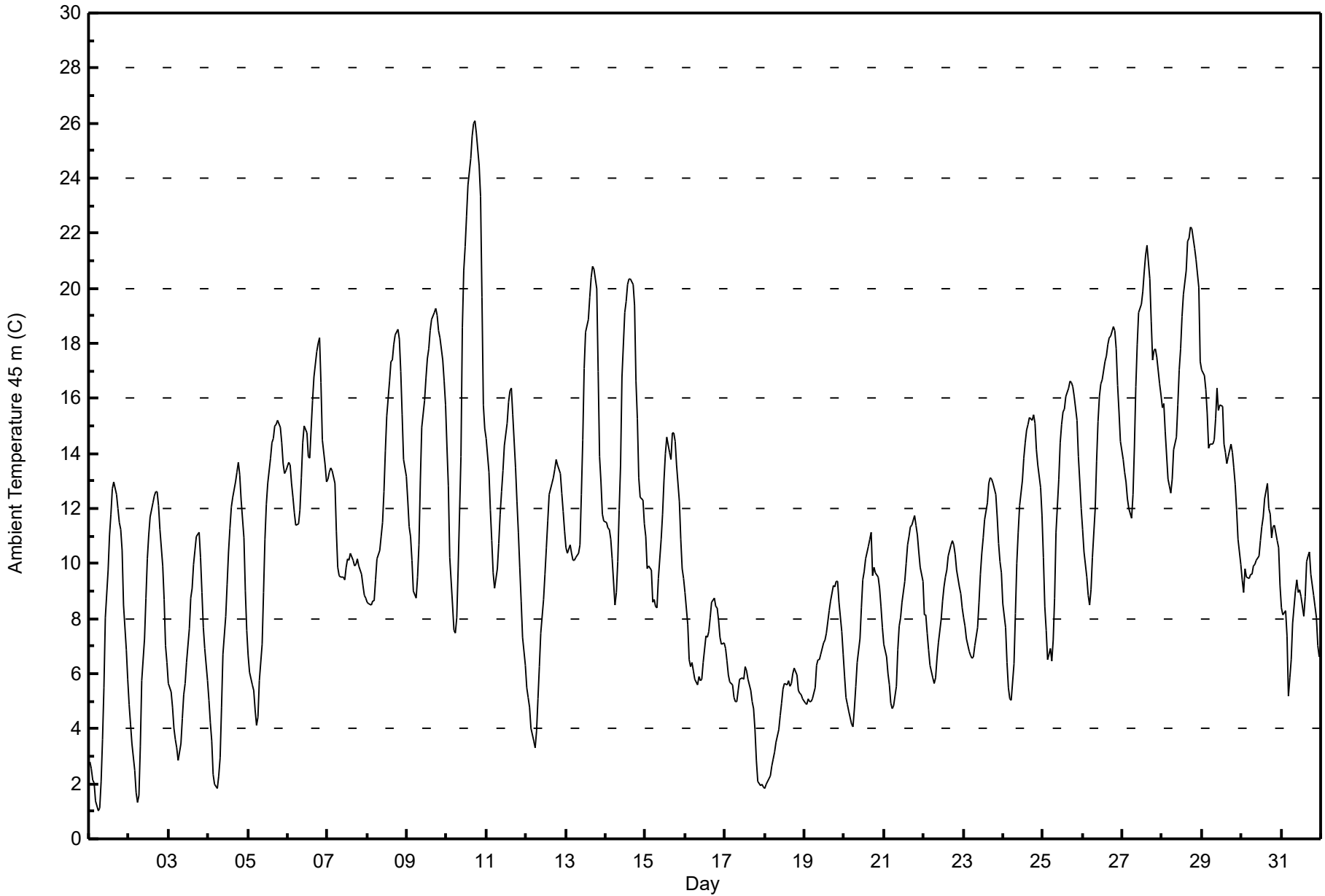
Total Number of Hours: 744



Summary of Hour Averages

Mannix - May 2024

Maximum Value: 26.1 C on May 10 18:00		Maximum Daily Average: 17.7 C on May 10		Hours in Service: 744																																												
Minimum Value: 1.0 C on May 1 06:00		Minimum Daily Average: 4.4 C on May 18		Hours of Data: 744																																												
Maximum Diurnal Average: 14.2 C at hour 17		Minimum Diurnal Average: 6.9 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 10.84 C		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 5.0 Q <sub>1</sub> = 7.3 Median = 10.4 Q <sub>3</sub> = 13.8 P <sub>90</sub> = 17.4 P <sub>99</sub> = 23.0		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-May	2.8	2.6	2.1	2.1	1.4	1.0	1.1	2.1	3.6	5.5	8.1	9.8	11.0	11.8	12.7	13.0	12.5	12.0	11.5	11.3	10.5	8.5	6.9	5.8	7.1	13.0																						
2-May	4.9	4.2	3.5	2.5	1.7	1.3	1.6	3.4	5.7	7.3	8.7	10.1	11.0	11.7	12.2	12.4	12.6	12.6	12.1	11.2	9.9	8.7	7.0	6.4	7.6	12.6																						
3-May	5.6	5.3	4.8	4.0	3.6	3.3	2.8	3.5	4.3	5.2	5.7	6.4	7.6	8.8	9.1	9.9	10.5	11.0	11.1	10.2	9.0	7.7	6.9	5.7	6.8	11.1																						
4-May	5.0	4.2	3.6	2.3	2.0	1.8	2.3	3.0	4.8	6.7	8.1	9.2	10.4	11.3	12.1	12.4	12.9	13.3	13.7	13.2	12.3	10.9	9.0	7.6	8.0	13.7																						
5-May	6.6	6.0	5.6	5.4	4.7	4.1	4.4	5.8	7.1	8.9	10.9	12.1	12.9	13.8	14.4	14.6	15.0	15.0	15.2	14.9	14.4	13.6	13.3	13.4	10.5	15.2																						
6-May	13.7	13.6	12.9	12.4	11.8	11.4	11.4	11.9	13.1	14.4	15.0	14.7	13.9	13.8	14.9	15.9	16.8	17.7	18.0	18.2	16.6	14.5	13.6	12.9	14.3	18.2																						
7-May	13.1	13.3	13.5	13.4	12.9	11.2	9.9	9.6	9.5	9.5	9.4	9.9	10.2	10.1	10.4	10.1	9.9	10.0	10.2	9.9	9.6	9.2	8.9	8.7	10.5	13.5																						
8-May	8.6	8.6	8.5	8.7	8.7	9.4	10.2	10.5	11.0	11.5	12.6	14.1	15.4	16.6	17.3	17.4	18.0	18.3	18.5	18.2	17.0	15.4	13.8	13.2	13.4	18.5																						
9-May	12.3	11.3	11.0	10.1	9.0	8.8	9.5	10.7	13.0	15.0	15.9	16.7	17.5	17.8	18.5	18.9	19.1	19.3	19.0	18.5	18.2	17.4	16.6	15.8	15.0	19.3																						
10-May	14.2	12.8	10.2	8.5	7.6	7.5	8.0	9.8	13.9	18.6	20.6	21.5	22.6	23.7	24.7	25.5	26.0	26.1	25.6	24.5	23.3	19.7	15.8	14.9	17.7	26.1																						
11-May	14.5	13.3	12.0	10.9	9.7	9.1	9.8	10.7	11.8	12.6	13.4	14.3	15.1	15.8	16.2	16.4	15.4	13.5	12.3	11.1	9.9	8.6	7.3	6.3	12.1	16.4																						
12-May	5.5	5.1	4.8	4.0	3.6	3.3	3.9	5.1	6.2	7.5	8.7	9.6	10.6	11.6	12.5	12.9	13.1	13.4	13.8	13.6	13.2	12.6	11.9	11.2	9.1	13.8																						
13-May	10.6	10.4	10.7	10.4	10.1	10.1	10.2	10.4	10.7	12.5	14.5	17.1	18.4	18.9	19.7	20.4	20.8	20.7	20.0	17.0	13.9	12.9	11.8	11.5	14.3	20.8																						
14-May	11.5	11.3	11.3	10.9	10.1	8.5	8.9	10.0	11.9	13.6	16.8	19.1	19.5	20.2	20.3	20.3	20.1	19.4	16.6	15.2	13.1	12.4	12.3	11.4	14.4	20.3																						
15-May	11.0	9.8	9.9	9.8	8.6	8.7	8.5	8.4	9.5	10.9	11.8	13.0	14.0	14.6	14.1	13.8	14.8	14.8	14.4	13.6	12.3	10.9	9.8	9.5	11.5	14.8																						
16-May	8.9	7.8	6.5	6.3	6.4	6.1	5.8	5.6	5.9	5.7	5.8	6.4	7.4	7.3	7.5	8.0	8.6	8.7	8.4	8.4	7.9	7.3	7.1	7.1	7.1	8.9																						
17-May	6.9	6.5	6.0	5.7	5.6	5.1	5.0	5.0	5.4	5.8	5.9	5.8	6.2	6.1	5.8	5.4	5.0	4.8	4.0	2.9	2.1	1.9	2.0	1.9	4.9	6.9																						
18-May	1.8	2.0	2.2	2.3	2.7	2.9	3.1	3.5	4.0	4.5	4.9	5.4	5.6	5.6	5.7	5.5	5.6	6.0	6.2	5.9	5.4	5.3	5.2	5.1	4.4	6.2																						
19-May	4.9	4.9	5.1	5.0	5.0	5.1	5.5	6.3	6.5	6.5	6.7	7.1	7.2	7.5	7.9	8.3	8.6	9.2	9.2	9.3	9.3	8.6	7.5	6.7	7.0	9.3																						
20-May	5.9	5.1	4.9	4.6	4.2	4.1	4.8	5.5	6.4	7.3	8.4	9.4	9.7	10.2	10.6	10.9	11.1	9.6	9.9	9.7	9.5	9.1	8.5	7.7	7.8	11.1																						
21-May	7.1	6.6	6.0	5.6	4.9	4.7	4.8	5.5	6.9	7.7	8.0	8.6	9.4	10.0	10.7	11.0	11.4	11.4	11.7	11.4	11.0	10.4	9.9	9.3	8.5	11.7																						
22-May	8.1	8.1	7.5	6.9	6.3	5.8	5.7	5.8	6.5	7.1	8.0	8.6	9.1	9.5	9.7	10.2	10.7	10.8	10.7	10.3	9.8	9.2	8.9	8.4	8.4	10.8																						
23-May	8.0	7.7	7.3	6.8	6.6	6.6	6.6	7.0	7.7	8.6	9.6	10.4	10.9	11.6	12.2	12.9	13.1	13.1	12.9	12.5	11.7	10.7	10.0	9.7	9.8	13.1																						
24-May	8.5	7.7	6.4	5.5	5.1	5.0	6.4	8.2	10.0	11.1	12.1	13.0	13.8	14.4	14.8	15.1	15.3	15.2	15.4	15.1	14.1	13.6	12.7	11.7	11.3	15.4																						
25-May	10.2	8.4	7.6	6.5	6.9	6.5	7.2	8.7	11.1	13.0	14.4	15.1	15.5	15.6	16.1	16.4	16.6	16.6	16.4	16.1	15.2	13.9	13.0	12.0	12.5	16.6																						
26-May	11.2	10.4	9.5	8.9	8.5	9.0	10.2	12.0	13.7	15.1	16.1	16.5	16.7	17.3	17.6	17.9	18.2	18.3	18.6	18.5	17.8	16.5	15.5	14.5	14.5	18.6																						
27-May	13.8	13.3	13.0	12.4	12.0	11.6	12.5	14.2	16.4	18.0	19.1	19.4	19.9	20.6	21.2	21.6	20.3	18.8	17.4	17.7	17.8	17.5	16.5	16.1	16.7	21.6																						
28-May	15.7	15.8	14.8	13.1	12.8	12.5	13.1	14.1	14.6	15.7	17.0	17.8	19.0	19.8	20.6	21.7	21.8	22.2	22.2	21.5	21.1	20.5	20.1	17.3	17.7	22.2																						
29-May	17.0	16.8	16.3	15.4	14.2	14.3	14.3	14.5	15.2	16.4	15.6	15.8	15.7	14.4	14.0	13.6	13.9	14.4	14.1	13.5	12.9	12.0	10.9	10.0	14.4	17.0																						
30-May	9.4	9.0	9.8	9.5	9.5	9.6	9.6	9.9	10.0	10.1	10.2	10.9	11.3	11.7	12.3	12.9	12.0	11.8	10.9	11.3	11.4	10.8	10.6	9.2	10.6	12.9																						
31-May	8.4	8.2	8.3	7.4	5.2	5.8	6.5	7.8	9.0	9.4	9.0	9.0	8.8	8.1	8.8	10.1	10.3	10.4	9.6	8.8	8.4	8.0	7.0	6.6	8.3	10.4																						
																								9.2	8.7	8.2	7.6	7.1	6.9	7.2	8.0	9.2	10.4	11.3	12.2	12.8	13.2	13.7	14.0	14.2	14.1	13.9	13.3	12.5	11.6	10.7	9.9	Diurnal Average
																								17.0	16.8	16.3	15.4	14.2	14.3	14.3	14.5	16.4	18.6	20.6	21.5	22.6	23.7	24.7	25.5	26.0	26.1	25.6	24.5	23.3	20.5	20.1	17.3	Diurnal Maximum





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

**Ambient Temperature 45 m (AT45m) - C**  
**Mannix - May 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	0	0.00	0.00
0 - 10	345	46.37	46.37
10 - 20	367	49.33	95.70
> 20	32	4.30	100.00

Total Number of Valid Hours: 744

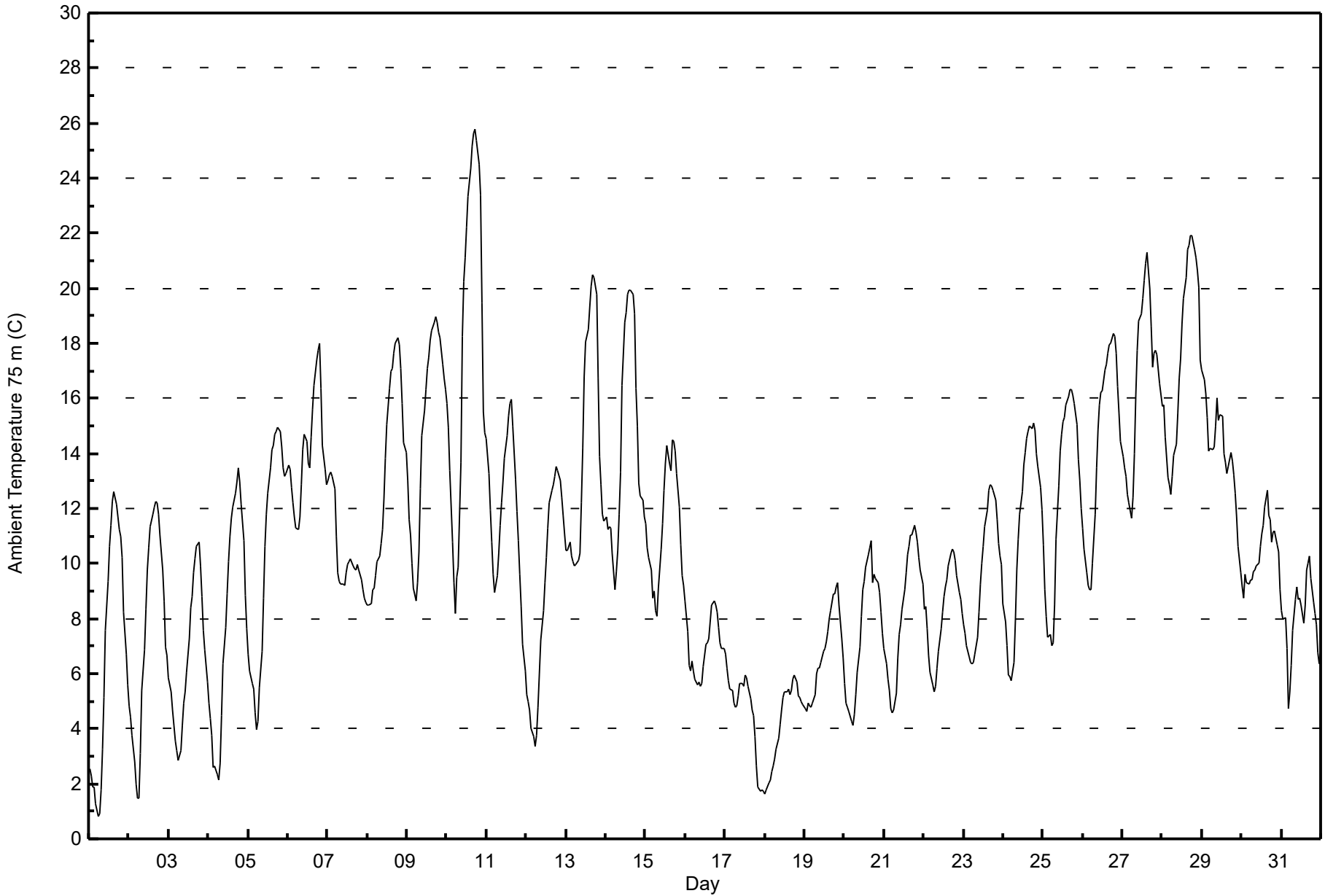
Total Number of Hours: 744



Summary of Hour Averages

Mannix - May 2024

Maximum Value: 25.8 C on May 10 18:00		Maximum Daily Average: 18.1 C on May 10		Hours in Service: 744																						
Minimum Value: 0.8 C on May 1 06:00		Minimum Daily Average: 4.2 C on May 18		Hours of Data: 744																						
Maximum Diurnal Average: 13.9 C at hour 17		Minimum Diurnal Average: 6.9 C at hour 6		Hours of Missing Data: 0																						
Monthly Average: 10.68 C		Percentiles: P <sub>1</sub> = 1.7 P <sub>10</sub> = 4.8 Q <sub>1</sub> = 7.1 Median = 10.3 Q <sub>3</sub> = 13.7 P <sub>90</sub> = 17.2 P <sub>99</sub> = 22.9		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-May	2.5	2.3	1.9	1.9	1.3	0.8	0.9	1.8	3.3	5.2	7.6	9.3	10.6	11.4	12.3	12.6	12.2	11.7	11.2	11.0	10.2	8.2	6.7	5.6	6.8	12.6
2-May	4.8	4.4	3.8	2.8	2.0	1.5	1.5	3.1	5.4	6.9	8.3	9.7	10.6	11.4	11.8	12.0	12.2	12.2	11.8	11.0	9.8	8.7	7.0	6.7	7.5	12.2
3-May	5.9	5.4	4.7	4.1	3.6	3.2	2.9	3.2	4.1	4.9	5.3	6.1	7.3	8.4	8.8	9.7	10.2	10.6	10.8	9.9	8.8	7.6	6.9	5.7	6.6	10.8
4-May	4.9	4.4	3.7	2.6	2.6	2.3	2.2	2.7	4.5	6.4	7.7	8.9	10.1	11.0	11.7	12.0	12.6	13.0	13.5	13.0	12.1	10.8	8.9	7.6	7.9	13.5
5-May	6.7	6.1	5.7	5.5	4.6	4.0	4.3	5.5	6.8	8.7	10.6	11.8	12.6	13.5	14.1	14.3	14.7	14.8	15.0	14.8	14.3	13.5	13.2	13.3	10.3	15.0
6-May	13.6	13.4	12.7	12.2	11.7	11.3	11.2	11.7	12.9	14.1	14.7	14.4	13.6	13.5	14.6	15.6	16.5	17.4	17.8	18.0	16.4	14.3	13.4	12.9	14.1	18.0
7-May	13.0	13.2	13.3	13.2	12.7	11.0	9.7	9.4	9.3	9.3	9.2	9.7	10.0	10.1	10.2	9.9	9.8	9.7	10.0	9.8	9.4	9.0	8.7	8.6	10.3	13.3
8-May	8.5	8.5	8.6	9.1	9.1	9.6	10.1	10.3	10.7	11.2	12.4	13.8	15.0	16.4	17.0	17.1	17.6	18.0	18.2	18.0	17.1	15.8	14.4	14.0	13.4	18.2
9-May	13.0	11.6	11.0	10.0	9.1	8.6	9.3	10.4	12.7	14.6	15.6	16.3	17.1	17.5	18.1	18.5	18.8	18.9	18.8	18.4	18.2	17.3	16.7	16.3	14.9	18.9
10-May	15.8	14.9	13.4	10.8	9.3	8.2	9.5	9.9	13.7	18.2	20.2	21.1	22.2	23.4	24.3	25.2	25.6	25.8	25.4	24.5	23.4	19.5	15.5	14.8	18.1	25.8
11-May	14.6	13.3	12.0	10.8	9.6	8.9	9.6	10.4	11.4	12.2	12.9	13.8	14.6	15.4	15.8	16.0	15.0	13.1	11.9	10.8	9.6	8.5	7.1	6.1	11.8	16.0
12-May	5.3	5.0	4.7	4.0	3.7	3.3	3.7	4.8	6.0	7.2	8.3	9.3	10.2	11.3	12.2	12.6	12.8	13.2	13.5	13.4	13.0	12.4	11.8	11.1	8.9	13.5
13-May	10.5	10.5	10.8	10.3	10.0	9.9	10.0	10.1	10.4	12.2	14.2	16.8	18.0	18.5	19.3	20.1	20.5	20.4	19.8	16.7	13.9	12.9	11.8	11.6	14.1	20.5
14-May	11.7	11.2	11.3	11.3	10.4	9.1	9.7	10.5	11.8	13.3	16.5	18.7	19.1	19.8	19.9	19.9	19.8	19.1	16.4	15.0	12.9	12.4	12.3	11.7	14.3	19.9
15-May	11.4	10.6	10.2	9.7	8.7	9.0	8.3	8.1	9.1	10.5	11.4	12.6	13.7	14.3	13.7	13.4	14.5	14.4	14.1	13.3	12.0	10.7	9.6	9.2	11.4	14.5
16-May	8.6	7.5	6.3	6.1	6.4	6.1	5.8	5.6	5.7	5.5	5.6	6.2	7.1	7.1	7.3	7.9	8.5	8.7	8.5	8.2	7.7	7.1	6.9	6.9	7.0	8.7
17-May	6.7	6.2	5.8	5.5	5.4	4.9	4.8	4.8	5.2	5.6	5.6	5.5	6.0	5.8	5.5	5.1	4.7	4.5	3.7	2.6	1.9	1.7	1.8	1.7	4.6	6.7
18-May	1.6	1.8	2.0	2.1	2.5	2.7	2.9	3.2	3.7	4.2	4.7	5.2	5.3	5.4	5.2	5.4	5.8	6.0	5.7	5.2	5.2	5.0	4.9	4.2	4.2	6.0
19-May	4.7	4.6	4.9	4.8	4.8	4.9	5.2	6.0	6.2	6.2	6.4	6.8	6.9	7.2	7.5	8.0	8.3	8.9	8.9	9.1	9.3	8.5	7.3	6.5	6.8	9.3
20-May	5.7	4.9	4.8	4.6	4.2	4.1	4.5	5.2	6.1	7.0	8.1	9.1	9.4	9.9	10.3	10.6	10.8	9.3	9.6	9.4	9.3	9.0	8.2	7.5	7.6	10.8
21-May	6.9	6.3	5.8	5.4	4.7	4.6	4.7	5.3	6.5	7.4	7.8	8.3	9.0	9.7	10.3	10.6	11.0	11.0	11.4	11.1	10.8	10.2	9.7	9.3	8.3	11.4
22-May	8.3	8.4	7.7	6.7	6.0	5.6	5.3	5.5	6.2	6.8	7.6	8.3	8.8	9.1	9.4	9.9	10.4	10.5	10.4	10.1	9.5	9.0	8.7	8.2	8.2	10.5
23-May	7.8	7.5	7.0	6.6	6.4	6.3	6.4	6.7	7.3	8.2	9.3	10.0	10.6	11.3	11.9	12.7	12.8	12.8	12.6	12.3	11.6	10.7	10.3	10.0	9.6	12.8
24-May	8.6	7.9	7.0	5.9	5.9	5.7	6.4	7.9	9.7	10.9	11.8	12.6	13.6	14.0	14.5	14.8	15.0	14.9	15.1	14.9	14.0	13.5	12.8	12.0	11.2	15.1
25-May	10.7	9.1	8.1	7.3	7.4	7.0	7.1	8.5	10.9	12.8	14.1	14.7	15.2	15.3	15.8	16.1	16.3	16.3	16.1	15.8	15.0	13.8	13.0	12.0	12.4	16.3
26-May	11.3	10.5	9.7	9.2	9.0	9.1	10.0	11.8	13.5	14.9	15.8	16.2	16.3	17.0	17.2	17.6	17.9	18.0	18.4	18.2	17.7	16.4	15.4	14.4	14.4	18.4
27-May	13.9	13.5	13.2	12.5	12.2	11.6	12.4	14.0	16.1	17.7	18.8	19.1	19.6	20.3	20.9	21.3	20.0	18.6	17.1	17.6	17.7	17.6	16.5	16.1	16.6	21.3
28-May	15.7	15.8	14.6	13.1	12.8	12.5	13.2	13.9	14.3	15.5	16.7	17.5	18.7	19.6	20.4	21.4	21.5	21.9	21.9	21.4	21.1	20.6	20.0	17.4	17.6	21.9
29-May	17.0	16.7	16.1	15.3	14.1	14.2	14.1	14.3	15.0	16.0	15.2	15.4	15.3	14.0	13.7	13.3	13.5	14.0	13.7	13.2	12.6	11.7	10.6	9.7	14.1	17.0
30-May	9.1	8.7	9.6	9.3	9.3	9.4	9.4	9.7	9.8	9.9	10.0	10.6	11.1	11.4	12.0	12.7	11.8	11.6	10.8	11.1	11.2	10.7	10.4	9.1	10.4	12.7
31-May	8.3	8.0	8.0	6.9	4.7	5.3	6.3	7.6	8.7	9.1	8.7	8.7	8.5	7.8	8.5	9.8	10.0	10.3	9.5	8.6	8.2	7.8	6.8	6.4	8.0	10.3
9.3 8.8 8.3 7.7 7.2 6.9 7.1 7.8 8.9 10.1 11.0 11.8 12.5 12.9 13.4 13.7 13.9 13.9 13.6 13.1 12.4 11.5 10.6 9.9																								Diurnal Average		
17.0 16.7 16.1 15.3 14.1 14.2 14.1 14.3 16.1 18.2 20.2 21.1 22.2 23.4 24.3 25.2 25.6 25.8 25.4 24.5 23.4 20.6 20.0 17.4																								Diurnal Maximum		





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 75 m (AT75m) - C  
Mannix - May 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	0	0.00	0.00
0 - 10	355	47.72	47.72
10 - 20	363	48.79	96.51
> 20	26	3.49	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

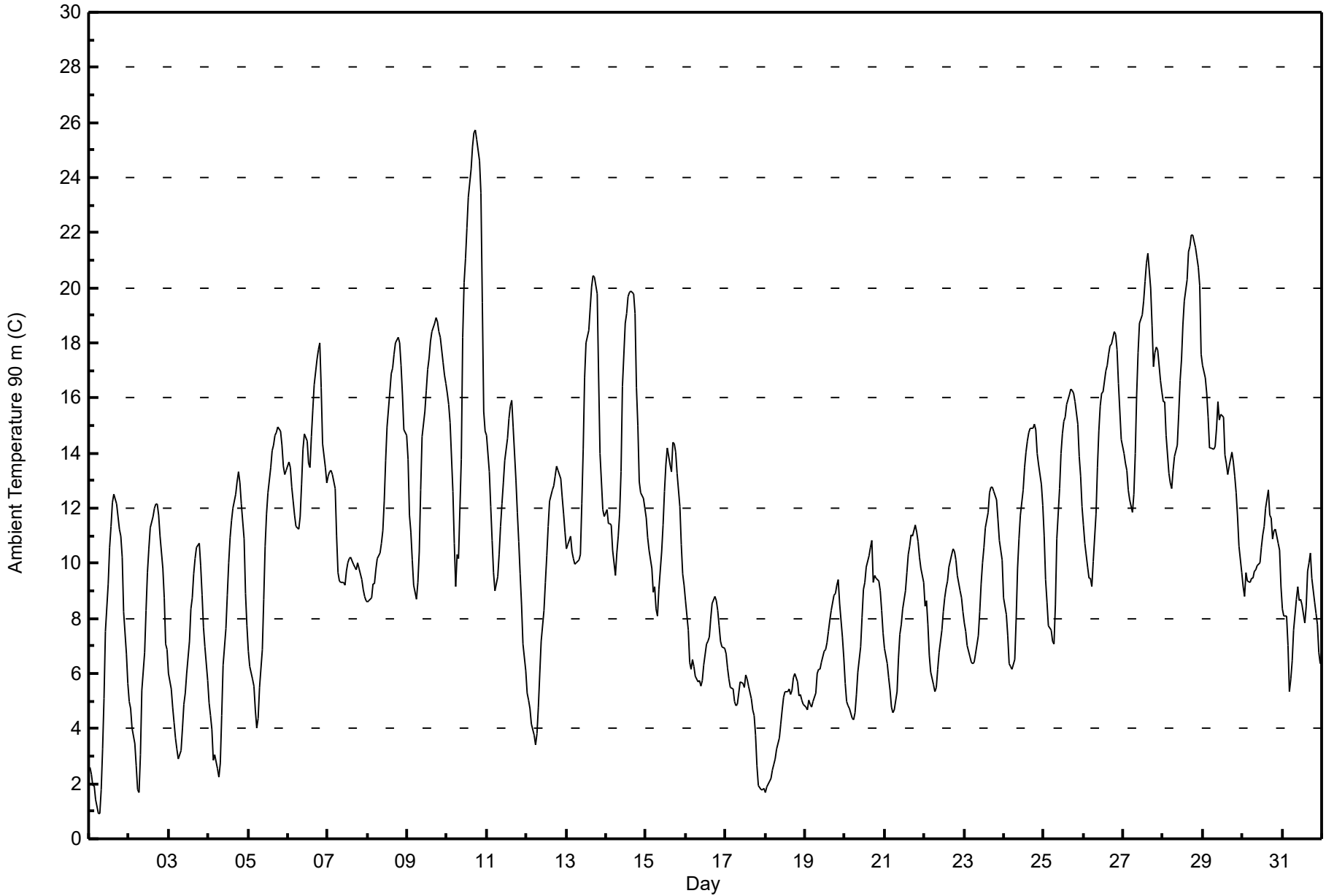


Summary of Hour Averages

Mannix - May 2024

Maximum Value: 25.7 C on May 10 18:00		Maximum Daily Average: 18.4 C on May 10		Hours in Service: 744																																												
Minimum Value: 0.9 C on May 1 06:00		Minimum Daily Average: 4.2 C on May 18		Hours of Data: 744																																												
Maximum Diurnal Average: 13.9 C at hour 17		Minimum Diurnal Average: 7.1 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: 10.73 C		Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 4.9 Q <sub>1</sub> = 7.1 Median = 10.3 Q <sub>3</sub> = 13.7 P <sub>90</sub> = 17.2 P <sub>99</sub> = 22.8		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-May	2.6	2.3	1.9	1.9	1.4	0.9	0.9	1.8	3.2	5.1	7.5	9.3	10.6	11.3	12.2	12.5	12.1	11.7	11.2	11.0	10.2	8.2	6.7	5.6	6.8	12.5																						
2-May	5.0	4.7	4.0	3.5	2.6	1.8	1.7	3.0	5.4	6.8	8.3	9.7	10.5	11.3	11.7	12.0	12.2	12.2	11.7	11.0	9.8	8.7	7.1	6.9	7.6	12.2																						
3-May	6.0	5.5	4.8	4.2	3.7	3.3	2.9	3.2	4.0	4.9	5.3	6.0	7.2	8.3	8.8	9.6	10.2	10.6	10.7	9.9	8.9	7.7	7.0	5.8	6.6	10.7																						
4-May	5.0	4.4	3.9	2.9	3.0	2.6	2.2	2.8	4.5	6.3	7.6	8.8	10.0	10.9	11.6	12.0	12.5	13.0	13.3	12.9	12.2	10.9	8.9	7.7	7.9	13.3																						
5-May	6.8	6.2	5.8	5.6	4.7	4.0	4.4	5.5	6.8	8.7	10.6	11.8	12.6	13.5	14.1	14.3	14.7	14.8	14.9	14.8	14.3	13.5	13.2	13.4	10.4	14.9																						
6-May	13.7	13.5	12.8	12.3	11.8	11.3	11.2	11.7	12.9	14.1	14.7	14.4	13.6	13.5	14.6	15.6	16.5	17.4	17.8	18.0	16.4	14.3	13.5	12.9	14.1	18.0																						
7-May	13.2	13.3	13.4	13.2	12.7	11.0	9.7	9.4	9.3	9.3	9.2	9.7	10.0	10.1	10.2	10.0	9.9	9.8	10.0	9.8	9.4	9.1	8.8	8.7	10.4	13.4																						
8-May	8.6	8.7	8.7	9.2	9.2	9.7	10.2	10.4	10.7	11.2	12.3	13.7	15.0	16.2	16.9	17.1	17.6	18.0	18.2	18.0	17.2	16.1	14.8	14.6	13.4	18.2																						
9-May	13.8	11.8	11.2	10.1	9.2	8.7	9.3	10.4	12.7	14.6	15.5	16.3	17.0	17.4	18.0	18.4	18.7	18.9	18.8	18.4	18.2	17.3	16.8	16.5	14.9	18.9																						
10-May	16.2	15.8	15.1	12.6	10.7	9.2	10.3	10.2	13.8	18.2	20.2	21.0	22.2	23.3	24.3	25.1	25.6	25.7	25.4	24.6	23.5	19.5	15.5	14.8	18.4	25.7																						
11-May	14.7	13.3	12.1	10.8	9.7	9.0	9.5	10.3	11.4	12.1	12.9	13.7	14.6	15.3	15.7	15.9	14.9	13.0	11.8	10.8	9.6	8.5	7.1	6.1	11.8	15.9																						
12-May	5.3	5.0	4.7	4.2	3.8	3.4	3.8	4.8	6.0	7.2	8.3	9.3	10.3	11.3	12.2	12.6	12.8	13.2	13.5	13.4	13.0	12.4	11.8	11.1	8.9	13.5																						
13-May	10.5	10.7	11.0	10.4	10.2	10.0	10.0	10.1	10.3	12.2	14.2	16.8	18.0	18.5	19.3	20.0	20.5	20.4	19.8	16.8	14.0	13.0	11.9	11.7	14.2	20.5																						
14-May	11.9	11.4	11.4	11.4	10.5	9.5	10.4	11.0	11.8	13.3	16.4	18.7	19.1	19.7	19.9	19.9	19.8	19.0	16.4	15.0	13.0	12.5	12.4	12.0	14.4	19.9																						
15-May	11.7	10.9	10.5	9.8	8.9	9.1	8.3	8.1	9.1	10.4	11.4	12.6	13.6	14.2	13.6	13.3	14.4	14.4	14.1	13.3	12.1	10.7	9.6	9.2	11.4	14.4																						
16-May	8.6	7.6	6.4	6.2	6.5	6.2	5.9	5.7	5.8	5.6	5.7	6.3	7.1	7.2	7.3	8.0	8.5	8.8	8.7	8.3	7.7	7.2	6.9	6.9	7.0	8.8																						
17-May	6.7	6.2	5.8	5.5	5.4	5.0	4.8	4.9	5.3	5.7	5.6	5.5	6.0	5.8	5.5	5.1	4.7	4.5	3.7	2.6	1.9	1.8	1.8	1.8	4.6	6.7																						
18-May	1.7	1.9	2.1	2.2	2.5	2.7	2.9	3.3	3.7	4.2	4.7	5.1	5.3	5.3	5.4	5.2	5.4	5.8	6.0	5.7	5.2	5.2	5.0	4.9	4.2	6.0																						
19-May	4.8	4.7	5.0	4.9	4.8	5.0	5.3	6.0	6.2	6.2	6.4	6.8	6.9	7.1	7.5	7.9	8.3	8.9	8.9	9.2	9.4	8.5	7.3	6.6	6.8	9.4																						
20-May	5.7	5.0	4.8	4.7	4.4	4.3	4.6	5.2	6.0	7.0	8.0	9.0	9.3	9.8	10.3	10.6	10.8	9.3	9.6	9.5	9.3	9.0	8.3	7.5	7.6	10.8																						
21-May	6.9	6.4	5.9	5.4	4.8	4.6	4.7	5.4	6.5	7.4	7.8	8.3	9.0	9.7	10.3	10.6	11.1	11.0	11.4	11.1	10.8	10.2	9.8	9.3	8.3	11.4																						
22-May	8.4	8.6	7.8	6.7	6.0	5.6	5.3	5.5	6.1	6.8	7.6	8.2	8.8	9.1	9.3	9.9	10.3	10.5	10.4	10.1	9.6	9.0	8.7	8.2	8.2	10.5																						
23-May	7.8	7.5	7.0	6.6	6.4	6.4	6.4	6.7	7.4	8.2	9.2	10.0	10.6	11.3	11.9	12.6	12.8	12.8	12.6	12.3	11.6	10.8	10.5	10.1	9.6	12.8																						
24-May	8.7	8.2	7.4	6.4	6.3	6.2	6.5	8.0	9.8	10.9	11.7	12.6	13.5	14.0	14.4	14.7	14.9	14.9	15.1	14.8	14.0	13.6	12.8	12.1	11.3	15.1																						
25-May	11.0	9.4	8.6	7.7	7.6	7.2	7.1	8.5	10.9	12.7	14.0	14.7	15.2	15.3	15.7	16.1	16.3	16.3	16.2	15.9	15.1	13.9	13.2	12.1	12.5	16.3																						
26-May	11.4	10.7	9.9	9.5	9.4	9.2	10.1	11.8	13.5	14.8	15.7	16.2	16.2	17.0	17.2	17.6	17.9	18.0	18.4	18.3	17.7	16.5	15.5	14.5	14.4	18.4																						
27-May	14.0	13.6	13.4	12.7	12.3	11.8	12.5	14.0	16.1	17.7	18.7	19.0	19.5	20.2	20.9	21.3	20.0	18.6	17.1	17.7	17.8	17.8	16.6	16.2	16.6	21.3																						
28-May	15.9	15.8	14.6	13.3	12.9	12.7	13.4	13.9	14.3	15.4	16.6	17.4	18.7	19.5	20.3	21.3	21.5	21.9	21.9	21.4	21.1	20.7	20.1	17.6	17.6	21.9																						
29-May	17.2	16.7	16.2	15.3	14.2	14.2	14.1	14.2	14.9	15.9	15.2	15.4	15.3	13.9	13.6	13.2	13.5	14.0	13.7	13.2	12.6	11.7	10.6	9.7	14.1	17.2																						
30-May	9.1	8.8	9.6	9.3	9.3	9.4	9.4	9.7	9.8	9.9	10.0	10.6	11.0	11.4	12.0	12.6	11.8	11.6	10.9	11.2	11.2	10.7	10.5	9.1	10.4	12.6																						
31-May	8.4	8.1	8.1	7.0	5.3	5.8	6.5	7.6	8.7	9.1	8.7	8.7	8.5	7.8	8.5	9.7	10.0	10.4	9.5	8.6	8.2	7.8	6.8	6.4	8.1	10.4																						
																								9.4	8.9	8.5	7.9	7.4	7.1	7.2	7.8	8.9	10.1	11.0	11.8	12.4	12.9	13.3	13.7	13.9	13.8	13.6	13.1	12.4	11.5	10.6	10.0	Diurnal Average
																								17.2	16.7	16.2	15.3	14.2	14.2	14.1	14.2	16.1	18.2	20.2	21.0	22.2	23.3	24.3	25.1	25.6	25.7	25.4	24.6	23.5	20.7	20.1	17.6	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 90 m (AT90m) - C  
Mannix - May 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	0	0.00	0.00
0 - 10	348	46.77	46.77
10 - 20	370	49.73	96.51
> 20	26	3.49	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



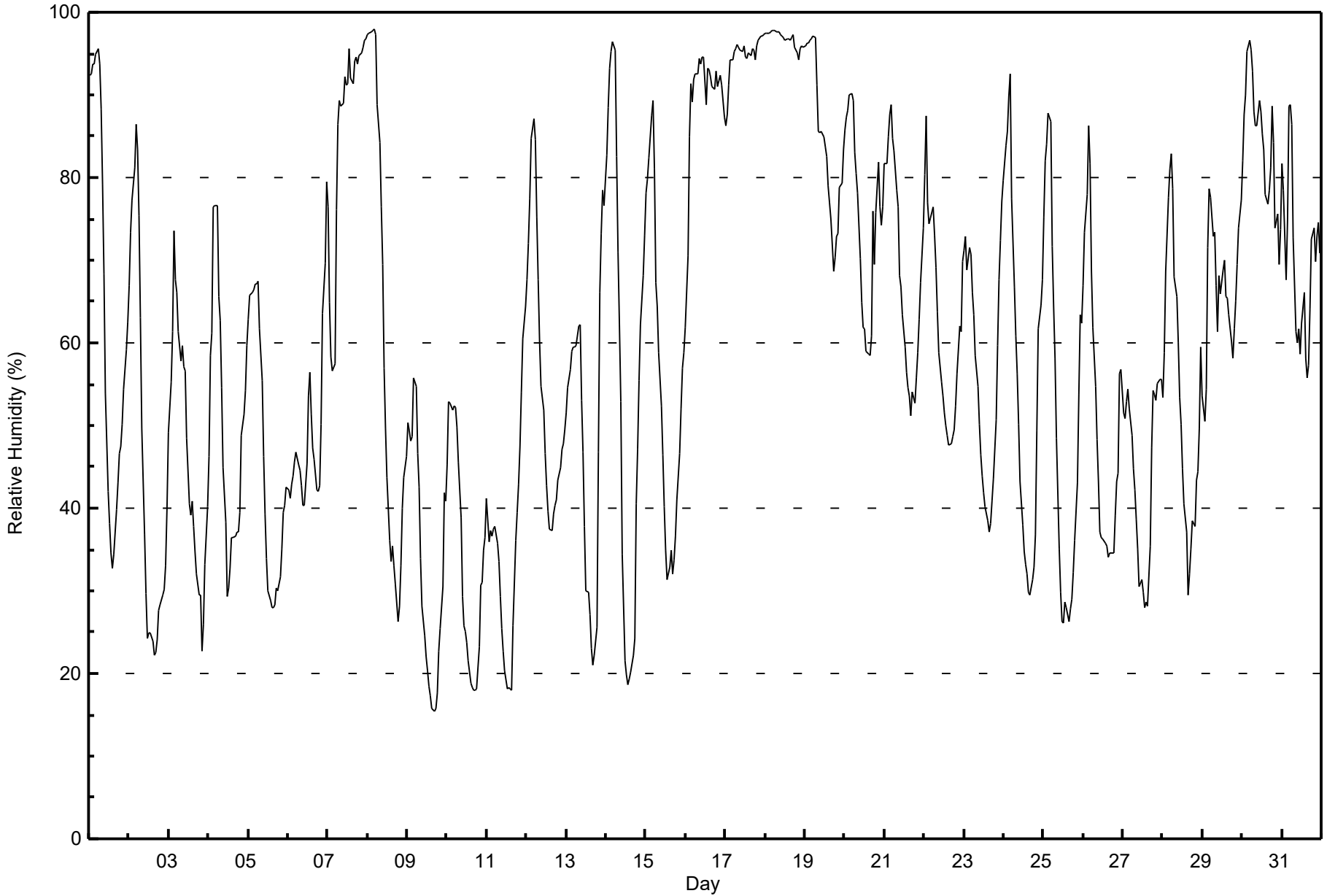
**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

**Mannix - May 2024**

Maximum Value: 98 % on May 8 05:00																		Maximum Daily Average: 96.8 % on May 18																		Hours in Service: 744													
Minimum Value: 16 % on May 9 17:00																		Minimum Daily Average: 32.8 % on May 9																		Hours of Data: 744													
Maximum Diurnal Average: 78.5 % at hour 5																		Minimum Diurnal Average: 45.3 % at hour 16																		Hours of Missing Data: 0													
Monthly Average: 60.2 %																		Percentiles: P <sub>1</sub> = 18 P <sub>10</sub> = 29 Q <sub>1</sub> = 40 Median = 59 Q <sub>3</sub> = 80 P <sub>90</sub> = 94 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-May	92	93	94	94	95	96	94	88	79	68	54	42	38	35	33	34	40	43	47	47	50	54	59	62	63.8	96																							
2-May	67	73	77	81	86	83	75	63	50	37	30	24	25	25	24	22	22	24	28	28	29	30	33	40	44.9	86																							
3-May	49	55	61	74	68	66	61	58	60	57	57	48	41	39	41	38	35	32	29	29	23	26	33	40	46.7	74																							
4-May	46	58	61	76	77	77	66	63	55	45	38	29	30	33	36	36	37	37	37	40	49	51	54	60	49.6	77																							
5-May	63	66	66	66	67	67	67	62	55	46	39	34	30	29	28	28	28	30	30	32	35	40	40	43	45.5	67																							
6-May	42	41	43	44	46	47	45	45	43	40	40	45	53	56	51	47	46	42	42	43	50	64	70	79	48.6	79																							
7-May	76	65	58	57	57	76	87	89	89	89	92	91	91	96	92	91	94	95	94	95	95	96	97	97	85.8	97																							
8-May	97	97	98	98	98	97	89	84	76	69	57	50	44	36	34	35	33	31	26	28	33	40	44	46	60.0	98																							
9-May	50	49	48	49	56	55	47	43	34	28	25	22	20	19	17	16	16	16	18	23	25	30	42	41	32.8	56																							
10-May	45	53	53	52	52	52	50	46	39	29	26	25	24	21	19	18	18	18	18	23	31	31	35	36	33.9	53																							
11-May	41	36	37	37	38	38	36	34	29	25	23	20	18	18	18	18	26	36	40	43	48	54	61	64	34.9	64																							
12-May	68	72	78	85	87	85	75	68	60	55	52	47	43	40	37	37	39	40	41	43	45	47	48	49	55.9	87																							
13-May	51	55	57	59	59	60	60	62	62	53	47	38	30	30	27	23	21	22	26	47	66	73	78	77	49.2	78																							
14-May	83	89	93	95	96	96	83	71	62	53	34	21	20	19	19	20	22	24	41	47	55	62	68	73	56.1	96																							
15-May	78	80	82	88	89	81	67	64	59	52	47	40	35	31	33	35	32	34	37	41	47	52	57	59	55.0	89																							
16-May	62	70	85	91	89	92	93	93	94	94	95	95	89	93	93	92	91	91	93	91	92	92	91	87	89.5	95																							
17-May	86	88	91	94	94	95	96	96	96	95	95	96	95	94	95	95	96	95	94	96	97	97	97	97	94.6	97																							
18-May	97	97	98	98	98	98	98	98	98	97	97	97	97	97	97	97	97	97	97	96	95	94	96	96	96.8	98																							
19-May	96	96	96	97	97	97	97	91	86	85	86	85	84	83	79	77	75	69	70	73	73	79	79	83	84.7	97																							
20-May	86	87	88	90	90	89	83	81	78	70	65	62	62	59	59	59	61	76	70	76	82	76	74	76	74.9	90																							
21-May	82	82	85	88	89	85	83	78	77	68	67	63	59	56	55	54	51	54	53	56	59	63	67	74	68.6	89																							
22-May	80	87	77	74	75	76	73	69	64	59	55	54	51	50	49	48	48	49	50	52	56	62	61	70	62.1	87																							
23-May	71	73	69	72	71	66	63	58	55	50	46	44	42	40	38	37	38	41	44	51	60	68	72	77	56.1	77																							
24-May	80	84	86	90	92	77	67	61	56	50	43	38	35	33	32	30	30	31	33	37	49	62	65	68	55.3	92																							
25-May	75	82	84	88	87	72	64	58	48	35	30	26	26	29	28	26	28	29	32	36	43	54	63	62	50.3	88																							
26-May	67	73	78	86	82	69	62	55	48	43	37	36	36	36	35	34	35	35	35	39	43	44	56	57	50.9	86																							
27-May	52	51	53	54	52	49	45	42	39	35	31	31	30	28	29	28	35	47	54	54	53	55	56	56	44.1	56																							
28-May	53	59	69	78	81	83	79	68	66	60	53	50	45	41	37	29	32	35	38	38	43	44	50	60	53.8	83																							
29-May	54	51	54	72	79	78	73	73	67	61	68	66	69	70	66	65	63	60	58	62	65	69	74	77	66.4	79																							
30-May	82	88	90	95	97	95	93	88	86	86	89	88	85	83	78	77	79	81	89	84	74	76	69	74	84.4	97																							
31-May	82	78	68	75	89	89	86	73	61	60	62	59	62	66	58	56	57	64	73	74	70	73	75	71	70.0	89																							
																								69.5	71.9	73.4	77.2	78.5	76.9	72.8	68.4	63.6	58.0	54.2	50.6	48.7	47.9	46.4	45.3	45.9	47.7	49.4	52.3	56.0	60.0	63.4	66.2	Diurnal Average	
																								97	97	98	98	98	98	98	98	98	97	97	97	97	97	97	97	97	97	97	96	96	97	97	97	97	Diurnal Maximum





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

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

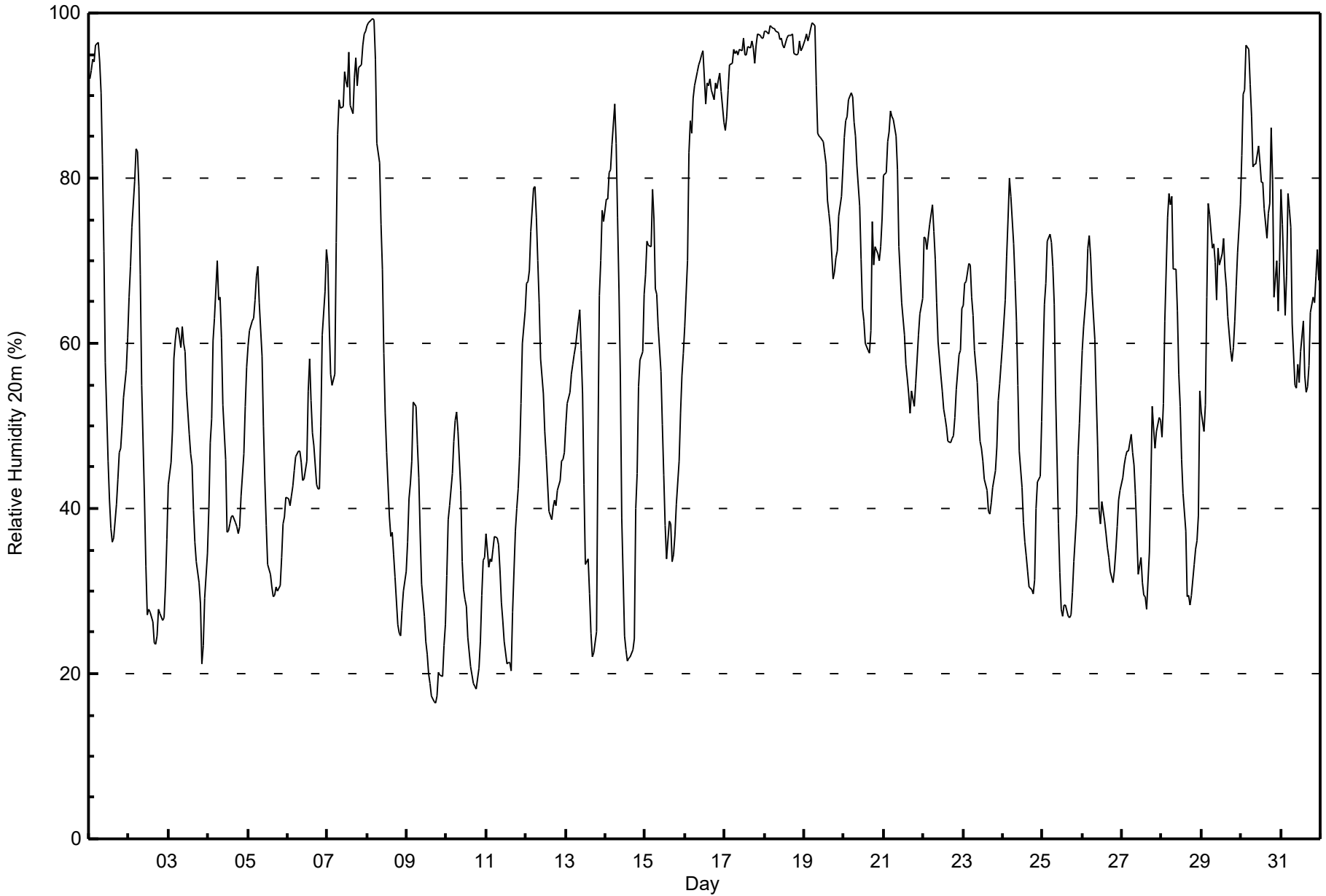
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	18	2.42	2.42
20 - 40	165	22.18	24.60
40 - 60	200	26.88	51.48
60 - 80	174	23.39	74.87
80 - 100	187	25.13	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 99 % on May 8 04:00																			Maximum Daily Average: 96.9 % on May 18						Hours in Service: 744																									
Minimum Value: 16 % on May 9 18:00																			Minimum Daily Average: 30.0 % on May 9						Hours of Data: 744																									
Maximum Diurnal Average: 75.0 % at hour 6																			Minimum Diurnal Average: 46.1 % at hour 16						Hours of Missing Data: 0																									
Monthly Average: 58.8 %																			Percentiles: P <sub>1</sub> = 19 P <sub>10</sub> = 29 Q <sub>1</sub> = 40 Median = 58 Q <sub>3</sub> = 76 P <sub>90</sub> = 94 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-May	92	93	94	94	96	96	94	90	82	71	58	46	41	38	36	36	40	44	47	47	50	53	57	61	64.9	96																								
2-May	66	69	74	80	84	83	79	68	55	41	33	27	28	27	26	24	24	25	28	27	26	27	31	36	45.3	84																								
3-May	43	46	49	58	60	62	62	60	62	60	59	54	49	47	45	40	36	34	31	29	21	23	29	35	45.5	62																								
4-May	40	48	51	60	63	70	65	66	61	52	46	37	37	38	39	39	38	38	37	38	42	47	52	57	48.4	70																								
5-May	60	62	63	63	65	68	69	65	58	50	43	38	33	32	30	29	29	31	30	31	34	38	39	41	45.9	69																								
6-May	41	40	41	43	45	46	47	47	46	43	44	46	54	58	53	49	48	43	42	42	50	61	66	71	48.7	71																								
7-May	70	62	56	55	56	72	85	89	88	89	93	92	91	95	89	88	92	95	91	93	94	96	97	98	84.5	98																								
8-May	98	99	99	99	99	94	84	82	74	69	59	51	47	39	37	37	34	32	26	25	25	28	30	32	58.3	99																								
9-May	36	41	43	46	53	52	48	44	37	31	27	24	22	20	19	17	17	16	17	20	20	20	23	26	30.0	53																								
10-May	32	39	40	44	48	51	52	49	42	34	30	29	28	24	21	20	19	18	18	21	24	29	34	34	32.5	52																								
11-May	37	33	34	34	35	37	36	36	33	29	26	24	21	21	21	20	27	37	40	42	46	53	60	64	35.3	64																								
12-May	67	67	69	74	79	79	75	70	65	58	54	49	47	43	40	39	40	41	40	42	43	46	46	47	55.0	79																								
13-May	50	53	54	56	57	59	60	63	64	59	54	43	33	34	30	25	22	23	25	48	66	70	76	75	49.9	76																								
14-May	77	77	81	81	84	89	84	75	67	56	39	25	23	22	22	23	24	40	44	55	58	59	66	66	53.8	89																								
15-May	68	72	72	72	79	75	67	66	62	57	50	44	38	34	38	38	34	34	37	41	46	52	56	59	53.7	79																								
16-May	62	70	83	87	85	90	91	93	94	94	95	95	89	92	91	92	91	89	92	91	92	93	91	87	88.6	95																								
17-May	86	87	91	94	94	96	95	96	95	96	96	97	95	95	96	96	97	96	94	96	97	97	97	97	94.7	97																								
18-May	98	98	97	98	98	98	98	98	98	97	97	96	96	97	97	97	97	98	95	95	95	97	95	96	96.9	98																								
19-May	97	97	97	97	98	99	98	91	85	85	85	84	83	82	77	76	74	68	69	70	71	75	78	81	84.1	99																								
20-May	85	87	87	90	90	90	87	85	82	77	70	64	63	60	59	59	62	75	69	72	71	70	72	75	75.0	90																								
21-May	80	81	84	86	88	88	87	85	81	72	68	65	61	57	56	54	51	54	52	55	58	61	64	65	68.9	88																								
22-May	73	73	71	73	74	77	74	70	65	60	56	54	52	51	50	48	48	48	49	51	54	59	59	64	60.6	77																								
23-May	65	67	67	70	69	66	63	59	55	51	48	47	46	44	42	40	39	41	42	45	48	53	55	57	53.3	70																								
24-May	60	65	71	75	80	78	72	68	63	55	47	42	38	36	34	32	30	30	30	31	40	43	44	51	50.6	80																								
25-May	58	65	67	72	73	72	69	65	54	38	32	28	27	28	28	27	27	27	30	34	39	46	50	55	46.4	73																								
26-May	59	62	66	72	73	71	66	60	54	48	40	38	41	38	37	35	34	32	31	33	35	38	41	42	47.7	73																								
27-May	44	45	46	47	47	49	47	45	42	37	32	34	31	29	29	28	35	43	52	50	47	49	51	51	42.1	52																								
28-May	49	53	63	75	78	77	78	69	69	64	56	52	46	42	37	29	29	28	29	33	35	36	39	54	50.9	78																								
29-May	52	49	52	66	77	76	72	72	70	65	71	69	71	73	69	67	63	59	58	60	63	67	71	77	66.1	77																								
30-May	83	90	91	96	96	91	87	81	82	82	84	82	79	80	76	73	76	77	86	80	66	70	64	70	80.9	96																								
31-May	79	74	63	68	78	76	74	62	55	55	57	55	59	63	56	54	55	57	64	66	65	68	71	68	64.3	79																								
																								64.7	66.6	68.4	71.7	74.3	75.0	73.1	70.0	65.7	60.4	56.4	52.7	50.6	49.6	47.8	46.1	46.2	47.0	48.1	50.0	52.2	55.6	58.0	61.0	Diurnal Average		
																								98	99	99	99	99	99	98	98	98	97	97	97	96	97	97	97	97	97	98	95	96	97	97	97	98	Diurnal Maximum	





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

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	11	1.48	1.48
20 - 40	174	23.39	24.87
40 - 60	215	28.90	53.76
60 - 80	186	25.00	78.76
80 - 100	158	21.24	100.00

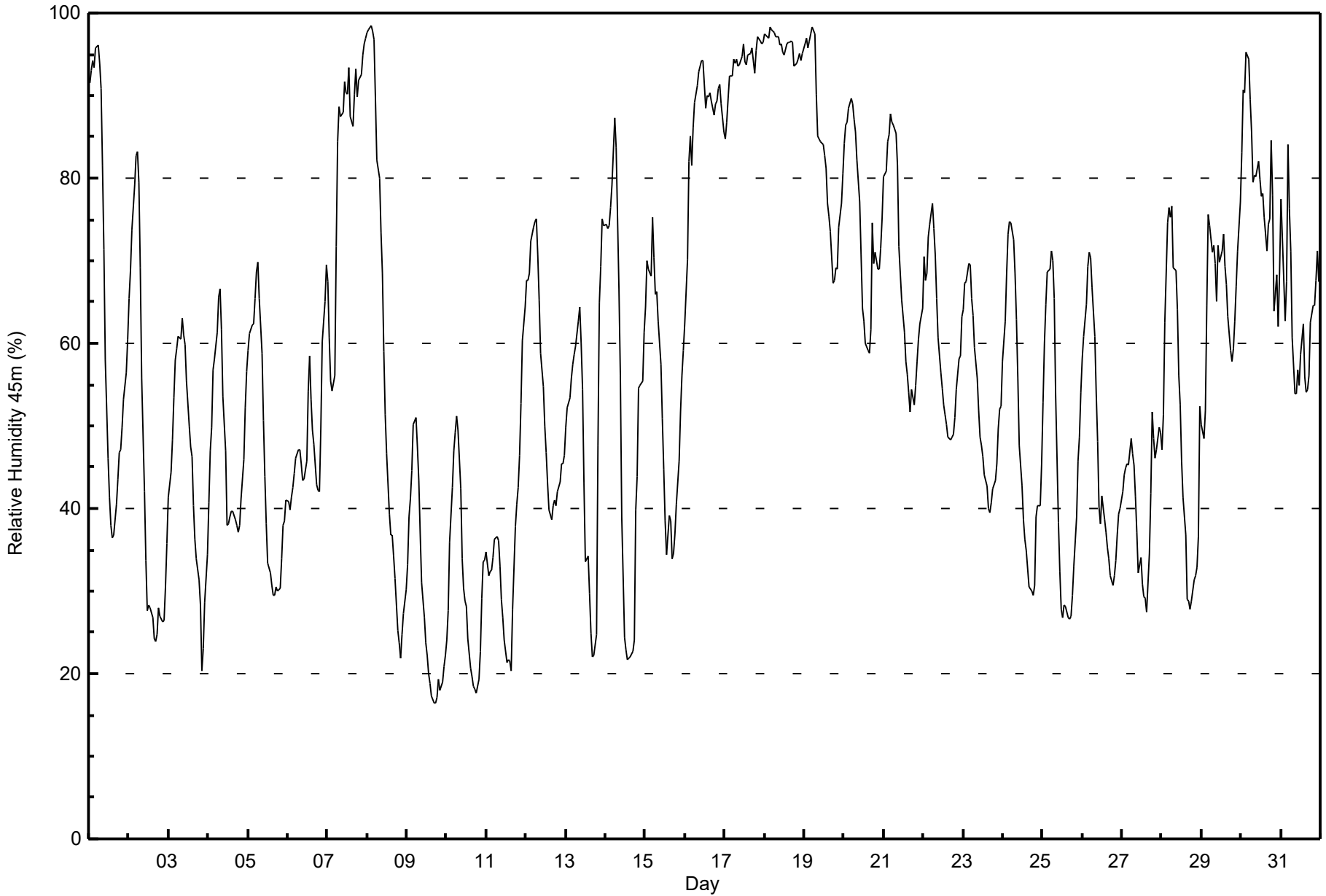
Total Number of Valid Hours: 744

Total Number of Hours: 744





Maximum Value: 98 % on May 8 03:00																			Maximum Daily Average: 96.2 % on May 18						Hours in Service: 744																								
Minimum Value: 16 % on May 9 18:00																			Minimum Daily Average: 29.0 % on May 9						Hours of Data: 744																								
Maximum Diurnal Average: 73.5 % at hour 6																			Minimum Diurnal Average: 46.0 % at hour 17						Hours of Missing Data: 0																								
Monthly Average: 58.2 %																			Percentiles: P <sub>1</sub> = 19 P <sub>10</sub> = 29 Q <sub>1</sub> = 40 Median = 57 Q <sub>3</sub> = 75 P <sub>90</sub> = 92 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-May	91	93	94	93	96	96	94	91	82	71	58	46	41	38	36	37	41	44	47	47	50	53	56	61	64.8	96																							
2-May	65	69	74	79	83	83	79	69	56	42	34	28	28	28	27	24	24	25	28	27	26	27	30	36	45.4	83																							
3-May	41	44	48	53	58	59	61	61	63	61	60	55	50	47	46	40	36	34	31	28	20	23	29	34	45.3	63																							
4-May	41	47	50	57	58	61	66	67	62	54	47	38	38	39	40	40	39	38	37	38	41	46	52	57	47.9	67																							
5-May	59	61	62	62	65	69	70	65	59	51	44	38	33	32	31	30	30	31	30	30	34	38	39	41	46.0	70																							
6-May	41	40	41	43	44	46	47	47	46	43	44	46	54	59	53	49	48	43	42	42	50	60	65	69	48.4	69																							
7-May	68	61	55	54	56	72	84	89	87	88	92	90	90	93	87	86	90	93	90	92	93	95	96	97	83.3	97																							
8-May	98	98	98	98	97	90	82	80	73	68	59	51	47	39	37	37	34	31	25	24	22	25	27	30	57.1	98																							
9-May	33	39	41	45	50	51	48	43	37	31	27	24	22	20	19	17	17	16	17	19	18	19	21	22	29.0	51																							
10-May	24	28	36	43	47	49	51	49	42	34	30	29	28	24	21	20	19	18	18	19	23	29	34	34	31.2	51																							
11-May	35	32	32	33	34	36	37	36	33	29	27	24	21	22	22	20	28	38	40	43	46	53	60	64	35.2	64																							
12-May	68	68	69	72	74	75	75	71	65	59	55	50	47	43	40	39	40	41	40	42	43	45	45	46	54.7	75																							
13-May	50	52	53	56	57	59	60	63	64	60	54	43	34	34	30	25	22	22	25	48	65	69	75	74	49.8	75																							
14-May	74	74	74	76	79	87	84	75	67	56	39	24	23	22	22	23	24	40	44	55	55	55	61	61	52.3	87																							
15-May	64	70	69	68	75	70	66	66	63	57	51	45	39	34	39	38	34	35	37	41	46	52	56	59	53.1	75																							
16-May	62	70	82	85	81	86	89	91	93	94	94	94	88	90	90	90	89	88	89	89	91	91	89	86	87.2	94																							
17-May	85	87	90	92	92	94	94	94	94	94	95	96	94	94	95	95	96	94	93	95	97	97	96	96	93.7	97																							
18-May	98	97	97	98	98	98	98	97	97	96	96	95	95	96	96	97	97	96	94	94	94	95	94	95	96.2	98																							
19-May	96	97	96	97	98	98	98	90	85	85	84	84	83	81	77	75	74	67	68	69	69	74	77	80	83.4	98																							
20-May	84	86	87	88	90	89	87	86	82	77	71	64	63	60	59	59	62	75	70	71	69	69	71	75	74.7	90																							
21-May	80	81	84	85	88	87	87	85	82	72	68	65	61	58	56	54	52	54	52	55	58	61	62	64	68.8	88																							
22-May	70	68	69	73	74	77	74	71	65	61	57	55	52	51	50	49	48	49	49	51	54	58	58	63	60.3	77																							
23-May	64	67	67	70	69	65	63	59	56	52	49	48	46	44	43	40	40	41	42	43	45	50	52	52	52.9	70																							
24-May	58	63	68	73	75	75	73	68	63	56	48	43	39	36	35	33	31	30	30	31	39	40	40	45	49.6	75																							
25-May	53	60	65	69	69	71	70	65	54	38	32	28	27	28	28	27	27	30	33	39	46	49	54	45.3	71																								
26-May	58	61	65	69	71	70	67	61	54	48	40	38	41	39	37	35	34	32	31	32	34	37	39	40	47.2	71																							
27-May	42	44	45	45	45	48	47	45	42	37	32	34	31	29	29	27	35	42	52	48	46	47	50	49	41.3	52																							
28-May	47	51	63	75	76	75	77	69	69	64	56	53	46	41	37	29	29	28	29	31	32	33	37	52	49.9	77																							
29-May	50	49	52	65	76	74	71	72	70	65	72	70	71	73	69	67	63	59	58	59	63	67	71	77	66.0	77																							
30-May	83	91	90	95	94	90	86	80	80	80	82	80	78	78	75	71	74	75	85	78	64	68	62	69	79.5	95																							
31-May	77	73	63	67	84	76	71	61	54	54	57	55	59	62	56	54	54	56	63	65	65	68	71	68	63.8	84																							
																								63.3	65.1	67.1	70.3	72.7	73.5	72.7	69.9	65.7	60.5	56.6	52.7	50.6	49.6	47.8	46.0	46.0	46.6	47.7	49.3	51.3	54.5	56.8	59.8	Diurnal Average	
																								98	98	98	98	98	98	98	97	97	96	96	96	95	96	96	97	97	96	94	95	97	97	96	97	Diurnal Maximum	





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

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

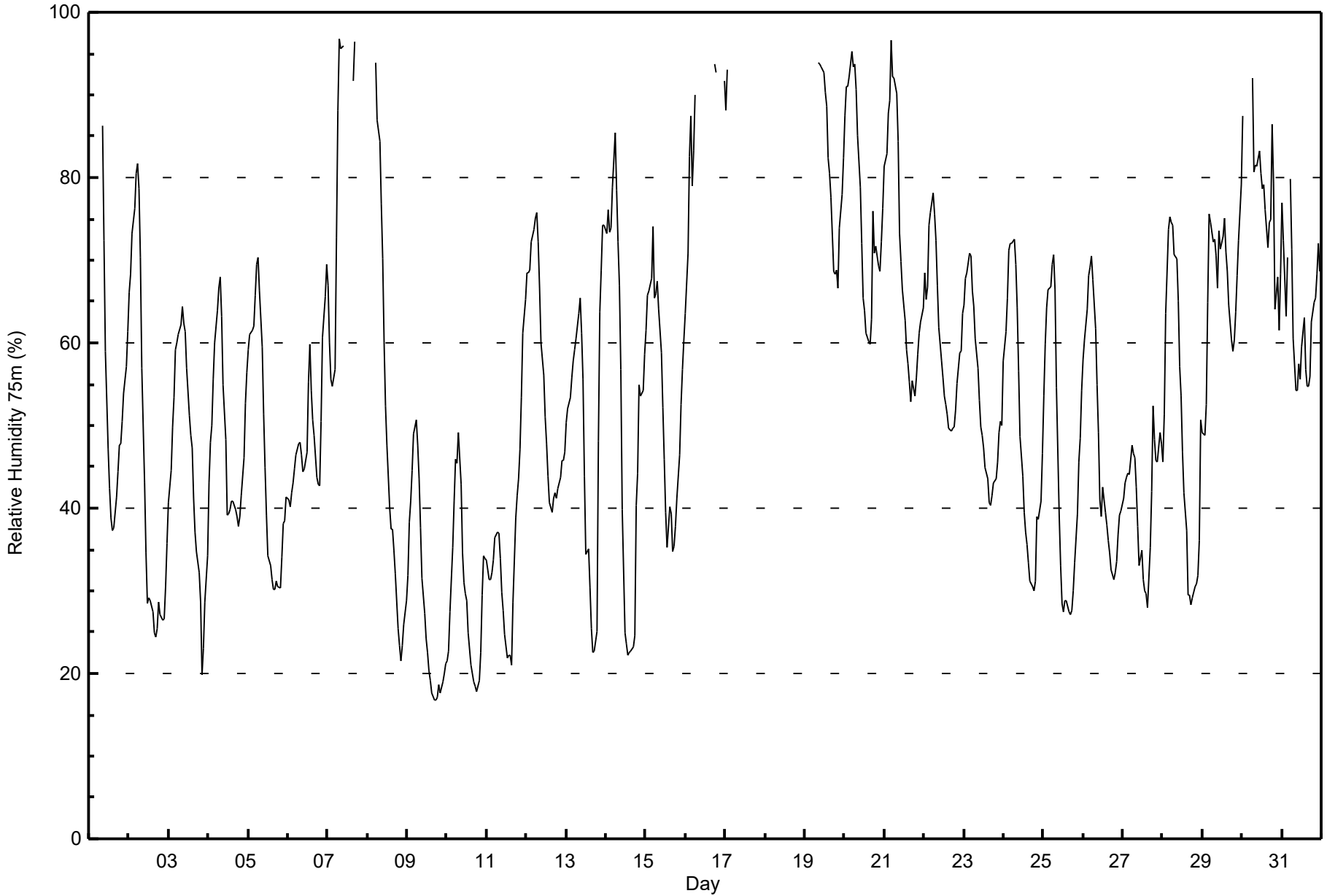
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	14	1.88	1.88
20 - 40	174	23.39	25.27
40 - 60	214	28.76	54.03
60 - 80	188	25.27	79.30
80 - 100	154	20.70	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 97 % on May 7 08:00																		Maximum Daily Average: 77.3 % on May 30																		Hours in Service: 744																																	
Minimum Value: 17 % on May 9 18:00																		Minimum Daily Average: 28.9 % on May 9																		Hours of Data: 645																																	
Maximum Diurnal Average: 70.1 % at hour 7																		Minimum Diurnal Average: 41.9 % at hour 17																		Hours of Missing Data: 99																																	
Monthly Average: 53.3 %																		Percentiles: P <sub>1</sub> = 19 P <sub>10</sub> = 29 Q <sub>1</sub> = 39 Median = 53 Q <sub>3</sub> = 68 P <sub>90</sub> = 79 P <sub>99</sub> = 94																		Hours of Calibration: 0																																	
																																				Percent Operational Time: 86.7																																	
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-May	OR	OR	OR	OR	OR	OR	OR	OR	86	72	59	47	42	39	37	38	41	44	48	48	51	54	57	61	--	86																																											
2-May	66	68	73	76	81	82	79	70	57	43	35	28	29	29	28	25	24	25	29	27	26	27	31	36	45.6	82																																											
3-May	41	45	50	53	59	60	61	62	64	62	61	57	51	49	47	41	37	35	32	29	20	23	29	34	46.0	64																																											
4-May	43	48	50	56	60	64	67	68	63	55	48	39	39	40	41	41	40	39	38	39	42	46	53	56	48.9	68																																											
5-May	59	61	62	62	66	70	70	66	59	51	45	39	34	33	31	30	30	31	30	30	34	38	38	41	46.4	70																																											
6-May	41	40	42	43	45	46	48	48	46	44	45	47	55	60	54	51	49	44	43	43	50	61	66	70	49.1	70																																											
7-May	67	60	56	55	57	73	88	97	96	96	OR	OR	OR	OR	OR	92	97	OR	OR	OR	OR	OR	OR	OR	--	97																																											
8-May	OR	OR	OR	OR	OR	94	87	84	77	70	60	52	48	40	38	37	35	32	25	23	21	23	26	29	47.5	94																																											
9-May	32	38	41	45	49	51	48	43	38	32	27	24	23	20	19	18	17	17	17	19	18	19	20	21	28.9	51																																											
10-May	22	23	27	35	41	46	45	49	43	35	31	30	29	25	21	20	19	18	18	19	23	29	34	34	29.8	49																																											
11-May	34	31	31	32	34	36	37	37	34	30	28	25	22	22	22	21	29	39	42	44	47	53	61	65	35.7	65																																											
12-May	68	69	69	72	74	75	76	72	67	60	56	51	48	44	41	39	41	42	41	42	44	46	46	47	55.4	76																																											
13-May	50	52	53	56	58	59	60	64	65	61	56	44	34	35	30	25	22	23	25	48	64	69	74	74	50.1	74																																											
14-May	73	76	73	74	79	85	79	72	67	57	40	25	24	22	22	23	23	25	40	44	55	54	54	59	51.8	85																																											
15-May	61	66	66	68	74	65	66	67	64	59	52	46	40	35	40	39	35	35	38	41	46	52	57	60	53.1	74																																											
16-May	63	71	83	87	79	83	90	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	94	93	OR	OR	OR	OR	92	--	94																																											
17-May	88	93	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	93																																											
18-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	--																																											
19-May	OR	OR	OR	OR	OR	OR	OR	OR	94	94	93	93	90	89	82	81	78	69	68	69	67	74	78	82	--	94																																											
20-May	88	91	91	92	95	93	94	91	85	79	72	65	64	61	60	60	63	76	71	72	69	69	72	76	77.1	95																																											
21-May	81	83	88	89	97	92	92	90	84	73	70	66	63	59	57	55	53	55	54	56	59	61	63	64	71.0	97																																											
22-May	69	65	67	74	76	78	76	72	67	62	58	56	54	53	51	50	49	50	50	52	55	59	59	64	61.0	78																																											
23-May	65	68	68	71	70	66	64	61	57	53	50	49	47	45	44	41	40	41	43	44	46	49	50	50	53.4	71																																											
24-May	58	61	65	71	72	72	73	70	64	57	49	44	39	37	36	33	31	31	30	31	39	39	41	47	49.5	73																																											
25-May	54	60	64	67	67	70	71	67	55	39	33	28	27	29	29	27	27	28	30	33	39	46	49	54	45.5	71																																											
26-May	58	60	64	68	69	71	68	62	55	49	41	39	42	40	38	36	35	33	31	32	34	37	39	40	47.5	71																																											
27-May	41	43	44	44	44	48	47	46	42	38	33	35	31	30	30	28	35	42	52	48	46	46	49	48	41.3	52																																											
28-May	46	51	64	74	75	75	74	71	70	65	57	54	47	42	37	29	29	28	29	31	31	32	36	51	49.9	75																																											
29-May	49	49	53	65	76	74	72	73	70	67	73	71	73	75	71	69	65	60	59	60	64	68	72	79	67.0	79																																											
30-May	87	OR	OR	OR	OR	OR	92	81	81	81	83	80	79	79	76	72	75	75	86	79	64	68	62	68	77.3	92																																											
31-May	77	72	63	70	OR	80	71	60	54	54	57	56	59	63	57	55	55	56	63	65	65	68	72	69	63.6	80																																											
																		58.5		59.4		60.3		64.0		66.5		69.6		70.1		67.0		64.5		58.5		52.3		47.8		45.7		44.2		42.2		42.0		41.9		42.3		43.7		43.3		45.1		48.5		51.4		56.1		Diurnal Average			
																		88		93		91		92		97		94		94		97		96		96		96		93		93		90		89		82		92		97		94		93		79		69		74		78		92		Diurnal Maximum	
OR - Out of Range																																																																					





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

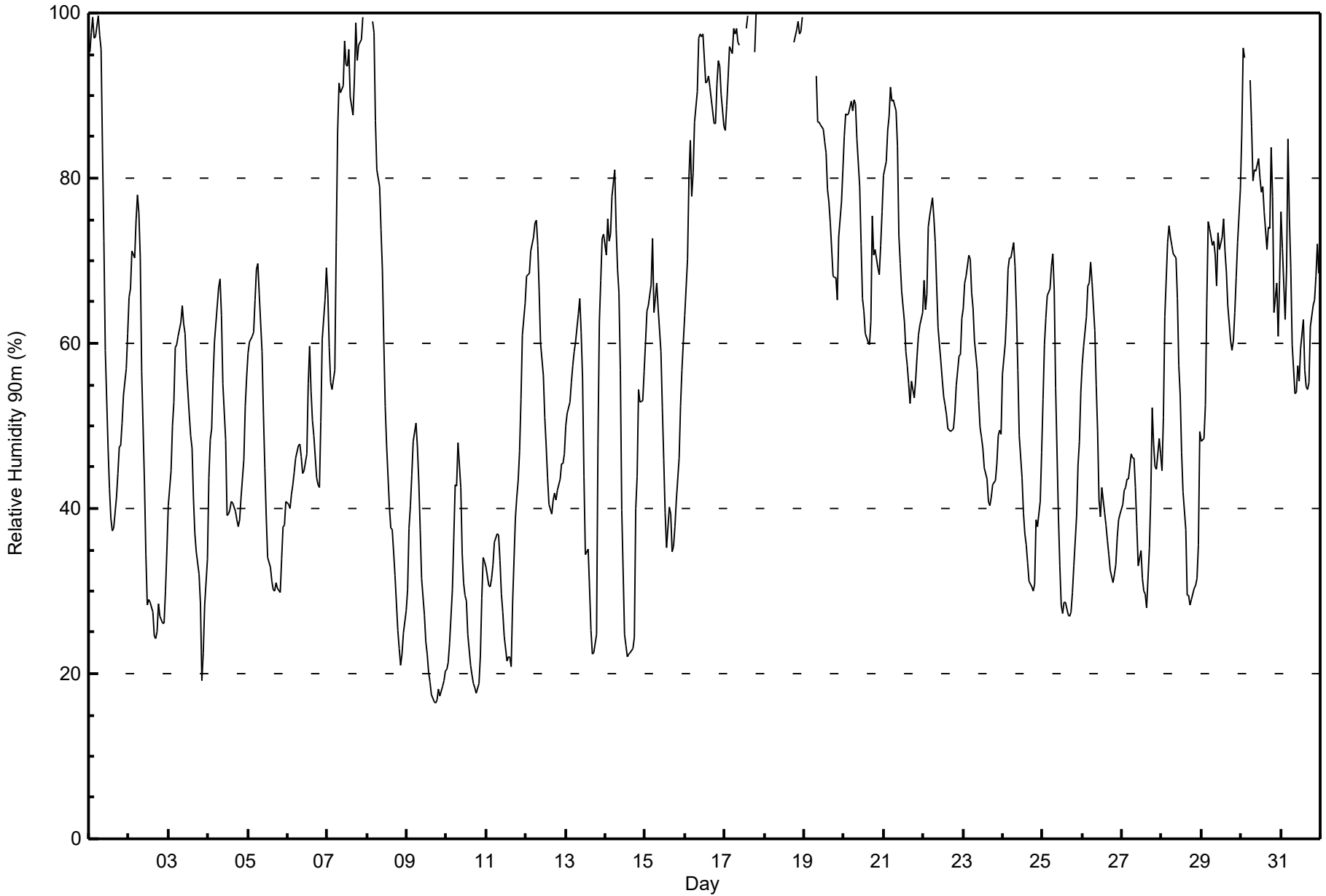
**Relative Humidity 75m (RH75m) - %**  
**Mannix - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	15	2.33	2.33
20 - 40	168	26.05	28.37
40 - 60	209	32.40	60.78
60 - 80	196	30.39	91.16
80 - 100	57	8.84	100.00

Total Number of Valid Hours: 645  
Total Number of Hours: 744



Maximum Value: 100 % on May 17 20:00										Maximum Daily Average: 87.8 % on May 16										Hours in Service: 744							
Minimum Value: 16 % on May 9 18:00										Minimum Daily Average: 28.5 % on May 9										Hours of Data: 703							
Maximum Diurnal Average: 70.8 % at hour 6										Minimum Diurnal Average: 43.2 % at hour 17										Hours of Missing Data: 41							
Monthly Average: 56.2 %										Percentiles: P <sub>1</sub> = 18 P <sub>10</sub> = 29 Q <sub>1</sub> = 39 Median = 55 Q <sub>3</sub> = 71 P <sub>90</sub> = 88 P <sub>99</sub> = 99										Hours of Calibration: 0							
																				Percent Operational Time: 94.5							
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-May	95	98	99	97	97	100	97	96	83	72	59	47	42	39	37	38	41	44	47	48	50	54	57	61	66.7	100	
2-May	66	67	71	70	75	78	76	70	57	43	34	28	29	29	27	25	24	25	28	27	26	26	30	35	44.5	78	
3-May	40	45	50	53	60	60	61	63	65	62	61	57	51	49	47	41	37	35	32	28	19	22	28	34	45.8	65	
4-May	44	48	50	56	60	65	67	68	63	55	48	39	39	40	41	41	40	39	38	39	41	46	52	56	48.9	68	
5-May	59	60	61	61	65	69	70	66	59	51	45	39	34	33	31	30	30	31	30	30	34	38	38	41	46.1	70	
6-May	41	40	42	43	44	46	48	48	46	44	45	47	55	60	54	51	49	44	43	43	50	61	65	69	49.0	69	
7-May	66	59	55	54	57	72	86	92	90	91	97	94	94	96	90	88	92	99	94	96	97	99	OR	OR	84.4	99	
8-May	OR	OR	OR	99	98	87	81	79	74	69	60	52	48	40	38	37	35	32	25	23	21	22	25	28	51.1	99	
9-May	30	38	40	44	48	50	47	43	38	32	27	24	22	20	19	17	17	16	17	18	17	18	19	20	28.5	50	
10-May	21	21	24	30	37	43	43	48	42	35	31	30	29	25	21	20	19	18	18	19	22	29	34	34	28.8	48	
11-May	33	31	30	32	33	36	37	37	34	30	27	25	22	22	22	21	28	39	41	43	47	53	61	65	35.4	65	
12-May	68	68	69	71	73	75	75	72	66	60	56	51	48	44	40	39	41	42	41	42	44	45	46	47	55.1	75	
13-May	50	51	53	55	57	59	60	63	65	61	56	44	34	35	30	25	22	23	25	48	63	68	73	73	49.8	73	
14-May	71	75	72	73	78	81	74	69	66	57	40	25	23	22	23	23	24	40	44	54	53	53	57	57	50.8	81	
15-May	60	64	65	67	73	64	65	67	64	59	52	46	40	35	40	39	35	35	38	41	46	52	57	60	52.7	73	
16-May	63	70	80	85	78	81	87	91	97	97	97	98	91	92	92	91	90	87	87	91	94	94	90	86	87.8	98	
17-May	86	89	92	96	95	98	98	98	96	96	OR	OR	OR	98	100	OR	OR	OR	95	100	OR	OR	OR	OR	--	100	
18-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	100	OR	OR	OR	OR	OR	97	98	99	97	98	99	--	100	
19-May	OR	OR	OR	OR	OR	OR	OR	OR	92	87	87	86	86	84	83	79	77	75	68	68	68	65	73	77	81	--	92
20-May	85	88	88	88	89	88	89	89	85	79	72	65	64	61	60	60	63	75	71	71	69	68	72	76	75.7	89	
21-May	80	82	86	87	91	89	89	88	84	73	70	66	63	59	57	55	53	55	53	56	58	61	62	64	70.1	91	
22-May	68	64	66	74	76	78	75	72	67	62	58	56	54	53	51	50	49	49	50	52	55	58	59	63	60.7	78	
23-May	64	67	68	71	70	66	64	60	57	53	50	49	47	45	44	41	40	41	43	43	45	49	49	49	53.2	71	
24-May	56	60	64	69	70	70	72	69	64	57	49	44	39	37	36	33	31	30	30	31	39	38	41	47	49.0	72	
25-May	53	60	63	66	67	69	71	66	55	39	33	28	27	29	29	27	27	30	33	39	45	48	54	45.2	71		
26-May	57	60	63	67	67	70	67	62	55	49	41	39	43	40	38	36	34	32	31	32	33	36	39	39	47.1	70	
27-May	41	42	43	43	44	47	46	46	43	38	33	35	31	30	30	28	35	42	52	48	45	45	48	47	40.8	52	
28-May	45	51	63	72	74	73	72	71	70	65	57	54	47	42	37	29	29	28	29	30	31	32	36	49	49.5	74	
29-May	48	49	53	65	75	74	72	72	71	67	73	71	73	75	71	69	65	60	59	60	64	68	72	79	66.8	79	
30-May	85	96	95	OR	OR	92	86	80	81	81	82	80	78	79	76	71	74	74	84	78	64	67	61	68	78.7	96	
31-May	76	72	63	69	85	75	69	60	54	54	57	56	59	63	57	55	54	55	62	65	65	68	72	68	63.9	85	
																				Diurnal Average							
59.0										61.2										95							
63.1										66.3										99							
69.1										70.8										100							
70.5										70.5										98							
69.9										65.9										97							
60.6										55.1										97							
50.8										50.8										98							
50.4										49.1										98							
47.2										47.2										100							
43.3										43.2										91							
43.2										43.9										92							
48.3										48.3										97							
49.8										49.8										100							
49.9										49.9										99							
52.9										52.9										99							
53.9										53.9										98							
56.8										56.8										99							
																				Diurnal Maximum							
OR - Out of Range																											







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

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

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	15	2.13	2.13
20 - 40	169	24.04	26.17
40 - 60	213	30.30	56.47
60 - 80	199	28.31	84.78
80 - 100	105	14.94	99.72

Total Number of Valid Hours: 703

Total Number of Hours: 744



Maximum Speed: 34 km/h on May 11 13:00	Maximum Daily Speed Average: 21.7 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 28 11:00	Minimum Daily Speed Average: 0.7 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 3.6 km/h at hour 20	Minimum Diurnal Speed Average: 0.9 km/h at hour 13	Hours of Missing Data: 0
Monthly Average Velocity: 1.4 km/h 37.9 deg	Percentiles: $P_1 = 2$ $P_{10} = 6$ $Q_1 = 9$ Median = 12 $Q_3 = 16$ $P_{90} = 21$ $P_{99} = 31$	Percent Operational Time: 100.0

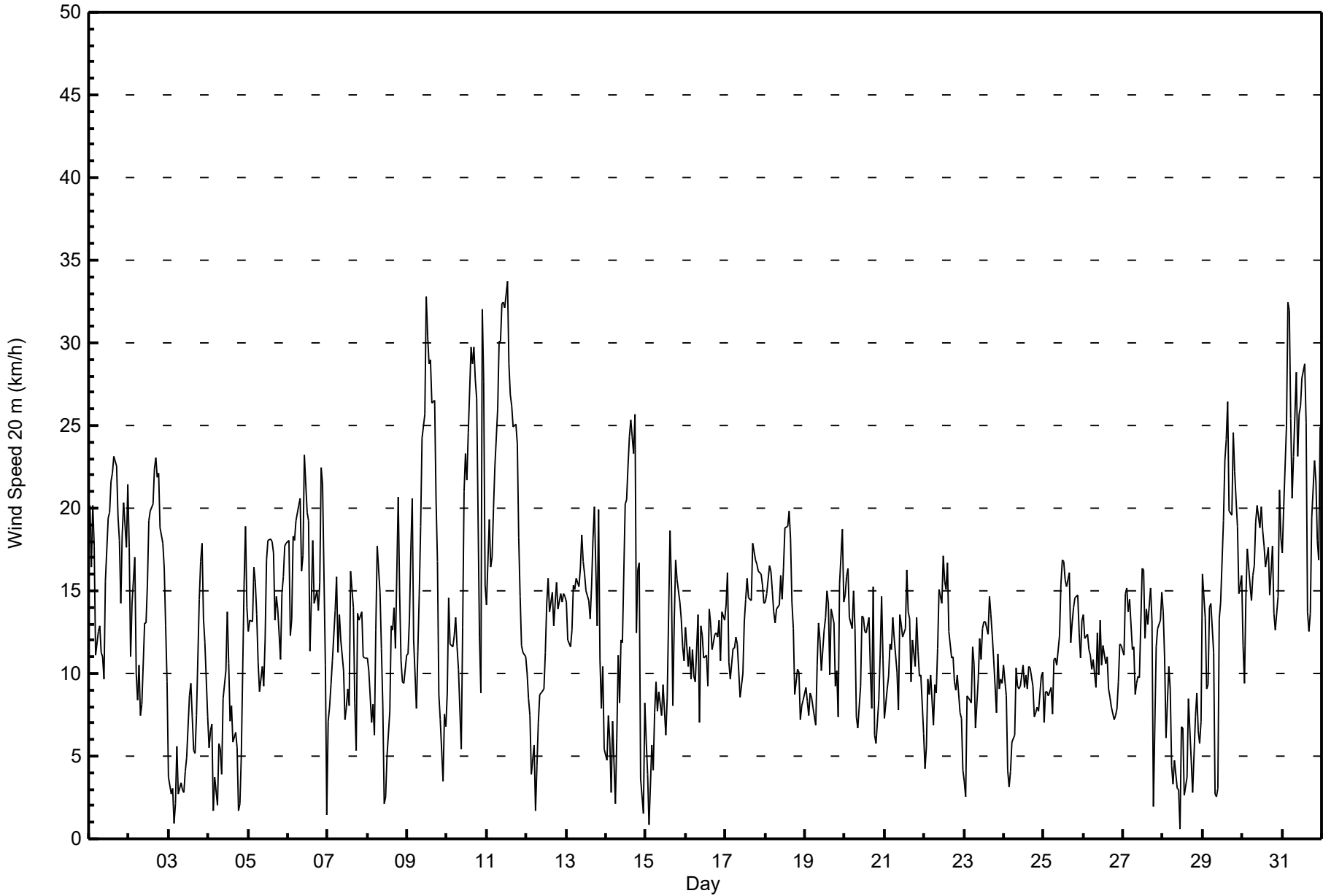
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	N20	N16	NNE20	N18	N11	N13	N13	N11	N11	NNE10	N16	N19	NNE20	N22	N22	NNE23	NE23	NE19	NE18	NNE14	NNE18	N20	N18	N21	NNE16.9	NNE23
2-May	N18	N11	N14	N17	N10	NNE8	NNE10	NNE7	N8	NNE13	NNE13	N15	NNE19	NNE20	N20	N22	N23	N22	N22	N19	N18	N16	N13	NE9	N15.3	N23
3-May	NE4	ENE3	SSE3	NE1	ESE2	SSE6	SW3	SSE3	SE3	SE3	ENE4	NW5	NW9	NW9	WNW7	NNW5	NNE5	N7	N14	NNE17	N18	N13	N12	N7	N4.4	N18
4-May	NE6	NNW7	N7	NNW2	WNW4	NW2	N6	N5	W4	NW8	NW10	NW14	NW11	WNW7	ENE8	NE6	ESE6	E6	ENE2	ENE2	SE5	SE15	SE19	SE14	NNE1.6	SE19
5-May	SE13	SE13	SE13	SE16	SE15	SE14	SSE11	SE9	SSE10	SSE9	SE12	SE17	SE18	SE18	SSE17	SSE13	SSE15	SSE14	SE11	SE15	SE16	SE18	SE18	SE18	SE14.1	SE18
6-May	SE18	SE12	SE13	SE18	SE18	SE19	SE20	SE21	SE16	SE17	SE23	ESE20	SE19	E11	ENE14	E18	ESE14	E15	E14	E16	S22	SSE21	S10	ESE1	SE14.8	SE23
7-May	NE7	ENE8	E9	ESE11	ESE14	SE16	E11	E14	ESE12	ESE10	ESE7	E8	SE9	SSE8	SE16	SE14	SSE8	SE5	SE14	SE13	SE14	SSE11	SSE11	SSE11	ESE9.8	SE16
8-May	SSE11	SSE10	SSE7	SSE8	SW6	W13	WNW18	WNW15	NW12	NW8	N2	ESE3	SSE5	S8	S13	SSW13	SSW14	SSW12	SW21	SW15	SW11	SW9	WSW9	WSW11	SW6.9	SW21
9-May	WSW11	WSW13	W17	W21	W12	WSW8	W11	WNW15	WNW19	WNW24	WNW26	WNW33	WNW30	WNW29	WNW29	NW26	NW27	NW20	NW17	NW9	N7	ENE3	SSW8	SSW7	WNW15.8	WNW33
10-May	SSE9	SSE15	SSE12	SSE12	SSE12	SSE13	SSE12	SE10	SE5	SW13	WSW21	WSW23	WSW22	W25	W30	W29	W30	W28	WNW27	WNW12	NW9	N32	N28	NNW15	W9.1	N32
11-May	WNW14	WNW19	WNW16	W17	W20	WNW23	WNW26	WNW30	NW30	NW32	NW32	NW32	NW34	NNW29	NNW27	NNW26	N25	NNE25	NNE24	NNE18	NNE15	NNE12	ENE11	ENE11	NW18.1	NW34
12-May	ENE10	SE8	SE7	SSE4	SW6	SSE2	E4	ESE7	SE9	ESE9	E9	ESE11	SE14	SE16	SE14	SE15	ESE13	ESE14	SE16	SE14	SE15	SE14	SE15	SE15	SE10.2	SE16
13-May	SE14	SE12	SE12	SE13	SE15	SE15	SE16	SSE15	SSE16	SE18	SE17	SSE16	SSW15	SW14	SW13	SW15	WSW18	WSW20	WNW13	NNW20	NNE11	NNE8	NNE10	NE5	S6.3	WSW20
14-May	SW5	SW7	SW6	S3	S7	SSE2	SE6	SSE11	SE8	SSE12	SSE12	SW20	SW20	WSW23	WSW24	WSW25	WSW23	WNW26	NNW12	N16	NNE17	NE4	SE2	WSW8	SW6.8	WNW26
15-May	WSW6	WSW4	ENE1	SSW6	NW4	NNE8	NNE10	NNE8	NNE9	N7	NNE9	NNE8	N6	N9	NNW19	N15	NNE8	NNE13	NNE17	NE16	NNE14	NNE13	NNE12	NE11	NNE8.0	NNW19
16-May	NE13	NNE10	NNE12	N10	NNE11	NNE10	NE10	NE14	NNE7	NE13	NNE12	NNE11	ENE11	NNE9	NNE14	NNE13	NNE11	NNE12	NNE12	NE12	ENE13	NE11	NE14	ENE13	NNE11.0	NNE14
17-May	ENE14	ENE16	NE11	NNE10	NE11	NNE12	N12	N12	N10	NNE9	NNE10	NNE13	NNE14	NNE16	NNE15	NNE14	N18	N17	N17	NNW17	NNW16	NNW16	NNW15	NNW14	NNE12.7	N18
18-May	NNW14	NNW15	NNW17	NNW16	NNW15	NNW14	NNW13	NNW14	NNW14	NNW16	NNW14	NNW16	NNW19	NNW19	NNW20	NNW18	NNW14	NNW13	NNE9	NNE10	E10	NNE7	NNE8	NNE8	NNW13.0	NNW20
19-May	NNE9	NNE8	NNE7	N9	NNE9	NNE8	NNE7	ENE11	ENE13	ENE12	ENE10	ENE13	ENE13	ENE15	E14	ENE10	ENE14	NE13	NNE9	NNE10	NNE7	N15	N19	N14	NE10.0	N19
20-May	N15	N16	NNE16	NNE13	NNE13	N15	N13	N7	N7	NW9	NW13	NNW13	NNE13	NNE12	NNE13	N10	ESE8	SE15	S6	SW6	SSE8	SE11	SE15	SE11	NNE5.8	NNE16
21-May	SE7	ESE9	ESE10	SE12	SE11	SE13	SE12	SE10	ESE8	ESE14	ESE13	ESE12	E13	E16	E14	E13	E9	ENE12	ENE10	E13	E11	E10	E10	ESE6	ESE10.5	E16
22-May	ENE4	NE6	ENE10	E9	E10	NE7	ENE9	ENE9	NE12	NE15	ENE14	ENE17	ENE16	ENE15	ENE17	ENE13	ENE11	E11	ESE9	ESE9	ESE10	SE8	ESE7	ESE4	ENE9.7	ENE17
23-May	E3	E3	ESE9	ESE8	ESE8	ESE12	ESE11	SE7	E10	E12	E11	SE13	SSE13	SSE13	SSE12	SSE15	SSE14	SSE12	SSE11	S8	SSE11	S9	SSE10	SSE9	SE9.0	SSE15
24-May	SE10	SSE9	SE4	SSE3	SSE4	SSE6	SE6	SSE10	SE9	SE9	SE9	SE11	SSE9	SE10	SSE9	SSE10	SSE10	S9	S7	SSW8	SW8	SW8	S10	S10	SSE7.6	SE11
25-May	S7	SE9	SE9	SSE9	SSE9	SSE8	SSE11	SE11	SE10	SE12	SE15	SE17	SE17	SE16	SE15	SE16	SE12	ESE13	SE14	SE15	SE15	SE12	SE11	SE13	SE12.2	SE17
26-May	SE14	SE12	SSE12	SSE11	SSE11	SE10	SE11	SE9	SSE12	SE10	ESE13	SSE11	SSW12	SSE11	SSE11	SSE9	SSE9	S8	SE7	SE7	ESE8	SE10	SSE12	SSE12	SSE10.0	SE14
27-May	SE11	SE15	SE15	SE14	SE14	SSE11	SE12	SE9	SE9	SE10	SE10	SSE16	SSE16	SSE12	SE14	SSE13	SSW15	WSW13	W2	ESE7	SE12	SE13	SE13	SE15	SSE10.9	SSE16
28-May	SSE14	WSW11	WNW6	NW10	NE9	ENE4	S3	SSE5	SW3	SSW3	SW1	NNE7	E7	NNW3	N4	SW9	SSW7	SSW5	SSE3	NNE7	NNE9	NE7	NNW6	NNE7	NNE0.7	SSE14
29-May	NE16	NE13	ENE9	E9	ENE14	E14	E11	NE3	SW3	WNW3	WSW13	WSW14	SW19	SW23	SW24	WSW26	SW20	SW20	WSW25	SW22	SW21	SW19	SW15	SW16	SW8.2	WSW26
30-May	S12	SSW9	W15	W18	WNW15	WNW14	WNW16	WNW16	WNW19	WNW20	WNW19	WNW20	WNW19	WNW18	WNW16	WNW18	NW15	WNW16	W18	WNW14	NW13	WNW15	WNW21	W18	WNW15.0	WNW21
31-May	W17	W20	WNW25	WNW32	WNW32	WNW25	WNW21	WNW23	WNW28	WNW23	WNW26	WNW26	WNW28	WNW29	WNW25	NW14	N13	N14	NNW19	NW23	NW22	NW18	NNW17	NW25	NW21.7	WNW32

E3.0	E1.7	ENE1.6	ENE0.9	E1.4	E1.6	ENE1.6	ENE1.3	NE1.2	NNE1.8	NNE1.7	NNW1.4	NW0.9	NW2.2	NNW2.3	NNW1.7	N1.1	N1.7	N2.7	NNE3.6	NE2.9	NE2.7	ENE2.6	E1.8	Diurnal Average	
N20	W20	WNW25	WNW32	WNW32	WNW25	WNW26	WNW30	NW30	NW32	NW32	WNW33	NW34	WNW29	W30	W29	W30	W28	WNW27	NW23	S22	N32	N28	NW25	Diurnal Maximum	

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





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	61	8.20	8.20
6 - 11	261	35.08	43.28
12 - 19	326	43.82	87.10
20 - 28	78	10.48	97.58
29 - 38	18	2.42	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 20 m (WS20m) - km/h**  
**Mannix - May 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	1	5	8	3	4	7	10	2	2	5	1	2	2	3	3	61
6 - 11	20	44	11	16	18	23	39	39	12	6	10	7	1	4	9	2	261
12 - 19	32	36	13	19	12	12	81	32	1	7	9	5	9	22	8	28	326
20 - 28	12	6	1	0	0	1	3	1	1	0	9	10	5	19	6	4	78
29 - 38	1	0	0	0	0	0	0	0	0	0	0	0	3	8	5	1	18
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	68	87	30	43	33	40	130	82	16	15	33	23	20	55	31	38	744

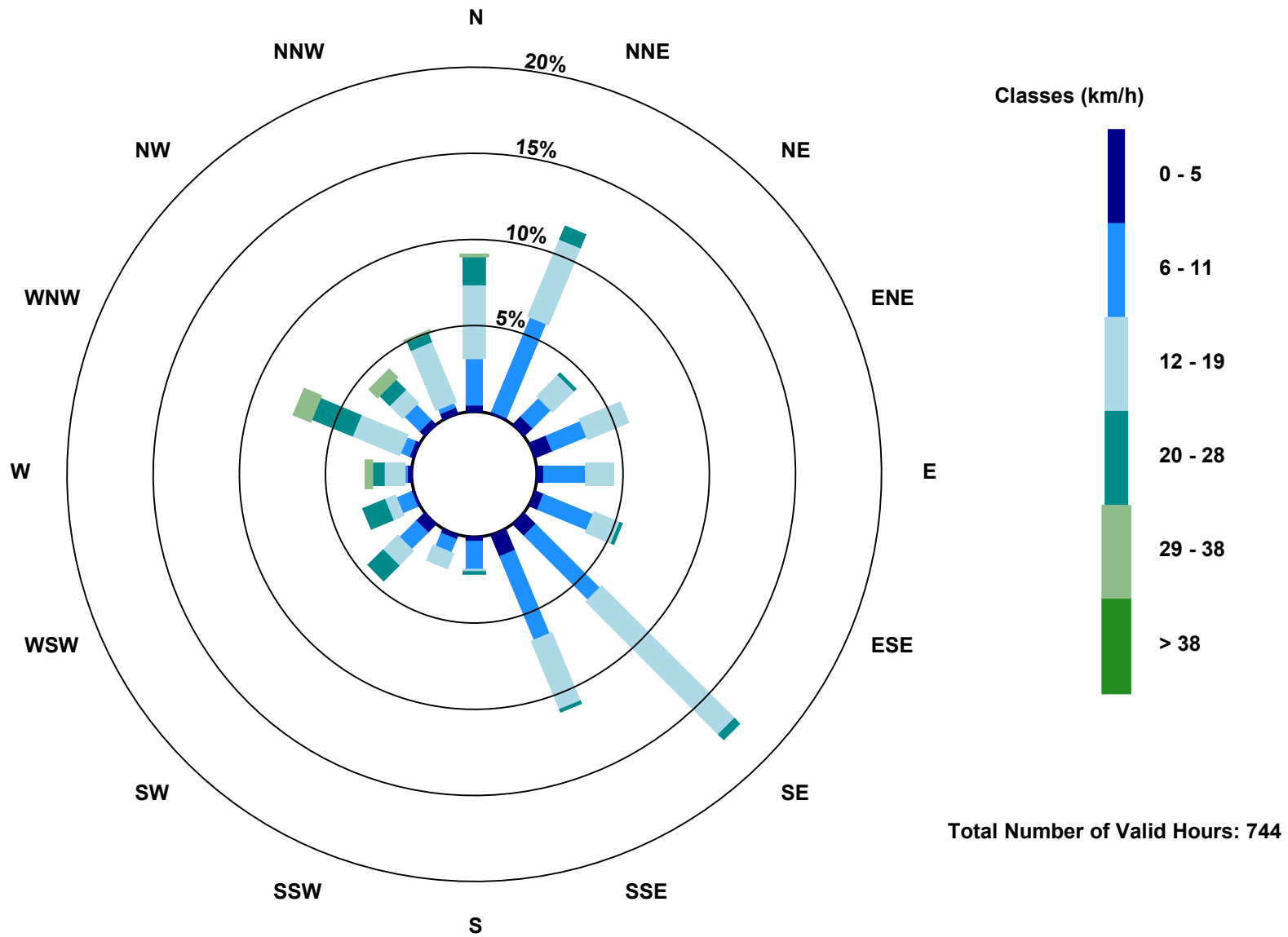
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Maximum Speed: 45 km/h on May 31 04:00	Maximum Daily Speed Average: 30.2 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 28 11:00	Minimum Daily Speed Average: 1.1 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 5.0 km/h at hour 20	Minimum Diurnal Speed Average: 1.5 km/h at hour 8	Hours of Missing Data: 0
Monthly Average Velocity: 2.0 km/h 29.5 deg	Percentiles: $P_1 = 3$ $P_{10} = 8$ $Q_1 = 12$ Median = 17 $Q_3 = 21$ $P_{90} = 27$ $P_{99} = 40$	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-May	N28	N22	N27	N25	N16	N17	N17	N13	N12	N11	N19	N24	NNE24	N27	N27	NNE28	NE29	NE24	NE22	NNE19	N25	N27	N25	N29	N21.9	N29	
2-May	N24	N17	N21	N23	N16	N12	NNE13	NNE9	N10	N15	N16	N18	N24	N24	N26	N28	N29	N28	N30	N25	N24	N23	N19	NE13	N20.1	N30	
3-May	NE6	SE3	SSE7	SE5	SSE5	SSE9	SSE3	SSE4	SE3	ESE3	NE4	NW5	NW10	NW11	WNW9	NW7	NNE6	N10	N18	NNE22	N25	N19	N18	N11	N5.3	N25	
4-May	NE8	N10	N11	N5	NNW6	N6	N8	N6	WNW5	NW10	NW12	NW17	NW12	WNW9	NE9	NE7	E7	ENE6	ENE1	ENE2	SE7	SE20	SE24	SE20	NNE2.8	SE24	
5-May	SE19	SE20	SE19	SE22	SE21	SE18	SE13	SE11	SE12	SE11	SE14	SE19	SE19	SE20	SE22	SE21	SSE21	SSE17	SSE19	SE18	SE15	SE19	SE20	SE23	SE23	SE17.9	SE23
6-May	SE23	ESE15	SE16	SE21	SE22	SE24	SE24	SE25	SE18	SE19	SE28	ESE23	ESE22	E13	ENE18	E20	ESE17	E18	ENE17	E19	SSE32	SSE28	SSE16	ESE3	ESE18.1	SSE32	
7-May	NE11	ENE11	E12	ESE14	ESE17	SE19	E14	E16	E14	ESE12	E10	E10	ESE12	SE11	SE20	SE17	SE12	ESE6	SE16	SE17	SE18	SE15	SE15	SSE15	ESE12.8	SE20	
8-May	SSE16	SSE14	SSE12	SSE14	SW10	W19	WNW26	WNW21	NW16	NW10	NNW3	ESE3	SSE5	S10	S17	SSW17	SSW20	SSW16	SW27	SW21	SW18	SW17	SW17	WSW18	SW10.2	SW27	
9-May	WSW18	WSW21	WSW24	W25	W19	WSW13	W14	W19	WNW23	WNW30	WNW31	W40	WNW37	WNW36	WNW36	WNW34	NW34	NW26	NW23	NW14	N12	NE5	S7	S14	WNW20.2	W40	
10-May	SSE18	SSE23	SSE20	SE20	SE19	SSE20	SSE16	SE13	SE6	SW15	WSW25	WSW29	SW27	WSW28	W34	W33	W35	W33	W32	WNW18	WNW14	N42	N37	NNW21	WSW11.1	N42	
11-May	WNW22	WNW28	WNW24	W22	W25	WNW30	WNW33	WNW38	WNW39	NW41	NW42	NW42	NW44	NW37	NW35	NNW34	N32	NNE32	NNE30	NNE25	NNE20	NNE17	NE15	ENE13	NW24.1	NW44	
12-May	ENE12	ESE11	SE10	SE7	S7	SSE5	E5	E8	SE10	ESE10	E10	ESE13	SE16	SE18	SE17	SE18	ESE15	ESE16	SE19	SE18	SE18	SE19	SE19	SE20	ESE12.9	SE20	
13-May	SE20	SE18	SE18	SE19	SE21	SE21	SE21	SE20	SSE20	SE23	SE21	SSE21	SSW20	SW18	SW17	SW19	WSW22	WSW25	WNW16	NNW27	NNE16	NNE12	NNE13	NE8	SSE8.5	NNW27	
14-May	SSW5	SW8	WSW7	W3	S9	S5	SE8	SSE14	SSE10	SE15	SSE15	SW25	SW26	SW27	SW29	WSW30	WSW29	W32	NNW16	N22	N23	NNE5	ENE2	SW11	SW8.2	W32	
15-May	SW11	SW8	S2	SW8	NNW6	NNE13	NNE13	NNE10	NNE11	N9	N11	N10	N8	N11	NNW24	N19	N10	NNE16	NNE21	NNE21	NNE20	NNE18	NNE16	NE14	N10.0	NNW24	
16-May	NE16	NNE13	N16	N13	NNE15	NNE13	NE13	NE19	NE9	NNE17	NNE16	NNE14	ENE13	NNE12	N19	NNE17	NNE16	NNE17	NE17	NE18	NE15	NE19	NE18	NNE14.8	NE19		
17-May	NE19	NE21	NNE15	NNE13	NNE16	NNE17	N18	N16	N14	NNE12	NNE13	NNE17	NNE19	N21	NNE20	NNE20	N25	N25	N24	NNW24	NNW24	NNW23	NNW22	NNW21	N17.8	N25	
18-May	NNW21	NNW22	NNW24	NNW23	NNW21	NNW20	NNW19	NNW19	NNW20	NNW22	NNW20	NNW23	NNW26	NNW26	NNW27	NNW26	NNW20	NNW18	NNE12	NNE14	ENE12	NNE10	NNE11	NNE12	NNW18.4	NNW27	
19-May	NNE12	NNE11	NNE10	N13	NNE12	NNE11	NNE9	NE13	ENE16	ENE14	NE12	NE15	NE16	ENE18	ENE16	ENE12	ENE17	NE16	NNE13	N14	NNE12	N22	N26	N21	NNE13.4	N26	
20-May	N21	N22	N22	N20	N20	N22	N17	N9	N8	NW12	NW17	NW17	N17	N15	N18	N13	ESE9	SE19	S9	SW8	SSE12	SE17	SE19	ESE13	NNE8.2	N22	
21-May	ESE10	ESE11	ESE13	SE15	SE14	ESE15	SE14	SE12	ESE9	ESE15	E15	ESE14	E14	E19	E16	ENE16	E11	ENE15	ENE12	E16	E13	E13	E13	ESE9	E12.7	E19	
22-May	ENE8	ENE9	ENE13	E11	E11	NE9	ENE11	ENE11	NE14	NE18	ENE17	ENE20	ENE18	NE18	NE19	ENE15	ENE13	E13	E11	ESE11	ESE12	SE11	E10	E6	ENE12.0	ENE20	
23-May	E5	ENE4	E10	ESE10	ESE10	ESE13	ESE12	ESE8	E11	E14	E12	SE15	SSE16	SE16	SSE16	SSE19	SSE18	SSE16	SSE15	S12	SSE18	SSE17	SSE16	SE17	SE11.9	SSE19	
24-May	SE15	SE14	SE6	SE4	SE6	SE10	SE9	SE12	SE11	SE11	SE11	SE13	SE11	SE13	SSE13	SSE13	S13	S10	S12	SW12	SW10	S12	S15	S15	SSE10.0	SE15	
25-May	S16	SE16	SE16	SSE17	SE18	SE14	SE14	SE14	SE14	SE15	SE18	SE21	SE21	SE20	SE19	SE20	ESE15	ESE15	ESE18	SE19	SE21	SE19	SE18	SE19	SE17.0	SE21	
26-May	SE20	SE18	SE18	SE19	SE19	SE13	SE14	SE12	SE16	SE13	ESE15	SE14	S16	SSE14	SSE15	SSE12	SSE11	SSE11	SE10	ESE10	E10	ESE13	SE17	SSE18	SE13.9	SE20	
27-May	SE16	SE21	SE21	SE21	SE21	SE16	SE14	SE11	SE12	ESE12	SE12	SSE21	SSE22	SSE16	SE17	SE17	SSW21	SW17	W3	E9	SE16	SE18	SE20	SE22	SE14.9	SE22	
28-May	SE22	SW16	NW8	NW17	NNE14	E6	SSE4	SSE6	SW4	SSW4	SW1	NNE8	ENE7	NNW3	N3	SW11	S10	SSW7	SE3	NNE12	NNE14	NE11	NNW9	NNE12	NNE1.1	SSE22	
29-May	NE24	NE20	ENE12	E12	ENE19	E18	E13	NE3	SW3	W3	WSW16	WSW18	SW26	SW31	SW31	SW33	SW26	SW26	SW32	SW30	SW28	SW27	SSW22	SSW24	SW10.9	SW33	
30-May	S19	S15	W19	W22	WNW21	WNW21	W22	WNW24	WNW27	WNW28	WNW26	WNW28	WNW25	WNW24	WNW22	WNW25	NW22	WNW21	W22	WNW20	NW20	WNW22	WNW30	W23	WNW20.7	WNW30	
31-May	W22	W26	WNW35	WNW45	WNW44	WNW36	WNW29	WNW31	WNW38	WNW32	WNW36	WNW36	WNW38	WNW39	WNW34	NW20	N18	NNW21	NNW29	NW33	WNW30	NW27	NNW25	NW36	WNW30.2	WNW45	

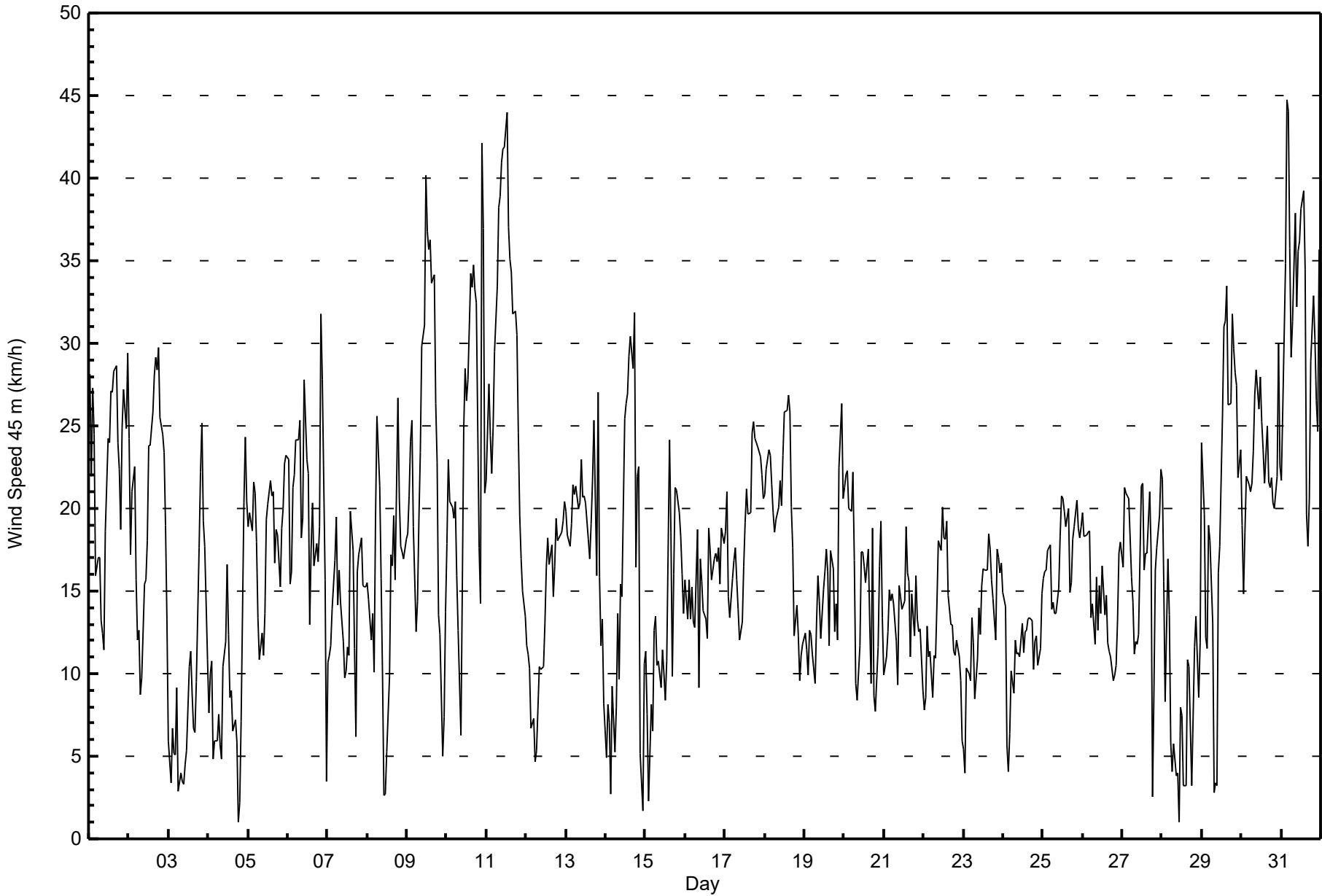
E4.4	E2.7	ENE2.2	ENE1.6	ENE2.3	ENE2.3	NE2.2	NE1.5	NNE1.6	N2.4	N2.5	NNW2.2	NW1.7	NW3.0	NW3.2	NW2.6	N1.6	N2.5	N3.9	NNE5.0	NE4.0	NE4.1	ENE3.7	E2.8	Diurnal Average	
N28	WNW28	WNW35	WNW45	WNW44	WNW36	WNW33	WNW38	WNW39	NW41	NW42	NW42	NW44	WNW39	WNW36	NNW34	W35	W33	W32	NW33	SSE32	N42	N37	NW36	Diurnal Maximum	

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





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 14 km/h on May 10 22:00																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Minimum Value: 1 km/h on May 14 02:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8																									
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-May	5	5	4	6	4	4	4	3	3	3	5	5	6	5	7	7	5	5	4	4	5	5	5	6	7
2-May	7	3	2	3	3	3	3	3	4	4	4	5	6	7	7	6	8	7	7	6	5	5	5	3	8
3-May	3	1	1	1	3	6	2	2	2	2	3	3	4	5	3	4	3	5	5	4	4	4	3	2	6
4-May	2	2	3	2	1	2	2	2	3	3	4	4	5	5	4	4	3	3	2	2	6	4	5	2	6
5-May	2	4	3	5	4	4	2	3	2	3	4	5	7	7	5	5	5	6	4	3	4	4	4	5	7
6-May	6	5	4	6	4	4	5	5	5	8	8	7	8	3	5	5	4	4	4	5	6	6	4	2	8
7-May	2	3	3	4	5	7	4	4	4	4	3	4	3	3	7	4	1	2	4	3	3	3	3	2	7
8-May	2	3	2	1	2	3	4	4	3	3	3	2	3	5	5	4	6	7	5	4	2	2	2	1	7
9-May	2	2	3	3	4	3	3	6	4	6	6	8	7	6	8	7	6	5	6	3	2	2	4	1	8
10-May	2	2	2	3	3	4	3	2	3	7	5	6	6	7	8	7	7	8	7	4	4	14	8	5	14
11-May	4	5	3	3	3	5	6	6	8	7	8	9	9	8	8	7	7	6	6	7	5	3	3	3	9
12-May	2	4	2	3	1	2	2	3	3	3	4	5	5	4	4	4	4	6	4	4	4	4	4	4	6
13-May	4	3	2	3	4	3	4	4	4	5	5	5	6	5	5	7	7	6	7	7	10	4	2	4	10
14-May	2	1	1	2	4	3	3	3	2	4	4	9	7	7	7	6	6	6	7	8	8	6	1	3	9
15-May	2	3	1	2	2	3	4	5	4	3	4	4	4	5	6	4	5	5	5	5	4	4	3	3	6
16-May	3	4	2	3	2	2	3	6	5	4	3	3	4	3	3	3	2	3	2	4	3	3	4	4	6
17-May	4	4	4	3	4	3	3	2	2	2	3	3	4	3	4	4	4	4	5	5	4	4	4	3	5
18-May	4	3	4	4	4	3	3	3	3	4	4	4	5	5	5	5	5	4	3	4	5	1	2	2	5
19-May	2	2	3	2	2	2	2	5	3	4	3	5	5	4	4	3	4	5	3	2	2	8	5	4	8
20-May	4	4	3	3	4	4	4	4	2	2	3	3	5	4	3	3	5	4	2	1	2	3	4	5	5
21-May	4	3	4	4	4	4	4	3	4	5	4	5	5	5	5	4	3	4	4	4	3	2	2	4	5
22-May	3	2	3	3	5	3	3	4	4	4	5	5	4	5	5	4	3	4	3	3	3	4	3	2	5
23-May	3	2	4	3	3	4	4	4	4	4	4	5	4	6	6	5	4	4	3	2	3	1	1	2	6
24-May	1	1	3	1	3	3	3	3	4	4	4	5	5	5	5	5	3	3	2	2	1	1	1	2	5
25-May	4	2	2	1	1	2	2	3	3	5	6	6	6	5	6	5	4	5	5	4	4	3	4	3	6
26-May	3	3	4	3	3	4	3	2	3	5	5	5	5	5	5	5	4	3	3	3	3	4	3	3	5
27-May	5	4	3	4	4	3	3	3	4	4	6	6	5	4	6	5	8	5	4	3	5	3	3	3	8
28-May	4	5	3	3	5	4	2	1	2	2	2	4	3	3	3	6	5	3	2	1	2	4	5	6	6
29-May	4	4	4	7	3	4	4	3	4	4	4	3	6	7	7	6	5	7	7	6	6	6	5	5	7
30-May	3	3	6	3	3	3	3	4	5	4	4	5	5	5	4	5	5	4	3	4	3	3	7	3	7
31-May	3	4	6	8	9	7	5	6	6	6	7	6	6	7	8	5	4	5	7	7	5	6	6	7	9
Diurnal Maximum																									
7 5 6 8 9 7 6 6 8 8 8 9 9 8 8 7 8 8 7 8 10 14 8 7																									





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	40	5.38	5.38
6 - 11	128	17.20	22.58
12 - 19	325	43.68	66.26
20 - 28	189	25.40	91.67
29 - 38	52	6.99	98.66
> 38	10	1.34	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

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

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	1	3	4	2	3	5	6	2	2	3	0	3	1	1	2	40
6 - 11	17	11	9	7	16	14	19	6	7	2	8	1	0	2	7	2	128
12 - 19	30	42	21	22	21	24	84	31	11	2	10	5	5	3	9	5	325
20 - 28	36	11	5	1	1	2	41	10	0	5	11	6	9	20	6	25	189
29 - 38	5	2	1	0	0	0	0	1	0	0	5	4	6	21	5	2	52
> 38	1	0	0	0	0	0	0	0	0	0	0	0	1	4	4	0	10
<b>Totals</b>	91	67	39	34	40	43	149	54	20	11	37	16	24	51	32	36	744

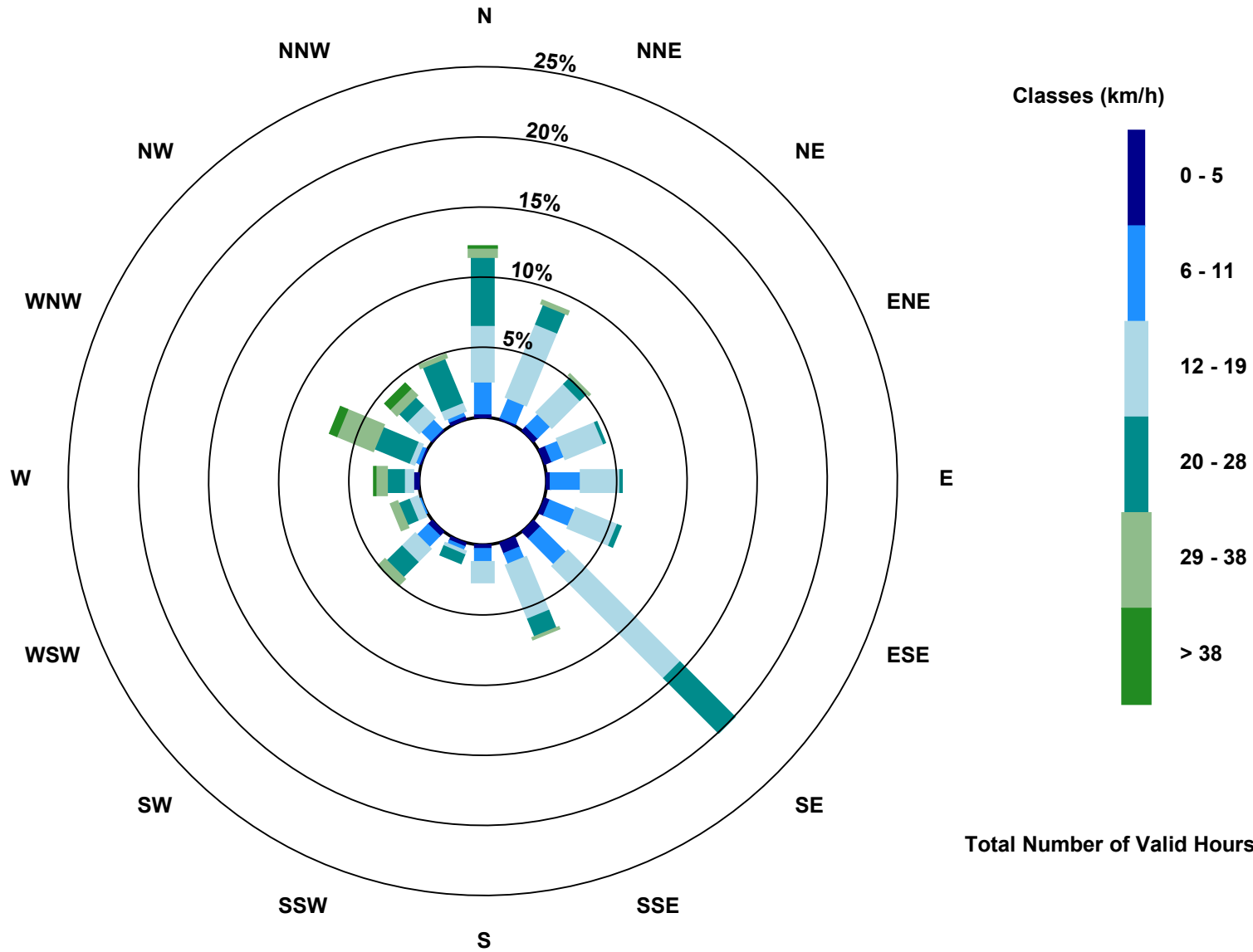
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Maximum Speed: 48 km/h on May 31 04:00	Maximum Daily Speed Average: 33.2 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 28 11:00	Minimum Daily Speed Average: 1.5 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 6.1 km/h at hour 20	Minimum Diurnal Speed Average: 1.6 km/h at hour 8	Hours of Missing Data: 0
Monthly Average Velocity: 2.4 km/h 26.0 deg	Percentiles: $P_1 = 3$ $P_{10} = 9$ $Q_1 = 12$ Median = 18 $Q_3 = 24$ $P_{90} = 30$ $P_{99} = 42$	Percent Operational Time: 100.0

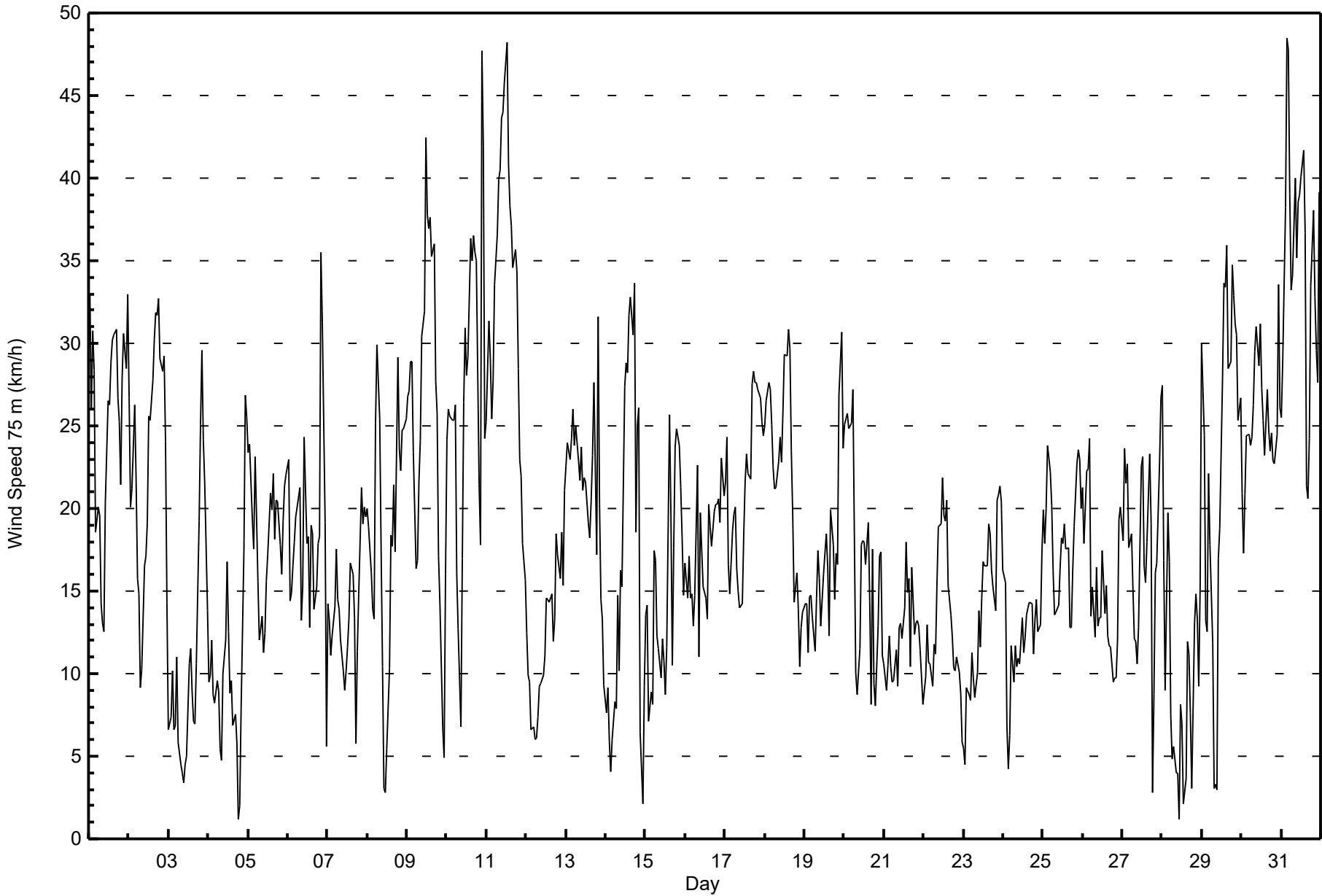
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	N33	NNE26	NNE31	N28	N19	N20	N20	N14	N13	N13	N20	N26	NNE26	N29	N30	NNE30	NE31	NE27	NE25	NNE21	NNE28	N31	N28	N33	NNE24.6	N33
2-May	N27	N20	N21	N26	N22	N16	NNE15	NNE9	N10	N16	N17	N19	NNE26	NNE25	N28	N30	N32	N32	N33	N29	N28	N29	N24	ENE14	N22.6	N33
3-May	ENE7	SE7	SSE10	SE7	SSE7	SSE11	SSE6	SSE4	SSE4	ESE3	ENE4	NW5	NW11	NW12	WNW9	NNW7	NNE7	N11	N19	NNE25	N30	N24	NNE22	NNE14	NNE5.6	N30
4-May	ENE10	N10	N12	N9	N8	N10	NNE9	N5	WNW5	NW10	NW12	NW17	NW13	NW9	NE10	NE7	E8	ENE6	E1	ENE2	ESE8	SE17	SE27	SE26	NNE3.5	SE27
5-May	SE23	SE24	SE19	SE18	SE23	SE20	SE16	SE12	SE13	SSE11	SE12	SE16	SE17	SE21	SE20	SSE22	SSE18	SSE20	SSE20	SE18	SE16	SE19	SE21	SE22	SE18.2	SE24
6-May	SE23	ESE14	SE15	SE17	SE18	SE19	SE21	SE21	SE13	SE15	SE24	ESE18	SE18	E13	ENE19	E18	ESE14	E15	E18	E18	SSE36	SSE31	SSE19	ESE6	SE16.4	SSE36
7-May	ENE14	E13	E11	ESE12	ESE14	SE18	E14	ESE14	ESE12	ESE10	E9	E10	ESE12	SE13	SE17	SE16	SE13	ESE6	SE11	SE15	SE21	SE19	SSE20	SSE19	ESE12.8	SE21
8-May	SSE20	SSE19	S16	S14	WSW13	WNW25	WNW30	NW25	NW17	NW10	NNW3	ESE3	SSE5	S10	S18	SSW18	SSW21	SSW17	SW29	SW24	SW22	SW25	WSW25	WSW25	SW12.3	WNW30
9-May	WSW27	WSW27	WSW29	W29	W23	W16	W17	WNW22	WNW24	WNW30	WNW32	WNW42	WNW38	WNW37	WNW38	NW35	NW36	NW28	NW26	NNW17	N14	NE7	SSE5	S16	WNW22.0	WNW42
10-May	S24	S26	S26	SSE25	SSE25	SSE26	SSE16	SSE13	SSE7	SW17	WSW26	WSW31	SW28	WSW29	W36	W35	W37	W35	W35	WNW21	NW18	N48	N42	NNW24	WSW13.3	N48
11-May	WNW25	WNW31	WNW29	W25	W28	WNW34	WNW37	WNW40	NW41	NW44	NW44	NW46	NW48	NNW41	NNW38	NNW37	N35	NNE36	NNE34	NNE28	NNE23	NNE22	ENE18	ENE16	NW26.6	NW48
12-May	ENE12	SE10	SE10	SE7	SSE7	SE6	E6	ESE7	SE9	ESE9	E10	ESE11	SE15	SE15	SE14	SE15	ESE12	ESE13	SE18	SE17	SE16	SE19	SE15	SE21	SE11.8	SE21
13-May	SE23	SE24	SE23	SE24	SE26	SE24	SE25	SSE23	SSE22	SSE24	SE21	SSE22	SSW22	SW19	SW18	SW20	WSW23	WSW28	WNW17	N32	NNE20	NNE15	NNE13	ENE9	SSE10.0	N32
14-May	S8	SSW9	SW6	W4	S6	S8	SE8	SSE15	SSE10	SSE16	SSE15	SW27	SW29	SW28	SW32	WSW33	WSW30	W34	NNW19	N25	NNE26	N6	NE2	SSW9	SW8.5	WNW34
15-May	SSW14	SW14	SW7	SW9	NW8	NNE17	NNE17	NNE12	NNE11	N10	NNE12	N11	N9	N12	NNW26	N20	N11	NNE18	NNE24	NE25	NNE24	NE21	NNE18	NE15	NNE10.9	NNW26
16-May	NE17	NNE15	NNE17	N15	NNE15	NNE13	NE15	NE23	NE11	NE20	NNE17	NE15	ENE15	NNE13	N20	NNE19	NNE18	NNE20	NE20	ENE20	ENE21	NE19	NE23	ENE21	NE16.8	NE23
17-May	ENE22	ENE24	NE17	NNE15	NE19	NNE20	NNE20	N16	NNE15	NE14	NNE14	NNE18	NNE22	NNE23	NNE22	NNE22	N28	N28	N28	NNW28	NNW27	NNW27	NNW25	N24	NNE20.0	N28
18-May	NNW25	N27	N28	N27	NNW25	NNW22	NNW21	NNW21	NNW23	NNW24	NNW23	NNW26	NNW29	NNW29	NNW31	NNW30	NNW23	NNW20	NNE14	NNE16	ENE14	NE10	NNE13	NNE14	N21.0	NNW31
19-May	NNE14	NNE14	NE11	N15	NNE15	NNE13	NE11	ENE15	ENE17	ENE16	NE13	NE16	NE17	ENE18	ENE16	ENE12	ENE20	NE18	NE14	NNE17	NNE17	N27	N31	N24	NE15.4	N31
20-May	N25	N25	N26	N25	N25	N27	N19	N10	N9	NW12	NW18	NNW18	NNE18	NNE17	NNE19	N14	ESE8	SE18	S9	SSW8	SSE13	SE17	SE17	ESE11	NNE9.8	N27
21-May	SE11	ESE9	ESE10	SE12	ESE10	ESE10	ESE10	SE11	ESE9	ESE13	E13	ESE12	E14	E18	E15	E16	E10	ENE16	ENE12	E13	E13	E13	E11	ESE8	E11.5	E18
22-May	E9	E10	E13	E11	E11	ENE9	ENE12	ENE11	NE15	NE19	ENE19	ENE22	ENE20	NE19	NE21	ENE15	ENE14	E12	E10	ESE10	ESE11	SE10	E9	E6	ENE12.4	ENE22
23-May	E6	E5	E9	ESE9	ESE8	ESE11	ESE10	SE9	E10	E14	E12	SE15	SSE17	SSE17	SSE17	SSE19	SSE18	SSE16	SSE15	S14	SSE21	SSE21	SSE21	SSE20	SE12.4	SSE21
24-May	SE16	SE15	ESE7	ESE4	ESE6	SE12	SE9	SE12	SE10	SE11	SE11	SE13	SE11	SE12	SSE14	SSE14	S14	S11	S13	SW14	SW13	SSW13	SSW17	SSE10.4	SSW17	
25-May	S20	SSE18	SSE20	SSE24	SE22	SSE20	SSE16	SE14	SE14	SE14	SE16	SE18	SE18	SE19	SE18	SE18	ESE13	ESE13	SE16	SE19	SE23	SE24	SSE23	SE20	SE17.7	SSE24
26-May	SE21	SE18	SE22	SE22	SE24	SE13	SE15	SE12	SSE16	SE13	ESE13	SSE13	S17	SSE14	SSE15	SSE12	SSE12	SSE12	SE9	SE10	ESE10	ESE12	SE19	SSE20	SE14.7	SE24
27-May	SE18	SE24	SE22	SE23	SE18	SE19	SE15	SE12	SE12	SE11	SE13	SSE23	SSE23	SSE17	SE15	SSE18	SSW23	SW19	WSW3	ESE9	SE16	SE17	SE23	SE27	SE15.8	SE27
28-May	SSE27	SW17	NW9	NNW20	NNE17	E8	SSE5	SSE6	SSW4	SSW4	SSW1	NNE8	E7	NW2	N4	SW12	SSW11	SSW8	SE3	NNE13	NNE15	NE13	NNW9	N15	NNE1.5	SSE27
29-May	NE30	NE24	ENE13	E13	ENE22	E18	E12	NE3	SSW3	W3	WSW17	WSW19	SW28	SW34	SW33	WSW36	SW28	SW29	WSW35	SW33	SW31	SW31	SSW25	SSW27	SW11.9	WSW36
30-May	S21	SSW17	W21	W24	WNW25	WNW24	WNW24	WNW26	WNW30	WNW31	WNW29	WNW31	WNW27	WNW25	WNW23	WNW27	NW25	WNW23	W25	WNW23	NW23	WNW24	WNW34	W26	WNW23.0	WNW34
31-May	W26	W29	WNW38	WNW48	WNW48	WNW39	WNW33	WNW34	WNW40	WNW35	WNW39	WNW39	WNW40	WNW42	WNW37	NW21	N21	NNW24	NNW33	NW38	NW33	NW30	NNW28	NW39	NW33.2	WNW48

ESE5.3 ESE3.0 ENE1.8 NE1.8 ENE2.7 ENE2.6 NE2.4 NNE1.6 N1.9 N2.9 N3.0 NNW3.0 NW2.2 NNW3.5 NNW4.0 NNW3.2 N2.1 N3.0 N4.7 NNE6.1 NE4.9 NE5.2 ENE4.3 E3.4 N33 WNW31 WNW38 WNW48 WNW48 WNW39 WNW37 WNW40 NW41 NW44 NW44 NW46 NW48 WNW42 NNW38 NNW37 W37 NNE36 W35 NW38 SSE36 N48 N42 NW39	Diurnal Average	Diurnal Maximum
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All monthly, daily, and diurnal averages have been calculated using vector methods



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







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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	28	3.76	3.76
6 - 11	130	17.47	21.24
12 - 19	276	37.10	58.33
20 - 28	212	28.49	86.83
29 - 38	79	10.62	97.45
> 38	19	2.55	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

**Wind Speed 75 m (WS75m) - km/h**  
**Mannix - May 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	2	2	3	1	5	0	4	0	1	2	1	2	1	28
6 - 11	13	5	7	7	19	26	21	9	6	6	2	0	0	1	6	2	130
12 - 19	18	38	17	21	22	16	73	31	7	7	9	3	2	1	8	3	276
20 - 28	33	22	10	9	0	0	37	24	5	5	9	7	8	17	5	21	212
29 - 38	15	4	2	0	0	0	0	2	0	0	9	7	7	21	5	7	79
> 38	2	0	0	0	0	0	0	0	0	0	0	0	0	10	6	1	19
<b>Totals</b>	83	69	38	39	43	45	132	71	18	22	29	18	19	51	32	35	744

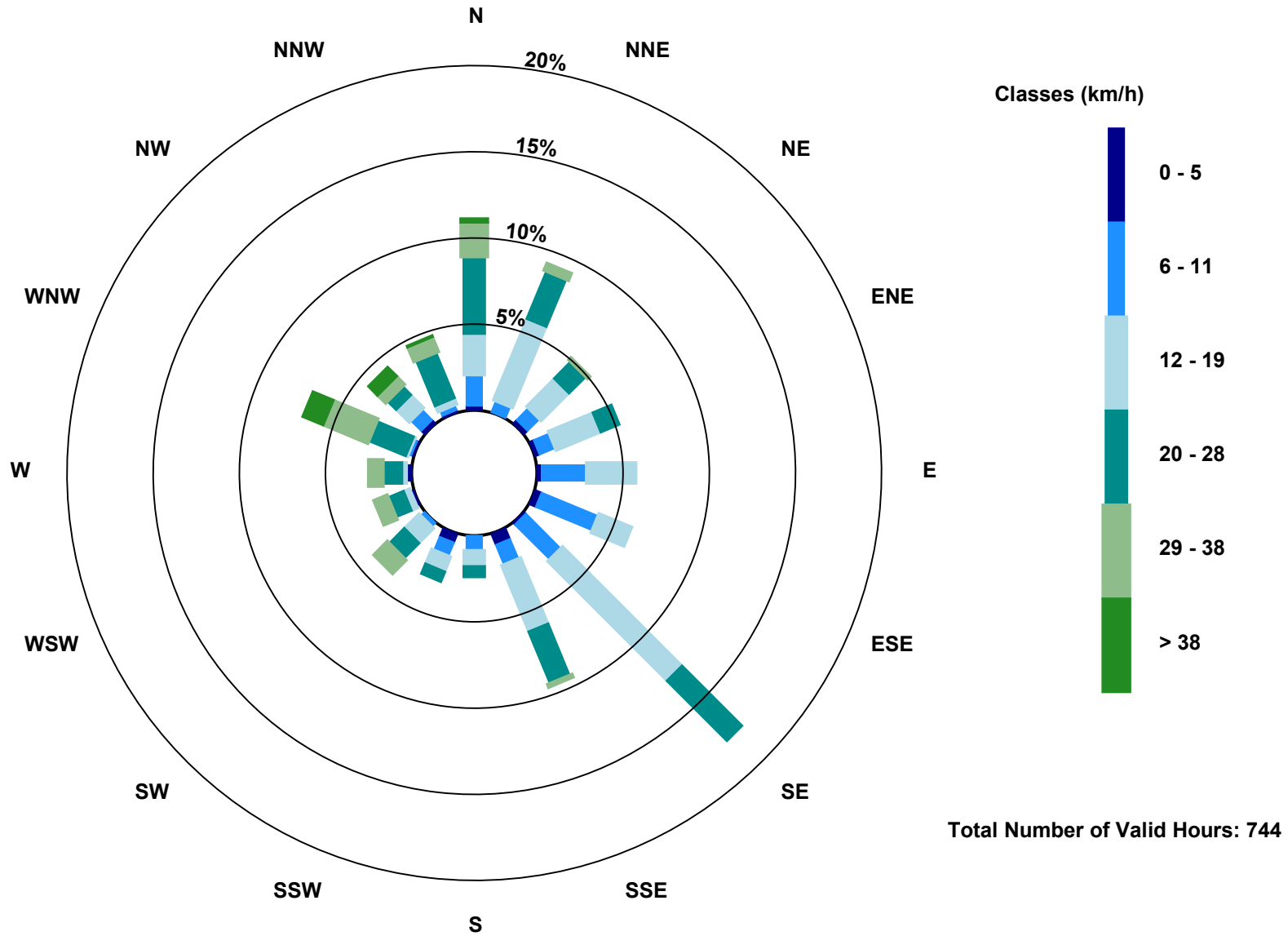
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

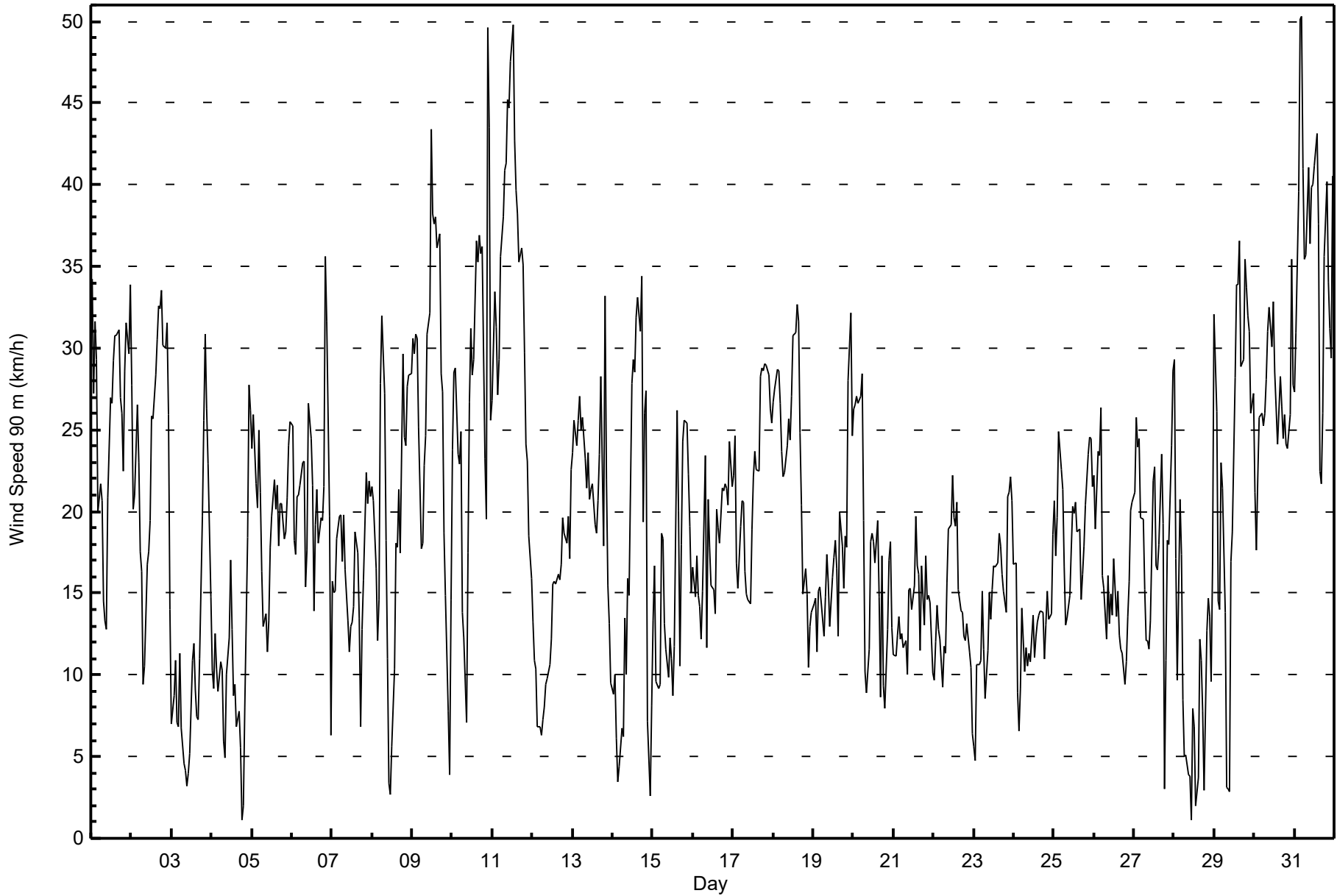




Maximum Speed: 50 km/h on May 31 05:00		Maximum Daily Speed Average: 34.9 km/h on May 31		Hours in Service: 744																						
Minimum Speed Value: 1 km/h on May 4 19:00		Minimum Daily Speed Average: 1.7 km/h on May 28		Hours of Data: 744																						
Maximum Diurnal Speed Average: 6.5 km/h at hour 20		Minimum Diurnal Speed Average: 1.8 km/h at hour 8		Hours of Missing Data: 0																						
Monthly Average Velocity: 2.6 km/h 26.8 deg		Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 9 Q <sub>1</sub> = 13 Median = 19 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-May	N34	N27	N32	N29	N20	N22	N21	N15	N13	N13	N21	N27	NNE27	N29	N31	NNE31	NE31	NE27	NE26	NNE22	N29	N32	N30	N34	NNE25.4	N34
2-May	N28	N20	N21	NNE27	N23	N18	NNE16	N9	N11	N17	N18	N19	NNE26	N26	N28	N31	N33	N32	N34	N30	N30	N32	N26	ENE14	N23.2	N34
3-May	E7	SE9	SSE11	SE7	SSE7	SSE11	SSE7	SSE5	SSE4	ESE3	ENE4	NW5	NW11	NW12	WNW9	NNW7	NNE7	N11	N20	NNE26	N31	N26	NNE23	NNE15	NNE5.7	N31
4-May	ENE10	N9	NNW12	N10	N9	N11	NNE10	N6	WNW5	NW10	NW12	NW17	NW13	NW9	NE9	NE7	ENE8	ENE5	ENE1	ENE2	ESE8	SE18	SE28	SE26	NNE3.9	SE28
5-May	SE24	SE26	SE22	SE20	SE25	SE21	SE16	SE13	SE14	SSE11	SE13	SE18	SE20	SE22	SE20	SSE22	SSE18	SSE20	SSE21	SE18	SE19	SE21	SE24	SE25	SE19.4	SE26
6-May	SE25	ESE18	SE17	ESE21	SE21	SE22	SE23	SE23	ESE15	ESE18	SE27	ESE24	ESE22	E14	ENE19	E21	ESE18	E20	E19	E21	SSE36	SSE32	SSE20	ESE6	ESE18.8	SSE36
7-May	ENE16	E15	ESE15	ESE18	ESE20	SE20	E17	ESE20	ESE16	ESE13	E11	E13	ESE13	SE14	ESE19	SE17	SE14	ESE7	ESE13	SE16	SE22	SE20	SSE22	SSE21	ESE15.2	SE22
8-May	SSE22	SSE21	S17	SSW12	WSW15	WNW28	WNW32	NW27	NW18	NW11	NNW3	ESE3	SSE6	S10	S18	SSW18	SSW21	SSW17	SW30	SW25	SW24	SW28	WSW28	WSW28	SW13.2	WNW32
9-May	WSW31	WSW30	W31	W31	W25	W18	W18	WNW23	WNW25	WNW31	WNW32	WNW43	WNW38	WNW38	WNW38	NW36	NW37	NW28	NW27	NNW19	N15	NE8	SSE4	S15	WNW23.1	WNW43
10-May	S24	S29	S29	S23	SSE23	SSE25	S14	SSE12	S7	SW17	WSW27	WSW31	SW28	W29	W37	W35	W37	W36	W36	WNW23	NNW20	N50	N43	NNW26	WSW14.6	N50
11-May	WNW27	WNW33	WNW31	WNW27	W29	WNW36	WNW38	WNW41	NW41	NW45	NW45	NW48	NW50	NNW43	NW40	NNW38	N35	NNE36	NNE35	NNE30	NNE24	NNE23	NE19	ENE16	NW28.0	NW50
12-May	E13	ESE11	SE10	SE7	SSE7	SE6	E7	ESE8	SE9	ESE10	E11	ESE12	ESE16	ESE16	SE16	SE16	ESE16	ESE17	SE20	SE19	SE18	SE20	SE17	SE23	ESE13.1	SE23
13-May	SE24	SE26	SE24	SE26	SE27	SE25	SE26	SE23	SSE21	SSE24	SE21	SSE21	SSW22	SW19	SW19	SW21	WSW23	WSW28	WNW18	N33	N22	NNE15	NE13	ENE9	SSE10.1	N33
14-May	SSE9	SSW10	SW6	W3	SSW4	S7	SE6	SSE13	SSE10	SSE16	SSE15	SW28	SW29	SW29	SW32	WSW33	WSW31	W34	NNW19	N26	N27	N7	NE3	SSW8	SW8.5	WNW34
15-May	SSW13	SW17	SW10	WSW9	NNW9	NNE19	NNE18	N13	NNE12	N10	N12	N11	N9	N12	NNW26	N20	N11	NNE18	NNE24	NNE26	NNE25	NNE22	NNE19	NE15	NNE11.2	NNW26
16-May	NE17	NNE15	NNE17	N15	NNE14	NNE12	NE15	NE23	NE12	NE21	NNE18	NE16	ENE15	NNE14	N20	NNE19	NNE18	NE21	NE21	ENE22	ENE21	NE20	NE24	ENE22	NE17.3	NE24
17-May	ENE22	ENE25	NE17	NNE15	NE19	NNE21	NNE21	NNE16	NNE15	NE15	NNE14	NNE19	NNE22	NNE24	NNE23	NNE22	N28	N29	N29	NNW29	NNW29	NNW28	NNW26	N25	NNE20.6	NNW29
18-May	NNW27	N28	N29	NNW29	NNW27	NNW24	NNW22	NNW22	NNW24	NNW26	NNW24	NNW27	NNW31	NNW31	NNW33	NNW32	NNW25	NNW20	NNE15	NNE17	ENE15	NE10	NNE13	NNE14	NNW22.0	NNW33
19-May	NNE14	NNE15	NE11	NNE15	NNE15	NNE14	NE12	ENE15	ENE17	ENE16	NE13	NE16	NE17	ENE18	ENE17	ENE12	ENE20	NE18	NNE15	NNE19	NNE18	N28	N32	N25	NE15.9	N32
20-May	N26	N27	N27	N27	N27	N28	N19	N10	N9	NW12	NW18	NNW19	N18	N17	N19	N15	ESE9	SE17	S9	SSW8	SE13	SE17	SE18	ESE13	NNE10.3	N28
21-May	ESE11	ESE11	ESE12	SE14	ESE12	ESE13	ESE12	SE12	ESE10	ESE15	E15	ESE14	E15	E20	E17	E16	E11	ENE17	ENE13	E17	E15	E15	E14	ESE10	E13.2	E20
22-May	E10	E12	E14	E13	E12	ENE9	ENE12	ENE11	NE16	NE19	ENE19	ENE22	ENE20	NE19	NE21	ENE15	ENE14	E14	E12	ESE12	ESE13	SE11	ESE10	E6	ENE13.0	ENE22
23-May	E6	E5	E11	ESE11	ESE11	ESE15	ESE12	ESE9	E11	E15	E13	SE15	SSE17	SE17	SSE17	SSE19	SSE18	SSE16	SSE15	S14	SSE21	SSE21	SSE22	SSE21	SE13.1	SSE22
24-May	SE17	SE17	ESE9	ESE7	ESE9	SE14	SE10	SE12	SE11	SE11	SE11	SE14	SE11	SE12	SSE13	SSE14	SSE14	S14	S11	SSW13	SW15	SW13	SSW14	SSW19	SSE10.7	SSW19
25-May	S21	S17	SSE20	SSE25	SSE23	SSE21	SSE17	SE13	SE14	SE15	SE18	SE20	SE20	SE21	SE19	SE19	ESE15	ESE16	ESE18	SE20	SE24	SE25	SE24	SE22	SE18.5	SSE25
26-May	SE22	SE19	SE24	SE23	SE26	SE16	SE15	SE12	SE16	SE13	ESE15	SE14	SSW17	SSE14	SSE15	SSE12	SSE12	SSE11	SE9	ESE11	ESE14	ESE16	SE20	SSE21	SE15.4	SE26
27-May	SE21	SE26	SE24	SE24	SE20	SE20	SE15	SSE12	SE12	SE12	SE13	SSE22	SSE23	SSE17	SE16	SSE18	SSW23	SW19	W3	ESE11	SE18	SE18	SE24	SE29	SE16.6	SE29
28-May	SSE29	SW17	NW10	NNW21	NNE17	E9	SE5	SSE5	SSW4	SSW4	SW1	NNE8	ENE7	NW2	N4	SW12	SSW11	SSW8	SE3	NNE13	NNE15	NE14	NNW10	N17	NNE1.7	SSE29
29-May	NE32	NE26	ENE14	E14	ENE23	E21	E14	ENE3	SSW3	W3	WSW17	WSW19	SW28	SW34	SW34	WSW37	SW29	SW29	WSW35	SW34	SW32	SW31	SW26	SSW27	SW11.7	WSW37
30-May	S21	SSW18	W22	W26	WNW26	WNW25	WNW26	WNW28	WNW31	WNW33	WNW30	WNW33	WNW29	WNW26	WNW24	WNW28	NW26	WNW24	W26	WNW24	NW24	WNW26	WNW35	W28	WNW24.3	WNW35
31-May	W27	W31	WNW40	WNW50	WNW50	WNW41	WNW35	WNW36	WNW41	WNW36	WNW40	WNW40	WNW41	WNW43	WNW38	NW22	NNW22	NNW26	NNW36	NW40	NW34	NW31	NNW29	NW41	NW34.9	WNW50
ESE5.6 ESE3.3 E1.9 NE2.1 ENE3.1 ENE3.1 NE2.7 NNE1.8 N2.1 N3.0 N3.1 NNW3.0 NW2.4 NNW3.8 NNW4.3 NNW3.5 N2.5 N3.2 N5.1 NNE6.5 NE5.3 NE5.6 ENE4.7 E3.7																								Diurnal Average		
N34 WNW33 WNW40 WNW50 WNW50 WNW41 WNW38 WNW41 NW41 NW45 NW45 NW48 NW50 WNW43 NW40 NNW38 NW37 NNE36 W36 NW40 SSE36 N50 N43 NW41																								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: 13 km/h on May 10 22:00 Minimum Value: 1 km/h on May 14 02:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 4 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 8																		Hours in Service: 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-May	4	4	3	4	3	3	4	2	2	3	4	5	6	5	6	7	5	5	4	4	3	4	6	5	7
2-May	4	2	2	1	3	2	4	3	5	3	4	5	5	6	7	6	8	6	6	6	5	7	6	3	8
3-May	2	1	1	2	2	5	2	2	2	2	3	3	4	5	4	5	4	5	5	3	4	4	3	2	5
4-May	2	2	1	1	1	2	4	2	3	4	4	4	5	5	4	4	3	4	2	2	6	5	5	2	6
5-May	2	4	4	5	4	3	2	3	2	3	4	5	6	6	6	5	5	6	4	3	5	4	6	6	6
6-May	7	6	5	5	5	5	5	5	4	8	8	6	7	4	5	4	4	4	4	5	5	6	5	3	8
7-May	3	3	4	3	5	7	5	4	4	4	3	5	3	3	6	4	2	3	4	4	3	2	2	2	7
8-May	2	3	1	1	3	4	4	4	3	3	4	2	3	5	5	4	6	7	5	4	2	3	2	1	7
9-May	2	3	3	3	3	3	3	5	4	5	6	7	7	6	7	6	6	6	5	3	2	2	3	4	7
10-May	2	2	3	2	4	5	2	1	2	6	5	5	6	6	8	6	7	7	6	3	5	13	8	5	13
11-May	5	5	3	3	4	5	5	7	8	7	7	9	9	7	7	7	7	4	5	7	4	2	4	3	9
12-May	2	4	3	4	1	2	3	3	3	3	4	4	4	4	4	4	4	5	4	4	4	4	4	5	5
13-May	3	3	2	2	2	3	3	3	3	5	5	5	5	5	5	7	8	6	7	7	11	4	2	3	11
14-May	1	1	1	1	2	3	2	2	2	3	4	9	6	7	7	5	5	6	6	9	8	8	1	4	9
15-May	1	3	3	1	3	2	4	6	4	3	4	3	4	5	7	5	6	4	5	4	3	4	3	3	7
16-May	2	4	2	2	2	2	4	6	5	4	2	3	4	3	2	2	2	3	3	4	4	4	3	4	6
17-May	5	4	5	4	4	3	2	3	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	2	5
18-May	3	2	2	3	3	3	3	3	3	3	4	4	4	4	5	4	4	5	3	3	5	1	1	1	5
19-May	1	1	3	1	2	2	2	4	3	4	3	4	4	4	3	3	4	5	3	2	2	8	4	4	8
20-May	4	3	3	2	2	2	3	4	2	2	3	3	4	3	3	4	4	3	2	1	3	3	3	4	4
21-May	4	3	4	4	3	3	3	3	4	4	4	4	4	5	4	4	3	4	4	3	3	2	3	4	5
22-May	3	2	3	3	5	2	3	4	4	4	5	4	4	5	5	4	3	4	3	4	3	4	3	2	5
23-May	3	2	4	3	3	4	4	4	4	4	4	4	5	5	4	4	3	3	2	4	1	1	2	5	5
24-May	1	2	5	2	3	3	4	3	4	4	4	5	5	4	5	5	5	2	3	2	2	1	1	3	5
25-May	2	2	3	1	1	2	2	2	3	4	6	6	5	5	5	5	5	5	4	4	4	3	4	4	6
26-May	4	4	3	3	3	4	4	2	3	5	4	4	5	4	5	5	3	3	3	2	4	5	4	3	5
27-May	5	4	4	3	4	3	3	2	3	4	6	6	5	4	5	5	8	6	4	3	5	5	4	3	8
28-May	5	6	4	2	6	4	2	1	2	2	2	3	3	2	3	6	5	3	3	1	2	3	7	7	7
29-May	4	5	4	8	3	5	4	3	3	3	4	3	5	6	6	5	5	6	7	5	5	6	5	4	8
30-May	3	3	6	3	3	3	4	3	5	4	4	5	5	4	5	5	6	4	3	4	4	4	7	3	7
31-May	3	5	6	8	9	8	5	6	6	6	7	6	6	6	8	5	3	6	7	7	5	6	6	6	9
Diurnal Maximum																									





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

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

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	28	3.76	3.76
6 - 11	106	14.25	18.01
12 - 19	265	35.62	53.63
20 - 28	225	30.24	83.87
29 - 38	98	13.17	97.04
> 38	22	2.96	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

**Wind Speed 90 m (WS90m) - km/h**  
**Mannix - May 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	1	5	1	2	2	4	0	4	1	1	2	1	2	1	28
6 - 11	15	3	5	6	11	21	13	10	5	5	2	1	0	1	5	3	106
12 - 19	18	36	19	19	24	35	49	23	7	9	9	3	2	1	7	4	265
20 - 28	31	17	11	9	5	5	53	26	4	4	8	5	6	17	6	18	225
29 - 38	23	4	2	0	0	0	1	3	2	0	11	8	9	21	4	10	98
> 38	2	0	0	0	0	0	0	0	0	0	0	0	0	11	8	1	22
<b>Totals</b>	90	60	38	39	41	63	118	66	18	22	31	18	19	52	32	37	744

Total Number of Valid Hours: 744

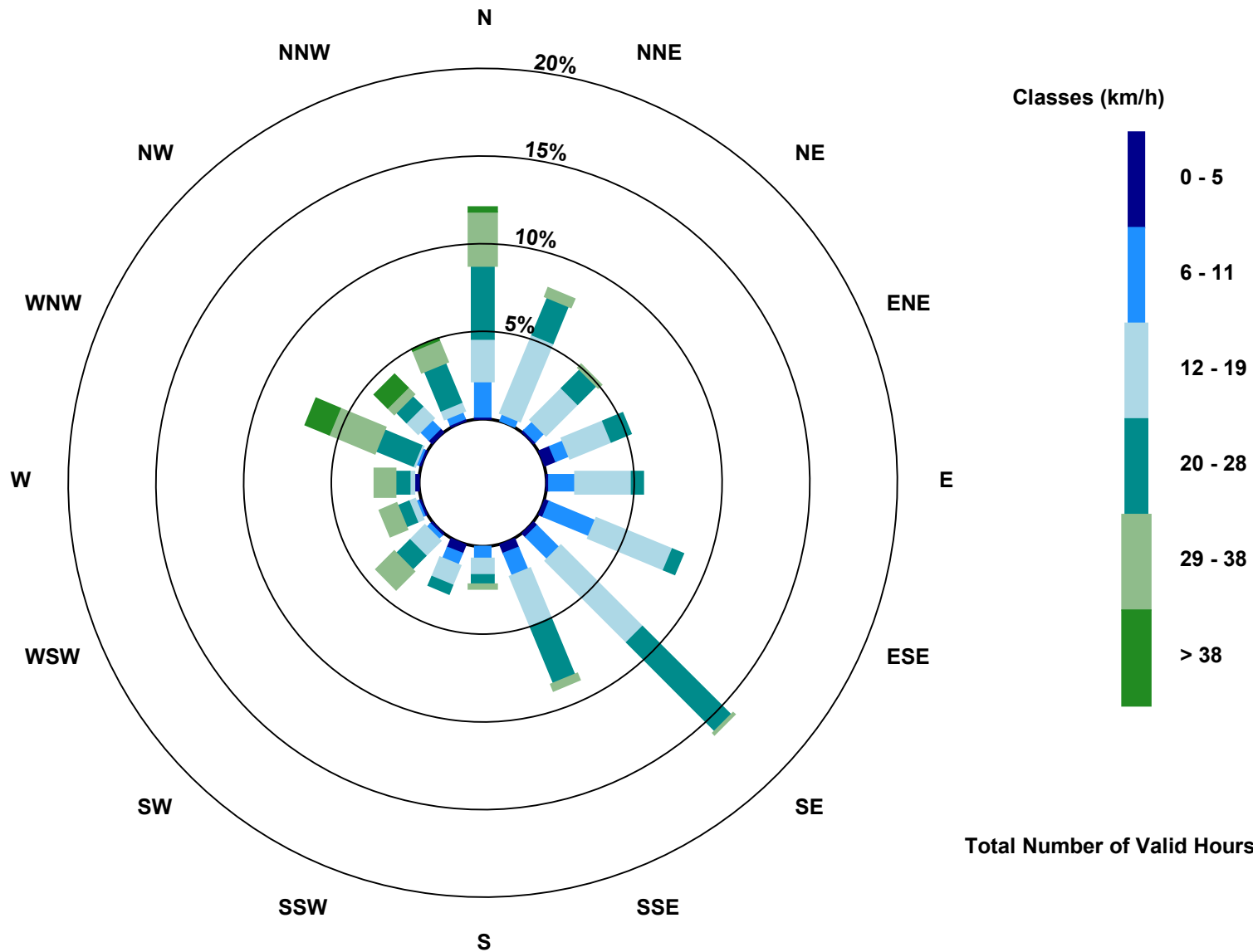
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 20 m (WD20m) - deg**

**Mannix - May 2024**

Direction of Maximum Speed: 323 deg on May 11 13:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 305.3 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 229 deg on May 28 11:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.7 deg on May 28	Percent Operational Time: 100.0
Monthly Average Direction: 37.9 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-May	9	11	12	9	358	6	6	11	10	13	6	8	16	9	7	24	45	46	45	23	15	10	359	9	15.4
2-May	8	357	6	11	7	12	27	18	9	12	15	11	16	15	9	11	9	11	7	8	353	357	10	34	9.8
3-May	42	61	168	53	105	159	216	156	136	126	67	312	304	320	303	329	25	8	359	16	9	2	8	356	2.4
4-May	35	344	360	331	289	309	9	10	280	326	315	319	311	303	57	49	105	81	75	78	144	141	142	146	26.4
5-May	143	140	140	135	139	139	147	144	148	150	140	133	132	138	145	158	165	159	150	139	135	138	133	131	141.9
6-May	135	130	145	132	138	136	136	134	134	132	135	121	130	85	64	92	109	101	83	98	171	168	172	104	127.7
7-May	41	67	92	108	109	137	94	101	104	107	104	89	131	156	136	140	152	125	138	138	140	148	149	152	122.7
8-May	161	168	159	162	216	276	298	301	316	312	350	112	153	173	191	212	204	208	227	232	227	223	240	247	227.4
9-May	243	257	260	266	276	254	268	285	293	298	287	286	287	300	294	305	310	313	320	325	2	60	210	213	289.1
10-May	155	161	150	147	147	153	148	143	133	231	244	242	239	263	267	272	270	266	282	287	311	354	355	337	258.9
11-May	301	302	291	274	269	286	290	301	306	313	316	323	323	329	329	332	8	24	20	23	23	31	60	69	326.0
12-May	72	128	132	158	223	159	91	107	136	118	100	114	131	134	133	136	111	122	135	136	134	140	136	138	128.4
13-May	141	144	146	143	138	137	142	150	152	146	146	158	212	223	225	235	242	246	289	348	26	17	20	45	170.7
14-May	222	220	230	182	186	165	141	161	146	148	154	224	229	237	241	241	244	285	331	356	17	36	126	246	234.9
15-May	241	247	78	202	309	25	20	20	32	9	12	15	1	7	337	358	12	28	30	36	27	30	22	45	15.1
16-May	53	29	13	7	14	15	34	46	32	34	21	27	73	17	12	15	18	20	14	56	57	45	51	61	32.4
17-May	58	58	34	20	37	15	7	3	10	24	20	23	21	15	22	23	9	8	360	342	336	341	342	347	11.6
18-May	344	347	345	345	343	338	334	331	334	336	335	337	338	337	334	340	341	340	23	31	79	17	15	19	346.0
19-May	21	21	22	7	17	22	29	62	69	68	58	60	60	67	87	70	67	49	33	15	28	5	3	2	40.6
20-May	7	10	12	15	17	11	11	9	357	318	324	328	16	14	15	6	113	143	184	220	155	140	137	127	22.1
21-May	124	122	123	136	135	135	134	132	118	121	103	109	88	90	96	85	100	63	76	99	84	82	86	114	105.6
22-May	62	41	70	95	96	51	69	65	56	52	74	78	73	60	61	74	72	97	104	117	116	131	104	107	77.8
23-May	91	84	102	121	110	108	110	126	95	87	100	136	155	148	155	154	160	152	159	181	159	171	167	151	136.8
24-May	145	149	143	152	154	160	146	149	137	133	137	145	148	143	164	163	161	184	176	192	230	224	173	182	161.1
25-May	173	143	144	150	149	147	149	143	141	142	137	136	136	138	134	136	126	114	129	138	141	142	146	135	138.9
26-May	140	143	151	154	154	140	142	144	150	143	120	147	195	158	153	161	152	171	139	129	104	127	149	160	147.3
27-May	125	138	135	140	139	148	146	145	142	125	131	160	155	158	141	152	209	239	277	104	134	142	142	139	147.9
28-May	149	244	302	320	36	71	181	152	220	211	229	30	86	339	10	224	193	213	150	30	14	45	330	25	17.3
29-May	48	45	68	83	65	92	93	51	219	287	256	243	228	228	233	241	235	234	242	234	227	220	217	214	226.2
30-May	187	192	268	276	287	290	283	287	292	294	291	290	292	289	291	301	322	283	268	298	310	295	293	267	285.7
31-May	268	276	294	303	303	297	293	295	296	300	300	297	303	301	303	324	352	349	336	318	307	324	338	315	305.3

89.3	91.5	60.6	69.9	85.8	88.1	70.1	68.8	38.8	25.5	14.9	343.7	315.3	326.3	329.0	326.5	360.0	359.2	4.7	25.5	55.2	55.7	66.1	89.3
Diurnal Average																							

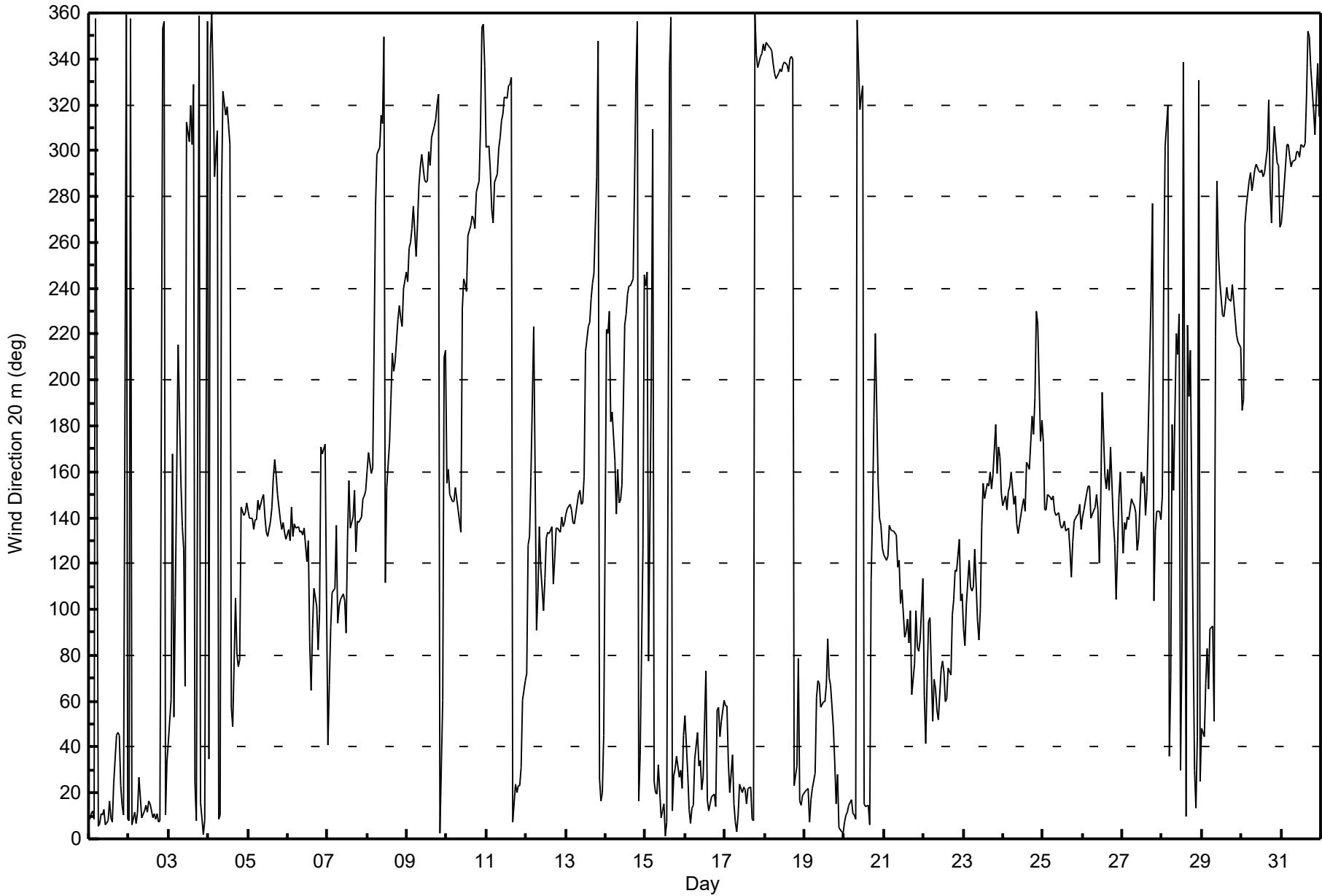
All monthly, daily, and diurnal averages have been calculated using vector methods



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

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on May 28 11:00 Minimum Value: 4 deg on May 9 00:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 15 Q <sub>3</sub> = 21 P <sub>90</sub> = 36 P <sub>99</sub> = 77		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-May	12	13	10	12	11	10	12	13	16	18	16	15	18	17	16	18	16	14	14	14	10	11	11	11	18	
2-May	11	11	10	7	11	23	14	20	32	17	18	20	21	19	21	16	15	15	14	13	12	13	25	8	32	
3-May	26	26	45	88	67	45	38	36	52	67	65	57	42	38	37	61	48	47	19	11	10	11	9	9	88	
4-May	27	18	10	68	49	53	16	20	79	36	30	21	34	71	32	61	48	34	92	52	55	9	10	9	92	
5-May	9	9	8	8	9	10	9	13	11	15	21	14	14	17	13	16	19	15	11	9	9	9	8	8	21	
6-May	9	21	21	11	8	8	8	9	9	13	10	15	14	25	15	21	16	13	16	19	15	10	13	70	70	
7-May	12	19	14	11	14	13	18	13	12	14	18	25	23	13	12	9	9	17	8	8	9	9	9	9	25	
8-May	7	8	8	9	30	14	11	13	12	14	77	75	49	52	24	19	22	36	13	12	10	7	10	4	77	
9-May	5	10	9	8	13	15	16	12	13	12	14	14	16	14	14	16	13	14	14	16	24	22	28	25	28	
10-May	6	9	8	11	10	10	10	9	20	42	17	14	19	16	14	16	16	14	10	9	36	14	15	17	42	
11-May	9	10	9	10	8	11	10	11	13	14	14	13	13	17	15	17	22	14	14	17	15	15	16	14	22	
12-May	12	24	17	39	18	46	31	29	17	24	22	24	19	15	16	11	14	15	9	9	9	10	9	10	46	
13-May	11	9	9	9	8	10	11	12	12	13	14	20	31	26	24	24	17	16	24	15	32	30	10	24	32	
14-May	54	8	12	34	10	59	17	12	15	11	21	27	22	19	18	16	16	17	30	35	14	74	69	21	74	
15-May	13	39	72	21	52	27	21	27	25	35	26	46	57	46	19	23	43	21	14	14	12	14	16	18	72	
16-May	11	22	12	18	10	11	13	18	28	14	12	16	17	20	12	13	11	10	11	19	16	22	14	16	28	
17-May	14	16	24	21	20	17	15	12	18	18	16	14	14	13	18	16	13	14	19	16	17	14	15	14	24	
18-May	13	14	12	12	13	15	16	15	15	13	15	16	15	14	14	15	17	17	21	24	19	12	10	12	24	
19-May	11	12	11	12	14	13	15	20	14	16	18	16	14	14	13	22	14	20	18	11	13	12	12	12	22	
20-May	12	11	11	11	14	12	16	29	35	25	17	17	18	18	14	19	41	12	24	20	17	10	10	17	41	
21-May	25	18	16	11	15	11	14	19	28	19	22	22	23	17	18	16	15	21	19	12	12	12	14	33	33	
22-May	38	33	20	15	11	25	20	28	19	16	17	16	16	21	17	21	19	16	15	18	17	18	22	20	38	
23-May	30	46	19	16	15	11	17	32	16	20	24	22	19	23	25	18	17	19	17	14	10	7	4	7	46	
24-May	6	8	16	38	19	25	30	15	19	28	34	25	34	31	39	34	24	20	24	17	17	12	7	7	39	
25-May	28	10	9	9	9	13	13	13	17	19	20	19	16	17	15	12	21	20	18	11	10	11	15	10	28	
26-May	10	11	10	8	16	15	14	16	16	29	25	30	32	34	31	34	29	24	16	18	13	22	13	17	34	
27-May	13	10	9	11	12	13	11	15	20	26	43	18	17	23	24	20	41	35	96	30	16	10	11	11	96	
28-May	19	34	30	18	31	47	44	21	48	60	98	41	44	76	65	55	42	49	58	11	12	40	55	48	98	
29-May	14	15	23	58	16	15	18	75	85	86	20	17	15	14	13	12	14	14	14	13	14	15	16	15	86	
30-May	20	25	17	11	12	11	12	12	12	11	13	11	12	13	14	14	24	16	10	20	16	14	15	7	25	
31-May	8	12	12	12	12	12	12	12	13	12	12	13	11	12	12	23	15	16	15	14	12	16	15	13	23	
		54	46	72	88	67	59	44	75	85	86	98	75	57	76	65	61	48	49	96	52	55	74	69	70	
		Diurnal Maximum																								





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 45 m (WD45m) - deg**

**Mannix - May 2024**

Direction of Maximum Speed: 299 deg on May 31 04:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 301.8 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 228 deg on May 28 11:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.1 deg on May 28	Percent Operational Time: 100.0
Monthly Average Direction: 29.5 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	5	7	8	4	356	2	2	2	4	8	2	4	12	5	4	18	38	40	38	19	10	6	356	3	10.2
2-May	4	352	0	5	4	6	20	12	1	5	8	5	11	10	4	6	4	6	2	4	350	355	5	39	4.8
3-May	47	124	151	124	150	150	159	153	136	118	55	309	304	312	298	325	18	359	356	12	5	1	6	0	4.7
4-May	42	349	353	356	330	356	9	2	286	321	312	317	307	301	46	39	90	73	73	65	124	130	136	142	25.2
5-May	139	133	132	126	133	132	141	137	142	146	134	125	125	134	139	152	160	154	145	134	126	130	127	125	135.7
6-May	129	123	135	124	128	127	128	127	126	125	128	114	123	79	57	87	102	95	78	92	166	161	166	115	121.7
7-May	45	69	94	102	104	129	88	98	100	103	97	87	122	143	127	131	140	114	128	130	136	143	145	148	116.7
8-May	155	163	163	165	217	277	295	299	314	312	329	116	154	171	186	206	197	203	222	228	227	220	236	248	224.7
9-May	241	253	256	262	271	256	265	281	289	293	283	281	282	294	288	301	305	308	316	323	355	44	181	183	284.0
10-May	163	160	151	146	145	152	148	143	136	226	239	237	234	257	262	266	264	261	277	282	303	351	352	335	248.0
11-May	298	298	289	274	268	283	286	296	302	309	311	318	319	325	324	327	3	18	16	18	18	25	53	62	321.7
12-May	69	121	124	141	184	150	86	99	129	112	95	108	124	126	127	128	106	115	129	129	127	133	128	131	122.1
13-May	134	140	142	140	134	132	137	145	148	142	141	154	205	216	219	228	237	242	284	346	14	14	17	44	162.2
14-May	195	214	248	267	178	171	138	155	147	144	151	218	224	231	234	237	240	280	330	351	11	21	75	226	231.2
15-May	223	223	190	215	304	22	15	12	25	4	8	4	353	1	333	355	5	23	24	30	24	27	21	40	9.1
16-May	44	25	9	4	14	12	35	40	36	30	19	28	67	16	5	13	15	20	18	53	51	39	46	55	29.1
17-May	52	52	30	14	31	13	5	1	9	21	16	17	15	10	17	16	3	2	354	339	334	339	340	344	6.7
18-May	342	346	344	342	341	335	331	328	332	333	332	334	335	332	331	336	338	339	19	26	70	19	13	15	343.0
19-May	17	18	20	4	12	18	25	56	60	59	47	49	52	58	77	63	60	43	29	11	26	2	360	359	32.6
20-May	2	4	5	8	9	6	4	3	351	315	320	326	10	10	9	1	109	135	181	214	148	132	129	119	16.3
21-May	119	114	116	128	125	123	124	128	114	115	98	102	82	84	90	78	92	59	70	96	81	79	86	107	99.6
22-May	66	66	70	89	91	50	63	57	48	46	63	69	64	51	54	64	63	90	97	110	111	124	98	95	71.8
23-May	82	71	97	112	103	103	104	122	89	81	95	131	149	144	149	149	155	148	152	173	153	164	159	145	133.5
24-May	135	132	125	132	137	146	138	143	132	129	132	139	145	139	157	157	158	179	171	190	227	220	186	189	156.3
25-May	172	143	141	148	134	144	145	138	137	136	132	130	130	132	129	129	121	109	123	131	135	138	143	129	134.9
26-May	133	132	139	144	145	132	138	141	145	139	118	143	190	155	151	157	150	166	133	121	99	118	140	151	141.3
27-May	124	131	128	132	129	140	139	141	140	121	132	157	152	151	134	145	200	226	273	100	128	132	136	134	141.8
28-May	146	236	305	321	27	82	166	150	215	201	228	26	78	331	5	219	190	207	145	28	13	35	336	12	13.5
29-May	41	40	63	79	60	87	89	41	215	278	250	240	222	222	228	236	230	229	236	228	220	214	212	208	220.3
30-May	183	190	265	272	284	289	281	285	289	291	289	288	289	287	289	298	319	283	265	296	308	294	291	266	283.5
31-May	266	274	290	299	299	294	290	291	292	295	295	292	298	297	299	320	349	344	331	314	302	320	331	311	301.8

92.6	94.6	60.8	62.9	73.5	72.7	52.4	45.6	14.3	10.7	358.4	332.2	310.2	321.4	324.4	324.9	351.0	350.8	0.1	17.5	43.4	50.2	59.5	89.7	
Diurnal Average																								

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



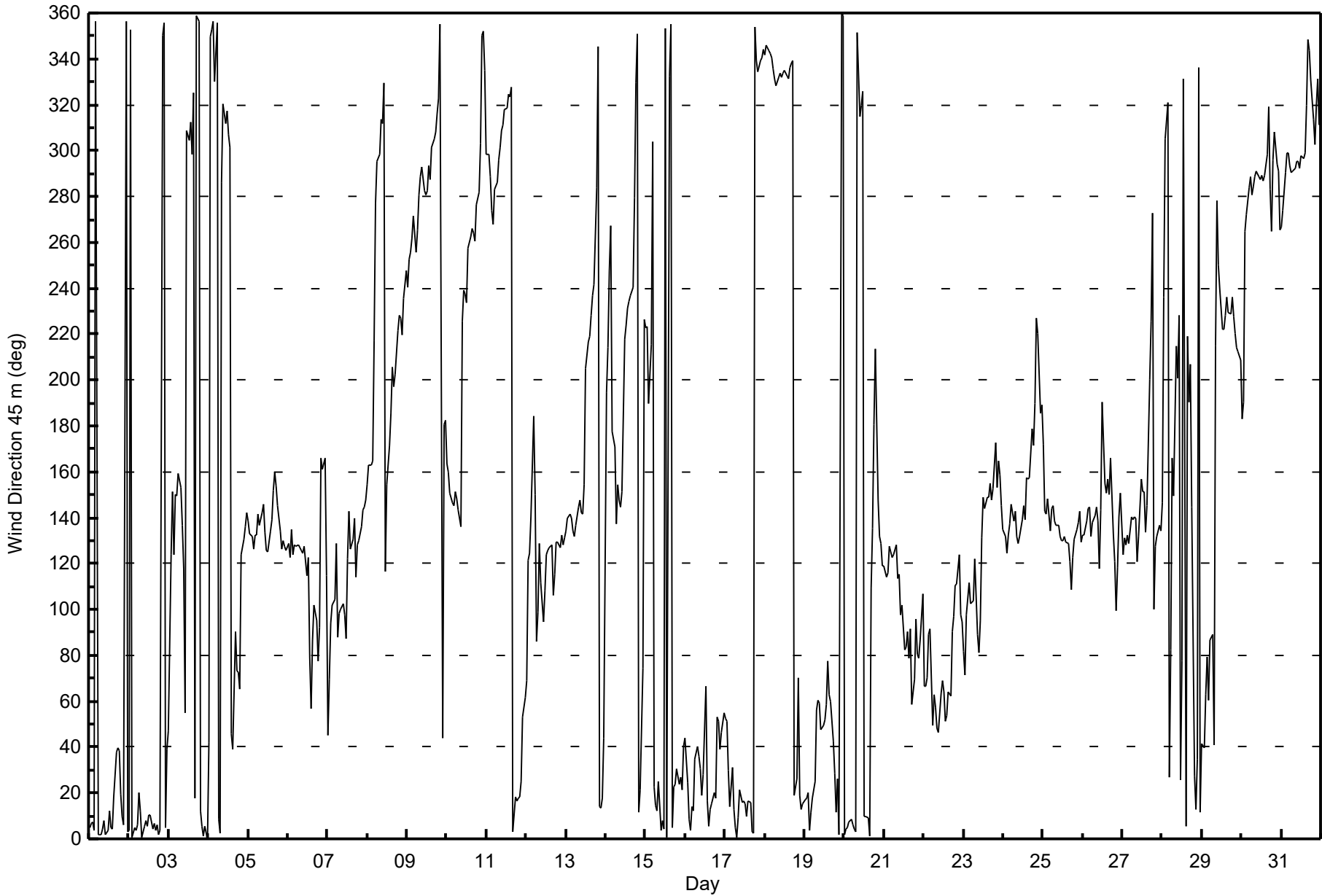
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction 45 m (WD45m) - deg

Mannix - May 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 106 deg on May 4 19:00 Minimum Value: 3 deg on May 23 23:00 Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 7 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 17 P <sub>90</sub> = 29 P <sub>99</sub> = 73																		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-May	7	9	6	8	7	7	7	9	12	15	9	10	15	13	13	14	12	12	12	10	7	7	8	7	15
2-May	6	7	5	3	6	12	11	14	26	12	13	16	16	14	16	12	12	11	13	9	9	10	16	10	26
3-May	20	20	9	29	33	24	25	34	44	59	47	54	36	27	27	63	45	42	17	9	6	8	6	8	63
4-May	25	8	9	29	27	19	11	17	50	28	23	17	28	63	28	54	40	33	106	59	55	6	8	5	106
5-May	6	5	5	5	6	8	7	11	9	12	18	13	12	16	11	14	17	13	9	7	7	7	6	6	18
6-May	7	17	19	10	7	6	6	5	7	12	9	13	13	23	11	21	14	12	14	17	11	7	8	55	55
7-May	10	17	13	10	12	11	16	11	11	12	14	21	20	11	10	7	6	17	7	5	7	6	7	7	21
8-May	5	6	4	7	33	8	7	10	8	11	80	70	49	49	18	15	17	31	11	11	7	5	8	3	80
9-May	3	7	6	7	7	9	12	9	10	9	11	10	13	12	12	13	10	13	11	14	19	15	29	9	29
10-May	4	6	6	6	7	7	6	6	17	34	14	12	16	14	13	14	14	11	9	7	33	12	11	15	34
11-May	7	8	6	8	6	8	8	8	11	13	10	10	11	14	13	16	20	10	9	12	12	11	13	11	20
12-May	11	19	13	22	14	31	26	27	15	21	19	21	16	13	14	8	13	13	6	7	6	7	6	7	31
13-May	8	6	6	6	6	6	8	9	9	10	10	17	28	23	20	23	14	15	23	13	24	21	8	19	28
14-May	36	8	15	45	16	36	15	11	12	8	17	28	18	16	16	14	14	16	28	35	11	73	61	25	73
15-May	6	17	54	14	49	19	17	18	19	29	19	38	40	39	15	19	35	17	10	9	8	10	12	14	54
16-May	8	19	7	13	6	8	10	15	17	10	8	14	15	19	7	10	9	7	10	13	13	16	11	13	19
17-May	10	13	19	13	13	8	8	7	13	11	11	8	8	7	12	10	7	6	13	9	8	8	8	8	19
18-May	9	8	8	7	8	8	8	7	9	9	9	9	9	8	9	9	9	11	15	21	17	9	6	6	21
19-May	6	8	9	7	9	8	11	15	11	13	12	12	12	11	12	17	11	16	12	7	8	8	8	7	17
20-May	8	7	6	7	8	7	10	20	30	20	12	14	14	14	9	15	43	11	18	14	18	6	5	15	43
21-May	22	16	13	9	11	9	10	16	26	17	19	20	21	14	16	15	12	18	19	9	12	11	13	29	29
22-May	14	15	16	13	12	21	16	23	13	12	14	14	14	17	13	18	15	13	15	16	15	16	18	22	23
23-May	22	27	17	13	13	9	14	29	13	19	21	18	16	20	19	15	14	16	13	8	7	4	3	6	29
24-May	3	3	17	21	15	16	14	11	16	24	28	21	29	24	28	30	21	12	19	12	15	9	11	7	30
25-May	18	10	6	4	4	6	7	7	12	15	17	16	14	14	12	9	19	17	16	7	8	7	12	6	19
26-May	5	6	6	5	11	14	9	9	11	22	20	28	22	30	25	27	25	18	10	16	10	17	10	14	30
27-May	12	7	6	6	8	8	7	9	14	19	32	13	13	18	20	18	39	34	94	28	13	8	7	7	94
28-May	16	36	28	13	27	45	39	13	41	49	96	30	42	70	73	51	29	40	61	6	8	35	50	40	96
29-May	9	10	22	41	12	13	15	74	83	99	18	12	11	10	10	8	10	10	12	8	9	9	10	9	99
30-May	14	22	14	8	8	6	8	7	8	7	9	8	9	9	9	10	20	14	8	18	11	11	12	6	22
31-May	6	9	8	9	8	9	8	9	9	8	8	9	8	8	8	19	10	10	11	10	8	12	11	8	19
Diurnal Maximum																									





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Wind Direction 75 m (WD75m) - deg**

**Mannix - May 2024**

Direction of Maximum Speed: 302 deg on May 31 04:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 305.2 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 210 deg on May 28 11:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.5 deg on May 28	Percent Operational Time: 100.0
Monthly Average Direction: 26.0 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	8	12	12	8	4	5	5	3	6	9	5	7	16	8	8	20	40	43	42	22	13	10	1	7	13.6
2-May	9	1	5	11	9	10	22	13	2	8	11	8	14	13	7	9	7	10	6	7	356	2	9	61	8.9
3-May	76	139	158	144	156	154	158	158	147	121	61	320	307	314	303	335	16	4	0	15	8	6	14	12	14.1
4-May	59	355	352	354	357	7	20	5	295	325	317	322	312	307	46	40	79	78	91	74	120	131	138	143	32.0
5-May	139	136	133	129	134	134	141	138	142	148	137	128	128	138	141	154	161	155	147	138	129	132	131	130	138.5
6-May	132	122	134	124	129	129	131	130	127	126	131	118	125	80	61	87	103	97	80	94	168	162	166	117	124.3
7-May	59	80	101	104	108	129	90	102	103	107	100	93	123	137	128	130	136	116	126	131	139	145	147	151	119.6
8-May	155	165	176	184	238	283	299	304	319	319	339	121	164	173	187	206	197	204	223	229	231	222	240	252	229.5
9-May	243	255	258	263	271	260	268	284	292	295	285	283	284	296	290	305	309	310	319	330	357	43	162	174	285.9
10-May	173	177	173	160	157	158	163	156	164	229	240	239	235	258	263	267	265	262	279	285	305	355	356	342	247.2
11-May	303	303	293	281	275	287	290	298	305	312	315	321	323	329	327	330	7	21	19	20	21	30	57	67	326.0
12-May	77	124	128	133	162	146	92	102	130	115	97	110	126	127	130	130	109	118	133	132	129	134	130	134	124.1
13-May	138	143	144	144	139	137	140	147	150	147	145	157	206	217	220	229	237	243	285	351	13	22	33	63	161.9
14-May	172	206	228	276	187	178	139	151	158	150	158	219	224	233	235	237	242	281	337	354	12	9	54	212	232.0
15-May	204	214	214	232	321	29	18	13	26	7	13	6	358	4	338	359	8	26	27	34	30	34	31	48	14.7
16-May	49	32	16	9	29	28	51	51	46	38	31	42	72	27	9	23	26	32	34	62	58	47	54	62	39.3
17-May	60	58	40	21	41	24	13	10	22	34	24	23	20	16	22	20	7	6	358	345	341	347	348	351	13.5
18-May	348	353	350	349	346	341	337	335	337	339	338	340	340	338	336	341	343	347	24	31	73	34	22	22	349.0
19-May	24	25	35	11	18	27	36	62	64	62	50	52	56	62	77	65	62	46	34	16	33	7	4	3	36.6
20-May	7	8	7	8	8	8	6	5	355	320	325	332	13	13	13	6	107	138	178	213	148	133	132	120	16.9
21-May	124	114	117	128	123	119	121	134	117	117	101	103	84	86	92	80	92	62	72	99	85	86	94	112	100.2
22-May	82	88	83	92	93	59	69	59	51	51	65	69	65	53	55	64	64	91	98	113	115	126	101	99	74.4
23-May	89	81	101	112	102	106	108	125	93	83	99	133	149	147	151	153	156	151	153	172	154	164	163	149	138.1
24-May	139	137	121	103	118	135	137	143	135	132	144	145	142	159	155	160	178	174	190	226	216	203	202	158.9	
25-May	184	160	155	154	145	150	151	143	142	139	135	133	133	135	133	132	123	110	126	133	137	142	147	134	141.6
26-May	136	132	137	140	144	134	142	145	147	142	122	148	191	157	153	160	152	166	136	124	103	119	141	152	143.4
27-May	133	135	133	135	131	140	140	145	145	125	140	159	153	153	135	148	202	222	258	106	131	132	137	137	145.3
28-May	149	233	313	334	30	93	153	163	212	200	210	33	79	319	3	220	192	209	146	33	18	38	347	11	33.5
29-May	46	46	66	83	68	90	94	53	209	267	250	241	223	224	229	237	230	229	237	229	221	214	213	210	219.3
30-May	186	197	269	275	286	294	285	288	292	295	293	293	293	290	293	302	324	289	271	301	315	300	295	270	287.9
31-May	271	278	294	302	302	297	293	294	295	298	298	295	302	300	303	324	350	345	333	317	306	323	334	316	305.2

103.3	106.7	71.8	38.5	59.4	63.4	43.0	33.3	5.6	5.8	354.5	331.1	318.1	326.3	328.7	329.1	352.5	352.1	1.6	15.9	40.1	49.3	60.3	94.5
Diurnal Average																							

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



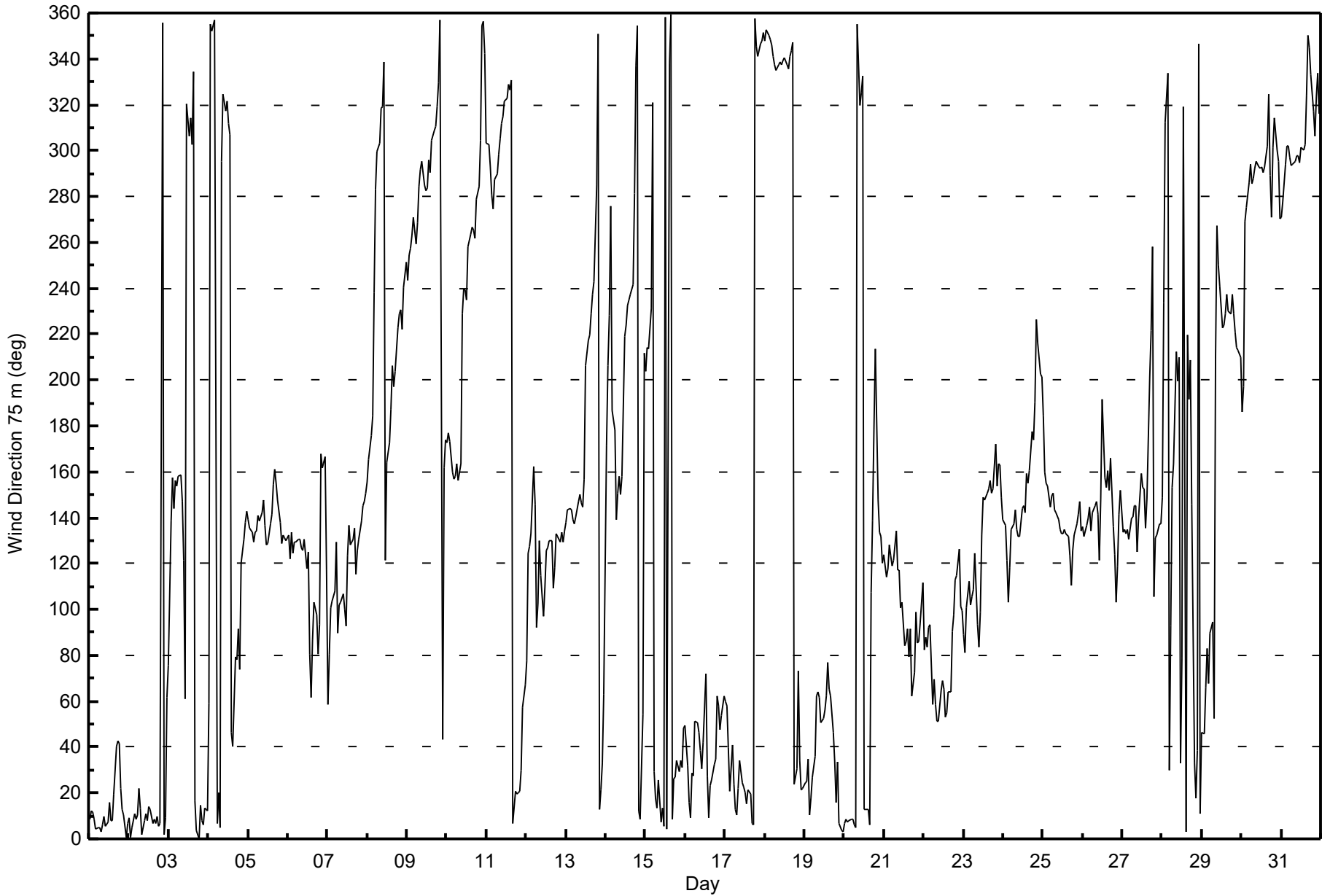


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 75 m (WD75m) - deg**

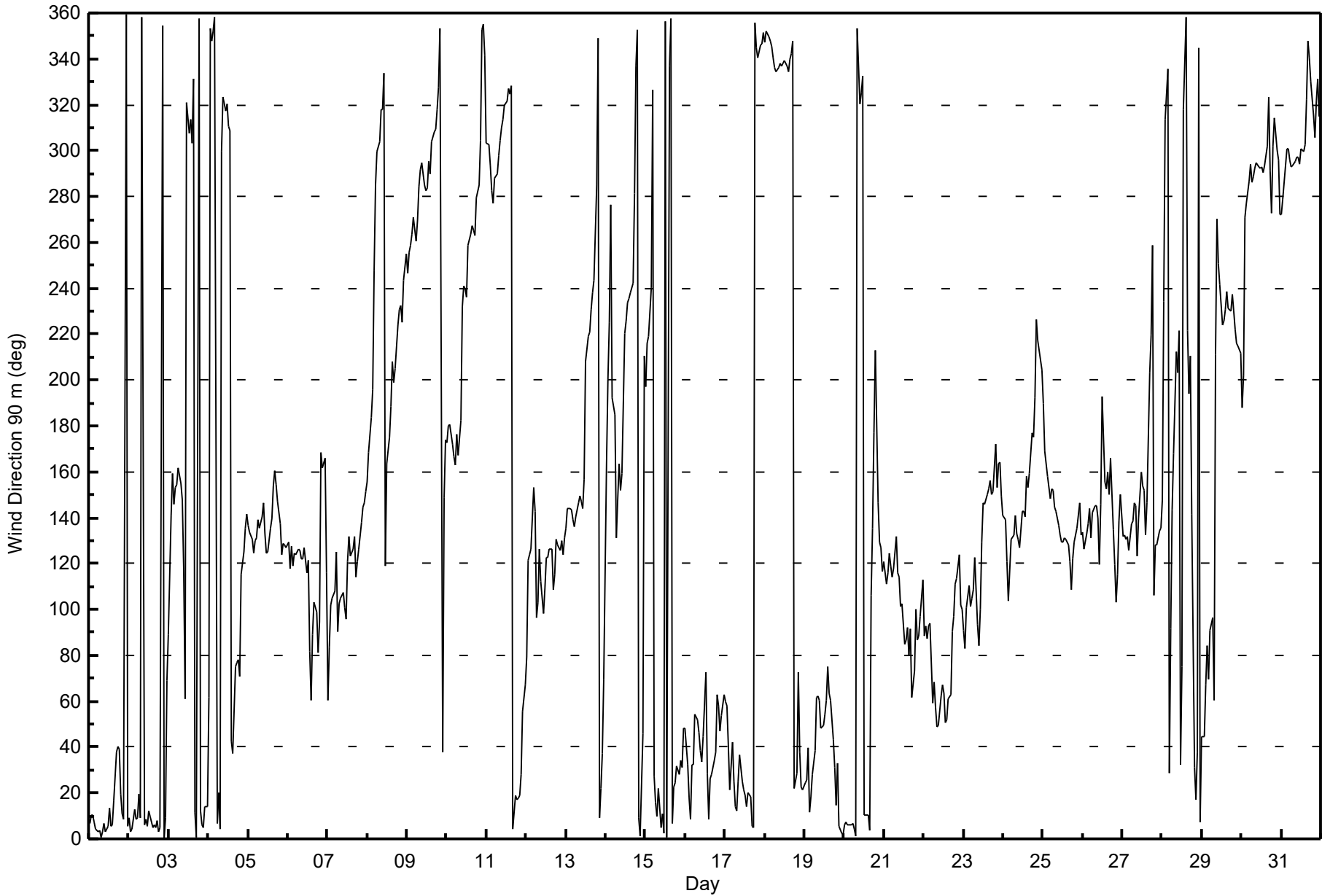
**Mannix - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on May 4 19:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 2 deg on May 23 23:00																									
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 6 Q <sub>1</sub> = 7 Median = 11 Q <sub>3</sub> = 16 P <sub>90</sub> = 25 P <sub>99</sub> = 72																									
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-May	5	7	5	6	6	5	5	7	9	12	7	9	12	11	11	14	11	10	11	9	6	5	7	6	14
2-May	4	5	4	4	4	7	9	11	24	10	12	15	15	12	16	11	12	10	11	8	7	7	13	14	24
3-May	28	9	8	21	22	13	11	31	37	54	46	56	34	24	22	49	44	38	16	7	4	7	6	10	56
4-May	22	8	7	14	14	13	10	28	48	28	23	15	26	59	23	50	32	34	94	65	47	8	6	4	94
5-May	4	4	4	8	5	6	5	9	7	12	17	13	13	15	12	12	15	12	8	6	9	8	7	7	17
6-May	7	17	18	12	9	8	8	7	10	13	10	14	14	22	10	21	15	14	12	16	10	6	6	45	45
7-May	10	15	14	12	13	13	14	12	13	14	14	17	19	9	11	9	5	18	12	8	6	5	5	5	19
8-May	3	6	4	9	28	8	6	8	8	11	76	64	45	40	15	14	15	31	10	9	7	4	8	3	76
9-May	3	6	6	6	5	7	11	8	9	8	12	10	13	11	11	13	10	13	10	14	19	12	37	3	37
10-May	2	4	6	5	5	8	8	7	26	22	13	11	15	13	12	14	14	11	8	6	33	10	9	14	33
11-May	6	8	5	7	6	7	7	8	11	12	9	9	9	12	12	15	20	8	7	10	10	9	11	8	20
12-May	11	16	12	18	13	23	22	25	16	21	18	20	17	13	14	10	14	15	7	8	9	8	9	7	25
13-May	6	4	4	4	4	4	7	8	8	9	9	16	27	22	19	22	13	14	24	11	19	19	12	27	27
14-May	18	9	17	13	33	25	14	12	11	8	15	29	17	16	15	12	14	15	25	34	10	91	64	22	91
15-May	5	5	20	11	45	15	15	16	16	29	16	35	40	36	13	18	33	15	8	7	7	8	11	13	45
16-May	7	18	8	13	9	11	10	13	15	8	8	13	13	21	5	12	10	8	9	10	11	14	9	12	21
17-May	9	11	16	14	12	7	9	8	14	12	12	7	7	6	11	9	5	4	10	7	6	7	6	5	16
18-May	6	5	5	5	6	6	7	6	7	7	8	7	7	7	7	7	8	11	13	21	14	9	5	4	21
19-May	4	8	14	6	8	7	12	13	9	11	11	11	10	9	11	16	8	15	11	7	5	8	5	5	16
20-May	6	5	4	4	5	5	7	18	27	17	11	12	11	11	8	13	44	10	17	13	15	5	7	16	44
21-May	20	16	14	12	13	13	13	14	24	17	20	20	19	13	15	14	13	14	17	10	12	10	13	22	24
22-May	12	8	12	13	14	19	14	20	10	11	11	11	12	17	12	16	14	13	17	18	17	16	18	20	20
23-May	16	20	17	15	14	12	16	26	13	17	20	18	14	17	17	12	12	13	12	7	7	3	2	5	26
24-May	3	5	23	17	17	10	13	11	16	23	25	16	25	22	23	23	18	10	17	12	13	4	7	7	25
25-May	13	10	6	4	3	4	6	7	9	14	16	16	14	14	13	10	19	17	16	7	7	5	10	6	19
26-May	6	6	5	4	8	14	8	9	9	19	19	27	22	28	21	26	20	14	9	18	11	16	11	13	28
27-May	10	6	7	5	8	6	7	9	13	19	26	11	11	16	19	17	39	35	91	25	12	9	7	5	91
28-May	13	37	29	13	24	34	28	14	34	45	93	26	38	80	64	44	24	33	60	6	7	33	47	36	93
29-May	8	8	22	34	10	12	16	66	86	94	18	10	9	9	9	7	9	10	10	8	8	8	8	7	94
30-May	13	24	13	7	7	6	7	7	7	6	8	7	8	9	9	9	19	16	7	18	11	10	11	6	24
31-May	6	8	7	8	8	9	8	8	9	7	7	8	7	7	7	17	8	9	10	10	7	10	10	7	17
																	28 37 29 34 45 34 28 66 86 94 93 64 45 80 64 50 44 38 94 65 47 91 64 45								
																	Diurnal Maximum								





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on May 29 10:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 2 deg on May 24 01:00																									
Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 11 Q <sub>3</sub> = 15 P <sub>90</sub> = 24 P <sub>99</sub> = 69																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-May	4	6	4	5	5	4	5	6	8	11	7	8	12	10	10	14	11	10	11	9	6	5	7	5	14
2-May	4	6	4	3	4	6	8	12	21	9	11	14	14	12	15	10	11	9	10	8	6	7	12	16	21
3-May	27	7	7	20	18	12	9	31	34	52	44	49	31	21	21	37	41	37	16	6	3	6	6	11	52
4-May	20	10	4	12	9	11	10	28	36	26	22	14	23	54	22	49	28	45	88	60	46	7	7	4	88
5-May	4	4	4	5	4	5	4	8	7	12	16	12	12	16	13	13	15	13	8	5	9	7	6	6	16
6-May	6	14	17	9	8	6	6	5	9	10	9	10	11	21	10	20	13	12	13	15	11	7	5	42	42
7-May	9	14	11	8	10	11	13	9	10	12	12	15	16	9	9	9	6	16	11	8	6	5	4	5	16
8-May	3	6	6	11	25	7	6	8	7	10	71	65	45	39	14	14	15	31	9	9	7	3	8	3	71
9-May	4	5	5	6	4	6	10	8	8	8	11	9	12	11	10	13	10	12	9	13	18	9	42	3	42
10-May	3	3	4	6	7	12	10	9	27	17	12	10	16	13	12	14	13	11	8	5	32	9	9	14	32
11-May	5	7	5	7	5	6	6	7	10	11	9	8	8	11	11	14	20	8	7	9	9	8	11	8	20
12-May	11	13	11	16	11	18	19	22	16	19	17	17	14	11	13	9	11	11	6	7	7	7	9	7	22
13-May	7	3	3	3	3	5	7	8	9	9	10	17	27	22	19	21	12	14	23	11	17	19	14	30	30
14-May	19	11	12	17	38	31	12	11	11	8	16	29	16	15	14	12	13	14	23	33	9	74	62	22	74
15-May	5	5	12	9	40	14	14	13	14	28	15	33	37	32	12	18	29	15	7	7	6	7	10	13	40
16-May	7	17	9	13	10	11	9	12	15	8	8	12	13	20	5	13	10	8	9	10	10	13	8	13	20
17-May	10	12	17	14	12	7	9	11	14	12	13	7	7	6	10	8	5	4	10	7	5	6	6	5	17
18-May	5	4	4	5	6	6	6	6	6	6	7	7	6	6	6	6	7	11	13	21	13	10	5	4	21
19-May	4	8	15	6	8	7	12	13	9	11	11	11	9	9	12	15	9	15	10	7	4	8	4	5	15
20-May	5	5	4	4	4	4	7	15	24	15	10	11	11	11	7	12	44	12	18	13	15	6	7	13	44
21-May	18	14	11	11	11	10	10	12	22	15	18	17	18	12	13	15	12	14	17	7	11	9	11	18	22
22-May	12	6	10	12	12	20	15	22	9	11	11	12	12	17	12	16	14	12	15	16	15	13	15	19	22
23-May	17	19	16	12	11	10	14	24	12	17	19	18	14	18	17	13	12	14	12	7	7	4	2	4	24
24-May	2	6	22	11	12	6	13	11	16	22	23	16	23	22	23	24	18	10	17	12	11	3	5	8	24
25-May	11	10	7	5	3	3	6	7	10	13	16	16	14	14	13	9	17	14	14	6	7	5	10	6	17
26-May	7	5	4	4	9	12	8	9	9	18	16	28	22	27	20	25	20	15	9	18	7	13	11	14	28
27-May	9	6	6	5	7	5	6	9	13	18	25	12	11	17	20	17	39	35	92	22	11	8	7	5	92
28-May	13	38	29	12	24	30	25	15	32	48	92	23	37	78	57	42	24	32	61	6	7	33	46	34	92
29-May	7	7	24	35	10	11	15	65	84	94	15	10	8	8	8	6	9	9	10	7	8	8	7	6	94
30-May	13	25	11	7	6	5	7	6	6	6	7	7	8	8	9	9	18	16	6	17	10	10	10	6	25
31-May	5	8	7	7	7	8	7	8	8	7	7	8	7	7	7	16	8	10	9	9	7	9	9	6	16
27 38 29 35 40 31 25 65 84 94 92 65 45 78 57 49 44 45 92 60 46 74 62 42 Diurnal Maximum																									





Summary of Hour Averages

Mannix - May 2024

Maximum Value: 1.2 km/h on May 12 18:00		Maximum Daily Average: 0.7 km/h on May 21		Hours in Service: 744																							
Minimum Value: -1.5 km/h on May 10 22:00		Minimum Daily Average: -0.7 km/h on May 31		Hours of Data: 744																							
Maximum Diurnal Average: 0.2 km/h at hour 9		Minimum Diurnal Average: 0.0 km/h at hour 20		Hours of Missing Data: 0																							
Monthly Average: 0.10 km/h		Percentiles: $P_1 = -1.1$ $P_{10} = -0.7$ $Q_1 = -0.3$ Median = 0.1 $Q_3 = 0.6$ $P_{90} = 0.8$ $P_{99} = 1.1$		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-May	-0.7	-0.6	-0.8	-0.6	-0.4	-0.4	-0.4	-0.1	-0.3	-0.4	-0.6	-0.6	-0.5	-1.0	-0.8	-0.5	-0.1	-0.2	-0.3	-0.5	-0.6	-0.8	-0.7	-0.8	-0.5	-0.1	
2-May	-0.9	-0.6	-0.6	-0.7	-0.4	-0.4	-0.3	-0.2	0.0	-0.3	-0.4	-0.4	-0.5	-0.8	-0.6	-1.0	-0.9	-0.7	-0.7	-0.8	-0.7	-0.5	-0.4	-0.2	-0.5	0.0	
3-May	0.0	0.1	0.1	0.0	0.1	0.3	0.0	0.1	0.3	0.3	0.3	0.1	-0.4	-0.2	-0.1	0.1	0.3	0.0	-0.6	-0.4	-0.7	-0.6	-0.5	-0.4	-0.1	0.3	
4-May	-0.1	-0.3	-0.3	-0.1	-0.2	0.0	-0.3	-0.1	0.2	0.0	-0.2	-0.6	0.0	-0.3	0.6	0.1	0.2	0.3	-0.1	0.2	0.3	0.6	0.8	0.6	0.1	0.8	
5-May	0.7	0.6	0.7	0.8	0.6	0.6	0.5	0.6	0.5	0.4	0.6	1.1	1.0	1.2	1.0	0.6	0.4	0.6	0.9	0.6	0.7	0.5	0.8	0.5	0.7	1.2	
6-May	0.8	0.7	0.4	1.0	0.7	0.8	0.8	0.7	0.8	0.8	0.9	1.0	1.0	0.1	0.3	0.5	0.9	0.7	0.5	0.5	0.7	0.9	0.4	0.1	0.7	1.0	
7-May	-0.1	0.1	0.5	0.6	1.0	0.9	0.5	0.6	0.6	0.8	0.7	0.5	0.6	0.4	0.9	0.6	0.5	0.6	1.1	0.7	0.7	0.6	0.6	0.6	0.6	1.1	
8-May	0.6	0.4	0.5	0.5	0.0	-0.2	-0.5	-0.3	-0.2	0.0	0.2	0.3	0.4	0.7	0.3	0.1	0.2	0.4	-0.1	0.1	0.0	0.0	-0.1	-0.2	0.1	0.7	
9-May	-0.1	-0.1	-0.2	0.0	-0.1	-0.1	-0.3	-0.1	-0.4	-0.6	-0.4	-0.5	-0.4	-0.8	-0.5	-0.7	-0.9	-0.6	-0.5	-0.3	-0.3	0.0	-0.2	-0.1	-0.3	0.0	
10-May	0.5	0.8	0.7	0.8	0.5	0.7	0.7	0.6	0.4	0.1	-0.1	0.2	0.2	-0.1	-0.2	-0.3	-0.4	-0.2	-0.3	-0.2	-0.3	-1.5	-0.9	-0.8	0.0	0.8	
11-May	-0.4	-0.5	-0.4	-0.1	-0.1	-0.3	-0.5	-0.8	-0.9	-1.3	-1.3	-1.3	-1.4	-0.9	-0.8	-1.1	-1.0	-0.6	-0.6	-0.3	-0.3	-0.1	0.2	0.4	-0.6	0.4	
12-May	0.3	0.8	0.7	0.2	-0.2	0.1	0.3	0.4	0.6	0.8	0.9	0.9	0.8	0.8	0.9	0.7	1.0	1.2	0.6	0.6	0.6	0.6	0.8	0.7	0.6	1.2	
13-May	0.8	0.6	0.6	0.6	0.8	0.7	0.8	0.8	0.9	1.0	0.7	0.8	0.3	-0.1	0.0	0.2	0.0	0.1	-0.3	-0.9	-0.1	-0.2	-0.3	0.0	0.3	1.0	
14-May	-0.1	-0.1	-0.1	0.1	0.0	0.2	0.5	0.6	0.4	0.8	0.6	0.1	0.1	0.0	0.1	0.2	0.1	-0.3	-0.4	-0.5	-0.4	0.0	0.1	0.0	0.1	0.8	
15-May	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	0.0	0.2	0.1	0.2	-0.1	0.2	0.0	-0.6	0.2	0.0	-0.3	-0.4	-0.2	-0.3	-0.4	-0.3	0.1	-0.1	0.2	
16-May	0.2	-0.1	-0.3	-0.3	-0.3	-0.4	-0.1	0.0	-0.2	-0.4	-0.3	-0.1	0.4	-0.4	-0.6	-0.5	-0.4	-0.3	-0.4	0.0	0.1	-0.1	0.0	0.2	-0.2	0.4	
17-May	0.2	0.0	-0.4	-0.5	-0.7	-0.6	-0.7	-0.5	-0.6	-0.3	-0.4	-0.7	-0.5	-0.7	-0.5	-0.4	-0.7	-0.8	-1.0	-1.1	-1.2	-0.9	-0.6	-0.7	-0.6	0.2	
18-May	-0.5	-0.6	-0.7	-0.7	-0.9	-0.8	-0.7	-1.0	-0.5	-0.7	-0.7	-0.9	-1.0	-0.9	-1.2	-0.9	-0.9	-0.7	-0.2	0.1	0.4	-0.1	-0.1	-0.2	-0.6	0.4	
19-May	-0.3	-0.1	-0.2	-0.2	-0.2	-0.2	0.0	0.3	0.4	0.5	0.0	0.2	0.1	0.5	0.6	0.1	0.5	0.0	0.1	-0.3	0.0	-0.6	-0.8	-0.6	0.0	0.6	
20-May	-0.3	-0.6	-0.7	-0.4	-0.3	-0.6	-0.3	-0.1	0.0	-0.1	-0.2	-0.3	-0.1	-0.3	-0.3	-0.3	0.9	0.7	0.3	0.1	0.5	0.5	0.5	0.9	0.0	0.9	
21-May	0.6	0.8	1.0	0.8	1.1	0.9	1.1	0.6	0.8	0.8	1.0	1.0	0.5	0.6	1.0	0.6	0.6	0.6	0.4	0.8	0.4	0.5	0.7	0.6	0.7	1.1	
22-May	0.0	0.0	0.2	0.6	0.5	0.2	0.2	0.3	0.3	0.1	0.5	0.7	0.7	0.3	0.2	0.4	0.3	0.6	0.7	0.8	0.9	0.7	0.7	0.4	0.4	0.9	
23-May	0.4	0.2	0.7	0.7	0.7	0.8	1.1	0.6	0.5	0.8	0.7	0.6	0.6	0.7	0.6	0.6	0.5	0.7	0.6	0.2	0.7	0.3	0.4	0.5	0.6	1.1	
24-May	0.5	0.6	0.0	0.1	0.2	0.6	0.4	0.4	0.7	0.4	0.6	0.5	0.5	0.5	0.7	0.6	0.5	0.2	0.4	0.1	0.0	-0.1	0.3	0.2	0.4	0.7	
25-May	0.2	0.5	0.4	0.4	0.4	0.2	0.5	0.6	0.6	0.4	0.8	1.1	0.9	1.0	0.8	0.9	1.0	0.9	0.7	0.6	0.6	0.6	0.6	0.7	0.6	1.1	
26-May	0.6	0.6	0.7	0.7	0.5	0.6	0.7	0.5	0.5	0.7	0.8	0.7	0.4	0.6	0.8	0.6	0.5	0.4	0.3	0.6	0.7	0.8	0.7	0.5	0.6	0.8	
27-May	0.7	0.8	0.8	0.6	0.6	0.6	0.4	0.5	0.6	1.1	1.0	0.9	0.8	0.6	1.1	0.9	0.5	0.2	0.2	0.5	0.7	0.6	0.6	0.7	0.7	1.1	
28-May	0.7	0.2	-0.1	-0.4	0.0	0.3	0.2	0.4	0.3	0.2	0.3	0.1	0.4	-0.5	-0.1	0.1	0.2	0.1	0.2	-0.1	-0.4	0.0	-0.1	0.1	0.1	0.7	
29-May	0.1	-0.1	0.4	0.5	0.7	0.8	0.5	0.2	0.1	0.2	0.2	0.2	0.0	0.4	0.2	0.1	0.3	0.3	0.2	0.4	0.2	0.0	0.2	0.0	0.3	0.8	
30-May	0.3	0.3	0.1	-0.1	-0.2	-0.4	-0.1	-0.2	-0.5	-0.6	-0.6	-0.3	-0.4	-0.1	-0.3	-0.5	-0.6	-0.1	0.1	-0.3	-0.4	-0.4	-0.4	0.1	-0.2	0.3	
31-May	0.2	0.1	-0.5	-1.0	-1.3	-0.9	-0.5	-0.7	-0.9	-0.7	-0.8	-0.6	-0.9	-0.9	-0.9	-0.4	-0.6	-0.5	-0.6	-1.0	-0.8	-0.8	-0.7	-1.1	-0.7	0.2	
		0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	Diurnal Average		
		0.8	0.8	1.0	1.0	1.1	0.9	1.1	0.8	0.9	1.1	1.0	1.1	1.0	1.2	1.1	0.9	1.0	1.2	1.1	0.8	0.9	0.9	0.8	0.9	Diurnal Maximum	



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.5 km/h on May 11 13:00  Minimum Value: 0.2 km/h on May 15 03:00  Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.4 Median = 1.8 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.8 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-May	3.0	2.5	2.5	2.4	1.5	1.6	1.9	1.7	1.7	1.9	2.6	2.9	3.1	3.1	3.2	3.2	3.1	2.5	2.5	1.9	2.4	2.6	2.5	2.9	3.2
2-May	2.1	1.5	1.6	1.5	1.1	1.1	1.5	1.6	1.9	2.4	2.4	2.7	3.0	3.0	3.3	3.2	3.3	3.3	3.2	2.5	2.5	2.5	1.9	0.7	3.3
3-May	0.6	0.4	0.4	0.5	0.5	0.8	0.6	1.0	1.3	1.5	1.6	1.9	2.3	2.2	1.8	1.6	1.5	1.8	2.2	2.2	2.2	1.8	1.2	0.6	2.3
4-May	0.5	0.4	0.5	0.4	0.5	0.4	0.9	1.1	1.4	2.0	2.2	2.3	2.4	2.2	2.2	2.0	1.8	1.6	1.1	0.7	0.7	1.7	2.1	1.5	2.4
5-May	1.4	1.6	1.6	1.8	1.8	1.8	1.2	1.4	1.4	1.6	1.9	2.3	2.5	2.5	2.3	2.0	1.9	1.9	1.7	1.3	1.9	1.7	2.0	1.9	2.5
6-May	2.0	2.1	2.0	2.3	2.0	2.2	2.3	2.3	1.9	2.2	2.9	2.8	2.5	1.9	2.1	2.4	2.2	2.1	1.9	2.0	2.9	2.3	1.2	0.5	2.9
7-May	0.8	1.2	1.5	1.7	2.4	2.2	1.7	2.1	1.9	1.8	1.3	1.5	1.4	1.1	2.1	1.7	0.8	1.1	1.6	1.5	1.7	1.4	1.3	1.2	2.4
8-May	1.1	1.1	0.6	0.7	0.8	1.2	2.1	1.8	1.6	1.2	1.7	1.6	1.8	2.1	2.4	1.8	2.2	2.1	2.5	1.8	0.8	0.6	0.6	0.5	2.5
9-May	0.5	1.2	1.6	1.7	1.3	1.2	1.5	2.1	2.3	2.7	2.9	3.5	3.3	3.1	3.2	3.1	3.1	2.6	2.2	1.1	0.6	0.5	0.3	0.4	3.5
10-May	0.4	0.9	1.0	1.5	1.5	1.5	1.3	1.2	1.4	2.0	2.7	2.8	2.9	2.7	3.1	2.9	2.7	2.9	2.5	1.1	1.3	4.3	4.1	2.0	4.3
11-May	1.4	2.2	1.7	1.3	1.4	2.5	3.0	3.4	3.4	3.8	3.8	4.2	4.5	4.2	3.7	3.6	3.5	3.6	3.3	2.7	2.2	1.8	1.5	1.4	4.5
12-May	1.2	1.3	1.1	0.7	0.5	0.4	0.9	1.5	1.5	1.7	1.6	1.8	2.0	1.9	1.9	1.9	2.0	2.0	1.7	1.7	1.8	1.6	1.6	1.9	2.0
13-May	1.8	1.4	1.4	1.6	1.9	1.8	1.9	1.9	1.9	2.2	2.3	2.5	2.5	2.3	2.2	2.3	2.2	2.4	1.8	2.7	2.2	1.2	0.8	0.8	2.7
14-May	0.4	0.3	0.2	0.2	0.6	0.6	1.0	1.3	1.2	1.6	2.0	2.8	3.0	2.8	3.1	2.8	2.7	2.7	2.0	2.7	2.3	1.2	0.3	0.5	3.1
15-May	0.3	0.4	0.2	0.3	0.6	1.0	1.5	1.7	1.9	2.0	2.1	2.1	2.1	2.2	2.9	2.4	2.0	2.1	2.5	2.3	2.0	2.0	1.6	1.6	2.9
16-May	1.7	1.5	1.5	1.2	1.3	1.1	1.2	1.9	1.2	1.7	1.5	1.4	1.5	1.3	1.8	1.7	1.5	1.5	1.5	2.1	2.1	1.8	2.2	2.0	2.2
17-May	2.1	2.4	2.0	1.7	2.1	1.9	1.9	1.6	1.6	1.3	1.6	1.9	2.0	2.2	2.4	2.4	2.6	2.8	2.8	2.6	2.5	2.5	2.4	2.3	2.8
18-May	2.2	2.4	2.5	2.5	2.3	2.2	2.0	2.0	2.1	2.3	2.3	2.6	2.8	2.8	2.8	2.9	2.4	2.0	1.4	1.7	1.5	0.8	1.0	1.1	2.9
19-May	1.2	1.1	0.8	1.2	1.3	1.2	1.1	1.8	1.9	1.9	1.7	2.0	1.8	2.2	1.9	1.5	2.0	2.0	1.6	1.3	1.1	2.3	2.7	2.1	2.7
20-May	2.2	2.1	2.0	1.8	1.9	2.1	2.1	1.6	1.6	1.8	2.0	2.0	2.2	1.9	2.0	1.6	1.6	1.8	1.2	0.6	0.9	1.4	1.7	1.6	2.2
21-May	1.1	1.4	1.6	1.5	1.7	1.8	1.8	1.6	1.6	1.9	1.9	1.8	2.0	2.3	2.1	1.9	1.7	2.0	1.6	1.7	1.3	1.3	1.2	1.1	2.3
22-May	0.8	0.6	1.1	1.3	1.4	1.2	1.4	1.6	1.9	2.2	2.2	2.5	2.3	2.4	2.3	2.0	1.7	1.5	1.4	1.4	1.5	1.2	1.0	0.7	2.5
23-May	0.8	0.6	1.3	1.4	1.2	1.6	1.6	1.3	1.5	2.0	2.2	2.1	2.1	2.1	2.2	2.0	1.8	1.6	1.6	1.1	1.2	0.6	0.5	0.6	2.2
24-May	0.7	0.7	0.5	0.4	0.6	1.0	1.3	1.5	1.7	1.9	2.0	2.1	2.1	2.0	2.1	2.1	1.8	1.6	1.3	1.3	0.8	0.3	0.6	0.8	2.1
25-May	0.6	1.1	1.0	0.9	1.0	1.2	1.6	1.5	1.7	2.1	2.3	2.5	2.5	2.3	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.6	1.3	1.6	2.5
26-May	1.6	1.7	1.5	1.1	1.3	1.6	1.7	1.5	1.9	2.0	2.3	2.1	2.5	2.4	2.2	1.9	1.6	1.4	1.1	1.1	1.2	1.5	1.5	1.4	2.5
27-May	1.5	1.9	1.7	1.8	1.9	1.6	1.5	1.5	1.8	2.0	2.4	2.4	2.3	2.2	2.3	2.0	2.8	2.0	1.1	1.1	1.6	1.5	1.7	1.9	2.8
28-May	2.1	1.7	0.9	1.6	1.5	0.9	0.9	1.0	1.1	1.3	1.6	1.8	2.0	1.5	1.4	2.1	1.6	1.1	0.8	0.8	0.8	1.0	1.3	1.5	2.1
29-May	2.4	2.2	1.4	1.5	1.9	2.0	1.7	1.0	1.4	1.8	1.9	2.1	2.6	3.2	3.1	3.2	2.8	2.8	3.1	2.8	2.8	2.8	2.4	2.6	3.2
30-May	2.1	1.7	1.7	1.9	2.0	2.0	2.0	2.3	2.5	2.6	2.4	2.6	2.5	2.3	2.5	2.4	2.0	1.7	2.0	1.9	1.9	2.7	1.5	2.7	2.7
31-May	1.5	2.2	3.2	3.8	3.9	3.2	2.7	2.7	3.4	2.8	3.1	3.2	3.3	3.3	2.9	2.3	2.1	2.3	3.2	3.1	2.5	2.7	2.7	3.3	3.9
3.0 2.5 3.2 3.8 3.9 3.2 3.0 3.4 3.4 3.8 3.8 4.2 4.5 4.2 3.7 3.6 3.5 3.6 3.3 3.1 2.9 4.3 4.1 3.3 Diurnal Maximum																									



Summary of Hour Averages

Mannix - May 2024

Maximum Value: 2.1 km/h on May 21 03:00		Maximum Daily Average: 0.9 km/h on May 21		Hours in Service: 744																						
Minimum Value: -1.4 km/h on May 11 12:00		Minimum Daily Average: -0.6 km/h on May 31		Hours of Data: 744																						
Maximum Diurnal Average: 0.3 km/h at hour 10		Minimum Diurnal Average: -0.1 km/h at hour 16		Hours of Missing Data: 0																						
Monthly Average: 0.11 km/h		Percentiles: $P_1 = -1.1$ $P_{10} = -0.6$ $Q_1 = -0.3$ Median = 0.1 $Q_3 = 0.5$ $P_{90} = 0.8$ $P_{99} = 1.5$		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-May	-0.3	-0.1	-0.3	-0.3	-0.2	0.0	-0.3	0.0	-0.1	-0.2	-0.5	-0.4	0.2	-1.0	-0.2	-0.1	0.4	0.4	0.2	0.1	-0.4	-0.7	-0.6	-0.4	-0.2	0.4
2-May	-0.4	-0.6	-0.4	-0.6	-0.2	-0.4	-0.3	-0.2	0.0	-0.4	-0.3	0.0	-0.3	-0.3	-0.6	-0.5	-0.2	-0.3	-0.1	-0.3	-0.1	-0.2	0.0	-0.3	0.0	0.0
3-May	0.0	0.0	0.1	0.2	0.2	0.4	0.0	-0.2	0.3	0.2	0.2	0.6	-0.7	-0.3	-0.3	0.3	0.5	0.2	-0.2	-0.1	-0.5	-0.4	-0.3	-0.4	0.0	0.6
4-May	0.0	-0.2	-0.2	-0.2	-0.3	-0.1	-0.3	-0.2	0.3	0.3	0.0	-0.7	0.1	-0.4	0.9	0.0	0.0	0.2	0.3	0.2	0.4	0.4	0.7	0.5	0.1	0.9
5-May	0.6	0.7	0.7	0.6	0.5	0.3	0.3	0.6	0.2	0.2	0.3	0.8	0.9	1.2	0.8	0.4	0.2	0.4	0.8	0.4	0.3	0.2	0.7	0.4	0.5	1.2
6-May	0.4	0.9	0.2	0.7	0.2	0.6	0.6	0.3	0.3	0.5	0.6	0.9	0.8	0.2	0.5	0.6	1.1	0.7	0.5	0.5	0.6	0.9	0.3	0.1	0.5	1.1
7-May	0.1	0.2	0.3	0.4	1.2	0.9	0.5	0.3	0.6	1.2	0.9	0.5	0.8	0.3	0.6	0.2	0.4	1.4	1.2	0.3	0.6	0.5	0.7	0.7	0.6	1.4
8-May	0.6	0.4	0.4	0.3	-0.3	-0.7	-0.8	-0.6	-0.5	0.0	0.3	0.4	0.7	0.8	0.2	-0.2	-0.1	0.2	-0.6	-0.6	-0.5	-0.5	-0.6	-0.7	-0.1	0.8
9-May	-0.8	-0.8	-0.8	-0.6	-0.4	-0.3	-0.3	-0.5	-0.4	-0.8	-0.8	-1.0	-0.5	-0.8	-0.5	-0.7	-0.9	-0.6	-0.6	-0.4	-0.4	-0.1	-0.1	-0.1	-0.5	-0.1
10-May	0.4	0.7	0.9	0.9	0.6	0.7	0.6	0.3	0.4	-0.1	-0.6	-0.7	-0.3	-0.4	-0.7	-0.7	-1.0	-0.6	-0.9	-0.5	-0.6	-1.2	-0.6	-0.8	-0.2	0.9
11-May	-0.4	-0.7	-0.8	-0.5	-0.6	-0.7	-1.1	-1.1	-0.9	-0.8	-1.3	-1.4	-1.3	-0.5	-1.1	-1.1	-0.8	0.0	0.0	0.1	-0.1	0.1	0.4	0.5	-0.6	0.5
12-May	0.3	1.2	1.0	0.3	-0.1	0.2	0.3	0.5	0.7	1.1	1.3	1.4	0.7	0.3	1.0	0.5	1.3	1.4	0.3	0.2	0.0	0.3	0.5	0.6	0.6	1.4
13-May	0.6	0.6	0.5	0.7	0.8	0.8	0.8	0.8	0.6	0.9	0.3	0.8	0.1	-0.7	-0.2	-0.2	-0.3	-0.6	-0.4	-0.7	0.0	-0.1	-0.1	0.1	0.2	0.9
14-May	-0.1	-0.2	-0.3	-0.1	0.0	0.0	0.4	0.4	0.3	0.7	0.3	-0.5	-0.4	-0.4	-0.4	-0.9	-0.2	-0.6	-0.2	-0.4	0.1	0.0	0.0	-0.2	-0.1	0.7
15-May	-0.3	-0.2	0.0	-0.2	-0.5	-0.2	0.0	0.0	0.6	0.4	0.2	-0.2	0.5	0.2	-0.2	-0.4	0.4	0.3	0.3	0.3	0.0	-0.1	-0.3	0.3	0.0	0.6
16-May	0.3	0.4	-0.2	-0.2	0.0	-0.2	0.2	0.2	-0.2	-0.1	0.0	0.3	0.6	-0.2	-0.4	-0.2	-0.1	0.1	0.0	0.5	0.5	0.3	0.4	0.4	0.1	0.6
17-May	0.7	0.7	0.2	0.2	0.2	0.1	-0.2	-0.8	-0.3	-0.1	-0.1	-0.2	0.0	-0.2	0.0	0.2	-0.6	-0.5	-0.5	-0.7	-0.9	-0.8	-0.9	-0.5	-0.2	0.7
18-May	-0.4	-0.6	-0.7	-0.8	-0.8	-0.9	-0.6	-1.0	-0.6	-0.5	-0.6	-0.8	-0.9	-0.9	-0.8	-0.8	-0.8	-0.5	0.2	0.3	0.6	0.0	-0.1	-0.1	-0.5	0.6
19-May	-0.2	0.1	0.0	-0.2	-0.1	-0.2	0.1	0.7	0.7	0.8	0.3	0.7	0.1	1.0	0.4	0.1	0.6	0.3	0.3	-0.3	0.1	-0.5	-0.5	-0.4	0.2	1.0
20-May	0.0	-0.2	-0.4	-0.1	0.0	-0.2	-0.2	-0.1	0.0	0.1	-0.2	-0.1	0.3	0.0	-0.3	-0.3	1.2	0.2	0.3	-0.2	0.3	0.6	0.2	1.5	0.1	1.5
21-May	0.8	1.2	2.1	0.9	1.7	1.2	1.5	0.4	1.3	1.0	1.4	1.1	0.5	0.4	1.1	0.5	0.3	0.9	0.3	0.6	0.4	0.2	0.7	1.0	0.9	2.1
22-May	0.1	0.3	0.3	0.4	0.2	0.4	0.4	0.3	0.7	0.5	0.6	0.9	1.0	0.9	0.7	0.5	0.3	0.2	0.9	1.2	1.4	1.4	0.8	1.0	0.6	1.4
23-May	0.7	0.5	1.1	1.6	0.9	0.9	1.7	1.0	0.4	0.9	0.7	0.6	0.8	0.6	0.5	0.4	0.3	0.4	0.6	0.1	0.5	0.2	0.3	0.4	0.7	1.7
24-May	0.5	0.6	0.3	0.1	0.4	1.1	0.4	0.1	0.6	0.4	0.8	0.4	0.6	0.4	0.7	0.6	0.5	0.0	0.2	-0.1	-0.4	-0.3	-0.1	-0.1	0.3	1.1
25-May	0.2	0.7	0.6	0.5	0.7	0.4	0.3	0.4	0.3	0.0	1.3	1.0	0.3	0.9	0.9	0.3	1.1	0.8	0.7	0.2	0.5	0.6	0.6	0.7	0.6	1.3
26-May	0.6	0.7	0.8	0.5	0.6	0.4	0.5	0.2	0.1	0.7	0.8	0.8	0.3	0.6	1.2	0.4	0.5	0.5	0.1	0.9	1.0	0.9	0.7	0.5	0.6	1.2
27-May	0.7	1.0	0.9	1.0	0.8	0.3	0.2	0.4	0.6	1.7	1.4	0.9	0.8	0.9	1.5	0.8	0.1	-0.3	0.2	0.7	0.8	0.5	0.5	0.7	0.7	1.7
28-May	0.8	0.1	-0.3	-0.4	0.0	0.3	0.1	0.2	0.1	0.6	0.1	0.1	0.5	-1.0	-0.2	-0.1	-0.5	0.1	0.1	0.0	-0.2	0.0	-0.2	0.1	0.0	0.8
29-May	0.2	0.3	0.3	0.7	0.7	0.3	0.3	0.2	0.2	0.3	-0.2	-0.4	-0.7	-0.2	-0.4	-1.0	-0.4	-0.4	-0.8	-0.7	-0.5	-0.6	-0.1	-0.4	-0.1	0.7
30-May	0.3	0.1	-0.3	-0.4	-0.3	-0.6	-0.5	-0.5	-0.8	-0.7	-0.6	-0.5	-0.4	-0.4	-0.4	-0.4	-0.6	-0.2	-0.5	-0.4	-0.4	-0.5	-0.6	-0.4	-0.4	0.3
31-May	-0.2	-0.3	-0.8	-0.8	-1.0	-0.6	-0.6	-0.5	-0.9	-0.5	-0.6	-0.7	-0.9	-1.0	-0.8	-0.2	-0.7	-0.7	-0.6	-0.4	-0.5	-0.8	-0.6	-0.9	-0.6	-0.2
		0.2	0.2	0.2	0.1	0.2	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	0.1	0.0	0.1	0.0	0.1	0.1	Diurnal Average
		0.8	1.2	2.1	1.6	1.7	1.2	1.7	1.0	1.3	1.7	1.4	1.4	1.0	1.2	1.5	0.8	1.3	1.4	1.2	1.2	1.4	1.4	0.8	1.5	Diurnal Maximum



Summary of Hour Standard Deviations

Mannix - May 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5.0 km/h on May 11 13:00  Minimum Value: 0.1 km/h on May 14 04:00  Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.4 Median = 2.0 Q <sub>3</sub> = 2.6 P <sub>90</sub> = 3.1 P <sub>99</sub> = 4.0																						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 Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	2.8	2.6	2.1	2.2	1.4	1.5	1.7	1.6	2.0	2.3	2.6	3.0	3.4	3.2	3.7	3.5	2.8	2.4	2.3	1.9	2.0	2.4	2.3	2.6	3.7
2-May	1.6	1.4	0.9	0.9	1.1	1.0	1.4	1.7	2.1	2.7	2.8	3.2	3.2	3.2	3.7	3.4	3.4	3.1	3.1	2.4	2.7	2.8	2.1	0.6	3.7
3-May	0.8	0.6	0.3	0.6	0.6	0.7	0.5	1.2	1.7	1.9	2.0	2.4	2.8	2.9	2.2	2.2	1.7	2.2	2.5	2.1	2.0	2.1	1.1	0.7	2.9
4-May	0.6	0.4	0.4	0.4	0.4	0.3	0.9	1.2	1.7	2.7	2.9	2.9	3.1	2.9	2.7	2.5	2.0	2.0	1.3	0.9	0.8	1.8	2.3	1.4	3.1
5-May	1.3	1.5	1.3	1.6	2.0	1.9	1.2	1.8	1.6	2.0	2.6	3.1	3.1	3.3	2.8	2.3	2.4	2.5	2.0	1.3	2.1	1.9	2.0	2.0	3.3
6-May	2.1	2.8	2.6	2.8	2.1	2.1	2.3	2.1	2.1	2.7	3.3	3.3	2.9	2.2	2.1	2.8	2.7	2.4	2.1	2.1	2.7	2.4	1.2	0.7	3.3
7-May	0.9	1.4	1.8	2.1	2.9	2.6	2.0	2.3	2.3	2.1	1.7	1.8	1.8	1.3	2.4	2.0	1.0	1.3	2.0	1.8	1.9	1.4	1.6	1.2	2.9
8-May	1.0	0.8	0.5	0.5	0.8	1.0	2.0	2.0	1.7	1.4	2.2	2.1	2.2	2.9	2.9	2.3	2.4	2.5	2.6	1.9	0.7	0.6	0.5	0.4	2.9
9-May	0.7	1.3	1.8	1.8	1.1	1.3	1.7	2.2	2.7	2.8	3.1	3.9	3.9	3.6	3.6	3.4	3.6	2.9	2.5	1.3	0.6	0.6	0.3	0.2	3.9
10-May	0.3	0.5	0.8	1.3	1.4	1.4	1.1	1.1	1.4	2.6	3.3	3.2	3.8	3.5	3.5	3.3	3.1	3.2	2.6	1.1	1.5	4.5	4.3	2.1	4.5
11-May	1.4	2.1	1.5	1.5	1.4	2.7	3.1	3.4	3.6	4.2	4.0	4.6	5.0	4.8	4.2	4.1	3.4	3.4	3.4	2.9	2.1	1.7	1.6	1.5	5.0
12-May	1.4	1.5	1.2	1.0	0.3	0.5	1.1	1.6	2.1	2.1	2.1	2.3	2.6	2.4	2.5	2.3	2.5	2.4	1.7	2.0	1.8	1.8	1.9	1.8	2.6
13-May	1.8	1.4	1.2	1.7	1.8	1.7	2.0	2.0	2.2	2.8	2.8	3.1	3.2	2.7	2.6	2.7	2.6	2.5	2.2	2.8	2.2	1.1	0.7	0.6	3.2
14-May	0.3	0.1	0.1	0.1	0.3	0.5	1.0	1.3	1.2	1.7	2.5	3.4	3.3	3.7	3.8	3.3	3.1	3.0	2.2	3.0	2.4	1.3	0.4	0.3	3.8
15-May	0.3	0.5	0.3	0.3	0.9	1.0	1.7	2.0	2.2	2.6	2.4	2.5	2.7	2.6	3.6	2.7	2.6	2.5	2.5	2.2	2.1	2.1	1.7	1.8	3.6
16-May	1.6	1.5	1.4	1.2	1.1	0.9	1.1	1.7	1.3	1.6	1.4	1.5	1.7	1.3	1.5	1.6	1.5	1.6	1.4	2.1	2.0	1.8	2.0	2.1	2.1
17-May	2.2	2.4	2.0	1.7	2.1	1.6	1.5	1.3	1.5	1.5	1.6	1.7	1.9	1.9	2.0	2.2	2.4	2.1	2.5	2.7	2.4	2.5	2.2	2.3	2.7
18-May	2.4	2.3	2.4	2.5	2.3	2.1	2.0	1.9	2.3	2.5	2.5	2.8	3.2	2.9	3.3	3.1	2.3	1.8	1.6	1.6	1.6	0.8	0.8	1.0	3.3
19-May	0.9	1.1	0.8	0.9	1.2	1.1	1.1	1.8	1.8	1.7	1.6	1.9	1.8	2.3	2.1	1.7	2.1	2.2	1.7	1.1	1.0	1.9	2.7	1.9	2.7
20-May	2.2	1.9	1.8	1.6	1.8	1.9	2.0	1.7	1.8	2.2	2.6	2.4	2.4	2.2	1.8	1.6	1.9	1.6	1.4	0.6	1.0	1.4	1.7	2.2	2.6
21-May	1.2	1.8	1.9	2.1	2.2	2.4	2.1	1.9	1.9	2.4	2.4	2.2	2.6	2.7	2.5	2.3	2.0	2.3	1.8	2.0	1.5	1.3	1.4	1.5	2.7
22-May	1.1	0.7	1.3	1.8	1.8	1.4	1.7	1.6	2.0	2.3	2.3	2.7	2.6	2.7	2.7	2.1	1.8	1.8	1.8	1.8	1.8	1.3	1.3	0.8	2.7
23-May	1.2	0.8	1.5	1.6	1.5	2.0	2.1	1.6	2.0	2.4	2.7	2.8	2.7	2.8	3.1	2.5	2.0	1.9	1.8	0.8	1.1	0.5	0.3	0.3	3.1
24-May	0.4	0.3	0.8	0.6	0.9	1.1	1.4	1.8	2.5	2.6	2.9	2.9	2.9	2.8	2.7	2.8	2.3	1.6	1.6	1.1	0.7	0.2	0.3	0.3	2.9
25-May	0.5	0.7	0.6	0.7	0.5	1.0	1.6	1.5	2.2	2.6	3.1	3.3	3.1	2.9	2.9	2.6	2.5	2.2	2.3	2.0	2.0	1.7	1.2	1.3	3.3
26-May	1.3	1.6	1.7	0.8	1.1	1.8	1.7	1.7	2.2	2.7	3.3	2.8	3.0	3.2	2.8	2.2	2.2	1.5	1.3	1.3	1.5	1.9	1.8	1.4	3.3
27-May	1.4	1.6	1.5	1.5	1.6	1.5	1.5	1.6	2.3	2.6	3.3	3.1	2.9	2.6	3.1	2.6	2.7	2.1	1.1	1.4	1.7	1.3	1.7	1.8	3.3
28-May	2.2	2.0	1.0	1.5	1.3	1.0	1.0	1.1	1.3	1.8	1.9	2.1	2.4	1.9	1.9	2.6	1.9	1.4	1.1	0.8	0.6	1.2	1.3	1.3	2.6
29-May	2.1	2.3	1.5	2.1	1.8	2.4	2.1	1.2	1.9	2.2	2.0	2.5	2.5	3.4	3.2	3.3	2.8	2.8	3.2	2.8	2.7	2.6	2.3	2.5	3.4
30-May	2.0	1.5	1.7	1.7	1.9	1.6	1.8	2.2	2.6	2.4	2.3	2.7	2.5	2.3	2.3	2.5	2.7	1.9	1.5	2.0	1.7	1.8	2.8	1.6	2.8
31-May	1.6	2.3	3.1	3.9	3.9	3.0	2.5	2.9	3.2	3.0	3.2	3.3	3.2	3.2	3.1	2.7	2.1	2.3	3.5	3.5	2.6	2.9	2.9	3.3	3.9
Diurnal Maximum																									





Summary of Hour Averages

Mannix - May 2024

Maximum Value: 2.8 km/h on May 21 03:00		Maximum Daily Average: 0.7 km/h on May 23		Hours in Service: 744																						
Minimum Value: -1.1 km/h on May 28 14:00		Minimum Daily Average: -0.2 km/h on May 18		Hours of Data: 744																						
Maximum Diurnal Average: 0.5 km/h at hour 10		Minimum Diurnal Average: 0.1 km/h at hour 22		Hours of Missing Data: 0																						
Monthly Average: 0.25 km/h		Percentiles: $P_1 = -0.7$ $P_{10} = -0.3$ $Q_1 = 0.0$ Median = 0.2 $Q_3 = 0.5$ $P_{90} = 0.8$ $P_{99} = 1.7$		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-May	0.0	0.4	0.0	0.0	0.2	0.1	-0.1	0.1	-0.1	0.0	-0.4	-0.2	0.6	-0.9	0.3	0.3	0.4	0.5	0.2	0.3	-0.1	-0.3	-0.1	0.1	0.1	0.6
2-May	0.0	-0.2	-0.1	-0.4	-0.2	-0.1	-0.2	0.1	0.4	-0.4	-0.1	0.2	-0.2	0.1	0.2	-0.3	-0.1	0.1	0.1	0.4	0.4	0.5	0.1	0.1	0.0	0.5
3-May	0.2	0.0	0.2	0.2	0.3	0.5	0.0	-0.2	0.6	0.3	0.3	1.5	-0.1	0.4	0.0	0.9	0.7	0.3	0.5	0.3	-0.2	0.3	0.0	-0.1	0.3	1.5
4-May	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.5	0.8	0.5	-0.1	0.6	0.2	1.2	0.0	0.0	-0.1	0.9	0.4	0.4	-0.7	-0.2	-0.2	0.2	1.2
5-May	0.0	0.0	0.1	-0.3	-0.2	-0.3	0.0	0.2	-0.1	0.0	-0.2	0.4	0.3	0.9	0.4	0.0	0.3	0.3	0.3	-0.2	-0.4	-0.7	-0.4	-0.7	0.0	0.9
6-May	-0.7	0.4	-0.3	-0.2	-0.6	-0.4	-0.4	-0.8	-0.2	0.0	-0.6	0.2	0.0	0.2	0.4	-0.1	0.7	-0.1	0.1	-0.1	0.5	1.0	0.5	0.3	0.0	1.0
7-May	0.2	0.0	-0.1	-0.2	0.9	0.3	0.1	-0.3	0.2	1.5	1.0	0.4	0.7	0.0	0.1	-0.5	-0.1	2.0	0.7	-0.4	-0.2	0.1	0.4	0.5	0.3	2.0
8-May	0.6	0.6	0.6	0.3	0.1	0.1	0.4	0.4	0.0	0.5	0.4	0.7	1.0	0.9	0.2	0.3	0.0	0.5	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	0.3	1.0
9-May	-0.4	-0.1	0.1	0.1	0.3	0.3	0.6	0.5	0.6	0.4	0.7	0.4	0.8	0.4	1.0	0.6	0.1	0.6	0.2	0.0	0.0	0.1	0.3	0.3	0.3	1.0
10-May	0.4	0.5	0.8	1.0	0.6	0.8	0.5	0.1	0.5	0.4	0.5	0.1	0.9	0.7	0.5	0.4	0.0	0.3	0.2	0.2	-0.1	-0.8	0.1	-0.3	0.3	1.0
11-May	0.5	0.5	0.3	0.3	0.2	0.3	0.1	0.6	0.8	0.8	-0.1	-0.6	-0.3	0.1	-0.3	-0.3	-0.5	-0.1	0.2	0.1	0.0	0.2	0.3	0.4	0.2	0.8
12-May	0.0	1.1	0.7	0.2	0.2	0.4	0.4	0.6	0.6	1.4	1.6	1.4	0.1	-0.3	0.4	-0.2	1.1	1.0	-0.7	-0.8	-1.0	-0.7	-0.4	-0.1	0.3	1.6
13-May	-0.1	0.0	0.0	0.1	0.0	-0.1	0.0	0.4	0.3	0.3	-0.2	0.5	0.5	-0.3	0.4	0.3	0.5	0.1	0.1	-0.1	0.2	0.2	0.0	0.2	0.1	0.5
14-May	0.2	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.1	-0.2	-0.1	0.7	0.4	-0.2	0.6	0.5	0.2	-0.1	0.6	0.2	0.3	0.1	0.2	0.7
15-May	0.0	0.0	0.1	0.1	-0.2	0.0	0.3	0.1	0.5	0.9	0.4	0.2	1.1	0.8	0.7	0.0	0.8	0.7	0.5	0.2	0.2	0.1	-0.1	0.3	0.3	1.1
16-May	0.2	0.6	0.1	0.1	0.3	0.2	0.4	0.0	-0.2	-0.2	0.1	0.5	0.6	0.1	-0.4	0.1	0.1	0.6	0.5	0.6	0.6	0.5	0.4	0.4	0.3	0.6
17-May	0.5	0.6	0.5	0.4	0.5	0.5	-0.1	-0.4	-0.1	0.4	0.1	-0.1	0.3	0.2	0.3	0.5	-0.3	-0.4	-0.3	-0.3	-0.5	-0.3	-0.2	0.1	0.1	0.6
18-May	0.1	-0.2	-0.2	-0.3	-0.1	-0.4	-0.2	-0.5	-0.2	-0.2	-0.3	-0.3	-0.7	-0.6	-0.3	-0.4	-0.5	-0.1	0.5	0.4	0.4	0.2	0.1	0.0	-0.2	0.5
19-May	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.6	0.4	0.6	0.3	0.4	0.2	0.8	0.1	-0.2	0.4	0.5	0.4	0.0	0.2	-0.1	-0.3	0.1	0.2	0.8
20-May	0.4	0.1	-0.2	0.1	0.3	0.3	-0.1	0.2	0.0	0.5	0.1	0.2	0.5	0.1	-0.2	-0.1	1.4	-0.5	0.5	0.1	0.0	-0.3	-0.7	1.8	0.2	1.8
21-May	0.5	1.3	2.8	0.6	1.6	0.9	1.1	-0.1	1.6	0.7	1.1	0.9	0.2	-0.6	0.5	0.0	0.0	0.6	0.1	-0.2	0.1	-0.3	0.4	1.1	0.6	2.8
22-May	0.3	0.1	0.1	0.2	-0.4	0.6	0.3	0.4	0.7	0.3	0.4	0.6	0.6	1.2	0.5	0.5	0.2	-0.3	0.8	1.4	1.7	1.9	0.5	1.5	0.6	1.9
23-May	0.9	1.1	1.1	2.4	0.9	0.8	1.9	1.2	0.0	0.8	0.4	0.1	0.6	0.4	0.3	0.2	0.0	0.2	0.5	0.2	0.5	0.6	0.3	0.7	0.7	2.4
24-May	0.0	-0.1	0.1	0.2	0.4	0.7	0.5	-0.1	0.2	0.1	0.7	0.0	0.6	0.1	0.9	0.7	0.3	-0.1	0.4	-0.1	0.0	-0.1	-0.1	-0.1	0.2	0.9
25-May	0.3	0.6	0.6	0.7	0.3	0.5	0.3	0.1	-0.2	-0.5	1.3	0.2	-0.5	0.1	0.3	-0.6	0.6	0.4	-0.1	-0.7	-0.3	0.0	0.2	-0.1	0.1	1.3
26-May	-0.1	0.2	0.0	-0.1	0.2	0.1	0.1	-0.2	-0.2	0.5	0.8	0.8	0.5	0.7	1.2	0.3	0.4	0.8	-0.4	0.9	1.3	0.6	0.3	0.4	0.4	1.3
27-May	-0.1	0.1	-0.1	0.1	0.0	-0.1	-0.2	0.2	0.5	1.8	1.6	0.7	0.3	1.0	1.1	0.8	0.2	0.3	0.4	0.6	0.2	-0.3	-0.3	-0.2	0.4	1.8
28-May	0.2	0.7	0.0	0.2	0.1	0.3	0.2	0.1	0.3	1.0	0.3	0.3	0.9	-1.1	-0.1	0.3	-0.8	0.3	0.4	0.2	0.2	0.1	0.3	0.4	0.2	1.0
29-May	0.2	0.2	0.1	0.5	0.3	-0.3	0.1	0.5	0.6	0.6	0.4	0.0	-0.6	0.7	0.2	-0.3	0.4	0.3	0.0	-0.3	-0.2	-0.4	0.1	-0.1	0.1	0.7
30-May	0.5	0.2	0.4	0.2	0.5	0.3	0.4	0.4	0.4	0.6	0.5	0.5	0.6	0.6	0.4	0.7	-0.1	0.8	0.3	0.3	0.4	0.6	0.7	0.3	0.4	0.8
31-May	0.4	0.7	0.5	0.6	0.4	0.7	0.6	0.6	0.7	0.9	0.9	0.8	0.5	0.5	0.5	0.6	-0.4	-0.2	0.0	0.4	0.8	-0.1	-0.2	0.0	0.4	0.9
																								Diurnal Average		
																								Diurnal Maximum		



Summary of Hour Standard Deviations

Mannix - May 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.8 km/h on May 11 14:00 Minimum Value: 0.1 km/h on May 14 03:00 Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.4 Median = 2.1 Q <sub>3</sub> = 2.8 P <sub>90</sub> = 3.3 P <sub>99</sub> = 4.2																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0					
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	2.4	2.5	2.1	1.9	1.3	1.4	1.4	1.6	1.8	2.3	2.5	3.1	3.7	3.1	3.7	3.8	2.8	2.5	2.2	1.9	1.8	2.0	2.4	2.3	3.8
2-May	1.6	1.2	0.6	1.0	1.1	1.0	1.2	1.6	2.5	2.7	3.1	3.3	3.4	3.7	4.0	3.6	3.5	3.1	2.8	2.6	3.0	2.9	2.4	0.7	4.0
3-May	1.1	0.6	0.3	0.8	0.6	0.6	0.5	1.2	1.8	2.1	2.3	2.7	3.2	3.3	2.4	2.6	2.0	2.2	2.6	1.9	1.5	2.0	1.0	0.7	3.3
4-May	0.9	0.6	0.4	0.4	0.2	0.3	1.0	1.3	1.7	3.0	3.2	3.3	3.5	3.4	3.1	3.0	2.3	2.1	1.4	1.1	1.3	1.9	2.4	1.2	3.5
5-May	1.0	1.4	1.3	1.7	1.7	1.7	0.9	1.6	1.4	2.1	3.0	3.6	3.4	3.9	3.1	2.4	2.6	2.8	1.9	1.1	2.3	1.9	2.1	2.1	3.9
6-May	2.2	3.5	2.9	3.2	2.2	1.9	2.2	2.0	2.7	3.0	3.2	4.0	3.2	2.8	2.2	3.3	3.6	3.4	2.4	2.6	2.5	2.3	1.1	0.9	4.0
7-May	1.0	2.0	2.7	3.0	3.9	2.9	2.5	3.3	3.2	2.9	2.4	2.5	2.5	1.5	2.6	2.1	1.1	1.5	2.3	2.0	1.7	1.3	1.3	1.0	3.9
8-May	0.9	0.6	0.5	0.5	0.9	1.0	1.9	1.7	1.5	1.5	2.3	2.3	2.6	3.3	3.1	2.5	2.7	2.8	2.6	1.9	0.8	0.6	0.5	0.3	3.3
9-May	0.8	1.4	1.9	1.9	1.2	1.3	1.8	2.0	2.9	3.0	3.8	4.2	4.2	4.0	3.9	3.6	3.6	3.1	2.2	1.1	0.6	0.7	0.4	0.2	4.2
10-May	0.2	0.4	0.5	0.7	0.9	1.1	0.8	0.8	1.3	2.6	3.4	3.4	4.0	3.8	4.0	3.5	3.3	3.1	2.8	1.1	1.3	4.1	4.2	1.9	4.2
11-May	1.4	2.1	1.5	1.7	1.5	2.8	3.3	3.7	4.0	4.4	4.1	4.2	4.7	4.8	4.3	4.1	3.2	3.1	3.0	2.6	1.9	1.2	1.4	1.4	4.8
12-May	1.5	2.0	1.7	1.2	0.4	0.5	1.3	1.9	2.5	2.8	2.7	2.9	3.0	2.8	3.1	2.8	3.4	3.2	1.7	1.8	2.0	1.8	2.1	1.6	3.4
13-May	1.4	0.9	0.8	1.2	1.3	1.5	1.6	1.8	2.3	2.8	3.0	3.4	3.4	2.9	2.9	3.0	2.7	2.6	2.3	2.6	2.0	1.0	0.7	0.7	3.4
14-May	0.3	0.1	0.1	0.2	0.3	0.5	0.8	0.9	1.0	1.4	2.7	3.7	3.5	4.0	4.2	3.4	3.3	3.3	2.5	2.9	2.2	1.4	0.5	0.3	4.2
15-May	0.3	0.4	0.5	0.3	0.9	0.7	1.5	2.0	2.4	2.8	2.7	2.7	3.1	3.1	3.8	2.9	3.0	2.7	2.3	1.8	1.9	2.0	1.8	1.8	3.8
16-May	1.6	1.5	1.4	1.4	1.3	1.0	1.1	1.7	1.4	1.6	1.4	1.7	1.9	1.5	1.4	1.7	1.5	1.5	1.5	2.3	2.0	1.8	2.1	2.2	2.3
17-May	2.4	2.5	2.1	2.2	2.1	1.6	1.5	1.6	1.8	1.6	1.7	1.6	1.7	1.8	1.9	2.2	2.0	1.7	2.2	2.4	1.9	2.2	2.0	1.8	2.5
18-May	2.1	1.8	2.0	2.0	2.1	1.9	1.8	1.7	2.0	2.2	2.3	2.5	2.8	2.6	3.0	2.9	2.3	1.6	1.5	1.5	1.8	0.8	0.7	0.7	3.0
19-May	0.6	0.9	0.8	0.8	1.0	1.1	1.1	1.9	1.8	1.7	1.6	2.0	1.8	2.5	2.4	1.9	2.2	2.2	1.5	0.9	0.6	1.5	2.3	1.8	2.5
20-May	2.0	1.6	1.7	1.4	1.3	1.4	1.7	1.9	1.9	2.5	2.6	2.5	2.6	2.2	1.6	1.7	2.1	1.7	1.4	0.7	1.0	1.4	1.8	2.8	2.8
21-May	2.0	2.4	2.4	2.6	2.7	2.8	2.4	2.2	2.2	3.3	3.1	3.0	3.2	3.2	3.3	2.5	2.5	2.4	2.2	2.8	1.9	1.7	2.2	1.9	3.3
22-May	1.2	1.1	1.6	2.4	2.3	1.7	1.9	1.8	2.0	2.5	2.3	2.8	2.7	3.1	2.8	2.5	2.1	2.4	2.5	2.7	2.8	1.7	2.1	1.0	3.1
23-May	1.4	0.9	2.2	2.2	2.0	3.1	2.8	2.0	2.6	3.0	3.3	3.4	3.1	3.3	3.3	2.8	2.3	2.0	1.8	0.8	1.2	0.4	0.3	0.3	3.4
24-May	0.3	0.6	1.2	1.1	1.2	1.3	1.7	1.9	2.8	3.1	3.3	3.2	3.4	3.2	3.2	3.2	2.5	1.7	1.6	1.1	0.6	0.2	0.2	0.4	3.4
25-May	0.4	0.4	0.5	0.6	0.3	0.6	1.2	1.3	2.1	2.8	3.8	3.7	3.4	3.2	3.4	2.8	2.9	3.0	2.7	1.9	1.9	1.5	1.1	1.3	3.8
26-May	1.3	1.6	1.7	0.7	1.0	1.9	1.6	1.7	2.2	3.2	3.8	3.1	3.6	3.5	3.3	2.8	2.5	1.7	1.4	1.8	2.4	2.6	1.9	1.5	3.8
27-May	1.6	1.6	1.5	1.2	1.6	1.4	1.3	1.4	2.5	3.1	3.8	3.5	3.0	2.8	3.5	2.9	2.7	2.1	1.0	1.9	2.1	1.5	1.7	1.6	3.8
28-May	1.9	2.3	1.2	1.2	1.0	1.0	1.0	1.0	1.5	2.0	2.2	2.6	2.7	2.0	2.2	3.1	2.0	1.7	1.3	0.5	0.5	1.4	1.3	1.1	3.1
29-May	2.0	2.2	1.8	2.7	1.6	3.2	2.7	1.4	2.2	2.5	2.2	2.5	2.2	3.3	3.1	3.0	2.8	2.9	3.1	2.9	2.5	2.5	2.1	2.3	3.3
30-May	1.9	1.4	1.8	1.7	1.8	1.6	1.9	2.0	2.4	2.4	2.3	2.7	2.7	2.5	2.4	2.8	2.7	2.2	1.4	2.0	1.8	2.1	3.0	1.7	3.0
31-May	1.7	2.5	3.4	4.4	4.2	3.2	2.7	3.0	3.3	3.2	3.4	3.4	3.5	3.2	3.4	2.8	1.8	2.5	3.6	3.2	2.9	3.0	2.7	3.2	4.4
2.4 3.5 3.4 4.4 4.2 3.2 3.3 3.7 4.0 4.4 4.1 4.2 4.7 4.8 4.3 4.1 3.6 3.4 3.6 3.2 3.0 4.1 4.2 3.2																									
Diurnal Maximum																									



Summary of Hour Averages

Mannix - May 2024

Maximum Value: 3.0 km/h on May 21 03:00      Maximum Daily Average: 0.9 km/h on May 22																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -1.7 km/h on May 28 14:00      Minimum Daily Average: -0.2 km/h on May 29 Maximum Diurnal Average: 0.5 km/h at hour 10      Minimum Diurnal Average: 0.1 km/h at hour 8 Monthly Average: 0.29 km/h      Percentiles: $P_1 = -1.2$ $P_{10} = -0.4$ $Q_1 = -0.1$ Median = 0.2 $Q_3 = 0.7$ $P_{90} = 1.1$ $P_{99} = 1.9$																						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-May	1.1	1.3	1.0	0.8	0.7	0.6	0.4	0.4	0.2	0.4	0.0	0.5	1.5	-0.2	1.2	1.4	1.4	1.4	1.1	0.9	0.7	0.7	0.6	1.1	0.8	1.5
2-May	0.9	0.3	0.4	0.4	0.6	0.2	0.2	0.3	0.5	0.0	0.2	0.7	0.5	0.8	1.0	0.6	0.9	1.1	1.2	1.3	1.4	1.5	0.9	0.3	0.7	1.5
3-May	0.0	0.1	-0.1	0.0	0.0	0.2	-0.2	-0.4	0.5	0.2	0.0	1.7	-0.5	0.2	-0.4	0.9	0.8	0.5	1.2	1.2	0.7	1.0	0.8	0.3	0.4	1.7
4-May	0.3	0.2	0.3	0.2	0.2	0.3	0.3	-0.1	0.5	0.8	0.4	-0.1	0.6	0.2	1.3	0.0	-0.1	-0.2	1.1	0.3	0.3	-1.0	0.0	0.1	0.3	1.3
5-May	0.5	0.4	0.2	-0.9	0.0	-0.2	0.3	0.1	-0.1	-0.2	-0.4	0.2	0.2	1.0	0.3	-0.3	-0.1	-0.1	0.1	0.0	-0.8	-0.9	-0.5	-1.0	-0.1	1.0
6-May	-0.8	0.5	-0.5	-0.5	-1.0	-1.0	-0.8	-1.3	-0.4	-0.1	-0.9	0.3	-0.1	0.4	0.8	0.3	1.0	0.4	0.8	0.5	-0.3	0.3	0.0	0.3	-0.1	1.0
7-May	0.6	0.3	0.0	0.0	1.0	0.1	0.5	0.1	0.3	1.7	1.1	0.6	0.7	-0.2	-0.3	-0.8	-0.2	2.1	0.7	-0.5	-0.2	0.0	0.2	0.2	0.3	2.1
8-May	0.1	0.0	-0.1	-0.3	-0.3	-0.4	0.1	0.1	0.0	0.4	0.2	0.5	0.9	0.4	-0.5	-0.1	-0.6	-0.1	-0.9	-0.8	-0.8	-0.9	-0.9	-0.8	-0.2	0.9
9-May	-1.1	-0.7	-0.6	-0.5	-0.2	-0.1	0.2	0.1	0.2	-0.1	0.4	-0.4	0.4	0.2	0.5	0.4	-0.1	0.6	0.2	0.2	0.2	0.2	0.1	-0.1	0.0	0.6
10-May	-0.2	-0.2	0.0	-0.1	-0.2	0.0	-0.3	-0.4	0.3	0.0	-0.3	-0.7	0.3	0.1	-0.2	-0.3	-0.8	-0.5	-0.4	-0.1	-0.2	0.6	1.2	0.1	-0.1	1.2
11-May	0.2	0.2	-0.2	-0.1	-0.3	0.0	-0.3	0.1	0.6	0.7	0.0	-0.5	0.0	0.4	-0.1	0.0	0.5	0.9	1.3	1.1	0.8	0.9	0.8	0.8	0.3	1.3
12-May	0.3	1.2	0.8	0.1	0.1	0.3	0.4	0.6	0.8	1.7	2.0	1.7	0.0	-0.4	0.4	-0.2	1.3	1.2	-0.9	-1.0	-1.3	-0.9	-0.5	0.1	0.3	2.0
13-May	0.1	0.2	0.3	0.3	0.8	0.5	0.4	0.4	0.1	0.2	-0.3	0.1	-0.2	-0.9	-0.1	-0.4	-0.1	-0.6	-0.3	0.6	0.8	0.6	0.3	0.4	0.1	0.8
14-May	0.0	-0.3	-0.2	0.0	0.0	-0.1	0.1	0.2	-0.1	0.3	-0.3	-1.1	-0.9	0.0	-0.6	-1.1	-0.2	-0.1	0.4	0.3	1.5	0.2	0.2	-0.2	-0.1	1.5
15-May	-0.2	-0.5	-0.3	-0.2	-0.2	0.5	0.8	0.3	0.7	1.1	0.7	0.4	1.5	1.2	1.0	0.5	1.0	1.3	1.2	1.0	0.8	0.8	0.4	0.6	0.6	1.5
16-May	0.5	1.1	0.7	0.3	0.6	0.5	0.8	0.6	-0.1	0.3	0.7	1.0	0.9	0.4	0.2	0.6	0.7	1.3	1.2	1.3	1.3	1.3	1.2	0.8	1.3	
17-May	1.3	1.5	1.0	0.8	1.3	1.3	0.6	0.2	0.5	0.8	0.5	0.5	0.9	0.9	1.0	1.0	0.6	0.4	0.3	0.1	-0.2	0.1	0.2	0.7	1.5	
18-May	0.8	0.6	0.4	0.3	0.4	-0.1	0.0	-0.5	-0.1	0.0	-0.2	0.1	-0.4	-0.4	-0.1	0.0	-0.1	0.2	1.0	0.9	0.7	0.5	0.4	0.4	0.2	1.0
19-May	0.5	0.6	0.4	0.4	0.4	0.4	0.5	0.9	0.9	1.1	0.6	0.8	0.6	1.3	0.5	0.0	0.8	1.0	0.7	0.5	0.7	0.7	0.5	0.7	0.6	1.3
20-May	1.2	0.9	0.6	0.8	1.0	1.3	0.3	0.3	0.1	0.5	0.0	0.3	0.8	0.5	0.2	0.2	1.7	-0.8	0.1	-0.3	-0.1	-0.4	-0.9	1.9	0.4	1.9
21-May	0.6	1.3	3.0	0.5	1.8	0.9	1.0	-0.3	1.9	0.9	1.5	1.1	0.5	-0.1	0.8	0.4	0.2	0.9	0.4	0.2	0.4	0.1	0.6	1.1	0.8	3.0
22-May	0.6	0.3	0.4	0.3	-0.2	0.8	0.4	0.6	1.0	0.8	0.8	1.2	1.1	1.8	0.9	0.9	0.4	0.0	1.1	1.9	2.3	2.7	0.8	1.8	0.9	2.7
23-May	1.0	1.3	1.4	2.6	1.0	1.0	2.0	1.4	0.1	1.0	0.6	0.1	0.3	0.2	0.0	-0.1	-0.3	-0.1	0.2	-0.3	0.0	-0.1	-0.2	0.1	0.6	2.6
24-May	0.3	0.3	0.2	0.2	0.3	1.1	0.6	-0.3	0.1	0.0	0.7	-0.1	0.3	-0.1	0.8	0.4	-0.1	-0.7	0.0	-0.5	-0.5	-0.5	-0.5	-0.6	0.1	1.1
25-May	-0.3	0.1	0.1	0.1	0.4	0.4	0.1	0.1	-0.3	-0.9	1.4	0.0	-0.6	-0.1	0.1	-0.8	0.9	0.6	-0.2	-0.9	-0.2	0.3	0.1	0.1	0.0	1.4
26-May	0.0	0.0	0.3	0.4	0.3	-0.1	0.1	-0.3	-0.5	0.2	0.9	0.6	-0.1	0.6	1.0	0.0	0.2	0.5	-0.5	0.8	1.4	0.5	0.3	0.0	0.3	1.4
27-May	0.0	0.4	-0.1	0.2	-0.4	0.2	-0.1	0.1	0.4	1.8	1.5	0.0	-0.2	0.8	1.1	0.6	-0.5	-0.2	0.2	0.7	0.3	-0.4	-0.1	0.2	0.3	1.8
28-May	0.1	0.0	-0.2	0.3	0.6	0.4	0.1	-0.3	0.1	0.9	0.0	0.4	1.1	-1.7	-0.2	-0.2	-1.4	-0.1	0.3	0.5	0.5	0.5	0.3	0.8	0.1	1.1
29-May	1.2	0.9	0.3	0.8	0.8	0.3	0.2	0.4	0.5	0.5	-0.1	-0.6	-1.5	-0.1	-0.8	-1.4	-0.3	-0.6	-1.0	-1.3	-1.1	-1.2	-0.5	-0.7	-0.2	1.2
30-May	-0.2	-0.5	-0.2	-0.2	0.1	0.0	-0.1	0.0	-0.1	0.0	-0.1	0.0	0.2	0.1	0.1	0.4	0.0	0.4	-0.2	0.1	0.5	0.3	0.1	-0.2	0.0	0.5
31-May	-0.1	0.1	0.0	0.1	-0.4	0.2	0.1	0.0	0.0	0.4	0.5	0.3	0.2	-0.1	0.1	0.6	0.0	0.2	0.3	0.6	0.8	0.0	0.0	0.1	0.1	0.8
																								Diurnal Average		
																								Diurnal Maximum		



Summary of Hour Standard Deviations

Mannix - May 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4.9 km/h on May 11 14:00 Minimum Value: 0.1 km/h on May 14 03:00 Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.4 Median = 2.1 Q <sub>3</sub> = 2.9 P <sub>90</sub> = 3.5 P <sub>99</sub> = 4.3																						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 Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	2.3	2.5	2.0	2.0	1.4	1.3	1.3	1.5	1.9	2.4	2.5	3.3	3.7	3.2	3.8	4.1	2.8	2.6	2.2	1.9	1.8	2.0	2.6	2.4	4.1
2-May	1.6	1.3	0.7	0.9	0.9	0.9	1.2	1.7	2.8	2.8	3.4	3.8	3.5	4.0	4.2	3.8	3.7	3.3	3.0	2.7	3.0	2.9	2.4	0.7	4.2
3-May	1.2	0.5	0.2	0.6	0.5	0.6	0.6	1.2	1.9	2.4	2.7	3.1	3.5	3.6	2.6	2.9	2.2	2.3	2.8	1.9	1.4	1.9	1.0	0.7	3.6
4-May	0.9	0.6	0.4	0.4	0.3	0.3	1.0	1.5	1.9	3.3	3.5	3.6	4.0	3.9	3.5	3.4	2.6	2.4	1.5	1.3	1.4	2.0	2.4	1.3	4.0
5-May	1.0	1.1	1.2	1.5	1.4	1.4	0.9	1.5	1.4	2.2	3.3	3.8	3.7	4.2	3.3	2.7	2.9	3.0	1.9	1.0	2.5	1.8	2.1	2.1	4.2
6-May	2.0	3.5	3.0	3.4	2.3	1.9	2.3	2.0	2.8	3.2	3.1	3.6	3.4	2.8	2.2	2.9	3.0	2.7	2.2	2.3	2.6	2.4	1.0	1.0	3.6
7-May	1.0	1.9	2.5	2.3	3.2	3.0	2.2	2.5	2.8	2.7	2.3	2.1	2.3	1.7	2.8	2.2	1.4	1.7	2.5	2.3	1.6	1.2	1.2	0.9	3.2
8-May	0.7	0.5	0.5	0.4	0.9	0.9	1.8	1.6	1.5	1.6	2.6	2.4	2.8	3.8	3.3	2.7	3.0	3.0	2.7	1.8	0.7	0.6	0.4	0.3	3.8
9-May	0.8	1.4	1.9	2.0	1.1	1.3	1.9	2.0	2.9	3.1	4.1	4.2	4.5	4.3	4.1	3.8	3.8	3.1	2.1	1.1	0.7	0.7	0.5	0.2	4.5
10-May	0.2	0.5	0.5	0.4	0.8	1.0	0.9	0.9	1.5	2.7	3.5	3.6	4.2	3.9	4.1	3.7	3.4	3.3	2.7	1.0	1.3	4.2	4.3	2.1	4.3
11-May	1.4	2.0	1.4	1.8	1.4	2.8	3.4	3.9	4.0	4.4	4.1	4.3	4.8	4.9	4.4	4.1	3.3	3.0	2.9	2.6	1.9	1.0	1.4	1.3	4.9
12-May	1.4	2.1	1.9	1.3	0.4	0.6	1.3	1.9	2.8	2.8	2.7	3.0	3.0	2.9	3.3	2.9	3.2	3.0	1.7	1.8	1.9	1.9	2.4	1.6	3.3
13-May	1.2	0.8	0.7	1.0	1.2	1.3	1.5	1.7	2.4	2.9	3.2	3.5	3.6	3.1	3.0	3.2	2.8	2.6	2.4	2.4	2.0	1.0	0.7	0.7	3.6
14-May	0.4	0.2	0.1	0.1	0.3	0.5	0.6	0.8	1.0	1.3	2.9	4.1	3.9	4.4	4.3	3.5	3.2	3.4	2.6	3.2	2.2	1.6	0.5	0.4	4.4
15-May	0.3	0.4	0.6	0.3	1.0	0.6	1.6	2.1	2.5	3.0	3.0	3.0	3.4	3.5	3.8	3.0	3.2	2.9	2.2	1.8	1.9	2.0	1.8	1.8	3.8
16-May	1.6	1.6	1.5	1.5	1.4	1.2	1.2	1.7	1.5	1.6	1.5	1.8	1.9	1.6	1.6	1.9	1.5	1.5	1.5	2.3	2.0	1.9	2.2	2.4	2.4
17-May	2.5	2.5	2.4	2.4	2.1	1.6	1.5	1.8	1.9	1.7	1.8	1.6	1.7	1.8	1.9	2.0	1.9	1.7	2.2	2.2	1.7	1.9	1.9	1.7	2.5
18-May	1.9	1.7	1.8	1.8	2.0	1.8	1.7	1.6	1.9	2.1	2.2	2.4	2.6	2.5	2.9	2.7	2.2	1.6	1.6	1.4	1.7	0.8	0.6	0.6	2.9
19-May	0.6	0.9	0.8	0.8	1.0	1.0	1.1	2.0	1.8	1.7	1.6	2.0	1.8	2.5	2.3	2.1	2.1	2.3	1.5	0.7	0.5	1.4	2.3	1.8	2.5
20-May	1.9	1.5	1.7	1.5	1.3	1.3	1.7	1.9	2.0	2.6	2.8	2.6	2.6	2.3	1.6	1.9	2.3	1.7	1.4	0.8	1.2	1.6	1.7	2.7	2.8
21-May	2.1	2.5	2.6	2.9	2.9	2.9	2.5	2.3	2.2	3.4	3.0	2.9	3.2	3.0	3.2	2.5	2.4	2.3	2.0	1.9	1.6	1.3	1.7	2.0	3.4
22-May	1.2	0.9	1.3	2.2	2.1	1.7	2.0	2.0	2.1	2.4	2.3	2.7	2.6	3.2	2.9	2.7	2.1	2.1	2.3	2.5	2.6	1.8	1.8	0.9	3.2
23-May	1.5	1.0	2.0	2.1	1.9	2.7	2.7	2.2	2.4	3.0	3.3	3.7	3.3	3.7	3.7	3.2	2.5	2.1	1.8	0.7	1.1	0.4	0.2	0.2	3.7
24-May	0.4	0.4	1.2	1.0	1.0	1.5	1.8	1.9	3.1	3.5	3.7	3.4	3.9	3.8	3.5	3.6	2.7	1.7	1.7	1.1	0.6	0.2	0.2	0.4	3.9
25-May	0.4	0.4	0.4	0.4	0.3	0.5	1.1	1.3	2.2	3.2	4.1	4.0	3.6	3.2	3.6	3.0	3.1	2.7	2.6	1.7	1.9	1.5	1.0	1.3	4.1
26-May	1.2	1.4	1.5	0.8	0.7	1.9	1.6	1.7	2.5	3.5	4.1	3.4	4.1	3.8	3.8	3.0	2.9	1.9	1.6	1.7	2.1	2.5	1.9	1.5	4.1
27-May	1.5	1.5	1.3	0.9	1.5	1.3	1.3	1.4	2.7	3.3	4.4	3.7	3.2	3.2	3.8	3.2	2.8	2.2	1.1	1.8	2.2	1.6	1.7	1.3	4.4
28-May	1.8	2.5	1.3	1.1	1.0	1.0	1.1	1.1	1.8	2.3	2.5	2.8	3.1	2.2	2.7	3.3	2.2	1.9	1.6	0.5	0.6	1.7	1.4	1.2	3.3
29-May	2.0	2.2	1.8	2.7	1.7	2.7	2.6	1.4	2.5	2.8	2.3	2.6	2.2	3.3	3.2	3.1	3.0	3.0	3.2	3.0	2.6	2.5	2.1	2.2	3.3
30-May	1.9	1.3	1.8	1.8	1.7	1.6	2.0	1.9	2.4	2.4	2.3	2.7	2.7	2.5	2.6	2.8	2.7	2.2	1.4	2.1	1.8	2.1	3.0	1.7	3.0
31-May	1.6	2.5	3.4	4.3	4.3	3.2	2.7	3.0	3.3	3.2	3.3	3.4	3.5	3.2	3.4	2.9	1.7	2.7	3.6	3.1	3.0	3.0	2.6	3.1	4.3
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS06**  
**PATRICIA MCINNES**  
**MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)  
MAY 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	27.4	0	5	0
TRS (ppb) Average	673	34	71	95.03	1.9	0	0.7	0
THC (ppm) Average	709	35	35	100	2.4	-	2.1	-
NMHC(ppm) Average	709	35	35	100	0.093	-	0.047	-
CH4(ppm) Average	709	35	35	100	2.4	-	2.1	-
O3 (ppb) Average	676	33	68	95.3	59.3	0	43.4	-
NO2 (ppb) Average	706	36	38	99.73	23.7	0	9.6	-
NO (ppb) Average	706	36	38	99.73	21.2	-	3.3	-
NOX (ppb) Average	706	36	38	99.73	43.8	-	12.9	-
NH3 (ppb) Average	664	47	80	95.56	15.7	0	3	-
PM2.5 (ug/m3) Average	742	1	2	99.87	263	0	63	2
Temperature 2 m (C) Average	744	0	0	100	27.4	-	18.1	-
Relative Humidity (%) Average	744	0	0	100	98.1	-	95.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	38	-	23	-
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)  
MAY 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	0.51	1.9	-	0	0	0	0.1	0.2	1	27.4
TRS (ppb) Average	673	0.23	0.2	-	0	0.1	0.1	0.1	0.4	0.5	1.9
THC (ppm) Average	709	2.02	0	-	2	2	2	2	2	2.1	2.4
NMHC(ppm) Average	709	0.026	0.014	-	0	0	0	0	0	0	0.093
CH4(ppm) Average	709	1.99	0	-	1.9	2	2	2	2	2	2.4
O3 (ppb) Average	676	33.54	11	-	7.1	18.3	25.6	33.6	42.2	47.7	59.3
NO2 (ppb) Average	706	2.31	2.9	-	0	0	0.6	1.4	2.9	5.4	23.7
NO (ppb) Average	706	0.6	1.2	-	0	0	0.1	0.3	0.7	1.3	21.2
NOX (ppb) Average	706	2.91	3.8	-	0	0.1	0.8	1.9	3.6	6.2	43.8
NH3 (ppb) Average	664	0.1	1.2	-	0	0	0	0	0	0	15.7
PM2.5 (ug/m3) Average	742	8.35	18.9	-	0.4	1.8	2.7	3.7	5	15	263
Temperature 2 m (C) Average	744	10.84	5.4	-	-2.9	4.2	7	10.2	14.5	18.2	27.4
Relative Humidity (%) Average	744	60.34	23	-	17.3	29.7	40.5	60.4	81.2	92	98.1
Wind Speed 10 m (km/h) Average	744	12.2	6	-	0	5	8	12	15	21	38
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2	08 May 2024 10:00	08 May 2024 10:00	1	Unstable Operation - excessive baseline drift
NO2	23 May 2024 09:00	23 May 2024 09:00	1	Unstable Operation - excessive baseline drift
NH3	01 May 2024 07:00	31 May 2024 07:00	31	Stabilization after daily span
O3	02 May 2024 17:00	03 May 2024 09:00	17	Unstable Operation - flatline in analyzer output signal
O3	03 May 2024 10:00	03 May 2024 11:00	2	Maintenance - analyzer rebooted
O3	08 May 2024 20:00	09 May 2024 09:00	14	Unstable Operation - flatline in analyzer output signal
O3	09 May 2024 10:00	09 May 2024 11:00	2	Maintenance - analyzer rebooted
PM2.5, SO2	23 May 2024 09:00	23 May 2024 09:00	1	DAS Failure - data not recorded
TRS	08 May 2024 17:00	09 May 2024 10:00	18	Unstable Operation - flatline in analyzer output signal
TRS	09 May 2024 11:00	09 May 2024 12:00	2	Maintenance - analyzer rebooted
TRS	10 May 2024 20:00	11 May 2024 09:00	14	Unstable Operation - inoperative converter
TRS	11 May 2024 10:00	11 May 2024 12:00	3	Maintenance - replaced converter





Wood Buffalo Environmental Association

Summary of Hour Averages

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

Patricia McInnes - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 27.4 ppb on May 4 11:00	Maximum Daily Average: 5.0 ppb on May 4		Hours of Data:	708
Minimum Value: 0.0 ppb on May 1 13:00	Minimum Daily Average: 0.0 ppb on May 22		Hours of Missing Data:	36
Maximum Diurnal Average: 1.7 ppb at hour 11	Minimum Diurnal Average: 0.2 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 0.51 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 1.0 P <sub>99</sub> = 8.1		Percent Operational Time:	99.9

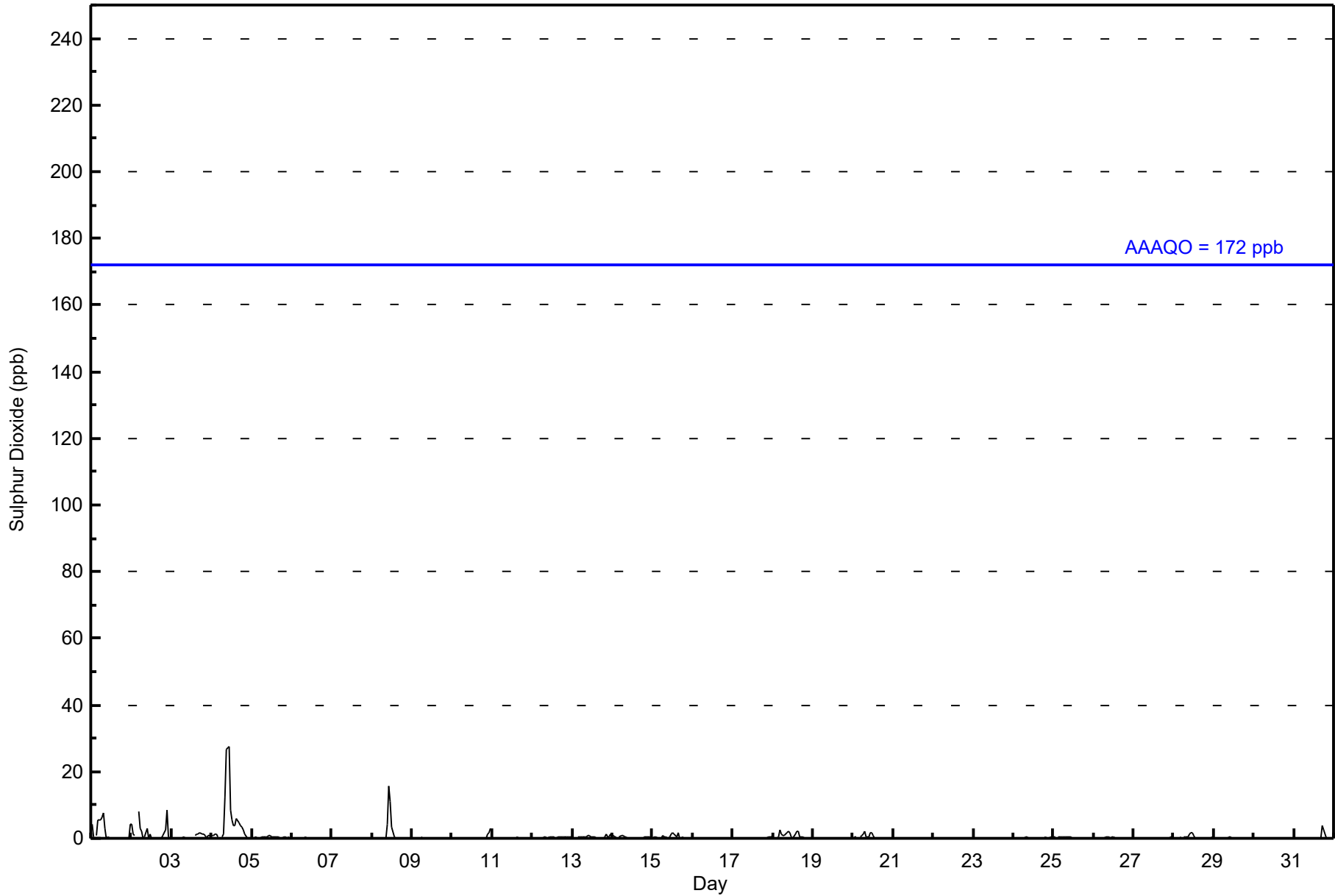
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	4.2	0.6	Z	0.9	5.6	5.6	6.2	7.5	3.2	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	4.2	1.7	7.5																							
2-May	4.1	1.3	0.9	Z	8.1	3.1	2.2	0.2	0.5	2.8	0.2	1.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.8	2.5	8.6	0.6	0.1	1.6	8.6																							
3-May	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	C	C	C	C	0.7	1.3	1.4	1.7	1.3	1.1	0.8	0.0	1.0	0.9	0.6	1.7																							
4-May	0.9	1.0	1.5	1.1	0.3	Z	0.4	1.2	12.1	26.5	27.4	8.6	5.5	3.6	3.9	5.7	4.8	4.0	3.4	2.5	1.3	0.1	0.1	0.1	5.0	27.4																							
5-May	Z	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.4	0.4	0.7	0.9	0.4	0.6	0.4	0.3	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.2	0.3	0.9																							
6-May	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.2																							
7-May	0.1	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	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1																							
8-May	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.0	4.0	15.7	11.0	3.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.5	15.7																							
9-May	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
10-May	0.0	0.0	0.0	0.1	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	0.2	1.2	1.9	3.2	0.3	3.2																							
11-May	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3																							
12-May	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.5																							
13-May	0.3	0.4	Z	0.5	0.4	0.4	0.5	0.6	0.4	1.0	0.6	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.6	1.4	0.3	0.2	1.1	0.5	1.4																							
14-May	1.0	0.6	0.6	Z	0.5	0.6	0.7	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.6	0.3	0.3	0.2	0.2	0.3	1.0																							
15-May	0.2	0.3	0.3	0.1	Z	0.0	0.7	0.5	0.2	0.1	0.4	1.3	1.8	1.2	0.6	1.7	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.5	1.8																							
16-May	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	0.0	0.0	0.0	0.1																							
17-May	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	0.3	0.5	0.4	0.1	0.5																							
18-May	1.0	Z	0.1	0.4	2.7	1.4	0.8	0.9	1.7	2.0	1.6	0.3	0.2	1.5	2.1	2.0	0.6	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.9	2.7																							
19-May	0.0	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1																							
20-May	0.1	0.2	0.5	Z	0.3	0.9	1.2	2.3	0.4	0.4	1.6	1.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.3																							
21-May	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																							
22-May	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																							
23-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.2																							
24-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.3																							
25-May	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.4	0.6	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.6																							
26-May	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.3	0.4	0.3	0.2	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
27-May	0.0	0.1	0.1	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2																							
28-May	0.1	0.2	0.1	0.2	0.4	Z	0.5	0.3	0.3	1.3	1.9	1.5	1.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.4	1.9																							
29-May	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.2	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	0.3																							
30-May	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	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	0.0	0.1	0.2																							
31-May	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	2.5	0.0	0.0	0.0	0.0	0.0	0.3	3.7																							
																								0.5	0.2	0.2	0.2	0.7	0.5	0.5	0.5	0.7	1.3	1.7	1.0	0.5	0.3	0.3	0.4	0.3	0.4	0.3	0.2	0.3	0.4	0.2	0.4	Diurnal Average	
																								4.2	1.3	1.5	1.1	8.1	5.6	6.2	7.5	12.1	26.5	27.4	11.0	5.5	3.6	3.9	5.7	4.8	4.0	3.4	2.5	2.5	8.6	1.9	4.2	Diurnal Maximum	

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



Wood Buffalo Environmental Association  
Hourly Averages

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	703	99.29	99.29
11 - 20	3	0.42	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Patricia McInnes - May 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	47	36	52	53	92	86	27	18	19	32	42	13	44	39	60	703
11 - 20	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	3
21 - 60	2	0	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>	45	47	36	52	53	92	87	27	18	19	32	42	13	44	39	62	708

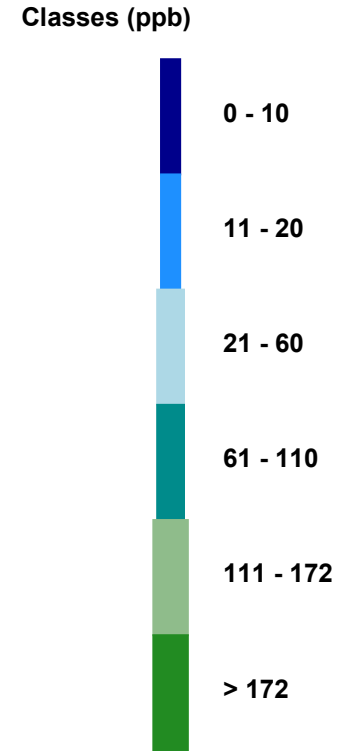
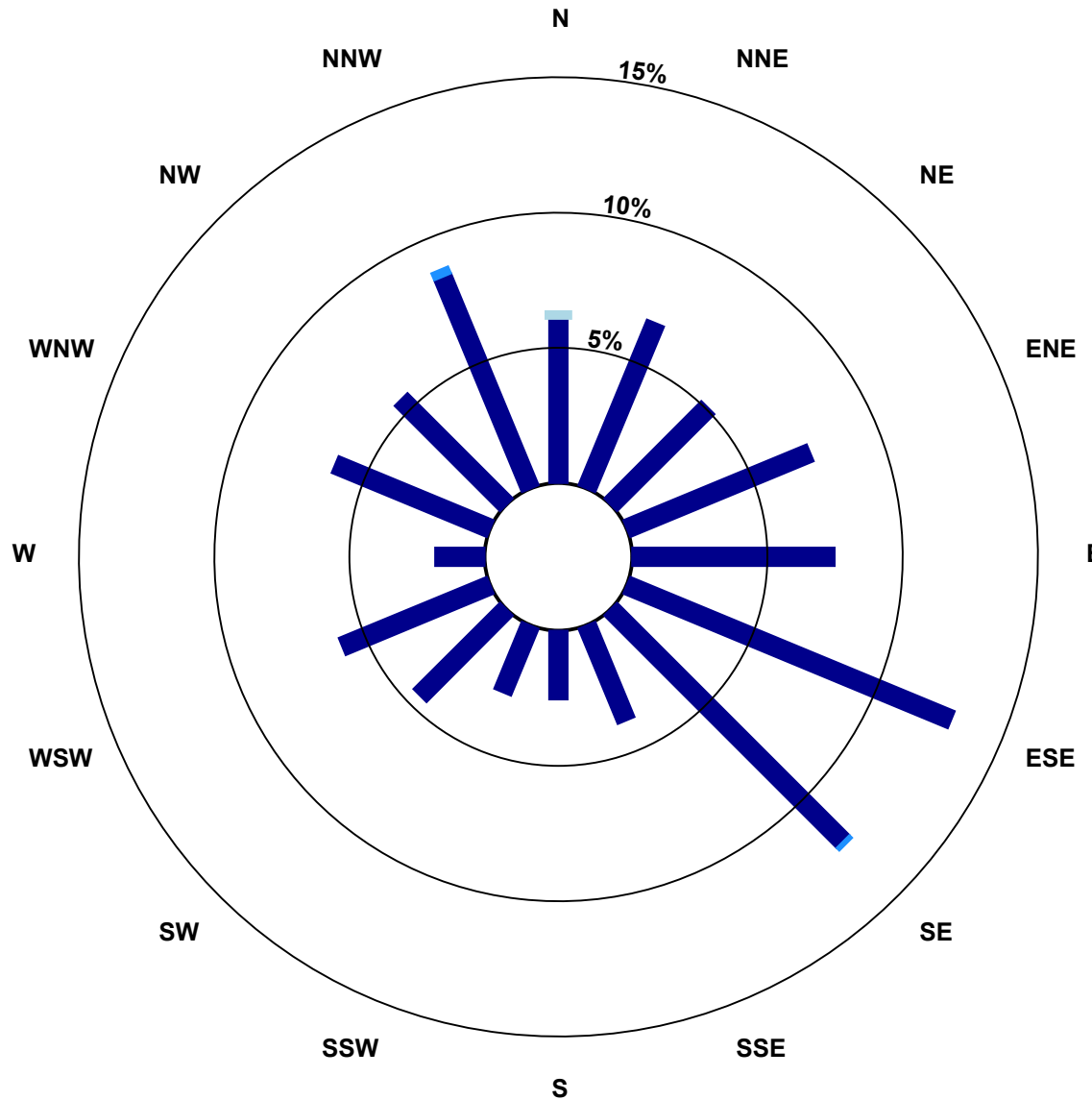
Total Number of Valid Hours: 708

Total Number of Hours: 744

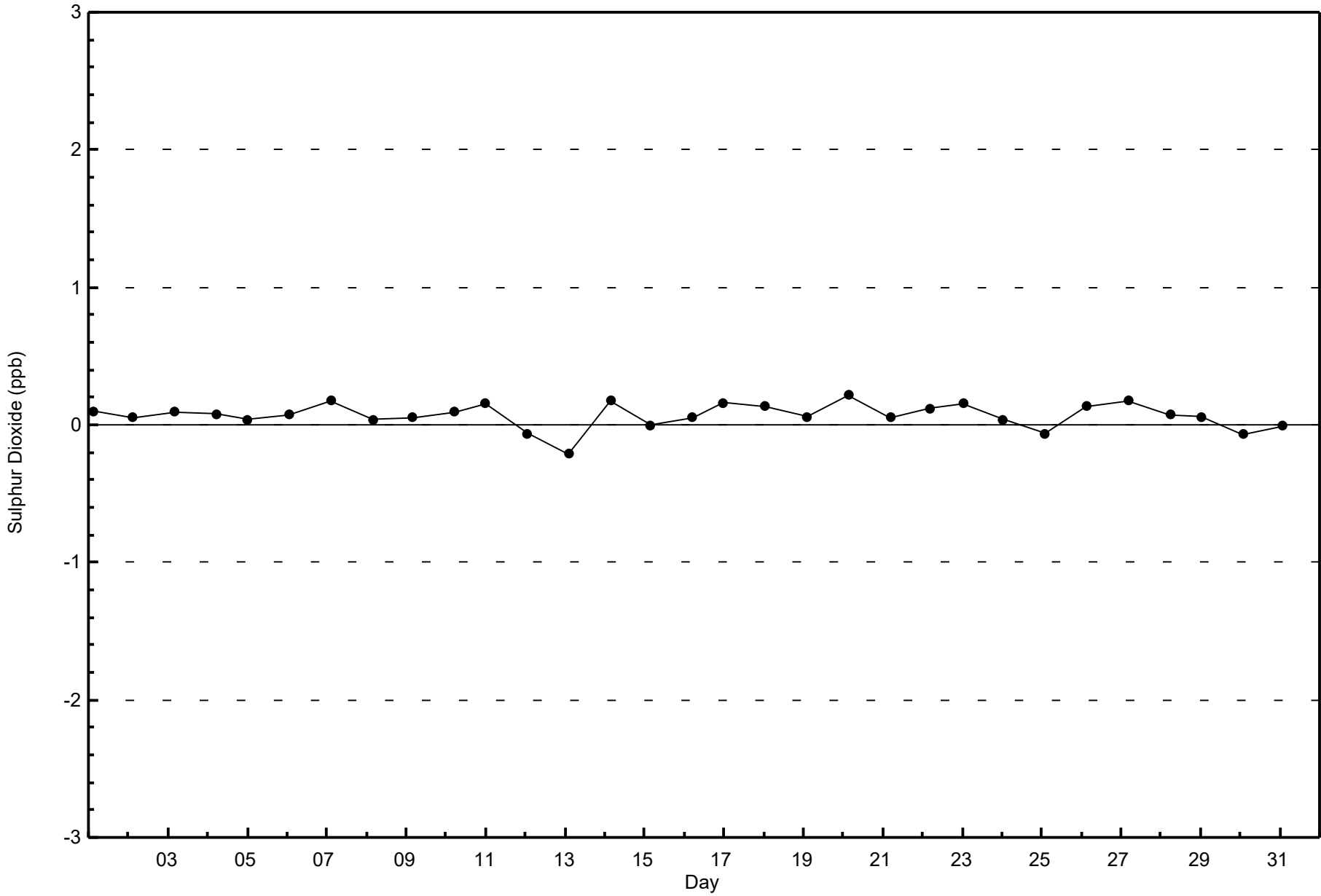


Wood Buffalo Environmental Association  
Wind Rose May 2024

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



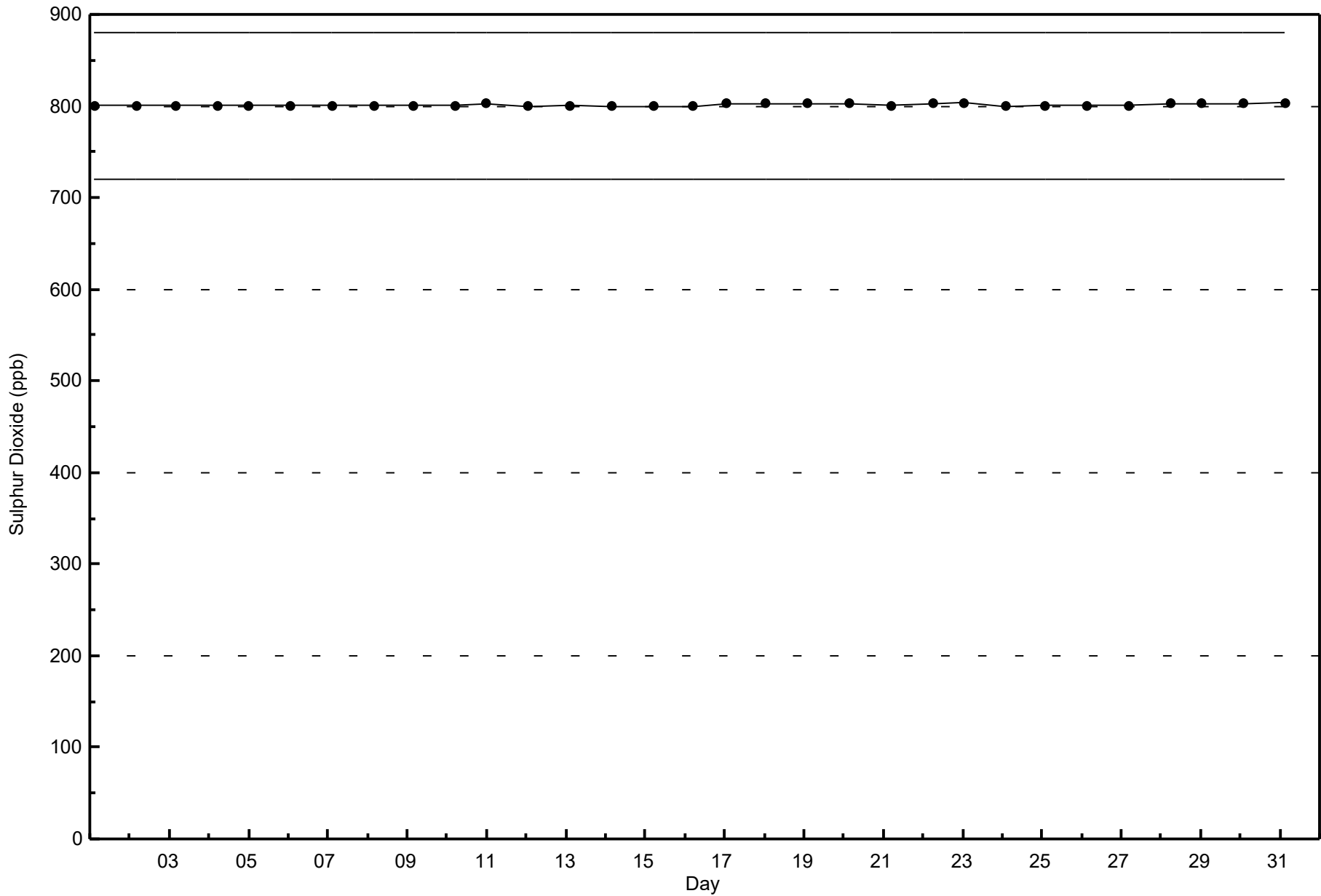
Total Number of Valid Hours: 708





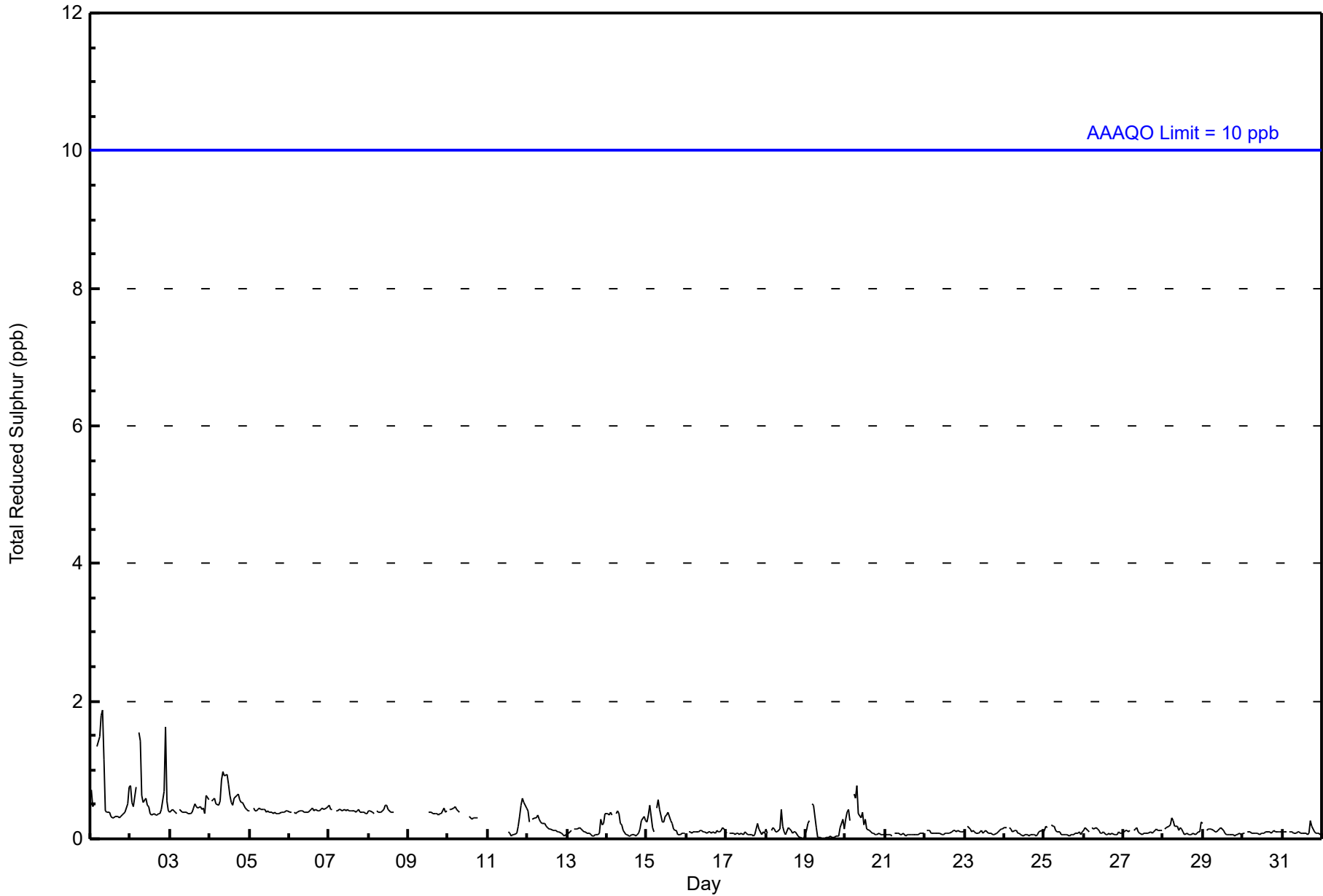
**Wood Buffalo Environmental Association**  
**Span Responses**

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











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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	673	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: 673

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes - May 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	44	48	39	54	55	90	87	28	17	20	28	28	12	34	30	59	673
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	48	39	54	55	90	87	28	17	20	28	28	12	34	30	59	673

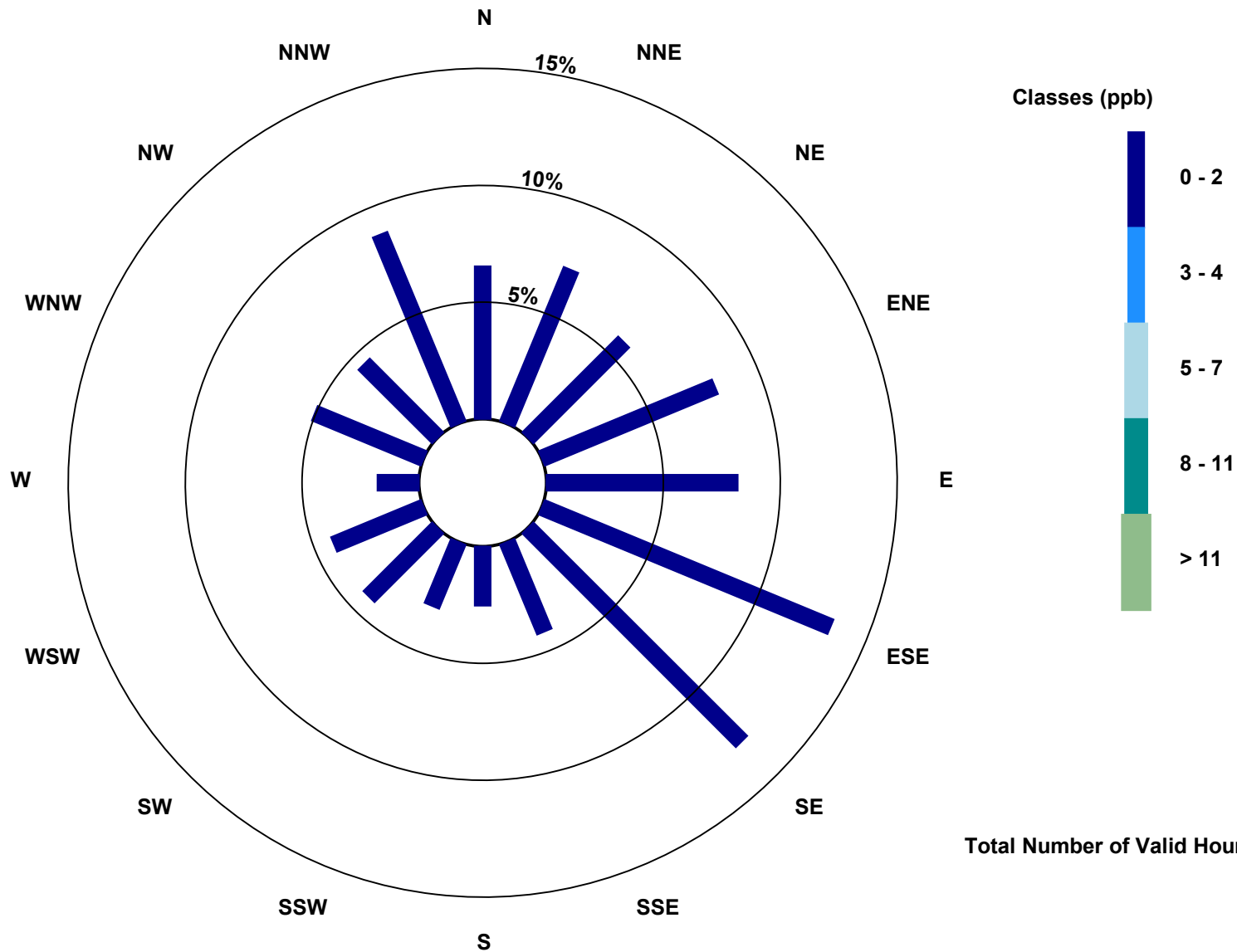
Total Number of Valid Hours: 673

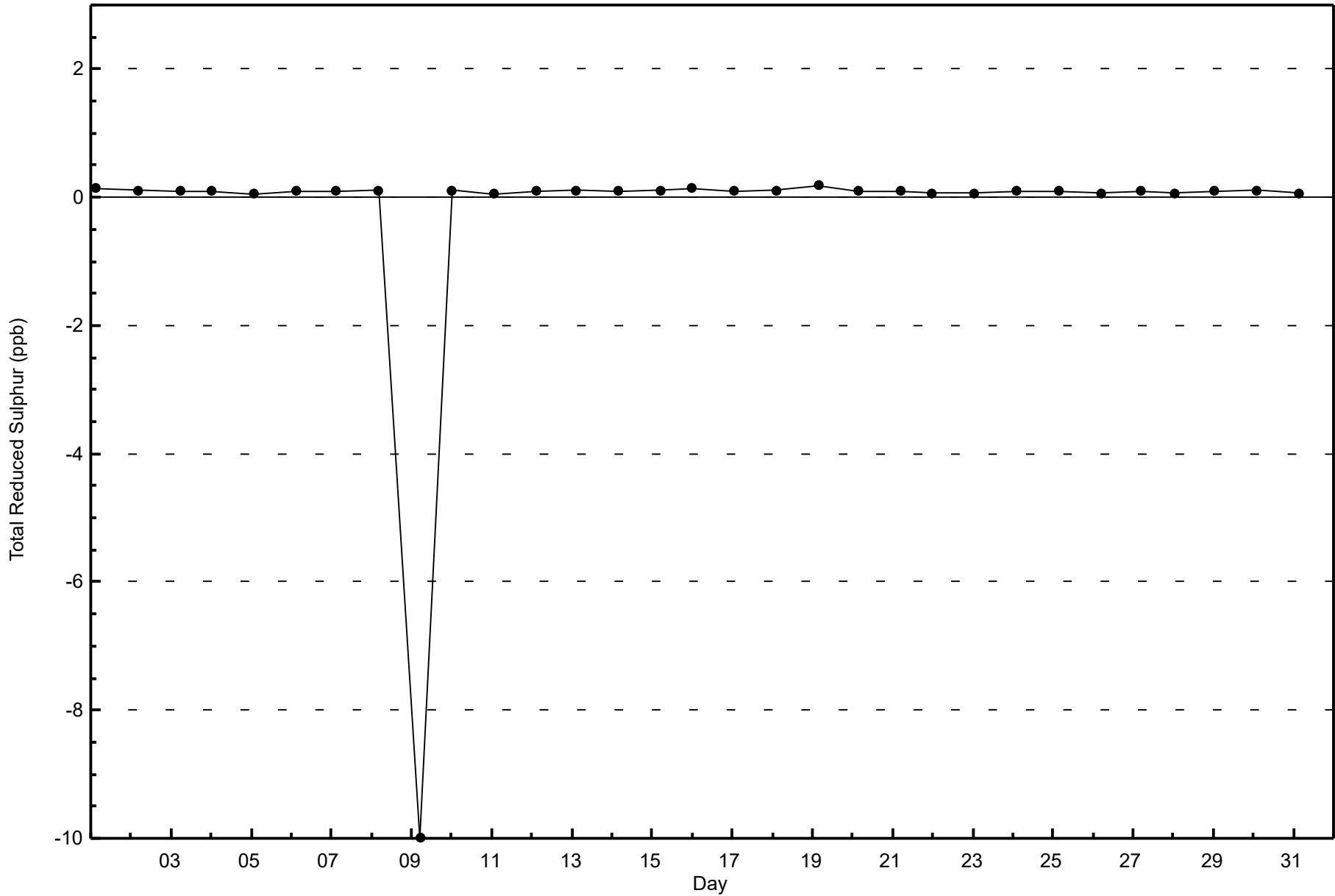
Total Number of Hours: 744

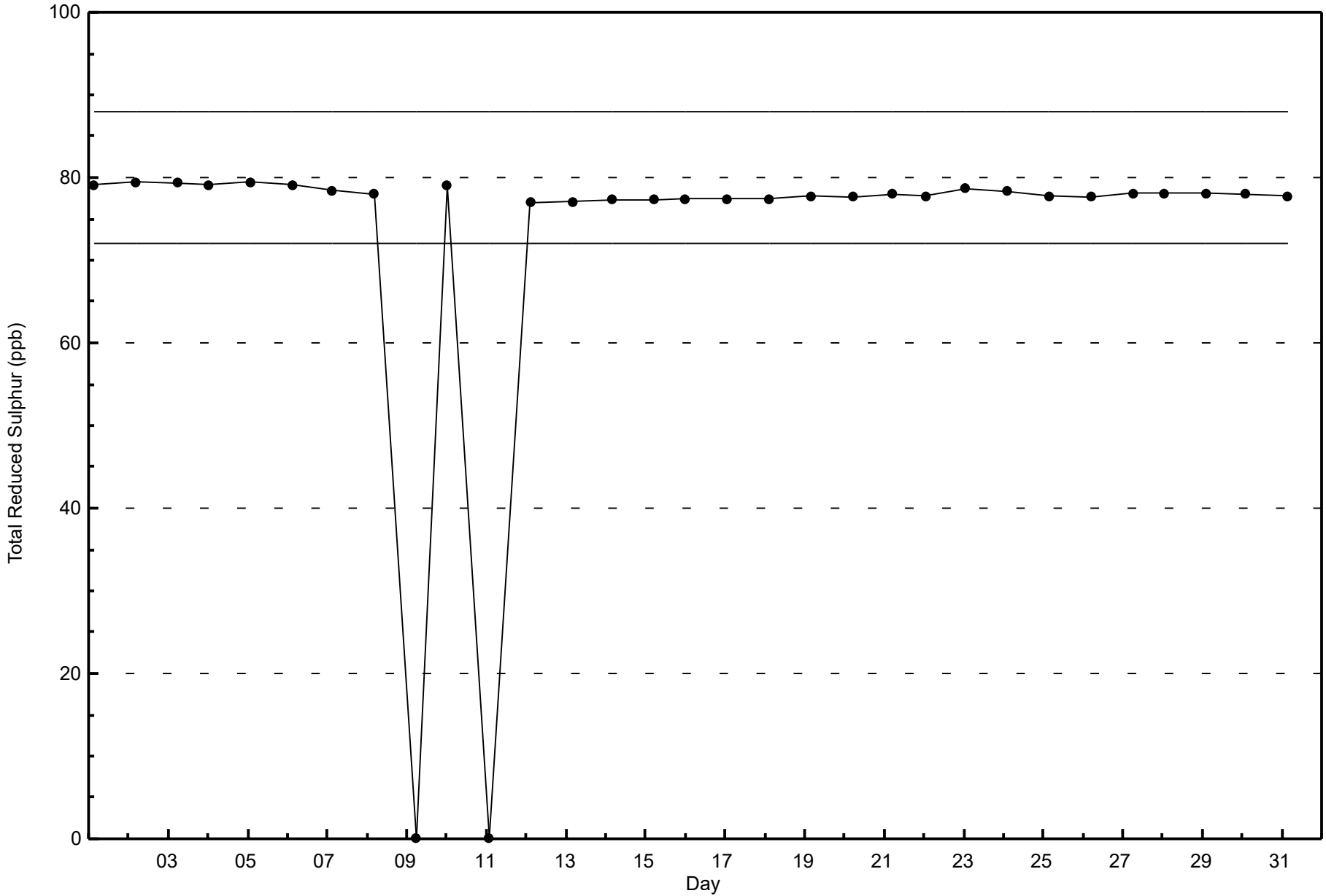


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Patricia McInnes









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

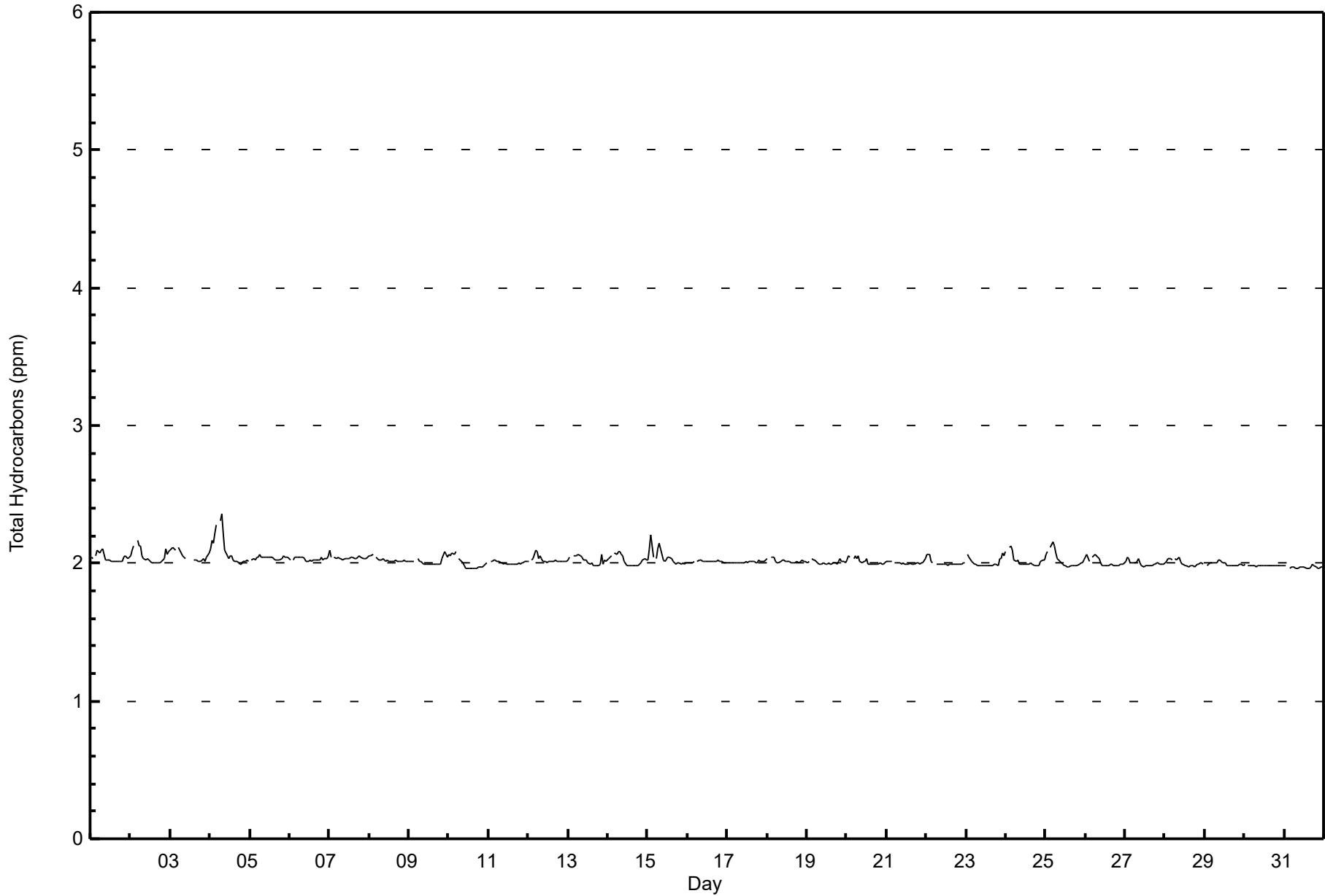
**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - May 2024**

Maximum Value: 2.4 ppm on May 4 08:00		Maximum Daily Average: 2.1 ppm on May 4		Hours in Service: 744																								
Minimum Value: 2.0 ppm on May 10 15:00		Minimum Daily Average: 2.0 ppm on May 31		Hours of Data: 709																								
Maximum Diurnal Average: 2.1 ppm at hour 5		Minimum Diurnal Average: 2.0 ppm at hour 18		Hours of Missing Data: 35																								
Monthly Average: 2.02 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.2		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-May	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	
2-May	2.1	2.1	2.1	Z	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	2.1	2.1	2.1	2.1	2.1	2.2
3-May	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	
4-May	2.1	2.2	2.2	2.2	2.3	Z	2.3	2.4	2.2	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
5-May	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	
6-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
7-May	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
8-May	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	2.0	2.0	2.0	2.0	2.0	2.1	
9-May	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	2.1	2.0	2.0	2.0	2.1	
10-May	2.1	2.1	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	2.0	2.0	2.0	2.1	
11-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
13-May	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	
14-May	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
15-May	2.0	2.1	2.2	2.0	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
16-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
17-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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	
19-May	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	
20-May	2.0	2.1	2.0	Z	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
21-May	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	
22-May	2.1	2.1	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
23-May	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	
24-May	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	2.1	
25-May	2.1	2.1	Z	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	2.0	2.0	2.0	2.0	2.0	2.2	
26-May	2.0	2.1	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	2.0	2.0	2.0	2.0	2.0	2.1	
27-May	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	
28-May	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	
29-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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	
31-May	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	
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan C - Calibration																												



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

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







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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	617	87.02	87.02
2.1 - 3.0	92	12.98	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**

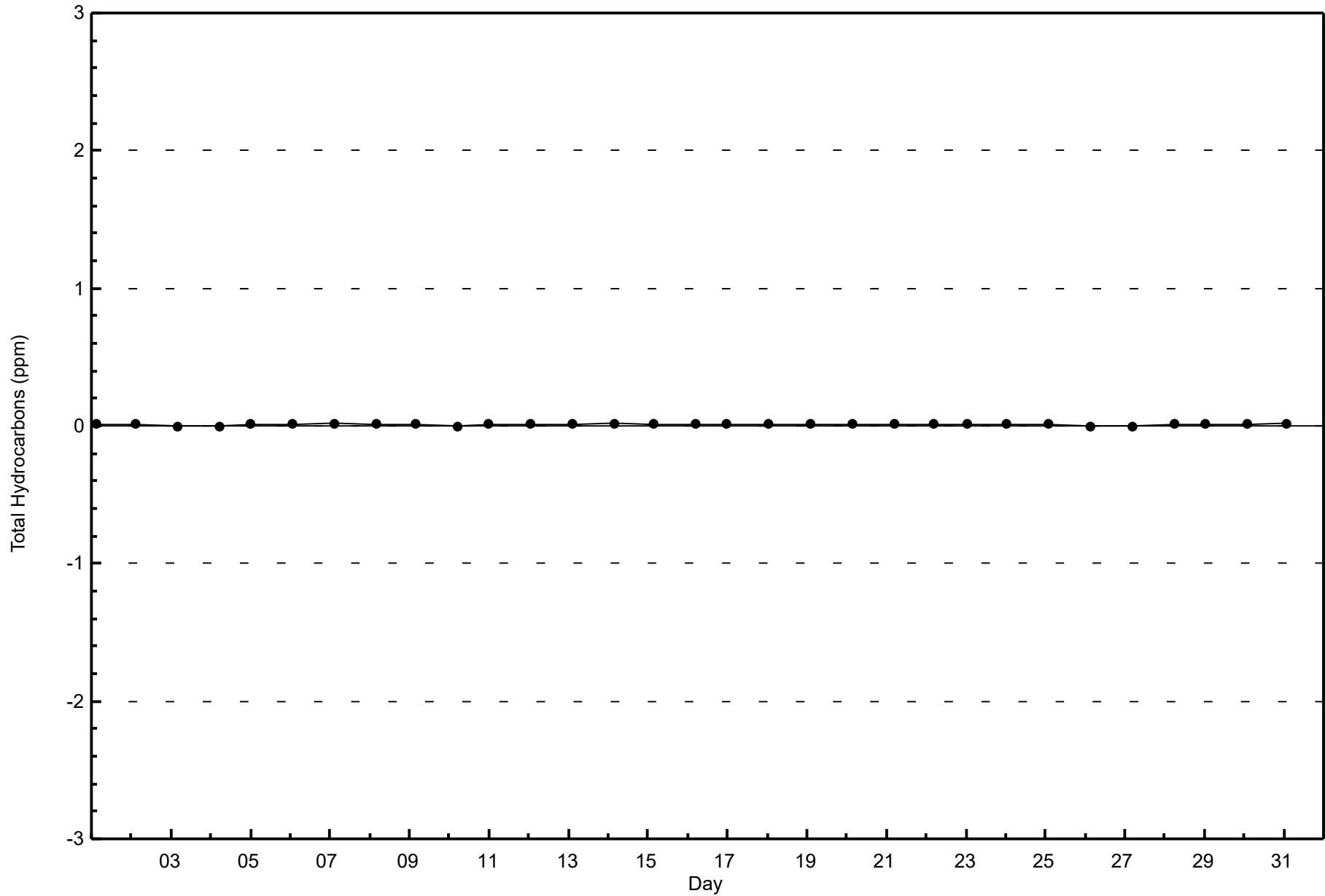
**Total Hydrocarbons (THC) - ppm**  
**Patricia McInnes - May 2024**

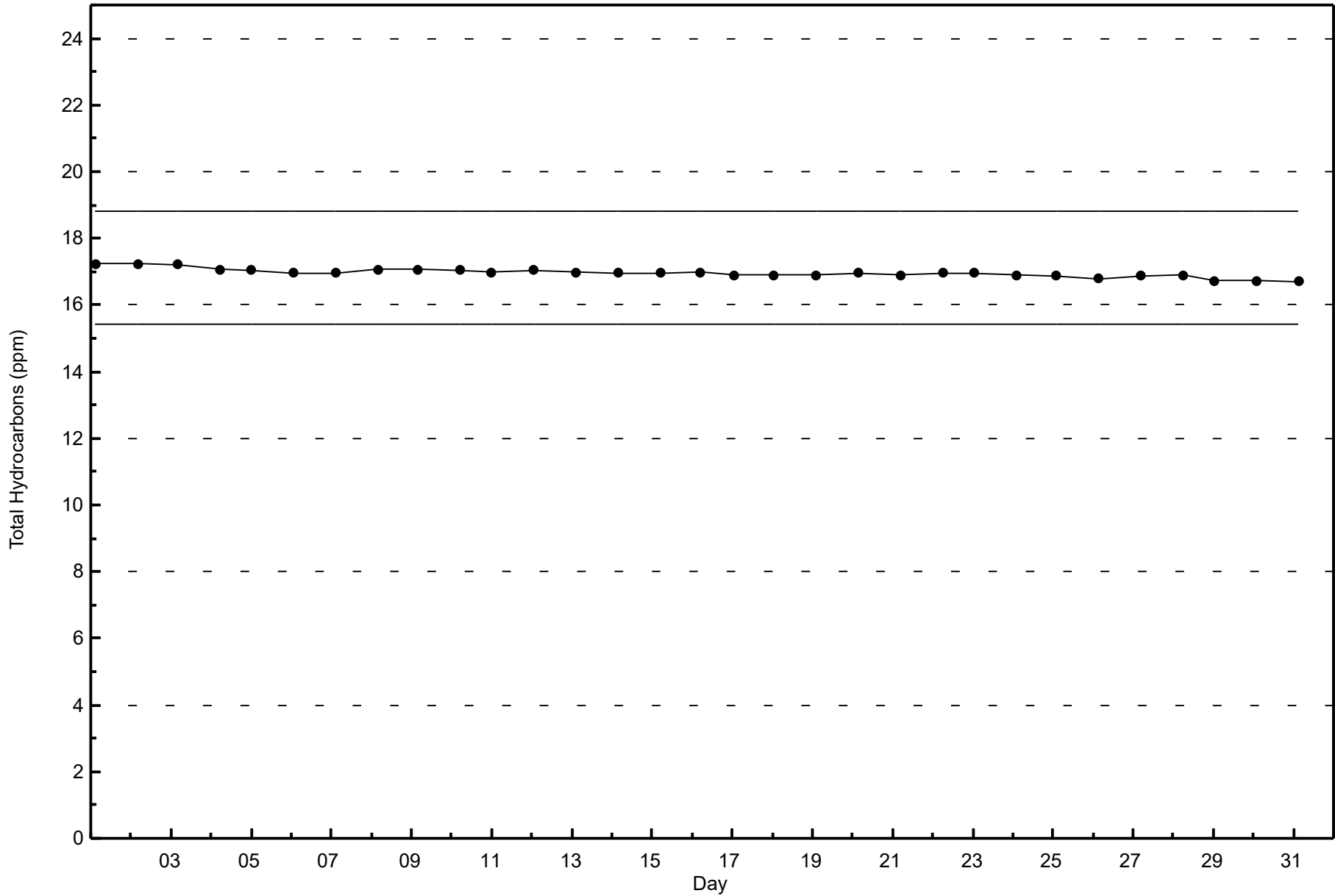
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	32	41	34	50	53	87	73	22	10	12	28	40	11	42	38	44	617
2.1 - 3.0	13	6	2	2	1	5	14	5	8	7	4	2	2	2	1	18	92
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	45	47	36	52	54	92	87	27	18	19	32	42	13	44	39	62	709

Total Number of Valid Hours: 709

Total Number of Hours: 744

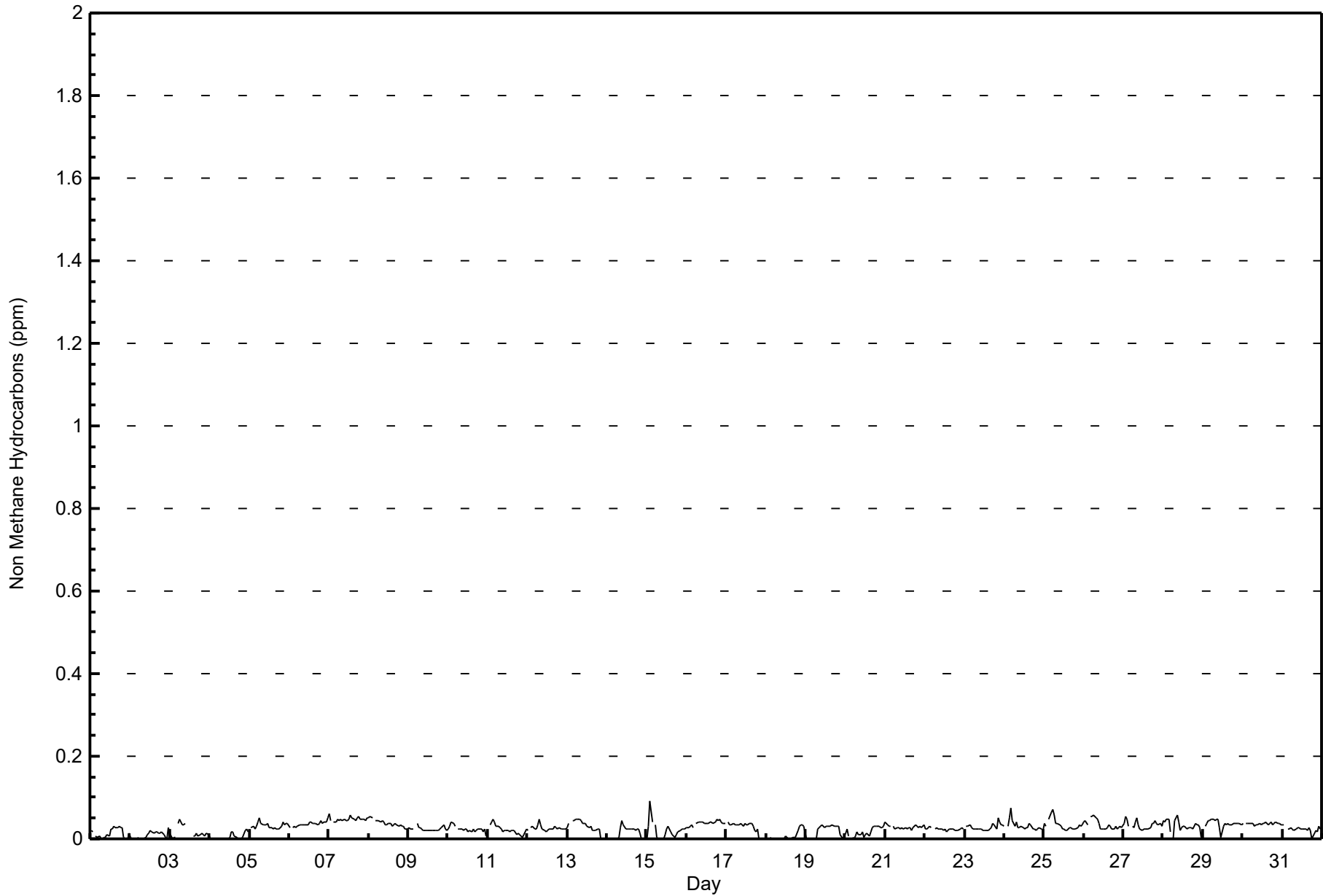








Maximum Value: 0.093 ppm on May 15 03:00		Maximum Daily Average: 0.047 ppm on May 7		Hours in Service:	744																						
Minimum Value: 0.000 ppm on May 2 03:00		Minimum Daily Average: 0.005 ppm on May 4		Hours of Data:	709																						
Maximum Diurnal Average: 0.030 ppm at hour 4		Minimum Diurnal Average: 0.023 ppm at hour 12		Hours of Missing Data:	35																						
Monthly Average: 0.026 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.1		Hours of Calibration:	35																						
				Percent Operational Time:	100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	0.019	0.019	Z	0.007	0.004	0.005	0.001	0.000	0.004	0.003	0.010	0.006	0.023	0.025	0.029	0.026	0.027	0.031	0.027	0.026	0.005	0.000	0.001	0.014	0.013	0.031	
2-May	0.003	0.000	0.000	Z	0.003	0.000	0.000	0.000	0.000	0.004	0.010	0.013	0.019	0.016	0.013	0.016	0.017	0.015	0.014	0.017	0.010	0.002	0.001	0.026	0.009	0.026	
3-May	0.012	0.001	0.003	0.005	Z	0.038	0.047	0.035	0.033	0.036	C	C	C	C	0.006	0.007	0.015	0.007	0.011	0.014	0.012	0.007	0.013	0.011	0.016	0.047	
4-May	0.001	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.017	0.018	0.008	0.003	0.002	0.000	0.001	0.002	0.021	0.023	0.018	0.005	0.023	
5-May	Z	0.028	0.031	0.022	0.032	0.040	0.049	0.036	0.034	0.034	0.033	0.038	0.026	0.026	0.024	0.026	0.025	0.023	0.025	0.031	0.042	0.034	0.038	0.037	0.032	0.049	
6-May	0.028	Z	0.027	0.031	0.027	0.029	0.033	0.034	0.033	0.035	0.033	0.033	0.040	0.040	0.039	0.036	0.036	0.033	0.038	0.044	0.037	0.039	0.040	0.050	0.035	0.050	
7-May	0.060	0.045	Z	0.041	0.040	0.046	0.044	0.046	0.044	0.046	0.043	0.043	0.046	0.057	0.052	0.047	0.044	0.050	0.053	0.048	0.047	0.047	0.045	0.050	0.047	0.060	
8-May	0.051	0.054	0.051	Z	0.043	0.044	0.045	0.042	0.044	0.039	0.034	0.034	0.036	0.038	0.032	0.034	0.037	0.034	0.030	0.032	0.030	0.029	0.025	0.025	0.037	0.054	
9-May	0.027	0.025	0.024	0.024	Z	0.038	0.027	0.026	0.024	0.019	0.021	0.020	0.019	0.021	0.021	0.020	0.019	0.020	0.020	0.022	0.026	0.034	0.025	0.021	0.024	0.038	
10-May	0.024	0.031	0.039	0.037	0.031	Z	0.024	0.023	0.025	0.019	0.023	0.023	0.018	0.020	0.017	0.023	0.018	0.020	0.024	0.023	0.024	0.017	0.022	0.007	0.023	0.039	
11-May	Z	0.035	0.041	0.046	0.042	0.031	0.030	0.027	0.024	0.017	0.021	0.020	0.019	0.016	0.019	0.020	0.021	0.009	0.013	0.010	0.008	0.004	0.012	0.024	0.022	0.046	
12-May	0.021	Z	0.028	0.029	0.024	0.025	0.033	0.046	0.033	0.023	0.022	0.018	0.021	0.025	0.024	0.023	0.031	0.028	0.025	0.027	0.024	0.025	0.025	0.025	0.026	0.046	
13-May	0.028	0.036	Z	0.043	0.045	0.047	0.049	0.047	0.045	0.038	0.038	0.036	0.029	0.026	0.029	0.022	0.019	0.021	0.024	0.024	0.000	0.000	0.000	0.000	0.028	0.049	
14-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.003	0.026	0.043	0.035	0.025	0.025	0.024	0.024	0.024	0.023	0.021	0.025	0.024	0.015	0.000	0.000	0.000	0.015	0.043	
15-May	0.000	0.032	0.093	0.042	Z	0.033	0.002	0.000	0.000	0.000	0.000	0.010	0.025	0.030	0.018	0.010	0.007	0.003	0.009	0.017	0.020	0.023	0.024	0.025	0.018	0.093	
16-May	0.028	0.027	0.030	0.033	0.028	Z	0.036	0.040	0.041	0.041	0.041	0.038	0.038	0.038	0.040	0.041	0.039	0.039	0.048	0.046	0.046	0.041	0.036	0.038	0.038	0.048	
17-May	Z	0.039	0.035	0.034	0.037	0.035	0.035	0.032	0.035	0.036	0.031	0.036	0.035	0.034	0.036	0.036	0.032	0.019	0.018	0.023	0.001	0.000	0.000	0.000	0.027	0.039	
18-May	0.000	Z	0.002	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.001	0.006	0.001	0.001	0.000	0.003	0.002	0.004	0.020	0.032	0.033	0.035	0.031	0.008	0.035	
19-May	0.001	0.000	Z	0.001	0.000	0.000	0.000	0.022	0.029	0.030	0.033	0.027	0.032	0.032	0.029	0.030	0.032	0.032	0.031	0.030	0.031	0.011	0.001	0.007	0.019	0.033	
20-May	0.012	0.023	0.007	Z	0.002	0.001	0.005	0.017	0.011	0.011	0.016	0.003	0.010	0.013	0.008	0.018	0.028	0.031	0.030	0.030	0.031	0.027	0.028	0.031	0.017	0.031	
21-May	0.040	0.034	0.029	0.031	Z	0.030	0.025	0.026	0.028	0.023	0.027	0.022	0.027	0.023	0.027	0.027	0.021	0.026	0.036	0.031	0.027	0.029	0.028	0.033	0.028	0.040	
22-May	0.024	0.024	0.028	0.030	0.026	Z	0.025	0.026	0.023	0.025	0.023	0.022	0.023	0.018	0.021	0.022	0.025	0.023	0.022	0.021	0.021	0.025	0.026	0.025	0.024	0.030	
23-May	Z	0.031	0.032	0.034	0.026	0.022	0.025	0.022	0.022	0.024	0.023	0.021	0.021	0.020	0.022	0.024	0.026	0.037	0.035	0.025	0.052	0.040	0.034	0.033	0.028	0.052	
24-May	0.030	Z	0.029	0.051	0.074	0.045	0.030	0.039	0.029	0.026	0.032	0.027	0.025	0.026	0.027	0.037	0.035	0.023	0.022	0.022	0.022	0.027	0.024	0.020	0.031	0.074	
25-May	0.039	0.030	Z	0.047	0.063	0.073	0.057	0.036	0.037	0.033	0.032	0.025	0.023	0.021	0.020	0.028	0.027	0.023	0.023	0.024	0.027	0.034	0.029	0.034	0.034	0.073	
26-May	0.041	0.044	0.034	Z	0.055	0.054	0.058	0.051	0.046	0.038	0.024	0.023	0.024	0.024	0.028	0.034	0.031	0.025	0.025	0.029	0.025	0.027	0.031	0.027	0.035	0.058	
27-May	0.036	0.053	0.047	0.032	Z	0.030	0.027	0.042	0.051	0.036	0.025	0.020	0.024	0.025	0.024	0.025	0.027	0.037	0.038	0.044	0.038	0.034	0.037	0.031	0.034	0.053	
28-May	0.044	0.041	0.046	0.048	0.017	Z	0.000	0.043	0.059	0.040	0.021	0.027	0.030	0.030	0.025	0.027	0.028	0.029	0.025	0.038	0.034	0.033	0.027	0.004	0.031	0.059	
29-May	Z	0.032	0.036	0.044	0.045	0.046	0.046	0.045	0.049	0.048	0.028	0.005	0.030	0.038	0.033	0.037	0.035	0.034	0.036	0.036	0.036	0.038	0.038	0.036	0.037	0.049	
30-May	0.038	Z	0.039	0.038	0.036	0.038	0.037	0.031	0.034	0.034	0.036	0.035	0.039	0.036	0.040	0.034	0.038	0.040	0.035	0.038	0.039	0.037	0.037	0.033	0.037	0.040	
31-May	0.032	0.034	Z	0.024	0.025	0.027	0.025	0.021	0.023	0.028	0.028	0.025	0.025	0.024	0.025	0.022	0.026	0.021	0.002	0.012	0.020	0.018	0.029	0.024	0.023	0.034	
		0.025	0.028	0.029	0.030	0.028	0.030	0.026	0.028	0.029	0.027	0.025	0.023	0.025	0.026	0.025	0.025	0.026	0.024	0.025	0.027	0.025	0.024	0.024	0.024	Diurnal Average	
		0.060	0.054	0.093	0.051	0.074	0.073	0.058	0.051	0.059	0.048	0.043	0.043	0.046	0.057	0.052	0.047	0.044	0.050	0.053	0.048	0.052	0.047	0.045	0.050	Diurnal Maximum	
Z - zerospan		C - Calibration																									





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	98	13.82	13.82
0.006 - 0.05	602	84.91	98.73
0.06 - 0.1	9	1.27	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes - May 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	19	16	3	2	1	0	0	2	3	3	2	2	2	0	6	37	98
0.006 - 0.05	26	31	32	50	53	90	83	25	14	16	29	40	11	44	33	25	602
0.06 - 0.1	0	0	1	0	0	2	4	0	1	0	1	0	0	0	0	0	9
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	45	47	36	52	54	92	87	27	18	19	32	42	13	44	39	62	709

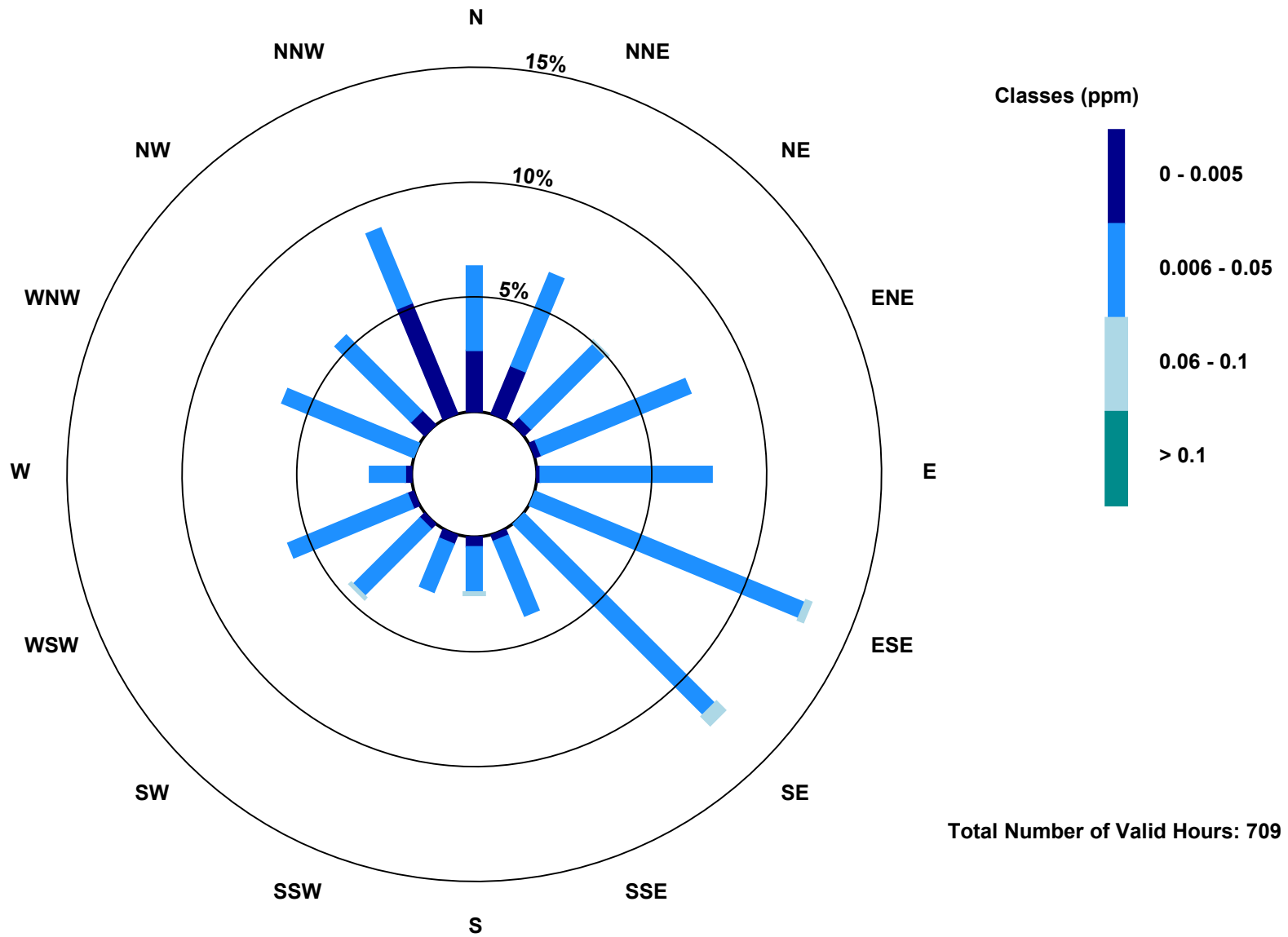
Total Number of Valid Hours: 709

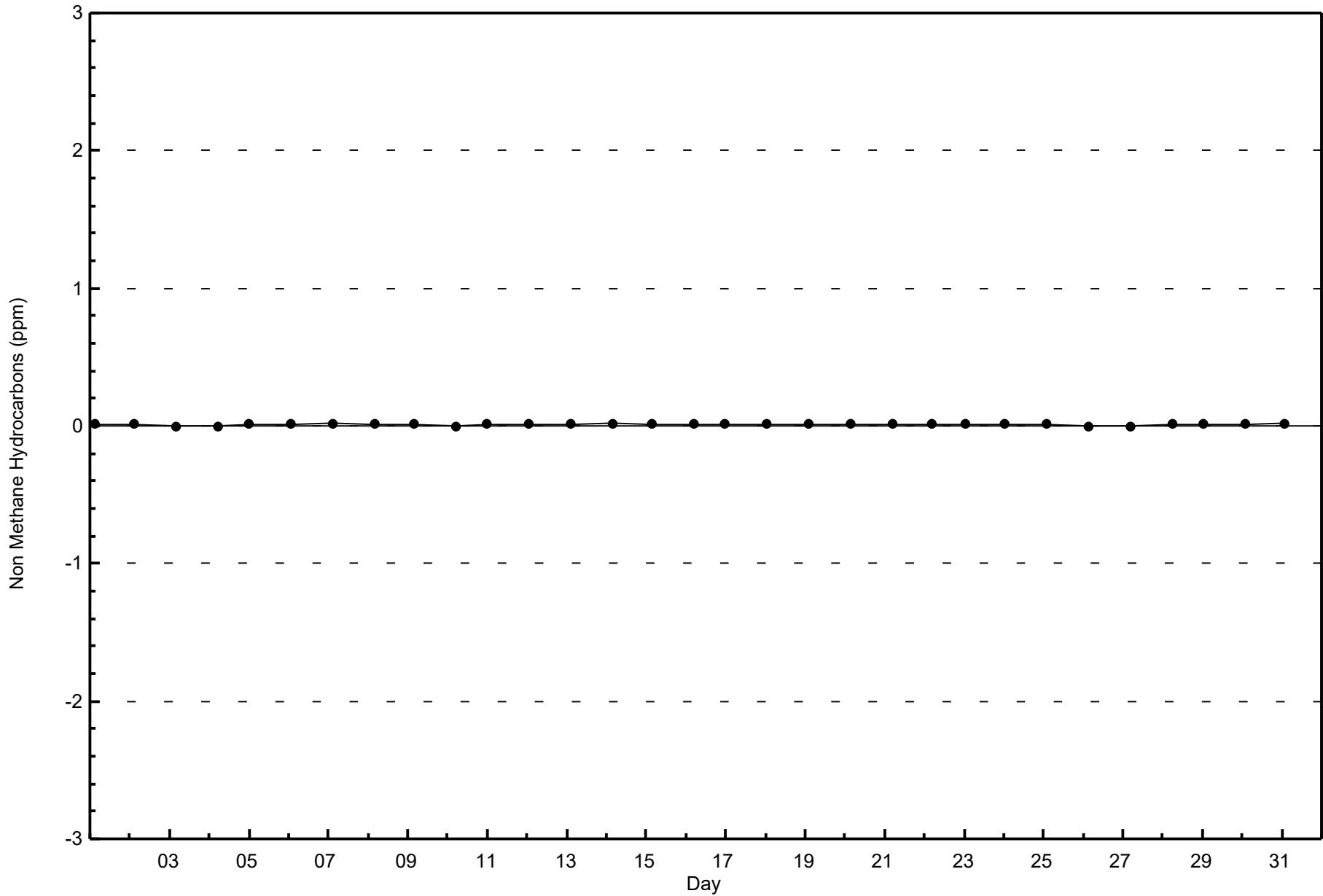
Total Number of Hours: 744

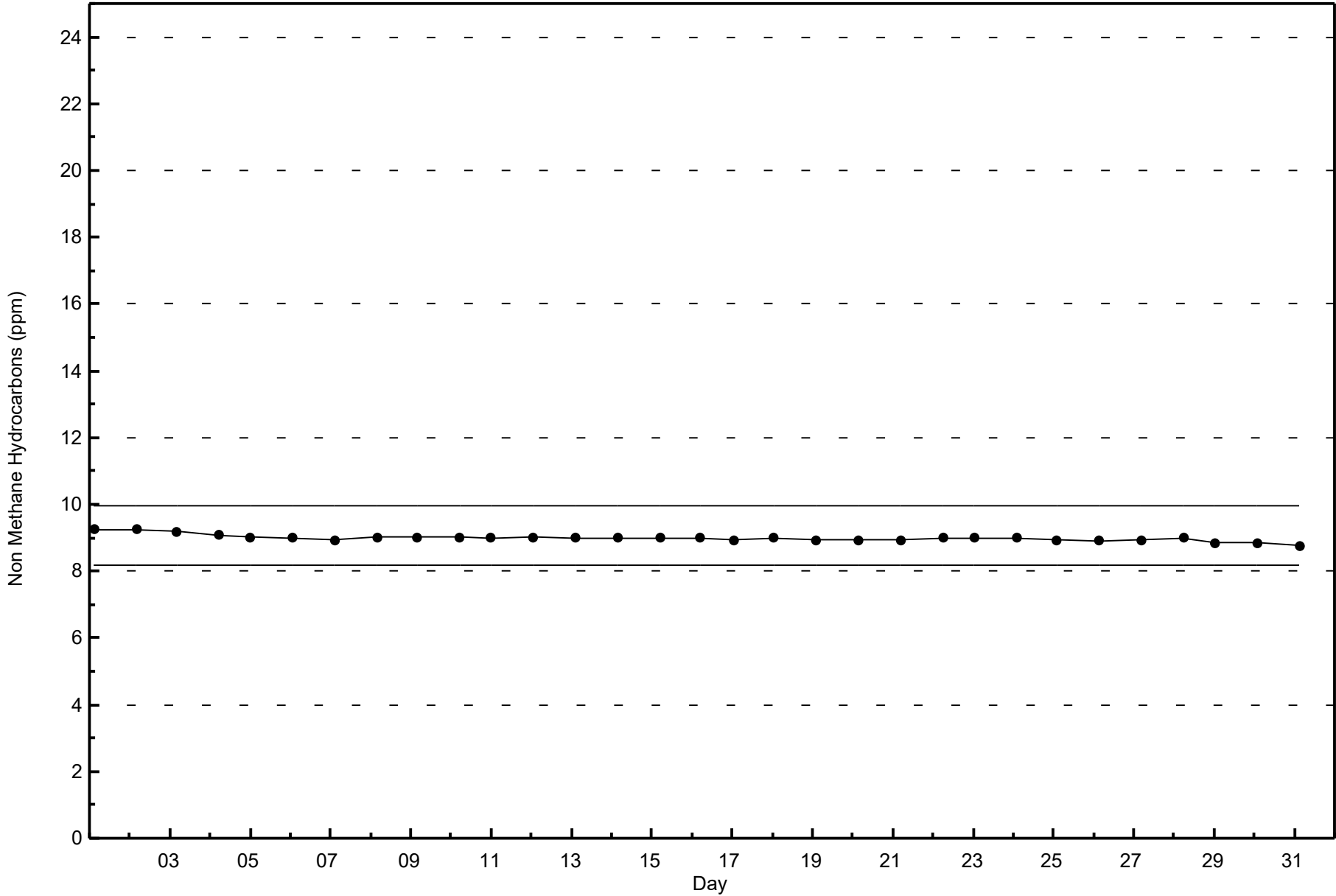


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Patricia McInnes









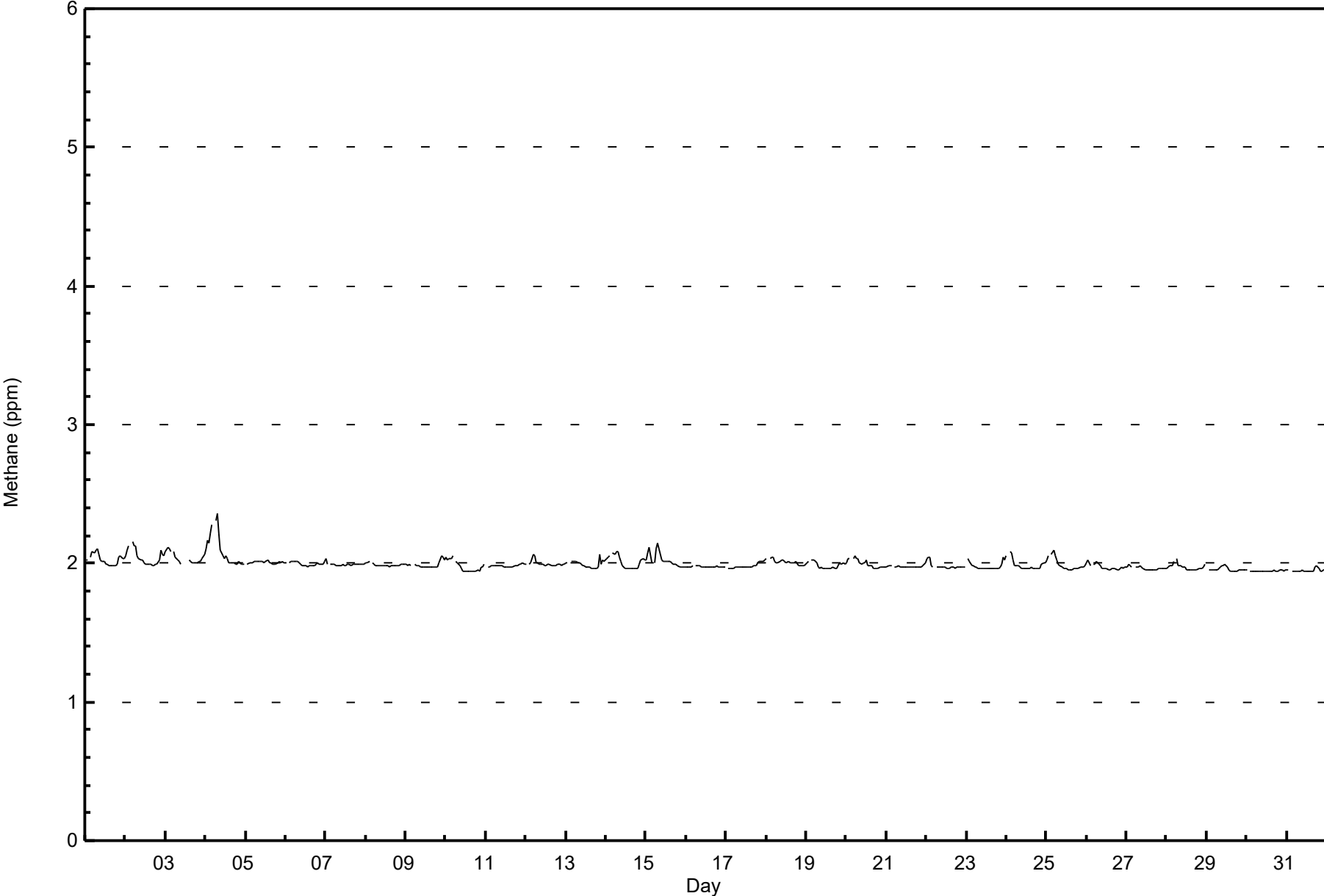
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Patricia McInnes - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744					
Maximum Value: 2.4 ppm on May 4 08:00		Maximum Daily Average: 2.1 ppm on May 4		Hours of Data: 709																709							
Minimum Value: 1.9 ppm on May 10 12:00		Minimum Daily Average: 1.9 ppm on May 30		Hours of Missing Data: 35																35							
Maximum Diurnal Average: 2.0 ppm at hour 5		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Calibration: 35																35							
Monthly Average: 1.99 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> = 2.0 P <sub>99</sub> = 2.2		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-May	2.0	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1
2-May	2.1	2.1	2.1	Z	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	2.1	2.1	2.0	2.2	
3-May	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
4-May	2.1	2.2	2.2	2.2	2.3	Z	2.3	2.4	2.2	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
5-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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	
7-May	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	
8-May	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	
9-May	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	2.1	
10-May	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	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	
11-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
13-May	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	2.0	2.1	
14-May	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
15-May	2.0	2.1	2.1	2.0	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
16-May	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	
17-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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	
19-May	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	
20-May	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
21-May	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	
22-May	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	
23-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
25-May	2.0	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
26-May	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	
27-May	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	
28-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	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-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	
30-May	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	
31-May	2.0	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											





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

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

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	656	92.52	92.52
2.1 - 3.0	53	7.48	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**  
**Patricia McInnes - May 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	35	45	35	51	54	90	83	25	13	17	29	41	12	43	38	45	656
2.1 - 3.0	10	2	1	1	0	2	4	2	5	2	3	1	1	1	1	17	53
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>	45	47	36	52	54	92	87	27	18	19	32	42	13	44	39	62	709

Total Number of Valid Hours: 709

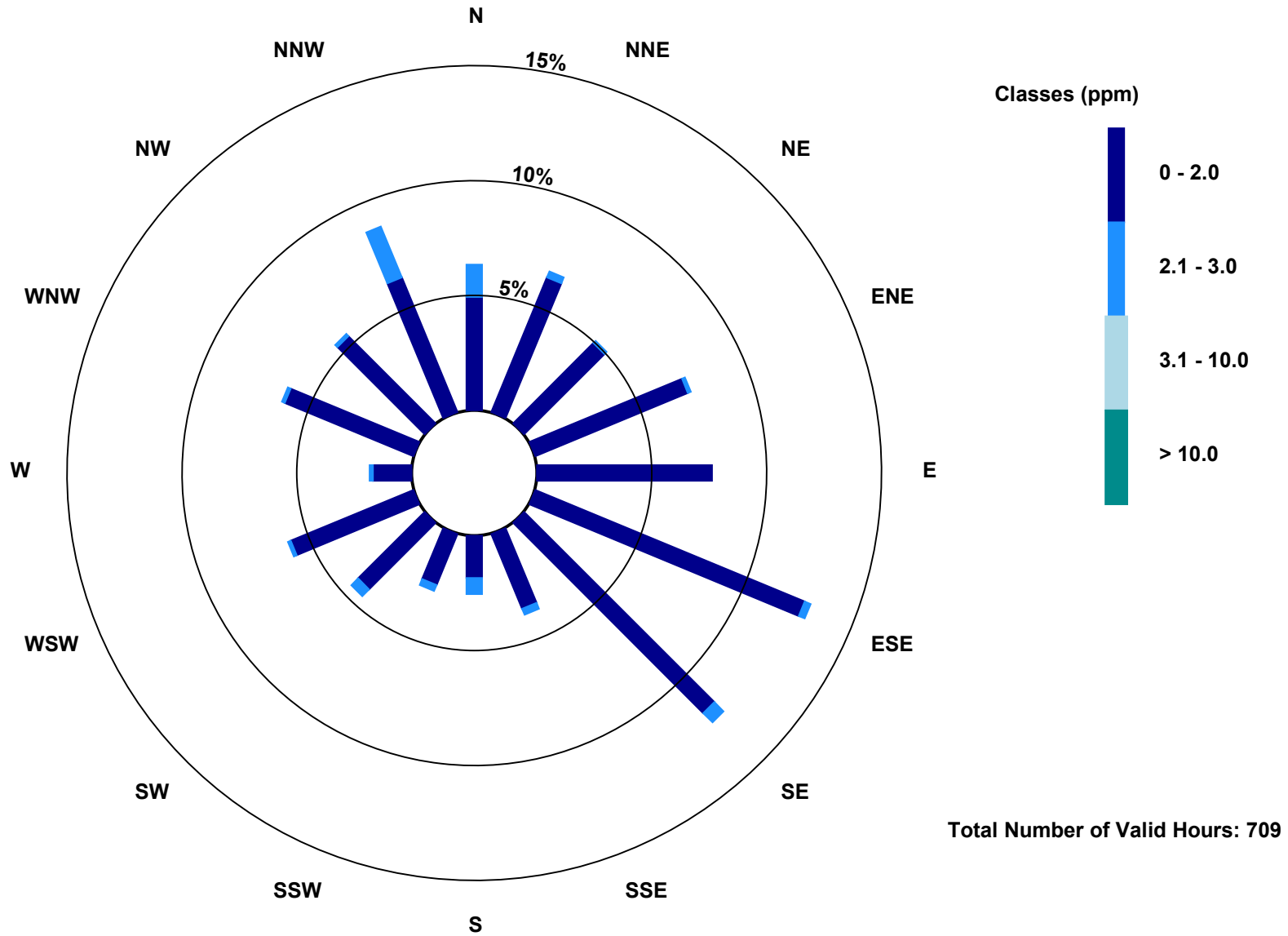
Total Number of Hours: 744

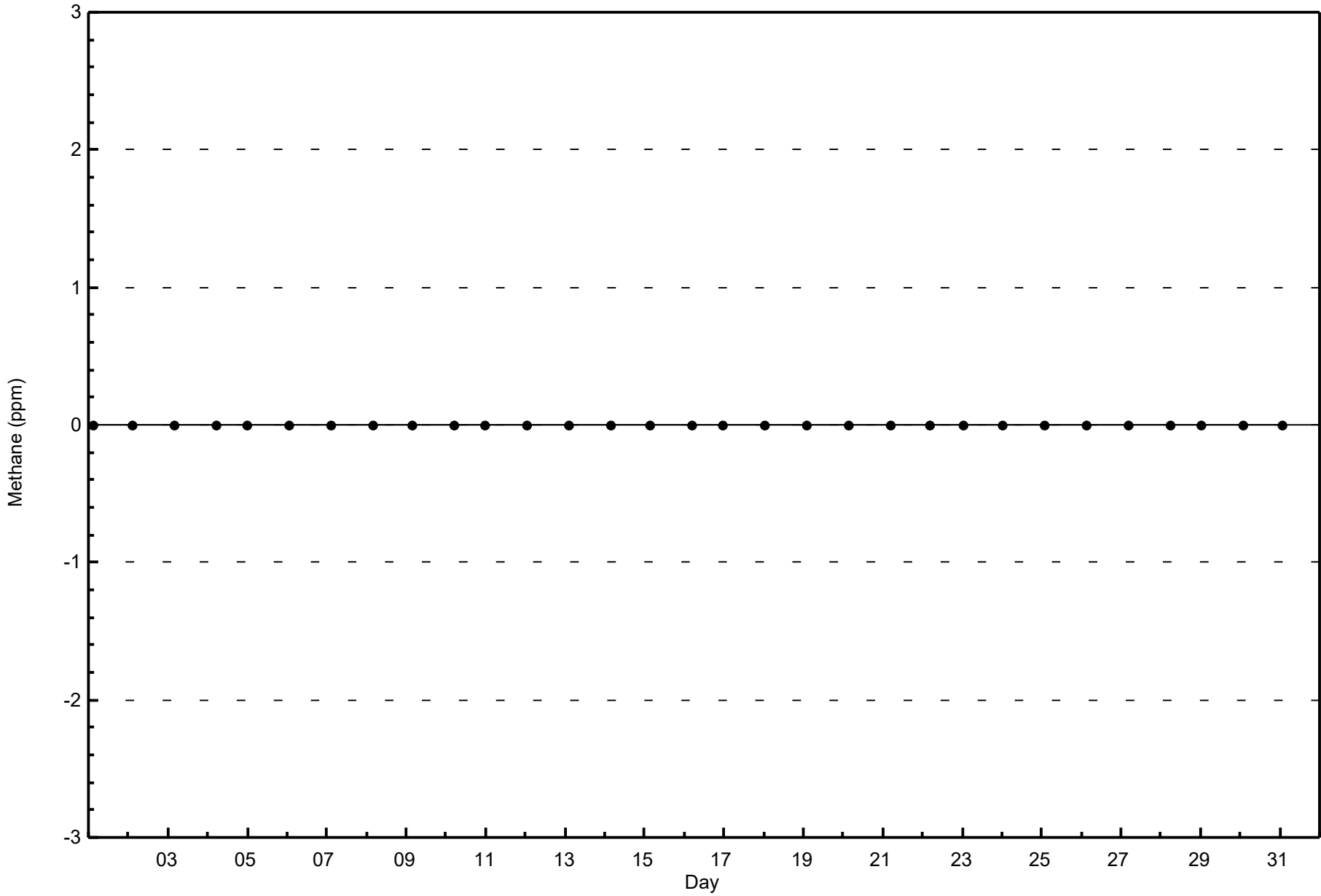


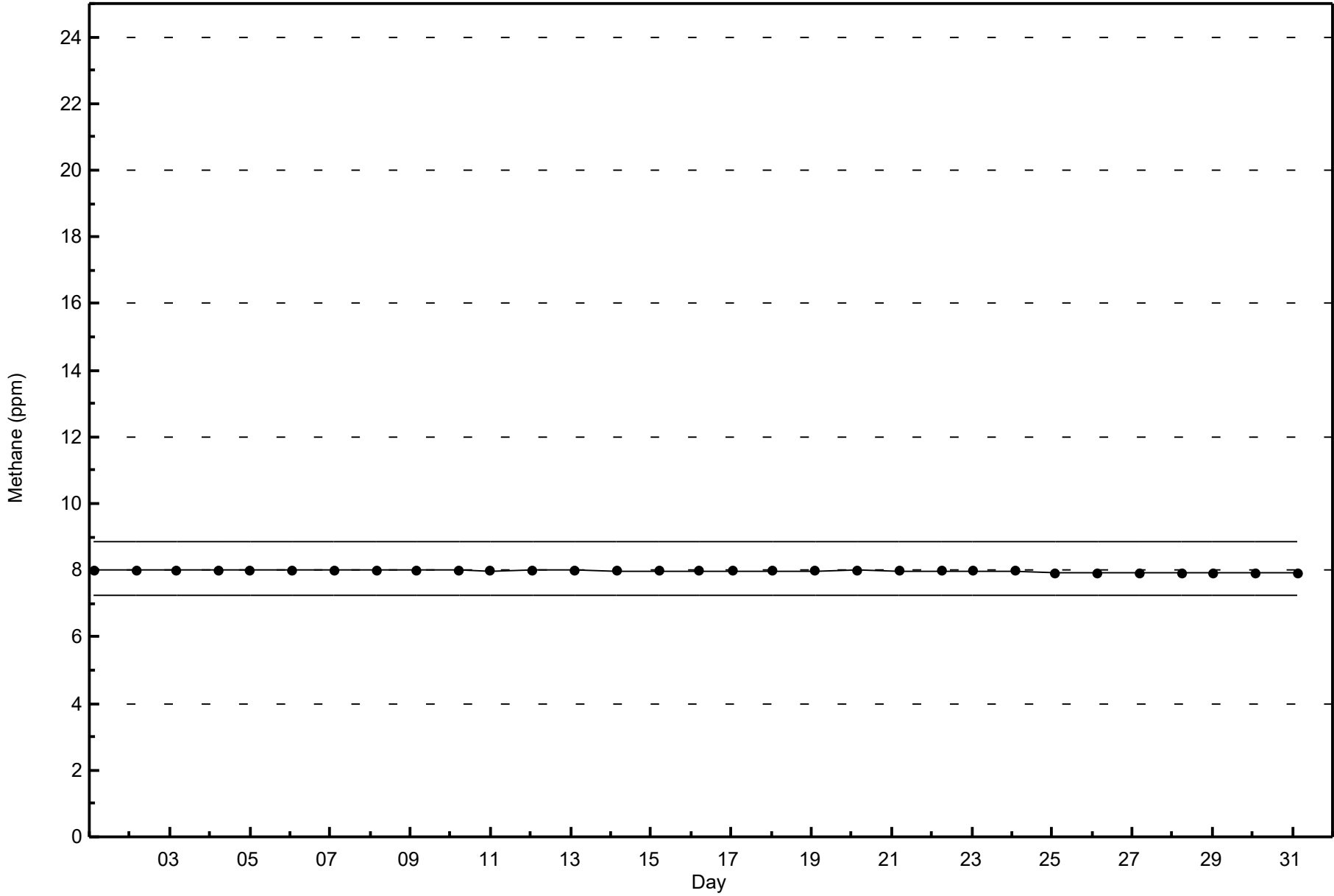


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

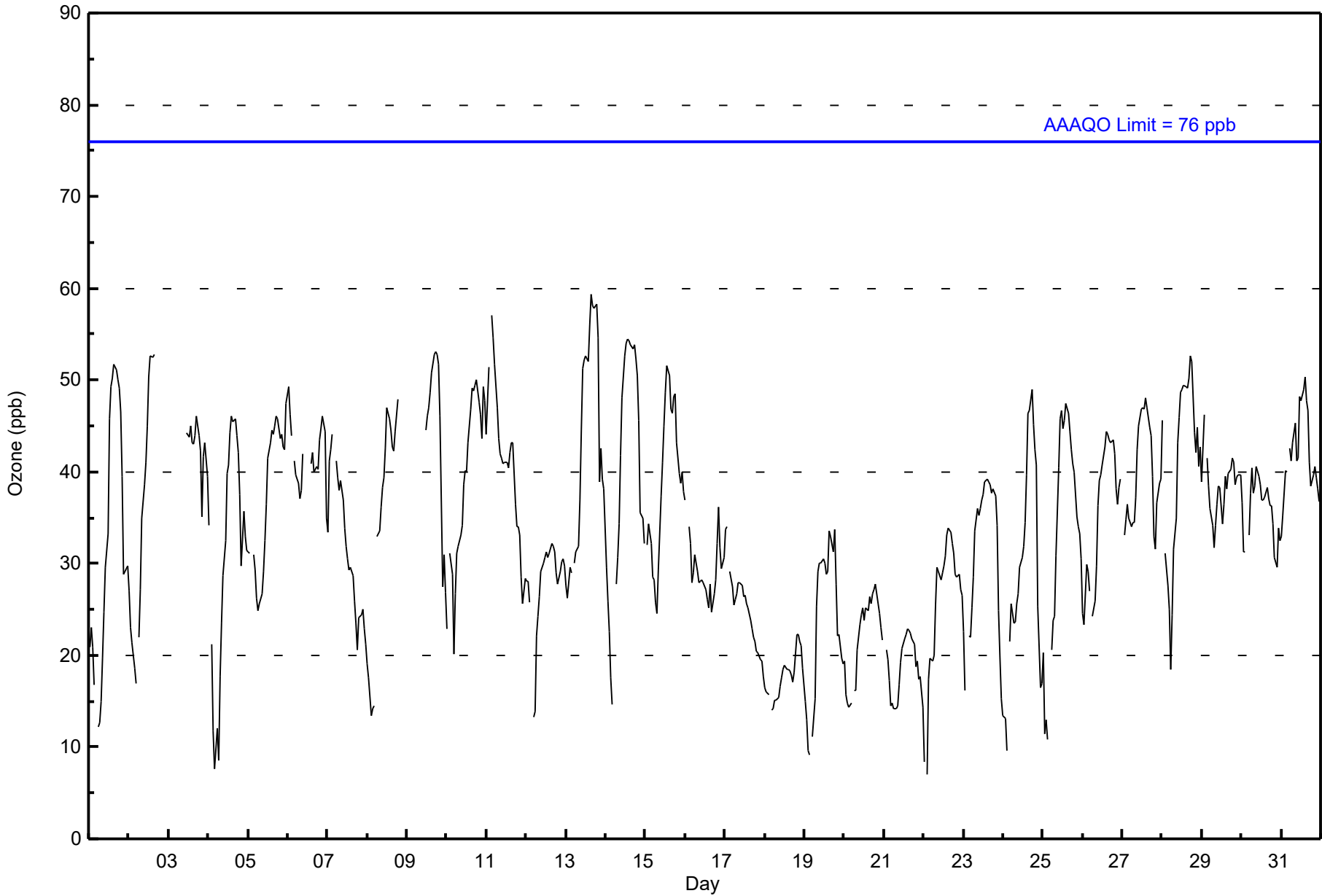
Patricia McInnes - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 59.3 ppb on May 13 16:00	Maximum Daily Average: 43.4 ppb on May 13		Hours of Data:	676
Minimum Value: 7.1 ppb on May 22 03:00	Minimum Daily Average: 17.7 ppb on May 18		Hours of Missing Data:	68
Maximum Diurnal Average: 40.9 ppb at hour 16	Minimum Diurnal Average: 24.4 ppb at hour 5		Hours of Calibration:	33
Monthly Average: 33.54 ppb	Percentiles: P <sub>1</sub> = 10.5 P <sub>10</sub> = 18.3 Q <sub>1</sub> = 25.6 Median = 33.6 Q <sub>3</sub> = 42.2 P <sub>90</sub> = 47.7 P <sub>99</sub> = 54.6		Percent Operational Time:	95.3

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-May	20.8	23.1	20.9	16.8	Z	12.2	12.6	14.9	19.6	24.8	29.7	33.3	45.8	49.3	50.3	51.7	51.1	50.0	49.1	46.5	39.5	28.8	29.5	29.7	32.6	51.7	
2-May	27.1	23.1	21.3	18.7	16.9	Z	22.0	27.1	35.0	38.7	41.1	45.0	50.4	52.7	52.5	52.8	UO	UO	UO	UO	UO	UO	UO	UO	--	52.8	
3-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	44.2	43.8	45.0	43.2	43.1	44.0	46.1	43.9	42.2	35.0	41.7	43.2	39.5	--	46.1
4-May	34.2	Z	21.1	11.7	7.6	12.1	8.6	17.7	23.4	28.7	32.4	39.8	40.7	44.3	46.1	45.5	45.8	43.9	42.0	37.6	29.7	35.8	32.9	31.4	31.0	46.1	
5-May	31.3	31.2	Z	31.0	29.3	26.2	24.8	25.6	26.7	29.2	32.5	36.4	41.5	43.2	44.6	44.1	45.0	46.1	45.8	43.6	44.1	42.7	42.4	47.4	37.2	47.4	
6-May	49.2	46.2	43.9	Z	41.1	39.7	38.7	37.1	37.9	42.0	C	C	C	C	40.9	42.1	39.9	40.5	40.3	43.5	44.7	46.1	44.3	35.0	41.7	49.2	
7-May	33.4	41.2	42.4	44.1	Z	41.2	39.3	38.0	39.1	36.8	33.8	31.8	30.5	29.3	29.6	28.7	25.9	23.5	20.6	24.1	24.4	24.9	22.8	21.3	31.6	44.1	
8-May	19.1	17.5	13.4	14.2	14.5	Z	32.9	33.5	36.2	38.2	39.3	42.6	46.9	45.7	44.5	42.7	42.2	44.4	47.9	UO	UO	UO	UO	UO	34.2	47.9	
9-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	44.5	46.0	47.0	48.7	50.7	52.8	53.1	52.8	51.7	46.1	27.4	31.0	26.8	--	53.1
10-May	22.9	Z	31.0	28.8	20.1	26.7	31.2	31.8	33.1	34.2	38.6	40.1	40.0	43.2	46.8	49.2	48.8	49.4	50.0	47.6	46.3	43.7	49.3	47.7	39.2	50.0	
11-May	44.1	51.4	Z	57.0	54.6	51.7	47.0	43.6	41.9	41.5	41.0	41.0	41.1	40.4	42.2	43.2	43.2	36.5	34.1	34.1	33.1	28.5	25.7	28.3	41.1	57.0	
12-May	28.0	28.1	25.8	Z	13.3	13.9	22.0	24.3	26.4	29.1	30.0	30.7	31.2	30.6	31.1	32.3	32.0	31.3	29.1	27.8	29.1	30.2	30.5	29.7	27.7	32.3	
13-May	27.7	26.3	29.5	29.0	Z	30.0	31.3	31.9	36.8	44.6	51.3	52.1	52.6	52.0	56.0	59.3	58.1	57.8	58.3	54.6	38.9	42.6	39.3	38.1	43.4	59.3	
14-May	29.6	25.9	22.5	17.5	14.6	Z	27.8	30.6	34.3	41.8	48.1	52.7	54.0	54.5	54.4	53.9	53.5	53.8	52.4	50.4	45.6	35.5	34.9	32.1	40.0	54.5	
15-May	Z	32.0	34.3	32.2	28.6	28.2	25.7	24.6	29.3	37.3	41.0	44.9	48.7	51.6	50.5	46.9	46.4	48.2	48.5	43.2	39.8	38.8	39.9	37.9	39.1	51.6	
16-May	36.9	Z	34.1	32.2	28.0	29.0	30.9	29.2	27.9	28.1	28.2	27.9	27.1	26.1	25.2	27.8	24.7	26.7	28.3	32.2	36.1	31.7	29.4	30.6	29.5	36.9	
17-May	33.7	33.9	Z	29.1	27.5	25.5	26.0	26.7	27.9	28.0	27.6	26.4	26.5	25.6	25.2	23.8	22.8	22.0	21.5	20.5	20.3	19.6	19.3	17.7	25.1	33.9	
18-May	16.4	16.1	15.7	Z	14.1	14.2	15.2	15.1	15.4	16.7	17.5	18.4	18.8	18.4	18.5	18.3	17.8	17.0	18.2	22.3	22.2	21.5	21.0	18.6	17.7	22.3	
19-May	14.9	12.9	9.6	9.1	Z	11.2	15.2	25.4	29.2	30.0	30.1	30.5	30.0	28.9	29.1	33.6	32.9	31.2	33.8	27.8	22.1	22.2	19.7	19.1	23.9	33.8	
20-May	19.3	15.7	14.9	14.3	14.8	Z	16.2	16.2	20.6	23.4	24.4	25.2	23.8	25.2	24.8	26.5	25.6	26.7	27.2	27.8	25.7	24.6	23.0	21.7	22.1	27.8	
21-May	Z	20.6	19.5	17.2	14.6	14.8	14.2	14.2	14.6	16.8	19.3	20.7	21.8	22.3	22.9	22.7	22.4	21.9	21.2	18.8	19.3	17.4	17.6	14.4	18.7	22.9	
22-May	8.4	Z	7.1	17.4	19.7	19.4	20.0	25.4	29.6	29.2	28.2	29.0	29.7	30.9	33.1	33.8	33.4	32.1	31.1	28.9	28.5	28.9	27.2	26.5	26.0	33.8	
23-May	22.5	16.2	Z	22.1	22.0	25.1	28.5	33.5	36.0	35.2	36.0	36.9	37.5	38.8	39.3	39.0	38.5	37.7	38.1	37.3	34.2	24.9	19.8	15.3	31.1	39.3	
24-May	13.4	13.1	9.6	Z	21.5	25.6	23.5	23.7	25.7	26.7	29.7	30.6	31.8	34.5	39.7	46.3	46.7	49.0	45.2	42.4	40.7	25.3	16.4	17.0	29.5	49.0	
25-May	20.3	11.4	13.0	10.8	Z	20.6	23.8	24.3	30.8	40.4	45.8	46.7	44.7	45.6	47.5	46.4	44.4	42.5	40.8	39.9	35.1	34.1	33.3	30.5	33.6	47.5	
26-May	24.5	23.4	29.9	29.1	26.9	Z	24.2	26.0	29.8	36.3	39.1	39.7	40.8	42.8	44.3	44.2	43.5	43.1	43.4	42.0	38.2	36.4	38.2	39.1	35.9	44.3	
27-May	Z	33.1	34.7	36.4	34.9	34.0	34.5	34.4	37.2	42.4	45.1	46.9	47.0	46.8	48.0	46.9	44.8	44.0	39.6	33.0	31.6	36.6	38.7	39.2	39.6	48.0	
28-May	45.6	Z	31.1	27.6	25.0	18.4	24.5	31.6	35.0	43.1	46.0	48.7	49.0	49.5	49.3	49.2	50.2	52.6	51.9	44.2	42.0	44.8	40.6	42.7	41.0	52.6	
29-May	38.9	46.2	Z	41.4	38.4	35.9	34.2	31.7	34.2	36.4	38.5	38.3	34.4	36.4	39.4	38.2	39.7	40.3	41.5	41.0	38.7	39.3	39.7	39.6	38.4	46.2	
30-May	36.6	31.2	31.3	Z	33.2	37.6	40.5	37.6	38.5	40.6	39.5	38.6	36.9	36.9	37.2	38.3	37.0	36.3	36.4	34.4	30.6	29.6	33.9	32.5	35.9	40.6	
31-May	33.0	35.2	40.1	40.0	Z	42.6	41.2	43.1	45.4	41.2	41.4	48.1	47.7	49.0	50.3	47.7	46.7	41.0	38.5	39.6	40.6	39.4	38.1	36.8	42.0	50.3	

28.2	27.3	24.9	26.2	24.4	26.5	26.8	28.2	30.9	33.8	35.5	37.7	38.7	39.6	40.5	40.9	40.0	39.6	39.0	37.2	34.6	32.5	31.8	30.6	Diurnal Average	
49.2	51.4	43.9	57.0	54.6	51.7	47.0	43.6	45.4	44.6	51.3	52.7	54.0	54.5	56.0	59.3	58.1	57.8	58.3	54.6	46.3	46.1	49.3	47.7	Diurnal Maximum	

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	93	13.76	13.76
21 - 50	548	81.07	94.82
51 - 82	35	5.18	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 676

Total Number of Hours: 744



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

**Ozone (O<sub>3</sub>) - ppb**  
**Patricia McInnes - May 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	8	7	0	4	7	8	1	4	5	3	3	1	1	3	5	33	93
21 - 50	29	40	36	46	45	80	82	21	12	14	24	25	8	34	25	27	548
51 - 82	2	2	2	0	0	0	0	0	1	2	2	10	2	6	5	1	35
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	39	49	38	50	52	88	83	25	18	19	29	36	11	43	35	61	676

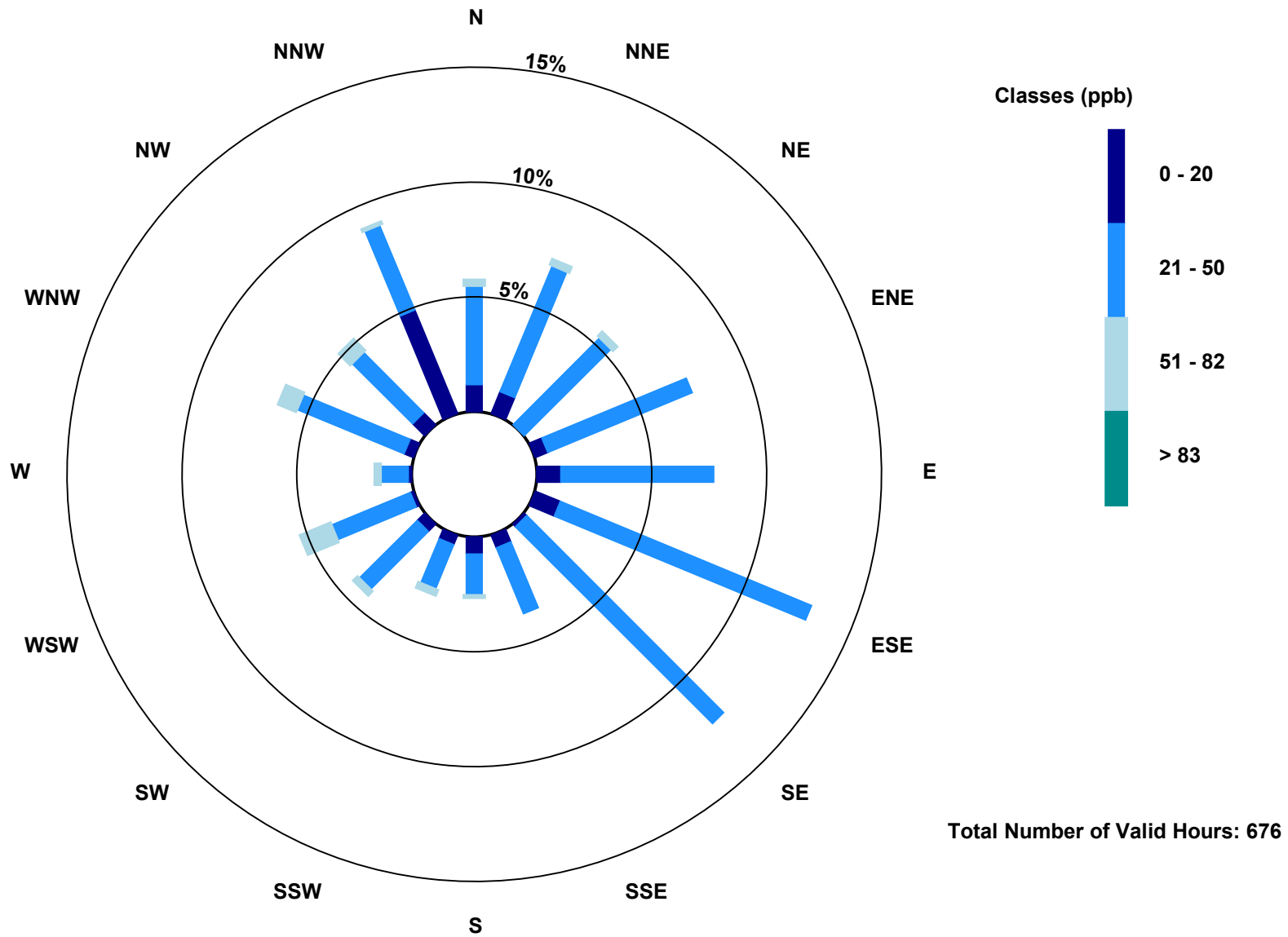
Total Number of Valid Hours: 676

Total Number of Hours: 744

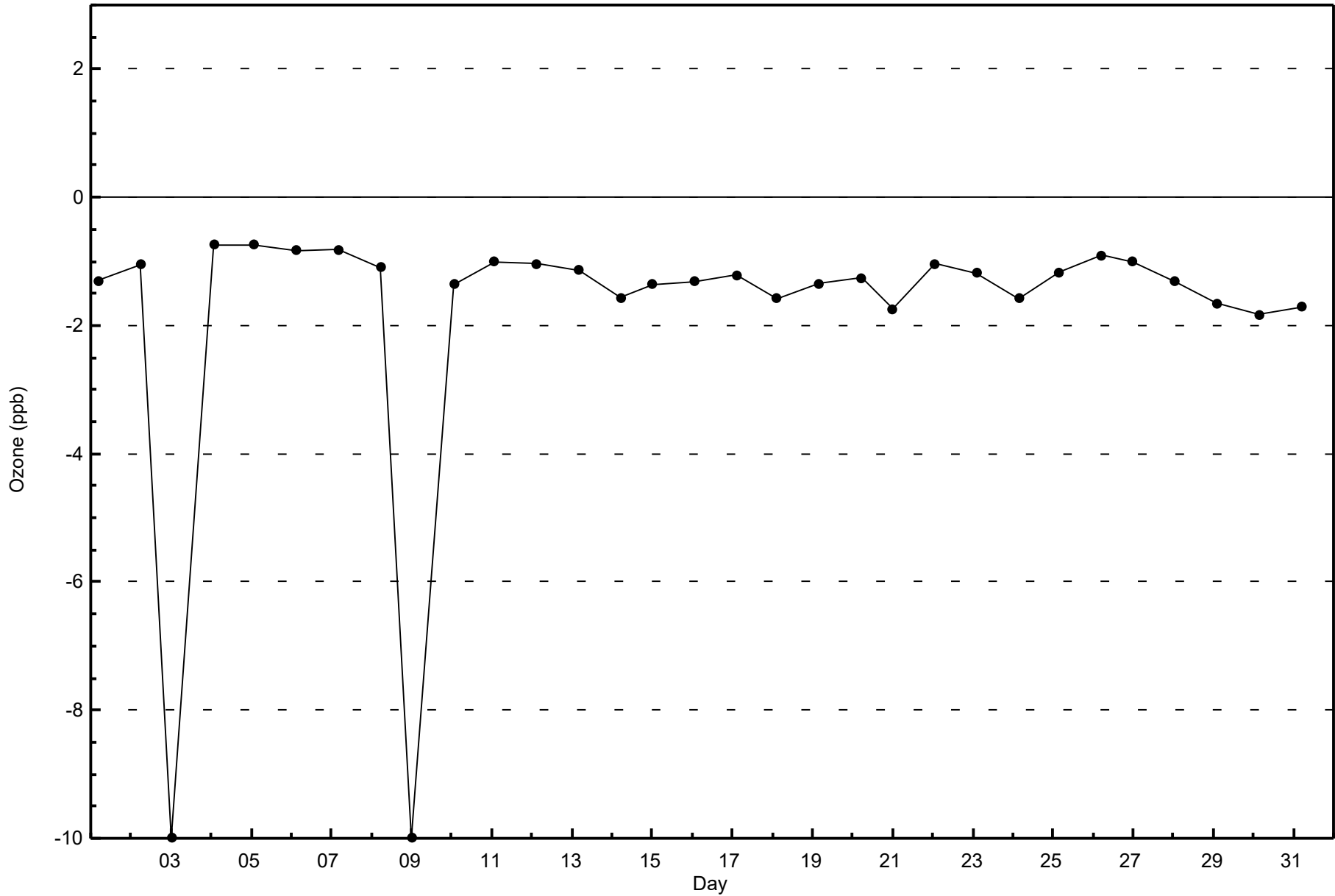


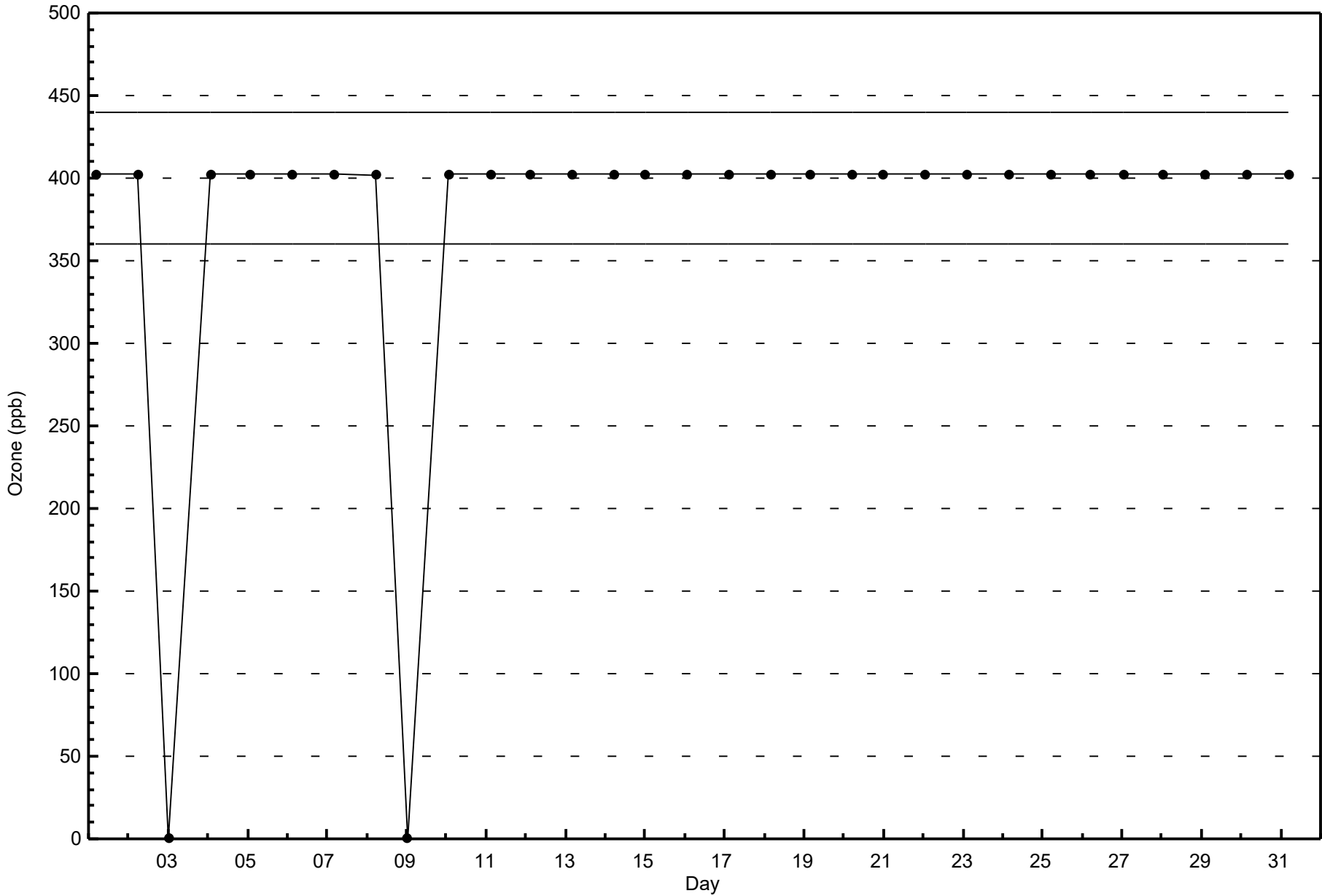
Wood Buffalo Environmental Association  
Wind Rose May 2024

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











Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

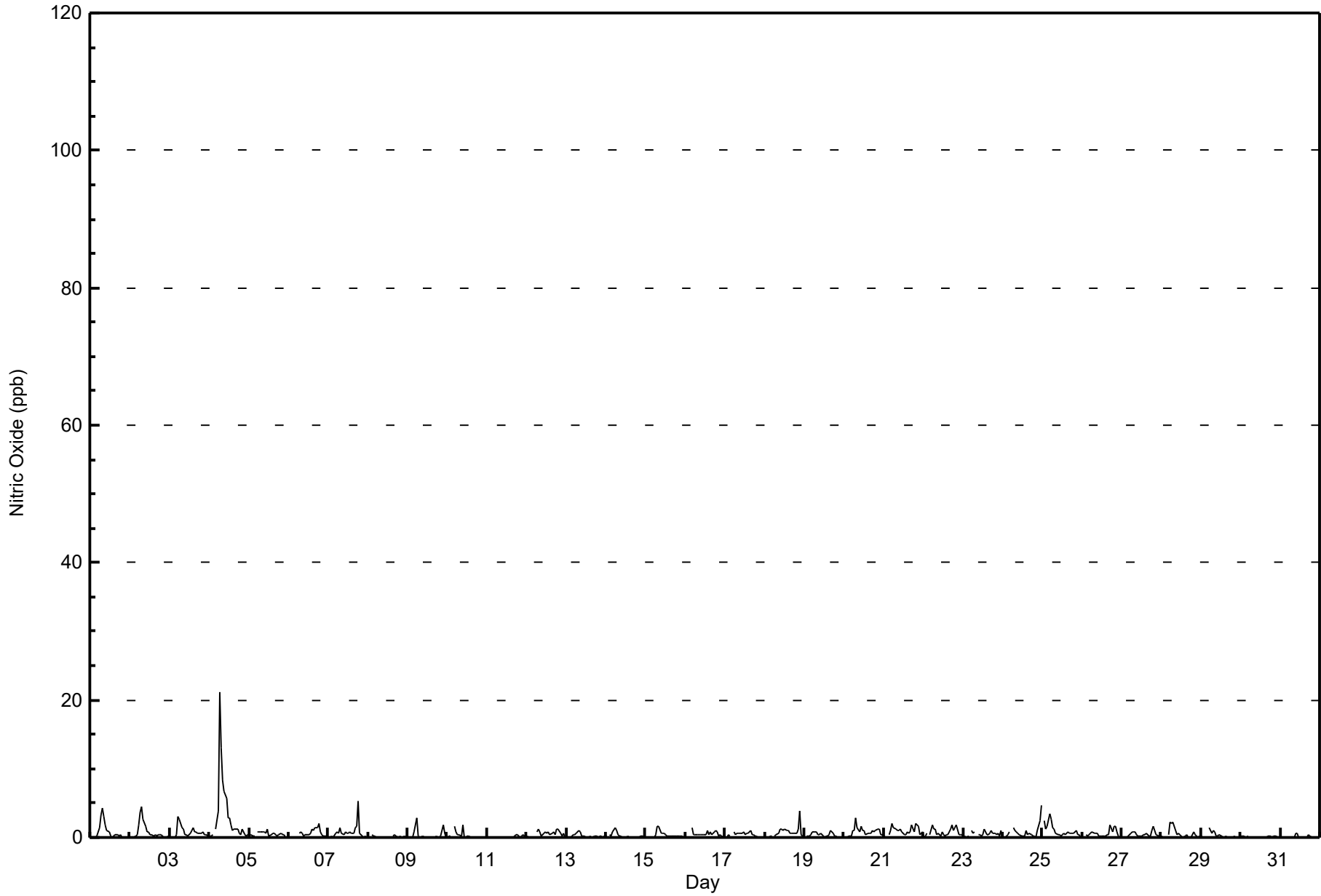
Patricia McInnes - May 2024

Maximum Value: 21.2 ppb on May 4 07:00		Maximum Daily Average: 3.3 ppb on May 4		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on May 1 02:00		Minimum Daily Average: 0.1 ppb on May 11		Hours of Data: 706																																													
Maximum Diurnal Average: 1.6 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 1		Hours of Missing Data: 38																																													
Monthly Average: 0.60 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 1.3 P <sub>99</sub> = 4.5		Hours of Calibration: 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-May	Z	0.0	0.0	0.0	0.3	1.4	3.2	4.2	3.0	1.9	1.0	0.9	0.2	0.1	0.2	0.3	0.4	0.2	0.4	0.1	0.0	0.0	0.0	0.1	0.8	4.2																							
2-May	0.1	Z	0.1	0.1	0.3	1.9	3.6	4.6	2.5	1.6	0.8	0.8	0.5	0.3	0.3	0.5	0.3	0.4	0.3	0.4	0.0	0.1	0.1	0.2	0.9	4.6																							
3-May	0.0	0.0	Z	0.1	0.4	3.1	2.7	1.5	1.1	0.5	0.4	0.3	0.6	1.0	1.4	0.8	0.7	0.6	0.5	0.8	0.4	0.3	0.2	0.8	3.1																								
4-May	0.2	0.3	0.5	Z	1.1	3.9	21.2	13.0	8.4	6.8	5.7	2.8	2.8	1.8	1.1	1.3	1.2	1.3	0.5	0.4	1.2	0.5	0.2	0.4	3.3	21.2																							
5-May	0.3	0.3	0.2	0.2	Z	0.9	0.8	0.8	0.9	0.8	0.5	1.2	0.2	0.3	0.7	0.5	0.4	0.3	0.5	0.6	0.4	0.4	0.1	0.1	0.5	1.2																							
6-May	0.1	0.0	0.0	0.0	0.1	Z	0.5	0.8	0.6	0.3	0.5	0.4	0.5	0.5	1.2	1.0	1.4	1.3	2.0	0.9	0.4	0.2	0.1	0.1	0.6	2.0																							
7-May	Z	0.1	0.1	0.1	0.6	0.8	0.5	1.3	0.5	0.5	0.8	0.7	0.5	0.8	0.7	0.6	1.4	1.6	5.3	0.6	0.2	0.1	0.2	0.0	0.8	5.3																							
8-May	0.1	Z	0.3	0.1	0.3	0.0	0.0	0.0	0.0	UO	C	C	C	C	C	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.2	0.0	--	0.3																							
9-May	0.0	0.0	Z	0.0	0.9	2.8	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	1.9	0.6	0.1	0.3	2.8																							
10-May	0.0	0.3	0.1	Z	1.6	0.8	0.5	0.4	0.2	1.7	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	0.3	1.7																							
11-May	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	0.1	0.5	0.3	0.1	0.1	0.2	0.4	0.0	0.1	0.5																							
12-May	0.3	0.1	0.1	0.1	0.0	Z	0.9	1.2	0.7	0.2	0.6	0.8	0.5	0.9	0.5	0.6	0.8	0.5	1.2	1.3	0.6	0.2	0.6	0.1	0.5	1.3																							
13-May	Z	0.1	0.0	0.2	0.3	0.3	0.5	1.1	0.7	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.2	0.1	0.1	0.2	0.2	1.1																							
14-May	0.2	Z	0.3	0.2	0.7	1.5	1.0	0.4	0.3	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2	1.5																							
15-May	0.1	0.0	Z	0.1	0.1	0.0	0.4	1.6	1.5	0.6	0.7	0.6	0.4	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.1	0.0	0.4	1.6																							
16-May	0.1	0.1	0.1	Z	1.3	0.4	0.4	0.4	0.3	0.4	0.5	0.3	0.5	0.9	0.5	0.7	0.5	0.8	0.9	0.8	0.2	0.4	0.2	0.1	0.5	1.3																							
17-May	0.1	0.1	0.3	0.2	Z	0.9	0.5	0.7	0.5	0.5	0.6	0.7	0.4	0.6	0.7	1.0	0.5	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.4	1.0																							
18-May	0.0	0.0	0.0	0.2	0.2	Z	0.2	0.3	0.7	1.2	1.2	1.1	1.1	1.0	1.0	0.7	0.5	0.6	0.5	0.5	1.3	3.9	0.3	0.1	0.7	3.9																							
19-May	Z	0.2	0.2	0.2	0.5	0.8	0.8	0.8	0.5	0.5	0.6	0.2	0.1	0.3	0.3	0.4	0.9	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.4	0.9																							
20-May	0.0	Z	0.0	0.1	0.2	1.0	1.1	2.8	1.4	0.8	1.6	1.0	0.9	0.3	0.6	0.6	0.7	1.0	0.8	0.9	1.2	1.2	0.4	0.4	0.8	2.8																							
21-May	0.3	0.0	Z	0.3	1.0	2.1	1.4	1.2	1.0	1.0	1.3	0.9	0.3	0.4	0.8	0.6	0.7	1.8	0.8	2.0	1.9	1.7	0.4	0.8	1.0	2.1																							
22-May	0.0	0.2	0.6	Z	0.5	1.7	1.3	1.2	0.5	0.6	0.3	0.8	0.3	0.2	0.3	0.4	1.2	1.9	0.9	1.4	1.8	0.4	0.4	0.4	0.8	1.9																							
23-May	0.2	0.2	0.0	0.2	Z	1.1	0.7	0.8	UO	0.4	0.5	0.2	0.3	1.2	0.4	0.5	0.6	1.0	0.6	0.5	0.5	0.7	0.2	1.0	0.5	1.2																							
24-May	0.1	0.0	0.2	0.4	0.8	Z	1.3	1.1	0.8	0.5	0.5	0.2	0.2	0.3	0.9	0.4	0.6	0.4	0.1	0.2	0.1	1.0	2.4	4.8	0.7	4.8																							
25-May	Z	2.4	1.3	1.6	3.4	2.7	1.3	1.2	0.6	0.5	0.4	0.2	0.4	0.5	0.5	0.8	0.6	0.6	0.7	0.5	1.0	0.4	0.4	0.1	1.0	3.4																							
26-May	0.1	Z	0.4	0.2	0.3	0.6	0.8	0.7	0.7	0.5	0.2	0.3	0.2	0.2	0.3	0.4	0.4	1.9	0.8	1.7	1.7	0.8	0.2	0.1	0.6	1.9																							
27-May	0.0	0.0	Z	0.0	0.2	0.7	0.8	0.8	0.7	0.4	0.2	0.1	0.3	0.4	0.3	0.5	0.2	0.3	1.1	1.7	1.0	0.4	0.3	0.2	0.5	1.7																							
28-May	0.2	0.1	0.1	Z	0.4	2.1	2.1	2.1	1.1	0.5	0.6	0.3	0.2	0.1	0.2	0.3	0.1	0.0	0.1	0.8	0.4	0.1	0.1	0.1	0.5	2.1																							
29-May	0.2	0.1	0.1	0.0	Z	1.5	0.5	1.1	0.7	0.3	0.1	0.5	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.3	1.5																							
30-May	0.1	0.1	0.2	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	0.2	0.1	0.1	0.0	0.2	0.2	0.1	0.0	0.1	0.2																							
31-May	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.7																							
																								0.1	0.2	0.2	0.2	0.6	1.3	1.6	1.5	1.0	0.8	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.3	0.3	Diurnal Average	
																								0.3	2.4	1.3	1.6	3.4	3.9	21.2	13.0	8.4	6.8	5.7	2.8	2.8	1.8	1.4	1.3	1.4	1.9	5.3	2.0	1.9	3.9	2.4	4.8	Diurnal Maximum	
Z - zerospan																								C - Calibration				UO - Unstable Operation																					



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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	99.86	99.86
21 - 40	1	0.14	100.00
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: 706

Total Number of Hours: 744



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

**Nitric Oxide (NO) - ppb**  
**Patricia McInnes - May 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	45	47	39	50	56	91	88	27	16	19	31	42	11	44	38	61	705
21 - 40	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	46	47	39	50	56	91	88	27	16	19	31	42	11	44	38	61	706

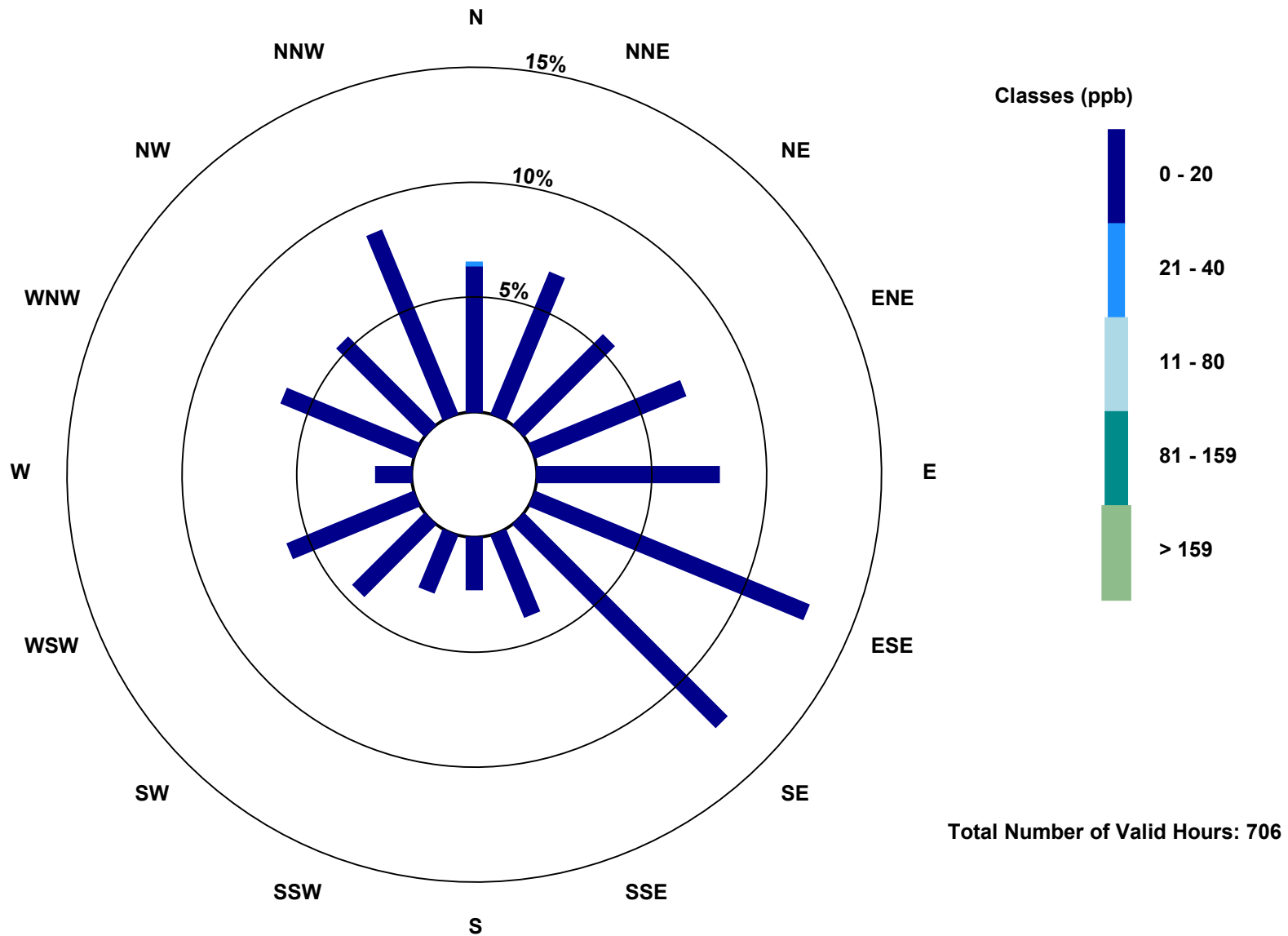
Total Number of Valid Hours: 706

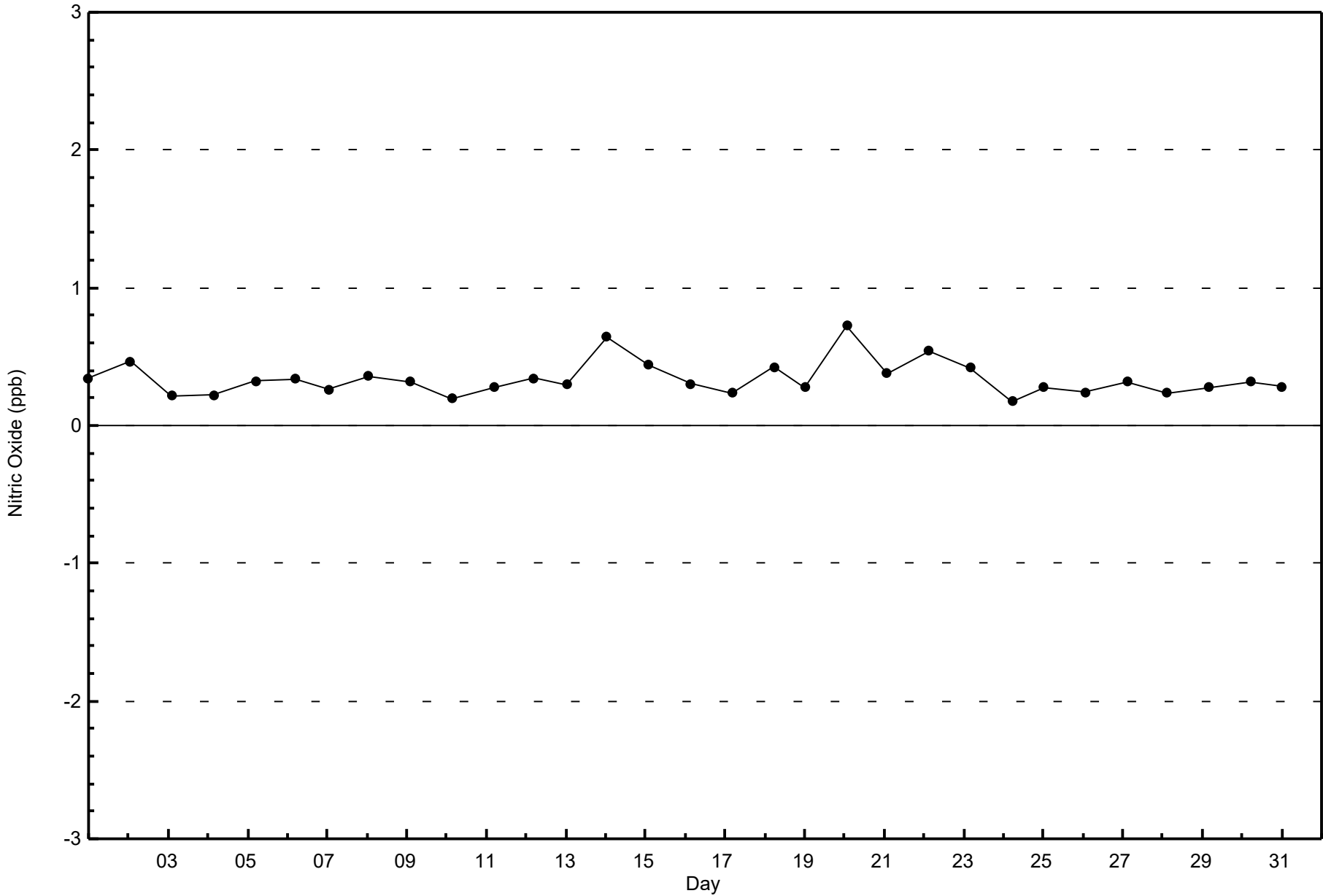
Total Number of Hours: 744



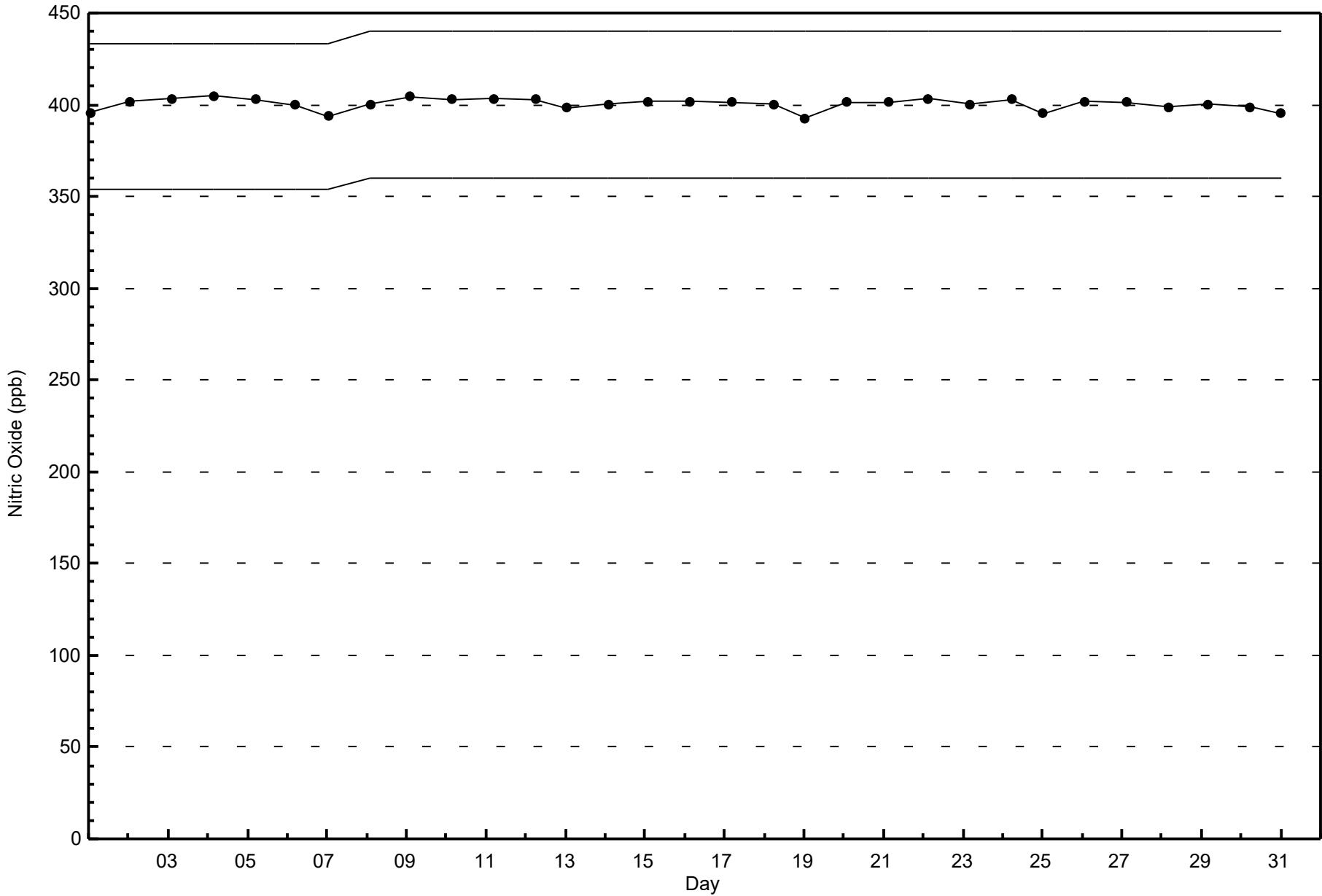
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Patricia McInnes











# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Patricia McInnes - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 23.7 ppb on May 4 08:00	Maximum Daily Average: 9.6 ppb on May 4		Hours of Data:	706
Minimum Value: 0.0 ppb on May 8 06:00	Minimum Daily Average: 0.0 ppb on May 30		Hours of Missing Data:	38
Maximum Diurnal Average: 5.3 ppb at hour 5	Minimum Diurnal Average: 0.9 ppb at hour 14		Hours of Calibration:	36
Monthly Average: 2.31 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.6 Median = 1.4 Q <sub>3</sub> = 2.9 P <sub>90</sub> = 5.4 P <sub>99</sub> = 13.2		Percent Operational Time:	99.7

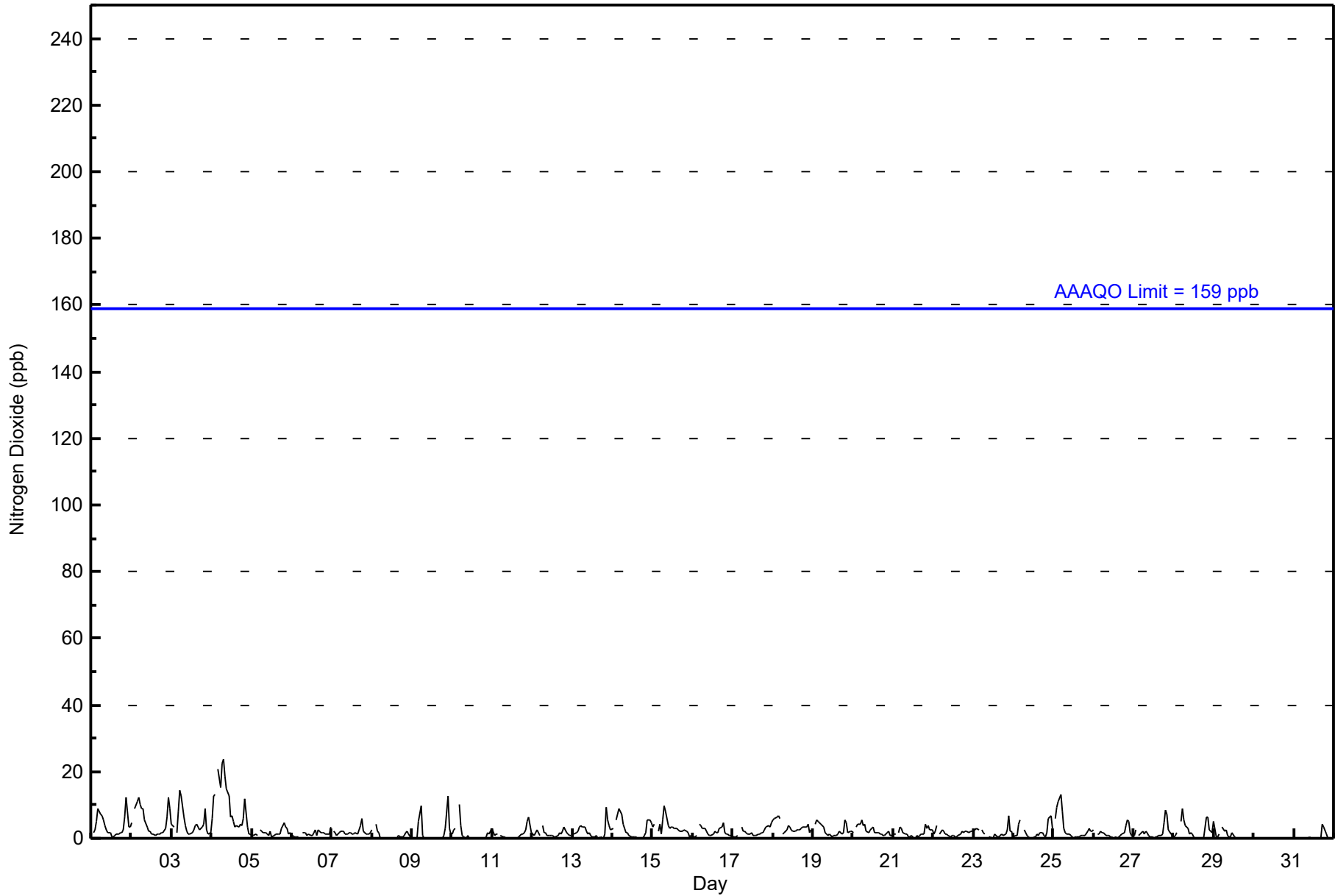
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	Z	1.6	2.6	5.2	8.7	7.3	6.8	5.3	3.9	2.7	1.8	1.6	0.6	0.5	0.7	1.2	1.4	1.6	1.9	2.5	6.3	12.2	3.6	3.6	3.6	12.2																							
2-May	4.8	Z	8.8	10.9	12.2	10.3	8.7	8.8	5.3	3.2	2.2	2.2	1.2	1.1	0.9	1.2	1.1	1.3	1.5	1.8	2.8	6.4	12.2	8.7	5.1	12.2																							
3-May	4.2	3.2	Z	1.5	8.0	14.3	12.6	6.5	4.0	2.1	1.4	1.2	1.9	2.6	4.0	4.2	3.5	2.4	3.3	4.1	8.9	2.6	1.4	1.8	4.3	14.3																							
4-May	6.1	12.7	13.2	Z	20.6	15.2	22.6	23.7	18.8	14.8	12.7	6.2	6.9	4.9	3.3	4.0	3.6	4.1	3.9	5.8	11.9	3.6	1.1	1.1	9.6	23.7																							
5-May	1.0	1.0	1.1	0.7	Z	2.4	2.2	1.7	1.6	1.4	1.0	2.0	0.6	1.0	1.3	1.2	1.1	1.3	2.8	4.6	3.6	3.1	1.2	1.8	1.7	4.6																							
6-May	0.9	0.5	0.4	0.3	0.6	Z	1.8	1.7	1.5	0.7	1.1	0.8	1.0	1.7	2.5	0.9	2.4	1.8	1.9	1.8	1.4	1.1	1.2	3.3	1.4	3.3																							
7-May	Z	2.2	1.6	0.9	1.9	2.3	2.0	2.1	1.1	1.3	1.9	1.6	1.4	1.3	1.5	1.4	2.4	3.7	6.0	2.1	1.3	1.1	1.2	1.7	1.9	6.0																							
8-May	2.7	Z	4.1	2.1	1.5	0.0	0.1	0.1	0.1	0.1	UO	C	C	C	C	C	0.5	0.7	0.3	0.3	0.8	1.8	2.1	1.2	0.1	--	4.1																						
9-May	0.0	0.0	Z	0.1	5.0	9.7	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.9	12.5	3.1	1.1	1.6	12.5																						
10-May	1.2	2.6	2.9	Z	10.0	3.8	1.0	0.4	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5	1.2	2.2	1.2	10.0																							
11-May	3.0	1.0	1.1	1.2	Z	0.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4	1.4	1.5	2.4	5.0	6.3	1.8	1.2	6.3																							
12-May	1.3	0.8	1.7	2.5	0.8	Z	4.0	1.6	1.6	0.7	0.7	0.7	0.7	0.6	0.6	0.8	1.6	1.3	2.3	3.2	1.9	1.1	0.8	0.7	1.4	4.0																							
13-May	Z	1.4	1.7	2.2	3.5	3.9	3.4	3.3	2.3	1.4	1.5	1.0	0.5	0.4	0.9	0.1	0.1	0.3	0.1	1.2	9.4	5.7	3.9	2.7	2.2	9.4																							
14-May	3.0	Z	5.4	7.1	8.8	7.3	4.2	3.0	1.7	1.7	0.8	0.4	0.4	0.3	0.1	0.0	0.0	0.1	0.7	1.9	5.5	5.4	4.6	2.7	2.7	8.8																							
15-May	3.6	4.4	Z	2.2	4.4	1.2	5.4	9.9	8.1	4.0	3.1	3.2	3.4	3.0	2.8	2.4	2.2	2.2	2.1	2.7	2.1	1.9	0.6	0.8	3.3	9.9																							
16-May	0.6	0.5	1.0	Z	4.4	3.7	2.8	3.0	2.0	1.3	0.8	0.9	1.2	2.1	1.9	1.5	2.9	3.5	4.7	1.8	1.4	1.1	1.0	0.8	2.0	4.7																							
17-May	0.5	0.4	0.5	1.0	Z	3.4	2.0	2.0	1.6	1.4	1.4	1.5	0.9	1.0	0.9	1.2	1.3	1.6	1.6	2.6	3.6	3.9	3.5	4.6	1.8	4.6																							
18-May	5.5	5.8	6.2	6.6	6.1	Z	1.4	1.5	2.4	3.7	3.3	2.6	2.3	2.3	2.4	2.5	2.5	3.0	3.5	3.2	3.4	4.1	1.8	2.4	3.4	6.6																							
19-May	Z	4.1	5.6	4.9	4.5	4.1	3.6	1.9	1.4	1.0	1.2	0.5	0.7	0.7	0.9	1.2	2.3	1.4	1.5	5.3	4.8	1.5	2.3	2.1	2.5	5.6																							
20-May	1.6	Z	3.6	4.1	4.3	5.5	3.9	4.3	2.2	1.7	2.5	3.1	3.6	1.5	1.6	1.8	1.1	1.4	1.0	1.0	1.7	2.0	0.9	1.0	2.4	5.5																							
21-May	1.2	1.4	Z	1.7	3.4	2.9	1.5	1.2	1.3	0.4	0.5	0.7	0.2	0.1	0.7	0.6	0.7	1.4	1.4	4.1	2.9	3.7	2.6	2.7	1.6	4.1																							
22-May	1.2	2.3	3.8	Z	1.4	2.7	2.1	1.2	1.1	0.8	0.4	0.9	0.8	0.4	0.6	0.9	1.4	2.2	1.9	2.2	2.2	1.7	2.3	2.3	1.6	3.8																							
23-May	2.1	2.4	3.0	2.6	Z	2.4	1.6	1.3	UO	0.4	0.5	0.2	0.2	1.1	0.3	0.4	0.8	1.2	1.0	1.3	2.6	6.6	2.3	2.0	1.7	6.6																							
24-May	0.5	0.7	0.8	4.2	5.4	Z	2.5	1.6	0.7	0.6	0.1	0.2	0.3	0.3	1.1	0.8	1.8	1.5	0.9	0.6	1.5	5.9	6.7	3.1	1.8	6.7																							
25-May	Z	5.9	9.5	11.2	13.1	7.9	2.9	1.6	1.1	1.1	0.8	0.5	0.2	0.4	0.4	0.3	0.9	1.0	0.8	1.0	2.3	2.9	2.1	2.0	3.0	13.1																							
26-May	2.4	Z	1.3	1.3	2.1	1.5	1.5	0.8	0.9	0.7	0.3	0.4	0.2	0.3	0.2	0.4	0.8	1.2	1.9	3.7	5.5	5.2	1.8	0.8	1.5	5.5																							
27-May	0.9	2.4	Z	0.8	1.2	2.0	1.4	2.0	1.8	1.0	0.3	0.3	0.2	0.5	0.5	1.0	0.9	1.4	4.7	8.4	7.2	2.6	1.2	0.7	1.9	8.4																							
28-May	0.5	0.7	1.7	Z	5.1	8.9	5.3	4.0	2.9	1.2	1.5	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.2	6.4	2.5	2.3	1.5	2.3	8.9																						
29-May	4.9	0.3	0.4	1.2	Z	3.3	2.1	2.6	0.9	0.3	0.6	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.8	4.9																							
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
31-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.1	3.5	1.2	0.0	0.0	0.0	0.1	0.4	4.1																							
																								2.1	2.2	3.2	2.9	5.3	4.9	3.6	3.2	2.3	1.7	1.4	1.2	1.0	0.9	1.0	1.0	1.2	1.5	1.8	2.5	3.4	3.5	2.4	2.0	Diurnal Average	
																								6.1	12.7	13.2	11.2	20.6	15.2	22.6	23.7	18.8	14.8	12.7	6.2	6.9	4.9	4.0	4.2	3.6	4.1	6.0	8.4	11.9	12.5	12.2	8.7	Diurnal Maximum	

Z - zerospan                      C - Calibration                      UO - Unstable Operation  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



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

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	703	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Patricia McInnes - May 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	47	39	50	56	91	88	27	16	19	31	42	11	44	37	61	703
21 - 40	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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>	46	47	39	50	56	91	88	27	16	19	31	42	11	44	38	61	706

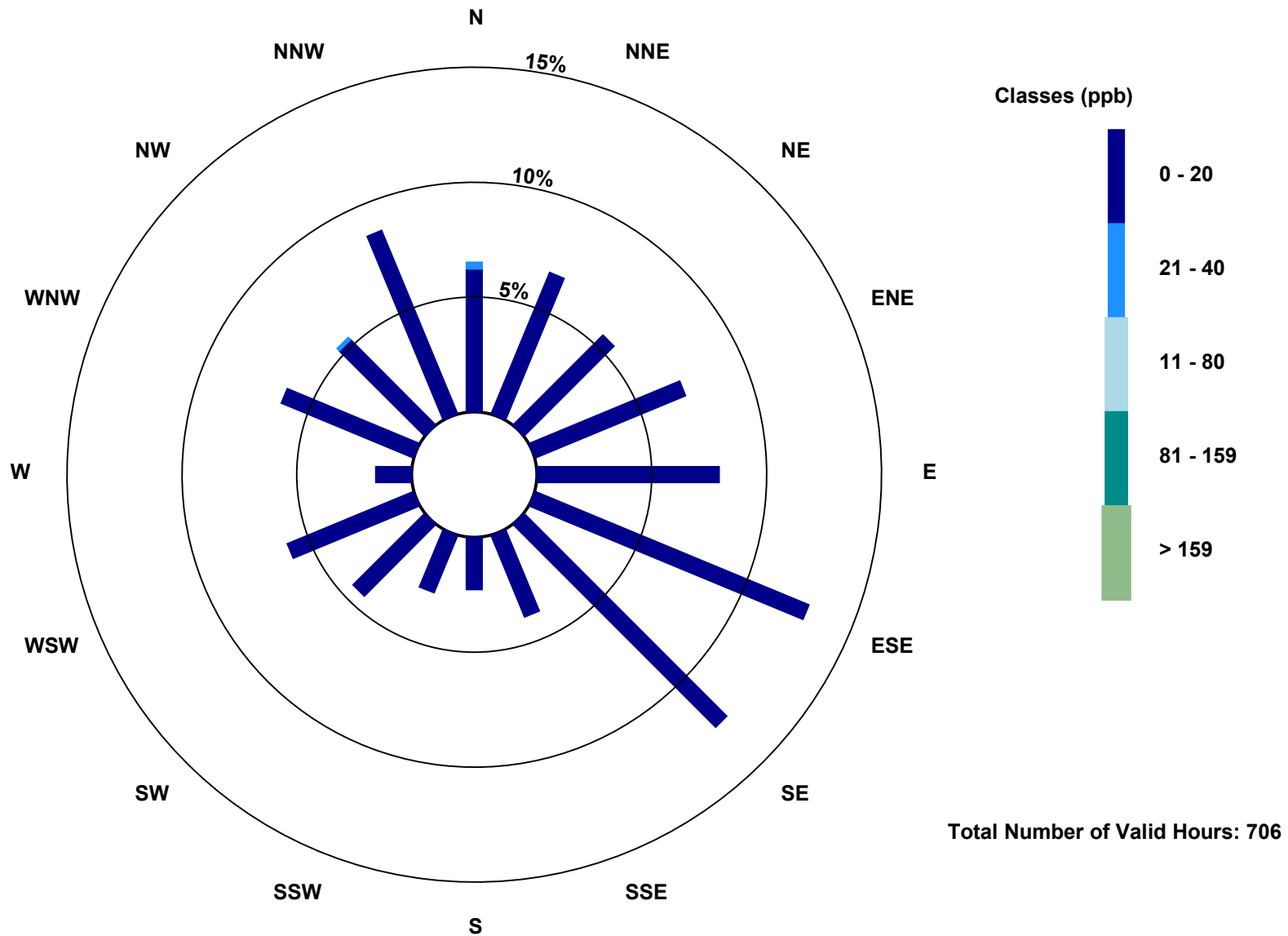
Total Number of Valid Hours: 706

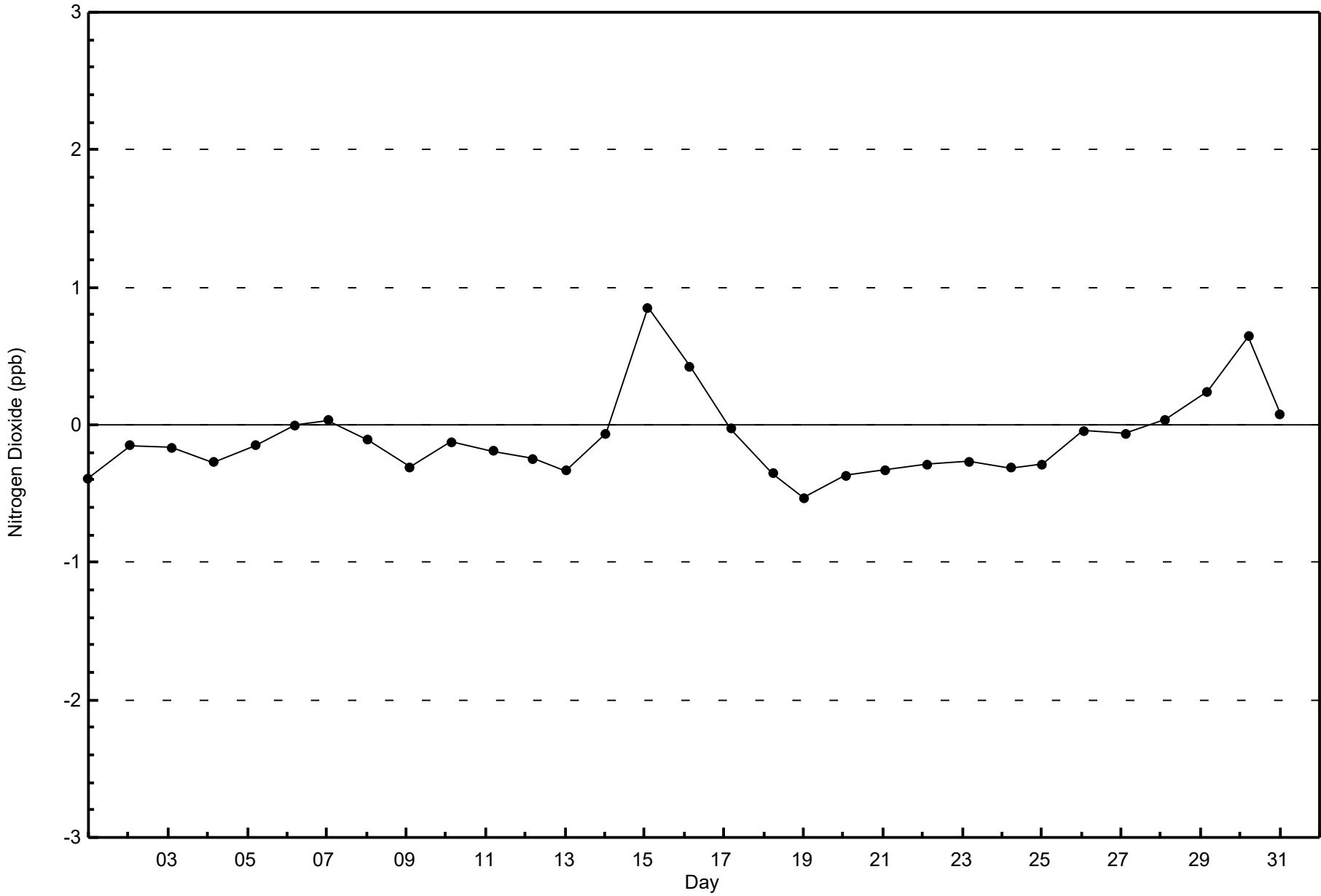
Total Number of Hours: 744

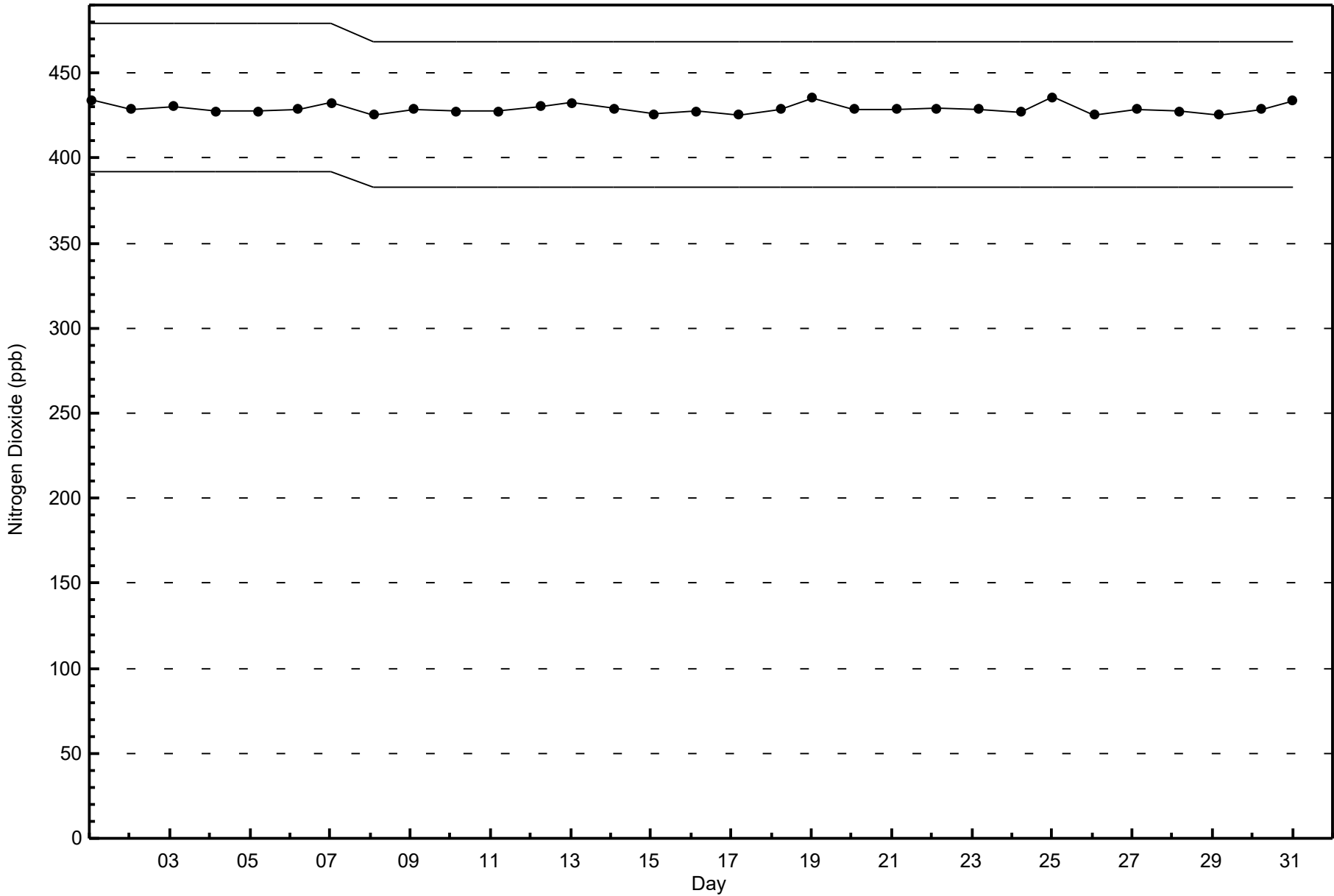


Wood Buffalo Environmental Association  
Wind Rose May 2024

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











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

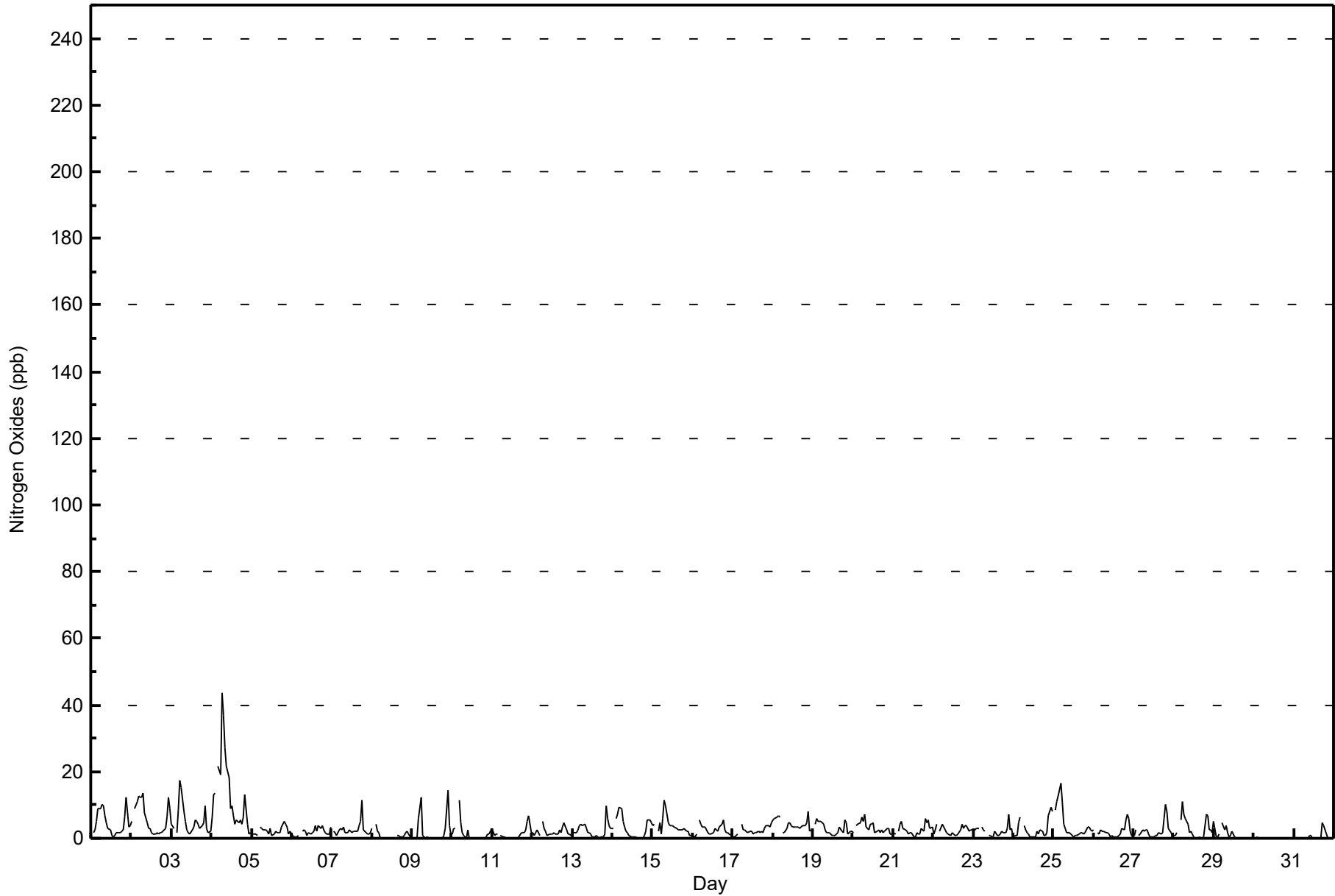
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Patricia McInnes - May 2024**

Maximum Value: 43.8 ppb on May 4 07:00		Maximum Daily Average: 12.9 ppb on May 4		Hours in Service: 744																						
Minimum Value: 0.0 ppb on May 8 06:00		Minimum Daily Average: 0.1 ppb on May 30		Hours of Data: 706																						
Maximum Diurnal Average: 6.2 ppb at hour 6		Minimum Diurnal Average: 1.4 ppb at hour 14		Hours of Missing Data: 38																						
Monthly Average: 2.91 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.8 Median = 1.9 Q <sub>3</sub> = 3.6 P <sub>90</sub> = 6.2 P <sub>99</sub> = 17.3		Hours of Calibration: 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-May	Z	1.6	2.6	5.2	9.0	8.7	10.0	9.5	6.9	4.6	2.8	2.5	0.8	0.6	0.9	1.5	1.8	1.8	2.3	2.6	6.3	12.2	3.6	3.7	4.4	12.2
2-May	4.9	Z	8.9	11.0	12.5	12.2	12.3	13.4	7.8	4.8	3.0	3.0	1.7	1.4	1.2	1.7	1.4	1.7	1.8	2.2	2.8	6.5	12.3	8.9	6.0	13.4
3-May	4.2	3.2	Z	1.6	8.4	17.4	15.3	8.0	5.1	2.6	1.8	1.5	2.5	3.6	5.4	5.0	4.3	3.1	3.9	4.6	9.7	3.0	1.7	2.0	5.1	17.4
4-May	6.3	13.0	13.7	Z	21.7	19.1	43.8	36.7	27.2	21.6	18.4	9.0	9.7	6.7	4.4	5.3	4.8	5.4	4.4	6.2	13.1	4.1	1.3	1.5	12.9	43.8
5-May	1.3	1.3	1.3	0.9	Z	3.3	3.0	2.5	2.5	2.2	1.5	3.2	0.8	1.3	2.0	1.7	1.5	1.6	3.3	5.2	4.0	3.5	1.3	1.9	2.2	5.2
6-May	1.0	0.5	0.4	0.3	0.7	Z	2.3	2.5	2.1	1.0	1.6	1.2	1.5	2.2	3.7	1.9	3.8	3.1	3.9	2.7	1.8	1.3	1.3	3.4	1.9	3.9
7-May	Z	2.3	1.7	1.0	2.5	3.1	2.5	3.4	1.6	1.8	2.7	2.3	1.9	2.1	2.2	2.0	3.8	5.3	11.3	2.7	1.5	1.2	1.4	1.7	2.7	11.3
8-May	2.8	Z	4.4	2.2	1.8	0.0	0.1	0.1	0.1	UO	C	C	C	C	C	0.7	1.0	0.4	0.4	0.9	1.9	2.1	1.4	0.1	--	4.4
9-May	0.0	0.0	Z	0.1	5.9	12.5	0.9	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.7	3.1	14.4	3.7	1.2	1.9	14.4
10-May	1.2	2.9	3.0	Z	11.6	4.6	1.5	0.8	0.2	2.7	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	1.5	1.2	2.2	1.5	11.6
11-May	3.0	1.0	1.1	1.2	Z	0.8	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	1.7	1.6	2.5	5.2	6.7	1.8	1.3	6.7
12-May	1.6	0.9	1.8	2.6	0.8	Z	4.9	2.8	2.3	0.9	1.3	1.5	1.2	1.5	1.1	1.4	2.4	1.8	3.5	4.5	2.5	1.3	1.4	0.8	1.9	4.9
13-May	Z	1.5	1.7	2.4	3.8	4.2	3.9	4.4	3.0	1.6	1.6	1.2	0.5	0.4	1.0	0.2	0.2	0.5	0.3	1.2	9.6	5.8	4.0	2.9	2.4	9.6
14-May	3.2	Z	5.7	7.3	9.5	8.8	5.2	3.4	2.0	1.8	0.8	0.4	0.5	0.5	0.3	0.1	0.0	0.0	0.1	0.7	1.9	5.7	5.5	4.6	3.0	9.5
15-May	3.7	4.4	Z	2.3	4.5	1.2	5.8	11.5	9.6	4.6	3.8	3.8	3.8	3.2	2.9	2.7	2.4	2.4	2.3	2.9	2.2	2.2	0.7	0.8	3.6	11.5
16-May	0.7	0.6	1.1	Z	5.7	4.1	3.2	3.4	2.3	1.7	1.3	1.2	1.7	3.0	2.4	2.2	3.4	4.3	5.6	2.6	1.6	1.5	1.2	0.9	2.4	5.7
17-May	0.6	0.5	0.8	1.2	Z	4.3	2.5	2.7	2.1	1.9	2.0	2.2	1.3	1.6	1.6	2.2	1.8	2.1	1.8	2.8	3.6	3.9	3.5	4.6	2.2	4.6
18-May	5.5	5.8	6.2	6.8	6.3	Z	1.6	1.8	3.1	4.9	4.5	3.7	3.4	3.3	3.4	3.2	3.0	3.6	4.0	3.7	4.7	8.0	2.1	2.5	4.1	8.0
19-May	Z	4.3	5.8	5.1	5.0	4.9	4.4	2.7	1.9	1.5	1.8	0.7	0.8	1.0	1.2	1.6	3.2	2.1	1.8	5.5	4.8	1.5	2.3	2.1	2.9	5.8
20-May	1.6	Z	3.6	4.2	4.5	6.5	5.0	7.1	3.6	2.5	4.1	4.1	4.5	1.8	2.2	2.4	1.8	2.4	1.8	1.9	2.9	3.2	1.3	1.4	3.2	7.1
21-May	1.5	1.4	Z	2.0	4.4	5.0	2.9	2.4	2.3	1.4	1.8	1.6	0.5	0.5	1.5	1.2	1.4	3.2	2.2	6.1	4.8	5.4	3.0	3.5	2.6	6.1
22-May	1.2	2.5	4.4	Z	1.9	4.4	3.4	2.4	1.6	1.4	0.7	1.7	1.1	0.6	0.9	1.3	2.6	4.1	2.8	3.6	4.0	2.1	2.7	2.7	2.4	4.4
23-May	2.3	2.6	3.0	2.8	Z	3.5	2.3	2.1	UO	0.8	1.0	0.4	0.5	2.3	0.7	0.9	1.4	2.2	1.6	1.8	3.1	7.3	2.5	3.0	2.2	7.3
24-May	0.6	0.7	1.0	4.6	6.2	Z	3.8	2.7	1.5	1.1	0.6	0.4	0.5	0.6	2.0	1.2	2.4	1.9	1.0	0.8	1.6	6.9	9.1	7.9	2.6	9.1
25-May	Z	8.3	10.8	12.8	16.5	10.6	4.2	2.8	1.7	1.6	1.2	0.7	0.6	0.9	0.9	1.1	1.5	1.6	1.5	1.5	3.3	3.3	2.5	2.1	4.0	16.5
26-May	2.5	Z	1.7	1.5	2.4	2.1	2.3	1.5	1.6	1.2	0.5	0.7	0.4	0.5	0.5	0.8	1.2	3.1	2.7	5.4	7.2	6.0	2.0	0.9	2.1	7.2
27-May	0.9	2.4	Z	0.8	1.4	2.7	2.2	2.8	2.5	1.4	0.5	0.4	0.5	0.9	0.8	1.5	1.1	1.7	5.8	10.1	8.2	3.0	1.5	0.9	2.4	10.1
28-May	0.7	0.8	1.8	Z	5.5	11.0	7.4	6.1	4.0	1.7	2.1	1.4	0.5	0.1	0.2	0.3	0.1	0.0	0.3	7.0	6.8	2.6	2.4	1.6	2.8	11.0
29-May	5.1	0.4	0.5	1.2	Z	4.8	2.6	3.7	1.6	0.6	0.7	2.3	0.5	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.2	0.0	0.0	0.0	1.1	5.1
30-May	0.1	0.1	0.2	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	0.2	0.1	0.1	0.0	0.2	0.2	0.1	0.0	0.1	0.2
31-May	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	4.6	3.7	1.2	0.0	0.0	0.0	0.1	0.5	4.6
																								Diurnal Average		
																								Diurnal Maximum		
2.3 2.4 3.4 3.1 5.9 6.2 5.2 4.6 3.3 2.5 2.1 1.7 1.4 1.4 1.4 1.4 1.7 2.1 2.5 3.0 3.9 4.0 2.7 2.3																										
6.3 13.0 13.7 12.8 21.7 19.1 43.8 36.7 27.2 21.6 18.4 9.0 9.7 6.7 5.4 5.3 4.8 5.4 11.3 10.1 13.1 14.4 12.3 8.9																										
Z - zerospan C - Calibration UO - Unstable Operation																										



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

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	701	99.29	99.29
21 - 40	4	0.57	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: 706  
Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Patricia McInnes - May 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	43	47	39	50	56	91	88	27	16	19	31	42	11	44	37	60	701
21 - 40	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
11 - 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>	46	47	39	50	56	91	88	27	16	19	31	42	11	44	38	61	706

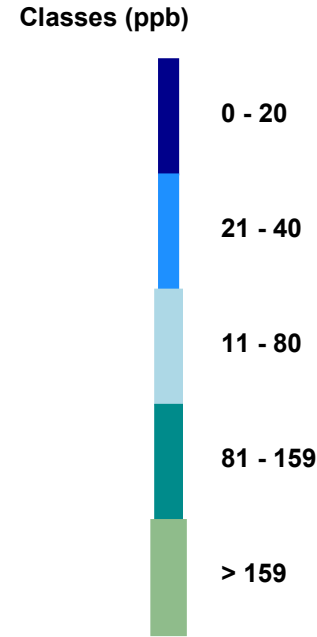
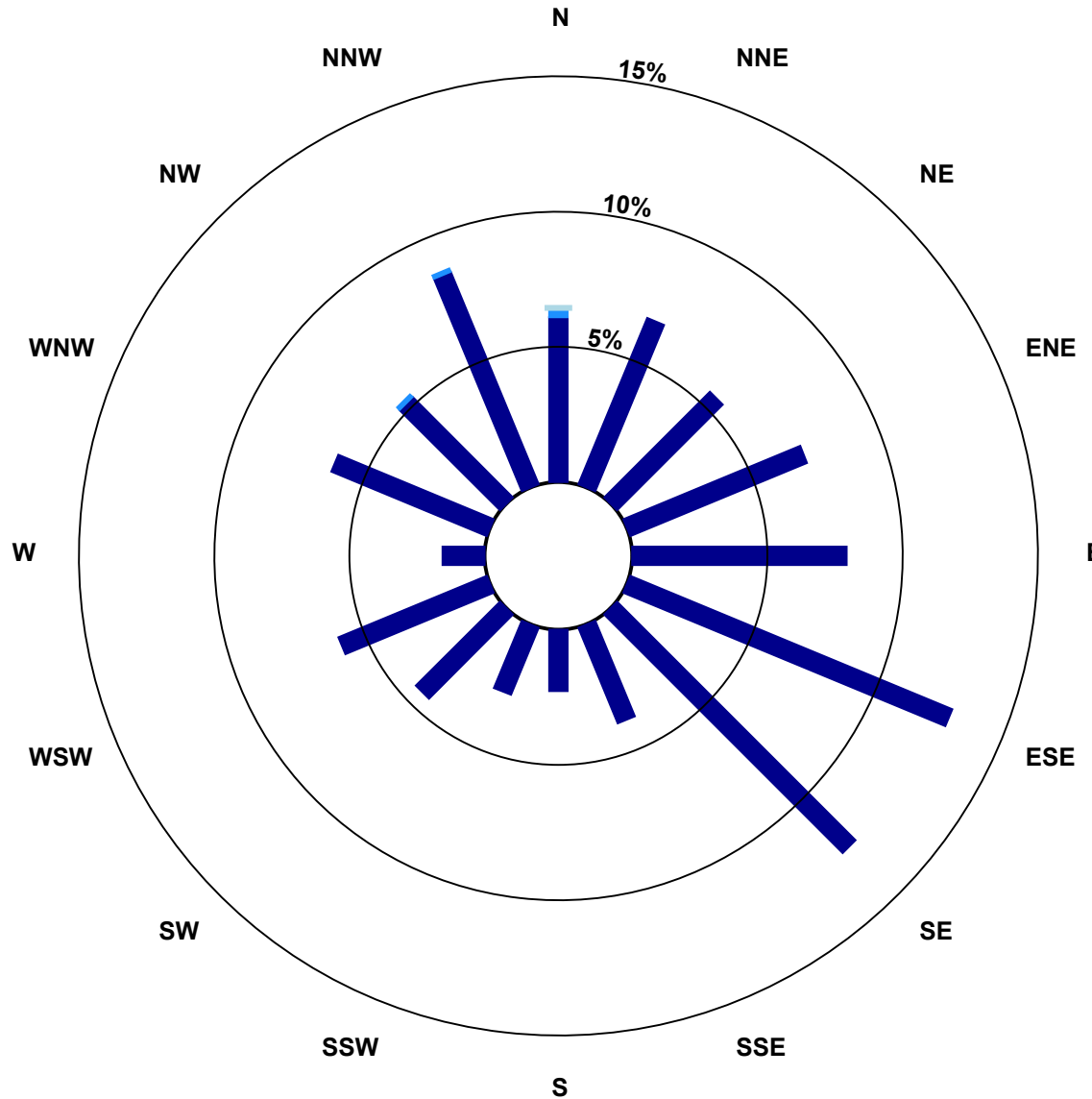
Total Number of Valid Hours: 706

Total Number of Hours: 744

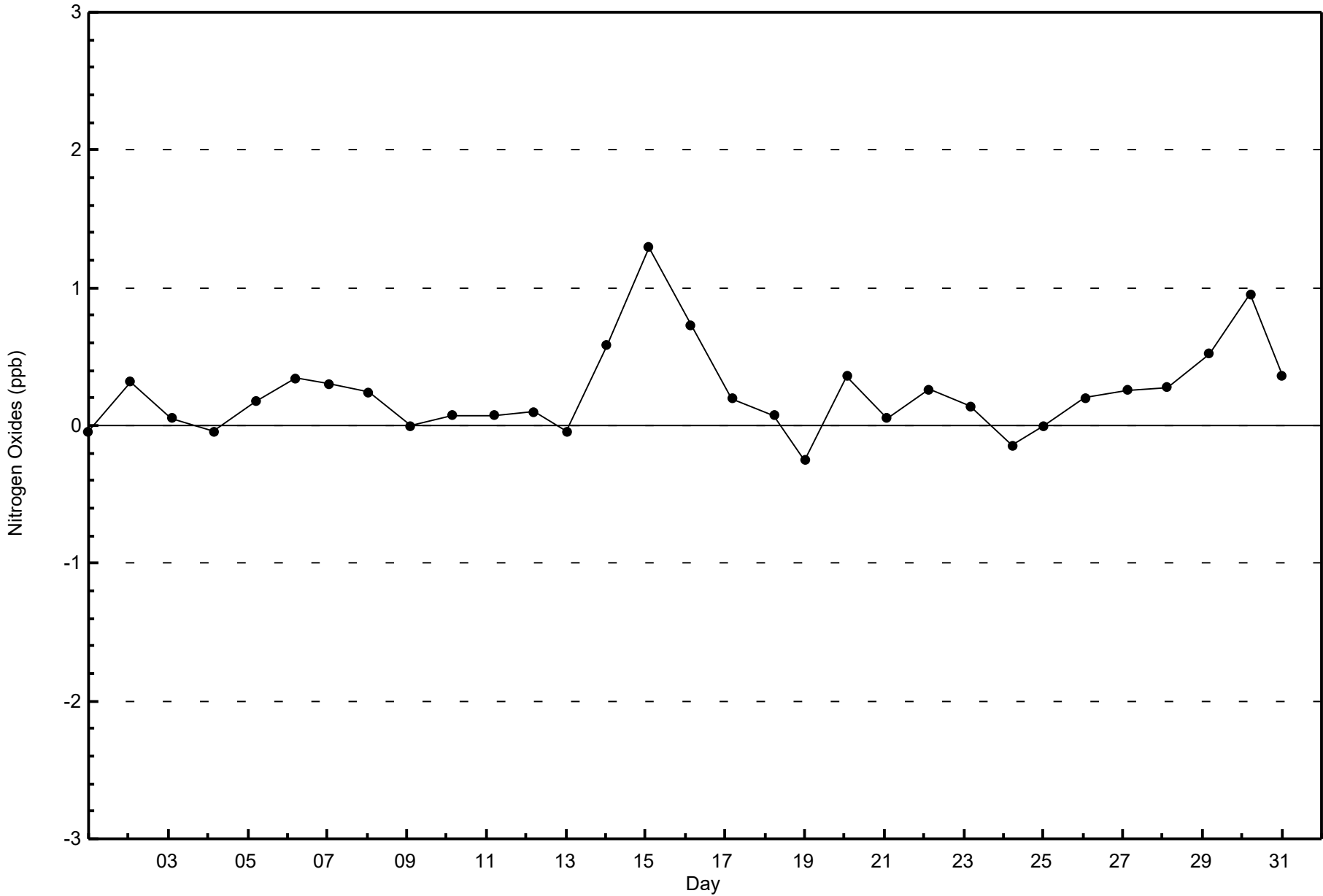


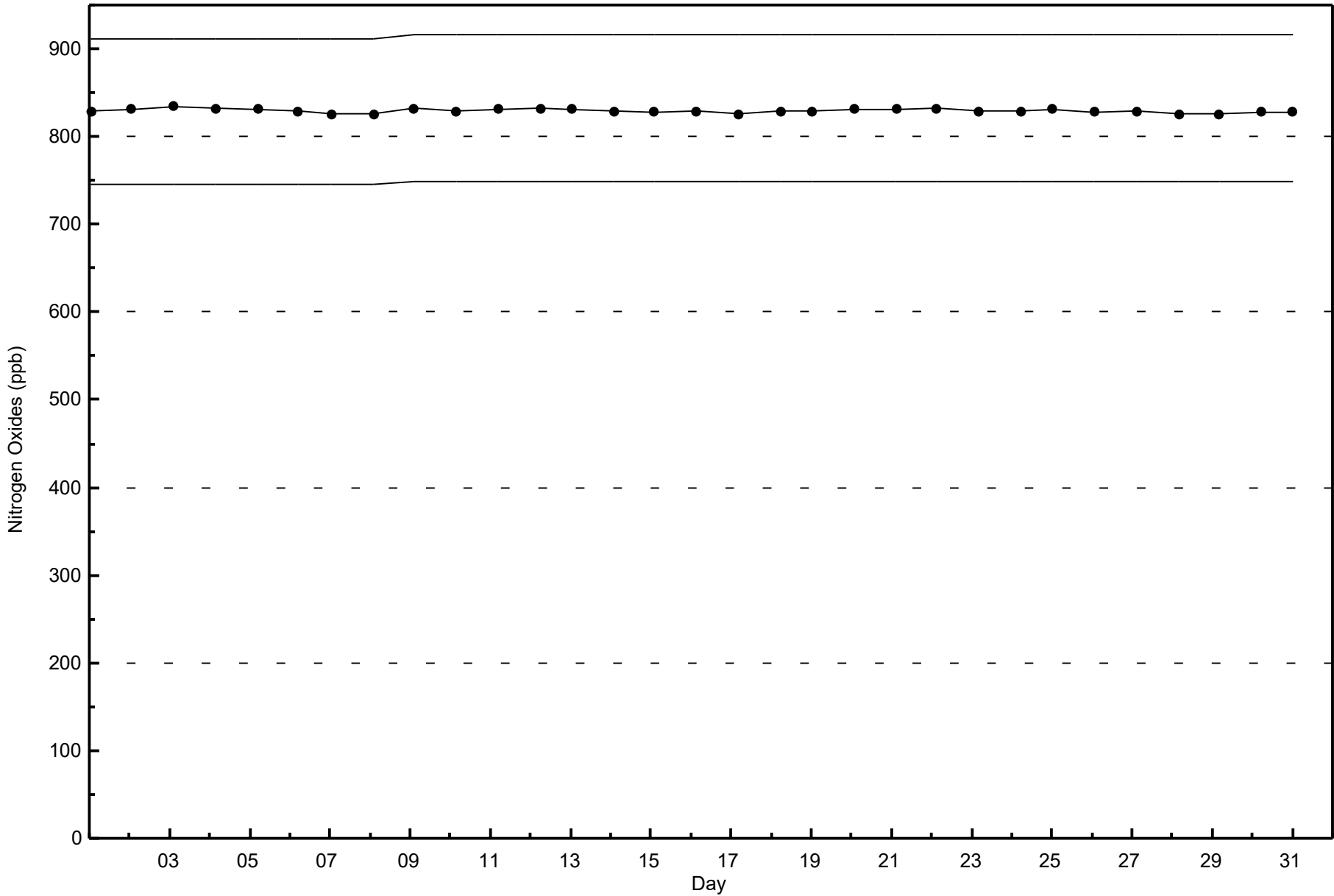
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 706





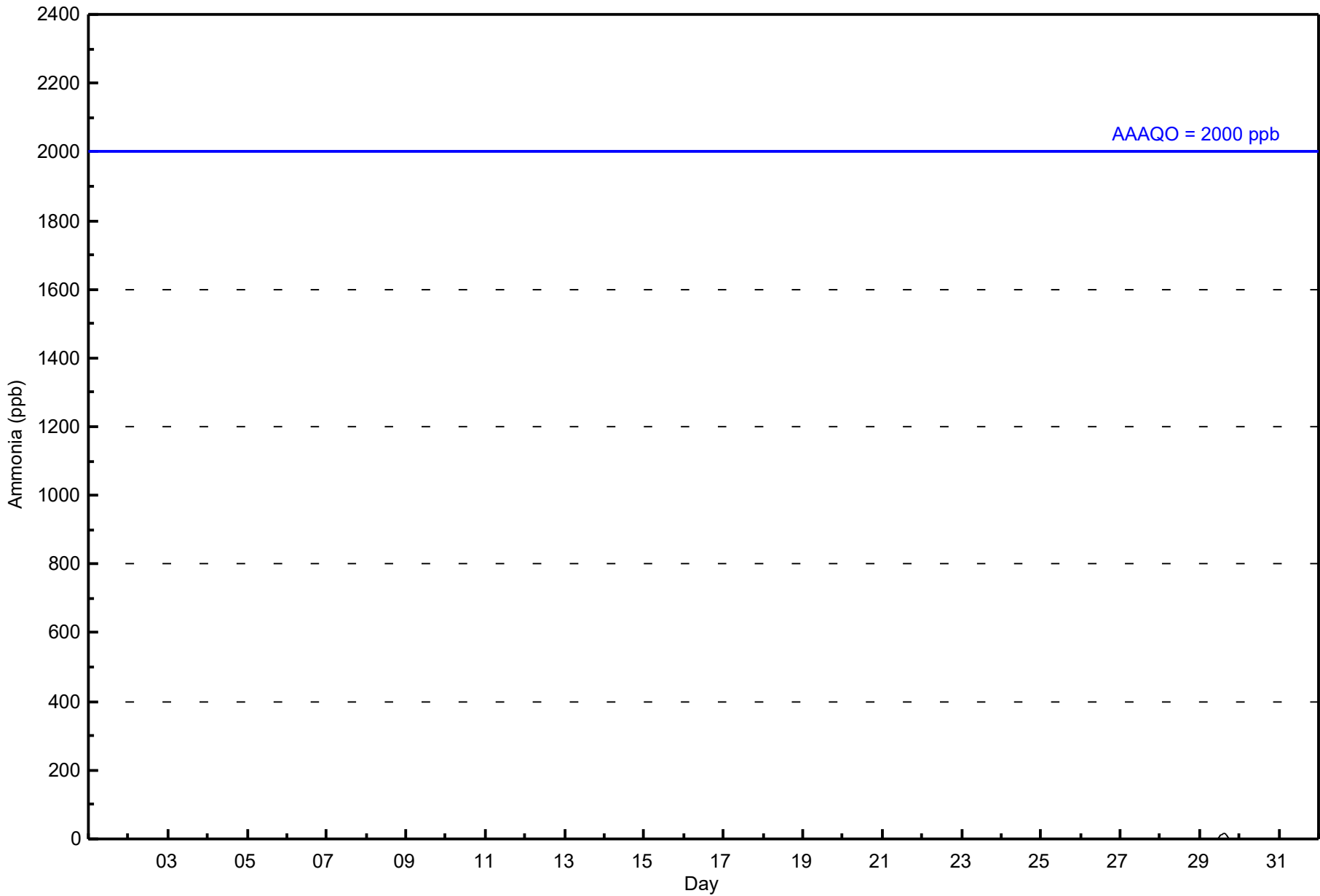






**Wood Buffalo Environmental Association**  
**Hourly Averages**

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





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

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

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	659	99.25	99.25
6 - 10	0	0.00	99.25
11 - 15	4	0.60	99.85
16 - 20	1	0.15	100.00
21 - 25	0	0.00	100.00
> 26	0	0.00	100.00

Total Number of Valid Hours: 664

Total Number of Hours: 744



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

**Ammonia (NH<sub>3</sub>) - ppb**  
**Patricia McInnes - May 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	43	41	38	47	55	87	83	25	17	19	24	34	12	41	36	57	659
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	2	2	0	0	0	0	4
16 - 20	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
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>	43	41	38	47	55	87	83	25	17	19	26	37	12	41	36	57	664

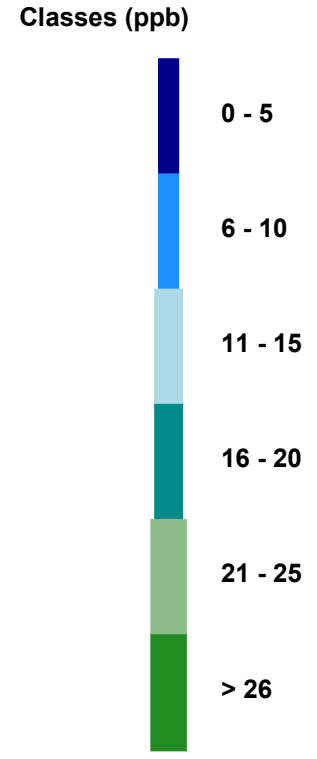
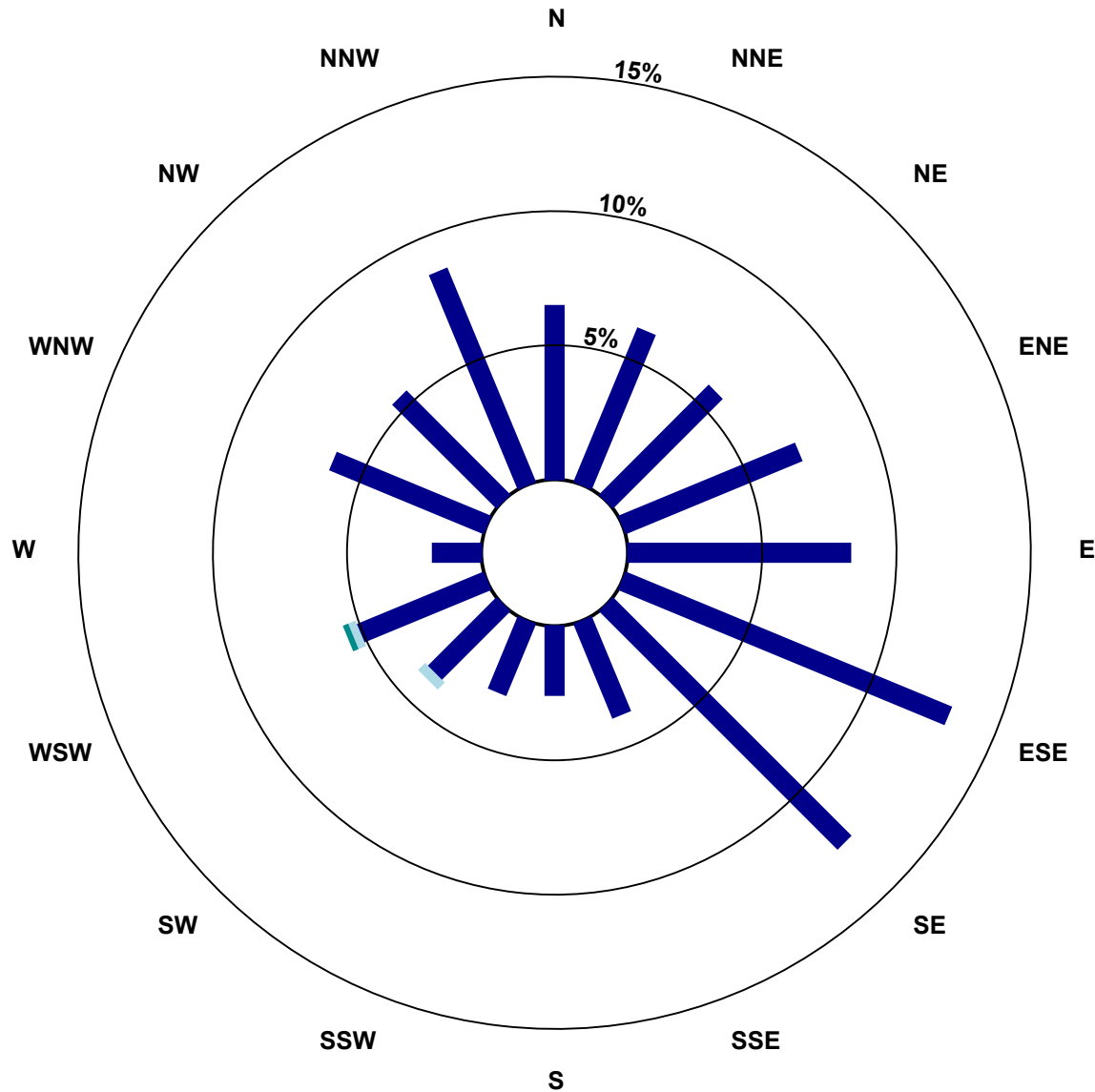
Total Number of Valid Hours: 664

Total Number of Hours: 744

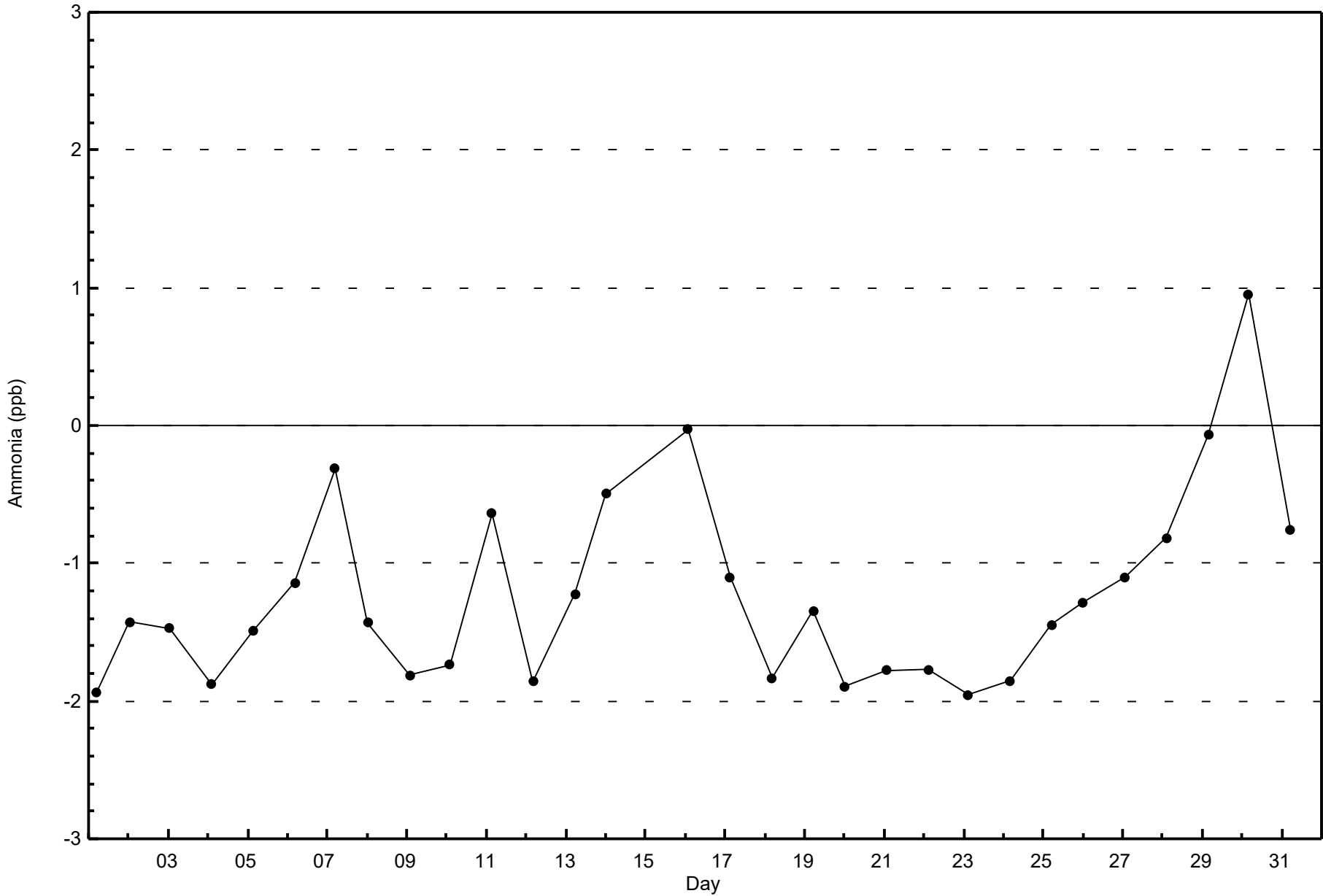


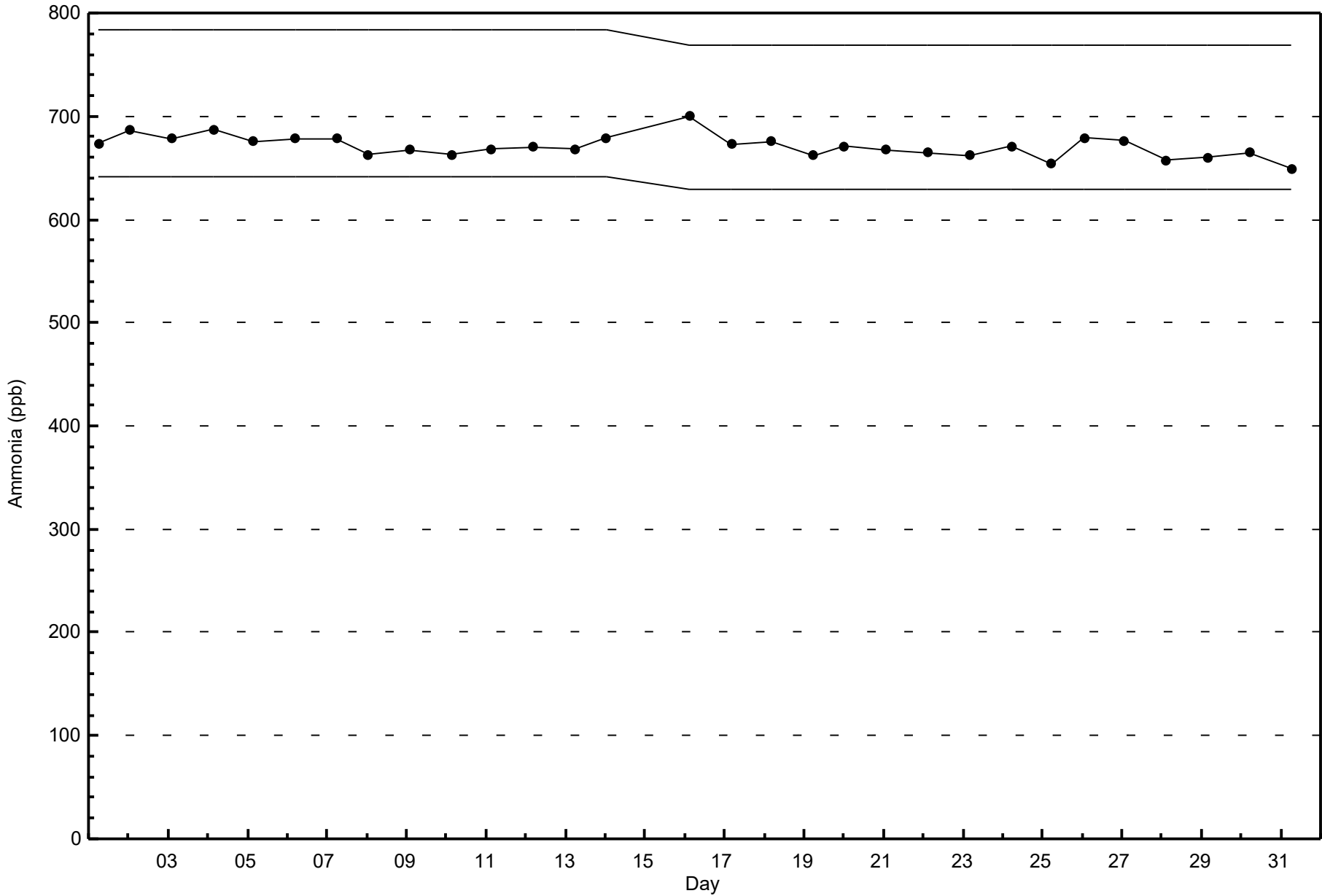
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 664







Wood Buffalo Environmental Association

Summary of Hour Averages

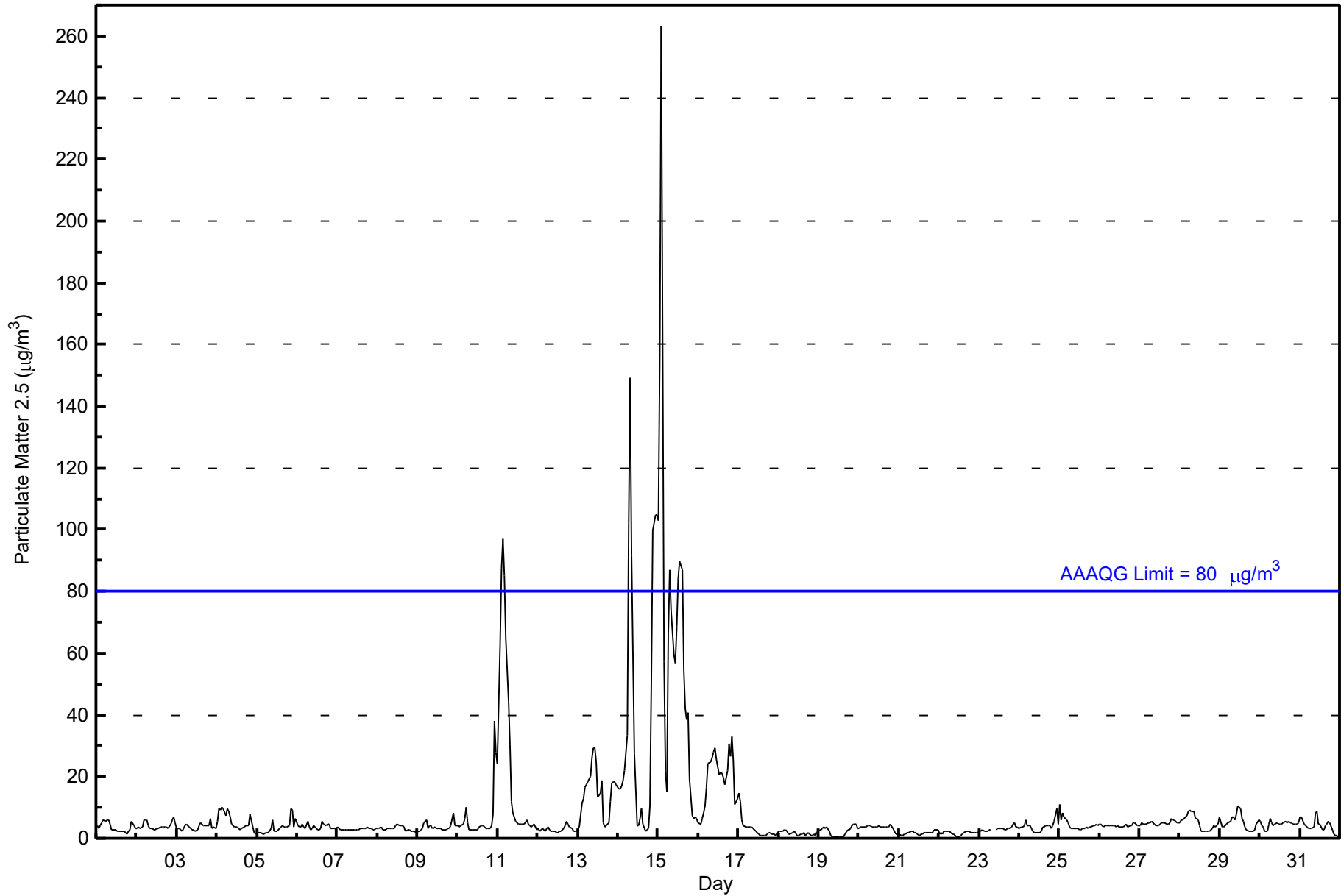
Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

Patricia McInnes - May 2024

Number of Exceedences (AAAQO):	1-hr: 16	24-hr: 2	Hours in Service:	744
Maximum Value: 263.0 µg/m <sup>3</sup> on May 15 03:00	Maximum Daily Average: 63.0 µg/m <sup>3</sup> on May 15		Hours of Data:	742
Minimum Value: 0.4 µg/m <sup>3</sup> on May 19 12:00	Minimum Daily Average: 1.7 µg/m <sup>3</sup> on May 22		Hours of Missing Data:	2
Maximum Diurnal Average: 15.6 µg/m <sup>3</sup> at hour 3	Minimum Diurnal Average: 5.0 µg/m <sup>3</sup> at hour 17		Hours of Calibration:	1
Monthly Average: 8.35 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.8 Q <sub>1</sub> = 2.7 Median = 3.7 Q <sub>3</sub> = 5.0 P <sub>90</sub> = 15.0 P <sub>99</sub> = 98.6		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-May	4.0	3.2	4.1	5.0	5.8	5.4	5.8	6.1	4.7	2.8	2.8	2.7	2.2	2.1	2.4	2.2	2.2	1.9	1.5	2.2	2.8	5.7	4.3	3.1	3.5	6.1																						
2-May	3.3	3.5	3.3	3.7	6.0	5.9	5.8	4.2	3.1	3.1	2.8	2.6	3.0	3.4	3.6	3.7	3.8	3.6	3.7	3.3	4.4	6.1	6.8	4.8	4.1	6.8																						
3-May	3.3	3.2	2.7	2.3	3.4	4.3	4.6	3.8	3.1	2.7	2.6	2.5	2.9	4.1	4.9	4.4	4.1	4.1	4.2	4.2	6.4	3.3	3.6	3.2	3.7	6.4																						
4-May	5.4	9.7	8.9	10.2	9.7	7.5	9.7	8.8	6.8	4.5	3.7	3.6	3.7	3.3	2.8	3.0	3.6	4.2	4.0	3.9	7.8	3.7	1.7	1.3	5.5	10.2																						
5-May	1.6	2.0	1.7	1.3	1.3	2.0	1.9	2.0	3.2	6.0	2.3	2.5	2.5	3.1	3.7	3.9	3.6	3.5	3.6	4.1	9.8	9.0	3.7	6.6	3.5	9.8																						
6-May	4.0	3.5	3.9	4.4	3.5	3.2	5.6	3.8	3.0	3.4	4.3	3.1	2.6	2.6	3.2	5.4	4.7	4.3	4.5	4.6	3.1	3.4	3.0	3.3	3.8	5.6																						
7-May	3.4	3.0	2.7	2.7	2.7	2.9	2.8	2.6	2.6	2.6	2.7	2.8	2.7	2.8	3.0	3.4	3.1	3.3	3.7	3.2	3.3	2.9	2.9	3.0	3.0	3.7																						
8-May	3.4	3.2	3.6	2.9	2.9	2.8	3.3	3.3	3.2	3.2	3.1	4.1	4.5	4.0	4.3	4.1	3.7	2.3	2.7	2.9	2.4	2.3	2.1	2.0	3.2	4.5																						
9-May	2.1	2.5	3.0	3.1	4.9	6.0	3.1	4.1	4.1	3.1	3.6	3.1	3.2	3.4	3.1	2.9	2.9	2.8	3.1	3.3	4.1	8.2	4.2	4.1	3.6	8.2																						
10-May	4.0	3.8	4.2	4.7	6.5	10.3	4.9	3.0	2.7	3.0	2.9	2.8	2.9	3.5	4.0	4.0	3.6	3.2	3.2	3.2	4.2	7.9	37.9	27.7	6.6	37.9																						
11-May	24.2	62.5	87.3	97.2	85.0	65.2	44.3	30.0	12.0	8.1	7.0	5.3	4.6	4.6	4.6	4.8	4.7	5.8	4.4	4.3	3.8	4.3	4.5	2.9	24.2	97.2																						
12-May	3.2	2.4	2.5	3.2	2.3	3.2	3.8	2.7	2.4	2.3	2.2	2.0	2.0	2.3	2.5	3.1	4.0	5.3	4.6	3.4	3.0	2.5	2.4	2.4	2.9	5.3																						
13-May	2.6	3.5	11.6	13.0	16.6	17.3	18.5	20.1	26.0	29.4	29.4	24.7	13.4	14.5	18.9	4.8	3.5	4.0	5.0	12.1	17.9	18.1	18.2	17.4	15.0	29.4																						
14-May	16.0	15.9	17.0	18.8	21.9	33.5	102.0	149.3	91.4	59.5	27.4	4.2	4.3	6.4	9.5	4.5	2.2	2.7	3.2	10.4	50.4	99.6	104.6	104.7	40.0	149.3																						
15-May	103.0	157.3	263.0	57.0	22.1	15.0	66.6	87.0	73.9	59.7	56.7	68.6	84.3	89.8	87.1	54.3	42.3	38.7	40.9	19.3	7.4	6.3	6.7	6.3	63.0	263.0																						
16-May	5.2	4.6	6.4	8.2	10.3	16.5	24.1	24.8	26.1	28.0	29.1	25.6	20.7	21.6	21.2	19.8	17.4	22.1	30.7	26.6	33.2	25.0	11.0	12.8	19.6	33.2																						
17-May	14.7	11.9	6.1	4.3	3.6	3.5	3.5	3.8	3.8	3.0	2.5	1.8	1.3	1.0	0.9	0.8	0.9	1.1	2.0	1.9	1.5	1.3	1.1	1.5	3.2	14.7																						
18-May	2.2	2.4	2.3	2.5	2.7	2.2	1.5	1.6	1.9	2.5	1.9	1.1	1.1	1.4	1.6	1.9	1.1	1.2	1.7	1.0	1.0	1.2	0.9	1.8	1.7	2.7																						
19-May	2.8	2.6	3.4	3.7	3.1	3.6	2.4	0.8	0.7	0.5	0.5	0.4	0.5	0.6	0.7	0.7	1.4	2.9	2.7	3.4	4.0	4.4	4.7	3.3	2.2	4.7																						
20-May	3.3	3.7	3.8	3.8	3.8	4.1	4.2	4.3	3.9	3.6	3.8	3.7	4.1	3.6	3.7	3.5	3.6	3.5	3.5	4.5	3.0	2.4	1.5	1.5	3.5	4.5																						
21-May	1.2	1.0	0.9	1.2	1.5	1.8	1.7	2.4	2.2	1.9	1.7	1.4	1.0	1.2	1.5	1.6	1.9	1.8	1.7	1.9	1.8	2.6	2.7	2.8	1.7	2.8																						
22-May	1.5	1.7	1.6	2.1	2.4	2.4	2.3	1.7	1.3	1.3	0.6	0.4	0.6	0.8	1.2	1.8	2.2	2.1	2.4	2.0	1.9	1.8	1.9	1.9	1.7	2.4																						
23-May	2.1	2.4	2.6	2.2	2.4	2.3	2.6	2.8	DF	C	2.8	3.1	3.0	3.2	3.1	2.9	2.9	3.0	3.0	3.7	4.4	4.9	3.8	3.9	3.1	4.9																						
24-May	3.4	3.8	3.7	4.0	6.1	4.0	4.1	3.3	2.2	1.8	1.9	1.8	1.9	2.5	3.7	3.7	4.0	4.1	4.0	3.4	4.0	5.7	9.4	4.6	3.8	9.4																						
25-May	11.0	6.0	8.1	6.8	6.0	4.9	3.6	3.4	3.2	3.3	3.3	3.1	3.0	3.0	3.4	3.4	3.5	3.4	3.5	3.6	4.2	4.3	4.5	4.2	4.4	11.0																						
26-May	4.3	4.5	3.8	4.0	4.0	4.1	4.2	4.1	4.2	4.1	3.7	3.9	3.6	3.5	3.8	4.0	4.6	3.9	4.0	4.3	4.9	5.2	4.7	4.1	4.1	5.2																						
27-May	4.2	5.1	4.7	4.6	4.7	5.0	4.9	5.5	5.1	4.7	4.2	4.3	4.4	4.8	4.9	4.9	4.5	4.5	4.9	6.4	5.9	5.8	4.8	4.9	4.9	6.4																						
28-May	5.0	6.1	5.9	6.7	7.2	8.7	8.9	8.7	8.5	6.6	6.4	6.1	4.2	2.4	2.1	2.1	2.3	2.3	2.2	3.2	4.1	3.7	4.2	4.6	5.1	8.9																						
29-May	6.7	3.6	3.7	4.1	4.6	5.0	5.5	6.7	6.7	6.0	7.8	10.6	9.5	6.4	5.3	3.5	2.9	2.2	2.1	2.1	2.3	3.0	4.3	5.8	5.0	10.6																						
30-May	5.4	4.1	3.6	2.3	2.3	4.5	6.3	4.9	4.3	4.7	5.0	4.6	4.4	4.8	5.2	5.7	5.0	5.4	5.2	5.0	4.6	4.4	4.5	5.0	4.6	6.3																						
31-May	6.8	6.8	4.6	4.0	3.5	3.4	3.3	3.1	3.6	8.0	8.7	4.6	4.7	2.8	2.6	3.9	4.7	5.4	5.1	2.8	1.2	1.0	0.8	0.6	4.0	8.7																						
																								8.5	11.3	15.6	9.5	8.5	8.4	11.8	13.3	10.7	9.1	7.7	6.8	6.7	6.9	7.2	5.6	5.0	5.1	5.5	5.2	6.9	8.4	8.8	8.3	Diurnal Average
																								103.0	157.3	263.0	97.2	85.0	65.2	102.0	149.3	91.4	59.7	56.7	68.6	84.3	89.8	87.1	54.3	42.3	38.7	40.9	26.6	50.4	99.6	104.6	104.7	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>) -  $\mu\text{g}/\text{m}^3$**   
**Patricia McInnes - May 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	577	77.76	77.76
6 - 15	91	12.26	90.03
16 - 25	28	3.77	93.80
26 - 80	30	4.04	97.84
> 81.0	16	2.16	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>**  
**Patricia McInnes - May 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	36	35	30	41	45	85	80	25	8	12	21	33	10	35	29	52	577
6 - 15	4	7	3	6	5	9	7	2	5	3	6	8	2	5	8	11	91
16 - 25	2	0	5	5	1	0	4	0	2	3	1	2	1	1	1	0	28
26 - 80	3	4	2	2	5	0	1	1	1	2	2	0	0	3	1	3	30
> 81.0	2	3	0	0	1	0	0	0	3	1	3	0	0	3	0	0	16
<b>Totals</b>	47	49	40	54	57	94	92	28	19	21	33	43	13	47	39	66	742

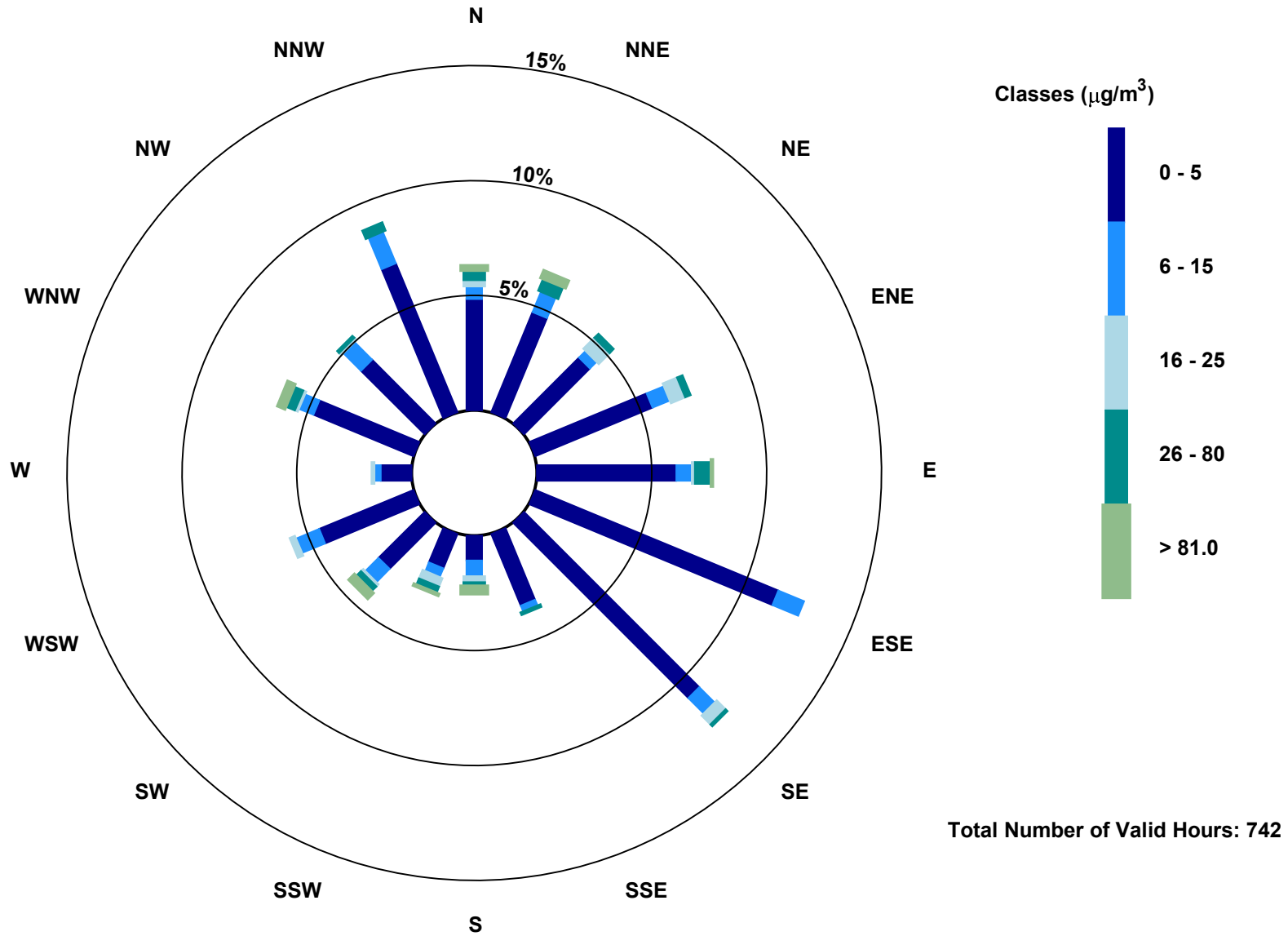
Total Number of Valid Hours: 742

Total Number of Hours: 744



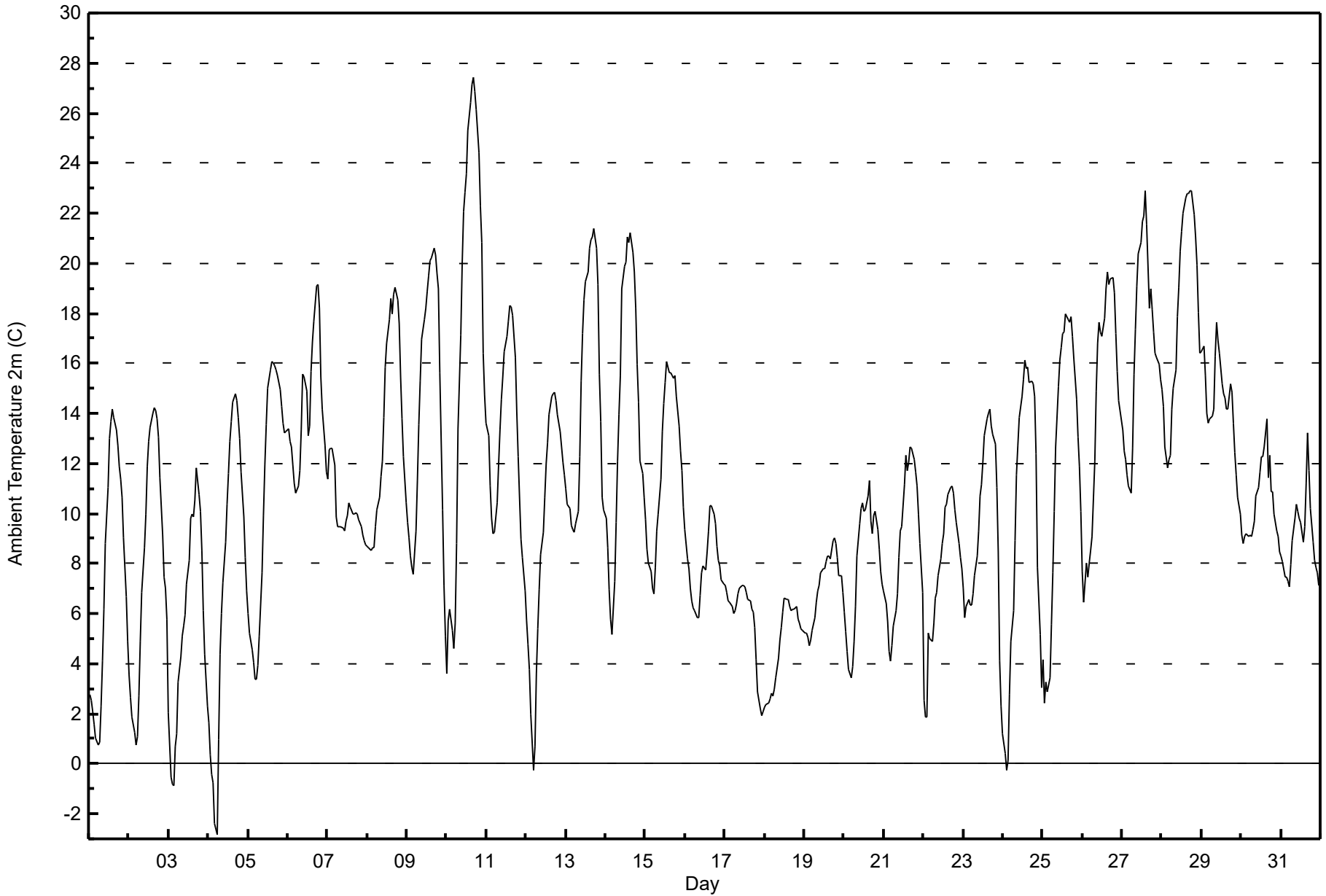
Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Maximum Value: 27.4 C on May 10 17:00		Maximum Daily Average: 18.1 C on May 28		Hours in Service:	744																						
Minimum Value: -2.9 C on May 4 06:00		Minimum Daily Average: 4.8 C on May 18		Hours of Data:	744																						
Maximum Diurnal Average: 15.1 C at hour 16		Minimum Diurnal Average: 6.0 C at hour 5		Hours of Missing Data:	0																						
Monthly Average: 10.84 C		Percentiles: P <sub>1</sub> = -0.2 P <sub>10</sub> = 4.2 Q <sub>1</sub> = 7.0 Median = 10.2 Q <sub>3</sub> = 14.5 P <sub>90</sub> = 18.2 P <sub>99</sub> = 23.3		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-May	2.8	2.5	2.1	1.6	1.0	0.8	0.8	2.3	4.1	6.2	8.8	11.0	13.0	13.7	14.2	13.8	13.3	12.7	11.9	11.4	10.6	9.1	6.7	4.9	7.5	14.2	
2-May	3.5	2.6	1.8	1.3	0.7	1.1	2.7	4.9	6.9	8.7	10.0	11.9	12.9	13.5	14.0	14.2	14.1	13.8	13.1	11.5	9.1	7.5	7.0	5.8	8.0	14.2	
3-May	2.1	-0.5	-0.8	-0.9	0.7	1.2	3.2	4.3	5.1	5.5	5.9	7.2	8.1	9.8	10.0	9.9	10.5	11.8	10.7	10.1	8.5	6.1	4.4	2.3	5.6	11.8	
4-May	1.7	0.3	-0.4	-0.8	-2.4	-2.9	0.9	4.4	6.0	7.3	8.9	10.3	11.6	12.9	13.6	14.5	14.8	14.5	13.8	13.0	11.7	9.9	8.3	6.9	7.4	14.8	
5-May	6.0	5.2	4.5	4.1	3.4	3.3	3.9	5.1	7.6	9.9	12.0	13.6	15.0	15.7	16.1	16.0	15.9	15.7	15.5	15.0	14.3	13.6	13.2	13.3	10.7	16.1	
6-May	13.4	12.9	12.7	11.9	11.2	10.8	11.1	11.7	13.3	15.6	15.5	14.9	13.1	13.5	15.7	16.9	17.7	19.1	19.2	18.2	15.4	14.2	12.7	11.6	14.3	19.2	
7-May	11.4	12.6	12.6	12.6	11.9	9.9	9.5	9.5	9.5	9.4	9.3	9.7	9.9	10.4	10.3	10.0	10.0	10.0	10.0	9.8	9.5	9.1	8.9	8.7	10.2	12.6	
8-May	8.7	8.6	8.5	8.7	8.7	9.5	10.1	10.6	11.5	12.1	13.8	15.8	16.8	17.8	18.6	18.0	18.7	19.1	18.5	17.6	15.5	13.8	12.3	10.4	13.5	19.1	
9-May	9.6	9.0	8.3	7.9	7.6	9.3	11.3	13.6	15.3	17.0	17.7	18.2	18.9	19.5	20.1	20.2	20.6	20.3	19.6	19.0	15.6	10.1	7.1	5.1	14.2	20.6	
10-May	3.6	5.7	6.2	5.3	4.6	5.6	8.8	13.4	17.1	20.0	22.1	22.8	23.6	25.3	26.4	27.2	27.4	26.9	26.1	24.4	22.3	20.8	16.4	14.7	17.4	27.4	
11-May	13.6	13.1	11.1	9.8	9.2	9.2	10.4	12.0	13.3	14.6	15.5	16.4	17.1	17.7	18.3	18.3	17.9	16.2	14.1	12.3	10.6	9.0	8.2	6.9	13.1	18.3	
12-May	5.8	4.8	3.8	2.0	-0.2	0.7	3.6	5.4	7.0	8.3	9.2	10.6	12.0	12.8	14.0	14.7	14.8	14.8	14.5	14.0	13.3	12.7	12.1	11.5	9.2	14.8	
13-May	11.0	10.4	10.2	9.5	9.3	9.2	9.6	10.1	12.2	15.3	17.2	18.6	19.3	19.6	20.6	21.0	21.1	21.4	20.6	19.2	15.6	13.7	10.7	10.2	14.8	21.4	
14-May	9.8	8.6	6.9	5.8	5.1	7.3	9.7	12.1	13.9	15.5	19.0	19.9	20.0	21.1	20.8	21.2	20.4	19.6	18.2	15.9	14.4	12.1	11.6	10.7	14.2	21.2	
15-May	9.7	8.6	8.0	7.7	7.0	6.8	7.8	9.3	10.0	11.4	13.3	14.4	15.3	16.1	15.6	15.6	15.5	15.4	15.5	14.7	13.5	12.5	11.7	10.3	11.9	16.1	
16-May	9.3	8.2	7.8	7.0	6.5	6.2	6.1	5.8	5.8	6.8	7.6	7.9	7.7	8.5	9.3	10.3	10.3	10.0	9.6	8.7	8.1	7.9	7.3	7.2	7.9	10.3	
17-May	7.1	6.9	6.5	6.5	6.3	6.0	6.1	6.4	6.8	7.0	7.1	7.1	7.1	6.9	6.6	6.5	6.2	6.0	5.4	4.1	2.9	2.2	1.9	2.1	5.7	7.1	
18-May	2.3	2.3	2.4	2.6	2.8	2.7	3.0	3.4	4.2	4.9	5.4	6.1	6.6	6.5	6.6	6.3	6.1	6.2	6.2	6.3	5.8	5.6	5.4	5.3	4.8	6.6	
19-May	5.2	5.2	5.1	4.7	4.9	5.3	5.8	6.5	6.9	7.1	7.6	7.8	7.8	8.1	8.3	8.3	8.2	8.9	9.0	8.8	8.3	7.5	7.5	6.8	7.1	9.0	
20-May	6.1	5.3	4.5	3.7	3.4	3.9	4.9	6.3	8.3	9.6	10.2	10.4	10.1	10.2	10.7	11.3	9.7	9.2	9.9	10.1	9.3	8.6	7.7	7.2	7.9	11.3	
21-May	6.9	6.4	5.7	4.5	4.1	4.7	5.5	6.1	6.8	8.2	9.3	9.5	11.2	12.3	11.7	12.1	12.7	12.6	12.1	11.6	11.1	10.0	8.8	6.9	8.8	12.7	
22-May	2.6	1.8	1.9	5.2	5.0	4.9	5.6	6.6	6.8	7.5	8.2	8.8	9.2	10.2	10.4	10.7	11.0	11.1	10.8	10.2	9.7	8.8	8.2	7.8	7.6	11.1	
23-May	7.0	5.8	6.3	6.6	6.3	6.3	6.8	7.5	8.3	9.3	10.7	11.1	12.1	13.1	13.8	14.0	14.2	13.5	13.2	12.8	11.0	8.5	4.1	2.3	9.4	14.2	
24-May	1.2	0.4	-0.2	0.1	2.8	4.9	6.1	8.9	11.6	12.7	13.8	14.7	15.3	16.1	15.8	15.8	15.2	15.3	15.2	14.7	12.4	7.8	5.1	3.0	9.5	16.1	
25-May	4.1	2.4	3.3	2.9	3.4	5.6	7.7	10.1	12.7	15.1	16.1	16.6	17.2	17.3	18.0	17.8	17.6	17.8	17.1	16.2	14.6	13.1	11.9	10.1	12.0	18.0	
26-May	7.7	6.4	8.0	7.5	8.0	8.5	9.1	12.1	14.9	16.8	17.6	17.2	17.1	17.8	19.0	19.7	19.1	19.4	19.4	18.8	17.2	15.7	14.5	14.1	14.4	19.7	
27-May	13.3	12.5	12.2	11.6	11.1	10.8	12.6	15.6	17.3	19.1	20.4	20.8	21.6	21.9	22.9	21.5	18.2	19.0	18.1	17.3	16.4	16.3	16.0	15.3	16.7	22.9	
28-May	15.0	14.3	12.7	11.8	12.2	12.3	14.2	15.0	15.7	17.8	19.0	20.5	21.3	22.0	22.6	22.8	22.8	22.9	22.9	22.0	21.1	19.9	18.0	16.4	18.1	22.9	
29-May	16.5	16.7	15.5	14.0	13.6	13.8	13.9	14.2	16.3	17.6	16.9	16.4	15.2	14.8	14.6	14.2	14.1	15.2	14.9	13.6	12.4	11.5	10.7	10.0	14.4	17.6	
30-May	9.2	8.8	9.1	9.2	9.1	9.1	9.1	9.4	9.7	10.7	11.0	11.6	12.3	12.3	12.6	13.8	11.4	12.3	10.9	10.9	10.0	9.3	9.1	8.5	10.4	13.8	
31-May	8.3	8.1	7.5	7.4	7.3	7.1	8.0	8.9	9.8	10.4	10.1	9.8	9.6	8.8	9.5	11.2	13.2	11.7	10.2	8.8	8.1	7.9	7.6	7.1	9.0	13.2	
		7.6	7.0	6.6	6.2	6.0	6.3	7.4	8.8	10.2	11.5	12.6	13.3	13.8	14.4	14.9	15.1	14.9	14.9	14.4	13.6	12.2	10.8	9.5	8.5	Diurnal Average	
		16.5	16.7	15.5	14.0	13.6	13.8	14.2	15.6	17.3	20.0	22.1	22.8	23.6	25.3	26.4	27.2	27.4	26.9	26.1	24.4	22.3	20.8	18.0	16.4	Diurnal Maximum	





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

**Ambient Temperature 2m (AT2) - C**  
**Patricia McInnes - May 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	9	1.21	1.21
0 - 10	350	47.04	48.25
10 - 20	343	46.10	94.35
> 20	42	5.65	100.00

Total Number of Valid Hours: 744

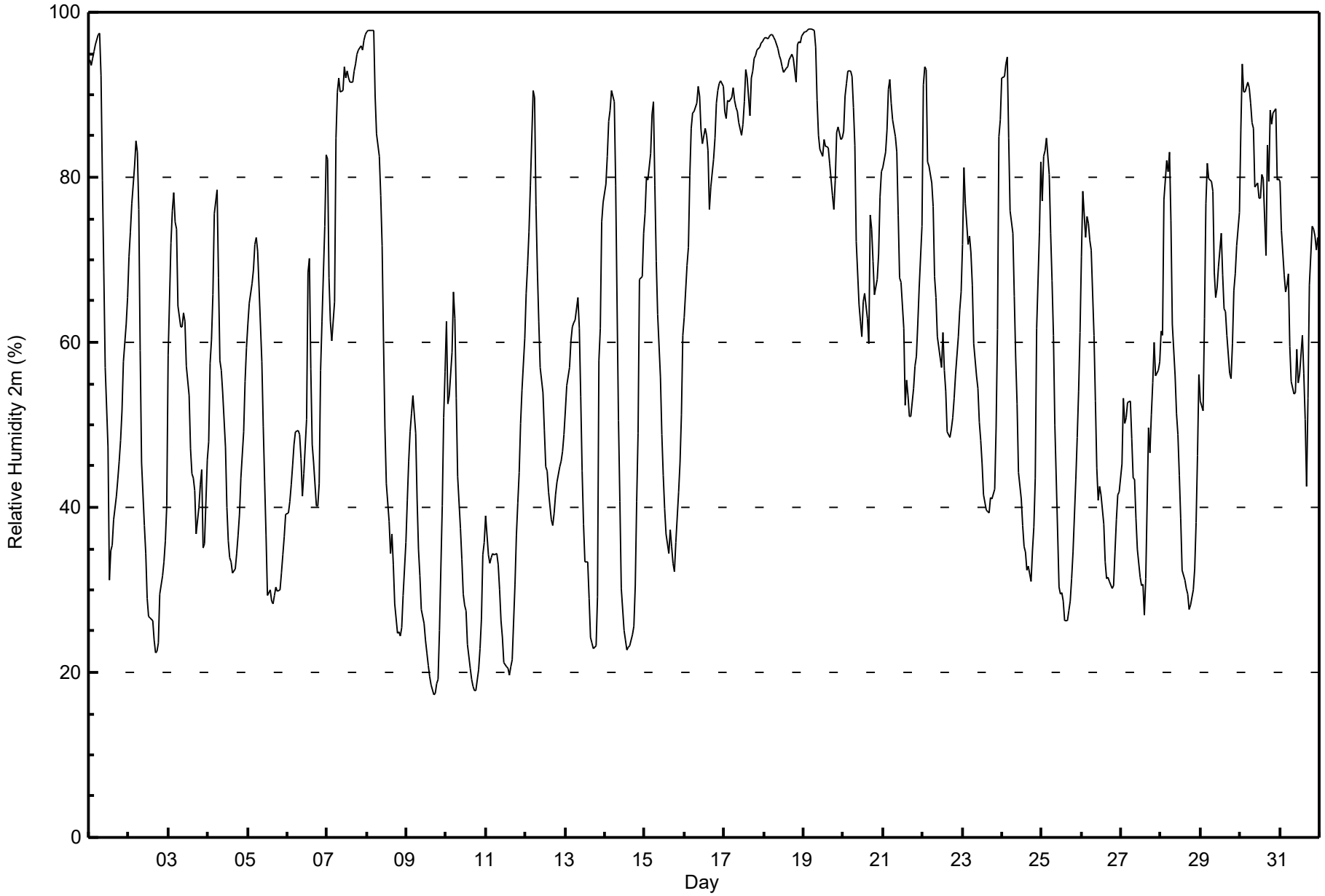
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Patricia McInnes - May 2024**

Maximum Value: 98.1 % on May 19 05:00      Maximum Daily Average: 95.4 % on May 18																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 17.3 % on May 9 17:00      Minimum Daily Average: 33.3 % on May 11 Maximum Diurnal Average: 78.1 % at hour 5      Minimum Diurnal Average: 45.3 % at hour 16 Monthly Average: 60.34 %      Percentiles: P <sub>1</sub> = 19.1 P <sub>10</sub> = 29.7 Q <sub>1</sub> = 40.5 Median = 60.4 Q <sub>3</sub> = 81.2 P <sub>90</sub> = 92.0 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-May	94.2	93.5	94.4	95.3	96.1	97.3	97.5	92.5	79.7	68.4	57.0	47.3	31.2	34.8	35.5	38.5	41.4	43.4	45.7	48.1	51.8	57.6	62.2	65.5	65.4	97.5
2-May	70.3	73.3	76.8	81.3	84.5	83.1	76.1	59.0	45.5	37.8	34.4	28.9	26.8	26.7	26.2	23.9	22.4	22.5	23.6	29.4	31.7	33.4	36.0	40.2	45.6	84.5
3-May	58.5	72.1	75.9	78.1	74.6	73.7	64.4	61.9	61.8	63.6	62.5	57.2	53.6	47.2	44.1	43.5	42.1	36.8	40.1	42.7	44.6	35.0	35.6	45.7	54.8	78.1
4-May	48.0	57.5	60.3	65.8	75.6	78.5	67.8	57.8	56.6	53.8	47.2	40.0	36.0	33.9	33.4	32.0	32.6	34.4	36.6	39.2	43.6	49.1	55.3	59.4	49.8	78.5
5-May	62.2	64.7	67.1	68.9	71.9	72.8	71.0	66.6	57.6	49.7	43.0	36.6	29.4	30.0	28.7	28.3	29.3	30.4	29.8	30.1	32.0	34.2	36.5	39.2	46.2	72.8
6-May	39.3	40.6	42.8	45.1	47.6	49.2	49.4	48.8	45.9	41.4	44.0	50.8	68.5	70.2	56.7	47.7	45.3	40.2	40.1	42.8	56.5	62.6	74.1	82.7	51.3	82.7
7-May	82.2	67.8	62.6	60.2	64.9	84.8	90.3	92.1	90.4	90.6	93.3	92.1	92.8	92.0	91.5	91.5	92.8	93.8	94.9	95.5	96.0	95.5	96.7	97.3	87.6	97.3
8-May	97.6	97.7	97.8	97.9	97.8	89.8	85.2	82.6	77.8	71.7	60.0	49.7	42.8	38.3	34.3	36.8	33.1	28.3	24.8	24.9	24.5	25.4	29.4	35.8	57.7	97.9
9-May	40.8	45.7	49.2	51.3	53.6	48.9	41.1	35.0	31.7	27.7	25.9	23.9	22.3	20.9	19.5	18.5	17.3	17.4	18.6	19.1	25.1	40.2	50.8	56.5	33.4	56.5
10-May	62.6	52.5	53.5	58.8	66.1	62.9	53.2	43.6	37.5	33.7	29.5	28.2	27.4	23.4	20.5	19.2	18.3	17.8	17.8	20.3	22.8	26.5	34.2	35.8	36.1	66.1
11-May	38.9	34.3	33.2	33.9	34.5	34.2	34.4	33.1	30.0	26.3	24.2	21.3	20.6	20.5	19.6	20.6	21.6	30.7	36.7	40.6	44.3	50.1	54.2	60.6	33.3	60.6
12-May	65.9	69.3	73.3	78.9	90.5	89.6	76.7	68.9	62.5	57.0	54.0	49.4	45.0	44.4	41.8	38.4	37.9	39.4	41.4	43.0	44.9	45.7	46.7	48.9	56.4	90.5
13-May	51.6	54.8	56.9	60.1	61.9	62.3	62.7	65.4	61.7	53.3	44.4	38.0	33.5	33.4	29.0	24.3	23.5	22.9	23.3	29.1	57.7	61.8	74.6	76.9	48.5	76.9
14-May	79.2	82.5	86.9	88.2	90.6	89.1	78.9	64.4	50.6	40.6	30.1	25.0	23.9	22.6	23.1	23.3	24.5	25.6	30.5	40.6	49.1	67.6	68.0	73.2	53.3	90.6
15-May	75.5	80.0	79.6	82.8	87.6	89.2	79.0	69.9	63.4	55.8	48.8	43.9	39.8	36.8	34.4	37.3	35.2	33.3	32.2	35.8	41.9	45.5	51.1	60.8	55.8	89.2
16-May	63.1	69.4	71.5	80.1	85.9	87.8	88.0	89.1	91.1	89.8	85.8	84.0	85.9	85.0	83.2	76.2	78.8	82.3	84.8	89.1	90.6	91.4	91.6	91.0	84.0	91.6
17-May	88.0	87.2	89.3	89.2	89.7	90.9	89.3	88.6	87.9	86.6	85.1	86.5	89.2	93.1	92.0	87.4	92.0	92.8	94.4	94.7	95.5	95.7	96.2	96.5	90.7	96.5
18-May	96.8	96.9	96.8	97.1	97.3	97.3	97.0	96.6	95.6	94.8	94.2	93.3	92.8	93.2	93.4	94.2	94.6	95.0	94.5	91.5	96.2	96.5	96.3	97.1	95.4	97.3
19-May	97.6	97.7	97.9	98.0	98.1	98.0	97.8	95.8	89.3	85.1	83.4	82.6	84.5	83.7	83.7	83.5	81.7	77.8	76.2	79.6	85.4	86.1	84.5	84.7	88.0	98.1
20-May	85.6	89.8	91.4	92.9	92.9	92.1	88.5	83.8	72.2	64.5	62.5	60.6	65.0	65.9	62.9	59.8	75.5	73.8	69.9	65.7	67.7	70.7	77.7	80.7	75.5	92.9
21-May	81.2	83.0	85.8	90.6	91.9	88.9	86.9	84.9	83.0	75.5	67.9	67.2	61.7	52.3	55.3	53.5	51.1	51.0	54.4	57.2	58.3	62.3	66.6	74.1	70.2	91.9
22-May	91.2	93.5	93.1	81.9	81.3	79.4	76.4	68.0	65.5	60.7	58.2	56.9	61.1	56.6	54.1	49.2	48.5	49.6	50.8	53.2	56.1	60.6	63.9	66.1	65.7	93.5
23-May	71.9	81.2	76.8	71.8	72.8	70.9	66.9	59.8	56.0	54.3	50.3	48.2	45.3	41.6	39.7	39.5	39.4	41.1	41.1	42.2	49.7	61.5	84.9	87.0	58.1	87.0
24-May	92.0	92.2	93.7	94.6	84.8	76.0	73.3	65.5	58.1	52.5	44.3	41.0	37.7	35.2	34.6	32.3	33.0	31.1	34.8	37.7	43.5	61.7	73.4	81.9	58.5	94.6
25-May	77.0	82.6	83.3	84.7	80.4	73.2	67.5	60.8	50.0	37.0	30.3	29.4	29.6	28.7	26.2	26.3	27.5	28.7	31.4	34.6	43.4	48.5	54.0	61.3	49.9	84.7
26-May	70.4	78.3	72.6	75.2	74.4	72.3	71.2	60.8	52.9	44.7	40.9	42.5	41.5	38.0	33.4	31.4	31.6	31.0	30.2	30.5	34.7	38.6	41.5	41.8	49.2	78.3
27-May	45.2	53.3	50.2	50.8	52.8	52.9	48.2	43.6	43.3	38.6	35.0	31.5	30.6	30.6	26.9	31.4	49.7	46.6	51.2	55.0	60.0	55.9	56.5	57.7	45.7	60.0
28-May	61.4	60.9	77.3	82.0	80.7	83.1	74.7	62.2	55.9	51.3	48.8	44.0	38.7	32.4	31.2	30.2	29.4	27.6	28.1	30.0	32.6	38.1	46.3	56.2	50.1	83.1
29-May	52.9	51.7	62.9	76.9	81.7	79.9	79.5	78.3	68.4	65.4	66.6	69.1	73.1	68.2	64.1	63.8	60.9	56.3	55.6	59.8	66.3	68.2	71.8	75.7	67.4	81.7
30-May	85.7	93.8	90.3	90.3	91.5	90.8	88.9	86.6	85.9	78.7	79.3	77.5	77.5	80.4	79.9	70.6	83.9	79.4	88.2	86.5	87.9	88.3	79.6	79.8	84.2	93.8
31-May	79.4	73.6	68.2	66.2	66.9	68.4	59.6	55.3	53.8	53.9	59.1	55.0	56.2	60.8	56.2	50.7	42.6	53.3	66.9	74.0	73.8	72.8	71.2	72.7	62.9	79.4
71.2 73.3 74.6 76.4 78.1 77.6 73.6 68.4 63.3 58.2 54.5 51.7 50.5 49.1 46.9 45.3 46.4 46.3 48.0 50.4 55.1 58.9 63.3 67.2																								Diurnal Average		
97.6 97.7 97.9 98.0 98.1 98.0 97.8 96.6 95.6 94.8 94.2 93.3 92.8 93.2 93.4 94.2 94.6 95.0 94.9 95.5 96.2 96.5 96.7 97.3																								Diurnal Maximum		







Maximum Speed: 38 km/h on May 11 12:00	Maximum Daily Speed Average: 19.9 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 3 04:00	Minimum Daily Speed Average: 0.8 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 3.1 km/h at hour 10	Minimum Diurnal Speed Average: 0.9 km/h at hour 3	Hours of Missing Data: 0
Monthly Average Velocity: 1.8 km/h 26.9 deg	Percentiles: $P_1 = 1$ $P_{10} = 5$ $Q_1 = 8$ Median = 12 $Q_3 = 15$ $P_{90} = 21$ $P_{99} = 30$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	N21	N19	N18	N14	NNW14	NNW14	NNW14	NNW14	N13	N14	NNE15	NNE18	NNE20	NE21	NE20	NE19	NE19	NE21	NE18	NNE15	NNE10	NNE10	N12	NNW15	NNE14.8	N21
2-May	NNW13	NNW12	NNW11	NNW11	NNW12	NNW10	N10	NNE11	NNE10	NNE15	NNE14	N18	N21	N21	N23	N24	N24	N23	N22	N17	N15	N13	NE11	ESE6	N14.4	N24
3-May	SE2	SSE2	W1	SSE0	E2	ESE1	SE4	E5	E6	ENE7	NE6	NNE6	NNE6	NE7	ENE7	NNE8	NE5	N6	SSW4	SW8	NNE4	NNW9	NNW8	NW8	NE2.6	NNW9
4-May	NNW8	NNW7	NNW7	NNW7	NW5	NNW4	N1	N5	NNW5	N6	N5	N4	NNE5	NW4	ENE3	NE5	ENE4	NNE8	NNE7	ENE7	ESE10	SE13	SE11	SE11	NNE3.2	SE13
5-May	ESE11	ESE11	ESE10	ESE12	SE11	SE10	SE9	SE8	SE9	ESE11	ESE14	ESE14	SSE18	SE14	SE20	SE13	SSE14	S13	SSE9	SE11	SE12	SE10	ESE13	ESE12	SE11.6	SE20
6-May	ESE16	ESE18	ESE17	SE17	SE15	ESE14	ESE15	ESE15	ESE15	ESE19	ESE19	ESE21	E16	ENE11	E14	ESE21	E15	E16	E16	SE20	S17	SSE15	SSE9	ENE2	ESE14.4	ESE21
7-May	NE5	ENE6	E8	ESE13	ESE16	ESE12	E12	E13	E14	ESE12	E8	ESE11	ESE12	ESE12	ESE13	SE11	ESE7	ESE6	ESE7	SE9	SE11	SE10	SE8	SE7	ESE9.7	ESE16
8-May	SSE5	SSE6	SSE5	SSW5	WSW7	W10	NW11	NW12	NNW10	NNW9	NNW6	SE4	S6	SSW8	S13	SSW14	SW14	WSW19	WSW19	SW14	SW10	SW9	WSW11	WSW13	WSW6.8	WSW19
9-May	WSW13	WSW15	WSW16	WSW13	SE4	WSW2	NNW8	NW18	NW21	NW22	NNW24	NNW29	NNW32	NNW30	NNW29	NNW28	NW25	NW22	NW16	NNW12	NNW4	WSW3	WSW4	SW4	NNW14.6	NNW32
10-May	SSW5	SSW7	SSW7	S7	S8	SSW9	SSW10	SW17	WSW18	SW16	WSW24	WSW25	WSW27	WSW28	W28	W26	W28	NNW29	NNW26	NNW15	W12	NNW20	N31	N18	W13.6	N31
11-May	NNW9	NNW17	NNW15	NNW16	NNW18	NNW25	NNW25	NW30	NW34	NW34	NW34	NW38	NW35	NNW31	NW29	NNW27	NNW24	NNE24	NNE24	NNE22	NNE17	NNE8	NE8	ENE9	NNW19.7	NW38
12-May	E10	E9	E6	SSE3	SW1	ENE4	ESE7	ESE10	ESE12	ESE12	ESE13	ESE14	ESE14	ESE15	ESE17	E17	E15	ESE16	ESE12	ESE10	ESE11	ESE12	ESE12	ESE10	ESE10.6	ESE17
13-May	SE9	ESE8	SE9	SE8	SE9	SE10	SE12	SE9	SE10	SSE15	S13	SSW16	SW17	SW16	SSW14	WSW16	WSW18	WSW21	W16	NW16	N20	N9	NW5	W4	SSW5.1	WSW21
14-May	WSW4	SW4	SSW4	S3	S6	SSW8	S8	S8	S11	SSW12	SW15	WSW22	WSW19	WSW23	WSW25	WSW24	WSW22	W23	NNW22	W14	NNW10	NNE5	E3	SSW6	WSW9.8	WSW25
15-May	SW3	SW4	SW7	SW4	WSW4	NW4	NNW7	N10	NNE9	NNE7	NE8	NE9	NNE7	NNE5	N11	N20	NNE15	NNE12	N9	NNE10	NNE13	ENE7	E13	E15	NNE6.0	N20
16-May	E13	ENE15	ENE7	NNE8	NE8	NE8	NE9	ENE11	ENE12	E14	E16	E16	E15	ENE10	NE11	ENE12	NE9	ENE8	ENE10	E14	E18	ENE14	ENE12	ENE12	ENE11.3	E18
17-May	ENE17	E17	E12	ENE12	ENE12	ENE11	ENE11	ENE12	ENE14	ENE14	ENE14	ENE11	NE11	NE11	NE14	NE13	NNE14	NNE14	N15	N17	NNW18	NNW17	NNW16	NNW15	NE11.0	NNW18
18-May	NNW14	NNW15	NNW15	NNW15	NNW13	NW12	NW12	NW12	NW14	NNW16	NNW17	NNW17	NNW18	NNW20	NNW21	NNW21	NNW19	NNW15	NNW9	NNE7	ENE9	ENE8	NE6	NNE6	NNW12.8	NNW21
19-May	NNE7	NNE7	N6	NNW7	N8	N7	NNE8	ENE10	ENE12	ENE13	ENE11	NE12	NE13	NE12	NE12	NE11	ENE12	NE11	NE9	NNE6	NNW5	NNW7	NNW12	N12	NE8.0	ENE13
20-May	NNW14	NNW11	NNW10	NNW11	NNW12	NNW13	NNW12	NNE11	NNE8	N7	NNW14	N14	N13	NNE14	NNE9	NE12	SE14	SE11	SSE6	SSE8	ESE8	ESE10	SE10	ESE7	NNE5.7	SE14
21-May	ESE7	ESE6	ESE6	ESE7	E6	ESE7	ESE9	ESE10	ESE10	ESE12	E11	E12	ESE13	ESE11	ENE17	E14	E12	ENE12	E13	ENE13	E11	E7	E8	E5	E9.7	ENE17
22-May	NNE4	N5	NNE5	ENE10	E14	ESE7	ENE8	ENE12	ENE12	ENE13	ENE15	NE12	NE9	E8	ENE12	NE12	ENE11	E12	E12	E10	E9	E8	E6	E5	ENE8.9	ENE15
23-May	ENE2	N3	ENE4	E5	E7	E10	E9	E10	E13	ESE13	ESE14	SE17	SE17	ESE15	SE12	SE12	ESE12	SE13	SE10	SSE11	SSE9	SSE5	NNW2	SW1	ESE8.4	SE17
24-May	W1	SE2	NNW2	SE4	ESE6	ESE10	SE9	SE7	ESE10	ESE10	SE12	ESE10	SSE9	SE12	SE11	SE14	SE9	S9	SW9	SW10	SW5	SW4	SSW2	SW4	SSE5.7	SE14
25-May	SSW5	S5	SSE6	S5	SE7	SE5	SE6	ESE7	SE9	SE12	SE17	SE18	SE17	SE16	SE13	SE14	ESE14	ESE17	ESE15	ESE17	SE12	SE10	SE10	SE6	SE10.5	SE18
26-May	SE4	ESE6	SE8	SE9	SE7	SE10	SE7	SE8	ESE8	SE10	SSE11	SSW13	SSW14	SSW13	S11	SSE14	SSE10	SE10	ESE10	ESE8	ESE7	SE7	SSE9	ESE9	SE8.2	SSE14
27-May	SE8	SE4	SE5	ESE9	SE8	SE9	SE8	SE4	SSE3	SE5	SSE11	SSE17	SE14	SE13	SE15	S14	SW7	S8	ESE3	ESE6	ESE8	SE11	SE12	SE11	SE8.2	SSE17
28-May	SE18	S7	SW0	NNW2	NNE7	NNW2	NNE4	ESE5	S3	E1	SSE2	ESE2	SW8	SW12	WSW11	WSW9	WSW9	WSW6	NW5	NNE6	NE4	N3	NNW7	N12	WSW0.8	SE18
29-May	NE12	NE12	E8	ENE7	ENE11	E12	ESE5	SE7	ESE8	WSW9	WSW18	WSW22	SW24	WSW23	WSW23	WSW22	SW24	WSW23	WSW19	SW21	SW20	SW21	SW17	SW20	SW9.8	SW24
30-May	SSW15	SW14	WSW15	NNW18	NNW20	NNW20	NNW19	NNW17	NNW17	NNW20	NNW20	NNW21	NNW20	NNW19	NW17	NW21	NW16	NNW16	NNW9	NNW13	NNW12	NNW13	NNW15	W13	NNW15.5	NNW21
31-May	W16	NNW20	NNW24	NNW25	NW23	NW21	NNW23	NNW26	NNW29	NNW27	NW25	NW26	NNW27	NNW26	NW22	NW13	NW22	N12	N12	NNW15	NW18	NW17	NW13	NW15	NW19.9	NNW29

ENE1.7	NE1.2	N0.9	NNE1.0	NE1.8	NNE1.6	NNE1.9	NNE2.6	NE3.0	NE3.1	NE2.3	NNE1.5	NW1.2	NNW1.5	N2.0	N2.2	N2.3	N2.3	N2.7	NE1.8	NE2.7	ENE2.1	NE2.5	NE1.4	Diurnal Average
N21	NNW20	NNW24	NNW25	NNW23	NNW25	NNW25	NW30	NW34	NW34	NW34	NW38	NW35	NNW31	NNW29	NNW28	W28	NNW29	NNW26	NNE22	N20	SW21	N31	SW20	Diurnal Maximum

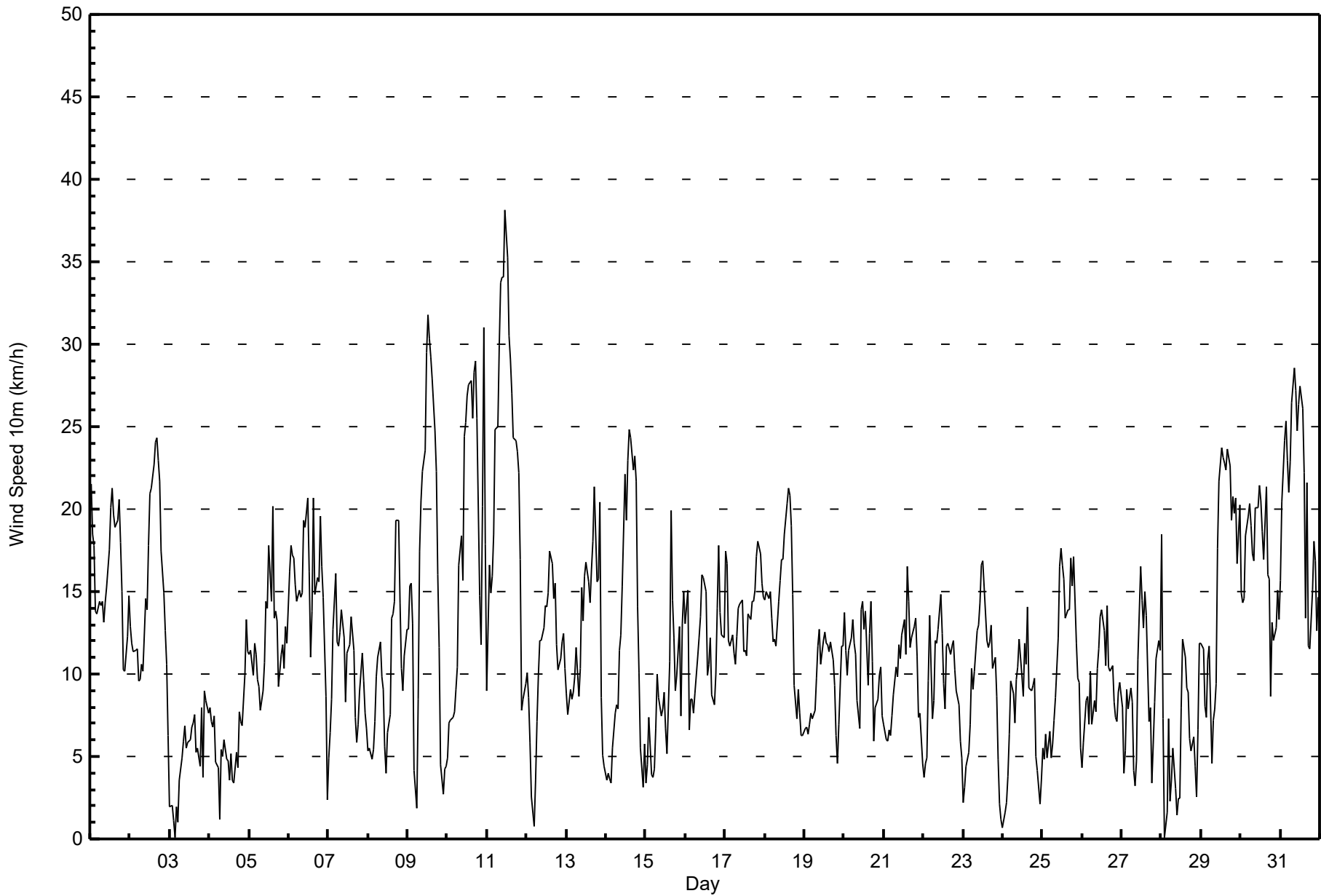
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - May 2024**

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





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

**Wind Speed 10m (WS10) - km/h**  
**Patricia McInnes - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	99	13.31	13.31
6 - 11	268	36.02	49.33
12 - 19	279	37.50	86.83
20 - 28	83	11.16	97.98
29 - 38	15	2.02	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 - May 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	8	7	4	6	7	5	12	8	4	6	10	6	3	4	5	4	99
6 - 11	11	25	19	24	21	45	50	13	11	7	8	7	1	3	1	22	268
12 - 19	18	12	14	24	30	43	28	7	4	8	9	15	5	15	14	33	279
20 - 28	9	5	3	0	0	2	2	0	0	0	6	15	4	19	12	6	83
29 - 38	1	0	0	0	0	0	0	0	0	0	0	0	0	6	7	1	15
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	47	49	40	54	58	95	92	28	19	21	33	43	13	47	39	66	744

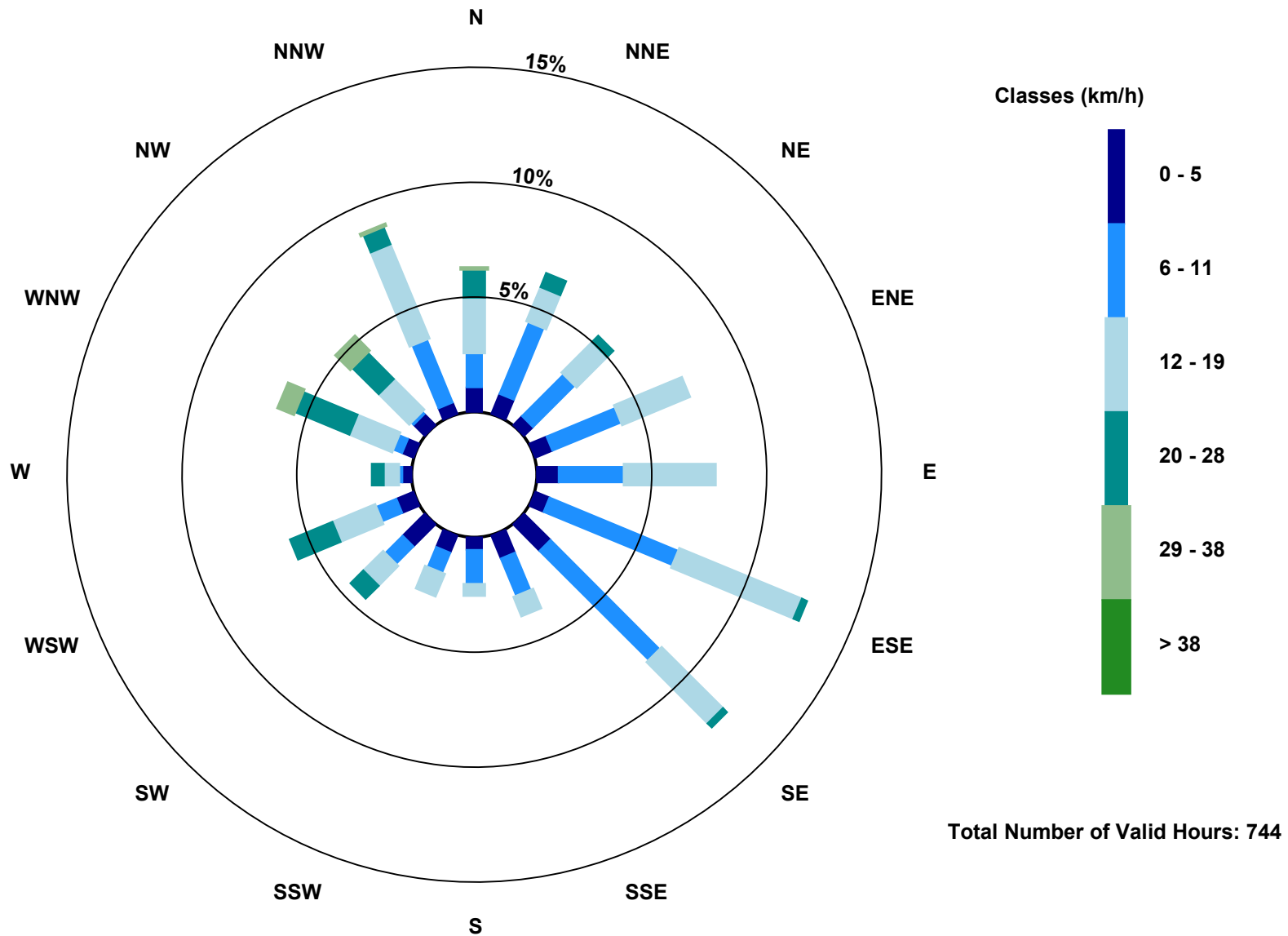
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 10m (WS10) - km/h  
Patricia McInnes





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

**Wind Direction 10m (WD10) - deg**  
**Patricia McInnes - May 2024**

Direction of Maximum Speed: 323 deg on May 11 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 308.4 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 148 deg on May 3 04:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.8 deg on May 28	Percent Operational Time: 100.0
Monthly Average Direction: 26.9 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-May	355	358	353	352	347	345	347	348	8	11	12	16	33	36	41	52	50	48	48	29	30	16	351	343	15.8
2-May	337	333	335	341	345	348	8	19	17	16	17	8	6	11	9	10	11	8	10	360	350	355	38	114	4.7
3-May	132	167	265	148	88	116	124	80	95	61	42	19	32	45	67	29	56	359	208	220	29	343	330	326	34.5
4-May	335	330	329	338	316	292	9	354	347	359	11	360	357	18	306	57	47	60	22	29	71	115	130	132	21.5
5-May	123	121	119	123	129	135	130	137	130	111	102	104	149	143	127	137	164	174	150	131	130	127	114	123	130.7
6-May	118	117	118	125	125	121	120	118	110	110	110	118	101	70	81	104	96	92	93	144	169	148	148	63	115.3
7-May	42	73	94	107	105	109	88	100	100	103	93	109	114	114	115	127	122	120	119	126	127	132	130	141	109.7
8-May	154	159	167	193	243	278	307	323	331	335	328	142	179	207	188	211	214	238	244	236	234	233	241	248	238.8
9-May	247	251	244	252	146	248	289	313	315	312	302	286	284	296	295	300	313	320	319	331	337	251	252	229	293.7
10-May	212	203	193	186	176	192	207	235	242	234	245	246	250	243	268	272	274	284	284	285	262	339	357	349	263.7
11-May	286	302	296	292	289	299	298	312	317	320	323	323	321	327	318	334	342	14	23	21	23	26	51	66	327.9
12-May	89	97	95	157	231	74	104	115	106	112	107	102	109	106	105	101	100	108	115	111	118	122	116	121	107.7
13-May	125	117	128	135	135	132	126	133	145	159	183	193	217	235	204	249	253	250	264	305	357	5	311	276	206.3
14-May	251	227	203	189	191	193	180	189	186	203	223	239	238	248	251	257	279	296	264	346	20	94	213		242.6
15-May	229	221	229	220	254	325	348	356	29	31	54	43	24	23	2	354	18	13	11	34	31	64	88	79	23.4
16-May	81	67	62	31	36	41	52	67	58	85	90	86	82	62	51	66	34	63	74	88	80	72	73	77	69.3
17-May	77	82	79	78	72	59	65	74	73	73	73	59	47	46	46	47	21	14	357	351	343	342	338	337	40.0
18-May	338	341	339	340	334	322	321	315	326	336	336	337	339	336	334	337	342	334	344	23	75	68	39	15	340.7
19-May	12	13	353	346	351	350	27	71	78	70	65	52	51	52	47	52	63	47	40	20	337	335	348	352	34.1
20-May	346	340	330	335	341	341	347	13	24	10	347	353	355	26	30	40	126	131	163	148	123	112	124	117	20.9
21-May	106	112	102	107	95	104	108	105	116	106	98	82	115	103	69	85	86	75	88	78	81	92	93	82	93.7
22-May	14	10	26	78	88	105	72	64	57	72	61	49	34	99	62	47	67	86	81	96	98	100	93	91	70.8
23-May	76	354	57	93	92	94	94	95	91	106	106	128	128	121	129	128	120	130	140	157	148	159	288	230	117.3
24-May	260	145	296	126	123	122	125	133	113	106	128	123	147	140	137	138	140	171	221	233	236	221	209	225	146.5
25-May	194	185	163	176	141	136	132	116	133	124	126	132	127	133	131	130	116	114	118	123	134	134	132	124	130.5
26-May	124	122	124	133	141	129	128	132	115	139	167	197	202	198	179	151	149	125	103	102	112	142	148	123	145.2
27-May	130	129	131	115	132	130	127	125	166	132	157	151	134	141	133	169	231	183	102	118	119	130	127	136	139.4
28-May	128	169	236	302	22	347	31	113	178	100	160	120	231	236	258	237	240	258	325	32	36	5	343	3	254.4
29-May	41	55	83	70	65	79	119	124	118	244	253	238	235	245	247	242	236	238	239	234	232	227	223	227	231.3
30-May	212	226	258	285	296	303	299	290	295	303	303	301	308	301	309	306	309	291	293	287	289	291	293	276	291.8
31-May	280	288	295	299	306	306	297	299	303	302	311	311	301	301	312	322	310	6	351	332	323	322	325	326	308.4

62.0 34.1 359.0 19.8 42.2 27.4 32.5 31.6 39.4 44.3 34.2 12.3 320.7 326.4 358.7 8.4 352.2 4.9 10.3 34.6 49.7 57.3 53.8 47.3  
 Diurnal Average

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

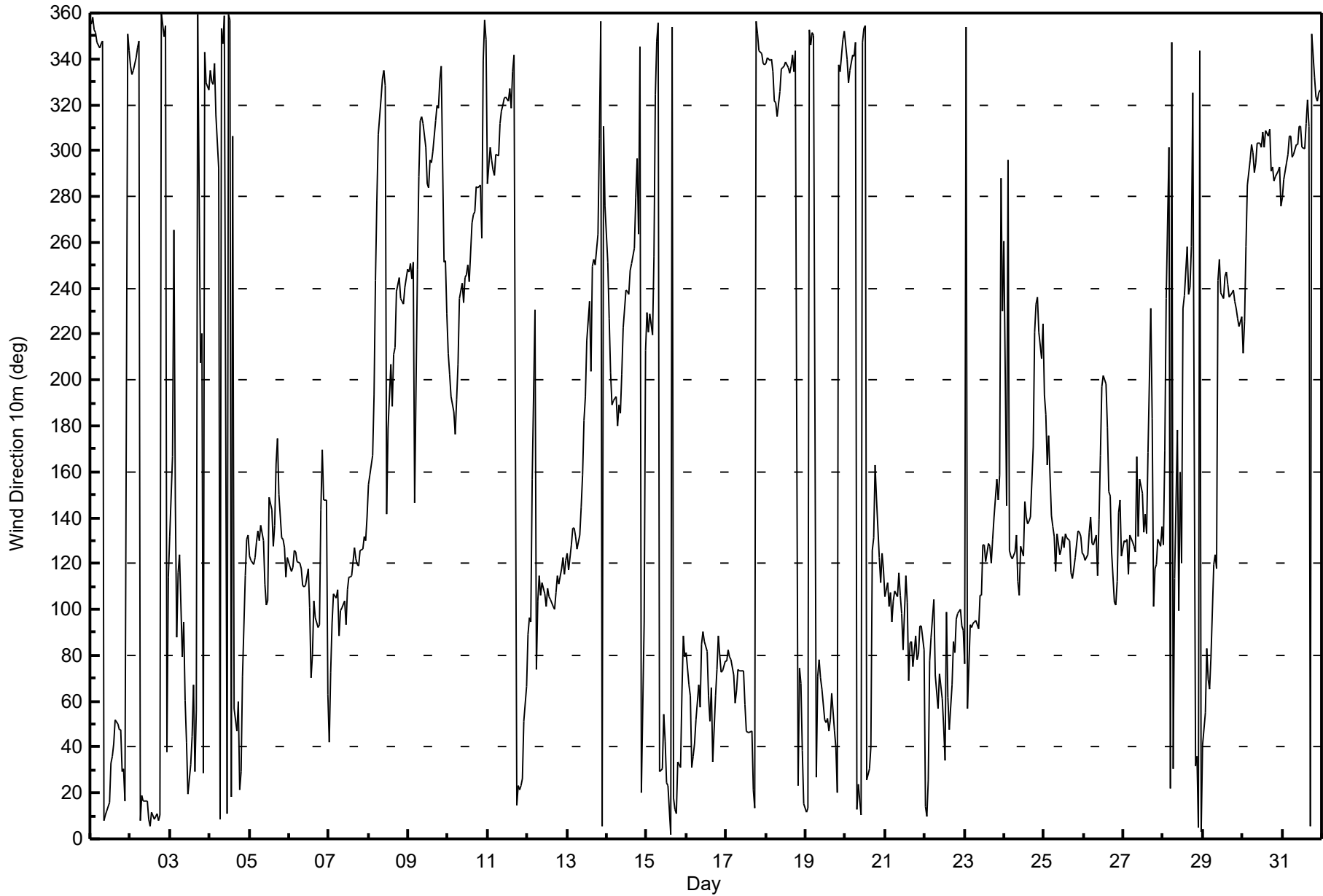


**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 10m (WD10) - deg**  
**Patricia McInnes - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on May 28 10:00 Minimum Value: 4 deg on May 4 01:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 23 P <sub>90</sub> = 41 P <sub>99</sub> = 91		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-May	17	16	16	14	12	11	10	13	14	15	16	18	19	22	20	16	19	13	13	12	10	16	14	11	22	
2-May	8	7	8	9	9	12	13	15	24	20	24	21	21	19	22	19	19	16	16	17	15	14	26	20	26	
3-May	60	38	75	91	83	86	50	26	22	29	44	51	56	53	38	45	42	51	67	13	67	10	6	6	91	
4-May	4	8	6	9	17	15	72	24	35	36	51	71	84	64	78	94	60	89	25	13	24	14	12	12	94	
5-May	12	12	15	13	13	13	13	17	18	21	14	19	21	30	19	32	32	17	21	12	13	12	13	13	32	
6-May	12	12	13	13	13	14	14	13	13	16	14	13	15	21	20	15	16	17	14	36	20	15	15	71	71	
7-May	29	24	13	13	16	16	12	14	13	13	15	16	14	14	14	13	15	14	16	12	13	13	12	12	29	
8-May	9	8	8	14	29	11	14	13	12	18	55	67	52	70	29	17	22	19	12	12	9	8	9	7	70	
9-May	9	7	8	11	46	96	57	18	14	18	17	17	17	15	15	16	16	16	14	13	15	37	18	15	96	
10-May	11	14	11	14	10	13	19	13	14	20	17	16	14	15	17	18	17	13	13	12	8	33	18	17	33	
11-May	13	10	9	9	9	10	11	13	14	15	16	13	15	17	18	17	19	20	14	11	12	18	13	15	20	
12-May	13	16	13	53	65	32	19	19	16	18	15	17	20	16	14	13	14	14	15	12	13	11	11	14	65	
13-May	14	15	13	10	11	12	11	19	23	23	28	24	18	20	30	17	16	15	17	21	19	23	18	14	30	
14-May	26	26	31	14	16	13	12	14	13	17	25	20	18	18	18	15	15	16	51	59	61	68	17	68	68	
15-May	77	35	10	64	50	32	14	18	17	30	33	32	53	79	26	19	17	18	21	24	12	28	15	12	79	
16-May	15	15	24	13	11	19	15	14	13	15	14	13	14	23	29	22	15	36	15	17	14	15	15	14	36	
17-May	12	13	14	14	16	14	15	14	15	14	14	17	17	17	14	14	15	14	15	15	11	12	10	10	17	
18-May	11	11	11	11	10	10	10	11	12	12	11	11	12	11	12	12	11	11	24	20	14	16	16	15	24	
19-May	11	10	21	27	14	15	18	19	14	17	20	19	16	19	22	18	18	17	15	14	19	8	15	15	27	
20-May	12	11	10	9	9	9	15	15	28	44	21	20	19	16	22	24	16	15	38	20	13	13	12	14	44	
21-May	13	13	15	12	16	18	14	15	16	17	18	23	20	29	19	18	22	21	17	12	12	10	12	24	29	
22-May	18	21	15	16	13	15	22	18	20	20	20	23	43	44	26	18	22	19	19	13	12	12	12	10	44	
23-May	55	20	26	13	13	12	15	17	17	21	21	22	23	25	35	31	21	17	17	16	12	13	31	55	55	
24-May	68	16	52	49	11	15	19	24	24	25	27	39	39	29	28	21	21	20	25	13	11	22	32	19	68	
25-May	15	15	11	13	13	13	25	22	26	26	26	23	23	29	34	28	19	18	15	16	15	14	11	16	34	
26-May	14	18	12	17	19	15	18	21	35	35	40	28	25	26	41	31	34	31	15	12	11	38	14	13	41	
27-May	15	30	41	15	15	14	15	40	66	82	34	23	32	23	25	38	90	52	71	22	18	13	13	18	90	
28-May	20	56	92	92	26	72	49	24	53	99	95	99	59	41	38	44	38	42	21	21	64	86	38	28	99	
29-May	14	16	34	39	25	13	36	26	46	46	13	15	14	15	13	16	14	16	15	13	13	12	14	12	46	
30-May	17	14	18	12	12	10	10	11	11	11	11	12	14	13	13	19	18	18	34	11	11	10	12	11	34	
31-May	12	11	11	12	11	14	12	14	12	12	13	13	13	13	13	24	15	30	16	14	12	11	12	14	30	
		77	56	92	92	83	96	72	40	66	99	95	99	84	79	78	94	90	89	71	51	67	86	68	71	
		Diurnal Maximum																								







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS07 ATHABASCA VALLEY MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
MAY 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	9.8	0	2	0
TRS (ppb) Average	707	37	37	100	1.1	0	0.3	0
THC (ppm) Average	708	36	36	100	2.5	-	2.1	-
NMHC (ppm) Average	708	36	36	100	0.189	-	0.02	-
CH4(ppm) Average	708	36	36	100	2.5	-	2.1	-
O3 (ppb) Average	664	36	80	94.09	58.8	0	42.3	-
NO2 (ppb) Average	707	37	37	100	21.1	0	7.6	-
NO (ppb) Average	707	37	37	100	12.8	-	2.8	-
NOX (ppb) Average	707	37	37	100	32.3	-	10.4	-
PM2.5 (ug/m3) Average	743	1	1	100	321.4	0	94.7	2
CO(ppm) Average	709	35	35	100	2.1	0	0.5	-
Temperature 2 m (C) Average	744	0	0	100	28.1	-	18.7	-
Relative Humidity (%) Average	744	0	0	100	95.8	-	92.3	-
Barometric Pressure (inHg) Average	744	0	0	100	29.2	-	29.2	-
Wind Speed 10 m (km/h) Average	744	0	0	100	40	-	24	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
MAY 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

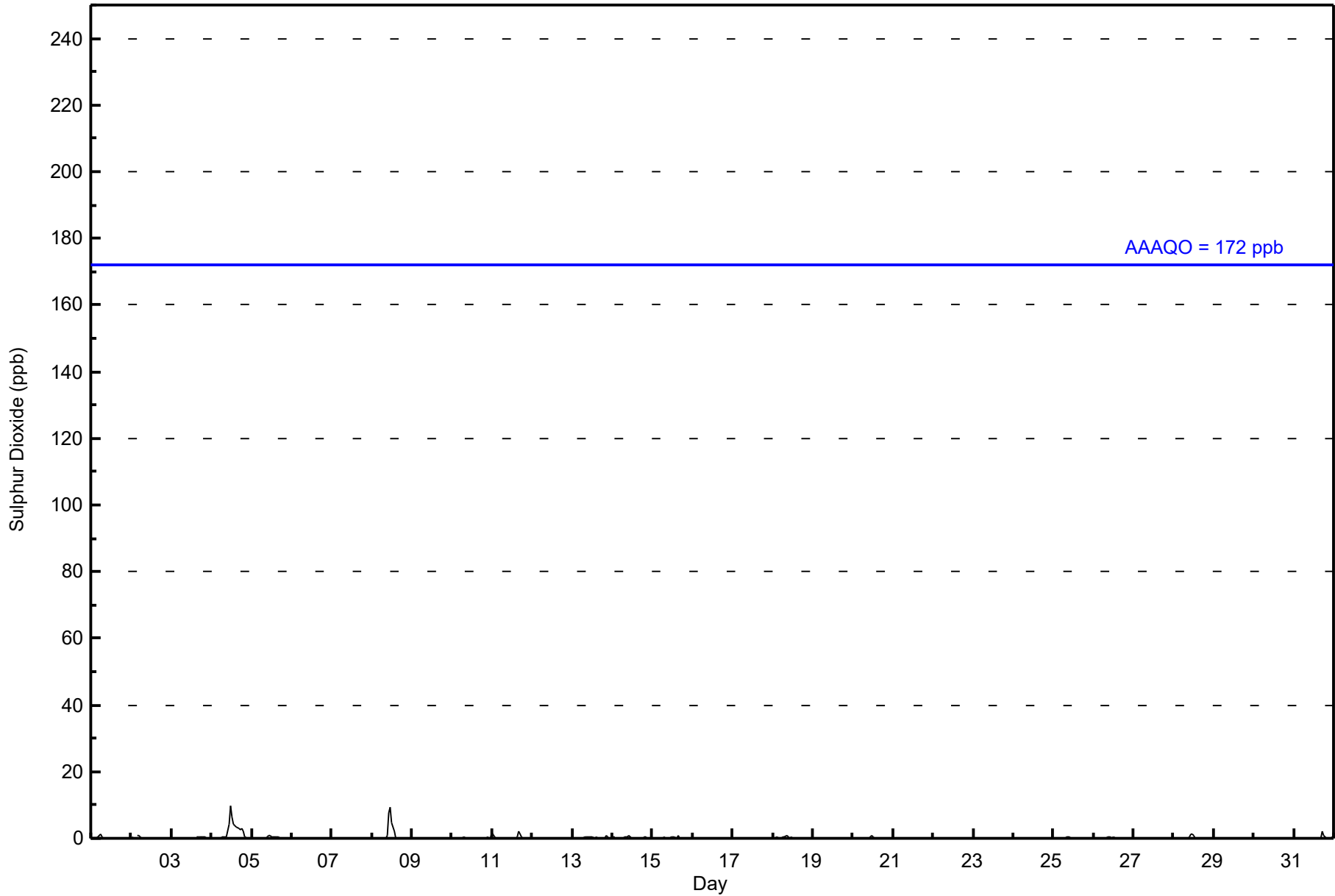
Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	708	0.2	0.8	-	0	0	0	0	0.1	0.3	9.8
TRS (ppb) Average	707	0.17	0.1	-	0	0.1	0.1	0.1	0.2	0.3	1.1
THC (ppm) Average	708	2	0.1	-	1.9	1.9	2	2	2	2	2.5
NMHC (ppm) Average	708	0.002	0.012	-	0	0	0	0	0	0	0.189
CH4(ppm) Average	708	2	0.1	-	1.9	1.9	2	2	2	2	2.5
O3 (ppb) Average	664	33.01	11.2	-	6.7	17.6	24.3	32	42	48	58.8
NO2 (ppb) Average	707	3.23	3.1	-	0.2	0.6	1.1	2.3	4.4	6.9	21.1
NO (ppb) Average	707	0.64	1.2	-	0	0	0.1	0.3	0.7	1.3	12.8
NOX (ppb) Average	707	3.87	3.9	-	0.2	0.7	1.4	2.7	5.2	7.9	32.3
PM2.5 (ug/m3) Average	743	10.05	28.2	-	0.3	1.7	2.7	3.7	5.3	16.4	321.4
CO(ppm) Average	709	0.16	0.1	-	0.1	0.1	0.1	0.1	0.1	0.2	2.1
Temperature 2 m (C) Average	744	11.82	5.2	-	-0.8	5.3	8.2	11.3	15.3	19.2	28.1
Relative Humidity (%) Average	744	58.41	21.7	-	18	28.4	39.5	58.7	77.8	87.2	95.8
Barometric Pressure (inHg) Average	744	28.91	0.2	-	28.5	28.7	28.8	28.9	29	29.1	29.2
Wind Speed 10 m (km/h) Average	744	11.5	7	-	0	4	6	10	15	21	40
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
O3	06 May 2024 15:00	07 May 2024 09:00	19	Maintenance - replaced ozone scrubber
O3	08 May 2024 10:00	09 May 2024 08:00	23	Unstable Operations - flatline in analyzer output signal
O3	09 May 2024 09:00	09 May 2024 10:00	2	Maintenance - analyzer rebooted







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley - May 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**  
**Athabasca Valley - May 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	17	19	63	64	77	123	30	11	13	42	28	26	37	51	88	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>	19	17	19	63	64	77	123	30	11	13	42	28	26	37	51	88	708

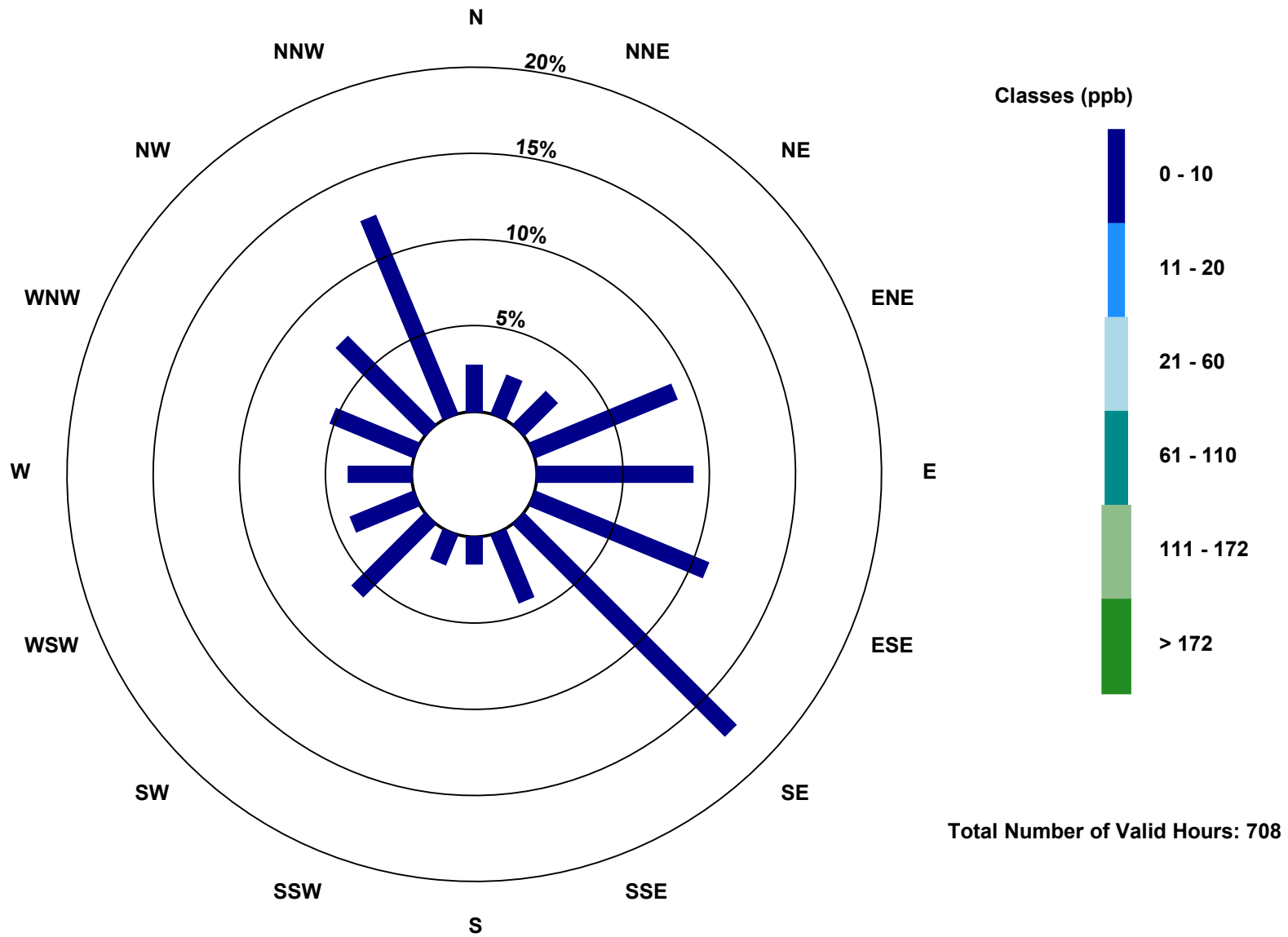
Total Number of Valid Hours: 708

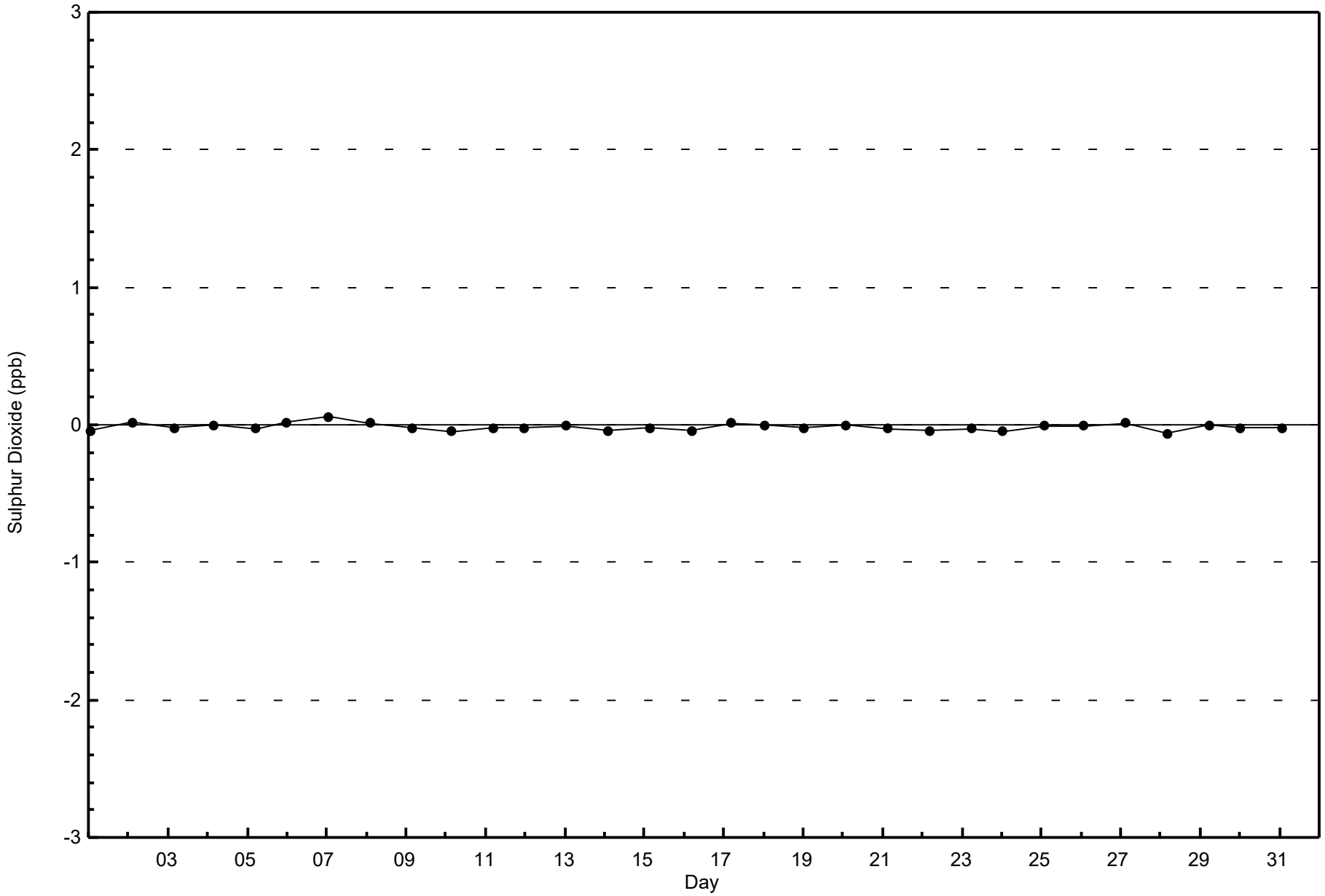
Total Number of Hours: 744

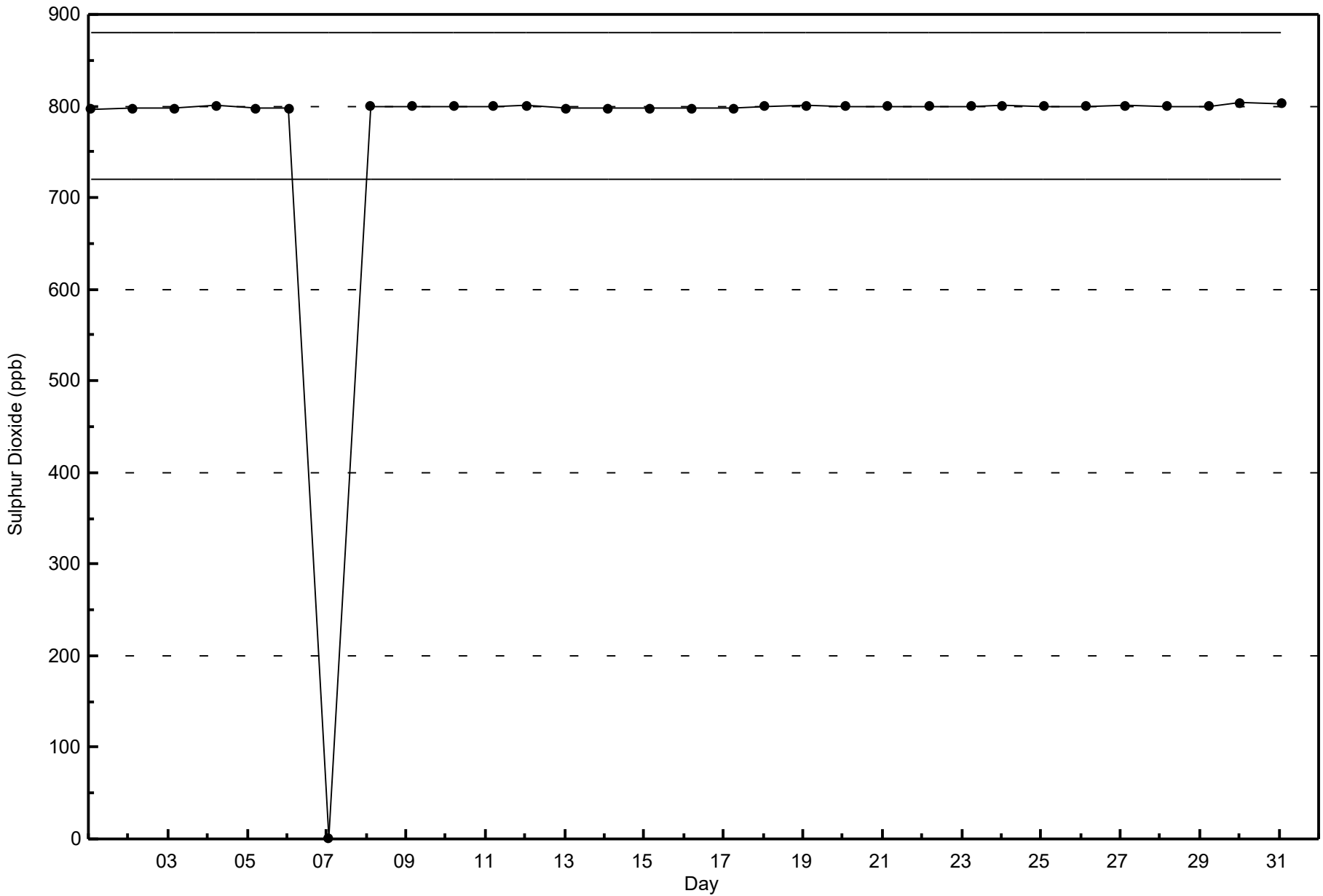


Wood Buffalo Environmental Association  
Wind Rose May 2024

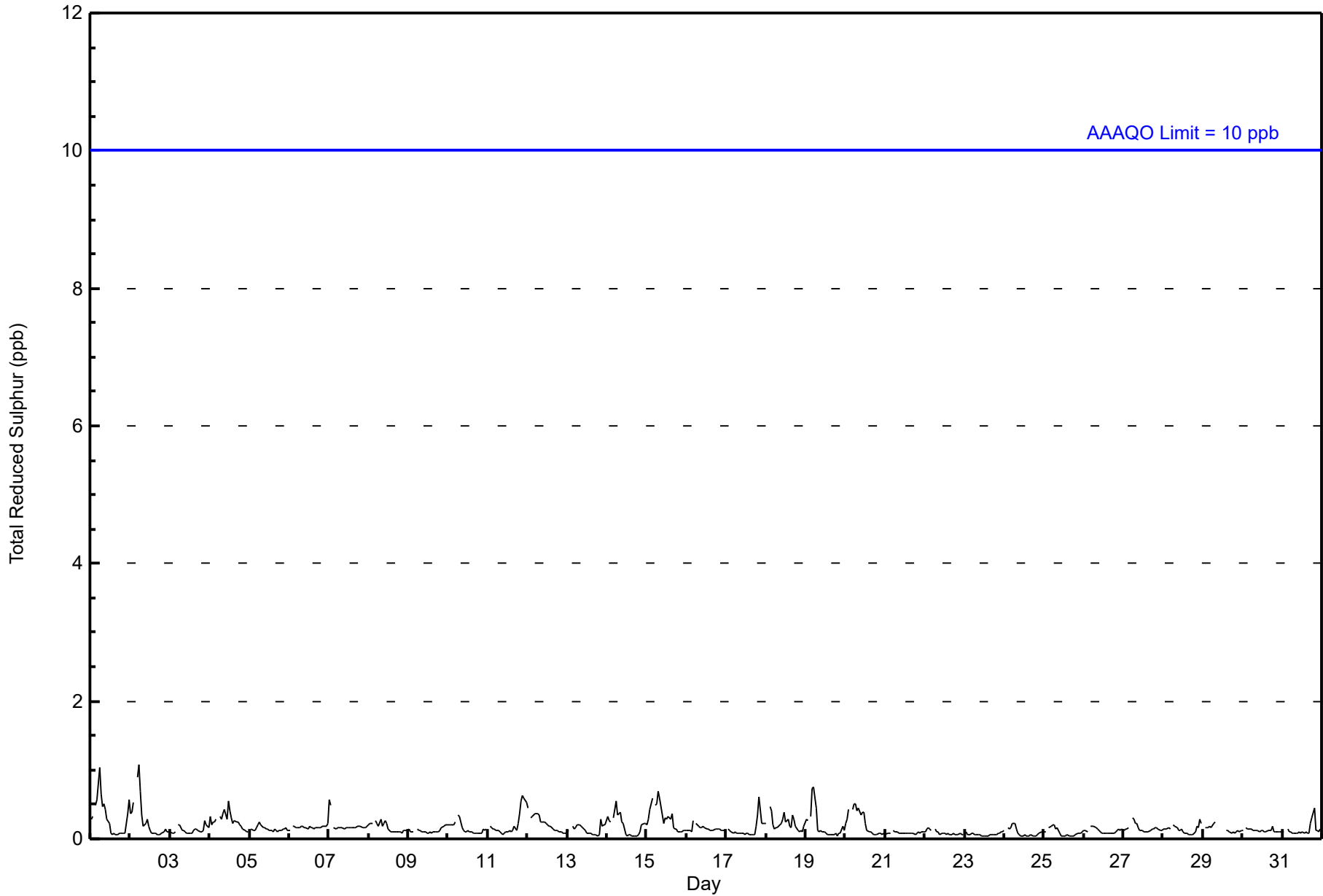
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Athabasca Valley













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

**Total Reduced Sulphur (TRS) - ppb**  
**Athabasca Valley - May 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  
Athabasca Valley - May 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	22	18	17	63	65	76	120	32	12	14	37	27	26	37	52	89	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>	22	18	17	63	65	76	120	32	12	14	37	27	26	37	52	89	707

Total Number of Valid Hours: 707

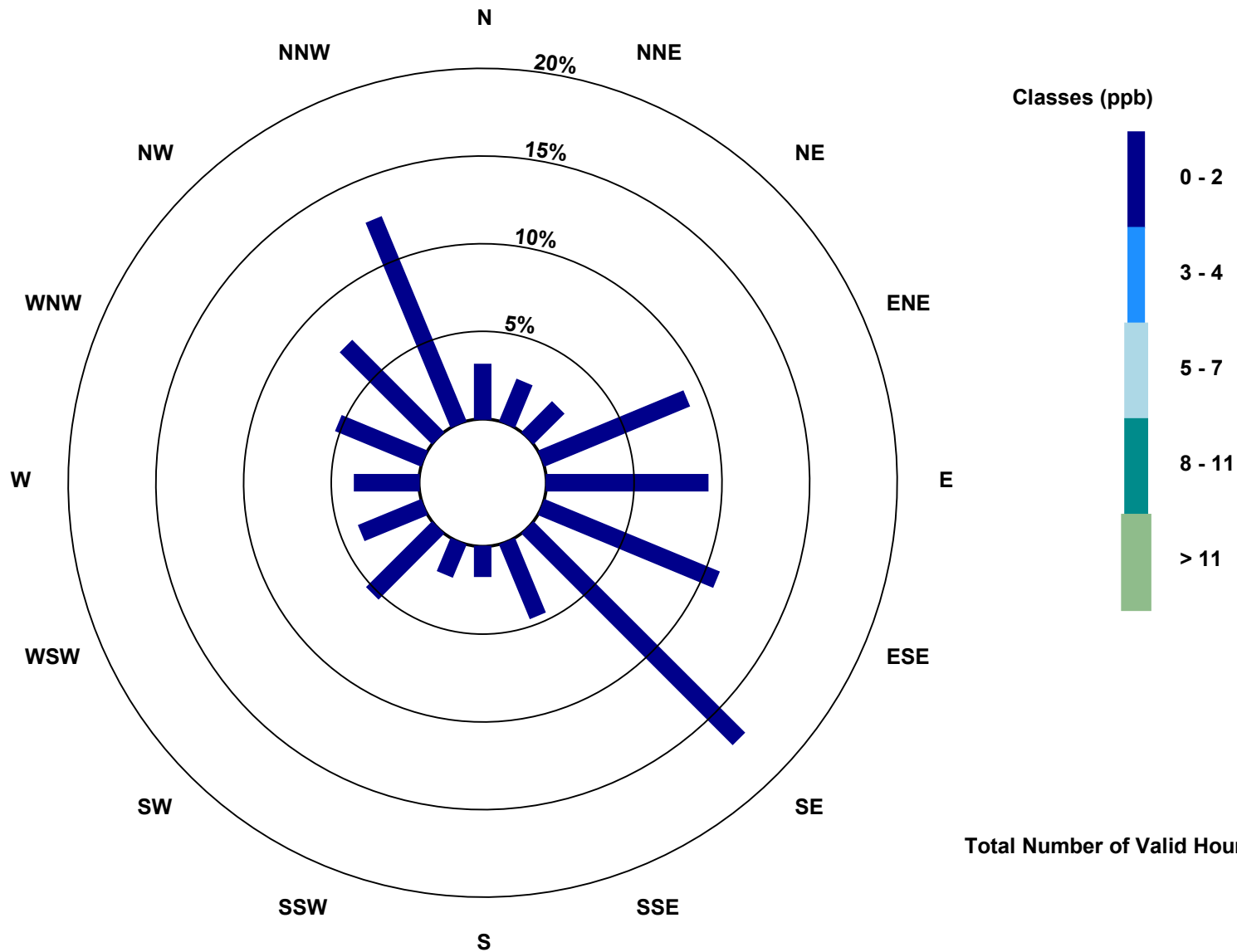
Total Number of Hours: 744

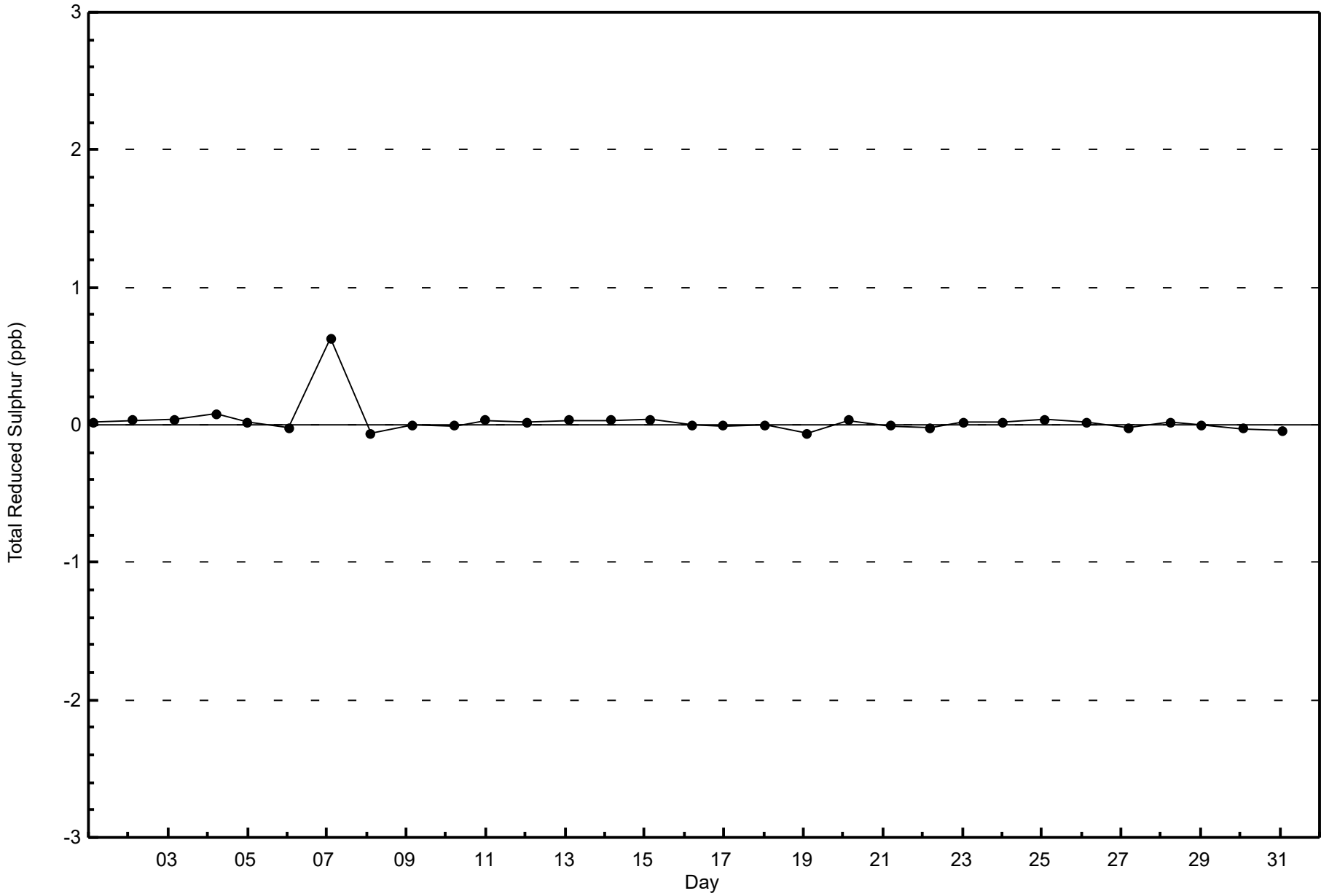


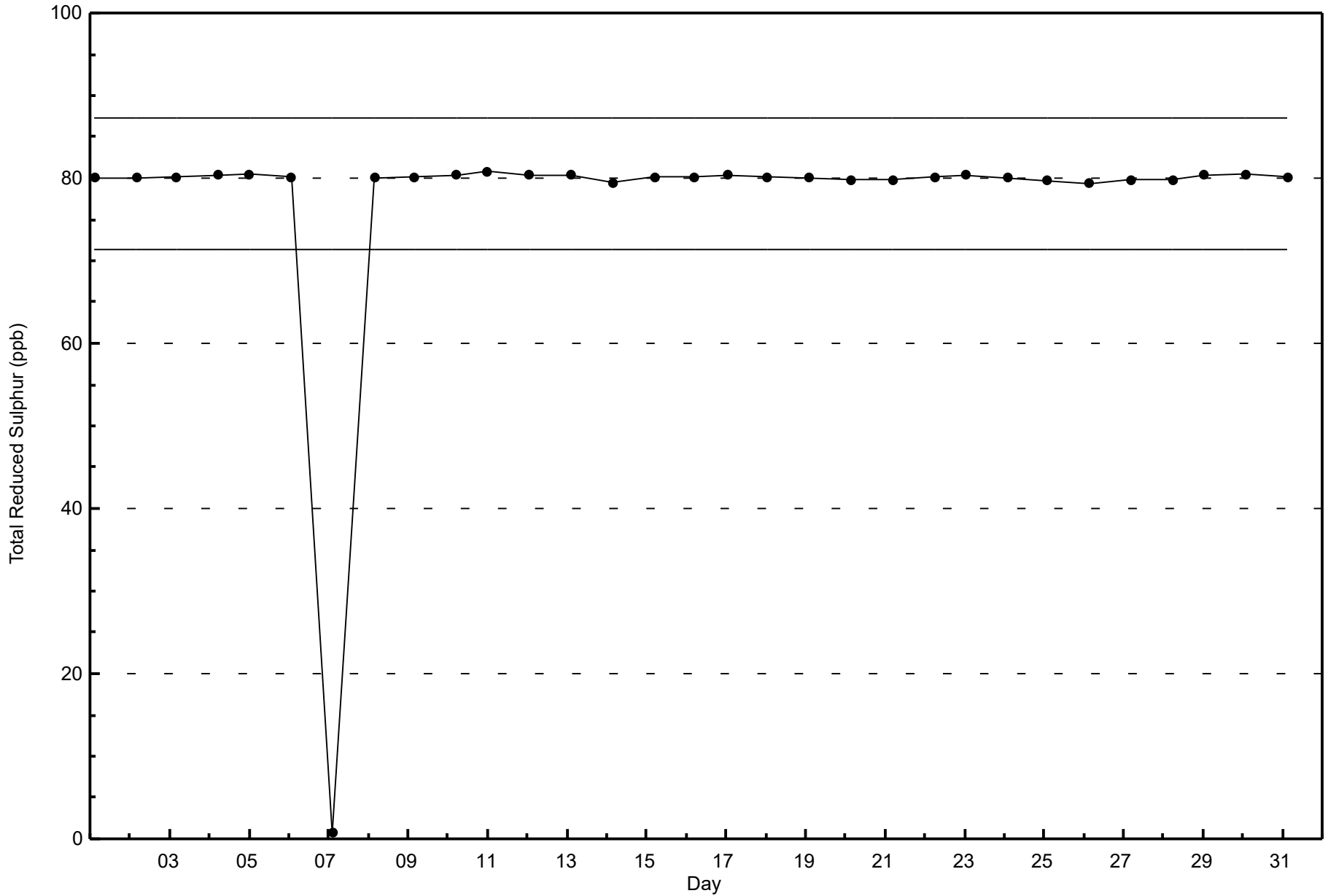


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Athabasca Valley





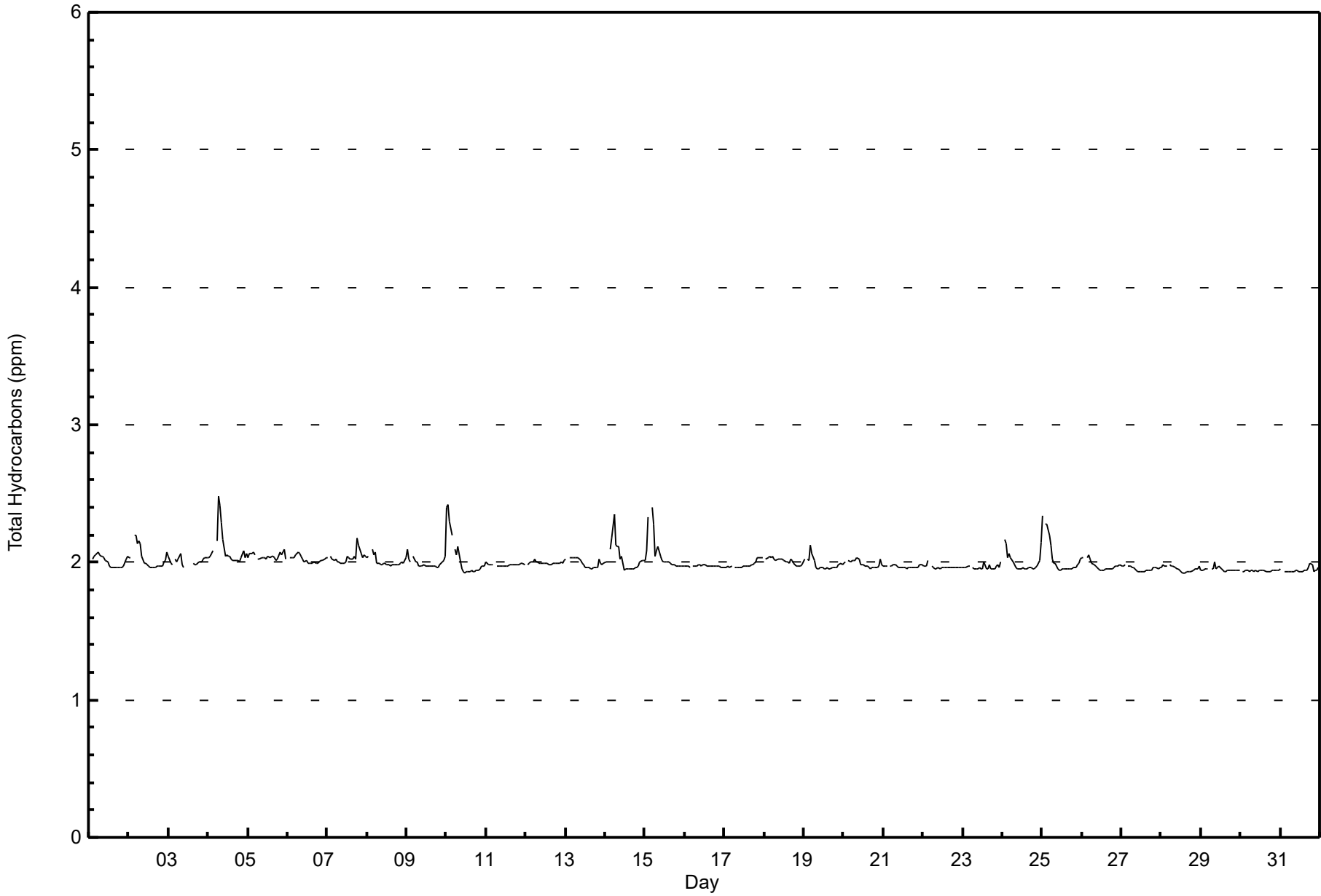






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - May 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Athabasca Valley - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	640	90.40	90.40
2.1 - 3.0	68	9.60	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**  
**Athabasca Valley - May 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	19	17	17	61	63	63	100	21	10	13	42	27	25	37	50	75	640
2.1 - 3.0	0	0	2	2	1	14	23	9	1	0	0	1	1	0	1	13	68
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>	19	17	19	63	64	77	123	30	11	13	42	28	26	37	51	88	708

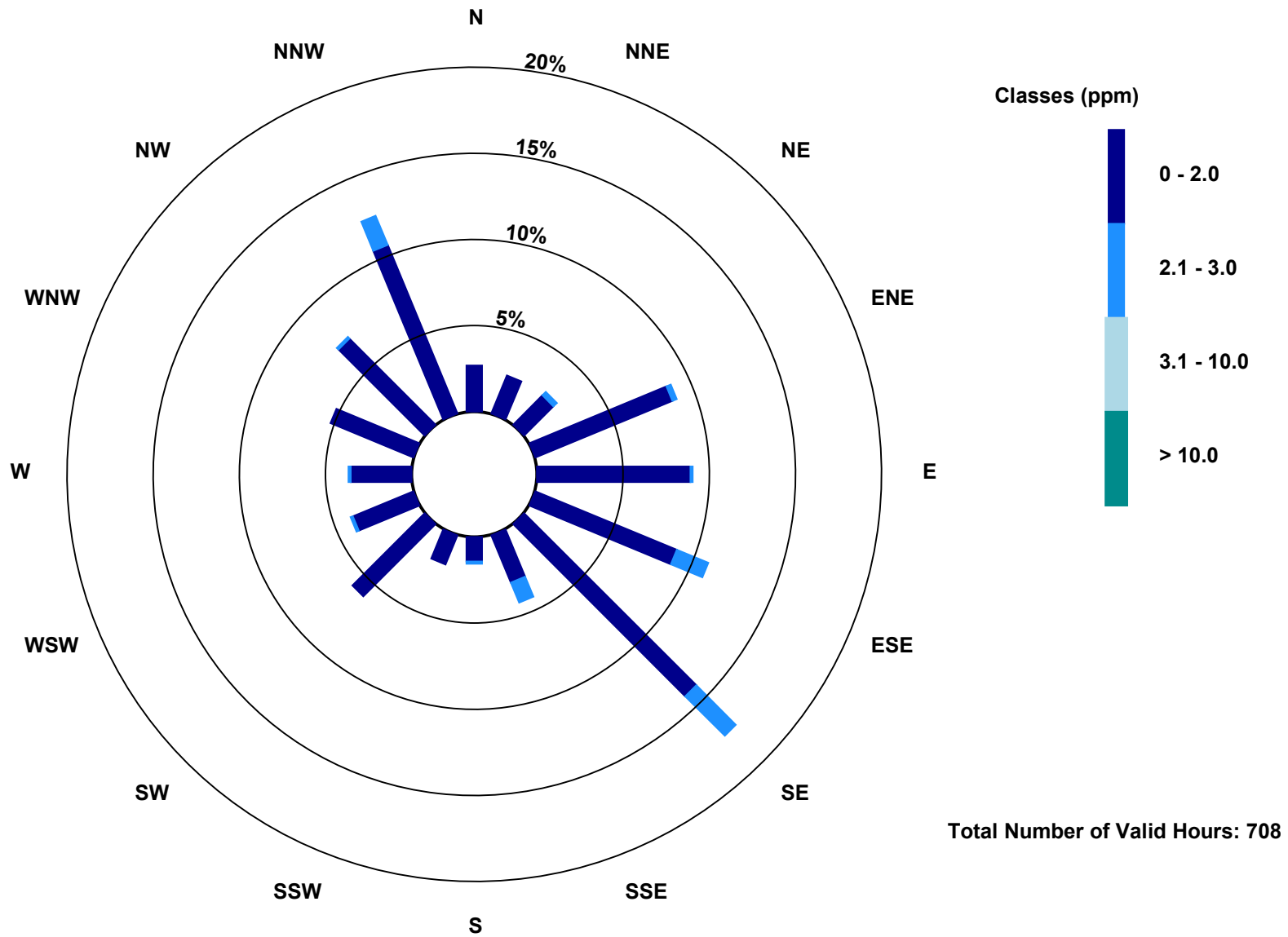
Total Number of Valid Hours: 708

Total Number of Hours: 744

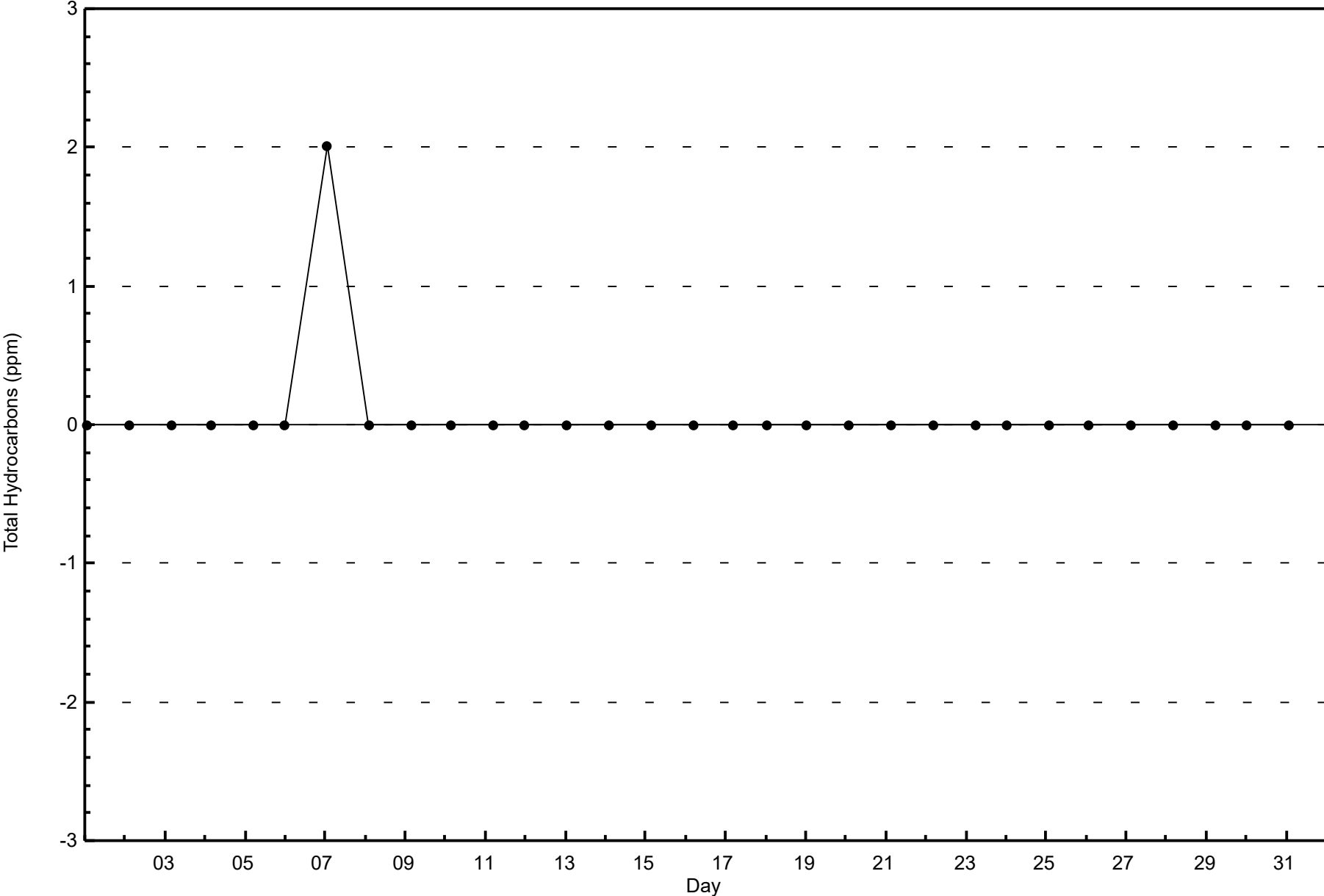


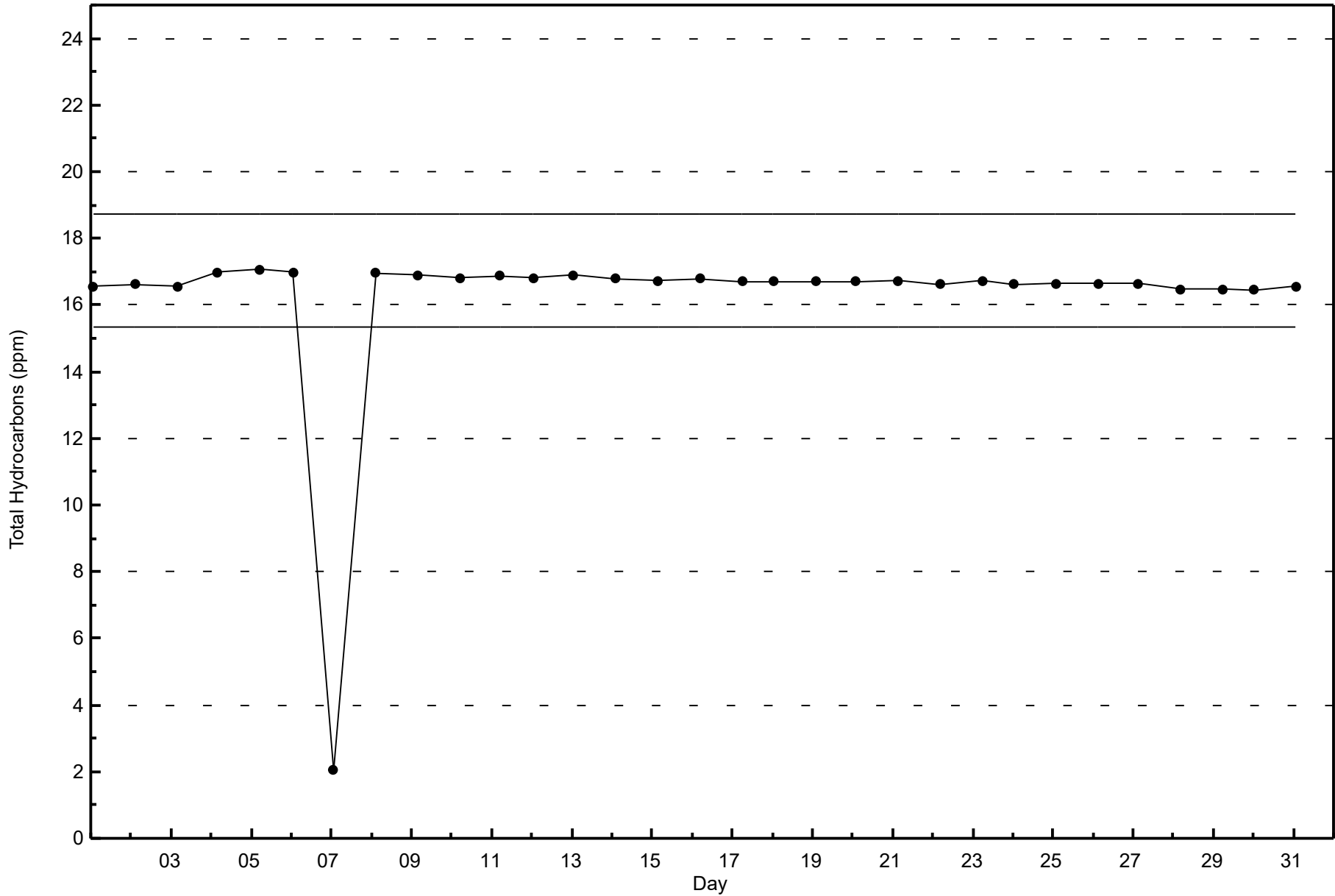
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Athabasca Valley



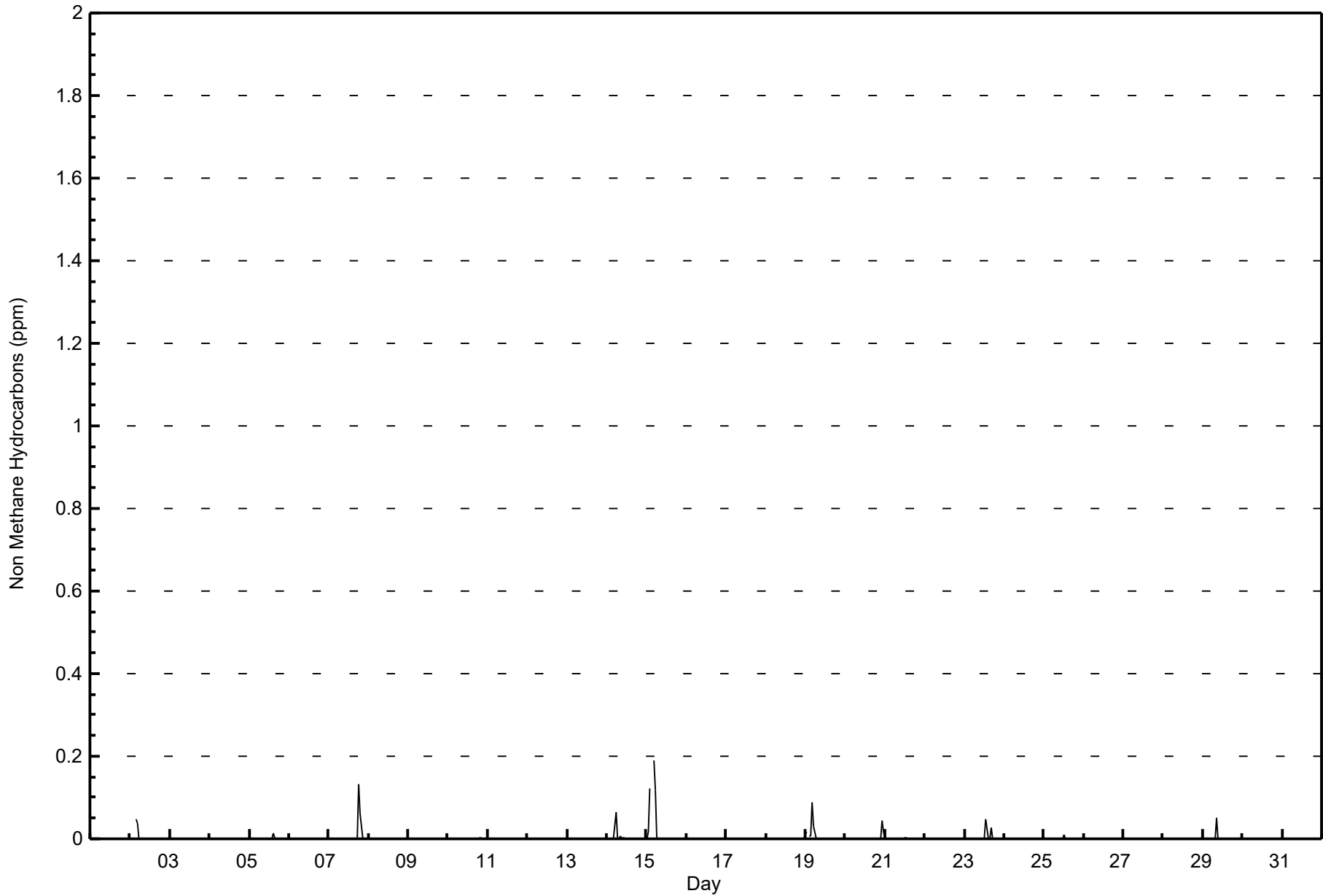








Maximum Value: 0.189 ppm on May 15 05:00																				Maximum Daily Average: 0.020 ppm on May 15					Hours in Service:	744																					
Minimum Value: 0.000 ppm on May 1 01:00																				Minimum Daily Average: 0.000 ppm on May 3					Hours of Data:	708																					
Maximum Diurnal Average: 0.012 ppm at hour 5																				Minimum Diurnal Average: 0.000 ppm at hour 8					Hours of Missing Data:	36																					
Monthly Average: 0.002 ppm																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.1					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-May	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	0.001	0.000	0.000	0.001																					
2-May	0.000	0.000	Z	0.049	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.049																					
3-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
4-May	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																						
5-May	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	0.015	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.015																						
6-May	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
7-May	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	0.134	0.060	0.000	0.000	0.008	0.134																						
8-May	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																						
9-May	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	0.002	0.000	0.002																						
10-May	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	0.002	0.000	0.000	0.000	0.000	0.002																						
11-May	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																						
12-May	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
13-May	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																						
14-May	0.000	0.000	Z	0.000	0.000	0.066	0.000	0.000	0.007	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	0.003	0.066																						
15-May	0.000	0.017	0.122	Z	0.189	0.118	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	0.189																						
16-May	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																						
17-May	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																						
18-May	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																						
19-May	0.016	Z	0.008	0.007	0.087	0.032	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	0.007	0.087																						
20-May	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	0.045	0.003	0.045																						
21-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																						
22-May	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																						
23-May	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	0.049	0.000	0.000	0.026	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.049																						
24-May	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																						
25-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.011																						
26-May	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																						
27-May	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																						
28-May	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																						
29-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.050																						
30-May	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																						
31-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																						
																								Diurnal Average		0.001	0.001	0.005	0.002	0.012	0.008	0.000	0.000	0.002	0.000	0.000	0.002	0.001	0.000	0.001	0.000	0.004	0.002	0.000	0.000	0.002	0.001
																								Diurnal Maximum		0.016	0.017	0.122	0.049	0.189	0.118	0.004	0.000	0.050	0.000	0.003	0.000	0.011	0.049	0.015	0.002	0.026	0.000	0.134	0.060	0.000	0.018
Z - zerospan      C - Calibration																																															





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	686	96.89	96.89
0.006 - 0.05	15	2.12	99.01
0.06 - 0.1	6	0.85	99.86
> 0.1	1	0.14	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley - May 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	18	17	18	63	62	73	117	29	11	13	42	28	26	37	50	82	686
0.006 - 0.05	1	0	0	0	1	4	3	1	0	0	0	0	0	0	0	5	15
0.06 - 0.1	0	0	0	0	1	0	3	0	0	0	0	0	0	0	1	1	6
> 0.1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	19	17	19	63	64	77	123	30	11	13	42	28	26	37	51	88	708

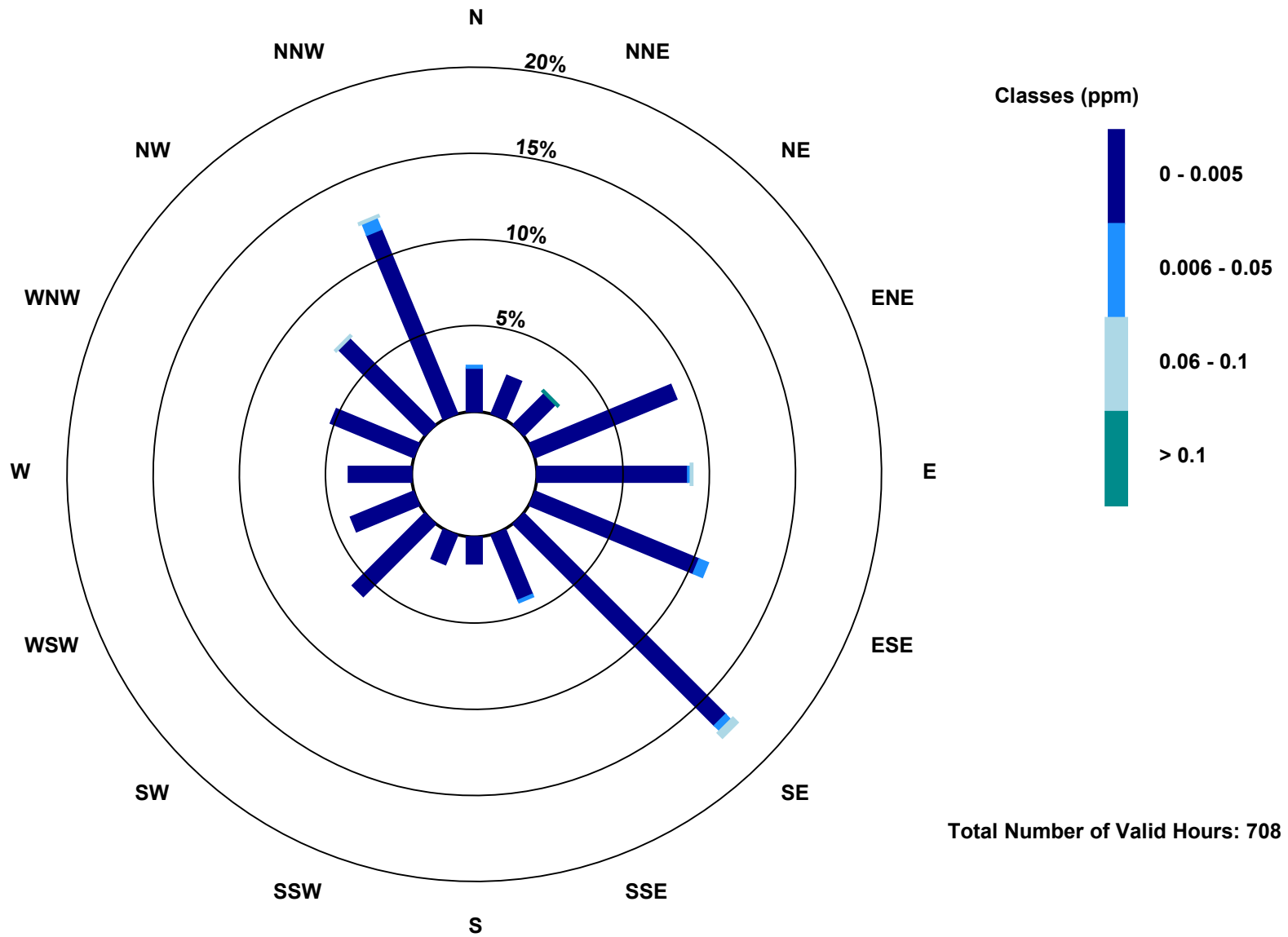
Total Number of Valid Hours: 708

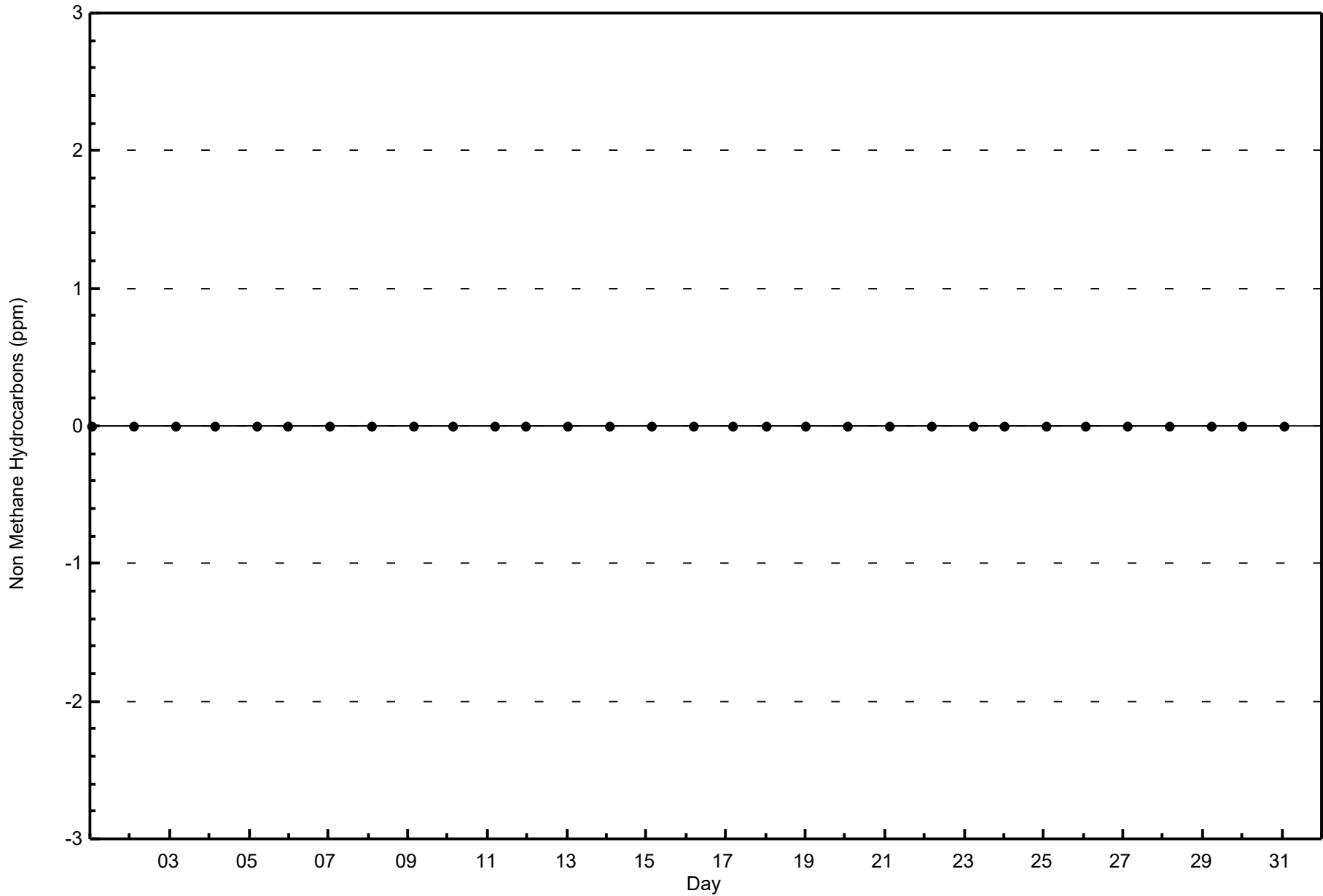
Total Number of Hours: 744



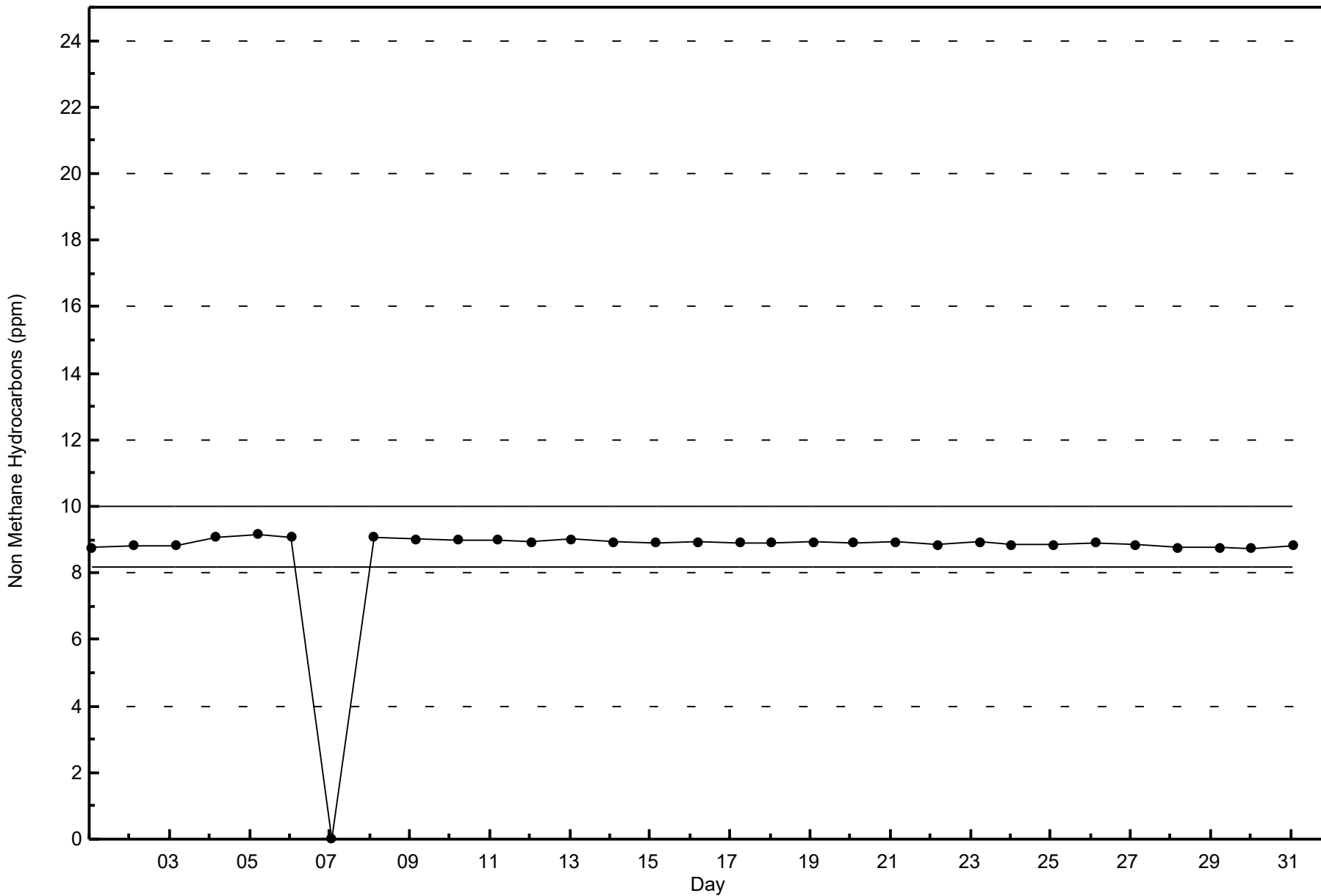
Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Athabasca Valley

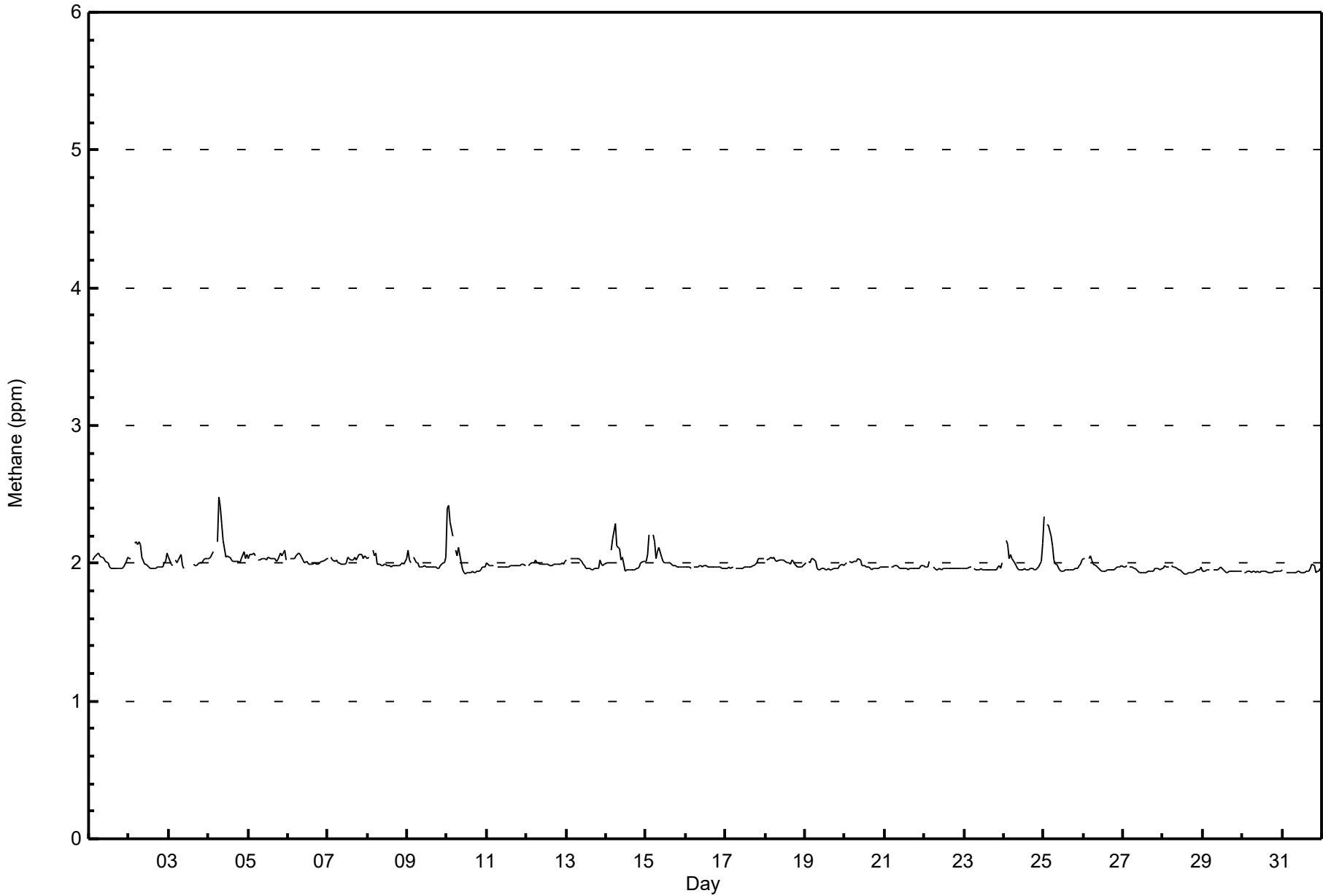














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	643	90.82	90.82
2.1 - 3.0	65	9.18	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**

**Methane (CH<sub>4</sub>) - ppm**  
**Athabasca Valley - May 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	19	17	17	61	63	63	101	21	10	13	42	27	25	37	50	77	643
2.1 - 3.0	0	0	2	2	1	14	22	9	1	0	0	1	1	0	1	11	65
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>	19	17	19	63	64	77	123	30	11	13	42	28	26	37	51	88	708

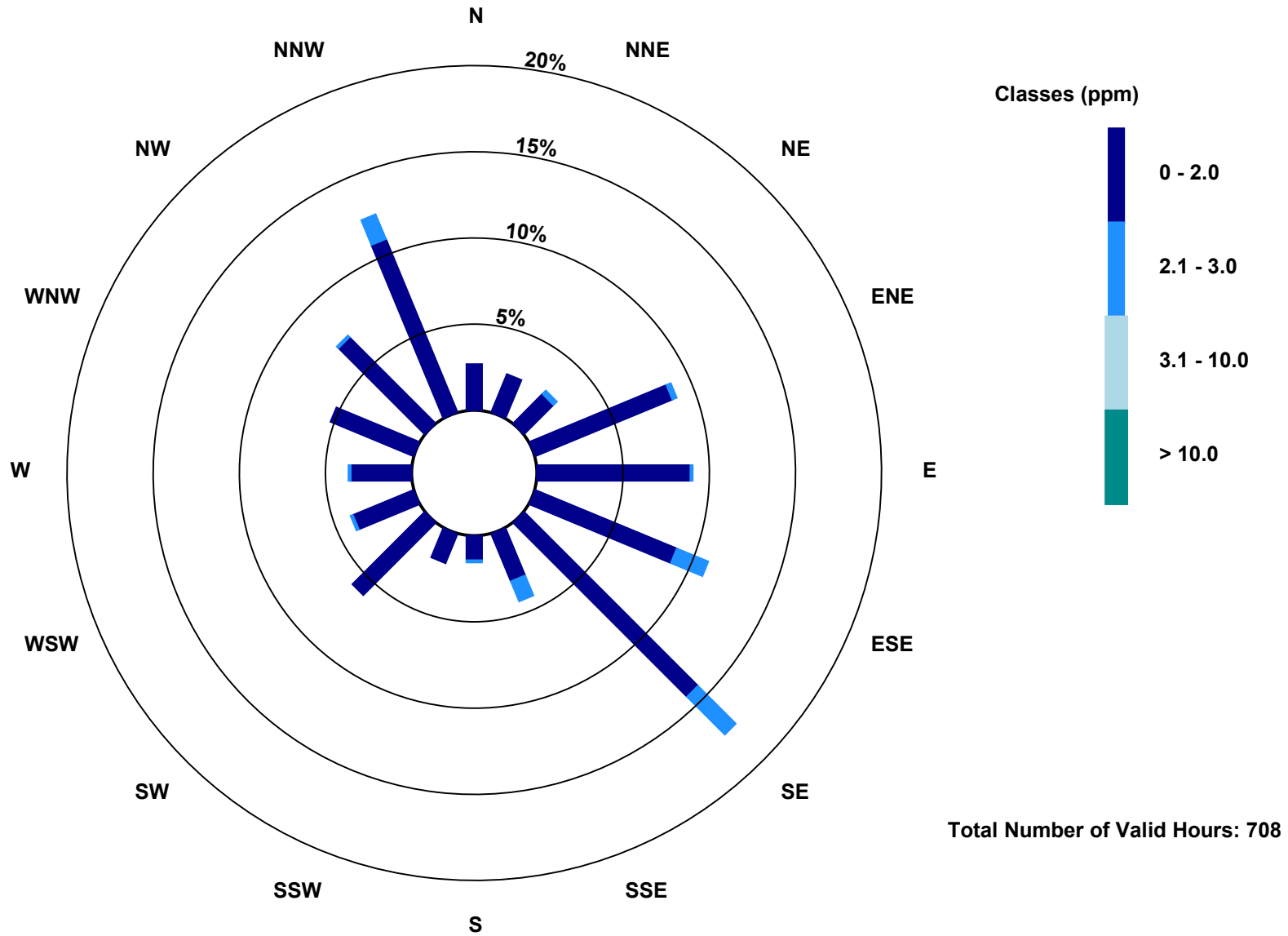
Total Number of Valid Hours: 708

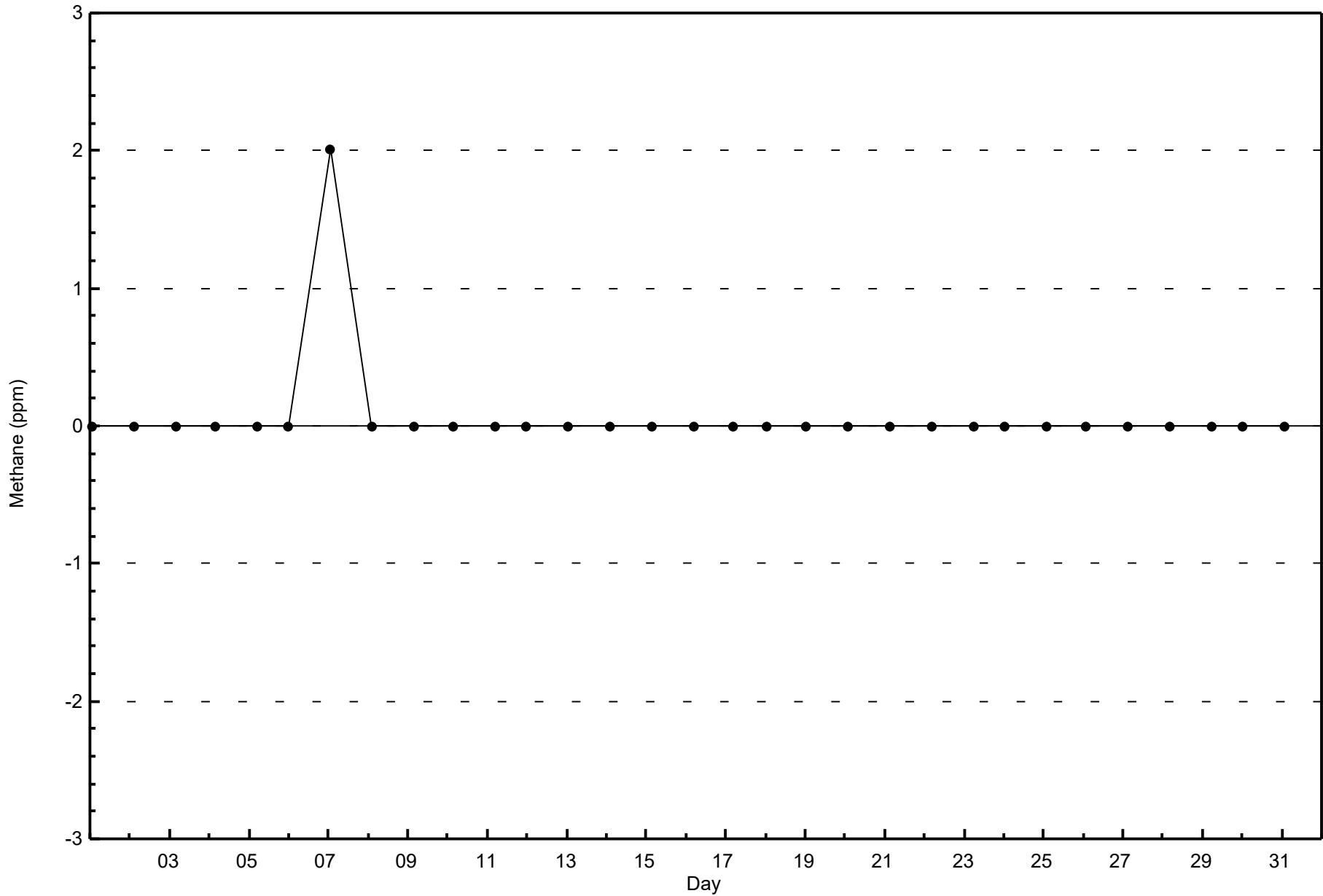
Total Number of Hours: 744

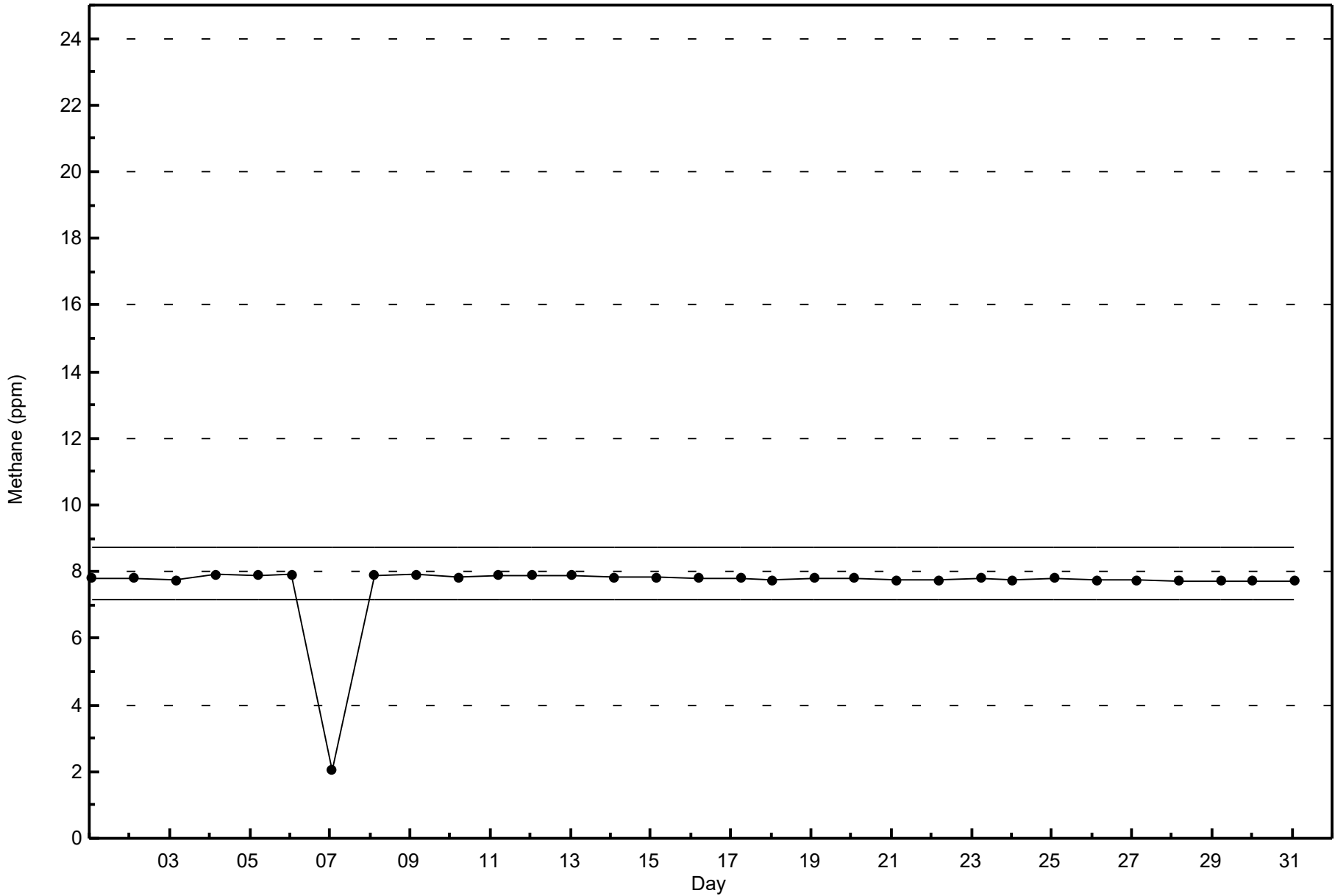


Wood Buffalo Environmental Association  
Wind Rose May 2024

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











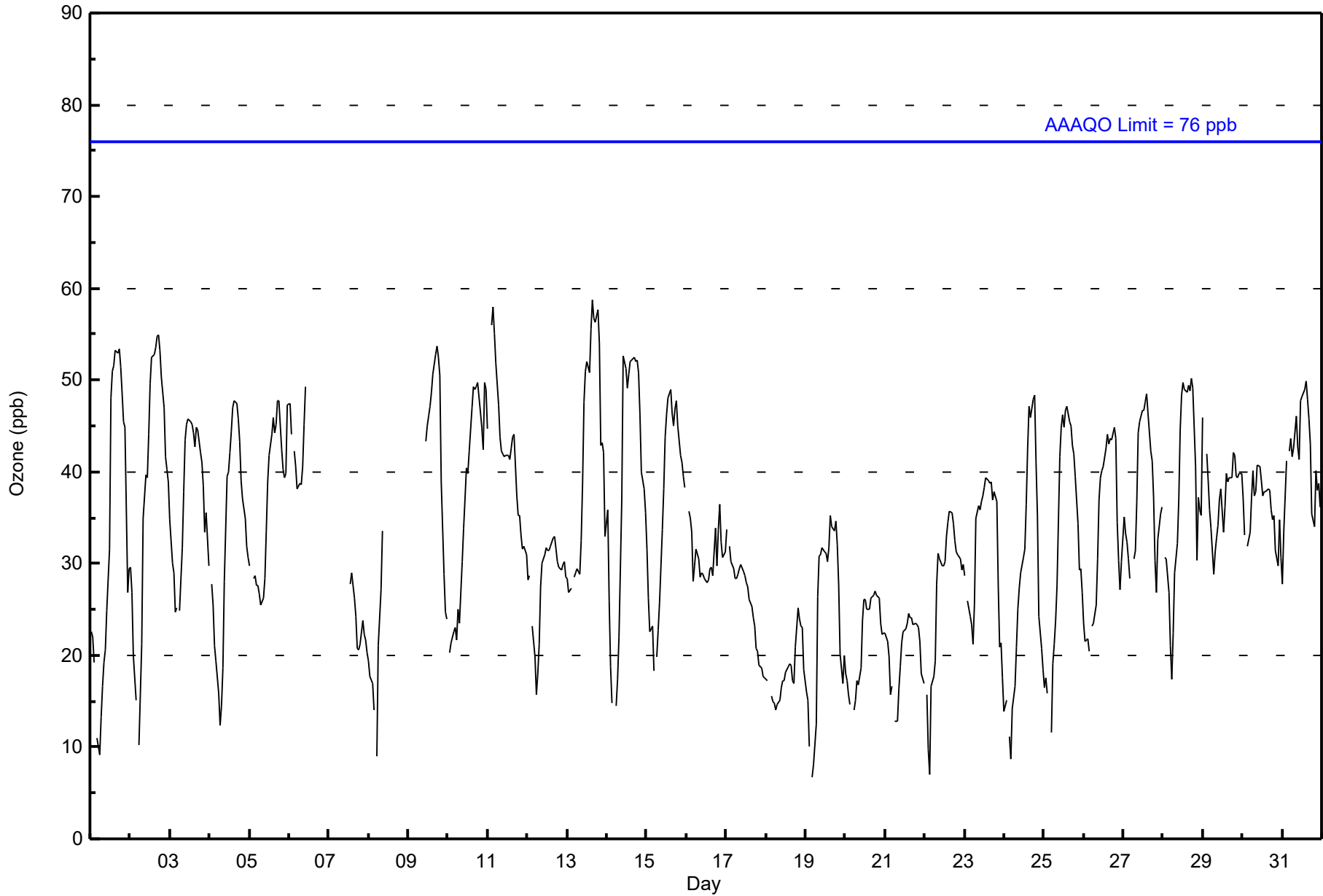
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Athabasca Valley - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 58.8 ppb on May 13 16:00		Maximum Daily Average: 42.3 ppb on May 11		Minimum Value: 6.7 ppb on May 19 05:00		Minimum Daily Average: 18.2 ppb on May 18		Hours of Data: 664																		
Maximum Diurnal Average: 41.1 ppb at hour 16		Minimum Diurnal Average: 22.6 ppb at hour 6		Monthly Average: 33.01 ppb		Percentiles: P <sub>1</sub> = 10.0 P <sub>10</sub> = 17.6 Q <sub>1</sub> = 24.3 Median = 32.0 Q <sub>3</sub> = 42.0 P <sub>90</sub> = 48.0 P <sub>99</sub> = 55.2		Hours of Missing Data: 80																		
								Hours of Calibration: 36																		
								Percent Operational Time: 94.1																		
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-May	22.6	21.9	19.2	Z	11.0	9.2	13.2	16.7	19.2	20.6	24.8	31.6	48.0	51.0	51.6	53.2	53.0	53.4	51.3	48.6	45.5	44.8	26.8	29.5	33.3	53.4
2-May	29.6	26.9	20.0	15.1	Z	10.3	15.7	21.3	34.9	39.7	39.4	44.1	49.5	52.5	52.8	53.5	54.8	54.9	53.3	50.3	47.0	41.7	40.2	38.9	38.5	54.9
3-May	34.8	30.0	29.0	24.7	25.1	Z	24.9	31.7	37.8	43.5	45.1	45.8	45.5	45.2	44.3	42.7	44.8	44.6	42.2	41.0	38.5	33.4	35.6	29.7	37.4	45.8
4-May	Z	27.8	25.4	21.0	19.3	15.9	12.4	14.5	18.6	28.0	39.5	39.9	42.1	44.3	47.0	47.7	47.5	45.7	43.3	39.0	37.0	34.9	31.9	30.7	32.8	47.7
5-May	29.8	Z	28.4	28.7	27.6	27.7	26.7	25.4	26.3	28.4	33.5	38.9	41.8	44.1	45.9	44.3	45.1	47.7	47.8	42.4	40.2	39.3	39.8	47.3	36.8	47.8
6-May	47.4	44.1	Z	42.3	40.6	38.2	38.8	38.6	40.6	45.2	49.3	C	C	C	M	M	M	M	M	M	M	M	M	M	--	49.3
7-May	M	M	M	M	M	M	M	M	M	C	C	C	C	27.8	29.0	26.3	24.3	20.7	20.6	21.2	23.8	22.2	21.6	20.4	--	29.0
8-May	19.4	17.7	17.0	14.0	Z	9.0	21.0	27.1	33.5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	33.5
9-May	UO	UO	UO	UO	UO	UO	UO	UO	M	M	43.4	45.0	46.1	47.1	48.7	50.6	52.8	53.8	52.4	50.6	38.9	28.8	24.7	23.9	--	53.8
10-May	Z	20.2	21.4	22.6	23.0	21.6	25.0	23.4	30.1	33.8	37.0	40.4	39.8	42.3	46.9	49.3	48.9	49.2	49.8	46.6	44.8	42.4	49.8	49.0	37.3	49.8
11-May	44.8	Z	55.9	57.9	55.0	51.9	47.2	43.8	42.2	42.0	41.7	41.8	41.8	41.4	42.5	43.8	44.0	37.3	35.2	35.2	33.1	31.6	31.9	31.0	42.3	57.9
12-May	28.2	28.7	Z	23.2	19.8	15.8	17.9	21.2	27.4	30.1	31.0	31.7	31.5	31.5	31.9	32.8	33.0	31.5	30.3	29.7	29.3	29.9	30.2	28.5	28.0	33.0
13-May	28.3	26.9	27.3	Z	28.6	28.9	29.4	28.8	32.4	38.7	47.6	50.9	52.0	50.8	55.6	58.8	56.7	56.3	57.6	54.0	42.9	43.2	42.1	33.0	42.2	58.8
14-May	35.9	25.9	18.7	14.8	Z	14.4	17.4	22.0	29.4	36.9	52.6	51.2	49.1	50.7	52.0	52.2	52.5	52.0	52.1	50.8	46.2	40.0	38.1	35.5	38.7	52.6
15-May	31.6	26.2	22.6	23.1	18.3	Z	19.8	22.7	25.9	33.7	38.2	43.8	46.2	48.0	48.9	46.4	45.0	46.9	47.7	45.0	41.7	41.0	39.4	38.4	36.5	48.9
16-May	Z	35.7	35.0	33.4	28.1	29.7	31.6	30.5	28.5	29.0	28.8	28.4	27.9	28.3	29.5	29.6	28.6	33.9	29.8	33.8	36.5	32.3	30.6	31.3	30.9	36.5
17-May	33.8	Z	31.9	30.1	29.4	28.4	28.3	28.8	29.5	29.9	29.2	28.7	27.9	27.5	26.1	25.4	24.1	23.1	20.7	20.4	18.8	18.6	17.8	17.6	25.9	33.8
18-May	17.4	17.2	Z	15.5	15.0	14.8	14.1	14.6	15.1	16.5	17.3	17.3	18.2	18.8	19.0	19.0	17.2	17.0	20.9	25.2	24.0	23.2	23.0	18.5	18.2	25.2
19-May	16.0	15.1	10.1	Z	6.7	8.0	12.5	26.4	30.8	30.9	31.7	31.3	31.1	30.2	31.7	35.2	34.0	33.6	34.6	32.1	27.6	20.1	17.0	20.0	24.6	35.2
20-May	18.0	17.2	15.7	14.6	Z	14.1	15.1	17.2	16.8	18.6	23.8	26.1	26.0	25.0	25.0	26.2	26.4	26.5	27.1	26.5	26.2	23.5	22.2	22.4	21.8	27.1
21-May	22.4	21.5	19.8	15.7	16.7	Z	12.9	12.8	16.3	18.8	21.3	22.5	22.9	23.5	24.6	24.1	24.0	23.4	23.6	23.4	23.1	21.5	18.0	17.0	20.4	24.6
22-May	Z	15.7	9.8	7.1	16.7	17.7	19.4	27.8	31.1	30.5	29.7	29.8	30.2	32.9	34.5	35.6	35.5	34.3	32.5	31.2	31.0	30.5	29.3	29.9	27.1	35.6
23-May	28.7	Z	25.9	24.3	23.3	21.2	25.6	34.9	36.2	35.9	36.7	37.4	38.3	39.4	39.0	38.8	38.9	37.0	37.8	36.8	27.6	21.0	21.4	17.5	31.5	39.4
24-May	14.0	15.0	Z	11.1	8.7	14.2	16.6	21.0	25.0	27.2	29.0	30.6	31.6	36.4	42.5	47.1	45.8	47.8	48.3	41.1	35.2	24.2	20.8	18.4	28.3	48.3
25-May	16.4	17.6	15.9	Z	11.7	19.1	21.2	23.7	27.6	41.7	44.9	46.3	44.8	46.7	47.1	45.5	45.1	42.9	41.9	39.5	34.3	29.3	29.5	26.8	33.0	47.1
26-May	23.4	21.4	21.8	20.4	Z	23.2	23.5	25.4	30.5	37.0	39.3	40.2	40.6	42.5	44.1	43.1	43.6	43.5	44.9	43.7	34.4	30.3	27.1	30.3	33.7	44.9
27-May	35.1	33.3	32.3	30.5	28.4	Z	30.4	31.5	36.7	44.2	45.4	46.7	46.8	47.6	48.5	46.4	42.2	41.1	37.2	30.4	26.8	32.7	35.3	36.2	37.6	48.5
28-May	Z	30.7	30.5	26.8	21.1	17.3	22.4	29.0	32.1	36.9	44.5	48.4	49.7	48.9	48.6	49.4	48.8	50.1	49.1	40.5	30.3	37.2	35.8	35.2	37.5	50.1
29-May	45.8	Z	41.9	39.0	35.9	33.8	28.9	31.3	32.8	34.2	36.9	38.2	33.5	36.2	39.9	38.8	39.3	39.3	42.1	41.8	39.5	39.3	39.7	39.8	37.7	45.8
30-May	37.0	33.1	Z	31.8	33.4	37.2	40.1	37.4	37.8	40.8	40.5	39.1	37.4	37.8	37.8	38.1	38.0	35.8	34.8	35.2	31.4	29.7	34.7	30.6	36.1	40.8
31-May	27.8	33.3	41.2	Z	42.2	43.7	41.6	42.6	46.1	42.7	41.3	47.7	48.2	48.9	49.9	48.0	45.8	43.0	35.4	34.0	40.2	37.9	38.7	36.2	41.6	49.9
28.7 25.1 25.7 24.5 24.4 22.6 23.9 26.6 30.0 33.4 36.7 38.0 38.9 39.6 40.9 41.1 40.7 40.2 39.5 37.6 34.3 31.9 30.8 29.8																								Diurnal Average		
47.4 44.1 55.9 57.9 55.0 51.9 47.2 43.8 46.1 45.2 52.6 51.2 52.0 52.5 55.6 58.8 56.7 56.3 57.6 54.0 47.0 44.8 49.8 49.0																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb																										





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

**Ozone (O<sub>3</sub>) - ppb**  
**Athabasca Valley - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	102	15.36	15.36
21 - 50	523	78.77	94.13
51 - 82	39	5.87	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 664

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Athabasca Valley - May 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	0	3	2	4	11	18	8	1	1	1	0	0	1	19	30	102
21 - 50	17	17	13	55	51	62	98	20	9	9	24	18	25	27	28	50	523
51 - 82	2	0	2	4	0	0	0	0	0	1	6	7	2	7	3	5	39
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>22</b>	<b>17</b>	<b>18</b>	<b>61</b>	<b>55</b>	<b>73</b>	<b>116</b>	<b>28</b>	<b>10</b>	<b>11</b>	<b>31</b>	<b>25</b>	<b>27</b>	<b>35</b>	<b>50</b>	<b>85</b>	<b>664</b>

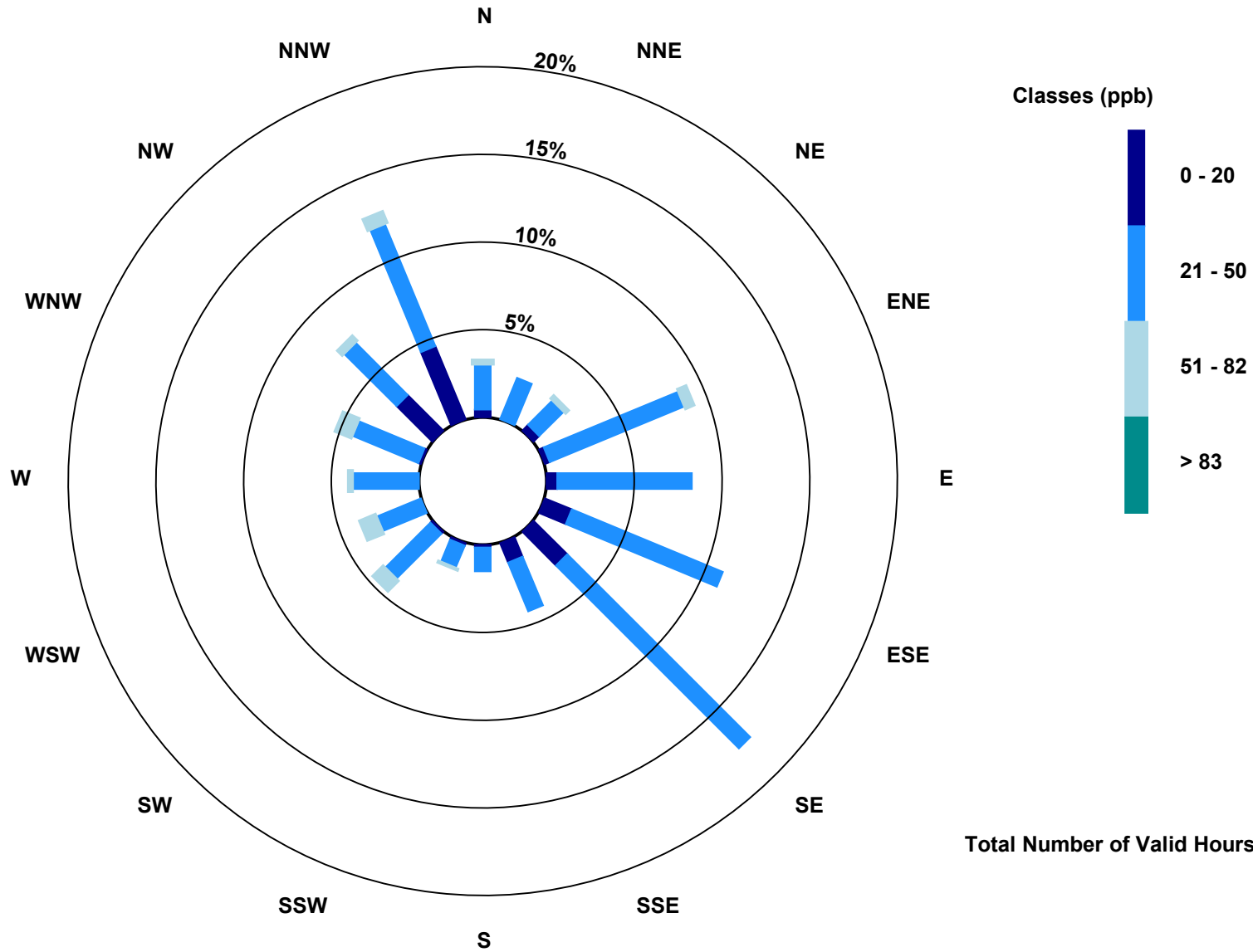
Total Number of Valid Hours: 664

Total Number of Hours: 744

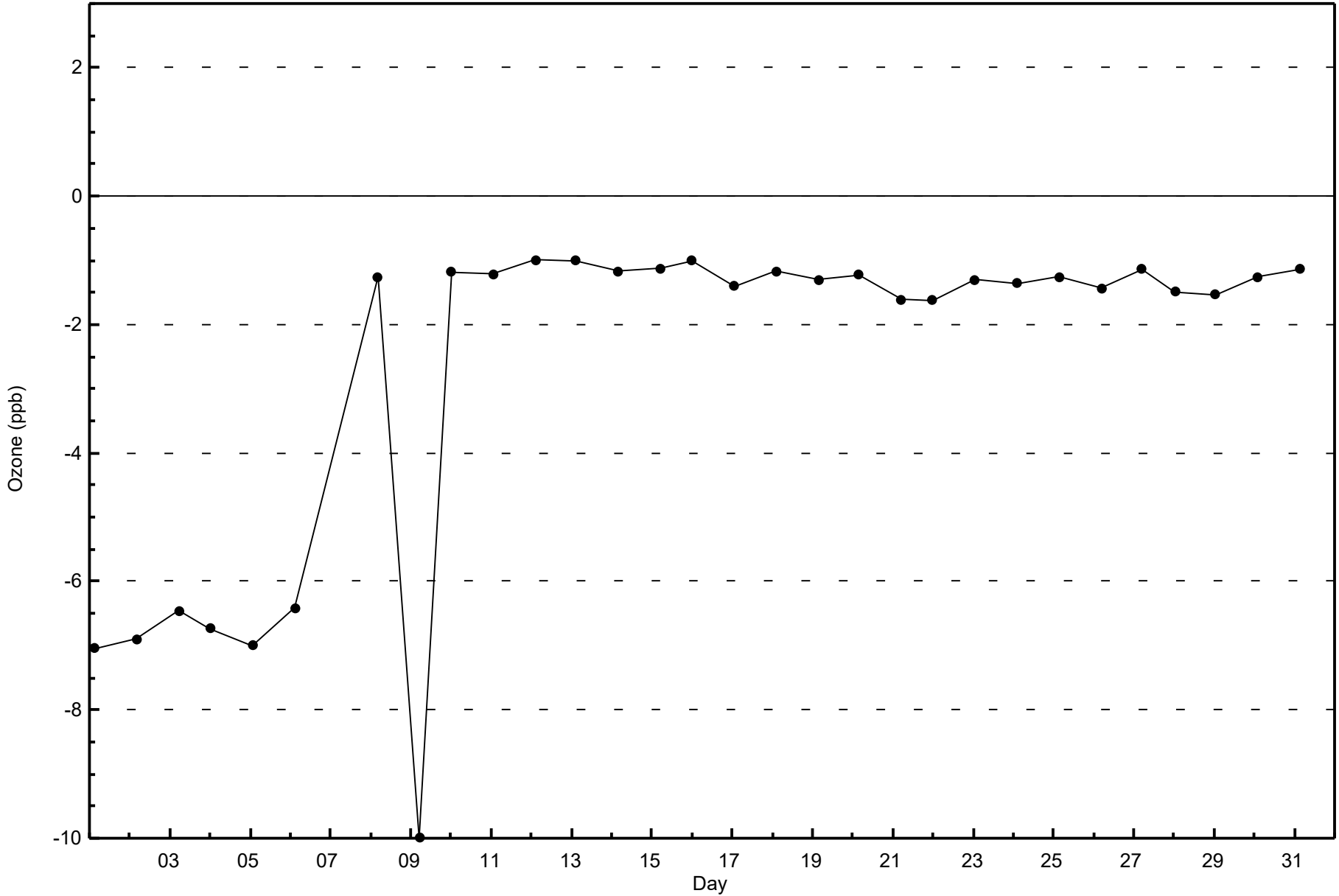


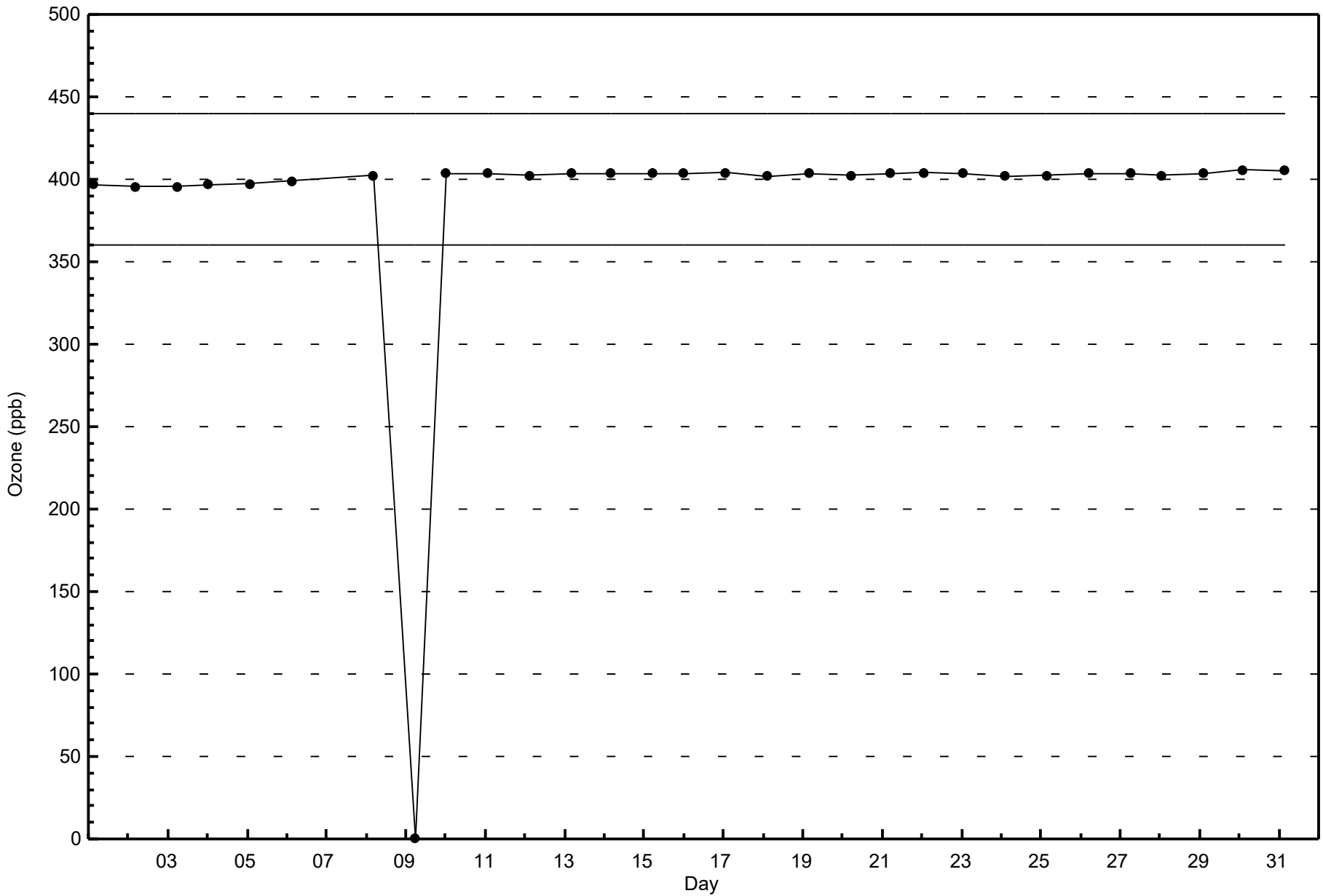
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 664





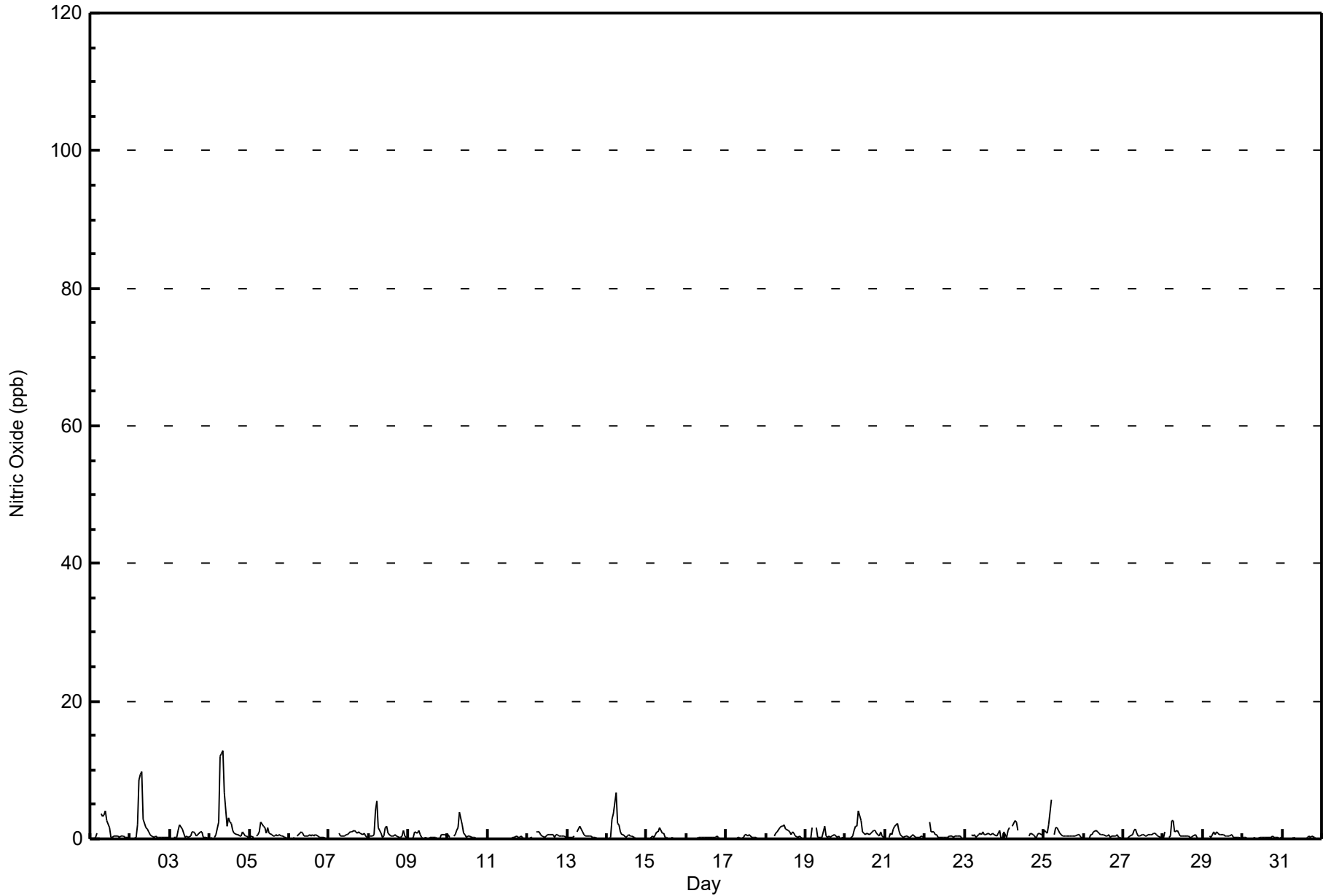






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - May 2024**





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

**Nitric Oxide (NO) - ppb**  
**Athabasca Valley - May 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  
Athabasca Valley - May 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	18	18	61	64	76	121	28	12	15	39	28	24	39	52	88	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>	24	18	18	61	64	76	121	28	12	15	39	28	24	39	52	88	707

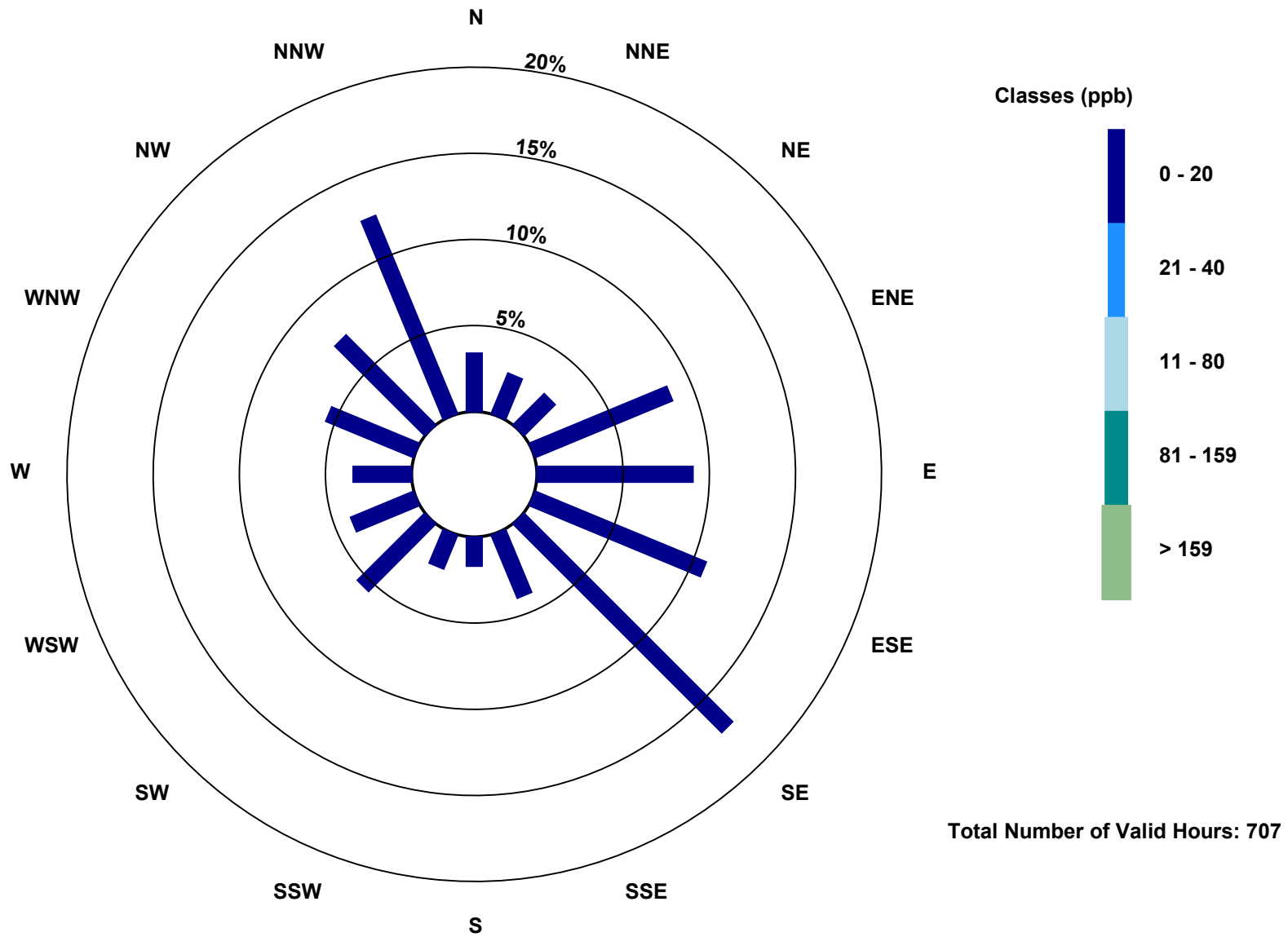
Total Number of Valid Hours: 707

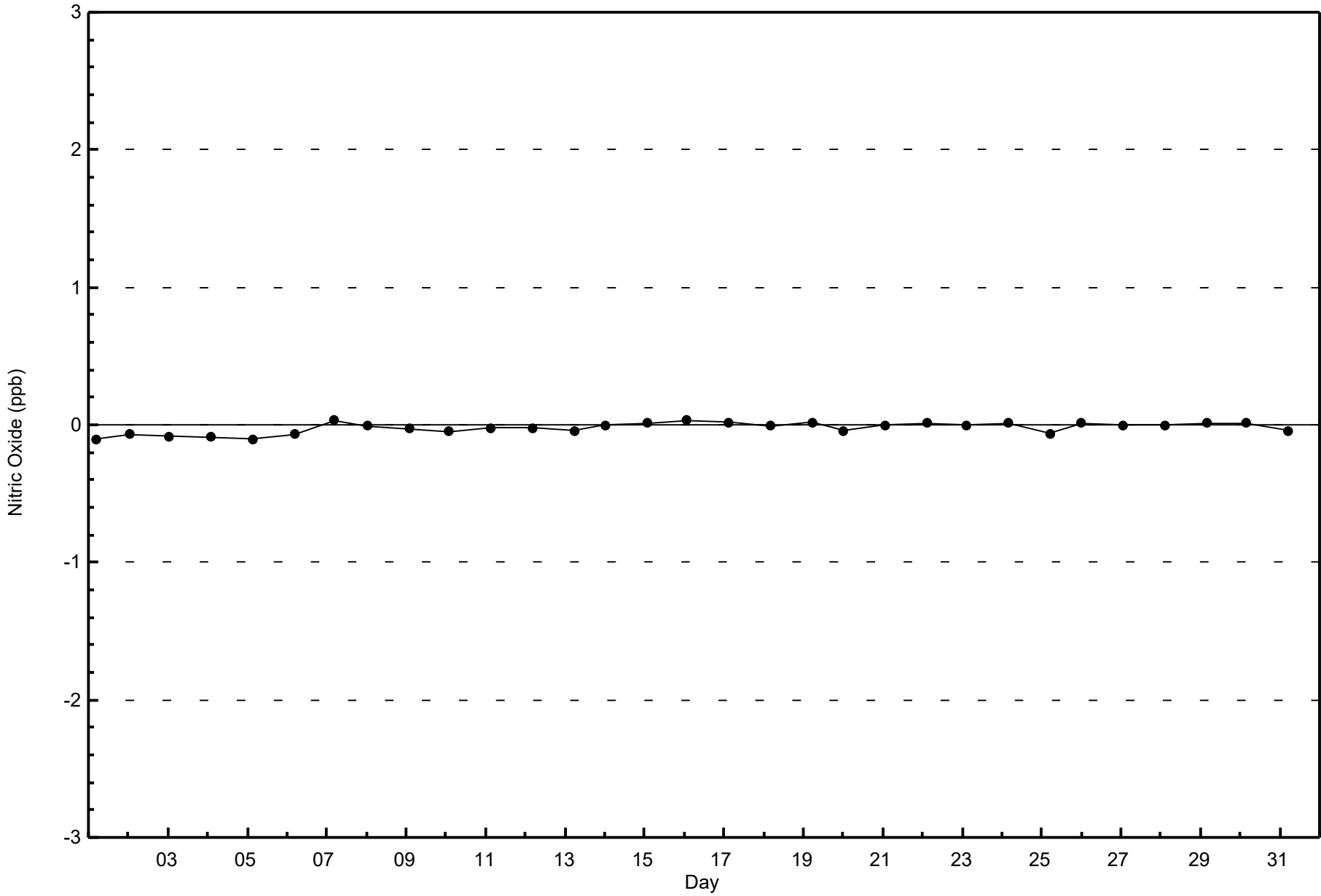
Total Number of Hours: 744

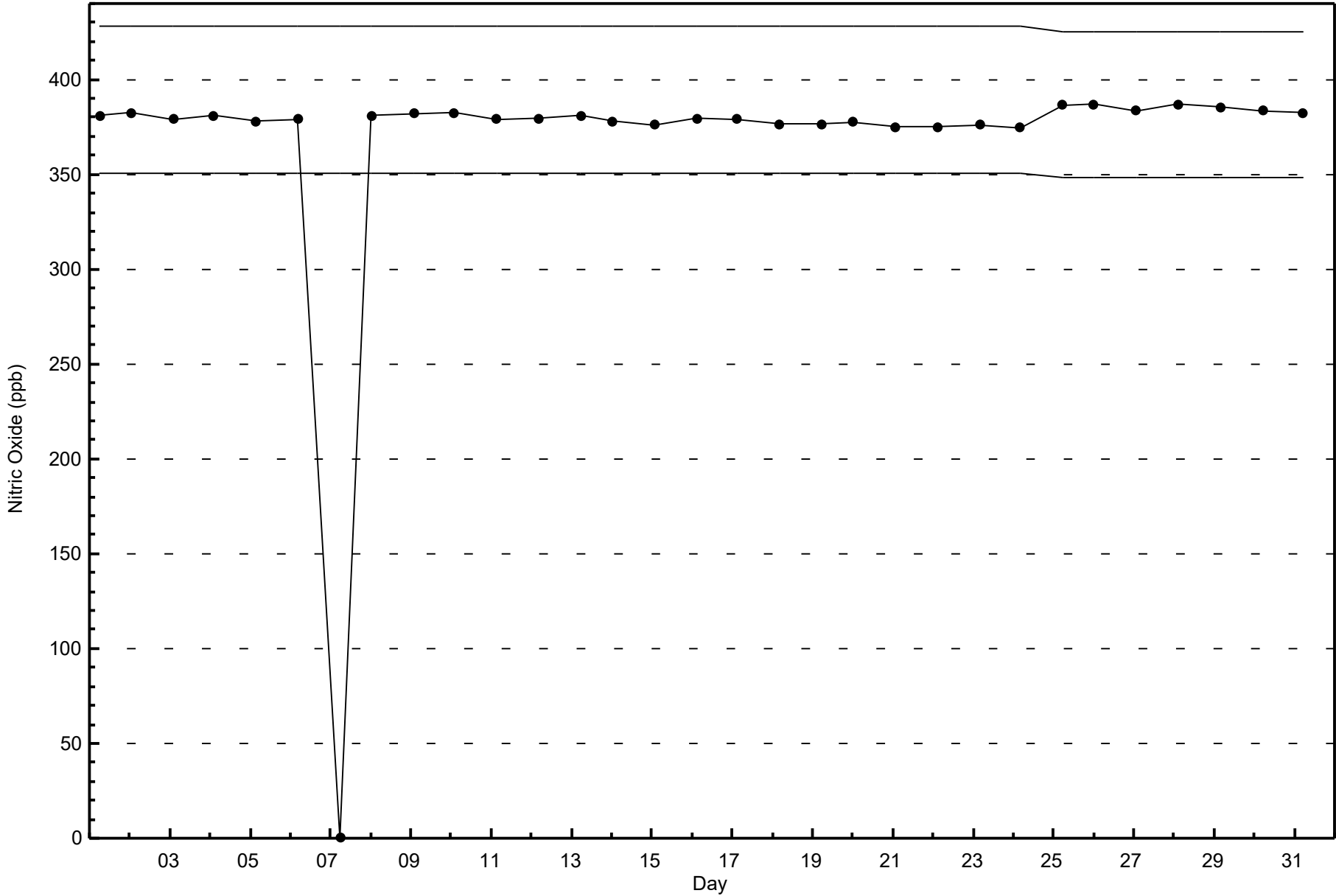


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Athabasca Valley









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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.1 ppb on May 2 05:00	Maximum Daily Average: 7.6 ppb on May 4		Hours of Data:	707
Minimum Value: 0.2 ppb on May 19 11:00	Minimum Daily Average: 0.9 ppb on May 16		Hours of Missing Data:	37
Maximum Diurnal Average: 6.1 ppb at hour 5	Minimum Diurnal Average: 1.5 ppb at hour 15		Hours of Calibration:	37
Monthly Average: 3.23 ppb	Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.6 Q <sub>1</sub> = 1.1 Median = 2.3 Q <sub>3</sub> = 4.4 P <sub>90</sub> = 6.9 P <sub>99</sub> = 15.5		Percent Operational Time:	100.0

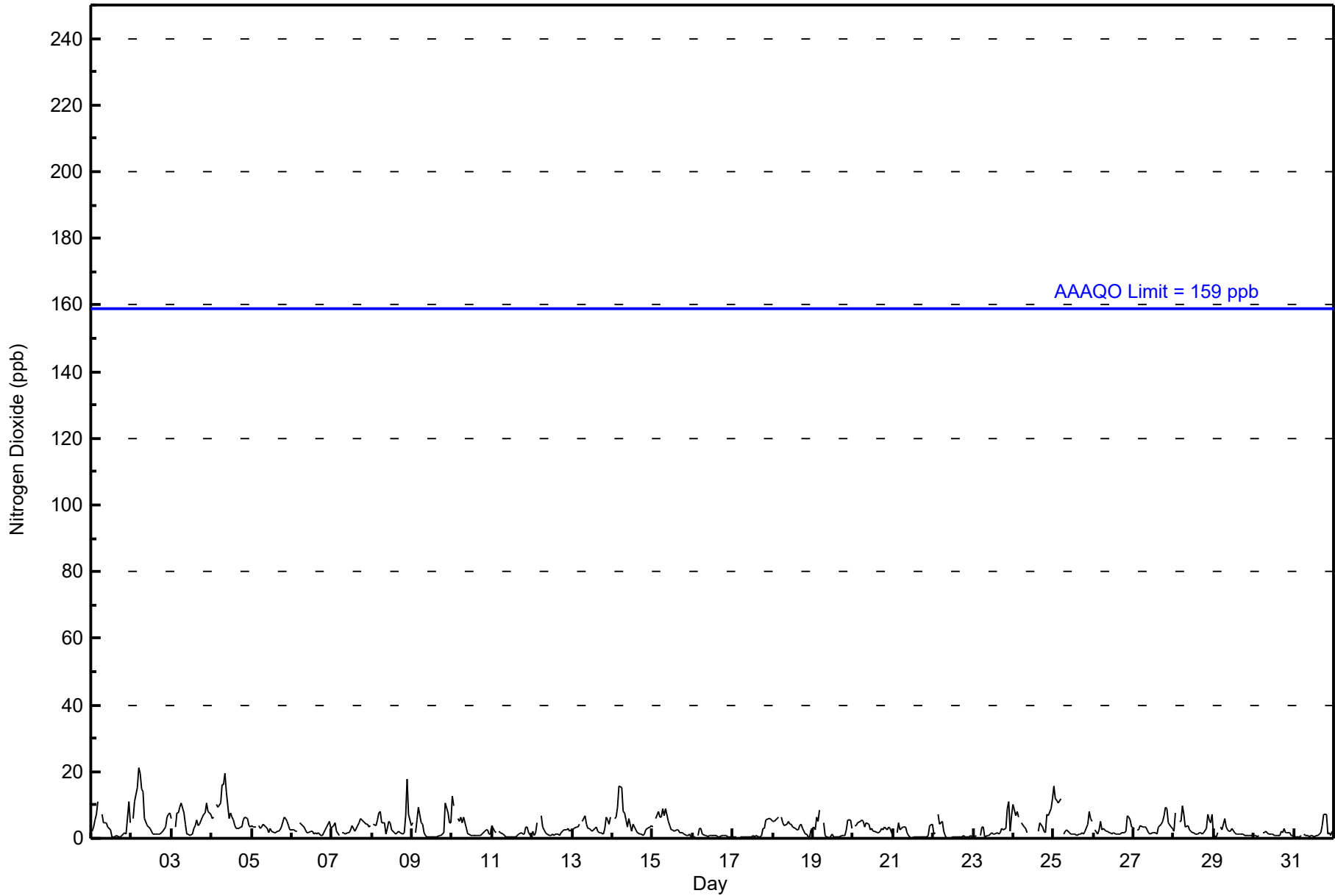
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	2.3	3.5	5.4	7.0	11.1	Z	7.0	4.8	4.5	4.8	3.4	2.6	0.4	0.4	0.5	0.7	0.6	0.6	0.8	1.3	1.9	1.3	11.1	4.8	3.5	11.1																							
2-May	Z	5.8	11.2	15.3	21.1	19.5	14.9	13.8	6.0	3.7	3.5	2.9	2.0	1.4	1.1	1.3	1.2	1.3	1.7	2.1	3.5	6.4	7.0	7.8	6.7	21.1																							
3-May	6.0	Z	3.5	7.7	7.5	9.5	10.4	7.6	4.3	1.1	1.2	1.0	1.2	3.0	4.0	5.4	3.8	4.4	6.4	7.3	7.7	10.6	8.1	7.0	5.6	10.6																							
4-May	6.1	6.3	Z	10.2	9.3	10.5	15.9	16.2	19.5	13.9	6.1	7.5	6.3	5.6	3.8	3.1	3.0	3.3	3.6	5.3	6.2	5.8	3.9	3.6	7.6	19.5																							
5-May	3.8	3.4	3.3	Z	3.8	3.1	3.2	4.4	3.6	3.1	1.9	2.9	2.2	1.9	1.6	2.3	2.3	2.4	3.5	6.5	6.0	5.0	3.9	2.5	3.3	6.5																							
6-May	2.4	2.7	2.3	2.2	Z	4.8	4.0	3.4	2.6	1.5	1.7	2.0	2.3	1.3	1.5	1.4	1.6	1.0	0.8	1.8	2.6	3.4	5.1	3.0	2.4	5.1																							
7-May	3.3	3.9	4.8	2.2	1.0	Z	1.6	1.9	1.3	1.7	1.9	2.4	3.9	3.1	2.3	3.8	4.5	5.9	5.3	5.1	4.3	4.4	3.4	3.8	3.3	5.9																							
8-May	Z	4.2	4.0	5.3	7.5	8.0	4.7	4.6	1.4	2.8	5.0	4.7	2.6	1.7	1.2	1.9	2.3	1.7	1.2	1.7	6.9	17.9	7.0	4.0	4.4	17.9																							
9-May	4.8	Z	1.5	5.7	9.3	4.5	4.4	1.9	0.7	0.3	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	1.1	1.5	10.4	7.5	4.8	4.6	2.9	10.4																							
10-May	12.8	9.7	Z	6.0	4.9	6.4	4.7	6.5	3.0	1.4	1.3	0.9	1.0	1.0	0.8	0.9	1.0	0.9	1.2	2.0	2.6	2.6	1.2	1.3	3.2	12.8																							
11-May	3.7	2.0	1.8	Z	2.1	1.8	1.4	1.0	0.6	0.5	0.5	0.5	0.4	0.4	0.5	0.7	1.2	1.6	1.4	1.1	3.3	3.3	1.5	0.4	1.4	3.7																							
12-May	2.0	1.0	1.9	4.5	Z	6.8	3.4	2.5	1.9	1.2	0.9	0.8	1.2	1.0	1.1	1.2	0.9	1.7	2.3	2.7	2.7	2.9	2.3	2.7	2.2	6.8																							
13-May	2.1	2.8	3.2	3.2	4.3	Z	5.1	6.7	4.2	2.9	3.1	2.7	2.0	2.9	3.3	2.2	1.8	1.6	1.4	3.0	6.2	5.4	4.3	6.2	3.5	6.7																							
14-May	Z	6.1	6.3	9.5	15.5	15.2	7.9	7.7	5.4	3.5	5.8	2.1	4.1	3.5	2.7	1.9	1.1	1.4	1.0	1.2	2.4	3.0	3.6	3.9	5.0	15.5																							
15-May	3.6	Z	6.1	7.9	6.2	6.4	9.1	6.9	8.8	5.2	4.0	2.6	2.4	2.2	2.5	2.7	1.7	1.6	1.6	1.1	0.9	0.9	1.2	0.4	3.7	9.1																							
16-May	0.4	0.5	Z	1.0	2.9	2.8	1.2	1.0	0.8	0.6	0.7	0.7	0.7	0.7	0.9	0.5	0.6	0.9	1.0	0.8	0.7	0.6	0.4	0.4	0.9	2.9																							
17-May	0.4	0.6	0.6	Z	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.4	0.8	0.5	0.8	0.6	0.6	0.8	2.8	2.9	5.6	5.8	5.9	5.5	1.6	5.9																							
18-May	5.2	5.0	6.1	6.2	Z	6.5	4.8	3.8	4.4	4.9	4.1	4.2	3.4	3.0	2.7	2.7	4.0	4.1	2.8	1.2	1.2	0.5	0.4	2.6	3.6	6.5																							
19-May	3.3	2.4	6.5	5.0	8.4	Z	4.8	0.7	0.3	0.3	0.2	1.3	0.3	0.4	0.4	0.3	0.4	0.8	1.0	0.9	2.5	5.3	5.3	2.9	2.3	8.4																							
20-May	Z	3.8	4.0	4.6	5.2	5.7	4.9	3.5	4.6	4.2	2.4	2.8	2.1	2.2	1.6	1.7	2.2	2.8	2.5	3.3	2.5	3.3	2.9	1.5	3.2	5.7																							
21-May	0.9	Z	1.5	4.5	2.4	3.1	3.5	3.5	1.8	0.8	0.6	0.2	0.5	0.5	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.7	4.0	4.1	1.5	4.5																							
22-May	1.3	1.6	Z	7.3	4.1	4.9	2.1	0.7	0.2	0.2	0.2	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.7	0.5	0.4	0.6	0.7	0.3	1.3	7.3																							
23-May	0.2	0.4	0.8	Z	1.0	3.6	3.3	0.3	1.0	1.0	1.1	1.7	1.3	1.4	1.6	1.4	1.6	2.8	2.7	2.8	9.1	10.9	2.0	6.9	2.6	10.9																							
24-May	10.2	6.6	8.0	6.2	Z	4.8	3.6	2.8	1.5	C	C	C	C	C	C	2.1	4.5	3.3	2.1	1.8	7.4	6.9	9.1	11.7	--	11.7																							
25-May	15.6	11.8	11.3	10.7	11.7	Z	1.2	2.3	2.6	1.8	1.3	1.3	1.2	1.2	0.9	1.4	1.2	1.5	1.2	2.1	4.4	8.0	6.1	4.9	4.6	15.6																							
26-May	Z	2.4	1.4	2.5	5.1	2.6	3.0	2.2	2.1	1.7	1.6	1.3	1.5	1.1	1.3	1.4	1.2	1.7	1.9	2.0	6.7	6.3	5.5	3.6	2.6	6.7																							
27-May	2.9	Z	2.4	2.7	4.0	3.6	3.2	3.4	2.4	1.6	1.4	1.8	1.6	1.6	1.3	3.3	4.4	4.9	6.9	9.4	8.8	4.7	3.5	3.0	3.6	9.4																							
28-May	2.1	7.6	Z	4.9	5.0	9.7	7.3	3.6	3.8	2.4	2.0	1.9	1.7	1.3	1.4	1.5	1.5	1.4	1.6	3.1	7.2	5.3	4.8	7.0	3.8	9.7																							
29-May	1.0	0.4	1.7	Z	3.2	2.6	5.8	3.5	2.5	2.3	2.3	3.0	1.5	1.1	1.1	1.1	1.2	1.4	0.9	0.7	0.9	0.9	1.0	0.7	1.8	5.8																							
30-May	0.8	0.8	0.5	0.7	Z	1.5	1.6	2.1	1.5	1.2	1.1	1.1	0.8	0.9	1.0	0.9	2.0	1.8	3.0	1.9	1.9	1.7	0.9	0.8	1.3	3.0																							
31-May	0.6	0.6	0.4	0.4	0.7	Z	1.1	1.0	0.7	0.6	0.9	0.7	0.6	0.8	0.9	1.4	1.8	3.8	7.3	7.0	1.1	1.5	0.7	2.3	1.6	7.3																							
																								3.8	3.7	3.9	5.5	6.1	5.9	4.8	4.0	3.2	2.4	2.0	2.0	1.7	1.6	1.5	1.7	1.8	2.0	2.3	2.7	4.1	4.6	3.9	3.7	Diurnal Average	
																								15.6	11.8	11.3	15.3	21.1	19.5	15.9	16.2	19.5	13.9	6.1	7.5	6.3	5.6	4.0	5.4	4.5	5.9	7.3	9.4	10.4	17.9	11.1	11.7	Diurnal Maximum	

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



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Athabasca Valley - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	99.86	99.86
21 - 40	1	0.14	100.00
11 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Athabasca Valley - May 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	18	18	61	64	76	121	28	12	15	39	28	24	39	52	87	706
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>	24	18	18	61	64	76	121	28	12	15	39	28	24	39	52	88	707

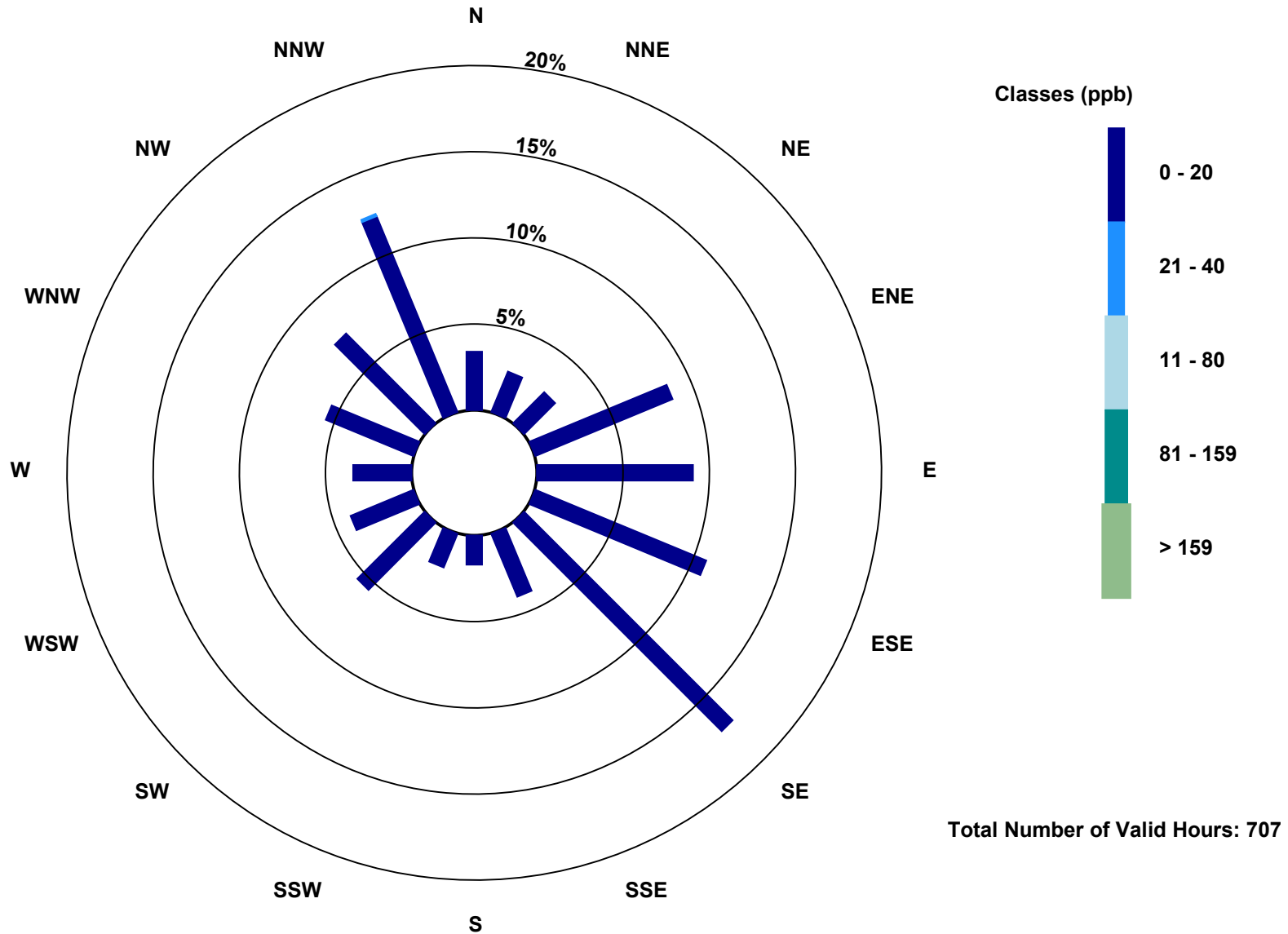
Total Number of Valid Hours: 707

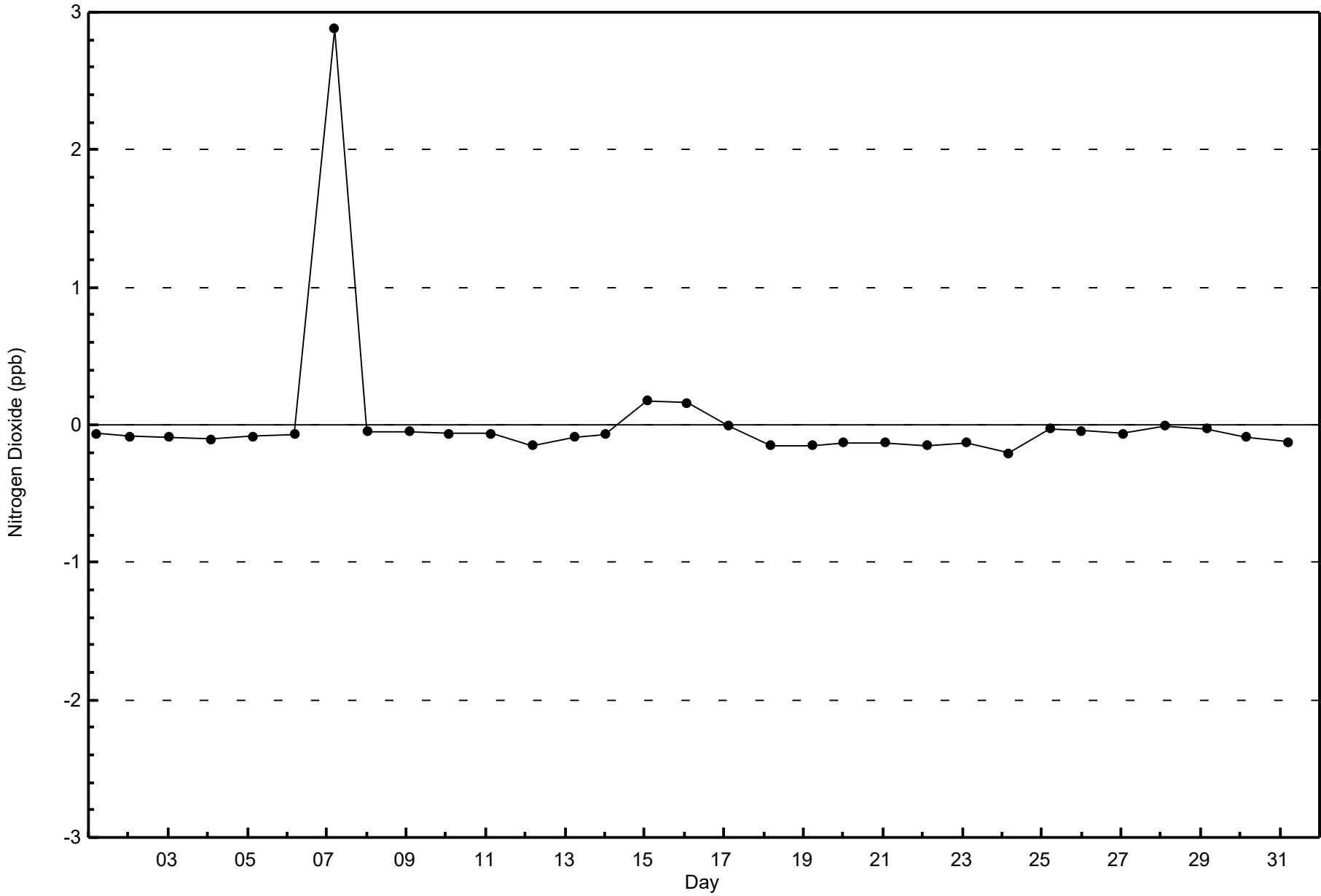
Total Number of Hours: 744

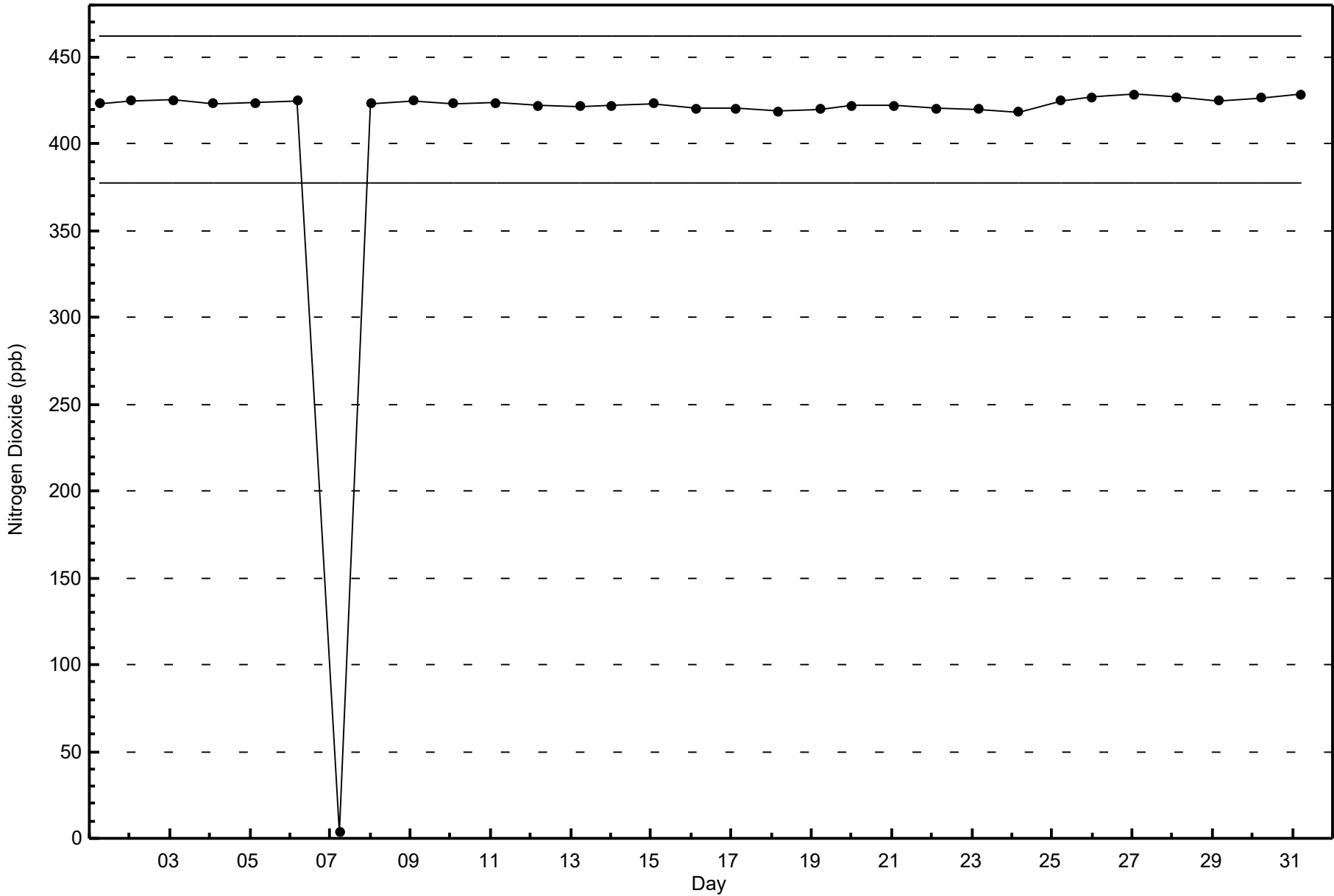


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









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

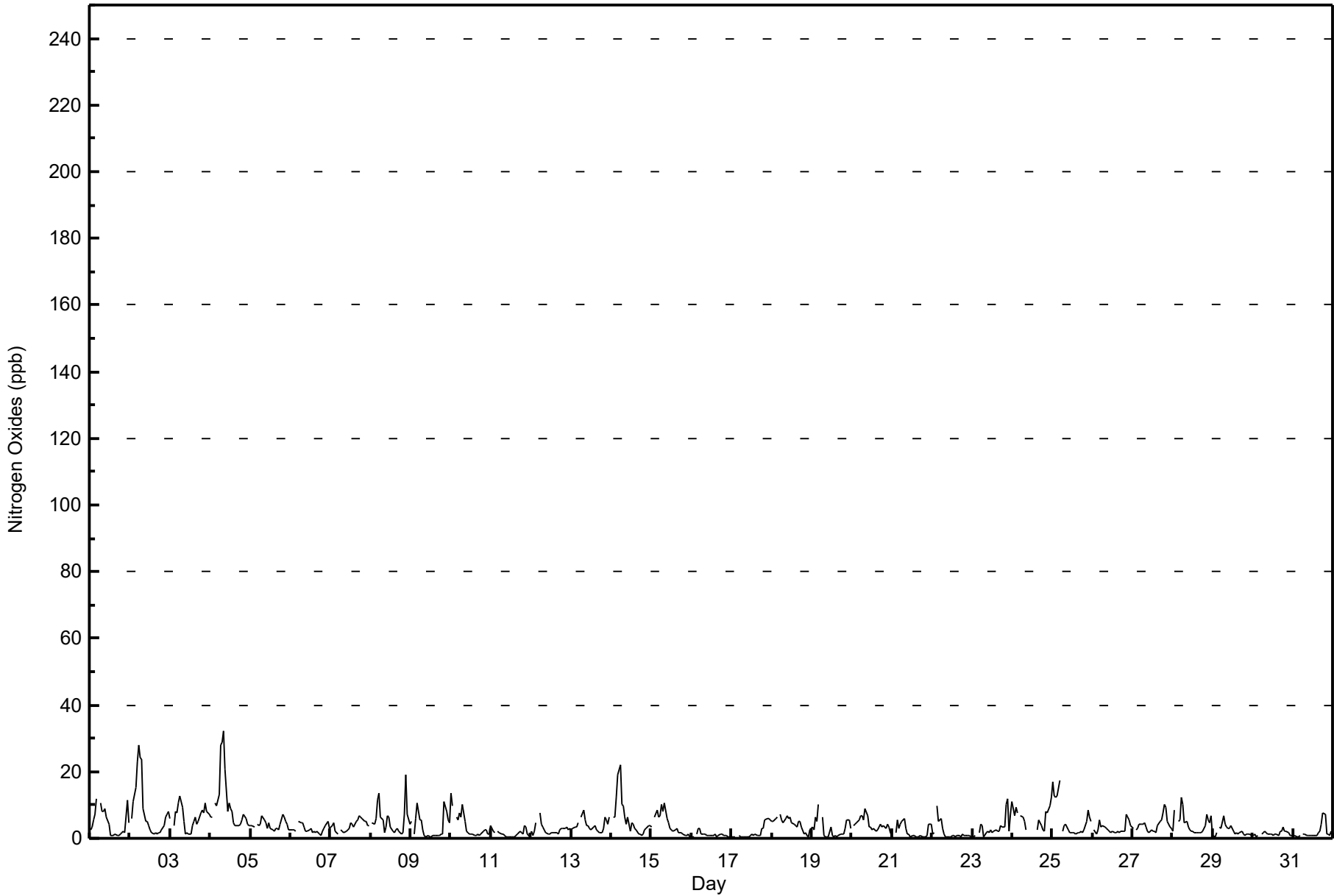
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - May 2024**

Maximum Value: 32.3 ppb on May 4 09:00		Maximum Daily Average: 10.4 ppb on May 4		Hours in Service: 744																																													
Minimum Value: 0.2 ppb on May 23 01:00		Minimum Daily Average: 1.0 ppb on May 16		Hours of Data: 707																																													
Maximum Diurnal Average: 7.5 ppb at hour 6		Minimum Diurnal Average: 1.9 ppb at hour 15		Hours of Missing Data: 37																																													
Monthly Average: 3.87 ppb		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.4 Median = 2.7 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 7.9 P <sub>99</sub> = 21.8		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-May	2.3	3.5	5.5	7.1	12.0	Z	10.6	8.1	7.9	8.9	6.1	4.1	0.7	0.7	0.9	1.1	0.9	0.8	1.2	1.7	2.2	1.5	11.2	4.8	4.5	12.0																							
2-May	Z	5.8	11.2	15.4	23.1	27.9	24.2	23.6	8.8	5.2	5.0	4.0	2.6	1.7	1.4	1.6	1.4	1.5	1.9	2.4	3.8	6.6	7.2	8.0	8.4	27.9																							
3-May	6.0	Z	3.7	7.9	7.8	10.6	12.5	9.1	5.2	1.4	1.7	1.3	1.5	3.9	5.0	6.2	4.3	5.1	7.5	8.3	7.8	10.7	8.2	7.1	6.2	12.5																							
4-May	6.2	6.5	Z	10.4	9.9	13.0	27.9	28.6	32.3	20.6	8.0	10.6	8.8	7.9	4.9	3.9	3.7	3.9	4.1	5.7	7.3	6.1	4.2	3.8	10.4	32.3																							
5-May	4.0	3.7	3.4	Z	4.1	3.7	4.2	6.8	5.4	4.7	2.8	4.6	3.1	2.6	2.1	2.8	2.9	2.7	4.0	7.0	6.3	5.2	4.1	2.6	4.0	7.0																							
6-May	2.5	2.8	2.4	2.3	Z	5.2	4.8	4.5	3.3	2.0	2.1	2.4	3.0	1.7	2.1	1.8	2.2	1.4	1.1	2.1	2.8	3.7	5.2	3.0	2.8	5.2																							
7-May	3.3	3.9	4.8	2.3	1.1	Z	2.5	2.3	1.6	2.0	2.4	3.1	4.8	4.1	3.4	4.9	5.4	6.7	6.2	5.9	4.9	5.2	3.8	4.0	3.9	6.7																							
8-May	Z	4.6	4.4	5.9	11.6	13.4	6.2	5.4	1.6	3.3	6.7	6.5	3.3	2.1	1.6	2.4	2.8	2.1	1.4	1.8	7.2	19.0	7.4	4.1	5.4	19.0																							
9-May	4.9	Z	1.5	5.9	10.4	5.3	5.6	2.4	0.8	0.4	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	1.2	1.5	10.9	8.1	5.5	4.7	3.2	10.9																							
10-May	13.4	9.9	Z	6.4	5.6	7.7	6.4	10.3	5.0	2.2	1.8	1.1	1.3	1.4	0.9	1.0	1.2	1.0	1.3	2.1	2.6	2.6	1.2	1.3	3.8	13.4																							
11-May	3.7	2.0	1.8	Z	2.1	1.8	1.4	1.1	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.8	1.4	2.0	1.7	1.3	3.6	3.5	1.5	0.4	1.5	3.7																							
12-May	2.0	1.0	2.0	4.8	Z	7.8	4.4	3.5	2.5	1.6	1.2	1.1	1.8	1.7	1.7	1.7	1.2	2.4	2.8	3.2	3.1	3.3	2.6	2.9	2.6	7.8																							
13-May	2.3	2.9	3.4	3.4	4.7	Z	6.2	8.5	5.6	3.9	3.7	3.1	2.4	3.4	3.7	2.5	2.0	1.7	1.5	3.0	6.2	5.4	4.3	6.2	3.9	8.5																							
14-May	Z	6.2	6.4	12.3	19.2	21.9	10.0	9.7	6.4	4.1	6.4	2.3	4.6	4.1	3.2	2.3	1.2	1.5	1.0	1.2	2.5	3.0	3.6	3.9	6.0	21.9																							
15-May	3.6	Z	6.2	8.3	6.4	6.9	10.1	7.9	10.4	6.0	4.8	2.8	2.5	2.3	2.5	2.9	1.8	1.6	1.7	1.2	0.9	0.9	1.3	0.4	4.0	10.4																							
16-May	0.4	0.5	Z	1.1	2.9	2.8	1.2	1.2	1.1	0.7	1.0	0.9	1.0	0.9	1.2	0.6	0.8	1.1	1.4	0.9	0.7	0.7	0.4	0.4	1.0	2.9																							
17-May	0.4	0.6	0.6	Z	0.7	0.5	0.4	0.5	0.5	0.4	0.6	0.9	1.3	0.8	1.3	0.7	0.8	1.0	3.0	3.0	5.7	5.8	5.9	5.5	1.8	5.9																							
18-May	5.2	5.0	6.1	6.2	Z	7.0	5.6	4.8	6.0	6.7	6.0	6.2	4.8	4.2	3.7	3.4	4.9	4.9	3.2	1.5	1.7	0.7	0.4	2.6	4.4	7.0																							
19-May	3.3	2.4	6.5	5.0	10.0	Z	6.4	0.8	0.5	0.5	0.4	3.2	0.6	0.6	0.7	0.6	0.7	1.3	1.4	1.1	2.8	5.4	5.4	2.9	2.7	10.0																							
20-May	Z	3.8	4.0	4.7	5.6	6.9	6.7	5.3	8.7	6.7	3.5	3.6	2.7	3.0	2.3	2.5	3.3	4.0	3.6	4.0	3.0	4.3	3.2	1.6	4.2	8.7																							
21-May	1.0	Z	1.6	5.4	3.0	4.4	5.3	5.8	3.1	1.5	1.1	0.5	1.0	0.9	0.5	0.4	0.6	1.0	0.5	0.6	0.4	0.9	4.4	4.3	2.1	5.8																							
22-May	1.3	1.6	Z	9.7	5.2	5.9	2.8	1.2	0.5	0.4	0.5	0.6	0.8	0.7	0.5	0.8	0.9	0.6	1.2	0.8	1.0	0.7	0.3	1.7	1.7	9.7																							
23-May	0.2	0.4	0.9	Z	1.5	4.1	3.9	0.5	1.6	1.9	1.7	2.6	1.9	2.1	2.5	2.1	2.2	3.7	3.2	3.3	10.0	12.1	2.1	7.1	3.1	12.1																							
24-May	11.2	6.8	9.2	7.8	Z	6.7	6.3	5.2	2.7	C	C	C	C	C	C	2.6	5.3	3.9	2.4	1.9	8.0	7.8	9.8	12.2	--	12.2																							
25-May	16.8	12.7	12.2	12.7	17.3	Z	1.9	3.9	4.3	2.6	1.8	1.8	1.7	1.7	1.3	1.9	1.6	1.9	1.5	2.5	5.0	8.5	6.4	5.0	5.5	17.3																							
26-May	Z	2.4	1.4	2.6	5.6	3.3	4.0	3.5	3.1	2.5	2.1	1.8	2.0	1.5	1.7	2.0	1.5	2.2	2.2	2.3	7.3	6.5	5.6	3.7	3.1	7.3																							
27-May	2.9	Z	2.5	2.8	4.3	4.3	4.4	4.8	3.3	2.0	1.7	2.4	2.2	2.0	1.7	3.9	4.9	5.6	7.7	10.2	9.4	5.1	3.6	3.1	4.1	10.2																							
28-May	2.1	8.5	Z	5.0	5.5	12.4	10.0	4.6	4.9	3.2	2.4	2.3	2.1	1.7	1.8	1.8	1.8	1.5	2.0	3.6	7.4	5.4	4.9	7.0	4.4	12.4																							
29-May	1.0	0.4	1.7	Z	3.5	2.8	6.8	4.2	3.4	3.0	3.0	3.7	2.2	1.4	1.5	1.4	1.6	2.0	1.2	0.9	1.1	1.1	1.1	0.8	2.2	6.8																							
30-May	0.9	1.1	0.6	0.7	Z	1.5	1.6	2.3	1.6	1.3	1.2	1.2	0.9	1.1	1.3	1.0	2.3	2.0	3.3	2.1	2.1	1.8	1.0	0.9	1.5	3.3																							
31-May	0.7	0.7	0.4	0.4	0.7	Z	1.2	1.1	0.8	0.7	1.0	0.8	0.7	0.8	1.0	1.6	2.1	4.1	7.7	7.2	1.1	1.5	0.7	2.3	1.7	7.7																							
																								3.9	3.8	4.0	6.0	7.1	7.5	6.6	5.9	4.6	3.4	2.7	2.7	2.2	2.1	1.9	2.1	2.2	2.5	2.7	3.0	4.5	4.9	4.1	3.8	Diurnal Average	
																								16.8	12.7	12.2	15.4	23.1	27.9	27.9	28.6	32.3	20.6	8.0	10.6	8.8	7.9	5.0	6.2	5.4	6.7	7.7	10.2	10.9	19.0	11.2	12.2	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Athabasca Valley - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	698	98.73	98.73
21 - 40	9	1.27	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Athabasca Valley - May 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	18	17	59	64	76	120	28	12	15	39	28	24	39	52	83	698
21 - 40	0	0	1	2	0	0	1	0	0	0	0	0	0	0	0	5	9
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	18	18	61	64	76	121	28	12	15	39	28	24	39	52	88	707

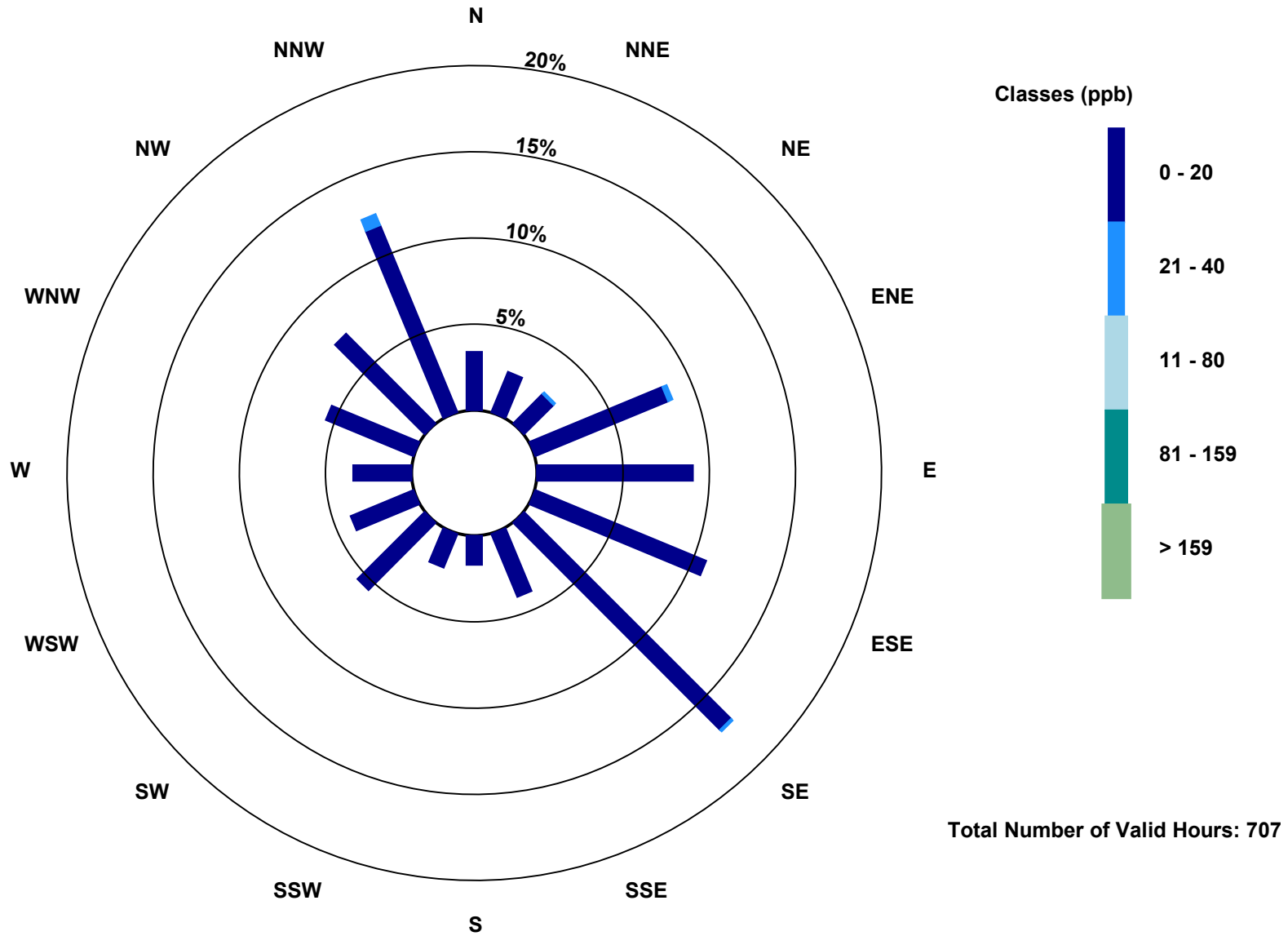
Total Number of Valid Hours: 707

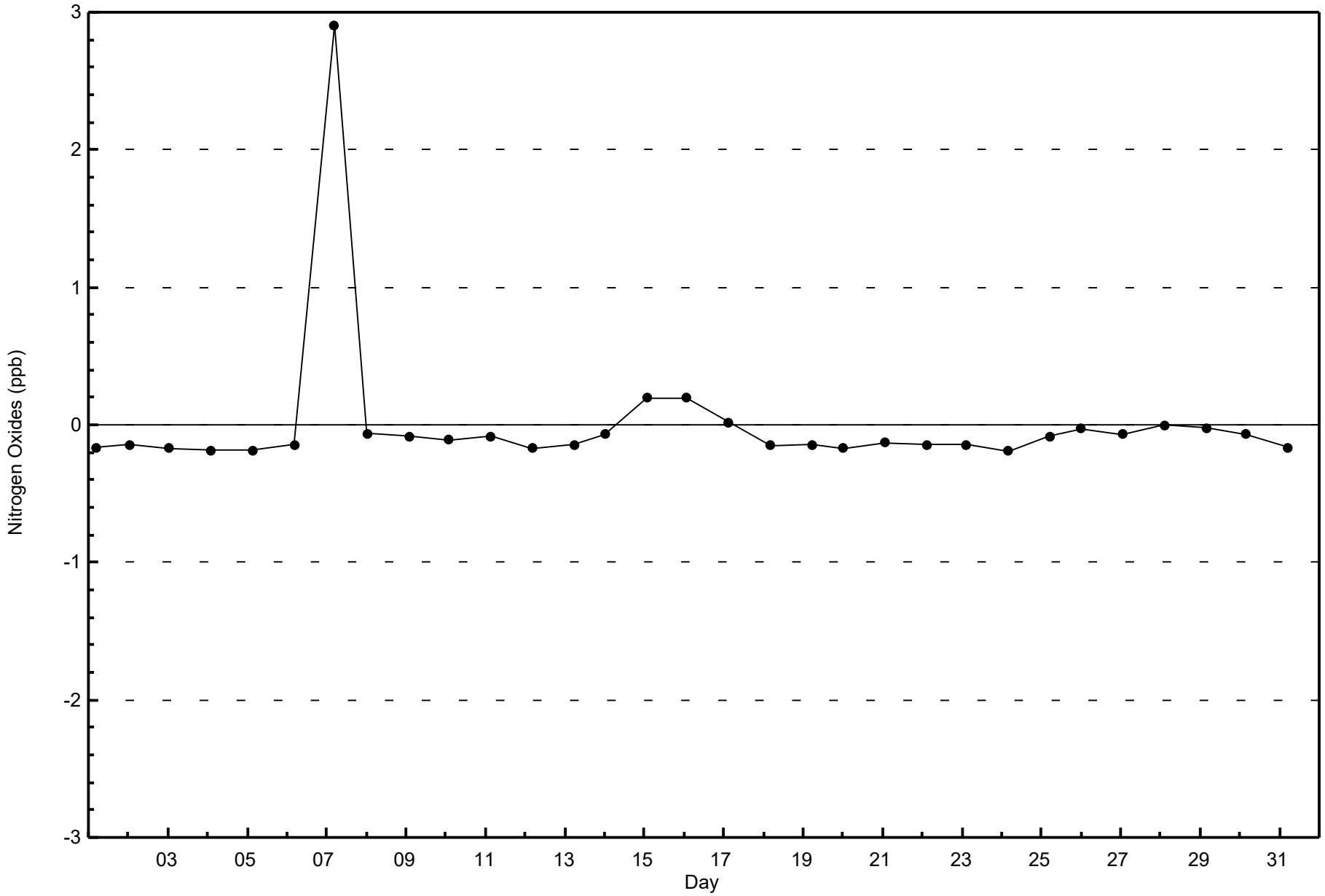
Total Number of Hours: 744

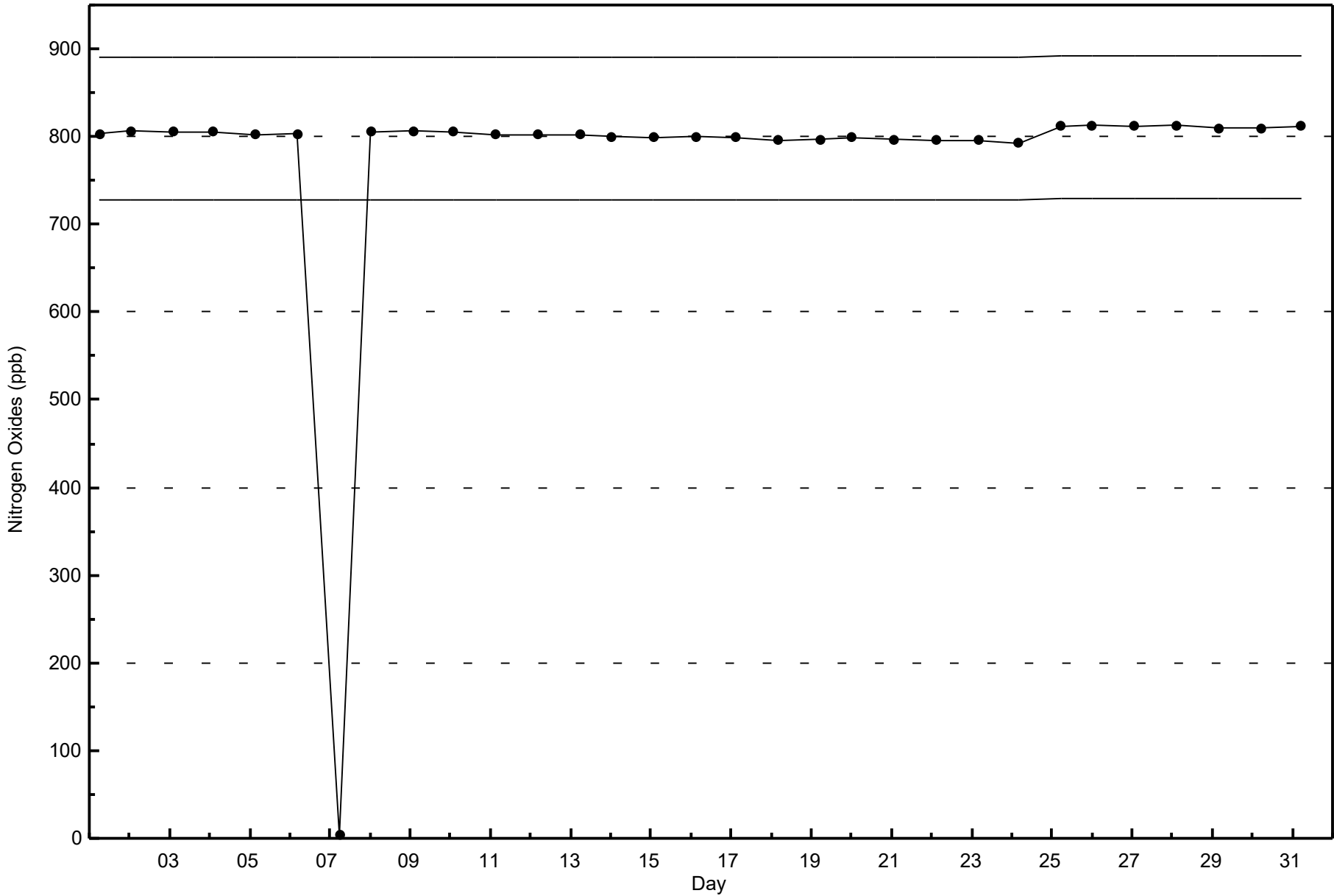


Wood Buffalo Environmental Association  
Wind Rose May 2024

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





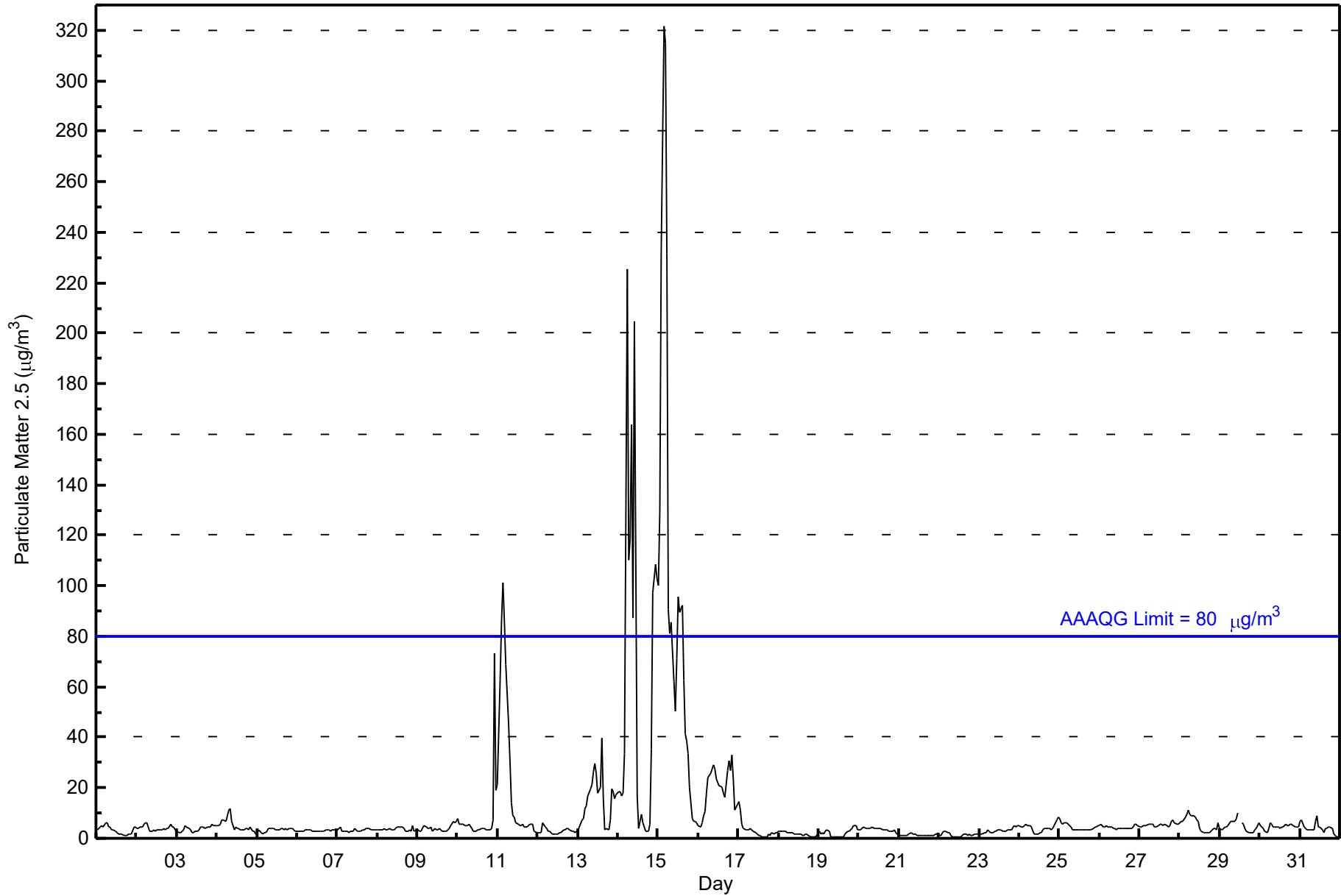




Summary of Hour Averages

Athabasca Valley - May 2024

Number of Exceedences (AAAQO):		1-hr: 24	24-hr: 2	Hours in Service: 744																	743					
Maximum Value: 321.4 µg/m <sup>3</sup> on May 15 04:00		Maximum Daily Average: 94.7 µg/m <sup>3</sup> on May 15																	Hours of Data: 743							
Minimum Value: 0.3 µg/m <sup>3</sup> on May 22 12:00		Minimum Daily Average: 1.3 µg/m <sup>3</sup> on May 21																	Hours of Missing Data: 1							
Maximum Diurnal Average: 21.6 µg/m <sup>3</sup> at hour 6		Minimum Diurnal Average: 4.8 µg/m <sup>3</sup> at hour 20																	Hours of Calibration: 1							
Monthly Average: 10.05 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.7 Q <sub>1</sub> = 2.7 Median = 3.7 Q <sub>3</sub> = 5.3 P <sub>90</sub> = 16.4 P <sub>99</sub> = 124.6																	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-May	3.6	3.8	4.4	5.2	4.3	6.3	6.1	4.7	4.2	3.5	3.1	3.0	2.0	1.7	1.9	1.8	1.4	1.2	1.0	1.8	1.9	1.5	4.3	4.3	3.2	6.3
2-May	3.7	3.8	4.4	4.7	5.5	6.3	6.3	4.5	2.8	2.8	3.1	3.1	3.4	3.3	3.4	3.6	3.8	3.6	3.7	3.8	5.6	4.7	4.5	3.5	4.1	6.3
3-May	2.9	2.3	2.1	3.0	3.2	4.9	4.4	3.9	3.1	2.4	2.2	2.6	2.6	3.4	4.5	4.7	4.3	4.2	4.6	4.7	4.6	5.7	4.9	5.0	3.8	5.7
4-May	5.0	5.0	5.4	7.0	7.2	6.7	9.2	11.0	11.9	6.7	3.2	4.2	4.0	3.9	3.3	3.6	3.6	4.0	3.7	3.4	4.2	2.9	2.6	1.8	5.2	11.9
5-May	1.8	3.1	2.3	1.9	2.1	2.3	2.7	3.9	3.8	4.0	3.8	3.5	3.2	3.5	3.7	3.7	3.6	3.7	3.5	3.9	3.8	3.7	3.2	2.6	3.2	4.0
6-May	2.8	2.7	2.6	2.7	3.0	3.2	3.2	3.3	3.4	3.0	2.9	2.9	2.6	2.5	2.5	2.9	3.0	3.3	3.1	3.2	2.9	3.1	3.5	3.4	3.0	3.5
7-May	3.6	4.0	4.3	2.8	2.7	2.8	2.7	2.4	2.6	2.7	3.7	3.2	3.0	3.0	3.0	3.4	3.6	3.7	3.8	3.7	3.2	3.2	3.2	3.3	3.2	4.3
8-May	3.3	3.5	3.3	3.4	3.8	3.6	3.4	3.8	3.5	3.6	3.6	3.9	4.3	4.3	4.4	4.3	4.0	2.6	2.5	3.1	2.6	5.0	3.0	3.1	3.6	5.0
9-May	3.1	2.8	3.1	4.0	4.8	4.2	4.0	3.8	4.7	3.1	4.0	3.2	3.2	3.7	3.3	3.0	2.9	3.0	3.2	3.8	5.3	6.8	5.9	6.6	4.0	6.8
10-May	7.8	5.7	5.7	5.9	5.0	5.2	5.0	5.3	4.0	3.0	3.0	3.1	3.1	3.5	4.2	4.1	3.9	3.5	3.4	3.2	3.7	7.5	73.4	19.0	8.0	73.4
11-May	21.5	62.7	86.4	101.3	86.3	69.0	45.3	30.4	14.3	9.0	8.2	6.2	5.5	5.2	4.9	5.6	4.8	4.6	4.8	5.8	5.6	5.3	2.9	2.0	24.9	101.3
12-May	2.3	2.3	2.2	6.0	4.3	4.2	2.9	2.7	2.1	1.8	1.8	1.7	1.9	2.0	2.4	3.1	3.5	3.7	3.7	3.3	3.0	2.7	2.5	2.6	2.9	6.0
13-May	2.7	4.7	7.2	8.0	11.5	13.0	16.9	19.4	21.4	26.2	29.5	25.9	18.0	20.2	39.9	16.5	3.6	3.6	3.5	7.1	19.6	18.4	15.7	17.5	15.4	39.9
14-May	18.4	18.4	16.8	17.9	33.3	225.6	110.1	118.4	163.7	87.3	204.8	16.9	4.1	6.9	9.7	6.4	2.8	2.7	2.6	5.7	35.5	97.4	108.2	102.7	59.0	225.6
15-May	100.2	129.1	232.9	321.4	314.9	231.7	90.4	81.2	85.5	62.1	50.1	71.0	95.6	89.3	92.5	62.8	41.5	38.7	33.7	20.2	7.7	6.6	6.8	6.4	94.7	321.4
16-May	5.1	4.7	6.4	9.0	10.9	17.6	24.2	26.0	27.2	29.3	27.2	23.7	20.7	20.9	20.0	18.0	15.9	27.1	31.0	26.6	32.9	23.6	11.3	13.4	19.7	32.9
17-May	14.7	11.0	5.6	4.1	3.5	3.4	3.4	3.7	3.6	2.9	2.1	1.5	1.4	0.9	0.8	0.7	0.7	0.7	1.8	1.3	2.5	1.9	2.2	2.3	3.2	14.7
18-May	2.6	2.6	2.6	3.0	2.6	2.3	2.3	2.3	2.5	1.9	1.8	1.9	1.6	1.6	1.3	1.2	1.7	1.6	1.2	0.6	0.8	0.8	0.8	1.2	1.8	3.0
19-May	2.6	1.5	2.3	1.8	2.9	3.3	2.7	0.7	0.6	0.5	0.4	0.4	0.5	0.6	0.5	0.6	1.4	2.7	2.7	3.3	4.1	4.9	5.3	3.6	2.1	5.3
20-May	3.5	3.5	3.7	4.3	3.9	4.0	4.0	4.0	4.3	4.1	4.0	3.9	3.8	3.7	3.4	3.5	3.4	3.3	3.0	2.8	2.9	3.2	2.2	1.7	3.5	4.3
21-May	1.2	1.1	1.1	1.3	1.1	1.3	1.9	2.3	1.9	1.6	1.4	1.2	1.1	1.0	1.2	1.1	1.2	1.1	1.1	0.9	0.8	1.0	1.6	1.8	1.3	2.3
22-May	1.3	1.2	2.1	2.7	2.7	2.4	2.2	1.0	0.8	0.6	0.4	0.3	0.4	0.7	0.9	1.5	1.6	1.4	1.7	1.0	1.3	1.7	1.7	1.6	1.4	2.7
23-May	1.7	1.7	1.7	2.1	2.0	3.2	2.9	2.3	2.4	2.5	2.9	3.2	3.2	3.1	3.0	2.9	3.0	3.1	3.1	3.4	4.3	5.2	4.2	5.0	3.0	5.2
24-May	5.1	4.7	4.7	4.9	5.7	5.1	4.9	4.5	2.9	1.7	1.8	1.9	2.0	2.4	3.1	3.7	4.1	3.9	3.9	3.4	4.0	5.0	7.1	8.5	4.1	8.5
25-May	8.0	6.0	5.6	6.1	5.9	5.6	5.0	4.6	3.6	3.6	3.5	3.4	3.2	3.4	3.4	3.6	3.3	3.3	3.3	3.3	3.7	4.6	4.5	5.3	4.4	8.0
26-May	5.3	5.5	4.4	4.6	5.0	4.5	4.4	4.3	4.1	3.7	3.6	3.7	3.8	3.7	3.7	3.9	3.8	3.9	3.8	3.8	4.5	5.7	5.4	4.9	4.3	5.7
27-May	4.5	4.6	4.9	5.2	5.2	5.3	5.9	5.6	5.5	4.7	4.4	5.1	5.4	5.8	5.0	5.4	5.1	4.5	5.3	6.6	7.4	6.1	5.4	5.8	5.4	7.4
28-May	6.1	6.9	6.9	8.5	9.3	11.0	9.6	9.2	9.2	8.2	7.5	6.6	3.9	3.0	2.4	2.2	2.3	2.3	2.4	3.1	3.8	4.0	3.6	5.9	5.8	11.0
29-May	3.8	3.3	3.7	4.4	4.6	5.2	6.4	6.4	6.6	6.8	7.9	9.9	C	6.2	5.4	3.7	2.9	2.4	2.0	2.3	2.3	3.1	4.1	5.9	4.8	9.9
30-May	5.2	4.3	4.0	2.8	2.1	3.9	6.2	5.4	4.3	4.7	4.8	4.4	4.0	4.7	4.7	5.6	5.0	5.1	5.6	5.4	4.9	4.4	4.3	4.7	4.6	6.2
31-May	6.8	7.2	4.4	4.0	3.5	3.3	3.4	3.2	3.4	6.8	9.1	4.4	4.7	3.4	2.5	3.6	3.9	4.6	4.6	4.1	1.4	1.4	0.6	0.7	4.0	9.1
8.4 10.5 14.4 18.2 18.2 21.6 13.0 12.4 13.4 9.8 13.2 7.4 7.2 7.1 7.9 6.1 4.8 5.1 5.1 4.8 6.2 8.1 10.0 8.3																								Diurnal Average		
100.2 129.1 232.9 321.4 314.9 231.7 110.1 118.4 163.7 87.3 204.8 71.0 95.6 89.3 92.5 62.8 41.5 38.7 33.7 26.6 35.5 97.4 108.2 102.7																								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 - May 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	569	76.58	76.58
6 - 15	97	13.06	89.64
16 - 25	27	3.63	93.27
26 - 80	26	3.50	96.77
> 81.0	24	3.23	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>) -  $\mu\text{g}/\text{m}^3$**   
**Athabasca Valley - May 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	15	14	14	47	53	72	103	19	8	13	25	21	20	30	44	71	569
6 - 15	5	3	2	8	6	4	20	11	2	1	8	6	3	3	7	8	97
16 - 25	2	1	0	6	3	2	1	1	1	0	5	1	1	0	0	3	27
26 - 80	2	0	1	3	4	1	2	0	0	1	1	0	2	4	1	4	26
> 81.0	0	0	2	0	1	2	3	2	1	0	2	0	1	2	2	6	24
<b>Totals</b>	24	18	19	64	67	81	129	33	12	15	41	28	27	39	54	92	743

Total Number of Valid Hours: 743

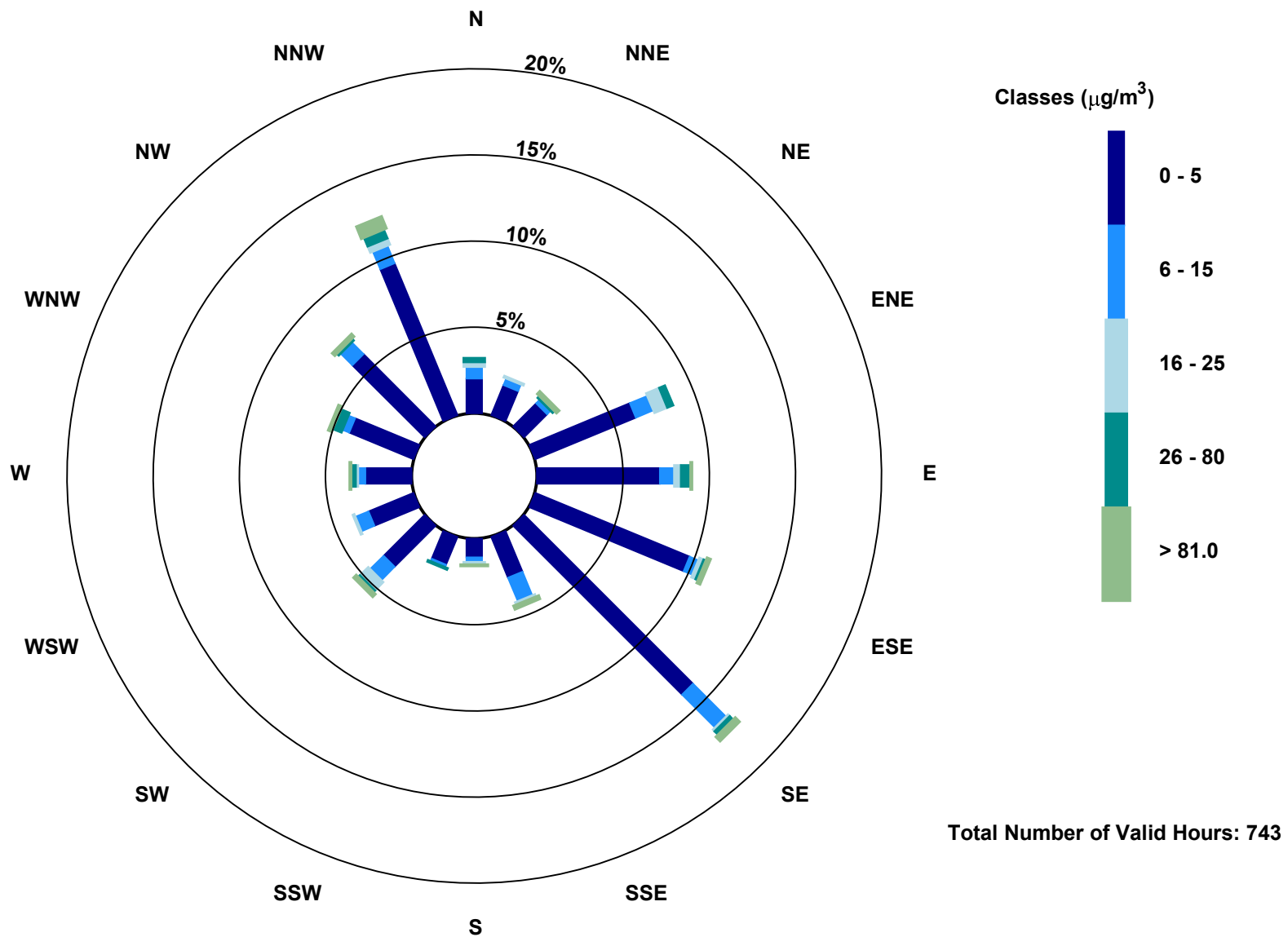
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

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

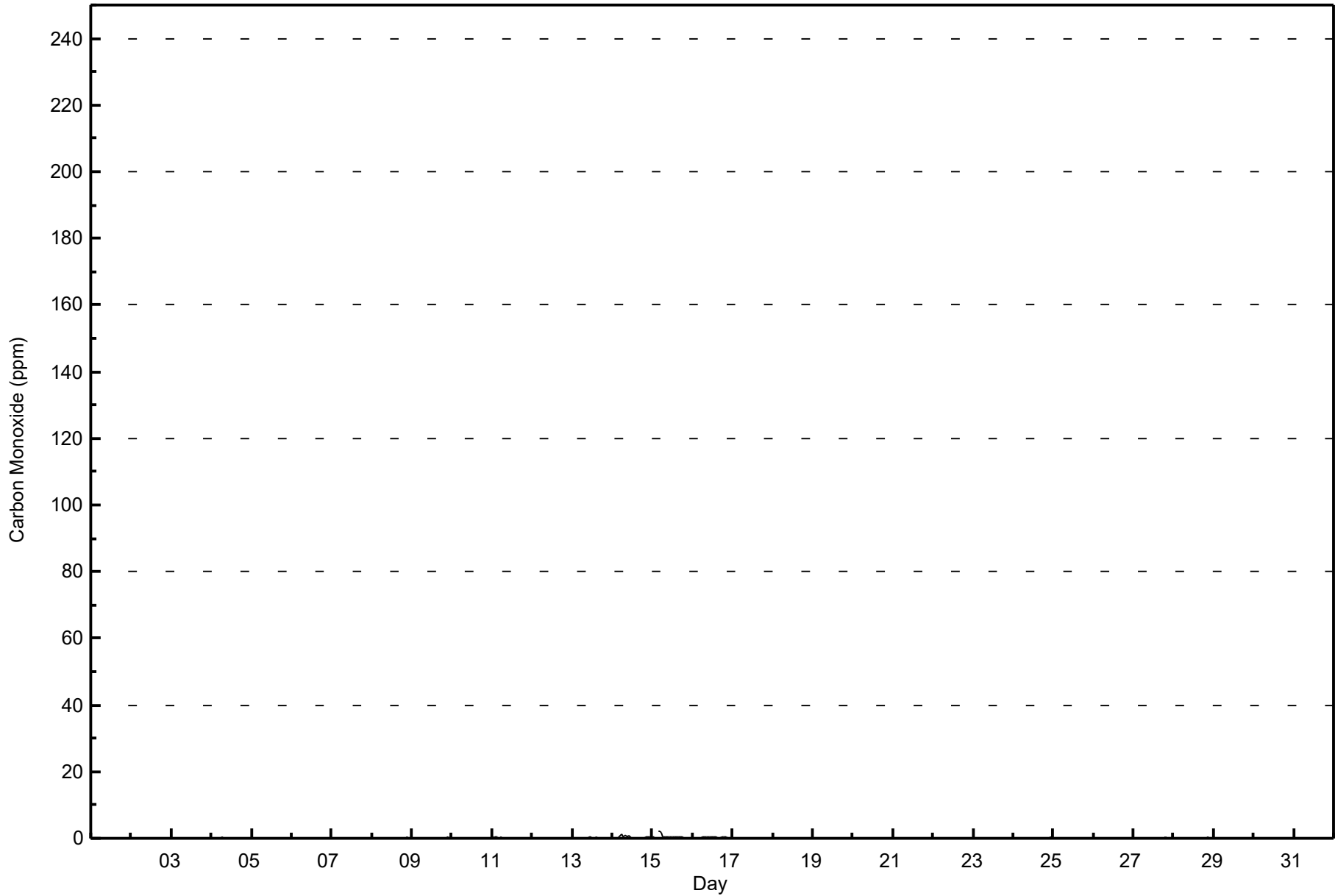






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - May 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Athabasca Valley - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	688	97.04	97.04
0.4 - 0.5	11	1.55	98.59
0.6 - 0.7	4	0.56	99.15
0.8 - 1.4	3	0.42	99.58
1.5 - 10	3	0.42	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 - May 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	23	16	17	62	63	77	120	29	9	15	39	26	27	37	50	78	688
0.4 - 0.5	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	7	11
0.6 - 0.7	0	0	0	0	0	1	2	0	0	0	1	0	0	0	0	0	4
0.8 - 1.4	0	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	3
1.5 - 10	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	3
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	23	16	19	62	63	79	123	31	10	15	41	26	27	37	52	85	709

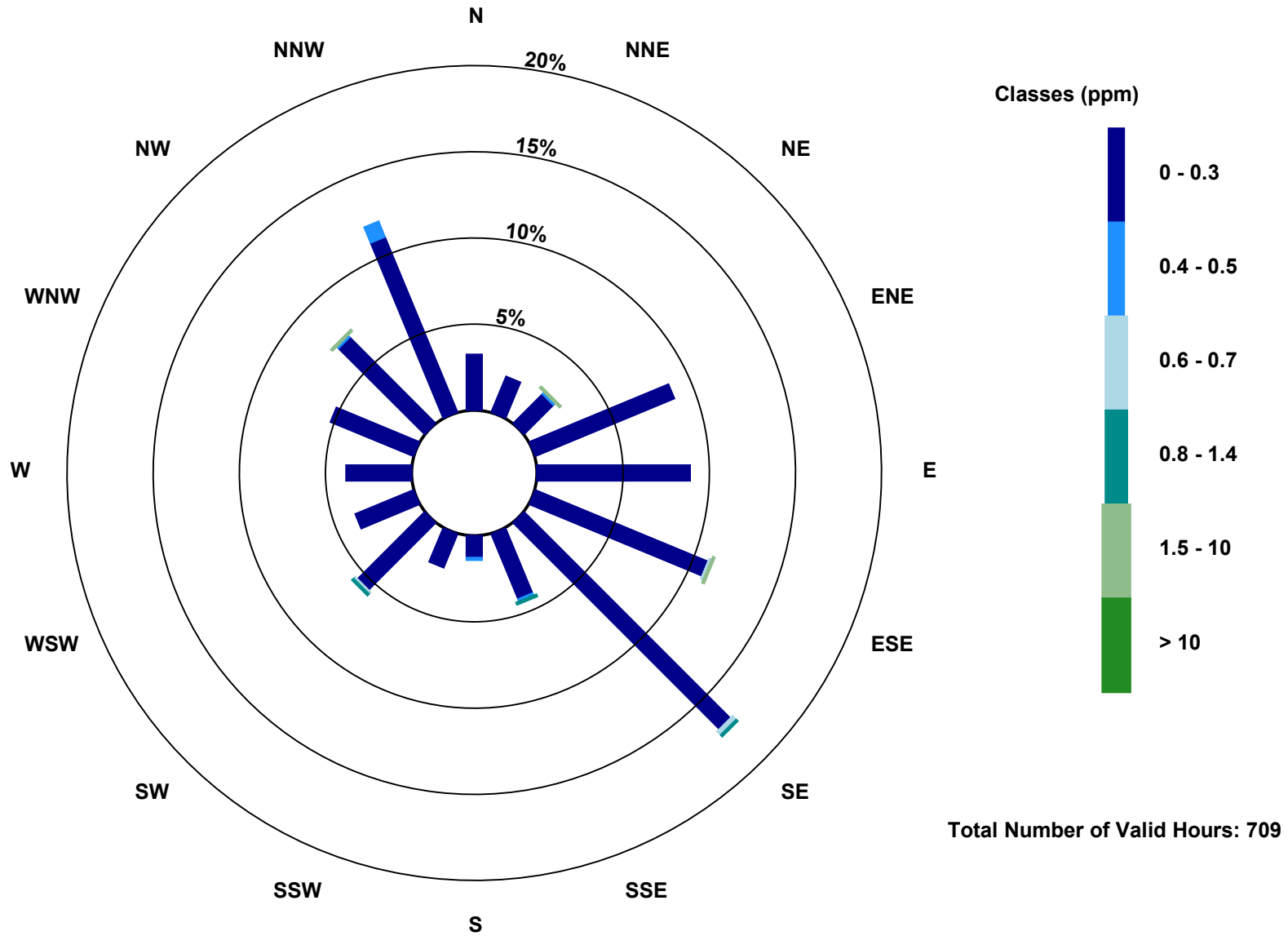
Total Number of Valid Hours: 709

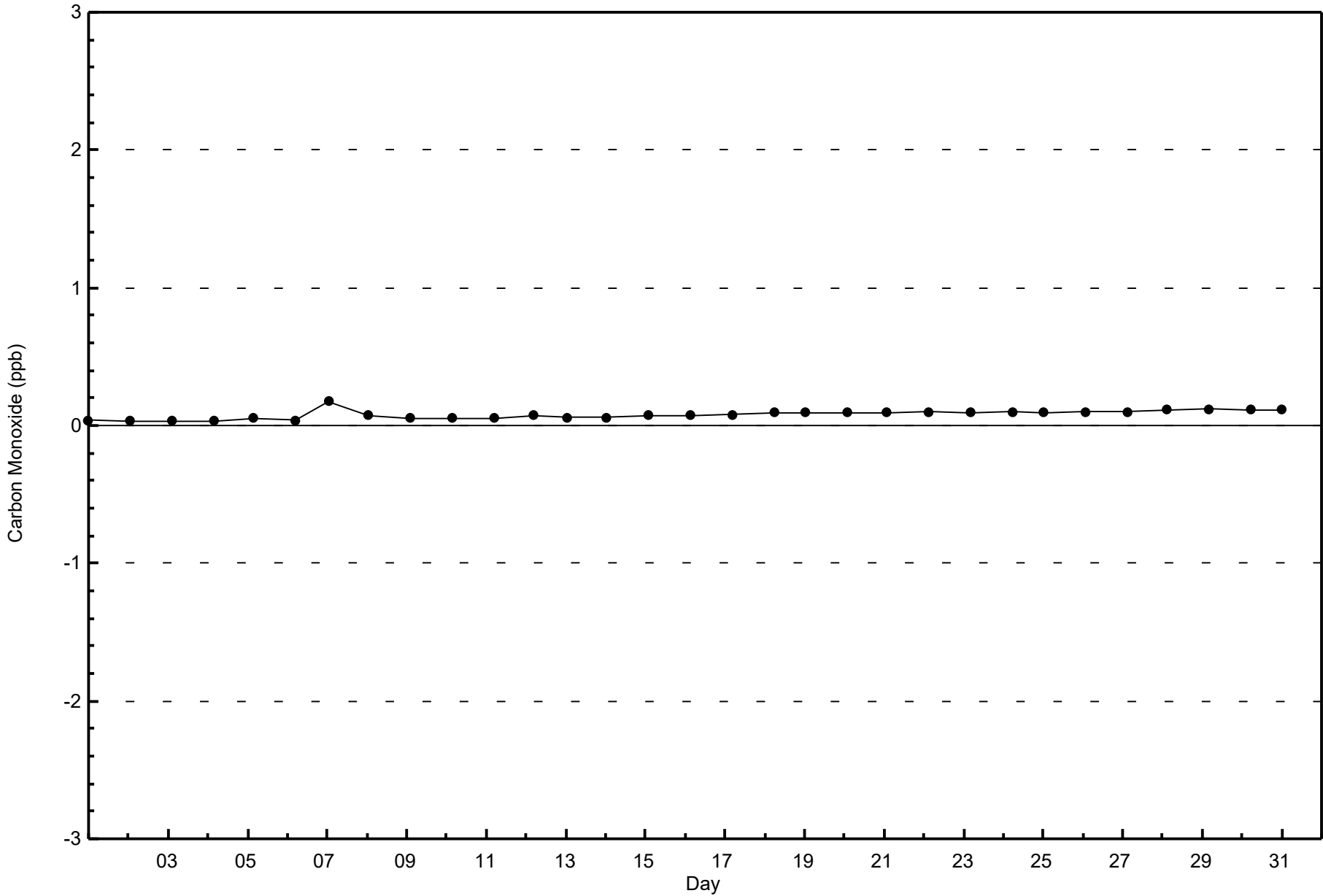
Total Number of Hours: 744

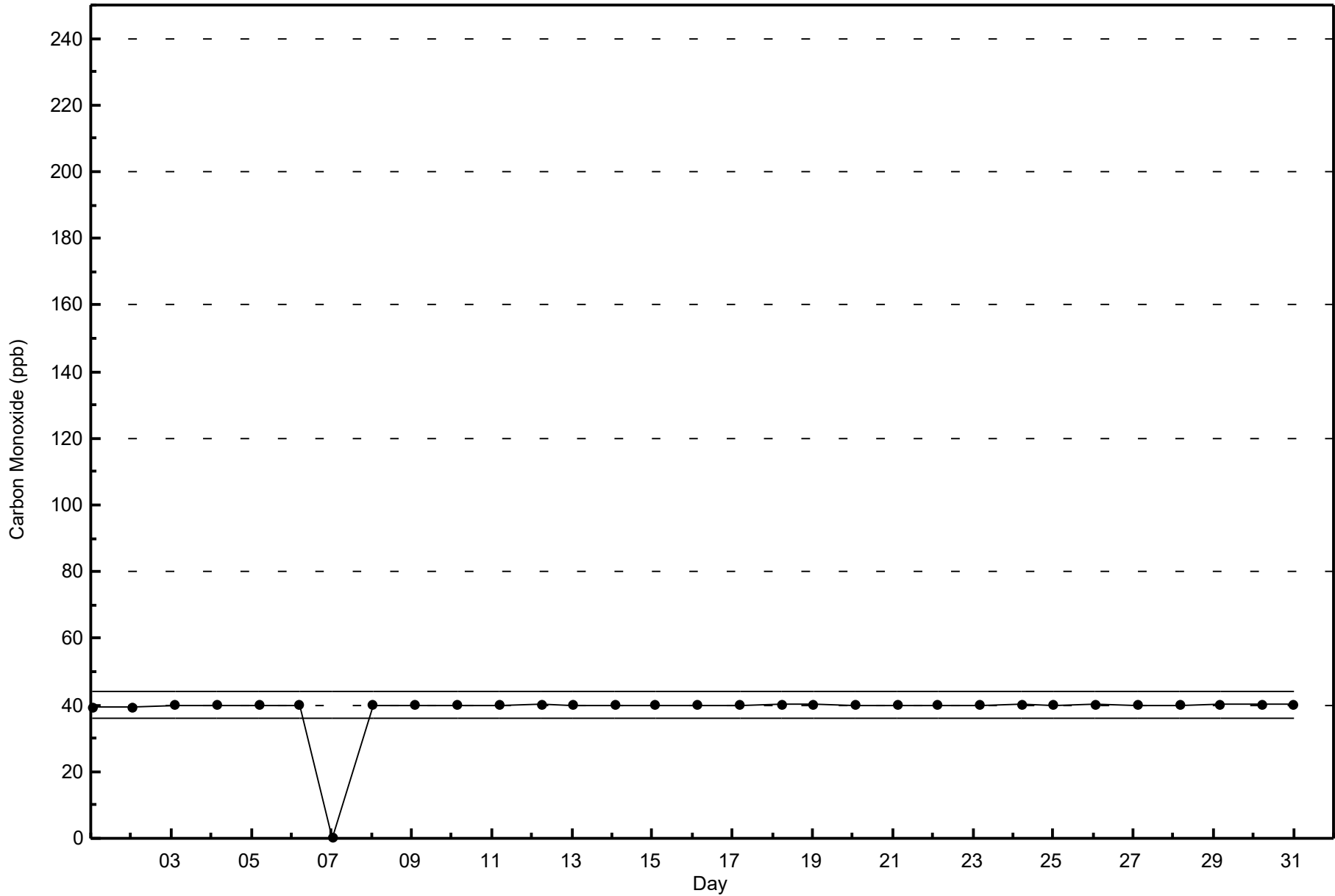


Wood Buffalo Environmental Association  
Wind Rose May 2024

Carbon Monoxide (CO) - ppm  
Athabasca Valley







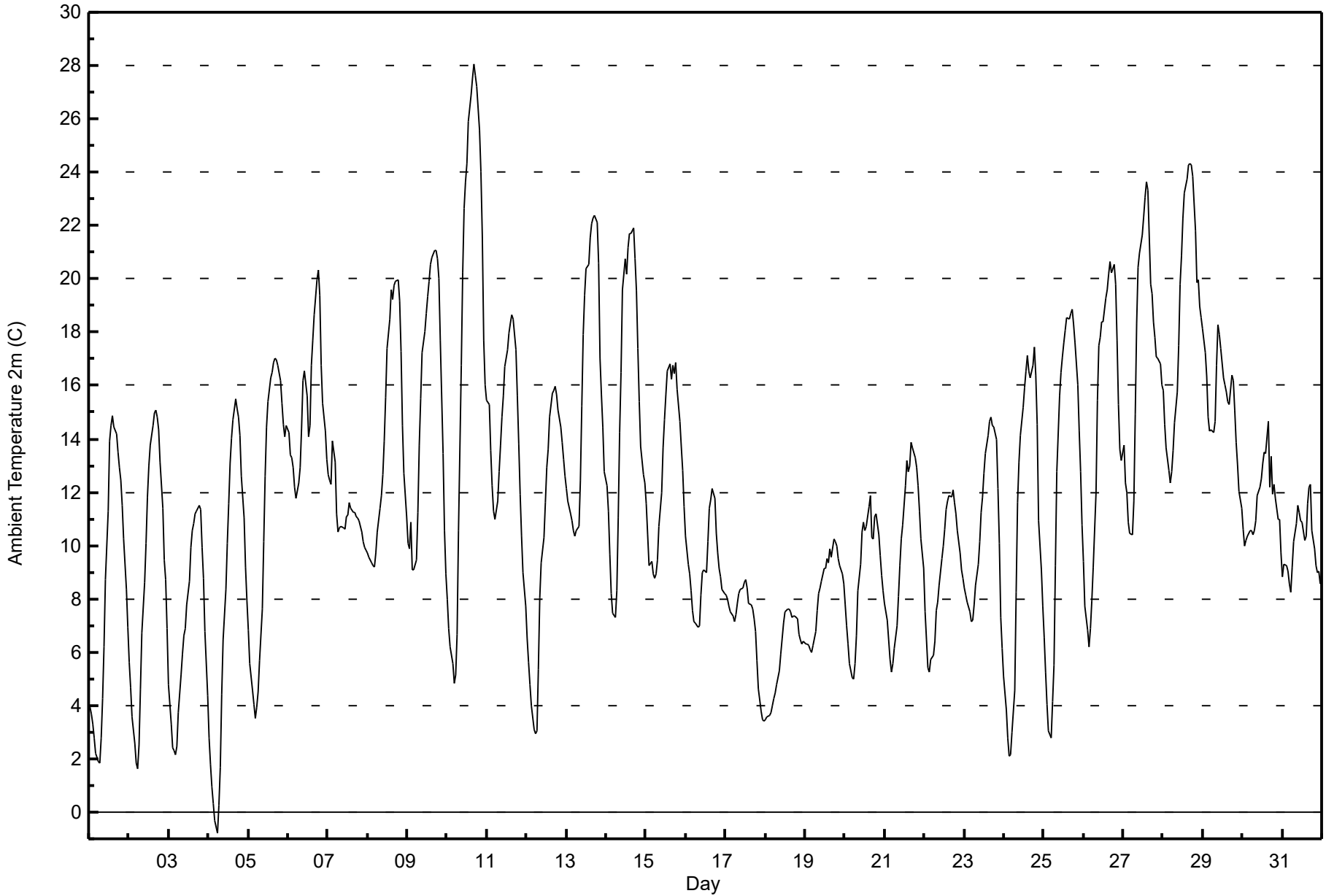




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Athabasca Valley - May 2024**

Maximum Value: 28.1 C on May 10 17:00		Maximum Daily Average: 18.7 C on May 28		Hours in Service: 744																																												
Minimum Value: -0.8 C on May 4 06:00		Minimum Daily Average: 5.9 C on May 18		Hours of Data: 744																																												
Maximum Diurnal Average: 16.0 C at hour 16		Minimum Diurnal Average: 6.9 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 11.82 C		Percentiles: P <sub>1</sub> = 1.8 P <sub>10</sub> = 5.3 Q <sub>1</sub> = 8.2 Median = 11.3 Q <sub>3</sub> = 15.3 P <sub>90</sub> = 19.2 P <sub>99</sub> = 24.3		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-May	3.9	3.7	3.3	2.8	2.2	1.9	1.8	2.8	4.3	6.2	8.7	11.3	13.9	14.5	14.9	14.4	14.2	13.5	12.9	12.5	11.5	10.2	8.3	6.9	8.4	14.9																						
2-May	5.6	4.7	3.6	2.6	1.9	1.6	2.5	4.6	6.7	8.6	10.1	11.8	13.0	13.8	14.5	15.0	15.1	14.8	14.3	13.1	11.4	9.5	8.7	6.9	8.9	15.1																						
3-May	4.8	3.3	2.4	2.3	2.2	2.5	3.7	5.1	5.9	6.6	6.9	7.8	8.7	9.9	10.5	10.8	11.2	11.3	11.5	11.3	9.9	8.8	6.8	4.4	7.0	11.5																						
4-May	2.8	1.8	0.9	0.3	-0.3	-0.8	0.2	1.7	4.4	6.5	8.4	10.1	11.6	13.1	14.0	14.7	15.5	15.1	14.8	14.1	12.6	11.0	9.2	7.9	7.9	15.5																						
5-May	6.8	5.6	4.6	4.0	3.5	3.9	4.5	5.7	7.6	10.1	12.6	14.4	15.4	16.3	16.5	16.9	17.0	17.0	16.8	16.2	15.4	14.6	14.1	14.5	11.4	17.0																						
6-May	14.2	13.4	13.3	12.9	12.2	11.8	12.4	12.9	14.4	16.2	16.5	15.6	14.1	14.5	16.8	17.7	18.7	20.0	20.3	19.4	16.8	15.4	14.3	13.3	15.3	20.3																						
7-May	12.7	12.4	12.3	13.9	13.1	11.2	10.5	10.7	10.7	10.6	10.6	11.1	11.2	11.6	11.4	11.2	11.3	11.1	11.1	11.0	10.5	10.2	9.9	9.8	11.3	13.9																						
8-May	9.7	9.6	9.4	9.2	9.2	9.7	10.5	11.4	11.9	12.6	13.9	15.6	17.4	18.5	19.6	19.2	19.8	19.9	20.0	19.2	17.3	14.5	12.7	11.1	14.2	20.0																						
9-May	10.1	9.9	10.9	9.1	9.1	9.5	11.2	13.8	15.5	17.2	18.0	18.7	19.3	19.9	20.5	20.8	21.1	21.1	20.7	20.0	17.7	13.5	10.6	8.9	15.3	21.1																						
10-May	8.0	6.9	6.2	5.5	4.8	5.1	6.7	10.6	16.8	20.2	22.6	23.6	24.3	25.9	26.9	27.5	28.1	27.7	27.2	25.6	24.0	21.6	17.7	16.0	17.9	28.1																						
11-May	15.4	15.3	13.6	12.3	11.3	11.0	11.6	12.8	13.8	14.8	15.6	16.7	17.4	17.9	18.4	18.6	18.5	17.4	15.6	13.8	11.9	10.3	9.0	7.7	14.2	18.6																						
12-May	6.5	5.6	4.8	4.0	3.1	2.9	3.0	5.4	8.0	9.4	10.3	11.6	12.9	13.6	14.8	15.7	15.8	16.0	15.7	15.1	14.4	13.9	13.2	12.6	10.4	16.0																						
13-May	12.1	11.7	11.2	10.9	10.6	10.3	10.5	10.7	12.4	15.3	17.9	19.4	20.4	20.5	21.5	22.1	22.3	22.4	22.1	20.6	17.0	15.6	14.5	12.7	16.0	22.4																						
14-May	12.3	11.3	9.7	8.2	7.5	7.3	8.3	11.0	14.3	16.5	19.6	20.7	20.2	21.2	21.7	21.7	21.9	20.7	19.5	17.4	15.4	14.4	13.7	12.7	12.3	15.2	21.9																					
15-May	11.6	10.4	9.3	9.4	8.9	8.8	8.9	9.5	10.7	12.0	13.7	14.7	15.7	16.6	16.8	16.2	16.8	16.4	16.9	15.8	14.6	13.7	12.8	11.4	13.0	16.9																						
16-May	10.4	9.3	8.9	8.3	7.5	7.2	7.1	6.9	7.0	8.1	9.0	9.1	9.0	10.1	11.4	11.7	12.1	11.8	10.4	9.7	9.2	8.8	8.4	8.2	9.2	12.1																						
17-May	8.1	8.0	7.7	7.5	7.3	7.2	7.4	7.8	8.2	8.4	8.4	8.6	8.7	8.4	7.8	7.8	7.6	7.3	6.8	5.7	4.6	3.8	3.5	3.4	7.1	8.7																						
18-May	3.5	3.5	3.6	3.7	4.0	4.3	4.5	4.8	5.3	5.9	6.5	7.1	7.5	7.6	7.6	7.5	7.3	7.3	7.4	7.2	6.7	6.5	6.3	6.4	5.9	7.6																						
19-May	6.3	6.3	6.2	6.1	6.0	6.3	6.8	7.6	8.2	8.4	8.7	9.1	9.1	9.5	9.4	9.9	9.6	10.2	10.2	10.0	9.5	9.2	8.9	8.6	8.3	10.2																						
20-May	7.8	7.0	6.3	5.6	5.0	5.0	5.6	6.6	8.3	9.3	10.5	10.9	10.6	10.7	11.4	11.8	10.3	10.3	11.1	11.2	10.4	9.6	8.9	8.3	8.8	11.8																						
21-May	7.8	7.2	6.5	5.7	5.3	5.6	6.2	7.0	8.1	9.2	10.2	10.8	12.2	13.2	12.8	13.0	13.9	13.6	13.3	12.9	12.2	11.3	10.2	9.1	9.9	13.9																						
22-May	7.5	6.5	5.4	5.2	5.7	5.9	6.4	7.6	7.9	8.5	9.5	10.0	10.6	11.3	11.7	11.9	11.8	12.1	11.6	11.2	10.6	9.7	9.1	8.8	9.0	12.1																						
23-May	8.4	8.2	7.9	7.5	7.2	7.2	7.8	8.5	9.3	10.2	11.2	11.8	12.7	13.5	14.2	14.7	14.8	14.5	14.5	14.0	12.2	10.1	7.3	6.1	10.6	14.8																						
24-May	5.1	3.8	2.8	2.1	2.2	3.0	4.6	8.3	11.6	13.1	14.2	15.2	15.9	16.6	17.1	16.6	16.3	16.7	17.5	16.4	14.6	10.9	9.1	7.7	10.9	17.5																						
25-May	6.6	5.2	4.0	3.0	2.8	4.2	5.5	9.2	12.8	15.6	16.5	17.1	17.6	18.1	18.6	18.5	18.7	18.8	18.3	17.6	16.0	14.3	12.7	10.8	12.6	18.8																						
26-May	9.4	7.7	6.8	6.2	6.9	7.9	9.2	12.0	15.5	17.5	17.8	18.4	18.4	19.3	19.6	20.2	20.7	20.2	20.6	19.8	17.7	15.3	13.6	13.2	14.7	20.7																						
27-May	13.8	12.3	12.0	10.9	10.4	10.4	11.7	14.9	18.3	20.4	21.0	21.6	22.3	23.1	23.7	23.3	19.8	19.4	18.4	17.8	17.1	17.0	16.8	16.0	17.2	23.7																						
28-May	15.8	14.5	13.7	12.8	12.4	12.7	13.6	14.6	15.7	17.5	19.8	20.9	22.3	23.2	23.8	24.3	24.3	24.3	24.3	23.8	21.8	19.9	19.9	19.0	18.5	18.7	24.3																					
29-May	18.1	17.2	16.3	14.8	14.3	14.3	14.3	14.7	16.8	18.3	17.9	17.4	16.3	16.0	15.8	15.4	15.3	16.4	16.2	15.1	13.9	13.0	12.1	11.4	15.5	18.3																						
30-May	10.6	10.0	10.2	10.3	10.5	10.5	10.4	10.6	10.9	11.9	12.2	12.5	13.1	13.5	13.5	14.7	12.2	13.3	11.9	12.3	11.8	11.0	11.0	9.7	11.6	14.7																						
31-May	8.8	9.3	9.3	9.1	8.6	8.3	9.2	10.1	10.8	11.5	11.3	10.9	10.9	10.2	10.3	11.6	12.2	12.3	10.6	9.9	9.2	9.0	9.0	8.6	10.0	12.3																						
																								9.2	8.4	7.8	7.3	6.9	7.0	7.6	9.0	10.7	12.1	13.2	14.0	14.6	15.2	15.7	16.0	15.9	15.9	15.5	14.8	13.4	12.1	11.0	10.0	Diurnal Average
																								18.1	17.2	16.3	14.8	14.3	14.3	14.3	14.9	18.3	20.4	22.6	23.6	24.3	25.9	26.9	27.5	28.1	27.7	27.2	25.6	24.0	21.6	19.0	18.5	Diurnal Maximum





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

**Ambient Temperature 2m (AT2) - C**  
**Athabasca Valley - May 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	2	0.27	0.27
0 - 10	283	38.04	38.31
10 - 20	404	54.30	92.61
> 20	55	7.39	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

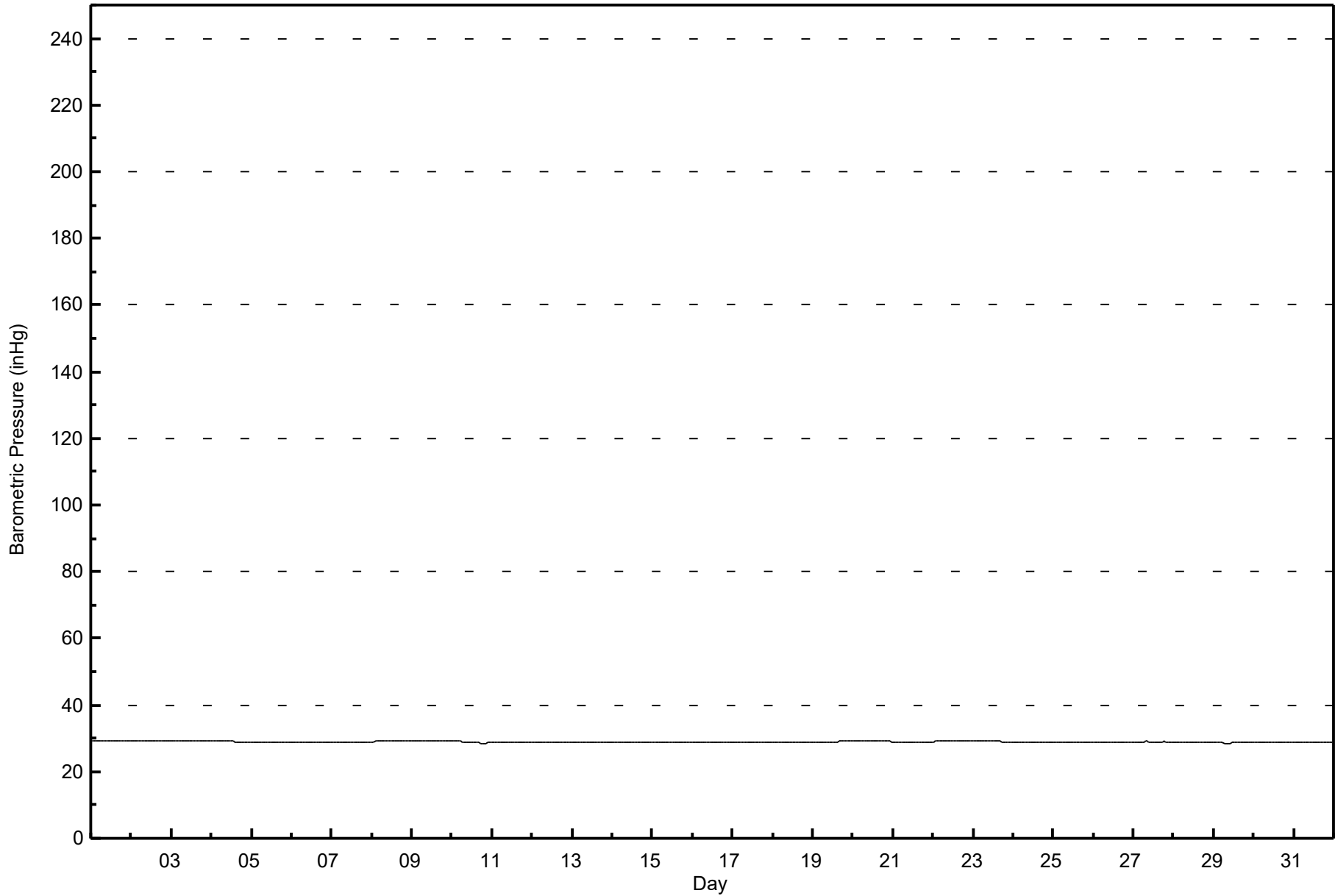
**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - May 2024**

Maximum Value: 29.2 inHg on May 2 09:00		Maximum Daily Average: 29.2 inHg on May 2		Hours in Service:	744																																													
Minimum Value: 28.5 inHg on May 29 10:00		Minimum Daily Average: 28.6 inHg on May 29		Hours of Data:	744																																													
Maximum Diurnal Average: 28.9 inHg at hour 9		Minimum Diurnal Average: 28.9 inHg at hour 19		Hours of Missing Data:	0																																													
Monthly Average: 28.91 inHg		Percentiles: P <sub>1</sub> = 28.6 P <sub>10</sub> = 28.7 Q <sub>1</sub> = 28.8 Median = 28.9 Q <sub>3</sub> = 29.0 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-May	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	29.2	29.2	29.2	29.1	29.2																							
2-May	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																							
3-May	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	29.1	29.1	29.1	29.2																							
4-May	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	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.1																							
5-May	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.9																							
6-May	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	28.6	28.7	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7																							
7-May	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	28.8	29.0																							
8-May	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2																							
9-May	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	29.1	29.2	29.2																							
10-May	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.8	29.1																							
11-May	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	29.0	29.0	29.0	29.0	29.0	29.0	28.9	29.0																							
12-May	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	28.9	28.9	28.9	28.9	28.9	29.0	29.0																							
13-May	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	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.9																							
14-May	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9																							
15-May	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	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9																							
16-May	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	28.6	28.7	28.9																							
17-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8																							
18-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8																							
19-May	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.0	29.1																							
20-May	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	29.0	29.0	29.0	29.0	29.1	29.1																							
21-May	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																							
22-May	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																							
23-May	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1																							
24-May	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0																							
25-May	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8																							
26-May	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	28.8	28.9																							
27-May	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																							
28-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0																							
29-May	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.5	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	28.6	28.7																							
30-May	28.7	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7																							
31-May	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7																							
28.9																								28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	Diurnal Average	
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	29.2	29.2	29.2	Diurnal Maximum



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

**Barometric Pressure (BP) - inHg**  
**Athabasca Valley - May 2024**

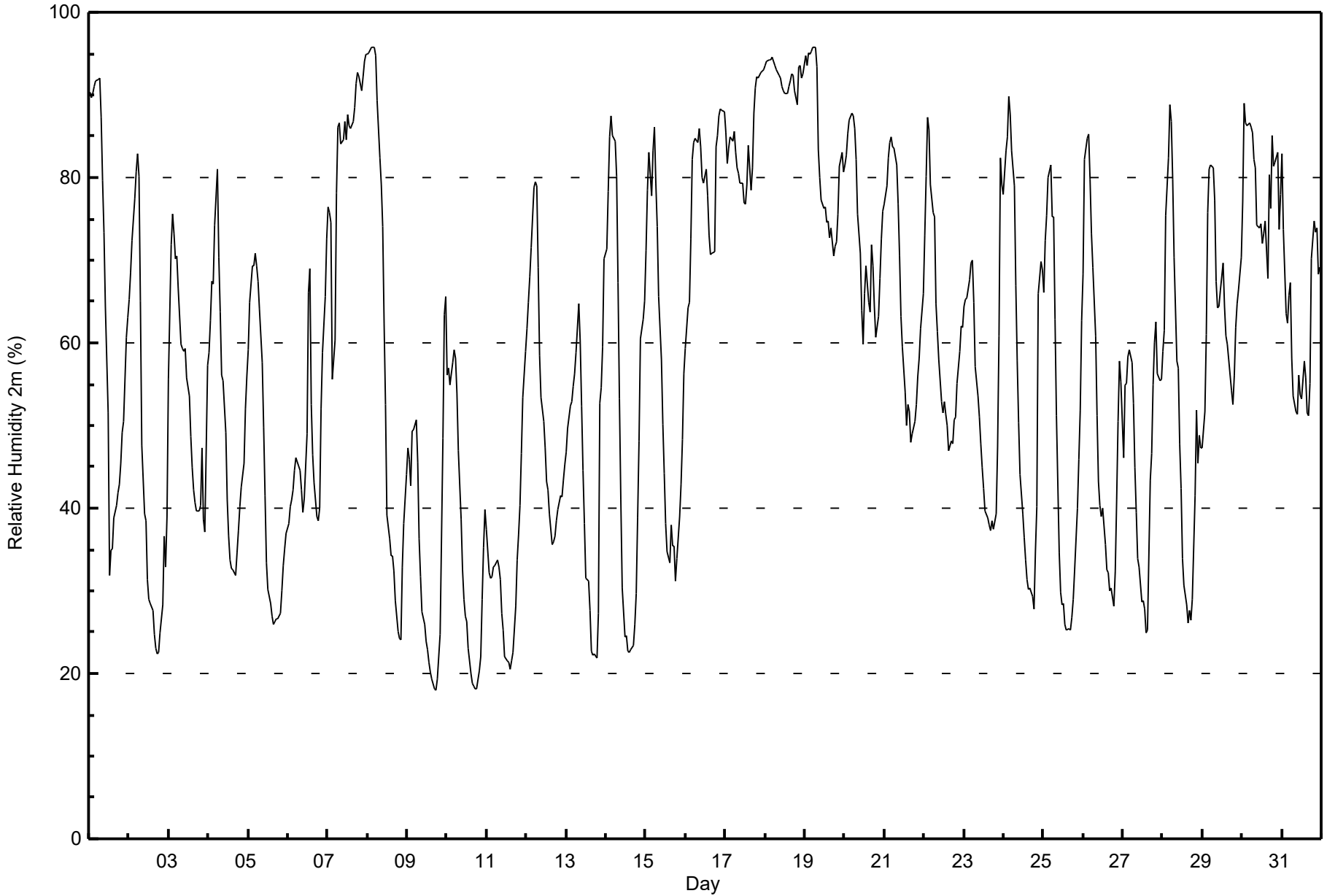




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Athabasca Valley - May 2024**

Maximum Value: 95.8 % on May 8 04:00      Maximum Daily Average: 92.3 % on May 18																						Hours in Service: 744 Hours of Data: 744																											
Minimum Value: 18.0 % on May 9 18:00      Minimum Daily Average: 32.4 % on May 11 Maximum Diurnal Average: 75.8 % at hour 6      Minimum Diurnal Average: 43.3 % at hour 16 Monthly Average: 58.41 %      Percentiles: P <sub>1</sub> = 19.6 P <sub>10</sub> = 28.4 Q <sub>1</sub> = 39.5 Median = 58.7 Q <sub>3</sub> = 77.8 P <sub>90</sub> = 87.2 P <sub>99</sub> = 95.1																						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-May	90.4	89.6	90.1	91.1	91.7	91.9	92.1	87.3	79.6	73.4	64.4	51.5	31.8	34.8	35.1	38.9	40.3	41.8	42.9	45.4	49.1	50.4	60.7	63.1	63.6	92.1																							
2-May	65.3	68.4	72.4	77.5	80.7	82.9	80.1	65.1	47.6	39.3	38.4	31.4	29.0	28.5	27.6	24.8	23.1	22.4	22.5	24.9	28.3	36.7	32.8	38.9	45.4	82.9																							
3-May	55.6	71.9	75.6	73.3	70.1	70.5	66.6	59.8	59.4	59.1	59.3	55.7	53.5	48.6	44.8	42.2	40.6	39.7	39.6	40.3	47.4	38.6	37.2	57.3	54.5	75.6																							
4-May	58.9	62.6	67.4	67.2	74.3	80.9	70.4	63.7	56.1	55.4	49.1	41.0	36.6	33.7	32.6	32.5	31.9	34.6	37.4	40.2	42.5	45.5	52.0	56.0	50.9	80.9																							
5-May	59.2	64.9	69.3	69.4	70.8	69.3	67.5	64.0	57.7	49.8	41.6	33.3	30.2	28.5	26.9	25.9	26.2	26.6	27.3	30.0	33.1	35.1	36.9	44.6	44.6	70.8																							
6-May	38.1	40.1	41.0	42.2	44.6	46.2	45.2	44.5	42.2	39.5	41.2	49.0	66.1	68.9	52.6	46.5	43.1	38.9	38.4	39.9	52.0	58.8	65.6	72.5	48.2	72.5																							
7-May	76.4	75.8	74.6	55.6	60.4	78.1	86.2	86.6	84.1	84.6	86.7	84.5	87.7	86.4	85.9	86.8	88.5	91.3	92.8	92.3	90.6	92.2	94.1	95.0	84.0	95.0																							
8-May	95.0	95.1	95.8	95.8	95.8	94.8	89.3	82.3	79.2	74.1	62.4	52.6	39.1	36.3	34.2	34.3	32.3	28.9	25.1	24.3	24.1	32.9	38.1	44.0	58.6	95.8																							
9-May	47.3	45.9	42.8	49.3	49.4	50.7	45.5	36.3	31.8	27.5	25.8	23.9	22.8	21.3	20.1	19.3	18.2	18.0	19.3	22.0	24.8	48.4	63.4	65.7	35.0	65.7																							
10-May	56.1	56.9	55.0	57.6	59.1	58.1	53.9	47.0	38.6	32.6	29.0	27.0	26.3	23.0	20.0	18.9	18.4	18.1	18.1	20.4	22.0	29.0	35.3	39.9	35.8	59.1																							
11-May	37.4	32.1	31.6	31.6	32.9	33.1	33.8	33.0	31.3	27.4	25.2	22.1	21.6	21.3	20.5	21.6	22.6	28.1	33.7	36.8	40.3	46.7	53.4	59.0	32.4	59.0																							
12-May	61.6	65.0	68.0	71.6	78.7	79.5	79.1	69.2	58.5	53.4	50.6	47.2	43.2	42.2	39.3	35.7	35.9	36.7	38.4	39.8	41.5	41.4	43.4	45.3	52.7	79.5																							
13-May	46.7	49.7	52.4	52.9	54.7	56.3	58.9	64.8	60.1	52.3	44.6	38.1	31.6	31.1	27.6	22.7	22.2	22.4	21.9	27.3	52.8	54.6	59.5	70.1	44.8	70.1																							
14-May	71.4	78.4	84.9	87.5	85.1	84.4	80.2	67.3	53.3	41.0	30.3	24.4	24.5	22.7	22.5	22.9	23.3	25.9	29.6	38.8	48.1	60.5	62.9	65.2	51.5	87.5																							
15-May	71.1	78.5	83.0	77.7	83.2	86.2	79.3	74.0	65.6	57.9	50.2	44.2	38.1	34.7	33.3	38.0	35.4	35.4	31.2	33.9	39.0	43.0	48.3	56.3	54.9	86.2																							
16-May	59.4	64.2	64.9	72.6	82.1	84.3	84.7	84.3	86.0	83.7	79.9	79.2	81.1	77.9	73.0	70.8	70.8	71.0	83.7	85.1	87.5	88.3	88.1	88.0	78.8	88.3																							
17-May	85.4	81.7	83.6	84.9	84.5	85.6	83.1	81.2	80.4	79.3	79.3	77.0	76.8	79.2	83.9	78.5	81.2	87.8	90.8	92.2	92.1	92.7	92.9	93.1	84.5	93.1																							
18-May	93.6	94.1	94.2	94.3	94.6	94.0	93.5	93.1	92.4	92.1	91.1	90.5	90.1	90.2	91.0	91.6	92.5	92.4	90.5	88.8	93.4	93.6	92.1	92.6	92.3	94.6																							
19-May	94.7	93.6	95.1	95.0	95.3	95.8	95.8	93.4	83.4	80.0	77.3	76.3	76.4	74.6	74.8	72.6	73.9	70.6	71.8	72.3	75.5	81.4	83.0	80.7	82.6	95.8																							
20-May	81.6	82.7	85.2	86.9	87.9	87.4	85.9	82.2	75.6	70.8	63.9	59.9	65.9	69.3	64.9	63.8	71.9	69.3	64.4	60.7	63.2	67.7	72.5	75.9	73.3	87.9																							
21-May	76.8	79.0	82.3	84.3	85.0	83.8	83.5	81.6	76.8	70.5	63.3	59.4	54.1	49.9	52.6	51.7	48.0	48.9	50.5	52.5	55.9	58.1	61.7	65.9	65.7	85.0																							
22-May	73.0	80.2	87.4	85.7	79.2	75.7	75.2	64.7	61.4	58.0	52.8	51.6	52.8	51.3	50.1	47.0	48.1	47.7	50.7	51.0	55.0	59.0	62.1	61.9	61.7	87.4																							
23-May	64.3	65.3	65.4	67.7	69.6	70.1	65.0	57.2	53.6	51.1	47.8	44.9	42.4	39.7	38.8	38.0	37.4	38.4	37.5	39.3	47.5	60.8	82.3	79.1	54.3	82.3																							
24-May	77.9	83.2	84.9	89.9	87.7	83.3	78.9	67.0	57.8	50.3	44.0	39.3	36.5	33.8	31.4	30.2	30.3	29.4	27.8	34.8	40.2	65.9	69.9	68.8	56.0	89.9																							
25-May	66.1	72.4	75.4	79.9	81.5	75.3	75.3	62.9	51.2	34.6	29.9	28.4	28.5	25.9	25.3	25.4	25.2	26.7	29.0	32.6	40.0	46.0	51.9	62.7	48.0	81.5																							
26-May	68.2	82.1	84.7	85.3	79.8	73.2	69.1	60.9	51.1	43.2	40.3	39.0	40.0	35.6	32.5	32.2	30.0	30.4	28.1	32.4	41.0	50.5	57.9	55.3	51.8	85.3																							
27-May	46.1	54.9	55.0	58.4	59.2	57.6	52.8	45.0	39.5	33.9	33.0	28.7	28.8	27.8	25.0	25.3	43.4	46.6	54.9	60.1	62.5	56.3	55.5	55.6	46.1	62.5																							
28-May	59.0	61.6	75.5	82.3	88.8	86.8	79.9	70.3	57.8	56.9	47.8	42.5	33.9	30.8	28.3	26.1	27.7	26.5	29.0	41.5	51.9	45.4	48.9	47.2	51.9	88.8																							
29-May	47.3	51.7	61.0	75.8	81.0	81.5	81.1	77.2	67.5	64.3	64.4	66.2	69.6	64.4	60.8	59.8	58.0	54.2	52.5	56.2	61.9	64.7	66.4	70.3	64.9	81.5																							
30-May	77.2	89.0	86.6	86.3	86.6	86.1	85.4	82.2	81.1	74.3	73.8	74.4	72.1	73.3	74.8	67.8	80.3	76.2	85.1	81.3	81.8	83.0	73.7	78.0	79.6	89.0																							
31-May	82.9	73.7	63.5	62.4	65.7	67.3	58.2	53.6	51.7	51.3	56.2	53.7	53.2	57.8	55.7	51.6	51.1	55.1	70.2	74.7	73.3	73.9	68.2	69.1	62.3	82.9																							
																								67.2	70.5	72.5	73.9	75.5	75.8	73.4	67.8	61.7	56.8	53.0	49.6	47.9	46.6	44.7	43.3	44.3	44.5	46.3	48.7	53.4	58.0	61.6	64.8	Diurnal Average	
																								95.0	95.1	95.8	95.8	95.8	95.8	95.8	93.4	92.4	92.1	91.1	90.5	90.1	90.2	91.0	91.6	92.5	92.4	92.8	92.3	93.4	93.6	94.1	95.0	Diurnal Maximum	





Maximum Speed: 40 km/h on May 11 12:00	Maximum Daily Speed Average: 20.6 km/h on May 11	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 24 22:00	Minimum Daily Speed Average: 1.1 km/h on May 3	Hours of Data: 744
Maximum Diurnal Speed Average: 2.5 km/h at hour 14	Minimum Diurnal Speed Average: 0.4 km/h at hour 4	Hours of Missing Data: 0
Monthly Average Velocity: 1.1 km/h 347.1 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 10 Q <sub>3</sub> = 15 P <sub>90</sub> = 21 P <sub>99</sub> = 35	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNW21	NNW19	NNW17	NNW14	NNW14	NNW15	NNW17	NNW14	NNW15	NNW16	NNW16	NNW15	ENE18	ENE19	NE16	ENE20	ENE20	ENE20	NE16	NNE10	NNE8	NE9	NNW12	NNW15	N12.4	NNW21
2-May	NNW13	NNW12	NNW12	NNW10	NNW11	NNW10	NNW10	NNW9	NNW9	NNW14	NNW16	NNW19	NNW24	NNW24	NNW22	NNW21	NNW21	N20	N18	N16	N13	NNE9	NNE5	SE5	NNW13.6	NNW24
3-May	ESE3	ENE2	E3	ESE1	WNW1	SW4	E4	ESE2	ESE3	NNE3	NNW5	NNW5	NW10	WNW7	N1	NNW4	NNW1	SSW5	S8	S7	W6	NNW7	NNW5	W4	NNW1.1	NW10
4-May	W5	W5	W5	WSW4	SSW3	ESE2	ENE3	ENE5	NE3	NNW8	NNW8	NNW8	NW6	NNW7	WNW8	NW8	W7	NW9	NW10	NNW7	ESE5	ESE8	SE10	SE8	NW2.2	SE10
5-May	SE6	ESE5	ESE4	ESE7	ESE9	SE10	SE11	SE10	SE9	SE10	ESE11	ESE13	SE16	SE16	ESE19	SE16	SE15	SSE14	SE10	ESE9	SE10	ESE9	ESE11	SE13	SE10.6	ESE19
6-May	SE12	SE11	SE12	SE13	SE9	SE9	ESE10	SE13	SE13	ESE17	ESE16	ESE18	E12	ENE6	E16	E17	E15	E15	E16	SE21	SSE18	SE12	SE5	NNE2	ESE11.9	SE21
7-May	NNW8	N5	N2	ESE8	ESE16	ESE7	E7	ESE9	E11	E9	E7	ESE10	SE7	ESE9	ESE11	SE8	ESE3	N1	SE4	SE7	SE9	SE7	SE7	SE5	ESE6.3	ESE16
8-May	SSE6	SE8	SE8	SE6	SSE4	S3	WSW7	NW3	NNW7	NNW6	NNW5	WNW3	SW2	WSW8	SW9	SW12	SSW9	SW16	SW17	WSW12	SW8	S4	SW6	SSE5	SW4.4	SW17
9-May	SE3	SW12	SW18	S4	SSW7	SSW6	SSW4	WNW9	NNW11	NW25	NNW26	NNW36	W35	WNW32	WNW31	WNW31	NW28	NW25	NW20	NNW9	W1	E0	SE2	SE2	WNW13.0	WNW36
10-May	SE3	ESE4	SSE5	SE8	SE12	SE11	SE11	SE8	SSW10	SSW15	SW16	W24	WSW23	WSW24	W30	W31	W31	WNW32	W28	WNW16	WSW12	NNW16	NNW34	NNW14	W10.3	NNW34
11-May	W9	NNW22	WNW21	W23	WNW19	NNW26	NNW29	NW32	NW38	NW37	NW39	NW40	NW37	NW35	NW34	NW29	NNW24	NNE20	N18	NNE16	NNE10	NE6	ENE10	ENE12	NW20.6	NW40
12-May	SSE4	ESE4	ESE7	SSE5	ESE4	SE5	SE6	SE6	ESE10	ESE11	E12	E13	ESE12	ESE12	ESE13	ESE13	E12	ESE11	ESE9	ESE9	ESE10	ESE10	ESE10	SE7	ESE8.7	E13
13-May	SE10	SE8	SE7	SE10	SE11	SE12	SE12	SSE8	ESE9	ESE13	SE16	SSW13	SW16	SW13	SW13	SW16	WSW17	WSW19	WSW20	WNW17	NNW20	N7	NNW5	SW3	SSW4.8	WSW20
14-May	SW7	S2	E2	ESE2	SE4	SE6	SE10	SE7	SSE5	SW8	SW9	WSW18	NW15	SW15	WSW21	WSW22	WSW24	W24	WNW22	WNW19	W4	NNW11	NE2	S5	WSW7.2	W24
15-May	SSE2	ESE3	E4	ESE4	NE2	NW2	NW6	NNW8	NNW7	WNW5	W5	NNW10	NNW9	NNW11	NNW12	NNW18	N14	NNW11	N7	ENE11	NE12	E10	E10	ENE10	N5.1	NNW18
16-May	ENE7	ENE8	ENE5	NNE7	N8	N7	NNE6	ENE6	NE7	E15	E19	E16	ENE14	E11	E12	ENE15	ENE11	E12	ENE9	E12	ENE18	ENE13	ENE12	ENE13	ENE10.2	E19
17-May	ENE14	E12	E8	ENE6	ENE8	ENE8	E12	E15	E16	E18	E15	ENE17	ENE12	ENE12	NE10	NE12	N11	N12	NNW19	NNW21	NNW22	NW21	NW17	NW15	NE8.7	NNW22
18-May	NW17	NW16	NW14	NW15	NW16	NW15	NW14	WNW15	NW15	NW16	NW18	NNW17	NW18	NNW22	NW22	NW22	NNW19	NNW14	NNW10	NE5	E5	ENE4	N4	NNW6	NW13.2	NW22
19-May	N5	N6	NNW6	NNW5	NNW10	NNW9	N5	ENE10	ENE15	ENE16	ENE14	ENE13	ENE15	ENE14	ENE14	ENE14	ENE12	NE8	NNE7	NE6	N2	NW2	NW6	NNW12	NE7.1	ENE16
20-May	NNW12	NW12	NW14	NW13	NW12	NNW14	NNW12	NNW9	NNW7	NNW8	NNW11	NNW13	NNW11	NNE7	NNE3	E6	ESE16	SE8	SSE9	SE9	ESE6	ESE7	SE8	E6	N4.1	ESE16
21-May	E6	E4	E6	SE5	ESE7	SE6	SE5	SE6	ESE10	E11	E10	E17	ESE13	E11	ENE19	ENE16	E12	E13	ENE14	ENE13	ENE11	E5	ESE5	ESE2	E9.0	ENE19
22-May	NE4	NNW3	SW1	SSE2	ESE4	SE4	NE3	E12	ENE14	ENE12	ENE18	E13	ENE7	ENE9	ENE12	ENE14	ENE14	ENE13	E11	E9	E9	E6	E4	E5	ENE8.0	ENE18
23-May	E5	E4	E5	E5	ENE5	E3	E5	E11	E12	ESE11	ESE14	SE16	SE16	SE15	SSE13	SSE13	SE11	SE13	SE10	SE12	SE7	SE4	E2	SE3	ESE8.1	SE16
24-May	SSE5	SE3	SSE5	ESE3	SSE4	ESE6	SE5	SE6	SE10	SE10	SE9	SE9	SSE10	SSE13	SE14	SE12	S10	SSW9	S7	WSW8	SSW4	SE0	SE2	SE2	SSE6.0	SE14
25-May	SSE5	SSE4	SSE5	SSE5	SSE4	SE4	ENE6	SE6	SE7	SE13	ESE16	SE17	ESE16	SE15	SE14	SE12	SE12	SE15	ESE13	ESE14	SE9	SE7	SE8	ESE6	SE9.3	SE17
26-May	ESE4	E4	E4	E4	SE5	SE11	SE9	SSE9	SE8	ESE12	SSE10	SSW14	SW16	SSW14	SE9	ESE11	SSE9	ESE11	ESE8	E7	ESE5	SSE4	S2	ESE6	SE6.3	SW16
27-May	SE5	E5	SE5	ESE6	SE8	SE8	SE7	SE4	ESE6	SE8	SSE10	SE14	SE12	SE12	SE12	SSE12	SW12	SW8	ESE5	ESE6	SE9	SE9	SE9	SSE9	SE7.4	SE14
28-May	SE6	S5	SE3	S3	N1	SE3	N2	ENE1	SW3	WSW3	SW2	SW5	SW13	SW13	SW11	WSW10	WSW7	SW4	ENE6	NE3	NW4	NNE3	NNW5	N10	SW2.2	SW13
29-May	NE14	ENE6	ESE4	NE1	NNE3	NNE3	SE6	SE8	ESE6	SW8	SW20	SW21	SW24	WSW21	SW22	WSW22	WSW22	SW16	WSW22	WSW21	WSW18	SW20	SSW18	SW18	SW10.9	SW24
30-May	SSW15	SW17	SW19	WSW16	W23	WNW20	W20	W18	W19	WNW22	WNW24	WNW21	WNW23	WNW24	WNW18	NW20	WNW20	WNW17	W12	W19	W17	W17	W21	WSW17	W17.4	WNW24
31-May	WSW19	W20	WNW26	WNW27	WNW25	NW24	WNW23	WNW24	WNW32	WNW31	NW29	NW27	NW34	WNW30	NW23	NW11	NNE5	NNW11	NNW10	NW16	NW18	NW15	NW17	NW19	WNW20.3	NW34

E0.6 NW0.9 W0.9 NNW0.4 NNW0.9 NNW0.7 N0.8 NE1.3 NNE2.1 NNE2.2 N1.8 NW2.1 NNW2.5 NNW2.5 NW1.9 NNW1.9 NW1.7 NNW2.1 NNW2.0 N1.3 NE1.3 NE1.6 NNE1.4 NE0.9	Diurnal Average
NNW21 WNW22 WNW26 WNW27 WNW25 WNW26 WNW29 NW32 NW38 NW37 NW39 NW40 NW37 NW35 NW34 W31 W31 WNW32 W28 NNW21 NNW22 NNW21 NNW34 NW19	Diurnal Maximum

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

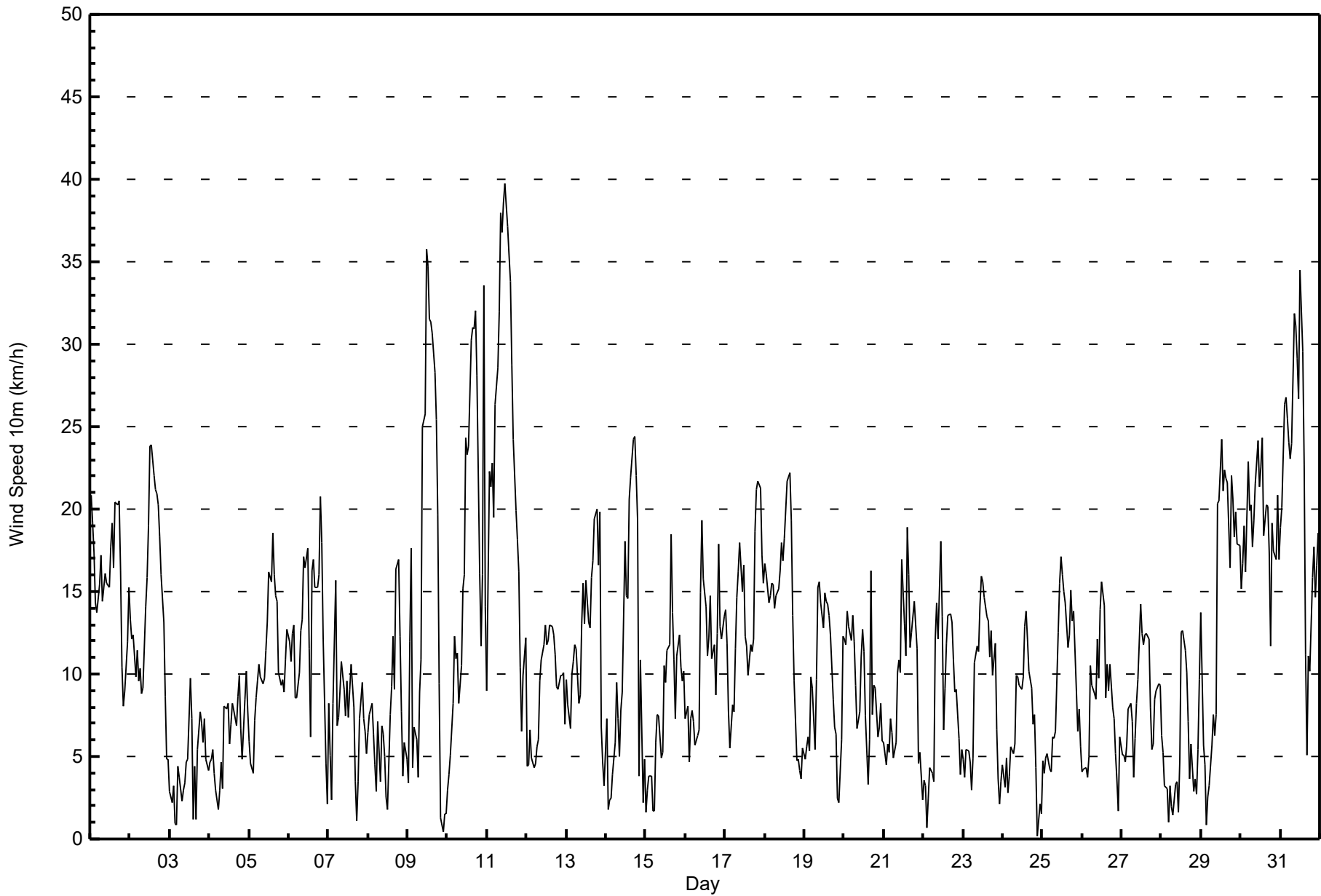




**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed 10m (WS10) - km/h**  
**Athabasca Valley - May 2024**

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h  
Athabasca Valley - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	167	22.45	22.45
6 - 11	251	33.74	56.18
12 - 19	232	31.18	87.37
20 - 28	69	9.27	96.64
29 - 38	23	3.09	99.73
> 38	2	0.27	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  
Athabasca Valley - May 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	8	8	7	21	23	27	17	8	4	8	3	6	3	4	10	167
6 - 11	7	8	6	19	21	39	68	10	4	5	9	5	3	3	8	36	251
12 - 19	6	1	5	35	25	19	33	6	0	6	20	9	6	7	21	33	232
20 - 28	1	1	0	3	0	0	1	0	0	0	5	11	8	17	10	12	69
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	4	9	9	1	23
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
<b>Totals</b>	24	18	19	64	67	81	129	33	12	15	42	28	27	39	54	92	744

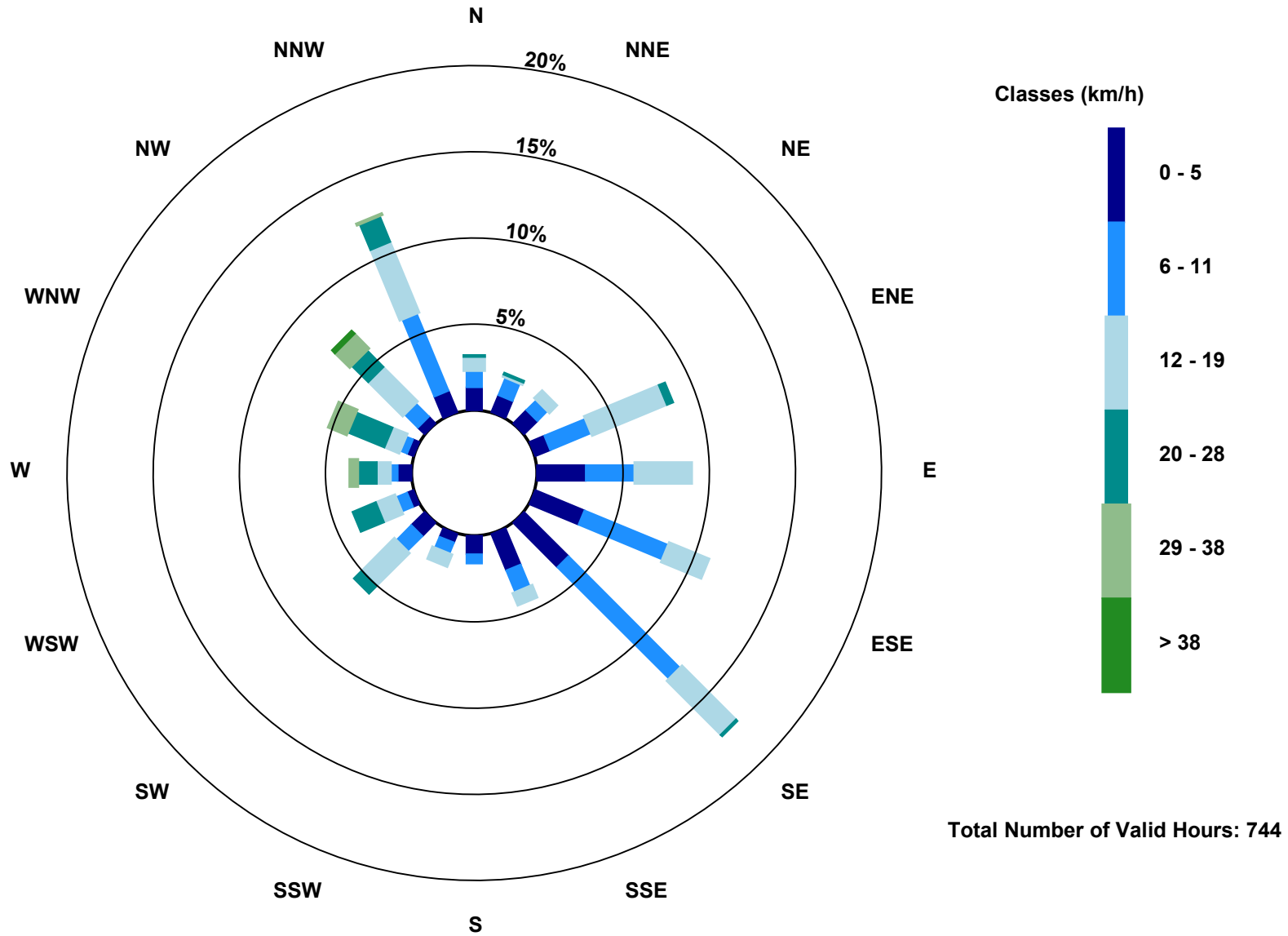
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 10m (WS10) - km/h  
Athabasca Valley





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

**Wind Direction 10m (WD10) - deg**  
**Athabasca Valley - May 2024**

Direction of Maximum Speed: 313 deg on May 11 12:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 319.8 deg on May 11		Hours of Data: 744
Direction of Minimum Speed: 137 deg on May 24 22:00		Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.1 deg on May 3		Percent Operational Time: 100.0
Monthly Average Direction: 347.1 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-May	336	336	335	334	335	336	338	346	339	337	344	346	60	61	48	64	66	61	56	19	21	37	336	330	7.8
2-May	328	332	335	341	341	345	339	342	339	340	335	336	339	339	342	346	347	355	358	1	4	25	33	125	345.7
3-May	107	77	83	106	294	234	89	109	111	25	335	332	324	302	0	346	330	210	183	189	273	346	342	266	311.3
4-May	259	263	263	258	211	121	72	76	49	342	340	335	311	331	290	316	262	324	323	340	105	120	128	128	322.3
5-May	138	108	112	115	112	130	132	142	144	145	119	111	126	128	119	127	133	159	141	123	131	121	122	135	128.9
6-May	131	135	130	127	128	134	122	127	124	115	115	118	94	62	87	95	92	91	89	143	151	139	146	24	116.7
7-May	346	2	6	110	108	107	89	104	98	100	97	117	126	117	118	140	119	6	128	128	126	133	124	132	109.0
8-May	148	136	128	126	153	176	238	325	332	336	334	296	221	249	225	224	200	230	235	245	233	190	214	155	220.0
9-May	140	229	231	175	200	194	201	296	340	306	295	284	280	287	295	293	307	311	312	332	265	101	134	130	288.8
10-May	137	123	148	132	132	137	133	127	211	213	235	260	248	245	265	273	276	283	281	288	254	331	345	340	265.2
11-May	269	302	282	279	282	290	291	310	311	321	319	313	321	326	319	324	343	17	7	16	28	48	60	73	319.8
12-May	149	118	111	154	102	136	131	139	108	105	97	92	109	103	107	110	91	106	111	113	118	114	112	127	110.9
13-May	127	124	141	137	136	131	131	147	114	111	135	195	224	229	215	231	248	253	258	286	340	4	348	233	199.0
14-May	222	174	100	110	139	130	132	129	158	222	216	240	225	227	253	257	257	270	290	286	280	339	53	174	246.5
15-May	165	103	98	111	39	306	326	335	332	289	273	333	336	334	336	336	350	342	11	62	47	83	97	75	3.9
16-May	59	69	64	21	353	0	21	60	56	84	84	85	77	81	79	77	71	81	65	84	74	73	69	72	69.6
17-May	77	92	89	76	70	73	79	83	79	82	79	74	69	69	49	42	7	352	333	332	327	326	322	322	34.9
18-May	319	323	324	325	324	319	309	302	313	322	326	327	324	327	320	325	333	328	344	47	83	76	7	339	325.9
19-May	10	355	337	342	328	328	357	76	78	76	74	69	71	68	76	72	77	52	32	41	8	312	326	340	46.4
20-May	328	325	326	325	325	334	334	334	327	334	348	345	343	27	13	95	122	134	166	135	105	120	124	98	357.8
21-May	96	95	94	128	102	126	138	135	121	98	93	82	103	89	66	77	83	85	78	75	77	89	118	105	91.4
22-May	39	338	230	163	123	129	51	81	69	70	78	86	60	68	63	69	78	77	89	80	84	86	89	83	77.2
23-May	82	91	96	87	72	89	95	82	88	112	115	128	129	143	154	155	140	146	144	137	136	143	90	128	123.6
24-May	148	132	150	114	151	119	126	137	130	133	137	143	149	157	142	140	180	211	188	242	202	137	146	137	152.6
25-May	150	162	149	156	168	137	75	131	141	125	120	128	121	129	128	125	124	129	106	118	125	137	132	121	126.8
26-May	122	86	87	100	128	139	137	148	127	123	165	201	229	208	138	116	152	108	120	95	117	158	189	120	144.0
27-May	144	90	134	122	128	135	139	136	117	137	161	143	126	132	129	163	225	230	114	114	135	132	137	153	141.8
28-May	125	190	130	184	1	140	360	61	218	240	228	233	220	228	227	240	252	235	62	47	313	16	333	0	232.3
29-May	55	62	118	47	14	17	146	135	117	229	230	230	232	239	236	238	241	233	238	239	238	232	213	225	228.9
30-May	205	224	232	251	276	286	280	267	278	294	297	296	302	292	303	314	297	287	277	267	268	264	272	249	277.0
31-May	243	264	284	289	303	309	297	296	299	303	304	311	306	295	308	324	16	340	345	317	315	306	315	315	302.2
82.7 326.2 277.0 300.2 345.2 332.6 6.7 48.1 31.9 18.9 4.6 315.7 299.2 295.9 319.9 332.1 322.8 320.5 338.2 2.7 47.8 53.1 30.0 53.2																									
Diurnal Average																									

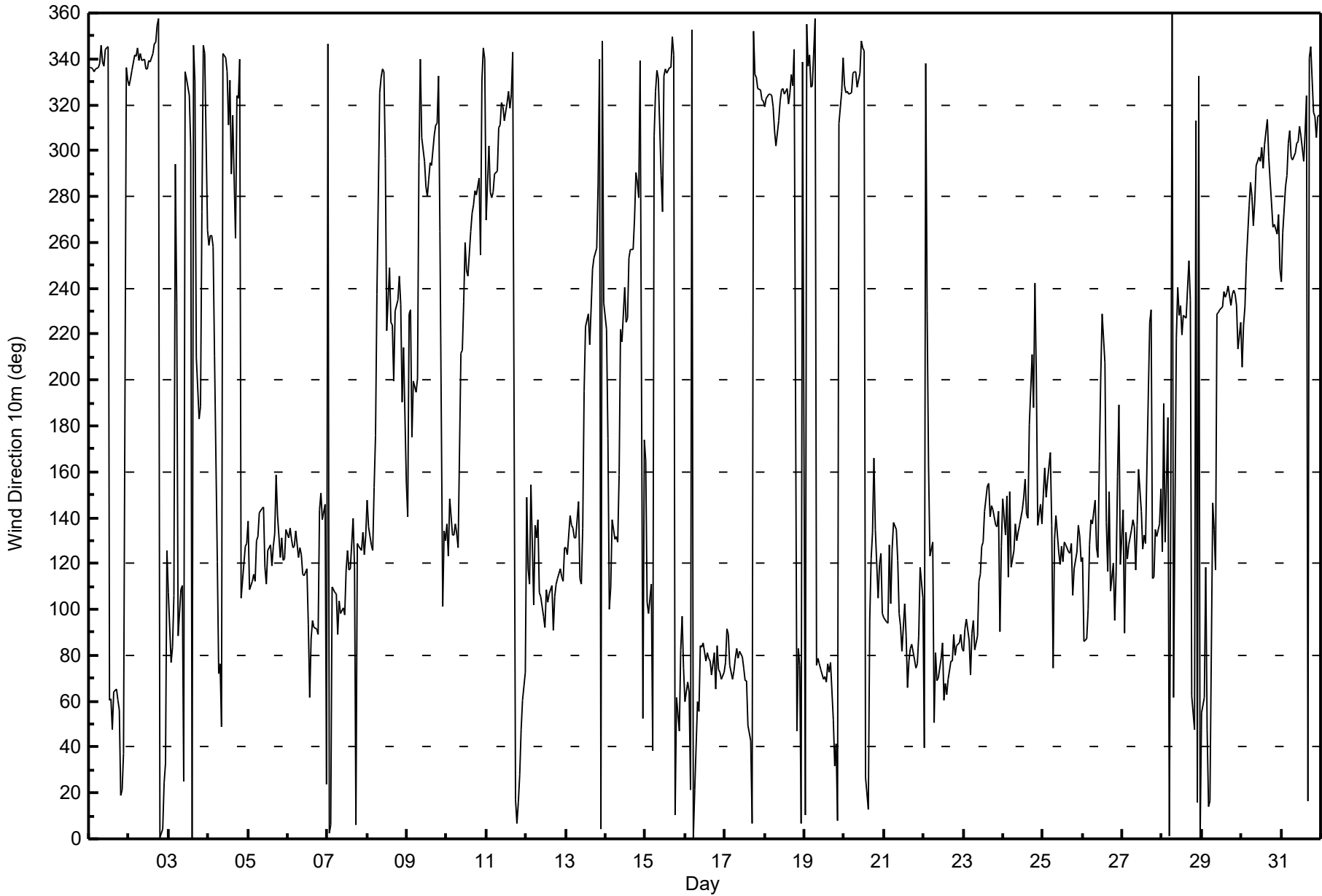
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction 10m (WD10) - deg**  
**Athabasca Valley - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on May 24 22:00 Minimum Value: 6 deg on May 2 01:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 12 Q <sub>1</sub> = 15 Median = 20 Q <sub>3</sub> = 31 P <sub>90</sub> = 51 P <sub>99</sub> = 90																			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-May	10	10	10	9	9	9	10	16	13	13	16	30	24	22	20	16	16	15	17	16	12	17	13	8	30
2-May	6	11	8	12	10	12	11	15	15	15	13	14	16	15	17	19	19	20	20	19	16	33	43	32	43
3-May	46	73	22	72	97	28	42	63	57	61	65	64	20	39	86	46	89	29	24	24	33	14	22	22	97
4-May	34	23	21	25	71	55	49	14	44	17	20	20	44	42	37	44	28	23	14	19	36	17	15	18	71
5-May	23	41	46	20	19	19	15	19	19	20	24	28	22	26	17	21	20	28	23	15	16	14	14	16	46
6-May	16	17	16	15	20	18	19	16	17	19	19	18	20	54	16	20	20	21	15	31	22	19	47	49	54
7-May	21	45	79	23	22	23	19	21	18	22	20	22	21	21	19	19	37	78	53	18	15	16	15	18	79
8-May	18	14	13	11	54	55	20	48	12	16	30	79	91	35	22	19	43	14	12	12	24	24	20	66	91
9-May	59	42	46	65	36	61	66	46	24	14	20	14	16	19	17	16	18	14	11	20	69	94	90	78	94
10-May	44	37	35	23	13	17	12	16	65	14	25	18	17	20	17	16	14	16	15	15	10	38	19	17	65
11-May	24	12	12	8	13	11	12	15	13	13	15	15	15	14	15	18	19	21	19	15	14	27	10	15	27
12-May	48	57	23	25	34	33	28	29	24	23	21	23	25	23	23	22	19	21	21	18	15	17	18	25	57
13-May	16	16	29	14	15	15	25	22	20	23	32	26	19	18	18	22	17	15	19	16	32	33	81	81	
14-May	7	59	53	49	32	23	14	13	43	23	56	18	18	20	20	19	16	17	20	41	86	21	72	40	86
15-May	76	50	30	47	68	72	23	15	12	25	31	19	23	15	22	12	20	20	41	18	15	30	23	16	76
16-May	22	26	68	15	14	20	20	25	29	15	13	15	13	17	14	14	14	15	13	18	12	15	14	14	68
17-May	14	21	31	55	26	24	18	13	13	12	14	13	24	19	18	18	22	19	8	11	8	8	8	8	55
18-May	8	8	9	8	8	8	10	9	11	9	9	10	11	10	10	9	10	15	33	44	15	20	27	31	44
19-May	37	26	28	31	9	10	25	21	12	13	13	15	13	15	14	16	16	22	24	23	51	43	36	15	51
20-May	10	9	8	9	9	10	13	13	21	16	17	17	18	29	62	80	14	29	20	22	22	25	16	23	80
21-May	22	25	24	24	21	24	27	26	19	25	30	17	27	34	16	16	17	16	11	11	10	28	36	63	63
22-May	25	54	102	59	46	41	39	14	17	18	14	22	54	51	34	22	14	14	17	10	10	16	27	17	102
23-May	13	18	24	23	32	40	33	14	22	27	25	22	23	27	25	27	24	23	23	21	27	43	50	50	50
24-May	24	47	27	40	29	33	34	42	25	35	32	37	36	29	31	32	19	19	47	25	27	103	76	70	103
25-May	28	30	23	25	31	37	14	34	33	28	24	27	29	24	29	29	23	22	21	20	21	19	19	27	37
26-May	40	25	22	42	39	19	18	24	28	27	42	32	20	27	54	29	42	22	23	21	20	46	80	37	80
27-May	48	36	52	35	27	23	22	51	36	46	42	28	33	38	35	26	33	47	51	29	14	20	17	27	52
28-May	41	38	78	63	102	45	73	84	57	44	102	62	20	21	20	26	36	45	39	39	69	86	78	29	102
29-May	19	46	62	102	81	57	35	23	56	77	14	12	12	13	15	16	13	16	14	16	15	15	14	17	102
30-May	18	12	9	23	10	13	13	11	11	14	13	13	13	15	14	23	17	18	35	9	9	10	11	11	35
31-May	11	14	14	13	11	13	12	15	13	11	12	12	12	14	13	30	37	17	20	12	10	10	10	11	37
Diurnal Maximum																									







## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS08 FORT CHIPEWYAN MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
MAY 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	1.6	0	0.6	0
TRS (ppb) Average	709	35	35	100	1.7	0	0.6	0
O3(ppb) Average	710	34	34	100	50.2	0	44.5	-
NO2(ppb) Average	709	35	35	100	3.6	0	1.3	-
NO(ppb) Average	709	35	35	100	2	-	0.5	-
NOX(ppb) Average	709	35	35	100	5.1	-	1.5	-
PM2.5(ug/m3) Average	742	2	2	100	221.7	0	94.9	2
CO(ppm) Average	710	34	34	100	0.5	0	0.3	-
CO2(ppm) Average	708	36	36	100	459.4	-	449.1	-
Temperature 2 m (C) Average	744	0	0	100	24.6	-	16.5	-
Relative Humidity (%) Average	744	0	0	100	99	-	93.2	-
Wind Speed 10 m (km/h) Average	744	0	0	100	40	-	30	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
PC(mm) Total	744	0	0	100	2.2	-	11.7	-
Leaf Wetness (% of range) Average	744	0	0	100	72.9	-	41.2	-
Global Solar Radiation (W/m2) Average	744	0	0	100	874.5	-	352.3	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
MAY 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	0.03	0.1	-	0	0	0	0	0	0	0	1.6
TRS (ppb) Average	709	0.14	0.1	-	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.7
O3(ppb) Average	710	34.9	6.2	-	19.5	26.9	29.9	34.9	39.2	43.6	50.2	
NO2(ppb) Average	709	0.28	0.4	-	0	0	0	0.2	0.3	0.6	3.6	
NO(ppb) Average	709	0.11	0.2	-	0	0	0	0	0.2	0.3	2	
NOX(ppb) Average	709	0.39	0.5	-	0	0	0.1	0.3	0.5	0.8	5.1	
PM2.5(ug/m3) Average	742	8.06	24.7	-	0.3	1.2	1.9	3	4.6	7.3	221.7	
CO(ppm) Average	710	0.04	0.1	-	0	0	0	0	0.1	0.1	0.5	
CO2(ppm) Average	708	434.82	7.4	-	422.5	425.7	427.9	436.4	440.7	443.2	459.4	
Temperature 2 m (C) Average	744	8.77	4.9	-	0	2.5	4.9	8.4	12	15.1	24.6	
Relative Humidity (%) Average	744	65.32	19.5	-	17.6	36.8	52.5	65.7	79.4	92.7	99	
Wind Speed 10 m (km/h) Average	744	18.9	7	-	1	9	14	19	24	27	40	
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-	
Precipitation (mm) Total	744	-	-	54.41	-	-	-	-	-	-	-	
Leaf Wetness (% of range) Average	744	8.42	16.9	-	0.4	0.9	1.1	1.3	1.6	37.8	72.9	
Global Solar Radiation (W/m2) Average	744	221.84	264.5	-	0	0	0.5	95.8	411.4	669.7	874.5	

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
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No operational issues to report



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.6 ppb on May 24 05:00	Maximum Daily Average: 0.6 ppb on May 24		Hours of Data:	709
Minimum Value: 0.0 ppb on May 1 01:00	Minimum Daily Average: 0.0 ppb on May 6		Hours of Missing Data:	35
Maximum Diurnal Average: 0.1 ppb at hour 5	Minimum Diurnal Average: 0.0 ppb at hour 21		Hours of Calibration:	35
Monthly Average: 0.03 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.6		Percent Operational Time:	100.0

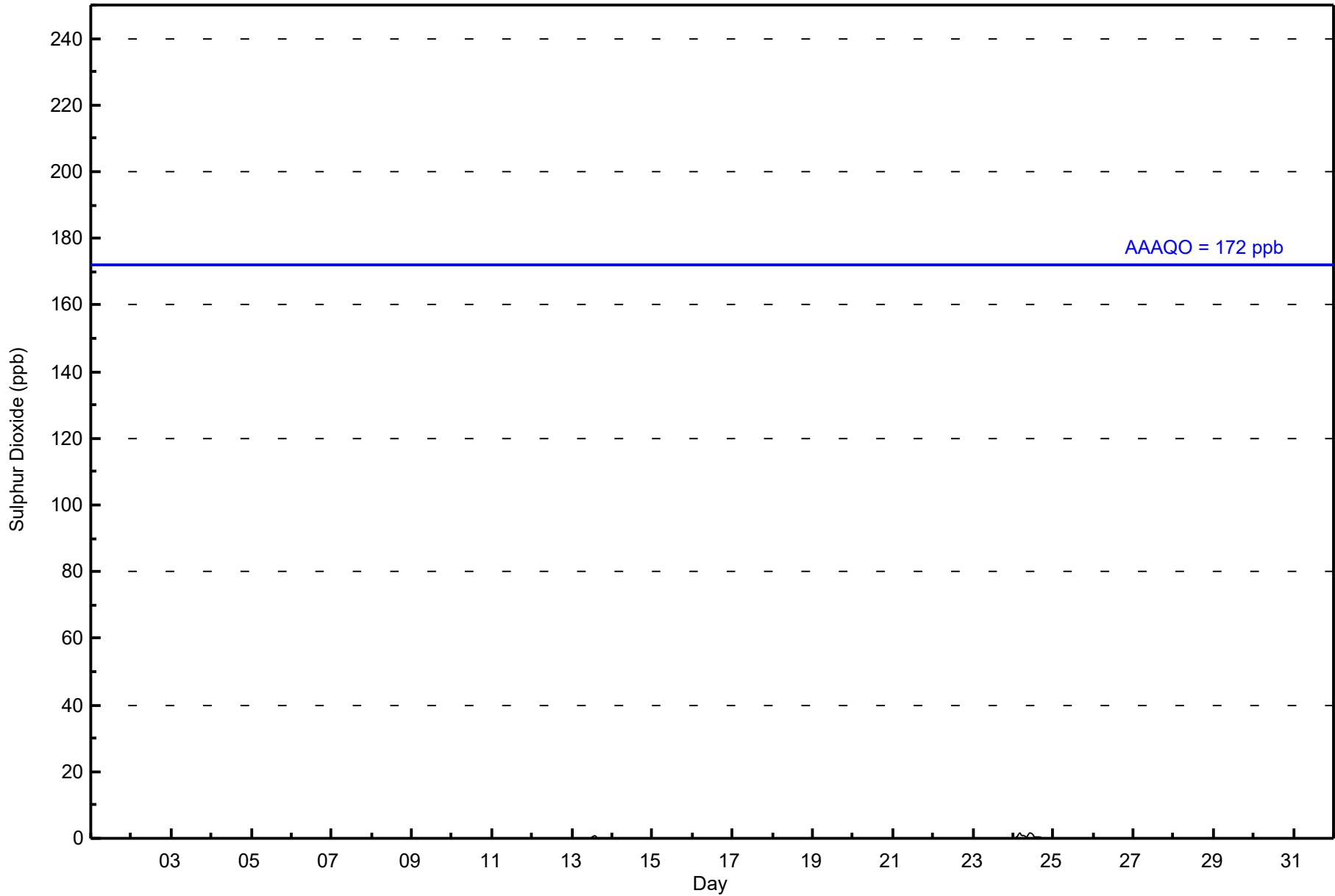
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																											
1-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
2-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
3-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
4-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
5-May	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
6-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
7-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
8-May	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	0.0	0.0	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-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
10-May	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	0.0	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-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
12-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
13-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.7	0.6	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																							
14-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
15-May	0.1	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	0.0	0.1																							
16-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
17-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
18-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
19-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
20-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
21-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
22-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
23-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
24-May	Z	0.6	0.5	1.3	1.6	1.0	0.6	0.6	0.6	1.4	1.5	1.4	0.5	0.4	0.4	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6																							
25-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1																							
26-May	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	0.0	0.0	0.1																							
27-May	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
28-May	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	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	0.2																							
29-May	0.1	0.1	0.1	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																							
30-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
31-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																							
																								0.0	0.0	0.0	0.1	0.1	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	Diurnal Average
																								0.1	0.6	0.5	1.3	1.6	1.0	0.6	0.6	0.6	1.4	1.5	1.4	0.5	0.7	0.6	0.6	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Maximum

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



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - May 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Chipewyan - May 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 - May 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	7	21	130	193	138	17	7	12	14	14	18	19	19	20	59	21	709
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>	7	21	130	193	138	17	7	12	14	14	18	19	19	20	59	21	709

Total Number of Valid Hours: 709

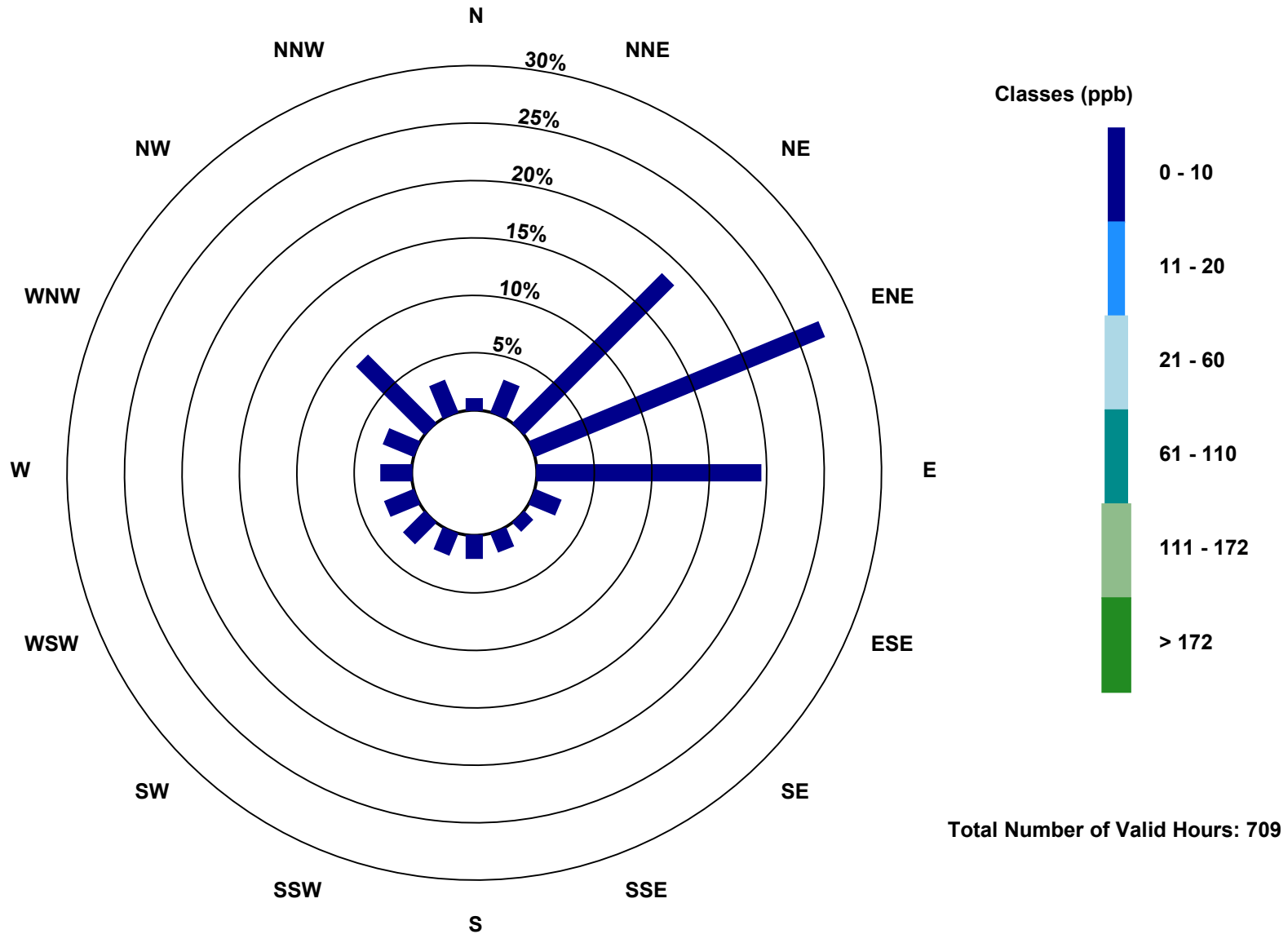
Total Number of Hours: 744

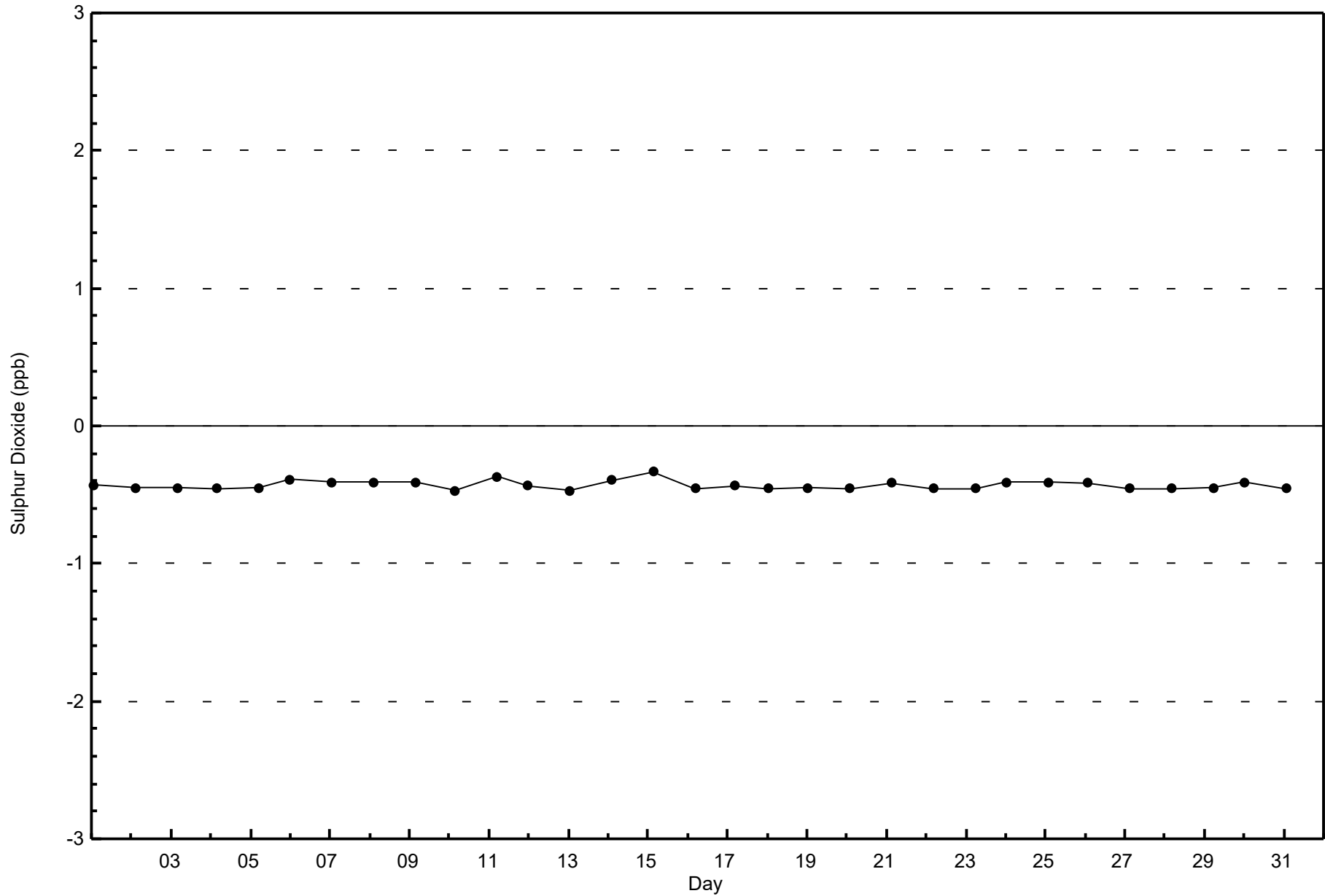


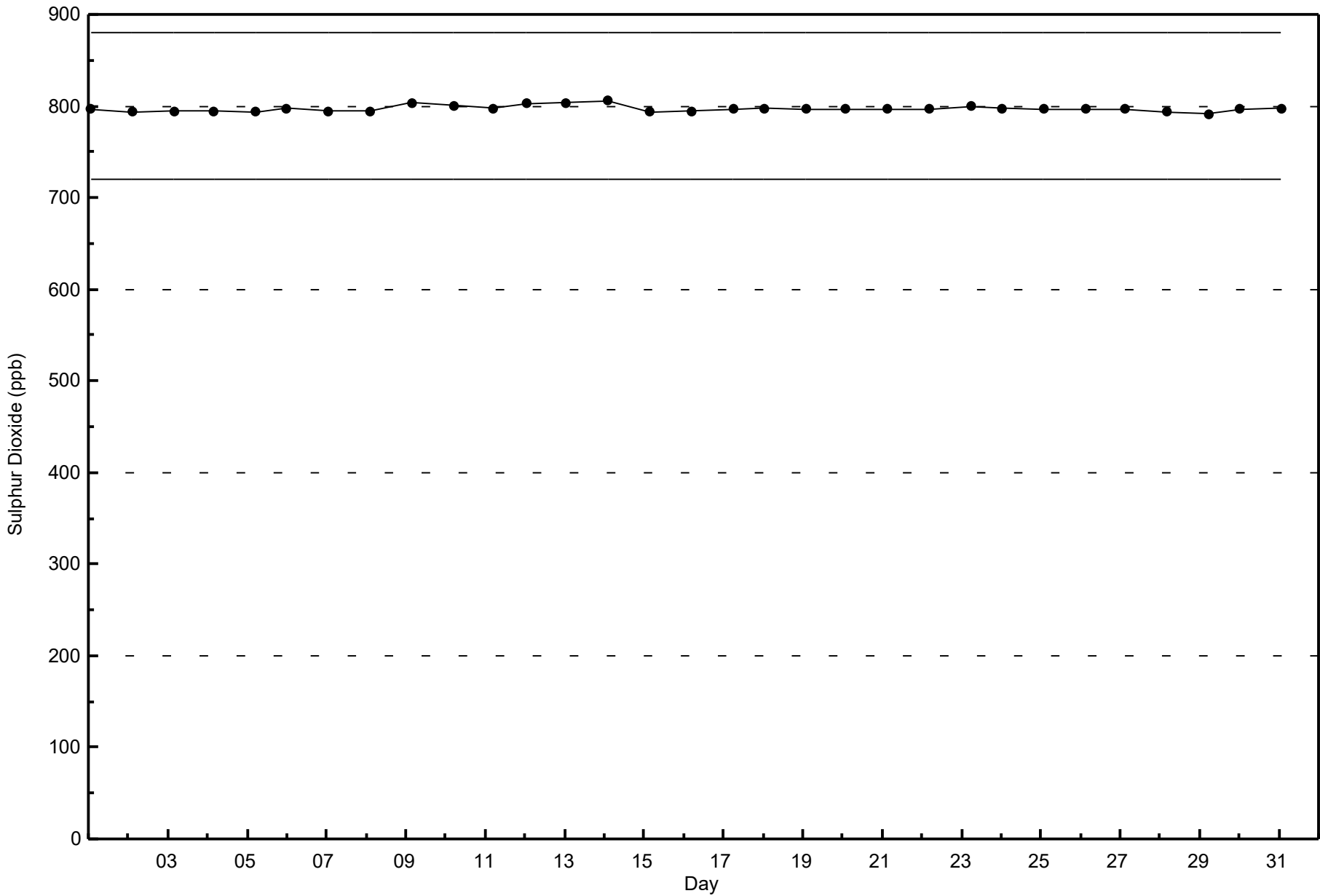


Wood Buffalo Environmental Association  
Wind Rose May 2024

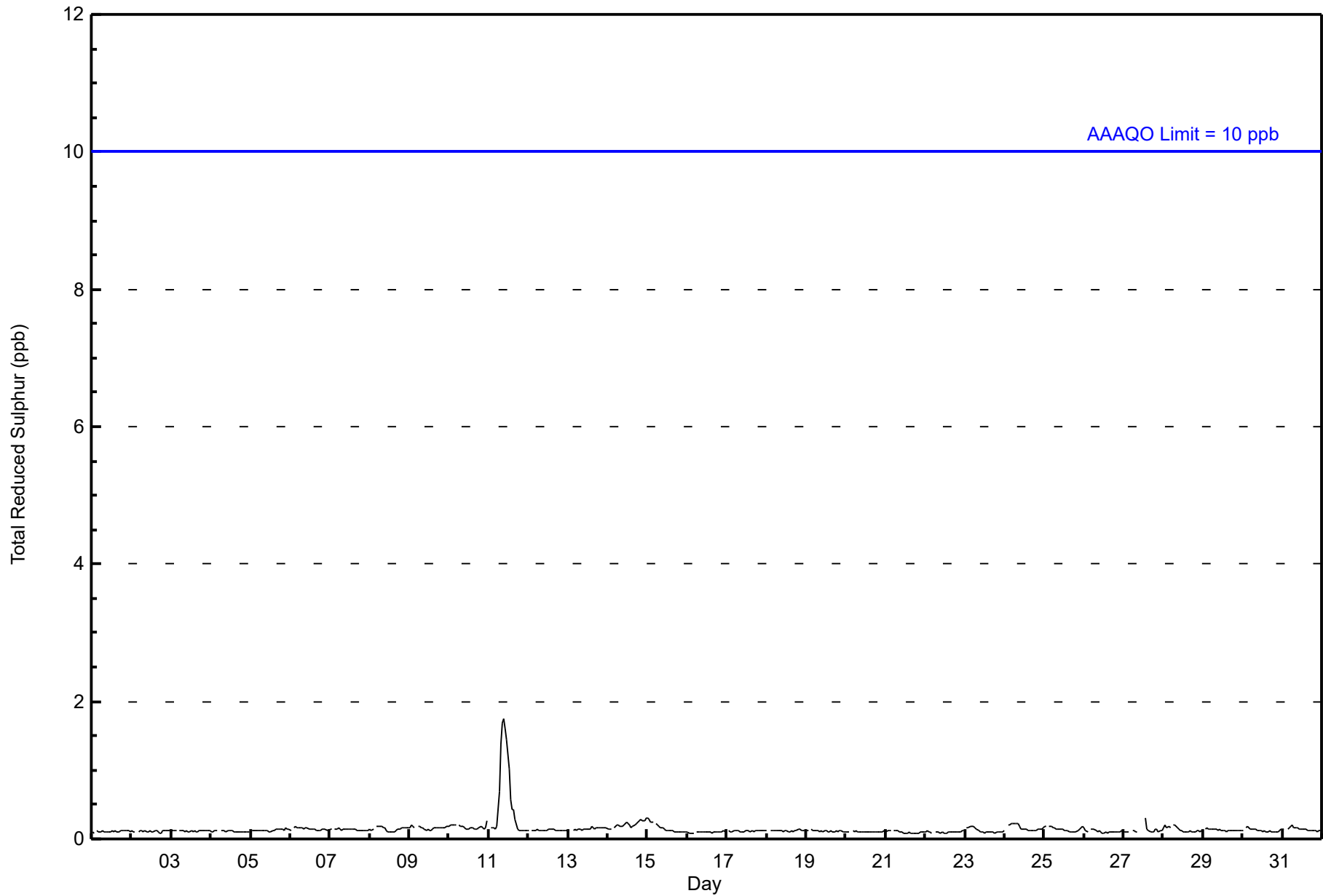
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Chipewyan













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

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - May 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**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Chipewyan - May 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	9	22	128	188	144	16	8	11	13	14	17	20	19	18	61	21	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>	9	22	128	188	144	16	8	11	13	14	17	20	19	18	61	21	709

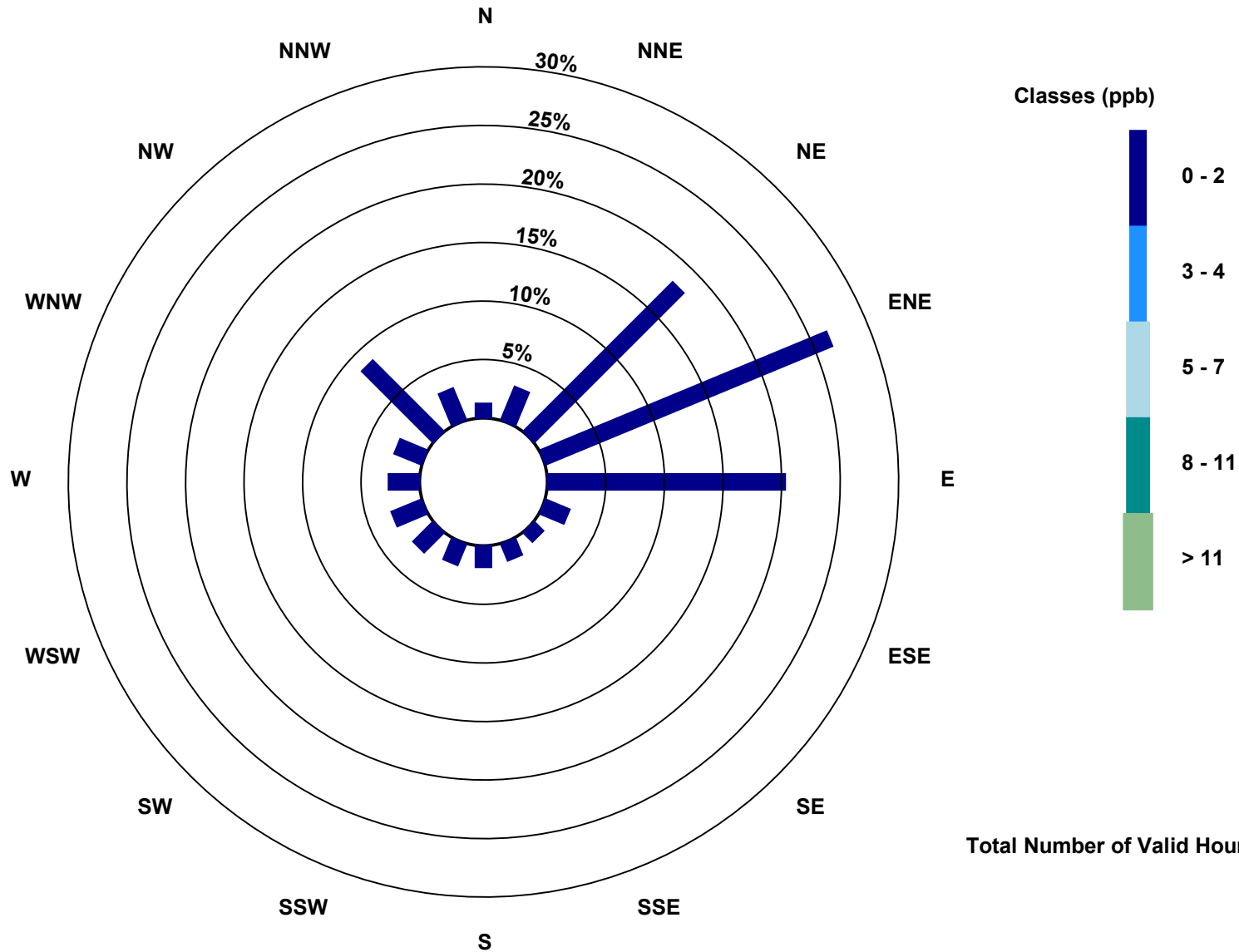
Total Number of Valid Hours: 709

Total Number of Hours: 744



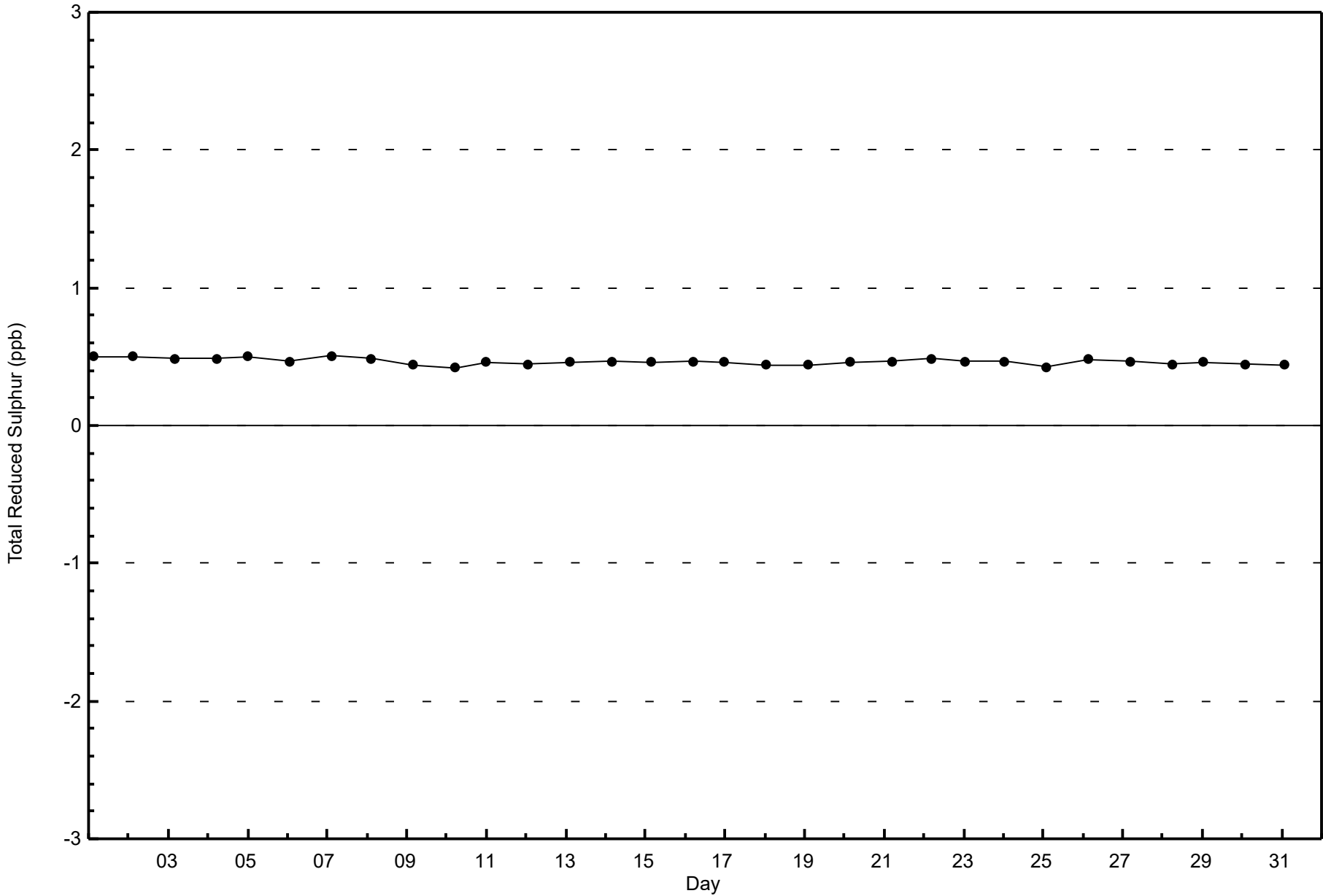
Wood Buffalo Environmental Association  
Wind Rose May 2024

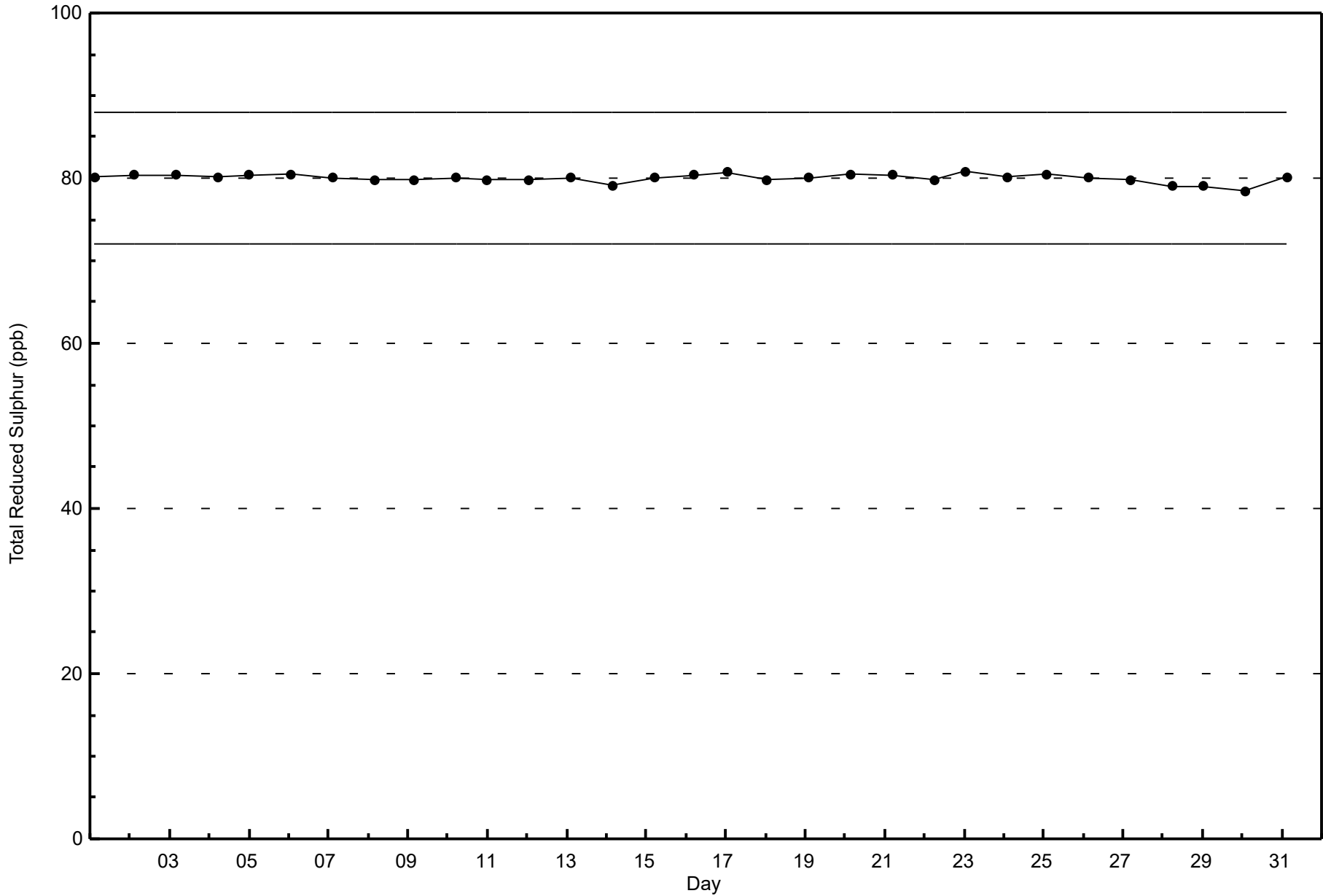
Total Reduced Sulphur (TRS) - ppb  
Fort Chipewyan



Total Number of Valid Hours: 709





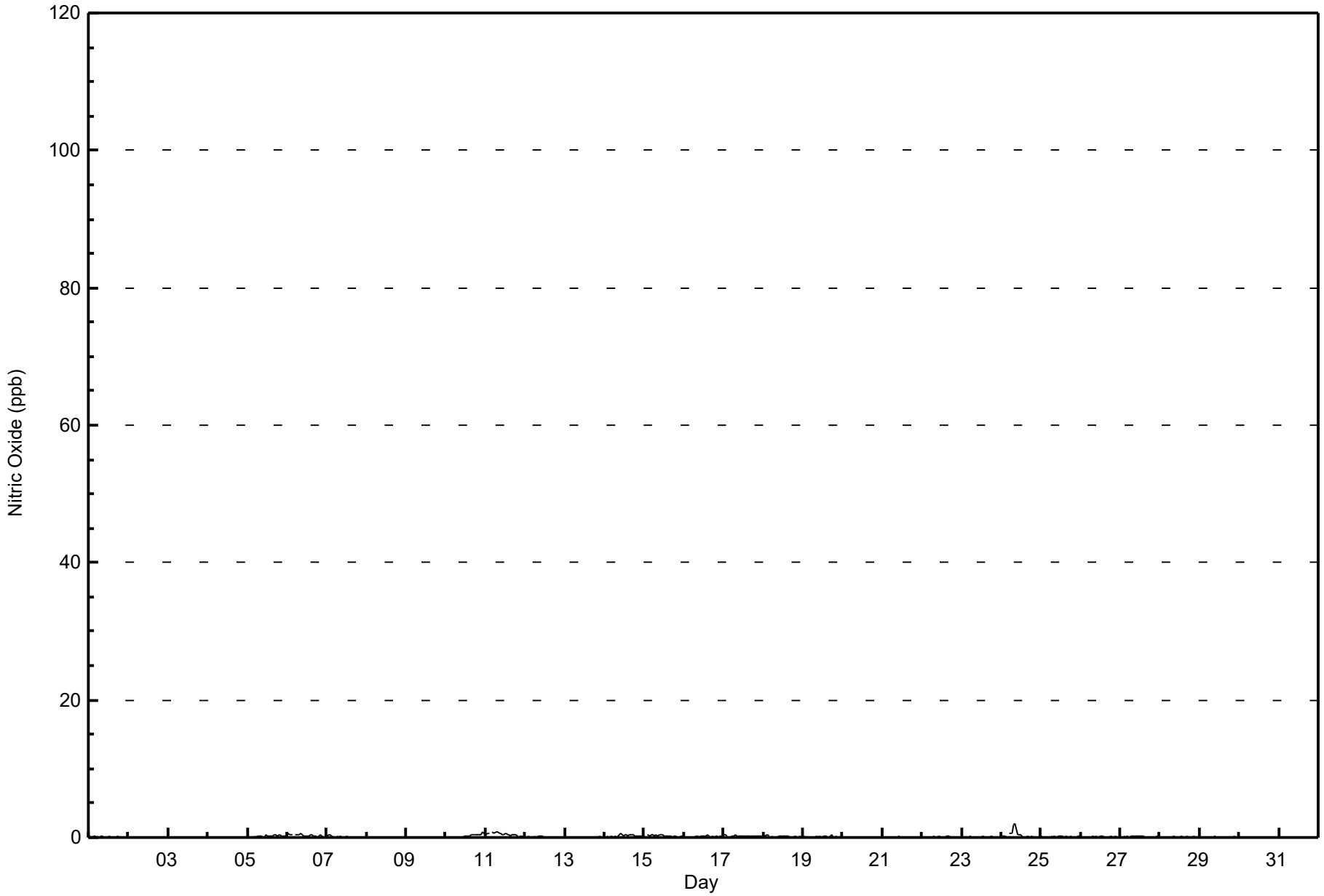






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - May 2024**





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

**Nitric Oxide (NO) - ppb**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	709	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Chipewyan - May 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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709
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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709

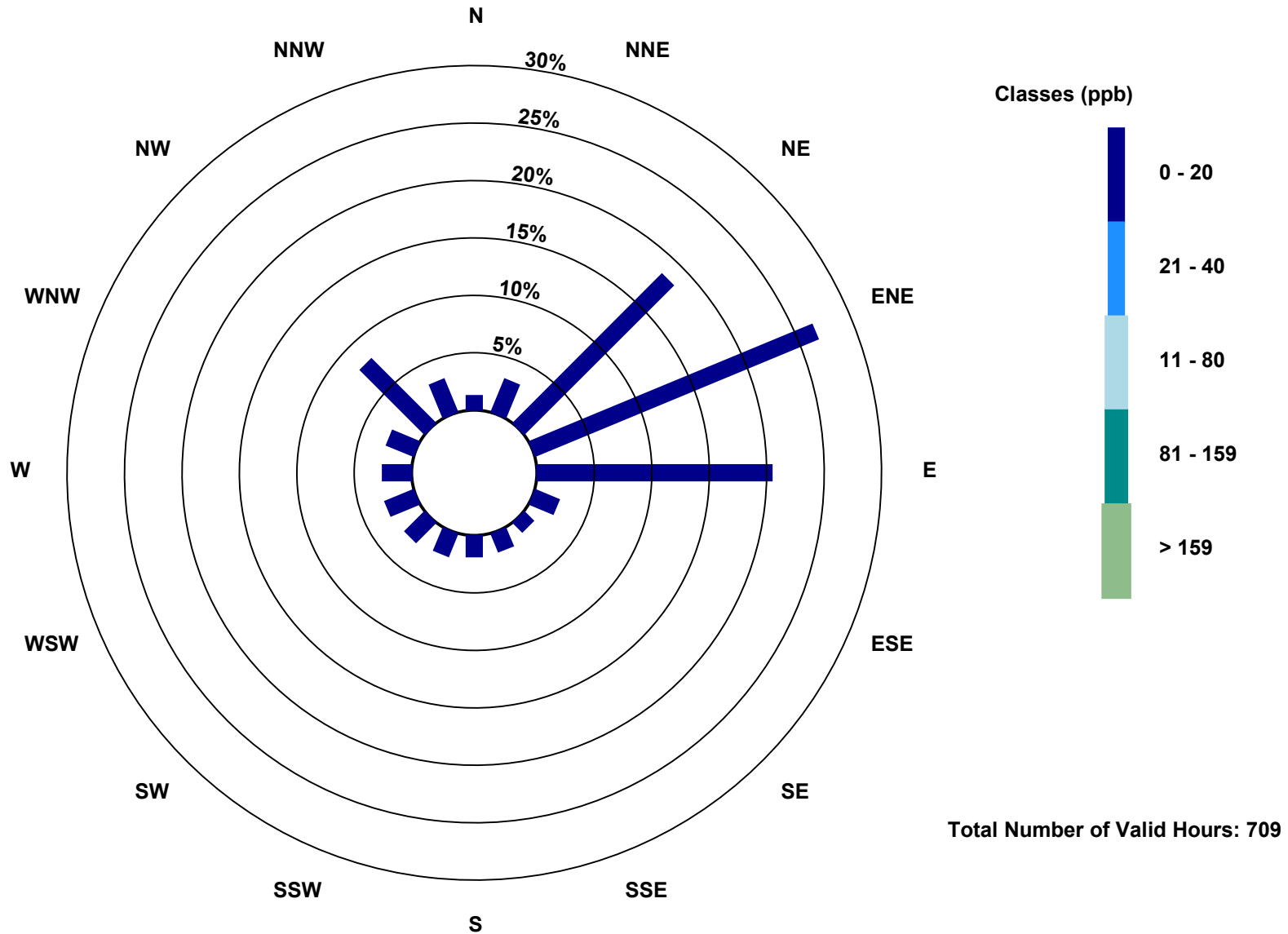
Total Number of Valid Hours: 709

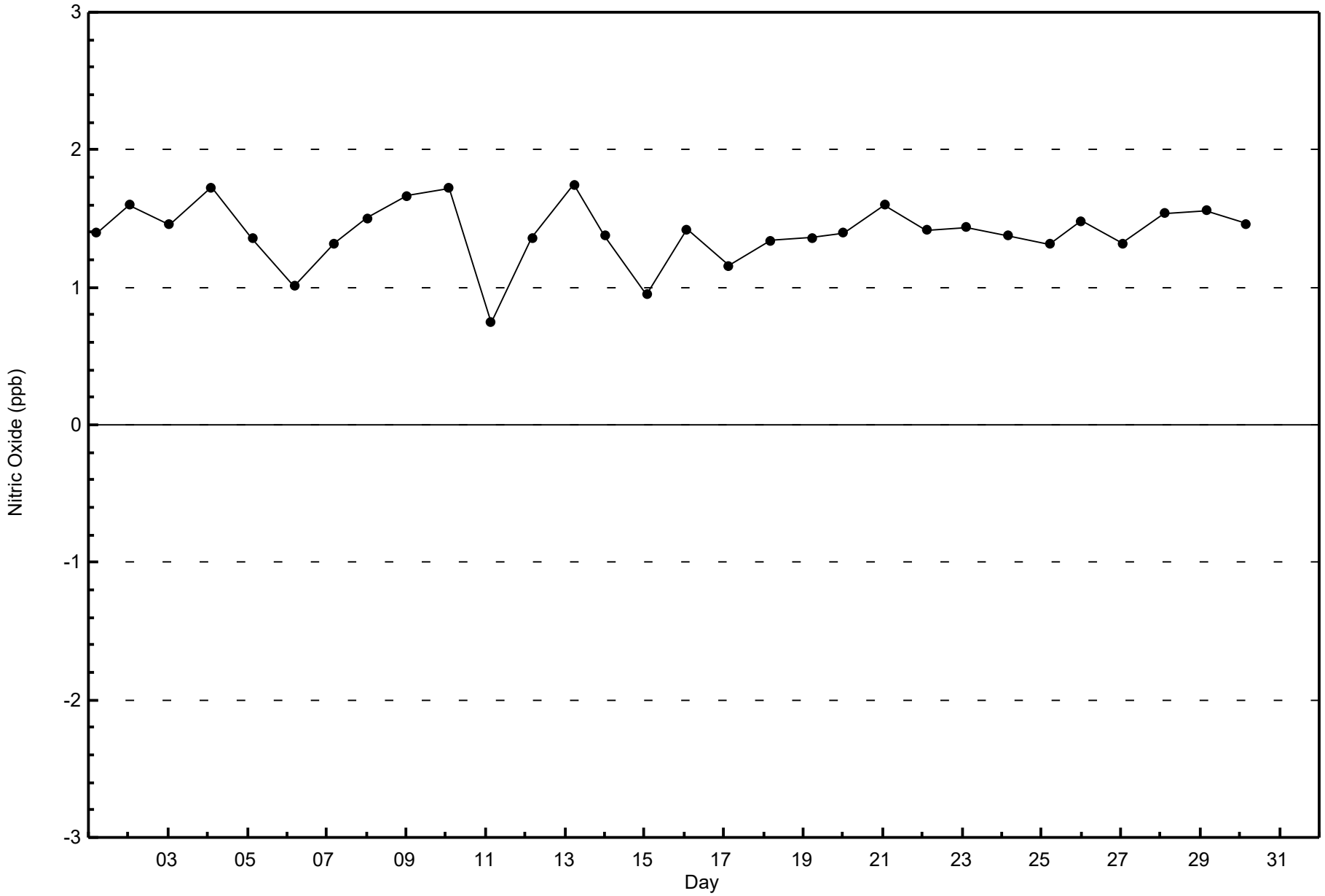
Total Number of Hours: 744



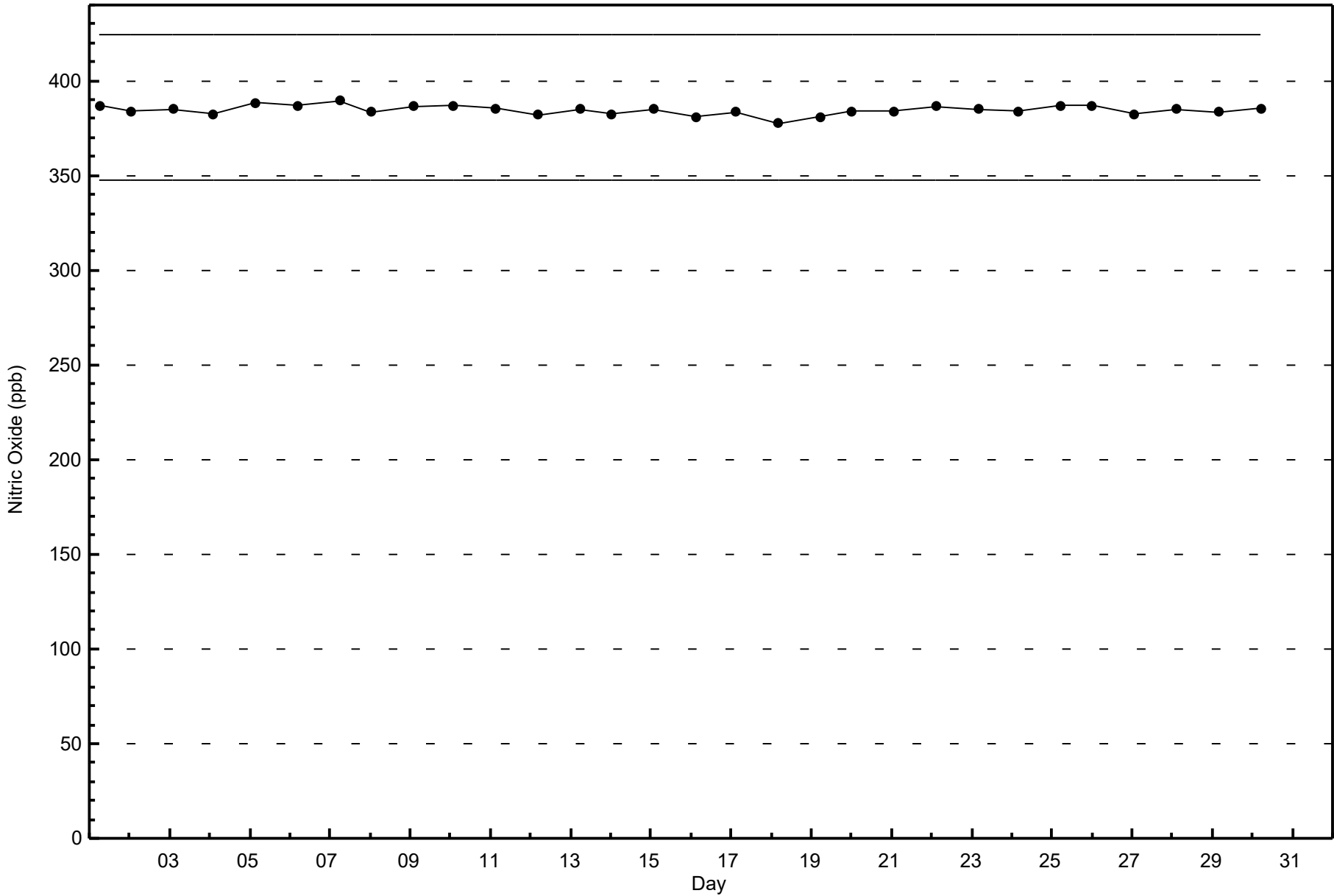
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Fort Chipewyan











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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Chipewyan - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.6 ppb on May 28 21:00	Maximum Daily Average: 1.3 ppb on May 14		Hours of Data:	709
Minimum Value: 0.0 ppb on May 1 02:00	Minimum Daily Average: 0.0 ppb on May 9		Hours of Missing Data:	35
Maximum Diurnal Average: 0.5 ppb at hour 21	Minimum Diurnal Average: 0.2 ppb at hour 2		Hours of Calibration:	35
Monthly Average: 0.28 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> = 0.6 P <sub>99</sub> = 2.3		Percent Operational Time:	100.0

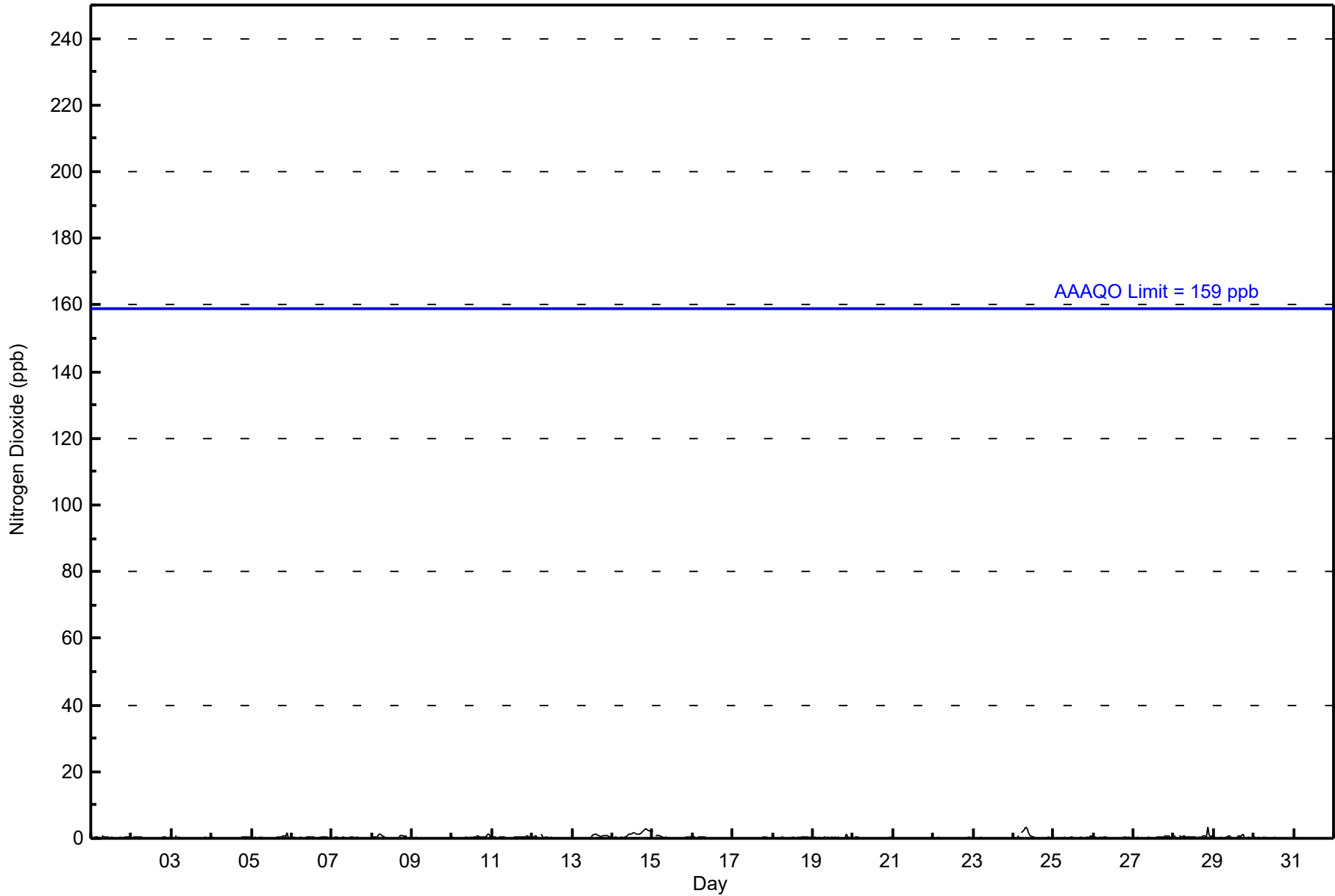
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	0.1	0.0	0.3	0.3	0.3	Z	0.8	0.5	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.8	
2-May	Z	0.5	0.5	0.3	0.3	0.4	0.4	0.2	0.0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

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



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Chipewyan - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	709	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Chipewyan - May 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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709
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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709

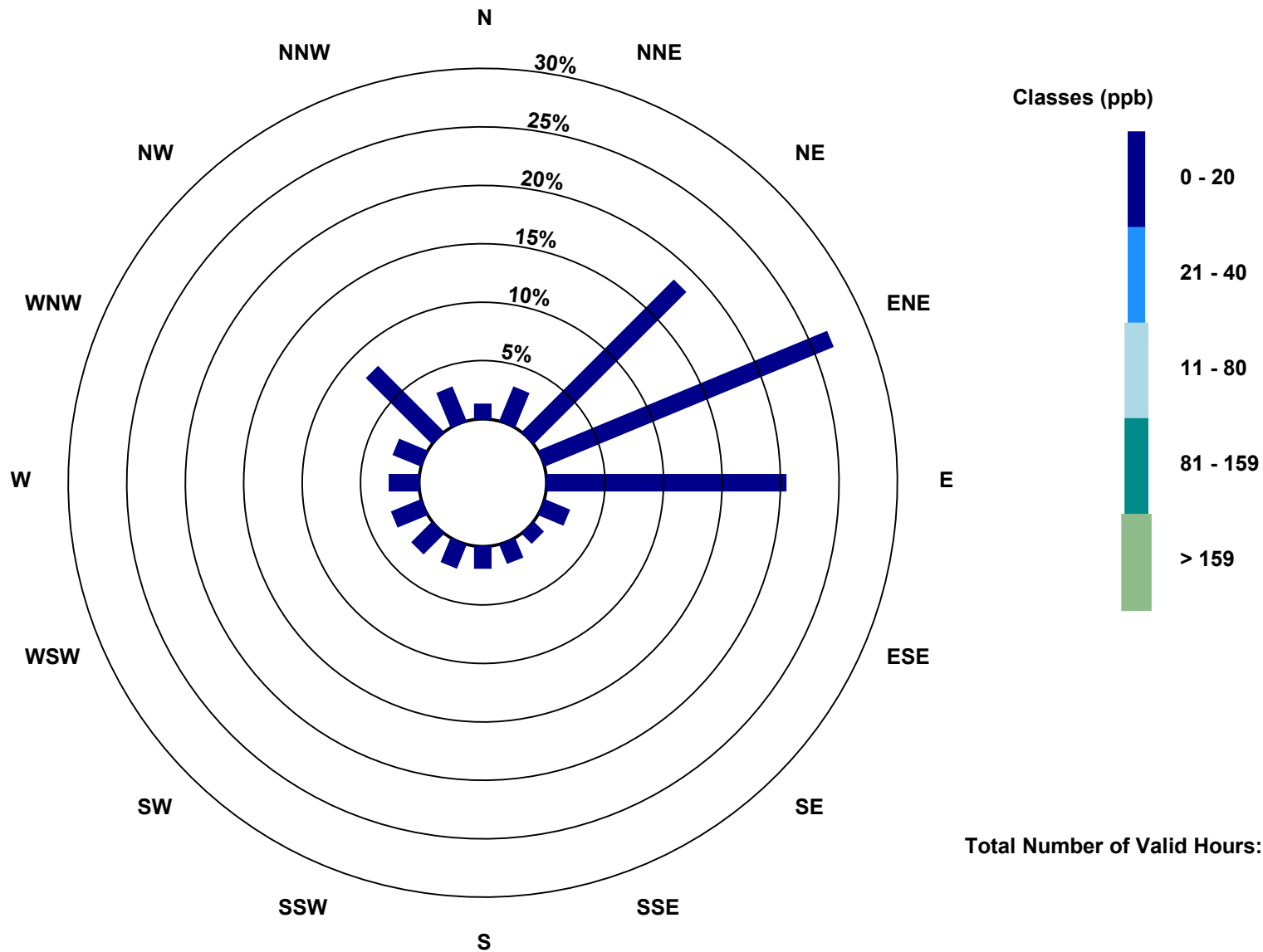
Total Number of Valid Hours: 709

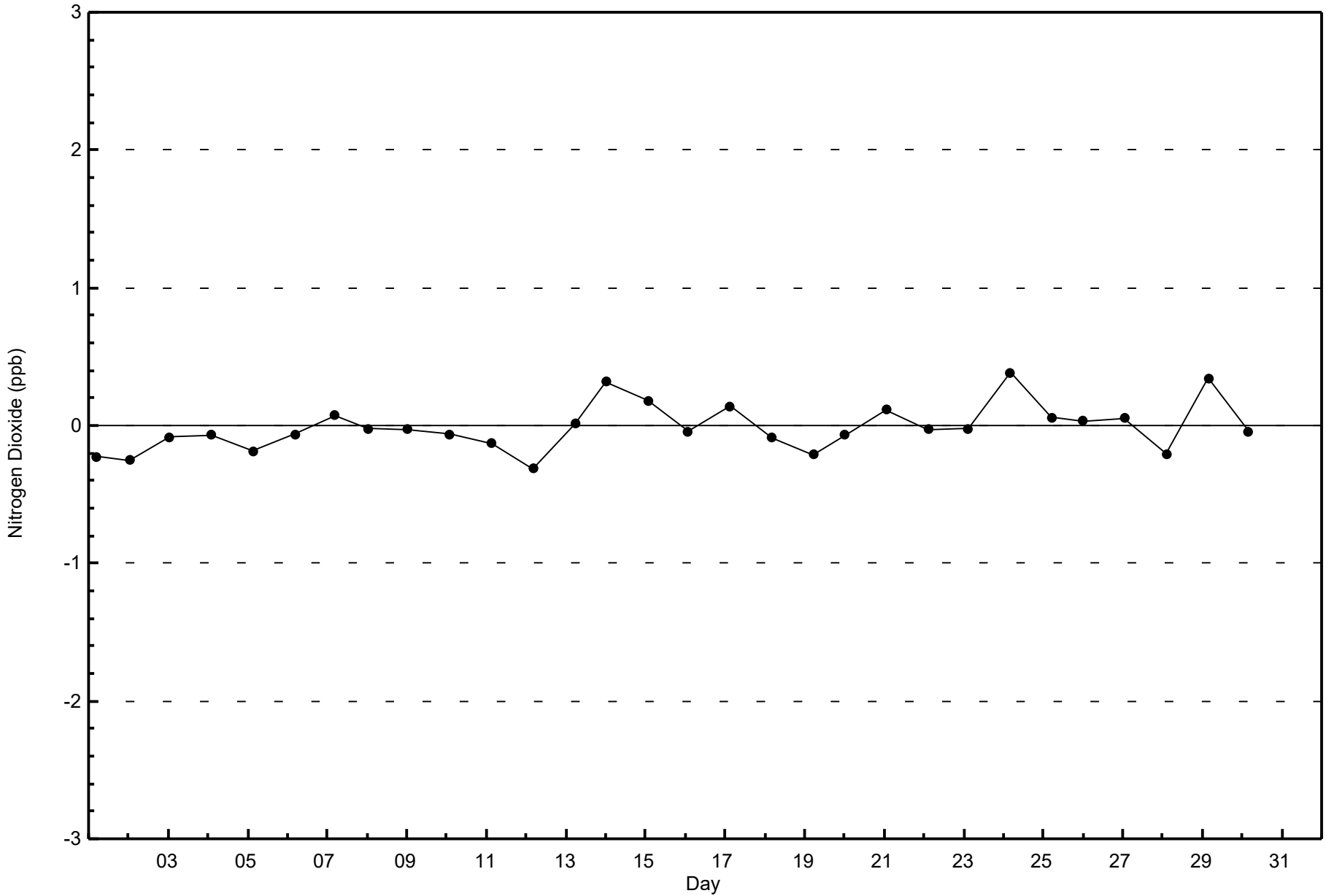
Total Number of Hours: 744

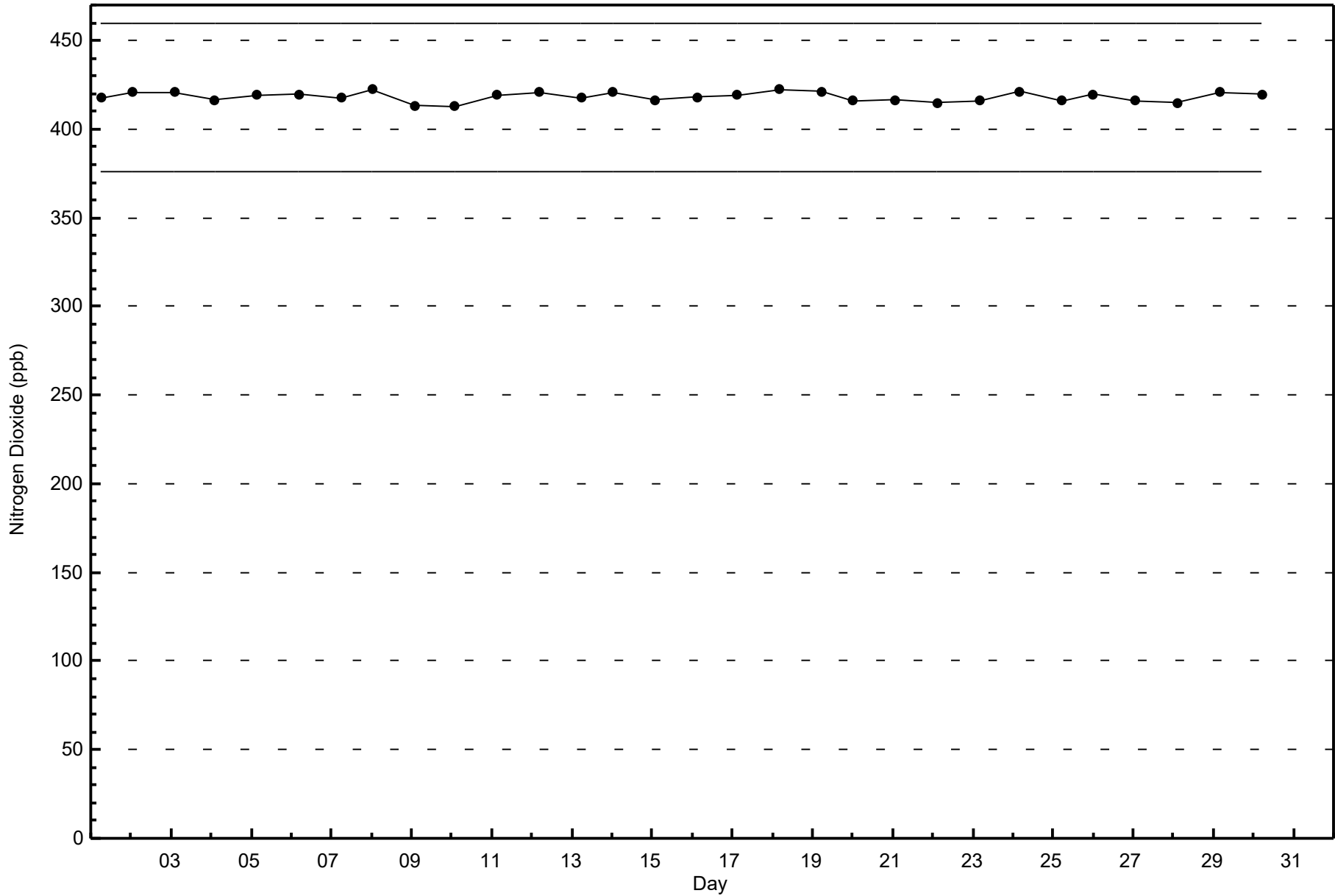


Wood Buffalo Environmental Association  
Wind Rose May 2024

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











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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - May 2024**

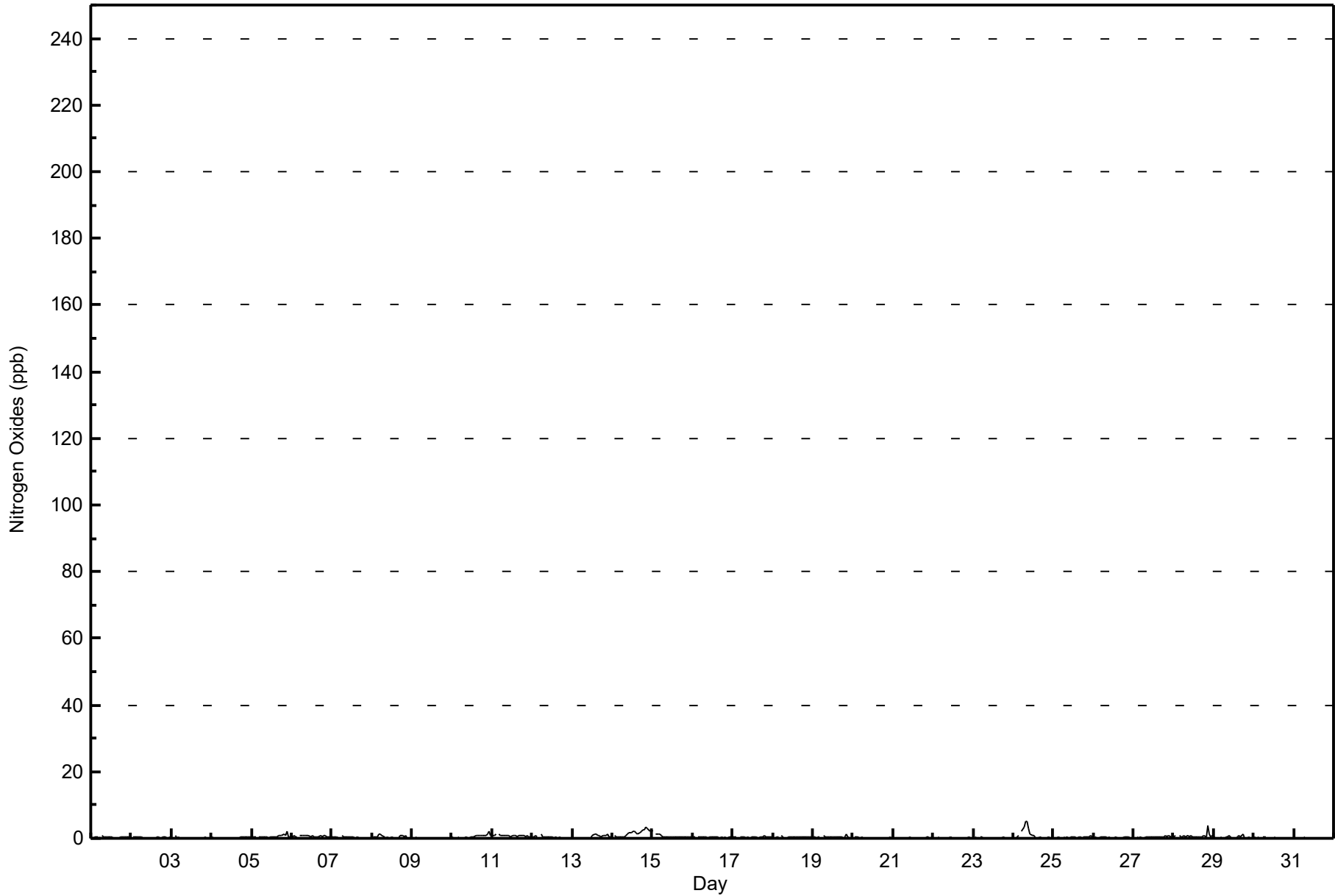
Maximum Value: 5.1 ppb on May 24 09:00		Maximum Daily Average: 1.5 ppb on May 14		Hours in Service: 744																						
Minimum Value: 0.0 ppb on May 1 02:00		Minimum Daily Average: 0.0 ppb on May 9		Hours of Data: 709																						
Maximum Diurnal Average: 0.6 ppb at hour 21		Minimum Diurnal Average: 0.3 ppb at hour 2		Hours of Missing Data: 35																						
Monthly Average: 0.39 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.5 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.6		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-May	0.1	0.0	0.4	0.4	0.5	Z	0.8	0.6	0.4	0.3	0.3	0.2	0.5	0.2	0.2	0.2	0.1	0.4	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.8
2-May	Z	0.5	0.5	0.3	0.3	0.4	0.4	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.3	0.5	0.2	0.2	0.3	0.2	0.5
3-May	0.4	Z	0.7	0.2	0.3	0.2	0.1	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	0.3	0.1	0.0	0.0	0.1	0.7
4-May	0.4	0.1	Z	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.4	0.4	0.3	0.4	0.2	0.5
5-May	0.4	0.2	0.3	Z	0.6	0.2	0.4	0.3	0.4	0.3	0.0	0.5	0.3	0.4	0.5	0.6	0.8	0.8	0.9	1.2	0.8	2.0	0.4	0.5	0.5	2.0
6-May	0.6	0.7	0.6	0.5	Z	0.8	0.6	0.6	0.8	0.8	0.7	0.6	0.7	0.6	0.5	0.6	0.5	0.7	0.5	0.8	0.8	0.4	0.2	0.4	0.6	0.8
7-May	0.3	0.5	0.6	0.5	0.2	Z	0.7	0.4	0.3	0.2	0.2	0.4	0.5	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.7
8-May	Z	0.3	0.3	0.5	1.3	1.1	0.7	0.4	0.0	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.8	1.0	0.5	1.0	0.2	0.0	0.1	0.4	1.3
9-May	0.0	Z	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
10-May	0.4	0.0	Z	0.2	0.2	0.2	0.0	0.0	0.3	0.0	0.2	0.5	0.3	0.5	0.8	1.0	0.8	1.0	0.6	0.7	1.0	1.5	2.0	1.1	0.6	2.0
11-May	0.9	1.0	1.1	Z	1.3	1.0	1.1	1.0	0.9	0.9	0.6	0.6	0.8	0.8	0.7	0.5	0.7	0.7	0.7	0.7	0.6	1.0	0.6	0.5	0.8	1.3
12-May	0.4	0.5	1.0	0.4	Z	1.2	0.4	0.3	0.5	0.5	0.4	0.4	0.3	0.1	0.2	0.1	0.2	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.3	1.2
13-May	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.1	0.1	0.9	1.3	1.4	0.9	0.7	0.5	0.8	0.9	0.9	1.1	0.6	0.6	0.5	1.4
14-May	Z	0.6	0.5	0.3	0.4	0.3	0.4	0.4	0.8	1.2	1.8	1.5	2.1	2.1	1.6	1.4	1.7	2.0	2.5	2.7	3.2	2.9	2.3	2.5	1.5	3.2
15-May	2.3	Z	1.4	1.2	1.2	1.0	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.2	0.3	0.3	0.3	0.5	0.4	0.5	0.6	2.3
16-May	0.4	0.3	Z	0.6	0.5	0.3	0.3	0.5	0.2	0.0	0.2	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.6
17-May	0.4	0.4	0.3	Z	0.4	0.3	0.4	0.5	0.2	0.3	0.1	0.2	0.3	0.4	0.4	0.2	0.3	0.4	0.6	0.7	0.6	0.3	0.3	0.4	0.4	0.7
18-May	0.4	0.2	0.4	0.4	Z	0.7	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.2	0.3	0.3	0.6	0.5	0.5	0.3	0.3	0.4	0.7
19-May	0.3	0.4	0.2	0.3	0.4	Z	0.6	0.4	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.6	0.2	0.3	1.4	0.3	0.0	0.3	0.4	1.4
20-May	Z	0.6	0.4	0.5	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.0	0.1	0.6
21-May	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.0	0.3	0.1	0.3
22-May	0.1	0.2	Z	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.5	0.0	0.0	0.1	0.5
23-May	0.0	0.1	0.2	Z	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.2	0.2	0.0	0.1	0.5
24-May	0.1	0.1	0.2	0.9	Z	2.3	3.3	5.0	5.1	3.1	1.4	0.9	0.7	0.1	0.0	0.1	0.3	0.1	0.1	0.0	0.1	0.4	0.0	0.2	1.1	5.1
25-May	0.2	0.0	0.1	0.2	0.0	Z	0.5	0.1	0.2	0.1	0.4	0.5	0.4	0.3	0.1	0.3	0.3	0.2	0.4	0.2	0.5	0.2	0.8	0.5	0.3	0.8
26-May	Z	0.3	0.2	0.2	0.6	0.2	0.3	0.4	0.1	0.2	0.0	0.0	0.2	0.3	0.0	0.1	0.1	0.2	0.4	0.3	0.2	0.4	0.1	0.2	0.2	0.6
27-May	0.1	Z	0.5	0.1	0.3	0.1	0.2	0.4	0.2	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.3	0.4	0.3	0.8	0.4	0.7	0.3	0.1	0.3	0.8
28-May	0.4	0.7	Z	1.0	0.4	0.6	1.0	0.6	0.7	0.6	0.6	0.6	0.3	0.4	0.4	0.3	0.4	0.5	0.3	0.7	0.5	3.7	1.1	0.4	0.8	3.7
29-May	0.5	0.0	0.0	Z	0.4	0.1	0.0	0.4	0.3	1.0	0.4	0.2	0.1	0.1	0.6	1.0	0.6	1.3	0.0	0.2	0.2	0.5	0.2	0.1	0.3	1.3
30-May	0.4	0.0	0.1	0.3	Z	0.6	0.2	0.4	C	C	C	C	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6
31-May	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.2
																								Diurnal Average		
																								Diurnal Maximum		
																								0.4 2.3		
																								0.3 1.0		
																								0.4 1.4		
																								0.4 1.2		
																								0.4 1.3		
																								0.5 2.3		
																								0.5 3.3		
																								0.5 5.0		
																								0.4 5.1		
																								0.4 3.1		
																								0.3 1.8		
																								0.3 1.5		
																								0.3 2.1		
																								0.3 2.1		
																								0.3 1.6		
																								0.3 1.4		
																								0.3 1.7		
																								0.4 2.0		
																								0.4 2.5		
																								0.4 2.7		
																								0.6 3.7		
																								0.5 2.9		
																								0.3 2.3		
																								0.4 2.5		

Z - zerospan C - Calibration



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - May 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	709	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - May 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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709
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	22	130	189	145	16	8	12	13	15	17	19	18	18	56	22	709

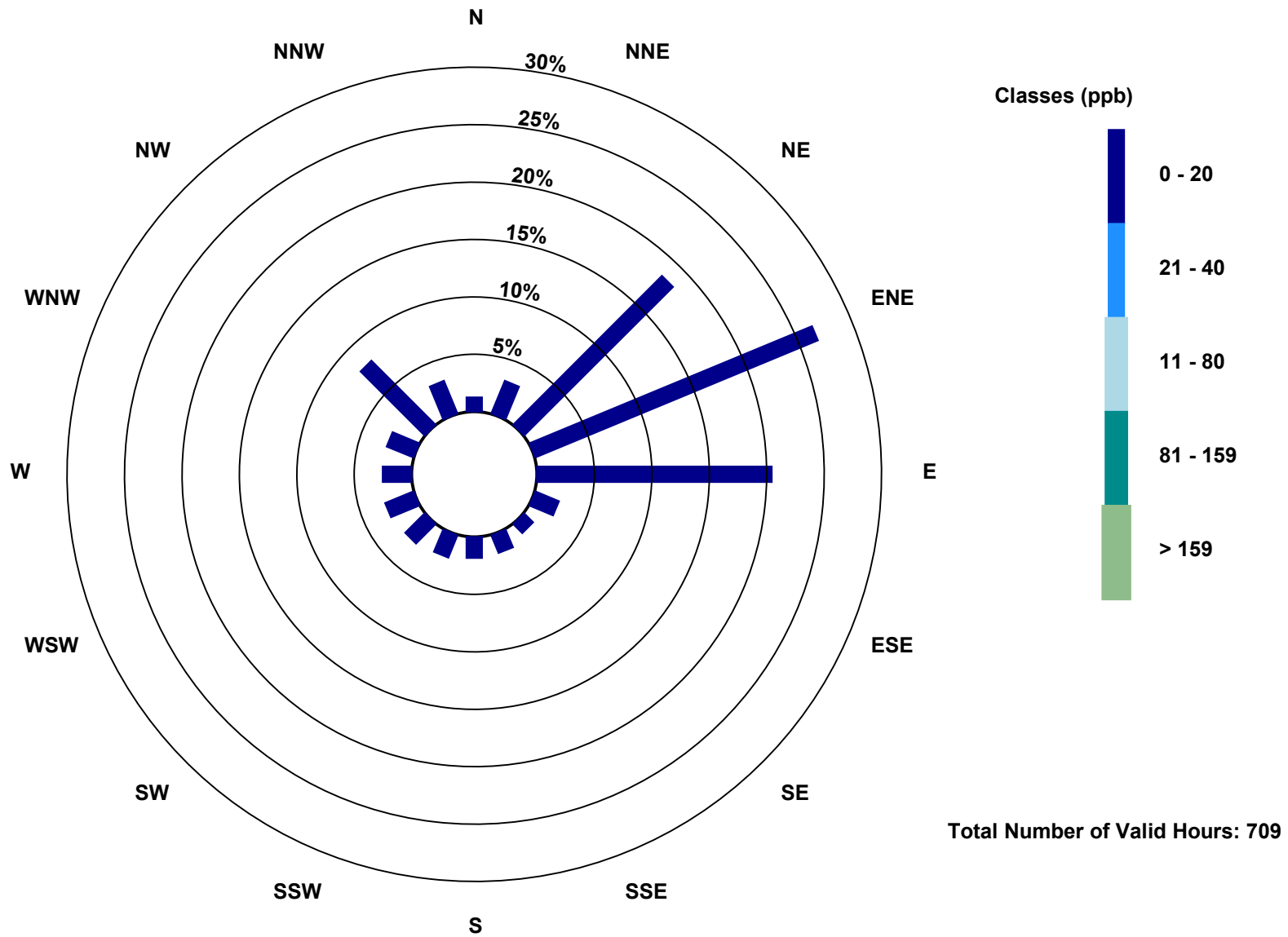
Total Number of Valid Hours: 709

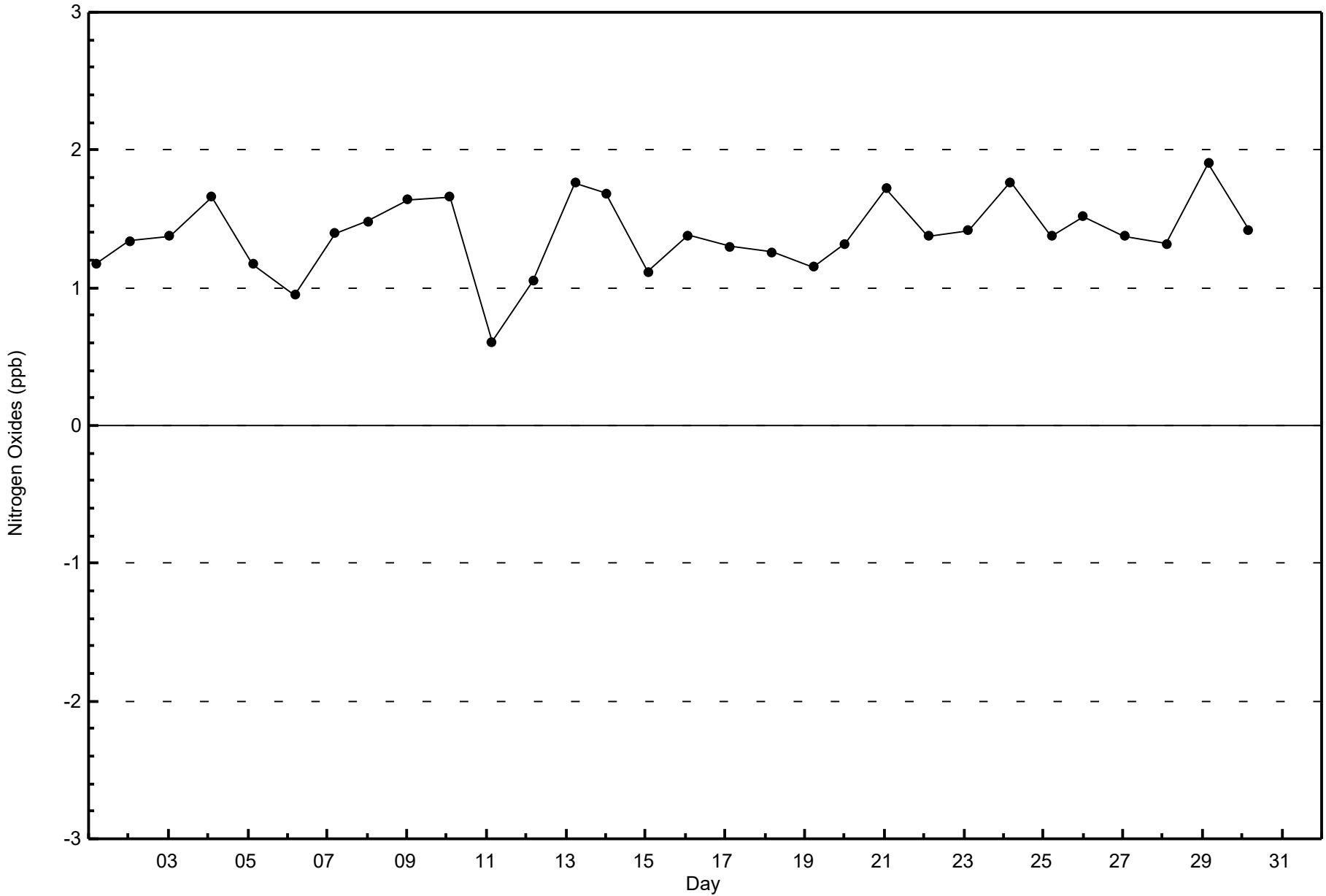
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

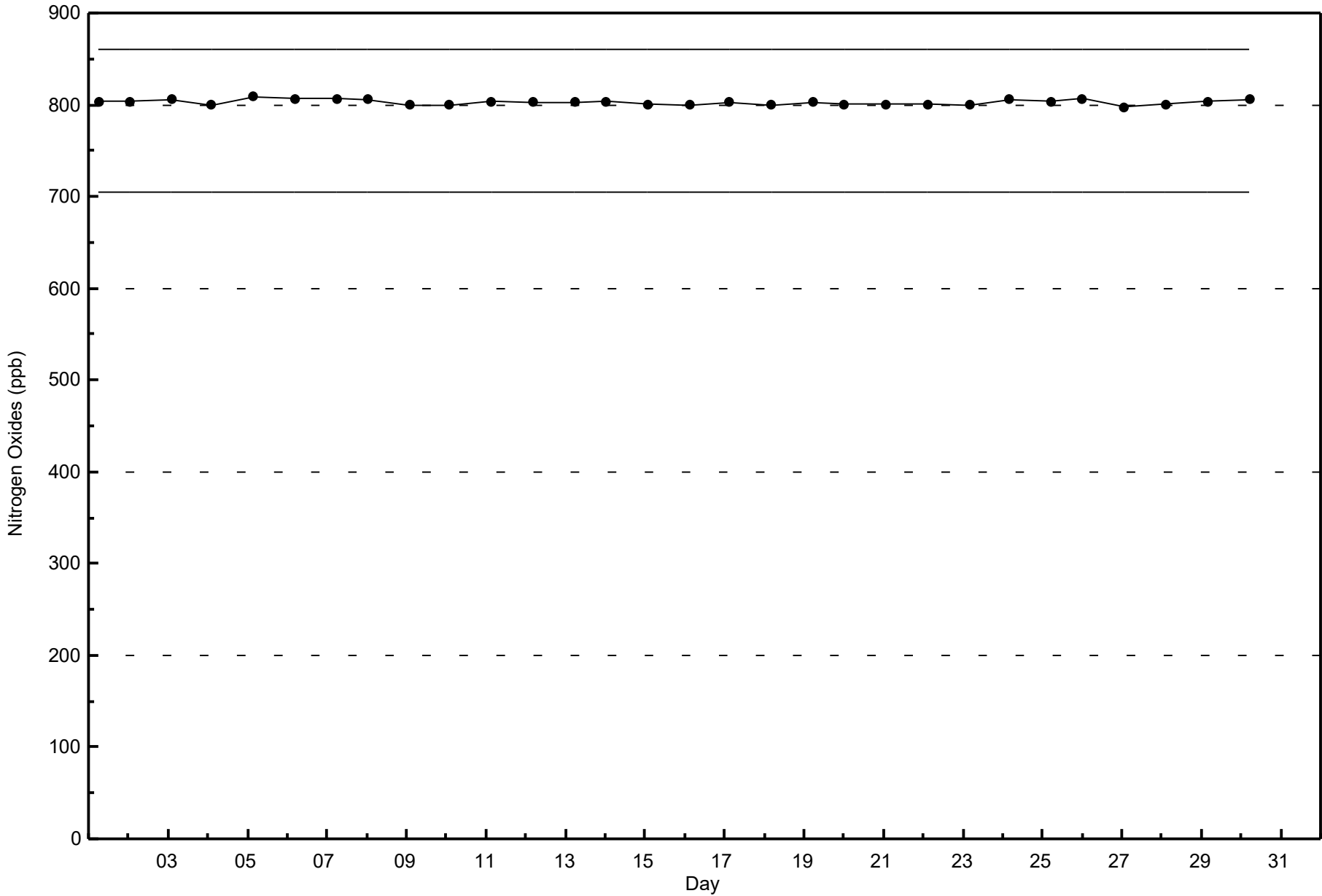






Wood Buffalo Environmental Association  
Span Responses

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Chipewyan - May 2024





# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Fort Chipewyan - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 50.2 ppb on May 2 16:00	Maximum Daily Average: 44.5 ppb on May 27		Hours of Data:	710
Minimum Value: 19.5 ppb on May 14 11:00	Minimum Daily Average: 25.9 ppb on May 18		Hours of Missing Data:	34
Maximum Diurnal Average: 38.6 ppb at hour 19	Minimum Diurnal Average: 30.3 ppb at hour 6		Hours of Calibration:	34
Monthly Average: 34.90 ppb	Percentiles: P <sub>1</sub> = 22.1 P <sub>10</sub> = 26.9 Q <sub>1</sub> = 29.9 Median = 34.9 Q <sub>3</sub> = 39.2 P <sub>90</sub> = 43.6 P <sub>99</sub> = 48.1		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-May	31.8	30.9	30.7	Z	30.2	30.0	30.0	29.7	30.3	31.1	31.8	32.5	34.8	36.1	36.6	38.5	42.3	38.6	37.6	38.7	41.0	39.5	40.1	40.1	34.9	42.3																							
2-May	38.5	37.8	37.0	36.1	Z	34.7	34.6	35.0	35.6	36.0	36.5	38.4	38.9	42.3	48.1	50.2	50.2	47.8	46.0	45.4	44.4	42.9	44.2	42.9	41.0	50.2																							
3-May	40.5	39.8	39.4	40.3	38.2	Z	37.0	36.8	36.9	36.3	36.1	36.5	38.2	41.7	43.2	45.8	46.0	47.9	46.6	43.8	40.0	37.4	35.0	34.2	39.9	47.9																							
4-May	Z	33.4	32.5	32.3	32.8	32.4	32.3	32.8	32.9	33.1	34.3	35.1	35.6	36.0	37.3	36.9	36.3	35.4	34.6	36.6	36.6	34.9	34.4	33.4	34.4	37.3																							
5-May	32.2	Z	30.9	30.2	29.5	29.2	28.8	28.2	28.4	29.7	30.7	32.0	33.6	35.4	36.1	37.5	38.5	37.0	38.4	35.7	36.6	33.7	33.6	33.9	33.0	38.5																							
6-May	33.5	34.1	Z	32.0	31.6	31.5	31.6	31.6	32.6	33.7	36.7	37.8	37.6	38.7	36.8	38.1	40.3	41.9	39.8	38.2	41.7	41.2	39.9	38.7	36.5	41.9																							
7-May	37.7	36.7	35.8	Z	34.6	34.4	34.6	35.3	34.9	35.1	34.5	33.1	35.3	35.2	33.8	33.7	35.3	36.7	35.9	33.9	31.5	31.5	30.3	27.6	34.2	37.7																							
8-May	25.0	23.4	22.2	21.2	Z	20.9	22.1	24.0	32.0	34.8	40.8	42.6	40.8	41.3	40.7	42.0	42.5	41.1	40.6	36.4	31.8	32.5	33.8	36.3	33.4	42.6																							
9-May	37.2	36.9	38.4	39.3	38.6	Z	38.8	37.8	37.0	36.9	37.9	38.2	38.0	38.9	39.8	39.2	39.4	39.5	39.3	38.4	38.0	36.9	37.0	34.7	38.1	39.8																							
10-May	Z	34.8	36.3	39.0	40.5	39.8	38.4	37.5	37.4	C	C	C	34.5	35.9	41.8	44.1	46.4	43.7	41.9	49.8	50.1	48.8	50.1	45.9	41.8	50.1																							
11-May	42.5	Z	40.3	40.0	39.0	36.4	34.4	32.8	33.8	33.1	33.7	32.4	31.1	31.7	29.3	29.2	30.2	31.2	30.1	28.5	27.8	28.0	28.4	30.0	32.8	42.5																							
12-May	29.9	27.8	Z	27.4	25.2	24.5	27.6	29.8	29.6	29.4	29.2	29.9	29.3	29.3	30.0	30.6	30.2	29.1	29.8	29.8	30.4	30.6	29.6	29.3	29.1	30.6																							
13-May	28.4	28.3	28.2	Z	27.1	26.4	25.9	25.3	24.9	26.5	28.6	32.3	39.2	47.3	47.3	39.4	39.2	37.6	44.4	42.5	40.9	36.9	36.1	36.8	34.3	47.3																							
14-May	38.1	38.9	34.8	33.7	Z	26.9	25.0	22.2	21.0	21.1	19.5	23.9	32.6	46.0	47.7	45.5	44.6	44.5	43.3	40.5	37.4	35.2	36.2	36.6	34.6	47.7																							
15-May	33.8	29.8	29.2	26.0	26.3	Z	27.7	28.7	30.4	30.0	32.8	36.1	34.5	35.6	29.8	30.7	32.1	32.8	33.6	35.1	35.5	35.5	35.2	34.1	32.0	36.1																							
16-May	Z	33.0	32.0	30.5	29.8	29.6	29.7	29.1	28.8	28.8	32.0	33.3	35.5	35.9	36.1	36.6	37.0	37.3	37.8	37.5	37.2	36.9	36.1	36.0	33.8	37.8																							
17-May	35.0	Z	33.6	32.1	31.3	30.8	30.4	29.8	29.6	29.5	29.4	30.7	31.0	30.8	29.1	28.1	26.9	26.3	25.0	24.1	23.1	23.4	24.5	24.5	28.7	35.0																							
18-May	24.4	24.6	Z	25.6	26.2	26.2	26.0	25.3	24.5	23.7	24.1	25.4	25.9	26.3	26.1	26.9	27.4	27.3	27.8	26.7	26.5	26.6	26.5	26.3	25.9	27.8																							
19-May	27.2	27.3	27.2	Z	27.0	28.8	29.8	29.8	29.3	29.1	28.9	28.1	27.7	27.6	27.2	27.0	28.0	28.5	28.9	28.1	26.4	26.7	27.3	28.0	28.0	29.8																							
20-May	27.8	28.0	26.9	26.0	Z	26.8	28.9	30.2	32.2	33.0	32.5	34.7	37.7	36.6	35.7	33.5	31.6	30.8	29.8	30.3	30.4	29.5	29.5	30.1	31.0	37.7																							
21-May	30.6	24.7	24.6	24.6	22.5	Z	23.8	26.6	28.4	31.9	36.0	36.8	35.2	38.0	42.2	44.7	44.2	43.5	43.5	40.5	40.9	43.1	42.4	40.4	35.2	44.7																							
22-May	Z	29.9	27.1	29.2	34.4	35.5	32.7	32.5	34.0	34.6	34.2	42.8	44.3	44.0	43.0	42.9	44.0	46.0	46.2	45.0	45.3	44.7	43.3	39.0	38.9	46.2																							
23-May	31.2	Z	27.9	25.7	23.5	22.7	24.0	24.6	30.9	33.5	34.5	36.3	38.3	38.1	38.0	39.2	38.7	40.9	42.4	43.6	43.3	41.7	40.9	40.5	34.8	43.6																							
24-May	39.9	36.7	Z	28.4	26.6	24.8	21.9	21.6	24.1	29.3	34.6	36.2	37.8	38.9	40.1	42.3	43.3	45.4	46.3	46.9	46.9	44.9	43.8	39.7	36.5	46.9																							
25-May	35.4	35.2	35.0	Z	34.2	36.5	36.9	35.3	34.9	34.9	36.2	37.2	38.2	40.2	41.4	41.9	43.2	46.7	44.9	43.6	40.6	38.0	38.6	37.9	38.6	46.7																							
26-May	35.9	35.4	34.6	34.2	Z	31.2	29.7	30.2	32.9	32.4	32.7	36.5	39.3	41.2	41.6	42.8	43.3	43.9	43.5	43.2	42.2	41.3	41.4	41.4	37.9	43.9																							
27-May	41.4	43.3	43.7	44.1	44.2	Z	43.9	43.3	41.7	41.8	44.1	47.5	48.4	47.9	46.8	46.9	47.3	46.8	45.8	44.6	42.8	41.3	42.8	41.8	44.5	48.4																							
28-May	Z	34.7	36.5	33.9	35.7	33.4	32.1	35.3	36.8	38.2	40.3	43.9	44.4	44.2	43.2	43.7	44.9	47.0	46.9	43.9	37.4	41.4	36.9	38.0	39.7	47.0																							
29-May	39.7	Z	34.9	35.1	36.5	33.9	33.3	34.4	35.7	29.6	28.3	34.1	37.3	40.7	37.2	32.2	31.8	31.2	29.7	30.1	29.9	30.1	31.2	30.8	33.4	40.7																							
30-May	30.6	29.4	Z	31.6	32.3	32.1	31.5	34.2	34.9	36.1	36.8	35.1	37.1	36.7	36.5	37.8	39.4	35.2	40.6	41.9	40.0	38.1	36.2	34.1	35.6	41.9																							
31-May	32.2	30.4	27.9	Z	27.4	28.2	28.7	29.0	29.8	29.5	29.3	29.0	29.7	29.9	29.9	29.4	29.3	31.4	36.1	36.5	34.9	32.8	31.5	31.2	30.6	36.5																							
																								33.9	32.5	32.6	31.9	31.7	30.3	30.7	30.9	31.8	32.1	33.2	35.0	36.2	37.7	37.8	38.0	38.5	38.5	38.6	38.1	37.2	36.3	36.0	35.3	Diurnal Average	
																								42.5	43.3	43.7	44.1	44.2	39.8	43.9	43.3	41.7	41.8	44.1	47.5	48.4	47.9	48.1	50.2	50.2	47.9	46.9	49.8	50.1	48.8	50.1	45.9	Diurnal Maximum	

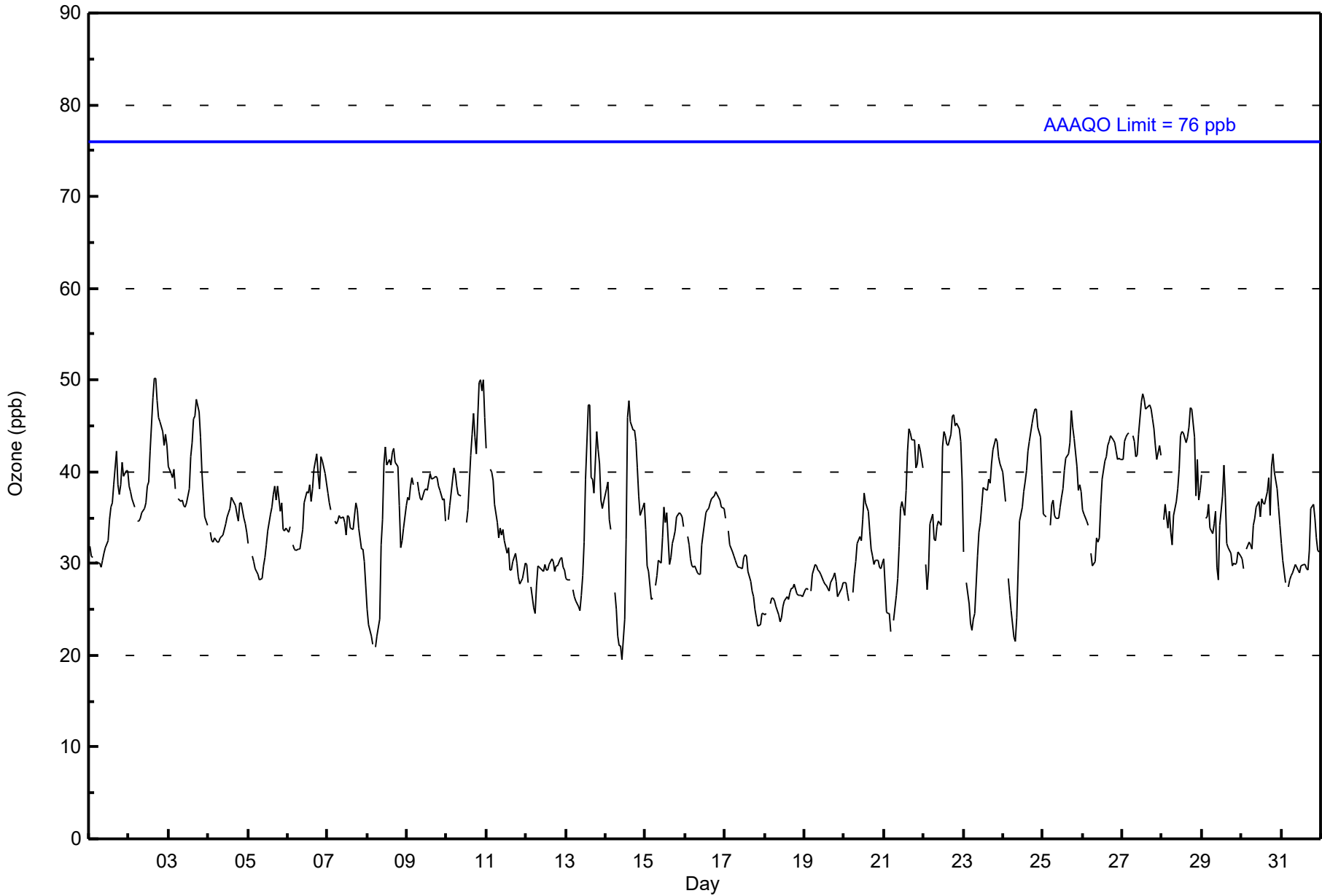
Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - May 2024**





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

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	1	0.14	0.14
21 - 50	709	99.86	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Fort Chipewyan - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
21 - 50	9	22	130	189	144	15	9	13	13	13	16	17	18	19	61	21	709
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>	9	22	130	189	145	15	9	13	13	13	16	17	18	19	61	21	710

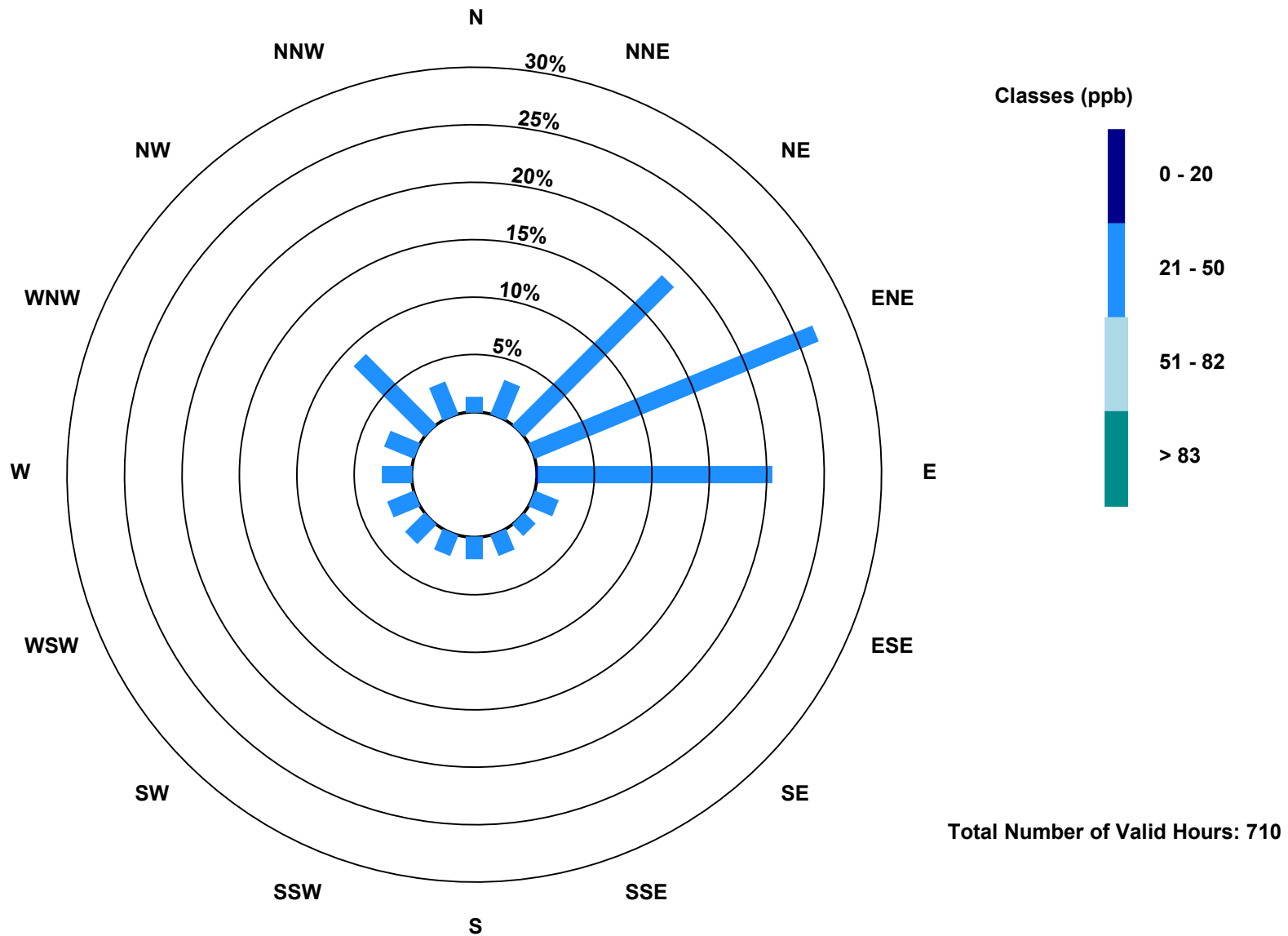
Total Number of Valid Hours: 710

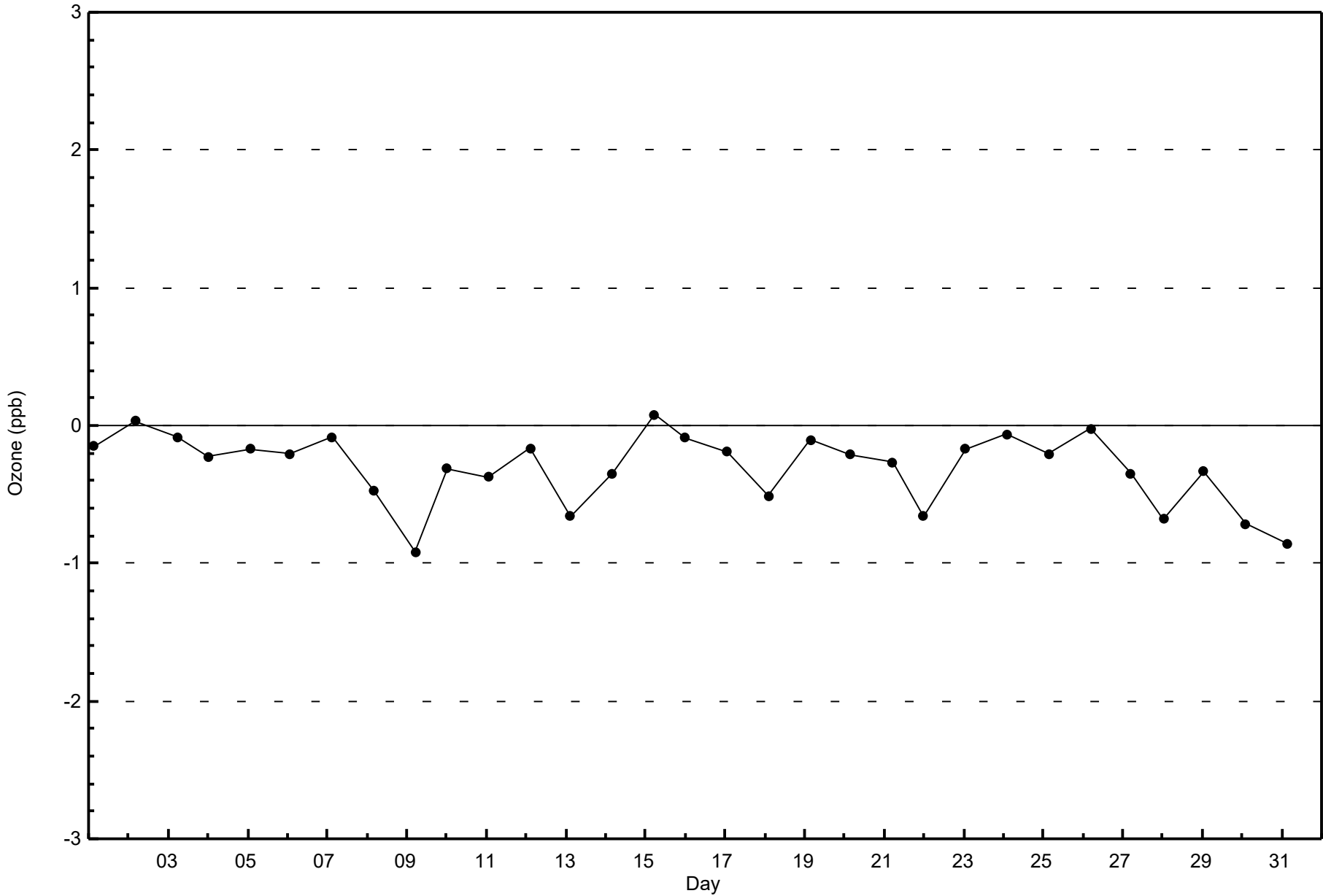
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

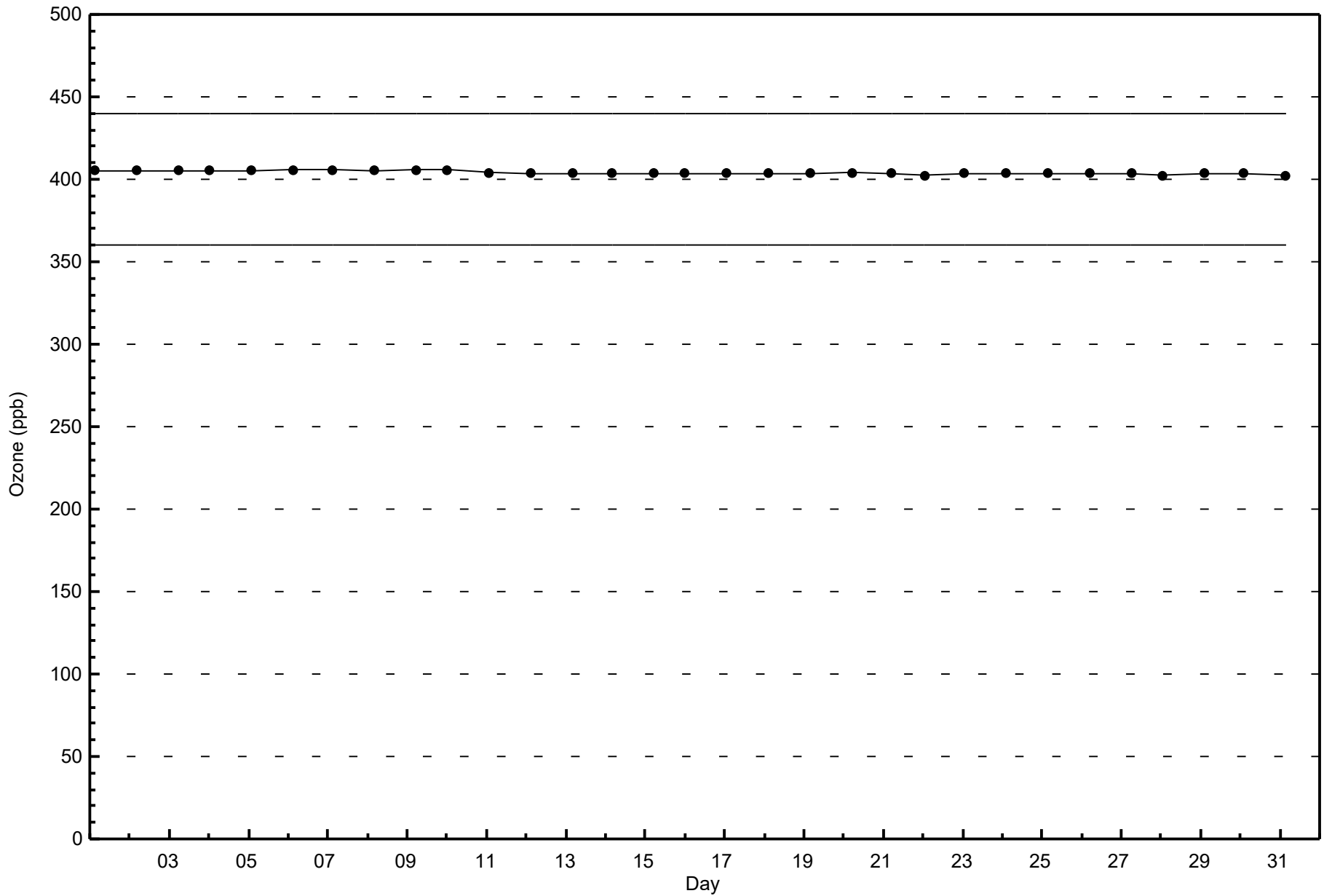






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Fort Chipewyan - May 2024**

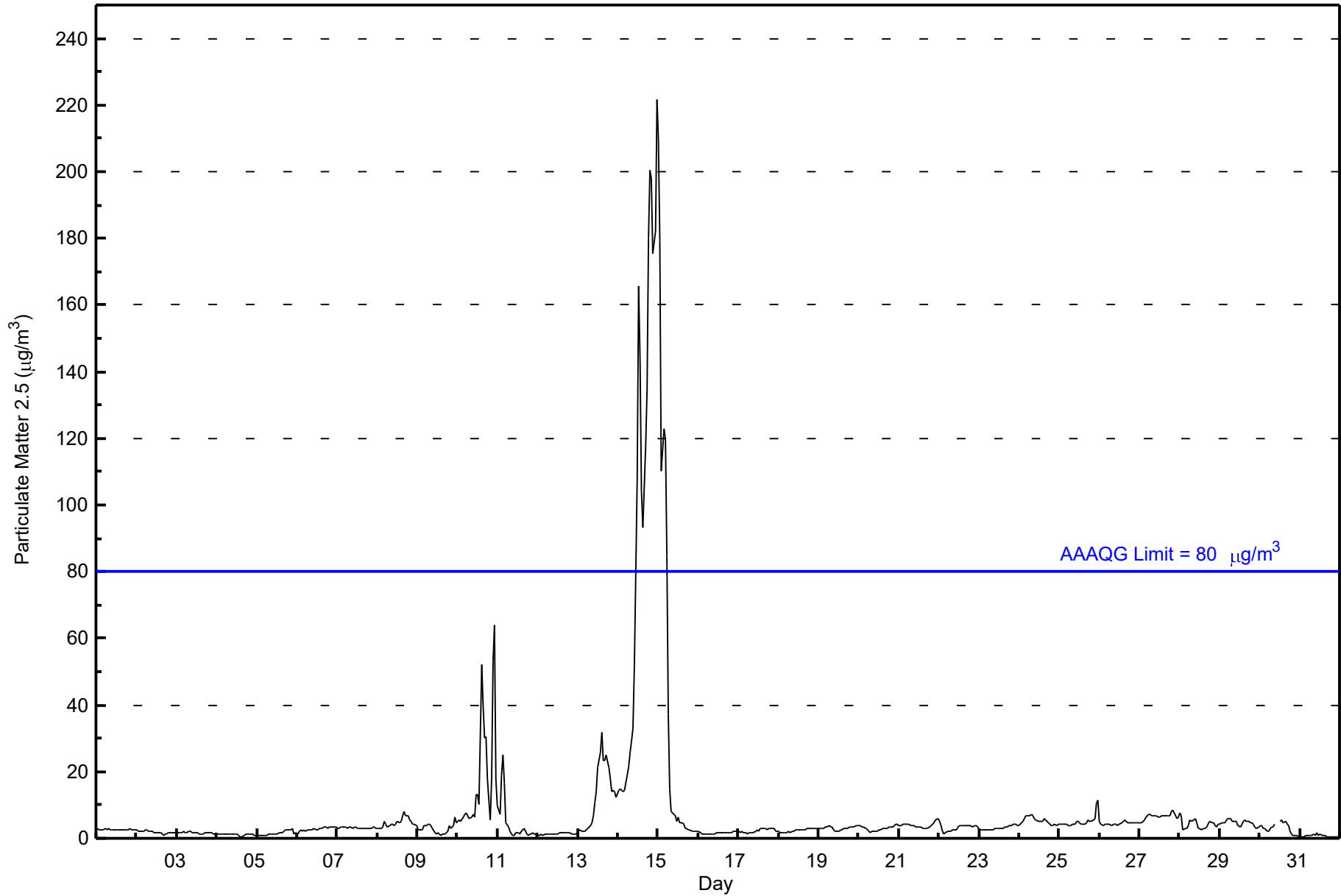




Summary of Hour Averages

Fort Chipewyan - May 2024

Number of Exceedences (AAAQO):		1-hr: 19		24-hr: 2		Hours in Service: 744																742				
Maximum Value: 221.7 µg/m <sup>3</sup> on May 15 00:00		Maximum Daily Average: 94.9 µg/m <sup>3</sup> on May 14		Hours of Data: 742																Hours of Missing Data: 2						
Minimum Value: 0.3 µg/m <sup>3</sup> on Jun 1 00:00		Minimum Daily Average: 0.7 µg/m <sup>3</sup> on May 31		Hours of Calibration: 2																Percent Operational Time: 100.0						
Maximum Diurnal Average: 11.3 µg/m <sup>3</sup> at hour 23		Minimum Diurnal Average: 4.2 µg/m <sup>3</sup> at hour 9		Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 1.2 Q <sub>1</sub> = 1.9 Median = 3.0 Q <sub>3</sub> = 4.6 P <sub>90</sub> = 7.3 P <sub>99</sub> = 171.4																						
Monthly Average: 8.06 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-May	2.8	2.7	2.7	2.7	2.7	2.8	2.7	2.8	2.7	2.6	2.7	2.6	2.6	2.5	2.7	2.6	2.5	2.6	2.6	2.7	3.0	2.7	2.5	2.4	2.7	3.0
2-May	2.3	2.3	2.3	2.2	2.2	2.4	2.4	2.3	2.2	2.0	1.8	1.7	1.6	1.7	1.6	1.3	0.8	1.3	1.2	1.6	1.8	1.8	1.6	1.7	1.8	2.4
3-May	1.8	1.7	1.7	1.7	2.1	1.7	1.9	2.0	1.9	1.8	1.9	1.8	1.8	1.5	1.4	1.4	1.2	1.6	1.7	1.7	1.5	1.6	1.4	1.4	2.1	
4-May	1.4	1.2	1.2	1.3	1.3	1.4	1.3	1.4	1.3	1.4	1.3	1.3	1.2	0.9	0.5	0.6	0.8	1.1	1.4	1.1	1.1	1.2	0.8	0.6	1.4	
5-May	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.2	1.3	1.3	1.5	1.7	1.9	2.2	2.4	2.7	2.7	2.6	3.1	1.4	1.7	3.1	
6-May	1.4	2.1	2.4	2.3	2.4	2.2	2.5	2.4	2.5	2.6	2.8	2.7	2.7	2.9	2.8	3.0	3.3	3.5	3.2	3.2	3.6	3.6	3.3	3.2	3.6	
7-May	3.2	3.1	3.2	3.2	3.2	3.3	3.2	3.2	3.3	3.1	3.2	3.4	3.1	3.1	3.1	3.0	3.0	2.9	2.9	3.0	3.1	3.2	3.2	3.1	3.4	
8-May	3.0	2.9	3.1	3.4	4.9	4.2	3.6	3.8	4.4	4.2	3.9	4.4	5.1	4.5	5.0	7.0	8.1	6.8	6.6	5.6	4.9	4.4	4.2	3.8	8.1	
9-May	2.4	2.5	2.6	2.7	3.9	4.0	4.3	4.4	3.6	2.9	1.6	1.3	1.6	1.3	1.0	1.4	1.1	1.8	2.2	3.8	3.2	3.6	6.5	4.5	6.5	
10-May	5.0	5.4	5.2	6.3	7.3	7.5	6.6	5.8	6.4	7.3	6.3	13.1	13.0	10.1	52.1	39.4	29.9	30.5	18.0	5.5	17.8	52.9	64.0	17.6	64.0	
11-May	9.6	7.1	19.1	25.0	16.5	4.6	3.6	2.2	1.4	1.0	1.0	1.6	1.5	1.2	2.0	2.7	2.9	1.4	0.9	1.2	1.4	1.7	1.3	1.1	25.0	
12-May	1.0	1.1	1.1	0.9	1.2	1.3	1.1	1.3	1.2	1.2	1.2	1.2	1.4	1.6	1.5	1.6	1.9	1.7	1.9	1.8	1.3	1.3	1.3	1.5	1.9	
13-May	2.1	2.4	2.3	2.3	2.3	2.4	2.9	4.0	4.7	6.6	10.6	14.0	21.2	25.7	31.6	23.2	23.1	25.0	21.3	18.0	14.0	14.5	13.9	12.5	31.6	
14-May	14.3	14.6	14.3	14.1	14.5	19.1	21.8	26.0	29.2	32.9	51.6	107.8	165.7	143.9	104.1	93.3	117.9	134.6	180.0	200.6	197.9	175.4	182.3	221.7	221.7	
15-May	209.8	179.4	110.0	123.0	119.7	84.6	37.2	14.7	7.9	7.3	6.6	5.1	6.5	4.5	4.8	4.3	3.1	2.8	2.6	2.4	2.2	2.2	2.0	2.2	209.8	
16-May	2.2	1.7	1.4	1.1	1.2	1.2	1.1	1.2	1.2	1.5	1.4	1.6	1.7	1.8	1.9	1.6	1.7	1.6	1.6	1.9	1.8	2.0	2.1	1.9	2.2	
17-May	1.9	1.8	2.0	1.8	1.7	1.5	1.6	1.7	1.7	1.7	2.1	2.4	2.2	2.9	3.1	3.0	2.9	2.7	2.9	2.9	3.0	3.0	2.3	2.1	3.1	
18-May	2.3	1.8	1.6	1.6	1.8	1.8	1.9	1.7	2.0	2.3	2.3	2.7	2.5	2.5	2.5	2.6	2.7	2.9	2.9	3.1	3.0	3.1	2.9	2.9	3.1	
19-May	2.9	3.0	3.0	3.2	3.2	3.6	3.7	3.6	3.3	2.7	2.2	2.1	2.1	2.4	2.5	2.8	2.9	3.1	3.2	3.2	3.4	3.5	3.7	4.0	4.0	
20-May	3.9	3.8	3.5	3.3	2.9	2.5	2.0	1.9	2.0	2.1	2.3	2.3	2.3	2.6	2.8	3.0	3.0	3.1	3.2	3.4	3.6	3.8	4.3	4.3	4.3	
21-May	4.0	4.0	4.2	4.2	4.2	4.1	4.0	3.9	4.0	3.9	3.5	3.3	3.5	3.5	3.0	2.8	2.8	3.0	3.3	3.9	4.1	4.8	5.4	5.9	5.9	
22-May	5.1	3.8	2.1	1.2	1.7	2.0	2.0	2.2	2.4	2.4	2.6	3.3	3.7	3.9	3.9	3.7	4.0	3.8	3.8	3.7	3.6	3.8	3.7	3.3	5.1	
23-May	2.7	2.7	2.6	2.7	2.6	2.5	2.5	2.5	2.5	2.8	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.5	3.7	3.9	4.1	4.3	4.1	3.9	4.3	
24-May	3.9	4.6	4.9	5.9	6.7	6.7	6.9	7.2	6.6	6.0	5.4	5.3	5.3	5.0	5.1	6.1	5.6	4.5	4.2	3.9	3.7	4.3	3.9	4.1	7.2	
25-May	4.4	4.4	4.4	4.4	4.2	3.8	3.8	3.9	4.2	4.3	5.0	4.9	4.8	4.2	4.1	4.4	4.7	5.5	5.0	5.1	5.4	5.8	10.6	11.6	11.6	
26-May	5.2	4.2	3.9	4.1	4.2	4.2	4.0	4.3	4.2	4.1	4.0	4.4	4.5	4.9	5.4	4.9	4.9	4.9	4.7	4.6	4.7	4.7	4.5	4.5	5.4	
27-May	4.6	4.8	5.0	5.6	6.5	7.3	7.2	6.9	6.9	6.8	6.8	6.5	6.4	6.6	6.7	6.7	6.6	6.6	6.7	8.2	8.5	7.5	6.1	6.2	8.5	
28-May	7.7	6.9	2.7	2.8	2.8	3.6	5.5	5.2	5.7	5.9	4.6	3.2	2.8	2.7	2.9	3.1	3.5	4.2	4.9	4.6	4.7	3.7	3.5	4.1	7.7	
29-May	4.2	4.8	4.6	4.5	5.3	5.9	5.9	5.1	4.9	5.1	5.0	4.0	3.6	4.1	5.0	5.4	5.1	5.0	4.7	4.7	4.2	3.4	2.8	3.2	5.9	
30-May	3.9	3.7	2.9	2.9	2.3	2.3	3.0	3.3	3.5	4.4	C	C	5.2	5.7	4.8	5.0	4.3	3.6	2.2	1.1	1.0	1.0	0.6	0.6	5.7	
31-May	0.5	0.5	0.6	0.7	0.7	0.9	0.7	1.0	1.1	1.1	1.5	0.9	1.3	0.7	0.7	0.8	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.3	1.5	
10.3 9.2 7.1 7.8 7.7 6.3 4.9 4.3 4.2 4.4 5.0 7.1 9.2 8.5 8.8 7.9 8.4 9.0 9.9 10.1 10.3 10.7 11.3 11.0																								Diurnal Average		
209.8 179.4 110.0 123.0 119.7 84.6 37.2 26.0 29.2 32.9 51.6 107.8 165.7 143.9 104.1 93.3 117.9 134.6 180.0 200.6 197.9 175.4 182.3 221.7																								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>) -  $\mu\text{g}/\text{m}^3$**   
**Fort Chipewyan - May 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	619	83.42	83.42
6 - 15	77	10.38	93.80
16 - 25	14	1.89	95.69
26 - 80	13	1.75	97.44
> 81.0	19	2.56	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 Chipewyan - May 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	7	21	133	181	133	14	5	9	7	7	8	4	16	10	54	10	619
6 - 15	0	0	3	17	12	2	4	0	5	7	7	10	2	2	1	5	77
16 - 25	0	0	0	0	0	1	0	2	1	0	1	1	0	4	3	1	14
26 - 80	0	0	0	0	1	0	0	2	1	0	1	4	1	2	0	1	13
> 81.0	2	1	0	0	2	1	0	0	0	1	1	1	1	2	2	5	19
<b>Totals</b>	9	22	136	198	148	18	9	13	14	15	18	20	20	20	60	22	742

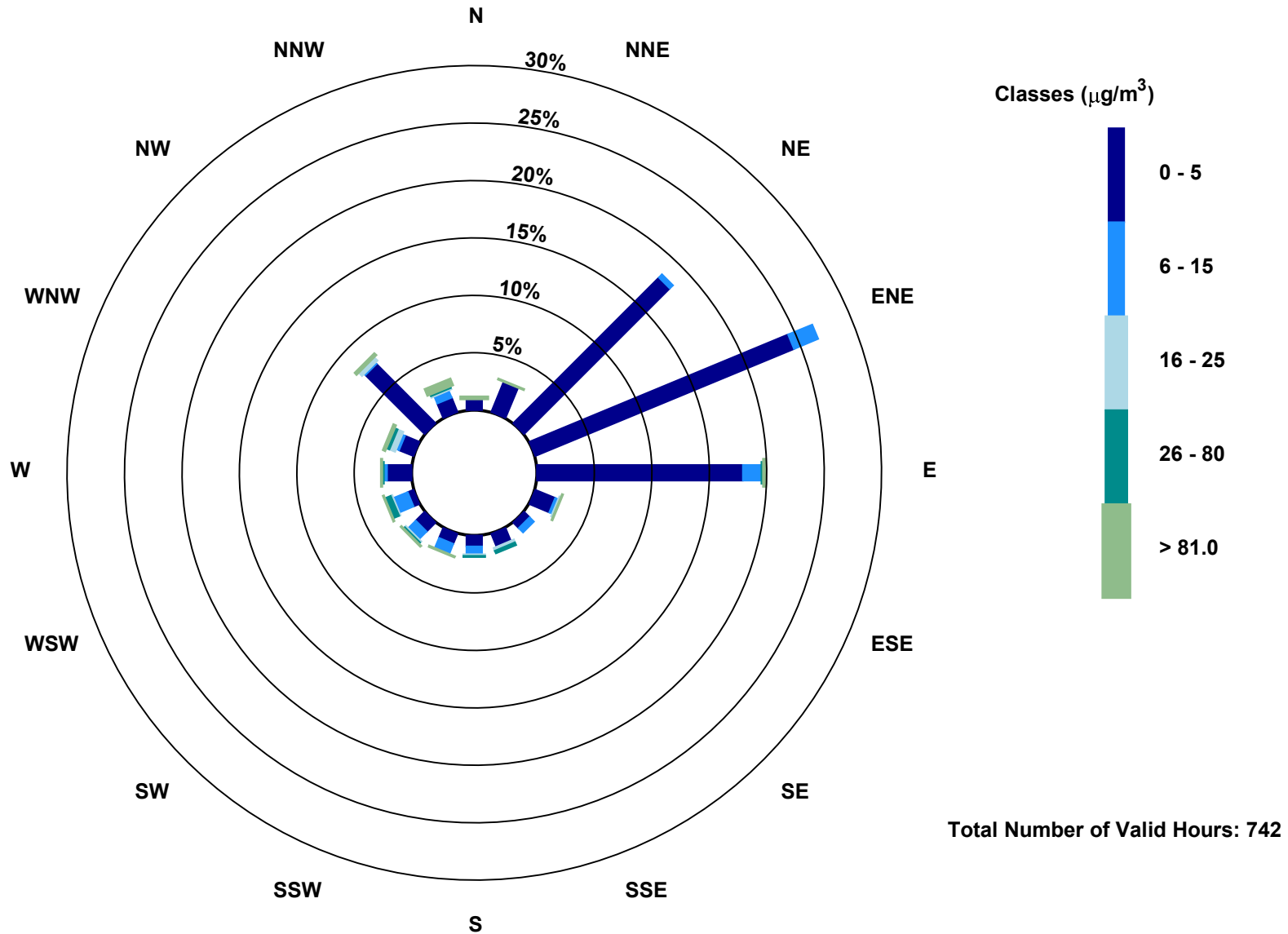
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

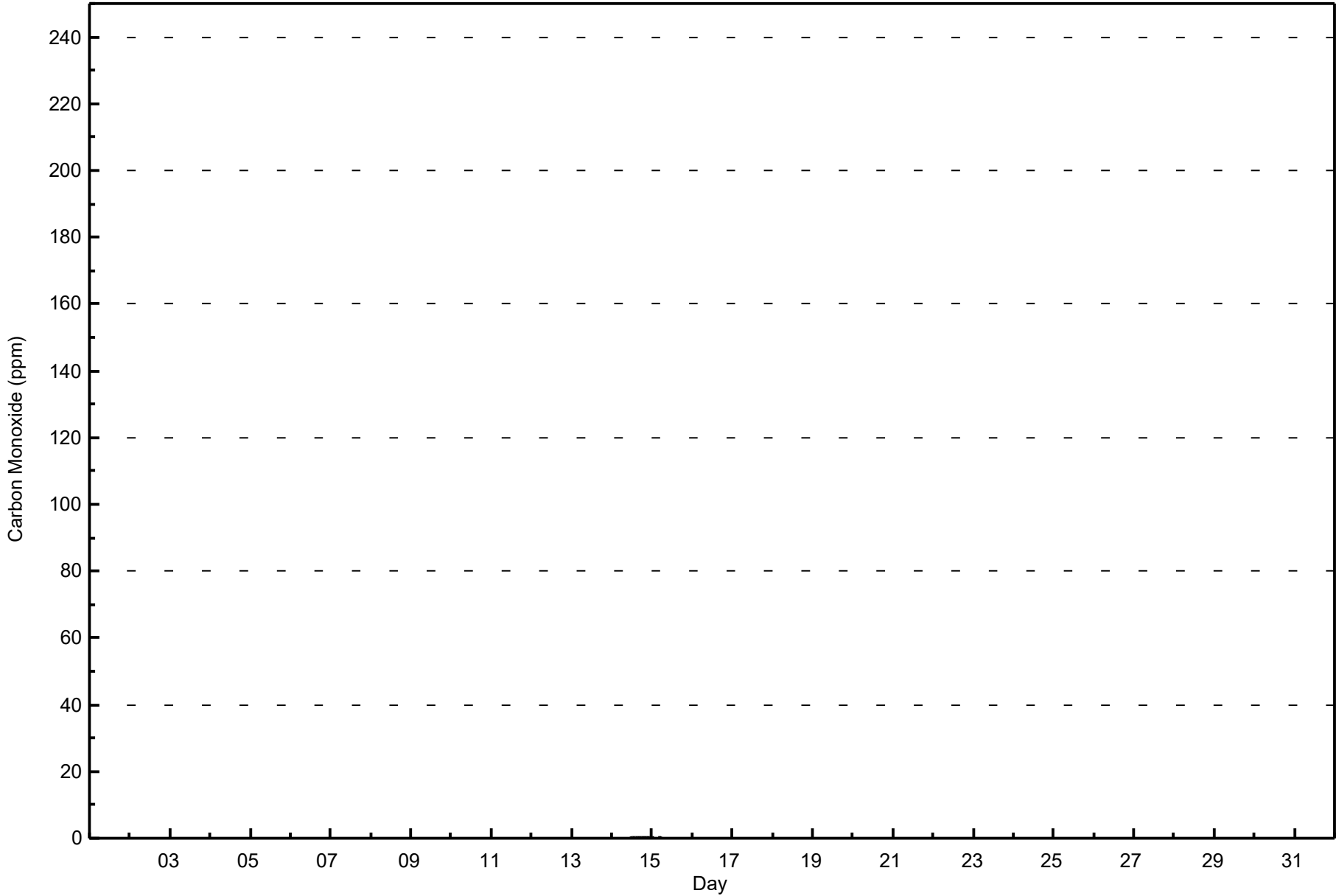






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - May 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	699	98.45	98.45
0.4 - 0.5	11	1.55	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Monoxide (CO) - ppm  
Fort Chipewyan - May 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	7	22	130	190	142	16	8	10	12	13	16	19	18	16	59	21	699
0.4 - 0.5	2	0	0	0	1	0	0	0	0	1	1	1	1	2	1	1	11
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>	9	22	130	190	143	16	8	10	12	14	17	20	19	18	60	22	710

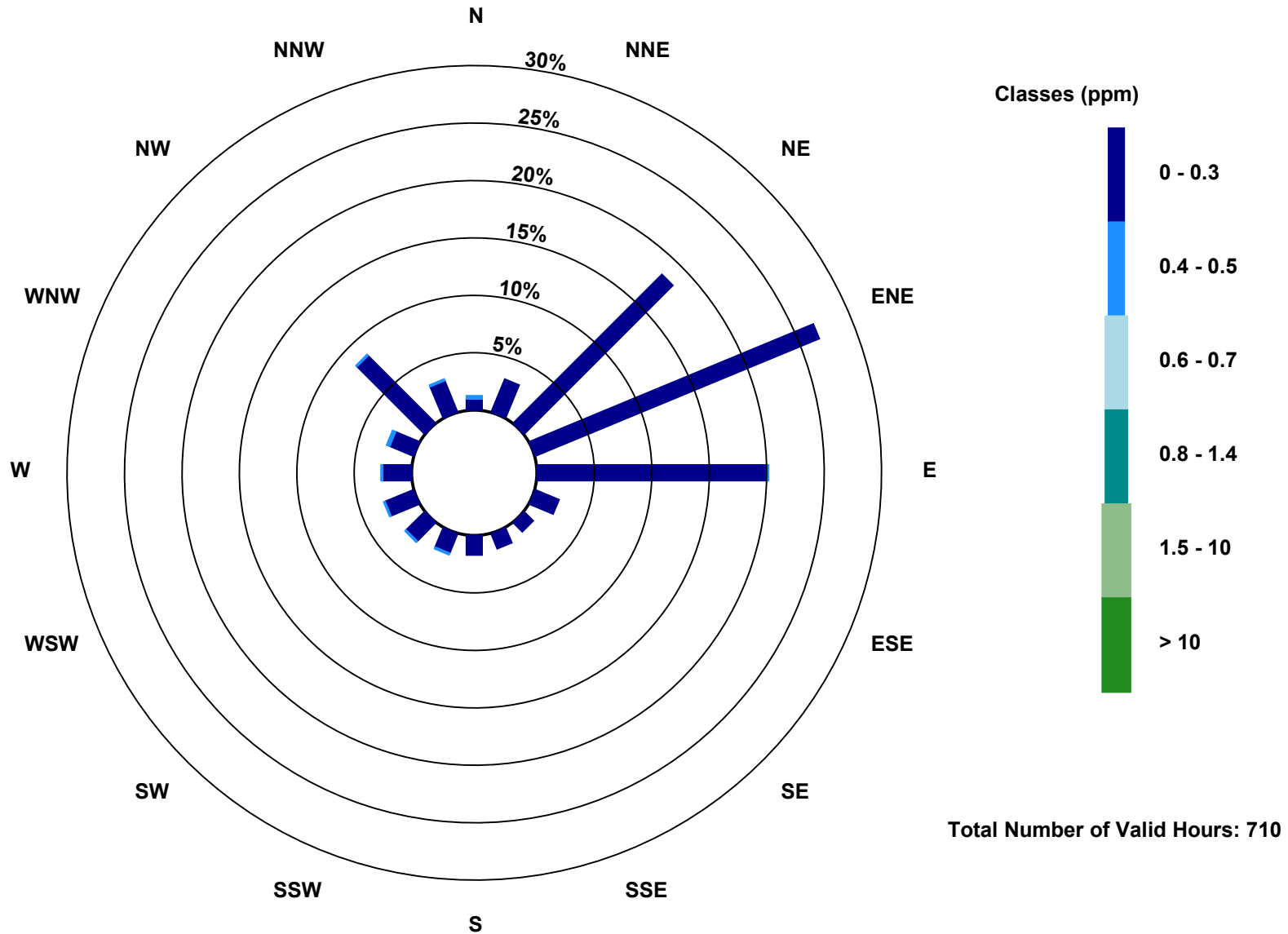
Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Carbon Monoxide (CO) - ppm  
Fort Chipewyan







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

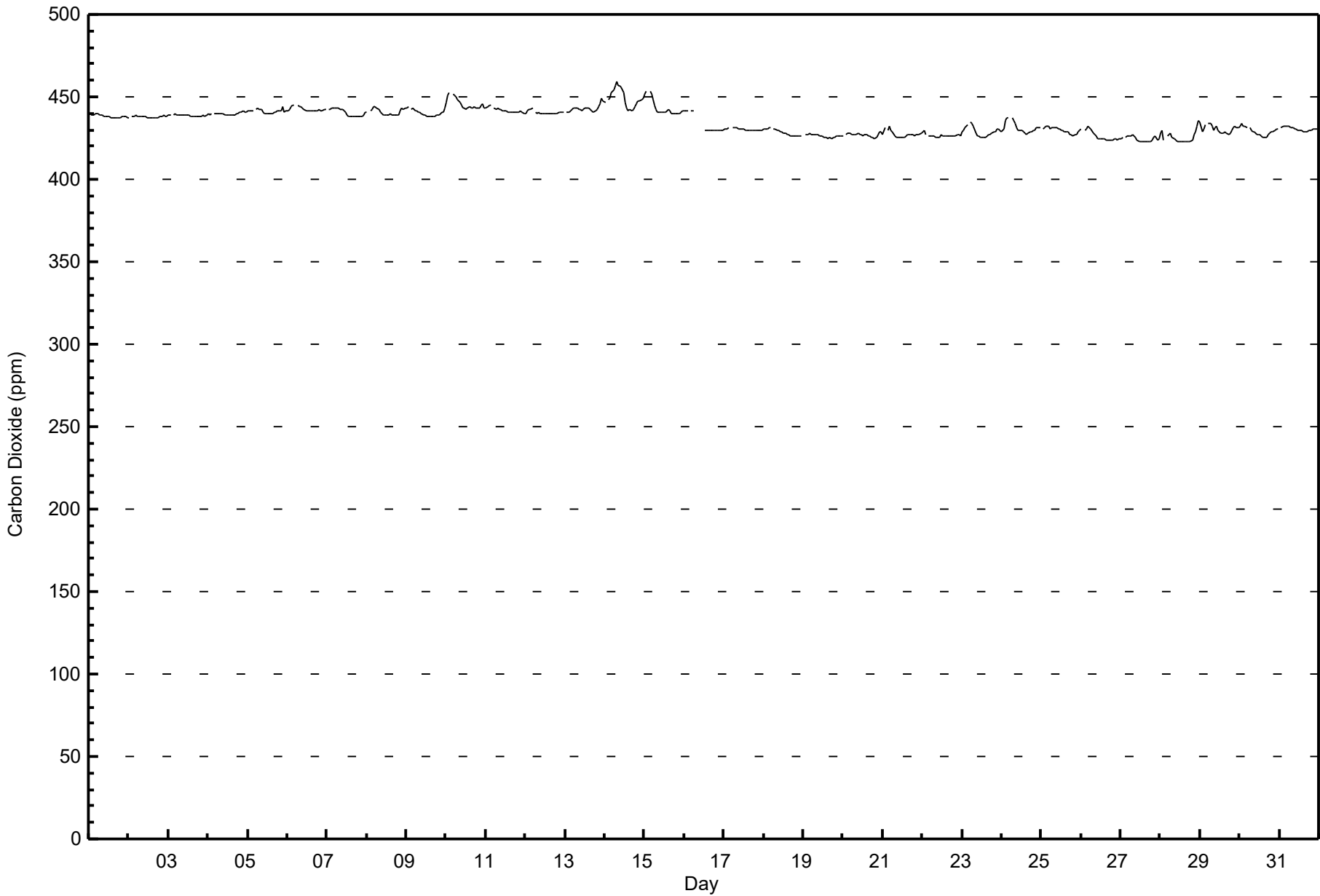
**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																								Hours in Service:		
Maximum Value: 459.4 ppm on May 14 08:00												Maximum Daily Average: 449.1 ppm on May 14												Hours of Data:		
Minimum Value: 422.5 ppm on May 28 15:00												Minimum Daily Average: 424.6 ppm on May 27												Hours of Missing Data:		
Maximum Diurnal Average: 437.7 ppm at hour 5												Minimum Diurnal Average: 433.0 ppm at hour 18												Hours of Calibration:		
Monthly Average: 434.82 ppm												Percentiles: P <sub>1</sub> = 423.0 P <sub>10</sub> = 425.7 Q <sub>1</sub> = 427.9 Median = 436.4 Q <sub>3</sub> = 440.7 P <sub>90</sub> = 443.2 P <sub>99</sub> = 453.0												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-May	Z	439.3	439.4	439.4	439.5	439.4	439.2	439.2	438.7	438.5	438.4	438.3	437.8	437.7	437.7	437.6	437.5	437.4	437.6	437.7	437.9	438.0	437.7	437.4	438.3	439.5
2-May	437.4	Z	438.0	438.2	438.7	438.5	438.4	438.1	438.1	438.0	438.0	437.7	437.7	437.6	437.4	437.3	437.2	437.3	437.5	437.9	438.5	438.7	438.5	438.5	438.0	438.7
3-May	438.8	438.9	Z	438.7	439.5	438.8	438.8	438.8	438.6	438.6	438.8	438.8	438.9	438.4	438.1	438.0	437.9	437.7	437.8	437.9	438.6	438.7	438.4	438.7	438.5	439.5
4-May	439.8	439.2	440.0	Z	439.7	439.6	439.6	439.6	439.6	439.6	439.3	439.2	439.1	439.0	438.9	439.1	439.3	439.8	440.1	440.3	439.8	440.1	440.7	441.1	441.9	441.2
5-May	441.2	441.2	441.4	441.7	Z	442.6	443.0	442.7	442.0	440.8	440.2	440.0	439.9	439.9	440.1	440.1	440.3	440.7	441.1	441.9	441.7	444.1	440.7	441.5	441.3	444.1
6-May	441.3	442.5	444.4	445.1	444.9	Z	444.8	444.3	443.8	443.1	442.4	441.8	441.3	441.1	441.2	441.4	441.8	441.6	442.0	441.6	441.9	442.1	442.3	442.5	445.1	
7-May	Z	442.6	442.8	443.2	443.5	443.4	443.5	443.4	442.5	442.3	441.4	440.7	439.3	438.5	438.3	438.2	437.8	437.8	437.9	437.9	438.2	438.1	438.7	440.3	440.5	443.5
8-May	440.7	Z	441.5	442.0	444.1	444.2	442.9	442.5	440.7	440.0	439.1	438.6	439.1	439.0	439.4	439.3	438.9	438.6	439.0	439.4	441.9	442.9	442.5	443.6	440.9	444.2
9-May	442.8	443.7	Z	442.3	443.4	441.4	441.5	440.9	440.6	439.6	438.8	438.6	438.4	438.3	438.4	438.3	438.5	438.5	438.7	439.3	439.4	440.4	440.6	442.8	440.2	443.7
10-May	446.9	450.8	452.1	Z	451.4	450.4	449.9	448.3	446.3	445.2	443.6	443.0	442.6	443.3	443.7	443.6	443.6	444.1	443.6	443.1	443.4	445.1	445.7	443.2	445.8	452.1
11-May	443.5	444.1	444.6	444.7	Z	442.8	442.7	442.9	442.5	442.2	441.7	441.7	441.4	440.9	440.8	440.6	440.4	440.3	440.3	440.4	440.8	441.7	440.3	439.8	441.8	444.7
12-May	440.0	441.3	442.6	442.0	443.5	Z	441.0	440.2	440.3	440.2	440.0	439.8	440.0	439.9	439.8	439.7	439.8	440.0	440.0	440.2	440.6	440.7	440.4	440.6	440.5	443.5
13-May	Z	440.9	441.0	441.6	442.3	443.1	443.6	443.6	442.6	442.2	441.9	442.1	443.2	443.0	443.4	442.1	441.2	440.7	441.2	442.7	443.8	445.7	448.9	447.7	443.0	448.9
14-May	446.4	Z	448.6	449.5	452.6	454.3	456.8	459.4	457.0	456.7	456.0	452.6	446.6	443.0	441.9	442.4	441.7	442.0	444.0	445.4	447.4	447.6	448.2	449.5	449.1	459.4
15-May	451.9	453.5	Z	453.0	451.5	448.5	445.3	442.6	440.9	440.8	440.6	440.4	440.9	440.9	442.2	441.5	440.1	439.8	439.7	439.8	440.1	440.1	440.4	441.2	443.3	453.5
16-May	441.4	441.2	441.2	Z	441.7	441.7	441.8	C	C	C	C	C	429.5	429.6	429.7	429.5	429.5	429.5	429.8	429.9	429.8	429.7	429.8	430.0	433.6	441.8
17-May	430.2	430.3	430.8	431.0	Z	431.4	431.5	431.3	431.0	430.7	430.6	430.2	430.1	430.1	429.8	429.6	429.4	429.4	429.7	429.9	430.0	429.9	430.0	430.0	430.3	431.5
18-May	430.3	430.5	430.8	431.0	431.1	Z	430.5	430.3	430.0	429.5	429.0	428.6	428.3	427.9	427.4	426.9	426.6	426.2	426.4	426.4	426.4	426.5	426.4	426.5	428.4	431.1
19-May	Z	427.0	427.2	427.4	427.8	427.4	427.0	426.7	426.8	427.0	426.7	426.2	425.7	425.5	425.3	425.0	425.3	425.0	425.2	425.5	426.3	426.5	426.4	426.3	426.3	427.8
20-May	426.6	Z	427.2	428.0	427.6	427.4	427.1	426.9	427.4	427.7	427.4	427.3	426.6	426.9	426.8	426.4	426.0	425.4	425.4	424.6	425.2	427.2	428.5	428.6	426.9	428.6
21-May	427.0	431.0	Z	430.0	432.0	429.8	428.9	426.2	425.8	425.3	425.1	425.1	425.0	425.4	426.7	427.3	427.1	427.0	426.8	426.5	426.8	427.5	427.5	428.1	427.3	432.0
22-May	428.7	429.2	427.5	Z	426.4	426.0	426.0	426.1	425.6	425.0	425.7	426.8	426.5	426.5	426.4	426.4	426.4	426.4	426.4	426.3	426.6	427.5	427.1	426.3	426.6	429.2
23-May	428.6	429.7	431.1	433.4	Z	435.0	433.9	432.3	427.7	426.7	426.4	425.4	425.6	425.6	425.7	426.5	426.7	427.2	427.7	428.4	429.0	430.2	430.7	429.7	428.8	435.0
24-May	428.6	430.4	435.5	437.2	437.6	Z	436.9	436.0	433.9	431.1	429.4	429.3	429.2	428.5	427.8	427.5	428.3	428.8	429.0	429.4	430.0	431.0	431.4	431.8	431.2	437.6
25-May	Z	430.8	431.0	432.2	432.0	430.7	431.4	431.7	431.5	431.2	430.6	430.1	429.8	429.3	429.1	429.0	428.8	427.5	427.0	426.6	426.8	427.1	428.4	429.5	431.2	437.6
26-May	430.4	Z	429.9	430.4	432.1	431.1	430.3	428.1	427.5	426.3	424.7	424.2	424.4	424.5	424.2	423.9	423.6	423.6	423.6	423.7	424.3	424.8	424.1	424.2	426.3	432.1
27-May	424.9	425.2	Z	425.6	426.1	426.4	426.6	426.8	426.5	425.1	423.5	423.1	423.0	423.1	423.1	423.0	423.1	423.0	423.2	423.7	425.6	426.2	423.7	424.2	424.6	426.8
28-May	428.0	429.4	424.1	Z	426.0	427.4	427.7	425.6	424.7	424.0	423.1	422.9	423.1	422.9	422.5	422.6	422.8	422.8	423.0	423.5	427.0	428.5	431.8	435.7	425.6	435.7
29-May	434.7	429.1	430.4	433.3	Z	434.0	433.7	431.9	430.1	431.5	432.0	429.5	428.0	428.1	428.3	428.8	427.8	427.4	427.6	429.4	431.4	432.1	431.0	431.3	430.5	434.7
30-May	432.0	433.5	432.2	432.0	431.6	Z	431.0	429.9	429.2	428.5	427.4	426.7	426.8	426.3	425.5	425.7	425.7	427.2	428.2	428.4	429.2	429.8	430.3	430.8	429.0	433.5
31-May	Z	431.5	431.8	432.1	432.2	432.1	431.8	431.6	431.1	430.8	430.6	430.0	430.0	429.6	429.2	428.9	428.9	428.8	429.2	429.6	430.2	430.5	430.8	430.9	430.5	432.2
436.1 436.4 436.4 437.1 437.7 437.2 437.0 436.3 435.4 434.9 434.4 434.0 433.5 433.2 433.2 433.1 433.0 433.0 433.2 433.5 434.2 434.8 434.9 435.2																								Diurnal Average		
451.9 453.5 452.1 453.0 452.6 454.3 456.8 459.4 457.0 456.7 456.0 452.6 446.6 443.3 443.7 443.6 443.6 444.1 444.0 445.4 447.4 447.6 448.9 449.5																								Diurnal Maximum		
Z - zerospan C - Calibration																										



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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - May 2024**





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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Fort Chipewyan - May 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	518	73.16	73.16
440 - 460	190	26.84	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan - May 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	7	20	119	143	112	12	6	7	9	6	5	5	6	8	46	7	518
440 - 460	2	2	6	47	31	4	2	5	4	8	12	15	13	10	14	15	190
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>	9	22	125	190	143	16	8	12	13	14	17	20	19	18	60	22	708

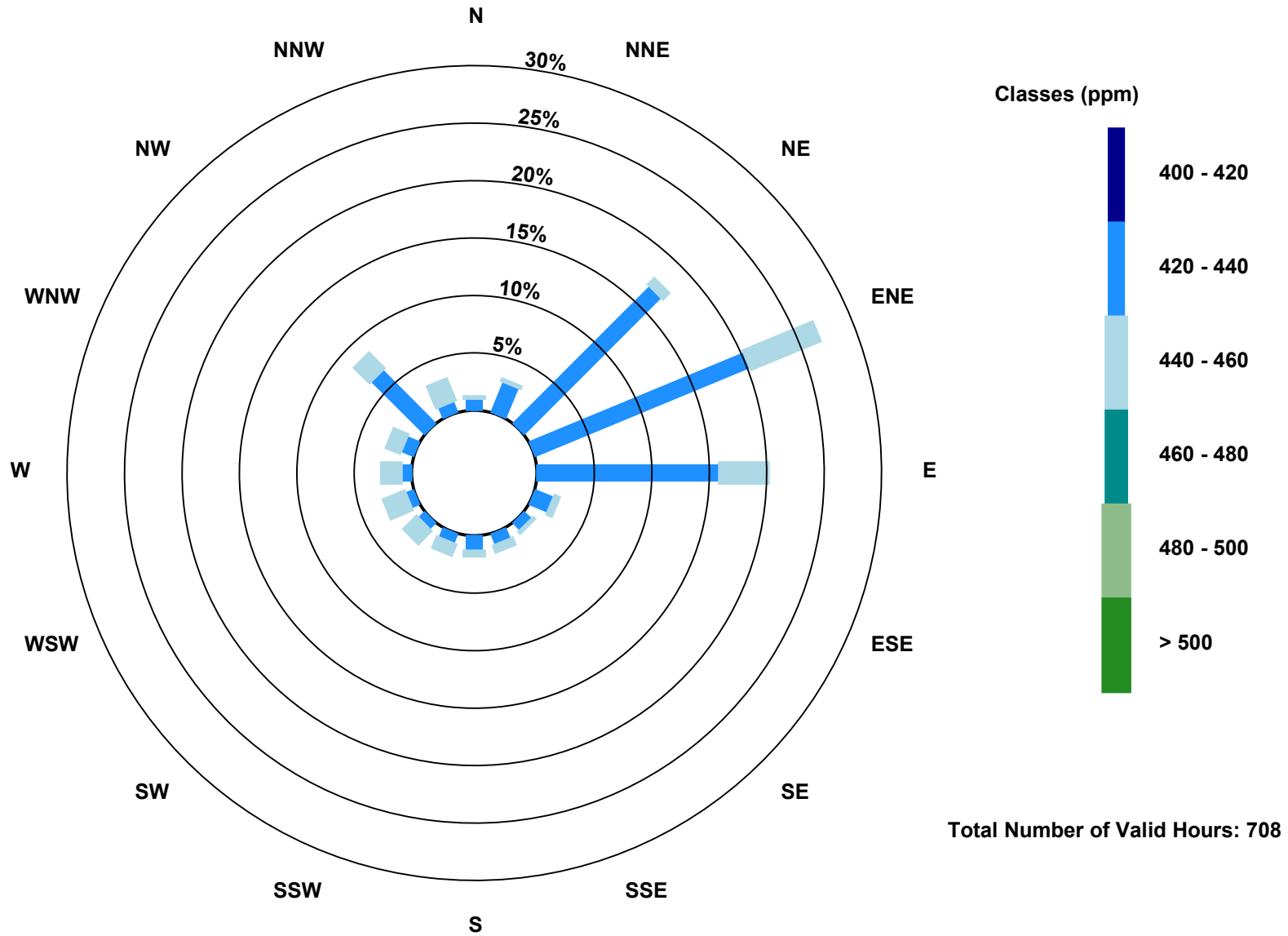
Total Number of Valid Hours: 708

Total Number of Hours: 744



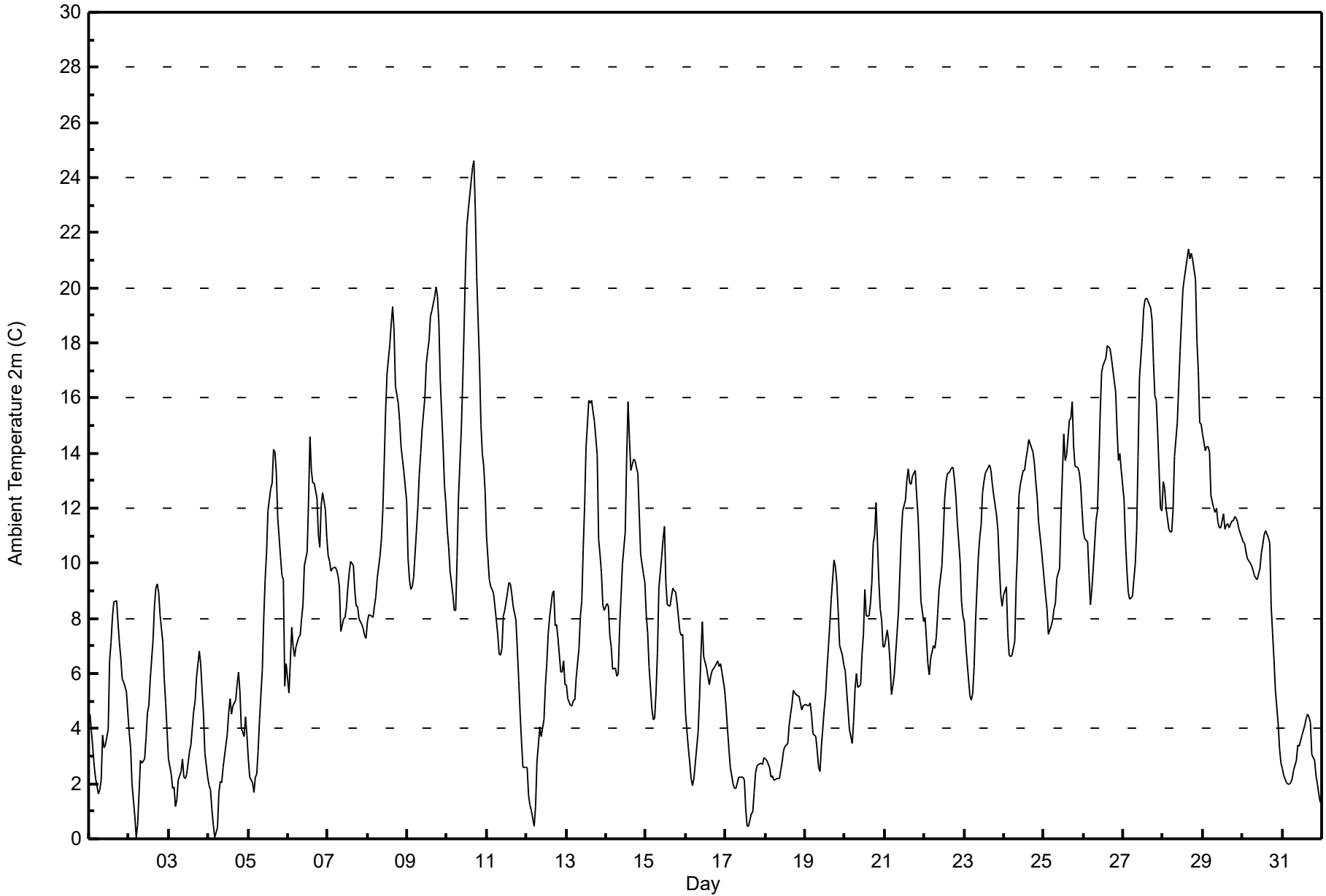
Wood Buffalo Environmental Association  
Wind Rose May 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Fort Chipewyan





Maximum Value: 24.6 C on May 10 17:00		Maximum Daily Average: 16.5 C on May 28		Hours in Service: 744																																												
Minimum Value: 0.0 C on May 4 05:00		Minimum Daily Average: 2.2 C on May 17		Hours of Data: 744																																												
Maximum Diurnal Average: 11.8 C at hour 17		Minimum Diurnal Average: 5.6 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 8.77 C		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 4.9 Median = 8.4 Q <sub>3</sub> = 12.0 P <sub>90</sub> = 15.1 P <sub>99</sub> = 21.2		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-May	4.5	3.9	3.3	2.6	2.2	1.6	1.8	2.2	3.8	3.3	3.4	4.0	6.4	7.1	8.0	8.6	8.6	7.8	7.1	6.6	5.8	5.7	5.3	4.6	4.9	8.6																						
2-May	3.9	3.3	2.0	0.8	0.1	0.5	1.6	2.9	2.7	2.9	3.7	4.6	4.8	5.8	7.2	8.5	9.1	9.3	9.0	8.2	7.1	5.8	5.0	3.9	4.7	9.3																						
3-May	2.9	2.3	1.8	1.9	1.1	1.4	2.1	2.4	2.9	2.2	2.2	2.3	3.1	3.4	4.0	4.6	5.0	5.9	6.8	6.4	5.4	4.5	3.1	2.2	3.3	6.8																						
4-May	1.9	1.8	1.0	0.5	0.0	0.4	1.7	2.1	2.0	2.6	3.4	3.8	4.6	5.1	4.5	4.8	5.0	5.6	6.0	5.3	4.0	3.7	4.4	3.7	3.3	6.0																						
5-May	2.9	2.2	2.1	1.7	2.3	2.4	3.2	4.3	6.2	8.0	9.4	10.3	11.9	12.7	12.9	14.1	14.0	13.3	11.6	10.2	9.6	9.4	5.5	6.3	7.8	14.1																						
6-May	5.3	6.4	7.7	7.0	6.6	7.0	7.3	7.3	8.0	8.5	9.9	10.4	12.3	14.6	13.4	12.9	12.9	12.3	11.0	10.6	12.1	12.5	12.0	11.0	10.0	14.6																						
7-May	10.3	10.1	9.7	9.8	9.9	9.8	9.5	9.1	7.5	8.0	8.0	8.4	9.1	9.7	10.1	9.9	9.0	8.4	8.4	8.0	7.8	7.6	7.4	7.3	8.9	10.3																						
8-May	7.9	8.1	8.1	8.0	8.5	8.8	9.5	10.3	10.9	12.0	13.7	15.6	16.9	17.9	18.7	19.3	18.5	16.4	15.8	15.2	14.2	13.8	13.3	12.2	13.1	19.3																						
9-May	10.2	9.4	9.0	9.2	9.5	11.2	12.0	13.2	14.0	14.9	16.0	17.3	17.7	18.1	19.0	19.2	19.7	20.0	19.7	18.7	16.6	14.2	12.8	12.2	14.7	20.0																						
10-May	11.2	10.6	9.7	8.9	8.3	8.3	10.2	12.4	14.8	16.6	18.6	20.8	22.3	22.8	23.9	24.4	24.6	22.8	20.4	17.2	15.1	14.0	13.5	12.6	16.0	24.6																						
11-May	11.0	9.4	9.2	9.0	8.9	8.4	7.4	6.7	6.7	6.9	8.1	8.3	9.0	9.3	9.3	8.9	8.4	7.9	6.9	5.8	4.5	3.5	2.6	2.6	7.4	11.0																						
12-May	2.6	1.6	1.2	1.0	0.5	1.2	2.8	3.4	4.1	3.7	4.3	5.5	6.4	7.4	8.0	8.9	9.0	7.8	7.8	7.2	6.1	6.1	6.5	5.6	4.9	9.0																						
13-May	5.6	5.1	4.9	4.8	5.0	5.0	5.9	6.9	8.1	8.6	10.5	12.1	14.2	15.9	15.8	15.9	15.5	15.2	13.9	10.9	10.3	9.7	8.5	8.3	9.9	15.9																						
14-May	8.6	8.4	7.4	7.0	6.2	6.2	5.9	6.0	7.7	8.8	10.0	11.1	13.8	15.9	14.5	13.4	13.8	13.7	13.5	13.3	11.8	10.3	9.6	9.3	10.2	15.9																						
15-May	8.1	7.5	6.3	4.7	4.3	4.4	5.3	6.8	9.1	10.2	10.9	11.3	9.3	8.5	8.4	8.8	9.1	9.0	8.9	8.5	7.5	7.4	7.4	5.9	7.8	11.3																						
16-May	4.6	3.3	2.8	2.2	2.0	2.2	2.7	3.9	5.1	6.6	7.9	6.6	6.2	5.9	5.6	5.9	6.1	6.3	6.4	6.5	6.3	6.4	6.0	5.4	5.1	7.9																						
17-May	4.7	4.0	3.2	2.6	2.0	1.8	1.8	2.0	2.2	2.2	2.2	2.1	1.1	0.4	0.4	0.9	1.0	1.7	2.4	2.6	2.7	2.7	2.7	3.0	2.2	4.7																						
18-May	2.9	2.9	2.6	2.2	2.3	2.1	2.1	2.2	2.2	2.5	2.8	3.2	3.3	3.5	4.1	4.5	4.9	5.4	5.3	5.2	5.2	4.9	4.7	4.8	3.6	5.4																						
19-May	4.9	4.9	4.8	4.9	4.5	3.8	3.7	3.2	2.6	2.5	3.4	4.7	5.2	6.1	7.0	7.8	8.7	10.1	9.9	9.3	8.2	7.0	6.6	6.3	5.8	10.1																						
20-May	6.1	5.4	4.7	4.0	3.5	4.3	5.4	6.0	5.5	5.6	6.7	7.4	9.1	8.1	8.1	8.6	9.3	10.7	11.1	12.2	9.4	8.4	7.9	7.0	7.3	12.2																						
21-May	6.9	7.6	7.1	6.4	5.2	5.5	5.9	7.5	8.3	9.6	11.0	11.9	12.3	13.0	13.4	12.9	12.9	13.2	13.4	12.5	11.7	10.3	8.6	7.9	9.8	13.4																						
22-May	8.0	7.2	6.4	5.9	6.6	7.0	6.9	7.3	8.2	9.1	9.9	11.0	12.4	13.0	13.3	13.3	13.5	13.5	13.0	12.4	11.5	10.1	8.6	8.1	9.8	13.5																						
23-May	7.9	7.1	6.4	5.2	5.0	5.3	6.3	7.9	10.2	10.9	11.4	12.6	13.0	13.3	13.5	13.6	13.4	12.9	12.5	11.7	11.2	9.9	8.9	8.5	9.9	13.6																						
24-May	8.9	9.2	7.5	6.6	6.6	6.7	7.2	9.3	10.5	12.5	12.9	13.4	13.4	13.8	14.1	14.5	14.3	14.0	13.6	13.0	12.4	11.5	10.6	10.0	11.1	14.5																						
25-May	9.4	8.9	8.4	7.4	7.7	8.0	8.3	8.5	9.4	9.8	11.8	13.3	14.7	13.7	13.9	15.2	15.2	15.9	14.3	13.5	13.5	13.3	12.9	12.0	11.6	15.9																						
26-May	11.2	10.9	10.8	9.6	8.5	9.1	9.8	11.5	11.9	13.6	15.5	16.9	17.2	17.4	17.9	17.8	17.8	17.4	16.6	16.2	14.8	13.7	14.0	13.4	13.9	17.9																						
27-May	12.3	10.8	9.7	8.9	8.7	8.8	9.4	10.0	11.2	13.9	16.7	18.2	19.2	19.6	19.6	19.5	19.2	18.8	17.3	16.0	15.9	14.7	12.0	11.9	14.3	19.6																						
28-May	12.9	12.7	12.0	11.2	11.1	11.1	12.0	13.9	15.1	16.4	17.7	18.8	19.9	20.3	21.0	21.4	21.1	21.3	21.0	20.3	18.1	17.0	15.1	15.1	16.5	21.4																						
29-May	14.7	14.1	14.2	14.2	14.1	12.5	12.0	11.9	12.0	11.5	11.3	11.3	11.8	11.3	11.4	11.4	11.3	11.5	11.5	11.7	11.6	11.5	11.2	10.9	12.1	14.7																						
30-May	10.8	10.7	10.4	10.2	10.0	9.9	9.8	9.6	9.5	9.4	9.8	10.4	10.7	11.0	11.2	10.9	10.7	8.5	7.5	6.5	5.4	4.2	3.3	2.7	8.9	11.2																						
31-May	2.5	2.3	2.0	2.0	2.0	2.0	2.2	2.5	2.8	3.4	3.4	3.5	3.8	4.1	4.4	4.5	4.4	4.2	3.0	2.9	2.3	2.0	1.6	1.3	2.9	4.5																						
																								7.3	6.8	6.3	5.8	5.6	5.7	6.2	6.9	7.6	8.3	9.2	10.0	10.8	11.3	11.5	11.8	11.8	11.6	11.1	10.5	9.6	8.9	8.1	7.6	Diurnal Average
																								14.7	14.1	14.2	14.2	14.1	12.5	12.0	13.9	15.1	16.6	18.6	20.8	22.3	22.8	23.9	24.4	24.6	22.8	21.0	20.3	18.1	17.0	15.1	15.1	Diurnal Maximum





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

**Ambient Temperature 2m (AT2) - C**  
**Fort Chipewyan - May 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	0	0.00	0.00
0 - 10	470	63.17	63.17
10 - 20	258	34.68	97.85
> 20	16	2.15	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

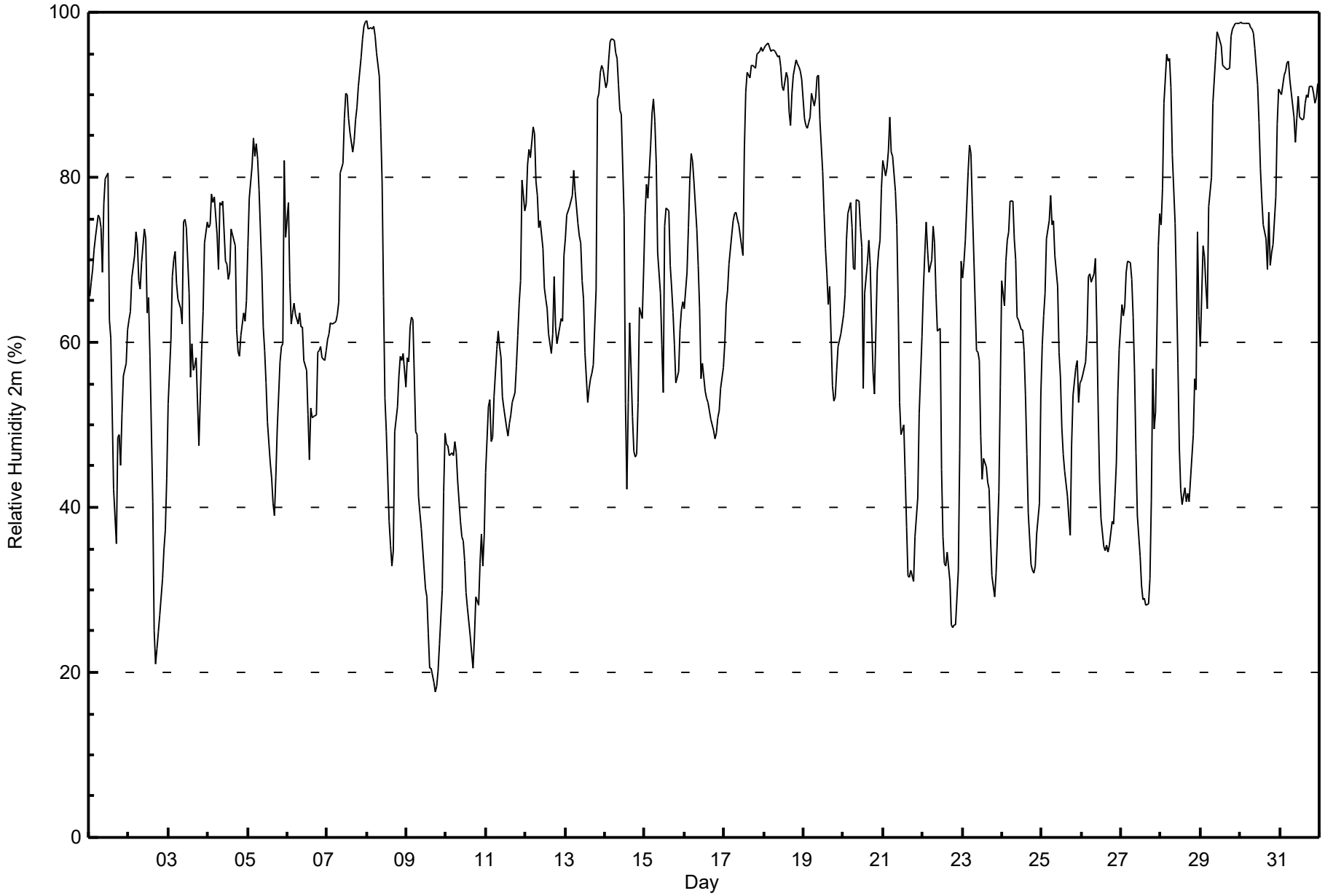




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity 2m (RH2) - %**  
**Fort Chipewyan - May 2024**

Maximum Value: 99.0 % on May 8 01:00      Maximum Daily Average: 93.2 % on May 18																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 17.6 % on May 9 18:00      Minimum Daily Average: 35.9 % on May 10 Maximum Diurnal Average: 77.6 % at hour 6      Minimum Diurnal Average: 52.5 % at hour 17 Monthly Average: 65.32 %      Percentiles: P <sub>1</sub> = 21.7 P <sub>10</sub> = 36.8 Q <sub>1</sub> = 52.5 Median = 65.7 Q <sub>3</sub> = 79.4 P <sub>90</sub> = 92.7 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-May	65.5	67.3	68.8	71.1	72.8	75.4	75.1	73.9	68.5	76.8	79.8	80.5	62.7	60.5	51.6	42.2	35.6	48.5	48.9	45.1	51.4	56.0	57.4	61.4	62.4	80.5
2-May	62.8	63.7	67.8	70.5	73.3	72.1	67.5	66.4	69.7	73.7	72.5	63.6	65.5	58.2	40.6	25.1	21.1	22.9	24.8	26.9	31.4	35.0	37.4	43.5	52.3	73.7
3-May	52.6	60.3	68.0	69.9	71.1	67.1	65.3	64.0	62.2	74.5	75.0	73.9	65.9	55.8	59.8	56.6	57.1	58.1	47.5	53.4	59.2	63.7	72.0	74.6	63.6	75.0
4-May	73.9	74.2	78.0	76.9	77.7	73.0	68.9	76.9	76.6	77.2	69.8	69.5	67.6	68.4	73.7	73.0	71.8	61.5	58.9	58.2	60.9	63.6	62.6	65.1	69.9	78.0
5-May	71.6	77.5	81.4	84.7	82.6	84.2	82.1	78.5	68.6	61.9	58.9	55.0	50.3	45.3	43.5	40.4	38.9	43.7	49.5	57.6	59.5	59.8	82.0	72.8	63.8	84.7
6-May	77.0	67.4	62.2	63.6	64.7	63.4	62.2	63.6	61.8	61.9	57.8	56.6	51.3	45.7	52.0	50.9	51.0	51.1	58.9	59.0	59.5	58.1	57.8	59.0	59.0	77.0
7-May	60.4	61.1	62.4	62.2	62.5	62.5	63.4	65.0	80.5	81.7	87.1	90.2	90.0	87.2	85.4	83.0	84.4	87.0	88.4	91.0	94.5	96.7	98.3	98.8	80.1	98.8
8-May	99.0	98.0	98.2	97.9	98.4	97.1	95.1	92.3	86.1	79.3	65.5	53.3	49.2	38.4	35.4	32.8	34.8	49.2	52.2	56.0	58.3	57.8	58.6	54.6	68.2	99.0
9-May	58.2	57.7	61.9	63.1	62.7	49.1	48.8	41.4	39.3	37.4	32.6	30.2	29.1	24.7	20.5	20.5	18.9	17.6	18.4	20.1	23.4	29.9	41.9	48.9	37.3	63.1
10-May	47.7	47.4	46.3	46.6	46.2	48.0	46.6	43.2	38.3	36.5	35.9	33.6	29.7	27.8	24.4	22.4	20.6	24.3	29.1	28.1	33.3	36.8	32.9	36.6	35.9	48.0
11-May	44.3	52.2	53.0	48.0	48.5	53.4	59.2	61.3	59.5	58.1	53.4	52.0	49.7	48.7	50.1	51.2	52.6	53.9	57.1	60.8	64.7	67.5	79.7	75.9	56.4	79.7
12-May	76.7	81.5	83.4	82.4	86.1	85.2	79.5	77.7	74.0	74.7	71.4	66.6	65.3	64.0	61.0	58.6	61.1	68.0	61.9	59.9	61.8	62.9	62.5	70.4	70.7	86.1
13-May	72.6	75.4	76.4	77.1	77.9	80.9	78.4	74.4	72.8	72.1	67.4	65.3	58.8	52.7	54.4	55.6	56.2	57.2	66.5	89.6	90.2	92.7	93.5	93.1	73.0	93.5
14-May	90.8	91.5	94.2	96.4	96.8	96.6	95.1	94.4	91.2	88.1	87.7	75.4	52.5	42.2	52.8	62.4	51.0	46.8	46.0	46.4	52.6	64.3	63.0	68.9	72.8	96.8
15-May	75.5	79.2	77.5	84.0	87.8	89.5	86.8	81.7	70.9	65.9	59.7	54.0	74.0	76.2	75.9	69.4	66.6	63.6	59.7	55.1	56.4	61.6	63.9	64.9	70.8	89.5
16-May	64.0	68.5	73.9	79.7	82.8	81.9	79.4	73.7	69.3	64.0	55.6	57.4	54.1	53.3	52.7	51.6	50.7	49.3	48.2	49.1	50.8	51.7	54.4	56.9	61.4	82.8
17-May	59.9	64.5	66.3	69.6	73.0	74.8	75.7	75.7	75.0	74.2	71.7	70.5	83.4	90.3	92.7	92.0	93.6	93.5	93.4	93.2	95.0	95.2	95.8	95.2	81.8	95.8
18-May	95.6	95.9	96.3	95.8	95.2	95.4	95.4	95.3	94.6	94.8	93.4	91.0	90.5	92.8	92.0	88.0	86.3	90.2	92.3	94.2	93.8	93.5	92.9	91.9	93.2	96.3
19-May	87.1	86.3	85.9	86.6	87.4	90.1	88.7	89.6	92.2	92.3	86.9	80.7	75.8	71.4	68.4	64.6	66.7	54.7	52.9	53.4	56.6	59.6	61.0	62.3	75.0	92.3
20-May	63.5	65.8	72.3	75.5	77.0	74.0	69.0	68.8	77.2	77.2	73.9	71.4	54.4	65.9	69.7	72.4	69.3	62.4	56.4	53.7	68.7	71.0	72.3	78.6	69.2	78.6
21-May	82.0	80.2	81.1	83.2	87.4	83.0	82.5	78.4	74.3	64.7	52.7	48.9	49.9	43.9	37.5	31.7	31.4	32.3	31.0	36.4	38.8	41.2	51.4	60.7	57.7	87.4
22-May	66.5	70.6	74.6	71.2	68.4	70.1	74.1	72.1	65.9	61.3	61.6	44.6	36.4	33.1	33.0	34.6	30.9	25.8	25.5	25.8	25.8	32.4	47.0	69.8	50.9	74.6
23-May	67.7	69.6	72.4	80.8	83.9	82.9	76.5	70.9	59.0	58.8	57.7	48.6	43.4	46.0	45.0	43.0	42.3	36.2	31.7	29.1	32.0	36.8	41.8	54.6	54.6	83.9
24-May	67.4	64.4	69.8	72.4	73.4	77.1	77.1	72.6	70.0	63.0	62.7	61.5	61.6	58.9	53.5	46.5	39.4	33.1	32.3	32.0	32.9	36.8	40.5	53.7	56.4	77.1
25-May	59.7	63.2	65.9	72.6	74.7	77.8	74.3	74.7	70.6	66.8	58.8	55.8	49.7	46.4	44.3	41.4	38.8	36.5	47.7	53.5	56.9	57.8	52.7	55.0	58.2	77.8
26-May	55.4	56.1	57.6	61.0	67.9	68.3	67.2	68.4	70.2	62.3	51.7	43.2	38.6	35.3	34.7	35.4	34.6	35.4	38.3	38.0	41.6	45.4	53.6	59.1	50.8	70.2
27-May	64.6	63.2	64.4	68.4	69.9	69.7	67.6	63.1	56.2	46.7	39.0	34.1	30.5	28.8	29.1	28.1	28.2	31.4	40.8	56.8	49.6	51.6	71.7	75.6	51.2	75.6
28-May	74.2	78.6	88.9	94.9	94.1	94.4	90.9	82.7	74.4	66.3	57.4	47.3	42.1	40.4	42.3	40.6	41.8	40.7	43.4	48.7	55.6	54.3	73.3	63.2	63.8	94.9
29-May	59.4	71.6	70.4	66.8	64.1	76.4	80.0	89.1	91.8	94.8	97.6	97.2	95.9	93.5	93.4	93.2	93.0	93.3	97.1	98.0	98.3	98.6	98.7	98.7	87.9	98.7
30-May	98.7	98.7	98.6	98.7	98.6	98.6	98.2	97.9	97.4	95.6	91.2	86.5	81.0	77.3	74.2	72.5	68.8	75.8	69.3	70.9	71.8	77.6	86.4	90.6	86.5	98.7
31-May	90.4	89.9	92.4	92.9	93.9	94.0	91.9	90.3	87.3	84.3	87.2	89.8	87.3	87.0	87.1	89.0	90.1	89.6	91.0	91.0	90.1	88.9	89.6	91.4	89.9	94.0
70.5 72.3 74.5 76.3 77.4 77.6 76.2 74.8 72.4 70.5 66.9 62.9 59.2 56.8 55.8 53.8 52.5 52.7 53.5 55.8 58.6 61.3 66.0 69.2																								Diurnal Average		
99.0 98.7 98.6 98.7 98.6 98.6 98.2 97.9 97.4 95.6 97.6 97.2 95.9 93.5 93.4 93.2 93.6 93.5 97.1 98.0 98.3 98.6 98.7 98.8																								Diurnal Maximum		





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

**Relative Humidity 2m (RH2) - %**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	3	0.40	0.40
20 - 40	87	11.69	12.10
40 - 60	198	26.61	38.71
60 - 80	275	36.96	75.67
80 - 100	181	24.33	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Leaf Wetness (LW) - %**

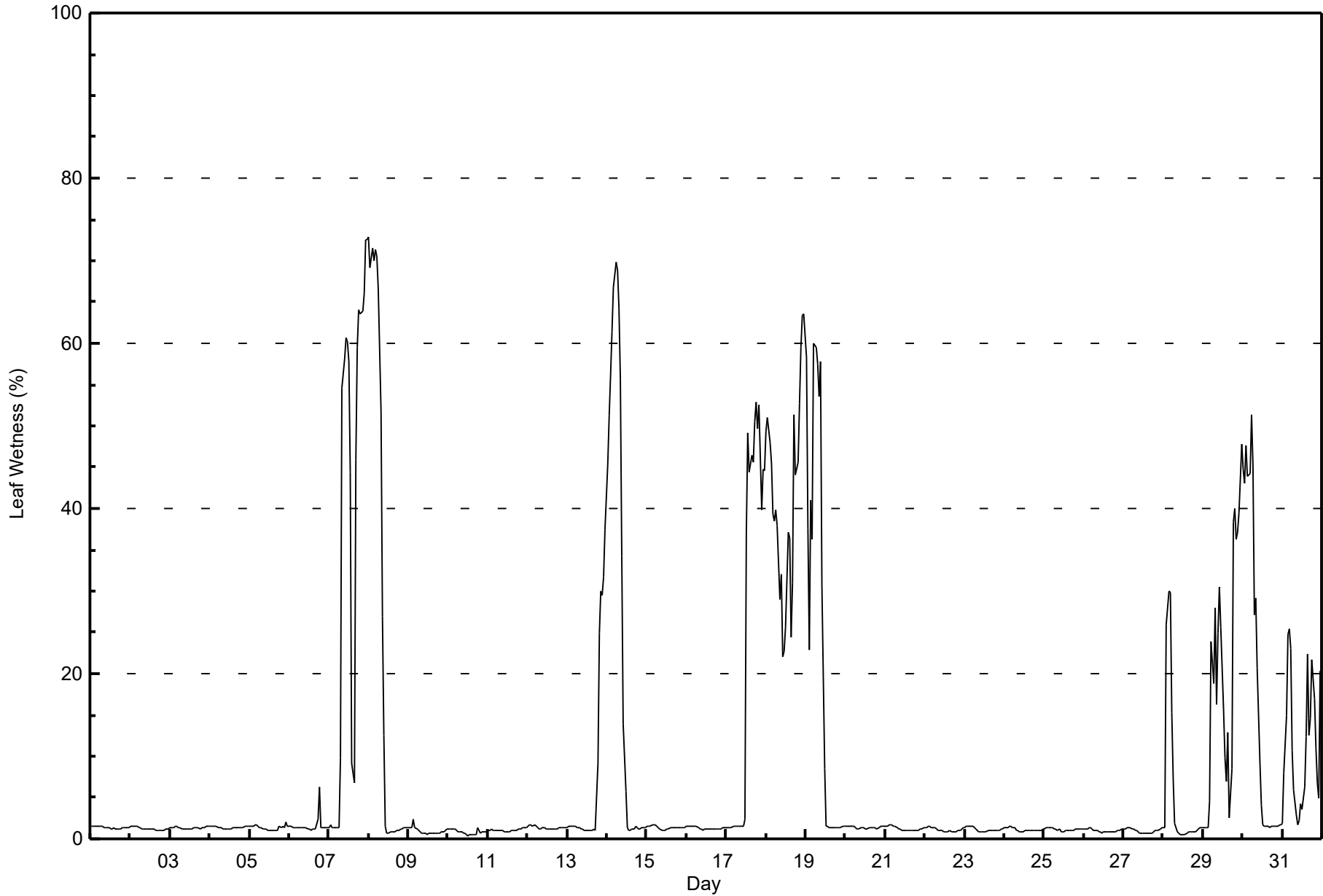
**Fort Chipewyan - May 2024**

Maximum Value: 72.9 % on May 8 01:00      Maximum Daily Average: 41.2 % on May 18																				Hours in Service: 744 Hours of Data: 744									
Minimum Value: 0.4 % on May 10 13:00      Minimum Daily Average: 0.8 % on May 10 Maximum Diurnal Average: 12.4 % at hour 6      Minimum Diurnal Average: 4.4 % at hour 15 Monthly Average: 8.42 %      Percentiles: P <sub>1</sub> = 0.5 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.1 Median = 1.3 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 37.8 P <sub>99</sub> = 69.6																				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-May	1.6	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.3	1.3	1.3	1.3	1.2	1.2	1.3	1.2	1.1	1.2	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.6	1.6	
2-May	1.4	1.5	1.5	1.6	1.6	1.4	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.6	1.6
3-May	1.3	1.4	1.4	1.5	1.5	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
4-May	1.5	1.5	1.6	1.6	1.6	1.4	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.4	1.5	1.4	1.6	1.6	
5-May	1.5	1.6	1.6	1.6	1.6	1.5	1.4	1.4	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.6	1.3	1.5	1.3	2.0	1.5	1.3	2.0	1.5	2.0	2.0	
6-May	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.4	1.3	1.2	1.1	1.0	1.1	1.1	1.1	2.4	6.3	1.4	1.3	1.3	1.3	1.3	1.3	1.6	6.3	6.3	
7-May	1.3	1.8	1.4	1.4	1.4	1.3	1.3	9.8	54.5	58.2	60.6	60.2	57.8	44.5	9.1	6.7	45.9	59.4	64.0	63.5	64.0	66.1	72.6	72.5	36.6	72.6	72.6	72.6	
8-May	72.9	69.2	71.6	70.0	71.4	70.4	66.7	51.8	26.9	12.6	1.5	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.1	1.2	1.3	1.3	1.3	1.3	24.9	72.9	72.9	72.9	
9-May	1.3	1.3	1.4	2.4	1.4	1.2	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.8	0.9	1.0	1.1	0.9	2.4	2.4	2.4	
10-May	1.1	1.1	1.2	1.2	1.1	1.1	0.8	0.9	0.8	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.6	1.4	0.7	0.8	0.9	0.9	0.9	0.8	1.4	1.4	1.4	
11-May	1.0	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.0	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.4	1.1	1.4	1.4	1.4	
12-May	1.5	1.6	1.6	1.6	1.7	1.5	1.3	1.2	1.1	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.7	1.7	1.7	
13-May	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	1.1	1.0	1.0	1.1	1.1	9.1	25.0	30.0	29.5	31.6	37.5	7.7	37.5	37.5	37.5	
14-May	45.4	51.2	56.1	61.3	66.8	69.8	68.7	64.2	55.7	34.3	14.0	5.7	1.4	1.0	1.1	1.2	1.1	1.5	1.4	1.1	1.3	1.4	1.4	1.4	25.4	69.8	69.8	69.8	
15-May	1.5	1.5	1.6	1.6	1.7	1.7	1.5	1.4	1.2	1.0	1.0	1.0	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.7	1.7	1.7
16-May	1.4	1.5	1.5	1.6	1.5	1.5	1.4	1.3	1.2	1.1	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.6	1.6	1.6
17-May	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.4	36.9	49.2	44.3	46.4	45.5	50.5	52.8	49.6	52.5	39.8	44.8	44.6	24.0	52.8	52.8	52.8
18-May	49.4	51.0	48.0	45.5	39.4	38.5	39.8	38.0	28.9	32.0	22.0	22.7	25.5	37.2	36.4	24.4	31.0	51.3	44.0	45.6	52.7	59.5	63.3	63.6	41.2	63.6	63.6	63.6	
19-May	58.3	37.5	22.9	41.1	36.2	60.0	59.5	57.5	53.5	57.8	30.7	8.6	1.6	1.5	1.4	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.5	1.5	22.5	60.0	60.0	60.0	
20-May	1.5	1.5	1.5	1.6	1.6	1.4	1.3	1.3	1.3	1.3	1.4	1.3	1.2	1.3	1.3	1.4	1.4	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.4	1.6	1.6	1.6	1.6
21-May	1.6	1.6	1.6	1.7	1.7	1.6	1.5	1.3	1.3	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.3	1.2	1.7	1.7	1.7	1.7
22-May	1.4	1.4	1.5	1.5	1.4	1.3	1.3	1.2	1.1	1.0	1.0	0.9	0.9	0.8	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.3	1.1	1.5	1.5	1.5	1.5
23-May	1.4	1.5	1.5	1.6	1.6	1.5	1.4	1.1	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.1	1.6	1.6	1.6	1.6
24-May	1.3	1.3	1.4	1.5	1.4	1.4	1.4	1.0	0.9	0.8	0.8	0.9	1.0	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.1	1.5	1.5	1.5	1.5
25-May	1.2	1.3	1.3	1.4	1.3	1.3	1.2	1.2	1.0	1.1	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.2	1.2	1.2	1.1	1.4	1.4	1.4	1.4
26-May	1.2	1.2	1.2	1.3	1.3	1.2	1.1	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.0	1.3	1.3	1.3	1.3
27-May	1.2	1.3	1.3	1.3	1.3	1.2	1.2	1.1	1.0	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8	1.0	1.0	1.0	1.2	1.3	1.0	1.3	1.3	1.3	1.3
28-May	1.3	1.4	26.0	30.0	29.8	15.2	7.2	1.9	0.8	0.6	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.8	0.8	0.9	1.1	1.1	1.3	1.3	5.2	30.0	30.0	30.0	30.0
29-May	1.3	1.3	1.3	1.3	4.5	24.0	18.8	28.0	16.3	25.0	30.5	25.6	15.5	9.8	7.0	12.9	2.6	8.5	38.4	40.0	36.3	37.0	39.4	47.9	19.7	47.9	47.9	47.9	47.9
30-May	44.8	43.0	47.7	43.9	44.3	51.3	45.2	27.1	29.2	20.7	9.1	4.1	1.7	1.5	1.5	1.5	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.8	17.9	51.3	51.3	51.3	51.3
31-May	1.8	8.0	14.9	24.7	25.4	23.1	10.7	5.9	2.9	1.7	2.2	4.2	3.5	6.3	12.3	22.4	12.6	14.5	21.6	17.0	11.0	6.8	4.9	20.3	11.6	25.4	25.4	25.4	25.4
9.9 9.5 10.4 11.4 11.3 12.4 11.2 10.0 9.5 8.6 6.3 5.0 5.4 5.6 4.4 4.5 5.3 6.9 8.5 8.7 8.9 8.7 9.3 10.3																								Diurnal Average					
72.9 69.2 71.6 70.0 71.4 70.4 68.7 64.2 55.7 58.2 60.6 60.2 57.8 49.2 44.3 46.4 45.9 59.4 64.0 63.5 64.0 66.1 72.6 72.5																								Diurnal Maximum					



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

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - May 2024**





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

**Leaf Wetness (LW) - %**  
**Fort Chipewyan - May 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	9	1.21	1.21
0.6 - 0.7	27	3.63	4.84
0.8 - 1.4	444	59.68	64.52
1.5 - 10	98	13.17	77.69
> 10	129	17.34	95.03

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

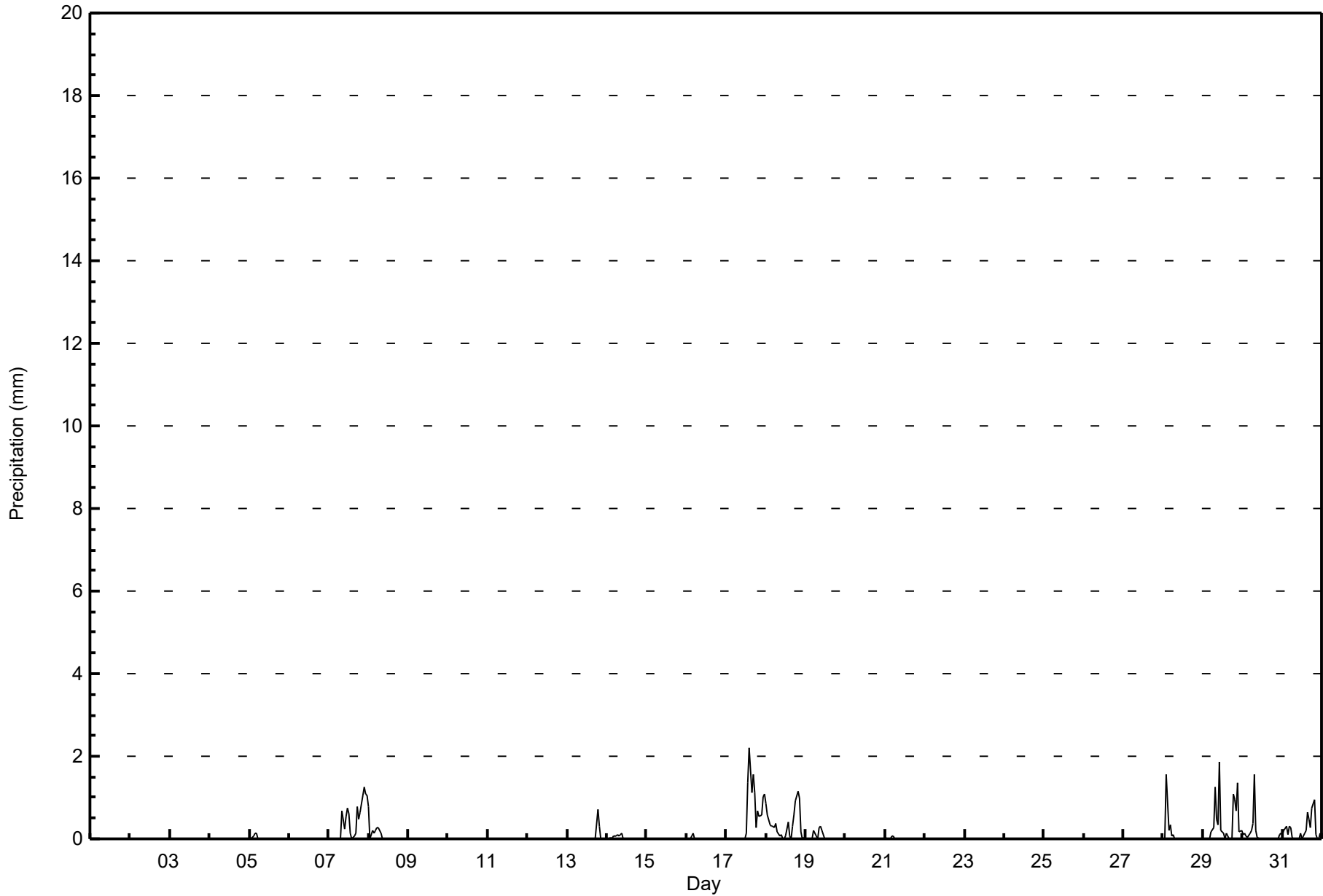
**Precipitation (PC) - mm**  
**Fort Chipewyan - May 2024**

Maximum Value: 2.2 mm on May 17 15:00		Maximum Daily Total: 11.7 mm on May 17		Hours in Service: 744																												
Minimum Value: 0.0 mm on May 1 01:00		Minimum Daily Total: 0.0 mm on May 1		Hours of Data: 744																												
Maximum Diurnal Total: 4.7 mm at hour 20		Minimum Diurnal Total: 0.9 mm at hour 2		Hours of Missing Data: 0																												
Monthly Total: 54.41 mm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.3		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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
6-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.5	0.8	0.6	0.2	0.0	0.1	0.1	0.8	0.5	0.6	1.0	1.3	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	9.5	1.3
8-May	0.8	0.0	0.2	0.1	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.8	
9-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.7	
14-May	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	
15-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	
17-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	2.2	1.1	1.6	1.1	0.3	0.7	0.6	0.6	1.0	1.1	0.0	0.0	0.0	0.0	11.7	2.2		
18-May	0.9	0.6	0.4	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.4	0.1	0.0	0.3	0.6	0.9	1.2	1.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	8.1	1.2		
19-May	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.3		
20-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1		
22-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	1.6	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	1.6		
29-May	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.3	0.5	0.3	1.9	0.2	0.1	0.0	0.2	0.1	0.0	0.0	1.1	1.0	0.7	1.4	0.2	0.2	0.0	0.0	0.0	0.0	9.4	1.9		
30-May	0.1	0.1	0.1	0.1	0.2	0.2	0.4	1.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	3.1	1.6		
31-May	0.1	0.2	0.3	0.1	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.7	0.5	0.3	0.8	0.9	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	5.2	0.9		
																								Diurnal Average								
																								Diurnal Maximum								



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

**Precipitation (PC) - mm**  
**Fort Chipewyan - May 2024**







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

**Precipitation (PC) - mm**  
**Fort Chipewyan - May 2024**

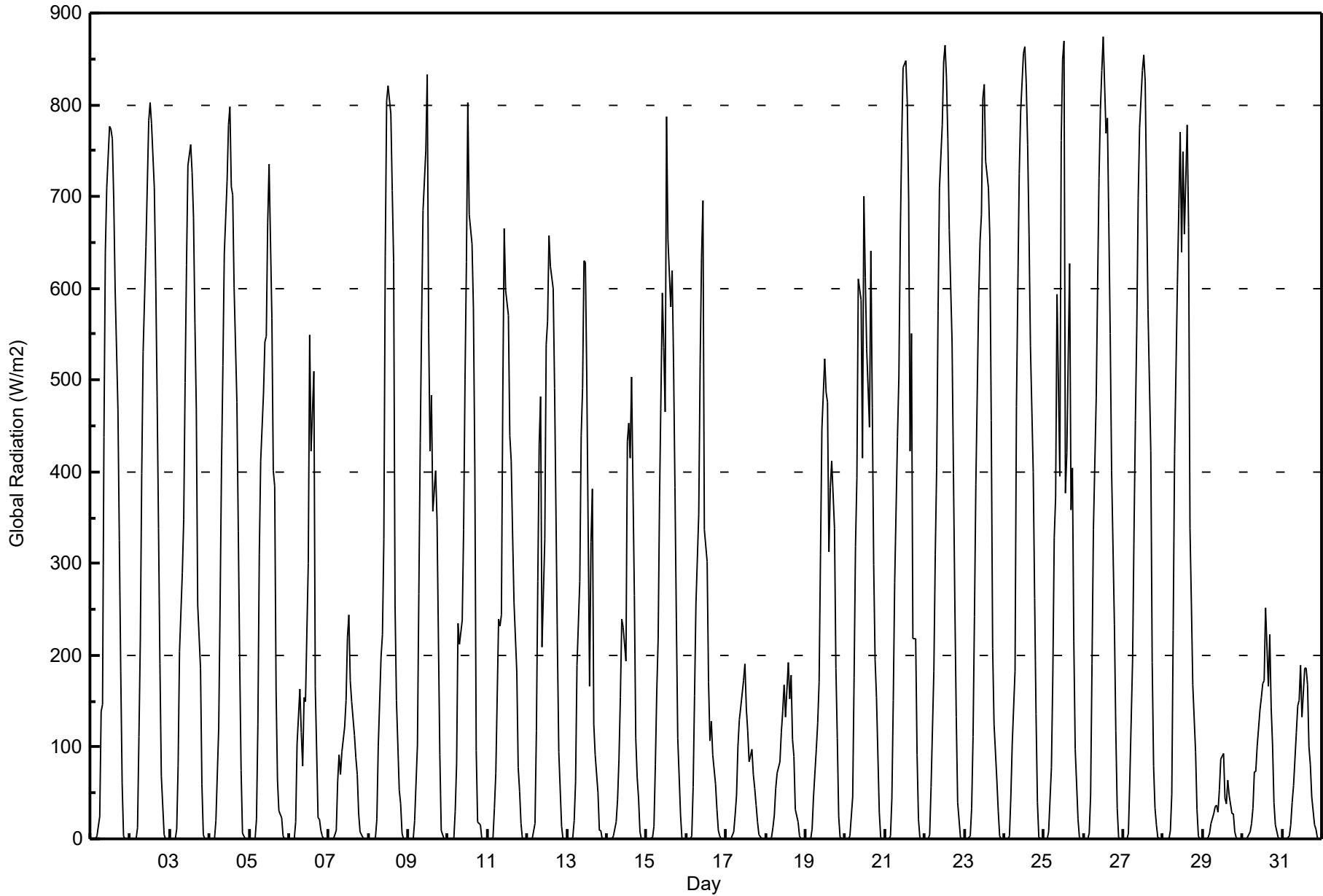
<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	699	93.95	93.95
0.4 - 0.5	7	0.94	94.89
0.6 - 0.7	11	1.48	96.37
0.8 - 1.4	22	2.96	99.33
1.5 - 10	5	0.67	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 874.5 W/m2 on May 26 13:00      Maximum Daily Average: 352.3 W/m2 on May 26																							Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0			
Minimum Value: 0.0 W/m2 on May 1 01:00      Minimum Daily Average: 26.9 W/m2 on May 29 Maximum Diurnal Average: 597.1 W/m2 at hour 13      Minimum Diurnal Average: 0.0 W/m2 at hour 2 Monthly Average: 221.84 W/m2      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.5 Median = 95.8 Q <sub>3</sub> = 411.4 P <sub>90</sub> = 669.7 P <sub>99</sub> = 847.4																										
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-May	0.0	0.0	0.0	0.0	3.1	23.9	138.9	145.8	438.4	639.2	709.9	776.3	773.3	762.0	697.2	599.0	467.9	325.5	183.0	60.3	3.7	0.0	0.0	0.0	281.1	776.3
2-May	0.0	0.0	0.0	0.1	11.9	111.7	215.9	398.7	530.3	644.9	713.8	781.8	802.3	779.4	710.0	610.1	482.3	338.2	190.8	68.0	4.7	0.0	0.0	0.0	308.1	802.3
3-May	0.0	0.0	0.0	0.0	11.1	79.3	204.1	289.4	347.4	497.0	625.8	734.3	756.1	726.0	676.8	563.2	468.1	255.3	185.6	60.1	4.1	0.0	0.0	0.0	270.2	756.1
4-May	0.0	0.0	0.0	0.1	20.5	120.9	255.0	405.1	516.0	637.1	716.8	777.6	797.1	710.8	701.1	601.6	475.9	336.3	194.4	75.1	6.8	0.0	0.0	0.0	306.2	797.1
5-May	0.0	0.0	0.0	0.2	20.9	124.9	309.7	412.3	485.2	547.1	547.5	671.3	734.6	567.5	401.5	383.7	161.0	64.0	31.2	23.0	3.7	0.0	0.0	0.0	228.5	734.6
6-May	0.0	0.0	0.0	0.3	17.9	103.9	163.9	116.0	79.6	153.4	149.2	301.0	548.6	423.2	465.5	509.6	166.8	23.4	20.9	9.7	2.4	0.0	0.0	0.0	135.6	548.6
7-May	0.0	0.0	0.0	0.2	8.6	63.1	92.3	70.4	95.2	122.7	151.3	219.2	244.2	172.9	148.9	113.2	87.8	69.8	27.2	8.1	1.0	0.0	0.0	0.0	70.7	244.2
8-May	0.0	0.0	0.0	0.0	1.3	21.7	100.8	197.7	222.0	326.8	633.9	803.7	821.2	790.0	706.4	628.4	255.1	150.8	53.9	38.2	5.5	0.0	0.0	0.0	239.9	821.2
9-May	0.0	0.0	0.0	0.2	20.4	101.5	267.5	432.2	565.8	685.0	751.2	832.5	557.5	422.2	483.6	357.6	400.6	348.3	217.1	92.1	9.1	0.0	0.0	0.0	272.7	832.5
10-May	0.0	0.0	0.0	0.7	30.0	82.0	235.5	211.5	237.4	337.7	500.7	628.2	801.7	679.9	647.8	578.6	406.5	96.4	19.0	15.2	0.5	0.0	0.0	0.0	229.6	801.7
11-May	0.0	0.0	0.0	0.9	34.3	72.3	240.1	232.6	244.5	484.7	664.4	598.5	570.0	439.7	412.0	330.6	257.4	181.3	77.8	52.2	17.1	0.2	0.0	0.0	204.6	664.4
12-May	0.0	0.0	0.0	0.8	17.0	118.2	281.0	430.0	482.6	209.0	326.4	538.4	564.3	657.3	624.6	600.2	491.7	351.9	213.6	94.5	14.1	0.2	0.0	0.0	250.7	657.3
13-May	0.0	0.0	0.0	1.7	19.4	62.8	189.7	281.0	439.2	491.3	630.0	628.2	501.8	165.6	323.1	381.4	125.3	91.7	50.7	9.8	9.1	0.2	0.0	0.0	183.4	630.0
14-May	0.0	0.0	0.0	0.1	3.5	18.7	42.3	87.4	153.7	239.2	230.4	194.4	433.1	452.9	415.6	503.5	265.7	109.2	67.3	43.7	8.3	0.2	0.0	0.0	136.2	503.5
15-May	0.0	0.0	0.0	1.2	14.3	81.1	160.0	217.8	372.8	595.2	535.8	465.1	786.8	653.5	579.4	619.3	518.5	382.7	239.6	110.3	25.4	0.6	0.0	0.0	265.0	786.8
16-May	0.0	0.0	0.0	2.5	56.7	155.2	256.5	353.5	517.2	632.6	694.9	337.0	302.8	170.4	106.6	127.5	91.6	59.9	31.7	9.0	2.6	0.0	0.0	0.0	162.8	694.9
17-May	0.0	0.0	0.0	0.5	8.1	26.4	47.8	100.0	129.8	143.6	172.4	191.3	142.0	117.7	83.2	97.2	69.9	55.0	36.4	18.2	5.1	0.0	0.0	0.0	60.2	191.3
18-May	0.0	0.0	0.0	0.9	11.8	26.3	54.9	71.7	83.6	115.8	139.3	168.3	133.2	192.1	152.6	178.9	108.6	90.7	31.5	18.4	3.5	0.1	0.0	0.0	65.9	192.1
19-May	0.0	0.0	0.0	0.4	10.5	45.7	97.2	126.8	170.6	309.5	446.8	523.3	487.3	475.9	313.4	382.3	411.2	338.3	185.9	110.0	23.7	0.8	0.0	0.0	185.8	523.3
20-May	0.0	0.0	0.0	3.4	45.8	176.2	318.5	393.7	609.8	586.9	414.7	700.3	611.6	534.4	448.2	640.8	470.1	298.9	195.8	153.6	29.3	1.0	0.0	0.0	276.4	700.3
21-May	0.0	0.0	0.0	3.1	43.7	150.5	279.5	437.9	503.3	655.9	759.4	840.9	848.4	803.0	695.6	423.3	551.2	218.4	217.5	90.9	22.1	0.9	0.0	0.0	314.4	848.4
22-May	0.0	0.0	0.0	4.7	57.2	182.8	310.4	404.1	575.5	710.0	778.4	846.1	864.3	829.1	763.0	663.7	541.0	398.3	255.0	132.2	40.3	1.9	0.0	0.0	348.2	864.3
23-May	0.0	0.0	0.0	3.5	33.0	112.0	243.2	385.9	589.5	651.1	681.1	807.0	822.5	738.6	710.0	654.7	456.3	208.0	125.1	64.4	29.8	2.4	0.0	0.0	304.9	822.5
24-May	0.0	0.0	0.0	3.6	45.4	103.1	183.4	471.9	601.3	724.1	791.9	855.8	863.4	823.9	757.3	659.3	536.4	400.2	263.0	136.4	38.9	2.0	0.0	0.0	344.2	863.4
25-May	0.0	0.0	0.0	7.2	78.4	179.2	328.4	371.7	593.1	395.8	761.2	849.6	868.8	376.7	421.0	626.5	358.9	404.6	215.4	97.6	21.3	1.5	0.0	0.0	289.9	868.8
26-May	0.0	0.0	0.0	6.8	46.8	191.4	337.5	480.4	602.0	719.7	794.6	837.9	874.5	769.1	785.8	671.7	550.0	400.7	233.3	117.4	33.9	2.1	0.0	0.0	352.3	874.5
27-May	0.0	0.0	0.1	6.6	63.7	195.9	332.4	455.9	557.9	699.3	774.5	837.0	854.6	824.9	702.7	576.1	422.5	192.3	79.3	34.0	15.2	1.3	0.0	0.0	317.8	854.6
28-May	0.0	0.0	0.0	0.2	9.4	49.5	227.6	420.1	604.7	685.9	771.1	639.0	749.4	659.6	777.5	666.0	338.6	255.6	168.3	94.1	32.5	2.6	0.0	0.0	298.0	777.5
29-May	0.0	0.0	0.0	2.1	6.7	16.3	27.4	35.6	36.0	28.7	53.9	86.5	93.6	43.6	37.7	64.6	47.9	27.5	28.0	8.0	2.2	0.2	0.0	0.0	26.9	93.6
30-May	0.0	0.0	0.0	2.0	7.5	16.9	33.6	73.9	73.5	100.7	139.6	154.3	169.0	172.0	252.4	166.5	222.7	143.1	101.9	39.0	14.6	1.3	0.0	0.0	78.5	252.4
31-May	0.0	0.0	0.0	0.8	2.5	15.1	39.8	57.8	116.4	144.2	151.7	189.9	133.2	185.7	185.5	168.2	101.3	80.1	45.3	14.6	10.3	1.4	0.0	0.0	68.5	189.9
																							Diurnal Average			
																							Diurnal Maximum			





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

**Global Radiation (GR) - W/m<sup>2</sup>**  
**Fort Chipewyan - May 2024**

<b>Concentration Ranges (W/m<sup>2</sup>)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	270	36.29	36.29
21 - 100	107	14.38	50.67
101 - 300	133	17.88	68.55
301 - 600	126	16.94	85.48
601 - 900	108	14.52	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**  
**Fort Chipewyan - May 2024**

Maximum Speed: 40 km/h on May 17 12:00	Maximum Daily Speed Average: 30.4 km/h on May 16	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 14 09:00	Minimum Daily Speed Average: 1.3 km/h on May 14	Hours of Data: 744
Maximum Diurnal Speed Average: 15.6 km/h at hour 16	Minimum Diurnal Speed Average: 8.3 km/h at hour 2	Hours of Missing Data: 0
Monthly Average Velocity: 11.8 km/h 59.4 deg	Percentiles: $P_1 = 4$ $P_{10} = 9$ $Q_1 = 14$ Median = 19 $Q_3 = 24$ $P_{90} = 27$ $P_{99} = 35$	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-May	NE16	NE18	NE18	NE21	NE21	NE20	NE22	NE19	ENE18	E23	E28	E27	ENE24	E28	ENE23	NE22	NE25	ENE22	ENE20	NE15	NE15	NE18	NE16	ENE22	ENE20.1	E28
2-May	ENE24	ENE22	NE13	NE10	ENE10	NE11	NE12	E16	E22	E23	E26	E25	E27	E26	E27	ENE29	ENE29	ENE26	ENE22	ENE18	ENE18	NE19	NE19	ENE20	ENE20.0	ENE29
3-May	NE17	ENE17	NE12	NE11	NE11	NE12	ENE16	ENE18	ENE17	E21	E26	E26	E26	E27	E27	E26	E21	E18	ENE21	NE20	NE16	ENE16	ENE19	ENE15	ENE18.4	E27
4-May	ENE11	ENE14	NE11	NE11	NE9	NE4	ENE11	E18	E19	E19	E23	E26	E27	E23	E26	E26	E23	ENE24	ENE20	NE17	NE14	ENE19	ENE25	ENE23	ENE18.0	E27
5-May	ENE21	ENE18	ENE17	E19	E20	E22	E22	E23	E19	E20	E21	E21	E21	E27	ENE23	ENE23	ENE14	ENE12	S6	ENE4	ENE5	ENE9	E18	E21	E17.4	ENE27
6-May	E24	ENE20	E23	ENE21	ENE22	ENE26	ENE28	ENE27	ENE27	ENE24	ENE27	ENE29	ENE27	ENE24	ENE24	E25	ENE21	ENE21	ENE18	ENE16	ENE23	ENE25	ENE28	ENE27	ENE23.9	ENE29
7-May	ENE26	ENE22	ENE18	ENE17	ENE20	ENE21	ENE21	E22	E19	E19	E19	E21	E28	E32	ENE32	ENE36	E32	E24	E18	E13	ESE12	E14	E17	E14	E21.3	ENE36
8-May	ESE14	SE14	SE9	SSE7	SW7	NW8	NW5	W12	W13	WSW10	WSW13	SW18	SW20	WSW16	W16	WSW15	SW15	S21	S14	S8	SSW8	WSW10	SW11	W14	SW8.9	S21
9-May	WNW14	W14	W11	W9	W12	W14	W17	WNW20	W22	W24	W28	W31	W27	WNW20	WNW20	WNW20	NW18	NW17	NW13	NW7	WNW4	SW4	SW5	SSW4	W14.7	W31
10-May	SSW8	SW10	SW8	SSW9	SSW9	SSW8	SSW7	SSW9	SW11	WSW16	WSW19	WSW23	WSW26	WSW26	WSW25	WSW23	WSW22	WNW15	NW18	NNW23	NNW16	W11	WNW16	NW18	W12.2	WSW26
11-May	WNW15	W15	WNW18	WNW19	WNW28	NW31	NW33	NW32	NW28	NW27	NW25	NW26	NW23	NNW20	NNW18	NNW16	NNW16	N13	NNE12	NNE12	NNE10	NE10	ENE15	ENE18	NW16.1	NW33
12-May	E14	ESE5	E6	SE6	ENE6	ENE6	E12	E18	ENE20	ENE19	ENE20	ENE23	ENE23	ENE24	ENE24	ENE23	E22	E21	ENE19	NE14	NE16	ENE24	ENE27	ENE23	ENE16.9	ENE27
13-May	E20	E18	E18	ENE18	E19	E22	E23	E26	ENE26	E29	E28	E21	ESE16	SSE24	S25	SSE21	SSE15	S12	WNW11	NW12	W2	S4	SW11	WSW12	ESE11.2	E29
14-May	WSW9	SW7	WSW5	SW4	SW7	WSW7	SW7	SW6	WSW1	SSE2	E6	NNE9	N13	N12	ESE13	E16	NNW11	NNW9	WSW6	NW4	E3	SSW1	SW7	W9	WNW1.3	E16
15-May	WNW9	WNW11	NW11	NNW12	NNW11	NNW12	NNW13	NNW10	NNW9	NNW11	N12	NNE9	E26	E25	E25	E28	E25	E25	ENE24	ENE23	ENE18	E18	E20	ENE16	NE10.9	E28
16-May	NE19	NE20	ENE27	ENE26	ENE23	NE26	ENE29	NE27	NE25	NE31	NE31	NE36	NE34	NE34	NE35	NE33	NE34	NE31	NE34	NE37	NE33	NE34	ENE35	ENE36	NE30.4	NE37
17-May	ENE34	ENE34	NE32	NE33	NE33	ENE35	ENE36	NE34	NE30	NE29	NE35	NE40	NE31	NE31	NE29	NE26	NE24	NE23	NNE18	NNE15	NNE14	NNE14	NNE13	NNE17	NE26.9	NE40
18-May	NNE18	NE21	NE22	NE23	NE24	NE23	NE23	NE24	NE24	NE20	NE21	NE21	NE21	NE20	NE19	NNE19	NE21	NE21	NE24	NE26	ENE26	NE28	ENE29	NE26	NE22.4	ENE29
19-May	NE26	NE27	NE28	NE25	NE26	NE27	NE27	NE27	NE26	NE25	NE25	NE22	NE19	NE19	NE15	NNE12	E18	NE14	NE15	NNE13	NNE11	NE16	NE17	NE18	NE20.5	NE28
20-May	NE18	NE18	NE16	NE12	NE15	ENE17	ENE19	ENE19	E23	E25	E20	E23	ENE21	E21	E21	E20	E22	ENE18	NE17	NE13	E14	ENE7	ENE7	E13	ENE16.8	E25
21-May	ESE12	S15	S14	SE7	E9	ESE15	ESE17	E18	E21	ENE20	ENE27	ENE26	ENE28	ENE26	ENE27	NE29	NE32	NE26	NE23	NNE16	NE21	ENE22	ENE16	NE13	ENE16.9	NE32
22-May	ENE15	ESE23	ESE19	E19	E27	E24	ENE23	ENE22	ENE21	E21	E24	ENE27	ENE26	NE21	NE23	ENE26	NE24	NE22	NE23	NE20	NE18	NE17	ENE16	ESE13	ENE19.9	ENE27
23-May	S10	SSW4	ENE5	E6	E8	E8	E6	E7	E11	E12	E15	E18	E23	E22	E25	E24	ENE23	ENE21	NE20	NE19	NE16	ENE12	ENE10	E14	ENE13.0	E25
24-May	E16	ESE9	ESE8	SE4	SE5	ESE6	E5	E7	E12	E13	E16	E21	E24	E23	E25	E26	ENE25	ENE28	ENE27	ENE25	NE22	NE16	NE12	E15	ENE15.5	ENE28
25-May	E19	E21	E17	E14	E17	ENE18	ENE20	ENE18	E19	ENE20	E19	E23	E24	ENE26	ENE26	ENE26	ENE23	ENE25	ENE24	ENE18	E14	ESE17	SE18	SE17	E19.1	ENE26
26-May	SSE18	SSE19	SSE19	SSE12	ESE6	E9	E12	E19	E22	E24	E25	ENE29	ENE33	ENE34	ENE34	ENE34	ENE33	ENE29	NE24	NE23	NE22	ENE21	ENE25	ENE24	ENE19.8	ENE34
27-May	ENE20	ENE21	ENE21	ENE22	ENE24	ENE26	ENE26	ENE28	ENE26	ENE25	ENE25	ENE27	ENE28	ENE27	ENE29	NE29	NE28	ENE21	E10	WNW17	NNW11	ENE10	E19	E15	ENE20.6	NE29
28-May	S5	WSW11	W7	ESE9	E17	SE11	S16	S16	SSW17	SSW15	SSW14	SW15	SSW12	SSW12	SSE15	SSE15	SSE16	S16	SSE10	ESE3	ENE7	ENE6	ENE5	ENE6	S8.0	E17
29-May	ENE8	E15	ENE13	ENE12	ENE12	ENE16	ENE20	ENE20	NE18	N9	N13	N16	N15	NNE23	NNE23	NNE21	NNE16	NNE15	N10	N5	NNW4	NNW6	NNW9	NNW9	NNE11.8	NNE23
30-May	NW8	WNW7	WNW10	WNW12	NW11	WNW12	NW15	NW19	NW18	NW19	NW20	NW16	NW19	NW18	NW18	NW17	NW21	NNW17	NW23	NW20	NW19	NW20	NW18	NW17	NW16.2	NW23
31-May	NW20	NW22	NW21	NW21	NW21	NW24	NW25	NW23	NW27	NW24	NW26	NW24	NW26	NW25	NW25	NW23	NW23	NW24	NW20	NW20	NW18	NW18	NW16	NW17	NW22.3	NW27

ENE10.0	ENE8.3	ENE8.4	ENE8.7	ENE9.6	ENE10.3	ENE11.4	ENE11.8	ENE11.7	ENE11.6	ENE12.9	ENE13.8	ENE14.4	ENE14.9	ENE15.2	ENE15.6	ENE14.7	NE13.8	NE12.5	NE11.6	NE11.1	NE11.1	ENE11.1	ENE10.9	Diurnal Average
ENE34	ENE34	NE32	NE33	ENE33	ENE35	ENE36	NE34	NE30	NE31	NE35	NE40	NE34	NE34	NE35	ENE36	NE34	NE31	NE34	NE37	NE33	NE34	ENE35	ENE36	Diurnal Maximum

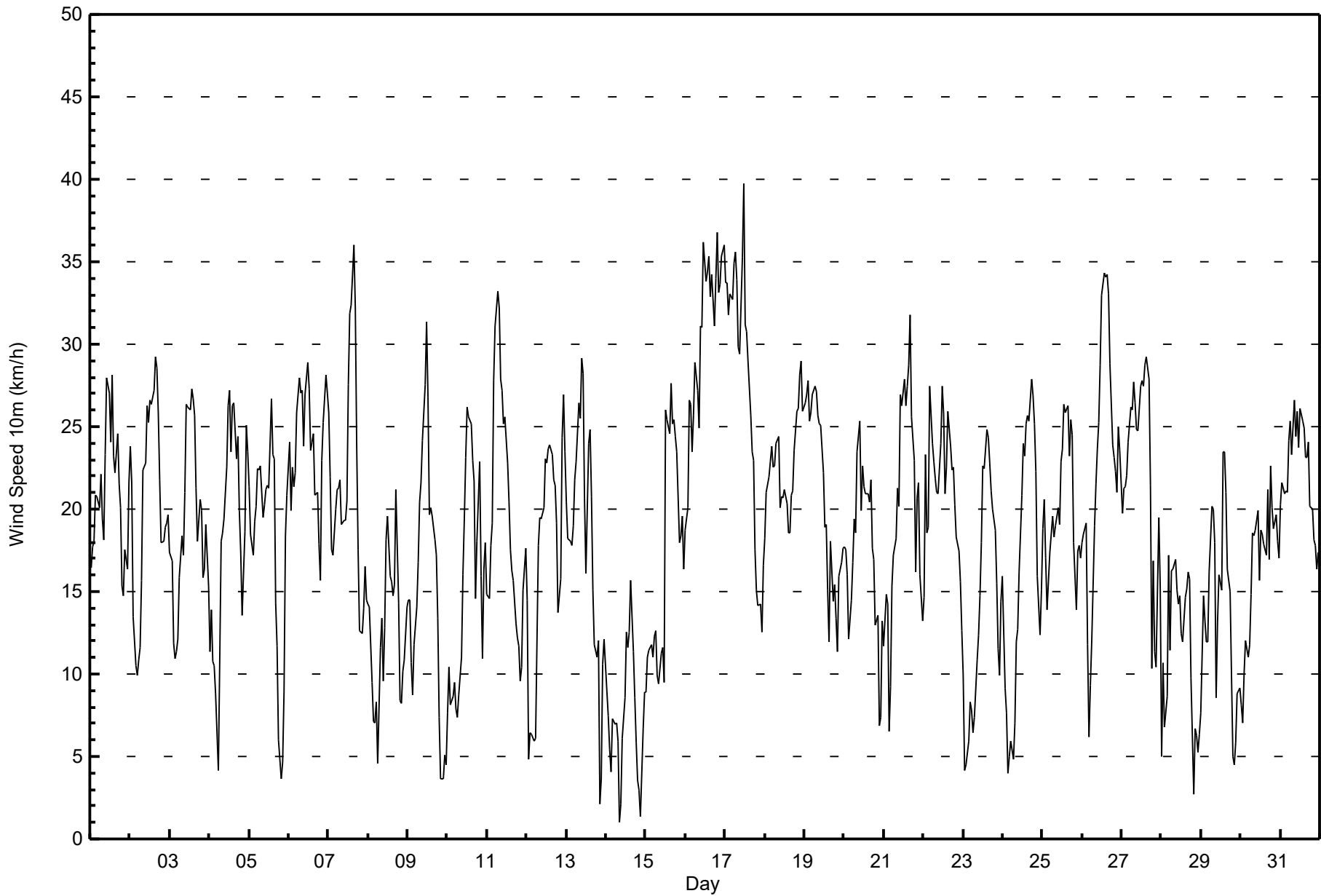
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Speed 10m (WS10) - km/h**  
**Fort Chipewyan - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on May 11 08:00 Minimum Value: 1 km/h on May 24 07:00 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> = 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 Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	3	3	4	4	3	3	4	4	4	5	2	2	4	5	4	4	5	5	4	3	2	3	3	3	5
2-May	3	3	3	2	2	2	2	4	2	2	2	2	3	2	3	3	3	3	3	2	2	2	3	3	4
3-May	2	2	2	2	2	2	3	3	3	2	2	2	3	2	3	3	3	2	3	3	3	2	3	3	3
4-May	2	2	1	2	2	2	2	3	1	1	2	2	2	3	2	2	2	3	3	3	3	3	3	3	3
5-May	2	3	2	2	2	2	2	2	2	2	2	2	2	3	2	3	5	4	6	2	2	8	5	6	8
6-May	3	4	3	2	3	3	3	3	3	5	3	3	3	4	3	3	3	2	3	2	4	3	3	3	5
7-May	3	2	2	2	2	3	2	2	3	3	2	2	3	3	3	4	4	3	3	3	2	1	1	2	4
8-May	2	2	2	2	1	3	3	3	3	2	3	4	4	5	5	5	4	4	3	2	2	3	1	3	5
9-May	3	2	3	1	3	3	4	6	6	6	7	8	8	7	7	7	6	6	5	2	1	3	2	2	8
10-May	3	1	2	1	1	1	2	2	4	4	5	6	7	7	6	6	6	6	8	8	8	2	5	8	8
11-May	4	3	5	5	7	10	10	11	10	9	9	10	9	7	7	6	5	4	4	3	2	1	2	3	11
12-May	4	2	1	3	1	2	3	2	2	2	2	2	2	2	3	2	2	2	3	3	3	5	3	3	5
13-May	2	2	2	2	2	2	3	3	3	3	3	4	3	3	5	4	3	3	5	3	3	1	3	2	5
14-May	2	1	2	2	1	2	1	1	2	2	4	4	4	5	8	2	6	3	3	2	2	1	2	2	8
15-May	3	2	3	3	2	3	4	3	4	4	4	6	3	3	3	3	3	2	3	3	2	4	4	3	6
16-May	3	3	4	4	4	4	5	5	4	5	6	6	7	7	7	7	7	6	6	7	6	6	6	6	7
17-May	5	6	5	6	6	6	6	6	6	6	7	9	7	6	6	5	5	5	5	3	3	3	3	3	9
18-May	3	4	4	4	4	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	5	4	4	5
19-May	5	4	4	4	4	5	4	4	5	5	5	4	4	4	3	3	4	4	3	3	3	3	3	2	5
20-May	2	3	2	2	2	3	3	3	2	2	3	4	4	3	3	2	2	3	4	3	6	1	2	4	6
21-May	2	2	5	2	2	2	1	1	2	2	4	3	4	4	5	5	5	5	5	4	5	4	3	2	5
22-May	2	5	2	3	3	3	3	2	2	2	3	4	5	5	5	5	5	5	5	4	3	2	2	3	5
23-May	4	2	2	1	2	2	1	1	3	2	4	2	2	2	2	2	2	3	3	3	2	2	3	1	4
24-May	3	2	3	1	1	2	1	3	1	1	1	2	2	2	2	2	3	4	4	4	3	3	2	4	4
25-May	2	2	2	2	2	2	2	3	2	3	2	2	3	3	3	2	4	2	3	3	2	3	2	2	4
26-May	2	3	3	4	2	2	2	3	2	2	3	3	5	6	5	6	5	5	4	3	3	3	3	2	6
27-May	2	3	3	2	3	4	3	3	3	2	2	3	3	4	4	5	5	3	6	6	3	3	4	2	6
28-May	4	5	5	5	2	3	3	3	3	3	3	3	3	4	4	5	4	4	4	2	1	1	1	1	5
29-May	1	4	2	2	2	7	3	3	6	2	4	4	4	6	6	5	4	4	3	2	2	2	3	3	7
30-May	2	2	3	3	3	3	5	5	5	6	6	6	6	6	6	5	7	6	7	7	6	6	5	5	7
31-May	6	6	6	6	6	7	7	7	8	7	8	7	8	8	8	7	8	8	7	6	6	6	5	5	8
Diurnal Maximum																									





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

**Wind Speed 10m (WS10) - km/h**  
**Fort Chipewyan - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	28	3.76	3.76
6 - 11	103	13.84	17.61
12 - 19	250	33.60	51.21
20 - 28	308	41.40	92.61
29 - 38	54	7.26	99.87
> 38	1	0.13	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  
Fort Chipewyan - May 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	1	4	2	2	2	1	2	3	3	2	1	1	2	1	28
6 - 11	2	4	8	14	12	5	4	2	3	7	11	6	5	5	5	10	103
12 - 19	6	15	43	46	49	10	3	8	7	5	3	6	9	9	22	9	250
20 - 28	0	3	58	111	83	1	0	2	2	0	1	6	4	5	30	2	308
29 - 38	0	0	25	23	2	0	0	0	0	0	0	0	1	0	3	0	54
> 38	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	9	22	136	198	148	18	9	13	14	15	18	20	20	20	62	22	744

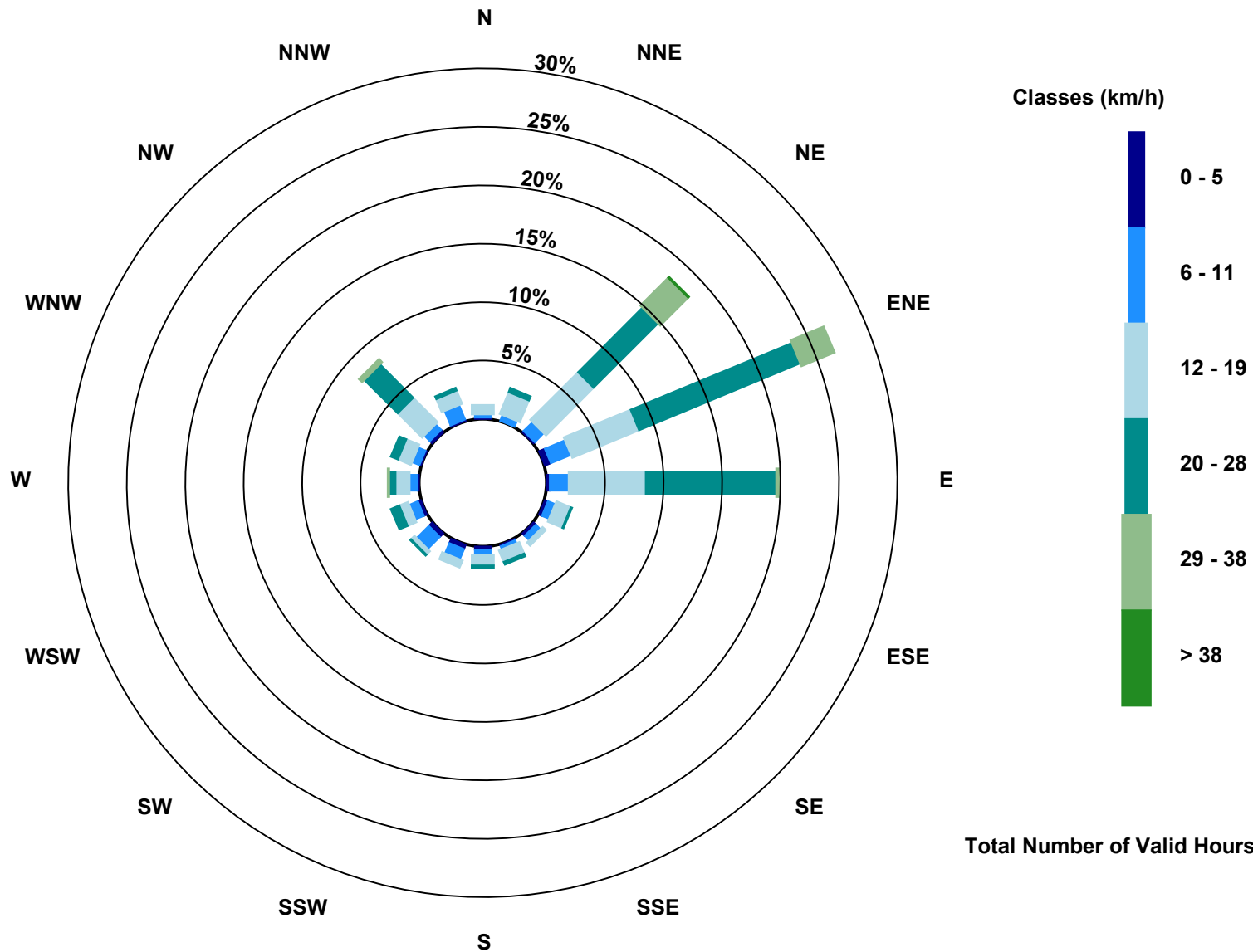
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 10m (WS10) - km/h  
Fort Chipewyan



Total Number of Valid Hours: 744



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

**Wind Direction 10m (WD10) - deg**  
**Fort Chipewyan - May 2024**

Direction of Maximum Speed: 56 deg on May 17 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 53.3 deg on May 16	Hours of Data: 744
Direction of Minimum Speed: 256 deg on May 14 09:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.3 deg on May 14	Percent Operational Time: 100.0
Monthly Average Direction: 59.4 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-May	36	38	41	49	52	52	56	53	59	86	89	88	75	84	65	48	47	65	64	44	43	51	51	58	60.2
2-May	57	60	54	49	58	54	56	79	87	91	87	91	90	88	81	77	77	70	68	60	58	54	56	57	71.9
3-May	56	60	55	42	53	50	58	66	71	93	86	88	89	89	88	87	88	84	69	55	53	57	69	67	73.3
4-May	58	65	55	52	49	49	66	86	91	91	90	88	85	89	88	86	87	73	61	52	55	62	68	71	75.7
5-May	73	77	73	81	86	82	85	84	79	81	81	81	79	79	75	78	63	57	187	68	70	69	89	82	79.3
6-May	85	70	79	74	73	75	75	77	73	66	76	75	73	65	76	82	78	73	78	59	69	67	67	74	73.4
7-May	77	76	76	71	77	78	77	79	82	80	83	80	79	76	74	79	83	89	100	106	93	87	96	80.7	
8-May	122	130	142	159	226	305	314	262	265	248	241	233	230	248	259	253	217	190	172	185	212	238	235	261	224.5
9-May	282	278	270	270	270	279	269	282	273	263	267	264	275	301	300	293	309	307	318	315	289	235	217	195	280.2
10-May	213	225	216	211	207	204	192	204	221	237	240	245	251	258	251	255	258	292	326	334	332	280	297	315	260.0
11-May	301	281	288	286	292	304	315	310	316	319	325	321	324	330	328	335	342	1	17	33	28	46	67	74	325.1
12-May	88	113	96	144	64	60	82	82	78	73	70	77	75	75	74	77	80	82	63	54	51	61	68	74	74.3
13-May	79	82	79	78	79	79	82	81	78	82	81	87	109	164	178	155	162	190	289	320	280	180	215	237	102.8
14-May	252	230	238	221	222	240	228	223	256	151	98	27	2	1	103	89	347	332	245	319	81	196	232	271	287.5
15-May	282	292	324	334	332	335	335	333	330	341	349	21	82	84	82	80	82	80	76	71	64	80	92	62	52.5
16-May	54	52	58	60	58	56	57	54	50	55	54	55	46	47	49	50	52	47	52	56	53	54	58	58	53.3
17-May	58	59	55	55	56	57	57	56	50	46	49	56	52	44	42	40	35	35	30	26	24	28	28	33	48.1
18-May	33	40	47	49	51	47	47	46	45	42	39	39	39	37	38	33	34	39	48	54	58	56	58	56	45.8
19-May	51	44	47	50	51	49	53	51	49	49	48	52	38	43	35	21	80	41	43	32	21	35	40	47	46.3
20-May	52	54	55	49	51	57	61	73	88	88	82	88	71	86	86	91	85	77	50	46	91	73	73	90	73.2
21-May	103	180	178	145	86	119	118	99	81	78	75	72	60	62	61	49	46	48	43	30	44	60	73	56	70.7
22-May	68	116	105	84	87	90	76	74	73	88	82	71	63	47	48	60	50	41	46	39	41	56	73	117	69.8
23-May	187	192	78	85	92	86	80	87	93	90	88	85	81	84	82	83	77	63	56	49	54	57	74	81	78.6
24-May	90	110	108	130	145	113	87	87	92	91	86	85	86	85	83	80	71	64	62	57	56	54	49	81	77.8
25-May	91	97	100	80	98	71	78	74	81	76	81	83	85	74	73	76	71	76	78	74	84	120	143	143	85.7
26-May	153	163	159	159	104	98	97	87	85	82	79	76	65	58	63	61	59	58	54	53	53	59	67	73	75.8
27-May	70	73	74	76	74	76	75	75	72	75	76	77	75	70	62	56	55	65	81	288	348	58	85	81	69.1
28-May	177	252	269	111	100	130	172	177	203	210	213	219	196	201	153	155	150	176	156	122	64	76	74	70	170.1
29-May	78	79	64	64	59	74	61	61	48	4	359	10	6	24	26	25	20	19	5	353	329	332	335	328	31.9
30-May	320	299	298	298	306	303	313	313	311	316	315	317	316	317	321	312	321	335	309	308	306	314	310	306	312.7
31-May	309	308	307	310	309	306	310	309	310	309	310	307	311	312	312	312	309	316	317	318	320	318	311	308	311.0

65.7	69.9	64.8	61.1	61.0	57.7	59.2	61.4	60.9	64.8	64.0	65.5	61.6	61.0	62.8	62.2	58.2	55.4	49.7	37.9	44.6	53.7	62.7	62.5
Diurnal Average																							

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



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

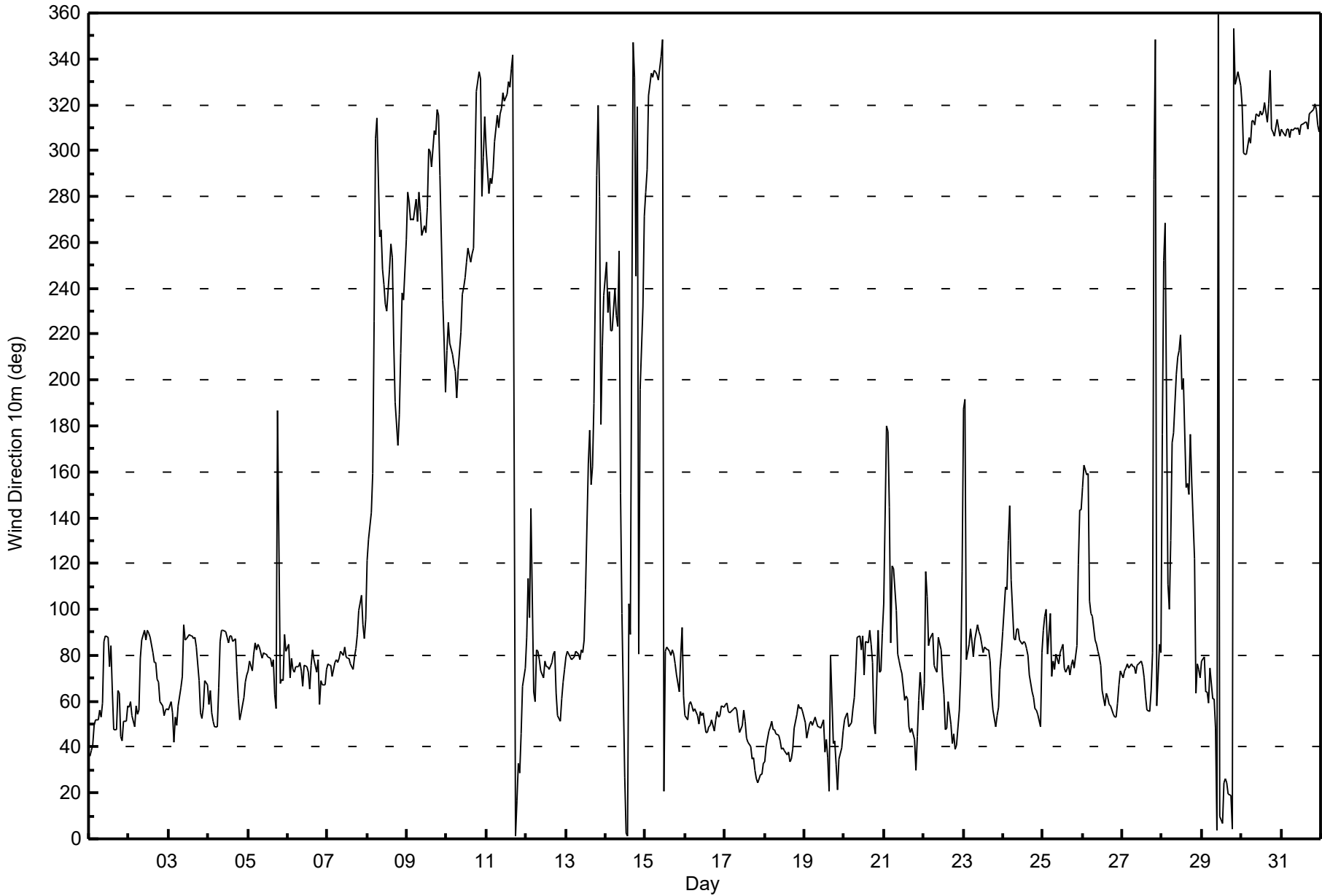
**Wind Direction 10m (WD10) - deg**  
**Fort Chipewyan - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on May 14 09:00 Minimum Value: 4 deg on May 24 11:00 Percentiles: P <sub>1</sub> = 4 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 10 Q <sub>3</sub> = 17 P <sub>90</sub> = 24 P <sub>99</sub> = 66																	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-May	12	12	12	10	9	9	9	10	13	11	4	4	15	8	15	13	12	15	10	10	10	8	10	8	15
2-May	8	8	11	11	11	9	9	17	4	4	5	5	4	5	9	7	7	8	8	8	7	7	7	7	17
3-May	8	8	9	10	8	9	9	9	11	5	5	5	5	6	6	7	6	7	11	9	9	9	7	9	11
4-May	9	8	8	9	10	35	10	7	4	4	4	5	6	6	4	5	5	9	9	9	8	7	7	7	35
5-May	6	7	7	5	5	5	5	5	6	7	5	6	6	6	7	7	40	27	78	84	56	39	11	12	84
6-May	6	9	6	6	5	7	7	6	7	10	7	6	7	10	12	7	7	6	16	9	10	7	8	6	16
7-May	5	5	7	6	5	6	6	6	7	6	5	6	6	5	6	6	5	6	5	15	17	9	4	4	17
8-May	15	5	12	21	24	28	51	15	15	20	26	17	16	23	22	25	25	11	7	25	15	21	10	15	51
9-May	11	14	12	11	16	16	15	16	18	16	17	16	20	24	20	22	21	23	23	20	35	41	10	45	45
10-May	27	11	16	8	8	8	13	10	16	15	15	17	19	18	17	18	18	42	25	26	23	14	18	22	42
11-May	17	14	16	14	16	18	18	19	22	22	25	23	26	26	28	28	26	26	22	17	12	9	9	8	28
12-May	23	39	17	59	15	11	11	7	7	8	8	8	9	8	7	8	7	5	11	10	10	8	7	6	59
13-May	6	5	7	6	6	5	5	6	7	5	6	8	22	14	10	13	15	11	46	21	80	33	15	11	80
14-May	15	16	15	24	11	16	7	12	94	60	58	48	25	29	38	8	56	28	45	21	22	70	14	17	94
15-May	18	16	15	15	14	14	18	24	30	31	34	51	7	6	7	6	6	6	6	6	8	15	12	10	51
16-May	8	8	8	8	9	9	9	10	11	11	12	11	12	11	10	11	10	10	9	9	10	10	9	9	12
17-May	9	9	9	9	9	9	9	10	11	11	12	11	12	11	11	12	13	12	14	15	15	14	15	12	15
18-May	12	10	9	9	9	9	9	10	10	11	12	14	11	12	13	13	12	11	10	9	9	9	9	9	14
19-May	10	9	9	9	9	8	9	9	10	10	11	13	17	15	17	20	17	17	11	13	14	11	10	8	20
20-May	8	9	8	12	10	9	9	12	4	4	11	5	12	9	5	4	5	11	10	11	23	14	7	8	23
21-May	25	11	12	48	17	9	6	9	5	8	8	10	10	10	12	11	11	11	10	14	14	9	10	8	48
22-May	8	19	6	10	7	9	9	7	9	8	11	15	13	16	14	13	15	14	12	12	10	8	12	30	30
23-May	23	45	42	13	11	13	17	13	9	7	7	8	6	5	4	6	8	8	9	8	8	12	11	5	45
24-May	13	18	13	28	24	13	16	10	6	4	4	5	5	5	5	9	8	9	9	8	7	7	22	28	28
25-May	8	5	6	10	11	7	9	8	8	7	6	5	6	8	7	7	8	6	5	6	12	8	7	6	12
26-May	8	10	9	15	36	11	10	6	5	5	5	7	10	10	10	10	9	9	8	8	8	7	8	5	36
27-May	7	7	7	6	7	6	6	6	7	7	7	7	8	9	10	9	9	9	80	24	22	39	7	5	80
28-May	75	20	70	31	11	25	9	14	12	15	20	20	16	23	26	25	23	23	14	54	9	13	14	14	75
29-May	10	11	10	8	8	13	8	11	16	26	22	21	21	15	15	15	17	18	22	34	24	20	21	23	34
30-May	24	19	18	17	19	18	20	19	19	21	22	24	23	23	23	21	24	27	19	18	19	21	18	19	27
31-May	18	17	18	19	18	17	18	19	18	19	19	19	20	20	19	19	19	22	21	24	23	22	21	18	24
Diurnal Maximum																									



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

**Wind Direction 10m (WD10) - deg**  
**Fort Chipewyan - May 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS09 BARGE LANDING MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
MAY 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	25.9	0	2.2	0
TRS(ppb) Average	707	37	37	100	2.9	0	0.8	0
THC(ppm) Average	630	31	114	88.84	3.4	-	2.1	-
NMHC(ppm) Average	630	31	114	88.84	1.167	-	0.053	-
CH4(ppm) Average	630	31	114	88.84	2.6	-	2.1	-
NO2 (ppb) Average	708	36	36	100	40.8	0	15.7	-
NO (ppb) Average	708	36	36	100	55.6	-	7.2	-
NOX (ppb) Average	708	36	36	100	81.4	-	21.3	-
PM2.5(ug/m3) Average	743	1	1	100	153.4	0	62.3	3
Temperature (C) Average	744	0	0	100	27.9	-	17.6	-
Relative Humidity (%) Average	744	0	0	100	98.7	-	97.1	-
Barometric Pressure (inHg) Average	744	0	0	100	29.2	-	29.1	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	19	-	11	-
Wind Direction 10 m (deg) Average	743	0	1	99.87	-	-	-	-
Wind Speed 20 m (km/h) Average	744	0	0	100	32	-	22	-
Wind Direction 20 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
MAY 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	0.32	1.5	-	0	0	0	0	0	0.1	0.5	25.9
TRS(ppb) Average	707	0.37	0.3	-	0.2	0.2	0.2	0.2	0.3	0.4	0.5	2.9
THC(ppm) Average	630	2.02	0.1	-	1.9	1.9	1.9	1.9	2	2.1	2.2	3.4
NMHC(ppm) Average	630	0.012	0.06	-	0	0	0	0	0	0	0	1.167
CH4(ppm) Average	630	2.01	0.1	-	1.9	1.9	1.9	1.9	2	2	2.1	2.6
NO2 (ppb) Average	708	6.75	7.1	-	0.2	0.8	1.9	1.9	4	8.9	16.7	40.8
NO (ppb) Average	708	2.29	6	-	0	0	0.1	0.1	0.3	1.5	5.2	55.6
NOX (ppb) Average	708	9.04	11.7	-	0.2	0.9	2.1	2.1	4.6	11	22.3	81.4
PM2.5(ug/m3) Average	743	11.74	22	-	0.6	2.5	3.7	3.7	5.3	9.9	22.9	153.4
Temperature (C) Average	744	10.96	5.6	-	-2	4.5	6.5	6.5	10.6	14.8	18.6	27.9
Relative Humidity (%) Average	744	63.19	24	-	16.2	29.7	41.7	41.7	63.2	85.8	96.3	98.7
Barometric Pressure (inHg) Average	744	28.81	0.2	-	28.5	28.6	28.7	28.7	28.8	29	29	29.2
Wind Speed 10 m (km/h) Average	743	6.7	3	-	0	3	4	4	6	9	11	19
Wind Direction 10 m (deg) Average	743	61	-	-	-	-	-	-	-	-	-	-
Wind Speed 20 m (km/h) Average	744	12.2	6	-	1	5	8	8	11	16	20	32
Wind Direction 20 m (deg) Average	744	64.3	-	-	-	-	-	-	-	-	-	-

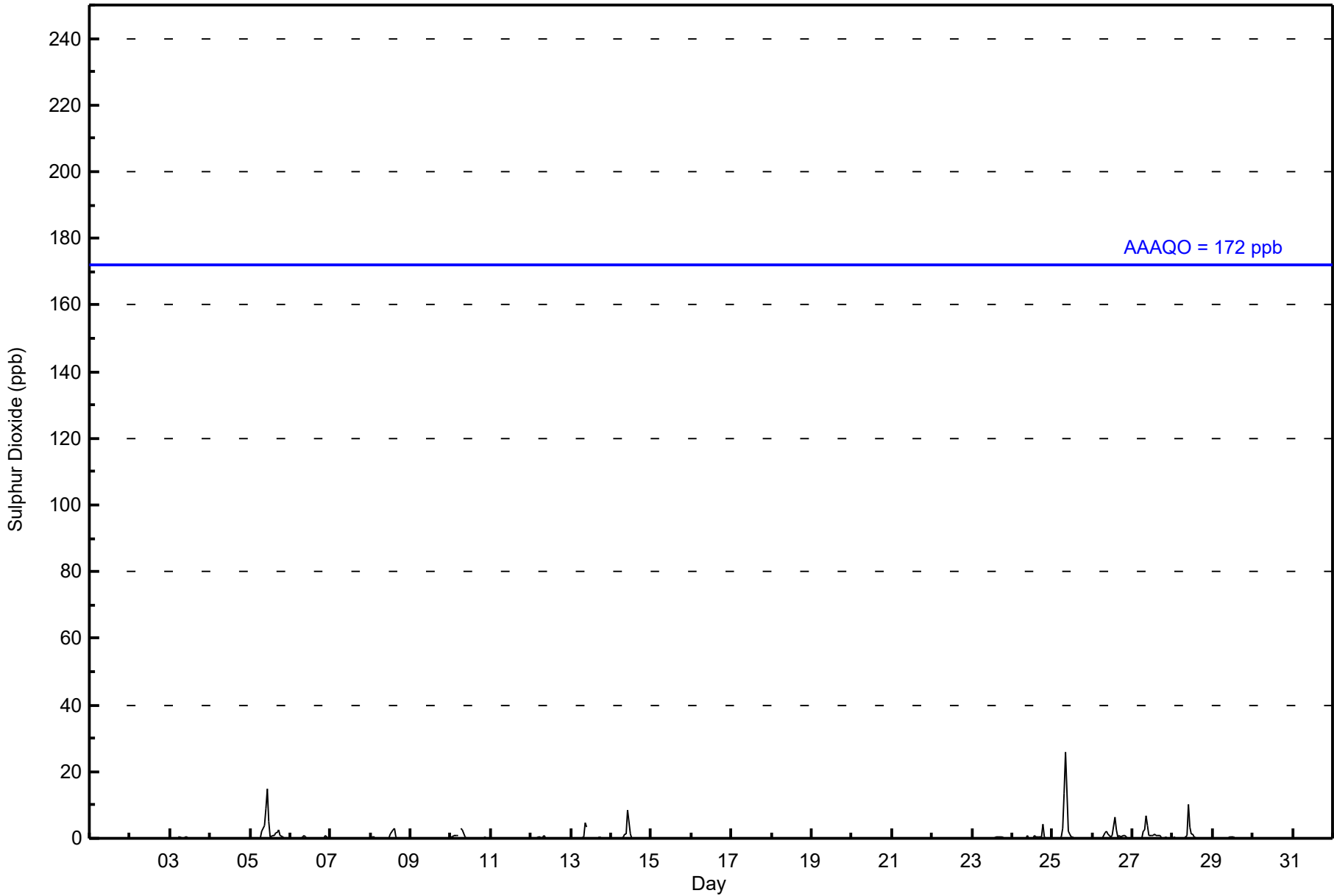


WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/ NMHC/ CH4	07 May 2024 04:00	08 May 2024 09:00	30	Unstable Operation - flatline in analyzer output signal
THC/ NMHC/ CH4	08 May 2024 10:00	08 May 2024 13:00	4	Maintenance - analyzer recalibrated
THC/ NMHC/ CH4	08 May 2024 14:00	09 May 2024 10:00	21	Unstable Operation - excessive baseline drift
THC/ NMHC/ CH4	09 May 2024 11:00	09 May 2024 13:00	3	Maintenance - analyzer recalibrated
THC/ NMHC/ CH4	09 May 2024 14:00	10 May 2024 10:00	21	Unstable Operation - excessive baseline drift
THC/ NMHC/ CH4	31 May 2024 09:00	31 May 2024 12:00	4	Maintenance - calibration gas cylinder replaced
Wind Speed, Wind Direction 10m	04 May 2024 06:00	04 May 2024 06:00	1	Flat line in sensor output signal







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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Barge Landing - May 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  
Barge Landing - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	64	102	60	36	31	49	53	54	40	21	34	22	13	41	41	45	706
11 - 20	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	64	102	60	36	31	49	53	55	41	21	35	22	13	41	41	45	709

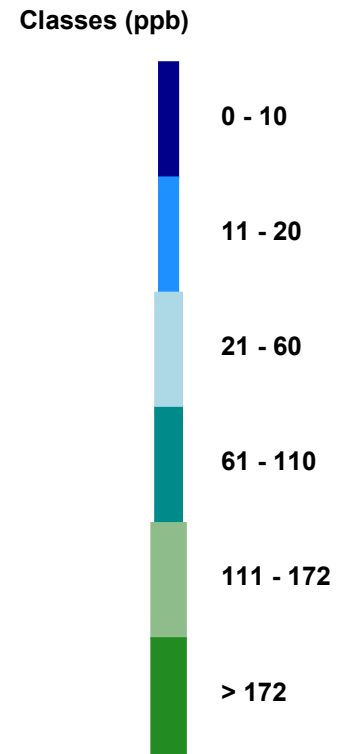
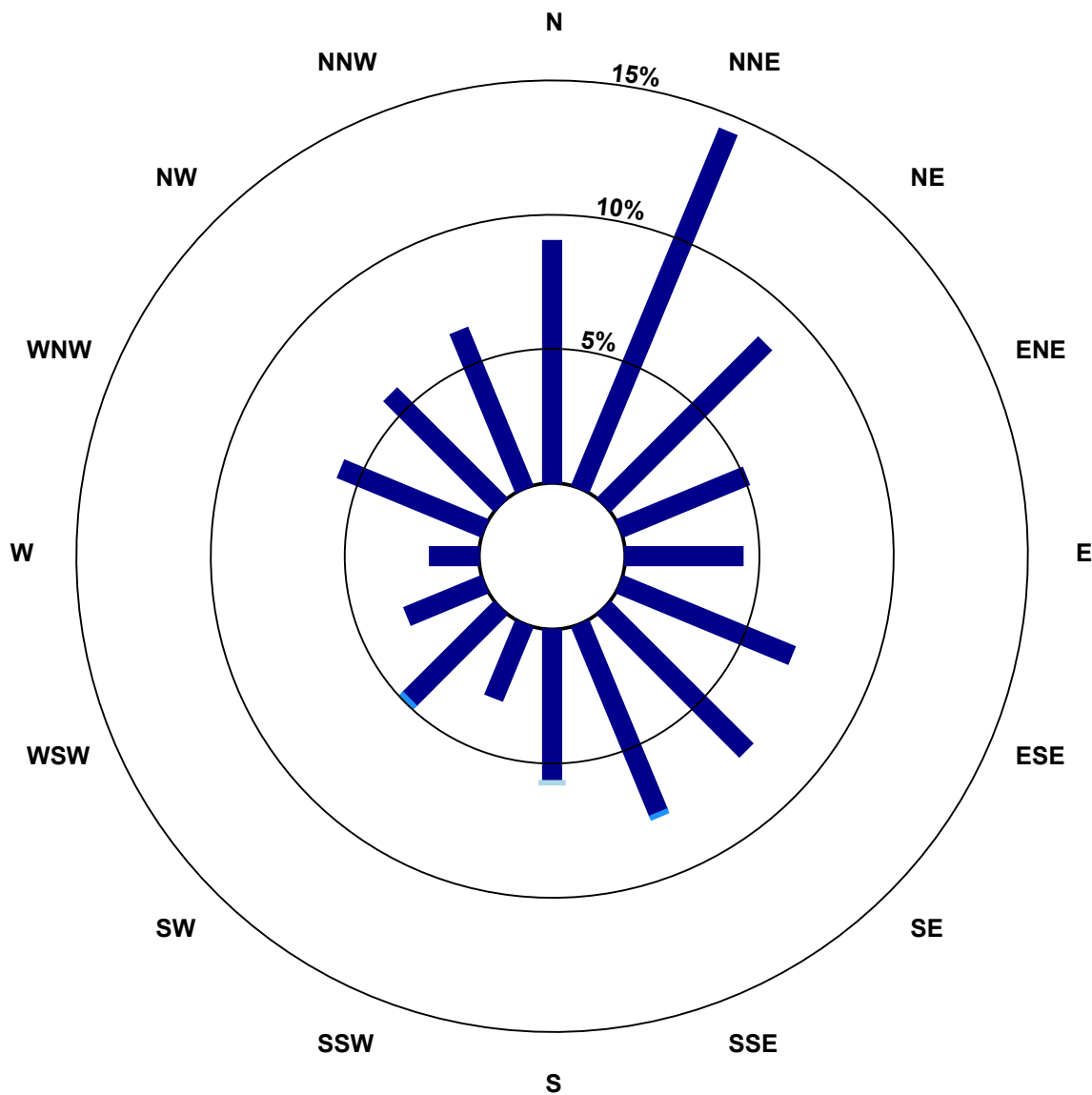
Total Number of Valid Hours: 709

Total Number of Hours: 744

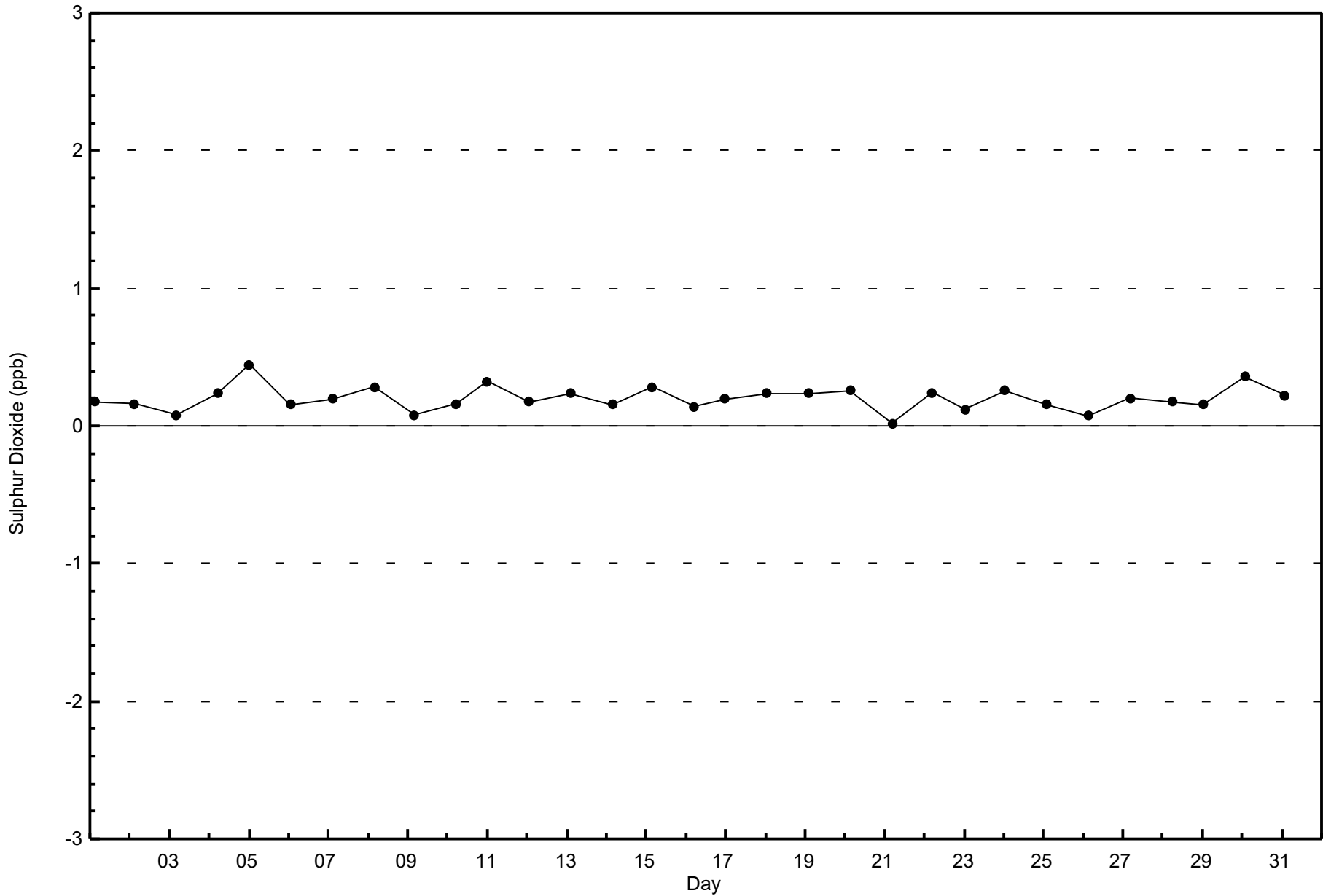


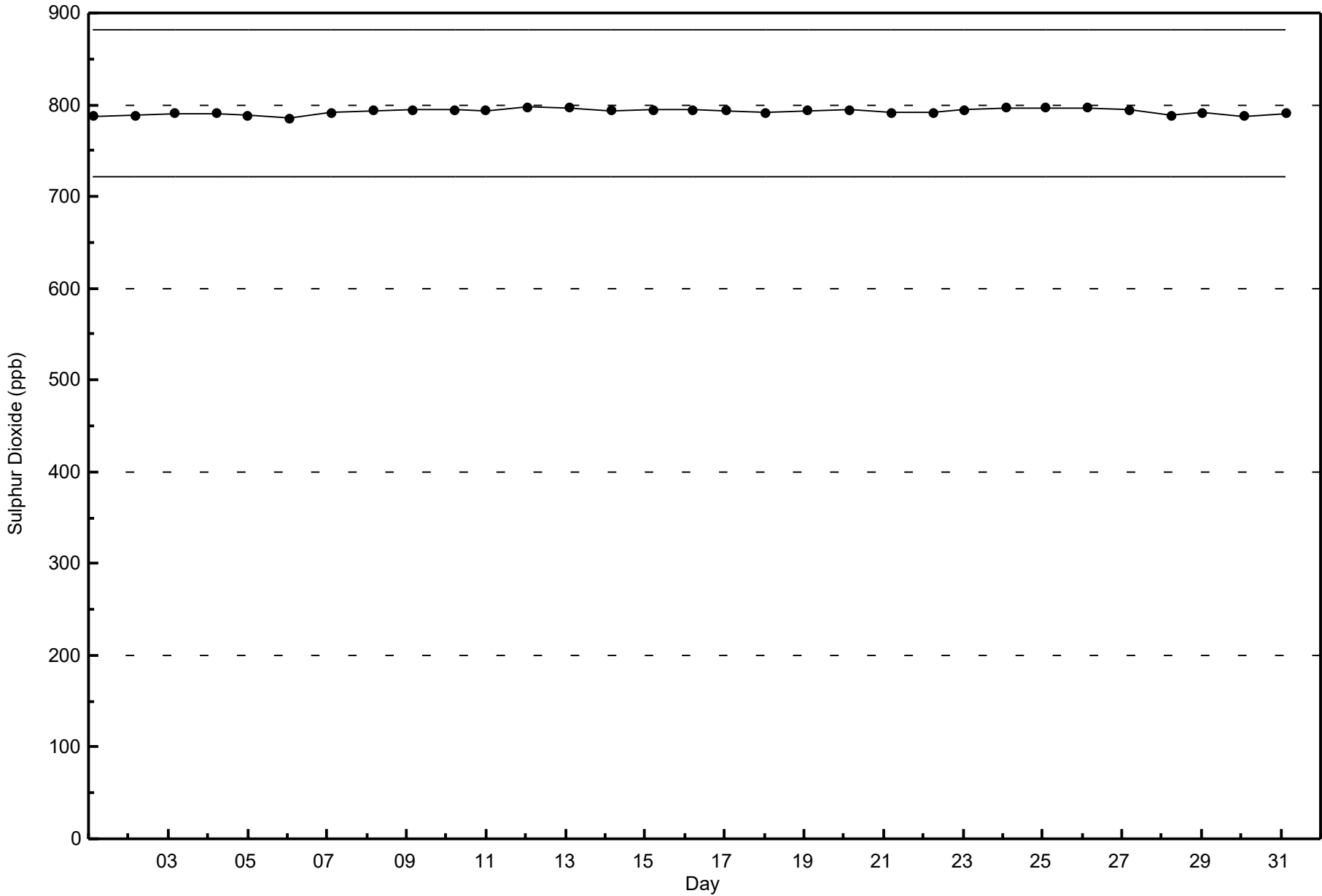
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



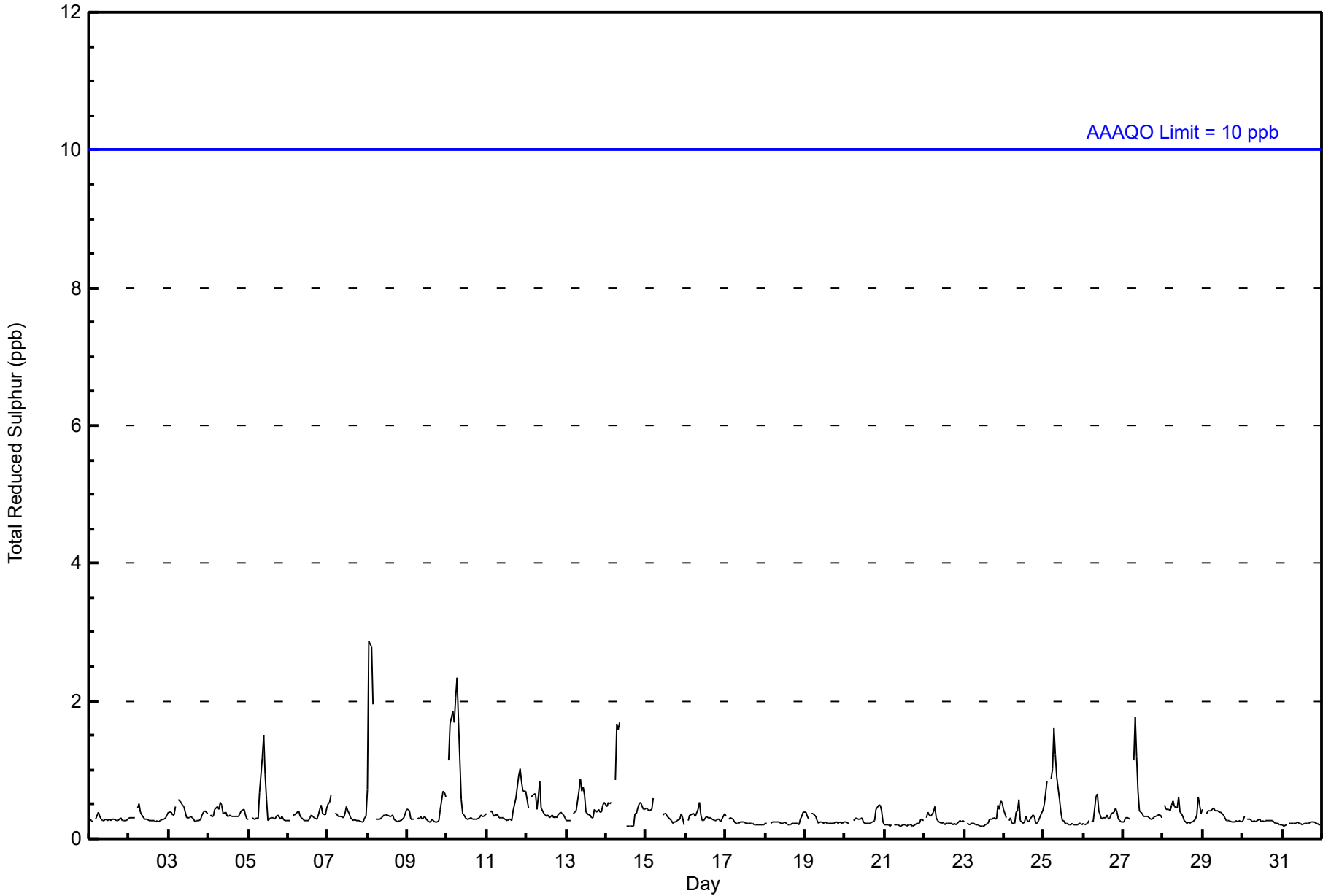
Total Number of Valid Hours: 709













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

**Total Reduced Sulphur (TRS) - ppb**  
**Barge Landing - May 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**

**Total Reduced Sulphur (TRS) - ppb  
Barge Landing - May 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	64	101	58	35	32	50	52	59	40	21	32	22	13	40	40	46	705
3 - 4	0	0	0	0	0	0	0	2	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>	64	101	58	35	32	50	52	61	40	21	32	22	13	40	40	46	707

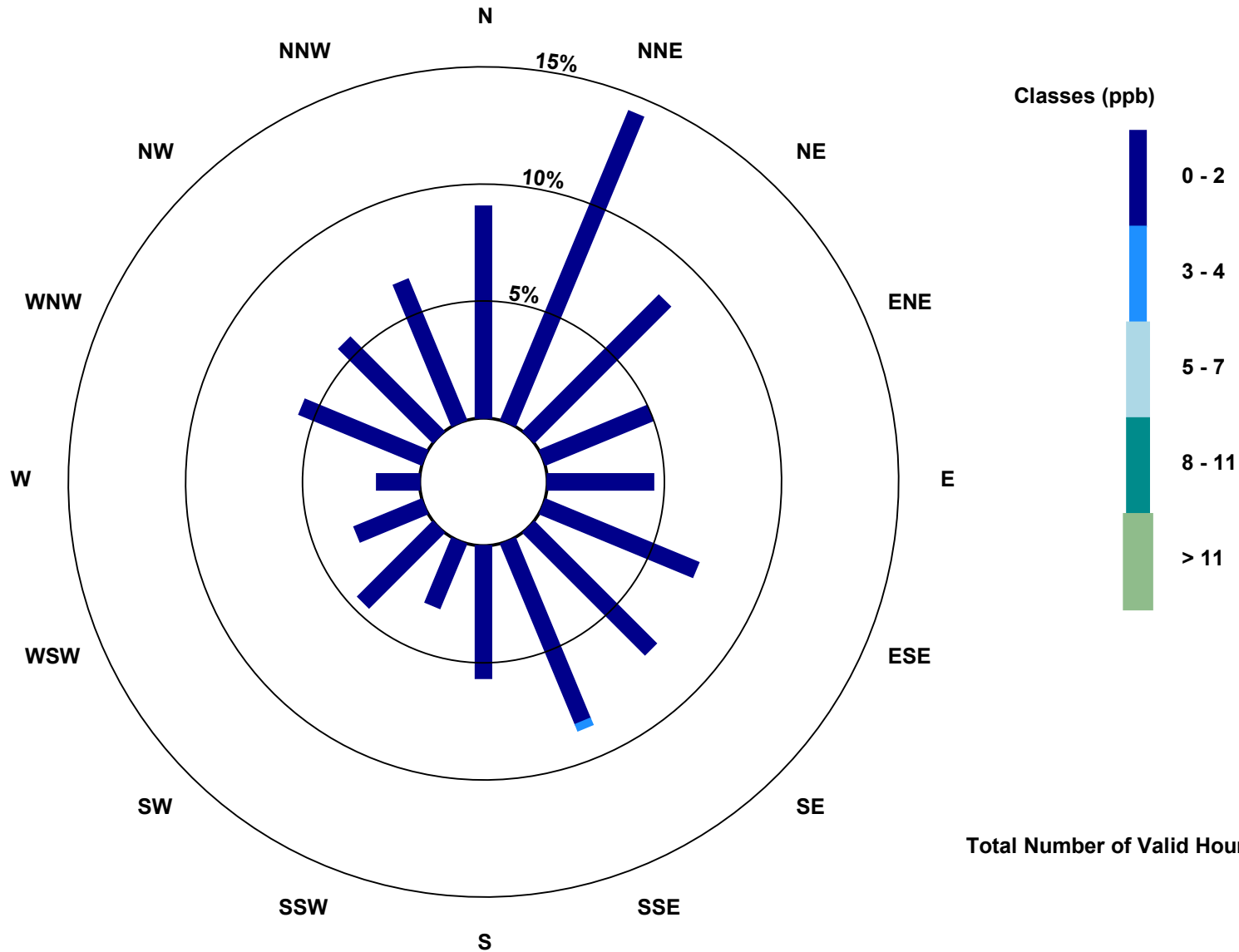
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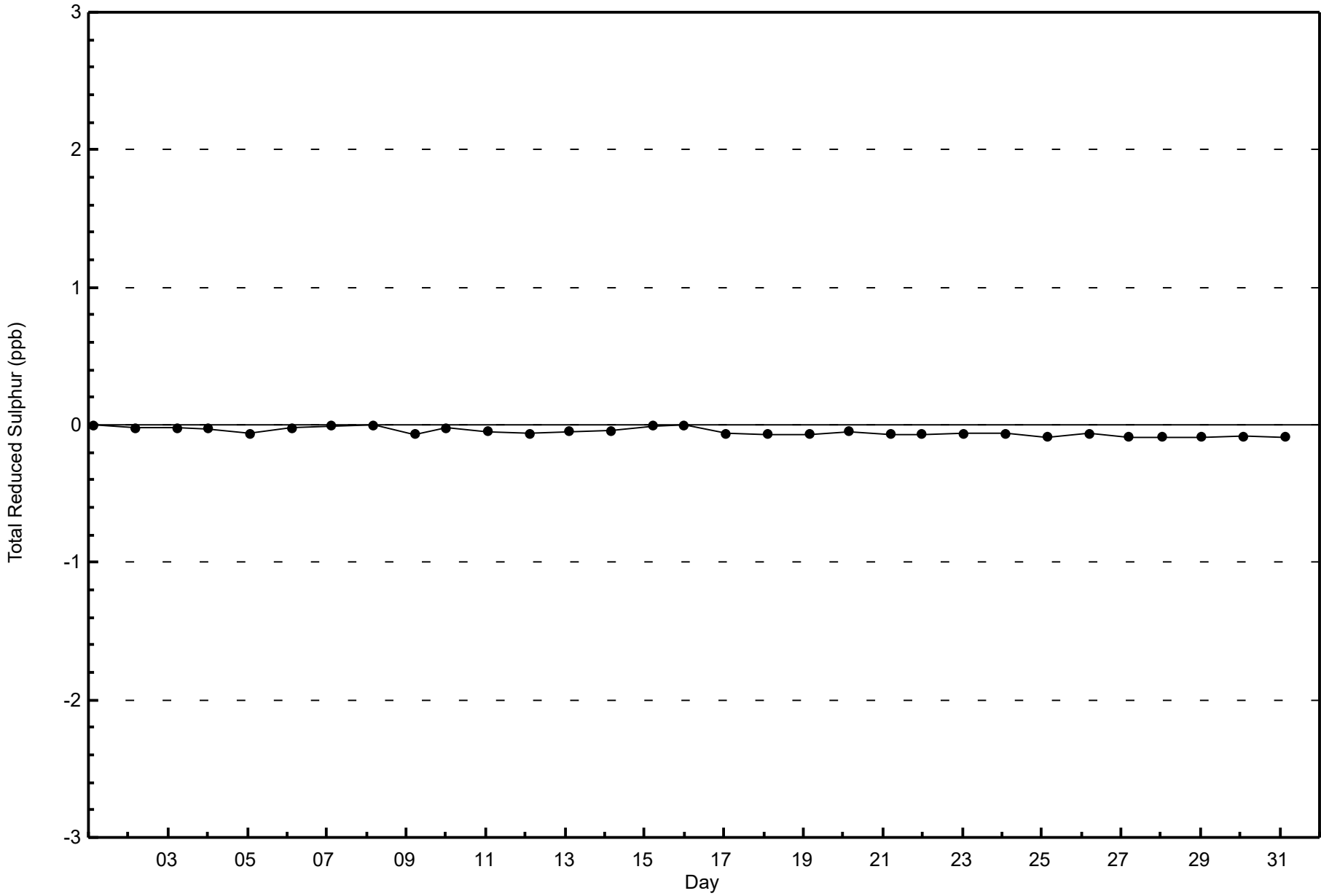
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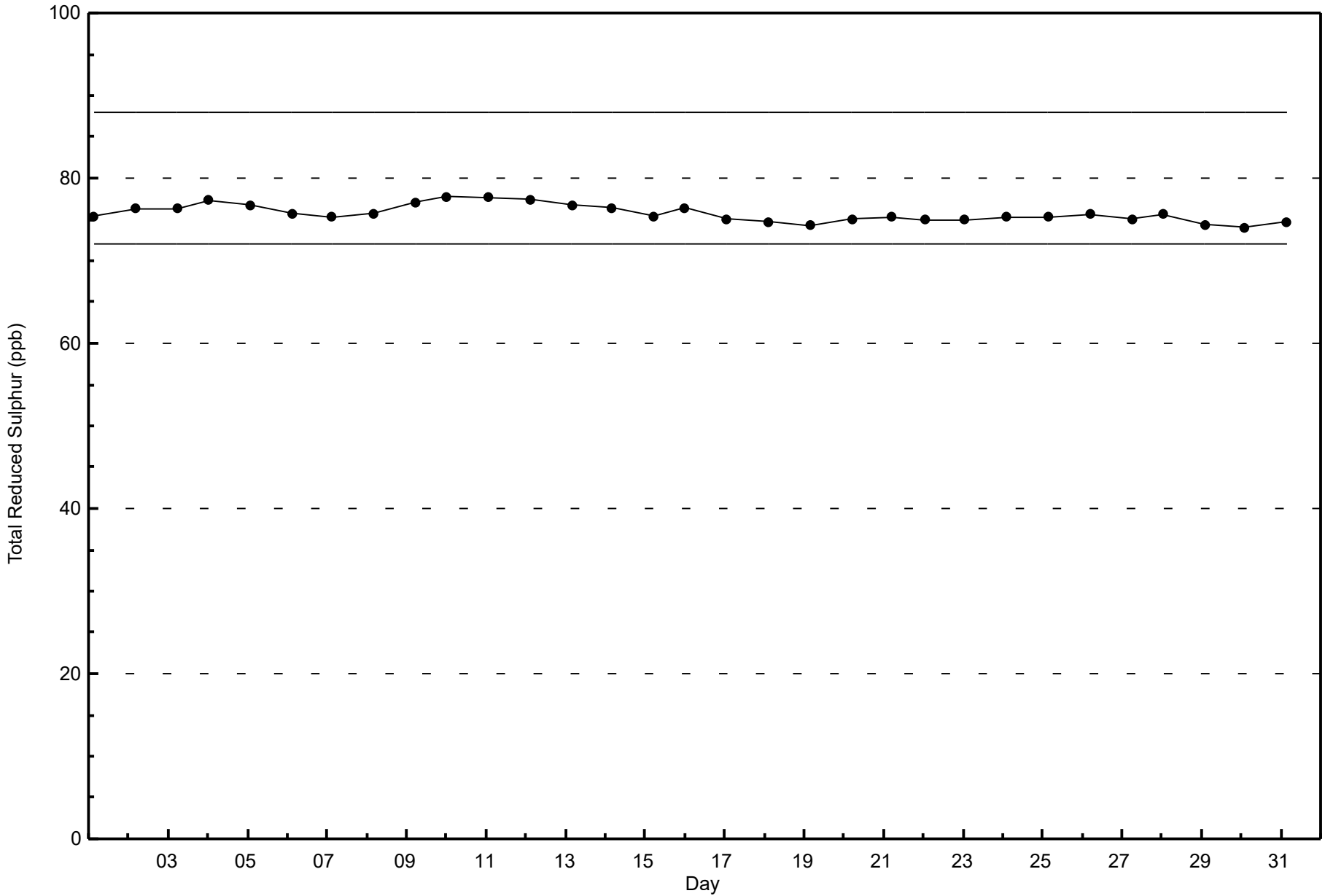


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Barge Landing









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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - May 2024**

Maximum Value: 3.4 ppm on May 22 07:00		Maximum Daily Average: 2.1 ppm on May 14		Hours in Service: 744																						
Minimum Value: 1.9 ppm on May 10 19:00		Minimum Daily Average: 1.9 ppm on May 31		Hours of Data: 630																						
Maximum Diurnal Average: 2.1 ppm at hour 7		Minimum Diurnal Average: 1.9 ppm at hour 14		Hours of Missing Data: 114																						
Monthly Average: 2.02 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.5		Hours of Calibration: 31																						
				Percent Operational Time: 88.8																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	2.1	2.1	Z	2.1	2.1	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.4
2-May	2.1	2.1	2.1	Z	2.4	2.4	2.4	2.3	2.1	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.2	2.4	2.3	2.1	2.4
3-May	2.3	2.1	2.1	2.2	Z	2.3	2.4	2.5	2.2	2.1	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.3	2.4	2.1	2.1	2.5	
4-May	2.2	2.1	2.1	2.1	2.1	Z	2.3	2.6	2.5	2.0	2.0	1.9	2.0	1.9	2.0	1.9	2.0	1.9	1.9	2.0	2.1	2.0	1.9	2.1	2.6	
5-May	Z	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.0	2.1	2.0	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	
6-May	1.9	Z	2.2	2.1	2.0	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.1	2.2	1.9	1.9	1.9	2.0	2.2	
7-May	2.1	2.4	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.4
8-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
9-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
10-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	--	2.0	
11-May	Z	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	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12-May	2.1	Z	2.1	2.3	2.5	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.5	
13-May	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.2	2.0	2.1	2.0	2.0	2.4	2.4	2.0	2.4
14-May	2.4	2.4	2.4	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	1.9	1.9	1.9	2.0	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.4
15-May	2.1	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3
16-May	2.0	2.1	2.0	2.3	2.3	Z	2.2	2.3	2.1	2.1	2.1	2.0	2.1	2.0	2.2	2.1	2.0	2.1	2.2	2.2	2.1	2.0	2.1	2.0	2.1	2.3
17-May	Z	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
18-May	2.0	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	2.1	2.0	2.0	2.1
19-May	1.9	2.0	Z	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.3
20-May	2.2	2.3	2.1	Z	2.4	2.4	2.1	2.4	2.0	2.2	2.1	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	2.1	2.4
21-May	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	1.9	2.2
22-May	2.1	2.1	2.2	2.2	2.2	Z	3.4	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	3.4
23-May	Z	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0
24-May	2.0	Z	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.1	2.0	2.1
25-May	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1
26-May	1.9	1.9	1.9	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
27-May	1.9	2.0	2.0	1.9	Z	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	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0
28-May	2.0	2.1	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.5	2.8	1.9	2.1	2.8
29-May	Z	2.0	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.2
30-May	2.0	Z	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0
31-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	M	M	M	M	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	2.0
																								Diurnal Average		
																								Diurnal Maximum		
																								2.1 2.0		
																								2.4 2.4		

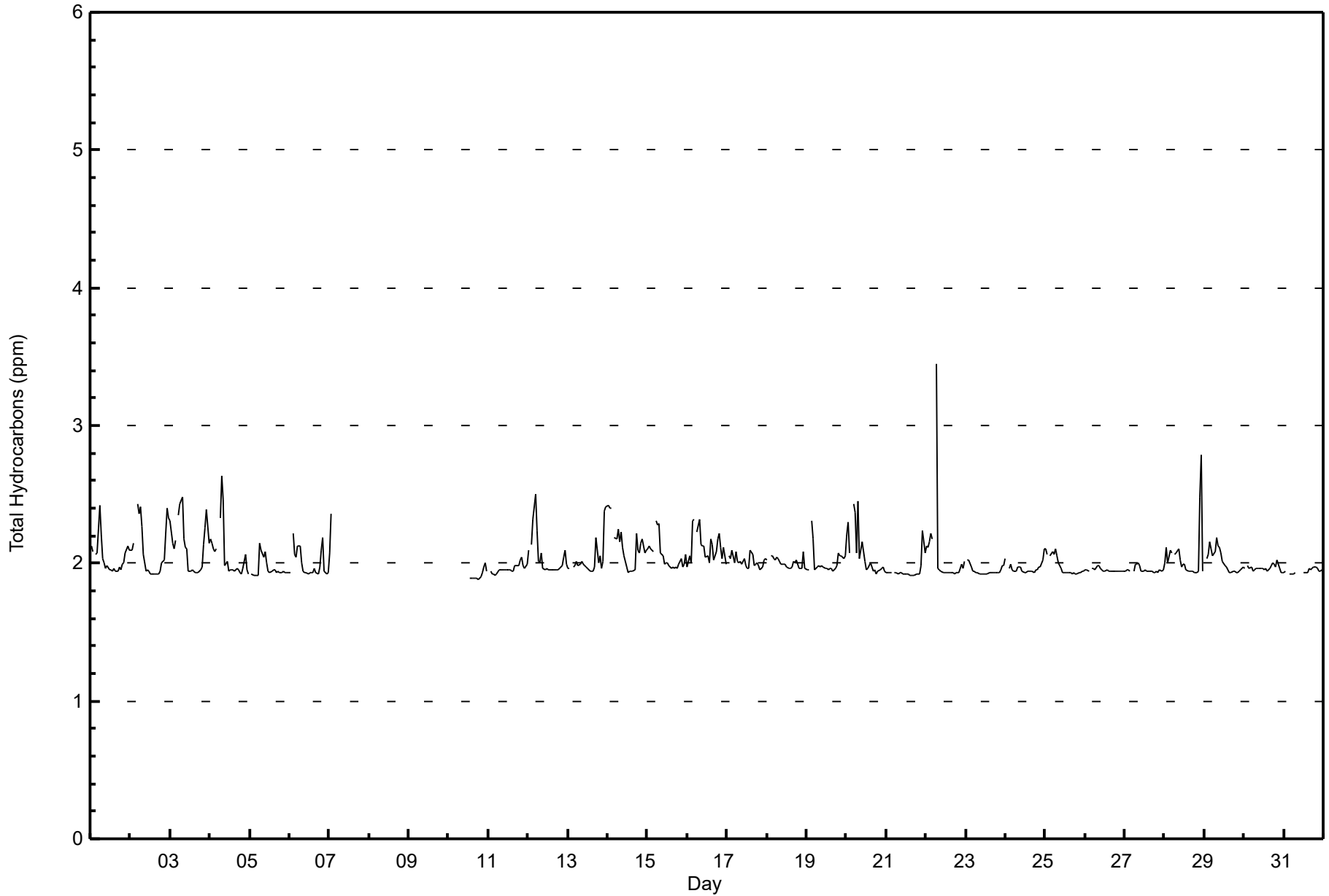
Z - zerospan      C - Calibration      M - Maintenance      UO - Unstable Operation





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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - May 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Barge Landing - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	468	74.29	74.29
2.1 - 3.0	161	25.56	99.84
3.1 - 10.0	1	0.16	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 630

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Barge Landing - May 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	30	58	47	20	26	40	47	38	26	16	21	13	7	26	29	24	468
2.1 - 3.0	32	42	12	12	3	3	3	10	7	1	5	0	1	5	6	19	161
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	63	100	59	32	29	43	50	48	33	17	26	13	8	31	35	43	630

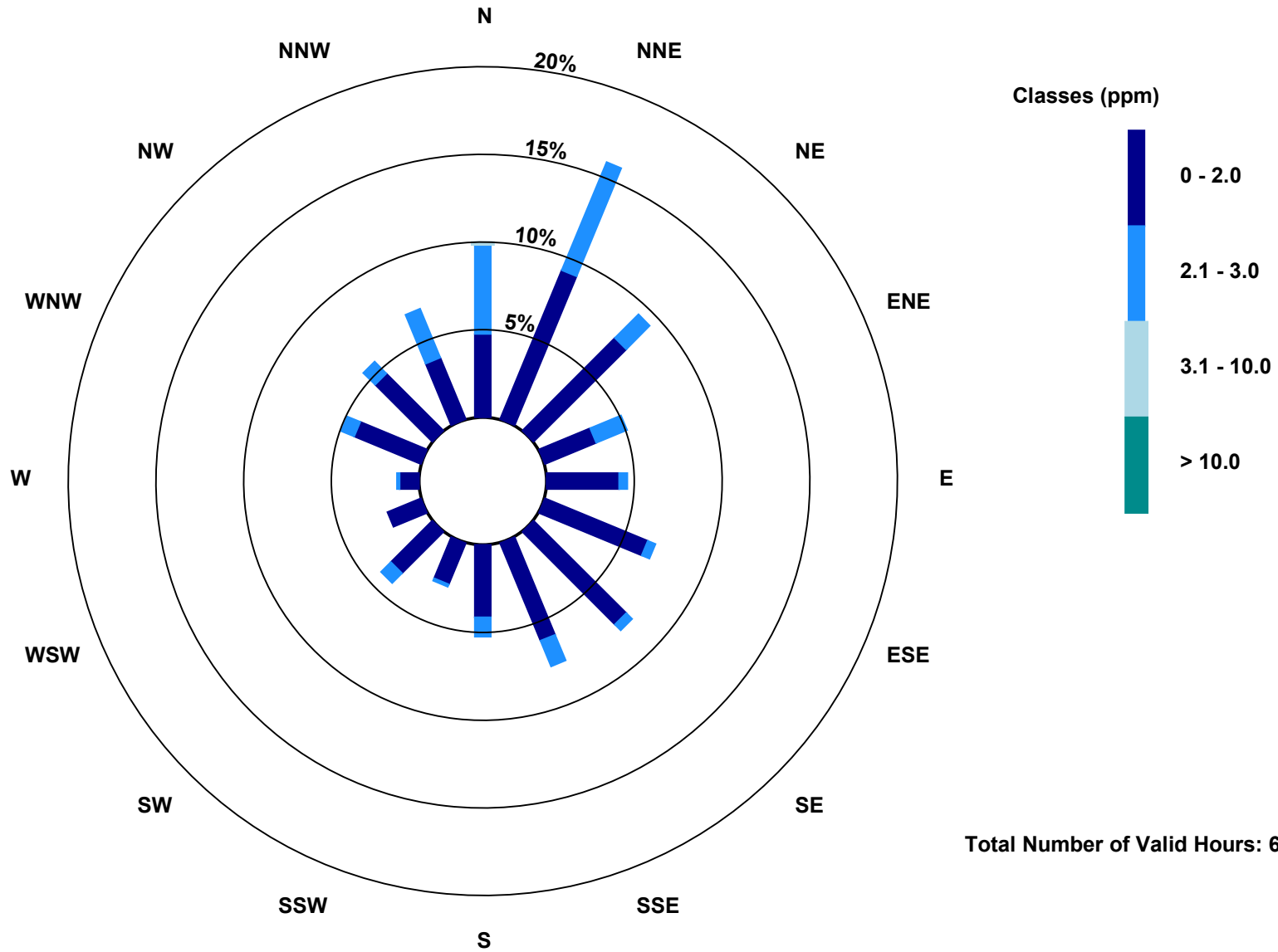
Total Number of Valid Hours: 630

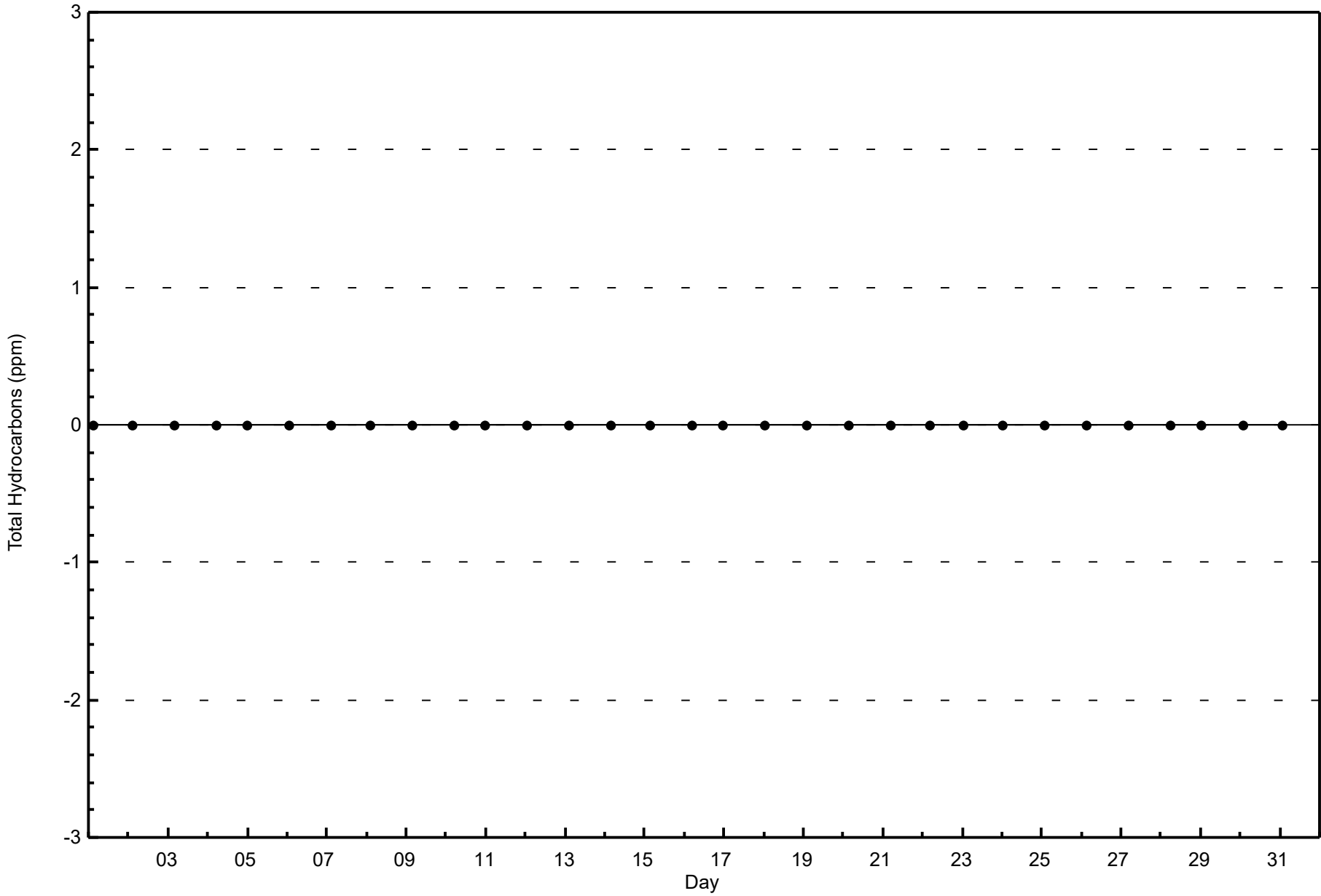
Total Number of Hours: 744

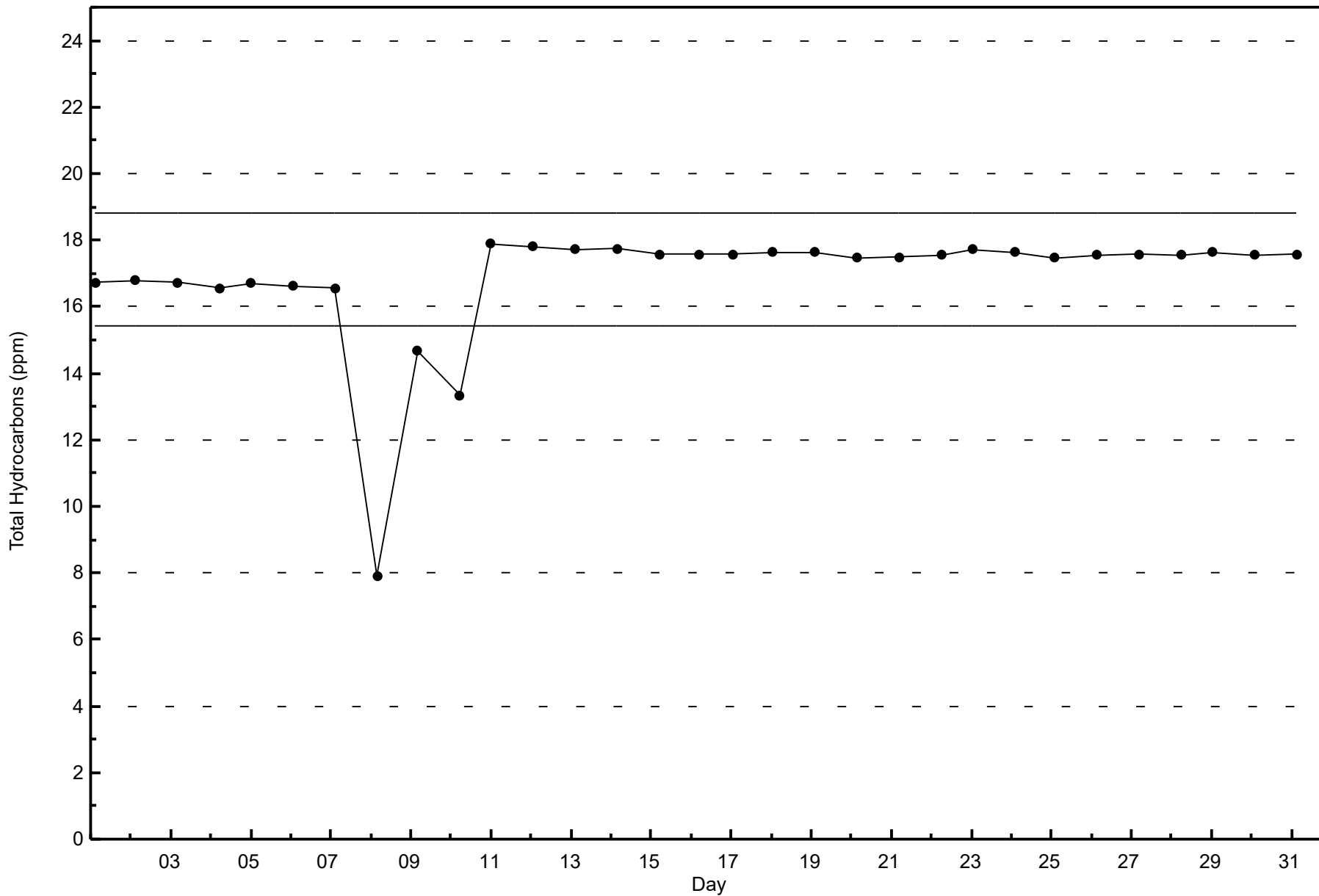


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Barge Landing





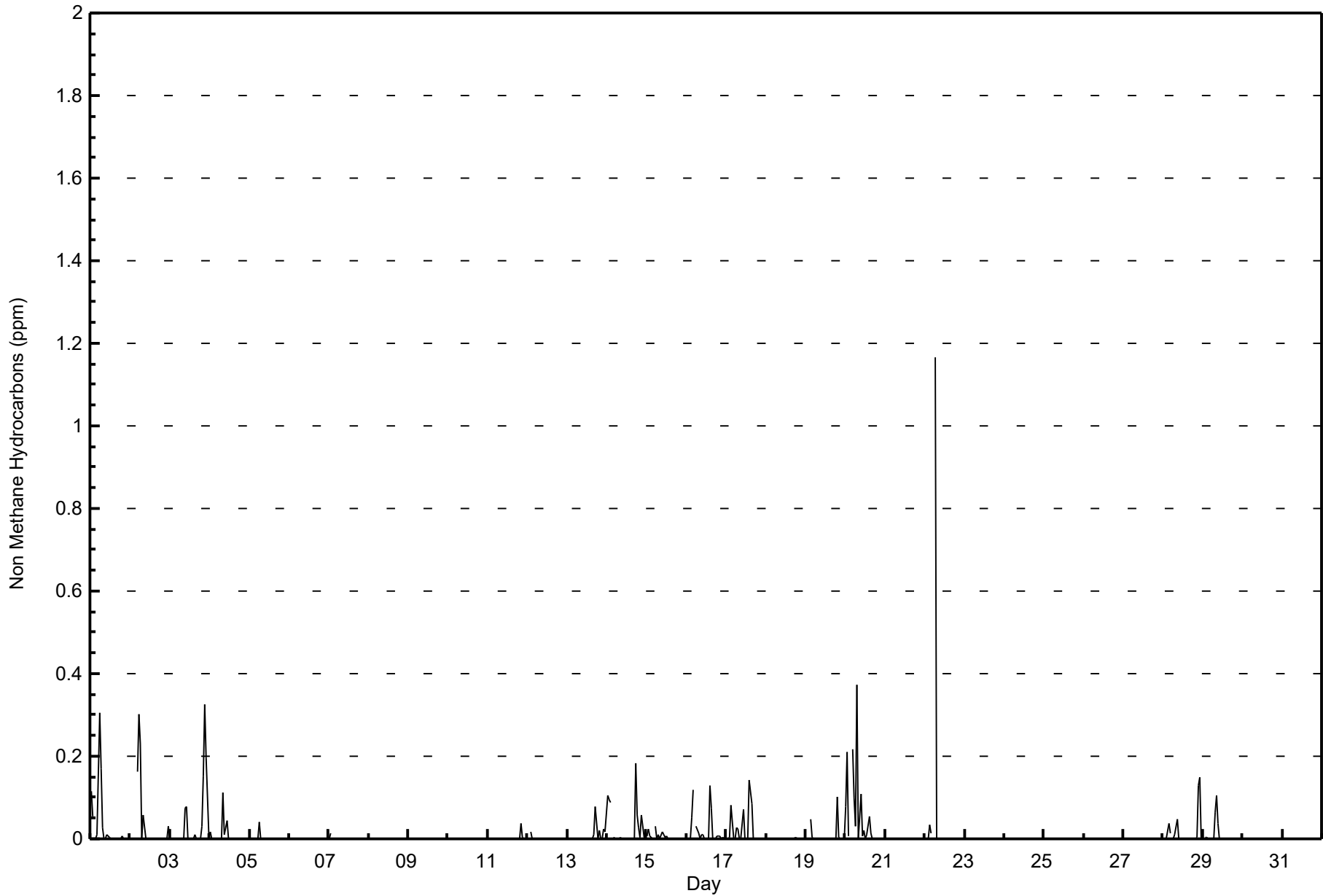




Summary of Hour Averages

Barge Landing - May 2024

Maximum Value: 1.167 ppm on May 22 07:00		Maximum Daily Average: 0.053 ppm on May 20		Hours in Service: 744																						
Minimum Value: 0.000 ppm on May 1 09:00		Minimum Daily Average: 0.000 ppm on May 6		Hours of Data: 630																						
Maximum Diurnal Average: 0.063 ppm at hour 7		Minimum Diurnal Average: 0.000 ppm at hour 13		Hours of Missing Data: 114																						
Monthly Average: 0.012 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.2		Hours of Calibration: 31																						
				Percent Operational Time: 88.8																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	0.115	0.056	Z	0.001	0.010	0.304	0.171	0.027	0.000	0.000	0.011	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.002	0.008	0.000	0.000	0.000	0.000	0.031	0.304
2-May	0.000	0.000	0.000	Z	0.162	0.300	0.230	0.000	0.059	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.034	0.300	
3-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.075	0.077	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.030	0.152	0.326	0.197	0.003	0.038	0.326
4-May	0.018	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.111	0.009	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.111	
5-May	Z	0.000	0.000	0.000	0.000	0.000	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.041	
6-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7-May	0.000	0.013	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.013
8-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
9-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
10-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	0.000	
11-May	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.038	0.002	0.000	0.000	0.002	0.038	
12-May	0.000	Z	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	
13-May	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	0.011	0.078	0.000	0.019	0.000	0.000	0.024	0.007	0.078	
14-May	0.105	0.096	0.087	Z	0.003	0.001	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.184	0.056	0.026	0.003	0.056	0.002	0.015	0.028	0.184
15-May	0.007	0.023	0.006	0.000	Z	0.030	0.002	0.012	0.000	0.017	0.009	0.002	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.030	
16-May	0.000	0.000	0.000	0.050	0.120	Z	0.032	0.015	0.000	0.009	0.010	0.000	0.000	0.000	0.128	0.076	0.000	0.001	0.007	0.008	0.005	0.000	0.002	0.000	0.020	0.128
17-May	Z	0.000	0.002	0.081	0.000	0.001	0.028	0.024	0.000	0.000	0.071	0.000	0.000	0.001	0.142	0.084	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.142	
18-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002
19-May	0.000	0.000	Z	0.046	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	0.101	0.005	0.000	0.000	0.007	0.101	
20-May	0.079	0.211	0.008	Z	0.217	0.099	0.029	0.372	0.000	0.107	0.007	0.019	0.000	0.010	0.054	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	0.372	
21-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22-May	0.000	0.000	0.000	0.035	0.015	Z	1.167	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.053	1.167	
23-May	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
24-May	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
25-May	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
26-May	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
27-May	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
28-May	0.000	0.000	0.000	0.037	0.014	Z	0.000	0.010	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.130	0.148	0.000	0.017	0.148
29-May	Z	0.005	0.003	0.000	0.000	0.000	0.000	0.065	0.105	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.105	
30-May	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
31-May	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.014	0.018	0.006	0.011	0.024	0.032	0.063	0.019	0.013	0.010	0.009	0.001	0.000	0.000	0.012	0.006	0.000	0.009	0.002	0.007	0.007	0.018	0.013	0.002	Diurnal Average
		0.115	0.211	0.087	0.081	0.217	0.304	1.167	0.372	0.111	0.107	0.077	0.019	0.007	0.010	0.142	0.084	0.011	0.184	0.056	0.101	0.152	0.326	0.197	0.030	Diurnal Maximum
Z - zerospan		C - Calibration					M - Maintenance					UO - Unstable Operation														







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	539	85.56	85.56
0.006 - 0.05	51	8.10	93.65
0.06 - 0.1	27	4.29	97.94
> 0.1	13	2.06	100.00

Total Number of Valid Hours: 630

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing - May 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	36	64	55	29	28	43	50	48	32	16	21	13	7	28	33	36	539
0.006 - 0.05	11	23	2	3	0	0	0	0	1	1	3	0	1	2	2	2	51
0.06 - 0.1	8	9	2	0	1	0	0	0	0	0	2	0	0	1	0	4	27
> 0.1	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	13
<b>Totals</b>	63	100	59	32	29	43	50	48	33	17	26	13	8	31	35	43	630

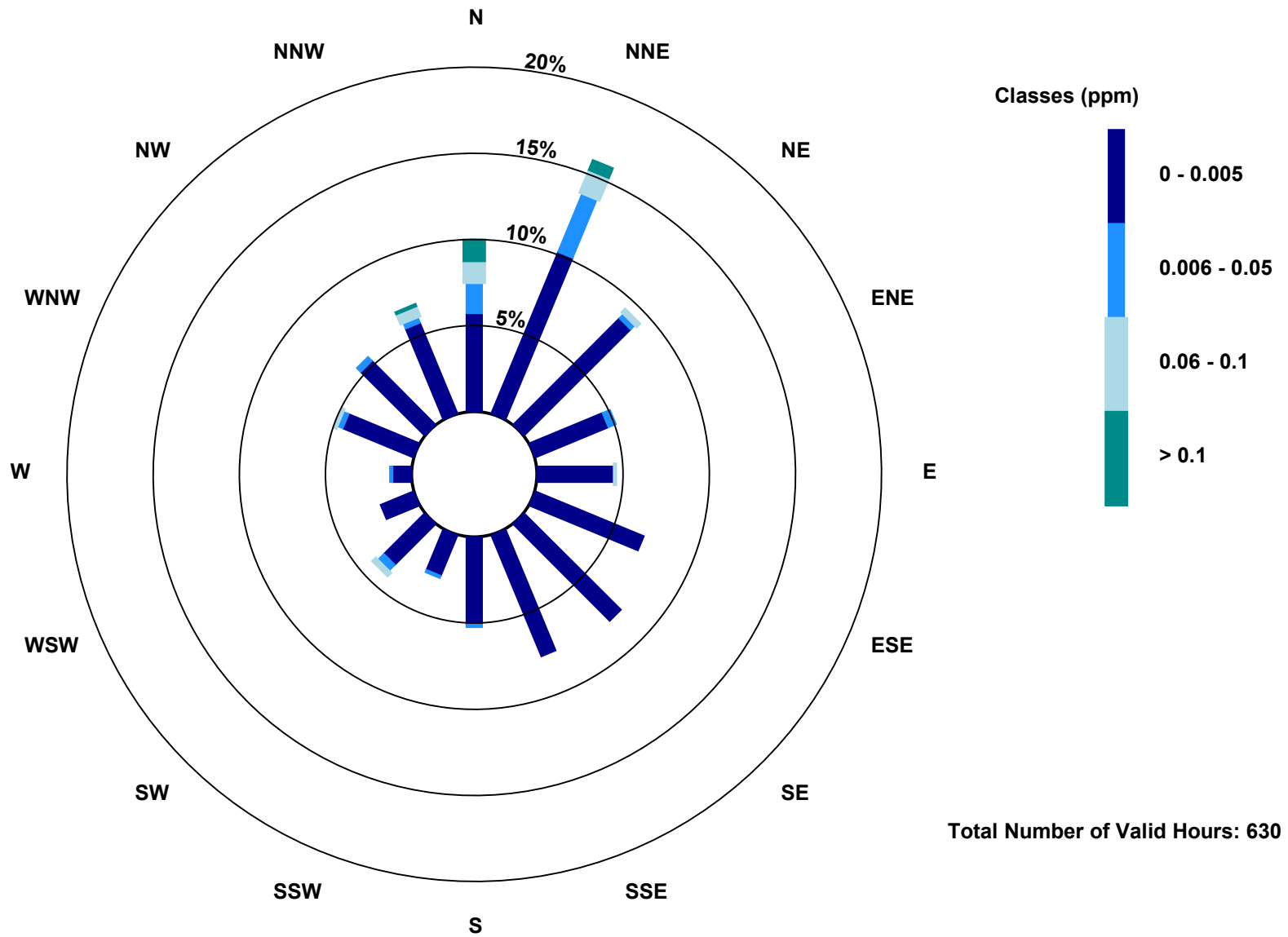
Total Number of Valid Hours: 630

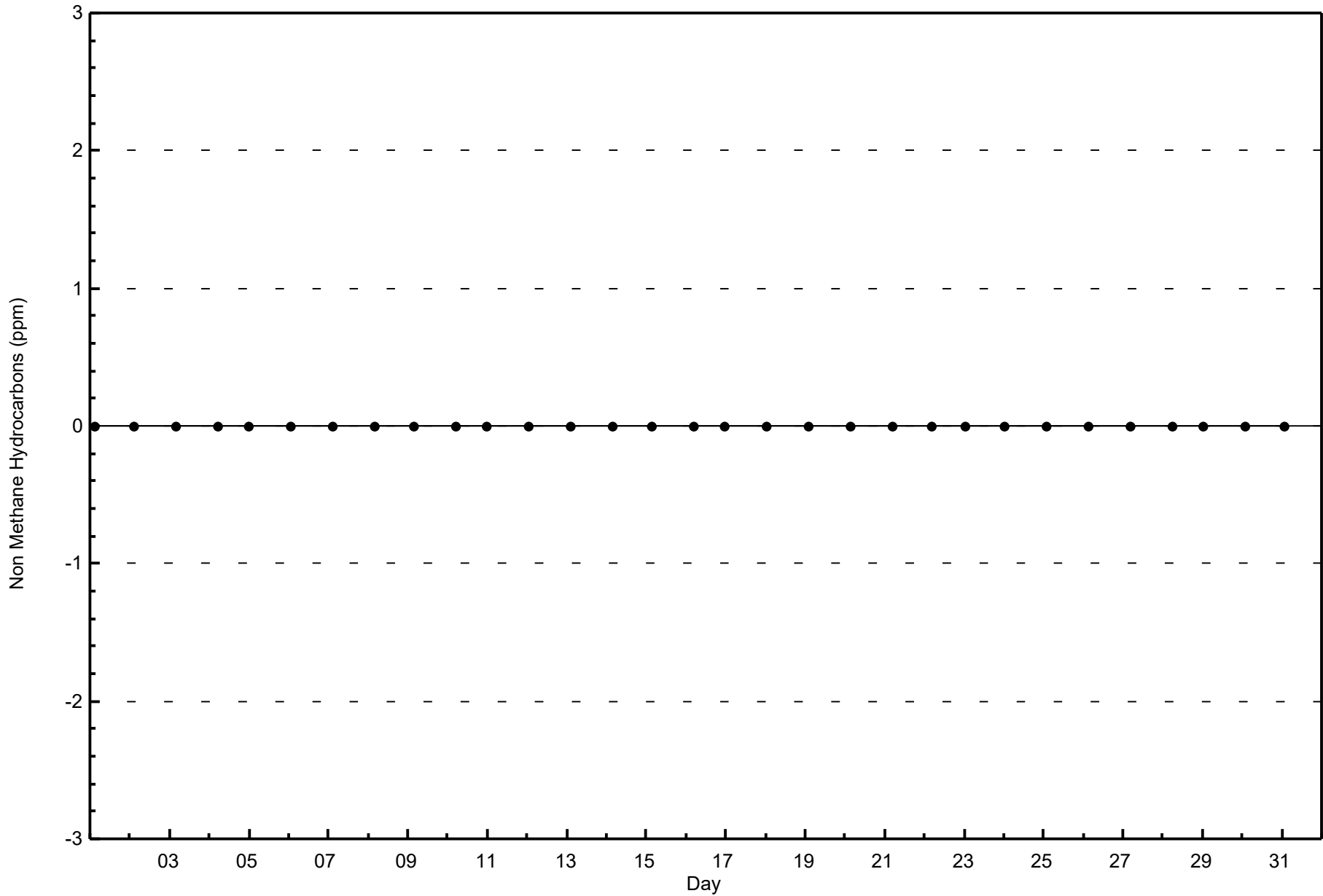
Total Number of Hours: 744

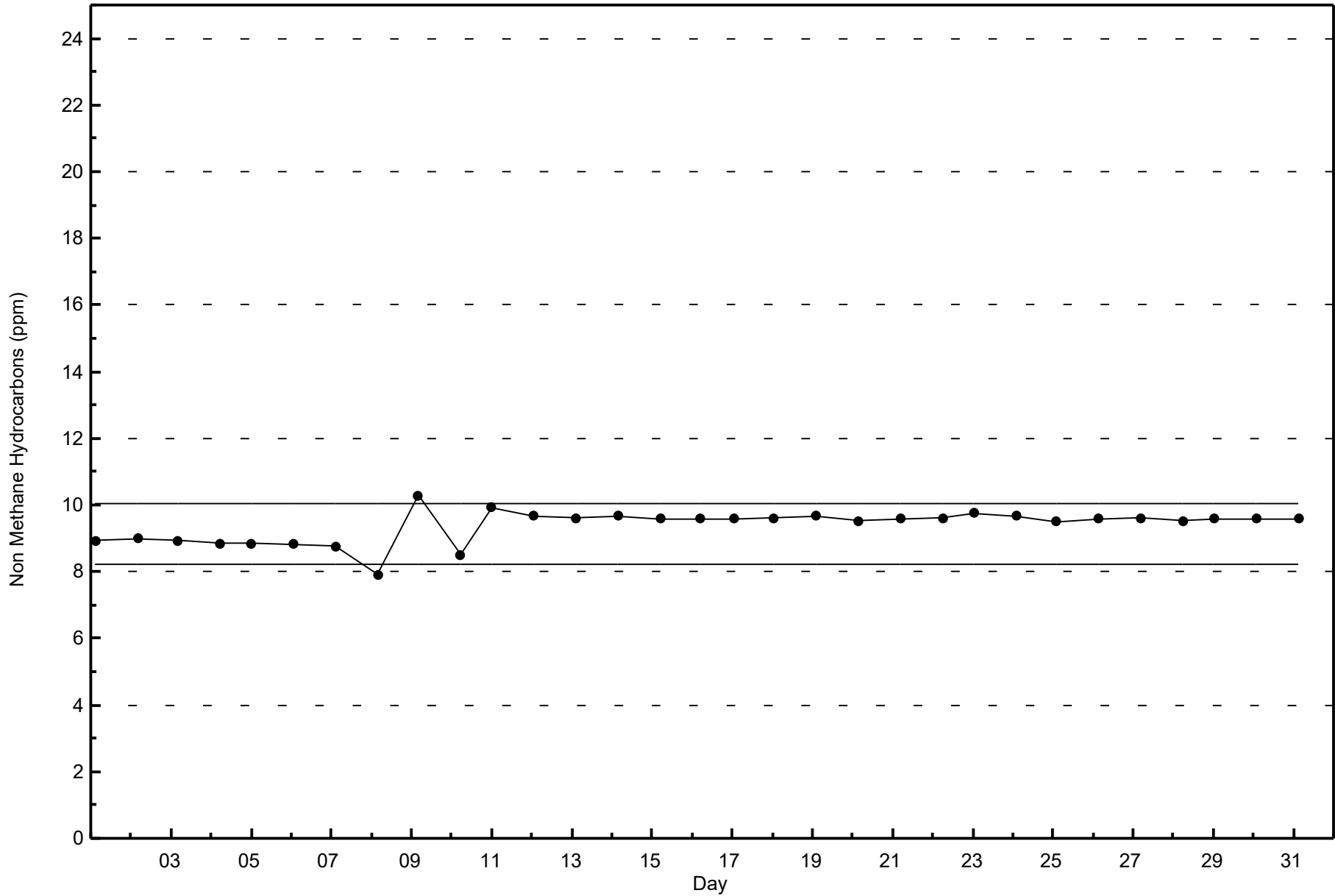


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Barge Landing









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Barge Landing - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.6 ppm on May 28 23:00	Maximum Daily Average: 2.1 ppm on May 14		Hours of Data:	630
Minimum Value: 1.9 ppm on May 10 19:00	Minimum Daily Average: 1.9 ppm on May 31		Hours of Missing Data:	114
Maximum Diurnal Average: 2.1 ppm at hour 8	Minimum Diurnal Average: 1.9 ppm at hour 15		Hours of Calibration:	31
Monthly Average: 2.01 ppm	Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.4		Percent Operational Time:	88.8

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

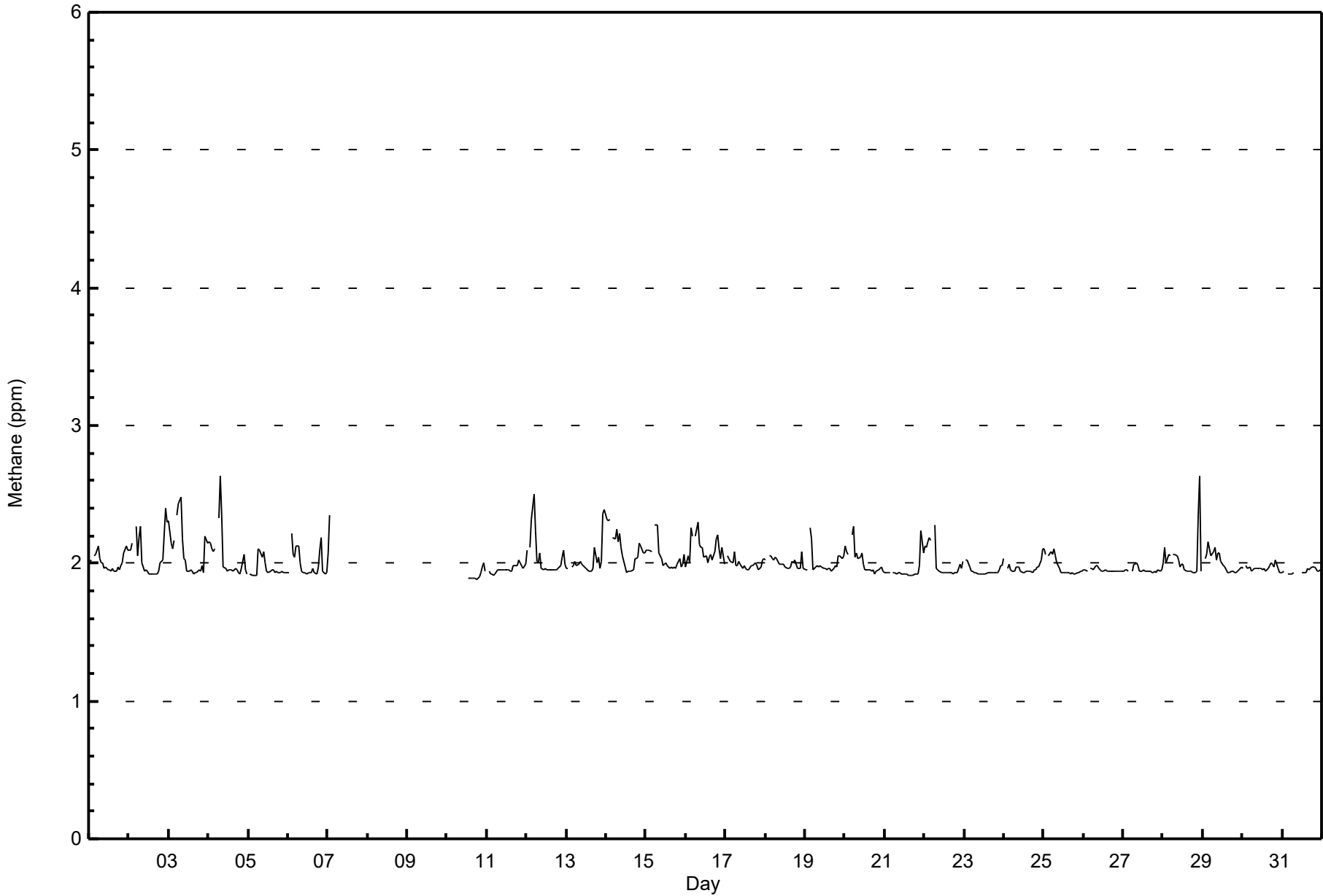
2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.0	Diurnal Average	
2.3	2.3	2.3	2.3	2.5	2.3	2.4	2.6	2.3	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.2	2.2	2.2	2.4	2.6	2.4	Diurnal Maximum	

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



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

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - May 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Barge Landing - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	488	77.46	77.46
2.1 - 3.0	142	22.54	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 630

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

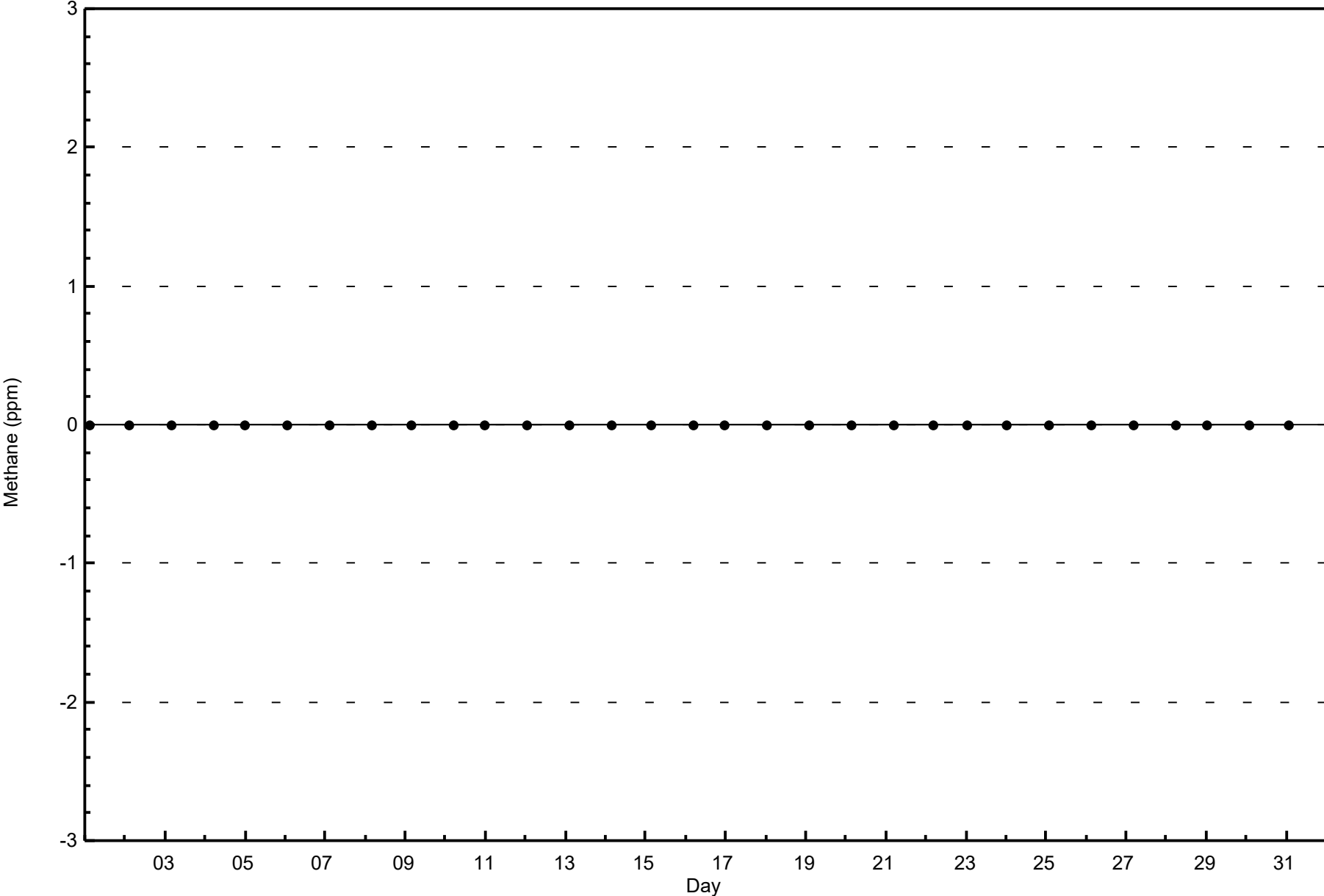
**Methane (CH<sub>4</sub>) - ppm  
Barge Landing - May 2024**

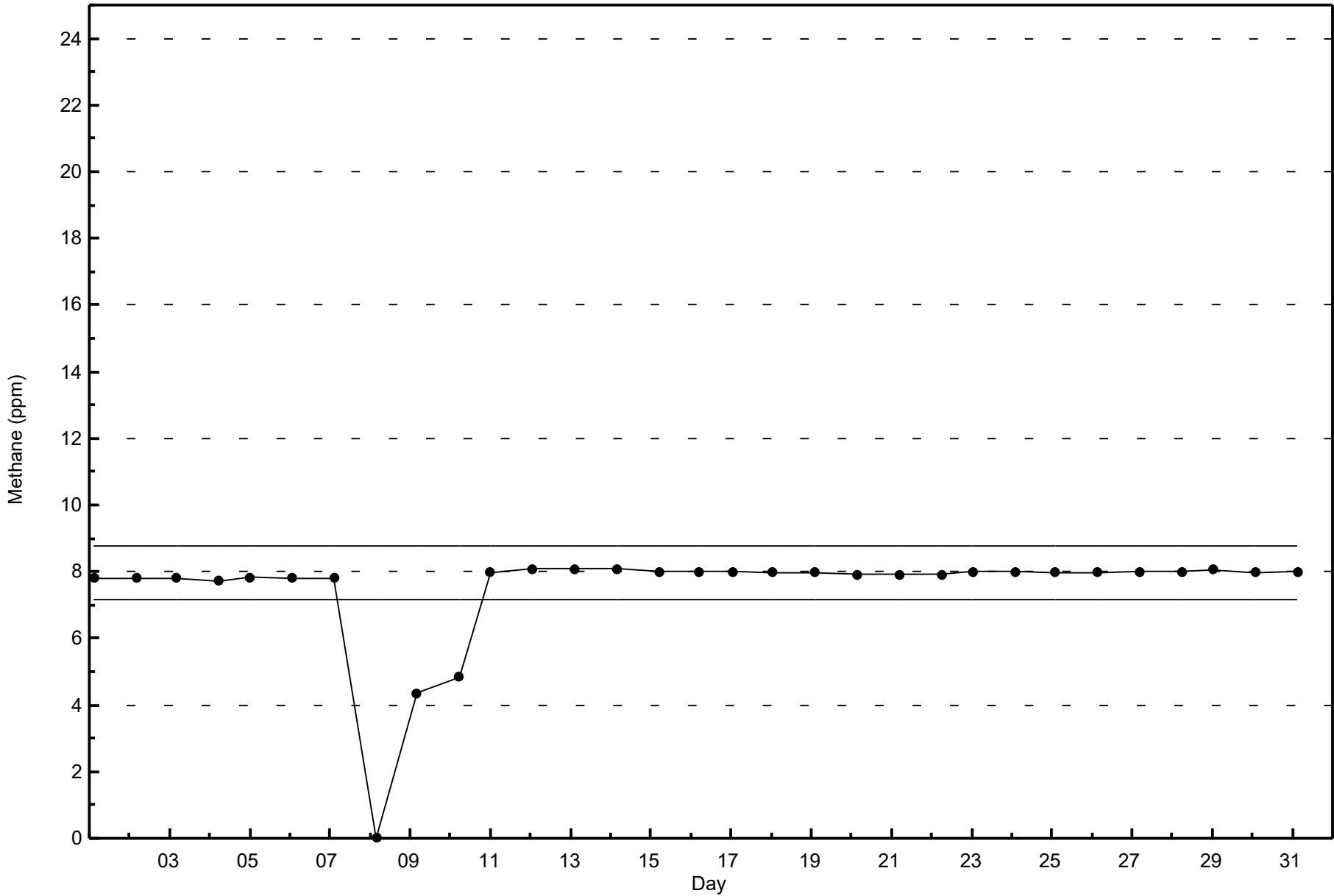
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	40	67	47	20	26	40	47	38	26	16	21	13	7	26	29	25	488
2.1 - 3.0	23	33	12	12	3	3	3	10	7	1	5	0	1	5	6	18	142
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	63	100	59	32	29	43	50	48	33	17	26	13	8	31	35	43	630

Total Number of Valid Hours: 630

Total Number of Hours: 744







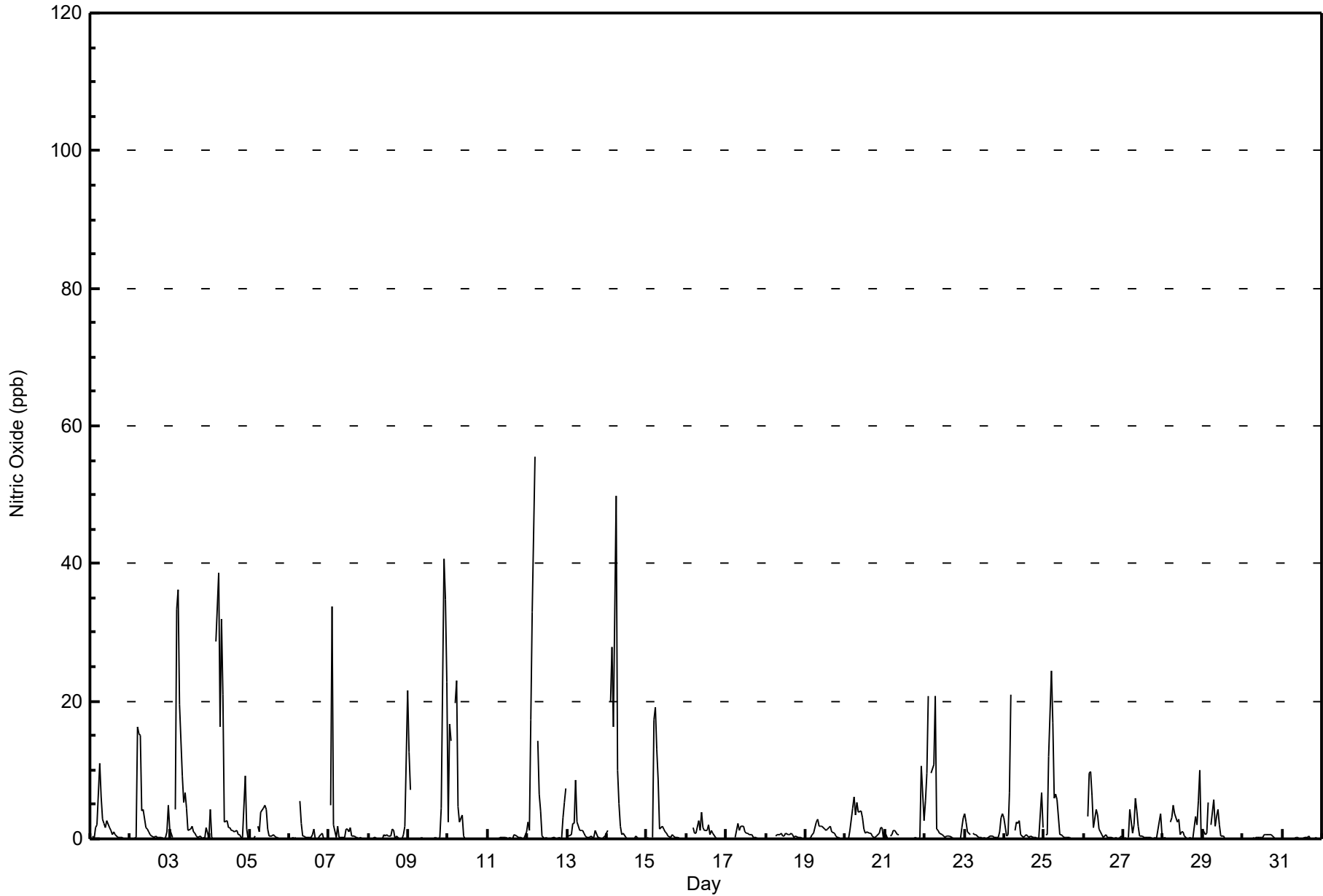


Maximum Value: 55.6 ppb on May 12 05:00																				Maximum Daily Average: 7.2 ppb on May 4					Hours in Service: 744																								
Minimum Value: 0.0 ppb on May 5 02:00																				Minimum Daily Average: 0.1 ppb on May 31					Hours of Data: 708																								
Maximum Diurnal Average: 10.4 ppb at hour 5																				Minimum Diurnal Average: 0.2 ppb at hour 19					Hours of Missing Data: 36																								
Monthly Average: 2.29 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> = 1.5 P <sub>90</sub> = 5.2 P <sub>99</sub> = 33.4					Hours of Calibration: 36																								
																				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	Z	0.4	0.1	1.6	2.1	11.0	6.1	2.8	2.3	1.5	2.6	1.6	1.2	0.6	0.9	0.6	0.3	0.3	0.2	0.2	0.0	0.0	0.0	0.0	1.6	11.0																							
2-May	0.1	Z	0.1	0.3	16.3	15.3	15.1	4.2	4.4	1.7	1.4	1.0	0.6	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.0	0.2	0.9	4.8	3.0	16.3																							
3-May	1.3	0.1	Z	4.2	33.4	36.3	19.5	9.1	5.2	6.7	4.4	1.2	1.5	1.8	1.0	0.7	0.5	0.3	0.4	0.1	0.1	0.0	1.7	0.3	5.7	36.3																							
4-May	4.3	0.1	0.0	Z	28.7	38.7	16.2	32.0	20.9	2.5	2.6	1.7	1.5	1.3	1.1	1.1	1.2	0.7	0.5	0.1	0.2	9.2	1.4	0.1	7.2	38.7																							
5-May	0.3	0.0	0.0	0.4	Z	1.9	1.1	4.0	4.4	4.9	4.3	1.4	0.5	0.4	0.5	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.1	4.9																							
6-May	0.0	0.0	0.2	0.0	0.1	Z	5.5	2.2	0.4	0.4	0.3	0.2	0.3	0.3	0.7	1.4	0.0	0.1	0.5	0.5	0.8	0.0	0.0	0.0	0.6	5.5																							
7-May	Z	4.8	33.8	2.0	0.1	1.8	0.2	0.1	0.1	0.3	1.5	1.4	1.0	1.6	0.3	0.4	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.1	2.2	33.8																							
8-May	0.1	Z	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.7	0.5	0.6	0.4	0.4	1.4	1.3	0.1	0.3	0.0	0.0	0.0	0.6	1.9	21.6	1.3	21.6																							
9-May	12.7	7.1	Z	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.2	4.5	40.6	34.7	22.7	5.4	40.6																							
10-May	2.4	16.6	14.3	Z	19.7	23.0	4.6	2.4	3.4	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	3.8	23.0																							
11-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.6	0.5	0.3	0.3	0.1	0.0	0.0	0.9	0.2	0.9																							
12-May	2.4	1.3	17.2	32.9	55.6	Z	14.3	6.5	4.0	0.4	0.1	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	3.1	5.2	7.3	6.6	55.6																							
13-May	Z	0.4	0.7	2.3	2.2	8.5	2.5	1.1	1.2	1.2	0.8	0.5	0.1	0.2	0.4	0.1	0.2	1.3	0.1	0.2	0.0	0.0	0.1	0.3	1.1	8.5																							
14-May	1.2	Z	19.9	27.8	16.3	49.9	10.0	5.0	1.9	0.6	0.8	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	5.8	49.9																							
15-May	0.1	0.1	Z	0.2	17.3	19.1	13.0	8.5	1.4	1.8	1.3	1.1	0.8	0.4	0.3	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.0	2.9	19.1																							
16-May	0.0	0.1	0.0	Z	1.6	0.9	0.7	2.6	1.1	3.9	1.6	1.1	1.2	2.0	0.5	1.3	0.8	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.9	3.9																							
17-May	0.0	0.0	0.0	0.0	Z	0.1	1.1	2.1	1.2	1.8	1.9	1.1	0.9	0.9	0.6	0.6	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.6	2.1																							
18-May	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.6	0.6	0.8	0.5	0.5	0.8	0.7	0.7	0.7	0.5	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.4	0.8																							
19-May	Z	0.0	0.1	0.2	0.5	0.7	2.4	2.8	1.9	1.8	1.9	1.5	1.2	1.5	1.5	1.8	0.9	0.9	0.3	0.2	0.2	0.1	0.0	0.0	1.0	2.8																							
20-May	0.2	Z	0.1	1.2	4.5	6.1	3.4	5.2	3.9	4.1	3.1	1.5	0.8	1.1	0.8	0.9	0.4	0.3	0.1	0.3	0.9	1.7	1.6	0.1	1.8	6.1																							
21-May	1.0	0.1	Z	0.5	0.5	1.1	1.2	0.6	0.6	C	C	C	C	C	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.2	10.6	2.7	1.1	10.6																							
22-May	5.4	9.5	20.8	Z	9.6	10.8	20.8	1.3	1.1	0.8	0.6	0.5	0.3	0.3	0.4	0.5	0.3	0.1	0.1	0.1	0.1	0.1	1.6	3.0	3.8	20.8																							
23-May	3.6	2.5	0.9	0.7	Z	0.8	0.5	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.3	0.2	0.1	0.2	0.9	3.0	3.7	0.9	3.7																							
24-May	3.1	0.4	0.6	6.8	21.0	Z	1.2	2.3	2.2	2.7	0.5	0.2	0.3	0.5	0.4	0.3	0.4	0.2	0.2	0.1	0.0	0.2	6.6	1.7	2.3	21.0																							
25-May	Z	0.6	0.6	12.1	24.4	16.9	5.9	6.6	5.7	0.6	0.7	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	3.3	24.4																							
26-May	0.2	Z	3.3	9.5	9.8	6.3	1.6	4.4	3.4	1.4	1.0	0.5	0.2	0.5	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.0	0.2	0.4	1.9	9.8																							
27-May	0.0	0.2	Z	0.3	4.4	0.8	2.1	5.8	4.1	1.8	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.0	1.2	3.7	0.6	1.2	5.8																							
28-May	0.0	0.1	0.0	Z	2.5	3.0	4.9	3.7	2.5	2.9	0.7	1.1	1.0	0.3	0.1	0.1	0.1	0.1	0.0	3.3	2.0	5.5	10.1	0.0	1.9	10.1																							
29-May	1.4	0.6	0.8	5.4	Z	2.0	5.6	1.9	3.3	4.3	2.0	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.6																							
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.6	0.6	0.6	0.6	0.6	0.4	0.1	0.1	0.0	0.0	0.0	0.2	0.6	0.6																						
31-May	Z	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	0.2	0.3	0.4	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.4	0.4																						
																								1.6	1.7	4.4	4.2	10.4	9.8	5.2	3.8	2.6	1.7	1.2	0.7	0.5	0.6	0.4	0.5	0.3	0.3	0.2	0.2	0.3	2.1	2.7	2.3	Diurnal Average	
																								12.7	16.6	33.8	32.9	55.6	49.9	20.8	32.0	20.9	6.7	4.4	1.7	1.5	2.0	1.5	1.8	1.2	1.3	0.5	3.3	4.5	40.6	34.7	22.7	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



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

**Nitric Oxide (NO) - ppb**  
**Barge Landing - May 2024**





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

**Nitric Oxide (NO) - ppb**  
**Barge Landing - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	688	97.18	97.18
21 - 40	17	2.40	99.58
41 - 80	3	0.42	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Barge Landing - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	63	103	56	34	29	48	46	56	43	20	34	22	13	39	39	43	688
21 - 40	3	2	2	0	0	0	3	3	2	1	0	0	0	0	1	0	17
11 - 80	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	105	58	35	30	48	49	60	45	21	34	22	13	39	40	43	708

Total Number of Valid Hours: 708

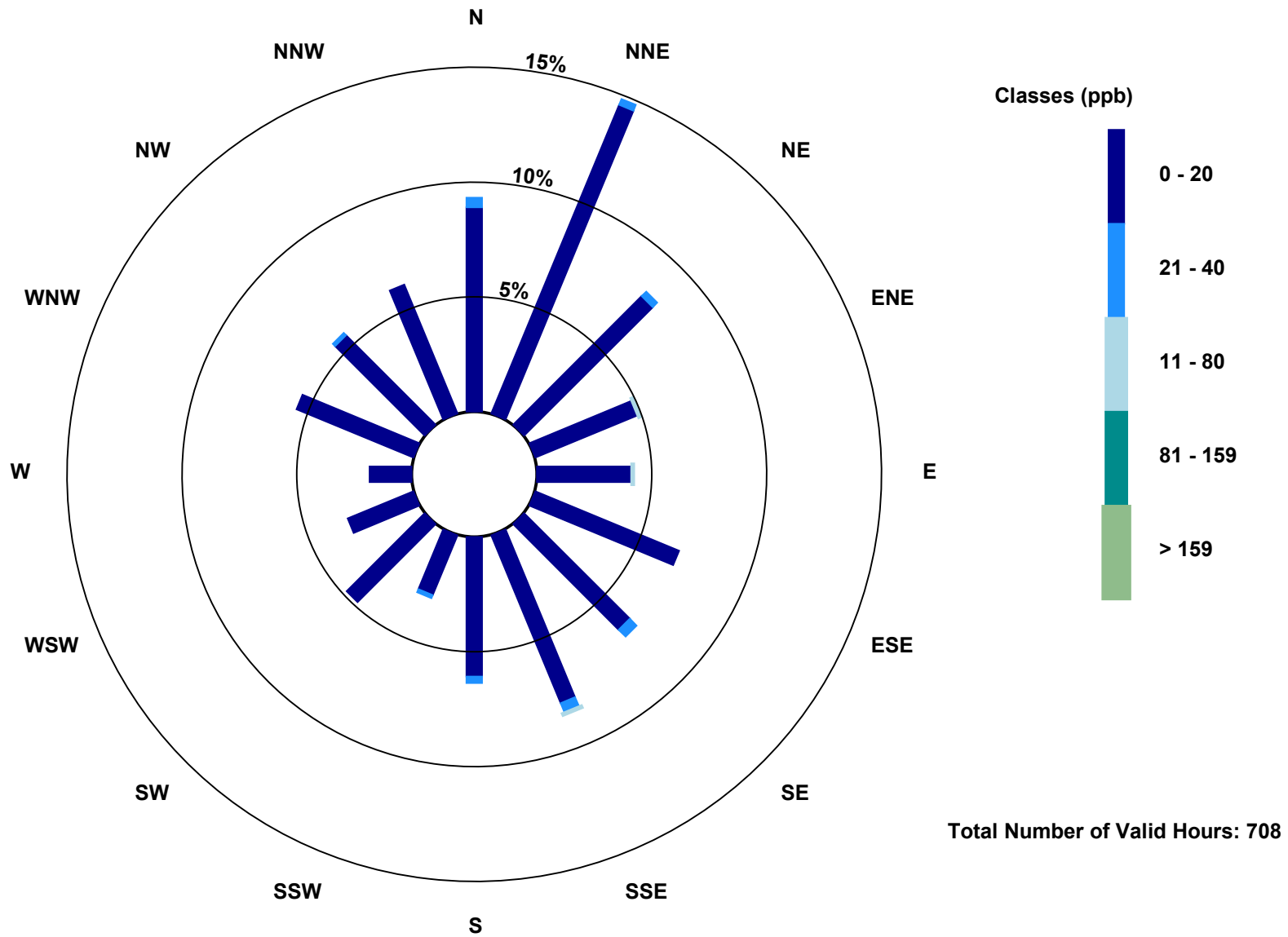
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

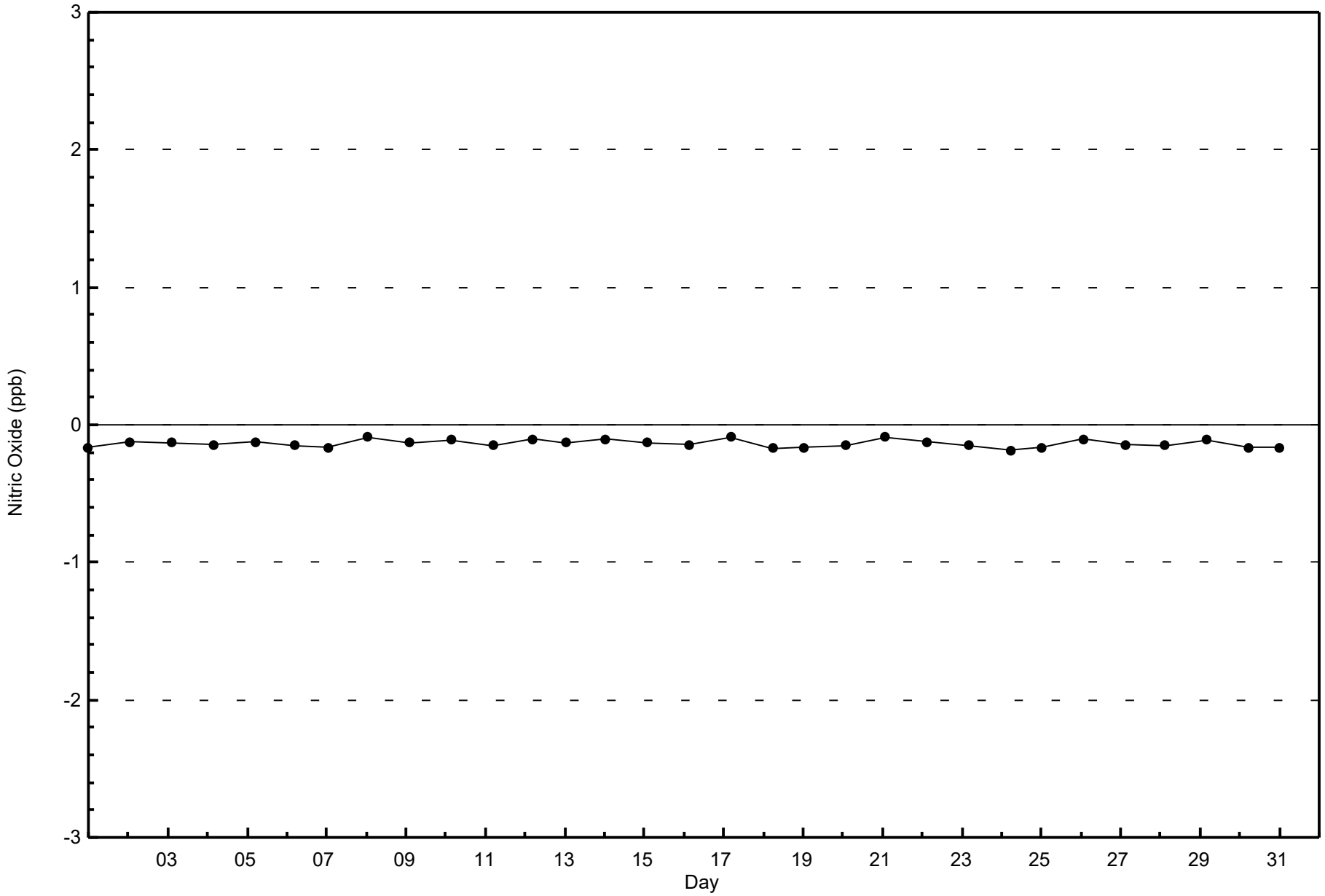
Nitric Oxide (NO) - ppb  
Barge Landing

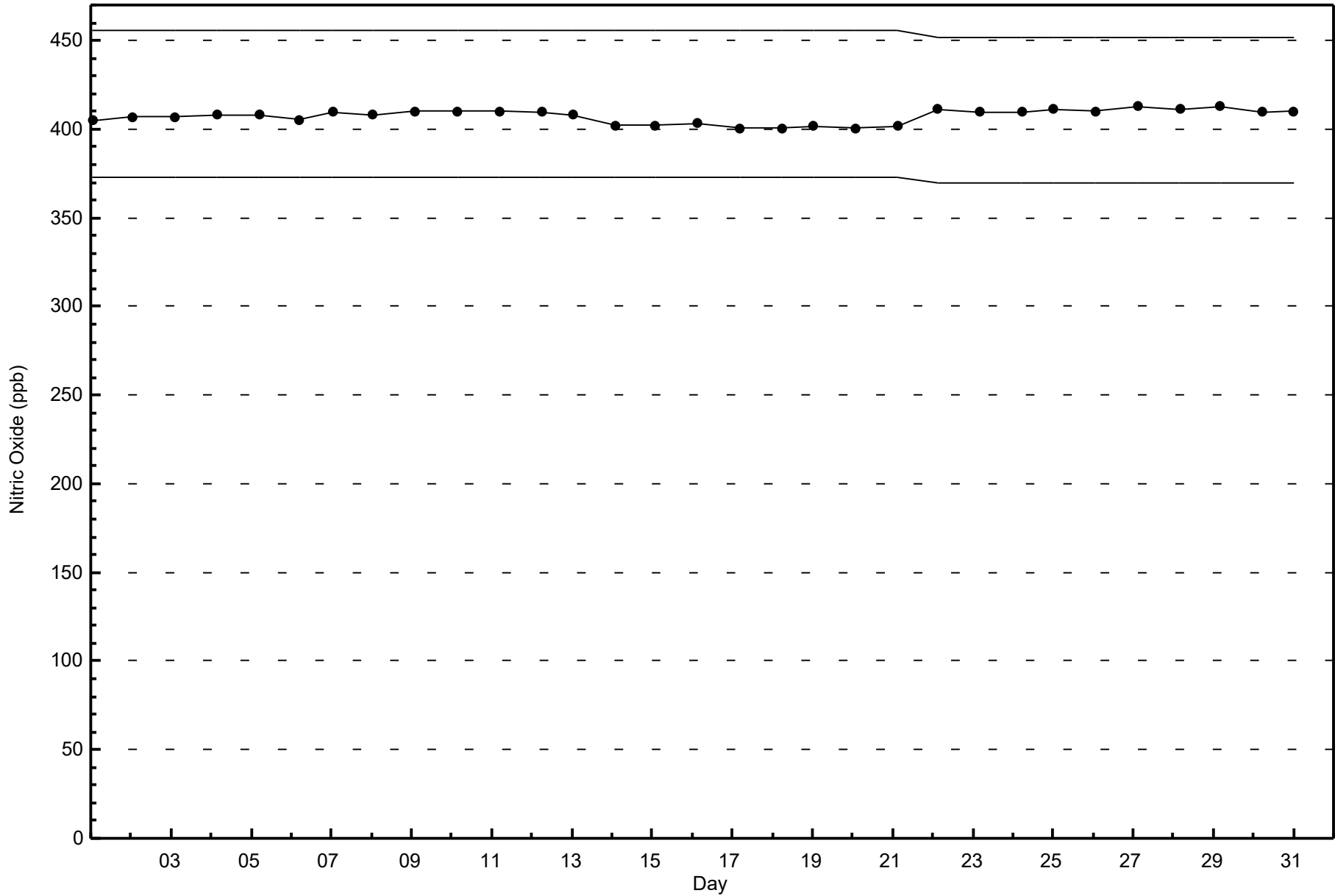




**Wood Buffalo Environmental Association**  
**Zero Responses**

**Nitric Oxide (NO) - ppb**  
**Barge Landing - May 2024**







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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.8 ppb on May 9 22:00	Maximum Daily Average: 15.7 ppb on May 3		Hours of Data:	708
Minimum Value: 0.2 ppb on May 11 16:00	Minimum Daily Average: 1.9 ppb on May 31		Hours of Missing Data:	36
Maximum Diurnal Average: 14.1 ppb at hour 5	Minimum Diurnal Average: 2.0 ppb at hour 17		Hours of Calibration:	36
Monthly Average: 6.75 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.8 Q <sub>1</sub> = 1.9 Median = 4.0 Q <sub>3</sub> = 8.9 P <sub>90</sub> = 16.7 P <sub>99</sub> = 30.9		Percent Operational Time:	100.0

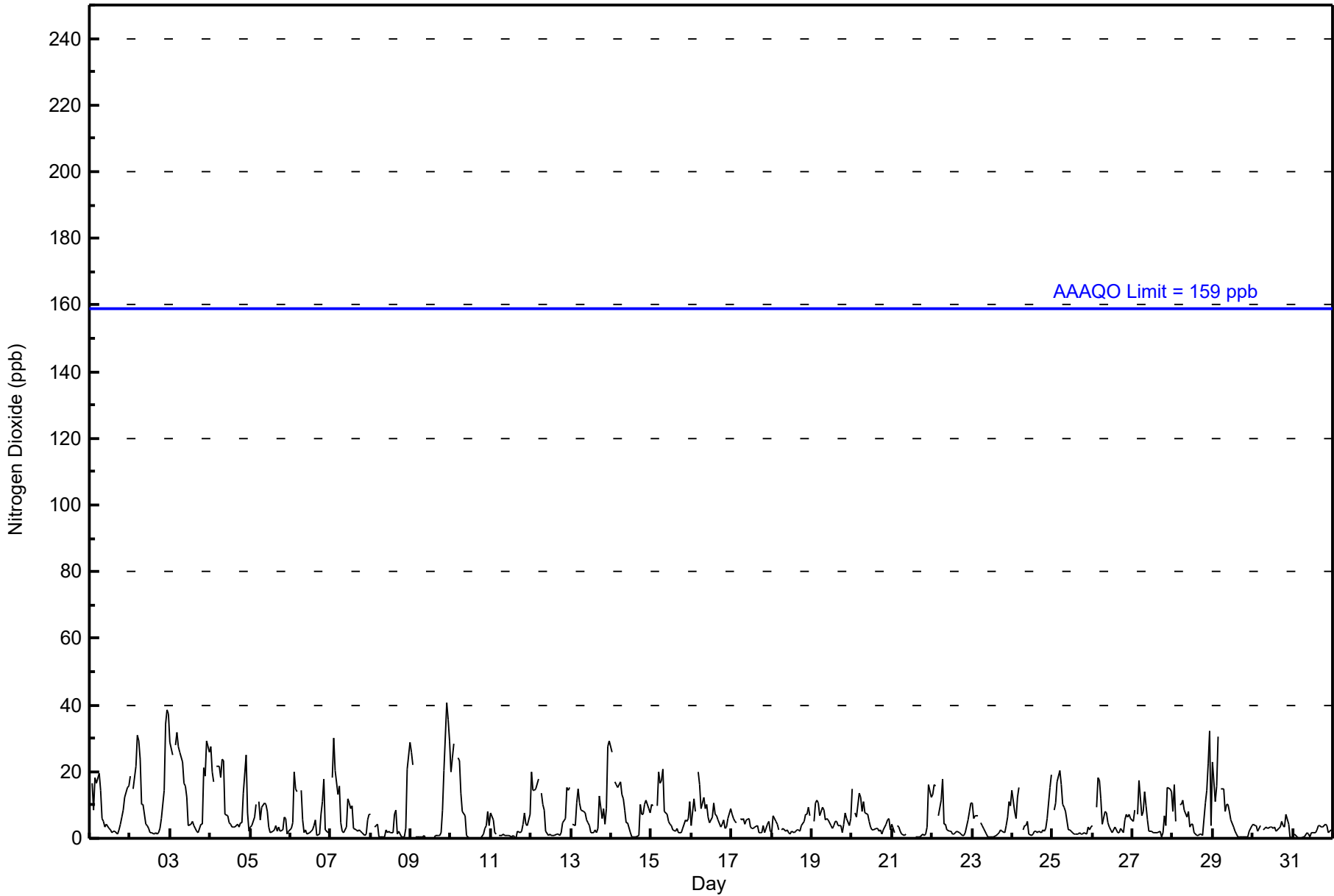
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	Z	16.7	8.6	18.1	16.7	19.7	14.4	6.0	4.9	3.5	4.2	2.8	2.4	1.6	2.3	2.0	1.4	2.4	4.2	6.5	8.5	12.1	15.2	15.5	8.2	19.7																							
2-May	18.8	Z	14.9	21.4	30.9	29.2	23.9	10.3	10.2	4.2	3.8	3.0	1.9	1.5	1.2	1.7	1.4	1.8	3.1	6.1	14.4	34.4	38.7	37.5	13.7	38.7																							
3-May	28.9	24.9	Z	28.0	31.8	27.4	25.7	22.8	16.6	15.6	12.1	3.9	4.2	5.2	3.7	2.8	2.2	1.9	4.3	4.3	21.1	18.6	29.1	25.8	15.7	31.8																							
4-May	27.4	20.1	16.8	Z	21.4	21.4	18.1	23.9	23.1	7.1	6.9	4.5	4.3	3.5	3.3	3.6	4.3	3.3	4.5	4.7	13.5	25.0	7.7	2.3	11.8	27.4																							
5-May	3.6	3.8	6.2	10.3	Z	11.1	5.4	9.3	10.4	10.1	8.1	3.4	1.7	2.2	2.4	3.7	2.3	3.5	2.0	2.5	6.5	5.8	1.4	2.3	5.1	11.1																							
6-May	2.8	4.6	19.8	15.0	14.1	Z	14.5	5.6	1.9	2.5	1.3	1.6	2.1	2.6	3.9	5.7	0.9	1.2	7.2	10.9	17.9	2.6	1.7	1.9	6.2	19.8																							
7-May	Z	18.4	29.9	20.5	13.0	15.8	4.8	2.3	1.9	3.3	11.8	10.5	8.9	9.7	3.1	2.6	2.0	2.4	2.1	1.8	0.9	1.2	5.6	7.2	7.8	29.9																							
8-May	7.2	Z	3.6	3.9	4.4	0.6	0.4	0.6	0.5	2.5	1.8	2.1	1.7	1.9	7.1	8.6	1.1	2.1	0.5	0.5	0.3	2.9	20.6	28.7	4.5	28.7																							
9-May	25.9	21.9	Z	0.5	0.3	0.4	0.4	0.4	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.9	0.7	1.6	8.4	20.5	40.8	35.4	29.3	8.3	40.8																							
10-May	20.1	24.1	28.2	Z	24.2	23.1	13.4	8.0	6.9	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	3.1	3.8	8.1	4.0	7.4	28.2																							
11-May	7.6	5.4	1.5	1.3	Z	1.0	0.8	1.2	1.0	0.8	0.8	0.8	0.4	0.7	0.5	0.2	2.0	1.9	2.1	4.2	7.7	4.2	4.0	7.0	2.5	7.7																							
12-May	19.9	14.6	14.4	15.0	17.9	Z	13.7	10.0	8.4	2.0	0.8	1.3	0.7	0.7	0.7	1.2	1.4	1.0	1.5	4.8	5.8	15.4	14.5	15.2	7.9	19.9																							
13-May	Z	4.3	4.0	10.7	14.7	10.4	8.5	8.1	7.5	5.4	4.6	3.7	1.8	1.7	2.7	1.7	3.1	12.8	5.9	9.1	4.3	8.8	27.4	29.3	8.3	29.3																							
14-May	25.9	Z	16.9	16.3	15.1	16.9	13.2	12.0	8.6	4.5	4.8	1.6	0.5	0.3	0.3	0.8	10.0	7.0	7.2	10.2	11.4	8.8	7.7	8.7	25.9	8.7																							
15-May	10.1	9.8	Z	9.8	19.8	16.6	17.4	20.8	8.1	7.2	5.2	4.3	3.8	2.7	2.0	2.8	1.8	1.7	1.6	3.0	5.7	5.0	6.0	10.9	7.7	20.8																							
16-May	3.7	11.7	7.9	Z	20.0	16.3	8.9	12.2	9.1	10.3	6.5	4.6	6.2	10.4	7.2	6.6	5.3	3.6	4.4	5.7	2.8	3.6	5.9	8.7	7.9	20.0																							
17-May	7.3	6.0	5.2	4.7	Z	6.0	5.3	5.9	4.4	5.5	6.1	3.4	2.8	2.9	3.6	4.0	1.7	1.6	1.9	4.0	1.9	4.1	5.0	2.0	4.1	7.3																							
18-May	1.5	6.6	5.2	4.4	2.5	Z	2.4	3.0	2.3	2.6	1.5	1.4	2.2	1.9	2.1	2.4	2.7	2.1	3.7	5.2	7.4	7.1	9.4	6.8	3.8	9.4																							
19-May	Z	5.2	10.5	11.5	10.7	6.7	9.3	8.4	5.3	6.1	5.3	3.7	3.1	3.8	5.2	5.2	3.7	3.8	1.9	4.1	7.8	6.1	3.7	6.0	6.0	11.5																							
20-May	14.8	Z	7.5	6.2	13.4	12.4	8.0	11.2	7.5	7.2	5.0	3.4	2.6	2.6	2.9	2.9	2.0	2.6	1.3	2.4	4.4	5.5	6.1	2.4	5.8	14.8																							
21-May	4.4	1.8	Z	4.0	3.3	2.2	1.4	0.9	1.1	C	C	C	C	C	0.4	0.6	0.4	0.6	1.4	0.9	1.3	3.3	16.2	12.3	3.1	16.2																							
22-May	13.0	15.9	15.8	Z	6.8	11.3	18.0	4.3	4.2	2.6	2.1	2.2	1.2	1.3	1.6	2.0	1.8	1.3	0.8	1.0	1.6	5.7	8.0	10.5	5.8	18.0																							
23-May	10.7	6.1	6.9	6.8	Z	4.6	3.8	3.0	1.2	0.5	0.5	0.3	0.5	0.4	0.9	1.3	1.9	2.4	2.1	1.8	3.8	6.5	11.0	9.8	3.8	11.0																							
24-May	14.4	7.9	5.9	12.2	15.3	Z	2.5	3.7	3.8	4.9	1.3	0.8	1.3	2.1	2.1	1.9	2.0	1.8	2.7	2.3	3.1	6.0	15.1	19.2	5.8	19.2																							
25-May	Z	8.6	10.7	17.1	20.2	16.0	10.3	9.3	8.0	2.4	2.6	2.1	1.6	1.2	1.2	1.4	1.5	1.2	1.1	1.5	1.3	3.6	2.4	3.5	5.6	20.2																							
26-May	4.0	Z	9.3	18.4	17.5	11.9	4.2	8.1	7.6	4.8	3.5	2.5	1.8	3.2	2.4	1.5	1.7	3.0	1.9	5.5	7.3	6.2	7.4	6.0	6.1	18.4																							
27-May	5.1	8.4	Z	7.0	17.3	6.7	8.0	14.0	9.7	5.5	2.0	2.3	1.8	1.6	1.5	1.9	2.2	0.5	1.6	6.7	4.0	15.4	14.9	13.8	6.6	17.3																							
28-May	8.1	16.2	5.1	Z	10.1	10.0	11.6	8.4	6.4	8.2	3.3	4.4	4.2	1.9	0.7	0.8	1.2	1.2	0.7	10.7	14.2	22.3	32.1	3.9	8.1	32.1																							
29-May	22.9	10.9	15.7	30.6	Z	14.7	14.8	8.1	10.2	10.2	7.9	5.6	3.3	2.2	1.1	0.5	0.3	0.6	0.5	0.3	0.6	0.6	2.3	3.7	7.3	30.6																							
30-May	4.2	4.0	3.9	2.0	4.0	Z	2.4	2.8	3.3	3.1	3.3	3.4	3.0	3.5	2.2	3.1	3.6	5.2	3.8	3.3	7.1	4.3	0.2	0.4	3.3	7.1																							
31-May	Z	1.2	0.5	0.2	0.2	0.2	0.3	0.4	1.5	1.2	0.5	1.5	1.8	1.6	2.4	3.9	3.9	3.6	3.5	4.4	3.9	1.5	2.2	2.6	1.9	4.4																							
																								12.5	10.7	10.6	11.4	14.1	12.0	9.2	7.9	6.3	4.8	3.9	2.9	2.4	2.5	2.3	2.5	2.0	2.6	2.6	4.4	6.9	9.5	11.8	10.8	Diurnal Average	
																								28.9	24.9	29.9	30.6	31.8	29.2	25.7	23.9	23.1	15.6	12.1	10.5	8.9	10.4	7.2	8.6	5.3	12.8	7.2	10.9	21.1	40.8	38.7	37.5	Diurnal Maximum	

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



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - May 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Barge Landing - May 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	44	6.21	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 Dioxide (NO<sub>2</sub>) - ppb  
Barge Landing - May 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	56	97	57	31	28	48	47	57	41	19	32	22	13	38	38	39	663
21 - 40	10	8	1	4	1	0	2	3	4	2	2	0	0	1	2	4	44
11 - 80	0	0	0	0	1	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>	66	105	58	35	30	48	49	60	45	21	34	22	13	39	40	43	708

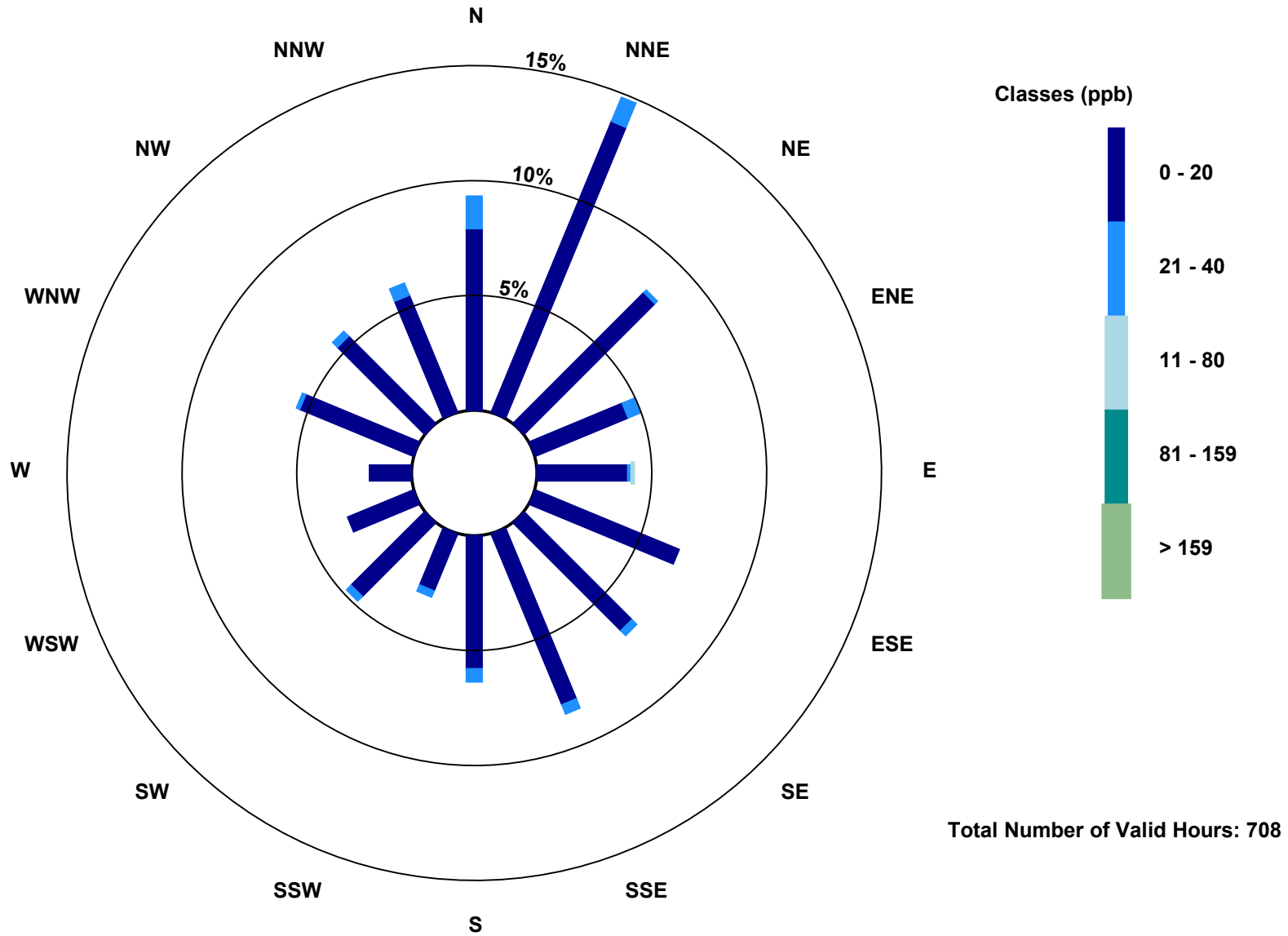
Total Number of Valid Hours: 708

Total Number of Hours: 744

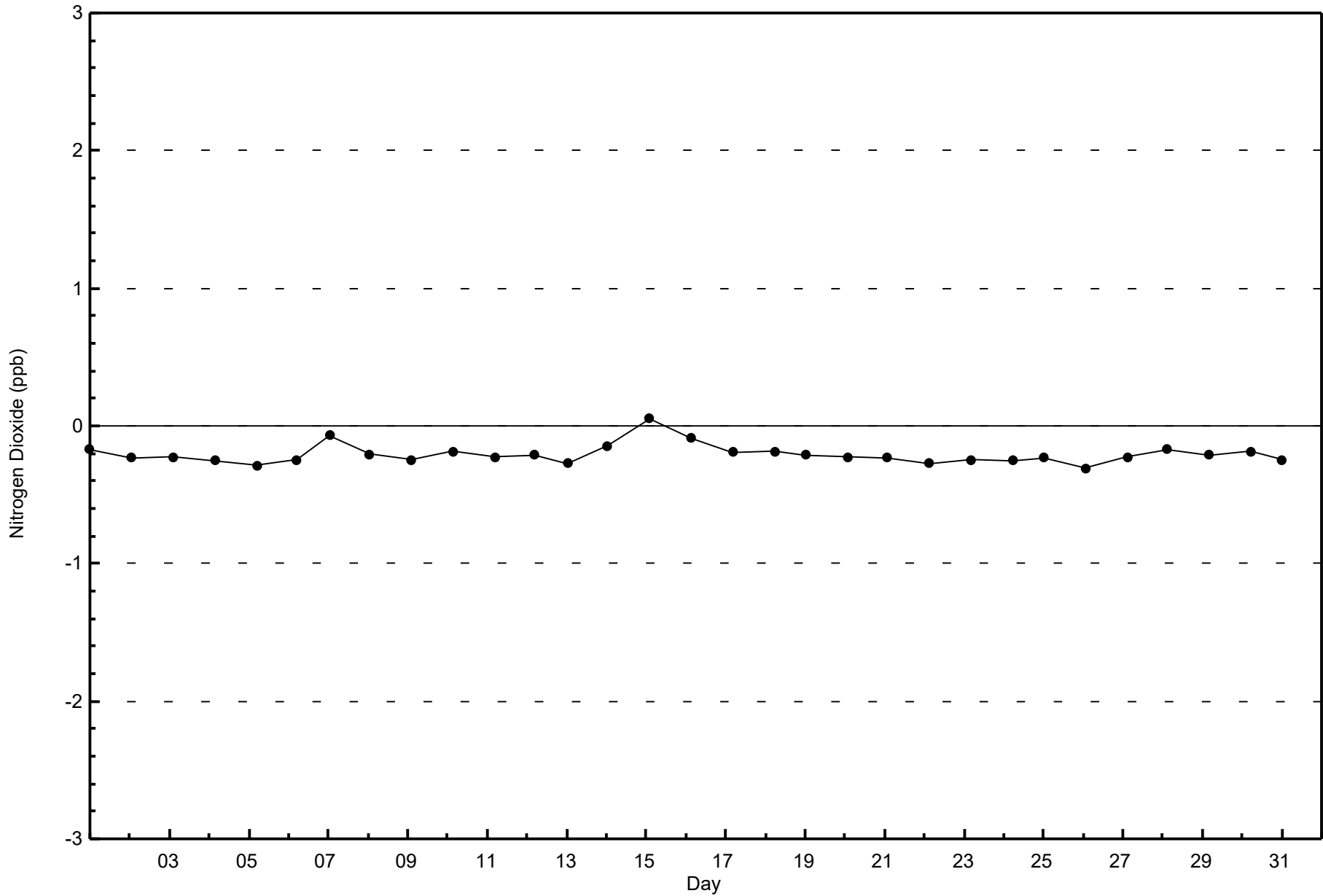


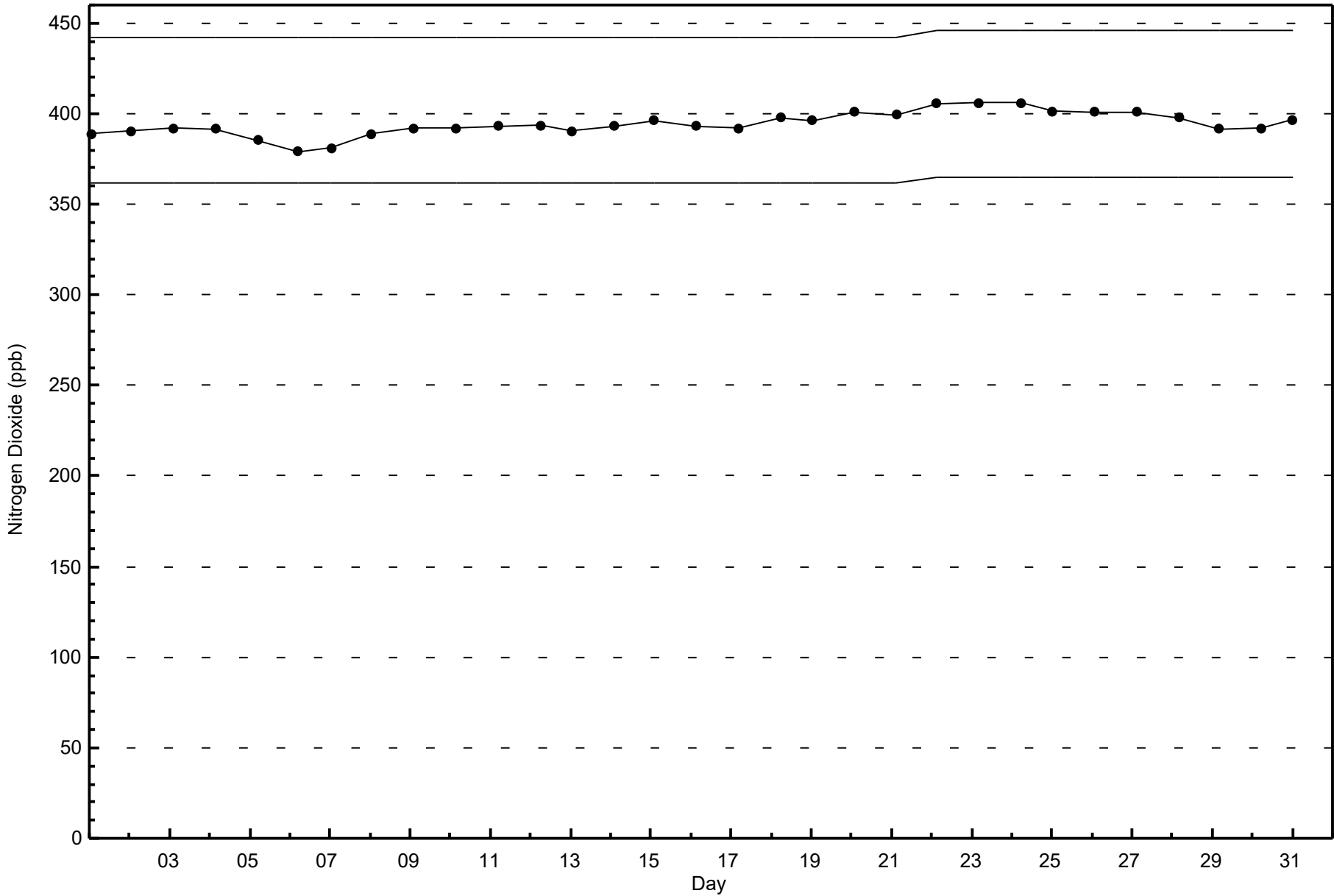
Wood Buffalo Environmental Association  
Wind Rose May 2024

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







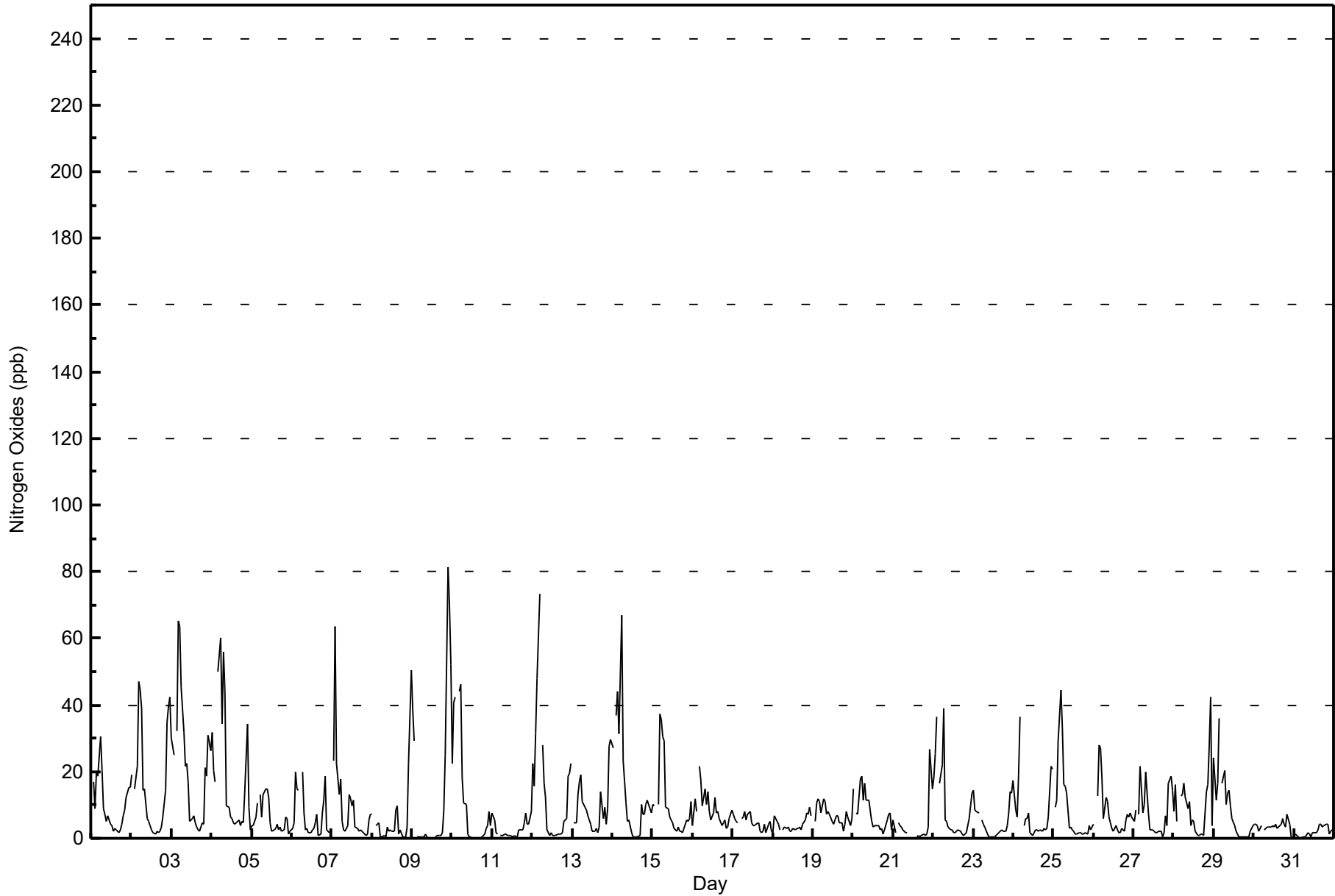




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - May 2024**

Maximum Value: 81.4 ppb on May 9 22:00		Maximum Daily Average: 21.3 ppb on May 3		Hours in Service: 744																							
Minimum Value: 0.2 ppb on May 10 18:00		Minimum Daily Average: 1.9 ppb on May 31		Hours of Data: 708																							
Maximum Diurnal Average: 24.5 ppb at hour 5		Minimum Diurnal Average: 2.3 ppb at hour 17		Hours of Missing Data: 36																							
Monthly Average: 9.04 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 2.1 Median = 4.6 Q <sub>3</sub> = 11.0 P <sub>90</sub> = 22.3 P <sub>99</sub> = 59.8		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-May	Z	17.1	8.7	19.7	18.8	30.7	20.5	8.8	7.2	5.0	6.8	4.4	3.6	2.2	3.2	2.6	1.7	2.7	4.4	6.7	8.5	12.1	15.2	15.5	9.8	30.7	
2-May	18.9	Z	15.0	21.7	47.2	44.5	39.0	14.5	14.6	5.9	5.2	4.0	2.5	1.8	1.4	2.1	1.6	2.0	3.3	6.3	14.4	34.6	39.6	42.3	16.6	47.2	
3-May	30.2	25.0	Z	32.2	65.2	63.7	45.2	31.9	21.8	22.3	16.5	5.1	5.7	7.0	4.7	3.5	2.7	2.2	4.7	4.4	21.2	18.6	30.8	26.1	21.3	65.2	
4-May	31.7	20.2	16.8	Z	50.1	60.1	34.3	55.9	44.0	9.6	9.5	6.2	5.8	4.8	4.4	4.7	5.5	4.0	5.0	4.8	13.7	34.2	9.1	2.4	19.0	60.1	
5-May	3.9	3.8	6.2	10.7	Z	13.0	6.5	13.3	14.8	15.0	12.4	4.8	2.2	2.6	2.9	4.1	2.4	3.6	2.1	2.5	6.5	5.8	1.4	2.3	6.2	15.0	
6-May	2.8	4.6	20.0	15.0	14.2	Z	20.0	7.8	2.3	2.9	1.6	1.8	2.4	2.9	4.6	7.1	0.9	1.3	7.7	11.4	18.7	2.6	1.7	1.9	6.8	20.0	
7-May	Z	23.2	63.7	22.5	13.1	17.6	5.0	2.4	2.0	3.6	13.3	11.9	9.9	11.3	3.4	3.0	2.2	2.6	2.2	1.9	0.9	1.2	5.6	7.3	10.0	63.7	
8-May	7.3	Z	3.7	4.1	4.5	0.6	0.4	0.6	0.5	3.2	2.3	2.7	2.1	2.3	8.5	9.9	1.2	2.4	0.5	0.5	0.3	3.5	22.5	50.3	5.8	50.3	
9-May	38.6	29.0	Z	0.5	0.3	0.4	0.5	0.4	1.1	0.2	0.2	0.2	0.2	0.2	0.2	0.9	1.0	0.7	1.7	8.6	25.0	81.4	70.1	52.0	13.6	81.4	
10-May	22.5	40.7	42.5	Z	43.9	46.1	18.0	10.4	10.3	1.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2	3.1	3.8	8.1	4.0	11.2	46.1	
11-May	7.6	5.4	1.5	1.3	Z	1.0	0.8	1.4	1.2	0.9	0.9	0.9	0.5	0.8	0.5	0.3	2.6	2.4	2.4	4.5	7.8	4.2	4.0	7.9	2.6	7.9	
12-May	22.3	15.9	31.6	47.9	73.5	Z	28.0	16.5	12.4	2.4	0.9	1.6	0.8	0.8	0.7	1.3	1.5	1.1	1.6	5.0	5.9	18.5	19.7	22.5	14.4	73.5	
13-May	Z	4.7	4.7	13.0	16.9	18.9	11.0	9.2	8.7	6.6	5.4	4.2	1.9	1.9	3.1	1.8	3.3	14.1	6.0	9.3	4.3	8.8	27.5	29.6	9.3	29.6	
14-May	27.1	Z	36.8	44.1	31.4	66.8	23.2	17.0	10.5	5.1	5.6	1.8	0.5	0.3	0.3	0.8	10.3	7.1	7.2	10.3	11.4	8.8	7.7	14.5	66.8		
15-May	10.2	9.9	Z	10.0	37.1	35.7	30.4	29.3	9.5	9.0	6.5	5.4	4.6	3.1	2.3	3.3	2.1	1.9	1.7	3.1	5.7	5.0	6.1	10.9	10.6	37.1	
16-May	3.7	11.8	7.9	Z	21.6	17.2	9.6	14.8	10.2	14.2	8.1	5.7	7.4	12.4	7.7	7.9	6.1	3.7	4.5	5.7	2.8	3.6	5.9	8.7	8.7	21.6	
17-May	7.3	6.0	5.2	4.7	Z	6.1	6.4	8.0	5.6	7.3	8.0	4.5	3.7	3.8	4.2	4.6	1.9	1.8	2.0	4.1	1.9	4.1	5.0	2.0	4.7	8.0	
18-May	1.5	6.6	5.2	4.4	2.5	Z	2.7	3.6	2.9	3.4	2.0	1.9	3.0	2.6	2.8	3.1	3.2	2.4	4.0	5.4	7.7	7.3	9.5	6.8	4.1	9.5	
19-May	Z	5.2	10.6	11.7	11.2	7.4	11.7	11.2	7.2	7.9	7.2	5.2	4.3	5.3	6.7	7.0	4.6	4.7	2.2	4.3	8.0	6.2	3.7	6.0	6.9	11.7	
20-May	15.0	Z	7.6	7.4	17.9	18.5	11.4	16.4	11.4	11.3	8.1	4.9	3.4	3.7	3.7	3.8	2.4	2.9	1.4	2.7	5.3	7.2	7.7	2.5	7.7	18.5	
21-May	5.4	1.9	Z	4.5	3.8	3.3	2.6	1.5	1.7	C	C	C	C	C	0.4	0.7	0.4	0.7	1.5	0.9	1.3	3.5	26.8	15.0	4.2	26.8	
22-May	18.4	25.4	36.6	Z	16.4	22.1	38.8	5.6	5.3	3.4	2.7	2.7	1.5	1.6	2.0	2.5	2.1	1.4	0.9	1.1	1.7	5.8	9.6	13.5	9.6	38.8	
23-May	14.3	8.6	7.8	7.5	Z	5.4	4.3	3.5	1.4	0.6	0.6	0.4	0.6	0.5	1.1	1.7	2.2	2.7	2.3	1.9	4.0	7.4	14.0	13.5	4.6	14.3	
24-May	17.5	8.3	6.5	19.0	36.3	Z	3.7	6.0	6.0	7.6	1.8	1.0	1.6	2.6	2.5	2.2	2.4	2.0	2.9	2.4	3.1	6.2	21.7	20.9	8.0	36.3	
25-May	Z	9.2	11.3	29.2	44.6	32.9	16.2	15.9	13.7	3.0	3.3	2.6	1.9	1.3	1.3	1.6	1.6	1.2	1.1	1.5	1.3	3.6	2.4	3.5	8.9	44.6	
26-May	4.2	Z	12.6	27.9	27.3	18.2	5.8	12.5	11.0	6.2	4.5	3.0	2.0	3.7	2.7	1.7	1.8	3.2	2.0	5.7	7.4	6.2	7.6	6.4	8.0	27.9	
27-May	5.1	8.6	Z	7.3	21.7	7.5	10.1	19.8	13.8	7.3	2.5	2.7	2.1	1.8	1.7	2.1	2.3	0.5	1.6	6.9	4.0	16.6	18.6	14.4	7.8	21.7	
28-May	8.1	16.3	5.1	Z	12.6	13.0	16.5	12.1	8.9	11.1	4.0	5.5	5.2	2.2	0.8	0.9	1.3	1.3	0.7	14.0	16.2	27.8	42.2	3.9	10.0	42.2	
29-May	24.3	11.5	16.5	36.0	Z	16.7	20.4	10.0	13.5	14.5	9.9	6.0	3.7	2.3	1.1	0.5	0.3	0.6	0.5	0.3	0.6	0.6	2.3	3.7	8.5	36.0	
30-May	4.2	4.0	3.9	2.0	4.0	Z	2.5	2.9	3.4	3.3	3.5	3.7	3.3	4.1	2.8	3.7	4.2	5.8	4.2	3.4	7.2	4.3	0.2	0.4	3.5	7.2	
31-May	Z	1.2	0.5	0.2	0.2	0.2	0.3	0.4	1.6	1.3	0.5	1.6	1.9	1.7	2.6	4.2	4.3	3.6	3.6	4.4	4.1	1.5	2.2	2.6	1.9	4.4	
		14.1	12.5	15.0	15.6	24.5	21.8	14.4	11.7	9.0	6.5	5.1	3.5	3.0	3.1	2.7	3.0	2.3	2.9	2.8	4.6	7.2	11.5	14.5	13.1	Diurnal Average	
		38.6	40.7	63.7	47.9	73.5	66.8	45.2	55.9	44.0	22.3	16.5	11.9	9.9	12.4	8.5	9.9	6.1	14.1	7.7	14.0	25.0	81.4	70.1	52.0	Diurnal Maximum	
Z - zerospan		C - Calibration																									





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Barge Landing - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	627	88.56	88.56
21 - 40	56	7.91	96.47
41 - 80	24	3.39	99.86
81 - 159	0	0.00	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Barge Landing - May 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	95	53	26	27	46	46	50	37	18	30	22	13	38	38	37	627
21 - 40	11	6	4	8	1	2	1	5	4	2	4	0	0	1	1	6	56
11 - 80	4	4	1	1	1	0	2	5	4	1	0	0	0	0	1	0	24
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	66	105	58	35	29	48	49	60	45	21	34	22	13	39	40	43	707

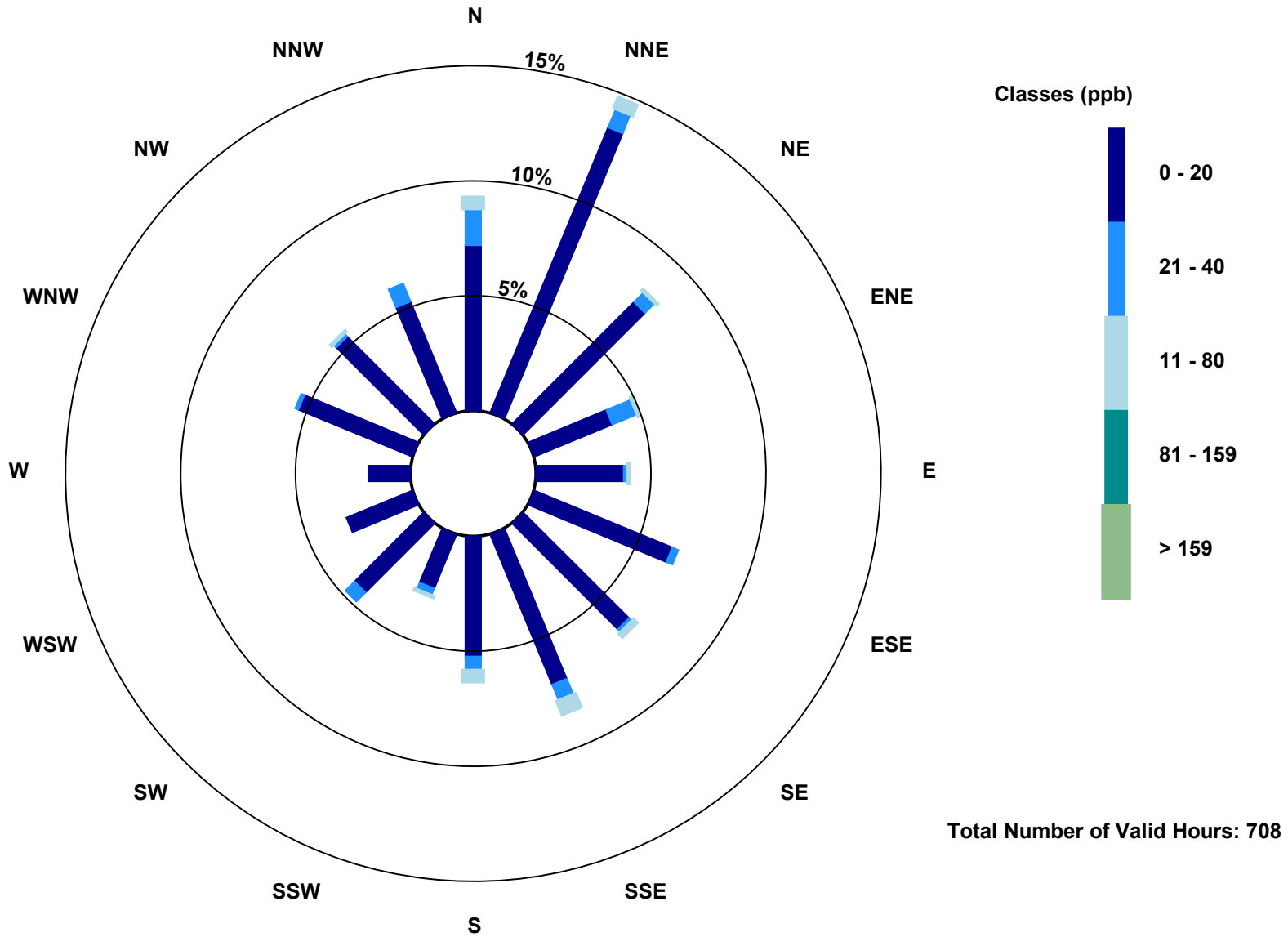
Total Number of Valid Hours: 708

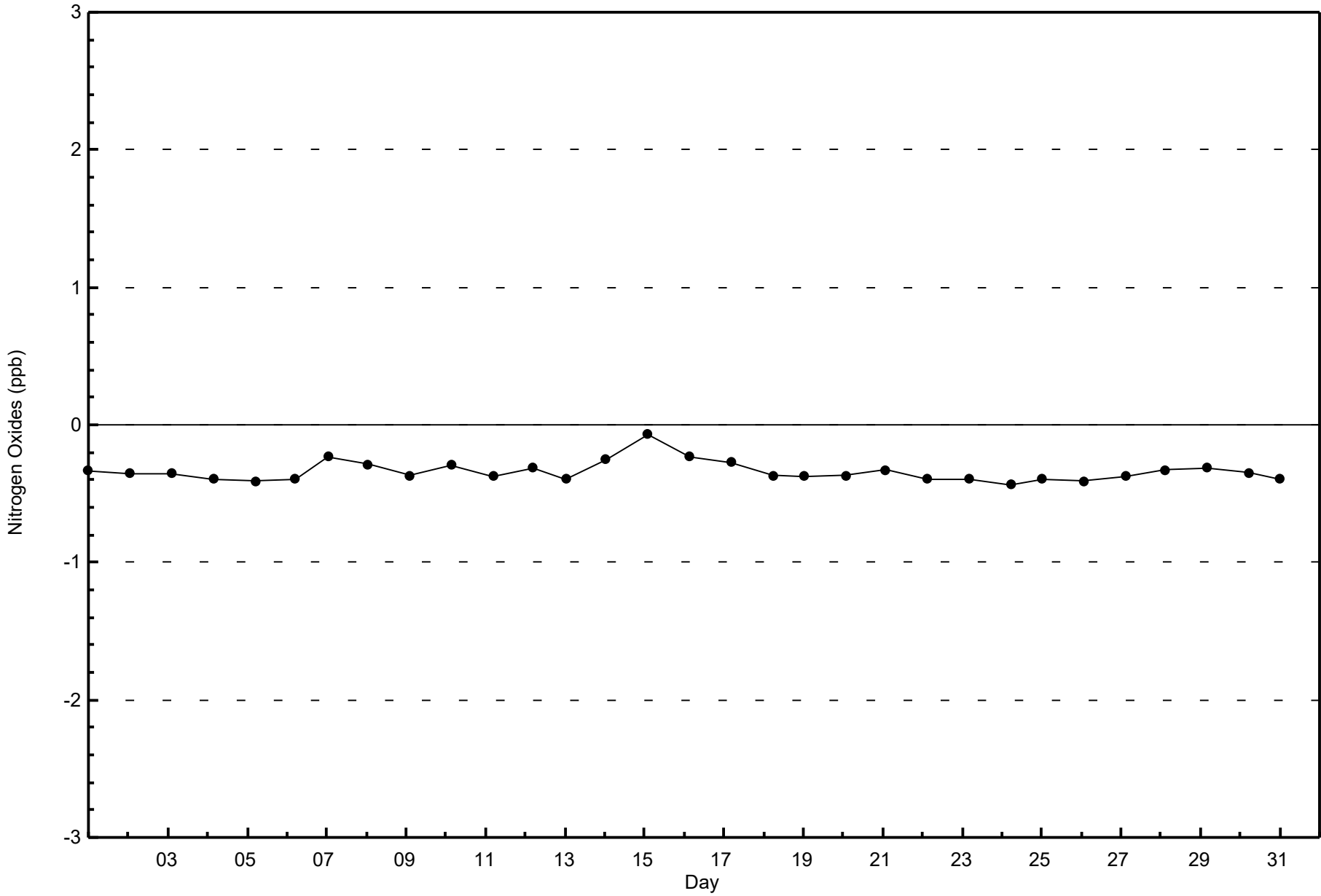
Total Number of Hours: 744



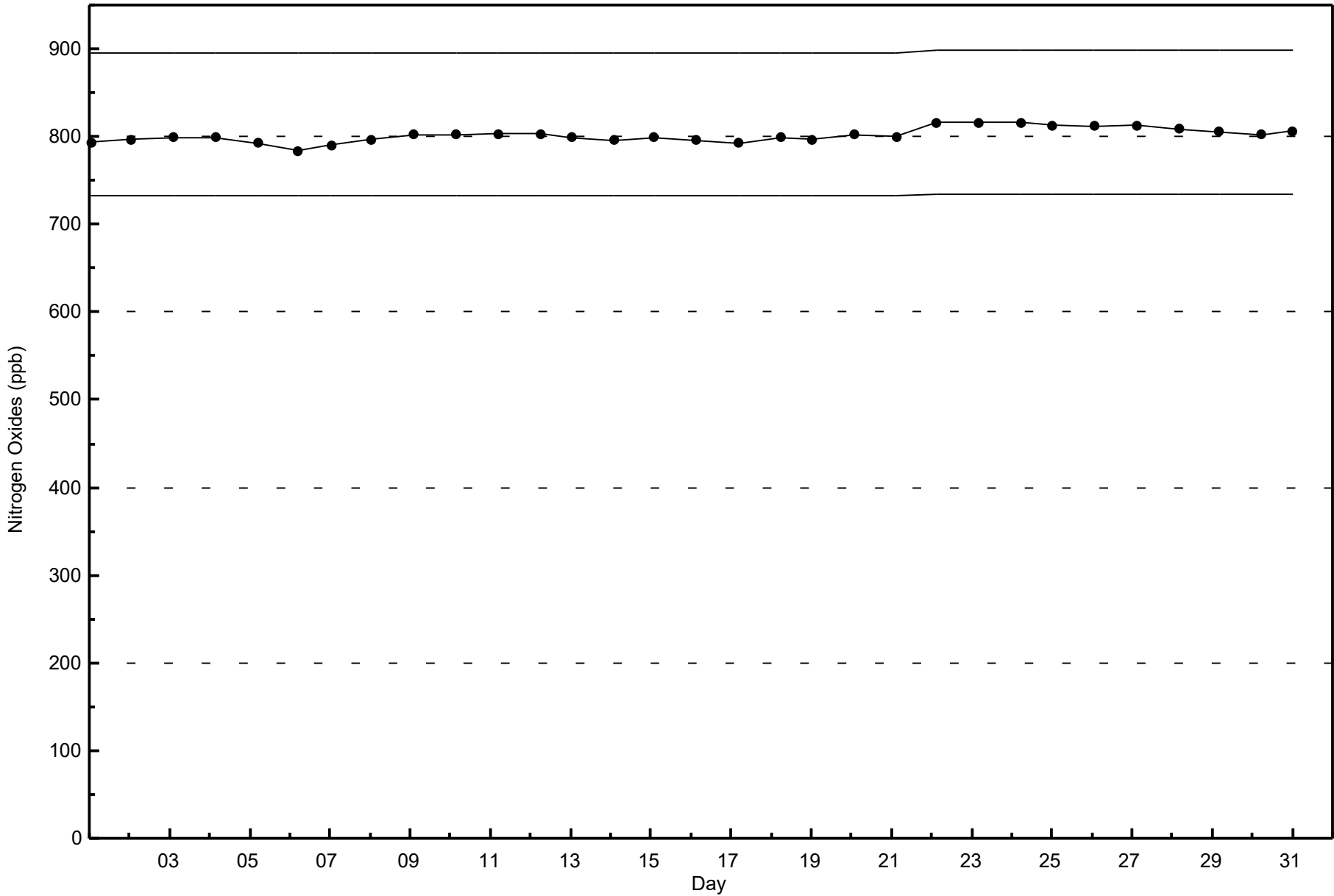
Wood Buffalo Environmental Association  
Wind Rose May 2024

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







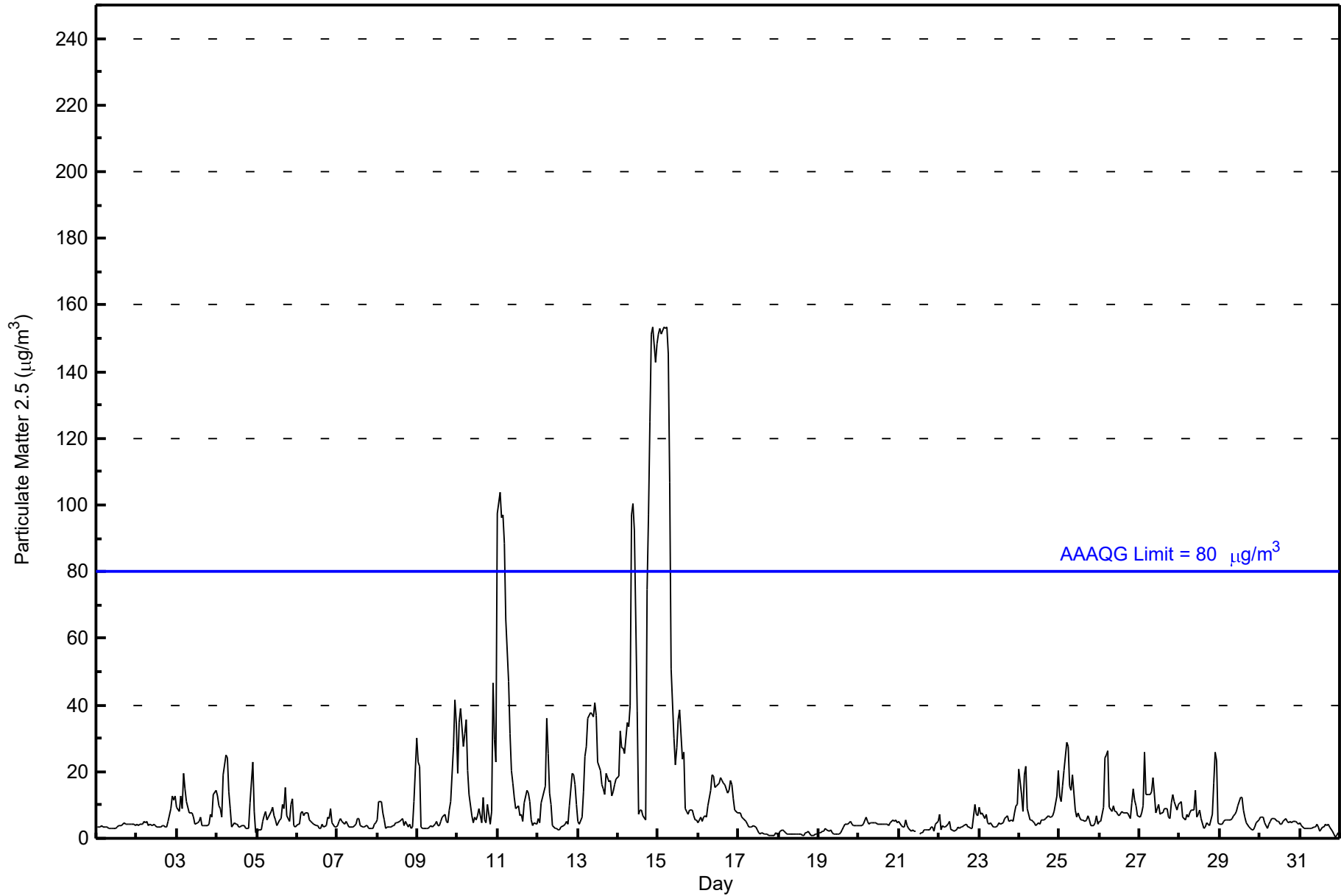




Summary of Hour Averages

Barge Landing - May 2024

Number of Exceedences (AAAQO):		1-hr: 22		24-hr: 3		Hours in Service:		744																			
Maximum Value: 153.4 µg/m <sup>3</sup> on May 14 22:00		Maximum Daily Average: 62.3 µg/m <sup>3</sup> on May 14				Hours of Data:		743																			
Minimum Value: 0.6 µg/m <sup>3</sup> on May 31 22:00		Minimum Daily Average: 1.4 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		1																			
Maximum Diurnal Average: 18.0 µg/m <sup>3</sup> at hour 5		Minimum Diurnal Average: 5.7 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		1																			
Monthly Average: 11.74 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 3.7 Median = 5.3 Q <sub>3</sub> = 9.9 P <sub>90</sub> = 22.9 P <sub>99</sub> = 150.1				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-May	3.3	3.4	3.3	3.6	3.6	3.5	3.5	3.0	2.9	2.8	3.2	3.1	3.3	3.6	3.9	4.0	4.7	4.1	4.4	4.4	4.1	4.2	4.4	3.9	3.7	4.7	
2-May	4.1	3.8	4.1	4.1	5.1	4.6	5.0	3.7	4.2	4.0	4.1	3.7	3.4	3.6	3.6	4.0	3.9	3.5	3.6	5.1	8.8	12.5	11.5	12.7	5.3	12.7	
3-May	9.1	7.9	12.6	8.8	19.7	14.8	11.1	7.7	7.7	7.4	6.1	4.2	4.5	5.1	6.3	3.9	3.8	3.9	3.9	4.2	7.3	6.5	13.0	14.3	8.1	19.7	
4-May	12.7	9.8	9.1	6.3	19.2	25.0	24.4	14.0	8.8	3.6	4.8	4.3	4.3	3.3	3.3	3.8	3.7	3.0	3.1	3.2	10.5	23.0	8.0	1.7	8.9	25.0	
5-May	1.9	2.5	2.7	5.0	6.7	8.0	5.5	6.3	8.2	9.5	7.0	5.7	3.8	5.6	5.8	10.3	8.7	15.4	6.6	5.0	10.2	11.8	3.9	3.5	6.7	15.4	
6-May	4.1	4.3	7.7	8.1	6.9	7.4	7.7	5.5	5.0	4.5	4.3	3.8	3.6	3.0	3.1	4.3	3.4	3.7	6.2	5.8	9.0	4.8	3.2	3.5	5.1	9.0	
7-May	4.0	4.9	6.0	5.2	4.1	5.1	4.1	3.4	3.3	3.4	3.9	4.4	5.8	6.1	3.8	3.3	3.3	3.8	3.8	3.2	3.0	3.1	4.4	4.8	4.2	6.1	
8-May	5.7	10.8	10.9	7.8	5.4	3.1	3.4	3.6	3.5	3.9	3.8	4.8	4.7	5.2	5.6	6.0	3.8	5.2	3.4	4.2	2.9	3.2	10.9	30.2	6.3	30.2	
9-May	23.0	21.4	3.5	2.9	2.8	3.1	3.1	3.6	3.8	3.6	4.1	4.9	4.0	4.0	5.0	6.4	7.1	5.1	4.8	8.4	11.0	27.4	41.4	34.3	10.0	41.4	
10-May	19.7	34.7	38.9	27.7	31.4	35.5	20.4	13.2	7.0	4.8	6.2	5.5	6.7	8.7	4.5	12.2	5.5	4.6	10.2	4.0	8.2	46.6	29.7	23.0	17.0	46.6	
11-May	97.6	104.0	96.0	97.1	88.5	65.8	47.0	31.4	20.1	16.4	12.2	8.8	9.9	6.7	7.4	4.9	10.5	14.6	13.7	10.9	5.3	3.8	4.8	4.3	32.6	104.0	
12-May	6.0	4.7	10.4	12.5	15.6	36.0	25.3	13.5	10.4	3.8	3.1	3.1	2.6	2.6	3.3	3.8	4.3	5.1	4.4	9.5	19.4	18.9	16.1	10.2	10.2	36.0	
13-May	5.0	4.2	6.4	13.8	24.5	27.7	35.9	37.5	37.5	36.5	40.8	36.8	22.7	20.4	16.2	14.9	13.2	19.3	17.0	17.3	12.5	14.0	16.1	17.9	21.2	40.8	
14-May	18.5	32.3	27.2	27.0	25.5	34.8	33.6	40.0	97.2	100.3	92.2	38.2	7.0	8.3	8.5	6.9	5.4	74.8	97.1	125.2	151.4	153.4	142.7	148.3	62.3	153.4	
15-May	151.5	153.2	151.3	153.3	153.1	153.3	145.4	106.7	50.7	29.9	22.2	27.3	35.4	38.7	23.9	25.7	8.9	7.9	7.1	8.4	8.4	6.6	5.7	5.7	61.7	153.3	
16-May	4.6	6.4	4.9	6.2	6.7	6.4	9.7	14.4	19.2	18.8	15.4	15.8	16.7	18.3	17.6	16.5	16.2	13.6	14.6	17.3	16.0	11.7	8.4	7.5	12.6	19.2	
17-May	7.8	7.5	6.3	5.8	4.9	4.2	3.5	3.2	3.4	3.7	3.5	2.7	1.9	1.4	1.6	1.2	1.2	1.1	0.9	0.9	0.7	0.9	1.5	1.1	3.0	7.8	
18-May	0.7	2.0	2.4	2.3	1.6	1.3	1.3	1.4	1.2	1.2	1.1	1.3	1.1	1.1	1.0	1.1	1.6	1.8	2.0	0.9	1.0	0.9	1.4	1.3	1.4	2.4	
19-May	1.5	1.7	2.2	2.2	2.9	2.5	2.3	2.3	1.5	1.3	1.3	1.1	1.2	1.5	2.4	3.3	4.1	4.4	4.6	4.9	4.3	3.7	3.8	3.9	2.7	4.9	
20-May	3.9	4.0	4.0	4.4	6.3	4.9	4.4	4.8	4.6	4.5	4.6	4.4	4.3	4.3	4.2	4.2	4.4	4.3	3.8	4.5	5.3	5.2	5.5	4.5	4.6	6.3	
21-May	5.2	3.9	3.3	3.4	5.6	3.6	2.9	2.2	2.6	2.0	2.1	C	1.3	1.8	1.9	2.7	2.4	2.3	2.4	3.4	3.6	2.2	4.0	5.1	3.1	5.6	
22-May	7.0	2.5	3.8	3.4	3.6	4.1	4.9	2.4	2.5	2.2	2.4	3.3	3.0	3.4	3.5	3.7	4.3	3.5	3.6	3.0	3.1	10.3	7.3	6.9	4.1	10.3	
23-May	9.2	7.1	7.6	5.9	7.0	4.7	4.1	4.6	3.4	3.4	3.4	3.7	4.5	4.4	4.7	5.9	6.3	6.7	5.1	5.5	5.3	7.6	9.9	10.1	5.8	10.1	
24-May	20.6	13.3	8.0	19.1	21.7	9.0	5.3	5.5	5.0	4.7	3.9	4.7	4.1	5.4	5.6	5.3	5.9	6.7	6.2	6.4	7.0	8.2	12.8	20.5	9.0	21.7	
25-May	12.7	11.1	15.9	20.4	28.8	27.5	15.5	14.5	18.9	8.6	6.5	7.8	6.5	5.3	5.6	5.0	5.6	6.9	5.6	4.0	3.7	4.7	6.6	4.4	10.5	28.8	
26-May	5.1	5.0	9.2	24.3	24.8	26.5	9.2	8.2	9.8	8.0	7.8	7.0	6.7	8.2	7.5	7.8	7.7	7.7	6.1	10.4	14.8	11.4	9.9	6.6	10.4	26.5	
27-May	6.4	7.5	9.9	25.8	13.1	12.9	13.1	14.0	18.3	13.0	7.7	10.1	7.0	7.5	7.5	8.8	8.8	6.5	5.7	10.8	13.0	10.8	8.6	10.1	10.7	25.8	
28-May	10.7	11.1	6.3	5.6	7.1	6.3	7.8	8.6	8.6	14.2	6.5	7.0	8.7	5.9	3.0	3.4	4.7	4.1	4.0	7.1	16.4	25.7	23.4	4.8	8.8	25.7	
29-May	4.2	4.3	5.2	5.6	5.7	5.6	5.6	6.0	6.6	7.1	8.1	9.6	12.1	12.4	8.4	6.4	4.5	3.3	3.0	2.4	2.6	3.5	4.6	5.6	5.9	12.4	
30-May	6.3	6.4	6.3	4.8	3.0	4.0	5.0	5.7	5.9	5.9	5.0	5.1	4.1	4.2	5.2	6.0	4.9	4.5	5.0	4.8	5.3	5.0	4.5	4.4	5.1	6.4	
31-May	4.5	3.8	3.1	2.8	2.9	3.2	3.1	3.1	3.3	3.5	4.1	3.3	2.1	3.2	3.4	4.2	3.8	4.2	3.2	2.1	1.4	0.6	1.0	1.7	3.0	4.5	
																								Diurnal Average		12.1 14.6 13.8 13.4	
																								Diurnal Maximum		151.5 153.2 151.3 153.3 153.1 153.3 145.4 106.7 97.2 100.3 92.2 38.2 35.4 38.7 23.9 25.7 16.2 74.8 97.1 125.2 151.4 153.4 142.7 148.3	
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 - May 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	385	51.82	51.82
6 - 15	242	32.57	84.39
16 - 25	52	7.00	91.39
26 - 80	42	5.65	97.04
> 81.0	22	2.96	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>**  
**Barge Landing - May 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	44	57	47	24	15	30	25	8	12	7	16	13	10	28	21	28	385
6 - 15	16	30	8	9	12	16	23	35	18	12	14	9	3	6	15	16	242
16 - 25	2	13	3	4	3	4	5	5	6	1	1	1	0	1	2	1	52
26 - 80	3	5	2	0	1	2	2	14	7	1	2	0	0	2	1	0	42
> 81.0	2	3	0	1	1	0	0	0	3	0	2	0	0	5	3	2	22
<b>Totals</b>	67	108	60	38	32	52	55	62	46	21	35	23	13	42	42	47	743

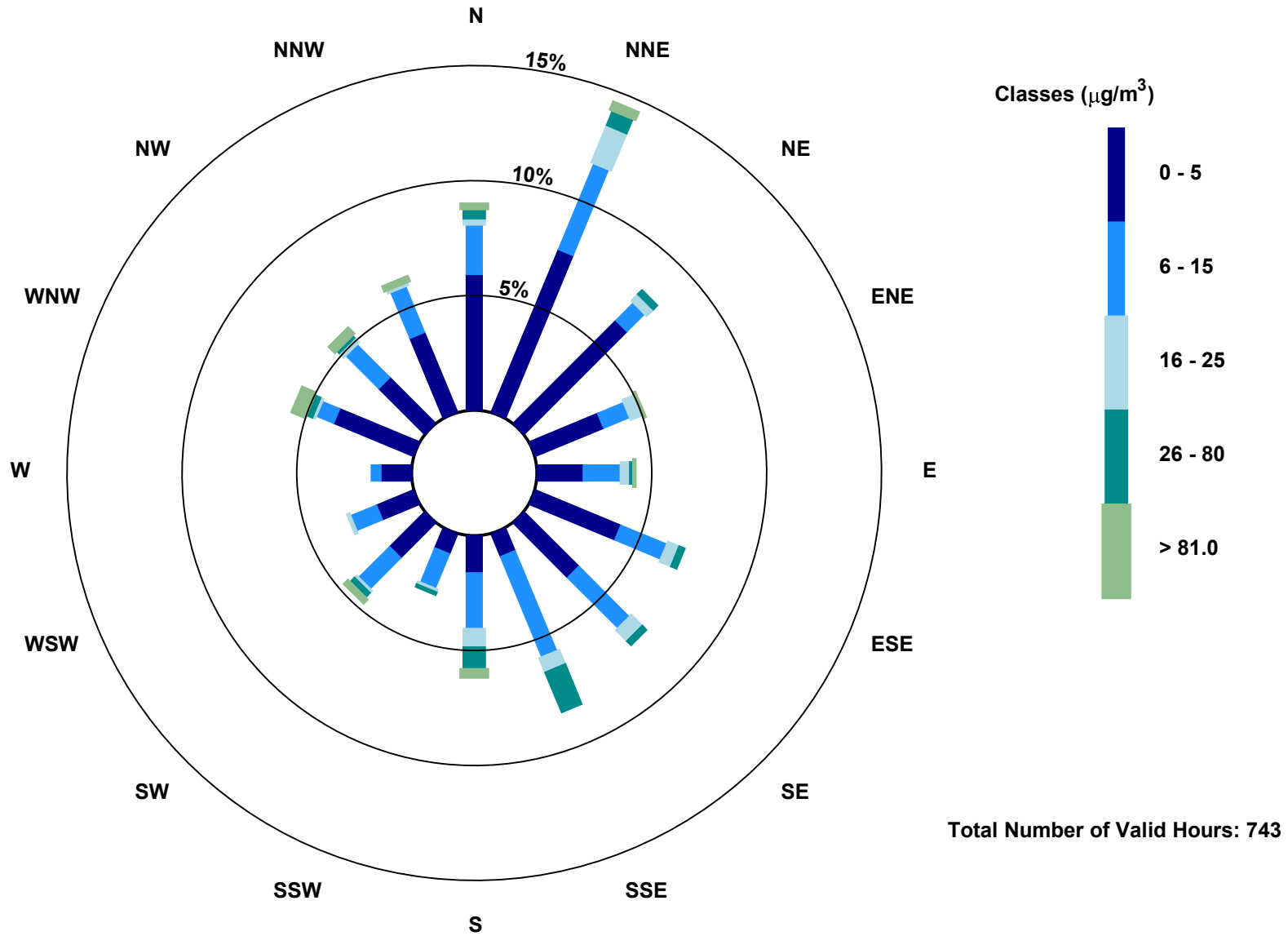
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

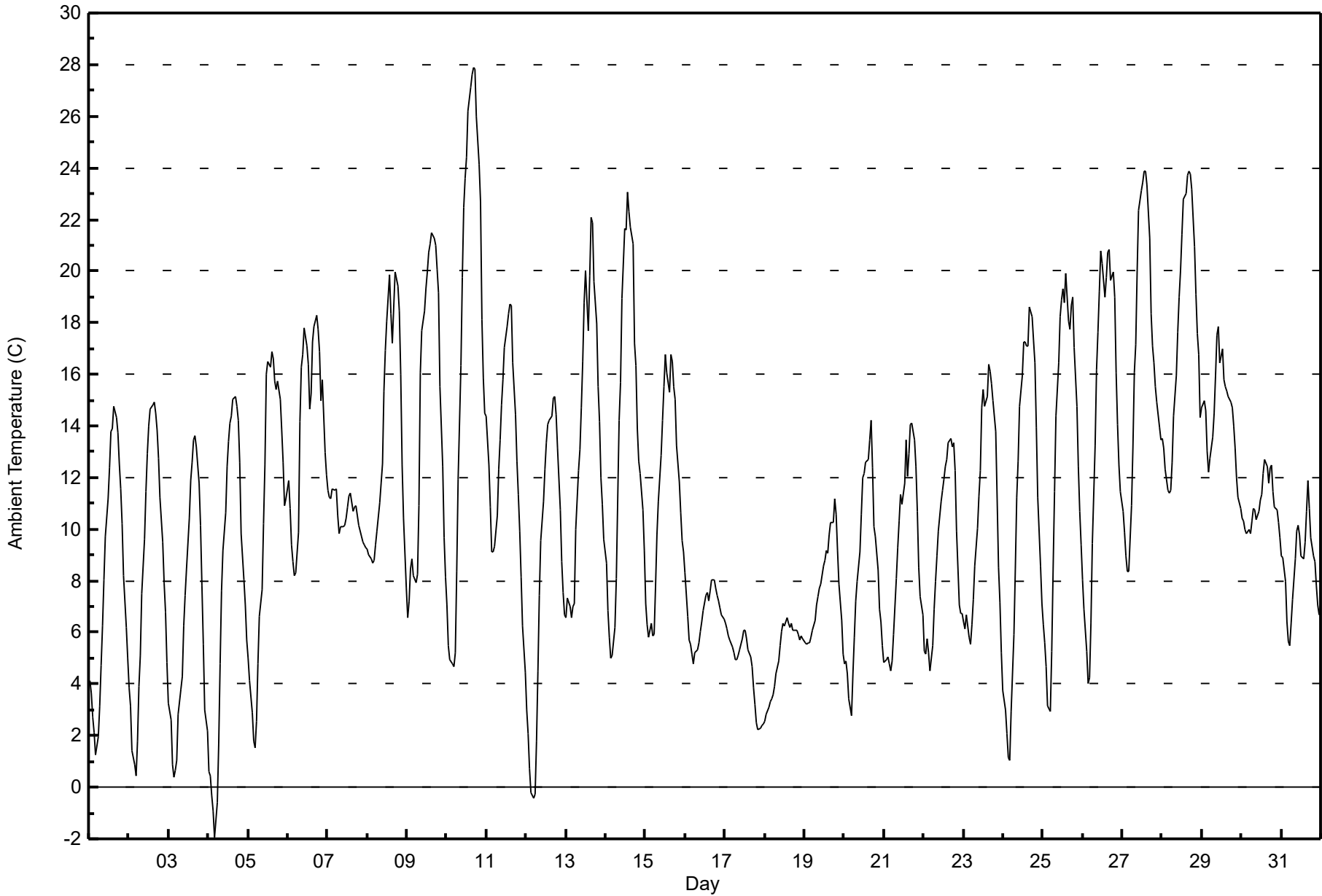
**Ambient Temperature (AT) - C**  
**Barge Landing - May 2024**

Maximum Value: 27.9 C on May 10 17:00		Maximum Daily Average: 17.6 C on May 28																				Hours in Service: 744					
Minimum Value: -2.0 C on May 4 05:00		Minimum Daily Average: 4.7 C on May 17																				Hours of Data: 744					
Maximum Diurnal Average: 15.8 C at hour 17		Minimum Diurnal Average: 5.3 C at hour 5																				Hours of Missing Data: 0					
Monthly Average: 10.96 C		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 4.5 Q <sub>1</sub> = 6.5 Median = 10.6 Q <sub>3</sub> = 14.8 P <sub>90</sub> = 18.6 P <sub>99</sub> = 24.0																				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-May	4.2	3.7	2.7	2.1	1.2	2.0	3.1	4.7	6.2	8.0	9.7	11.2	12.4	13.8	13.9	14.8	14.3	13.7	12.5	11.6	10.2	8.2	6.2	5.0	8.1	14.8	
2-May	3.9	3.2	1.4	0.9	0.4	1.8	3.9	5.1	7.5	9.6	11.5	12.9	14.0	14.7	14.8	14.9	14.5	13.9	12.8	11.2	9.5	7.9	6.8	4.9	8.4	14.9	
3-May	3.3	2.6	0.9	0.4	0.7	1.1	2.8	3.8	4.3	6.3	7.5	8.5	10.4	11.9	12.6	13.5	13.6	13.2	11.8	10.1	7.8	5.5	3.0	2.2	6.6	13.6	
4-May	0.6	0.4	-0.3	-0.9	-2.0	-0.6	1.7	4.8	7.6	9.2	10.6	12.5	13.4	14.1	14.4	15.0	15.1	14.8	14.2	12.6	9.8	8.0	7.1	5.7	7.8	15.1	
5-May	5.0	4.1	2.9	1.8	1.5	2.6	4.8	6.6	7.7	10.2	12.5	16.0	16.5	16.3	16.9	16.6	15.7	15.4	15.7	15.0	13.8	12.6	10.9	11.2	10.5	16.9	
6-May	11.9	10.8	9.4	8.8	8.2	8.3	9.9	14.1	16.3	16.8	17.8	17.1	16.4	14.6	15.2	17.3	17.9	18.3	17.7	16.9	15.0	15.8	12.9	12.1	14.1	18.3	
7-May	11.5	11.3	11.2	11.5	11.5	11.6	10.5	9.8	10.1	10.1	10.2	10.4	10.8	11.3	11.4	10.7	10.8	10.9	10.5	10.2	9.7	9.5	9.4	9.3	10.6	11.6	
8-May	9.2	9.0	8.8	8.7	8.8	9.4	9.9	11.0	11.8	12.5	15.4	16.9	18.1	19.8	18.3	17.2	18.6	20.0	19.4	18.5	16.0	12.5	10.4	7.7	13.7	20.0	
9-May	6.6	7.2	8.5	8.8	8.2	7.9	8.3	10.9	16.1	17.7	18.5	19.3	20.0	20.7	21.1	21.5	21.3	21.0	20.1	19.2	15.5	12.4	9.6	8.1	14.5	21.5	
10-May	7.1	5.5	4.9	4.8	4.7	5.2	8.3	11.9	16.3	19.7	22.5	23.6	24.4	26.2	27.1	27.6	27.9	27.8	26.0	24.1	22.7	18.1	15.9	14.5	17.4	27.9	
11-May	14.4	12.5	10.9	9.1	9.1	9.3	10.5	12.3	13.4	14.8	15.8	17.0	17.9	18.4	18.7	18.6	16.5	14.4	12.6	11.3	10.0	8.1	6.3	4.4	12.8	18.7	
12-May	3.0	2.1	0.7	-0.2	-0.5	-0.3	1.8	4.5	7.4	9.6	11.1	12.3	13.4	14.1	14.2	14.4	15.1	15.1	14.5	13.1	10.8	8.8	7.5	6.7	8.3	15.1	
13-May	6.6	7.4	7.0	6.6	7.0	7.1	10.0	12.2	13.1	14.7	16.5	18.8	20.0	17.7	19.8	22.1	21.9	19.6	17.9	15.5	14.1	12.0	10.9	9.6	13.7	22.1	
14-May	8.7	6.9	5.8	5.0	5.1	6.2	8.1	11.2	14.2	15.7	18.9	21.6	21.6	23.1	22.3	21.7	21.1	17.2	16.3	13.9	12.7	12.2	10.7	9.2	13.7	23.1	
15-May	7.1	6.3	5.8	6.3	5.9	5.9	7.8	9.8	11.1	12.8	14.2	15.5	16.8	16.1	15.3	16.7	16.5	15.5	15.0	13.2	11.8	10.6	9.5	9.1	11.4	16.8	
16-May	8.3	6.6	5.7	5.6	5.2	4.8	5.2	5.3	5.6	6.0	6.4	6.9	7.4	7.5	7.2	7.6	8.0	8.0	7.7	7.4	7.2	7.0	6.7	6.5	6.7	8.3	
17-May	6.4	6.1	5.9	5.7	5.4	5.2	5.0	5.0	5.1	5.3	5.7	6.1	6.1	5.7	5.3	5.0	4.6	3.8	3.2	2.5	2.2	2.3	2.4	2.4	4.7	6.4	
18-May	2.6	2.8	3.1	3.3	3.4	3.6	3.9	4.4	4.9	5.5	6.0	6.3	6.3	6.6	6.3	6.2	6.3	6.1	6.1	6.1	5.9	5.7	5.9	5.8	5.1	6.6	
19-May	5.6	5.6	5.6	5.6	5.8	6.1	6.5	7.1	7.4	7.7	7.9	8.6	8.8	9.2	9.1	9.8	10.3	10.3	11.2	10.6	9.2	7.9	6.5	5.1	7.8	11.2	
20-May	4.8	4.9	4.4	3.4	2.8	4.4	5.8	7.2	8.0	9.1	10.6	12.0	12.2	12.6	12.7	13.5	14.2	12.4	10.1	9.7	8.4	6.9	6.4	5.5	8.4	14.2	
21-May	4.8	5.0	5.0	4.8	4.5	4.9	5.9	8.1	9.3	10.3	11.4	11.0	11.8	13.5	12.1	12.9	14.1	14.1	13.5	12.5	10.7	8.5	7.4	6.7	9.3	14.1	
22-May	5.3	5.2	5.8	5.2	4.5	5.5	6.9	8.0	9.0	10.0	11.1	11.5	12.0	12.4	12.7	13.4	13.5	13.2	13.4	12.3	9.9	7.1	6.7	6.8	9.2	13.5	
23-May	6.4	6.2	6.7	5.8	5.5	6.3	7.3	8.6	10.1	11.3	12.3	14.7	15.4	14.8	15.1	16.4	16.1	15.6	15.0	13.8	11.2	8.5	7.2	5.2	10.6	16.4	
24-May	3.7	3.0	2.1	1.2	1.0	3.0	5.9	8.5	11.2	12.7	14.8	16.0	17.2	17.3	17.1	17.1	18.6	18.2	17.3	16.4	13.9	11.2	8.6	7.1	11.0	18.6	
25-May	6.3	5.6	4.7	3.2	2.9	5.2	8.5	11.5	14.4	16.5	18.2	18.9	19.3	18.8	19.9	18.1	17.7	18.7	19.0	17.1	14.8	12.5	10.7	9.4	13.0	19.9	
26-May	8.0	6.9	5.2	4.0	4.3	6.3	9.5	13.3	16.2	17.6	19.2	20.8	20.3	19.0	19.7	20.7	20.8	19.7	19.9	19.0	16.1	14.1	12.5	11.5	14.4	20.8	
27-May	10.7	9.9	9.0	8.3	8.4	10.9	13.2	16.1	17.1	20.0	22.4	23.1	23.4	23.9	23.9	23.3	21.2	18.3	17.1	16.5	15.5	14.9	14.0	13.5	16.4	23.9	
28-May	13.5	13.1	12.3	11.5	11.4	11.5	12.6	14.4	15.9	17.6	19.0	20.0	21.5	22.8	23.0	23.7	23.9	23.8	23.2	20.9	19.1	17.6	16.8	14.3	17.6	23.9	
29-May	14.7	15.0	14.6	13.0	12.2	12.8	13.6	14.5	15.9	17.5	17.8	16.5	17.0	15.8	15.5	15.4	15.2	14.9	14.7	14.0	13.2	12.0	11.2	10.8	14.5	17.8	
30-May	10.4	10.3	10.0	9.8	10.0	9.8	10.3	10.8	10.7	10.4	10.7	11.2	11.3	12.2	12.7	12.4	11.8	12.3	12.5	11.5	10.9	10.8	10.3	9.6	10.9	12.7	
31-May	8.9	8.9	8.0	6.4	5.6	5.5	6.4	7.3	8.8	10.0	10.1	9.8	9.0	8.8	9.5	10.7	11.9	10.8	9.6	8.9	8.7	7.8	7.0	6.7	8.6	11.9	
		7.2	6.7	6.1	5.5	5.3	5.9	7.3	9.1	10.7	12.1	13.4	14.4	15.0	15.3	15.4	15.8	15.8	15.2	14.5	13.4	11.8	10.2	8.9	8.0	Diurnal Average	
		14.7	15.0	14.6	13.0	12.2	12.8	13.6	16.1	17.1	20.0	22.5	23.6	24.4	26.2	27.1	27.6	27.9	27.8	26.0	24.1	22.7	18.1	16.8	14.5	Diurnal Maximum	



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

**Ambient Temperature (AT) - C**  
**Barge Landing - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Barge Landing - May 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	7	0.94	0.94
0 - 10	337	45.30	46.24
10 - 20	354	47.58	93.82
> 20	46	6.18	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

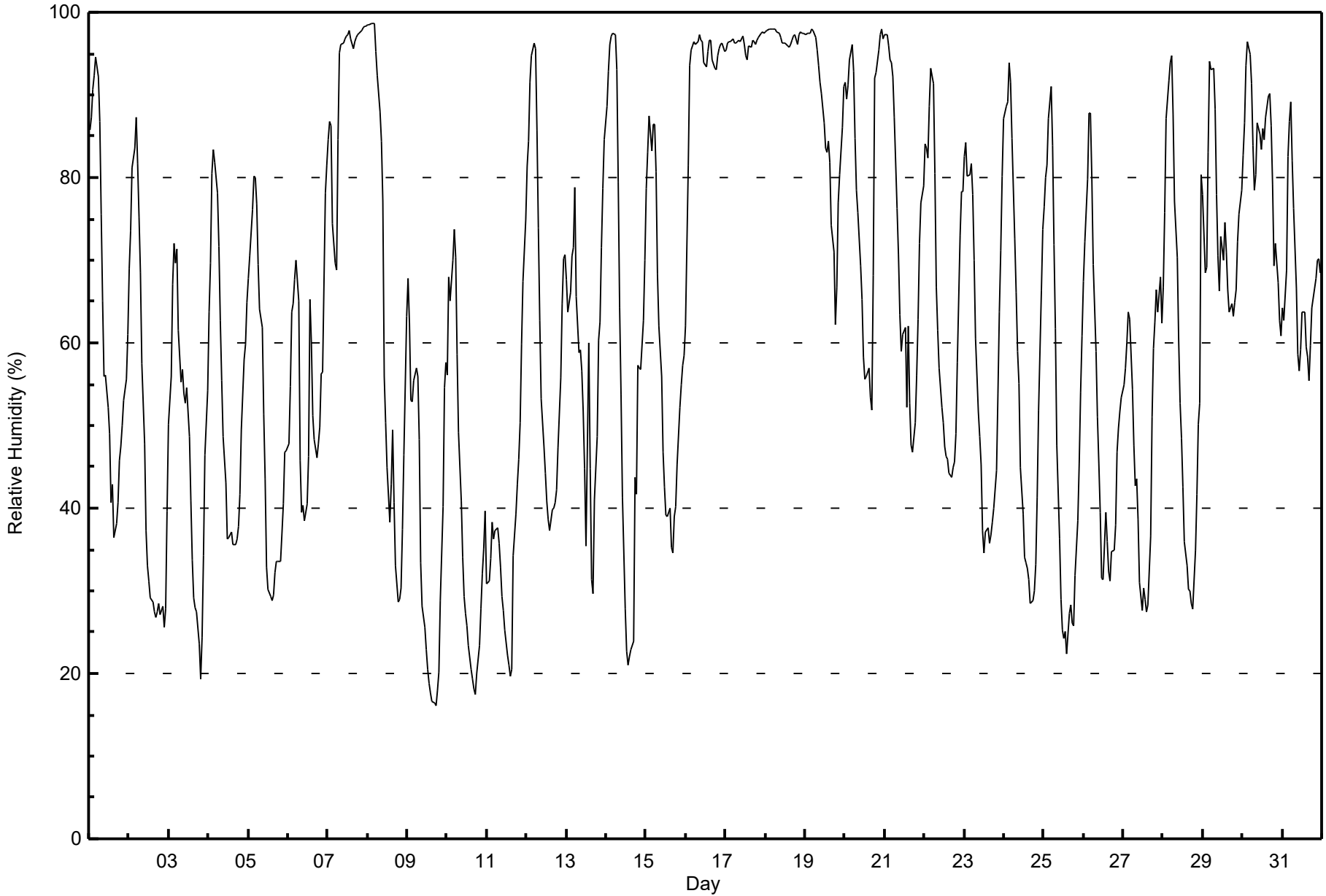
**Relative Humidity (RH) - %**  
**Barge Landing - May 2024**

Maximum Value: 98.7 % on May 8 05:00      Maximum Daily Average: 97.1 % on May 18 Minimum Value: 16.2 % on May 9 18:00      Minimum Daily Average: 37.0 % on May 9 Maximum Diurnal Average: 84.6 % at hour 5      Minimum Diurnal Average: 46.7 % at hour 17 Monthly Average: 63.19 %      Percentiles: P <sub>1</sub> = 19.0 P <sub>10</sub> = 29.7 Q <sub>1</sub> = 41.7 Median = 63.2 Q <sub>3</sub> = 85.8 P <sub>90</sub> = 96.3 P <sub>99</sub> = 98.1																						Hours in Service:	744																							
																						Hours of Data:	744																							
																						Hours of Missing Data:	0																							
																						Hours of Calibration:	0																							
																						Percent Operational Time:	100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-May	85.8	87.3	90.7	92.3	94.6	92.2	86.8	75.6	65.0	56.0	56.0	52.3	49.1	40.7	42.9	36.5	38.1	40.7	45.7	47.5	50.0	53.0	55.5	61.0	62.3	94.6																				
2-May	69.0	73.6	81.1	83.6	87.2	81.7	75.3	68.5	57.5	47.8	37.3	33.0	31.1	29.1	28.6	27.5	26.8	27.5	28.6	27.1	28.1	25.5	27.8	39.7	47.6	87.2																				
3-May	50.3	55.9	67.2	72.0	69.6	71.4	61.5	55.3	56.7	53.9	52.6	54.6	48.6	40.8	33.8	29.1	27.9	27.4	23.6	19.3	24.3	34.3	46.5	54.2	47.1	72.0																				
4-May	63.8	69.7	80.5	83.4	81.9	78.1	71.6	62.8	55.4	48.7	43.1	36.3	36.5	36.8	37.1	35.6	35.6	36.3	37.8	41.7	49.6	58.0	59.8	64.9	54.4	83.4																				
5-May	67.9	70.5	76.1	80.2	80.0	76.8	69.5	64.1	61.9	51.3	43.6	32.9	30.2	29.3	28.9	29.6	32.2	33.5	33.6	33.5	36.9	40.6	46.8	47.0	49.9	80.2																				
6-May	47.8	54.7	63.7	64.8	67.7	70.0	65.0	45.8	39.4	40.4	38.4	40.5	46.3	65.2	60.1	51.1	48.3	46.1	47.7	49.8	56.2	56.5	78.2	81.4	55.2	81.4																				
7-May	84.6	86.8	86.2	74.4	69.6	68.8	84.6	95.1	96.1	96.3	96.8	97.2	97.4	97.8	96.7	95.6	96.4	96.9	97.2	97.5	97.8	98.1	98.3	98.3	91.8	98.3																				
8-May	98.4	98.5	98.6	98.7	98.7	95.2	92.4	88.0	84.4	77.1	55.9	50.4	44.9	38.2	42.9	49.5	40.6	33.0	28.7	29.0	30.3	37.5	46.5	63.2	63.4	98.7																				
9-May	67.9	62.4	53.1	52.8	55.4	57.0	56.0	48.3	33.4	28.1	25.5	22.9	20.5	18.8	17.7	16.7	16.5	16.2	18.1	20.2	28.8	40.1	54.6	57.6	37.0	67.9																				
10-May	56.1	67.9	65.2	70.0	73.7	70.4	58.7	49.1	40.9	34.0	29.4	27.2	25.8	23.4	20.6	19.4	18.1	17.4	20.0	23.4	27.8	32.1	35.0	39.7	39.4	73.7																				
11-May	30.8	31.2	33.8	38.3	36.3	37.3	37.7	35.7	33.0	29.3	27.6	25.2	22.3	21.0	19.7	20.6	34.2	39.3	42.9	45.9	50.3	59.9	67.5	75.0	37.3	75.0																				
12-May	81.3	84.4	91.5	94.8	96.3	95.6	85.8	74.0	62.8	53.3	47.5	44.2	40.8	38.6	37.2	39.8	40.0	40.7	42.3	47.3	55.8	64.7	70.2	70.7	62.5	96.3																				
13-May	67.7	63.7	66.0	70.4	71.5	78.7	65.6	58.8	59.2	56.7	51.7	44.7	35.5	59.9	44.7	31.3	29.6	41.0	48.7	60.4	62.5	71.5	78.7	84.6	58.5	84.6																				
14-May	88.6	92.8	96.0	97.1	97.4	97.3	93.1	79.4	64.2	53.7	41.3	27.9	22.7	21.0	22.1	22.9	24.0	43.8	41.6	57.3	57.0	56.7	62.7	70.0	59.6	97.4																				
15-May	78.6	83.0	87.4	83.3	86.4	86.4	80.7	68.2	62.0	56.0	46.9	42.6	39.1	39.0	40.0	35.3	34.7	39.0	40.1	45.3	52.3	54.9	57.4	58.5	58.2	87.4																				
16-May	62.1	81.5	93.6	95.4	95.9	96.4	96.2	96.5	97.2	96.6	96.5	94.0	93.3	95.2	96.5	96.6	94.3	93.2	93.1	94.8	95.6	96.1	96.3	95.2	93.4	97.2																				
17-May	95.5	96.3	96.4	96.5	96.8	96.3	96.3	96.4	96.6	96.5	97.1	96.0	94.7	94.2	96.0	95.7	96.6	96.5	96.1	96.6	97.0	97.4	97.7	97.5	96.4	97.7																				
18-May	97.6	97.9	98.0	98.0	98.0	97.9	97.9	97.7	97.4	97.0	96.2	96.3	96.2	95.9	95.8	96.0	96.7	97.1	97.4	96.2	97.3	97.7	97.5	97.4	97.1	98.0																				
19-May	97.3	97.4	97.5	97.4	97.9	97.8	96.9	95.4	93.6	91.6	90.1	86.6	83.6	83.0	84.4	81.8	74.3	71.1	62.2	66.8	76.9	80.4	86.2	91.0	86.7	97.9																				
20-May	91.4	89.5	91.3	94.2	96.1	92.9	84.8	78.4	75.7	69.3	65.3	58.3	55.6	55.9	57.0	53.4	51.9	68.2	92.0	92.6	95.5	97.3	97.9	96.8	79.2	97.9																				
21-May	97.3	97.4	96.0	94.2	93.8	92.2	87.3	76.3	70.6	63.5	58.9	61.1	61.9	52.2	62.0	52.7	47.6	46.9	50.3	56.1	62.8	72.0	77.0	78.9	71.2	97.4																				
22-May	84.1	83.6	82.3	88.6	93.3	91.4	80.5	66.7	61.5	57.0	52.2	50.3	47.4	46.2	46.0	44.2	43.8	45.0	45.5	48.9	57.7	73.1	78.2	78.2	64.4	93.3																				
23-May	82.5	84.3	80.2	80.3	81.7	77.9	70.0	60.5	51.7	48.7	45.3	37.2	34.6	37.1	37.6	35.8	36.9	38.3	40.0	44.6	53.9	63.7	71.1	80.2	57.3	84.3																				
24-May	87.2	88.6	89.1	93.9	91.6	84.7	72.6	66.2	59.1	55.1	44.9	39.2	34.1	33.4	32.7	31.4	28.5	28.9	30.1	33.3	41.4	51.8	66.3	73.7	56.6	93.9																				
25-May	76.4	79.9	81.6	87.1	91.1	84.0	71.8	61.7	47.6	36.3	29.0	25.3	24.2	25.0	22.4	27.3	28.3	26.1	25.8	31.9	38.5	45.4	54.1	60.9	49.2	91.1																				
26-May	67.5	72.2	79.8	87.8	87.7	80.0	69.6	58.9	51.0	45.5	39.5	31.6	31.3	39.4	36.0	32.4	31.1	34.8	34.9	38.0	46.7	49.6	51.8	53.5	52.1	87.8																				
27-May	55.0	57.0	60.0	63.8	62.8	54.4	47.6	42.8	43.5	38.6	31.1	27.6	30.3	29.0	27.5	28.4	36.7	51.0	59.3	62.5	66.4	63.7	68.0	62.3	48.7	68.0																				
28-May	66.8	75.7	87.1	91.8	93.9	94.7	87.7	77.1	70.4	60.2	52.7	48.4	42.5	35.9	33.0	30.2	30.0	28.4	27.7	35.0	41.6	50.3	52.7	80.4	58.1	94.7																				
29-May	77.9	68.5	69.1	83.1	94.1	93.0	93.3	88.4	78.0	70.5	66.3	72.9	70.0	74.6	71.0	66.5	63.7	64.7	63.2	64.9	66.4	72.2	75.6	78.4	74.4	94.1																				
30-May	82.7	86.7	93.6	96.4	95.0	91.3	83.9	78.5	80.3	86.6	85.3	83.5	85.9	84.7	87.3	89.9	90.1	86.3	79.2	69.4	72.0	67.4	62.7	60.8	82.5	96.4																				
31-May	64.2	62.7	68.9	82.5	86.8	89.1	82.0	76.3	66.6	58.6	56.6	59.1	63.8	63.7	59.6	58.3	55.5	59.7	64.2	66.7	67.9	69.9	70.2	68.4	67.5	89.1																				
																						75.0	77.5	80.7	83.5	84.6	82.9	77.5	70.5	64.9	59.8	54.9	51.6	49.7	49.8	49.0	47.1	46.7	48.9	50.2	53.0	57.6	62.3	67.4	71.6	Diurnal Average
																						98.4	98.5	98.6	98.7	98.7	97.9	97.9	97.7	97.4	97.0	97.1	97.2	97.4	97.8	96.7	96.6	96.7	97.1	97.4	97.5	97.8	98.1	98.3	98.3	Diurnal Maximum



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

**Relative Humidity (RH) - %**  
**Barge Landing - May 2024**



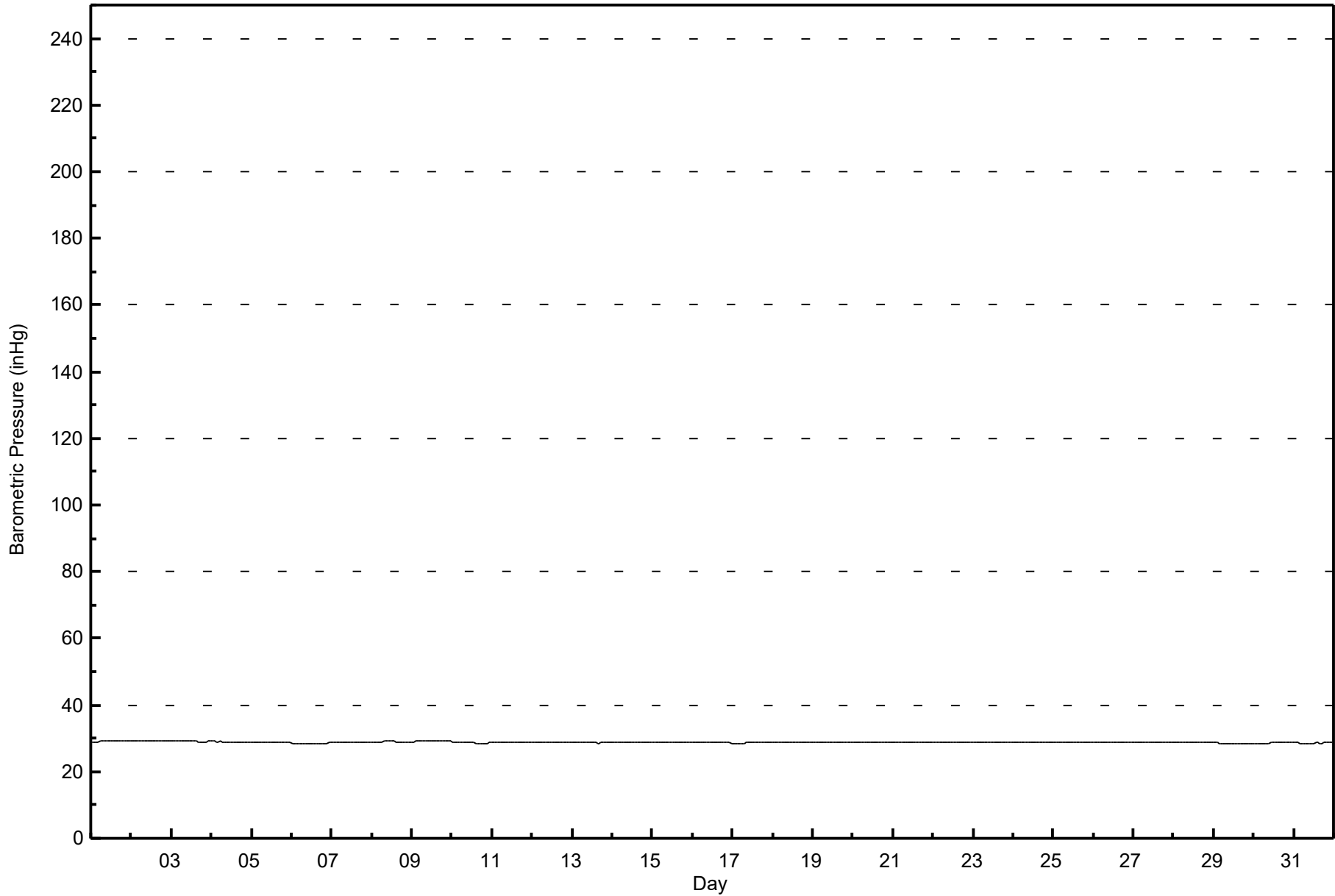


Maximum Value: 29.2 inHg on May 2 07:00		Maximum Daily Average: 29.1 inHg on May 2		Hours in Service: 744																							
Minimum Value: 28.5 inHg on May 29 10:00		Minimum Daily Average: 28.5 inHg on May 29		Hours of Data: 744																							
Maximum Diurnal Average: 28.8 inHg at hour 8		Minimum Diurnal Average: 28.8 inHg at hour 17		Hours of Missing Data: 0																							
Monthly Average: 28.81 inHg		Percentiles: P <sub>1</sub> = 28.5 P <sub>10</sub> = 28.6 Q <sub>1</sub> = 28.7 Median = 28.8 Q <sub>3</sub> = 29.0 P <sub>90</sub> = 29.0 P <sub>99</sub> = 29.1		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-May	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.1	
2-May	29.1	29.1	29.1	29.1	29.1	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	29.2
3-May	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1
4-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
5-May	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.8
6-May	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
7-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.7	28.9
8-May	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.0	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
9-May	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	29.0	29.0	29.0	29.0	29.1	29.1
10-May	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	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.7	29.0
11-May	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.9
12-May	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9
13-May	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8
14-May	28.7	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	28.8	28.8	28.8	28.8	28.8	28.7	28.8
15-May	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
16-May	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	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.8
17-May	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7
18-May	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	28.7	28.7	28.7	28.7	28.7	28.7	28.7
19-May	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	29.0
20-May	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	28.9	28.9	28.9	29.0	29.0
21-May	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
22-May	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
23-May	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	28.9	28.9	28.9	28.9	29.0	29.0
24-May	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8
25-May	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7
26-May	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	28.7	28.8
27-May	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	28.9	28.9
28-May	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.8
29-May	28.7	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	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.5	28.5	28.5	28.5	28.7
30-May	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
31-May	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
28.8																								Diurnal Average			
29.1																								Diurnal Maximum			



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

**Barometric Pressure (BP) - inHg**  
**Barge Landing - May 2024**





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

**Wind Speed (WS) - km/h**  
**Barge Landing - May 2024**

Maximum Speed: 19 km/h on May 9 12:00 Minimum Speed Value: 0 km/h on May 3 05:00 Maximum Diurnal Speed Average: 2.8 km/h at hour 20 Monthly Average Velocity: 1.4 km/h 20.4 deg		Maximum Daily Speed Average: 9.9 km/h on May 31 Minimum Daily Speed Average: 2.0 km/h on May 28 Minimum Diurnal Speed Average: 0.5 km/h at hour 14 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 4 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 11 P <sub>99</sub> = 16		Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 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-May	NNE6	NNE6	NNE6	NNE4	N5	NNE6	N7	NNE8	NNE9	NNE9	N10	N12	N12	N12	N13	NNE13	NNE12	NNE11	NNE10	N12	N12	N10	N8	NNW6	NNE9.0	N13
2-May	NNW5	NNW5	N3	N4	N2	N5	NNE6	NNE7	NNE8	NNE9	NNE9	NNE10	NNE10	NNE12	NNE12	NNE12	NNE13	N12	N12	N11	NNW9	N8	N8	NNW4	N7.8	NNE13
3-May	NNW3	NNW2	NW1	N3	NW0	NNE1	NNE5	NNE5	NNE6	N6	N7	N6	NNE6	NNE6	N6	NNE7	NE7	NNE8	NNE9	NNE8	N6	N4	NNW3	NW2	NNE4.7	NNE9
4-May	N1	NNW3	NW3	NW3	ESE3	UO	SE1	WNW3	N6	NNE6	NNE7	N8	NE8	NE7	NE7	NE6	NE6	NE5	ENE4	ENE4	E5	ESE8	SE7	NE3.6	ESE8	
5-May	SE7	ESE5	E2	E4	ESE3	ESE3	S3	S5	SW4	SSW6	SW4	SSE9	SE15	SE12	SE14	SSE11	S6	SSE6	SSE7	SE7	ESE5	ESE6	ESE8	ESE7	SE5.8	SE15
6-May	ESE6	NW2	NNW4	NNW4	NNW4	NNW4	E2	SSE5	SSE10	SSE10	ESE16	ESE14	ESE12	ESE6	NNE5	NE9	ENE9	E7	NE5	NNE6	E5	S10	S6	E0	ESE3.9	ESE16
7-May	NNE3	NW2	NNW2	ENE4	ENE4	ENE5	ESE6	ENE4	E3	NE4	NNE4	N4	NNW4	NNW3	ESE6	SE8	ESE5	ESE4	ESE4	ESE5	ESE6	SE5	SSE6	SSE6	E2.9	SE8
8-May	SSE5	SSE5	SSE5	SSE4	SW5	W8	WNW5	WNW5	WNW3	WSW4	SE3	SSE5	SSW8	S10	SSW3	W2	SW5	SSW7	SW12	WSW9	WSW5	SW4	SSW3	ESE4	SSW3.7	SW12
9-May	ESE4	SSW3	WSW5	WSW8	WSW8	SW11	WSW8	WSW7	WNW10	WNW12	W14	W19	W17	WNW17	WNW15	NW12	NW12	NW13	NNW8	NNW5	NNE2	ESE2	S3	SE4	WNW7.0	W19
10-May	SE2	SE3	SSE1	S2	SE3	SSE4	SSE6	S6	SSW9	SW12	SW15	WSW17	WSW17	WSW14	WSW16	WSW16	WSW16	W14	WNW9	NW6	NNW9	N18	N10	NNW4	WSW6.0	N18
11-May	NW9	NW6	NW5	NNW4	NW8	WNW10	WNW11	NW16	NW16	NW16	NW16	NW15	NW18	NW16	NW16	NNW15	NNE14	NNE13	NNE13	NNE10	NNE8	NE8	NE7	NE4	NNW9.5	NW18
12-May	NNW1	N2	E2	NNE1	ESE0	ESE3	ESE3	E3	ESE4	E5	E5	E5	ESE5	SE7	SE7	ESE6	E7	ESE8	ESE5	E3	E4	E4	E4	SE4	ESE3.8	ESE8
13-May	SE5	SE5	SE5	SE5	SE5	SE2	SE7	SSE9	SSE10	SSE10	SE11	SSE10	S8	SSE4	SSE6	S5	W3	NE6	NNE6	NNE8	ENE4	N4	NNE1	SW3	SE3.7	SE11
14-May	NW1	S1	ESE2	SE4	SSE3	ESE3	SE4	SSE6	S7	S10	S10	SW13	SW14	SW16	WSW14	W11	N8	NNE9	N6	NNE5	NNE5	ESE2	W2	SSW2.9	SW16	
15-May	SSE2	WNW1	NW2	NNW2	ESE1	SW2	NNW1	N2	NNE7	NNE7	NNE7	NNE6	NE7	NE6	NE1	NNE3	NNE9	NNE9	NE9	NNE8	NE9	NE10	NE9	NE7	NNE4.7	NE10
16-May	NE7	NE3	NNW2	NNW4	NNW6	N6	NNE5	NNE6	NE7	NNE9	NNE9	NNE9	NE8	NE7	N7	N8	NNE11	NNE10	NNE9	NNE9	NNE10	NNE10	NNE9	NNE10	NNE7.3	NNE11
17-May	NNE9	NNE8	N8	N9	NNE9	NNE10	NNE11	NNE10	NNE10	N10	N8	NNE11	NNE12	N11	N11	N10	N10	N10	NNE9	NNW10	NNW11	NNW9	N6	N8	N9.2	NNE12
18-May	N7	NNW5	N6	N7	NNW7	NNW8	NNW8	NNW8	NNW8	NNW8	N9	N8	NNW11	NNW10	NNW11	NNW10	NNW9	NNW9	N6	NE7	NE6	NE6	NNE5	NE6	N7.3	NNW11
19-May	NE7	NE7	N4	N5	NNE5	NE7	NE7	NE7	NE8	NE6	NE8	NE8	NE8	NE8	NE9	NE8	NE8	NE8	NNE8	N6	N8	N7	NNW5	NNE3	NE6.5	NE9
20-May	NW3	N4	NNW4	NNW1	NNE2	NNE3	N4	N5	NNE6	N6	N7	NNE7	NNE7	NNE8	N6	NNE7	NE5	ENE6	S2	WNW1	NE1	E2	E4	E4	NNE3.5	NNE8
21-May	E4	E3	ESE5	ESE6	ESE5	SE6	ESE5	ESE6	ENE4	E7	E8	E7	ESE9	ESE11	ENE7	E9	E8	E6	ENE6	ENE5	E5	ENE4	ENE5	ENE4	E5.8	ESE11
22-May	ENE3	ENE3	NE2	NW1	WNW2	NNW3	N3	NE5	NE6	NE8	NE9	ENE9	ENE9	ENE9	ENE8	ENE6	ENE6	E5	ESE6	ESE8	ESE5	E3	E3	ENE1	ENE4.5	ENE9
23-May	E1	E3	ESE4	ESE3	ESE1	SSE2	ESE2	ESE5	ESE5	E6	NE5	ENE4	SSW1	SSW7	SW7	SW7	SSE7	SSE6	S7	S6	S3	SSE5	SE3	ESE2	SSE2.6	SW7
24-May	E4	E5	ESE3	ESE3	SE3	ESE3	SW4	W3	W5	W5	SSW6	SSW6	SSE7	SSW7	SSE6	SSW4	S8	SSW7	SW8	SW6	SSW4	SSW3	SSE3	ESE4	S3.3	S8
25-May	ESE4	ESE4	SSE2	SSE2	SE2	SE3	SSE5	SSE6	S7	S8	SSE10	S11	SSE10	SE11	ESE10	ESE12	ESE11	ESE9	ESE11	ESE10	SE8	ESE7	ESE6	SE7	SE6.5	ESE12
26-May	ESE6	SE6	ESE3	E3	ESE3	ESE3	S3	S6	S8	SSE8	SSE8	SE6	S8	SW10	SSE7	S5	S6	S4	ESE5	E4	E5	SE4	SE5	ESE7	SSE4.6	SW10
27-May	ESE5	SE5	SE4	SSE1	SE3	SSE4	SE5	SSE5	WSW7	S6	SSE10	S10	SSE11	SSE10	SSE9	S8	W3	WSW9	SSE1	ESE7	E1	SE4	SE3	SE5	SSE4.3	SSE11
28-May	NW3	NNW4	NNW4	E3	E5	ESE2	WNW3	W3	WSW4	SW5	SSW4	S5	SW5	SSW8	WSW8	SW8	SSW6	SW6	SW5	SSE1	NNE1	ENE3	ESE4	E5	SW2.0	WSW8
29-May	ENE7	NE7	ENE7	E6	ENE7	NE6	N2	NNW5	NNW6	N5	WNW5	SW7	WSW5	SW10	SSW10	SW14	WSW14	SW11	SW12	SW12	SW11	SW9	SSW10	SSW8	SW3.6	SW14
30-May	S7	S5	WSW3	W4	WNW7	NW8	NW8	NW8	NW8	NW8	NW7	NW7	NW5	W4	WNW2	NW5	WNW5	NW5	NW7	NW8	NW6	NW9	WNW9	WNW8	WNW5.5	WNW9
31-May	WNW8	NW13	NW13	WNW11	WNW11	WNW7	WNW9	WNW7	WNW9	NW13	WNW15	NW13	NW12	NW14	NW10	NNW6	NNW8	NW11	NW10	NW8	NW9	NNW10	NW10	NW9	NW9.9	WNW15
ENE1.7 NE1.4 N1.3 NNE1.2 NNE0.9 N1.0 N1.0 N1.0 N1.5 N1.4 NNE1.3 N0.8 NNE0.7 NW0.5 NNW1.0 N1.3 N2.1 NNE2.6 NNE2.5 NNE2.8 NNE2.7 NNE2.3 ENE1.8 ENE1.7																								Diurnal Average		
NNE9 NW13 NW13 WNW11 WNW11 SW11 NNE11 NW16 NW16 NW16 ESE16 W19 NW18 WNW17 WSW16 WSW16 WSW16 W14 NNE13 SW12 N12 N18 N10 NNE10																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



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

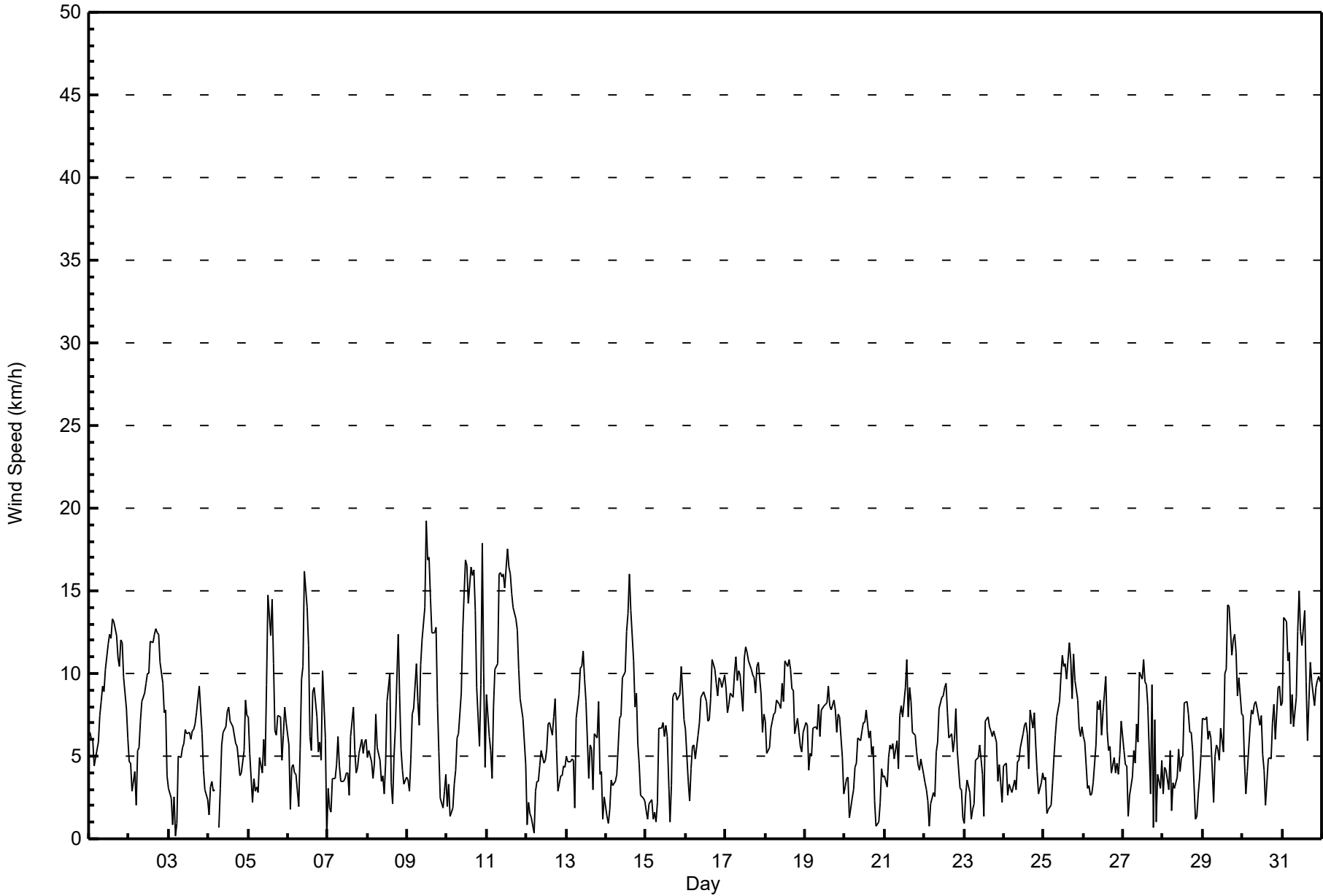
**Wind Speed (WS) - km/h**  
**Barge Landing - May 2024**

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



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

**Wind Speed (WS) - km/h**  
**Barge Landing - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	306	41.18	41.18
6 - 11	368	49.53	90.71
12 - 19	69	9.29	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: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Barge Landing - May 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	18	22	11	17	36	46	29	22	13	8	11	6	10	11	16	30	306
6 - 11	41	65	46	13	10	27	14	29	24	14	13	8	2	14	22	26	368
12 - 19	8	11	0	0	0	4	3	0	0	0	9	8	3	5	17	1	69
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	67	98	57	30	46	77	46	51	37	22	33	22	15	30	55	57	743

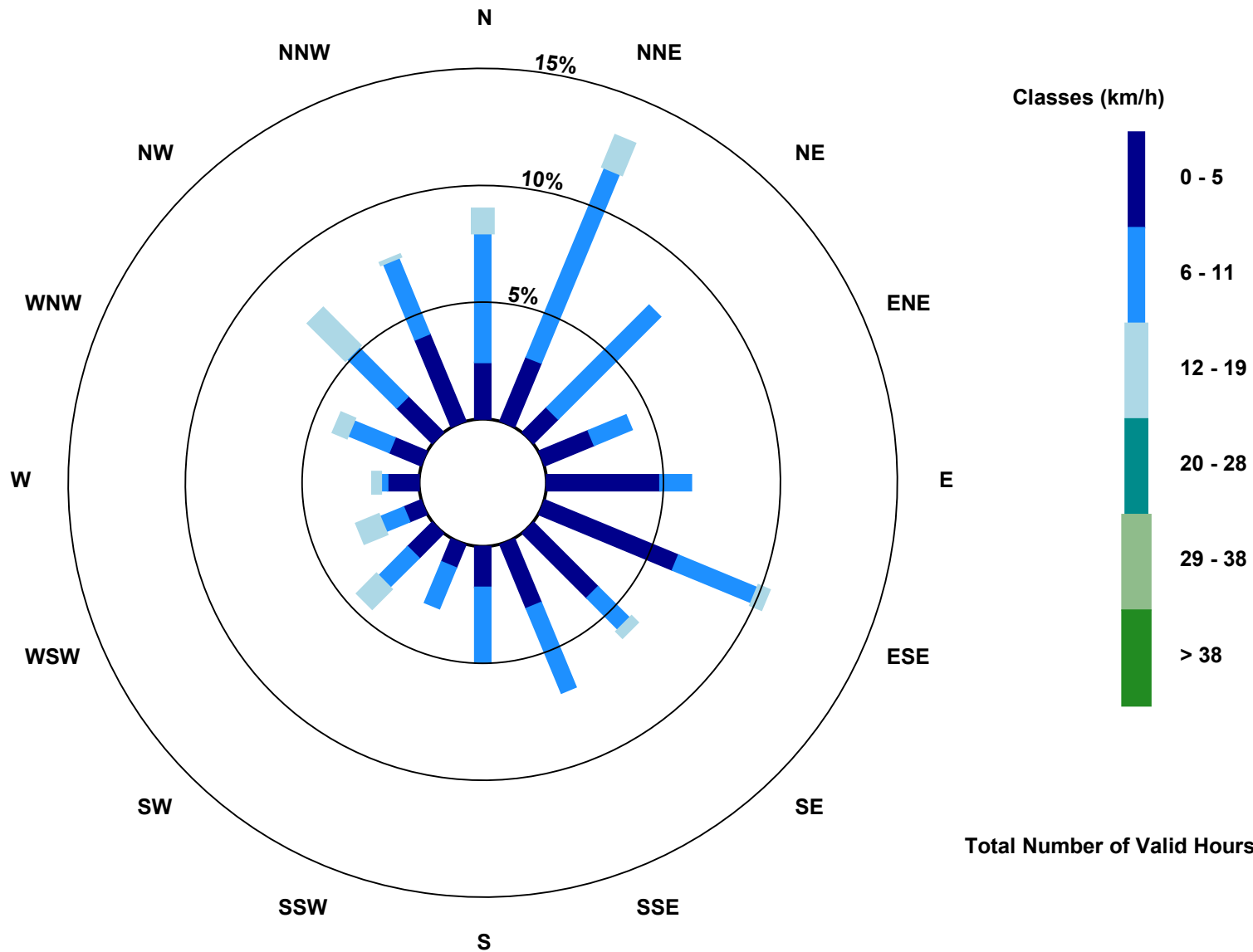
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Barge Landing



Total Number of Valid Hours: 743



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

**Wind Direction (WD) - deg**  
**Barge Landing - May 2024**

Direction of Maximum Speed: 271 deg on May 9 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 309.7 deg on May 31	Hours of Data: 743
Direction of Minimum Speed: 314 deg on May 3 05:00	Direction of Minimum Daily Speed Average: 2.0 deg on May 28
Direction of Minimum Speed: 314 deg on May 3 05:00	Hours of Missing Data: 1
Monthly Average Direction: 20.4 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-May	16	16	16	14	4	12	11	17	29	24	6	11	9	11	1	12	29	32	19	6	4	1	354	331	11.7
2-May	328	337	350	349	3	359	27	19	12	32	27	27	25	28	26	20	12	10	2	358	347	351	357	347	10.5
3-May	340	333	312	10	314	25	16	14	13	8	10	10	23	13	10	23	35	27	29	14	6	358	338	319	12.2
4-May	3	337	324	315	121	UO	126	300	9	13	15	8	39	44	37	43	40	38	51	57	73	94	121	125	41.6
5-May	127	119	99	93	116	113	187	173	219	196	220	161	143	144	135	164	186	164	152	128	108	114	107	114	144.3
6-May	111	306	332	340	345	345	91	158	161	150	122	119	123	118	32	55	76	90	48	31	96	184	188	81	108.4
7-May	31	325	330	57	66	73	105	77	79	44	23	5	332	340	110	127	118	102	106	113	121	138	147	149	93.4
8-May	159	158	156	157	229	264	303	293	293	239	142	157	194	176	201	279	230	196	234	244	244	220	205	109	213.5
9-May	120	195	250	253	245	236	239	247	301	290	281	271	280	288	293	316	324	321	327	334	29	110	179	129	283.4
10-May	143	140	147	181	144	148	157	173	212	232	232	239	247	251	253	251	256	267	295	312	339	355	359	327	255.3
11-May	314	313	320	339	305	289	295	317	316	317	321	318	323	324	321	341	27	26	24	25	14	46	55	48	336.5
12-May	347	11	93	29	103	120	104	99	109	80	87	100	123	133	127	118	98	105	107	81	81	84	91	142	103.7
13-May	128	126	144	132	134	137	134	166	163	151	139	156	178	163	160	176	275	44	26	28	68	352	12	226	139.1
14-May	308	179	118	130	163	122	138	164	171	175	184	190	231	222	235	239	269	358	15	9	29	22	118	279	213.6
15-May	158	289	310	328	105	229	332	359	23	17	22	27	54	36	52	24	16	32	36	33	35	41	53	47	31.2
16-May	46	35	347	345	340	357	14	28	40	26	21	25	35	36	357	9	20	16	17	15	13	17	20	28	18.8
17-May	22	29	10	9	30	23	16	13	13	11	7	17	15	11	6	359	351	352	348	341	339	337	351	351	5.3
18-May	351	346	352	349	346	344	344	344	348	347	351	349	342	347	343	346	347	346	6	36	49	41	31	38	355.3
19-May	46	44	11	8	29	40	45	48	53	50	37	45	40	41	47	47	40	48	32	10	354	350	344	20	33.8
20-May	314	351	346	343	22	29	8	9	31	359	351	12	25	19	2	17	34	69	181	283	55	100	93	96	20.1
21-May	101	100	119	110	113	132	123	112	66	94	93	100	110	113	76	87	85	90	57	76	84	73	77	71	95.2
22-May	59	60	50	323	298	344	7	45	39	56	56	59	62	67	78	60	73	79	109	113	110	87	86	66	66.5
23-May	96	81	103	117	120	150	115	111	113	93	43	68	211	209	231	218	167	161	185	186	183	152	134	108	152.2
24-May	100	100	104	112	128	120	220	273	273	275	207	197	156	197	154	200	190	193	217	216	204	193	155	121	184.1
25-May	121	110	157	163	130	138	167	166	181	177	164	175	162	141	119	110	110	104	112	119	128	121	111	124	136.2
26-May	121	129	115	99	108	105	174	179	171	168	147	140	173	218	162	187	184	170	121	100	90	128	141	123	150.5
27-May	110	132	128	168	137	163	137	161	251	178	166	185	147	165	161	182	279	256	151	107	98	144	129	135	162.5
28-May	325	331	329	93	88	122	296	279	238	215	197	182	219	213	244	215	213	230	230	148	17	76	113	99	216.9
29-May	64	44	62	88	66	54	11	332	347	352	300	231	242	222	212	229	239	229	224	228	225	221	211	200	229.5
30-May	182	186	255	262	302	309	309	310	308	305	308	309	309	281	303	318	303	312	322	319	315	305	302	300	301.3
31-May	297	308	305	297	288	284	295	288	299	307	300	313	312	311	310	329	333	324	321	320	324	331	320	322	309.7

59.0	36.1	9.1	18.1	19.7	5.3	10.5	0.9	352.5	359.6	12.5	11.2	23.0	319.1	344.4	359.5	9.3	19.5	18.7	23.3	23.6	30.0	59.4	71.2
Diurnal Average																							

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



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

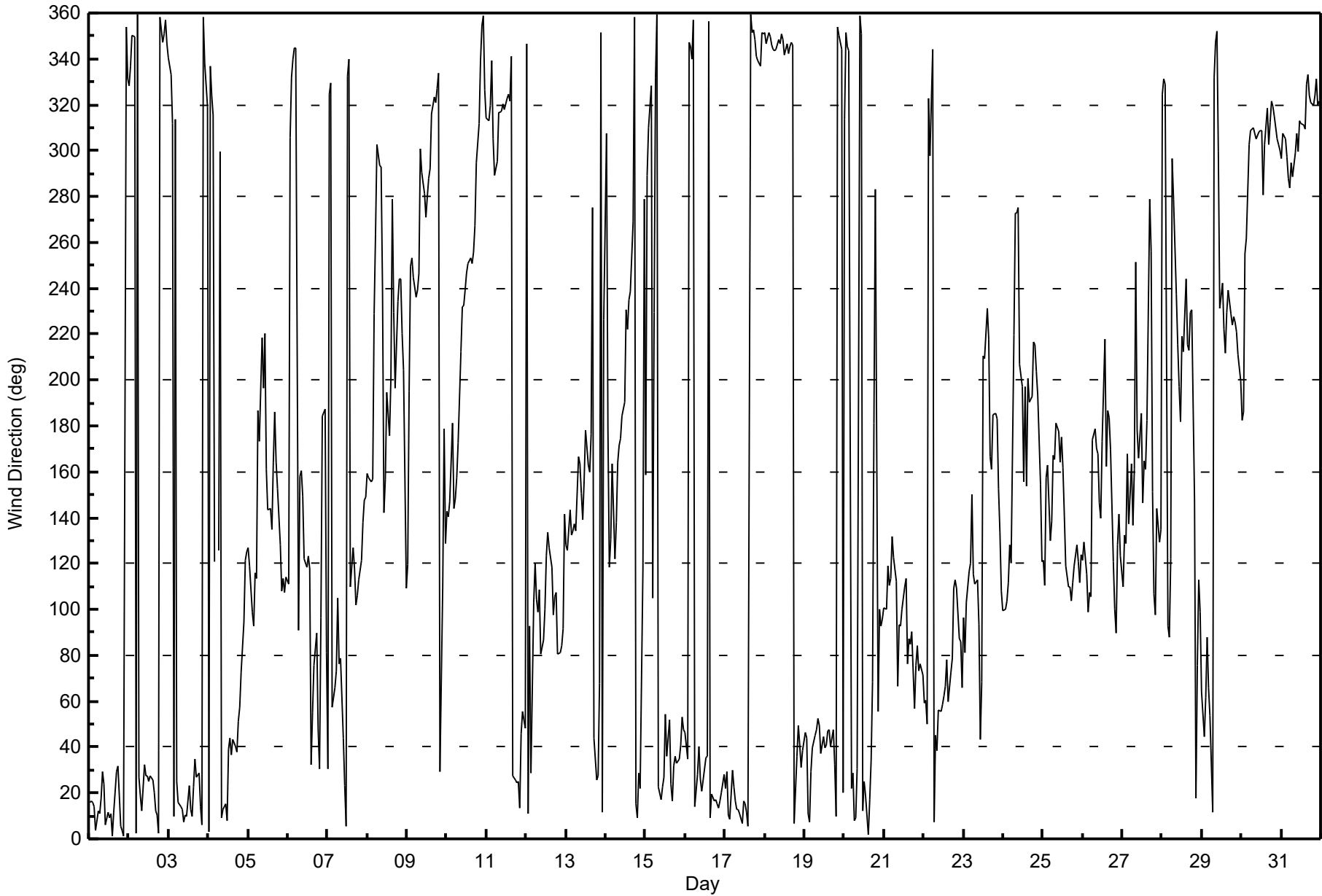
**Wind Direction (WD) - deg**  
**Barge Landing - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on May 23 13:00 Minimum Value: 8 deg on May 23 02:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 17 Q <sub>1</sub> = 21 Median = 27 Q <sub>3</sub> = 38 P <sub>90</sub> = 53 P <sub>99</sub> = 88																			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-May	17	16	16	14	14	15	19	22	21	22	23	21	23	24	23	21	20	21	21	20	20	20	22	18	24
2-May	18	13	19	15	50	18	29	23	26	24	25	25	27	23	24	26	24	21	21	19	16	17	16	37	50
3-May	47	30	80	34	98	49	18	20	25	28	28	41	41	49	45	45	31	30	21	19	15	12	21	29	98
4-May	23	9	10	35	16	UO	90	52	35	37	38	39	33	44	41	45	43	33	33	18	22	18	14	10	90
5-May	10	11	20	19	34	12	40	44	39	38	64	44	26	32	25	34	56	48	27	14	11	12	11	15	64
6-May	23	63	38	22	15	15	62	73	32	30	20	19	21	29	22	28	23	22	27	20	56	27	26	87	87
7-May	15	70	45	20	18	32	21	22	26	24	20	21	22	41	22	15	17	17	16	12	13	17	19	21	70
8-May	29	21	20	35	32	26	32	36	27	33	73	67	44	37	85	74	42	47	19	22	20	17	35	19	85
9-May	30	63	34	22	19	15	19	22	35	36	32	32	32	32	32	31	24	24	22	24	19	45	33	17	63
10-May	47	19	66	66	40	28	28	35	28	20	25	23	25	31	28	26	30	33	30	27	20	21	20	21	66
11-May	25	26	32	33	40	33	34	24	26	26	25	26	24	25	26	25	20	22	20	20	19	19	20	29	40
12-May	76	21	37	53	83	18	17	31	34	32	46	60	65	32	30	27	22	20	22	22	13	13	12	14	83
13-May	11	13	21	11	12	76	20	30	31	29	27	37	39	58	45	52	87	42	48	31	45	35	89	46	89
14-May	44	65	74	13	40	35	37	30	32	31	36	42	32	34	28	26	44	35	25	52	47	75	76	55	76
15-May	46	54	54	54	74	58	77	65	29	30	30	40	34	35	93	86	24	24	24	20	19	19	20	22	93
16-May	25	57	57	16	20	21	23	24	23	19	19	21	21	22	22	23	19	20	20	20	19	20	18	20	57
17-May	19	21	22	21	25	19	20	21	20	20	21	19	21	20	22	21	20	21	22	19	20	19	26	22	26
18-May	22	24	25	23	21	21	20	21	22	22	22	21	20	22	20	22	21	21	30	21	19	20	19	20	30
19-May	22	22	28	19	22	22	21	25	24	24	23	26	24	24	24	25	23	23	23	21	21	22	27	38	38
20-May	21	19	16	60	29	59	24	28	28	29	31	29	26	26	31	27	35	41	48	78	57	22	15	12	78
21-May	12	18	15	13	11	27	29	32	45	30	23	22	26	27	24	26	27	33	26	19	21	21	21	15	45
22-May	46	39	64	87	43	24	41	30	34	28	28	26	26	25	26	32	29	25	23	18	11	14	16	43	87
23-May	68	8	23	19	72	49	65	20	38	44	54	72	103	49	44	53	48	45	35	27	19	23	16	36	103
24-May	11	9	22	12	39	51	50	44	53	51	60	54	55	44	51	45	50	32	34	21	22	27	15	60	
25-May	24	14	60	31	43	25	37	38	42	44	41	39	41	33	37	17	17	23	17	18	14	12	12	9	60
26-May	10	11	21	19	43	77	52	44	37	39	44	50	50	33	47	57	43	42	30	17	11	53	18	18	77
27-May	14	32	16	88	49	42	35	52	33	53	40	37	33	40	37	38	79	32	90	14	92	17	27	13	92
28-May	88	39	31	47	38	77	31	44	41	38	58	58	70	48	41	40	45	39	29	53	31	31	55	29	88
29-May	22	22	23	34	24	31	62	20	30	39	44	23	33	34	31	26	25	26	28	27	27	29	29	33	62
30-May	32	37	28	29	27	28	30	29	30	28	29	28	34	37	60	36	28	28	25	25	25	28	29	27	60
31-May	29	29	29	31	30	29	27	33	37	29	29	27	27	26	28	30	22	24	26	27	23	23	24	24	37
88 70 80 88 98 77 90 73 45 53 73 72 103 58 93 86 87 50 90 78 92 75 89 87																								Diurnal Maximum	
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Barge Landing - May 2024**





Maximum Speed: 32 km/h on May 10 22:00	Maximum Daily Speed Average: 18.4 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 7 00:00	Minimum Daily Speed Average: 2.1 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 5.7 km/h at hour 20	Minimum Diurnal Speed Average: 1.5 km/h at hour 14	Hours of Missing Data: 0
Monthly Average Velocity: 3.0 km/h 20.1 deg	Percentiles: $P_1 = 2$ $P_{10} = 5$ $Q_1 = 8$ Median = 11 $Q_3 = 16$ $P_{90} = 20$ $P_{99} = 28$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE13	NNE13	NNE13	NNE11	N10	N12	NNE14	NNE16	NNE18	NNE17	N18	N22	N22	N22	N23	NNE24	NNE24	NNE23	NNE20	N22	N21	N17	N14	NNW12	NNE17.3	NNE24
2-May	NNW10	NNW10	NNW8	NNW10	NNE6	N11	NNE10	NNE12	NNE14	NNE16	NNE17	NNE18	NNE19	NNE22	NNE22	NNE23	N23	N23	N21	N19	N18	N15	N14	N9	N14.9	N23
3-May	N6	NNW6	NW5	N7	NNE2	N5	NNE10	NNE9	NNE10	N9	N10	N10	NNE10	NNE9	NNE10	NE10	NE11	NE13	ENE18	NNE15	N13	N10	NNW8	NW7	NNE8.4	ENE18
4-May	NNW6	NNW8	NNW9	NNW9	SE1	SE1	ENE2	NW3	N8	NNE10	NNE10	N12	NE12	NE11	NE11	NE9	NE9	ENE8	ENE7	ENE9	ENE11	SE14	SE13	NE6.0	SE14	
5-May	SE13	SE10	SE6	ESE9	SE7	SE5	S4	SSE7	SSW5	S8	SW5	SSE13	SSE22	SE19	SE22	SSE17	S10	SSE10	SSE13	SE12	ESE9	ESE12	ESE14	ESE12	SE10.0	SSE22
6-May	ESE11	S4	NW6	NNW7	N3	ENE2	SE5	SSE10	SSE14	SSE17	SE24	ESE21	SE17	ESE9	NE10	NE16	ENE17	E12	NE11	NNE13	E9	S17	S11	WNW1	ESE6.9	SE24
7-May	NE9	N6	NNE5	ENE9	ENE8	ENE10	ESE11	E9	E7	NE7	NNE7	N8	NNW7	NNW4	ESE10	SE12	ESE8	ESE6	ESE7	ESE9	SE10	SE9	SSE10	SSE11	E5.4	SE12
8-May	SSE9	SSE10	SSE9	SSE8	SW8	W13	WNW10	WNW8	WNW6	WSW4	SE4	SSE6	S11	S14	SSW6	W3	SW6	SSW11	SW18	WSW14	WSW11	SW11	SW10	SSE5	SW6.6	SW18
9-May	S6	SW7	WSW8	WSW11	WSW11	SW15	WSW13	WSW9	WNW18	WNW20	W22	W31	W28	WNW29	WNW25	NW21	NW21	NW23	NW16	NW10	NNE9	E6	SSW8	S7	WNW12.2	W31
10-May	S8	SSE9	S7	S8	S8	SSE9	SSE11	S10	SSW12	SW17	SW21	WSW24	WSW23	WSW21	WSW24	WSW24	W25	W21	WNW16	NW11	NNW18	N32	N18	NNW9	WSW9.3	N32
11-May	NW16	NNW12	NNW11	NW7	WNW15	WNW19	WNW19	NW28	NW28	NW28	NW27	NW26	NW31	NW28	NW28	NNW27	NNE29	NNE27	NNE27	NNE22	NNE17	NE18	NE16	NE12	NNW17.1	NW31
12-May	NE3	NNE6	ENE6	NE5	ENE3	ESE5	E5	E5	ESE6	E8	E7	E6	SE8	SE10	SE10	ESE9	E11	ESE13	ESE8	E7	ENE10	E10	ESE10	SSE10	ESE6.7	ESE13
13-May	SE10	SE9	SSE10	SE10	SE10	SE7	SE12	SSE15	SSE17	SSE17	SSE17	SSE15	S12	SSE6	SSE8	S8	WNW4	NE12	NNE12	NNE18	ENE8	N8	NNE5	SSW5	SE6.4	NNE18
14-May	WNW5	SW4	SW5	S6	S8	SSE7	SSE7	SSE9	S12	S12	S15	S16	SW18	SW20	SW23	WSW20	W17	N16	NNE19	N12	NNE10	NEE7	E6	WNW6	SW4.3	SW23
15-May	SW4	NW4	WNW5	NNW8	ENE3	SW4	NNW4	N4	NNE13	NNE12	NNE12	NNE10	NE12	NNE12	NNE3	NNE7	NNE17	NNE18	NNE18	NNE19	NNE19	NE22	NE18	NE14	NNE9.5	NE22
16-May	NE14	NE9	NNE7	NNW10	NNW12	N11	NNE11	NNE14	NE15	NNE19	NNE19	NNE20	NNE17	NE15	N15	N18	NNE24	NNE22	NNE20	NNE19	NNE20	NNE20	NNE20	NNE21	NNE15.8	NNE24
17-May	NNE20	NNE17	NNE16	NNE17	NNE18	NNE22	NNE24	NNE20	NNE21	NNE20	N15	NNE23	NNE24	NNE22	N20	N18	N18	N18	NNW17	NNW20	NNW21	NNW18	N12	N14	N18.2	NNE24
18-May	N13	N10	N10	N12	NNW14	NNW14	NNW15	NNW16	N15	NNW14	N17	N15	NNW20	NNW20	NNW20	NNW19	NNW17	NNW17	N13	NE15	NE13	NE12	NNE12	NE14	N14.0	NNW20
19-May	NE15	NE14	NNE9	NNE10	NNE10	NE14	NE14	ENE14	NE16	NE12	NE16	NE16	NE16	NE16	NE17	NE16	NE16	NE17	NNE16	NNE13	N14	N14	NNW11	NNE7	NNE13.2	NE17
20-May	NNW7	N8	N9	N7	NNE7	NNE7	NNE7	N8	NNE12	N10	N11	NNE13	NE13	NNE15	N12	NNE13	NE9	ENE10	S5	WSW2	NNE2	E6	E10	ESE9	NNE6.9	NNE15
21-May	ESE9	ESE8	ESE9	ESE11	ESE9	SE9	SE7	ESE8	ENE7	E12	E13	E12	ESE14	ESE16	ENE14	E16	E14	E10	NE12	ENE10	E10	ENE11	ENE12	ENE11	E10.2	ESE16
22-May	ENE10	NE7	NE6	NNE3	NW5	N6	N5	NE10	NE11	NE15	NE16	NE16	ENE18	ENE18	ENE13	ENE11	ENE11	ENE9	ESE9	ESE13	ESE10	ESE9	E8	E5	ENE8.8	ENE18
23-May	E5	E7	E8	ESE5	SE4	SE4	ESE4	ESE7	ESE7	E9	NE7	ENE5	SW1	SSW10	SW10	SSW9	SSE9	SSE10	S11	S10	S8	SSE11	SSE8	SE6	SSE5.0	SSE11
24-May	ESE10	ESE9	ESE6	SE7	SE7	SE4	SSW4	WNW3	W6	W6	SSW7	S8	SSE10	S10	SSE10	SSW6	S12	S10	SW11	SSW9	SSW8	SW7	SSW7	SSE9	S5.7	S12
25-May	SSE8	SE8	S6	S6	SSE6	SSE6	SSE8	SSW9	S11	S13	SSE17	S18	SSE17	SE17	ESE15	ESE18	ESE17	ESE14	ESE17	SE15	SE14	SE13	ESE12	SE12	SE11.2	ESE18
26-May	SE11	SE11	SE8	ESE9	ESE7	ESE5	SSE5	S8	SSE13	SSE12	SSE13	SE10	S12	SSW14	SSE11	S8	S8	S6	SE8	E7	E10	SE9	SSE11	SE13	SSE8.3	SSW14
27-May	ESE11	SE9	SE9	SSE5	SSE6	SSE6	SE8	SSE7	WSW9	S9	SSE16	S15	SSE17	SSE15	SSE15	S13	W5	WSW15	SE1	ESE13	ESE4	SE9	SE8	SE10	SSE7.8	SSE17
28-May	NW5	NNW10	NNW9	ENE6	ENE11	E4	WNW5	W4	SW5	SW7	SSW6	S7	SW7	SSW12	WSW12	SW11	SSW10	SW9	SW8	WSW3	N5	NE8	E8	E12	SW2.1	SSW12
29-May	ENE18	NE17	NE17	ENE13	ENE16	NE15	NNE5	NNW11	NNW11	N10	WNW6	SW10	WSW7	SW16	SSW17	SW22	WSW21	SW16	SW19	SW20	SW18	SW14	SSW15	SSW12	SW4.0	SW22
30-May	S13	S8	WSW5	W7	WNW13	NW15	WNW15	NW15	WNW16	WNW14	NW14	NW15	NW10	WNW7	NW3	NW10	WNW9	NW10	NW14	NW16	NW12	WNW17	WNW17	WNW15	WNW10.6	WNW17
31-May	WNW15	WNW24	WNW24	WNW20	WNW20	W13	WNW16	WNW13	WNW15	WNW23	WNW27	NW23	NW22	WNW25	NW18	NNW12	NNW17	NW21	NW19	NW16	NW18	NNW19	NW19	NW18	NW18.4	WNW27

ENE3.2	NE2.6	N2.4	NNE2.3	NNE1.8	NNE2.0	N2.0	N2.4	N3.3	N3.2	NNE2.6	N2.3	N2.1	NNW1.5	N2.3	N3.2	NNE4.8	NNE5.5	NNE5.2	NNE5.7	NNE5.7	NNE5.0	ENE3.3	ENE2.9	Diurnal Average																							
NNE20																							WNW24	WNW24	WNW20	WNW20	NNE22	NNE24	NW28	NW28	NW28	NW27	W31	NW31	WNW29	NW28	NNW27	NNE29	NNE27	NNE27	NNE22	N21	N32	NNE20	NNE21	Diurnal Maximum	

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



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

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - May 2024**

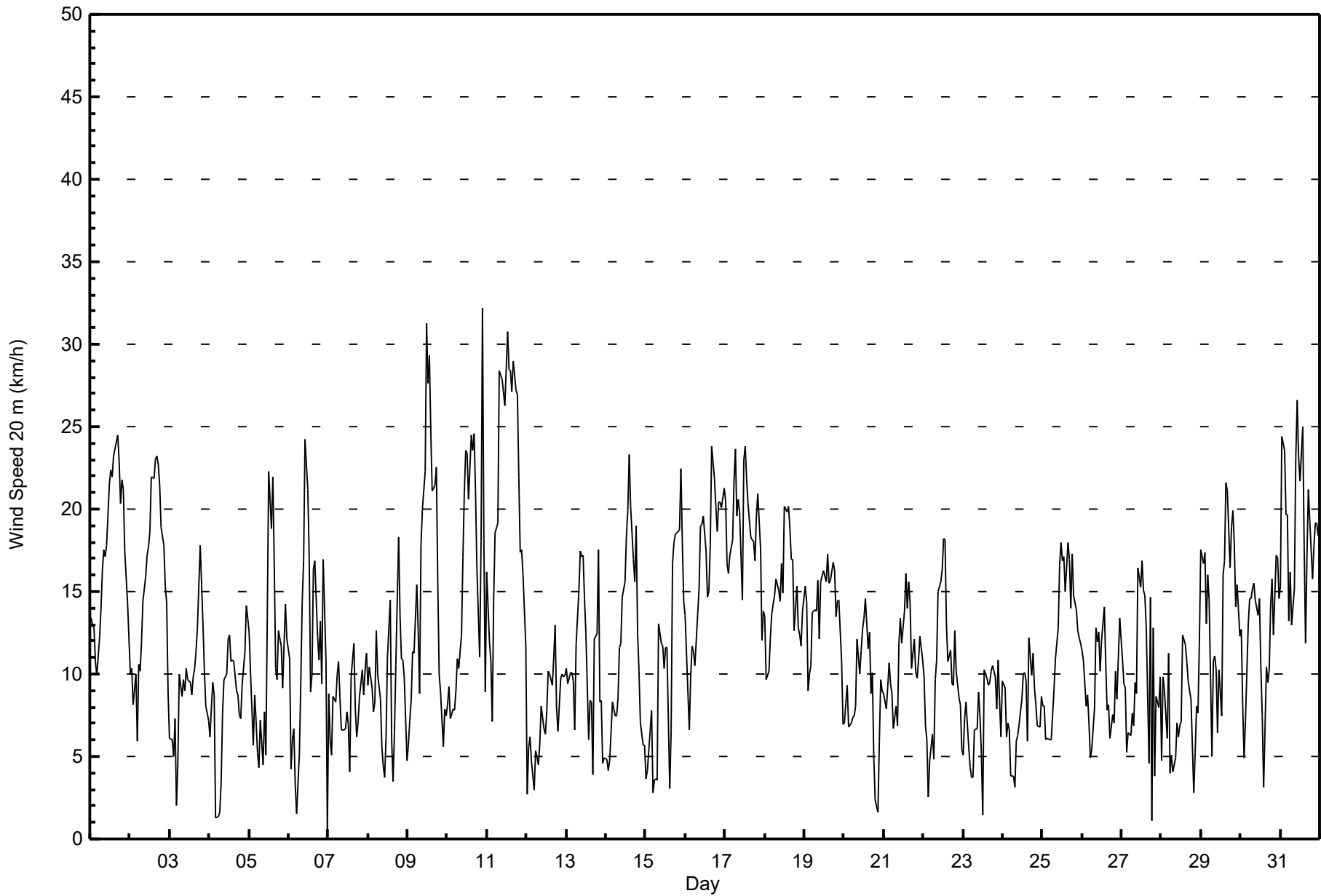
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on May 10 22:00 Minimum Value: 1 km/h on May 23 01:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 5 P <sub>90</sub> = 6 P <sub>99</sub> = 9																		Hours in Service: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





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

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - May 2024**





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

**Wind Speed 20 m (WS20m) - km/h**  
**Barge Landing - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	75	10.08	10.08
6 - 11	316	42.47	52.55
12 - 19	262	35.22	87.77
20 - 28	86	11.56	99.33
29 - 38	5	0.67	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h  
Barge Landing - May 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	5	7	2	5	5	5	8	4	3	3	7	4	3	6	6	2	75
6 - 11	23	27	19	22	21	32	31	38	29	12	14	7	3	8	8	22	316
12 - 19	28	46	38	11	7	14	14	19	14	6	9	4	3	18	14	17	262
20 - 28	10	27	1	0	0	1	2	1	0	0	5	8	3	9	13	6	86
29 - 38	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>67</b>	<b>108</b>	<b>60</b>	<b>38</b>	<b>33</b>	<b>52</b>	<b>55</b>	<b>62</b>	<b>46</b>	<b>21</b>	<b>35</b>	<b>23</b>	<b>13</b>	<b>42</b>	<b>42</b>	<b>47</b>	<b>744</b>

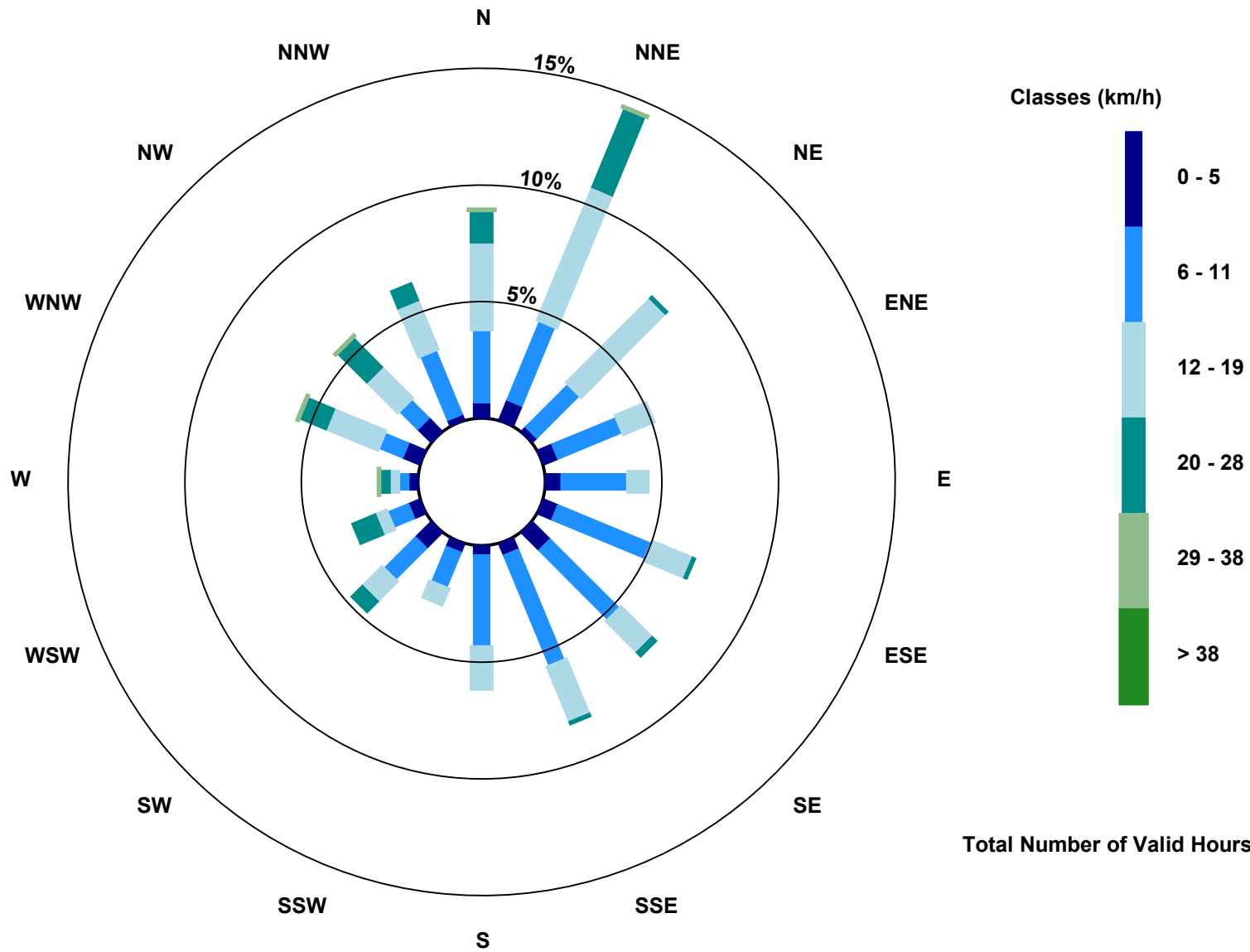
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 20 m (WS20m) - km/h  
Barge Landing





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Barge Landing - May 2024

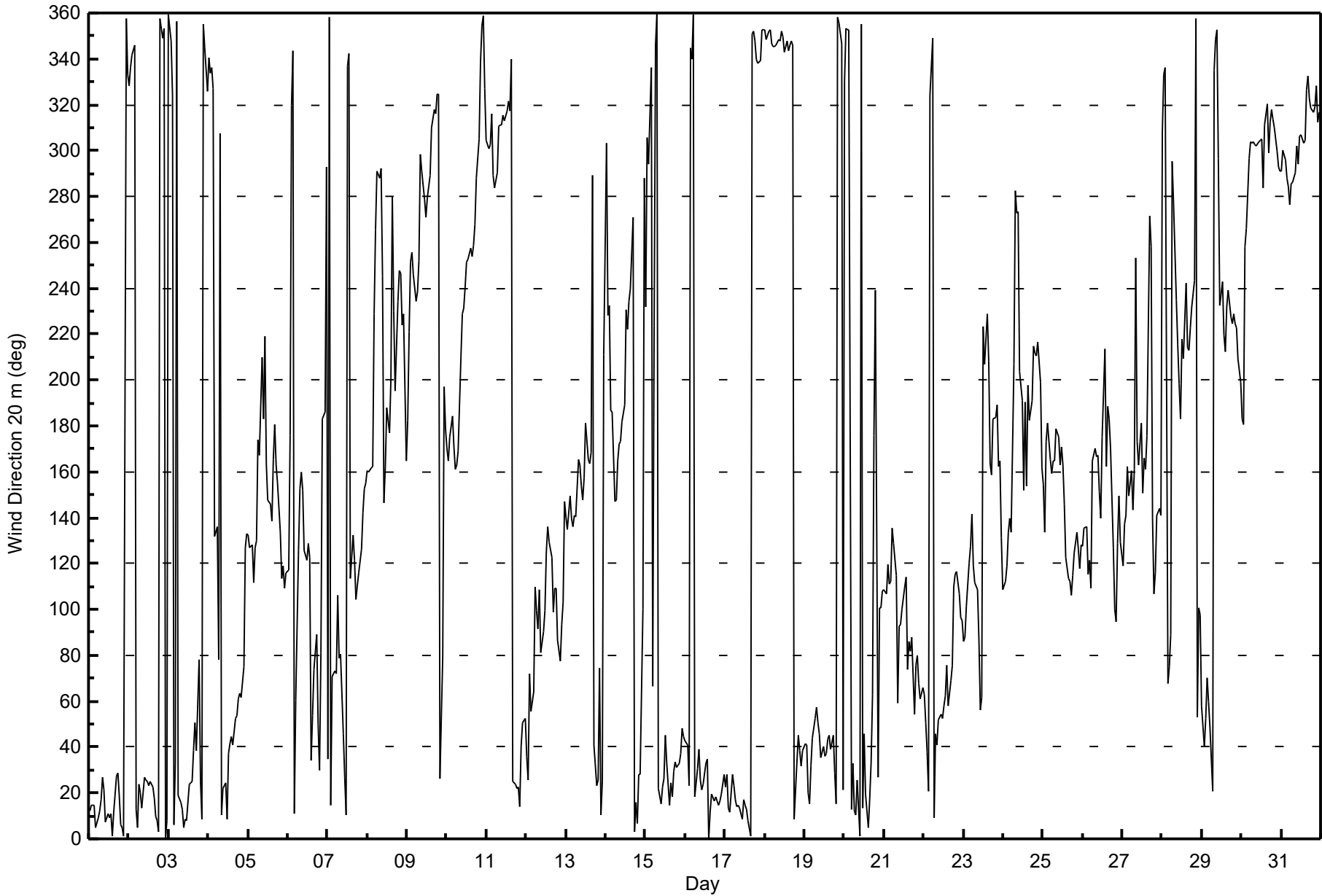
Direction of Maximum Speed: 355 deg on May 10 22:00																				Hours in Service: 744							
Direction of Maximum Daily Speed Average: 304.6 deg on May 31																				Hours of Data: 744							
Direction of Minimum Speed: 293 deg on May 7 00:00										Direction of Minimum Daily Speed Average: 2.1 deg on May 28										Hours of Missing Data: 0							
Monthly Average Direction: 20.1 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-May	12	15	15	15	5	9	12	17	27	21	7	11	9	11	1	12	27	28	19	6	5	1	358	333	11.6		
2-May	328	336	342	346	13	5	24	20	14	27	26	25	23	25	22	18	10	8	3	358	349	353	0	8	9.2		
3-May	360	348	324	6	33	357	19	16	13	5	9	8	24	24	25	38	51	39	78	25	8	355	345	326	18.1		
4-May	341	334	336	327	132	136	78	308	10	22	24	8	37	42	45	41	53	54	61	64	62	75	127	133	41.1		
5-May	132	127	128	112	127	130	174	167	210	183	219	164	148	146	139	165	181	163	155	134	114	119	109	116	144.1		
6-May	117	176	320	343	11	60	126	153	160	152	126	122	129	123	34	54	74	89	50	30	81	183	186	293	110.9		
7-May	35	358	15	71	73	72	106	79	81	46	27	10	337	342	113	132	121	104	110	116	126	142	153	155	90.7		
8-May	160	160	162	162	229	266	291	288	292	245	146	162	188	177	201	280	230	195	234	248	246	224	229	165	216.7		
9-May	183	221	251	256	246	234	239	252	298	291	279	271	279	285	289	310	318	316	325	324	26	79	197	179	281.9		
10-May	170	164	175	184	171	161	163	169	210	229	231	240	251	252	257	254	259	268	288	305	339	355	359	327	254.2		
11-May	305	301	303	316	289	284	290	311	311	311	315	313	317	321	317	340	25	24	22	23	14	40	51	53	334.4		
12-May	36	25	72	56	64	110	99	92	109	81	90	100	125	136	129	122	99	110	109	87	78	93	103	147	101.4		
13-May	140	135	150	139	136	141	140	165	163	154	147	158	181	165	164	169	289	41	23	26	74	10	25	211	137.0		
14-May	303	228	233	187	186	147	148	165	172	173	182	189	231	222	235	240	271	3	16	7	28	28	100	288	220.3		
15-May	232	306	294	336	67	223	346	360	22	16	22	26	45	33	14	25	18	29	33	31	33	37	48	45	26.4		
16-May	43	41	23	345	340	359	18	30	39	26	21	24	33	35	0	11	20	16	18	16	15	17	20	28	19.8		
17-May	22	28	13	12	28	23	17	14	15	13	8	17	15	13	8	1	351	352	348	340	338	339	352	352	6.7		
18-May	353	349	352	353	347	345	345	346	349	348	352	350	343	348	344	346	348	346	9	34	45	38	32	38	356.9		
19-May	41	41	20	15	32	44	53	57	50	46	35	40	36	37	43	45	39	45	28	15	358	356	346	21	33.7		
20-May	330	353	353	353	13	33	12	11	26	1	355	14	46	19	5	17	34	63	176	239	27	101	101	108	23.4		
21-May	109	107	120	111	112	135	129	115	59	93	93	100	110	114	74	86	82	88	54	75	80	68	61	66	92.1		
22-May	63	51	38	21	324	349	9	46	41	52	54	52	58	62	76	58	69	75	110	115	116	107	96	95	64.6		
23-May	86	88	101	120	127	142	119	111	108	87	56	62	224	207	229	208	163	159	183	184	189	162	165	131	148.4		
24-May	109	112	119	133	140	133	207	283	273	274	204	191	152	190	154	198	182	191	215	212	211	216	199	162	181.0		
25-May	154	134	173	181	165	159	165	165	179	175	163	171	163	146	123	114	112	106	115	124	134	127	118	128	141.5		
26-May	127	136	136	115	121	109	165	170	167	167	151	140	175	213	162	188	183	170	127	100	95	129	150	130	148.9		
27-May	119	137	141	162	150	161	143	161	253	173	163	181	151	166	161	176	271	258	140	107	116	141	144	141	160.3		
28-May	308	333	336	68	75	89	295	277	235	215	199	183	218	209	242	214	213	223	232	243	358	53	101	97	220.1		
29-May	58	40	52	70	60	49	21	335	348	353	297	232	243	220	212	232	239	227	225	229	225	223	210	199	236.2		
30-May	183	181	258	266	297	304	303	304	303	302	304	304	305	284	311	320	299	313	318	314	310	300	293	291	297.8		
31-May	291	300	296	288	284	277	286	286	291	302	294	307	307	303	304	327	333	323	318	316	319	328	313	317	304.6		
57.6	37.7	10.1	21.5	29.9	15.0	10.6	6.2	357.8	3.6	11.5	4.5	9.8	343.0	351.7	4.2	12.8	18.6	20.0	19.6	22.9	31.9	58.2	74.8				
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 20 m (WD20m) - deg**  
**Barge Landing - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on May 23 13:00 Minimum Value: 4 deg on May 4 01:00 Percentiles: P <sub>1</sub> = 6 P <sub>10</sub> = 10 Q <sub>1</sub> = 14 Median = 18 Q <sub>3</sub> = 26 P <sub>90</sub> = 42 P <sub>99</sub> = 80																								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-May	13	11	10	9	11	11	14	14	15	15	19	16	18	19	19	17	13	14	18	17	16	17	16	14	19
2-May	14	9	11	10	25	15	21	15	20	15	17	17	19	16	17	18	19	18	18	17	13	14	14	18	25
3-May	31	21	15	21	79	22	12	14	16	24	23	31	39	57	59	59	49	52	70	33	12	13	14	9	79
4-May	4	6	5	13	80	73	69	49	42	38	41	30	27	34	40	31	60	55	43	16	10	13	11	7	80
5-May	7	7	9	9	11	9	29	29	43	36	66	34	17	25	18	24	41	37	17	10	12	10	8	12	66
6-May	14	27	67	29	39	86	39	46	20	18	17	16	18	23	16	22	18	19	23	16	49	17	16	81	86
7-May	11	53	23	15	13	24	19	15	18	16	15	14	19	34	16	11	14	12	11	8	9	11	10	10	53
8-May	13	9	9	20	24	15	19	21	16	29	58	53	38	28	73	66	38	36	15	17	13	7	11	31	73
9-May	20	31	16	17	14	10	13	18	24	24	20	20	21	19	21	24	20	17	17	21	9	33	7	14	33
10-May	11	9	9	15	23	17	14	18	20	16	19	19	19	22	19	18	20	22	16	21	17	19	17	21	23
11-May	15	15	20	23	21	17	19	17	18	19	20	22	18	19	20	20	14	14	13	13	13	12	13	13	23
12-May	76	20	11	42	20	8	14	19	26	26	36	49	66	22	23	25	20	16	19	14	9	7	8	13	76
13-May	8	9	13	9	7	13	14	19	16	17	17	26	27	54	34	37	86	38	44	22	35	34	50	37	86
14-May	12	30	19	16	12	24	17	19	20	19	24	32	27	28	21	18	38	28	18	42	39	45	53	42	53
15-May	18	28	47	22	53	48	33	52	17	20	24	27	26	27	88	83	17	17	16	14	14	12	14	15	88
16-May	15	33	35	13	13	18	15	16	15	14	13	14	14	16	18	18	12	13	13	14	14	14	13	14	35
17-May	13	15	16	15	17	13	14	15	14	14	17	12	14	15	18	19	17	19	18	16	14	13	20	17	20
18-May	18	19	18	18	16	16	17	16	18	18	19	18	15	17	16	17	16	17	25	13	13	13	13	13	25
19-May	14	14	18	15	16	15	13	11	14	18	16	16	16	16	15	17	16	17	14	20	18	19	16	26	26
20-May	16	14	10	16	10	16	19	23	15	27	27	23	21	16	23	19	29	41	35	47	74	8	8	7	74
21-May	6	9	9	10	9	16	24	28	36	27	19	20	21	22	19	23	23	30	18	14	15	12	9	8	36
22-May	17	20	43	78	30	22	35	16	22	19	18	19	19	17	22	27	23	21	20	13	9	5	5	15	78
23-May	10	6	17	16	18	31	32	15	29	37	46	77	98	37	37	42	39	32	24	17	9	13	7	22	98
24-May	9	8	8	7	21	27	55	54	29	42	46	54	42	45	30	44	36	40	23	26	11	9	15	11	55
25-May	19	6	17	12	14	13	20	24	29	30	25	22	27	23	32	14	13	19	13	17	9	8	11	6	32
26-May	6	8	10	7	26	57	32	33	24	24	34	35	40	25	29	44	33	34	22	16	7	45	10	15	57
27-May	11	28	8	40	18	22	27	42	24	43	26	23	23	29	24	24	76	22	86	10	64	9	10	7	86
28-May	82	28	24	43	25	72	27	39	34	30	49	49	62	36	30	31	34	34	18	15	45	18	47	27	82
29-May	13	14	15	24	17	20	50	13	21	29	38	17	24	24	20	17	18	18	17	17	17	18	18	19	50
30-May	17	23	23	21	17	15	16	17	18	17	16	16	19	24	58	24	17	15	16	17	15	18	17	16	58
31-May	17	18	18	18	17	15	15	19	20	16	18	17	17	16	18	20	15	18	17	18	17	18	16	18	20
82 53 67 78 80 86 69 54 43 43 66 77 98 57 88 83 86 55 86 47 74 45 53 81																									
Diurnal Maximum																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS11 LOWER CAMP MAY 2024**

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

June 28, 2024



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
MAY 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	181.8	1	14	0
H2S (ppb) Average	709	35	35	100	36.2	2	2.6	0
THC (ppm) Average	707	35	37	99.73	3.2	-	2.2	-
CH4(ppm) Average	707	35	37	99.73	3.1	-	2.2	-
NMHC(ppm) Average	707	35	37	99.73	0.535	-	0.049	-
Temperature (C) Average	744	0	0	100	27.7	-	18.1	-
Relative Humidity (%) Average	741	0	3	99.6	100	-	97.5	-
Barometric Pressure (inHg) Average	744	0	0	100	29.4	-	29.3	-
Wind Speed 10 m (km/h) Average	744	0	0	100	34	-	20	-
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)  
MAY 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	1.64	8.9	-	0	0	0	0.1	0.4	2.3	181.8
H2S (ppb) Average	709	0.49	1.6	-	0	0	0.1	0.2	0.5	0.9	36.2
THC (ppm) Average	707	2.07	0.1	-	1.9	2	2	2	2.1	2.2	3.2
CH4(ppm) Average	707	2.06	0.1	-	1.9	2	2	2	2.1	2.2	3.1
NMHC(ppm) Average	707	0.012	0.029	-	0	0	0	0	0	0	0.535
Temperature 2 m (C) Average	744	11.48	5.3	-	-1.5	5.3	7.5	11.2	14.8	18.8	27.7
Relative Humidity (%) Average	741	63.94	23.1	-	17.6	32.5	44.8	63.2	84.8	96.4	100
Barometric Pressure (inHg) Average	744	29	0.2	-	28.6	28.8	28.9	29	29.1	29.2	29.4
Wind Speed 10 m (km/h) Average	744	10.4	6	-	0	3	6	9	13	20	34
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)  
MAY 2024

OPERATIONAL NOTES

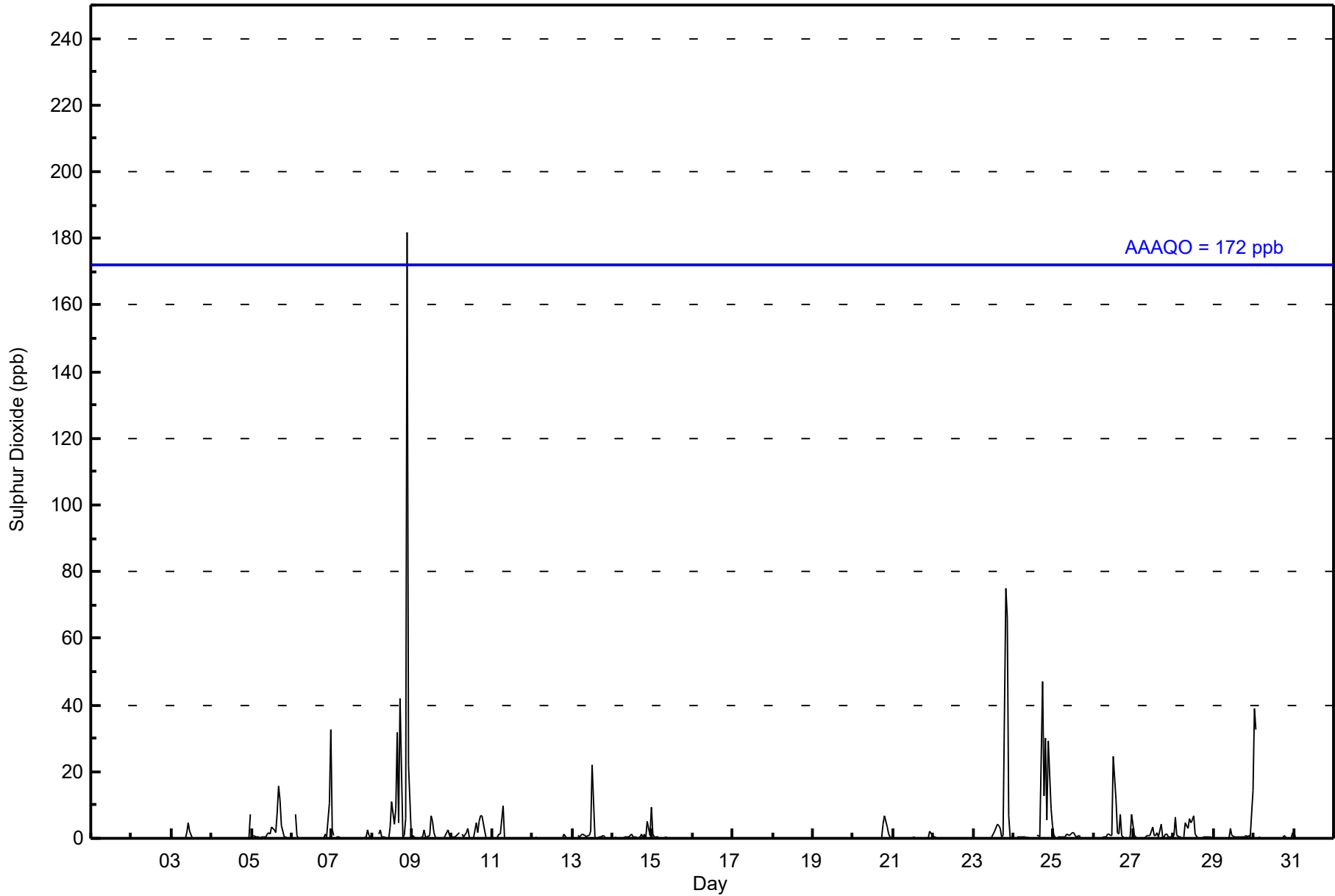
Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	31 May 2024 12:00	31 May 2024 13:00	2	Maintenance - replaced support gas cylinder
Relative Humidity	14 May 2024 05:00	14 May 2024 07:00	3	Sensor operated out of range





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Lower Camp - May 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Lower Camp - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	688	97.04	97.04
11 - 20	7	0.99	98.03
21 - 60	11	1.55	99.58
61 - 110	2	0.28	99.86
111 - 172	0	0.00	99.86
> 172	1	0.14	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Lower Camp - May 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	47	28	18	20	50	130	30	11	1	5	26	26	54	100	64	78	688
11 - 20	0	0	0	0	0	1	1	3	1	1	0	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	2	3	4	1	0	0	1	0	0	11
61 - 110	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0	1
<b>Totals</b>	47	28	18	20	50	131	31	17	6	11	27	26	54	101	64	78	709

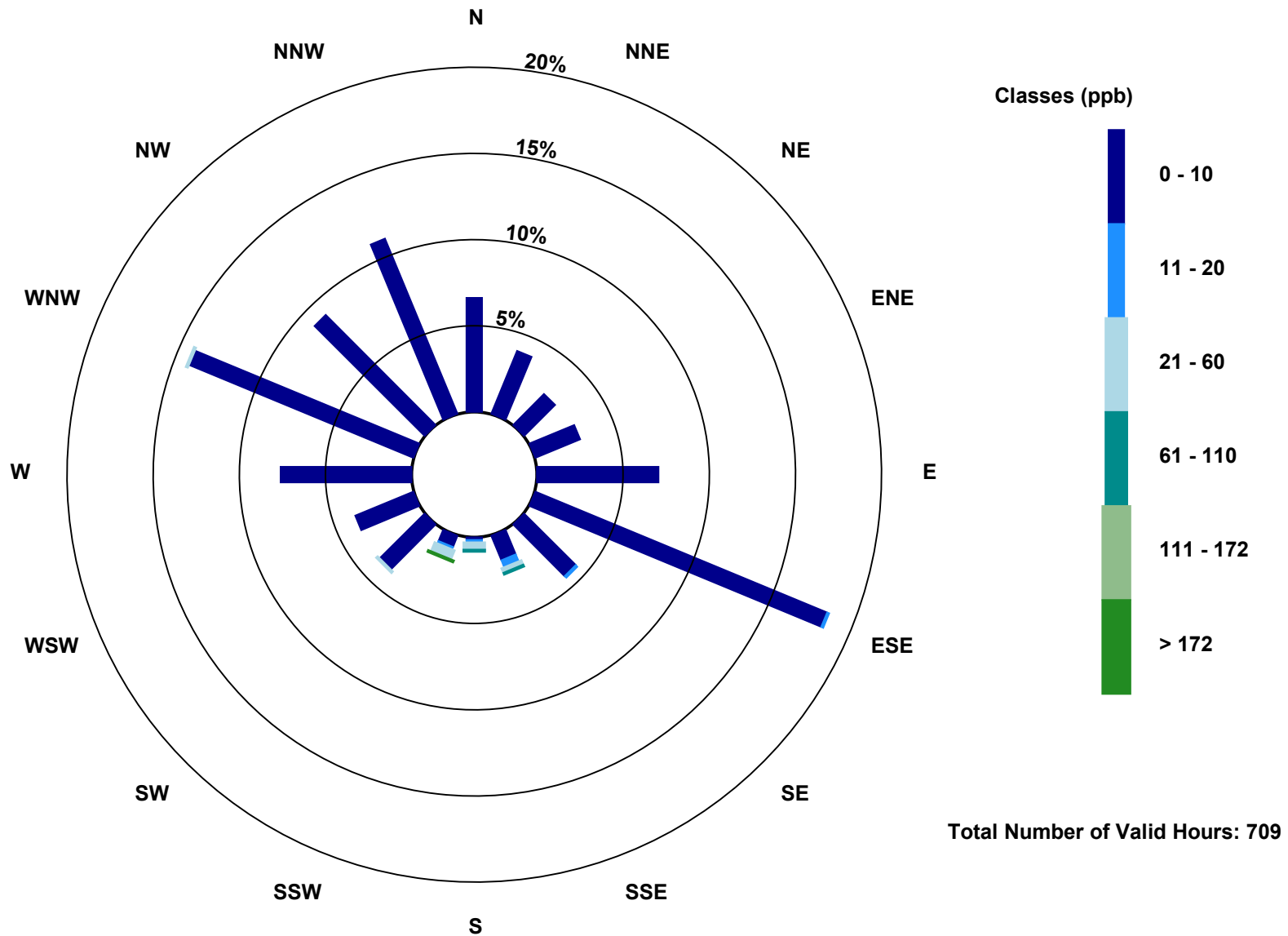
Total Number of Valid Hours: 709

Total Number of Hours: 744

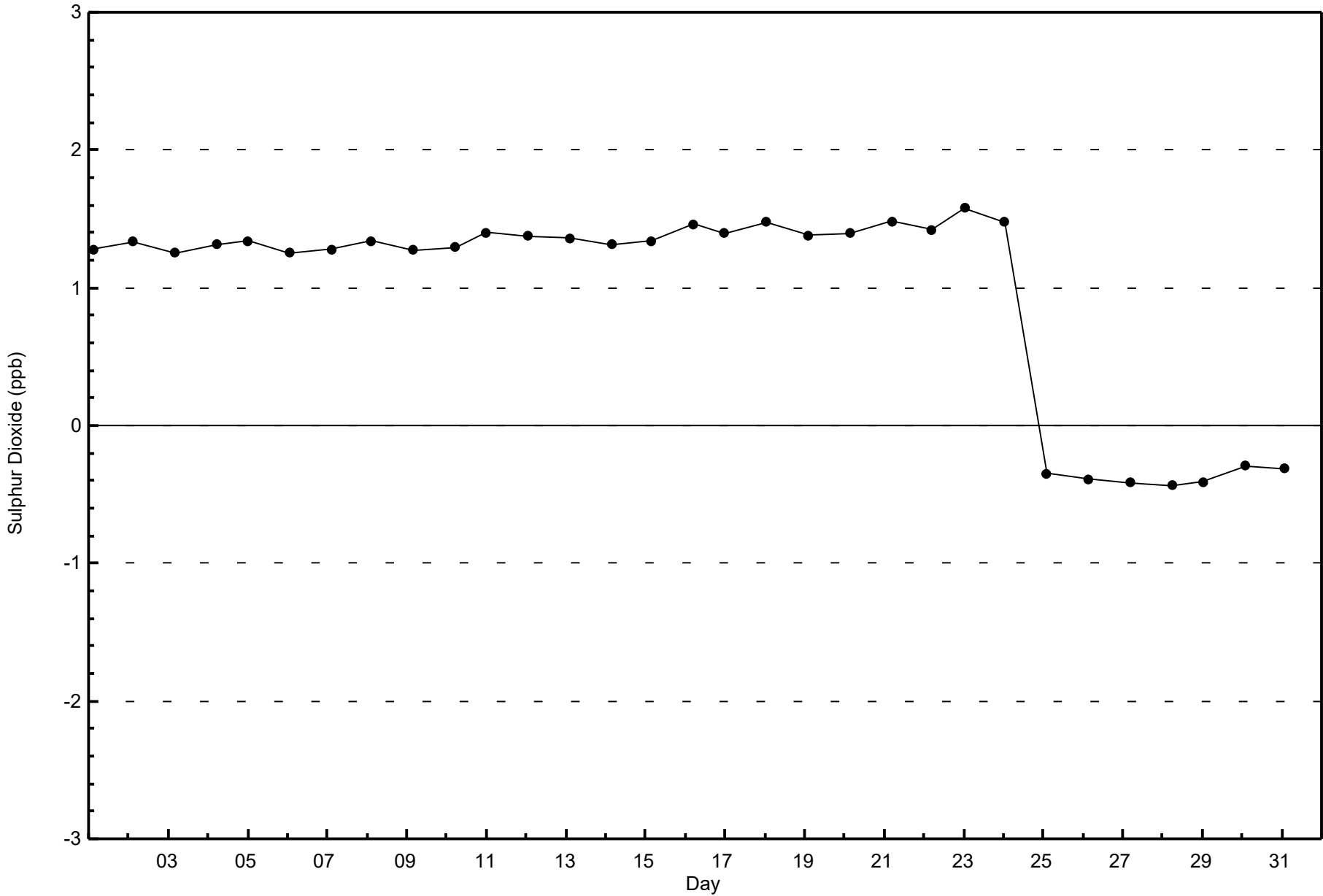


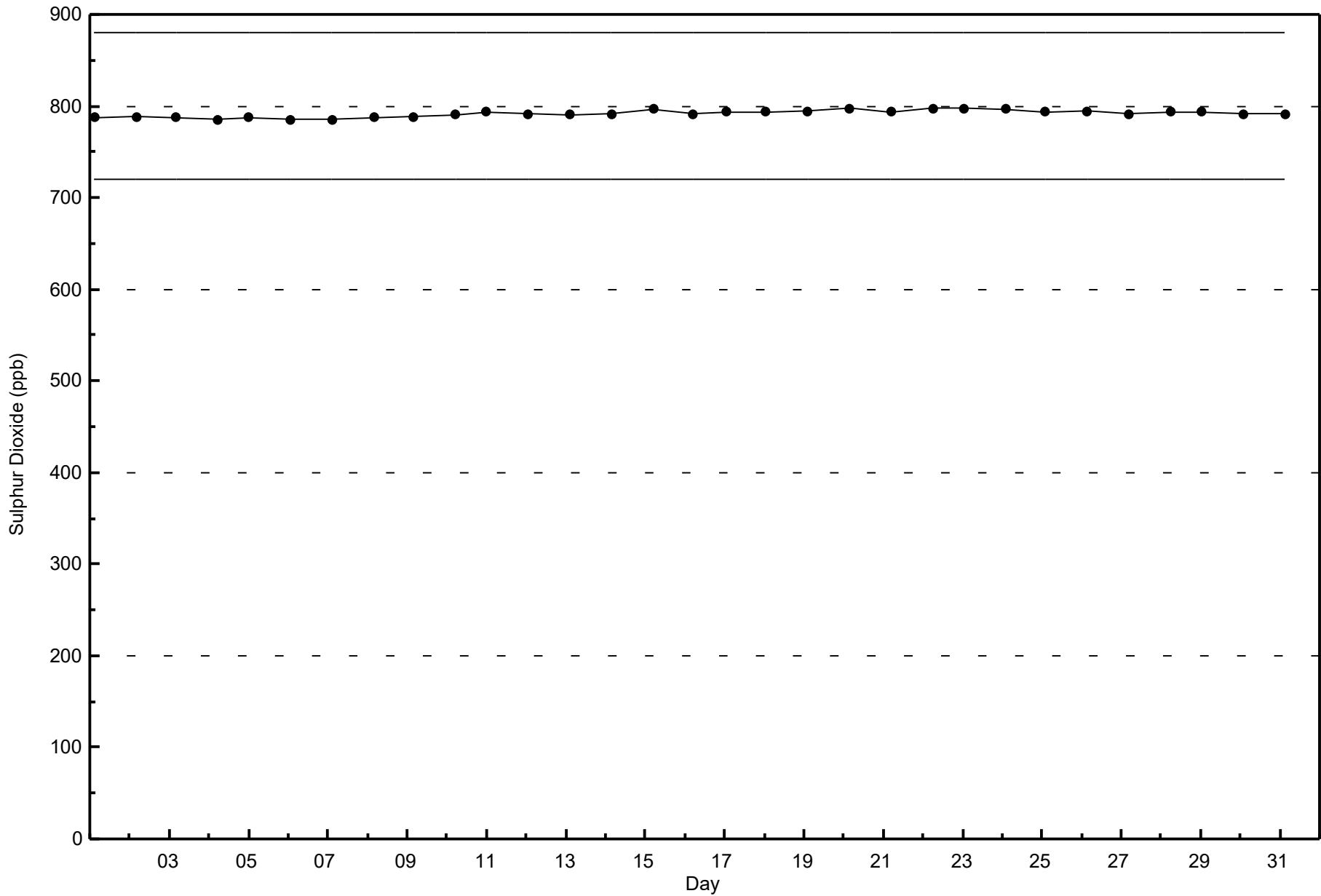
Wood Buffalo Environmental Association  
Wind Rose May 2024

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 - May 2024

Number of Exceedences (AAAQO):	1-hr: 2	24-hr: 0	Hours in Service:	744
Maximum Value: 36.2 ppb on May 8 22:00	Maximum Daily Average: 2.6 ppb on May 8		Hours of Data:	709
Minimum Value: 0.0 ppb on May 8 19:00	Minimum Daily Average: 0.1 ppb on May 19		Hours of Missing Data:	35
Maximum Diurnal Average: 1.7 ppb at hour 22	Minimum Diurnal Average: 0.2 ppb at hour 15		Hours of Calibration:	35
Monthly Average: 0.49 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> = 0.9 P <sub>99</sub> = 5.1		Percent Operational Time:	100.0

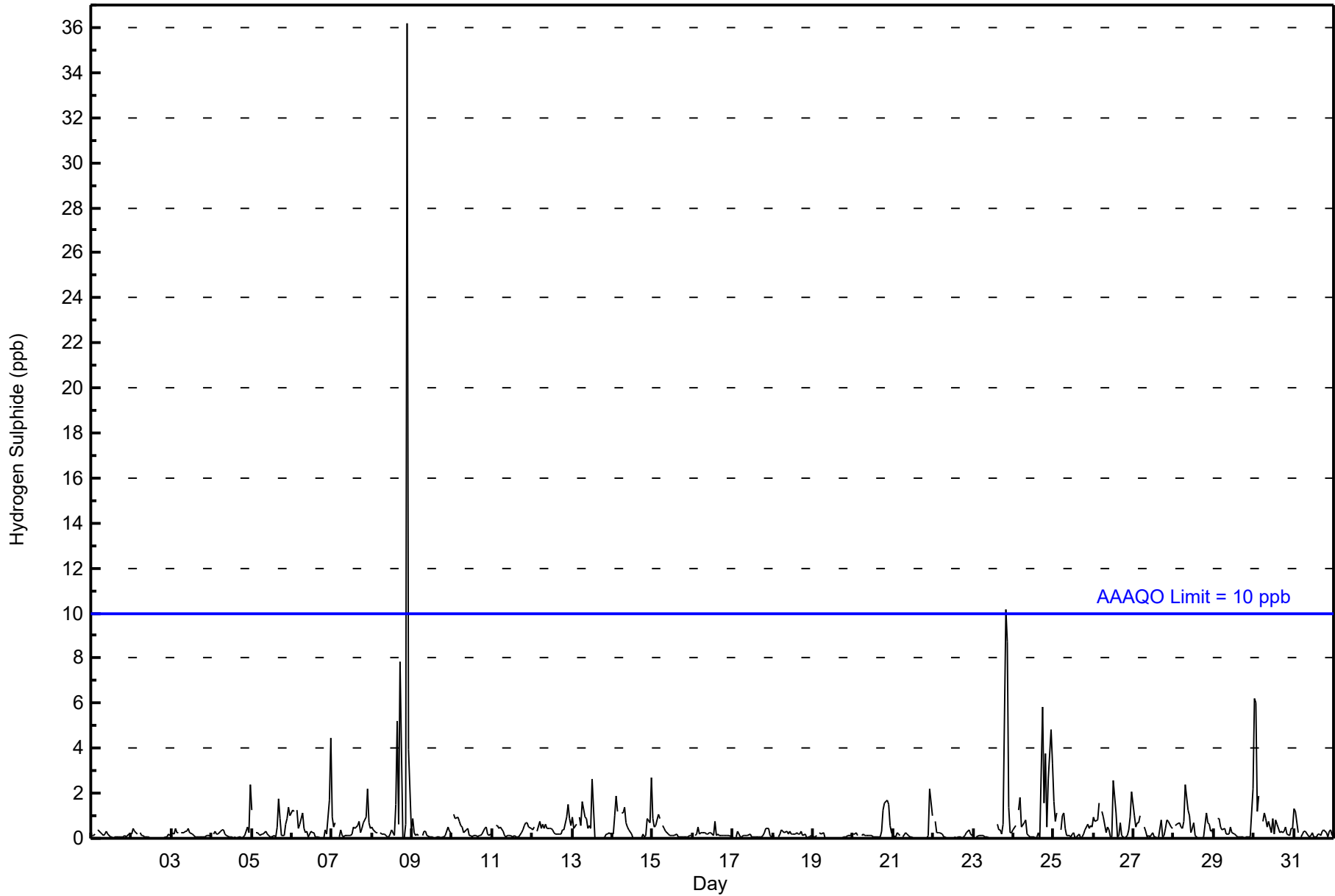
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	0.1	0.1	0.2	Z	0.4	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.4																							
2-May	0.2	0.4	0.3	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.4																							
3-May	0.2	0.2	0.4	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.4																							
4-May	Z	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.3	2.4	0.3	2.4																								
5-May	1.3	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.5	1.7	0.9	0.1	0.1	0.7	0.9	1.4	1.0	0.5	1.7																							
6-May	1.2	1.2	Z	1.2	0.4	0.6	1.1	0.4	0.3	0.3	0.1	0.3	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.4	0.2	1.7	4.4	0.6	4.4																								
7-May	0.9	0.5	0.7	Z	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.4	0.5	0.8	0.3	0.4	0.7	0.9	2.2	0.7	0.4	0.5	2.2																							
8-May	0.5	0.4	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.0	0.2	0.4	0.1	1.5	5.2	0.6	7.9	0.0	0.0	0.6	36.2	4.0	0.4	2.6	36.2																							
9-May	0.9	0.3	0.1	0.2	0.1	Z	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.3	0.3	0.2	0.9																							
10-May	Z	1.1	0.9	0.9	0.8	0.5	0.5	0.3	0.4	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.2	0.1	0.2	0.4	1.1																							
11-May	0.2	Z	0.6	0.6	0.5	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.6	0.7	0.7	0.5	0.4	0.3	0.7																							
12-May	0.4	0.5	Z	0.3	0.8	0.4	0.6	0.5	0.6	0.4	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.4	0.4	1.0	1.5	0.9	0.5	0.5	1.5																							
13-May	0.9	0.4	0.7	Z	0.9	0.6	1.6	0.9	0.9	0.4	0.6	0.4	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.5	2.6																							
14-May	0.2	1.0	1.9	1.2	Z	1.1	1.1	1.4	0.7	0.5	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.9	0.7	2.7	0.6	2.7																							
15-May	0.9	0.5	0.6	1.1	0.9	Z	0.6	0.5	0.3	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	0.3	1.1																							
16-May	Z	0.2	0.2	0.5	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.1	0.8	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.8																							
17-May	0.1	Z	0.1	0.3	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	0.0	0.1	0.3	0.4	0.4	0.1	0.1	0.1	0.4																							
18-May	0.1	0.1	Z	0.1	0.2	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.0	0.0	0.0	0.1	0.2	0.4																							
19-May	0.1	0.1	0.1	Z	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.1	0.3	0.3																							
20-May	0.2	0.2	0.2	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.3	1.3	1.6	1.7	1.5	0.5	0.2	0.4	1.7																							
21-May	0.1	0.1	0.2	0.2	0.1	Z	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	0.1	2.2	1.0	0.2	2.2																								
22-May	Z	0.7	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	0.0	0.2	0.4	0.2	0.1	0.1	0.7																								
23-May	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	C	C	C	C	0.6	0.3	0.4	0.2	0.6	10.2	8.7	1.4	0.3	1.3	10.2																							
24-May	0.4	0.6	Z	1.2	1.8	0.5	0.7	0.8	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.0	5.8	1.6	3.8	0.5	2.6	4.8	3.3	1.3	5.8																							
25-May	1.6	0.8	1.1	Z	0.4	1.0	1.2	0.5	0.1	0.1	0.1	0.2	0.3	0.0	0.0	0.2	0.0	0.1	0.2	0.4	0.6	0.4	0.6	0.5	0.4	1.6																							
26-May	0.9	0.8	0.8	1.6	Z	1.2	0.9	0.2	0.5	0.4	0.1	0.0	2.5	1.1	0.1	0.1	0.7	0.1	0.0	0.0	0.1	0.4	0.9	2.1	0.7	2.5																							
27-May	1.0	0.5	0.7	0.7	1.0	Z	0.5	0.3	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.0	0.8	0.0	0.1	0.4	0.8	0.8	0.5	0.4	0.4	1.0																							
28-May	Z	0.6	0.6	0.7	0.5	0.4	0.7	2.4	1.3	1.0	0.2	0.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0	1.1	0.7	0.6	0.3	0.4	0.6	2.4																							
29-May	0.1	Z	0.9	0.9	0.5	0.4	0.4	0.2	0.2	0.2	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	2.2	0.3	2.2																							
30-May	6.2	6.0	1.2	1.9	Z	0.8	1.2	0.9	0.5	0.7	0.3	0.9	0.2	0.8	0.6	0.2	0.3	0.2	0.3	0.5	0.2	0.1	0.4	0.4	1.1	6.2																							
31-May	1.3	1.2	0.3	Z	0.1	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.4	0.3	0.1	0.3	0.4	0.1	0.3	1.3																							
																								0.8	0.7	0.5	0.6	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.6	0.2	0.7	0.6	1.7	0.7	0.8	Diurnal Average		
																								6.2	6.0	1.9	1.9	1.8	1.2	1.6	2.4	1.3	1.0	0.6	0.9	2.6	1.1	1.5	5.2	1.7	7.9	1.6	10.2	8.7	36.2	4.8	4.4	Diurnal Maximum	

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



Wood Buffalo Environmental Association  
Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp - May 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	692	97.60	97.60
3 - 4	8	1.13	98.73
5 - 7	5	0.71	99.44
8 - 11	3	0.42	99.86
> 11	1	0.14	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**  
**Lower Camp - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	46	28	17	20	51	129	32	14	2	6	25	24	51	101	69	77	692
3 - 4	0	0	1	0	0	0	0	0	2	2	1	1	0	1	0	0	8
5 - 7	0	0	0	1	0	0	0	2	1	1	0	0	0	0	0	0	5
8 - 11	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
> 11	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
<b>Totals</b>	46	28	18	21	51	129	32	17	6	11	26	25	51	102	69	77	709

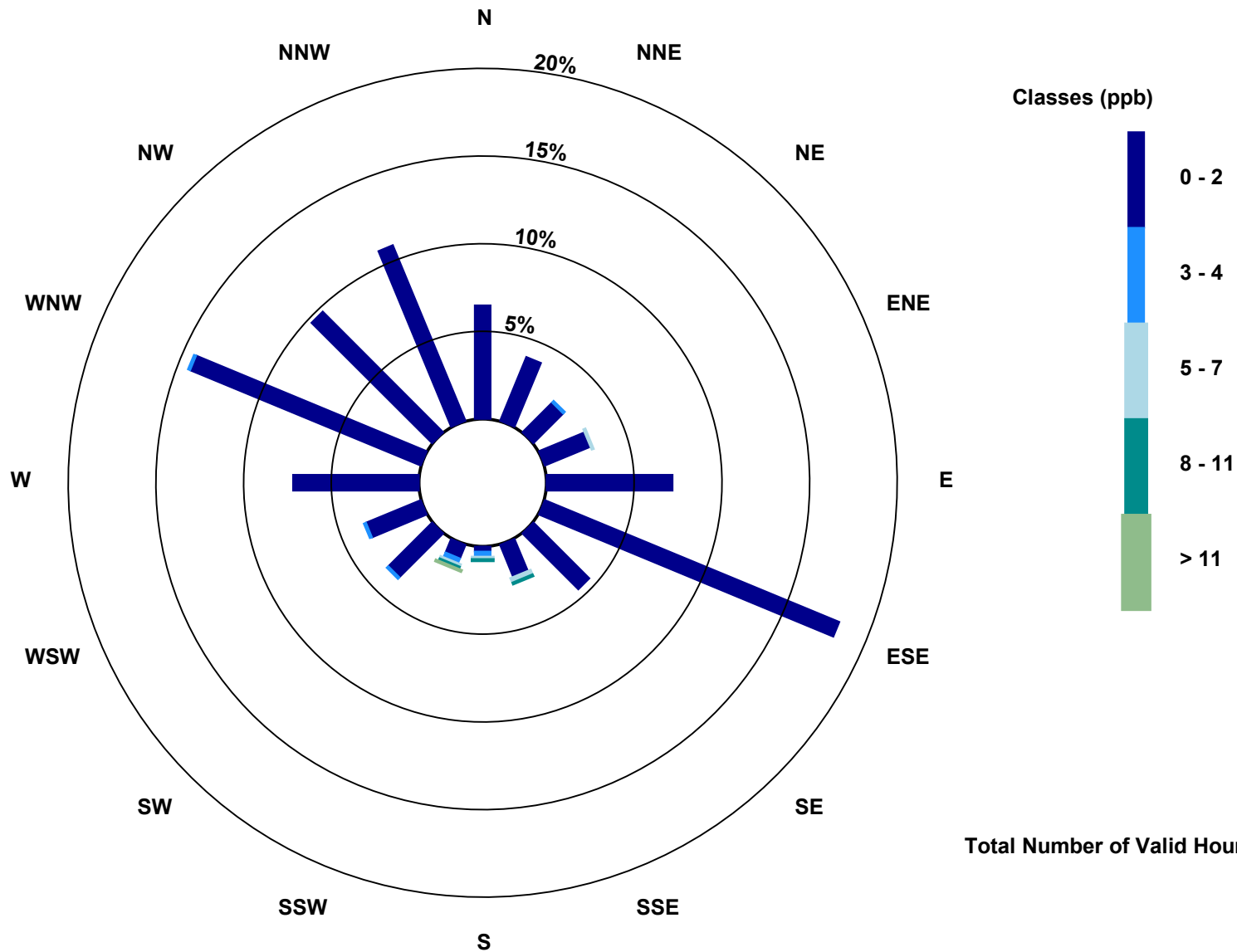
Total Number of Valid Hours: 709

Total Number of Hours: 744

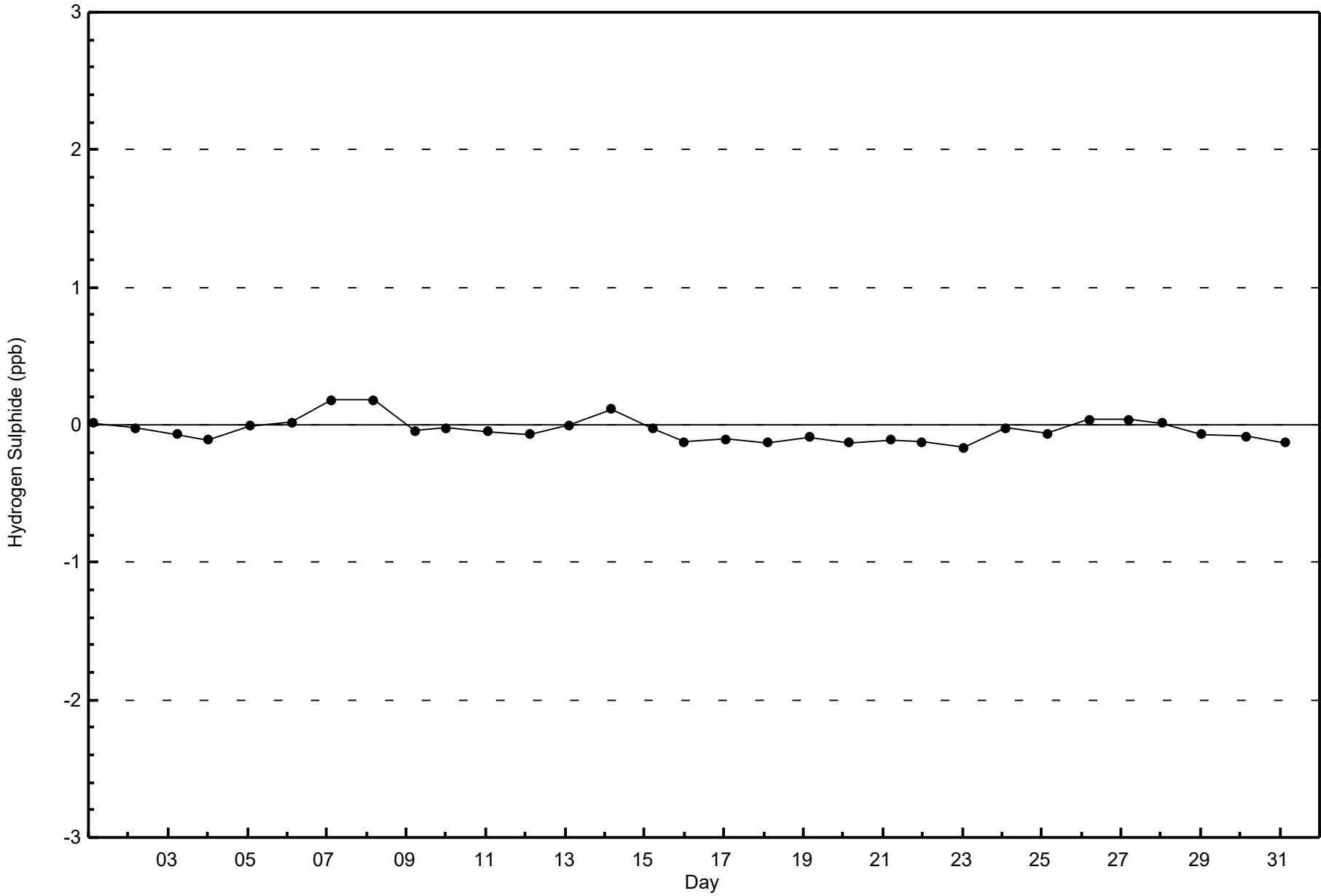


Wood Buffalo Environmental Association  
Wind Rose May 2024

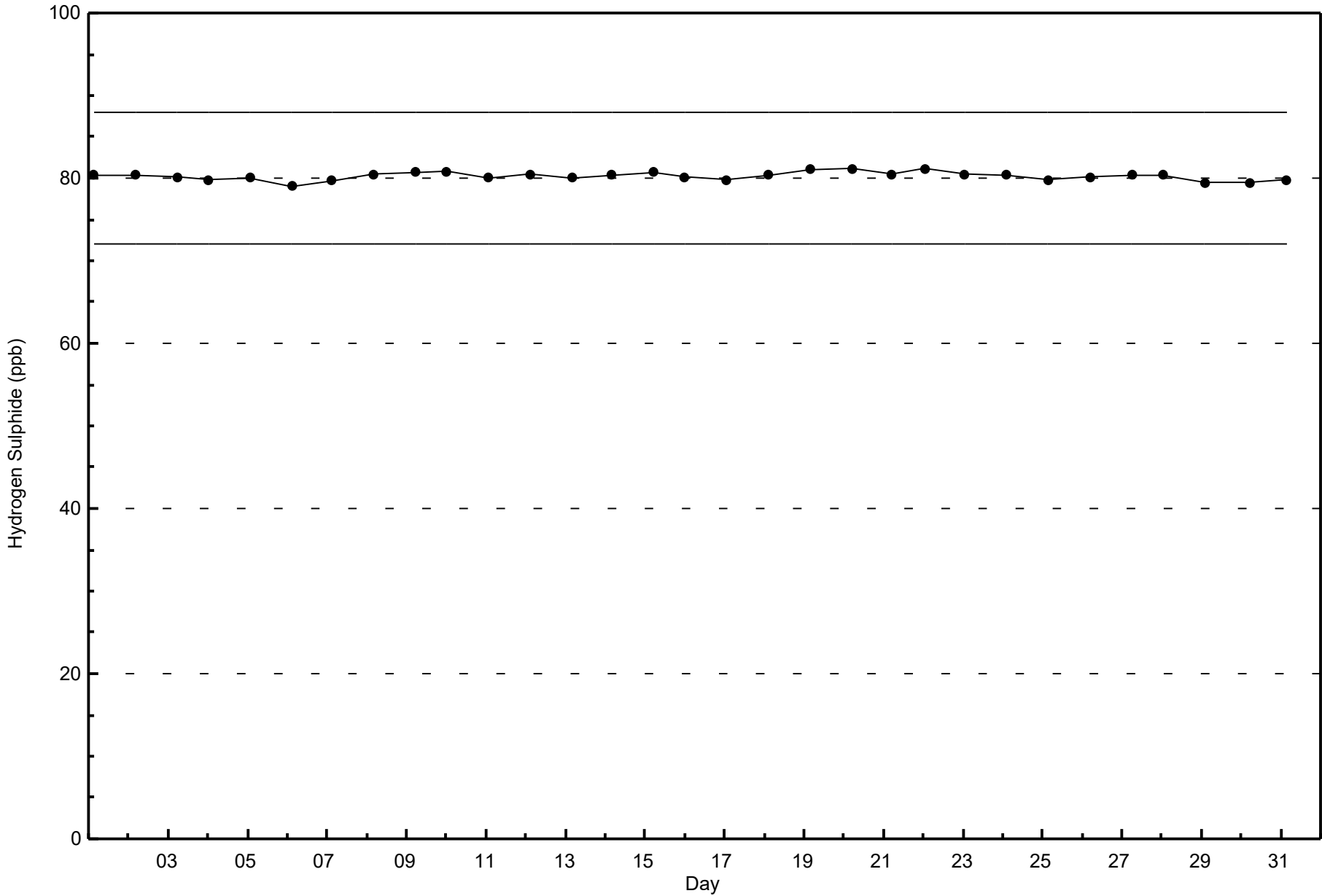
Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Lower Camp



Total Number of Valid Hours: 709









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

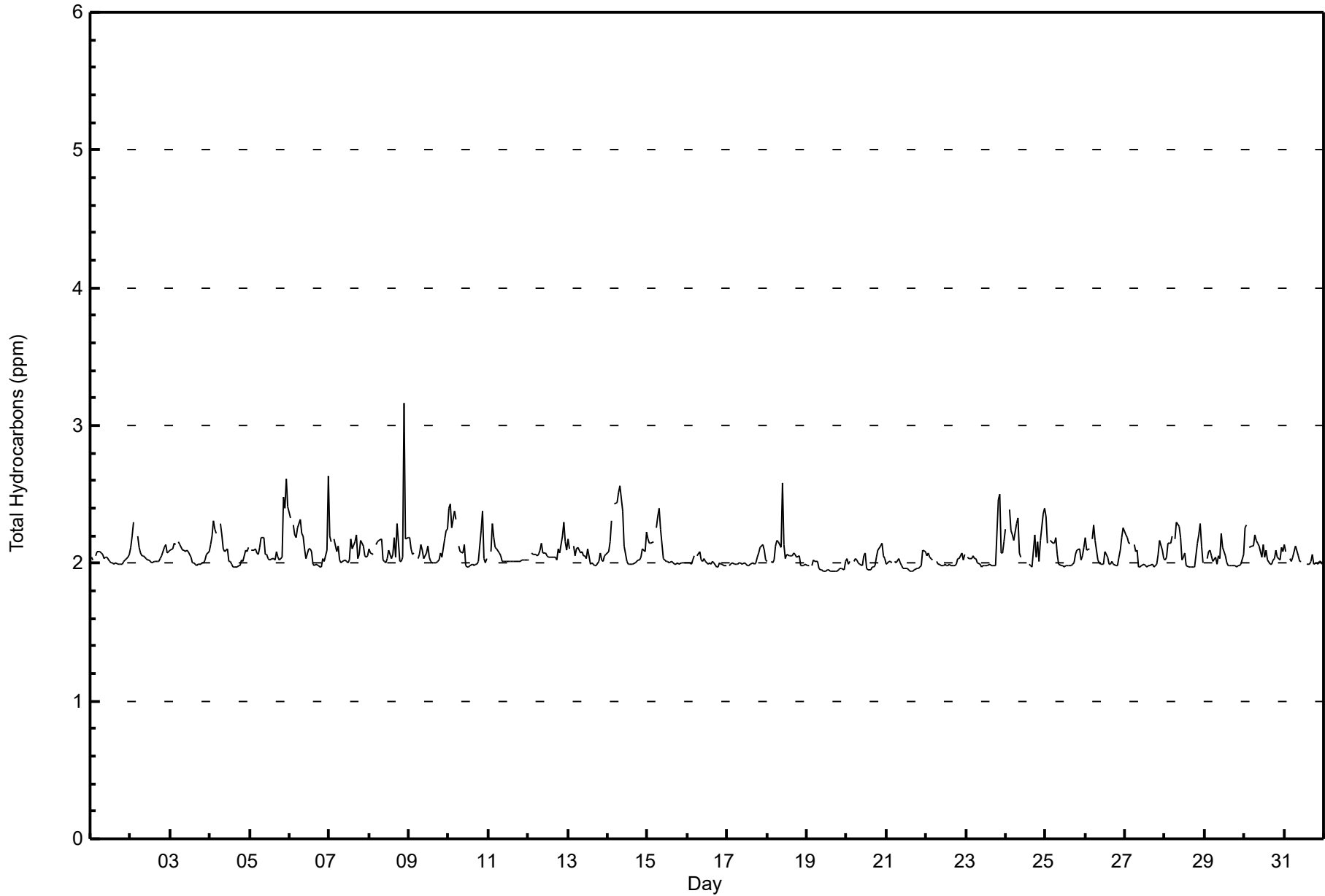
**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - May 2024**

Maximum Value: 3.2 ppm on May 8 22:00		Maximum Daily Average: 2.2 ppm on May 14		Hours in Service: 744																						
Minimum Value: 1.9 ppm on May 19 19:00		Minimum Daily Average: 2.0 ppm on May 19		Hours of Data: 707																						
Maximum Diurnal Average: 2.1 ppm at hour 3		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 37																						
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.5		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-May	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1
2-May	2.1	2.2	Z	Z	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
3-May	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	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
4-May	2.1	2.2	2.3	2.3	2.2	Z	2.3	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1
5-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.5	2.4	2.6	2.4	2.1	2.6
6-May	2.3	Z	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.6	2.1	2.6
7-May	2.2	2.2	Z	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.2	2.2	2.0	2.1	2.2	2.1	2.1	2.0	2.1	2.1	2.2
8-May	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.2	2.0	2.3	2.0	2.0	2.0	3.2	2.2	2.2	2.1	3.2
9-May	2.2	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2	2.2	2.3	2.1	2.3
10-May	2.4	2.4	2.3	2.4	2.3	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	2.2	2.4	2.0	2.0	2.0	2.1	2.4
11-May	Z	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3
12-May	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.2	2.1	2.1	2.3
13-May	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.2
14-May	2.1	2.2	Z	Z	2.4	2.4	2.5	2.6	2.5	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.6
15-May	2.2	2.1	2.1	2.2	Z	2.3	2.3	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4
16-May	2.0	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
17-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	
18-May	2.0	Z	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.6	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.6
19-May	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	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0
20-May	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1
21-May	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	2.0	2.0	2.1	2.1	2.0	2.1
22-May	2.1	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1
23-May	Z	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	2.5	2.5	2.1	2.1	2.2	2.1	2.5
24-May	2.3	Z	2.4	2.2	2.2	2.2	2.3	2.3	2.1	2.0	C	C	C	C	2.0	2.0	2.0	2.2	2.0	2.2	2.0	2.2	2.4	2.4	2.2	2.4
25-May	2.3	2.1	Z	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.3
26-May	2.2	2.1	2.1	Z	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.1	2.3
27-May	2.2	2.2	2.2	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	2.1	2.2	2.1	2.0	2.1	2.1	2.2
28-May	2.0	2.0	2.1	2.2	2.2	Z	2.2	2.3	2.3	2.2	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.1	2.0	2.1	2.3
29-May	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2
30-May	2.3	2.3	Z	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.3
31-May	2.1	2.1	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	M	M	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - May 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Lower Camp - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	403	57.00	57.00
2.1 - 3.0	303	42.86	99.86
3.1 - 10.0	1	0.14	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**

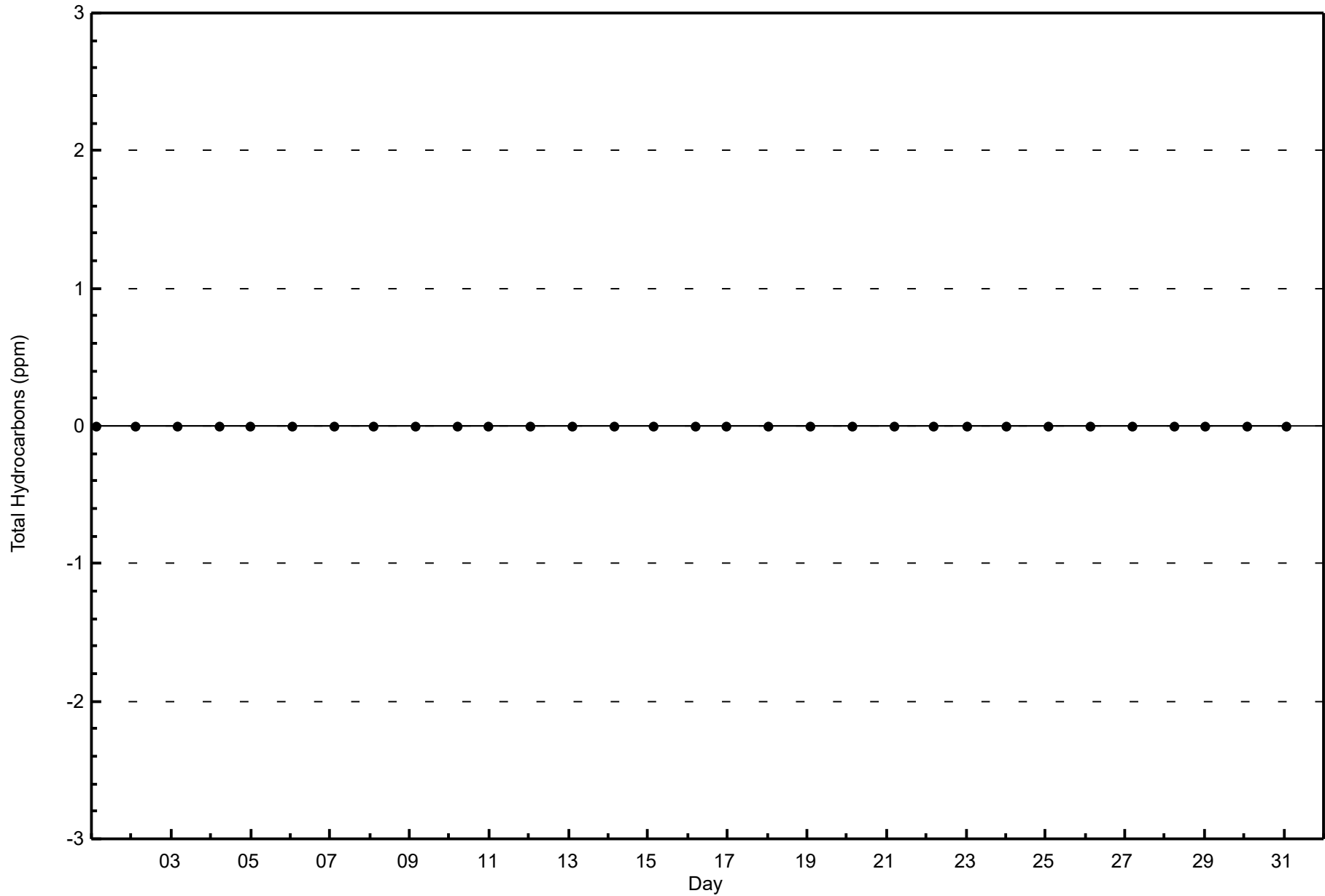
**Total Hydrocarbons (THC) - ppm  
Lower Camp - May 2024**

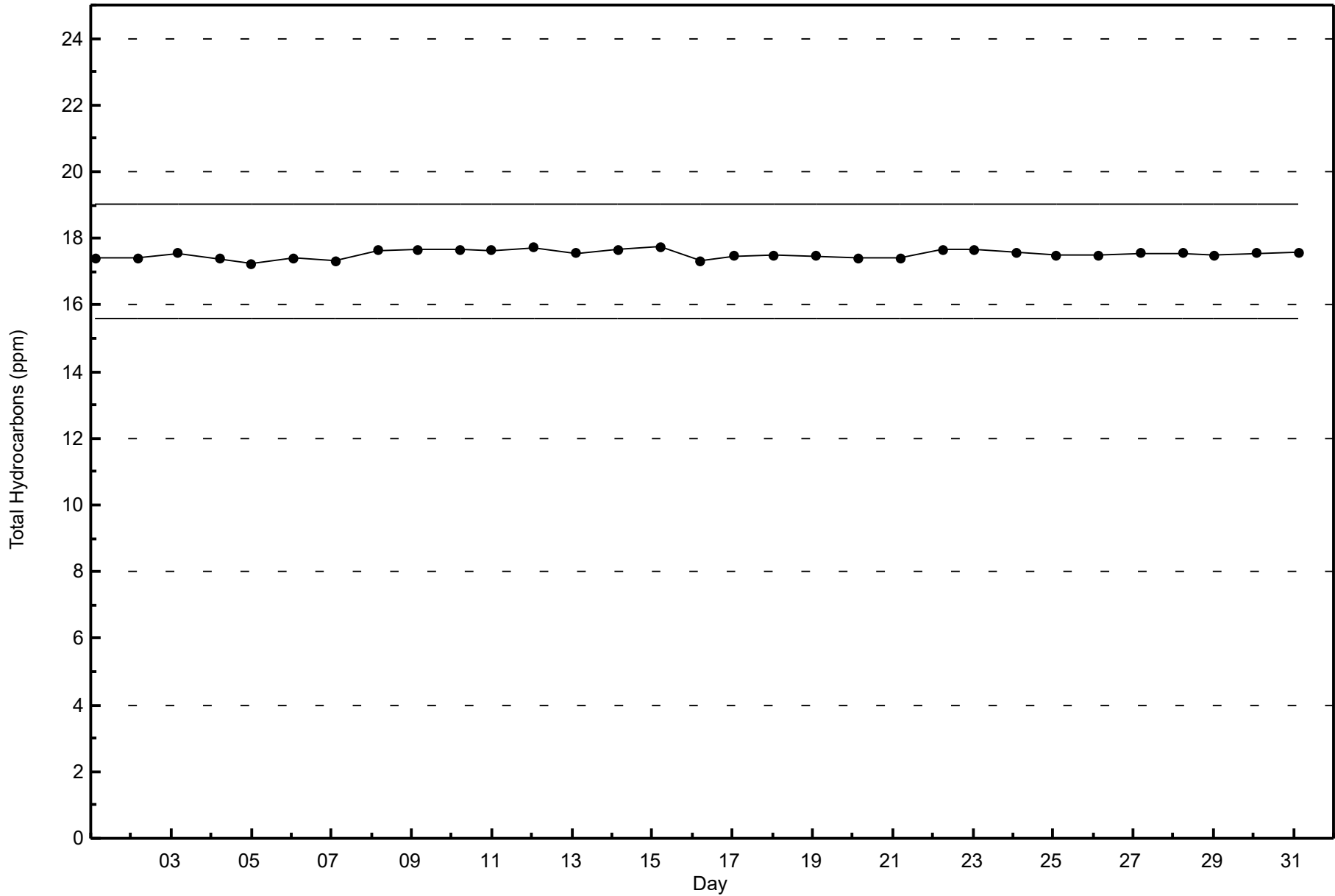
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	43	27	13	13	32	51	14	11	0	3	23	15	11	52	29	66	403
2.1 - 3.0	4	1	5	7	18	80	17	6	6	7	4	11	42	48	35	12	303
3.1 - 10.0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	47	28	18	20	50	131	31	17	6	11	27	26	53	100	64	78	707

Total Number of Valid Hours: 707

Total Number of Hours: 744







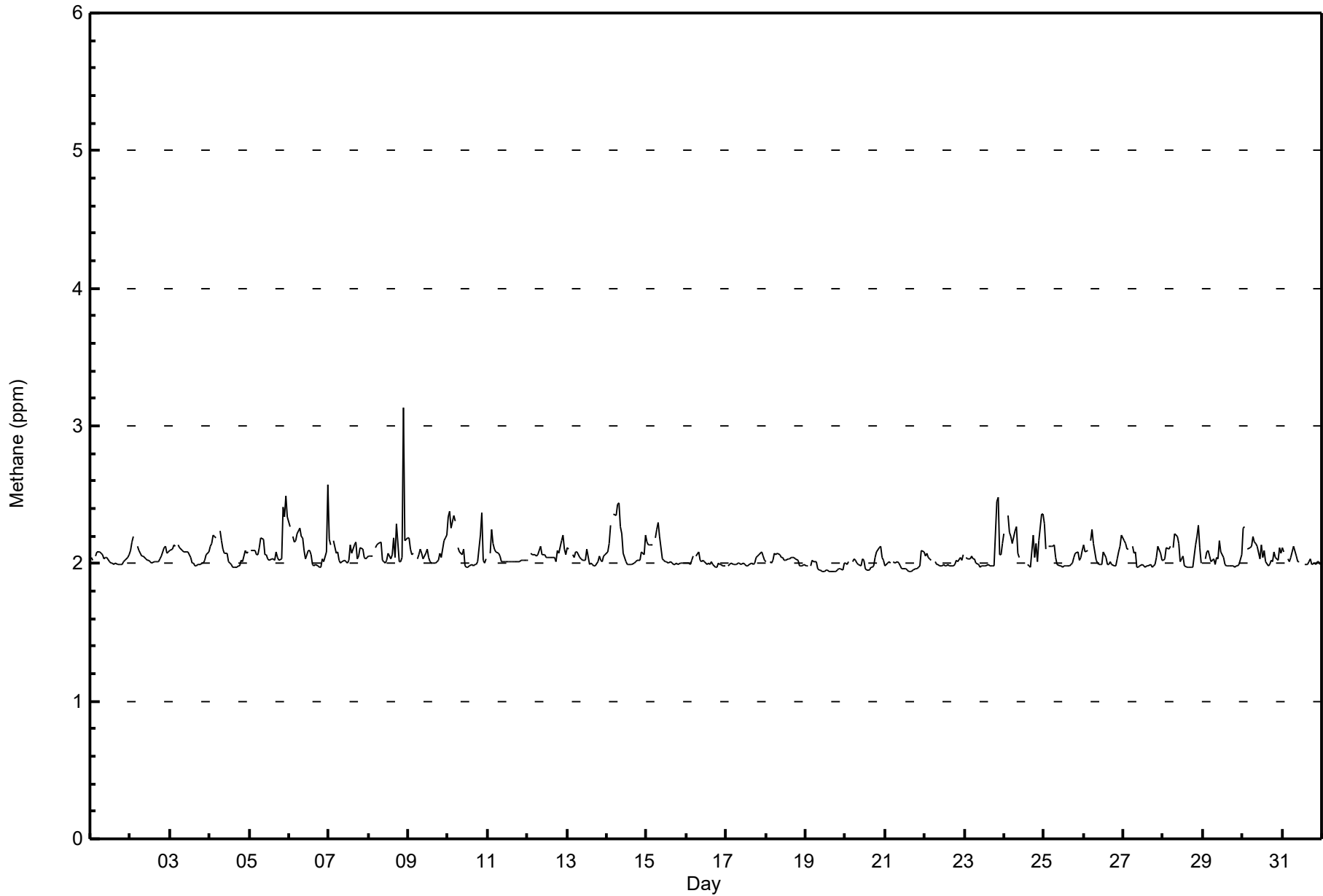






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Lower Camp - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Lower Camp - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	429	60.68	60.68
2.1 - 3.0	277	39.18	99.86
3.1 - 10.0	1	0.14	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  
Lower Camp - May 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	44	27	13	13	34	57	19	11	0	3	24	15	11	53	39	66	429
2.1 - 3.0	3	1	5	7	16	74	12	6	6	7	3	11	42	47	25	12	277
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>	47	28	18	20	50	131	31	17	6	11	27	26	53	100	64	78	707

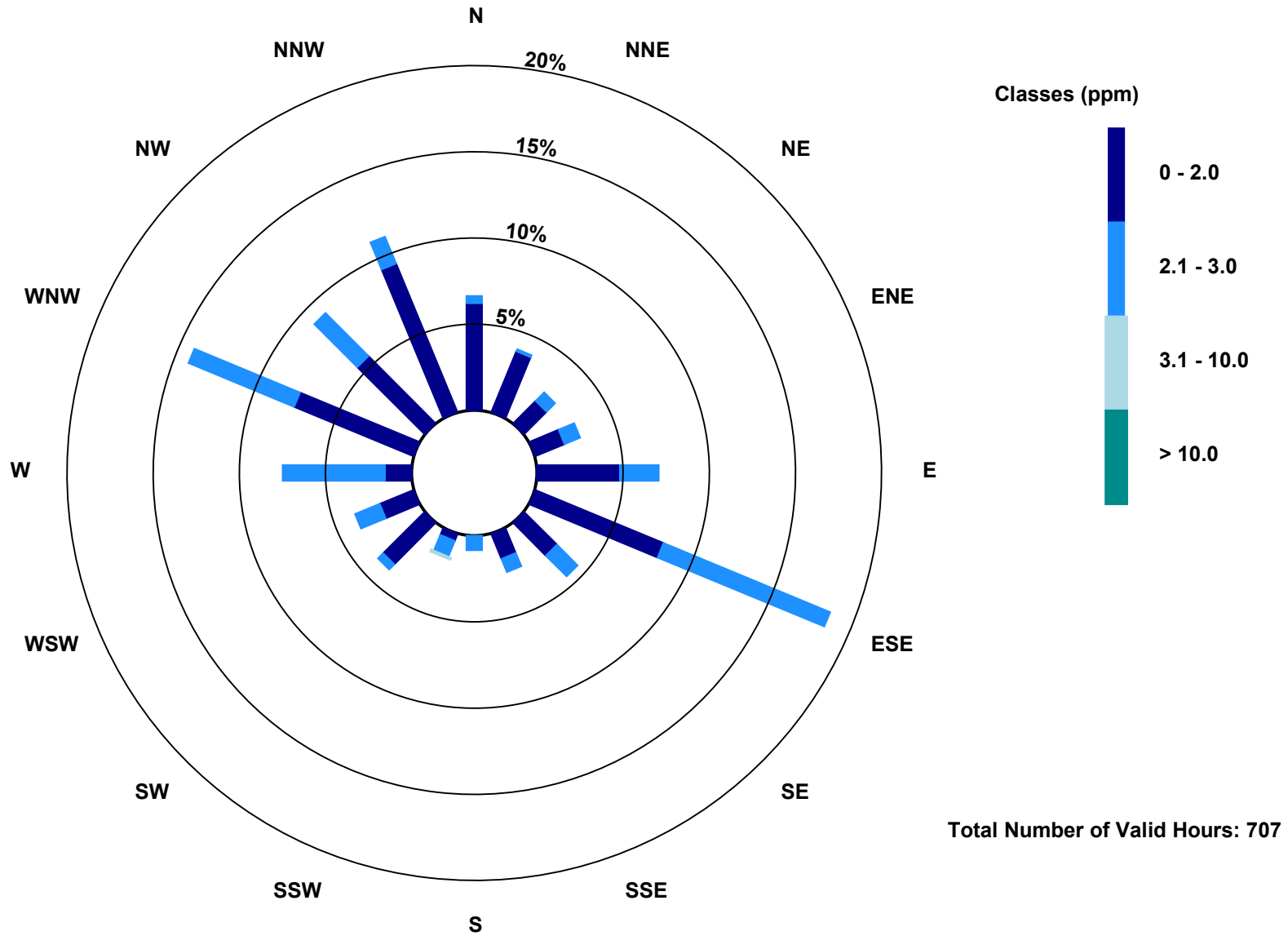
Total Number of Valid Hours: 707

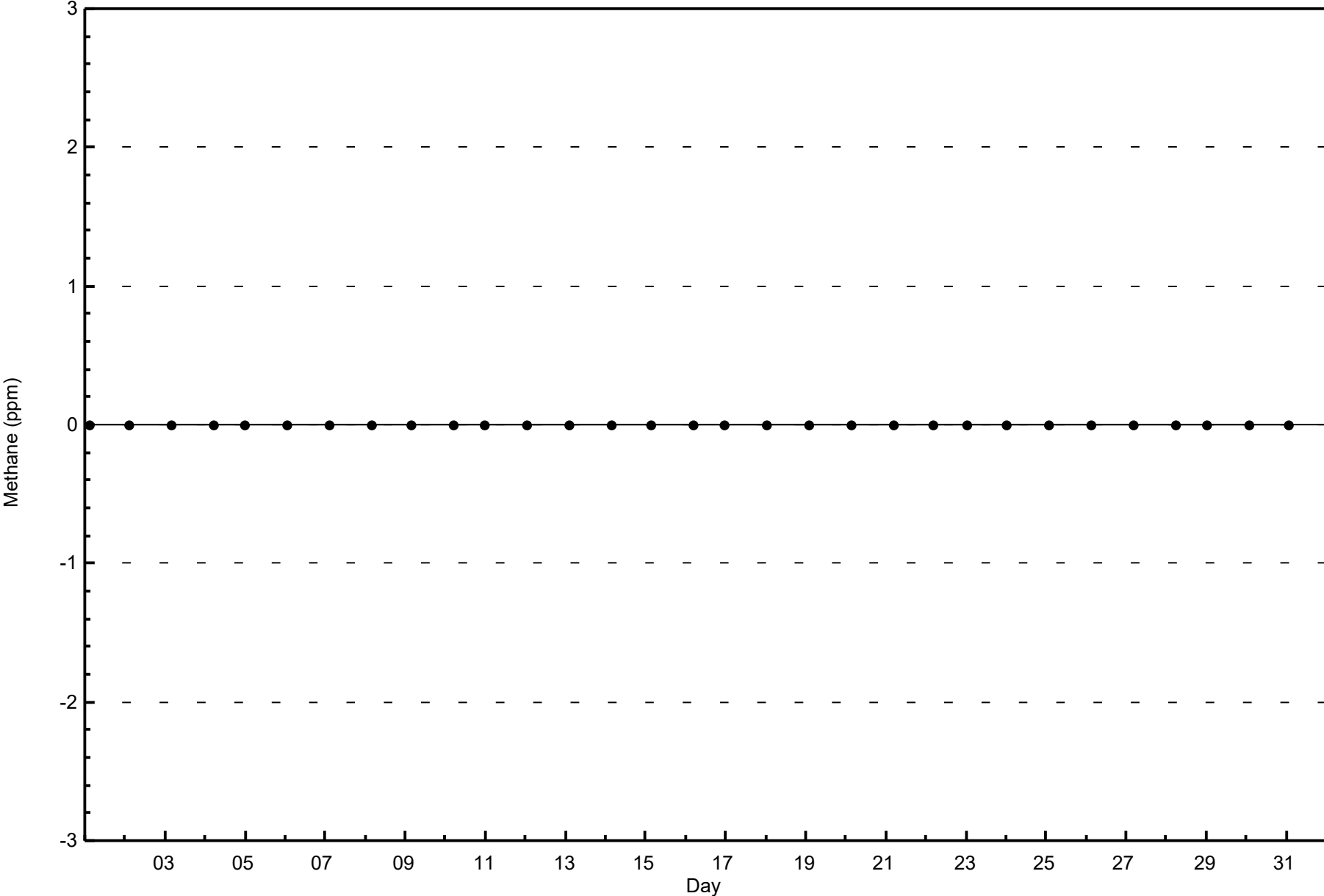
Total Number of Hours: 744

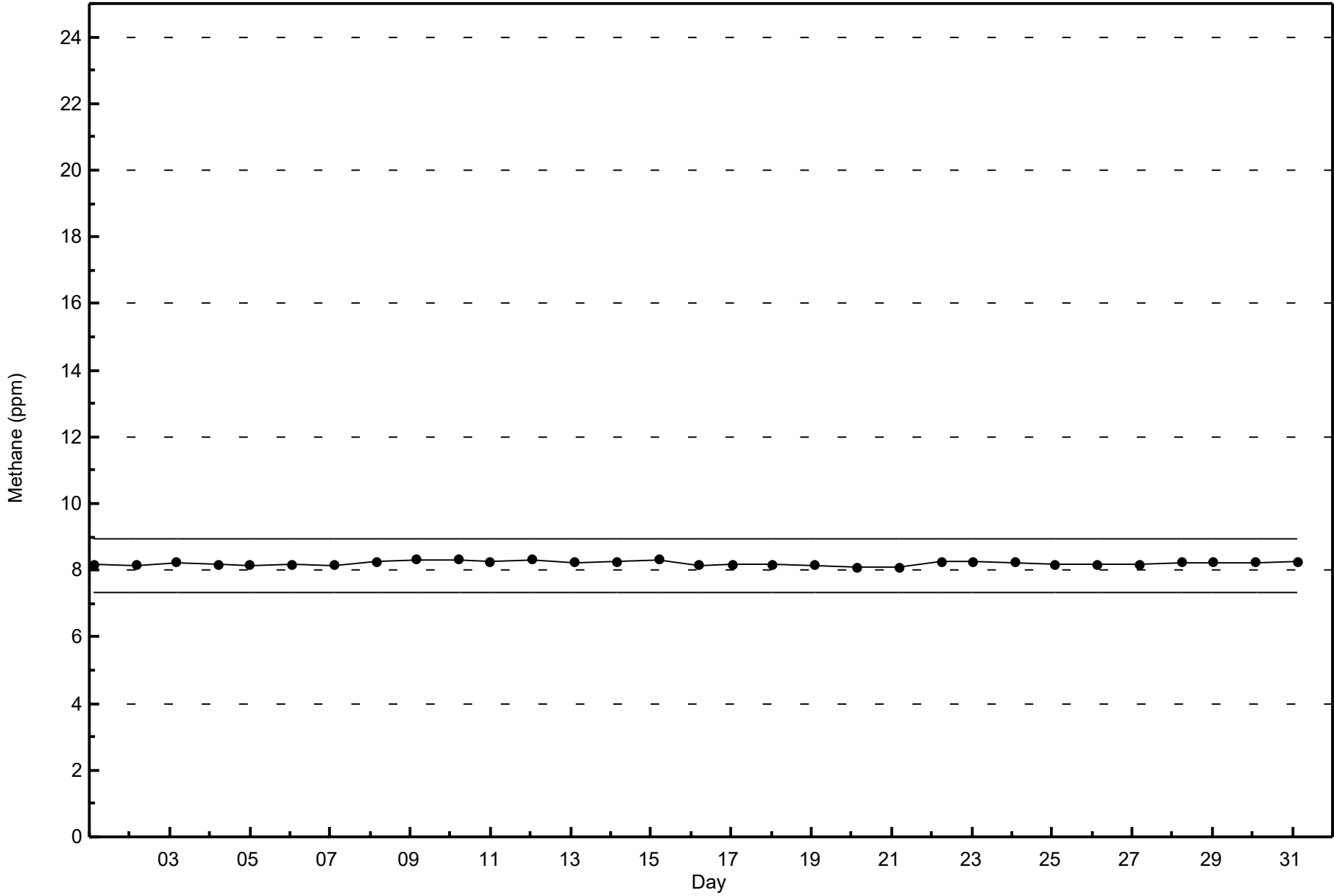


Wood Buffalo Environmental Association  
Wind Rose May 2024

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

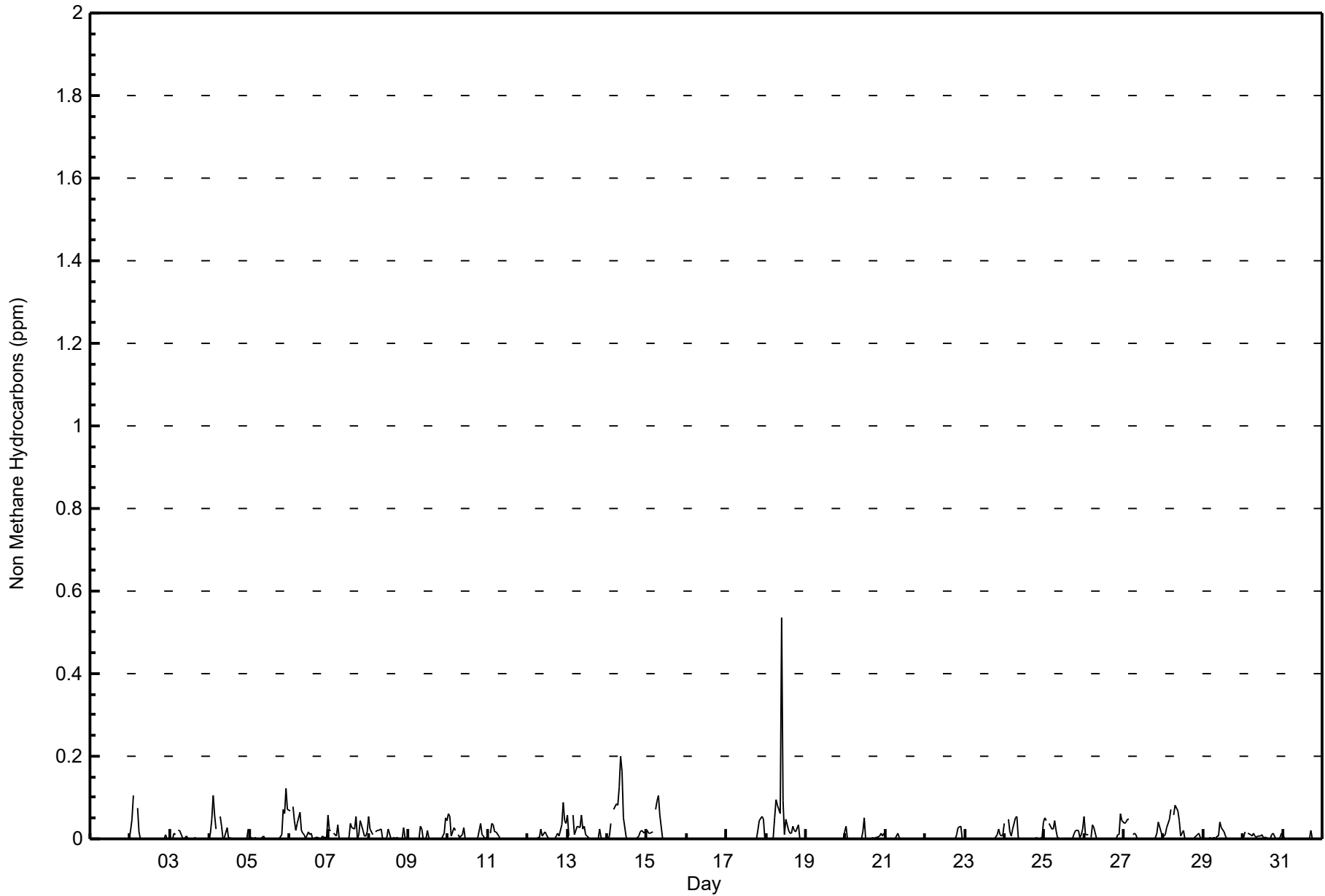














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Lower Camp - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	468	66.20	66.20
0.006 - 0.05	201	28.43	94.63
0.06 - 0.1	35	4.95	99.58
> 0.1	3	0.42	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp - May 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	43	27	14	15	31	58	12	14	4	7	23	18	27	67	39	69	468
0.006 - 0.05	3	1	2	4	15	63	15	3	2	4	4	7	24	26	20	8	201
0.06 - 0.1	1	0	2	1	4	8	4	0	0	0	0	1	2	7	4	1	35
> 0.1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	3
<b>Totals</b>	47	28	18	20	50	131	31	17	6	11	27	26	53	100	64	78	707

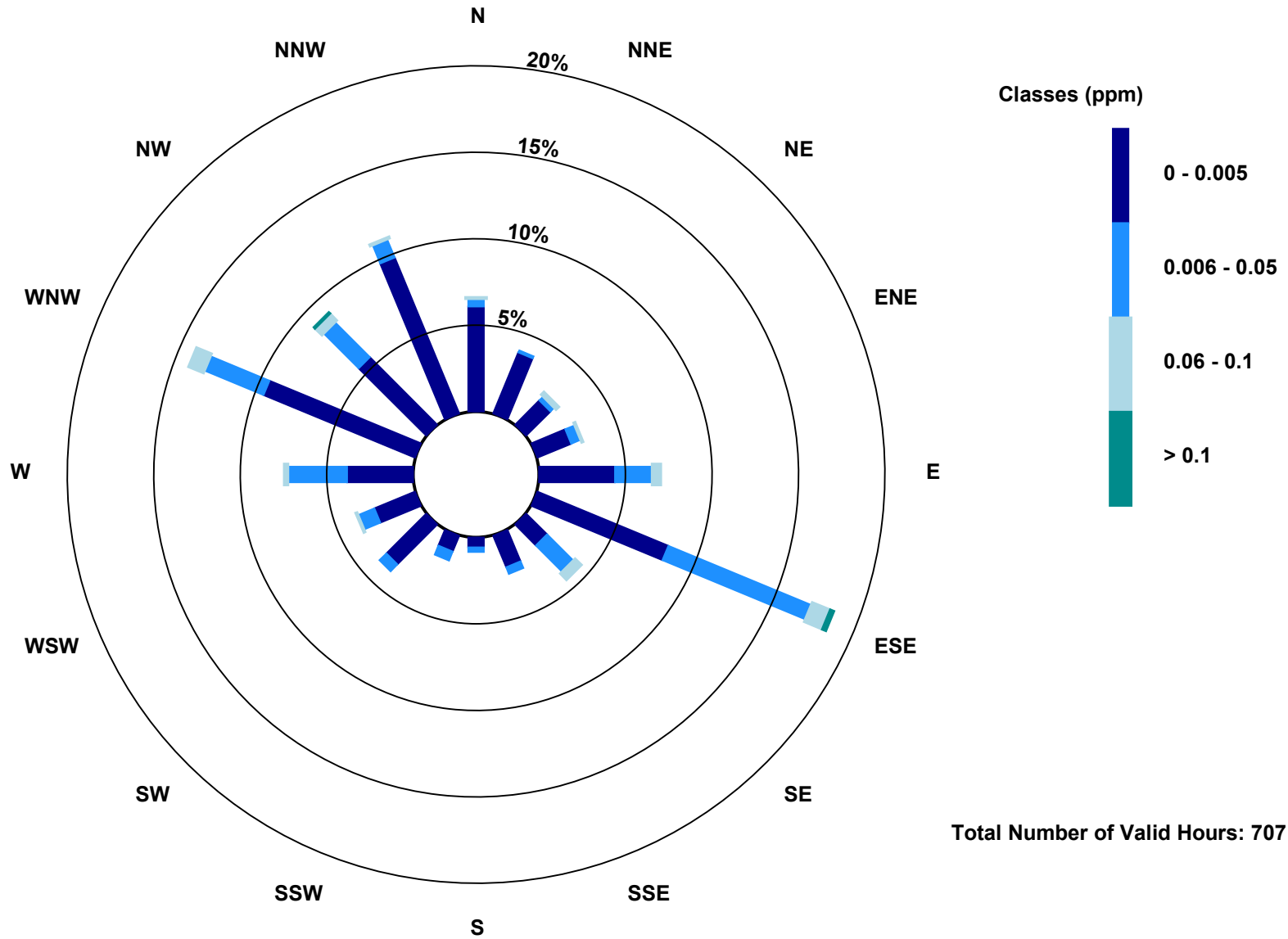
Total Number of Valid Hours: 707

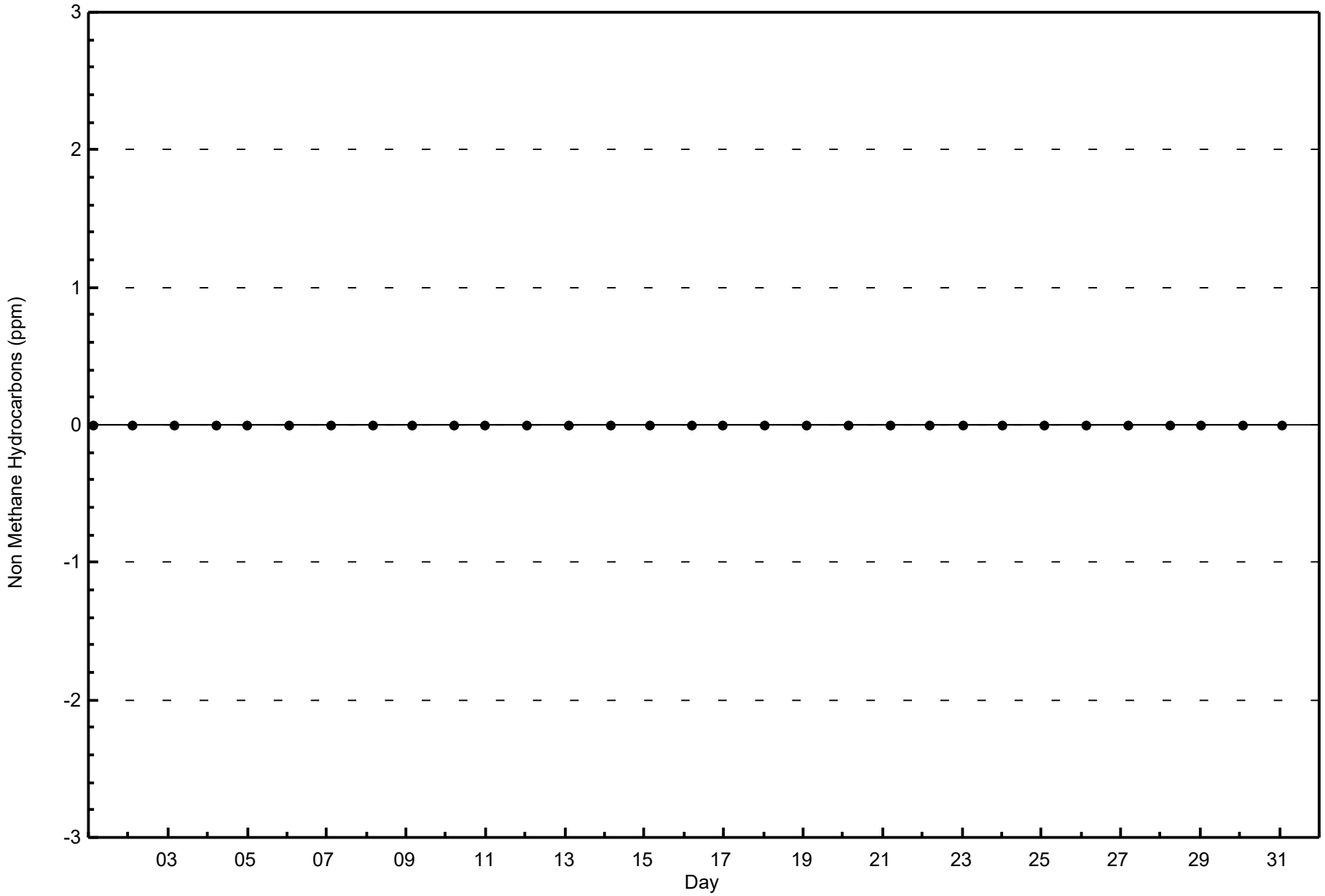
Total Number of Hours: 744

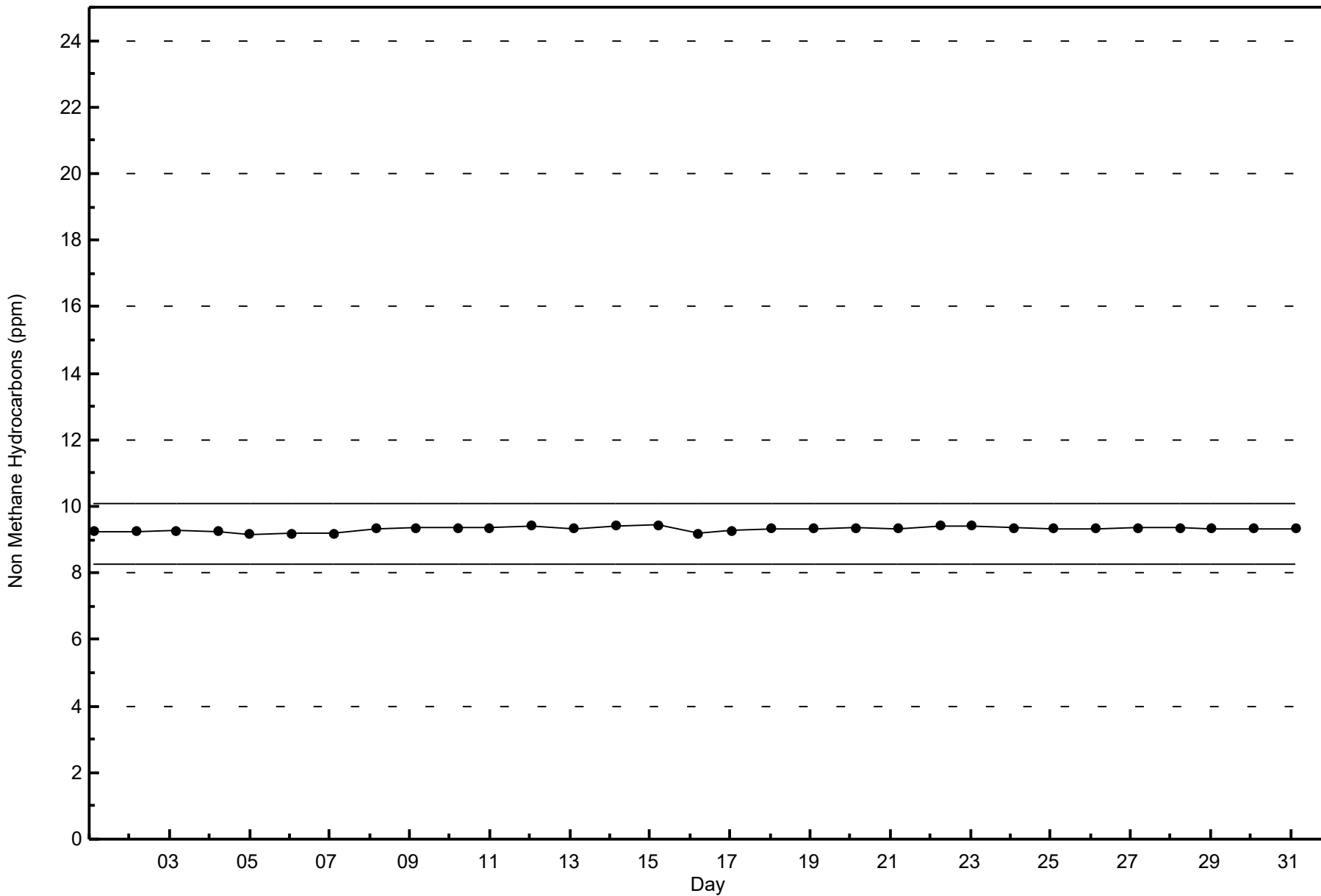


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Lower Camp









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

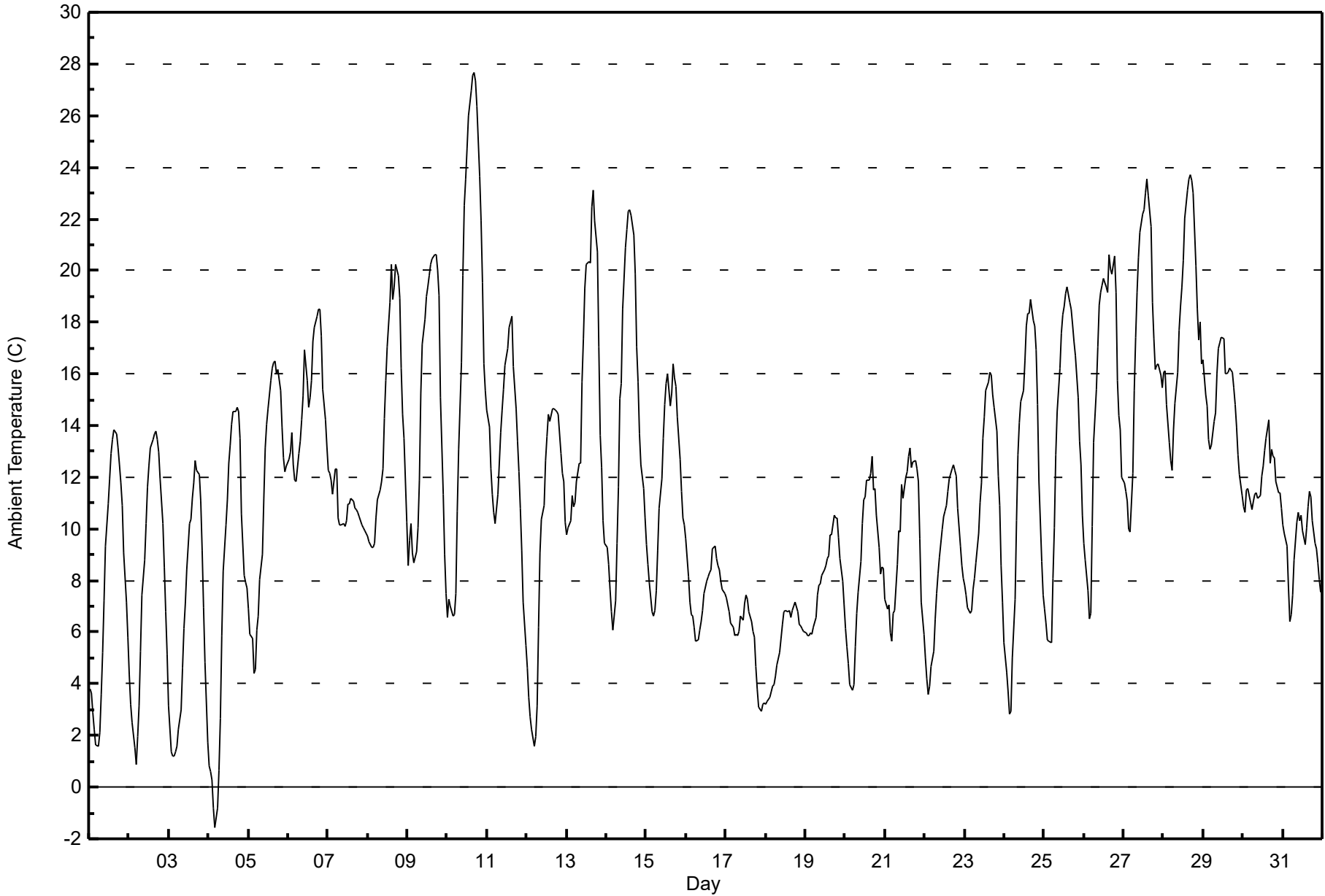
**Ambient Temperature (AT) - C**  
**Lower Camp - May 2024**

Maximum Value: 27.7 C on May 10 17:00		Maximum Daily Average: 18.1 C on May 28		Hours in Service: 744																																													
Minimum Value: -1.5 C on May 4 05:00		Minimum Daily Average: 5.6 C on May 18		Hours of Data: 744																																													
Maximum Diurnal Average: 15.7 C at hour 16		Minimum Diurnal Average: 6.6 C at hour 5		Hours of Missing Data: 0																																													
Monthly Average: 11.48 C		Percentiles: P <sub>1</sub> = 1.0 P <sub>10</sub> = 5.3 Q <sub>1</sub> = 7.5 Median = 11.2 Q <sub>3</sub> = 14.8 P <sub>90</sub> = 18.8 P <sub>99</sub> = 23.7		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-May	3.8	3.6	2.9	2.2	1.7	1.6	2.1	3.6	5.2	7.2	9.4	11.0	11.9	12.9	13.4	13.9	13.7	13.1	12.5	11.8	10.9	9.0	7.2	5.8	7.9	13.9																							
2-May	4.3	3.2	2.5	1.5	0.9	2.0	3.1	5.2	7.4	8.8	10.2	11.6	12.4	13.1	13.4	13.7	13.8	13.5	13.0	11.9	10.2	8.5	6.8	5.2	8.2	13.8																							
3-May	3.1	1.3	1.2	1.2	1.4	1.6	2.2	3.0	4.6	6.1	7.1	8.4	10.2	10.4	11.2	11.8	12.6	12.3	12.1	11.1	9.2	6.9	4.9	1.7	6.5	12.6																							
4-May	0.8	0.6	0.3	-0.8	-1.5	-0.8	0.7	2.7	5.8	8.4	10.1	11.1	12.5	13.2	14.1	14.5	14.6	14.7	14.5	13.5	10.6	8.2	7.9	7.7	7.6	14.7																							
5-May	6.9	5.9	5.7	4.4	4.5	6.1	6.6	8.0	9.0	11.2	13.2	14.0	14.7	15.7	16.2	16.4	16.5	16.0	16.2	15.3	14.0	12.7	12.2	12.4	11.4	16.5																							
6-May	12.7	13.0	13.7	12.5	11.9	11.8	12.9	13.4	14.2	15.2	16.9	15.7	14.7	15.1	15.8	17.3	17.8	18.2	18.5	18.5	17.4	15.4	14.2	13.2	15.0	18.5																							
7-May	12.3	12.2	11.9	11.3	12.3	12.3	10.4	10.2	10.2	10.2	10.1	10.3	11.0	11.0	11.2	11.0	10.8	10.7	10.6	10.5	10.1	10.1	9.9	9.8	10.9	12.3																							
8-May	9.7	9.5	9.3	9.3	9.5	10.4	11.1	11.5	11.8	12.3	14.3	15.8	17.0	18.8	20.2	18.9	19.4	20.2	19.8	18.9	16.2	14.4	13.5	10.3	14.3	20.2																							
9-May	8.6	9.5	10.2	9.0	8.7	9.1	10.1	11.9	15.2	17.1	18.1	19.0	19.4	19.8	20.2	20.5	20.6	20.6	20.0	19.0	15.1	11.3	9.0	7.5	14.6	20.6																							
10-May	6.6	7.3	7.0	6.6	6.7	7.5	10.7	13.1	16.5	19.8	22.5	23.6	24.7	26.0	27.0	27.6	27.7	27.4	26.4	23.7	21.9	19.5	16.4	15.3	18.0	27.7																							
11-May	14.6	13.9	12.3	11.3	10.6	10.2	11.4	12.5	13.7	14.6	15.4	16.3	17.0	17.8	18.0	18.2	16.3	14.6	13.4	12.2	10.8	9.2	7.2	5.5	13.2	18.2																							
12-May	4.6	3.5	2.7	2.2	1.6	1.9	3.2	6.2	9.1	10.4	10.9	12.7	13.6	14.4	14.2	14.6	14.6	14.6	14.5	14.4	12.9	12.2	11.8	10.3	9.6	14.6																							
13-May	9.8	10.1	10.3	11.3	10.8	11.0	11.8	12.6	12.6	15.7	17.3	19.3	20.2	20.4	20.3	22.5	23.1	21.9	20.7	17.1	13.6	12.4	10.3	9.4	15.2	23.1																							
14-May	9.3	8.6	7.6	6.8	6.1	7.2	9.4	11.6	15.0	15.6	18.5	20.9	21.6	22.3	22.4	22.2	21.4	19.9	17.1	15.7	13.7	12.5	11.6	10.4	14.5	22.4																							
15-May	9.4	8.6	7.9	6.8	6.6	6.8	7.6	9.2	10.8	12.0	13.5	14.8	15.6	16.0	14.7	15.2	16.4	15.9	15.5	14.3	12.7	11.4	10.4	10.1	11.8	16.4																							
16-May	9.6	8.2	7.2	6.7	6.6	6.2	5.6	5.7	6.1	6.4	6.8	7.5	8.0	8.1	8.3	8.4	9.2	9.3	8.8	8.6	8.4	8.0	7.6	7.5	7.6	9.6																							
17-May	7.3	7.0	6.8	6.4	6.2	5.9	5.9	5.9	6.0	6.6	6.5	7.1	7.5	7.2	6.8	6.4	6.0	5.8	4.7	3.8	3.1	2.9	3.2	3.2	5.8	7.5																							
18-May	3.2	3.3	3.5	3.7	3.9	3.9	4.3	4.7	5.2	5.8	6.3	6.8	6.9	6.8	6.8	6.6	6.8	7.0	7.2	6.8	6.3	6.3	6.1	6.0	5.6	7.2																							
19-May	6.0	5.9	5.8	6.0	5.9	6.2	6.6	7.5	7.8	7.8	8.2	8.4	8.6	8.9	8.9	9.8	9.8	10.5	10.4	10.4	9.7	8.9	8.0	7.0	8.0	10.5																							
20-May	6.1	5.4	4.8	4.0	3.8	4.0	5.4	6.7	7.6	8.7	10.2	11.1	11.2	11.9	11.9	12.2	12.8	11.5	11.6	10.5	9.3	8.2	8.5	8.5	8.6	12.8																							
21-May	7.3	6.9	7.1	6.0	5.6	6.7	6.9	8.6	9.9	9.9	11.7	11.2	12.0	12.2	12.8	13.1	12.4	12.6	12.6	12.3	11.8	9.6	7.1	5.9	9.7	13.1																							
22-May	5.0	4.2	3.6	3.9	4.7	5.3	6.5	7.5	8.3	8.9	10.0	10.5	10.7	10.9	11.5	11.9	12.3	12.5	12.3	12.0	10.8	9.4	8.6	8.1	8.7	12.5																							
23-May	7.8	7.4	7.0	6.7	6.8	7.6	8.1	8.7	9.8	11.0	11.8	13.5	14.3	15.3	15.7	16.1	16.0	15.2	14.7	13.8	12.0	10.9	8.6	7.2	11.1	16.1																							
24-May	5.6	4.5	3.7	2.8	3.0	5.0	7.3	10.3	12.9	14.1	14.9	15.4	16.5	17.8	18.3	18.4	18.9	18.0	17.9	16.9	14.8	11.8	8.7	7.5	11.9	18.9																							
25-May	6.9	6.4	5.7	5.7	5.6	8.1	10.1	12.8	14.6	16.2	17.6	18.3	18.6	19.1	19.4	18.8	18.5	17.9	17.3	16.7	15.1	13.4	12.5	10.5	13.6	19.4																							
26-May	9.4	8.8	7.6	6.5	6.7	10.1	13.4	15.4	17.0	18.6	19.1	19.4	19.7	19.4	19.1	20.6	20.1	19.9	20.5	19.2	15.8	14.4	13.8	12.0	15.3	20.6																							
27-May	11.8	11.5	11.1	10.0	9.9	12.2	15.4	17.4	19.2	20.5	21.5	22.2	22.4	23.0	23.5	22.9	21.7	18.7	17.3	16.2	16.3	16.4	16.0	15.5	17.2	23.5																							
28-May	16.1	16.1	14.8	13.3	12.6	12.2	13.8	14.9	16.1	17.7	18.6	19.4	20.4	22.1	23.1	23.5	23.7	23.5	23.0	20.2	18.5	17.3	18.0	16.4	18.1	23.7																							
29-May	16.6	15.2	14.8	13.5	13.1	13.3	14.2	14.5	16.0	17.0	17.2	17.4	17.4	16.0	16.0	16.0	16.2	16.1	15.5	14.8	14.0	12.9	12.1	11.3	15.0	17.4																							
30-May	10.8	10.6	11.5	11.6	11.0	10.8	11.1	11.3	11.4	11.2	11.3	12.0	12.4	13.0	13.5	14.2	12.5	13.1	12.8	12.8	11.8	11.4	11.4	10.8	11.9	14.2																							
31-May	10.2	9.8	9.4	7.7	6.4	6.7	7.4	8.8	10.3	10.6	10.3	10.6	10.0	9.4	10.0	10.8	11.4	11.2	10.3	9.4	9.3	8.7	8.0	7.6	9.4	11.4																							
																								8.3	7.8	7.4	6.8	6.6	7.2	8.2	9.5	10.9	12.1	13.2	14.0	14.6	15.1	15.4	15.7	15.4	14.9	13.9	12.5	11.1	10.1	9.0	Diurnal Average		
																								16.6	16.1	14.8	13.5	13.1	13.3	15.4	17.4	19.2	20.5	22.5	23.6	24.7	26.0	27.0	27.6	27.7	27.4	26.4	23.7	21.9	19.5	18.0	16.4	Diurnal Maximum	



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

**Ambient Temperature (AT) - C**  
**Lower Camp - May 2024**







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

**Ambient Temperature (AT) - C**  
**Lower Camp - May 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	3	0.40	0.40
0 - 10	292	39.25	39.65
10 - 20	399	53.63	93.28
> 20	50	6.72	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



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

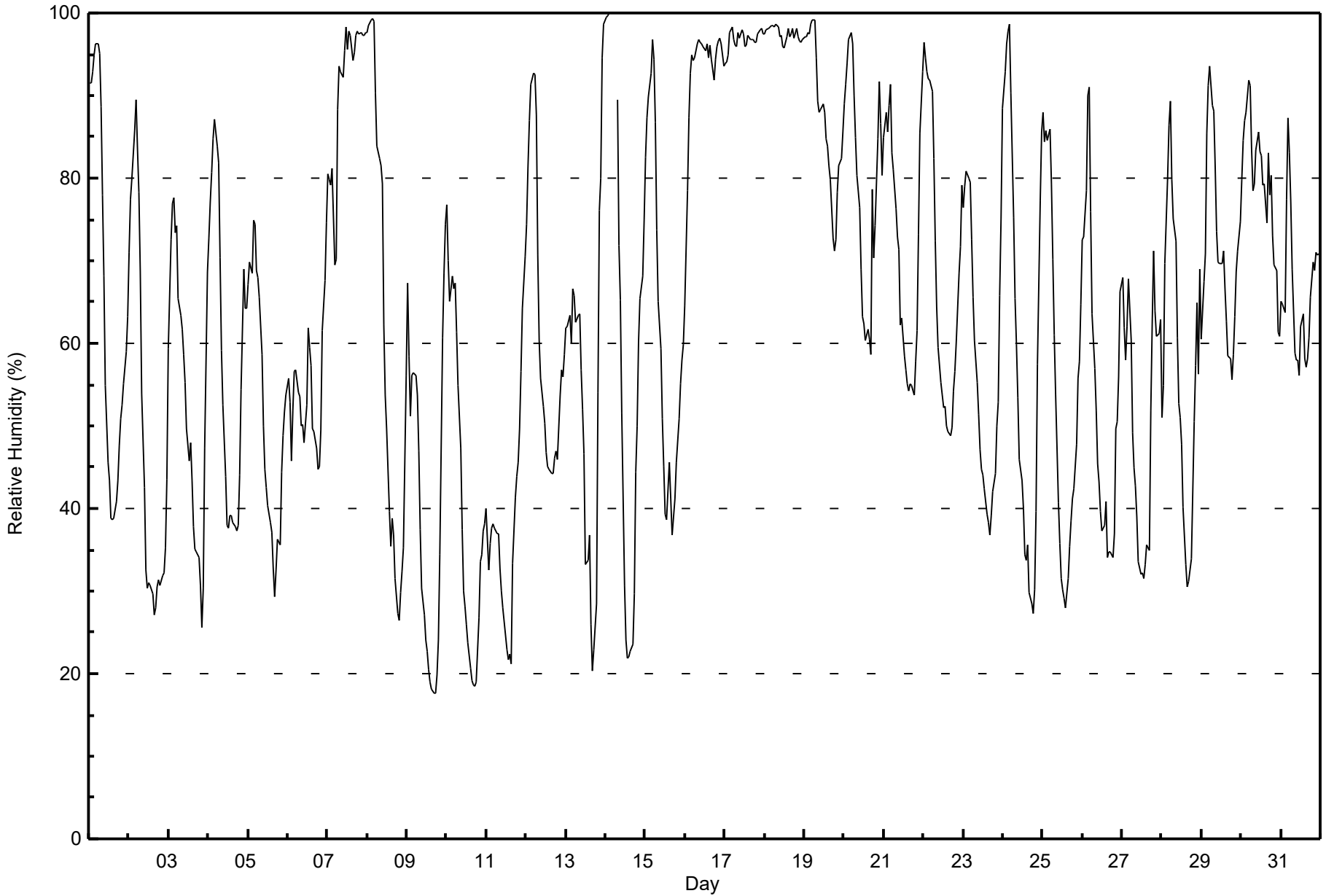
**Relative Humidity (RH) - %**  
**Lower Camp - May 2024**

Maximum Value: 100.0 % on May 14 03:00		Maximum Daily Average: 97.5 % on May 18		Hours in Service: 744																							
Minimum Value: 17.6 % on May 9 18:00		Minimum Daily Average: 37.8 % on May 11		Hours of Data: 741																							
Maximum Diurnal Average: 83.8 % at hour 5		Minimum Diurnal Average: 47.8 % at hour 17		Hours of Missing Data: 3																							
Monthly Average: 63.94 %		Percentiles: P <sub>1</sub> = 19.4 P <sub>10</sub> = 32.5 Q <sub>1</sub> = 44.8 Median = 63.2 Q <sub>3</sub> = 84.8 P <sub>90</sub> = 96.4 P <sub>99</sub> = 99.0		Hours of Calibration: 0																							
				Percent Operational Time: 99.6																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	91.4	91.5	92.8	94.9	96.3	96.2	95.0	88.6	77.9	68.2	55.0	45.6	43.3	38.8	38.7	38.8	40.8	43.4	47.6	50.8	52.5	55.0	58.9	63.2	65.2	96.3	
2-May	71.0	77.4	80.1	85.8	89.5	83.6	78.3	68.7	53.9	42.6	32.5	30.3	31.0	30.7	29.7	27.2	28.0	30.5	31.4	30.6	31.9	32.3	35.2	43.6	49.0	89.5	
3-May	59.3	72.5	76.9	77.6	73.4	74.2	65.5	63.4	61.7	58.6	55.3	49.7	45.8	48.0	43.3	37.8	35.1	34.8	34.0	30.7	25.6	30.4	47.3	68.6	52.9	77.6	
4-May	72.7	77.0	80.6	84.8	87.2	84.0	81.8	70.3	59.1	52.5	43.9	38.0	37.7	39.2	39.2	38.3	37.8	37.3	37.9	44.0	54.4	69.0	64.3	64.2	58.1	87.2	
5-May	67.1	69.8	68.5	74.9	74.4	68.8	68.0	65.5	58.6	49.9	44.8	42.6	40.3	38.4	37.1	32.7	29.2	32.5	36.3	35.5	44.5	48.7	51.7	53.7	51.4	74.9	
6-May	55.8	52.8	45.8	51.9	56.6	56.8	54.0	53.5	50.0	50.1	48.0	52.5	61.9	59.4	57.2	49.6	49.3	47.2	44.7	45.0	49.5	61.5	67.6	74.6	54.0	74.6	
7-May	80.5	79.7	79.2	81.2	69.6	70.2	88.3	93.5	92.9	92.2	95.5	98.2	95.7	97.8	97.3	94.2	95.2	97.2	97.8	97.4	97.6	97.4	97.4	97.6	91.0	98.2	
8-May	97.7	98.5	99.2	99.4	99.0	90.4	83.8	82.3	81.6	79.4	62.1	53.7	49.6	39.7	35.4	38.8	36.7	31.5	27.2	26.4	29.8	32.5	35.3	56.1	61.1	99.4	
9-May	67.3	58.5	51.1	56.0	56.4	56.0	53.7	47.0	37.5	30.4	27.1	24.1	22.6	20.5	19.0	18.1	17.6	17.6	19.8	24.1	34.4	60.7	68.6	74.5	40.1	74.5	
10-May	76.7	70.0	65.0	68.1	66.6	67.4	61.3	55.0	47.3	37.5	29.9	28.2	26.0	23.8	20.6	19.1	18.7	18.4	19.0	26.7	33.5	34.3	37.3	38.1	41.2	76.7	
11-May	40.0	32.5	35.8	37.6	38.2	37.6	36.9	36.9	32.8	30.0	28.0	26.2	22.9	21.6	22.4	21.2	33.4	41.4	44.0	45.6	49.6	56.7	64.2	70.5	37.8	70.5	
12-May	74.3	81.4	86.9	91.3	92.8	92.5	87.6	70.7	60.4	55.7	52.3	50.3	46.7	45.1	44.7	44.2	44.3	46.2	47.0	46.0	53.7	56.8	56.0	58.6	61.9	92.8	
13-May	61.8	62.1	63.3	59.9	66.6	65.8	62.6	63.3	63.5	56.9	52.1	46.6	33.2	33.7	36.8	25.9	20.3	22.9	28.5	54.1	76.1	80.1	94.7	98.7	55.4	98.7	
14-May	99.5	99.7	100.0	100.0	OR	OR	OR	89.6	71.8	65.2	51.5	30.7	24.0	21.8	22.1	22.6	23.5	29.7	44.5	50.0	60.2	65.5	68.1	74.9	57.8	100.0	
15-May	82.6	87.3	89.8	92.7	96.8	94.4	86.8	73.7	65.1	59.2	50.9	45.1	39.4	38.7	45.7	41.2	36.8	38.9	41.2	45.6	50.9	55.1	58.0	59.9	61.5	96.8	
16-May	64.5	78.4	87.4	92.7	94.9	94.2	94.6	96.3	96.8	96.4	96.3	95.9	95.4	96.2	94.5	96.2	94.4	91.9	94.4	95.9	96.6	97.0	96.3	93.5	92.9	97.0	
17-May	93.8	94.1	94.9	97.6	98.3	96.9	96.2	95.9	97.7	97.0	97.9	97.5	96.0	96.2	97.3	96.8	96.8	96.8	96.5	96.5	97.4	97.9	98.2	97.5	96.7	98.3	
18-May	97.4	98.0	98.1	98.4	98.4	98.4	98.4	98.6	98.3	97.2	97.2	95.9	95.7	97.1	98.2	97.1	97.5	98.1	97.0	98.2	97.2	96.7	96.5	96.7	97.5	98.6	
19-May	97.0	97.2	97.6	97.5	98.6	99.2	99.1	94.5	89.3	87.9	88.3	89.0	88.0	84.8	83.9	81.5	79.9	72.7	71.3	72.5	78.3	81.5	82.4	85.6	87.4	99.2	
20-May	89.0	91.3	93.9	96.8	97.6	96.3	89.9	84.9	80.4	76.4	68.9	63.2	62.3	60.3	61.6	60.6	58.7	78.6	70.4	74.3	84.8	91.8	86.5	80.3	79.1	97.6	
21-May	85.0	88.0	85.6	88.9	91.4	83.1	81.0	76.3	72.9	71.3	62.3	63.0	58.6	56.7	55.0	54.2	55.1	55.0	53.7	57.8	61.5	73.2	85.4	92.8	71.2	92.8	
22-May	96.4	94.6	92.9	92.0	91.9	90.5	82.3	72.3	64.4	59.4	55.2	53.7	52.2	52.4	49.9	49.4	48.8	49.8	54.2	56.5	60.2	68.4	71.8	79.1	68.3	96.4	
23-May	76.5	79.1	80.8	80.1	79.4	72.5	65.6	60.4	55.3	51.3	47.2	44.8	44.1	42.3	39.3	38.2	36.8	39.2	42.0	44.2	50.1	52.9	65.8	75.0	56.8	80.8	
24-May	88.4	92.9	96.4	97.8	98.6	90.4	75.2	65.4	59.9	53.4	45.9	43.3	40.0	34.4	33.7	35.5	29.8	28.4	27.2	30.2	39.6	57.4	77.3	85.6	59.4	98.6	
25-May	88.1	84.3	85.7	84.5	85.9	79.4	70.3	61.0	53.7	40.7	35.8	31.4	30.2	29.1	28.0	31.5	35.4	38.5	41.1	42.4	47.8	55.8	57.7	64.7	54.3	88.1	
26-May	72.6	72.8	78.4	89.9	91.0	76.0	63.6	56.9	51.9	45.4	43.3	39.6	37.3	38.0	40.8	34.1	34.7	34.8	34.0	36.9	49.7	50.6	56.0	66.2	53.9	91.0	
27-May	67.9	61.9	58.0	62.1	67.9	60.3	49.1	45.0	42.7	38.9	33.5	32.0	32.3	31.5	33.2	35.7	34.9	51.9	62.4	71.2	63.9	60.8	61.1	63.0	50.9	71.2	
28-May	51.0	55.0	69.6	79.9	86.5	89.4	79.8	75.1	72.5	60.7	52.8	51.0	47.8	40.1	33.1	30.6	31.3	32.6	33.9	50.5	57.3	64.9	56.2	69.0	57.1	89.4	
29-May	60.5	67.5	70.8	85.4	91.2	93.6	88.9	88.1	81.3	73.6	69.9	69.6	69.7	71.2	66.7	62.7	58.5	58.1	55.5	58.6	63.2	68.6	71.2	74.7	71.6	93.6	
30-May	79.8	84.5	86.9	87.9	91.9	91.2	83.6	78.4	79.3	83.4	85.6	83.2	82.7	79.1	79.4	74.5	83.1	78.1	80.3	73.1	69.5	68.8	61.4	60.9	79.4	91.9	
31-May	65.1	64.7	63.7	77.5	87.2	83.0	77.2	69.0	58.9	58.0	57.9	56.2	62.0	63.6	58.1	57.1	58.1	60.6	65.5	69.9	68.8	70.9	70.7	70.8	66.4	87.2	
		76.5	77.9	79.2	82.7	83.8	81.1	76.6	72.3	66.8	61.9	57.0	53.9	52.1	50.6	49.7	47.9	47.8	49.5	51.0	54.2	59.0	64.3	67.7	72.7	Diurnal Average	
		99.5	99.7	100.0	100.0	99.0	99.2	99.1	98.6	98.3	97.2	97.9	98.2	96.0	97.8	98.2	97.1	97.5	98.1	97.8	98.2	97.6	97.9	98.2	98.7	Diurnal Maximum	
OR - Out of Range																											



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

**Relative Humidity (RH) - %**  
**Lower Camp - May 2024**



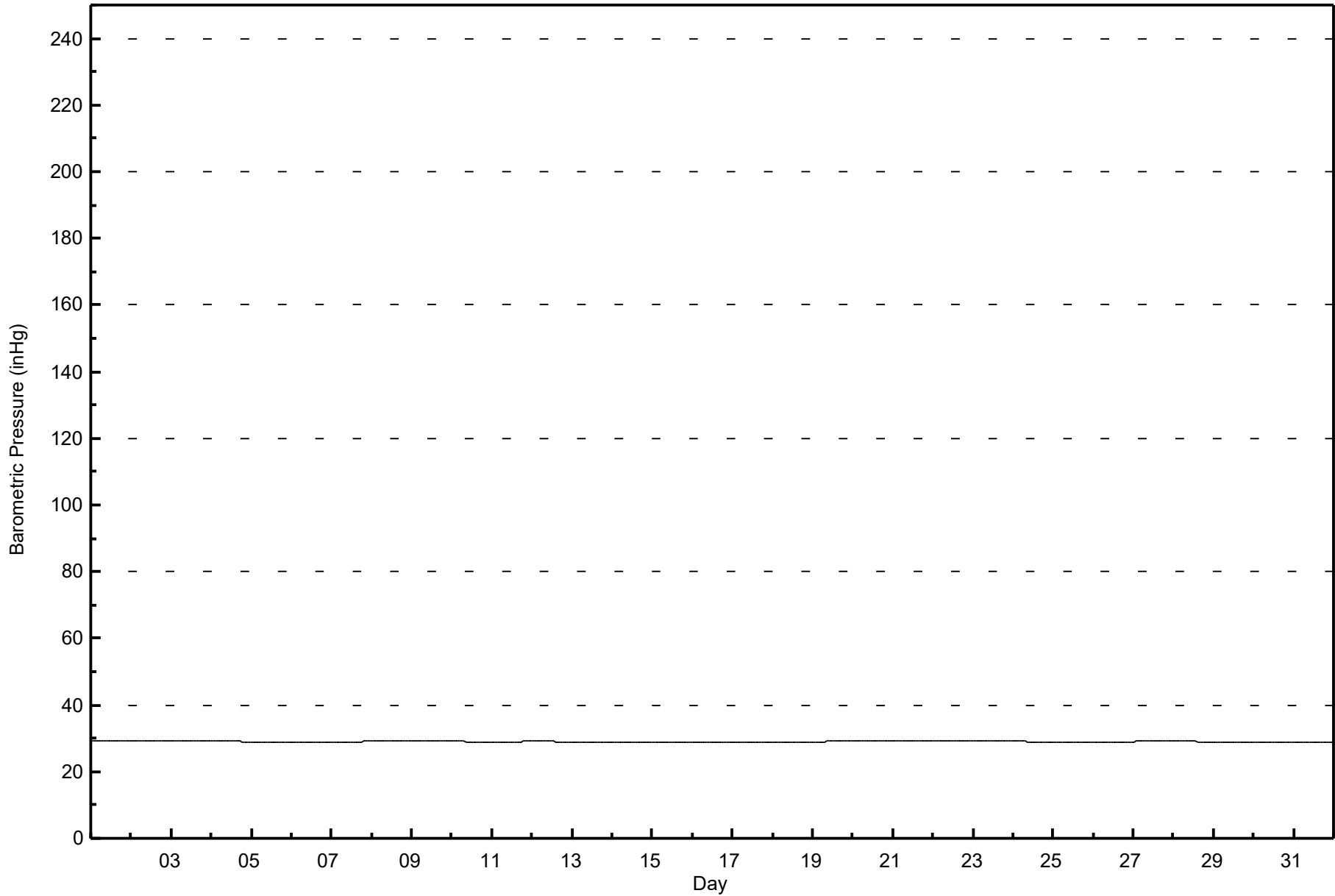


Maximum Value: 29.4 inHg on May 2 07:00																				Maximum Daily Average: 29.3 inHg on May 2					Hours in Service: 744	
Minimum Value: 28.6 inHg on May 29 10:00																				Minimum Daily Average: 28.7 inHg on May 29					Hours of Data: 744	
Maximum Diurnal Average: 29.0 inHg at hour 7																				Minimum Diurnal Average: 29.0 inHg at hour 18					Hours of Missing Data: 0	
Monthly Average: 29.00 inHg																				Percentiles: P <sub>1</sub> = 28.7 P <sub>10</sub> = 28.8 Q <sub>1</sub> = 28.9 Median = 29.0 Q <sub>3</sub> = 29.1 P <sub>90</sub> = 29.2 P <sub>99</sub> = 29.3					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-May	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	29.3	29.3	29.3	29.3	29.2	29.3
2-May	29.3	29.3	29.3	29.3	29.3	29.3	29.4	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	29.3	29.3	29.3	29.3	29.3	29.3
3-May	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
4-May	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.2
5-May	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
6-May	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8
7-May	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	28.9	29.1	
8-May	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3
9-May	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	29.2	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3
10-May	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.9	29.2
11-May	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	29.1	29.1	29.1	29.1	29.0	29.1	
12-May	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	29.0	29.0	29.1
13-May	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0
14-May	28.9	28.9	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	29.0	29.0	29.0	29.0	29.0	29.0	29.0
15-May	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	29.0	29.0	29.0	29.0	29.0	29.0
16-May	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	29.0
17-May	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	28.9	28.9	28.9	28.8	28.9
18-May	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9
19-May	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.1	29.2
20-May	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	29.2
21-May	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
22-May	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
23-May	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	29.2
24-May	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
25-May	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	28.9
26-May	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	29.0	29.0	29.0	29.0	28.9	29.0	
27-May	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
28-May	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	28.9	28.9	28.9	28.9	28.9	29.0	29.1
29-May	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	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
30-May	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	28.8	28.8	28.8	28.8	28.8	28.8
31-May	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
29.0																								Diurnal Average		
29.3																								Diurnal Maximum		



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

**Barometric Pressure (BP) - inHg**  
**Lower Camp - May 2024**





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

**Wind Speed (WS) - km/h**  
**Lower Camp - May 2024**

Maximum Speed: 34 km/h on May 11 13:00	Maximum Daily Speed Average: 19.1 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 14 02:00	Minimum Daily Speed Average: 2.6 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 3.8 km/h at hour 15	Minimum Diurnal Speed Average: 0.4 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 1.9 km/h 332.9 deg	Percentiles: $P_1 = 1$ $P_{10} = 3$ $Q_1 = 6$ Median = 9 $Q_3 = 13$ $P_{90} = 20$ $P_{99} = 28$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNW8	NNW8	NW8	WNW6	NW7	NW7	NW8	NW9	NNW12	NNW11	NNW16	N19	N21	NNW20	NNW21	N22	NNE22	NNE18	NNE15	N11	NNW18	N13	NW8	NW7	NNW12.3	NNE22
2-May	WNW5	WNW5	WNW6	NW2	WSW4	WNW5	NNW5	NW6	NNW9	NNW15	N16	N17	N18	N20	N22	N21	N22	NNW21	NNW22	NNW17	NNW11	NW9	WNW6	WNW1	NNW11.2	NNW22
3-May	WNW2	W1	WNW3	WNW3	W3	WNW4	WNW5	WNW5	WNW6	NW7	NNW4	WNW6	WNW7	WNW13	WNW12	NNW8	NNW10	NNW13	NNW15	N14	NNW8	WNW6	W3	WNW1	NNW6.0	NNW15
4-May	W3	WNW3	W4	WNW0	NNW1	NNW4	WNW5	WNW6	NW6	NW9	NW12	WNW13	NW10	NNW7	NW10	NW9	NW7	NW5	WNW5	W3	W2	ESE10	ESE10	NW4.2	WNW13	
5-May	ESE12	ESE13	SE7	E8	ESE10	ESE10	ESE9	ESE13	ESE9	ESE8	ESE12	ESE22	ESE23	ESE25	ESE21	SE14	SSE8	SE13	ESE12	SE7	E13	ESE12	E12	ESE16	ESE12.5	ESE25
6-May	ESE19	ESE17	ESE19	ESE17	ESE20	ESE21	ESE22	ESE23	ESE22	ESE22	ESE24	ESE24	ESE22	E13	NNE9	E17	E18	E14	ENE11	ENE11	SSE12	SSE11	S7	WNW3	ESE15.1	ESE24
7-May	W6	WNW4	NW4	W4	E9	E14	E9	E11	E10	ENE8	N5	NNW7	N4	NW3	E9	E12	ENE8	ENE7	ENE8	E13	ESE13	SE9	SE8	SE9	E5.2	ESE14
8-May	SE6	SE8	ESE9	SE7	SW3	W12	W17	W13	WNW6	NNW3	NNE3	E6	ESE11	ESE9	SSE10	SSW10	SSW8	SSW11	SW15	SW12	SW9	SSW9	SW10	WSW8	SSW4.4	W17
9-May	ESE1	WSW9	WSW17	W11	WSW9	SW8	WSW9	WSW11	W15	W20	W23	W29	W26	WNW29	WNW30	WNW28	WNW23	WNW21	WNW15	WNW6	SW2	SE2	SSW1	N1	W13.4	WNW30
10-May	NNW0	ESE5	ESE9	ESE8	SE9	ESE9	ESE12	ESE13	ESE12	SSW7	WSW18	WSW21	SW22	WSW20	WSW22	WSW25	WSW22	WSW22	W21	WSW8	WNW9	NNW27	NNW21	WNW5	WSW6.6	NNW27
11-May	W11	W18	W14	WNW10	WNW16	W21	W25	WNW26	WNW28	WNW29	WNW29	WNW30	WNW34	WNW29	NW27	NW23	N23	N25	N24	N19	N10	N8	NE7	NNE2	NW17.0	WNW34
12-May	NNE2	NNW2	W4	W5	WNW4	NW2	NNW3	ENE3	ESE9	ESE10	ESE9	ESE11	ESE12	ESE12	E16	ESE16	E16	E17	ESE12	ESE8	ESE10	E10	E12	E11	ESE7.3	E17
13-May	ESE9	ESE8	SE6	SE9	ESE10	ESE12	ESE12	ESE14	SE10	ESE13	SE13	ESE12	SSW9	WSW12	WNW5	WSW10	SW18	SW18	WSW9	NNW15	N13	WNW4	W1	ESE2	SSE3.2	SW18
14-May	NW1	ESE0	NW1	NE2	NE1	E2	ESE7	ESE7	ESE10	ESE9	ESE14	WSW9	SW19	SW19	SW20	WSW21	WSW20	W18	NNW11	NNW14	NNW12	W3	S2	WSW3	WSW3.7	WSW21
15-May	WNW3	SE0	W1	WNW2	W4	W3	WNW5	WNW4	NW6	NNW9	NNW9	NNW10	NNW8	NNW11	NW16	NNW7	NNW10	NNE15	NNE17	N15	N10	NNE10	NNE8	ENE6	NNW6.7	NNE17
16-May	NNE8	NNW8	NW7	WNW6	NNW9	NW6	NW5	NNW9	NNE4	NNE10	N9	N11	N7	NNW7	NNW14	NNW11	NNW9	N11	N10	N9	N10	N11	N9	N8	N8.1	NNW14
17-May	N12	N12	NNW11	NNW11	NNW9	NW8	NW9	NW10	NNW11	NNW10	NW9	N12	N14	N14	N15	NNW15	NNW16	NNW14	NW13	NW13	NW12	NW9	NNW10	NNW12	NNW11.2	NNW16
18-May	NNW13	NNW12	NNW12	NNW12	NNW10	NW9	NW11	WNW11	NW11	NW11	NW12	NW13	NW15	NW16	NW17	NW15	NW10	NW11	NNW9	N6	NNE6	NNW6	NW6	NW5	NW10.4	NW17
19-May	NW5	WNW4	WNW5	NW6	WNW5	WNW5	WNW5	NNE7	NE11	NE13	NNE9	NNE11	NNE11	NE12	NE10	NNE7	NNE11	NNE10	NNE7	N6	N3	NW8	NW7	NW7	N6.0	NE13
20-May	WNW6	WNW6	WNW4	NW3	NW3	WNW4	NNW6	NNW8	NNW9	NW9	NNW12	NW12	N12	N11	NNW11	NNW7	N2	ESE10	SE5	SW3	WNW1	NW2	E7	E11	NNW4.0	NW12
21-May	E6	E6	E12	E8	E11	E11	E10	ESE9	ESE9	ESE10	ESE11	E13	ESE11	E18	E14	E11	NE16	E13	NE9	ENE9	ENE8	ENE2	W3	W3	E8.9	E18
22-May	WNW2	NW3	W3	W3	WNW4	WNW4	N6	NNE7	NE12	ENE14	ENE14	NE15	NE16	NNE17	NE16	NE13	ENE10	E11	ESE10	ESE8	E9	E8	E2	NE1	NE6.6	NNE17
23-May	WNW1	NNW1	NE1	E2	E9	ESE10	E15	E9	E10	E12	E10	ESE9	ESE12	ESE11	SSE9	SE8	SSE8	SSE8	SE8	S6	SSE6	SSE7	ESE5	ESE4	ESE6.6	E15
24-May	E1	NW1	WSW4	WNW1	NNW1	NE2	ENE3	ESE7	ESE11	E11	E11	ESE10	E11	SE9	ESE12	ESE11	SE8	S8	SSE7	S6	SSW7	SSW3	ENE2	NE2	ESE4.5	ESE12
25-May	E1	ESE8	SE5	SE8	ESE6	ESE7	ESE8	ESE10	ESE9	ESE9	ESE14	ESE15	ESE14	ESE13	SE11	ESE12	ESE13	ESE12	ESE14	E15	ESE13	SE6	ESE7	ESE5	ESE9.7	ESE15
26-May	ESE4	SE5	ESE2	WNW2	N2	ESE7	ESE8	ESE8	ESE10	ESE12	ESE16	ESE12	S9	SSE7	ESE9	SE7	SSE6	SSE5	SE5	SSE4	ESE2	SE4	SE2	ESE1	SE5.5	ESE16
27-May	ENE3	ESE6	ESE6	ESE5	SW1	ESE2	ESE6	ESE8	ESE9	ESE10	ESE9	SSE8	SE10	SE11	ESE13	ESE11	SSW13	WSW15	SW1	ESE3	SE3	SE5	ESE7	ESE8	SE5.5	WSW15
28-May	SE9	SW9	W7	WNW8	WNW1	ENE1	NE2	N4	ENE4	W2	WNW7	N4	NNE4	N1	W12	W13	WNW8	NW4	ESE2	WNW2	W3	E2	WNW9	ENE5	WNW2.6	W13
29-May	NNE12	W8	WNW6	W4	WNW3	ENE2	NNW7	NNW9	NW9	NNW9	WSW12	WSW12	SW15	SW24	SW24	SW24	SW21	SW18	SW21	SW15	SW15	SW11	SW12	SSW11	WSW9.5	SW24
30-May	SSE7	SSE6	W9	W15	W14	W12	W14	W15	W17	W18	W16	W18	WNW15	W15	WNW12	NW13	WNW13	W13	WSW16	WNW15	WNW10	WNW13	W20	W17	W13.0	W20
31-May	W18	W23	WNW22	WNW26	WNW23	WNW21	WNW21	WNW16	WNW24	WNW21	WNW26	W26	WNW23	WNW24	WNW21	NW10	NNW10	NW11	NW20	WNW17	WNW17	NW15	WNW18	WNW17	WNW19.1	WNW26

NNE1.1	NW0.8	NNW1.9	NNW1.9	NW1.2	WNW0.5	NW1.3	N1.4	NNE1.8	N2.8	N2.2	NNW2.5	NW2.6	NW3.3	NW3.8	NW3.2	NNW3.2	NNW2.8	NNW3.4	NNW3.2	NNW2.0	NNW1.7	NW1.6	NNE0.4	Diurnal Average	
ESE19	W23	WNW22	WNW26	WNW23	ESE21	W25	WNW26	WNW28	WNW29	WNW29	WNW30	WNW34	WNW29	WNW30	WNW28	WNW23	N25	N24	N19	NNW18	NNW27	NNW21	WNW17	Diurnal Maximum	

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



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

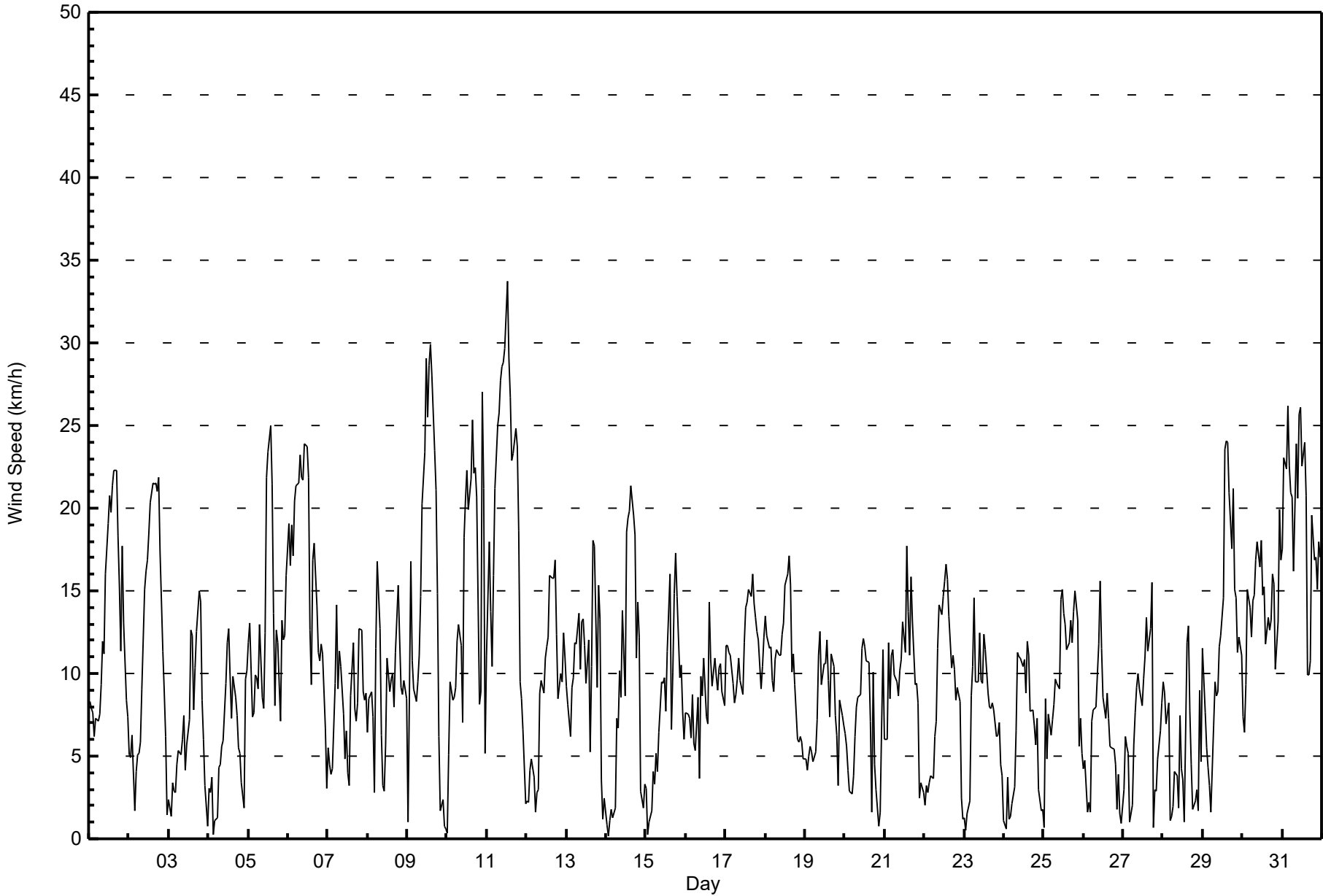
**Wind Speed (WS) - km/h**  
**Lower Camp - May 2024**

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



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

**Wind Speed (WS) - km/h**  
**Lower Camp - May 2024**







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

**Wind Speed (WS) - km/h**  
**Lower Camp - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	165	22.18	22.18
6 - 11	313	42.07	64.25
12 - 19	186	25.00	89.25
20 - 28	72	9.68	98.92
29 - 38	8	1.08	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Lower Camp - May 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	5	7	9	6	16	9	2	1	2	5	3	22	43	17	9	165
6 - 11	15	16	4	10	28	64	23	14	5	8	5	9	6	23	36	47	313
12 - 19	15	7	8	2	19	42	3	1	0	1	11	7	20	17	15	18	186
20 - 28	9	1	0	0	0	13	0	0	0	0	7	8	9	16	3	6	72
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	48	29	19	21	53	135	35	17	6	11	28	27	58	106	71	80	744

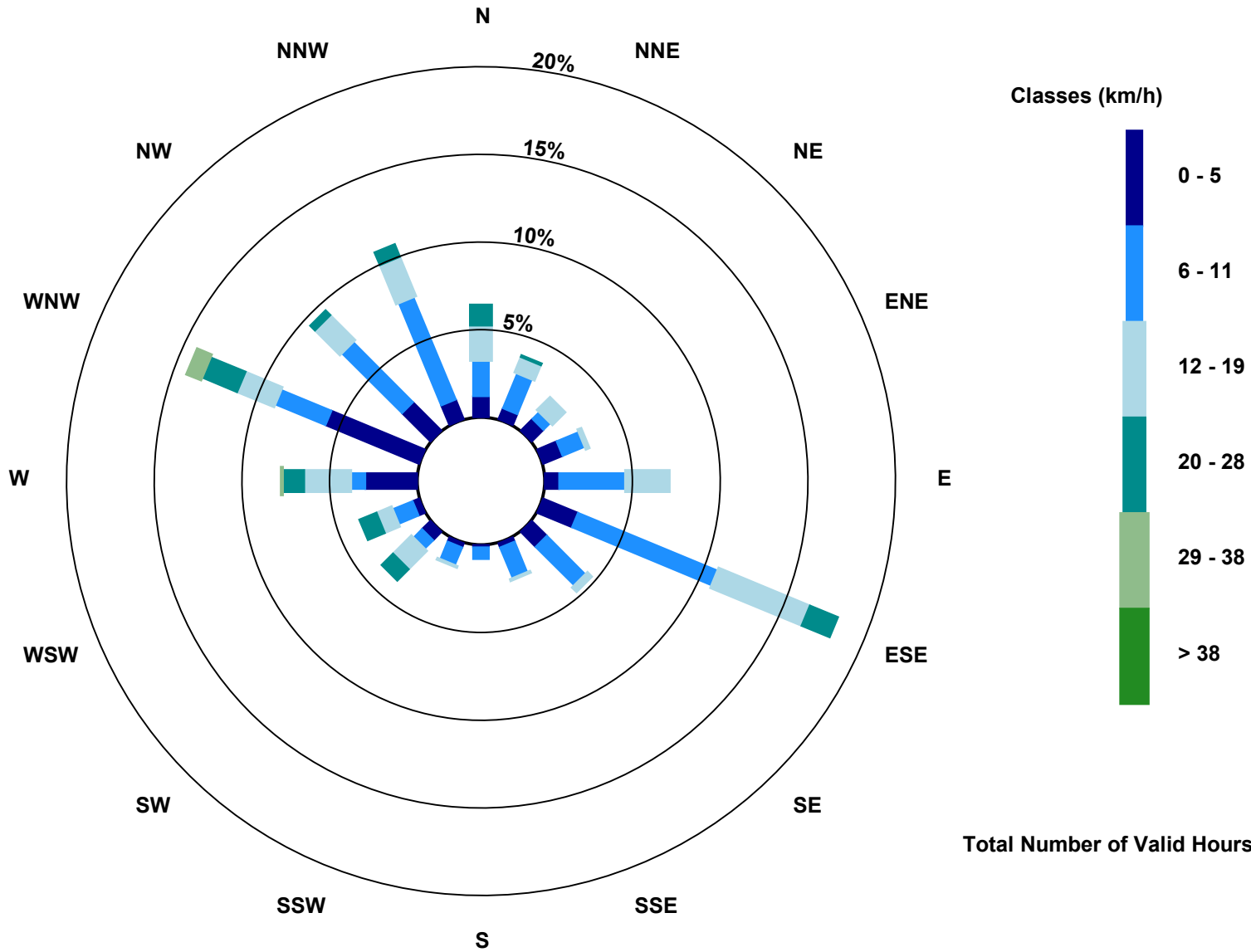
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Lower Camp





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

**Wind Direction (WD) - deg**  
**Lower Camp - May 2024**

Direction of Maximum Speed: 299 deg on May 11 13:00															Hours in Service: 744	
Direction of Maximum Daily Speed Average: 291.3 deg on May 31															Hours of Data: 744	
Direction of Minimum Speed: 105 deg on May 14 02:00															Hours of Missing Data: 0	
Direction of Minimum Daily Speed Average: 2.6 deg on May 28															Percent Operational Time: 100.0	
Monthly Average Direction: 332.9 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-May	327	339	323	295	305	312	306	325	343	332	339	349	349	345	346	351	15	24	26	358	347	359	308	308	345.5
2-May	302	291	302	316	256	292	337	311	328	346	353	358	356	358	0	354	354	347	337	334	329	324	300	292	341.1
3-May	296	278	288	287	261	282	302	283	291	326	337	295	286	292	298	328	343	339	341	350	329	284	267	295	313.6
4-May	267	287	273	301	328	307	286	295	286	312	318	316	287	310	335	311	309	313	317	299	264	259	104	118	306.0
5-May	114	106	135	97	112	104	111	113	120	111	111	103	108	110	112	128	167	137	120	135	98	108	98	109	113.1
6-May	109	112	117	113	108	109	113	106	104	105	113	108	111	90	22	83	93	87	65	74	147	155	171	291	105.8
7-May	275	286	308	275	96	101	86	88	90	66	357	338	350	318	95	101	77	63	72	92	108	129	137	133	88.0
8-May	133	126	122	128	228	270	279	281	299	328	22	97	103	121	151	197	208	200	223	224	218	194	235	255	207.3
9-May	114	238	240	260	246	236	246	253	265	273	269	265	277	283	284	296	296	295	296	286	220	134	194	360	273.5
10-May	346	114	113	108	126	113	114	114	117	193	240	238	236	244	251	246	256	257	272	244	298	336	337	299	248.0
11-May	273	279	275	300	290	273	277	284	296	298	299	298	299	303	309	311	6	10	9	357	349	5	36	15	309.0
12-May	19	343	259	261	299	319	332	62	106	114	111	111	118	111	100	102	98	99	102	123	111	101	93	100	103.2
13-May	104	106	125	126	115	115	116	118	127	119	125	121	213	253	282	253	234	235	258	323	351	293	263	102	157.6
14-May	313	105	305	48	50	88	115	117	114	113	109	239	233	235	235	237	239	276	332	347	345	260	185	254	243.0
15-May	290	142	267	298	271	279	282	300	319	327	339	330	336	336	322	338	345	15	19	11	11	18	22	62	347.0
16-May	33	348	326	301	327	314	326	339	17	24	1	10	5	335	336	332	343	352	359	359	349	352	354	8	349.4
17-May	2	11	346	327	348	325	322	321	332	331	318	354	354	352	349	347	341	339	320	316	309	311	331	336	337.2
18-May	336	341	340	340	328	313	304	301	306	317	310	316	311	308	308	312	317	313	327	352	20	336	322	314	320.1
19-May	317	302	298	312	298	300	299	28	40	34	22	29	22	49	54	17	29	25	15	349	349	326	311	306	5.8
20-May	297	298	302	310	317	296	327	332	339	321	327	320	355	352	345	328	357	118	146	224	290	305	83	100	338.3
21-May	93	88	95	97	92	88	87	104	111	105	119	100	103	93	100	91	49	83	53	77	77	69	259	264	90.5
22-May	290	316	274	275	282	294	354	32	47	57	72	48	39	31	48	51	64	94	105	108	99	92	88	34	54.9
23-May	285	337	39	95	100	105	88	87	98	95	93	120	107	115	153	141	160	148	141	179	156	158	118	123	118.1
24-May	83	321	254	299	332	41	64	117	106	99	98	105	99	128	104	117	132	183	163	170	209	202	74	42	120.5
25-May	82	121	126	130	113	111	117	116	115	121	114	117	113	122	131	119	110	110	105	101	107	130	110	119	115.0
26-May	118	126	122	285	359	117	113	115	112	114	103	116	174	149	112	143	168	148	124	154	117	134	127	110	125.2
27-May	69	105	123	119	215	123	120	111	114	106	115	152	136	126	112	114	203	246	225	120	145	135	120	113	130.6
28-May	130	232	280	294	283	78	48	355	77	259	295	357	15	0	262	271	293	308	103	289	261	83	284	62	289.1
29-May	30	281	283	281	294	77	337	330	304	337	240	245	235	228	220	222	223	221	220	219	224	225	221	196	237.1
30-May	167	164	275	271	269	275	274	275	278	278	281	280	286	278	301	305	296	276	258	289	291	285	280	277	278.0
31-May	277	280	285	287	288	284	283	290	283	292	285	280	288	292	297	316	330	322	308	296	289	307	303	294	291.3

13.8 307.7 284.0 294.0 307.8 299.1 324.4 6.2 18.0 10.9 348.9 336.6 321.1 315.5 323.0 315.2 329.5 332.8 343.3 343.0 346.8 339.0 326.2 24.9  
 Diurnal Average

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



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

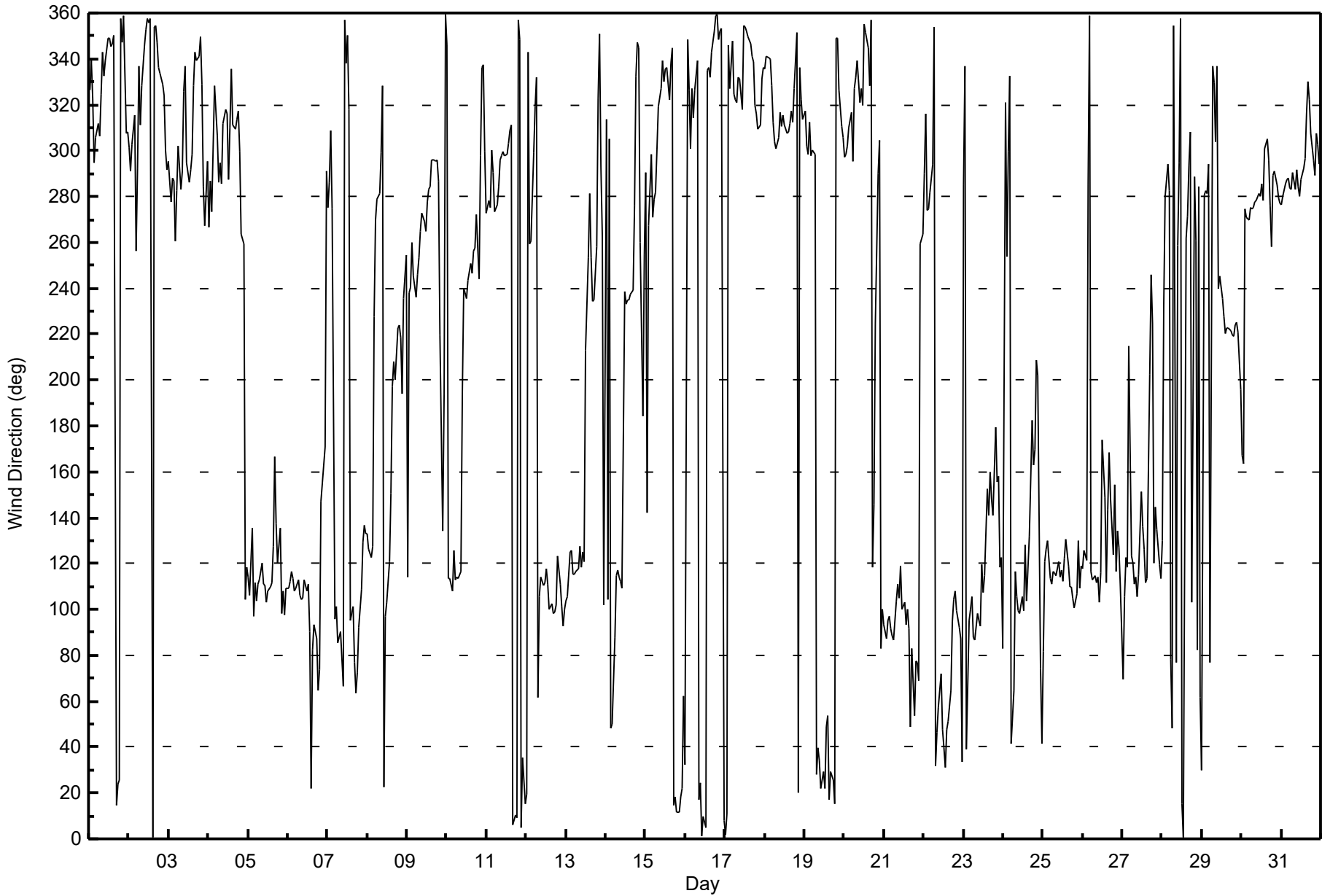
**Wind Direction (WD) - deg**  
**Lower Camp - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on May 4 04:00		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 May 6 08:00																										
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 13 Q <sub>1</sub> = 16 Median = 22 Q <sub>3</sub> = 35 P <sub>90</sub> = 62 P <sub>99</sub> = 94																										
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	21	21	20	19	13	16	17	20	14	19	17	18	19	24	22	22	23	18	16	17	15	19	20	11	24	
2-May	13	14	17	89	23	19	23	30	23	20	20	22	23	21	22	24	23	20	17	16	18	18	27	72	89	
3-May	46	29	30	29	64	27	17	18	17	19	37	48	48	21	27	37	34	19	18	16	19	26	50	82	82	
4-May	41	33	15	100	58	63	17	16	17	37	35	26	24	40	47	34	28	30	35	21	22	75	63	27	100	
5-May	23	18	21	32	32	35	25	9	14	16	13	13	9	10	11	33	39	38	21	30	13	16	15	10	39	
6-May	8	10	14	12	7	7	7	5	7	8	7	8	7	25	33	25	15	20	19	16	34	28	28	60	60	
7-May	17	36	42	20	81	13	16	11	13	18	33	18	33	46	62	12	12	10	9	10	19	22	26	23	81	
8-May	23	15	14	35	62	20	12	15	22	38	48	30	17	47	43	27	54	37	18	14	13	25	22	19	62	
9-May	96	62	15	24	24	22	33	19	16	14	15	15	17	15	16	16	16	15	15	13	57	64	91	86	96	
10-May	86	65	10	30	24	27	15	8	9	61	17	16	16	15	16	16	15	17	14	17	32	20	19	37	86	
11-May	14	11	12	23	16	12	12	12	16	17	16	16	15	18	20	19	30	19	17	18	20	30	19	83	83	
12-May	88	66	28	16	20	62	50	67	24	15	21	12	14	13	11	16	16	13	20	27	20	15	12	20	88	
13-May	19	25	32	30	23	17	23	22	28	19	27	39	49	20	68	36	16	17	44	28	40	72	84	74	84	
14-May	65	87	63	54	85	83	20	23	13	15	12	66	23	19	20	16	15	35	34	43	22	53	66	62	87	
15-May	36	94	76	62	27	18	31	33	28	22	26	34	48	26	24	72	52	22	18	16	19	20	18	36	94	
16-May	25	33	24	21	24	28	31	30	87	21	21	13	16	31	17	18	22	14	16	16	14	13	15	18	87	
17-May	16	16	19	19	18	22	21	18	18	19	19	16	14	15	15	18	16	18	19	19	16	19	24	20	24	
18-May	19	16	17	16	22	17	14	13	15	19	16	18	15	14	14	15	22	17	23	48	28	22	22	20	48	
19-May	22	26	24	21	15	23	22	38	18	15	20	26	24	21	23	34	25	24	28	24	37	19	19	18	38	
20-May	18	19	17	32	40	25	29	18	26	22	20	21	22	22	20	19	72	24	50	42	88	72	80	17	88	
21-May	59	46	34	30	18	17	18	21	19	21	19	21	26	16	19	29	17	17	24	33	15	90	16	34	90	
22-May	64	44	66	33	41	34	18	29	20	22	22	29	19	24	23	24	30	26	17	18	18	13	86	77	86	
23-May	61	95	91	83	18	16	12	19	26	26	32	23	22	31	49	48	49	41	38	30	40	31	21	27	95	
24-May	91	84	15	50	76	72	53	22	20	21	26	23	34	44	23	26	45	46	41	42	15	78	92	72	92	
25-May	85	18	57	26	37	28	23	19	23	29	21	29	25	41	37	29	16	17	15	14	22	47	39	34	85	
26-May	35	30	94	59	78	38	25	25	23	37	16	27	51	48	32	45	48	41	29	25	97	38	88	93	97	
27-May	73	28	30	35	80	89	33	24	25	37	37	49	43	34	23	30	51	15	79	48	52	38	48	39	89	
28-May	41	31	28	16	81	99	89	30	39	90	33	30	59	97	26	18	38	80	78	88	40	93	41	72	99	
29-May	25	29	38	50	61	97	35	21	25	25	20	18	16	15	17	17	19	18	18	17	18	19	19	26	97	
30-May	38	39	37	13	12	12	13	12	12	12	12	12	13	13	16	31	21	18	15	16	14	13	13	15	39	
31-May	12	12	14	13	14	14	12	14	14	13	14	13	14	12	15	20	22	21	15	14	13	16	15	14	22	22
Diurnal Maximum																										



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

**Wind Direction (WD) - deg**  
**Lower Camp - May 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS13 FORT MCKAY SOUTH MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)  
MAY 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	35.8	0	3.5	0
TRS(ppb) Average	708	35	36	99.87	2.8	0	0.8	0
THC(ppm) Average	709	34	35	99.87	3.3	-	2.3	-
NMHC(ppm) Average	709	34	35	99.87	0.56	-	0.085	-
CH4(ppm) Average	709	34	35	99.87	3.1	-	2.2	-
O3(ppb) Average	708	35	36	99.87	53	0	39.4	-
NO2(ppb) Average	707	36	37	99.87	24.2	0	9.6	-
NO(ppb) Average	707	36	37	99.87	89.2	-	12.7	-
NOX(ppb) Average	707	36	37	99.87	104.3	-	18.5	-
PM2.5(ug/m3) Average	743	1	1	100	129.4	0	52	2
ET(C) Average	744	0	0	100	28	-	17.4	-
RH(%) Average	744	0	0	100	98.7	-	96.4	-
WS(km/h) Average	736	0	8	98.92	28	-	16	-
WD(deg) Average	736	0	8	98.92	-	-	-	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
MAY 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	2.3	-	0	0.2	0.3	0.4	0.6	1.6	35.8
TRS(ppb) Average	708	0.5	0.2	-	0.2	0.4	0.4	0.4	0.5	0.7	2.8
THC(ppm) Average	709	2.1	0.2	-	2	2	2	2.1	2.1	2.2	3.3
NMHC(ppm) Average	709	0.015	0.062	-	0	0	0	0	0	0	0.56
CH4(ppm) Average	709	2.09	0.1	-	2	2	2	2.1	2.1	2.2	3.1
O3(ppb) Average	708	24.79	13	-	2	5.4	14.7	24.8	36	42.1	53
NO2(ppb) Average	707	3.91	4.3	-	0	0.1	0.9	2.5	5.2	9.6	24.2
NO(ppb) Average	707	1.31	5.9	-	0	0	0	0.1	0.6	2.2	89.2
NOX(ppb) Average	707	5.21	8.8	-	0	0.1	1	2.7	6.3	12	104.3
PM2.5(ug/m3) Average	743	8.93	17.7	-	0.4	2.3	3.1	4.1	6.8	14.2	129.4
Temperature 2 m (C) Average	744	10.25	6.1	-	-4.8	2.5	5.8	10.2	14.3	18.5	28
Relative Humidity (%) Average	744	64.43	24.6	-	15.7	30.4	42.2	64.2	88.3	96	98.7
Wind Speed 10 m (km/h) Average	736	8.7	5	-	0	2	4	8	12	17	28
Wind Direction 10 m (deg) Average	736	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	22 May 2024 09:00	22 May 2024 09:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	03 May 2024 06:00	03 May 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	04 May 2024 06:00	04 May 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	04 May 2024 21:00	04 May 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	05 May 2024 02:00	05 May 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 May 2024 21:00	20 May 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	23 May 2024 01:00	23 May 2024 02:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	24 May 2024 02:00	24 May 2024 02:00	1	Flat line in sensor output signal



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

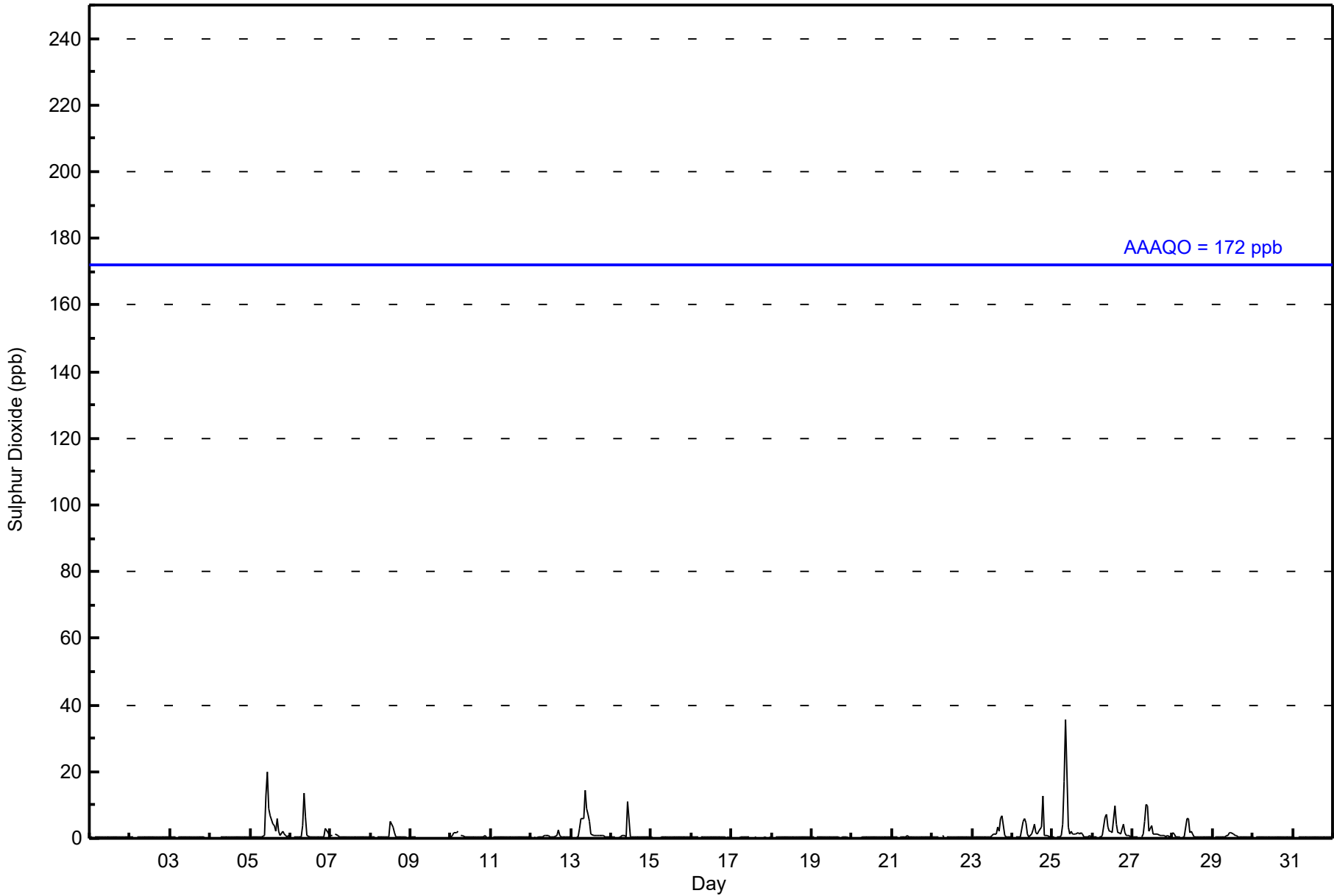
## Fort McKay South - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 35.8 ppb on May 25 09:00		Maximum Daily Average: 3.5 ppb on May 25		Hours of Data: 709																	Hours of Missing Data: 35		Hours of Calibration: 34																										
Minimum Value: 0.0 ppb on May 9 09:00		Minimum Daily Average: 0.1 ppb on May 9		Hours of Calibration: 34																	Percent Operational Time: 99.9																												
Maximum Diurnal Average: 3.4 ppb at hour 9		Minimum Diurnal Average: 0.4 ppb at hour 3		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.4 Q <sub>3</sub> = 0.6 P <sub>90</sub> = 1.6 P <sub>99</sub> = 10.9																																													
Monthly Average: 0.94 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-May	0.2	0.2	Z	0.2	0.2	0.2	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	0.3	0.3	0.3	0.3	0.3	0.4																						
2-May	0.3	0.2	0.2	Z	0.3	0.3	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	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4																						
3-May	0.3	0.3	0.2	0.2	Z	0.3	0.4	0.4	0.3	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.5																						
4-May	0.1	0.1	0.1	0.1	0.1	Z	0.3	0.6	0.5	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6																						
5-May	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.6	0.8	12.9	20.0	9.0	6.9	4.0	3.9	2.0	5.9	2.0	0.8	2.3	1.1	0.8	0.6	0.6	0.6	0.6	20.0																						
6-May	0.7	Z	0.6	0.6	0.5	0.6	0.6	3.7	13.6	6.3	0.8	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.6	2.9	1.9	1.0	1.0	13.6																							
7-May	0.8	0.8	Z	1.2	0.9	0.5	0.5	0.5	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	0.6	0.3	0.4	0.4	1.2																							
8-May	0.4	0.4	0.4	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.4	0.3	5.2	3.5	1.8	0.4	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.3	5.2																							
9-May	0.3	0.3	0.3	0.2	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
10-May	0.2	0.9	1.5	1.6	1.9	Z	1.0	0.6	0.5	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.5	0.5	0.8	0.4	0.2	0.5	0.5	1.9																							
11-May	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	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5																							
12-May	0.4	Z	0.2	0.2	0.2	0.2	0.3	0.4	0.7	0.7	0.6	0.4	0.3	0.4	0.4	0.9	2.5	1.0	0.5	0.4	0.4	0.3	0.2	0.3	0.3	2.5																							
13-May	0.2	0.2	Z	0.3	0.3	3.0	5.9	6.0	14.3	8.7	7.0	5.2	1.1	0.8	0.8	0.7	0.7	0.8	0.9	0.8	0.6	0.6	0.6	0.4	0.4	14.3																							
14-May	0.4	0.4	0.4	Z	0.2	0.3	0.7	0.7	0.8	0.6	10.9	0.6	0.4	0.3	0.4	0.5	0.4	0.4	0.5	0.3	0.3	0.3	0.2	0.3	0.3	10.9																							
15-May	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4																							
16-May	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.5	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.5																							
17-May	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	C	C	C	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.4																							
18-May	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4																							
19-May	0.4	0.4	Z	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.4																							
20-May	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.6																							
21-May	0.4	0.5	0.4	0.5	Z	0.5	0.5	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.7																							
22-May	0.3	0.3	0.3	0.3	0.3	Z	0.7	0.5	M	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.7																							
23-May	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.6	1.2	1.4	3.3	1.9	5.9	6.8	0.7	0.5	0.4	0.4	0.3	0.3	6.8																							
24-May	0.3	Z	0.2	0.2	0.3	0.3	4.9	5.9	4.8	1.1	0.5	1.2	2.6	4.2	1.7	1.2	2.3	3.3	12.8	0.8	0.7	0.7	0.5	0.5	0.5	12.8																							
25-May	0.5	0.5	Z	0.4	0.4	0.7	4.4	17.1	35.8	3.3	1.4	2.1	1.5	1.2	1.2	1.6	1.3	1.9	1.3	0.4	0.5	0.6	0.7	0.6	0.6	35.8																							
26-May	0.6	0.5	0.4	Z	0.2	0.3	0.8	6.3	7.1	3.4	2.0	2.0	1.8	9.9	4.2	1.6	1.8	1.3	4.2	1.6	0.8	0.7	0.7	0.5	0.5	9.9																							
27-May	0.5	0.5	0.4	0.4	Z	0.5	1.1	5.2	10.3	9.9	2.0	3.7	1.4	1.2	1.4	1.4	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	10.3																							
28-May	1.7	1.2	0.5	0.4	0.4	Z	0.5	0.6	5.9	5.8	1.7	1.9	1.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.6	5.9																							
29-May	Z	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.7	1.6	1.5	1.1	0.9	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.3	0.3	1.6																							
30-May	0.3	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4																							
31-May	0.3	0.3	Z	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5																							
																								0.4	0.4	0.4	0.4	0.4	0.4	0.9	1.8	3.4	2.0	1.8	1.2	1.0	1.2	0.8	0.7	0.8	0.8	1.2	0.5	0.4	0.5	0.4	0.4	0.4	Diurnal Average
																								1.7	1.2	1.5	1.6	1.9	3.0	5.9	17.1	35.8	12.9	20.0	9.0	6.9	9.9	4.2	3.3	5.9	5.9	12.8	2.3	1.1	2.9	1.9	1.0	1.0	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**  
**Fort McKay South - May 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	701	98.87	98.87
11 - 20	7	0.99	99.86
21 - 60	1	0.14	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - May 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	134	73	24	8	12	18	45	53	40	23	50	45	22	41	57	51	696
11 - 20	0	0	0	0	0	0	1	5	0	1	0	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	134	73	24	8	12	18	46	59	40	24	50	45	22	41	57	51	704

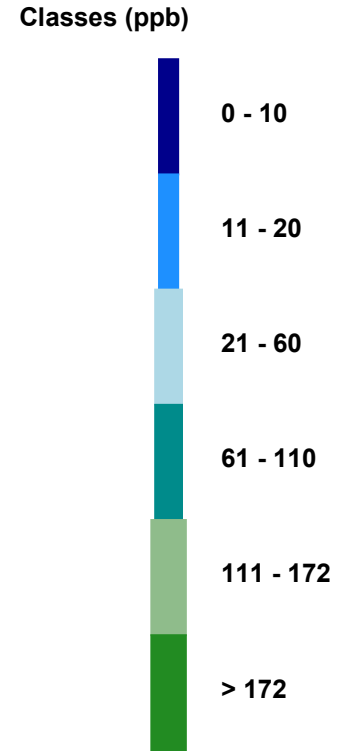
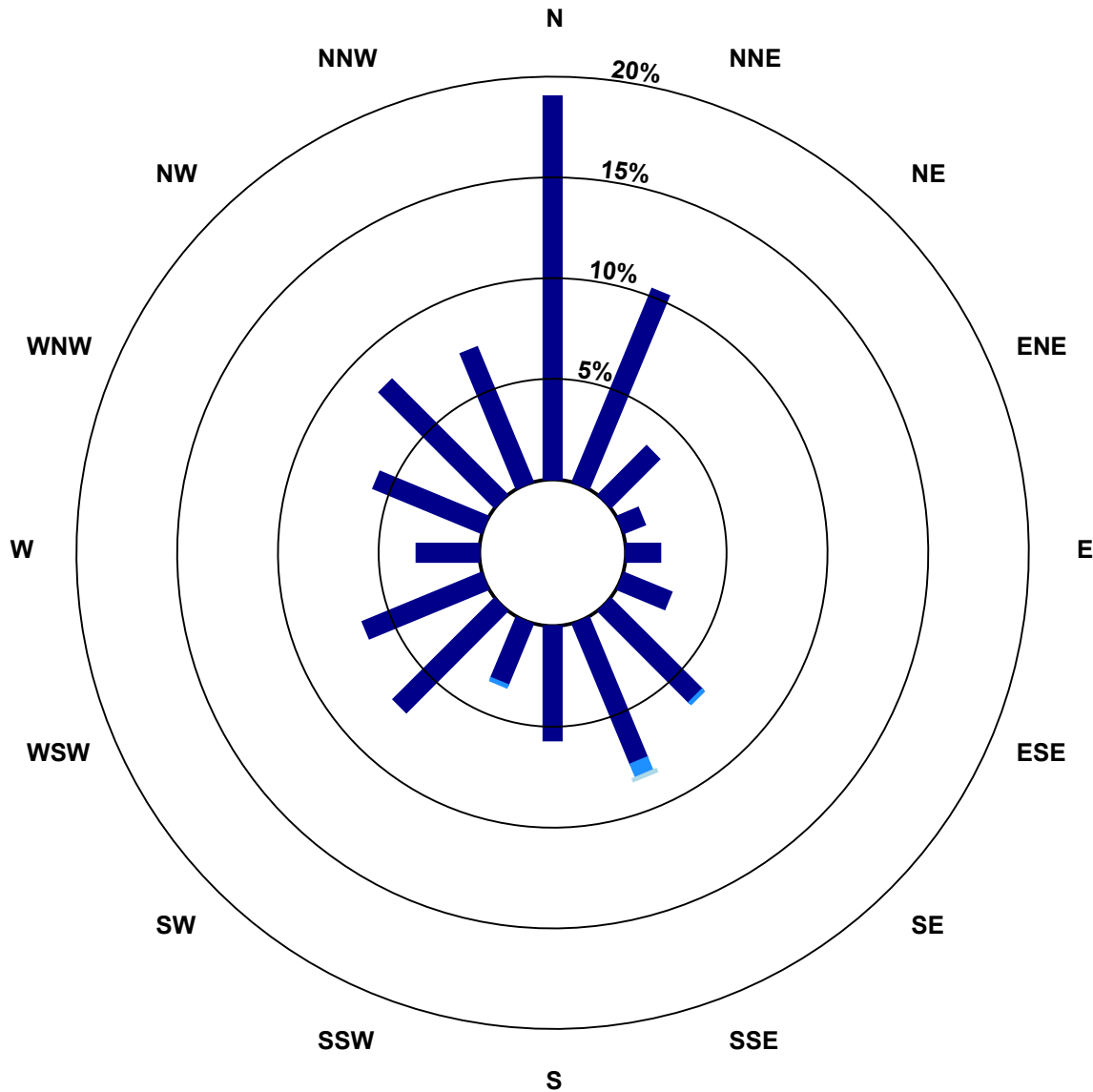
Total Number of Valid Hours: 704

Total Number of Hours: 744

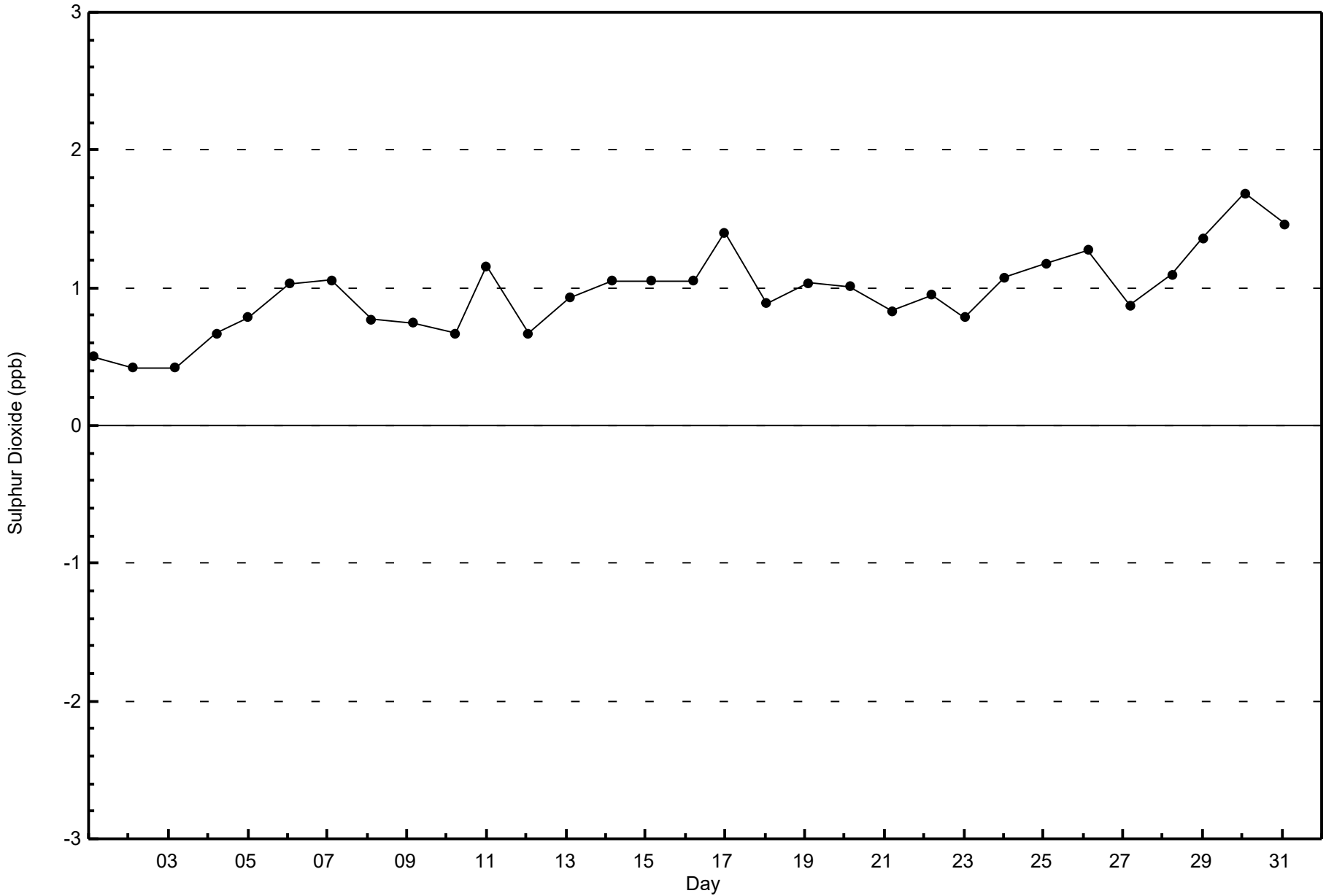


Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 704

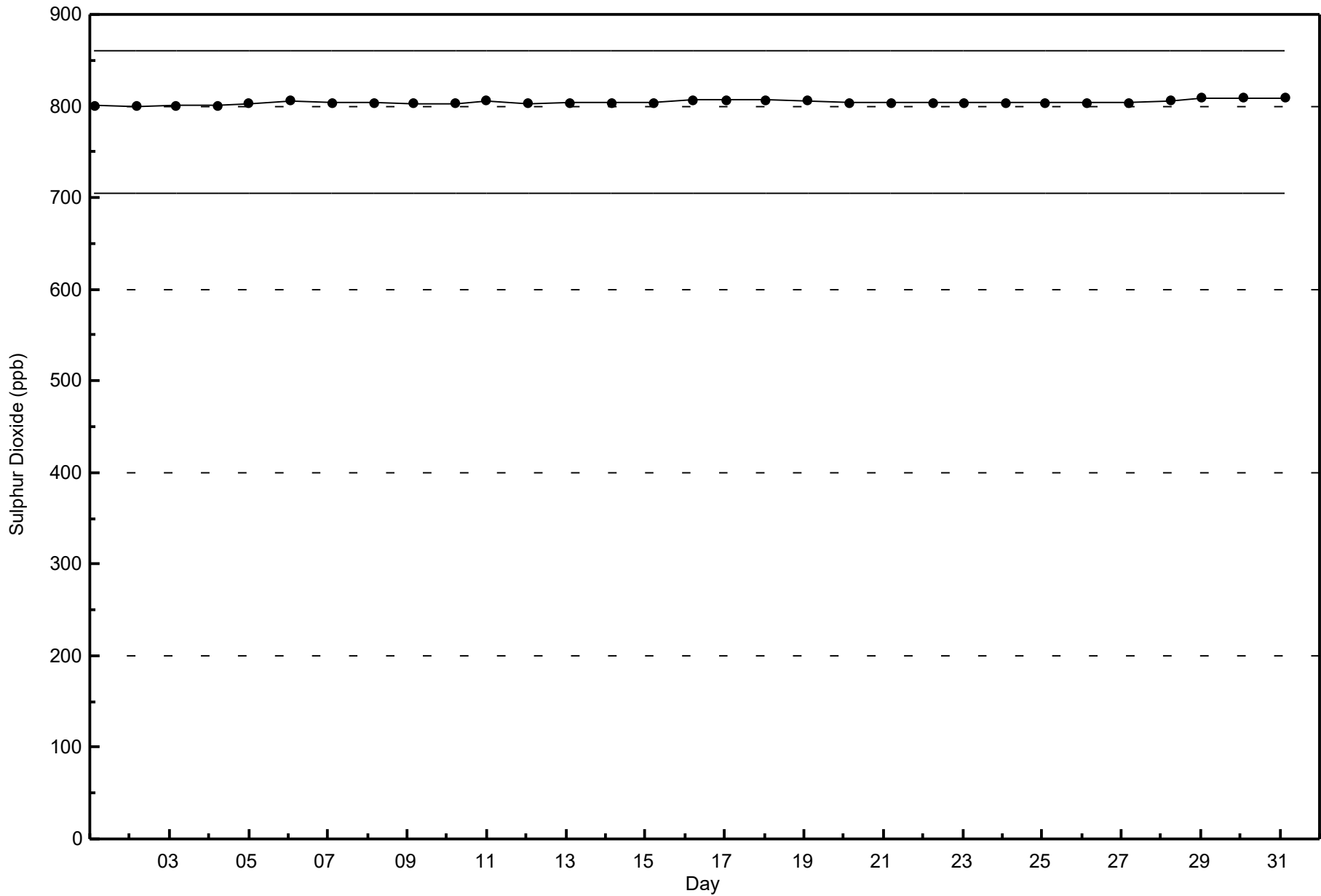






**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort McKay South - May 2024**

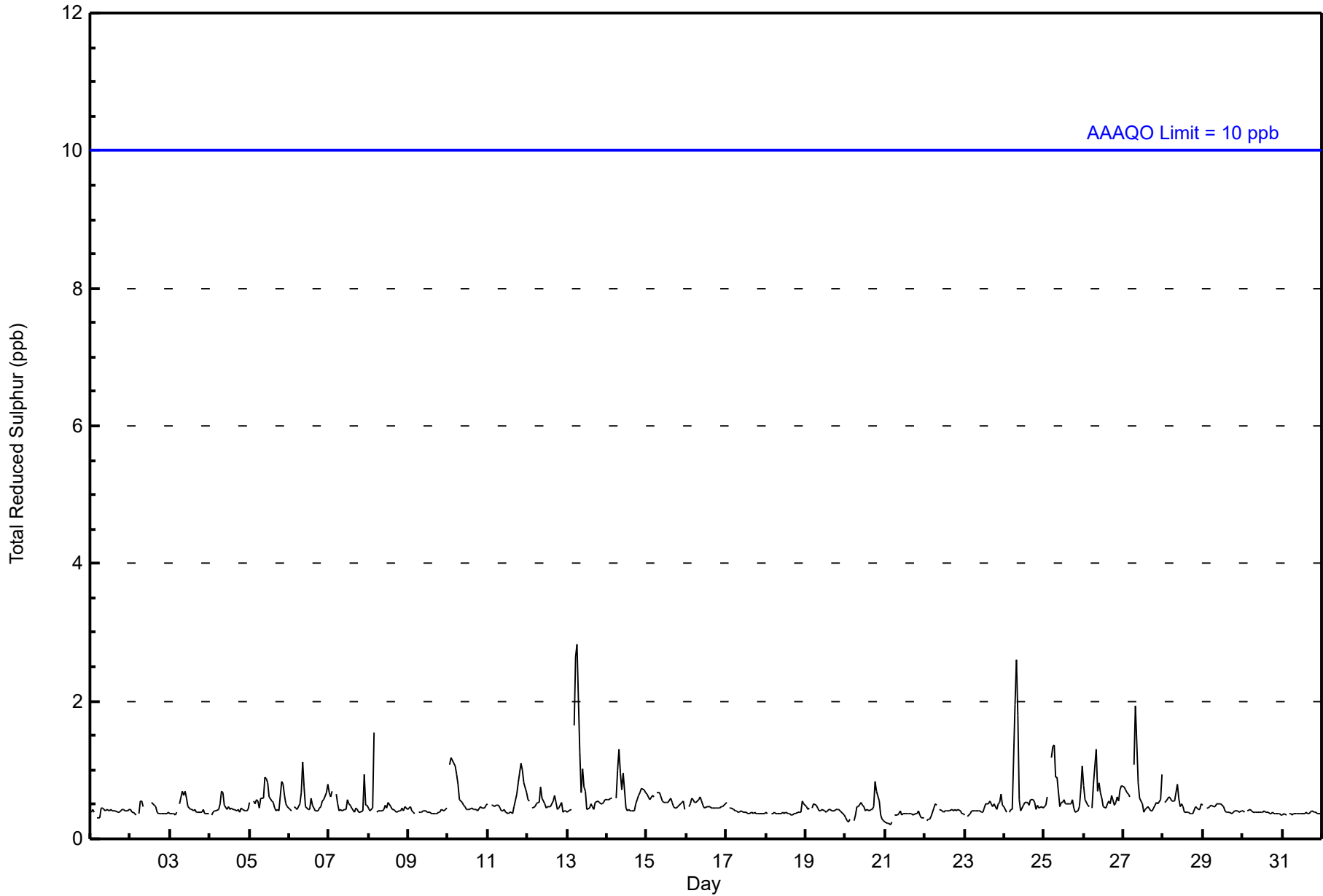






Wood Buffalo Environmental Association  
Hourly Averages

Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - May 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort McKay South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	705	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: 708

Total Number of Hours: 744



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

**Total Reduced Sulphur (TRS) - ppb**  
**Fort McKay South - May 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	135	71	24	8	11	17	45	58	44	25	48	44	19	40	58	53	700
3 - 4	0	0	0	0	0	1	0	1	1	0	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>	135	71	24	8	11	18	45	59	45	25	48	44	19	40	58	53	703

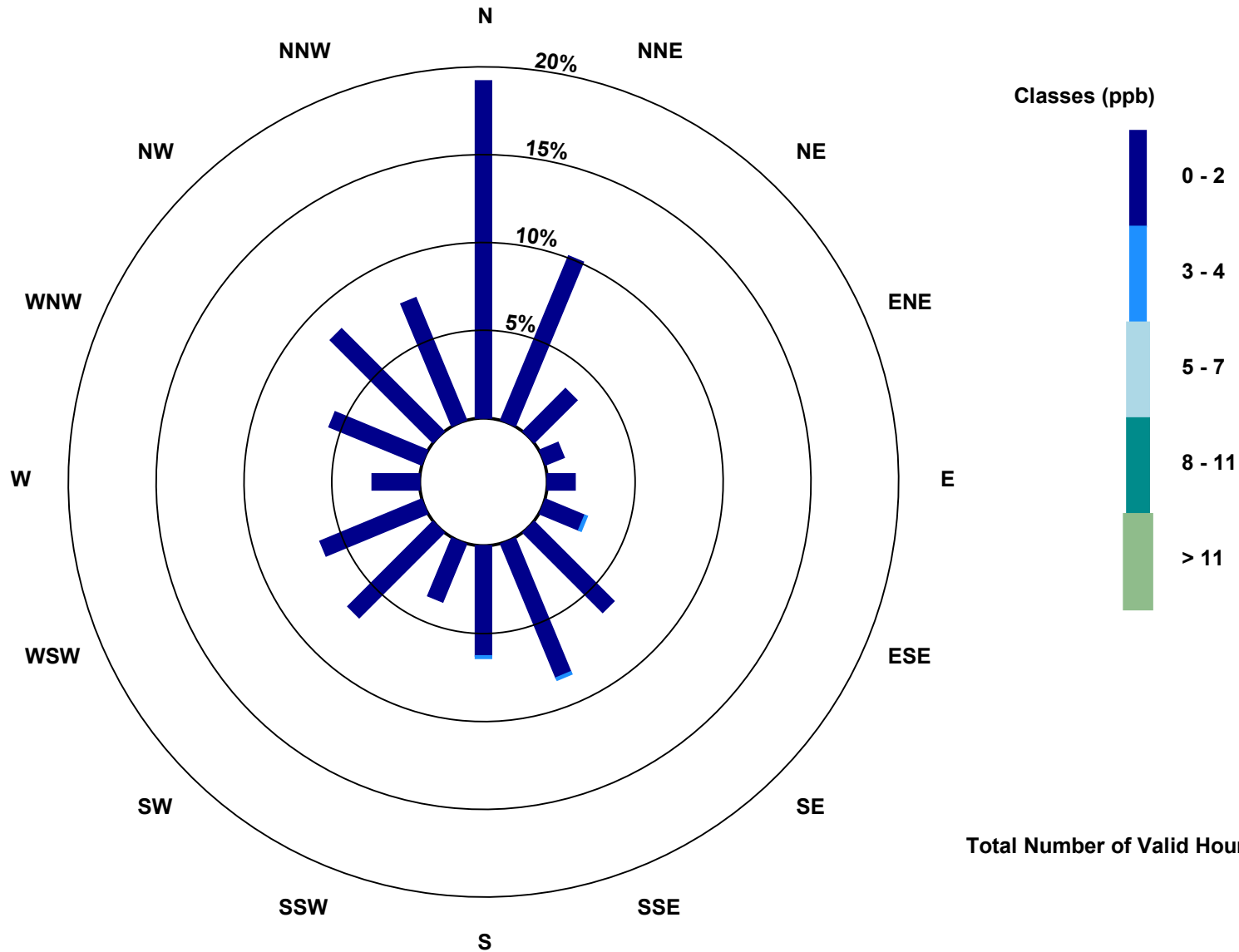
Total Number of Valid Hours: 703

Total Number of Hours: 744

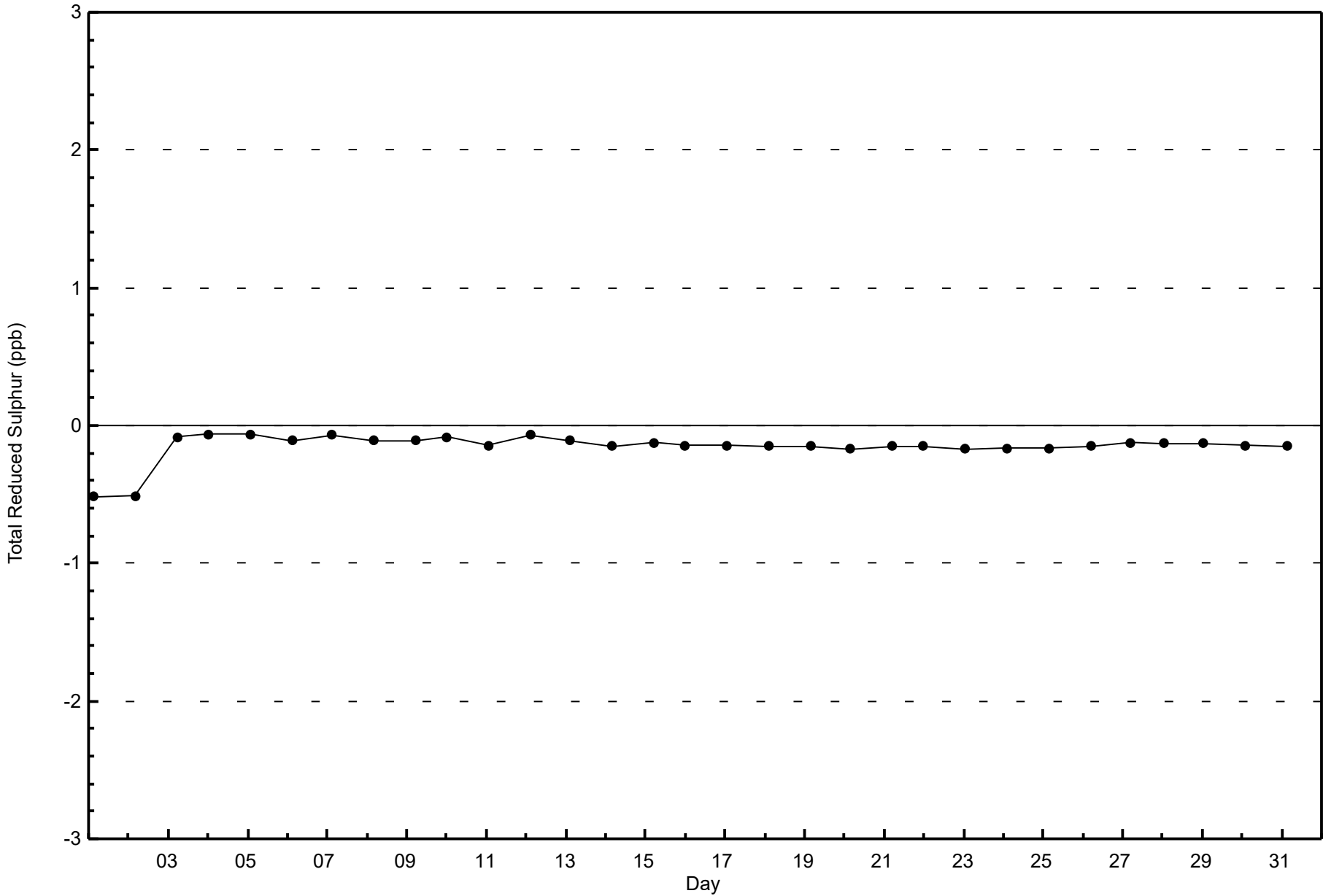


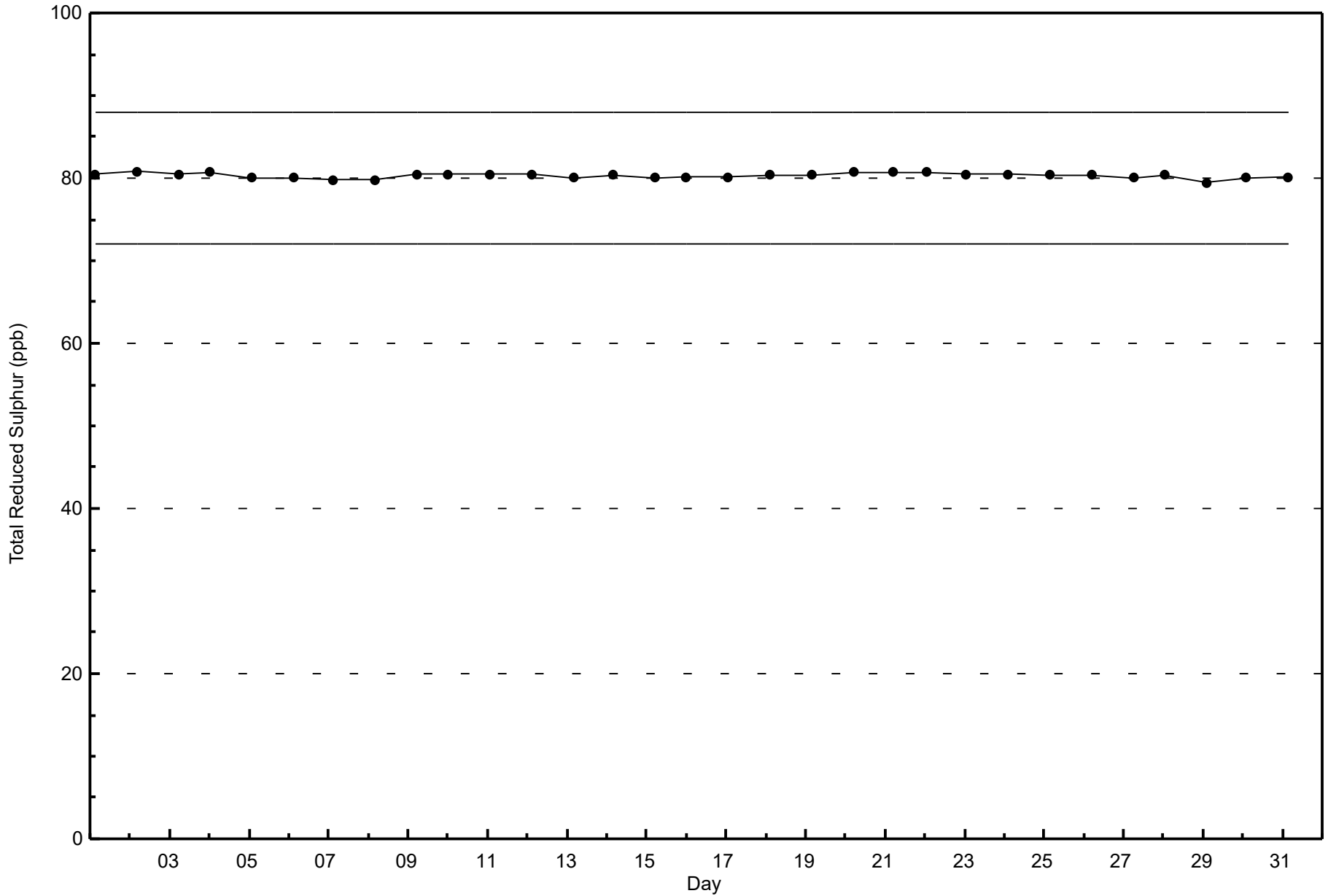
**Wood Buffalo Environmental Association**  
**Wind Rose May 2024**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort McKay South**



Total Number of Valid Hours: 703





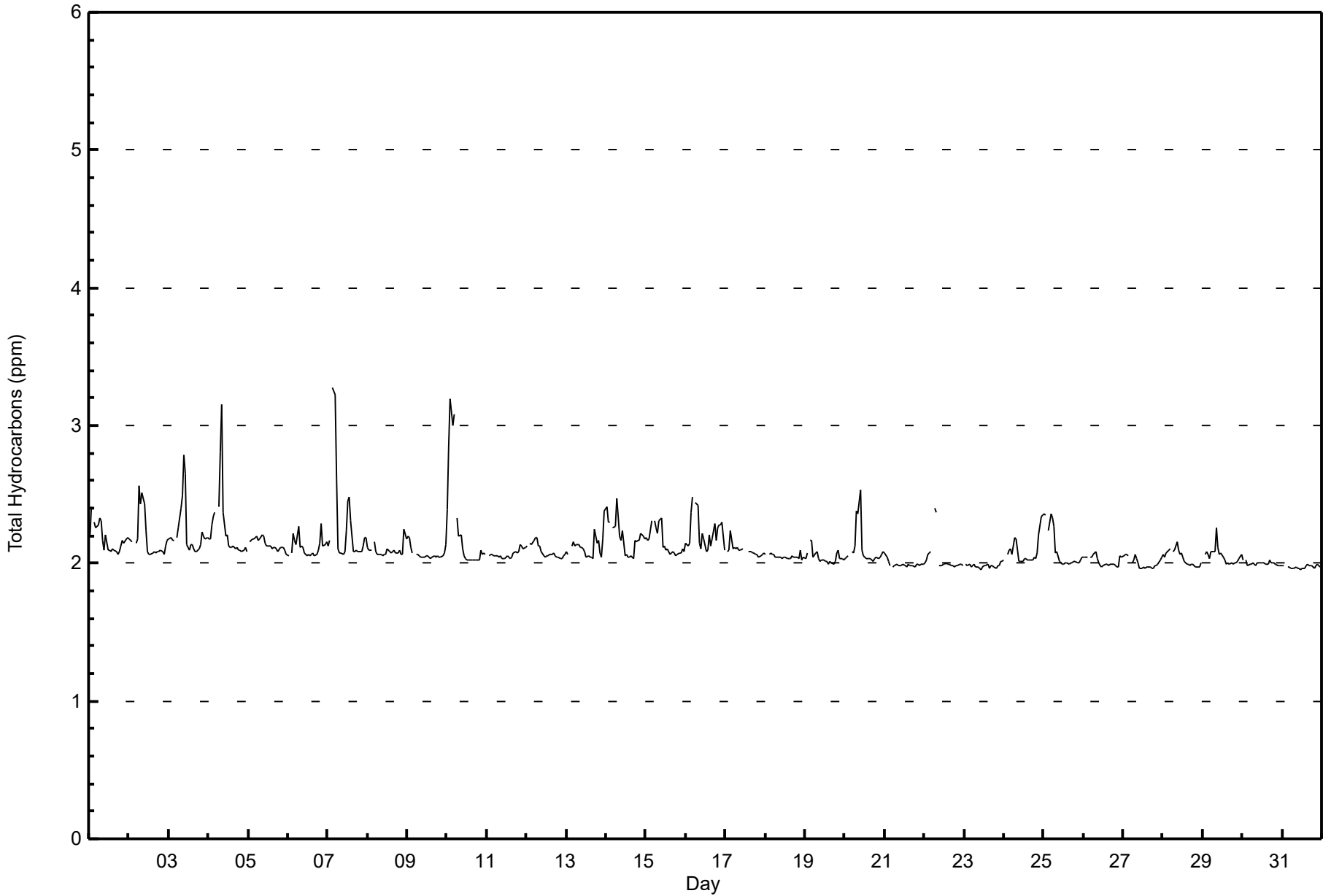






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - May 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Fort McKay South - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	283	39.92	39.92
2.1 - 3.0	421	59.38	99.29
3.1 - 10.0	5	0.71	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Fort McKay South - May 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	21	14	16	5	9	9	22	27	19	8	23	19	6	24	36	23	281
2.1 - 3.0	111	58	8	3	3	9	24	32	21	16	25	26	16	17	21	28	418
3.1 - 10.0	2	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	134	73	24	8	12	18	46	59	40	24	50	45	22	41	57	51	704

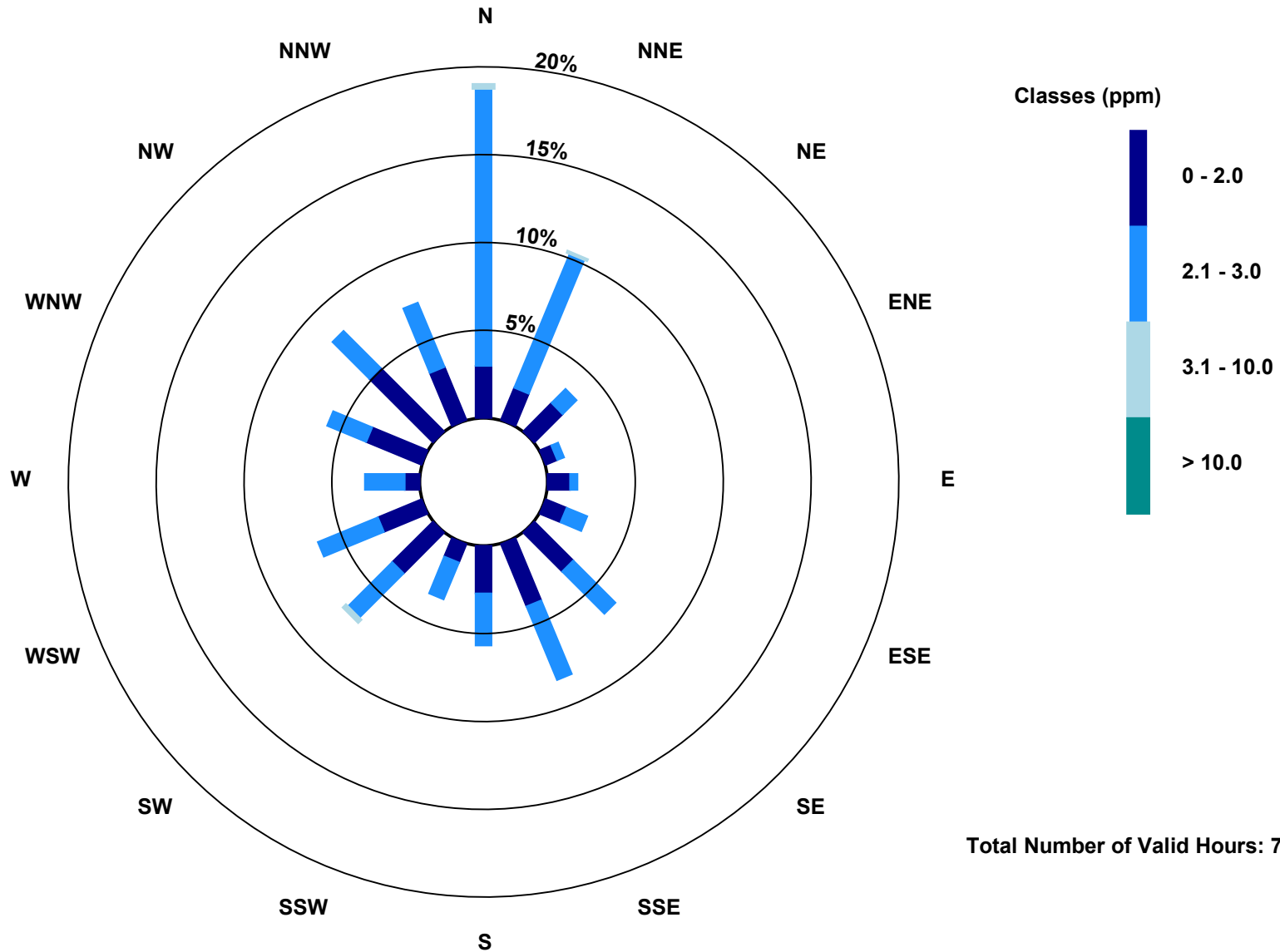
Total Number of Valid Hours: 704

Total Number of Hours: 744

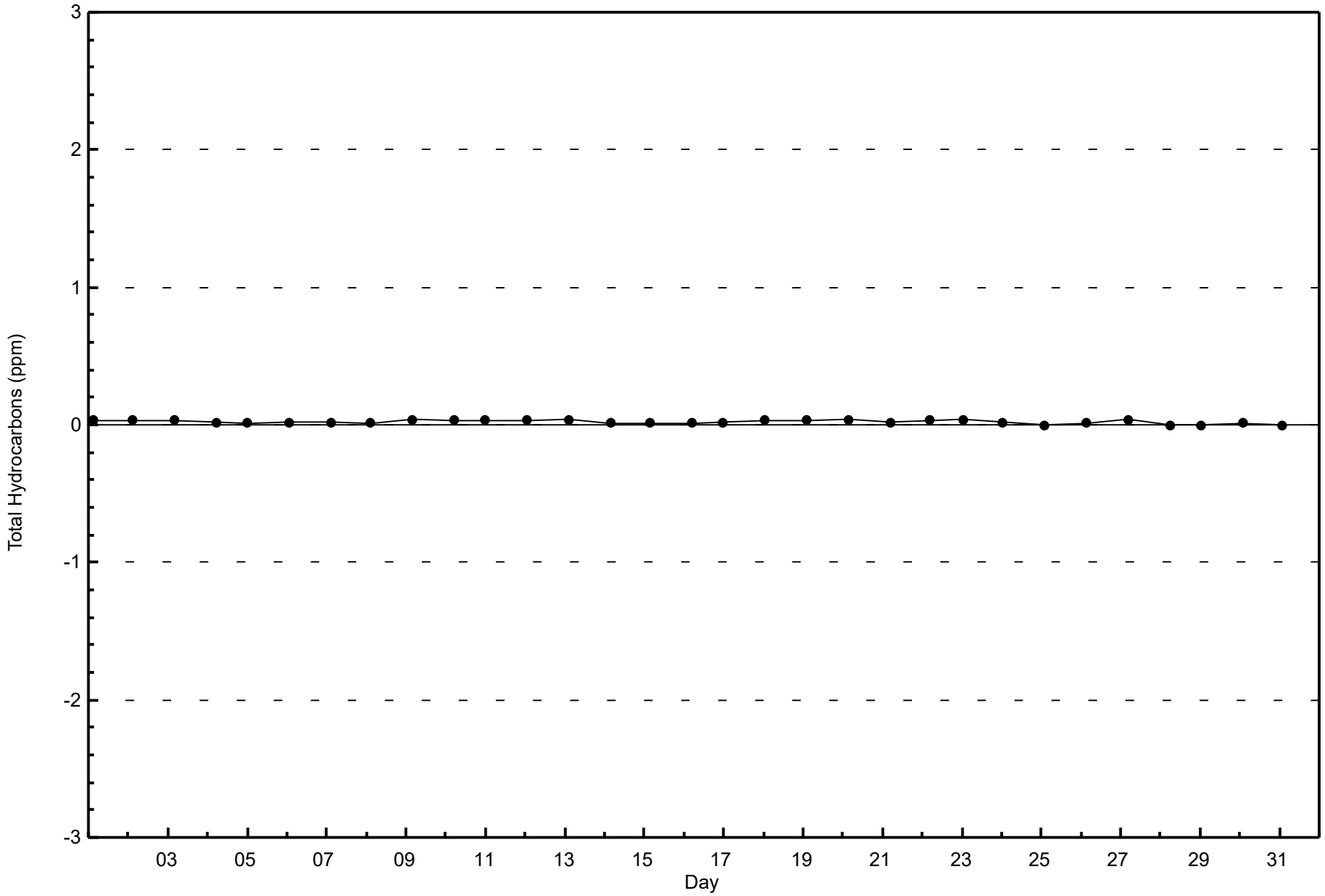


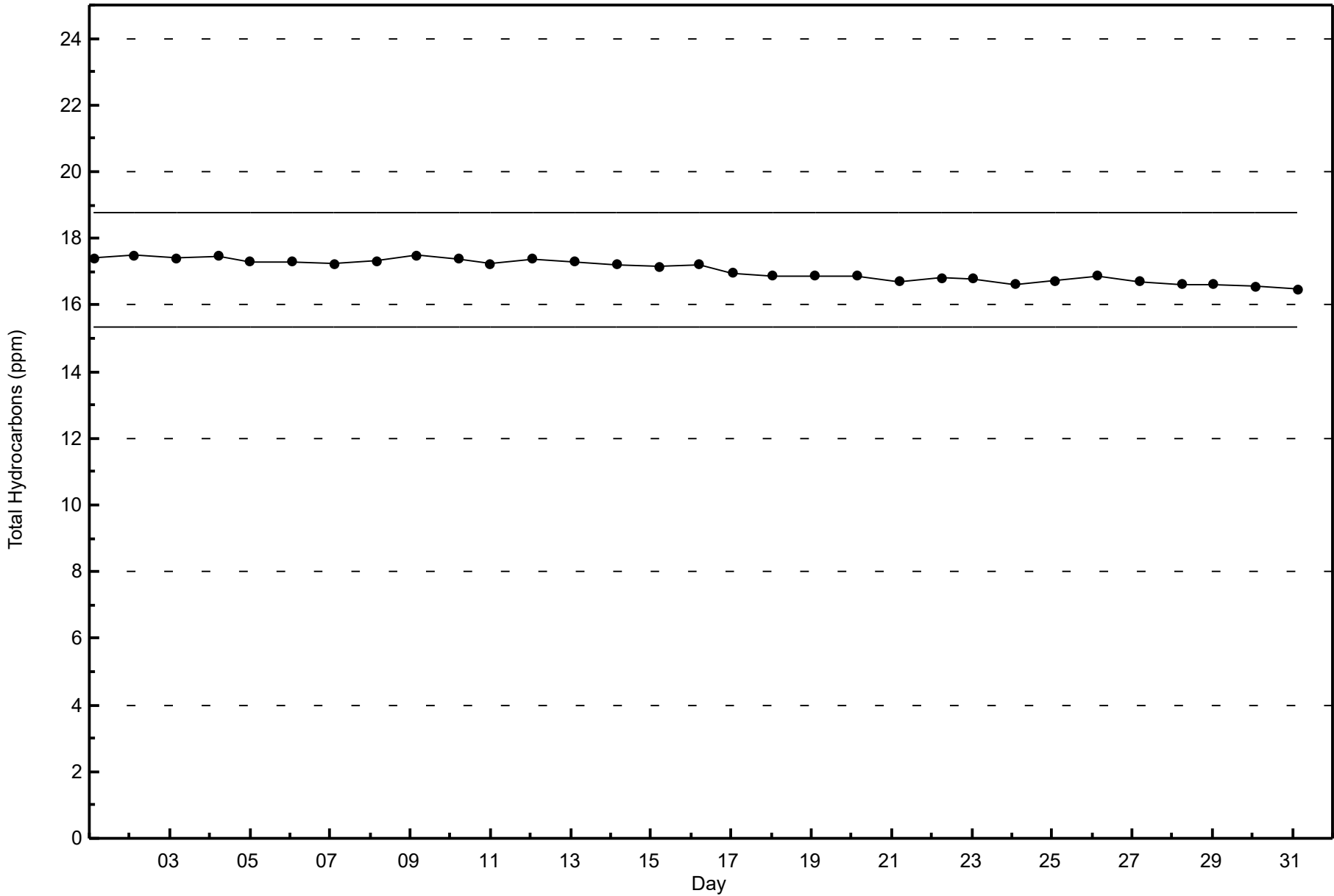
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Fort McKay South



Total Number of Valid Hours: 704

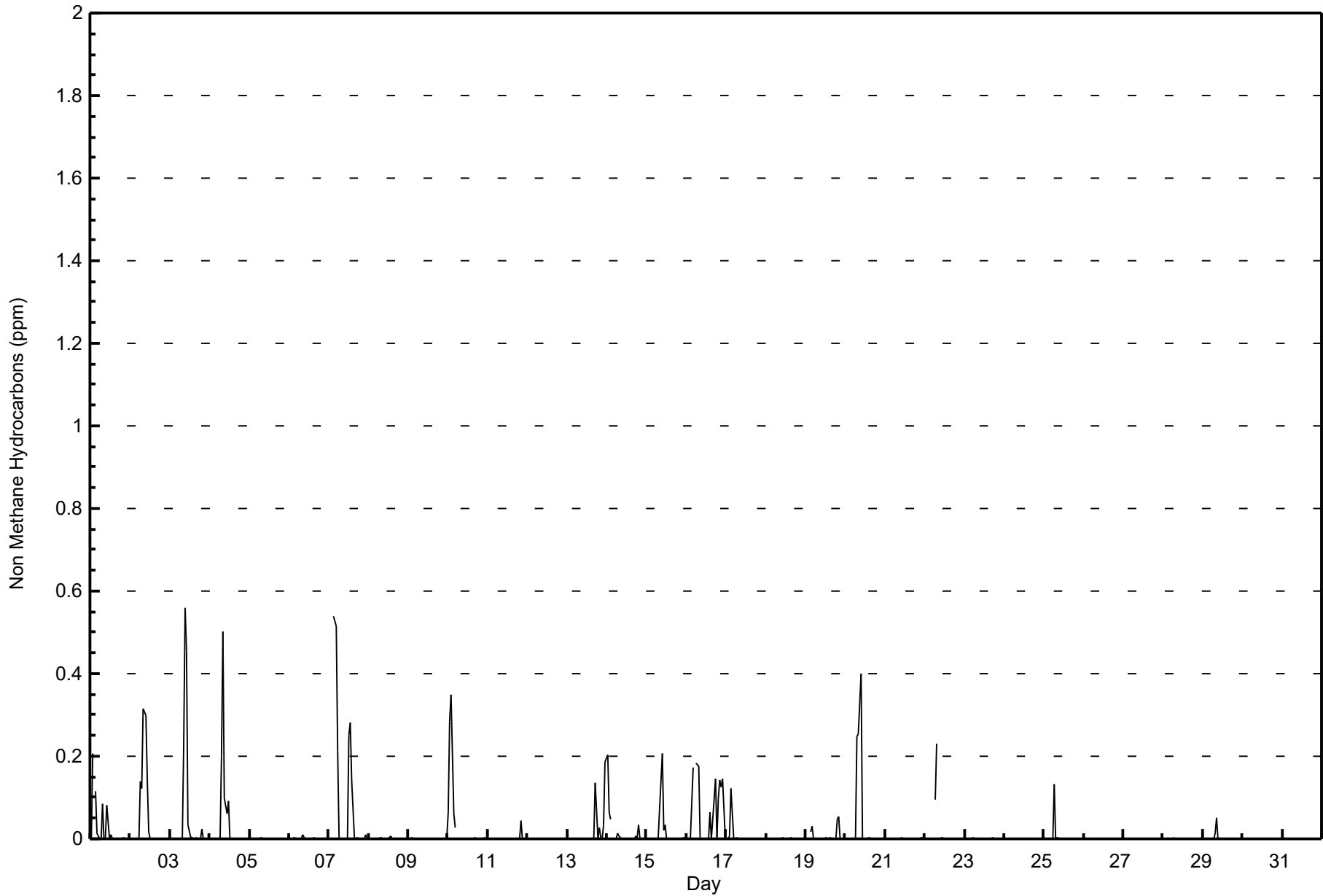






Maximum Value: 0.560 ppm on May 3 10:00		Maximum Daily Average: 0.085 ppm on May 7		Hours in Service: 744																											
Minimum Value: 0.000 ppm on May 1 06:00		Minimum Daily Average: 0.000 ppm on May 27		Hours of Data: 709																											
Maximum Diurnal Average: 0.051 ppm at hour 10		Minimum Diurnal Average: 0.000 ppm at hour 19		Hours of Missing Data: 35																											
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> = 0.3		Hours of Calibration: 34																											
				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-May	0.001	0.206	Z	0.115	0.014	0.000	0.000	0.085	0.000	0.000	0.080	0.000	0.010	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.002	0.000	0.001	0.000	0.023	0.206					
2-May	0.000	0.000	0.000	Z	0.000	0.000	0.139	0.123	0.316	0.297	0.139	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.316					
3-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.231	0.560	0.455	0.032	0.004	0.004	0.000	0.000	0.004	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.057	0.560					
4-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.201	0.501	0.100	0.060	0.093	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.042	0.501					
5-May	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005					
6-May	0.000	Z	0.000	0.002	0.000	0.000	0.000	0.000	0.009	0.002	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.009					
7-May	0.000	0.000	Z	0.541	0.514	0.213	0.000	0.001	0.000	0.000	0.000	0.000	0.250	0.280	0.144	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.011	0.000	0.085	0.541					
8-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006					
9-May	0.000	0.000	0.003	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	0.002	0.000	0.003					
10-May	0.066	0.283	0.348	0.061	0.027	Z	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000	0.002	0.000	0.034	0.348						
11-May	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	0.044	0.000	0.002	0.000	0.002	0.044					
12-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002					
13-May	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	0.135	0.000	0.028	0.002	0.000	0.035	0.188	0.017	0.188					
14-May	0.204	0.063	0.048	Z	0.000	0.000	0.014	0.006	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.006	0.004	0.035	0.000	0.000	0.000	0.000	0.017	0.204					
15-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.072	0.206	0.019	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.014	0.014	0.206					
16-May	0.000	0.000	0.000	0.084	0.172	Z	0.184	0.177	0.000	0.000	0.000	0.000	0.000	0.000	0.065	0.000	0.046	0.146	0.000	0.098	0.144	0.126	0.145	0.000	0.060	0.184					
17-May	Z	0.000	0.007	0.124	0.000	0.000	0.004	0.000	0.000	0.000	0.000	C	C	C	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.007	0.124						
18-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.003	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003					
19-May	0.001	0.000	Z	0.018	0.030	0.002	0.001	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.002	0.000	0.001	0.001	0.047	0.055	0.000	0.000	0.001	0.007	0.055					
20-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.247	0.253	0.400	0.000	0.000	0.000	0.001	0.005	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.039	0.400						
21-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002					
22-May	0.000	0.000	0.000	0.000	0.000	Z	0.096	0.229	M	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.015	0.229						
23-May	Z	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003					
24-May	0.003	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003					
25-May	0.000	0.000	Z	0.000	0.000	0.000	0.131	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.131						
26-May	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	0.001					
27-May	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					
28-May	0.000	0.000	0.000	0.000	0.000	Z	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002					
29-May	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.052	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	0.003	0.052						
30-May	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					
31-May	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					
		0.011	0.021	0.016	0.036	0.029	0.008	0.018	0.035	0.048	0.051	0.025	0.006	0.009	0.010	0.007	0.000	0.002	0.010	0.000	0.008	0.008	0.004	0.007	0.006	Diurnal Average					
		0.204	0.283	0.348	0.541	0.514	0.213	0.184	0.247	0.501	0.560	0.455	0.093	0.250	0.280	0.144	0.005	0.046	0.146	0.004	0.098	0.144	0.126	0.145	0.188	Diurnal Maximum					
Z - zerospan		C - Calibration			M - Maintenance																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Fort McKay South - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	632	89.14	89.14
0.006 - 0.05	26	3.67	92.81
0.06 - 0.1	26	3.67	96.47
> 0.1	25	3.53	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort McKay South - May 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	94	59	23	7	12	18	45	56	37	23	46	42	22	41	57	45	627
0.006 - 0.05	13	4	0	0	0	0	0	3	3	0	1	0	0	0	0	2	26
0.06 - 0.1	14	5	0	1	0	0	1	0	0	0	1	2	0	0	0	2	26
> 0.1	13	5	1	0	0	0	0	0	0	1	2	1	0	0	0	2	25
<b>Totals</b>	134	73	24	8	12	18	46	59	40	24	50	45	22	41	57	51	704

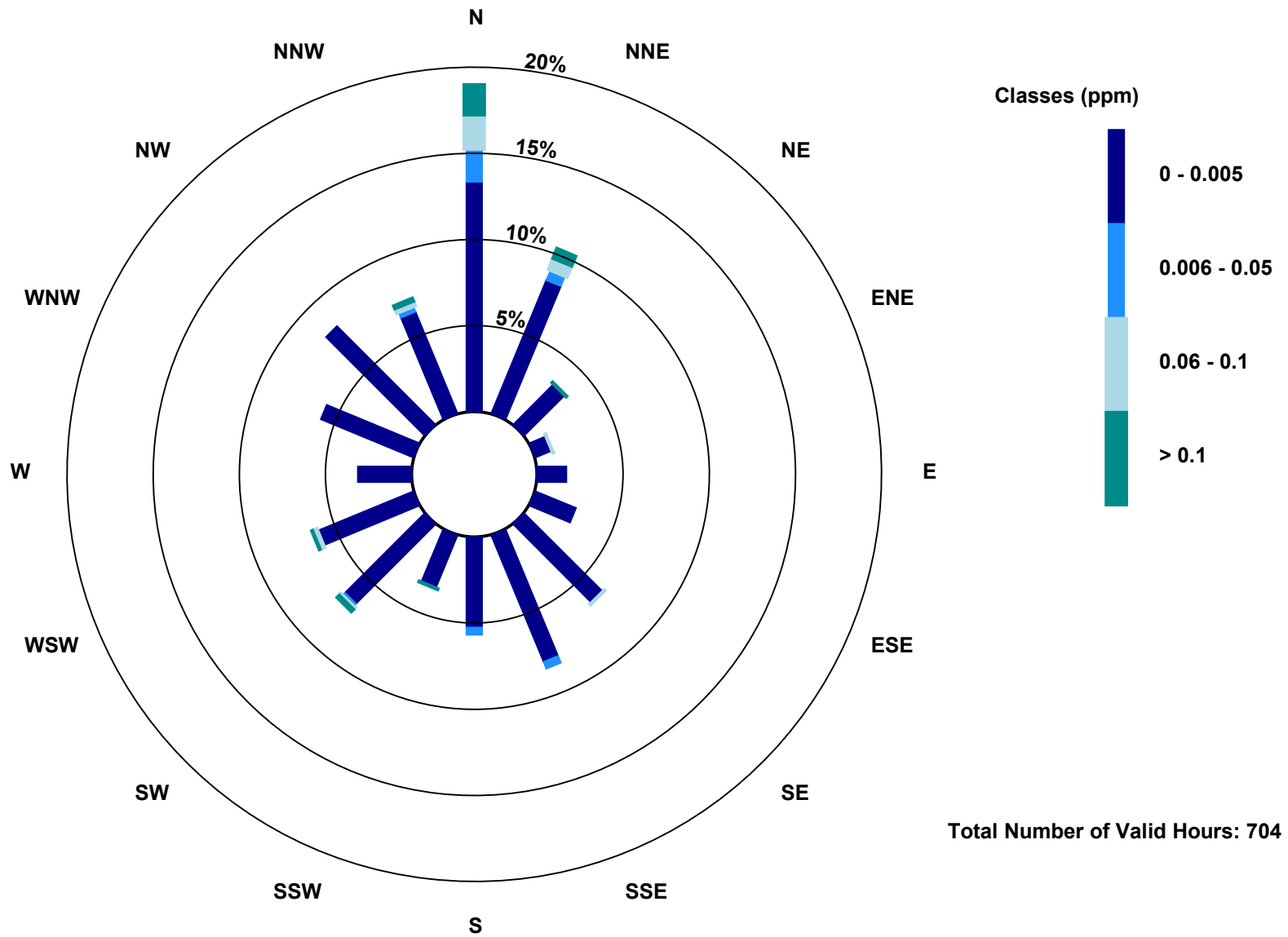
Total Number of Valid Hours: 704

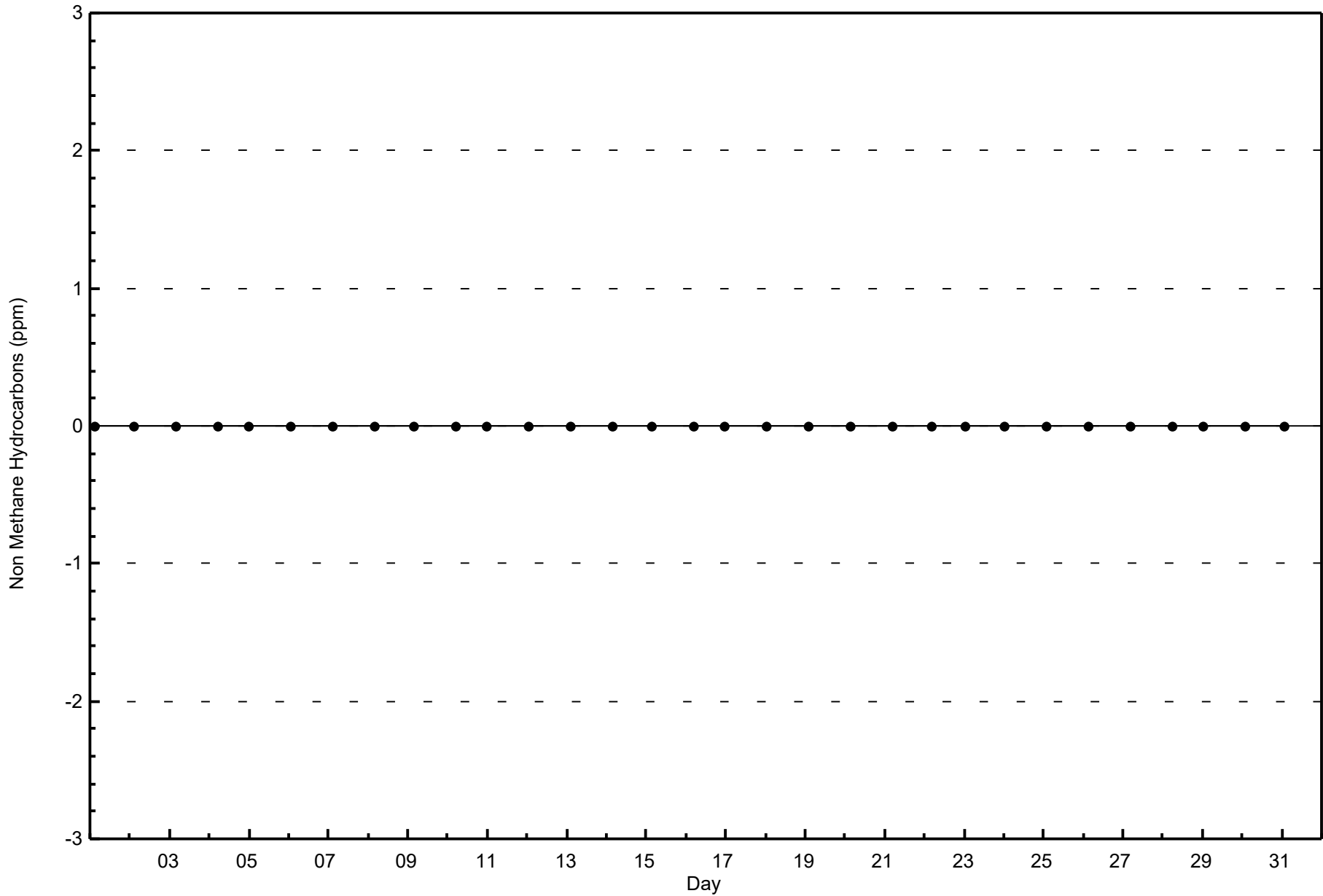
Total Number of Hours: 744

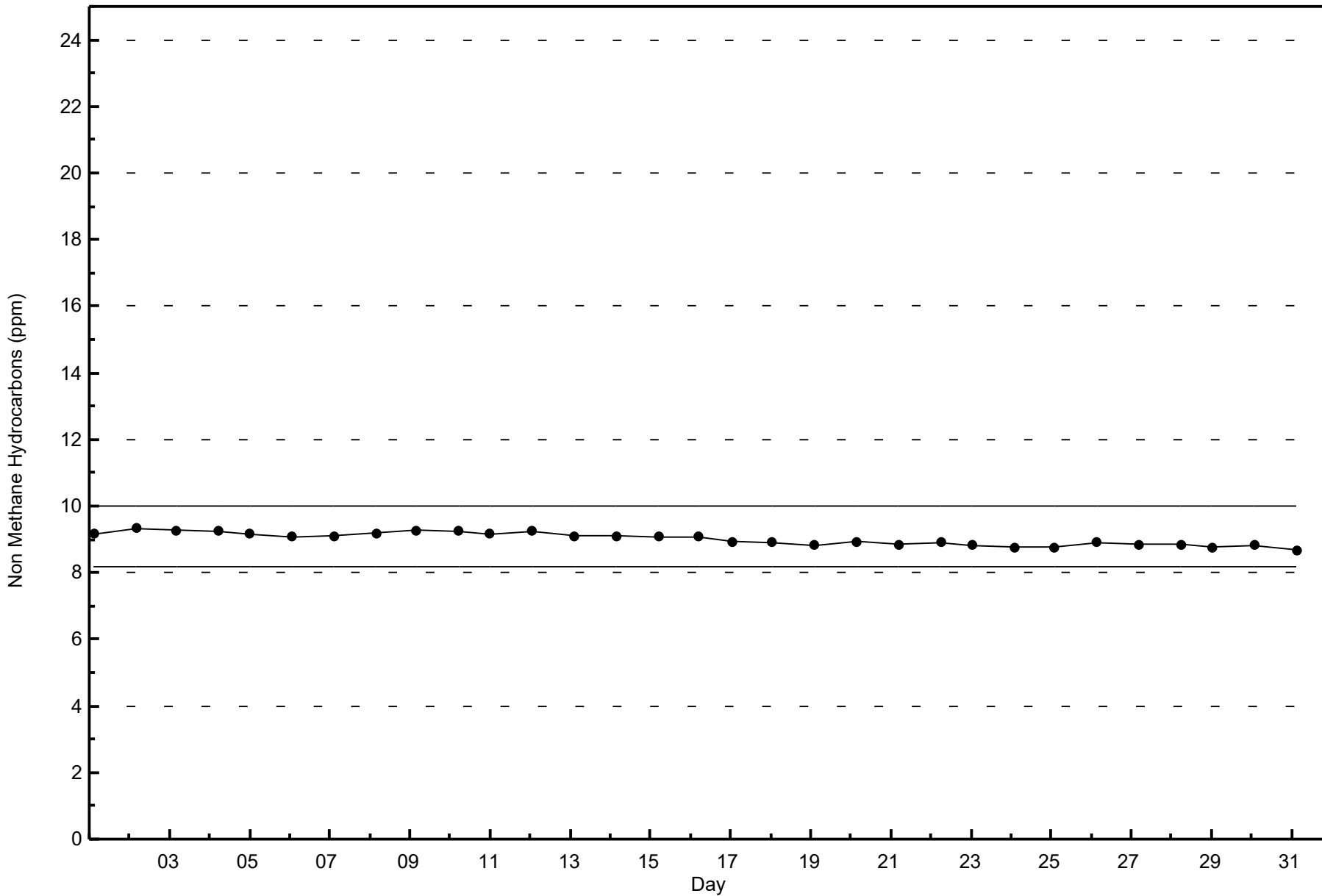


Wood Buffalo Environmental Association  
Wind Rose May 2024

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 - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.1 ppm on May 10 05:00	Maximum Daily Average: 2.2 ppm on May 10		Hours of Data:	709
Minimum Value: 2.0 ppm on May 31 12:00	Minimum Daily Average: 2.0 ppm on May 31		Hours of Missing Data:	35
Maximum Diurnal Average: 2.2 ppm at hour 5	Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Calibration:	34
Monthly Average: 2.09 ppm	Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.1 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.6		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-May	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.1	2.3
2-May	2.2	2.2	2.2	Z	2.1	2.2	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.4
3-May	2.2	2.2	2.2	2.2	Z	2.2	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	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.4
4-May	2.2	2.2	2.3	2.3	2.4	Z	2.4	2.6	2.7	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	2.7
5-May	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
6-May	2.1	Z	2.1	2.2	2.2	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.2	2.1	2.3	
7-May	2.1	2.2	Z	2.7	2.7	2.4	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.7
8-May	2.1	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	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2
9-May	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2
10-May	2.3	2.6	2.8	2.9	3.1	Z	2.3	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	3.1	
11-May	Z	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-May	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2
13-May	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.2	2.2
14-May	2.2	2.2	2.2	Z	2.3	2.3	2.5	2.3	2.2	2.2	2.0	2.1	2.0	2.0	2.1	2.0	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5
15-May	2.2	2.2	2.2	2.3	Z	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
16-May	2.1	2.1	2.1	2.3	2.3	Z	2.3	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3
17-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	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
18-May	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1
19-May	2.0	2.1	Z	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
20-May	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1
21-May	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
22-May	2.0	2.0	2.1	2.1	2.1	Z	2.3	2.1	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	2.0	2.3
23-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	2.0	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.3	2.3	2.1	2.3
25-May	2.4	2.4	Z	2.2	2.4	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4
26-May	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1
27-May	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
28-May	2.1	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
29-May	Z	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.2
30-May	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
31-May	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

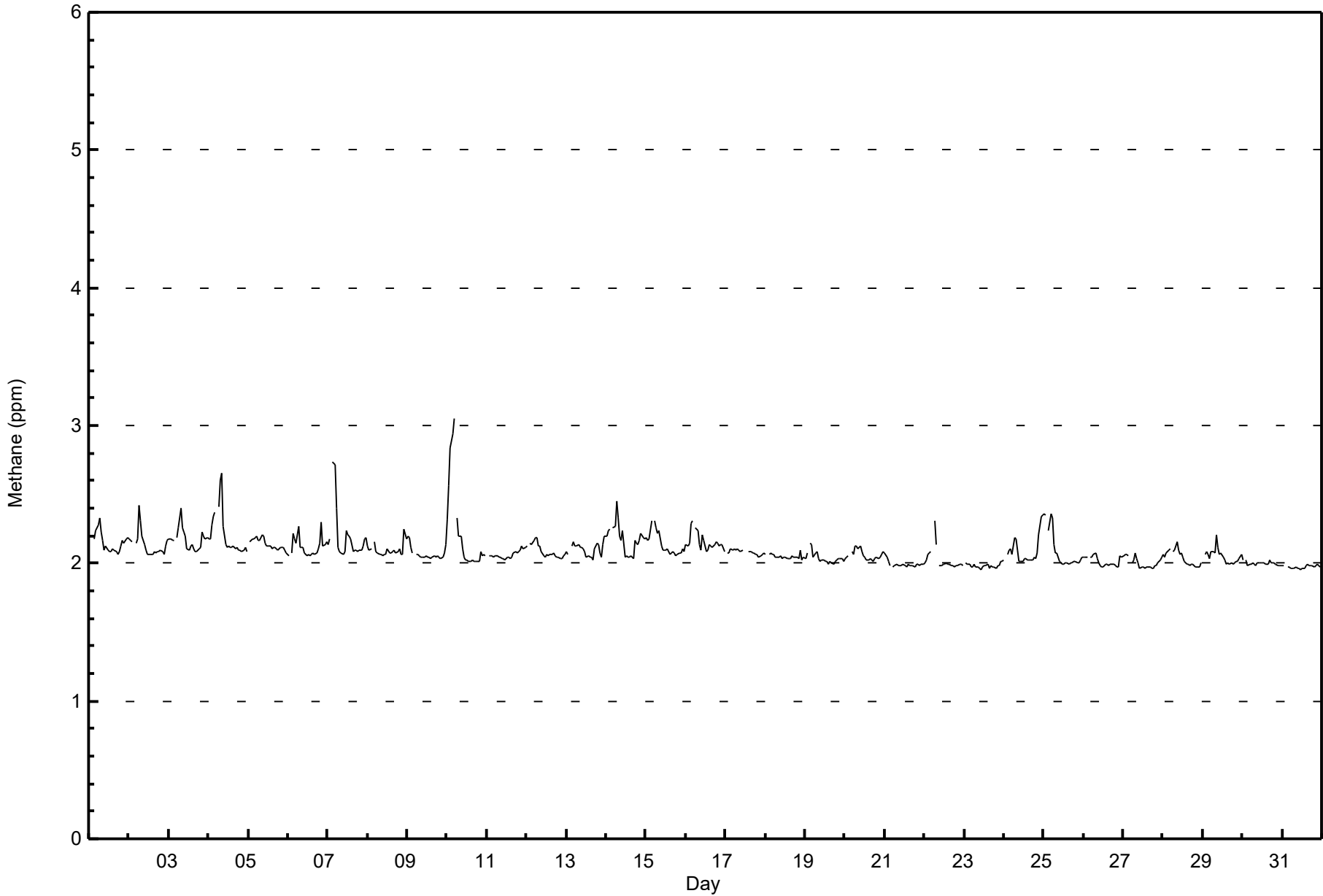
2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average
2.4	2.6	2.8	2.9	3.1	2.4	2.5	2.6	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.3	2.2	2.3	2.3	2.3	2.3	2.3	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance



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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - May 2024**







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

**Methane (CH<sub>4</sub>) - ppm**  
**Fort McKay South - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	293	41.33	41.33
2.1 - 3.0	415	58.53	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Fort McKay South - May 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	22	16	16	5	9	9	21	27	19	8	24	20	6	27	38	24	291
2.1 - 3.0	112	57	8	3	3	9	25	32	21	16	25	25	16	14	19	27	412
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	1	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>	134	73	24	8	12	18	46	59	40	24	50	45	22	41	57	51	704

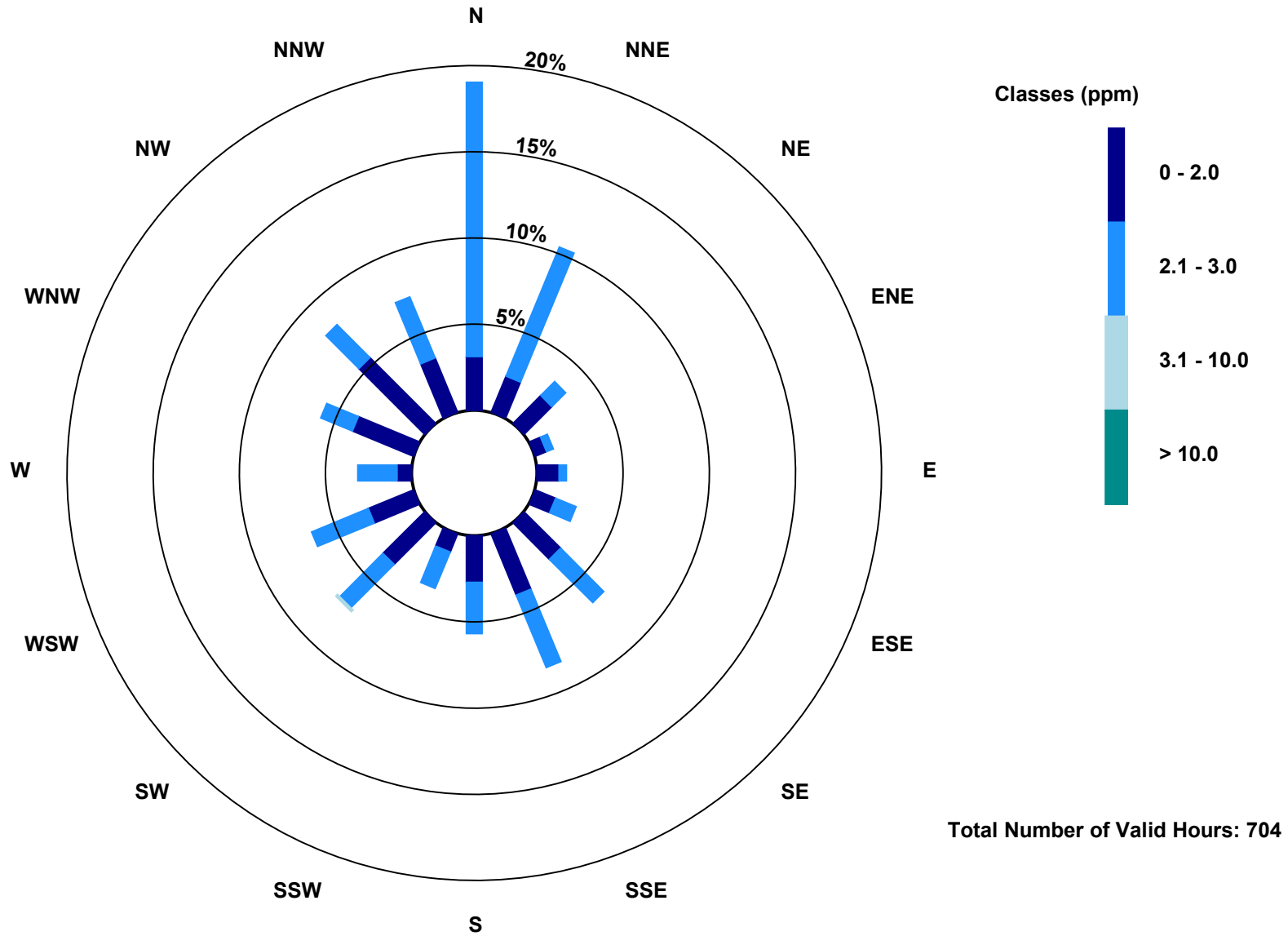
Total Number of Valid Hours: 704

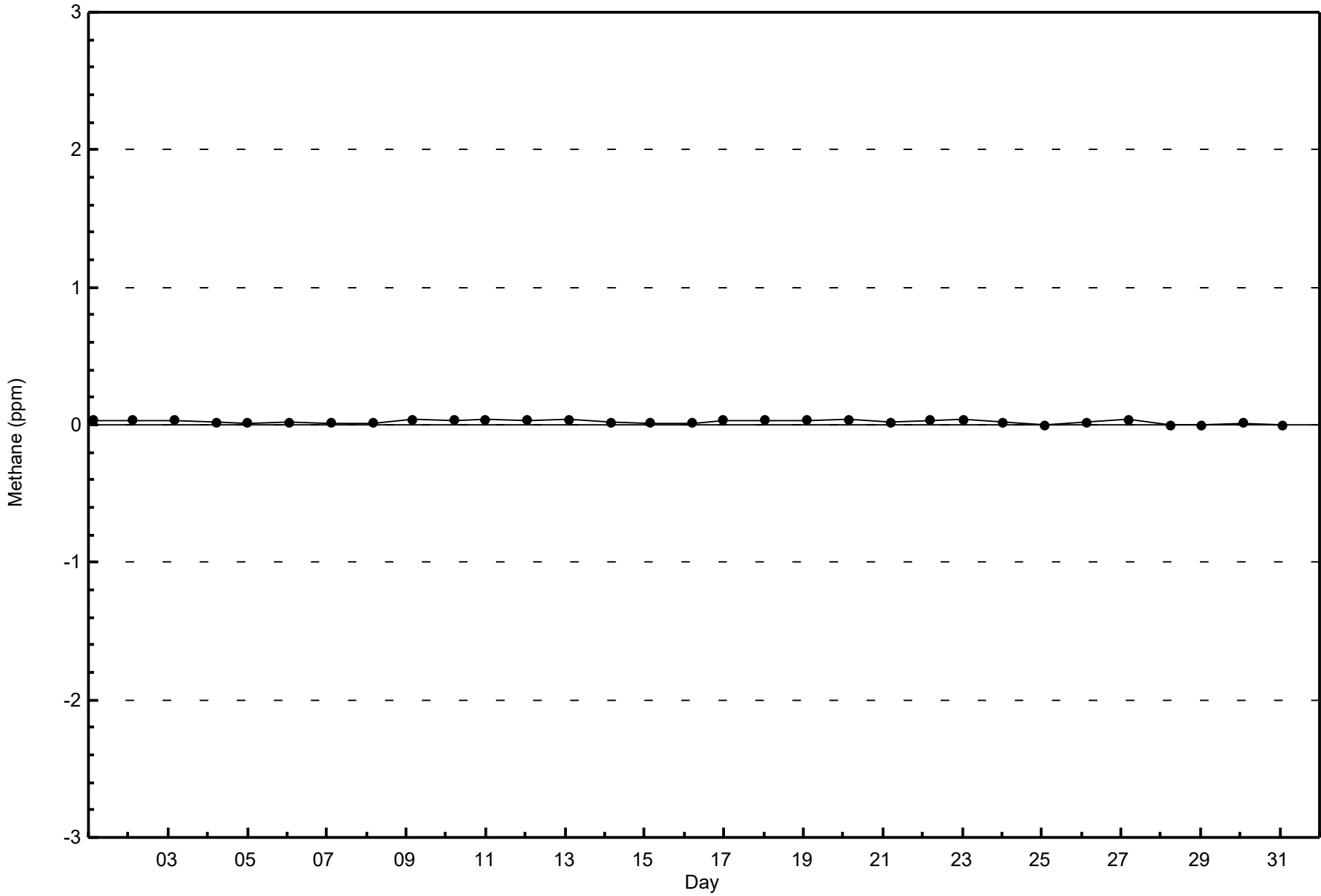
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

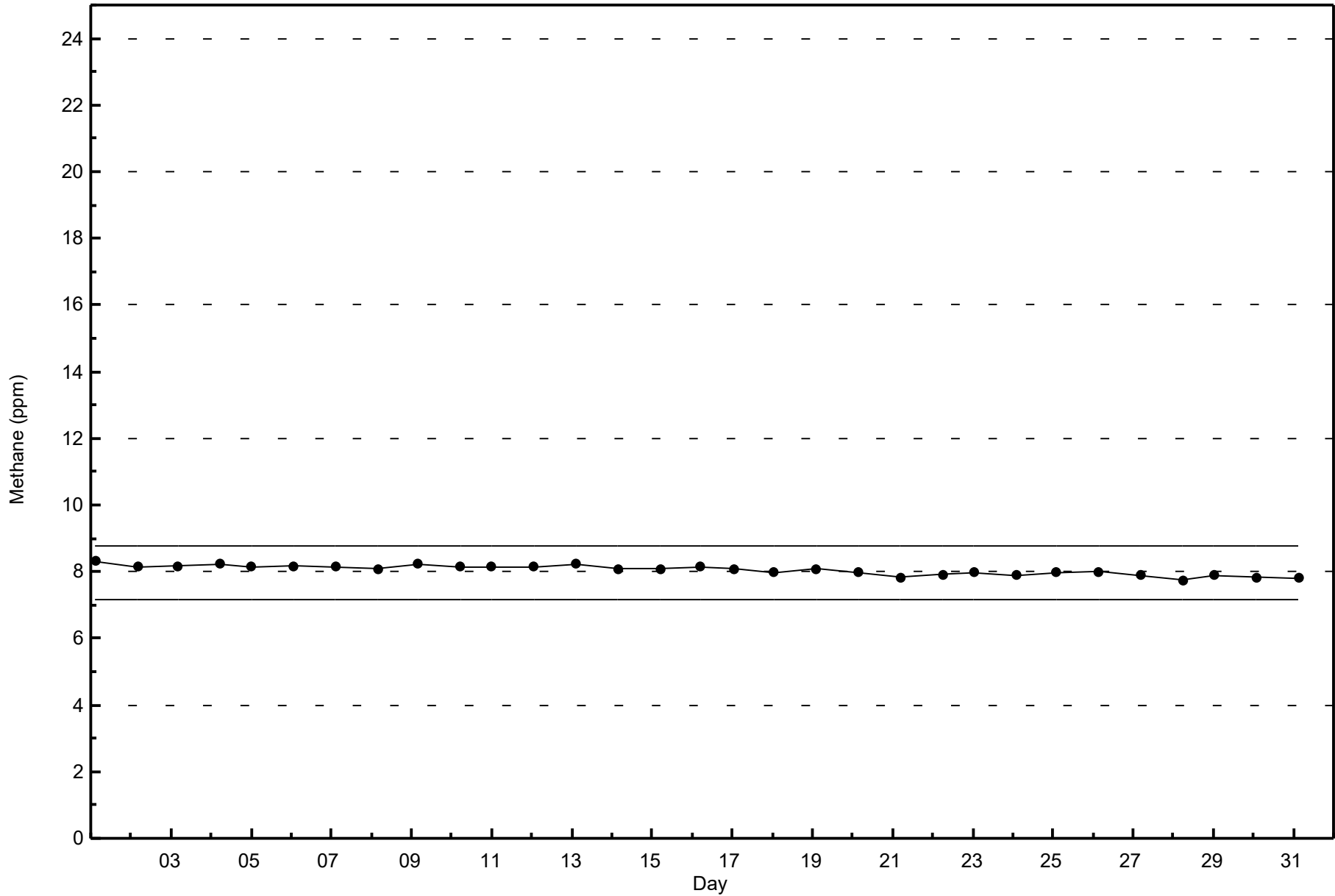






Wood Buffalo Environmental Association  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Fort McKay South - May 2024





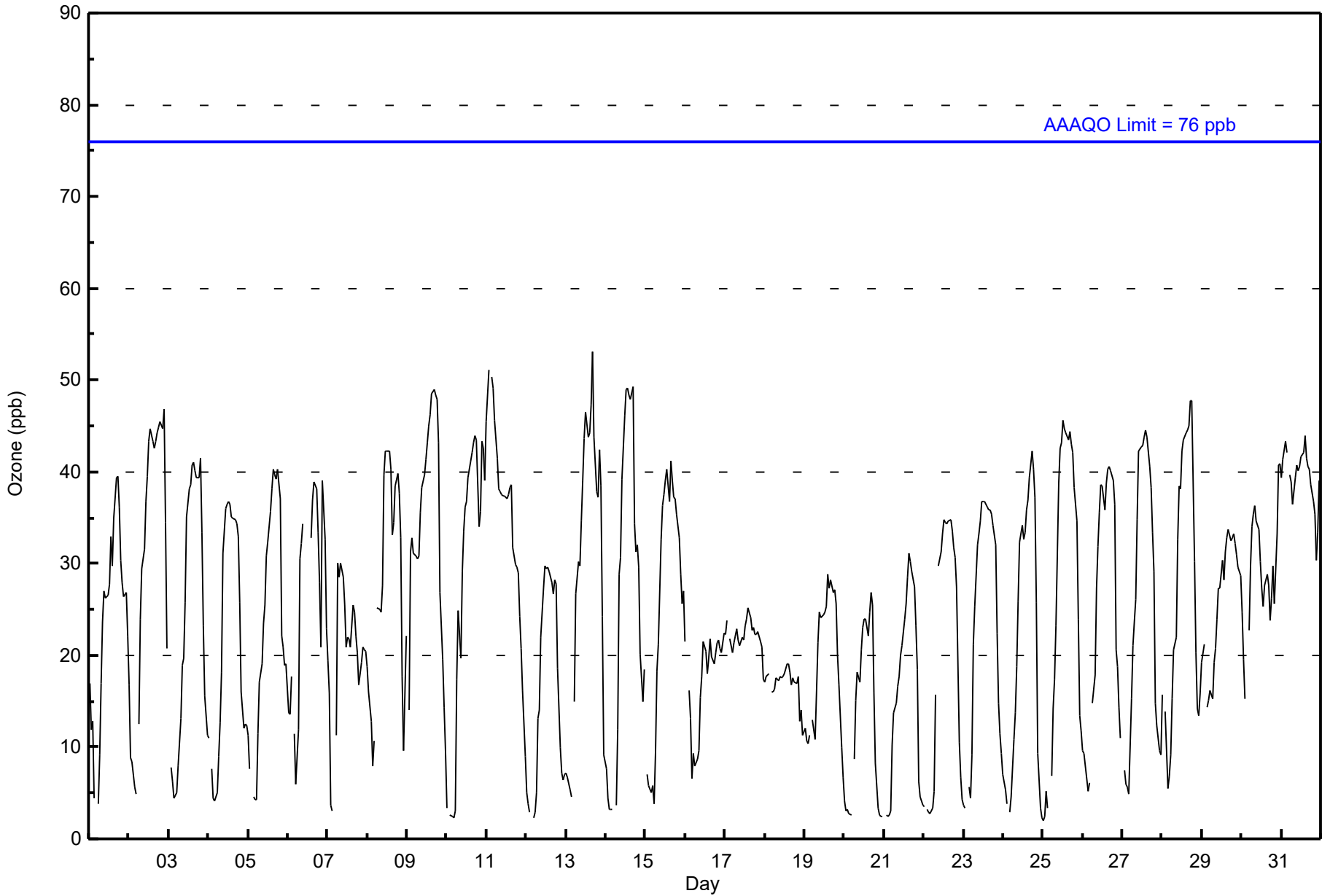
# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Fort McKay South - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 708						
Maximum Value: 53.0 ppb on May 13 17:00		Maximum Daily Average: 39.4 ppb on May 31		Hours of Missing Data: 36																	Hours of Calibration: 35						
Minimum Value: 2.0 ppb on May 25 01:00		Minimum Daily Average: 13.0 ppb on May 20		Hours of Operational Time: 99.9																							
Maximum Diurnal Average: 36.0 ppb at hour 17		Minimum Diurnal Average: 9.9 ppb at hour 5																									
Monthly Average: 24.79 ppb		Percentiles: P <sub>1</sub> = 2.4 P <sub>10</sub> = 5.4 Q <sub>1</sub> = 14.7 Median = 24.8 Q <sub>3</sub> = 36.0 P <sub>90</sub> = 42.1 P <sub>99</sub> = 48.9																									
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-May	16.9	11.9	12.9	4.4	Z	3.8	9.2	17.0	23.7	27.0	26.2	26.5	27.8	32.9	29.7	35.0	39.4	39.6	36.1	30.4	27.8	26.4	26.8	22.2	24.1	39.6	
2-May	16.8	8.9	8.4	5.6	4.9	Z	12.5	24.0	29.4	31.5	36.8	39.6	43.3	44.7	43.3	42.5	43.3	44.3	44.8	45.5	44.7	46.8	34.5	20.7	31.2	46.8	
3-May	Z	7.7	6.2	4.4	4.7	5.1	7.9	13.0	19.0	19.7	25.8	35.1	38.2	38.6	40.7	41.1	40.1	39.3	39.4	41.5	33.5	23.2	15.6	11.2	24.0	41.5	
4-May	10.9	Z	7.6	4.4	4.1	5.0	8.9	12.7	18.1	31.1	36.0	36.5	36.8	36.5	35.1	34.9	34.8	34.4	33.0	25.8	16.0	12.1	12.5	12.4	21.7	36.8	
5-May	11.3	7.6	Z	4.6	4.3	4.2	11.4	17.1	19.0	23.5	25.4	30.8	32.4	35.7	38.1	40.3	39.7	39.2	40.3	37.1	22.1	20.9	18.9	19.1	23.6	40.3	
6-May	13.7	13.6	17.7	Z	11.4	6.0	11.8	30.5	32.1	34.4	C	C	C	C	32.7	36.9	38.9	38.1	33.5	27.9	20.9	39.0	32.6	22.9	26.0	39.0	
7-May	19.4	15.8	3.7	3.1	Z	11.4	30.0	28.6	30.0	28.6	25.5	21.0	22.0	21.9	20.9	25.4	24.8	22.2	20.3	16.8	19.2	21.0	20.5	20.4	20.5	30.0	
8-May	18.7	16.0	12.8	7.9	10.6	Z	25.2	25.0	24.8	27.6	39.7	42.3	42.2	42.2	40.3	33.1	34.5	38.4	39.8	37.6	32.9	17.7	9.7	22.2	27.9	42.3	
9-May	Z	14.1	31.3	32.7	31.1	30.7	30.5	30.8	35.6	38.3	39.6	41.3	43.2	45.0	46.2	48.5	48.9	48.3	47.9	43.2	26.9	19.5	14.4	9.5	34.7	48.9	
10-May	3.3	Z	2.5	2.4	2.3	3.0	17.4	24.8	19.6	29.1	33.6	36.2	36.7	39.3	41.2	42.1	43.1	44.0	43.4	34.0	35.7	43.3	42.6	39.1	28.6	44.0	
11-May	45.5	51.1	Z	50.3	49.2	45.7	41.5	38.2	37.8	37.6	37.4	37.4	37.1	37.5	38.2	38.5	31.7	29.8	29.6	29.0	24.2	20.8	16.2	9.1	35.4	51.1	
12-May	5.0	3.9	2.8	Z	2.3	2.9	5.0	13.1	14.1	22.0	27.3	29.7	29.5	29.5	29.1	27.9	26.7	28.2	27.8	18.7	9.9	7.1	6.5	7.0	16.3	29.7	
13-May	7.2	6.7	5.3	4.6	Z	15.0	26.8	30.3	29.7	34.6	39.1	43.6	46.5	43.8	44.3	47.2	53.0	43.8	37.8	37.2	42.3	38.4	24.3	9.1	30.9	53.0	
14-May	7.6	4.4	3.2	3.2	3.1	Z	3.7	11.9	28.8	30.7	39.1	46.1	49.0	49.2	48.3	48.0	49.2	34.3	31.3	32.0	29.5	20.1	14.9	18.4	26.4	49.2	
15-May	Z	7.0	5.8	5.1	5.8	3.8	9.5	18.3	21.3	32.6	36.3	37.6	39.0	40.3	36.8	41.3	39.1	37.3	37.1	35.4	32.8	28.8	25.6	27.1	26.2	41.3	
16-May	21.4	Z	16.2	13.2	6.6	9.3	7.9	8.7	9.6	15.5	17.7	21.5	20.4	18.0	19.6	21.7	19.9	19.0	20.3	21.4	21.6	20.8	20.2	22.4	17.1	22.4	
17-May	22.3	23.9	Z	21.8	20.3	21.4	22.1	22.8	21.7	21.1	22.0	21.6	23.1	24.0	25.1	24.0	22.7	23.1	22.3	22.3	22.6	21.5	20.9	17.4	22.2	25.1	
18-May	17.2	17.7	18.0	Z	16.0	16.0	16.4	17.5	17.3	17.7	17.6	17.7	18.0	19.0	19.1	18.1	16.8	17.6	17.1	16.9	17.7	12.7	14.1	11.3	16.8	19.1	
19-May	12.0	10.6	10.4	11.2	Z	12.9	10.8	16.0	21.4	24.7	24.1	24.3	24.7	25.3	28.8	27.3	28.1	26.9	27.2	25.6	20.0	16.7	9.9	6.7	19.4	28.8	
20-May	4.1	3.0	3.2	2.7	2.7	Z	8.7	15.1	18.2	17.1	20.6	23.0	24.0	23.9	22.1	24.7	26.8	25.4	15.8	8.2	3.3	2.6	2.4	2.5	13.0	26.8	
21-May	Z	2.6	2.4	2.6	3.1	10.3	13.8	14.8	16.6	17.8	20.0	21.0	24.0	25.7	28.6	31.1	30.2	29.1	27.4	23.2	18.4	6.3	4.6	3.7	16.4	31.1	
22-May	3.5	Z	3.2	2.9	2.8	3.4	5.2	15.7	M	29.7	31.3	33.2	34.7	34.4	34.3	34.6	34.7	33.6	31.8	30.7	27.4	10.5	6.7	4.3	20.4	34.7	
23-May	3.7	3.3	Z	5.6	4.5	9.2	21.3	25.4	32.1	33.3	34.7	36.8	36.8	36.7	36.1	35.8	35.8	35.5	34.2	32.0	22.4	14.8	11.5	9.4	23.9	36.8	
24-May	7.0	5.4	3.8	Z	2.9	4.6	10.8	13.7	18.8	26.0	32.4	34.2	32.6	33.4	35.9	36.9	39.3	42.3	40.2	37.3	25.8	9.3	3.4	2.3	21.7	42.3	
25-May	2.0	2.4	5.1	3.4	Z	6.8	14.1	17.4	23.2	38.8	42.6	43.2	45.6	44.7	44.3	43.4	44.4	43.1	42.1	38.3	34.6	24.0	13.4	11.8	27.3	45.6	
26-May	9.7	9.3	6.6	5.2	6.1	Z	14.8	17.9	27.3	32.0	35.6	38.6	38.4	35.9	38.7	40.3	40.6	40.2	39.1	36.5	20.6	18.7	14.3	10.9	25.1	40.6	
27-May	Z	7.5	6.0	5.7	4.8	15.2	21.1	23.6	26.1	34.7	42.2	42.7	42.9	43.7	44.5	43.7	40.6	38.4	33.4	29.2	14.7	12.3	9.6	9.2	25.7	44.5	
28-May	15.8	Z	13.9	5.5	6.8	9.2	15.3	20.6	21.9	32.6	38.4	38.2	42.3	43.5	44.2	44.5	45.0	47.7	47.7	30.3	20.3	14.1	13.4	15.9	27.3	47.7	
29-May	19.1	21.3	Z	14.4	15.0	16.1	15.3	19.3	20.7	24.0	27.3	27.3	30.3	28.2	31.2	32.8	33.8	32.4	32.8	33.2	32.1	30.9	29.7	28.7	25.9	33.8	
30-May	24.7	19.6	15.3	Z	22.8	29.8	34.1	35.3	36.3	34.7	33.7	30.2	27.3	25.4	27.7	28.8	27.6	23.8	26.3	29.7	25.6	33.3	40.7	40.9	29.3	40.9	
31-May	39.3	41.3	43.3	42.1	Z	39.6	38.8	36.4	39.4	40.7	40.1	40.6	41.7	42.1	43.9	41.5	40.6	40.3	38.5	36.7	35.4	30.3	33.4	39.0	39.4	43.9	
		14.5	12.9	10.3	10.3	9.9	13.1	16.8	21.1	24.4	28.7	31.6	33.3	34.4	34.7	35.1	35.9	36.0	34.8	33.5	30.4	25.2	21.4	18.2	16.3	Diurnal Average	
		45.5	51.1	43.3	50.3	49.2	45.7	41.5	38.2	39.4	40.7	42.6	46.1	49.0	49.2	48.3	48.5	53.0	48.3	47.9	45.5	44.7	46.8	42.6	40.9	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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	273	38.56	38.56
21 - 50	433	61.16	99.72
51 - 82	2	0.28	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 - May 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	64	15	3	0	6	6	10	10	22	9	25	29	13	13	22	18	265
21 - 50	68	60	21	8	6	13	32	48	23	15	24	17	4	27	32	35	433
51 - 82	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	132	75	24	8	12	19	42	58	45	24	49	46	18	40	55	53	700

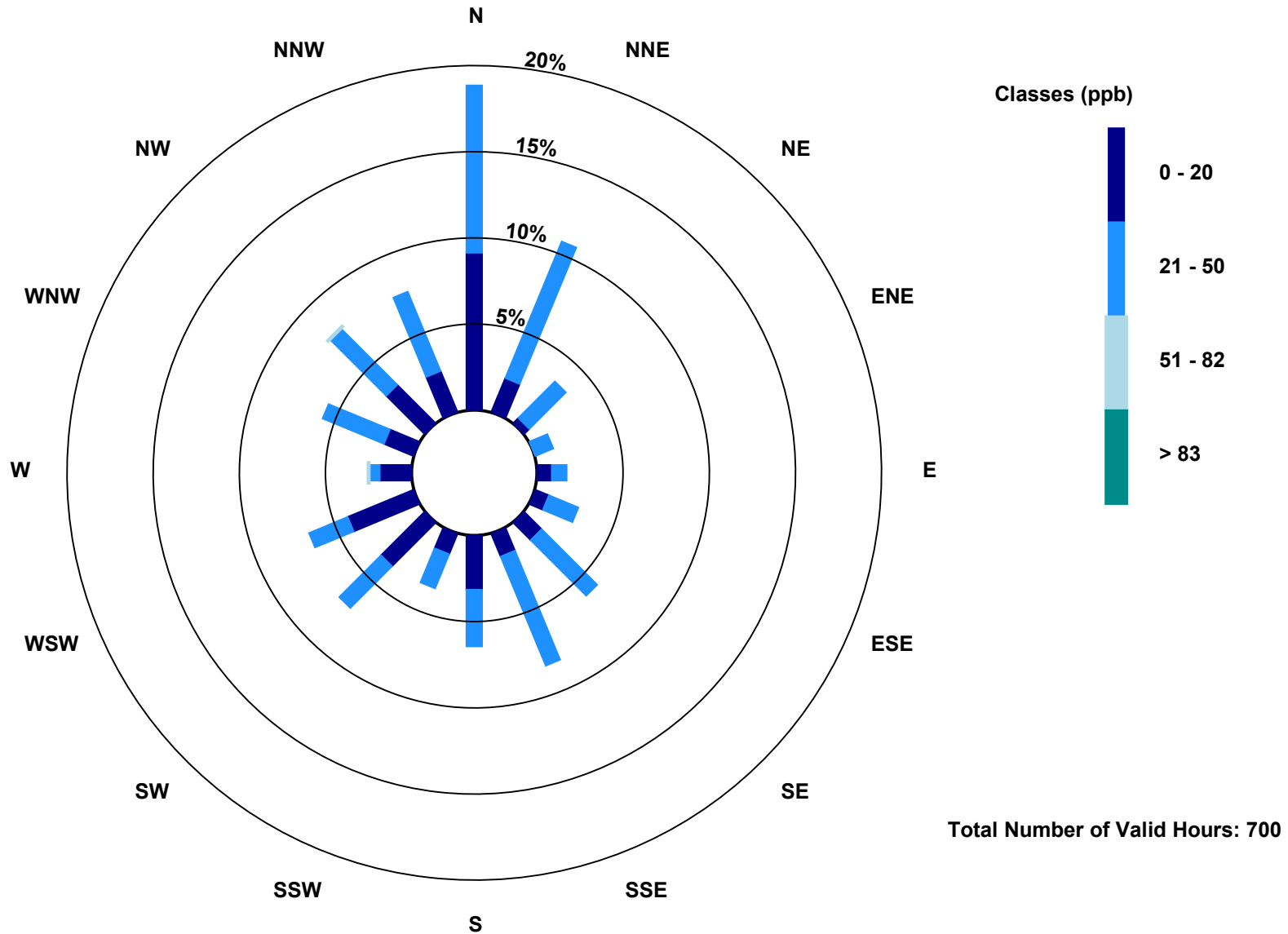
Total Number of Valid Hours: 700

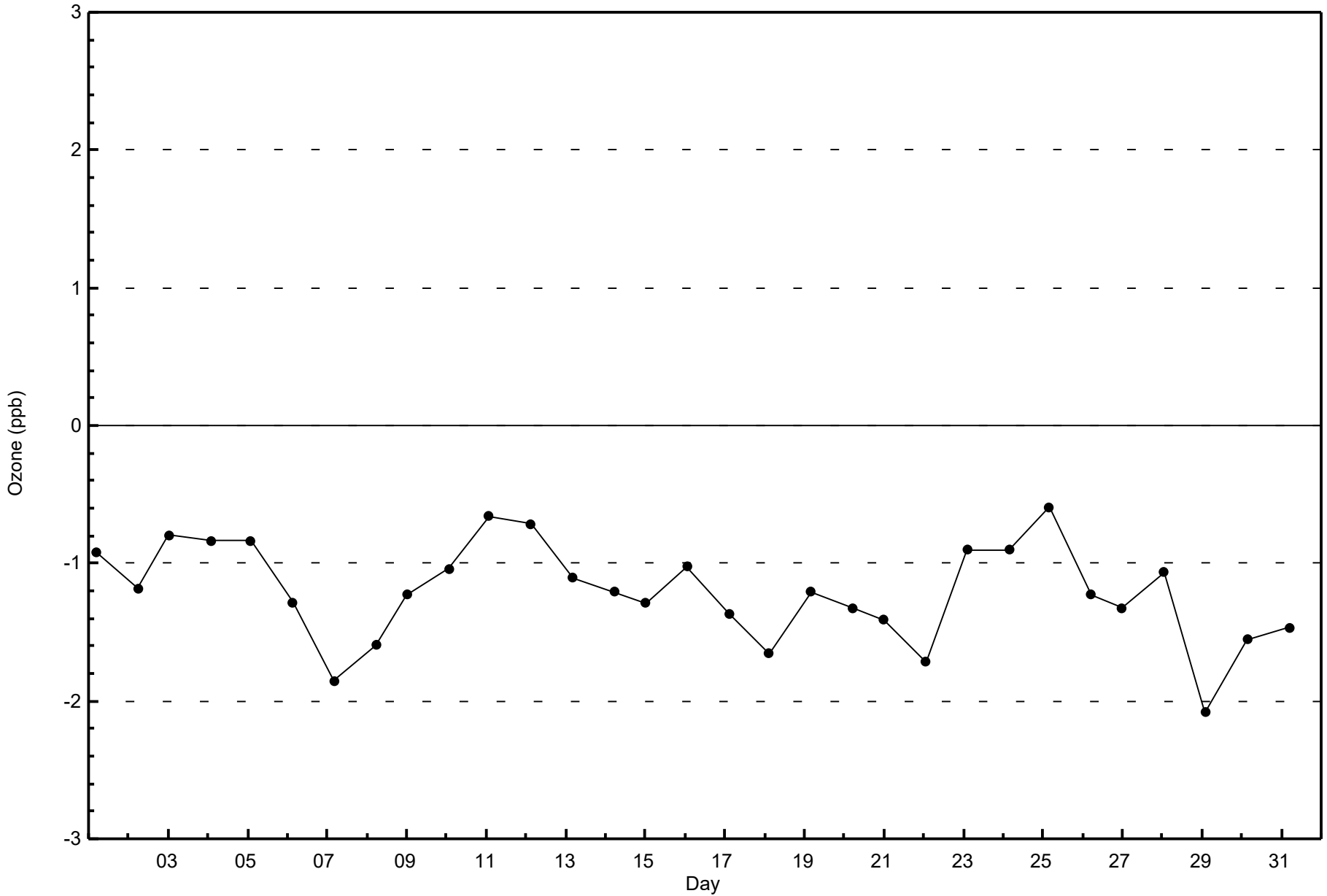
Total Number of Hours: 744

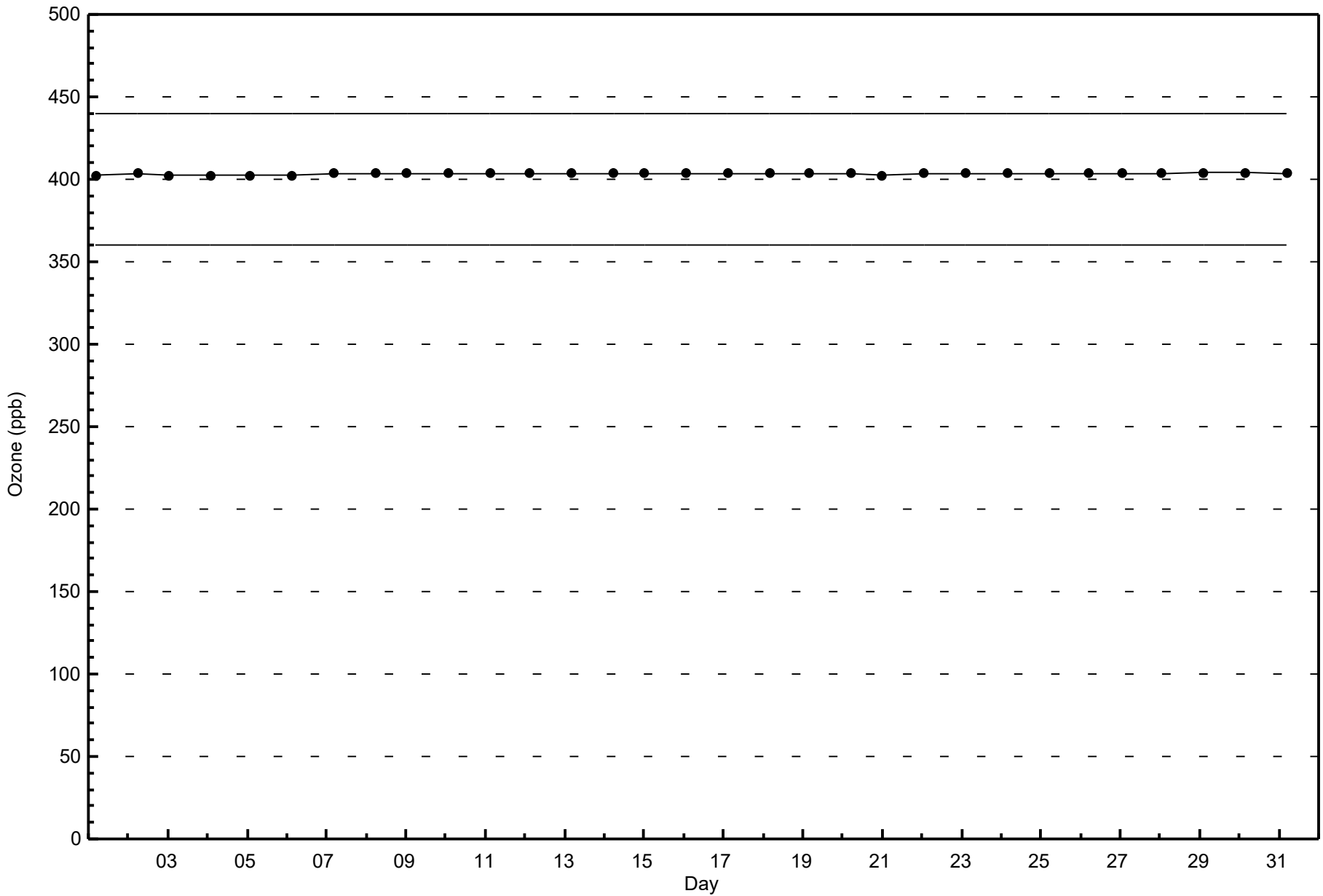


Wood Buffalo Environmental Association  
Wind Rose May 2024

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







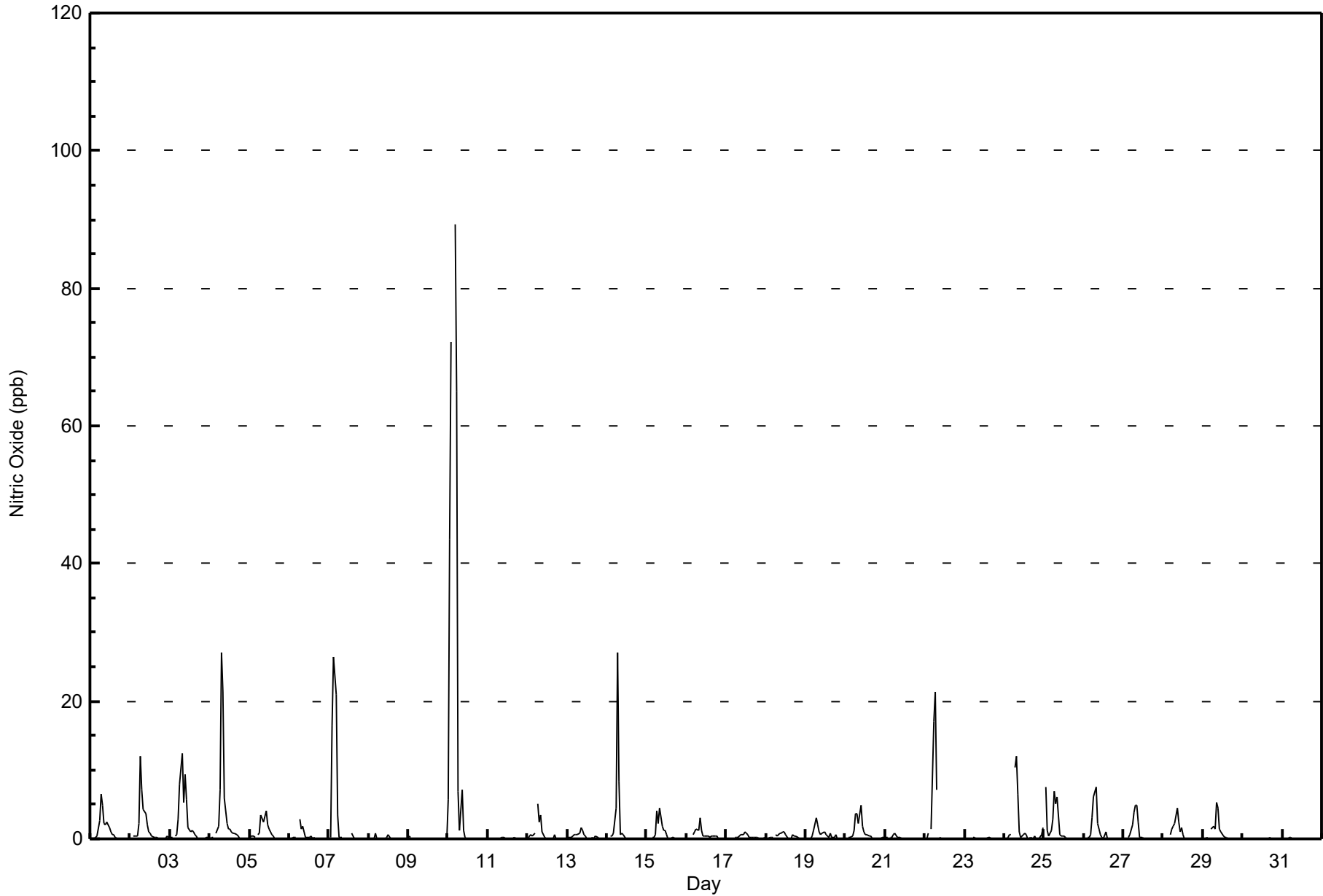


Maximum Value: 89.2 ppb on May 10 05:00																				Maximum Daily Average: 12.7 ppb on May 10					Hours in Service: 744	
Minimum Value: 0.0 ppb on May 1 17:00																				Minimum Daily Average: 0.0 ppb on May 31					Hours of Data: 707	
Maximum Diurnal Average: 4.7 ppb at hour 5																				Minimum Diurnal Average: 0.0 ppb at hour 22					Hours of Missing Data: 37	
Monthly Average: 1.31 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> = 0.6 P <sub>90</sub> = 2.2 P <sub>99</sub> = 21.3					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-May	Z	0.0	0.0	0.2	0.4	2.7	6.6	5.0	2.2	2.0	2.5	1.7	1.1	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	6.6
2-May	0.0	Z	0.3	0.4	0.5	2.2	12.0	7.2	4.2	3.6	2.1	1.1	0.7	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.6	12.0
3-May	0.2	0.1	Z	0.3	0.6	2.8	8.0	12.3	5.2	9.4	5.8	1.6	0.9	1.3	0.9	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.2	2.2	12.3
4-May	0.0	0.1	0.1	Z	0.7	1.9	7.2	27.1	21.3	6.0	2.2	1.5	1.3	1.1	0.9	0.7	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.2	27.1
5-May	0.1	0.4	0.5	0.3	Z	0.6	0.8	3.5	2.5	3.3	4.1	1.9	1.5	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.1
6-May	0.0	0.0	0.1	0.1	0.1	Z	2.8	1.5	1.9	1.0	0.1	0.2	0.2	0.4	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	2.8
7-May	Z	0.2	16.4	26.5	21.0	3.4	0.1	0.1	0.1	C	C	C	C	C	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	26.5
8-May	0.0	Z	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
9-May	0.4	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	0.4
10-May	5.7	43.4	72.3	Z	89.2	65.1	7.0	1.3	7.1	1.3	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	12.7	89.2
11-May	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.1	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	0.3
12-May	0.1	0.4	0.5	0.4	0.8	Z	5.1	2.5	3.4	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.7	5.1	
13-May	Z	0.2	0.2	0.3	0.6	0.6	0.6	0.8	1.7	1.2	0.7	0.3	0.0	0.0	0.0	0.1	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.3	1.7	
14-May	0.0	Z	0.3	0.4	0.8	4.4	27.0	8.3	0.7	0.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	27.0
15-May	0.0	0.1	Z	0.2	0.2	0.6	4.0	2.2	4.5	1.8	1.3	1.2	0.7	0.1	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.5
16-May	0.0	0.1	0.1	Z	0.7	1.1	1.4	1.2	3.1	1.3	0.5	0.4	0.4	0.5	0.3	0.4	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.6	3.1
17-May	0.0	0.1	0.1	0.1	Z	0.3	0.2	0.2	0.3	0.6	0.6	1.0	0.9	0.6	0.3	0.1	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.3	1.0
18-May	0.1	0.1	0.2	0.2	0.2	Z	0.5	0.5	0.8	0.9	1.0	1.0	0.6	0.1	0.0	0.0	0.6	0.4	0.4	0.2	0.0	0.0	0.0	0.1	0.3	1.0
19-May	Z	0.1	0.0	0.1	0.4	1.1	3.0	2.0	0.9	0.6	0.9	1.0	0.7	0.4	0.1	0.8	0.2	0.1	0.5	0.0	0.0	0.0	0.0	0.6	3.0	
20-May	0.0	Z	0.2	0.2	0.5	1.2	3.7	3.6	2.3	4.8	1.9	1.0	0.6	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.0	4.8
21-May	0.2	0.2	Z	0.2	0.2	0.5	0.8	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
22-May	0.0	0.1	0.9	Z	1.5	17.1	21.3	7.0	M	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	2.2	21.3
23-May	0.0	0.1	0.1	0.0	Z	0.3	0.2	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	0.3
24-May	0.0	0.0	0.2	0.5	0.6	Z	10.4	12.1	6.5	1.0	0.2	0.5	0.7	0.5	0.1	0.0	0.2	0.0	0.4	0.0	0.0	0.0	0.5	1.5	1.6	12.1
25-May	Z	7.6	1.3	0.5	1.2	2.9	6.9	5.1	6.1	0.6	0.3	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	7.6
26-May	0.0	Z	0.2	0.2	0.6	3.1	6.1	7.6	2.2	1.5	0.6	0.3	0.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	7.6
27-May	0.0	0.1	Z	0.2	0.5	1.9	3.8	4.8	4.9	2.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.9
28-May	0.0	0.0	0.0	Z	0.6	1.4	1.8	2.3	4.5	2.4	0.9	1.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	4.5
29-May	0.0	0.1	0.1	0.1	Z	1.4	1.8	1.3	5.4	4.5	1.4	0.9	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.4
30-May	0.0	0.0	0.1	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	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
31-May	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	0.0	0.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - May 2024**





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

**Nitric Oxide (NO) - ppb**  
**Fort McKay South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	697	98.59	98.59
21 - 40	6	0.85	99.43
41 - 80	3	0.42	99.86
81 - 159	1	0.14	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707  
Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort McKay South - May 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	129	73	23	8	12	19	46	59	41	23	45	43	22	39	57	50	689
21 - 40	3	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6
11 - 80	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	1	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>	132	75	23	8	12	19	46	59	43	24	47	43	22	39	57	50	699

Total Number of Valid Hours: 699

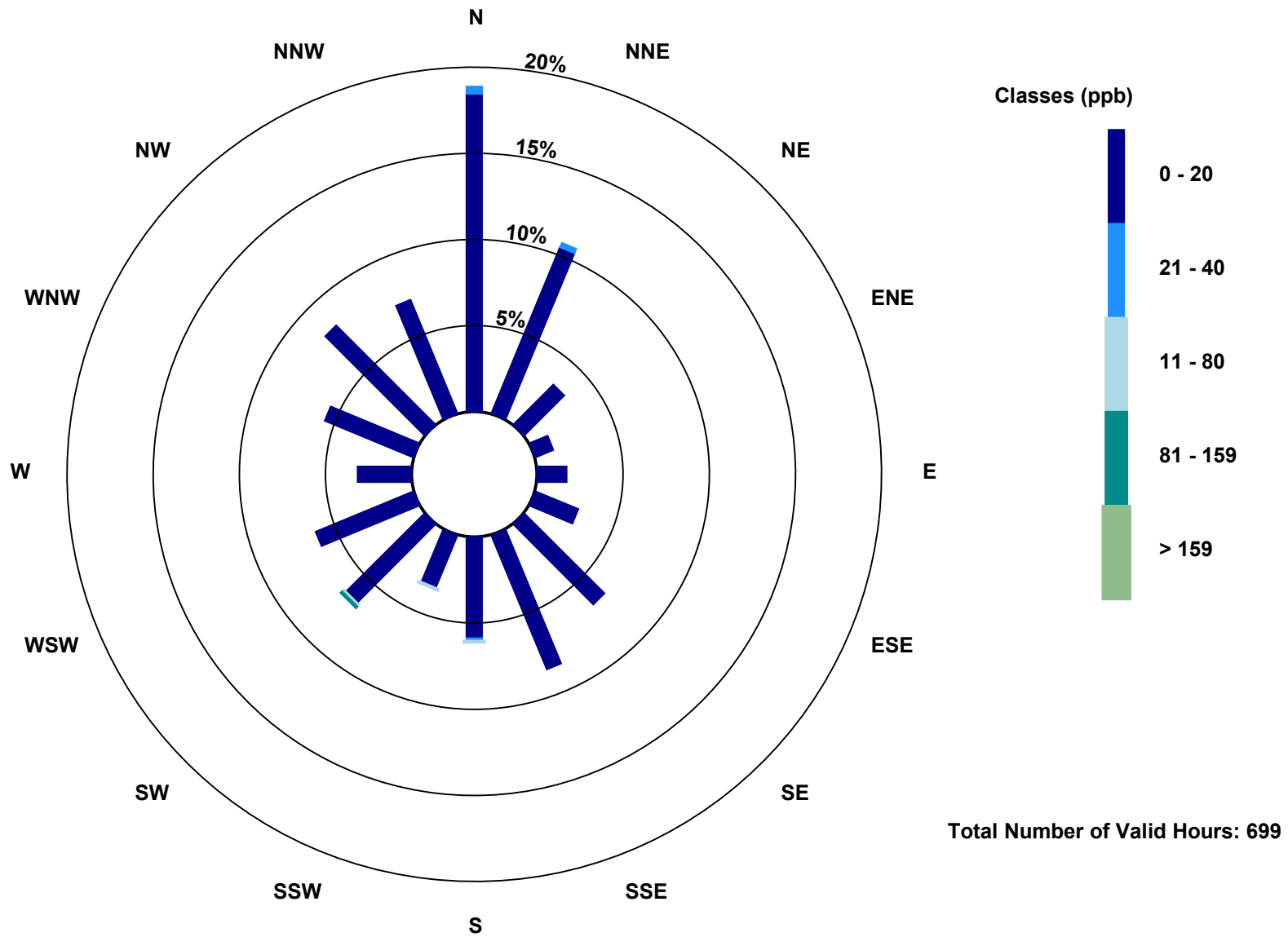
Total Number of Hours: 744

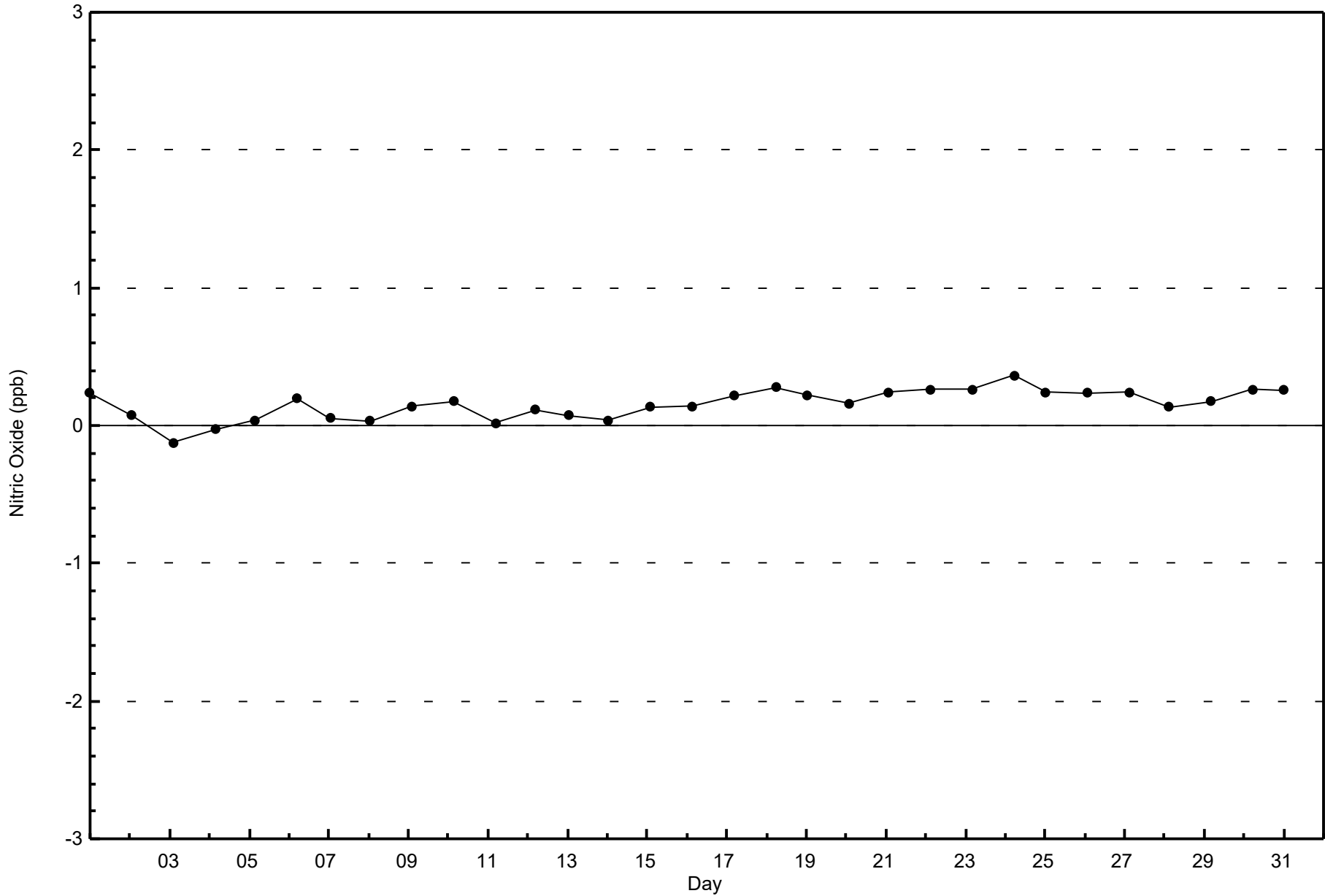


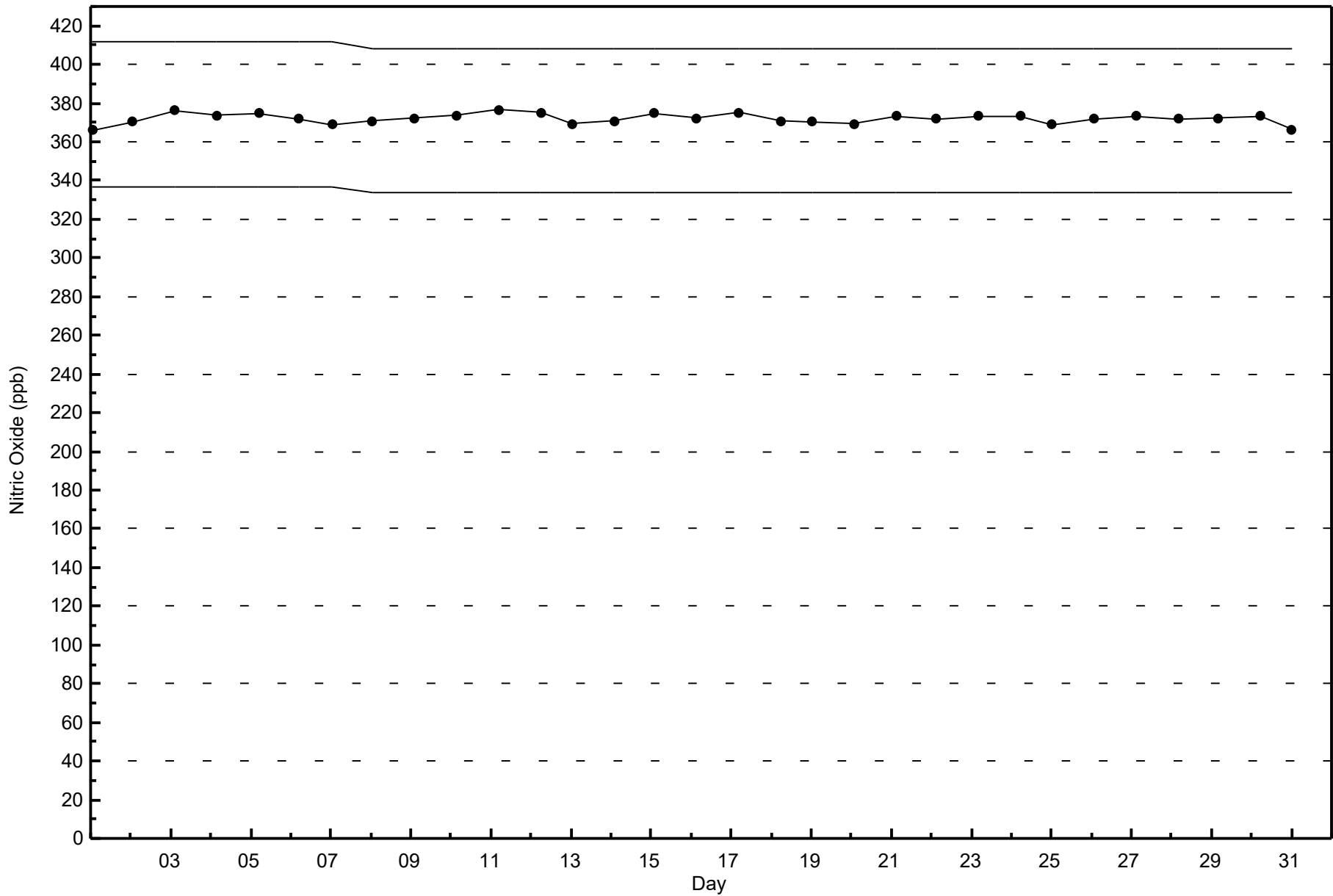


Wood Buffalo Environmental Association  
Wind Rose May 2024

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 - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 24.2 ppb on May 4 09:00	Maximum Daily Average: 9.6 ppb on May 3		Hours of Data:	707
Minimum Value: 0.0 ppb on May 9 11:00	Minimum Daily Average: 0.3 ppb on May 21		Hours of Missing Data:	37
Maximum Diurnal Average: 7.5 ppb at hour 7	Minimum Diurnal Average: 1.6 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 3.91 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.9 Median = 2.5 Q <sub>3</sub> = 5.2 P <sub>90</sub> = 9.6 P <sub>99</sub> = 19.8		Percent Operational Time:	99.9

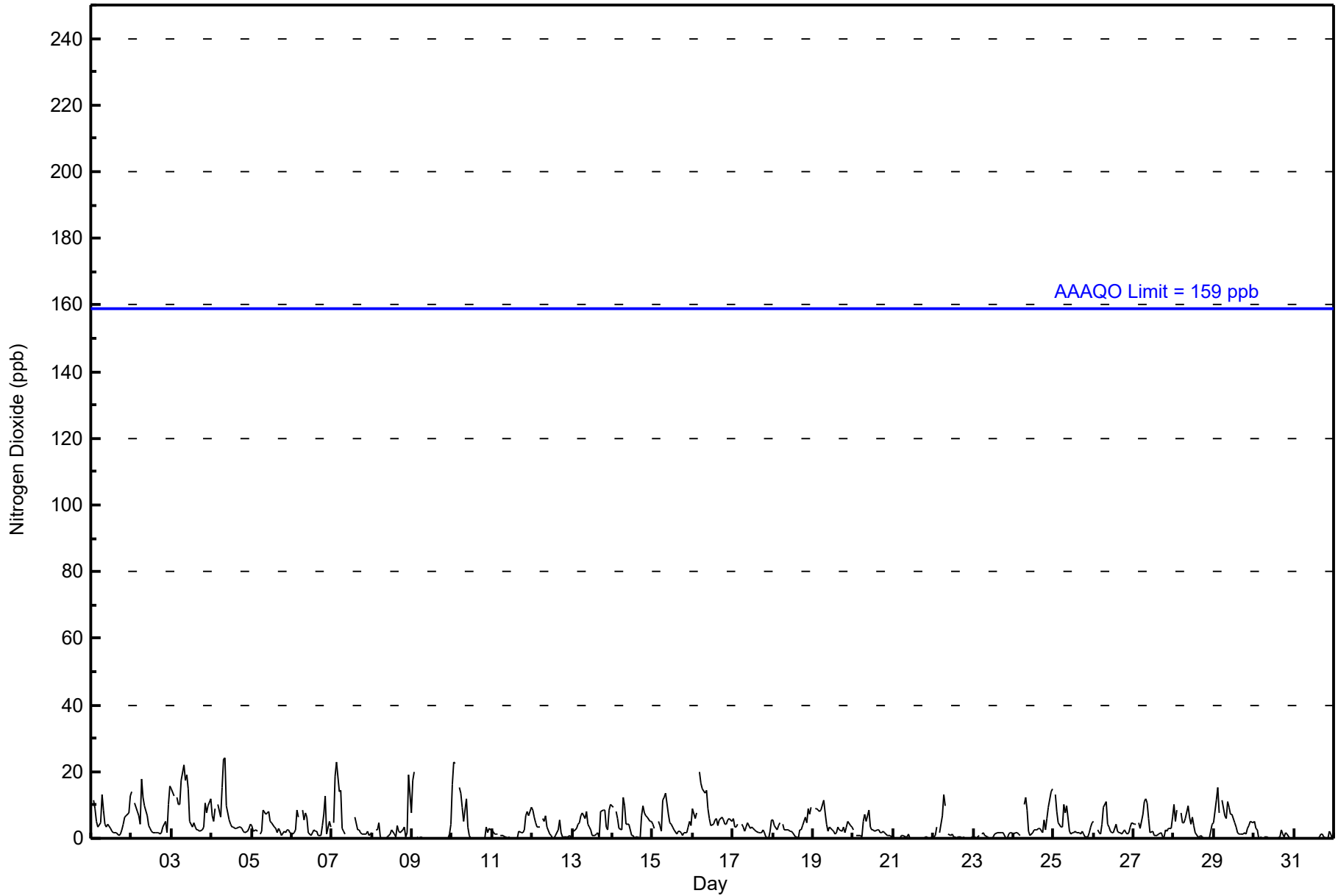
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	Z	11.4	8.8	5.0	3.4	4.8	13.2	8.4	4.4	3.6	4.2	2.8	2.3	1.9	1.8	1.6	0.9	1.2	2.4	4.1	6.2	6.8	7.7	12.7	5.2	13.2																							
2-May	14.0	Z	10.4	8.0	6.8	4.4	17.8	12.1	9.7	6.9	4.0	3.1	2.1	1.6	1.5	1.8	1.7	1.3	1.5	3.2	5.0	1.6	10.0	15.8	6.3	17.8																							
3-May	14.8	12.7	Z	12.1	10.2	10.1	17.4	21.9	17.4	19.2	15.0	5.2	3.3	4.5	3.6	2.7	2.5	2.0	2.5	3.6	10.6	7.8	9.7	11.7	9.6	21.9																							
4-May	6.8	5.1	9.1	Z	10.0	6.4	15.2	23.9	24.2	9.8	5.7	4.4	3.6	3.3	2.9	2.9	3.5	3.5	3.1	2.3	1.9	2.1	2.9	4.2	6.8	24.2																							
5-May	3.8	2.2	2.7	2.1	Z	1.1	2.2	8.6	7.2	7.6	7.9	5.2	4.6	3.2	2.8	1.9	3.1	2.0	0.8	2.1	1.7	2.5	2.5	1.8	3.5	8.6																							
6-May	1.2	1.7	2.7	8.5	6.3	Z	8.5	5.7	7.6	6.2	1.7	0.8	1.5	2.5	2.0	2.2	0.7	0.7	3.8	7.4	12.6	1.4	4.9	3.2	4.1	12.6																							
7-May	Z	4.5	18.8	22.7	13.9	14.2	2.8	2.1	1.3	Z	Z	Z	Z	Z	6.5	2.5	2.7	1.7	1.2	1.4	1.1	2.1	0.9	1.4	5.7	22.7																							
8-May	1.5	Z	2.5	2.7	4.5	0.3	0.2	0.1	0.1	0.3	0.7	1.2	2.6	1.1	0.3	4.0	2.3	1.7	2.7	3.4	0.3	1.9	19.1	7.6	2.7	19.1																							
9-May	17.3	19.8	Z	0.5	0.2	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	4.4	1.9	19.8																							
10-May	16.1	23.0	22.5	Z	15.1	13.6	9.5	5.2	11.7	3.4	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	1.5	2.9	2.7	5.7	23.0																							
11-May	2.6	1.4	1.4	1.3	Z	0.9	0.8	0.5	0.4	0.2	0.3	0.2	0.2	0.1	0.1	0.1	2.0	1.6	1.5	2.4	6.7	7.9	6.9	9.3	2.1	9.3																							
12-May	8.3	6.4	4.5	3.5	3.3	Z	5.8	5.2	6.9	3.5	1.4	0.7	0.1	0.2	0.8	2.7	5.6	1.8	0.5	0.4	0.5	0.6	0.7	0.6	2.8	8.3																							
13-May	Z	2.0	2.8	4.4	4.7	6.7	7.6	5.9	8.0	4.3	3.5	2.4	0.8	1.0	1.4	1.6	0.2	8.0	8.5	8.6	3.4	2.6	8.4	10.2	4.7	10.2																							
14-May	9.2	Z	8.0	5.9	3.1	2.7	12.1	9.7	4.2	4.2	4.1	0.9	0.7	0.2	0.4	0.5	0.0	6.8	9.8	7.5	6.9	6.3	5.0	5.0	4.9	12.1																							
15-May	4.3	3.0	Z	5.0	3.7	2.0	11.3	12.1	13.7	7.2	4.8	4.3	3.2	2.7	1.2	2.1	2.2	1.9	0.9	1.8	1.6	3.2	5.2	3.9	4.4	13.7																							
16-May	8.8	6.1	7.7	Z	20.1	16.6	14.9	13.6	14.4	8.7	5.9	3.8	4.3	5.4	6.1	3.9	5.5	6.4	5.3	4.3	4.3	5.6	6.1	5.0	7.9	20.1																							
17-May	6.0	3.6	3.3	4.1	Z	4.3	3.6	2.3	3.4	4.6	3.1	3.6	3.1	2.6	2.0	1.6	1.9	1.6	2.5	1.5	0.3	0.2	2.0	5.3	2.9	6.0																							
18-May	5.4	4.0	2.7	3.7	4.8	Z	4.1	2.4	2.7	2.5	2.3	2.2	1.6	0.4	0.3	0.2	2.6	2.6	4.0	6.2	4.8	8.7	7.0	9.2	3.7	9.2																							
19-May	Z	8.9	8.9	8.4	8.1	8.5	11.3	7.5	4.3	2.3	3.3	2.7	2.2	1.4	1.6	3.4	2.4	2.2	3.3	1.7	3.6	5.0	4.0	3.5	4.7	11.3																							
20-May	2.4	Z	0.7	0.8	0.7	0.6	4.9	7.0	5.0	8.4	3.3	2.6	2.6	2.2	2.6	2.5	1.9	1.5	2.3	1.7	0.8	1.0	1.0	0.4	2.5	8.4																							
21-May	0.4	0.2	Z	0.2	0.1	0.9	0.9	0.3	0.4	1.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.2	0.3	0.3	1.1																							
22-May	0.6	0.9	3.2	Z	1.5	6.7	13.0	9.6	M	1.4	0.9	1.1	0.4	0.4	0.2	0.3	0.5	0.2	0.5	0.0	0.0	0.0	0.1	0.3	1.9	13.0																							
23-May	0.4	0.3	0.2	0.9	Z	1.4	1.8	0.8	0.3	0.0	0.1	0.0	0.3	1.2	1.8	1.9	1.8	1.5	1.5	0.0	0.0	1.1	1.7	1.7	0.9	1.9																							
24-May	1.3	1.5	1.6	1.4	0.8	Z	10.0	12.4	8.4	2.0	1.0	1.7	2.6	2.5	2.5	2.8	3.1	1.8	5.3	2.6	5.8	9.2	13.9	15.0	4.7	15.0																							
25-May	Z	13.0	7.9	4.5	3.2	3.5	10.2	7.5	9.6	2.0	1.3	1.8	1.8	2.0	1.5	1.6	1.4	2.3	1.2	0.5	0.4	1.8	3.2	4.7	3.8	13.0																							
26-May	4.9	Z	2.5	1.7	1.4	4.3	9.2	11.0	4.1	3.4	2.0	1.9	1.6	4.1	2.1	1.6	1.7	1.3	2.4	1.5	1.1	1.9	3.5	4.6	3.2	11.0																							
27-May	4.3	4.3	Z	4.8	3.0	7.0	10.9	11.8	10.6	6.1	1.7	2.0	0.8	0.8	0.8	1.3	1.6	0.5	0.6	2.4	2.1	2.9	2.9	6.3	3.9	11.8																							
28-May	10.1	5.0	8.4	Z	7.5	4.7	4.6	5.8	9.6	6.4	4.3	6.3	3.7	1.6	0.4	0.6	0.8	0.4	0.0	0.0	0.1	0.2	2.1	4.3	3.8	10.1																							
29-May	4.6	11.5	15.3	7.6	Z	11.4	6.6	6.0	11.1	9.3	7.4	7.2	4.7	3.6	1.5	1.1	1.1	1.2	1.6	1.1	2.8	3.9	5.2	4.5	5.7	15.3																							
30-May	5.0	3.1	2.7	0.2	0.3	Z	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.6	2.6	1.3	0.6	1.9	1.1	0.0	0.0	0.1	0.9	5.0																							
31-May	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	0.1	0.3	1.4	1.2	0.5	0.0	0.0	2.3	1.3	0.1	0.4	2.3																							
																								6.2	6.0	6.1	4.6	5.3	5.3	7.5	7.1	6.7	4.5	3.0	2.3	1.8	1.7	1.6	1.6	1.9	1.9	2.3	2.4	2.9	3.0	4.6	5.2	Diurnal Average	
																								17.3	23.0	22.5	22.7	20.1	16.6	17.8	23.9	24.2	19.2	15.0	7.2	4.7	5.4	6.5	4.0	5.6	8.0	9.8	8.6	12.6	9.2	19.1	15.8	Diurnal Maximum	

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



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	701	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: 707

Total Number of Hours: 744



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort McKay South - May 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	131	72	23	8	12	19	46	59	43	23	46	43	22	39	57	50	693
21 - 40	1	3	0	0	0	0	0	0	0	1	1	0	0	0	0	0	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>	132	75	23	8	12	19	46	59	43	24	47	43	22	39	57	50	699

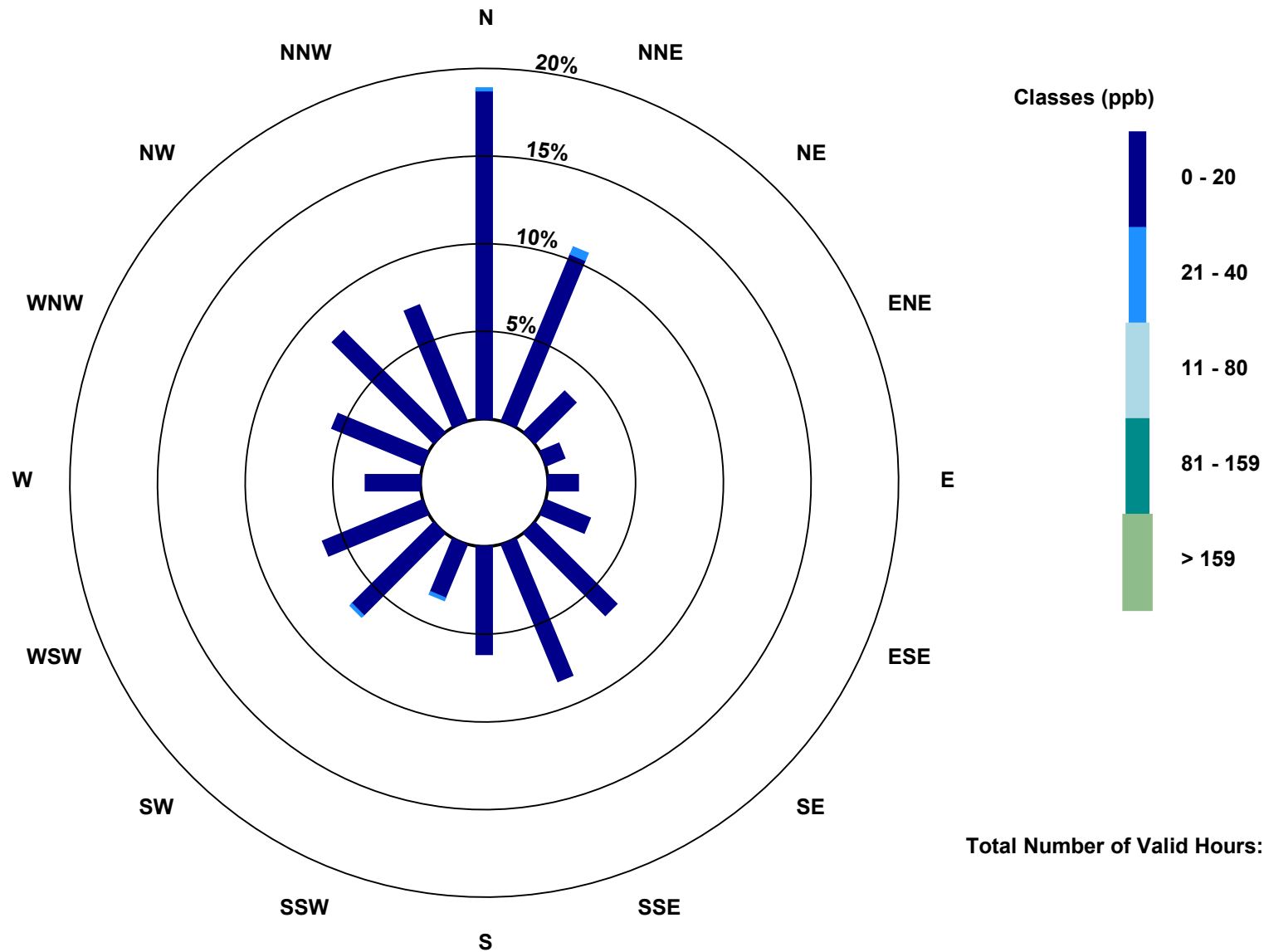
Total Number of Valid Hours: 699

Total Number of Hours: 744



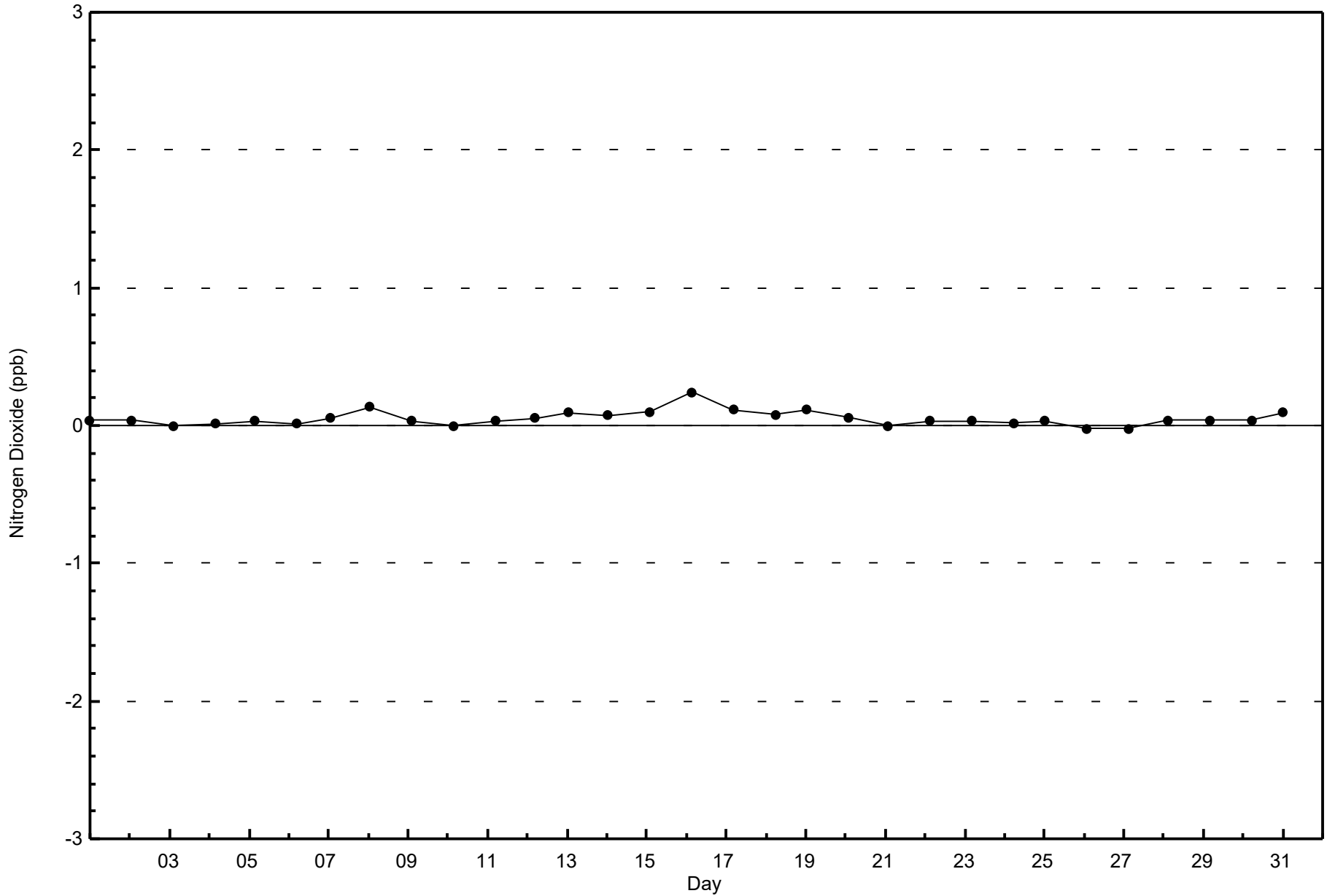
Wood Buffalo Environmental Association  
Wind Rose May 2024

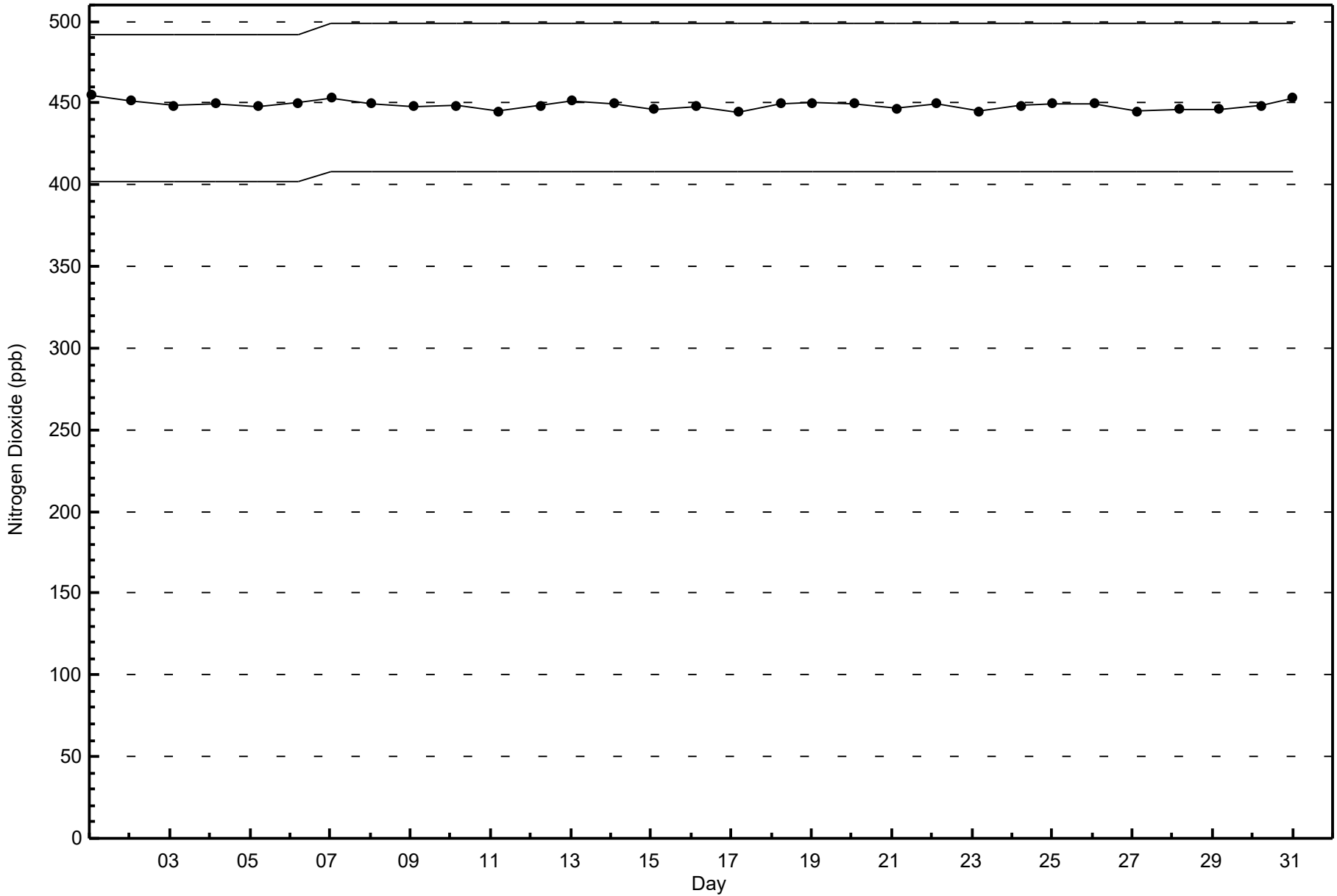
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort McKay South



Total Number of Valid Hours: 699









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

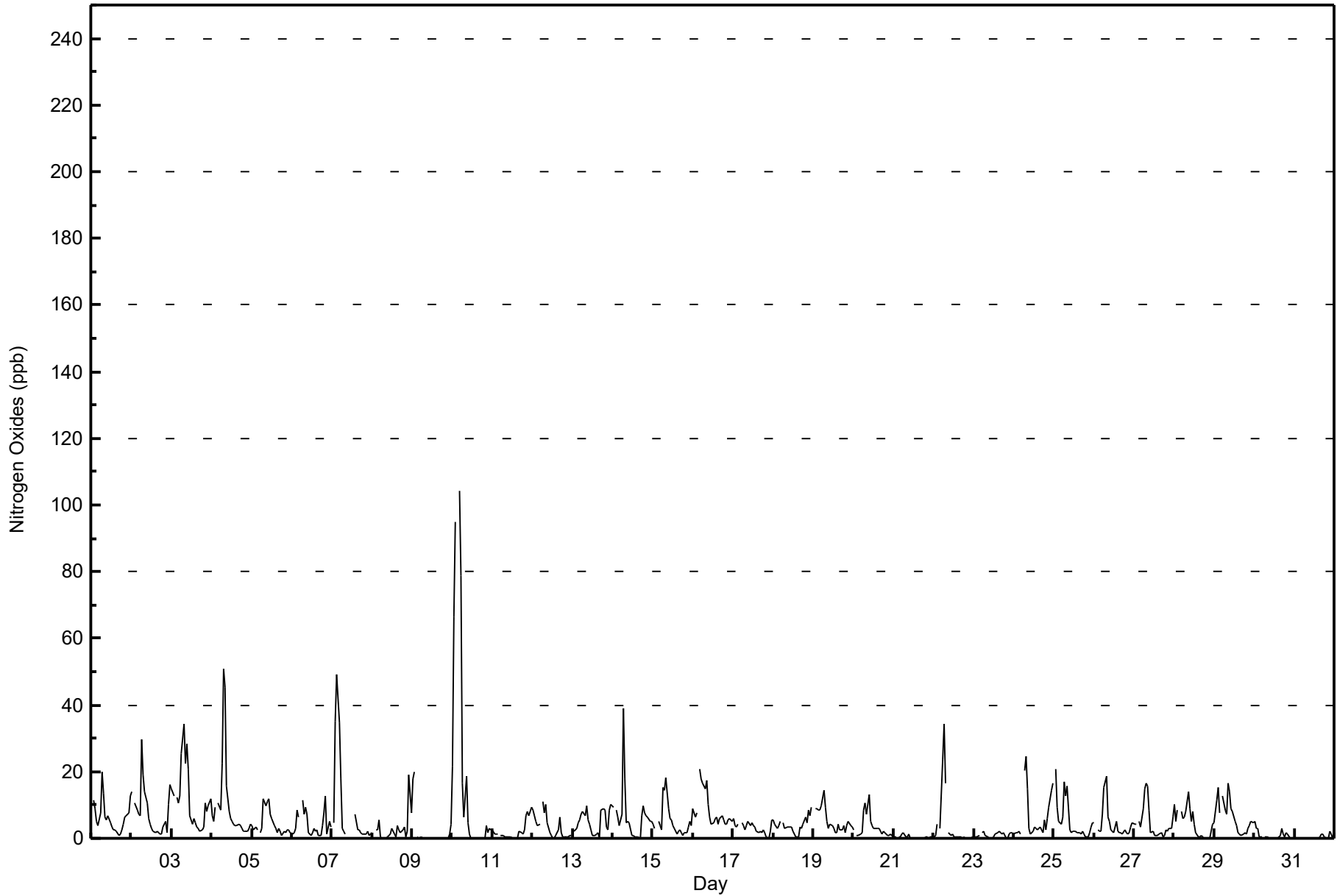
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - May 2024**

Maximum Value: 104.3 ppb on May 10 05:00      Maximum Daily Average: 18.5 ppb on May 10																					Hours in Service: 744 Hours of Data: 707						
Minimum Value: 0.0 ppb on May 9 12:00      Minimum Daily Average: 0.4 ppb on May 31 Maximum Diurnal Average: 12.1 ppb at hour 7      Minimum Diurnal Average: 1.8 ppb at hour 15 Monthly Average: 5.21 ppb      Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 1.0 Median = 2.7 Q <sub>3</sub> = 6.3 P <sub>90</sub> = 12.0 P <sub>99</sub> = 38.9																					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-May	Z	11.4	8.8	5.2	3.8	7.5	19.8	13.4	6.6	5.6	6.7	4.5	3.4	2.5	2.4	1.9	0.9	1.2	2.4	4.1	6.2	6.8	7.7	12.7	6.3	19.8	
2-May	14.0	Z	10.7	8.4	7.3	6.6	29.8	19.3	13.9	10.5	6.1	4.2	2.8	2.0	1.8	2.1	1.8	1.3	1.5	3.2	5.0	1.6	10.3	16.1	7.8	29.8	
3-May	15.0	12.8	Z	12.4	10.8	12.9	25.4	34.2	22.6	28.6	20.8	6.8	4.2	5.8	4.5	3.2	2.8	2.0	2.5	3.6	10.6	7.8	9.9	11.9	11.8	34.2	
4-May	6.8	5.2	9.2	Z	10.7	8.3	22.4	51.0	45.5	15.8	7.9	5.9	4.9	4.4	3.8	3.6	4.2	3.8	3.1	2.3	1.9	2.1	2.9	4.2	10.0	51.0	
5-May	3.9	2.6	3.2	2.4	Z	1.7	3.0	12.1	9.7	10.9	12.0	7.1	6.1	3.8	3.1	1.9	3.1	2.0	0.8	2.1	1.7	2.5	2.5	1.8	4.3	12.1	
6-May	1.2	1.7	2.8	8.6	6.4	Z	11.3	7.2	9.5	7.2	1.8	1.0	1.7	2.9	2.0	2.5	0.7	0.7	3.9	7.4	12.6	1.4	4.9	3.2	4.5	12.6	
7-May	Z	4.7	35.2	49.2	34.9	17.6	2.9	2.2	1.4	C	C	C	C	C	7.3	2.5	2.7	1.7	1.2	1.4	1.1	2.1	0.9	1.4	9.5	49.2	
8-May	1.5	Z	2.5	2.7	5.3	0.4	0.2	0.1	0.1	0.3	0.8	1.3	3.1	1.1	0.3	4.0	2.4	1.7	2.7	3.4	0.3	1.9	19.1	7.6	2.7	19.1	
9-May	17.7	20.0	Z	0.5	0.2	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	4.4	2.0	20.0	
10-May	21.8	66.4	94.8	Z	104.3	78.7	16.5	6.5	18.8	4.7	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	1.5	2.9	2.7	18.5	104.3
11-May	2.6	1.4	1.4	1.3	Z	1.0	0.8	0.6	0.5	0.4	0.4	0.2	0.2	0.1	0.1	0.1	2.3	1.6	1.5	2.4	6.7	7.9	6.9	9.3	2.2	9.3	
12-May	8.4	6.8	5.0	3.9	4.1	Z	10.9	7.7	10.3	4.5	1.5	0.7	0.1	0.2	0.8	2.7	6.3	1.8	0.5	0.4	0.5	0.6	0.7	0.7	3.4	10.9	
13-May	Z	2.2	3.0	4.7	5.3	7.3	8.2	6.7	9.7	5.5	4.2	2.7	0.8	1.0	1.4	1.7	0.2	8.5	8.7	8.6	3.4	2.6	8.4	10.2	5.0	10.2	
14-May	9.2	Z	8.3	6.3	3.9	7.1	39.1	18.0	4.9	5.0	4.7	1.0	0.7	0.2	0.4	0.5	0.0	6.8	9.8	7.5	6.9	6.3	5.0	5.0	6.8	39.1	
15-May	4.3	3.1	Z	5.2	3.9	2.6	15.3	14.3	18.2	9.0	6.1	5.5	3.9	2.8	1.2	2.3	2.5	1.9	0.9	1.8	1.6	3.2	5.2	3.9	5.2	18.2	
16-May	8.8	6.2	7.8	Z	20.8	17.7	16.3	14.8	17.5	10.0	6.4	4.2	4.7	5.9	6.4	4.3	5.9	6.8	5.6	4.4	4.3	5.6	6.1	5.1	8.5	20.8	
17-May	6.0	3.7	3.4	4.2	Z	4.6	3.8	2.5	3.7	5.2	3.7	4.6	4.0	3.2	2.3	1.7	2.2	1.7	2.7	1.7	0.3	0.2	2.0	5.4	3.2	6.0	
18-May	5.5	4.1	2.9	3.9	5.0	Z	4.6	2.9	3.5	3.4	3.3	3.2	2.2	0.5	0.3	0.2	3.2	3.0	4.4	6.4	4.8	8.7	7.0	9.3	4.0	9.3	
19-May	Z	9.0	8.9	8.5	8.5	9.6	14.3	9.5	5.2	2.9	4.2	3.7	2.9	1.8	1.7	4.2	2.6	2.3	3.8	1.7	3.6	5.0	4.0	3.5	5.3	14.3	
20-May	2.4	Z	0.9	1.0	1.2	1.8	8.6	10.6	7.3	13.2	5.2	3.6	3.2	2.8	3.1	2.8	2.0	1.5	2.3	1.7	0.8	1.0	1.1	0.7	3.4	13.2	
21-May	0.6	0.4	Z	0.4	0.3	1.4	1.7	0.4	0.5	1.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.2	0.3	0.4	1.7	
22-May	0.6	1.0	4.1	Z	3.0	23.8	34.3	16.6	M	1.6	0.9	1.1	0.4	0.4	0.2	0.3	0.5	0.2	0.5	0.0	0.0	0.0	0.1	0.3	4.1	34.3	
23-May	0.4	0.4	0.3	0.9	Z	1.7	2.0	0.9	0.3	0.0	0.1	0.0	0.3	1.2	1.9	2.0	1.8	1.5	1.5	0.0	0.0	1.1	1.7	1.7	0.9	2.0	
24-May	1.3	1.5	1.8	1.9	1.4	Z	20.4	24.5	14.9	3.0	1.2	2.2	3.3	3.0	2.6	2.8	3.3	1.8	5.7	2.6	5.8	9.2	14.4	16.5	6.3	24.5	
25-May	Z	20.6	9.2	5.0	4.4	6.4	17.1	12.6	15.7	2.6	1.6	2.3	2.2	2.3	1.6	1.6	1.4	2.3	1.2	0.5	0.4	1.8	3.2	4.7	5.2	20.6	
26-May	4.9	Z	2.7	1.9	2.0	7.4	15.3	18.6	6.3	4.9	2.6	2.2	1.7	5.0	2.1	1.6	1.7	1.3	2.4	1.5	1.1	1.9	3.5	4.6	4.2	18.6	
27-May	4.3	4.4	Z	5.0	3.5	8.9	14.7	16.6	15.5	8.5	1.9	2.2	0.8	0.8	0.8	1.3	1.6	0.5	0.6	2.4	2.1	2.9	2.9	6.3	4.7	16.6	
28-May	10.1	5.0	8.4	Z	8.1	6.1	6.4	8.1	14.1	8.8	5.2	7.9	4.3	1.6	0.4	0.6	0.8	0.4	0.0	0.0	0.1	0.2	2.1	4.3	4.5	14.1	
29-May	4.6	11.6	15.4	7.7	Z	12.8	8.4	7.3	16.5	13.8	8.8	8.1	5.1	3.8	1.6	1.1	1.1	1.2	1.6	1.1	2.8	3.9	5.2	4.5	6.4	16.5	
30-May	5.0	3.1	2.8	0.3	0.3	Z	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.6	2.8	1.3	0.6	1.9	1.1	0.0	0.0	0.1	0.9	5.0	
31-May	Z	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	0.1	0.3	1.4	1.2	0.5	0.0	0.0	2.3	1.3	0.1	0.4	2.3	
																								Diurnal Average			
																								Diurnal Maximum			
6.4 8.1 9.8 5.8 10.0 9.8 12.1 11.0 9.8 6.3 4.0 2.9 2.2 2.0 1.8 1.8 2.0 2.0 2.4 2.4 2.9 3.0 4.6 5.2 21.8 66.4 94.8 49.2 104.3 78.7 39.1 51.0 45.5 28.6 20.8 8.1 6.1 5.9 7.3 4.3 6.3 8.5 9.8 8.6 12.6 9.2 19.1 16.5																											
Z - zerospan      C - Calibration      M - Maintenance																											



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - May 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	684	96.75	96.75
21 - 40	16	2.26	99.01
41 - 80	5	0.71	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**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort McKay South - May 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	124	70	23	8	12	18	46	59	41	22	45	42	22	38	57	49	676
21 - 40	7	3	0	0	0	1	0	0	1	1	0	1	0	1	0	1	16
11 - 80	1	2	0	0	0	0	0	0	1	1	0	0	0	0	0	0	5
81 - 159	0	0	0	0	0	0	0	0	0	0	2	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>	132	75	23	8	12	19	46	59	43	24	47	43	22	39	57	50	699

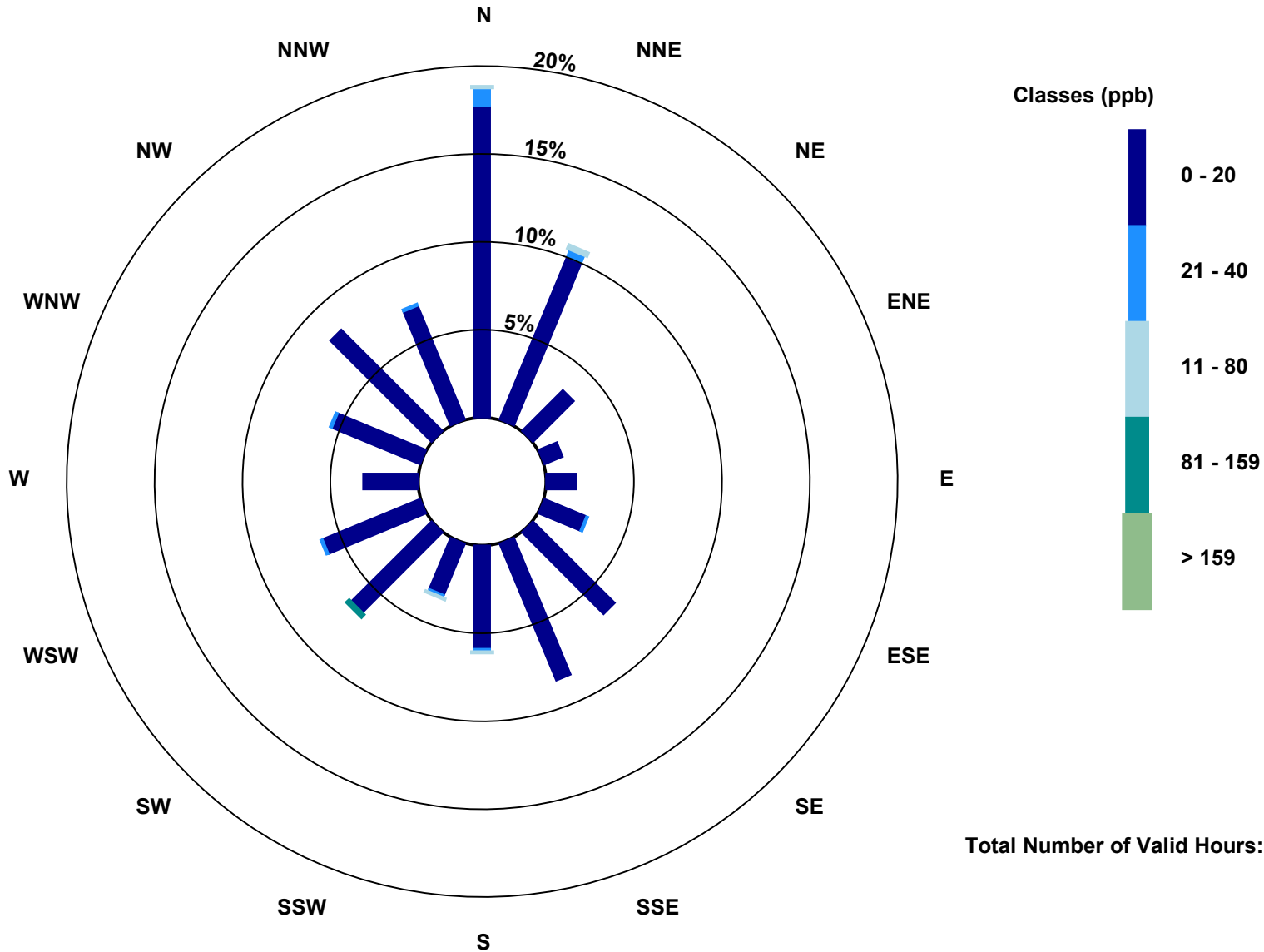
Total Number of Valid Hours: 699

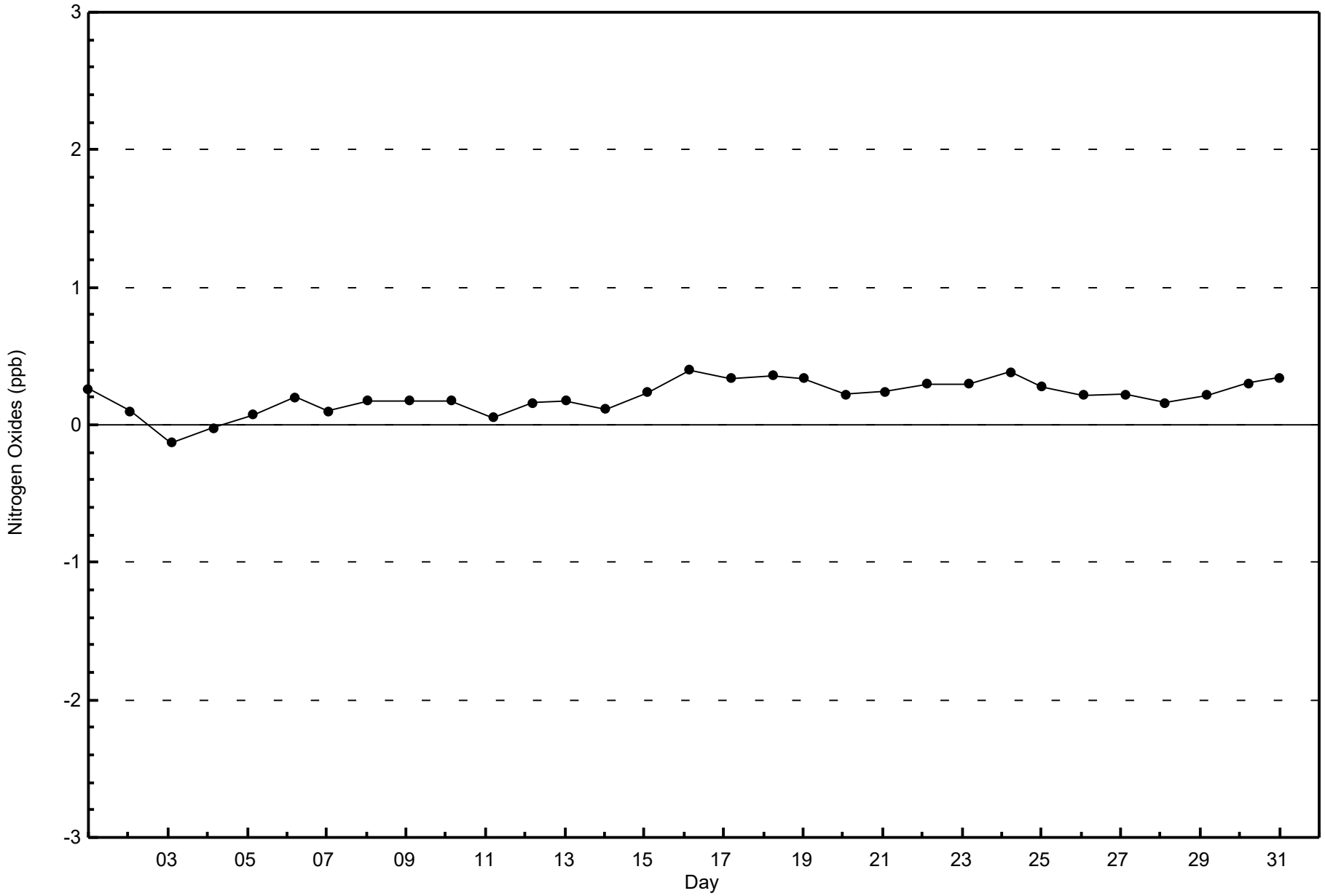
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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



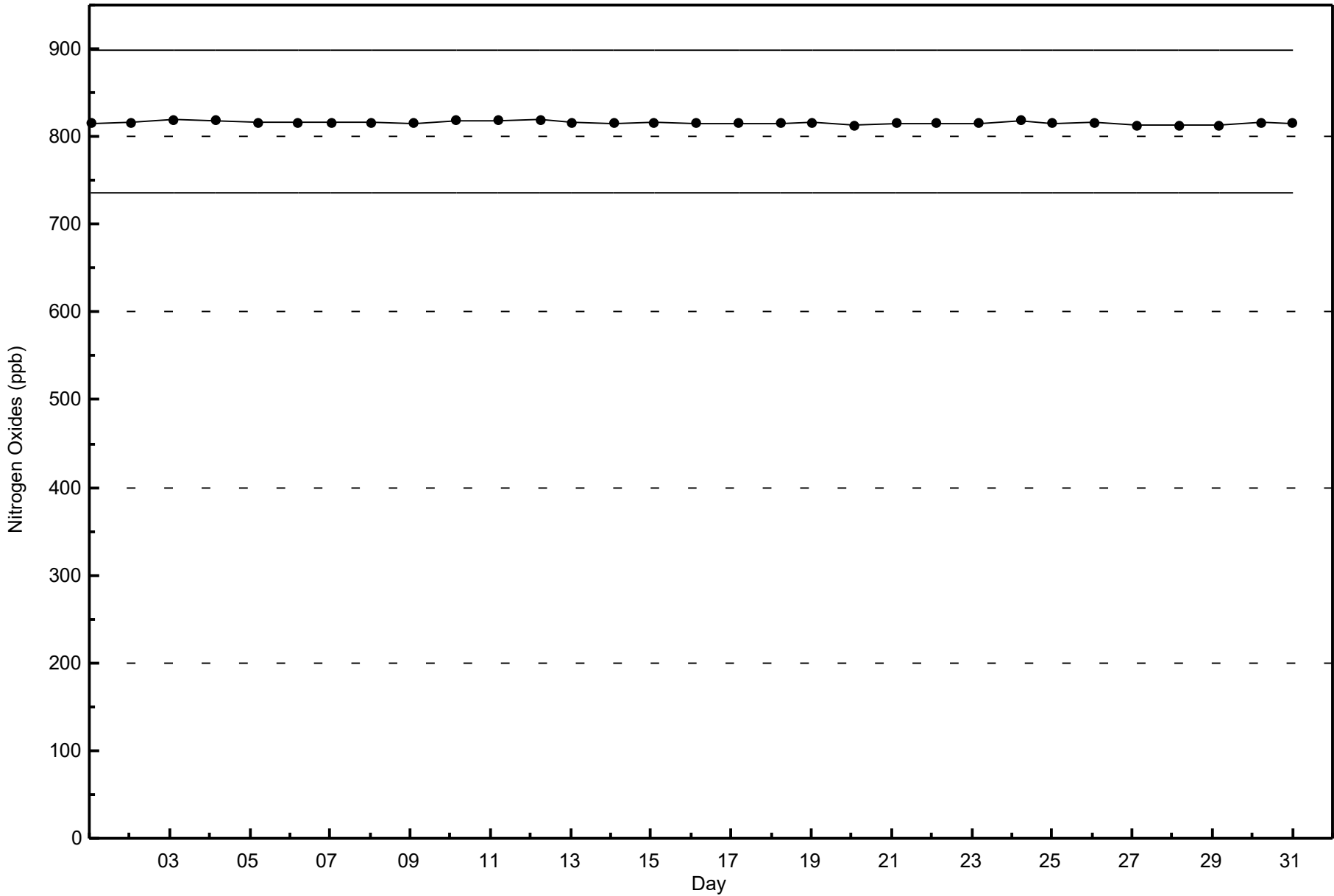






**Wood Buffalo Environmental Association**  
**Span Responses**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort McKay South - May 2024**

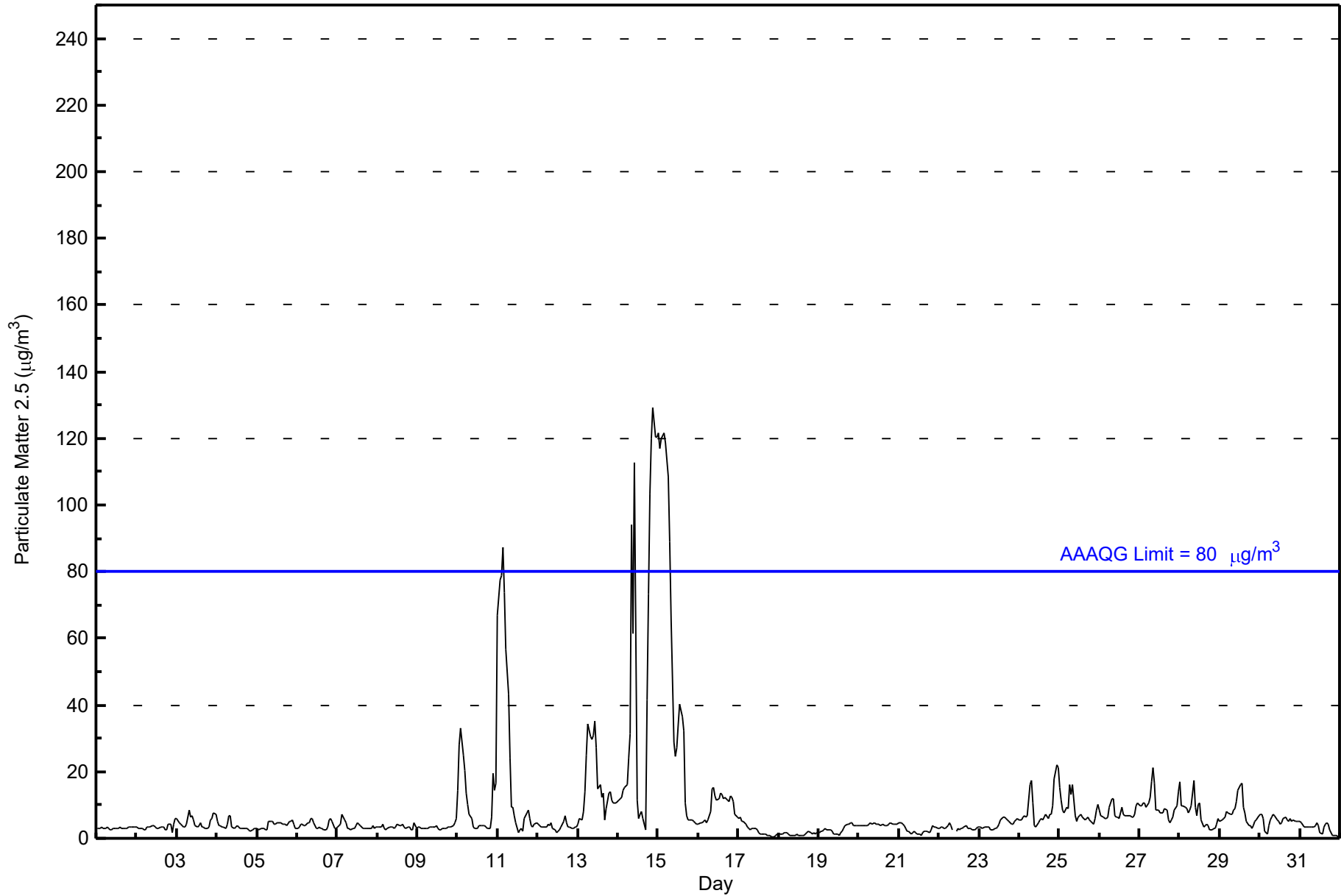




Summary of Hour Averages

Fort McKay South - May 2024

Number of Exceedences (AAAQO):		1-hr: 16		24-hr: 2		Hours in Service:		744																		
Maximum Value: 129.4 µg/m <sup>3</sup> on May 14 22:00		Maximum Daily Average: 52.0 µg/m <sup>3</sup> on May 15				Hours of Data:		743																		
Minimum Value: 0.4 µg/m <sup>3</sup> on May 17 22:00		Minimum Daily Average: 1.3 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		1																		
Maximum Diurnal Average: 12.2 µg/m <sup>3</sup> at hour 9		Minimum Diurnal Average: 4.7 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		1																		
Monthly Average: 8.93 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.9 P <sub>10</sub> = 2.3 Q <sub>1</sub> = 3.1 Median = 4.1 Q <sub>3</sub> = 6.8 P <sub>90</sub> = 14.2 P <sub>99</sub> = 117.9				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-May	2.9	3.1	3.1	3.2	3.1	3.0	3.3	2.8	2.6	2.7	2.8	2.9	2.9	3.0	3.6	3.2	3.0	2.9	3.1	3.3	3.3	3.2	3.4	3.5	3.1	3.6
2-May	3.2	3.0	3.0	2.8	2.6	2.5	3.6	3.5	3.3	3.8	3.7	3.5	3.1	3.2	3.2	3.5	3.2	2.8	2.7	4.1	4.3	1.8	4.1	6.1	3.4	6.1
3-May	5.9	4.8	4.2	3.9	3.3	3.4	4.4	8.3	6.2	6.8	5.4	4.0	3.4	3.8	4.5	3.4	3.2	2.9	3.2	3.2	5.4	5.8	7.5	7.2	4.8	8.3
4-May	5.0	3.9	3.8	3.6	3.4	3.1	4.1	6.9	6.6	3.5	2.9	3.2	3.8	3.3	2.9	3.1	2.9	3.0	2.5	2.3	2.3	2.9	2.9	3.5	6.9	
5-May	3.1	2.4	3.1	3.0	3.0	2.7	2.5	5.2	5.2	5.0	4.3	4.3	4.7	4.7	4.6	4.4	4.1	4.1	3.7	5.0	5.2	5.4	4.2	3.1	4.0	5.4
6-May	2.8	3.3	4.0	4.4	4.0	3.9	4.8	4.9	6.0	6.0	4.5	2.8	3.0	3.3	2.8	2.9	2.3	2.5	3.3	5.6	5.9	5.0	2.8	3.1	3.9	6.0
7-May	3.3	3.6	4.2	7.3	5.5	4.8	3.2	2.9	2.7	2.8	3.2	4.0	4.5	4.2	4.0	3.0	3.1	3.1	2.9	3.1	3.0	3.7	3.1	3.3	3.7	7.3
8-May	3.2	3.3	3.5	4.1	3.2	2.6	3.1	3.3	3.3	3.2	3.0	3.3	4.1	3.9	4.0	4.2	3.2	2.9	3.4	3.4	2.6	2.7	4.8	3.0	3.4	4.8
9-May	3.5	3.4	2.9	2.9	2.8	2.9	2.8	3.2	3.4	3.3	3.5	3.8	3.0	2.6	2.4	2.9	3.0	3.0	3.3	3.5	3.4	3.8	4.5	5.9	3.3	5.9
10-May	14.4	28.1	33.2	25.2	20.3	13.6	10.3	7.2	5.8	3.4	3.2	3.1	3.2	3.6	4.0	3.9	3.6	3.2	3.1	3.2	6.2	19.4	14.2	16.4	10.5	33.2
11-May	67.1	77.6	78.9	87.2	73.9	56.8	43.1	24.2	9.2	9.3	6.9	4.7	1.8	2.5	3.1	1.9	5.8	7.6	8.7	5.9	3.7	3.5	4.2	4.7	24.7	87.2
12-May	4.2	3.9	3.5	3.3	3.4	3.2	4.2	3.8	4.9	2.9	2.4	1.7	2.1	2.4	3.4	4.9	6.8	4.7	3.3	3.2	3.1	3.1	3.2	3.2	3.5	6.8
13-May	4.2	5.8	5.6	8.1	14.1	25.0	34.4	30.3	29.8	30.8	35.1	27.2	14.6	15.9	12.3	13.5	5.6	9.0	13.6	14.0	11.4	10.6	10.4	10.8	16.3	35.1
14-May	11.3	11.7	12.3	14.3	15.2	16.0	24.1	31.3	94.0	61.4	112.8	11.2	6.0	7.0	8.0	6.0	2.5	41.4	73.2	103.4	119.9	129.4	120.4	120.3	48.1	129.4
15-May	121.8	117.0	120.0	121.6	118.5	113.5	108.4	88.9	65.9	28.8	24.7	27.1	34.1	40.4	36.3	32.2	10.6	6.7	5.7	5.5	5.4	5.2	4.6	4.2	52.0	121.8
16-May	4.2	4.5	4.6	5.1	5.6	4.7	5.5	8.0	14.8	15.3	12.7	11.6	11.8	13.4	13.2	12.0	12.4	11.3	11.2	12.5	12.3	10.9	7.2	6.2	9.6	15.3
17-May	5.9	6.2	5.3	5.0	4.3	3.5	3.0	2.7	2.8	3.1	3.0	2.7	1.8	1.2	1.2	1.1	1.1	1.0	0.9	0.6	0.5	0.4	0.8	1.4	2.5	6.2
18-May	1.4	1.3	1.3	1.6	1.7	1.6	1.4	1.0	1.0	1.0	1.0	1.2	1.0	1.1	0.9	0.8	1.2	1.5	2.0	1.6	1.3	1.5	1.4	1.7	1.3	2.0
19-May	1.9	2.2	2.2	2.7	3.2	2.6	2.5	2.4	1.9	1.3	1.3	1.1	1.0	1.5	2.2	2.8	3.6	4.1	4.4	4.9	4.5	3.8	3.8	4.0	2.7	4.9
20-May	3.8	3.7	3.6	3.7	3.7	3.7	4.1	4.5	4.4	4.6	4.1	4.1	4.1	4.0	4.1	4.0	3.9	3.9	4.3	4.6	4.3	4.2	4.3	4.4	4.1	4.6
21-May	4.8	4.7	4.2	3.9	3.1	2.3	1.9	1.5	1.8	2.2	1.5	1.4	1.2	1.0	1.6	2.3	2.1	2.0	1.8	2.5	3.6	3.2	3.2	3.1	2.5	4.8
22-May	3.1	3.2	3.3	2.9	3.0	4.0	4.6	3.9	2.7	C	2.2	2.8	2.6	3.0	3.1	3.4	3.6	3.2	3.1	2.8	2.5	2.6	2.9	3.2	3.1	4.6
23-May	3.3	3.3	3.1	3.5	3.4	3.3	3.2	2.6	2.7	2.9	3.1	3.2	4.2	5.3	6.3	6.4	6.0	5.7	5.1	4.1	4.2	5.2	5.6	5.8	4.2	6.4
24-May	5.4	5.6	6.3	6.6	6.4	6.8	15.9	17.5	10.5	3.9	3.5	4.6	5.4	5.8	5.5	6.5	7.1	6.0	7.4	7.1	9.9	17.9	21.9	21.2	8.9	21.9
25-May	15.3	11.6	8.3	7.6	9.4	9.1	16.0	12.9	16.1	6.8	5.3	6.5	6.8	7.4	6.2	5.7	5.9	6.4	5.7	5.2	4.3	5.9	8.4	10.2	8.5	16.1
26-May	8.6	6.9	6.2	6.1	5.8	6.3	9.2	11.8	11.8	6.8	6.5	6.4	5.8	9.2	7.3	6.9	6.9	6.6	6.9	6.5	6.2	7.1	9.7	10.4	7.6	11.8
27-May	9.9	9.9	10.4	10.5	9.4	10.5	12.1	17.2	21.3	16.5	8.4	8.6	7.5	7.4	7.5	8.8	8.5	5.6	4.6	5.6	6.2	8.6	9.8	14.2	10.0	21.3
28-May	16.8	9.9	9.7	9.3	8.7	7.6	8.3	9.8	17.4	9.5	6.9	10.3	10.7	5.6	3.4	3.7	4.4	3.9	2.5	2.5	2.8	2.9	4.3	5.9	7.4	17.4
29-May	5.1	5.3	6.0	6.3	7.9	7.4	7.1	7.3	8.3	8.8	10.9	14.4	16.2	16.5	9.4	7.6	5.2	4.0	4.0	3.1	3.8	5.1	5.7	6.8	7.6	16.5
30-May	7.3	7.0	6.1	2.3	1.5	3.7	5.7	6.3	7.3	6.7	5.6	5.2	4.1	4.6	6.1	6.5	5.4	4.9	5.8	5.0	5.5	5.2	5.2	5.1	5.3	7.3
31-May	5.1	4.5	3.4	3.3	3.4	3.4	3.5	3.6	3.5	4.0	4.7	3.8	1.5	1.3	3.2	4.0	4.5	4.2	2.4	1.0	0.9	1.0	0.7	0.5	3.0	5.1
																								Diurnal Average		
																								Diurnal Maximum		
11.5 11.8 11.9 12.1 11.5 10.9 11.6 11.0 12.2 8.9 9.6 6.3 5.8 6.2 5.8 5.7 4.7 5.6 6.7 7.7 8.3 9.4 9.3 9.7																										
121.8 117.0 120.0 121.6 118.5 113.5 108.4 88.9 94.0 61.4 112.8 27.2 34.1 40.4 36.3 32.2 12.4 41.4 73.2 103.4 119.9 129.4 120.4 120.3																										
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 - May 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	475	63.93	63.93
6 - 15	203	27.32	91.25
16 - 25	24	3.23	94.48
26 - 80	25	3.36	97.85
> 81.0	16	2.15	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Fort McKay South - May 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	107	53	18	8	11	15	31	22	17	9	25	28	14	30	42	38	468
6 - 15	26	20	3	0	1	2	12	28	22	11	21	18	4	7	14	13	202
16 - 25	2	0	1	0	0	2	3	2	3	3	2	3	1	0	2	0	24
26 - 80	4	2	1	0	0	0	0	6	2	1	2	0	0	4	2	1	25
> 81.0	3	1	0	0	0	0	0	1	2	1	1	0	4	1	1	1	16
<b>Totals</b>	142	76	23	8	12	19	46	59	46	25	51	49	23	42	61	53	735

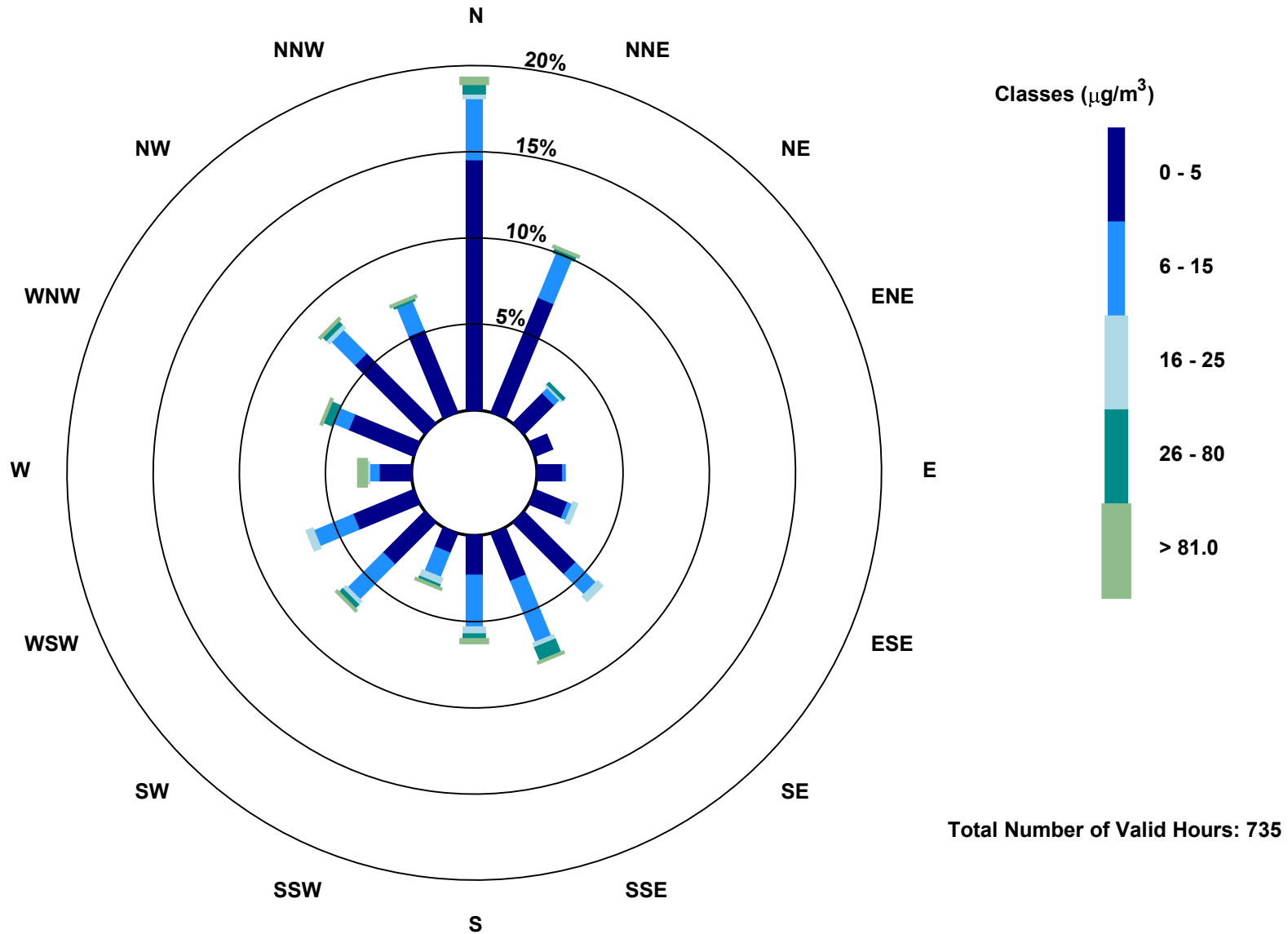
Total Number of Valid Hours: 735

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

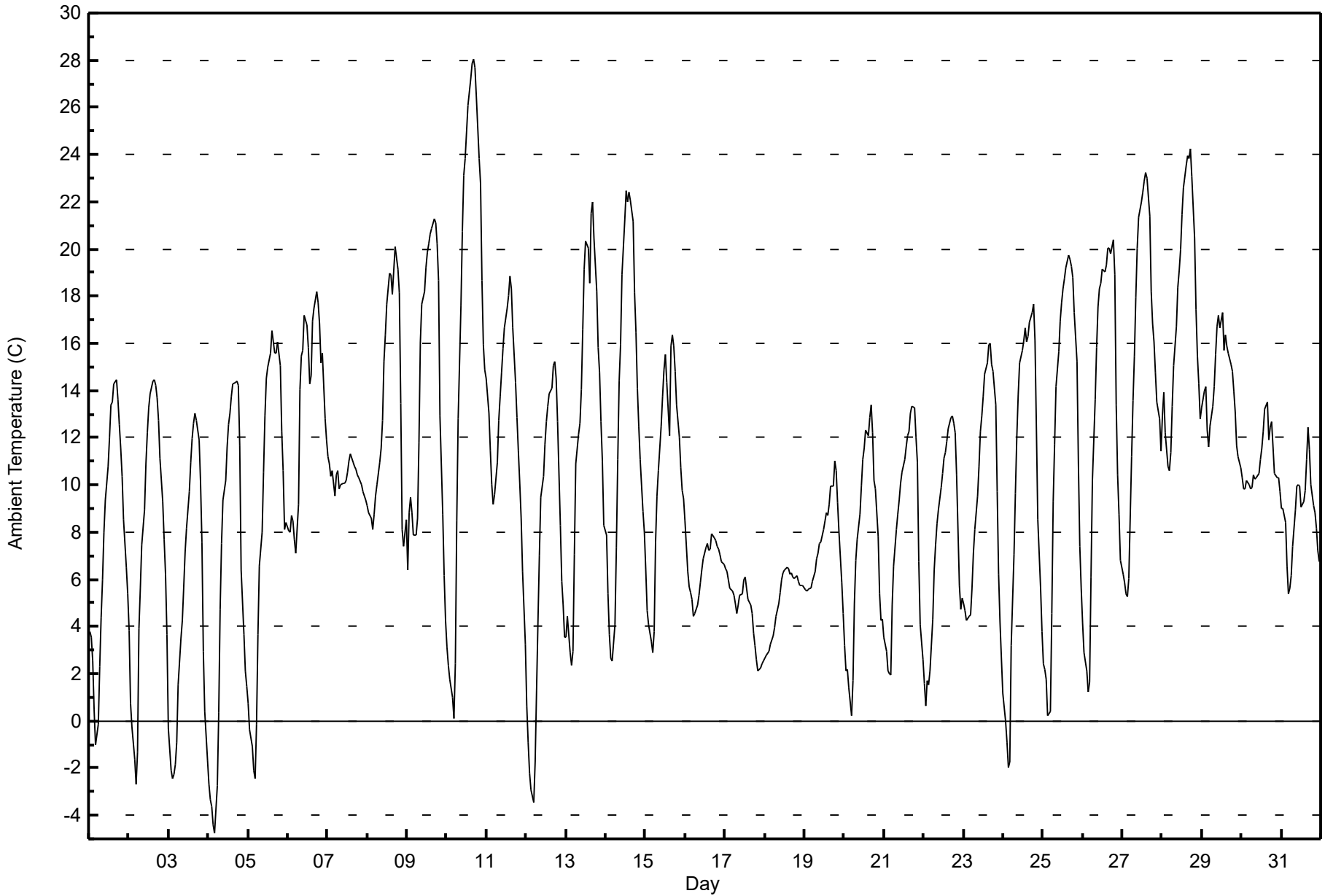
**Ambient Temperature (AT) - C**  
**Fort McKay South - May 2024**

Maximum Value: 28.0 C on May 10 17:00		Maximum Daily Average: 17.4 C on May 28		Hours in Service: 744																							
Minimum Value: -4.8 C on May 4 05:00		Minimum Daily Average: 4.6 C on May 17		Hours of Data: 744																							
Maximum Diurnal Average: 15.6 C at hour 17		Minimum Diurnal Average: 3.5 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 10.25 C		Percentiles: P <sub>1</sub> = -2.7 P <sub>10</sub> = 2.5 Q <sub>1</sub> = 5.8 Median = 10.2 Q <sub>3</sub> = 14.3 P <sub>90</sub> = 18.5 P <sub>99</sub> = 24.1		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-May	3.8	3.5	2.5	0.4	-1.0	-0.1	2.3	4.4	6.0	8.0	9.4	10.8	12.0	13.4	13.5	14.3	14.5	13.6	12.6	11.6	10.3	8.5	6.5	5.4	7.8	14.5	
2-May	3.8	0.7	-0.3	-1.6	-2.7	-1.3	3.9	5.6	7.4	9.0	10.9	12.2	13.3	13.8	14.4	14.5	14.2	13.7	12.7	11.1	9.3	7.7	6.2	3.7	7.6	14.5	
3-May	-0.3	-2.1	-2.5	-2.3	-1.8	-0.9	1.5	3.5	4.3	5.7	7.1	8.2	9.7	11.0	12.0	12.6	13.0	12.7	11.9	10.1	7.5	3.0	0.4	-1.7	5.1	13.0	
4-May	-2.7	-3.3	-3.6	-4.4	-4.8	-2.8	0.3	4.8	7.5	9.3	10.2	11.6	12.5	13.0	13.8	14.3	14.3	14.4	14.3	11.7	6.4	3.7	2.1	1.5	6.0	14.4	
5-May	0.8	-0.4	-1.1	-2.1	-2.5	-0.1	3.7	6.5	8.0	10.6	12.9	14.5	15.0	15.6	16.5	16.1	15.6	15.6	16.0	15.0	12.3	10.6	8.1	8.4	9.0	16.5	
6-May	8.0	8.0	8.7	8.5	7.7	7.1	9.2	14.0	15.5	15.7	17.2	16.8	15.8	14.3	14.6	16.9	17.5	18.2	17.7	16.9	15.2	15.6	12.8	11.9	13.5	18.2	
7-May	11.2	10.9	10.3	10.6	9.5	10.4	10.6	9.8	10.0	10.1	10.1	10.2	10.5	11.0	11.3	11.0	10.8	10.7	10.4	10.3	10.0	9.7	9.5	9.4	10.3	11.3	
8-May	9.1	8.8	8.6	8.1	8.8	9.5	10.0	10.9	11.6	12.8	15.3	16.4	17.6	19.0	18.9	18.1	19.1	20.1	19.1	18.1	13.5	8.1	7.4	8.5	13.2	20.1	
9-May	6.4	8.8	9.5	8.8	7.9	7.9	8.6	11.8	16.1	17.6	18.2	19.2	19.9	20.2	20.6	20.9	21.3	21.1	20.2	18.7	12.9	8.7	6.2	4.3	14.0	21.3	
10-May	3.1	2.3	1.8	1.0	0.1	2.4	8.5	12.8	17.6	20.7	23.1	23.8	25.0	26.1	27.2	27.8	28.0	27.7	26.4	23.8	22.8	18.7	15.9	14.9	16.7	28.0	
11-May	14.5	13.0	11.4	10.0	9.2	9.6	10.9	12.7	13.8	14.7	15.8	16.7	17.5	18.0	18.8	18.3	16.7	14.4	12.9	11.4	10.0	8.6	6.3	3.3	12.9	18.8	
12-May	0.7	-0.9	-2.2	-2.9	-3.5	-1.8	1.3	4.2	7.0	9.5	10.3	11.8	12.7	13.4	13.9	14.1	15.0	15.3	14.5	12.7	8.3	5.9	4.9	3.5	7.0	15.3	
13-May	3.5	4.4	2.9	2.3	2.9	7.0	10.9	12.1	12.6	14.0	16.6	19.2	20.3	20.0	18.5	21.5	22.0	20.5	18.2	15.8	14.7	12.7	11.0	8.3	13.0	22.0	
14-May	7.8	5.4	3.7	2.7	2.5	4.1	7.4	11.1	14.4	16.0	18.9	21.2	22.4	22.0	22.4	22.0	21.2	18.1	16.5	14.1	12.5	11.1	8.9	8.0	13.1	22.4	
15-May	6.4	4.7	4.0	3.4	2.9	3.8	7.6	9.5	10.6	12.5	13.8	14.9	15.5	14.4	12.1	15.9	16.3	15.9	14.8	13.4	12.0	10.7	9.7	9.4	10.6	16.3	
16-May	8.4	6.3	5.7	5.4	5.1	4.4	4.5	4.9	5.3	5.8	6.4	6.9	7.3	7.5	7.2	7.3	7.9	7.8	7.6	7.4	7.3	7.1	6.7	6.6	6.5	8.4	
17-May	6.4	6.3	6.0	5.6	5.5	5.3	4.9	4.6	4.9	5.3	5.4	6.0	6.1	5.6	5.2	4.9	4.5	3.7	3.2	2.6	2.1	2.2	2.4	2.5	4.6	6.4	
18-May	2.7	2.8	3.0	3.3	3.4	3.6	3.9	4.4	5.0	5.5	6.0	6.3	6.4	6.5	6.4	6.2	6.3	6.1	6.1	6.1	5.9	5.8	5.8	5.8	5.1	6.5	
19-May	5.6	5.5	5.5	5.6	5.6	5.9	6.3	6.9	7.1	7.5	7.6	8.1	8.4	8.8	8.7	9.2	9.9	9.9	11.0	10.6	9.2	8.0	5.9	4.6	7.6	11.0	
20-May	3.2	2.1	2.2	1.4	0.2	1.7	5.0	6.8	7.7	8.8	9.9	11.1	11.6	12.3	12.1	12.9	13.4	12.2	10.2	9.8	7.8	5.4	4.3	4.3	7.3	13.4	
21-May	3.5	3.0	2.1	2.0	2.0	4.9	6.5	8.1	8.8	9.4	10.1	10.5	11.1	11.6	12.1	12.3	13.0	13.3	13.3	12.0	10.9	6.8	4.1	2.6	8.1	13.3	
22-May	1.6	0.6	1.7	1.5	2.1	4.3	6.4	7.5	8.3	8.9	9.9	10.5	11.1	11.4	11.8	12.4	12.9	12.9	12.6	12.2	10.4	5.7	4.7	5.2	7.8	12.9	
23-May	4.9	4.7	4.2	4.4	4.5	5.6	7.1	8.1	9.6	10.8	12.3	12.9	13.7	14.7	15.1	15.9	16.0	15.1	14.8	13.4	9.7	6.2	4.2	2.7	9.6	16.0	
24-May	1.2	0.0	-0.9	-2.0	-1.7	3.2	7.1	9.6	12.0	13.8	15.2	15.7	16.1	16.7	16.0	16.3	16.9	17.3	17.7	16.1	12.4	8.5	5.6	3.8	9.9	17.7	
25-May	2.4	2.2	1.7	0.2	0.4	4.6	9.3	11.7	14.2	15.7	17.0	17.7	18.3	18.7	19.2	19.7	19.6	19.3	18.8	17.3	15.3	10.9	7.4	5.6	12.0	19.7	
26-May	4.1	2.9	2.1	1.3	1.7	6.1	10.2	13.6	15.8	17.5	18.3	18.6	19.1	19.0	19.3	20.0	20.0	19.8	20.4	18.9	13.4	10.4	8.8	6.8	12.8	20.4	
27-May	6.2	5.8	5.4	5.3	6.0	11.2	13.6	15.5	18.0	20.0	21.3	22.0	22.4	22.9	23.2	23.0	21.4	18.2	16.8	16.1	14.8	13.5	12.8	11.4	15.3	23.2	
28-May	12.9	13.9	12.2	10.8	10.6	11.4	13.3	15.0	16.7	18.4	19.1	20.0	21.4	22.6	23.5	24.0	23.8	24.3	23.1	20.4	17.4	15.5	14.3	12.8	17.4	24.3	
29-May	13.2	14.0	14.2	12.3	11.6	12.5	13.3	14.2	15.6	16.7	17.2	16.7	17.3	15.7	16.4	15.9	15.6	15.1	14.8	14.0	13.1	11.6	11.2	10.7	14.3	17.3	
30-May	10.3	9.8	9.8	10.2	10.0	9.8	9.9	10.4	10.2	10.3	10.5	11.1	11.6	12.3	13.2	13.5	11.9	12.4	12.7	11.6	10.5	10.3	10.3	9.7	10.9	13.5	
31-May	9.0	9.0	8.4	6.6	5.4	5.6	6.2	7.4	9.0	9.9	10.0	9.9	9.1	9.3	9.8	11.1	12.4	11.5	10.0	9.1	8.8	8.1	7.2	6.8	8.7	12.4	
		5.5	4.9	4.4	3.8	3.5	5.0	7.2	9.1	10.7	11.9	13.1	13.9	14.5	14.9	15.1	15.6	15.6	15.2	14.6	13.3	11.2	9.0	7.5	6.5	Diurnal Average	
		14.5	14.0	14.2	12.3	11.6	12.5	13.6	15.5	18.0	20.7	23.1	23.8	25.0	26.1	27.2	27.8	28.0	27.7	26.4	23.8	22.8	18.7	15.9	14.9	Diurnal Maximum	



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

**Ambient Temperature (AT) - C**  
**Fort McKay South - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort McKay South - May 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	32	4.30	4.30
0 - 10	329	44.22	48.52
10 - 20	334	44.89	93.41
> 20	49	6.59	100.00

Total Number of Valid Hours: 744

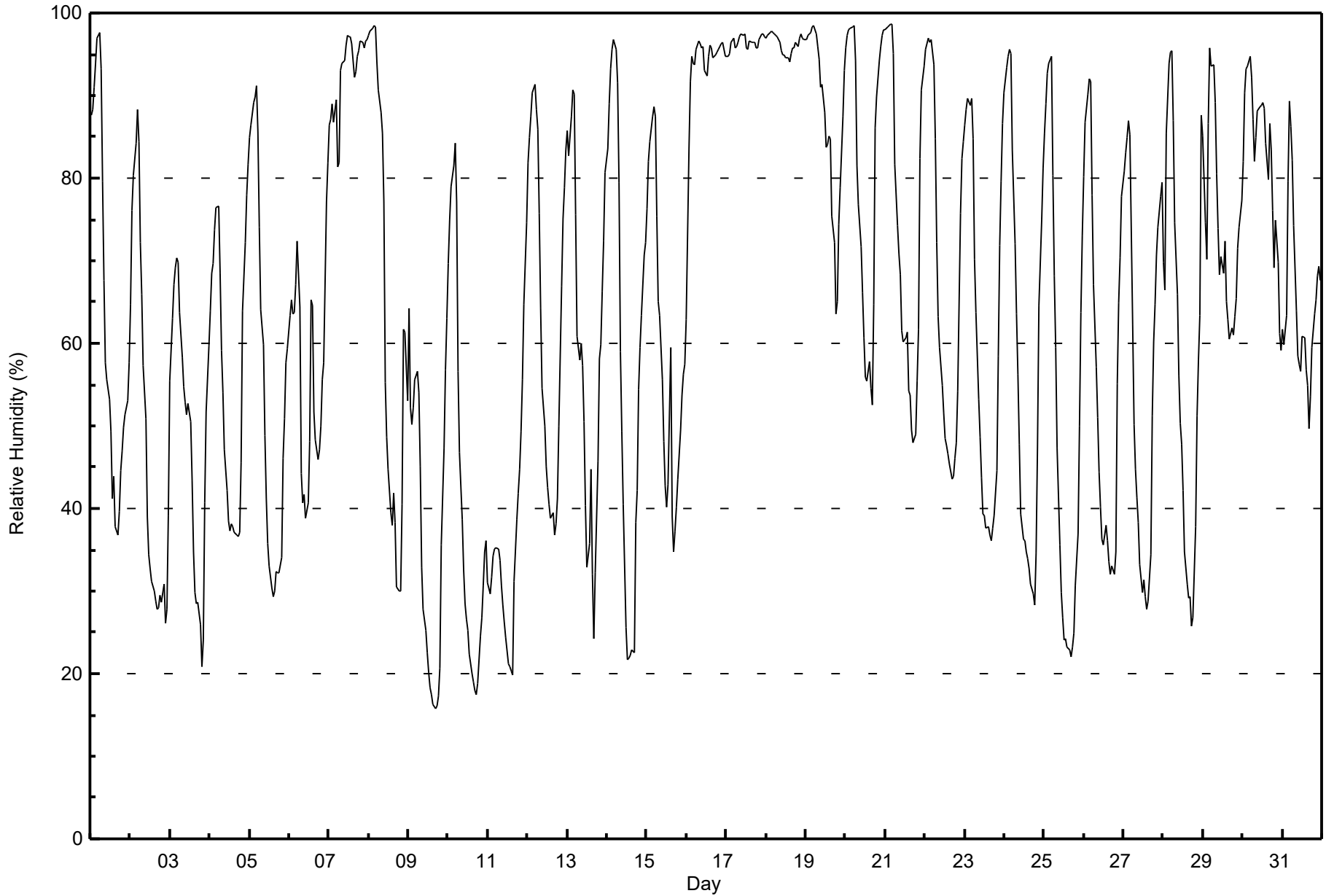
Total Number of Hours: 744



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

**Relative Humidity (RH) - %**  
**Fort McKay South - May 2024**

Maximum Value: 98.7 % on May 21 05:00      Maximum Daily Average: 96.4 % on May 17																						Hours in Service:	744																								
Minimum Value: 15.7 % on May 9 17:00      Minimum Daily Average: 35.7 % on May 11																						Hours of Data:	744																								
Maximum Diurnal Average: 88.1 % at hour 5      Minimum Diurnal Average: 45.6 % at hour 17																						Hours of Missing Data:	0																								
Monthly Average: 64.43 %      Percentiles: P <sub>1</sub> = 18.5 P <sub>10</sub> = 30.4 Q <sub>1</sub> = 42.2 Median = 64.2 Q <sub>3</sub> = 88.3 P <sub>90</sub> = 96.0 P <sub>99</sub> = 98.3																						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-May	87.6	88.3	91.1	94.0	96.9	97.7	93.2	79.7	67.6	57.6	55.6	53.2	49.3	41.2	43.9	37.9	36.8	39.6	44.5	46.9	49.8	51.4	53.0	57.5	63.1	97.7																					
2-May	64.8	76.1	80.3	84.2	88.3	84.4	72.3	65.9	57.3	50.9	39.0	34.4	32.8	31.2	30.0	28.8	27.8	28.0	29.5	28.6	30.8	26.1	27.7	39.2	48.3	88.3																					
3-May	55.3	63.0	67.1	69.2	70.3	69.8	63.6	58.3	54.8	52.8	51.4	52.7	50.5	43.5	34.7	29.9	28.5	28.7	26.0	20.8	24.1	40.6	51.7	59.6	48.6	70.3																					
4-May	63.9	68.5	69.7	73.7	76.4	76.5	68.4	59.2	54.1	47.1	42.2	38.4	37.2	38.2	37.7	37.1	36.9	36.6	37.1	45.6	63.9	72.2	78.0	81.7	55.8	81.7																					
5-May	85.0	86.4	89.1	89.8	91.2	85.6	74.1	64.1	59.8	48.9	41.2	35.7	33.0	30.4	29.2	30.0	32.3	32.2	32.2	34.1	46.1	50.8	57.7	59.3	54.9	91.2																					
6-May	63.3	65.2	63.5	63.7	67.1	72.4	64.5	44.3	40.7	41.7	38.9	40.7	48.2	65.3	64.6	51.7	48.4	46.0	47.2	49.9	55.6	57.7	77.1	81.9	56.6	81.9																					
7-May	86.4	87.1	88.9	86.7	89.6	81.4	81.9	93.0	93.9	94.2	96.1	97.3	97.1	97.1	96.2	92.2	92.8	94.7	95.4	96.5	96.4	95.8	96.6	96.8	92.7	97.3																					
8-May	97.3	97.9	98.2	98.5	98.4	94.1	90.6	87.9	85.4	77.1	55.2	48.6	44.8	39.4	37.9	41.8	38.3	30.4	30.1	30.0	40.5	61.7	61.3	53.1	64.1	98.5																					
9-May	64.3	52.2	50.1	52.2	55.6	56.7	54.1	45.1	32.9	27.7	25.3	22.6	20.2	18.3	17.5	16.2	15.7	16.2	17.2	20.6	35.7	47.3	56.8	63.0	36.8	64.3																					
10-May	69.6	74.9	79.0	81.6	84.2	77.2	56.6	46.8	38.6	32.6	28.5	26.6	25.3	22.4	20.1	19.1	17.9	17.5	18.7	24.5	26.8	30.7	34.8	36.0	41.3	84.2																					
11-May	31.0	29.6	31.7	34.2	35.0	35.3	35.1	33.7	30.7	28.3	26.3	24.4	21.2	20.8	20.3	19.8	31.1	38.7	41.9	44.7	49.2	55.6	64.8	74.6	35.7	74.6																					
12-May	81.8	84.9	87.4	90.4	91.4	88.3	86.0	75.8	64.3	54.6	50.1	45.2	42.5	40.5	38.9	39.4	36.7	38.2	41.1	50.0	67.0	75.1	78.8	83.4	63.8	91.4																					
13-May	85.7	82.8	87.5	90.6	90.2	75.6	60.8	58.0	60.0	57.3	50.5	40.3	32.8	35.7	44.8	32.1	24.2	32.2	45.8	58.1	59.8	66.3	72.3	80.8	59.3	90.6																					
14-May	83.5	89.0	93.2	95.6	96.8	95.6	91.5	79.4	59.0	49.3	40.5	25.6	21.6	21.9	22.2	22.8	22.6	38.3	42.3	54.3	59.5	63.4	70.6	72.2	58.8	96.8																					
15-May	76.3	82.0	84.5	87.5	88.6	87.5	75.4	65.0	63.4	55.5	48.2	42.8	40.1	42.8	51.9	59.5	38.9	34.7	37.3	40.2	43.6	49.5	53.8	56.3	57.5	58.8	88.6																				
16-May	63.0	83.6	91.7	94.7	93.9	93.8	95.6	96.7	96.2	95.8	95.9	93.1	92.3	94.8	96.2	95.8	94.7	94.9	95.3	95.5	95.9	96.3	96.5	94.7	93.2	96.7																					
17-May	94.8	94.7	95.1	96.4	96.9	95.8	95.9	96.5	97.2	97.4	97.2	97.5	95.8	95.6	96.6	96.5	96.5	96.5	95.8	95.7	96.9	97.4	97.4	97.1	96.4	97.5																					
18-May	97.0	97.3	97.7	97.7	97.6	97.4	97.3	97.1	96.5	95.4	95.0	95.0	94.6	94.5	94.1	95.1	95.7	95.8	96.4	96.0	96.9	97.5	97.0	96.8	96.3	97.7																					
19-May	96.9	97.2	97.4	97.7	98.3	98.4	97.4	95.9	94.4	91.0	91.3	88.0	83.8	84.1	85.1	84.7	75.4	72.2	63.5	65.1	74.4	78.7	87.4	93.0	87.1	98.4																					
20-May	95.7	97.4	98.0	98.2	98.3	98.5	94.3	81.5	76.7	71.7	66.1	60.7	56.0	55.5	57.8	54.5	52.6	64.8	86.1	89.8	94.3	95.9	97.3	97.9	80.8	98.5																					
21-May	98.0	98.3	98.4	98.6	98.7	95.1	81.7	74.2	70.9	68.3	61.5	60.1	60.7	61.4	54.3	53.6	49.5	48.0	49.0	55.5	61.7	82.4	90.6	93.6	73.5	98.7																					
22-May	95.6	96.2	96.9	96.4	96.8	93.7	84.7	72.1	63.2	59.5	54.8	51.5	48.4	47.6	46.6	45.3	43.6	43.9	46.2	48.0	54.3	75.7	82.3	84.3	67.8	96.9																					
23-May	86.5	88.3	89.6	88.8	89.7	84.8	70.2	63.8	53.2	48.7	43.6	39.4	39.1	37.6	37.9	36.7	36.2	37.7	39.2	44.6	58.5	71.9	79.7	86.7	60.5	89.7																					
24-May	90.4	93.4	94.7	95.6	95.2	83.4	72.0	63.5	56.3	47.7	39.3	36.3	36.1	34.8	33.9	32.7	30.8	29.6	28.3	34.5	47.4	64.5	75.0	81.1	58.2	95.6																					
25-May	85.5	89.0	92.7	94.0	94.7	80.3	68.1	59.5	47.2	35.6	29.8	26.9	24.0	24.2	23.2	22.8	22.0	23.2	24.9	30.7	36.9	50.0	63.8	73.1	50.9	94.7																					
26-May	80.2	86.8	90.2	92.1	91.7	77.9	67.2	57.2	51.0	44.4	40.1	36.3	35.6	38.0	36.1	33.5	32.0	33.0	32.0	34.8	55.1	64.9	70.4	77.8	56.6	92.1																					
27-May	80.9	83.0	85.0	87.0	85.3	62.1	50.2	44.8	41.4	38.3	33.3	29.9	31.4	29.4	27.8	28.7	34.4	51.1	60.1	64.7	70.7	74.0	77.9	79.6	56.3	87.0																					
28-May	69.8	66.5	85.4	93.9	95.2	95.4	87.0	74.6	65.9	56.1	50.3	47.8	42.2	34.8	30.8	29.2	29.3	25.7	26.8	37.8	51.2	58.0	63.4	87.6	58.5	95.4																					
29-May	85.1	74.6	70.1	86.6	95.7	93.5	93.8	89.1	80.4	73.9	68.3	70.5	68.4	72.4	65.1	62.9	60.5	61.8	61.0	63.2	65.4	71.4	74.1	77.3	74.4	95.7																					
30-May	82.1	90.4	93.2	93.6	94.8	92.3	87.1	82.0	84.9	88.1	88.7	88.8	89.2	88.4	84.3	79.8	86.6	83.4	76.1	69.1	75.0	69.9	61.2	59.2	82.8	94.8																					
31-May	61.7	59.9	63.5	79.7	89.3	86.3	82.3	74.3	63.9	58.5	57.4	56.6	60.8	60.6	56.8	54.9	49.6	53.6	59.5	63.6	65.2	68.1	69.3	67.6	65.1	89.3																					
																						79.3	81.4	83.9	86.5	88.1	84.1	77.2	70.3	64.6	59.6	54.9	51.8	50.2	49.8	49.2	46.6	45.6	47.4	49.3	52.8	59.8	66.6	71.6	75.6	Diurnal Average	
																						98.0	98.3	98.4	98.6	98.7	98.5	97.4	97.1	97.2	97.4	97.2	97.5	97.1	97.1	96.6	96.5	96.5	96.5	96.4	96.5	96.9	97.5	97.4	97.9	Diurnal Maximum	





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

**Wind Speed (WS) - km/h**  
**Fort McKay South - May 2024**

Maximum Speed: 28 km/h on May 10 22:00 Minimum Speed Value: 0 km/h on May 5 07:00 Maximum Diurnal Speed Average: 4.1 km/h at hour 20 Monthly Average Velocity: 2.5 km/h 350.1 deg		Maximum Daily Speed Average: 14.7 km/h on May 17 Minimum Daily Speed Average: 1.9 km/h on May 7 Minimum Diurnal Speed Average: 1.4 km/h at hour 13 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 8 Q <sub>3</sub> = 12 P <sub>90</sub> = 17 P <sub>99</sub> = 23		Hours in Service: 744 Hours of Data: 736 Hours of Missing Data: 8 Percent Operational Time: 98.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	N7	NNE7	NNE7	N5	N4	N5	N10	NNE12	NNE14	NNE15	N19	N21	N21	NNE21	N23	N22	NNE20	NNE18	NNE16	N19	N19	N17	N14	N11	N14.4	N23	
2-May	NNW7	NW5	NNW6	NNW6	NW3	N2	NNE8	N13	N13	N14	N16	NNE15	NNE17	NNE19	N19	N20	N22	N21	N20	N16	NNW13	NNW12	NNW11	NNW6	N12.3	N22	
3-May	NW3	WSW3	W2	NNW2	WNW1	UO	N3	NNE7	N10	N9	NNE11	N11	N9	NNE10	N11	N11	N12	NNE12	NNE14	N12	NNW9	NNW6	NW5	WNW3	N7.1	NNE14	
4-May	WSW2	NW3	SW2	SW2	WSW2	UO	WNW1	NNE5	NNE9	NNE10	N11	NNE11	NNE11	NNE10	NNE9	NNE9	NE9	NNE8	NNE6	NNE4	UO	SW1	S2	SSW2	NNE4.7	NNE11	
5-May	S2	UO	NW1	NW3	WNW2	NW1	W0	SE4	SSE5	SSE7	SE8	SE16	SE19	SE16	SE18	SSE15	S8	SSE12	SSE12	SSE6	ESE3	SSE3	SE3	SSE2	SSE6.5	SE19	
6-May	NW2	S1	ESE1	N5	N4	NNW3	N4	SE10	SSE15	SE17	SE21	SE18	SE15	SE4	N8	NE11	ENE9	E7	NNE7	N7	WNW2	S17	S9	SSW2	SE4.3	SE21	
7-May	N6	N5	N4	N5	N4	NE4	ESE5	NE3	ENE4	NE5	N6	N8	NNW7	N5	ENE2	SE9	SE5	ESE3	ESE3	E2	SE6	SSE9	SSE8	SSE10	ENE1.9	SSE10	
8-May	S8	S6	SSE3	S4	WSW6	W8	WNW9	WNW6	NW5	W3	ESE5	SE6	S10	SSE16	S14	SW9	SSW5	SSW11	SW10	SW7	SW5	SW4	SW6	WSW8	SSW5.2	SSE16	
9-May	WSW8	WSW6	WSW10	W10	WSW10	WSW8	WSW9	W7	NW13	WNW15	WNW17	WNW20	WNW21	WNW22	WNW20	NW19	NW16	NNW17	NNW11	NNW6	NW2	WSW4	SW3	SSW2	WNW10.1	WNW22	
10-May	WSW2	SSW3	SW3	WSW2	SW2	S5	SSE7	SSE8	SSW10	SSW13	SW16	WSW17	WSW14	W16	WSW18	WSW15	WSW16	WNW14	WNW11	NW5	NNW13	N28	N18	NW7	W6.4	N28	
11-May	NW10	NW10	WNW8	WNW9	WNW10	WNW11	WNW12	NW17	NW21	NNW24	NNW24	NNW24	NNW28	NNW24	NNW22	NNW24	NNE21	NNE21	NNE19	NNE18	NNE13	NNE10	N5	NNW2	NNW14.1	NNW28	
12-May	NW2	WSW1	W2	W3	WSW3	WSW2	N2	NE2	E3	SSE4	ESE5	SE5	SE8	SSE9	SSE9	SE8	SSE13	SE10	ESE5	NE3	NW2	WNW2	WNW1	SW2	SE2.6	SSE13	
13-May	SSW2	NW1	WSW3	S2	S4	S10	S15	SSE15	SSE17	SSE18	SSE17	SSE18	S18	SSW9	NE4	ESE4	W9	NNW6	NNW9	N14	NE5	N8	NNW3	WSW4	S4.1	SSE18	
14-May	SW1	SW2	S2	S3	SW1	SSE2	S3	S8	S12	S10	SSE14	SSW14	SSW16	WSW13	SW14	SW15	WSW12	N9	N9	N11	N5	N1	S2	W6	SW4.1	SSW16	
15-May	W2	SSW2	NW2	W2	SW2	W3	NNW3	N4	N9	N11	N12	N11	NNE9	NNW8	SW6	NE2	NNE14	NNE15	NNE14	NNE13	NNE13	NNE12	NNE9	NNE9	N6.4	NNE15	
16-May	NNE8	N7	NNW6	NNW10	N9	N11	NNW9	N9	NNE12	NNE11	NNE11	NNE11	NNE11	N9	N13	N13	N14	N14	N13	N13	N13	NNE12	N12	NNE13	N10.9	N14	
17-May	NNE15	NNE13	N15	N14	N14	N14	N15	N14	N14	N15	N16	N16	N17	N18	N20	N18	N19	N18	N17	NNW14	NNW11	N7	N12	N12	N14.7	N20	
18-May	N12	N11	N10	N11	NNW10	N11	N9	N12	N14	N15	N16	N16	N17	N17	N18	NNW15	N17	N17	N12	NNE7	NNE6	N6	N7	N8	N12.2	N18	
19-May	N8	N7	N7	N7	N8	N8	N7	N8	NNE8	NE9	NNE10	NNE12	NNE13	NE10	NNE10	NNE11	NNE10	NNE10	NNE13	NNE9	N13	N11	NNW6	NNW6	NNE8.9	NNE13	
20-May	NW2	NW4	NW4	NW3	WSW1	SW2	N4	N7	N9	N11	NNE12	NNE13	NNE11	NNE12	N11	N12	NNE9	ESE6	S4	WSW1	UO	SW2	W1	W1	N4.6	NNE13	
21-May	WNW1	W2	WSW2	NW1	ESE1	E3	SE7	E6	ESE4	SE6	E7	E6	E9	SE9	E9	ENE9	ENE7	ENE9	ESE6	NE3	E4	NW3	WNW3	WNW2	E3.5	SE9	
22-May	NW2	NW2	NW2	WSW2	WNW3	NNW4	N6	NNE7	NNE8	NE10	NE11	NE11	NE12	NE12	NE10	NE10	NE9	ENE6	SE8	SE9	SE6	WSW2	WSW2	WNW1	NE4.2	NE12	
23-May	UO	UO	SW3	SSE3	SW0	SSE1	ESE3	E3	ESE4	ENE6	NE7	ESE7	SSE8	SSE8	SE10	S11	S11	S12	S11	S8	S4	S4	SW2	WSW2	SSE4.4	S12	
24-May	SW1	UO	SW2	WSW2	WSW3	N1	SE3	ESE3	SE6	SE11	SE12	SSE13	S10	S7	NE3	SSE9	SE10	S11	SSW9	SW6	SW5	WSW6	SSW3	S4	SSE4.7	SSE13	
25-May	S3	SSW2	S2	SW3	WSW2	SSE4	SE7	SSE8	SSE12	SSE17	SSE18	SE17	SSE17	SSE18	SSE17	S17	SE16	SSE14	SSE14	SE14	SE8	S4	WSW1	SW2	SSE9.4	SSE18	
26-May	WSW2	WSW2	WNW1	W2	W2	N3	SE5	SSE6	SE11	SSE13	SSE13	SE11	S14	S10	SSE11	SSE9	SSE9	SSE8	SE7	SE5	WSW1	SW4	SW2	WSW2	SSE5.2	S14	
27-May	W2	WSW3	SW1	WSW2	NW2	SE3	E4	SE5	NE4	ESE7	SE12	SSE13	SSE15	SSE17	SSE13	SSE13	SSW6	WSW9	SE2	SSE4	S1	SSW2	SW2	SW3	SSE4.4	SSE17	
28-May	W5	NW5	NNW5	S2	ESE1	WSW2	NW4	NW3	WSW4	SW6	SSW6	S6	S8	SW9	SW11	SSW10	SW7	SW9	WSW5	WNW1	NW2	W2	S4	NW2	SW3.7	SW11	
29-May	N6	N9	N4	WNW1	N5	N4	NNW5	NNW8	N11	N10	WSW3	SW8	SSW7	SW13	SW16	SW17	SW15	SW14	SW13	SW13	SW13	SW13	SW9	SSW11	SSW11	WSW5.2	SW17
30-May	S9	S5	WNW4	W6	NW5	NW7	NW9	NW9	NW10	NW9	NW8	WNW6	WNW6	WNW5	WNW7	NNW10	NW8	NW6	NW9	NNW9	NW7	NW8	NW11	WNW8	NW6.4	NW11	
31-May	WNW8	NW14	NW17	WNW14	NW11	WNW10	WNW10	WNW10	NW14	NW14	NW14	NW15	NW15	NW16	NNW12	NNW10	NNW14	NNW16	NNW17	NW11	NNW11	NNW13	NNW14	NNW12	NW12.7	NNW17	
NW2.4 NW2.8 NW2.9 NW2.8 NW2.7 NW2.2 NNW2.0 N2.5 N2.9 NNE2.7 NNE2.9 NNE2.6 NNE1.4 NNW1.6 NNW2.6 N2.3 N3.3 N3.6 N3.8 N4.1 N3.7 NNW3.1 NNW2.6 NW2.3																								Diurnal Average			
NNE15 NW14 NW17 N14 N14 N14 N15 NW17 NW21 NNW24 NNW24 NNW24 NNW28 NNW24 N23 NNW24 N22 NNE21 N20 N19 N19 N28 N18 NNE13																								Diurnal Maximum			
UO - Unstable Operation All monthly, daily, and diurnal averages have been calculated using vector methods																											



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

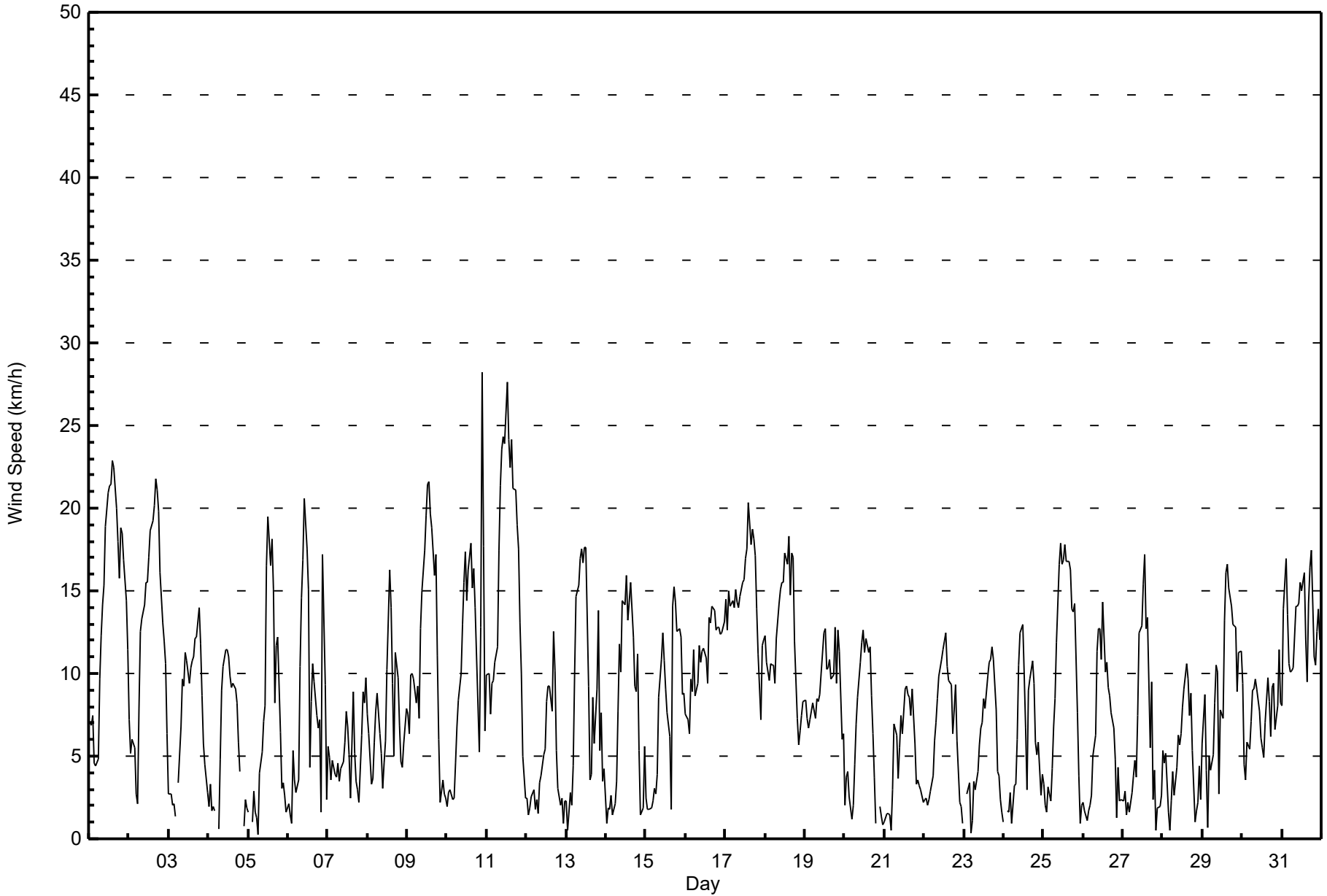
**Wind Speed (WS) - km/h**  
**Fort McKay South - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 10 22:00														Hours in Service: 744 Hours of Data: 736 Hours of Missing Data: 8 Hours of Calibration: 0 Percent Operational Time: 98.9											
Minimum Value: 1 km/h on May 24 22:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 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-May	1	2	2	1	1	1	2	3	4	5	4	5	5	5	6	6	5	4	4	4	4	4	3	3	6
2-May	1	1	1	1	2	2	2	3	3	3	4	4	5	5	5	5	5	5	5	4	3	2	2	2	5
3-May	1	1	1	2	2	UO	2	3	2	2	2	3	4	4	4	4	4	4	4	3	2	1	1	1	4
4-May	1	1	1	1	1	UO	1	2	3	3	3	4	4	5	5	4	3	3	2	2	UO	1	1	1	5
5-May	1	UO	1	1	1	1	1	2	2	2	4	5	5	5	5	5	5	5	5	2	1	1	2	2	5
6-May	1	2	2	1	2	1	1	4	3	4	6	5	5	3	2	3	3	3	2	2	4	4	5	2	6
7-May	1	2	2	1	1	2	4	1	2	2	1	1	2	1	2	3	2	2	1	2	2	1	2	4	4
8-May	1	1	1	1	2	2	3	2	2	1	2	3	4	5	4	3	2	4	3	3	1	1	1	2	5
9-May	2	2	3	3	2	3	3	3	5	6	6	7	8	8	7	7	6	6	5	2	1	1	1	1	8
10-May	1	1	1	1	1	2	2	2	3	4	5	6	6	7	7	6	6	5	5	4	3	9	8	2	9
11-May	3	3	2	3	3	3	5	6	6	7	7	8	9	7	7	7	6	6	5	5	5	3	3	2	9
12-May	2	1	1	1	1	1	1	1	2	2	2	3	3	3	2	3	3	3	2	1	1	1	1	1	3
13-May	1	1	1	1	2	2	3	3	3	3	4	5	5	4	5	3	4	4	7	7	2	2	2	1	7
14-May	1	2	1	1	1	2	1	2	3	3	4	5	5	5	4	5	4	4	6	4	4	2	2	2	6
15-May	2	2	1	2	1	2	2	1	4	3	3	4	3	5	2	3	4	4	4	3	3	3	3	3	5
16-May	3	2	3	4	3	2	2	2	3	3	3	3	3	2	3	3	4	3	3	3	3	3	3	3	4
17-May	3	3	3	3	3	4	3	3	3	3	3	4	4	4	5	4	5	4	4	4	4	3	2	3	5
18-May	3	2	2	3	2	2	3	3	4	3	4	4	4	4	5	4	4	4	3	2	1	1	2	2	5
19-May	2	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	2	3	3	1	1	3
20-May	2	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	4	3	1	UO	1	1	1	4
21-May	1	1	1	1	1	1	2	2	2	2	3	3	3	4	3	4	3	3	2	1	2	1	1	1	4
22-May	2	1	2	1	1	1	2	2	2	3	4	4	4	4	4	3	3	2	3	3	2	1	1	1	4
23-May	UO	UO	1	1	1	2	2	1	2	3	2	3	5	4	5	4	4	3	3	2	1	1	1	1	5
24-May	1	UO	1	1	1	1	1	2	3	4	4	4	5	4	2	2	3	3	3	2	1	1	1	1	5
25-May	2	2	2	1	1	1	2	2	4	4	4	4	5	5	5	5	4	4	3	3	3	2	2	1	5
26-May	1	2	1	1	2	2	2	3	3	3	4	4	4	4	4	3	3	2	2	2	1	2	1	2	4
27-May	1	1	1	2	1	2	2	2	2	3	4	4	5	4	4	4	4	4	2	2	1	1	1	1	5
28-May	3	3	2	2	2	1	1	2	2	3	3	3	4	4	4	4	3	3	3	1	2	1	3	3	4
29-May	2	2	3	2	2	3	3	2	3	3	2	2	4	5	5	5	5	5	4	4	4	3	3	3	5
30-May	2	2	2	2	2	2	3	3	4	3	2	2	2	2	3	5	3	2	4	4	2	3	4	3	5
31-May	3	6	7	6	6	4	4	3	6	5	6	5	6	6	5	3	6	5	5	4	4	4	4	4	7
														Diurnal Maximum											
UO - Unstable Operation																									



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

**Wind Speed (WS) - km/h**  
**Fort McKay South - May 2024**





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

**Wind Speed (WS) - km/h**  
**Fort McKay South - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	246	33.42	33.42
6 - 11	275	37.36	70.79
12 - 19	188	25.54	96.33
20 - 28	27	3.67	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 736

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort McKay South - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	23	3	11	2	6	15	11	10	21	11	28	32	16	17	32	8	246
6 - 11	53	39	11	6	6	4	23	19	18	11	12	10	6	16	16	25	275
12 - 19	56	30	2	0	0	0	11	30	7	3	11	7	1	5	12	13	188
20 - 28	10	4	0	0	0	0	1	0	0	0	0	0	0	4	1	7	27
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>	142	76	24	8	12	19	46	59	46	25	51	49	23	42	61	53	736

Total Number of Valid Hours: 736

Total Number of Hours: 744







# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Direction (WD) - deg

## Fort McKay South - May 2024

Direction of Maximum Speed: 3 deg on May 10 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 0.3 deg on May 17	Hours of Data: 736
Direction of Minimum Speed: 264 deg on May 5 07:00	Direction of Minimum Daily Speed Average: 1.9 deg on May 7
Direction of Minimum Speed: 264 deg on May 5 07:00	Hours of Missing Data: 8
Monthly Average Direction: 350.1 deg	Percent Operational Time: 98.9

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-May	356	14	18	2	2	1	5	12	16	13	9	7	6	13	4	7	16	17	18	7	10	3	359	351	8.4
2-May	343	318	330	341	320	352	16	5	7	3	7	20	19	20	11	8	7	4	6	357	344	344	344	345	2.4
3-May	324	249	278	329	282	UO	355	14	5	9	15	2	5	17	11	5	2	15	16	8	347	330	325	294	1.4
4-May	257	304	221	232	243	UO	296	17	17	25	8	22	26	27	16	25	40	24	14	16	UO	236	183	197	17.5
5-May	191	UO	319	319	291	313	264	145	156	148	130	143	141	140	133	165	177	158	157	148	114	149	144	158	148.5
6-May	308	171	105	1	358	339	5	135	151	145	144	132	144	125	356	42	75	97	18	4	302	177	182	209	124.9
7-May	355	351	9	357	1	39	123	56	65	37	8	2	348	351	68	140	140	115	118	97	142	163	168	168	74.5
8-May	174	178	168	184	250	271	294	293	306	276	112	145	181	168	185	214	208	205	227	233	228	224	236	247	212.4
9-May	237	241	255	274	252	249	252	281	308	300	291	294	302	297	300	309	320	335	333	332	307	244	229	206	293.0
10-May	245	211	236	239	229	176	167	166	195	211	222	250	250	263	247	255	255	286	300	318	338	3	357	316	266.0
11-May	316	308	286	283	282	286	295	319	323	329	333	327	331	327	334	336	17	23	22	16	14	22	6	337	336.3
12-May	317	252	269	261	250	242	8	35	89	151	115	128	146	154	153	139	149	137	111	44	323	303	291	223	144.8
13-May	200	323	246	190	180	174	169	168	168	155	151	160	178	201	38	104	262	332	345	7	45	352	330	249	170.3
14-May	221	233	187	189	219	164	187	171	181	177	152	200	213	244	231	218	252	359	358	4	354	355	190	265	217.0
15-May	275	209	325	271	234	260	344	11	10	359	3	11	22	336	227	48	12	16	24	20	19	16	16	16	7.3
16-May	14	357	347	343	356	360	344	356	14	20	15	23	19	7	357	357	2	3	8	6	9	12	9	15	5.5
17-May	15	17	5	3	8	10	2	357	360	0	354	5	10	4	2	356	353	355	351	348	346	354	357	351	0.3
18-May	352	354	350	350	348	351	349	349	353	353	356	357	350	351	350	347	351	351	354	12	13	1	9	8	353.5
19-May	357	354	352	358	3	11	3	10	31	37	24	25	28	40	23	28	30	29	21	13	356	359	339	339	14.3
20-May	316	317	323	314	253	223	353	4	9	7	15	12	22	16	9	6	20	121	178	253	UO	219	260	259	6.5
21-May	285	268	251	316	116	90	139	99	115	140	94	95	97	140	99	77	73	72	103	47	96	319	303	282	97.1
22-May	321	314	323	239	294	342	352	21	22	42	40	38	43	48	43	38	45	78	143	143	135	239	247	286	42.6
23-May	UO	UO	234	168	225	158	117	82	104	69	48	114	156	148	145	170	169	172	179	186	190	191	223	238	156.0
24-May	220	UO	234	241	237	4	137	117	137	135	142	147	173	175	45	148	145	175	197	214	227	248	204	173	166.8
25-May	183	212	175	217	244	166	137	147	160	164	161	138	152	158	159	175	151	159	148	146	145	191	251	215	158.4
26-May	245	242	285	262	266	360	145	147	146	151	148	126	181	183	155	159	162	161	130	134	252	227	227	246	161.8
27-May	273	242	225	254	311	143	81	137	44	102	130	154	149	151	149	147	193	252	136	161	191	199	234	218	155.3
28-May	267	304	331	177	102	250	310	316	241	218	200	191	180	219	219	213	221	217	255	289	306	262	183	306	230.2
29-May	351	355	6	299	353	352	332	339	2	4	256	228	211	222	220	221	221	219	214	219	217	214	204	194	236.7
30-May	180	180	288	276	306	311	314	313	309	306	304	303	295	285	301	340	318	314	320	327	321	313	311	303	306.5
31-May	296	313	319	303	313	296	302	295	314	320	310	325	316	319	327	339	335	337	329	326	327	343	332	329	320.4

319.2 320.2 319.8 311.0 312.7 321.7 339.7 4.3 8.7 21.6 33.3 32.2 26.2 345.1 348.7 355.4 1.4 8.8 5.8 4.3 354.3 340.3 328.6 309.8

Diurnal Average

UO - Unstable Operation

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



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

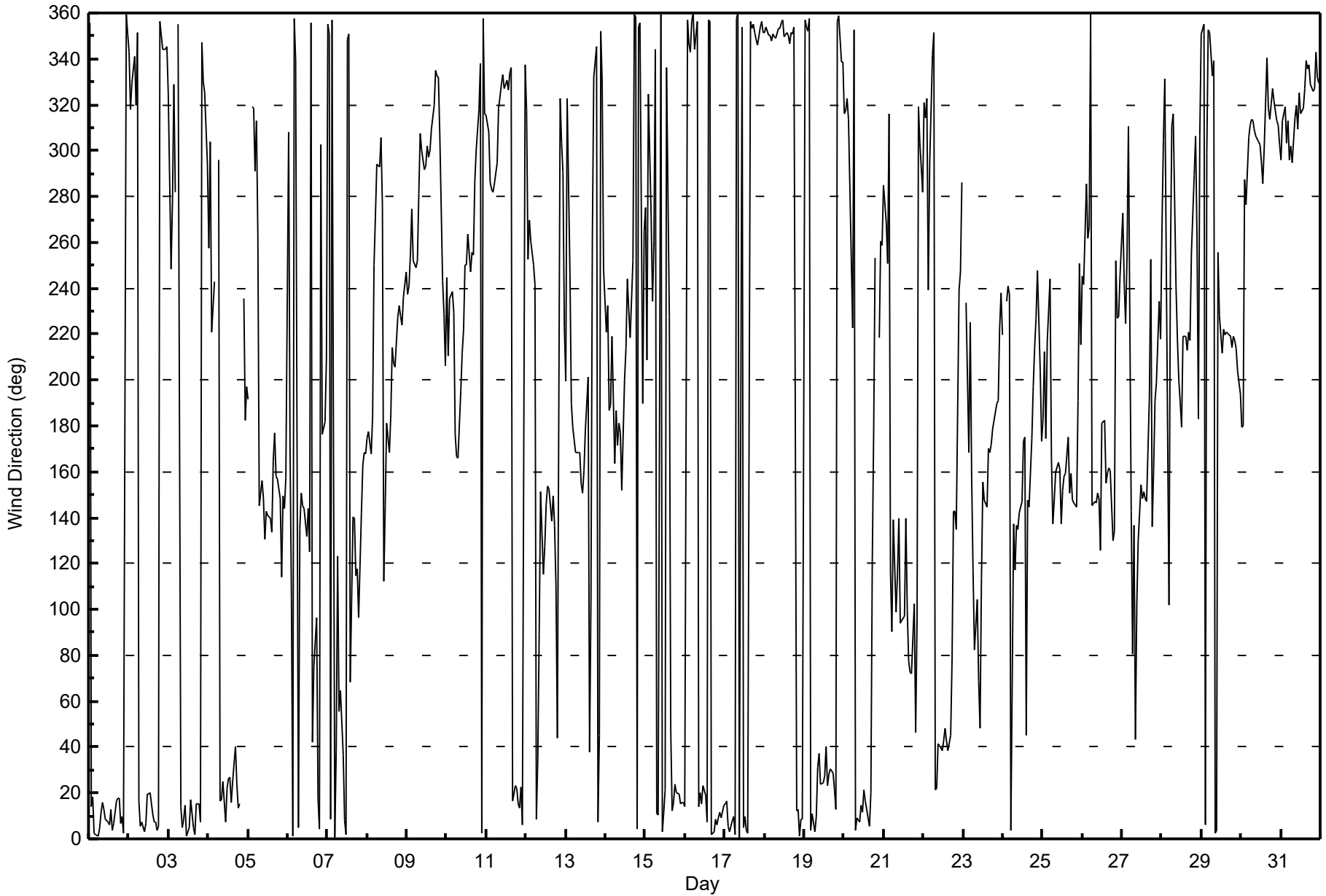
**Wind Direction (WD) - deg**  
**Fort McKay South - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on May 28 05:00 Minimum Value: 8 deg on May 2 04:00 Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 16 Q <sub>1</sub> = 18 Median = 25 Q <sub>3</sub> = 37 P <sub>90</sub> = 54 P <sub>99</sub> = 87																								Hours in Service: 744 Hours of Data: 736 Hours of Missing Data: 8 Hours of Calibration: 0 Percent Operational Time: 98.9	
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-May	16	15	13	26	12	10	13	16	20	23	18	18	18	20	21	20	20	19	19	17	17	18	16	14	26
2-May	13	10	10	8	20	26	14	18	20	22	25	23	27	21	23	22	19	18	18	17	13	13	13	12	27
3-May	25	31	26	16	37	UO	38	18	17	23	23	27	42	41	38	32	31	25	18	18	14	12	12	40	42
4-May	46	31	56	38	26	UO	84	31	25	28	24	27	37	44	46	41	29	33	32	29	UO	85	12	12	85
5-May	9	UO	38	12	29	43	74	37	26	32	50	23	18	20	19	20	37	17	18	16	31	23	56	90	90
6-May	30	70	81	18	19	26	24	30	20	14	17	20	17	53	17	37	33	37	22	16	89	14	16	84	89
7-May	13	15	57	13	30	36	41	32	32	22	15	15	15	16	59	17	17	38	21	39	17	11	10	10	59
8-May	11	11	12	29	26	28	21	27	21	40	56	56	40	21	22	24	41	31	25	24	16	15	11	11	56
9-May	12	18	20	26	16	30	28	33	25	30	32	32	29	29	31	28	28	22	19	15	44	23	25	50	50
10-May	51	18	12	30	36	26	18	17	27	25	29	30	35	36	29	38	34	34	27	23	16	20	18	19	51
11-May	19	19	20	23	26	27	32	28	23	24	22	26	24	24	26	23	22	21	20	18	20	19	33	45	45
12-May	43	47	40	13	18	45	15	90	58	56	45	53	31	25	24	26	17	25	32	26	36	22	42	55	90
13-May	19	92	13	22	12	10	10	13	13	15	19	23	17	47	65	81	45	65	70	23	44	16	52	13	92
14-May	75	52	41	26	75	55	56	18	18	30	20	28	28	32	27	26	29	43	56	28	54	71	82	22	82
15-May	56	72	67	42	46	37	63	35	28	22	24	28	41	54	26	92	28	20	20	18	18	17	21	18	92
16-May	18	18	34	16	21	16	16	17	18	25	17	20	18	20	16	17	18	16	16	16	17	17	16	18	34
17-May	16	18	16	17	17	19	19	16	17	16	15	18	18	18	16	17	16	18	16	17	17	17	15	14	19
18-May	15	15	15	15	15	16	17	16	17	17	19	17	17	17	18	17	17	17	16	24	20	16	18	17	24
19-May	17	18	16	16	17	18	18	18	23	26	19	19	22	24	20	23	24	22	20	19	17	17	16	14	26
20-May	62	18	13	20	67	43	28	18	21	21	21	22	23	23	23	22	24	59	34	83	UO	41	45	52	83
21-May	33	37	43	74	74	33	26	31	56	32	38	52	42	33	33	40	48	33	46	38	51	32	22	27	74
22-May	34	30	60	44	47	22	18	36	25	31	28	27	27	29	30	32	29	34	30	19	19	49	17	45	60
23-May	UO	UO	16	26	86	95	39	54	75	62	50	52	53	69	43	34	30	20	16	14	11	23	36	41	95
24-May	60	UO	44	32	22	63	34	65	42	35	33	32	47	62	66	32	24	23	22	21	16	9	36	15	66
25-May	53	45	69	27	18	17	16	26	23	20	22	26	24	21	25	23	20	22	20	13	16	28	70	47	70
26-May	44	52	43	37	58	40	48	32	23	30	29	26	25	41	26	37	28	25	35	25	48	31	55	42	58
27-May	60	12	53	13	50	40	33	35	66	36	28	32	23	25	33	20	60	33	60	33	81	18	38	14	81
28-May	52	69	37	87	103	58	34	63	44	47	50	51	56	52	38	47	48	43	34	79	50	43	52	75	103
29-May	36	20	70	88	34	76	36	16	22	27	74	28	35	25	27	26	25	25	24	24	25	25	20	18	88
30-May	14	37	43	27	24	23	23	23	27	24	24	23	28	26	31	33	25	19	25	19	20	25	24	27	43
31-May	29	25	25	27	28	27	24	24	26	23	26	24	27	27	24	21	22	19	23	20	23	17	21	21	29
75 92 81 88 103 95 84 90 75 62 74 56 56 69 66 92 60 65 70 83 89 85 82 90																									
Diurnal Maximum																									
UO - Unstable Operation																									



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

**Wind Direction (WD) - deg**  
**Fort McKay South - May 2024**





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS14  
ANZAC  
MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
MAY 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	706	37	38	99.87	7.3	0	0.8	0
TRS(ppb) Average	706	37	38	99.87	1.2	0	0.3	0
THC(ppm) Average	706	37	38	99.87	2.9	-	2	-
NMHC(ppm) Average	706	37	38	99.87	0.864	-	0.073	-
CH4(ppm) Average	706	37	38	99.87	2.3	-	2	-
NO2(ppb) Average	706	37	38	99.87	8.2	0	2.4	-
NO(ppb) Average	706	37	38	99.87	13.5	-	1.3	-
NOX(ppb) Average	706	37	38	99.87	20.6	-	2.8	-
O3(ppb) Average	708	35	36	99.87	55.5	0	41.9	-
PM2.5(ug/m3) Average	742	2	2	100	145.9	0	81.5	3
AT 2m(C) Average	744	0	0	100	25.8	-	17.1	-
RH(%) Average	744	0	0	100	100	-	98.4	-
WS(km/h) Average	744	0	0	100	37	-	23	-
WD(deg) Average	744	0	0	100	-	-	-	-
Leaf Wetness (% of range) Average	744	0	0	100	47.9	-	32.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
MAY 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	706	0.27	0.6	-	0	0	0	0.1	0.3	0.6	7.3
TRS(ppb) Average	706	0.15	0.1	-	0.1	0.1	0.1	0.1	0.2	0.2	1.2
THC(ppm) Average	706	1.93	0.1	-	1.9	1.9	1.9	1.9	1.9	2	2.9
NMHC (ppm) Average	706	0.008	0.048	-	0	0	0	0	0	0	0.864
CH4(ppm) Average	706	1.93	0	-	1.9	1.9	1.9	1.9	1.9	2	2.3
NO2(ppb) Average	706	0.97	1.1	-	0	0.1	0.3	0.6	1.3	2.3	8.2
NO(ppb) Average	706	0.24	0.9	-	0	0	0	0	0.1	0.5	13.5
NOX(ppb) Average	706	1.21	1.7	-	0	0.1	0.4	0.6	1.5	2.8	20.6
O3(ppb) Average	708	32.1	10.5	-	7.9	16.8	24.6	32.5	40.3	45.5	55.5
PM2.5(ug/m3) Average	742	9.55	19.5	-	0.3	1.4	2.6	3.9	5.8	20.8	145.9
Temperature 2 m (C) Average	744	9.53	5.4	-	-4.4	3.2	5.7	8.8	13.1	17.3	25.8
Relative Humidity (%) Average	744	63.69	24.9	-	17.5	29.9	42.5	63.4	88.1	97.2	100
Wind Speed 20 m (km/h) Average	744	12.5	6	-	1	6	8	11	16	20	37
Wind Direction 20 m (deg) Average	744	44.3	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	5.82	10.8	-	0	0	0	0	6.4	25.4	47.9

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	10 May 2024 13:00	10 May 2024 13:00	1	Maintenance - sample manifold cleaned



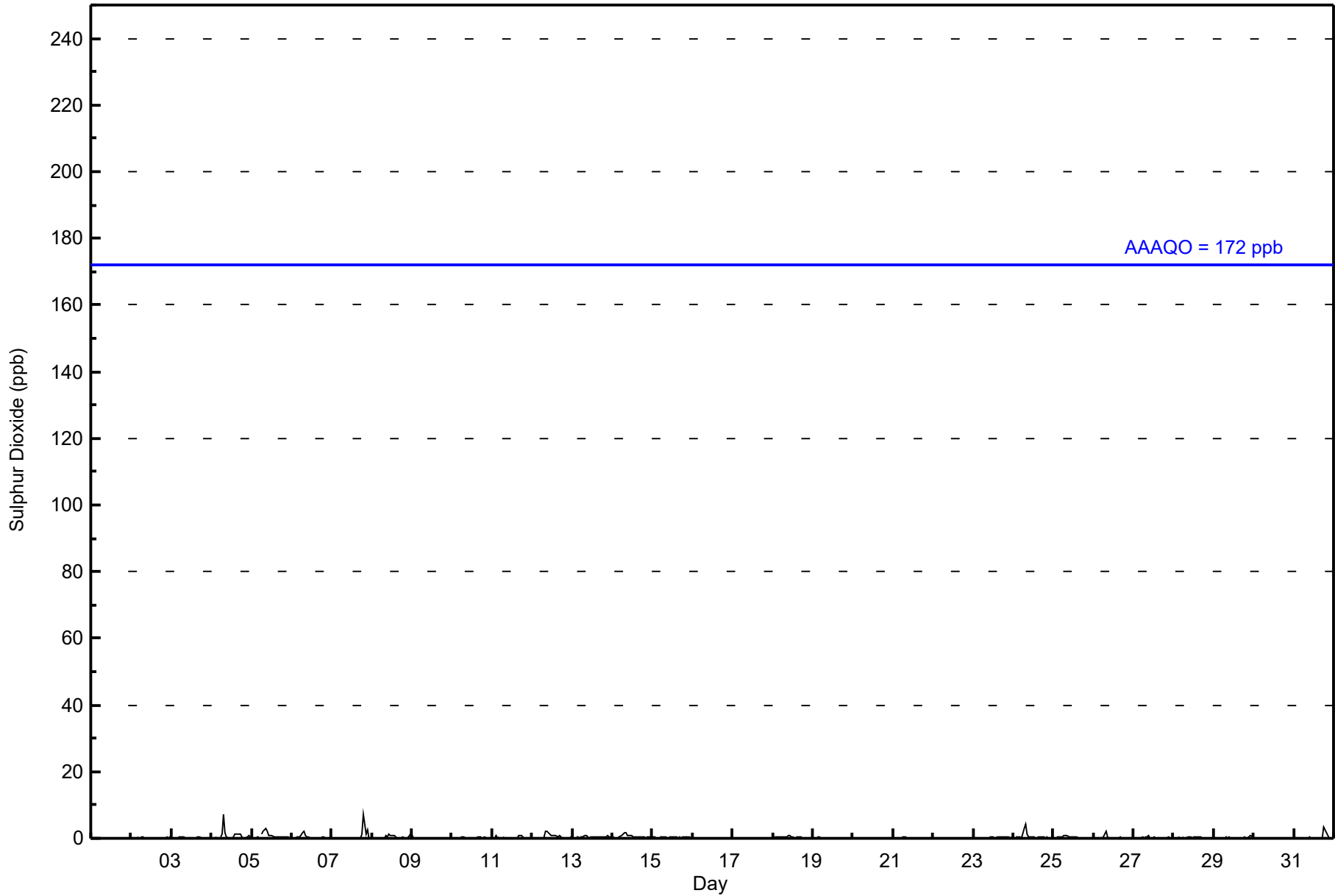


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744						
Maximum Value: 7.3 ppb on May 4 08:00		Maximum Daily Average: 0.8 ppb on May 4																	Hours of Data:	706								
Minimum Value: 0.0 ppb on May 1 10:00		Minimum Daily Average: 0.0 ppb on May 30																	Hours of Missing Data:	38								
Maximum Diurnal Average: 0.8 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 2																	Hours of Calibration:	37								
Monthly Average: 0.27 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.6 P <sub>99</sub> = 2.2																	Percent Operational Time:	99.9								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-May	0.0	Z	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.2
2-May	0.1	0.2	Z	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.6	0.2	0.2	0.6	
3-May	0.1	0.0	0.0	Z	0.4	0.3	0.3	0.3	0.2	C	C	C	C	C	C	0.2	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.1	--	0.4		
4-May	0.1	0.1	0.1	0.3	Z	0.5	1.3	7.3	1.5	0.3	0.2	0.1	0.1	0.4	1.2	1.3	1.5	1.1	0.6	0.2	0.2	0.2	0.8	0.2	0.8	7.3		
5-May	0.2	0.1	0.1	0.2	0.3	Z	1.1	1.9	3.2	2.1	0.6	0.8	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.6	3.2	3.2		
6-May	Z	0.1	0.2	0.2	0.4	0.6	1.7	2.2	1.0	0.3	0.3	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.5	0.5	0.2	0.0	0.0	0.1	0.4	2.2		
7-May	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	1.4	7.1	1.1	2.6	0.1	0.0	0.6	7.1		
8-May	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.8	0.5	1.3	0.7	0.9	0.6	0.3	0.1	0.2	0.1	0.3	0.1	0.0	0.1	0.4	1.8	0.4	1.8		
9-May	0.5	0.2	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.5		
10-May	0.0	0.1	0.0	0.0	Z	0.5	0.3	0.3	0.2	0.0	0.0	0.0	M	0.0	0.1	0.3	0.2	0.3	0.2	0.3	0.0	0.0	0.1	0.0	0.1	0.5		
11-May	0.0	0.1	0.9	0.0	0.2	Z	0.3	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.7	1.0	0.2	0.0	0.1	0.0	0.1	0.0	0.2	1.0		
12-May	Z	0.1	0.1	0.2	0.1	0.2	0.2	0.4	2.0	2.0	1.4	0.9	0.9	0.9	0.9	0.6	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.3	0.5	2.0		
13-May	0.1	Z	0.3	0.3	0.2	0.3	0.4	0.7	0.7	0.2	0.2	0.2	0.4	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.7	0.3	0.3	0.3	0.7		
14-May	0.2	0.1	Z	0.2	0.3	0.6	1.4	1.7	1.6	1.0	0.7	0.7	0.6	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.2	0.5	0.3	0.5	0.6	1.7		
15-May	0.4	0.3	0.4	Z	0.4	0.6	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.6		
16-May	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.2		
17-May	0.1	0.2	0.2	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2		
18-May	Z	0.4	0.6	0.5	0.6	0.5	0.4	0.4	0.6	0.9	0.8	0.4	0.4	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.0	0.2	0.2	0.2	0.4	0.9		
19-May	0.1	Z	0.2	0.2	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.3		
20-May	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2		
21-May	0.1	0.1	0.0	Z	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.6		
22-May	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.2	0.1	0.2		
23-May	0.2	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.4	0.3	0.5	0.4	0.2	0.4	0.2	0.5		
24-May	Z	0.3	0.3	0.3	0.4	0.1	2.9	4.1	1.1	0.3	0.4	0.3	0.3	0.1	0.2	0.4	0.3	0.4	0.3	0.2	0.3	0.2	0.0	0.2	0.6	4.1		
25-May	0.5	Z	0.4	0.6	0.5	0.5	0.7	1.0	0.8	0.6	0.6	0.5	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.0		
26-May	0.0	0.0	Z	0.0	0.1	0.2	0.6	2.0	0.6	0.2	0.1	0.2	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	2.0		
27-May	0.0	0.1	0.0	Z	0.0	0.3	0.2	0.4	0.4	0.7	0.2	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.7		
28-May	0.0	0.0	0.1	0.3	Z	0.2	0.0	0.2	0.6	0.5	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.6		
29-May	0.0	0.1	0.2	0.1	0.1	Z	0.1	0.2	0.1	0.4	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.6	0.7	0.6	0.2	0.7		
30-May	Z	0.2	0.0	0.0	0.1	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	0.1	0.1	0.0	0.1	0.1	0.0	0.2		
31-May	0.2	Z	0.1	0.1	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	3.3	1.6	1.1	0.1	0.1	0.0	0.3	3.3		
																								Diurnal Average				
																								Diurnal Maximum				
																								0.1 0.1 0.2 0.2 0.2 0.2 0.4 0.8 0.5 0.4 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.3 0.4 0.2 0.2 0.2 0.2 0.2				
																								0.5 0.4 0.9 0.6 0.6 0.6 2.9 7.3 3.2 2.1 1.4 0.9 0.9 0.9 1.2 1.3 1.5 1.1 3.3 7.1 1.1 2.6 0.8 1.8				
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  
Anzac - May 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	706	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: 706

Total Number of Hours: 744



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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Anzac - May 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	23	28	52	74	71	78	74	22	10	11	29	58	81	56	20	706
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	19	23	28	52	74	71	78	74	22	10	11	29	58	81	56	20	706

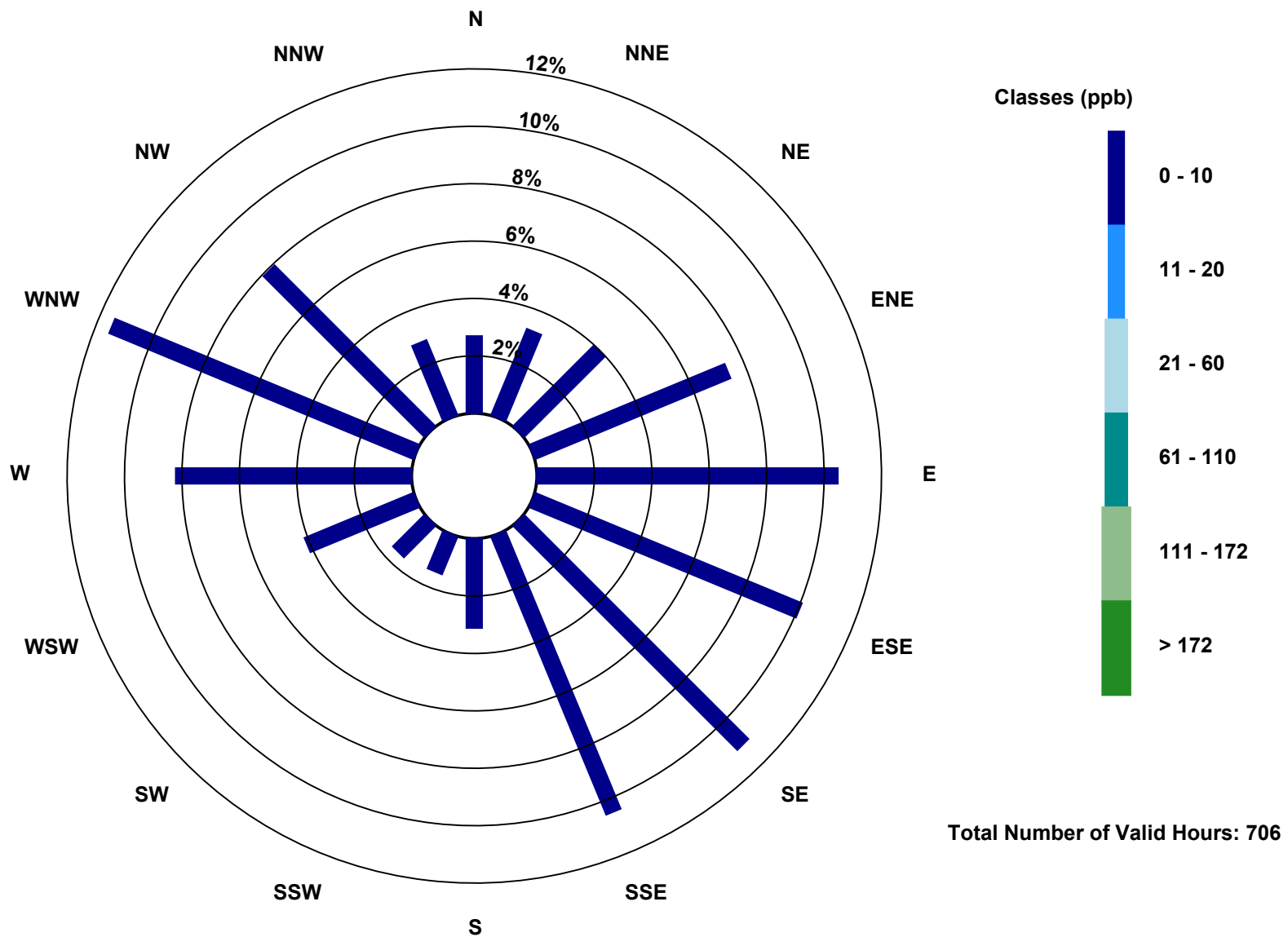
Total Number of Valid Hours: 706

Total Number of Hours: 744

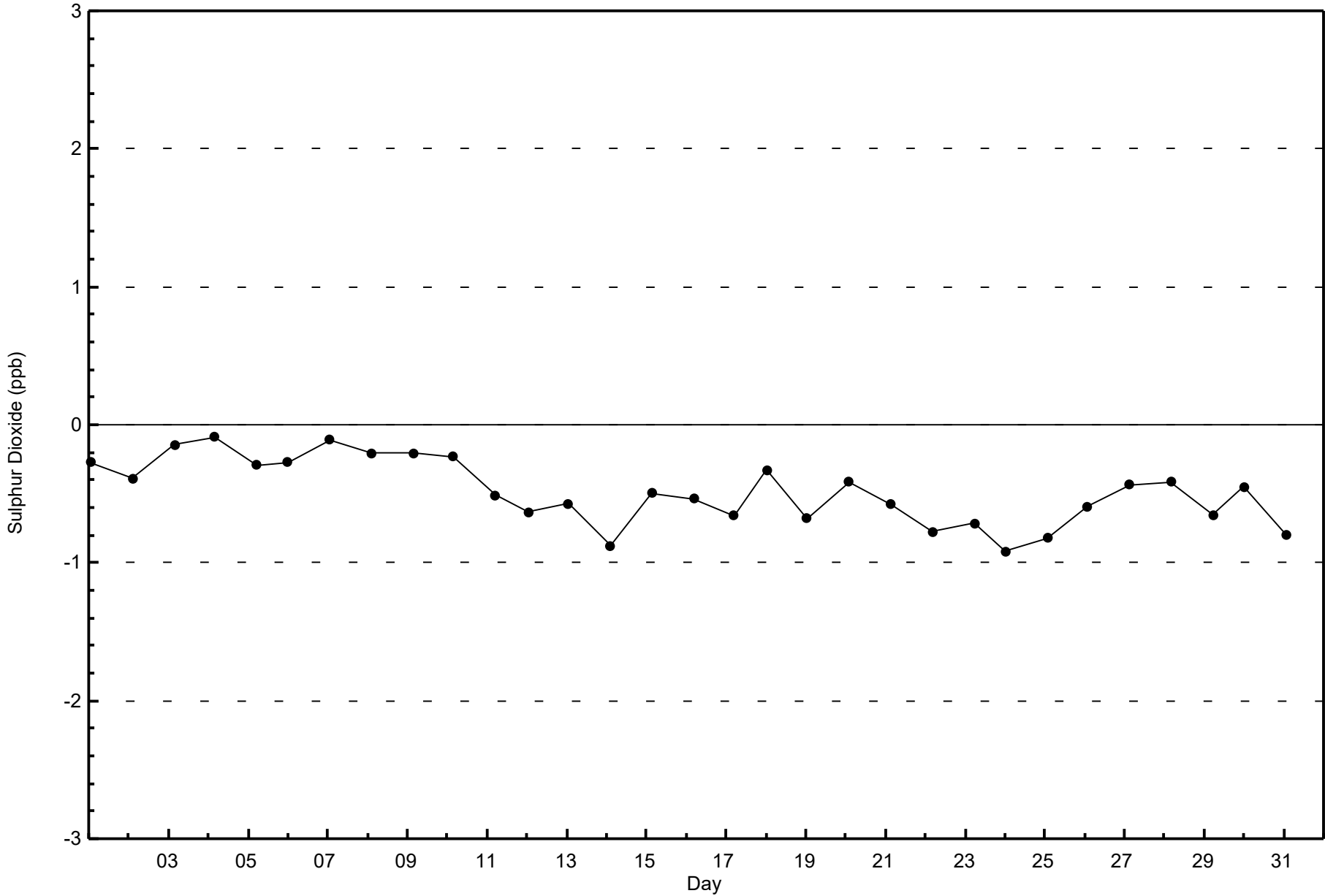


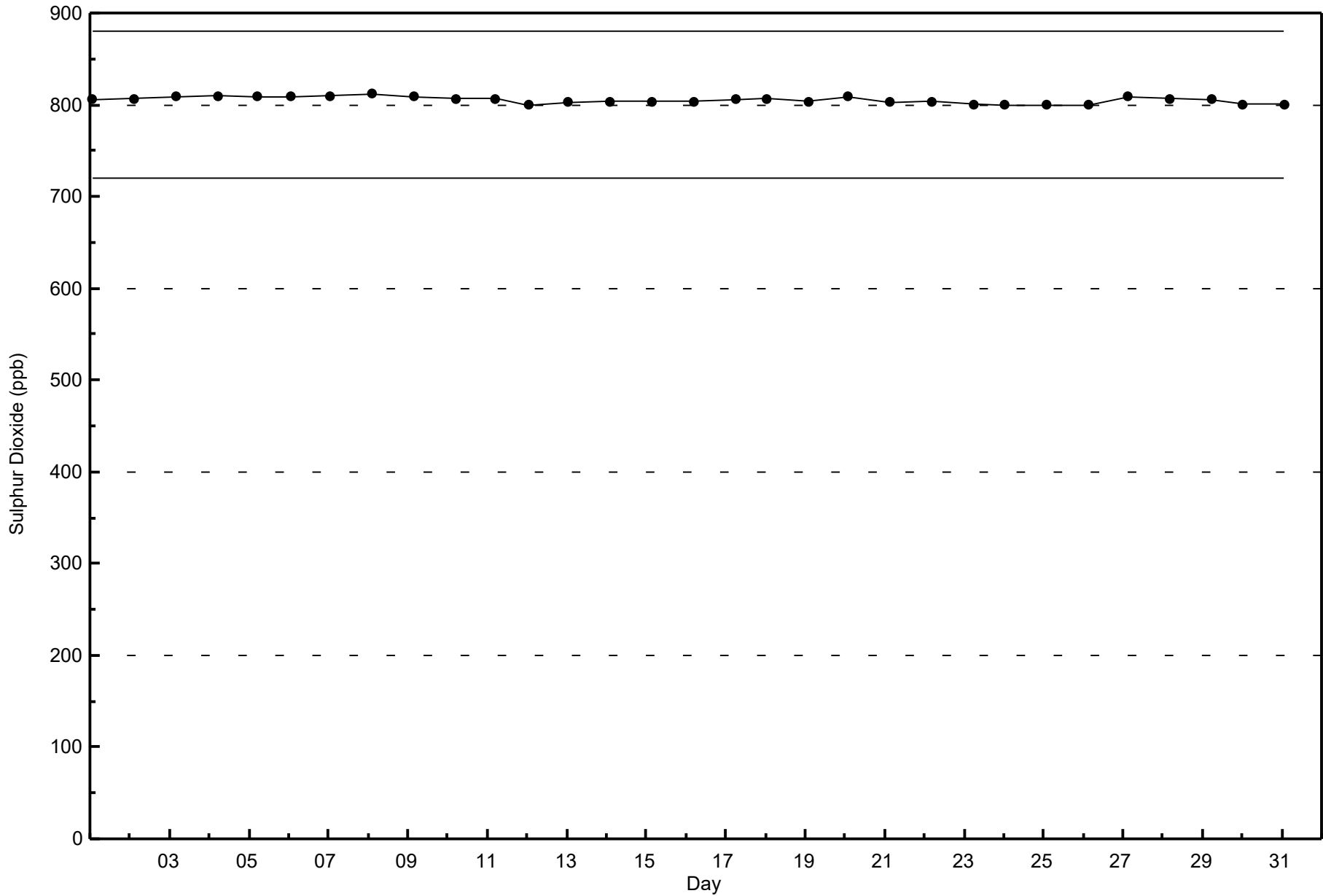
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



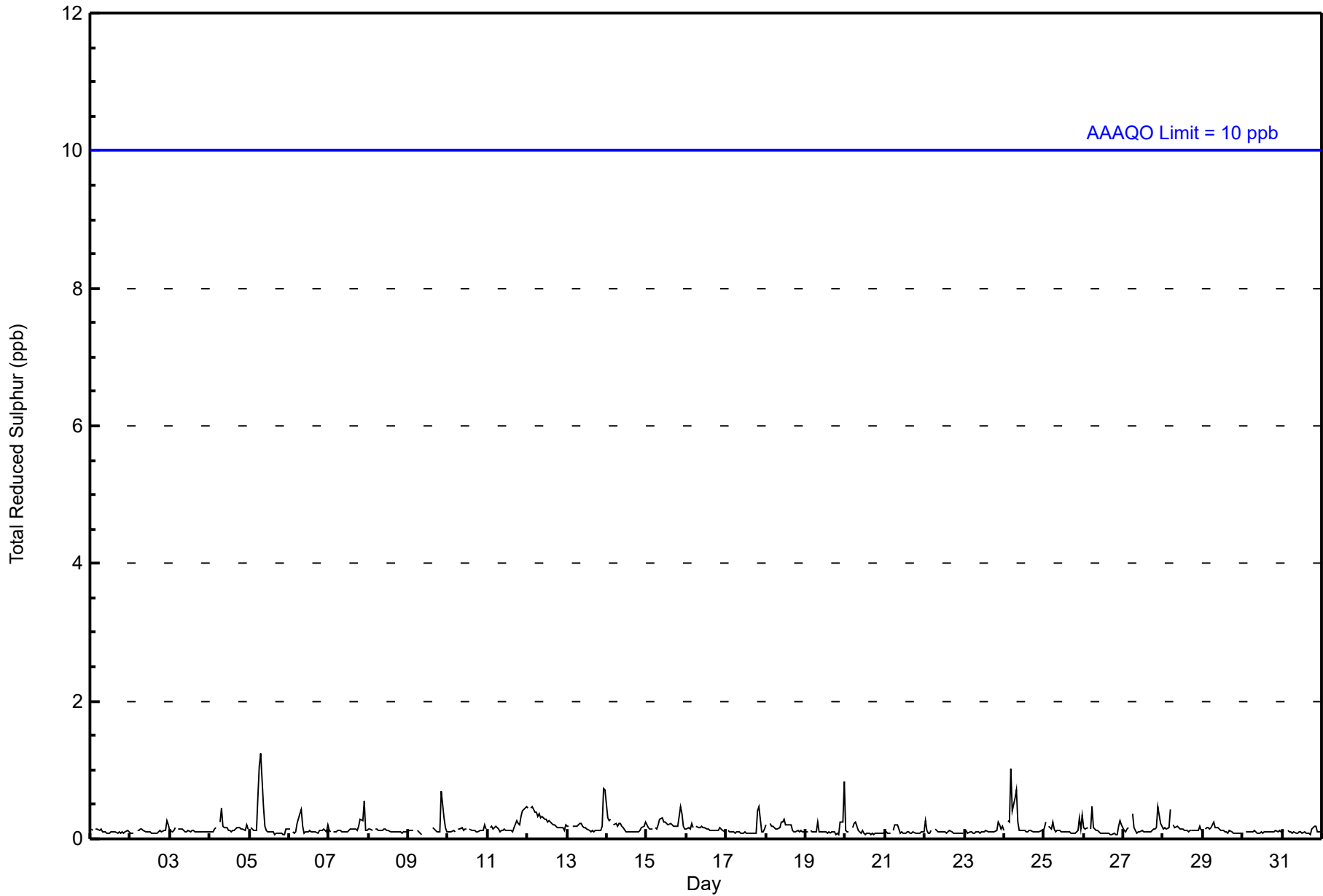
Total Number of Valid Hours: 706













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

**Total Reduced Sulphur (TRS) - ppb**  
**Anzac - May 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**  
**Anzac - May 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	21	23	28	55	73	69	80	75	22	10	12	31	56	75	55	21	706
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	21	23	28	55	73	69	80	75	22	10	12	31	56	75	55	21	706

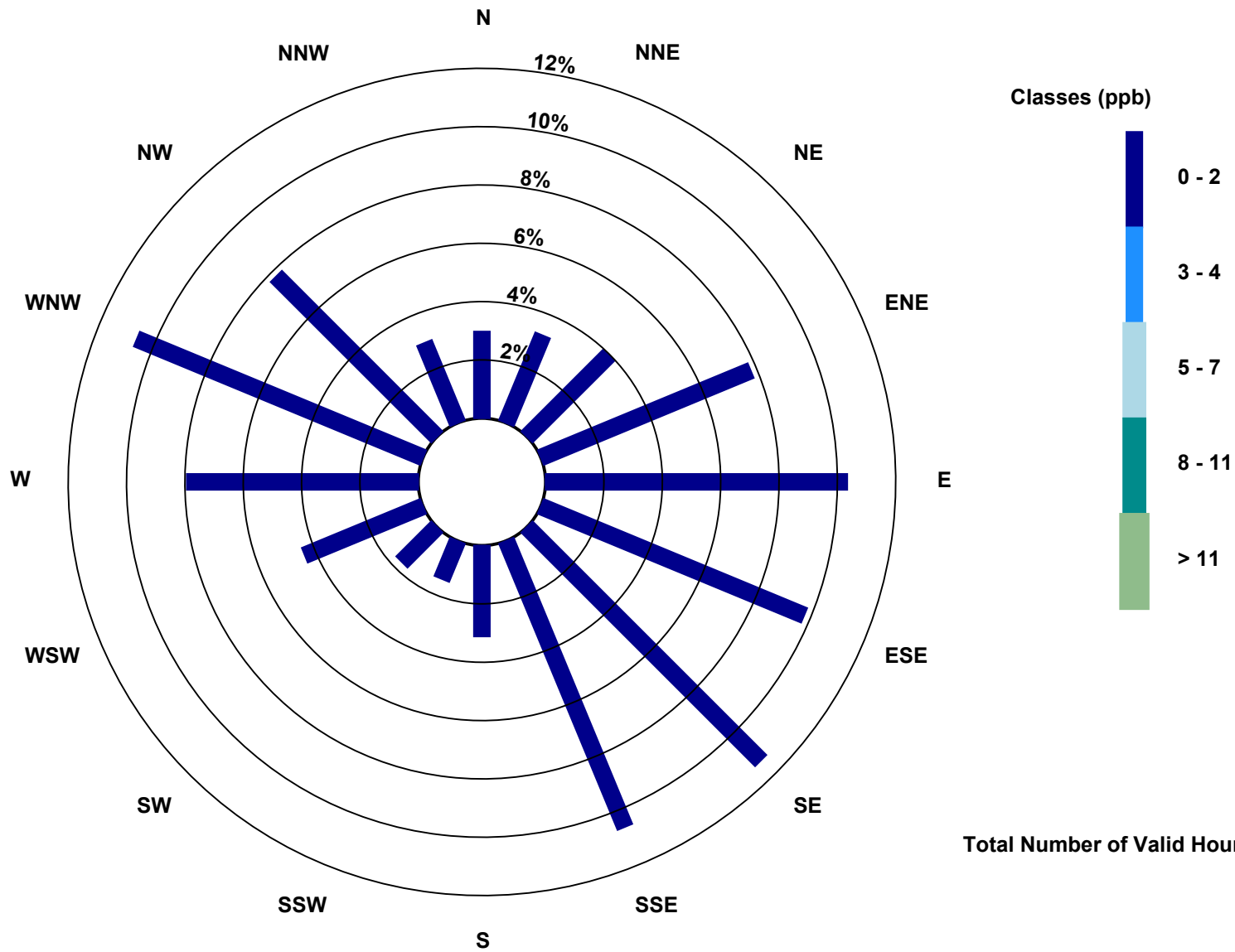
Total Number of Valid Hours: 706

Total Number of Hours: 744

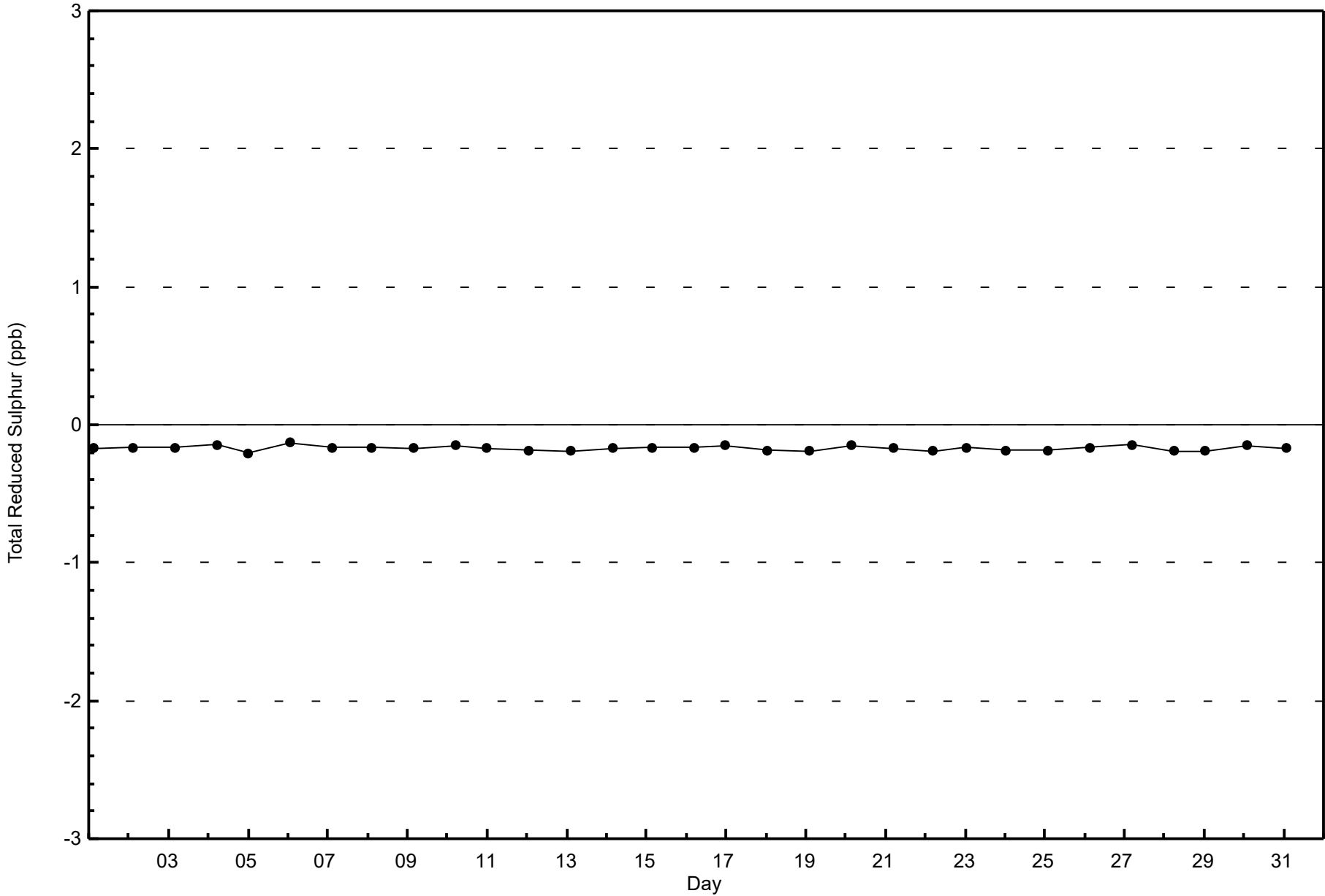


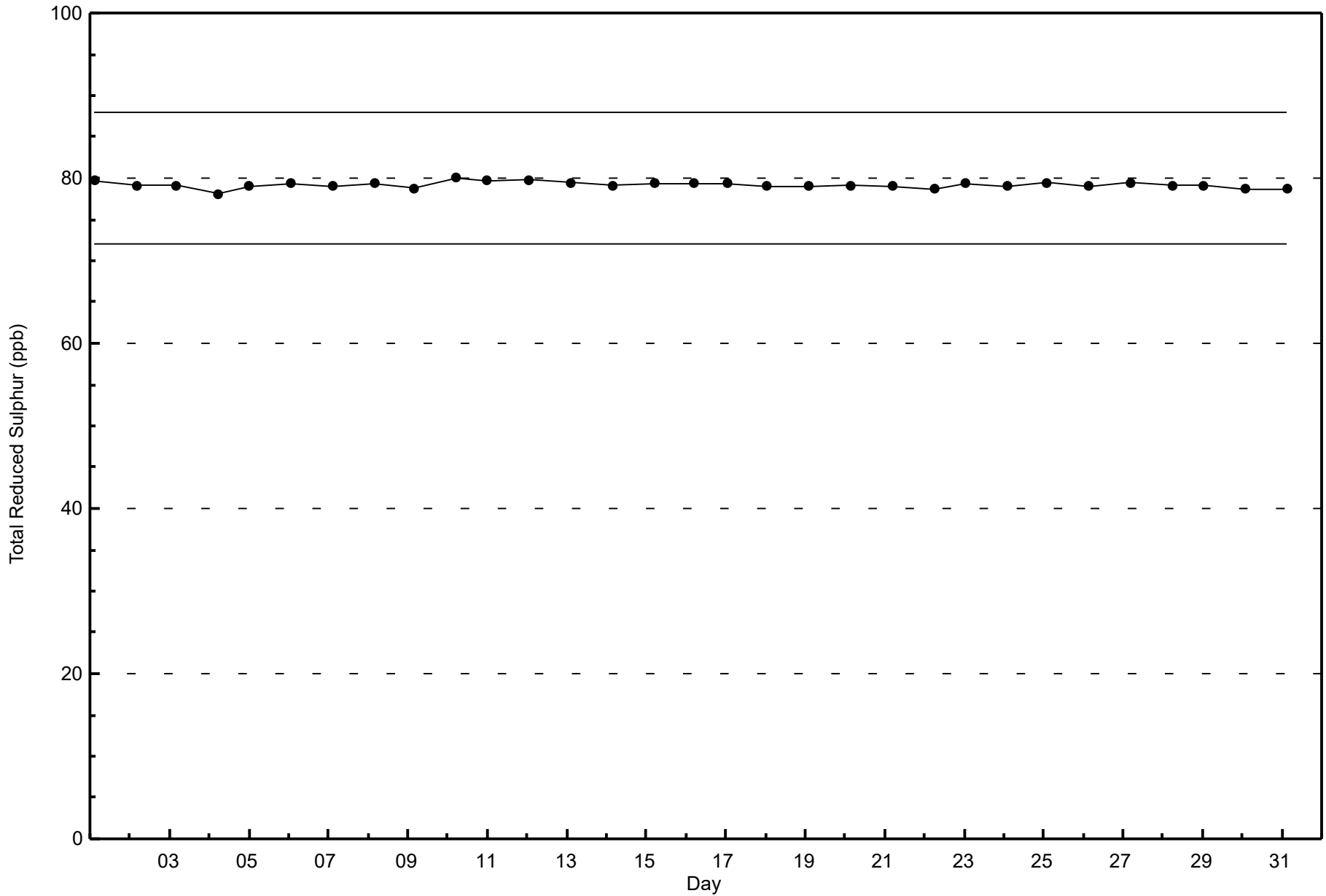
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Anzac



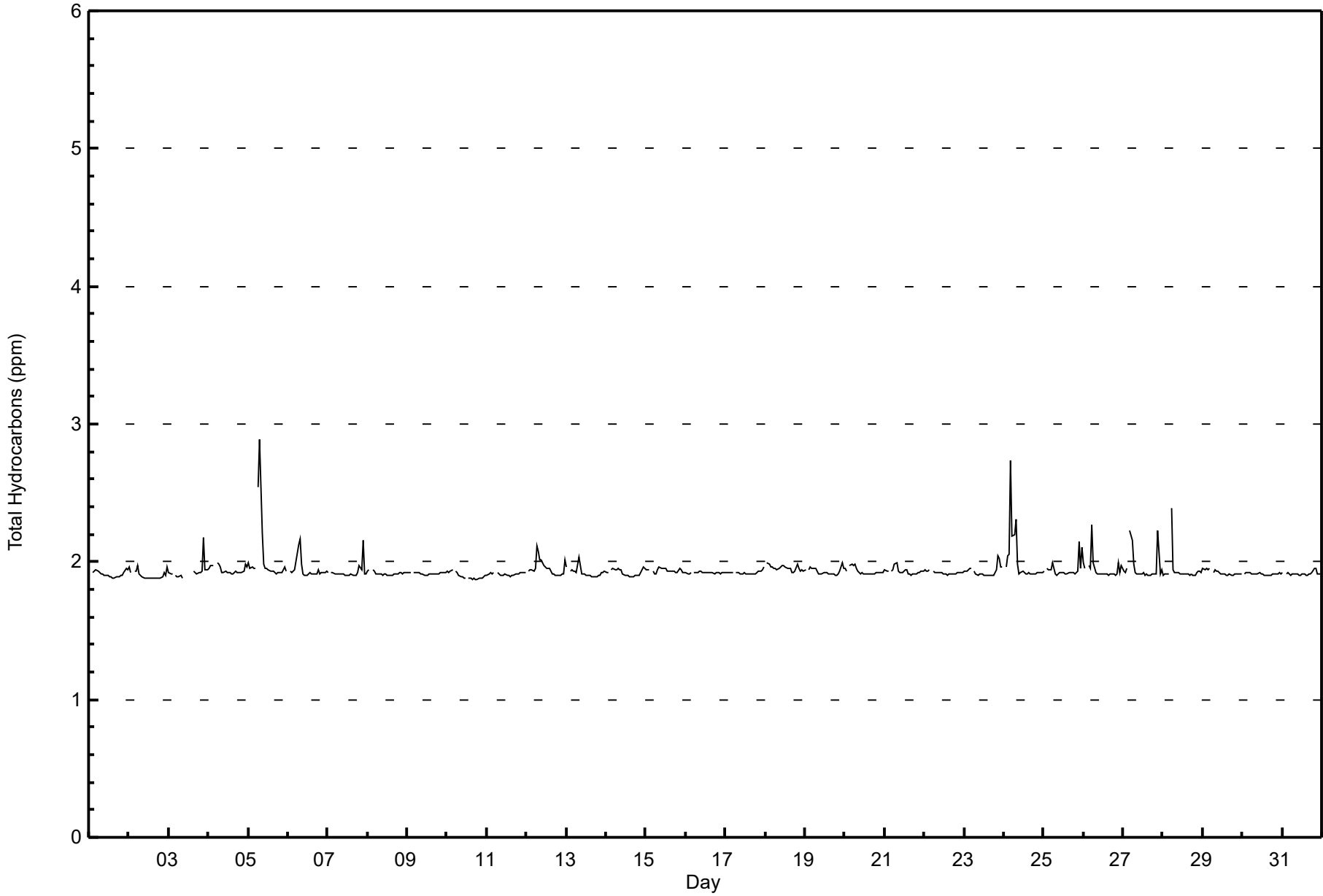
Total Number of Valid Hours: 706







Maximum Value: 2.9 ppm on May 5 08:00																				Maximum Daily Average: 2.0 ppm on May 5					Hours in Service: 744	
Minimum Value: 1.9 ppm on May 10 19:00																				Minimum Daily Average: 1.9 ppm on May 10					Hours of Data: 706	
Maximum Diurnal Average: 2.0 ppm at hour 6																				Minimum Diurnal Average: 1.9 ppm at hour 18					Hours of Missing Data: 38	
Monthly Average: 1.93 ppm																				Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 1.9 Q <sub>3</sub> = 1.9 P <sub>90</sub> = 2.0 P <sub>99</sub> = 2.2					Hours of Calibration: 37	
																									Percent Operational Time: 99.9	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	
2-May	2.0	1.9	Z	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0
3-May	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	C	C	C	C	C	C	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	1.9	--	2.2
4-May	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0
5-May	2.0	2.0	2.0	1.9	1.9	Z	2.5	2.9	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.9
6-May	Z	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2
7-May	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.2	1.9	1.9	1.9	2.2
8-May	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
9-May	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
10-May	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	M	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
11-May	1.9	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
12-May	Z	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1
13-May	2.0	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
14-May	1.9	1.9	Z	1.9	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0
15-May	1.9	1.9	1.9	Z	1.9	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	1.9	1.9	1.9	1.9	1.9	2.0
16-May	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
17-May	1.9	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0
18-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	2.0
19-May	1.9	Z	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	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0
20-May	1.9	1.9	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
21-May	1.9	1.9	1.9	Z	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
22-May	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
23-May	1.9	1.9	1.9	2.0	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	2.0
24-May	Z	2.0	2.0	2.0	2.7	2.2	2.2	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.7
25-May	1.9	Z	2.0	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1	2.0	2.1	1.9	2.1
26-May	2.0	2.0	Z	2.0	2.0	2.3	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.3	2.3
27-May	1.9	1.9	1.9	Z	2.2	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.2	1.9	1.9	2.0	2.2	2.2
28-May	1.9	1.9	1.9	1.9	Z	2.4	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.4
29-May	1.9	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
30-May	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
31-May	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										







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

**Total Hydrocarbons (THC) - ppm**  
**Anzac - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	686	97.17	97.17
2.1 - 3.0	20	2.83	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**  
**Anzac - May 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	19	23	28	52	74	65	68	71	22	10	11	29	57	81	56	20	686
2.1 - 3.0	0	0	0	0	0	6	10	3	0	0	0	0	1	0	0	0	20
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>	19	23	28	52	74	71	78	74	22	10	11	29	58	81	56	20	706

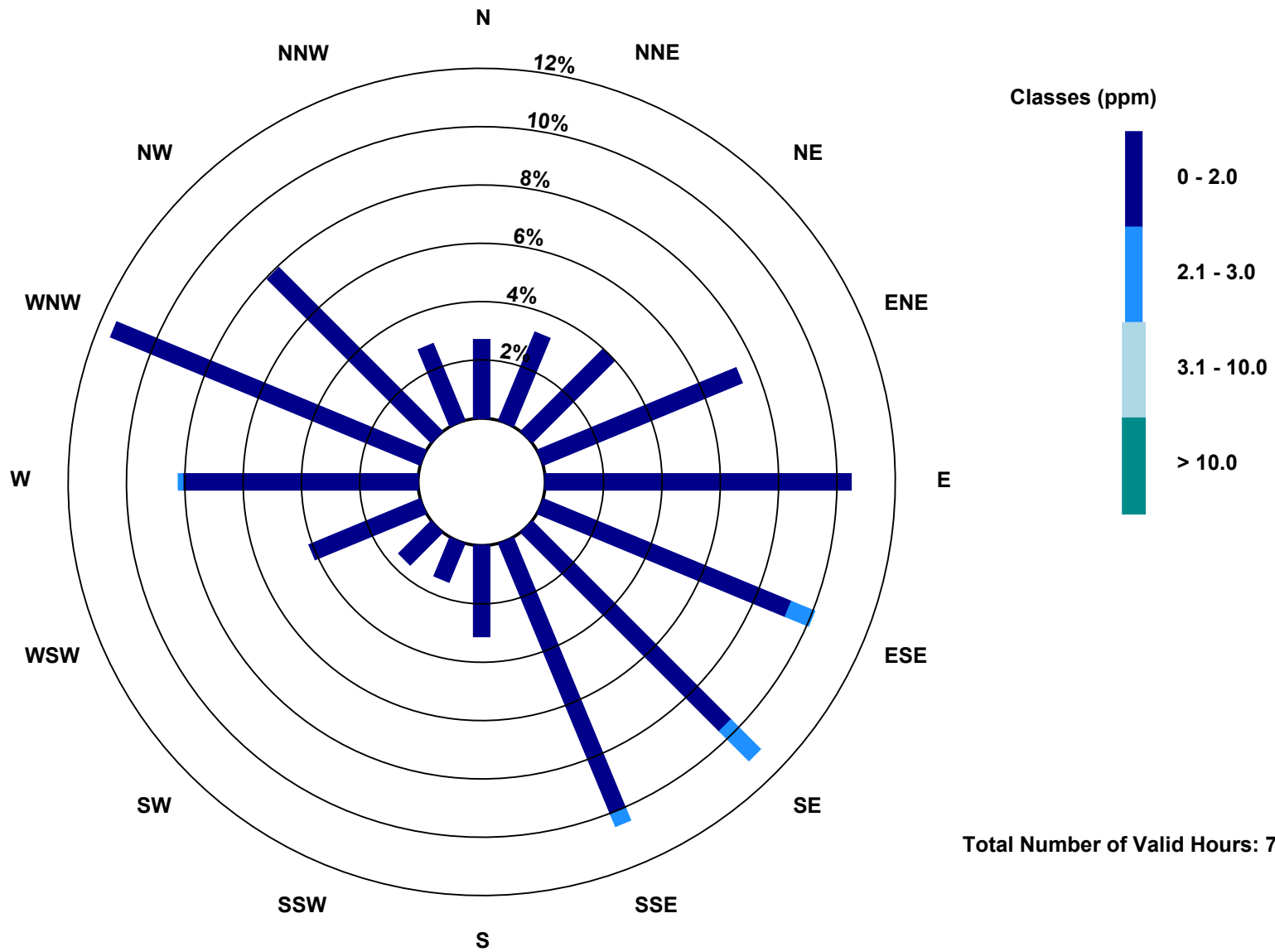
Total Number of Valid Hours: 706

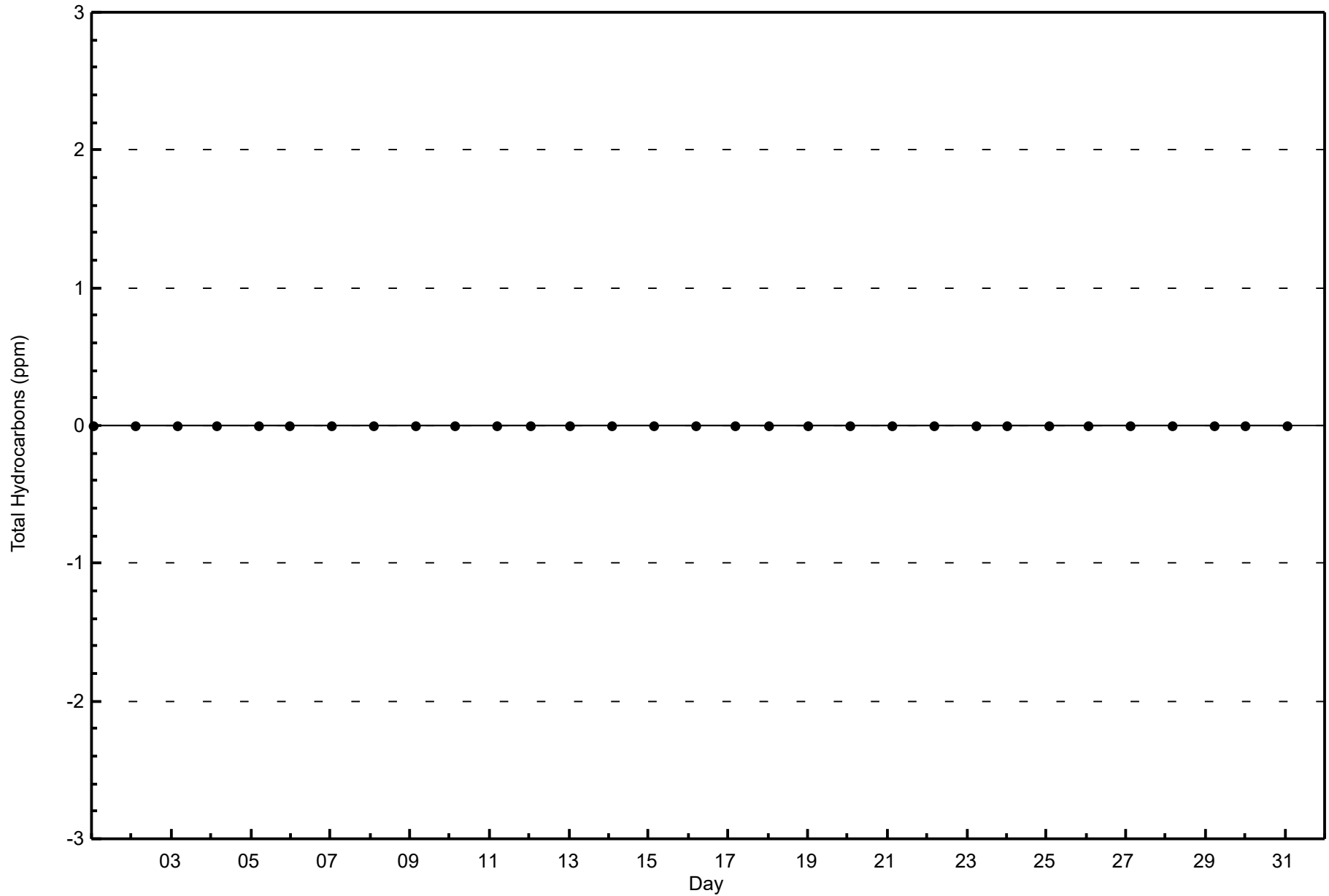
Total Number of Hours: 744

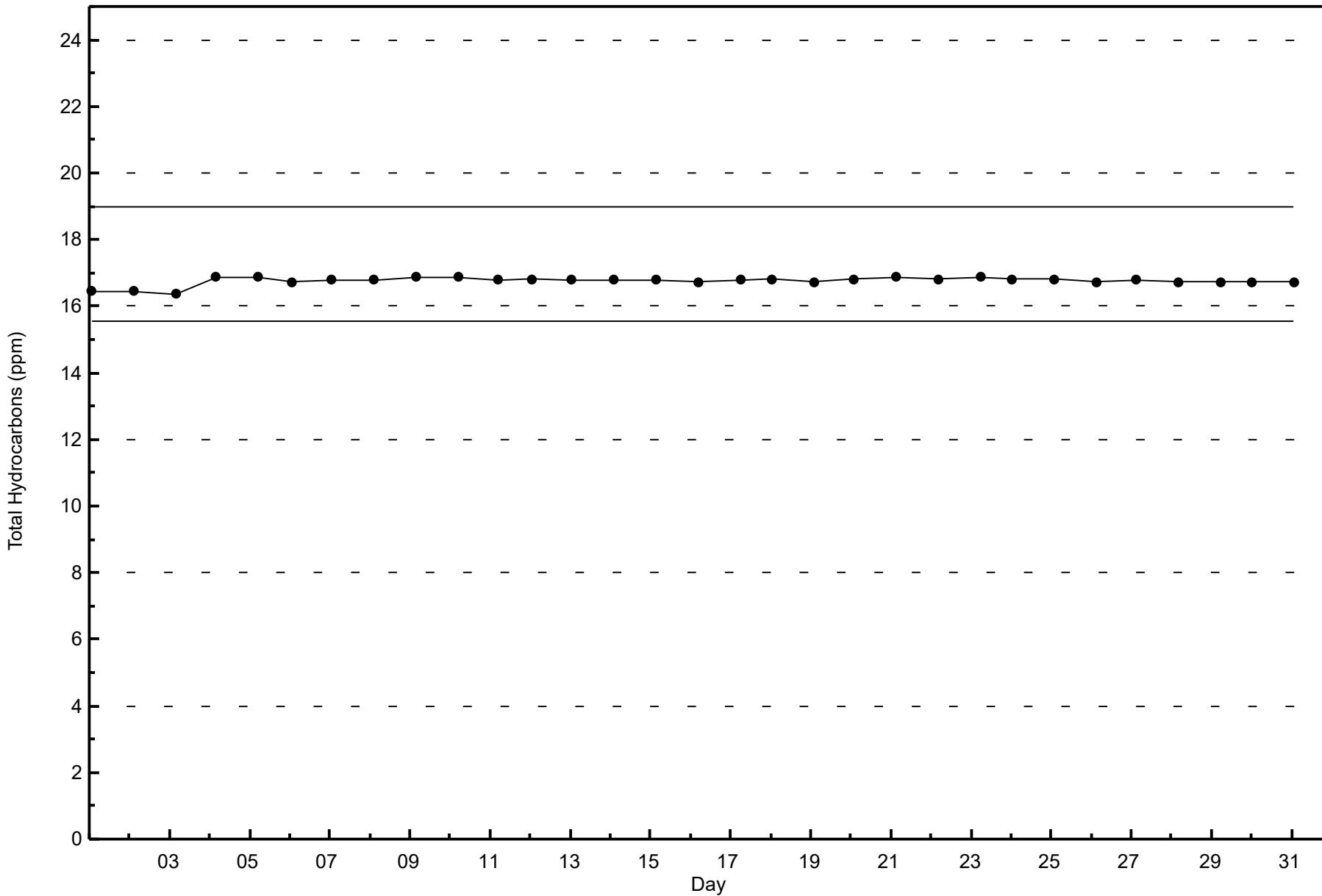


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Anzac





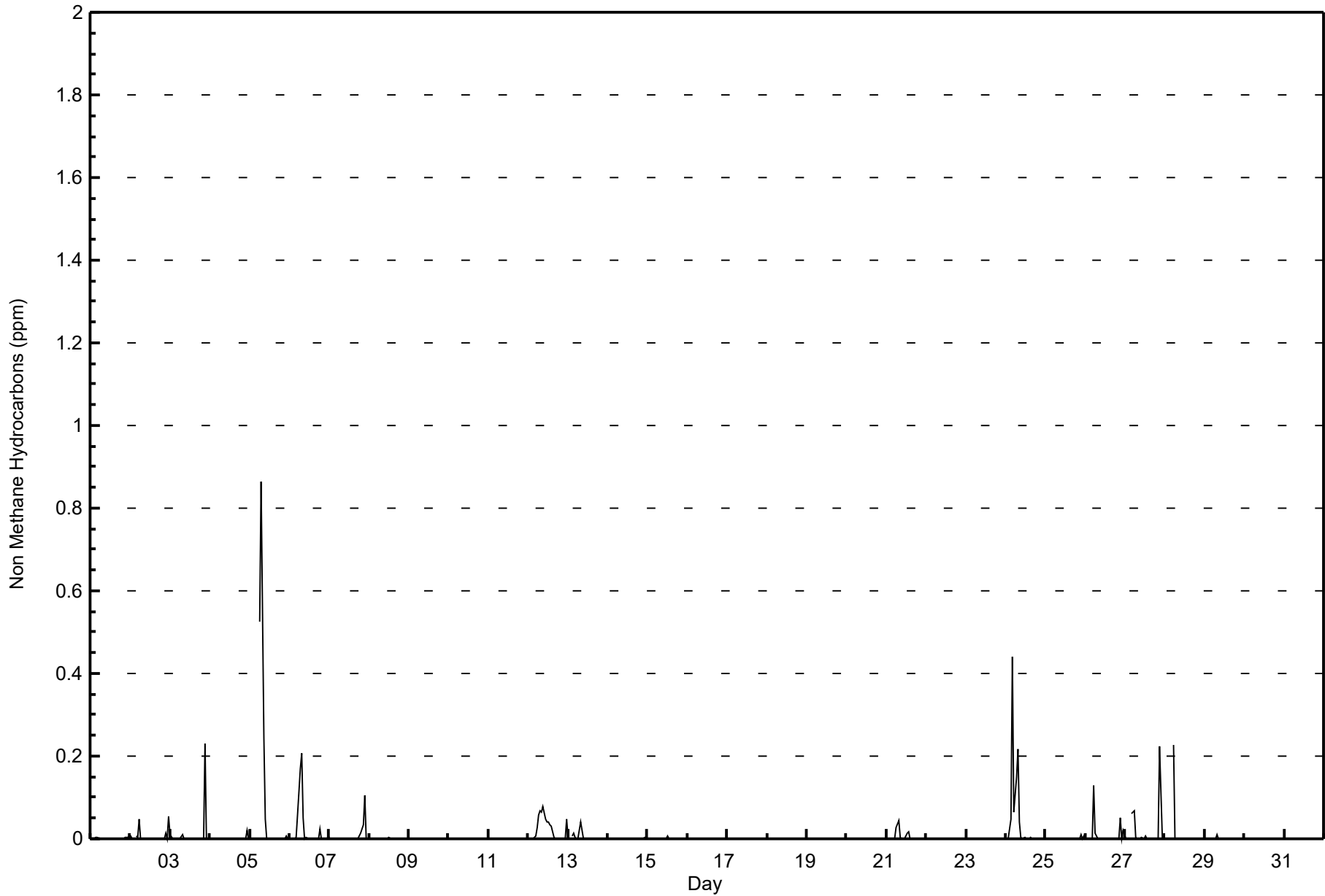




Summary of Hour Averages

Anzac - May 2024

Maximum Value: 0.864 ppm on May 5 08:00																				Maximum Daily Average: 0.073 ppm on May 5					Hours in Service:	744
Minimum Value: 0.000 ppm on May 1 08:00																				Minimum Daily Average: 0.000 ppm on May 9					Hours of Data:	706
Maximum Diurnal Average: 0.047 ppm at hour 8																				Minimum Diurnal Average: 0.000 ppm at hour 2					Hours of Missing Data:	38
Monthly Average: 0.008 ppm																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.0 P <sub>99</sub> = 0.2					Hours of Calibration:	37
																									Percent Operational Time:	99.9
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	0.003	Z	0.000	0.005	0.005	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.002	0.002	0.006	0.001	0.006
2-May	0.008	0.000	Z	0.006	0.003	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.054	0.006	0.054	
3-May	0.010	0.000	0.000	Z	0.001	0.000	0.000	0.011	0.000	0.000	C	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.230	0.001	0.000	--	0.230
4-May	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	0.020	0.000	0.001	0.020	
5-May	0.000	0.000	0.000	0.000	0.000	Z	0.525	0.864	0.243	0.047	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.073	0.864	
6-May	Z	0.000	0.000	0.000	0.002	0.058	0.170	0.208	0.049	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.000	0.000	0.005	0.023	0.208	
7-May	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	0.001	0.000	0.000	0.000	0.000	0.008	0.015	0.033	0.104	0.000	0.000	0.007	0.104
8-May	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
9-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10-May	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
11-May	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	
12-May	Z	0.000	0.000	0.000	0.006	0.027	0.057	0.067	0.064	0.077	0.048	0.042	0.042	0.035	0.032	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.048	0.024	0.077	
13-May	0.005	Z	0.006	0.013	0.003	0.001	0.000	0.042	0.022	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.001	0.004	0.042	
14-May	0.000	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.002	
15-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	
16-May	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	
17-May	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	
18-May	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	
19-May	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	
20-May	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
21-May	0.000	0.000	0.000	Z	0.000	0.000	0.027	0.045	0.003	0.000	0.000	0.000	0.013	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.005	0.045	
22-May	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	
23-May	0.001	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
24-May	Z	0.000	0.025	0.046	0.440	0.064	0.149	0.218	0.042	0.004	0.001	0.002	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043	0.440	
25-May	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.010	0.000	0.005	0.001	0.010	
26-May	0.000	0.000	Z	0.000	0.000	0.129	0.014	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	0.050	0.000	0.019	0.009	0.129	
27-May	0.000	0.000	0.000	Z	0.062	0.067	0.003	0.000	0.000	0.001	0.005	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224	0.001	0.016	0.224	
28-May	0.000	0.000	0.000	0.000	Z	0.227	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.227	
29-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	
30-May	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	
31-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
																				0.001 0.000 0.001 0.003 0.020 0.024 0.030 0.047 0.014 0.004 0.002 0.002 0.003 0.002 0.001 0.000 0.000 0.000 0.001 0.000 0.001 0.020 0.001 0.005					Diurnal Average	
																				0.010 0.000 0.025 0.046 0.440 0.227 0.525 0.864 0.243 0.077 0.048 0.042 0.042 0.035 0.032 0.002 0.001 0.000 0.022 0.015 0.033 0.230 0.020 0.054					Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																				





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Anzac - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	643	91.08	91.08
0.006 - 0.05	42	5.95	97.03
0.06 - 0.1	11	1.56	98.58
> 0.1	10	1.42	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Anzac - May 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	18	23	28	51	73	59	44	64	22	10	11	29	57	81	56	17	643
0.006 - 0.05	1	0	0	1	1	6	22	8	0	0	0	0	0	0	0	3	42
0.06 - 0.1	0	0	0	0	0	1	10	0	0	0	0	0	0	0	0	0	11
> 0.1	0	0	0	0	0	5	2	2	0	0	0	0	1	0	0	0	10
<b>Totals</b>	19	23	28	52	74	71	78	74	22	10	11	29	58	81	56	20	706

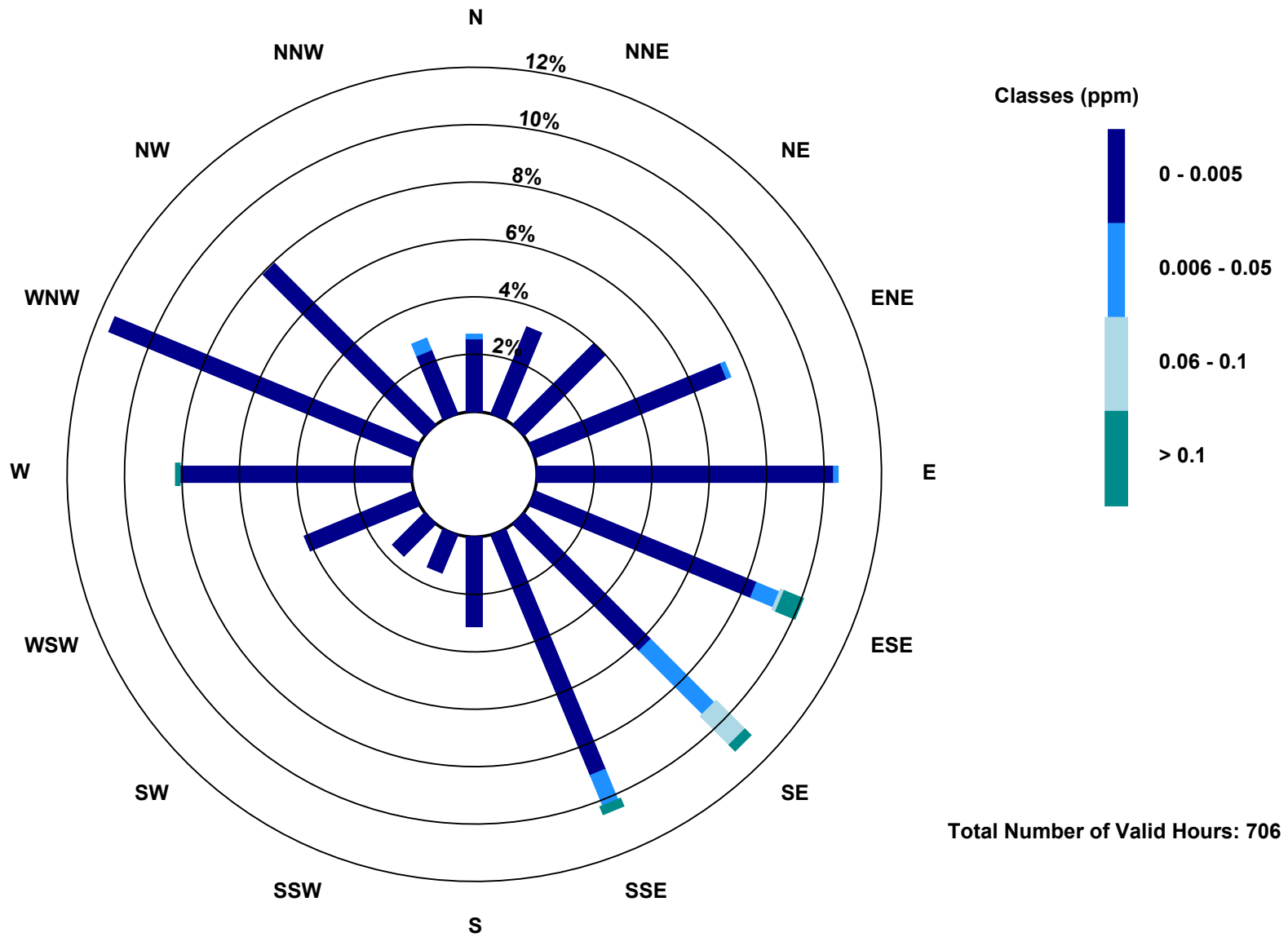
Total Number of Valid Hours: 706

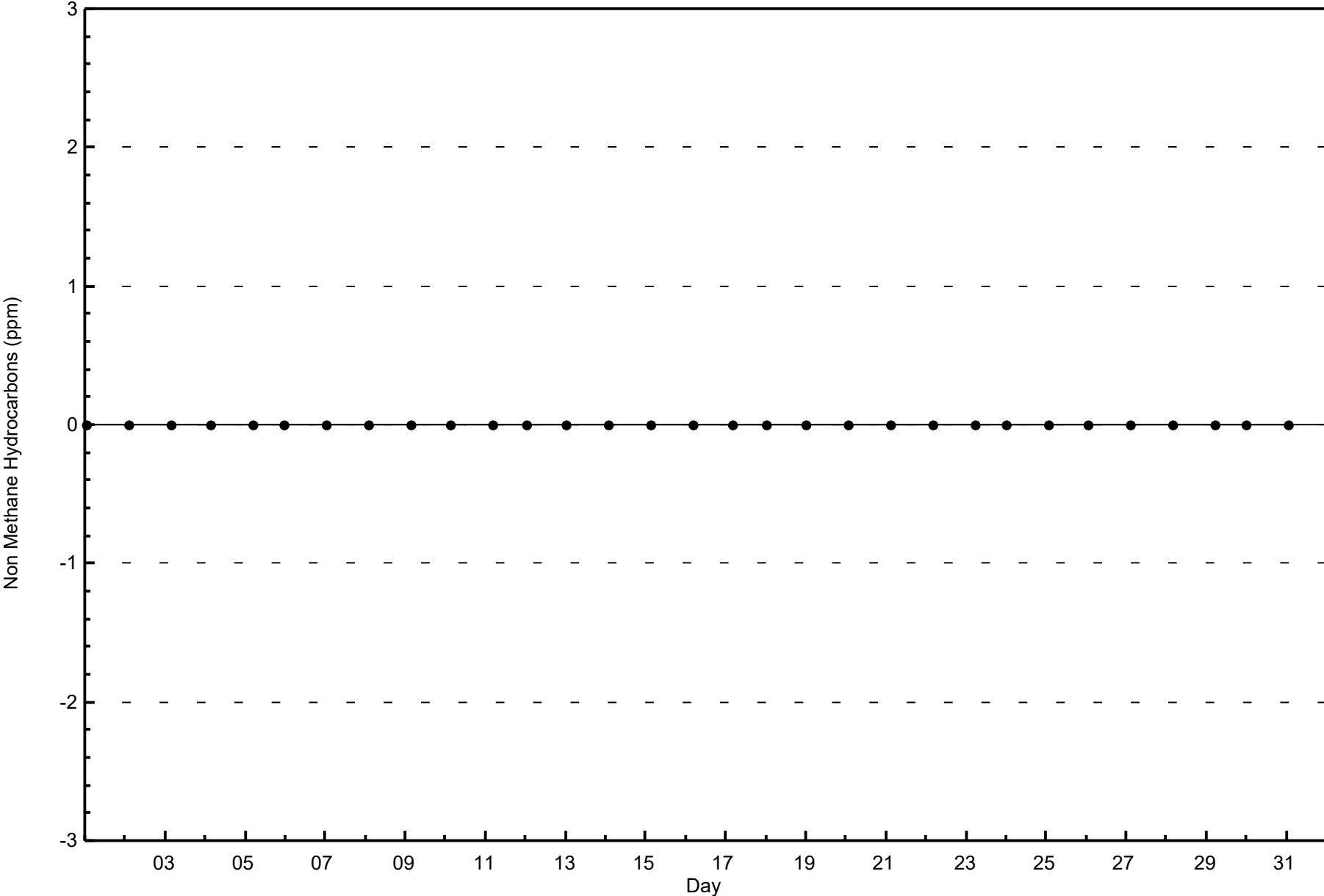
Total Number of Hours: 744

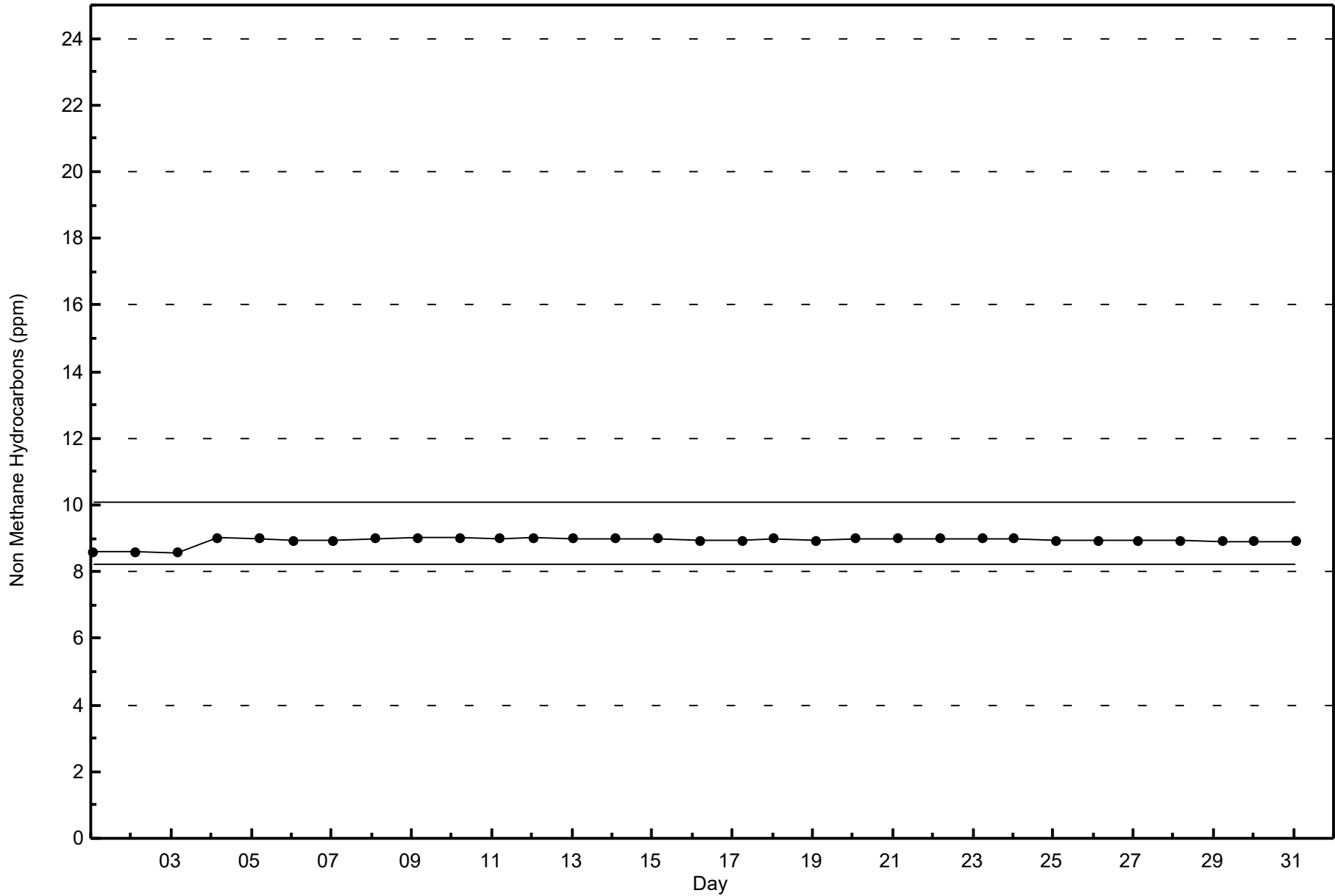


Wood Buffalo Environmental Association  
Wind Rose May 2024

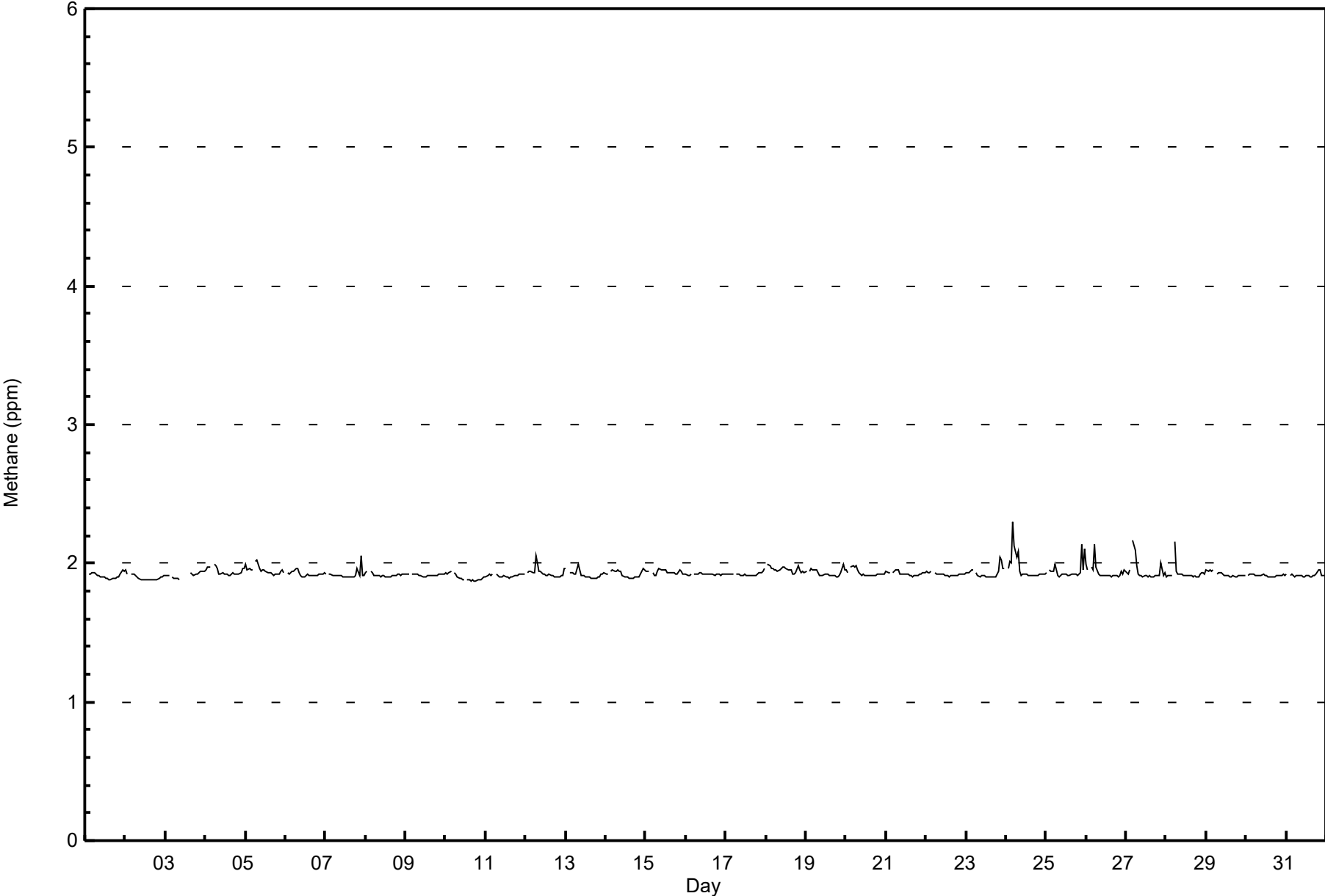
Non Methane Hydrocarbons (NMHC) - ppm  
Anzac













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

**Methane (CH<sub>4</sub>) - ppm**  
**Anzac - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	696	98.58	98.58
2.1 - 3.0	10	1.42	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**  
**Anzac - May 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	19	23	28	52	74	71	71	71	22	10	11	29	58	81	56	20	696
2.1 - 3.0	0	0	0	0	0	0	7	3	0	0	0	0	0	0	0	0	10
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>	19	23	28	52	74	71	78	74	22	10	11	29	58	81	56	20	706

Total Number of Valid Hours: 706

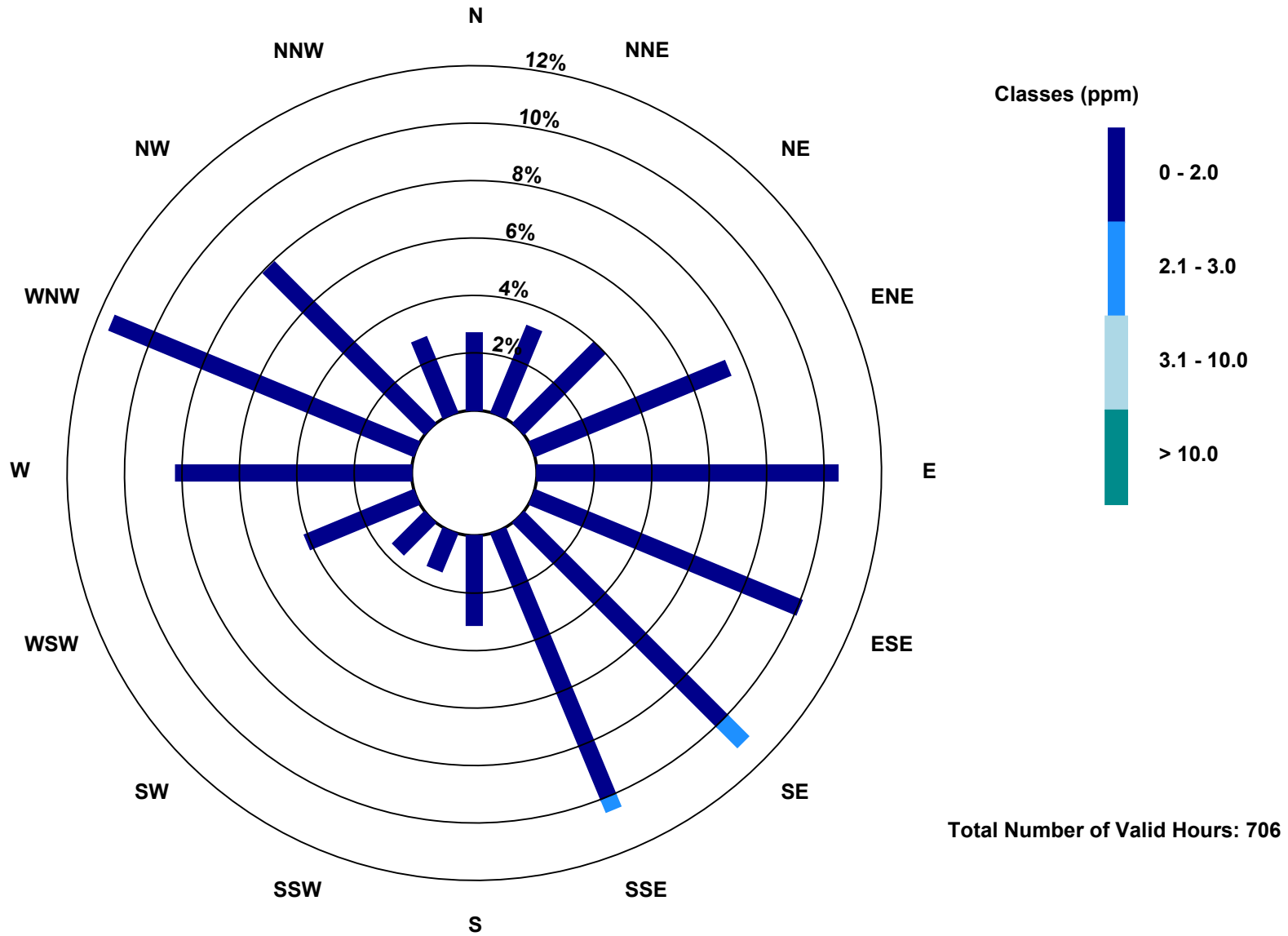
Total Number of Hours: 744



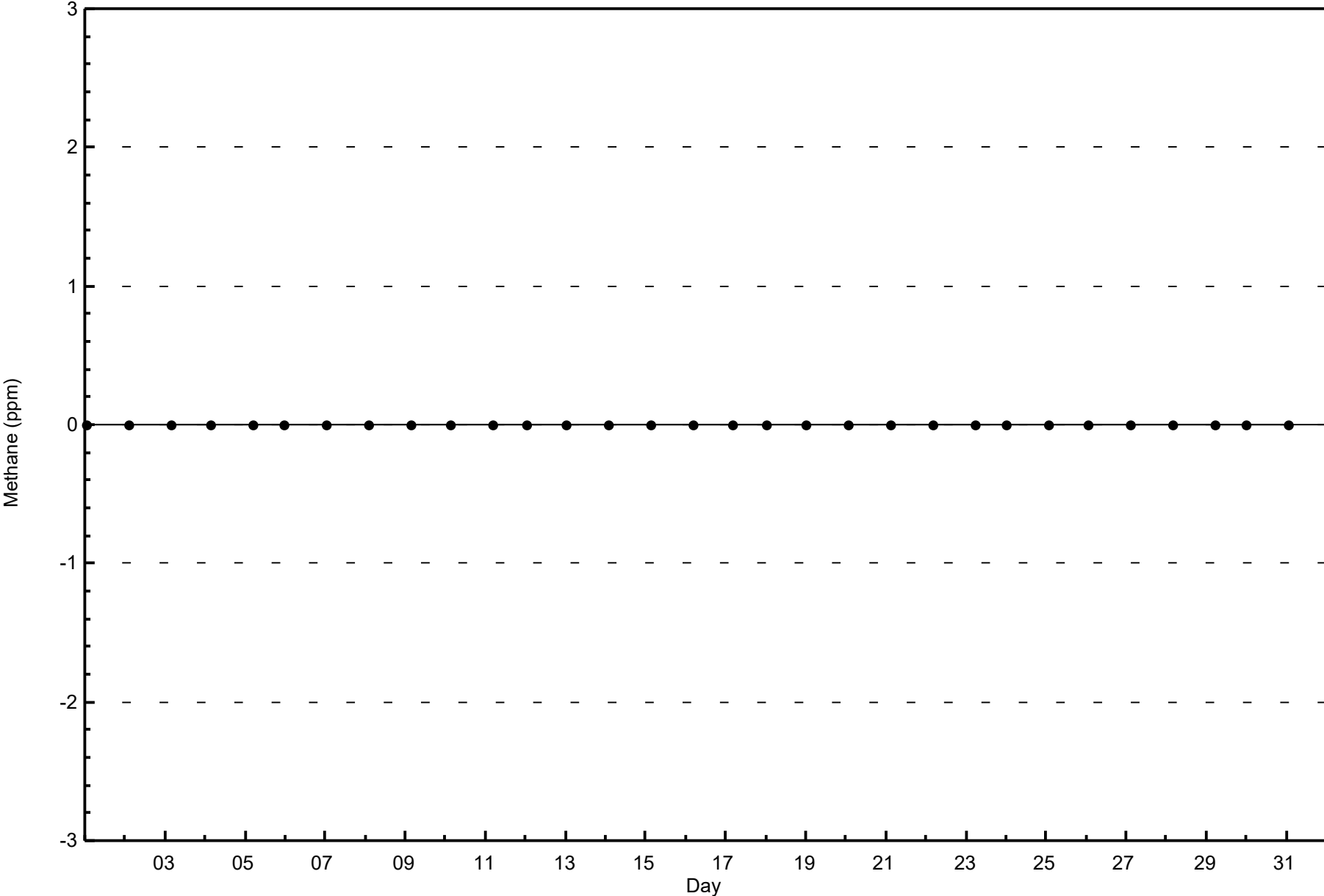


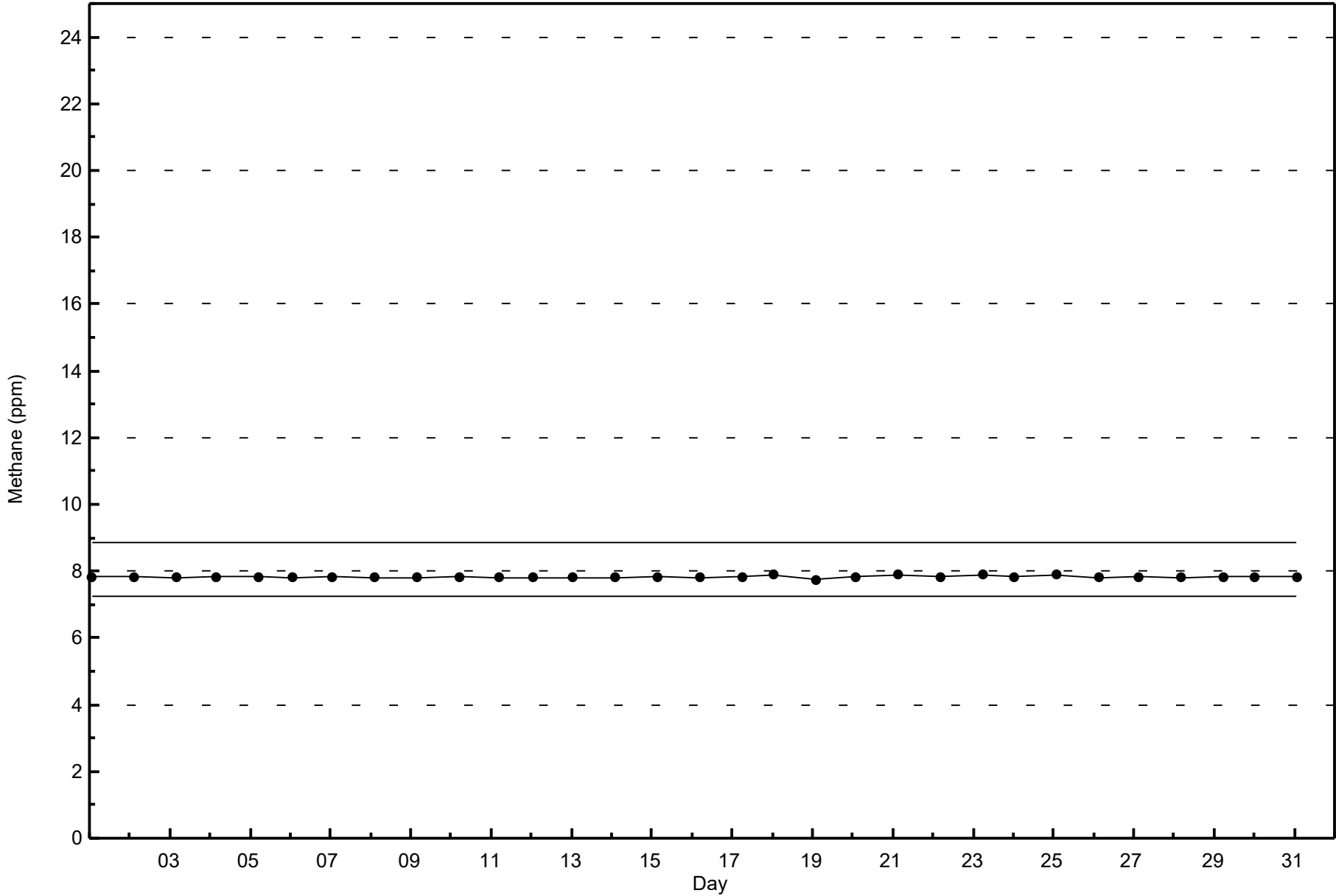
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 706







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

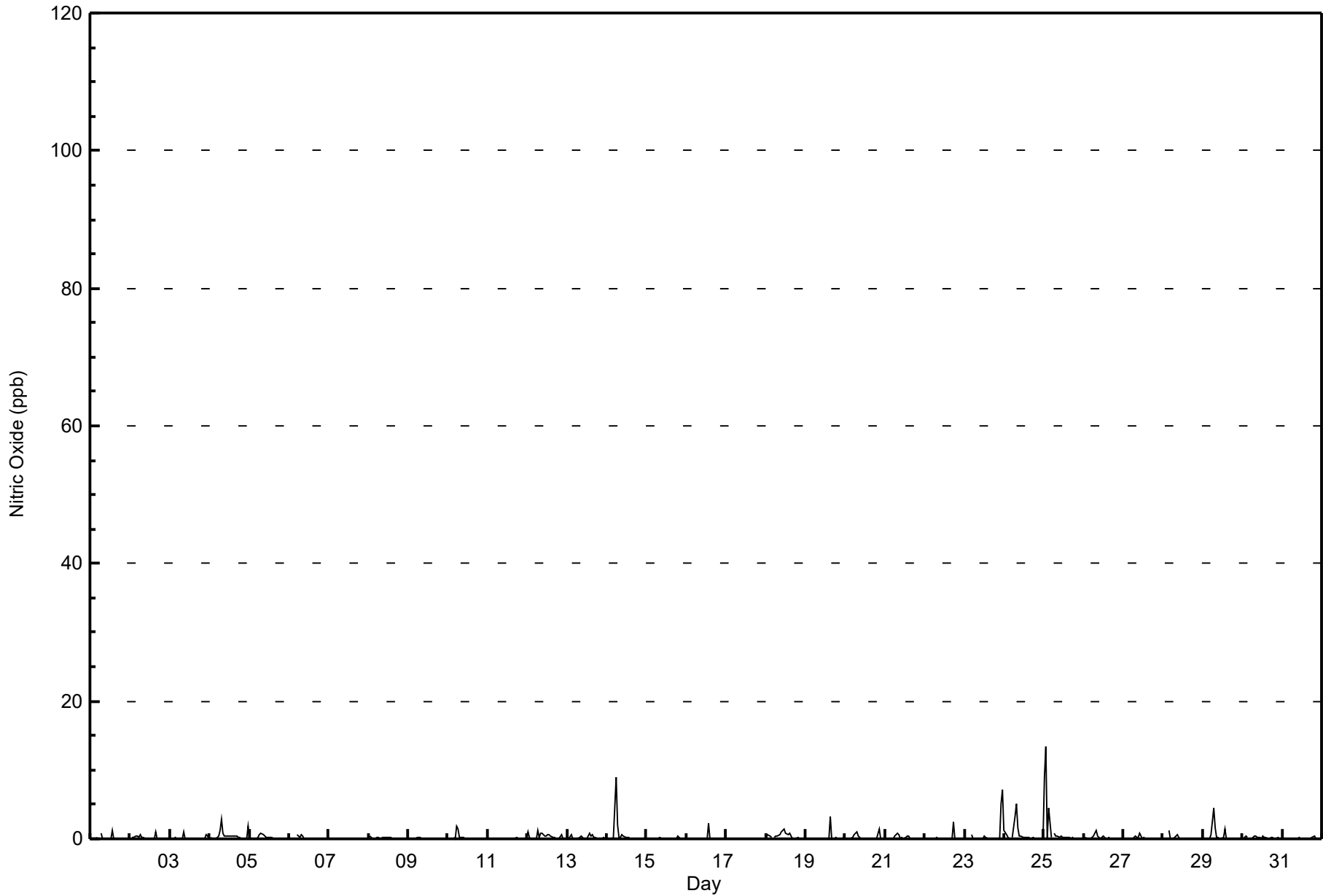
**Nitric Oxide (NO) - ppb**  
**Anzac - May 2024**

Maximum Value: 13.5 ppb on May 25 02:00 Minimum Value: 0.0 ppb on May 1 09:00 Maximum Diurnal Average: 0.6 ppb at hour 2 Monthly Average: 0.24 ppb		Maximum Daily Average: 1.3 ppb on May 25 Minimum Daily Average: 0.0 ppb on May 17 Minimum Diurnal Average: 0.0 ppb at hour 22 Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.5 P <sub>99</sub> = 4.3		Hours in Service: 744 Hours of Data: 706 Hours of Missing Data: 38 Hours of Calibration: 37 Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	0.0	0.1	0.0	0.1	0.1	Z	0.7	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
2-May	Z	0.3	0.2	0.3	0.5	0.1	0.5	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0
3-May	0.0	Z	0.0	0.2	0.0	0.0	0.1	0.1	1.0	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	0.7	0.1	0.1	1.0
4-May	0.0	0.2	Z	0.0	0.0	0.4	1.3	2.9	0.9	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	1.8	0.5	2.9
5-May	0.0	0.0	0.0	Z	0.0	0.2	0.5	0.8	0.6	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
6-May	0.0	0.0	0.0	0.0	Z	0.7	0.3	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.7
7-May	0.0	0.0	0.0	0.0	0.0	Z	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	--	0.0
8-May	Z	0.4	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
9-May	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1
10-May	0.0	0.0	Z	0.1	0.0	1.8	1.5	0.2	0.1	0.1	0.1	0.1	M	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	1.8
11-May	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
12-May	0.9	0.3	0.0	0.0	Z	0.1	1.3	0.2	0.7	0.9	0.5	0.4	0.6	0.6	0.4	0.2	0.1	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.3	1.3
13-May	0.0	0.0	0.7	0.0	0.0	Z	0.1	0.2	0.5	0.2	0.1	0.1	0.1	0.9	0.4	0.7	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.9
14-May	Z	0.0	0.1	0.1	0.1	8.9	2.1	0.2	0.3	0.7	0.5	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	8.9
15-May	0.0	Z	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	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.4
16-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2
17-May	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	0.1
18-May	0.1	0.6	0.4	0.1	Z	0.2	0.3	0.4	0.6	1.1	1.2	1.4	0.7	0.7	0.7	0.4	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.4	1.4
19-May	0.0	0.0	0.1	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.6	0.2	3.2
20-May	Z	0.1	0.0	0.0	0.3	0.5	0.9	1.1	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.2	1.3
21-May	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.9	0.5	0.0	0.3	0.1	0.2	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
22-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.1	2.5
23-May	0.0	0.0	0.0	Z	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	5.1	7.0	0.6	7.0
24-May	1.2	0.6	0.2	0.1	Z	0.1	3.2	5.2	1.6	0.5	0.3	0.3	0.2	0.3	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.2
25-May	9.0	13.5	0.0	4.4	0.3	Z	0.7	0.4	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	1.3	13.5
26-May	Z	0.3	0.0	0.0	0.1	0.2	0.4	1.2	0.4	0.1	0.1	0.1	0.4	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2
27-May	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.7	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7
28-May	0.0	0.0	Z	1.3	0.0	0.1	0.0	0.2	0.5	0.2	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	0.1	1.3
29-May	0.0	0.0	0.0	Z	0.0	0.6	4.4	1.7	0.1	0.2	0.1	0.1	0.2	1.4	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	4.4
30-May	0.0	0.2	0.4	0.2	Z	0.1	0.2	0.4	0.3	0.3	0.1	0.1	0.5	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.2	0.5
31-May	0.1	0.1	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.1	0.4
																								Diurnal Average		
																								Diurnal Maximum		
0.4 0.6 0.1 0.3 0.1 0.6 0.6 0.6 0.3 0.2 0.2 0.1 0.2 0.3 0.1 0.2 0.1 0.1 0.0 0.0 0.1 0.0 0.2 0.3 9.0 13.5 0.7 4.4 0.6 8.9 4.4 5.2 1.6 1.1 1.2 1.4 0.7 2.2 0.7 3.2 0.4 2.5 0.2 0.4 1.3 0.2 5.1 7.0																										
Z - zerospan      C - Calibration      M - Maintenance																										



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

**Nitric Oxide (NO) - ppb**  
**Anzac - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Anzac - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Anzac - May 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	22	23	28	54	74	65	79	73	22	10	11	32	58	81	55	19	706
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>	22	23	28	54	74	65	79	73	22	10	11	32	58	81	55	19	706

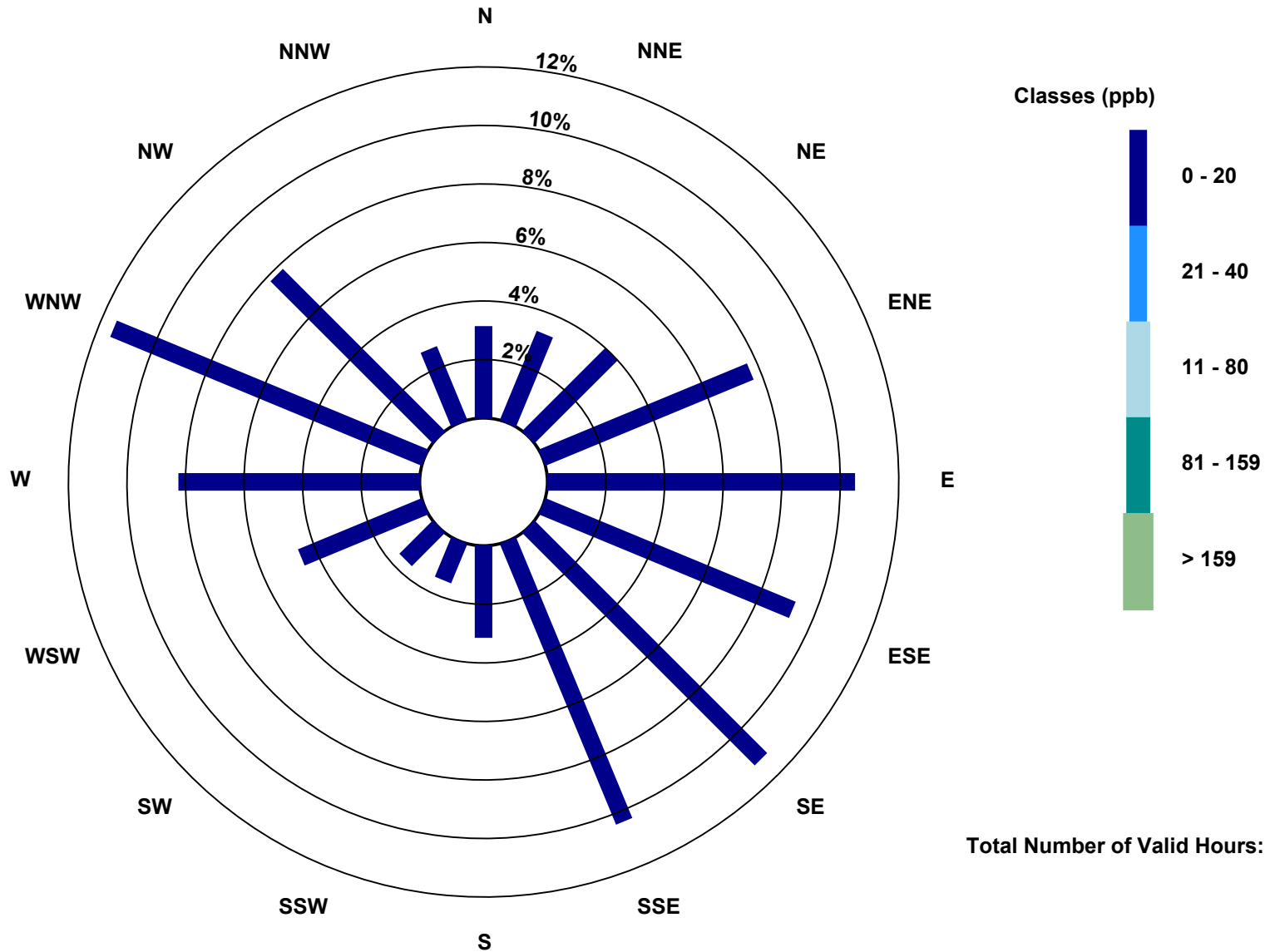
Total Number of Valid Hours: 706

Total Number of Hours: 744



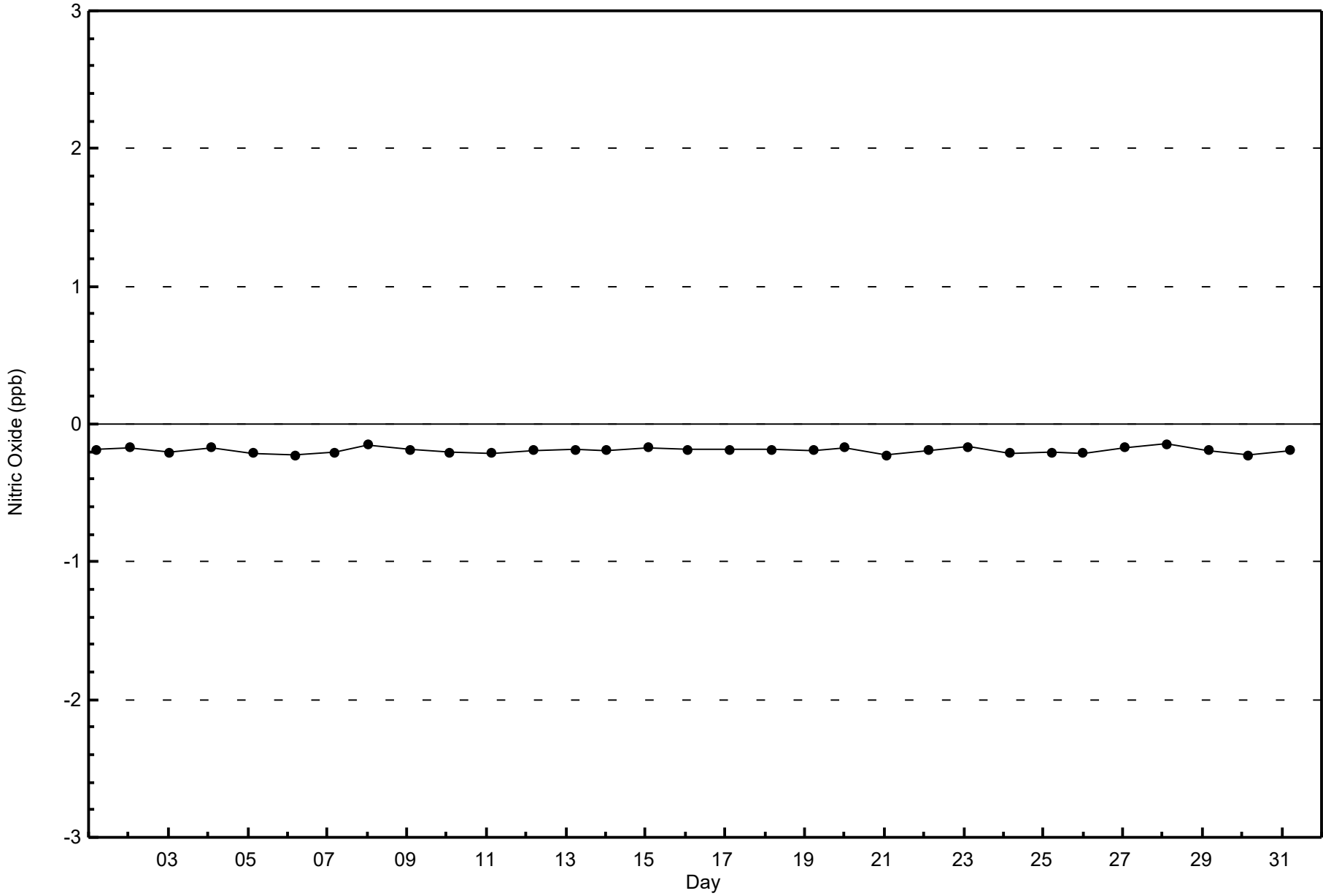
Wood Buffalo Environmental Association  
Wind Rose May 2024

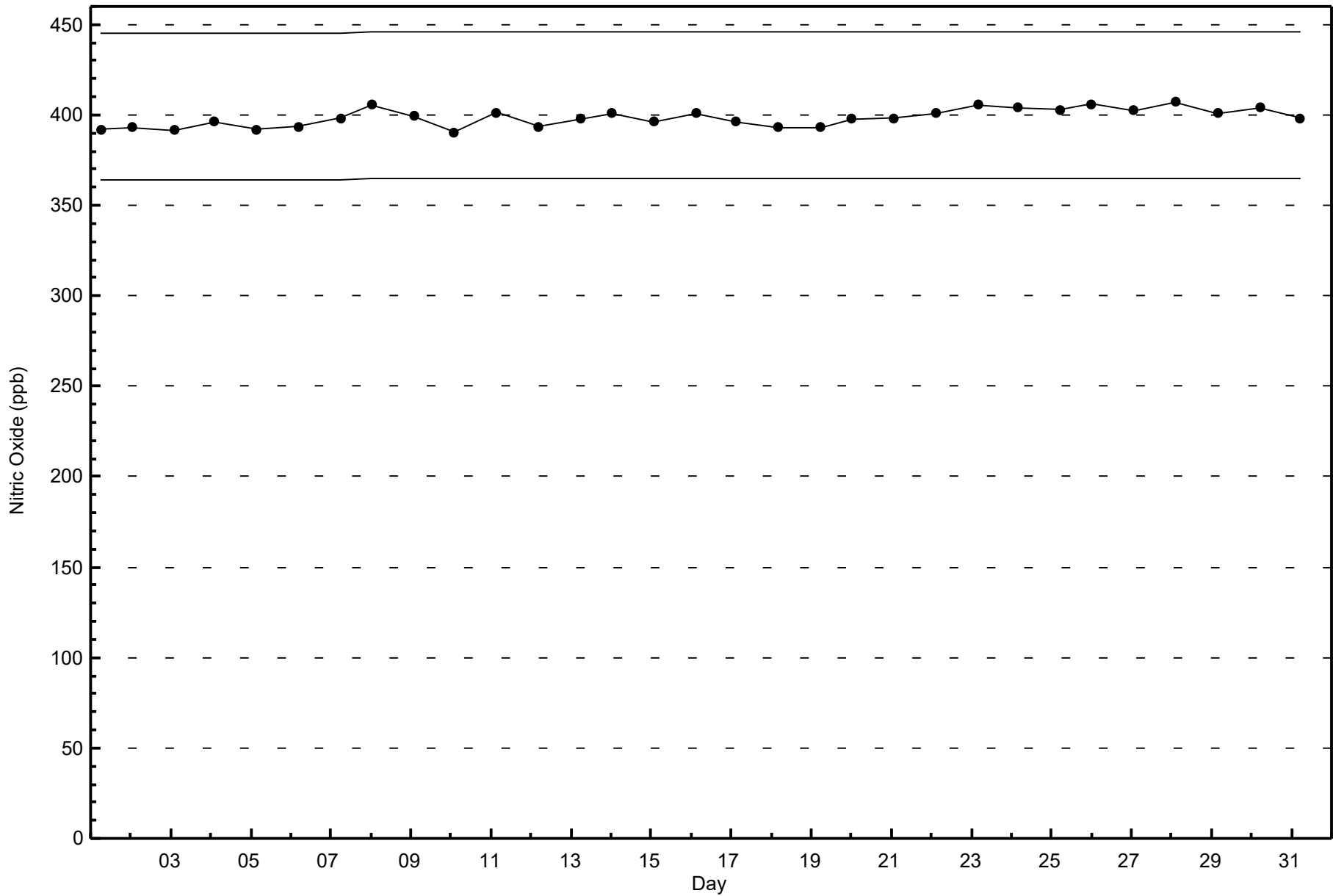
Nitric Oxide (NO) - ppb  
Anzac



Total Number of Valid Hours: 706







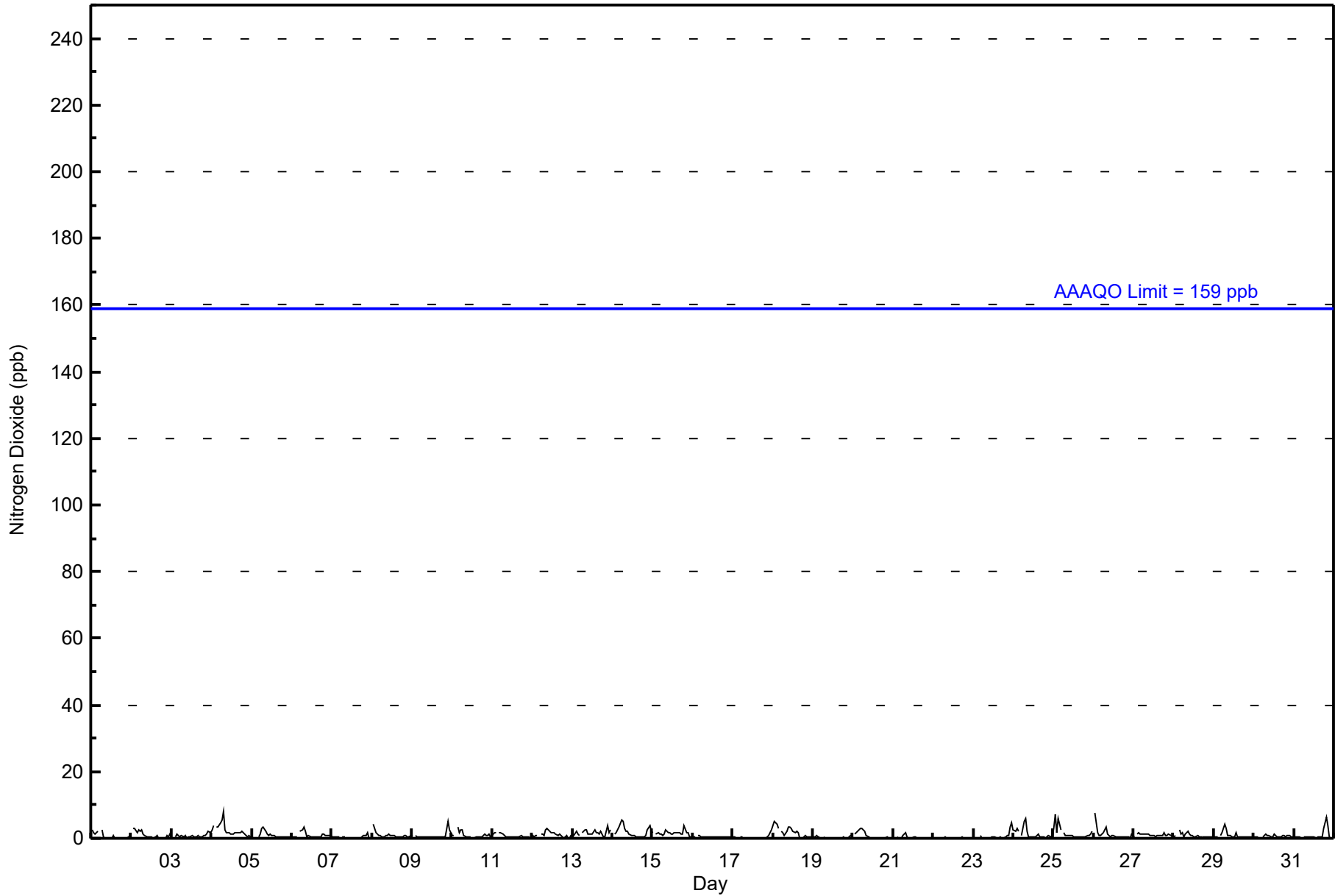


Number of Exceedences (AAAQO):		1-hr: 0    24-hr: 0		Hours in Service:		744																					
Maximum Value: 8.2 ppb on May 4 08:00		Maximum Daily Average: 2.4 ppb on May 4		Hours of Data:		706																					
Minimum Value: 0.0 ppb on May 19 16:00		Minimum Daily Average: 0.1 ppb on May 22		Hours of Missing Data:		38																					
Maximum Diurnal Average: 1.7 ppb at hour 2		Minimum Diurnal Average: 0.5 ppb at hour 17		Hours of Calibration:		37																					
Monthly Average: 0.97 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.3 Median = 0.6 Q <sub>3</sub> = 1.3 P <sub>90</sub> = 2.3 P <sub>99</sub> = 5.4		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-May	2.6	1.5	1.2	1.5	2.3	Z	2.4	0.3	0.2	0.1	0.1	0.2	0.2	0.9	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.4	1.2	0.7	2.6	
2-May	Z	3.1	2.9	1.8	2.7	2.2	2.5	1.1	1.0	0.4	0.3	0.3	0.3	0.2	0.3	0.9	0.2	0.1	0.1	0.1	0.2	1.0	0.4	1.2	1.0	3.1	
3-May	0.6	Z	0.5	1.3	1.0	0.6	0.7	0.5	1.0	0.2	0.4	0.6	0.7	0.4	0.4	0.3	0.7	0.6	0.5	0.9	1.0	1.2	2.1	1.6	0.8	2.1	
4-May	2.4	3.7	Z	3.3	3.3	4.7	5.4	8.2	2.7	1.7	1.7	1.4	1.4	1.3	1.6	1.6	1.9	1.8	2.1	1.5	1.2	0.4	0.8	0.6	2.4	8.2	
5-May	0.3	0.2	0.2	Z	0.5	1.4	2.8	3.4	2.1	1.4	1.0	1.2	1.0	0.7	0.6	0.5	0.5	0.6	0.5	0.4	0.5	0.5	0.6	0.5	0.9	3.4	
6-May	0.6	0.4	0.3	0.4	Z	2.0	2.7	3.2	2.0	0.5	0.8	0.5	0.4	0.5	0.5	0.5	0.5	0.4	1.1	1.2	1.0	0.9	0.7	0.9	1.0	3.2	
7-May	0.5	0.5	0.4	0.4	0.4	Z	0.5	0.3	0.4	C	C	C	C	C	C	0.2	0.1	0.1	0.6	1.0	1.0	1.5	0.1	0.1	--	1.5	
8-May	Z	4.4	1.8	1.1	0.7	0.7	0.6	0.5	1.0	0.9	1.3	0.7	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.9	1.0	0.6	0.5	0.7	0.9	4.4	
9-May	0.7	Z	0.7	0.6	0.5	0.6	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.6	5.1	2.7	1.5	0.8	5.1
10-May	0.7	0.7	Z	3.2	1.5	2.5	2.5	1.0	0.5	0.4	0.3	0.3	M	0.2	0.3	0.3	0.4	0.3	0.4	1.4	0.8	0.7	1.2	0.4	0.9	3.2	
11-May	0.8	1.7	1.8	Z	1.9	1.9	1.3	0.8	0.6	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.6	0.5	0.4	0.5	0.3	0.2	0.7	1.9	
12-May	0.7	0.3	0.9	0.8	Z	1.1	1.3	0.9	2.4	3.1	2.3	1.7	1.7	1.7	1.4	0.7	1.2	0.7	0.3	0.2	0.7	0.1	0.2	1.0	1.1	3.1	
13-May	0.8	0.8	2.2	1.3	0.9	Z	1.8	2.5	2.7	1.4	1.2	1.1	1.1	2.6	1.6	1.8	1.2	2.1	0.6	0.6	2.2	3.7	1.7	2.4	1.7	3.7	
14-May	Z	1.4	1.7	2.7	3.2	5.7	5.0	2.8	2.0	2.2	1.4	0.8	0.7	0.8	0.6	0.6	0.6	0.6	0.5	0.4	0.7	2.6	3.9	2.3	1.9	5.7	
15-May	1.6	Z	1.4	1.5	1.4	1.2	0.8	1.3	2.4	1.6	1.5	1.4	1.4	1.5	1.6	1.9	1.5	1.4	1.2	3.8	1.9	1.5	0.6	0.5	1.5	3.8	
16-May	0.4	0.5	Z	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.8	
17-May	0.3	0.3	0.2	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7	1.9	2.5	0.4	2.5	
18-May	3.7	5.0	4.3	2.9	Z	2.1	1.5	1.0	2.0	3.3	3.2	3.1	2.3	1.9	2.1	1.6	0.1	0.1	0.2	0.9	0.3	0.4	0.3	0.3	1.9	5.0	
19-May	0.5	0.6	0.7	0.6	0.4	Z	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4	0.1	0.1	0.2	0.8	0.7	0.3	0.8	
20-May	Z	1.1	1.7	2.0	3.0	2.8	2.4	2.0	0.8	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	0.1	0.1	0.1	0.8	3.0	
21-May	0.1	Z	0.3	0.1	0.1	0.1	1.0	1.8	0.3	0.1	0.2	0.1	0.5	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	1.8	
22-May	0.2	0.1	Z	0.2	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	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.5	
23-May	0.1	0.1	0.0	Z	0.7	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.3	0.2	0.2	0.5	0.1	0.2	0.5	0.9	1.0	3.5	4.5	0.6	4.5	
24-May	2.4	2.2	2.9	2.2	Z	0.9	4.9	6.1	2.1	0.4	0.5	0.5	0.4	0.7	1.3	0.4	0.6	0.3	0.2	0.5	0.7	0.5	0.5	0.5	1.4	6.1	
25-May	3.5	7.1	1.6	5.8	2.6	Z	1.6	1.0	0.8	0.7	1.0	0.7	0.5	0.6	0.5	0.4	0.4	0.6	0.3	0.4	0.9	0.7	1.3	2.2	1.5	7.1	
26-May	Z	7.7	1.6	1.0	1.0	1.4	1.8	3.4	1.2	0.7	0.6	0.8	0.9	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.2	1.2	1.2	7.7	
27-May	0.5	Z	1.1	1.5	1.3	1.3	1.3	1.4	1.2	1.4	0.8	0.7	1.0	0.5	0.8	0.7	0.7	1.0	1.6	0.9	0.8	1.4	0.7	0.7	1.0	1.6	
28-May	0.5	0.7	Z	2.7	1.4	1.6	0.6	1.1	2.3	1.2	0.8	0.7	0.6	0.6	0.7	0.5	0.5	0.6	0.3	0.6	0.5	0.5	0.6	0.5	0.9	2.7	
29-May	0.5	0.5	0.5	Z	0.7	1.6	4.1	2.8	0.9	1.0	0.9	0.6	0.6	1.6	0.4	0.3	0.3	0.4	0.5	0.3	0.4	0.3	0.4	0.4	0.9	4.1	
30-May	0.4	0.4	0.4	0.2	Z	0.5	0.7	1.3	1.0	1.0	0.5	0.4	1.1	0.7	0.6	0.3	0.5	0.9	0.8	0.5	0.7	1.0	0.4	0.3	0.6	1.3	
31-May	0.4	0.3	0.3	0.3	0.2	Z	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.2	0.3	0.3	0.3	0.4	2.9	6.3	3.8	0.5	0.2	0.2	0.8	6.3	
1.0    1.7    1.2    1.5    1.3    1.5    1.7    1.6    1.1    0.9    0.8    0.7    0.7    0.7    0.6    0.6    0.5    0.5    0.6    0.8    0.8    0.9    0.9    1.0																								Diurnal Average			
3.7    7.7    4.3    5.8    3.3    5.7    5.4    8.2    2.7    3.3    3.2    3.1    2.3    2.6    2.1    1.9    1.9    2.1    2.9    6.3    3.8    5.1    3.9    4.5																								Diurnal Maximum			
Z - zerospan            C - Calibration            M - Maintenance																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																											



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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Anzac - May 2024**





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Anzac - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Anzac - May 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	22	23	28	54	74	65	79	73	22	10	11	32	58	81	55	19	706
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>	22	23	28	54	74	65	79	73	22	10	11	32	58	81	55	19	706

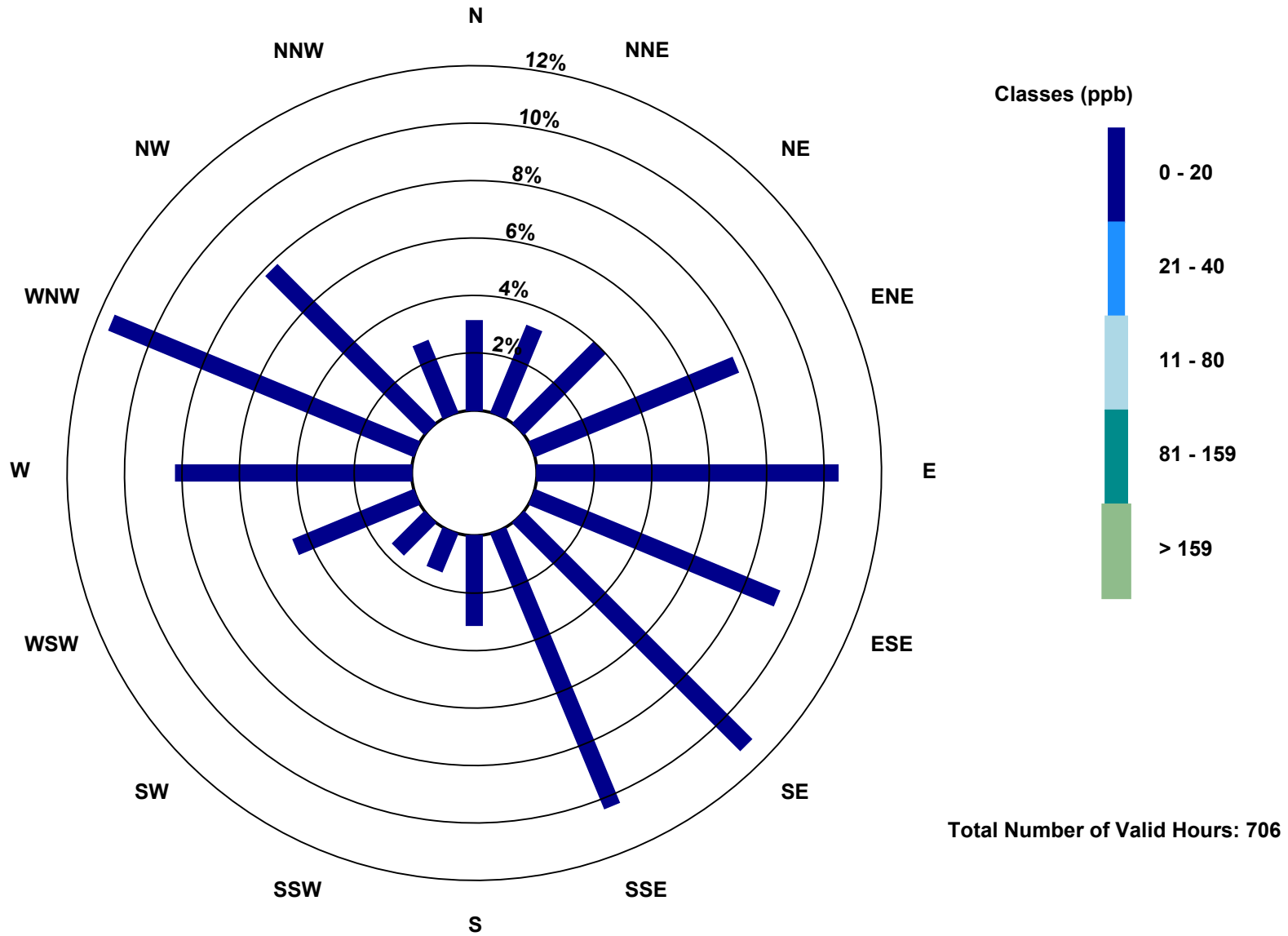
Total Number of Valid Hours: 706

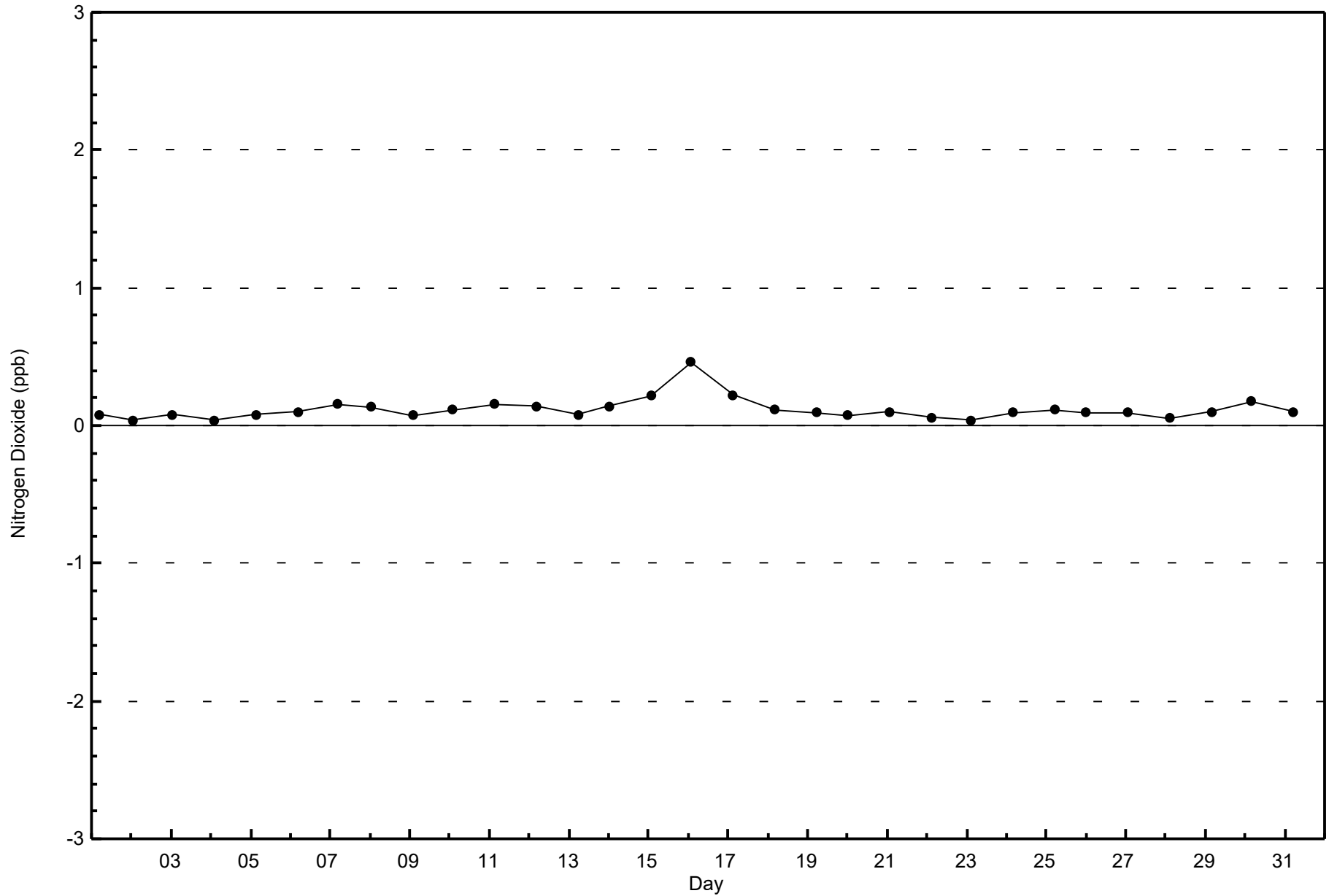
Total Number of Hours: 744



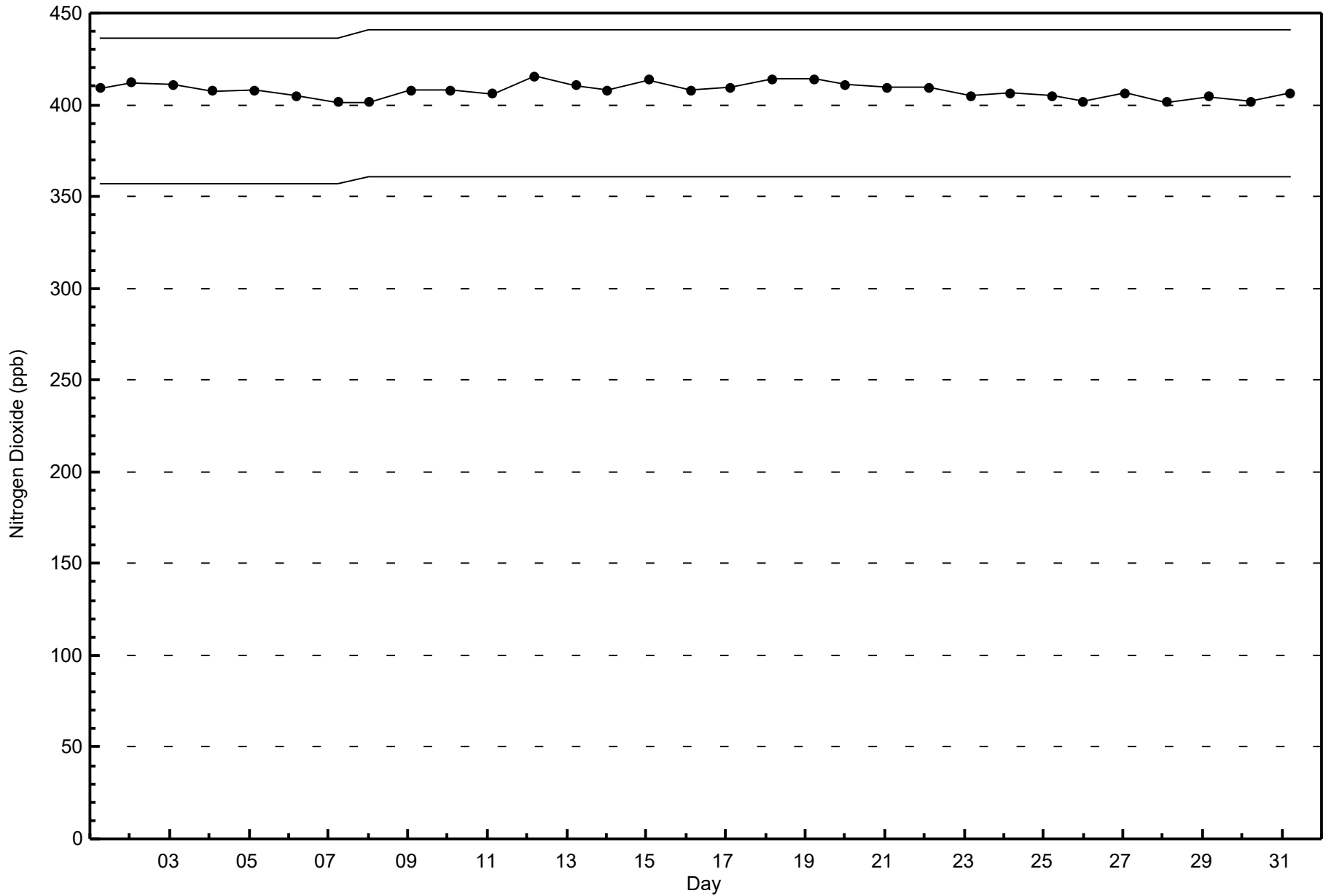
Wood Buffalo Environmental Association  
Wind Rose May 2024

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







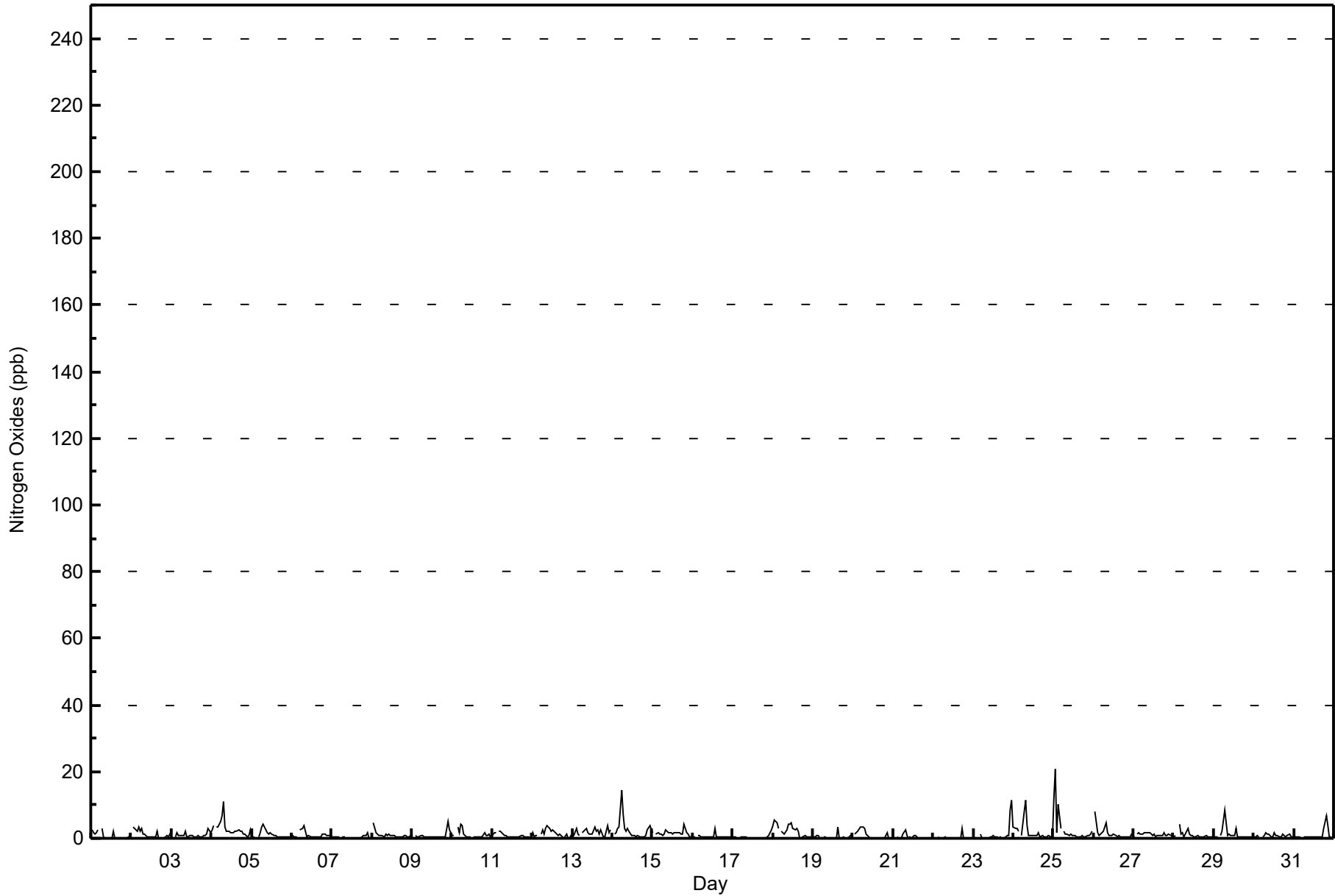




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - May 2024**

Maximum Value: 20.6 ppb on May 25 02:00		Maximum Daily Average: 2.8 ppb on May 4		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on May 23 03:00		Minimum Daily Average: 0.2 ppb on May 22		Hours of Data: 706																																													
Maximum Diurnal Average: 2.4 ppb at hour 2		Minimum Diurnal Average: 0.5 ppb at hour 17		Hours of Missing Data: 38																																													
Monthly Average: 1.21 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.4 Median = 0.6 Q <sub>3</sub> = 1.5 P <sub>90</sub> = 2.8 P <sub>99</sub> = 8.6		Hours of Calibration: 37																																													
				Percent Operational Time: 99.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	2.6	1.6	1.2	1.6	2.4	Z	3.1	0.3	0.2	0.1	0.1	0.2	0.2	2.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.4	1.2	0.8	3.1																							
2-May	Z	3.4	3.1	2.1	3.2	2.3	3.0	1.4	1.3	0.4	0.3	0.3	0.3	0.2	0.4	1.9	0.2	0.1	0.1	0.1	0.2	1.0	0.4	1.2	1.2	3.4																							
3-May	0.6	Z	0.5	1.5	1.0	0.6	0.8	0.6	2.0	0.2	0.4	0.7	0.8	0.4	0.4	0.3	0.7	0.6	0.5	0.9	1.0	1.2	2.8	1.7	0.9	2.8																							
4-May	2.4	3.9	Z	3.3	3.3	5.1	6.7	11.1	3.6	2.0	2.0	1.7	1.8	1.7	2.0	2.0	2.3	2.1	2.3	1.5	1.2	0.4	0.8	2.4	2.8	11.1																							
5-May	0.3	0.2	0.2	Z	0.5	1.6	3.3	4.2	2.7	1.8	1.2	1.5	1.2	0.8	0.7	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.6	0.5	1.1	4.2																							
6-May	0.6	0.4	0.3	0.4	Z	2.7	3.0	3.7	2.3	0.6	0.9	0.6	0.5	0.6	0.6	0.5	0.5	0.4	1.1	1.2	1.1	0.9	0.7	0.9	1.1	3.7																							
7-May	0.5	0.5	0.4	0.4	0.4	Z	0.5	0.3	0.4	C	C	C	C	C	C	0.2	0.1	0.1	0.6	1.0	1.0	1.5	0.1	0.1	--	1.5																							
8-May	Z	4.8	1.8	1.1	0.7	0.8	0.7	0.6	1.2	1.0	1.5	0.8	0.9	0.9	0.6	0.5	0.5	0.5	0.6	0.9	1.0	0.6	0.5	0.7	1.0	4.8																							
9-May	0.7	Z	0.7	0.6	0.5	0.7	0.7	0.6	0.4	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.6	5.2	2.7	1.6	0.8	5.2																							
10-May	0.7	0.7	Z	3.3	1.5	4.3	4.0	1.2	0.6	0.5	0.4	0.4	M	0.3	0.4	0.4	0.4	0.4	0.5	1.5	0.8	0.7	1.2	0.4	1.1	4.3																							
11-May	0.8	1.7	1.8	Z	2.0	2.0	1.4	0.9	0.7	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.5	0.9	0.7	0.5	0.4	0.5	0.3	0.2	0.8	2.0																							
12-May	1.6	0.6	0.9	0.8	Z	1.2	2.6	1.1	3.1	4.0	2.8	2.1	2.3	2.3	1.8	0.9	1.3	0.8	0.3	0.2	1.2	0.1	0.2	1.0	1.4	4.0																							
13-May	0.8	0.8	2.9	1.3	0.9	Z	1.9	2.7	3.2	1.6	1.3	1.2	1.2	3.5	2.0	2.5	1.4	2.4	0.6	0.6	2.2	3.7	1.8	2.5	1.9	3.7																							
14-May	Z	1.4	1.8	2.8	3.3	14.6	7.1	3.0	2.3	2.9	1.9	0.9	0.8	0.9	0.6	0.7	0.6	0.6	0.5	0.4	0.7	2.6	4.0	2.3	2.5	14.6																							
15-May	1.6	Z	1.4	1.6	1.4	1.2	0.8	1.4	2.5	1.7	1.5	1.5	1.5	1.5	1.7	1.9	1.5	1.4	1.2	4.2	1.9	1.5	0.6	0.5	1.6	4.2																							
16-May	0.4	0.5	Z	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	2.8	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.6	2.8																							
17-May	0.3	0.4	0.2	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7	1.9	2.5	0.4	2.5																						
18-May	3.8	5.6	4.7	3.0	Z	2.3	1.8	1.4	2.6	4.4	4.4	4.5	3.0	2.6	2.8	2.0	0.1	0.1	0.3	1.0	0.3	0.5	0.3	0.3	2.3	5.6																							
19-May	0.5	0.6	0.8	0.7	0.4	Z	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.2	0.1	0.1	0.6	0.1	0.1	0.2	0.8	1.3	0.5	3.2																							
20-May	Z	1.2	1.7	2.0	3.3	3.3	3.3	3.1	1.2	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.9	0.1	0.1	0.1	1.0	3.3																							
21-May	0.1	Z	0.3	0.1	0.1	0.1	1.4	2.7	0.8	0.1	0.5	0.2	0.7	1.0	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	2.7																							
22-May	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	3.0																							
23-May	0.1	0.1	0.0	Z	1.3	0.1	0.1	0.1	0.1	0.1	0.2	0.4	1.0	0.4	0.2	0.2	0.6	0.1	0.2	0.5	0.9	1.0	8.6	11.5	1.2	11.5																							
24-May	3.6	2.8	3.1	2.3	Z	1.0	8.1	11.3	3.7	0.9	0.8	0.8	0.7	0.7	0.9	1.5	0.4	0.7	0.3	0.2	0.5	0.7	0.5	0.5	2.0	11.3																							
25-May	12.5	20.6	1.6	10.2	2.9	Z	2.3	1.4	1.2	1.0	1.3	0.9	0.7	0.7	0.6	0.5	0.5	0.8	0.3	0.4	0.9	0.7	1.3	2.2	2.8	20.6																							
26-May	Z	8.0	1.6	1.0	1.1	1.6	2.2	4.6	1.6	0.8	0.7	0.9	1.3	0.7	0.5	0.8	0.5	0.4	0.5	0.5	0.4	0.4	0.2	1.2	1.4	8.0																							
27-May	0.5	Z	1.1	1.5	1.3	1.4	1.5	1.7	1.5	1.7	1.5	0.7	1.2	0.5	0.9	0.7	0.7	1.0	1.7	0.9	0.8	1.4	0.7	0.7	1.1	1.7																							
28-May	0.5	0.7	Z	4.0	1.4	1.7	0.6	1.3	2.8	1.4	0.8	0.8	0.6	0.6	0.8	0.5	0.5	0.6	0.3	0.6	0.5	0.5	0.6	0.5	1.0	4.0																							
29-May	0.5	0.5	0.5	Z	0.7	2.2	8.5	4.5	1.0	1.2	1.0	0.7	0.8	3.0	0.5	0.4	0.4	0.4	0.6	0.3	0.4	0.3	0.4	0.4	1.3	8.5																							
30-May	0.4	0.6	0.8	0.4	Z	0.6	0.9	1.7	1.3	1.3	0.6	0.5	1.6	0.9	0.8	0.4	0.6	1.1	1.0	0.6	0.8	1.2	0.4	0.4	0.8	1.7																							
31-May	0.5	0.4	0.3	0.3	0.2	Z	0.4	0.3	0.3	0.4	0.6	0.3	0.3	0.2	0.3	0.3	0.3	0.4	3.1	6.7	3.8	0.5	0.2	0.2	0.9	6.7																							
																								1.4	2.4	1.3	1.8	1.3	2.1	2.3	2.2	1.5	1.1	1.0	0.8	0.9	1.0	0.7	0.8	0.5	0.7	0.6	0.9	0.8	1.0	1.1	1.3	Diurnal Average	
																								12.5	20.6	4.7	10.2	3.3	14.6	8.5	11.3	3.7	4.4	4.4	4.5	3.0	3.5	2.8	3.2	2.3	3.0	3.1	6.7	3.8	5.2	8.6	11.5	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Anzac - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	705	99.86	99.86
21 - 40	1	0.14	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Anzac - May 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	22	23	28	54	74	65	79	73	21	10	11	32	58	81	55	19	705
21 - 40	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	22	23	28	54	74	65	79	73	22	10	11	32	58	81	55	19	706

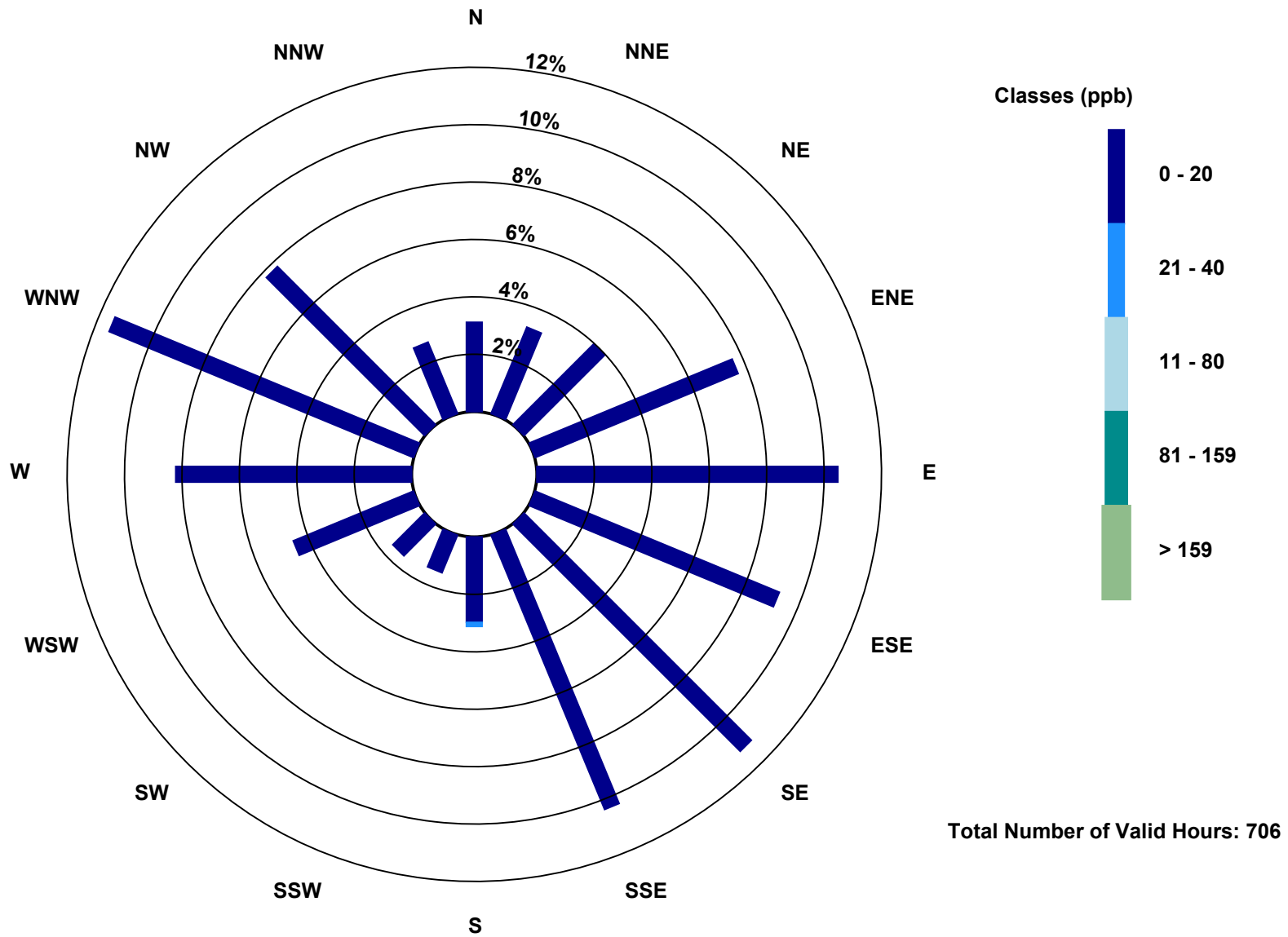
Total Number of Valid Hours: 706

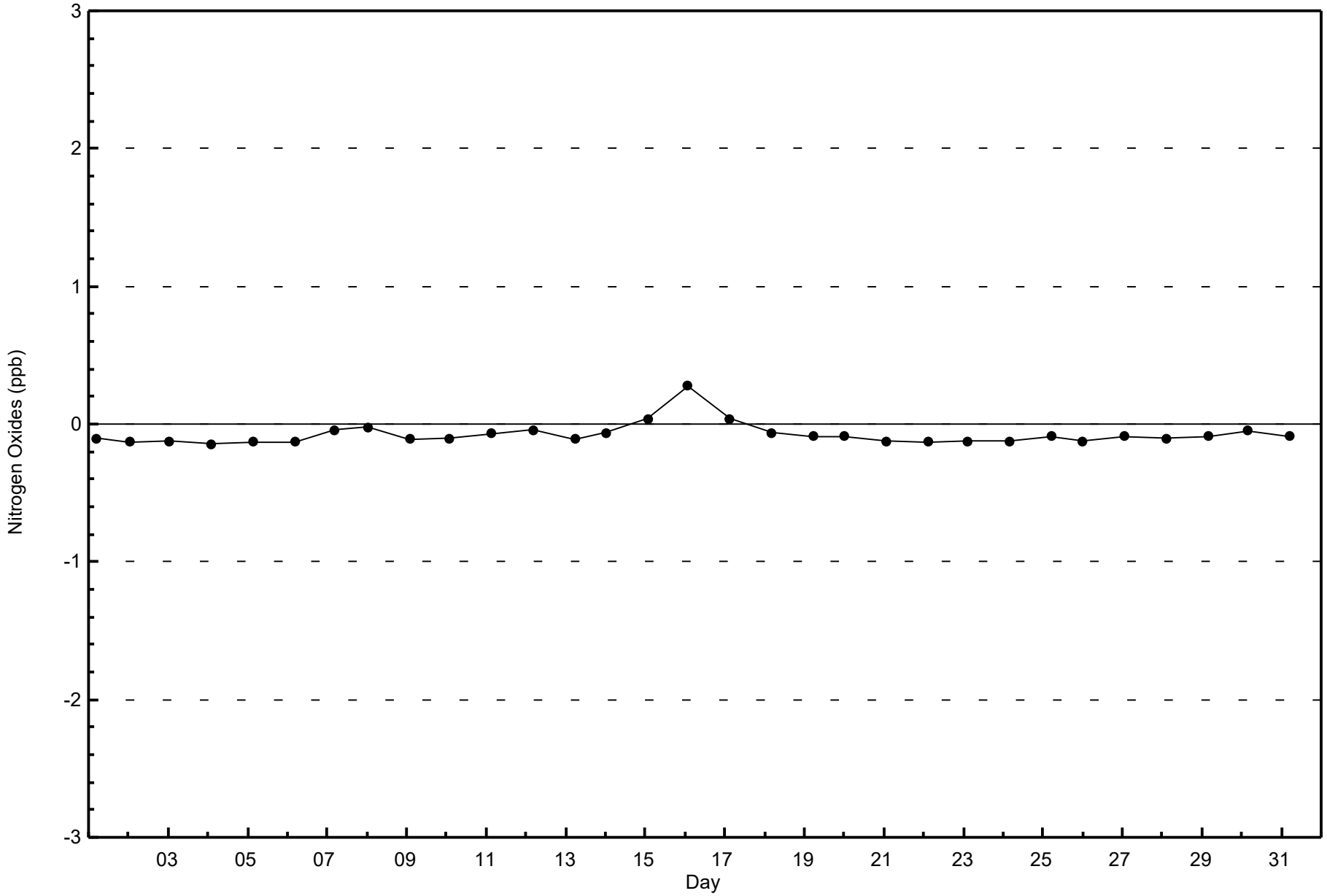
Total Number of Hours: 744

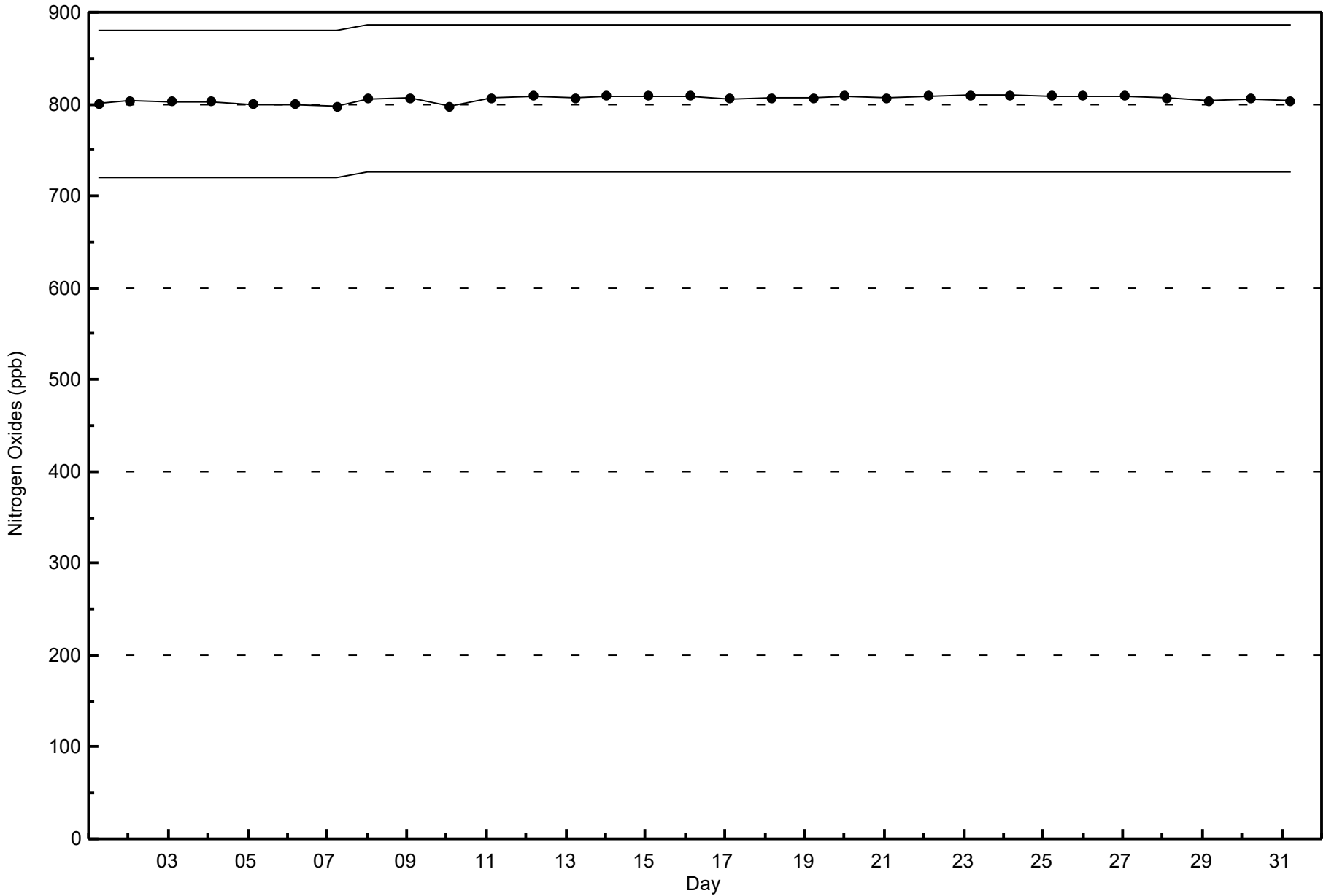


Wood Buffalo Environmental Association  
Wind Rose May 2024

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











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

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 55.5 ppb on May 13 20:00	Maximum Daily Average: 41.9 ppb on May 13		Hours of Data:	708
Minimum Value: 7.9 ppb on May 19 05:00	Minimum Daily Average: 15.1 ppb on May 18		Hours of Missing Data:	36
Maximum Diurnal Average: 38.1 ppb at hour 17	Minimum Diurnal Average: 24.4 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 32.10 ppb	Percentiles: P <sub>1</sub> = 10.1 P <sub>10</sub> = 16.8 Q <sub>1</sub> = 24.6 Median = 32.5 Q <sub>3</sub> = 40.3 P <sub>90</sub> = 45.5 P <sub>99</sub> = 51.6		Percent Operational Time:	99.9

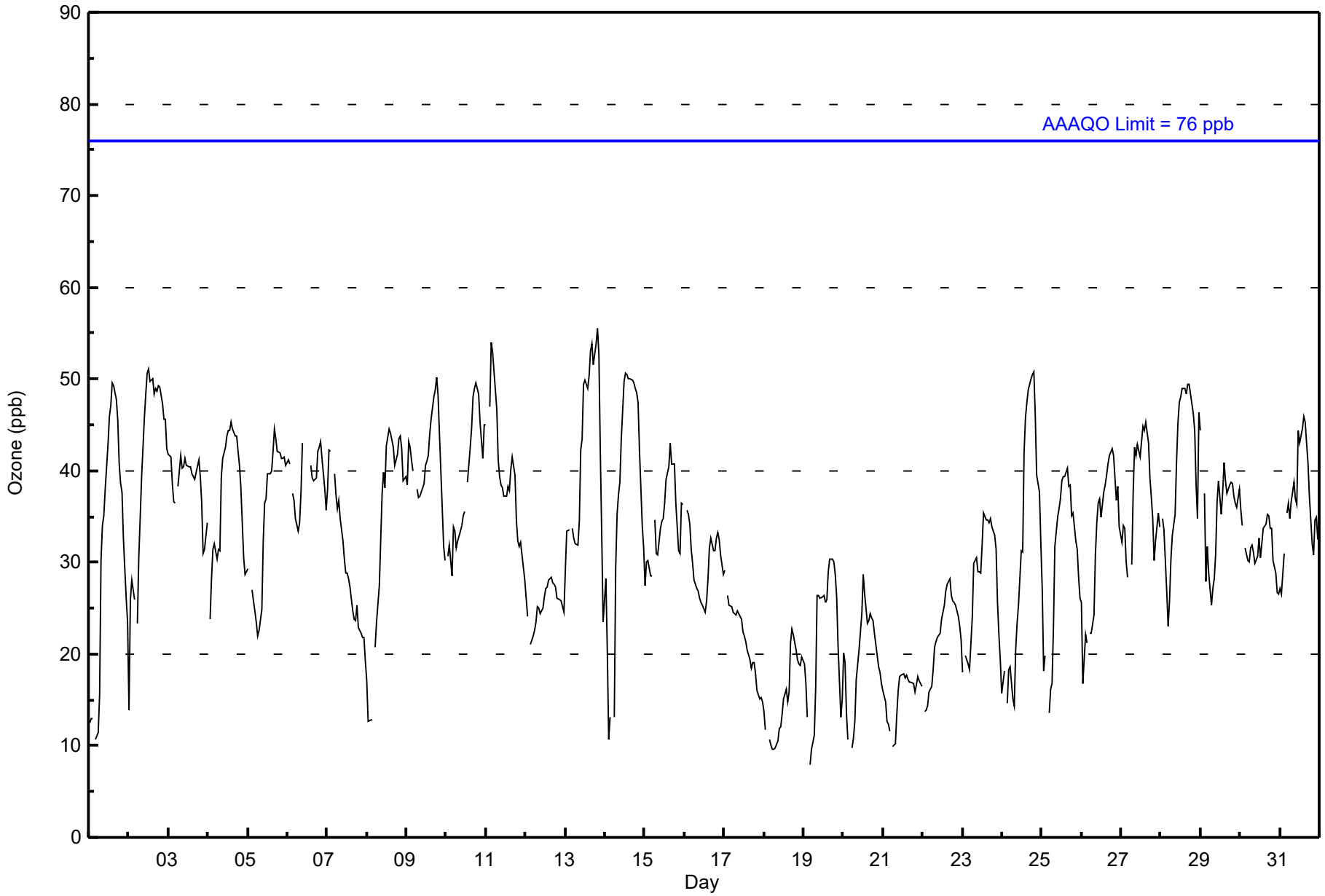
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	12.4	12.9	13.0	Z	10.7	11.4	15.5	30.3	34.0	35.1	38.0	42.8	45.9	47.1	49.6	49.3	47.8	45.5	40.8	38.6	37.7	32.6	26.1	23.5	32.2	49.6																							
2-May	13.8	26.0	28.0	25.9	Z	23.4	30.5	34.8	39.2	45.8	48.3	50.6	51.1	49.7	50.1	48.4	48.9	48.7	49.3	49.1	47.3	45.6	45.5	42.4	41.0	51.1																							
3-May	41.8	41.5	38.5	36.6	36.5	Z	38.3	41.6	40.3	40.4	41.3	40.5	40.5	40.4	39.7	39.4	39.1	39.8	41.2	39.3	36.5	30.9	31.4	34.3	38.7	41.8																							
4-May	Z	23.8	28.2	31.4	32.1	30.3	31.5	31.3	39.3	41.3	42.5	43.8	44.4	44.4	45.3	44.6	43.7	43.7	42.2	40.6	38.2	30.5	28.7	29.0	37.0	45.3																							
5-May	29.3	Z	27.0	25.8	24.7	23.5	21.9	22.5	24.8	32.4	36.5	36.9	39.7	39.6	39.9	42.1	44.6	43.4	42.0	41.9	41.3	41.3	41.6	40.6	34.9	44.6																							
6-May	41.2	40.7	Z	37.5	36.8	34.8	33.4	34.3	37.6	43.0	C	C	C	C	40.5	39.2	39.0	39.2	42.2	42.6	43.2	41.4	38.0	35.7	39.0	43.2																							
7-May	38.0	42.2	42.1	Z	39.7	37.4	35.8	36.8	34.8	32.4	30.3	28.8	28.9	28.2	27.3	24.8	23.7	23.7	25.4	22.9	22.2	21.9	21.8	19.2	29.9	42.2																							
8-May	17.2	12.7	12.9	12.8	Z	20.7	23.4	27.4	32.5	37.5	39.8	38.1	42.6	44.5	44.0	43.4	42.5	40.6	41.8	43.4	43.8	42.4	39.0	39.4	34.0	44.5																							
9-May	38.5	43.2	42.6	41.2	39.9	Z	37.9	37.0	37.2	37.6	38.6	40.6	41.0	41.7	44.0	45.6	48.0	48.9	50.2	48.2	43.9	35.8	31.8	30.2	41.0	50.2																							
10-May	Z	30.7	31.8	28.6	33.9	33.4	31.6	32.4	33.5	34.0	35.1	35.5	M	38.8	42.5	44.7	48.0	49.0	49.5	48.4	45.2	43.4	41.4	45.1	38.9	49.5																							
11-May	45.0	Z	47.0	54.1	53.0	50.8	46.6	41.2	39.3	38.4	38.2	37.2	37.2	38.3	37.9	40.2	41.4	39.6	34.6	32.3	31.7	32.1	30.9	28.0	39.8	54.1																							
12-May	26.1	24.2	Z	21.1	22.0	22.5	23.5	25.2	24.9	24.4	25.1	26.3	27.1	27.4	28.0	28.4	27.7	27.5	27.4	26.1	26.0	25.8	25.2	24.6	25.5	28.4																							
13-May	29.2	33.3	33.5	Z	33.7	32.7	32.0	31.8	34.5	42.2	43.5	49.4	49.9	49.0	50.4	53.1	53.8	51.6	53.8	55.5	52.7	42.2	33.3	23.6	41.9	55.5																							
14-May	28.3	20.4	10.6	13.1	Z	13.1	29.5	35.2	37.4	38.8	43.4	49.8	50.7	50.4	50.0	50.1	49.9	49.6	49.0	48.4	47.5	42.3	34.0	31.5	38.0	50.7																							
15-May	27.4	30.1	30.2	28.5	Z	34.6	30.9	30.8	33.6	34.4	34.8	36.5	39.0	40.5	43.1	40.8	40.8	40.8	36.5	31.3	31.0	36.5	36.4	34.6	34.6	43.1																							
16-May	Z	35.6	35.2	34.2	31.4	29.9	28.1	27.1	26.8	26.0	25.6	25.3	24.5	25.8	28.3	31.6	32.7	31.3	31.2	32.6	33.2	32.5	30.8	28.7	29.9	35.6																							
17-May	29.2	Z	26.4	25.3	25.2	24.6	24.3	24.8	24.4	23.8	22.4	22.0	21.3	20.4	19.4	18.5	19.1	19.0	17.8	16.1	15.2	15.2	14.7	21.5	29.2																								
18-May	13.7	11.8	Z	10.6	10.1	9.6	9.6	9.7	10.5	11.8	12.1	13.4	15.0	16.1	14.8	15.9	21.2	22.7	22.2	20.5	19.4	19.0	18.8	19.6	15.1	22.7																							
19-May	18.9	16.8	13.1	Z	7.9	9.6	11.1	16.4	26.4	26.4	26.1	26.2	26.3	25.7	25.9	28.9	30.4	30.4	30.1	28.7	26.2	20.9	13.2	15.2	21.8	30.4																							
20-May	20.1	19.0	13.6	10.6	Z	9.8	10.8	12.7	17.3	20.5	22.4	24.3	28.6	26.5	23.3	23.6	24.4	24.0	23.6	22.3	19.8	18.6	18.0	16.8	19.6	28.6																							
21-May	16.0	14.8	12.7	12.3	11.5	Z	9.9	10.2	13.4	16.1	17.5	17.7	17.9	17.4	17.6	17.3	16.9	17.0	16.7	15.9	16.7	17.5	17.1	16.4	15.5	17.9																							
22-May	Z	13.7	13.9	14.4	15.9	16.5	18.4	20.7	21.4	21.8	22.2	23.7	24.6	25.3	26.9	27.7	28.2	26.4	25.8	25.6	25.4	24.1	23.0	21.5	22.0	28.2																							
23-May	18.0	Z	19.9	18.9	18.3	21.2	24.1	29.9	30.5	28.9	28.9	28.9	31.9	35.5	34.7	34.6	34.3	34.8	33.8	32.9	31.5	25.6	22.0	19.3	27.8	35.5																							
24-May	15.7	18.2	Z	14.6	18.3	18.6	15.1	14.4	20.5	23.3	25.4	31.2	31.2	41.9	45.7	47.4	48.8	50.0	50.4	50.8	46.1	39.5	37.7	32.1	32.0	50.8																							
25-May	27.0	18.2	19.8	Z	13.6	16.2	16.8	23.0	31.7	34.9	35.8	37.0	38.9	39.3	39.3	40.3	38.3	38.5	35.1	35.4	32.3	31.4	28.4	26.1	30.3	40.3																							
26-May	25.7	16.8	22.1	21.2	Z	22.2	22.2	24.3	30.9	34.3	36.5	36.9	34.9	37.7	38.4	39.6	40.7	41.7	42.4	41.6	39.2	36.8	38.2	33.8	33.0	42.4																							
27-May	32.3	34.1	33.8	30.1	28.4	Z	29.7	37.6	42.6	41.6	42.9	41.4	43.1	44.8	44.4	45.3	43.1	39.1	37.0	34.8	30.2	32.3	35.4	33.8	37.3	45.3																							
28-May	Z	34.8	33.5	26.8	23.0	25.8	30.3	32.9	35.2	40.9	45.1	47.4	48.1	48.9	49.0	48.4	49.5	49.4	48.4	46.3	44.4	38.4	34.8	46.4	40.3	49.5																							
29-May	44.4	Z	37.5	28.0	31.7	28.8	25.3	27.1	28.2	30.9	36.7	38.9	35.3	37.7	40.8	38.9	37.6	38.4	38.8	38.5	37.2	36.4	36.0	38.0	35.3	44.4																							
30-May	35.7	33.9	Z	31.5	30.2	30.0	31.6	31.9	31.1	29.9	30.7	32.7	30.5	32.0	33.7	34.2	35.3	35.1	33.7	33.8	30.3	28.8	26.7	26.6	31.7	35.7																							
31-May	27.1	26.6	30.9	Z	35.4	36.5	34.7	36.5	38.8	36.9	36.4	44.4	43.0	44.5	46.0	45.4	43.1	40.8	37.2	32.0	30.9	34.6	34.9	32.5	36.9	46.0																							
																								27.4	26.0	26.8	25.4	26.6	24.4	26.1	28.1	30.7	32.4	33.4	34.9	35.6	36.6	37.4	37.9	38.1	37.7	37.3	36.2	34.4	32.0	30.2	29.2	Diurnal Average	
																								45.0	43.2	47.0	54.1	53.0	50.8	46.6	41.6	42.6	45.8	48.3	50.6	51.1	50.4	50.4	53.1	53.8	51.6	53.8	55.5	52.7	45.6	45.5	46.4	Diurnal Maximum	

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



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Anzac - May 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	115	16.24	16.24
21 - 50	580	81.92	98.16
51 - 82	13	1.84	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 - May 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	5	4	4	7	16	14	6	9	3	1	1	1	3	17	20	4	115
21 - 50	16	17	24	48	56	54	73	63	19	10	10	27	49	61	36	17	580
51 - 82	0	2	0	0	0	0	0	1	0	0	0	3	4	2	1	0	13
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	21	23	28	55	72	68	79	73	22	11	11	31	56	80	57	21	708

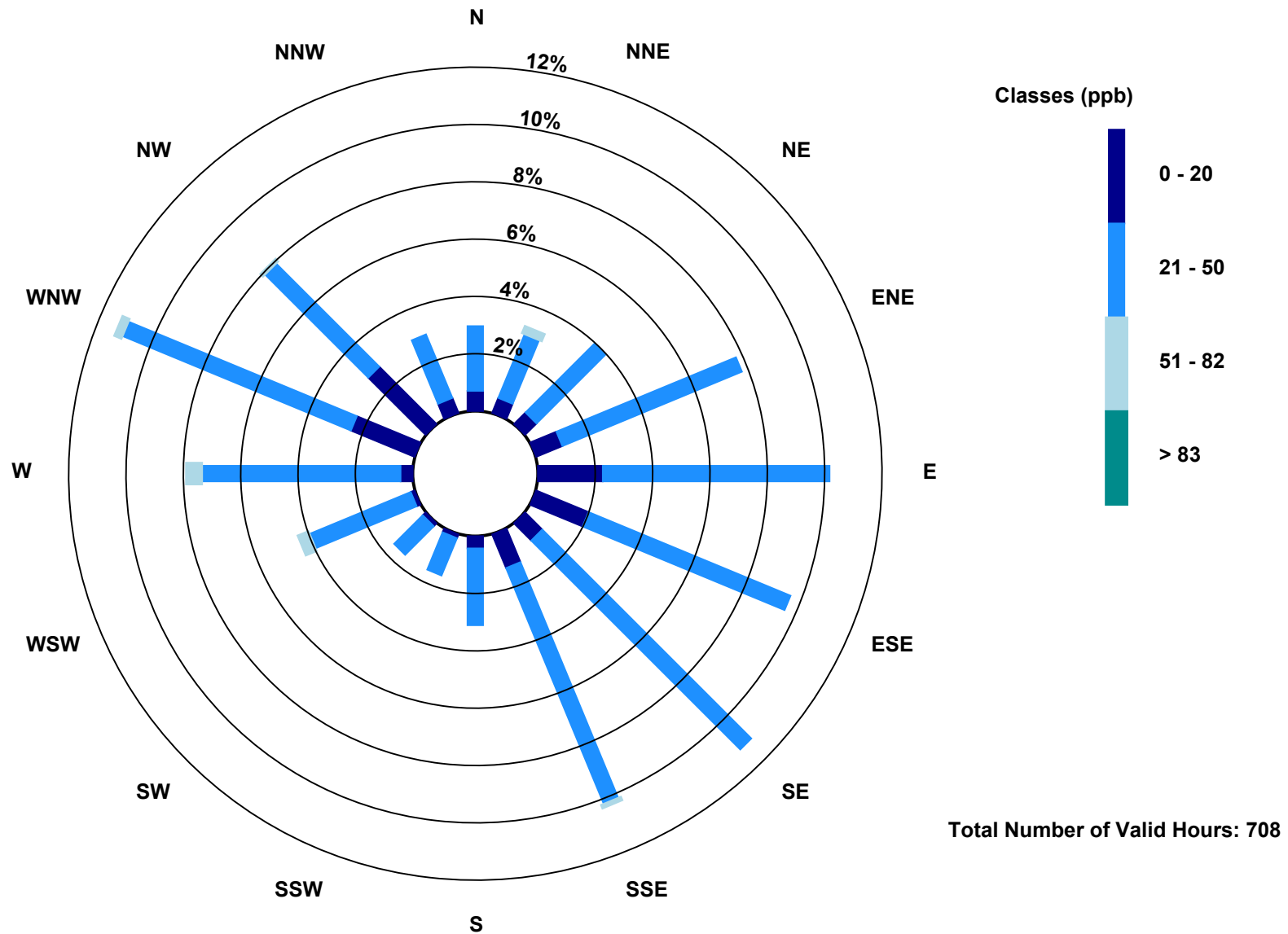
Total Number of Valid Hours: 708

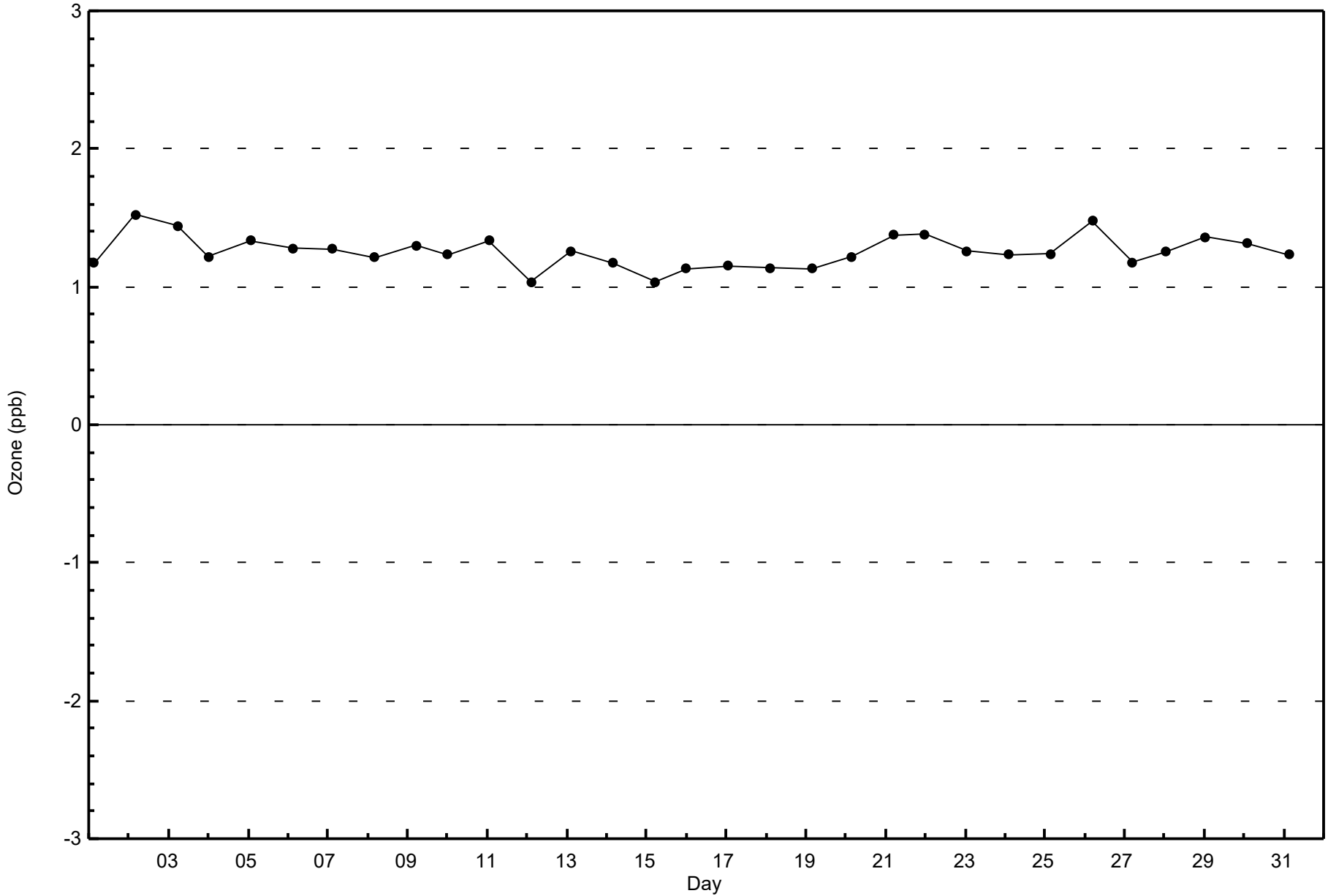
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

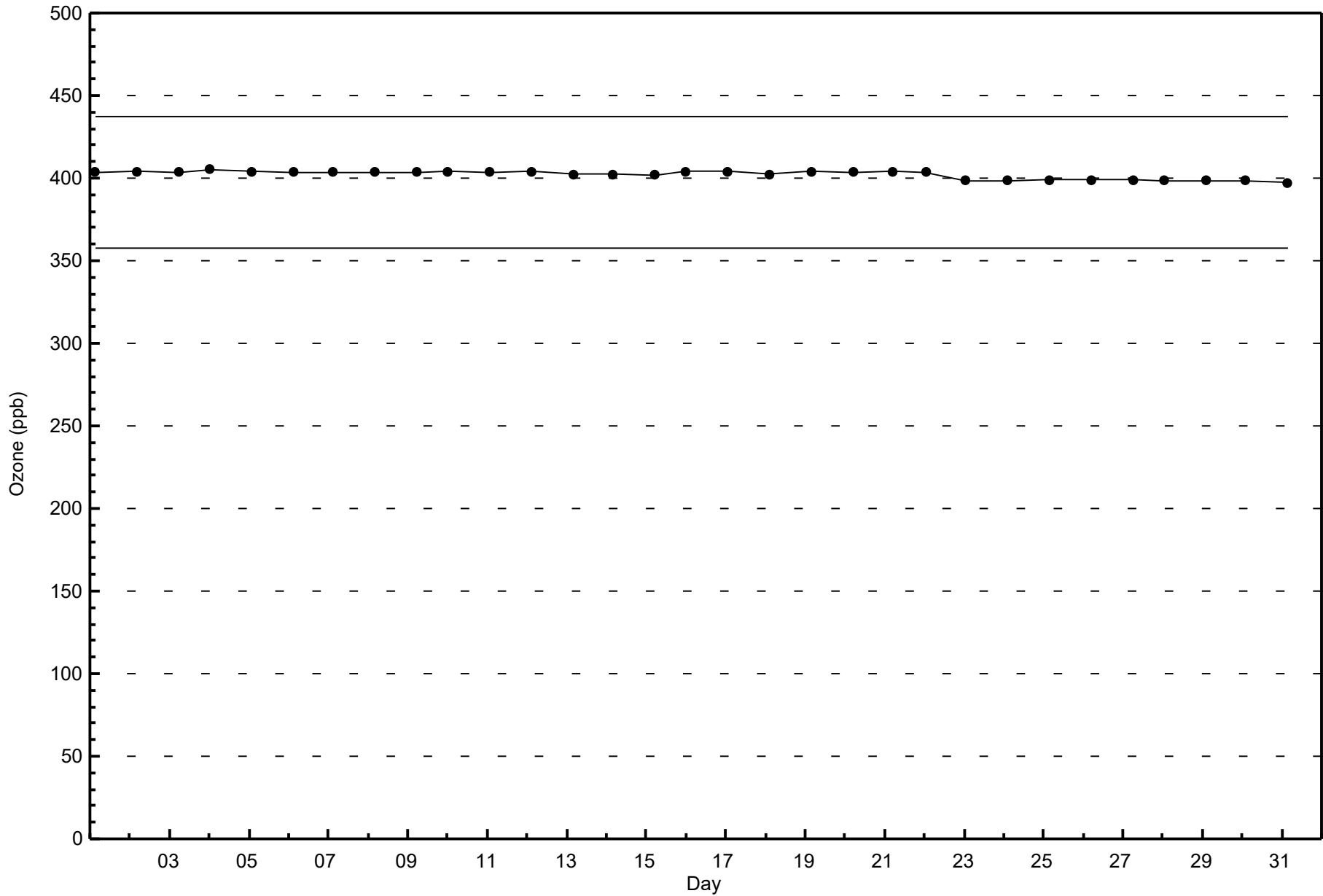






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Anzac - May 2024**



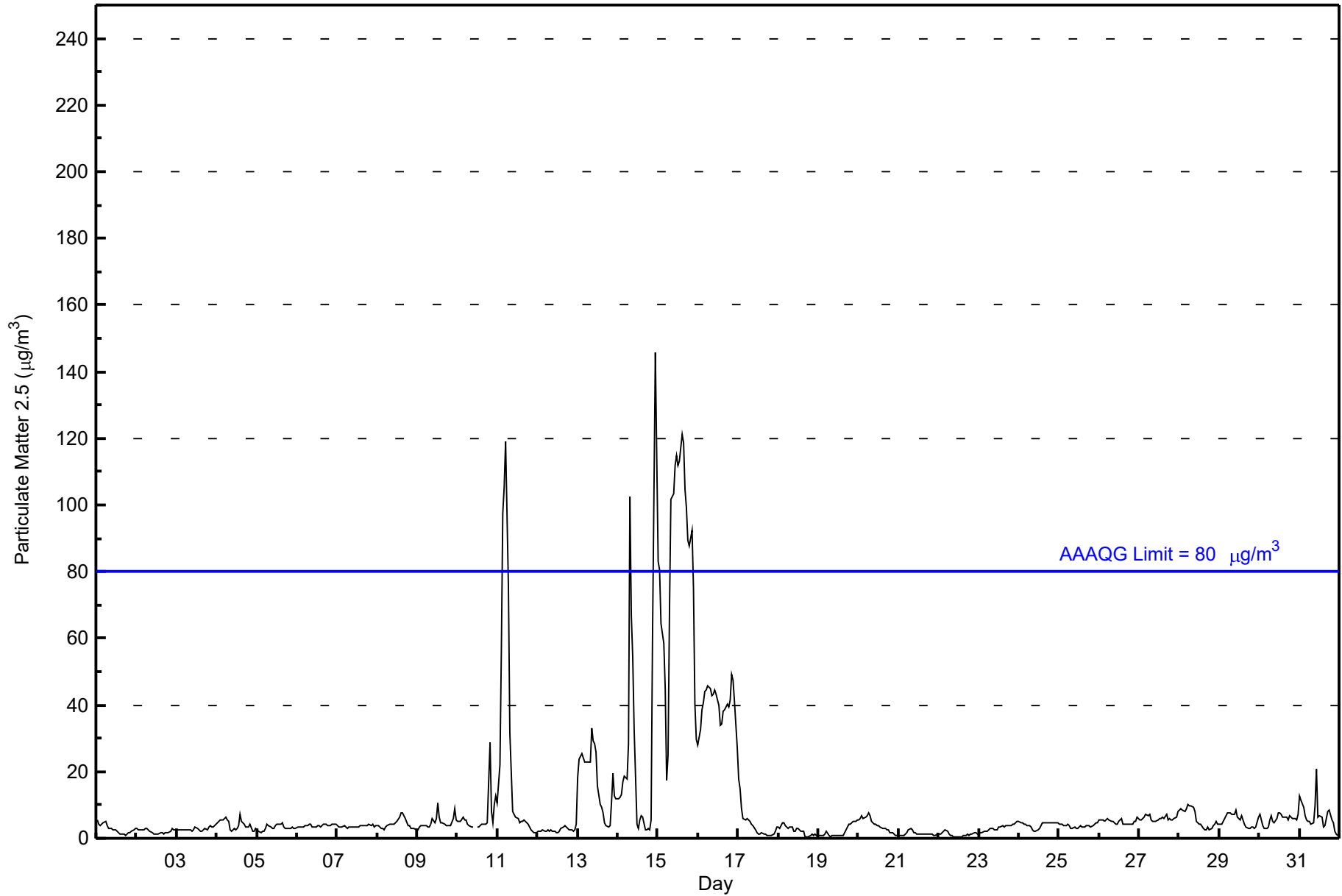


Summary of Hour Averages

Anzac - May 2024

Number of Exceedences (AAAQO):		1-hr: 21		24-hr: 3		Hours in Service:		744																		
Maximum Value: 145.9 µg/m <sup>3</sup> on May 14 23:00		Maximum Daily Average: 81.5 µg/m <sup>3</sup> on May 15				Hours of Data:		742																		
Minimum Value: 0.3 µg/m <sup>3</sup> on May 22 13:00		Minimum Daily Average: 1.1 µg/m <sup>3</sup> on May 22				Hours of Missing Data:		2																		
Maximum Diurnal Average: 12.1 µg/m <sup>3</sup> at hour 8		Minimum Diurnal Average: 7.3 µg/m <sup>3</sup> at hour 19				Hours of Calibration:		2																		
Monthly Average: 9.55 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 = 3.9 Q <sub>3</sub> = 5.8 P <sub>90</sub> = 20.8 P <sub>99</sub> = 111.7				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-May	5.4	4.4	3.8	4.2	4.8	5.1	3.7	2.9	2.8	2.8	2.7	2.4	2.0	1.6	1.2	1.2	1.1	1.0	1.3	1.6	1.9	2.0	2.4	3.1	2.7	5.4
2-May	3.0	2.7	2.6	2.7	2.8	3.0	3.1	2.6	2.2	1.6	1.5	1.4	1.3	1.3	1.7	1.7	1.5	1.5	1.6	1.7	2.1	2.8	2.4	2.6	2.1	3.1
3-May	2.4	2.5	2.5	2.7	2.6	2.5	2.6	2.6	2.6	2.2	2.7	3.5	3.2	2.5	2.3	2.3	2.6	3.1	2.6	3.4	3.7	3.4	3.6	4.1	2.8	4.1
4-May	4.9	5.3	5.7	5.4	5.3	6.2	5.6	5.0	2.6	2.2	2.8	2.7	2.8	3.7	7.2	5.0	4.1	3.3	3.3	3.3	4.1	1.9	2.0	2.9	4.0	7.2
5-May	2.7	2.1	1.9	2.2	2.3	3.0	4.3	3.9	3.5	2.8	3.0	3.7	4.2	4.3	4.0	4.5	3.5	3.1	3.2	3.0	2.9	3.3	3.0	3.1	3.2	4.5
6-May	3.4	3.3	3.3	3.5	3.5	3.8	4.0	4.3	4.0	3.5	3.3	3.4	3.7	3.6	3.6	3.9	4.2	4.3	4.0	3.7	3.7	4.0	4.1	4.1	3.8	4.3
7-May	4.0	3.3	3.3	3.6	3.6	3.4	3.1	3.2	3.5	3.4	3.3	3.2	3.3	3.4	3.8	4.0	4.0	4.0	3.9	4.3	3.8	4.2	3.6	3.7	3.6	4.3
8-May	3.8	3.8	3.1	2.8	2.7	3.4	3.8	4.3	4.4	4.3	4.1	4.5	5.2	6.3	7.7	7.7	6.9	5.8	3.7	3.8	3.0	3.0	2.9	2.7	4.3	7.7
9-May	2.6	3.5	3.7	4.0	3.9	3.6	3.4	3.5	4.3	5.9	4.8	6.0	10.4	6.3	4.8	4.8	4.4	3.9	4.0	3.8	4.0	5.8	9.0	5.4	4.8	10.4
10-May	4.9	4.9	5.2	6.3	5.5	5.3	4.4	3.7	3.3	3.3	C	C	3.4	3.5	4.2	4.2	4.4	4.4	4.5	28.8	7.9	4.7	10.4	12.6	6.4	28.8
11-May	10.4	21.8	56.4	97.4	105.7	119.1	75.3	31.7	19.9	7.9	7.3	6.3	5.9	4.6	4.9	4.9	5.6	4.8	4.4	3.3	2.5	2.1	1.6	1.7	25.2	119.1
12-May	2.0	2.0	2.2	2.5	2.3	2.3	2.6	2.2	2.5	2.3	2.2	1.9	1.9	2.3	2.8	3.5	3.7	3.4	3.1	2.5	2.6	2.3	2.4	4.1	2.6	4.1
13-May	18.2	23.7	25.5	24.0	22.7	23.0	23.0	33.1	29.1	28.2	25.8	15.9	10.1	9.2	7.6	4.8	3.9	3.6	3.6	11.2	19.6	12.5	12.0	17.2	33.1	17.2
14-May	11.7	12.3	13.1	16.8	18.7	17.7	28.5	102.6	67.0	54.3	32.7	4.1	3.1	5.6	6.7	6.4	2.6	2.7	2.9	2.6	5.6	60.3	145.9	114.5	30.8	145.9
15-May	83.0	80.5	64.5	58.4	44.9	17.2	24.9	67.5	101.8	103.4	111.7	114.8	111.7	113.1	121.3	118.7	104.7	99.0	89.6	87.6	92.4	75.1	40.3	29.8	81.5	121.3
16-May	28.1	32.8	38.5	40.8	44.1	44.6	45.8	44.8	42.8	43.1	44.3	43.1	39.7	34.1	34.1	37.9	38.5	40.4	39.2	41.5	49.3	47.5	41.2	27.2	40.2	49.3
17-May	17.7	15.0	8.8	6.1	5.6	5.9	5.7	5.2	4.2	3.6	2.7	1.9	1.5	1.3	1.5	1.3	1.1	1.0	0.8	0.9	1.0	1.2	2.2	3.4	4.2	17.7
18-May	3.6	3.2	4.7	4.5	3.8	3.5	3.2	3.3	3.4	2.1	2.2	2.9	2.8	2.1	2.3	2.2	0.5	0.3	0.4	0.9	1.2	0.7	1.2	1.0	2.3	4.7
19-May	0.7	0.7	0.7	1.0	1.5	2.1	0.8	0.6	0.9	0.9	0.7	0.8	0.9	0.8	0.8	0.9	1.6	3.2	4.1	4.3	4.7	4.9	5.2	5.5	2.0	5.5
20-May	5.3	5.8	6.9	6.0	6.4	6.9	7.5	6.7	5.1	4.3	4.1	4.0	3.8	3.4	3.2	3.2	2.8	2.5	2.4	1.8	1.6	1.2	0.9	0.8	4.0	7.5
21-May	0.8	0.9	1.0	1.0	1.3	1.7	2.6	3.1	2.5	1.9	1.5	1.4	1.3	1.3	1.3	1.3	1.4	1.4	1.3	1.3	1.2	0.9	0.9	1.1	1.4	3.1
22-May	1.3	1.3	1.6	2.2	2.5	2.2	1.1	0.6	0.7	0.4	0.4	0.3	0.3	0.3	0.6	0.7	1.0	1.1	0.9	1.1	1.2	1.5	1.6	1.4	1.1	2.5
23-May	1.4	1.6	1.7	1.9	2.1	2.1	2.4	2.8	2.8	2.6	2.6	3.3	3.6	3.6	3.6	3.8	3.8	3.7	3.8	4.0	4.3	4.3	4.8	5.1	3.1	5.1
24-May	5.1	4.7	4.6	4.4	4.2	4.0	3.7	3.5	2.4	1.9	2.0	2.7	3.0	3.9	4.7	4.7	4.7	4.7	4.7	4.6	4.7	4.8	4.8	4.7	4.0	5.1
25-May	4.4	4.3	4.1	3.7	4.0	4.1	4.0	3.1	3.1	3.3	3.2	3.1	3.5	3.6	3.5	3.6	3.8	3.9	3.8	3.6	4.0	4.3	4.6	4.8	3.8	4.8
26-May	5.5	5.4	5.3	5.1	5.4	5.7	5.5	5.0	5.1	4.6	4.2	4.2	4.9	5.8	4.2	4.4	4.4	4.2	4.3	4.4	4.4	5.0	5.1	6.3	4.9	6.3
27-May	5.5	5.4	6.0	6.4	7.0	6.8	7.0	5.4	4.9	5.0	5.1	5.7	5.7	5.8	6.2	6.0	7.1	5.5	5.8	5.5	5.7	6.1	6.3	7.9	6.0	7.9
28-May	8.3	8.9	8.5	8.0	8.7	10.0	9.7	9.7	9.4	7.9	5.2	4.7	4.4	4.1	2.9	2.8	2.7	3.4	2.6	3.0	3.8	4.3	5.0	4.3	5.9	10.0
29-May	4.3	4.3	5.1	6.1	6.6	7.5	7.5	7.0	7.2	7.2	8.3	6.2	5.4	6.7	5.7	4.1	3.4	2.8	2.8	3.4	3.5	3.0	3.3	6.6	5.3	8.3
30-May	7.4	5.6	3.9	3.1	2.8	3.3	5.6	6.9	4.9	4.7	6.0	7.7	7.8	7.1	6.5	6.2	6.4	5.4	6.7	6.2	6.1	6.0	5.4	7.3	5.8	7.8
31-May	12.6	11.5	9.1	6.8	5.6	5.1	5.0	4.3	4.8	9.7	20.9	6.4	6.9	6.2	3.5	3.8	5.7	8.3	8.3	5.4	4.6	2.0	1.4	1.0	6.6	20.9
																								Diurnal Average		
																								Diurnal Maximum		
8.9 9.3 9.9 11.1 11.1 10.8 10.0 12.1 11.7 10.7 10.8 9.4 8.8 8.5 8.7 8.6 8.0 7.7 7.3 8.0 8.1 9.4 11.0 9.5																										
83.0 80.5 64.5 97.4 105.7 119.1 75.3 102.6 101.8 103.4 111.7 114.8 111.7 113.1 121.3 118.7 104.7 99.0 89.6 87.6 92.4 75.1 145.9 114.5																										
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>) -  $\mu\text{g}/\text{m}^3$**   
**Anzac - May 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	534	71.97	71.97
6 - 15	124	16.71	88.68
16 - 25	18	2.43	91.11
26 - 80	46	6.20	97.30
> 81.0	20	2.70	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>**  
**Anzac - May 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	20	20	28	53	49	61	68	60	15	3	6	19	38	45	36	13	534
6 - 15	1	0	0	0	8	2	12	11	6	4	2	11	15	32	14	6	124
16 - 25	0	0	0	0	1	0	2	5	0	1	2	0	2	2	2	1	18
26 - 80	0	0	0	1	15	10	0	2	2	2	2	2	1	5	4	0	46
> 81.0	1	3	0	2	5	0	0	1	0	1	0	0	3	1	2	1	20
<b>Totals</b>	22	23	28	56	78	73	82	79	23	11	12	32	59	85	58	21	742

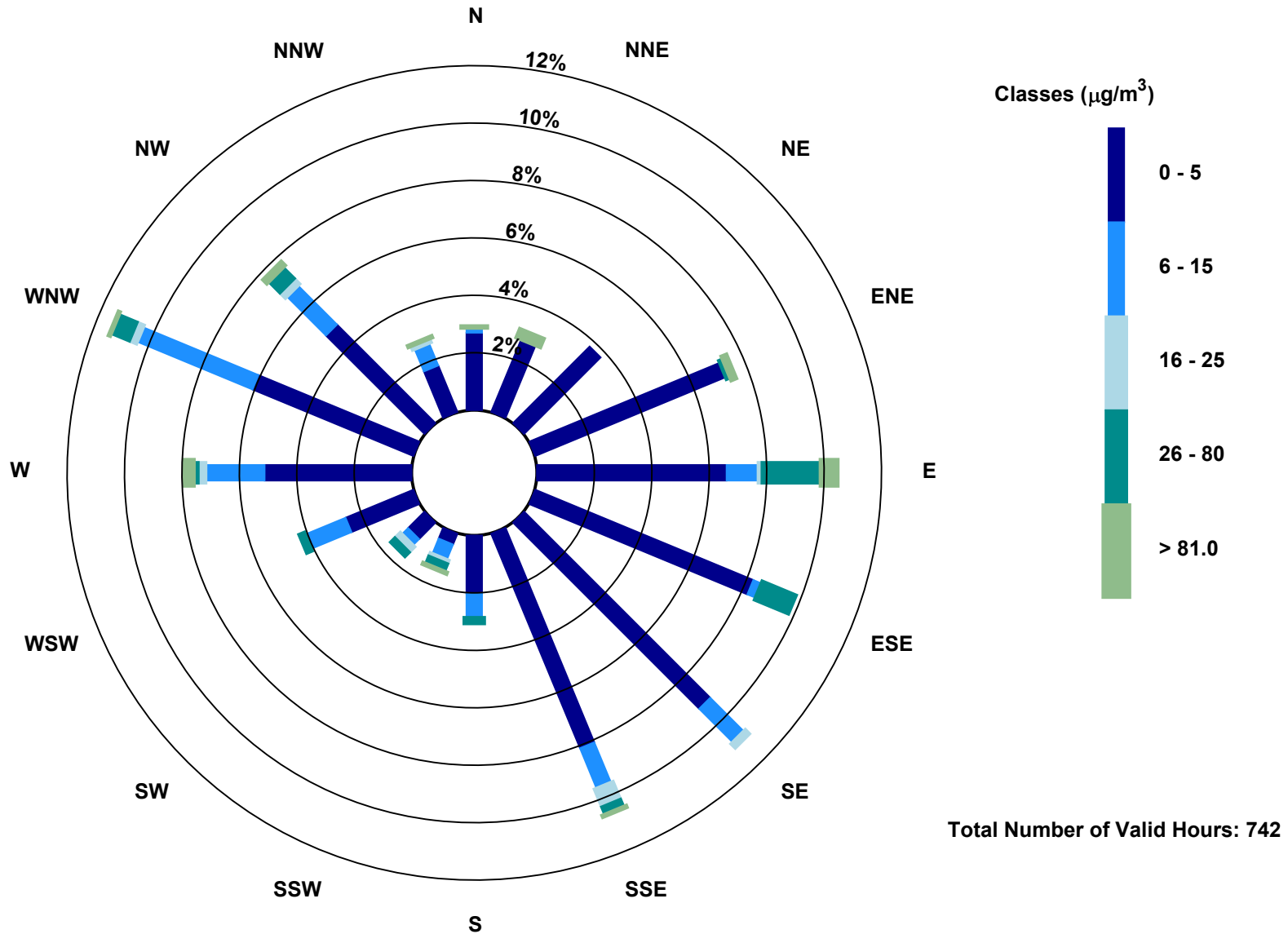
Total Number of Valid Hours: 742

Total Number of Hours: 744



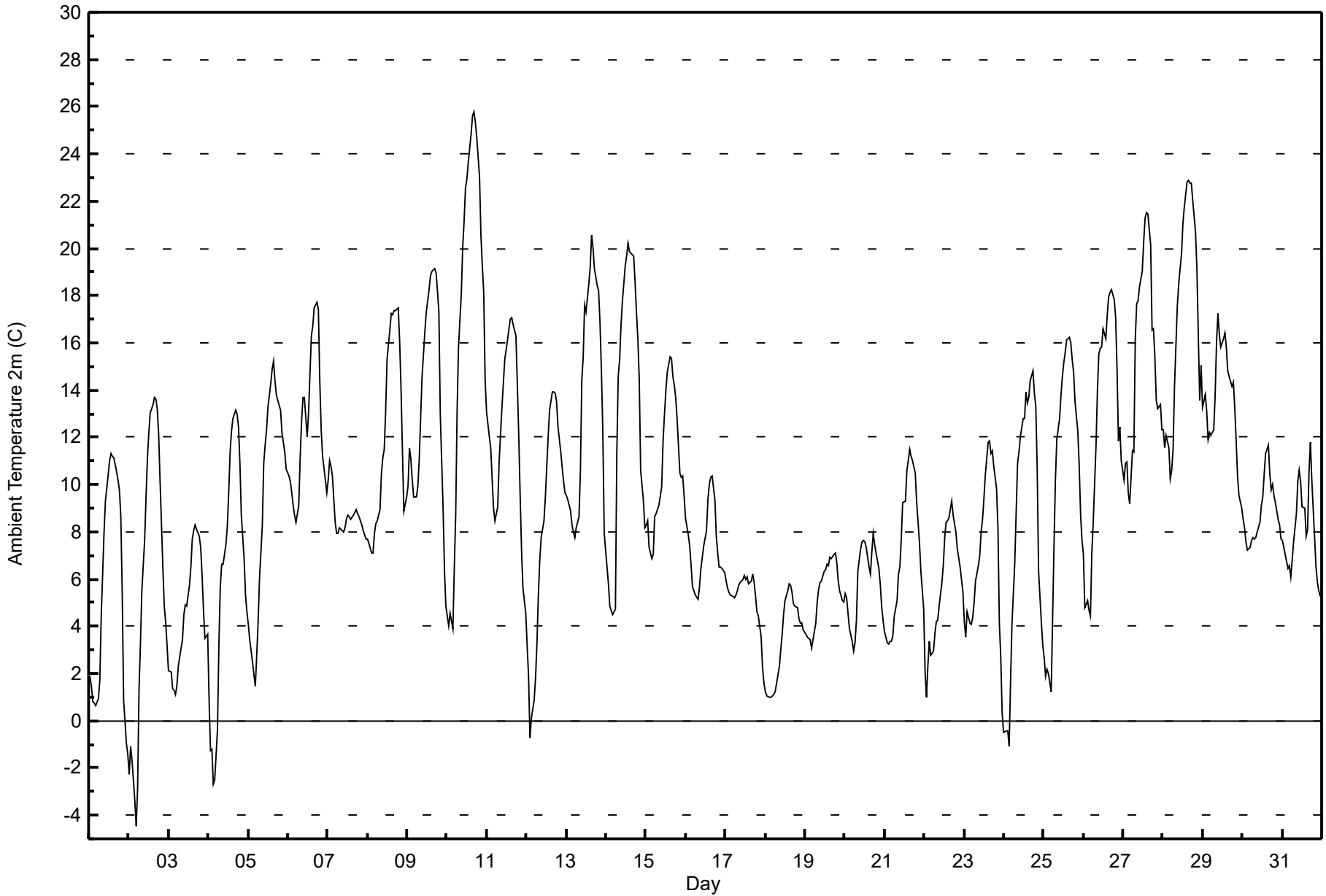
Wood Buffalo Environmental Association  
Wind Rose May 2024

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





Maximum Value: 25.8 C on May 10 17:00		Maximum Daily Average: 17.1 C on May 10		Hours in Service: 744																							
Minimum Value: -4.4 C on May 2 05:00		Minimum Daily Average: 3.4 C on May 18		Hours of Data: 744																							
Maximum Diurnal Average: 13.8 C at hour 16		Minimum Diurnal Average: 4.8 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 9.53 C		Percentiles: P <sub>1</sub> = -1.4 P <sub>10</sub> = 3.2 Q <sub>1</sub> = 5.7 Median = 8.8 Q <sub>3</sub> = 13.1 P <sub>90</sub> = 17.3 P <sub>99</sub> = 22.9		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-May	1.9	1.5	0.8	0.7	0.7	1.0	1.7	4.4	6.1	7.9	9.3	10.4	11.0	11.3	11.2	11.1	10.6	10.2	9.8	8.7	5.5	0.9	-1.0	-1.4	5.6	11.3	
2-May	-2.3	-1.1	-1.7	-3.4	-4.4	-2.8	1.3	3.3	5.5	7.6	9.5	11.1	12.2	13.0	13.4	13.7	13.6	13.2	12.1	10.2	6.5	4.9	4.2	3.2	6.0	13.7	
3-May	2.1	2.1	1.3	1.3	1.1	1.5	2.3	3.1	3.4	4.5	4.9	4.8	5.7	6.5	7.7	8.1	8.3	8.1	7.8	7.3	6.1	4.7	3.5	3.7	4.6	8.3	
4-May	0.9	-1.3	-1.2	-2.7	-2.5	-0.3	3.2	5.7	6.6	6.6	7.5	8.2	9.7	11.4	12.3	12.8	13.1	13.0	12.5	10.9	8.7	6.8	5.3	4.6	6.3	13.1	
5-May	4.1	3.4	2.5	1.9	1.5	2.7	4.2	6.0	8.3	10.9	11.6	12.3	13.3	14.3	14.9	15.2	14.4	13.8	13.6	13.1	12.2	11.8	11.4	10.7	9.5	15.2	
6-May	10.3	10.1	9.7	9.1	8.7	8.4	9.1	11.2	12.7	13.7	13.7	12.0	13.1	14.7	16.3	16.7	17.5	17.7	17.4	14.4	12.3	11.2	10.2	9.7	12.5	17.7	
7-May	10.2	11.0	10.8	10.3	8.4	7.9	7.9	8.2	8.1	8.0	8.2	8.5	8.7	8.7	8.5	8.7	8.8	8.9	8.8	8.7	8.3	8.1	7.9	7.7	8.7	11.0	
8-May	7.7	7.5	7.1	7.1	8.0	8.4	8.5	8.9	10.5	11.2	11.5	13.1	15.3	16.5	17.2	17.2	17.4	17.4	17.5	16.1	14.0	11.4	8.9	9.5	12.0	17.5	
9-May	9.9	11.6	11.1	10.2	9.5	9.5	9.9	11.1	12.8	14.5	16.5	17.3	17.8	18.2	18.9	19.0	19.2	19.0	18.2	17.3	13.0	9.0	6.3	4.8	13.5	19.2	
10-May	4.4	4.0	4.5	3.9	6.5	8.7	13.1	15.8	18.1	20.0	21.2	22.6	22.9	23.6	24.8	25.6	25.8	25.4	24.7	23.1	20.6	19.3	18.2	14.5	17.1	25.8	
11-May	13.1	12.0	11.6	10.2	9.0	8.5	9.1	11.0	12.1	13.3	14.3	15.3	16.1	16.6	17.0	17.1	16.8	16.3	14.2	12.1	9.5	7.2	5.6	4.5	12.2	17.1	
12-May	3.2	1.9	-0.7	0.1	0.9	1.8	3.3	5.3	6.8	7.8	8.5	9.5	10.8	12.0	13.2	13.9	13.9	13.9	13.5	12.4	11.4	10.7	10.1	9.7	8.1	13.9	
13-May	9.6	9.4	8.9	8.3	8.0	7.7	8.1	8.7	10.5	14.4	15.4	17.6	17.3	18.5	19.2	20.6	20.0	19.1	18.5	18.2	16.8	14.8	12.3	7.9	13.7	20.6	
14-May	6.5	5.8	4.8	4.7	4.5	4.7	11.4	14.6	15.3	16.8	17.8	19.2	19.7	20.2	19.8	19.8	19.7	18.6	17.3	16.2	14.5	10.6	9.3	8.2	13.3	20.2	
15-May	8.3	8.5	7.3	6.9	7.1	8.7	8.8	8.9	9.1	9.9	11.9	13.0	14.0	14.8	15.4	15.3	14.6	14.2	13.7	12.8	10.5	10.3	10.4	9.6	11.0	15.4	
16-May	8.6	7.9	7.4	6.6	5.7	5.5	5.3	5.2	5.7	6.4	6.9	7.4	8.1	9.3	10.0	10.3	10.3	9.4	7.8	7.1	6.5	6.5	6.5	6.3	7.4	10.3	
17-May	5.9	5.6	5.5	5.3	5.2	5.2	5.3	5.5	5.7	5.9	6.0	6.2	6.0	6.1	5.8	5.9	6.2	5.8	5.3	4.6	4.4	3.5	2.2	1.6	5.2	6.2	
18-May	1.2	1.0	1.0	1.0	1.1	1.1	1.2	1.6	2.3	3.0	3.7	4.5	5.1	5.5	5.8	5.7	5.5	5.0	4.9	4.8	4.3	4.1	4.1	3.9	3.4	5.8	
19-May	3.6	3.5	3.5	3.4	3.1	3.4	4.1	5.0	5.6	5.8	5.9	6.3	6.4	6.6	6.6	6.9	6.9	7.0	7.1	6.7	5.9	5.5	5.1	5.0	5.4	7.1	
20-May	5.4	5.2	4.6	3.9	3.3	3.0	3.3	4.2	6.4	7.3	7.6	7.6	7.6	7.3	6.5	6.2	7.2	7.9	7.5	7.1	6.5	5.8	4.9	4.3	5.8	7.9	
21-May	3.8	3.3	3.2	3.4	3.3	3.6	4.4	5.1	6.2	6.5	7.7	9.2	9.3	10.6	11.0	11.5	11.2	11.0	10.5	9.2	8.4	7.5	6.3	4.7	7.1	11.5	
22-May	2.1	1.0	2.3	3.3	2.8	3.0	3.7	4.2	4.3	4.8	5.9	6.6	7.8	8.4	8.5	8.6	9.3	8.7	8.4	8.0	7.3	6.5	6.0	5.4	5.7	9.3	
23-May	4.2	3.5	4.6	4.1	4.1	4.4	5.0	5.9	6.5	7.0	8.0	8.5	9.4	10.4	11.8	11.9	11.3	11.4	10.8	9.8	8.2	4.1	2.7	0.4	7.0	11.9	
24-May	-0.5	-0.5	-0.4	-1.1	1.7	4.1	6.7	8.8	10.9	11.4	12.0	12.8	12.8	13.9	13.5	13.7	14.4	14.8	13.8	13.3	10.7	6.3	4.1	3.2	8.4	14.8	
25-May	2.6	1.9	2.2	2.0	1.2	4.3	7.4	10.2	11.9	12.8	13.8	14.6	15.1	15.6	16.1	16.2	16.0	15.3	14.8	13.5	12.3	10.8	8.7	7.7	10.3	16.2	
26-May	7.0	4.8	5.1	4.7	4.4	7.1	8.4	11.7	14.0	15.5	15.8	15.8	16.6	16.2	17.2	18.0	18.2	18.3	17.8	17.0	14.9	11.9	12.4	11.0	12.7	18.3	
27-May	10.2	10.9	10.9	9.6	9.2	11.4	11.4	16.1	17.7	17.8	18.3	19.0	20.3	21.3	21.5	21.5	20.1	16.5	16.6	15.4	13.5	13.2	13.4	12.3	15.3	21.5	
28-May	12.3	11.6	12.1	11.5	10.2	10.6	11.5	14.1	17.6	18.5	19.1	19.8	21.1	21.8	22.8	22.9	22.8	22.8	22.1	20.7	19.1	16.3	13.6	15.0	17.1	22.9	
29-May	13.3	13.8	13.1	11.9	12.2	12.1	12.3	13.7	16.0	17.3	16.3	15.8	16.2	16.4	15.8	14.8	14.6	14.2	14.3	13.3	11.9	10.4	9.6	9.0	13.7	17.3	
30-May	8.6	8.2	7.6	7.2	7.3	7.6	7.8	7.7	7.7	8.0	8.4	9.1	9.5	10.4	11.3	11.7	10.5	9.8	10.0	9.5	9.2	8.5	8.3	7.7	8.8	11.7	
31-May	7.6	7.3	6.8	6.4	6.6	6.1	6.8	7.6	8.8	10.1	10.6	10.2	9.1	9.0	7.8	8.1	10.5	11.8	10.2	7.8	6.5	5.8	5.5	5.2	8.0	11.8	
		6.0	5.7	5.4	4.9	4.8	5.4	6.7	8.2	9.5	10.5	11.2	11.9	12.5	13.2	13.6	13.8	13.8	13.5	12.9	11.9	10.3	8.7	7.6	6.8	Diurnal Average	
		13.3	13.8	13.1	11.9	12.2	12.1	13.1	16.1	18.1	20.0	21.2	22.6	22.9	23.6	24.8	25.6	25.8	25.4	24.7	23.1	20.6	19.3	18.2	15.0	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Anzac - May 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	18	2.42	2.42
0 - 10	407	54.70	57.12
10 - 20	291	39.11	96.24
> 20	28	3.76	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

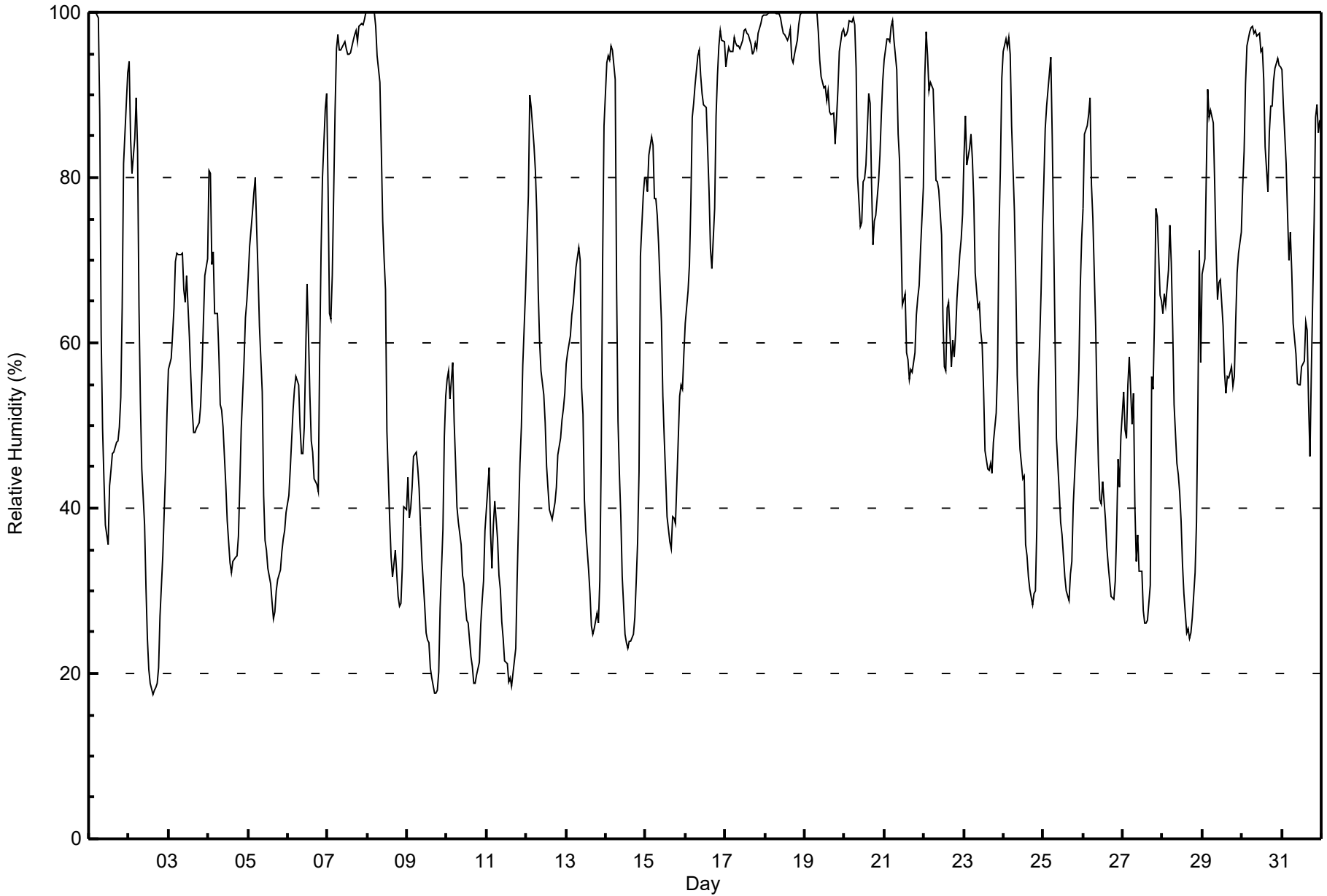


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Anzac - May 2024**

<b>Maximum Value: 100.0 % on May 1 02:00</b> <b>Maximum Daily Average: 98.4 % on May 18</b>																						Hours in Service:	744				
<b>Minimum Value: 17.5 % on May 2 15:00</b> <b>Minimum Daily Average: 33.3 % on May 9</b>																						Hours of Data:	744				
<b>Maximum Diurnal Average: 81.7 % at hour 5</b> <b>Minimum Diurnal Average: 47.2 % at hour 17</b>																						Hours of Missing Data:	0				
<b>Monthly Average: 63.69 %</b> <b>Percentiles: P<sub>1</sub> = 18.8 P<sub>10</sub> = 29.9 Q<sub>1</sub> = 42.5 Median = 63.4 Q<sub>3</sub> = 88.1 P<sub>90</sub> = 97.2 P<sub>99</sub> = 100.0</b>																						Hours of Calibration:	0				
																						Percent Operational Time:	100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	99.9	100.0	100.0	100.0	100.0	99.3	87.6	61.0	49.6	43.4	38.0	35.6	42.7	44.5	46.7	46.7	47.9	48.2	49.8	53.3	64.3	81.7	89.1	92.7	67.6	100.0	
2-May	94.1	84.7	80.6	84.8	89.6	83.1	64.5	52.9	44.7	38.0	30.4	24.2	20.6	18.9	17.5	18.0	18.4	18.8	20.6	27.0	34.2	39.6	44.7	51.5	45.9	94.1	
3-May	56.8	58.1	61.0	64.3	69.9	70.9	70.6	70.7	70.8	66.5	65.0	68.2	60.7	56.0	51.9	49.1	49.1	49.7	50.3	52.3	56.7	62.6	68.1	70.2	61.2	70.9	
4-May	80.8	80.4	69.5	71.0	63.5	63.5	58.8	52.6	51.8	49.9	42.6	38.5	36.0	33.4	32.1	33.5	34.1	34.2	36.7	42.9	49.6	57.8	63.0	65.1	51.7	80.8	
5-May	67.9	71.7	75.8	78.1	80.0	73.9	68.5	62.1	54.0	41.6	36.1	34.9	32.7	30.8	28.6	26.6	27.5	30.0	31.3	32.5	34.7	36.3	37.2	39.4	47.2	80.0	
6-May	41.5	44.8	48.3	51.9	54.4	56.0	54.9	49.8	46.6	46.6	49.9	67.1	61.0	53.8	48.1	46.7	43.5	42.9	42.0	58.4	71.1	79.9	88.3	90.3	55.7	90.3	
7-May	78.6	63.5	62.9	68.1	88.1	95.7	97.3	95.4	95.5	96.1	96.4	95.7	94.8	94.9	95.0	96.6	97.2	97.7	96.4	98.3	98.6	98.5	99.2	99.9	91.7	99.9	
8-May	100.0	100.0	100.0	100.0	100.0	98.3	94.8	91.5	83.4	74.7	70.2	66.4	49.3	38.5	34.1	31.7	33.2	35.0	29.3	28.1	28.6	32.9	40.2	39.9	62.5	100.0	
9-May	43.7	38.7	39.9	42.5	46.2	46.9	44.9	42.3	37.8	33.8	28.1	24.9	24.0	23.7	20.7	19.6	17.6	17.6	17.9	20.2	27.9	37.5	48.6	53.6	33.3	53.6	
10-May	55.5	56.5	53.2	57.6	50.6	45.7	40.2	38.3	35.5	31.8	30.9	28.4	26.5	26.1	22.1	20.8	18.9	18.9	19.8	21.4	25.9	28.8	31.2	37.3	34.2	57.6	
11-May	39.7	44.9	37.0	32.7	38.0	40.8	36.3	31.9	30.2	26.2	24.2	21.6	21.1	19.0	19.6	18.5	19.9	23.1	31.5	38.6	45.5	49.8	57.2	66.5	33.9	66.5	
12-May	72.4	77.8	90.0	88.5	83.8	80.9	75.7	66.5	60.2	56.6	53.7	50.3	45.2	42.3	39.8	38.6	39.7	40.7	42.6	46.4	48.4	50.8	52.0	53.9	58.2	90.0	
13-May	57.4	58.8	60.9	63.3	64.8	66.9	69.2	71.5	70.0	54.6	51.4	41.0	37.3	32.6	29.7	25.7	24.7	25.5	27.2	26.0	31.2	46.3	69.7	86.2	49.7	86.2	
14-May	93.8	94.8	94.2	95.9	95.4	91.8	66.4	50.4	44.0	38.9	31.7	24.8	23.8	23.1	23.9	23.9	24.8	26.9	31.2	35.9	44.5	70.5	77.8	80.1	54.5	95.9	
15-May	80.1	78.3	82.7	84.9	84.0	77.4	77.4	75.4	71.8	62.5	53.6	48.5	43.8	39.0	36.0	35.1	38.9	38.9	38.1	43.1	53.5	54.8	54.3	58.7	58.8	84.9	
16-May	62.4	66.3	69.4	77.0	87.2	88.9	91.2	94.8	95.5	92.4	90.1	88.8	88.6	83.4	78.3	71.3	68.9	76.2	87.4	92.4	96.0	97.8	96.6	96.5	84.9	97.8	
17-May	93.5	94.8	95.8	95.2	95.3	96.9	96.2	96.0	96.0	95.6	96.7	97.8	98.0	97.5	97.3	96.1	94.8	95.2	96.3	95.7	97.5	98.7	99.4	99.7	96.5	99.7	
18-May	99.7	99.7	99.9	100.0	100.0	100.0	100.0	99.8	99.9	99.3	98.3	97.5	97.3	96.7	97.2	98.0	94.4	93.9	94.9	96.5	98.4	99.7	100.0	100.0	98.4	100.0	
19-May	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	97.6	94.2	92.2	90.9	91.0	89.4	90.4	88.0	87.7	87.8	84.0	87.1	90.6	95.3	97.6	97.9	94.2	100.0
20-May	97.1	97.3	97.8	98.9	98.8	99.4	98.5	93.3	80.2	74.0	74.6	79.5	79.8	81.5	90.2	89.0	79.4	71.9	74.7	75.5	79.5	82.7	87.6	91.7	86.4	99.4	
21-May	94.2	96.8	96.8	96.4	98.2	98.9	96.6	93.1	85.3	82.0	73.6	64.6	65.9	58.8	58.0	55.6	56.8	56.4	58.9	63.4	65.4	66.9	71.3	78.8	76.4	98.9	
22-May	92.2	97.6	94.7	90.5	91.4	90.6	85.2	79.6	79.4	78.4	73.1	62.7	57.1	56.5	64.2	64.9	57.1	60.4	58.3	61.0	65.5	70.6	72.6	75.6	74.1	97.6	
23-May	82.5	87.5	81.6	83.6	85.3	82.1	77.3	68.4	64.3	64.8	61.3	59.7	54.2	46.9	44.7	44.5	45.4	44.3	47.9	51.5	57.1	73.6	81.2	92.1	65.9	92.1	
24-May	95.3	96.7	95.8	96.9	94.9	86.3	75.9	67.1	56.2	51.3	47.0	43.5	43.9	35.6	34.3	31.7	30.1	28.3	29.6	29.9	37.6	54.0	65.9	73.9	58.4	96.9	
25-May	79.5	86.0	88.7	90.6	94.6	85.0	73.3	60.7	48.4	42.0	38.3	36.8	34.3	31.7	30.0	28.8	32.1	33.6	40.4	44.1	51.2	56.6	66.6	72.5	56.1	94.6	
26-May	76.2	85.3	86.4	87.6	89.6	79.2	75.1	62.0	52.5	45.3	41.0	40.6	43.2	38.6	35.2	33.0	31.1	29.3	28.9	31.2	37.3	46.0	42.5	48.6	52.7	89.6	
27-May	54.1	49.5	48.6	54.9	58.2	50.1	53.9	40.3	33.5	36.9	32.4	32.4	27.7	26.1	26.1	26.5	30.7	55.9	54.4	62.7	76.3	75.3	65.8	65.1	47.4	76.3	
28-May	63.6	65.9	64.6	68.7	74.3	69.7	61.9	52.5	45.4	44.1	41.8	38.5	33.2	29.6	24.9	25.4	24.2	24.8	26.7	32.3	38.2	52.5	71.2	57.7	47.2	74.3	
29-May	68.4	70.2	80.3	90.7	87.2	88.1	86.6	79.1	71.1	65.3	67.3	67.6	62.1	56.4	54.0	56.0	55.7	57.2	54.7	55.9	62.7	68.5	70.9	73.4	68.7	90.7	
30-May	79.0	83.2	91.4	96.0	97.6	98.1	98.3	97.5	97.7	97.2	97.5	95.2	95.7	91.8	83.7	78.3	85.4	88.7	88.7	91.7	93.2	94.5	93.6	93.3	92.0	98.3	
31-May	93.0	88.9	81.7	75.6	70.0	73.4	68.7	62.4	58.6	55.1	54.9	54.9	57.1	57.7	62.5	61.5	52.9	46.3	56.6	74.7	87.2	88.9	85.5	87.0	69.0	93.0	
																								Diurnal Average			
																								Diurnal Maximum			







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

**Relative Humidity (RH) - %**  
**Anzac - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	16	2.15	2.15
20 - 40	154	20.70	22.85
40 - 60	175	23.52	46.37
60 - 80	156	20.97	67.34
80 - 100	220	29.57	96.91

Total Number of Valid Hours: 744

Total Number of Hours: 744

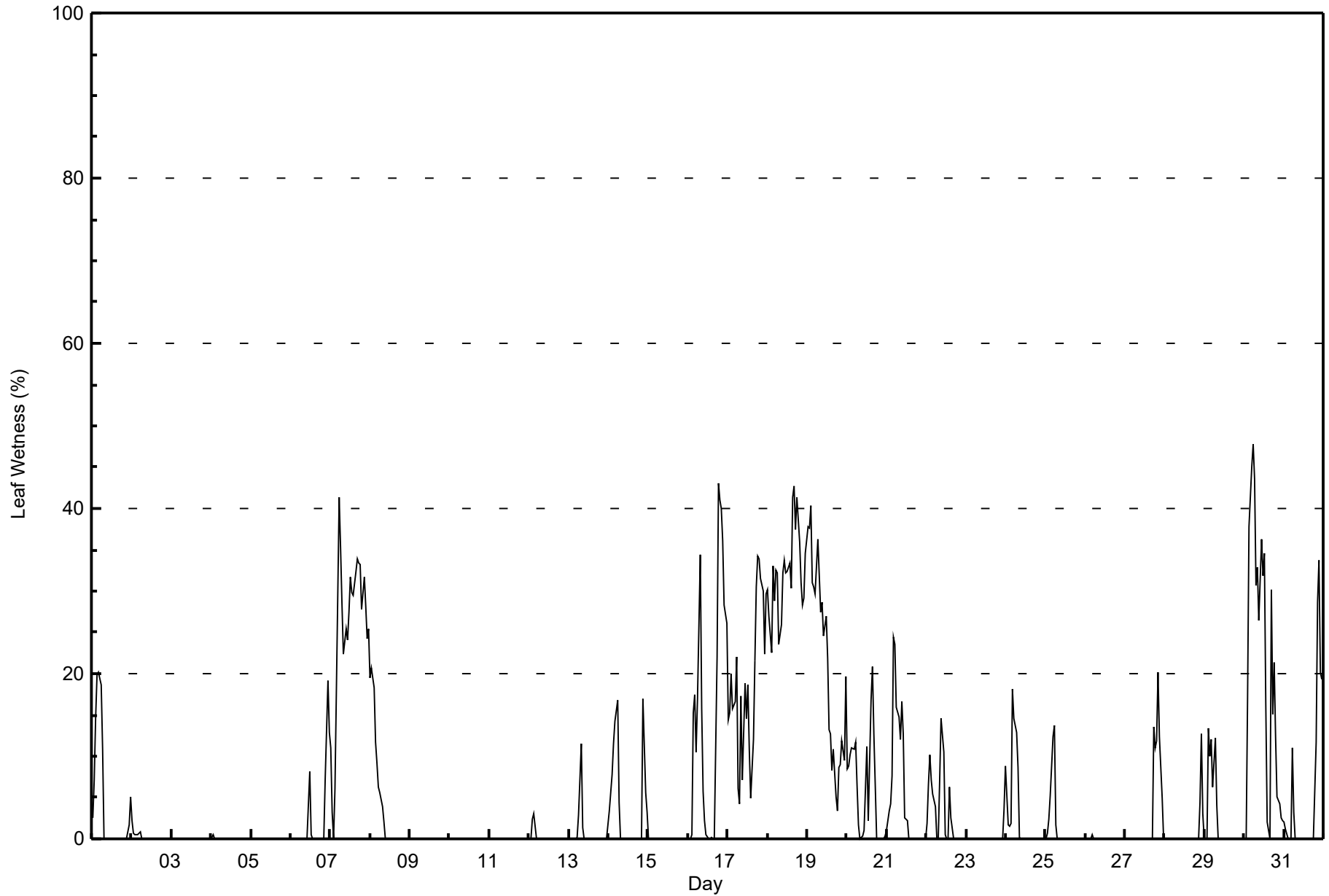


Maximum Value: 47.9 % on May 30 06:00																				Maximum Daily Average: 32.2 % on May 18					Hours in Service: 744		
Minimum Value: 0.0 % on May 1 08:00																				Minimum Daily Average: 0.0 % on May 3					Hours of Data: 744		
Maximum Diurnal Average: 10.0 % at hour 6																				Minimum Diurnal Average: 3.3 % at hour 15					Hours of Missing Data: 0		
Monthly Average: 5.82 %																				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> = 6.4 P <sub>90</sub> = 25.4 P <sub>99</sub> = 41.2					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-May	2.5	7.1	14.6	19.8	20.2	18.6	10.9	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	1.7	5.1	4.2	20.2	
2-May	2.2	0.8	0.5	0.5	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.2
3-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	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	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	19.1	12.8	2.0	19.1
7-May	11.1	3.3	0.0	6.0	29.5	41.4	35.2	28.5	22.4	25.4	24.1	27.5	31.7	29.8	29.4	32.5	33.8	33.5	33.2	27.9	31.8	28.1	24.2	25.3	25.6	41.4	
8-May	19.5	20.6	18.3	11.7	9.1	6.3	5.6	3.9	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	4.0	20.6	
9-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	2.4	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.1
13-May	0.0	0.0	0.0	0.0	0.0	0.2	3.0	11.6	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	0.1	0.0	0.7	11.6	
14-May	3.4	5.5	7.7	11.4	14.2	16.7	4.3	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	16.9	5.6	3.3	3.7	16.9	
15-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.4	15.3	17.4	10.6	17.0	34.5	15.7	5.8	2.2	0.5	0.0	0.0	0.2	0.0	0.0	22.0	43.0	41.1	39.9	36.2	28.3	26.1	14.8	43.0	
17-May	14.4	15.3	20.0	15.7	16.6	22.1	6.1	4.3	17.3	7.2	18.8	14.6	18.6	10.9	5.0	12.0	21.6	30.5	34.2	33.9	31.5	30.1	22.3	29.7	18.9	34.2	
18-May	30.2	26.9	22.6	33.0	28.9	32.5	32.2	23.5	26.0	32.2	33.7	32.1	32.5	33.5	30.4	41.4	42.7	37.5	41.3	36.0	31.0	28.3	29.1	34.6	32.2	42.7	
19-May	37.8	37.7	40.3	31.0	30.5	29.7	36.3	31.9	27.5	28.6	24.6	26.9	21.8	13.1	12.7	8.4	10.8	5.2	3.4	8.7	9.0	11.9	9.4	19.7	21.5	40.3	
20-May	8.4	8.7	10.1	11.1	10.9	11.6	6.5	1.7	0.0	0.3	1.1	6.1	11.2	2.2	16.8	20.9	12.8	6.4	0.0	0.0	0.0	0.0	0.0	0.3	6.1	20.9	
21-May	1.1	3.5	4.2	7.6	24.5	23.6	15.9	14.7	12.1	16.6	12.8	2.6	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	24.5	
22-May	1.9	6.6	10.1	7.2	5.5	3.9	0.0	0.0	6.9	14.7	10.5	0.5	0.0	6.2	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	14.7	
23-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.2	3.6	
24-May	8.9	1.8	1.5	1.9	18.1	14.6	12.8	8.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	18.1	
25-May	0.0	0.7	2.3	5.2	12.4	13.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.7	
26-May	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
27-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	10.9	11.8	20.1	12.4	4.9	3.1	20.1	
28-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	12.8	3.1	0.8	12.8	
29-May	0.0	0.0	13.4	10.0	12.0	6.2	12.2	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	2.4	13.4	
30-May	0.0	0.0	17.2	37.7	45.0	47.9	43.5	30.7	32.9	26.5	36.2	31.8	34.6	16.4	2.0	0.0	30.2	15.0	21.3	12.4	5.0	4.2	2.6	2.2	20.6	47.9	
31-May	2.1	1.2	0.0	0.0	0.0	11.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.7	28.7	33.8	20.2	19.4	5.5	33.8	
																								Diurnal Average			
																								Diurnal Maximum			
4.6 4.5 6.0 7.4 9.5 10.0 8.0 6.4 5.3 5.1 5.3 4.9 4.9 3.4 3.3 3.8 4.9 5.3 6.0 5.9 6.4 6.9 5.8 6.0																								Diurnal Average			
37.8 37.7 40.3 37.7 45.0 47.9 43.5 34.5 32.9 32.2 36.2 32.1 34.6 33.5 30.4 41.4 42.7 37.5 43.0 41.1 39.9 36.2 29.1 34.6																								Diurnal Maximum			



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

**Leaf Wetness (LW) - %**  
**Anzac - May 2024**





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

**Leaf Wetness (LW) - %**  
**Anzac - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	485	65.19	65.19
0.4 - 0.5	7	0.94	66.13
0.6 - 0.7	3	0.40	66.53
0.8 - 1.4	6	0.81	67.34
1.5 - 10	77	10.35	77.69
> 10	166	22.31	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Anzac - May 2024

Maximum Speed: 37 km/h on May 11 10:00	Maximum Daily Speed Average: 22.7 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 14 02:00	Minimum Daily Speed Average: 1.3 km/h on May 28	Hours of Data: 744
Maximum Diurnal Speed Average: 2.5 km/h at hour 2	Minimum Diurnal Speed Average: 0.3 km/h at hour 8	Hours of Missing Data: 0
Monthly Average Velocity: 0.4 km/h 98.7 deg	Percentiles: $P_1 = 4$ $P_{10} = 6$ $Q_1 = 8$ Median = 11 $Q_3 = 16$ $P_{90} = 20$ $P_{99} = 30$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	NW12	NW11	NW8	NW7	WNW6	NW6	N7	ENE11	ENE12	ENE15	NE17	NE18	ENE18	NE17	NE18	NE17	NE16	NE15	NE13	NE9	ENE6	NE5	NW5	NNW7	NE8.9	NE18	
2-May	NNW7	N10	NNW9	N8	N8	NNW7	NNW7	N7	N10	NNE14	NNE15	NNE17	NNE18	NNE19	NNE22	NNE21	NNE22	NNE19	NNE16	ENE13	SE7	SE9	SE10	SE8	NNE10.1	NNE22	
3-May	SE8	SSE10	SSE9	SSE8	SSE8	SSE6	S6	SE5	E8	E9	ENE7	N9	N7	N5	SSE5	ESE5	WNW6	W7	W6	SW5	SSW6	W6	WNW8	WNW9	SSE1.6	SSE10	
4-May	W8	WNW8	WNW9	WNW9	WNW9	WNW9	WNW7	NNW6	N8	N8	N11	NNW9	W10WSW11	WSW11	W8	NW4	N4	ENE7	E11	E10	ESE11	SSE11	SE12	NW2.8	SE12		
5-May	SE12	SSE12	SE12	SE14	SE10	SE7	ESE6	ESE7	ESE9	SE13	SE18	SSE20	SSE18	SE17	SE17	SE20	SSE19	SSE10	SSE8	SSE10	SSE7	SE9	E9	SE8	SE11.8	SE20	
6-May	ESE10	ESE11	ESE12	ESE13	ESE13	SE11	SE10	ESE10	ESE14	ESE21	ESE22	E17	E21	E22	E21	E18	ENE19	ENE19	SE20	S23	SSE20	SSE12	SE7	E7	ESE13.8	S23	
7-May	E11	ESE16	E14	ESE17	ESE15	E13	E15	ESE16	ESE16	ESE15	ESE16	ESE14	ESE15	ESE14	ESE12	ESE9	ESE9	ESE11	SE11	SE8	SE10	SE9	SSE9	SSE7	ESE12.1	ESE17	
8-May	SSE6	S5	SW6	W5	W7WNW14	WNW11	WNW15	NW19	NW18	NW13	W13WNW11	W12	W10	WNW7	W6	SSW9	WSW17	WSW13	WSW10	SW8	SW7	WSW8	W8.4	NW19			
9-May	W10	W18	W19	W19	W22	W22WNW21	WNW20	W18WNW18	WNW20	WNW25	WNW25	WNW25	WNW25	WNW24	NW26	NW26	NW23	NNW12	NNE5	S3	SSW7	S7	WNW16.2	NW26			
10-May	S8	S7	S9	S8	SSW10	SSW10	SW8	W10	W14	W18	W20	W21	W24	W21	W24	W24	W23	W25	W21WNW15	W11	W9	NNW29	NNW21	W13.1	NNW29		
11-May	NW11	WNW9	NW17	NW15WNW14	W15WNW18	NW25	NW30	NW37	NW34	NW34	NW32	NNW33	NNW29	NW30	NNW28	N23	N20	NNE16	NE11	NNE8	NE8	ENE10	NNW18.6	NW37			
12-May	ENE10	ESE6	SE5	SSE9	SSE8	SSE10	SE9	SE11	SE13	SE13	SE14	ESE14	ESE14	SE15	SE16	SE14	SE13	SE13	ESE10	E5	E8	ESE7	ESE8	SE8	SE10.1	SE16	
13-May	SSE11	SSE13	SSE14	SSE15	SSE16	SSE14	SE13	SE15	SSE14	SSW12	S15	S18	SW13	WSW12	W11	WSW15	WSW15	W10	W12	W14	WNW9	NNW13	N9	NW6	SSW6.6	S18	
14-May	NNW7	W1	W6	W7	SW6	SSW6	SW6	W5	WNW8	SW6	WNW8	W18	WSW19	WSW19	WSW20	WSW21	WSW17	WSW21	W20	W19	WNW18	NW12	W6	NNE5	W10.7	WSW21	
15-May	SSW9	SSW8	WSW6	WSW7	W8	W10WNW13	NW10	NNW9	NNE7	ENE7	E6	ENE3	E8	N7	NNE12	E7	E9	E7	SSE3	NW4	WNW6	ENE11	E13	NNE1.7	WNW13		
16-May	E10	ESE13	ESE9	ESE13	E11	E9	ESE9	E10	E14	E16	E17	ESE14	E13	E18	E17	ESE17	ESE17	ESE15	ESE15	E19	ESE12	E15	E15	E18	E13.9	E19	
17-May	E19	E20	E19	E20	E20	E17	E16	E17	E18	E17	E15	ENE15	ENE15	ENE15	NE14	NE13	NNE11	NE12	NNE11	N8	N8	NNW13	NW15	NW13	ENE11.0	E20	
18-May	WNW15	WNW15	WNW16	WNW16	WNW17	WNW17	WNW17	WNW16	WNW16	NW17	NW16	WNW15	WNW14	NW17	NW18	NNW13	NNE5	NE8	NE2	W3	NW3	NW5	NW5	NW7	NW11.4	NW18	
19-May	NW7	NW6	NW6	WNW6	NW6	WNW7	NW6	NNE8	ENE14	ENE15	ENE14	ENE12	ENE14	ENE13	ENE14	ENE14	ENE13	ENE9	ENE8	ENE7	NE5	N5	N4	N4	NE6.6	ENE15	
20-May	WNW7	WNW8	WNW8	WNW8	WNW8	NW7	WNW7	NNW7	NE5	NNE8	NNE10	NE13	NE12	NE10	ENE9	ENE10	NE9	ENE11	ENE11	E9	ESE7	E7	E8	ESE8	NE4.8	NE13	
21-May	E7	E7	E6	E7	E8	ESE8	SE8	SE10	ESE11	ESE12	ESE14	E13	SE8	SE9	E15	E13	E15	ESE12	E14	E9	E9	E10	ESE10	ESE9	ESE9.8	E15	
22-May	ESE7	ENE8	ENE9	ENE11	ENE11	ESE6	ESE9	E12	ENE12	ENE10	ENE11	ENE14	ENE15	NE11	NE14	NE13	NNE13	NE15	ENE13	E9	E8	NE6	ENE7	E6	ENE9.7	ENE15	
23-May	E5	ENE5	ENE7	ENE6	ENE7	ENE8	E9	ESE11	E11	E14	ESE14	ESE15	SE14	ESE14	SE12	SE13	ESE13	SE12	SE12	SE8	SE8	SSE7	SSE8	SSE6	ESE8.9	ESE15	
24-May	SSE6	ESE8	SSE7	ESE8	SE8	SE8	ESE8	SSE7	ESE11	E12	SE12	SE13	SE10	SSE12	ESE13	ESE10	ESE12	SE11	SSE10	SSE10	SSE9	S7	S7	S8	SE8.7	SE13	
25-May	S7	S9	S9	SSE8	SSE7	SSE8	SSE11	SSE13	SE14	SE18	SE18	SE18	SE17	SE16	SE14	SSE13	SSE15	SSE15	SSE15	SSE18	SSE12	SE10	SE11	SSE10	SSE11	SSE12.3	SSE18
26-May	SSE11	SSE10	SSE11	SSE10	SE9	SE9	SE9	SSE10	SSE13	SE13	SSE11	SSW11	SW15	SW12	SSE11	SSE12	S12	SSE11	SSE8	SE8	SE9	ESE10	ESE11	SSE8	SSE9.3	SW15	
27-May	SSE9	SE11	SSE9	SE8	SE9	SE10	SSE8	SSE9	SSE15	S14	SSE17	SSE15	SE14	S13	SSE13	S14	SSW8	WNW9	W7	W4	ESE8	ESE13	SE11	SSE14	SSE9.2	SSE17	
28-May	SSE16	SE13	SW5	S4	SE6	SSE7	SSE8	S6	W5	W11	W13	W9	WNW8	W5	WNW8	WNW10	WNW7	WNW5	NE5	ENE9	ENE10	ENE6	E8	ENE12	SSW1.3	SSE16	
29-May	ENE11	E12	E7	E4	E12	SE7	SE7	SE9	SSE10	WSW13	W16	W18	W20	W21	W23	WSW24	WSW22	WSW19	WSW18	WSW21	WSW17	WSW15	WSW17	WSW18	WSW9.4	WSW24	
30-May	WSW18	WSW15	WSW18	WSW18	W18	W18	WNW18	WNW19	WNW20	WNW18	WNW19	WNW18	WNW17	NW18	NW20	NW17	NW19	NW16	WNW18	WNW16	WNW16	WNW14	WNW17	WNW17	WNW16.4	NW20	
31-May	W19	WNW22	WNW23	WNW23	WNW25	NW26	WNW26	WNW27	WNW30	WNW30	NW27	NW30	NW29	NW29	WNW28	NW18	WNW19	WNW22	NNW19	NNW20	NW18	NW20	NW19	NW15	NW22.7	WNW30	

SSE1.9	SSE2.5	SSW1.8	S1.6	S1.2	SW1.7	SW0.9	ENE0.3	ENE1.7	NE1.5	ENE1.7	NNE0.8	NW1.1	NNW1.2	NNW1.5	N1.4	N1.5	NNE1.6	NE1.0	SE0.8	SE1.4	ESE1.0	E1.1	ESE1.4	Diurnal Average
W19	WNW22	WNW23	WNW23	WNW25	NW26	WNW26	WNW27	NW30	NW37	NW34	NW34	NW32	NNW33	NNW29	NW30	NNW28	NW26	NW23	S23	SSE20	NW20	NNW29	NNW21	Diurnal Maximum

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



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

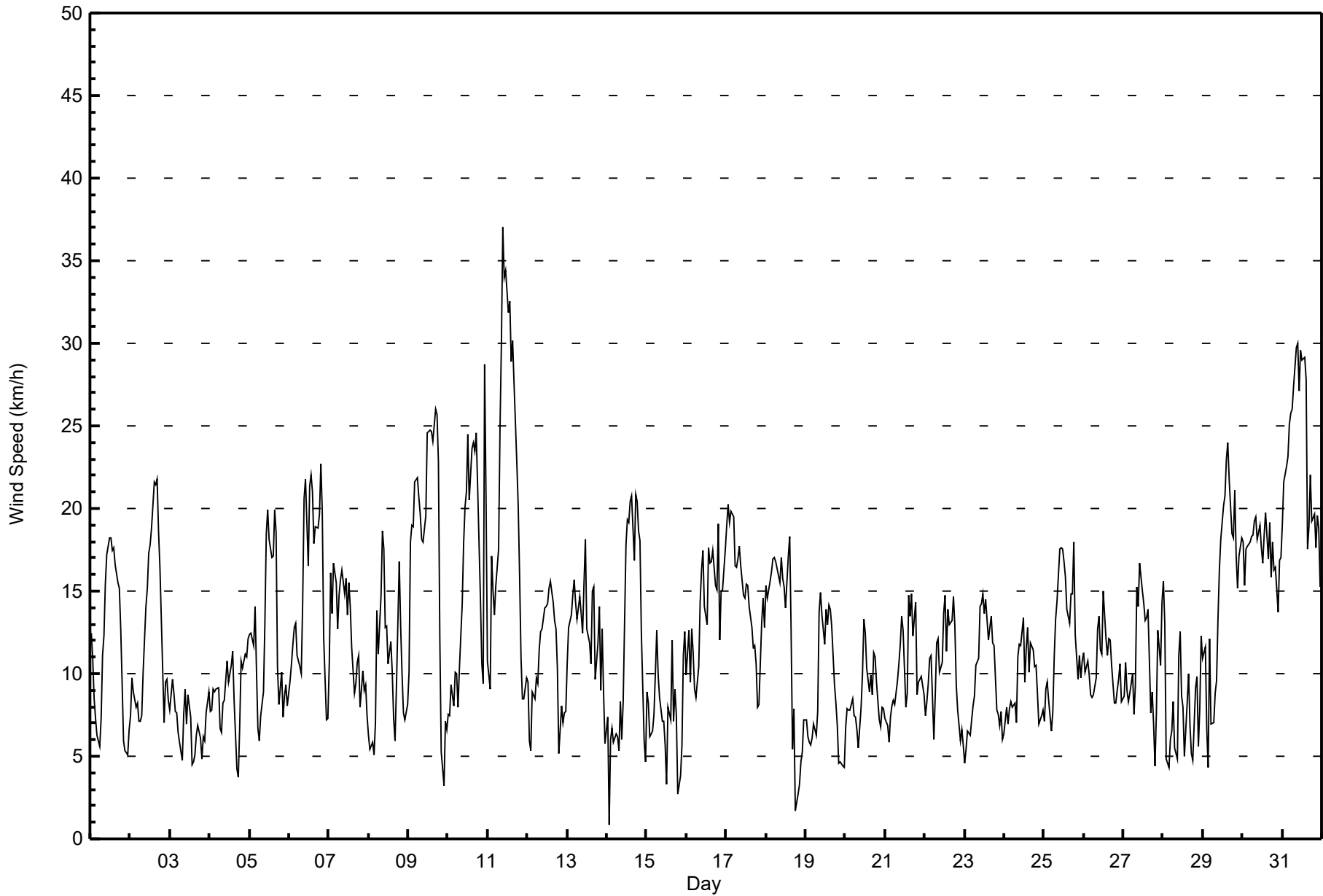
**Wind Speed (WS) - km/h**  
**Anzac - May 2024**

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



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

**Wind Speed (WS) - km/h**  
**Anzac - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	42	5.65	5.65
6 - 11	337	45.30	50.94
12 - 19	284	38.17	89.11
20 - 28	67	9.01	98.12
29 - 38	14	1.88	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Anzac - May 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	5	3	5	2	3	1	2	2	3	0	2	0	7	1	6	0	42
6 - 11	15	7	7	31	35	35	44	49	13	10	7	7	22	31	14	10	337
12 - 19	0	10	16	23	34	35	34	26	6	1	3	19	17	34	21	5	284
20 - 28	2	3	0	0	6	2	2	2	1	0	0	6	15	17	8	3	67
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	2	9	3	14
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	22	23	28	56	78	73	82	79	23	11	12	32	61	85	58	21	744

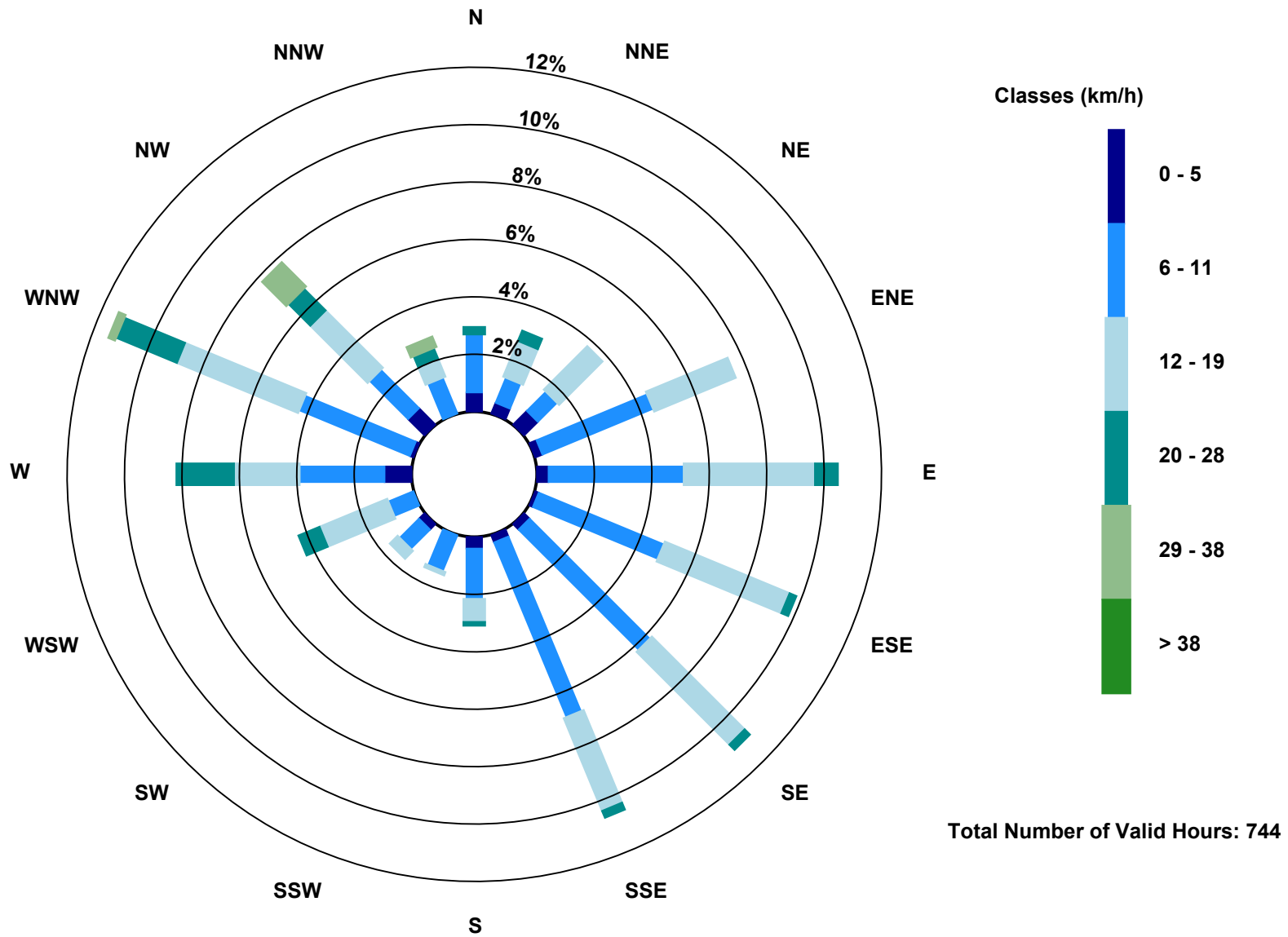
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Anzac





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

**Wind Direction (WD) - deg**  
**Anzac - May 2024**

Direction of Maximum Speed: 324 deg on May 11 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 305.8 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 271 deg on May 14 02:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.3 deg on May 28	Percent Operational Time: 100.0
Monthly Average Direction: 98.7 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-May	316	315	309	309	303	318	1	66	62	60	49	52	61	54	47	53	54	46	44	47	65	43	325	341	35.4
2-May	329	356	347	351	352	333	347	4	356	15	29	20	18	22	22	20	26	26	24	60	131	138	124	136	22.3
3-May	142	153	161	157	150	161	173	127	91	99	72	4	357	11	154	110	292	268	277	235	210	264	291	286	166.6
4-May	280	290	294	303	298	291	295	329	356	353	357	340	268	251	252	265	321	350	67	101	95	121	151	145	304.6
5-May	146	148	141	145	142	130	120	113	107	142	138	154	155	142	154	144	164	167	154	159	153	140	90	129	143.9
6-May	105	113	116	116	121	126	125	122	116	118	122	98	89	95	99	84	73	74	138	173	162	152	132	87	114.1
7-May	94	110	100	104	107	96	97	104	103	112	110	117	117	119	116	109	105	111	128	127	124	140	154	164	112.8
8-May	158	173	221	261	280	283	290	301	320	317	309	271	283	265	278	290	266	203	249	249	243	235	222	252	271.0
9-May	259	264	262	267	274	280	283	285	281	282	285	288	289	291	297	302	316	320	322	334	17	181	196	179	288.6
10-May	186	190	184	189	203	203	228	277	278	268	268	264	267	270	266	267	265	259	261	294	264	270	339	337	266.3
11-May	307	292	314	304	291	279	299	308	312	324	321	312	315	331	331	325	337	351	10	26	34	22	45	59	326.6
12-May	73	106	136	154	159	149	140	137	135	128	132	116	123	129	137	139	133	127	115	99	98	110	116	129	127.6
13-May	155	150	150	147	152	152	140	139	149	200	177	177	221	246	265	245	254	265	271	262	294	330	350	315	198.8
14-May	331	271	259	259	227	206	229	265	287	234	284	262	252	250	249	256	255	251	267	276	282	313	280	19	263.5
15-May	192	213	240	238	265	271	296	320	340	26	63	80	58	84	5	30	90	79	101	162	319	298	74	83	24.3
16-May	93	104	120	104	94	94	105	97	92	97	99	104	88	84	89	104	113	106	107	99	113	101	100	96	99.8
17-May	95	100	100	99	99	93	93	94	97	90	84	71	66	61	46	41	28	39	23	7	355	331	322	310	68.9
18-May	299	298	296	297	298	296	297	298	301	307	306	300	302	305	308	330	21	49	51	264	314	305	313	320	305.6
19-May	311	326	315	303	314	298	311	26	67	73	61	61	60	59	63	57	65	62	65	60	38	10	358	2	41.1
20-May	300	301	303	300	298	307	301	333	38	21	28	46	37	37	77	76	56	74	75	98	108	93	93	104	38.1
21-May	94	95	91	89	90	112	129	128	121	104	113	100	137	124	101	94	96	111	83	80	83	99	109	117	103.7
22-May	113	77	67	61	76	104	106	86	70	65	70	67	77	52	38	35	28	49	71	87	79	56	78	94	67.8
23-May	79	57	67	67	59	75	83	107	95	88	115	121	140	119	125	130	110	124	125	137	136	149	151	154	112.2
24-May	157	122	151	122	125	145	120	147	117	97	126	129	144	161	111	117	120	131	159	162	163	182	173	188	137.5
25-May	177	169	174	167	157	159	155	154	142	145	132	133	141	146	144	147	149	157	150	148	141	142	152	149	149.0
26-May	151	155	148	155	143	140	143	156	151	137	160	212	227	222	166	161	171	163	152	143	138	114	123	156	158.7
27-May	160	145	147	138	138	137	147	162	160	176	161	155	138	170	147	169	193	284	265	266	122	120	139	153	156.5
28-May	153	146	218	182	128	163	158	190	280	264	264	267	293	269	287	293	292	296	54	70	69	73	92	71	200.2
29-May	58	89	89	98	89	132	138	144	155	255	265	263	265	268	263	256	252	258	239	243	243	237	240	238	243.4
30-May	238	241	249	254	264	281	294	297	297	294	297	302	297	305	306	307	309	311	292	284	290	293	285	283	287.1
31-May	281	283	287	294	300	308	299	299	301	299	310	315	315	309	302	304	296	300	340	339	324	320	313	317	305.8

160.9	155.4	195.7	180.6	178.0	221.1	228.4	71.4	58.6	48.4	67.5	15.2	318.1	332.9	346.4	0.3	10.2	22.3	55.8	125.0	131.1	116.3	97.9	121.4
Diurnal Average																							

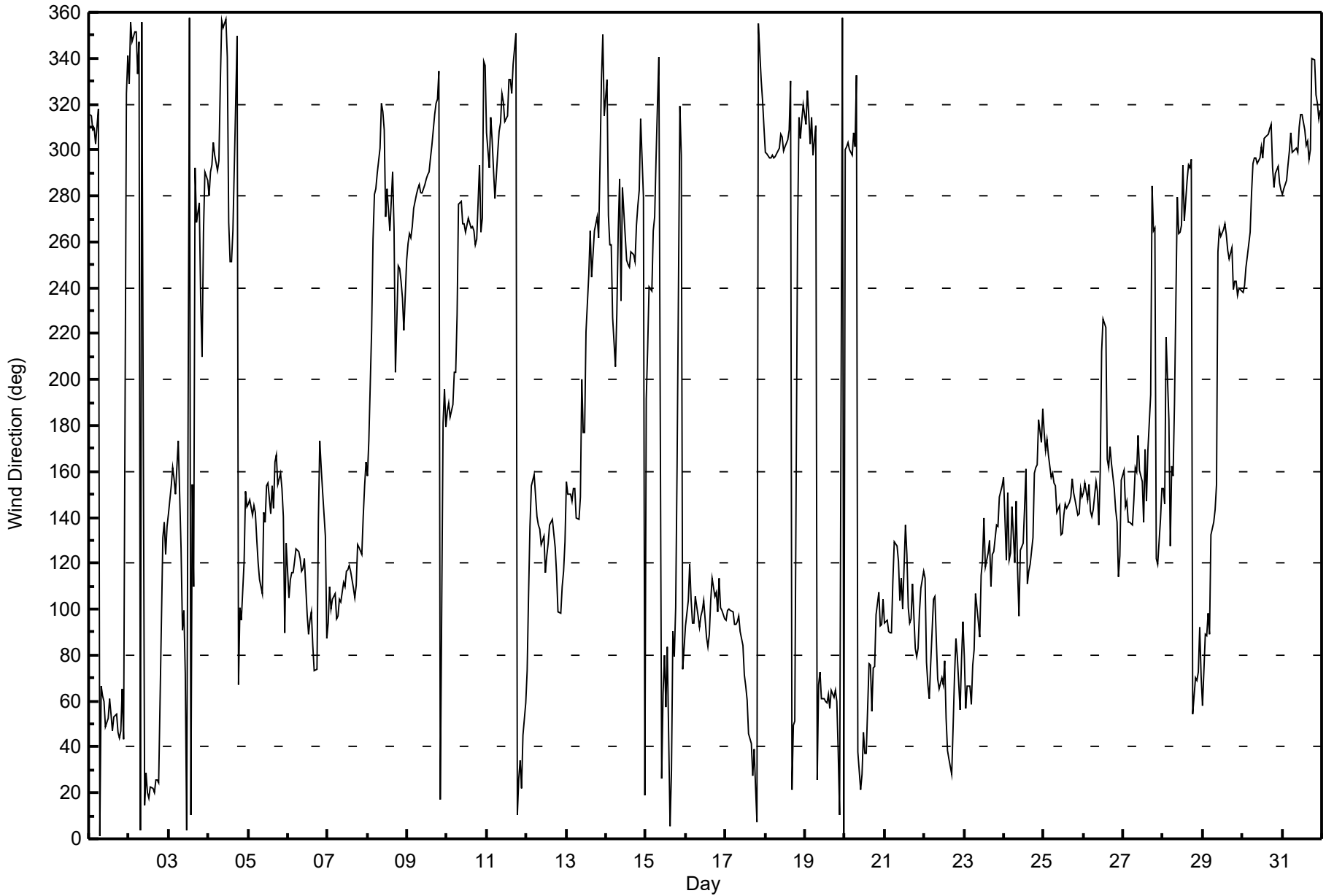
All monthly, daily, and diurnal averages have been calculated using vector methods



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

**Wind Direction (WD) - deg**  
**Anzac - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 90 deg on May 15 13:00																	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 May 25 02:00																									
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 11 Q <sub>1</sub> = 14 Median = 17 Q <sub>3</sub> = 21 P <sub>90</sub> = 31 P <sub>99</sub> = 65																									
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-May	12	11	13	13	14	19	20	18	20	18	20	22	20	22	17	19	16	15	16	20	12	17	32	19	32
2-May	17	10	8	10	8	8	21	25	24	19	23	23	23	22	21	21	19	19	19	33	17	18	13	12	33
3-May	11	9	8	13	14	9	13	31	22	26	40	36	41	57	69	60	44	23	18	27	12	19	10	12	69
4-May	17	10	9	8	12	11	18	35	37	33	26	35	33	25	21	35	63	69	32	16	12	17	11	11	69
5-May	10	11	12	10	12	16	20	16	20	34	17	17	24	24	22	18	18	12	14	12	15	11	19	24	34
6-May	14	11	11	12	12	13	14	16	18	18	16	17	17	19	19	18	18	15	33	13	12	12	21	13	33
7-May	17	13	13	15	15	16	18	16	17	16	15	17	16	17	17	19	16	17	17	17	15	13	11	6	19
8-May	12	12	11	31	14	16	16	15	14	14	18	19	36	21	27	26	49	23	20	13	14	15	17	19	49
9-May	13	16	17	16	15	16	16	16	17	18	19	18	19	19	20	20	18	15	14	19	11	69	6	7	69
10-May	8	8	9	6	13	14	19	19	16	18	19	19	18	20	18	19	18	18	18	18	18	21	21	14	21
11-May	18	15	14	15	16	16	16	16	16	15	19	17	18	17	18	20	20	20	17	15	13	12	14	11	20
12-May	9	32	14	9	9	10	13	19	21	22	20	17	20	19	19	20	18	17	21	65	13	18	11	18	65
13-May	12	11	10	11	11	11	12	14	19	28	21	22	24	28	28	25	17	29	24	16	52	18	12	15	52
14-May	16	77	11	8	21	22	16	28	15	37	35	20	23	24	22	19	20	19	17	26	20	17	46	46	77
15-May	20	20	11	10	18	13	18	23	17	31	46	53	90	48	48	31	36	25	18	49	31	27	22	24	90
16-May	18	17	15	14	15	21	21	20	16	16	15	17	17	16	16	16	16	15	16	14	19	16	15	16	21
17-May	15	15	15	15	14	15	15	15	16	15	16	16	14	16	14	15	15	22	16	16	16	14	13	15	22
18-May	13	14	13	12	13	13	13	13	15	14	15	15	16	15	15	40	43	20	66	16	18	12	14	11	66
19-May	13	15	13	15	16	13	19	34	15	16	14	19	19	20	19	15	18	20	14	27	25	21	8	46	46
20-May	12	11	12	14	14	14	16	22	39	31	25	18	16	18	26	20	21	20	16	18	13	13	10	10	39
21-May	9	14	14	13	14	14	17	19	21	21	20	24	41	47	25	27	19	19	16	14	16	10	10	11	47
22-May	8	14	10	10	17	19	16	18	19	22	27	24	22	30	26	24	21	18	17	19	13	11	13	12	30
23-May	16	8	11	10	10	15	16	21	25	21	22	22	22	26	32	29	23	21	18	15	11	11	9	10	32
24-May	12	18	9	14	13	15	20	39	29	33	28	29	40	29	24	26	20	23	29	17	10	10	7	9	40
25-May	8	5	7	8	9	7	12	17	20	19	25	26	25	26	28	22	20	14	14	14	11	13	9	10	28
26-May	9	12	11	8	15	18	15	18	20	24	37	27	23	26	31	31	31	24	23	17	13	14	12	19	37
27-May	11	13	17	13	12	14	14	25	19	21	22	25	36	35	29	21	47	41	16	65	40	16	18	12	65
28-May	15	12	69	37	20	16	15	29	39	23	20	34	43	62	37	30	30	28	30	10	10	51	64	12	69
29-May	10	17	47	60	18	16	23	22	17	46	18	17	18	20	17	17	16	17	20	17	18	17	18	19	60
30-May	17	19	16	17	18	18	19	17	16	18	17	16	18	16	16	17	24	15	17	17	16	17	17	17	24
31-May	17	16	17	17	17	15	16	17	18	17	16	15	15	16	17	17	19	18	21	18	12	14	14	13	21
																	20 77 69 60 21 22 23 39 39 46 46 53 90 62 69 60 63 69 66 65 52 69 64 46								
Diurnal Maximum																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS17  
WAPASU  
MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
MAY 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	13.6	0	1.7	0
H2S (ppb) Average	708	36	36	100	0.7	0	0.2	0
THC (ppm) Average	710	34	34	100	2.5	-	2.3	-
O3 (ppb) Average	709	35	35	100	53.8	0	44.9	-
NO2 (ppb) Average	707	37	37	100	11.2	0	2.7	-
NO (ppb) Average	707	37	37	100	2.5	-	0.3	-
NOX (ppb) Average	707	37	37	100	13.7	-	3	-
PM2.5 (ug/m3) Average	743	1	1	100	137	0	49.2	2
Temperature 2 m (C) Average	744	0	0	100	25.6	-	16.9	-
Relative Humidity (%) Average	716	0	28	96.24	100	-	95	-
Wind Speed 10 m (km/h) Average	744	0	0	100	24	-	15	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.9	-	15.2	-

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



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
MAY 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	0.26	1.2	-	0	0	0	0	0	0.3	13.6
H2S (ppb) Average	708	0.07	0.1	-	0	0	0	0	0.1	0.2	0.7
THC (ppm) Average	710	2.21	0.1	-	2.1	2.2	2.2	2.2	2.2	2.3	2.5
O3 (ppb) Average	709	34.75	9.5	-	8.7	21.4	28.5	35.4	42.1	46.4	53.8
NO2 (ppb) Average	707	0.99	1.4	-	0.1	0.2	0.2	0.4	1.1	2.5	11.2
NO (ppb) Average	707	0.07	0.2	-	0	0	0	0	0	0.2	2.5
NOX (ppb) Average	707	1.06	1.6	-	0.1	0.2	0.2	0.4	1.1	2.7	13.7
PM2.5 (ug/m3) Average	743	6.85	16.2	-	0.1	1	1.7	2.9	4.4	11.1	137
Temperature 2 m (C) Average	744	9.49	5.3	-	-3.4	3.2	5.4	9.2	13.1	16.4	25.6
Relative Humidity (%) Average	716	62.38	23.2	-	17.9	32	42.4	60.9	82.8	95.5	100
Wind Speed 10 m (km/h) Average	744	9.9	4	-	1	5	7	10	12	15	24
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	68.02	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Relative Humidity	17 May 2024 21:00	18 May 2024 14:00	18	Sensor operated out of range
Relative Humidity	18 May 2024 23:00	19 May 2024 05:00	7	Sensor operated out of range
Relative Humidity	20 May 2024 04:00	20 May 2024 06:00	3	Sensor operated out of range



Wood Buffalo Environmental Association

Summary of Hour Averages

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

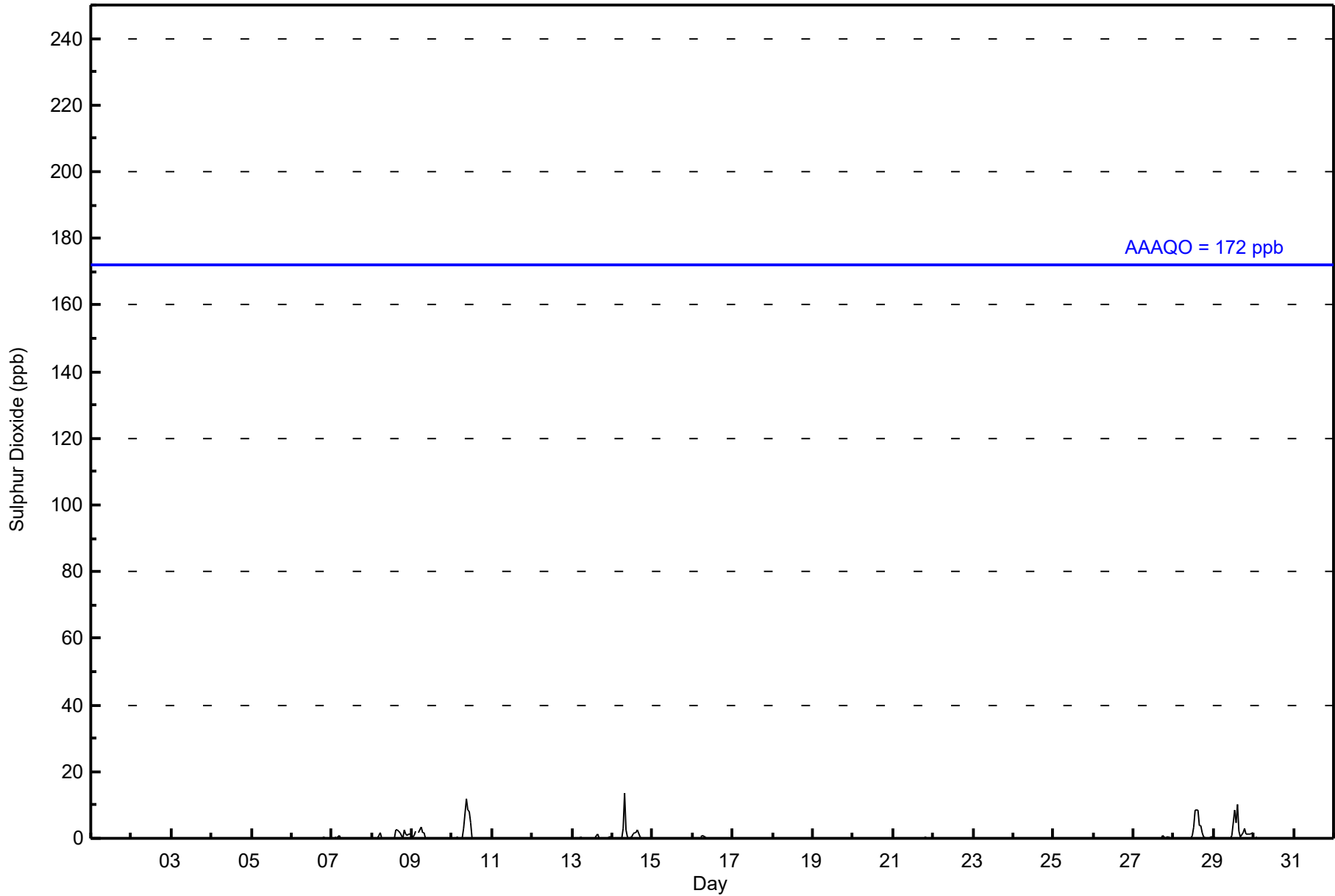
Wapasu - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 13.6 ppb on May 14 08:00	Maximum Daily Average: 1.7 ppb on May 29		Hours of Data:	710
Minimum Value: 0.0 ppb on May 1 01:00	Minimum Daily Average: 0.0 ppb on May 1		Hours of Missing Data:	34
Maximum Diurnal Average: 0.8 ppb at hour 15	Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Calibration:	34
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 = 0.0 Q <sub>3</sub> = 0.0 P <sub>90</sub> = 0.3 P <sub>99</sub> = 7.8		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
1-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-May	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.2	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
6-May	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	0.4	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	0.4	
7-May	0.0	Z	0.4	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
8-May	0.0	0.0	Z	0.1	1.0	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	2.7	2.2	1.6	0.0	2.4	1.4	1.0	1.5	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.7
9-May	0.5	0.9	2.1	Z	1.5	3.4	1.9	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.4
10-May	0.0	0.0	0.0	0.3	Z	0.1	0.0	3.2	11.9	8.5	8.1	4.5	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	1.6	11.9
11-May	0.1	0.1	0.0	0.1	0.2	Z	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-May	0.1	Z	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.8	1.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.2	1.3
14-May	0.0	0.0	Z	0.0	0.0	0.0	3.0	13.6	2.5	0.3	0.0	0.3	1.1	1.8	1.8	2.6	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	1.2	13.6
15-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-May	0.0	0.0	0.0	0.1	Z	0.5	0.8	0.3	0.1	0.0	0.0	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8
17-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-May	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	0.0	0.0	0.0	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-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
22-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-May	0.0	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
24-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-May	0.0	Z	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
26-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-May	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	1.0	0.4	0.0	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
28-May	0.1	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.8	3.3	8.7	8.6	4.0	3.7	1.7	0.4	0.2	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	8.7
29-May	0.4	0.0	0.0	0.2	0.0	Z	0.2	0.0	0.0	0.1	0.1	0.7	8.5	4.7	10.1	2.0	0.6	1.7	3.1	1.2	1.1	1.4	1.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	10.1
30-May	Z	0.3	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
31-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

0.0	0.1	0.1	0.0	0.1	0.2	0.2	0.6	0.5	0.3	0.3	0.2	0.4	0.5	0.8	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average
0.5	0.9	2.1	0.3	1.5	3.4	3.0	13.6	11.9	8.5	8.1	4.5	8.5	8.7	10.1	4.0	3.7	1.7	3.1	2.4	1.4	1.4	1.5	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**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Wapasu - May 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**  
**Wapasu - May 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	53	40	32	47	50	66	118	87	39	19	31	16	11	11	46	42	708
11 - 20	0	0	0	0	0	0	0	0	1	0	1	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>	53	40	32	47	50	66	118	87	40	19	32	16	11	11	46	42	710

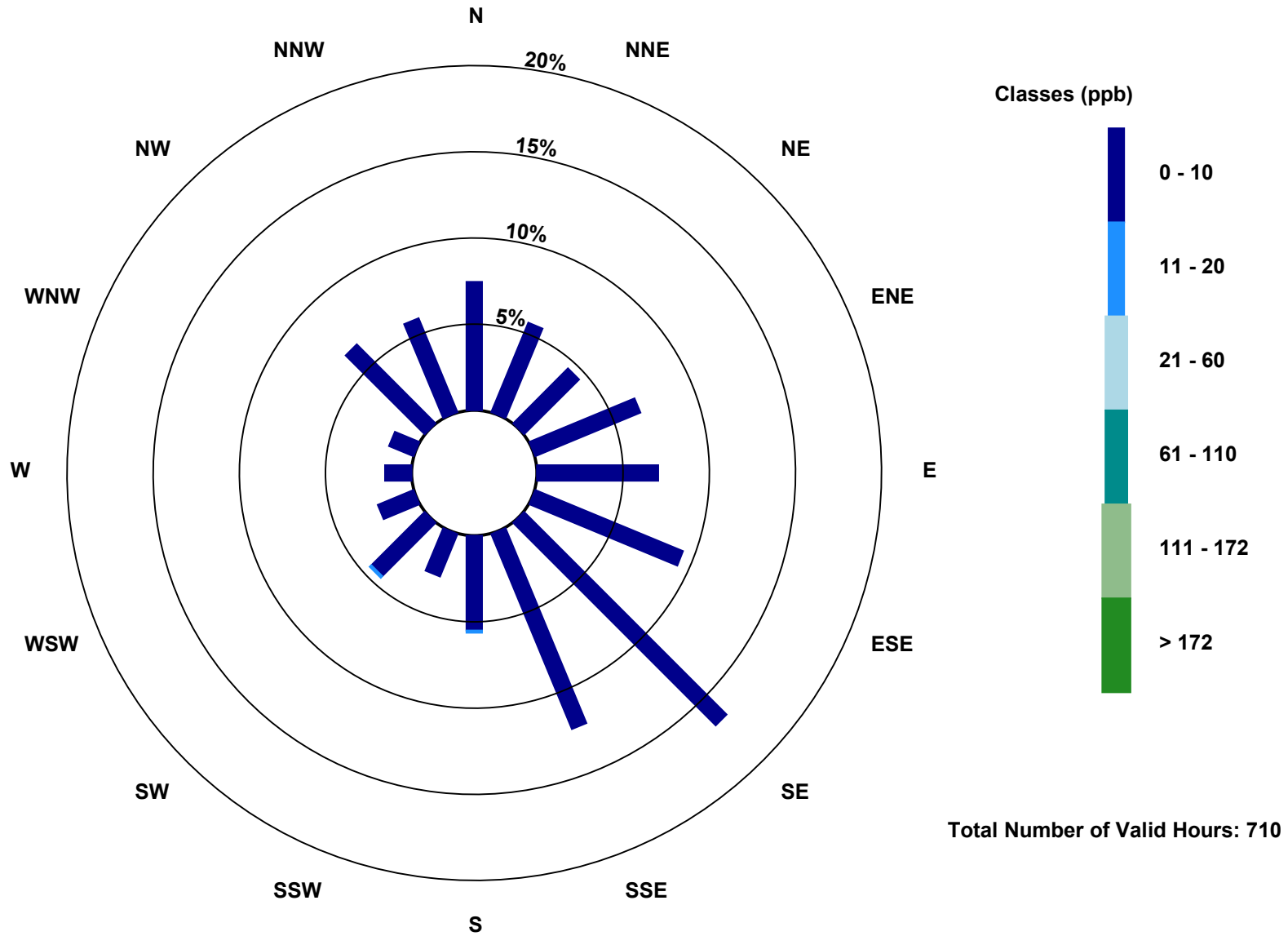
Total Number of Valid Hours: 710

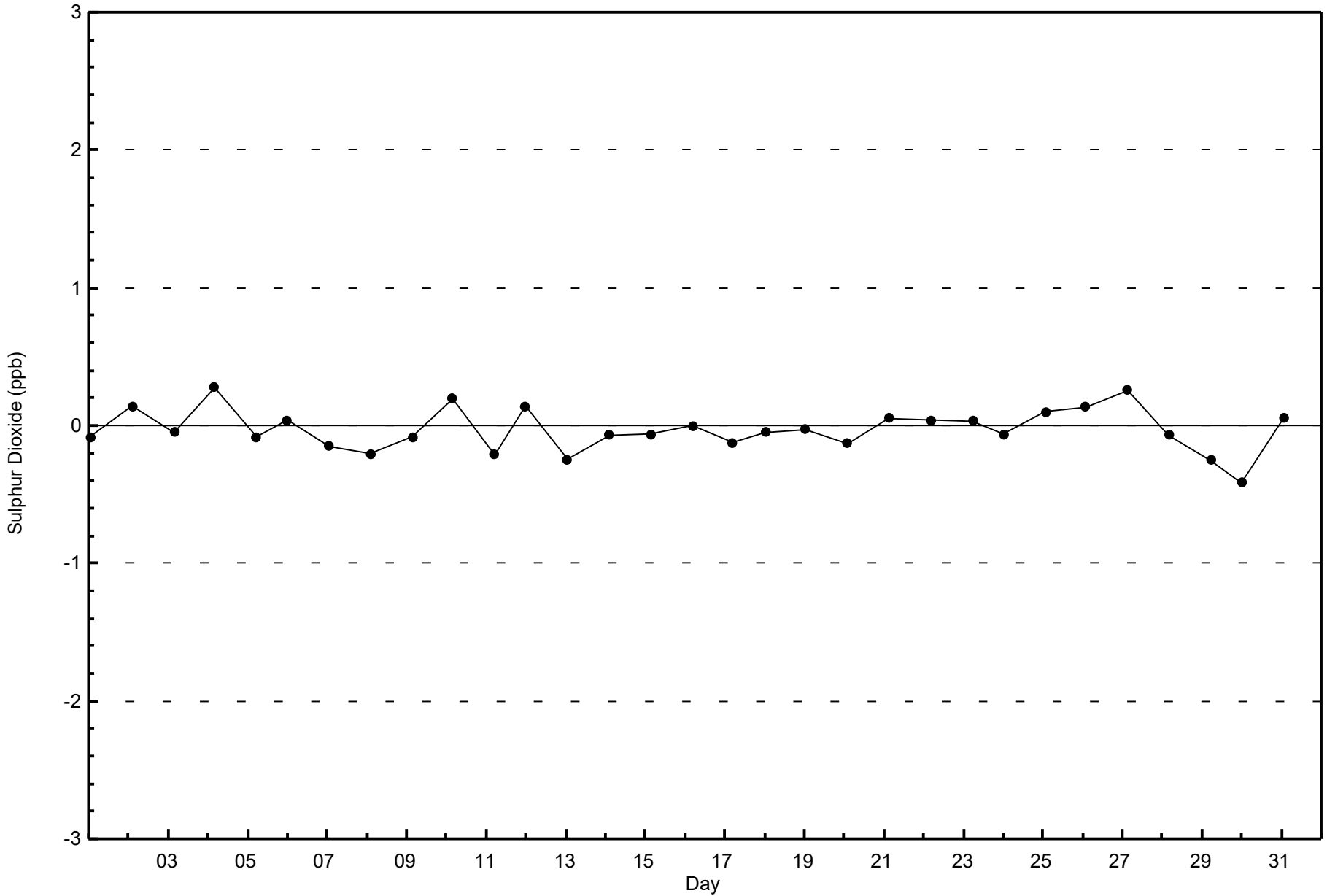
Total Number of Hours: 744



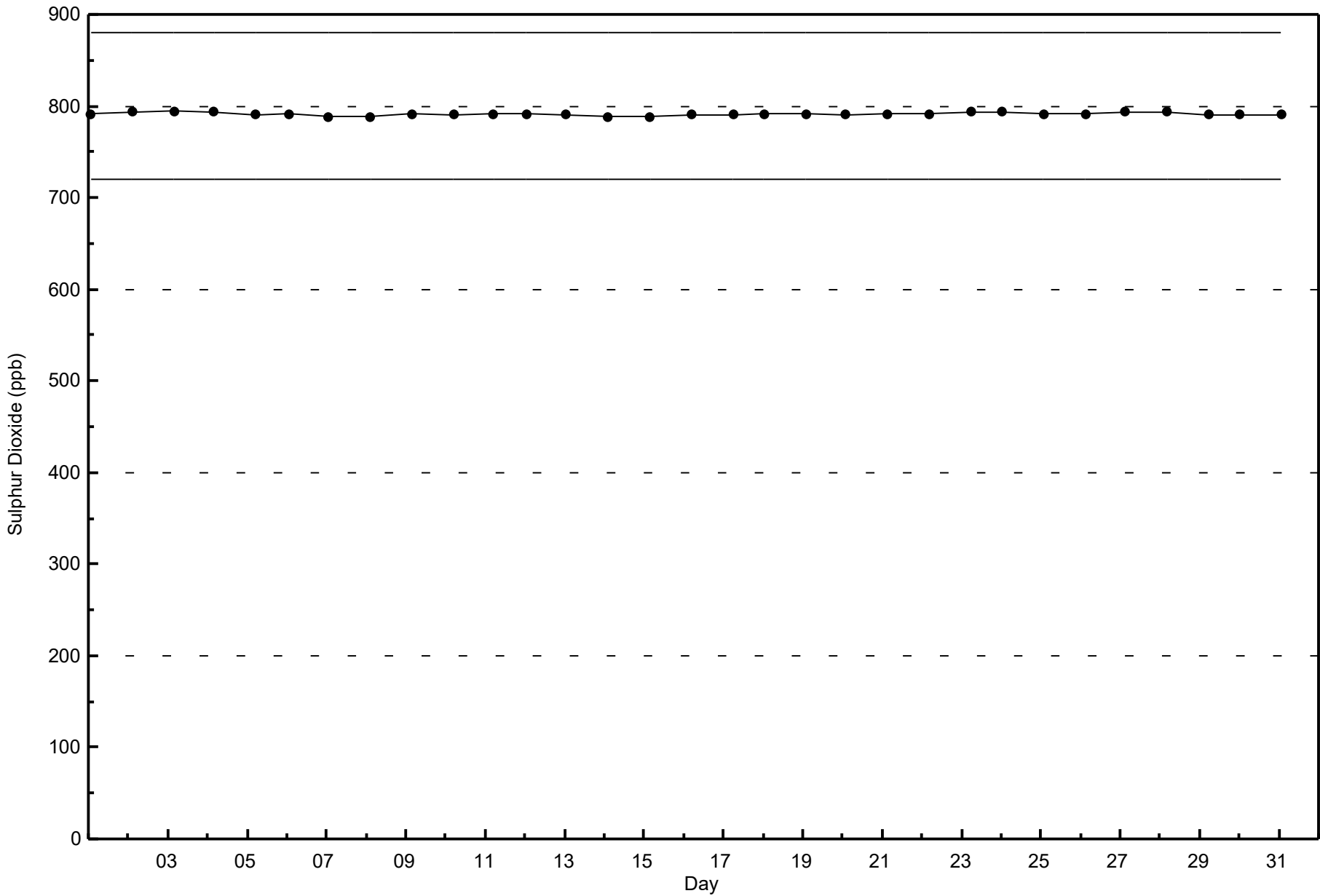
Wood Buffalo Environmental Association  
Wind Rose May 2024

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

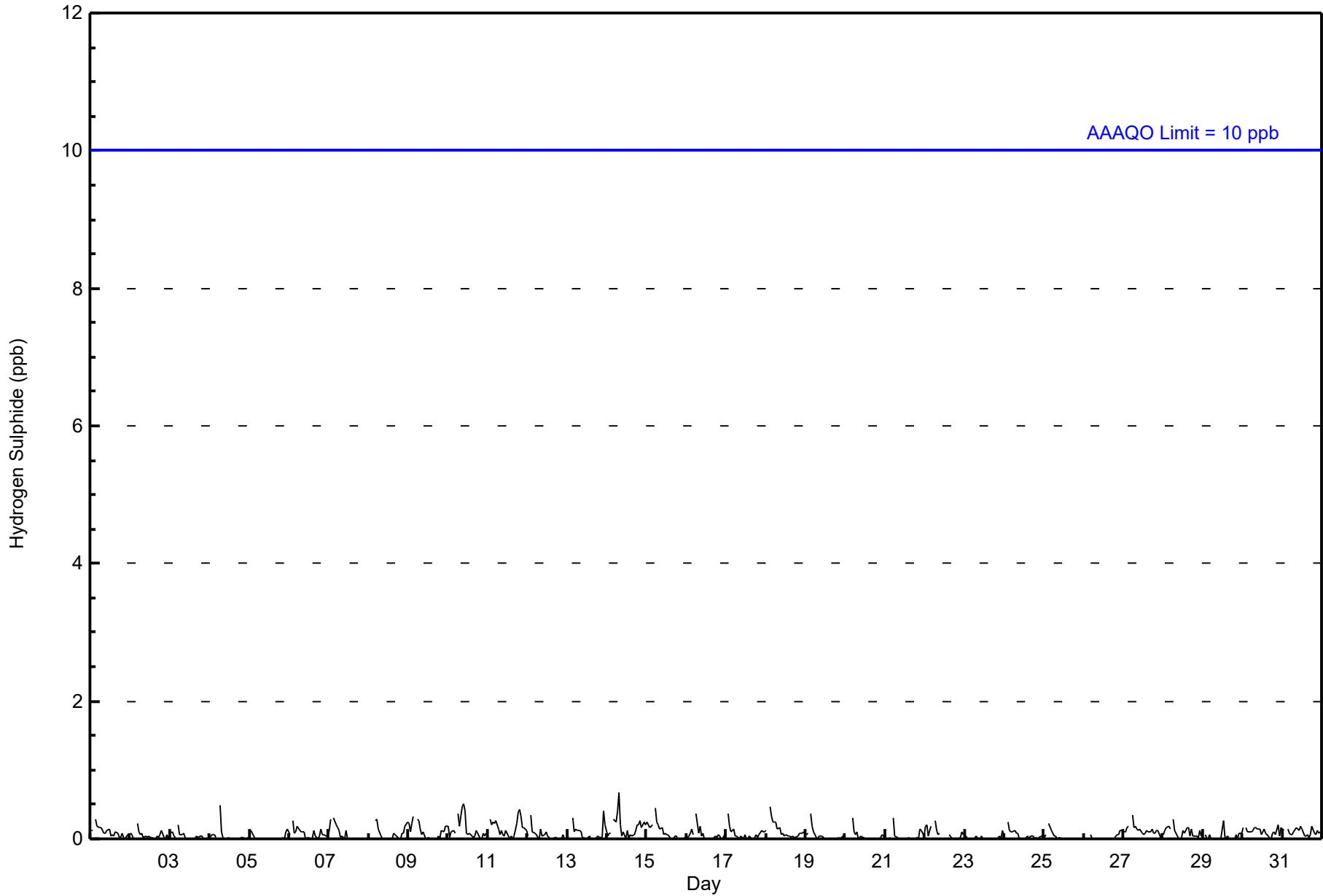














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	708	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Wapasu - May 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	53	40	32	42	52	70	113	89	40	19	32	16	11	12	44	43	708
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>	53	40	32	42	52	70	113	89	40	19	32	16	11	12	44	43	708

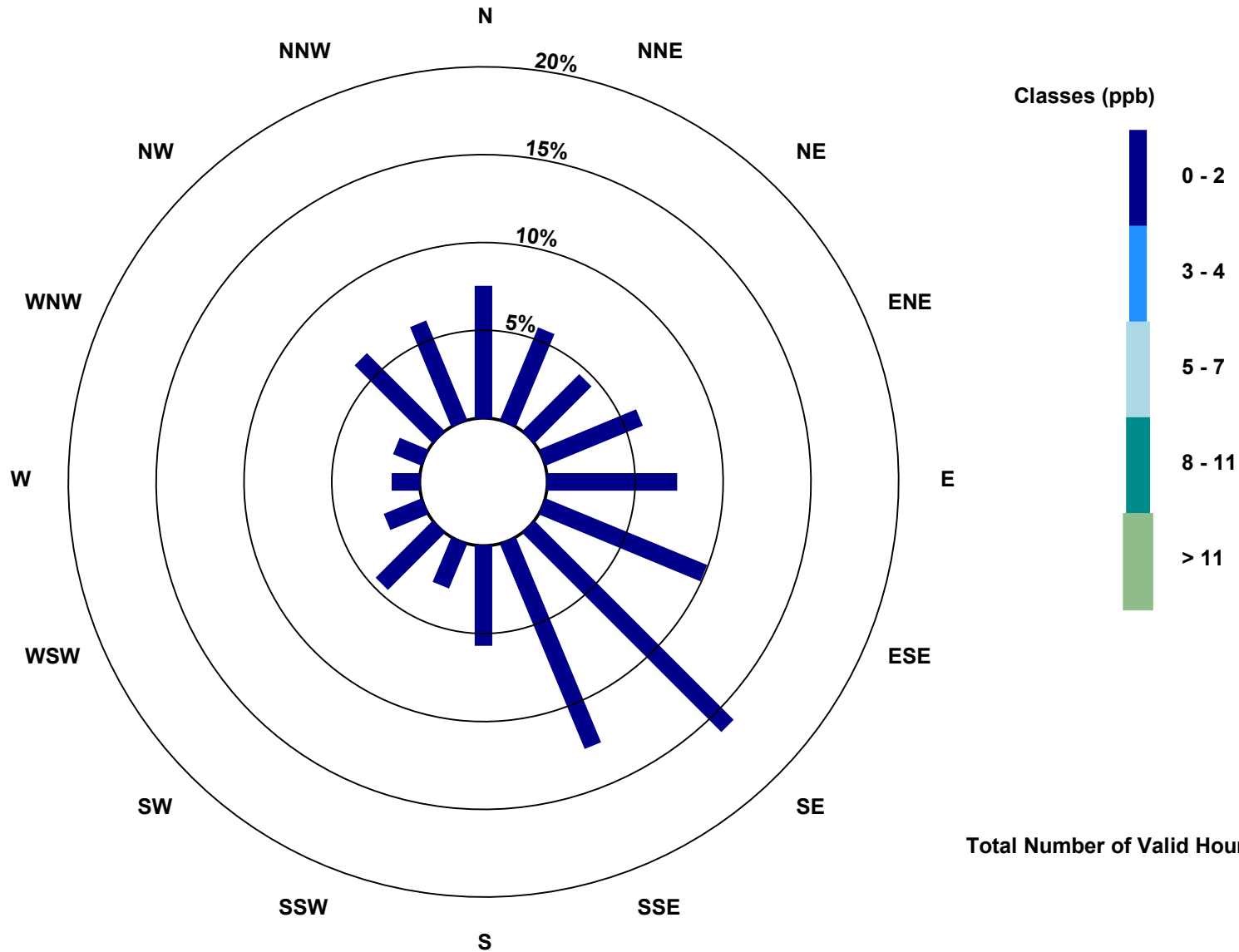
Total Number of Valid Hours: 708

Total Number of Hours: 744

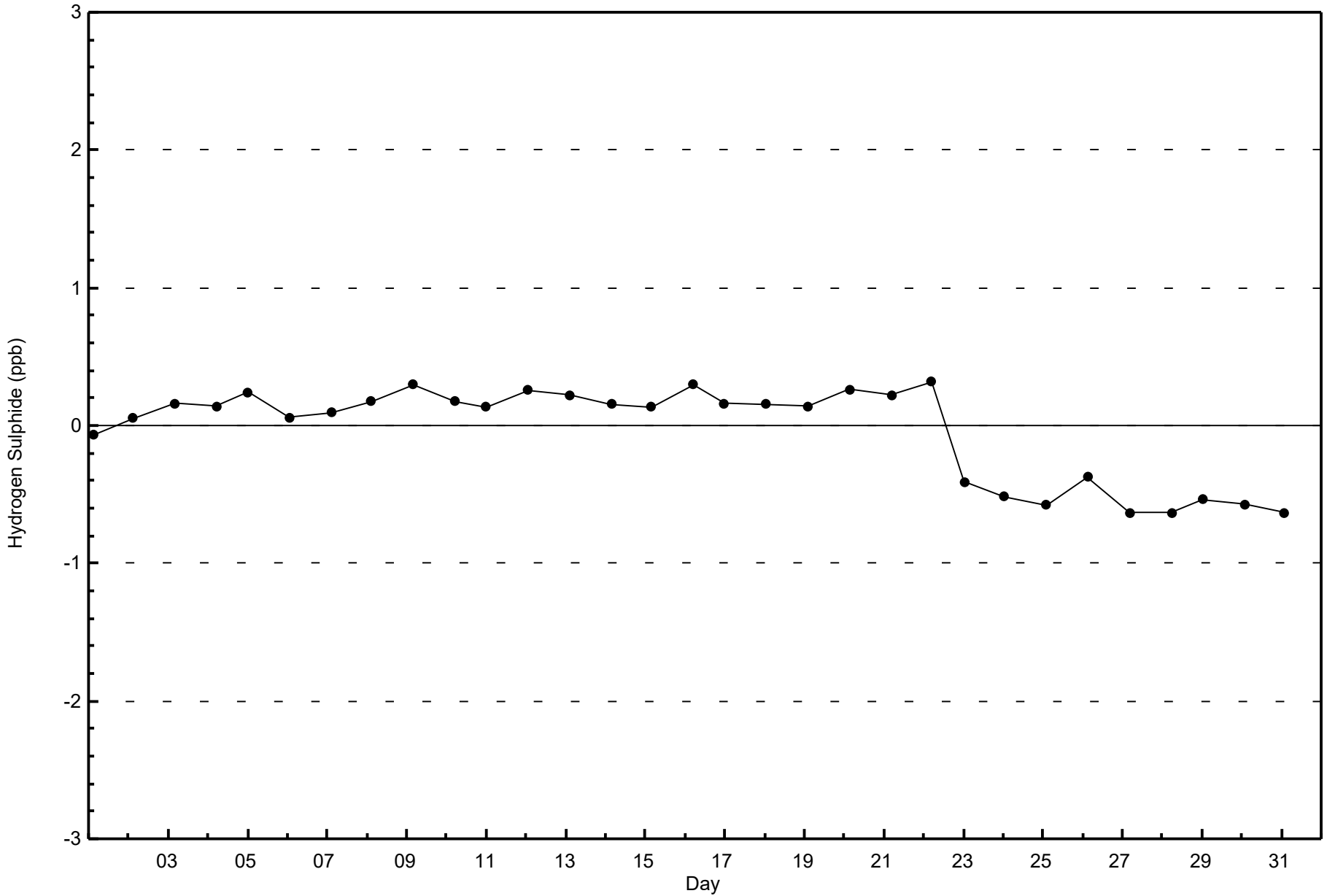


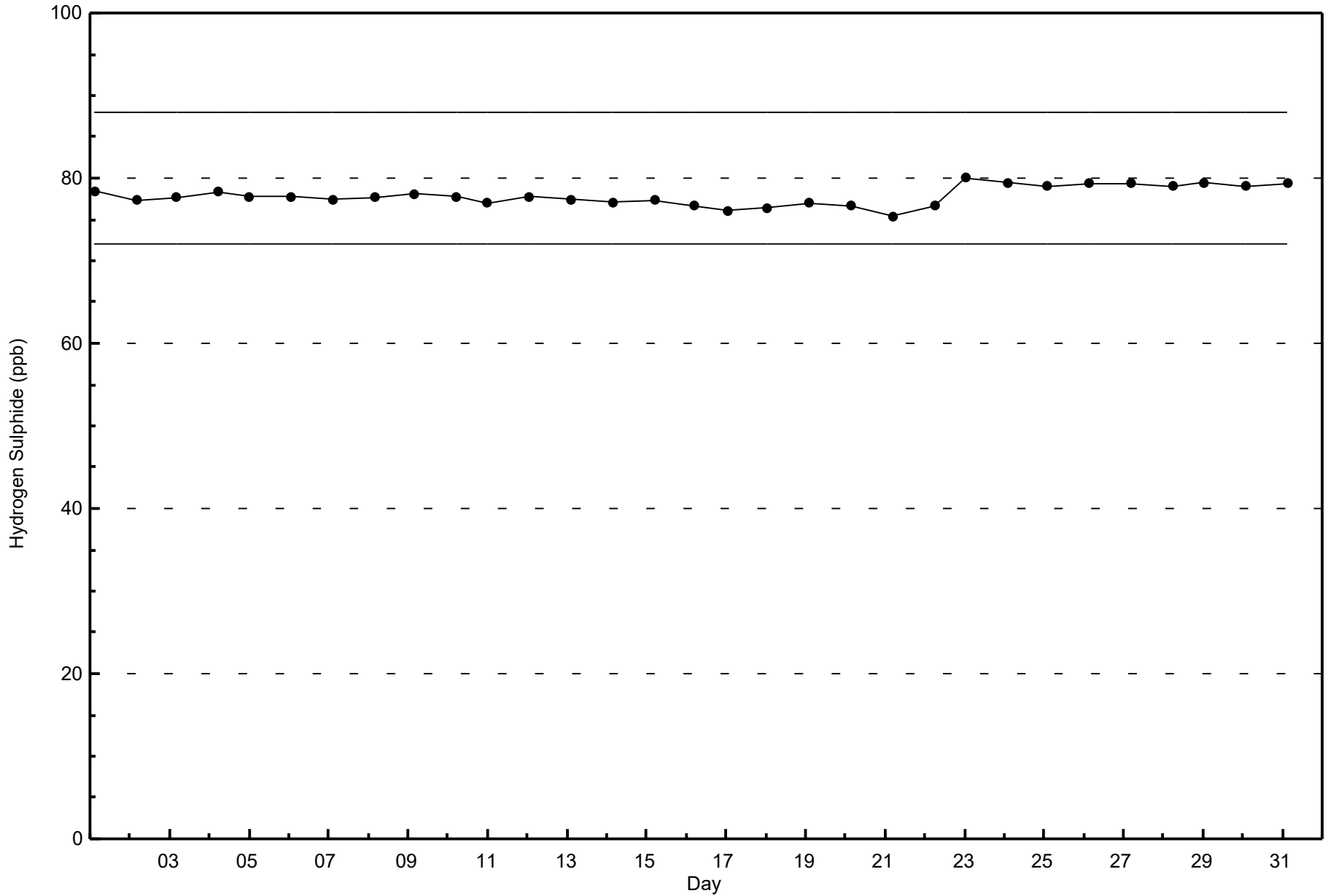
Wood Buffalo Environmental Association  
Wind Rose May 2024

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



Total Number of Valid Hours: 708







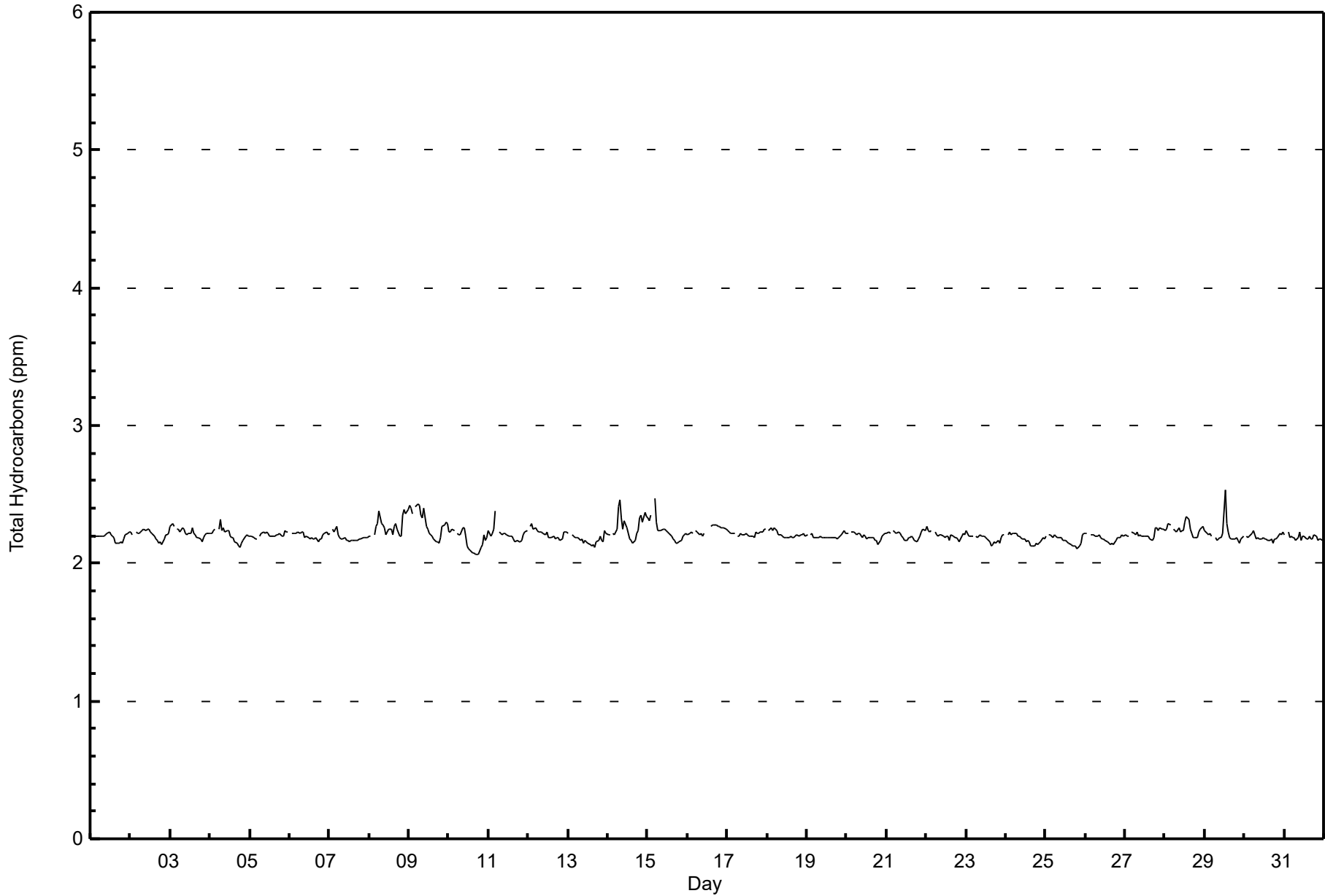


Maximum Value: 2.5 ppm on May 29 13:00		Maximum Daily Average: 2.3 ppm on May 9		Hours in Service: 744																							
Minimum Value: 2.1 ppm on May 10 17:00		Minimum Daily Average: 2.2 ppm on May 10		Hours of Data: 710																							
Maximum Diurnal Average: 2.2 ppm at hour 5		Minimum Diurnal Average: 2.2 ppm at hour 18		Hours of Missing Data: 34																							
Monthly Average: 2.21 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> = 2.2 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.4		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-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
2-May	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	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3-May	2.3	2.3	2.3	Z	2.2	2.2	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2
4-May	2.2	2.2	2.2	2.2	Z	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
5-May	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
6-May	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
7-May	2.2	Z	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
8-May	2.2	2.2	Z	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.3	2.4	2.4
9-May	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
10-May	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2
11-May	2.2	2.2	2.2	2.2	2.4	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
12-May	Z	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
13-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14-May	2.2	2.2	Z	2.2	2.2	2.3	2.4	2.5	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3
15-May	2.3	2.3	2.4	Z	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
16-May	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	C	C	C	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
17-May	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
18-May	Z	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
19-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
20-May	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	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
21-May	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
22-May	2.3	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
23-May	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	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2
24-May	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2
25-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2
26-May	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
27-May	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	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.2
28-May	2.2	2.2	2.3	2.3	Z	2.2	2.2	2.2	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	2.3	2.3	2.3	2.2	2.2
29-May	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2
30-May	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	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
31-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration																											



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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - May 2024**





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

**Total Hydrocarbons (THC) - ppm**  
**Wapasu - May 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**  
**Wapasu - May 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	53	40	32	47	50	66	118	87	40	19	32	16	11	11	46	42	710
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>	53	40	32	47	50	66	118	87	40	19	32	16	11	11	46	42	710

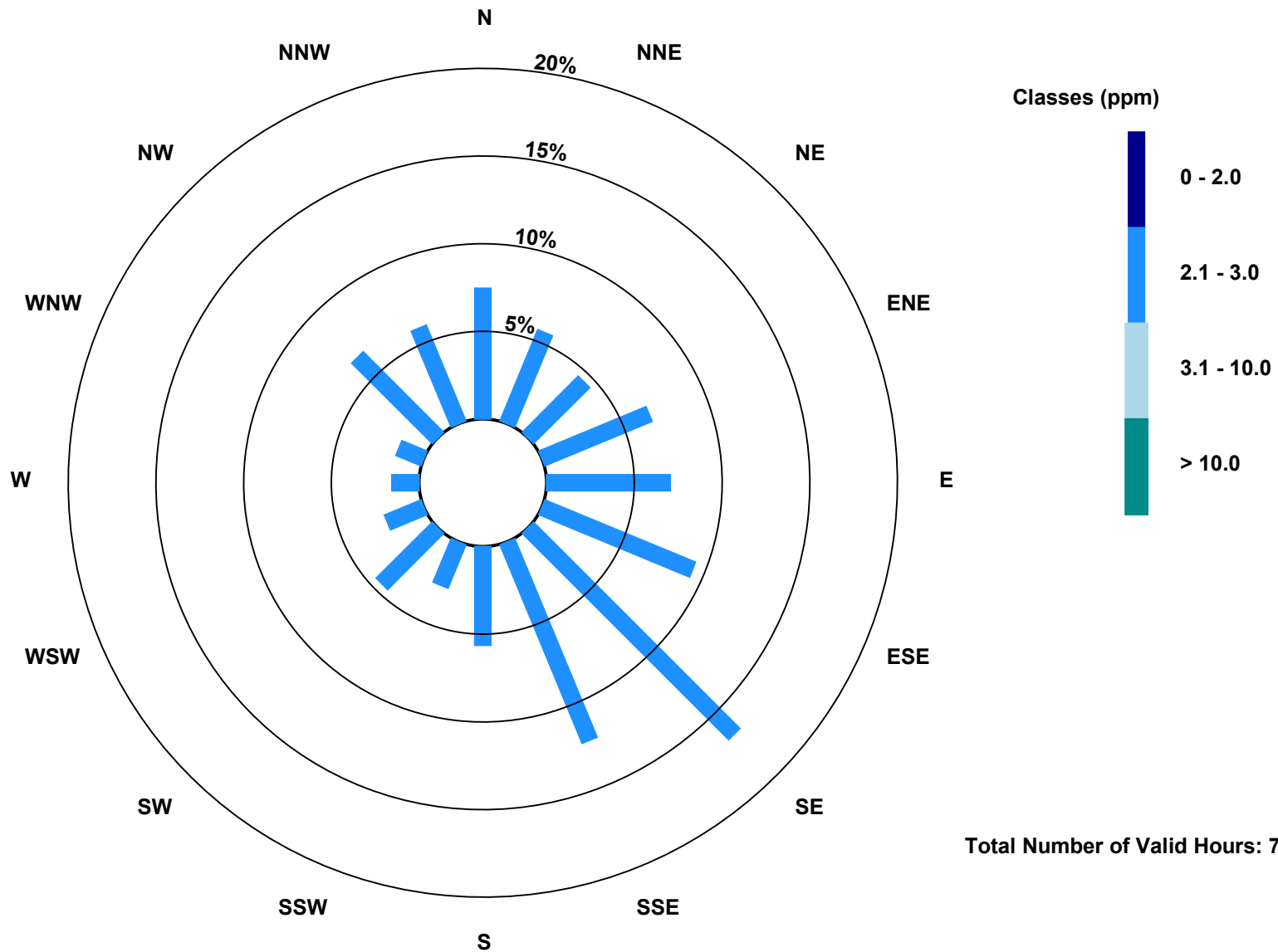
Total Number of Valid Hours: 710

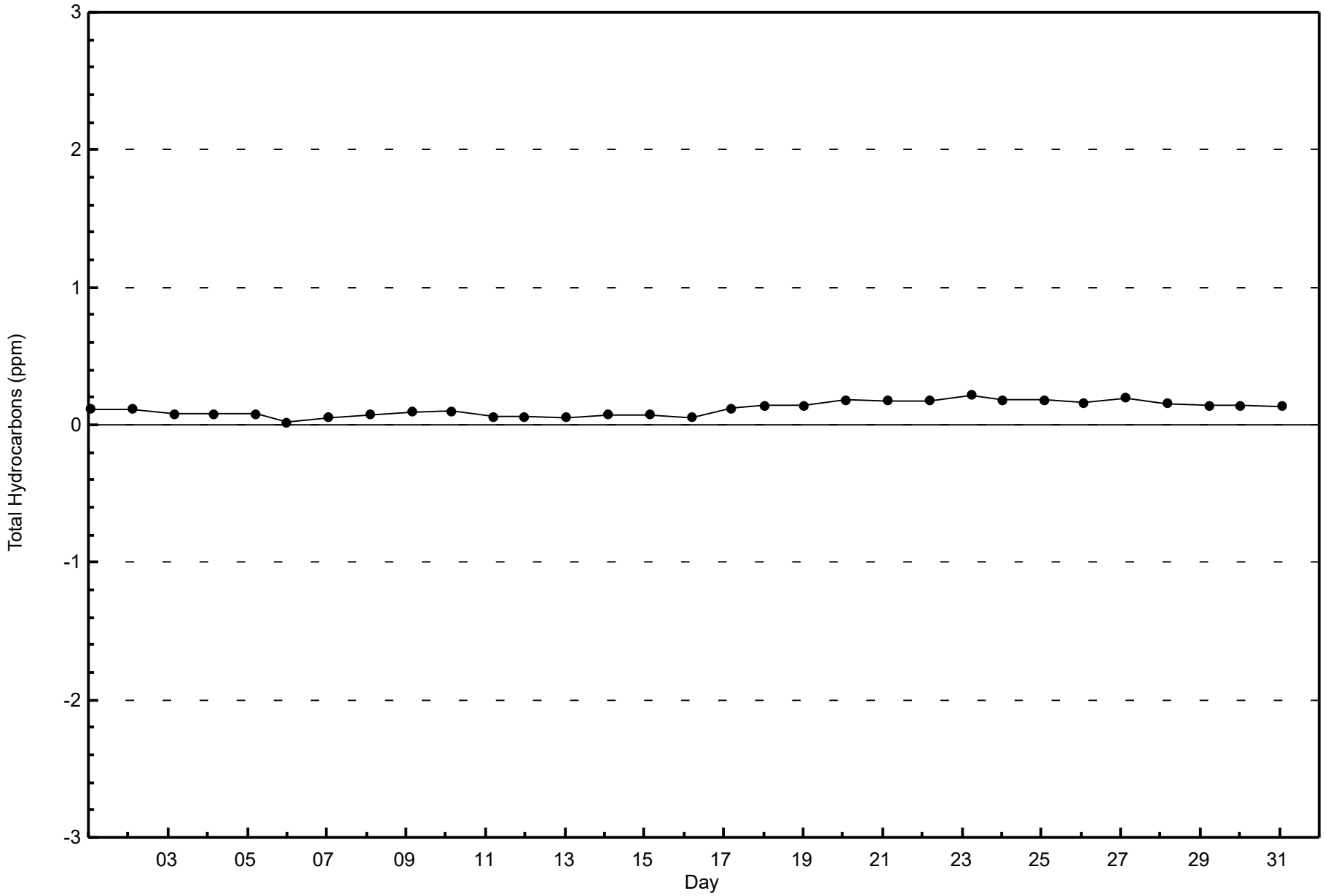
Total Number of Hours: 744

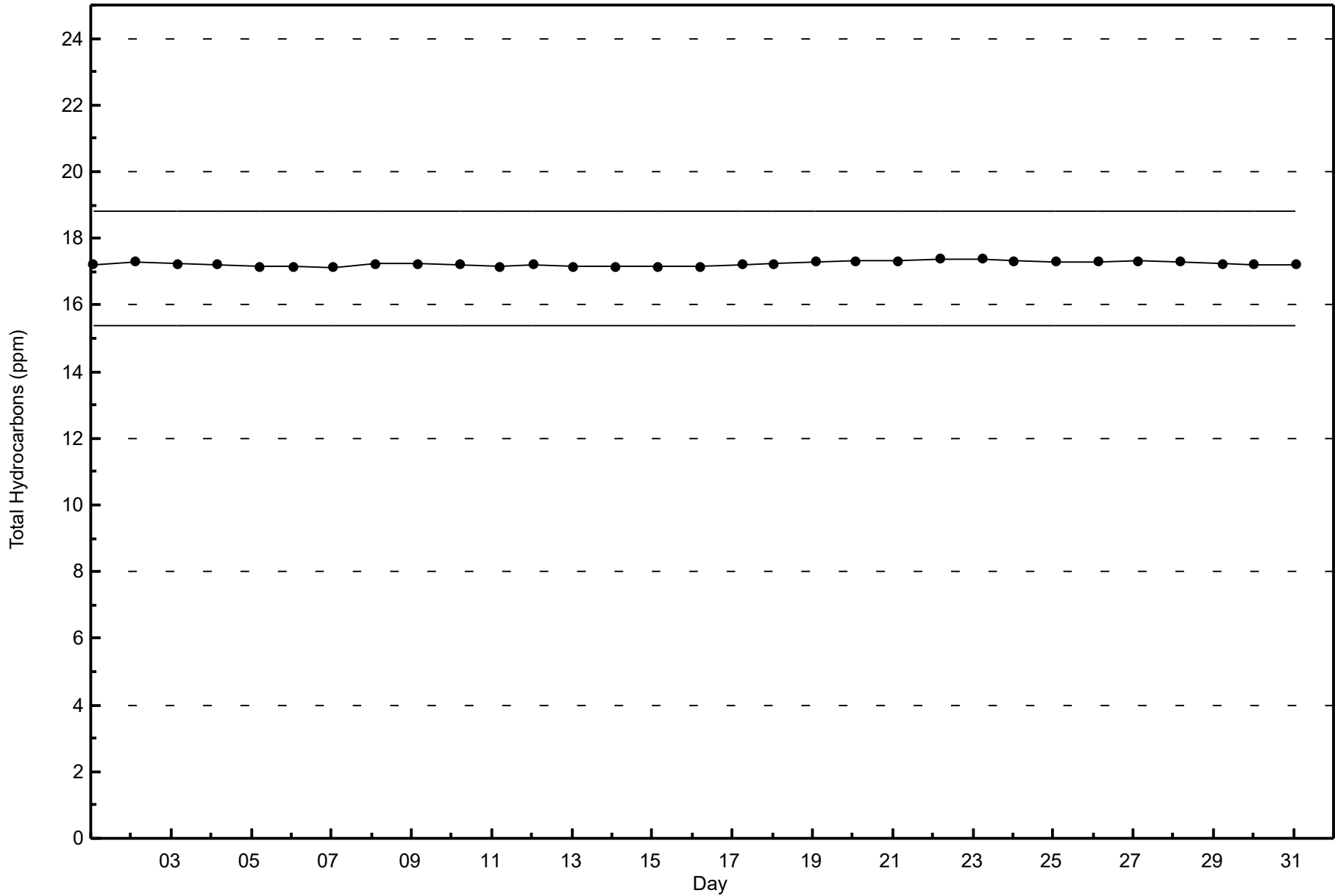


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Wapasu









# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

Wapasu - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 53.8 ppb on May 14 15:00	Maximum Daily Average: 44.9 ppb on May 27		Hours of Data:	709
Minimum Value: 8.7 ppb on May 20 04:00	Minimum Daily Average: 19.3 ppb on May 18		Hours of Missing Data:	35
Maximum Diurnal Average: 40.3 ppb at hour 16	Minimum Diurnal Average: 26.9 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 34.75 ppb	Percentiles: P <sub>1</sub> = 12.7 P <sub>10</sub> = 21.4 Q <sub>1</sub> = 28.5 Median = 35.4 Q <sub>3</sub> = 42.1 P <sub>90</sub> = 46.4 P <sub>99</sub> = 52.5		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-May	23.2	22.0	21.1	Z	17.0	17.7	25.6	28.8	27.7	26.9	31.5	37.5	41.6	44.3	45.4	47.0	47.4	46.9	47.6	46.4	42.0	30.7	30.3	25.4	33.7	47.6
2-May	26.0	37.6	37.0	36.2	Z	31.1	32.6	34.7	39.6	38.5	43.8	46.6	49.8	52.1	53.5	53.4	52.5	51.6	50.0	47.6	45.8	42.8	37.1	35.2	42.4	53.5
3-May	33.6	32.4	37.8	37.9	35.2	Z	37.5	37.8	40.7	43.9	43.8	42.7	43.2	45.5	44.1	44.0	43.0	41.0	43.4	46.0	45.4	45.1	40.6	37.9	41.0	46.0
4-May	Z	33.6	21.8	13.0	11.6	11.1	24.3	33.2	34.6	37.5	36.5	37.7	38.6	38.5	38.3	38.2	38.2	38.1	37.5	34.4	32.2	31.4	31.7	32.6	31.5	38.6
5-May	33.4	Z	33.2	32.2	32.2	31.9	31.9	32.2	33.7	34.3	35.7	40.2	41.6	40.9	40.4	40.9	42.5	44.2	43.1	44.5	38.5	36.0	38.1	42.3	37.6	44.5
6-May	47.9	48.8	Z	43.6	42.4	39.7	37.8	40.1	46.0	47.8	48.7	48.3	46.5	44.1	43.4	41.7	42.3	42.1	41.3	38.4	39.8	39.7	41.5	39.5	43.1	48.8
7-May	33.9	40.4	43.9	Z	43.5	42.8	40.0	38.7	36.5	35.2	34.7	34.8	35.4	35.4	32.9	30.3	29.6	28.7	28.3	26.8	25.2	25.1	25.6	26.1	33.6	43.9
8-May	25.2	23.6	19.9	17.7	Z	14.1	16.6	29.2	32.5	35.2	40.0	44.1	44.8	46.2	46.1	41.8	40.9	41.2	39.8	41.3	40.9	35.9	33.8	29.2	33.9	46.2
9-May	20.4	27.8	26.9	24.2	25.5	Z	31.2	33.4	35.3	35.7	42.1	44.0	46.1	47.7	47.7	47.9	49.5	50.8	50.0	45.9	32.9	18.7	12.2	13.4	35.2	50.8
10-May	Z	41.0	40.8	43.2	44.1	44.2	42.5	37.9	31.9	32.0	C	C	C	C	41.3	43.5	44.0	44.4	45.6	43.4	44.1	43.1	49.5	48.4	42.4	49.5
11-May	47.0	Z	52.6	49.7	42.6	46.0	44.1	41.5	40.2	38.9	39.2	38.9	39.2	39.2	38.1	37.1	35.8	36.2	37.4	35.1	30.0	27.6	25.9	25.6	38.6	52.6
12-May	25.3	22.4	Z	16.8	15.3	21.9	24.9	27.5	30.4	31.8	33.6	33.4	34.3	33.4	33.6	33.0	32.0	33.0	32.5	30.0	28.3	28.6	28.1	27.7	28.6	34.3
13-May	28.4	29.3	30.5	Z	31.7	33.0	32.7	32.5	35.4	37.3	39.7	44.1	47.5	37.7	45.3	50.8	49.5	49.4	47.5	48.5	49.1	47.8	40.7	40.1	40.4	50.8
14-May	34.5	28.7	26.5	26.4	Z	23.7	25.0	28.4	44.1	47.1	45.0	52.9	50.4	53.6	53.8	52.9	49.8	42.1	43.0	38.6	35.7	35.2	26.3	18.9	38.4	53.8
15-May	13.9	24.7	16.9	13.1	22.9	Z	35.6	36.9	36.5	39.4	42.5	43.1	44.6	44.6	45.7	45.7	44.5	43.7	43.0	41.0	37.6	35.3	35.6	37.4	35.8	45.7
16-May	Z	33.5	25.9	23.8	25.8	29.6	30.6	30.1	24.1	24.5	22.3	27.6	29.4	30.7	29.3	30.4	29.1	25.3	26.4	26.4	28.0	29.6	30.5	29.4	27.9	33.5
17-May	28.6	Z	28.1	27.0	25.8	24.7	26.4	28.3	28.5	28.2	27.8	27.2	26.4	26.3	25.1	24.4	22.7	21.5	20.4	19.9	19.4	18.2	17.9	15.9	24.3	28.6
18-May	13.9	15.2	Z	13.6	13.5	12.8	13.6	17.5	18.5	19.8	20.0	20.5	20.5	21.6	22.9	23.3	24.5	24.8	24.5	24.2	22.6	20.2	18.1	17.6	19.3	24.8
19-May	17.4	15.3	17.3	Z	22.6	28.9	28.9	30.5	30.4	29.2	29.1	29.1	33.5	34.5	32.5	32.0	31.3	30.4	29.6	25.1	21.2	20.1	15.7	17.0	26.2	34.5
20-May	13.4	11.4	8.9	8.7	Z	11.8	15.4	15.0	18.5	22.1	23.2	25.4	26.8	28.4	30.2	32.0	31.6	35.2	35.9	35.2	34.9	34.4	30.2	26.1	24.1	35.9
21-May	22.7	21.6	18.5	12.7	15.8	Z	17.1	18.9	20.7	24.7	30.5	35.9	36.6	37.4	34.7	33.3	32.1	30.1	25.9	23.8	21.5	16.9	15.6	19.5	24.6	37.4
22-May	Z	19.7	19.6	18.3	21.6	29.7	34.3	34.1	34.2	35.7	37.2	37.9	37.7	37.3	37.6	37.3	36.3	35.6	32.2	31.8	30.1	27.1	25.2	18.8	30.8	37.9
23-May	18.7	Z	27.1	27.2	20.9	22.3	33.2	36.6	37.6	36.6	39.4	41.1	42.2	44.0	45.1	44.5	43.6	42.8	41.7	38.8	33.9	29.7	28.7	29.5	35.0	45.1
24-May	30.5	30.3	Z	21.5	25.7	29.5	31.4	32.4	34.8	40.0	41.7	40.5	44.1	46.0	47.4	48.2	47.6	47.2	46.4	43.5	40.9	38.7	39.2	40.6	38.6	48.2
25-May	40.8	36.8	35.0	Z	29.5	27.6	27.3	32.4	43.5	47.3	46.9	46.9	48.0	47.6	45.6	46.1	47.4	45.4	44.3	43.4	40.2	35.8	35.2	34.0	40.3	48.0
26-May	33.0	31.8	31.3	30.4	Z	30.3	32.2	35.3	36.9	37.9	39.2	41.1	43.1	43.1	43.0	44.4	45.4	44.3	43.0	40.9	37.5	38.2	39.3	40.9	38.4	45.4
27-May	41.9	42.9	45.1	46.2	46.4	Z	46.3	45.7	45.8	45.8	46.8	46.7	46.1	46.1	46.3	46.6	46.7	45.5	41.7	39.7	38.5	39.4	48.1	49.1	44.9	49.1
28-May	Z	46.5	37.7	22.2	28.3	25.1	30.3	36.4	39.5	41.9	44.0	47.3	49.7	49.8	51.8	52.5	51.3	50.8	48.6	46.7	32.5	32.8	34.0	42.2	41.0	52.5
29-May	43.4	Z	46.1	41.1	35.2	32.6	35.2	34.8	33.6	39.4	36.4	35.6	30.8	36.2	29.7	32.1	35.7	36.2	34.6	38.1	37.8	37.0	35.5	33.7	36.1	46.1
30-May	34.8	33.4	Z	25.4	26.5	26.6	27.9	35.1	36.4	40.6	40.8	40.2	35.8	35.1	37.0	35.7	33.9	35.2	31.9	35.1	38.4	37.2	38.3	40.2	34.9	40.8
31-May	42.0	36.5	35.7	Z	36.1	37.6	35.6	36.3	35.0	34.0	37.1	35.0	33.8	39.0	39.1	38.8	37.5	34.5	31.8	32.3	34.9	34.3	34.9	36.8	36.0	42.0
29.8 30.3 30.2 26.9 28.4 27.9 30.6 32.7 34.3 35.8 37.3 38.9 39.6 40.2 40.2 40.3 39.9 39.3 38.4 37.2 34.8 32.7 31.7 31.3																								Diurnal Average		
47.9 48.8 52.6 49.7 46.4 46.0 46.3 45.7 46.0 47.8 48.7 52.9 50.4 53.6 53.8 53.4 52.5 51.6 50.0 48.5 49.1 47.8 49.5 49.1																								Diurnal Maximum		

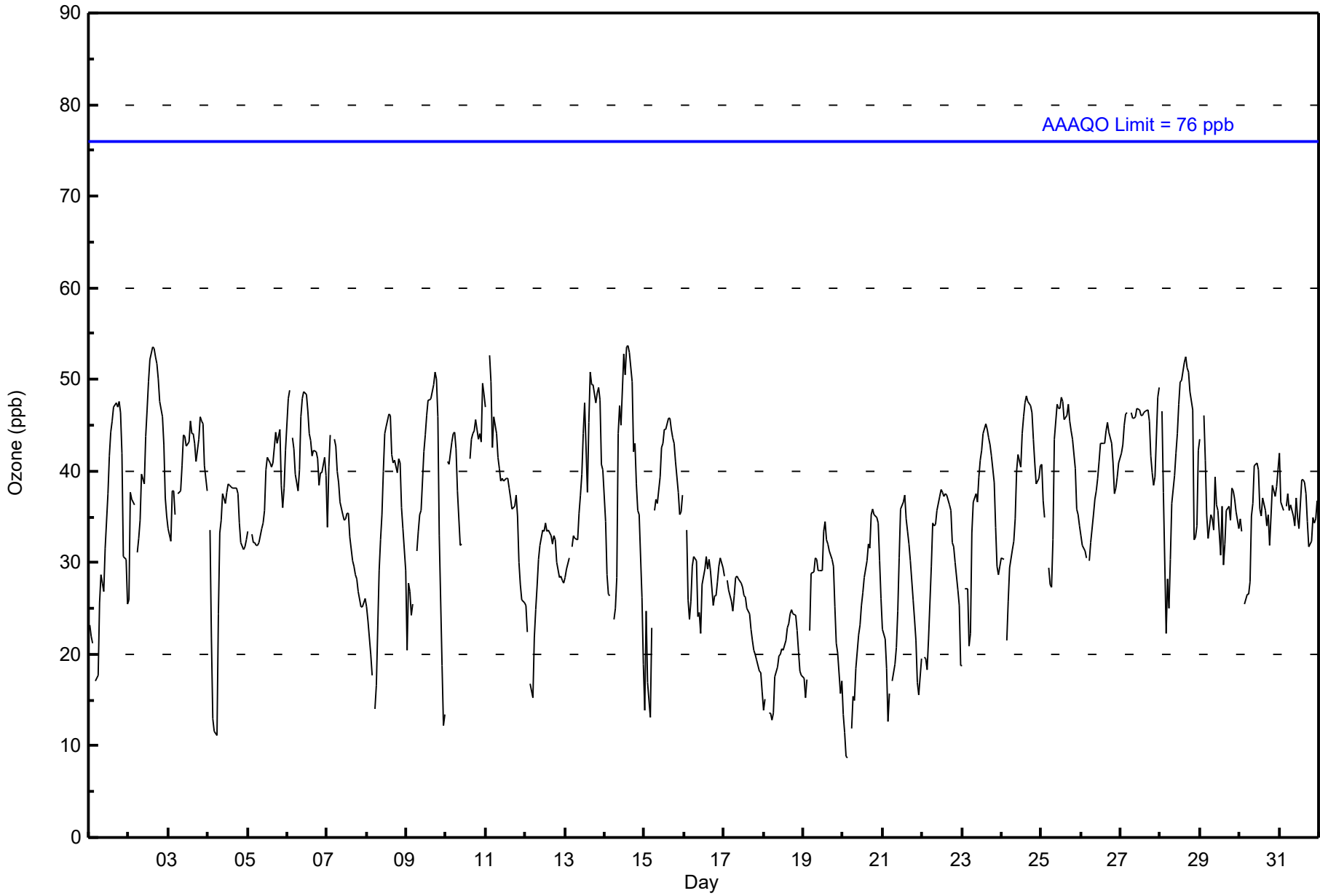
Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb





Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Wapasu - May 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Wapasu - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	66	9.31	9.31
21 - 50	627	88.43	97.74
51 - 82	16	2.26	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 - May 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	6	6	1	8	10	2	4	0	0	1	0	1	0	9	66
21 - 50	39	32	25	42	49	62	105	86	38	16	25	11	10	10	44	33	627
51 - 82	0	5	0	0	0	0	0	0	0	1	5	3	0	1	1	0	16
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	53	41	31	48	50	70	115	88	42	17	30	15	10	12	45	42	709

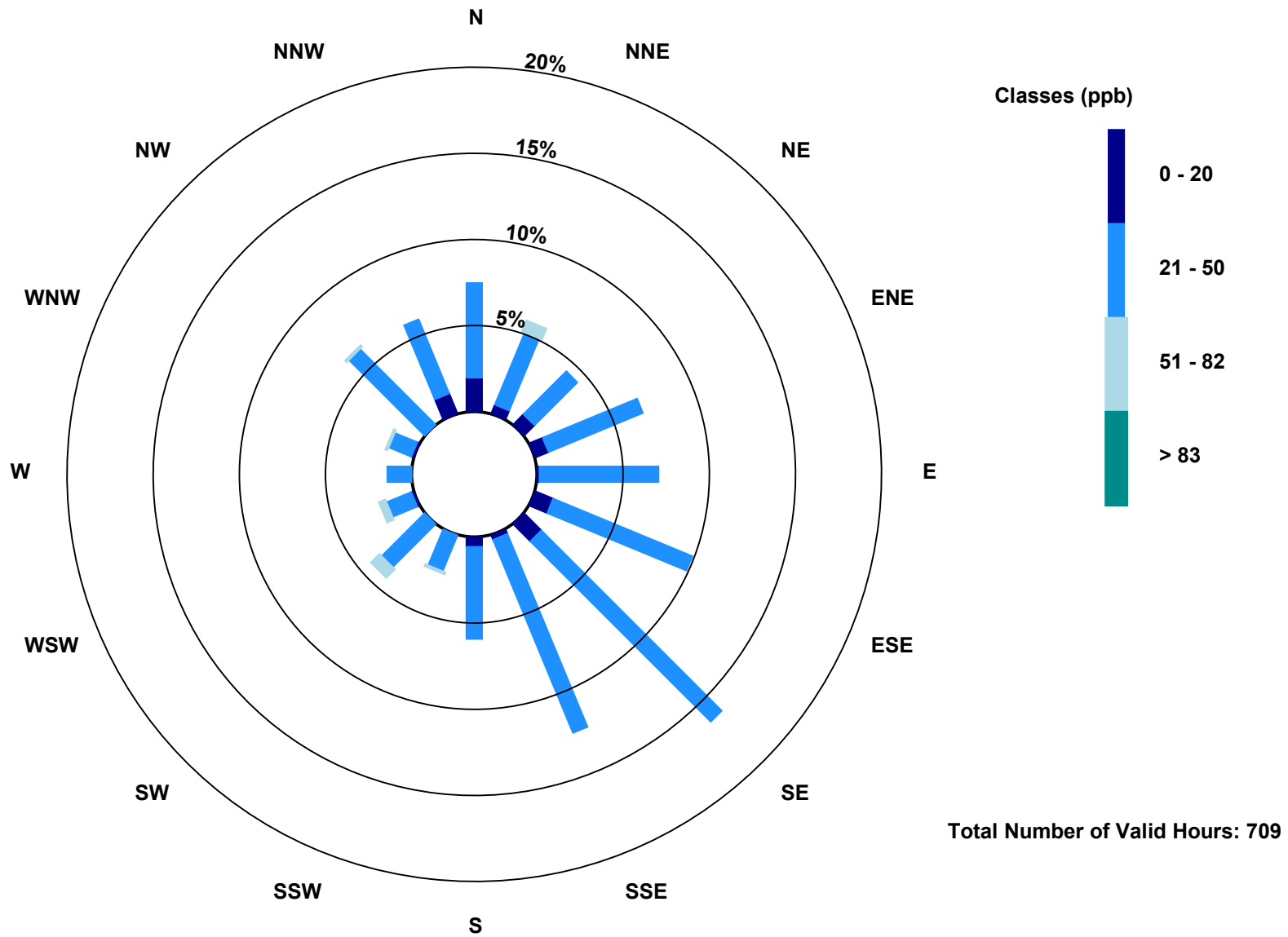
Total Number of Valid Hours: 709

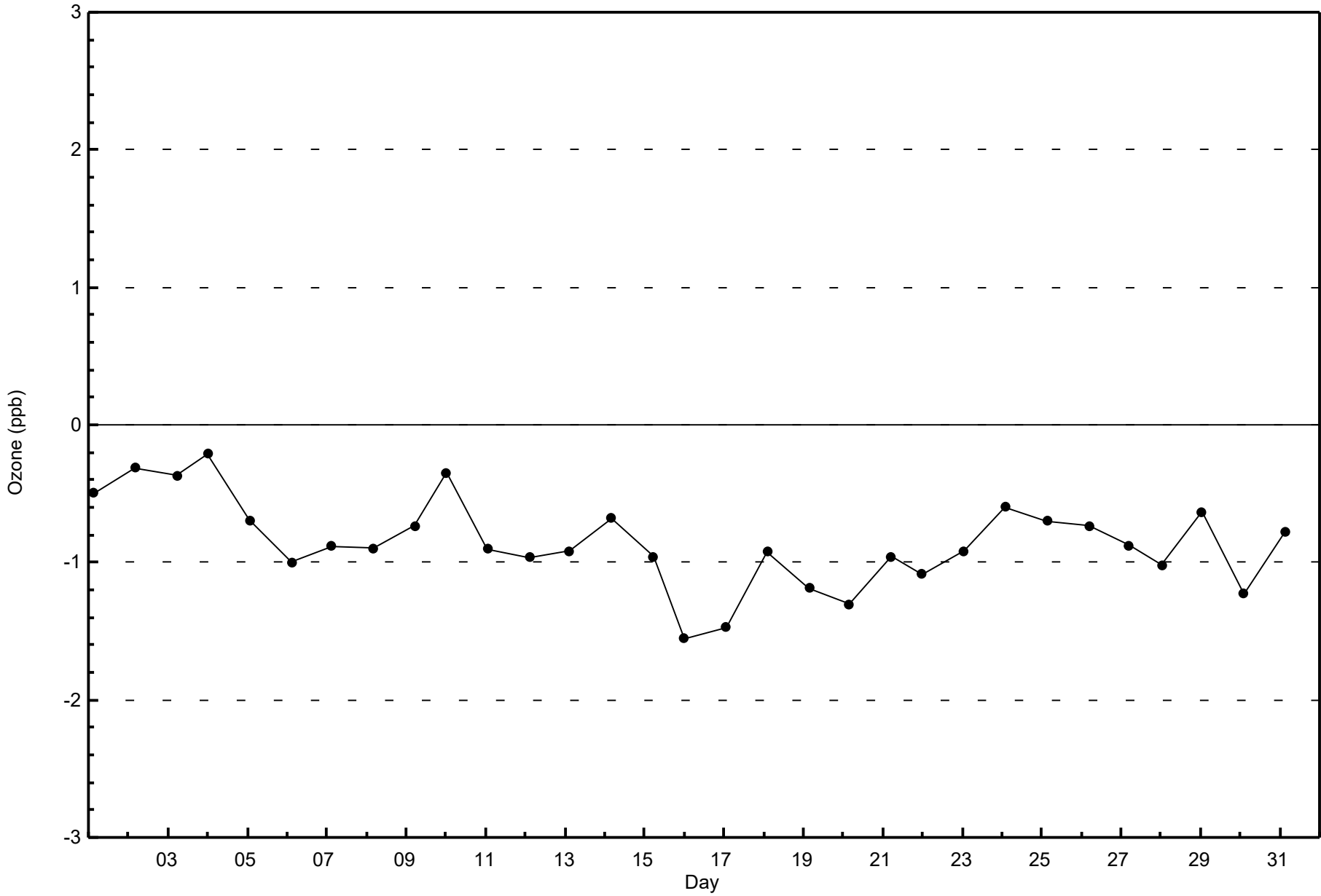
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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

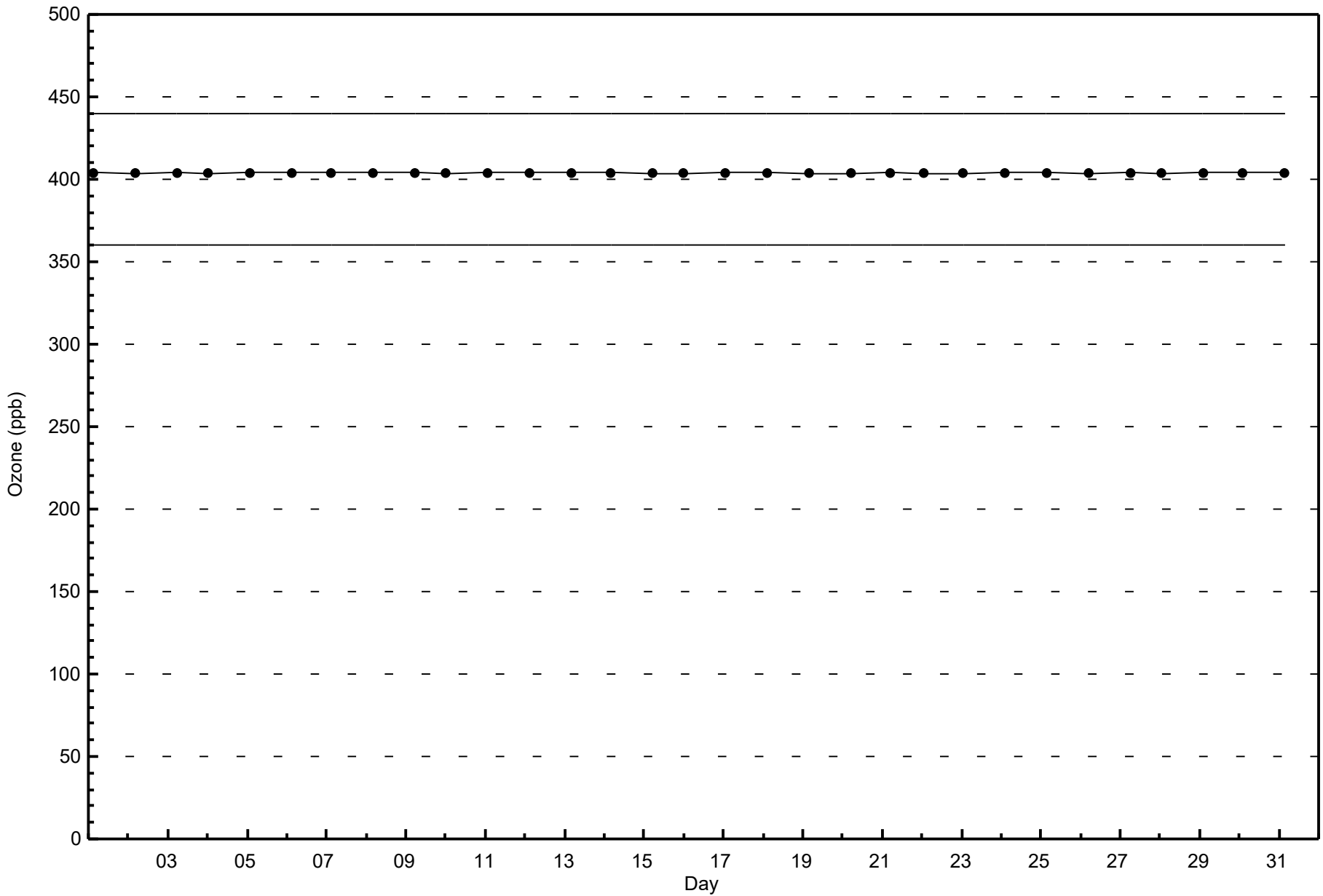






Wood Buffalo Environmental Association  
Span Responses

Ozone (O<sub>3</sub>) - ppb  
Wapasu - May 2024

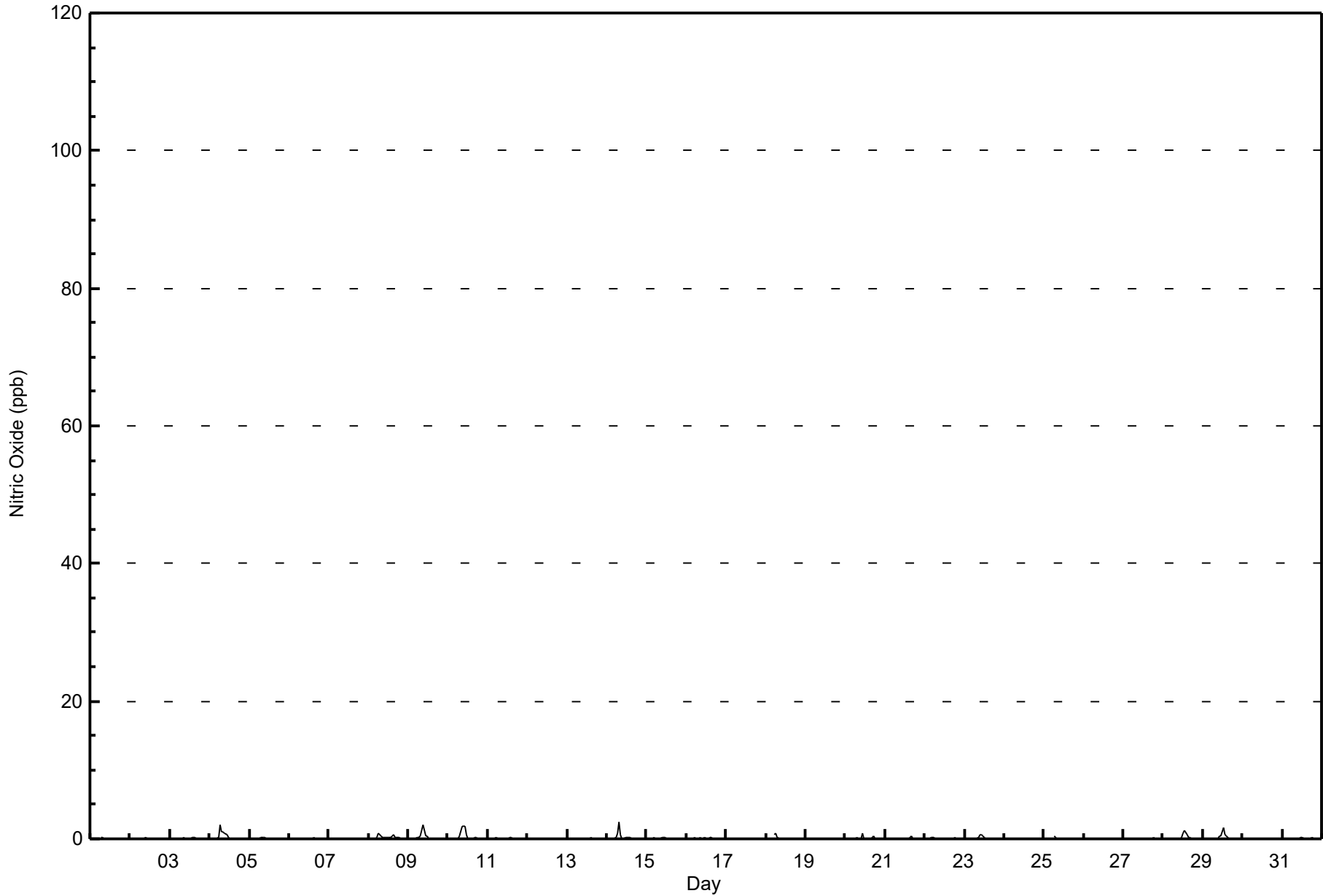






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Wapasu - May 2024**







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

**Nitric Oxide (NO) - ppb**  
**Wapasu - May 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  
Wapasu - May 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	54	40	33	45	50	68	114	88	40	20	31	16	10	11	45	42	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>	54	40	33	45	50	68	114	88	40	20	31	16	10	11	45	42	707

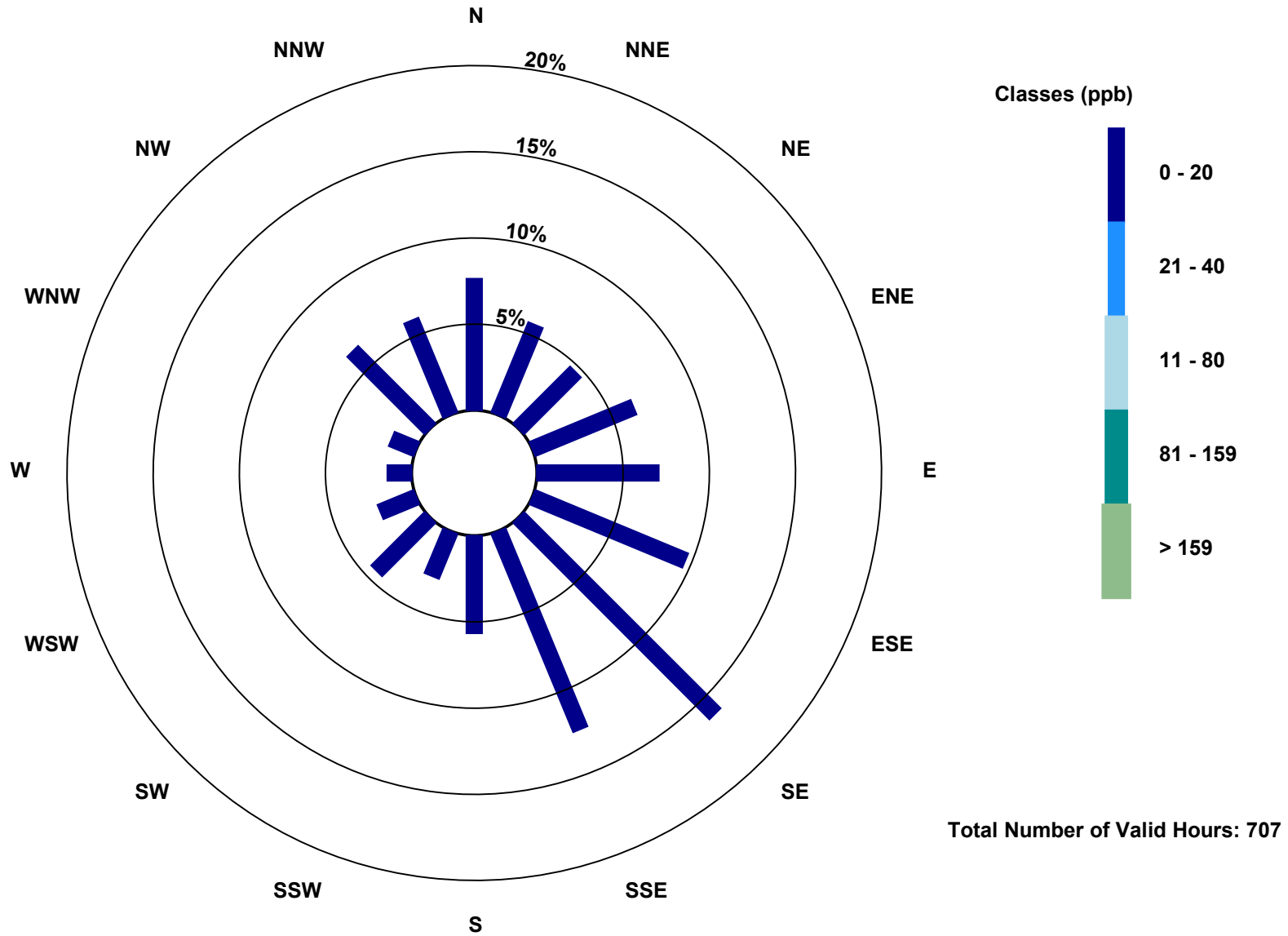
Total Number of Valid Hours: 707

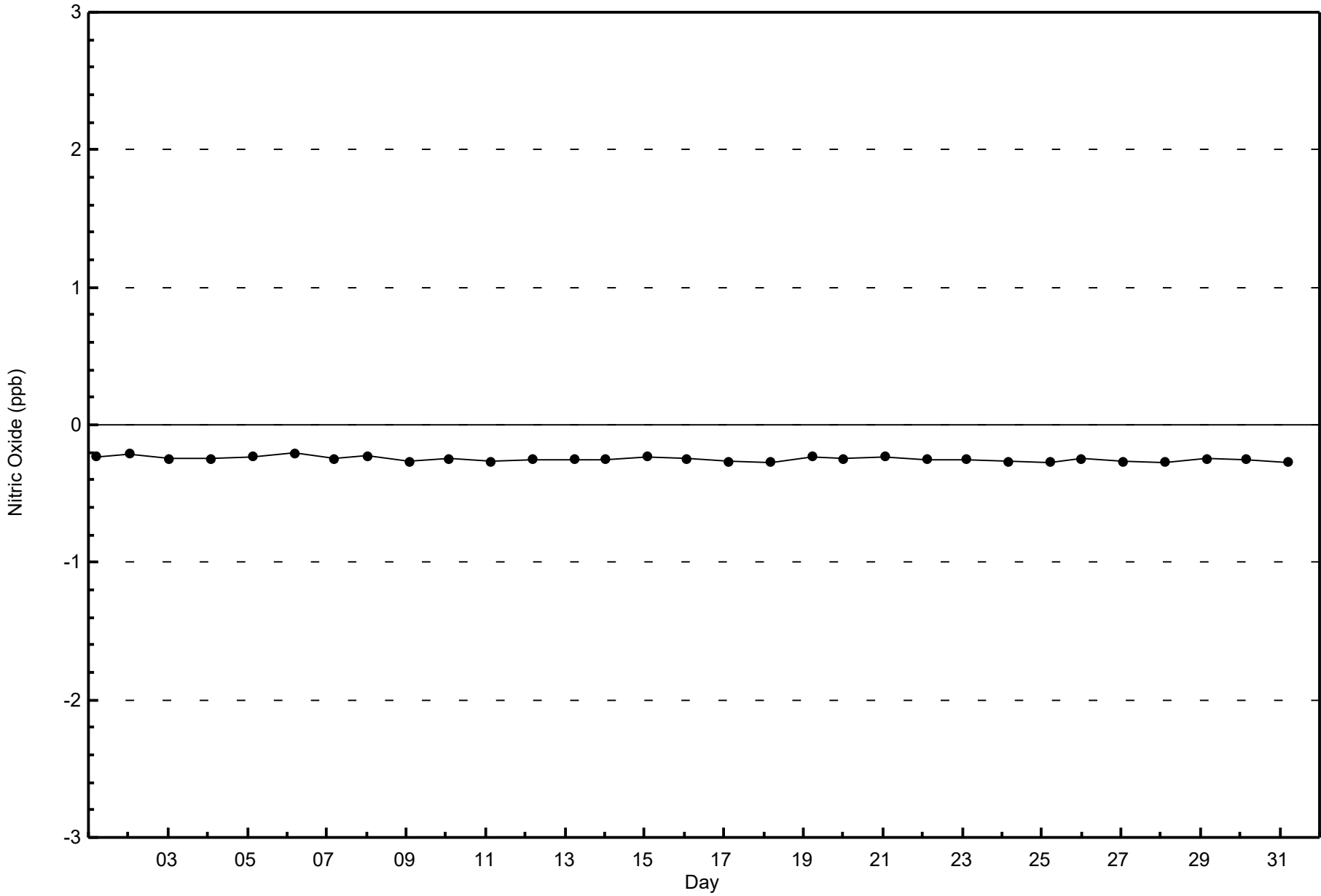
Total Number of Hours: 744

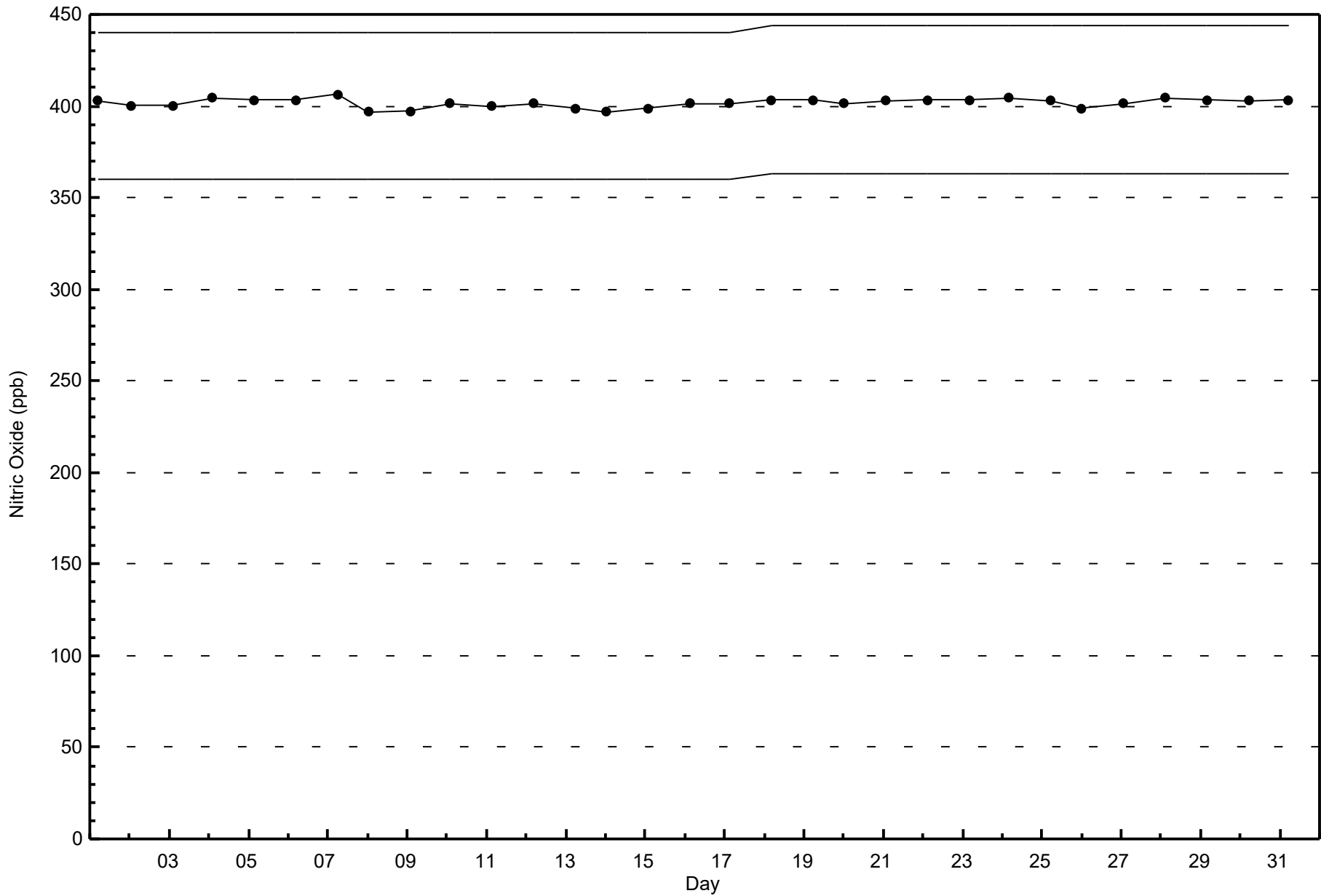


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Wapasu









Wood Buffalo Environmental Association

Summary of Hour Averages

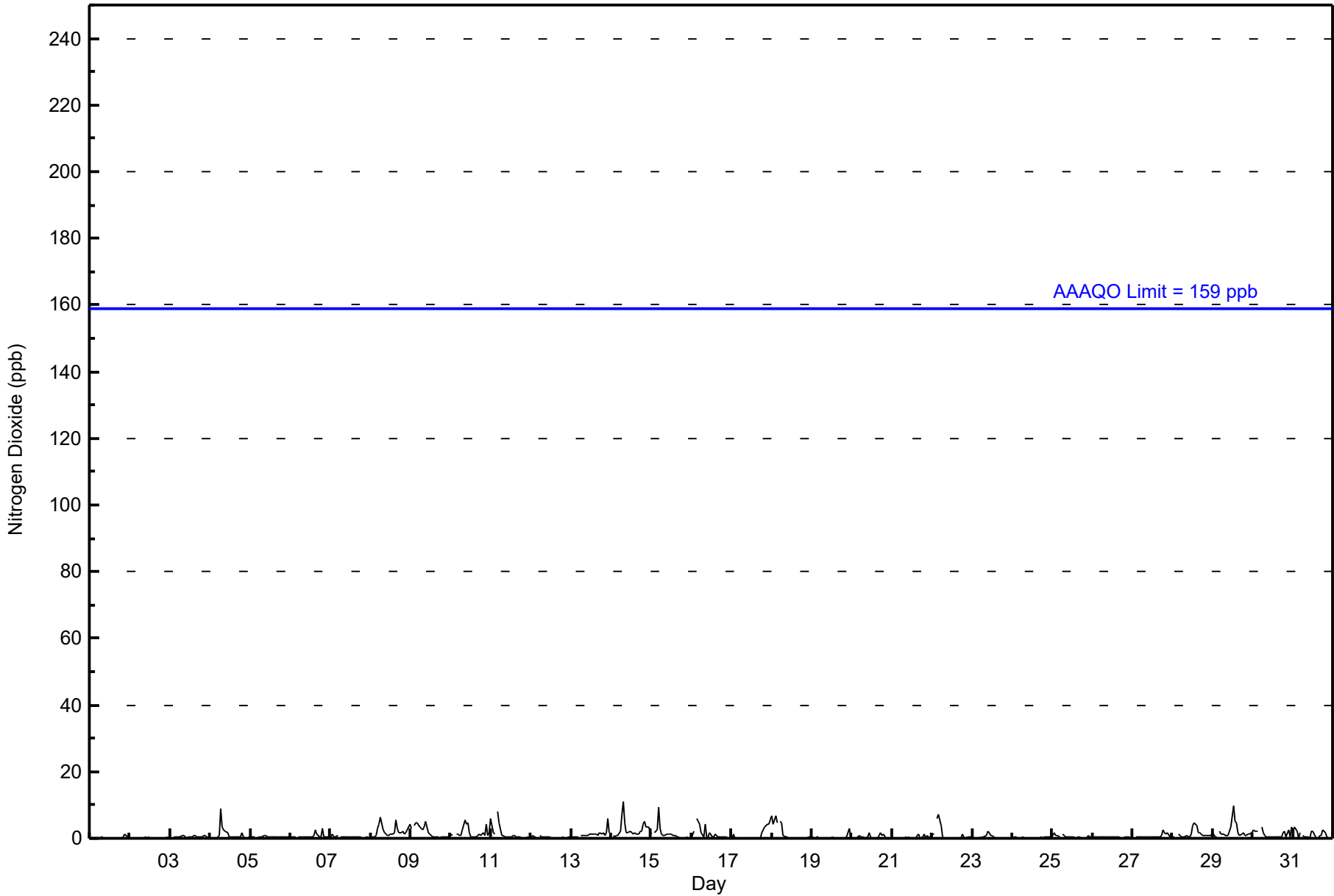
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Wapasu - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.2 ppb on May 14 08:00	Maximum Daily Average: 2.7 ppb on May 14		Hours of Data:	707
Minimum Value: 0.1 ppb on May 1 05:00	Minimum Daily Average: 0.2 ppb on May 2		Hours of Missing Data:	37
Maximum Diurnal Average: 1.9 ppb at hour 5	Minimum Diurnal Average: 0.6 ppb at hour 18		Hours of Calibration:	37
Monthly Average: 0.99 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 2.5 P <sub>99</sub> = 6.7		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-May	0.2	0.2	0.2	0.2	0.1	Z	0.6	0.6	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.1	0.3	0.2	0.3	1.1																						
2-May	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.6	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.6																						
3-May	0.4	Z	0.4	0.4	0.3	0.3	0.4	0.7	1.0	0.3	0.2	0.4	0.4	0.5	0.9	0.9	0.4	0.5	0.3	0.4	1.0	0.9	0.6	0.2	0.5	1.0																						
4-May	0.2	0.1	Z	0.1	0.1	0.8	8.9	3.3	2.7	2.1	1.5	0.6	0.4	0.4	0.4	0.3	0.3	0.4	1.5	0.4	0.2	0.1	0.3	0.1	1.1	8.9																						
5-May	0.3	0.3	0.4	Z	0.2	0.3	0.4	0.6	0.9	0.9	0.6	0.5	0.5	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.9																						
6-May	0.5	0.6	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.9	2.5	1.1	0.5	0.6	2.8	0.4	0.5	0.6	0.6	0.7	2.8																						
7-May	0.6	1.4	0.6	0.6	0.9	Z	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.4	0.2	0.4	1.4																						
8-May	Z	0.3	0.4	0.8	2.8	4.1	6.4	2.6	1.9	1.4	0.8	0.8	1.2	1.3	1.8	5.6	3.0	1.5	1.5	2.3	1.4	1.9	2.7	4.1	2.2	6.4																						
9-May	3.0	Z	3.9	4.5	4.8	3.3	2.8	2.5	3.3	5.2	1.5	1.3	0.7	0.4	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.5	1.8	5.2																						
10-May	1.1	1.0	Z	1.1	1.1	0.9	0.8	2.5	5.6	4.3	4.5	1.8	0.6	0.5	0.6	1.0	1.3	1.0	1.7	0.8	4.2	0.7	1.8	1.7	5.6	5.6																						
11-May	5.8	1.5	1.4	Z	8.0	4.7	1.0	0.7	0.5	0.4	0.3	0.3	0.4	0.8	0.7	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.2	1.3	8.0																						
12-May	0.4	0.7	0.4	0.6	Z	0.7	0.5	0.6	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.5	0.3	0.7																						
13-May	0.2	0.3	0.3	0.3	0.4	Z	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.1	1.3	1.3	1.0	1.9	1.3	1.5	0.9	1.6	5.9	1.9	1.2	5.9																						
14-May	Z	0.7	0.6	0.9	0.8	2.1	7.1	11.2	4.5	1.5	1.7	2.0	1.7	1.2	1.5	1.3	1.4	2.2	2.3	4.3	5.1	3.3	3.5	2.3	2.7	11.2																						
15-May	1.4	Z	1.8	2.4	9.4	3.0	1.1	1.0	0.7	1.1	1.3	1.2	1.1	1.0	0.8	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	1.3	9.4																						
16-May	0.2	2.1	Z	6.0	5.2	4.1	1.9	0.5	4.3	0.4	0.3	1.5	0.4	0.5	1.3	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	1.4	6.0																						
17-May	0.2	1.1	0.2	Z	0.2	0.2	0.2	C	C	C	C	C	C	0.1	0.1	0.1	0.1	0.2	1.5	2.5	3.2	4.2	4.3	5.5	--	5.5																						
18-May	6.7	4.4	6.7	4.8	Z	5.0	4.6	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.6	6.7																						
19-May	0.4	0.2	0.2	0.3	0.3	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	2.8	0.4	0.3	2.8																						
20-May	Z	0.2	0.2	0.2	0.8	0.4	0.3	0.3	0.2	0.3	1.5	0.4	0.2	0.2	0.2	0.2	0.8	1.5	1.0	1.2	0.2	0.2	0.2	0.2	0.5	1.5																						
21-May	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.9	1.1	0.1	0.4	1.2	0.2	0.7	0.5	0.2	0.4	1.2																						
22-May	1.1	1.4	Z	5.8	7.3	3.8	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4	0.6	0.2	0.6	0.6	0.5	1.1	7.3																						
23-May	0.4	0.2	0.2	Z	0.3	0.2	0.3	0.3	1.0	2.1	1.7	1.0	1.0	0.5	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.5	2.1																						
24-May	0.2	0.6	0.5	0.2	Z	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	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.6																						
25-May	0.9	1.5	0.8	0.9	0.6	Z	1.2	0.7	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.2	0.2	0.2	1.0	0.6	0.5	0.5	0.5	1.5																						
26-May	Z	0.4	0.3	0.4	0.5	0.6	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.6																						
27-May	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	0.3	1.0	2.7	1.8	1.4	1.6	0.4	0.3	0.6	2.7																						
28-May	0.3	0.4	Z	1.1	0.7	0.6	0.4	0.5	0.7	0.6	0.6	1.4	3.9	4.8	3.7	1.9	1.7	1.2	0.9	0.8	0.8	0.9	0.8	0.8	1.3	4.8																						
29-May	1.5	0.5	0.5	Z	2.2	1.4	1.4	0.9	0.9	0.9	2.0	3.2	9.7	5.0	4.8	1.7	0.9	1.4	1.9	0.9	0.9	1.1	1.4	1.9	2.0	9.7																						
30-May	2.5	2.0	2.2	2.1	Z	3.6	1.8	0.7	0.5	0.5	0.4	0.5	0.5	0.6	0.6	0.5	0.4	0.4	1.6	2.1	0.4	2.7	0.6	3.2	1.3	3.6																						
31-May	2.3	3.2	2.3	0.2	1.5	Z	0.8	0.5	0.5	0.3	0.2	2.2	2.2	0.3	0.2	0.2	0.7	0.7	2.6	1.6	0.6	0.2	0.2	0.2	1.0	3.2																						
																								1.2	1.0	1.0	1.3	1.9	1.7	1.5	1.2	1.1	0.9	0.8	0.8	1.0	0.7	0.8	0.7	0.6	0.6	0.8	1.0	0.7	1.0	1.0	0.9	Diurnal Average
																								6.7	4.4	6.7	6.0	9.4	5.0	8.9	11.2	5.6	5.2	4.5	3.2	9.7	5.0	4.8	5.6	3.0	2.2	2.7	4.3	5.1	4.2	5.9	5.5	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**  
**Wapasu - May 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**  
**Wapasu - May 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	33	45	50	68	114	88	40	20	31	16	10	11	45	42	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>	54	40	33	45	50	68	114	88	40	20	31	16	10	11	45	42	707

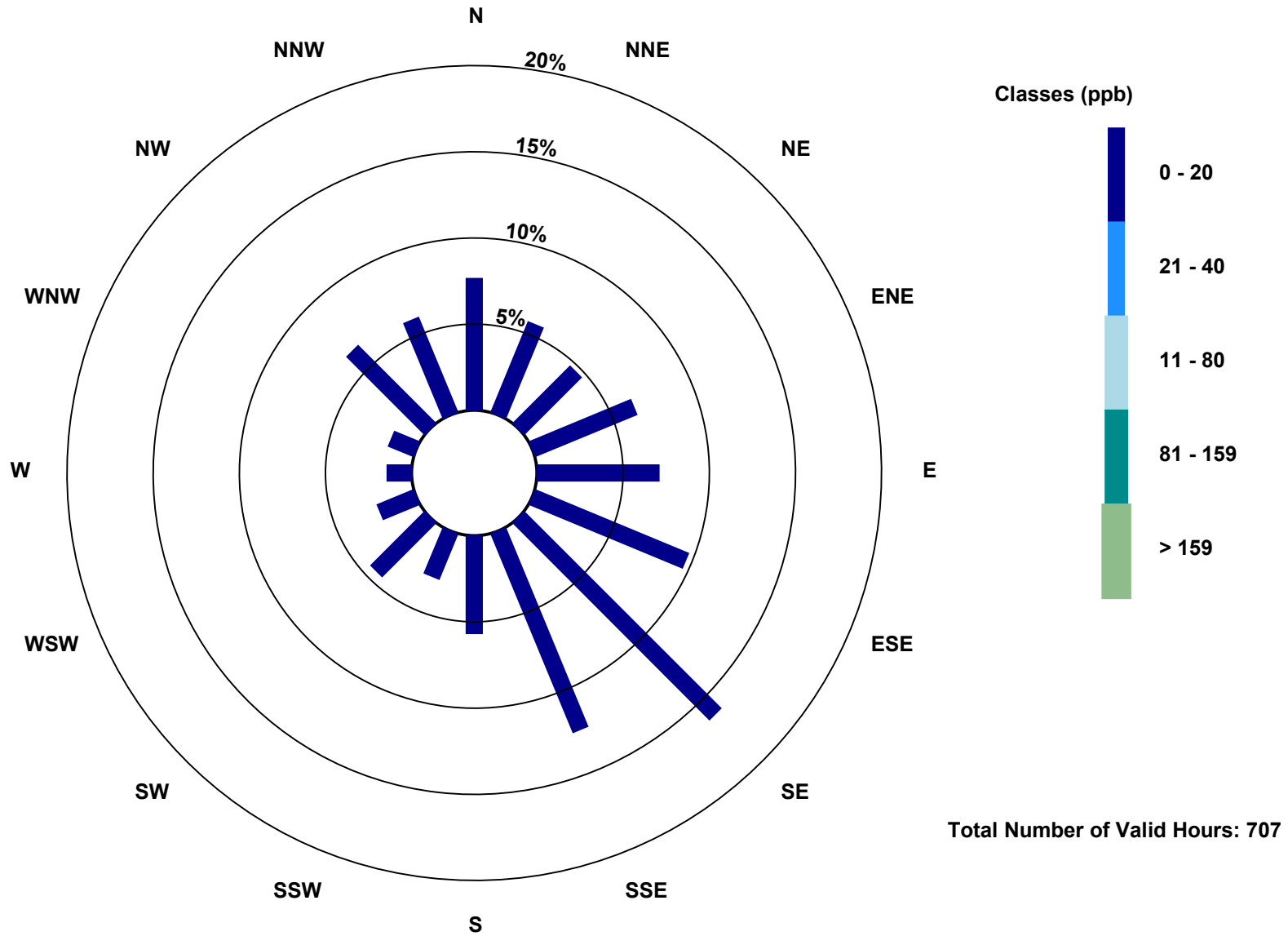
Total Number of Valid Hours: 707

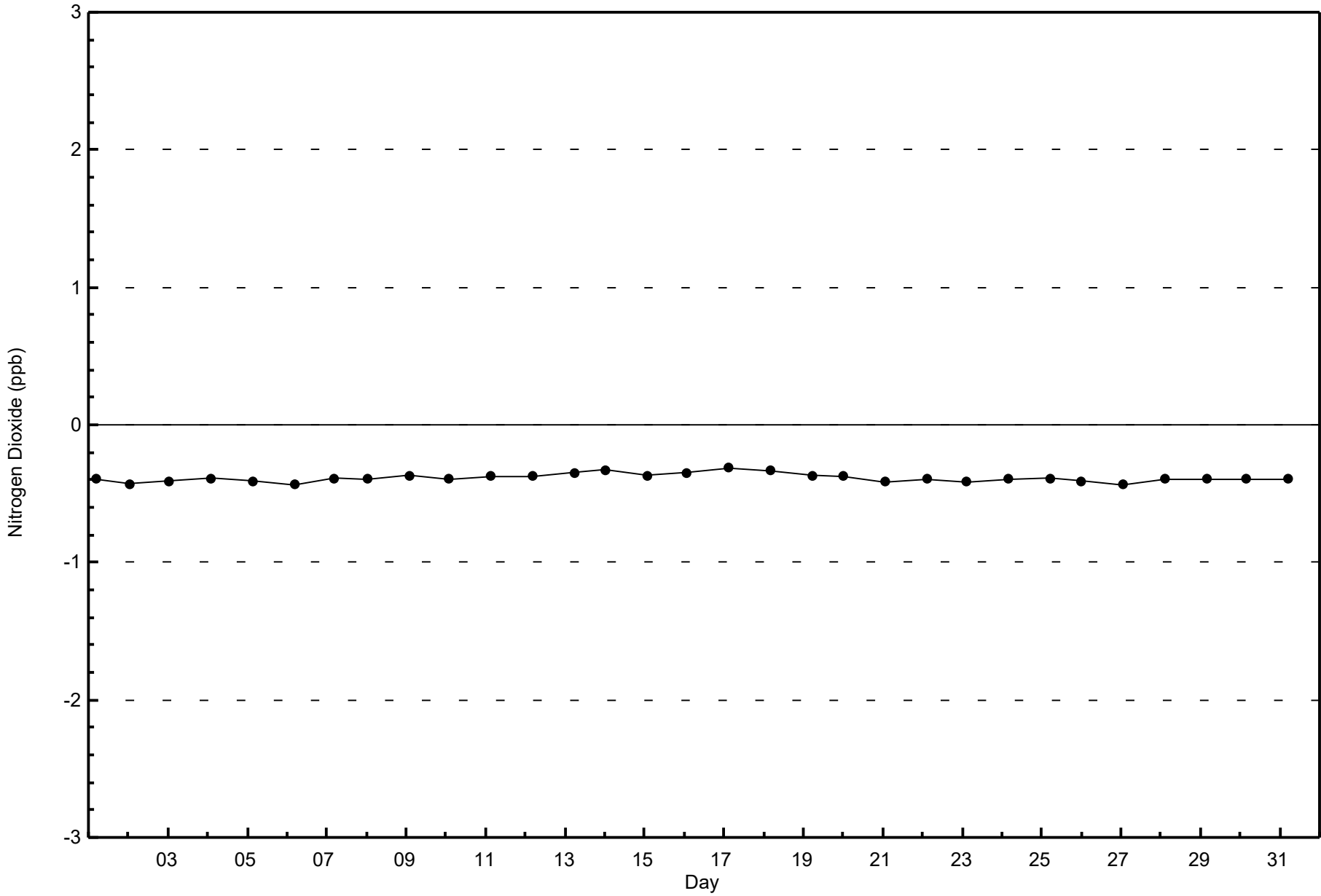
Total Number of Hours: 744

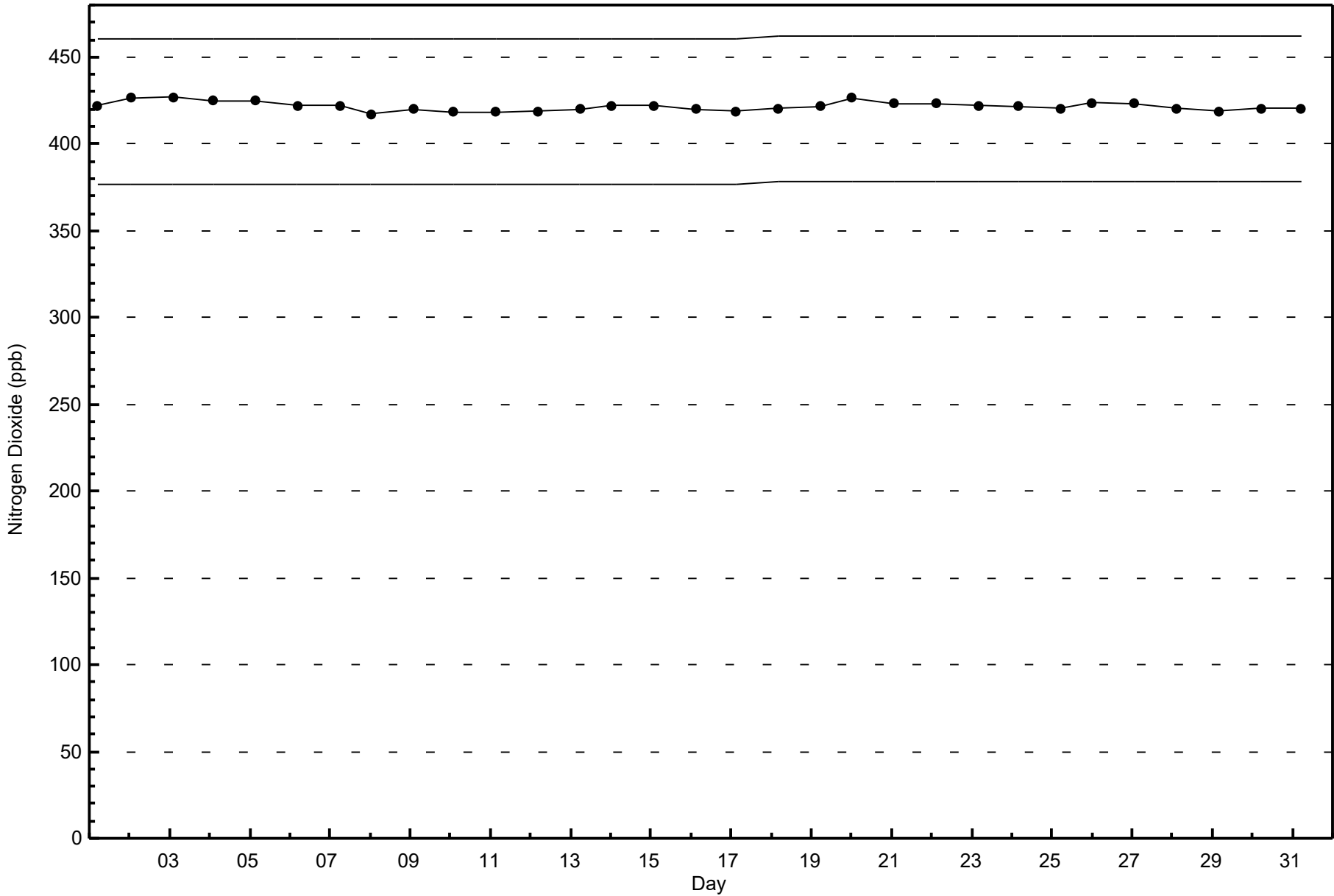


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









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

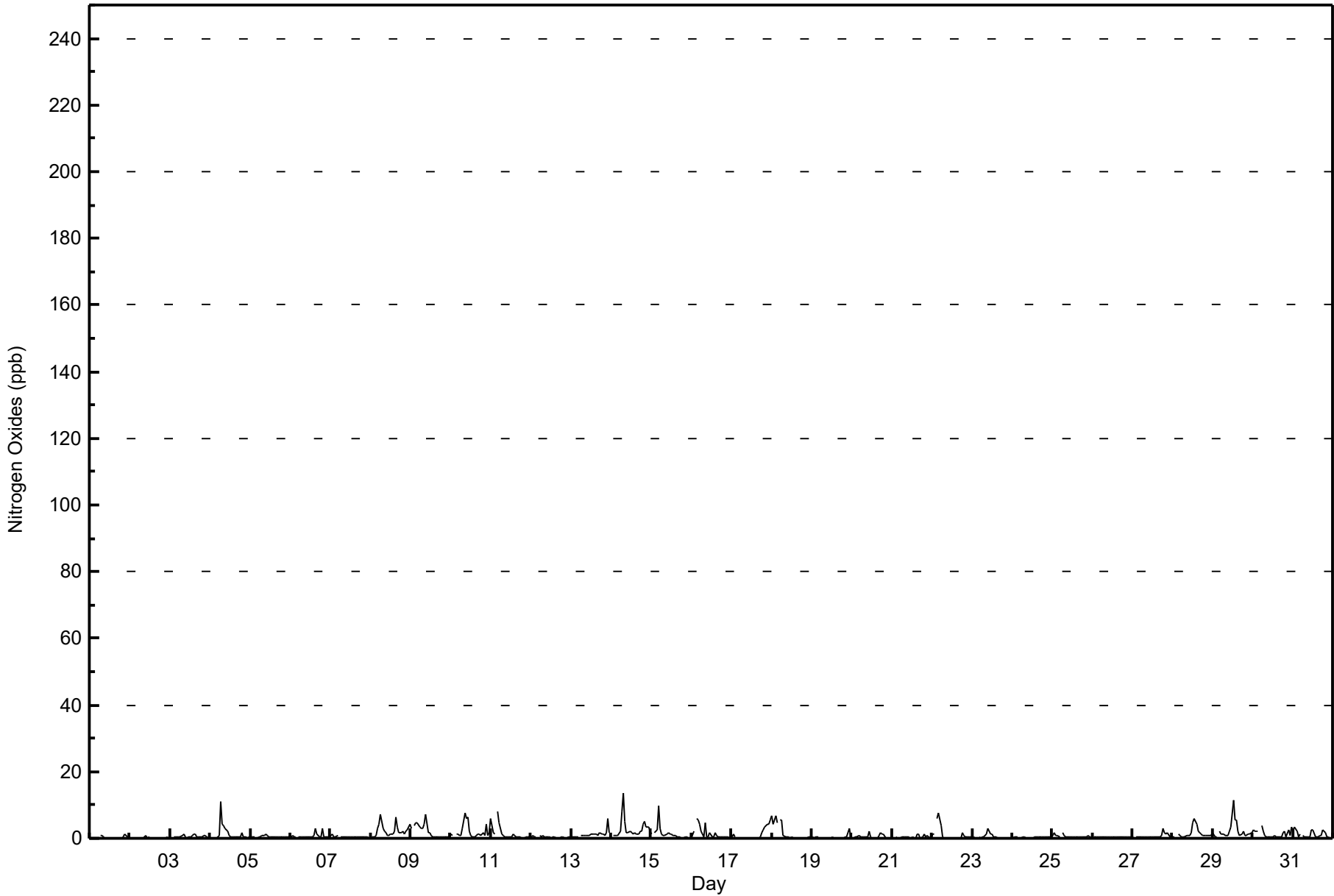
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - May 2024**

Maximum Value: 13.7 ppb on May 14 08:00		Maximum Daily Average: 3.0 ppb on May 14		Hours in Service: 744																							
Minimum Value: 0.1 ppb on May 17 16:00		Minimum Daily Average: 0.2 ppb on May 2		Hours of Data: 707																							
Maximum Diurnal Average: 1.9 ppb at hour 5		Minimum Diurnal Average: 0.6 ppb at hour 18		Hours of Missing Data: 37																							
Monthly Average: 1.06 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.2 Median = 0.4 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 2.7 P <sub>99</sub> = 7.4		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-May	0.2	0.2	0.2	0.2	0.1	Z	0.8	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.1	0.3	0.2	0.3	1.1	
2-May	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.8	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.8	
3-May	0.4	Z	0.4	0.4	0.3	0.3	0.4	0.8	1.1	0.3	0.2	0.4	0.5	0.6	1.2	1.1	0.5	0.5	0.3	0.4	1.0	0.9	0.6	0.2	0.5	1.2	
4-May	0.2	0.1	Z	0.1	0.1	0.9	11.0	4.4	3.8	2.9	2.2	0.7	0.4	0.4	0.5	0.4	0.3	0.3	0.4	1.5	0.4	0.2	0.1	0.3	1.4	11.0	
5-May	0.3	0.3	0.4	Z	0.2	0.3	0.4	0.7	1.0	1.1	0.7	0.5	0.5	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.5	1.1	
6-May	0.5	0.6	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.9	2.8	1.2	0.5	0.6	2.8	0.4	0.5	0.6	0.6	0.7	2.8	
7-May	0.6	1.4	0.6	0.6	0.9	Z	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.4	0.2	0.4	1.4	
8-May	Z	0.3	0.4	0.8	2.8	4.4	7.2	3.0	2.2	1.6	0.9	0.9	1.4	1.5	2.2	6.2	3.3	1.6	1.6	2.3	1.4	1.9	2.7	4.1	2.4	7.2	
9-May	3.0	Z	3.9	4.5	4.9	3.5	3.0	3.0	4.4	7.3	1.9	1.6	0.8	0.5	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.5	2.0	7.3	
10-May	1.1	1.0	Z	1.1	1.1	0.9	0.8	2.9	7.4	6.1	6.3	2.3	0.7	0.5	0.5	0.7	1.1	1.4	1.0	1.7	0.8	4.2	0.7	1.8	2.0	7.4	
11-May	5.8	1.5	1.4	Z	8.1	4.9	1.1	0.7	0.5	0.4	0.3	0.3	0.4	1.1	0.9	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.2	1.3	8.1	
12-May	0.4	0.7	0.4	0.6	Z	0.7	0.5	0.7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.5	0.3	0.7	
13-May	0.2	0.3	0.3	0.3	0.4	Z	0.7	0.7	0.8	0.9	1.0	1.1	1.2	1.1	1.4	1.4	1.0	1.9	1.3	1.5	0.9	1.6	5.9	1.9	1.2	5.9	
14-May	Z	0.7	0.6	0.9	0.8	2.2	7.9	13.7	5.0	1.6	1.7	2.1	1.8	1.4	1.6	1.4	1.4	2.2	2.3	4.3	5.1	3.3	3.5	2.3	3.0	13.7	
15-May	1.4	Z	1.8	2.4	9.5	3.1	1.1	1.0	0.7	1.2	1.5	1.3	1.1	1.0	0.8	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	1.3	9.5	
16-May	0.2	2.1	Z	6.0	5.3	4.2	2.0	0.5	4.6	0.4	0.3	1.6	0.4	0.5	1.6	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	1.4	6.0	
17-May	0.2	1.1	0.2	Z	0.2	0.2	0.2	C	C	C	C	C	C	0.1	0.1	0.1	0.1	0.2	1.5	2.5	3.2	4.2	4.3	5.5	--	5.5	
18-May	6.7	4.4	6.7	4.8	Z	5.5	5.5	0.9	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.6	6.7	
19-May	0.4	0.2	0.2	0.3	0.3	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	2.8	0.4	0.3	2.8	
20-May	Z	0.2	0.2	0.2	0.9	0.5	0.3	0.4	0.3	0.3	2.2	0.5	0.2	0.2	0.2	0.2	0.2	0.9	1.9	1.1	1.2	0.2	0.2	0.2	0.5	2.2	
21-May	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	1.1	1.4	0.1	0.4	1.2	0.2	0.7	0.5	0.2	0.4	1.4	
22-May	1.1	1.4	Z	5.9	7.6	4.0	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.5	0.6	0.2	0.6	0.6	0.5	1.1	7.6	
23-May	0.4	0.2	0.2	Z	0.3	0.2	0.3	0.3	1.2	2.8	2.3	1.3	1.3	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.6	2.8	
24-May	0.2	0.6	0.5	0.2	Z	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	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.6	
25-May	0.9	1.5	0.8	0.9	0.6	Z	1.5	0.9	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.2	0.2	0.2	0.2	1.0	0.6	0.5	0.6	1.5	
26-May	Z	0.4	0.3	0.4	0.5	0.6	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.6	
27-May	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	0.3	1.0	2.8	1.8	1.4	1.6	0.4	0.3	0.6	2.8	
28-May	0.3	0.4	Z	1.1	0.7	0.6	0.5	0.5	0.8	0.7	0.7	1.6	4.7	6.0	4.3	2.1	1.9	1.3	0.9	0.8	0.8	0.9	0.8	0.8	1.4	6.0	
29-May	1.5	0.5	0.5	Z	2.2	1.4	1.5	1.0	1.0	1.0	2.3	3.6	11.3	5.6	5.3	1.9	0.9	1.4	2.0	0.9	0.9	1.1	1.4	1.9	2.2	11.3	
30-May	2.5	2.0	2.2	2.1	Z	3.7	1.9	0.7	0.5	0.5	0.4	0.5	0.6	0.7	0.6	0.5	0.4	0.4	1.7	2.2	0.4	2.7	0.6	3.2	1.3	3.7	
31-May	2.3	3.2	2.3	0.2	1.5	Z	0.9	0.5	0.5	0.3	0.2	2.5	2.5	0.3	0.2	0.2	0.7	0.7	2.7	1.7	0.6	0.2	0.2	0.2	1.1	3.2	
		1.2	1.0	1.0	1.3	1.9	1.7	1.7	1.3	1.3	1.1	1.0	0.9	1.1	0.8	0.8	0.8	0.6	0.6	0.8	1.0	0.7	1.0	1.0	0.9	Diurnal Average	
		6.7	4.4	6.7	6.0	9.5	5.5	11.0	13.7	7.4	7.3	6.3	3.6	11.3	6.0	5.3	6.2	3.3	2.2	2.8	4.3	5.1	4.2	5.9	5.5	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - May 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Wapasu - May 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**  
**Wapasu - May 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	33	45	50	68	114	88	40	20	31	16	10	11	45	42	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>	54	40	33	45	50	68	114	88	40	20	31	16	10	11	45	42	707

Total Number of Valid Hours: 707

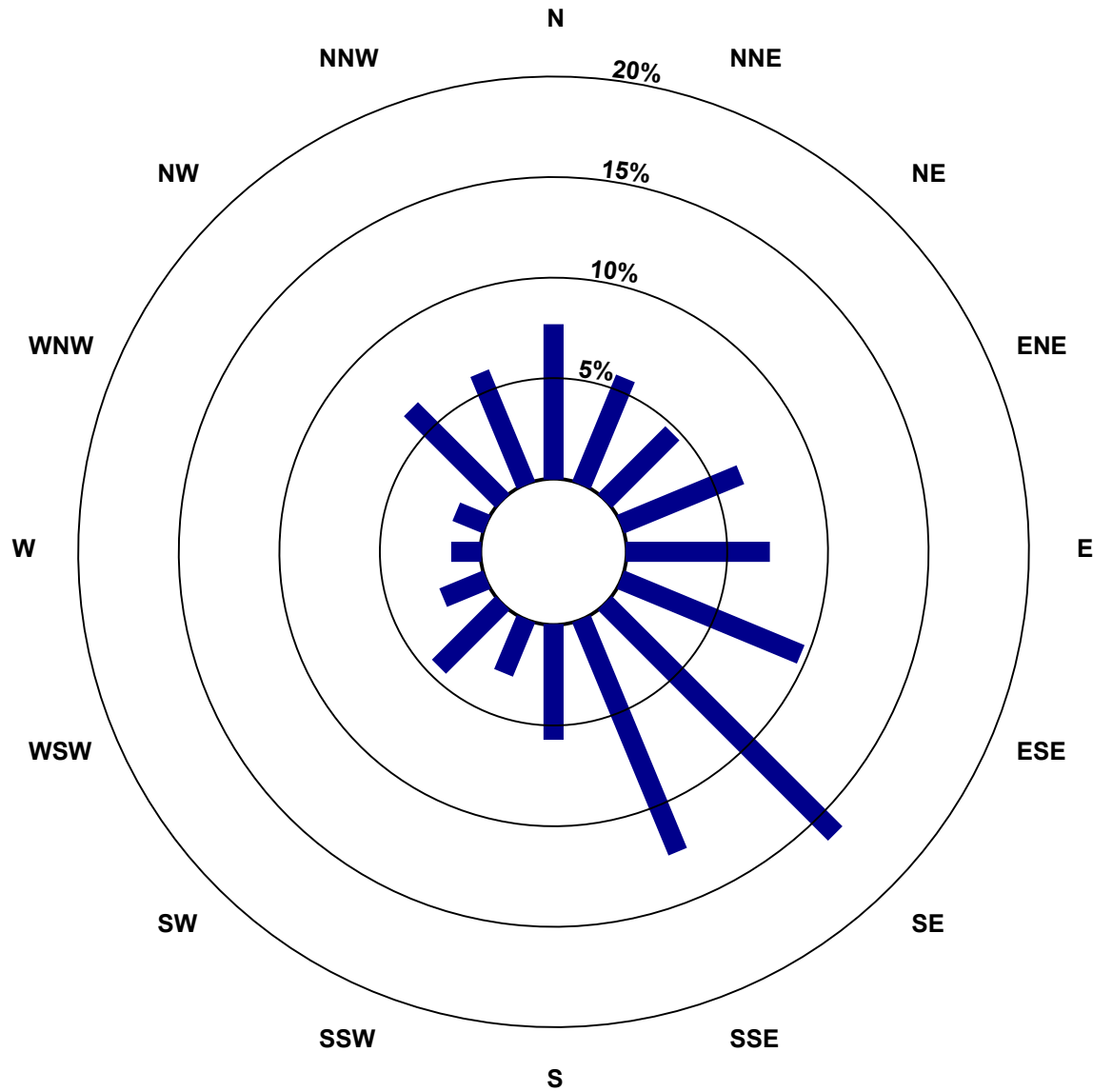
Total Number of Hours: 744



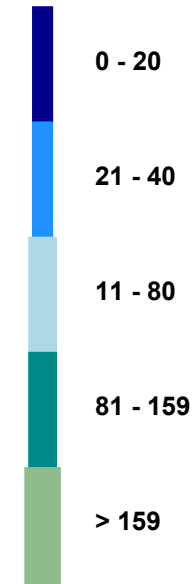


Wood Buffalo Environmental Association  
Wind Rose May 2024

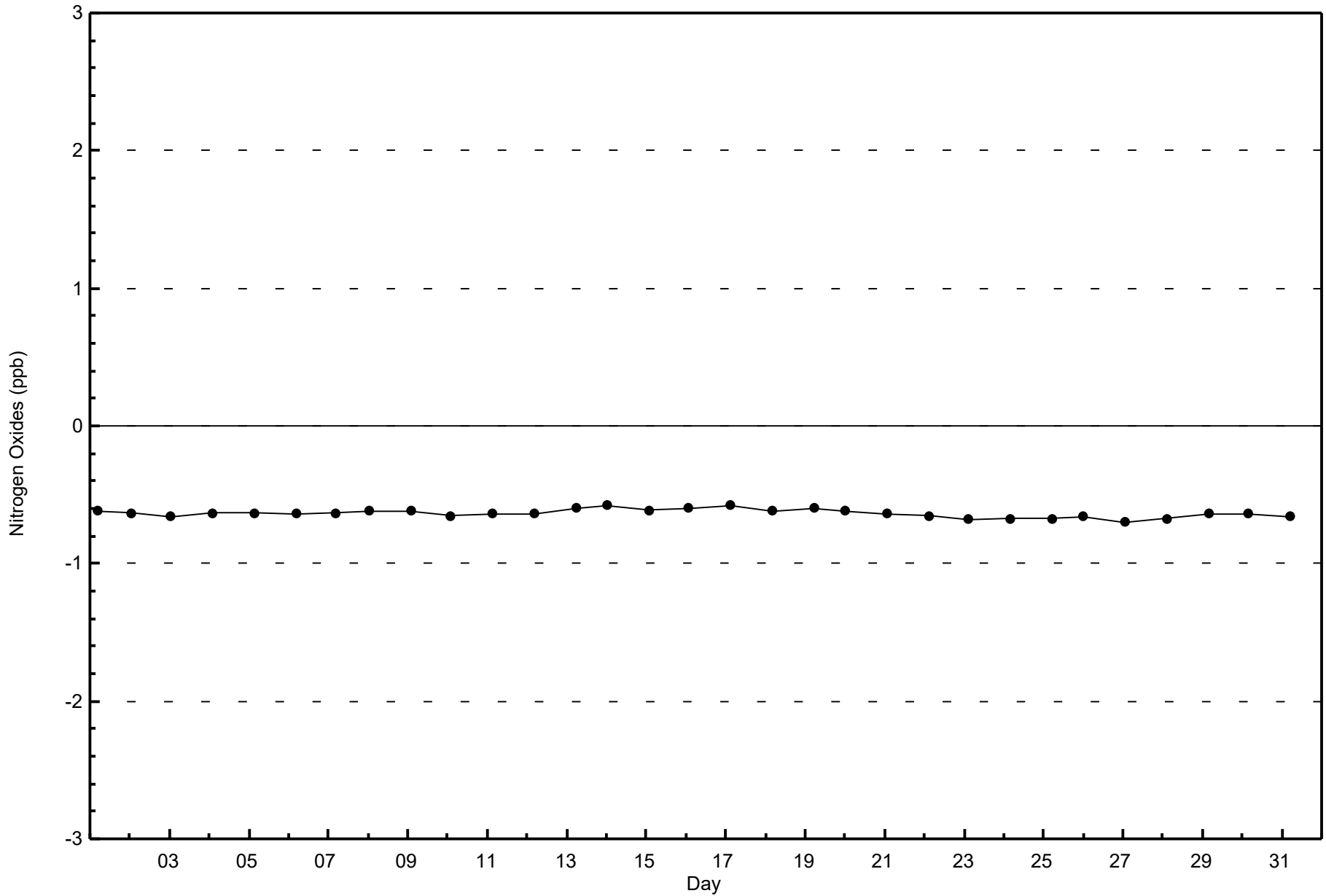
Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Wapasu

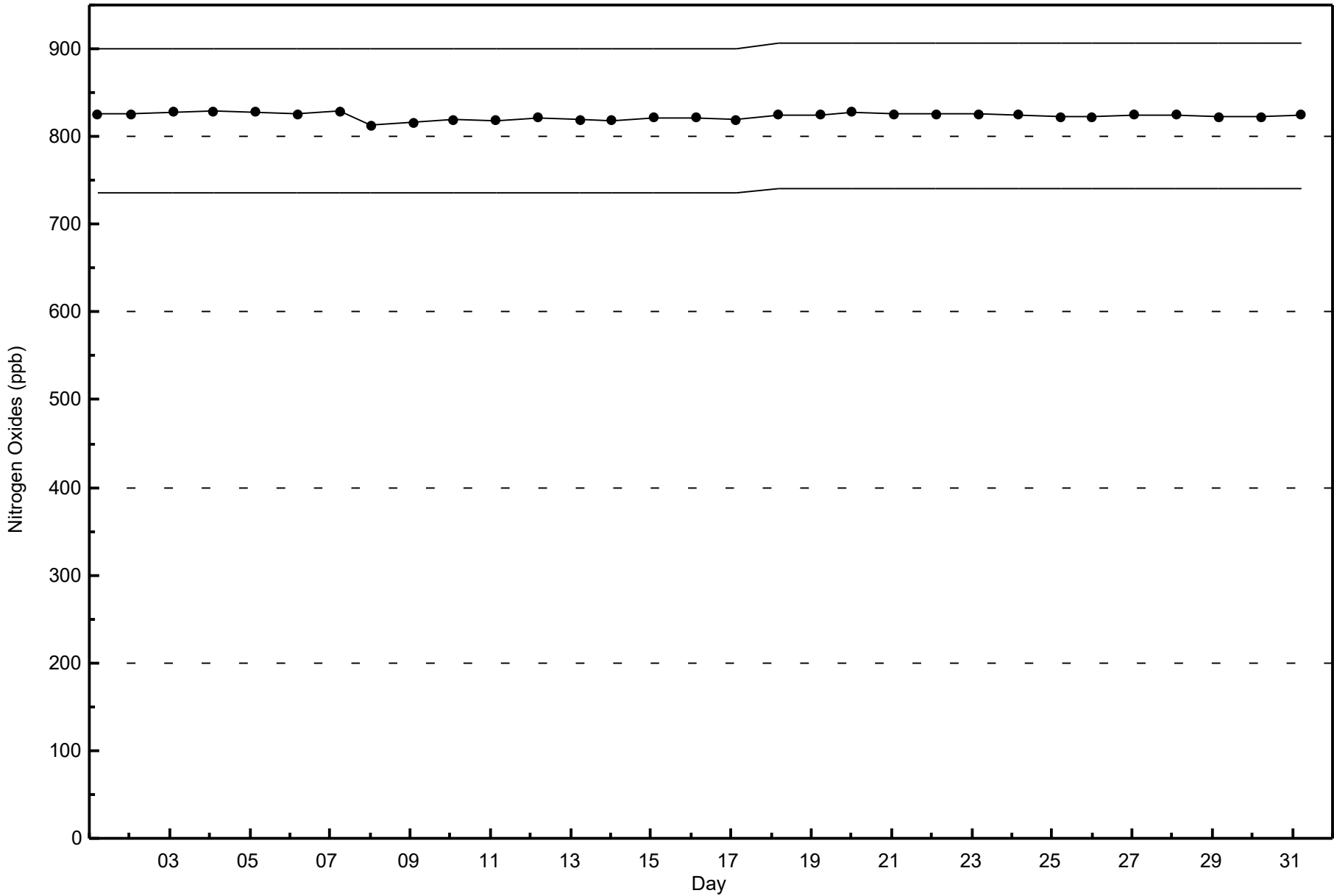


Classes (ppb)



Total Number of Valid Hours: 707



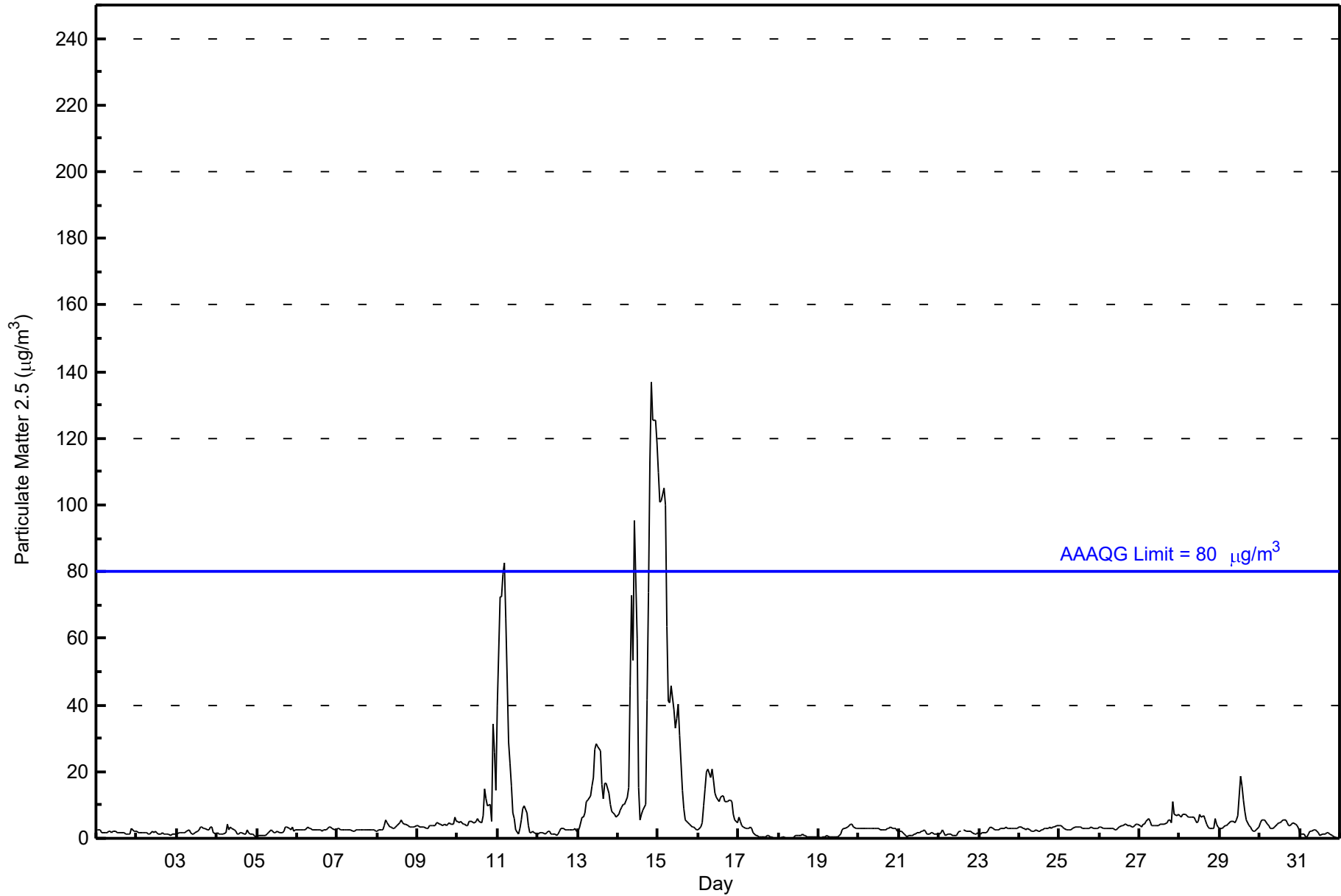




Summary of Hour Averages

Wapasu - May 2024

Number of Exceedences (AAAQO):		1-hr: 12		24-hr: 2		Hours in Service:		744																		
Maximum Value: 137.0 µg/m <sup>3</sup> on May 14 21:00		Maximum Daily Average: 49.2 µg/m <sup>3</sup> on May 14				Hours of Data:		743																		
Minimum Value: 0.1 µg/m <sup>3</sup> on May 18 08:00		Minimum Daily Average: 0.4 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		1																		
Maximum Diurnal Average: 9.0 µg/m <sup>3</sup> at hour 5		Minimum Diurnal Average: 4.3 µg/m <sup>3</sup> at hour 16				Hours of Calibration:		1																		
Monthly Average: 6.85 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 1.7 Median = 2.9 Q <sub>3</sub> = 4.4 P <sub>90</sub> = 11.1 P <sub>99</sub> = 101.1				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-May	2.8	2.7	2.6	1.8	1.5	1.5	1.9	2.0	2.0	1.9	2.0	1.9	1.8	1.8	1.7	1.6	1.6	1.3	1.2	1.2	1.3	3.0	2.3	2.0	1.9	3.0
2-May	2.0	1.7	1.6	1.7	1.7	1.7	1.6	1.5	1.5	2.2	1.5	2.0	1.6	1.4	1.4	1.5	1.3	1.2	1.1	1.1	1.0	1.1	1.1	1.2	1.5	2.2
3-May	1.4	1.8	1.6	1.5	1.6	1.7	2.1	2.4	1.9	1.4	1.2	1.5	2.3	2.7	3.3	3.2	2.9	3.1	2.4	2.6	3.4	3.3	1.9	1.5	2.2	3.4
4-May	1.6	1.5	1.3	1.3	1.4	1.5	4.4	2.4	3.3	3.1	2.7	2.1	1.3	1.3	1.6	1.8	1.1	1.4	2.4	1.6	1.4	1.1	0.9	0.6	1.8	4.4
5-May	0.6	0.7	0.7	0.7	0.8	0.9	1.3	1.6	2.4	2.0	1.7	1.8	2.1	1.7	1.6	1.9	1.9	3.5	3.2	2.8	2.7	3.4	2.1	2.4	1.9	3.5
6-May	2.6	2.6	2.5	2.4	2.5	2.7	3.2	3.1	2.8	2.4	2.7	2.4	2.5	2.7	2.4	2.2	2.5	2.7	3.0	3.4	3.2	3.0	2.7	2.6	2.7	3.4
7-May	2.8	2.8	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.3	2.5	2.7	2.6	2.6	2.5	2.5	2.6	2.5	2.5	2.4	2.4	2.3	2.3	2.5	2.8
8-May	2.3	2.4	2.5	2.7	3.7	5.4	4.5	3.5	3.3	3.1	3.0	3.2	4.0	4.6	5.4	4.8	4.4	4.1	3.9	3.4	3.2	3.3	3.5	3.9	3.7	5.4
9-May	3.6	3.4	3.6	3.6	3.5	3.2	3.1	3.6	4.0	3.9	3.7	4.9	4.7	4.1	4.4	3.7	4.0	3.9	4.1	4.5	4.1	4.1	6.2	5.3	4.0	6.2
10-May	5.0	4.8	5.0	4.3	4.2	3.7	3.6	4.9	4.9	4.7	4.8	5.1	5.8	5.1	4.8	7.0	14.7	11.7	9.8	10.3	5.2	34.4	25.8	14.6	8.5	34.4
11-May	40.0	72.4	72.5	79.2	82.7	66.0	28.7	22.4	15.7	7.8	5.9	2.3	1.1	2.8	5.6	8.9	9.8	7.7	3.7	1.8	1.7	2.0	1.6	1.1	22.6	82.7
12-May	1.1	1.7	1.5	1.5	1.2	1.5	1.9	2.3	1.4	1.1	1.2	1.0	1.1	2.0	2.9	3.1	2.6	2.3	2.6	2.7	2.5	2.7	2.8	2.3	2.0	3.1
13-May	2.1	3.2	6.5	6.5	7.8	11.0	11.4	12.6	15.8	18.3	26.8	28.3	27.6	26.3	15.9	12.0	16.7	16.5	13.6	10.3	8.2	7.5	7.2	6.3	13.3	28.3
14-May	7.3	8.3	9.1	10.0	10.2	12.3	15.2	45.7	73.0	53.6	95.3	59.8	15.3	5.4	7.2	8.3	10.2	41.4	73.7	113.3	137.0	125.5	125.3	118.8	49.2	137.0
15-May	109.9	101.0	101.2	105.3	99.9	63.8	41.1	40.6	45.6	38.6	32.9	35.9	40.3	30.9	14.5	9.0	5.6	5.3	4.7	4.1	3.5	3.2	2.9	2.7	39.3	109.9
16-May	2.5	3.5	4.7	9.8	14.7	19.8	20.6	18.2	20.8	17.3	13.7	12.1	11.0	12.2	12.6	12.8	11.2	11.2	11.2	10.8	7.3	5.5	4.8	11.7	20.8	
17-May	6.3	5.2	3.8	3.3	3.1	2.9	2.9	3.3	3.0	1.7	1.0	0.7	0.5	0.5	0.4	0.3	0.3	0.6	0.9	0.3	0.2	0.2	0.2	1.7	6.3	
18-May	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.6	0.7	0.7	0.8	1.0	1.1	0.8	0.7	0.6	0.4	0.3	0.3	0.5	0.4	0.3	0.4	1.1
19-May	0.2	0.1	0.3	0.4	0.5	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.9	1.5	2.5	2.9	3.1	3.6	3.8	4.1	4.2	3.2	2.9	2.8	1.7	4.2
20-May	2.8	2.8	2.9	2.8	3.0	2.9	3.1	3.1	3.1	3.1	3.1	3.1	2.9	2.7	2.6	2.5	2.6	2.8	3.0	3.3	3.2	3.0	2.8	2.2	2.9	3.3
21-May	1.9	2.1	1.8	1.5	1.0	0.6	0.6	0.9	1.0	1.3	1.2	1.8	1.8	2.2	2.2	2.4	1.9	1.4	1.3	1.7	1.5	1.3	1.4	1.2	1.5	2.4
22-May	1.4	1.8	2.6	1.5	1.0	1.3	1.2	1.2	0.9	1.0	1.0	1.6	1.9	2.1	C	2.4	2.3	2.0	2.2	2.0	1.7	1.3	1.3	1.6	1.6	2.6
23-May	1.5	1.3	1.5	1.6	1.7	2.1	2.8	3.5	2.8	2.6	2.6	2.7	2.7	2.9	3.0	3.1	3.3	3.1	3.1	3.0	3.1	3.1	3.2	3.1	2.7	3.5
24-May	3.4	3.3	3.1	2.9	2.7	3.0	2.7	2.3	2.0	2.3	2.4	2.2	2.2	2.5	2.6	2.8	2.9	3.2	3.4	3.1	3.3	3.5	3.8	3.7	2.9	3.8
25-May	3.7	3.8	3.5	2.9	2.6	2.5	2.6	2.6	3.1	3.2	3.2	3.4	3.3	3.2	3.0	2.9	3.0	3.1	3.1	3.2	3.0	3.1	3.1	3.1	3.1	3.8
26-May	3.4	3.3	3.2	3.1	3.0	2.9	3.0	2.9	2.8	2.5	2.6	2.8	3.4	3.8	3.9	4.2	4.2	3.6	3.9	3.5	3.5	3.8	4.0	4.1	3.4	4.2
27-May	3.7	3.6	4.4	4.3	5.2	5.9	4.9	3.8	3.7	3.6	3.7	3.8	4.1	4.0	4.1	4.1	4.7	5.4	5.7	4.5	11.0	7.0	6.8	7.2	5.0	11.0
28-May	6.8	6.5	7.0	7.2	6.8	6.5	6.3	6.4	6.4	5.4	4.6	4.9	7.3	6.3	6.8	5.5	4.1	3.4	3.0	2.8	2.9	6.1	4.4	3.2	5.4	7.3
29-May	3.0	2.9	3.4	3.8	4.0	4.3	5.0	5.0	5.0	4.8	5.4	6.7	18.7	15.6	11.5	8.1	5.5	4.0	3.3	2.7	2.1	2.3	2.8	3.3	5.6	18.7
30-May	4.5	5.4	5.6	5.4	4.1	3.7	3.0	2.8	2.9	3.5	4.2	4.8	4.8	5.0	5.5	5.6	4.9	3.6	3.8	4.3	4.6	4.0	3.8	2.9	4.3	5.6
31-May	1.4	1.3	1.2	0.4	0.5	1.2	2.1	2.2	2.5	2.5	2.1	1.6	0.7	1.2	1.4	1.4	1.5	1.6	1.3	0.7	0.4	0.3	0.2	0.2	1.2	2.5
																								Diurnal Average		
																								Diurnal Maximum		
7.5 8.3 8.5 8.9 9.0 7.7 6.1 6.8 7.8 6.5 7.7 6.7 5.8 5.2 4.6 4.3 4.5 5.2 6.0 7.0 7.6 8.1 7.6 6.8																										
109.9 101.0 101.2 105.3 99.9 66.0 41.1 45.7 73.0 53.6 95.3 59.8 40.3 30.9 15.9 12.8 16.7 41.4 73.7 113.3 137.0 125.5 125.3 118.8																										
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Wapasu - May 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	609	81.97	81.97
6 - 15	81	10.90	92.87
16 - 25	14	1.88	94.75
26 - 80	27	3.63	98.38
> 81.0	12	1.62	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 - May 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	41	35	32	43	42	63	112	72	37	15	23	6	7	9	36	36	609
6 - 15	6	2	0	5	11	5	9	15	2	2	8	6	3	1	5	1	81
16 - 25	0	1	1	0	1	3	1	2	0	0	0	3	0	0	2	0	14
26 - 80	7	2	1	0	0	1	0	2	2	2	1	0	1	2	2	4	27
> 81.0	0	1	0	1	0	1	1	1	2	1	0	1	0	0	1	2	12
<b>Totals</b>	54	41	34	49	54	73	123	92	43	20	32	16	11	12	46	43	743

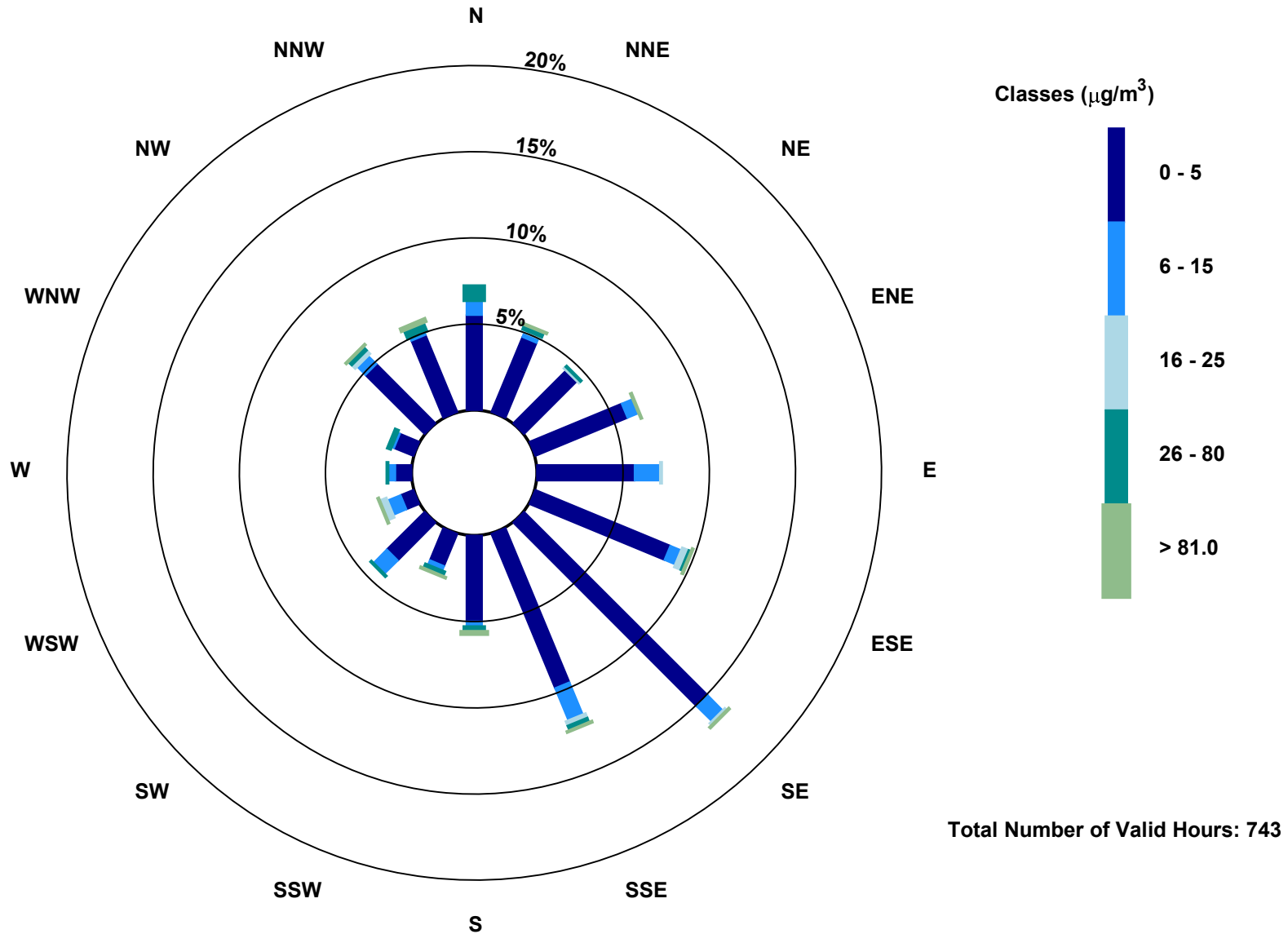
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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







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

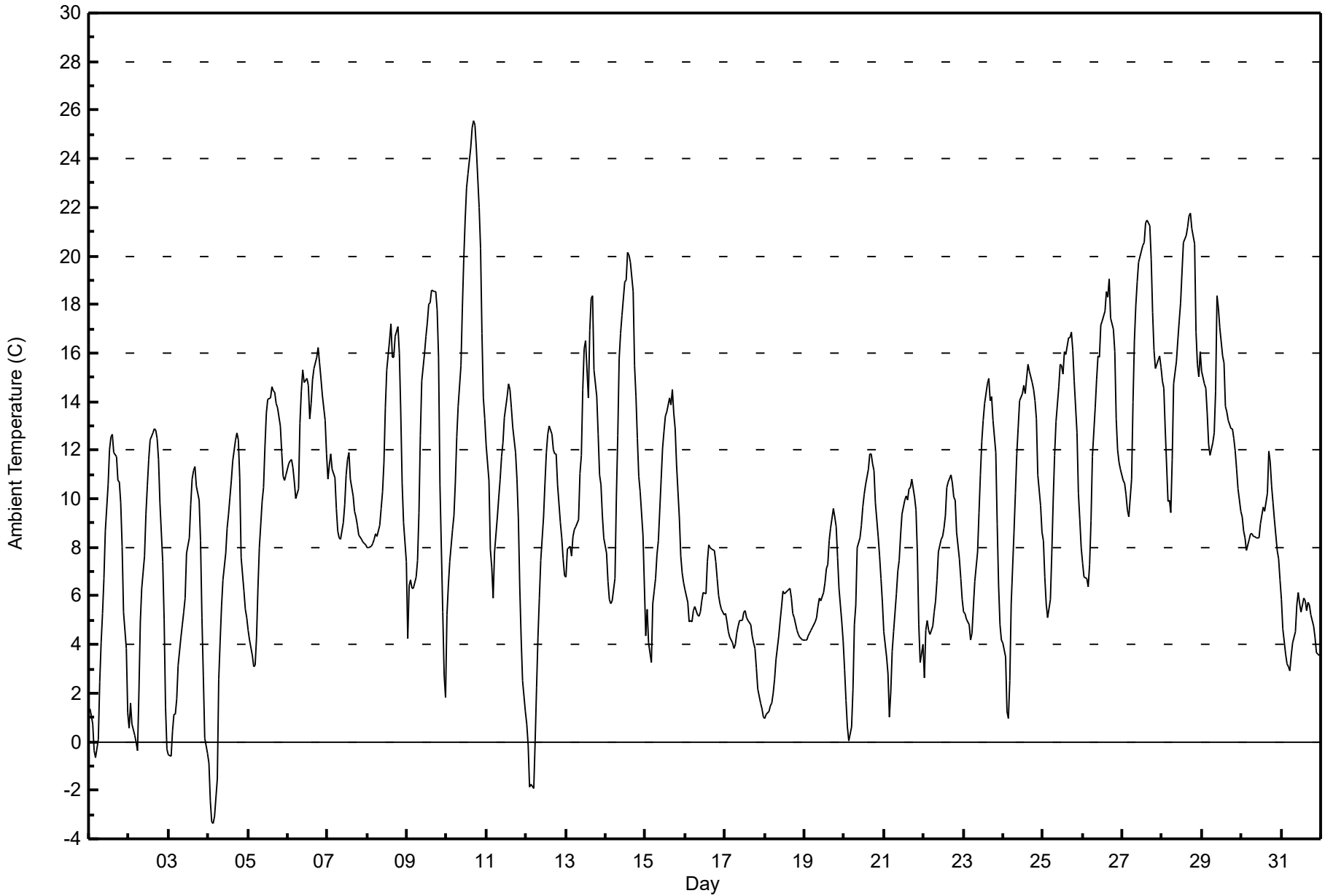
**Ambient Temperature (AT) - C**  
**Wapasu - May 2024**

Maximum Value: 25.6 C on May 10 17:00		Maximum Daily Average: 16.9 C on May 10		Hours in Service: 744																																													
Minimum Value: -3.4 C on May 4 04:00		Minimum Daily Average: 4.0 C on May 17		Hours of Data: 744																																													
Maximum Diurnal Average: 13.6 C at hour 17		Minimum Diurnal Average: 4.9 C at hour 4		Hours of Missing Data: 0																																													
Monthly Average: 9.49 C		Percentiles: P <sub>1</sub> = -1.3 P <sub>10</sub> = 3.2 Q <sub>1</sub> = 5.4 Median = 9.2 Q <sub>3</sub> = 13.1 P <sub>90</sub> = 16.4 P <sub>99</sub> = 21.9		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-May	1.4	1.1	0.7	-0.4	-0.6	0.1	2.4	4.1	5.3	6.7	8.7	10.6	12.0	12.5	12.6	11.9	11.7	10.7	10.7	9.8	8.1	5.3	3.8	1.2	6.3	12.6																							
2-May	0.6	1.6	0.7	0.3	0.0	-0.3	2.1	4.9	6.3	7.7	9.4	10.5	11.6	12.4	12.7	12.9	12.8	12.5	11.6	9.8	7.4	5.1	1.4	-0.3	6.4	12.9																							
3-May	-0.5	-0.6	0.4	1.1	1.1	1.8	3.2	4.3	4.8	5.3	5.9	7.8	8.4	9.8	10.8	11.2	11.3	10.5	9.9	8.3	5.1	2.7	0.1	-0.5	5.1	11.3																							
4-May	-0.9	-2.5	-3.3	-3.4	-3.1	-1.5	2.6	4.1	5.6	6.7	7.8	8.8	9.4	10.1	10.7	11.6	12.4	12.7	12.4	10.8	7.6	6.2	5.4	5.1	5.6	12.7																							
5-May	4.6	4.2	3.5	3.1	3.2	4.3	6.3	8.0	9.9	10.5	12.1	13.5	14.1	14.2	14.6	14.5	14.4	13.9	13.8	13.0	11.9	10.9	10.7	11.0	10.0	14.6																							
6-May	11.4	11.5	11.6	11.3	10.7	10.0	10.4	13.1	14.4	15.3	14.8	14.9	14.7	13.3	13.9	14.9	15.3	15.8	16.2	15.6	14.9	14.3	13.2	11.8	13.5	16.2																							
7-May	10.8	11.4	11.9	11.2	10.9	9.6	8.7	8.4	8.3	9.0	9.8	11.0	11.6	11.9	10.8	10.1	9.5	9.3	8.9	8.5	8.3	8.2	8.1	8.1	9.8	11.9																							
8-May	8.0	8.0	8.0	8.2	8.3	8.6	8.4	8.9	9.6	10.3	11.5	13.7	15.3	16.5	17.2	15.8	15.8	16.7	17.1	16.0	13.6	10.6	9.0	7.4	11.8	17.2																							
9-May	4.3	6.4	6.7	6.3	6.3	6.8	7.5	9.4	12.6	14.9	16.0	16.7	17.3	18.0	18.0	18.6	18.5	18.5	17.8	15.8	10.6	5.3	2.7	1.8	11.5	18.6																							
10-May	5.2	6.4	7.4	8.8	9.3	10.7	12.5	13.8	15.5	17.8	19.9	21.5	22.8	23.4	24.5	25.3	25.6	25.4	24.4	22.0	20.3	16.8	14.2	13.3	16.9	25.6																							
11-May	12.2	10.7	7.9	7.2	5.9	7.8	9.2	10.0	10.8	11.7	12.3	13.3	14.2	14.7	14.5	13.7	12.9	11.9	10.8	9.2	6.4	4.2	2.5	1.3	9.8	14.7																							
12-May	0.7	-0.1	-1.9	-1.8	-1.9	0.0	2.2	4.3	5.9	7.5	9.3	10.6	11.9	12.7	13.0	12.7	12.0	11.8	11.9	10.6	9.0	8.4	7.5	6.8	6.8	13.0																							
13-May	6.8	7.9	8.0	7.6	8.4	8.7	8.9	9.1	11.0	11.8	14.5	16.1	16.5	14.2	16.9	18.3	18.4	15.3	14.2	12.7	11.0	10.6	9.3	8.4	11.9	18.4																							
14-May	7.7	6.6	5.9	5.7	5.8	6.7	10.0	12.6	15.8	16.8	17.5	19.0	20.2	20.0	19.7	18.5	15.5	14.2	12.5	10.9	10.3	8.5	6.4	12.7	20.2																								
15-May	4.4	5.4	4.0	3.3	5.7	6.2	6.7	7.7	8.3	10.8	12.1	12.8	13.4	13.6	14.1	13.9	14.5	13.5	12.9	11.4	9.2	7.7	7.0	6.5	9.4	14.5																							
16-May	6.2	5.8	4.9	5.0	4.9	5.4	5.6	5.2	5.2	5.4	5.8	6.1	6.1	7.4	8.1	8.0	7.8	7.4	6.7	6.0	5.7	5.4	5.2	6.1	8.1	8.1																							
17-May	5.3	4.9	4.5	4.3	4.1	3.8	4.0	4.4	4.7	5.0	5.0	5.3	5.4	5.1	5.0	4.8	4.4	4.0	3.9	3.0	2.2	1.6	1.4	1.0	4.0	5.4																							
18-May	1.0	1.1	1.3	1.5	1.6	2.0	2.6	3.4	4.3	5.0	5.6	6.2	6.1	6.2	6.3	6.3	5.9	5.3	5.1	4.6	4.4	4.3	4.2	4.2	4.1	6.3																							
19-May	4.2	4.2	4.3	4.5	4.6	4.7	4.9	5.1	5.6	5.9	5.8	6.1	6.6	7.1	7.3	8.3	8.8	9.6	9.3	8.8	7.6	6.3	5.0	4.1	6.2	9.6																							
20-May	3.0	1.7	0.6	0.0	0.6	2.2	4.8	5.6	8.0	8.4	8.9	9.7	10.2	10.6	11.2	11.9	11.9	11.4	11.1	9.8	8.4	7.6	6.7	5.7	7.1	11.9																							
21-May	4.5	3.5	2.8	1.0	2.0	3.7	4.5	6.1	7.0	7.5	8.5	9.4	10.0	10.1	9.9	10.4	10.5	10.8	10.1	9.6	7.8	4.8	3.3	4.0	6.7	10.8																							
22-May	2.6	4.6	5.0	4.6	4.4	4.8	5.3	5.8	6.6	7.8	8.3	8.5	8.8	9.3	10.4	10.7	11.0	10.7	10.1	10.0	8.6	7.6	6.7	5.8	7.4	11.0																							
23-May	5.4	5.3	5.0	4.8	4.2	4.5	5.5	6.6	7.8	9.4	11.0	12.4	13.2	13.9	14.7	15.0	14.1	14.2	13.2	11.9	8.9	6.4	4.8	4.2	9.0	15.0																							
24-May	4.1	3.5	1.2	0.9	2.5	5.7	8.6	10.2	11.8	12.9	14.0	14.3	14.7	14.4	15.0	15.5	15.2	14.8	14.5	14.0	13.3	11.0	9.7	8.6	10.4	15.5																							
25-May	8.3	6.8	5.7	5.1	5.9	7.8	9.9	11.8	13.2	14.6	15.5	15.5	15.1	16.0	15.9	16.7	16.6	16.8	16.1	14.9	12.7	10.2	9.1	8.0	12.0	16.8																							
26-May	7.4	6.8	6.7	6.4	7.3	9.1	11.7	13.7	14.9	15.9	15.8	17.2	17.3	17.7	18.6	18.3	19.0	17.4	16.9	16.1	13.3	12.0	11.5	11.2	13.4	19.0																							
27-May	10.8	10.6	10.2	9.6	9.3	10.8	14.0	16.5	18.0	18.9	19.7	20.2	20.4	20.5	21.4	21.5	21.2	19.8	17.7	16.1	15.4	15.6	15.9	15.4	16.2	21.5																							
28-May	14.8	14.6	12.9	9.9	10.0	9.4	11.6	14.7	15.6	16.5	17.3	18.1	19.3	20.5	20.8	21.2	21.6	21.8	21.1	20.5	16.8	15.5	15.0	16.0	16.5	21.8																							
29-May	15.2	14.7	14.6	13.5	12.2	11.8	12.3	12.7	14.5	18.4	17.9	17.0	15.9	15.6	13.8	13.6	13.2	12.9	12.9	12.5	12.0	11.2	10.4	9.5	13.7	18.4																							
30-May	9.2	8.7	8.4	7.8	8.3	8.6	8.5	8.4	8.4	8.4	8.4	8.4	8.4	8.9	9.3	9.7	9.5	10.2	12.0	11.5	10.5	9.8	9.1	7.8	7.5	6.6	9.0	12.0																					
31-May	5.9	4.6	3.6	3.2	3.1	2.9	3.5	4.1	4.6	5.6	6.2	5.7	5.4	5.9	5.8	5.4	5.7	5.6	5.2	4.8	4.3	3.7	3.6	3.5	4.7	6.2	6.2																						
																								5.9	5.8	5.3	4.9	5.0	5.7	7.1	8.3	9.5	10.6	11.5	12.3	12.8	13.1	13.5	13.6	13.6	13.2	12.6	11.6	9.8	8.3	7.2	6.5	Diurnal Average	
																								15.2	14.7	14.6	13.5	12.2	11.8	14.0	16.5	18.0	18.9	19.9	21.5	22.8	23.4	24.5	25.3	25.6	25.4	24.4	22.0	20.3	16.8	15.9	16.0	Diurnal Maximum	



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

**Ambient Temperature (AT) - C**  
**Wapasu - May 2024**





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

**Ambient Temperature (AT) - C**  
**Wapasu - May 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	18	2.42	2.42
0 - 10	396	53.23	55.65
10 - 20	305	40.99	96.64
> 20	25	3.36	100.00

Total Number of Valid Hours: 744

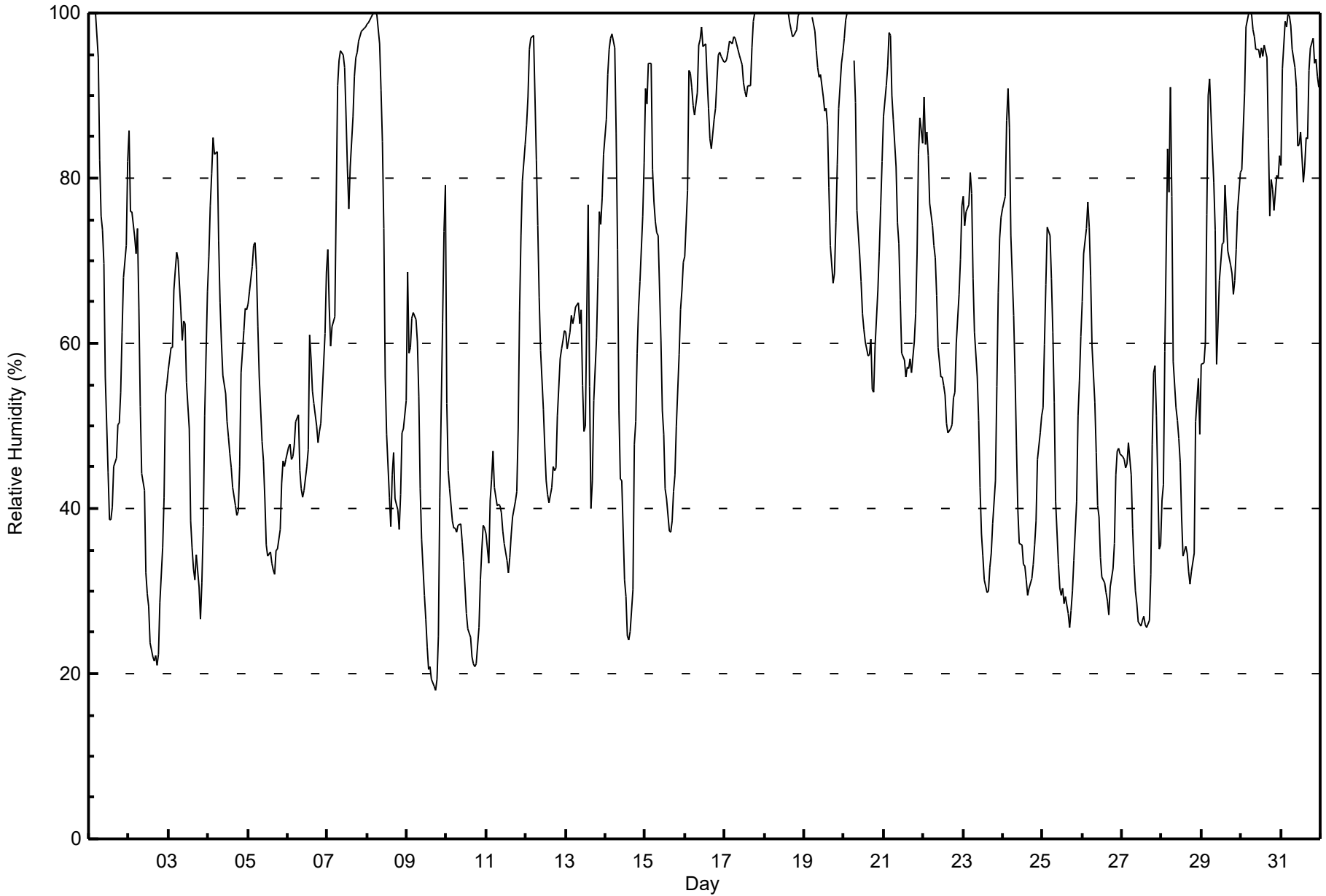
Total Number of Hours: 744



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

**Relative Humidity (RH) - %**  
**Wapasu - May 2024**

Maximum Value: 100.0 % on May 1 01:00																						Maximum Daily Average: 95.0 % on May 17																						Hours in Service: 744					
Minimum Value: 17.9 % on May 9 18:00																						Minimum Daily Average: 33.2 % on May 10																						Hours of Data: 716					
Maximum Diurnal Average: 78.2 % at hour 4																						Minimum Diurnal Average: 49.4 % at hour 16																						Hours of Missing Data: 28					
Monthly Average: 62.38 %																						Percentiles: P <sub>1</sub> = 21.0 P <sub>10</sub> = 32.0 Q <sub>1</sub> = 42.4 Median = 60.9 Q <sub>3</sub> = 82.8 P <sub>90</sub> = 95.5 P <sub>99</sub> = 100.0																						Hours of Calibration: 0					
																																												Percent Operational Time: 96.2					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	100.0	100.0	100.0	100.0	100.0	94.5	82.2	75.4	73.8	69.7	55.9	44.5	38.7	38.6	40.2	45.1	46.1	50.2	50.3	54.0	61.3	67.9	71.9	82.0	68.4	100.0																							
2-May	85.8	76.0	76.0	72.8	70.9	73.9	64.2	52.3	44.2	42.3	32.1	29.6	28.1	23.8	22.0	21.5	22.3	21.0	22.4	28.6	35.3	41.4	53.7	55.1	45.6	85.8																							
3-May	56.9	59.5	59.5	66.5	68.8	71.0	70.2	63.9	60.3	62.7	62.3	55.3	49.6	38.5	35.3	32.6	31.3	34.4	30.4	26.6	31.1	37.8	51.3	66.2	50.9	71.0																							
4-May	70.6	76.7	80.4	84.9	82.9	83.3	72.4	65.0	60.0	56.0	53.9	50.5	48.7	46.7	44.9	42.6	40.3	39.1	39.7	45.1	56.4	61.5	64.2	64.0	59.6	84.9																							
5-May	64.7	66.3	69.3	71.9	72.2	69.0	62.1	55.9	48.1	45.8	41.1	35.6	43.3	34.7	33.4	32.5	32.0	34.9	35.1	37.5	43.0	45.8	45.1	46.0	48.2	72.2																							
6-May	47.4	47.7	45.9	46.4	47.6	50.6	51.4	44.5	42.4	41.4	42.3	45.1	47.2	61.0	58.2	54.2	52.8	50.0	48.0	49.2	50.3	53.8	61.1	68.7	50.3	68.7																							
7-May	71.4	64.5	59.6	62.0	63.2	77.3	91.2	94.2	95.4	94.9	93.5	87.7	81.1	76.3	81.4	87.4	92.3	94.6	95.2	96.7	97.9	97.9	98.1	98.2	85.5	98.2																							
8-May	98.7	98.9	99.5	99.9	100.0	100.0	99.8	96.3	90.8	84.5	73.9	55.9	49.0	41.3	37.8	44.1	46.7	41.2	39.9	37.4	41.7	49.1	49.6	53.0	67.9	100.0																							
9-May	68.7	58.9	59.5	63.1	63.7	62.8	60.2	53.6	42.3	36.2	29.5	26.6	23.3	20.6	20.8	19.3	18.4	17.9	19.4	24.6	41.3	62.5	73.6	79.2	43.6	79.2																							
10-May	52.7	44.5	42.4	38.4	37.5	37.6	37.1	37.9	38.1	35.9	33.5	30.5	27.3	25.5	24.4	22.0	21.2	20.9	21.2	25.6	31.4	35.0	37.9	37.6	33.2	52.7																							
11-May	36.9	33.4	41.0	43.5	46.9	42.6	40.4	40.6	40.4	39.5	37.2	35.8	33.7	32.3	34.0	36.8	38.9	40.9	42.1	49.6	63.9	73.0	79.7	84.1	45.3	84.1																							
12-May	86.4	89.8	95.5	96.9	97.3	89.8	82.3	74.3	65.6	59.2	52.1	47.4	43.4	41.7	40.6	42.5	45.1	44.6	45.0	51.2	58.2	59.2	60.3	61.5	63.8	97.3																							
13-May	61.3	59.3	61.3	63.4	62.4	63.3	64.4	64.9	62.4	64.1	54.8	49.4	49.9	76.7	54.7	40.0	43.4	53.0	60.7	67.9	76.0	74.4	77.5	82.8	62.0	82.8																							
14-May	87.2	92.6	95.6	97.0	97.5	95.8	85.4	71.4	51.9	43.5	43.4	31.3	29.3	24.5	24.0	25.1	30.2	47.8	50.5	58.9	64.3	67.4	75.5	81.9	61.3	97.5																							
15-May	90.9	89.0	93.9	93.9	81.1	77.1	74.8	73.4	73.1	60.4	51.8	48.9	42.3	41.3	37.3	37.2	38.4	42.1	44.1	50.0	58.6	64.0	66.4	69.9	62.5	93.9																							
16-May	70.5	78.5	93.1	92.7	91.0	88.9	87.6	90.4	96.0	96.8	98.3	95.9	96.3	92.1	88.5	84.7	83.6	87.1	88.5	91.8	95.0	95.2	94.8	94.0	90.5	98.3																							
17-May	94.0	94.4	95.4	96.6	96.3	97.1	97.0	96.3	95.7	94.9	93.7	91.6	90.5	89.8	91.1	91.2	95.8	99.0	100.0	100.0	OR	OR	OR	OR	95.0	100.0																							
18-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	99.9	98.8	97.9	97.1	97.4	98.1	99.7	100.0	OR	OR	--	100.0																							
19-May	OR	OR	OR	OR	OR	99.4	97.8	95.4	93.4	92.2	92.6	89.8	88.1	88.5	86.4	78.9	71.9	67.2	68.5	74.6	81.6	88.5	93.9	95.2	86.5	99.4																							
20-May	97.0	99.2	100.0	OR	OR	OR	94.2	89.1	76.0	70.7	67.4	63.5	61.8	60.1	58.5	58.6	60.5	54.5	54.1	59.7	66.5	71.1	76.7	82.0	72.4	100.0																							
21-May	87.5	91.3	93.5	97.6	97.3	90.1	87.1	81.3	74.7	72.0	65.3	58.8	58.0	55.9	57.0	56.9	58.2	56.5	60.3	63.6	70.9	82.8	87.3	84.2	74.5	97.6																							
22-May	89.8	84.0	85.7	82.8	76.9	74.2	71.9	70.3	65.7	59.5	55.9	56.0	55.0	53.7	50.3	49.2	49.7	50.1	53.3	54.1	60.0	66.0	70.2	76.6	65.0	89.8																							
23-May	77.8	74.3	76.0	76.7	80.6	78.1	67.7	61.3	55.9	50.6	42.5	37.0	34.2	31.4	29.9	30.1	33.0	34.5	38.1	43.4	54.8	66.0	72.7	75.2	55.1	80.6																							
24-May	76.2	77.7	87.0	90.9	86.1	73.1	63.3	56.3	47.7	39.8	35.7	35.6	33.2	33.0	31.4	29.5	30.3	31.6	33.3	35.6	38.5	45.9	49.2	51.3	50.5	90.9																							
25-May	52.2	59.9	67.1	74.0	73.1	67.7	61.3	53.0	40.8	33.3	30.3	29.5	30.3	28.5	29.3	27.2	25.6	27.7	30.1	33.7	40.9	51.1	55.4	60.8	45.1	74.0																							
26-May	65.0	70.8	74.0	77.1	74.1	68.1	59.7	52.8	46.8	40.4	38.9	34.0	31.6	31.0	29.8	28.8	27.1	30.4	32.8	35.8	44.1	47.0	47.4	46.7	47.3	77.1																							
27-May	46.3	46.0	44.9	45.4	47.9	44.0	37.7	33.3	30.1	28.4	26.2	25.7	26.5	26.9	26.0	25.6	26.4	32.0	47.7	56.4	57.4	51.1	35.1	35.5	37.6	57.4																							
28-May	41.0	42.9	59.0	83.5	78.3	91.1	77.8	57.8	52.1	50.6	48.5	45.6	39.1	34.2	35.3	34.5	32.4	30.9	32.4	34.6	50.5	53.2	55.8	49.0	50.4	91.1																							
29-May	57.5	57.6	60.1	75.6	89.9	92.0	83.4	79.5	73.7	57.4	62.4	67.6	72.0	72.3	79.1	75.4	71.3	69.4	68.5	65.9	67.6	71.4	76.0	80.6	71.9	92.0																							
30-May	81.1	85.7	90.3	98.2	100.0	100.0	99.8	98.0	97.1	95.6	95.7	94.6	95.7	94.8	96.1	94.6	84.8	75.5	79.8	78.7	76.0	80.4	79.9	82.8	89.8	100.0																							
31-May	81.6	93.2	98.9	98.3	99.8	99.7	98.4	95.5	93.4	91.0	83.9	84.1	85.6	79.5	81.5	84.9	84.8	93.1	95.7	96.9	94.0	94.4	92.4	91.1	91.3	99.8																							
																								72.3	72.8	76.0	78.2	78.0	77.6	74.1	69.1	64.3	60.3	56.5	52.8	50.8	49.8	50.3	49.4	49.4	50.6	52.4	55.7	60.3	65.2	67.3	70.2	Diurnal Average	
																								100.0	100.0	100.0	100.0	100.0	99.8	98.0	97.1	96.8	98.3	95.9	96.3	94.8	99.9	98.8	97.9	99.0	100.0	100.0	99.7	100.0	98.1	98.2	Diurnal Maximum		
OR - Out of Range																																																	





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

**Relative Humidity (RH) - %**  
**Wapasu - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	4	0.56	0.56
20 - 40	147	20.53	21.09
40 - 60	195	27.23	48.32
60 - 80	171	23.88	72.21
80 - 100	186	25.98	98.18

Total Number of Valid Hours: 716

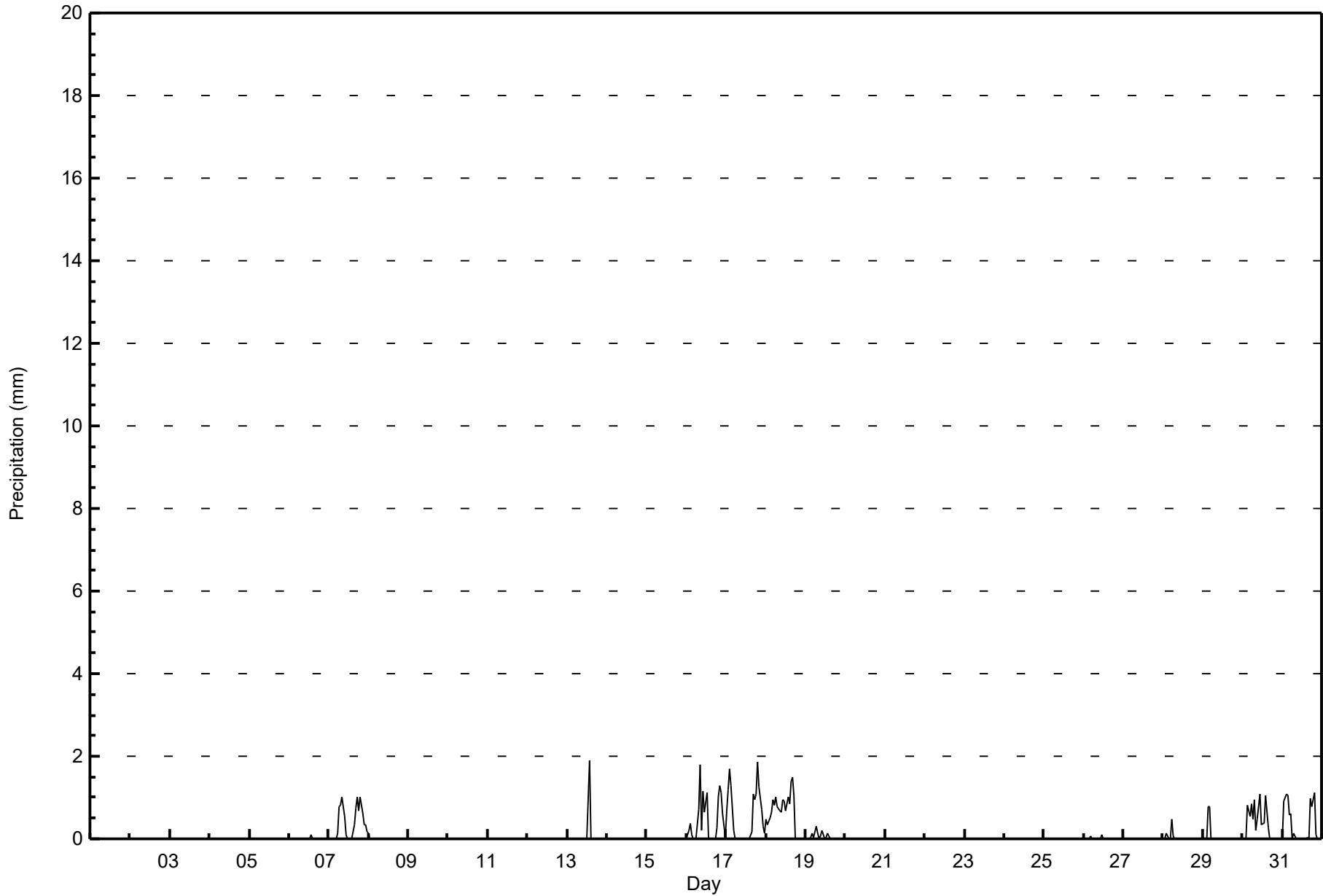
Total Number of Hours: 744





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

**Precipitation (PC) - mm**  
**Wapasu - May 2024**







# Wood Buffalo Environmental Association

## Summary of Hour Averages

### Wind Speed (WS) - km/h

### Wapasu - May 2024

Maximum Speed: 24 km/h on May 10 22:00	Maximum Daily Speed Average: 14.0 km/h on May 6	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 9 21:00	Minimum Daily Speed Average: 3.1 km/h on May 4	Hours of Data: 744
Maximum Diurnal Speed Average: 5.1 km/h at hour 2	Minimum Diurnal Speed Average: 0.7 km/h at hour 12	Hours of Missing Data: 0
Monthly Average Velocity: 2.8 km/h 109.1 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 5 Q <sub>1</sub> = 7 Median = 10 Q <sub>3</sub> = 12 P <sub>90</sub> = 15 P <sub>99</sub> = 20	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE9	NNE9	NE8	NE6	NNE6	NE6	ENE7	ENE8	NE8	NE9	NNE11	NNE12	NE13	NNE14	NE14	NE14	NE15	NE13	NNE11	NNE8	NNE6	N7	N6	NE6	NE9.2	NE15
2-May	ENE7	E7	ENE5	E8	E7	N4	N5	NNE7	N11	N11	N11	N13	NNE13	NNE14	NNE14	NNE15	NNE15	NNE13	NNE12	NNE9	NNE7	NE6	E5	E5	NNE8.1	NNE15
3-May	SE5	SE5	SE6	SE5	SE5	SE5	SE2	NNW4	NNE6	NNE8	NNE6	NNW10	NNW11	N8	N11	NNW12	NNW13	N14	N11	N9	N5	NE5	ENE5	E5	N4.6	N14
4-May	E5	E4	SE3	SE3	ESE2	ENE2	N5	N9	N10	N12	NNW10	NNW10	NNE7	N5	NNW5	N4	NNE3	NNE5	N5	NE4	ESE7	SE9	SE10	SE12	NE3.1	N12
5-May	SE13	SE12	SE12	SE11	SE13	SE13	SSE12	S10	S8	SSW9	S9	S13	SE15	SSE14	SSE15	SSE13	SSE13	S10	SSE10	SSE10	SE9	SE11	SE12	SE12	SSE11.1	SSE15
6-May	SE13	SE13	SE16	SE16	ESE18	SE15	SE15	SE16	SSE16	SSE16	SE19	SE18	SE16	SE13	ESE15	E18	ESE18	ESE16	ESE14	ESE15	ESE14	SSE8	S5	E4	SE14.0	SE19
7-May	E6	ESE8	ESE10	ESE10	ESE12	ESE13	ESE12	ESE14	ESE14	ESE14	ESE14	ESE16	ESE17	SE18	SE16	ESE13	SE14	SE11	SSE10	SSE8	SSE9	SSE9	SSE10	SSE10	SE11.6	SE18
8-May	SSE9	S7	S6	S6	SSW6	WSW8	WNW8	NW8	NW7	NW5	W1	NW2	SW5	WSW9	SW10	WNW2	SSW5	SW10	SSW9	SW9	SW7	SSW6	SSW6	SW6	SW4.7	SW10
9-May	S5	S6	SSE5	S5	S5	SSW7	SW9	SW9	W9	W13	WNW18	WNW19	WNW19	WNW20	NW20	NW19	NW17	NW16	NW12	NW6	W1	SE4	SE6	SE8	WNW6.8	NW20
10-May	SSE9	SSE8	SSE9	SSE10	SSE10	SSE10	S10	S10	SW14	SW15	SW17	SW19	WSW18	W16	WSW18	WSW18	W15	WNW14	NW15	NW7	NNW15	NNW24	N16	N10	WSW6.8	NNW24
11-May	NW11	NNW10	WNW4	W5	WSW6	WNW11	NW16	NW19	NW22	NW19	NW20	NW20	NNW23	NNW22	N21	N20	N20	N18	N17	NNE11	NE8	ENE8	ENE6	E6	NNW11.8	NNW23
12-May	ESE6	SE5	SSE4	SE5	SE5	SSE6	SE5	SE5	S5	SE6	ESE6	ESE6	SSE8	SE9	SE9	SSE9	SSE11	SSE10	SE9	SE9	SE10	SE11	SE11	SE11	SE7.4	SE11
13-May	SE11	SSE13	SSE12	SSE12	SSE14	SSE16	SSE15	SSE14	SSE14	S12	SSE14	S13	S12	ESE4	WSW6	WSW9	SE7	NNE9	ESE10	NNE12	ENE11	ESE8	ESE7	SE7	SE8.0	SSE16
14-May	SSE6	SSE7	SSE6	SSE6	SSE7	SSE5	S5	S6	SSW8	SSW11	SSW13	SW14	WSW15	SW17	SW16	SW17	W11	NNW14	NNW9	NNW10	NNW5	NW1	SE3	ESE3	SW4.9	SW17
15-May	SSE4	S5	S5	ENE3	NNE6	NE7	NNE7	NNE8	N9	N9	N10	N12	N11	N11	NNW10	N11	NNE13	NE12	NE11	NE11	NE9	ENE11	ENE12	E14	NNE6.8	E14
16-May	ESE14	ESE11	ESE9	ESE9	ESE11	ESE13	ESE14	ESE11	E7	NE8	ENE8	E13	E16	E19	E16	E16	ENE10	NE8	ENE9	E9	E11	E14	E16	E14	E11.3	E19
17-May	E13	E15	E15	ENE12	ENE11	ENE10	ENE12	E14	E14	E13	ENE14	ENE12	ENE12	ENE12	NE9	NE10	NNE8	N11	N10	NNW12	NNW12	NNW10	NNW9	NNW9	NE8.9	E15
18-May	N8	N7	N7	N6	NNW7	NNW7	N8	N9	N10	N11	N12	NNE10	N11	NNE11	NE10	NNE9	ENE9	ENE9	ENE9	E9	ENE7	ENE6	ENE5	ENE5	NNE7.0	N12
19-May	NE6	NE6	NE6	NE6	ENE7	E9	E9	E11	E10	E10	ENE11	ENE10	E10	E11	ENE12	NE11	ENE11	NE9	NE8	NE5	NNE5	N6	N6	NNE5	ENE7.5	ENE12
20-May	NNE4	NNE4	NE4	ENE4	ENE5	NE4	N4	N5	NNW8	NNW10	N11	N10	N9	N9	NE8	ENE8	ESE12	ESE14	ESE11	ESE9	SE8	SE11	SE8	SE6	ENE4.5	ESE14
21-May	SE5	SE6	SE5	ESE6	SE8	SE9	SE7	SE9	ESE11	ESE11	SE13	ESE13	SE13	ESE13	SE14	ESE14	E12	ESE11	ESE10	ESE10	ESE6	E6	ESE7	ESE7	ESE9.2	SE14
22-May	E7	ESE9	ESE11	ESE12	ESE11	ESE13	E15	E12	E11	ENE12	ENE13	ENE14	ENE12	ENE10	ENE10	ENE11	E9	E10	ESE9	ESE9	ESE7	E6	ENE4	N1	E9.4	E15
23-May	SE2	ESE6	SE7	SE6	SE1	ESE3	SE5	SE7	SE10	E10	ESE9	SE10	SE9	SE8	SE9	SSE8	SE9	SSE9	SSE7	SSE7	SSE8	SSE7	SSE6	SSE7	SE6.7	E10
24-May	SSE7	SE7	SE6	SE6	SE6	SE7	SE9	SSE10	SSE10	SSE11	SSE10	SSE8	SSE7	SE8	SSE10	SE8	S6	SE6	SSE6	S4	S4	SSE5	SSE6	SSE6	SSE7.0	SSE11
25-May	S6	S7	S7	S7	S8	S8	SSW9	SSW10	SSW11	S11	S11	S11	SSE10	SSE11	SE12	S12	S10	ESE15	ESE13	SE10	SE9	SE9	SE9	SE8	SSE8.9	ESE15
26-May	SE9	SE9	SE9	SE9	SE9	SSE10	SSE11	SSE13	SSE15	SSE12	S11	SSE10	SSE10	S9	SE10	SSE5	SE7	SE11	SE7	SSE6	SE6	SE9	SE11	SE11	SE9.1	SSE15
27-May	SE11	SE11	SE11	SE10	SE11	SE12	SSE11	SSE11	S10	S11	SSE11	S10	SSE10	SSE10	SSE11	SSE12	SSE11	SSW9	W8	S4	SE8	SE11	SE16	SSE18	SSE9.9	SSE18
28-May	SE17	S12	SW3	E4	SSE4	SE6	SE9	SSE8	SSW8	SW7	W7	WSW8	SW8	WSW10	SW9	WSW10	WSW9	SSW7	SW6	SW4	E4	E4	E7	ESE7	S4.5	SE17
29-May	ENE9	ENE14	E13	ESE12	ESE11	E12	ESE17	ESE16	SE15	S11	W7	WSW9	WSW13	WSW13	SW18	SW17	SW18	SW16	SW14	SW16	SW15	SW15	SW13	SW12	SSW6.6	SW18
30-May	SSW11	SSW9	SSW9	SSW6	NW7	NW9	WNW7	NW10	NW8	NW11	NW11	NW10	NW9	NW9	NW9	NW9	NW14	NNW17	NNW11	NNW10	NW12	NW7	NW8	NNW13	NW7.6	NNW17
31-May	NNW14	NNW12	NW12	NW11	NW8	WNW7	WNW6	NW6	NW8	NW8	NW11	NNW12	NW12	NW16	NW13	NW12	NNW11	NNW11	NNW11	NNW10	NNW18	NW14	NW13	NNW15	NW11.2	NNW18

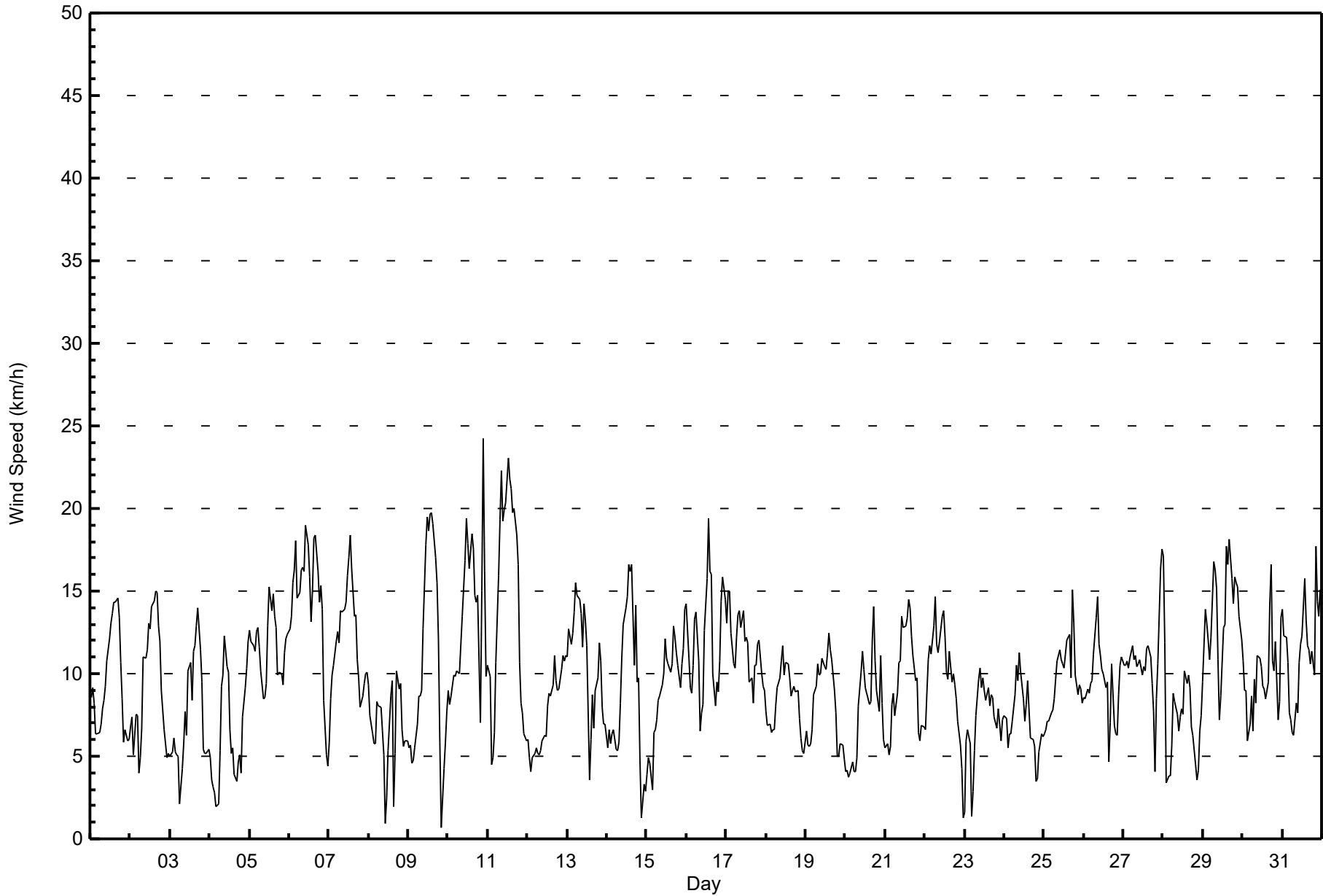
ENE4.7 ESE5.1 SE4.9 SE5.0 SE4.9 SE4.4 SE4.2 SE3.6 ESE2.3 ESE1.3 E1.2 E0.7 E1.4 ENE1.4 E1.4 ENE1.4 ENE2.1 ENE2.8 ENE2.5 ENE2.2 E2.8 E3.2 ESE3.8 ESE4.1	Diurnal Average
SE17 E15 SE16 SE16 ESE18 SSE16 ESE17 NW19 NW22 NW19 NW20 NW20 NNW23 NNW22 N21 N20 N20 N18 N17 SW16 NNW18 NNW24 SE16 SSE18	Diurnal Maximum

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



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

**Wind Speed (WS) - km/h**  
**Wapasu - May 2024**





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

**Wind Speed (WS) - km/h**  
**Wapasu - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	96	12.90	12.90
6 - 11	426	57.26	70.16
12 - 19	211	28.36	98.52
20 - 28	11	1.48	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Wapasu - May 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	10	6	5	9	9	4	20	7	11	1	3	0	3	2	3	3	96
6 - 11	33	24	23	28	24	36	74	61	28	18	11	10	5	5	24	22	426
12 - 19	8	11	6	13	21	33	29	24	4	1	18	6	3	4	15	15	211
20 - 28	3	0	0	0	0	0	0	0	0	0	0	0	0	1	4	3	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>	54	41	34	50	54	73	123	92	43	20	32	16	11	12	46	43	744

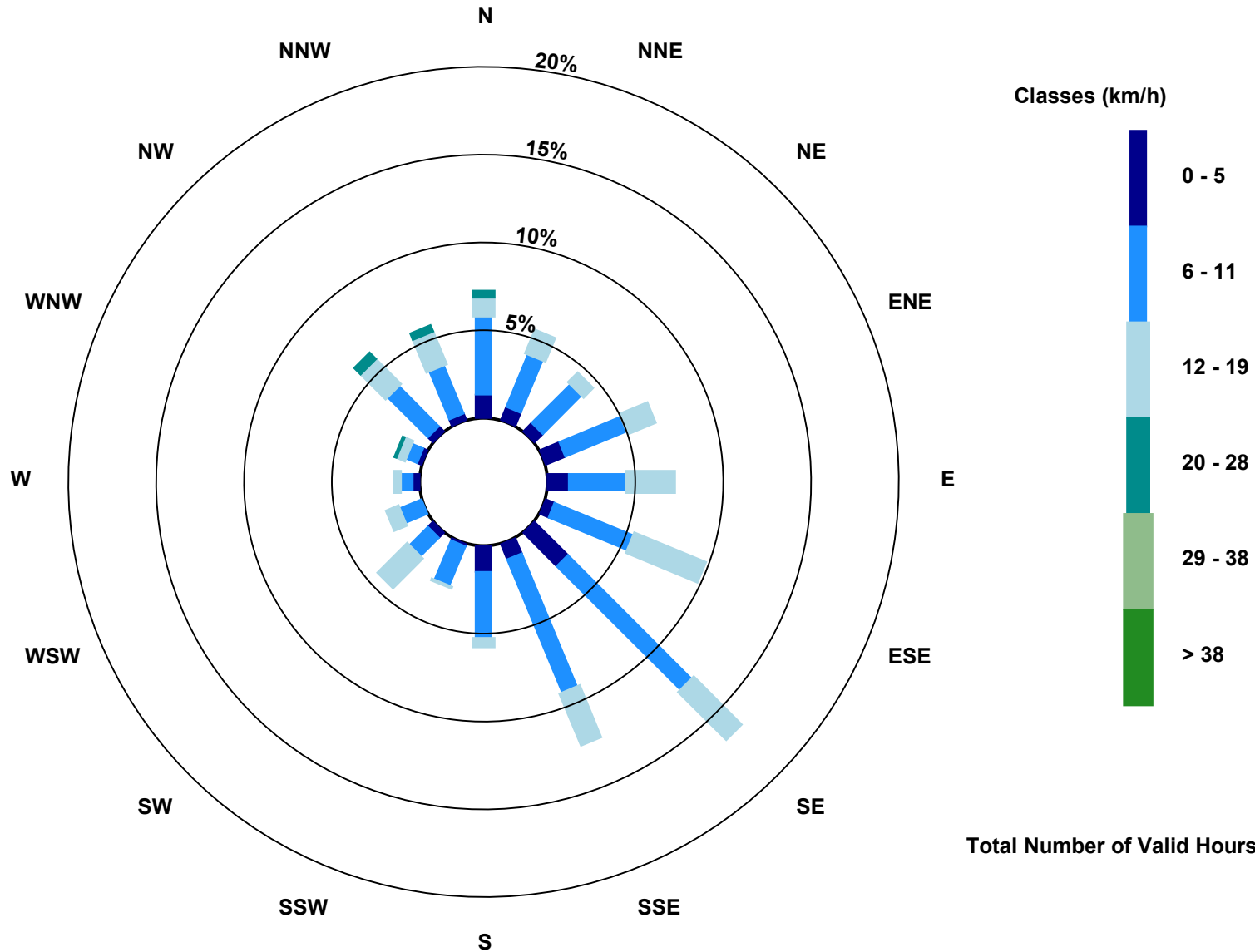
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Wapasu





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

**Wind Speed (WS) - km/h**  
**Wapasu - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on May 10 22:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 0 km/h on May 4 02:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 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-May	3	3	3	2	2	2	2	2	3	3	4	4	5	5	6	5	5	5	4	3	2	2	2	1	6
2-May	2	1	2	2	2	1	1	2	3	3	5	5	5	5	5	5	5	5	4	3	2	1	1	1	5
3-May	1	1	1	1	1	1	1	2	2	3	3	4	3	5	5	5	4	4	4	3	1	1	1	1	5
4-May	1	0	1	1	1	1	2	2	3	4	4	4	3	3	3	3	2	3	2	2	2	2	2	3	4
5-May	3	3	3	3	3	3	3	3	3	3	4	4	5	5	4	5	5	4	4	3	2	3	3	3	5
6-May	3	4	4	4	5	4	4	5	5	5	6	6	5	4	5	6	6	5	4	5	4	3	2	1	6
7-May	1	3	3	3	4	4	4	4	4	4	5	5	6	6	5	4	4	3	3	2	2	2	2	2	6
8-May	3	2	2	2	2	2	3	2	2	2	2	3	3	3	4	3	3	3	3	3	2	1	2	2	4
9-May	1	1	2	1	1	2	3	2	3	5	6	7	6	7	6	7	6	5	4	2	1	1	1	1	7
10-May	1	1	2	2	2	3	3	4	4	4	5	6	6	6	6	6	6	6	5	4	5	7	6	3	7
11-May	3	3	2	2	2	4	6	6	7	6	6	6	6	7	6	6	7	6	6	4	3	2	2	1	7
12-May	2	2	1	1	1	1	1	2	2	3	3	2	3	3	3	3	3	3	2	2	2	3	3	2	3
13-May	2	3	3	3	4	4	4	4	5	4	5	5	4	2	3	4	4	4	3	6	4	3	2	2	6
14-May	1	1	1	1	1	1	2	2	3	4	5	5	4	5	5	5	5	4	3	4	2	2	1	1	5
15-May	1	1	1	1	2	2	2	3	2	3	3	4	4	4	4	4	4	4	4	3	3	3	3	4	4
16-May	4	3	2	3	4	4	4	3	2	3	3	5	5	6	6	6	4	3	3	3	3	5	5	5	6
17-May	4	5	5	4	3	3	4	4	5	4	4	4	4	4	3	3	3	4	3	3	3	2	2	2	5
18-May	2	1	1	1	1	1	2	3	3	3	4	3	3	3	3	3	3	3	3	3	2	1	1	1	4
19-May	2	1	1	1	3	3	3	3	3	3	4	3	3	4	4	4	4	3	3	1	2	2	2	1	4
20-May	1	1	1	1	1	1	1	1	3	3	3	3	3	3	3	3	4	4	4	3	3	3	2	2	4
21-May	2	1	2	1	2	2	2	2	3	4	4	4	4	4	4	5	4	4	4	3	1	1	2	1	5
22-May	1	2	3	3	3	5	5	4	4	4	4	5	4	4	3	4	3	3	3	3	2	2	1	1	5
23-May	2	1	2	2	1	2	2	3	3	4	3	4	4	4	4	3	3	3	3	2	2	1	1	1	4
24-May	1	1	1	1	1	2	2	3	4	4	4	4	4	4	3	3	2	3	2	1	1	1	1	1	4
25-May	1	1	1	1	2	2	3	3	3	4	4	4	4	4	5	4	4	5	4	3	2	2	2	2	5
26-May	2	2	2	2	2	2	3	4	5	4	4	4	4	3	4	3	3	3	2	2	2	2	2	2	5
27-May	2	2	2	2	2	3	3	3	4	3	4	5	4	4	4	4	4	5	3	2	2	3	4	5	5
28-May	5	6	2	1	1	2	2	3	2	2	3	3	3	4	4	4	4	3	2	3	1	1	1	3	6
29-May	4	4	4	4	3	4	5	5	5	4	3	5	4	4	5	5	5	5	4	4	4	4	4	3	5
30-May	4	3	3	2	3	3	2	3	3	4	4	3	3	3	3	3	4	5	3	4	4	2	3	4	5
31-May	4	4	4	3	2	3	2	2	3	2	3	4	4	5	4	3	3	3	3	3	5	4	4	4	5
																	5 6 5 4 5 5 6 6 7 6 6 7 6 7 6 7 7 6 6 6 5 7 6 5								
Diurnal Maximum																									



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

**Wind Direction (WD) - deg**  
**Wapasu - May 2024**

Direction of Maximum Speed: 346 deg on May 10 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 128.3 deg on May 6	Hours of Data: 744
Direction of Minimum Speed: 265 deg on May 9 21:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 3.1 deg on May 4	Percent Operational Time: 100.0
Monthly Average Direction: 109.1 deg	

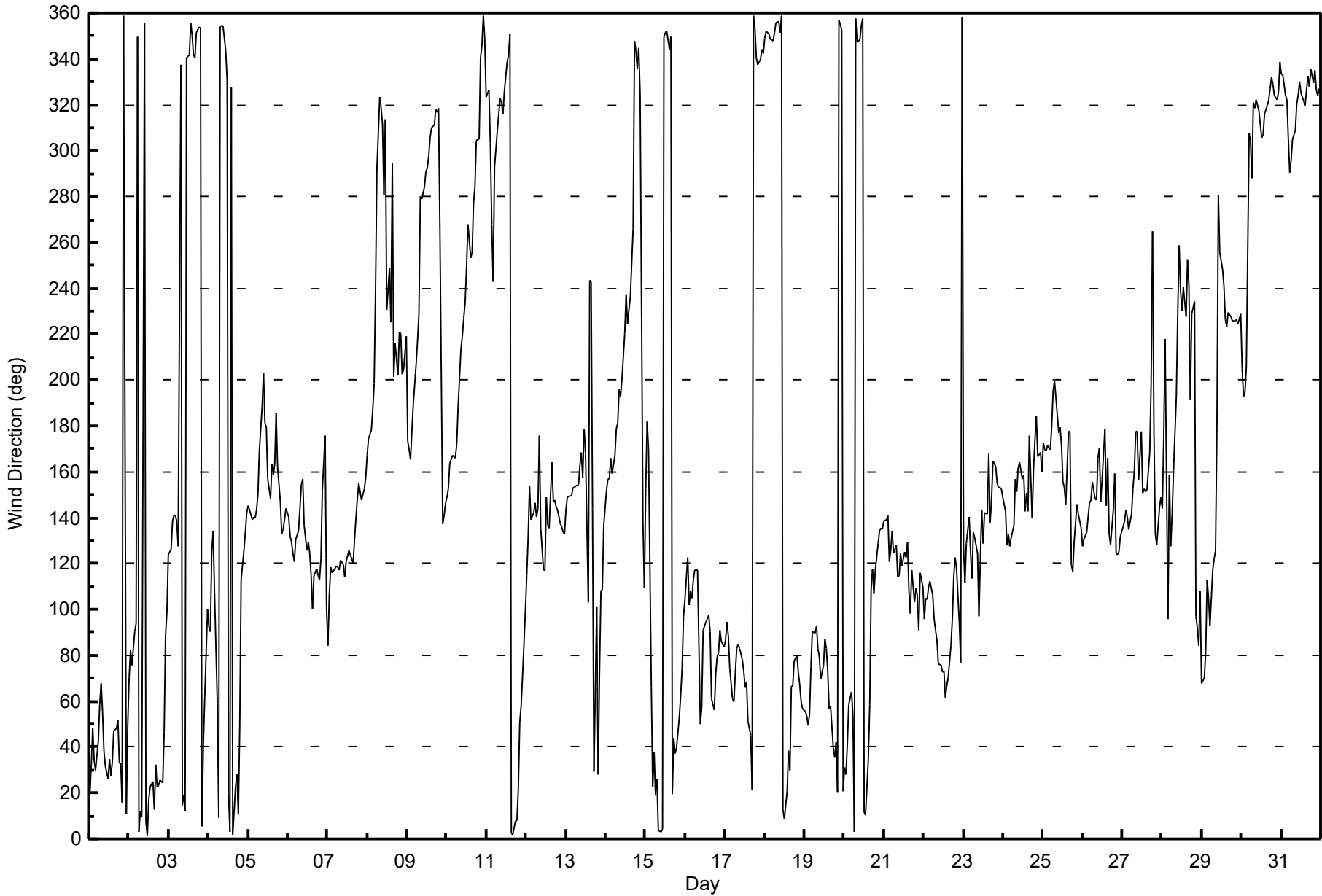
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	20	33	48	34	30	43	59	68	56	39	32	26	35	27	34	47	48	52	33	33	16	359	11	50	37.2
2-May	70	83	76	90	94	350	3	12	10	356	8	1	17	23	25	13	32	23	23	25	25	47	89	99	28.8
3-May	124	126	139	141	141	139	128	338	15	19	12	341	342	356	350	341	341	351	354	353	5	41	62	100	10.3
4-May	92	90	124	134	107	59	9	354	354	355	343	331	20	3	327	2	22	28	11	49	113	126	134	142	34.7
5-May	145	143	139	140	140	144	150	169	189	203	181	179	157	148	163	159	164	185	162	147	133	135	139	144	155.2
6-May	140	132	129	124	121	130	134	144	154	157	136	126	129	124	115	100	115	118	115	113	122	152	176	101	128.3
7-May	84	107	118	116	118	119	119	117	121	119	114	121	123	126	124	120	131	140	149	155	148	150	152	158	126.2
8-May	167	174	178	187	199	239	292	324	318	311	281	313	231	249	225	295	201	216	202	221	220	203	205	219	225.2
9-May	173	170	165	178	190	207	217	229	280	279	284	291	292	298	306	310	311	318	317	318	265	137	141	146	281.5
10-May	149	152	163	167	167	166	172	189	214	219	227	234	249	268	253	256	277	284	304	305	340	346	359	349	250.8
11-May	323	327	303	268	243	293	309	316	323	321	316	326	339	342	351	2	2	8	8	22	51	58	71	99	340.1
12-May	115	131	154	139	142	147	140	144	176	136	117	117	149	136	135	164	147	148	145	144	137	136	134	133	140.2
13-May	143	149	149	150	153	153	154	155	163	169	157	179	169	103	244	243	144	29	102	28	73	108	108	136	145.5
14-May	152	157	157	166	159	167	179	181	196	193	200	220	237	224	231	236	266	348	344	336	345	325	138	110	218.3
15-May	152	182	170	66	22	38	19	26	4	3	4	349	351	352	344	350	19	44	37	40	53	63	75	97	28.1
16-May	104	123	102	108	105	113	117	117	84	50	57	91	94	96	98	90	61	56	72	79	81	91	86	83	92.3
17-May	87	94	89	75	61	60	72	83	85	83	78	73	66	68	52	45	22	359	353	341	337	340	344	342	53.1
18-May	349	352	351	349	348	348	351	356	356	351	358	13	9	21	38	30	67	67	78	80	73	67	60	57	21.6
19-May	55	54	50	54	75	91	90	92	83	79	69	75	87	83	73	56	58	39	35	42	20	357	352	21	63.7
20-May	31	28	41	58	64	54	3	357	347	348	355	358	11	10	35	58	108	118	107	117	129	134	135	135	60.3
21-May	138	139	141	121	125	135	124	128	114	115	124	119	125	123	129	108	98	117	103	109	106	91	116	110	118.5
22-May	96	105	105	110	112	106	96	91	86	76	76	72	74	62	66	70	84	96	114	122	118	94	77	358	90.5
23-May	127	112	129	140	125	113	134	131	124	97	122	143	129	142	141	168	138	148	165	162	155	153	153	152	138.5
24-May	149	143	128	133	128	131	137	157	151	162	164	157	159	143	151	143	176	140	161	174	184	166	168	160	151.8
25-May	173	170	169	171	170	180	195	199	192	177	179	171	156	153	146	177	177	119	117	129	146	142	139	135	160.2
26-May	127	130	134	140	146	148	156	149	148	166	170	147	157	179	145	166	133	128	143	159	124	124	125	132	145.1
27-May	136	138	143	140	135	142	153	160	178	178	156	178	151	152	151	152	168	198	265	178	133	128	144	149	154.4
28-May	144	175	218	96	159	127	141	161	193	229	259	239	230	240	228	253	241	192	229	234	97	92	84	108	191.1
29-May	68	70	82	113	105	93	117	122	126	179	280	256	248	241	226	224	229	227	226	226	226	227	225	229	195.1
30-May	205	193	195	206	308	304	288	321	319	322	317	311	306	307	316	320	322	327	332	329	324	322	326	338	310.2
31-May	333	333	324	322	305	290	296	305	309	320	324	330	325	322	320	326	332	327	335	329	335	326	324	327	324.1
119.5 123.0 124.7 125.2 124.7 127.1 127.0 125.1 122.4 118.6 94.8 91.3 96.7 74.6 99.5 64.5 73.4 60.1 58.3 72.0 83.5 97.7 110.1 117.1																									
Diurnal Average																									

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



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

**Wind Direction (WD) - deg**  
**Wapasu - May 2024**







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

**Wind Direction (WD) - deg**  
**Wapasu - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97 deg on May 8 11:00 Minimum Value: 3 deg on May 10 00:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 16 Q <sub>1</sub> = 20 Median = 25 Q <sub>3</sub> = 30 P <sub>90</sub> = 39 P <sub>99</sub> = 76																		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-May	32	25	22	22	24	26	23	28	29	33	36	37	33	37	34	28	27	26	31	27	29	26	28	13	37
2-May	15	19	28	18	20	35	19	27	30	30	37	38	38	38	36	33	33	33	32	30	26	28	10	18	38
3-May	12	11	9	11	13	17	51	42	38	38	49	36	39	55	40	40	33	26	26	22	24	24	13	12	55
4-May	24	11	17	25	18	23	28	24	30	28	35	33	57	65	65	86	87	63	44	38	13	16	15	16	87
5-May	18	18	16	16	16	18	20	27	29	30	35	31	28	29	29	28	29	33	29	18	16	17	18	19	35
6-May	19	18	18	19	19	20	18	20	23	25	24	24	24	24	22	24	23	23	23	22	18	30	24	23	30
7-May	13	21	18	19	22	19	20	22	21	22	24	22	24	22	22	23	21	24	22	22	18	19	19	19	24
8-May	23	27	27	27	32	24	34	21	27	30	97	93	76	42	38	79	63	25	25	21	21	16	21	18	97
9-May	15	23	49	23	20	21	21	25	35	34	31	31	31	31	29	31	28	27	26	18	75	10	9	3	75
10-May	6	10	17	19	20	22	24	29	21	20	23	24	29	34	29	32	33	32	28	30	19	22	27	22	34
11-May	20	18	31	32	21	31	25	25	24	26	26	27	22	27	27	30	30	31	31	33	22	22	20	22	33
12-May	23	22	17	11	9	11	15	25	41	42	46	47	40	34	33	29	22	24	20	17	15	17	16	16	47
13-May	15	17	16	18	19	19	20	22	25	30	27	31	29	68	55	40	63	40	25	49	26	23	23	17	68
14-May	13	9	9	10	10	20	25	29	32	29	28	29	26	27	25	24	54	24	26	30	52	86	43	32	86
15-May	34	18	17	40	26	21	30	31	28	31	33	32	35	32	40	37	34	30	29	25	21	22	23	25	40
16-May	22	21	23	21	21	21	21	23	32	25	27	27	25	25	27	27	30	26	23	23	24	25	24	25	32
17-May	26	26	25	25	24	21	24	26	25	26	24	25	24	26	26	26	35	26	24	16	15	15	16	15	35
18-May	17	18	17	16	16	16	18	25	23	24	26	33	30	32	28	28	27	24	25	25	21	22	20	22	33
19-May	20	17	20	20	28	27	24	25	27	27	27	28	27	29	26	27	27	29	27	23	26	24	25	23	29
20-May	19	19	17	14	14	23	34	36	26	24	26	30	30	30	38	36	29	25	27	23	20	19	16	18	38
21-May	20	14	19	10	15	18	20	25	27	30	27	28	28	26	23	29	29	27	25	22	16	10	13	22	30
22-May	11	19	21	22	21	24	26	28	29	33	29	27	30	36	34	31	30	25	23	25	19	23	26	58	58
23-May	86	18	19	28	60	46	25	26	26	32	37	39	50	55	43	48	34	31	30	24	15	14	12	13	86
24-May	13	10	9	7	11	15	21	28	32	34	42	57	60	36	35	42	49	47	23	18	17	19	18	17	60
25-May	18	14	15	17	19	28	30	32	32	35	39	37	28	34	31	32	35	24	22	23	16	14	16	15	39
26-May	15	14	13	13	16	17	22	25	27	34	32	45	36	37	38	66	52	22	20	17	18	14	16	16	66
27-May	15	15	16	14	16	17	20	26	34	36	40	47	37	35	32	32	38	41	33	52	17	18	19	20	52
28-May	19	49	56	31	24	39	17	30	32	48	52	46	48	48	43	40	40	45	31	41	22	30	17	21	56
29-May	24	23	25	21	23	22	22	21	25	34	55	50	25	25	18	20	19	18	19	18	18	18	16	18	55
30-May	26	30	27	35	38	28	30	23	24	22	24	24	26	24	24	24	21	19	19	19	21	23	25	17	38
31-May	18	19	22	20	26	28	28	26	26	23	20	20	25	22	21	20	19	20	18	19	19	20	21	20	28
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS18 STONY MOUNTAIN MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
MAY 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	37	37	100	2.1	0	0.6	0
TRS(ppb) Average	707	37	37	100	0.6	0	0.4	0
THC(ppm) Average	685	40	59	97.45	2.2	-	2.1	-
NMHC(ppm) Average	685	40	59	97.45	0.119	-	0.052	-
CH4(ppm) Average	685	40	59	97.45	2.2	-	2.1	-
O3 (ppb) Average	709	35	35	100	53.4	0	45.5	-
NO2 (ppb) Average	707	37	37	100	7.4	0	1.4	-
NO (ppb) Average	707	37	37	100	0.8	-	0.2	-
NOX (ppb) Average	707	37	37	100	7.5	-	1.6	-
PM2.5 (ug/m3) Average	530	3	214	71.64	121.7	0	29.4	1
CO(ppm) Average	709	35	35	100	0.5	0	0.4	0
CO2(ppm) Average	708	36	36	100	461.5	0	445.1	0
Temperature 2 m (C) Average	744	0	0	100	25.4	-	18.6	-
Relative Humidity (%) Average	713	0	31	95.83	100	-	98.8	-
Wind Speed 10 m (km/h) Average	744	0	0	100	18	-	12	-
Wind Speed 20 m (km/h) Average	742	0	2	99.73	28	-	19	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	0	-
Wind Direction 20 m (deg) Average	742	0	2	99.73	-	-	0	-
Precipitation (mm) Total	689	0	55	92.61	3.3	-	25.4	-
Leaf Wetness (% of range) Average	744	0	0	100	38.3	-	29.8	-
Global Solar Radiation (W/m2) Average	744	0	0	100	918.2	-	314.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
MAY 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	2.1
TRS (ppb) Average	707	0.21	0.1	-	0.1	0.2	0.2	0.2	0.2	0.3	0.6
THC (ppm) Average	685	2.06	0	-	2	2	2	2.1	2.1	2.1	2.2
NMHC(ppm) Average	685	0.012	0.017	-	0	0	0	0	0	0	0.119
CH4(ppm) Average	685	2.05	0	-	2	2	2	2	2.1	2.1	2.2
O3 (ppb) Average	709	32.63	10.6	-	8.2	17.2	24.1	33.7	41.2	46	53.4
NO2 (ppb) Average	707	0.68	0.5	-	0.1	0.2	0.3	0.5	0.9	1.4	7.4
NO (ppb) Average	707	0.08	0.1	-	0	0	0	0.1	0.1	0.1	0.8
NOX (ppb) Average	707	0.76	0.6	-	0.1	0.3	0.4	0.6	1	1.5	7.5
PM2.5 (ug/m3) Average	530	5.88	12.5	-	0.5	1.4	2	3	4.3	7.2	121.7
CO(ppm) Average	709	0.18	0.1	-	0.1	0.1	0.1	0.2	0.2	0.3	0.5
CO2(ppm) Average	708	439.8	4.5	-	433.3	434.8	436.6	438.7	442.6	445.9	461.5
Temperature 2 m (C) Average	744	9.21	5.2	-	-1.1	3	5.5	8.4	12.6	16.6	25.4
Relative Humidity (%) Average	713	65.57	25.2	-	15.2	29.7	44.5	66	92	98	100
Wind Speed 10 m (km/h) Average	744	7	3	-	1	3	5	6	9	12	18
Wind Speed 20 m (km/h) Average	742	10.9	5	-	1	6	7	10	13	18	28
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	689	-	-	96.56	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	744	7.22	9.6	-	0	0.7	1.1	1.5	13.4	23.5	38.3
Global Solar Radiation (W/m2) Average	744	167.52	216.8	-	0	0.1	0.6	62.7	272.3	520.9	918.2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)  
MAY 2024

MONTHLY SUMMARY

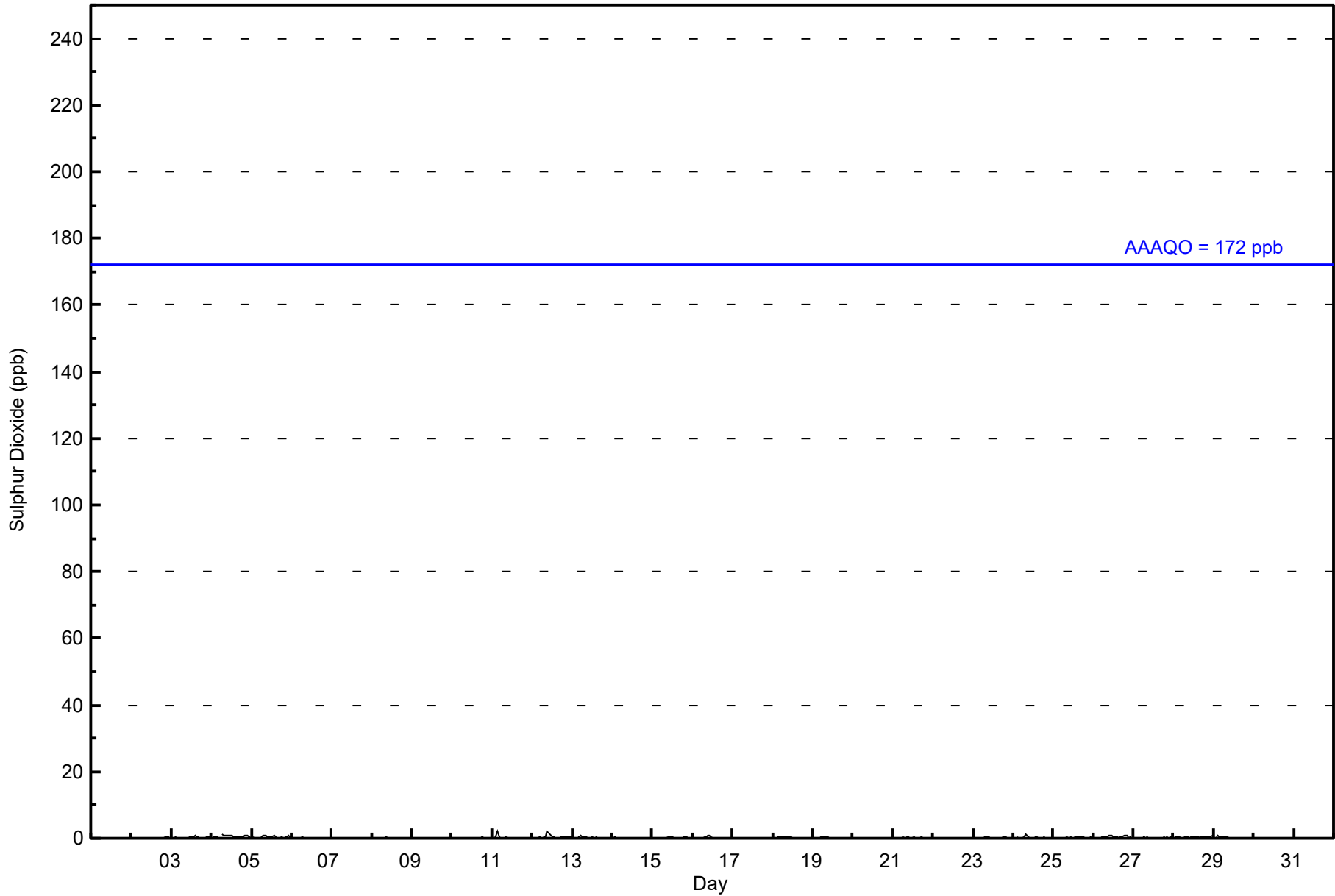
Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	08 May 2024 17:00	09 May 2024 11:00	19	Maintenance - column conditioning
PM2.5	15 May 2024 01:00	16 May 2024 12:00	36	Unstable Operations - flatline in analyzer output signal
PM2.5	16 May 2024 13:00	16 May 2024 13:00	1	Maintenance - analyzer rebooted
PM2.5	16 May 2024 14:00	19 May 2024 11:00	70	Analyzer Failure - inconsistent response
PM2.5	19 May 2024 12:00	21 May 2024 13:00	50	Maintenace - field troubleshooting, analyzer replaced
PM2.5	29 May 2024 07:00	29 May 2024 12:00	6	Unstable Operations - flatline in analyzer output signal
PM2.5	29 May 2024 13:00	31 May 2024 12:00	48	Maintenace - field troubleshooting, analyzer replaced
Relative Humidity	08 May 2024 06:00	08 May 2024 06:00	1	Sensor operated out of range
Relative Humidity	16 May 2024 22:00	17 May 2024 11:00	14	Sensor operated out of range
Relative Humidity	19 May 2024 07:00	19 May 2024 09:00	3	Sensor operated out of range
Relative Humidity	20 May 2024 00:00	20 May 2024 08:00	9	Sensor operated out of range
Relative Humidity	21 May 2024 05:00	21 May 2024 08:00	4	Sensor operated out of range
Wind Speed, Wind Direction 20m	18 May 2024 04:00	18 May 2024 05:00	2	Flat line in sensor output signal
Precipitation Collector	19 May 2024 01:00	21 May 2024 07:00	55	DAS Failure - data not recorded





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - May 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Stony Mountain - May 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 - May 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	24	47	66	39	62	50	49	52	40	20	17	35	56	61	67	20	705
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	47	66	39	62	50	49	52	40	20	17	35	56	61	67	20	705

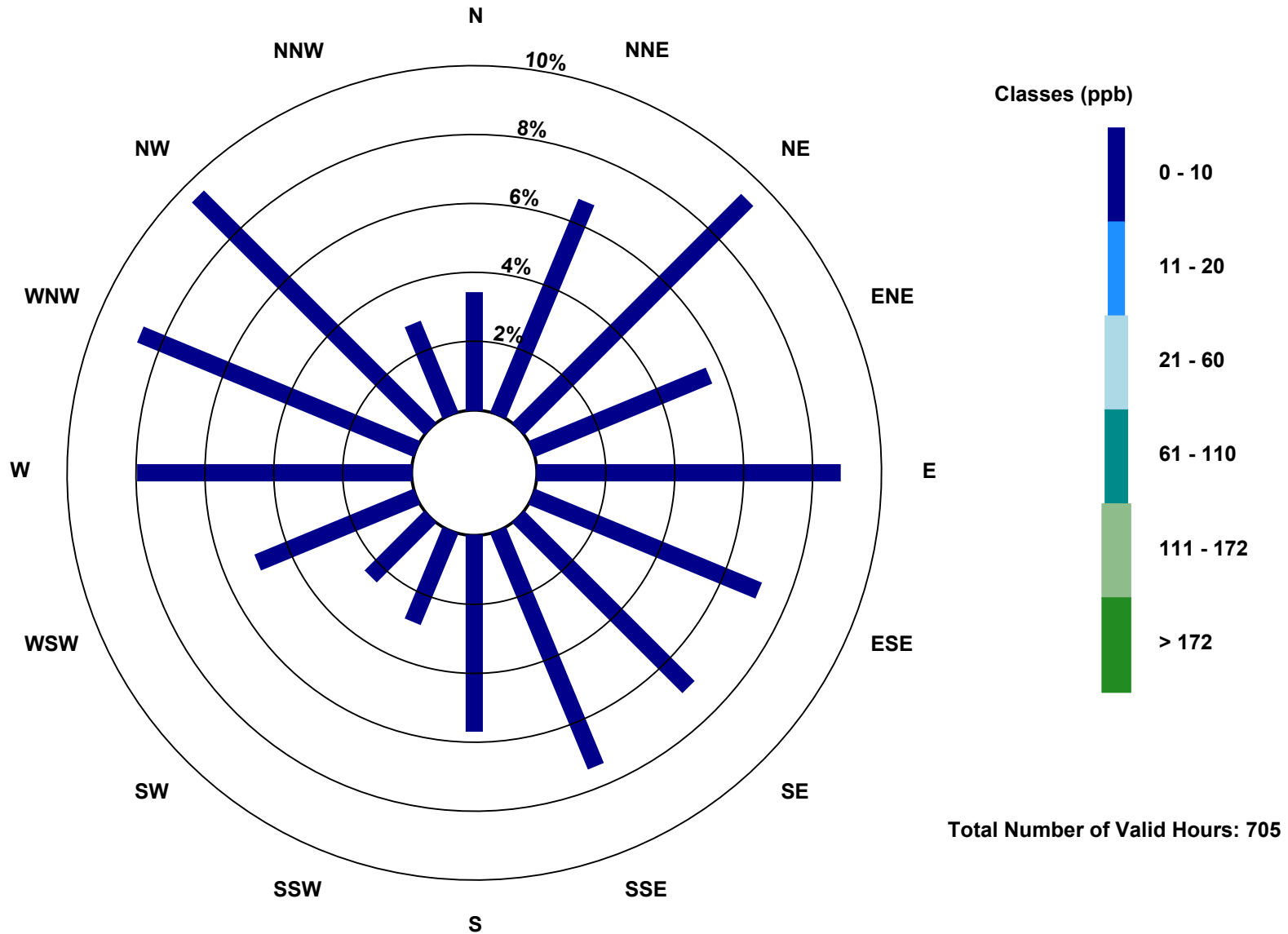
Total Number of Valid Hours: 705

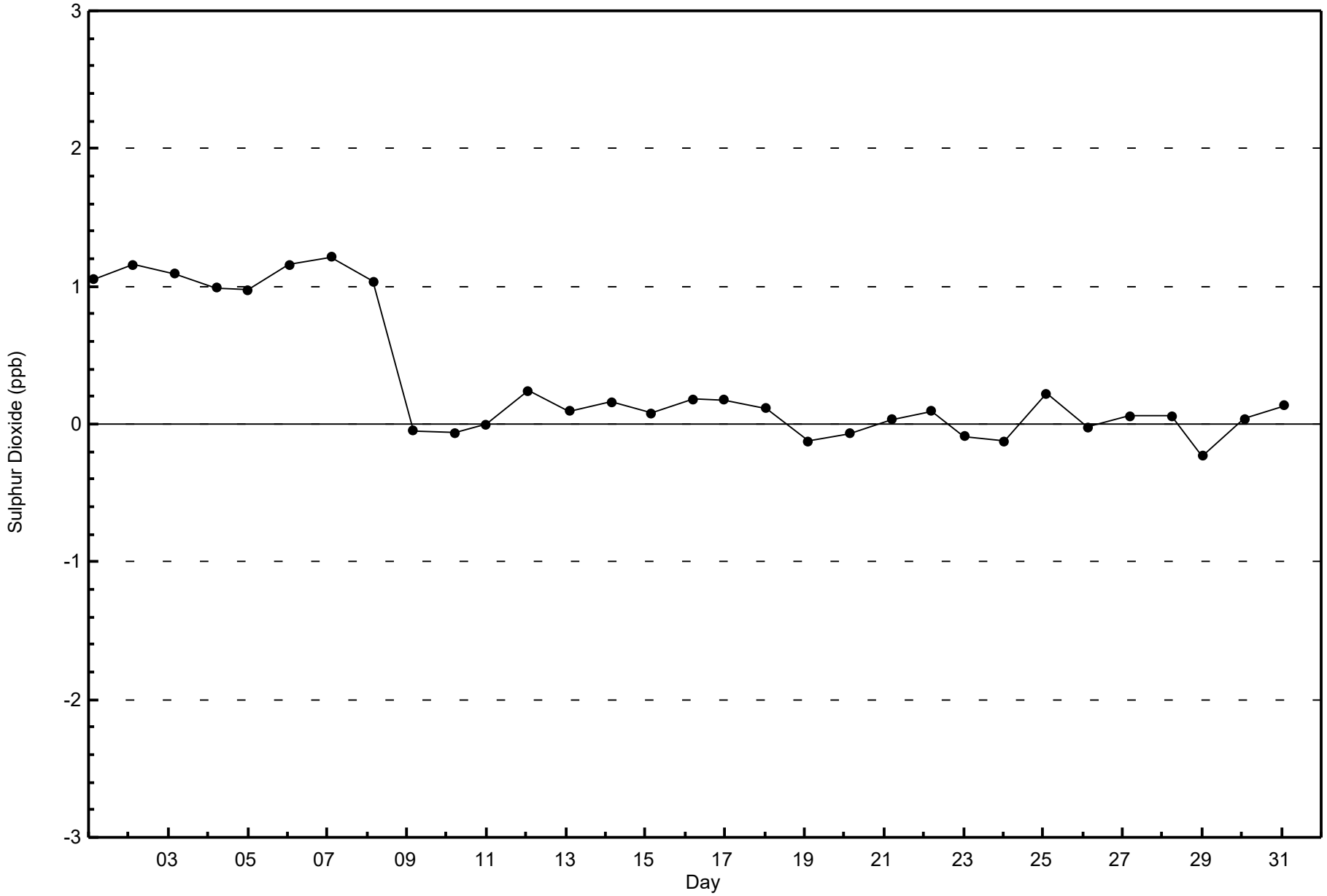
Total Number of Hours: 744

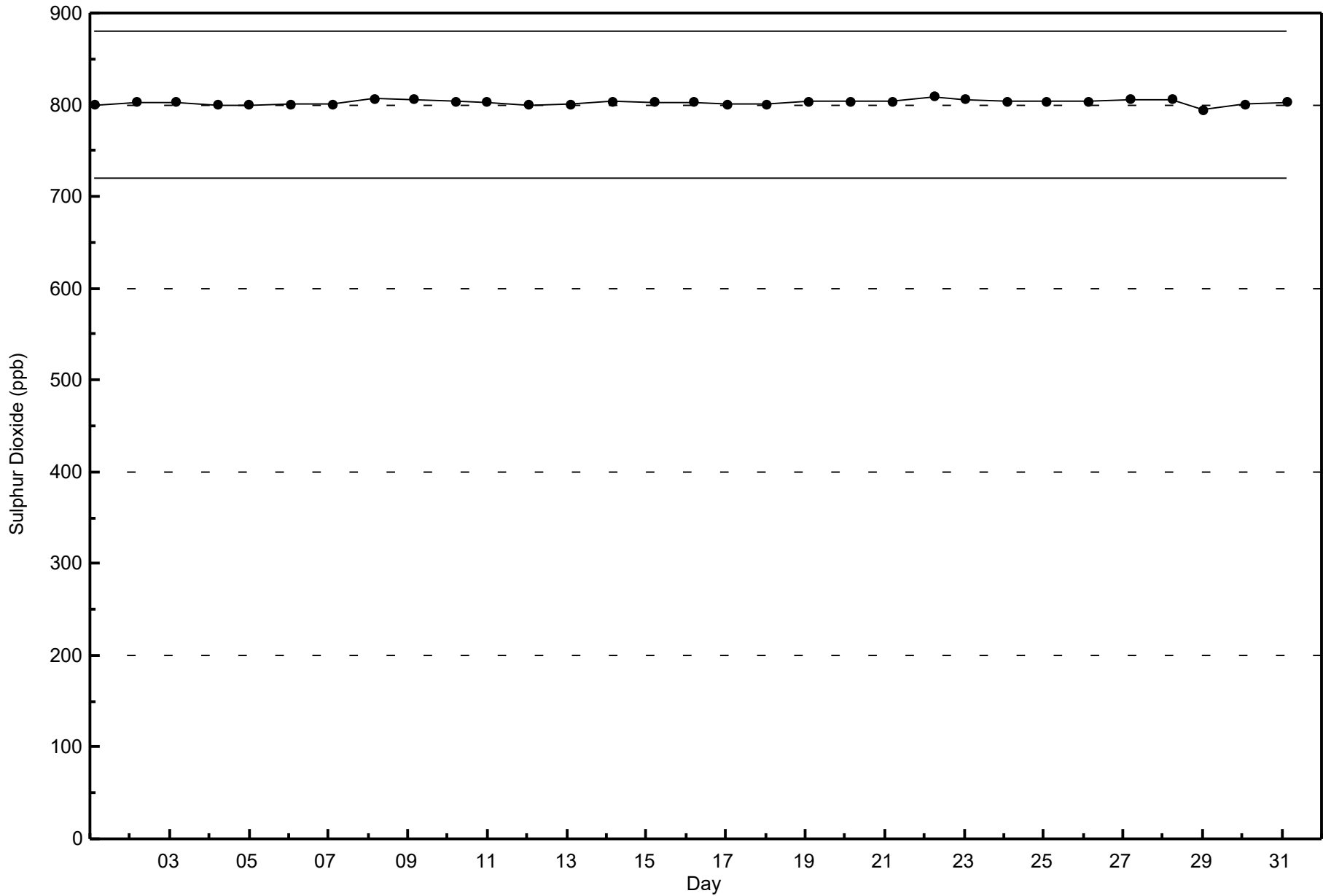


Wood Buffalo Environmental Association  
Wind Rose May 2024

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





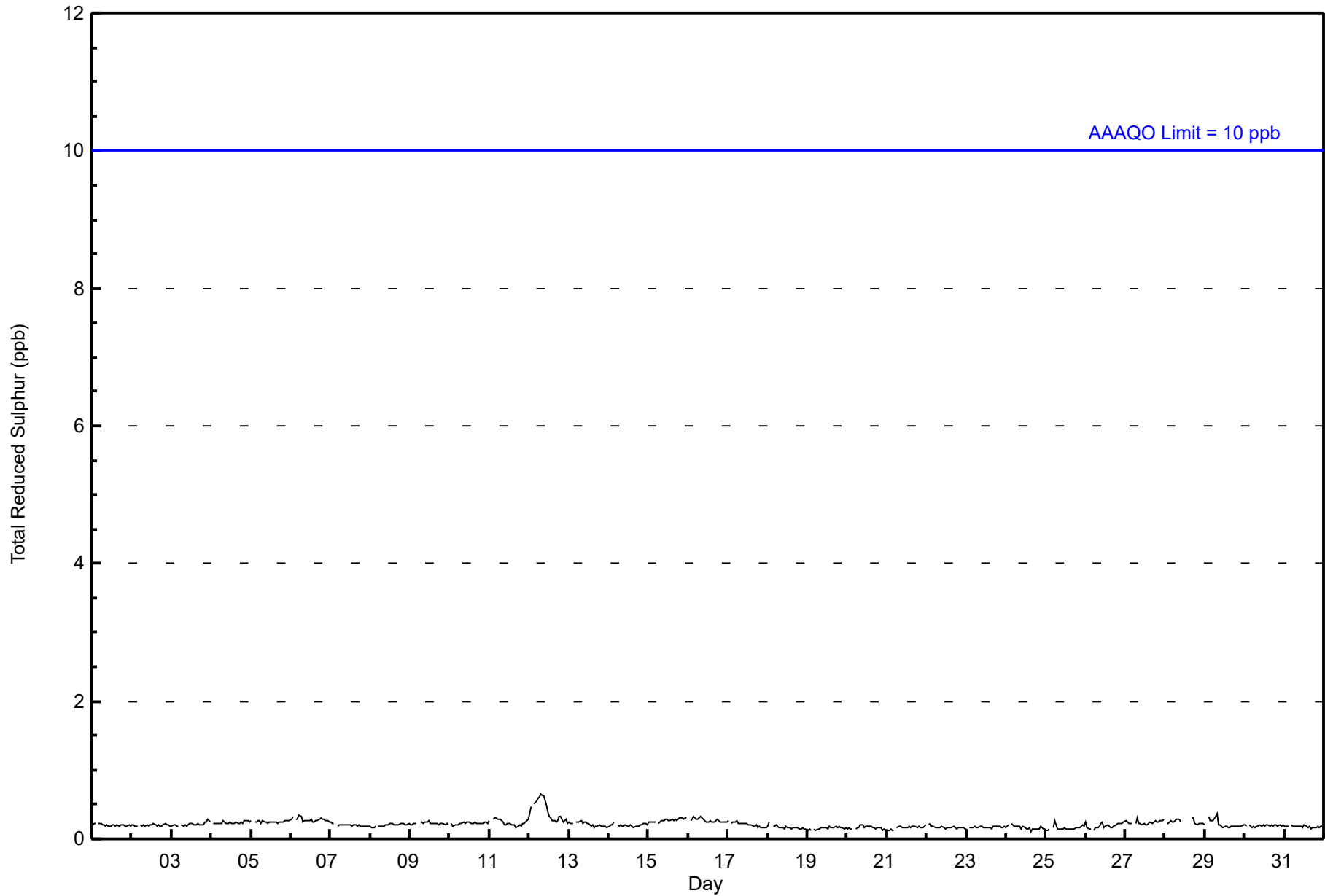






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain - May 2024**





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

**Total Reduced Sulphur (TRS) - ppb**  
**Stony Mountain - May 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  
Stony Mountain - May 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	26	46	66	41	61	49	50	51	40	18	17	34	54	62	70	20	705
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	26	46	66	41	61	49	50	51	40	18	17	34	54	62	70	20	705

Total Number of Valid Hours: 705

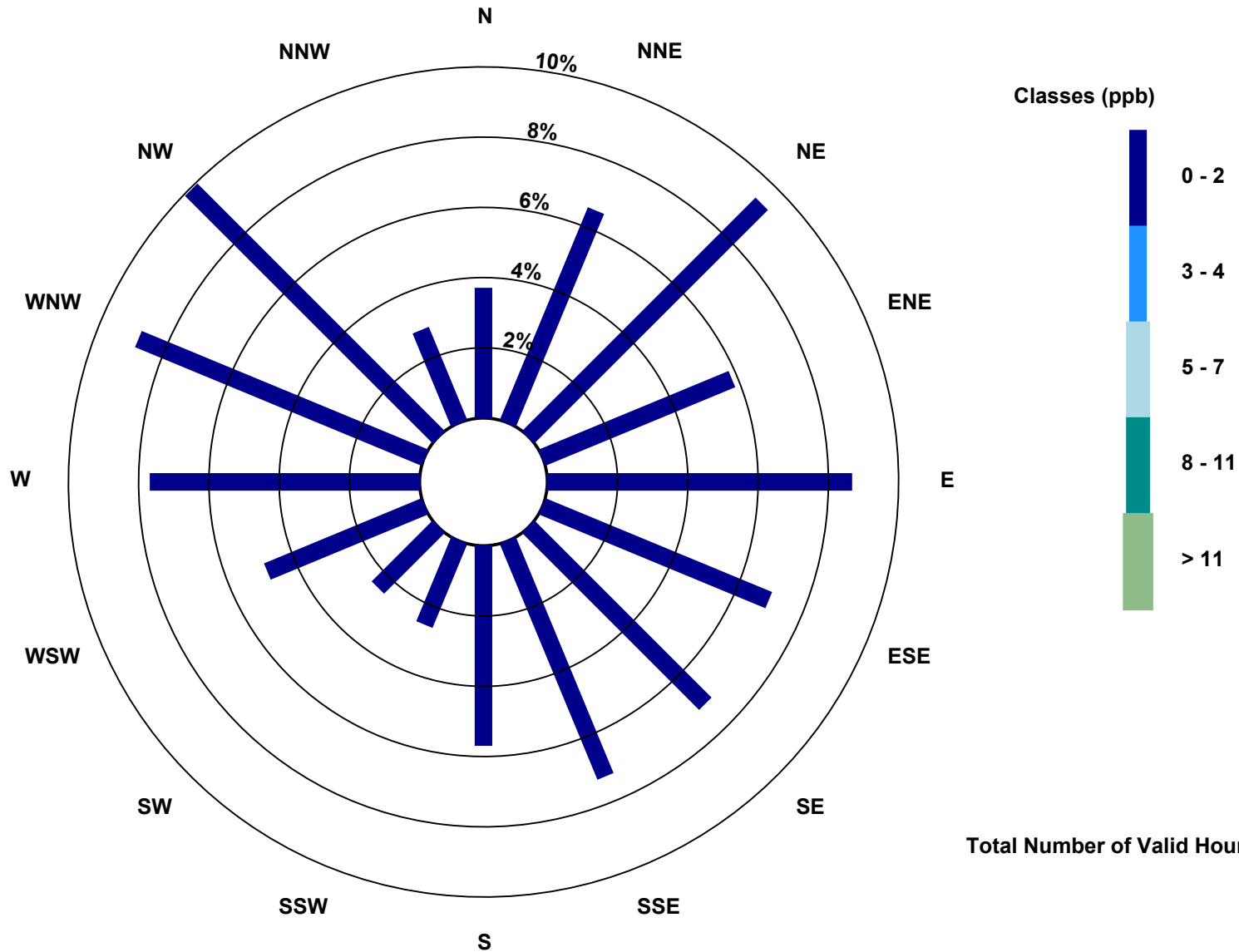
Total Number of Hours: 744



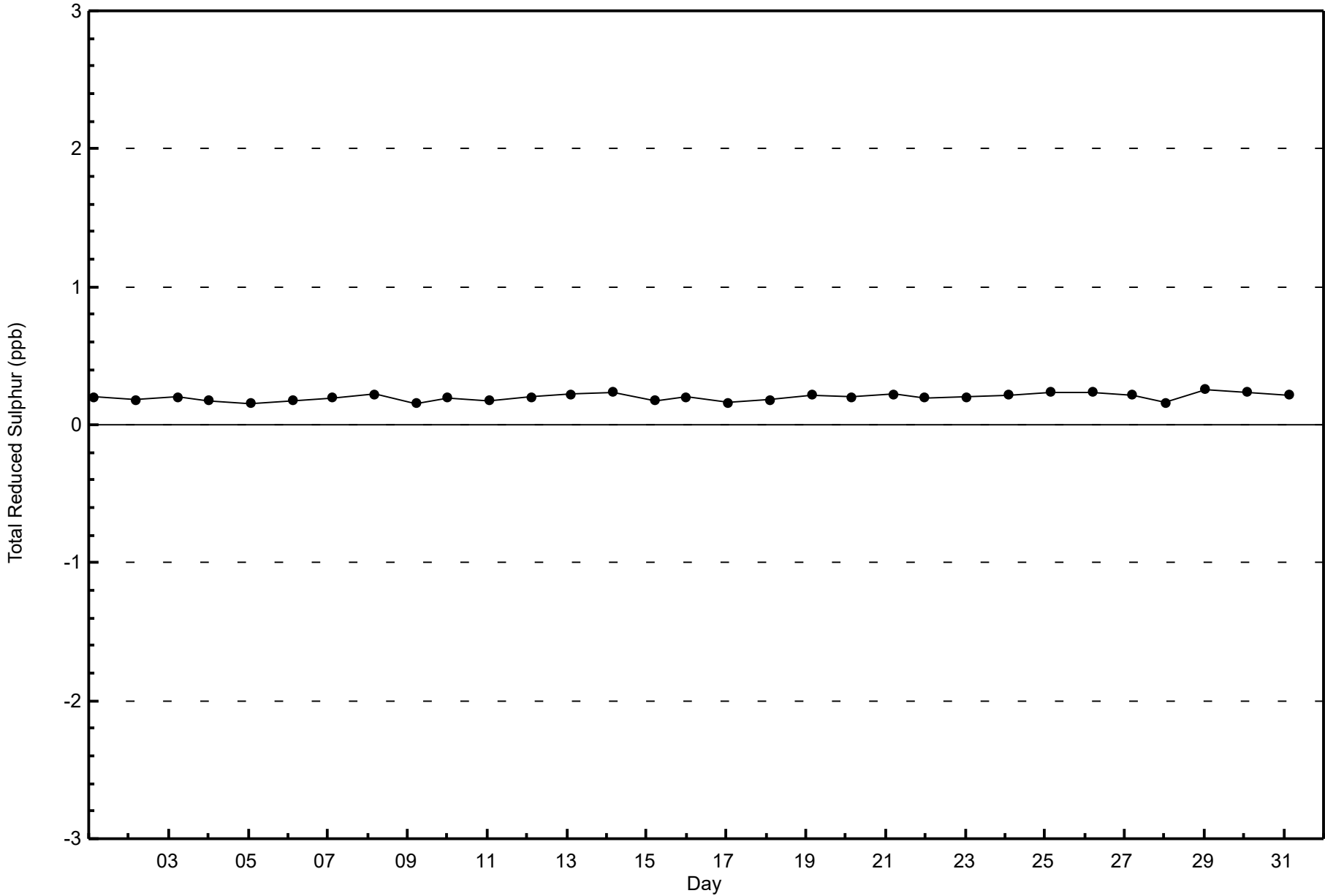


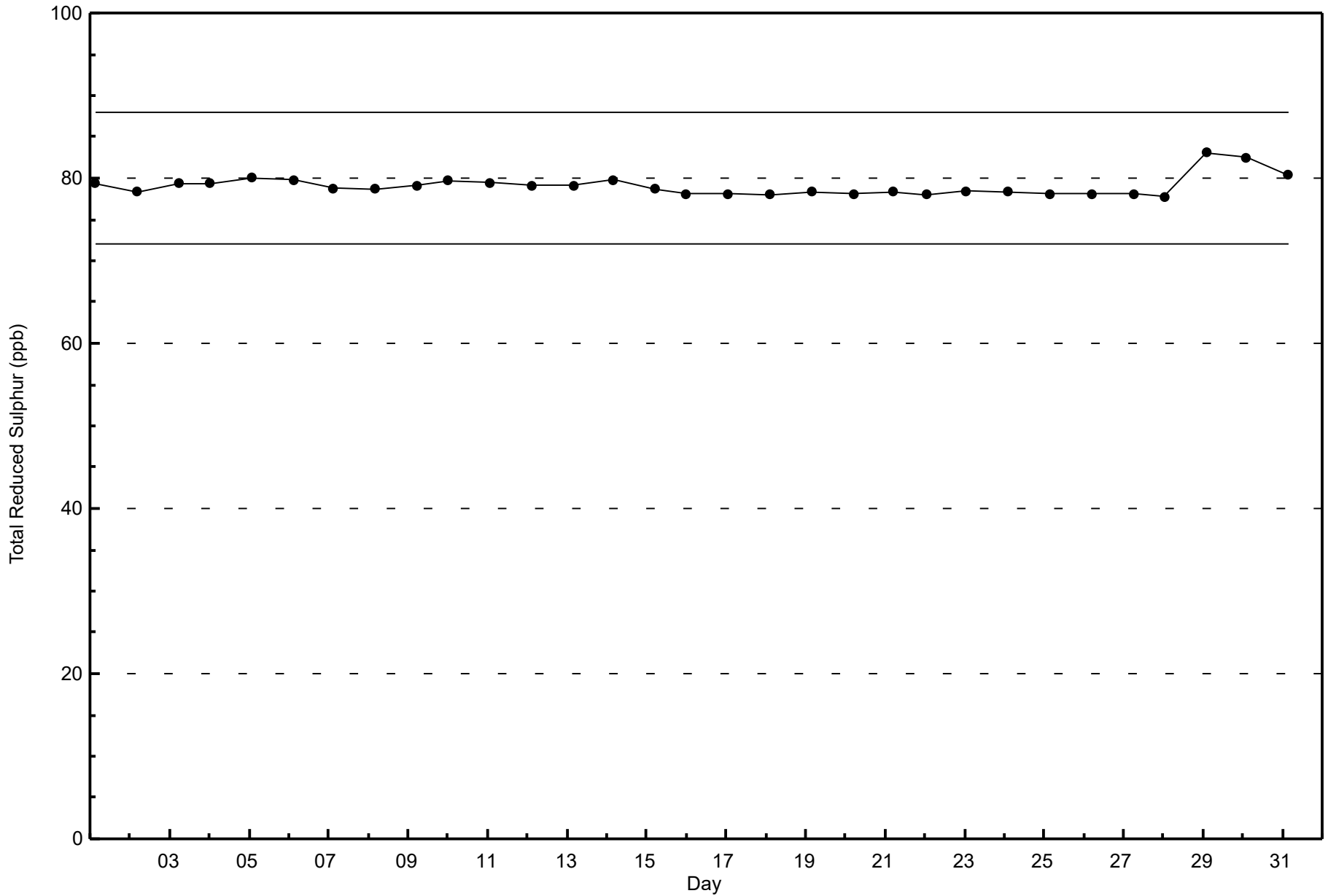
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Stony Mountain

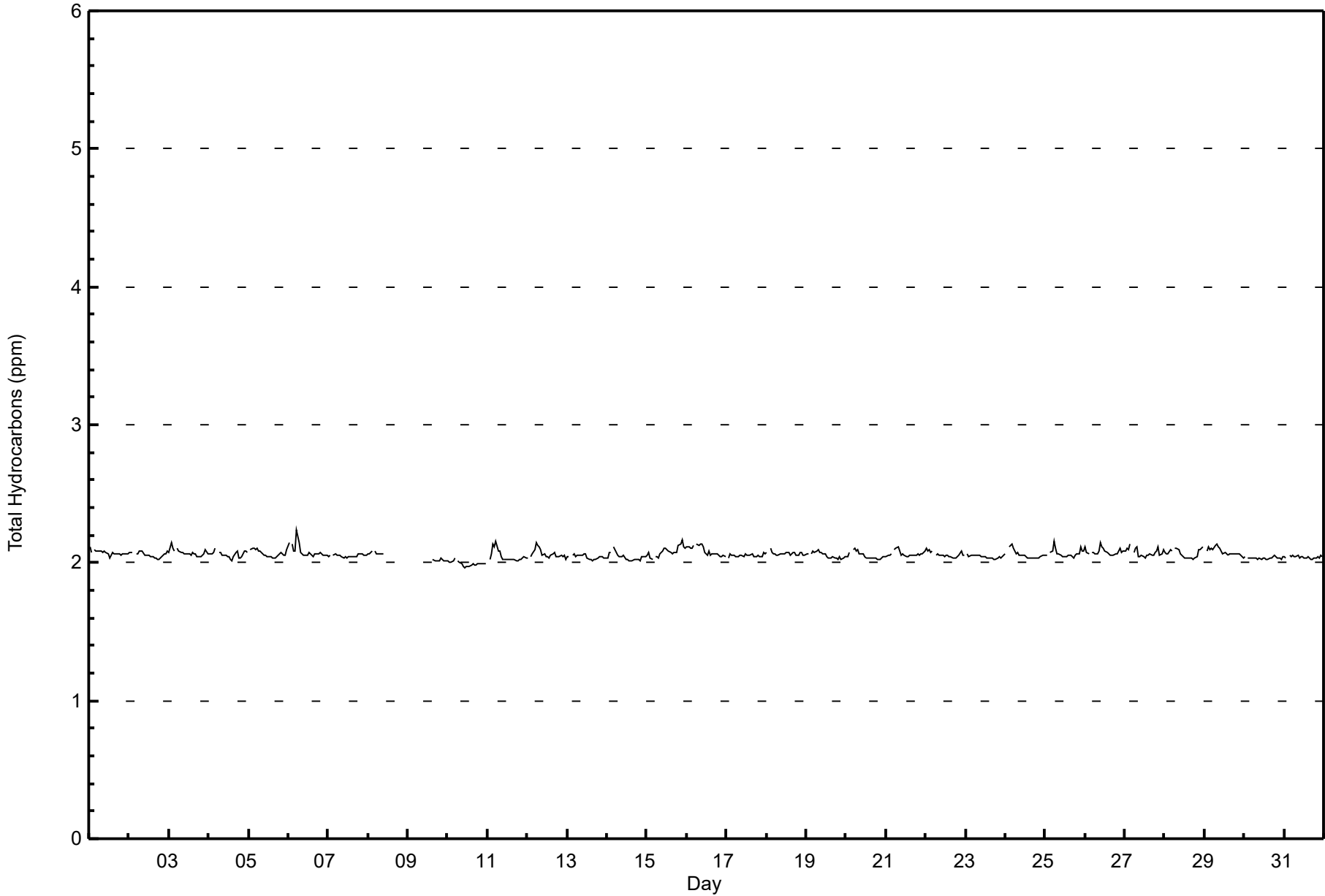


Total Number of Valid Hours: 705











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

**Total Hydrocarbons (THC) - ppm**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	282	41.17	41.17
2.1 - 3.0	403	58.83	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm  
Stony Mountain - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	4	19	27	18	29	12	18	11	10	8	11	20	34	29	29	3	282
2.1 - 3.0	20	28	39	21	33	38	31	41	30	12	6	10	14	24	37	17	401
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>	24	47	66	39	62	50	49	52	40	20	17	30	48	53	66	20	683

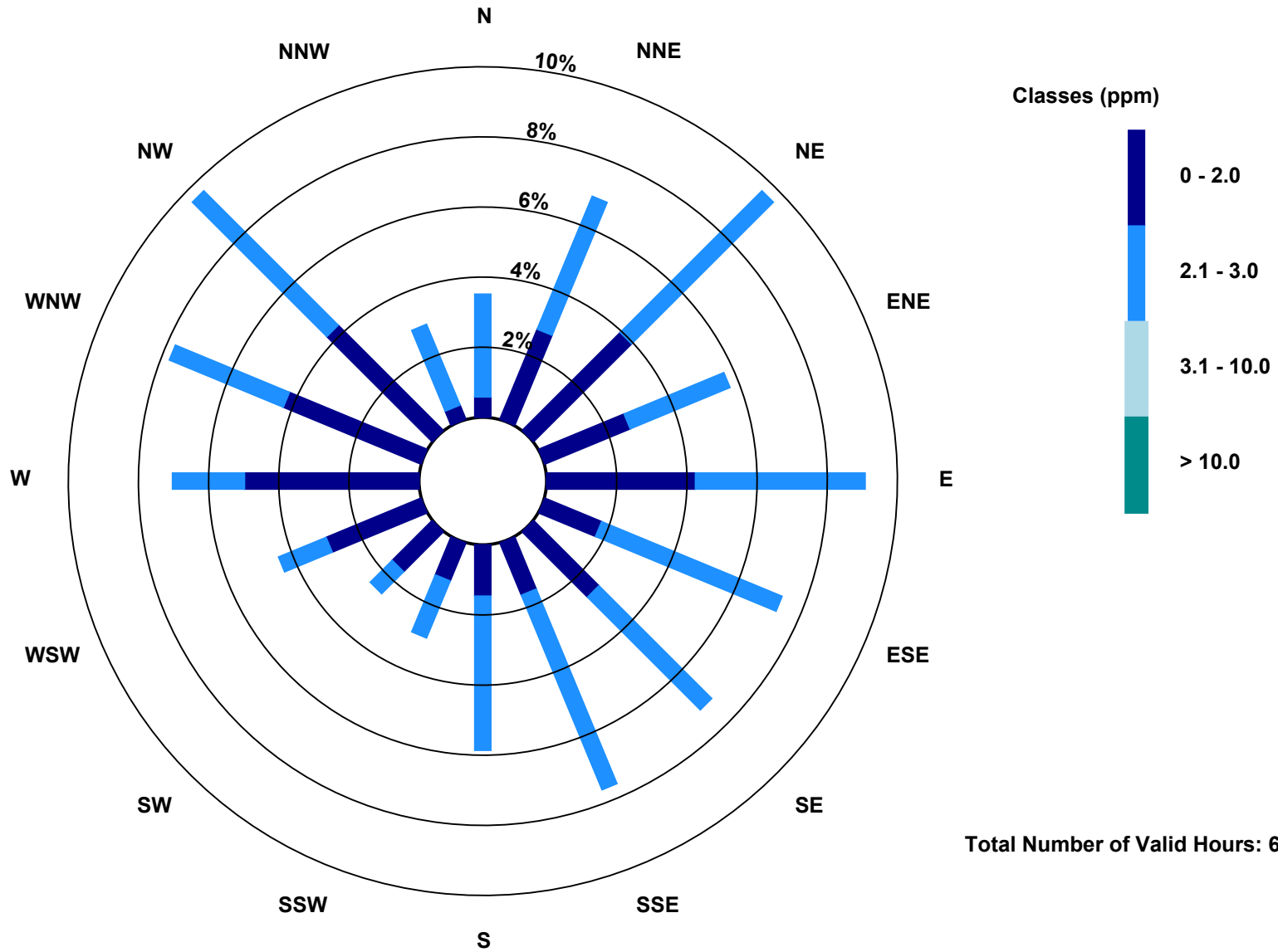
Total Number of Valid Hours: 683

Total Number of Hours: 744

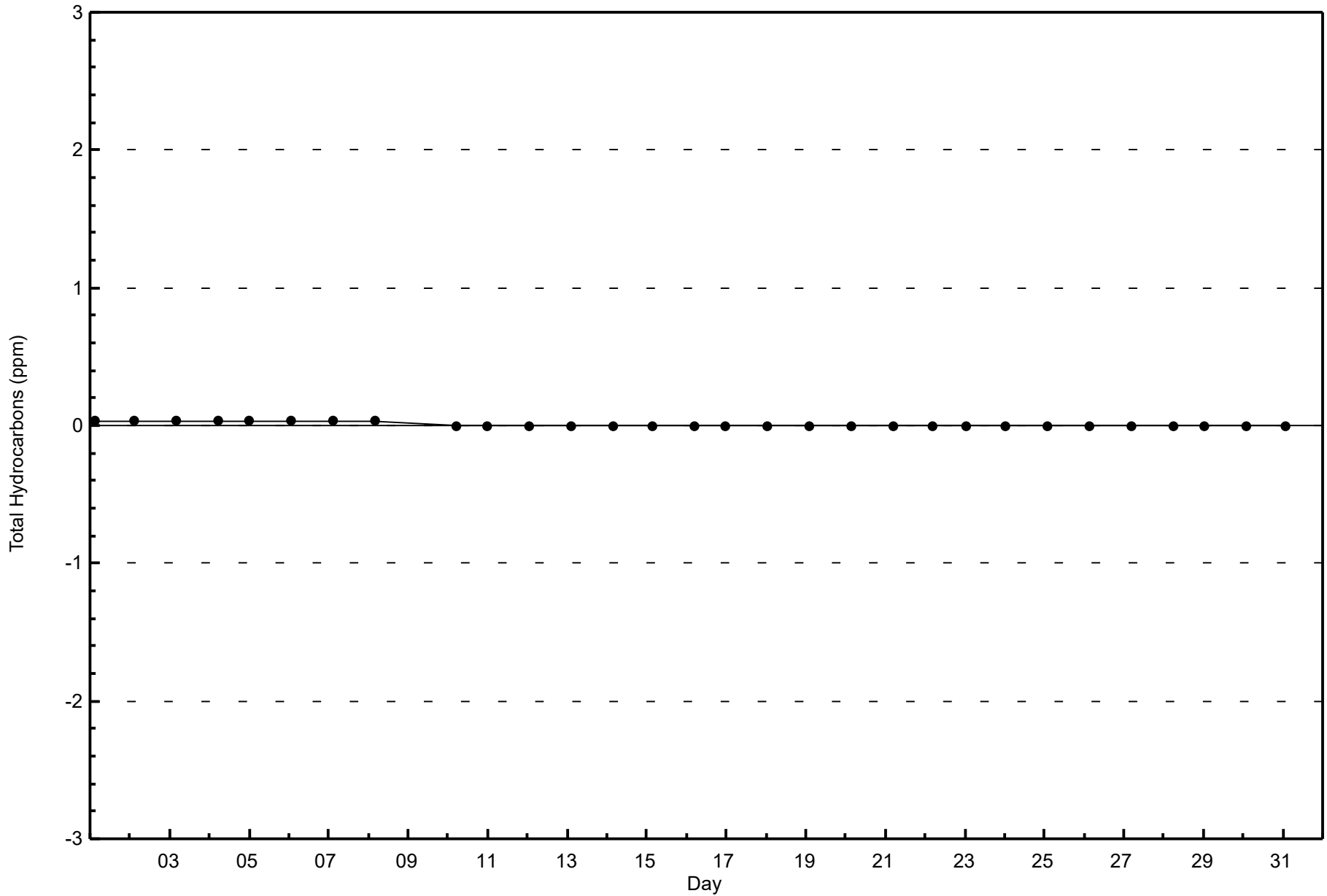


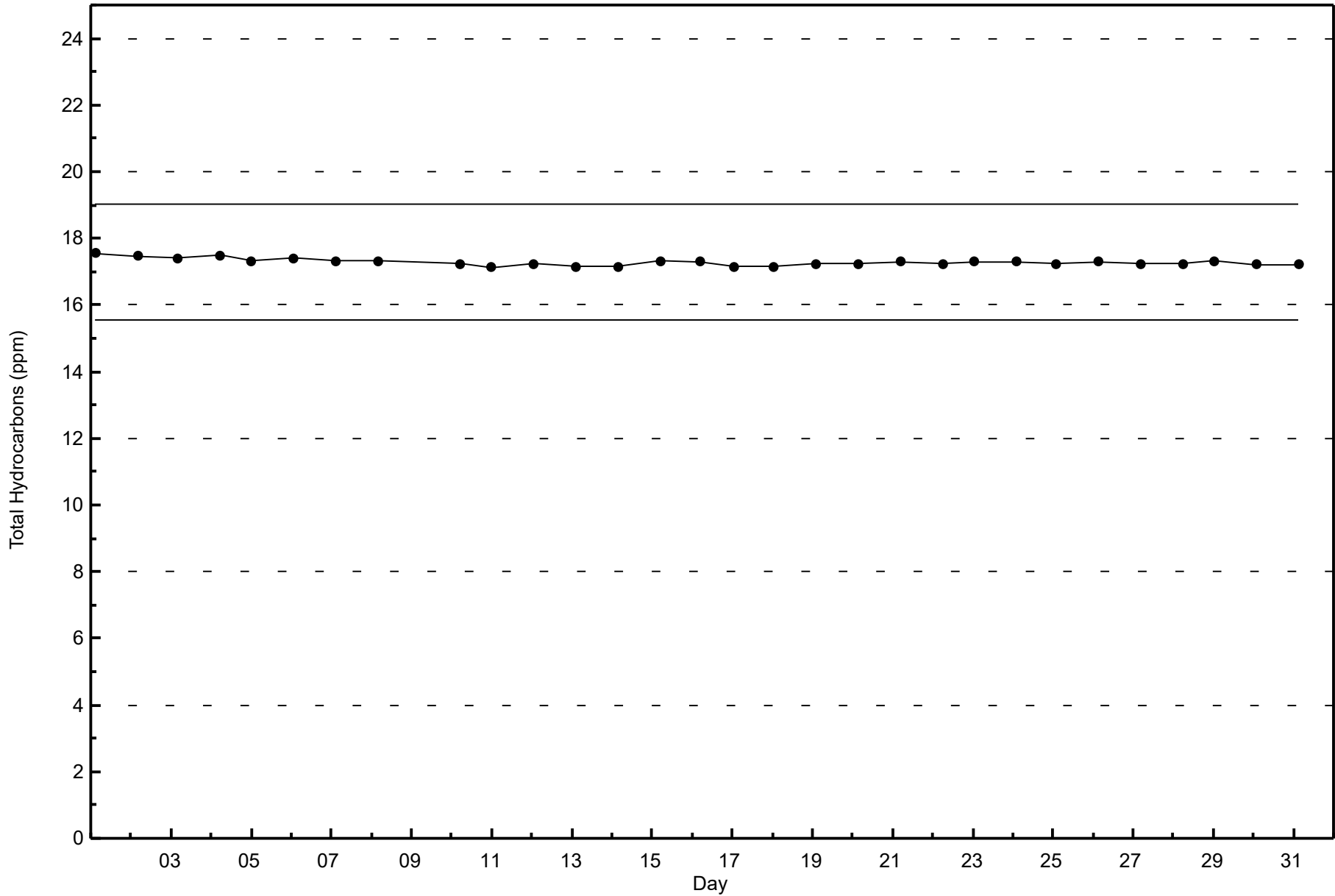
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Stony Mountain







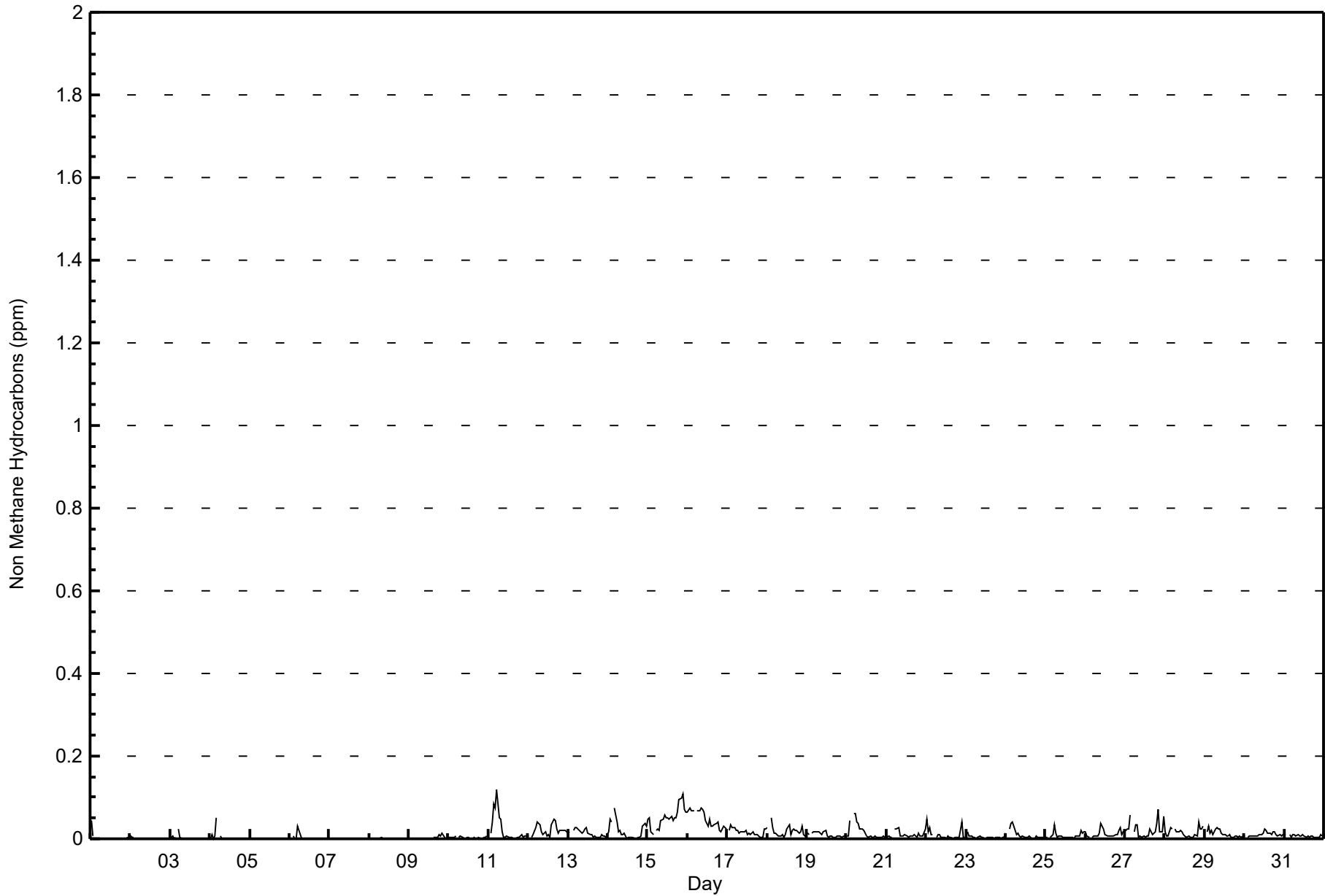




Summary of Hour Averages

Stony Mountain - May 2024

Maximum Value: 0.119 ppm on May 11 06:00		Maximum Daily Average: 0.052 ppm on May 15		Hours in Service: 744																									
Minimum Value: 0.000 ppm on May 1 05:00		Minimum Daily Average: 0.000 ppm on May 5		Hours of Data: 685																									
Maximum Diurnal Average: 0.022 ppm at hour 6		Minimum Diurnal Average: 0.007 ppm at hour 18		Hours of Missing Data: 59																									
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: 40																									
				Percent Operational Time: 97.5																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-May	0.045	0.006	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.045			
2-May	0.005	0.002	0.002	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005		
3-May	0.000	0.006	0.000	0.002	Z	0.024	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.024		
4-May	0.000	0.009	0.000	0.007	0.051	Z	0.006	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	0.002	0.000	0.000	0.003	0.051			
5-May	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	0.001	0.000	0.001	0.001		
6-May	0.001	Z	0.007	0.000	0.000	0.031	0.009	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.002	0.031	0.031		
7-May	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	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	
8-May	0.000	0.000	0.000	Z	0.001	0.001	0.001	0.002	0.001	0.000	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.002
9-May	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	0.003	0.003	0.002	0.009	0.006	0.013	0.003	0.001	0.001	0.001	0.001	--	0.013	
10-May	0.003	0.003	0.003	0.004	0.005	Z	0.002	0.006	0.004	0.001	0.001	0.004	0.004	0.001	0.001	0.003	0.002	0.001	0.002	0.002	0.002	0.003	0.003	0.006	0.003	0.006	0.003	0.006	
11-May	Z	0.013	0.042	0.083	0.076	0.119	0.052	0.049	0.018	0.002	0.004	0.006	0.004	0.002	0.002	0.001	0.001	0.002	0.003	0.006	0.011	0.003	0.005	0.005	0.022	0.119	0.119	0.119	
12-May	0.006	Z	0.002	0.010	0.026	0.042	0.037	0.033	0.017	0.010	0.016	0.006	0.009	0.004	0.033	0.047	0.044	0.024	0.015	0.022	0.020	0.019	0.021	0.018	0.021	0.047	0.047	0.047	
13-May	0.015	0.018	Z	0.021	0.026	0.026	0.025	0.016	0.014	0.018	0.025	0.027	0.015	0.010	0.009	0.003	0.008	0.003	0.005	0.004	0.009	0.006	0.005	0.005	0.013	0.027	0.027	0.027	
14-May	0.017	0.047	0.039	Z	0.074	0.040	0.017	0.019	0.011	0.009	0.012	0.002	0.002	0.003	0.004	0.002	0.001	0.001	0.003	0.002	0.006	0.030	0.038	0.030	0.018	0.074	0.074	0.074	
15-May	0.049	0.052	0.017	0.009	Z	0.022	0.023	0.020	0.043	0.047	0.057	0.051	0.050	0.049	0.054	0.043	0.051	0.051	0.064	0.096	0.099	0.110	0.073	0.065	0.052	0.110	0.110	0.110	
16-May	0.064	0.073	0.068	0.068	0.066	Z	0.067	0.067	0.074	0.070	0.064	0.043	0.032	0.046	0.030	0.032	0.034	0.037	0.039	0.020	0.017	0.024	0.029	0.024	0.047	0.074	0.074	0.074	
17-May	Z	0.019	0.036	0.027	0.028	0.020	0.022	0.014	0.016	0.018	0.017	0.021	0.012	0.013	0.010	0.018	0.011	0.009	0.010	0.007	0.005	0.004	0.022	0.024	0.017	0.036	0.036	0.036	
18-May	0.027	Z	0.050	0.026	0.014	0.014	0.011	0.008	0.008	0.010	0.004	0.010	0.025	0.033	0.011	0.020	0.024	0.021	0.020	0.014	0.019	0.029	0.009	0.008	0.018	0.050	0.050	0.050	
19-May	0.013	0.011	Z	0.014	0.017	0.017	0.017	0.018	0.012	0.011	0.016	0.019	0.008	0.003	0.008	0.006	0.004	0.003	0.006	0.007	0.008	0.004	0.006	0.006	0.010	0.019	0.019	0.019	
20-May	0.008	0.008	0.042	Z	0.061	0.062	0.041	0.036	0.023	0.024	0.022	0.014	0.006	0.004	0.008	0.004	0.004	0.006	0.003	0.002	0.004	0.004	0.006	0.003	0.017	0.062	0.062	0.062	
21-May	0.004	0.005	0.004	0.005	Z	0.025	0.024	0.026	0.008	0.007	0.006	0.009	0.007	0.004	0.008	0.005	0.008	0.011	0.005	0.012	0.008	0.007	0.008	0.025	0.010	0.026	0.026	0.026	
22-May	0.048	0.019	0.028	0.009	0.011	Z	0.003	0.010	0.010	0.004	0.005	0.003	0.000	0.006	0.004	0.003	0.001	0.002	0.002	0.004	0.005	0.042	0.003	0.003	0.010	0.048	0.048	0.048	
23-May	Z	0.018	0.005	0.006	0.003	0.004	0.001	0.002	0.008	0.003	0.002	0.001	0.001	0.002	0.004	0.004	0.003	0.002	0.002	0.004	0.003	0.000	0.004	0.003	0.004	0.018	0.018	0.018	
24-May	0.012	Z	0.024	0.038	0.040	0.031	0.010	0.014	0.007	0.005	0.006	0.005	0.003	0.002	0.006	0.003	0.001	0.000	0.005	0.004	0.004	0.005	0.004	0.002	0.010	0.040	0.040	0.040	
25-May	0.003	0.003	Z	0.002	0.009	0.034	0.014	0.002	0.006	0.007	0.003	0.003	0.004	0.002	0.002	0.003	0.005	0.000	0.007	0.008	0.008	0.022	0.013	0.016	0.008	0.034	0.034	0.034	
26-May	0.017	0.008	0.004	Z	0.005	0.007	0.008	0.005	0.013	0.038	0.032	0.024	0.011	0.008	0.008	0.005	0.007	0.005	0.010	0.012	0.020	0.026	0.012	0.015	0.013	0.038	0.038	0.038	
27-May	0.019	0.024	0.025	0.059	Z	0.017	0.032	0.035	0.003	0.005	0.003	0.005	0.004	0.007	0.005	0.023	0.012	0.014	0.018	0.038	0.072	0.018	0.018	0.053	0.022	0.072	0.072	0.072	
28-May	0.019	0.008	0.006	0.026	0.025	Z	0.023	0.016	0.016	0.020	0.017	0.011	0.008	0.002	0.007	0.004	0.002	0.002	0.009	0.008	0.042	0.024	0.025	0.031	0.015	0.042	0.042	0.042	
29-May	Z	0.016	0.030	0.014	0.019	0.011	0.023	0.029	0.023	0.022	0.012	0.010	0.011	0.007	0.005	0.010	0.003	0.002	0.007	0.006	0.004	0.007	0.002	0.008	0.012	0.030	0.030	0.030	
30-May	0.008	Z	0.005	0.005	0.006	0.006	0.006	0.007	0.008	0.011	0.011	0.014	0.023	0.020	0.014	0.015	0.009	0.016	0.018	0.010	0.008	0.011	0.007	0.011	0.011	0.023	0.023	0.023	
31-May	0.012	0.010	Z	0.010	0.003	0.010	0.009	0.006	0.011	0.007	0.007	0.012	0.006	0.002	0.007	0.003	0.008	0.007	0.004	0.004	0.003	0.004	0.011	0.008	0.007	0.012	0.012	0.012	
		0.016	0.015	0.018	0.018	0.022	0.022	0.016	0.015	0.012	0.012	0.010	0.008	0.008	0.008	0.009	0.008	0.007	0.009	0.010	0.013	0.014	0.011	0.012	Diurnal Average				
		0.064	0.073	0.068	0.083	0.076	0.119	0.067	0.067	0.074	0.070	0.064	0.051	0.050	0.049	0.054	0.047	0.051	0.051	0.064	0.096	0.099	0.110	0.073	0.065	Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance																							





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

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	327	47.74	47.74
0.006 - 0.05	333	48.61	96.35
0.06 - 0.1	25	3.65	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Stony Mountain - May 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	13	33	43	26	30	23	25	21	19	10	10	21	24	13	14	2	327
0.006 - 0.05	9	14	21	12	27	26	24	30	21	9	7	9	24	37	47	14	331
0.06 - 0.1	2	0	2	1	5	1	0	1	0	1	0	0	0	3	5	4	25
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	47	66	39	62	50	49	52	40	20	17	30	48	53	66	20	683

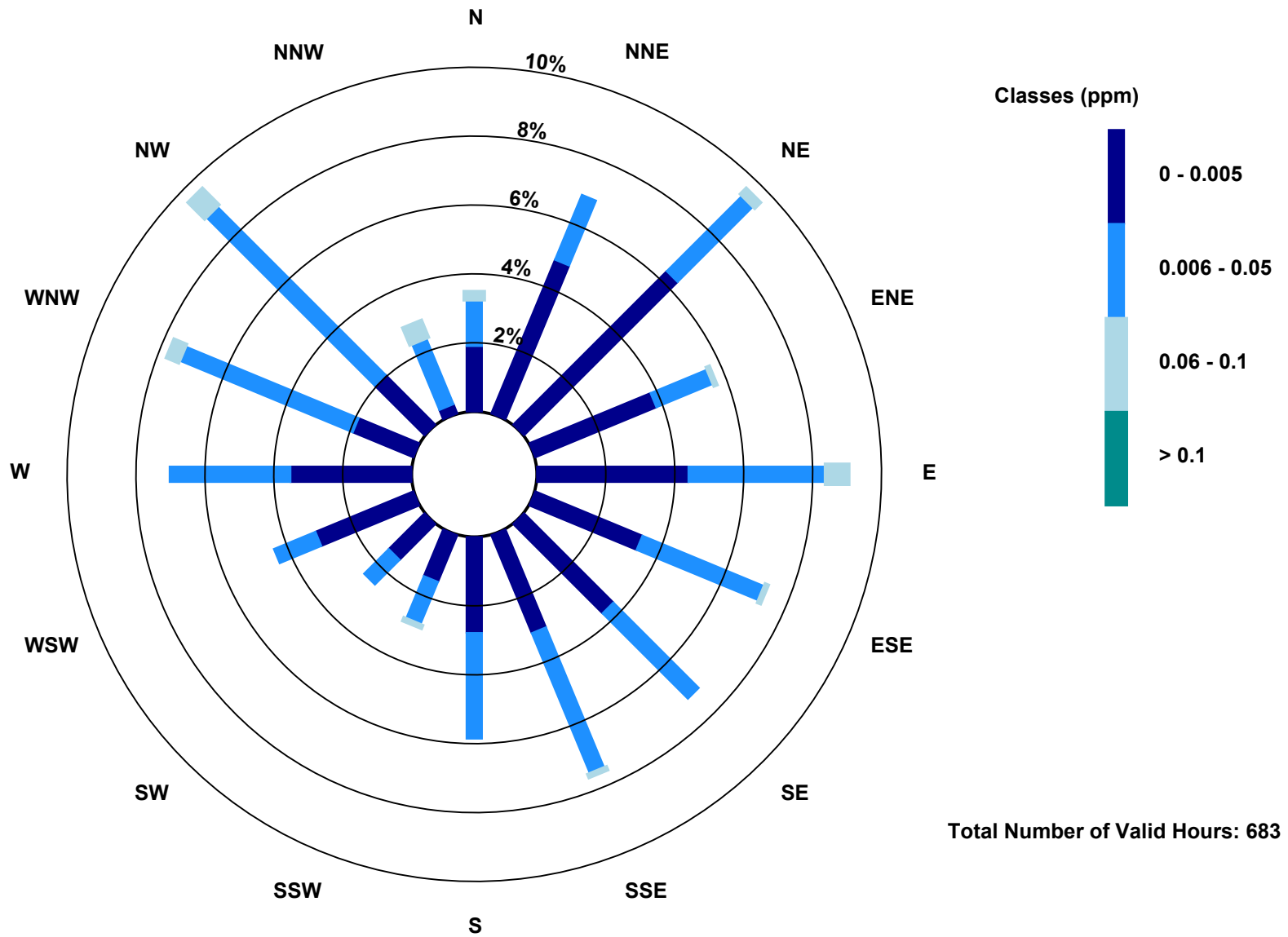
Total Number of Valid Hours: 683

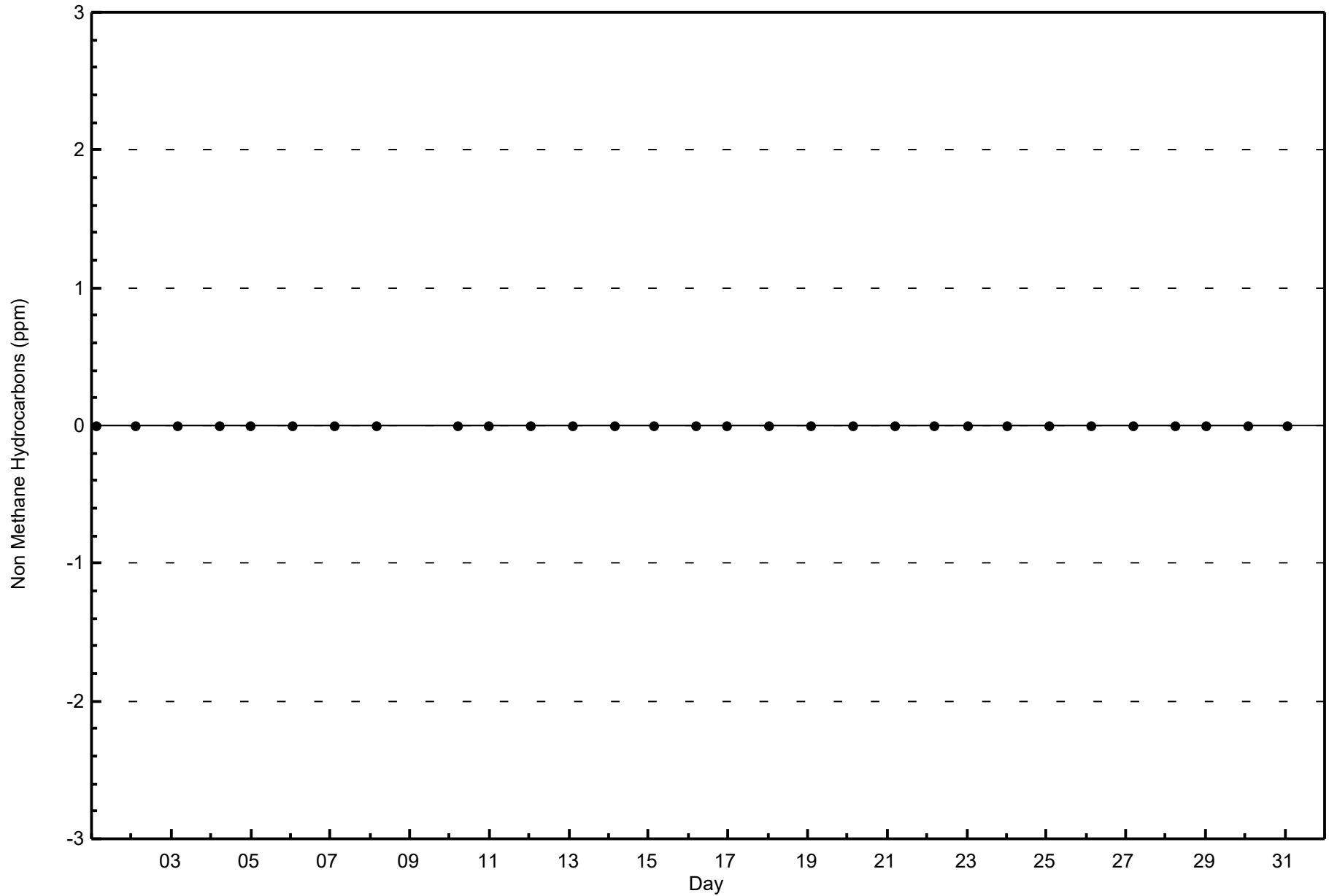
Total Number of Hours: 744



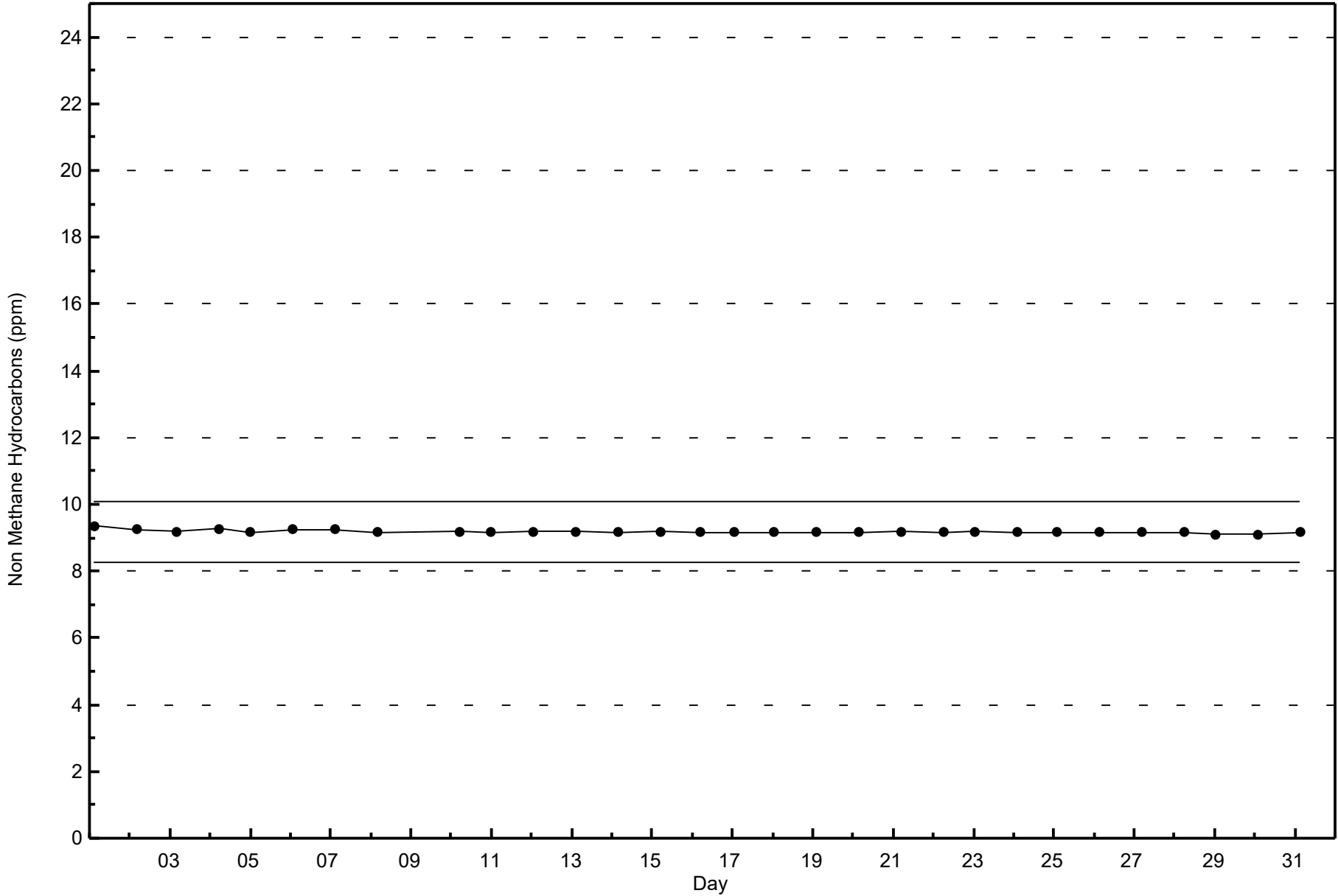
Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Stony Mountain







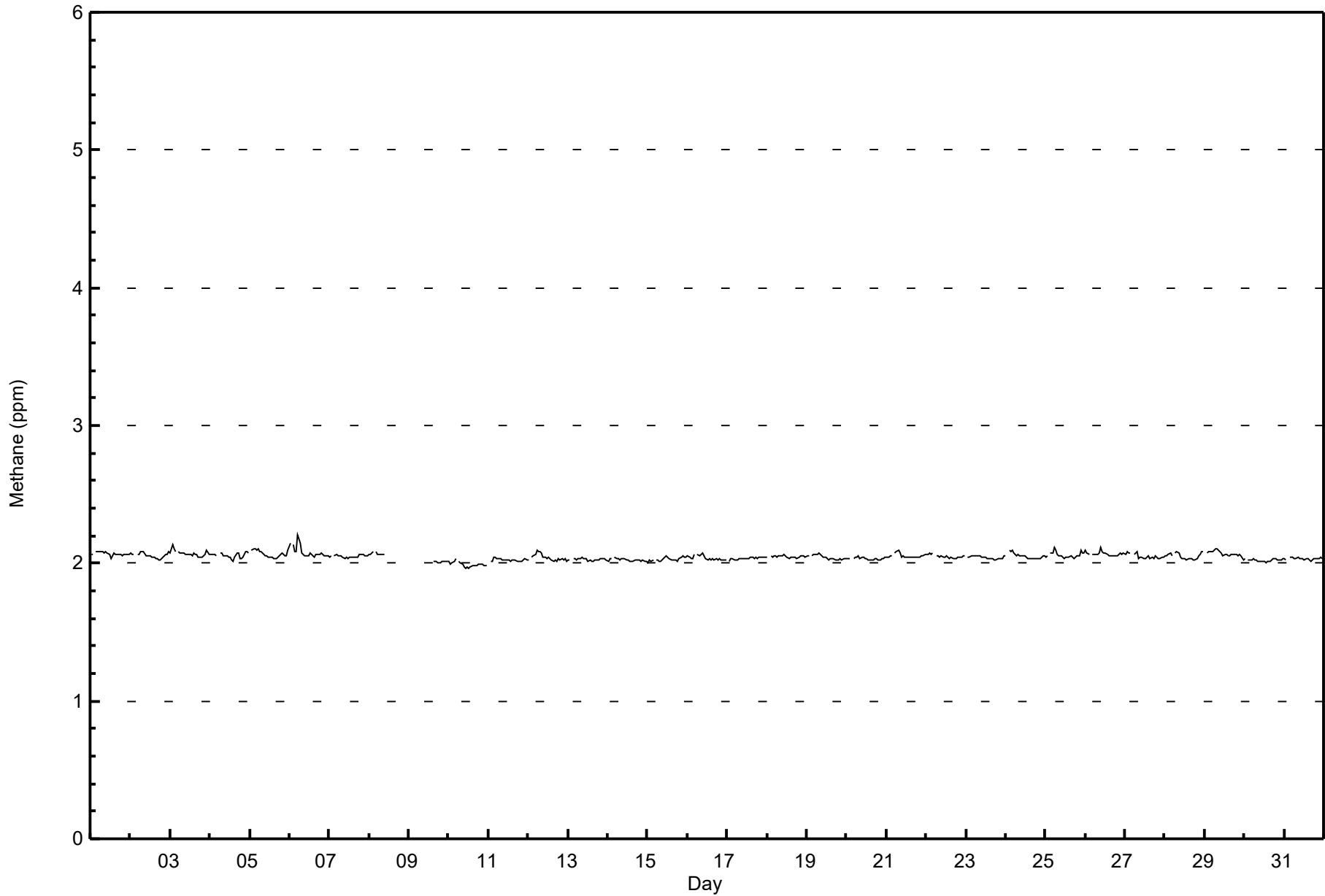






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - May 2024**





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

**Methane (CH<sub>4</sub>) - ppm**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	410	59.85	59.85
2.1 - 3.0	275	40.15	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Stony Mountain - May 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	6	25	42	26	36	22	24	18	18	15	11	20	37	40	57	12	409
2.1 - 3.0	18	22	24	13	26	28	25	34	22	5	6	10	11	13	9	8	274
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>	24	47	66	39	62	50	49	52	40	20	17	30	48	53	66	20	683

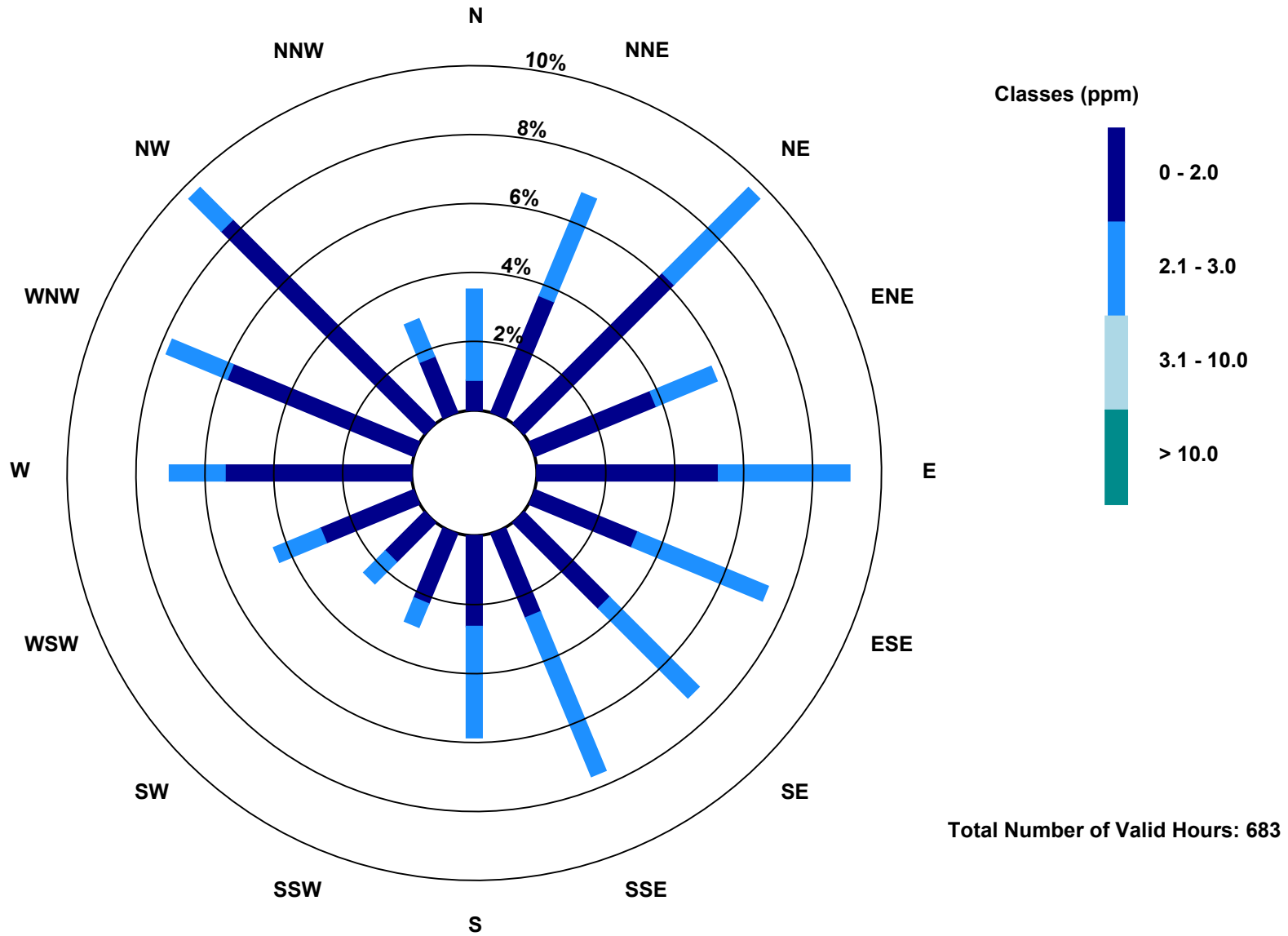
Total Number of Valid Hours: 683

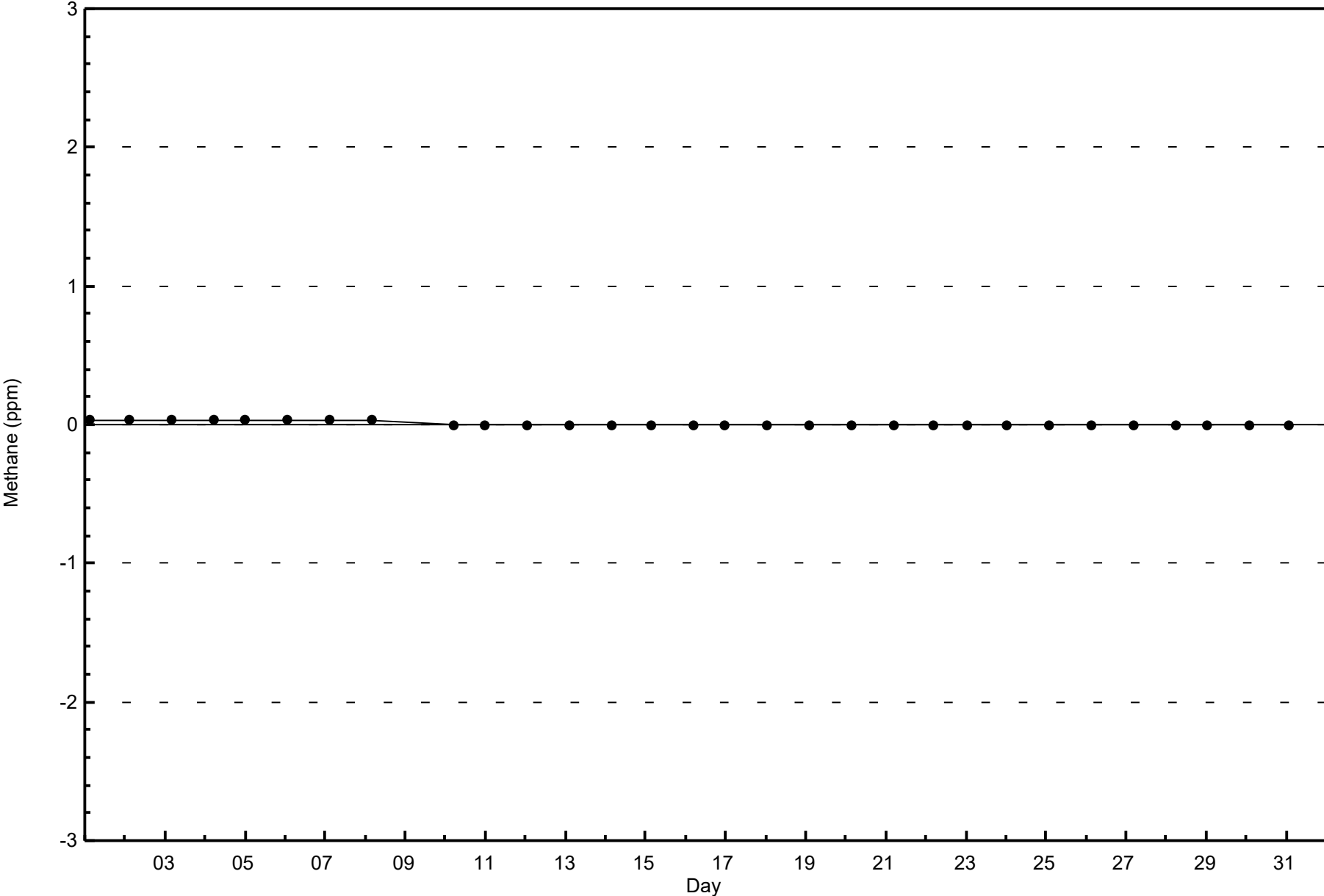
Total Number of Hours: 744

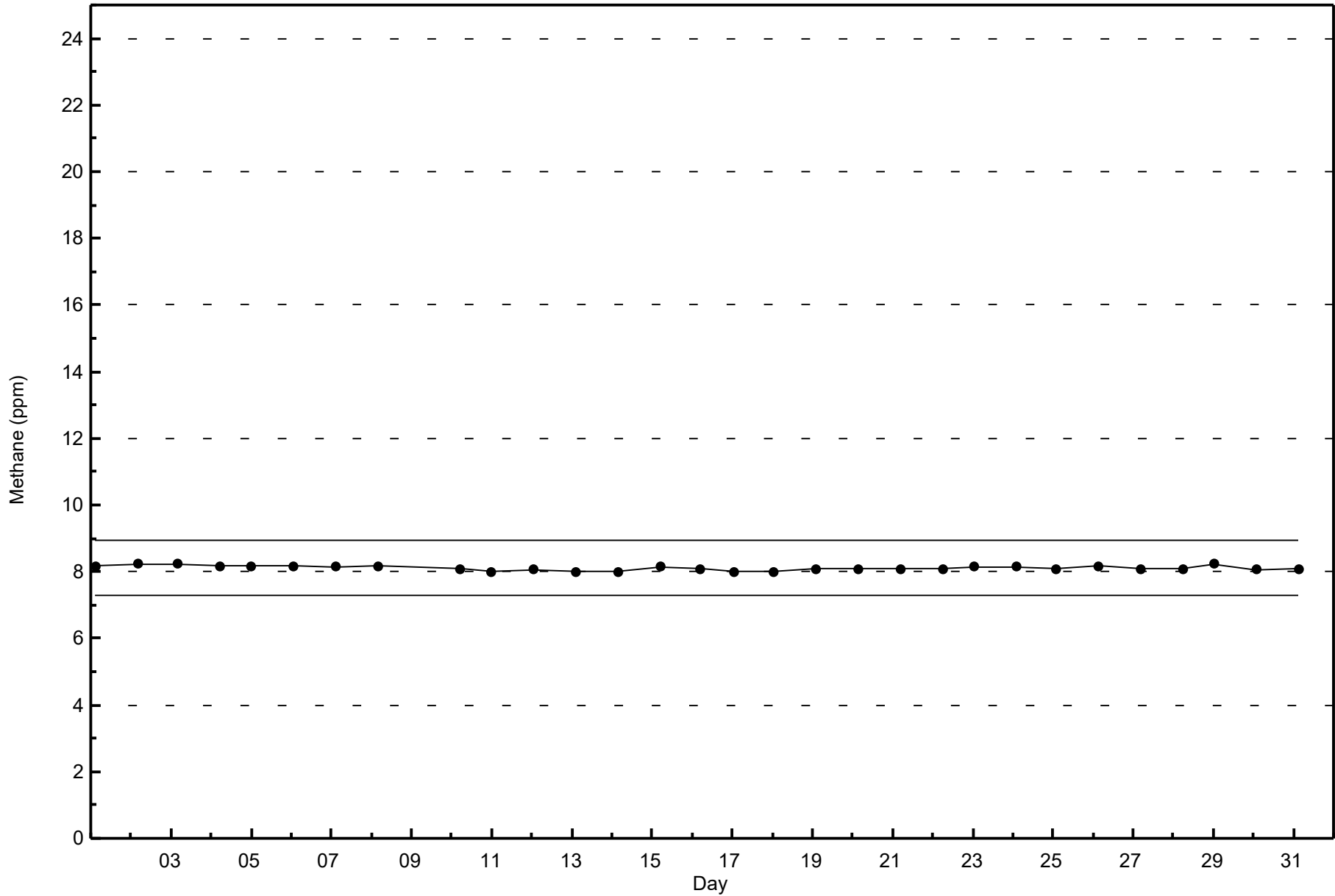


Wood Buffalo Environmental Association  
Wind Rose May 2024

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







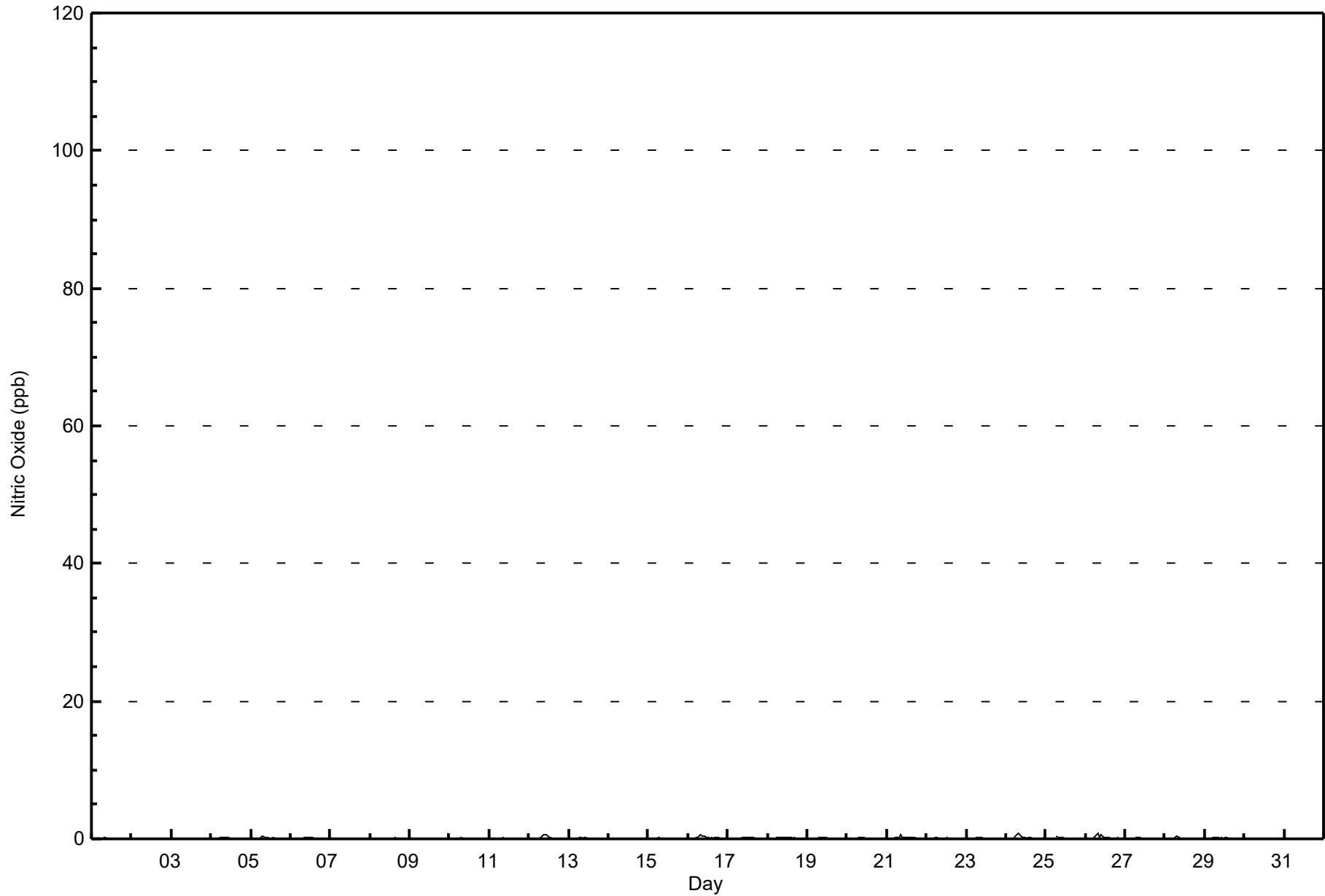






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Stony Mountain - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Stony Mountain - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Stony Mountain - May 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	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706
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>	24	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706

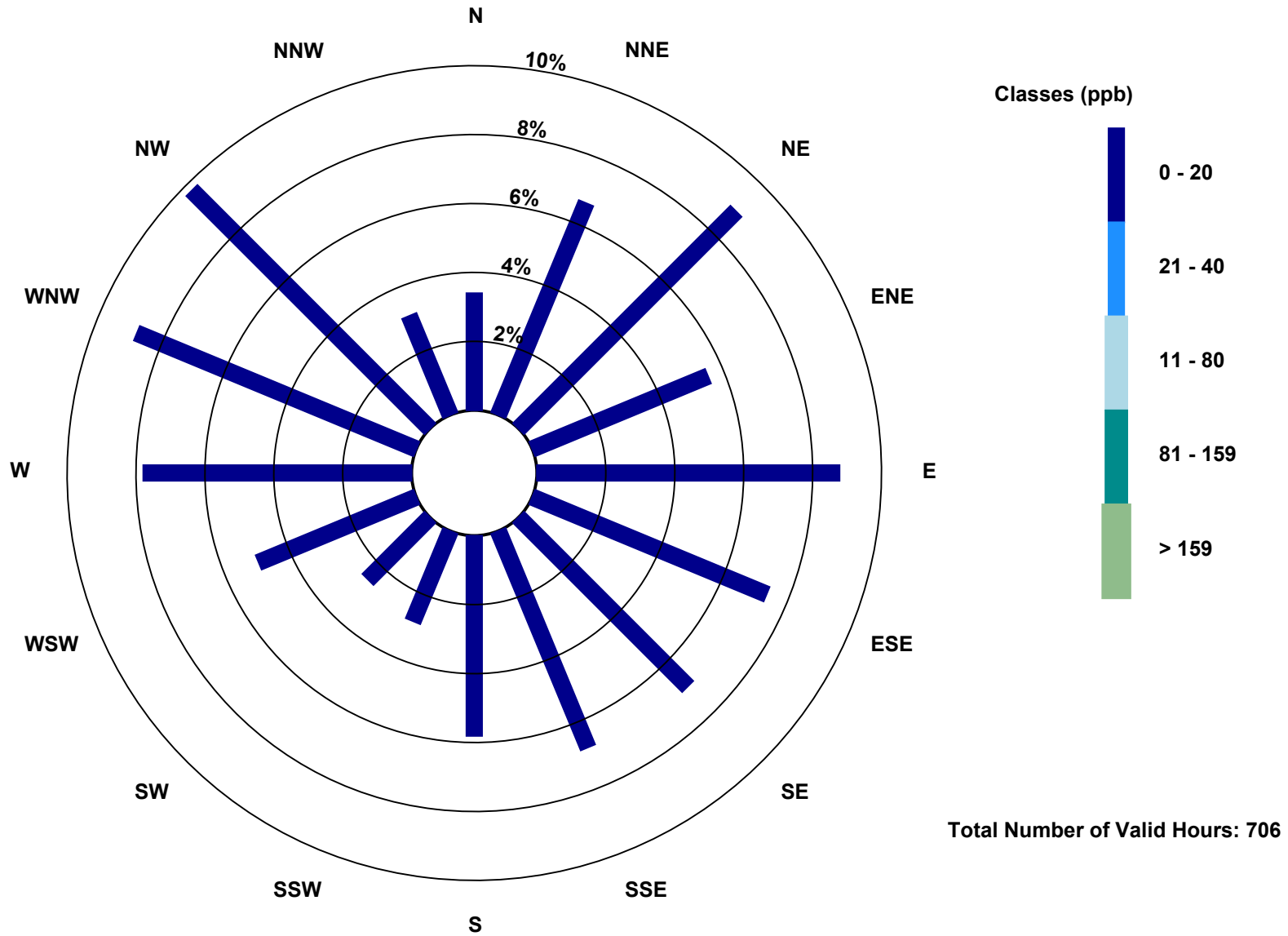
Total Number of Valid Hours: 706

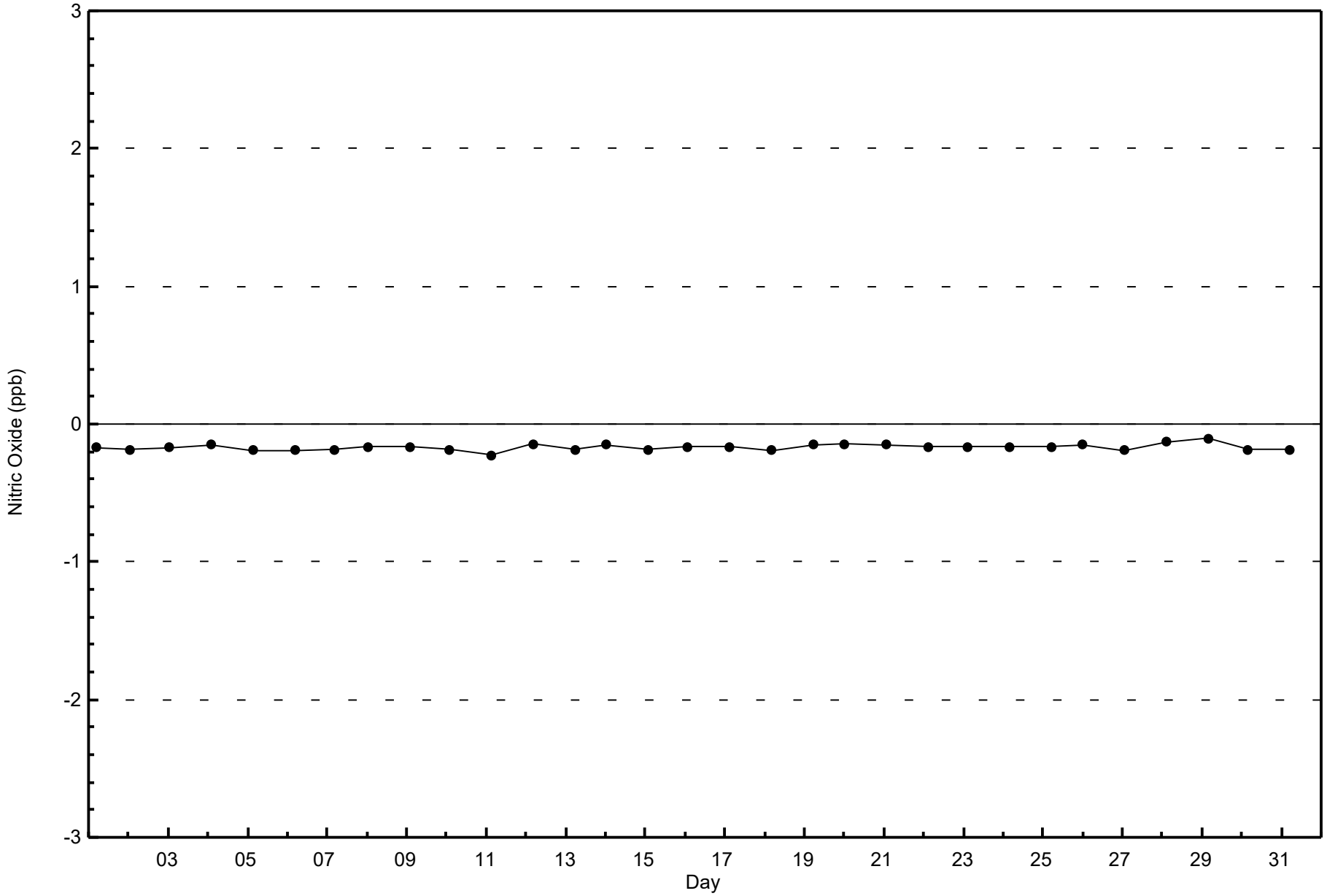
Total Number of Hours: 744

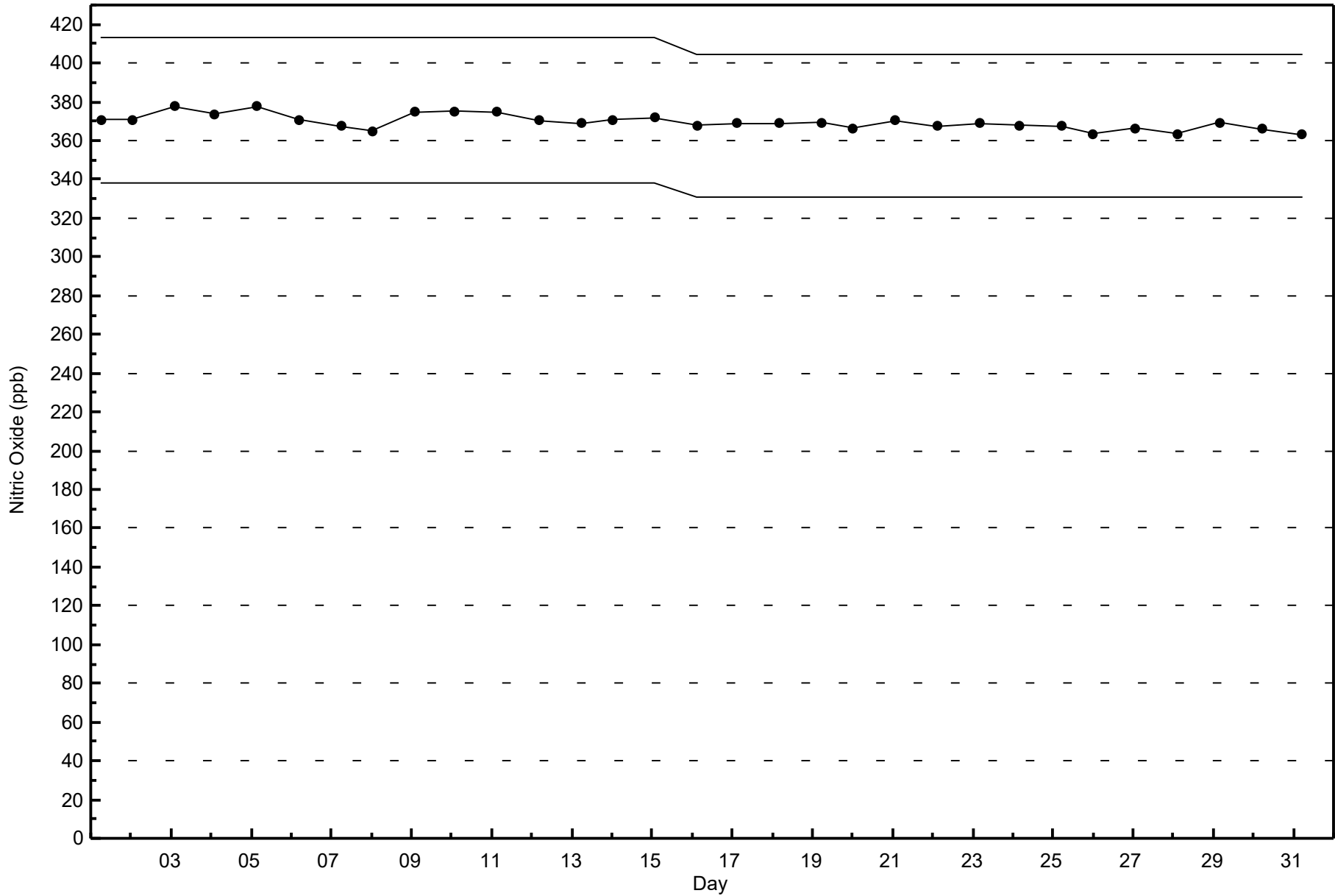


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Stony Mountain









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Stony Mountain - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 7.4 ppb on May 13 04:00	Maximum Daily Average: 1.4 ppb on May 12		Hours of Data:	707
Minimum Value: 0.1 ppb on May 22 09:00	Minimum Daily Average: 0.2 ppb on May 30		Hours of Missing Data:	37
Maximum Diurnal Average: 1.0 ppb at hour 4	Minimum Diurnal Average: 0.5 ppb at hour 14		Hours of Calibration:	37
Monthly Average: 0.68 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.5 Q <sub>3</sub> = 0.9 P <sub>90</sub> = 1.4 P <sub>99</sub> = 2.2		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-May	1.0	1.0	1.0	1.2	1.1	Z	0.8	0.7	0.5	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.5	1.2																						
2-May	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.8	1.2	0.9	0.7	0.8	0.4	1.2																						
3-May	1.0	Z	0.9	0.6	0.6	0.7	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.7	0.7	0.8	0.5	0.5	0.3	0.3	0.9	1.2	1.2	1.2	0.7	1.2																						
4-May	0.6	0.7	Z	0.8	0.7	1.8	1.4	0.9	0.7	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.7	0.9	1.0	1.0	0.7	0.7	1.8																						
5-May	1.1	1.2	1.3	Z	1.3	1.4	1.4	1.5	1.2	0.9	0.9	0.8	0.8	0.9	0.7	0.7	0.8	1.3	0.9	1.6	1.5	2.0	1.9	1.2	2.0	2.0																						
6-May	1.2	0.9	0.8	1.1	Z	0.8	1.0	1.3	1.6	1.5	1.1	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.9	1.1	1.2	0.6	0.9	1.0	1.0	1.6																						
7-May	0.8	1.3	1.3	0.5	0.7	Z	0.7	0.8	0.5	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.5	0.9	1.0	0.8	0.6	0.6	0.6	0.6	0.6	1.3																						
8-May	Z	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5																						
9-May	0.4	Z	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.4	0.4	0.4	0.4	0.6																						
10-May	0.3	0.3	Z	0.4	0.7	0.6	0.6	0.7	0.5	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.7																						
11-May	0.8	0.9	1.3	Z	2.2	1.8	1.6	1.4	1.0	0.6	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	1.0	0.8	0.5	0.8	2.2																						
12-May	0.4	0.5	0.9	2.2	Z	1.0	1.0	2.2	1.8	2.0	2.3	2.2	1.1	1.0	1.6	1.7	1.7	1.4	1.3	1.4	1.6	1.3	1.1	1.4	1.4	2.3																						
13-May	1.3	1.3	1.5	7.4	2.6	Z	2.2	1.7	1.4	1.3	1.3	1.2	1.0	0.8	0.7	0.5	0.6	0.6	0.4	0.5	0.5	0.5	0.5	0.4	1.3	7.4																						
14-May	Z	0.9	1.3	2.0	1.1	0.9	0.7	0.7	0.7	0.7	0.6	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.6	2.0																						
15-May	0.4	Z	0.4	0.4	0.3	0.4	0.4	0.4	C	C	C	C	C	C	1.1	1.0	1.2	1.2	1.1	1.5	1.5	1.5	1.3	1.1	--	1.5																						
16-May	1.3	1.4	Z	1.4	1.4	1.4	1.3	2.0	1.7	1.8	1.9	1.6	1.1	0.8	1.0	1.0	1.0	1.2	1.5	0.8	1.5	0.9	1.1	0.9	1.3	2.0																						
17-May	1.0	1.2	0.8	Z	1.0	0.8	0.9	0.8	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.5	0.5	0.6	1.2																						
18-May	0.8	2.3	2.3	1.4	Z	0.9	0.6	0.5	0.5	0.5	0.4	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.2	0.4	0.6	0.5	0.3	0.7	2.3																						
19-May	0.2	0.2	0.2	0.2	0.2	Z	0.4	0.5	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.5																						
20-May	Z	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.5	0.6	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.5	0.4	0.6																						
21-May	0.5	Z	0.5	0.6	0.5	0.7	0.8	0.8	1.4	0.7	0.4	0.5	0.4	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.8	0.8	0.6	1.4																						
22-May	0.8	0.7	Z	0.5	0.9	0.7	0.5	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.3	0.2	0.3	0.9																						
23-May	0.8	0.3	0.5	Z	0.6	0.4	0.7	0.6	0.6	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.7	0.9	0.5	0.2	0.4	0.5	0.4	0.9																						
24-May	0.6	0.5	0.5	0.5	Z	1.2	1.2	1.3	1.3	1.2	0.6	0.5	0.3	0.4	0.4	0.5	0.5	0.4	0.7	1.0	0.5	0.4	0.4	0.8	0.7	1.3																						
25-May	0.8	0.8	0.9	1.1	0.7	Z	1.1	0.6	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.4	0.5	0.8	0.6	0.6	1.1																						
26-May	Z	0.8	0.9	0.9	0.9	1.5	1.6	1.9	1.4	2.1	1.8	1.4	1.1	0.9	0.9	0.8	0.8	0.9	1.1	2.4	1.6	0.8	0.8	0.3	1.2	2.4																						
27-May	0.3	Z	0.5	0.7	1.1	1.2	1.1	0.9	1.1	0.8	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.9	1.5	0.7	0.9	0.8	1.0	0.9	0.8	1.5																						
28-May	0.9	1.2	Z	1.3	1.2	1.7	1.7	2.0	1.4	0.7	0.6	0.5	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.7	0.8	1.1	1.6	1.5	0.9	2.0																						
29-May	1.0	1.3	1.5	Z	1.5	1.9	2.5	1.9	0.7	0.5	0.4	0.3	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.8	2.5																						
30-May	0.4	0.3	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4																						
31-May	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.2	0.5																						
																								0.7	0.8	0.8	1.0	0.9	0.9	0.9	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.6	0.7	0.7	Diurnal Average
																								1.3	2.3	2.3	7.4	2.6	1.9	2.5	2.2	1.8	2.1	2.3	2.2	1.1	1.0	1.6	1.7	1.7	1.4	1.5	2.4	1.6	1.5	2.0	1.9	Diurnal Maximum

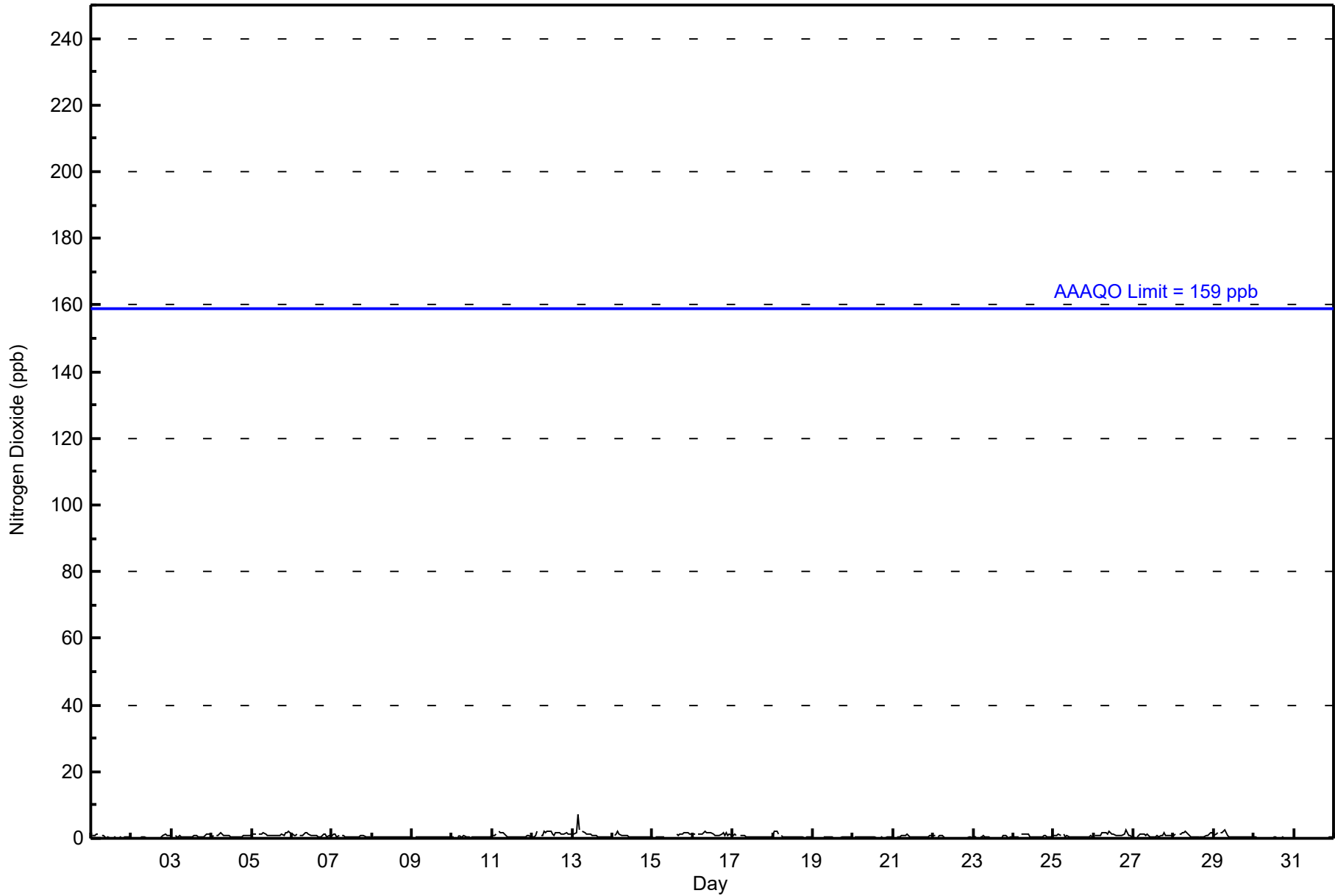
Z - zerospan C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





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

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Stony Mountain - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Stony Mountain - May 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	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706

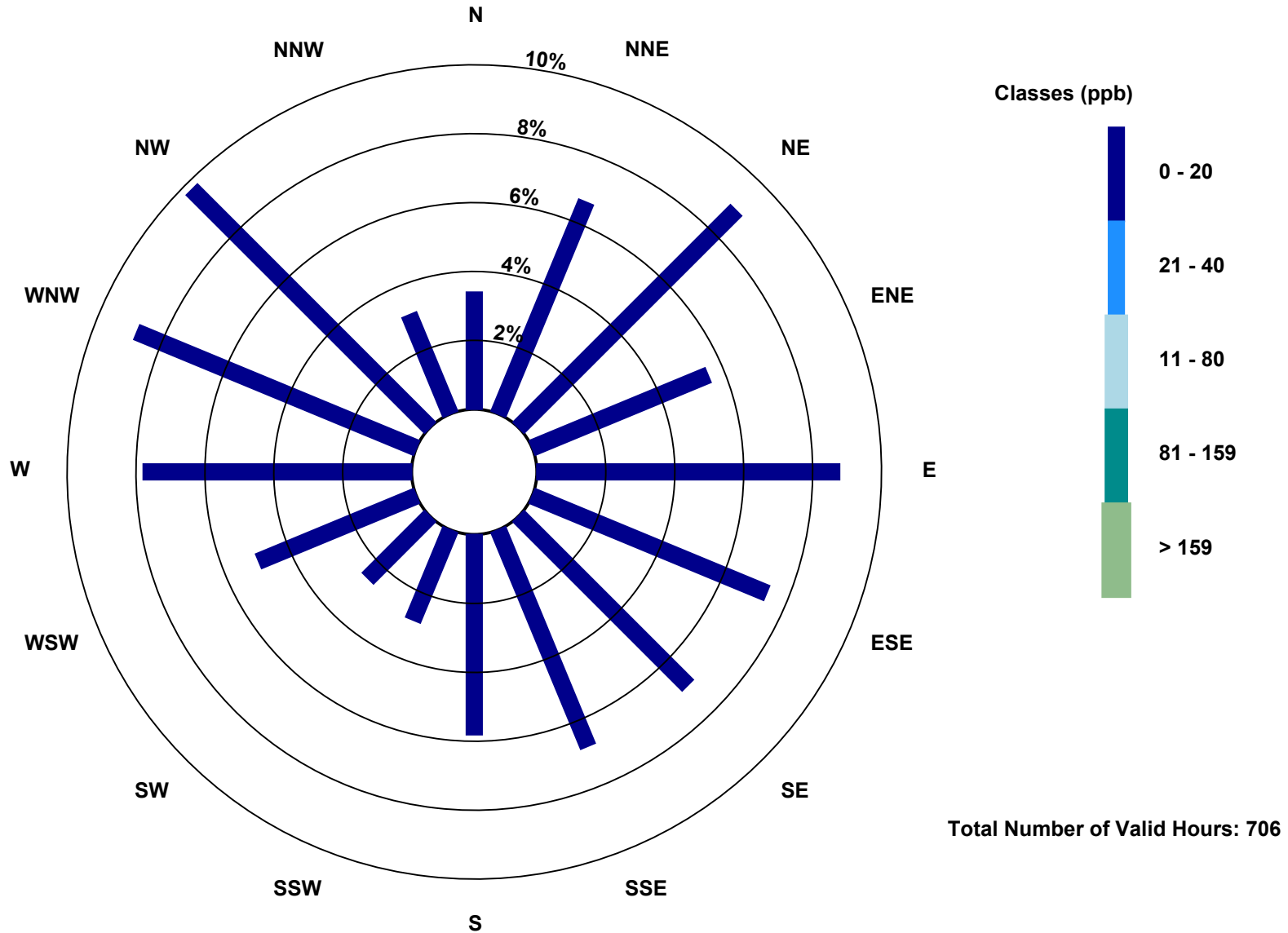
Total Number of Valid Hours: 706

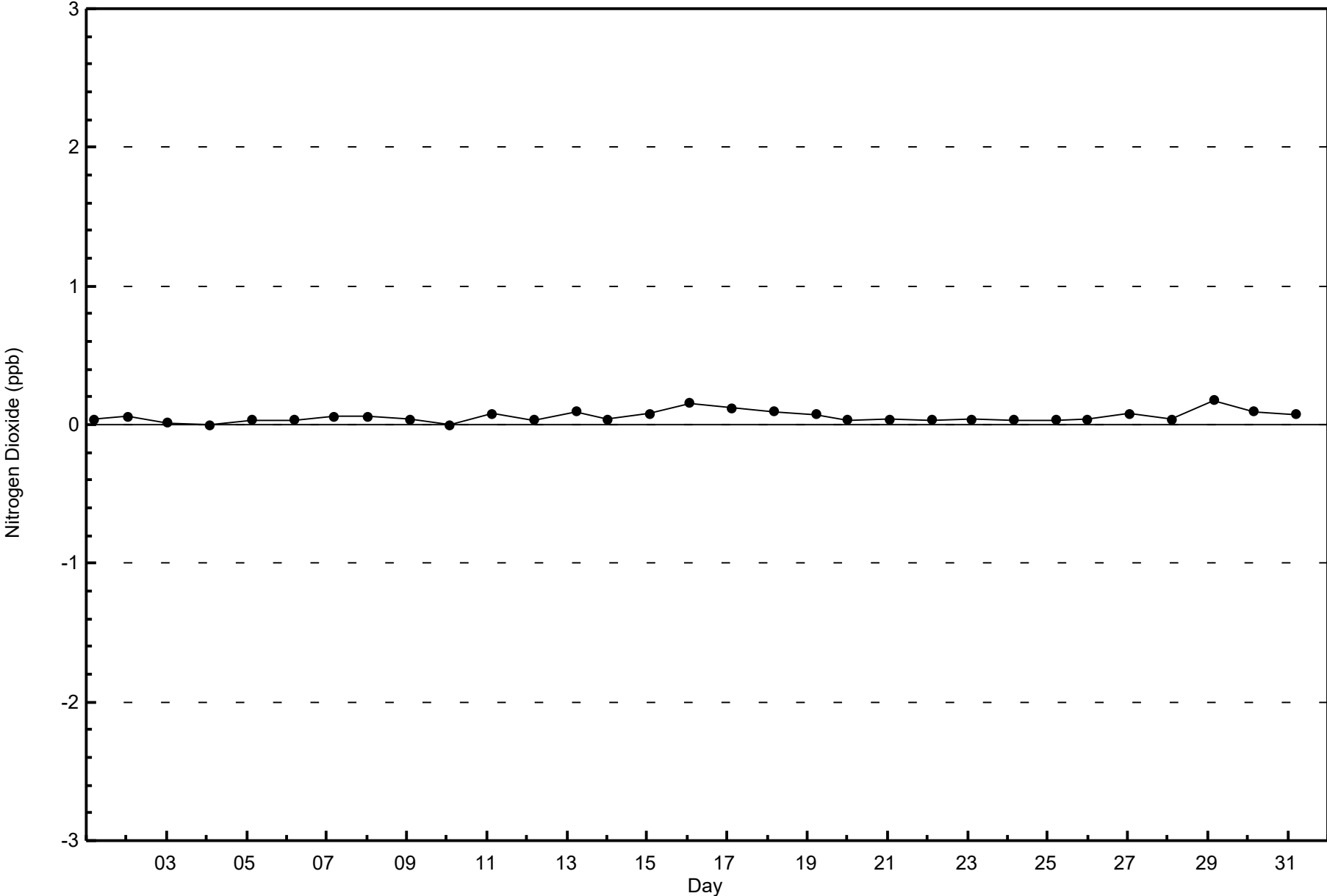
Total Number of Hours: 744

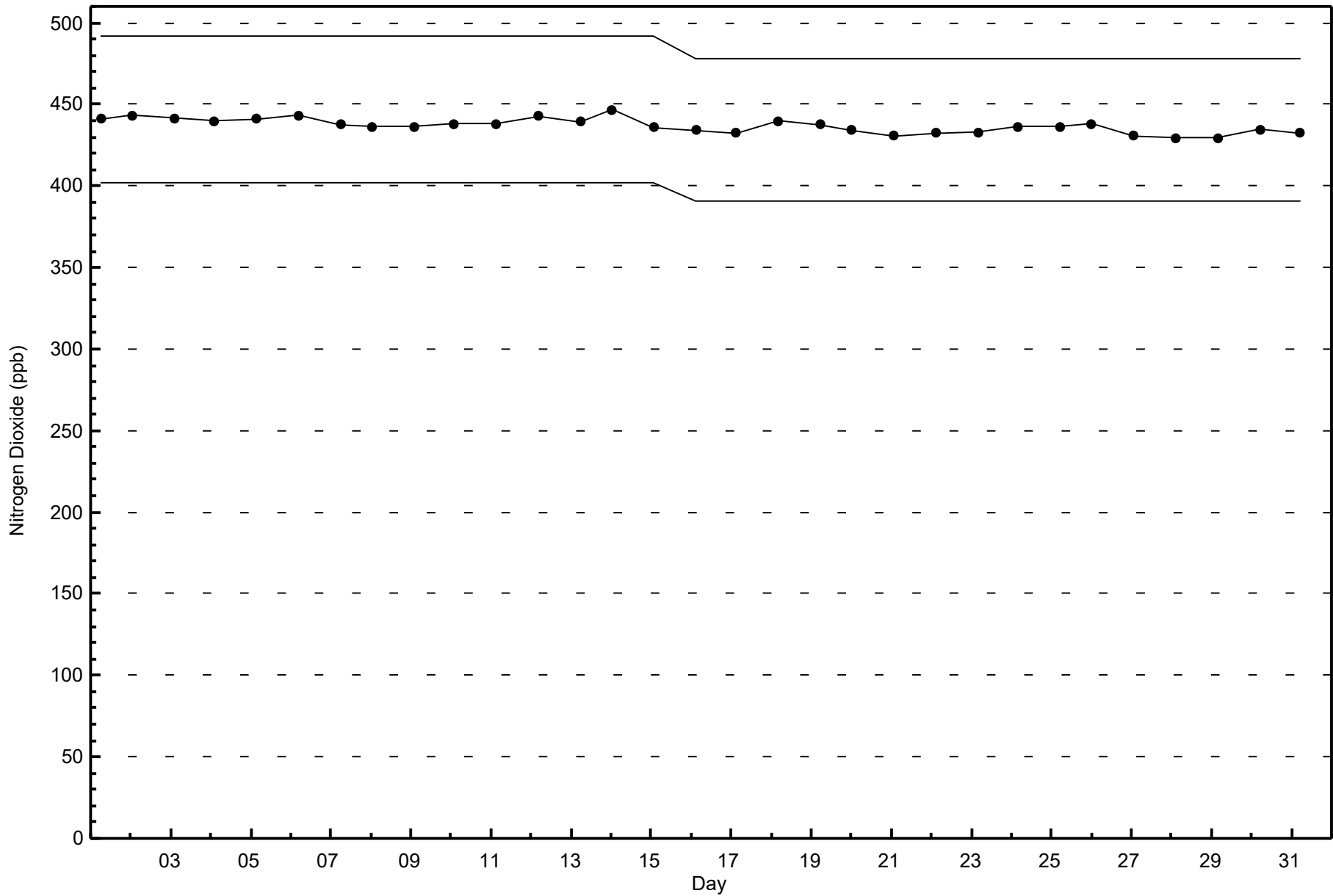


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - May 2024**

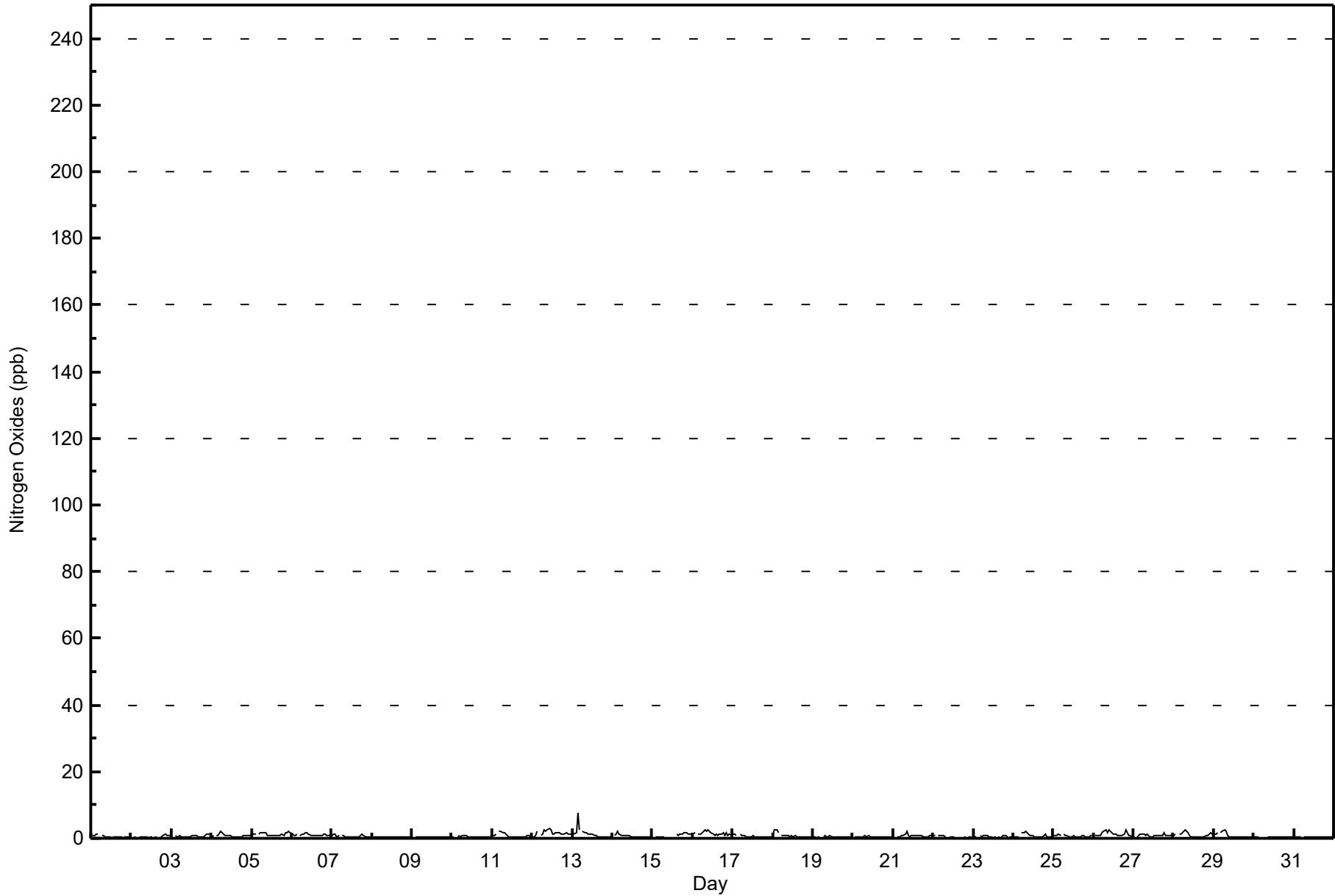
Maximum Value: 7.5 ppb on May 13 04:00		Maximum Daily Average: 1.6 ppb on May 12		Hours in Service: 744																							
Minimum Value: 0.1 ppb on May 22 18:00		Minimum Daily Average: 0.3 ppb on May 31		Hours of Data: 707																							
Maximum Diurnal Average: 1.1 ppb at hour 8		Minimum Diurnal Average: 0.5 ppb at hour 17		Hours of Missing Data: 37																							
Monthly Average: 0.76 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.6 Q <sub>3</sub> = 1.0 P <sub>90</sub> = 1.5 P <sub>99</sub> = 2.6		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-May	1.0	1.0	1.0	1.2	1.1	Z	0.9	0.9	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.5	1.2	
2-May	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.8	1.2	0.9	0.7	0.8	0.4	1.2	
3-May	1.0	Z	0.9	0.6	0.6	0.7	0.4	0.4	0.5	0.5	0.4	0.5	0.7	0.7	0.8	0.8	0.5	0.5	0.3	0.3	0.9	1.2	1.2	1.2	0.7	1.2	
4-May	0.6	0.7	Z	0.8	0.7	1.9	1.6	1.1	0.9	0.8	0.8	0.7	0.5	0.5	0.4	0.5	0.5	0.5	0.7	0.9	1.0	1.0	0.7	0.8	0.8	1.9	
5-May	1.1	1.2	1.3	Z	1.3	1.5	1.6	1.9	1.5	1.0	1.0	0.9	0.9	1.0	0.8	0.8	0.7	0.8	1.4	0.9	1.6	1.5	2.0	1.9	1.2	2.0	
6-May	1.2	0.9	0.8	1.1	Z	0.8	1.1	1.4	1.7	1.7	1.2	1.0	0.9	0.9	0.8	0.7	0.7	0.7	1.0	1.2	1.3	0.7	1.0	1.1	1.0	1.7	
7-May	0.9	1.3	1.3	0.6	0.7	Z	0.8	0.9	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	1.0	1.1	0.9	0.6	0.6	0.6	0.6	0.7	1.3	
8-May	Z	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.6
9-May	0.4	Z	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.6	0.4	0.4	0.4	0.4	0.6	0.6
10-May	0.3	0.3	Z	0.4	0.7	0.6	0.7	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.8
11-May	0.9	1.0	1.4	Z	2.3	1.9	1.7	1.5	1.1	0.7	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	1.0	0.8	0.5	0.8	2.3	
12-May	0.4	0.5	0.9	2.2	Z	1.0	1.1	2.5	2.2	2.6	3.0	2.7	1.3	1.1	1.6	1.7	1.8	1.4	1.3	1.4	1.6	1.3	1.1	1.4	1.6	3.0	
13-May	1.3	1.3	1.5	7.5	2.7	Z	2.3	1.9	1.5	1.4	1.4	1.3	1.1	0.8	0.7	0.5	0.6	0.6	0.5	0.6	0.6	0.5	0.4	0.4	1.4	7.5	
14-May	Z	0.9	1.3	2.0	1.2	0.9	0.8	0.8	0.8	0.8	0.7	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.7	2.0	
15-May	0.5	Z	0.5	0.5	0.4	0.5	0.5	0.6	C	C	C	C	C	C	1.1	1.0	1.2	1.2	1.1	1.5	1.5	1.5	1.3	1.2	--	1.5	
16-May	1.4	1.5	Z	1.5	1.5	1.5	1.5	2.5	2.2	2.3	1.8	1.2	0.9	1.1	1.1	1.1	1.3	1.6	0.9	1.6	1.0	1.2	1.0	1.5	2.5		
17-May	1.1	1.3	0.9	Z	1.1	0.9	1.0	0.9	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.6	0.4	0.4	0.4	0.4	0.6	0.6	0.7	1.3	
18-May	0.9	2.4	2.4	1.5	Z	1.0	0.7	0.7	0.7	0.7	0.6	0.8	0.5	0.6	0.4	0.4	0.5	0.5	0.4	0.3	0.4	0.6	0.5	0.3	0.8	2.4	
19-May	0.2	0.2	0.2	0.2	0.2	Z	0.5	0.7	0.5	0.5	0.6	0.6	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.7	0.7
20-May	Z	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.6	0.7	0.5	0.4	0.4	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.5	0.4	0.7	
21-May	0.5	Z	0.5	0.6	0.6	0.8	1.0	1.1	2.0	1.0	0.6	0.7	0.7	0.7	0.8	0.7	0.7	0.7	0.5	0.5	0.5	0.4	0.9	0.9	0.8	2.0	
22-May	0.9	0.8	Z	0.6	1.0	0.9	0.7	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.3	0.2	0.4	1.0	
23-May	0.8	0.3	0.5	Z	0.6	0.5	0.8	0.7	0.8	0.5	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.8	1.0	0.5	0.2	0.4	0.5	0.5	1.0	
24-May	0.6	0.5	0.5	0.5	Z	1.5	1.8	2.1	1.9	1.5	0.8	0.6	0.4	0.5	0.6	0.6	0.6	0.5	0.7	1.1	0.5	0.4	0.4	0.8	0.8	2.1	
25-May	0.8	0.8	0.9	1.1	0.8	Z	1.5	0.7	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.6	0.4	0.5	0.8	0.6	0.7	1.5	
26-May	Z	0.8	0.9	0.9	1.0	1.7	2.1	2.6	1.6	2.6	2.2	1.7	1.3	1.1	1.0	0.9	0.9	1.0	1.2	2.5	1.7	0.9	0.8	0.4	1.4	2.6	
27-May	0.4	Z	0.6	0.8	1.2	1.3	1.2	1.0	1.3	1.0	0.6	0.6	0.7	0.7	0.7	0.7	0.8	0.9	1.5	0.7	0.9	0.8	1.0	0.9	0.9	1.5	
28-May	0.9	1.2	Z	1.3	1.2	1.8	2.0	2.4	1.6	0.8	0.6	0.5	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.7	0.8	1.1	1.6	1.5	1.0	2.4	
29-May	1.1	1.3	1.5	Z	1.6	2.0	2.7	2.1	0.8	0.6	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.6	0.5	0.5	0.5	0.4	0.9	2.7	
30-May	0.4	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	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	0.4	0.4
31-May	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.3	0.5	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			

Z - zerospan      C - Calibration



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Stony Mountain - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	707	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Stony Mountain - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	24	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	24	47	63	39	62	52	49	48	41	20	18	35	55	62	69	22	706

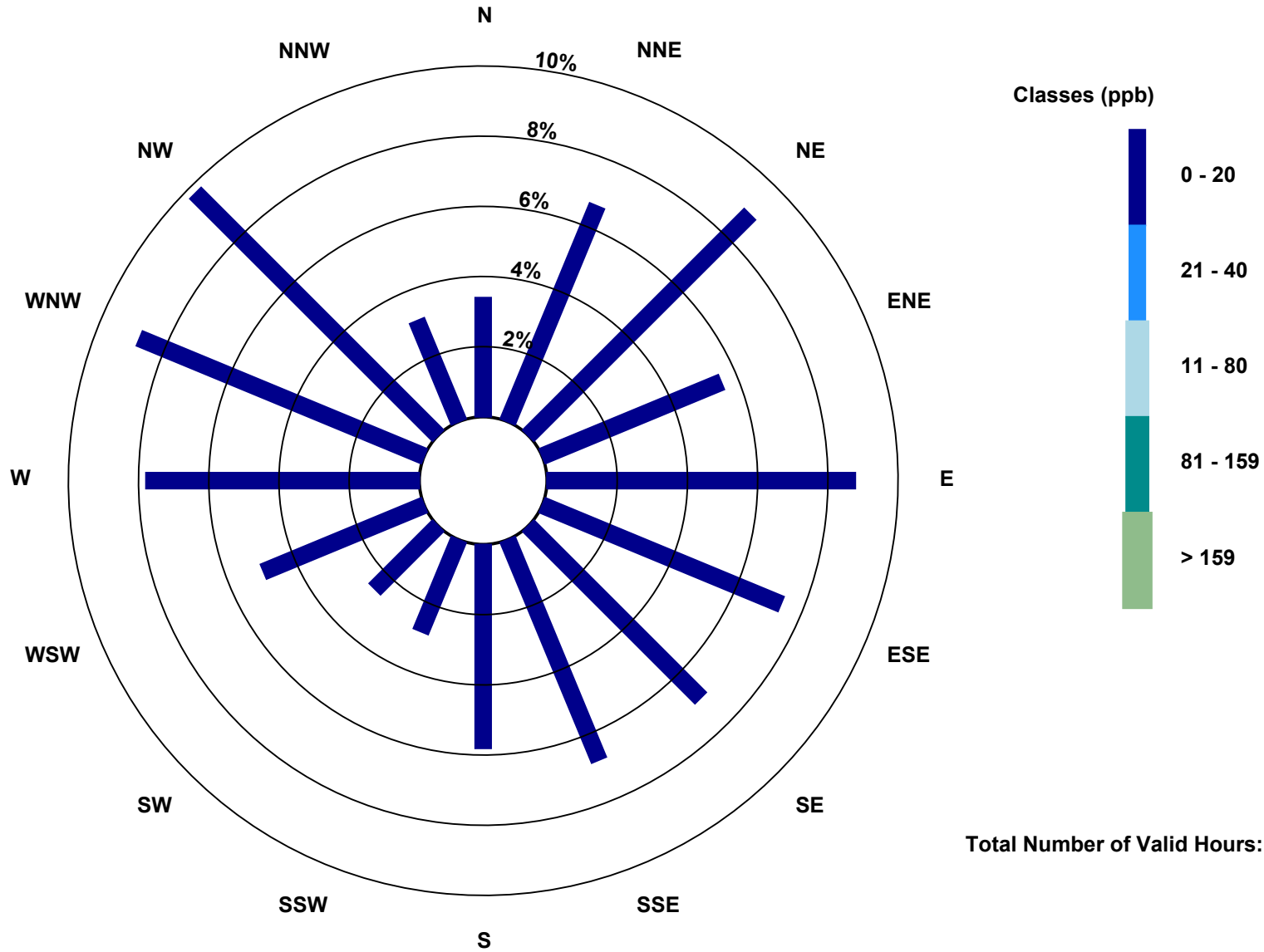
Total Number of Valid Hours: 706

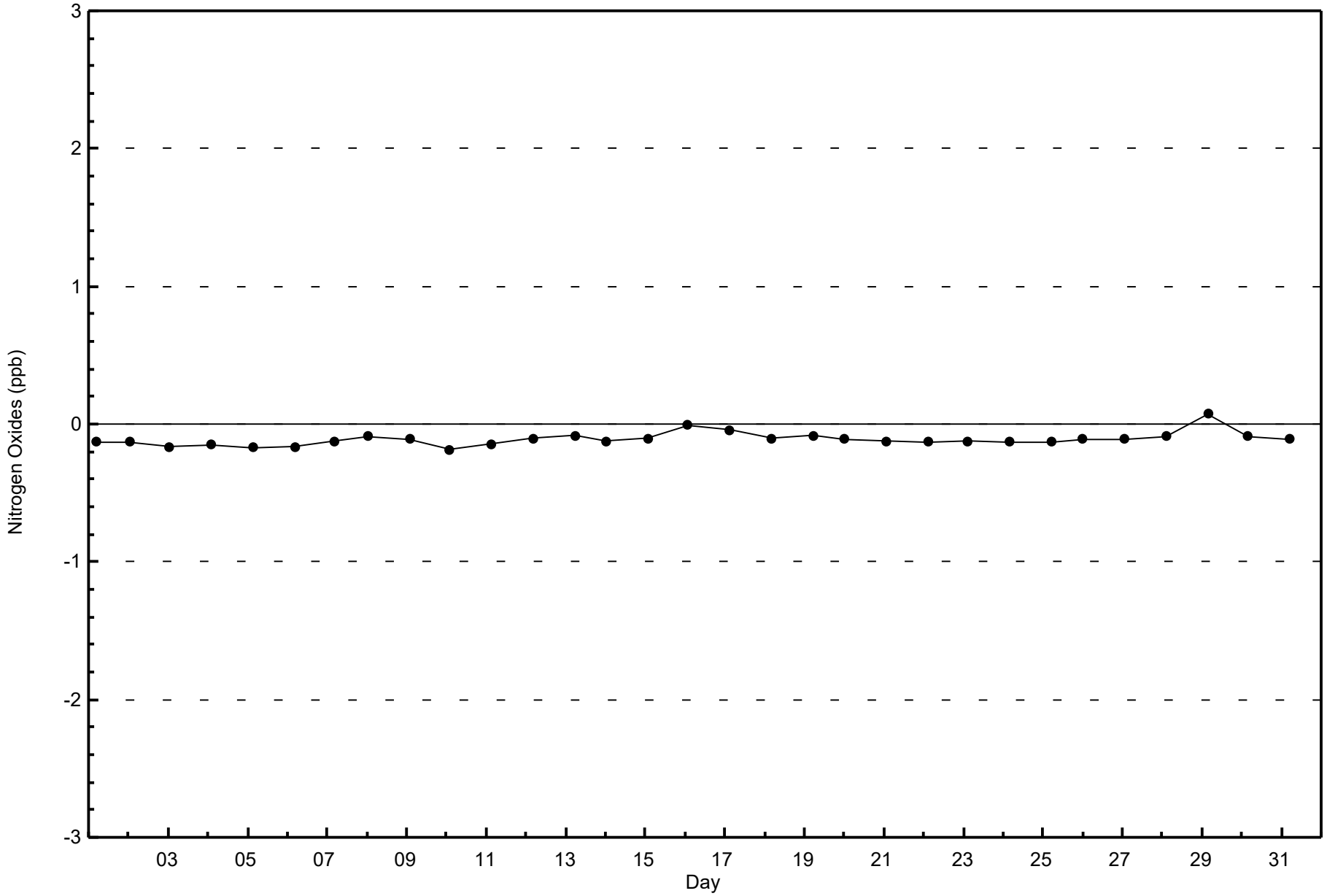
Total Number of Hours: 744

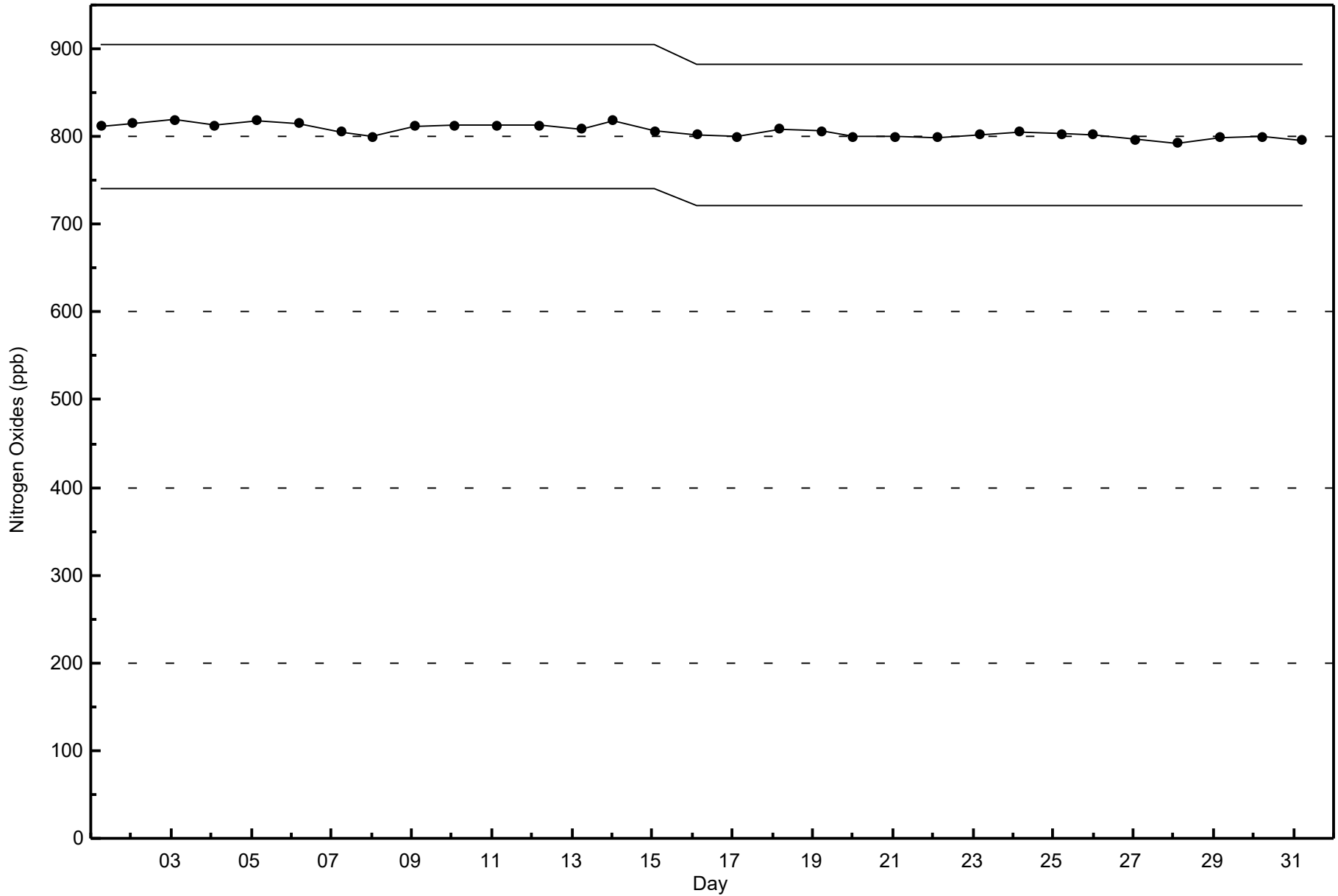


Wood Buffalo Environmental Association  
Wind Rose May 2024

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 - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 53.4 ppb on May 13 18:00	Maximum Daily Average: 45.5 ppb on May 14		Hours of Data:	709
Minimum Value: 8.2 ppb on May 21 05:00	Minimum Daily Average: 13.4 ppb on May 21		Hours of Missing Data:	35
Maximum Diurnal Average: 37.9 ppb at hour 15	Minimum Diurnal Average: 27.3 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 32.63 ppb	Percentiles: P <sub>1</sub> = 10.3 P <sub>10</sub> = 17.2 Q <sub>1</sub> = 24.1 Median = 33.7 Q <sub>3</sub> = 41.2 P <sub>90</sub> = 46.0 P <sub>99</sub> = 50.6		Percent Operational Time:	100.0

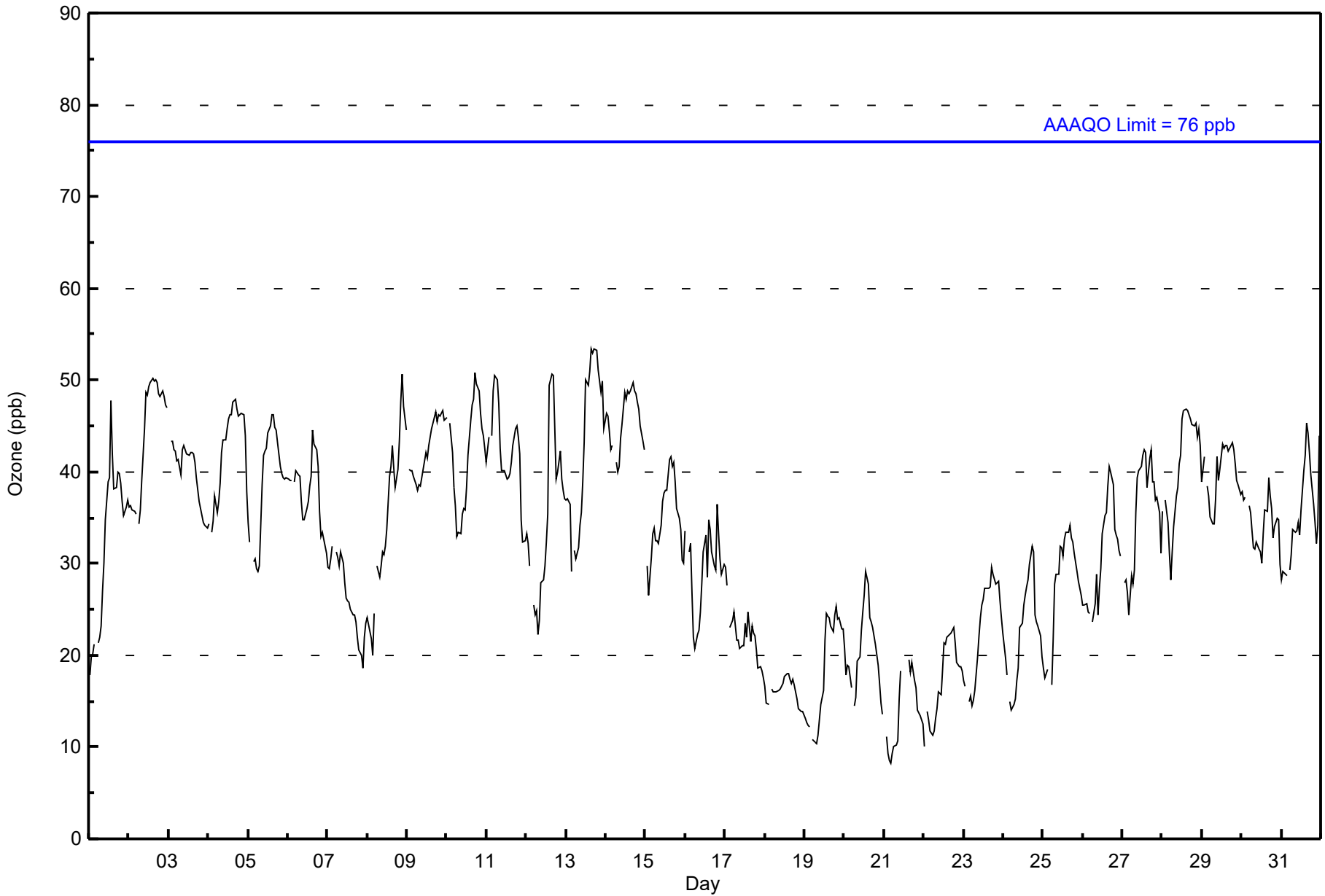
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	17.8	19.8	20.1	21.2	Z	21.4	22.0	23.2	27.0	30.0	34.8	38.9	39.4	47.8	42.0	38.1	38.3	40.0	39.7	38.7	36.8	35.2	36.2	37.0	32.4	47.8																							
2-May	36.2	36.4	35.8	35.7	35.4	Z	34.3	35.8	39.0	44.8	48.7	48.4	49.2	49.7	50.3	49.9	50.1	49.8	48.5	48.2	48.7	48.2	47.3	46.9	44.2	50.3																							
3-May	Z	43.3	43.4	42.4	42.2	41.2	41.4	39.7	42.5	42.8	42.4	42.0	41.8	42.2	42.0	41.1	39.4	36.8	36.0	35.2	34.5	34.1	33.9	40.1	43.4																								
4-May	34.4	Z	33.5	34.7	37.3	35.5	36.8	38.7	42.1	43.5	43.4	44.7	45.8	46.2	46.2	47.6	47.9	46.8	46.0	46.2	46.3	46.3	43.9	37.8	42.3	47.9																							
5-May	34.4	32.3	Z	30.1	30.4	29.4	29.2	29.7	38.6	41.7	42.2	42.6	44.2	45.1	46.2	46.3	44.8	44.5	43.1	40.5	39.8	39.4	39.3	39.3	38.8	46.3																							
6-May	39.1	39.0	39.0	Z	39.0	40.1	39.7	39.5	36.7	34.8	34.8	35.9	36.7	38.4	39.5	44.6	43.0	42.4	40.6	35.8	33.0	33.4	31.9	31.1	37.7	44.6																							
7-May	29.6	29.4	30.5	31.9	Z	31.3	30.6	29.7	31.2	30.1	27.9	26.2	25.9	25.7	25.1	24.5	24.5	23.7	22.0	20.6	20.0	18.6	22.0	23.5	26.3	31.9																							
8-May	24.0	23.3	21.8	19.9	24.6	Z	29.7	28.6	29.7	31.3	31.0	31.8	33.7	39.5	40.6	42.8	40.4	38.2	40.3	43.3	47.7	50.6	47.2	44.6	35.0	50.6																							
9-May	Z	40.3	40.2	40.1	39.5	38.6	38.1	38.6	38.5	39.4	41.2	42.2	41.5	42.8	43.7	44.7	45.9	46.5	45.5	46.2	46.1	46.7	45.7	45.7	42.5	46.7																							
10-May	45.9	Z	45.2	42.1	38.3	36.3	33.0	33.4	33.2	35.4	36.0	35.8	38.3	41.8	45.6	47.3	47.9	50.7	49.6	48.8	46.3	44.7	44.0	42.6	41.8	50.7																							
11-May	41.1	43.7	Z	43.9	48.8	50.5	50.1	47.4	42.5	40.1	40.1	40.1	39.2	39.3	39.9	41.0	42.9	44.6	44.9	43.8	42.0	34.7	32.3	32.4	42.0	50.5																							
12-May	33.2	32.2	29.7	Z	25.5	24.4	24.8	22.3	23.8	28.0	28.2	29.7	32.4	35.3	49.4	50.6	50.5	44.9	39.3	39.9	42.3	39.2	38.0	37.0	34.8	50.6																							
13-May	36.9	37.0	36.5	29.1	Z	31.5	30.5	31.8	34.1	35.6	38.9	43.1	50.0	49.5	50.9	53.3	53.0	53.4	53.2	51.1	49.9	48.6	49.8	44.6	43.1	53.4																							
14-May	46.3	46.0	44.3	42.4	42.8	Z	41.1	39.9	40.6	43.6	45.2	48.6	47.9	48.8	48.5	48.8	49.7	48.8	48.5	47.7	46.8	45.0	43.3	42.5	45.5	49.7																							
15-May	Z	29.7	26.6	30.7	33.3	33.9	32.6	32.5	32.2	34.1	36.8	37.7	38.0	38.0	41.4	41.7	40.5	41.0	38.8	36.0	35.0	33.7	30.4	30.0	35.0	41.7																							
16-May	33.5	Z	31.3	32.2	26.8	21.9	20.7	22.3	22.7	24.7	27.7	31.3	33.1	28.6	34.7	33.7	31.2	29.8	29.4	36.4	33.3	30.6	28.8	30.0	29.3	36.4																							
17-May	29.7	27.6	Z	23.1	23.9	24.7	23.1	21.7	21.6	20.8	21.1	21.1	23.5	22.0	24.6	21.4	23.2	22.5	22.0	20.6	18.6	18.7	18.2	17.6	22.2	29.7																							
18-May	16.7	14.8	14.7	Z	16.4	16.1	16.0	16.1	16.2	16.3	16.6	16.9	17.7	18.0	18.0	17.5	16.9	17.4	16.8	15.3	14.2	14.1	13.9	13.9	16.1	18.0																							
19-May	13.2	12.6	12.3	12.1	Z	10.8	10.5	10.3	11.3	13.0	14.7	16.2	21.7	24.5	24.3	24.1	23.2	22.5	24.5	25.4	23.9	24.2	22.9	22.9	18.3	25.4																							
20-May	20.7	17.8	19.0	18.8	16.5	Z	14.4	15.3	19.4	19.8	22.7	24.8	26.5	29.1	27.7	24.1	23.6	23.0	22.1	21.3	18.8	16.9	14.9	13.6	20.5	29.1																							
21-May	Z	11.2	9.3	8.5	8.2	9.3	10.0	10.2	10.6	15.2	18.3	C	C	C	C	19.5	18.2	19.3	17.2	16.4	14.0	13.7	13.4	12.5	13.4	19.5																							
22-May	10.0	Z	13.9	13.0	11.8	11.3	11.8	13.1	14.1	16.0	15.7	18.5	21.3	21.3	21.9	22.2	22.4	22.7	23.0	21.3	19.3	18.8	18.7	18.2	17.4	23.0																							
23-May	17.3	16.6	Z	14.9	15.5	14.5	15.0	16.1	19.8	22.2	24.1	25.5	26.0	27.3	27.3	27.4	27.5	29.6	28.9	27.8	27.9	28.1	26.0	24.1	23.0	29.6																							
24-May	22.4	19.7	17.8	Z	14.9	14.0	14.6	15.3	17.2	18.7	23.0	23.5	25.5	26.5	27.5	28.2	29.8	31.8	31.2	24.3	23.7	23.2	22.1	19.8	22.4	31.8																							
25-May	18.6	17.5	18.0	18.4	Z	16.8	21.8	27.8	28.9	28.8	31.8	31.8	30.9	32.7	33.4	33.4	34.1	32.7	32.3	31.1	29.1	28.0	27.3	26.5	27.5	34.1																							
26-May	25.4	25.5	25.6	24.7	24.6	Z	23.6	25.6	28.9	24.4	27.3	29.5	33.3	35.3	35.6	38.4	40.5	39.9	38.6	33.8	33.1	32.7	31.4	30.8	30.8	40.5																							
27-May	Z	28.0	28.2	26.8	24.4	28.7	27.8	29.3	35.5	39.4	40.1	40.6	41.7	42.5	42.2	38.4	41.4	42.4	38.9	38.9	37.0	37.3	35.5	31.1	35.5	42.5																							
28-May	35.6	Z	36.9	34.5	31.1	28.2	31.2	34.0	37.4	38.3	40.8	41.8	45.7	46.7	46.8	46.7	46.3	45.7	45.2	45.0	45.3	43.8	44.7	42.9	40.6	46.8																							
29-May	38.9	41.6	Z	38.4	37.4	35.1	34.3	34.4	37.1	41.7	39.0	40.3	43.0	42.5	42.9	42.8	42.3	42.8	43.2	42.4	40.8	39.1	38.7	37.5	39.8	43.2																							
30-May	37.9	37.0	37.2	Z	36.3	35.5	33.6	31.7	31.5	32.4	31.6	31.2	30.1	33.2	35.9	35.7	39.3	37.3	36.0	32.7	34.0	34.9	34.7	29.9	34.3	39.3																							
31-May	28.1	29.1	28.9	28.7	Z	29.2	31.0	33.7	33.4	33.6	34.4	33.1	35.9	40.1	41.8	45.3	44.3	42.2	39.7	36.5	34.5	32.2	34.2	43.9	35.4	45.3																							
																								29.5	28.9	28.5	28.4	29.0	27.3	27.5	28.0	29.6	31.0	32.3	33.8	35.3	36.7	37.9	37.5	37.6	37.3	36.3	35.2	34.3	33.4	32.6	31.8	Diurnal Average	
																								46.3	46.0	45.2	43.9	48.8	50.5	50.1	47.4	42.5	44.8	48.7	48.6	50.0	49.7	50.9	53.3	53.0	53.4	53.2	51.1	49.9	50.6	49.8	46.9	Diurnal Maximum	

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



Wood Buffalo Environmental Association  
Hourly Averages

Ozone (O<sub>3</sub>) - ppb  
Stony Mountain - May 2024





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

**Ozone (O<sub>3</sub>) - ppb**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	112	15.80	15.80
21 - 50	586	82.65	98.45
51 - 82	11	1.55	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  
Stony Mountain - May 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	5	10	14	7	10	9	3	5	6	0	0	0	1	8	22	11	111
21 - 50	20	37	52	33	53	40	44	44	33	18	15	34	53	53	47	10	586
51 - 82	0	1	0	0	0	0	0	1	0	1	3	1	3	0	1	0	11
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	25	48	66	40	63	49	47	50	39	19	18	35	57	61	70	21	708

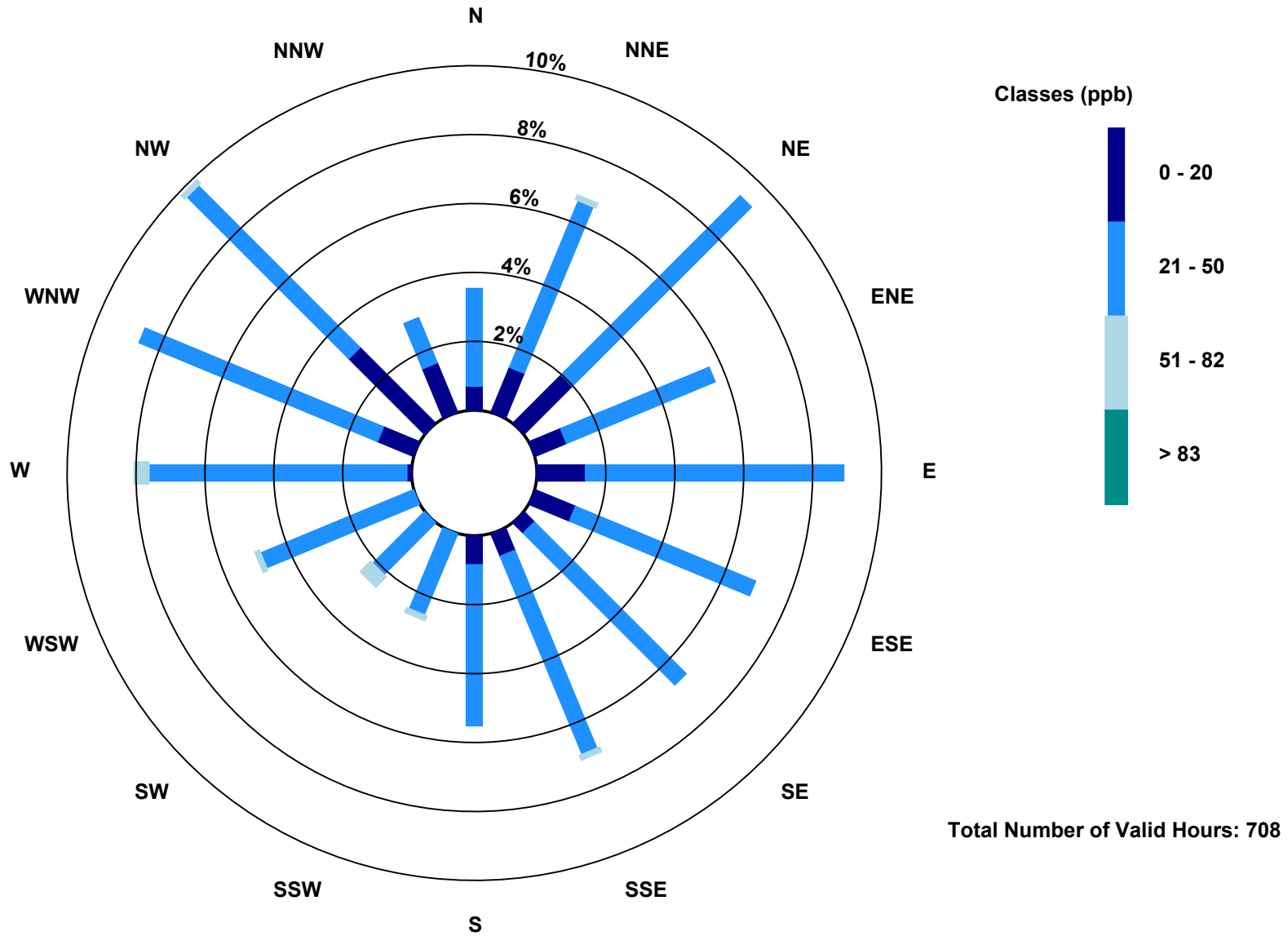
Total Number of Valid Hours: 708

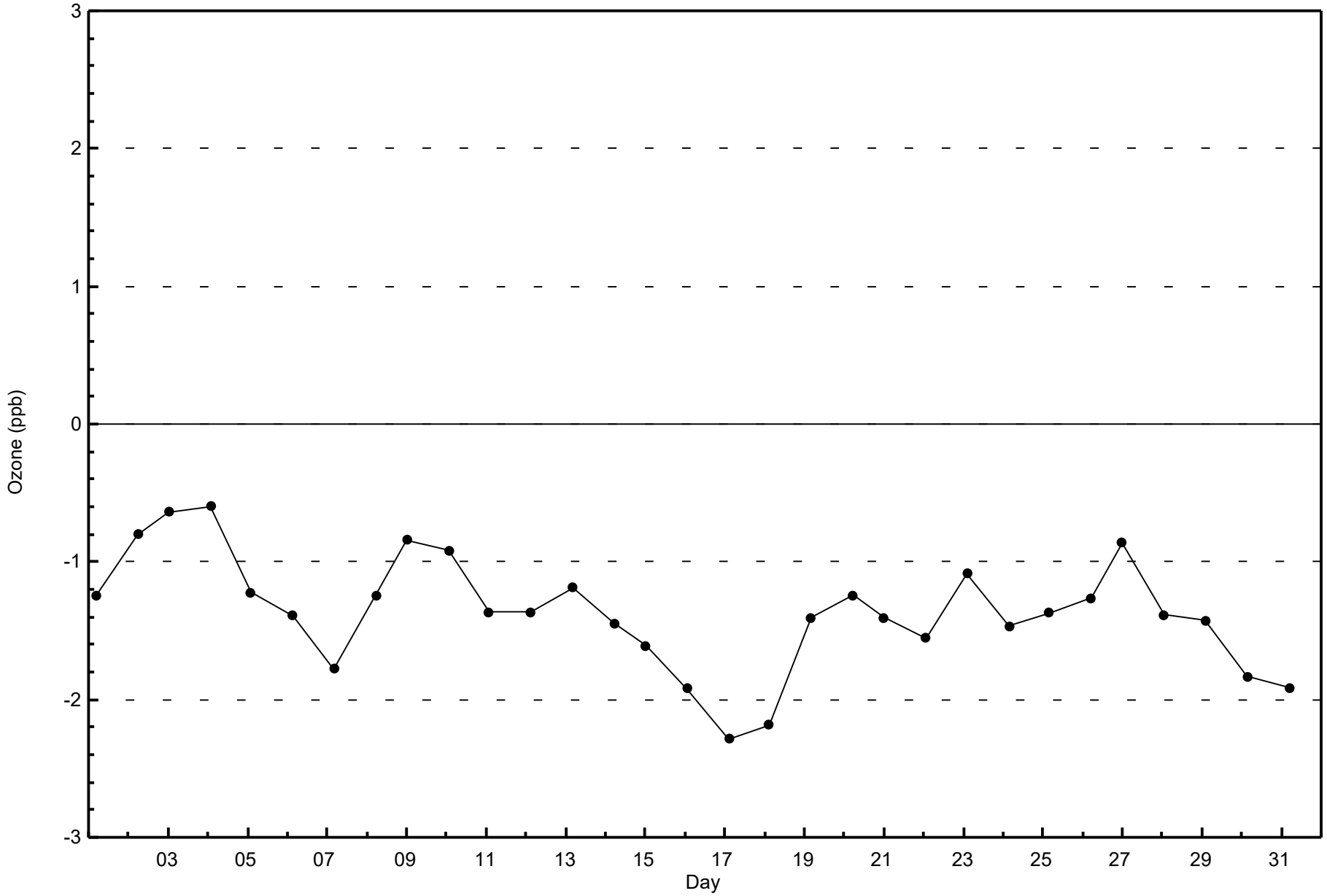
Total Number of Hours: 744

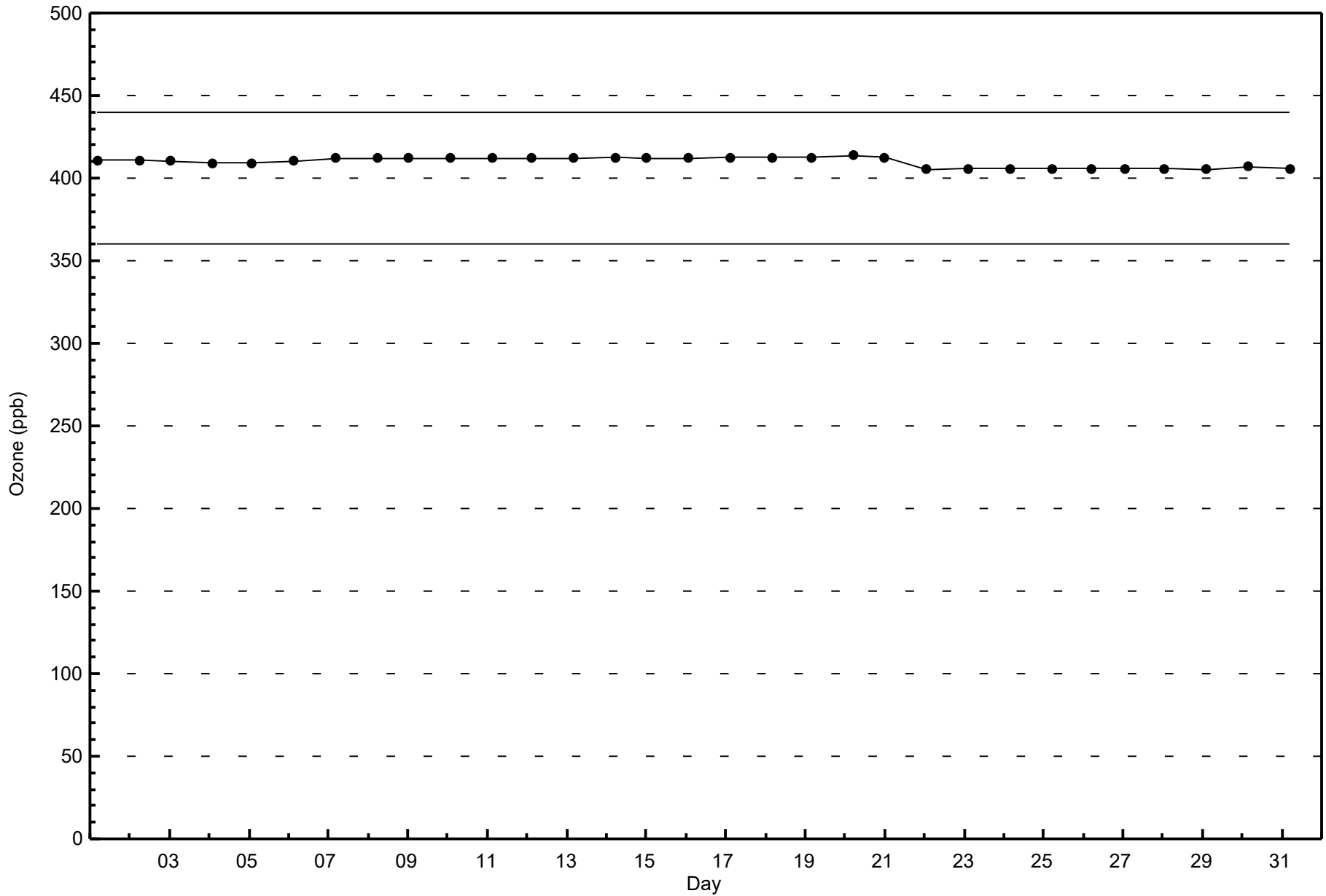


Wood Buffalo Environmental Association  
Wind Rose May 2024

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









Summary of Hour Averages

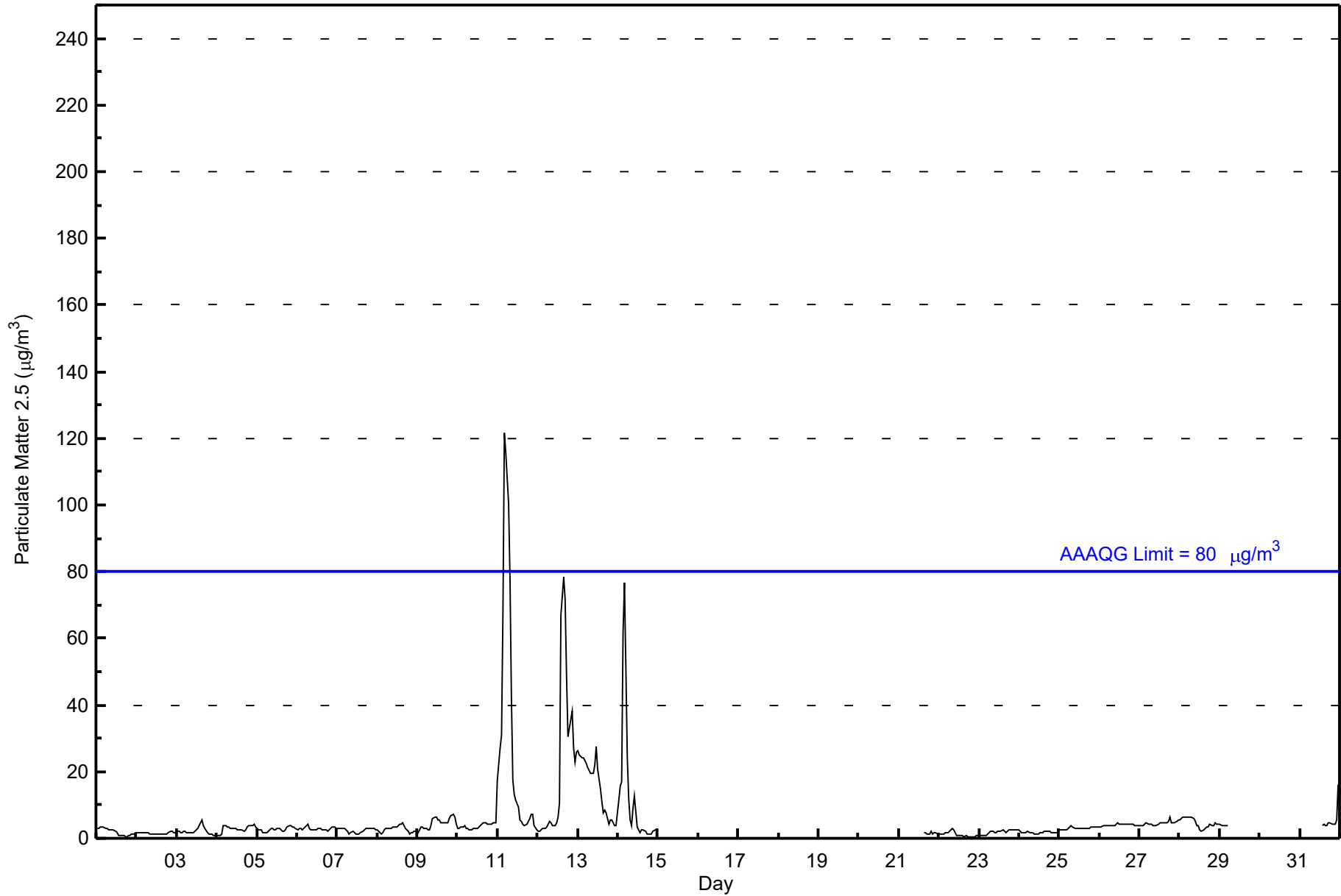
Stony Mountain - May 2024

Number of Exceedences (AAAQO):	1-hr: 3	24-hr: 1	Hours in Service:	744
Maximum Value: 121.7 µg/m <sup>3</sup> on May 11 05:00	Maximum Daily Average: 29.4 µg/m <sup>3</sup> on May 11		Hours of Data:	530
Minimum Value: 0.5 µg/m <sup>3</sup> on May 1 18:00	Minimum Daily Average: 1.2 µg/m <sup>3</sup> on May 22		Hours of Missing Data:	214
Maximum Diurnal Average: 12.6 µg/m <sup>3</sup> at hour 5	Minimum Diurnal Average: 3.8 µg/m <sup>3</sup> at hour 14		Hours of Calibration:	3
Monthly Average: 5.88 µg/m <sup>3</sup>	Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 1.4 Q <sub>1</sub> = 2.0 Median = 3.0 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 7.2 P <sub>99</sub> = 75.3		Percent Operational Time:	71.6

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-May	3.0	3.1	3.4	3.4	3.4	3.1	2.9	2.7	2.7	2.6	2.4	2.1	1.9	1.0	0.8	0.8	0.7	0.5	0.6	0.7	0.9	1.1	1.4	1.6	1.9	3.4	
2-May	1.6	1.7	1.7	1.6	1.6	1.6	1.5	1.5	1.4	1.3	1.2	1.2	1.2	1.2	1.4	1.3	1.2	1.4	1.3	1.9	2.0	2.0	1.7	1.8	1.5	2.0	
3-May	2.0	2.3	1.9	1.8	2.0	2.1	1.8	1.8	1.7	1.6	1.6	2.1	3.0	3.8	4.5	5.3	4.0	3.0	1.7	1.3	1.5	1.2	0.9	0.9	2.2	5.3	
4-May	1.0	0.8	1.0	1.4	3.9	3.7	3.5	2.9	2.8	2.9	2.8	2.6	2.5	2.6	2.3	2.3	2.5	3.5	4.0	3.7	3.6	4.3	3.5	2.8	2.8	4.3	
5-May	2.9	2.5	2.4	1.9	1.7	1.8	1.8	2.2	2.9	2.8	2.5	2.6	2.8	3.0	2.4	2.0	2.0	2.7	3.4	3.6	3.8	3.5	3.3	2.8	2.6	3.8	
6-May	2.7	2.9	2.8	2.7	2.9	3.6	4.2	2.9	2.6	2.7	2.7	2.7	2.8	2.9	2.9	2.7	2.6	2.5	2.3	2.6	2.9	3.2	3.3	3.1	2.9	4.2	
7-May	2.9	2.8	2.9	3.0	3.0	2.7	2.1	1.5	1.7	2.0	1.5	1.4	1.3	1.2	1.6	2.1	2.6	2.9	3.0	3.0	3.0	3.0	2.9	2.7	2.4	3.0	
8-May	2.5	2.1	1.4	1.9	2.7	3.1	3.1	3.0	3.1	3.2	3.3	3.4	3.4	4.1	4.3	4.5	3.6	2.8	1.9	1.5	1.5	1.8	1.9	2.0	2.7	4.5	
9-May	1.9	2.7	3.3	3.2	3.0	2.9	2.7	2.4	3.8	6.0	6.6	6.3	5.7	5.6	4.7	4.5	4.7	4.9	4.7	5.9	6.9	7.2	6.3	4.4	4.6	7.2	
10-May	3.0	3.1	3.3	3.4	3.6	3.2	2.8	2.7	2.7	2.8	2.8	3.0	3.1	3.5	4.1	4.6	4.5	4.5	4.2	4.4	4.4	4.5	4.6	4.8	3.6	4.8	
11-May	17.5	27.3	30.8	67.6	121.7	115.6	100.4	77.5	41.8	17.3	13.3	11.5	9.2	5.7	5.1	4.4	3.7	4.1	5.0	5.8	7.0	7.2	3.6	2.7	29.4	121.7	
12-May	2.2	2.1	2.6	3.1	3.0	3.3	4.4	5.1	4.8	3.7	3.9	4.8	6.4	10.8	67.1	78.3	71.6	48.9	30.4	32.9	38.1	27.0	23.1	26.0	21.0	78.3	
13-May	26.1	25.1	24.2	24.1	23.3	22.6	21.4	19.7	19.6	19.3	22.0	27.6	20.9	14.8	11.1	7.5	8.6	7.4	4.3	5.4	5.6	4.7	3.7	3.8	15.5	27.6	
14-May	11.5	15.6	16.8	61.7	76.8	24.3	11.9	5.5	3.8	9.0	12.8	3.3	2.5	1.9	2.3	2.4	2.0	1.5	1.5	1.5	1.3	2.1	2.4	2.5	11.5	76.8	
15-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
16-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
17-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
18-May	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	--	--
19-May	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
20-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
21-May	M	M	M	M	M	M	M	M	M	M	M	M	M	C	C	1.8	1.6	1.3	1.5	1.9	1.4	1.5	1.5	1.2	--	1.9	
22-May	1.4	1.3	1.2	1.3	1.5	1.7	1.9	2.6	2.9	2.7	1.0	0.8	0.7	0.7	0.7	0.6	0.8	0.6	0.5	0.6	0.6	0.6	0.6	0.8	1.2	2.9	
23-May	0.7	0.7	0.8	0.9	0.9	1.1	1.6	2.1	2.3	1.8	1.9	2.1	2.1	2.2	2.3	2.1	1.9	2.1	2.4	2.7	2.7	2.7	2.6	2.7	1.9	2.7	
24-May	2.6	1.8	1.6	1.6	1.8	2.1	1.9	1.9	1.5	1.4	1.2	1.4	1.9	1.6	1.8	2.0	2.0	2.2	2.3	1.6	1.6	1.6	1.7	2.2	1.8	2.6	
25-May	2.4	2.4	2.5	2.6	2.7	2.9	3.5	3.9	3.4	3.1	3.1	3.1	2.9	2.8	2.8	2.9	2.9	3.2	3.2	3.2	3.3	3.5	3.5	3.3	3.0	3.9	
26-May	3.4	3.6	3.7	3.8	3.9	3.8	3.9	3.8	3.9	4.0	4.3	4.6	4.4	4.2	4.1	4.2	4.2	4.3	4.4	4.3	4.1	3.9	3.7	3.7	4.0	4.6	
27-May	3.8	3.8	3.8	4.3	4.7	4.3	4.3	4.4	4.0	3.9	4.0	4.4	4.6	4.7	4.6	4.6	4.9	5.2	6.4	4.6	4.6	4.8	5.1	5.4	4.5	6.4	
28-May	5.6	6.0	6.2	6.2	6.4	6.5	6.3	6.4	6.0	5.2	4.0	3.7	2.6	2.3	2.5	2.9	3.4	3.5	4.2	3.9	3.7	4.6	4.3	4.2	4.6	6.5	
29-May	4.0	3.6	4.0	3.7	3.9	4.0	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	M	M	--	4.0
30-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
31-May	M	M	M	M	M	M	M	M	M	M	M	M	C	3.7	4.1	4.0	4.0	4.8	4.5	4.1	4.4	4.1	5.5	16.1	--	16.1	

4.8	5.3	5.6	9.3	12.6	10.0	8.9	7.5	5.7	4.7	4.7	4.5	4.1	3.8	6.3	6.4	6.1	5.1	4.2	4.4	4.7	4.3	4.0	4.4	Diurnal Average	
26.1	27.3	30.8	67.6	121.7	115.6	100.4	77.5	41.8	19.3	22.0	27.6	20.9	14.8	67.1	78.3	71.6	48.9	30.4	32.9	38.1	27.0	23.1	26.0	Diurnal Maximum	

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





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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Stony Mountain - May 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	453	85.47	85.47
6 - 15	38	7.17	92.64
16 - 25	18	3.40	96.04
26 - 80	18	3.40	99.43
> 81.0	3	0.57	100.00

Total Number of Valid Hours: 530

Total Number of Hours: 744



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

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Stony Mountain - May 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	32	38	30	48	34	48	44	26	12	10	23	34	25	20	8	453
6 - 15	1	0	0	1	0	3	0	4	2	0	5	4	5	6	6	1	38
16 - 25	0	0	0	0	0	0	0	1	8	2	1	0	0	3	2	1	18
26 - 80	0	1	0	0	0	0	0	2	5	3	0	0	0	2	4	1	18
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3
<b>Totals</b>	22	33	38	31	48	37	48	51	41	17	16	27	39	36	35	11	530

Total Number of Valid Hours: 530

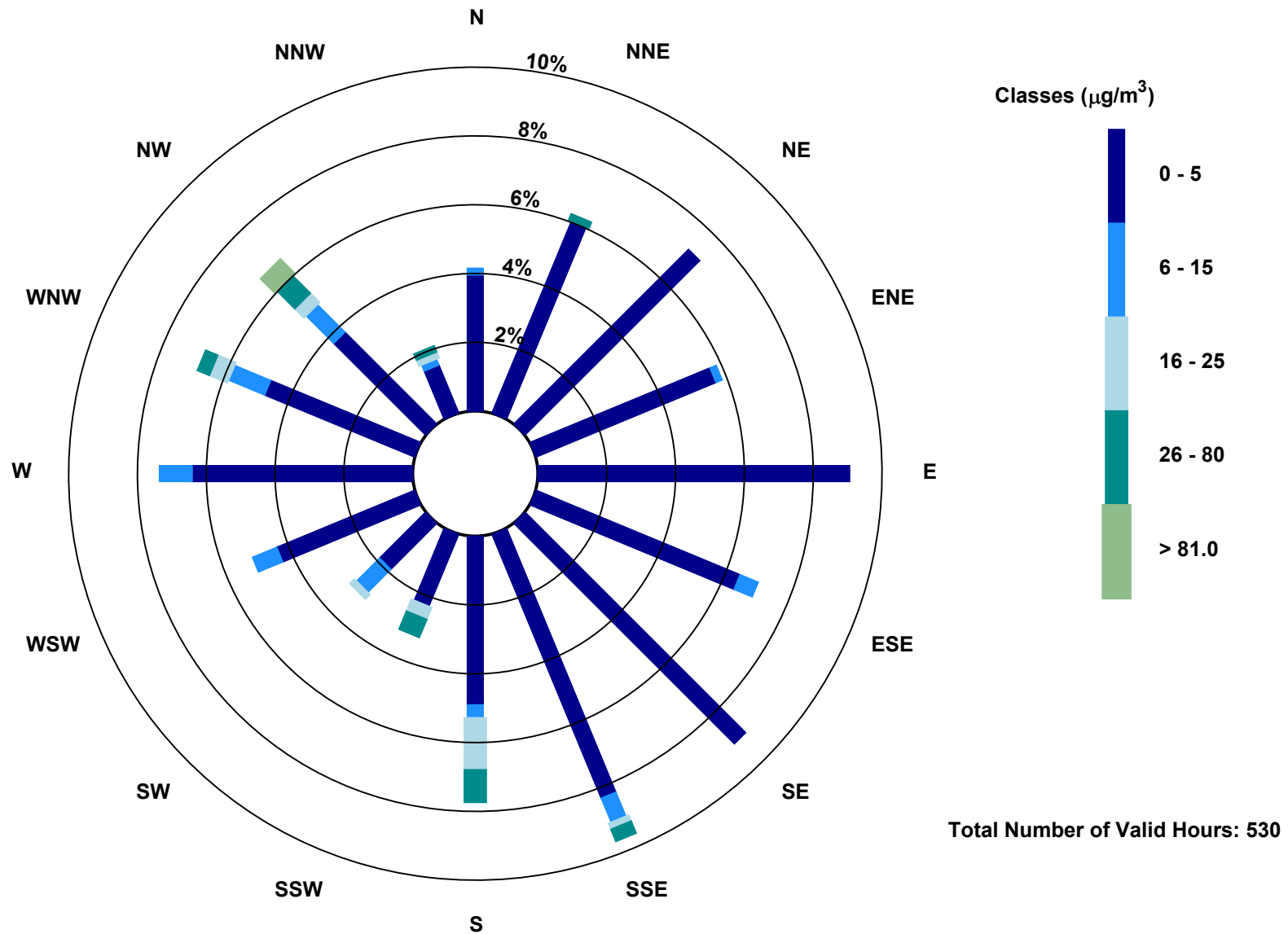
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

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

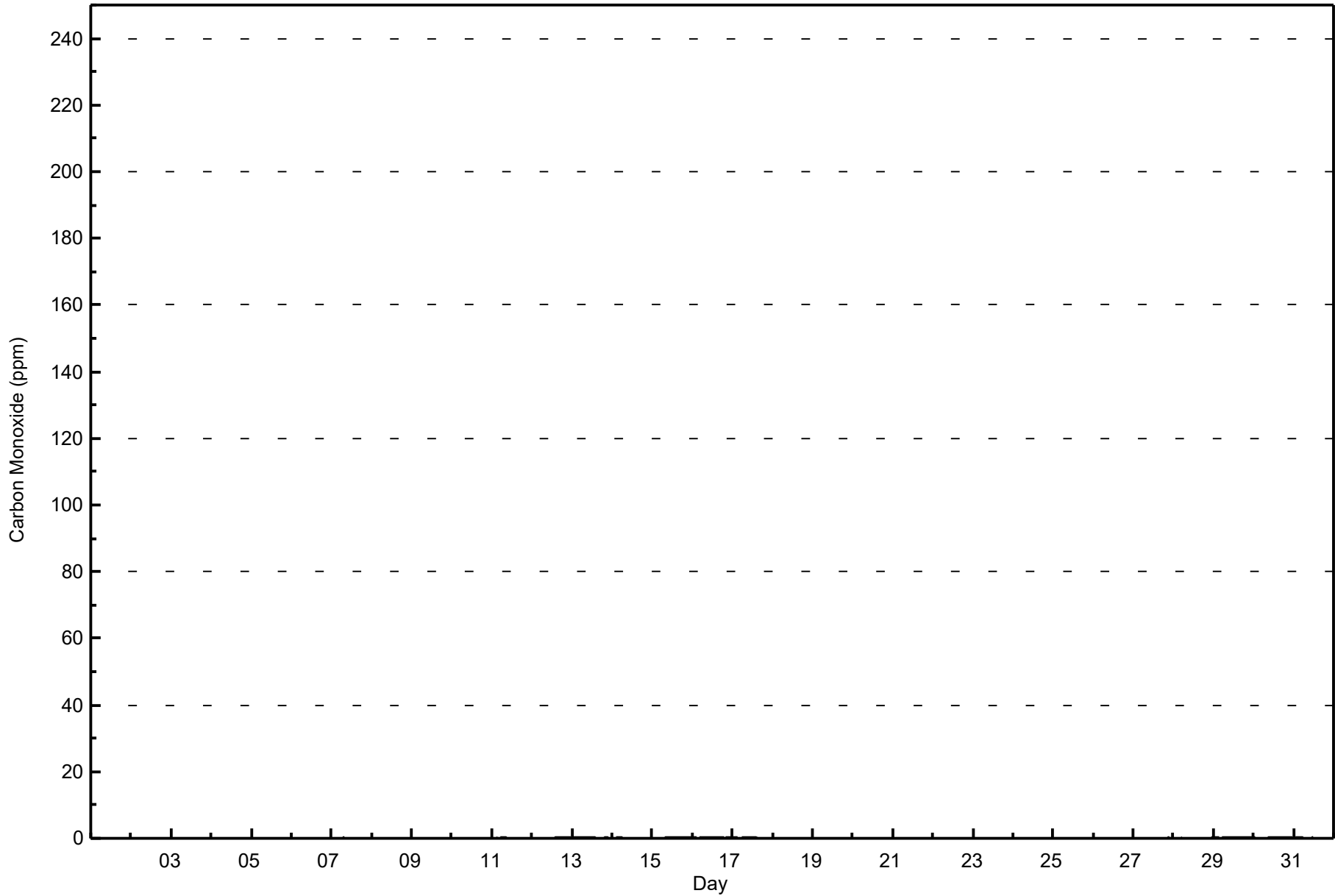






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - May 2024**





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

**Carbon Monoxide (CO) - ppm**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	685	96.61	96.62
0.4 - 0.5	24	3.39	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  
Stony Mountain - May 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	24	46	60	38	57	51	50	48	39	18	17	37	54	56	68	20	683
0.4 - 0.5	2	1	2	2	4	1	0	1	1	2	0	0	0	4	3	1	24
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>	26	47	62	40	61	52	50	49	40	20	17	37	54	60	71	21	707

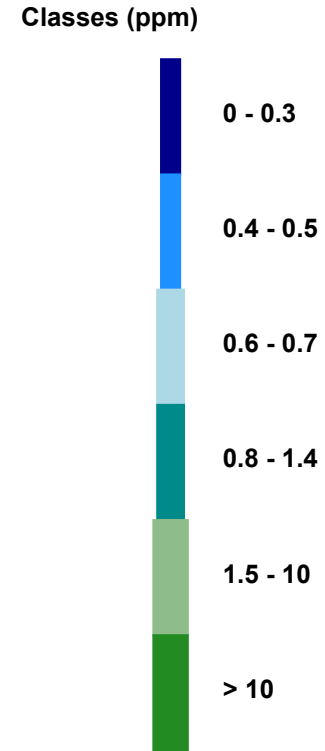
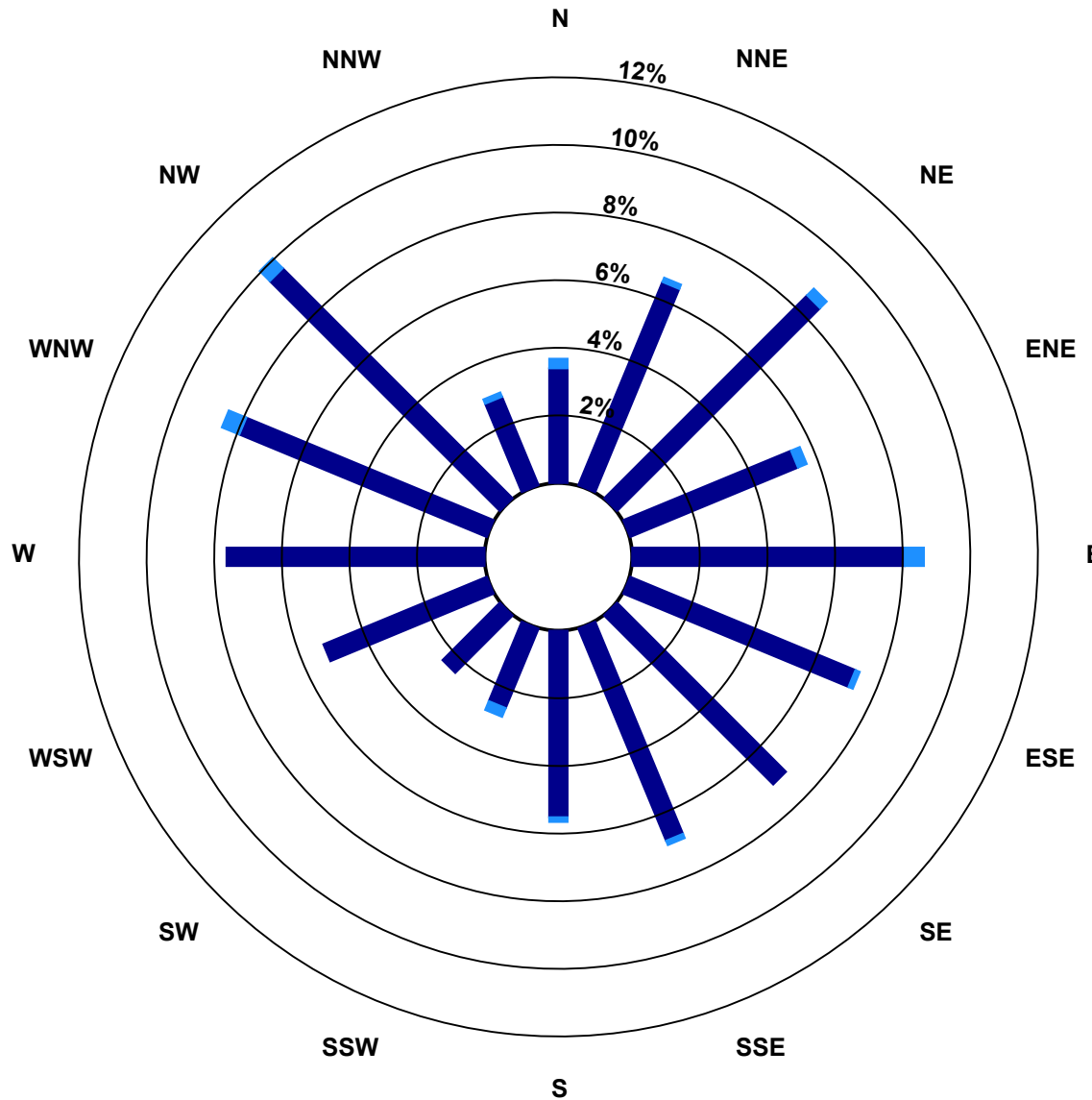
Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Carbon Monoxide (CO) - ppm  
Stony Mountain



Total Number of Valid Hours: 707



Wood Buffalo Environmental Association

Summary of Hour Averages

Carbon Dioxide (CO<sub>2</sub>) - ppm

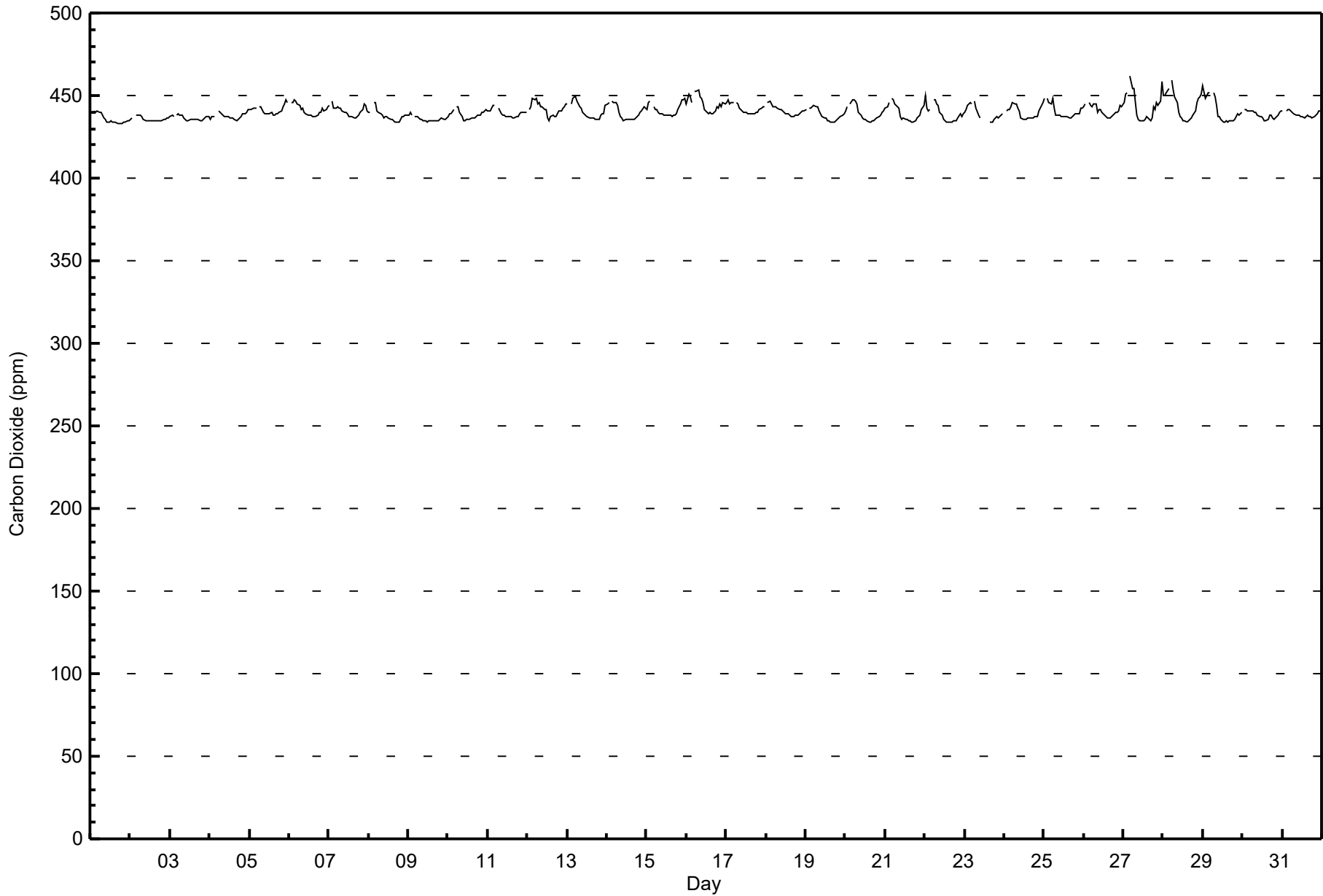
Stony Mountain - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744						
Maximum Value: 461.5 ppm on May 27 05:00		Maximum Daily Average: 445.1 ppm on May 16																	Hours of Data:		708						
Minimum Value: 433.3 ppm on May 1 19:00		Minimum Daily Average: 435.7 ppm on May 2																	Hours of Missing Data:		36						
Maximum Diurnal Average: 445.0 ppm at hour 6		Minimum Diurnal Average: 436.0 ppm at hour 16																	Hours of Calibration:		36						
Monthly Average: 439.80 ppm		Percentiles: P <sub>1</sub> = 433.6 P <sub>10</sub> = 434.8 Q <sub>1</sub> = 436.6 Median = 438.7 Q <sub>3</sub> = 442.6 P <sub>90</sub> = 445.9 P <sub>99</sub> = 453.2																	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-May	440.1	Z	440.9	440.1	440.6	440.1	439.8	438.5	436.4	435.4	434.0	433.7	434.4	433.8	433.9	434.0	433.5	433.4	433.3	433.3	433.6	434.2	434.6	435.0	435.9	440.9	
2-May	435.7	436.8	Z	438.1	438.3	438.5	438.3	436.9	435.6	434.7	434.5	434.5	434.3	434.5	434.6	434.6	434.7	434.8	434.9	434.5	435.4	435.4	436.2	436.2	435.7	438.5	
3-May	437.0	437.8	437.3	Z	438.1	439.3	438.3	438.5	436.6	435.3	434.8	435.1	435.3	435.4	435.5	435.7	435.4	435.4	434.8	434.7	435.4	436.6	436.9	437.4	436.4	439.3	
4-May	435.7	436.9	437.5	437.4	Z	440.8	439.7	438.7	438.0	437.4	437.4	436.9	436.5	436.2	436.0	435.1	435.3	436.4	437.4	439.3	438.9	439.9	441.4	437.6	441.4		
5-May	441.5	441.9	442.6	442.7	442.1	Z	443.1	443.3	440.1	439.2	439.1	438.7	438.8	439.8	438.5	438.4	438.7	439.2	439.6	440.3	443.6	444.6	447.4	445.9	441.3	447.4	
6-May	Z	445.7	445.9	447.1	446.9	444.9	444.1	441.7	442.2	440.0	438.6	438.3	438.4	438.0	437.6	437.2	437.6	438.3	439.6	440.2	442.4	440.6	441.7	443.1	441.3	447.1	
7-May	443.9	Z	446.4	442.7	442.0	443.1	442.5	442.6	441.0	440.1	439.6	438.7	437.5	437.2	437.0	436.8	436.4	437.6	438.3	440.1	441.5	445.1	444.2	440.5	440.7	446.4	
8-May	440.2	439.6	Z	445.9	445.7	440.9	440.1	439.4	437.8	436.6	437.0	436.9	436.8	435.7	435.2	434.6	433.6	433.7	434.0	435.3	437.0	437.5	437.8	438.0	437.8	445.9	
9-May	438.3	439.6	438.4	Z	437.1	437.2	436.3	435.5	435.4	435.1	434.4	433.9	434.7	434.8	434.9	434.7	434.7	434.8	435.0	435.8	436.8	435.8	435.5	436.2	435.9	439.6	
10-May	437.7	438.8	439.0	441.9	Z	443.6	442.9	439.6	437.4	435.1	434.8	435.4	435.4	435.6	436.0	436.3	436.7	437.4	438.0	438.5	439.8	440.2	440.4	441.6	438.3	443.6	
11-May	441.1	440.4	442.6	443.9	444.0	Z	442.0	440.5	439.0	438.4	437.9	437.7	437.3	437.0	437.0	436.8	436.8	437.2	437.5	438.8	439.4	439.6	440.0	440.2	439.4	444.0	
12-May	Z	441.1	442.9	448.3	447.1	448.6	444.8	445.8	442.8	442.9	441.3	441.6	436.5	435.1	437.7	437.8	437.3	437.6	439.0	440.3	441.0	442.4	443.1	445.1	441.7	448.6	
13-May	445.0	Z	445.2	448.2	449.1	449.2	446.6	443.4	442.4	440.1	439.2	438.1	437.2	436.6	436.5	436.7	436.8	435.7	435.3	435.7	437.9	439.0	439.1	443.7	440.7	449.2	
14-May	444.7	445.5	Z	446.7	445.9	446.1	443.7	439.5	437.3	436.1	435.1	435.5	435.3	435.3	435.3	435.2	435.8	436.8	437.0	437.8	439.8	440.5	443.5	442.1	439.6	446.7	
15-May	441.1	445.4	447.0	Z	442.9	441.9	441.2	439.7	439.2	439.2	438.5	438.5	438.1	438.2	438.5	437.7	437.8	438.1	439.1	441.3	444.8	447.4	447.1	448.3	441.3	448.3	
16-May	445.3	451.2	449.3	445.8	Z	453.0	452.7	453.3	449.2	447.9	446.1	441.5	439.8	439.2	439.5	439.3	439.2	440.3	443.2	442.3	445.0	443.5	445.8	445.1	445.1	453.3	
17-May	446.2	447.1	444.6	445.5	445.7	Z	445.7	444.8	442.6	441.3	440.1	439.8	439.4	439.0	438.9	438.7	439.3	438.9	439.5	440.0	441.2	442.4	443.3	443.0	442.0	447.1	
18-May	Z	446.0	446.4	445.0	443.3	443.4	443.0	442.7	441.7	441.1	440.3	439.9	439.2	439.1	438.4	437.6	437.5	437.7	438.0	437.8	438.7	439.8	440.4	440.7	440.8	446.4	
19-May	441.4	Z	442.4	442.6	443.2	443.7	443.4	442.9	441.1	438.7	437.7	436.8	436.3	434.5	434.4	434.2	433.9	434.2	434.8	435.3	436.3	437.1	438.0	438.9	438.3	443.7	
20-May	440.7	443.0	Z	445.3	447.4	447.2	446.4	444.6	439.9	438.5	436.4	435.6	435.3	434.4	434.1	434.0	434.4	434.8	435.2	436.0	437.1	437.8	439.4	440.5	439.0	447.4	
21-May	442.6	443.6	445.4	Z	448.4	447.3	445.0	443.3	442.1	437.3	435.2	436.1	435.5	435.8	434.8	434.6	433.9	434.1	434.7	436.1	437.0	437.9	441.3	444.0	439.4	448.4	
22-May	450.2	442.7	440.9	441.6	Z	447.8	447.8	444.7	443.8	440.1	438.0	435.4	434.8	434.3	434.1	434.0	433.8	434.4	434.8	434.9	436.8	439.2	437.6	438.7	439.1	450.2	
23-May	439.8	441.5	443.8	445.6	445.2	Z	446.3	442.7	438.5	436.6	C	C	C	C	C	434.2	433.8	433.9	435.6	437.3	436.7	437.1	438.5	438.8	439.2	446.3	
24-May	Z	440.9	441.2	441.5	443.5	445.4	444.7	445.1	442.4	440.3	436.3	435.8	435.2	435.7	436.0	436.2	436.4	436.7	437.6	437.1	437.5	440.5	444.0	446.0	439.8	446.0	
25-May	448.1	Z	447.9	446.1	445.2	448.5	442.7	438.4	438.3	438.1	437.6	437.1	437.1	437.3	437.2	436.8	436.8	437.3	438.5	438.6	438.6	439.4	442.2	442.7	440.5	448.5	
26-May	442.9	444.7	Z	445.4	444.4	443.4	445.2	445.3	439.8	441.9	441.1	439.9	438.6	437.5	436.8	436.4	436.7	437.3	438.9	439.8	439.6	440.6	444.3	443.6	441.0	445.4	
27-May	445.4	450.7	451.4	Z	461.5	454.4	454.3	446.1	438.4	435.7	434.7	434.6	435.0	435.2	437.1	436.1	435.0	436.6	443.4	441.1	446.0	443.8	446.8	458.2	443.6	461.5	
28-May	449.9	449.6	451.7	454.1	Z	459.4	453.1	449.2	445.8	440.1	437.3	436.2	434.5	434.4	433.8	434.4	435.4	436.0	437.9	440.5	446.2	448.5	448.9	450.5	443.8	459.4	
29-May	455.9	448.6	449.9	451.3	451.7	Z	452.0	449.3	444.4	437.3	437.3	435.5	433.5	433.6	434.5	434.2	434.7	434.6	434.9	435.8	436.9	439.0	438.0	440.1	441.0	455.9	
30-May	Z	441.2	441.3	441.1	441.0	440.8	440.4	440.2	439.6	437.8	437.5	437.2	436.5	435.2	434.8	435.7	438.2	437.7	436.8	435.7	436.8	438.4	439.4	440.5	438.4	441.3	
31-May	440.6	Z	441.1	441.2	441.5	441.1	439.7	439.0	438.4	438.3	437.9	437.1	437.1	436.6	437.3	437.8	437.1	437.1	436.7	437.1	438.6	439.3	440.8	440.9	438.8	441.5	
		442.7	443.2	444.0	444.4	444.7	445.0	444.1	442.4	440.2	438.6	437.7	437.1	436.5	436.2	436.2	436.0	436.0	436.4	437.2	437.7	439.3	440.1	441.2	442.2	Diurnal Average	
		455.9	451.2	451.7	454.1	461.5	459.4	454.3	453.3	449.2	447.9	446.1	441.6	439.8	439.8	439.5	439.3	439.3	440.3	443.4	442.3	446.2	448.5	448.9	458.2	Diurnal Maximum	
Z - zerospan		C - Calibration																									



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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - May 2024**







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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - May 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	457	64.55	64.55
440 - 460	250	35.31	99.86
460 - 480	1	0.14	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



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

**Carbon Dioxide (CO<sub>2</sub>) - ppm**  
**Stony Mountain - May 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	16	42	54	23	29	25	35	22	13	13	10	32	43	39	49	12	457
440 - 460	8	4	11	12	32	27	14	30	25	7	7	5	13	22	21	10	248
460 - 480	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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>	24	47	65	35	61	52	49	52	38	20	17	37	56	61	70	22	706

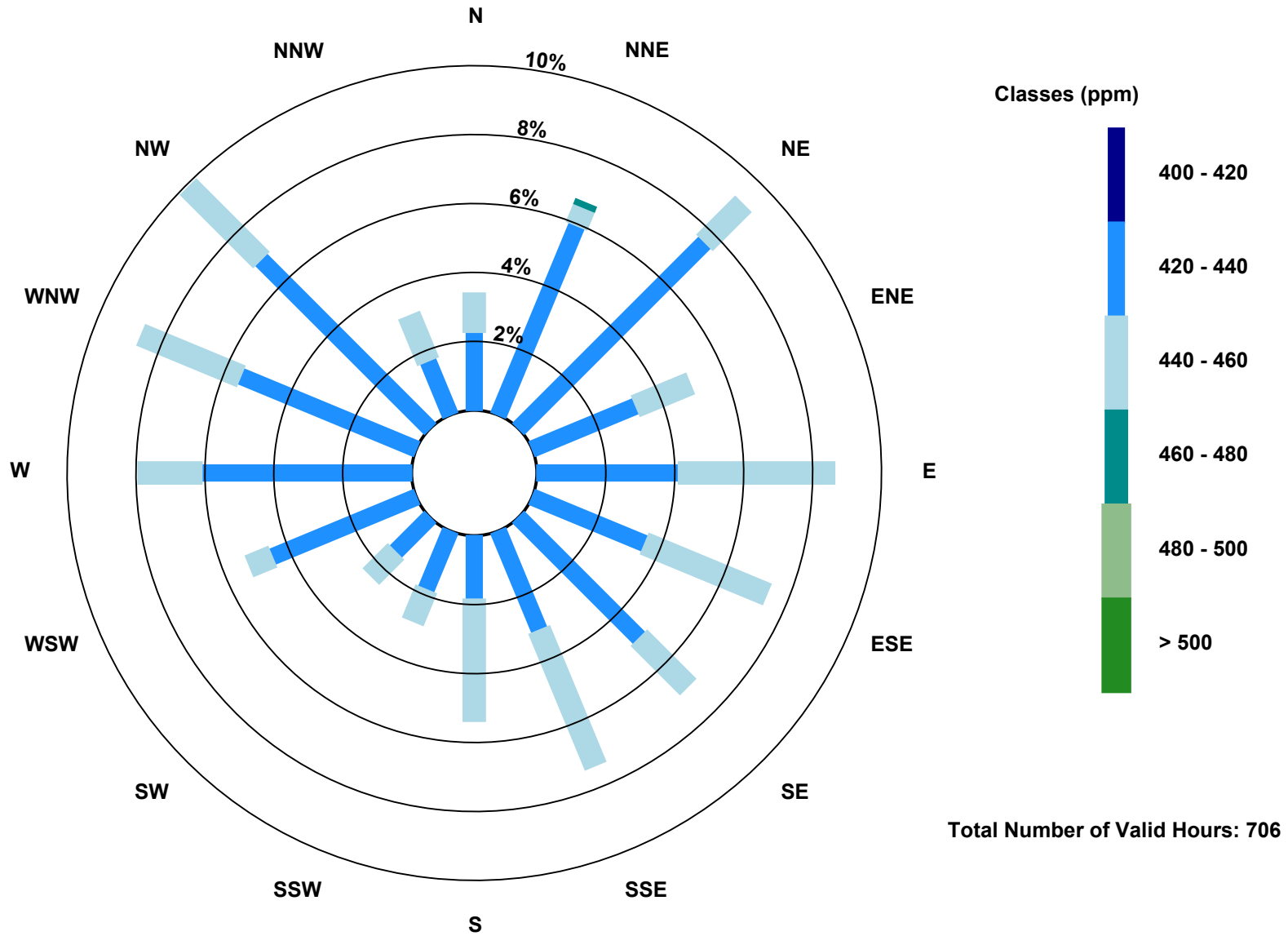
Total Number of Valid Hours: 706

Total Number of Hours: 744



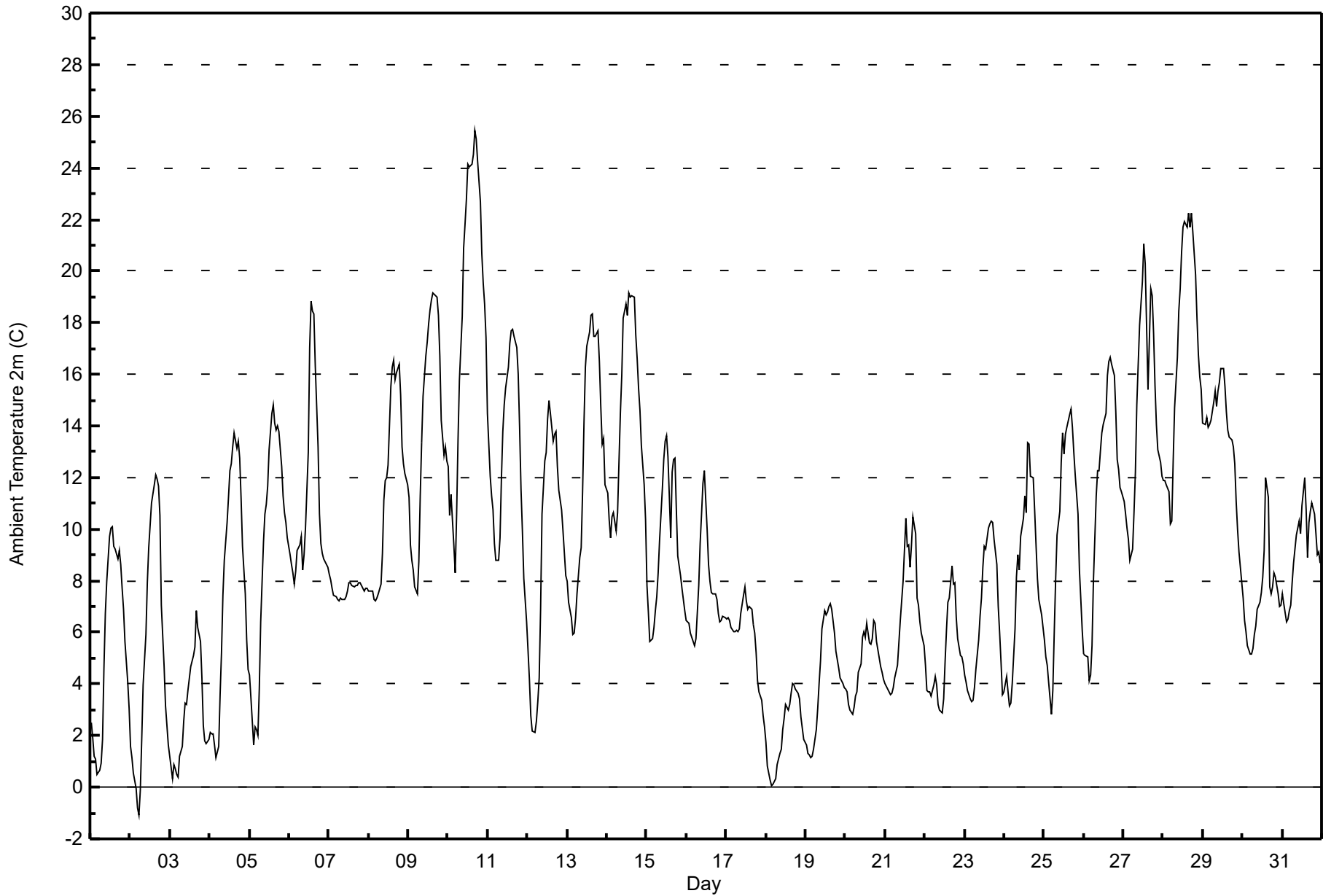
Wood Buffalo Environmental Association  
Wind Rose May 2024

Carbon Dioxide (CO<sub>2</sub>) - ppm  
Stony Mountain





Maximum Value: 25.4 C on May 10 17:00		Maximum Daily Average: 18.6 C on May 10		Hours in Service: 744																																												
Minimum Value: -1.1 C on May 2 06:00		Minimum Daily Average: 2.1 C on May 18		Hours of Data: 744																																												
Maximum Diurnal Average: 12.8 C at hour 15		Minimum Diurnal Average: 5.1 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 9.21 C		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 3.0 Q <sub>1</sub> = 5.5 Median = 8.4 Q <sub>3</sub> = 12.6 P <sub>90</sub> = 16.6 P <sub>99</sub> = 22.8		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-May	2.5	1.9	1.2	1.1	0.5	0.7	0.9	1.9	4.6	6.7	8.0	9.7	10.0	10.1	9.3	9.2	8.8	9.2	8.6	7.7	6.9	5.6	4.0	3.0	5.5	10.1																						
2-May	1.6	1.1	0.5	-0.1	-0.8	-1.1	-0.1	1.8	3.9	5.9	7.9	9.3	10.2	11.0	11.7	12.1	11.9	11.7	10.5	7.1	4.7	3.1	2.4	1.7	5.3	12.1																						
3-May	1.2	0.3	0.9	0.7	0.5	0.4	1.2	1.6	2.6	3.3	3.2	3.8	4.7	4.9	5.1	5.4	6.8	6.2	5.7	4.3	2.4	1.8	1.7	1.9	2.9	6.8																						
4-May	2.1	2.0	2.1	1.6	1.2	1.6	3.6	5.2	7.4	8.8	10.2	11.2	12.2	12.5	13.2	13.8	13.1	13.4	12.8	11.2	9.4	7.5	5.7	4.6	7.8	13.8																						
5-May	4.4	3.5	1.6	2.3	2.2	2.0	3.8	6.4	9.5	10.6	10.9	11.7	13.1	14.5	14.8	14.1	13.8	14.0	13.8	12.4	11.3	10.6	10.3	9.7	9.2	14.8																						
6-May	9.0	8.6	8.3	7.9	8.3	9.2	9.4	9.7	8.4	9.0	10.1	12.9	17.0	18.8	18.5	18.3	16.3	13.2	10.6	9.5	9.1	8.8	8.6	8.5	11.2	18.8																						
7-May	8.3	8.0	7.7	7.4	7.4	7.3	7.2	7.3	7.3	7.3	7.4	7.6	7.9	7.9	7.8	7.8	7.8	7.8	7.9	7.9	7.7	7.6	7.7	7.7	7.7	8.3																						
8-May	7.6	7.6	7.6	7.3	7.2	7.3	7.5	7.9	9.0	11.1	11.9	12.0	12.5	15.5	16.3	16.6	15.8	16.1	16.4	15.2	13.2	12.6	12.1	11.7	11.6	16.6																						
9-May	11.2	9.4	8.8	8.4	7.8	7.5	8.7	11.3	13.3	15.1	16.7	17.3	17.9	18.5	18.9	19.1	19.1	19.0	18.3	16.7	14.2	12.9	13.2	12.6	14.0	19.1																						
10-May	12.4	10.5	11.4	9.4	8.3	10.6	13.4	15.8	18.2	20.9	21.8	22.8	24.1	24.0	24.1	24.5	25.4	25.1	24.2	22.7	20.7	19.5	18.7	17.4	18.6	25.4																						
11-May	14.5	12.1	11.3	10.7	9.4	8.8	8.8	9.7	12.0	13.8	14.8	15.5	16.3	17.2	17.7	17.8	17.5	17.0	16.0	14.0	11.6	10.0	8.1	6.4	12.9	17.8																						
12-May	5.3	4.2	2.8	2.2	2.1	2.5	3.3	4.2	6.9	10.6	12.7	13.0	14.3	15.0	14.5	13.4	13.7	13.8	12.4	11.5	10.7	9.9	9.1	8.2	9.0	15.0																						
13-May	8.0	7.1	6.6	5.9	6.0	6.6	7.5	8.9	9.3	11.5	14.1	16.3	17.1	17.6	18.3	18.3	17.5	17.5	17.7	16.5	14.7	13.3	13.5	11.7	12.6	18.3																						
14-May	11.4	10.4	9.7	10.5	10.7	9.9	10.6	12.6	14.5	16.0	18.2	18.7	18.3	19.1	19.0	19.1	19.0	17.5	16.6	15.5	14.6	13.2	11.7	10.4	14.5	19.1																						
15-May	7.8	6.8	5.6	5.8	6.2	6.8	7.4	8.3	9.5	11.6	12.7	13.4	13.6	12.8	9.6	12.2	12.7	12.7	10.8	9.0	8.2	7.7	7.3	6.8	9.4	13.6																						
16-May	6.5	6.3	6.0	5.8	5.6	5.5	5.8	7.8	9.5	10.6	11.8	12.3	10.0	8.6	8.0	7.6	7.5	7.5	7.3	6.8	6.4	6.5	6.6	6.6	7.6	12.3																						
17-May	6.5	6.6	6.5	6.2	6.0	6.0	6.1	6.0	6.1	6.7	7.4	7.8	7.2	6.9	7.0	6.9	6.3	6.0	5.2	4.1	3.7	3.4	2.8	2.4	5.8	7.8																						
18-May	1.7	0.8	0.3	0.1	0.1	0.2	0.3	0.8	1.3	1.5	2.2	2.7	3.2	3.0	3.2	3.7	4.0	4.0	3.8	3.7	3.4	2.7	2.3	1.9	2.1	4.0																						
19-May	1.6	1.3	1.2	1.2	1.2	1.5	2.2	3.1	4.0	4.9	6.1	6.9	6.7	6.8	7.0	7.1	6.9	5.9	5.3	5.0	4.6	4.2	4.0	3.9	4.3	7.1																						
20-May	3.8	3.7	3.2	3.0	2.8	3.1	3.5	3.7	4.4	4.8	5.8	6.0	5.8	6.3	5.6	5.5	5.8	6.5	6.3	5.6	5.0	4.7	4.4	4.2	4.7	6.5																						
21-May	4.0	3.8	3.7	3.6	3.7	3.9	4.2	4.7	5.6	6.5	7.2	8.0	10.4	9.3	9.4	8.5	9.4	10.5	9.8	7.4	7.1	6.4	6.0	5.5	6.6	10.5																						
22-May	4.7	3.7	3.7	3.7	3.6	4.0	4.3	4.0	3.2	3.0	2.9	3.4	4.8	6.1	7.2	7.3	8.6	7.9	7.9	6.6	5.7	5.1	5.1	4.8	5.0	8.6																						
23-May	4.4	4.1	3.7	3.4	3.3	3.4	3.8	4.6	5.7	6.6	7.4	8.5	9.3	9.2	10.1	10.2	10.3	10.3	9.6	8.6	7.0	6.0	4.8	3.6	6.6	10.3																						
24-May	3.7	4.3	3.7	3.2	3.3	4.0	6.1	8.2	9.0	8.4	9.7	10.4	11.3	10.6	13.3	13.3	12.1	12.0	10.8	9.4	8.1	7.3	6.7	6.2	8.1	13.3																						
25-May	5.7	5.1	4.7	4.1	2.8	3.7	5.9	8.0	9.8	10.7	12.6	13.7	12.9	13.7	13.9	14.4	14.6	13.9	13.0	12.1	10.6	8.4	7.3	6.1	9.5	14.6																						
26-May	5.1	5.1	5.1	4.1	4.4	5.5	8.0	11.3	12.3	12.3	13.0	13.7	14.0	14.5	16.0	16.5	16.6	16.4	15.9	14.5	12.7	12.3	11.6	11.5	11.4	16.6																						
27-May	11.1	10.6	10.0	9.6	8.8	9.2	10.6	12.2	14.8	16.4	17.9	19.6	21.1	20.3	17.9	15.4	19.3	19.0	17.6	15.5	14.1	13.1	12.6	12.1	14.5	21.1																						
28-May	11.9	11.9	11.7	11.4	10.2	10.3	12.7	14.7	16.7	18.5	19.3	20.7	21.7	21.9	21.7	22.3	21.7	22.2	21.5	19.9	18.2	16.8	15.9	15.4	17.0	22.3																						
29-May	14.1	14.1	14.4	13.9	14.1	14.2	14.9	15.4	14.8	15.4	15.7	16.2	16.2	15.5	14.5	13.9	13.6	13.5	13.2	12.5	11.1	10.0	9.1	7.9	13.7	16.2																						
30-May	7.3	6.4	6.0	5.5	5.2	5.2	5.4	5.9	6.2	6.9	7.2	7.5	8.1	9.2	12.0	11.3	7.8	7.5	7.8	8.3	8.2	7.5	7.0	7.1	7.3	12.0																						
31-May	7.5	7.1	6.4	6.5	6.9	7.1	7.9	8.7	9.8	10.0	10.3	9.8	10.9	12.0	10.8	8.9	10.3	10.7	11.0	10.6	9.8	9.0	9.1	8.7	9.2	12.0																						
																								6.7	6.1	5.7	5.4	5.1	5.4	6.3	7.5	8.7	9.8	10.9	11.7	12.4	12.7	12.8	12.7	12.7	12.5	11.9	10.7	9.5	8.6	8.0	7.4	Diurnal Average
																								14.5	14.1	14.4	13.9	14.1	14.2	14.9	15.8	18.2	20.9	21.8	22.8	24.1	24.0	24.1	24.5	25.4	25.1	24.2	22.7	20.7	19.5	18.7	17.4	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C  
Stony Mountain - May 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	4	0.54	0.54
0 - 10	444	59.68	60.22
10 - 20	274	36.83	97.04
> 20	22	2.96	100.00

Total Number of Valid Hours: 744

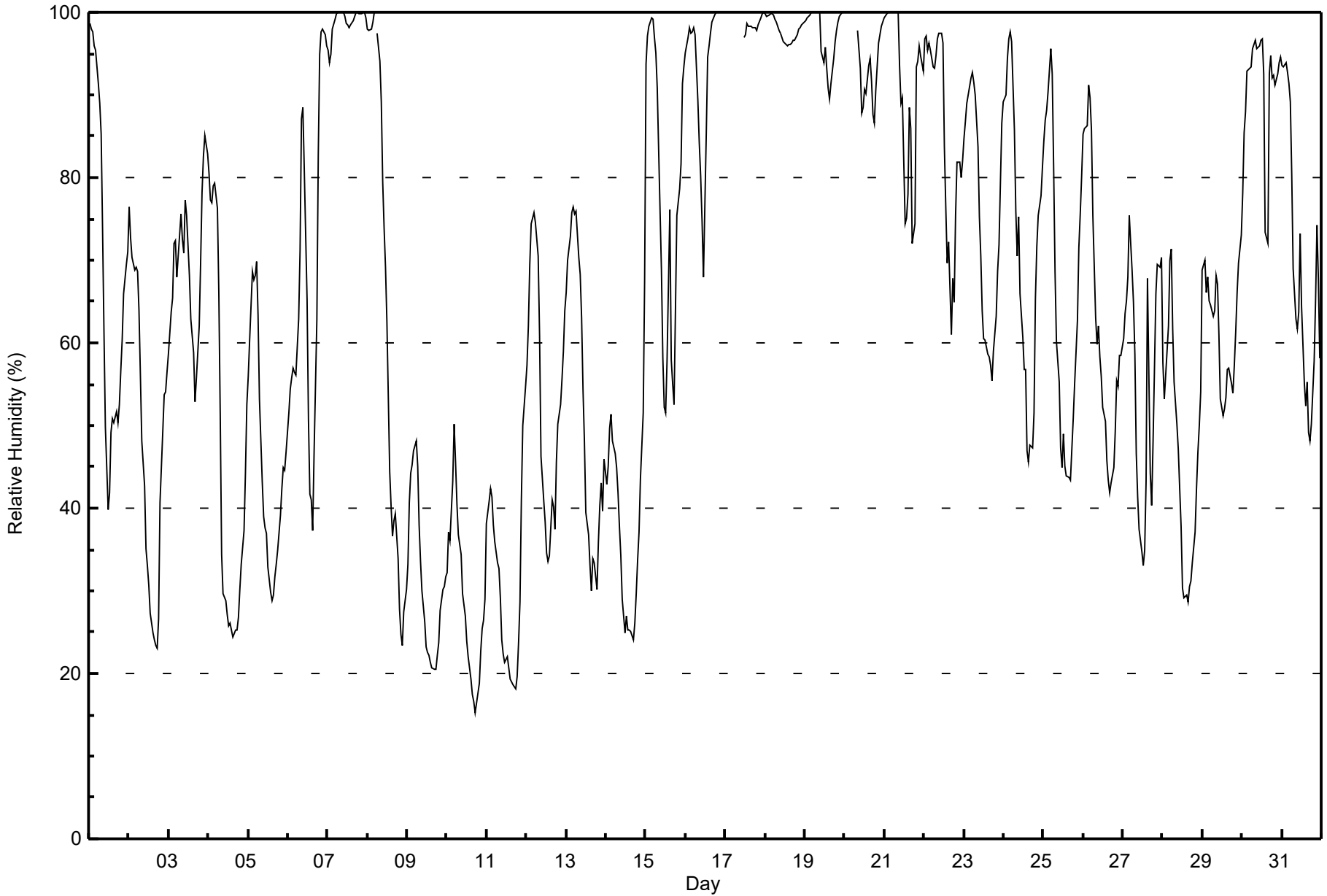
Total Number of Hours: 744



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

**Relative Humidity (RH) - %**  
**Stony Mountain - May 2024**

Maximum Value: 100.0 % on May 7 07:00																								Maximum Daily Average: 98.8 % on May 7																								Hours in Service: 744		
Minimum Value: 15.2 % on May 10 18:00																								Minimum Daily Average: 28.9 % on May 10																								Hours of Data: 713		
Maximum Diurnal Average: 79.9 % at hour 5																								Minimum Diurnal Average: 53.7 % at hour 17																								Hours of Missing Data: 31		
Monthly Average: 65.57 %																								Percentiles: P <sub>1</sub> = 19.1 P <sub>10</sub> = 29.7 Q <sub>1</sub> = 44.5 Median = 66.0 Q <sub>3</sub> = 92.0 P <sub>90</sub> = 98.0 P <sub>99</sub> = 100.0																								Hours of Calibration: 0		
																																																Percent Operational Time: 95.8		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-May	98.6	98.0	97.7	95.9	95.4	91.4	88.9	85.2	73.7	61.4	49.9	39.8	41.9	49.2	50.8	50.4	51.7	50.3	52.5	56.5	60.3	65.9	69.5	71.0	68.6	98.6																								
2-May	76.5	72.7	70.3	68.8	69.2	68.6	63.9	56.1	48.1	42.7	35.1	33.0	30.7	27.3	24.9	24.1	23.4	23.1	26.7	40.6	49.4	53.8	54.1	56.5	47.5	76.5																								
3-May	58.7	63.7	65.4	72.0	72.4	67.9	70.4	75.6	72.6	70.8	77.3	75.3	68.1	62.9	60.9	58.9	52.8	55.8	62.0	69.7	78.1	82.5	85.1	82.8	69.2	85.1																								
4-May	80.5	77.3	76.9	79.1	79.3	76.2	66.1	51.3	34.4	29.6	28.7	27.2	25.8	26.1	25.3	24.4	25.3	25.2	26.8	30.2	33.2	37.4	44.2	52.6	45.1	80.5																								
5-May	56.0	60.3	68.6	67.7	68.1	69.8	63.4	53.3	43.2	39.0	37.7	37.0	32.9	29.9	28.9	29.6	31.7	33.2	34.9	39.2	42.3	44.8	44.5	46.8	45.9	69.8																								
6-May	51.5	54.4	55.7	56.9	56.4	56.2	63.0	71.2	87.1	88.5	81.0	65.2	50.6	41.7	41.0	37.2	46.6	62.9	82.8	95.0	97.6	97.9	97.3	95.9	68.1	97.9																								
7-May	95.5	93.9	95.0	98.0	99.2	99.8	100.0	100.0	100.0	100.0	99.5	98.7	98.4	98.2	98.4	99.1	99.5	99.9	100.0	99.8	99.8	100.0	100.0	99.3	98.8	100.0																								
8-May	98.0	97.9	98.0	98.8	100.0	OR	97.4	94.1	89.2	79.4	73.9	69.1	62.6	44.5	40.1	36.6	38.4	39.2	33.9	27.7	24.8	23.3	27.5	30.2	61.9	100.0																								
9-May	33.2	40.6	44.3	45.3	47.0	48.1	45.1	37.9	33.6	30.0	26.2	23.2	22.6	22.3	21.3	20.6	20.4	20.6	22.1	23.8	27.7	30.1	30.5	31.7	31.2	48.1																								
10-May	32.2	37.2	36.1	43.3	50.1	45.6	40.6	36.7	34.4	29.7	28.2	27.0	23.9	22.0	19.4	17.4	16.6	15.2	16.4	18.9	22.8	25.4	26.4	28.9	28.9	50.1																								
11-May	38.1	40.9	42.4	41.3	37.9	36.0	33.4	32.8	29.2	24.1	22.4	21.4	22.0	20.6	19.4	19.0	18.7	18.1	19.6	23.7	28.7	41.1	50.0	54.8	30.6	54.8																								
12-May	57.2	62.0	69.6	74.4	75.8	74.5	72.5	70.4	60.9	46.3	40.9	38.3	34.5	33.6	34.3	41.0	40.1	37.4	45.6	50.2	52.6	55.6	59.1	63.8	53.8	75.8																								
13-May	66.2	69.9	72.9	75.8	76.5	75.6	75.9	70.4	68.3	63.0	54.5	48.1	39.5	36.7	33.0	30.1	33.8	33.4	30.1	35.9	40.4	43.0	39.6	45.9	52.4	76.5																								
14-May	42.9	45.1	49.6	51.3	48.2	46.6	45.0	41.9	37.8	34.2	28.9	24.9	27.0	25.2	25.3	25.1	24.0	26.2	29.7	33.8	37.1	43.6	51.6	67.7	38.0	67.7																								
15-May	93.7	97.2	98.3	99.4	99.1	96.9	95.2	90.9	83.3	68.8	58.1	52.1	51.5	57.8	76.1	58.0	55.1	52.6	63.9	75.5	78.6	81.7	91.4	93.4	77.8	99.4																								
16-May	95.0	97.0	98.1	97.5	97.6	98.1	97.3	89.2	84.3	80.2	74.8	68.0	85.2	94.5	95.9	97.5	98.8	99.6	100.0	100.0	100.0	OR	OR	OR	92.8	100.0																								
17-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	97.0	97.4	98.6	98.4	98.3	98.2	98.1	98.1	97.9	98.4	99.4	99.8	100.0	--	100.0																							
18-May	99.9	99.4	99.6	99.9	99.9	99.6	99.1	98.8	97.9	97.5	97.0	96.4	96.3	96.0	96.1	96.1	96.3	96.5	96.7	97.3	98.0	98.1	98.5	98.7	97.9	99.9																								
19-May	99.0	99.3	99.4	99.7	100.0	100.0	OR	OR	OR	99.9	95.2	93.9	95.8	93.2	90.8	89.4	91.4	94.5	96.5	97.8	98.8	99.4	100.0	OR	96.7	100.0																								
20-May	OR	OR	OR	OR	OR	OR	OR	OR	97.8	93.3	87.7	88.5	90.6	90.2	93.6	94.4	91.8	87.6	86.6	90.5	96.2	97.2	98.3	98.7	--	98.7																								
21-May	99.3	99.8	100.0	100.0	OR	OR	OR	OR	100.0	93.5	88.9	89.7	74.3	75.1	78.0	88.4	85.9	72.0	74.4	93.3	94.1	95.9	94.8	93.0	89.5	100.0																								
22-May	96.8	97.1	95.5	96.3	95.5	93.3	93.2	94.7	96.8	97.5	97.5	96.3	83.7	76.4	69.7	72.2	61.1	67.8	64.8	75.4	81.9	81.9	80.0	82.1	85.3	97.5																								
23-May	84.7	86.7	88.9	91.0	92.0	92.6	91.5	90.0	83.7	75.3	70.5	63.9	60.5	60.3	58.6	58.3	57.2	55.5	59.0	63.3	68.7	71.9	79.4	86.6	74.6	92.6																								
24-May	89.2	90.1	94.4	96.8	97.6	96.4	85.7	75.9	70.5	75.3	66.0	60.6	56.8	56.8	46.9	45.6	47.7	47.2	51.6	65.4	71.7	75.4	77.8	81.1	71.8	97.6																								
25-May	84.4	87.0	88.1	90.4	95.6	92.5	81.3	68.7	60.2	55.3	47.4	44.9	48.9	45.1	43.9	43.7	43.4	47.1	50.9	55.1	62.7	71.5	75.6	80.2	65.2	95.6																								
26-May	85.3	85.9	86.3	91.3	89.6	85.8	75.4	63.1	59.9	62.0	58.4	55.9	52.3	50.4	45.7	43.3	41.9	43.1	44.9	49.4	55.4	54.8	58.5	58.5	62.4	91.3																								
27-May	60.5	63.6	65.2	68.0	75.3	68.8	64.9	58.7	46.6	41.3	37.4	34.7	33.1	34.9	43.3	67.7	44.3	40.4	48.1	57.0	66.0	69.5	69.1	70.4	55.4	75.3																								
28-May	57.7	53.3	56.0	62.0	70.0	71.4	61.7	55.2	50.2	47.1	42.4	37.8	30.4	29.1	29.5	28.7	30.5	31.1	33.4	37.2	42.4	46.8	50.1	54.1	46.2	71.4																								
29-May	68.7	70.0	66.2	67.9	65.1	64.5	63.3	63.9	68.2	67.1	61.0	53.2	51.1	52.1	53.5	56.7	56.9	55.1	53.9	57.2	61.4	66.1	69.6	73.0	61.9	73.0																								
30-May	78.1	85.4	88.0	92.8	93.2	93.4	95.7	96.0	96.7	95.6	95.9	96.5	96.7	92.6	73.4	72.0	92.6	94.7	92.1	92.4	91.2	92.6	93.9	94.6	91.1	96.7																								
31-May	93.6	93.3	94.0	92.7	91.3	89.1	80.3	69.0	62.8	61.7	63.7	73.2	64.5	55.0	52.3	55.3	49.2	48.1	50.2	57.8	65.1	74.2	67.8	58.1	69.3	94.0																								
																								74.9	76.5	78.0	79.8	79.9	77.7	74.4	70.0	68.0	65.0	60.9	59.1	56.4	54.8	53.8	54.2	53.7	53.9	56.4	61.5	65.3	67.4	69.5	70.7	Diurnal Average		
																								99.9	99.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.5	98.7	98.4	98.6	98.4	99.1	99.5	99.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Diurnal Maximum	
OR - Out of Range																																																		



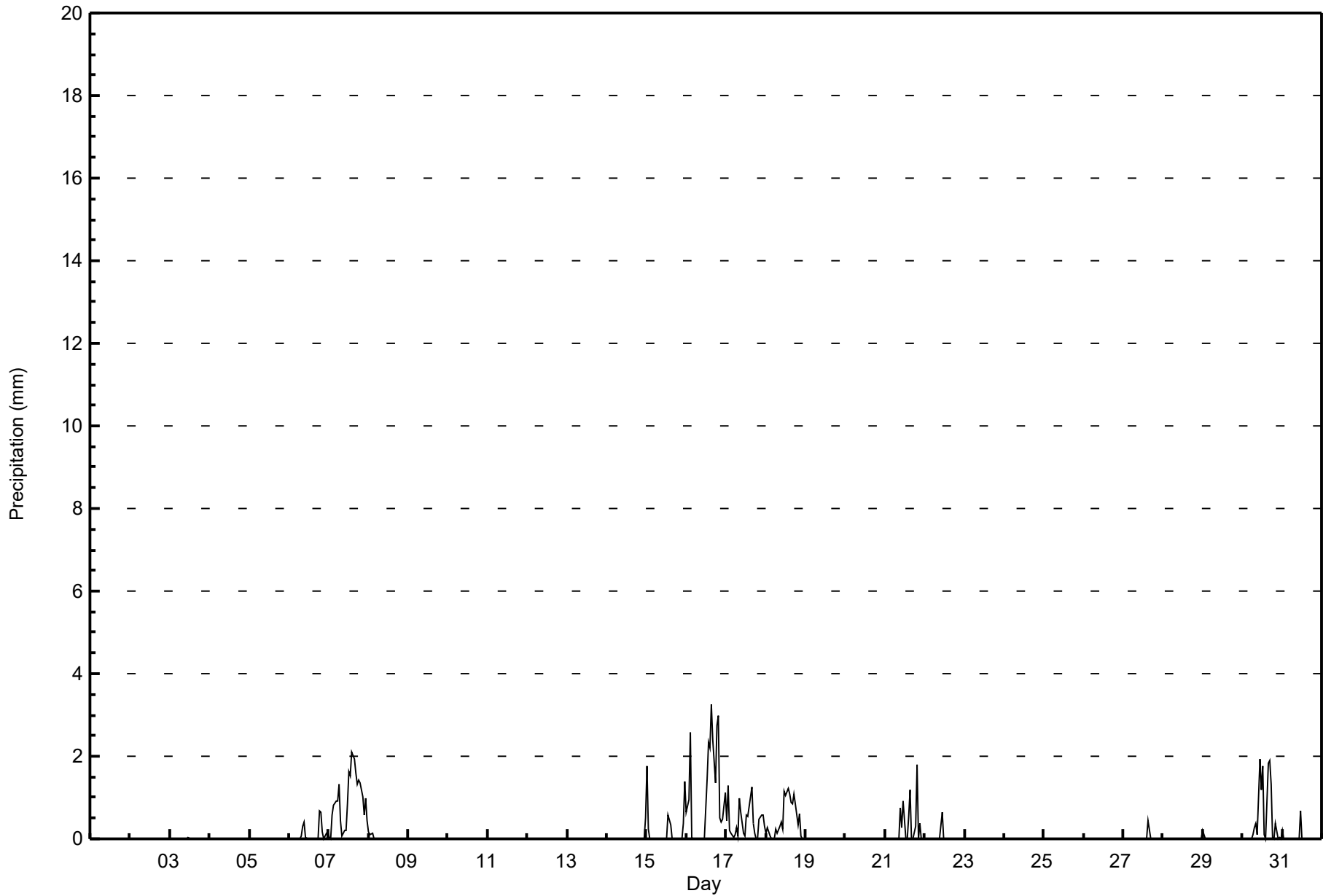






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Stony Mountain - May 2024**





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

**Precipitation (PC) - mm**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	608	88.24	88.24
0.4 - 0.5	17	2.47	90.71
0.6 - 0.7	15	2.18	92.89
0.8 - 1.4	30	4.35	97.24
1.5 - 10	18	2.61	99.85
> 10	0	0.00	99.85

Total Number of Valid Hours: 689

Total Number of Hours: 744

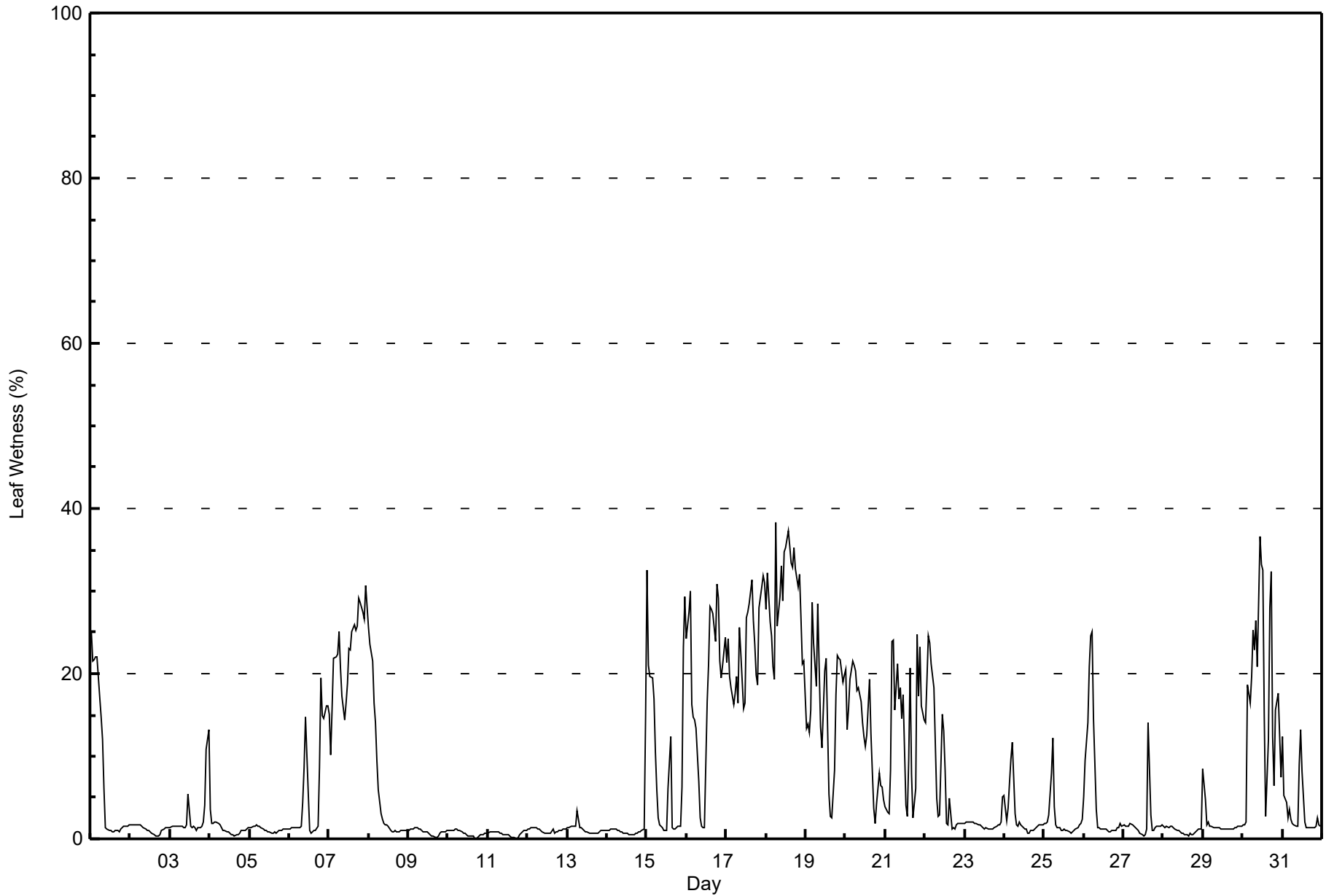


Maximum Value: 38.3 % on May 18 07:00		Maximum Daily Average: 29.8 % on May 18		Hours in Service: 744																																												
Minimum Value: 0.0 % on May 10 17:00		Minimum Daily Average: 0.6 % on May 11		Hours of Data: 744																																												
Maximum Diurnal Average: 9.9 % at hour 5		Minimum Diurnal Average: 5.6 % at hour 18		Hours of Missing Data: 0																																												
Monthly Average: 7.22 %		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.1 Median = 1.5 Q <sub>3</sub> = 13.4 P <sub>90</sub> = 23.5 P <sub>99</sub> = 33.4		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-May	25.0	21.4	21.8	22.0	22.1	17.1	14.8	12.0	6.0	1.4	1.3	1.0	1.0	0.9	0.9	0.9	1.0	0.9	1.1	1.3	1.5	1.5	1.6	1.6	7.5	25.0																						
2-May	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.5	1.3	1.2	1.0	0.9	0.8	0.7	0.5	0.4	0.4	0.3	0.6	1.0	1.2	1.4	1.4	1.4	1.2	1.8																						
3-May	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.7	5.4	1.5	1.4	1.5	1.4	1.0	1.3	1.4	1.5	2.0	4.1	10.8	13.2	2.6	13.2																						
4-May	3.6	1.9	1.9	2.0	2.0	1.9	1.7	1.4	1.0	1.0	0.9	0.8	0.7	0.5	0.4	0.3	0.5	0.4	0.7	0.9	1.0	1.1	1.2	1.3	1.2	3.6																						
5-May	1.3	1.4	1.5	1.6	1.6	1.6	1.5	1.3	1.1	1.0	1.0	0.9	0.8	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.1	1.2	1.2	1.2	1.1	1.6																						
6-May	1.2	1.3	1.4	1.4	1.4	1.3	1.4	1.6	4.4	8.6	14.8	5.4	1.0	0.6	0.9	0.9	1.1	1.6	8.6	19.6	14.9	14.6	16.0	16.1	5.8	19.6																						
7-May	15.1	10.2	15.7	21.9	22.0	22.3	25.1	20.7	17.2	14.5	16.4	18.9	23.1	23.0	25.0	26.0	25.3	25.7	29.2	28.6	27.5	26.5	30.7	28.1	22.4	30.7																						
8-May	25.5	23.5	21.5	16.4	14.1	9.4	6.0	3.0	2.3	1.9	1.7	1.6	1.5	1.0	0.9	0.8	1.1	0.9	0.8	1.0	1.1	1.0	1.1	1.1	5.8	25.5																						
9-May	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.1	1.0	0.9	0.8	0.8	0.7	0.5	0.4	0.3	0.3	0.2	0.3	0.7	0.8	0.9	0.9	1.0	0.8	1.3																						
10-May	1.0	1.1	1.0	1.1	1.1	1.1	1.1	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.3	0.0	0.0	0.2	0.4	0.5	0.6	0.6	0.6	0.7	1.1																						
11-May	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.1	0.1	0.2	0.5	0.7	0.9	1.0	1.1	0.6	1.1																						
12-May	1.2	1.2	1.3	1.4	1.4	1.3	1.3	1.2	1.0	0.8	0.7	0.7	0.6	0.6	0.7	1.1	0.8	0.8	0.9	1.0	1.1	1.1	1.2	1.3	1.0	1.4																						
13-May	1.3	1.4	1.5	1.5	1.5	1.5	3.4	1.4	1.4	1.2	1.1	0.9	0.8	0.7	0.6	0.6	0.7	0.7	0.6	0.8	1.0	1.1	1.0	1.1	1.2	3.4																						
14-May	1.1	1.1	1.2	1.2	1.1	1.1	1.1	1.0	0.9	0.8	0.7	0.6	0.7	0.5	0.5	0.5	0.5	0.7	0.8	0.9	0.9	1.0	1.1	15.0	1.5	15.0																						
15-May	32.6	21.0	19.7	19.5	17.0	10.4	6.0	2.5	1.6	1.3	1.1	1.0	1.0	6.2	12.4	1.3	1.2	1.1	1.4	1.5	1.6	6.3	23.3	29.3	9.2	32.6																						
16-May	24.2	27.4	29.9	16.3	14.7	14.4	13.4	7.0	2.6	1.5	1.4	1.3	16.7	21.2	28.2	27.8	27.3	23.9	30.9	29.2	21.6	19.5	21.0	24.3	18.6	30.9																						
17-May	21.3	24.3	19.6	18.3	16.2	17.6	19.6	16.5	25.5	22.6	15.7	16.5	26.9	27.5	28.5	31.3	26.5	23.6	19.8	18.6	28.0	30.5	31.8	31.0	23.2	31.8																						
18-May	27.8	32.1	26.3	24.7	20.9	19.3	38.3	25.8	29.4	33.0	28.9	34.7	35.2	37.4	35.3	33.4	33.0	35.2	32.7	30.6	32.0	26.8	21.2	21.6	29.8	38.3																						
19-May	13.4	13.9	12.8	15.6	28.6	23.7	18.5	28.4	20.9	13.5	11.0	20.4	21.8	13.8	5.4	2.7	2.5	8.4	17.4	22.2	21.9	21.7	19.0	19.8	16.6	28.6																						
20-May	20.4	13.3	15.8	19.3	21.5	21.0	20.4	17.9	18.3	16.7	14.1	12.4	11.2	12.5	19.4	12.7	8.1	3.8	1.9	4.3	8.0	6.5	6.2	4.8	12.9	21.5																						
21-May	3.9	3.2	3.1	8.3	23.9	24.1	15.7	21.3	16.9	18.4	14.5	17.4	4.2	2.7	9.7	20.7	7.7	2.5	6.1	24.8	17.3	23.2	16.1	14.4	13.3	24.8																						
22-May	14.1	19.1	24.6	23.7	21.3	18.4	11.6	4.9	2.6	2.9	15.1	13.0	8.4	1.9	1.7	4.9	1.2	1.3	1.2	1.7	1.9	1.9	1.9	1.9	8.4	24.6																						
23-May	1.9	2.0	2.0	2.1	2.1	2.0	1.9	1.9	1.7	1.6	1.5	1.4	1.2	1.3	1.2	1.1	1.2	1.2	1.3	1.5	1.6	1.7	2.0	5.1	1.8	5.1																						
24-May	5.3	2.3	3.8	6.8	9.7	11.7	3.0	1.7	1.5	2.0	1.6	1.4	1.2	1.3	0.7	0.6	1.0	1.0	1.2	1.4	1.5	1.6	1.7	1.7	2.7	11.7																						
25-May	1.8	1.9	2.0	2.9	8.0	12.2	4.0	1.6	1.4	1.3	1.1	1.0	1.1	1.1	1.0	0.8	0.7	0.8	1.0	1.1	1.4	1.7	1.9	2.4	2.3	12.2																						
26-May	5.2	9.4	14.1	20.9	24.6	25.1	14.6	3.6	1.4	1.3	1.3	1.2	1.1	1.1	1.0	0.8	0.8	0.9	1.0	1.1	1.3	1.4	1.8	1.5	5.7	25.1																						
27-May	1.6	1.6	1.6	1.6	1.8	1.7	1.5	1.3	1.1	0.9	0.7	0.6	0.4	0.6	1.2	14.0	3.0	0.9	1.1	1.3	1.6	1.5	1.6	1.7	1.9	14.0																						
28-May	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.3	1.1	1.0	0.8	0.7	0.6	0.5	0.6	0.4	0.7	0.6	0.6	0.8	1.1	1.1	1.2	1.2	1.0	1.5																						
29-May	8.5	4.8	1.7	2.0	1.6	1.5	1.4	1.4	1.4	1.3	1.3	1.2	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.5	1.5	1.8	8.5																						
30-May	1.6	1.7	2.0	18.7	16.5	19.7	25.3	22.9	26.5	20.8	36.6	33.3	32.5	15.0	2.6	12.1	28.1	32.4	12.4	6.5	15.6	17.6	12.5	7.4	17.5	36.6																						
31-May	12.5	5.3	4.4	2.6	3.6	2.3	1.8	1.7	1.6	1.5	8.9	13.2	8.1	2.0	1.4	1.4	1.3	1.3	1.3	1.3	1.5	2.6	1.6	1.5	3.5	13.2																						
																								9.0	8.2	8.4	9.0	9.9	9.4	8.4	6.8	6.3	5.7	6.4	6.8	6.7	5.8	6.0	6.5	5.8	5.6	5.8	6.7	6.9	7.2	7.6	8.2	Diurnal Average
																								32.6	32.1	29.9	24.7	28.6	25.1	38.3	28.4	29.4	33.0	36.6	34.7	35.2	37.4	35.3	33.4	33.0	35.2	32.7	30.6	32.0	30.5	31.8	31.0	Diurnal Maximum



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

**Leaf Wetness (LW) - %**  
**Stony Mountain - May 2024**





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

**Leaf Wetness (LW) - %**  
**Stony Mountain - May 2024**

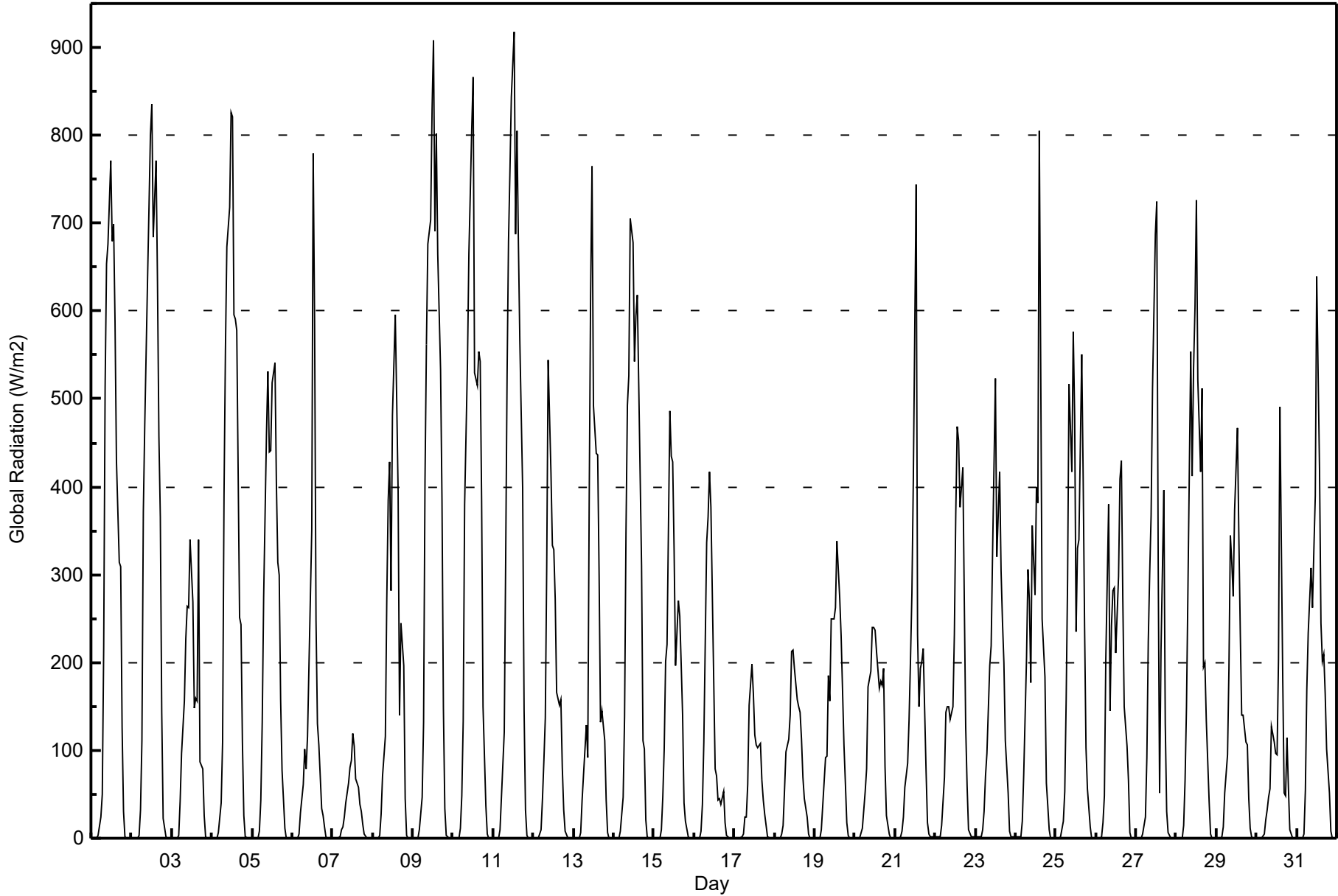
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	16	2.15	2.15
0.4 - 0.5	25	3.36	5.51
0.6 - 0.7	47	6.32	11.83
0.8 - 1.4	254	34.14	45.97
1.5 - 10	175	23.52	69.49
> 10	209	28.09	97.58

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 918.2 W/m2 on May 11 13:00																						Maximum Daily Average: 314.2 W/m2 on May 11																						Hours in Service:		744			
Minimum Value: 0.0 W/m2 on May 1 22:00																						Minimum Daily Average: 31.7 W/m2 on May 7																						Hours of Data:		744			
Maximum Diurnal Average: 481.0 W/m2 at hour 13																						Minimum Diurnal Average: 0.3 W/m2 at hour 24																						Hours of Missing Data:		0			
Monthly Average: 167.52 W/m2																						Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.1 Q <sub>1</sub> = 0.6 Median = 62.7 Q <sub>3</sub> = 272.3 P <sub>90</sub> = 520.9 P <sub>99</sub> = 815.1																						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-May	0.2	0.2	0.4	0.4	2.5	24.9	50.4	218.0	513.0	653.6	676.7	771.7	678.8	698.6	588.4	429.2	314.2	309.2	124.9	30.2	1.0	0.0	0.0	0.0	253.6	771.7																							
2-May	0.1	0.0	0.0	0.0	3.4	33.0	110.5	371.4	470.8	637.9	717.6	800.7	836.4	684.4	771.8	633.3	457.0	364.7	143.4	22.4	1.9	0.4	0.4	0.4	294.2	836.4																							
3-May	0.4	0.4	0.4	0.2	3.1	42.4	97.3	155.5	226.7	263.8	262.9	340.0	269.0	148.2	159.1	156.7	339.9	87.1	79.3	26.3	2.3	0.4	0.5	0.6	110.9	340.0																							
4-May	0.5	0.5	0.3	0.4	5.7	40.1	110.2	389.6	554.8	672.9	718.8	826.2	821.8	595.9	590.4	578.2	251.3	242.5	109.4	25.8	2.4	0.1	0.4	0.3	272.4	826.2																							
5-May	0.6	0.4	0.3	0.3	7.4	44.1	131.6	274.4	461.0	531.2	438.8	441.5	517.9	541.1	403.6	313.5	299.3	157.8	77.3	11.8	0.7	0.1	0.1	0.1	194.0	541.1																							
6-May	0.1	0.1	0.3	0.4	4.5	28.9	61.0	100.9	78.1	115.2	195.6	350.6	780.1	587.6	248.6	130.5	105.6	34.5	26.6	12.8	1.0	0.5	0.5	0.4	119.3	780.1																							
7-May	0.4	0.4	0.4	0.4	1.1	9.4	13.7	24.6	39.5	62.4	81.0	87.9	118.6	104.3	67.2	57.5	38.8	29.9	16.9	5.4	0.6	0.2	0.2	0.2	31.7	118.6																							
8-May	0.3	0.3	0.4	0.4	3.0	27.6	71.4	116.7	272.3	384.2	428.9	281.3	481.4	596.4	499.8	394.7	140.5	244.4	196.1	44.9	3.6	0.1	0.1	0.1	174.5	596.4																							
9-May	0.2	0.0	0.1	0.1	9.1	46.0	131.7	407.8	561.7	675.5	703.6	829.8	907.8	691.3	802.5	664.6	532.7	384.7	147.4	33.7	3.9	0.1	0.1	0.2	313.9	907.8																							
10-May	0.2	0.2	0.3	0.3	11.3	48.3	133.6	379.5	540.5	665.2	734.7	806.1	866.2	530.0	515.2	553.3	541.8	385.1	150.1	36.4	4.4	0.1	0.1	0.0	287.6	866.2																							
11-May	0.0	0.0	0.0	0.0	10.3	47.2	121.3	317.4	528.9	678.9	758.4	844.3	918.2	688.1	804.7	676.6	565.9	397.8	147.1	31.8	3.6	0.0	0.1	0.1	314.2	918.2																							
12-May	0.1	0.1	0.3	0.4	9.8	45.3	88.6	136.4	308.9	544.5	415.4	332.7	327.8	272.2	165.2	152.1	158.5	80.6	32.9	8.0	0.6	0.2	0.2	0.2	128.4	544.5																							
13-May	0.2	0.4	0.3	0.4	5.8	43.3	72.9	129.1	92.1	382.2	618.9	764.9	492.8	437.5	436.7	301.9	132.4	144.7	111.7	42.9	6.3	0.6	0.5	0.1	175.8	764.9																							
14-May	0.1	0.1	0.1	0.1	7.3	46.7	138.2	348.4	492.0	525.8	705.8	678.1	543.0	594.4	618.3	517.1	310.6	111.9	100.8	20.3	1.6	0.1	0.1	0.0	240.0	705.8																							
15-May	0.1	0.2	0.2	0.3	10.2	46.2	101.8	201.9	220.2	487.0	434.8	427.6	327.5	196.6	271.0	252.3	197.6	139.5	40.3	19.1	2.4	0.1	0.1	0.1	140.7	487.0																							
16-May	0.2	0.1	0.2	0.3	7.3	37.9	109.8	336.1	365.9	417.1	377.6	276.3	78.5	70.1	43.1	44.9	37.9	53.3	17.8	3.7	2.0	0.1	0.1	0.1	95.0	417.1																							
17-May	0.2	0.1	0.2	0.2	1.3	4.5	23.4	23.7	61.0	151.7	197.7	163.7	117.9	106.8	102.8	108.2	65.8	43.7	28.2	15.1	2.2	0.1	0.1	0.1	50.8	197.7																							
18-May	0.1	0.3	0.1	0.2	5.4	14.8	55.5	97.9	113.5	139.9	212.1	213.8	193.4	158.2	150.4	144.1	113.4	68.6	45.7	24.2	5.5	0.1	0.1	0.1	73.2	213.8																							
19-May	0.1	0.1	0.2	0.2	9.1	36.3	91.9	93.0	185.4	155.8	249.4	249.4	262.9	337.6	305.5	274.0	230.6	106.1	63.1	17.0	3.9	0.1	0.1	0.1	111.3	337.6																							
20-May	0.1	0.0	0.1	0.4	10.6	31.6	53.7	78.6	172.6	190.2	239.6	240.0	235.9	212.9	170.8	179.5	173.6	193.0	82.1	26.0	4.7	0.3	0.2	0.1	95.7	240.0																							
21-May	0.2	0.3	0.4	0.9	8.3	23.7	57.6	85.8	135.3	202.7	278.2	408.1	744.5	232.5	150.1	192.5	201.2	215.7	76.6	17.6	4.9	0.9	0.9	0.9	126.7	744.5																							
22-May	0.9	1.0	0.9	1.2	15.1	69.0	143.5	150.4	149.3	135.3	150.5	232.0	370.6	467.8	451.8	376.4	422.1	274.2	127.6	59.1	10.0	1.0	1.0	0.9	150.5	467.8																							
23-May	1.0	0.9	1.0	1.3	9.5	30.1	70.5	95.9	196.7	219.0	324.9	422.8	522.8	319.8	417.6	304.4	246.8	199.3	111.3	52.3	8.7	1.0	0.9	0.9	148.3	522.8																							
24-May	1.0	1.0	1.0	1.5	19.0	72.8	205.7	305.2	269.8	176.6	356.5	277.6	399.2	381.8	805.7	539.3	249.0	183.8	63.2	37.0	9.0	0.4	0.1	0.1	181.5	805.7																							
25-May	0.2	0.2	0.3	1.7	19.2	53.4	158.3	294.5	517.2	417.6	576.4	480.0	234.4	330.3	338.9	550.1	410.8	241.3	102.3	55.8	13.4	0.7	0.1	0.3	199.9	576.4																							
26-May	0.2	0.3	0.5	1.6	18.3	48.3	204.0	380.1	144.8	241.9	282.5	285.4	211.0	297.1	408.8	430.5	273.7	149.5	105.1	66.1	6.4	0.2	0.3	0.5	148.2	430.5																							
27-May	0.0	0.1	0.0	0.1	4.4	23.4	92.4	223.6	301.5	366.6	511.9	687.4	724.9	317.5	51.6	213.6	396.2	131.0	31.1	6.7	2.8	0.3	0.2	0.2	170.3	724.9																							
28-May	0.2	0.1	0.1	0.4	15.3	65.7	150.4	279.4	554.2	411.8	534.3	604.5	726.6	522.2	417.7	511.6	194.2	198.9	133.9	41.1	4.3	0.4	0.1	0.4	223.7	726.6																							
29-May	0.8	0.8	0.8	0.9	12.6	51.4	94.8	192.9	344.5	313.4	276.1	373.8	466.6	342.2	235.6	139.5	140.7	109.6	106.9	45.5	10.7	0.9	0.4	0.2	135.9	466.6																							
30-May	0.1	0.3	0.3	0.4	5.5	21.0	32.4	46.8	56.2	126.9	109.3	96.4	95.6	202.6	491.8	181.2	50.8	48.1	113.9	58.7	9.0	0.5	0.1	0.1	72.8	491.8																							
31-May	0.1	0.1	0.1	0.7	5.2	54.6	169.2	233.1	307.8	261.7	327.9	390.2	639.1	419.4	244.3	201.5	209.5	164.0	101.5	51.6	8.6	0.6	0.1	0.0	158.0	639.1																							
																								0.3	0.3	0.3	0.5	8.4	39.1	101.5	209.3	297.9	361.6	416.0	451.1	481.0	389.8	378.4	329.1	251.7	177.2	90.8	30.6	4.6	0.3	0.3	0.3	Diurnal Average	
																								1.0	1.0	1.0	1.7	19.2	72.8	205.7	407.8	561.7	678.9	758.4	844.3	918.2	698.6	805.7	676.6	565.9	397.8	196.1	66.1	13.4	1.0	1.0	0.9	Diurnal Maximum	







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

**Global Radiation (GR) - W/m2**  
**Stony Mountain - May 2024**

<b>Concentration Ranges (W/m2)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	296	39.78	39.78
21 - 100	112	15.05	54.84
101 - 300	166	22.31	77.15
301 - 600	123	16.53	93.68
601 - 900	45	6.05	99.73
> 900	2	0.27	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

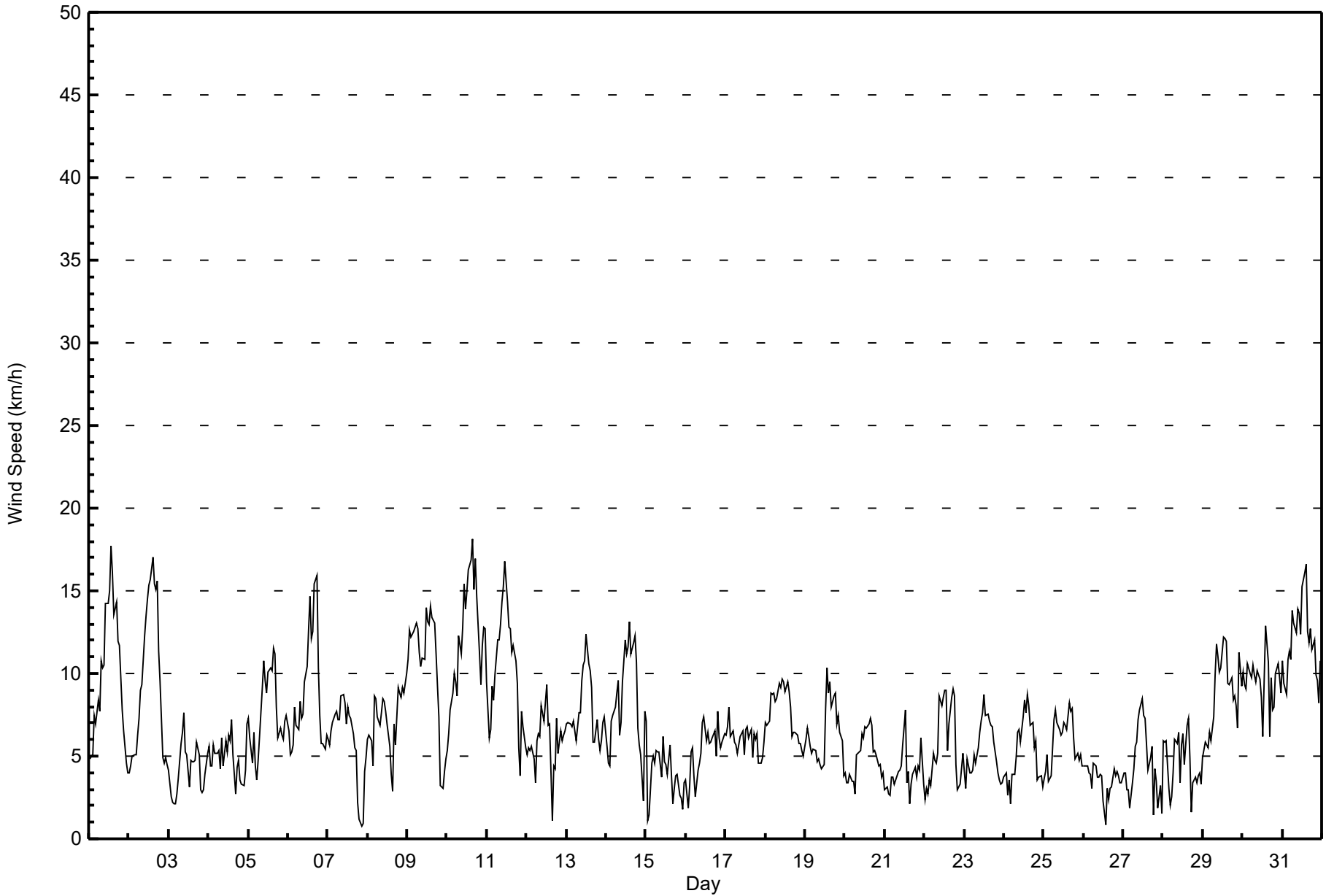
## Stony Mountain - May 2024

Maximum Speed: 18 km/h on May 10 16:00	Maximum Daily Speed Average: 11.9 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 7 21:00	Minimum Daily Speed Average: 0.9 km/h on May 4	Hours of Data: 744
Maximum Diurnal Speed Average: 1.6 km/h at hour 24	Minimum Diurnal Speed Average: 0.1 km/h at hour 20	Hours of Missing Data: 0
Monthly Average Velocity: 0.3 km/h 271.9 deg	Percentiles: $P_1 = 1$ $P_{10} = 3$ $Q_1 = 5$ Median = 6 $Q_3 = 9$ $P_{90} = 12$ $P_{99} = 16$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	NW5	NNW5	NNW5	N7	N7	N8	NNE8	NNE11	NE10	NNE10	NNE14	NE14	NE15	NE18	NE16	NE14	NE14	NE12	NE12	NNE10	NE8	NNE7	N5	NNW4	NNE9.3	NE18	
2-May	NW4	NNW4	NNW5	NNW5	NNW5	N6	N7	NNE9	NNE9	NNE12	NNE14	NE14	NNE15	NNE16	NNE17	NNE15	NNE15	NE16	NE11	ESE9	SE5	SE5	SE5	ESE5	NNE7.8	NNE17	
3-May	ESE4	SSE3	SE2	ENE2	NNW2	NW3	NE4	ENE6	ENE6	ENE8	NE5	NE5	N3	NE5	NNE5	NE5	NE5	E6	E5	ESE3	SSE3	SSW3	SW4	SW5	ENE2.3	ENE8	
4-May	SW6	WSW4	W4	W6	WNW5	WNW5	NW5	N4	NE6	N4	NE6	NE5	E6	ENE6	ENE7	E5	ENE3	E4	S5	ESE4	SSE3	E3	S4	S7	ENE0.9	ENE7	
5-May	SSW7	S6	S5	SSW6	S4	S4	SSE5	SSE6	SSE9	SSE11	SSE10	SE9	SE10	ESE10	ESE10	SE11	SSE11	SE8	ESE6	E7	E6	E6	E7	ESE7	SE6.6	SE11	
6-May	ESE7	ESE5	SE5	SSE6	SE8	SE7	ESE7	E8	ENE7	ENE8	ENE9	ENE10	E13	ESE15	ESE12	ESE13	SE15	SE16	SE10	E7	E6	ENE6	ENE5	ENE6	ESE7.8	SE16	
7-May	E6	E6	E6	E7	ENE8	ENE8	ENE7	ENE7	E9	E9	E8	ENE7	ENE8	ENE7	E7	E6	E5	E5	SE2	SE1	ESE1	SSE1	SSW4	SSW5	E5.2	E9	
8-May	SW6	WSW6	WSW6	WSW4	W9	WNW8	WNW7	WNW7	WNW8	WNW9	WNW8	WNW8	W7	NW6	NNW4	NNW3	W7	W6	SW9	WSW9	WSW9	WSW9	WSW9	WSW9	W6.4	WSW10	
9-May	WSW11	W13	W12	W12	W13	W13	W13	WNW11	W10	WNW11	WNW11	WNW14	W13	W13	W14	WNW13	WNW13	WNW11	NW9	NW7	W3	WSW3	WSW4	SW5	W10.2	W14	
10-May	WSW5	SW6	SW8	SSW9	SSW10	SW9	WSW9	W12	WSW11	WSW13	WSW15	WSW14	WSW15	WSW16	WSW17	WSW18	WSW15	W17	W15	WSW11	WSW9	SW12	WSW13	W13	WSW11.8	WSW18	
11-May	NNW10	NNW6	NW7	NW9	WNW8	WNW10	WNW12	NW12	NW13	NW14	WNW15	WNW17	NW14	NW13	NW13	NW11	NW12	NW11	WNW9	NW6	NNE4	ENE8	ENE7	E6	NW8.8	WNW17	
12-May	ENE5	ENE6	E5	ESE6	SE5	SE3	SE6	SE6	ESE6	ESE8	E7	ENE8	E9	SE7	S7	ESE1	NE4	S4	SSW7	S5	SSE7	SSE6	SSE6	S7	SE4.6	E9	
13-May	S7	S7	S7	S7	S7	S7	SSE6	S8	S8	S10	S11	S11	SSW12	SSW11	SW10	WSW9	SW6	SW6	SW7	SSW6	SSW5	SSW6	SW7	SSW7	SSW7.1	SSW12	
14-May	WSW6	WNW5	W4	W7	W7	W8	W9	WNW10	W6	SW7	WSW10	WSW12	WSW11	SW12	SW13	W11	W12	W12	W11	W7	W6	WNW5	WSW2	W8	W7.9	SW13	
15-May	WNW7	WNW1	SSW1	SSW5	SW5	W5	WNW5	WNW5	NW5	WNW4	NNE6	N5	ENE4	NE4	NE6	NE4	NE2	SSE3	WNW4	WNW4	WNW3	W2	S2	SE3	NW1.4	WNW7	
16-May	NE4	NW2	ENE3	ENE5	NE5	ENE4	ENE3	E4	ESE5	E5	E7	E7	NE6	ENE6	SE6	E6	ENE6	E7	ESE5	ESE8	E6	E6	E6	E6	E4.9	ESE8	
17-May	E6	E7	E8	E6	E6	E6	E6	E5	ENE6	E6	ENE7	ENE5	NE7	NE7	ENE6	ENE7	ENE5	ENE6	ENE6	NE6	NNE5	N5	NW5	NW6	ENE4.9	E8	
18-May	NW7	WNW7	WNW7	WNW9	WNW9	WNW9	WNW8	WNW9	WNW9	WNW9	WNW9	WNW10	WNW9	WNW9	WNW10	WNW9	WNW8	WNW6	WNW6	WNW6	WNW6	WNW6	WNW6	WNW5	W5	WNW7.6	WNW10
19-May	W6	WNW7	WNW6	WNW6	WNW5	WNW5	WNW5	NW5	NW5	NW5	NNW4	NNW4	NE8	NE10	NE9	NE10	NE8	NNE9	NE9	NE7	NE7	NE6	NE6	NE4	N4.2	NE10	
20-May	NNE4	NNW3	NW3	NW4	NW3	NW3	NNW3	NNE5	NE5	NE5	NE6	NNE6	NE7	ENE7	NE7	NE7	NE7	NE5	NE5	NE5	NE4	NE5	NE4	ENE4	NE4.1	NE7	
21-May	ENE3	ENE3	NE3	ENE3	ESE4	ESE4	ESE3	ESE4	ESE4	SSE4	ESE4	ESE6	ESE8	S3	SSW4	SSE2	SE3	SE4	ESE4	ENE4	ENE4	E4	ESE6	ESE3	ESE3.4	ESE8	
22-May	E2	SSE3	E3	E4	E3	ENE5	NE5	NNE5	NNE5	NE9	ENE8	ENE9	ENE9	ENE9	NNE5	ENE7	NE9	ENE9	ENE9	E5	ENE3	ENE3	ENE4	ENE5	ENE5.3	ENE9	
23-May	E4	NE3	ENE5	ENE4	ENE4	ENE4	E5	E5	E6	E6	E7	E8	E9	E7	ESE8	E7	E7	E7	ESE6	ESE5	E4	ESE4	SE3	SE3	E5.1	E9	
24-May	SE4	SE4	SE3	SE4	ESE2	ESE4	ESE4	ESE5	ESE6	ESE7	ESE6	ESE7	ESE8	SSE8	SE9	SE8	SE7	SE7	SSE5	SSW6	S4	S4	SSE4	SSE3	SE4.8	SE9	
25-May	S4	S4	S5	S4	SE4	SE5	SE7	SE8	SE7	SE7	ESE6	ESE6	ESE7	SE7	SSE8	SE8	SSE8	SE8	SE8	ESE6	ESE5	ESE5	SE5	SE5	SE4	SE5.6	SSE8
26-May	SE4	SSE4	SSE4	SSE4	S4	SSE3	SSE5	SSE4	E4	N4	N4	NNE4	E2	WNW1	E3	SE2	SE3	E3	ESE4	ESE4	ESE4	SE4	SE3	SSE3	SE2.4	SSE5	
27-May	SE4	SE4	SSE3	N3	N2	ESE3	SE4	SE6	SSE6	SE7	SE8	SE9	ESE7	SE7	SSW6	SSW4	SSE5	ESE6	ESE1	WNW4	NW3	NE2	ESE3	SE2	SE3.1	SE9	
28-May	SE6	S6	S6	WNW3	SSE2	ESE3	SSE4	SSW6	WSW6	WNW6	NW3	W6	WSW6	WSW5	SSW7	SSW7	SSW5	E2	E3	NE4	NE3	NE4	E4	SE3	SSW1.8	SSW7	
29-May	SSE5	ESE6	ESE6	SE5	SE6	SSE6	S7	SSW10	WSW12	WSW11	WSW10	WSW10	WSW12	WSW12	WSW12	W9	WSW9	WSW10	WSW8	WSW9	WSW8	SW7	WSW11	WSW9	SW6.7	WSW12	
30-May	WSW10	WSW9	WSW9	WSW11	WSW10	WSW10	W11	W10	WNW10	WNW10	WNW10	WNW9	WNW6	WNW10	WNW13	NW11	WNW6	WNW10	W8	W8	W10	W11	W10	W9	W8.9	WNW13	
31-May	W11	W9	WSW9	W11	W11	W11	W14	W13	W12	W14	W14	W12	W15	W16	W17	W13	W12	W13	W11	W12	WSW10	W10	W8	WNW11	W11.9	W17	

SW1.1 SW1.3 SW1.3	SW1.4	SW1.4	W1.3	W1.1	WNW0.7	WNW0.8	WNW0.9	N1.3	N1.3	NE1.2	NNE0.9	NW0.5	N0.6	NE0.4	ENE0.5	SSE0.1	SW0.1	S0.2	S0.3	SSW1.2	SSW1.6	Diurnal Average					
WSW11	W13	W12	WSW12	W13	W13	W14	W13	NW13	NW14	WSW15	WNW17	NNE15	NE18	NNE17	WSW18	SE15	W17	W15	W12	W10	SW12	WSW13	W13	Diurnal Maximum			

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





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Stony Mountain - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	281	37.77	37.77
6 - 11	379	50.94	88.71
12 - 19	84	11.29	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: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Stony Mountain - May 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	10	10	28	26	27	32	33	25	16	9	4	7	6	18	16	14	281
6 - 11	5	10	27	38	46	29	29	15	18	15	13	37	33	51	11	2	379
12 - 19	0	8	10	0	1	3	2	0	0	1	3	15	25	9	7	0	84
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>	15	28	65	64	74	64	64	40	34	25	20	59	64	78	34	16	744

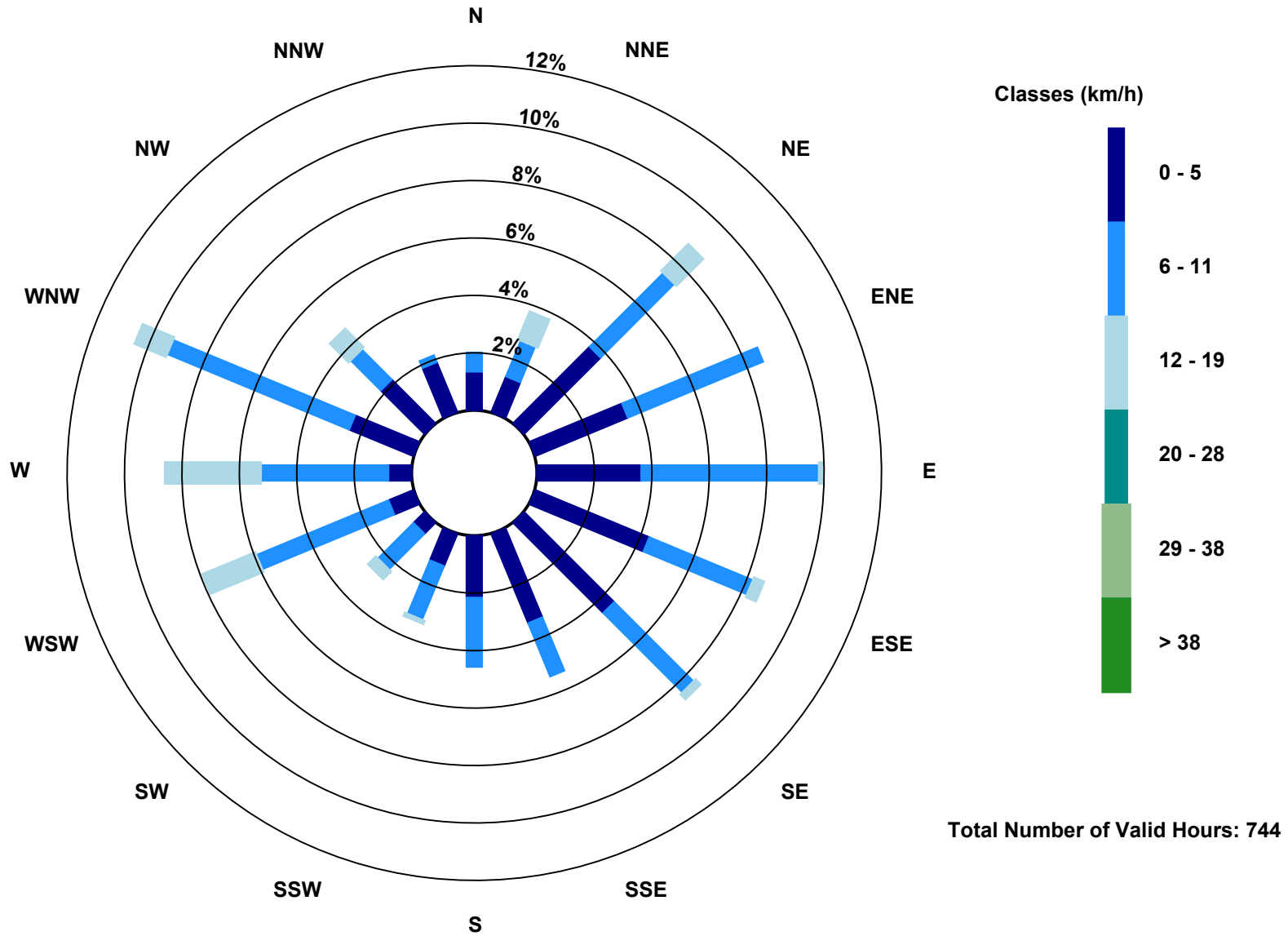
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Stony Mountain



Total Number of Valid Hours: 744



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

**Wind Speed (WS) - km/h**  
**Stony Mountain - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on May 31 15:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 0 km/h on May 3 02:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																									
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-May	1	1	1	2	2	3	3	3	4	4	5	5	6	6	6	5	5	4	5	3	3	3	2	1	6
2-May	1	1	1	1	1	3	2	3	3	5	5	5	6	6	6	6	6	6	5	4	2	2	2	1	6
3-May	1	0	1	1	1	1	2	2	2	3	2	2	2	2	2	2	2	2	2	2	1	1	1	1	3
4-May	1	1	2	2	1	1	2	2	3	3	3	3	3	3	3	2	2	2	2	2	1	1	2	2	3
5-May	2	2	1	2	1	1	2	2	4	4	4	4	4	4	4	5	4	3	2	3	2	2	2	3	5
6-May	2	2	2	2	3	3	2	3	2	3	3	4	5	6	5	5	6	7	5	3	2	2	2	2	7
7-May	2	2	2	2	3	3	3	3	4	3	3	3	3	3	3	2	2	2	1	1	1	1	1	1	4
8-May	2	2	2	2	3	3	2	2	3	3	3	3	3	3	2	2	3	3	4	4	3	4	4	3	4
9-May	5	5	4	5	5	5	5	5	4	5	5	6	6	6	6	6	5	5	4	3	1	1	1	1	6
10-May	2	2	2	3	3	3	4	5	4	5	6	6	7	7	7	7	7	7	7	5	4	5	5	6	7
11-May	4	3	3	4	3	4	5	5	5	6	6	6	7	6	6	5	5	4	4	3	3	3	2	2	7
12-May	2	2	2	2	2	1	2	2	2	3	3	3	3	4	4	3	2	3	3	2	3	2	2	2	4
13-May	2	2	2	2	2	2	2	3	3	4	4	4	5	4	4	4	3	2	3	2	1	2	2	3	5
14-May	2	1	2	2	3	3	3	4	3	3	4	5	5	5	5	6	5	5	4	3	2	3	1	5	6
15-May	3	1	1	2	2	2	2	2	2	2	3	2	2	3	3	1	1	1	2	1	1	1	1	2	3
16-May	1	1	2	2	2	1	1	2	2	2	3	3	3	3	3	3	2	3	2	3	2	2	3	3	3
17-May	2	3	3	3	3	2	2	2	2	2	3	2	2	3	2	3	2	2	3	2	2	2	2	2	3
18-May	3	2	2	3	3	3	3	3	3	3	4	4	4	4	3	3	2	3	3	2	2	2	2	2	4
19-May	2	2	2	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	3	2	2	2	2	1	4
20-May	2	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	2	2	3	2	1	1	2	3
21-May	1	1	1	1	1	1	1	1	2	2	3	2	3	3	2	1	1	2	2	2	2	2	2	2	3
22-May	1	1	1	1	1	2	2	2	2	3	3	3	4	3	3	3	4	4	4	3	2	1	1	2	4
23-May	1	1	2	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	2	1	1	1	1	3
24-May	1	1	1	1	1	2	1	2	3	3	3	3	4	3	4	4	3	3	2	2	1	1	2	1	4
25-May	1	1	2	1	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	1	2	1	3
26-May	1	2	1	1	1	1	2	2	1	2	2	2	1	1	2	2	2	2	2	1	1	1	1	1	2
27-May	1	1	1	1	1	1	2	2	3	3	3	4	4	4	3	3	3	3	3	3	1	1	1	2	4
28-May	2	2	2	2	1	1	2	2	3	3	2	3	3	3	3	3	3	1	1	1	1	1	2	1	3
29-May	3	3	2	2	3	3	3	4	5	5	5	5	5	5	5	4	4	4	4	4	4	3	5	4	5
30-May	5	4	4	5	4	4	5	4	4	4	4	4	3	4	6	5	4	4	3	3	5	5	4	4	6
31-May	4	4	4	5	5	5	6	6	6	6	6	6	6	7	7	6	6	6	5	6	4	4	4	5	7
																	Diurnal Maximum								



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

**Wind Direction (WD) - deg**  
**Stony Mountain - May 2024**

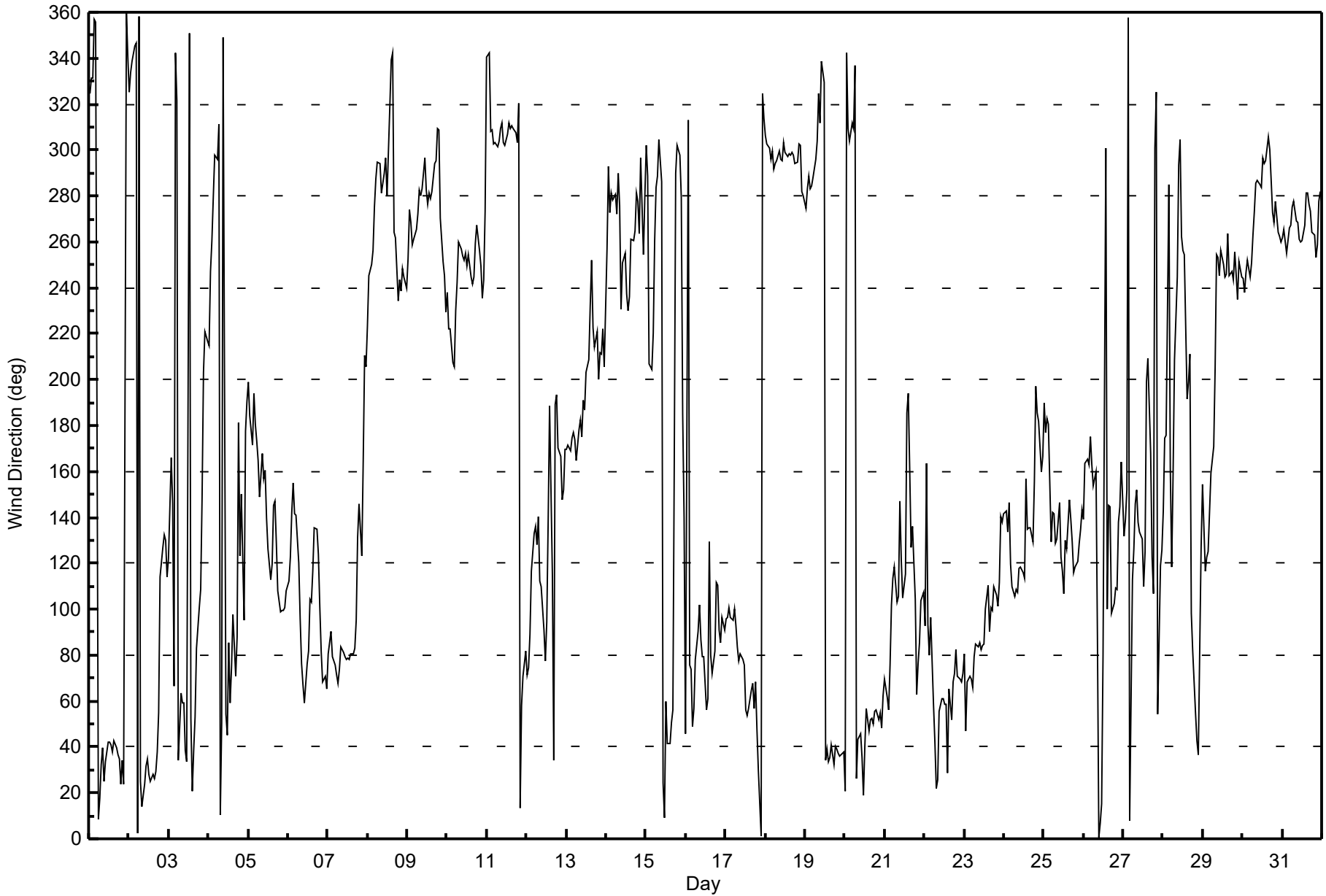
Direction of Maximum Speed: 242 deg on May 10 16:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 268.1 deg on May 31		Hours of Data:	744
Direction of Minimum Speed: 123 deg on May 7 21:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 0.9 deg on May 4		Percent Operational Time:	100.0
Monthly Average Direction: 271.9 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-May	324	332	331	357	356	8	18	33	40	25	33	42	42	41	38	43	40	37	35	24	34	24	360	341	27.3
2-May	325	334	339	345	346	2	358	25	14	24	31	35	28	25	28	26	29	38	55	114	127	132	130	114	31.0
3-May	122	166	146	67	342	322	34	64	59	59	39	34	351	52	21	38	53	83	101	109	149	203	221	216	65.3
4-May	215	247	260	280	298	296	311	10	51	349	54	45	85	59	74	98	71	88	181	123	150	95	177	190	71.4
5-May	199	184	171	194	181	173	165	149	168	157	161	140	126	113	119	145	147	129	108	99	100	99	101	108	140.9
6-May	112	123	142	155	142	141	120	96	76	67	59	76	82	105	103	117	135	135	124	101	82	68	71	65	105.6
7-May	80	86	90	79	76	71	68	74	83	81	79	78	78	78	80	80	83	95	131	146	123	165	210	206	84.8
8-May	223	245	250	256	275	287	295	294	282	285	290	297	280	319	339	343	264	262	234	243	238	248	245	240	267.6
9-May	253	274	269	259	261	265	272	283	280	283	296	283	277	281	279	282	294	296	310	309	271	251	245	229	277.3
10-May	238	222	222	208	206	230	242	260	257	254	252	255	249	254	245	242	245	259	267	256	249	235	244	273	247.1
11-May	340	342	308	309	303	303	301	304	310	312	303	302	307	312	309	310	309	308	303	321	13	58	71	82	314.9
12-May	71	74	89	116	133	136	128	140	112	110	91	77	94	138	189	115	34	189	194	170	167	148	152	170	127.3
13-May	170	171	169	175	177	174	165	178	182	175	191	187	203	209	232	252	222	214	221	200	212	211	222	205	197.0
14-May	257	293	273	281	278	281	272	290	276	230	251	255	238	230	236	261	260	265	281	278	264	297	254	280	263.3
15-May	302	289	207	205	221	261	284	289	304	286	24	9	60	41	42	51	56	166	290	302	298	280	185	140	310.0
16-May	46	313	76	74	49	57	78	90	102	87	79	80	56	61	129	80	72	82	112	110	91	85	97	91	82.2
17-May	96	96	101	96	95	100	93	84	78	81	78	76	56	54	57	64	68	57	68	48	30	1	325	314	69.0
18-May	306	303	301	296	300	292	294	295	300	296	295	303	299	297	298	298	299	298	294	295	302	302	282	280	297.1
19-May	275	283	288	283	285	288	296	304	325	312	339	330	34	39	34	35	41	32	40	39	37	36	37	38	1.7
20-May	20	342	309	304	312	309	337	26	43	46	36	19	40	57	47	52	53	50	55	56	52	55	48	62	34.2
21-May	70	62	56	76	102	114	118	103	105	147	122	105	115	185	194	161	127	136	105	63	76	85	104	107	109.0
22-May	93	163	93	80	96	59	42	22	25	55	61	61	59	58	28	65	52	69	72	82	71	69	68	72	62.3
23-May	81	47	68	71	69	66	79	85	84	85	82	84	85	100	110	90	101	99	110	106	101	111	140	138	91.3
24-May	141	143	134	146	120	110	106	109	108	118	118	116	114	157	135	135	136	130	156	197	185	182	160	167	135.7
25-May	190	177	183	181	129	142	142	129	131	146	123	116	107	130	126	148	139	129	116	118	121	129	135	143	135.7
26-May	139	164	165	163	175	163	154	160	88	0	7	15	80	301	100	145	145	98	103	109	109	138	145	164	129.2
27-May	132	139	152	357	8	113	126	146	152	138	133	131	110	125	199	209	168	123	107	301	325	54	119	126	135.6
28-May	143	175	176	285	162	118	159	208	245	294	305	262	256	255	192	199	211	98	82	55	42	36	82	127	199.3
29-May	154	116	123	125	142	159	171	205	255	253	245	256	250	245	246	263	245	247	244	256	246	235	252	245	233.2
30-May	244	238	247	252	245	251	263	274	286	287	285	284	297	294	295	305	300	287	273	268	278	264	262	260	272.0
31-May	262	266	255	260	266	267	275	278	269	268	261	260	260	267	281	281	277	273	264	263	253	259	278	282	268.1

217.3 226.4 217.6 246.5 245.4 263.8 271.7 297.3 330.1 330.1 3.2 4.0 42.1 27.5 324.8 1.2 41.2 74.7 155.8 218.6 175.7 171.5 192.7 209.3  
 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 (WD) - deg**  
**Stony Mountain - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on May 26 14:00		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Minimum Value: 9 deg on May 23 00:00																									
Percentiles: P <sub>1</sub> = 14 P <sub>10</sub> = 19 Q <sub>1</sub> = 23 Median = 30 Q <sub>3</sub> = 38 P <sub>90</sub> = 49 P <sub>99</sub> = 81																									
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-May	15	18	19	26	29	27	26	20	26	32	26	27	26	23	25	27	24	27	27	28	21	26	28	20	32
2-May	13	16	20	22	21	25	28	29	31	33	32	31	32	33	31	30	29	24	36	25	19	18	20	14	36
3-May	19	14	30	38	47	23	47	20	32	29	55	64	70	58	52	49	59	19	24	26	18	12	14	15	70
4-May	17	29	26	18	17	19	30	55	48	76	59	80	64	53	24	57	91	41	36	43	35	32	24	17	91
5-May	17	22	19	16	22	23	28	28	36	35	38	38	34	32	33	32	29	36	29	20	20	21	18	20	38
6-May	18	21	26	26	24	26	31	20	18	19	14	21	25	27	25	28	30	29	26	21	20	17	18	17	31
7-May	18	18	21	20	22	19	18	21	25	22	22	23	24	22	20	22	21	24	23	20	20	30	22	22	30
8-May	25	29	29	38	24	23	20	22	25	30	33	33	41	66	72	76	31	44	34	31	24	28	28	26	76
9-May	30	23	25	28	28	27	27	30	33	37	42	34	35	36	33	37	33	35	36	29	23	14	14	18	42
10-May	28	23	21	20	20	28	37	33	32	33	33	38	37	33	33	33	37	33	33	33	30	29	30	35	38
11-May	43	39	26	29	26	26	28	29	34	37	34	33	39	40	42	48	41	39	34	36	49	13	18	17	49
12-May	16	17	17	25	19	22	23	23	28	32	33	25	25	47	46	95	47	61	29	31	33	31	27	22	95
13-May	22	22	25	20	22	24	26	25	33	31	33	36	32	36	39	36	40	35	32	25	22	19	22	20	40
14-May	34	18	20	20	22	24	28	30	44	52	47	37	38	37	38	43	34	31	29	33	33	34	32	30	52
15-May	37	80	54	22	25	33	32	30	40	69	53	56	65	60	41	33	70	55	50	25	29	31	73	43	80
16-May	33	54	71	22	17	18	60	31	41	41	30	25	35	48	37	28	22	25	23	26	22	24	24	21	71
17-May	23	22	24	24	22	24	23	23	23	27	24	24	20	19	19	20	23	18	19	19	35	45	36	30	45
18-May	31	29	28	25	26	29	26	28	32	28	32	32	29	30	28	31	32	35	33	24	27	26	26	28	35
19-May	25	25	23	23	26	25	33	31	45	41	51	54	29	22	29	24	25	26	21	23	21	23	23	35	54
20-May	41	40	21	15	32	31	47	43	30	30	43	50	36	25	32	27	23	32	25	28	25	15	30	19	50
21-May	18	13	33	17	21	24	32	31	29	40	49	27	34	67	44	64	34	36	39	57	23	19	21	68	68
22-May	31	21	32	15	18	27	47	57	54	29	22	21	27	32	65	32	43	21	18	22	40	16	14	9	65
23-May	15	48	23	24	24	31	18	17	22	20	25	24	25	24	30	23	22	26	23	22	17	16	18	14	48
24-May	17	19	19	16	27	20	29	34	27	27	37	28	27	40	39	35	41	32	33	29	28	24	29	30	41
25-May	25	25	24	28	18	25	31	34	36	46	60	43	31	43	40	39	40	34	30	27	22	19	22	23	60
26-May	23	29	28	32	24	30	34	50	45	49	50	60	76	101	89	87	62	49	28	22	18	25	28	31	101
27-May	30	30	60	34	53	25	20	34	43	41	43	46	52	47	52	58	55	38	78	38	22	74	38	96	96
28-May	43	35	27	73	61	43	42	45	59	51	82	63	54	75	48	47	47	87	31	22	28	23	26	42	87
29-May	48	38	30	36	36	37	38	33	40	40	41	42	39	41	42	40	41	40	45	38	38	40	42	42	48
30-May	41	43	44	38	41	39	37	36	38	38	34	36	43	37	34	44	49	37	35	38	36	34	37	33	49
31-May	34	35	35	38	34	37	33	40	40	37	36	38	36	36	35	39	39	37	37	39	35	35	40	38	40
Diurnal Maximum																									



Maximum Speed: 28 km/h on May 31 15:00	Maximum Daily Speed Average: 18.7 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 12 16:00	Minimum Daily Speed Average: 0.7 km/h on May 4	Hours of Data: 742
Maximum Diurnal Speed Average: 3.3 km/h at hour 12	Minimum Diurnal Speed Average: 0.3 km/h at hour 22	Hours of Missing Data: 2
Monthly Average Velocity: 1.2 km/h 319.7 deg	Percentiles: $P_1 = 3$ $P_{10} = 6$ $Q_1 = 7$ Median = 10 $Q_3 = 13$ $P_{90} = 18$ $P_{99} = 24$	Percent Operational Time: 99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	NNW11	N11	N11	NNE12	N12	NNE13	NNE11	NE14	NE13	NNE13	NE19	NE19	NE20	NE23	NE21	NE18	NE18	NE16	NE15	NNE13	NE10	NNE10	NNE9	N9	NNE13.6	NE23	
2-May	NNW9	N10	N11	N11	N11	N11	N12	NNE12	NNE13	NNE17	NNE17	NE19	NNE21	NNE21	NNE23	NNE20	NNE20	NE20	NE15	SE14	SE8	SE8	SE9	ESE8	NNE11.4	NNE23	
3-May	SE7	SSE6	SE4	ENE4	N5	NNW5	N6	NE7	NE8	NE9	NNE8	NNE8	N5	NNE6	N7	N7	NNE6	ENE8	E7	ESE5	SE6	S5	SW6	SW9	NE2.9	NE9	
4-May	SW9	WSW8	W8	W9	WNW9	WNW9	NW8	N7	NNE8	NNW7	NNE8	NNE7	ENE6	NE7	ENE9	E6	NNE3	E5	S6	SE5	SE5	E6	S8	SSW12	NNW0.7	SSW12	
5-May	SSW12	SSW11	S10	SSW12	SSW9	S8	S9	SSE8	S13	SSE15	S13	SSE12	SE14	ESE15	SE14	SSE17	SSE16	SE11	ESE9	ESE10	ESE10	ESE9	ESE11	ESE11	SSE10.0	SSE17	
6-May	SE10	SE9	SSE9	SSE10	SSE13	SSE11	SE10	ESE13	E11	ENE11	ENE13	E15	E18	ESE20	ESE17	SE18	SSE24	SSE25	SE16	ESE11	E9	ENE10	E9	ENE10	ESE11.7	SSE25	
7-May	E10	E9	E10	E11	E12	ENE12	ENE11	E11	E14	E13	E13	E11	E12	E12	E11	E10	E9	ESE8	SSE4	S3	SSE3	S3	SW7	SW8	E7.9	E14	
8-May	WSW10	W10	W9	W7	WNW13	WNW14	NW12	NW11	WNW11	WNW12	NW12	NW11	WNW9	NW9	NNW6	NNW5	W10	W7	WSW13	WSW13	WSW13	W14	WSW14	WSW15	W9.7	WSW15	
9-May	W17	W19	W18	W19	W19	W19	WNW19	WNW16	WNW15	WNW15	NW17	WNW21	WNW18	WNW19	WNW21	WNW20	WNW20	NW18	NW16	NW13	WNW7	W7	W8	WSW9	WNW15.4	WNW21	
10-May	WSW9	WSW11	WSW14	SW14	SW15	WSW15	WSW13	W17	W16	W18	W21	W19	W21	W23	WSW24	WSW26	WSW21	W25	W21	W17	W14	WSW18	WSW19	WNW19	WSW17.5	WSW26	
11-May	NNW19	NNW12	NW12	NW17	NW15	NW18	NW20	NW20	NW22	NW25	NW25	NW27	NW24	NW21	NW22	NW20	NW20	NW18	NW16	NNW11	N8	ENE12	ENE11	E10	NNW15.7	NW27	
12-May	ENE9	E10	E9	ESE10	SE9	SE7	SE8	SSE9	ESE8	ESE11	E10	E12	ESE13	SSE10	SSW10	SSE1	NNE6	S6	SSW11	S9	S11	SSE10	SSE12	S12	SE7.0	ESE13	
13-May	S13	S13	S13	S13	S13	S12	S11	S11	SSW11	S14	SSW14	SSW14	SW17	SW14	WSW13	W12	SW8	SW7	SW10	SSW8	SW9	SW10	WSW12	SW11	SSW10.9	SW17	
14-May	W9	WNW8	WNW8	WNW11	WNW12	W13	WNW14	WNW9	WSW9	W13	W17	WSW16	WSW15	WSW18	W15	W17	W17	WNW16	WNW10	W9	WNW9	W5	WNW13	W11.6	WSW18		
15-May	NW13	NW3	W2	SW7	SW9	W8	WNW8	WNW7	NW9	WNW6	N8	N7	NE6	NE6	NNE9	NE4	NE2	S4	WNW6	NW7	NW5	WNW5	SSW3	SSE6	NW3.1	NW13	
16-May	NE6	NNW5	ENE7	E9	NE8	ENE6	E4	E6	ESE7	E7	E11	E12	ENE9	NE8	SE9	E10	ENE10	E11	SE8	ESE12	E10	E9	ESE10	E11	E7.6	ESE12	
17-May	ESE11	ESE11	ESE13	ESE10	ESE11	ESE9	E9	E9	E9	E10	E10	ENE8	NE9	NE9	NE9	ENE10	ENE8	NE9	ENE10	NE9	N7	N8	NNW10	NW11	ENE7.3	ESE13	
18-May	NW12	NW12	NW12	UO	UO	NNW13	NW13	NW14	NW16	NW15	NW16	NW16	NW15	NW16	NW15	NW13	NW11	NW11	NW11	NW10	NW10	NW10	WNW8	WNW8	NW12.6	NW16	
19-May	WNW9	WNW10	WNW10	WNW9	WNW8	WNW9	NW8	NNW8	NNW8	NNW8	NNW8	NNW7	NNW8	NE11	NE14	NE12	NE12	NE11	NNE12	NE12	NE9	NE10	NE9	NNE8	NNE6	N6.9	NE14
20-May	N6	NNW7	NNW7	NW8	NNW7	NNW7	NNW5	NNE8	NNE7	NNE7	NNE9	N10	NNE9	NE9	NNE10	NE10	NNE9	NNE7	NE7	NE7	NNE6	NE6	NNE5	NE6	NNE6.7	NE10	
21-May	ENE4	NE4	NE4	ENE4	ESE6	ESE5	ESE5	ESE6	ESE6	SSE6	SE7	ESE8	ESE12	SSW4	SSW5	SSE3	SE5	SE6	ESE7	NE6	ENE7	E9	ESE11	ESE7	ESE5.0	ESE12	
22-May	E6	SSE7	E6	ENE7	E6	NE7	NNE7	N7	N8	NNE12	NE11	NE11	NE12	NE12	NNE9	NE10	NNE12	NE12	NE12	ENE7	ENE5	NE5	NE6	NE8	NE7.5	NE12	
23-May	ENE7	NNE5	NE7	NE6	NE6	NNE6	NE7	ENE7	ENE7	ENE9	ENE10	ENE11	NE12	E10	E10	ENE10	E11	ENE10	E10	E8	ENE8	E7	ESE7	ESE7	ENE7.6	NE12	
24-May	SE8	SE8	ESE5	SE7	E5	E6	E6	E6	E10	E11	ESE9	ESE11	ESE13	SSE11	SE13	SE12	SE10	SE10	SSE9	SSW9	S7	S8	SSE8	S7	SE7.3	ESE13	
25-May	S7	S9	S10	S8	SE8	SSE10	SSE11	SE11	SE10	SSE9	SE9	ESE10	ESE11	SE10	SE10	SSE12	SE12	SE12	SE10	SE8	SE8	SE9	SE10	SSE10	SE9.1	SSE12	
26-May	SSE10	S10	S10	S9	S7	S6	SSE6	S6	E6	N5	N5	NNE6	E3	NNW2	E4	SSE3	SSE4	ESE5	ESE7	ESE7	ESE8	SE7	SSE8	S7	SE4.3	S10	
27-May	SSE8	SSE8	SSE6	N4	NNE4	ESE7	SE7	SSE8	SSE9	SSE11	SE12	SE12	ESE11	SE11	SSW9	SSW7	S7	SE9	ESE4	NW7	NNW7	NE5	SE7	SSE6	SE5.2	SE12	
28-May	SSE12	S11	S12	WNW5	SSE4	ESE5	SSE6	SW9	WSW8	WNW9	NW6	W8	W9	WSW6	SSW10	SSW10	SSW7	E2	E6	ENE7	ENE7	NE7	E9	SE7	SSW2.7	SSE12	
29-May	SSE10	SE11	SE10	SE10	SSE12	S11	S12	SW14	W17	W16	WSW15	W15	W18	WSW18	WSW17	W14	WSW14	W15	WSW13	W13	WSW13	WSW10	W17	WSW14	WSW10.2	WSW18	
30-May	W16	WSW14	WSW14	W16	W15	W15	W16	WNW16	NW16	NW17	NW16	NW14	NW12	NW18	NW24	NW20	NW13	NW17	WNW13	WNW12	WNW16	WNW17	W15	W13	WNW14.5	NW24	
31-May	WNW16	WNW15	W13	W17	WNW17	WNW17	WNW21	WNW20	WNW20	WNW21	WNW21	W19	WNW23	WNW25	NW28	NW21	NW20	WNW21	WNW18	WNW19	W15	WNW15	NW15	NW19	WNW18.7	NW28	

WSW1.5	WSW1.8	SW1.9	WSW1.8	WSW1.7	WNW2.2	WNW2.1	NW2.1	NNW2.5	NNW2.7	N3.2	N3.3	NNE2.7	N2.5	NNW2.5	NNW2.2	N1.6	N1.3	N0.9	NNW0.8	N0.4	NNW0.3	SSW1.4	SW2.0	Diurnal Average	
NNW19	W19	W18	W19	W19	W19	WNW21	WNW20	NW22	NW25	NW25	NW27	NW24	WNW25	NW28	WSW26	SSE24	SSE25	W21	WNW19	WNW16	WSW18	WSW19	WNW19	Diurnal Maximum	

UO - Unstable Operation

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



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

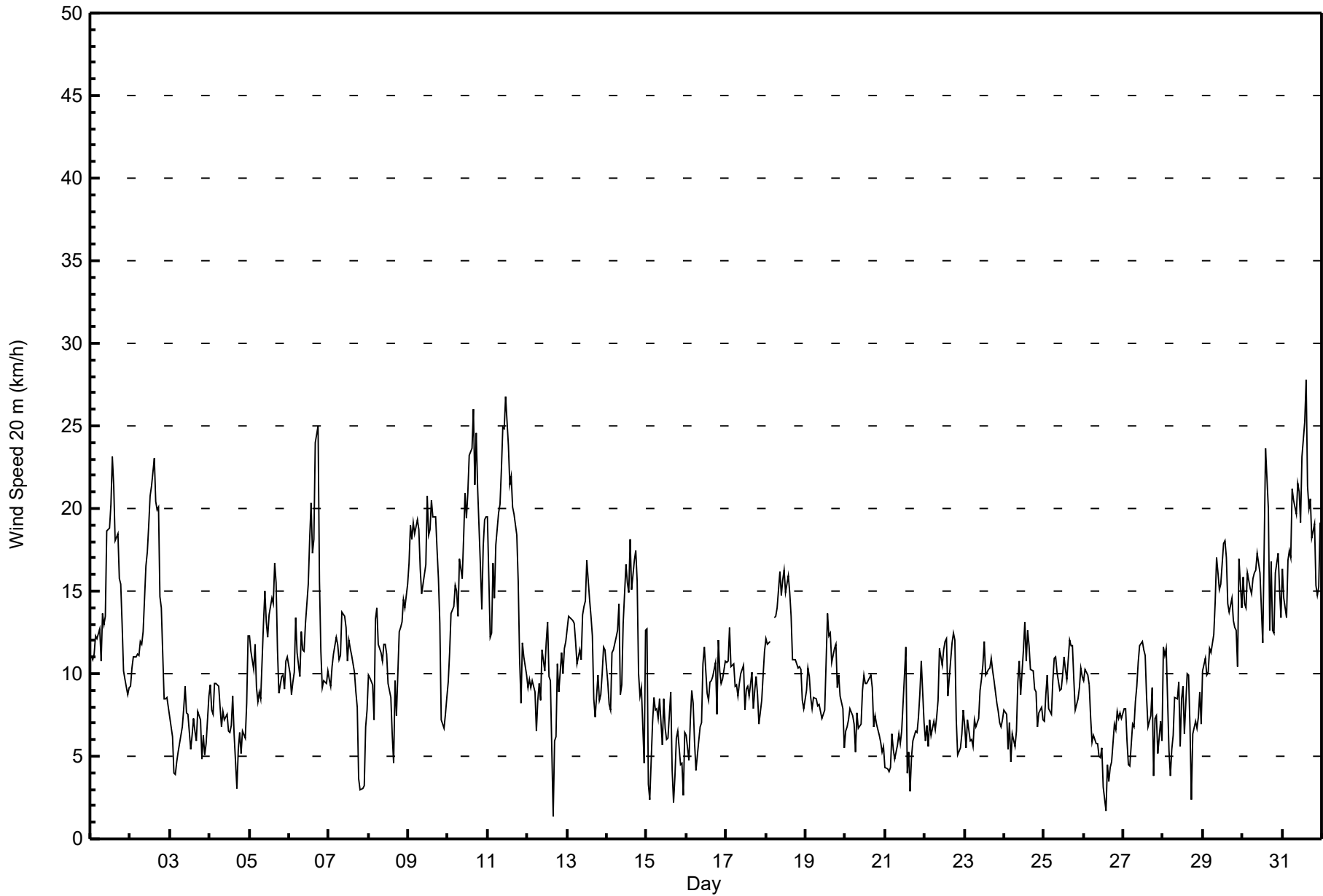
**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - May 2024**

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



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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - May 2024**





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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	60	8.09	8.09
6 - 11	411	55.39	63.48
12 - 19	223	30.05	93.53
20 - 28	48	6.47	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



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

**Wind Speed 20 m (WS20m) - km/h**  
**Stony Mountain - May 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	5	4	6	4	6	7	3	7	4	3	0	0	2	2	2	5	60
6 - 11	20	28	38	34	48	37	37	35	27	13	13	10	13	24	18	16	411
12 - 19	2	11	19	3	10	8	11	9	12	5	5	24	39	27	36	2	223
20 - 28	0	5	4	0	0	1	0	2	0	0	0	3	5	12	16	0	48
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	27	48	67	41	64	53	51	53	43	21	18	37	59	65	72	23	742

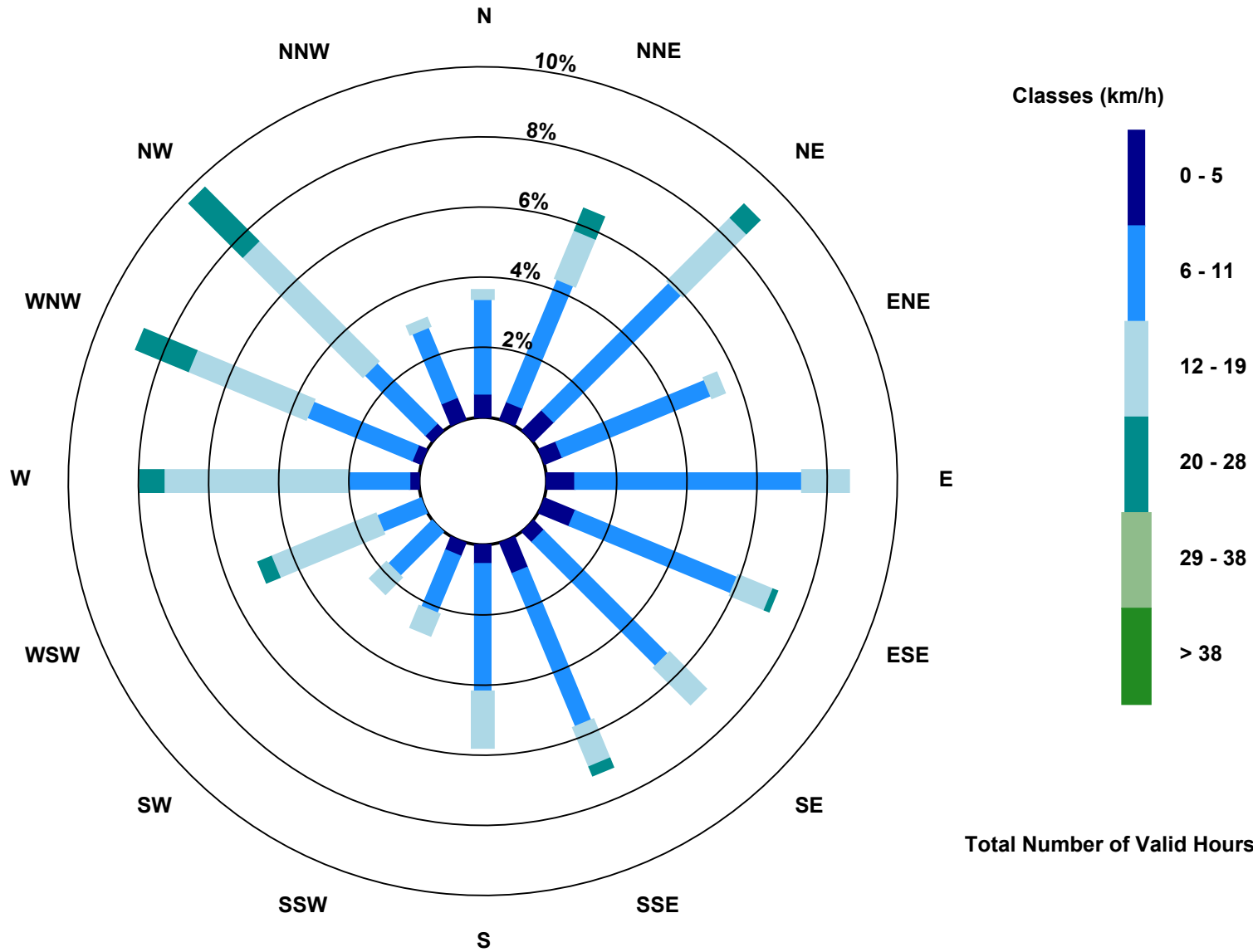
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 20 m (WS20m) - km/h  
Stony Mountain







Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Stony Mountain - May 2024

Direction of Maximum Speed: 311 deg on May 31 15:00															Hours in Service: 744											
Direction of Maximum Daily Speed Average: 293.0 deg on May 31															Hours of Data: 742											
Direction of Minimum Speed: 155 deg on May 12 16:00															Hours of Missing Data: 2											
Direction of Minimum Daily Speed Average: 0.7 deg on May 4															Percent Operational Time: 99.7											
Monthly Average Direction: 319.7 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-May	348	354	356	13	11	20	25	39	50	33	41	46	47	47	43	46	44	40	39	29	41	32	13	0	32.2
2-May	348	355	358	3	3	10	6	27	14	23	33	37	30	23	27	27	27	35	52	124	134	140	139	117	31.8
3-May	124	159	138	58	354	337	9	41	41	36	19	13	357	26	4	10	27	76	96	104	142	190	220	221	47.9
4-May	220	247	260	280	295	295	313	350	26	348	33	24	69	40	62	91	19	89	188	126	147	93	184	200	337.8
5-May	208	196	179	202	193	181	176	157	174	168	170	149	136	121	128	156	158	142	117	107	107	108	111	118	153.0
6-May	124	132	156	165	152	151	128	104	84	72	61	82	90	117	117	131	150	148	138	111	90	74	79	71	116.7
7-May	87	92	99	84	80	77	71	79	90	89	87	87	88	87	88	89	91	106	149	174	158	191	229	229	93.2
8-May	241	259	263	270	290	302	307	309	296	302	305	308	294	324	340	332	271	274	244	253	250	260	256	252	280.0
9-May	261	281	272	265	266	271	282	292	291	296	309	294	286	292	289	294	303	306	320	320	296	271	259	246	287.1
10-May	252	241	238	225	223	246	254	266	267	265	261	266	262	262	255	252	255	268	278	268	261	251	256	287	258.2
11-May	343	346	322	322	316	318	314	318	323	323	316	315	319	324	320	322	322	319	318	334	8	59	75	86	327.4
12-May	77	80	94	122	139	146	139	150	122	116	96	83	105	150	200	155	25	191	201	178	172	162	164	181	136.8
13-May	182	183	180	188	191	188	178	188	193	185	200	193	216	218	241	261	236	222	234	213	227	230	240	222	207.0
14-May	268	299	282	287	283	284	279	298	287	240	260	261	246	243	250	271	270	277	293	290	278	311	281	293	274.2
15-May	309	311	265	214	232	264	289	297	316	294	4	357	49	35	31	39	42	174	301	316	314	303	197	151	312.4
16-May	50	347	75	80	45	59	84	99	105	93	85	87	57	56	139	85	77	85	124	122	99	93	103	99	86.9
17-May	105	106	109	104	103	111	101	91	83	85	83	78	55	48	55	68	70	56	69	37	11	351	333	323	71.3
18-May	316	314	312	UO	UO	302	304	307	312	308	309	316	315	313	314	314	316	312	309	309	316	316	297	296	310.7
19-May	289	292	298	295	296	301	312	327	334	336	345	344	37	41	35	35	39	31	40	37	37	36	31	24	0.8
20-May	4	348	327	323	329	329	343	13	25	30	12	356	19	44	27	37	30	25	36	44	32	37	28	56	14.8
21-May	64	48	37	72	103	118	120	106	104	154	126	110	121	196	210	162	125	146	105	53	71	84	106	109	107.7
22-May	89	160	96	77	95	37	14	358	1	29	37	42	36	37	12	45	28	50	54	70	62	52	44	51	44.9
23-May	67	28	37	47	36	26	54	63	64	61	57	61	53	79	93	64	81	78	93	84	78	88	122	122	69.4
24-May	130	132	118	131	97	89	81	81	83	97	102	103	102	148	124	126	129	126	153	194	189	189	168	170	126.3
25-May	188	186	189	187	142	151	148	138	134	157	135	116	113	134	138	154	145	141	126	129	129	133	146	158	145.3
26-May	156	173	175	173	186	174	160	173	94	359	1	13	89	332	99	148	149	107	109	117	116	146	156	171	144.5
27-May	149	149	160	6	32	114	138	156	156	151	141	142	118	133	206	209	172	137	113	309	335	53	130	161	142.9
28-May	158	180	184	285	162	115	162	219	251	302	309	278	266	256	197	206	209	87	85	61	62	48	91	128	191.6
29-May	162	127	142	143	158	172	180	214	264	260	256	269	259	255	256	274	255	259	258	263	258	251	261	256	240.4
30-May	259	256	258	264	261	266	275	290	304	308	305	305	315	316	320	325	322	307	294	291	299	285	280	278	292.2
31-May	285	288	275	280	286	284	294	293	290	289	283	279	283	293	311	311	305	302	296	292	281	285	311	317	293.0

237.9 239.4 230.3 250.0 255.9 281.8 294.9 316.8 338.5 337.4 351.9 355.2 13.6 358.2 337.3 347.6 351.2 9.3 351.8 345.3 350.8 345.3 203.5 221.9

Diurnal Average

UO - Unstable Operation

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



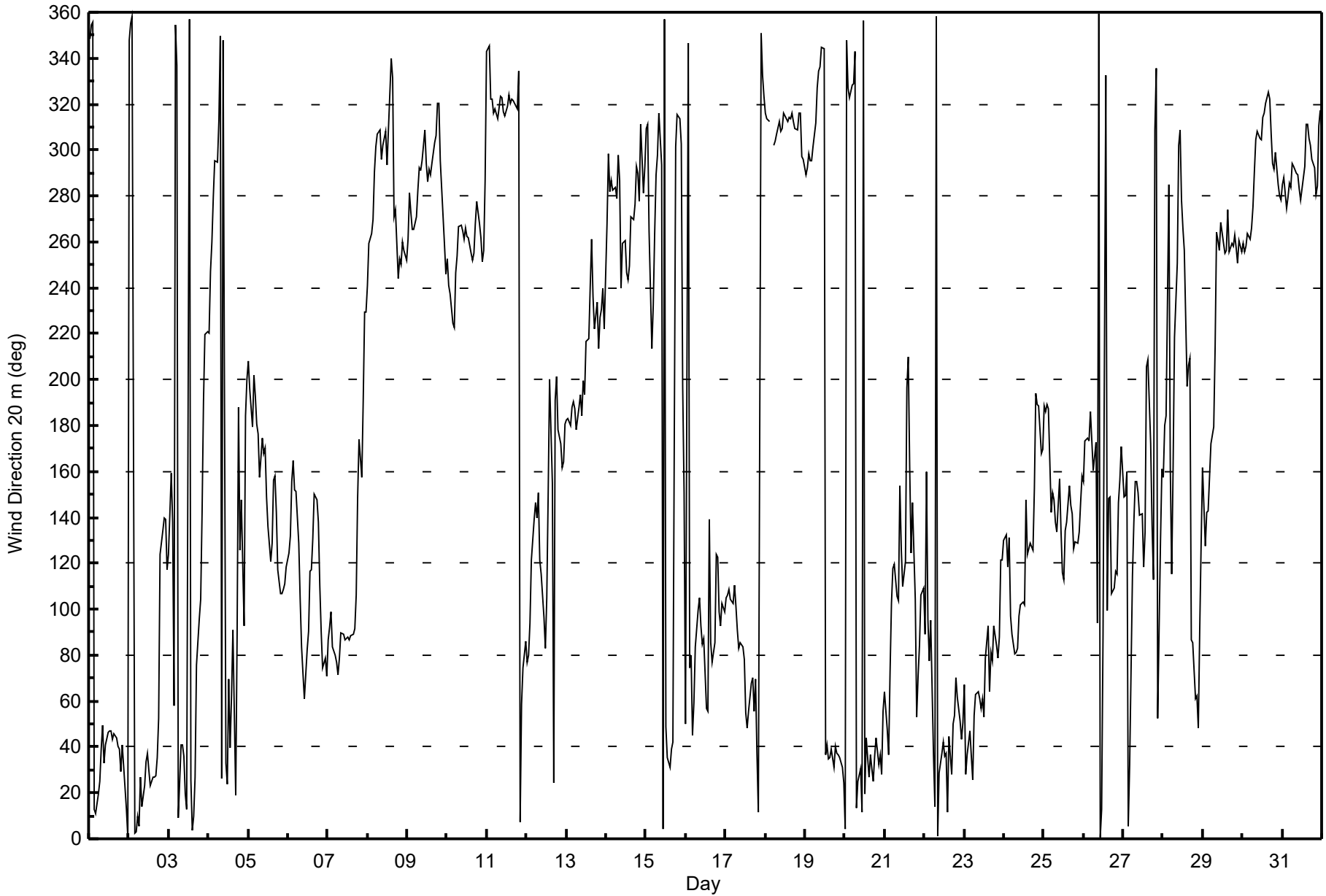
**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**  
**Stony Mountain - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 96 deg on May 12 16:00	Hours of Data: 742
Minimum Value: 8 deg on May 3 02:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 10 P <sub>10</sub> = 15 Q <sub>1</sub> = 18 Median = 23 Q <sub>3</sub> = 28 P <sub>90</sub> = 38 P <sub>99</sub> = 71	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-May	14	15	15	16	17	17	21	18	22	26	23	25	24	21	23	25	20	24	23	22	19	20	18	15	26
2-May	15	15	16	15	17	19	19	25	25	27	28	27	27	28	24	26	25	23	40	22	14	11	15	10	40
3-May	14	8	29	20	26	18	25	24	28	27	40	44	51	47	28	27	50	20	22	19	14	8	10	9	51
4-May	11	21	17	14	13	14	24	27	39	55	49	67	67	52	30	52	93	45	35	45	29	21	21	12	93
5-May	13	17	12	12	12	12	18	26	30	29	32	30	29	27	29	25	23	26	26	17	16	18	15	16	32
6-May	15	16	17	16	16	18	27	17	18	19	17	19	23	21	22	23	22	20	20	18	18	16	16	17	27
7-May	17	16	18	17	18	18	18	20	19	18	18	17	20	18	18	19	17	23	20	15	8	18	15	15	23
8-May	19	21	21	28	20	17	17	18	23	23	25	25	30	45	57	59	28	36	28	23	19	20	19	20	59
9-May	21	19	20	22	22	22	21	23	26	29	31	28	30	29	25	28	26	24	21	18	17	11	10	13	31
10-May	17	16	14	15	16	20	26	24	23	26	26	30	31	26	26	25	28	25	27	24	24	22	21	31	31
11-May	22	20	19	18	19	19	19	19	21	23	23	23	26	27	26	28	25	23	22	19	28	15	17	15	28
12-May	14	16	13	20	13	15	18	18	24	23	25	21	20	40	41	96	38	57	22	22	22	20	17	15	96
13-May	15	14	15	13	14	15	17	21	25	25	28	30	26	28	35	27	31	30	26	21	15	13	16	16	35
14-May	23	14	14	17	17	18	21	22	33	44	37	30	28	32	30	34	27	24	24	24	21	32	24	24	44
15-May	21	80	53	31	17	21	24	22	22	43	37	39	54	56	39	36	70	55	35	19	25	33	68	38	80
16-May	32	28	20	22	18	18	25	26	31	38	24	24	33	50	28	26	20	25	21	21	19	19	20	17	50
17-May	18	17	18	18	18	19	17	18	20	22	21	21	22	25	22	22	21	23	18	21	21	23	20	18	25
18-May	20	20	18	UO	UO	19	21	21	20	20	22	20	21	20	21	20	22	21	22	19	19	18	21	20	22
19-May	19	19	19	18	19	19	22	19	22	21	27	27	27	21	24	22	24	23	20	22	20	21	21	27	27
20-May	18	18	13	12	15	15	20	24	25	26	29	26	27	26	27	25	23	28	27	30	21	17	21	23	30
21-May	21	16	23	17	17	25	25	26	22	38	44	25	27	67	40	51	25	29	41	47	26	17	18	30	67
22-May	18	20	33	15	14	26	26	28	26	22	21	22	25	26	42	30	31	23	22	24	28	16	16	16	42
23-May	19	22	19	21	16	22	21	22	26	24	26	25	31	32	26	26	26	22	19	17	16	15	8	32	
24-May	10	13	15	12	14	24	29	31	28	24	31	26	25	34	33	28	31	28	25	23	17	15	19	16	34
25-May	19	14	14	14	15	18	22	28	30	42	48	36	26	33	37	31	30	25	23	20	16	14	14	11	48
26-May	12	14	14	17	14	21	26	44	38	41	42	47	66	90	77	78	51	42	22	16	12	17	15	17	90
27-May	19	19	52	34	38	21	16	23	30	29	32	34	39	34	43	43	51	25	72	30	18	44	24	43	72
28-May	23	20	16	66	57	16	32	37	44	39	64	47	45	64	39	38	44	90	24	16	17	20	18	24	90
29-May	32	25	20	21	23	22	25	28	29	33	30	32	29	31	30	28	28	29	29	29	26	26	28	29	33
30-May	28	29	30	28	29	28	26	25	24	24	25	25	25	23	22	26	27	25	25	24	27	24	25	24	30
31-May	22	25	27	27	24	26	25	26	28	27	27	29	28	26	24	26	26	25	26	27	26	25	25	24	29
	32	80	53	66	57	28	32	44	44	55	64	67	67	90	77	96	93	90	72	47	29	44	68	43	
	Diurnal Maximum																								

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS19  
FIREBAG  
MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
MAY 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	15.2	0	1.5	0
H2S (ppb) Average	706	37	38	99.87	3.6	0	0.4	0
THC (ppm) Average	707	36	37	99.87	3.5	-	2.3	-
NO2 (ppb) Average	705	36	39	99.6	16.5	0	4.6	-
NO (ppb) Average	705	36	39	99.6	12.5	-	1.1	-
NOX (ppb) Average	705	36	39	99.6	22	-	5.4	-
Temperature 2 m (C) Average	744	0	0	100	24.6	-	16.8	-
Relative Humidity (%) Average	744	0	0	100	98.2	-	95.9	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	34	-	22	-
Wind Direction 10 m (deg) Average	743	0	1	99.87	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
MAY 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	0.33	1	-	0	0	0	0	0.2	0.7	15.2
H2S (ppb) Average	706	0.14	0.3	-	0	0	0	0.1	0.1	0.3	3.6
THC (ppm) Average	707	2.21	0.1	-	2	2.1	2.2	2.2	2.2	2.3	3.5
NO2 (ppb) Average	705	1.39	1.8	-	0.1	0.2	0.4	0.8	1.6	3.2	16.5
NO (ppb) Average	705	0.25	0.7	-	0	0	0	0.1	0.2	0.5	12.5
NOX (ppb) Average	705	1.64	2.2	-	0.1	0.2	0.4	0.9	1.8	3.8	22
Temperature 2 m (C) Average	744	8.98	4.8	-	-1.9	3.1	5.2	8.4	12.2	15.7	24.6
Relative Humidity (%) Average	744	62.47	22.5	-	18.4	32.4	43.5	61.8	83.3	93.1	98.2
Wind Speed 10 m (km/h) Average	743	14.5	6	-	1	7	11	14	18	22	34
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, SO2, THC	23 May 2024 14:00	23 May 2024 14:00	1	Maintenance - sample manifold cleaned
NO2	14 May 2024 11:00	14 May 2024 11:00	1	Maintenance - station operator activities.
NO2	17 May 2024 10:00	17 May 2024 11:00	2	Maintenance - station operator activities.
Wind Speed, Wind Direction 10m	01 May 2024 04:00	01 May 2024 04:00	1	Flat line in sensor output signal

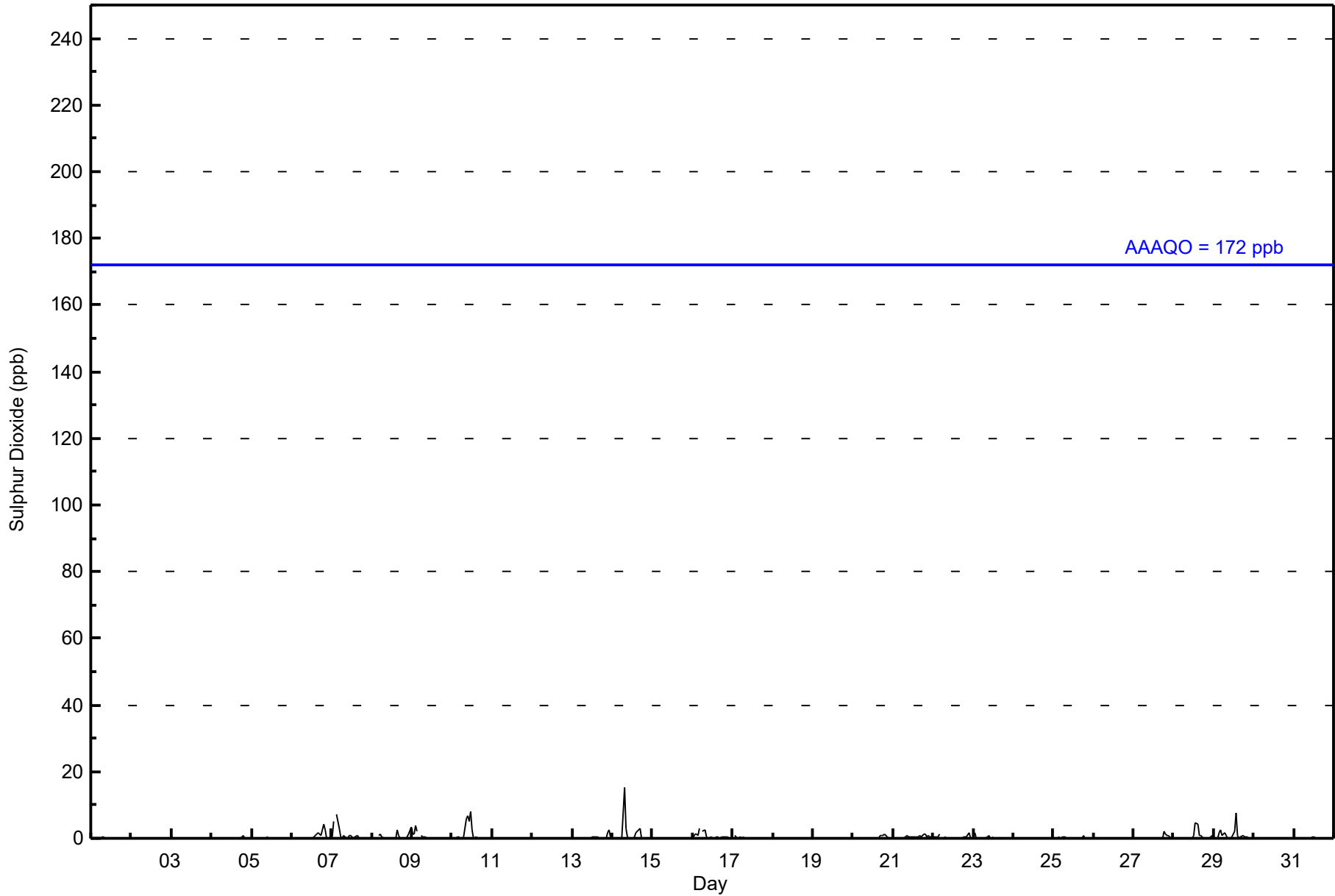






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Firebag - May 2024**





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Firebag - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	706	99.86	99.86
11 - 20	1	0.14	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**  
**Firebag - May 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	41	42	38	43	71	89	73	68	42	31	32	29	7	19	47	33	705
11 - 20	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	41	42	38	43	71	89	73	68	42	31	33	29	7	19	47	33	706

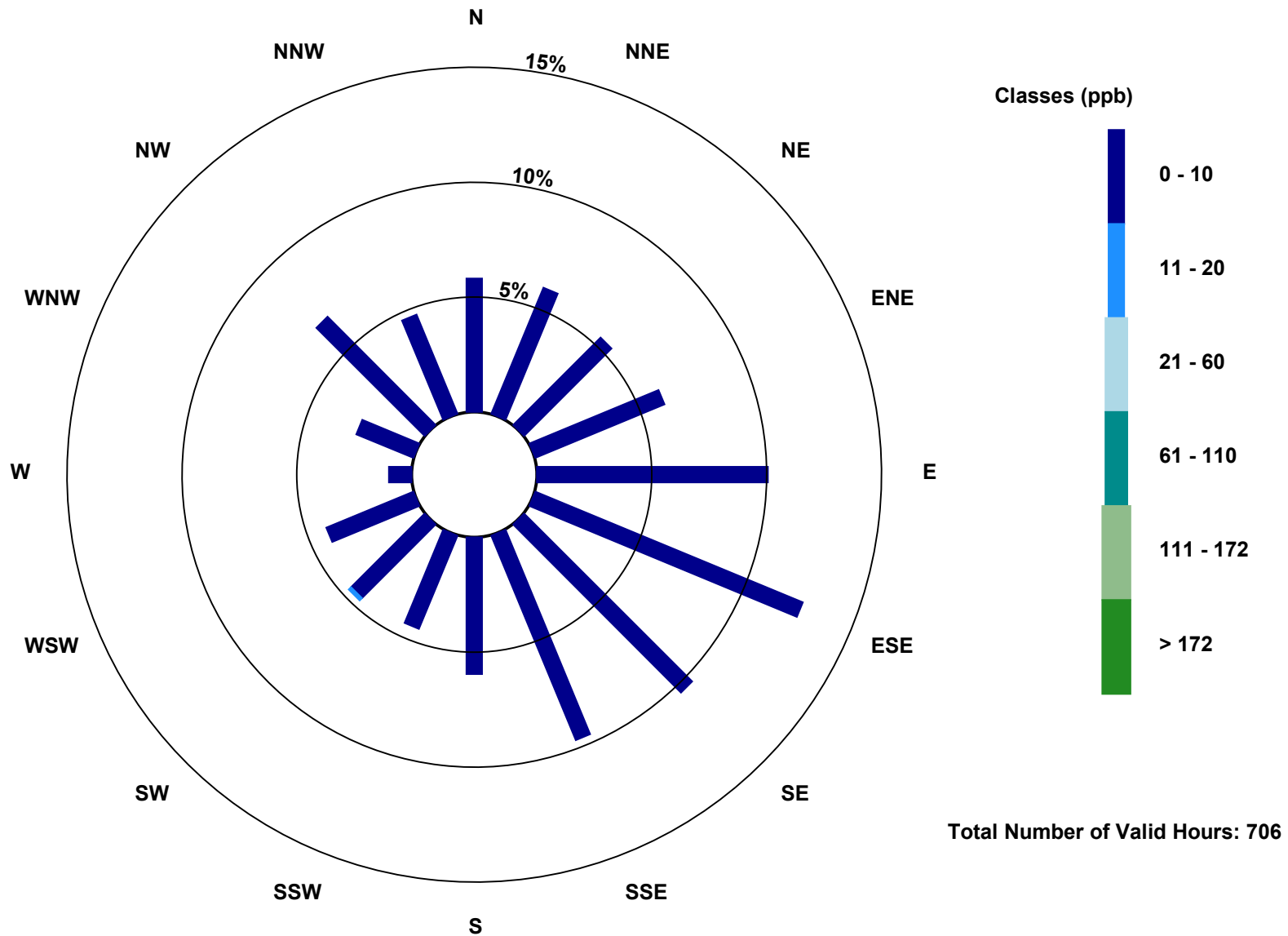
Total Number of Valid Hours: 706

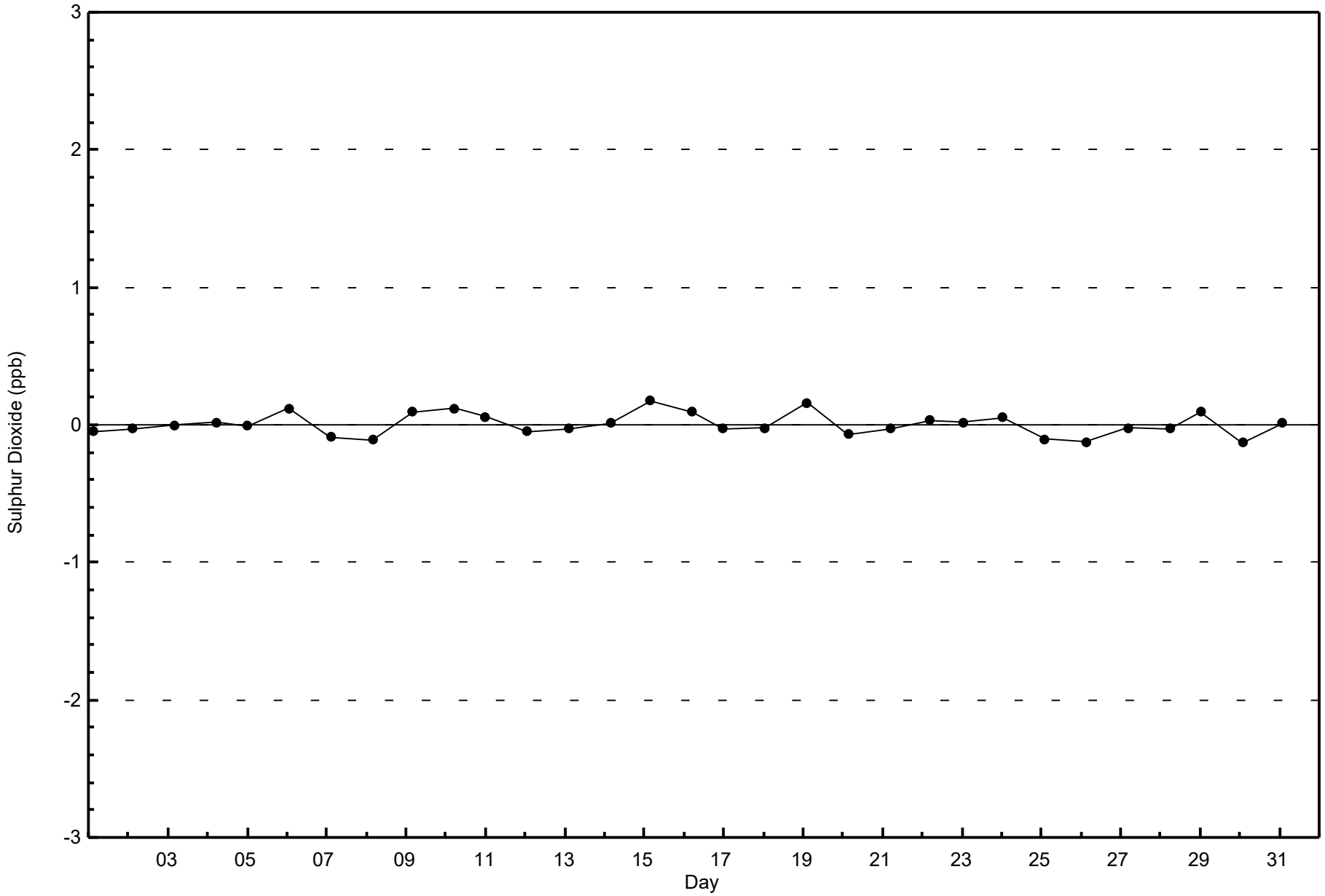
Total Number of Hours: 744

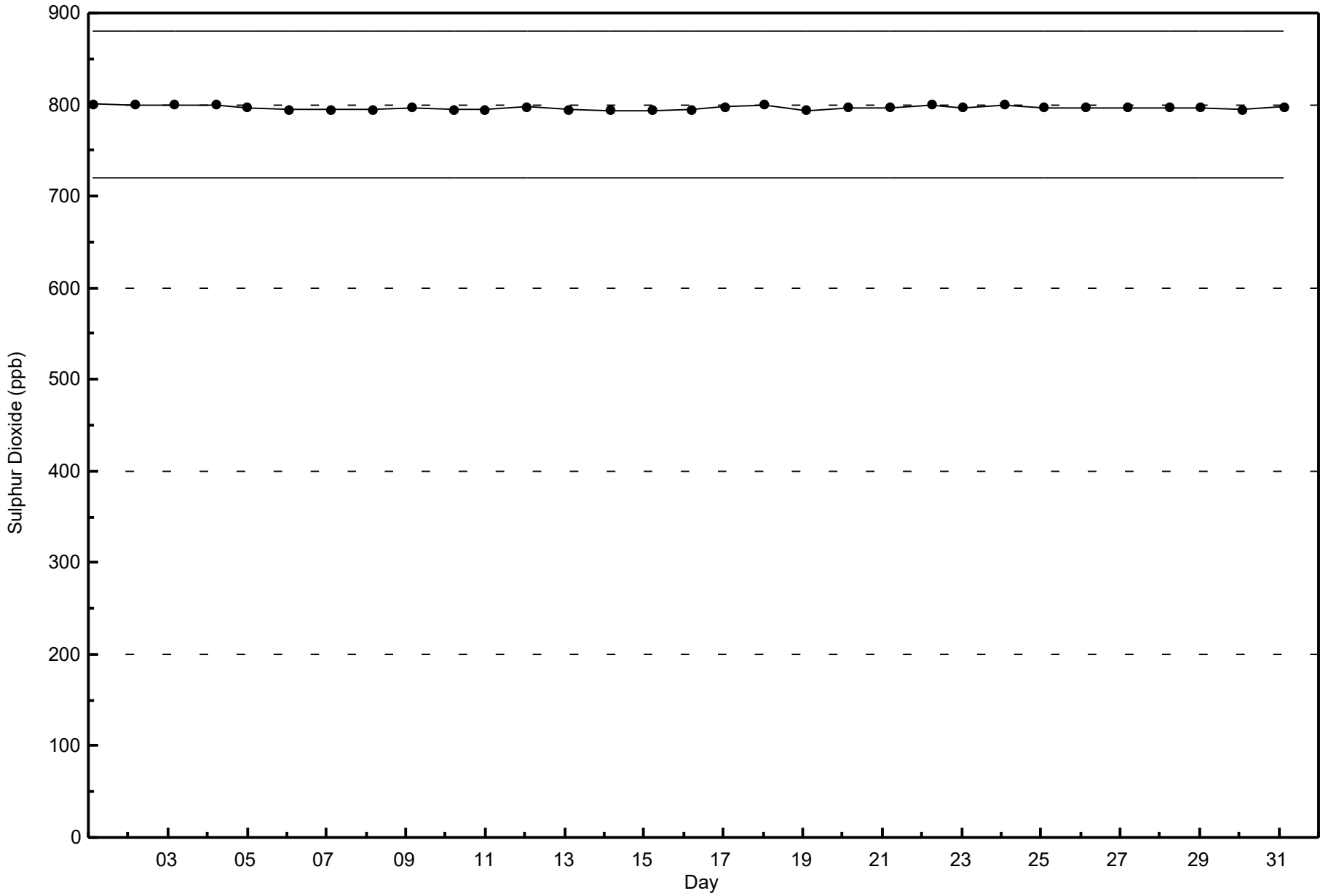


Wood Buffalo Environmental Association  
Wind Rose May 2024

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

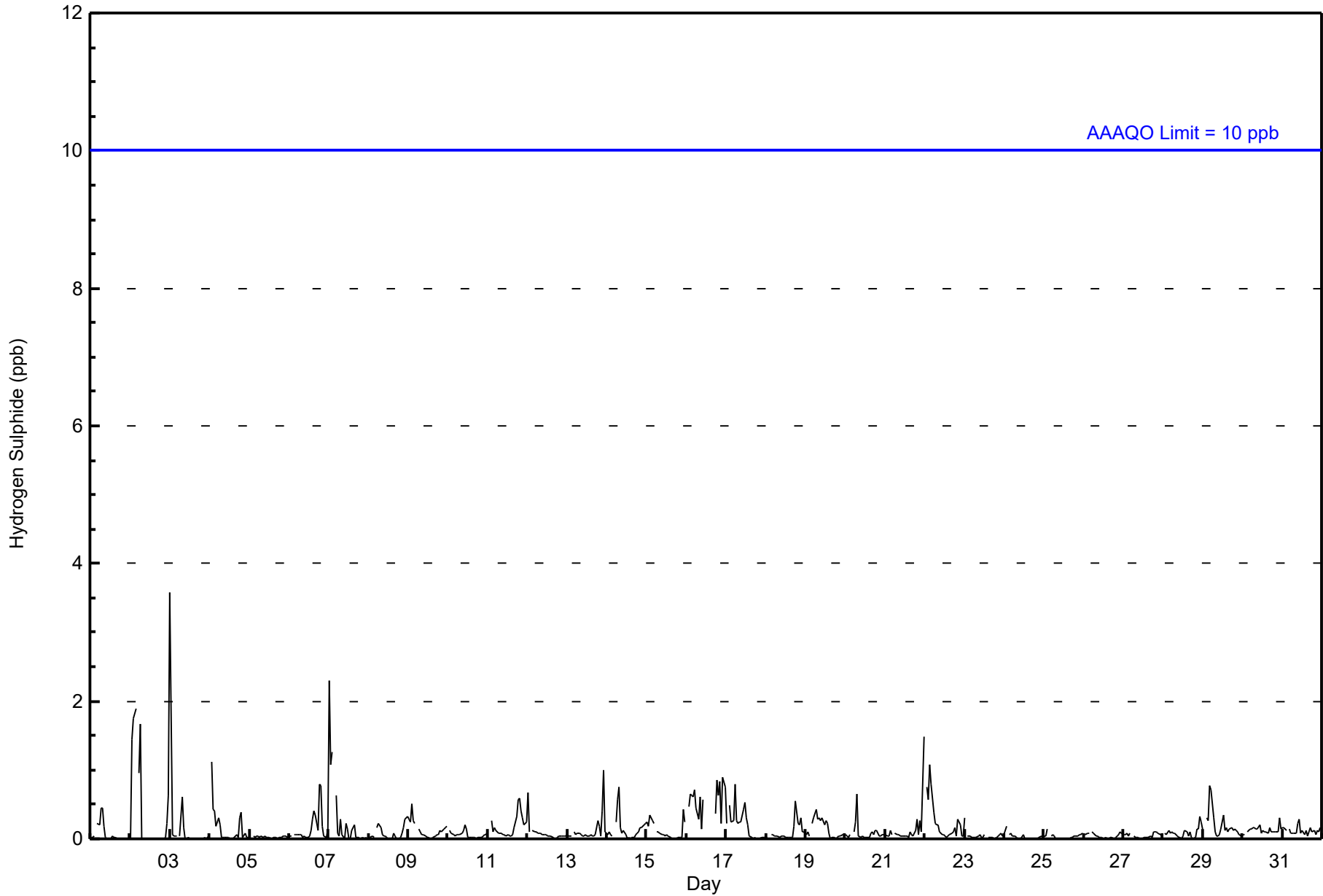








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 3.6 ppb on May 3 01:00		Maximum Daily Average: 0.4 ppb on May 2		Minimum Daily Average: 0.0 ppb on May 5		Hours of Data:		706																																									
Minimum Value: 0.0 ppb on May 1 12:00		Minimum Daily Average: 0.0 ppb on May 5		Minimum Diurnal Average: 0.0 ppb at hour 15		Hours of Missing Data:		38																																									
Maximum Diurnal Average: 0.3 ppb at hour 1		Minimum Diurnal Average: 0.0 ppb at hour 15		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.3 P <sub>99</sub> = 1.3		Hours of Calibration:		37																																									
Monthly Average: 0.14 ppb						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-May	0.0	0.0	0.0	Z	0.2	0.2	0.4	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	0.1	0.4																							
2-May	0.0	1.4	1.8	1.9	Z	1.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.4	1.9																							
3-May	3.6	0.1	0.1	0.0	0.0	Z	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.6																							
4-May	Z	1.1	0.4	0.4	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.4	0.0	0.1	0.0	0.0	0.0	0.2	1.1																							
5-May	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																							
6-May	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.1	0.8	0.8	0.2	0.1	0.0	0.1	0.2	0.8	0.8																							
7-May	2.3	1.1	1.3	Z	0.6	0.1	0.0	0.3	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3																							
8-May	0.0	0.0	0.0	0.0	Z	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.1	0.3	0.3																							
9-May	0.3	0.3	0.5	0.3	0.2	Z	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	0.2	0.2	0.1	0.5	0.5																							
10-May	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2																							
11-May	0.1	Z	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.3	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.6																							
12-May	0.7	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																							
13-May	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.3	0.2	0.0	0.4	1.0	0.1	1.0	1.0																							
14-May	0.1	0.1	0.1	0.0	Z	0.2	0.6	0.7	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.7																							
15-May	0.2	0.2	0.3	0.3	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.1	0.4	0.4																							
16-May	Z	0.5	0.6	0.6	0.6	0.7	0.4	0.3	0.6	0.1	0.6	C	C	C	C	C	C	0.4	0.9	0.6	0.8	0.2	0.9	0.8	--	0.9																							
17-May	0.2	Z	0.5	0.2	0.3	0.8	0.3	0.2	0.2	0.3	0.4	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																							
18-May	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	0.2	0.5	0.2	0.2	0.3	0.1	0.1	0.1	0.5																							
19-May	0.1	0.1	0.0	Z	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4																							
20-May	0.1	0.0	0.0	0.1	Z	0.1	0.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.7																							
21-May	0.1	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.1	0.3	0.1	1.5	0.1	1.5	1.5																							
22-May	Z	0.7	0.6	1.1	0.8	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.3	0.2	0.0	0.0	0.2	1.1																							
23-May	0.3	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	M	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.3																							
24-May	0.1	0.2	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
25-May	0.0	0.0	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1																							
26-May	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1																							
27-May	0.1	0.1	0.1	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1																							
28-May	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.1	0.3																							
29-May	0.1	Z	0.3	0.3	0.8	0.7	0.3	0.1	0.0	0.0	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.8																							
30-May	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.3																							
31-May	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3																							
																								0.3	0.3	0.3	0.2	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	0.1	0.1	0.1	0.2	0.2	Diurnal Average		
																								3.6	1.4	1.8	1.9	0.8	1.0	1.7	0.7	0.6	0.3	0.6	0.5	0.3	0.2	0.3	0.4	0.4	0.4	0.9	0.8	0.8	0.4	1.0	1.5	Diurnal Maximum	
Z - zerospan      C - Calibration      M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb      24-hr 3 ppb																																																	







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Firebag - May 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	45	43	40	42	64	87	75	67	42	32	33	28	7	19	48	33	705
3 - 4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	45	43	40	42	64	88	75	67	42	32	33	28	7	19	48	33	706

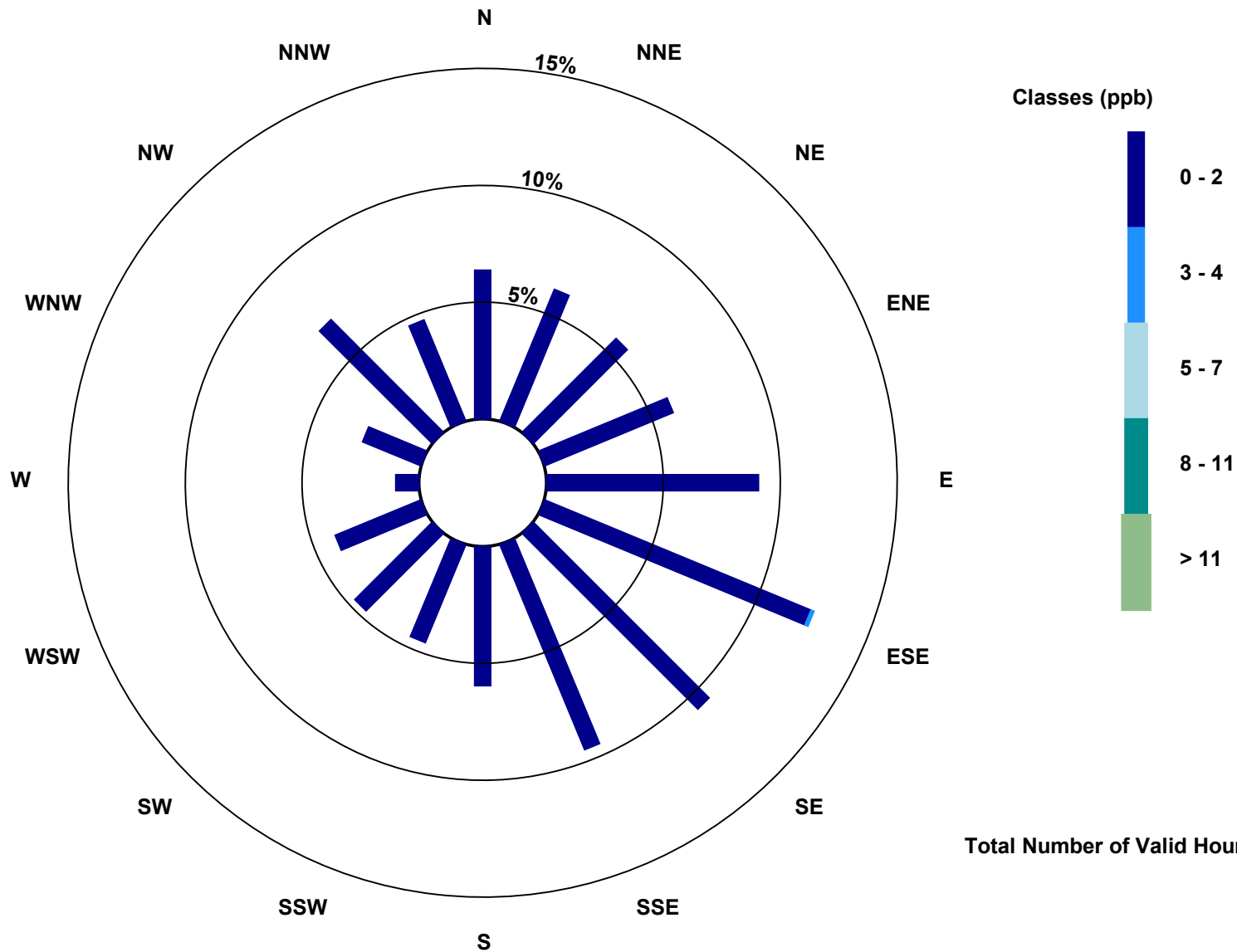
Total Number of Valid Hours: 706

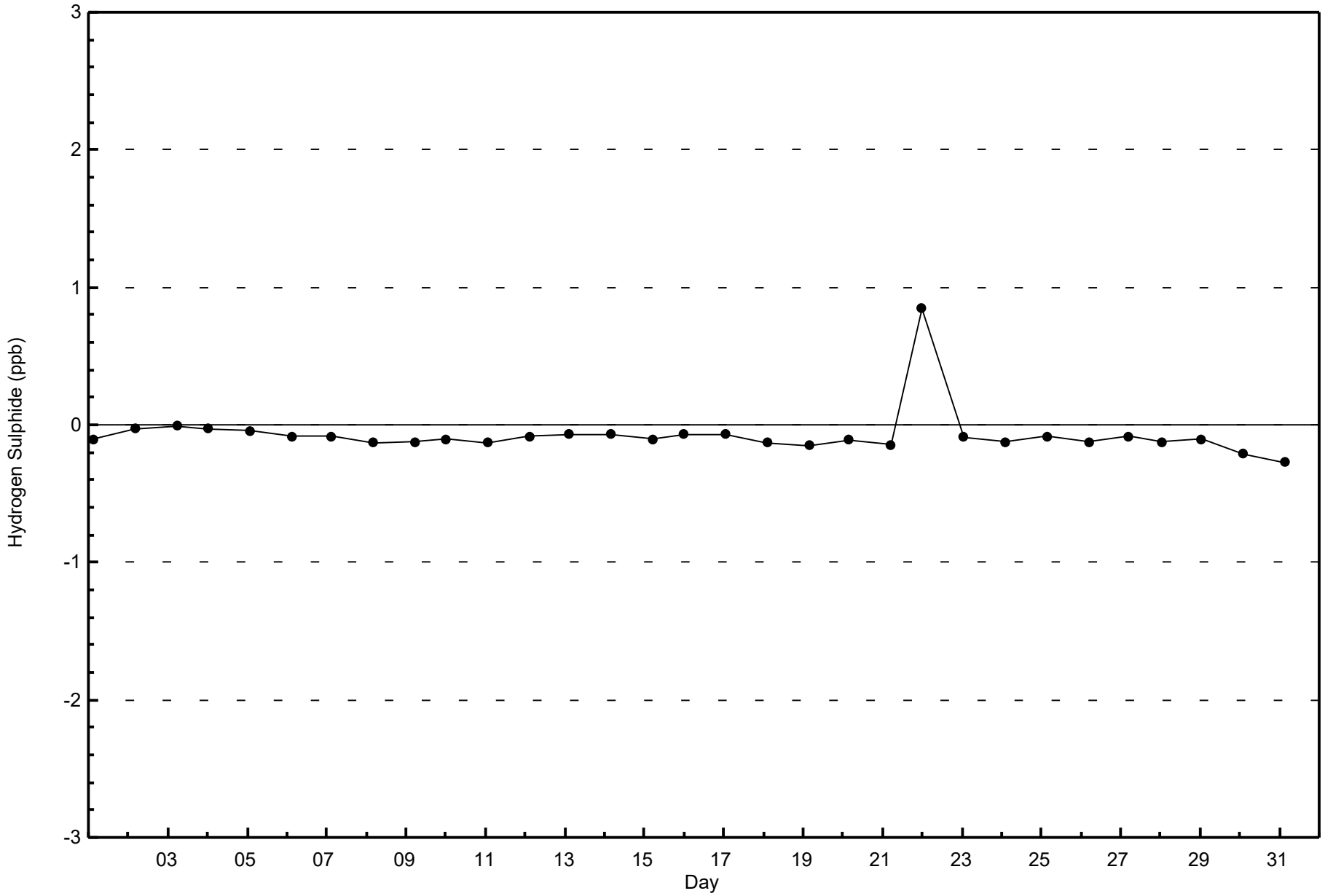
Total Number of Hours: 744

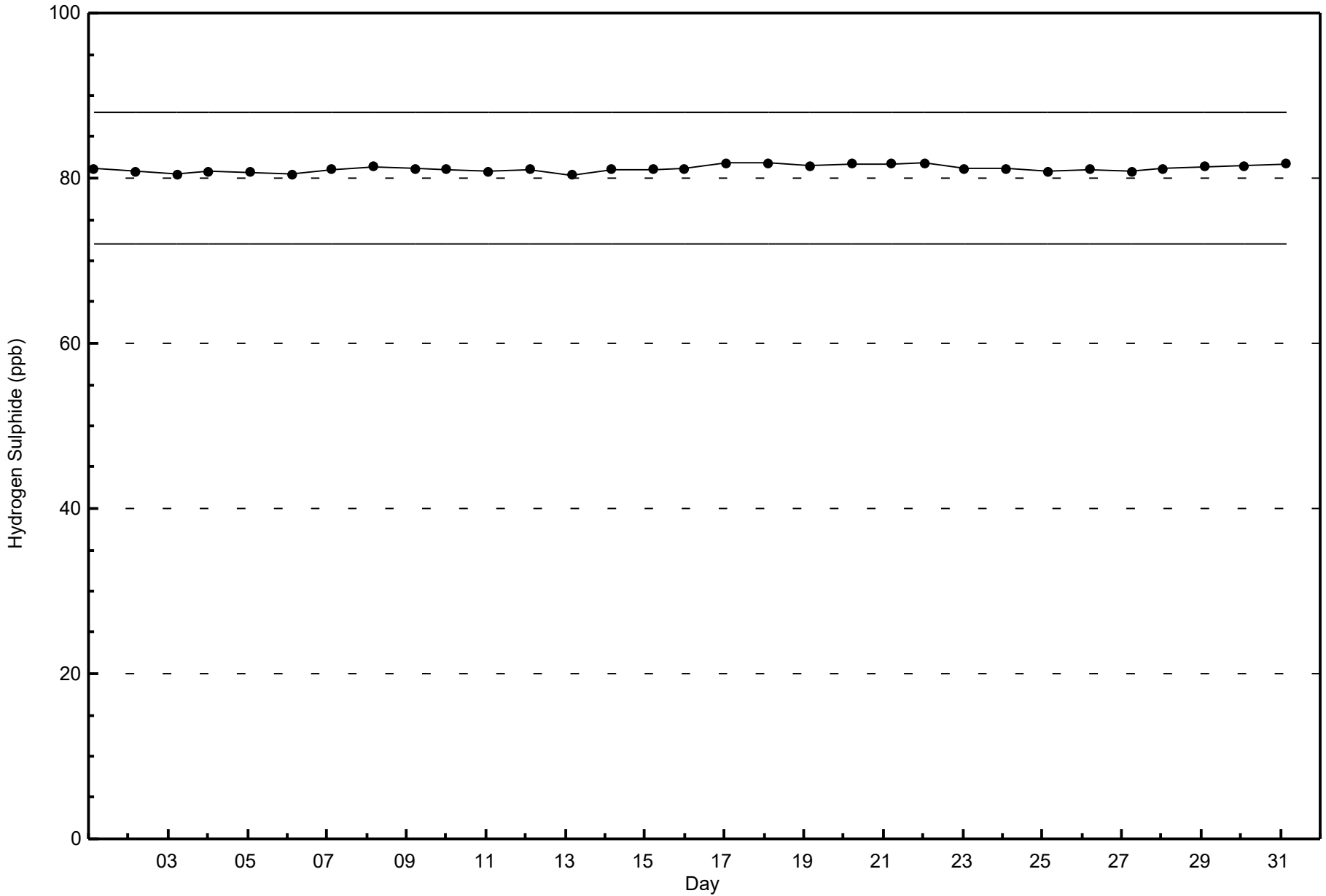


Wood Buffalo Environmental Association  
Wind Rose May 2024

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





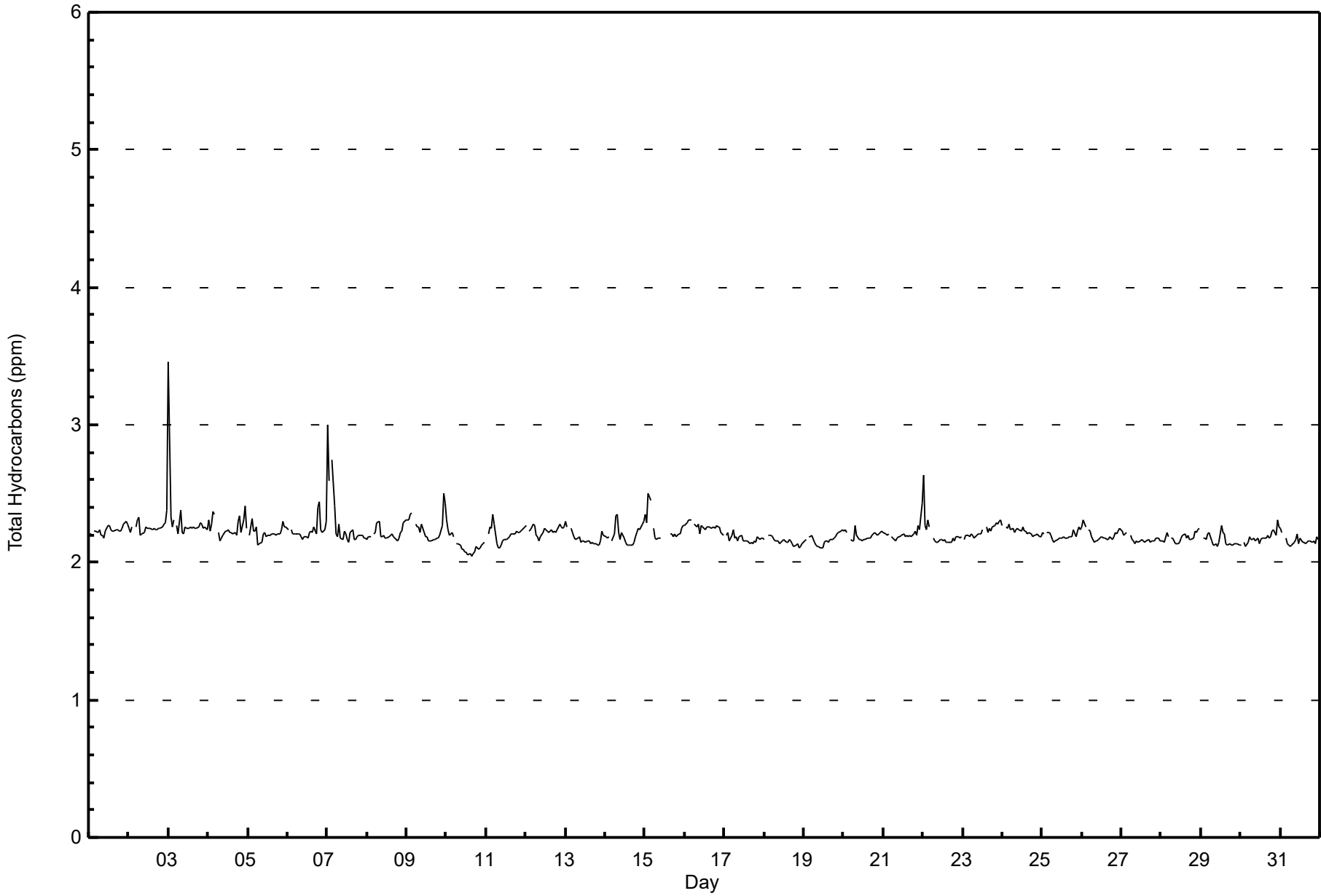




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Total Hydrocarbons (THC) - ppm**  
**Firebag - May 2024**

Maximum Value: 3.5 ppm on May 3 01:00		Maximum Daily Average: 2.3 ppm on May 3		Hours in Service: 744																																												
Minimum Value: 2.0 ppm on May 10 16:00		Minimum Daily Average: 2.1 ppm on May 10		Hours of Data: 707																																												
Maximum Diurnal Average: 2.3 ppm at hour 1		Minimum Diurnal Average: 2.2 ppm at hour 9		Hours of Missing Data: 37																																												
Monthly Average: 2.21 ppm		Percentiles: P <sub>1</sub> = 2.1 P <sub>10</sub> = 2.1 Q <sub>1</sub> = 2.2 Median = 2.2 Q <sub>3</sub> = 2.2 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.4		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-May	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3																					
2-May	2.2	2.2	2.3	Z	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	2.3	2.3	2.3	2.4	2.3	2.3	2.4																					
3-May	3.5	2.3	2.3	2.3	Z	2.3	2.2	2.4	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.3	3.5																						
4-May	2.3	2.2	2.3	2.4	2.3	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	2.3	2.3	2.2	2.3	2.4	2.2	2.3	2.4																						
5-May	Z	2.2	2.3	2.2	2.2	2.3	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	2.3	2.3	2.2	2.3																						
6-May	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	2.3	2.2	2.4	2.4	2.2	2.2	2.2	2.3	2.2	2.4																						
7-May	3.0	2.6	Z	2.7	2.4	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	3.0																						
8-May	2.2	2.2	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3																						
9-May	2.3	2.3	2.3	2.4	Z	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.4	2.3	2.5																						
10-May	2.3	2.2	2.2	2.2	2.2	Z	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	2.3																						
11-May	Z	2.2	2.3	2.2	2.4	2.3	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.4																						
12-May	2.3	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.2	2.3																						
13-May	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3																						
14-May	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3																						
15-May	2.3	2.3	2.5	2.4	Z	2.3	2.2	2.2	2.2	2.2	C	C	C	C	C	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5																							
16-May	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3																						
17-May	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	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2																						
18-May	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2																						
19-May	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
20-May	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																						
21-May	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	2.3	2.2	2.4	2.2	2.4																						
22-May	2.6	2.3	2.2	2.3	2.3	Z	2.2	2.2	2.1	2.1	2.2	2.2	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	2.6																						
23-May	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	M	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3																						
24-May	2.3	Z	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																						
25-May	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3																						
26-May	2.3	2.3	2.3	Z	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3																						
27-May	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
28-May	2.2	2.2	2.2	2.2	2.2	Z	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	2.2	2.2																						
29-May	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3																						
30-May	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3																						
31-May	2.2	2.2	Z	2.2	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	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2																						
																								2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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
																								3.5	2.6	2.5	2.7	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.5	2.4	Diurnal Maximum
Z - zerospan      C - Calibration      M - Maintenance																																																





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

**Total Hydrocarbons (THC) - ppm**  
**Firebag - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	1	0.14	0.14
2.1 - 3.0	705	99.72	99.86
3.1 - 10.0	1	0.14	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**  
**Firebag - May 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
2.1 - 3.0	41	42	38	43	71	88	73	68	42	31	33	29	6	19	47	33	704
3.1 - 10.0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	41	42	38	43	71	89	73	68	42	31	33	29	7	19	47	33	706

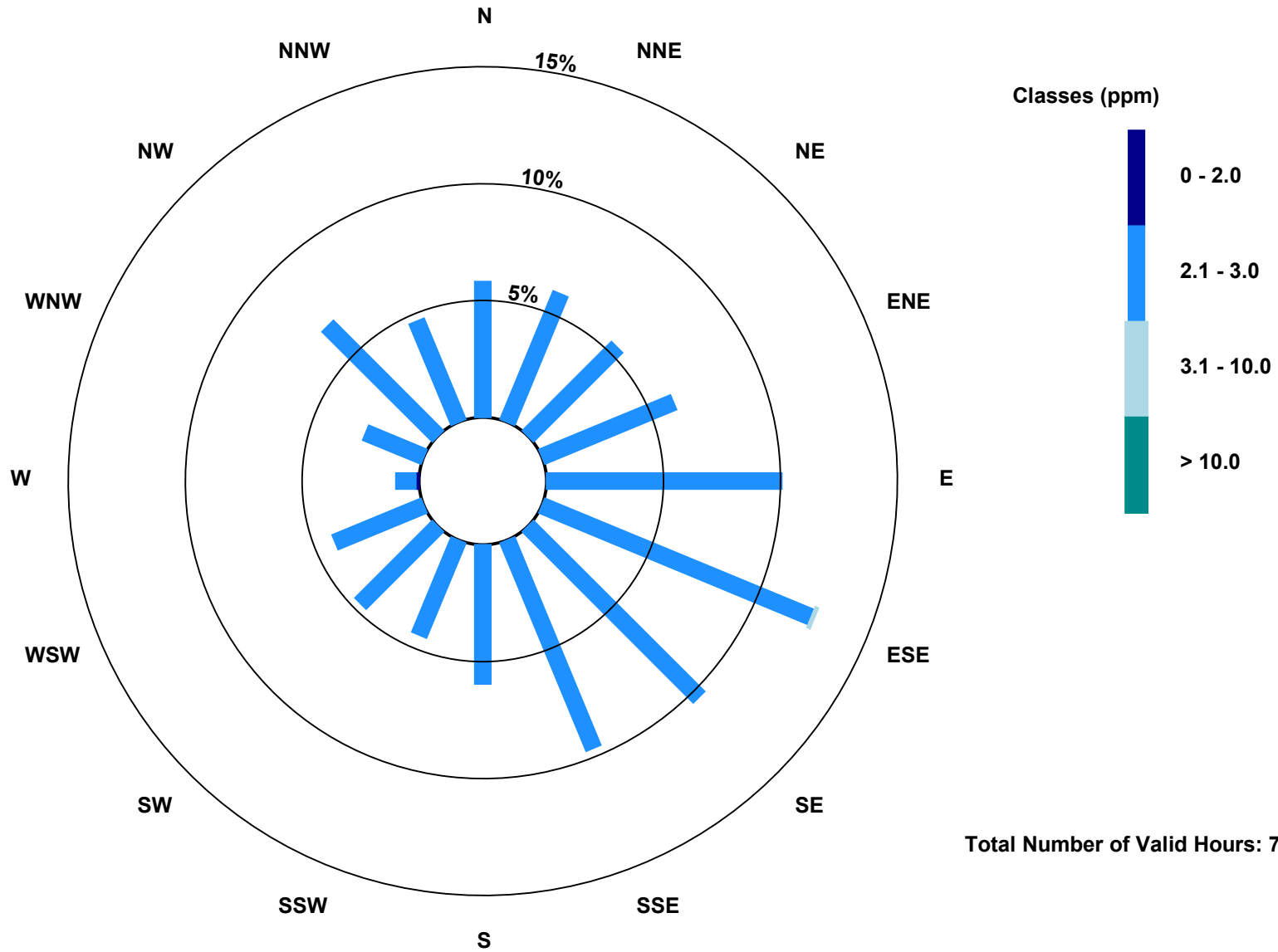
Total Number of Valid Hours: 706

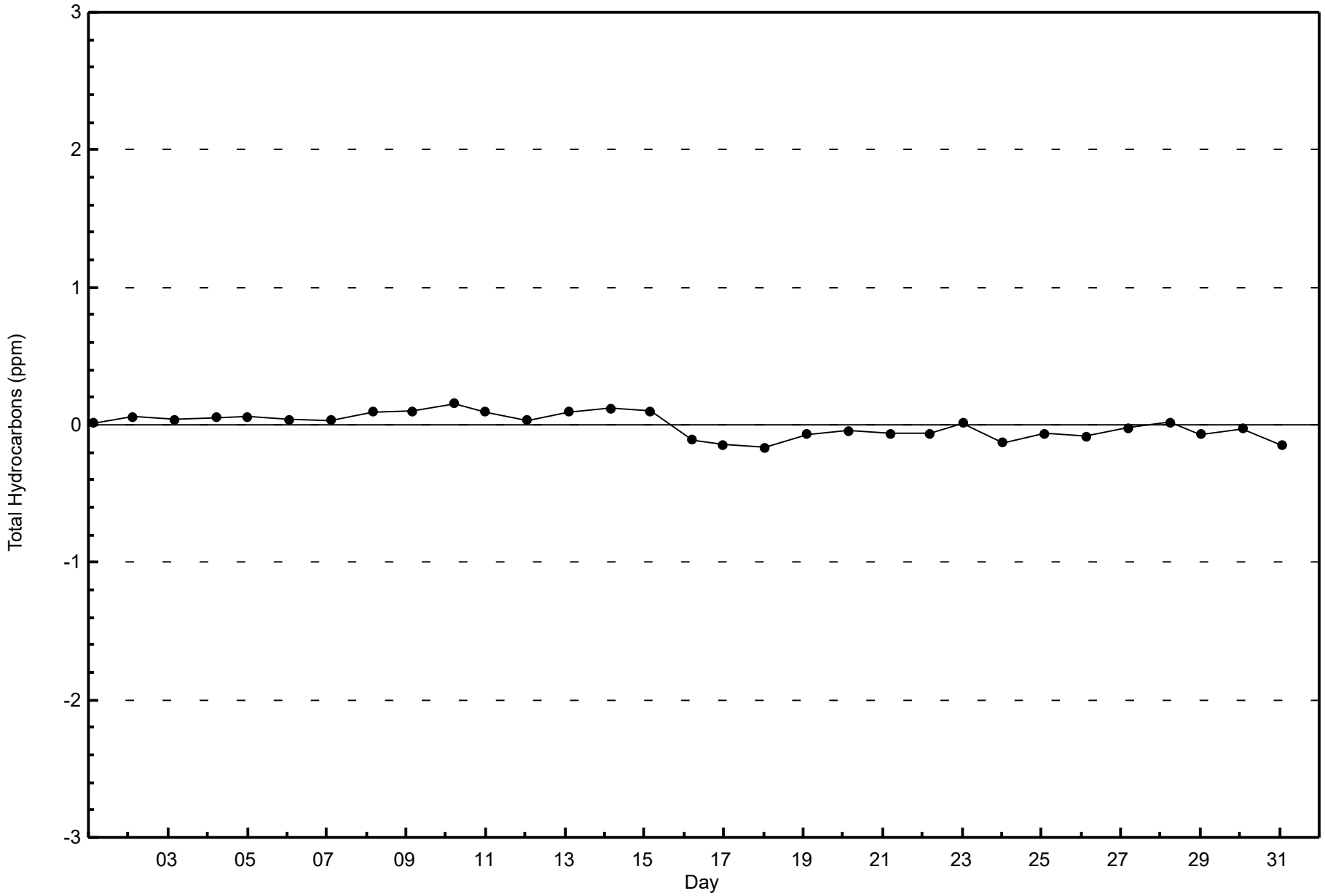
Total Number of Hours: 744

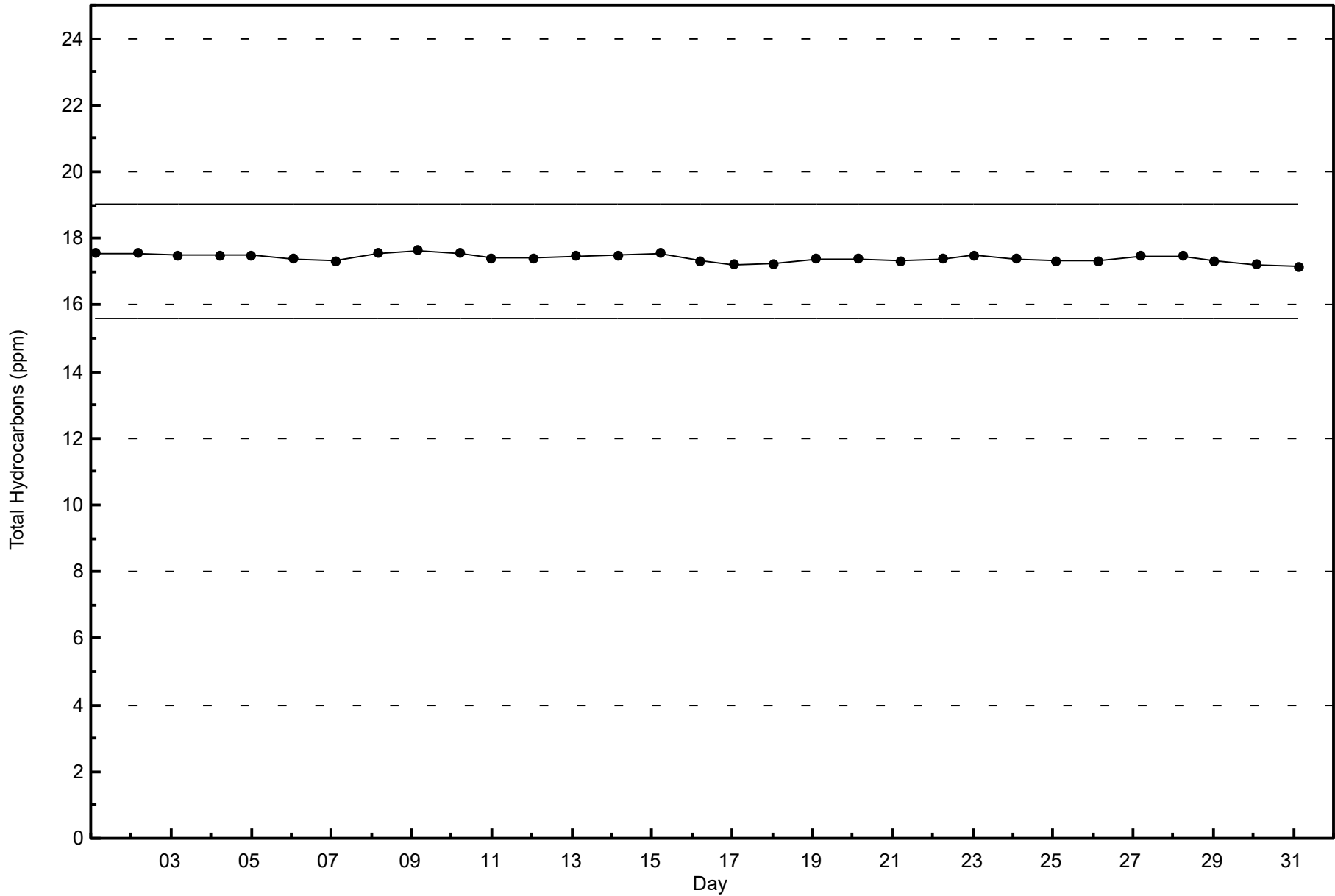


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Firebag







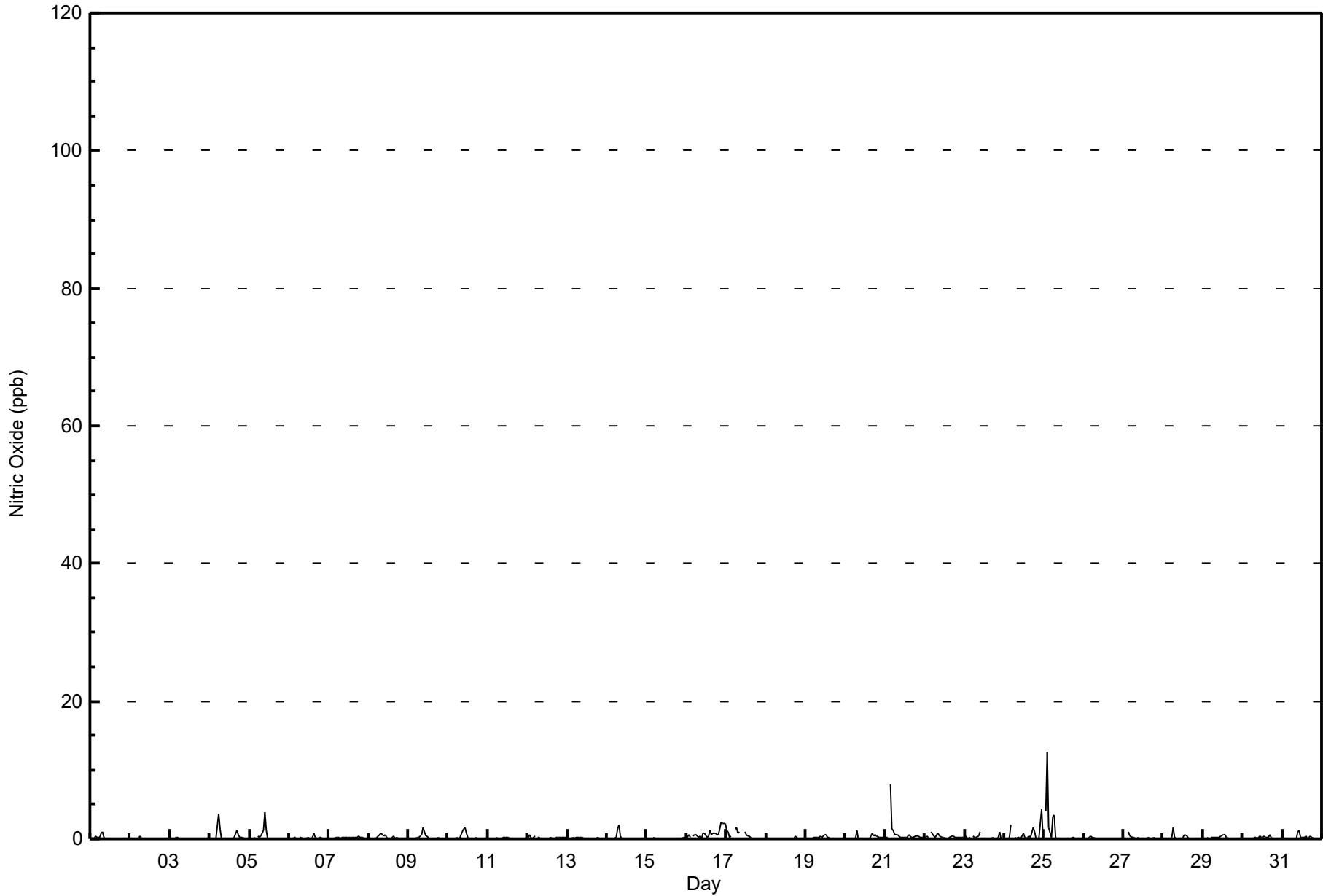


Maximum Value: 12.5 ppb on May 25 03:00		Maximum Daily Average: 1.1 ppb on May 25		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on May 2 01:00		Minimum Daily Average: 0.0 ppb on May 2		Hours of Data: 705																																													
Maximum Diurnal Average: 0.5 ppb at hour 6		Minimum Diurnal Average: 0.1 ppb at hour 20		Hours of Missing Data: 39																																													
Monthly Average: 0.25 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> = 3.3		Hours of Calibration: 36																																													
				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-May	Z	0.0	0.0	0.3	0.1	0.2	0.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																							
2-May	0.0	Z	0.0	0.0	0.0	0.1	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	0.1	0.0	0.5																						
3-May	0.1	0.0	Z	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
4-May	0.0	0.0	0.0	Z	0.0	3.6	1.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.3	0.5	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.4	3.6																						
5-May	0.1	0.0	0.0	0.1	Z	0.3	0.2	0.4	1.2	3.8	1.3	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.8																						
6-May	0.0	0.0	0.0	0.2	0.2	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.3	0.8	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.8																						
7-May	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.1	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.5																						
8-May	0.0	Z	0.0	0.0	0.1	0.3	0.4	0.8	0.5	0.3	0.5	0.3	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																						
9-May	0.0	0.0	Z	0.0	0.1	0.2	0.3	0.3	0.7	1.6	0.4	0.3	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	0.2	1.6																						
10-May	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	1.0	1.5	1.7	0.7	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.7																						
11-May	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
12-May	0.1	0.7	0.1	0.1	0.4	Z	0.2	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.7																						
13-May	Z	0.0	0.0	0.2	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3																						
14-May	0.0	Z	0.0	0.0	0.0	0.2	1.5	2.0	0.5	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0																						
15-May	0.1	0.0	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2																						
16-May	0.1	0.7	0.1	Z	0.5	0.5	0.6	0.2	0.4	0.1	0.7	0.8	0.3	0.4	1.2	0.7	0.9	0.9	0.7	0.5	1.4	2.4	2.3	2.1	0.0	0.8	2.4																						
17-May	1.2	0.9	0.2	0.4	Z	1.4	1.7	0.8	0.9	M	M	0.9	0.5	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.7																						
18-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.1	0.1	0.1	0.0	0.0	0.1	0.5	0.5																						
19-May	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.5	0.6	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6																						
20-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.8	0.3	0.6	0.3	0.1	0.2	0.2	0.3	0.2	0.2	1.2																						
21-May	0.2	0.2	Z	8.0	1.4	1.3	0.5	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.2	0.1	0.0	0.7	8.0																						
22-May	0.2	0.4	0.2	Z	1.0	0.3	0.2	0.5	0.8	0.4	0.1	0.3	0.0	0.0	0.1	0.2	0.4	0.4	0.2	0.3	0.2	0.1	0.1	0.3	0.3	0.3	1.0																						
23-May	0.2	0.5	0.1	0.2	Z	0.5	0.2	0.2	0.3	1.0	C	C	C	C	C	0.0	0.0	0.3	0.0	0.0	0.2	0.9	0.0	0.0	0.3	1.0																							
24-May	0.0	0.0	0.0	0.2	2.0	Z	0.2	0.1	0.2	0.1	0.0	0.8	0.2	0.1	0.3	0.5	0.2	1.7	1.1	0.0	0.0	0.0	4.2	0.2	0.5	4.2																							
25-May	Z	4.0	12.5	1.7	0.1	3.3	3.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1	1.1	12.5																							
26-May	0.1	Z	0.1	0.2	0.4	0.2	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	0.0	0.1	0.0	0.1	0.0	0.1	0.4	0.4																						
27-May	0.0	0.0	Z	1.0	0.4	0.2	0.1	0.0	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	1.0																						
28-May	0.0	0.0	0.0	Z	0.1	0.3	1.7	0.1	0.1	0.0	0.0	0.0	0.3	0.7	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.7																						
29-May	0.0	0.0	0.1	0.3	Z	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.6	0.7	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																						
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.4	0.2	0.1	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
31-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.2	0.1	0.2	0.1	0.4	0.1	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2																						
																								0.1	0.3	0.5	0.5	0.3	0.5	0.5	0.3	0.3	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.1	Diurnal Average	
																								1.2	4.0	12.5	8.0	2.0	3.6	3.5	2.0	1.2	3.8	1.7	0.9	0.6	0.7	1.2	0.8	1.3	1.7	1.1	0.5	1.4	2.4	4.2	2.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association  
Hourly Averages

Nitric Oxide (NO) - ppb  
Firebag - May 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Firebag - May 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**  
**Firebag - May 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	44	42	40	43	67	89	70	70	42	29	33	29	7	17	47	35	704
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>	44	42	40	43	67	89	70	70	42	29	33	29	7	17	47	35	704

Total Number of Valid Hours: 704

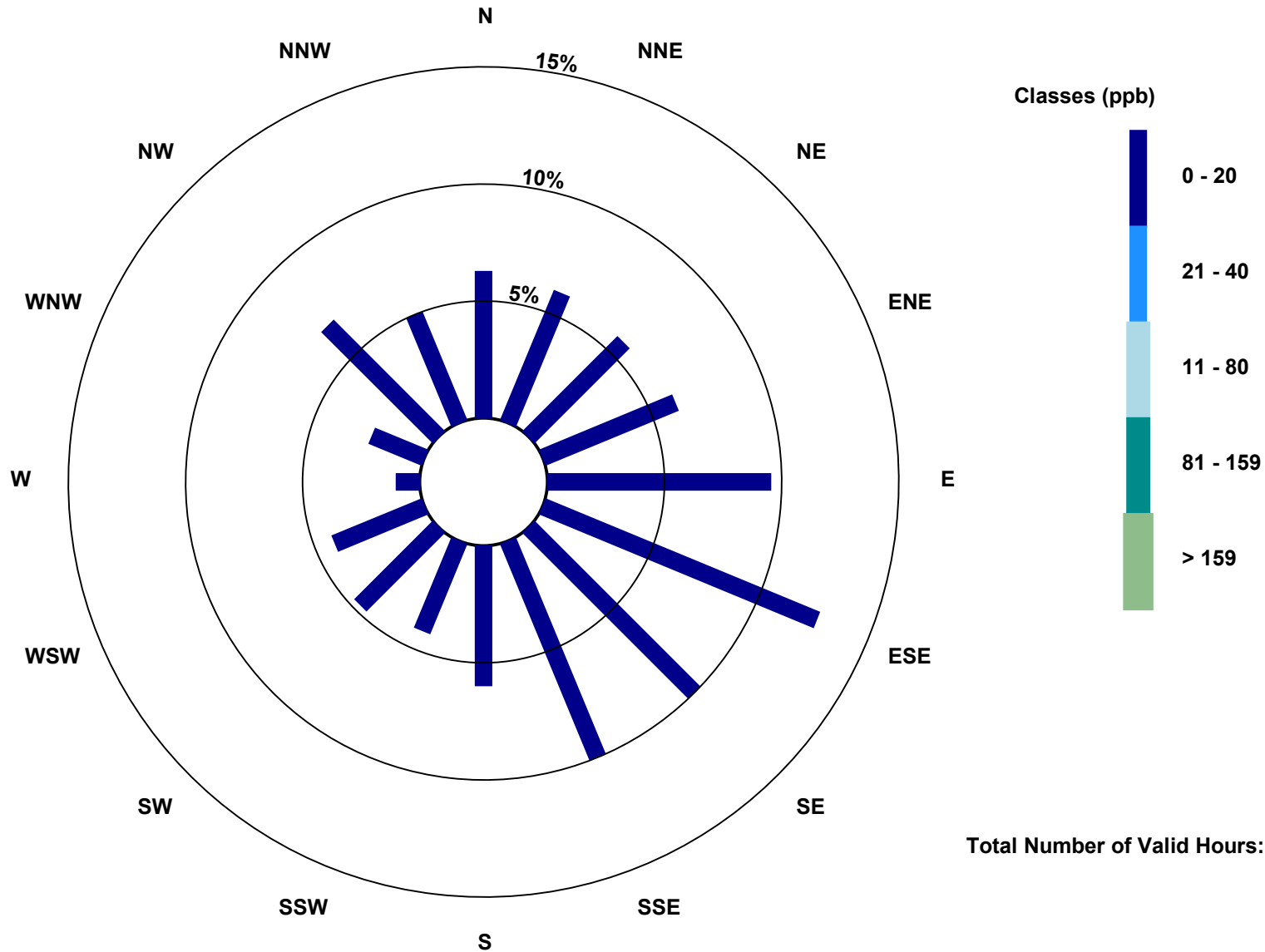
Total Number of Hours: 744



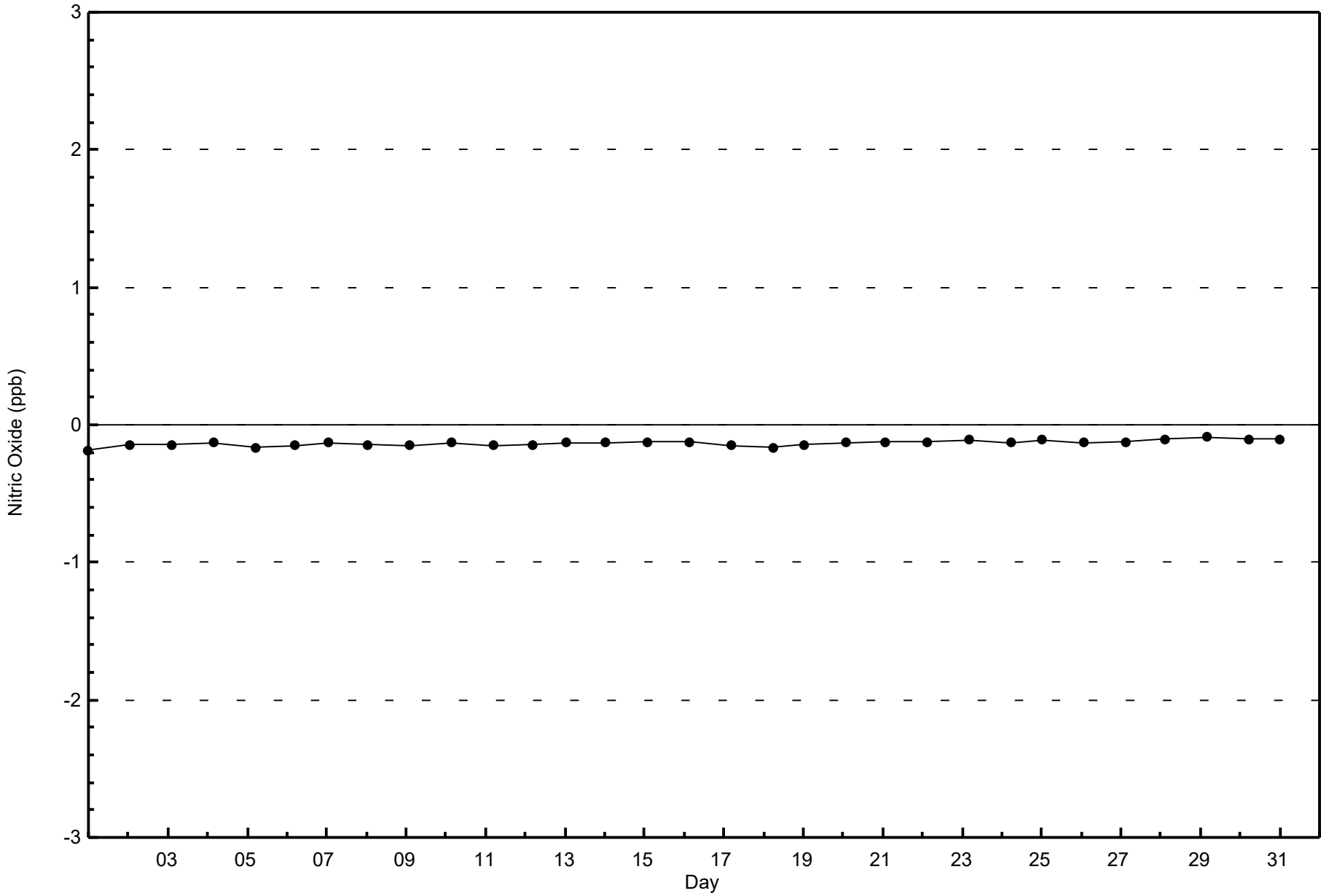


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Firebag



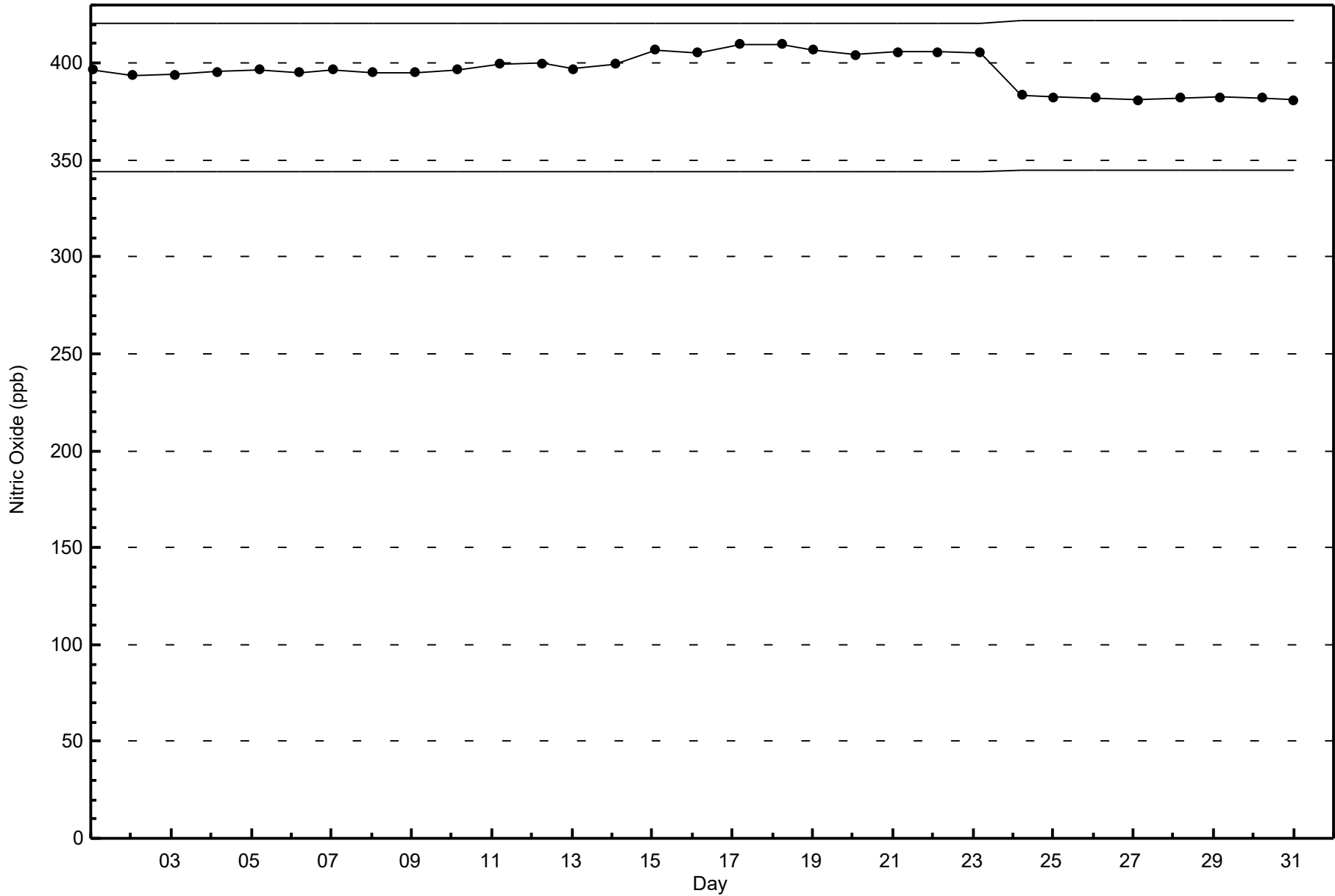
Total Number of Valid Hours: 704





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Firebag - May 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

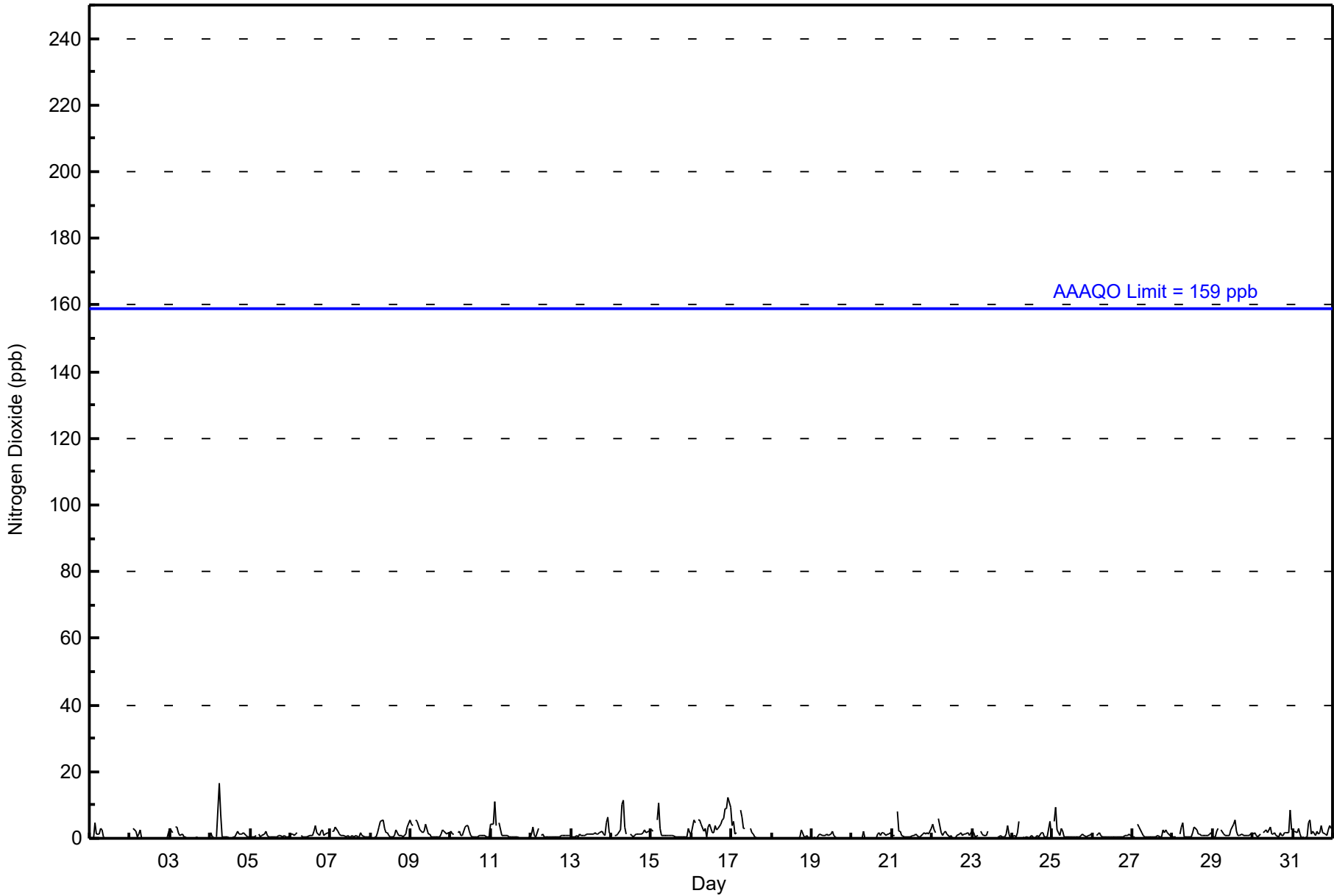
Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Firebag - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 16.5 ppb on May 4 06:00	Maximum Daily Average: 4.6 ppb on May 16		Hours of Data:	705
Minimum Value: 0.1 ppb on May 1 03:00	Minimum Daily Average: 0.3 ppb on May 18		Hours of Missing Data:	39
Maximum Diurnal Average: 2.9 ppb at hour 6	Minimum Diurnal Average: 0.8 ppb at hour 16		Hours of Calibration:	36
Monthly Average: 1.39 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 3.2 P <sub>99</sub> = 9.4		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-May	Z	0.2	0.1	4.7	1.3	1.2	3.0	2.7	0.4	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.7	4.7																							
2-May	0.1	Z	3.1	2.3	0.3	1.4	2.6	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	1.8	0.6	3.1																							
3-May	2.9	1.8	Z	3.4	3.3	1.9	0.7	1.1	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.8	3.4																							
4-May	1.6	0.4	0.5	Z	0.6	16.5	7.4	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.4	2.1	1.3	1.3	1.4	1.6	0.8	0.4	0.3	1.7	16.5																							
5-May	0.3	0.3	0.4	0.7	Z	1.3	0.6	1.0	1.4	2.3	0.9	0.5	0.5	0.5	0.4	0.4	0.5	0.7	0.9	0.6	0.9	0.6	0.5	0.5	0.7	2.3																							
6-May	1.2	1.1	0.8	1.3	1.5	Z	0.8	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.8	2.1	3.8	1.5	0.8	2.0	2.5	0.9	1.2	1.8	1.2	1.3	3.8																						
7-May	Z	2.1	2.2	3.2	2.1	1.1	1.0	1.0	0.7	0.6	0.7	0.6	0.5	0.7	0.5	0.7	0.5	0.6	1.6	0.8	0.5	0.6	0.3	0.3	1.0	3.2																							
8-May	0.3	Z	0.6	0.6	1.8	3.3	5.1	5.4	3.0	1.6	1.9	0.9	0.4	0.6	0.9	2.4	1.6	1.0	0.7	0.6	0.9	1.3	3.4	5.6	1.9	5.6																							
9-May	4.4	3.9	Z	5.7	5.0	2.6	2.1	1.8	2.0	4.1	1.2	1.2	0.5	0.4	0.3	0.3	0.4	0.3	1.2	2.5	2.2	1.2	1.5	1.6	2.0	5.7																							
10-May	2.0	1.4	1.2	Z	1.6	2.0	0.9	0.8	3.2	3.7	3.8	2.2	0.8	0.5	0.4	0.5	0.6	1.0	0.9	0.9	0.9	0.6	0.3	0.5	1.3	3.8																							
11-May	4.3	4.1	11.1	3.9	Z	4.6	0.8	0.7	0.7	0.8	0.7	0.6	0.6	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.6	11.1																							
12-May	1.4	3.2	1.0	0.6	2.8	Z	1.0	1.1	0.3	0.4	0.3	0.4	0.3	0.3	0.6	0.3	0.3	0.5	0.9	0.8	0.8	1.0	1.0	1.0	0.9	3.2																							
13-May	Z	0.6	0.4	0.8	0.6	1.1	0.9	0.8	0.9	1.2	1.1	1.1	1.2	1.4	1.5	1.3	1.1	1.6	2.2	1.4	1.0	4.7	6.2	1.7	1.5	6.2																							
14-May	1.0	Z	0.9	0.8	1.2	2.6	10.0	11.4	3.6	1.1	Z	1.1	0.8	0.6	1.0	1.1	1.3	1.1	1.8	2.7	1.9	2.0	2.4	2.3	2.3	11.4																							
15-May	2.6	2.2	Z	5.3	10.6	3.0	0.9	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	2.8	1.6	1.7	10.6																							
16-May	1.1	5.5	4.6	Z	5.4	5.4	4.1	2.2	3.0	0.6	3.3	4.2	1.5	1.6	3.8	2.5	2.9	4.1	5.4	5.8	8.8	8.9	12.2	9.4	4.6	12.2																							
17-May	3.9	4.9	1.3	1.7	Z	8.3	6.5	2.8	2.9	M	M	2.8	1.6	1.4	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	1.9	8.3																							
18-May	0.2	0.2	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	0.3	2.4	0.6	0.6	0.8	0.2	0.6	0.3	2.4																							
19-May	Z	0.3	0.1	0.1	0.8	1.2	1.0	1.0	0.8	1.3	0.8	1.3	2.1	0.9	0.5	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.6	2.1																							
20-May	0.2	Z	0.2	0.2	0.2	0.1	0.2	2.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.2	1.9	0.9	1.8	1.6	0.8	1.3	1.2	1.5	0.7	2.2																							
21-May	1.0	0.7	Z	8.0	2.3	2.0	0.8	0.6	0.6	0.5	0.6	0.6	0.7	0.7	1.2	1.0	0.6	0.6	1.3	1.6	1.3	1.6	1.2	2.9	1.4	8.0																							
22-May	4.1	2.6	1.7	Z	5.8	1.9	0.9	1.7	2.2	1.1	0.5	0.8	0.1	0.1	0.2	0.7	1.3	1.5	0.8	1.3	1.4	1.5	0.9	1.7	1.5	5.8																							
23-May	2.2	1.9	0.5	0.9	Z	2.2	1.2	1.0	1.0	2.3	C	C	C	C	C	0.6	0.4	0.9	0.5	0.3	1.2	3.7	1.1	0.2	1.2	3.7																							
24-May	0.5	0.8	0.5	1.5	4.9	Z	0.4	0.2	0.3	0.3	0.2	0.8	0.4	0.2	0.4	0.8	0.5	1.5	1.8	0.3	0.4	0.4	5.1	0.8	1.0	5.1																							
25-May	Z	5.2	9.5	2.6	0.8	3.0	2.3	0.6	0.5	0.3	0.3	0.4	0.4	0.3	0.5	0.4	0.4	0.8	1.2	0.7	0.6	0.8	1.0	1.2	1.5	9.5																							
26-May	0.7	Z	0.9	1.3	1.7	0.9	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.6	0.8	0.9	0.9	1.4	0.7	0.7	1.7																							
27-May	0.4	0.5	Z	4.3	3.6	1.6	0.7	0.4	0.3	0.5	0.3	0.3	0.3	0.3	0.4	0.7	0.4	0.5	2.4	1.6	2.4	1.6	0.8	0.4	1.1	4.3																							
28-May	0.5	0.3	0.4	Z	1.4	3.2	4.6	0.5	0.4	0.5	0.5	0.5	1.5	3.2	2.5	1.2	1.1	0.8	0.8	0.7	0.7	0.7	1.1	1.7	1.3	4.6																							
29-May	0.6	0.4	2.3	2.8	Z	2.7	1.3	1.0	0.8	0.9	0.9	2.4	4.4	5.3	2.1	1.0	1.0	1.1	1.0	0.9	0.9	0.9	0.8	1.6	1.6	5.3																							
30-May	1.4	1.8	0.9	0.6	1.4	Z	1.7	2.3	2.7	1.6	3.3	1.4	1.3	1.8	1.0	0.6	1.8	0.9	1.0	1.5	1.7	1.8	8.3	2.5	1.9	8.3																							
31-May	Z	2.2	1.7	3.0	1.1	0.2	0.4	0.2	0.6	4.7	5.6	1.4	2.1	0.9	2.2	1.2	1.6	3.7	1.9	1.3	0.9	2.6	3.7	2.9	2.0	5.6																							
																								1.6	1.9	1.8	2.3	2.4	2.9	2.1	1.5	1.1	1.1	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.2	1.1	1.2	1.4	1.9	1.5	Diurnal Average		
																								4.4	5.5	11.1	8.0	10.6	16.5	10.0	11.4	3.6	4.7	5.6	4.2	4.4	5.3	3.8	3.8	2.9	4.1	5.4	5.8	8.8	8.9	12.2	9.4	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  
Firebag - May 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**  
**Firebag - May 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	42	40	43	67	89	70	70	42	29	33	29	7	17	47	35	704
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>	44	42	40	43	67	89	70	70	42	29	33	29	7	17	47	35	704

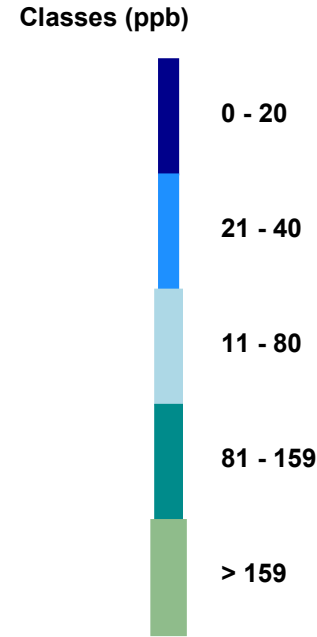
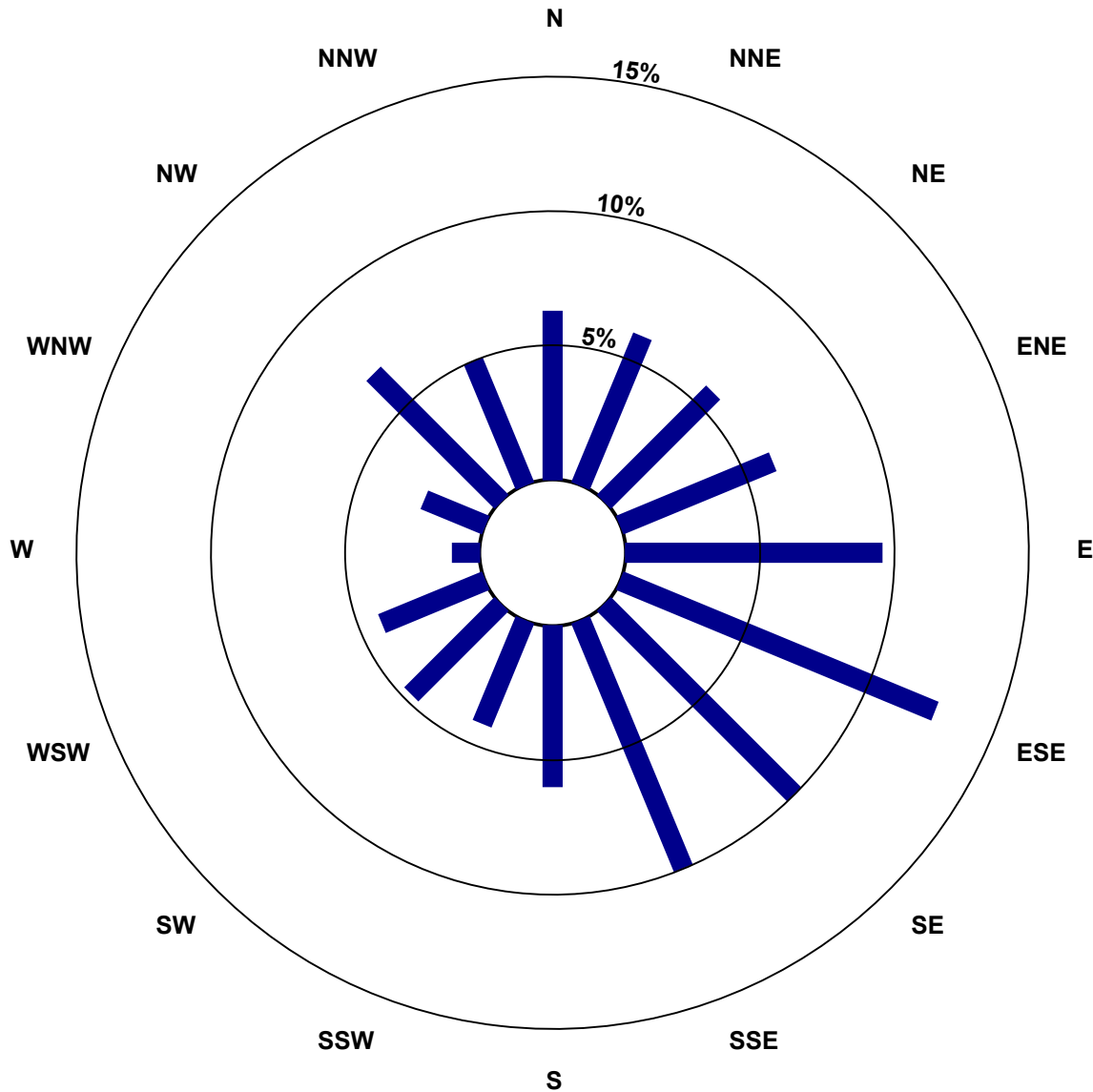
Total Number of Valid Hours: 704

Total Number of Hours: 744



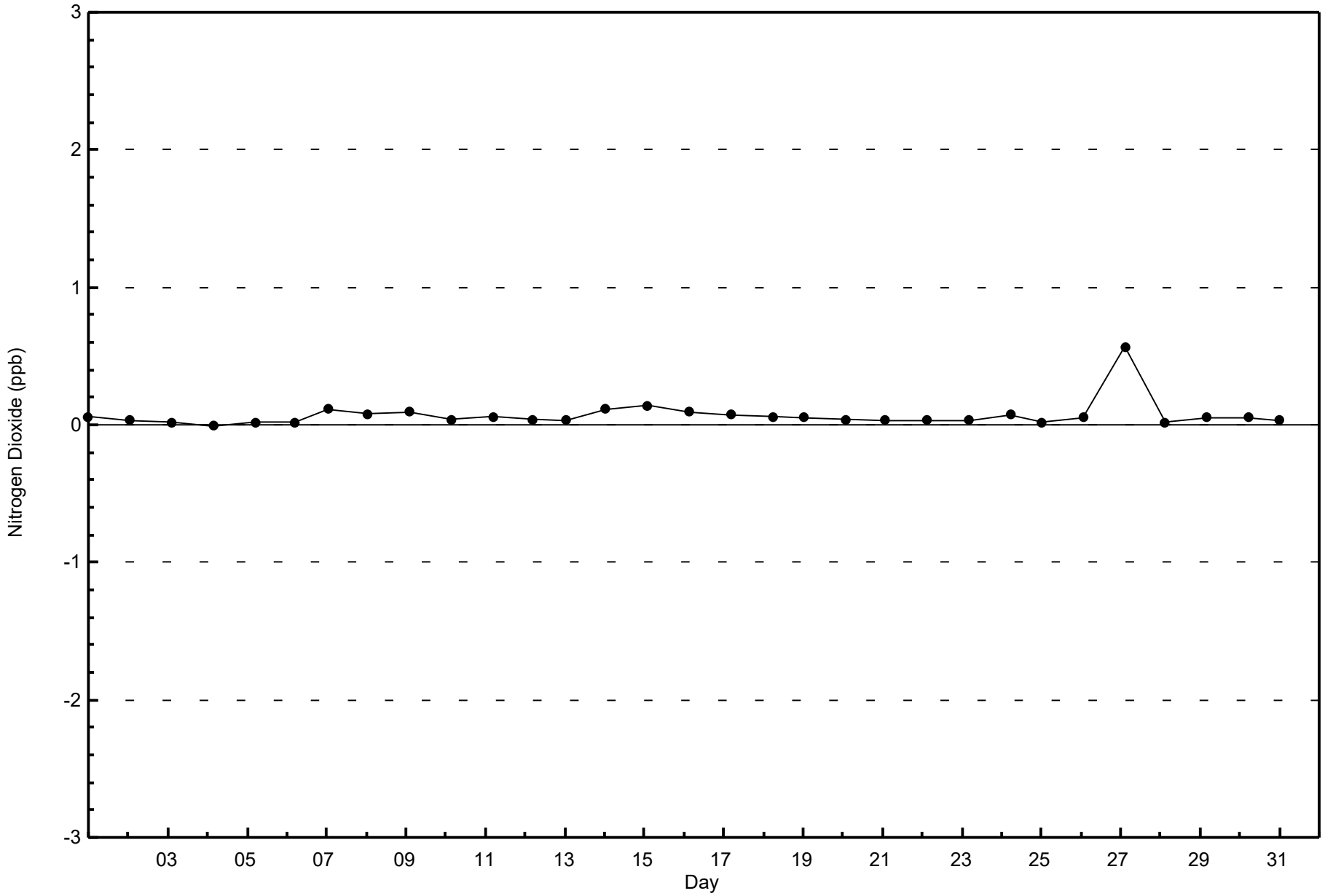
Wood Buffalo Environmental Association  
Wind Rose May 2024

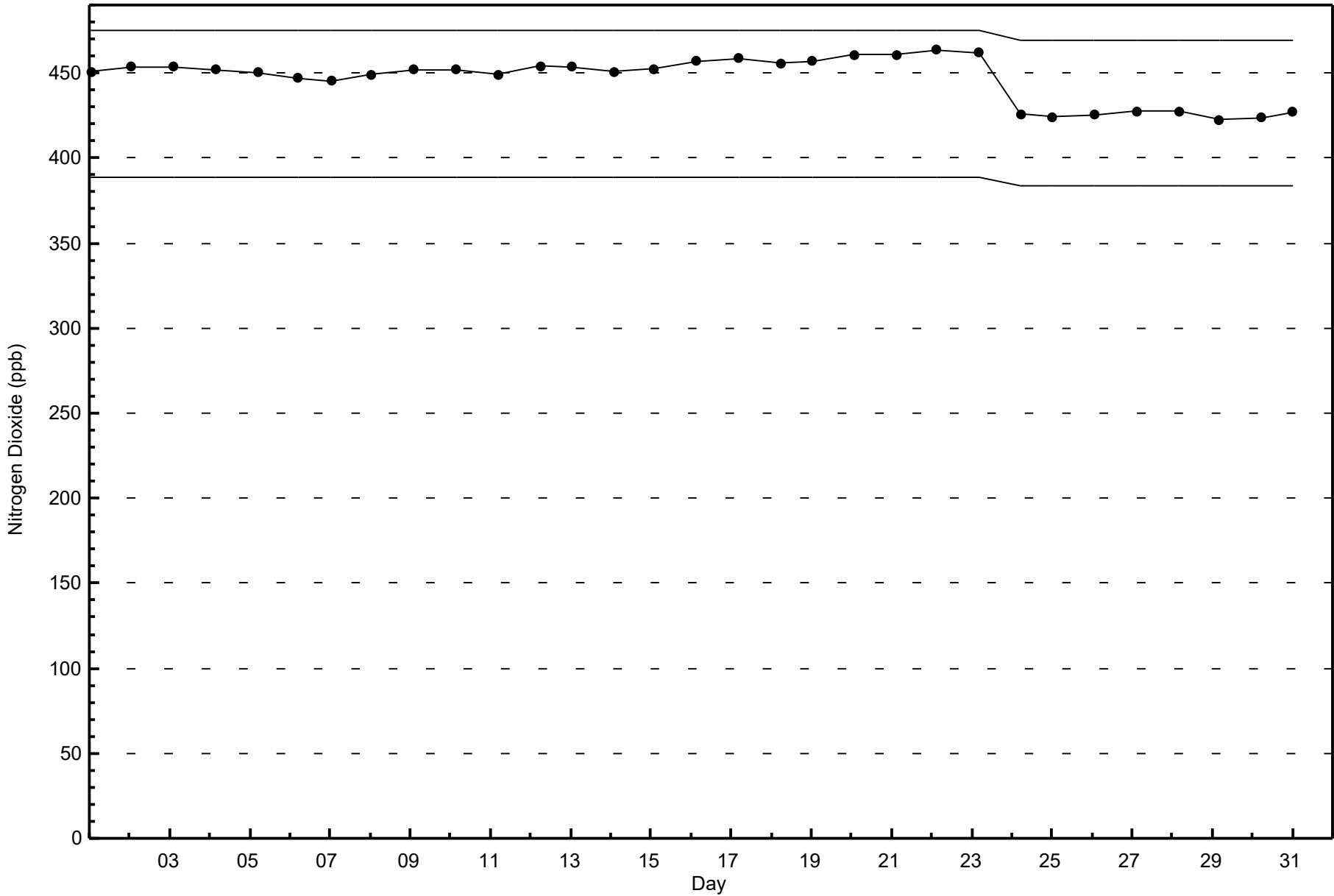
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Firebag



Total Number of Valid Hours: 704









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

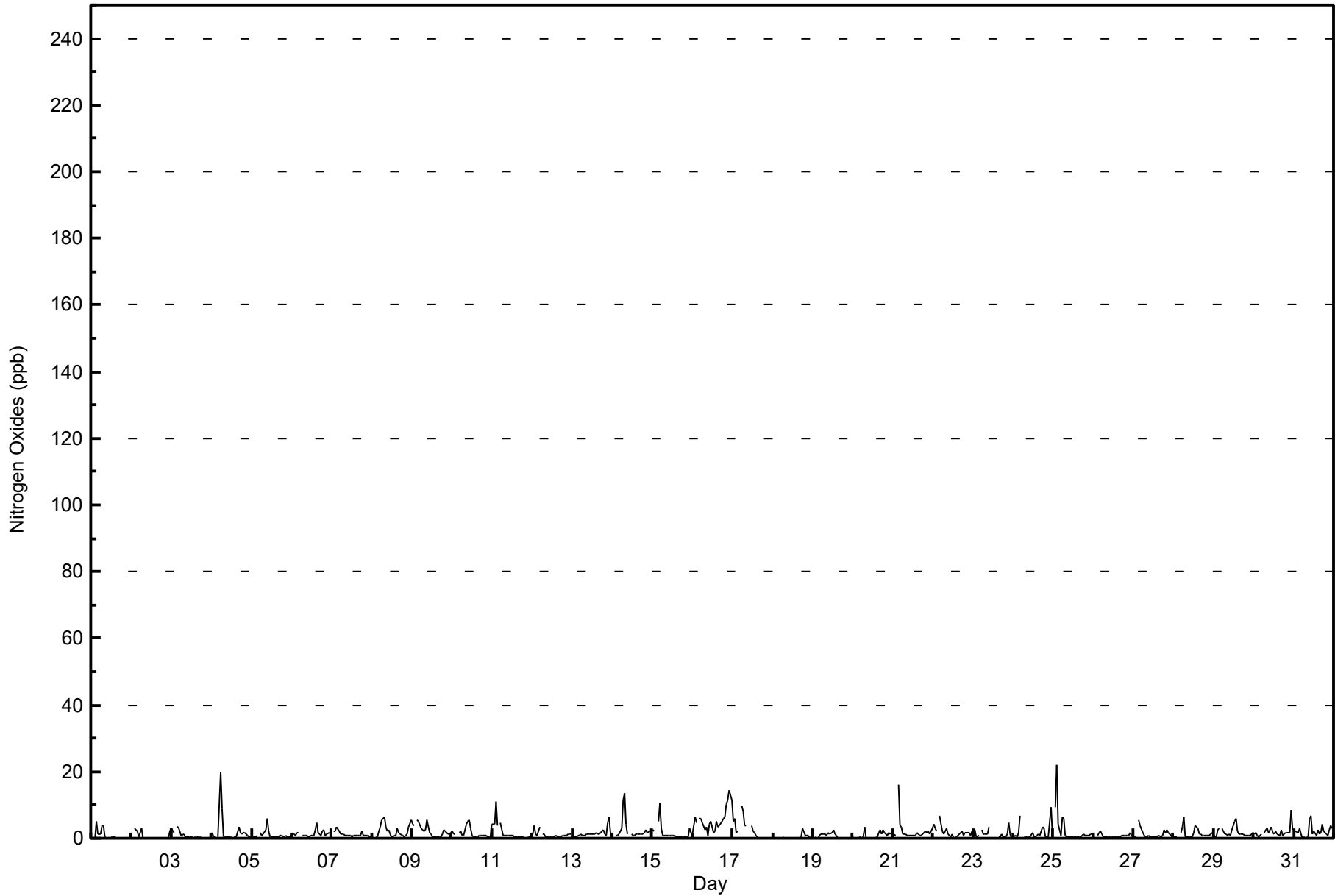
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - May 2024**

Maximum Value: 22.0 ppb on May 25 03:00		Maximum Daily Average: 5.4 ppb on May 16		Hours in Service: 744																											
Minimum Value: 0.1 ppb on May 20 00:00		Minimum Daily Average: 0.4 ppb on May 18		Hours of Data: 705																											
Maximum Diurnal Average: 3.4 ppb at hour 6		Minimum Diurnal Average: 1.0 ppb at hour 6		Hours of Missing Data: 39																											
Monthly Average: 1.64 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.9 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 3.8 P <sub>99</sub> = 11.3		Hours of Calibration: 36																											
				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-May	Z	0.2	0.1	5.0	1.4	1.4	3.8	3.8	0.6	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.8	5.0						
2-May	0.1	Z	3.1	2.3	0.3	1.5	3.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	1.9	0.6	3.1					
3-May	3.0	1.8	Z	3.5	3.5	2.0	0.8	1.2	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.8	3.5						
4-May	1.6	0.4	0.5	Z	0.6	20.1	8.9	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.6	3.4	1.8	1.5	1.6	1.8	0.9	0.4	0.4	2.0	20.1					
5-May	0.4	0.3	0.4	0.8	Z	1.6	0.8	1.4	2.6	6.1	2.2	0.6	0.6	0.6	0.4	0.4	0.5	0.8	1.0	0.6	0.9	0.6	0.5	0.5	1.1	6.1					
6-May	1.2	1.1	0.8	1.5	1.7	Z	0.9	0.7	0.7	0.6	0.6	0.8	0.7	0.9	2.4	4.6	1.8	0.9	2.2	2.6	1.0	1.3	1.8	1.2	1.4	4.6					
7-May	Z	2.1	2.2	3.3	2.2	1.2	1.1	1.1	0.8	0.7	0.8	0.8	0.6	1.0	0.7	0.8	0.6	0.8	2.1	0.9	0.6	0.7	0.4	0.3	1.1	3.3					
8-May	0.3	Z	0.6	0.6	1.9	3.6	5.5	6.2	3.5	1.9	2.4	1.2	0.5	0.7	1.0	2.8	1.7	1.1	0.8	0.6	0.9	1.3	3.4	5.6	2.1	6.2					
9-May	4.4	3.9	Z	5.7	5.1	2.8	2.4	2.1	2.7	5.7	1.6	1.5	0.6	0.5	0.3	0.3	0.4	0.3	1.3	2.6	2.2	1.2	1.5	1.6	2.2	5.7					
10-May	2.0	1.4	1.2	Z	1.6	2.1	1.0	0.9	4.2	5.2	5.5	2.9	1.0	0.5	0.5	0.5	0.7	1.1	1.0	0.9	0.9	0.6	0.3	0.5	1.6	5.5					
11-May	4.3	4.1	11.1	3.9	Z	4.8	0.8	0.7	0.7	1.0	0.9	0.7	0.8	0.5	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.6	11.1					
12-May	1.5	3.9	1.1	0.7	3.2	Z	1.2	1.4	0.4	0.4	0.4	0.4	0.3	0.4	0.8	0.4	0.4	0.6	1.0	0.9	0.9	1.2	1.2	1.2	1.0	3.9					
13-May	Z	0.6	0.4	1.0	0.7	1.4	1.0	0.9	1.1	1.4	1.2	1.2	1.3	1.4	1.6	1.4	1.2	1.7	2.5	1.4	1.0	4.7	6.3	1.7	1.6	6.3					
14-May	1.0	Z	0.9	0.8	1.2	2.8	11.5	13.4	4.1	1.2	Z	1.2	0.9	0.7	1.1	1.2	1.4	1.1	1.1	1.8	2.7	1.9	2.0	2.4	2.6	13.4					
15-May	2.7	2.2	Z	5.3	10.7	3.1	0.9	0.9	1.0	0.8	0.9	0.9	0.9	0.9	0.6	0.5	0.4	0.4	0.4	0.4	0.3	0.3	3.0	1.7	1.7	10.7					
16-May	1.2	6.2	4.7	Z	5.9	5.9	4.7	2.4	3.4	0.7	4.0	5.0	1.8	2.0	5.0	3.2	3.8	5.0	6.1	6.3	10.2	11.3	14.5	11.5	5.4	14.5					
17-May	5.1	5.8	1.5	2.1	Z	9.7	8.2	3.6	3.8	M	M	3.7	2.1	1.9	0.7	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	2.4	9.7					
18-May	0.2	0.2	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	0.2	0.4	2.9	0.7	0.7	0.9	0.2	0.6	0.4	2.9					
19-May	Z	0.3	0.1	0.1	0.9	1.4	1.2	1.2	1.0	1.7	1.1	1.8	2.7	1.2	0.7	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.7	2.7					
20-May	0.2	Z	0.2	0.2	0.2	0.1	0.3	3.4	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.7	2.7	1.2	2.4	1.9	0.9	1.5	1.4	1.8	0.9	3.4					
21-May	1.2	0.9	Z	16.0	3.7	3.3	1.3	1.2	1.0	0.8	0.8	0.8	0.9	0.9	1.7	1.3	0.8	0.8	1.7	2.0	1.7	1.9	1.4	3.0	2.1	16.0					
22-May	4.3	3.0	1.9	Z	6.8	2.2	1.1	2.2	3.0	1.5	0.6	1.1	0.1	0.1	0.3	0.9	1.7	1.9	1.0	1.6	1.6	1.6	1.0	2.0	1.8	6.8					
23-May	2.4	2.4	0.6	1.1	Z	2.7	1.4	1.2	1.3	3.3	C	C	C	C	C	0.6	0.4	1.2	0.5	0.3	1.4	4.6	1.1	0.2	1.5	4.6					
24-May	0.5	0.8	0.5	1.7	6.9	Z	0.6	0.3	0.5	0.4	0.2	1.6	0.6	0.3	0.7	1.3	0.7	3.2	2.9	0.3	0.4	0.4	9.3	1.0	1.5	9.3					
25-May	Z	9.2	22.0	4.3	0.9	6.3	5.8	0.7	0.6	0.3	0.3	0.4	0.4	0.3	0.6	0.5	0.5	1.0	1.4	0.8	0.7	0.8	1.1	1.3	2.6	22.0					
26-May	0.8	Z	1.0	1.5	2.1	1.1	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.5	0.7	0.7	0.8	1.0	0.9	1.5	0.7	0.7	2.1					
27-May	0.4	0.5	Z	5.3	4.0	1.8	0.8	0.4	0.4	0.7	0.4	0.3	0.3	0.3	0.4	0.8	0.5	0.6	2.5	1.7	2.5	1.7	0.8	0.4	1.2	5.3					
28-May	0.5	0.3	0.4	Z	1.5	3.5	6.3	0.6	0.5	0.5	0.5	0.5	1.8	3.9	2.9	1.3	1.2	0.8	0.8	0.7	0.7	0.7	1.1	1.7	1.4	6.3					
29-May	0.6	0.4	2.4	3.1	Z	2.9	1.4	1.1	1.0	1.1	1.0	2.7	5.0	6.0	2.2	1.1	1.1	1.2	1.0	0.9	0.9	0.9	0.8	1.6	1.8	6.0					
30-May	1.4	1.8	0.9	0.6	1.4	Z	1.8	2.4	2.8	1.7	3.6	1.5	1.4	2.2	1.2	0.7	2.3	1.0	1.1	1.6	1.7	1.8	8.3	2.5	2.0	8.3					
31-May	Z	2.2	1.7	3.0	1.1	0.2	0.4	0.2	0.6	5.6	6.8	1.5	2.3	1.0	2.6	1.3	1.8	4.1	2.0	1.3	0.9	2.6	3.7	2.9	2.2	6.8					
		1.7	2.2	2.3	2.8	2.7	3.4	2.6	1.8	1.4	1.5	1.3	1.1	1.0	1.0	1.0	1.0	1.1	1.4	1.2	1.3	1.5	2.2	1.6	Diurnal Average						
		5.1	9.2	22.0	16.0	10.7	20.1	11.5	13.4	4.2	6.1	6.8	5.0	5.0	6.0	5.0	4.6	3.8	5.0	6.1	6.3	10.2	11.3	14.5	11.5	Diurnal Maximum					
Z - zerospan		C - Calibration			M - Maintenance																										



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - May 2024**





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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	704	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: 705

Total Number of Hours: 744



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

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Firebag - May 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	42	40	43	67	89	70	70	42	28	33	29	7	17	47	35	703
21 - 40	0	0	0	0	0	0	0	0	0	1	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>	44	42	40	43	67	89	70	70	42	29	33	29	7	17	47	35	704

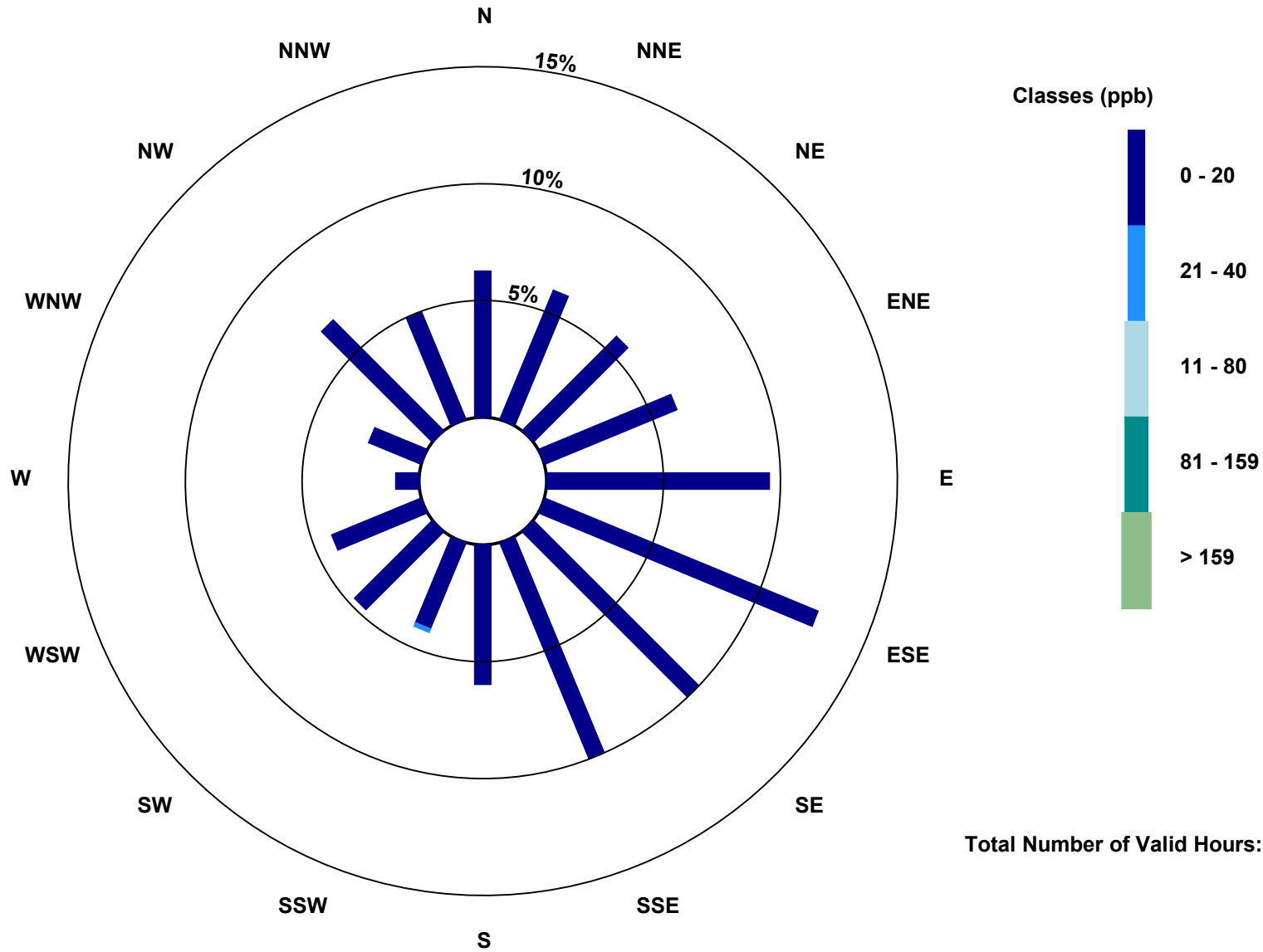
Total Number of Valid Hours: 704

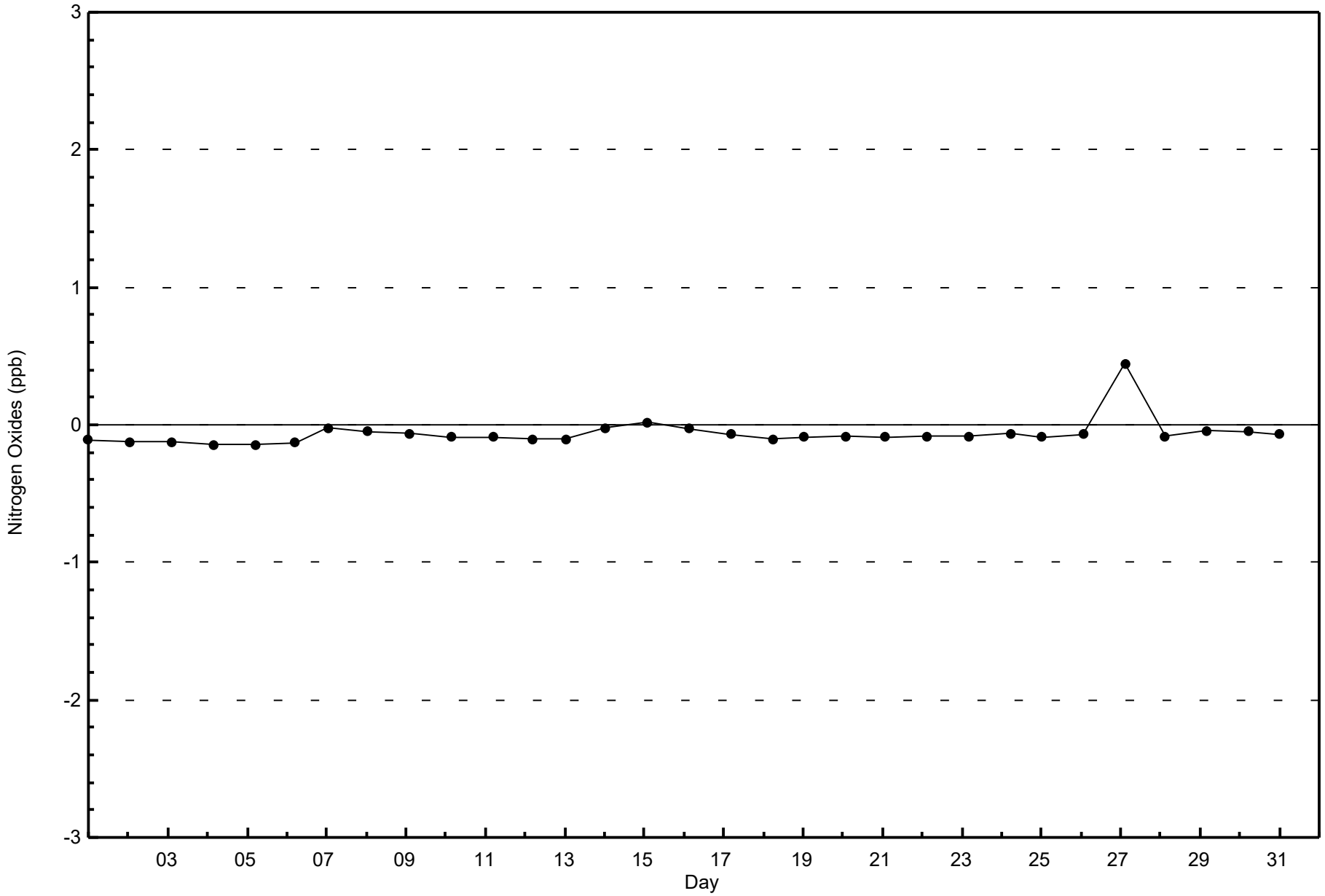
Total Number of Hours: 744



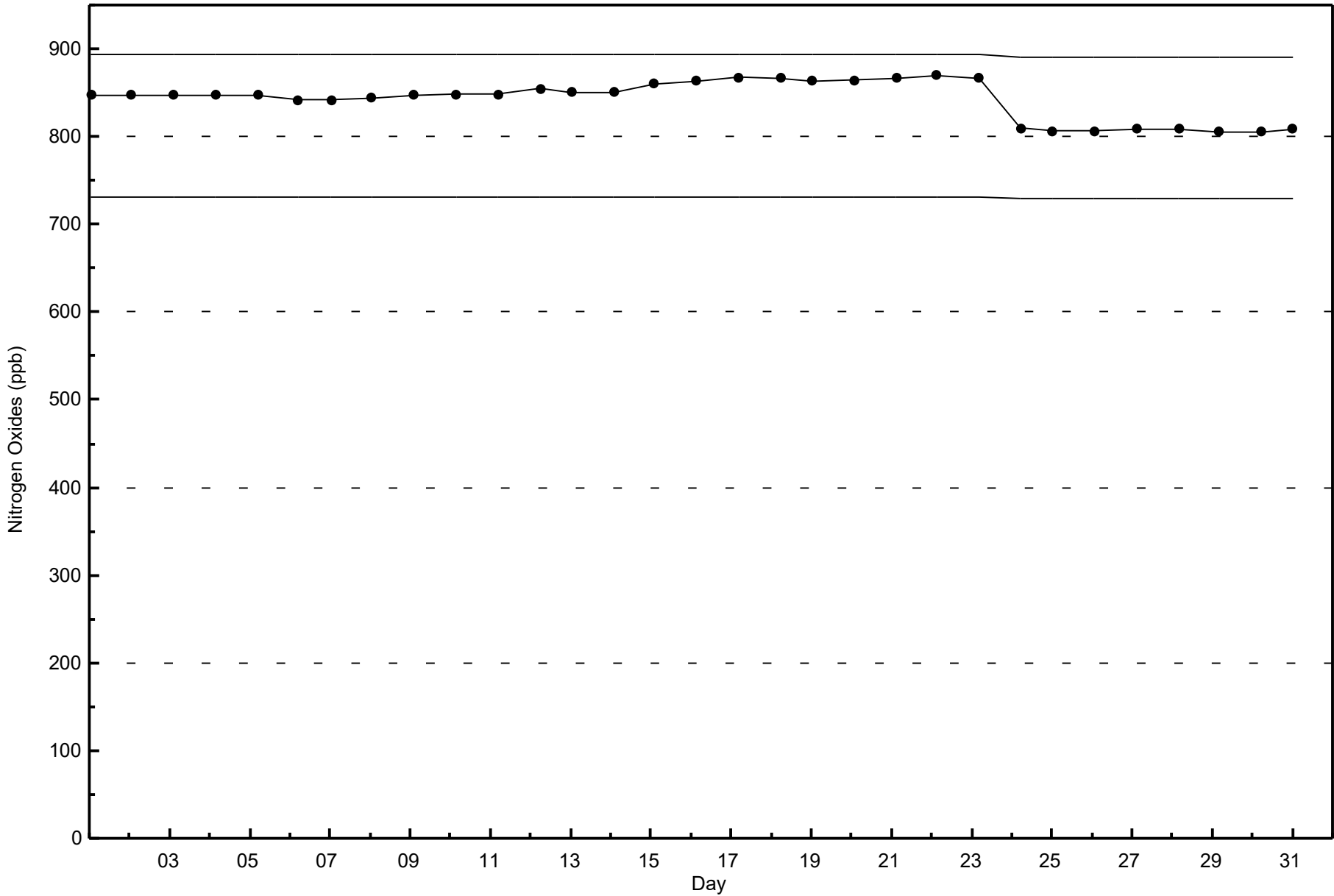
Wood Buffalo Environmental Association  
Wind Rose May 2024

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







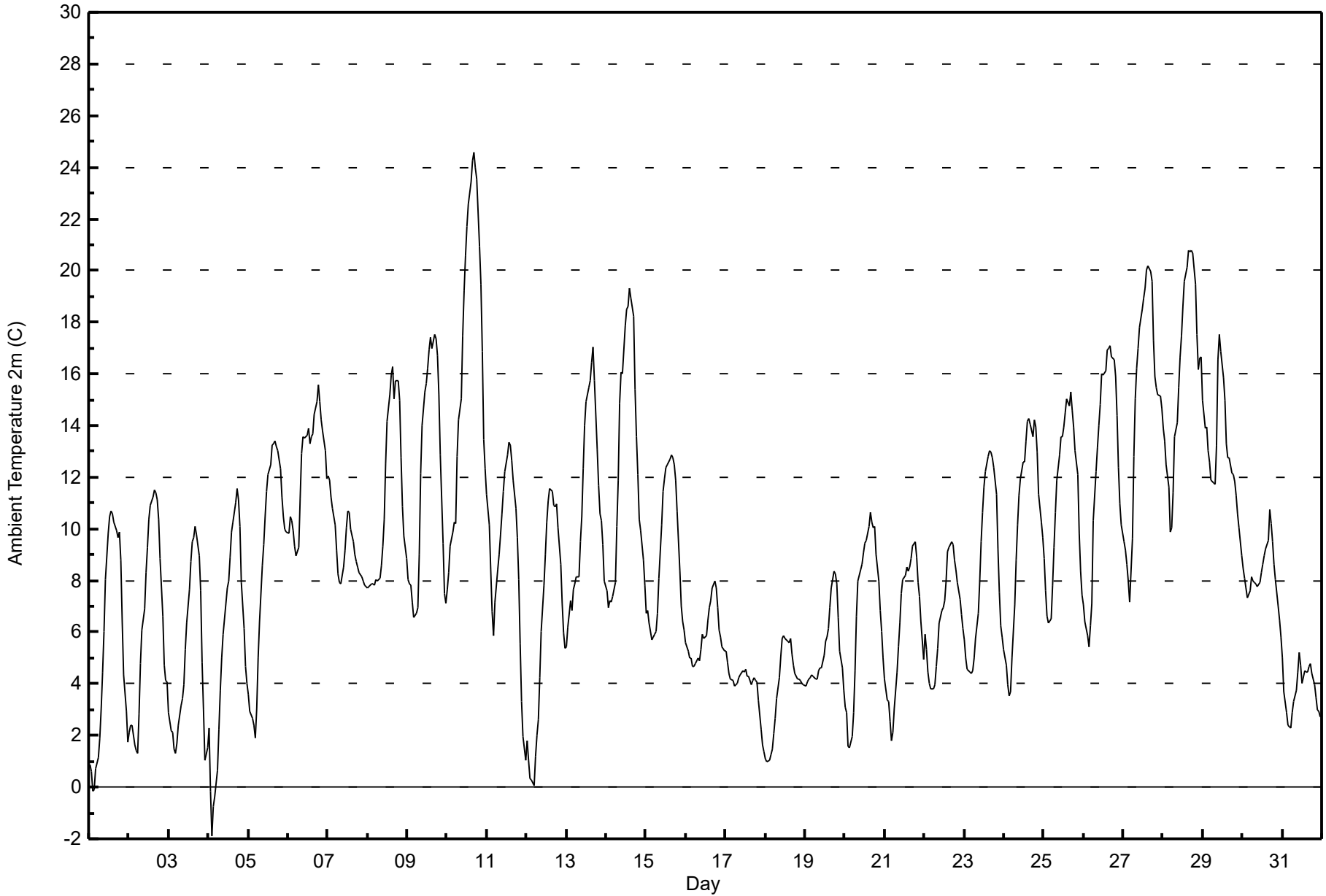




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature 2m (AT2) - C**  
**Firebag - May 2024**

Maximum Value: 24.6 C on May 10 17:00		Maximum Daily Average: 16.8 C on May 10		Hours in Service: 744																																												
Minimum Value: -1.9 C on May 4 03:00		Minimum Daily Average: 3.8 C on May 31		Hours of Data: 744																																												
Maximum Diurnal Average: 12.5 C at hour 17		Minimum Diurnal Average: 5.1 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 8.98 C		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 3.1 Q <sub>1</sub> = 5.2 Median = 8.4 Q <sub>3</sub> = 12.2 P <sub>90</sub> = 15.7 P <sub>99</sub> = 20.9		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-May	0.9	0.6	-0.2	-0.1	0.7	1.2	1.9	3.1	4.4	6.1	8.0	9.8	10.5	10.7	10.6	10.3	9.9	9.7	9.9	8.8	6.4	4.3	3.0	1.7	5.5	10.7																						
2-May	2.1	2.4	2.4	1.6	1.4	1.3	2.8	4.8	6.1	6.9	8.3	9.3	10.4	10.9	11.2	11.5	11.4	11.1	10.4	8.8	6.6	4.8	4.1	4.0	6.4	11.5																						
3-May	2.9	2.2	2.1	1.5	1.3	1.7	2.4	3.1	3.4	4.0	5.3	6.4	7.7	8.7	9.5	9.7	10.1	9.8	9.0	7.6	4.8	3.0	1.0	1.5	4.9	10.1																						
4-May	2.3	-0.2	-1.9	-0.7	-0.3	0.7	2.2	3.8	5.0	5.9	7.1	7.7	8.0	8.9	9.9	10.3	11.0	11.6	11.1	10.1	7.9	6.1	4.7	4.0	5.6	11.6																						
5-May	3.6	3.0	2.6	2.4	1.9	3.0	5.0	6.4	8.6	9.4	10.5	11.5	12.1	12.5	13.3	13.3	13.4	13.2	13.0	12.3	11.2	10.5	10.0	9.9	8.9	13.4																						
6-May	9.8	10.5	10.3	10.0	9.4	8.9	9.3	11.2	12.9	13.6	13.5	13.6	13.9	13.3	13.6	13.7	14.4	14.9	15.6	14.9	14.2	13.8	13.0	11.9	12.5	15.6																						
7-May	12.0	11.9	11.2	10.8	10.1	9.2	8.2	7.9	7.9	8.5	9.2	10.0	10.7	10.6	10.0	9.5	9.0	8.7	8.5	8.3	8.1	8.0	7.8	7.8	9.3	12.0																						
8-May	7.7	7.8	7.9	7.9	7.8	8.0	8.0	8.1	8.6	9.4	10.4	12.5	14.2	15.2	15.9	16.3	15.0	15.7	15.7	15.0	12.7	10.9	9.7	8.9	11.2	16.3																						
9-May	8.0	7.9	7.8	7.2	6.6	6.8	6.9	9.0	12.1	14.0	15.3	15.6	16.2	16.9	17.4	17.0	17.5	17.3	16.7	15.2	12.9	9.4	7.5	7.1	12.0	17.5																						
10-May	7.7	8.3	9.3	9.9	10.3	10.2	12.8	14.2	15.0	17.5	19.2	20.6	21.7	22.6	23.5	24.2	24.6	24.0	23.5	21.0	19.5	16.9	13.5	12.3	16.8	24.6																						
11-May	11.3	10.1	8.4	6.8	5.9	7.1	8.4	9.0	9.8	10.6	11.5	12.2	12.9	13.3	13.2	12.6	11.9	10.8	9.7	8.0	5.5	3.3	2.0	1.1	9.0	13.3																						
12-May	1.8	1.0	0.3	0.3	0.1	1.2	2.0	2.6	4.2	6.0	7.8	9.0	10.3	11.1	11.6	11.5	10.9	10.9	10.9	10.0	8.6	7.1	6.0	5.4	6.3	11.6																						
13-May	5.4	6.2	7.2	6.8	7.6	7.9	8.1	8.2	9.5	10.5	12.3	14.0	14.9	15.4	15.7	16.4	17.0	15.7	13.1	11.7	10.6	10.3	9.4	8.0	10.9	17.0																						
14-May	7.6	6.9	7.2	7.1	7.4	7.9	10.1	11.9	14.9	16.1	16.0	17.9	18.5	18.6	19.3	18.9	18.2	15.4	13.6	12.1	10.3	10.0	8.8	7.8	12.6	19.3																						
15-May	6.7	6.8	6.4	5.7	5.8	5.9	6.0	6.7	8.1	10.2	11.4	12.0	12.4	12.5	12.7	12.9	12.8	12.5	11.9	10.7	8.4	7.0	6.4	6.1	9.1	12.9																						
16-May	5.6	5.3	5.0	5.0	4.7	4.7	4.8	5.0	4.9	5.3	5.9	5.7	5.9	6.5	6.9	7.2	7.7	8.0	7.7	7.0	6.1	5.8	5.4	5.3	5.9	8.0																						
17-May	5.3	4.8	4.4	4.2	4.1	3.9	4.0	4.0	4.2	4.3	4.5	4.5	4.6	4.3	4.3	4.0	4.1	4.2	4.2	4.0	3.4	2.2	1.6	1.4	3.9	5.3																						
18-May	1.1	1.0	1.1	1.3	1.5	2.1	2.7	3.4	4.2	5.0	5.7	5.9	5.8	5.6	5.6	5.7	5.2	4.7	4.4	4.2	4.2	4.1	4.0	4.0	3.8	5.9																						
19-May	3.9	4.1	4.2	4.2	4.3	4.3	4.2	4.2	4.5	4.6	4.6	5.1	5.6	5.8	6.1	7.0	7.7	8.4	8.3	7.9	6.6	5.3	4.6	3.7	5.4	8.4																						
20-May	3.1	2.9	1.6	1.5	2.0	2.9	4.5	6.6	8.0	8.4	8.6	9.1	9.4	9.5	10.1	10.6	10.3	10.0	10.1	9.0	8.0	6.9	6.0	5.0	6.8	10.6																						
21-May	4.2	3.4	3.3	2.6	1.8	2.1	3.1	4.4	5.4	6.3	7.5	8.0	8.2	8.5	8.4	8.5	8.8	9.3	9.5	8.9	7.9	7.4	6.4	5.0	6.2	9.5																						
22-May	5.9	5.3	4.4	4.0	3.8	3.8	4.0	4.7	5.4	6.3	6.9	7.0	7.2	8.0	9.1	9.3	9.5	9.4	8.8	8.4	7.9	7.3	6.7	6.1	6.6	9.5																						
23-May	5.7	5.0	4.6	4.4	4.4	4.5	5.0	5.8	6.7	8.0	9.5	10.6	11.6	12.2	12.8	13.0	13.0	12.7	12.4	11.4	9.2	7.5	6.3	5.8	8.4	13.0																						
24-May	5.3	4.7	4.0	3.5	3.7	5.0	7.0	8.8	10.1	11.3	11.9	12.6	12.6	13.4	14.1	14.3	14.1	13.6	14.2	14.0	13.0	11.3	10.2	9.7	10.1	14.3																						
25-May	8.9	7.6	6.6	6.3	6.5	7.8	9.3	10.6	11.9	12.8	13.6	14.0	14.5	15.0	14.8	15.3	14.6	14.0	13.0	12.1	9.8	8.3	7.5	11.2	15.3																							
26-May	7.1	6.4	5.9	5.5	6.2	7.1	10.3	12.2	13.2	14.0	14.8	16.0	15.9	16.1	16.9	17.0	17.1	16.6	16.5	15.9	14.4	12.4	11.0	10.2	12.4	17.1																						
27-May	9.5	9.2	8.6	8.0	7.1	9.6	12.8	15.0	16.2	17.0	17.8	18.5	18.9	19.3	20.0	20.2	20.0	19.6	17.3	15.9	15.5	15.2	15.1	14.6	15.0	20.2																						
28-May	13.9	13.4	12.5	11.6	9.9	10.0	11.4	13.6	14.1	15.5	16.7	17.5	18.6	19.6	20.1	20.8	20.7	20.8	20.7	19.5	17.6	16.2	16.6	16.7	16.2	20.8																						
29-May	15.0	13.9	13.9	13.0	12.6	11.9	11.8	11.7	13.2	16.6	17.5	16.9	15.9	15.0	13.3	12.8	12.8	12.2	12.1	11.8	11.3	10.6	10.0	9.0	13.1	17.5																						
30-May	8.5	8.1	7.7	7.3	7.6	8.1	8.0	7.9	7.9	7.8	7.9	8.3	8.6	9.0	9.2	9.5	10.7	10.2	9.5	8.7	8.0	7.0	6.5	5.8	8.2	10.7																						
31-May	5.0	3.7	2.9	2.4	2.4	2.3	2.9	3.3	3.8	4.5	5.2	4.7	4.0	4.5	4.4	4.4	4.7	4.8	4.4	4.0	3.5	3.0	2.9	2.7	3.8	5.2																						
																								6.4	5.9	5.5	5.2	5.1	5.5	6.4	7.5	8.5	9.6	10.5	11.2	11.6	12.0	12.4	12.5	12.5	12.3	11.8	10.9	9.6	8.3	7.4	6.8	Diurnal Average
																								15.0	13.9	13.9	13.0	12.6	11.9	12.8	15.0	16.2	17.5	19.2	20.6	21.7	22.6	23.5	24.2	24.6	24.0	23.5	21.0	19.5	16.9	16.6	16.7	Diurnal Maximum





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

**Ambient Temperature 2m (AT2) - C**  
**Firebag - May 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	6	0.81	0.81
0 - 10	452	60.75	61.56
10 - 20	270	36.29	97.85
> 20	16	2.15	100.00

Total Number of Valid Hours: 744

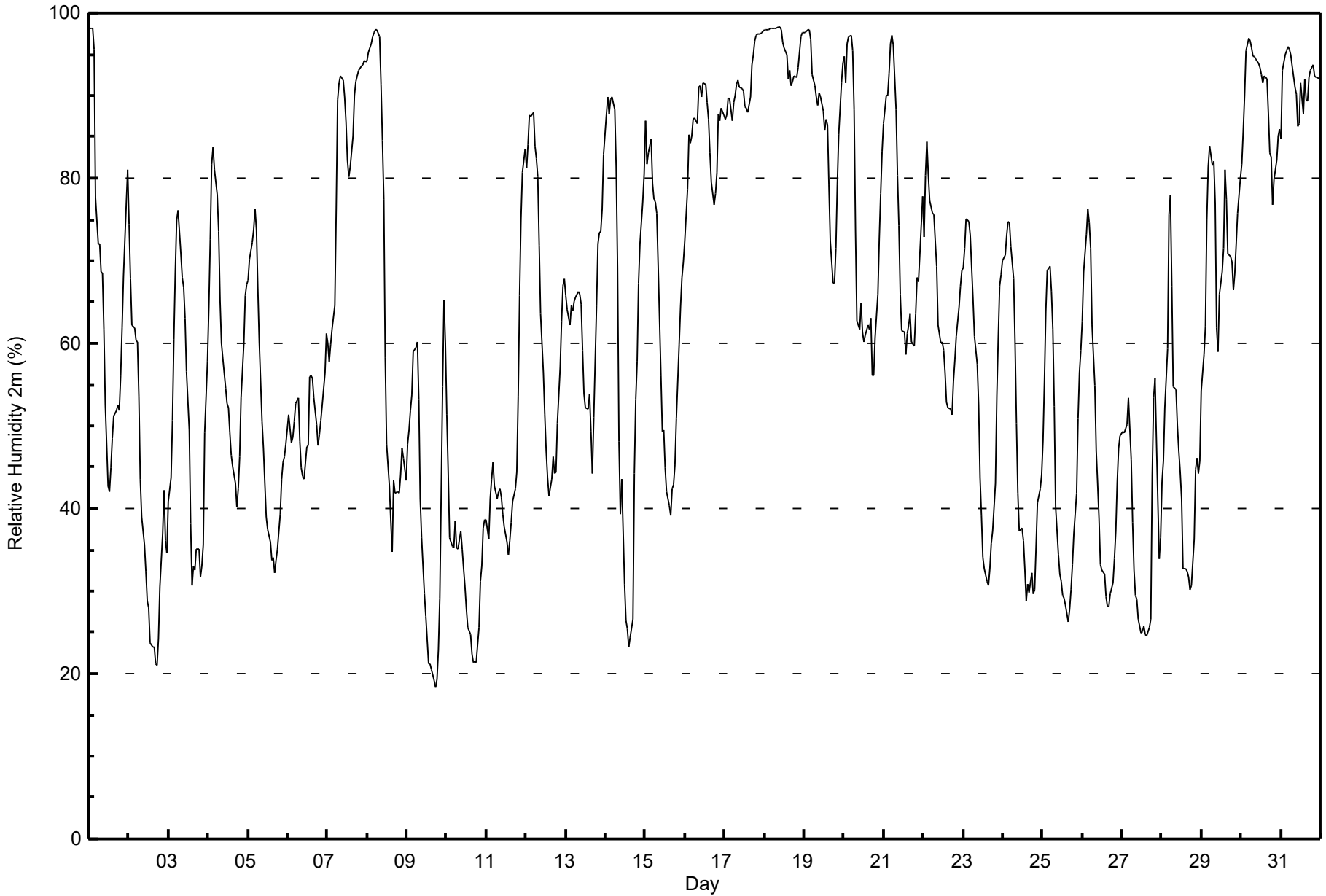
Total Number of Hours: 744



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

**Relative Humidity 2m (RH2) - %**  
**Firebag - May 2024**

Maximum Value: 98.2 % on May 18 09:00      Maximum Daily Average: 95.9 % on May 18																						Hours in Service:	744			
Minimum Value: 18.4 % on May 9 18:00      Minimum Daily Average: 32.4 % on May 10																						Hours of Data:	744			
Maximum Diurnal Average: 76.4 % at hour 5      Minimum Diurnal Average: 49.9 % at hour 17																						Hours of Missing Data:	0			
Monthly Average: 62.47 %      Percentiles: P <sub>1</sub> = 21.3 P <sub>10</sub> = 32.4 Q <sub>1</sub> = 43.5 Median = 61.8 Q <sub>3</sub> = 83.3 P <sub>90</sub> = 93.1 P <sub>99</sub> = 98.1																						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-May	98.1	98.1	98.2	95.6	77.6	72.0	72.0	68.7	68.5	61.7	52.5	42.6	42.0	45.0	48.4	51.1	51.8	52.5	51.8	56.1	61.9	68.1	76.9	81.0	66.3	98.2
2-May	74.4	67.8	62.2	61.9	60.4	60.1	53.6	43.6	38.9	35.6	32.4	28.9	28.0	23.8	23.2	23.1	21.2	21.0	24.2	30.6	36.9	42.2	36.1	34.6	40.2	74.4
3-May	40.8	43.7	50.7	60.5	68.5	74.9	76.0	70.8	68.0	66.9	63.0	56.6	49.5	38.1	30.7	33.1	32.5	35.0	35.1	31.7	33.1	35.7	49.1	57.7	50.1	76.0
4-May	64.4	72.5	81.8	83.7	81.1	78.0	73.6	65.3	60.1	58.1	54.5	52.6	52.2	49.2	46.5	45.1	43.1	40.3	42.4	46.3	53.4	59.9	65.8	67.1	59.9	83.7
5-May	67.6	70.2	72.3	73.7	76.2	73.7	66.5	60.2	50.6	47.3	43.1	38.9	37.5	36.0	33.7	34.0	32.1	33.7	35.2	39.4	43.6	45.6	46.3	47.7	50.2	76.2
6-May	51.4	49.6	47.9	48.7	50.5	52.7	53.4	48.2	44.9	43.9	43.6	47.4	47.6	55.9	56.2	55.7	53.3	50.2	47.7	49.1	50.7	52.5	56.4	61.2	50.8	61.2
7-May	59.9	57.8	59.8	61.7	64.6	76.3	89.6	91.5	92.4	91.8	89.9	86.7	82.3	80.2	81.4	85.1	90.0	91.7	92.4	93.1	93.6	93.7	94.3	94.0	83.1	94.3
8-May	94.2	95.3	96.3	97.1	97.6	97.9	98.0	97.1	91.4	84.6	77.4	58.3	47.8	42.7	38.6	34.7	43.4	41.8	42.1	41.9	44.0	47.3	46.0	43.4	66.6	98.0
9-May	47.7	49.5	51.8	53.7	59.0	59.6	60.2	53.2	41.2	36.4	29.6	26.9	24.0	21.2	21.3	20.6	19.1	18.4	19.4	22.8	29.1	54.8	65.3	60.1	39.4	65.3
10-May	51.3	44.4	36.5	35.4	35.3	38.4	35.3	35.0	37.3	35.1	32.7	30.5	27.8	25.6	24.8	22.4	21.3	21.6	21.4	25.6	31.1	33.1	37.6	38.6	32.4	51.3
11-May	38.6	36.3	41.1	43.5	45.5	42.7	41.3	42.1	42.4	41.4	39.3	37.8	36.0	34.4	36.0	38.4	40.8	42.3	44.3	53.6	65.7	75.1	80.8	83.6	46.8	83.6
12-May	81.2	84.2	87.6	87.5	87.9	83.9	82.3	80.2	71.8	63.6	56.5	51.3	47.0	43.8	41.6	43.6	46.2	44.2	44.5	50.3	57.1	62.8	67.0	67.7	63.9	87.9
13-May	65.7	64.1	62.1	64.5	64.0	65.2	65.6	66.3	66.0	64.8	59.1	53.9	52.2	52.0	53.8	49.4	44.2	51.0	64.6	72.0	73.4	73.5	76.2	82.9	62.8	82.9
14-May	87.6	89.9	87.8	89.5	89.8	88.4	81.4	69.1	48.1	39.3	43.6	30.8	26.5	25.4	23.2	24.4	26.6	44.2	53.2	57.8	67.2	72.1	77.1	80.5	59.3	89.9
15-May	86.9	81.7	83.1	84.8	79.2	77.5	77.1	75.8	69.5	56.1	49.3	49.4	44.9	42.0	40.4	39.2	42.4	42.9	45.2	50.8	59.8	64.5	67.9	69.9	61.7	86.9
16-May	72.3	78.6	85.2	84.2	85.2	87.2	87.3	86.6	91.0	91.2	89.9	91.6	91.4	89.1	87.1	83.0	79.4	76.8	78.1	80.6	87.8	86.9	88.4	87.6	85.3	91.6
17-May	87.2	87.7	89.7	89.7	87.0	89.1	90.0	91.4	91.9	91.1	90.9	90.6	88.7	88.5	88.0	89.9	93.8	95.0	96.6	97.2	97.4	97.5	97.7	97.8	91.8	97.8
18-May	97.9	98.0	98.0	98.1	98.2	98.2	98.2	98.2	98.2	98.2	97.9	96.5	95.8	95.0	92.1	93.0	91.2	91.7	92.3	92.2	93.3	95.2	97.1	97.6	95.9	98.2
19-May	97.7	97.9	98.0	98.0	96.8	92.6	91.1	89.9	88.8	90.4	89.8	88.1	85.8	87.1	86.4	79.1	72.3	67.3	67.3	71.6	79.2	85.2	91.5	93.9	86.9	98.0
20-May	94.7	91.5	96.2	97.0	97.3	95.5	88.2	73.7	62.7	61.7	65.0	61.3	60.2	61.0	62.2	61.7	63.0	56.1	56.2	60.6	66.0	72.7	78.1	83.3	73.6	97.3
21-May	86.6	90.0	90.0	92.7	96.3	97.3	96.2	88.3	80.3	74.2	65.9	61.5	61.4	58.6	61.1	62.1	63.6	60.1	59.6	63.6	67.9	67.5	70.9	77.8	74.7	97.3
22-May	72.8	80.3	84.4	80.6	77.2	75.7	75.6	72.4	69.3	62.2	60.0	60.2	59.1	56.5	52.9	52.2	52.0	51.3	55.5	58.0	60.9	64.4	66.9	68.8	65.4	84.4
23-May	69.2	71.5	75.0	74.8	73.0	69.1	65.2	60.8	57.5	52.6	43.8	39.1	34.0	32.6	31.2	30.7	32.7	35.8	37.2	43.0	53.7	60.7	66.9	68.2	53.3	75.0
24-May	70.1	70.7	73.0	74.8	74.6	71.7	67.8	60.0	50.3	41.9	37.3	37.7	36.1	32.7	28.7	30.8	29.9	32.2	29.7	30.2	35.3	40.8	42.4	44.1	47.6	74.8
25-May	48.4	55.4	63.8	68.8	69.4	66.3	61.8	52.5	40.2	34.4	32.1	31.2	29.5	29.2	28.3	26.2	27.8	30.1	33.3	37.0	41.9	50.8	56.4	59.2	44.7	69.4
26-May	62.8	68.6	73.2	76.3	74.6	71.5	62.2	55.0	47.0	43.1	38.9	33.2	32.5	32.0	29.3	28.1	28.1	29.6	31.0	33.9	37.4	43.2	47.2	48.8	47.0	76.3
27-May	49.3	49.1	49.7	50.1	53.4	45.9	38.3	32.5	29.5	29.0	26.6	25.0	25.1	25.7	24.7	24.5	25.5	26.6	44.2	53.4	55.7	48.2	34.0	36.5	37.6	55.7
28-May	43.3	45.7	52.1	59.3	75.7	78.0	67.0	54.7	54.4	50.1	47.0	44.3	41.2	32.8	32.7	32.4	31.7	30.2	30.7	36.2	44.7	46.2	44.3	45.7	46.7	78.0
29-May	54.2	58.7	62.0	74.9	81.3	84.0	81.5	82.0	77.0	61.8	58.9	66.0	68.7	71.5	80.9	77.4	70.8	70.4	69.8	66.5	68.4	72.1	75.7	80.0	71.4	84.0
30-May	81.8	85.6	90.0	95.4	97.0	96.7	95.7	94.8	94.7	94.4	93.9	93.4	92.6	91.5	92.4	92.1	87.8	83.1	82.5	76.8	79.9	82.2	85.0	85.9	89.4	97.0
31-May	84.7	93.1	94.8	95.4	95.9	95.7	94.9	93.6	91.0	90.3	86.3	86.6	91.5	87.8	92.1	89.5	89.3	92.2	93.1	93.7	92.4	92.2	92.2	92.0	91.7	95.9
70.4 71.9 74.0 75.9 76.4 76.0 73.8 69.5 65.0 61.1 57.8 54.8 52.9 51.2 50.6 50.1 49.9 50.3 52.3 55.3 60.1 64.1 67.0 68.9																						Diurnal Average				
98.1 98.1 98.2 98.1 98.2 98.2 98.2 98.2 98.2 98.2 97.9 96.5 95.8 95.0 92.4 93.0 93.8 95.0 96.6 97.2 97.4 97.5 97.7 97.8																						Diurnal Maximum				





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

**Relative Humidity 2m (RH2) - %**  
**Firebag - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	3	0.40	0.40
20 - 40	144	19.35	19.76
40 - 60	199	26.75	46.51
60 - 80	182	24.46	70.97
80 - 100	216	29.03	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



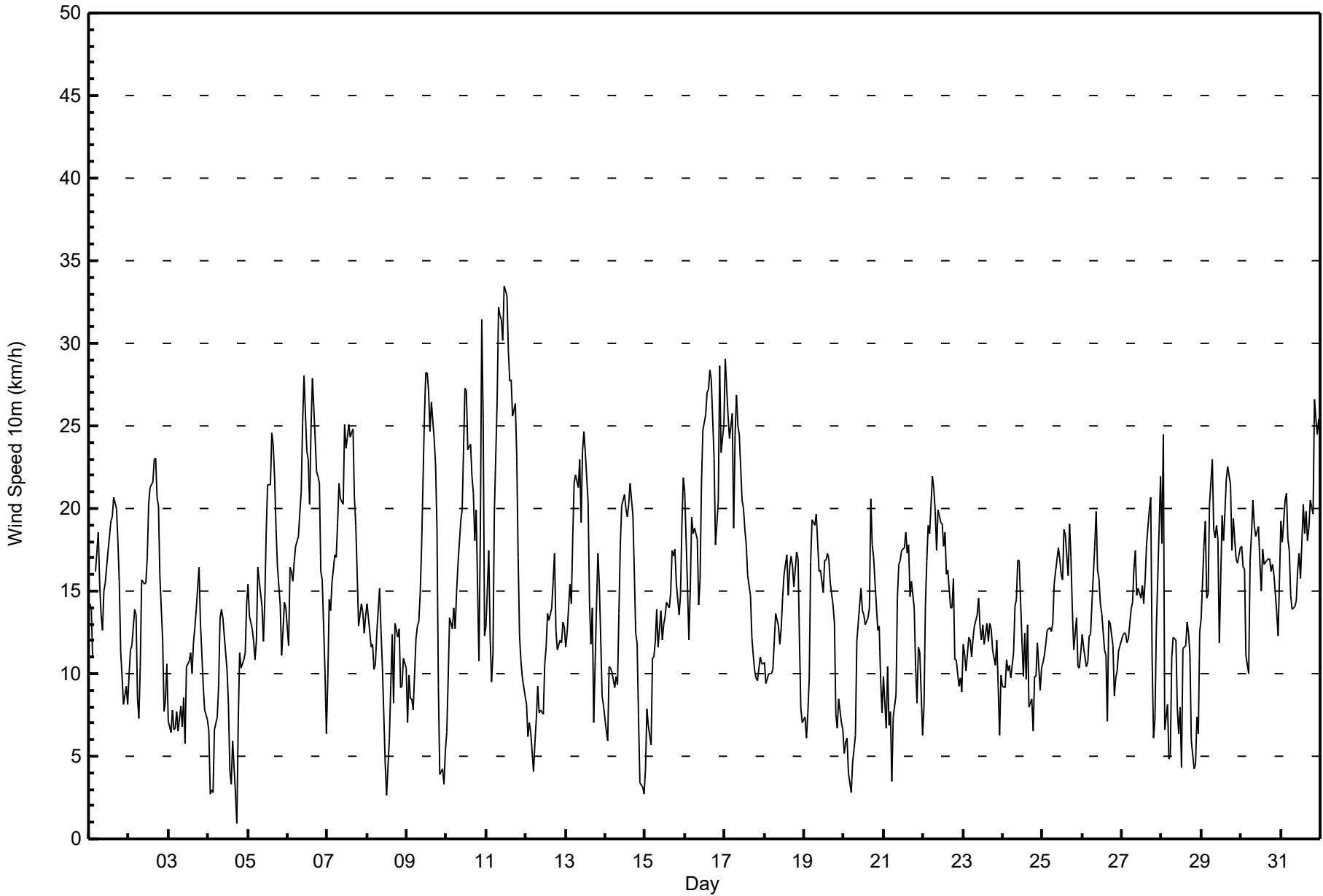
Maximum Speed: 34 km/h on May 11 12:00	Maximum Daily Speed Average: 21.0 km/h on May 16	Hours in Service: 744
Minimum Speed Value: 1 km/h on May 4 18:00	Minimum Daily Speed Average: 3.5 km/h on May 4	Hours of Data: 743
Maximum Diurnal Speed Average: 5.5 km/h at hour 5	Minimum Diurnal Speed Average: 2.5 km/h at hour 11	Hours of Missing Data: 1
Monthly Average Velocity: 3.8 km/h 101.1 deg	Percentiles: P <sub>1</sub> = 3 P <sub>10</sub> = 7 Q <sub>1</sub> = 11 Median = 14 Q <sub>3</sub> = 18 P <sub>90</sub> = 22 P <sub>99</sub> = 29	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-May	N14	NNE14	NE11	UO	E16	E19	E15	E14	NE13	NE15	NNE16	NE17	NE18	ENE19	NE19	NE21	NE20	NE18	NE16	NE11	NE10	NNE8	NNE9	NNE8	NE13.8	NE21	
2-May	ENE10	ENE11	ENE12	E14	E14	E9	E7	NE10	NNE16	NNE15	NNE16	NNE17	NNE20	NNE21	NNE22	NNE23	NNE23	NNE21	NNE20	NNE16	NNE12	NE8	ENE8	E11	NE13.3	NNE23	
3-May	ESE7	SE6	SE8	SE7	SE7	SE8	SE7	ENE8	NE7	NNE9	N6	N10	N11	N11	N10	NNE12	N13	N14	N16	N13	N11	NNE9	NE8	ENE7	NNE6.1	N16	
4-May	E7	NE3	NNW3	WNW3	NW7	NNW7	NNW9	N13	N14	N13	N11	N10	NNE8	NNE4	N3	E6	ESE3	ENE1	E7	ESE11	ESE10	SE11	SE11	SE14	NE3.5	SE14	
5-May	SSE15	SE13	SE13	SE12	SE11	SE12	SSE16	S16	S14	SSW12	S15	SSE19	SSE21	SSE21	SSE25	S24	S22	S19	S17	SSE14	SE11	SE13	SE14	SE14	SSE15.3	SSE25	
6-May	SE12	SE16	SE16	ESE16	ESE17	ESE18	SE18	SE20	SSE21	SSE25	SE28	ESE23	ESE23	ESE20	ESE25	E28	ESE26	ESE22	ESE22	ESE22	ESE16	SSE16	SSE10	ESE6	ESE18.4	SE28	
7-May	E10	ESE15	ESE14	ESE16	ESE17	ESE17	ESE19	ESE22	ESE21	ESE20	ESE25	ESE24	ESE24	ESE25	ESE24	ESE25	ESE21	ESE19	SE16	SE13	SE14	SE14	SSE12	S13	ESE17.6	ESE25	
8-May	S14	SSW13	SSW12	SSW12	SW10	WSW11	WNW12	NW15	NW13	NW10	NW8	NNW5	WNW3	SW6	W9	WSW12	SW8	SW13	SSW12	SW13	SW9	SW9	SW11	WSW10	WSW7.6	NNW15	
9-May	SW7	SW10	SW8	WSW8	SW8	WSW12	WSW13	WSW13	WNW15	WNW18	WNW25	WNW28	WNW28	WNW27	NW25	NW26	NW24	NW23	NNW19	NW9	WNW4	WSW4	SW3	SSW5	WNW12.7	WNW28	
10-May	S6	SSW10	SSW13	SSW13	SSW14	S13	SSW15	SSW17	SW19	WSW20	WSW24	WSW27	WSW27	W24	W24	W22	WNW21	WNW18	NW20	NW11	NNW19	N31	N25	N12	W11.2	N31	
11-May	NW13	NNW17	NW12	WNW10	WNW11	WNW20	NW27	NW32	NW32	NW31	NW30	NNW34	NNW33	NNW30	N28	N28	N26	N26	N23	NNE17	NE12	NE11	NE10	ENE9	NNW19.0	NNW34	
12-May	E8	SE6	SSE7	S6	S4	S6	SSE7	SSE9	SSE8	SE8	SE8	ESE11	SSE12	SE14	SE13	SSE14	SE16	SSE17	SE13	SE11	SE12	ESE12	ESE13	ESE13	SE9.8	SSE17	
13-May	SE12	SSE12	SSE15	SSE14	SSE18	SSE22	SSE22	SSE21	S23	S19	SSE23	S25	S23	S20	SSE14	S12	S14	NE7	ENE14	NNE17	ENE15	E12	ESE9	SE8	SSE12.9	S25	
14-May	S7	SSW6	SW10	SW10	SW10	SW9	SW10	SW9	SSW14	SSW18	SSW20	SW21	SW20	WSW19	WSW20	WSW22	WSW20	NNW16	NNW12	NNW12	NW7	SSE3	WSW3	SW3	WSW9.2	WSW22	
15-May	SSW4	SW8	SW7	WNW6	N11	N11	N12	NNE14	N12	N14	N12	N13	N13	NNE14	N14	N15	NNE17	NNE17	NE18	NE15	NE14	ENE15	ENE19	E22	NNE10.0	E22	
16-May	E21	E15	E12	E15	E19	E18	E19	ESE18	E14	ENE16	E22	E25	E26	E27	E27	E28	E28	E23	E18	E19	E20	E29	E23	ENE25	E21.0	E29	
17-May	E29	E27	E26	E24	E26	E19	E24	E27	E25	E25	E21	ENE20	ENE19	ENE18	ENE16	NE15	NNE12	NNE11	NNE10	N10	NNW10	NNW11	NNW11	NNW11	ENE15.5	E29	
18-May	NNW11	NNW9	NNW10	NNW10	NNW10	N10	N12	N14	N13	N12	NNE13	NNE15	NNE16	NE17	NE15	NE16	ENE17	ENE17	E15	E17	E17	E12	ENE8	ENE7	NE10.7	E17	
19-May	NE7	ENE6	ENE8	NE10	E17	E19	E19	E20	E18	ENE16	ENE16	ENE15	E17	E17	ENE17	NE17	NE15	NE14	NE13	NE8	NNE7	N8	N7	N7	ENE12.1	E20	
20-May	NE5	NNE6	NNE6	NE4	ENE3	NE5	ENE5	ENE6	NNE12	NNE14	N15	NNE14	NNE14	NE13	ENE13	E14	ESE21	ESE18	ESE17	ESE16	SE13	ESE13	SE10	ESE8	ENE8.4	ESE21	
21-May	ESE10	SE7	SE10	SE7	SE8	ESE4	ESE7	ESE9	ESE15	ESE17	ESE17	ESE17	ESE18	ESE19	ESE17	ESE18	ESE15	ESE16	ESE14	ESE10	ESE8	ESE12	ESE11	ESE6	ESE11.9	ESE19	
22-May	E8	E14	E17	E19	E18	E22	E21	E20	E17	ENE20	ENE19	ENE19	ENE18	NE19	NE16	ENE16	ENE14	E14	ESE16	ESE11	ESE11	ESE9	ESE10	SE9	E14.9	E22	
23-May	ESE12	ESE11	SE10	SE12	SE12	SE11	ESE12	ESE13	ESE14	E15	ESE13	ESE12	E13	SE12	SE13	SE12	SSE13	SSE13	SSE11	SSE11	S12	S9	S6	S10	SE10.6	E15	
24-May	S9	SSE9	SE11	SE10	SE10	SE10	SE10	SE11	SSE14	SE14	SE17	SSE17	SSE12	SSE10	SE12	SSE10	SSE13	SSE8	S8	SW7	S10	S10	S12	SSW9	SSW10	SSE10.3	SE17
25-May	SSW11	SSW11	SSW12	SSW13	SSW13	SSW13	SSW13	SSW13	SSW15	SSW16	S18	S17	S16	SSE16	SSE19	SE18	SE16	SE19	ESE17	ESE14	SSE11	SSE13	SE10	SE10	SE11	SSE12.3	ESE19
26-May	SE12	SE12	SE10	SE11	SSE12	SE12	SSE14	SSE18	S20	SSE16	S16	SSE14	S14	S11	SSE11	ESE7	ESE13	SE13	SSE12	SSE9	ESE10	ESE10	SE11	SE12	SSE11.9	S20	
27-May	SE12	SE12	SSE12	SE12	ESE12	SSE14	SSE14	SSE16	S17	S15	SSE15	S15	SSE15	S14	SSE16	SSE18	SSE20	SSE21	W11	WSW6	SE7	SE13	SE19	SSE22	SSE13.2	SSE22	
28-May	SE18	SSE25	SW7	SE8	S5	SE5	SE11	SSE12	S12	SSW8	WSW6	SSW8	WSW4	WSW12	W12	W13	WSW12	WSW11	WNW6	N4	ENE5	NE7	ENE6	ESE13	S4.8	SSE25	
29-May	NE13	ENE18	ENE19	ESE15	E15	E20	ESE23	ESE19	ESE18	SSE19	SSW18	W12	WSW20	WSW18	WSW20	SW22	SW23	SW21	SW17	WSW19	SW18	WSW17	SW17	SW18	SSW7.6	ESE23	
30-May	SSW18	SSW16	SSW16	SW11	WNW10	NW17	NW18	NW20	NW19	NW18	NW19	NW17	NW15	NW18	NW17	NW17	NNW17	NNW17	NNW16	NNW17	NNW16	NW14	NW12	NNW16	NW12.9	NW20	
31-May	NW19	NNW18	NW20	NW21	NW18	NW17	WNW15	NW14	NW14	NW14	NW16	NNW17	NW16	NW20	NW19	NW20	NW18	NW19	NNW20	NNW20	NNW27	NW25	NW24	NW25	NW18.9	NNW27	

ESE5.2	SE5.4	SE4.9	SE5.1	ESE5.5	ESE5.0	ESE5.2	ESE4.9	ESE3.6	ESE3.0	ESE2.5	E2.6	E2.8	E2.9	ENE3.4	ENE3.7	E4.3	ENE4.2	ENE4.5	ENE3.8	ENE4.1	E4.3	E4.0	ESE4.5	Diurnal Average
E29	E27	E26	E24	E26	E22	NW27	NW32	NW32	NW31	NW30	NNW34	NNW33	NNW30	N28	E28	E28	N26	N23	ESE22	NNW27	N31	N25	NW25	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**  
**Firebag - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	29	3.90	3.90
6 - 11	205	27.59	31.49
12 - 19	371	49.93	81.43
20 - 28	128	17.23	98.65
29 - 38	10	1.35	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



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

**Wind Speed 10m (WS10) - km/h**  
**Firebag - May 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	1	4	4	0	2	1	1	2	2	2	3	0	3	0	2	29
6 - 11	15	11	13	13	9	22	36	15	12	8	21	6	2	5	5	12	205
12 - 19	22	24	22	24	37	48	41	42	22	23	7	11	2	5	26	15	371
20 - 28	6	7	2	3	27	20	2	13	7	1	5	9	3	6	14	3	128
29 - 38	1	0	0	0	2	0	0	0	0	0	0	0	0	0	4	3	10
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	46	43	41	44	75	92	80	71	43	34	35	29	7	19	49	35	743

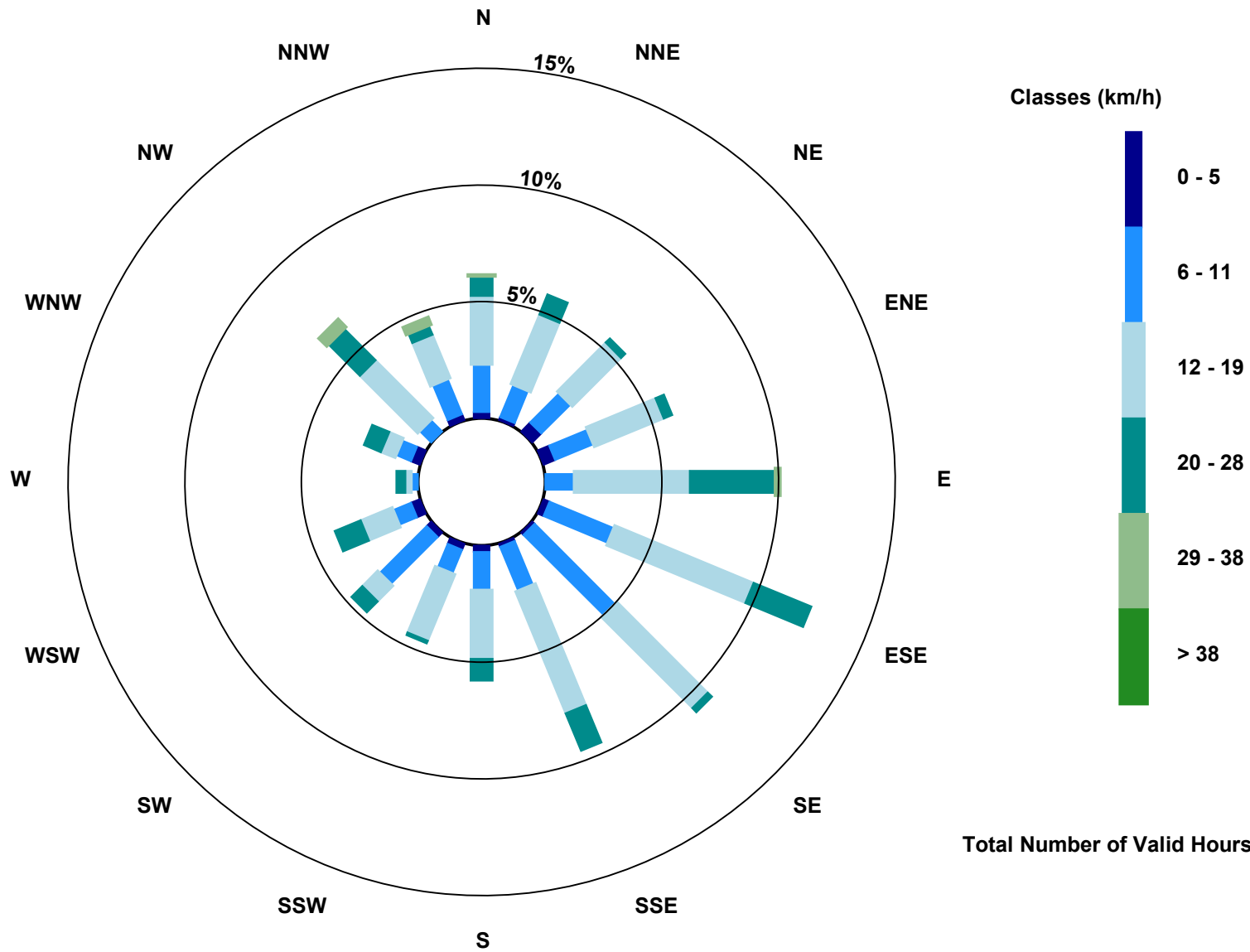
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

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





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

**Wind Speed 10m (WS10) - km/h**  
**Firebag - May 2024**

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



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

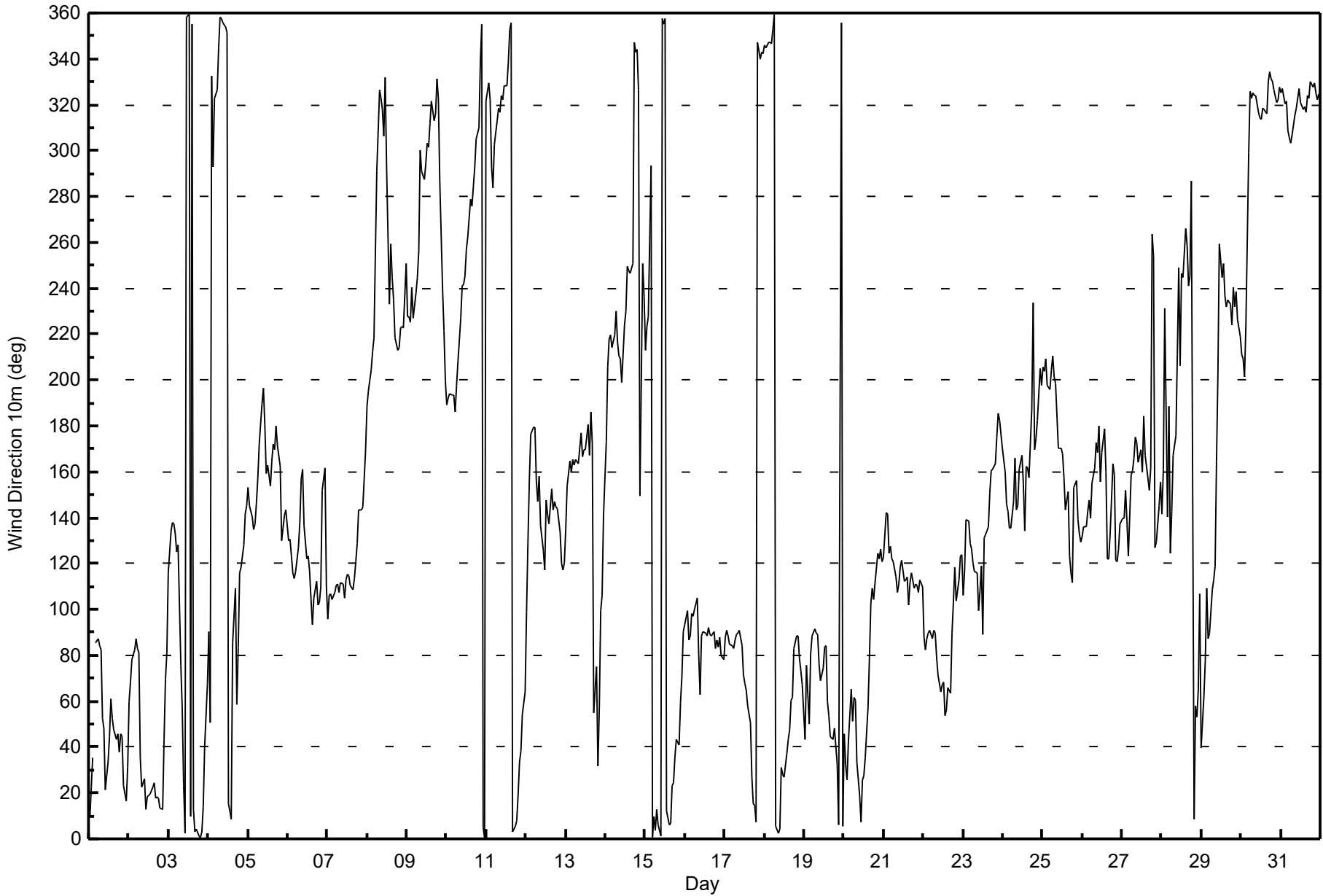
**Wind Direction 10m (WD10) - deg**  
**Firebag - May 2024**

Direction of Maximum Speed: 328 deg on May 11 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 88.7 deg on May 16	Hours of Data: 743
Direction of Minimum Speed: 58 deg on May 4 18:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 3.5 deg on May 4	Percent Operational Time: 99.9
Monthly Average Direction: 101.1 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-May	9	22	36	UO	85	87	84	83	53	48	22	34	44	61	52	48	43	45	38	46	45	23	17	31	47.8
2-May	60	68	78	82	87	83	81	36	23	26	13	18	19	19	23	24	17	19	18	13	13	43	69	81	34.8
3-May	116	134	138	137	133	125	128	76	56	23	2	358	360	10	355	13	3	4	1	1	3	14	40	68	30.3
4-May	91	51	332	293	323	327	345	358	358	356	354	352	15	12	9	85	109	58	83	116	119	128	142	145	37.9
5-May	153	145	140	135	138	146	158	172	190	197	181	159	163	154	165	172	169	180	172	162	130	135	141	143	160.0
6-May	130	130	124	116	113	117	127	138	157	161	137	122	123	116	104	94	105	112	102	103	110	152	162	110	122.2
7-May	96	106	107	104	107	110	111	107	112	111	105	113	115	115	110	109	113	121	129	144	143	145	157	170	116.9
8-May	189	196	204	212	218	256	291	326	323	318	306	332	293	233	259	245	235	218	213	214	222	224	223	251	242.4
9-May	228	228	225	240	227	238	244	256	300	291	287	294	303	301	312	322	313	316	331	323	287	240	222	200	290.3
10-May	189	192	194	194	193	186	198	208	227	241	242	245	257	262	279	276	285	293	305	310	339	355	5	0	263.9
11-May	322	330	322	293	284	302	313	319	317	324	322	328	329	339	353	356	3	5	8	20	34	39	54	64	338.3
12-May	99	130	156	176	179	179	156	147	158	137	125	117	148	141	137	153	144	147	144	144	134	120	117	120	139.7
13-May	135	154	165	160	165	163	165	163	170	177	167	170	181	167	186	172	55	75	32	57	100	106	141	154.3	
14-May	174	206	218	220	214	220	230	217	210	209	199	224	230	249	248	246	251	347	343	344	326	150	251	236	236.7
15-May	213	223	228	294	0	10	4	13	6	1	357	355	357	12	6	7	23	24	35	43	41	59	71	90	21.9
16-May	94	99	87	89	98	97	100	105	81	63	88	90	89	88	92	89	89	90	83	86	84	88	80	78	88.7
17-May	88	91	89	85	84	83	86	89	90	91	84	72	68	65	58	51	27	15	14	8	347	340	343	342	69.3
18-May	346	345	347	347	347	353	360	5	2	4	31	28	27	37	44	47	61	62	83	88	89	79	73	67	35.2
19-May	43	76	63	50	81	88	92	90	89	76	69	74	84	84	60	54	45	43	48	40	32	6	356	5	65.8
20-May	46	32	26	43	65	51	62	60	33	19	7	26	28	36	57	79	102	109	104	111	124	122	126	121	70.8
21-May	122	142	142	124	128	122	121	114	107	111	118	122	112	113	114	102	112	116	109	111	111	108	113	110	115.2
22-May	88	83	88	90	91	87	91	90	79	71	64	67	69	54	56	66	63	90	103	119	104	113	123	124	83.1
23-May	106	117	139	138	129	126	120	117	116	99	108	119	89	131	134	136	151	160	161	164	175	186	182	176	133.9
24-May	170	160	146	143	135	135	147	166	143	145	161	167	154	134	163	162	157	188	234	169	174	182	205	198	161.2
25-May	205	204	210	197	196	204	211	201	199	170	170	170	168	157	144	151	124	116	111	153	156	139	133	129	166.0
26-May	131	136	136	143	148	140	155	161	173	168	180	156	169	179	160	122	122	133	164	159	122	121	126	138	149.9
27-May	140	140	152	138	123	158	160	166	175	173	164	169	160	184	167	162	152	162	264	254	127	129	145	156	159.4
28-May	142	161	231	140	189	124	143	167	176	211	249	206	246	245	266	259	241	246	287	9	58	53	65	107	189.3
29-May	40	62	78	109	88	90	108	113	119	165	203	259	245	251	237	232	235	233	224	240	232	238	227	219	196.5
30-May	211	209	201	224	299	326	323	325	324	324	317	314	314	319	318	316	330	334	331	330	327	321	322	328	312.0
31-May	325	327	320	321	309	306	303	307	315	319	323	327	321	318	319	316	324	323	330	327	330	325	322	324	320.8

115.7 126.1 131.8 130.9 119.4 115.6 121.1 115.7 113.6 103.4 111.5 87.6 83.8 82.1 75.0 73.8 80.6 70.9 56.5 70.7 77.1 89.2 99.6 114.8  
 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 10m (WD10) - deg**  
**Firebag - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 110 deg on May 4 18:00 Minimum Value: 6 deg on May 25 05:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 14 Q <sub>3</sub> = 19 P <sub>90</sub> = 28 P <sub>99</sub> = 68																			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-May	13	11	10	UO	10	9	10	13	16	16	26	24	19	19	18	15	14	14	16	10	7	15	11	10	26
2-May	10	10	13	13	10	10	21	22	16	19	21	21	19	23	18	19	17	19	15	11	10	27	12	17	27
3-May	20	13	15	17	18	20	19	17	29	23	55	30	30	37	46	23	28	26	18	14	10	13	7	14	55
4-May	12	27	18	23	7	8	12	16	19	24	29	31	43	80	79	51	79	110	58	12	11	13	11	10	110
5-May	10	11	11	11	11	11	9	10	13	18	17	18	17	24	19	16	13	16	15	13	12	12	12	10	24
6-May	17	12	12	12	11	11	12	14	12	13	16	16	16	16	16	13	12	14	13	11	11	24	9	19	24
7-May	12	11	12	12	11	11	12	11	11	12	11	13	13	14	13	12	13	13	14	12	11	10	10	10	14
8-May	8	8	10	9	10	17	19	13	13	15	27	70	89	70	38	30	47	15	14	18	11	12	14	9	89
9-May	13	7	18	33	19	10	11	22	22	22	20	19	21	20	21	17	19	15	13	10	25	9	15	19	33
10-May	9	8	7	6	7	6	8	13	14	16	14	14	19	21	21	23	23	19	17	15	14	18	17	16	23
11-May	12	11	11	14	15	15	13	13	13	16	16	16	17	17	18	18	18	17	15	15	12	8	15	14	18
12-May	14	21	15	14	20	12	12	13	22	32	32	30	26	20	18	17	14	12	13	10	13	12	11	12	32
13-May	11	16	8	9	8	8	9	9	9	12	13	14	16	11	23	18	14	66	20	39	21	11	16	14	66
14-May	17	12	8	9	8	8	12	12	13	15	12	21	20	19	19	16	20	16	19	20	31	66	57	35	66
15-May	30	8	12	35	11	11	16	16	16	19	28	32	28	23	24	19	18	17	14	11	9	10	12	10	35
16-May	11	16	11	11	12	12	12	12	20	17	10	11	10	11	11	10	10	11	12	11	12	10	12	13	20
17-May	10	11	10	11	11	13	10	10	11	10	14	12	14	13	13	17	14	13	14	14	16	11	10	11	17
18-May	11	11	11	11	11	15	15	14	15	17	14	14	14	14	12	14	11	11	14	11	11	14	13	16	17
19-May	17	15	17	15	16	11	11	11	14	17	14	16	14	17	14	13	15	15	11	12	16	11	10	18	18
20-May	25	22	11	34	18	16	23	26	20	22	20	24	18	17	21	27	14	15	18	16	13	13	13	13	34
21-May	13	15	12	13	14	14	15	16	15	18	19	19	17	17	16	19	16	15	18	15	12	11	16	24	24
22-May	12	12	10	10	9	13	11	13	16	15	18	20	15	14	21	18	19	19	19	16	16	14	13	14	21
23-May	12	16	13	12	14	13	13	15	15	22	28	35	30	38	34	30	25	26	16	16	12	8	8	8	38
24-May	10	9	7	8	10	10	14	16	25	20	20	35	41	32	46	35	40	24	30	23	9	9	13	7	46
25-May	11	10	8	7	6	10	13	16	16	21	22	23	23	19	22	20	19	14	12	20	10	12	13	12	23
26-May	11	11	11	9	13	12	12	17	15	20	18	29	25	31	36	48	22	19	12	23	14	13	13	11	48
27-May	11	13	11	13	11	17	12	15	15	21	26	37	27	27	31	24	19	13	29	32	21	16	11	14	37
28-May	16	13	41	23	47	59	12	17	13	34	48	36	72	46	36	28	32	28	44	33	18	11	49	19	72
29-May	12	11	15	14	20	14	11	14	16	23	17	32	16	14	16	13	13	13	12	12	13	13	12	11	32
30-May	13	11	12	26	39	14	14	13	13	14	13	15	15	13	15	15	15	13	13	12	15	13	15	14	39
31-May	13	15	14	13	15	17	18	15	14	13	13	13	16	15	14	13	13	12	13	12	13	13	13	13	18
30 27 41 35 47 59 23 26 29 34 55 70 89 80 79 51 79 110 58 39 31 66 57 35																								Diurnal Maximum	
UO - Unstable Operation																									





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS20 MACKAY RIVER MAY 2024**

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

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
MAY 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	0	2.9	0
H2S (ppb) Average	706	37	38	99.87	3.2	0	0.6	0
THC (ppm) Average	710	34	34	100	2.8	-	2.4	-
NO2 (ppb) Average	708	35	36	99.87	13.3	0	5.5	-
NO (ppb) Average	708	35	36	99.87	4.1	-	1.1	-
NOX (ppb) Average	708	35	36	99.87	13.4	-	6.7	-
Temperature 2 m (C) Average	744	0	0	100	26.6	-	16.5	-
Relative Humidity (%) Average	671	0	73	90.19	100	-	95.5	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	25	-	15	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-
Precipitation (mm) Total	744	0	0	100	4.1	-	24.7	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)  
MAY 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	0.6	1.5	-	0	0	0	0.1	0.3	1.6	12
H2S (ppb) Average	706	0.13	0.3	-	0	0	0	0.1	0.1	0.2	3.2
THC (ppm) Average	710	2.26	0.1	-	2.1	2.2	2.2	2.2	2.3	2.4	2.8
NO2 (ppb) Average	708	1.31	1.7	-	0.1	0.2	0.3	0.6	1.6	3.4	13.3
NO (ppb) Average	708	0.2	0.5	-	0	0	0	0	0.1	0.5	4.1
NOX (ppb) Average	708	1.51	2.1	-	0.1	0.2	0.3	0.6	1.8	3.8	13.4
Temperature 2 m (C) Average	744	9.22	5.7	-	-5.9	2	5.3	9.1	12.9	16.8	26.6
Relative Humidity (%) Average	671	62.97	23.6	-	17.5	31.3	42.9	62.6	83.9	95.6	100
Wind Speed 10 m (km/h) Average	742	8.1	4	-	0	3	5	8	10	13	25
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	87.11	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	09 May 2024 08:00	09 May 2024 08:00	1	Maintenance - sample manifold cleaned
Relative Humidity	07 May 2024 20:00	08 May 2024 04:00	9	Sensor operated out of range
Relative Humidity	08 May 2024 06:00	08 May 2024 06:00	1	DAS Failure - data not recorded
Relative Humidity	16 May 2024 15:00	16 May 2024 20:00	6	Sensor operated out of range
Relative Humidity	17 May 2024 00:00	17 May 2024 00:00	1	Sensor operated out of range
Relative Humidity	17 May 2024 03:00	18 May 2024 09:00	31	Sensor operated out of range
Relative Humidity	18 May 2024 14:00	18 May 2024 14:00	1	Sensor operated out of range
Relative Humidity	18 May 2024 18:00	19 May 2024 08:00	15	Sensor operated out of range
Relative Humidity	19 May 2024 19:00	19 May 2024 19:00	1	Sensor operated out of range
Relative Humidity	19 May 2024 21:00	19 May 2024 22:00	2	Sensor operated out of range
Relative Humidity	20 May 2024 01:00	20 May 2024 06:00	6	Sensor operated out of range
Wind Speed, Wind Direction	04 May 2024 05:00	04 May 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 May 2024 21:00	13 May 2024 21:00	1	Flat line in sensor output signal



# Wood Buffalo Environmental Association

## Summary of Hour Averages

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

## Mackay River - May 2024

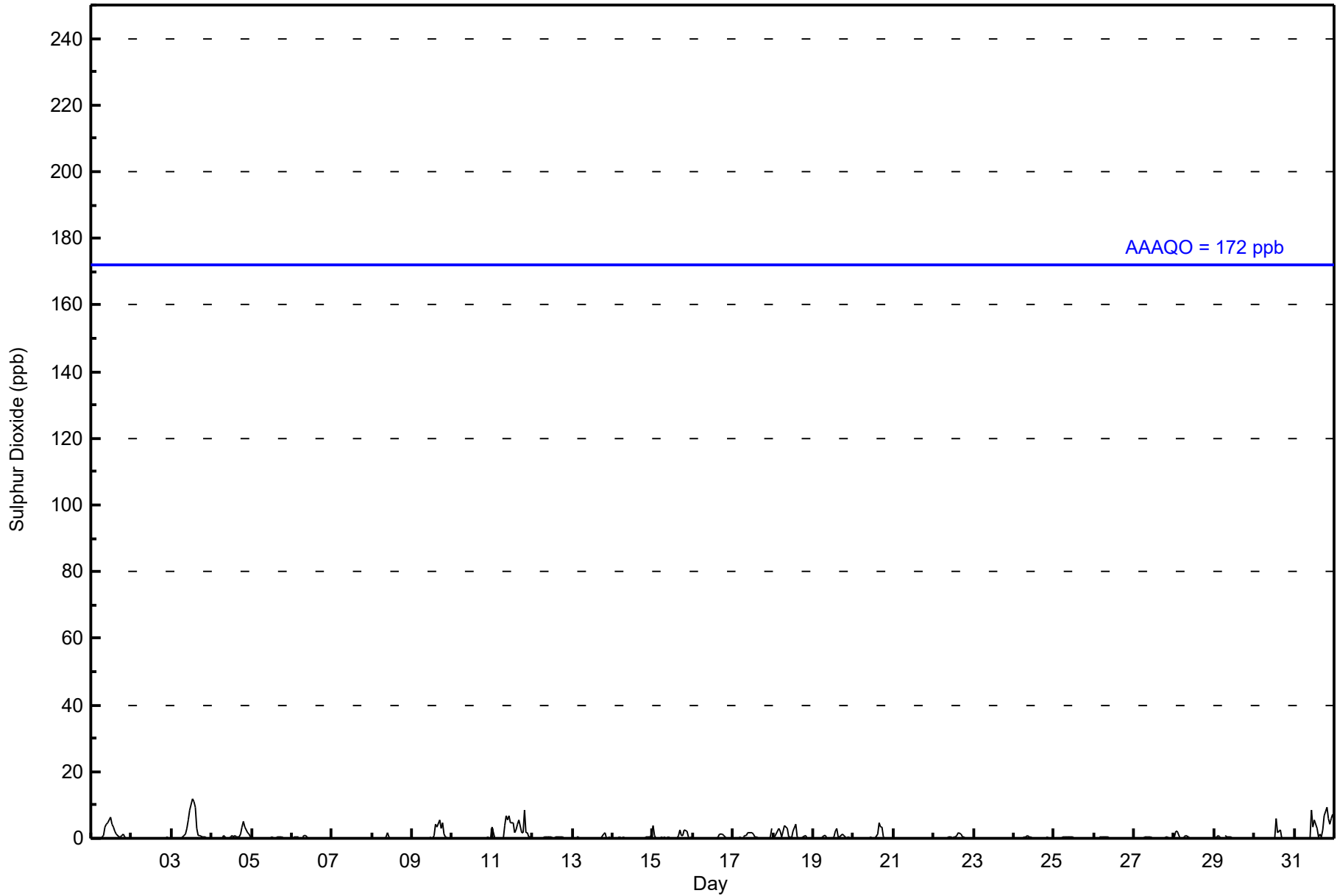
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																					
Maximum Value: 12.0 ppb on May 3 13:00		Maximum Daily Average: 2.9 ppb on May 11		Minimum Value: 0.0 ppb on May 1 22:00		Minimum Daily Average: 0.0 ppb on May 21		Hours of Data: 710																					
Maximum Diurnal Average: 1.1 ppb at hour 14		Minimum Diurnal Average: 0.1 ppb at hour 6		Hours of Missing Data: 34		Hours of Calibration: 34		Percent Operational Time: 100.0																					
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> = 1.6 P <sub>99</sub> = 7.2																											
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-May	Z	0.2	0.1	0.1	0.1	0.1	0.3	1.1	3.3	4.1	4.5	6.2	4.3	3.4	2.3	1.2	0.2	0.4	0.7	1.3	0.5	0.0	0.1	0.0	1.5	6.2			
2-May	0.1	Z	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	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2			
3-May	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.7	1.1	3.1	5.6	8.6	12.0	11.1	9.2	3.2	0.7	0.7	0.5	0.2	0.3	0.1	0.2	0.1	2.5	12.0			
4-May	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.8	0.6	0.1	0.1	0.5	0.9	0.3	0.7	0.3	0.4	1.1	3.4	5.1	3.4	1.5	1.3	0.5	0.9	5.1			
5-May	0.2	0.1	0.1	0.0	Z	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.3	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5			
6-May	0.2	0.3	0.5	0.2	0.3	Z	0.4	0.6	1.0	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	1.0			
7-May	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			
8-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	1.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8			
9-May	0.0	0.0	0.0	Z	0.1	0.0	0.0	C	C	C	0.4	0.0	0.0	1.0	4.1	3.2	5.7	3.0	4.6	1.1	0.3	0.1	0.1	0.0	1.2	5.7			
10-May	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.6			
11-May	3.5	0.1	0.0	0.0	0.0	Z	0.1	3.6	6.8	5.3	6.9	4.8	4.7	1.8	2.6	4.3	5.5	1.9	1.5	8.5	1.6	1.5	0.4	0.4	2.9	8.5			
12-May	Z	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.2	0.2	0.3	0.1	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.4			
13-May	0.1	Z	0.2	0.2	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	1.1	1.5	0.1	0.0	0.3	0.1	0.2	1.5			
14-May	0.1	0.0	Z	0.1	0.4	0.1	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.2	1.4	0.2	1.4			
15-May	3.8	1.0	0.2	Z	0.1	0.3	0.2	0.4	0.2	0.5	0.0	0.0	0.1	0.1	0.0	0.7	2.7	1.0	0.8	2.7	2.2	0.3	0.2	0.3	0.8	3.8			
16-May	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	1.2	1.0	0.3	0.1	0.1	0.1	0.1	0.2	1.2				
17-May	0.1	0.1	0.1	0.1	0.3	Z	0.4	0.7	1.0	1.6	1.6	1.6	1.2	0.6	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.6	3.1	0.6	3.1			
18-May	Z	0.3	2.0	3.0	2.1	0.6	2.0	3.8	3.1	0.6	0.2	0.2	2.1	4.0	0.3	0.2	0.1	0.1	0.4	0.8	0.1	0.2	0.1	0.1	1.1	4.0			
19-May	0.1	Z	0.1	0.1	0.1	0.2	0.7	0.7	0.2	0.1	0.1	0.1	0.5	2.1	2.8	0.6	0.2	1.3	0.7	0.5	0.1	0.3	0.1	0.1	0.5	2.8			
20-May	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	1.1	4.8	3.6	3.6	0.6	0.0	0.0	0.0	0.0	0.0	0.6	4.8			
21-May	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			
22-May	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.4	0.4	0.2	0.5	0.5	0.7	1.9	1.1	0.5	0.3	0.0	0.1	0.1	0.1	0.0	0.3	1.9			
23-May	0.1	0.0	0.0	0.0	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	0.1			
24-May	Z	0.0	0.0	0.0	0.0	0.1	0.5	0.6	0.9	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.9			
25-May	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.6			
26-May	0.1	0.1	Z	0.3	0.3	0.3	0.4	0.3	0.3	0.2	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	0.1	0.4			
27-May	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.6	0.3	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.4	0.3	0.2	0.1	0.1	0.2	0.6			
28-May	0.3	2.1	2.1	0.1	Z	0.2	0.4	0.7	0.5	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.1			
29-May	0.0	0.6	0.8	0.3	0.1	Z	0.7	0.5	0.3	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	0.1	0.2	0.8			
30-May	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	5.8	1.6	2.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	5.8			
31-May	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.1	8.5	3.4	5.4	2.9	0.2	1.1	0.4	2.4	6.8	9.2	5.8	4.2	6.1	7.2	2.8	9.2			
																								Diurnal Average					
																								Diurnal Maximum					
																								0.4 3.8					
																								0.2 2.1					
																								0.3 2.1					
																								0.2 3.0					
																								0.2 2.1					
																								0.1 0.6					
																								0.2 2.0					
																								0.5 3.8					
																								0.7 6.8					
																								0.7 5.3					
																								1.0 8.5					
																								0.9 8.6					
																								1.1 12.0					
																								1.1 11.1					
																								0.9 9.2					
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																								0.8 6.8					
																								1.1 9.2					
																								0.5 5.8					
																								0.3 4.2					
																								0.3 6.1					
																								0.5 7.2					

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 - May 2024





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

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Mackay River - May 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**  
**Mackay River - May 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	96	58	32	45	94	74	37	21	16	34	32	33	60	29	16	706
11 - 20	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	30	97	58	32	45	94	74	37	21	16	34	32	33	60	29	16	708

Total Number of Valid Hours: 708

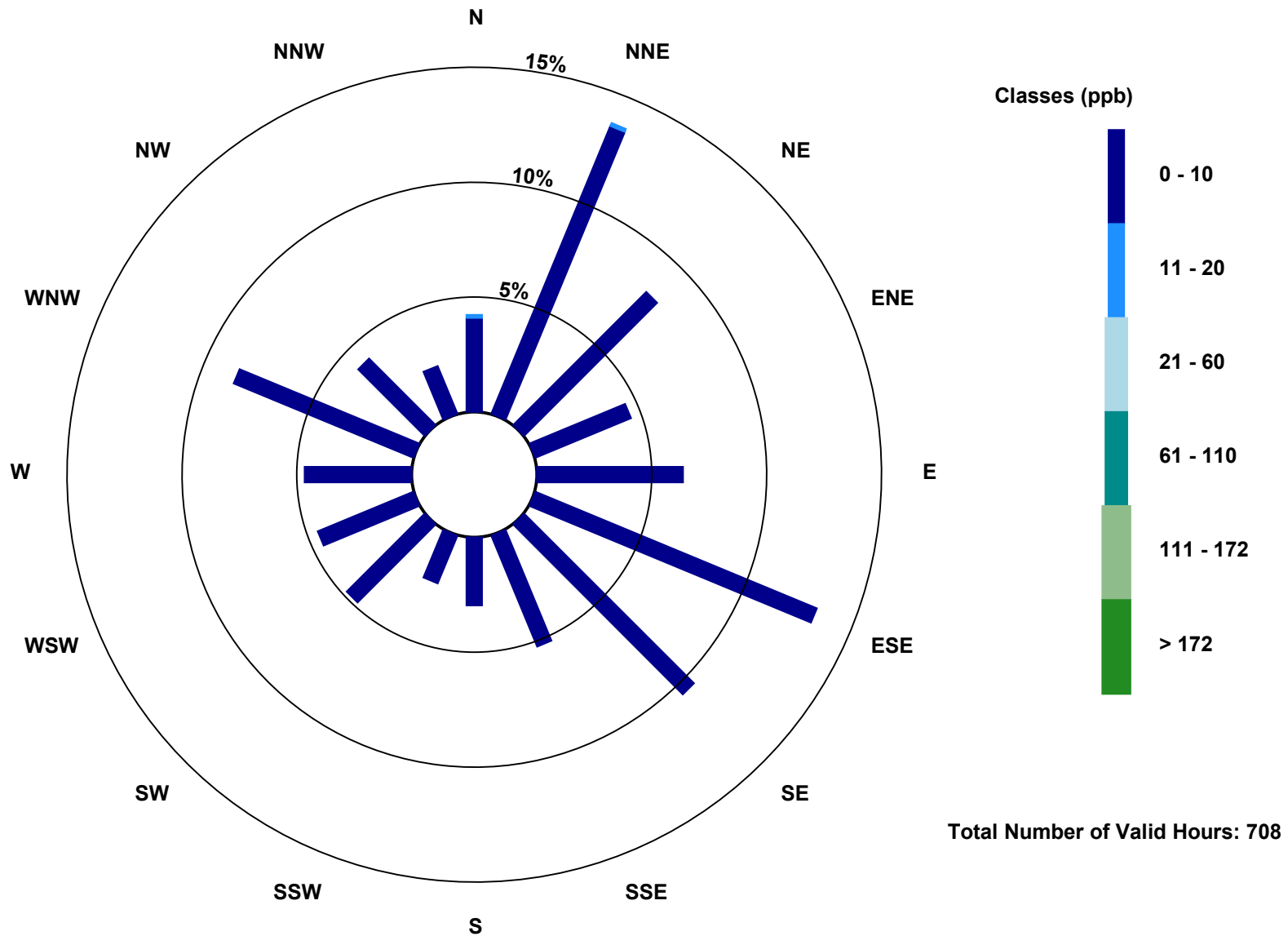
Total Number of Hours: 744

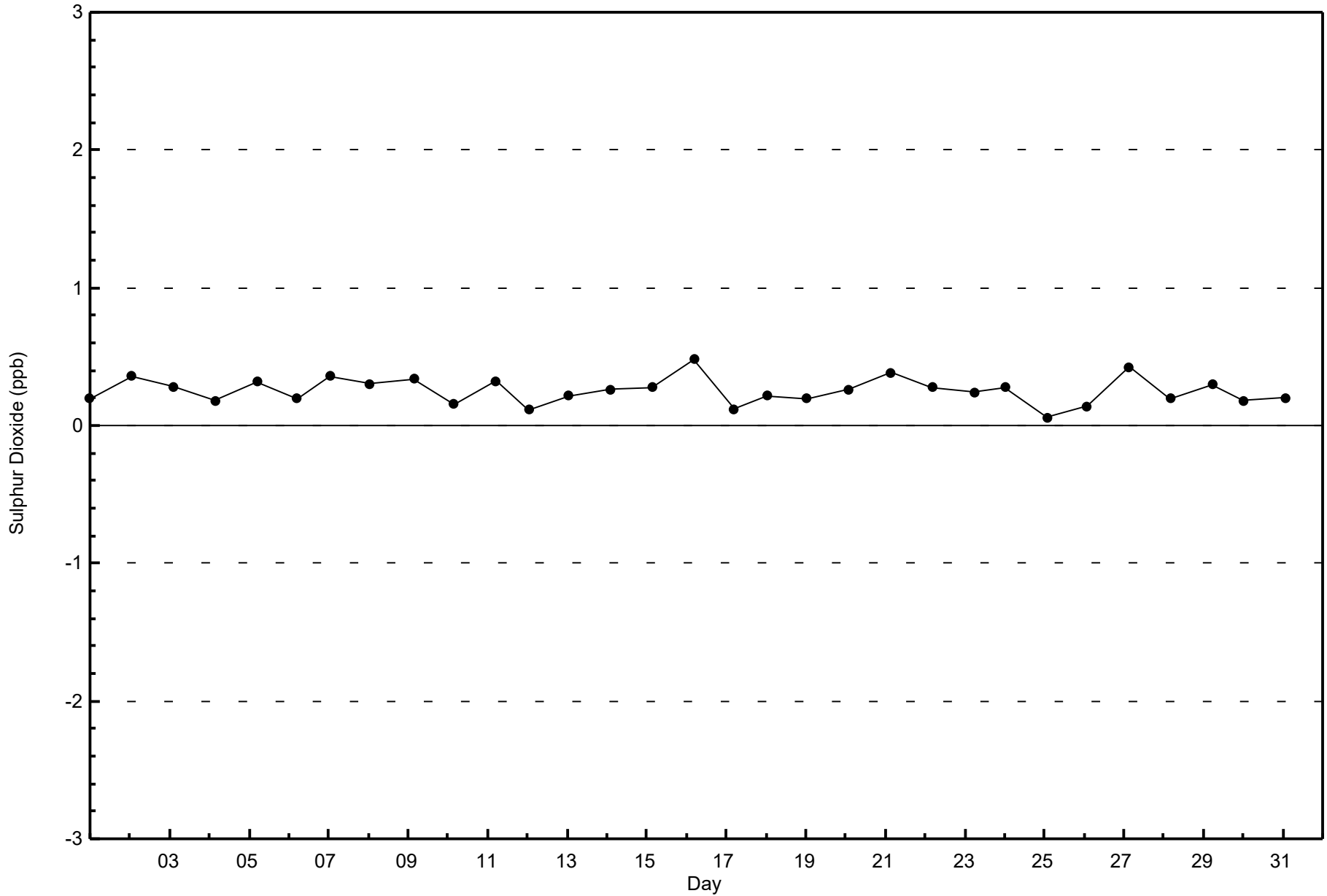


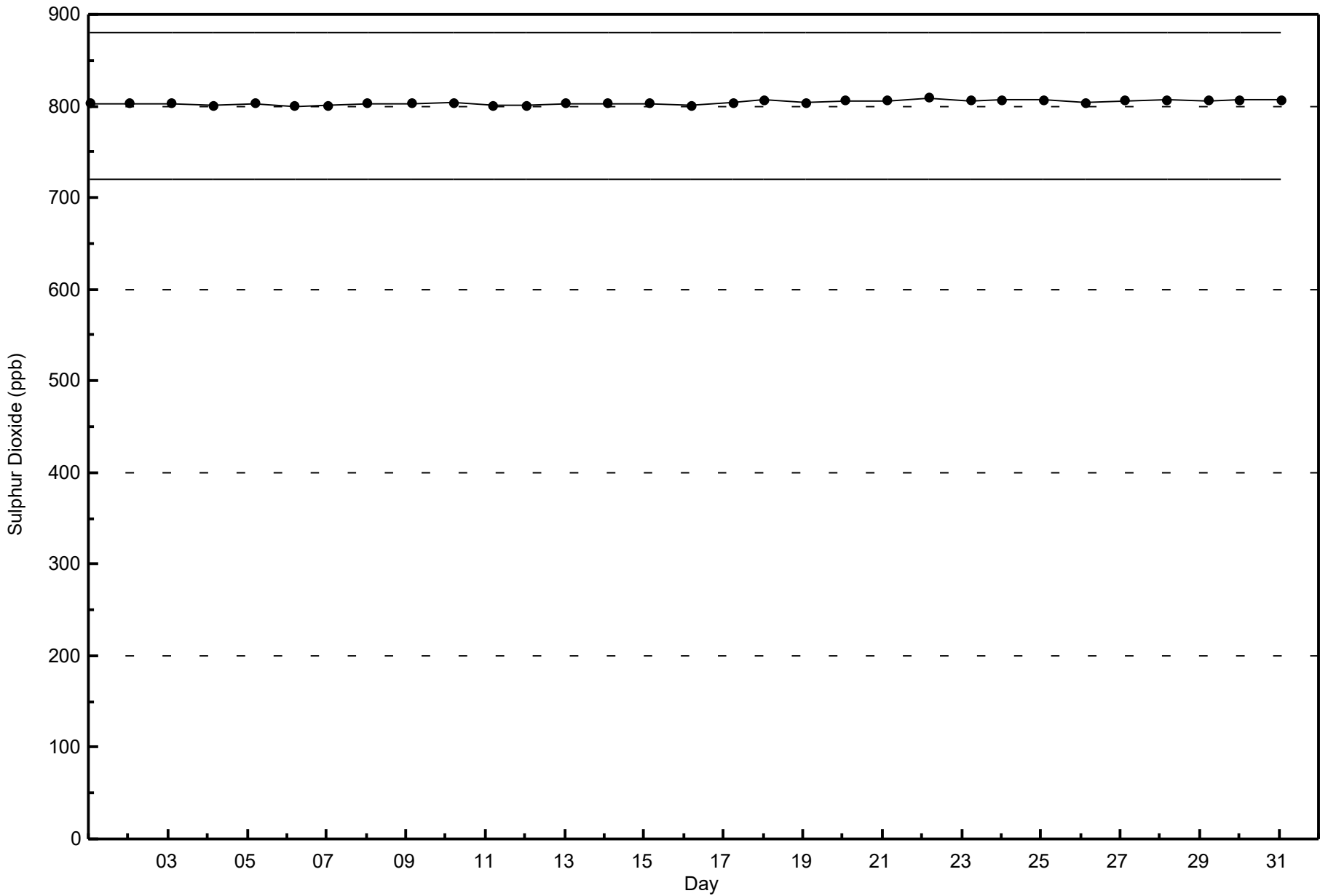


Wood Buffalo Environmental Association  
Wind Rose May 2024

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



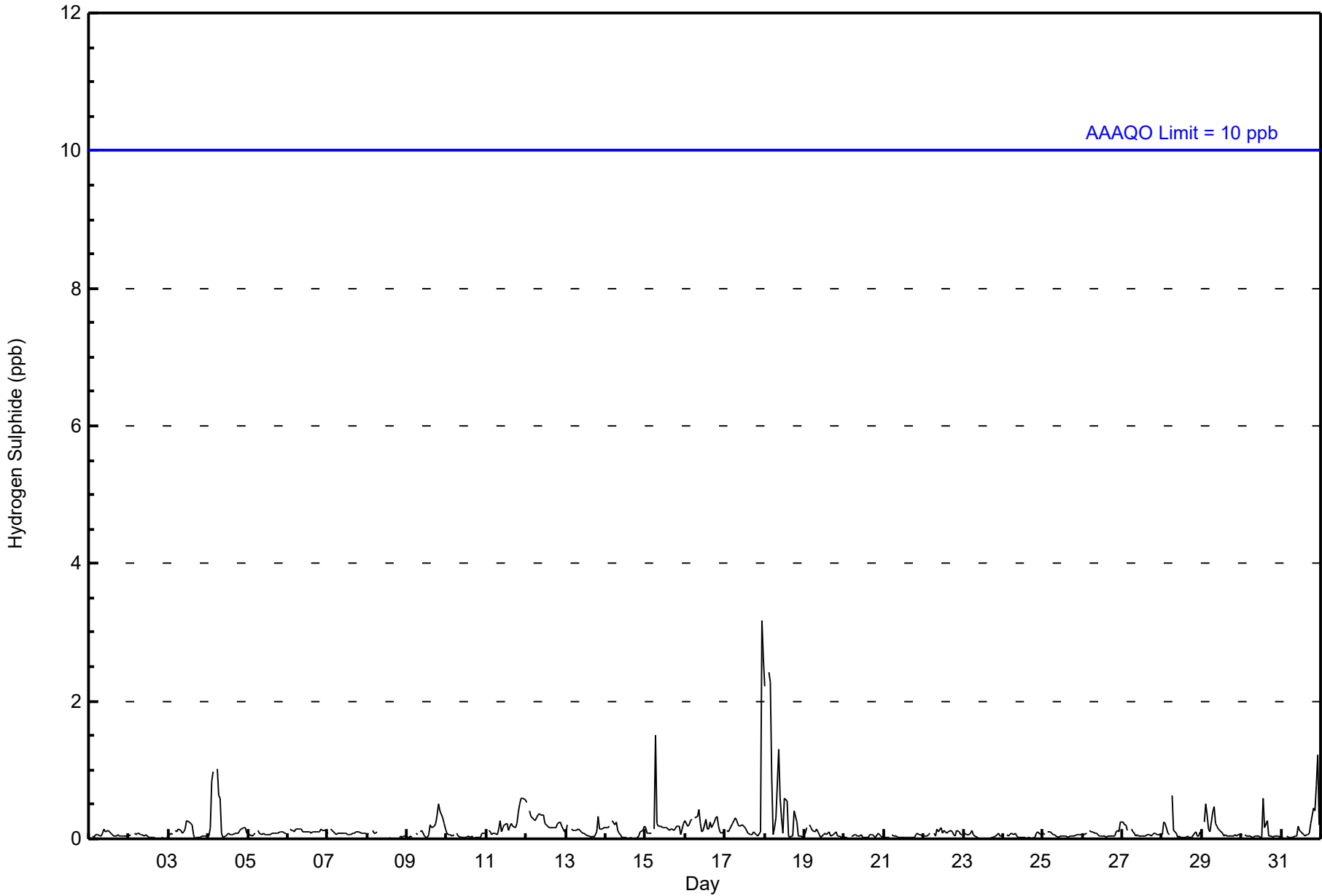






Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																			
Maximum Value: 3.2 ppb on May 17 23:00		Maximum Daily Average: 0.6 ppb on May 18		Hours of Data:		706		Hours of Missing Data: 38																			
Minimum Value: 0.0 ppb on May 2 17:00		Minimum Daily Average: 0.0 ppb on May 21		Hours of Calibration: 37		Percent Operational Time: 99.9																					
Maximum Diurnal Average: 0.2 ppb at hour 3		Minimum Diurnal Average: 0.1 ppb at hour 17		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 1.2																							
Monthly Average: 0.13 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-May	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
2-May	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3-May	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
4-May	0.0	0.2	0.8	1.0	Z	1.0	0.6	0.6	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	0.2	0.2	0.1	0.2	1.0	
5-May	0.1	0.1	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
6-May	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	
7-May	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	
8-May	0.1	0.1	Z	0.1	0.1	0.1	0.1	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	
9-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	M	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.4	0.5	0.4	0.3	0.2	0.1	0.2	0.5	
10-May	0.1	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	
11-May	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.6	0.6	0.6	0.2	0.6	
12-May	0.5	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.3	0.5	
13-May	0.1	0.2	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	0.1	0.3	0.1	0.1	0.1	0.2	0.1	0.3	
14-May	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	
15-May	0.2	0.1	0.1	0.1	Z	0.1	1.5	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	1.5	
16-May	0.3	0.2	0.2	0.3	0.3	Z	0.3	0.3	0.4	0.2	0.1	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.4	
17-May	Z	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	3.2	2.6	0.4	3.2	
18-May	2.2	Z	2.4	2.3	0.9	0.1	0.2	0.3	1.3	0.6	0.3	0.1	0.6	0.5	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.6	2.4	
19-May	0.1	0.2	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	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
20-May	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	
21-May	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	
22-May	0.0	0.0	0.1	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	
23-May	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	
24-May	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	
25-May	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
26-May	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	
27-May	0.2	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
28-May	0.1	0.2	0.2	0.1	0.1	Z	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.6	
29-May	Z	0.2	0.5	0.3	0.1	0.1	0.4	0.5	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.5	
30-May	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
31-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.5	0.4	0.8	1.2	0.2	0.2	1.2	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2			
																								2.2			

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





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

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Mackay River - May 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	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: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Mackay River - May 2024**

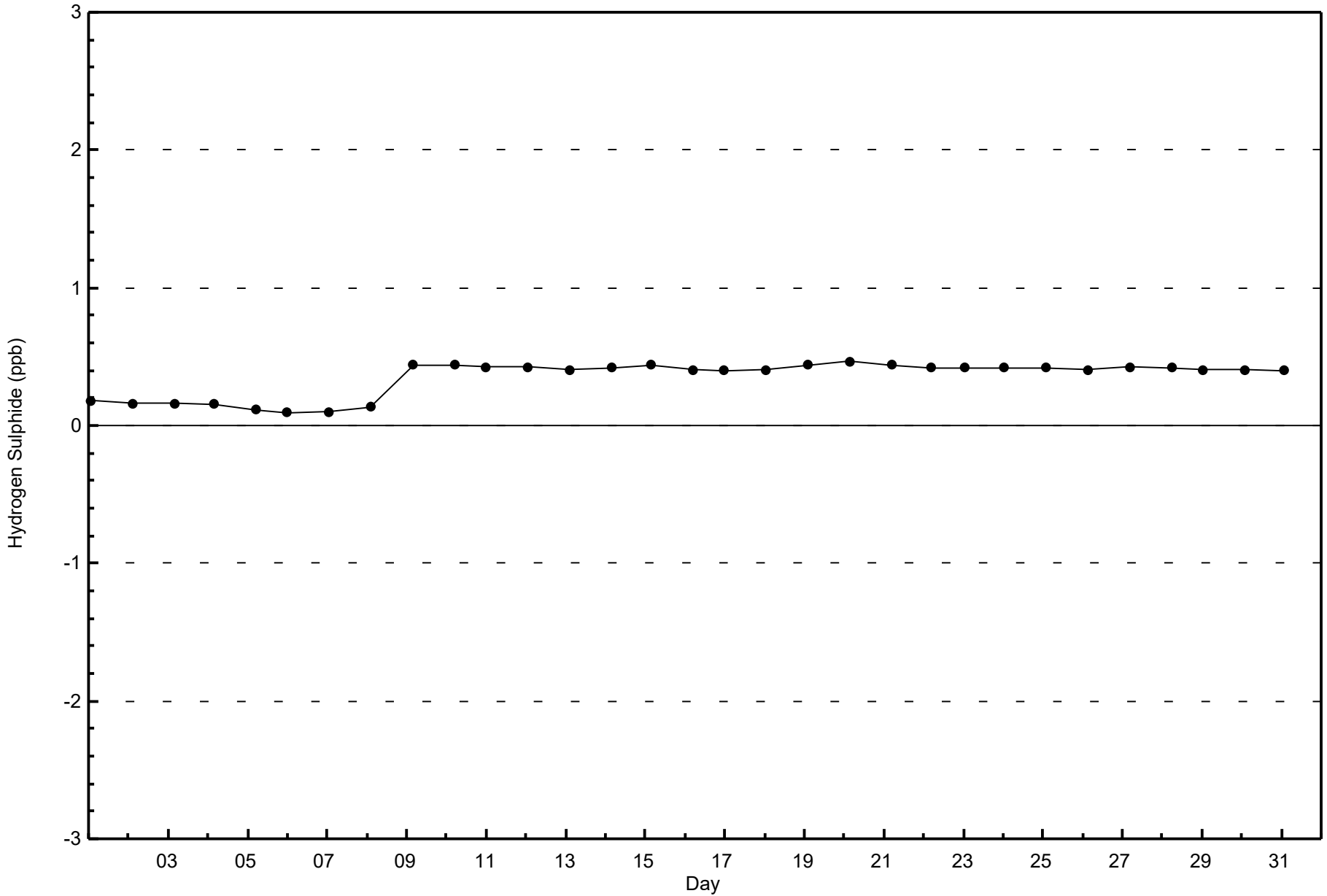
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	31	97	57	34	46	91	75	38	20	15	35	30	33	60	26	15	703
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	31	97	57	34	46	91	75	38	20	15	35	30	33	60	28	15	705

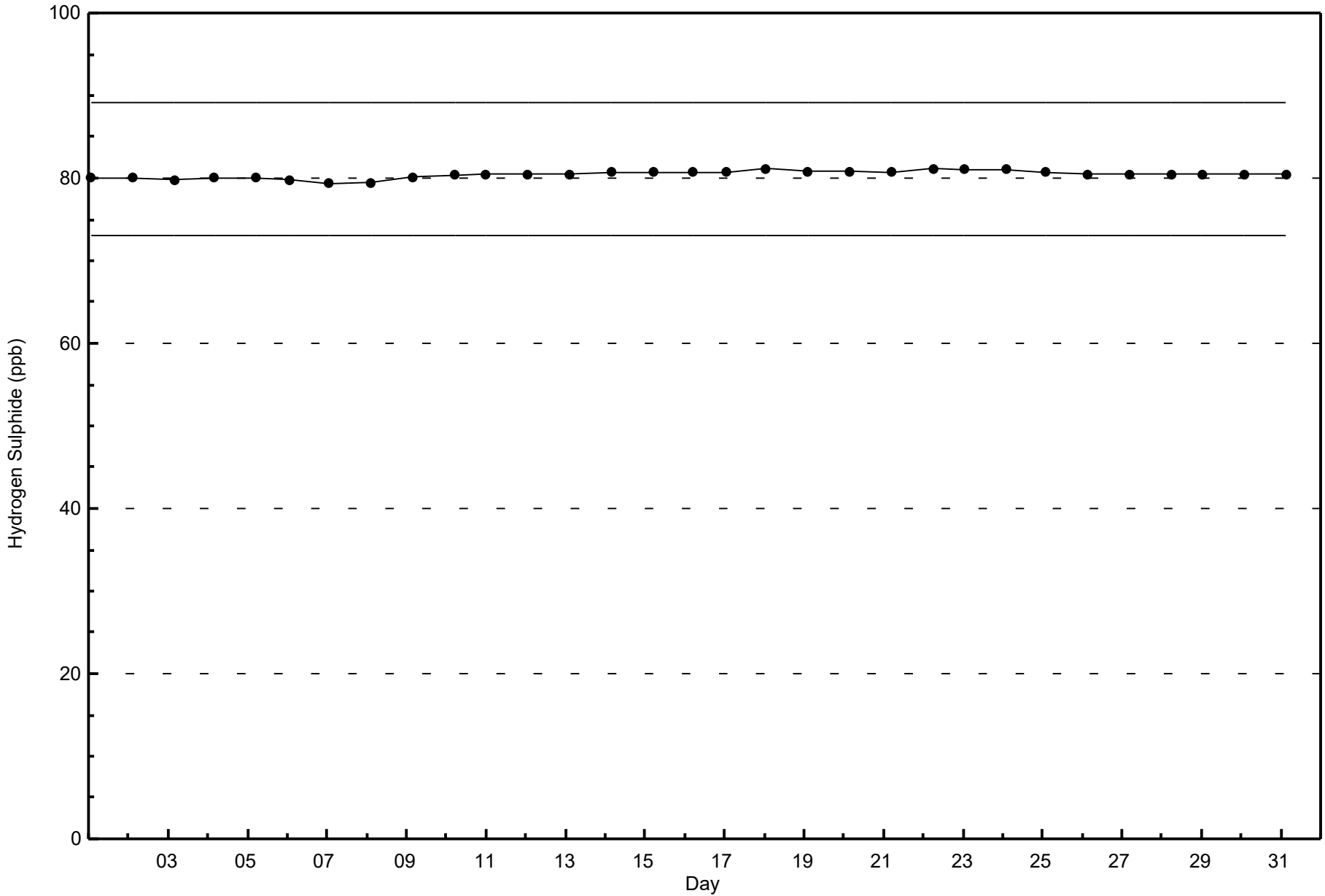
Total Number of Valid Hours: 705

Total Number of Hours: 744







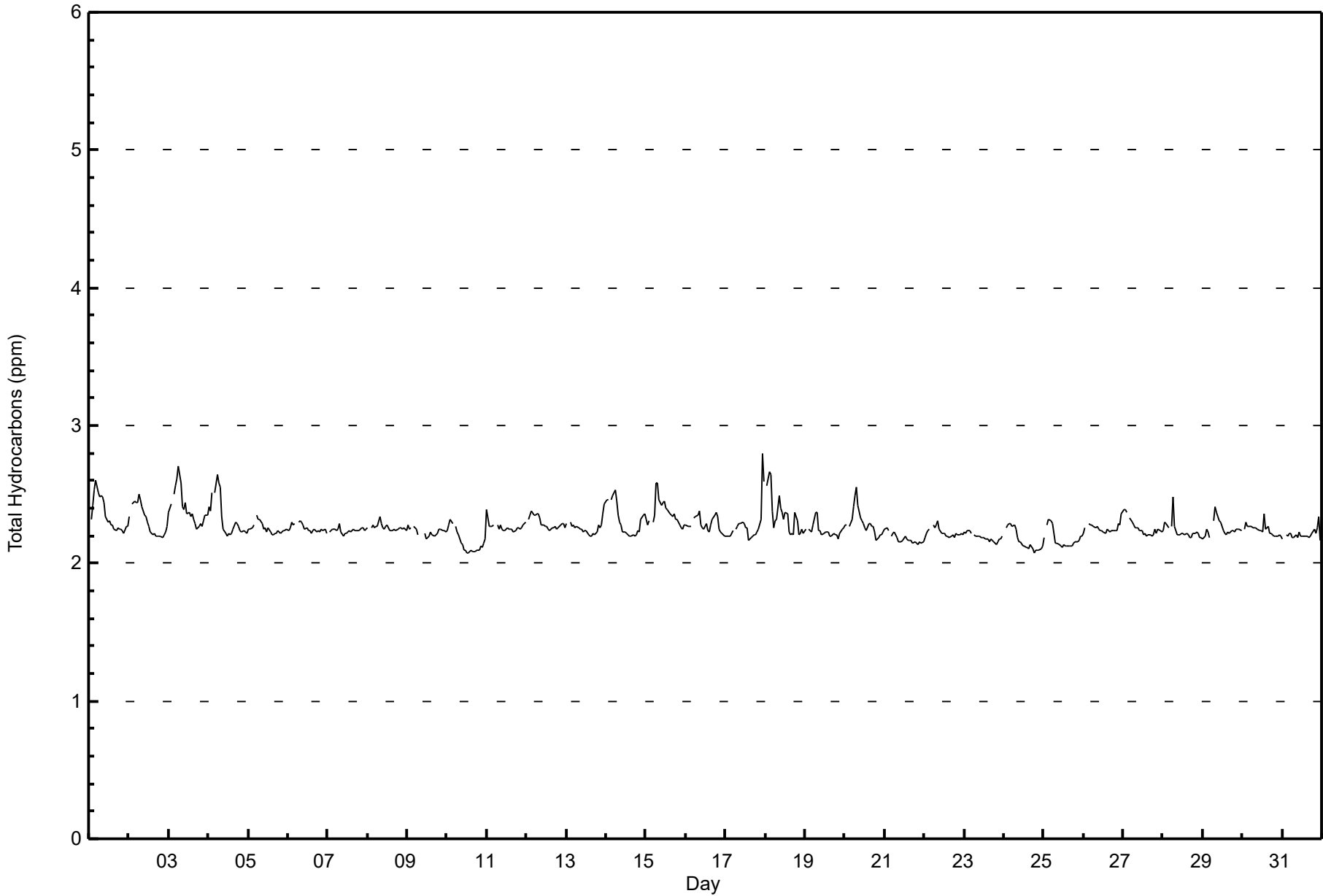






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River - May 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  
Mackay River - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	30	97	58	32	45	94	74	37	21	16	34	32	33	60	29	16	708
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>	30	97	58	32	45	94	74	37	21	16	34	32	33	60	29	16	708

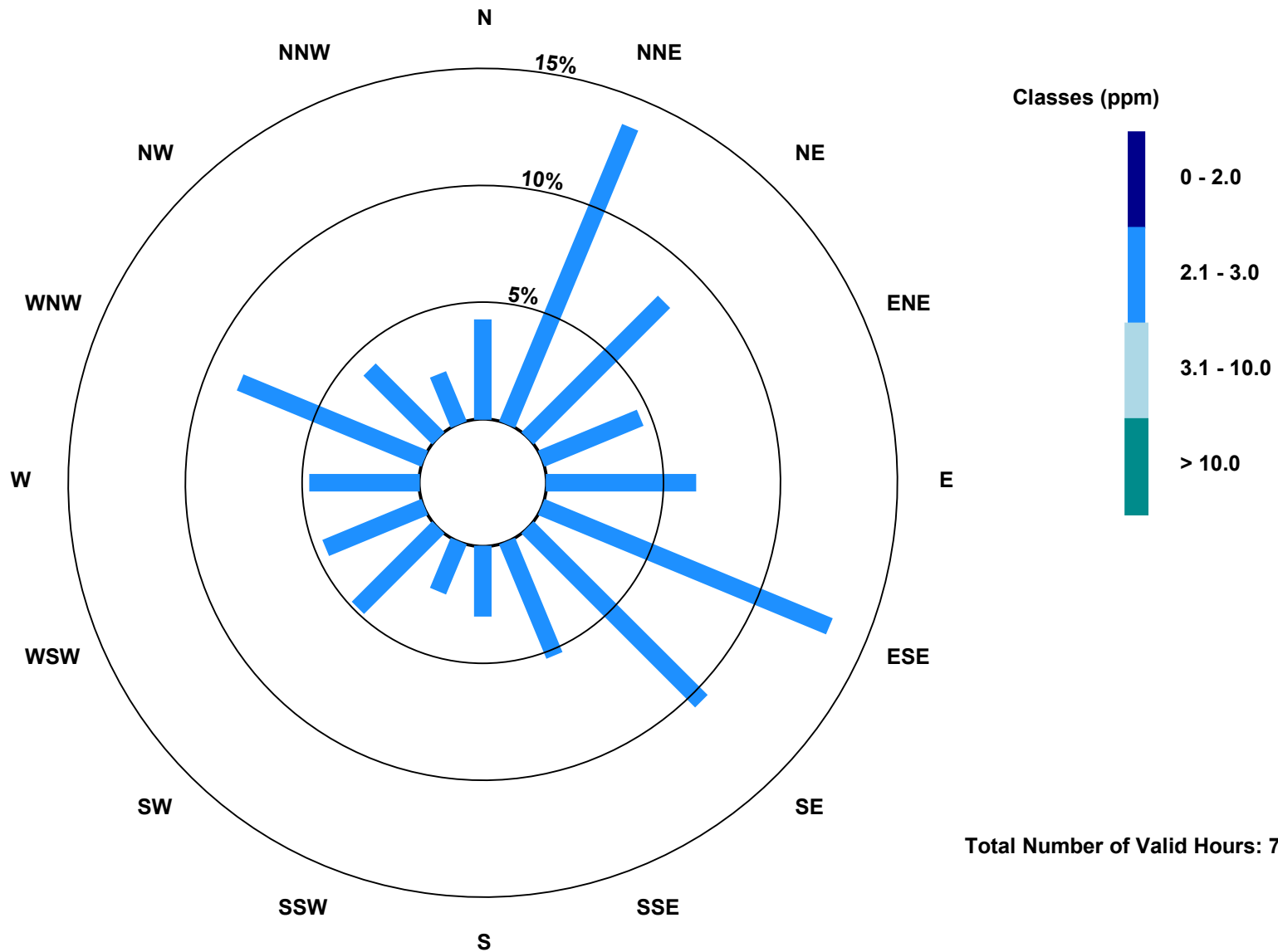
Total Number of Valid Hours: 708

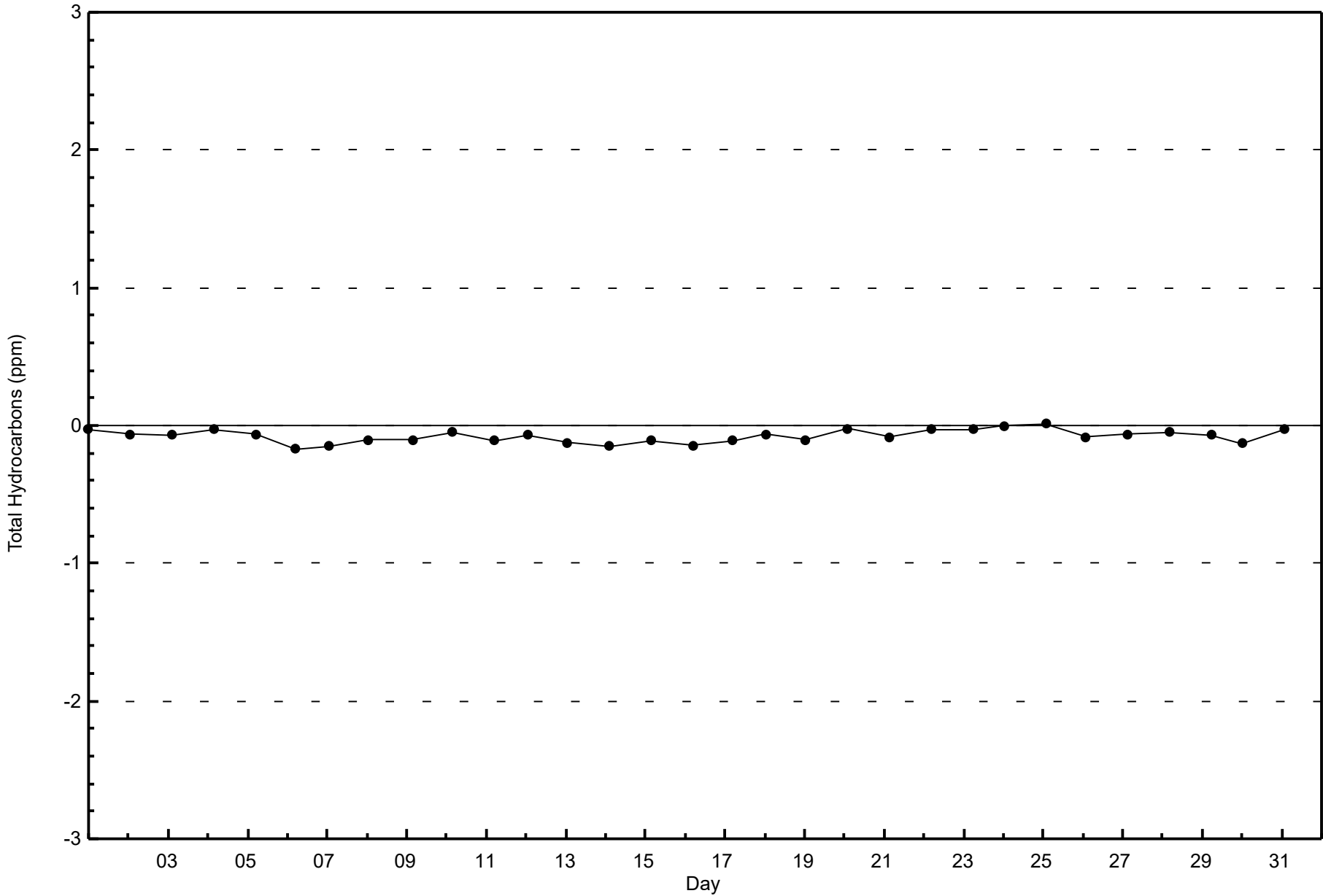
Total Number of Hours: 744



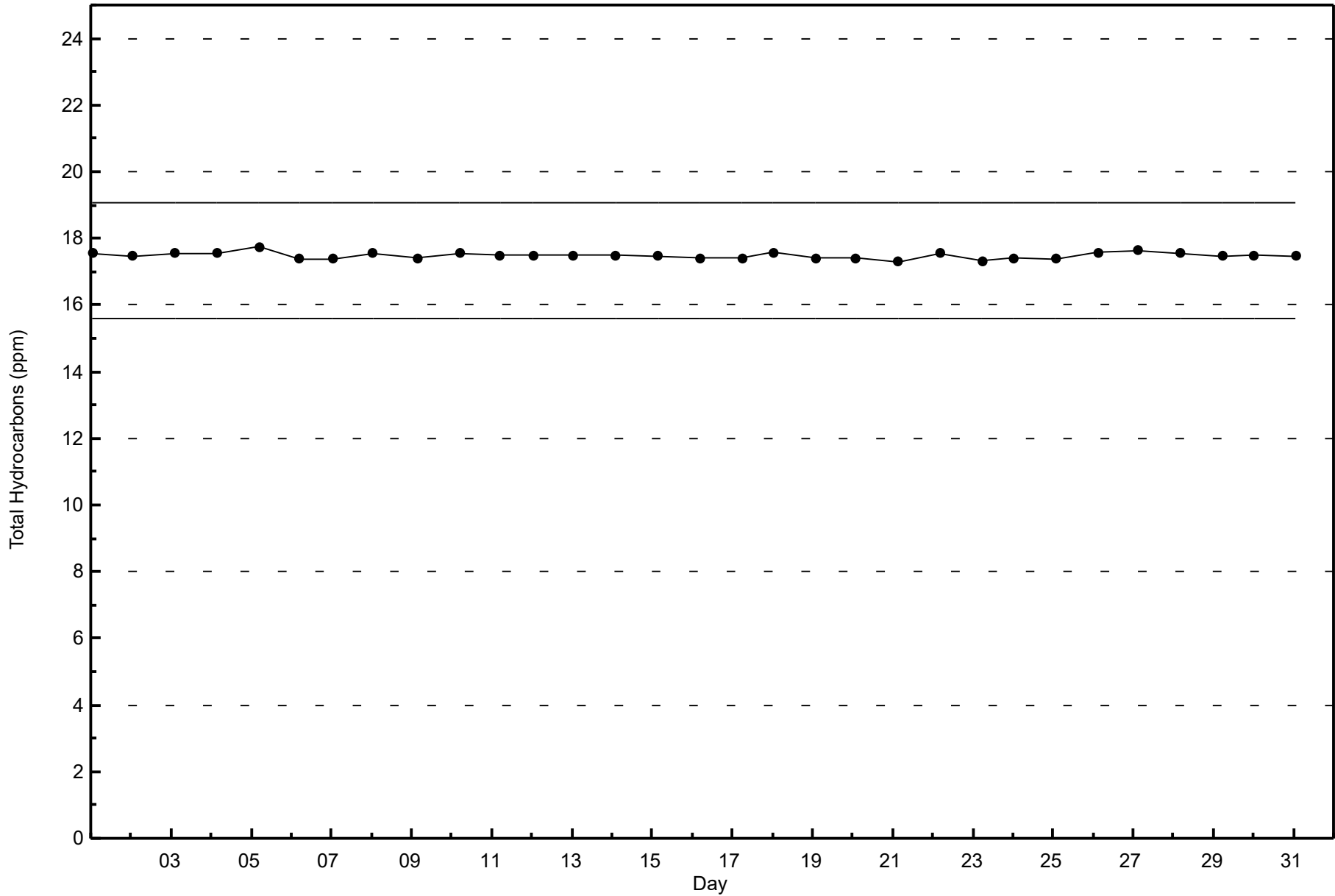
**Wood Buffalo Environmental Association**  
**Wind Rose May 2024**

**Total Hydrocarbons (THC) - ppm**  
**Mackay River**











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

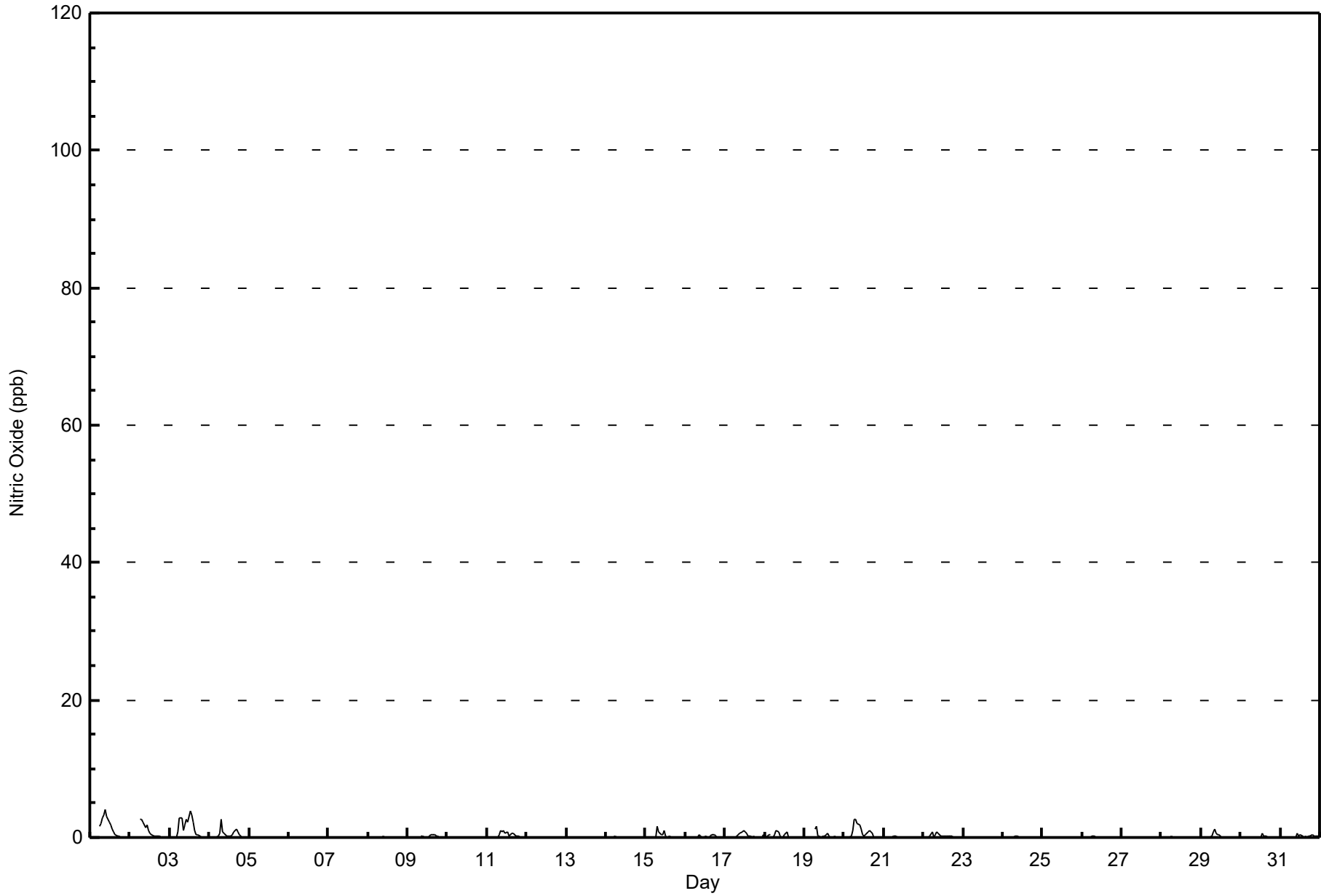
**Nitric Oxide (NO) - ppb**  
**Mackay River - May 2024**

Maximum Value: 4.1 ppb on May 1 10:00		Maximum Daily Average: 1.1 ppb on May 3		Hours in Service: 744																						
Minimum Value: 0.0 ppb on May 1 01:00		Minimum Daily Average: 0.0 ppb on May 7		Hours of Data: 708																						
Maximum Diurnal Average: 0.7 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 2		Hours of Missing Data: 36																						
Monthly Average: 0.20 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.5 P <sub>99</sub> = 2.8		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-May	0.0	0.0	0.0	0.0	Z	1.6	2.1	2.9	3.3	4.1	3.0	2.3	1.9	1.2	0.8	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	1.1	4.1
2-May	0.0	0.0	0.0	0.0	0.0	Z	2.6	2.6	2.3	1.5	1.8	0.9	0.5	0.4	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	2.6
3-May	Z	0.0	0.0	0.0	0.1	0.9	2.9	2.8	1.1	1.7	2.7	2.3	3.8	3.2	2.3	1.1	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	1.1	3.8
4-May	0.0	Z	0.0	0.0	0.0	0.2	0.6	2.6	0.9	0.5	0.2	0.3	0.3	0.2	0.4	0.9	1.2	0.9	0.4	0.2	0.0	0.0	0.0	0.0	0.4	2.6
5-May	0.0	0.0	Z	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	0.0	0.0	0.1
6-May	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
7-May	0.0	0.0	0.0	0.0	Z	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	0.0	0.0	0.0
8-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
9-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	M	0.3	0.2	0.0	0.0	0.0	0.1	0.4	0.3	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.5
10-May	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
11-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.5	1.0	0.9	1.1	0.7	0.7	0.3	0.3	0.5	0.6	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.3	1.1
12-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
13-May	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
14-May	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
15-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.6	0.8	0.3	0.4	0.9	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6
16-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.4
17-May	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.4	0.7	0.9	0.9	0.7	0.6	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.3	0.9
18-May	0.3	0.0	0.3	0.4	Z	0.1	0.4	0.9	0.8	0.2	0.0	0.0	0.5	0.8	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.9
19-May	0.0	0.0	0.0	0.0	0.0	Z	1.3	1.6	0.3	0.1	0.1	0.1	0.1	0.4	0.5	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.6
20-May	Z	0.0	0.0	0.0	0.2	1.1	2.5	2.6	2.0	1.7	1.3	0.5	0.2	0.3	0.7	0.9	0.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.7	2.6
21-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
22-May	0.0	0.0	Z	0.0	0.2	0.8	0.0	0.4	0.7	0.5	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
23-May	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
24-May	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
25-May	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	0.0	0.0	0.0	0.1
26-May	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
27-May	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
28-May	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
29-May	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.9	1.3	0.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3
30-May	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	0.7	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
31-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.7	0.2	0.3	0.2	0.0	0.1	0.0	0.1	0.3	0.4	0.3	0.3	0.2	0.1	0.1	0.7
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan      C - Calibration      M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Mackay River - May 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  
Mackay River - May 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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706
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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706

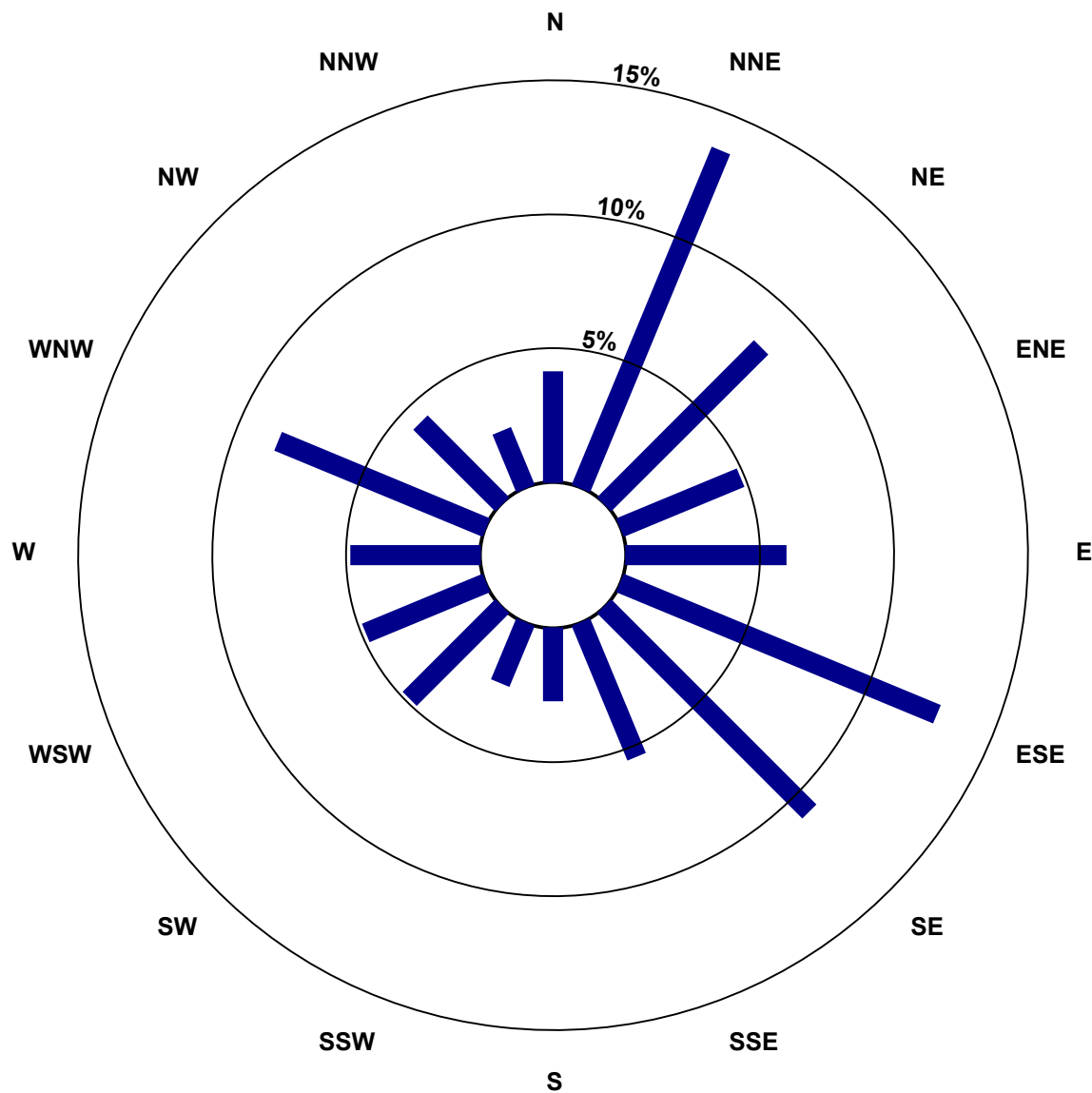
Total Number of Valid Hours: 706

Total Number of Hours: 744

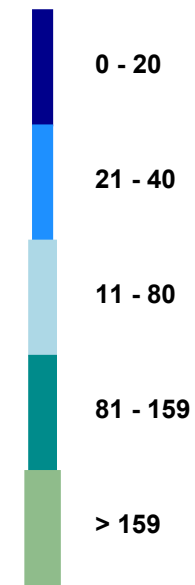


Wood Buffalo Environmental Association  
Wind Rose May 2024

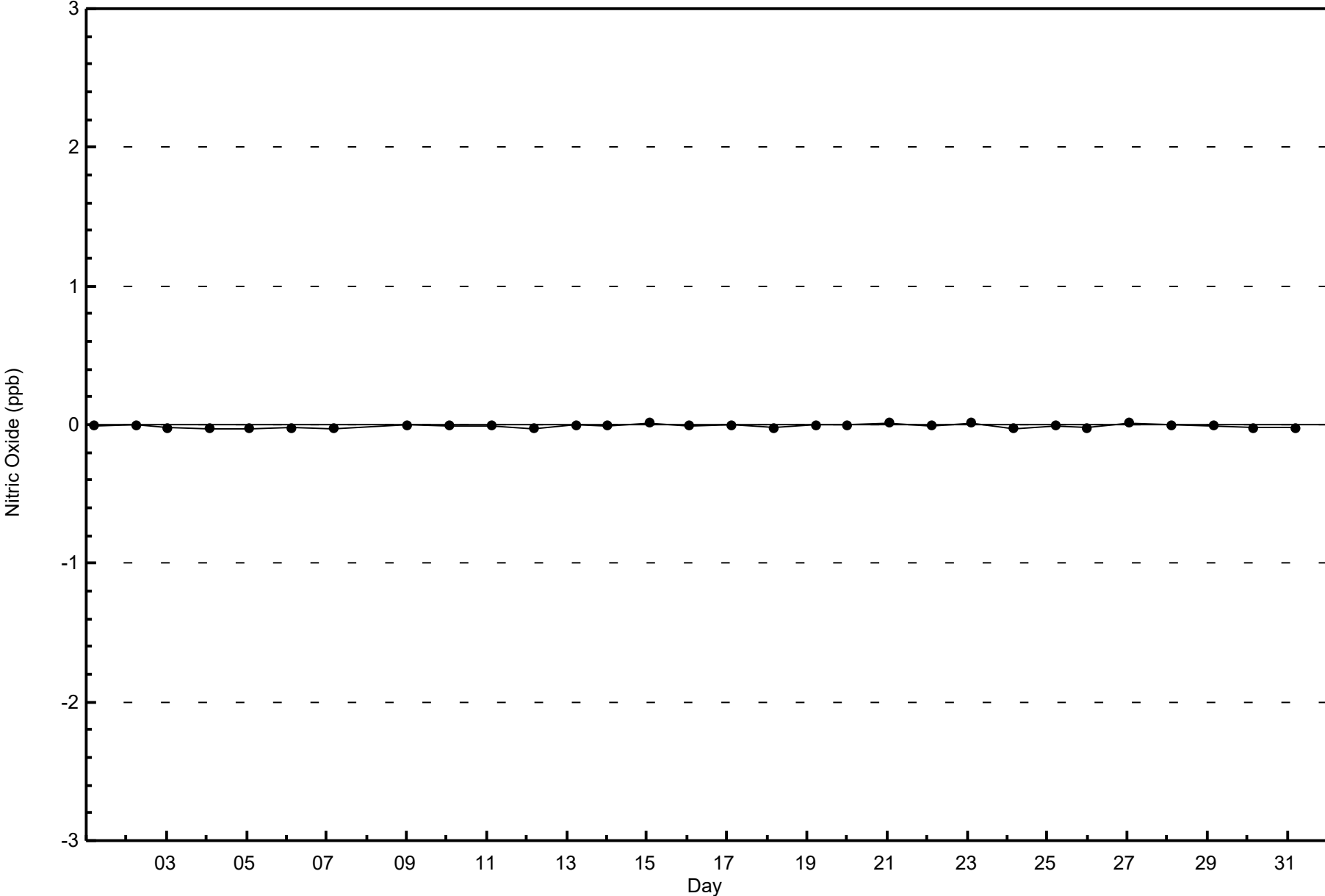
Nitric Oxide (NO) - ppb  
Mackay River

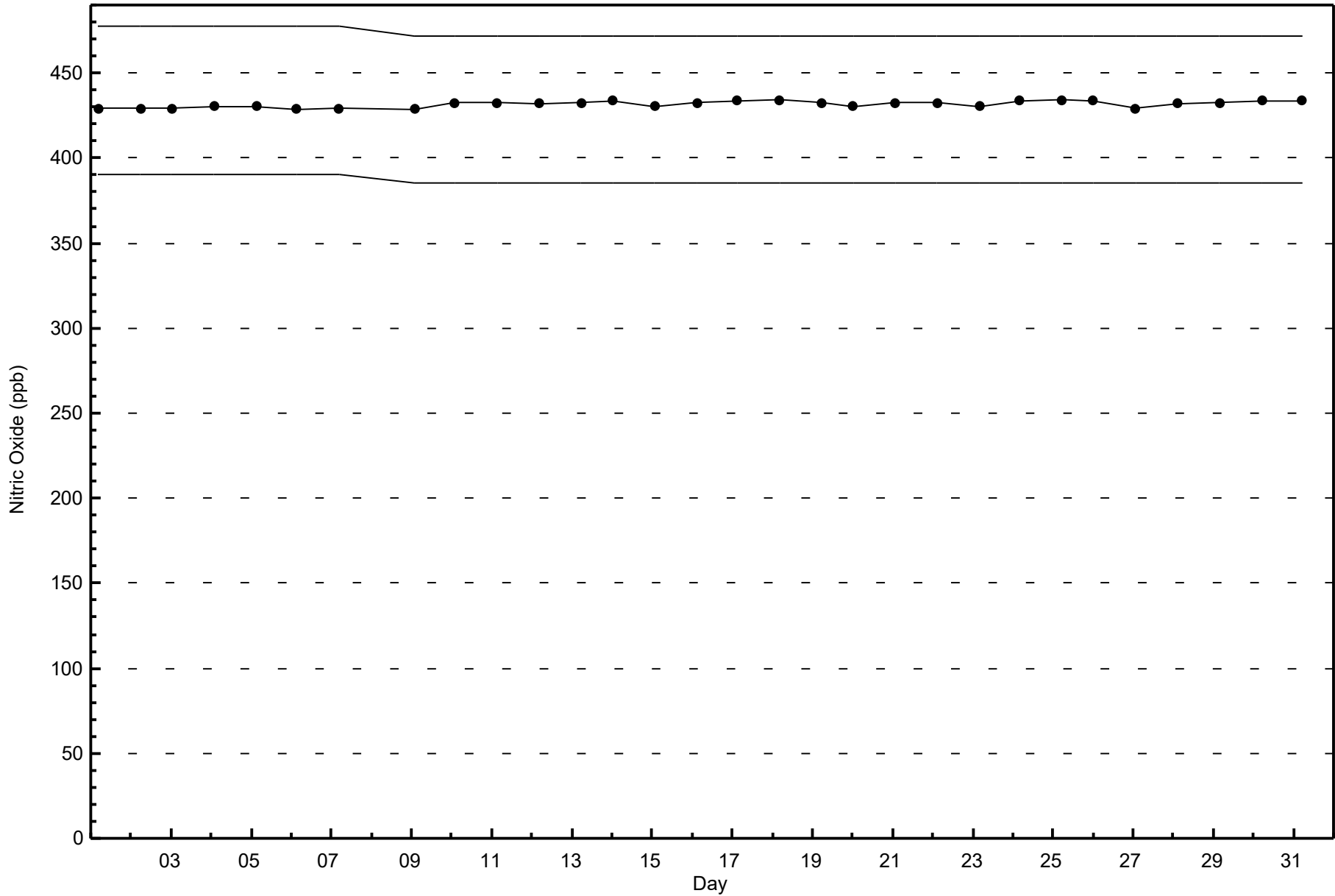


Classes (ppb)



Total Number of Valid Hours: 706









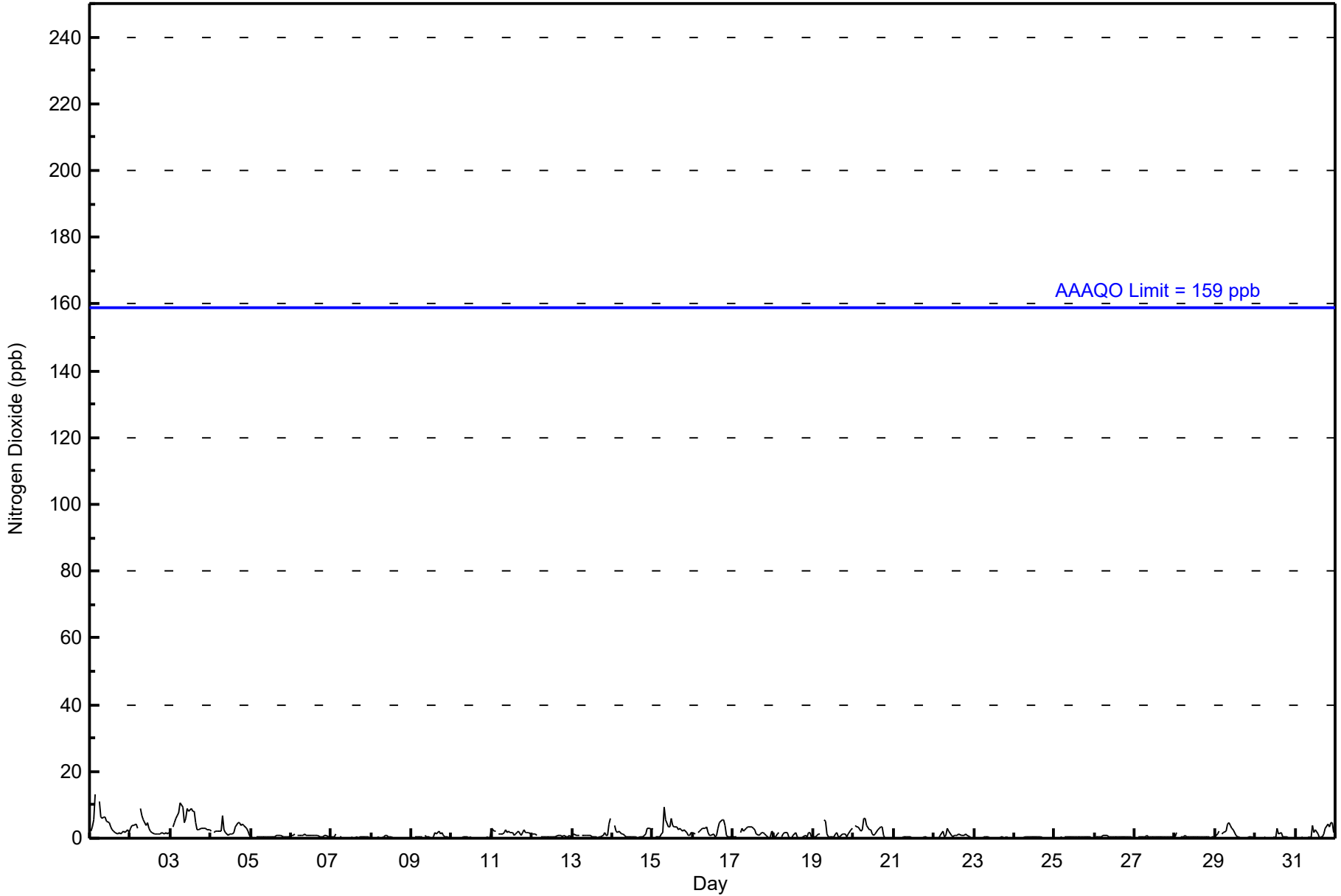
**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Mackay River - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 13.3 ppb on May 1 04:00	Maximum Daily Average: 5.5 ppb on May 3		Hours of Data:	708
Minimum Value: 0.1 ppb on May 10 01:00	Minimum Daily Average: 0.2 ppb on May 23		Hours of Missing Data:	36
Maximum Diurnal Average: 2.5 ppb at hour 8	Minimum Diurnal Average: 0.9 ppb at hour 1		Hours of Calibration:	35
Monthly Average: 1.31 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.6 Q <sub>3</sub> = 1.6 P <sub>90</sub> = 3.4 P <sub>99</sub> = 8.7		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-May	2.3	3.3	5.4	13.3	Z	11.1	6.4	6.1	6.2	6.3	5.2	4.5	3.6	2.7	2.2	1.7	1.3	1.6	1.4	1.7	2.1	1.9	2.5	1.6	4.1	13.3																							
2-May	3.0	4.0	4.0	4.1	3.1	Z	8.8	6.9	5.3	3.7	4.5	3.1	2.2	1.7	1.3	1.2	1.1	1.3	1.4	1.5	1.4	1.8	1.3	1.6	3.0	8.8																							
3-May	Z	3.6	4.8	6.1	6.6	7.5	10.5	9.5	4.8	6.0	8.7	7.9	8.8	8.1	8.0	4.6	2.4	2.4	2.9	2.9	3.1	3.1	2.6	2.4	5.5	10.5																							
4-May	2.1	Z	1.8	2.0	2.2	2.2	2.0	6.9	2.6	1.6	0.8	1.1	1.4	1.2	1.7	3.5	4.5	4.5	4.0	4.3	3.9	3.0	2.2	0.9	2.6	6.9																							
5-May	0.5	0.4	Z	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.5	0.5	0.5	0.6	0.6	0.7																							
6-May	0.7	0.8	1.1	Z	0.8	0.8	0.8	1.0	1.1	0.9	0.8	0.8	0.9	0.8	0.7	1.0	0.7	0.6	0.6	0.5	0.7	0.7	0.6	0.6	0.8	1.1																							
7-May	0.6	0.6	0.6	1.4	Z	0.5	0.4	C	C	C	C	C	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.4	1.4																							
8-May	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.5	0.7	0.9	0.5	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	0.3	0.9																							
9-May	0.3	Z	0.4	0.4	0.3	0.3	0.3	M	1.0	0.6	0.4	0.2	0.2	0.6	1.6	1.3	2.1	1.4	1.9	0.7	0.4	0.3	0.2	0.2	0.7	2.1																							
10-May	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.2	0.3	0.2	0.4																							
11-May	2.9	2.2	2.2	Z	1.4	1.2	1.3	1.9	2.7	1.9	2.2	1.6	1.6	0.7	1.1	1.7	2.0	0.9	1.7	2.4	1.8	1.9	1.9	1.4	1.8	2.9																							
12-May	1.1	1.3	1.4	0.8	Z	0.3	0.4	0.5	0.5	0.6	0.5	0.6	0.4	0.3	0.4	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.3	0.6	1.4																							
13-May	0.6	1.1	1.0	0.9	0.9	Z	0.9	0.8	0.9	1.0	0.9	0.7	0.5	0.4	0.3	0.2	0.3	0.3	0.9	1.6	0.7	0.7	4.2	5.9	1.1	5.9																							
14-May	Z	3.7	2.2	1.5	2.2	1.2	1.4	0.8	0.6	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.8	1.1	3.1	2.8	2.6	1.2	3.7	3.7																							
15-May	2.8	Z	0.6	0.4	0.5	1.1	1.7	9.2	5.7	3.3	3.4	5.8	3.8	3.2	3.3	2.7	2.8	2.4	2.1	2.4	1.6	0.7	0.9	1.6	2.7	9.2																							
16-May	1.8	1.3	Z	1.6	2.0	2.4	2.9	3.1	3.4	1.6	0.8	0.7	1.4	0.6	0.9	3.1	4.8	5.5	5.3	3.7	0.9	0.5	0.4	0.4	2.1	5.5																							
17-May	0.4	0.3	0.3	Z	1.5	2.9	2.1	2.6	3.0	3.4	3.5	3.6	2.9	2.4	1.2	0.9	1.1	1.6	1.6	1.3	0.7	0.2	0.6	2.2	1.8	3.6																							
18-May	1.8	0.2	1.4	1.7	Z	0.4	1.2	1.9	1.5	0.3	0.1	0.1	0.8	1.5	0.3	0.1	0.1	0.1	0.4	0.7	0.5	1.5	1.5	0.3	0.8	1.9																							
19-May	0.6	0.6	0.7	1.1	1.2	Z	5.4	4.9	1.2	0.6	0.4	0.6	0.6	1.4	1.6	0.6	0.4	1.1	1.2	1.3	0.6	1.1	2.4	3.1	1.4	5.4																							
20-May	Z	3.7	3.6	3.5	2.2	2.6	5.9	5.8	4.0	2.7	2.4	1.1	1.0	1.3	2.5	3.1	3.4	3.2	1.0	0.1	0.1	0.1	0.1	0.1	2.3	5.9																							
21-May	0.1	Z	0.2	0.2	0.2	0.2	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.5																							
22-May	0.1	0.1	Z	0.2	1.0	2.3	0.3	1.0	2.9	2.0	1.0	0.6	0.8	0.8	0.7	1.2	1.0	1.0	0.9	1.2	0.9	0.3	0.2	0.1	0.9	2.9																							
23-May	0.1	0.1	0.1	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.3																							
24-May	0.1	0.1	0.1	0.1	Z	0.2	0.5	0.5	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.6																							
25-May	0.1	0.1	0.1	0.2	0.3	Z	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.4																							
26-May	Z	0.3	0.3	0.4	0.6	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.5	0.8																							
27-May	0.2	Z	0.3	0.3	0.3	0.4	0.6	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.5	0.4	0.4	0.5	0.5	0.7																							
28-May	0.6	1.5	Z	0.4	0.3	0.4	0.8	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.5	0.6	0.5	1.5																							
29-May	0.6	1.3	2.1	Z	1.2	1.5	2.1	4.1	4.6	3.9	3.0	2.4	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	1.3	4.6																							
30-May	0.2	0.2	0.1	0.1	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	3.1	1.1	1.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	3.1																							
31-May	0.2	0.2	0.1	0.1	0.3	Z	0.2	0.2	0.3	0.2	3.8	1.6	2.7	1.3	0.1	0.5	0.3	1.1	3.1	4.2	3.5	4.8	4.5	1.9	1.5	4.8																							
																								0.9	1.2	1.4	1.6	1.2	1.6	1.9	2.5	1.9	1.5	1.6	1.4	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.2	0.9	1.0	1.1	1.0	Diurnal Average	
																								3.0	4.0	5.4	13.3	6.6	11.1	10.5	9.5	6.2	6.3	8.7	7.9	8.8	8.1	8.0	4.6	4.8	5.5	5.3	4.3	3.9	4.8	4.5	5.9	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  
Mackay River - May 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  
Mackay River - May 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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706
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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706

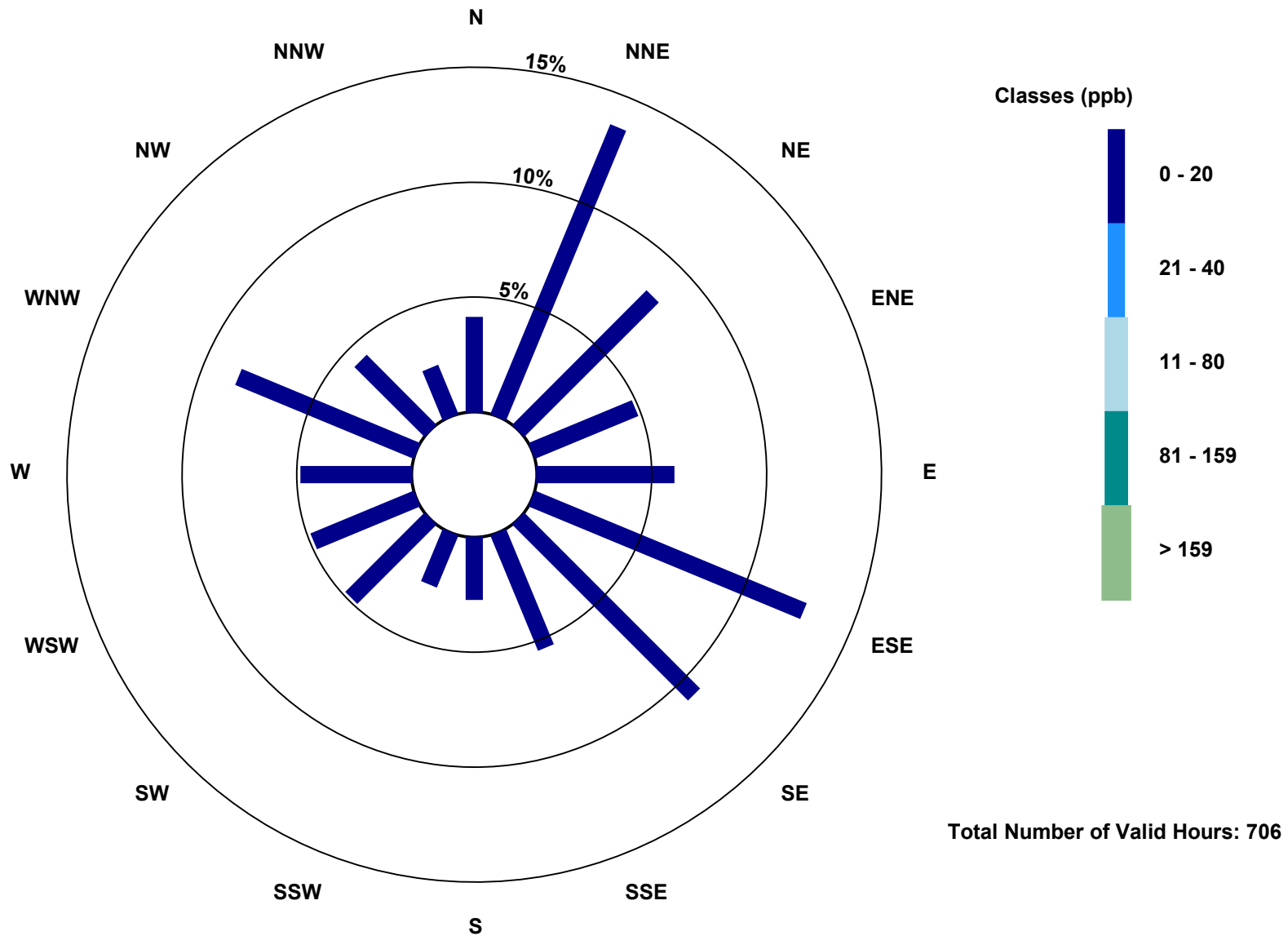
Total Number of Valid Hours: 706

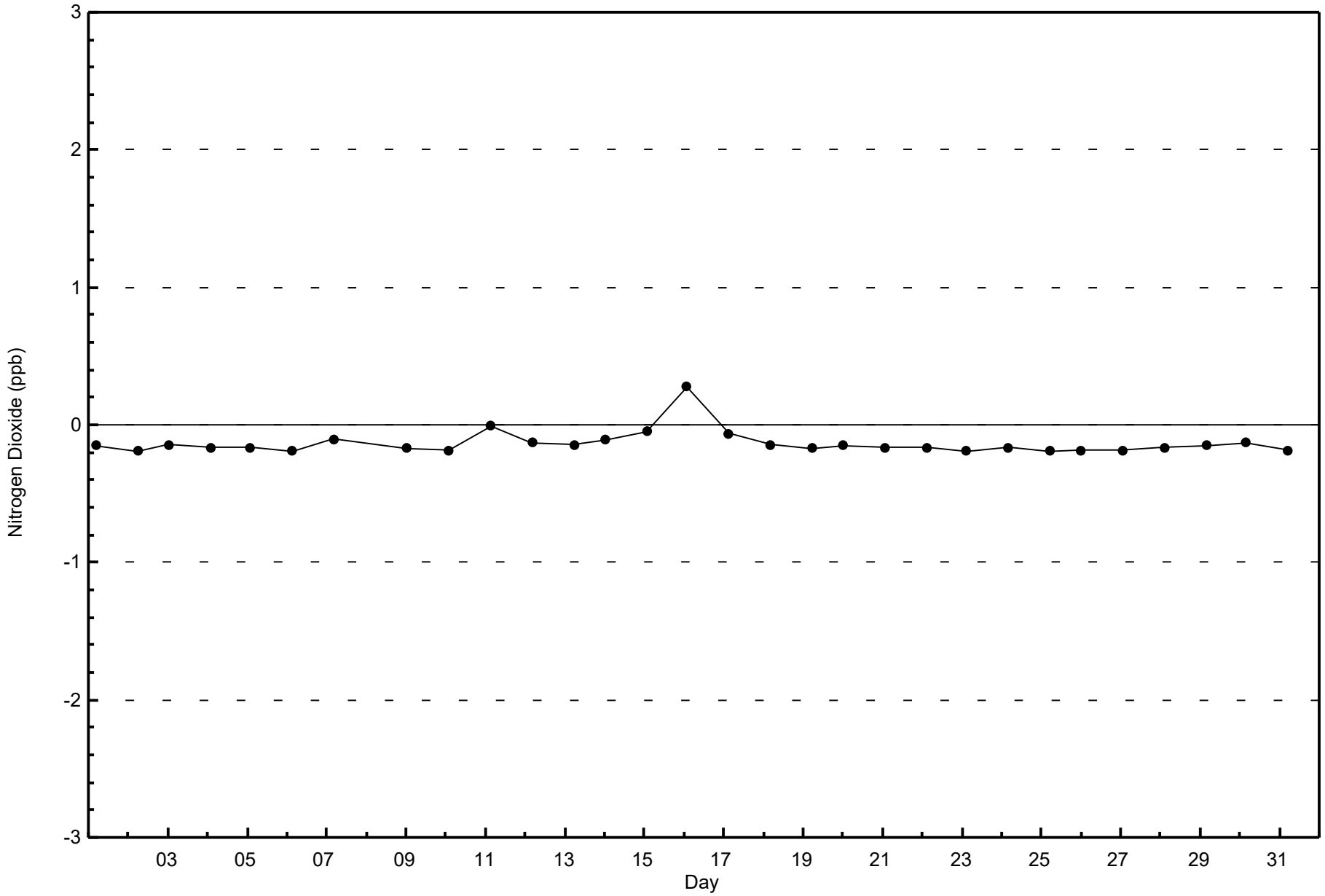
Total Number of Hours: 744

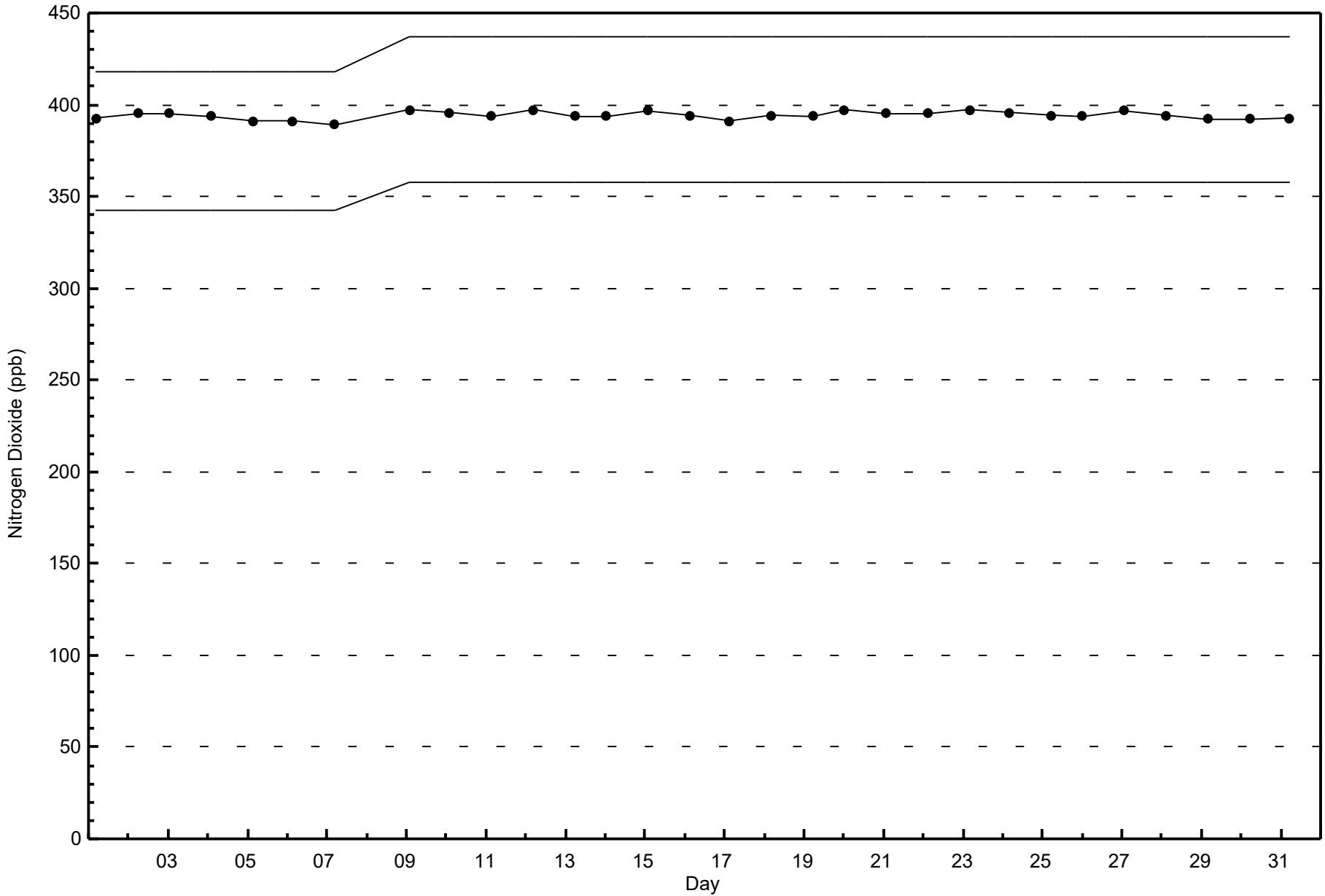


Wood Buffalo Environmental Association  
Wind Rose May 2024

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 - May 2024**

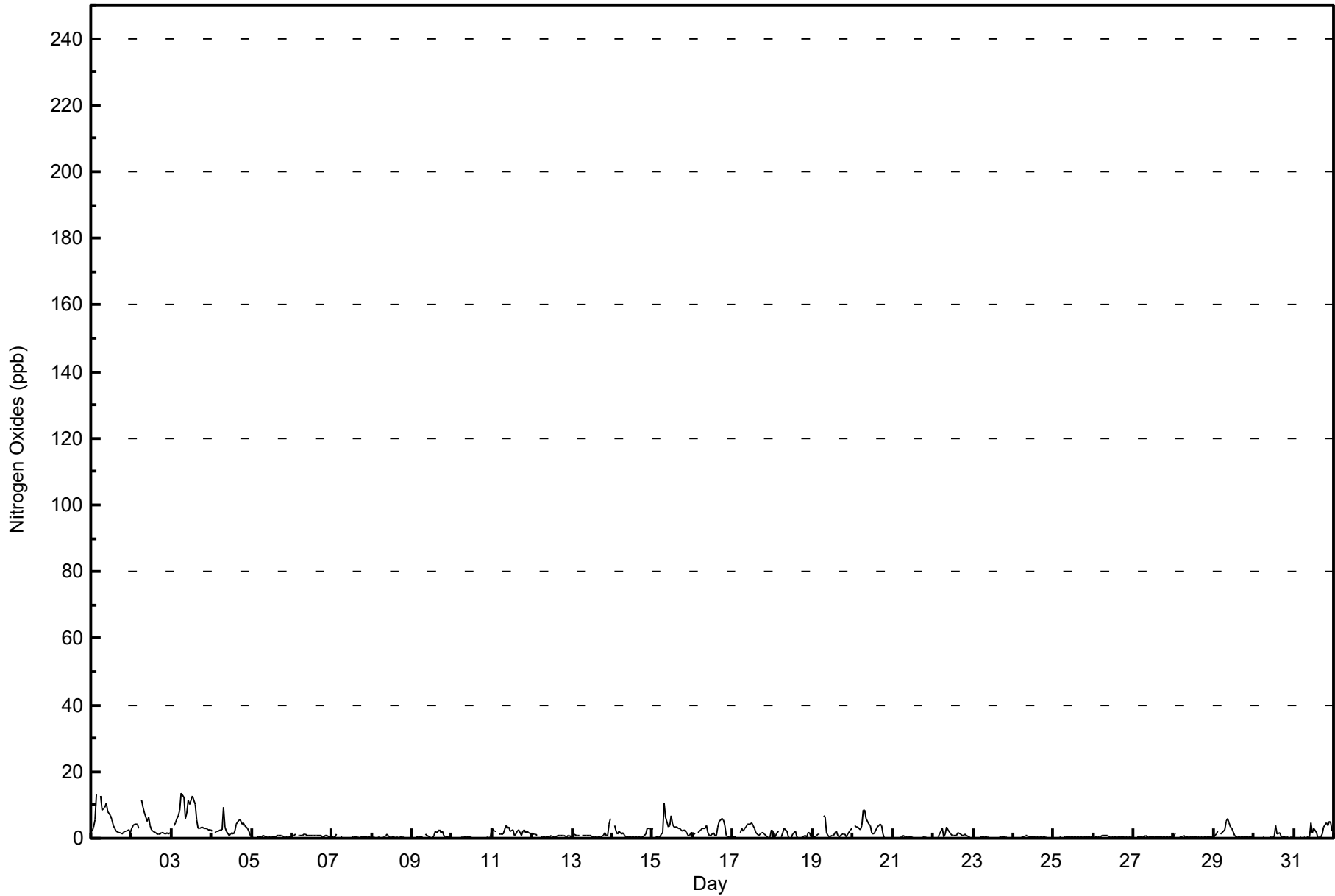
Maximum Value: 13.4 ppb on May 3 07:00		Maximum Daily Average: 6.7 ppb on May 3		Hours in Service: 744																							
Minimum Value: 0.1 ppb on May 24 04:00		Minimum Daily Average: 0.2 ppb on May 23		Hours of Data: 708																							
Maximum Diurnal Average: 3.2 ppb at hour 8		Minimum Diurnal Average: 0.9 ppb at hour 1		Hours of Missing Data: 36																							
Monthly Average: 1.51 ppb		Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.6 Q <sub>3</sub> = 1.8 P <sub>90</sub> = 3.8 P <sub>99</sub> = 11.2		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-May	2.3	3.3	5.4	13.3	Z	12.7	8.5	9.0	9.5	10.4	8.2	6.8	5.5	3.9	3.0	2.2	1.6	1.9	1.5	1.7	2.1	1.9	2.5	1.6	5.2	13.3	
2-May	3.0	4.0	4.0	4.1	3.1	Z	11.4	9.5	7.6	5.2	6.3	4.0	2.7	2.1	1.5	1.4	1.3	1.4	1.5	1.5	1.4	1.8	1.3	1.6	3.5	11.4	
3-May	Z	3.6	4.8	6.1	6.7	8.4	13.4	12.3	5.9	7.7	11.4	10.2	12.6	11.3	10.3	5.7	2.8	2.8	3.2	3.0	3.1	3.1	2.6	2.4	6.7	13.4	
4-May	2.1	Z	1.8	2.0	2.2	2.4	2.6	2.6	9.5	3.5	2.1	1.0	1.4	1.7	1.4	2.1	4.4	5.7	5.4	4.4	4.5	3.9	3.0	2.2	0.9	3.1	9.5
5-May	0.5	0.4	Z	0.5	0.5	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.5	0.5	0.6	0.6	0.7	0.7
6-May	0.7	0.8	1.1	Z	0.8	0.8	0.9	1.1	1.2	1.0	0.8	0.8	0.9	0.8	0.7	1.0	0.7	0.6	0.6	0.5	0.7	0.7	0.6	0.6	0.8	1.2	
7-May	0.6	0.6	0.6	1.4	Z	0.5	0.4	C	C	C	C	C	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.4	1.4	
8-May	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.5	0.7	1.2	0.5	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	0.3	1.2	
9-May	0.3	Z	0.4	0.4	0.3	0.3	0.3	M	1.3	0.8	0.4	0.2	0.2	0.7	2.0	1.6	2.6	1.6	2.1	0.7	0.4	0.3	0.2	0.2	0.8	2.6	
10-May	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.2	0.3	0.2	0.4	
11-May	2.9	2.2	2.2	Z	1.4	1.2	1.3	2.4	3.7	2.8	3.3	2.3	2.3	1.0	1.4	2.2	2.6	1.0	2.0	2.6	1.8	1.9	1.9	1.4	2.1	3.7	
12-May	1.1	1.3	1.4	0.8	Z	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.4	0.3	0.4	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.7	0.3	0.6	1.4	
13-May	0.6	1.1	1.0	0.9	0.9	Z	0.9	0.8	0.9	1.0	0.9	0.7	0.5	0.4	0.3	0.2	0.3	0.3	0.9	1.6	0.7	0.7	4.2	5.9	1.1	5.9	
14-May	Z	3.7	2.2	1.5	2.2	1.3	1.5	0.8	0.6	0.4	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.8	1.1	3.1	2.8	2.6	1.2	3.7	10.8	
15-May	2.8	Z	0.6	0.4	0.5	1.1	1.8	10.8	6.5	3.6	3.8	6.7	4.1	3.3	3.4	2.8	2.9	2.4	2.1	2.4	1.6	0.7	0.9	1.6	2.9	10.8	
16-May	1.8	1.3	Z	1.6	2.0	2.4	2.9	3.2	3.8	1.7	0.8	0.7	1.5	0.6	0.9	3.3	5.2	5.9	5.5	3.8	0.9	0.5	0.4	0.4	2.2	5.9	
17-May	0.4	0.3	0.3	Z	1.5	2.9	2.2	2.8	3.4	4.1	4.4	4.5	3.6	3.0	1.5	1.0	1.2	1.7	1.7	1.3	0.7	0.2	0.6	2.6	2.0	4.5	
18-May	2.1	0.2	1.7	2.1	Z	0.5	1.6	2.8	2.3	0.5	0.1	0.1	1.3	2.3	0.4	0.1	0.1	0.1	0.5	0.8	0.5	1.5	1.5	0.3	1.0	2.8	
19-May	0.6	0.6	0.7	1.1	1.2	Z	6.7	6.5	1.5	0.7	0.5	0.7	0.7	1.8	2.1	0.7	0.4	1.2	1.3	1.3	0.6	1.1	2.4	3.1	1.6	6.7	
20-May	Z	3.7	3.6	3.5	2.4	3.7	8.4	8.4	6.0	4.4	3.7	1.6	1.2	1.6	3.2	4.0	4.2	3.8	1.1	0.1	0.1	0.1	0.1	0.1	3.0	8.4	
21-May	0.1	Z	0.2	0.2	0.2	0.2	0.6	0.4	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.6	
22-May	0.1	0.1	Z	0.2	1.2	3.1	0.3	1.4	3.6	2.5	1.2	0.7	1.0	0.9	0.9	1.5	1.2	1.1	0.9	1.2	0.9	0.3	0.2	0.1	1.1	3.6	
23-May	0.1	0.1	0.1	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.3	
24-May	0.1	0.1	0.1	0.1	Z	0.2	0.6	0.7	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.9	
25-May	0.1	0.1	0.1	0.2	0.3	Z	0.5	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	0.2	0.2	0.3	0.5	
26-May	Z	0.3	0.3	0.4	0.6	0.8	0.9	0.8	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.2	0.5	0.9	
27-May	0.2	Z	0.3	0.3	0.3	0.4	0.6	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.5	0.4	0.4	0.5	0.5	0.8	
28-May	0.6	1.5	Z	0.4	0.3	0.4	0.9	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.5	0.6	0.5	1.5	
29-May	0.6	1.3	2.1	Z	1.2	1.6	2.4	5.0	5.9	4.5	3.4	2.8	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	1.5	5.9	
30-May	0.2	0.2	0.1	0.1	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	3.8	1.3	1.7	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.5	3.8	
31-May	0.2	0.2	0.1	0.1	0.3	Z	0.2	0.2	0.3	0.2	4.5	1.8	3.0	1.5	0.1	0.6	0.3	1.2	3.4	4.6	3.8	5.1	4.7	2.0	1.7	5.1	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance																					





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Mackay River - May 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  
Mackay River - May 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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706
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	96	58	34	42	90	76	38	19	17	34	34	34	59	30	16	706

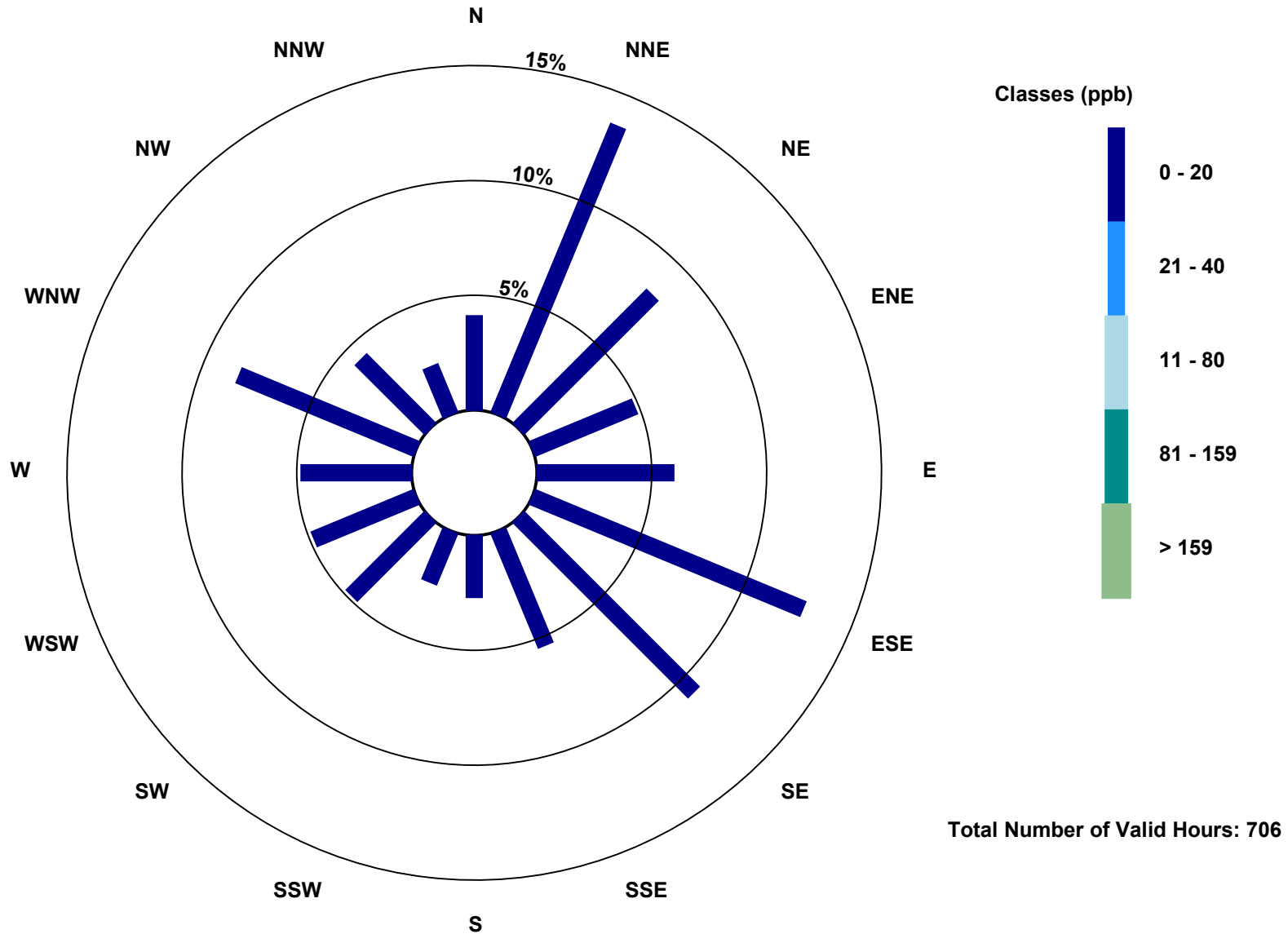
Total Number of Valid Hours: 706

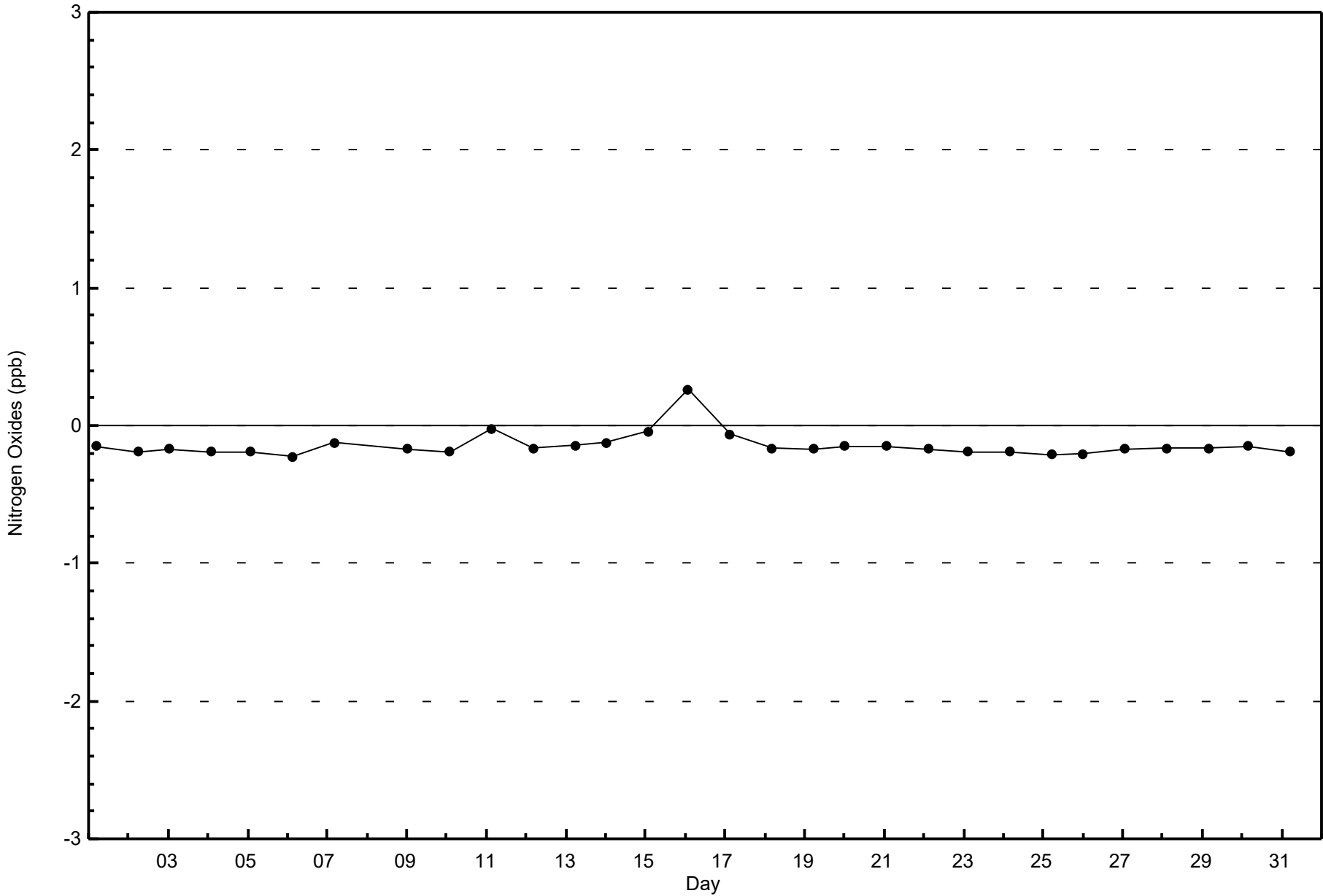
Total Number of Hours: 744

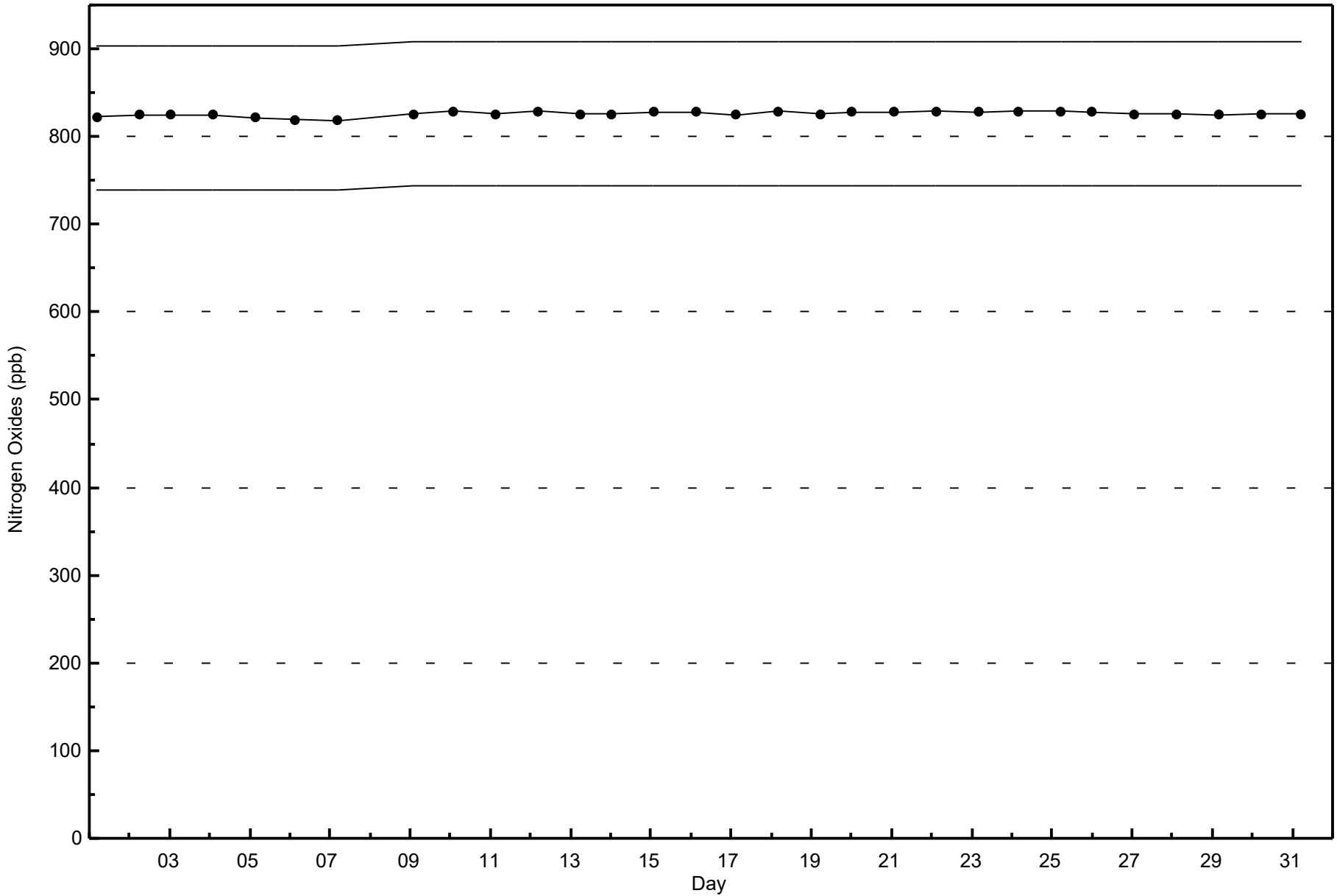


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Mackay River









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

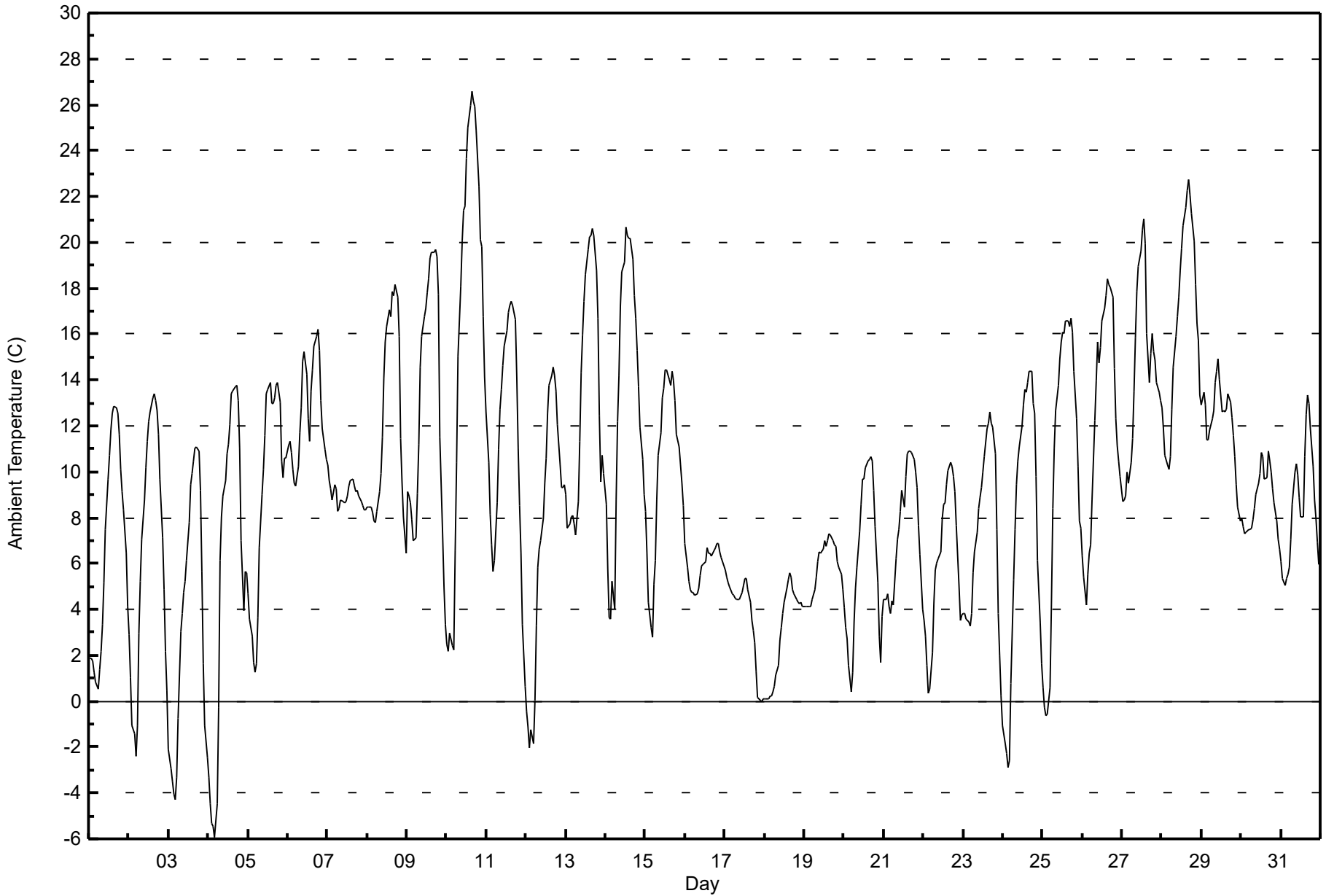
**Ambient Temperature (AT) - C**  
**Mackay River - May 2024**

Maximum Value: 26.6 C on May 10 16:00		Maximum Daily Average: 16.5 C on May 28		Hours in Service: 744																							
Minimum Value: -5.9 C on May 4 05:00		Minimum Daily Average: 2.9 C on May 18		Hours of Data: 744																							
Maximum Diurnal Average: 13.8 C at hour 17		Minimum Diurnal Average: 3.7 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 9.22 C		Percentiles: P <sub>1</sub> = -3.4 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 5.3 Median = 9.1 Q <sub>3</sub> = 12.9 P <sub>90</sub> = 16.8 P <sub>99</sub> = 22.6		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-May	1.9	1.9	1.7	1.3	0.9	0.5	1.4	2.2	3.3	5.1	7.5	9.7	10.7	11.8	12.5	12.9	12.8	12.6	11.6	10.1	9.1	8.3	6.5	4.1	6.7	12.9	
2-May	2.9	1.0	-1.1	-1.4	-2.4	-1.1	2.9	5.2	7.1	8.8	10.2	11.3	12.2	12.6	13.2	13.4	13.1	12.7	11.7	9.7	7.1	4.9	2.2	0.5	6.5	13.4	
3-May	-2.1	-3.0	-3.5	-4.1	-4.3	-3.3	-0.8	3.1	3.8	4.7	5.2	6.1	7.8	9.5	9.9	10.5	11.0	11.1	10.9	9.2	5.7	1.7	-1.1	-2.5	3.6	11.1	
4-May	-3.3	-4.5	-5.3	-5.5	-5.9	-4.5	-0.3	6.1	8.0	8.9	9.6	10.8	11.2	12.1	13.4	13.5	13.7	13.8	13.1	11.0	7.0	3.9	5.6	5.6	5.8	13.8	
5-May	4.7	3.6	2.8	1.7	1.3	1.6	3.6	6.7	9.0	10.1	11.6	13.4	13.6	13.9	13.0	13.0	13.2	13.8	13.9	13.1	10.5	9.8	10.6	10.6	9.1	13.9	
6-May	11.1	11.3	10.8	10.1	9.5	9.4	10.2	11.7	12.8	14.8	15.2	14.3	12.3	11.3	13.5	14.5	15.5	15.9	16.2	15.3	13.1	11.9	11.0	10.5	12.6	16.2	
7-May	10.3	9.6	9.2	8.8	9.4	9.3	8.3	8.4	8.7	8.7	8.7	9.0	9.3	9.6	9.7	9.4	9.1	9.2	8.9	8.7	8.5	8.4	8.3	9.0	9.0	10.3	
8-May	8.5	8.5	8.5	8.2	7.8	7.8	8.3	9.1	9.9	11.5	14.1	15.6	16.3	17.0	16.8	17.8	17.7	18.2	17.6	15.9	11.5	9.5	8.0	6.4	12.1	18.2	
9-May	9.1	9.0	8.6	7.9	7.0	7.1	9.0	11.2	14.6	15.9	16.8	17.1	17.8	18.4	19.3	19.5	19.6	19.7	19.4	17.7	11.5	7.3	5.0	3.3	13.0	19.7	
10-May	2.5	2.2	3.0	2.4	2.2	6.6	10.4	15.1	18.1	20.1	21.4	21.6	23.6	25.0	26.0	26.6	26.1	25.9	24.9	22.4	20.1	19.8	16.7	14.1	16.5	26.6	
11-May	12.6	10.4	8.2	6.8	5.6	6.2	8.6	10.9	12.7	13.6	14.6	15.5	16.1	16.9	17.2	17.4	17.3	16.6	14.1	11.0	8.6	6.4	3.3	0.7	11.3	17.4	
12-May	-0.4	-1.1	-2.0	-1.3	-1.9	0.1	3.3	5.8	6.6	7.0	8.0	9.5	10.6	12.5	13.8	14.2	14.6	14.2	13.5	12.1	10.3	9.3	9.3	9.4	7.4	14.6	
13-May	9.0	7.5	7.7	8.1	8.1	7.7	7.3	8.7	11.4	14.3	16.0	17.4	18.6	19.7	20.2	20.3	20.6	20.3	18.8	16.7	12.4	9.6	10.7	9.9	13.4	20.6	
14-May	8.6	5.8	3.6	3.6	5.2	4.0	8.7	12.2	14.2	17.2	18.7	19.2	20.7	20.3	20.1	20.2	19.3	17.7	16.7	15.3	13.7	11.9	10.5	9.0	13.2	20.7	
15-May	8.3	6.4	4.3	3.2	2.8	5.1	6.2	8.8	10.7	11.7	13.2	13.6	14.4	14.4	14.0	13.8	14.4	14.0	13.1	11.6	11.1	10.3	9.5	8.5	10.1	14.4	
16-May	6.9	5.8	5.2	4.9	4.7	4.7	4.6	4.7	4.9	5.5	5.9	6.0	6.1	6.7	6.5	6.4	6.3	6.5	6.7	6.9	6.8	6.5	6.3	5.9	5.9	6.9	
17-May	5.7	5.4	5.2	5.0	4.7	4.6	4.5	4.4	4.4	4.4	4.8	5.1	5.3	5.4	4.9	4.3	3.5	3.1	2.5	1.3	0.2	0.1	0.0	0.1	3.7	5.7	
18-May	0.1	0.1	0.1	0.2	0.2	0.4	0.6	1.2	1.6	2.7	3.2	3.8	4.3	4.9	5.3	5.6	5.4	4.9	4.7	4.4	4.3	4.2	4.3	4.1	2.9	5.6	
19-May	4.1	4.1	4.1	4.1	4.1	4.4	4.9	5.4	6.1	6.5	6.5	6.7	7.0	6.8	7.0	7.3	7.3	7.0	6.8	6.8	6.1	5.8	5.5	4.9	5.8	7.3	
20-May	4.0	3.2	2.8	1.6	0.4	1.3	3.5	4.9	5.8	7.4	8.6	9.7	9.7	10.2	10.5	10.5	10.7	10.5	9.2	7.6	5.2	2.9	1.7	3.7	6.1	10.7	
21-May	4.4	4.5	4.7	4.1	3.8	4.4	4.2	6.2	7.1	7.5	8.3	9.2	8.5	9.8	10.8	10.9	10.9	10.9	10.6	10.0	9.3	7.6	6.4	4.0	7.4	10.9	
22-May	3.5	2.8	1.6	0.4	0.5	2.1	4.2	5.7	6.0	6.2	6.5	8.0	8.6	8.7	9.5	10.0	10.4	10.2	9.8	9.1	7.7	5.0	3.5	3.7	6.0	10.4	
23-May	3.8	3.9	3.6	3.5	3.3	3.8	5.6	6.5	7.4	8.4	8.9	9.3	10.0	10.6	11.9	12.1	12.6	12.1	11.9	10.8	7.5	3.8	2.0	0.2	7.2	12.6	
24-May	-1.0	-1.8	-2.3	-2.9	-2.6	0.8	5.3	7.5	9.5	10.5	11.1	12.0	12.9	13.6	13.4	13.9	14.4	14.4	13.0	12.5	9.8	6.2	3.4	1.6	7.3	14.4	
25-May	0.6	-0.3	-0.7	-0.6	0.6	4.3	8.4	11.0	12.7	13.8	14.9	15.6	16.1	16.1	16.6	16.6	16.3	16.7	16.1	14.4	12.3	10.2	7.9	7.5	10.3	16.7	
26-May	6.3	5.4	4.2	5.5	6.4	6.8	8.8	12.2	14.0	15.7	14.8	15.4	16.6	17.1	17.7	18.4	18.2	18.0	17.6	14.5	12.3	11.2	10.5	9.8	12.4	18.4	
27-May	8.7	8.8	9.0	10.0	9.5	10.4	11.4	13.5	15.8	17.9	18.9	19.6	20.5	21.0	19.9	16.0	13.9	15.2	16.0	15.2	14.9	13.9	13.5	13.1	14.4	21.0	
28-May	12.8	11.9	10.7	10.3	10.1	10.7	12.8	14.6	15.9	16.8	17.6	18.8	19.8	20.7	21.5	22.3	22.7	22.1	21.3	20.0	18.2	16.5	15.7	13.4	16.5	22.7	
29-May	12.9	13.5	12.9	11.4	11.4	11.8	12.3	12.6	13.9	14.4	14.9	14.0	12.6	12.6	12.6	12.7	13.4	13.0	12.4	11.5	10.6	9.5	8.4	7.8	12.2	14.9	
30-May	8.0	7.6	7.3	7.4	7.5	7.5	7.5	7.9	8.4	9.0	9.5	9.9	10.9	10.7	9.7	9.8	10.9	10.5	10.0	9.3	8.7	7.8	7.0	6.6	8.7	10.9	
31-May	6.1	5.4	5.1	5.4	5.5	5.8	7.1	8.6	10.0	10.3	9.9	8.9	8.1	8.0	10.7	12.5	13.3	12.9	11.9	10.2	8.8	7.9	6.9	6.0	8.5	13.3	
		5.5	4.8	4.2	3.9	3.7	4.5	6.2	8.1	9.5	10.6	11.5	12.1	12.6	13.1	13.6	13.8	13.8	13.7	13.1	11.8	9.8	8.1	7.1	6.2	Diurnal Average	
		12.9	13.5	12.9	11.4	11.4	11.8	12.8	15.1	18.1	20.1	21.4	21.6	23.6	25.0	26.0	26.6	26.1	25.9	24.9	22.4	20.1	19.8	16.7	14.1	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Mackay River - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Mackay River - May 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	33	4.44	4.44
0 - 10	394	52.96	57.39
10 - 20	288	38.71	96.10
> 20	29	3.90	100.00

Total Number of Valid Hours: 744

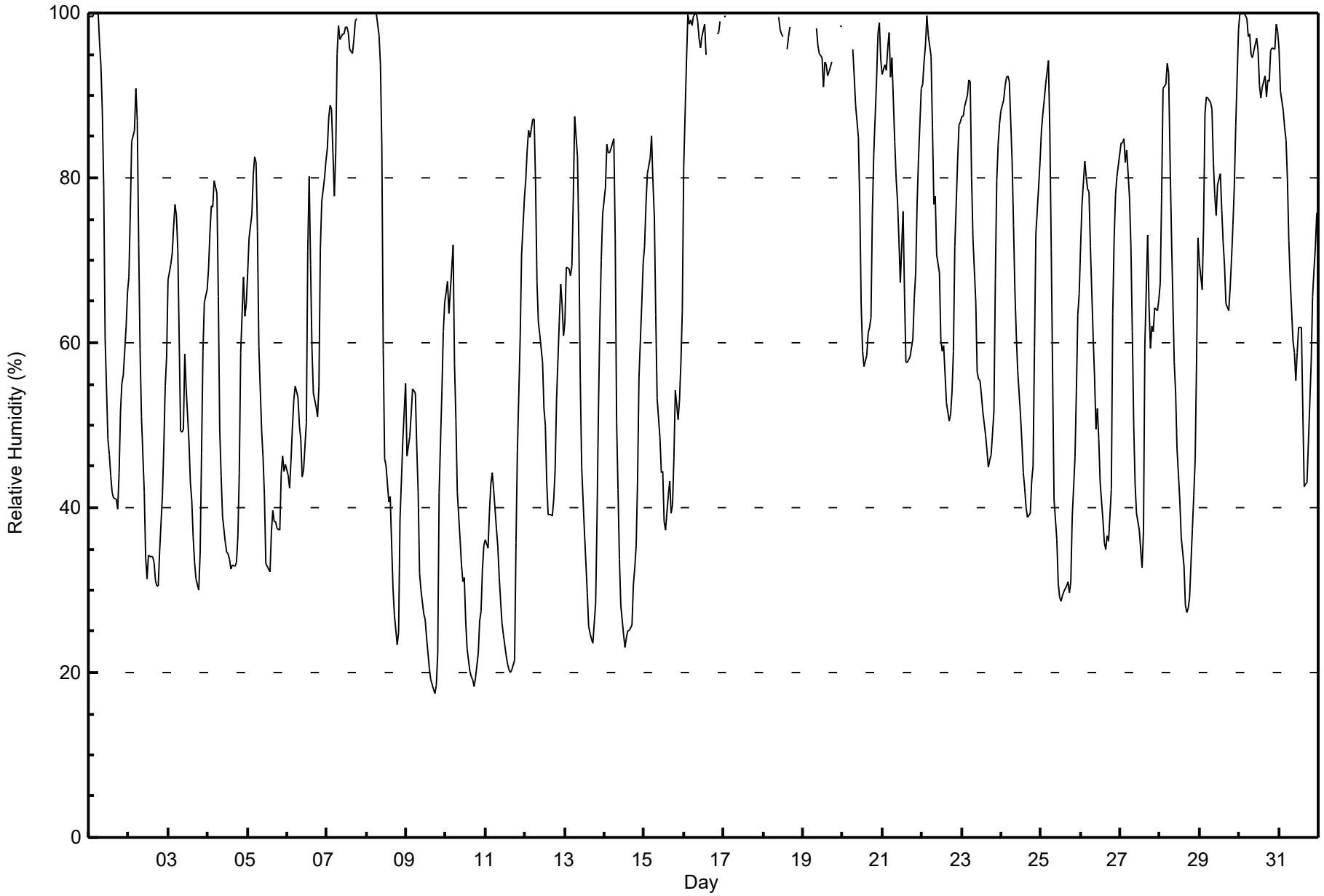
Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Mackay River - May 2024**

Maximum Value: 100.0 % on May 1 04:00		Maximum Daily Average: 95.5 % on May 30		Hours in Service: 744																							
Minimum Value: 17.5 % on May 9 18:00		Minimum Daily Average: 37.1 % on May 9		Hours of Data: 671																							
Maximum Diurnal Average: 83.6 % at hour 5		Minimum Diurnal Average: 44.8 % at hour 18		Hours of Missing Data: 73																							
Monthly Average: 62.97 %		Percentiles: P <sub>1</sub> = 19.4 P <sub>10</sub> = 31.3 Q <sub>1</sub> = 42.9 Median = 62.6 Q <sub>3</sub> = 83.9 P <sub>90</sub> = 95.6 P <sub>99</sub> = 100.0		Hours of Calibration: 0																							
				Percent Operational Time: 90.2																							
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-May	99.6	99.6	99.4	100.0	100.0	100.0	96.5	93.5	88.0	78.9	60.5	48.4	46.5	44.0	41.8	41.2	41.0	39.9	44.3	51.7	55.1	56.1	61.8	66.1	68.9	100.0	
2-May	68.0	75.7	84.3	85.8	90.8	87.0	72.1	59.2	51.0	41.8	33.9	31.3	34.2	34.0	34.1	33.3	31.2	30.6	30.5	34.7	41.6	47.5	54.7	58.4	51.9	90.8	
3-May	67.6	69.6	70.9	74.1	76.8	75.4	71.4	49.4	49.1	49.5	58.6	54.5	47.9	43.0	40.8	36.4	33.4	31.3	29.9	34.7	46.6	59.1	64.8	66.5	54.2	76.8	
4-May	68.9	73.3	76.7	76.4	79.7	78.1	65.6	49.5	43.8	39.1	35.8	34.6	34.4	33.7	32.5	33.0	32.9	33.3	36.6	44.2	58.7	67.9	63.2	64.8	52.4	79.7	
5-May	68.5	72.7	75.6	80.3	82.6	81.9	73.6	59.4	49.2	46.1	41.3	33.2	32.9	32.3	37.0	39.6	38.3	38.3	37.5	37.3	44.1	46.2	44.4	45.2	51.6	82.6	
6-May	43.9	42.4	45.8	49.7	53.0	54.7	53.3	49.9	48.3	43.7	44.5	50.4	71.1	80.1	69.5	59.4	53.9	52.3	51.0	54.8	71.3	77.2	80.1	82.1	57.6	82.1	
7-May	83.6	87.3	88.9	88.4	77.8	83.1	95.1	98.5	96.8	97.5	97.5	98.3	98.4	97.7	95.5	95.1	96.8	99.1	99.3	OR	OR	OR	OR	OR	93.4	99.3	
8-May	OR	OR	OR	OR	98.9	DF	100.0	97.3	93.7	83.7	59.2	46.0	45.0	40.7	41.3	35.6	30.1	27.0	23.4	24.9	38.7	43.2	48.2	55.1	54.3	100.0	
9-May	46.2	47.4	48.7	51.3	54.5	53.9	47.3	41.8	32.0	30.0	27.1	26.4	24.2	22.3	20.5	19.1	17.9	17.5	18.4	22.3	41.9	54.3	61.3	65.0	37.1	65.0	
10-May	66.2	67.5	63.6	69.0	71.8	57.5	50.7	41.9	36.1	33.1	31.0	31.6	26.2	22.8	20.1	19.5	19.2	18.4	19.3	22.3	26.4	27.4	32.5	35.5	37.9	71.8	
11-May	36.1	35.1	39.4	42.9	44.2	42.2	37.5	35.3	31.5	28.7	26.0	24.6	22.1	21.0	20.4	20.1	20.3	21.5	35.8	46.9	53.7	60.7	70.6	77.5	37.2	77.5	
12-May	79.9	83.5	85.7	84.9	87.2	87.2	79.3	67.4	62.5	61.0	57.7	52.0	50.0	43.1	39.2	39.1	39.1	41.1	44.6	53.0	62.8	67.1	64.7	60.8	62.2	87.2	
13-May	62.6	69.2	68.9	68.2	69.3	77.6	87.5	82.5	72.1	55.5	44.9	40.8	37.0	29.7	25.5	24.8	24.1	23.6	28.5	39.0	51.9	62.4	70.1	75.7	53.8	87.5	
14-May	78.8	84.0	83.0	83.1	83.6	84.7	72.7	50.4	42.2	33.7	28.1	24.7	23.0	24.3	25.1	25.0	25.8	30.7	32.8	35.5	43.5	55.8	64.7	69.7	50.2	84.7	
15-May	71.7	76.7	80.5	82.4	85.1	79.4	75.3	63.5	53.2	48.4	44.3	44.4	38.3	37.3	41.6	43.2	39.3	40.4	46.2	54.3	50.7	53.0	57.7	63.8	57.1	85.1	
16-May	81.2	94.3	99.9	98.7	99.1	98.5	99.6	100.0	99.0	97.0	95.8	97.1	98.6	94.9	OR	OR	OR	OR	OR	OR	OR	97.5	97.6	98.9	OR	--	100.0
17-May	99.4	99.7	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	--	99.7
18-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	99.6	97.9	97.5	97.2	OR	95.6	97.1	98.3	OR	OR	OR	OR	OR	OR	OR	--	99.6
19-May	OR	OR	OR	OR	OR	OR	OR	OR	OR	98.2	96.1	95.1	94.5	91.0	94.1	93.8	92.3	92.8	94.1	OR	97.2	OR	OR	98.6	98.3	--	98.6
20-May	OR	OR	OR	OR	OR	OR	95.6	92.3	88.9	85.0	76.8	64.5	59.0	57.1	58.4	61.1	61.8	63.0	75.6	82.9	91.9	97.5	98.8	94.4	78.0	98.8	
21-May	92.5	93.7	93.0	95.8	97.6	92.3	94.6	84.3	80.0	77.1	72.6	67.3	75.9	65.9	57.6	57.7	58.0	58.4	60.5	65.5	68.5	76.8	82.2	90.8	77.4	97.6	
22-May	91.3	94.0	96.1	99.6	97.4	94.7	86.2	76.8	77.9	70.7	68.5	60.3	59.0	59.7	56.2	52.8	50.4	51.4	54.1	59.0	71.7	82.0	86.5	86.7	74.3	99.6	
23-May	87.4	87.4	88.7	89.9	91.9	91.7	79.9	72.5	64.9	56.5	55.6	55.5	53.7	51.7	48.8	47.0	45.0	45.7	46.5	51.7	67.7	79.6	84.1	86.6	67.9	91.9	
24-May	88.2	89.6	91.1	92.2	92.4	91.8	82.0	74.3	66.3	60.9	56.6	51.2	47.9	44.3	42.3	40.0	38.9	39.3	43.1	45.1	59.3	73.2	79.0	82.0	65.5	92.4	
25-May	85.7	87.8	89.4	91.3	94.2	85.3	71.3	55.7	41.0	36.1	30.9	29.1	28.6	29.4	29.8	30.5	31.0	29.7	31.0	38.9	46.2	54.2	63.3	65.9	53.2	94.2	
26-May	71.7	76.7	82.0	80.3	78.7	78.4	71.8	60.6	55.7	49.6	52.1	48.3	43.0	38.4	35.7	34.9	36.7	35.9	42.3	63.6	72.5	78.0	80.1	81.5	60.4	82.0	
27-May	84.3	84.2	84.8	81.9	83.4	77.6	71.6	61.4	50.1	42.9	39.2	37.4	34.9	32.8	37.1	59.9	73.1	64.2	59.3	62.0	61.4	64.2	64.0	65.2	61.5	84.8	
28-May	67.3	78.0	90.9	91.3	93.9	92.7	82.4	73.2	57.6	53.8	47.1	44.0	40.8	36.4	32.9	28.1	27.2	27.9	29.2	37.5	41.5	45.9	58.0	72.7	56.3	93.9	
29-May	69.6	66.5	74.3	87.8	89.8	89.7	89.2	88.3	81.8	77.9	75.5	79.2	80.6	76.0	72.1	69.2	64.7	63.9	66.7	70.1	74.2	78.9	86.2	98.0	77.9	98.0	
30-May	100.0	99.8	100.0	100.0	99.2	97.2	97.4	95.0	94.6	95.5	97.0	95.5	91.3	89.7	91.1	92.3	89.8	91.9	91.8	95.4	95.7	95.7	98.6	97.8	95.5	100.0	
31-May	95.5	90.5	88.1	86.1	84.5	79.9	72.4	67.6	60.2	58.8	55.4	58.9	61.9	61.9	51.9	42.6	43.0	43.1	47.7	57.6	65.5	68.9	71.8	75.8	66.2	95.5	
		76.1	78.7	80.4	82.0	83.6	81.2	77.6	69.3	64.3	60.9	56.9	54.0	53.1	49.6	47.9	47.2	46.7	44.8	45.4	51.2	59.3	65.6	71.0	73.4	Diurnal Average	
		100.0	99.8	100.0	100.0	100.0	100.0	100.0	100.0	99.0	99.6	97.9	98.3	98.6	97.7	95.6	97.1	98.3	99.1	99.3	97.2	97.5	97.6	98.9	98.3	Diurnal Maximum	
DF - DAS Failure		OR - Out of Range																									





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Mackay River - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	8	1.19	1.19
20 - 40	133	19.82	21.01
40 - 60	174	25.93	46.94
60 - 80	156	23.25	70.19
80 - 100	194	28.91	99.11

Total Number of Valid Hours: 671

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Precipitation (PC) - mm**

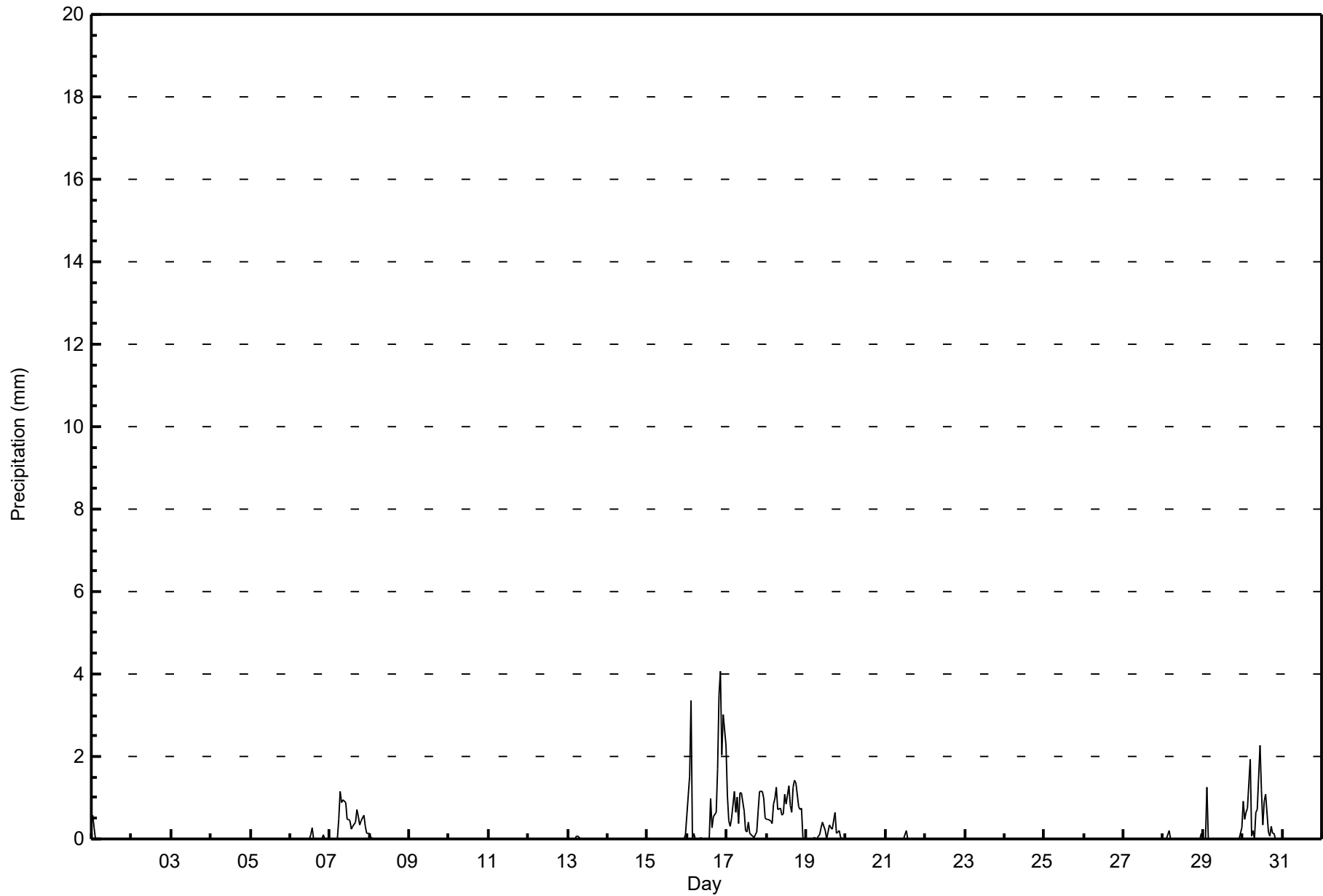
**Mackay River - May 2024**

Maximum Value: 4.1 mm on May 16 21:00		Maximum Daily Total: 24.7 mm on May 16		Hours in Service: 744																																													
Minimum Value: 0.0 mm on May 1 03:00		Minimum Daily Total: 0.0 mm on May 2		Hours of Data: 744																																													
Maximum Diurnal Total: 6.8 mm at hour 21		Minimum Diurnal Total: 1.9 mm at hour 4		Hours of Missing Data: 0																																													
Monthly Total: 87.11 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> = 0.4 P <sub>99</sub> = 1.8		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-May	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.6																							
2-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.3																							
7-May	0.0	0.0	0.0	0.0	0.0	0.5	1.2	0.9	0.9	0.9	0.5	0.5	0.4	0.2	0.3	0.4	0.7	0.6	0.3	0.4	0.6	0.3	0.1	0.1	9.9	1.2																							
8-May	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1																							
9-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																							
14-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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																						
16-May	0.6	1.5	3.4	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.3	0.6	0.7	1.7	3.5	4.1	2.0	3.0	2.3	24.7	4.1																								
17-May	1.0	0.4	0.3	0.5	1.1	0.7	1.0	0.4	1.1	1.1	0.7	0.2	0.2	0.4	0.1	0.1	0.1	0.1	0.2	0.7	1.2	1.2	1.0	0.5	14.2	1.2																							
18-May	0.5	0.5	0.4	0.4	0.9	1.0	1.3	0.7	0.8	0.6	0.6	1.1	0.9	1.3	0.8	0.7	1.3	1.4	1.4	0.8	0.7	0.7	0.1	0.0	18.5	1.4																							
19-May	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.4	0.2	0.0	0.2	0.4	0.3	0.2	0.6	0.1	0.2	0.2	0.0	0.0	0.0	3.3	0.6																							
20-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	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	0.0	0.0	0.2	0.2																							
22-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2																							
29-May	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	1.3																							
30-May	0.9	0.5	0.7	0.7	1.9	0.1	0.2	0.0	0.6	0.7	2.3	1.2	0.3	0.9	1.1	0.2	0.1	0.3	0.1	0.1	0.0	0.0	0.0	0.0	12.9	2.3																							
31-May	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
																								3.7	3.2	6.0	1.9	4.1	2.3	3.7	2.0	3.6	3.6	4.4	3.1	2.1	3.3	3.7	1.9	2.9	3.7	3.8	5.7	6.8	4.2	4.2	3.4	Diurnal Average	
																								1.0	1.5	3.4	0.7	1.9	1.0	1.3	0.9	1.1	1.1	2.3	1.2	0.9	1.3	1.1	0.7	1.3	1.4	1.7	3.5	4.1	2.0	3.0	2.3	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Precipitation (PC) - mm**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Precipitation (PC) - mm**  
**Mackay River - May 2024**

<b>Concentration Ranges (mm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.3	666	89.52	89.52
0.4 - 0.5	17	2.28	91.80
0.6 - 0.7	21	2.82	94.62
0.8 - 1.4	30	4.03	98.66
1.5 - 10	10	1.34	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Speed (WS) - km/h**  
**Mackay River - May 2024**

Maximum Speed: 25 km/h on May 11 10:00	Maximum Daily Speed Average: 15.2 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 26 21:00	Minimum Daily Speed Average: 2.2 km/h on May 4	Hours of Data: 742
Maximum Diurnal Speed Average: 2.3 km/h at hour 16	Minimum Diurnal Speed Average: 0.4 km/h at hour 7	Hours of Missing Data: 2
Monthly Average Velocity: 1.1 km/h 32.3 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 8 Q <sub>3</sub> = 10 P <sub>90</sub> = 13 P <sub>99</sub> = 21	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-May	NNE13	NNE11	NNE10	NNE9	NNE8	NNE9	NNE9	NNE10	NNE9	NNE10	NNE12	NE13	NE14	NNE15	NNE15	NNE15	N17	NNE16	NE14	NNE11	NNE9	NNE11	NNE8	N8	NNE11.4	N17	
2-May	NNE7	NNE5	NNE4	N3	N4	NNE4	NNE7	NNE10	N11	NNE11	N11	NNE13	NNE12	NNE15	N15	NNE15	NNE16	NNE15	NNE13	NNE11	NNE7	N6	N6	N5	NNE9.3	NNE16	
3-May	NNE1	NE2	SE1	NE1	ENE1	SE0	N3	NNE7	N10	NNE11	NE10	NE6	N6	N6	NNE7	NNE7	NNE7	NE6	NNE6	NE6	NNE5	ENE1	S2	SSW2	NNE4.2	NNE11	
4-May	SSE2	S1	NW0	SSE1	UO	SSW1	SW1	NNE4	NE5	NNE7	N5	SW1	WNW3	NNW4	NNE3	ENE6	ENE4	E6	E5	E4	ENE3	ESE4	ESE8	ESE9	ENE2.2	ESE9	
5-May	ESE8	ESE8	SE7	SE6	SE6	SE6	SSE6	SSE7	SSE8	SE9	SE10	SE12	SE11	SSE11	S9	SSE8	SE11	SE12	SE9	ESE8	ESE6	ESE7	ESE9	ESE9	SE8.0	SE12	
6-May	ESE10	ESE11	ESE10	ESE10	ESE9	ESE8	ESE9	SE10	SE8	ESE12	ESE17	ESE14	ESE12	E9	NE11	ENE10	ENE11	ENE9	ENE7	E5	SSE12	SE7	ESE7	E6	ESE8.9	ESE17	
7-May	E5	NE3	NNE3	ENE3	E6	ESE10	E9	E9	ESE11	E9	E9	E8	E7	ESE7	ESE9	ESE9	ESE9	ESE7	SE5	SE4	SE4	SE4	SSE5	SSE5	ESE6.2	ESE11	
8-May	S6	SSW5	WSW4	W6	W7	W5	W5	WNW5	W2	SSW3	ESE4	S5	SSW7	SSW10	SSW10	SW9	SW12	SW11	WSW11	SW7	SSW5	SSW6	SSW5	SSW7	SW5.5	SW12	
9-May	SW8	SW8	WSW10	WSW8	WSW8	W9	W9	W9	WNW12	WNW13	WNW17	WNW15	W15	WNW16	WNW15	WNW17	WNW18	WNW14	NW12	NW6	SSE2	SE3	SE4	SSE4	W8.8	WNW18	
10-May	SSE4	SE4	SSE6	SSE5	S7	S7	SSW6	SW7	WSW12	WSW13	WSW13	SW14	WSW15	WSW15	W15	W15	W17	W14	WNW13	W7	W6	NW18	NNW18	NNW10	WSW7.9	NW18	
11-May	WNW10	WNW9	W7	W6	WSW6	W7	WNW11	WNW17	NW23	WNW25	WNW25	WNW23	WNW23	WNW20	NW19	WNW18	WNW15	NW15	NNE13	NE13	NE9	NE5	E2	NE2	NW11.2	WNW25	
12-May	ENE3	ESE3	SE3	ESE5	ESE5	ESE6	ESE5	ESE8	ESE9	E8	E8	E10	E10	E11	ESE11	E9	E10	ESE10	ESE6	SE3	SE2	ESE4	ESE5	SE7	ESE6.4	E11	
13-May	SE7	SE6	SSE6	SSE9	SSE10	S8	SSE7	SSE8	S11	S13	SSW13	SSW13	SW11	SW9	SW9	WSW9	WSW11	WSW9	WNW11	NW10	UO	N3	N3	ENE1	SSW5.3	SSW13	
14-May	SSE2	SSE2	SSE4	SSE4	S5	SSE2	SSW5	SW7	SSW7	SSW9	SW12	WSW12	SW13	SW13	WSW12	WSW12	WSW12	WSW11	WNW11	W10	WNW6	ENE5	SE4	S5	SW6.0	SW13	
15-May	S5	S5	SSE2	SW3	WSW3	WNW4	NNW5	NNE6	NNE9	NNE9	NNE7	N8	NNE5	NE3	NNE9	NE9	ENE6	ENE5	W1	NNE1	NE9	NE9	NE9	NE8	NNE3.9	NE9	
16-May	NE7	NE4	NE8	NE11	NE9	NE8	NE7	NE6	NE10	ENE10	ENE10	NE10	NE9	NE9	NE9	NNE12	NNE11	NE10	NE10	NE8	ENE12	ENE13	E10	ENE11	NE9.1	ENE13	
17-May	ENE11	NE11	NE11	NE10	NE9	NE11	NE10	NE11	NE11	NNE11	NNE11	NNE12	NNE12	NNE12	NNE14	NNE15	NNE14	N12	N12	N9	NNW7	NW5	NW6	NW7	NNE9.6	NNE15	
18-May	NW7	NW6	NW7	NW7	WNW6	WNW6	WNW7	WNW7	NW10	NW9	NW11	NW10	NW11	NW10	NNW11	NNW10	NNW9	NW8	NW10	NW8	NNW6	NNW5	NNE4	NE6	NW7.5	NW11	
19-May	NNE5	NNE4	NNE4	NNE4	NNE5	N4	NNE6	N6	NE7	NE8	NE8	NNE9	NNE10	NNE10	NNE10	NE10	NNE8	NNE9	NNE5	NNE5	NE1	NNW4	N6	N6	NNE6.3	NNE10	
20-May	N5	N5	N5	NNW4	NNW3	NNW3	NNE5	N6	N8	N7	N9	N10	NNE9	NNE9	NNE9	NNE9	NNE9	NNE9	NNE7	ESE10	SE6	SE2	ESE2	SE3	SE5	NNE4.5	ESE10
21-May	ESE4	ESE4	ESE5	ESE6	ESE6	ESE8	ESE8	E8	E8	E9	E9	E10	E10	E10	ENE9	E10	E10	E9	ENE7	ENE4	NE4	ENE3	ENE3	ESE3	E6.8	E10	
22-May	E3	E3	NNE2	NNE1	NNE1	E3	ENE5	ENE8	NE9	NE9	NE9	NE10	NNE12	NNE10	NE10	NE10	NNE8	NE9	ENE6	E3	ESE2	ESE3	ESE3	ESE3	NE5.4	NNE12	
23-May	ESE4	ESE4	E3	ESE2	E1	ENE2	ESE6	E7	ENE8	E10	E10	E9	ESE11	ESE10	ESE11	ESE10	ESE10	SE9	SSE9	SE6	ESE3	SE3	SE3	SE2	ESE6.1	ESE11	
24-May	SE3	SE3	SE2	ESE3	ESE4	SE4	SE6	SE8	ESE7	ESE10	ESE9	ESE7	ESE8	ESE7	ESE7	SE8	SSE7	SSE9	SSE6	S5	S3	SE3	SSE3	SE4	SE5.4	ESE10	
25-May	SE5	SE4	SE4	SE5	SE5	SSE7	SSE8	SE10	SE12	SE12	SE12	SE12	ESE11	SE11	ESE11	SE11	ESE9	ESE10	ESE9	ESE8	ESE6	ESE6	ESE6	SE6	SE7.7	SE12	
26-May	SE6	SE5	SE5	SE6	SE6	SE7	SE7	SE7	SE8	SSE9	S12	S12	SSE13	SE12	SE12	SE9	SE8	ESE7	SSE1	W4	S0	W1	E1	SE2	SSE5.9	SSE13	
27-May	ESE2	SE2	SE4	SSE4	SE4	SE5	S5	SSE7	S8	SSE11	SSE10	SE10	SE9	SE9	S3	WSW7	WSW7	ESE1	ESE6	ESE5	ESE5	ESE6	ESE7	ESE8	SSE5.0	SSE11	
28-May	SW4	WNW5	N3	ESE4	E4	NW3	W2	WSW4	W6	W5	WSW4	SW6	SW9	SW9	SW9	SW8	SW8	SW6	SW4	NNW2	NE3	E4	E7	NNE4	SW2.5	SW9	
29-May	NNE7	NE10	ENE8	ENE7	ENE6	ENE5	NW7	N8	NNW7	WNW4	WSW9	WSW11	SW12	WSW12	WSW14	SW13	SW12	WSW12	SW12	SW11	SW10	SW11	SW11	SW8	WSW4.8	WSW14	
30-May	WSW9	WSW8	W8	W9	WNW11	WNW10	WNW10	WNW11	WNW10	WNW11	WNW8	WNW9	WNW11	NW11	WNW11	WNW11	W9	W8	WNW9	W8	W8	W8	W6	W7	W9.1	WNW11	
31-May	W8	W11	W11	W11	WNW10	WNW11	WNW12	WNW14	WNW18	WNW20	WNW21	WNW21	WNW20	WNW18	WNW17	WNW21	WNW19	WNW17	WNW20	NW22	WNW17	NW13	NW11	WNW9	WNW15.2	NW22	

E1.3	ENE1.0	ENE1.0	E0.9	ESE0.8	E0.8	NE0.4	NNE1.2	NNE1.7	NNE1.4	NNE1.3	NNE1.0	N1.0	N1.4	N2.1	N2.3	NNW1.8	NNE1.5	N1.8	N1.7	NE1.1	NE1.6	ENE1.7	E1.6		Diurnal Average
NNE13	NNE11	W11	W11	WNW11	NE11	WNW12	WNW17	NW23	WNW25	WNW25	WNW23	WNW23	WNW20	NW19	WNW21	WNW19	WNW17	WNW20	NW22	WNW17	NW18	NNW18	ENE11		Diurnal Maximum

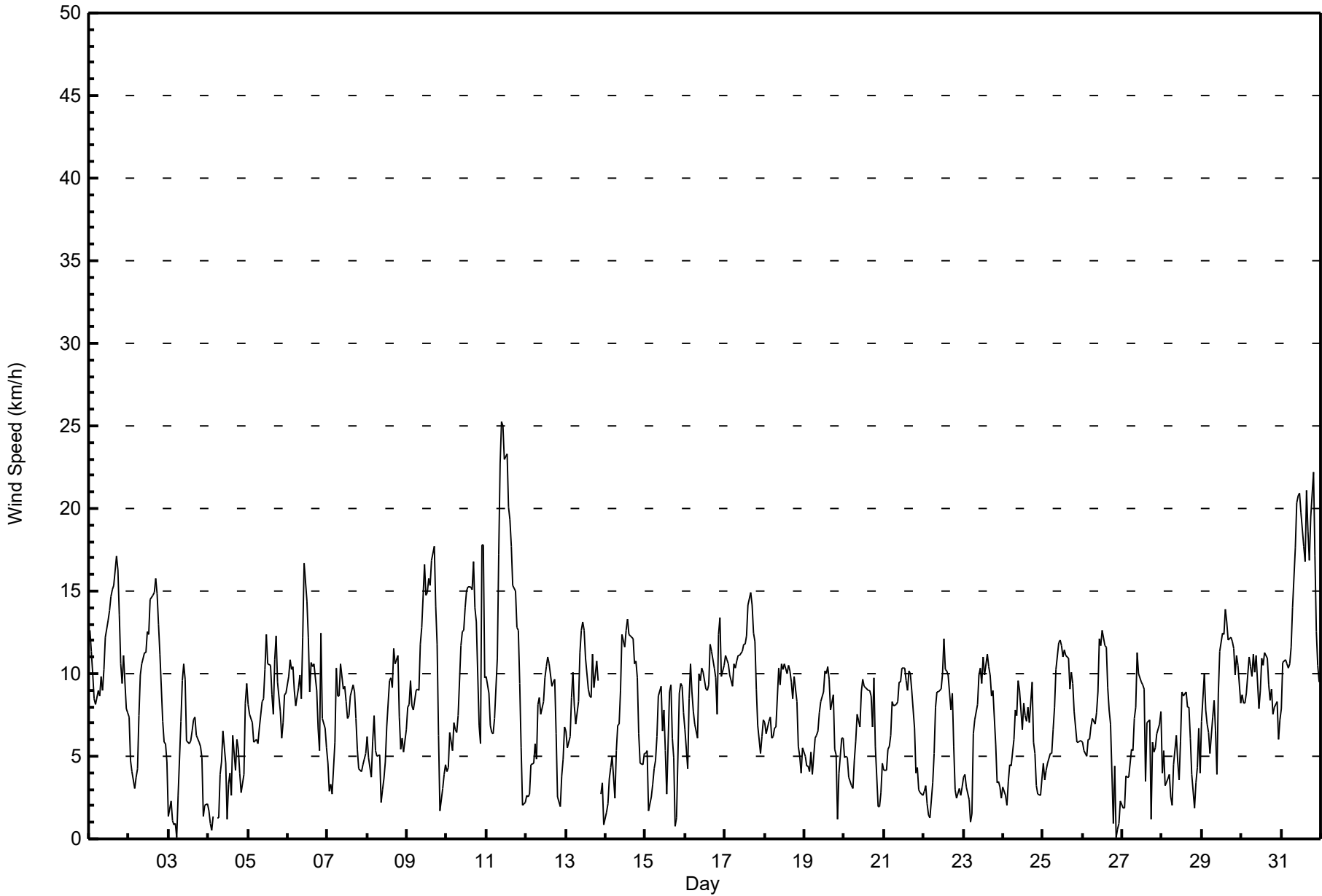
UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Mackay River - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	210	28.30	28.30
6 - 11	416	56.06	84.37
12 - 19	103	13.88	98.25
20 - 28	13	1.75	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Mackay River - May 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	25	11	15	14	29	37	17	12	7	5	5	7	5	3	8	210
6 - 11	17	53	46	18	33	63	36	21	7	8	22	16	24	25	20	7	416
12 - 19	4	23	3	2	0	4	7	2	3	2	8	13	5	21	5	1	103
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2	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>	31	101	60	35	47	96	80	40	22	17	35	34	36	62	30	16	742

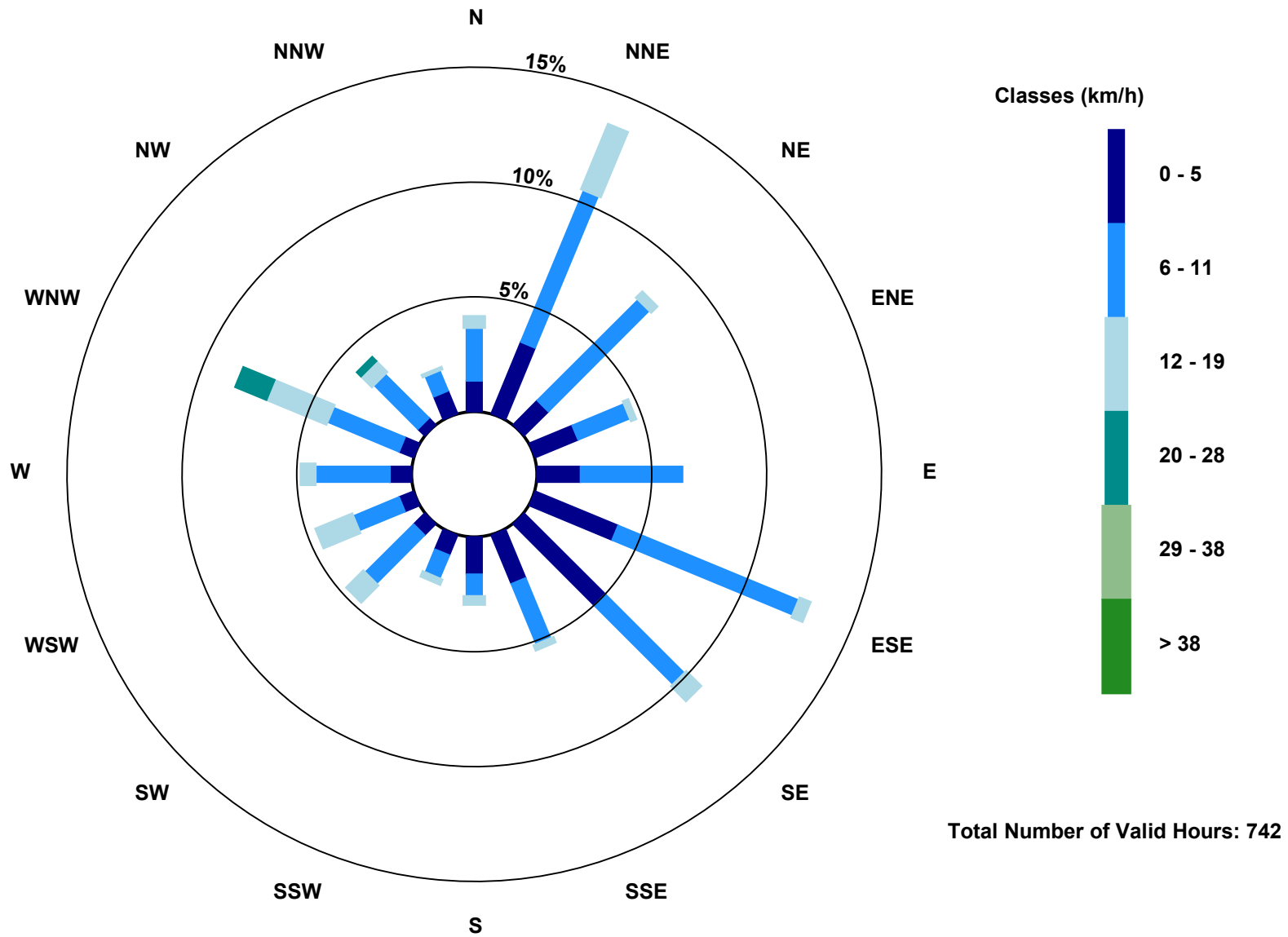
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Mackay River





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Mackay River - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 11 11:00 Minimum Value: 0 km/h on May 24 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> = 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-May	4	4	3	3	3	3	3	3	3	3	4	4	5	5	5	5	6	6	6	4	3	3	3	2	6
2-May	2	1	1	2	1	2	2	3	3	4	4	5	5	5	5	5	5	5	4	4	2	1	1	1	5
3-May	1	1	1	2	1	1	1	3	3	3	3	2	3	3	3	3	3	3	2	2	2	1	1	1	3
4-May	1	1	1	1	UO	1	1	2	2	3	2	3	3	3	3	3	3	2	2	2	1	1	2	2	3
5-May	2	1	1	1	2	1	2	2	3	3	3	4	4	4	4	3	4	4	3	2	1	1	2	2	4
6-May	3	3	2	2	2	2	2	3	2	4	5	4	4	4	4	4	4	4	2	6	6	2	2	2	6
7-May	1	1	1	1	3	3	3	3	3	3	3	3	2	2	2	3	3	2	2	1	1	1	1	2	3
8-May	2	1	1	3	3	2	2	2	1	1	2	3	3	4	4	4	5	4	5	3	1	1	1	2	5
9-May	3	3	4	4	3	3	4	4	4	5	6	6	7	6	6	6	6	6	5	5	3	1	0	0	7
10-May	1	1	1	1	3	2	2	3	4	5	5	6	6	6	7	7	6	6	5	4	3	6	6	4	7
11-May	4	3	2	2	3	3	5	6	8	8	9	8	8	7	6	6	5	5	5	4	4	2	1	1	9
12-May	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	1	1	1	1	2	3
13-May	2	1	2	3	3	3	2	2	4	4	5	5	4	4	4	4	5	5	4	4	UO	2	2	1	5
14-May	1	1	1	1	2	1	1	2	2	4	5	5	5	5	5	5	5	5	4	4	5	3	2	2	5
15-May	1	1	1	1	1	2	2	2	3	3	3	3	3	3	5	3	2	2	1	2	3	3	3	3	5
16-May	2	2	3	3	3	3	2	2	3	4	4	3	3	3	3	4	3	4	3	3	5	5	4	4	5
17-May	4	4	4	3	3	3	3	3	4	4	4	4	4	4	5	5	5	4	4	3	2	1	2	2	5
18-May	2	1	2	2	2	1	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	1	2	2	3
19-May	2	1	2	1	2	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	1	1	2	2	3
20-May	2	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	4	2	1	1	2	1	4
21-May	1	1	1	2	2	2	2	3	3	3	3	3	4	3	3	3	3	3	2	1	1	1	1	1	4
22-May	1	1	1	1	1	2	2	3	3	3	3	3	4	3	4	4	3	3	3	2	1	1	1	1	4
23-May	1	1	1	1	1	1	2	2	3	3	4	4	4	3	4	4	4	3	3	2	1	1	1	0	4
24-May	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	2	3	3	2	2	1	0	0	1	3
25-May	1	1	1	1	1	1	2	3	3	4	4	4	4	4	4	4	3	3	3	2	1	1	1	1	4
26-May	1	2	1	2	2	2	2	2	2	5	4	4	4	4	4	4	3	3	3	2	1	1	1	1	5
27-May	1	1	1	1	1	1	1	2	3	4	3	3	3	3	4	3	3	1	2	1	1	2	2	2	4
28-May	3	2	2	1	2	1	1	2	2	2	2	3	4	4	4	3	4	3	2	2	1	3	3	1	4
29-May	2	3	3	3	3	2	3	3	3	2	5	5	5	5	5	5	5	5	5	5	4	4	4	3	5
30-May	4	3	3	3	3	4	3	4	3	4	3	3	4	4	5	4	4	4	3	3	3	3	2	3	5
31-May	3	3	4	4	4	3	4	5	6	8	7	7	7	7	6	7	7	6	7	8	6	4	3	3	8
Diurnal Maximum																									
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Mackay River - May 2024**

Direction of Maximum Speed: 299 deg on May 11 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 294.3 deg on May 31	Hours of Data: 742
Direction of Minimum Speed: 189 deg on May 26 21:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 2.2 deg on May 4	Percent Operational Time: 99.7
Monthly Average Direction: 32.3 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-May	17	17	20	20	22	24	26	21	20	26	32	39	34	28	23	23	11	20	35	31	17	23	22	9	23.6
2-May	13	12	15	0	11	18	24	16	9	32	11	25	18	12	7	19	19	16	12	14	13	9	359	6	14.9
3-May	17	42	132	39	65	137	352	14	11	25	38	38	9	11	31	21	23	51	31	36	29	71	172	193	28.0
4-May	159	182	315	152	UO	197	228	29	56	21	352	227	289	336	12	59	71	86	83	83	78	110	113	119	72.5
5-May	121	123	124	133	138	141	152	160	159	140	127	130	135	151	171	155	134	139	125	114	113	109	112	119	134.2
6-May	116	109	109	111	115	117	117	124	126	106	103	106	103	82	52	68	72	75	58	82	166	137	107	99	103.4
7-May	101	44	31	62	92	107	97	94	102	93	96	95	95	102	110	114	120	120	129	130	132	140	151	162	106.4
8-May	184	207	240	267	280	266	268	291	262	204	120	169	195	193	198	218	217	223	237	223	196	210	212	201	219.8
9-May	236	233	243	248	252	259	268	278	295	289	291	282	279	291	295	296	302	303	305	319	147	138	140	147	280.5
10-May	155	141	158	159	170	181	212	231	243	250	247	232	250	258	262	266	267	262	282	262	272	319	332	327	258.0
11-May	295	285	273	265	257	270	282	296	305	299	299	301	303	301	311	301	300	311	27	41	39	45	94	55	306.3
12-May	78	103	131	122	113	103	107	110	107	85	84	99	100	101	107	98	97	106	111	142	127	103	106	124	104.1
13-May	127	132	150	159	165	173	165	158	175	189	194	199	216	236	236	253	243	250	294	317	UO	359	6	74	202.7
14-May	163	152	155	161	189	151	194	227	203	211	219	242	232	231	243	246	252	252	283	276	284	69	127	184	230.1
15-May	172	178	160	218	252	295	336	29	24	25	24	351	13	39	32	35	65	72	269	15	38	42	50	56	32.9
16-May	53	34	37	38	55	44	49	49	44	67	62	50	44	50	35	27	29	40	43	43	67	62	79	67	49.3
17-May	66	55	50	45	38	35	36	35	35	28	30	30	28	21	16	17	12	7	4	356	337	325	310	307	22.5
18-May	310	311	309	311	299	293	299	301	307	311	314	319	312	309	345	328	344	322	308	316	337	338	22	36	318.9
19-May	25	32	30	18	21	6	12	10	48	43	39	26	20	31	32	34	31	25	12	15	38	328	5	11	24.2
20-May	11	352	352	330	332	346	12	357	357	2	359	351	12	21	24	31	32	32	111	127	142	121	126	129	21.1
21-May	113	111	105	107	109	110	108	101	99	95	84	80	92	86	73	83	92	96	70	57	55	67	77	106	91.3
22-May	96	100	14	14	30	81	69	65	34	50	40	46	24	25	42	45	32	48	57	82	112	109	106	123	50.1
23-May	123	108	100	106	87	62	103	93	66	86	90	84	113	105	116	119	116	130	154	125	119	124	128	139	108.5
24-May	129	126	133	122	123	126	125	135	111	122	119	111	112	102	118	136	156	158	152	171	176	133	148	141	130.8
25-May	146	140	136	138	143	138	162	159	146	132	140	132	115	131	117	124	121	107	109	117	116	118	123	124	129.1
26-May	126	130	125	133	133	127	135	145	140	167	187	179	163	144	141	146	144	107	168	263	189	271	84	145	148.6
27-May	118	135	140	147	126	128	178	152	171	163	167	142	137	127	173	238	257	110	115	122	115	119	123	122	147.0
28-May	234	292	349	105	100	307	277	253	276	259	243	235	218	227	221	232	226	214	225	343	39	91	96	30	235.4
29-May	25	44	75	71	62	76	315	353	337	291	238	238	228	241	240	236	228	237	229	223	222	223	216	224	240.2
30-May	258	256	260	274	283	288	283	284	287	286	282	287	290	305	297	294	273	274	282	277	278	279	259	270	280.8
31-May	269	281	280	281	282	286	283	288	291	289	303	299	300	298	291	296	291	296	301	306	302	304	308	298	294.3

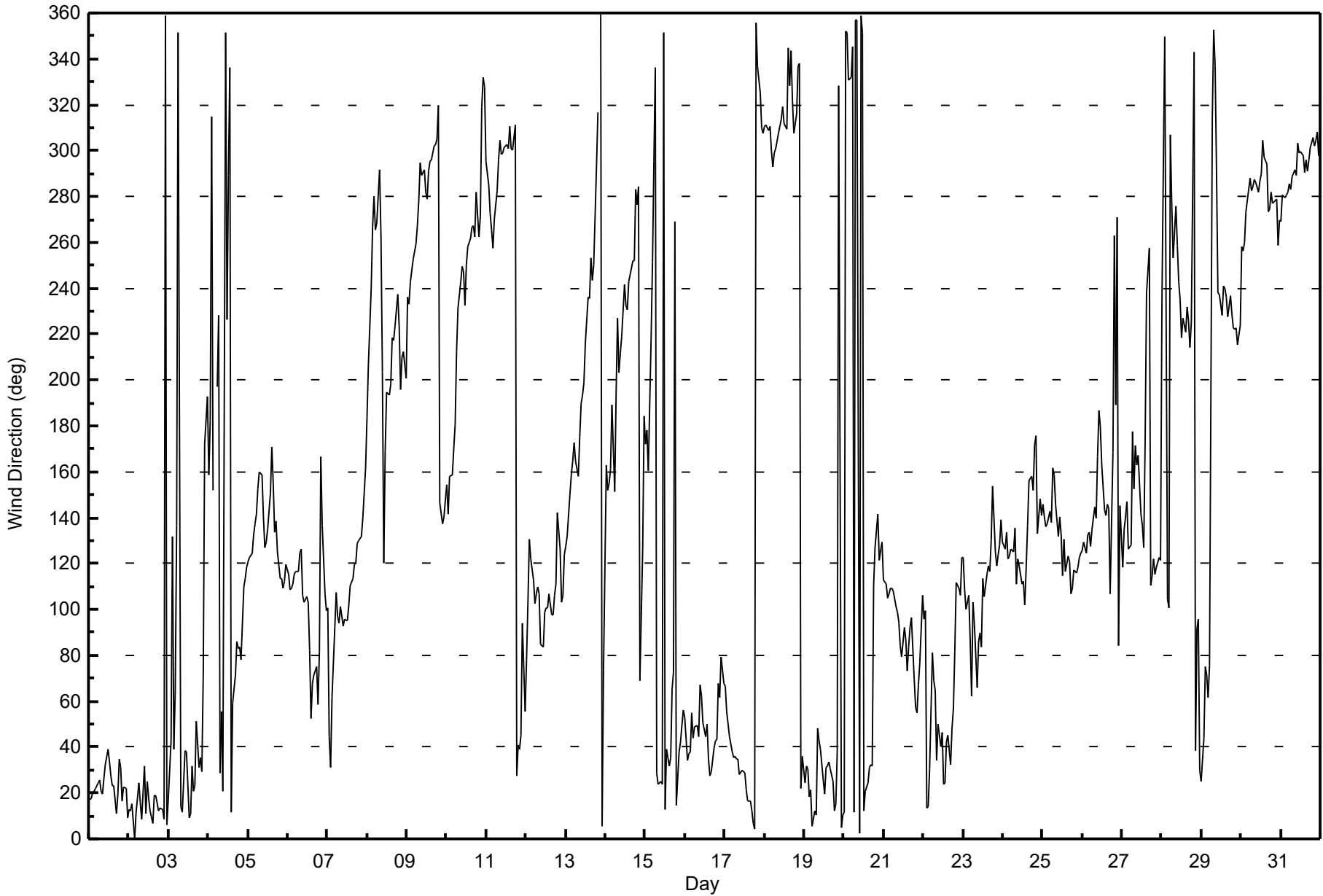
90.0 74.7 77.2 96.5 106.6 93.7 53.1 28.5 13.9 32.2 30.0 24.8 1.8 0.5 0.9 353.6 346.5 13.1 0.1 357.8 42.1 47.5 78.4 99.3  
 Diurnal Average

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Mackay River - May 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Mackay River - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 102 deg on May 4 12:00	Hours of Data: 742
Minimum Value: 7 deg on May 25 00:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 17 Q <sub>1</sub> = 22 Median = 27 Q <sub>3</sub> = 35 P <sub>90</sub> = 47 P <sub>99</sub> = 87	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-May	25	26	25	26	27	25	26	23	25	26	27	30	33	29	30	29	29	27	25	22	24	23	22	23	33
2-May	22	18	17	27	17	20	23	27	27	31	32	34	36	32	30	27	29	26	28	24	19	18	17	18	36
3-May	19	31	60	85	73	88	68	28	26	28	33	52	63	78	54	51	57	48	37	19	15	64	44	30	88
4-May	34	80	73	47	UO	61	69	42	55	52	70	102	86	77	85	55	82	47	38	30	27	13	14	18	102
5-May	15	13	13	17	18	20	24	26	28	27	32	30	34	37	37	34	26	26	22	19	15	15	16	18	37
6-May	17	17	17	17	17	17	18	21	26	24	22	21	25	33	27	30	30	33	28	42	26	26	20	20	42
7-May	19	40	15	31	29	17	23	26	23	28	25	27	27	23	20	21	22	21	21	21	23	25	31	40	
8-May	22	27	37	37	25	37	41	37	58	59	67	72	51	35	30	39	34	41	39	34	15	18	17	18	72
9-May	41	35	46	46	43	42	39	34	28	36	29	33	38	32	32	28	25	27	23	18	48	13	9	8	48
10-May	12	17	16	21	20	20	26	39	37	42	46	42	42	43	41	41	38	37	28	36	31	20	23	21	46
11-May	20	23	26	36	38	33	29	26	22	24	25	26	26	29	25	27	27	23	38	25	24	24	46	29	46
12-May	28	32	36	14	15	15	19	22	20	29	31	29	23	27	24	24	28	21	21	27	23	13	17	17	36
13-May	18	20	24	25	24	32	30	25	26	30	30	38	40	49	44	44	45	26	21	UO	47	31	68	68	
14-May	55	24	15	24	20	41	21	34	35	41	40	41	44	37	45	41	43	39	32	32	62	57	22	22	62
15-May	19	16	52	35	22	34	34	30	33	30	45	41	69	98	55	25	45	46	91	87	22	25	24	30	98
16-May	30	29	23	24	29	26	28	29	23	33	29	26	25	27	24	22	23	25	27	27	29	30	32	30	33
17-May	30	29	24	23	22	23	23	24	23	24	24	24	25	24	26	25	25	26	26	26	20	21	16	18	30
18-May	17	16	17	18	20	20	20	21	19	21	20	22	18	20	23	22	25	22	20	20	22	20	31	23	31
19-May	23	24	22	22	25	26	25	26	29	25	24	24	24	25	25	23	28	25	26	24	56	22	23	22	56
20-May	23	20	22	17	19	25	25	26	26	29	29	29	30	28	30	27	29	30	27	20	58	17	35	18	58
21-May	17	14	17	17	17	21	22	26	32	31	34	32	30	31	34	32	27	27	31	29	28	21	27	20	34
22-May	22	28	50	42	84	47	33	34	29	31	27	30	31	29	37	32	34	29	32	27	18	12	12	16	84
23-May	13	13	13	11	14	29	24	30	34	35	34	34	29	35	39	35	34	31	26	20	14	17	10	14	39
24-May	11	25	24	19	11	29	21	26	40	33	34	47	47	55	33	32	37	30	26	23	14	24	12	7	55
25-May	10	18	11	14	12	15	24	31	33	32	37	36	37	34	31	34	38	24	27	20	15	14	13	14	38
26-May	16	17	16	18	22	17	22	34	38	49	34	32	30	34	37	45	41	43	91	36	87	91	73	48	91
27-May	42	38	21	41	29	23	27	30	32	33	38	36	36	37	74	43	42	95	20	17	14	16	15	17	95
28-May	59	30	59	46	51	25	71	40	46	71	75	60	42	49	47	51	51	50	44	57	31	29	44	27	75
29-May	20	26	31	35	38	39	27	27	44	51	42	38	36	38	39	37	38	40	35	34	33	32	32	37	51
30-May	42	42	41	31	26	25	29	27	23	24	29	27	26	23	27	26	32	35	29	27	26	26	35	35	42
31-May	35	25	26	30	27	26	30	29	28	28	23	22	22	24	28	25	28	23	22	23	22	23	19	20	35
	59	80	73	85	84	88	71	42	58	71	75	102	86	98	85	55	82	95	91	87	87	91	73	68	
	Diurnal Maximum																								

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS21  
CONKLIN  
MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
MAY 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	1.8	0	0.5	0
TRS(ppb) Average	707	37	37	100	0.8	0	0.5	0
THC(ppm) Average	701	35	43	98.92	2.8	-	2.1	-
NMHC(ppm) Average	701	35	43	98.92	0.277	-	0.022	-
CH4(ppm) Average	701	35	43	98.92	2.8	-	2.1	-
O3 (ppb) Average	708	35	36	99.87	56	0	42.5	-
NO2 (ppb) Average	707	36	37	99.87	14.4	0	2.8	-
NO (ppb) Average	707	36	37	99.87	8.7	-	1.1	-
NOX (ppb) Average	707	36	37	99.87	16.8	-	3.9	-
PM2.5 (ug/m3) Average	742	2	2	100	113.4	0	39.5	2
Temperature 2 m (C) Average	744	0	0	100	26.1	-	17.4	-
Relative Humidity (%) Average	744	0	0	100	99.3	-	96.5	-
Wind Speed 10 m (km/h) Average	730	1	14	98.25	21	-	12	-
Wind Direction 10 m (deg) Average	730	1	14	98.25	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)  
MAY 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	0.17	0.2	-	0	0	0	0.1	0.2	0.5	1.8
TRS (ppb) Average	707	0.41	0.1	-	0.2	0.3	0.4	0.4	0.4	0.5	0.8
THC (ppm) Average	701	2.07	0.1	-	2	2	2	2	2.1	2.2	2.8
NMHC(ppm) Average	701	0.001	0.013	-	0	0	0	0	0	0	0.277
CH4(ppm) Average	701	2.07	0.1	-	2	2	2	2	2.1	2.1	2.8
O3 (ppb) Average	708	29.32	13.7	-	2.1	10.4	17.2	30.7	40.9	46.5	56
NO2 (ppb) Average	707	1.33	1.5	-	0	0.2	0.4	0.8	1.7	3	14.4
NO (ppb) Average	707	0.37	0.9	-	0	0	0	0.1	0.3	0.9	8.7
NOX (ppb) Average	707	1.7	2	-	0.1	0.3	0.5	1	2.2	3.9	16.8
PM2.5 (ug/m3) Average	742	8.62	14.9	-	0.2	1	2.3	3.8	6.9	20.4	113.4
Temperature 2 m (C) Average	744	8.99	6	-	-6.1	1.6	5.1	8.6	12.6	17.3	26.1
Relative Humidity (%) Average	744	68.54	25.3	-	14.3	30.6	47.7	72.9	93.3	97.5	99.3
Wind Speed 10 m (km/h) Average	730	6.7	4	-	0	1	3	6	9	13	21
Wind Direction 10 m (deg) Average	730	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)  
MAY 2024

OPERATIONAL NOTES

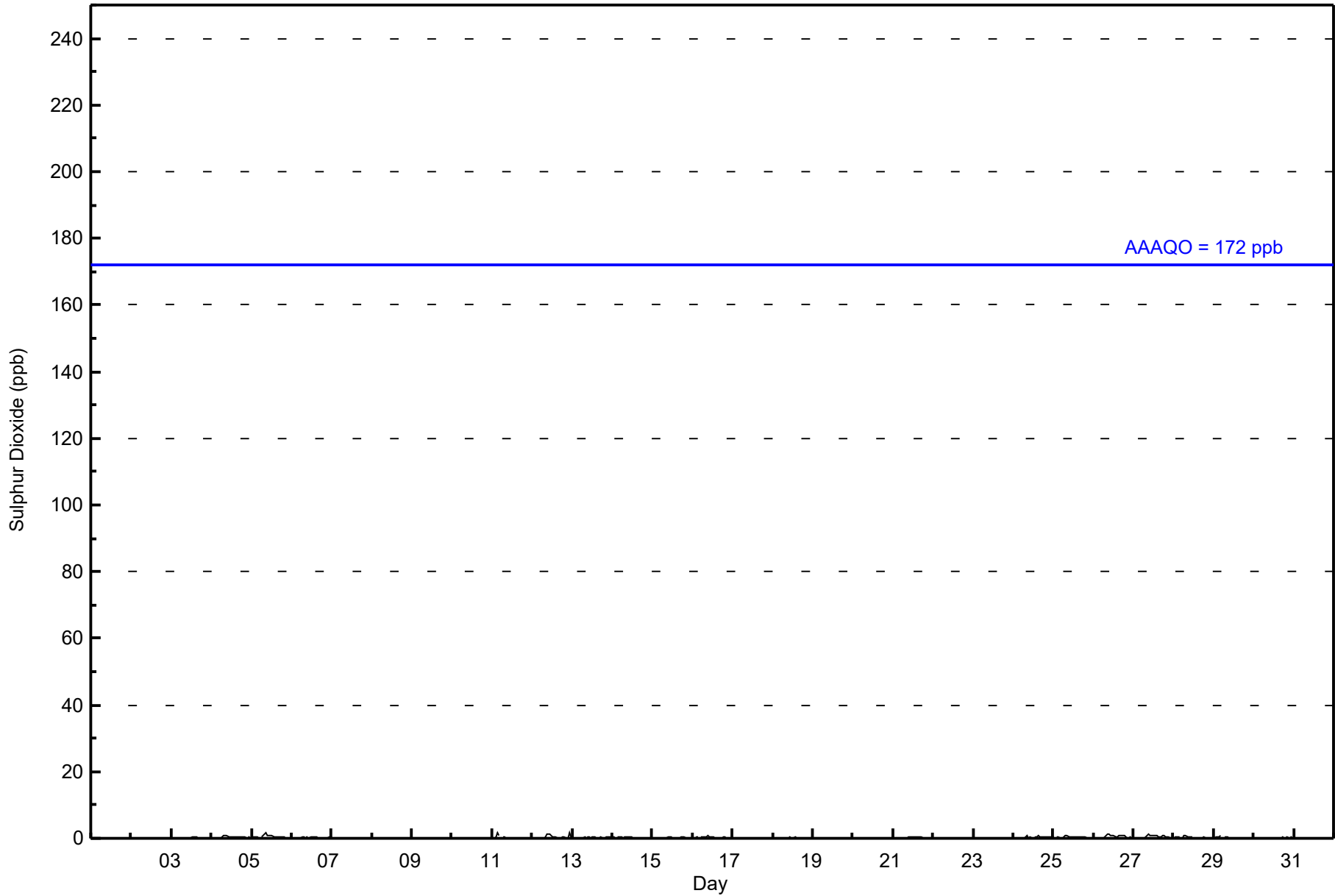
Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, O3, SO2, THC/NMHC/CH4	28 May 2024 13:00	28 May 2024 13:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	01 May 2024 11:00	01 May 2024 14:00	4	Maintenance - WBEA internal audit
THC/NMHC/CH4	24 May 2024 10:00	24 May 2024 12:00	3	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	03 May 2024 02:00	03 May 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 May 2024 21:00	07 May 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	07 May 2024 23:00	07 May 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	17 May 2024 04:00	17 May 2024 12:00	9	Flat line in sensor output signal
Wind Speed, Wind Direction	24 May 2024 00:00	24 May 2024 00:00	1	Flat line in sensor output signal





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Conklin - May 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**  
**Conklin - May 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	38	55	21	31	34	83	44	49	36	21	18	30	38	56	85	56	695
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>	38	55	21	31	34	83	44	49	36	21	18	30	38	56	85	56	695

Total Number of Valid Hours: 695

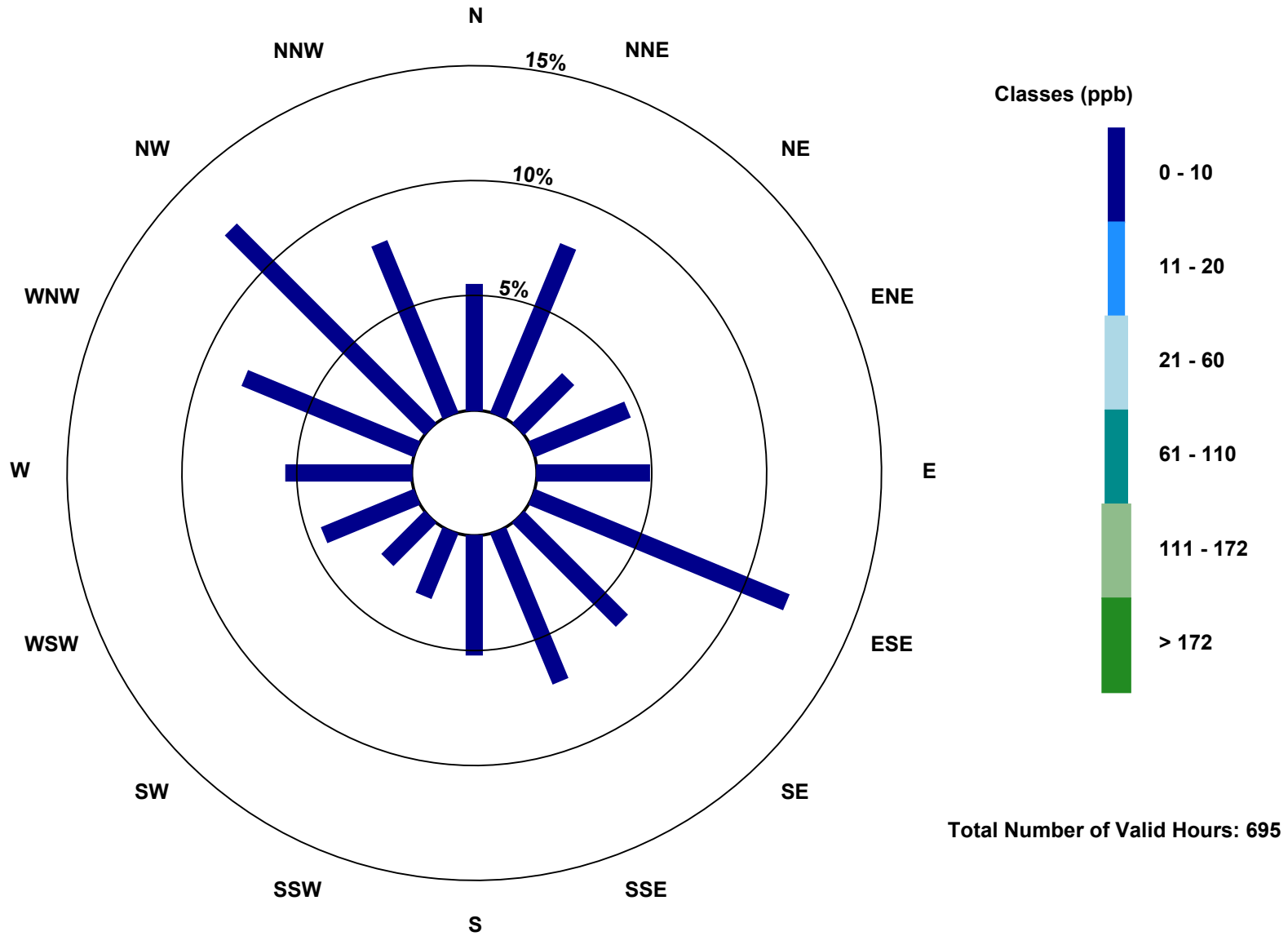
Total Number of Hours: 744

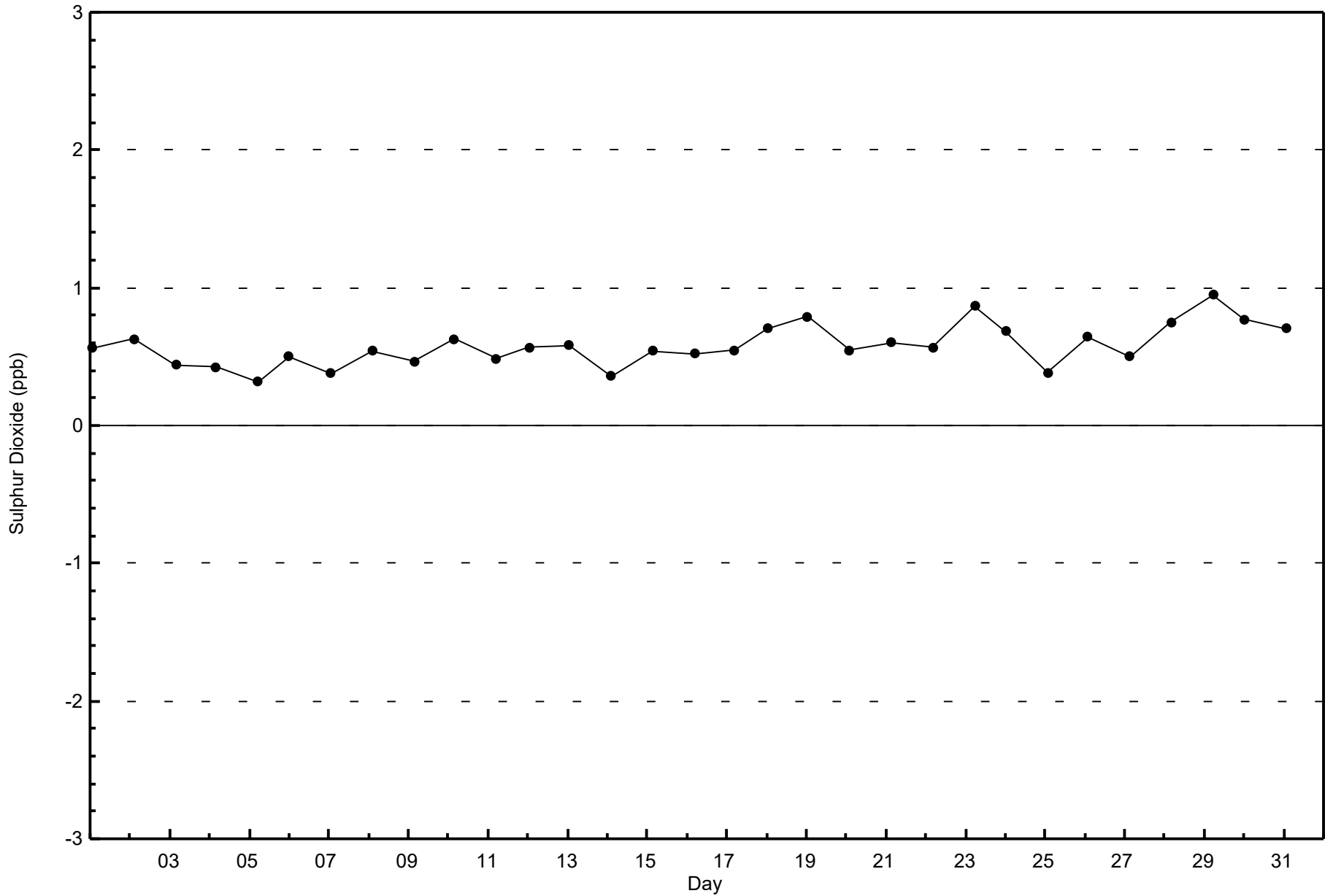


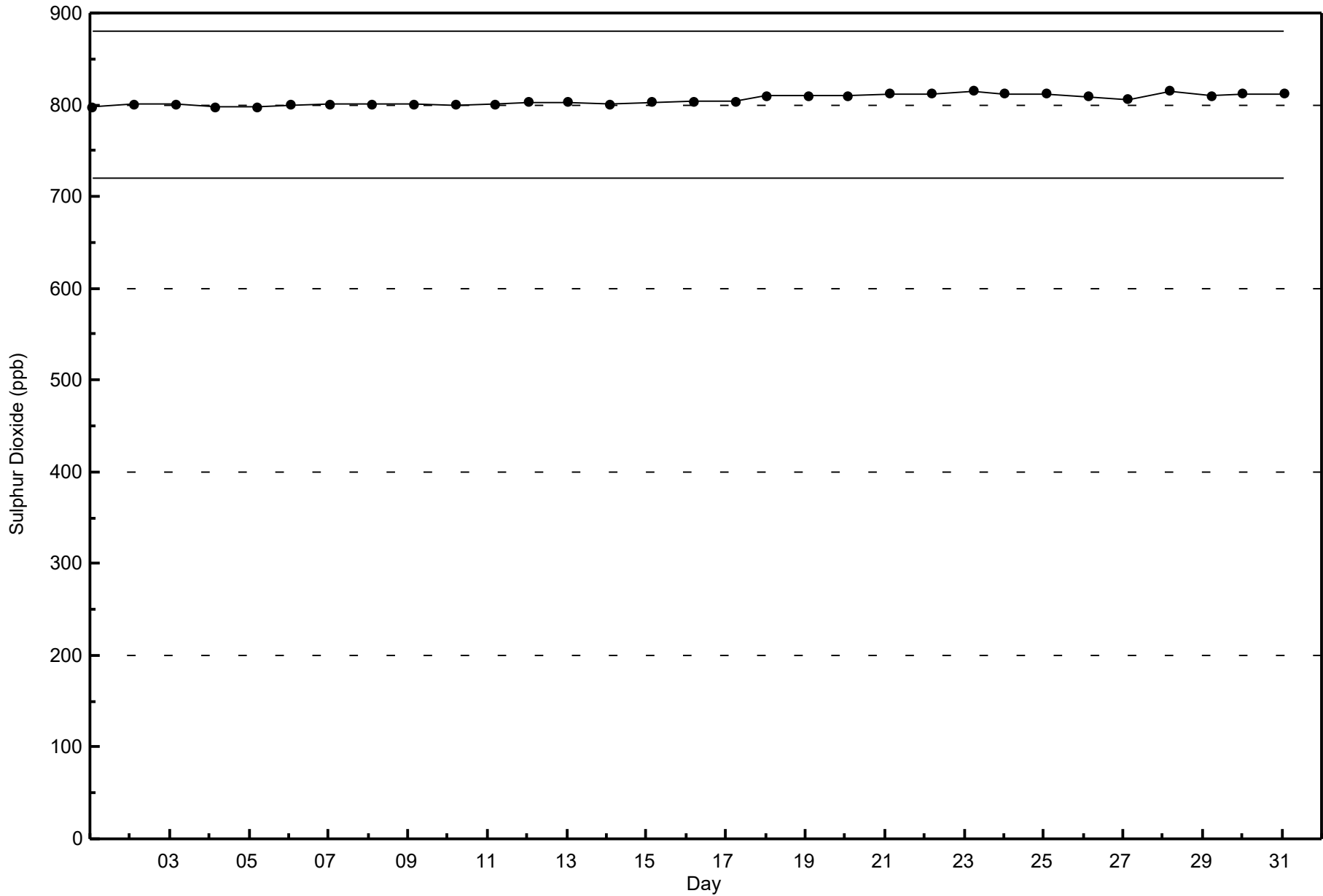


Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Conklin









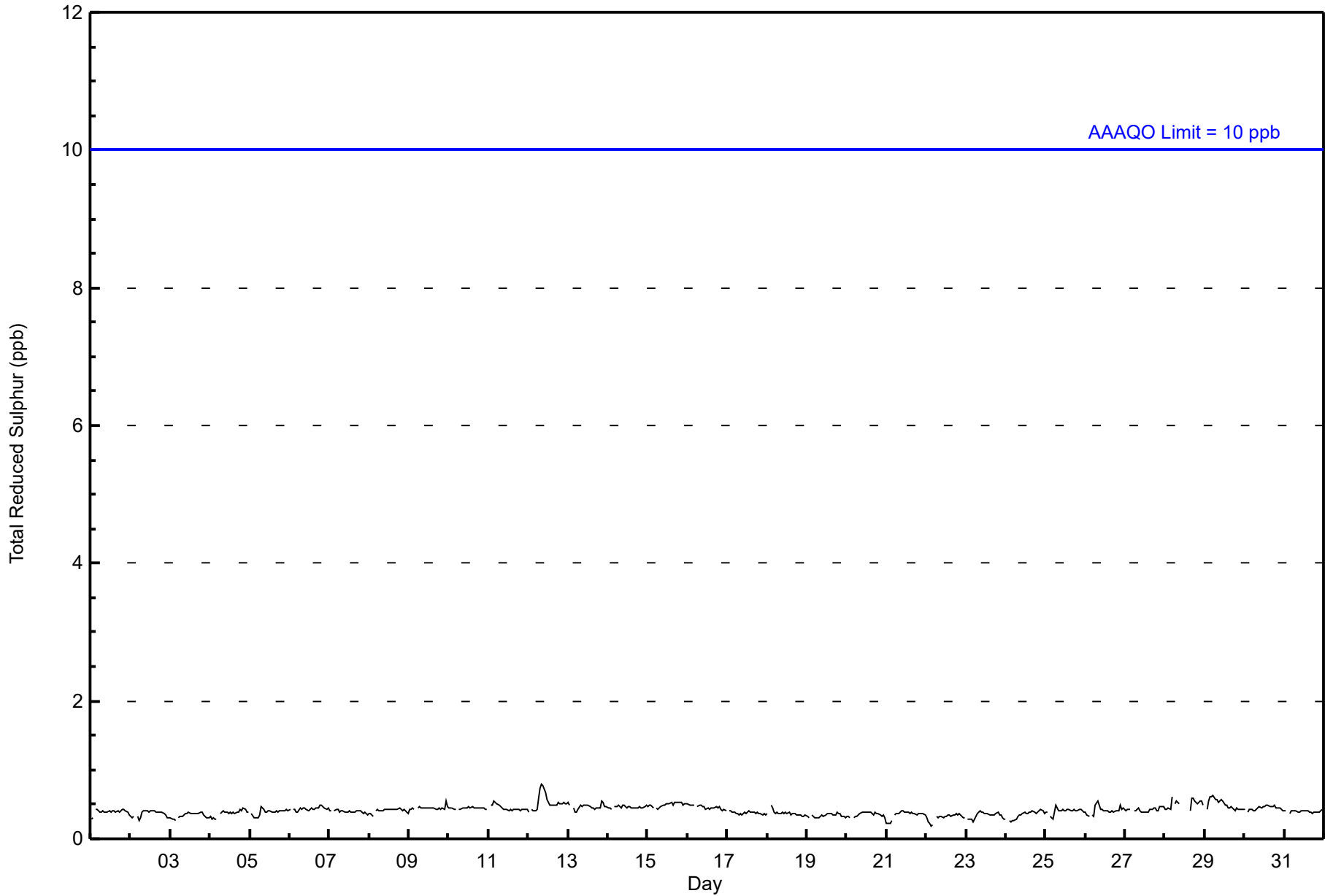
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Total Reduced Sulphur (TRS) - ppb

## Conklin - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																														
Maximum Value: 0.8 ppb on May 12 09:00		Maximum Daily Average: 0.5 ppb on May 12																	Hours of Data:	707																																
Minimum Value: 0.2 ppb on May 22 04:00		Minimum Daily Average: 0.3 ppb on May 22																	Hours of Missing Data:	37																																
Maximum Diurnal Average: 0.4 ppb at hour 9		Minimum Diurnal Average: 0.4 ppb at hour 2																	Hours of Calibration:	37																																
Monthly Average: 0.41 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.4 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.5 P <sub>99</sub> = 0.6																	Percent Operational Time:	100.0																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																												
1-May	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																									
2-May	0.3	0.3	0.3	Z	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	0.4	0.3	0.3	0.3	0.3	0.3	0.4																								
3-May	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	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4																								
4-May	0.3	0.3	0.3	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
5-May	Z	0.4	0.3	0.3	0.3	Z	0.3	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
6-May	0.4	Z	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
7-May	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	0.4	0.4																								
8-May	0.4	0.4	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
9-May	0.4	0.4	0.5	0.4	Z	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4																								
10-May	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.5	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																								
11-May	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
12-May	0.4	Z	0.4	0.4	0.4	0.4	0.6	0.7	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																								
13-May	0.5	0.5	Z	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																								
14-May	0.5	0.4	0.4	Z	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																								
15-May	0.5	0.5	0.5	0.5	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																								
16-May	0.5	0.5	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
17-May	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	0.4	0.4	0.4																								
18-May	0.4	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																								
19-May	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	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3																								
20-May	0.3	0.3	0.3	Z	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	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																								
21-May	0.2	0.2	0.2	0.3	Z	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	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3																								
22-May	0.3	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3																								
23-May	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	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																								
24-May	0.3	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
25-May	0.4	0.4	Z	0.3	0.3	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	0.4																								
26-May	0.4	0.4	0.3	Z	0.3	0.3	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4																								
27-May	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4																								
28-May	0.4	0.4	0.4	0.4	0.6	Z	0.5	0.5	0.5	C	C	C	C	C	C	0.4	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5																								
29-May	Z	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
30-May	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4																								
31-May	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	0.4	0.4																								
																								0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
																								0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Conklin - May 2024**

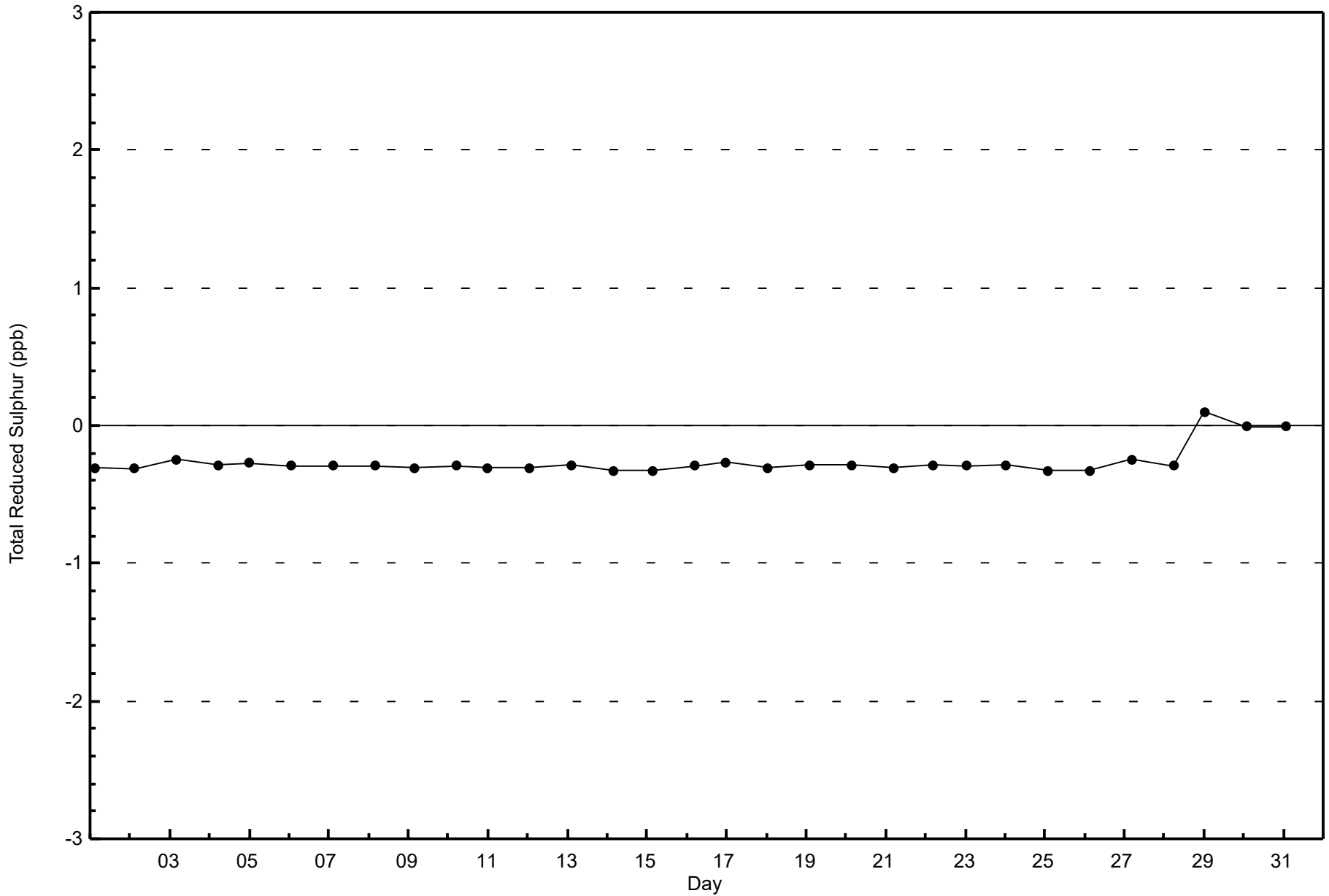
<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	40	55	21	32	34	80	43	51	37	20	17	29	36	54	85	59	693
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	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>	40	55	21	32	34	80	43	51	37	20	17	29	36	54	85	59	693

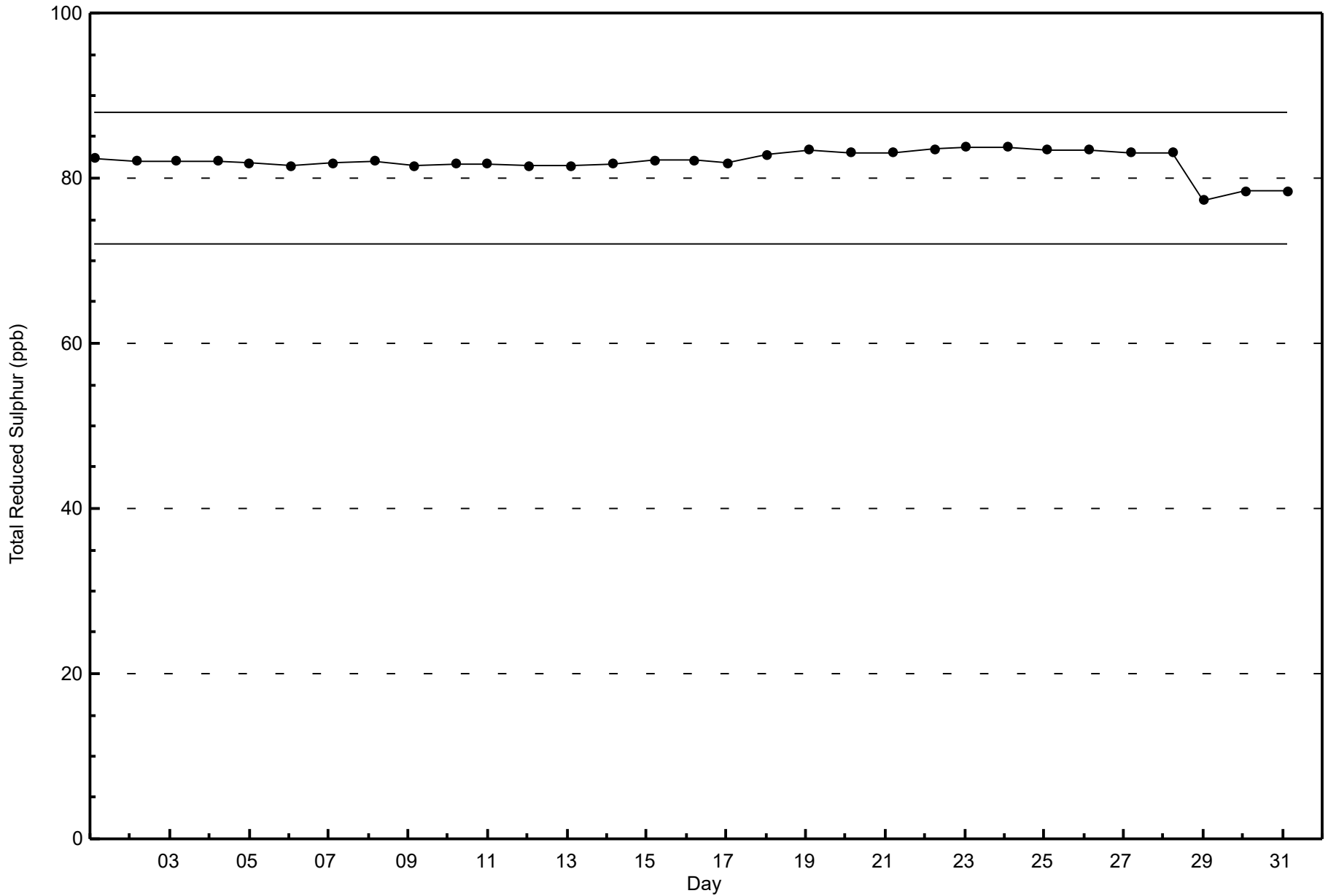
Total Number of Valid Hours: 693

Total Number of Hours: 744



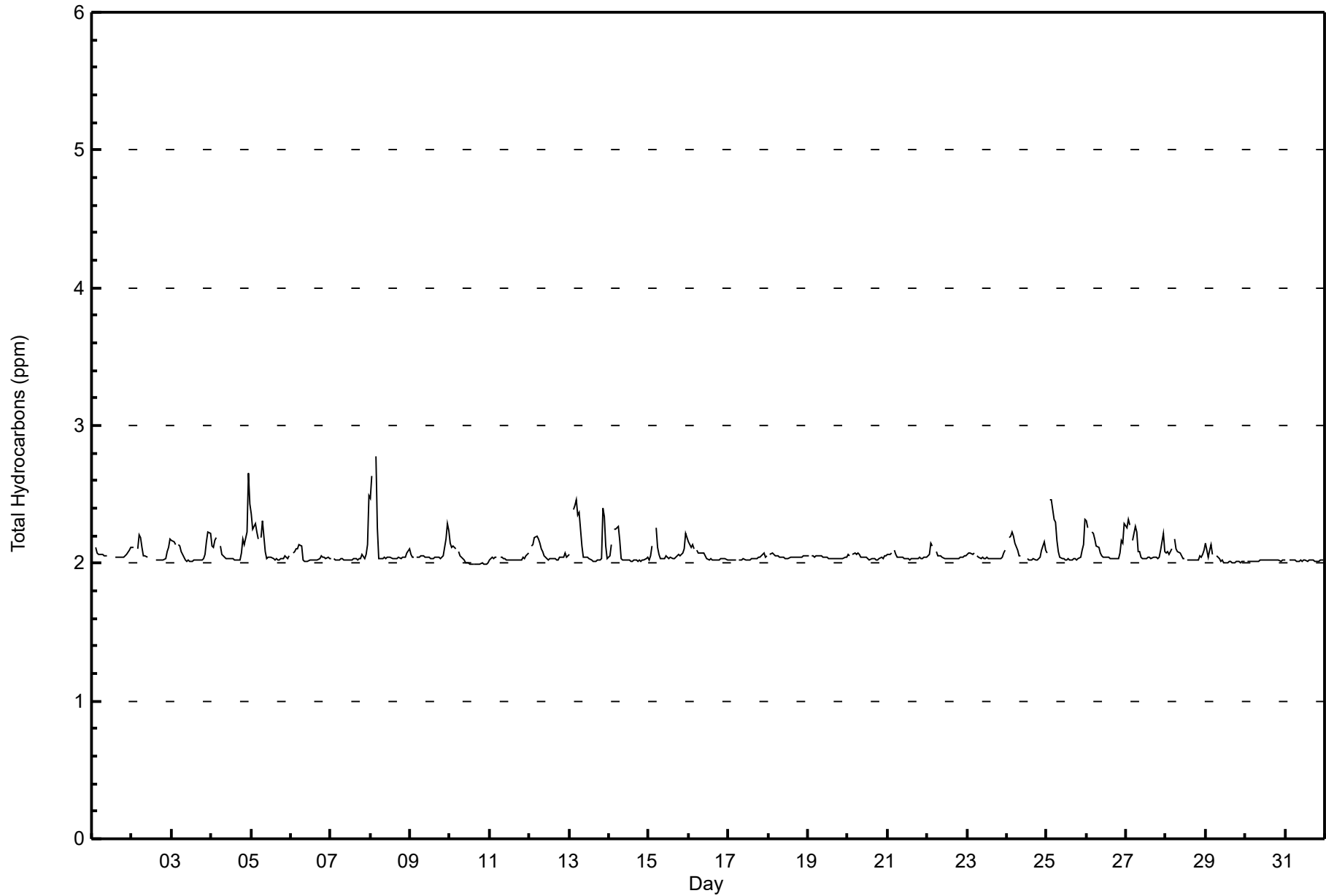








Maximum Value: 2.8 ppm on May 8 04:00		Maximum Daily Average: 2.1 ppm on May 13		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on May 10 17:00		Minimum Daily Average: 2.0 ppm on May 31		Hours of Data: 701																																													
Maximum Diurnal Average: 2.2 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 43																																													
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.5		Hours of Calibration: 35																																													
				Percent Operational Time: 98.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	M	M	M	M	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-May	2.1	2.1	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.2																						
3-May	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.2																						
4-May	2.1	2.1	2.2	2.2	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.2	2.7	2.4	2.1	2.7																							
5-May	2.4	2.2	2.3	2.2	2.2	Z	2.2	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	2.1	2.0	2.0	2.1	2.1	2.1	2.4																						
6-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
7-May	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	2.1	2.5	2.1	2.5																							
8-May	2.5	2.6	Z	2.8	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.8																						
9-May	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.3																							
10-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
11-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1																						
12-May	Z	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.2																						
13-May	2.1	Z	2.4	2.4	2.5	2.3	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.3	2.1	2.0	2.1	2.5																							
14-May	2.1	2.1	Z	2.2	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.3																						
15-May	2.0	2.1	2.1	Z	2.3	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	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.3																						
16-May	2.2	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2																						
17-May	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	2.1	2.1	2.0	2.1	2.0	2.1	2.1																						
18-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1																						
19-May	2.1	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
20-May	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	2.1	2.1	2.0	2.1	2.1																						
21-May	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
22-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1																						
23-May	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1																						
24-May	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.2	2.2																						
25-May	2.1	Z	2.5	2.5	2.3	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	2.1	2.1	2.3	2.1	2.5	2.5																						
26-May	2.3	2.3	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.3	2.1	2.3	2.3																						
27-May	2.3	2.3	2.3	Z	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.3																						
28-May	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.0	2.0	M	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	2.2																						
29-May	2.1	2.0	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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																						
																								2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	Diurnal Average		
																								2.5	2.6	2.5	2.8	2.5	2.3	2.4	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.3	2.7	2.5	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	454	64.76	64.76
2.1 - 3.0	247	35.24	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Conklin - May 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	21	45	16	26	25	68	22	9	10	10	7	26	35	47	61	16	444
2.1 - 3.0	17	9	2	5	8	14	21	40	26	11	11	4	3	9	24	40	244
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>	38	54	18	31	33	82	43	49	36	21	18	30	38	56	85	56	688

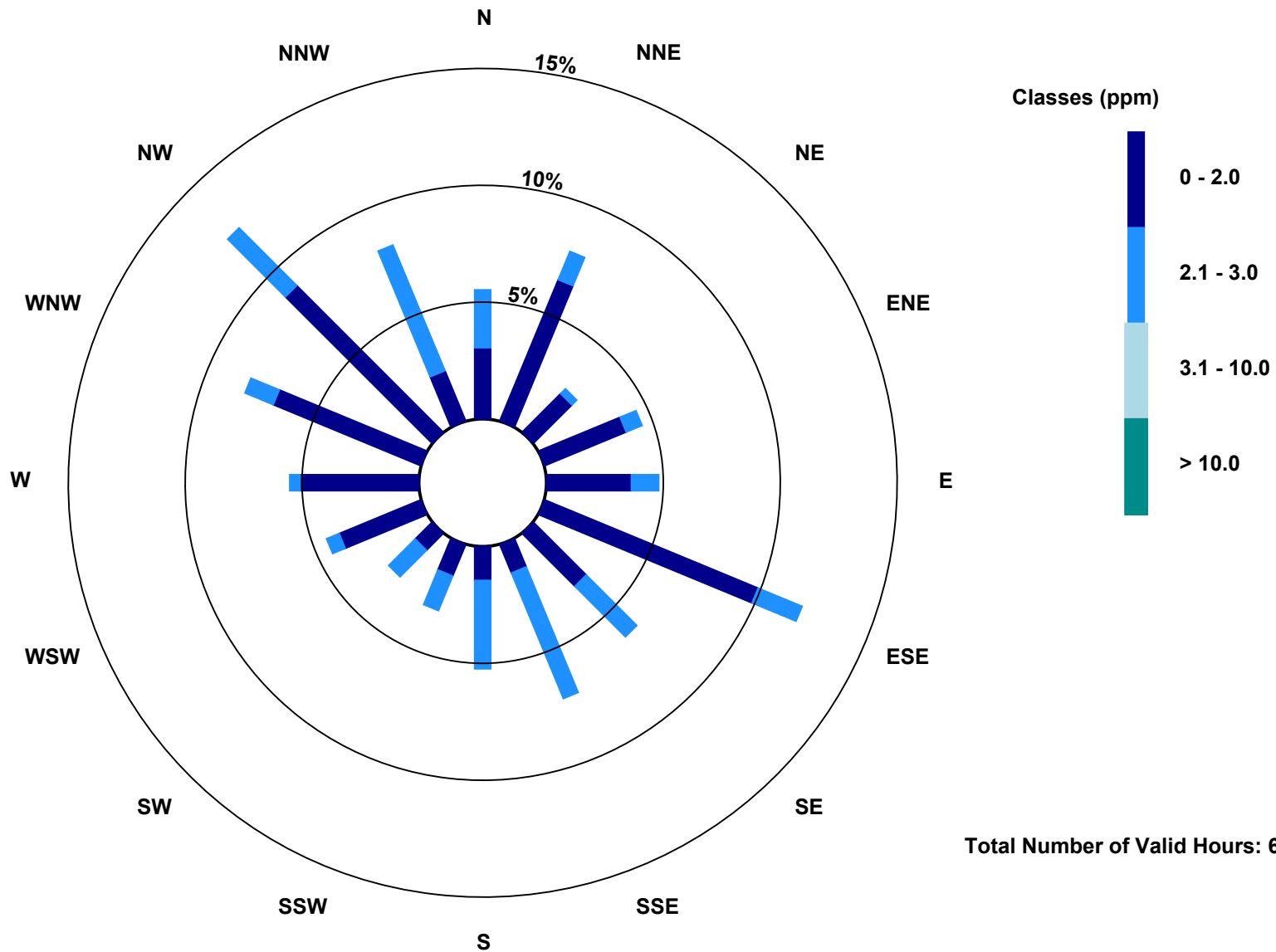
Total Number of Valid Hours: 688

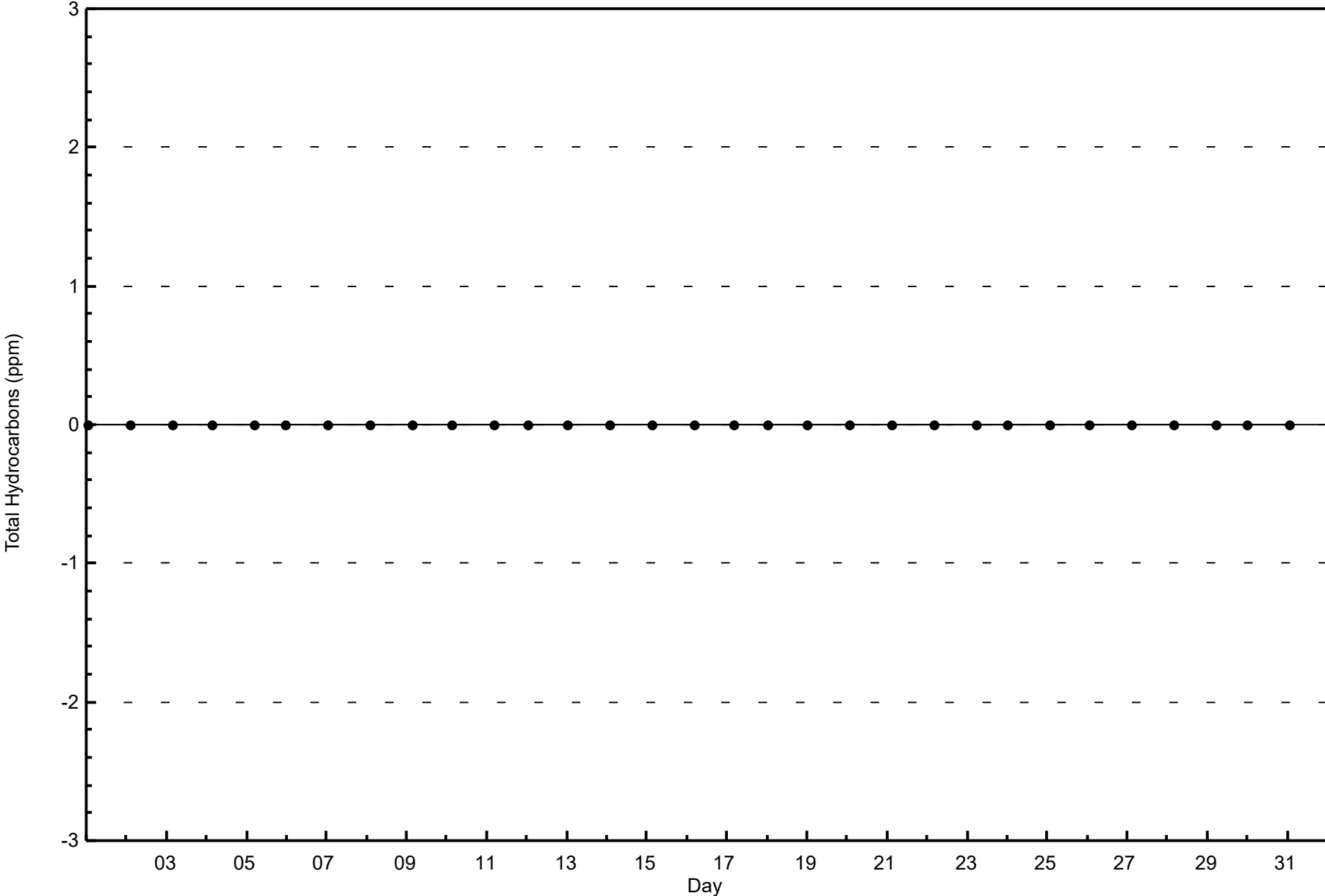
Total Number of Hours: 744



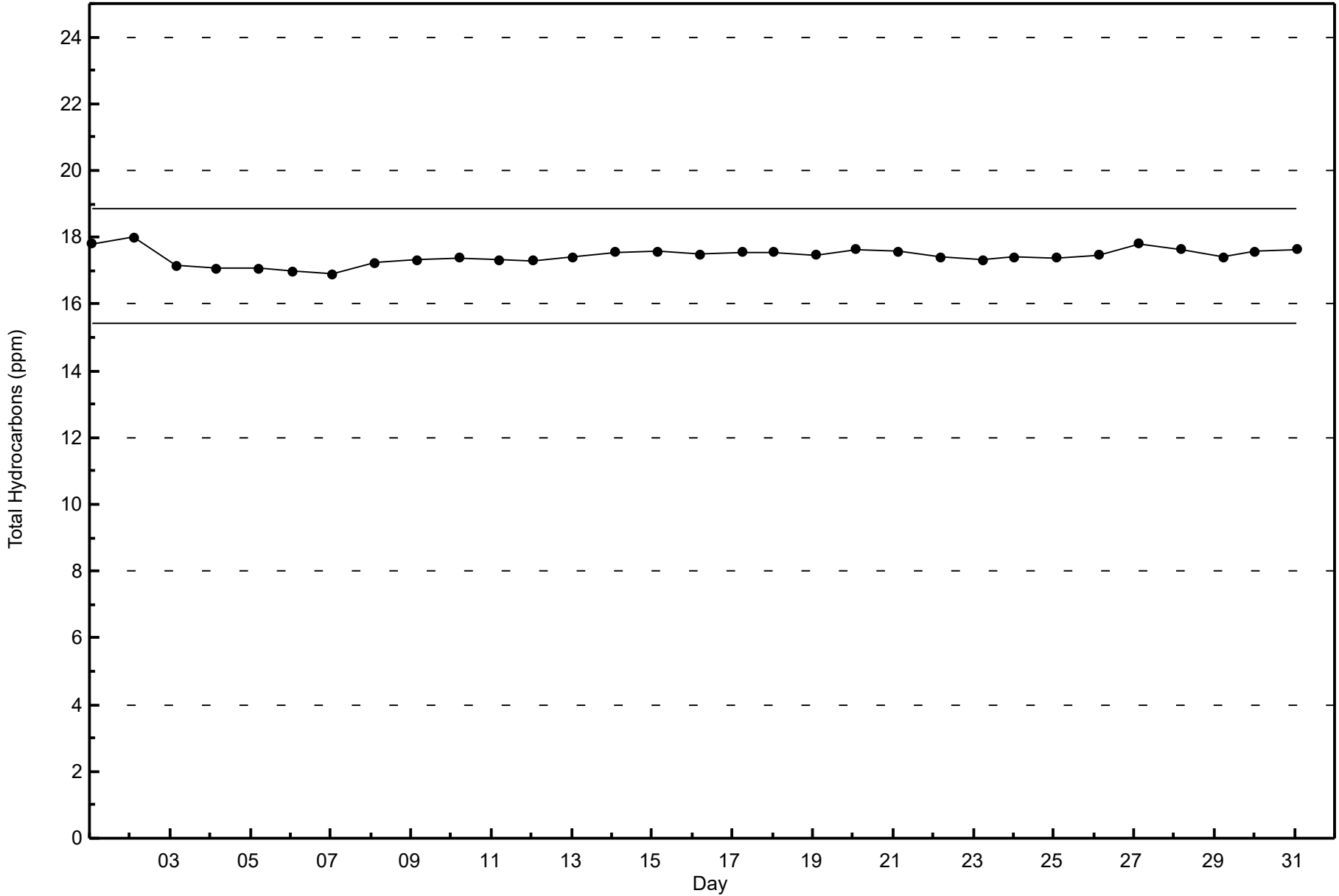
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Conklin

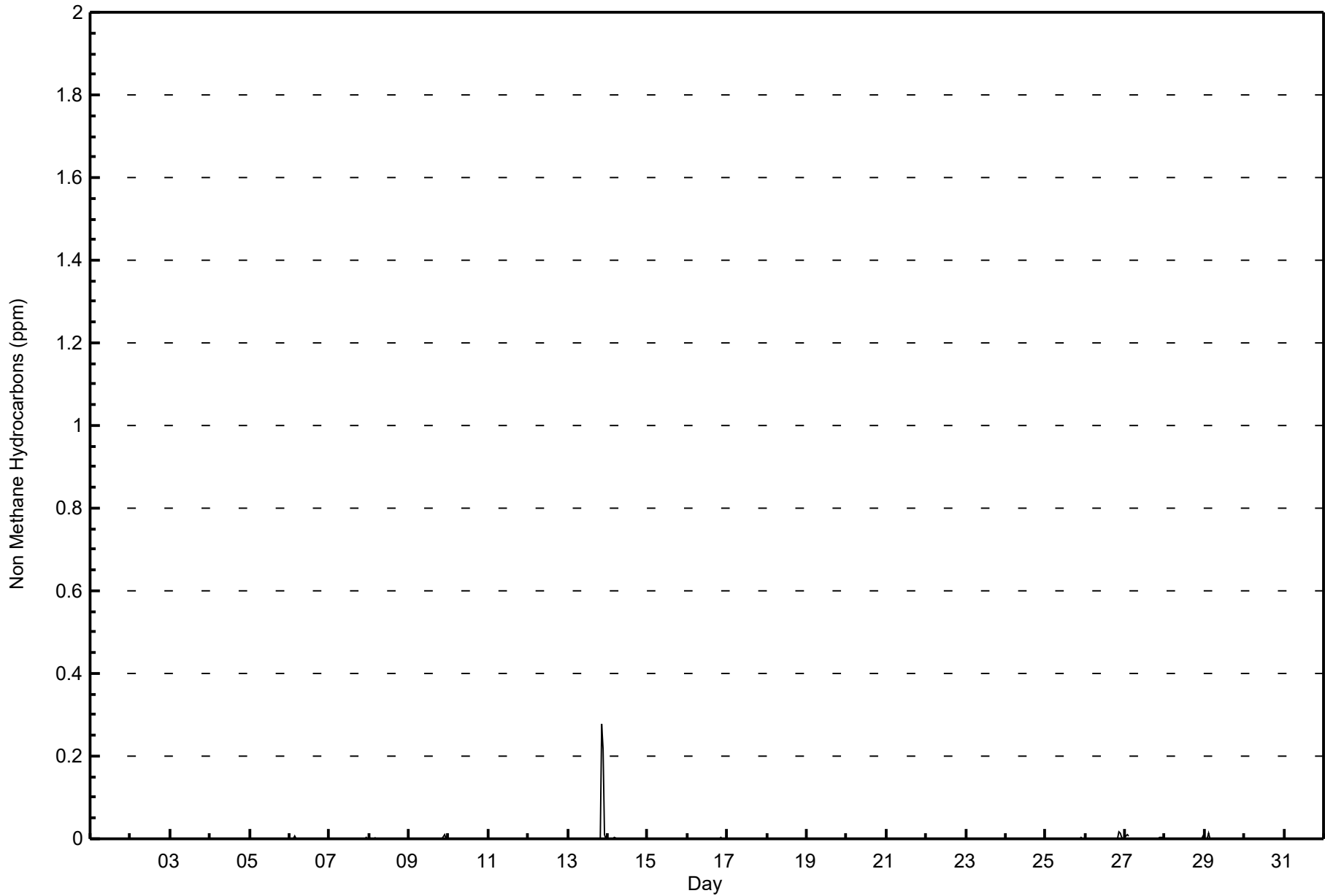














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Conklin - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	689	98.29	98.29
0.006 - 0.05	10	1.43	99.71
0.06 - 0.1	0	0.00	99.71
> 0.1	2	0.29	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Conklin - May 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	38	54	18	31	32	82	41	48	34	18	17	30	38	56	84	55	676
0.006 - 0.05	0	0	0	0	1	0	2	1	2	1	1	0	0	0	1	1	10
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	2	0	0	0	0	0	0	2
<b>Totals</b>	<b>38</b>	<b>54</b>	<b>18</b>	<b>31</b>	<b>33</b>	<b>82</b>	<b>43</b>	<b>49</b>	<b>36</b>	<b>21</b>	<b>18</b>	<b>30</b>	<b>38</b>	<b>56</b>	<b>85</b>	<b>56</b>	<b>688</b>

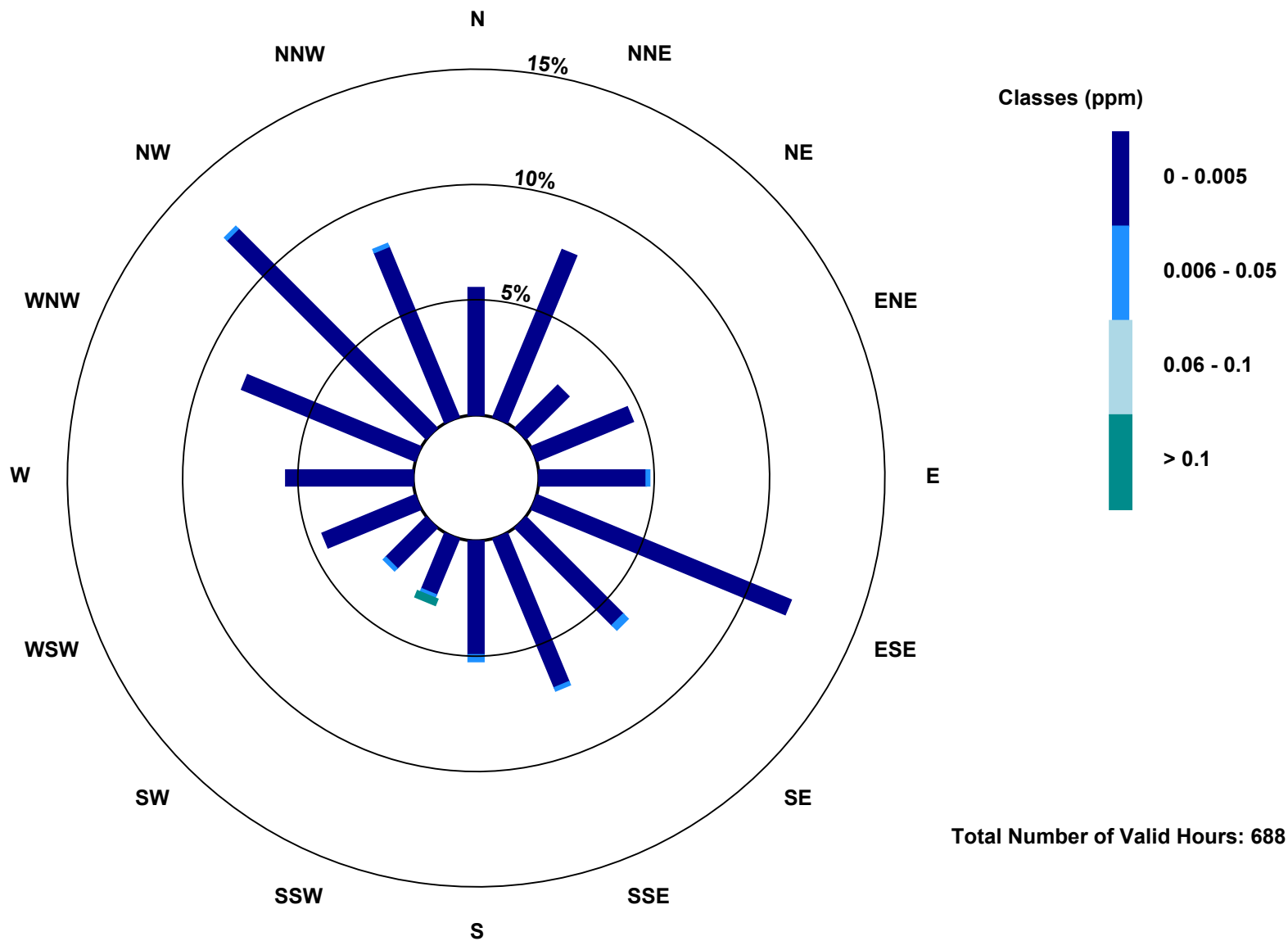
Total Number of Valid Hours: 688

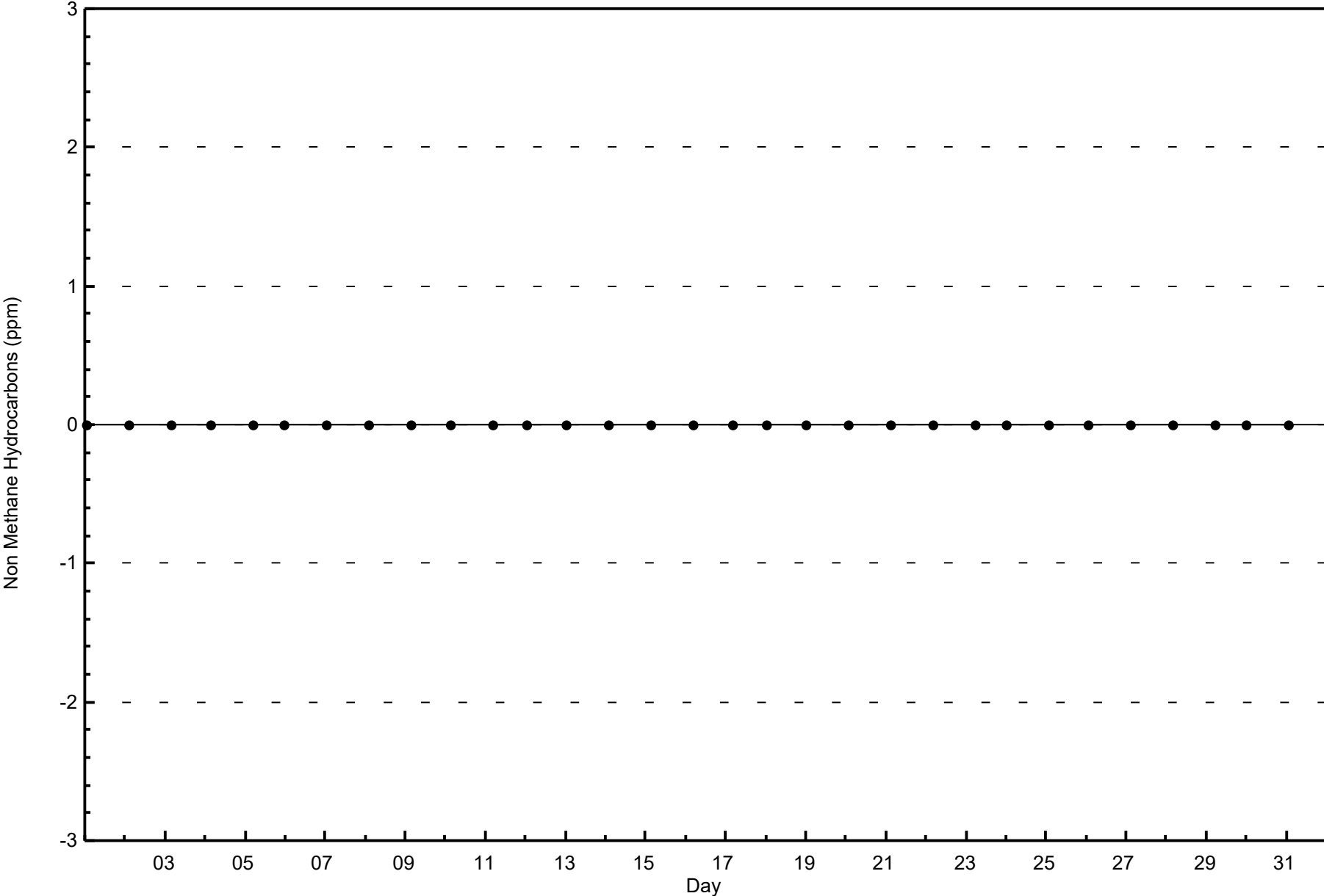
Total Number of Hours: 744

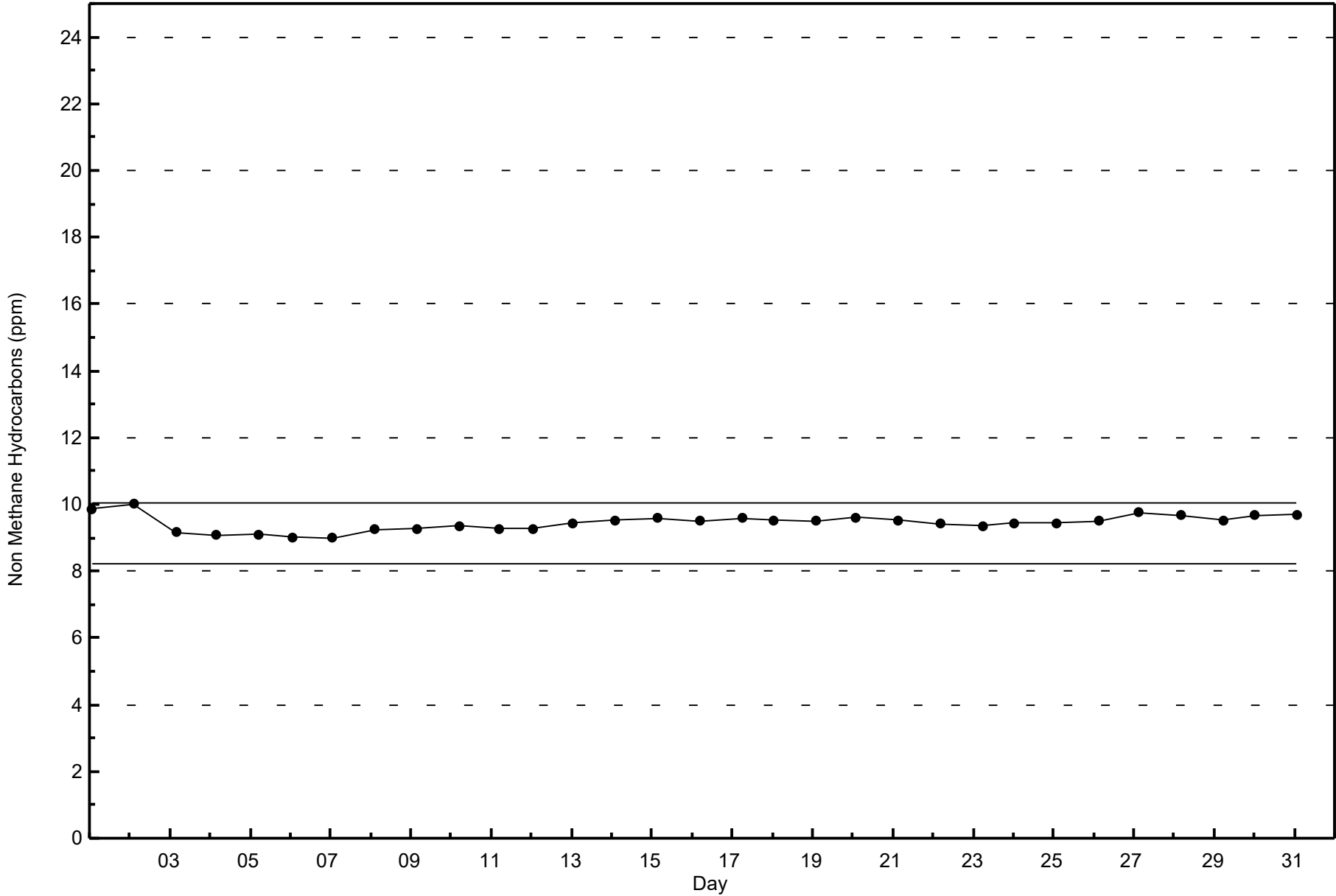


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Conklin











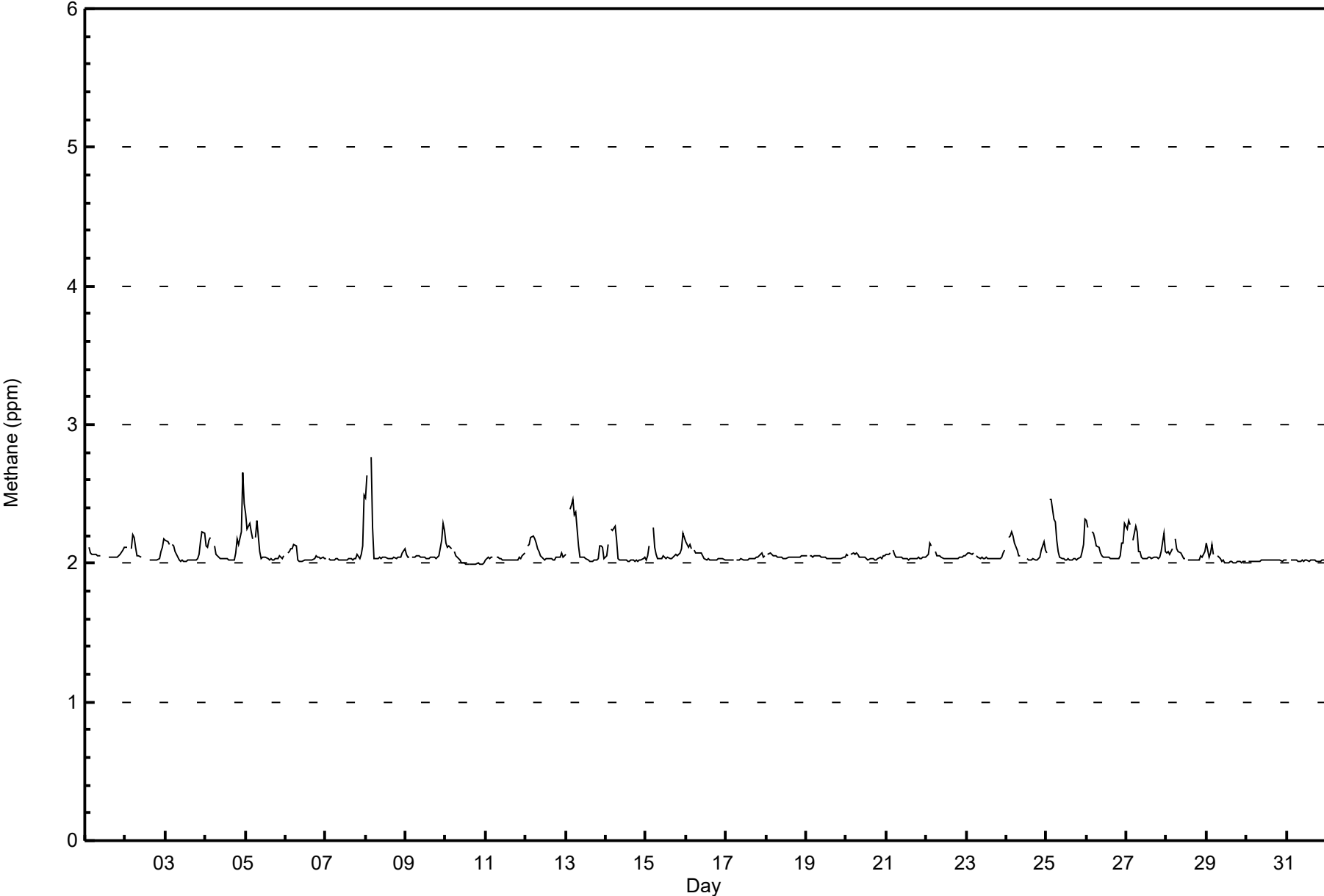
# Wood Buffalo Environmental Association

## Summary of Hour Averages

Methane (CH<sub>4</sub>) - ppm

Conklin - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 2.8 ppm on May 8 04:00		Maximum Daily Average: 2.1 ppm on May 8		Hours of Data: 701																	2.1		2.1																										
Minimum Value: 2.0 ppm on May 10 17:00		Minimum Daily Average: 2.0 ppm on May 31		Hours of Missing Data: 43																	2.1		2.2																										
Maximum Diurnal Average: 2.2 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Calibration: 35																	2.1		2.2																										
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.1 P <sub>99</sub> = 2.5		Percent Operational Time: 98.9																	2.1		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-May	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	M	M	M	M	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-May	2.1	2.1	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.1	2.2																						
3-May	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.2																						
4-May	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	2.1	2.2	2.1	2.2	2.7	2.4	2.1	2.7																							
5-May	2.4	2.2	2.3	2.2	2.2	Z	2.2	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	2.1	2.0	2.0	2.1	2.1	2.1	2.4																						
6-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
7-May	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	2.1	2.5	2.1	2.5																							
8-May	2.5	2.6	Z	2.8	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.8																						
9-May	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.3																							
10-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
11-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1																						
12-May	Z	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.2																						
13-May	2.1	Z	2.4	2.4	2.5	2.3	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.5																							
14-May	2.1	2.1	Z	2.2	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																							
15-May	2.0	2.1	2.1	Z	2.3	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	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3																							
16-May	2.2	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2																							
17-May	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	2.1	2.1	2.0	2.1	2.0	2.1																							
18-May	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1																							
19-May	2.1	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
20-May	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	2.1	2.1	2.0	2.1																							
21-May	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
22-May	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1																						
23-May	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1																						
24-May	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	M	M	M	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	2.2	2.2																						
25-May	2.1	Z	2.5	2.5	2.3	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	2.1	2.1	2.3	2.1	2.5																							
26-May	2.3	2.3	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.1	2.3																							
27-May	2.2	2.3	2.3	Z	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.3																						
28-May	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.0	2.0	M	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	2.2																						
29-May	2.1	2.0	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-May	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																						
																								2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	Diurnal Average		
																								2.5	2.6	2.5	2.8	2.5	2.3	2.4	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.2	2.7	2.5	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Conklin - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	454	64.76	64.76
2.1 - 3.0	247	35.24	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm  
Conklin - May 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	21	45	16	26	25	68	22	9	10	10	7	26	35	47	61	16	444
2.1 - 3.0	17	9	2	5	8	14	21	40	26	11	11	4	3	9	24	40	244
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>	38	54	18	31	33	82	43	49	36	21	18	30	38	56	85	56	688

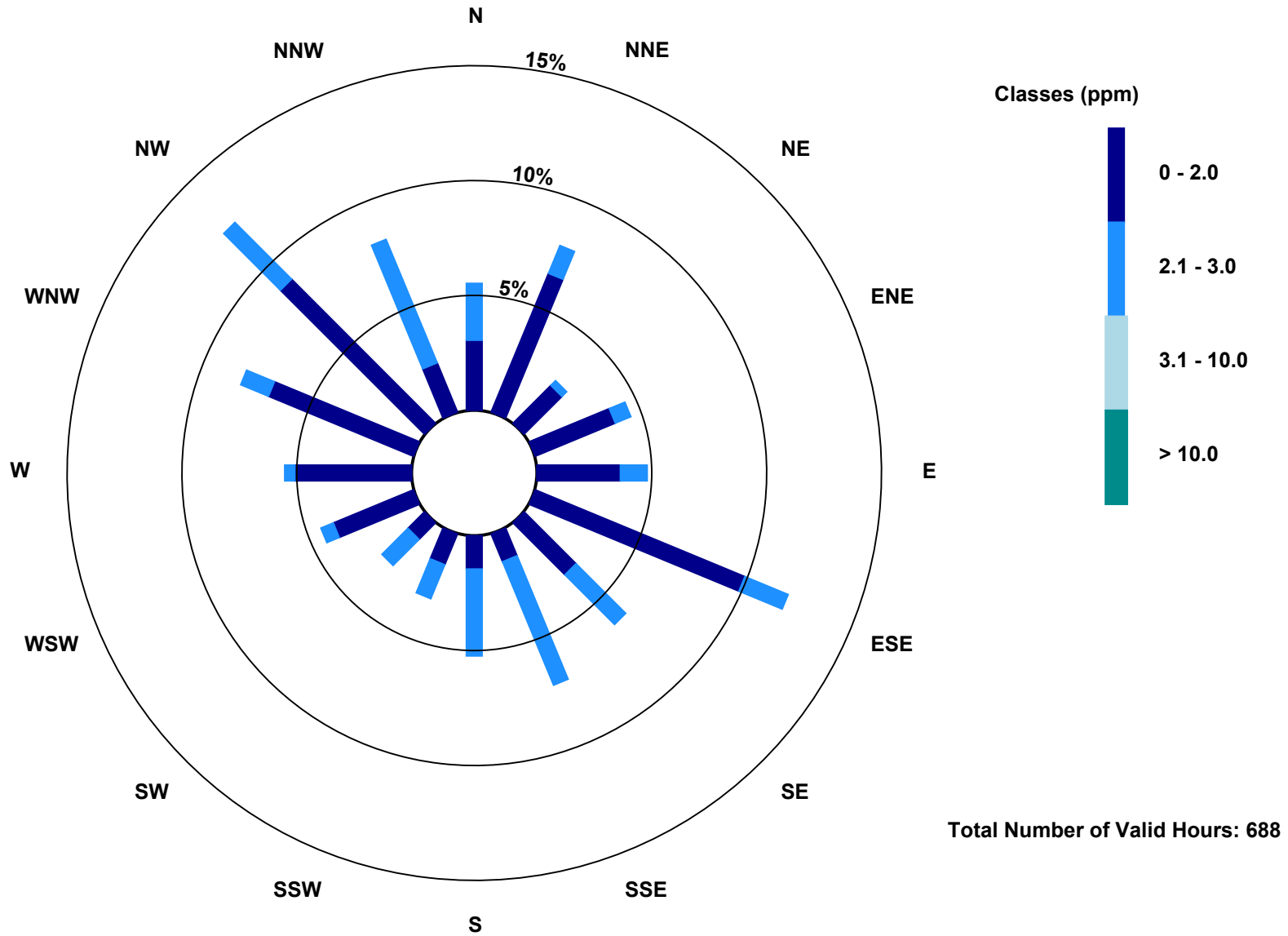
Total Number of Valid Hours: 688

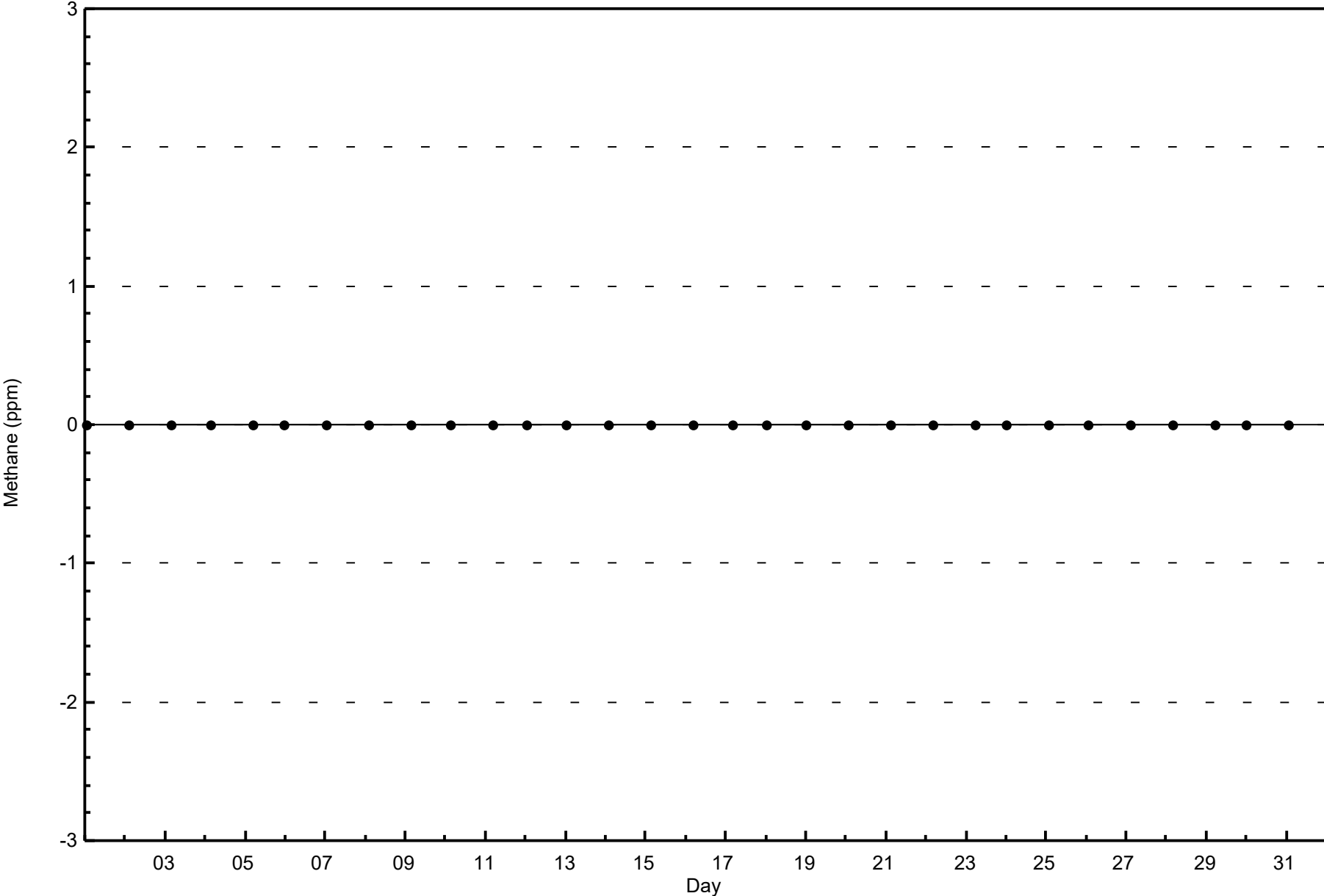
Total Number of Hours: 744

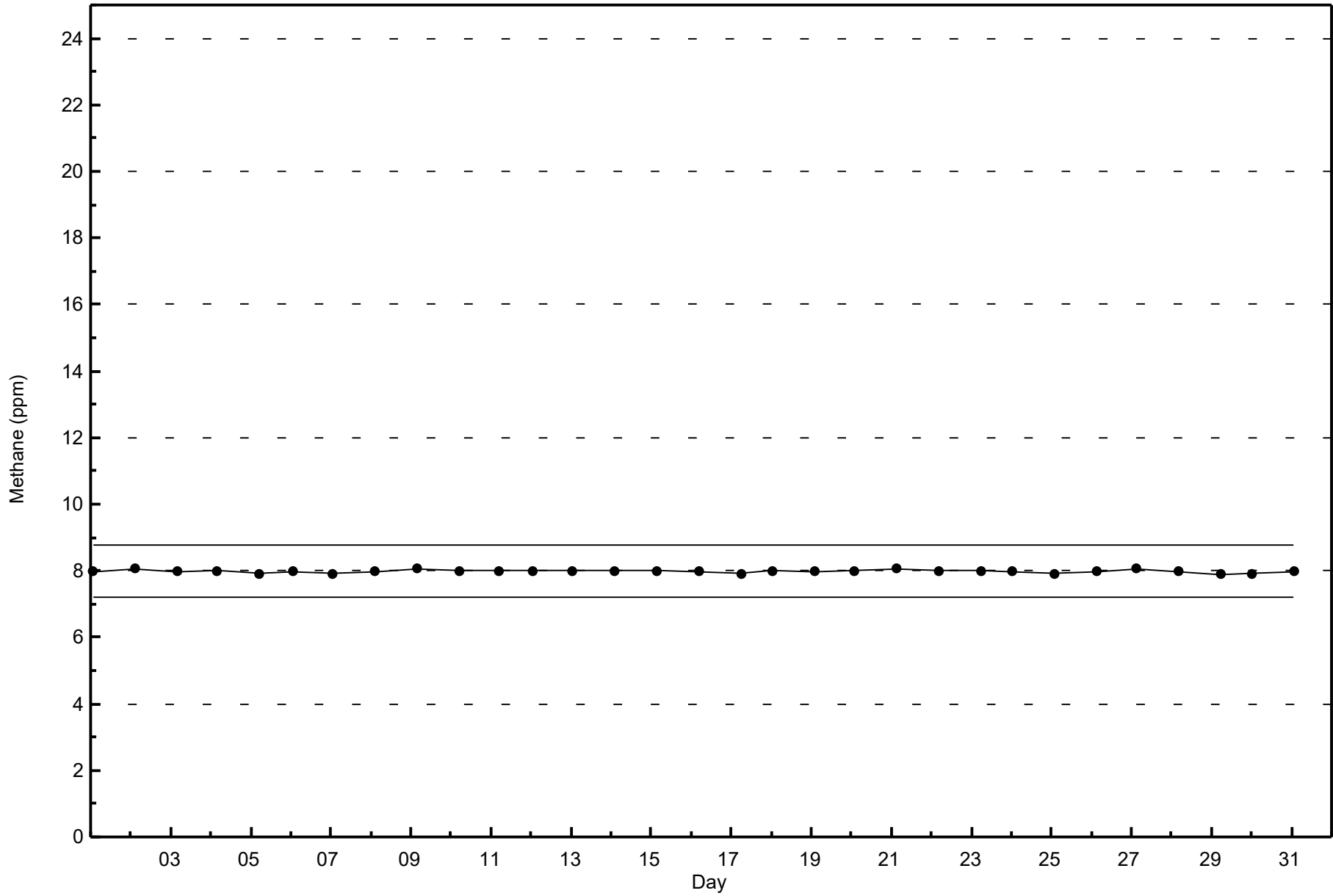


Wood Buffalo Environmental Association  
Wind Rose May 2024

Methane (CH<sub>4</sub>) - ppm  
Conklin









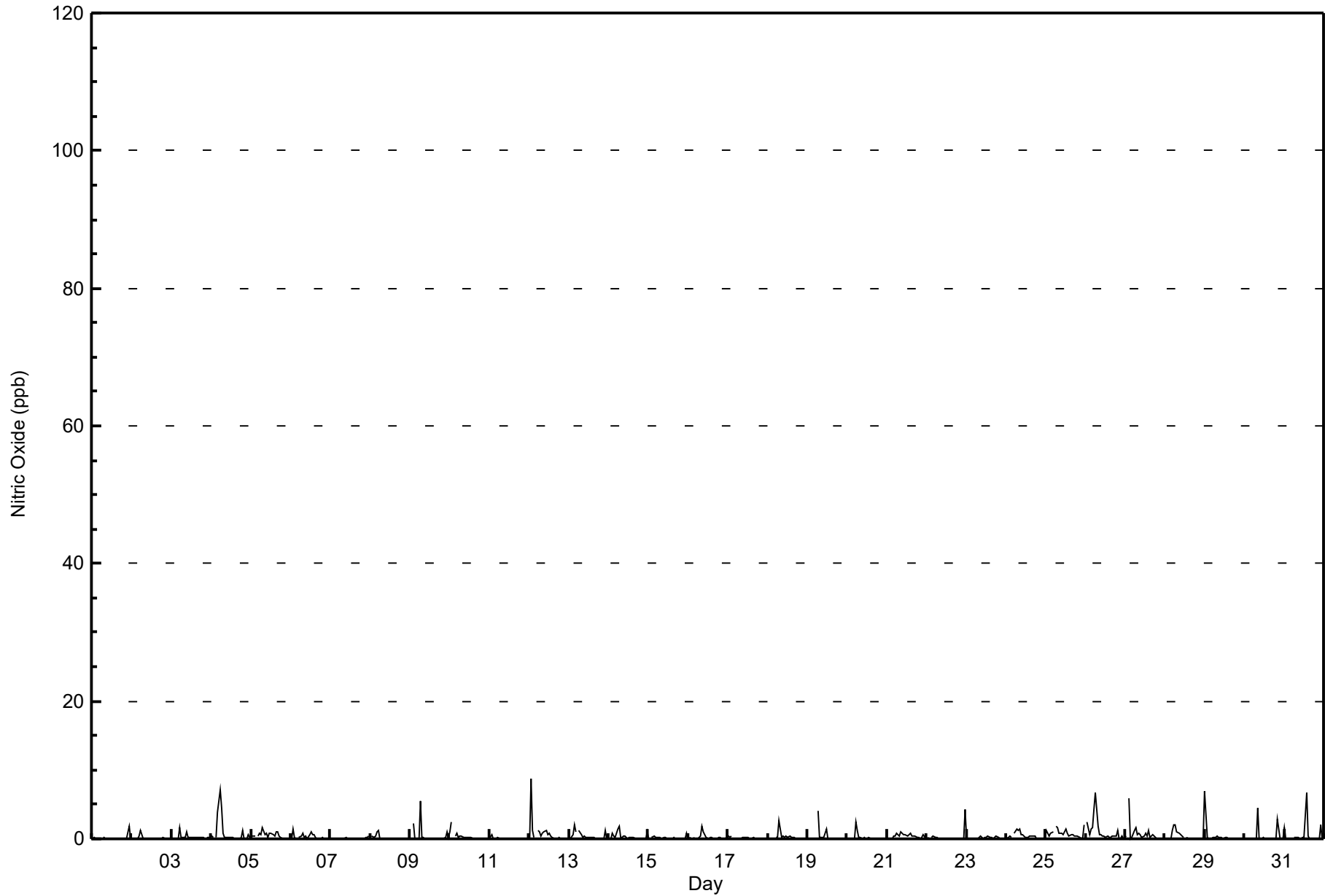
Maximum Value: 8.7 ppb on May 12 02:00		Maximum Daily Average: 1.1 ppb on May 26		Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 1 16:00		Minimum Daily Average: 0.1 ppb on May 11		Hours of Data: 707																							
Maximum Diurnal Average: 1.2 ppb at hour 7		Minimum Diurnal Average: 0.0 ppb at hour 22		Hours of Missing Data: 37																							
Monthly Average: 0.37 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> = 4.5		Hours of Calibration: 36																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	0.1	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.1	0.1	1.9	
2-May	Z	0.0	0.0	0.0	0.3	1.3	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.1	1.3
3-May	0.2	Z	0.1	0.1	0.1	1.6	0.3	0.2	0.2	1.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	1.6
4-May	0.3	0.1	Z	0.2	3.9	7.1	4.4	0.8	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.2	1.3	0.0	0.0	0.7	0.2	0.9	0.7	7.1
5-May	0.3	0.3	0.4	Z	0.4	0.8	0.6	1.6	0.7	0.9	0.2	0.9	0.9	0.6	0.4	1.0	1.0	0.4	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.5	1.6
6-May	0.1	1.4	0.1	0.0	Z	0.1	0.3	0.8	0.1	0.4	0.1	0.6	0.9	0.5	0.5	0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.3	0.1	1.4
7-May	0.0	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.2	0.4	0.1	0.4	
8-May	Z	0.4	0.2	0.3	1.0	1.3	0.0	0.0	0.1	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3
9-May	0.0	Z	2.2	0.0	0.0	0.0	5.4	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.9	0.1	0.4	5.4	
10-May	1.0	2.4	Z	0.3	0.8	0.2	0.5	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	2.4
11-May	0.0	0.6	0.0	Z	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.6
12-May	0.1	8.7	1.3	0.2	Z	1.3	0.9	0.5	0.8	1.1	1.3	0.7	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.8	8.7
13-May	0.0	0.0	0.6	2.0	1.1	Z	1.2	0.7	0.2	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	1.2	0.0	0.4	0.1	2.0
14-May	Z	0.0	0.7	0.5	0.2	1.5	1.8	0.3	0.2	0.4	0.3	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	0.1	1.8
15-May	0.0	Z	0.2	0.5	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.7
16-May	0.0	0.3	Z	0.1	0.0	0.0	0.0	0.4	1.8	0.9	0.6	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.2	0.2	0.1	1.8
17-May	0.3	0.2	0.3	Z	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.2	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
18-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	2.6	0.2	0.4	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	2.6
19-May	0.0	0.0	0.0	0.0	0.0	Z	4.0	0.2	0.1	0.1	0.2	1.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	4.0
20-May	Z	0.0	0.0	0.0	0.0	2.5	1.3	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	2.5
21-May	0.0	Z	0.0	0.0	0.5	0.5	0.7	0.4	1.0	0.8	0.6	0.7	0.4	0.6	0.7	0.3	0.4	0.3	0.3	0.1	0.1	0.1	0.6	0.0	0.4	0.1	1.0
22-May	0.0	0.1	Z	0.2	0.4	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	4.2	0.3	0.1	4.2
23-May	0.2	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.2	0.1	0.4	0.2	0.2	0.1	0.2	0.4	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.4
24-May	0.1	0.1	0.4	0.3	Z	0.8	1.4	1.2	1.3	0.6	0.6	0.3	0.1	0.3	0.3	0.4	0.5	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.4	0.1	1.4
25-May	1.2	0.9	0.4	0.8	1.0	Z	1.8	1.7	0.9	0.8	0.7	1.0	1.3	0.8	0.4	0.7	0.6	0.5	0.4	0.5	0.2	0.1	0.2	1.9	0.8	0.1	1.9
26-May	Z	2.5	0.5	1.5	1.7	4.2	6.8	1.9	0.7	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.3	0.0	0.1	0.4	0.1	1.1	0.1	6.8
27-May	0.4	Z	5.8	0.0	0.1	1.3	1.5	0.6	0.8	0.6	0.2	0.5	0.7	0.5	1.2	0.2	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.7	0.1	5.8
28-May	0.0	0.0	Z	0.0	1.2	2.1	2.0	0.9	0.7	0.6	0.3	0.1	M	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	2.1
29-May	7.0	0.1	0.0	Z	0.0	0.1	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	7.0
30-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	4.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.1	4.5
31-May	1.6	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.1	0.1	0.1	0.2	0.2	6.7	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.5	0.1	6.7
																								Diurnal Average			
																								Diurnal Maximum			
																								Z - zerospan      C - Calibration      M - Maintenance			





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Conklin - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Conklin - May 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  
Conklin - May 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	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695
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>	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695

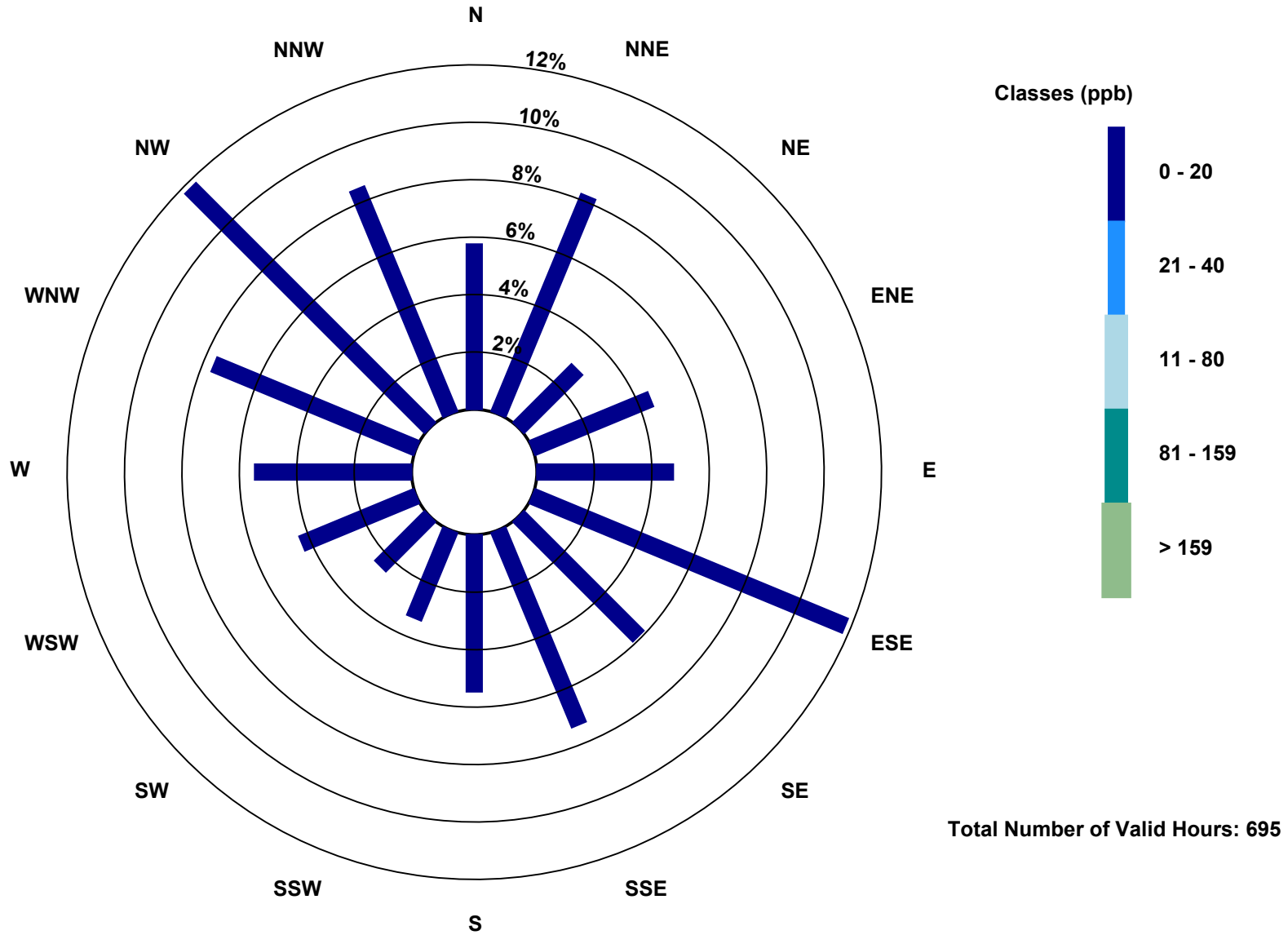
Total Number of Valid Hours: 695

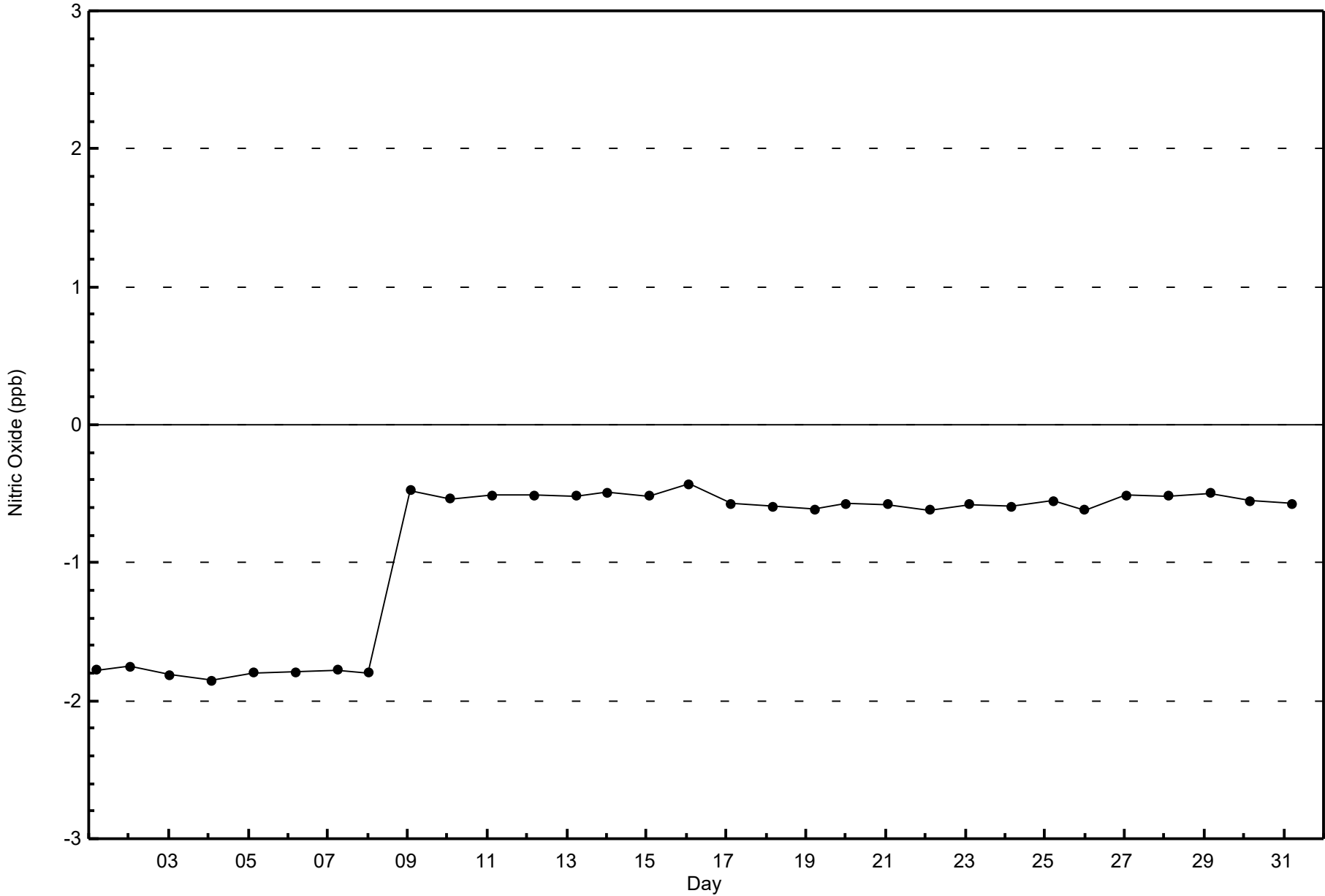
Total Number of Hours: 744

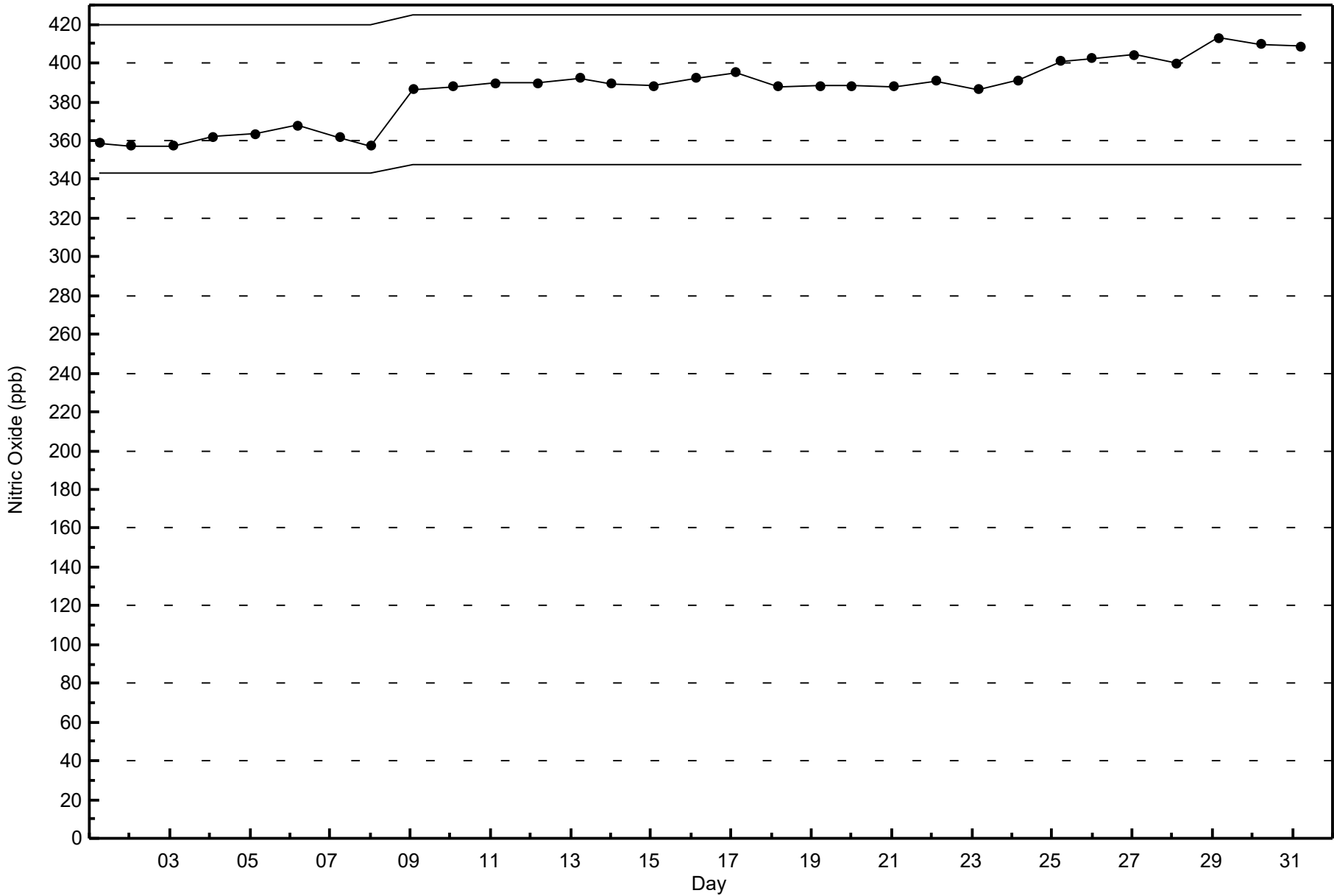


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Conklin









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Conklin - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.4 ppb on May 10 02:00	Maximum Daily Average: 2.8 ppb on May 26		Hours of Data:	707
Minimum Value: 0.0 ppb on May 22 17:00	Minimum Daily Average: 0.3 ppb on May 19		Hours of Missing Data:	37
Maximum Diurnal Average: 2.5 ppb at hour 6	Minimum Diurnal Average: 0.7 ppb at hour 16		Hours of Calibration:	36
Monthly Average: 1.33 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.8 Q <sub>3</sub> = 1.7 P <sub>90</sub> = 3.0 P <sub>99</sub> = 7.2		Percent Operational Time:	99.9

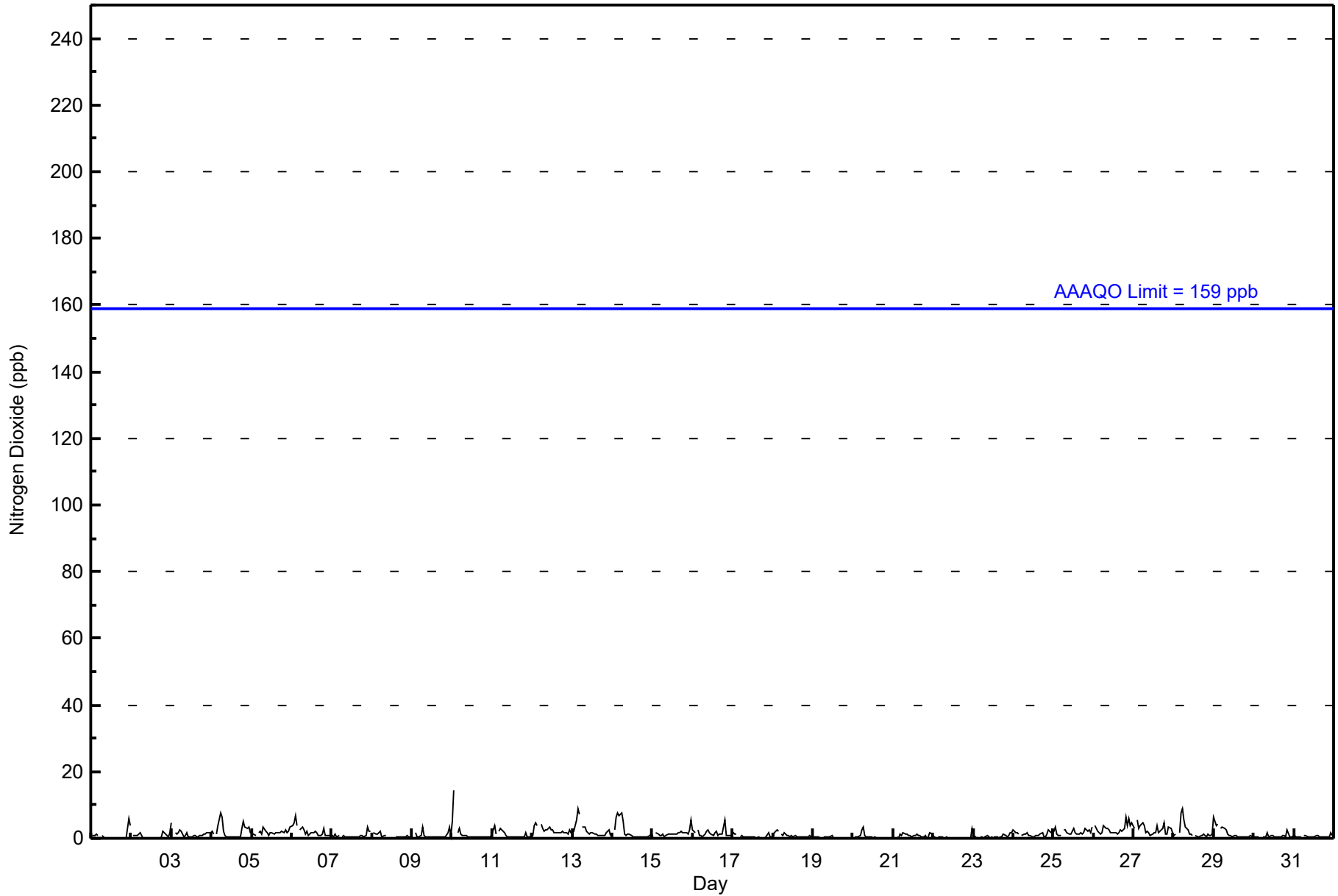
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	0.8	0.7	0.9	1.1	1.0	Z	0.7	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	5.9	3.9	0.8	5.9																							
2-May	Z	0.8	0.8	0.8	1.4	1.9	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.5	2.0	1.4	0.7	0.5	1.7	0.7	2.0																								
3-May	4.7	Z	1.5	1.4	1.5	2.4	2.2	0.6	0.7	1.8	0.4	0.4	0.5	0.7	0.7	0.4	0.3	0.7	0.7	1.4	1.3	1.6	1.7	1.6	1.3	4.7																							
4-May	2.0	1.3	Z	1.4	4.0	7.5	6.3	2.0	0.8	0.5	0.5	0.5	0.5	0.6	0.3	0.4	0.5	0.5	2.8	4.9	3.6	3.0	3.3	1.9	2.1	7.5																							
5-May	1.6	1.4	1.0	Z	1.9	2.0	1.2	3.3	2.0	1.6	0.9	1.5	1.6	1.4	1.6	1.9	1.8	1.9	2.3	1.6	2.7	1.5	2.1	3.4	1.8	3.4																							
6-May	4.0	4.7	6.6	3.7	Z	2.7	3.6	2.7	1.1	2.3	0.8	1.6	1.9	1.6	2.2	1.5	0.7	0.7	1.4	2.8	1.0	0.7	0.9	1.0	2.2	6.6																							
7-May	0.7	0.5	1.1	0.4	0.7	Z	0.6	0.8	0.4	0.6	0.3	0.3	0.3	0.4	0.3	0.4	0.6	1.0	0.8	0.4	0.8	3.2	2.0	2.0	0.8	3.2																							
8-May	Z	1.7	1.3	1.1	1.8	2.0	0.6	0.7	0.7	C	C	C	C	C	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.9	0.6	0.6	0.8	2.0																							
9-May	0.6	Z	1.6	0.4	0.5	0.7	3.5	0.7	0.6	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.6	1.8	3.6	1.0	0.9	3.6																							
10-May	5.2	14.4	Z	1.6	3.1	1.1	0.9	1.0	0.7	0.4	0.3	0.3	0.5	0.4	0.3	0.3	0.4	0.3	0.4	0.5	0.4	0.3	0.3	0.4	1.5	14.4																							
11-May	1.2	3.9	1.2	Z	2.2	3.0	2.0	1.5	0.9	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	1.7	0.5	0.4	0.5	1.0	3.9																							
12-May	0.7	3.7	4.5	3.7	Z	4.1	2.9	2.0	2.5	2.4	3.2	2.7	2.6	1.8	1.6	1.8	1.6	1.7	2.0	1.7	1.6	1.4	2.7	1.7	2.4	4.5																							
13-May	1.6	2.2	5.7	8.8	7.2	Z	3.2	3.5	2.0	1.6	1.3	1.5	1.7	1.4	1.2	0.8	0.9	0.9	0.7	0.7	1.7	2.1	2.6	1.0	2.4	8.8																							
14-May	Z	2.4	6.2	7.6	6.9	7.5	5.1	1.2	0.9	1.3	1.3	0.7	0.6	0.5	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.4	0.8	1.9	2.1	7.6																							
15-May	0.4	Z	1.7	1.4	0.8	0.7	1.3	0.6	0.7	1.2	1.3	1.2	1.3	1.3	1.2	1.8	1.7	2.2	1.9	1.5	1.5	1.3	2.6	5.4	1.5	5.4																							
16-May	2.5	1.8	Z	2.7	1.0	0.7	0.6	1.3	2.2	2.4	1.9	1.3	0.8	1.6	2.0	0.9	1.2	1.1	3.2	5.5	0.7	1.0	1.0	0.9	1.7	5.5																							
17-May	1.9	1.4	1.2	Z	0.5	0.7	0.3	0.3	0.4	0.4	0.5	0.4	0.4	0.3	0.2	0.4	0.2	0.1	0.2	0.1	0.3	1.7	0.4	0.4	0.6	1.9																							
18-May	0.4	1.9	2.5	2.2	Z	1.3	1.0	1.5	0.7	0.7	0.5	0.8	0.6	1.0	0.6	0.5	0.6	0.6	0.5	0.3	0.3	0.3	0.8	0.6	0.9	2.5																							
19-May	0.4	0.3	0.3	0.4	0.4	Z	0.6	0.4	0.3	0.4	0.4	1.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	1.0																							
20-May	Z	0.6	0.3	0.5	0.7	2.5	3.3	0.8	0.6	0.4	0.5	0.3	0.2	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.6	3.3																							
21-May	0.2	Z	0.3	0.2	1.2	1.0	1.5	1.2	1.3	1.0	0.7	0.6	0.7	0.9	1.3	0.7	0.7	0.6	0.6	0.7	0.2	0.6	1.5	1.2	0.8	1.5																							
22-May	0.6	0.6	Z	0.5	0.5	0.3	0.2	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.2	2.9	0.3	2.9																							
23-May	1.1	0.5	0.4	Z	0.4	0.4	0.2	0.3	0.9	0.5	0.2	0.4	0.2	0.5	0.4	0.2	0.3	0.5	1.3	1.0	0.3	0.9	1.7	1.8	0.6	1.8																							
24-May	2.4	1.6	1.5	1.1	Z	1.0	1.2	1.2	1.6	0.9	0.9	0.5	0.4	0.7	0.9	1.0	1.4	1.5	0.6	0.5	1.1	2.7	1.5	1.8	1.2	2.7																							
25-May	2.2	3.4	1.1	0.8	0.8	Z	2.4	2.6	1.6	1.4	1.3	2.0	2.9	1.8	1.1	1.4	1.5	1.3	1.7	2.9	2.2	2.5	1.9	3.3	1.9	3.4																							
26-May	Z	3.9	2.0	1.8	1.3	1.7	4.0	2.9	2.9	2.6	1.8	1.8	1.6	1.5	1.3	1.5	2.4	2.2	3.0	6.4	3.9	6.0	3.7	4.6	2.8	6.4																							
27-May	3.1	Z	5.7	2.8	3.8	4.6	4.0	1.7	2.3	1.8	0.7	1.2	1.8	1.6	3.9	1.7	2.6	3.1	4.5	1.1	1.3	3.5	2.8	1.8	2.7	5.7																							
28-May	0.9	1.2	Z	1.7	7.7	8.7	5.7	3.2	2.5	1.2	1.1	0.9	M	0.8	0.6	0.5	0.8	1.0	1.1	0.5	1.2	0.9	1.0	1.3	2.0	8.7																							
29-May	6.3	3.7	4.2	Z	2.8	3.2	3.1	2.5	1.1	1.0	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.7	0.4	1.6	6.3																							
30-May	0.4	0.4	0.3	0.3	Z	0.3	0.4	0.5	1.9	0.5	0.7	0.9	0.6	0.4	0.4	0.3	0.4	0.7	0.7	0.6	2.5	0.4	0.4	0.4	0.6	2.5																							
31-May	1.4	0.4	0.3	0.3	0.4	Z	0.7	0.8	0.6	0.5	0.5	0.5	0.3	0.7	0.8	0.3	0.3	0.3	0.3	0.4	0.3	0.3	1.6	0.8	0.6	1.6																							
																								1.8	2.3	2.1	1.9	2.1	2.5	2.1	1.4	1.1	1.0	0.8	0.8	0.8	0.8	0.7	0.8	0.8	1.1	1.3	1.1	1.3	1.6	1.6	Diurnal Average		
																								6.3	14.4	6.6	8.8	7.7	8.7	6.3	3.5	2.9	2.6	3.2	2.7	2.9	1.8	3.9	1.9	2.6	3.1	4.5	6.4	3.9	6.0	5.9	5.4	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Conklin - May 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  
Conklin - May 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	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695
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>	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695

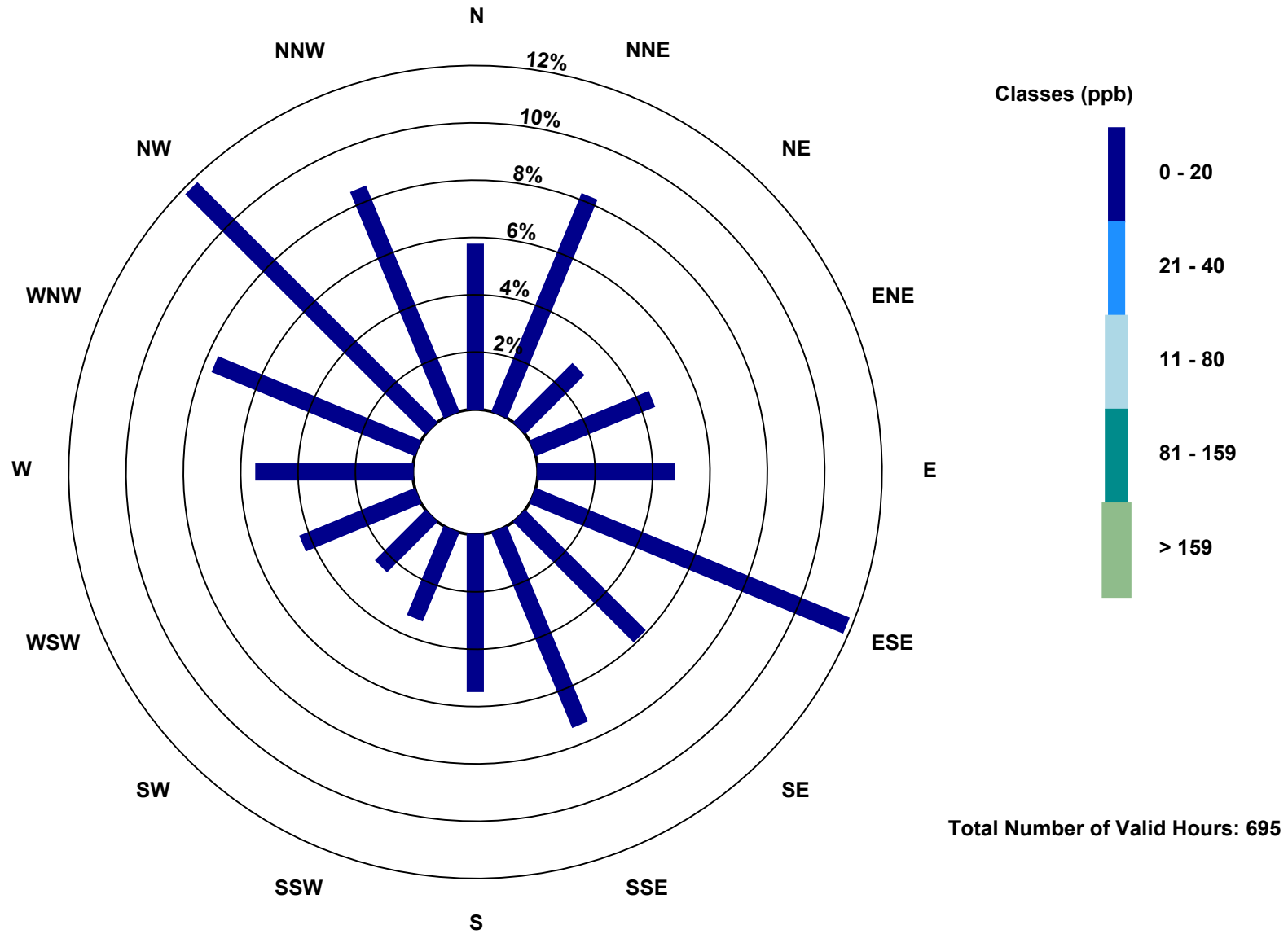
Total Number of Valid Hours: 695

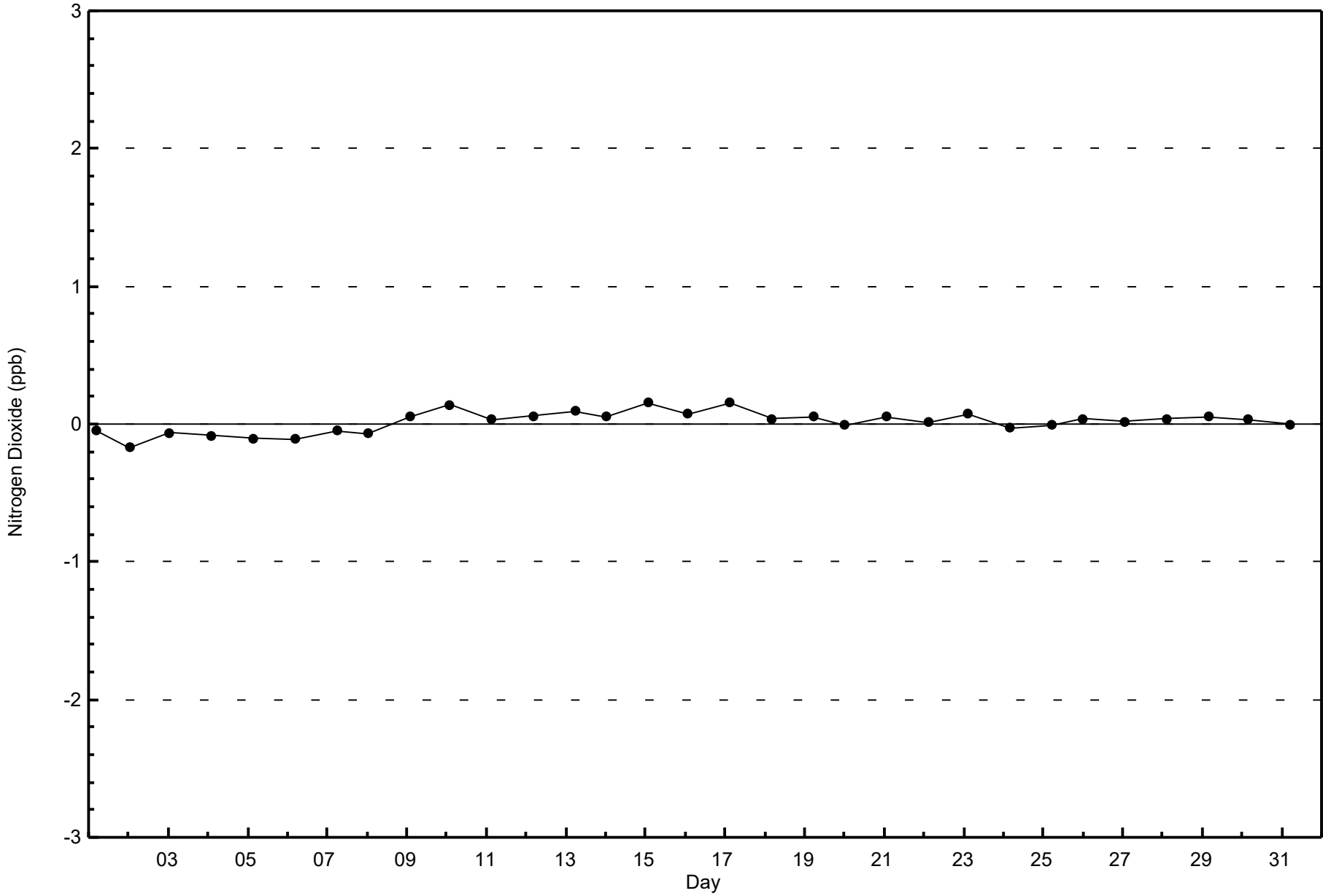
Total Number of Hours: 744

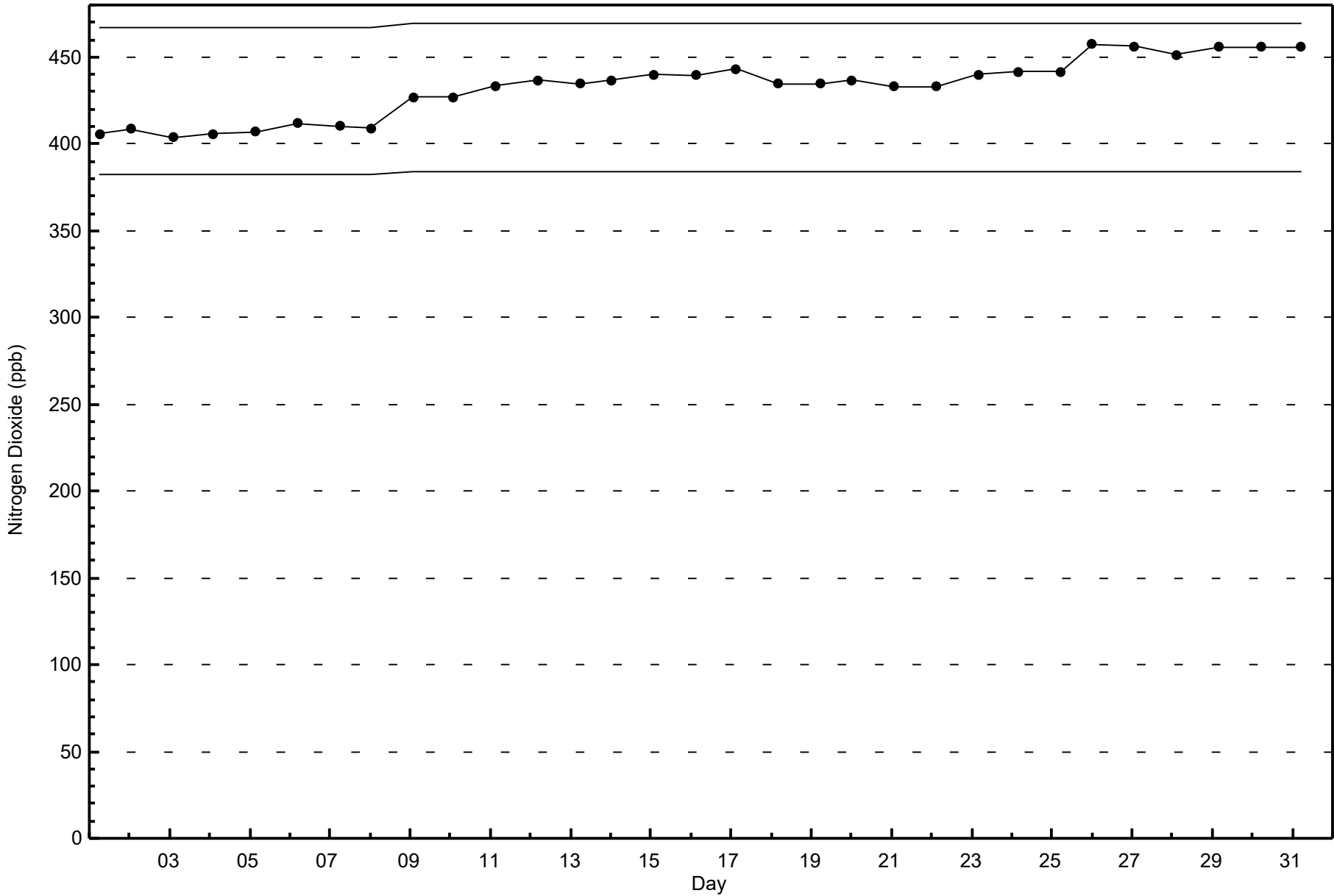


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Conklin









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

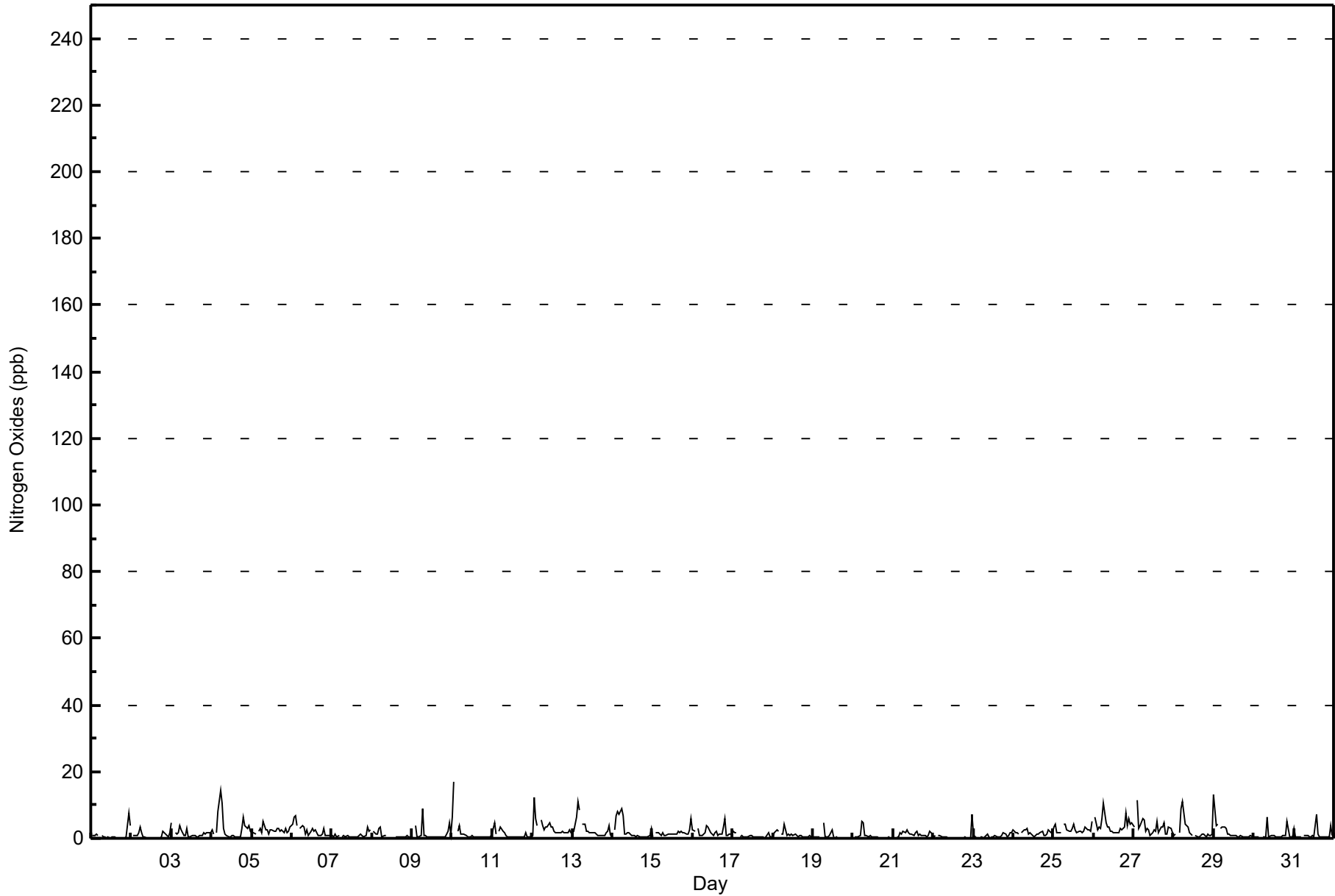
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - May 2024**

Maximum Value: 16.8 ppb on May 10 02:00		Maximum Daily Average: 3.9 ppb on May 26		Hours in Service: 744																																													
Minimum Value: 0.1 ppb on May 21 00:00		Minimum Daily Average: 0.6 ppb on May 19		Hours of Data: 707																																													
Maximum Diurnal Average: 3.6 ppb at hour 6		Minimum Diurnal Average: 0.9 ppb at hour 6		Hours of Missing Data: 37																																													
Monthly Average: 1.70 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> = 2.2 P <sub>90</sub> = 3.9 P <sub>99</sub> = 10.8		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-May	0.9	0.8	1.0	1.1	1.0	Z	0.8	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	7.8	4.0	0.9	7.8																							
2-May	Z	0.8	0.8	0.8	1.7	3.2	1.5	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.6	2.2	1.4	0.7	0.5	1.7	0.8	3.2																								
3-May	4.9	Z	1.6	1.5	1.6	4.0	2.5	0.8	0.9	2.8	0.6	0.5	0.6	0.8	0.8	0.5	0.4	0.9	0.8	1.6	1.4	1.7	1.9	1.7	1.5	4.9																							
4-May	2.3	1.4	Z	1.6	7.9	14.6	10.7	2.8	1.1	0.7	0.6	0.6	0.7	0.8	0.4	0.5	0.6	0.5	3.0	6.2	3.6	3.0	4.0	2.1	3.0	14.6																							
5-May	1.9	1.7	1.4	Z	2.3	2.8	1.8	4.9	2.7	2.5	1.1	2.4	2.5	2.0	2.0	2.9	2.8	2.3	2.5	1.7	2.8	1.5	2.2	3.5	2.4	4.9																							
6-May	4.1	6.1	6.7	3.7	Z	2.8	3.9	3.5	1.2	2.7	0.9	2.2	2.8	2.1	2.7	1.8	0.7	0.7	1.5	3.0	1.0	0.7	0.9	1.0	2.5	6.7																							
7-May	0.7	0.5	1.2	0.4	0.7	Z	0.6	0.8	0.4	0.8	0.3	0.3	0.3	0.4	0.3	0.4	0.7	1.1	0.8	0.4	0.8	3.5	2.2	2.4	0.9	3.5																							
8-May	Z	2.1	1.5	1.4	2.8	3.3	0.6	0.7	0.8	C	C	C	C	C	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.9	0.6	0.6	1.0	3.3																							
9-May	0.6	Z	3.8	0.4	0.5	0.7	8.9	0.8	0.7	0.5	0.6	0.4	0.5	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.6	2.0	4.5	1.1	1.3	8.9																							
10-May	6.2	16.8	Z	1.9	3.9	1.3	1.4	1.3	1.0	0.5	0.4	0.4	0.7	0.5	0.3	0.3	0.5	0.3	0.4	0.5	0.4	0.3	0.3	0.4	1.7	16.8																							
11-May	1.2	4.5	1.2	Z	2.3	3.2	2.1	1.6	0.9	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	1.7	0.5	0.4	0.5	1.1	4.5																							
12-May	0.8	12.4	5.8	3.9	Z	5.4	3.8	2.5	3.3	3.5	4.5	3.4	3.3	2.3	1.7	1.9	1.7	1.8	2.1	1.7	1.6	1.5	2.7	1.7	3.2	12.4																							
13-May	1.6	2.2	6.3	10.8	8.3	Z	4.4	4.2	2.2	2.0	1.5	1.7	1.9	1.6	1.4	0.9	0.9	1.0	0.8	0.7	1.8	2.1	3.8	1.0	2.7	10.8																							
14-May	Z	2.4	6.9	8.1	7.1	9.0	6.9	1.5	1.1	1.7	1.6	0.8	0.8	0.7	0.5	0.7	0.4	0.4	0.5	0.5	0.4	0.8	2.8	2.8	2.4	9.0																							
15-May	0.4	Z	1.9	1.9	1.1	0.8	1.5	0.7	0.8	1.3	1.4	1.3	1.3	1.3	1.2	2.0	1.8	2.3	1.9	1.5	1.5	1.3	2.6	6.1	1.6	6.1																							
16-May	2.5	2.1	Z	2.8	1.0	0.7	0.6	1.7	4.0	3.3	2.5	1.5	0.8	1.7	2.2	0.9	1.2	1.1	3.5	5.8	0.7	1.0	1.1	1.1	1.9	5.8																							
17-May	2.2	1.6	1.5	Z	0.6	0.8	0.4	0.4	0.4	0.6	0.7	0.6	0.6	0.3	0.3	0.6	0.2	0.2	0.2	0.1	0.3	1.7	0.4	0.4	0.7	2.2																							
18-May	0.4	1.9	2.5	2.2	Z	1.4	1.1	4.1	0.9	1.1	0.8	1.2	0.8	1.3	0.8	0.6	0.7	0.7	0.6	0.3	0.3	0.3	0.8	0.6	1.1	4.1																							
19-May	0.4	0.3	0.3	0.4	0.4	Z	4.6	0.6	0.4	0.5	0.6	2.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6	4.6																							
20-May	Z	0.6	0.3	0.5	0.7	5.0	4.6	0.9	0.7	0.5	0.6	0.3	0.2	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.7	5.0																						
21-May	0.2	Z	0.3	0.2	1.7	1.5	2.2	1.6	2.3	1.8	1.3	1.3	1.1	1.5	2.0	1.0	1.1	0.9	0.9	0.8	0.3	0.7	2.1	1.2	1.2	2.3																							
22-May	0.6	0.7	Z	0.7	0.9	0.5	0.3	0.2	0.4	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.2	7.1	0.6	7.1																							
23-May	1.3	0.6	0.4	Z	0.4	0.4	0.2	0.4	1.3	0.6	0.2	0.6	0.3	0.9	0.6	0.4	0.4	0.7	1.7	1.1	0.3	1.0	1.8	1.8	0.8	1.8																							
24-May	2.5	1.7	1.9	1.4	Z	1.8	2.6	2.4	2.9	1.5	1.5	0.8	0.5	1.0	1.2	1.4	1.9	1.9	0.7	0.6	1.2	2.7	1.5	1.8	1.6	2.9																							
25-May	3.4	4.3	1.5	1.6	1.8	Z	4.2	4.3	2.5	2.2	2.0	3.0	4.2	2.6	1.5	2.1	2.1	1.8	2.1	3.4	2.4	2.6	2.1	5.2	2.7	5.2																							
26-May	Z	6.4	2.5	3.3	3.0	5.9	10.8	4.8	3.6	3.2	2.2	2.2	1.9	1.8	1.6	1.8	2.8	2.6	3.4	7.7	3.9	6.1	4.1	4.7	3.9	10.8																							
27-May	3.5	Z	11.5	2.8	3.9	5.9	5.5	2.3	3.1	2.4	0.9	1.7	2.5	2.1	5.1	1.9	3.2	3.6	4.8	1.1	1.3	3.5	2.8	1.8	3.4	11.5																							
28-May	0.9	1.2	Z	1.7	8.9	10.8	7.7	4.1	3.2	1.8	1.4	1.0	M	0.9	0.6	0.6	0.8	1.1	1.1	0.5	1.2	0.9	1.0	1.3	2.4	10.8																							
29-May	13.3	3.8	4.2	Z	2.8	3.3	3.3	2.9	1.3	1.2	0.8	0.7	0.8	0.8	0.6	0.6	0.7	0.5	0.5	0.6	0.5	0.5	0.7	0.4	1.9	13.3																							
30-May	0.4	0.4	0.3	0.3	Z	0.3	0.4	0.5	6.4	0.5	0.8	1.0	0.7	0.5	0.5	0.4	0.4	0.7	0.8	0.6	5.3	0.4	0.4	0.4	1.0	6.4																							
31-May	3.0	0.4	0.3	0.3	0.4	Z	0.8	1.0	0.7	0.6	0.6	0.7	0.5	7.4	1.2	0.3	0.4	0.3	0.3	0.4	0.3	0.3	3.6	0.8	1.1	7.4																							
																								2.3	3.0	2.6	2.1	2.6	3.6	3.2	1.9	1.7	1.4	1.1	1.1	1.1	1.2	1.0	0.9	0.9	1.0	1.2	1.5	1.2	1.4	1.9	1.9	Diurnal Average	
																								13.3	16.8	11.5	10.8	8.9	14.6	10.8	4.9	6.4	3.5	4.5	3.4	4.2	7.4	5.1	2.9	3.2	3.6	4.8	7.7	5.3	6.1	7.8	7.1	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Conklin - May 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  
Conklin - May 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	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695
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>	40	57	20	31	33	82	41	51	38	23	17	30	38	53	82	59	695

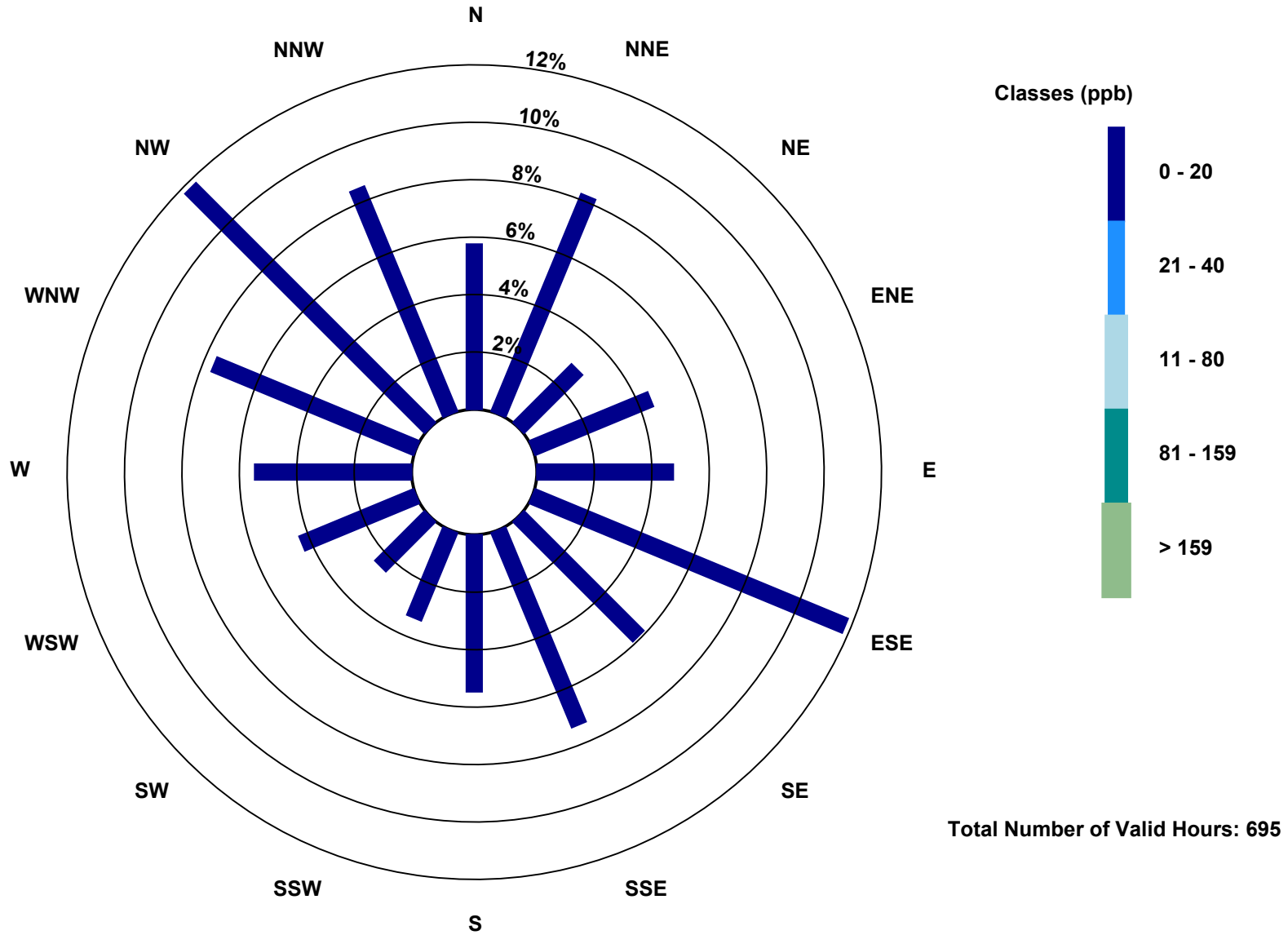
Total Number of Valid Hours: 695

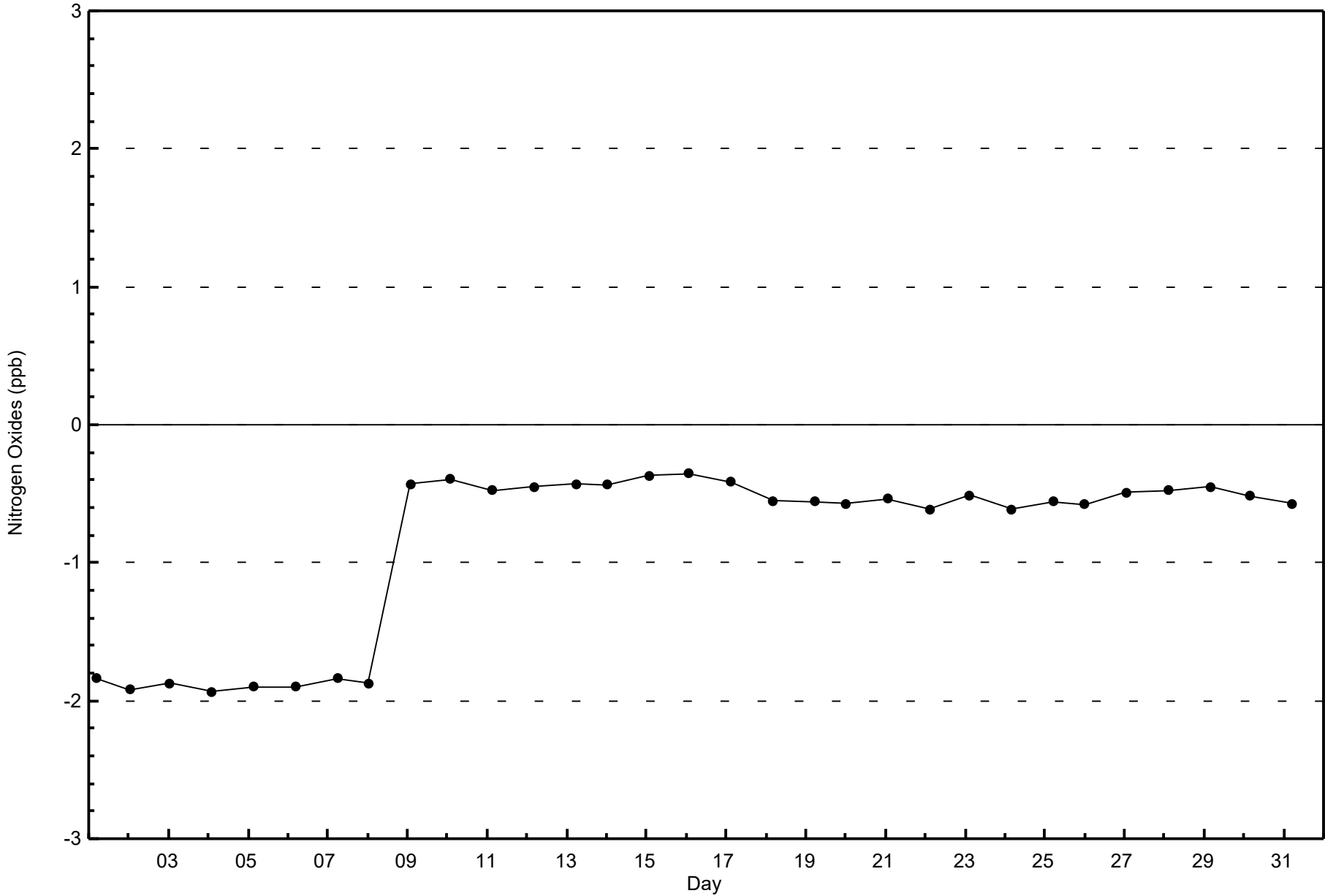
Total Number of Hours: 744

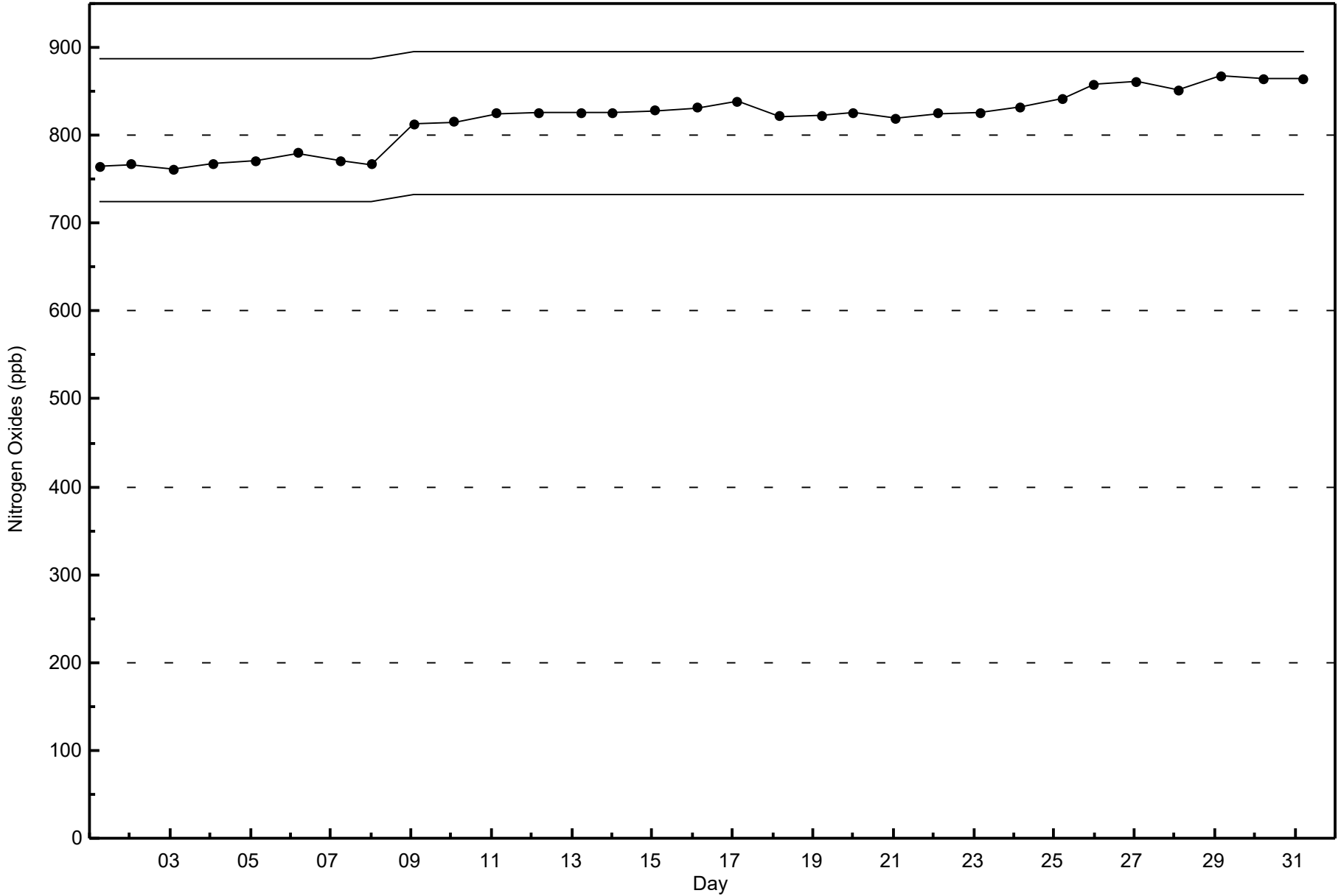


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Conklin









# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Ozone (O<sub>3</sub>) - ppb

## Conklin - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 56.0 ppb on May 13 16:00	Maximum Daily Average: 42.5 ppb on May 11		Hours of Data:	708
Minimum Value: 2.1 ppb on May 26 01:00	Minimum Daily Average: 14.9 ppb on May 22		Hours of Missing Data:	36
Maximum Diurnal Average: 39.5 ppb at hour 17	Minimum Diurnal Average: 15.8 ppb at hour 3		Hours of Calibration:	35
Monthly Average: 29.32 ppb	Percentiles: P <sub>1</sub> = 2.9 P <sub>10</sub> = 10.4 Q <sub>1</sub> = 17.2 Median = 30.7 Q <sub>3</sub> = 40.9 P <sub>90</sub> = 46.5 P <sub>99</sub> = 52.9		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-May	6.6	8.3	10.1	Z	17.0	19.9	20.7	23.9	30.5	32.4	35.2	40.8	42.7	49.2	41.9	40.6	40.3	41.5	40.9	39.8	37.9	33.6	17.3	11.3	29.7	49.2
2-May	10.5	12.7	14.8	11.7	Z	5.6	19.9	37.6	41.5	46.8	50.7	50.6	51.3	52.2	52.3	53.0	53.4	52.1	50.3	49.9	45.0	32.1	24.6	18.9	36.4	53.4
3-May	14.1	12.7	13.0	13.5	14.2	Z	28.7	37.2	42.1	40.7	43.3	43.6	45.7	44.9	45.0	42.8	41.2	39.1	38.1	35.4	23.1	13.8	10.6	11.2	30.2	45.7
4-May	Z	11.6	8.9	7.5	4.6	4.7	13.7	37.7	43.3	46.2	45.9	47.1	48.3	48.5	48.8	49.0	49.0	49.2	39.6	30.5	26.6	19.9	16.3	16.0	31.0	49.2
5-May	14.4	Z	11.9	11.8	11.4	9.8	12.1	21.6	37.3	42.8	44.6	44.2	45.8	46.6	47.6	46.3	45.3	43.3	41.6	41.7	39.1	39.4	40.1	37.2	33.7	47.6
6-May	34.7	23.5	Z	18.5	20.5	21.3	31.1	39.7	36.8	36.2	36.1	38.6	38.6	39.8	41.1	45.4	45.0	43.9	40.9	34.8	32.2	30.2	23.8	25.3	33.8	45.4
7-May	28.0	28.4	31.2	Z	31.9	30.7	30.2	29.9	33.0	30.7	28.7	27.2	27.1	26.6	26.2	25.6	25.8	23.8	20.9	14.2	12.3	6.4	6.2	3.7	23.9	33.0
8-May	3.3	4.5	5.1	4.7	Z	27.3	27.3	26.8	27.3	31.9	32.2	33.5	34.5	38.6	42.5	44.4	43.3	40.9	41.4	43.6	46.3	40.9	32.1	30.9	30.6	46.3
9-May	37.4	41.9	41.4	42.5	41.7	Z	38.8	40.1	40.3	41.2	42.6	43.7	44.2	44.6	45.6	47.2	48.3	49.0	47.8	47.2	38.5	24.8	19.7	24.0	40.5	49.0
10-May	Z	12.9	17.2	30.6	30.5	33.2	32.9	32.8	34.9	37.5	38.3	38.1	40.5	43.6	48.3	49.7	50.2	53.5	52.5	51.1	48.9	47.2	45.9	44.7	39.8	53.5
11-May	43.3	Z	43.0	45.2	49.3	50.2	50.5	48.9	44.3	41.7	41.5	41.4	40.9	40.9	41.7	42.9	44.7	45.7	46.0	44.5	39.2	35.1	32.2	23.9	42.5	50.5
12-May	16.0	9.2	Z	8.8	5.1	5.8	13.5	20.9	23.9	27.4	29.0	32.6	33.1	33.2	46.1	52.3	52.0	48.7	41.2	43.1	43.8	40.6	39.3	39.5	30.7	52.3
13-May	33.5	26.1	13.6	Z	6.0	6.8	10.8	24.9	35.4	37.2	40.0	46.4	51.4	52.8	53.1	56.0	55.2	54.8	52.9	51.2	47.4	41.6	39.5	44.3	38.3	56.0
14-May	42.0	31.3	20.6	14.6	Z	15.5	24.3	40.7	42.2	43.2	47.0	50.2	51.0	50.9	50.7	52.0	50.9	49.9	49.4	50.3	46.5	40.2	35.9	41.3	52.0	
15-May	35.3	28.0	12.5	6.9	13.3	Z	20.2	31.3	32.0	34.9	37.7	37.5	38.7	40.0	42.2	43.1	43.6	41.5	39.2	35.4	27.5	18.6	14.9	11.9	29.8	43.6
16-May	Z	14.1	14.5	19.9	16.3	17.3	17.8	21.6	21.8	25.2	29.3	35.8	32.4	32.9	35.6	34.6	31.1	30.5	32.6	33.8	34.1	30.0	28.4	31.3	27.0	35.8
17-May	30.5	Z	24.8	23.8	24.4	23.7	22.5	C	C	C	C	22.2	23.6	24.0	24.1	22.0	23.2	22.9	21.9	18.8	17.5	17.3	17.8	15.8	22.2	30.5
18-May	15.5	14.3	Z	13.6	14.7	14.3	14.3	14.5	15.4	15.5	16.0	16.1	17.2	17.5	17.7	17.0	16.8	16.3	15.9	14.4	12.7	12.7	12.9	12.8	15.1	17.7
19-May	12.6	11.7	11.1	Z	10.3	10.0	9.6	9.9	11.4	13.6	14.8	17.0	22.8	25.5	25.1	24.5	23.2	22.1	25.2	24.7	23.8	22.4	20.0	18.4	17.8	25.5
20-May	16.9	14.3	10.2	10.1	Z	8.9	10.1	15.5	19.1	21.7	22.0	27.2	29.7	31.8	27.9	24.4	24.7	23.9	22.3	20.5	15.4	13.5	12.3	8.1	18.7	31.8
21-May	3.5	3.0	4.3	5.2	6.4	Z	11.9	11.6	13.7	17.2	20.6	21.8	22.1	22.7	21.6	22.4	22.6	21.0	20.0	17.5	15.2	13.5	13.6	12.4	14.9	22.7
22-May	Z	3.5	2.2	2.4	2.5	6.5	11.5	13.7	14.7	16.2	17.2	19.8	21.9	22.6	23.8	24.0	24.2	24.9	24.3	22.0	18.4	14.6	7.6	4.7	14.9	24.9
23-May	8.3	Z	8.2	9.6	5.5	8.9	14.1	18.9	21.1	23.4	26.3	26.9	28.6	28.7	29.8	29.5	31.3	32.0	31.2	30.2	29.9	26.7	15.9	8.0	21.4	32.0
24-May	4.1	4.8	Z	2.8	2.4	4.5	11.6	15.3	17.7	22.2	24.2	26.2	29.8	28.5	30.0	30.6	32.0	36.9	34.3	30.5	24.4	15.6	11.5	8.4	19.5	36.9
25-May	6.8	3.9	3.1	Z	2.2	5.0	15.5	23.4	29.3	30.8	33.1	32.8	33.0	34.4	36.4	36.1	36.5	35.8	35.4	32.1	29.1	20.5	13.3	7.2	23.3	36.5
26-May	2.1	3.6	3.5	2.9	Z	3.6	13.8	21.3	26.3	31.7	34.7	36.1	37.7	39.0	40.4	42.7	43.7	43.8	39.8	33.6	27.8	19.1	15.2	11.1	24.9	43.8
27-May	7.4	9.8	8.1	10.1	10.9	Z	11.3	22.6	30.3	39.9	42.5	43.0	44.3	45.3	43.8	43.0	43.6	43.2	40.0	39.8	34.6	24.1	13.4	14.8	29.0	45.3
28-May	Z	14.0	16.9	22.4	18.2	12.6	25.3	35.5	39.8	41.4	43.1	44.3	M	50.0	50.3	50.0	50.4	50.5	50.2	46.6	38.3	22.3	16.8	14.6	34.3	50.5
29-May	24.5	Z	30.0	28.4	36.9	36.3	35.5	35.8	37.9	42.5	40.9	42.4	43.2	44.2	45.4	44.2	43.3	44.1	44.5	44.2	42.2	40.5	40.5	40.9	39.5	45.4
30-May	41.0	40.4	Z	39.6	39.2	38.5	35.9	33.3	30.9	32.9	33.0	31.6	30.8	32.4	34.6	38.6	40.7	38.2	37.8	33.6	32.2	37.1	37.2	32.8	35.8	41.0
31-May	28.6	30.4	30.2	Z	30.2	31.4	33.1	35.7	36.0	36.0	36.4	35.4	38.3	40.8	43.4	47.4	47.1	44.2	42.1	39.5	37.0	35.2	36.8	48.6	37.6	48.6

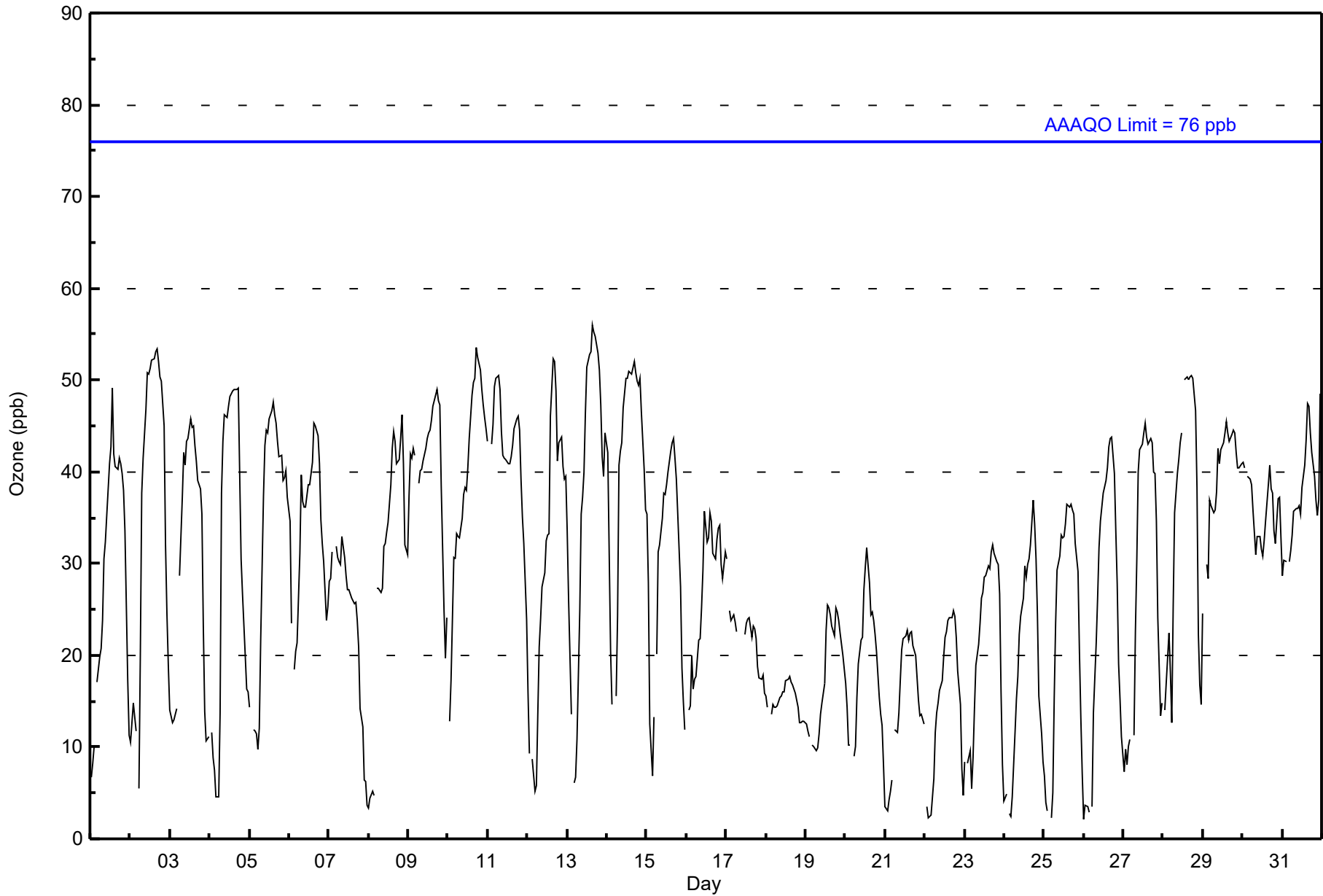
20.0	16.1	15.8	16.3	17.9	17.4	21.6	27.4	30.3	32.7	34.2	35.3	36.3	37.8	38.8	39.4	39.5	39.0	37.4	35.3	32.0	27.0	23.1	21.6	Diurnal Average	
43.3	41.9	43.0	45.2	49.3	50.2	50.5	48.9	44.3	46.8	50.7	50.6	51.4	52.8	53.1	56.0	55.2	54.8	52.9	51.2	50.3	47.2	45.9	48.6	Diurnal Maximum	

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  
Conklin - May 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb  
Conklin - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	211	29.80	29.80
21 - 50	470	66.38	96.19
51 - 82	27	3.81	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  
Conklin - May 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	19	10	2	2	5	10	10	36	16	4	6	3	1	4	37	42	207
21 - 50	19	41	19	28	28	70	34	16	19	15	9	22	32	49	48	15	464
51 - 82	2	6	0	0	1	0	0	0	1	4	3	4	4	1	1	0	27
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>40</b>	<b>57</b>	<b>21</b>	<b>30</b>	<b>34</b>	<b>80</b>	<b>44</b>	<b>52</b>	<b>36</b>	<b>23</b>	<b>18</b>	<b>29</b>	<b>37</b>	<b>54</b>	<b>86</b>	<b>57</b>	<b>698</b>

Total Number of Valid Hours: 698

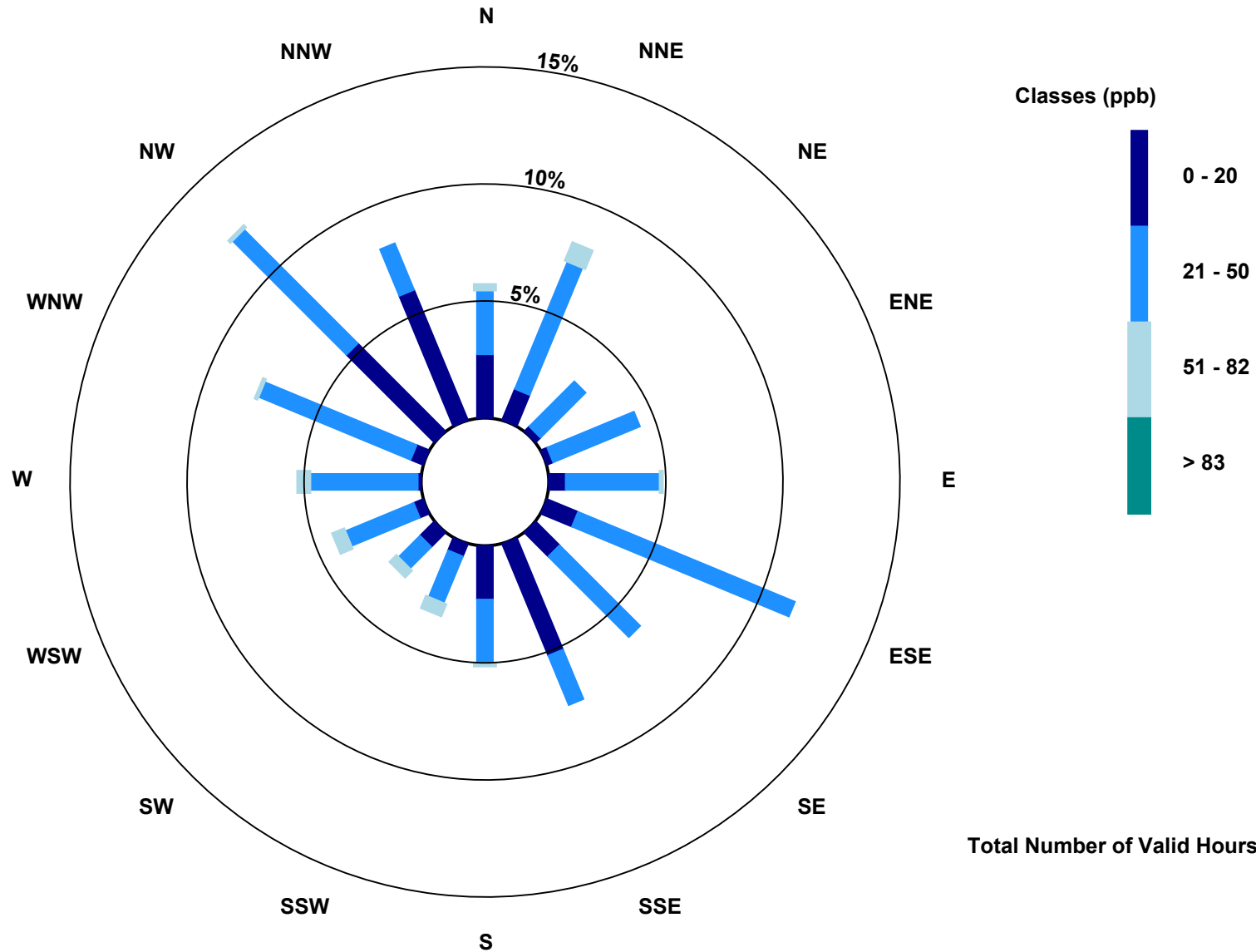
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

Ozone (O<sub>3</sub>) - ppb  
Conklin

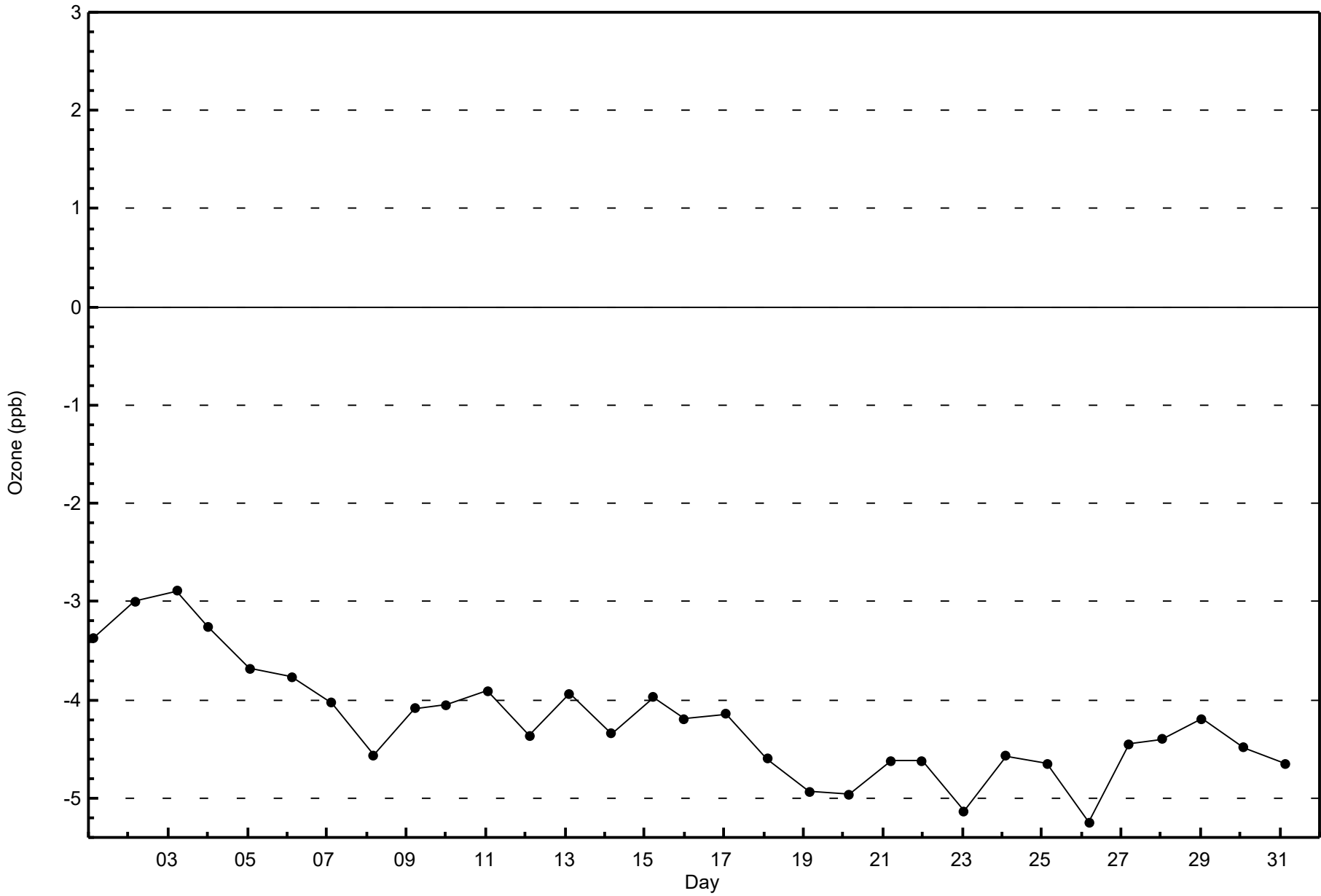


Total Number of Valid Hours: 698



**Wood Buffalo Environmental Association**  
**Zero Responses**

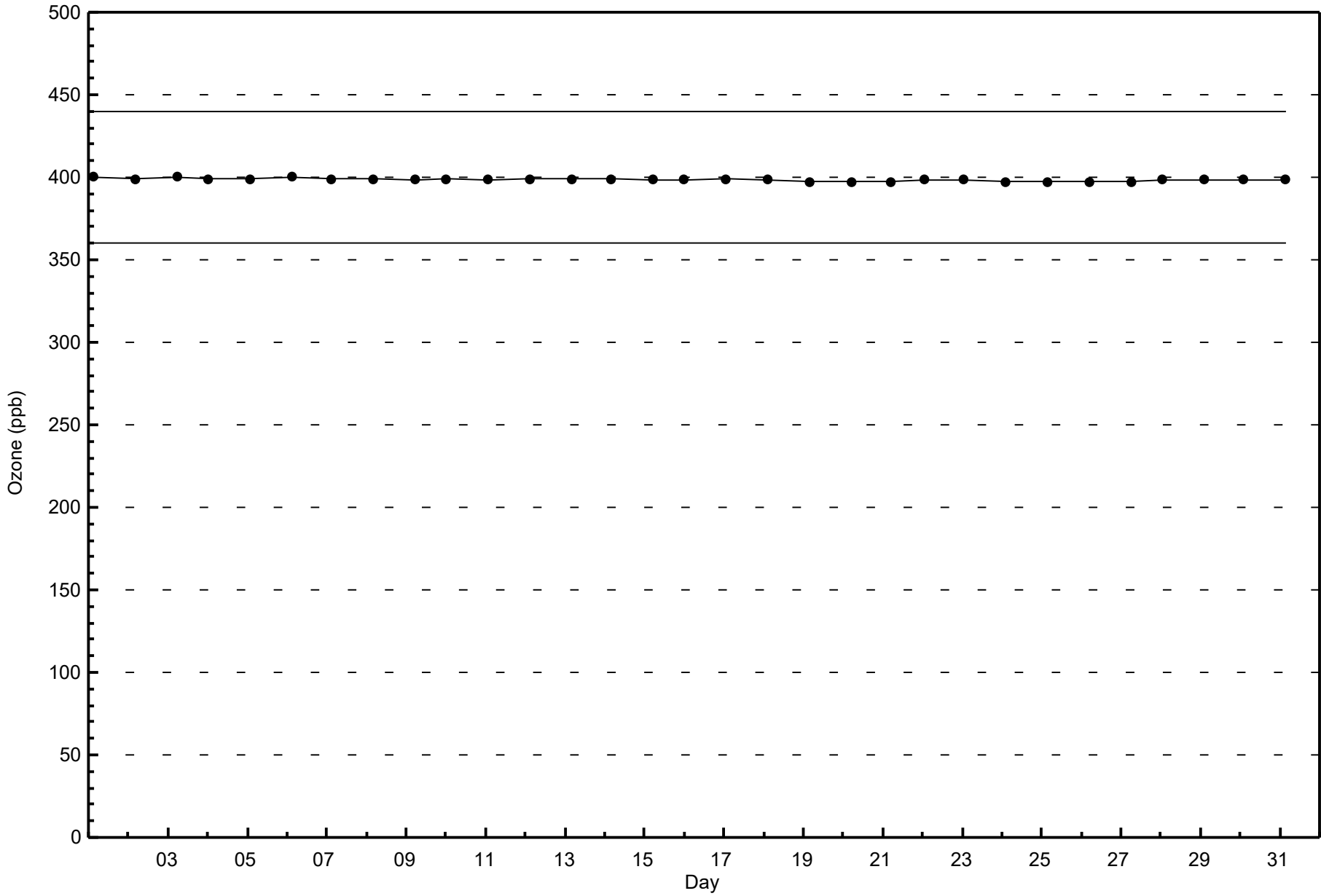
**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - May 2024**





**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Conklin - May 2024**





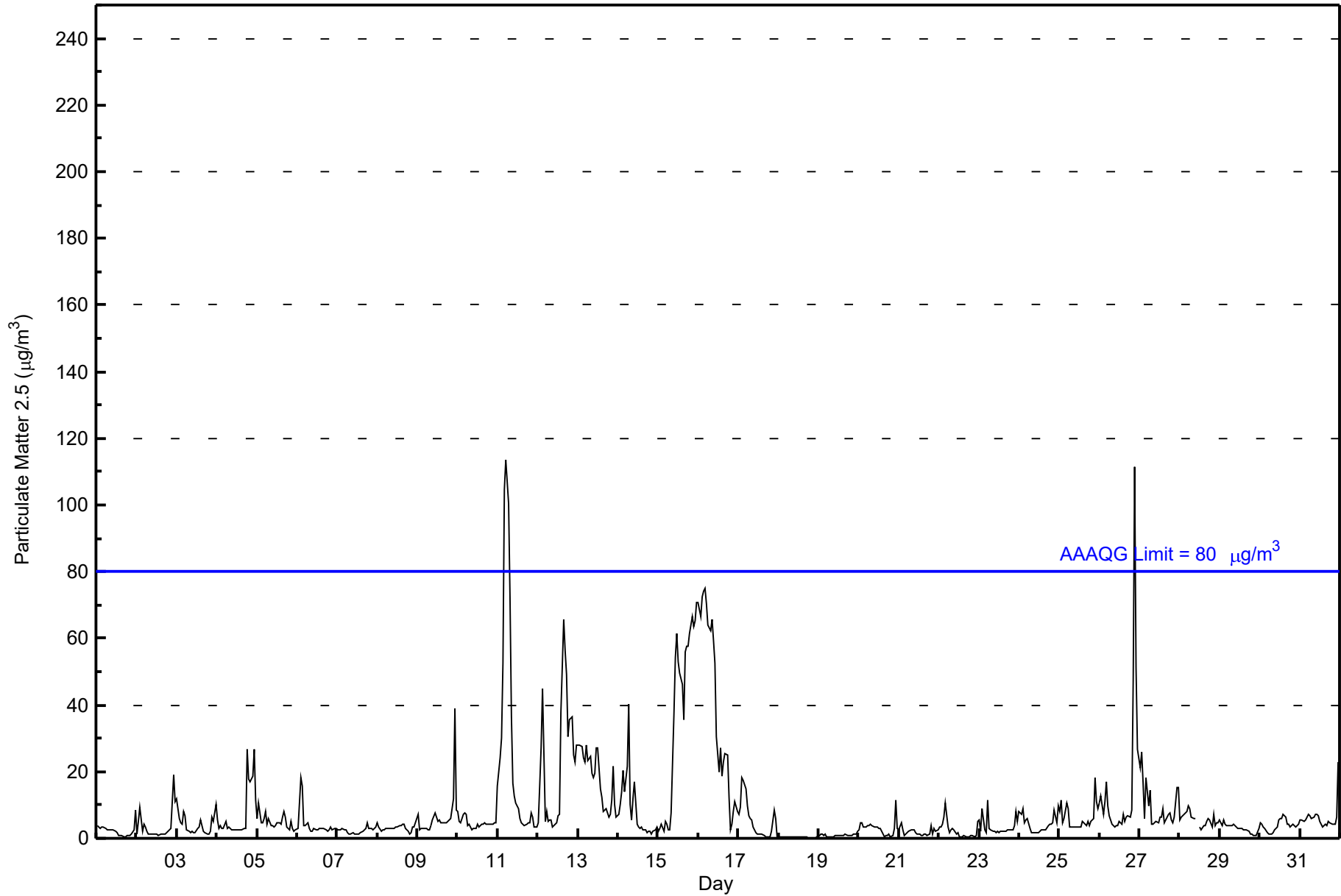
# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Particulate Matter 2.5 (PM<sub>2.5</sub>) - µg/m<sup>3</sup>

## Conklin - May 2024

Number of Exceedences (AAAQO):		1-hr: 4	24-hr: 2	Hours in Service: 744																	Hours of Data: 742																												
Maximum Value: 113.4 µg/m <sup>3</sup> on May 11 06:00		Maximum Daily Average: 39.5 µg/m <sup>3</sup> on May 16																	Hours of Missing Data: 2																														
Minimum Value: 0.2 µg/m <sup>3</sup> on May 18 20:00		Minimum Daily Average: 0.3 µg/m <sup>3</sup> on May 18																	Hours of Calibration: 2																														
Maximum Diurnal Average: 12.2 µg/m <sup>3</sup> at hour 6		Minimum Diurnal Average: 5.7 µg/m <sup>3</sup> at hour 14																	Percent Operational Time: 100.0																														
Monthly Average: 8.62 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 1.0 Q <sub>1</sub> = 2.3 Median = 3.8 Q <sub>3</sub> = 6.9 P <sub>90</sub> = 20.4 P <sub>99</sub> = 71.7																																															
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-May	3.7	3.3	3.0	3.4	3.3	3.0	2.8	2.6	2.5	2.5	2.4	2.1	1.8	0.9	0.7	0.7	0.5	0.5	1.0	1.0	1.0	1.4	2.5	8.3	2.3	8.3																							
2-May	1.4	5.1	9.4	2.1	4.3	3.3	2.1	1.4	1.2	1.3	1.2	1.2	1.1	1.1	1.1	1.3	1.1	1.3	1.6	2.1	2.9	11.1	19.0	11.2	3.7	19.0																							
3-May	11.8	5.9	4.7	4.4	8.0	6.9	2.7	2.1	1.8	2.2	1.5	1.6	2.8	3.5	5.5	3.9	2.1	1.5	1.4	1.5	2.2	6.3	4.9	10.0	4.1	11.8																							
4-May	5.7	3.2	3.9	3.1	3.2	5.2	2.9	3.6	2.8	2.5	2.4	2.4	2.5	2.5	2.4	2.6	2.9	2.9	26.8	17.8	17.1	18.5	26.9	11.5	7.3	26.9																							
5-May	5.8	10.6	4.7	4.8	6.0	8.0	4.0	5.9	3.9	3.7	3.5	3.9	4.8	4.6	4.3	6.3	7.9	6.3	3.4	2.7	5.3	2.8	2.3	2.7	4.9	10.6																							
6-May	3.1	10.6	18.3	15.8	3.8	3.6	4.8	2.8	2.3	2.3	3.0	2.5	2.6	2.9	3.1	2.9	3.1	2.7	2.1	2.4	3.4	2.8	3.0	2.8	4.4	18.3																							
7-May	2.5	2.6	2.6	2.8	2.7	2.4	1.9	1.2	1.4	1.5	1.3	1.2	1.2	1.1	1.5	2.2	2.5	2.8	4.7	3.0	2.8	2.3	2.9	3.4	2.3	4.7																							
8-May	4.6	3.4	2.2	2.5	2.6	3.0	2.8	2.9	2.9	3.0	3.2	3.3	3.4	3.7	3.9	4.1	4.1	2.8	2.1	1.5	1.5	3.3	3.5	5.8	3.2	5.8																							
9-May	7.1	2.6	3.1	3.0	2.9	2.8	2.7	2.5	3.8	5.7	7.5	6.5	5.2	5.4	4.5	4.5	4.5	4.8	4.9	5.3	5.9	11.8	38.9	8.4	6.4	38.9																							
10-May	8.1	5.0	4.5	7.2	7.4	7.2	4.0	4.2	2.7	2.8	2.9	3.0	4.0	3.5	4.2	4.4	4.5	4.4	4.1	4.3	4.2	4.4	4.7	4.6	4.6	8.1																							
11-May	15.8	23.9	29.9	52.6	104.7	113.4	100.4	72.2	36.4	16.6	12.5	10.6	8.9	6.0	4.6	4.2	3.6	4.2	4.7	4.6	7.7	6.5	3.4	3.3	27.1	113.4																							
12-May	4.8	15.5	27.3	44.9	5.2	8.1	5.0	5.6	5.6	3.4	4.3	4.8	6.8	7.1	37.9	65.7	56.2	49.3	30.7	35.6	36.5	25.0	22.8	28.0	22.3	65.7																							
13-May	28.0	27.9	27.7	24.2	23.0	28.1	23.2	24.5	19.4	18.3	19.5	27.3	27.0	14.7	12.5	8.2	8.6	8.9	6.4	7.1	11.6	21.6	10.2	6.5	18.1	28.1																							
14-May	7.1	10.1	14.2	20.4	14.1	21.7	40.1	10.1	5.6	11.9	17.1	4.1	3.3	2.8	3.5	2.6	2.4	1.7	2.0	2.2	1.2	2.1	2.5	3.5	8.6	40.1																							
15-May	2.2	3.0	4.2	2.0	5.2	4.1	2.6	2.7	7.6	37.4	54.2	61.6	53.1	49.4	46.2	35.6	56.0	57.6	57.5	61.3	66.4	63.6	65.2	70.9	36.2	70.9																							
16-May	70.6	66.7	72.4	74.0	74.9	70.4	64.0	62.2	65.8	59.1	52.5	30.7	19.9	27.2	18.6	23.0	25.6	25.2	12.1	2.4	4.1	8.2	11.1	8.1	39.5	74.9																							
17-May	7.1	9.4	18.3	17.6	14.7	9.7	6.9	5.9	5.5	3.5	1.6	1.3	1.5	1.3	1.3	0.8	0.4	0.4	0.4	0.3	2.0	8.4	5.7	0.5	5.2	18.3																							
18-May	0.2	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6																							
19-May	0.7	1.3	1.1	0.9	1.3	0.6	0.6	0.3	0.3	0.6	0.9	0.8	0.7	0.7	0.8	0.9	1.1	0.8	0.9	0.9	1.0	1.2	1.5	2.0	0.9	2.0																							
20-May	2.5	4.8	4.7	3.5	3.5	3.8	4.0	4.1	4.0	3.4	3.4	3.2	3.0	2.8	1.4	0.5	0.7	0.9	1.3	0.6	0.7	3.1	11.6	3.0	3.1	11.6																							
21-May	2.6	4.8	2.6	0.9	1.2	1.8	2.0	2.5	2.7	2.6	1.8	1.2	1.1	1.1	1.0	1.2	1.2	0.9	1.3	3.8	1.2	2.8	2.2	2.6	2.0	4.8																							
22-May	3.4	3.2	4.1	6.5	10.7	3.5	1.7	2.6	3.1	2.4	1.3	1.7	0.5	0.4	0.6	0.8	0.6	0.5	0.4	1.0	0.7	0.6	0.9	5.0	2.3	10.7																							
23-May	5.4	2.3	9.1	2.4	1.9	11.5	3.1	2.6	1.9	1.9	1.8	2.2	1.7	2.1	2.0	2.0	2.0	2.4	2.6	2.7	2.5	4.0	8.2	5.2	3.5	11.5																							
24-May	8.2	7.4	8.9	4.6	5.5	5.9	2.8	1.6	1.7	1.6	1.6	1.6	2.0	2.5	2.7	2.3	2.7	3.8	4.2	4.4	4.7	8.4	4.6	9.6	4.3	9.6																							
25-May	7.9	11.6	4.6	5.9	10.8	8.9	3.2	3.3	3.3	3.4	3.3	3.2	3.2	3.4	5.1	4.3	3.8	5.2	3.8	5.2	5.9	18.1	11.1	8.8	6.1	18.1																							
26-May	10.8	12.5	7.4	11.0	16.9	9.7	6.9	4.1	3.8	3.6	3.7	4.0	5.0	4.3	7.2	4.9	6.4	6.7	6.4	8.3	47.3	111.4	51.5	26.8	15.9	111.4																							
27-May	21.3	25.6	16.7	5.9	18.0	9.8	14.2	4.3	4.4	4.8	5.3	4.8	6.2	6.4	8.9	4.8	6.2	7.1	7.6	5.7	4.8	6.5	15.1	15.4	9.6	25.6																							
28-May	5.4	6.4	6.9	7.7	8.1	9.6	8.7	6.2	5.9	5.7	C	C	3.3	2.6	3.7	3.9	4.9	6.1	5.6	3.3	7.2	3.9	4.5	4.7	5.7	9.6																							
29-May	5.7	3.7	5.4	4.1	3.7	3.7	3.6	3.9	4.0	3.7	3.4	2.9	2.8	2.8	2.6	2.6	2.7	2.2	1.5	1.3	0.9	0.8	0.9	2.8	3.0	5.7																							
30-May	4.7	4.1	3.4	2.9	1.9	1.4	1.2	1.2	1.9	2.5	3.5	5.4	5.8	5.8	7.3	6.3	4.3	4.3	3.4	3.9	4.1	3.4	3.7	4.2	3.8	7.3																							
31-May	5.6	5.5	5.1	5.7	6.2	7.1	6.9	5.9	6.3	7.3	7.2	6.9	5.0	3.6	3.9	4.1	4.0	4.9	4.7	4.1	4.3	4.1	6.3	23.1	6.2	23.1																							
																								8.8	9.8	10.7	11.2	12.1	12.2	10.7	8.2	6.9	7.1	7.6	6.9	6.1	5.7	6.5	6.8	7.3	7.2	6.8	6.5	8.4	11.9	11.3	9.8	Diurnal Average	
																								70.6	66.7	72.4	74.0	104.7	113.4	100.4	72.2	65.8	59.1	54.2	61.6	53.1	49.4	46.2	65.7	56.2	57.6	57.5	61.3	66.4	111.4	65.2	70.9	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>) -  $\mu\text{g}/\text{m}^3$**   
**Conklin - May 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	497	66.98	66.98
6 - 15	149	20.08	87.06
16 - 25	35	4.72	91.78
26 - 80	57	7.68	99.46
> 81.0	4	0.54	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) - μg/m<sup>3</sup>**  
**Conklin - May 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	35	52	19	28	24	57	31	19	8	9	3	26	38	39	63	38	489
6 - 15	3	1	2	1	4	18	9	21	17	10	9	3	2	15	13	16	144
16 - 25	1	1	0	1	2	2	1	7	5	1	4	1	0	0	3	5	34
26 - 80	2	3	0	2	4	6	4	9	9	3	2	1	0	1	6	5	57
> 81.0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	4
<b>Totals</b>	41	57	21	32	34	83	45	56	40	23	18	31	40	55	88	64	728

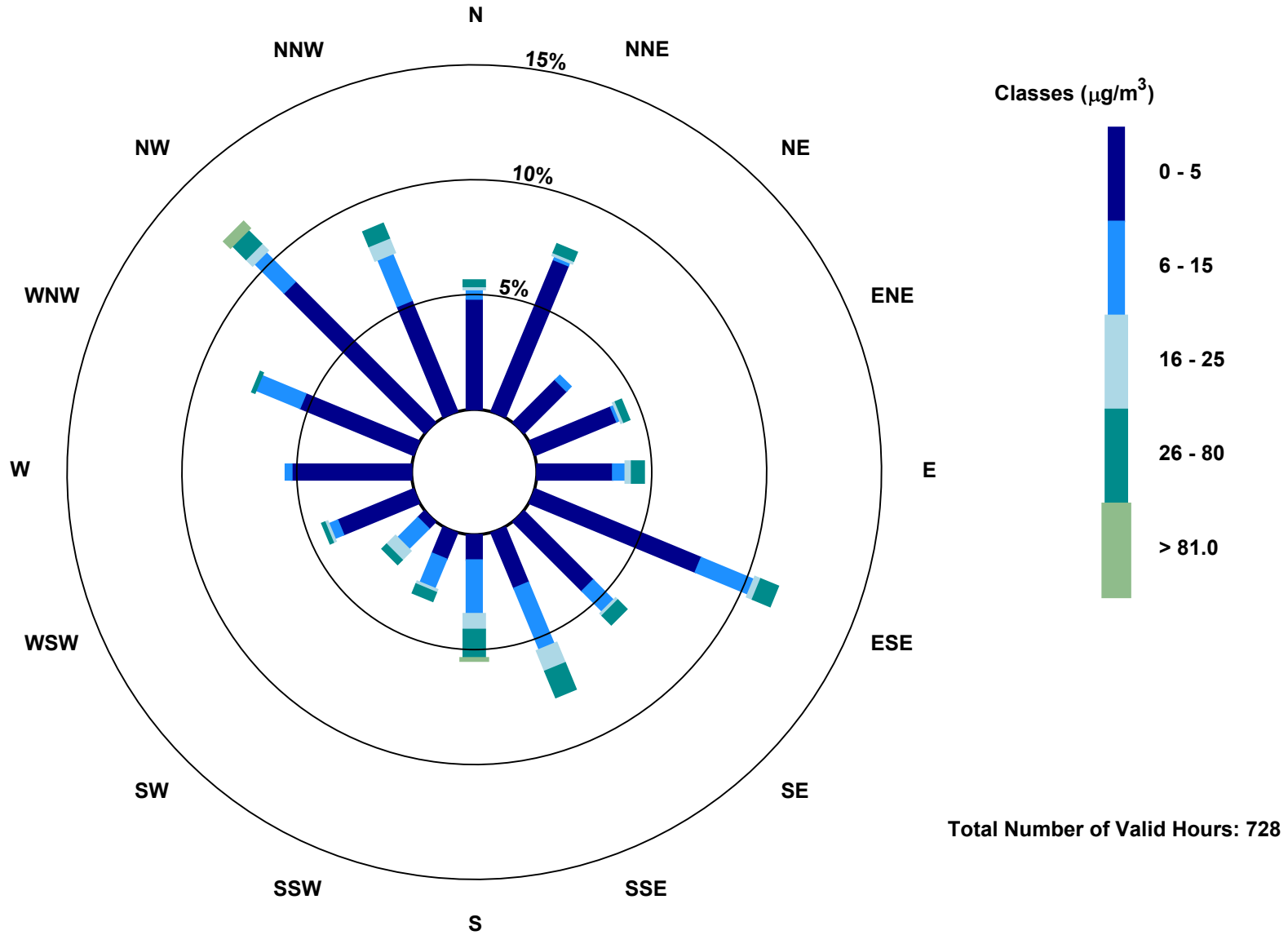
Total Number of Valid Hours: 728

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Conklin



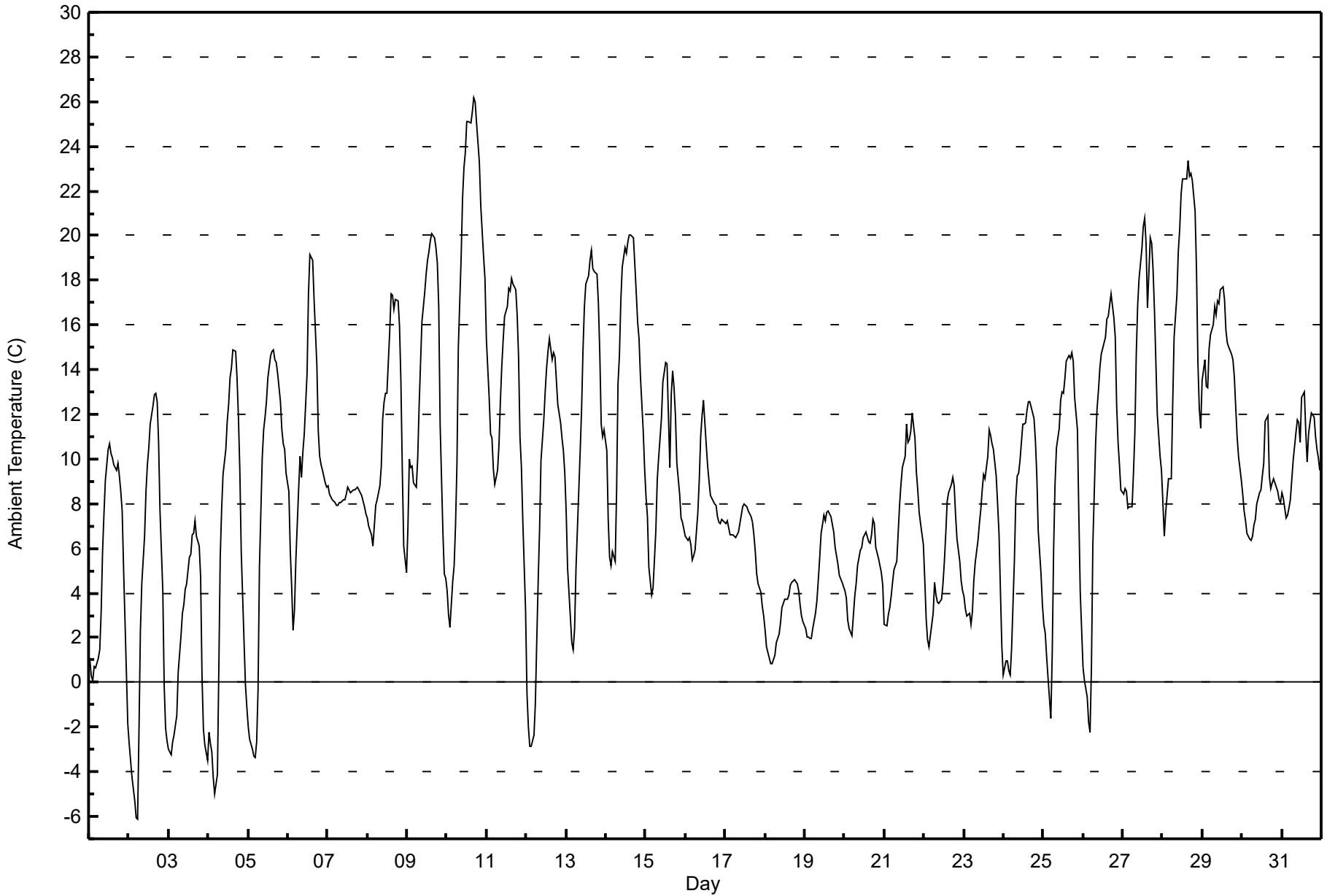




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Conklin - May 2024**

Maximum Value: 26.1 C on May 10 17:00		Maximum Daily Average: 17.4 C on May 10		Hours in Service: 744																							
Minimum Value: -6.1 C on May 2 06:00		Minimum Daily Average: 1.8 C on May 3		Hours of Data: 744																							
Maximum Diurnal Average: 13.5 C at hour 16		Minimum Diurnal Average: 3.3 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 8.99 C		Percentiles: P <sub>1</sub> = -3.5 P <sub>10</sub> = 1.6 Q <sub>1</sub> = 5.1 Median = 8.6 Q <sub>3</sub> = 12.6 P <sub>90</sub> = 17.3 P <sub>99</sub> = 23.6		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-May	0.9	0.3	0.1	0.7	0.7	1.1	1.5	3.2	5.8	7.6	9.1	10.5	10.7	10.3	10.0	9.7	9.5	9.8	9.3	8.5	7.7	5.1	0.5	-1.9	5.4	10.7	
2-May	-2.8	-3.5	-4.3	-5.3	-6.1	-6.1	-2.2	2.3	4.4	6.5	8.6	9.7	10.5	11.6	12.4	12.9	12.9	12.5	10.7	7.7	4.1	-0.2	-2.1	-2.6	3.8	12.9	
3-May	-3.0	-3.3	-2.7	-2.3	-1.9	-1.5	0.4	2.1	3.1	3.5	4.1	4.4	5.6	5.7	6.6	6.7	7.2	6.5	6.1	4.8	0.3	-2.1	-2.8	-3.5	1.8	7.2	
4-May	-2.2	-2.7	-3.1	-4.3	-5.0	-4.1	0.6	5.6	7.7	9.3	10.4	11.7	12.4	13.6	14.1	14.9	14.8	13.6	11.9	9.5	5.8	1.9	-0.1	-1.1	5.6	14.9	
5-May	-2.0	-2.5	-3.0	-3.3	-3.3	-2.7	-0.4	5.2	10.1	11.3	11.9	12.6	13.7	14.6	14.8	14.9	14.5	14.3	13.9	12.5	11.3	10.7	10.4	9.4	7.9	14.9	
6-May	8.5	5.9	4.3	2.3	3.2	5.5	8.7	10.1	9.2	10.3	11.1	13.8	17.4	19.1	19.0	18.9	17.1	14.2	11.3	10.1	9.8	9.5	9.0	8.7	10.7	19.1	
7-May	8.8	8.4	8.3	8.2	8.0	7.9	7.9	8.0	8.0	8.2	8.2	8.4	8.7	8.6	8.5	8.6	8.6	8.7	8.7	8.6	8.4	8.1	7.8	7.5	8.3	8.8	
8-May	7.3	7.0	6.6	6.1	7.0	7.9	8.2	8.8	9.7	11.8	12.6	12.9	12.9	15.7	17.4	17.3	16.7	17.1	17.1	15.9	13.4	9.5	6.1	4.9	11.3	17.4	
9-May	6.9	10.0	9.6	9.7	8.9	8.7	10.0	12.4	14.3	16.1	17.4	18.3	18.9	19.3	19.8	20.1	19.9	19.5	18.7	16.9	11.6	6.7	4.8	4.7	13.5	20.1	
10-May	4.1	3.0	2.5	4.5	5.2	7.1	9.8	15.0	19.0	21.7	23.0	23.7	25.1	25.1	25.0	25.5	26.1	26.0	25.1	23.3	21.3	20.2	19.1	18.1	17.4	26.1	
11-May	15.4	12.8	11.1	10.9	9.6	8.9	9.5	10.6	12.6	14.1	15.3	16.4	16.8	17.6	17.5	18.1	17.8	17.6	16.5	14.6	11.0	9.7	7.3	3.2	13.1	18.1	
12-May	-0.5	-2.0	-2.9	-2.9	-2.4	-0.9	1.9	4.5	6.8	10.0	11.7	13.0	14.1	14.8	15.4	14.5	14.8	14.6	13.5	12.4	11.6	11.0	10.4	9.4	8.0	15.4	
13-May	7.6	5.1	2.9	1.8	1.4	2.4	5.1	8.6	10.4	12.3	14.9	16.8	17.8	18.2	18.9	19.4	18.5	18.4	18.3	17.0	14.7	11.5	11.0	11.3	11.8	19.4	
14-May	10.4	7.3	5.6	5.2	5.9	5.4	8.6	13.4	14.7	17.1	18.6	19.5	19.2	19.7	20.0	20.0	19.9	18.7	17.5	16.1	15.4	13.7	11.2	9.6	13.9	20.0	
15-May	8.3	7.4	5.2	3.9	4.2	5.5	6.8	9.0	10.1	11.8	13.5	13.9	14.3	14.2	9.6	12.9	13.9	13.2	11.9	9.8	8.4	7.3	7.2	6.9	9.6	14.3	
16-May	6.5	6.3	6.5	6.2	5.5	5.7	5.9	7.6	9.1	11.0	12.0	12.7	10.6	9.7	9.0	8.4	8.3	8.0	8.0	7.4	7.1	7.1	7.3	7.2	8.0	12.7	
17-May	7.1	7.2	7.0	6.6	6.6	6.5	6.5	6.6	6.7	7.1	7.9	8.0	7.9	7.8	7.7	7.4	7.1	6.6	5.8	4.9	4.4	4.0	3.4	3.0	6.4	8.0	
18-May	2.4	1.6	1.1	0.9	0.9	1.0	1.2	1.8	2.2	2.7	3.4	3.5	3.7	3.7	3.9	4.4	4.5	4.5	4.6	4.4	4.1	3.5	3.0	2.7	2.9	4.6	
19-May	2.4	2.0	2.0	1.9	2.0	2.4	3.1	3.7	4.6	5.6	6.7	7.5	7.2	7.6	7.7	7.6	7.4	6.8	6.0	5.7	5.3	4.8	4.5	4.3	4.9	7.7	
20-May	4.1	3.8	2.8	2.4	2.1	3.0	3.8	4.4	5.2	5.9	6.0	6.5	6.6	6.8	6.3	6.3	6.6	7.3	7.1	6.0	5.5	5.2	4.9	4.4	5.1	7.3	
21-May	2.6	2.5	3.0	3.3	3.8	4.5	5.0	5.4	6.6	7.9	8.9	9.6	10.1	11.6	10.7	10.9	11.2	12.1	10.9	9.4	8.6	7.6	7.1	6.2	7.5	12.1	
22-May	4.6	2.9	1.9	1.6	2.1	3.1	4.5	3.9	3.6	3.6	3.7	4.4	5.4	6.7	8.1	8.5	8.9	9.2	8.8	7.5	6.4	5.4	4.6	4.1	5.1	9.2	
23-May	3.9	3.3	3.0	3.1	2.6	3.2	4.6	5.3	6.4	7.1	7.7	8.6	9.3	9.1	10.1	11.3	11.0	10.7	10.4	9.2	8.0	6.7	4.2	1.6	6.7	11.3	
24-May	0.3	1.0	1.0	0.5	0.4	1.5	5.5	8.2	9.3	9.3	9.9	11.5	11.5	11.6	12.2	12.6	12.6	12.0	11.8	10.8	9.2	6.8	4.8	3.5	7.4	12.6	
25-May	2.6	2.2	1.1	0.2	-1.6	1.3	6.0	8.9	10.5	11.4	12.7	13.0	12.9	13.6	14.4	14.6	14.5	14.8	14.4	12.7	11.3	7.5	4.1	2.3	8.6	14.8	
26-May	0.6	0.1	-0.7	-1.8	-2.2	0.7	6.2	10.8	12.2	13.0	14.1	14.7	15.0	15.4	16.2	16.4	16.9	17.4	16.4	15.5	12.4	10.8	9.7	8.6	9.9	17.4	
27-May	8.4	8.7	8.6	7.8	7.9	7.8	9.4	11.2	14.7	16.9	18.1	19.4	20.4	20.8	19.7	16.7	19.9	19.6	18.4	16.7	14.3	12.0	10.1	9.5	14.0	20.8	
28-May	8.1	6.6	7.6	9.1	9.1	9.1	12.4	15.5	17.3	19.3	20.3	21.8	22.5	22.5	22.5	23.4	22.6	22.8	22.5	21.1	18.5	14.3	12.3	11.4	16.4	23.4	
29-May	13.5	14.5	13.2	13.2	14.9	15.6	16.0	16.8	16.5	17.1	17.0	17.6	17.7	17.1	15.8	15.2	15.0	14.7	14.5	13.7	12.3	11.0	10.2	9.0	14.7	17.7	
30-May	8.5	7.7	7.2	6.6	6.4	6.4	6.5	7.1	7.3	8.0	8.5	8.6	9.3	9.8	11.7	11.9	9.2	8.7	8.9	9.1	8.9	8.6	8.2	8.1	8.4	11.9	
31-May	8.5	8.2	7.4	7.5	7.8	8.2	9.1	9.9	11.2	11.8	11.6	10.7	12.7	13.0	11.2	9.9	11.1	11.6	12.0	11.9	11.0	10.4	10.0	9.5	10.3	13.0	
		4.9	4.3	3.6	3.4	3.3	4.0	5.9	7.9	9.3	10.6	11.6	12.4	12.9	13.4	13.4	13.5	13.5	13.3	12.6	11.4	9.7	8.0	6.7	5.8	Diurnal Average	
		15.4	14.5	13.2	13.2	14.9	15.6	16.0	16.8	19.0	21.7	23.0	23.7	25.1	25.1	25.0	25.5	26.1	26.0	25.1	23.3	21.3	20.2	19.1	18.1	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Conklin - May 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	45	6.05	6.05
0 - 10	408	54.84	60.89
10 - 20	263	35.35	96.24
> 20	28	3.76	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

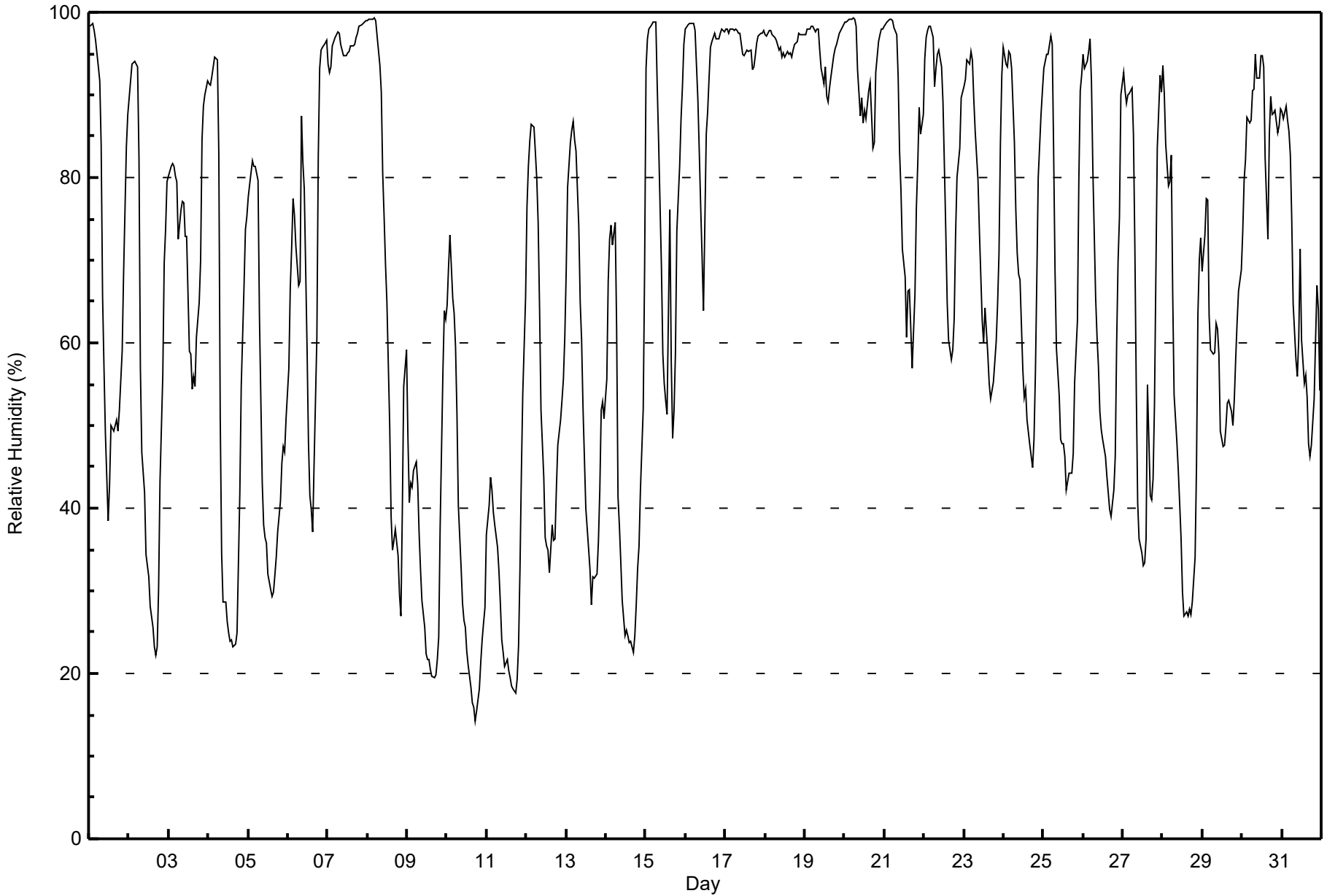
**Relative Humidity (RH) - %**  
**Conklin - May 2024**

Maximum Value: 99.3 % on May 8 05:00      Maximum Daily Average: 96.5 % on May 17																						Hours in Service:	744																							
Minimum Value: 14.3 % on May 10 18:00      Minimum Daily Average: 31.6 % on May 11																						Hours of Data:	744																							
Maximum Diurnal Average: 87.2 % at hour 4      Minimum Diurnal Average: 50.9 % at hour 17																						Hours of Missing Data:	0																							
Monthly Average: 68.54 %      Percentiles: P <sub>1</sub> = 18.4 P <sub>10</sub> = 30.6 Q <sub>1</sub> = 47.7 Median = 72.9 Q <sub>3</sub> = 93.3 P <sub>90</sub> = 97.5 P <sub>99</sub> = 99.1																						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-May	98.3	98.5	98.7	97.9	96.7	93.4	91.7	84.0	65.8	57.2	49.1	38.4	42.9	49.9	49.6	49.4	50.7	49.3	51.9	55.4	59.1	68.3	83.7	87.6	69.5	98.7																				
2-May	89.7	91.7	93.7	94.1	93.8	93.3	82.3	57.0	46.9	41.8	34.4	33.1	31.7	28.2	25.6	23.2	22.2	23.2	30.1	43.2	56.2	69.7	73.8	79.5	56.6	94.1																				
3-May	80.2	81.4	81.8	81.3	80.1	79.5	72.5	76.1	77.2	76.9	72.8	72.9	59.1	58.6	54.5	55.9	54.8	60.7	65.0	70.0	84.6	88.6	90.0	91.6	73.6	91.6																				
4-May	91.3	91.2	92.2	93.4	94.5	94.3	82.7	51.1	34.6	28.6	28.6	26.3	24.8	23.9	24.1	23.2	23.5	24.9	33.4	41.9	54.7	67.0	73.7	75.3	54.1	94.5																				
5-May	77.7	79.1	82.1	81.3	81.4	80.6	79.7	63.3	43.0	37.9	36.5	35.7	32.1	30.1	29.3	29.9	31.9	34.1	37.1	40.8	45.4	47.4	46.8	50.9	51.4	82.1																				
6-May	57.0	66.6	71.6	77.5	75.3	71.8	67.0	67.5	87.4	81.8	78.7	59.4	47.9	41.5	39.8	37.1	45.3	60.6	82.6	93.2	95.4	95.7	96.3	96.6	70.6	96.6																				
7-May	93.8	92.7	93.4	96.0	97.0	97.3	97.7	97.5	96.1	94.8	94.8	94.8	95.0	95.2	95.9	95.9	96.1	97.0	97.4	98.2	98.5	98.7	98.8	98.9	96.3	98.9																				
8-May	99.0	99.1	99.1	99.1	99.3	99.0	97.2	93.5	90.3	80.5	75.2	69.4	65.0	49.9	39.0	35.0	36.0	37.5	34.3	29.5	26.9	39.5	54.8	59.1	67.0	99.3																				
9-May	48.6	40.6	43.1	42.5	44.6	45.6	42.9	36.9	32.6	28.8	25.6	22.3	21.7	21.8	20.6	19.6	19.5	19.9	21.7	24.3	37.6	56.6	63.9	62.8	35.2	63.9																				
10-May	64.5	69.1	73.1	65.4	63.6	59.5	51.4	40.3	32.8	28.5	26.4	25.6	22.6	21.1	18.3	16.4	15.9	14.3	15.4	18.2	21.4	24.1	26.1	27.9	35.1	73.1																				
11-May	36.7	40.4	43.8	42.1	39.5	38.0	35.3	32.4	28.4	24.1	22.6	20.9	21.8	20.4	19.5	18.5	18.1	17.6	19.3	23.3	32.5	44.3	53.9	65.3	31.6	65.3																				
12-May	76.5	81.3	84.4	86.4	86.1	83.1	79.9	74.4	64.0	51.8	43.7	36.5	35.4	35.0	32.2	37.9	36.1	36.3	42.4	47.7	50.7	53.0	55.6	60.6	57.1	86.4																				
13-May	68.7	78.8	84.2	85.7	86.7	84.6	83.3	74.1	64.9	60.4	52.3	46.1	40.1	35.1	32.6	28.3	31.7	31.5	32.0	36.0	42.3	51.8	52.9	50.8	55.6	86.7																				
14-May	55.6	67.4	72.6	74.2	71.9	74.7	61.8	41.4	37.7	33.4	28.7	24.6	25.3	24.5	23.8	23.9	22.6	24.5	28.4	32.7	35.4	42.2	52.0	69.2	43.7	74.7																				
15-May	93.2	96.8	98.0	98.5	98.9	98.8	98.7	91.0	84.3	69.1	58.6	55.1	53.1	51.3	51.3	57.8	48.4	51.8	58.7	73.5	81.3	87.2	91.1	96.1	77.8	98.9																				
16-May	98.0	98.5	98.6	98.7	98.7	98.6	97.8	89.4	83.2	76.7	70.5	63.9	85.3	88.0	92.1	95.8	96.5	97.4	96.7	96.8	96.8	97.5	98.0	97.6	92.1	98.7																				
17-May	97.9	98.0	97.5	97.9	97.9	97.7	98.0	97.7	97.4	97.5	94.9	94.7	95.1	95.4	95.3	95.4	93.0	93.3	94.7	96.3	97.1	97.5	97.4	97.8	96.5	98.0																				
18-May	97.3	97.1	97.8	97.8	97.3	97.1	97.0	96.6	95.5	95.7	94.7	95.0	94.6	95.3	94.9	95.1	94.6	95.4	96.1	96.4	97.5	97.3	97.3	97.2	96.3	97.8																				
19-May	97.2	98.0	97.9	98.0	98.3	98.3	97.6	98.0	98.0	95.5	93.3	91.4	93.4	89.9	89.2	90.8	92.2	94.7	95.6	96.0	96.7	97.4	98.1	98.5	95.6	98.5																				
20-May	98.8	98.9	98.9	99.1	99.2	99.3	99.2	98.4	93.1	87.4	89.7	86.7	88.1	87.2	90.6	91.6	87.7	83.5	84.2	92.7	96.4	97.2	97.9	98.1	93.5	99.3																				
21-May	98.4	98.8	99.1	99.2	99.2	99.1	98.1	97.3	92.3	83.3	78.4	71.3	68.0	60.7	66.2	66.4	61.9	57.0	66.0	76.4	81.6	88.4	85.3	87.6	82.5	99.2																				
22-May	94.5	96.9	97.8	98.2	98.3	97.0	91.0	93.3	94.9	95.4	93.4	89.2	81.4	73.6	64.9	60.4	58.0	59.2	62.9	73.0	80.0	83.5	89.7	90.4	84.0	98.3																				
23-May	91.0	91.9	94.2	93.8	95.2	94.2	89.5	85.6	79.7	73.5	68.1	62.8	60.1	64.3	58.7	55.1	53.2	54.2	55.3	60.2	64.8	70.8	84.1	92.4	74.7	95.2																				
24-May	95.8	93.8	93.3	95.2	95.0	93.2	84.2	76.1	70.9	68.2	67.6	56.8	53.3	54.3	50.6	49.1	47.7	44.9	48.4	56.4	67.8	79.9	87.6	90.5	71.7	95.8																				
25-May	93.3	94.2	95.0	94.9	97.1	96.1	83.2	68.7	59.4	53.6	48.3	47.8	47.9	46.3	42.3	44.2	44.3	46.6	55.2	62.7	79.7	90.5	92.5	67.8	97.1																					
26-May	94.9	93.3	94.1	95.2	96.8	91.7	81.1	65.5	60.7	57.1	51.8	49.5	48.2	46.3	43.8	41.8	39.9	39.0	42.2	46.3	60.0	69.8	75.2	90.0	65.6	96.8																				
27-May	92.7	90.5	89.1	89.9	90.2	90.8	85.1	71.6	54.4	40.7	36.3	34.6	33.0	33.4	36.3	55.0	41.6	41.0	43.6	52.5	68.2	83.6	92.4	90.3	64.0	92.7																				
28-May	93.5	90.1	84.2	79.0	79.6	82.7	66.2	53.7	47.9	44.6	40.4	36.3	29.9	27.0	27.5	26.9	27.7	27.2	28.7	34.1	45.2	63.3	69.9	72.7	53.3	93.5																				
29-May	68.6	73.0	77.5	77.3	63.3	59.1	58.6	58.8	62.3	61.6	58.7	49.4	47.5	47.5	49.9	52.7	53.0	51.7	50.0	53.2	58.1	62.6	66.2	68.8	59.6	77.5																				
30-May	73.5	79.6	82.2	87.3	86.7	87.0	90.4	90.7	95.0	92.1	92.1	94.8	94.8	93.3	82.4	72.6	85.3	89.8	87.6	87.8	88.2	85.4	86.3	88.3	87.2	95.0																				
31-May	87.9	87.2	88.7	87.0	85.7	82.6	74.9	64.8	58.0	55.9	60.5	71.3	60.4	55.1	56.0	53.4	47.9	46.2	47.7	53.2	60.3	67.0	64.1	54.2	65.4	88.7																				
																						84.0	85.6	87.0	87.2	86.7	85.7	81.2	73.8	68.7	63.7	60.2	56.7	54.8	53.0	52.3	51.6	50.9	51.7	54.7	59.8	65.9	72.7	77.2	80.0	Diurnal Average
																						99.0	99.1	99.1	99.2	99.3	99.3	99.2	98.4	98.0	97.5	94.9	95.0	95.1	95.4	95.9	95.9	96.5	97.4	97.4	98.2	98.5	98.7	98.8	98.9	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Conklin - May 2024**





Maximum Speed: 21 km/h on May 6 18:00	Maximum Daily Speed Average: 11.1 km/h on May 11	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 3 03:00	Minimum Daily Speed Average: 0.5 km/h on May 4	Hours of Data: 730
Maximum Diurnal Speed Average: 2.2 km/h at hour 12	Minimum Diurnal Speed Average: 0.7 km/h at hour 20	Hours of Missing Data: 14
Monthly Average Velocity: 1.0 km/h 327.8 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> = 13 P <sub>99</sub> = 18	Percent Operational Time: 98.3

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	N3	NNW5	NNW6	N6	N6	N8	N7	NNE8	ENE10	NNE11	NNE13	NE15	NE14	NE16	NE15	NE13	NE13	NNE13	NNE11	NNE9	NNE7	N5	NW2	NNW4	NNE8.5	NE16	
2-May	NNW5	NNW5	NNW3	NNW2	WSW1	N1	N5	NNE9	NNE12	NNE13	NNE15	NNE17	N18	N20	NNE17	NNE18	NNE17	NNE15	E11	ESE10	SE1	S0	NW0	SSE1	NNE7.9	N20	
3-May	S0	UO	SW0	SSW0	SSE0	WNW1	NNW4	NNE4	E3	E4	NNE7	NNE7	N8	N5	NNW7	NNE5	NE3	SE7	E5	ESE4	W1	S1	SSE3	S2	NE2.0	N8	
4-May	S3	W1	SSE2	S2	S2	S3	S2	NNW5	NNE6	N6	NNE4	N3	SW2	N2	N2	ENE2	ESE6	N2	ESE1	SSE1	NNW2	SW1	SSE4	SSE3	ENE0.5	N6	
5-May	S4	SSE4	SSE4	SSE3	SSE3	S2	SE3	SE4	SSE12	S13	SSE13	SE10	SE14	ESE15	ESE14	SE16	SE13	ESE10	ESE9	ESE7	ESE4	ESE5	ESE5	SE4	SE7.4	SE16	
6-May	SE3	NW0	NNW3	NNW4	ENE2	ESE0	E5	ESE8	ENE4	ENE6	NE7	ESE12	ESE14	ESE16	ESE14	SE16	SSE20	SSE21	SE13	ESE6	ENE2	NNE3	N3	NNE3	ESE6.0	SSE21	
7-May	ENE3	ENE3	E5	ENE5	ENE6	NE6	NE6	ENE6	E8	E8	E8	E7	E7	E7	E6	E6	E6	ESE3	WNW1	NNW2	UO	WNW1	UO	SSE2	E4.5	E8	
8-May	E1	SSE2	SSE2	SE2	WNW5	WNW5	NW6	NW5	NW5	NW7	NW8	WNW7	NW6	W5	WNW6	WNW6	W6	WNW5	WSW9	WSW10	WSW8	SW7	SSW7	SSW7	W4.3	WSW10	
9-May	SW8	WNW10	W11	W13	W12	WNW11	WNW10	WNW10	WNW10	WNW10	NW12	NW13	WNW13	WNW13	WNW13	NW13	NW14	NW11	NW7	SW1	S3	S4	S5	WNW8.8	NW14		
10-May	S5	SE5	SE5	S8	S7	SSW8	SSW10	WSW9	W11	W14	W14	W15	W16	W16	WSW20	W18	WSW17	W19	W14	W10	W9	WSW13	WSW14	W11	WSW10.3	WSW20	
11-May	NNW16	NNW9	NW5	NW8	NW7	NW7	NW9	NW12	NW18	NW20	NW19	NW18	NW17	NW16	NW18	NW14	NW13	NW12	NNW13	NNW8	N5	NE4	ENE4	NNW1	NW11.1	NW20	
12-May	NNW2	WSW1	NNW1	SSE1	ESE1	NNW0	SSE1	SE3	E6	ESE9	ESE10	ESE10	ESE11	ESE11	SSE8	S7	E5	SSE4	SSW10	S8	S8	SSE7	SSE7	S5	SE4.4	ESE11	
13-May	S1	SSE1	SSE2	SSE3	SSE3	S2	SE3	S5	S7	S9	S12	SSW13	SSW14	SSW14	SSW13	WSW12	SW10	SW7	SSW5	SW7	SSW6	SSW7	SSW6	SW7	SSW6.5	SSW14	
14-May	SW5	S2	SSW1	N0	SSE2	SSE2	S3	WNW7	WNW8	WSW6	SW9	W10	WSW14	WSW14	WSW15	WSW14	WNW11	W11	WNW9	WNW6	W6	NW5	WNW2	NW5	W6.0	WSW15	
15-May	NW7	SE0	SSW1	SSE2	SSW5	ENE1	NNW3	WNW4	NNW5	WNW4	NNW5	NNE6	ESE6	SE2	N4	E4	ESE5	SE7	SW2	NW5	NNW1	SW1	SSE2	SSE0	N0.5	NW7	
16-May	NNW4	NW3	SE1	NNE1	NNW2	NNE2	N2	E4	E6	ESE5	ESE9	ESE10	NNE5	E9	ESE9	E5	ENE6	ENE7	ESE9	ESE9	E5	ENE5	E5	ESE8	E4.4	ESE10	
17-May	ESE7	ESE7	ESE9	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	ENE7	ENE7	ENE6	ENE6	ENE7	ENE6	NNE5	N5	NNW7	NW8	---	ESE9
18-May	NW8	NW7	NW7	NW6	NW7	NW7	NW7	NW8	NW10	NW9	NW10	NW10	NW11	NW9	NW10	NW8	NW9	NW7	NW5	NW5	NW4	NW5	WNW4	WNW3	NW7.3	NW11	
19-May	NW4	NW4	NW3	NW3	NW3	NW4	NW4	NW5	NW6	NNW7	NNW6	NNW8	NE9	NNE10	NNE9	NNE8	NNE9	NNE8	NNE7	NNE4	N6	N5	NNW5	NNW4	N5.1	NNE10	
20-May	NNW5	NNW4	NNW4	NNW5	NNW4	NNW5	NNW4	N5	NNE6	N7	N8	N10	N8	NNE8	NNE8	NNE7	N7	NNE7	NNE6	NNE4	NNW3	NNW3	NNW3	NNW2	N5.2	N10	
21-May	NNW2	NNW3	NNW3	N2	ESE2	ESE4	ESE5	E3	ESE6	ESE6	ESE8	SE6	SE10	ESE10	ESE11	S7	SE7	ESE5	ESE7	NNE2	ENE5	NE3	ESE5	N4	ESE3.9	ESE11	
22-May	NNW2	ESE0	NNW1	SW1	NNW1	NNW4	N7	N8	N8	N8	NNE9	NNE9	NNE8	NE8	NE8	NNE9	NNE10	NE11	NNE8	NE4	N2	N2	NW2	NNW2	NNE5.1	NE11	
23-May	NNE2	NNW3	NNW4	WNW1	NW2	NNW4	NNE4	ENE5	E5	NE7	NE7	ENE6	NNE8	ESE9	ESE7	ENE9	ENE9	E8	ESE8	ENE6	ENE4	E3	NE1	UO	ENE4.0	ENE9	
24-May	SSE2	SSE1	S2	SSE1	NNW1	NNW3	E3	E6	ESE9	ESE11	SE5	E10	E8	SSE10	SE8	ESE10	ESE9	ESE9	SE9	S7	S4	SSE1	SE2	N2	SE4.5	ESE11	
25-May	SE1	SE3	SE3	SSE1	WSW1	SSE2	ESE4	ESE7	ESE9	SE10	ESE10	ESE10	ESE10	SE8	SE12	ESE10	ESE11	ESE10	ESE7	ESE4	SSE1	SSW1	SSE2	SSE2	ESE5.9	SE12	
26-May	SSE2	SSE3	SSE3	S1	S1	SSE1	SE3	E3	ENE4	NE5	NE2	NNE2	NW0	SE1	ESE5	SE6	ESE6	ESE6	ESE7	ESE4	SE2	S1	S1	WSW1	ESE2.3	ESE7	
27-May	E1	SSE2	SW2	NNW4	SW1	ESE1	SSE1	SE4	SE3	SE8	SSE10	ESE11	ESE11	ESE11	SE6	WSW7	SE4	ESE7	ESE5	WNW4	NNW3	NW1	SSE1	NNW4	SE2.8	ESE11	
28-May	W1	N1	S1	NNW3	S1	SSE1	SE2	SSW7	SW9	WNW8	WNW5	WNW4	W7	W5	SSW7	SSW6	SSW6	E2	E5	NNE3	NNE1	NNW4	NW2	NW2	WSW1.7	SW9	
29-May	SSE4	SE6	SE2	SE4	SE7	SSE6	SSE8	SSW10	WSW14	W13	WSW13	W12	W13	W14	WSW16	W10	W11	WSW12	WSW12	W10	W9	WSW7	W12	WSW11	WSW7.7	WSW16	
30-May	WSW12	WSW13	WSW12	WSW12	W12	W12	W10	WNW8	NW8	NW10	NW9	WNW7	NW7	NW9	NW13	NNW15	NW8	WNW9	WNW6	WNW5	WNW6	WNW9	WNW9	WNW7	WNW8.5	NNW15	
31-May	WNW8	WNW8	W7	W10	WNW9	WNW11	WNW10	WNW12	WNW13	WNW13	WNW12	W12	W16	NW13	NW17	NW14	NW12	NW12	WNW10	WNW11	WNW9	WNW8	NW9	NW14	WNW10.9	NW17	

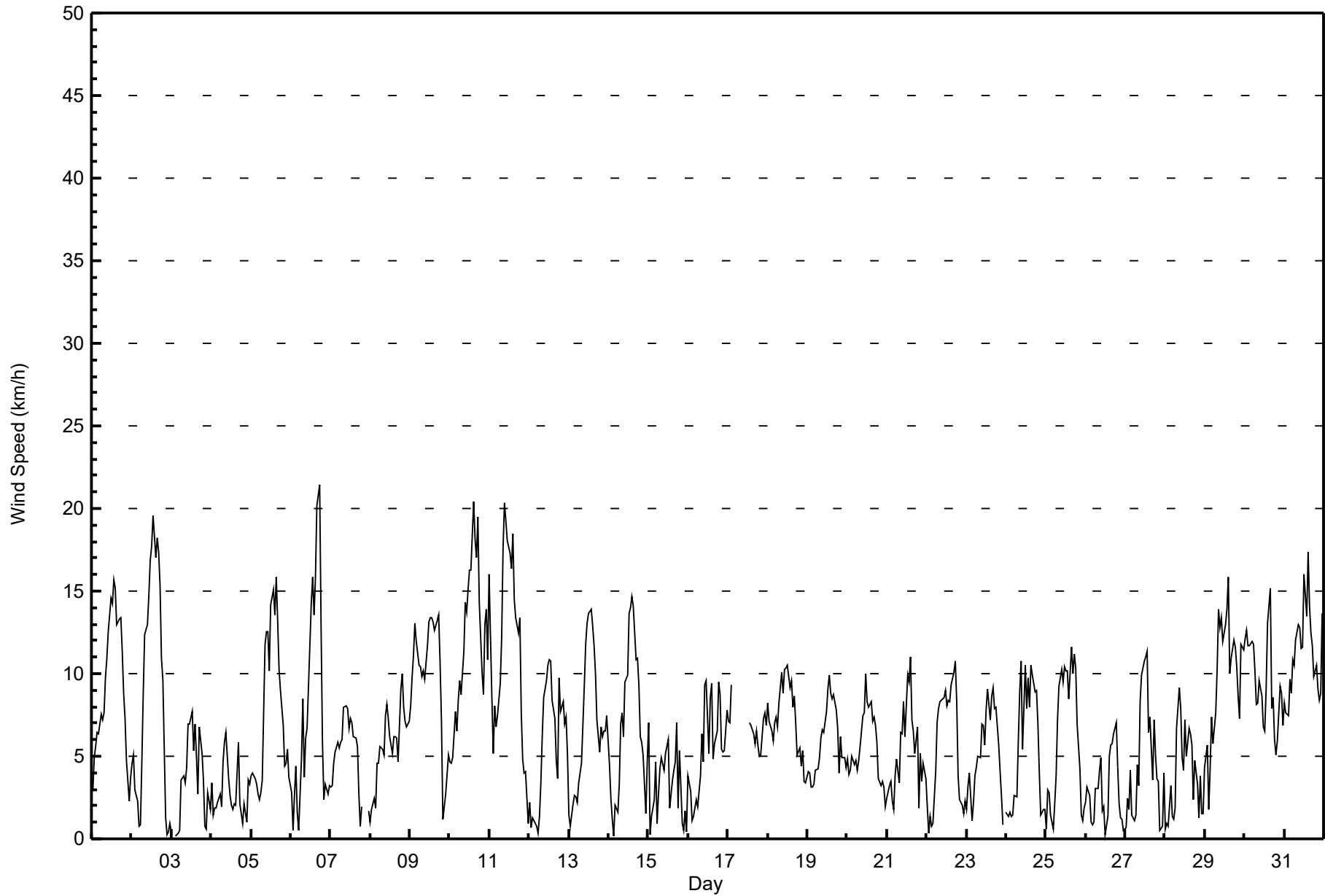
WNW1.4	WNW1.0	W0.9	WNW1.4	W1.4	WNW1.6	NW1.3	NNW1.5	NNW1.9	NNW1.9	NNW1.9	N2.2	N1.5	NNE1.3	N1.1	NNW1.3	NNE1.2	NE1.4	ENE0.8	NW0.7	NW1.0	WNW1.2	WSW1.3	WNW1.7		Diurnal Average
NNW16	WSW13	WSW12	W13	WSW12	W12	WNW10	NW12	NW18	NW20	NW19	NW18	N18	N20	WSW20	NNE18	SSE20	SSE21	W14	WNW11	WNW9	WSW13	WSW14	NW14		Diurnal 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**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Conklin - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Conklin - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	324	44.38	44.38
6 - 11	296	40.55	84.93
12 - 19	105	14.38	99.32
20 - 28	5	0.68	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 (WS) - km/h  
Conklin - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	23	17	7	16	17	24	25	44	29	6	10	4	5	16	28	53	324
6 - 11	16	30	8	16	17	53	14	8	9	13	8	8	17	33	38	8	296
12 - 19	1	10	6	0	0	6	6	2	2	4	0	18	18	8	21	3	105
20 - 28	1	0	0	0	0	0	0	2	0	0	0	1	0	0	1	0	5
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	41	57	21	32	34	83	45	56	40	23	18	31	40	57	88	64	730

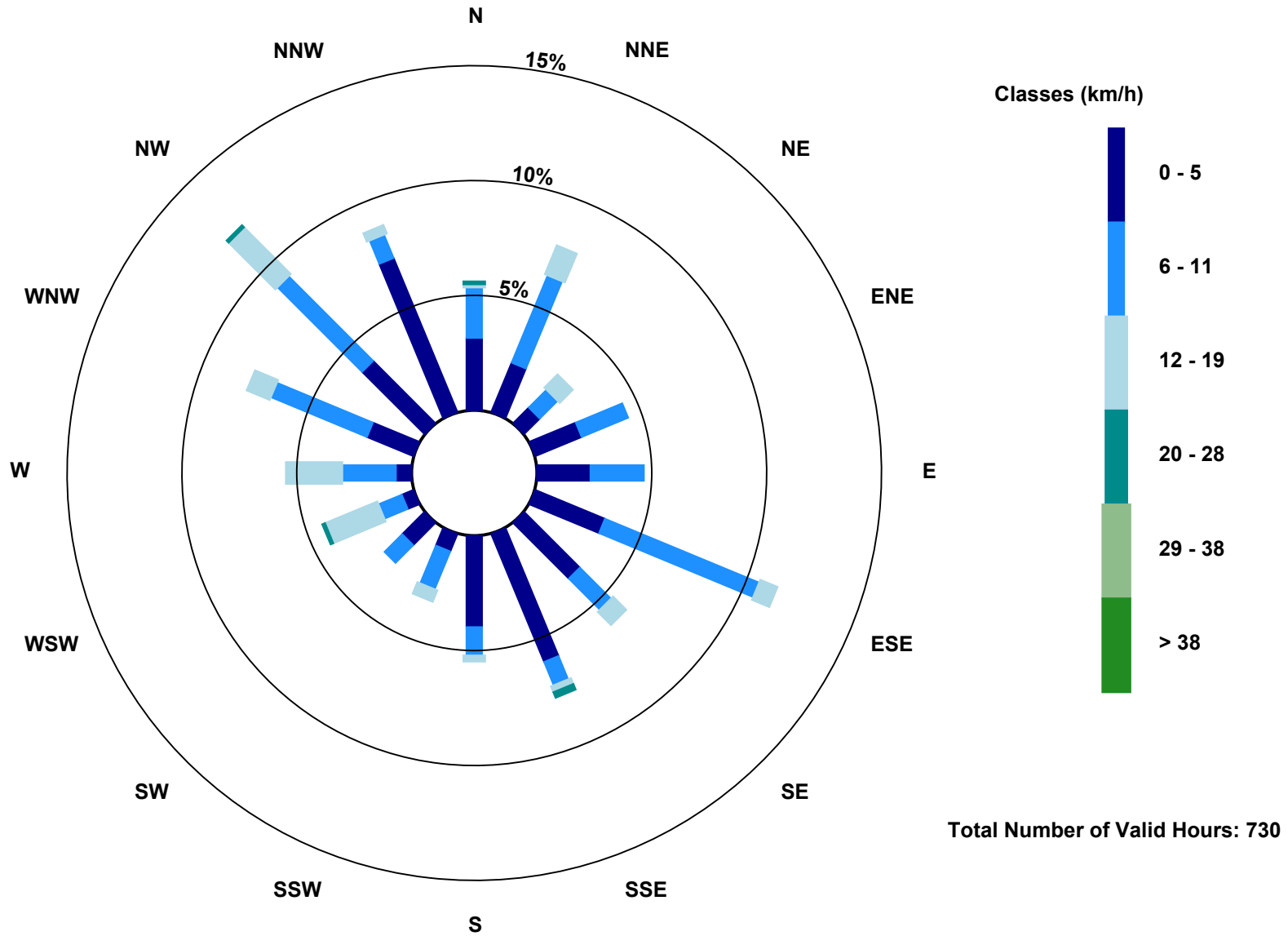
Total Number of Valid Hours: 730

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Conklin





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Conklin - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 8 km/h on May 31 13:00	Hours of Data: 730
Minimum Value: 0 km/h on May 23 00:00	Hours of Missing Data: 14
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7	Hours of Calibration: 1
	Percent Operational Time: 98.3

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	1	1	1	1	2	2	2	2	3	4	4	5	5	5	5	5	4	4	4	3	3	1	1	0	5
2-May	1	1	2	1	1	1	2	3	4	4	5	6	6	7	6	7	6	6	5	3	2	1	1	1	7
3-May	1	UO	1	1	1	1	1	2	2	2	3	3	3	3	3	2	3	2	2	2	1	1	1	1	3
4-May	1	1	1	1	1	1	1	2	3	3	3	3	2	3	3	3	3	2	1	2	1	1	1	1	3
5-May	1	1	1	1	1	1	1	1	3	4	4	4	4	4	4	4	4	3	3	2	1	2	1	1	4
6-May	1	1	1	1	1	1	2	2	2	2	3	4	4	5	4	5	6	6	5	2	1	1	1	1	6
7-May	1	1	2	2	2	2	2	3	3	3	3	3	3	3	2	2	2	1	1	1	UO	3	UO	2	3
8-May	2	1	0	1	3	2	2	2	2	3	3	3	2	3	3	3	3	2	4	3	2	1	1	1	4
9-May	4	4	5	5	5	4	4	4	4	4	5	6	5	5	5	5	6	6	4	3	1	2	1	1	6
10-May	1	1	1	1	2	3	3	4	4	5	6	7	7	8	7	7	6	8	7	5	3	4	4	5	8
11-May	6	3	2	3	3	3	4	6	7	7	7	7	7	7	7	6	5	5	5	3	2	2	2	1	7
12-May	2	2	1	1	2	1	1	1	2	2	3	3	3	3	3	5	2	2	3	2	2	2	2	2	5
13-May	1	1	1	1	2	1	1	4	2	3	4	4	4	5	5	5	3	2	2	2	2	1	2	2	5
14-May	2	1	1	2	1	1	2	4	3	3	4	4	5	5	6	6	5	5	4	3	3	2	1	4	6
15-May	2	2	1	1	2	1	1	1	2	2	3	2	3	2	3	2	2	2	2	2	1	2	2	1	3
16-May	2	1	2	1	1	1	1	1	2	2	3	3	2	6	3	2	2	2	3	3	2	2	2	2	6
17-May	2	2	3	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	2	3	2	2	3	2	2	1	2	2	3
18-May	3	2	2	2	3	3	3	3	4	3	4	4	4	4	4	3	3	3	2	2	1	2	1	1	4
19-May	1	2	1	1	1	1	1	2	2	2	2	3	4	3	3	3	3	3	3	2	2	1	1	1	4
20-May	1	1	1	1	1	1	1	2	2	2	2	4	3	2	3	3	3	2	2	3	1	1	1	1	4
21-May	1	1	1	1	1	1	1	1	2	2	3	3	4	3	3	2	2	2	4	1	2	1	2	1	4
22-May	1	1	1	1	2	1	2	2	2	3	3	3	3	3	4	4	4	4	3	2	1	1	1	0	4
23-May	1	1	1	1	1	1	1	2	2	3	3	2	3	3	3	4	3	3	3	2	2	1	1	UO	4
24-May	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	3	3	2	2	2	1	1	1	3
25-May	1	1	1	1	1	1	2	2	3	3	4	4	3	3	3	3	3	3	3	2	1	1	1	1	4
26-May	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2
27-May	1	1	1	2	1	1	1	1	2	4	3	3	4	4	3	4	3	2	2	2	2	2	1	2	4
28-May	1	1	1	2	1	1	1	3	3	4	3	2	3	3	3	3	3	1	2	1	1	1	1	1	4
29-May	3	3	1	1	2	2	3	4	4	5	5	5	6	6	6	5	5	5	5	4	4	2	5	4	6
30-May	5	4	4	4	4	4	4	3	4	4	4	3	3	4	5	6	4	4	3	2	3	5	4	3	6
31-May	4	4	3	4	4	5	5	6	6	6	6	5	8	6	7	7	6	5	5	5	4	4	5	6	8
	6	4	5	5	5	5	5	6	7	7	7	7	8	8	7	7	6	8	7	5	4	5	5	6	

Diurnal Maximum

C - Calibration      AF - Analyzer Failure      UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Conklin - May 2024**

Direction of Maximum Speed: 149 deg on May 6 18:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 324.6 deg on May 11	Hours of Data: 730
Direction of Minimum Speed: 224 deg on May 3 03:00	Hours of Missing Data: 14
Direction of Minimum Daily Speed Average: 0.5 deg on May 4	Percent Operational Time: 98.3
Monthly Average Direction: 327.8 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-May	357	343	346	356	360	3	5	21	57	25	29	42	44	48	44	50	38	30	23	14	26	351	311	346	26.8
2-May	348	347	347	335	240	350	356	19	13	19	24	25	11	3	15	14	26	27	82	117	127	183	307	166	20.5
3-May	186	UO	224	193	162	301	335	25	80	93	27	31	5	3	346	24	55	127	84	123	269	187	152	189	42.7
4-May	169	265	159	179	182	183	178	339	33	2	16	1	214	357	3	74	122	10	120	161	336	227	161	156	75.8
5-May	171	161	163	157	167	171	144	129	151	181	161	144	138	120	122	145	144	122	123	109	111	107	117	124	139.6
6-May	126	325	335	333	74	114	98	104	60	75	51	103	107	116	116	130	150	149	136	113	76	28	5	16	113.5
7-May	60	64	101	76	59	54	56	71	89	93	87	80	91	82	92	94	100	111	300	333	UO	282	UO	147	81.1
8-May	90	165	157	146	291	299	311	313	306	310	306	303	305	278	302	287	279	283	246	258	244	215	206	208	273.5
9-May	231	290	280	267	268	282	290	296	301	299	305	309	302	295	295	300	306	321	314	315	220	190	176	174	291.5
10-May	169	144	145	177	181	199	213	240	272	264	275	267	263	269	255	260	251	266	279	265	261	249	244	280	252.6
11-May	337	332	315	319	315	314	312	318	322	325	322	318	316	320	326	322	316	322	329	331	6	40	66	344	324.6
12-May	327	237	332	149	123	343	157	129	101	103	108	107	116	111	165	185	88	155	193	175	169	158	161	185	140.4
13-May	178	165	161	158	151	174	145	184	187	175	186	193	204	212	213	253	223	225	206	218	200	198	206	217	202.8
14-May	230	189	193	5	153	162	187	286	296	245	231	260	248	240	252	257	285	274	297	297	278	310	287	312	262.1
15-May	321	124	196	165	200	58	331	302	334	301	345	17	122	128	350	101	116	136	225	322	332	220	160	152	356.9
16-May	329	310	141	26	336	27	10	79	98	122	102	108	33	91	116	79	72	71	122	120	93	73	99	106	91.4
17-May	115	108	109	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	60	59	59	54	58	68	25	351	338	320	316	--
18-May	315	310	310	304	308	308	304	308	314	307	308	314	315	314	314	318	319	316	304	309	318	315	290	291	310.8
19-May	307	306	308	310	308	307	308	317	325	335	329	339	34	26	20	17	15	20	27	33	10	356	343	341	353.6
20-May	340	330	328	331	333	331	334	10	21	10	353	3	5	30	28	19	11	14	13	22	342	340	348	330	0.9
21-May	330	336	334	355	102	105	112	99	115	113	118	129	134	109	118	172	141	103	109	12	67	48	109	11	108.1
22-May	341	118	333	231	331	339	349	0	357	10	20	26	26	45	51	22	20	41	25	52	4	7	304	329	17.9
23-May	20	338	336	303	313	333	18	63	88	47	55	62	30	118	116	57	70	82	103	70	61	79	37	UO	62.1
24-May	159	165	178	158	340	330	99	87	103	117	142	96	94	166	129	116	111	121	143	179	180	167	141	2	124.2
25-May	146	152	145	151	243	152	121	106	103	128	108	102	116	120	142	127	120	118	103	110	107	156	192	161	119.4
26-May	157	157	163	183	189	160	126	97	58	55	35	23	305	143	123	129	116	114	121	109	126	187	180	241	117.4
27-May	94	153	219	339	232	117	150	130	124	146	153	120	116	113	141	239	136	109	115	302	327	324	162	345	131.8
28-May	281	357	185	329	171	155	129	200	225	291	292	296	273	260	204	196	201	85	92	27	26	337	325	320	248.6
29-May	166	129	129	128	144	154	164	197	258	263	250	268	265	261	249	275	262	255	257	265	264	243	260	258	246.2
30-May	253	248	255	253	259	262	267	286	304	307	304	302	307	316	324	327	319	302	299	293	295	283	282	282	286.9
31-May	282	286	270	273	282	283	296	300	294	293	290	279	276	309	317	311	313	309	298	289	284	283	311	319	295.3

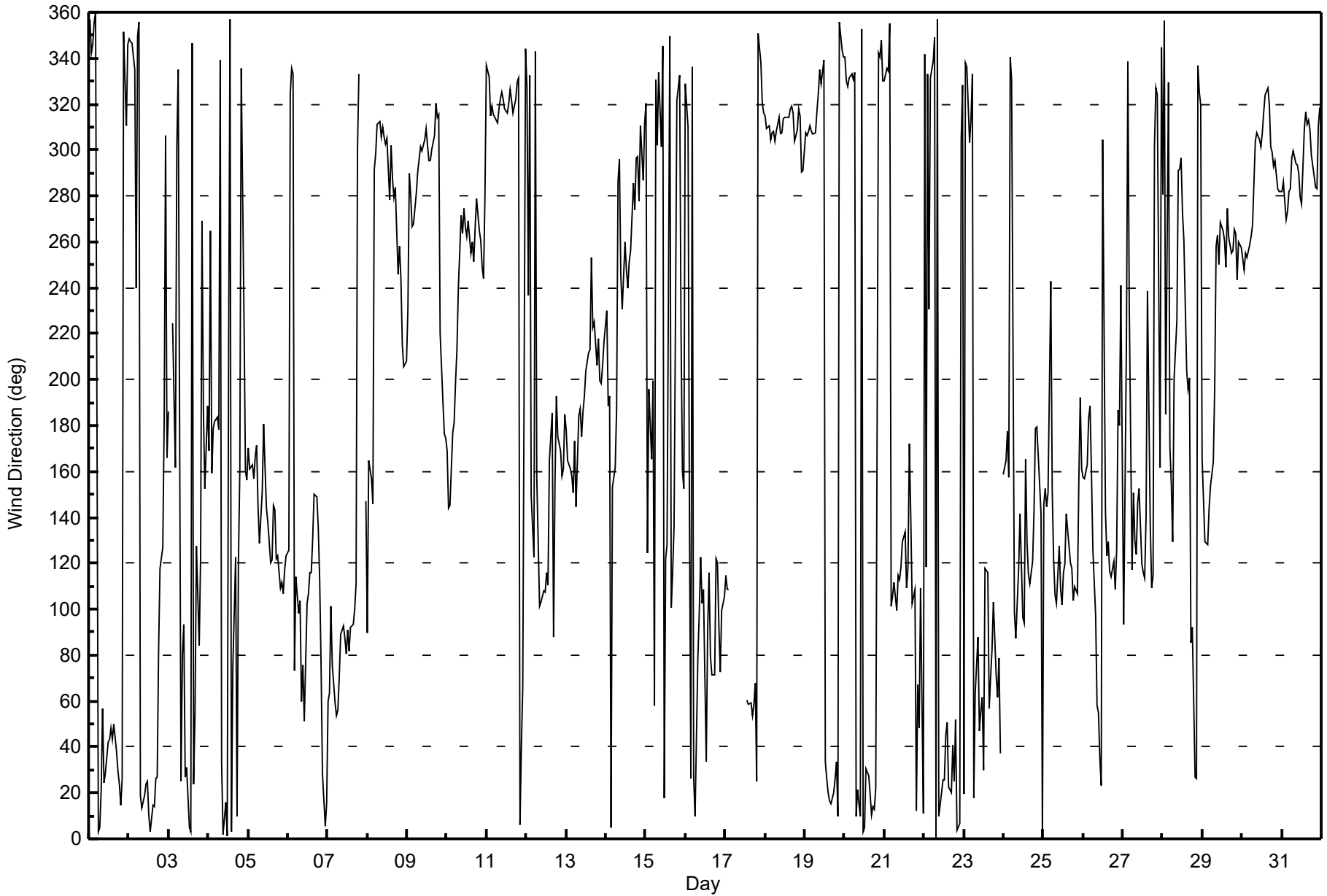
293.1 289.6 273.1 283.6 270.8 292.8 311.6 339.1 348.4 340.9 346.0 9.7 355.2 32.4 353.6 342.4 30.8 39.9 70.0 319.5 309.7 286.5 246.2 281.6  
 Diurnal Average

C - Calibration      AF - Analyzer Failure      UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Conklin - May 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Conklin - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 111 deg on May 27 22:00 Minimum Value: 7 deg on May 2 00:00 Percentiles: P <sub>1</sub> = 12 P <sub>10</sub> = 19 Q <sub>1</sub> = 24 Median = 32 Q <sub>3</sub> = 42 P <sub>90</sub> = 71 P <sub>99</sub> = 97																			Hours in Service: 744 Hours of Data: 730 Hours of Missing Data: 14 Hours of Calibration: 1 Percent Operational Time: 98.3						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	26	14	12	17	19	19	19	29	36	28	35	32	35	30	31	35	29	28	26	23	24	19	48	7	48
2-May	8	7	16	20	62	84	27	28	27	30	30	30	29	27	30	31	28	28	45	17	79	86	40	35	86
3-May	98	UO	64	71	82	78	32	45	62	52	42	41	38	38	33	50	89	19	37	37	69	89	18	58	98
4-May	38	62	76	27	29	19	49	45	50	58	96	98	103	101	97	96	66	85	66	67	38	71	26	19	103
5-May	26	23	14	19	20	17	16	28	25	28	29	34	24	24	22	23	19	22	24	18	24	28	20	22	34
6-May	31	96	34	19	65	95	31	22	39	35	35	26	26	24	20	20	17	17	17	22	48	24	34	31	96
7-May	38	31	32	32	29	33	32	37	32	31	31	36	33	33	34	35	28	34	49	18	UO	53	UO	15	53
8-May	75	25	19	50	55	32	23	27	31	33	31	34	35	58	57	41	35	46	32	22	18	16	11	13	75
9-May	29	31	32	26	26	33	33	33	31	35	35	34	34	35	33	35	33	27	25	22	47	15	13	14	47
10-May	20	22	17	14	25	33	20	36	31	33	36	37	34	35	28	28	29	29	33	31	23	21	18	35	37
11-May	22	20	17	21	22	23	25	26	23	23	26	27	30	32	28	33	30	30	22	18	35	31	32	94	94
12-May	47	85	82	81	60	97	85	32	27	30	27	22	20	20	37	68	48	55	19	17	18	16	21	20	97
13-May	74	76	20	17	24	20	20	26	28	24	31	28	27	26	30	31	22	28	40	22	14	10	18	22	76
14-May	46	28	83	92	53	68	53	44	37	57	42	39	32	30	33	34	36	35	34	37	35	22	56	64	92
15-May	24	96	73	23	23	74	34	39	40	67	57	60	52	83	69	49	53	21	71	19	84	87	75	89	96
16-May	36	28	80	77	41	49	44	41	32	60	29	27	43	56	21	43	33	34	18	19	30	35	33	23	80
17-May	20	22	18	AF	AF	AF	AF	AF	AF	AF	AF	AF	C	34	31	36	29	31	35	23	20	16	16	19	36
18-May	20	24	23	32	28	26	30	29	23	30	29	26	25	26	25	26	24	25	33	27	23	21	34	39	39
19-May	29	34	36	35	39	39	33	24	23	24	28	23	32	24	26	26	24	27	32	36	21	18	14	17	39
20-May	12	16	12	10	16	18	17	26	31	25	25	22	22	30	36	36	26	26	25	34	20	16	35	33	36
21-May	24	13	13	33	50	24	21	35	24	36	28	53	30	29	17	40	36	53	46	90	35	37	37	25	90
22-May	33	95	65	84	73	22	21	28	26	28	25	28	35	39	43	34	30	34	31	46	64	25	29	14	95
23-May	49	21	12	45	36	13	29	37	44	35	41	54	40	35	42	46	40	36	31	34	36	41	88	UO	88
24-May	28	39	21	24	81	17	74	48	37	24	53	33	49	36	37	29	28	19	18	29	20	57	26	71	81
25-May	84	24	23	77	74	37	39	28	33	29	39	31	19	22	38	22	25	24	24	19	21	60	73	30	84
26-May	21	18	18	71	82	73	27	53	42	47	87	80	95	97	55	31	36	27	17	21	31	70	87	82	97
27-May	82	37	64	20	58	58	50	23	45	37	32	34	32	32	50	46	68	21	26	56	41	111	70	29	111
28-May	84	102	83	76	92	75	62	46	30	48	65	81	47	62	60	49	30	72	40	22	96	13	28	56	102
29-May	48	33	78	29	21	24	23	26	31	35	30	37	39	40	30	42	37	30	30	35	34	21	31	32	78
30-May	29	26	30	29	28	33	36	41	38	37	39	41	36	29	25	26	28	42	43	40	44	38	40	41	44
31-May	40	42	38	36	40	37	43	41	40	40	42	38	40	37	29	33	32	35	43	42	40	43	34	25	43
98 102 83 92 92 97 85 53 62 67 96 98 103 101 97 96 89 85 71 90 96 111 88 94																								Diurnal Maximum	
C - Calibration      AF - Analyzer Failure      UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS22  
JANVIER  
MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
MAY 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	1.7	0	0.3	0
TRS(ppb) Average	707	36	37	99.87	0.6	0	0.4	0
THC(ppm) Average	708	36	36	100	2.3	-	2	-
NMHC(ppm) Average	708	36	36	100	0.099	-	0.008	-
CH4(ppm) Average	708	36	36	100	2.2	-	2	-
O3 (ppb) Average	709	34	35	99.87	60	0	47.9	-
NO2 (ppb) Average	707	36	37	99.87	3.7	0	0.7	-
NO (ppb) Average	707	36	37	99.87	2	-	0.6	-
NOX (ppb) Average	707	36	37	99.87	5.6	-	0.9	-
PM2.5 (ug/m3) Average	743	1	1	100	167.2	0	46.4	3
Temperature 2 m (C) Average	744	0	0	100	26.8	-	17.8	-
Relative Humidity (%) Average	744	0	0	100	100	-	96.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	19	-	12	-
Wind Speed 20 m (km/h) Average	733	0	11	98.52	26	-	18	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
Wind Direction 20 m (deg) Average	733	0	11	98.52	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
MAY 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	0.08	0.2	-	0	0	0	0	0.1	0.2	1.7
TRS (ppb) Average	707	0.18	0.1	-	0.1	0.1	0.1	0.2	0.2	0.2	0.6
THC (ppm) Average	708	1.96	0	-	1.9	1.9	1.9	2	2	2	2.3
NMHC(ppm) Average	708	0	0.004	-	0	0	0	0	0	0	0.099
CH4(ppm) Average	708	1.96	0	-	1.9	1.9	1.9	2	2	2	2.2
O3 (ppb) Average	709	34.3	12.9	-	5.3	15.2	24.4	35.6	44.7	50.6	60
NO2 (ppb) Average	707	0.24	0.5	-	0	0	0	0	0.3	0.8	3.7
NO (ppb) Average	707	0.16	0.2	-	0	0	0	0.1	0.3	0.4	2
NOX (ppb) Average	707	0.41	0.6	-	0	0	0	0.2	0.5	1.1	5.6
PM2.5 (ug/m3) Average	743	8.03	17.4	-	0.2	0.9	1.7	2.9	4.9	19.3	167.2
Temperature 2 m (C) Average	744	9.92	5.4	-	-1.8	3.4	6.2	9.2	13.3	17.4	26.8
Relative Humidity (%) Average	744	66.23	24.3	-	15.9	31.8	46	67	89.8	96.8	100
Wind Speed 10 m (km/h) Average	744	6.7	4	-	0	2	4	7	9	12	19
Wind Speed 20 m (km/h) Average	733	9.2	5	-	0	3	5	9	12	17	26
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	733	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, O3, TRS	28 May 2024 14:00	28 May 2024 14:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction 20m	05 May 2024 05:00	05 May 2024 06:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	07 May 2024 21:00	07 May 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	07 May 2024 23:00	08 May 2024 00:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	22 May 2024 03:00	22 May 2024 04:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	25 May 2024 07:00	25 May 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	26 May 2024 06:00	26 May 2024 07:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	27 May 2024 01:00	27 May 2024 01:00	1	Flat line in sensor output signal



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.7 ppb on May 31 21:00	Maximum Daily Average: 0.3 ppb on May 11		Hours of Data:	708
Minimum Value: 0.0 ppb on May 1 11:00	Minimum Daily Average: 0.0 ppb on May 23		Hours of Missing Data:	36
Maximum Diurnal Average: 0.1 ppb at hour 9	Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Calibration:	36
Monthly Average: 0.08 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.2 P <sub>99</sub> = 0.9		Percent Operational Time:	100.0

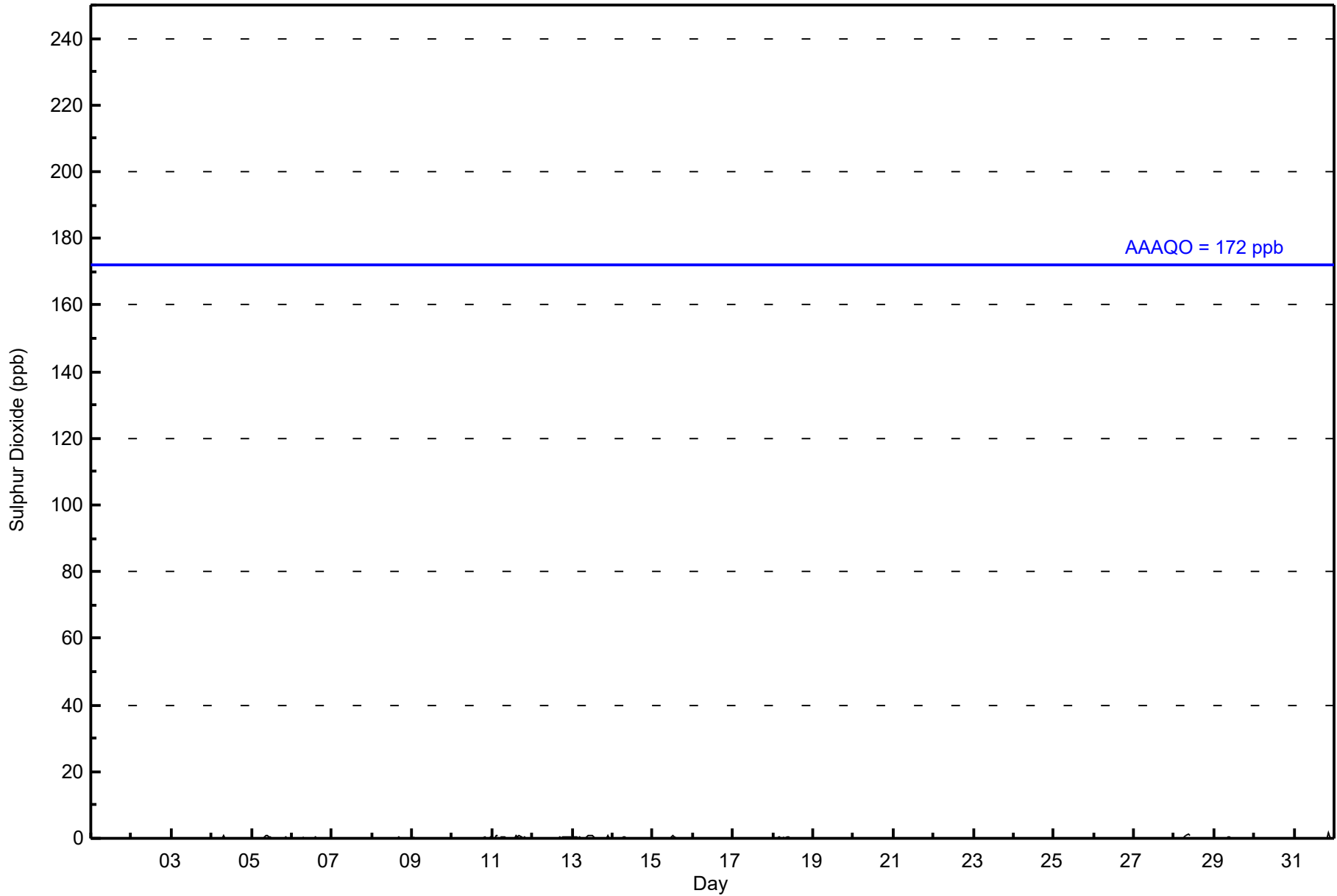
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24													
1-May	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
2-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	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	0.2	0.1	0.2
3-May	0.1	0.1	Z	0.2	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2
4-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.7	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
5-May	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.9	1.0	0.4	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.0	
6-May	0.0	0.1	0.1	0.1	0.1	Z	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	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	0.3	
7-May	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
8-May	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2		
9-May	0.0	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
10-May	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	0.2	0.1	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3		
11-May	0.1	0.1	0.7	1.0	Z	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.7	0.6	0.9	0.3	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0		
12-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.5	0.5	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5		
13-May	Z	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.7	0.9	0.6	0.7	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.2	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0		
14-May	0.0	Z	0.0	0.0	0.1	0.1	0.4	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4		
15-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.7	0.3	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7		
16-May	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
17-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	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	0.1		
18-May	0.2	0.0	0.0	0.2	0.2	Z	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	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3		
19-May	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	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
20-May	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	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	
21-May	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
22-May	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
23-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
24-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
25-May	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
27-May	0.0	0.1	Z	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.1	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	0.2		
28-May	0.0	0.0	0.1	Z	0.1	0.2	0.3	0.7	1.2	0.8	C	C	C	C	C	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.2		
29-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3			
30-May	0.0	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	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-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7		
																								Diurnal Average													
																								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**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	708	100.00	100.00
11 - 20	0	0.00	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Janvier - May 2024**

<b>Concentration</b> <b>Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 10	31	75	87	64	65	45	32	24	25	28	43	36	33	48	49	14	699
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>	31	75	87	64	65	45	32	24	25	28	43	36	33	48	49	14	699

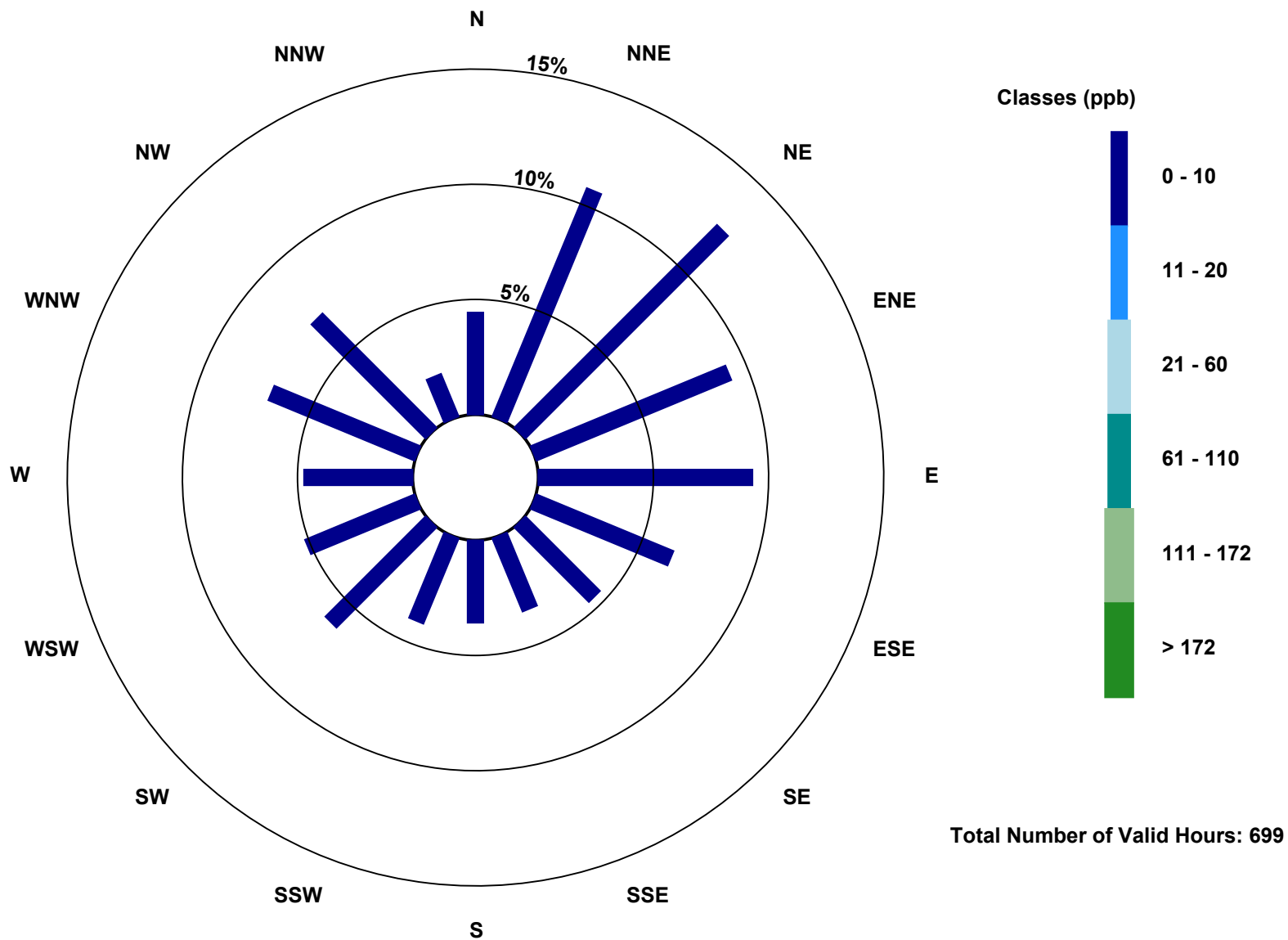
Total Number of Valid Hours: 699

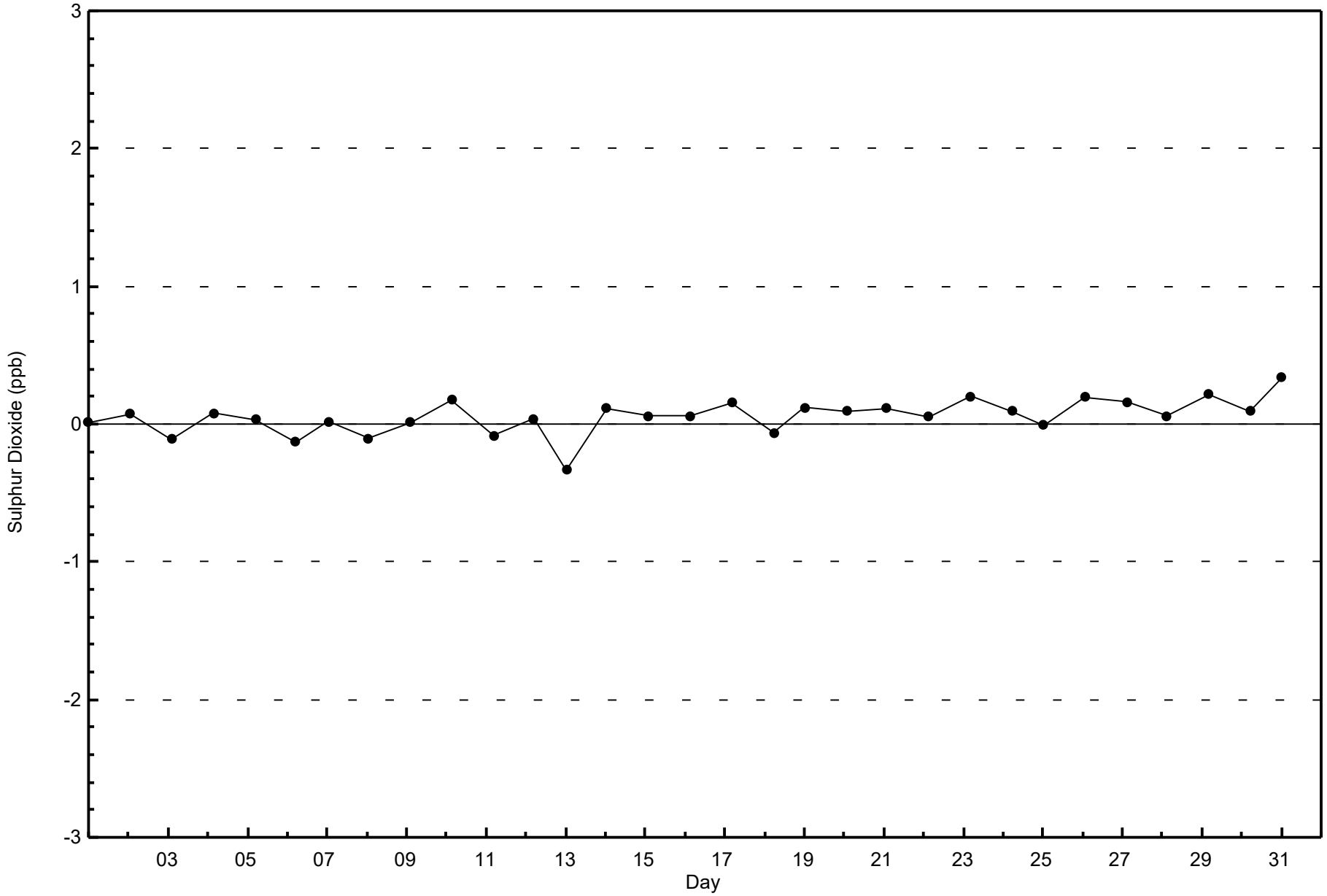
Total Number of Hours: 744



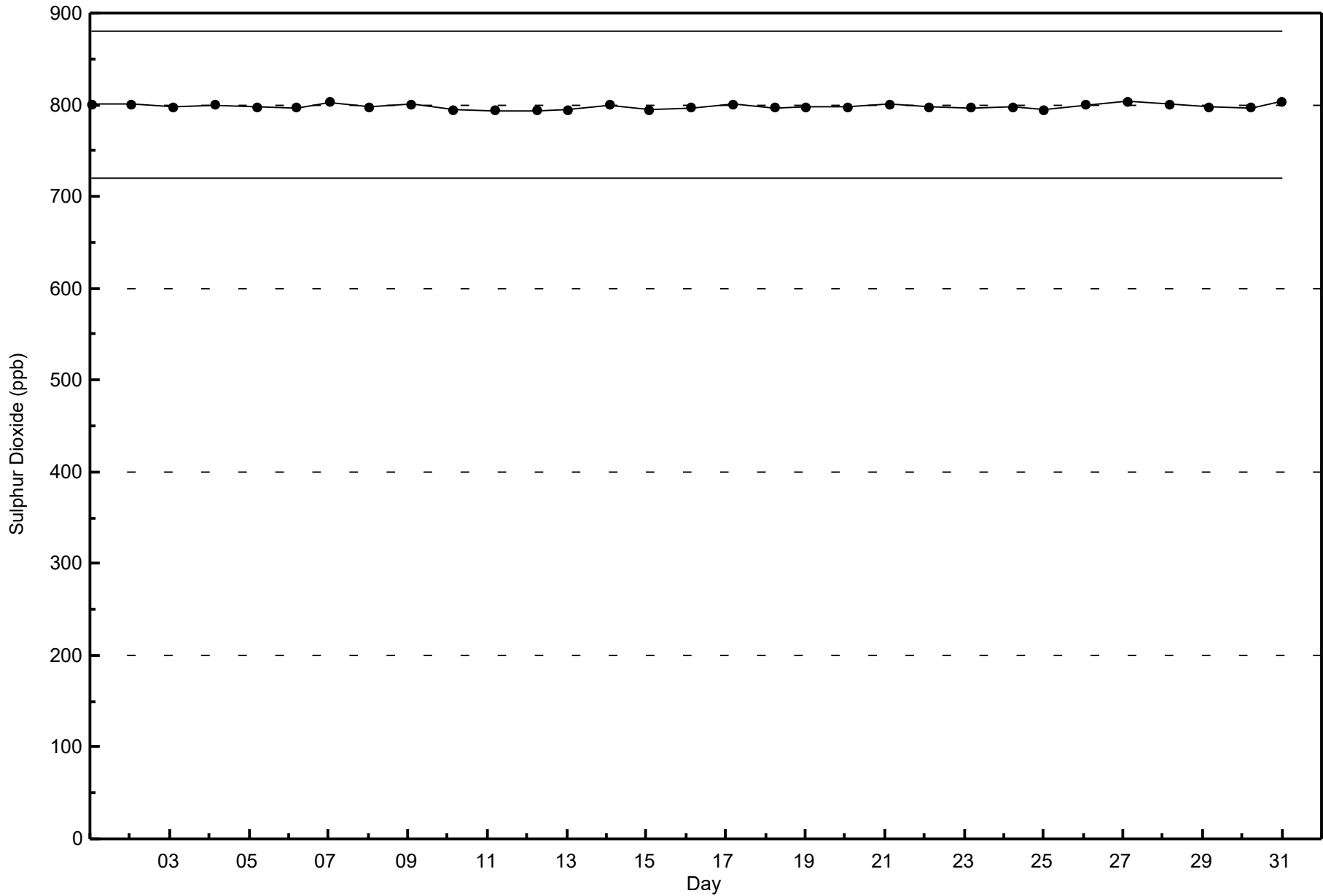
Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Janvier







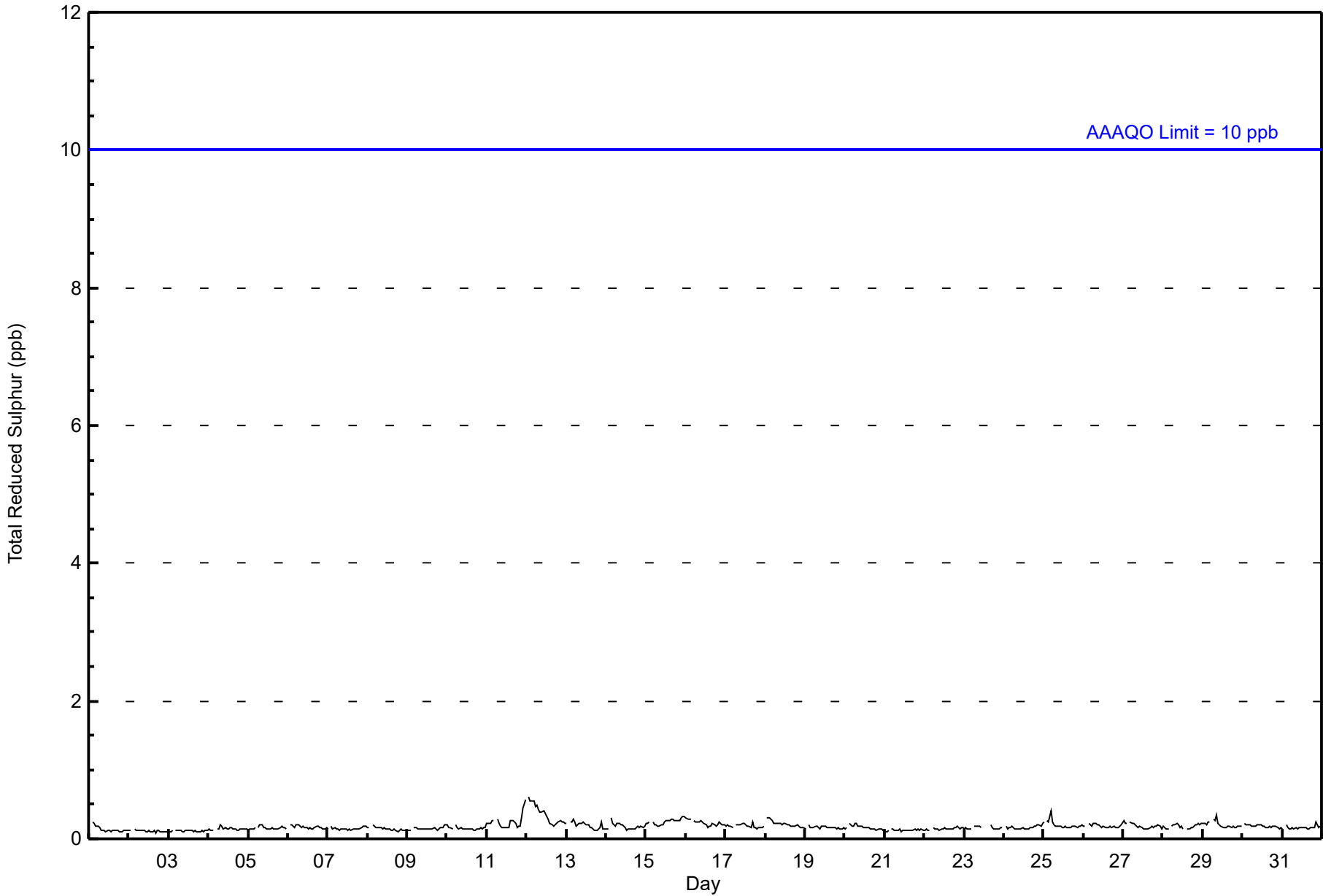






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Reduced Sulphur (TRS) - ppb**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Janvier - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	707	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Janvier - May 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	31	76	85	61	64	43	31	25	26	30	41	38	33	49	51	13	697
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>31</b>	<b>76</b>	<b>85</b>	<b>61</b>	<b>64</b>	<b>43</b>	<b>31</b>	<b>25</b>	<b>26</b>	<b>30</b>	<b>41</b>	<b>38</b>	<b>33</b>	<b>49</b>	<b>51</b>	<b>13</b>	<b>697</b>

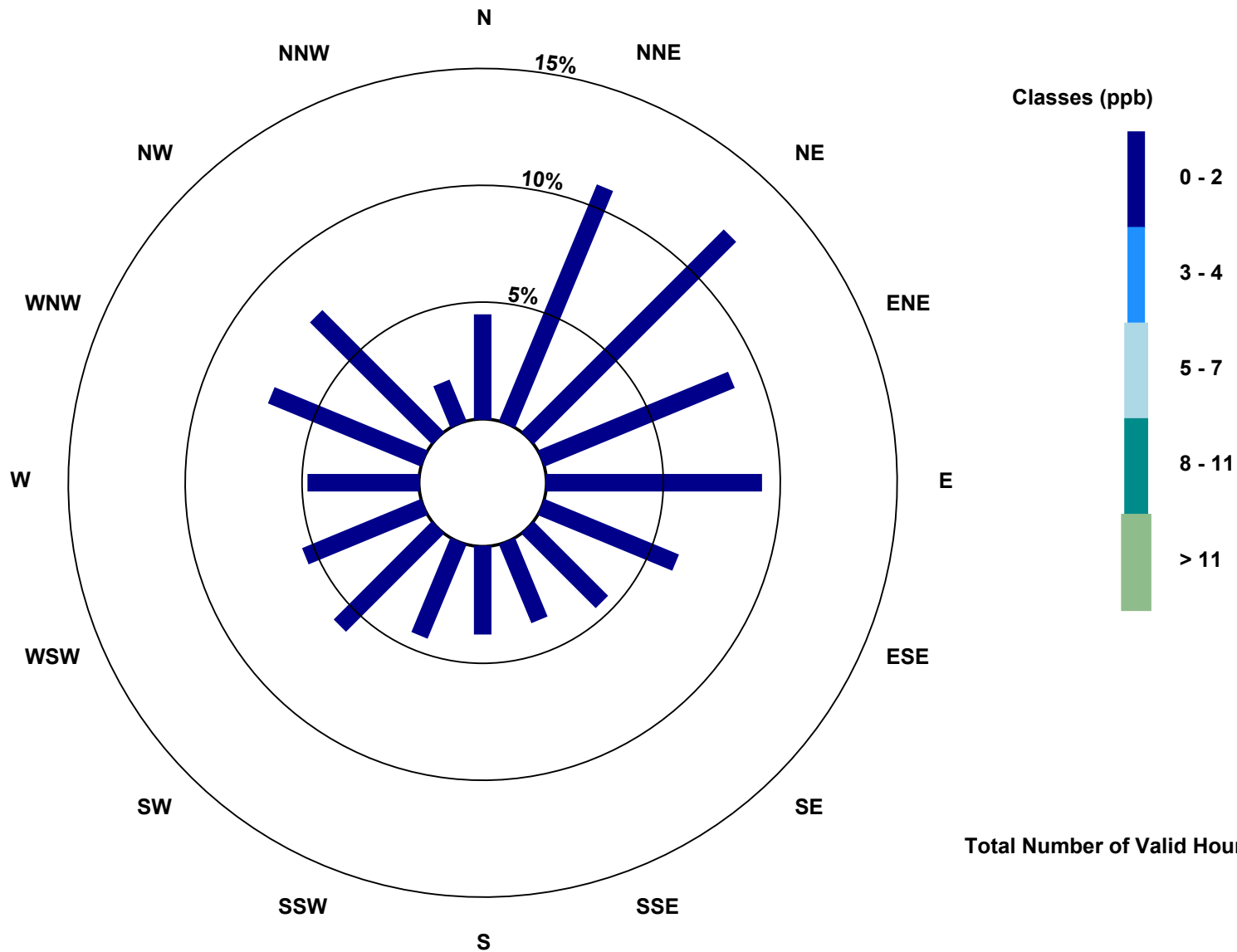
Total Number of Valid Hours: 697

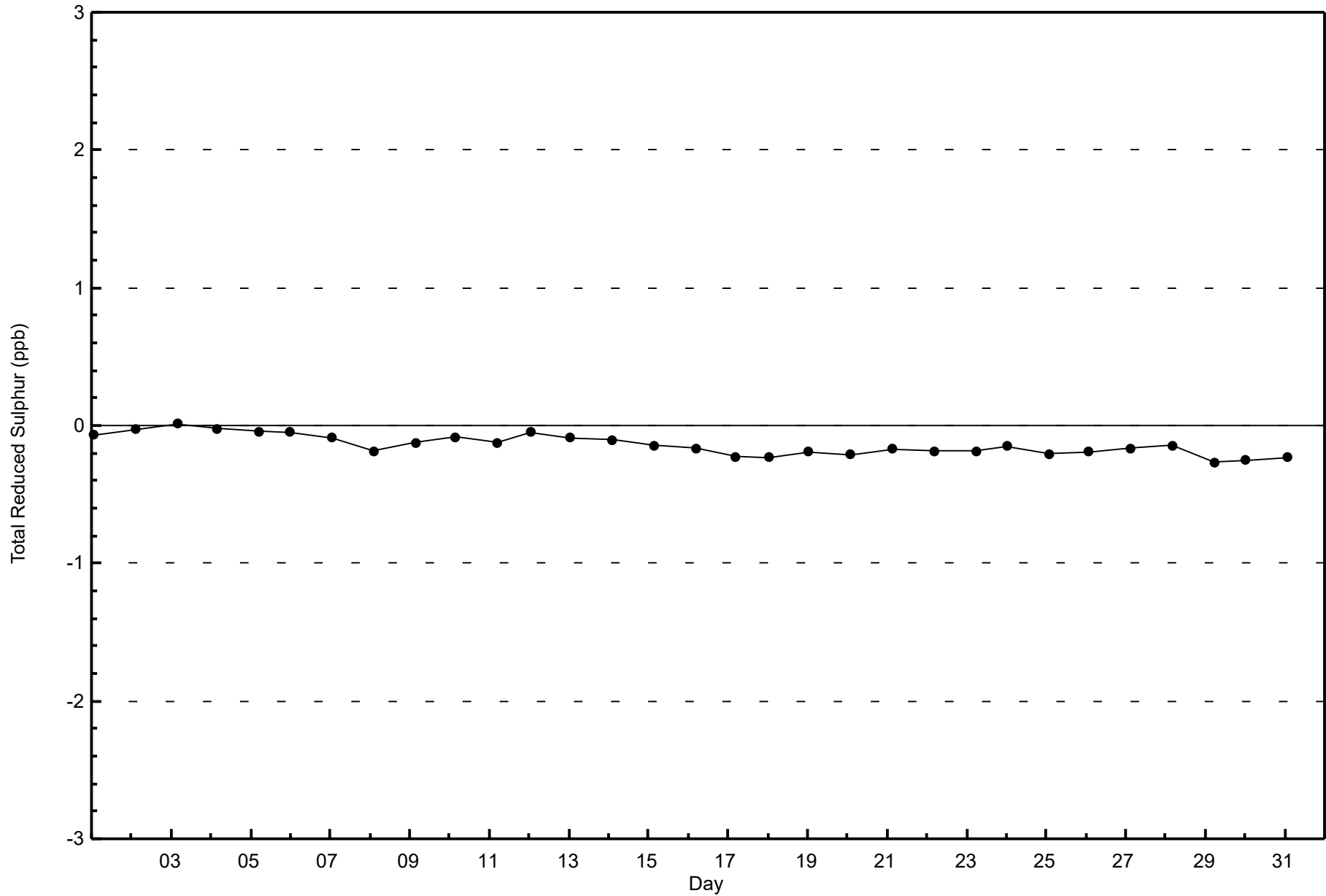
Total Number of Hours: 744

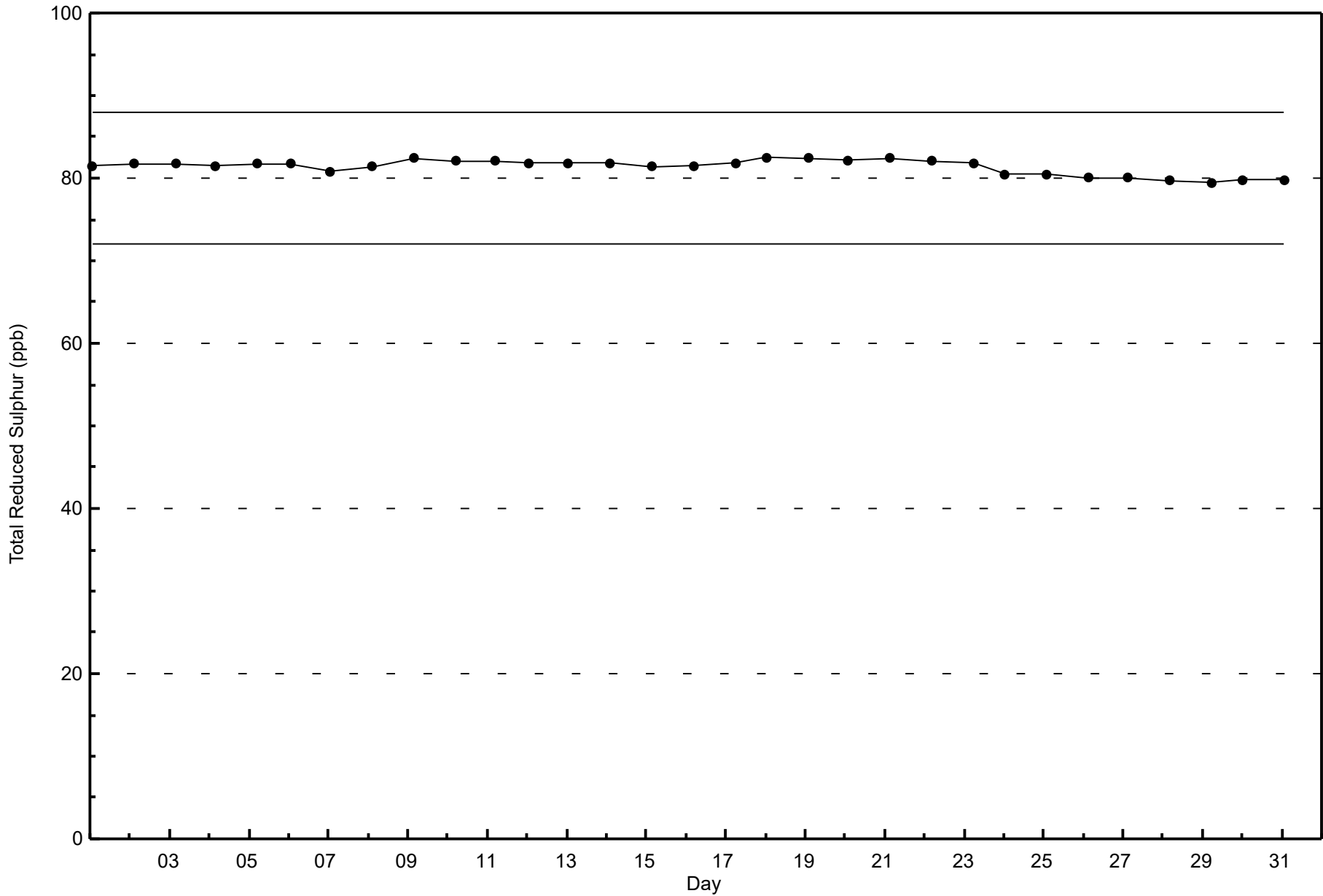


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Janvier

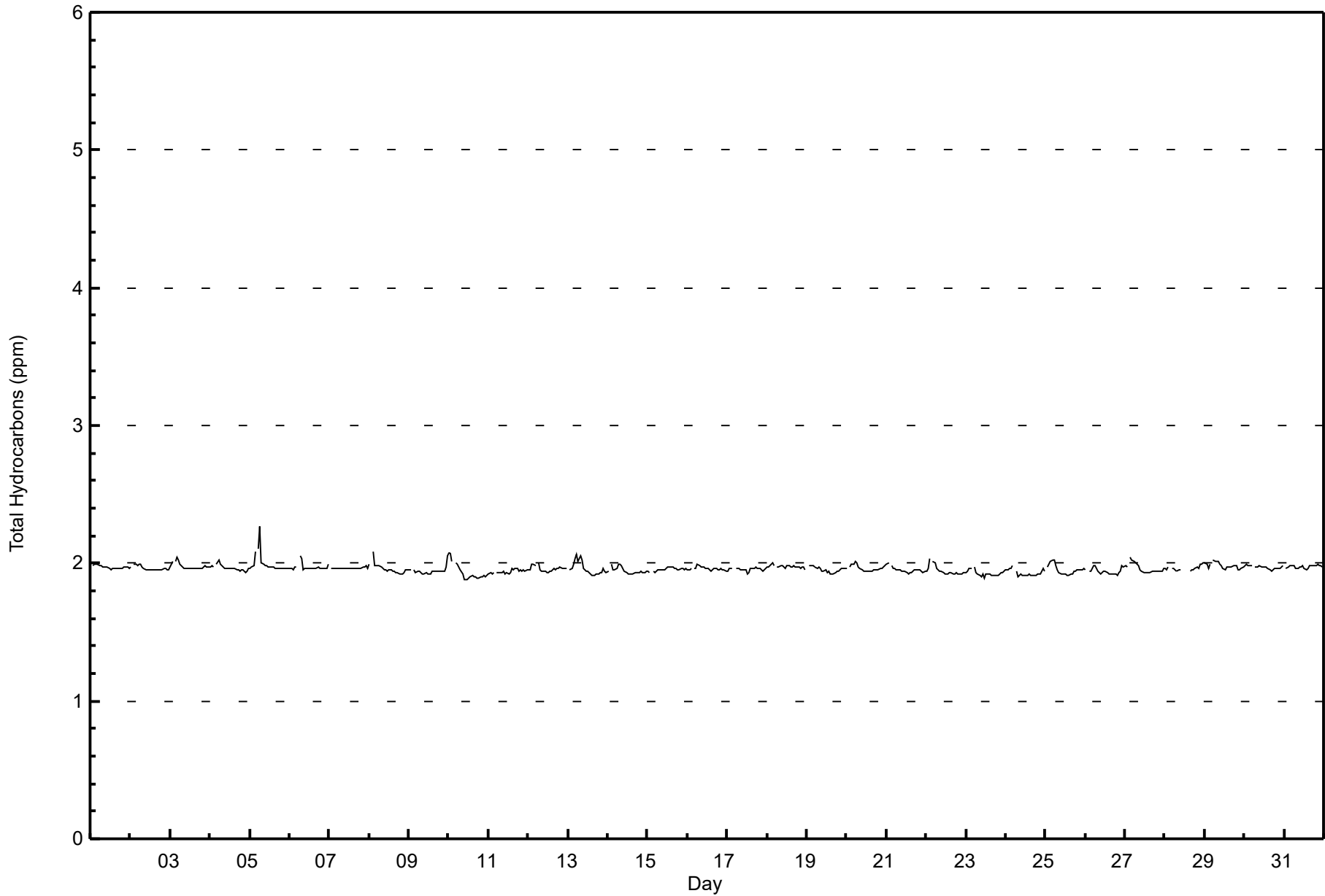














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Janvier - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	698	98.59	98.59
2.1 - 3.0	10	1.41	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**  
**Janvier - May 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	31	74	86	64	65	45	30	24	25	25	41	36	33	48	49	14	690
2.1 - 3.0	0	1	1	0	0	0	2	0	0	3	2	0	0	0	0	0	9
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>	31	75	87	64	65	45	32	24	25	28	43	36	33	48	49	14	699

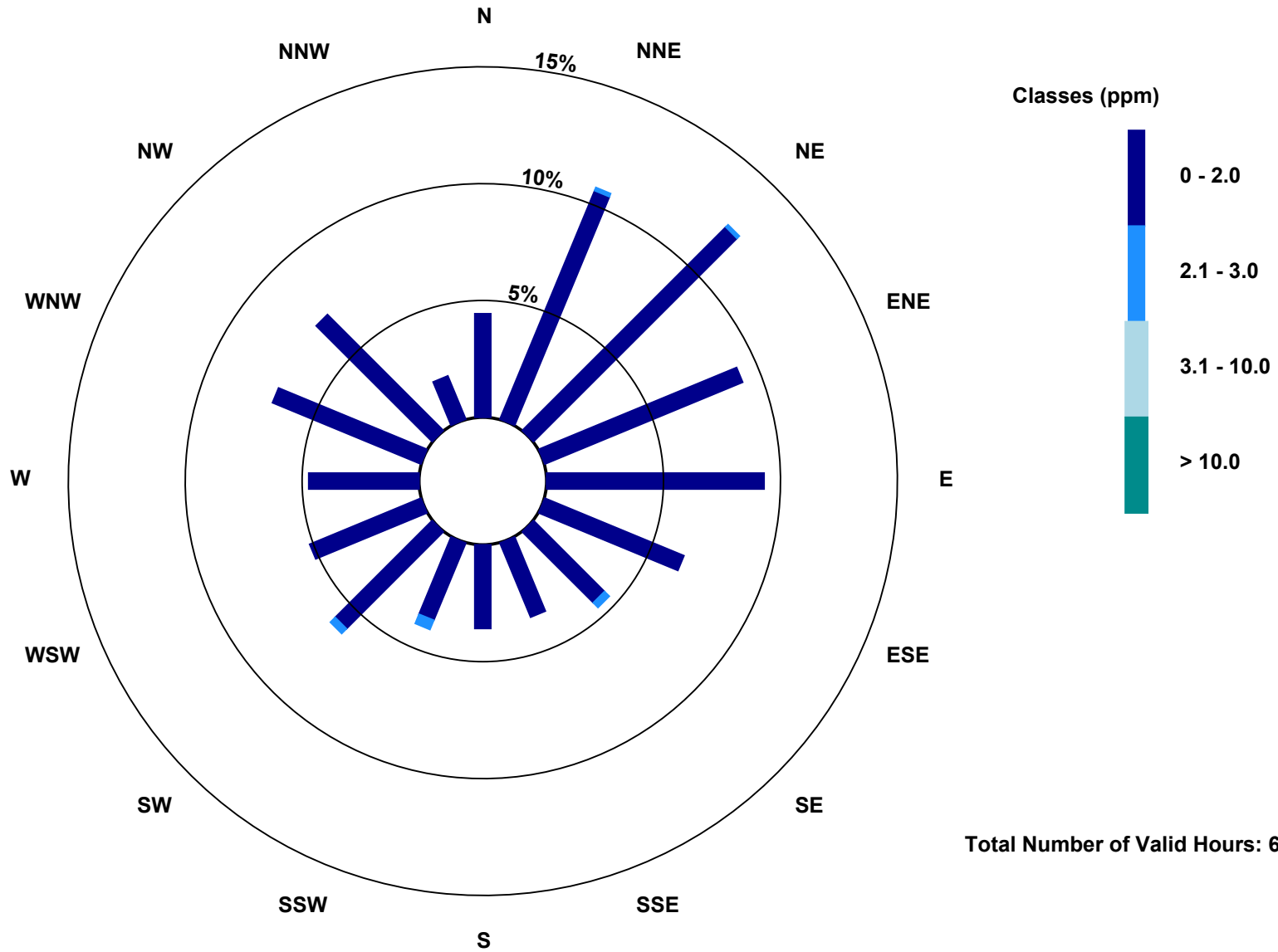
Total Number of Valid Hours: 699

Total Number of Hours: 744

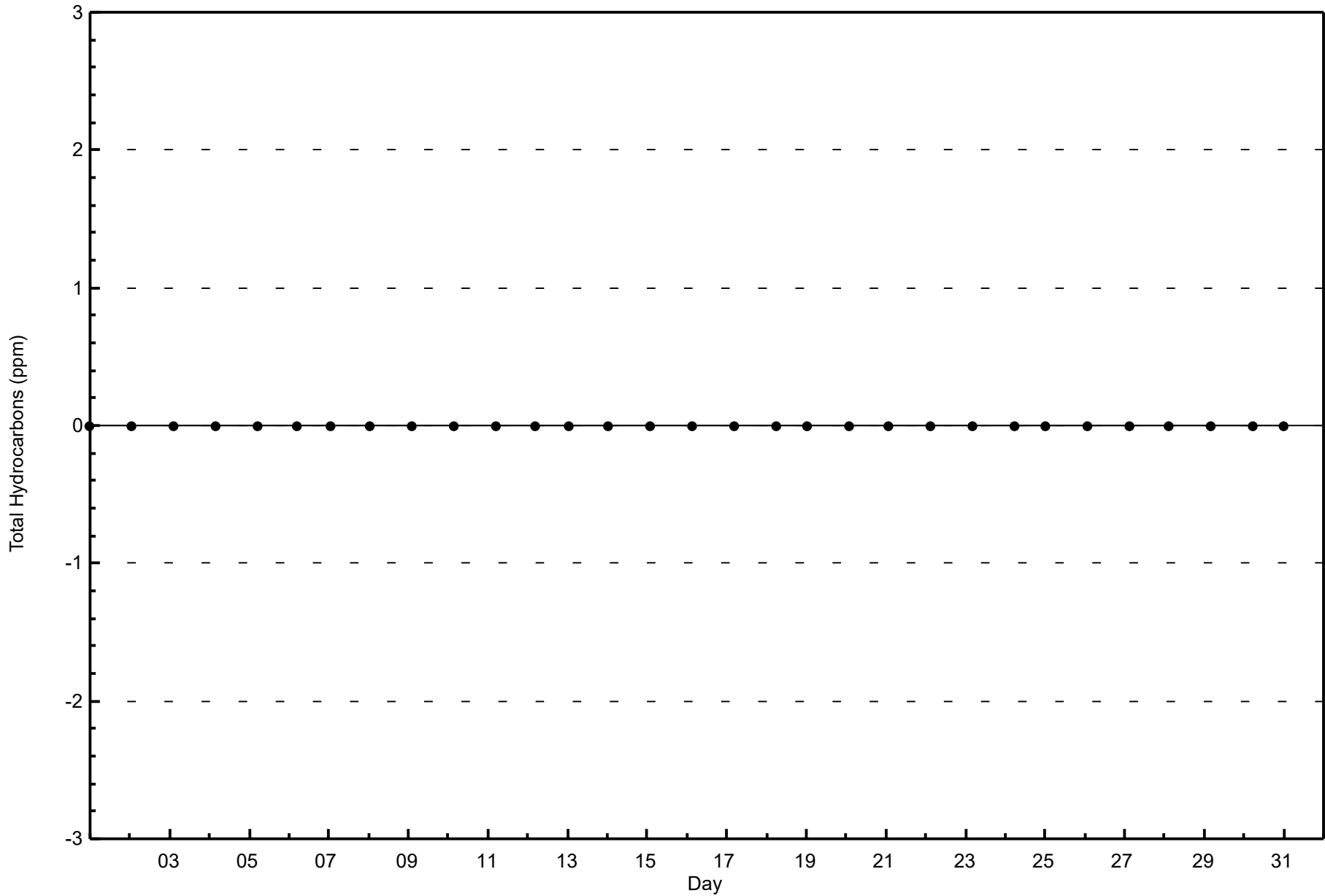


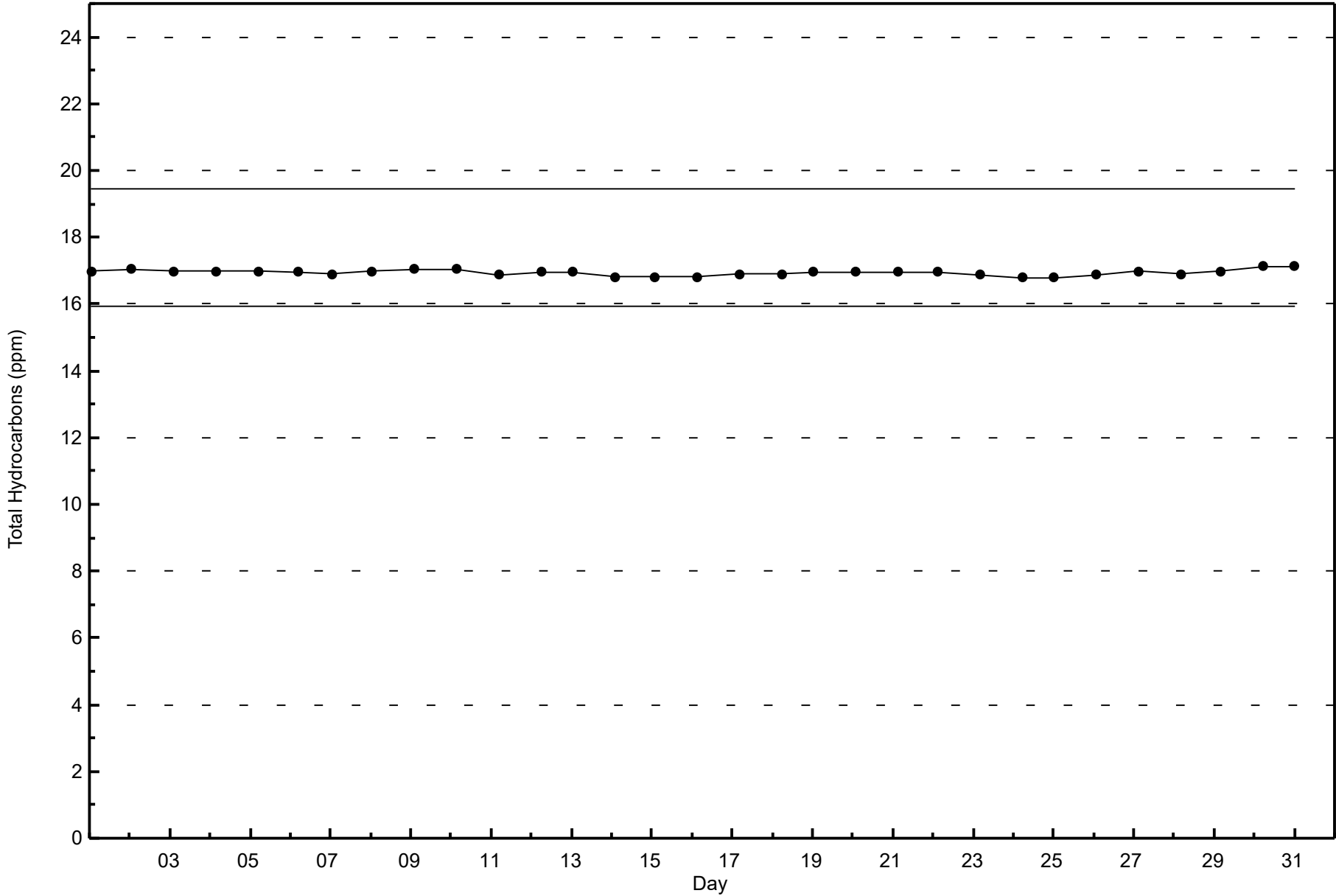
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Janvier



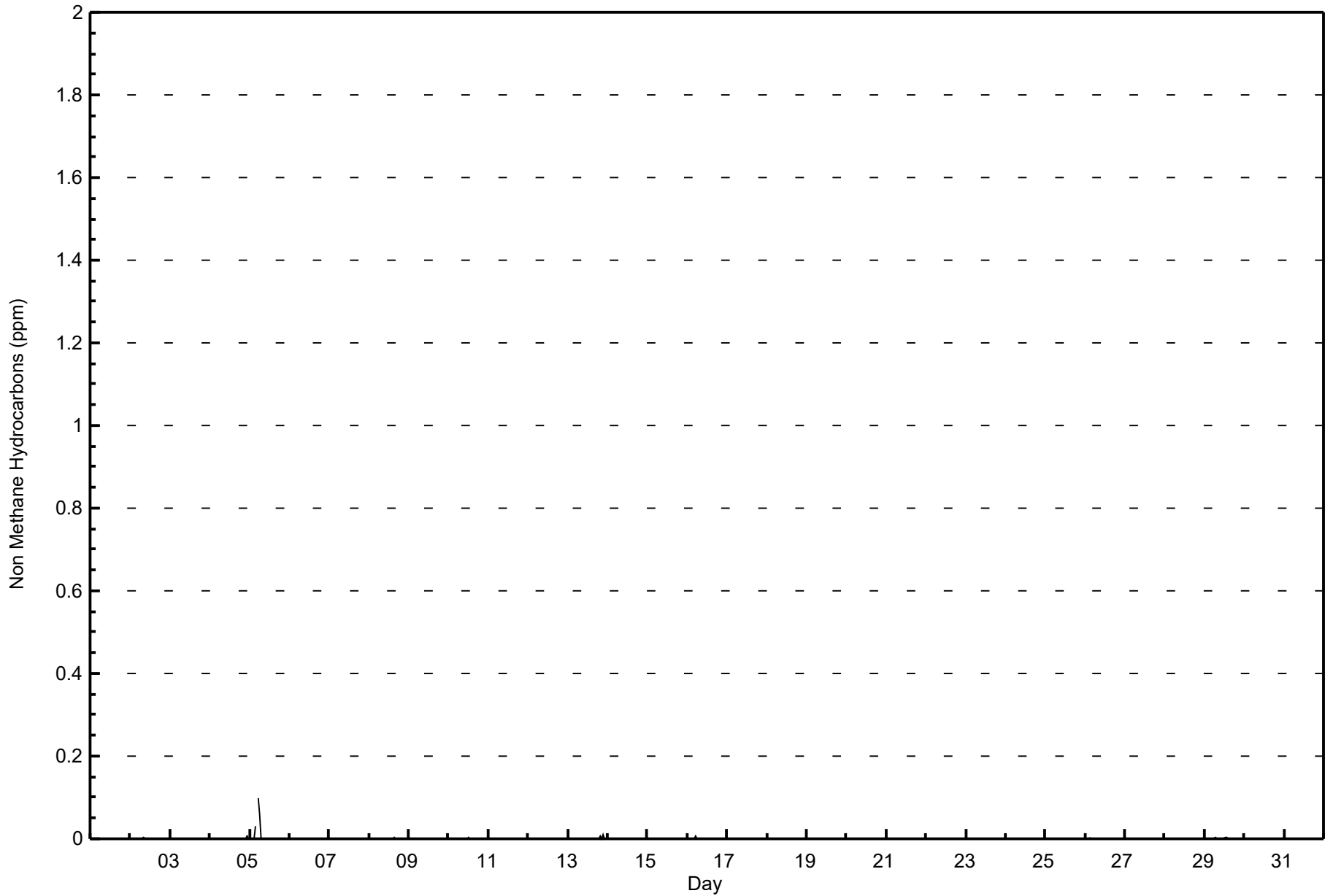
Total Number of Valid Hours: 699













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	702	99.15	99.15
0.006 - 0.05	4	0.56	99.72
0.06 - 0.1	2	0.28	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Janvier - May 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 - 0.005	30	75	87	64	64	45	31	24	25	28	41	36	33	48	49	14	694
0.006 - 0.05	1	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	4
0.06 - 0.1	0	0	0	0	0	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
<b>Totals</b>	<b>31</b>	<b>75</b>	<b>87</b>	<b>64</b>	<b>65</b>	<b>45</b>	<b>32</b>	<b>24</b>	<b>25</b>	<b>28</b>	<b>43</b>	<b>36</b>	<b>33</b>	<b>48</b>	<b>49</b>	<b>14</b>	<b>699</b>

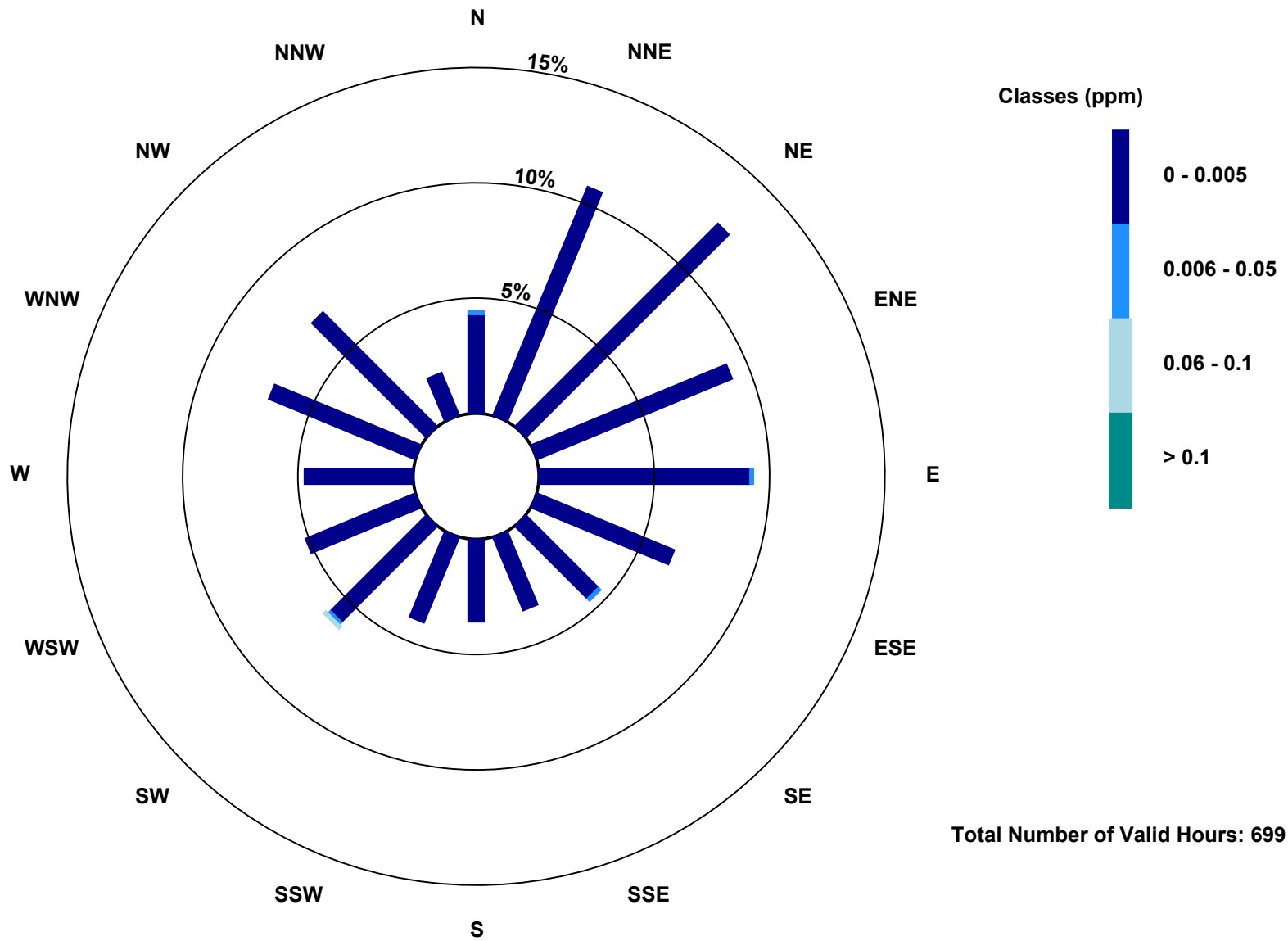
Total Number of Valid Hours: 699

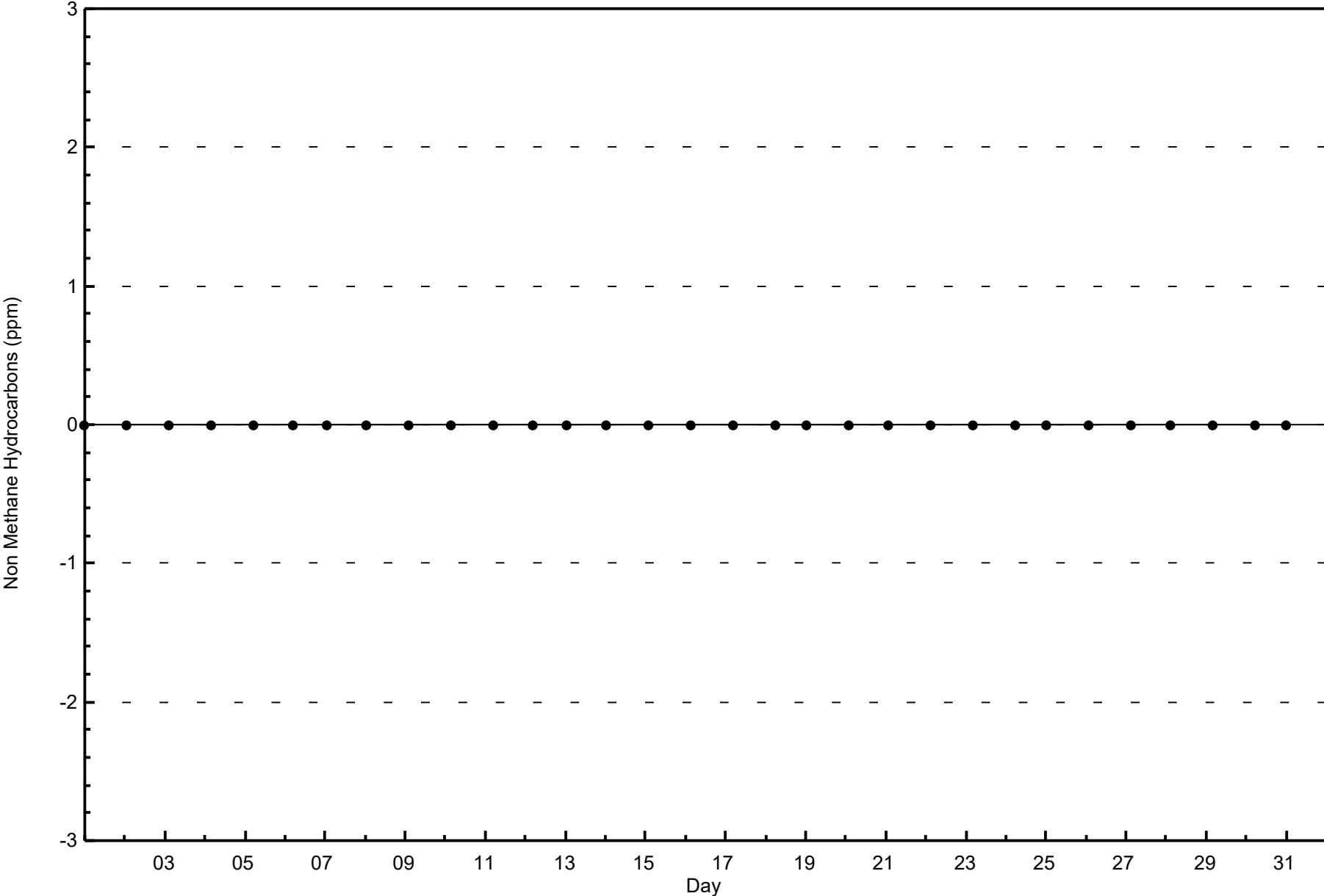
Total Number of Hours: 744

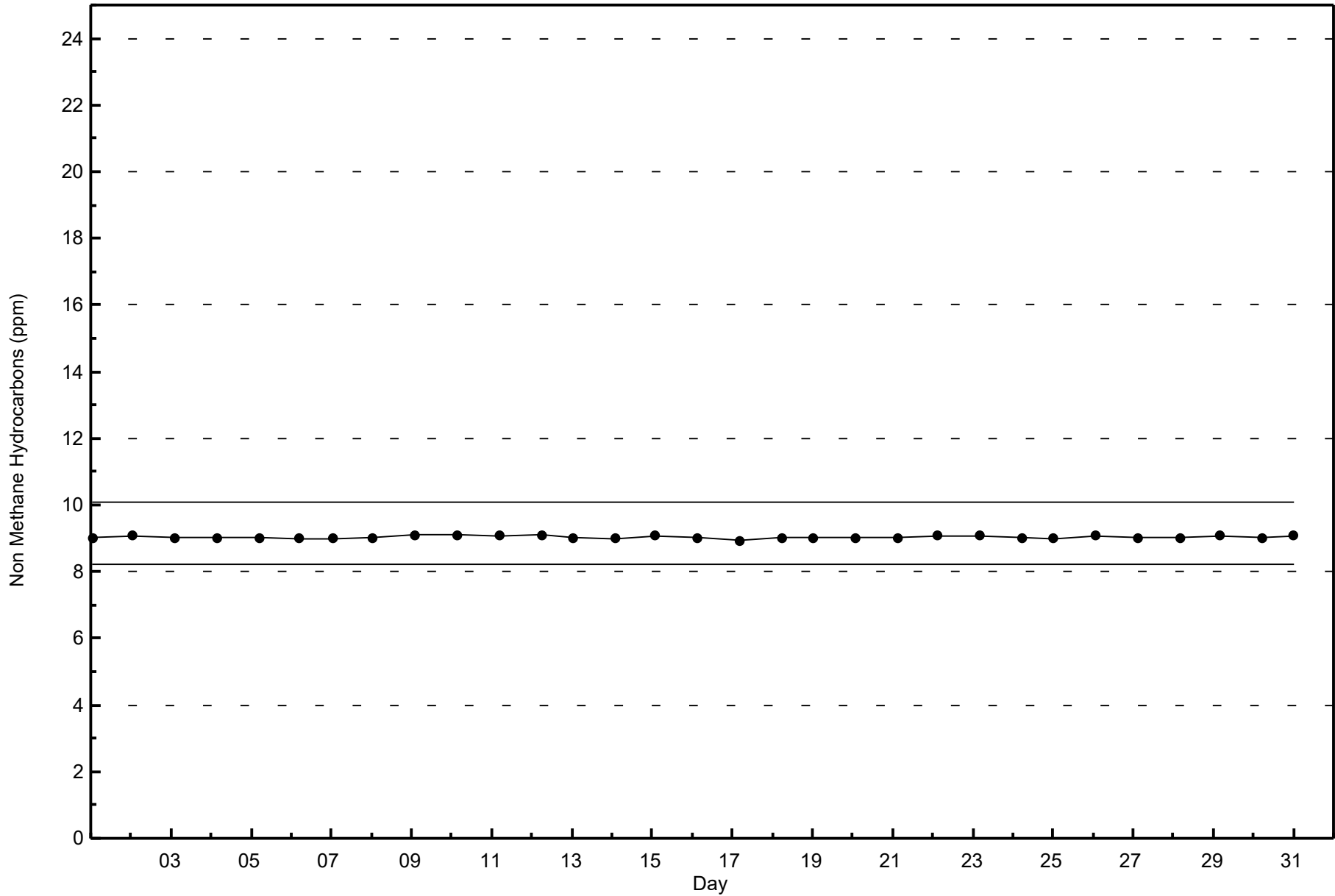


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Janvier









# Wood Buffalo Environmental Association

## Summary of Hour Averages

Methane (CH<sub>4</sub>) - ppm

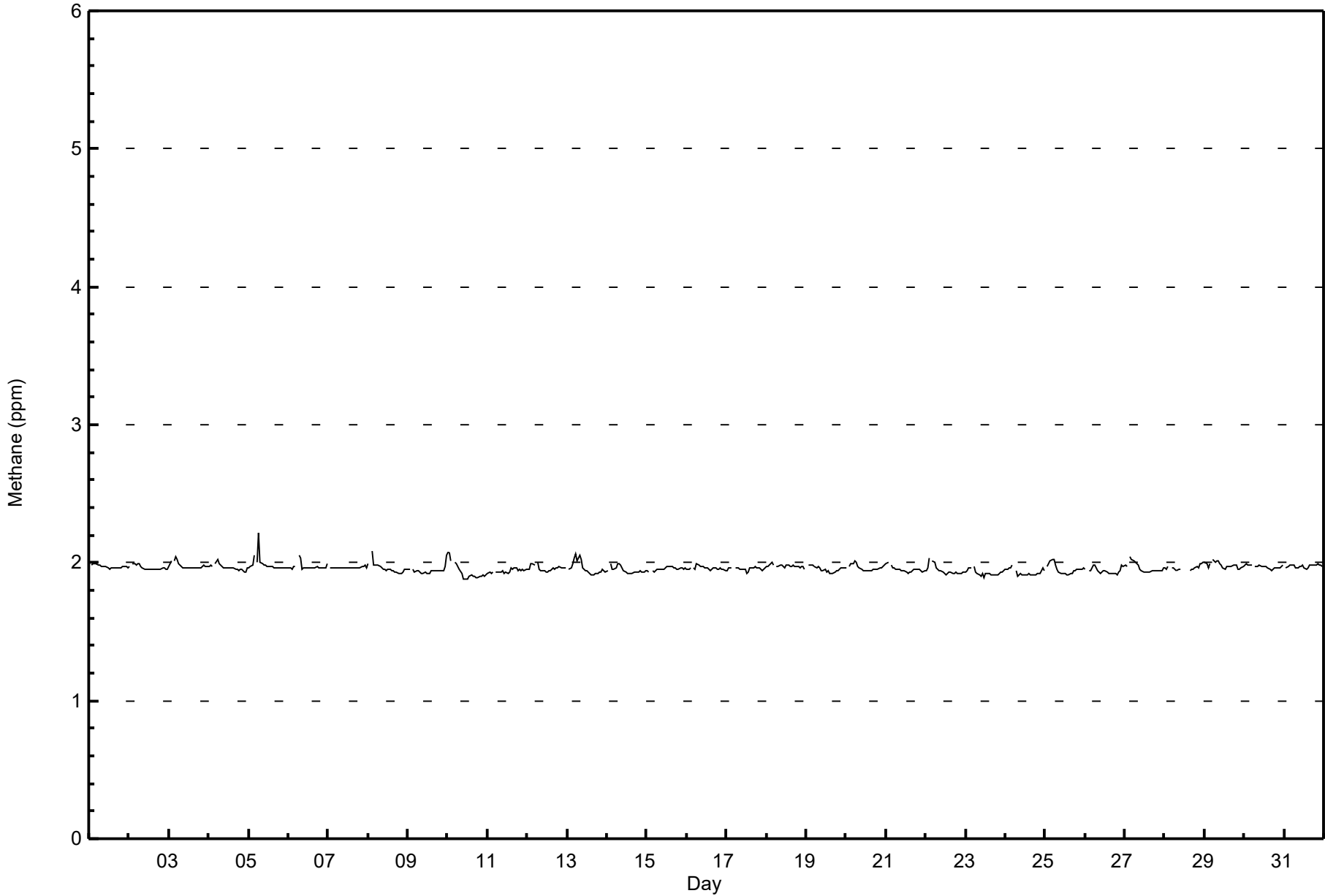
Janvier - May 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 2.2 ppm on May 5 07:00		Maximum Daily Average: 2.0 ppm on May 5																	Hours of Data:	708																													
Minimum Value: 1.9 ppm on May 10 10:00		Minimum Daily Average: 1.9 ppm on May 23																	Hours of Missing Data:	36																													
Maximum Diurnal Average: 2.0 ppm at hour 7		Minimum Diurnal Average: 1.9 ppm at hour 13																	Hours of Calibration:	36																													
Monthly Average: 1.96 ppm		Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 1.9 Median = 2.0 Q <sub>3</sub> = 2.0 P <sub>90</sub> = 2.0 P <sub>99</sub> = 2.1																	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-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
2-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
3-May	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																						
4-May	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	1.9	2.0	1.9	1.9	2.0	2.0	2.0	2.0																						
5-May	2.0	2.0	2.0	2.1	Z	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
6-May	2.0	2.0	2.0	2.0	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
7-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
8-May	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1																						
9-May	1.9	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	1.9	2.1																						
10-May	2.1	2.1	2.0	Z	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1																						
11-May	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0																						
12-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
13-May	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.1																						
14-May	1.9	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																						
15-May	1.9	1.9	Z	1.9	1.9	1.9	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
16-May	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	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0																						
17-May	1.9	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	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																						
18-May	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																						
19-May	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	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																						
20-May	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	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
21-May	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0																						
22-May	1.9	2.0	2.0	Z	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																						
23-May	1.9	1.9	2.0	2.0	Z	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																						
24-May	2.0	2.0	2.0	2.0	2.0	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.0																						
25-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0																						
26-May	2.0	Z	1.9	1.9	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0																						
27-May	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0																						
28-May	2.0	2.0	2.0	Z	2.0	2.0	1.9	1.9	2.0	1.9	C	C	C	C	C	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
29-May	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																						
30-May	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	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																						
31-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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	2.0	2.0	Diurnal Average		
																								2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	699	98.73	98.73
2.1 - 3.0	9	1.27	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**

**Methane (CH<sub>4</sub>) - ppm**  
**Janvier - May 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	31	74	86	64	65	45	30	24	25	25	41	36	33	48	49	14	690
2.1 - 3.0	0	1	1	0	0	0	2	0	0	3	2	0	0	0	0	0	9
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>	31	75	87	64	65	45	32	24	25	28	43	36	33	48	49	14	699

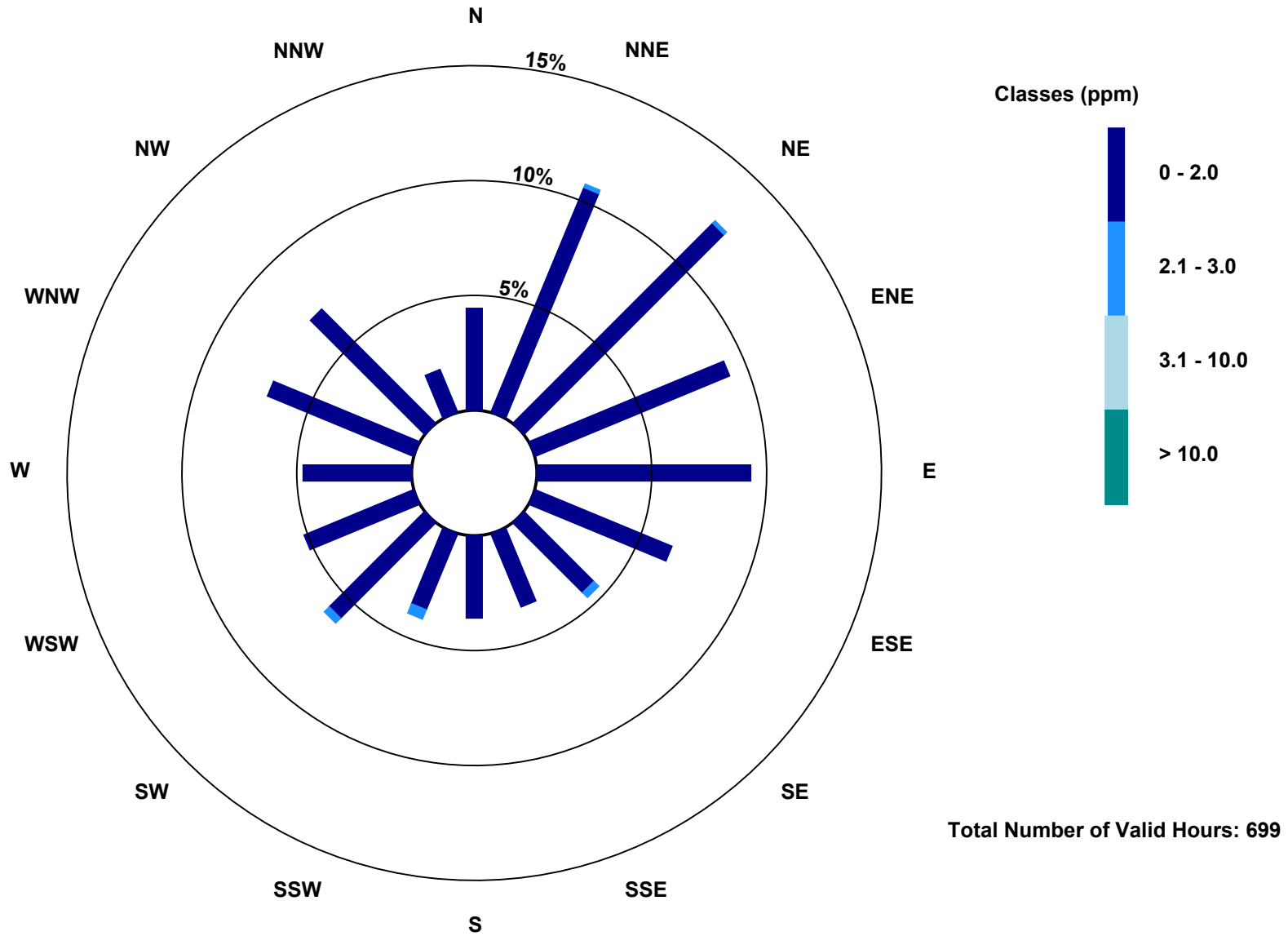
Total Number of Valid Hours: 699

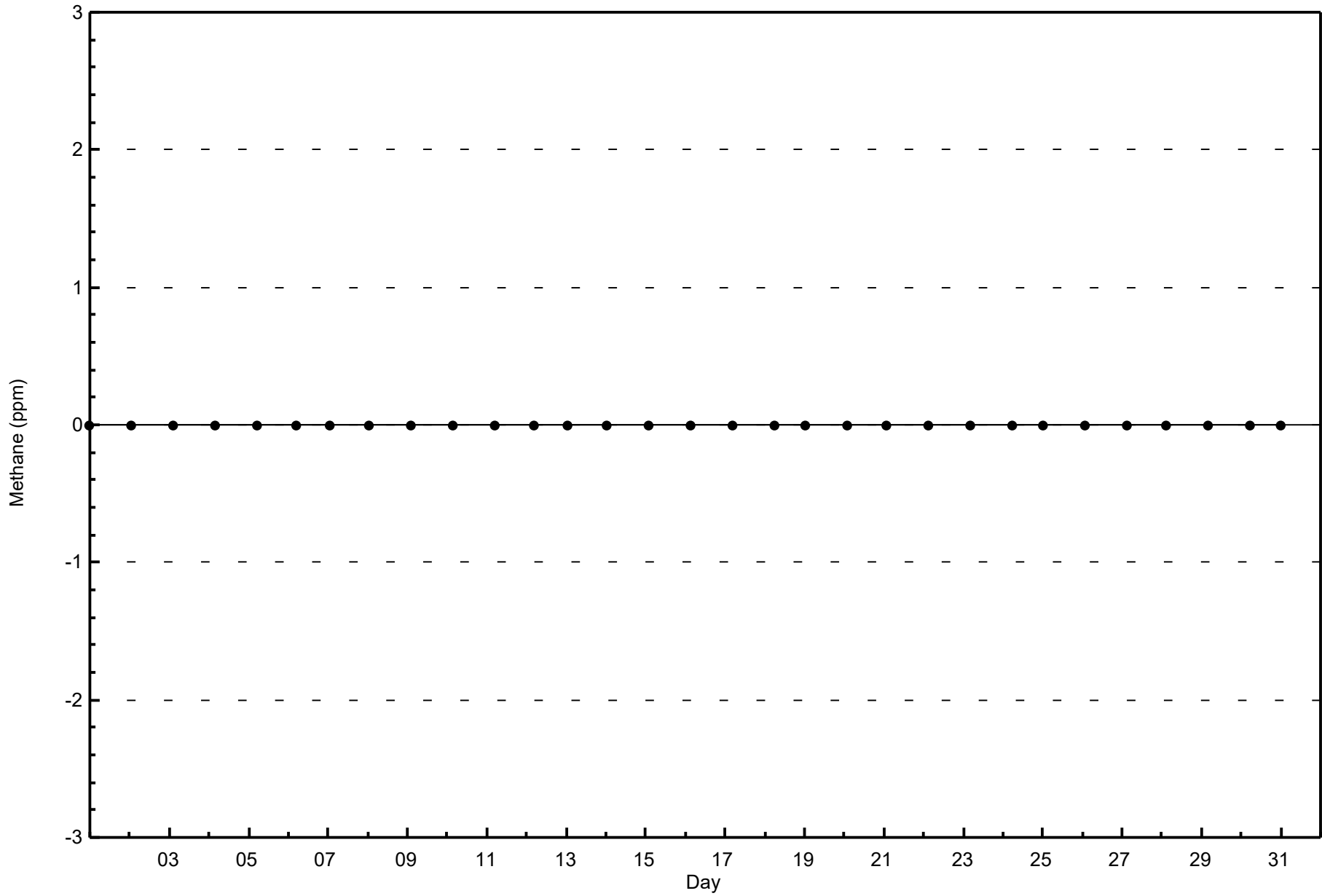
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Methane (CH<sub>4</sub>) - ppm  
Janvier

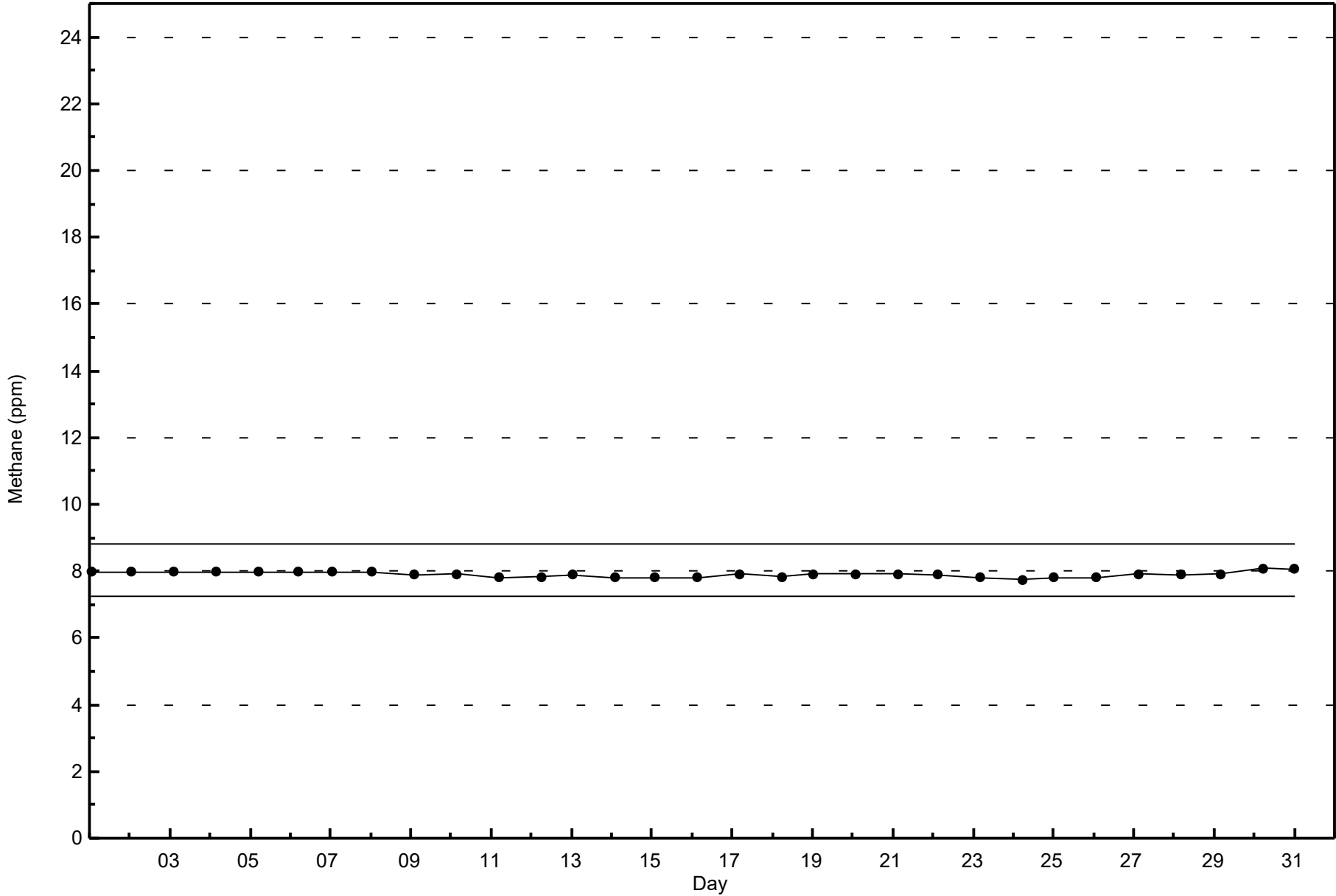






Wood Buffalo Environmental Association  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Janvier - May 2024



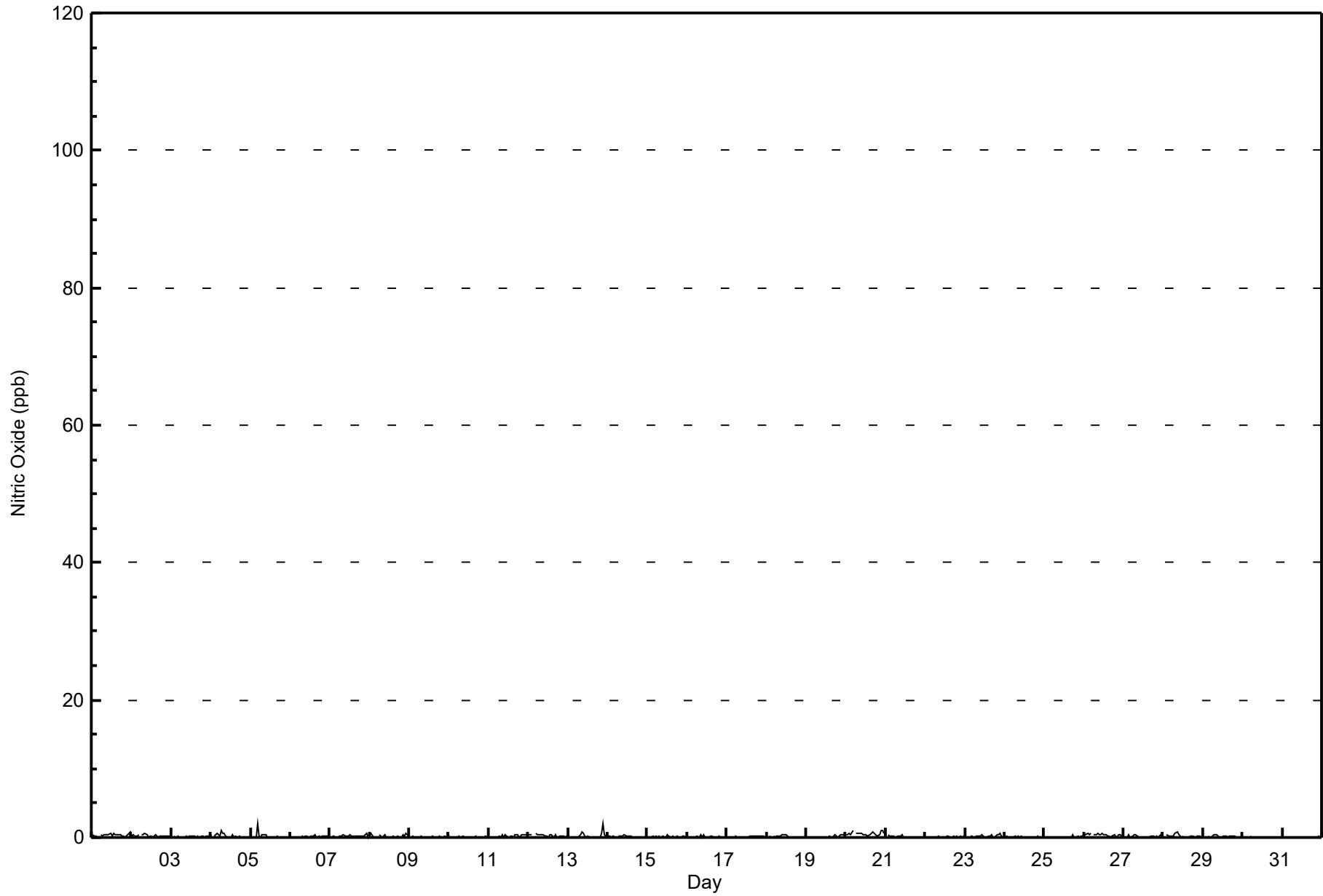


Maximum Value: 2.0 ppb on May 13 22:00																				Maximum Daily Average: 0.6 ppb on May 20					Hours in Service: 744				
Minimum Value: 0.0 ppb on May 1 21:00																				Minimum Daily Average: 0.0 ppb on May 30					Hours of Data: 707				
Maximum Diurnal Average: 0.3 ppb at hour 9																				Minimum Diurnal Average: 0.1 ppb at hour 6					Hours of Missing Data: 37				
Monthly Average: 0.16 ppb																				Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.4 P <sub>99</sub> = 0.8					Hours of Calibration: 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-May	0.3	0.2	0.2	0.1	Z	0.4	0.3	0.4	0.4	0.4	0.4	0.6	0.3	0.5	0.3	0.4	0.4	0.3	0.1	0.2	0.0	0.3	0.6	0.9	0.3	0.9			
2-May	0.2	0.4	0.2	0.3	0.3	Z	0.4	0.4	0.7	0.4	0.0	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.7			
3-May	Z	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.3	0.0	0.3	0.2	0.3	0.1	0.3			
4-May	0.4	Z	0.1	0.3	0.6	0.2	0.9	0.6	0.5	0.2	0.0	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9			
5-May	0.0	0.0	Z	0.0	2.0	0.2	0.1	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0			
6-May	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.2	0.0	0.3	0.1	0.0	0.2	0.1	0.1	0.4	0.1	0.3	0.1	0.1	0.3	0.1	0.3	0.2	0.1	0.4			
7-May	0.0	0.0	0.2	0.2	Z	0.1	0.2	0.1	0.4	0.2	0.2	0.2	0.5	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.1	0.3	0.6	0.0	0.2	0.6			
8-May	0.6	0.5	0.0	0.0	0.0	Z	0.5	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.3	0.1	0.5	0.1	0.2	0.6		
9-May	Z	0.1	0.3	0.0	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.3			
10-May	0.4	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.4			
11-May	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.0	0.4	0.0	0.4	0.2	0.0	0.1	0.2	0.0	0.4	0.4	0.1	0.3	0.5	0.3	0.3	0.3	0.2	0.5			
12-May	0.3	0.4	0.5	Z	0.6	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.0	0.4	0.4	0.1	0.5	0.0	0.0	0.2	0.2	0.2	0.0	0.2	0.3	0.6			
13-May	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.3	0.8	0.5	0.3	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.6	2.0	0.4	0.2	0.2	2.0			
14-May	0.3	0.2	0.0	0.1	0.1	Z	0.2	0.3	0.1	0.3	0.5	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5			
15-May	Z	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.3	0.0	0.0	0.3	0.1	0.0	0.3	0.3	0.0	0.1	0.3			
16-May	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.4	0.1	0.4	0.0	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.4			
17-May	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.3			
18-May	0.1	0.1	0.3	Z	0.2	0.0	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.4			
19-May	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	0.2	0.0	0.0	0.4	0.2	0.0	0.2	0.4	0.4	0.3	0.1	0.4			
20-May	0.4	0.4	0.6	0.5	1.0	Z	0.6	0.7	0.7	0.5	0.4	0.5	0.5	0.3	0.5	0.6	0.8	0.5	0.5	0.2	0.4	1.1	0.9	0.7	0.6	1.1			
21-May	Z	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	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	0.4			
22-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.3	0.0	0.1	0.1	0.0	0.3	0.0	0.3	0.1	0.2	0.1	0.3			
23-May	0.0	0.1	Z	0.2	0.2	0.0	0.0	0.3	0.2	0.2	0.5	0.2	0.0	0.0	0.2	0.2	0.3	0.0	0.1	0.3	0.4	0.5	0.3	0.0	0.2	0.5			
24-May	0.1	0.2	0.1	Z	0.0	0.0	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.3			
25-May	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	0.3	0.0	0.0	0.2	0.1	0.3	0.1	0.0	0.3			
26-May	0.3	0.5	0.6	0.4	0.7	Z	0.4	0.3	0.7	0.5	0.5	0.6	0.3	0.3	0.2	0.2	0.0	0.2	0.3	0.1	0.2	0.4	0.3	0.2	0.4	0.7			
27-May	Z	0.0	0.0	0.3	0.0	0.2	0.4	0.5	0.3	0.3	C	C	C	C	C	0.0	0.1	0.2	0.2	0.1	0.3	0.0	0.3	0.1	0.2	0.5			
28-May	0.0	Z	0.3	0.2	0.2	0.2	0.2	0.6	0.7	0.3	0.2	0.0	0.3	M	0.0	0.1	0.2	0.3	0.2	0.1	0.2	0.3	0.3	0.1	0.2	0.7			
29-May	0.0	0.0	Z	0.2	0.1	0.1	0.4	0.3	0.5	0.3	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.3	0.2	0.3	0.0	0.0	0.1	0.0	0.1	0.5			
30-May	0.0	0.0	0.0	Z	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	0.0	0.0	0.0	0.0	0.1			
31-May	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	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.2			
																								Diurnal Average					
																								Diurnal Maximum					
0.1 0.1 0.1 0.1 0.3 0.1 0.2 0.2 0.3 0.2 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.2 0.2 0.1																													
0.6 0.5 0.6 0.5 2.0 0.5 0.9 0.7 0.8 0.5 0.5 0.6 0.5 0.5 0.5 0.6 0.8 0.5 0.5 0.3 0.6 2.0 0.9 0.9																													
Z - zerospan      C - Calibration      M - Maintenance																													



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Janvier - May 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 - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	33	77	87	63	65	42	27	23	26	29	42	39	34	47	50	14	698
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	33	77	87	63	65	42	27	23	26	29	42	39	34	47	50	14	698

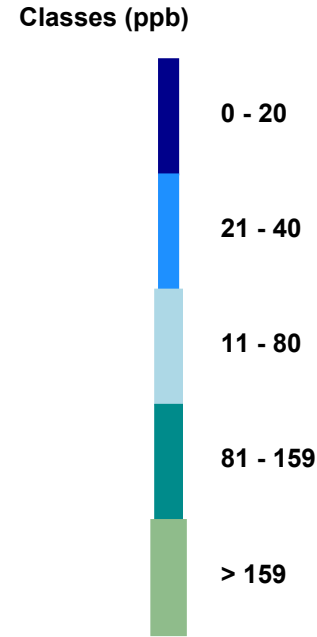
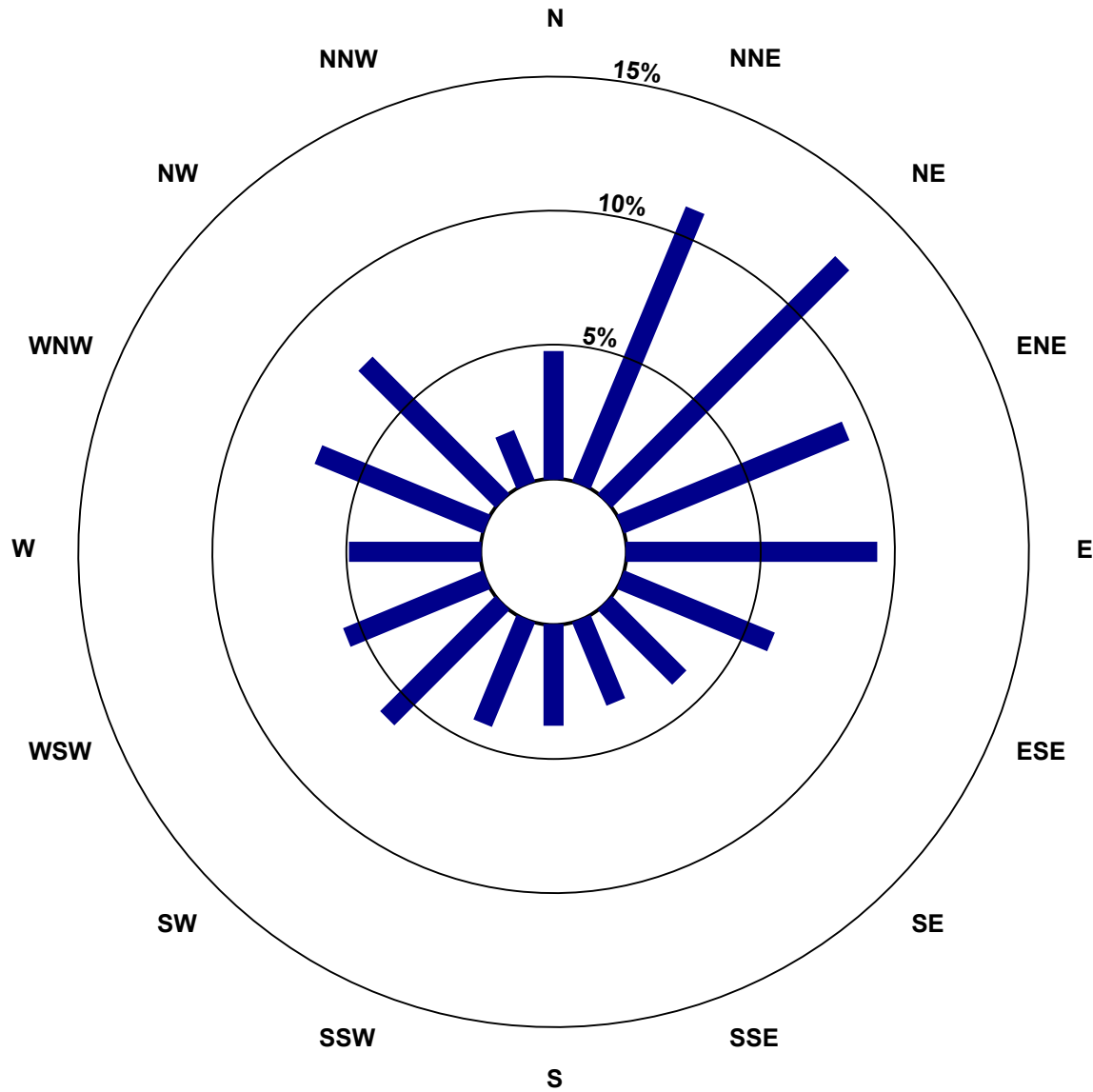
Total Number of Valid Hours: 698

Total Number of Hours: 744

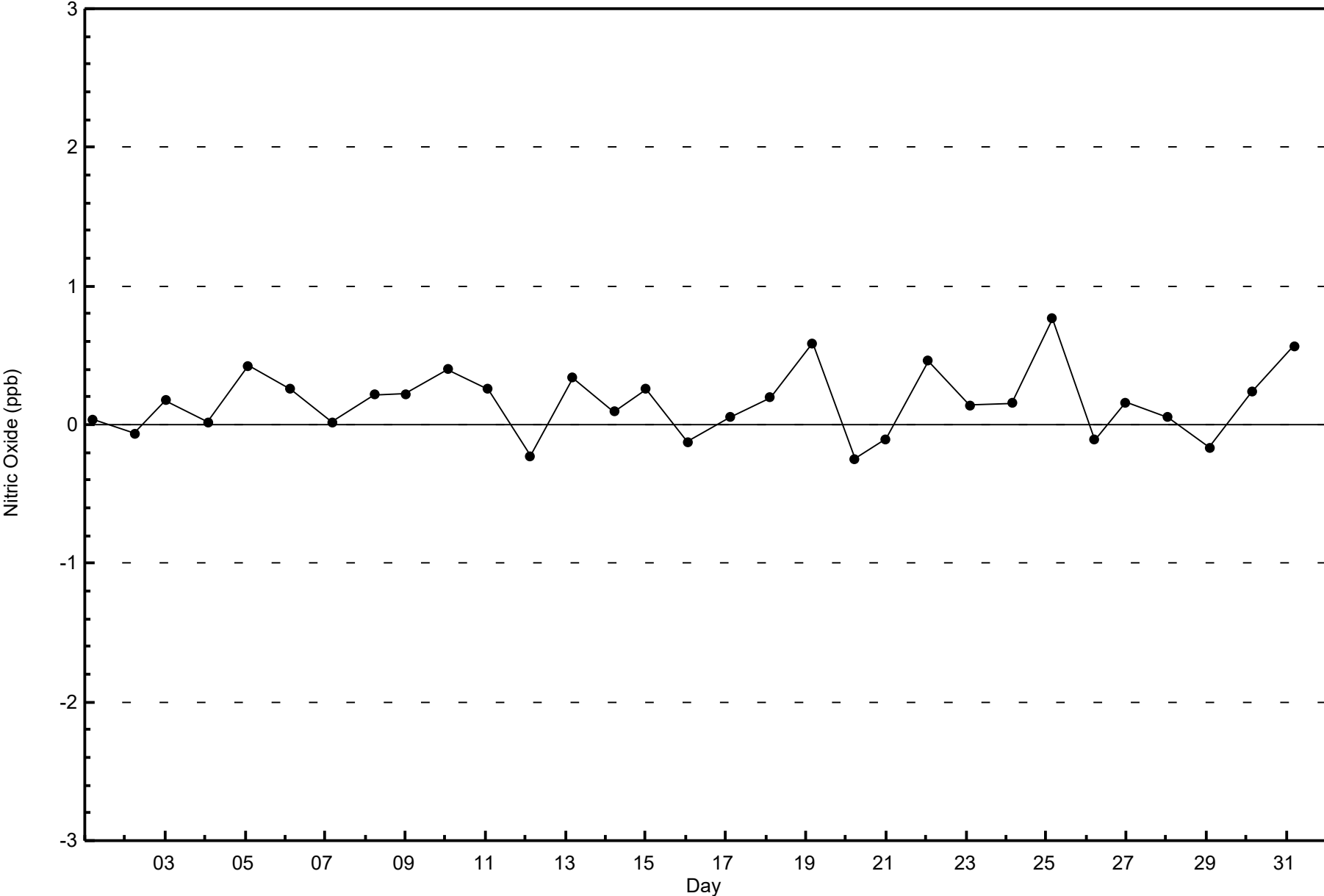


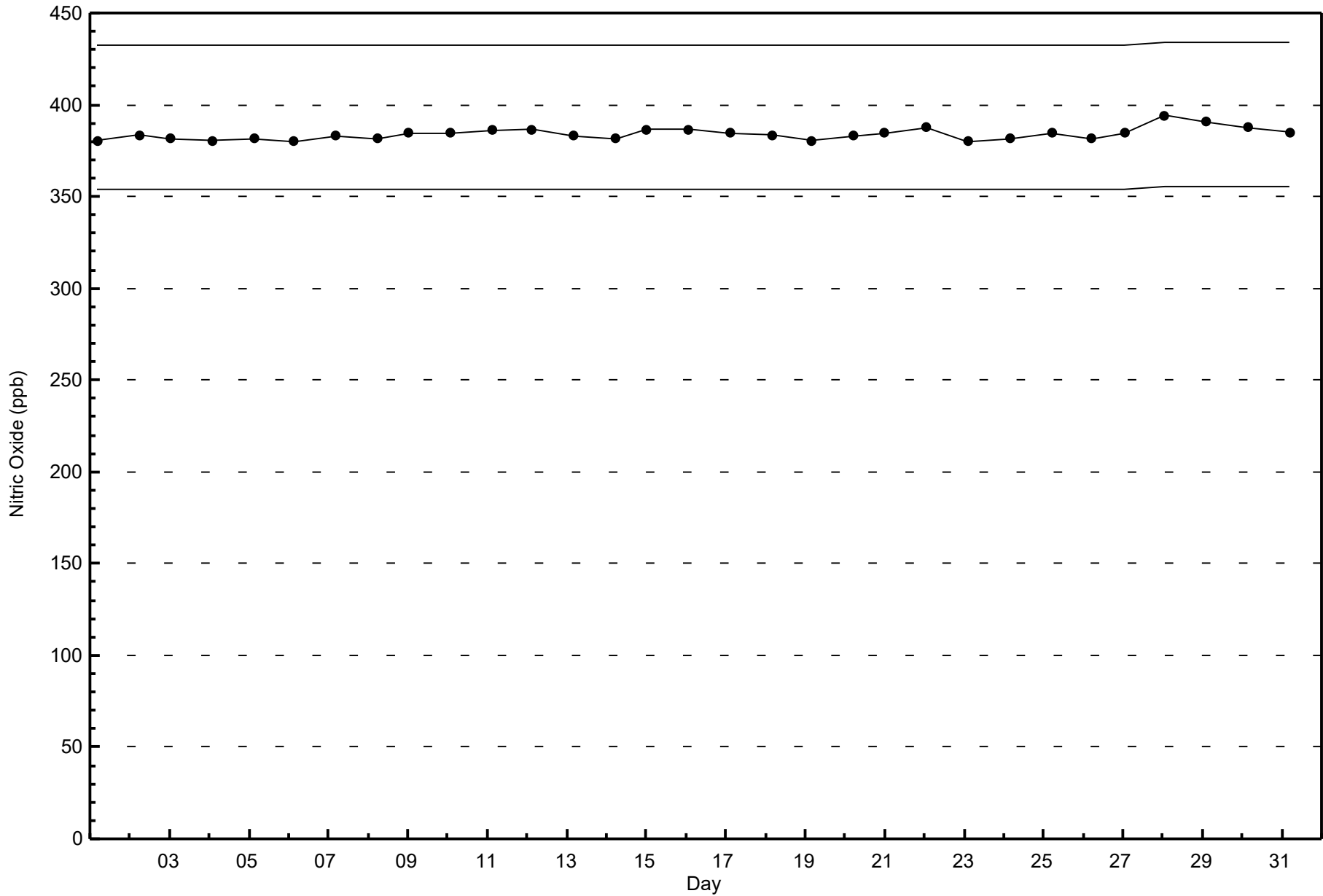
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Janvier



Total Number of Valid Hours: 698





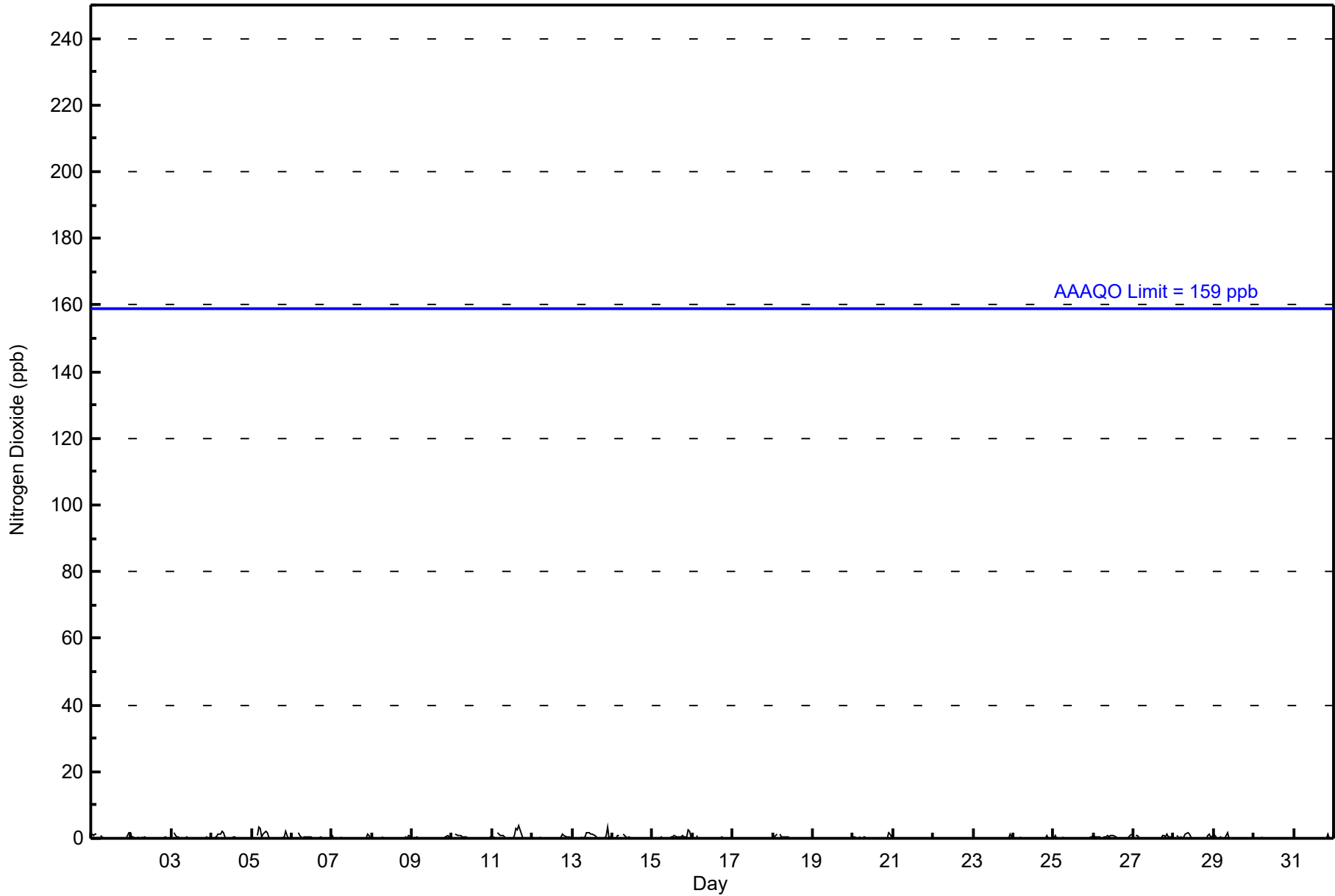


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744								
Maximum Value: 3.7 ppb on May 11 17:00		Maximum Daily Average: 0.7 ppb on May 11																	Hours of Data:	707										
Minimum Value: 0.0 ppb on May 1 09:00		Minimum Daily Average: 0.0 ppb on May 17																	Hours of Missing Data:	37										
Maximum Diurnal Average: 0.6 ppb at hour 5		Minimum Diurnal Average: 0.1 ppb at hour 20																	Hours of Calibration:	36										
Monthly Average: 0.24 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> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 2.2																	Percent Operational Time:	99.9										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24						
1-May	1.1	1.0	1.1	1.2	Z	0.9	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	1.8	1.7	0.4	1.8				
2-May	0.5	0.5	0.0	0.0	0.5	Z	0.3	0.1	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.1	0.0	0.1	0.5	0.1	0.5		
3-May	Z	1.6	0.8	0.3	0.5	0.1	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	0.2	0.1	0.2	1.6	0.2	1.6		
4-May	0.2	Z	0.6	0.5	1.1	1.4	2.2	1.6	0.6	0.0	0.0	0.2	0.4	0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.4	2.2	0.0	0.0
5-May	0.0	0.0	Z	0.8	3.4	2.8	0.5	1.2	2.1	1.7	0.5	0.0	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.3	2.0	0.7	0.0	0.2	0.7	3.4	0.7	3.4		
6-May	0.0	0.0	0.0	Z	1.8	1.0	0.2	0.4	0.3	0.4	0.5	0.4	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.5	0.3	1.8	0.3	1.8		
7-May	0.7	0.1	0.2	0.0	Z	0.3	0.0	0.2	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.2	1.4	0.2	1.4		
8-May	0.4	0.0	0.0	0.0	0.0	Z	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	0.6	0.0	0.9	0.3	0.1	0.9	0.1	0.9		
9-May	Z	0.5	0.2	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	0.2	0.1	0.1	1.0	0.1	1.0		
10-May	0.5	Z	1.4	1.0	0.7	0.7	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	1.4	0.3	1.4		
11-May	0.1	0.4	Z	1.7	1.2	1.0	0.7	0.5	0.2	0.0	0.0	0.0	0.0	0.7	3.1	2.4	3.7	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.7	0.7	3.7		
12-May	0.0	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	0.5	1.2	0.9	0.6	0.3	0.4	0.1	0.2	1.2	0.2	1.2		
13-May	0.0	0.2	0.0	0.0	Z	0.3	0.1	0.3	1.5	1.8	1.6	1.1	1.1	0.7	0.4	0.0	0.0	0.0	0.0	0.1	0.7	3.6	0.0	0.6	0.6	3.6	0.6	3.6		
14-May	0.0	0.0	0.0	0.7	0.9	Z	1.3	1.0	0.5	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	0.2	1.3		
15-May	Z	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.7	0.5	0.6	0.5	0.4	0.7	0.6	0.4	2.6	2.0	0.3	0.5	2.6	0.5	2.6		
16-May	0.4	Z	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	0.1	0.9		
17-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-May	0.0	0.6	1.4	Z	1.1	0.6	0.6	0.3	0.3	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1.4	0.2	1.4		
19-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
20-May	0.3	0.3	0.0	0.0	0.6	Z	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.2	0.4	0.2	1.5	0.2	1.5		
21-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
23-May	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	1.1	0.5	0.1	1.1	0.1	1.1		
24-May	0.0	0.0	0.2	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	0.8	0.0	0.0	0.2	0.1	0.8	0.1	0.8		
25-May	0.0	1.0	0.0	0.0	Z	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.1	1.0	0.1	1.0		
26-May	0.7	0.5	0.6	0.6	0.4	Z	0.4	0.6	0.8	0.5	0.8	0.8	0.7	0.5	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.7	1.2	0.5	1.2	0.5	1.2		
27-May	Z	0.9	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.1	1.0	1.0	0.4	1.1	0.5	0.3	0.0	0.4	1.1	0.4	1.1		
28-May	0.0	Z	0.8	0.0	0.5	0.1	0.3	1.3	1.7	1.2	0.4	0.1	0.0	M	0.0	0.0	0.0	0.0	0.2	0.2	0.7	1.3	0.4	0.6	0.4	1.7	0.4	1.7		
29-May	1.1	0.4	Z	0.2	0.3	0.1	0.0	0.8	1.5	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	0.2	1.5	0.2	1.5		
30-May	0.0	0.0	0.0	Z	0.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	
31-May	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	1.1	0.0	0.0	0.0	0.0	1.1	0.0	1.1		
																								Diurnal Average						
																								Diurnal Maximum						
																								0.2 0.3 0.3 0.3 0.6 0.4 0.3 0.3 0.3 0.2 0.1 0.1 0.1 0.1 0.2 0.1 0.2 0.1 0.1 0.1 0.3 0.5 0.3 0.2						
																								1.1 1.6 1.4 1.7 3.4 2.8 2.2 1.6 2.1 1.8 1.6 1.1 1.1 0.7 3.1 2.4 3.7 1.4 1.2 0.9 2.0 3.6 2.0 1.7						
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 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Janvier - May 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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	33	77	87	63	65	42	27	23	26	29	42	39	34	47	50	14	698
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>33</b>	<b>77</b>	<b>87</b>	<b>63</b>	<b>65</b>	<b>42</b>	<b>27</b>	<b>23</b>	<b>26</b>	<b>29</b>	<b>42</b>	<b>39</b>	<b>34</b>	<b>47</b>	<b>50</b>	<b>14</b>	<b>698</b>

Total Number of Valid Hours: 698

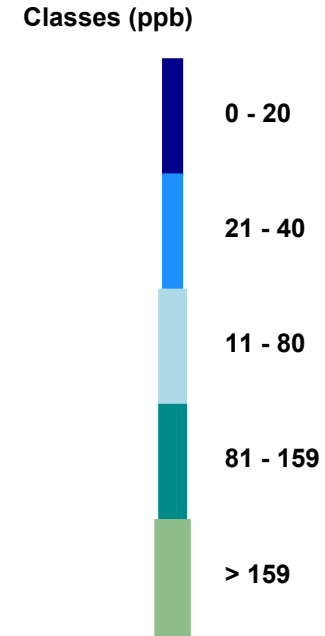
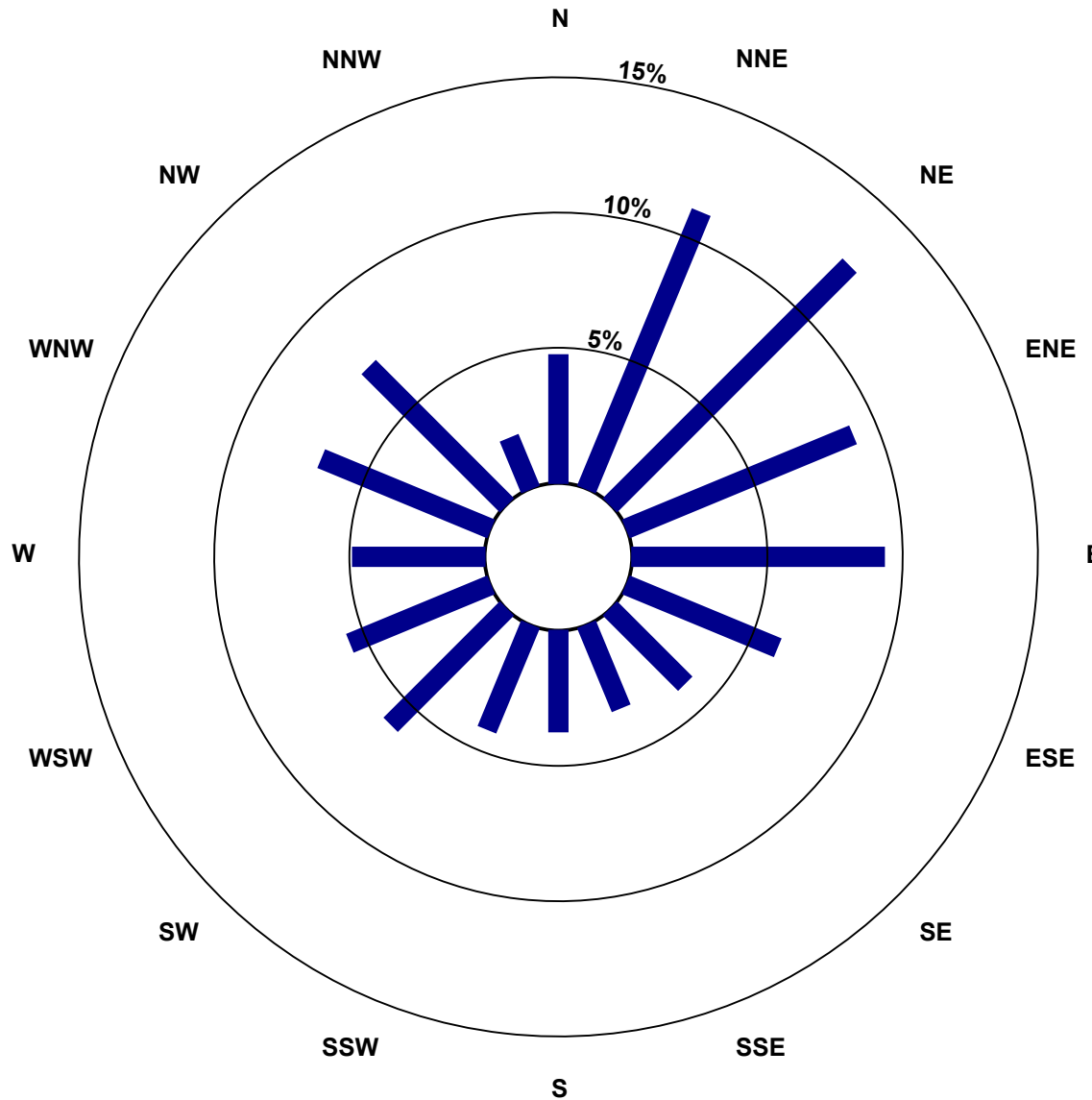
Total Number of Hours: 744



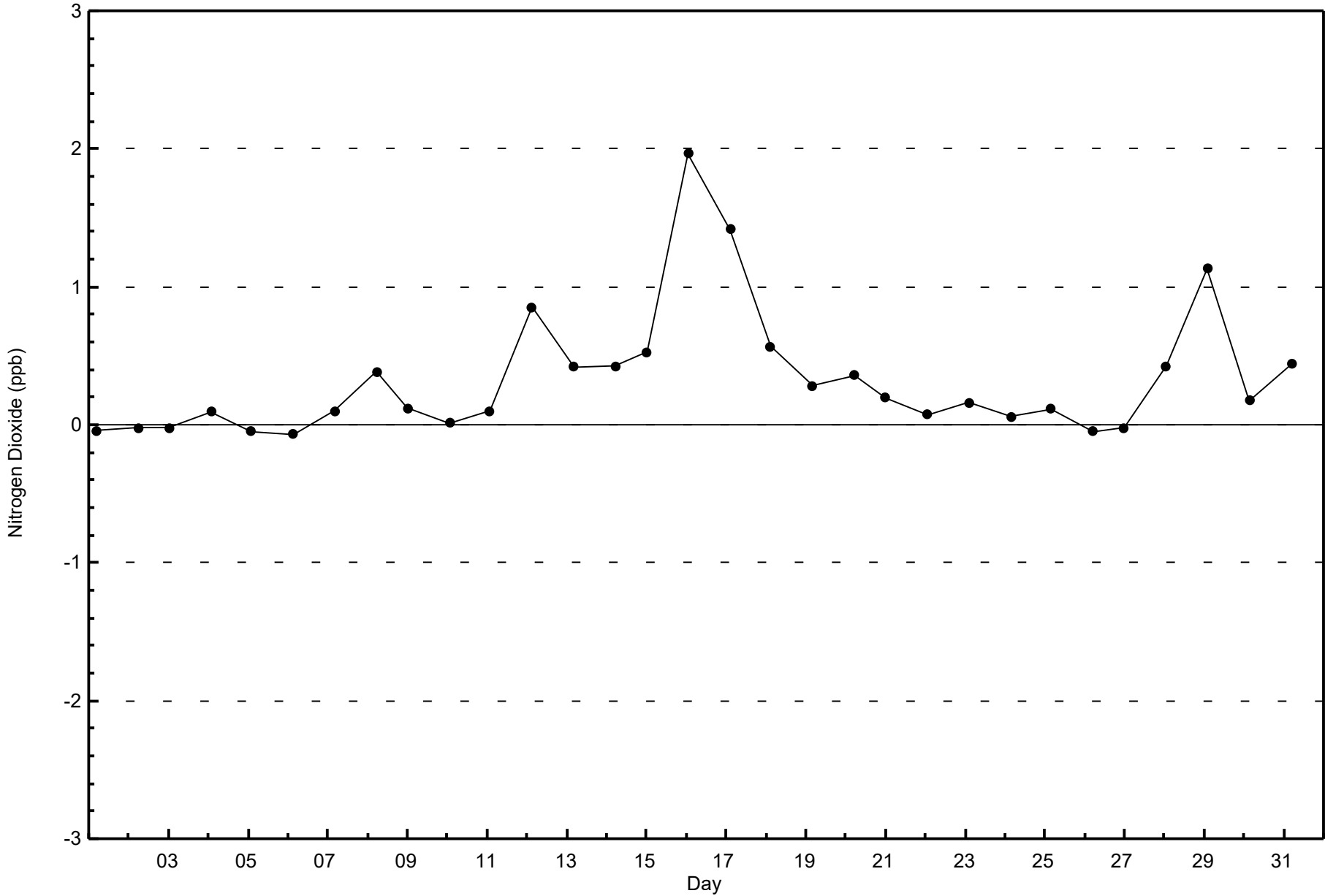


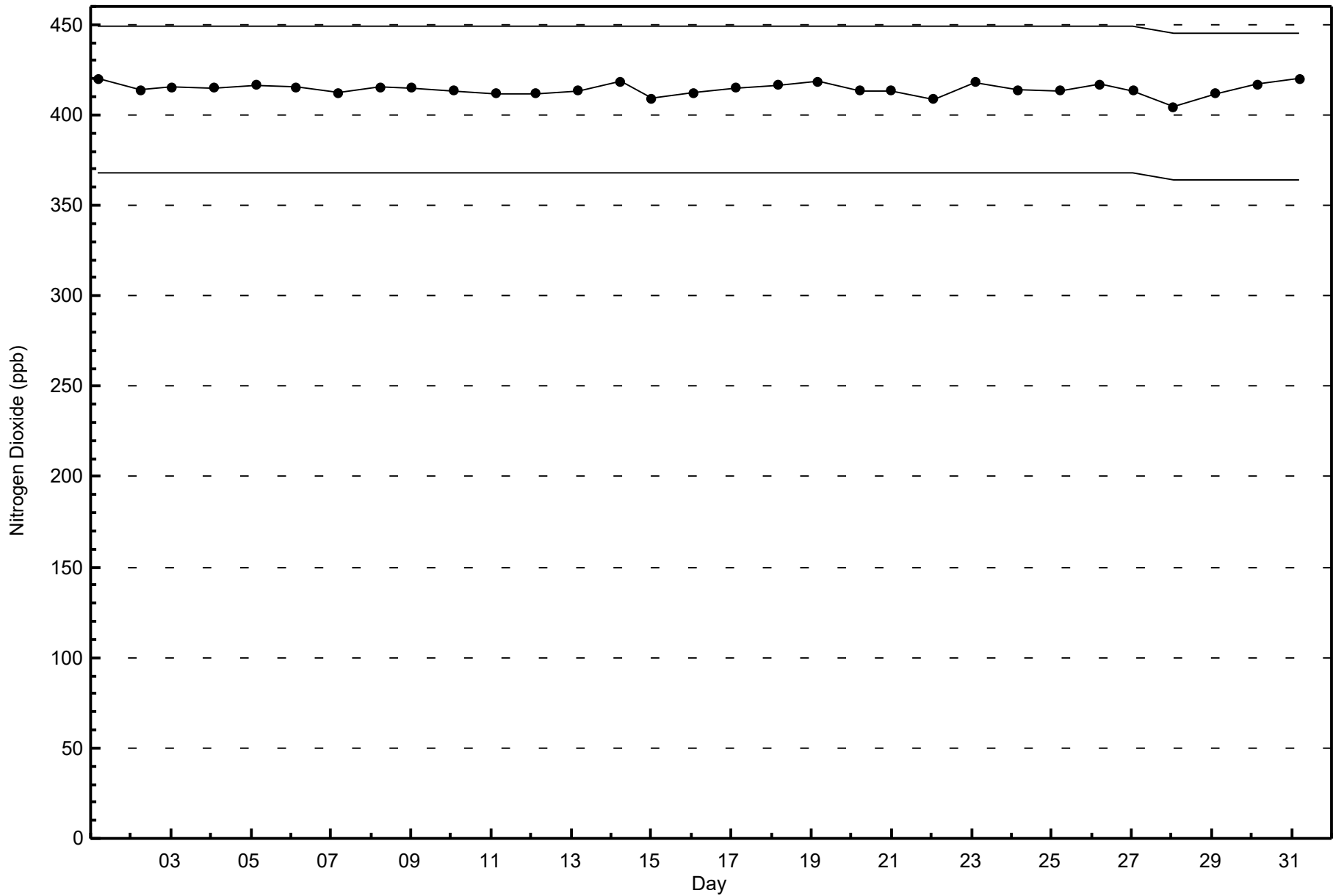
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Janvier



Total Number of Valid Hours: 698





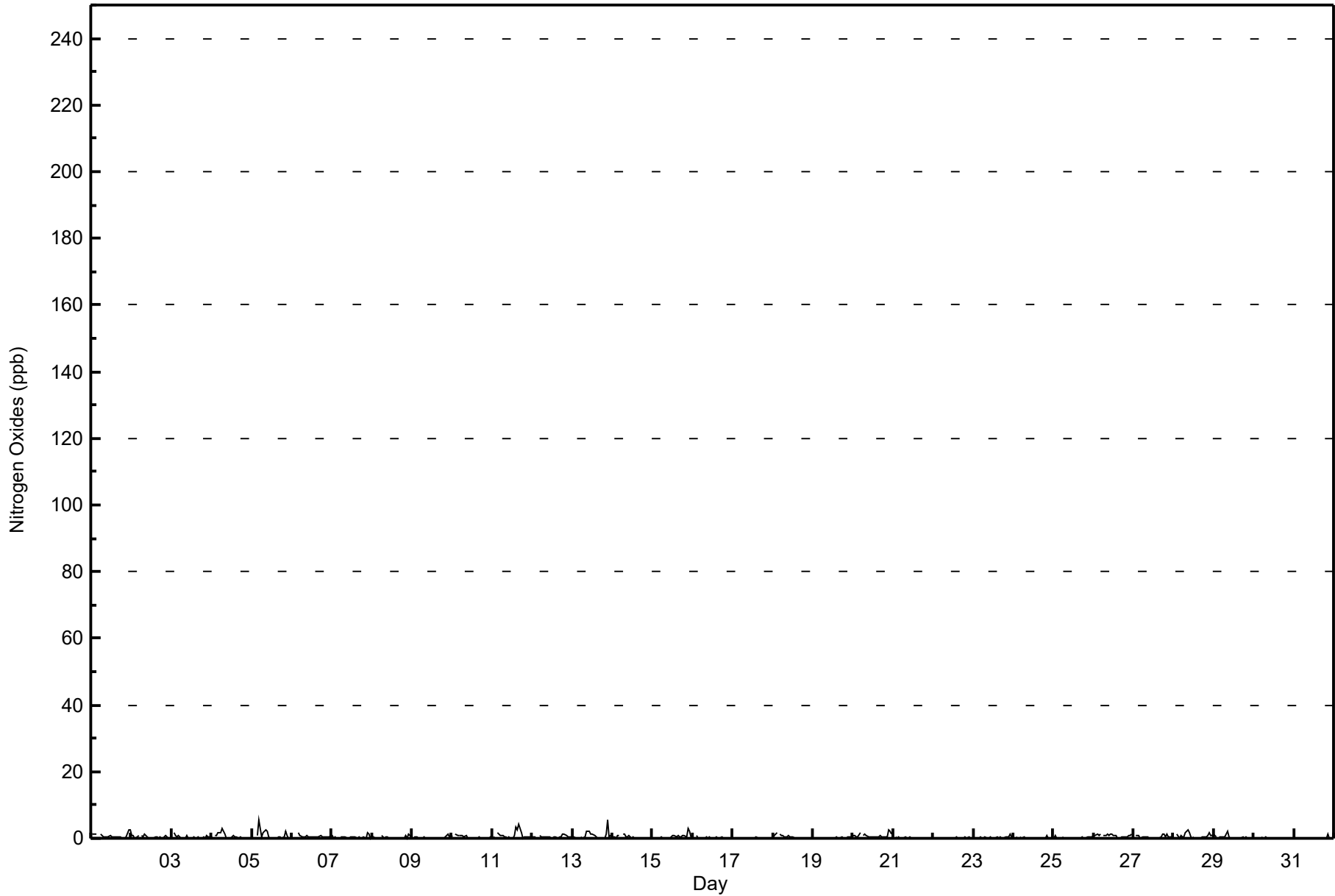


Maximum Value: 5.6 ppb on May 13 22:00																				Maximum Daily Average: 0.9 ppb on May 11					Hours in Service: 744						
Minimum Value: 0.0 ppb on May 1 21:00																				Minimum Daily Average: 0.0 ppb on May 30					Hours of Data: 707						
Maximum Diurnal Average: 0.8 ppb at hour 5																				Minimum Diurnal Average: 0.2 ppb at hour 20					Hours of Missing Data: 37						
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> = 0.5 P <sub>90</sub> = 1.1 P <sub>99</sub> = 2.6					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-May	1.4	1.2	1.3	1.3	Z	1.3	0.7	0.5	0.4	0.4	0.4	0.6	0.3	0.5	0.3	0.4	0.4	0.3	0.1	0.2	0.0	0.3	2.4	2.6	0.8	2.6					
2-May	0.7	0.9	0.2	0.3	0.8	Z	0.7	0.5	1.2	0.4	0.1	0.2	0.2	0.1	0.3	0.2	0.1	0.2	0.2	0.1	0.7	0.2	0.2	0.1	0.4	1.2					
3-May	Z	1.7	0.9	0.4	0.7	0.2	0.0	0.0	0.0	0.7	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.3	0.0	0.8	0.4	0.4	0.3	1.7					
4-May	0.6	Z	0.7	0.8	1.7	1.6	3.1	2.2	1.1	0.2	0.0	0.0	0.3	0.7	0.4	0.5	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.6	3.1					
5-May	0.0	0.0	Z	0.8	5.4	3.0	0.6	1.7	2.6	2.2	0.5	0.0	0.1	0.1	0.1	0.0	0.3	0.3	0.2	0.3	2.0	0.7	0.0	0.2	0.9	5.4					
6-May	0.1	0.0	0.0	Z	1.9	1.0	0.3	0.6	0.3	0.7	0.6	0.4	0.4	0.3	0.3	0.5	0.3	0.6	0.3	0.3	0.4	0.3	0.4	0.7	0.5	1.9					
7-May	0.7	0.1	0.4	0.2	Z	0.4	0.2	0.3	0.6	0.2	0.2	0.4	0.5	0.3	0.2	0.1	0.3	0.2	0.1	0.3	0.1	1.7	1.3	0.0	0.4	1.7					
8-May	1.0	0.5	0.0	0.0	0.0	Z	1.0	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.1	0.0	0.9	0.1	1.4	0.4	1.4					
9-May	Z	0.6	0.5	0.3	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.3	1.2	0.2	0.1	0.2	1.2					
10-May	0.9	Z	1.4	1.0	0.7	0.7	0.8	0.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.3	1.4					
11-May	0.1	0.4	Z	1.8	1.2	1.0	0.9	0.5	0.6	0.0	0.4	0.2	0.0	0.8	3.3	2.4	4.1	1.8	0.1	0.3	0.5	0.3	0.3	0.3	0.9	4.1					
12-May	0.3	0.4	0.5	Z	0.9	0.5	0.4	0.4	0.4	0.4	0.2	0.2	0.0	0.4	0.4	0.1	0.5	0.5	1.2	1.1	0.8	0.5	0.4	0.3	0.5	1.2					
13-May	0.0	0.2	0.1	0.0	Z	0.3	0.1	0.6	2.3	2.3	1.9	1.1	1.3	0.7	0.4	0.0	0.1	0.1	0.0	0.1	1.3	5.6	0.4	0.8	0.9	5.6					
14-May	0.3	0.2	0.0	0.8	1.0	Z	1.5	1.3	0.6	0.4	0.8	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5					
15-May	Z	0.0	0.0	0.1	0.0	0.6	0.1	0.1	0.0	0.1	0.0	0.3	0.8	0.8	0.5	0.9	0.5	0.4	1.0	0.7	0.4	2.9	2.3	0.3	0.6	2.9					
16-May	0.4	Z	1.0	0.2	0.0	0.0	0.1	0.1	0.4	0.2	0.5	0.1	0.1	0.1	0.4	0.2	0.1	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.2	1.0					
17-May	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.3					
18-May	0.1	0.7	1.7	Z	1.3	0.6	0.8	0.5	0.5	0.7	0.5	0.3	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.4	1.7					
19-May	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	0.2	0.0	0.0	0.4	0.2	0.0	0.2	0.4	0.4	0.3	0.1	0.4					
20-May	0.7	0.7	0.6	0.5	1.6	Z	1.1	1.1	0.7	0.5	0.4	0.5	0.5	0.3	0.5	0.6	0.8	0.5	0.5	0.2	0.4	2.6	2.1	1.1	0.8	2.6					
21-May	Z	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	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	0.4					
22-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.3	0.0	0.1	0.1	0.0	0.3	0.0	0.3	0.1	0.2	0.1	0.3					
23-May	0.0	0.1	Z	0.2	0.2	0.0	0.0	0.3	0.2	0.2	0.5	0.2	0.0	0.0	0.2	0.2	0.3	0.0	0.1	0.3	0.6	0.5	1.4	0.5	0.3	1.4					
24-May	0.1	0.2	0.3	Z	0.5	0.0	0.3	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.2	0.1	1.0					
25-May	0.0	1.0	0.0	0.0	Z	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.3	0.6	0.4	0.2	1.0					
26-May	1.0	1.0	1.2	1.0	1.1	Z	0.8	0.9	1.5	1.0	1.3	1.4	1.0	0.8	0.2	0.2	0.0	0.3	0.3	0.3	0.3	0.8	1.0	1.4	0.8	1.5					
27-May	Z	0.9	0.8	0.8	0.1	0.2	0.4	0.5	0.3	0.3	C	C	C	C	C	0.0	0.2	1.2	1.2	0.5	1.4	0.5	0.6	0.1	0.6	1.4					
28-May	0.0	Z	1.1	0.2	0.7	0.3	0.5	1.9	2.4	1.5	0.6	0.1	0.3	M	0.0	0.1	0.2	0.3	0.4	0.3	0.9	1.6	0.7	0.7	0.7	2.4					
29-May	1.1	0.4	Z	0.4	0.4	0.2	0.4	1.1	2.0	0.5	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.3	0.2	0.3	0.0	0.0	0.1	0.0	0.3	2.0					
30-May	0.0	0.0	0.0	Z	0.4	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4					
31-May	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	0.1	0.0	0.1	1.2	0.1	0.2	0.0	0.1	1.2					
																								Diurnal Average				Diurnal Maximum			
0.4 0.5 0.5 0.4 0.8 0.5 0.5 0.5 0.6 0.4 0.3 0.2 0.2 0.2 0.3 0.2 0.3 0.3 0.2 0.2 0.5 0.7 0.6 0.4																															
1.4 1.7 1.7 1.8 5.4 3.0 3.1 2.2 2.6 2.3 1.9 1.4 1.3 0.8 3.3 2.4 4.1 1.8 1.2 1.1 2.0 5.6 2.4 2.6																															
Z - zerospan      C - Calibration      M - Maintenance																															



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Janvier - May 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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	33	77	87	63	65	42	27	23	26	29	42	39	34	47	50	14	698
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>33</b>	<b>77</b>	<b>87</b>	<b>63</b>	<b>65</b>	<b>42</b>	<b>27</b>	<b>23</b>	<b>26</b>	<b>29</b>	<b>42</b>	<b>39</b>	<b>34</b>	<b>47</b>	<b>50</b>	<b>14</b>	<b>698</b>

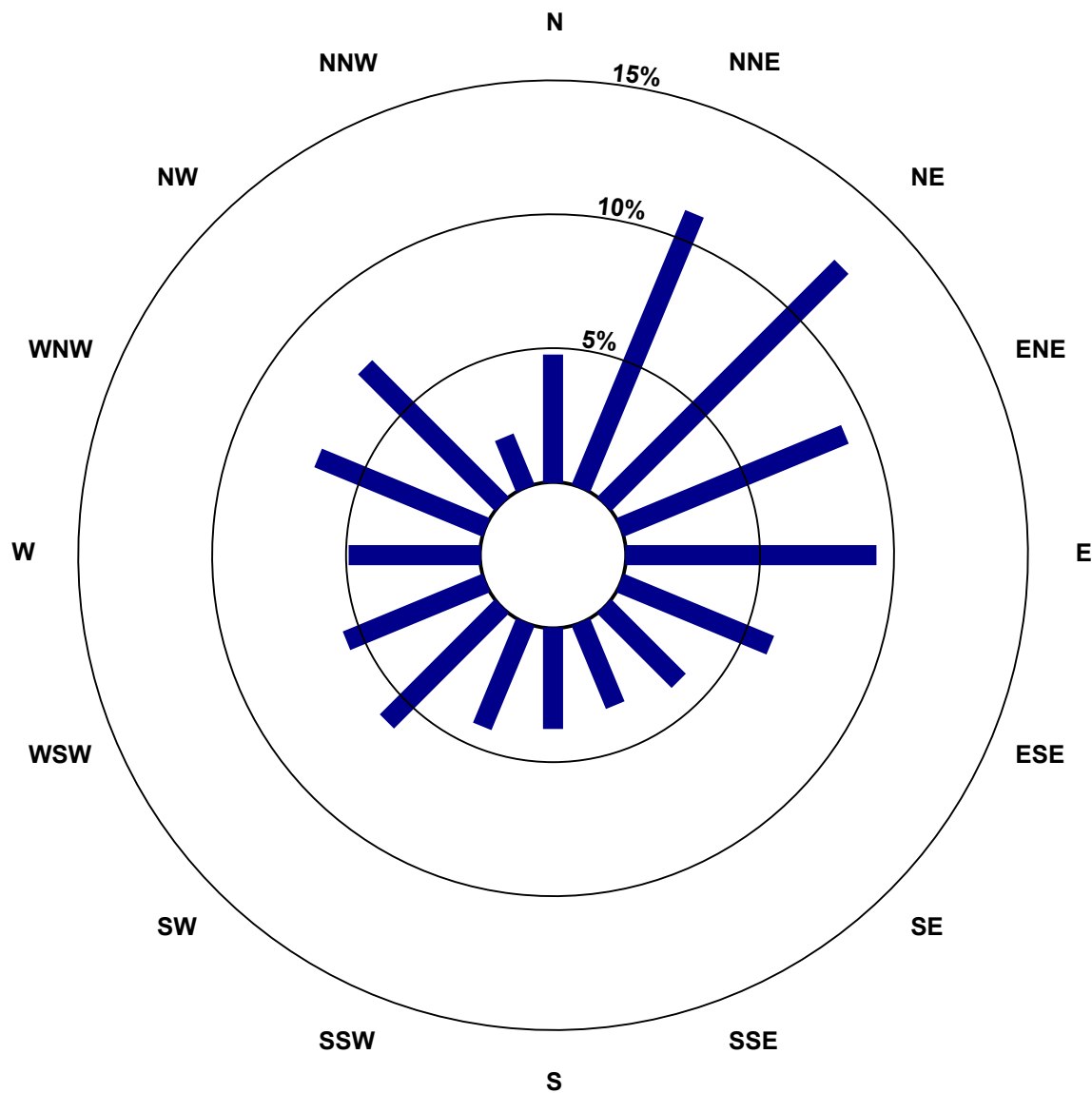
Total Number of Valid Hours: 698

Total Number of Hours: 744

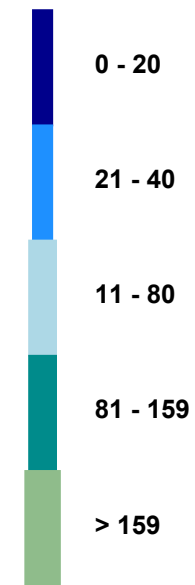


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Janvier

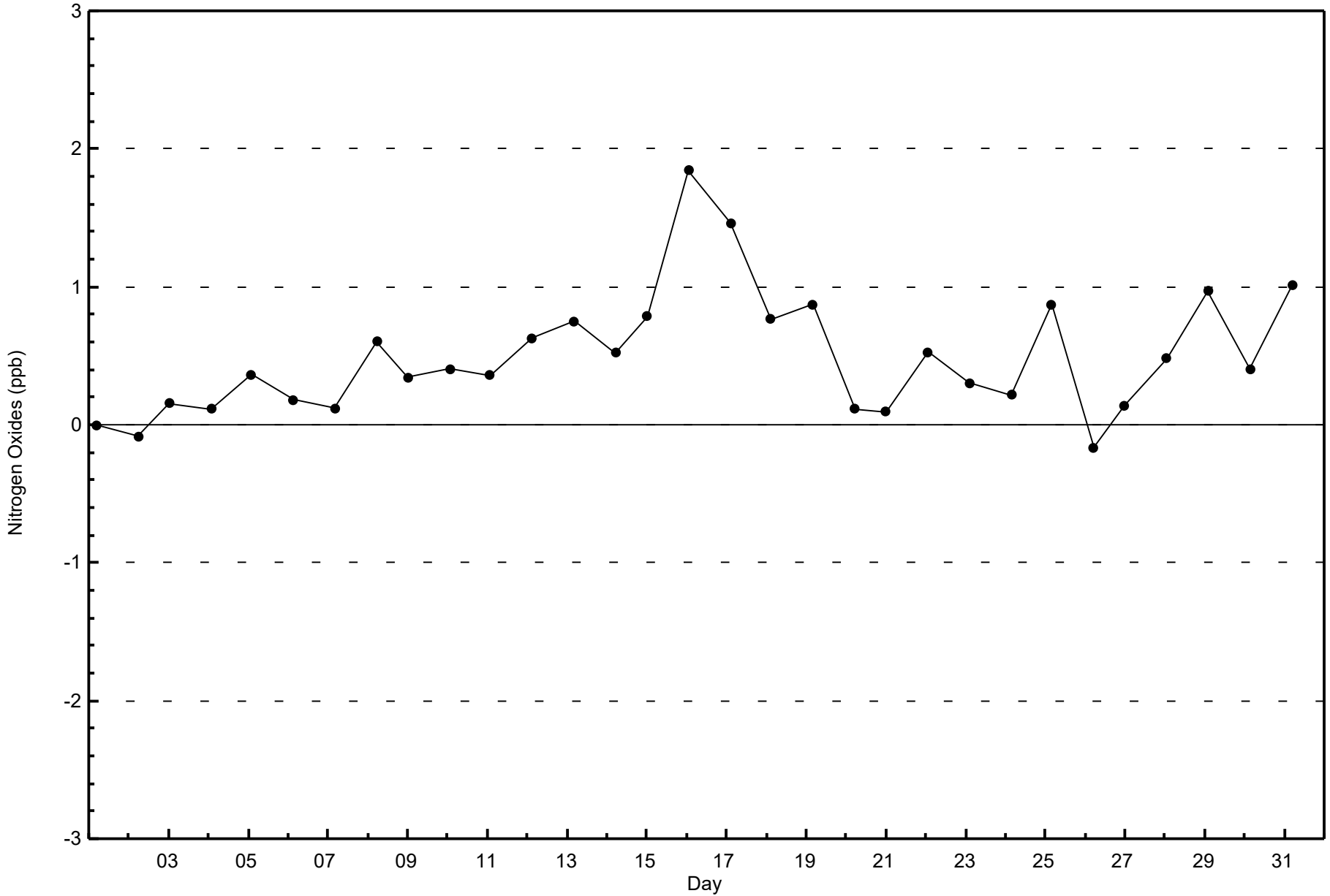


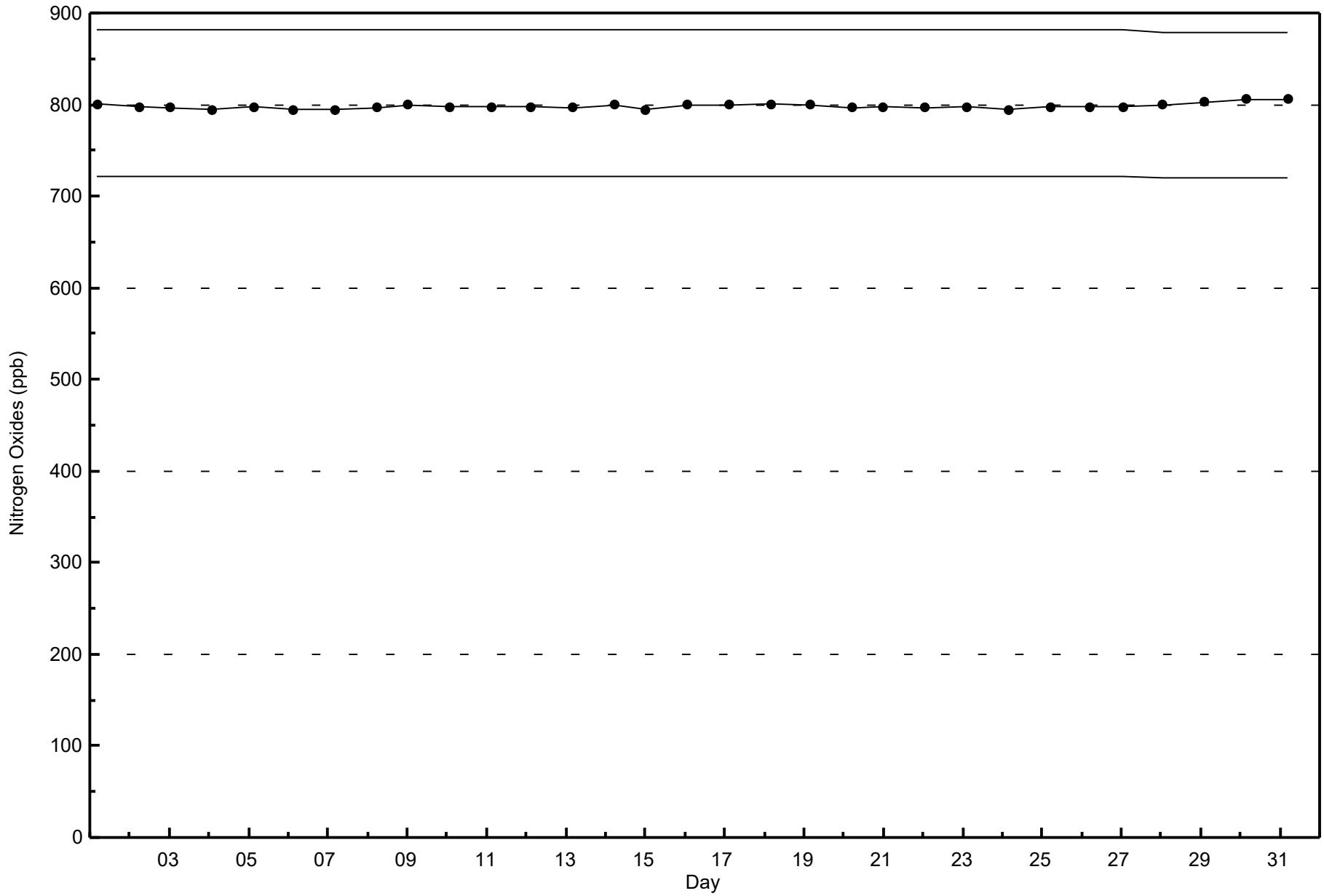
Classes (ppb)



Total Number of Valid Hours: 698









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 60.0 ppb on May 13 18:00	Maximum Daily Average: 47.9 ppb on May 2		Hours of Data:	709
Minimum Value: 5.3 ppb on May 25 06:00	Minimum Daily Average: 14.9 ppb on May 18		Hours of Missing Data:	35
Maximum Diurnal Average: 42.2 ppb at hour 17	Minimum Diurnal Average: 22.3 ppb at hour 6		Hours of Calibration:	34
Monthly Average: 34.30 ppb	Percentiles: P <sub>1</sub> = 7.2 P <sub>10</sub> = 15.2 Q <sub>1</sub> = 24.4 Median = 35.6 Q <sub>3</sub> = 44.7 P <sub>90</sub> = 50.6 P <sub>99</sub> = 57.0		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-May	18.6	18.1	Z	16.6	18.7	17.1	19.1	29.1	37.3	38.8	42.2	48.1	54.5	47.2	43.0	43.8	45.4	45.0	43.7	42.7	41.8	41.1	37.4	35.0	35.8	54.5
2-May	35.5	34.3	35.2	Z	35.0	32.3	34.1	38.6	42.2	48.6	53.1	54.1	55.2	55.8	56.4	56.3	55.4	55.7	55.8	57.0	55.0	53.1	51.7	50.1	47.9	57.0
3-May	45.9	32.7	31.6	31.4	Z	29.3	37.7	42.6	44.1	43.2	43.0	44.6	45.5	44.6	44.0	42.9	42.4	41.8	41.2	39.5	35.6	30.8	34.2	32.2	39.2	45.9
4-May	28.4	29.2	31.4	26.4	22.0	Z	27.5	35.6	41.9	47.8	49.3	50.2	51.1	52.1	53.0	52.8	52.8	52.2	51.0	49.1	45.9	38.5	35.7	35.4	41.7	53.0
5-May	Z	25.7	21.1	17.0	14.3	15.0	14.8	25.8	33.3	41.3	44.7	45.7	45.5	47.8	49.7	50.6	49.6	49.8	49.2	48.4	49.1	50.5	49.7	47.5	38.5	50.6
6-May	46.4	Z	44.3	39.8	33.1	28.7	26.6	36.7	47.9	45.9	45.5	43.8	42.9	41.5	40.2	43.5	48.8	48.3	46.5	45.8	45.9	43.4	31.5	32.1	41.3	48.8
7-May	27.4	34.6	Z	40.7	40.3	38.1	37.2	39.5	37.0	35.0	33.6	31.9	31.6	30.5	28.9	28.5	27.9	26.0	27.2	27.0	21.9	16.3	15.3	13.8	30.0	40.7
8-May	11.2	14.4	17.3	Z	16.8	14.9	16.9	23.4	33.8	36.9	40.0	41.7	41.9	45.7	46.8	47.1	46.9	47.7	46.4	43.5	41.1	45.2	43.3	44.3	35.1	47.7
9-May	44.3	42.6	39.1	40.9	Z	41.8	42.5	42.9	43.8	45.3	46.6	46.1	47.3	48.2	48.7	51.0	51.2	53.0	53.9	54.1	49.4	44.0	40.9	36.4	45.8	54.1
10-May	33.9	33.7	31.7	32.8	33.2	Z	37.2	36.3	35.5	39.5	41.3	42.1	43.9	45.2	49.8	50.1	54.3	56.7	56.7	55.2	53.0	51.7	49.8	46.5	43.9	56.7
11-May	Z	49.4	49.6	51.1	57.3	57.4	55.8	51.9	46.1	45.0	43.4	43.7	44.9	49.6	52.7	54.0	50.0	47.2	44.5	42.2	37.0	37.2	38.0	37.4	47.2	57.4
12-May	31.6	Z	25.8	23.0	22.9	15.7	20.1	26.2	29.7	30.7	30.9	32.4	33.7	34.5	34.2	34.6	42.3	54.3	51.1	46.9	46.2	45.3	43.4	41.2	34.7	54.3
13-May	37.2	39.5	Z	28.4	20.8	14.8	15.2	15.0	21.5	35.3	40.8	47.5	52.9	50.0	54.1	58.2	59.0	60.0	59.5	57.1	51.0	50.3	48.1	46.3	41.8	60.0
14-May	44.8	41.4	33.9	Z	37.1	36.8	36.5	35.5	36.2	39.2	45.0	53.8	54.3	54.6	54.8	54.4	54.0	55.1	54.2	53.7	52.4	51.3	50.2	47.5	46.8	55.1
15-May	43.8	36.3	26.4	29.4	Z	24.4	24.1	26.9	28.8	35.7	37.7	39.2	41.3	44.8	46.8	47.5	48.8	46.3	43.9	42.5	41.3	35.6	34.1	30.6	37.3	48.8
16-May	27.0	24.8	26.4	28.8	24.4	Z	25.0	24.3	24.7	28.3	30.9	33.2	36.2	43.6	45.0	40.1	32.7	31.3	38.7	39.1	34.8	32.3	33.4	33.9	32.1	45.0
17-May	Z	29.9	29.4	27.8	27.5	28.0	27.5	27.1	27.0	27.0	C	C	C	22.6	24.8	29.1	26.4	23.8	19.8	18.4	19.4	18.1	17.1	17.8	24.4	29.9
18-May	16.9	Z	13.6	13.8	13.5	13.1	13.6	13.8	14.4	14.6	15.3	15.4	15.5	15.3	15.4	15.5	15.3	15.6	14.4	13.4	13.9	17.7	16.8	16.6	14.9	17.7
19-May	13.6	13.1	Z	10.3	9.1	8.7	12.0	15.4	16.7	19.7	26.8	28.5	28.1	27.4	26.5	25.8	27.1	31.6	30.8	30.0	25.5	19.9	18.0	15.0	20.9	31.6
20-May	11.7	10.4	12.0	Z	8.6	10.6	12.7	15.0	21.1	24.2	30.3	35.2	33.4	27.9	26.9	26.8	26.6	25.1	22.5	20.7	18.5	12.9	12.7	8.5	19.8	35.2
21-May	7.1	6.7	8.4	9.7	Z	11.0	11.9	12.0	13.0	15.7	19.3	20.0	20.9	19.5	21.0	21.2	19.6	19.7	18.9	18.7	19.3	20.8	19.5	16.3	16.1	21.2
22-May	14.2	11.0	6.3	7.2	7.7	Z	17.1	18.2	19.2	20.7	23.8	24.1	25.6	25.7	26.1	26.0	26.4	25.5	25.0	24.2	23.3	21.8	20.6	19.2	19.9	26.4
23-May	Z	14.5	13.9	13.5	12.5	13.3	21.4	26.1	27.0	28.0	29.5	28.7	30.8	31.4	33.9	34.7	34.9	35.1	36.1	34.9	32.2	28.7	18.5	16.5	25.9	36.1
24-May	13.7	Z	11.3	15.1	10.6	10.1	17.1	19.5	20.0	23.7	28.0	39.6	45.9	50.4	50.7	52.5	53.3	53.5	53.0	47.3	34.2	30.7	30.4	25.8	32.0	53.5
25-May	17.8	14.8	Z	7.0	6.4	5.3	7.6	21.6	31.0	34.3	36.5	36.2	38.1	37.2	39.7	38.9	40.3	37.7	38.2	37.4	35.2	31.9	31.0	23.9	28.2	40.3
26-May	21.3	17.3	12.0	Z	8.2	6.0	15.7	23.7	30.7	36.6	35.1	36.7	38.3	41.1	42.3	41.4	40.9	41.4	40.7	39.3	35.2	34.2	27.7	24.2	30.0	42.3
27-May	19.6	22.6	15.4	13.7	Z	13.5	13.3	21.8	26.4	33.2	37.6	44.9	46.3	47.2	48.2	47.0	46.8	43.4	42.2	41.7	35.4	35.0	32.5	35.5	33.2	48.2
28-May	29.0	28.8	25.0	27.0	22.5	Z	28.1	39.9	40.8	43.4	45.3	45.1	47.8	M	52.3	53.4	53.8	53.7	52.2	46.3	46.0	35.7	41.4	37.4	40.7	53.8
29-May	Z	37.3	33.8	23.8	20.3	22.7	22.6	22.9	38.5	39.3	42.5	44.8	45.3	46.2	46.4	45.7	46.1	44.7	43.2	43.2	44.0	42.2	41.1	40.6	38.1	46.4
30-May	42.1	Z	41.1	39.6	38.4	37.1	35.6	35.2	38.4	39.3	36.1	34.9	34.5	35.8	36.0	39.3	39.6	37.7	39.3	38.4	40.2	39.4	37.2	36.0	37.9	42.1
31-May	32.8	28.4	Z	32.3	35.6	34.9	37.4	39.5	38.2	39.5	41.0	43.5	45.3	46.5	48.4	49.9	48.5	47.3	44.0	40.5	39.9	44.4	45.0	43.6	41.1	49.9

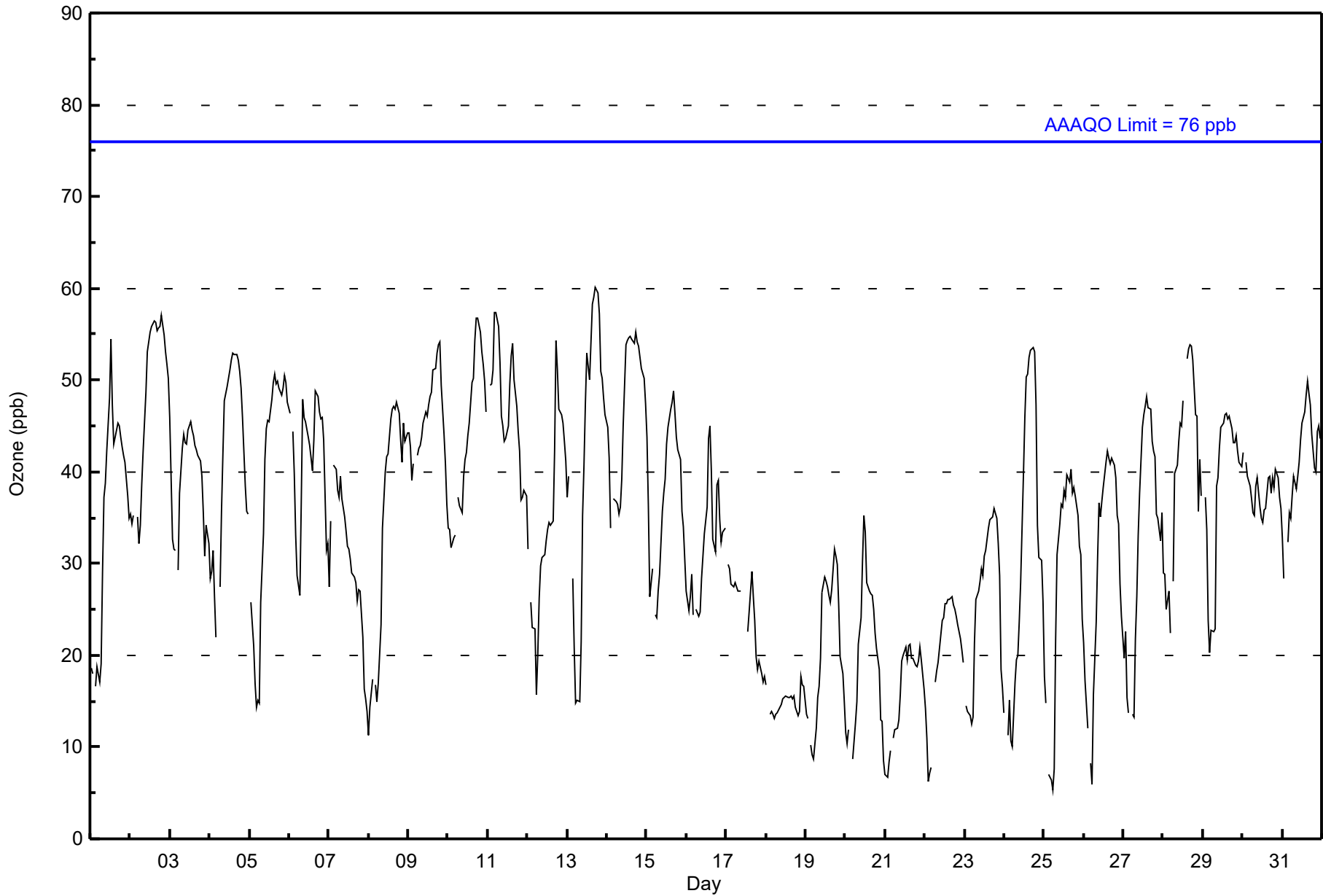
27.5	26.6	25.4	24.9	23.0	22.3	24.6	28.5	31.8	34.7	37.2	39.2	40.7	40.3	41.5	42.0	42.2	42.1	41.4	39.9	37.5	35.5	33.7	31.8	Diurnal Average	
46.4	49.4	49.6	51.1	57.3	57.4	55.8	51.9	47.9	48.6	53.1	54.1	55.2	55.8	56.4	58.2	59.0	60.0	59.5	57.1	55.0	53.1	51.7	50.1	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 76 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	136	19.18	19.18
21 - 50	501	70.66	89.84
51 - 82	72	10.16	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 - May 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	12	28	11	4	10	6	4	1	0	5	7	4	3	13	9	9	126
21 - 50	16	39	73	56	48	31	24	20	24	25	29	26	20	31	33	5	500
51 - 82	1	9	2	2	7	7	1	2	2	1	6	7	11	4	9	1	72
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	29	76	86	62	65	44	29	23	26	31	42	37	34	48	51	15	698

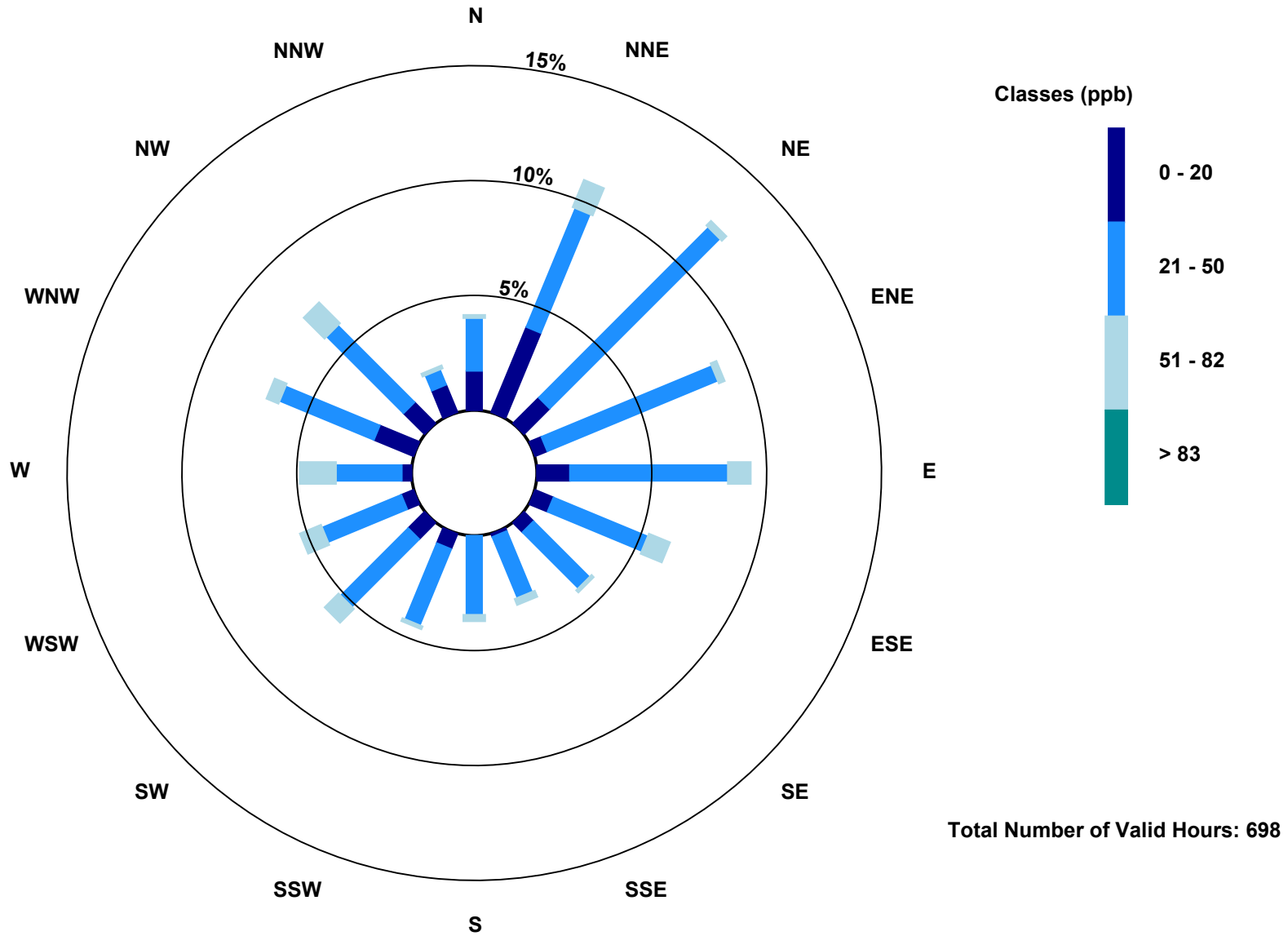
Total Number of Valid Hours: 698

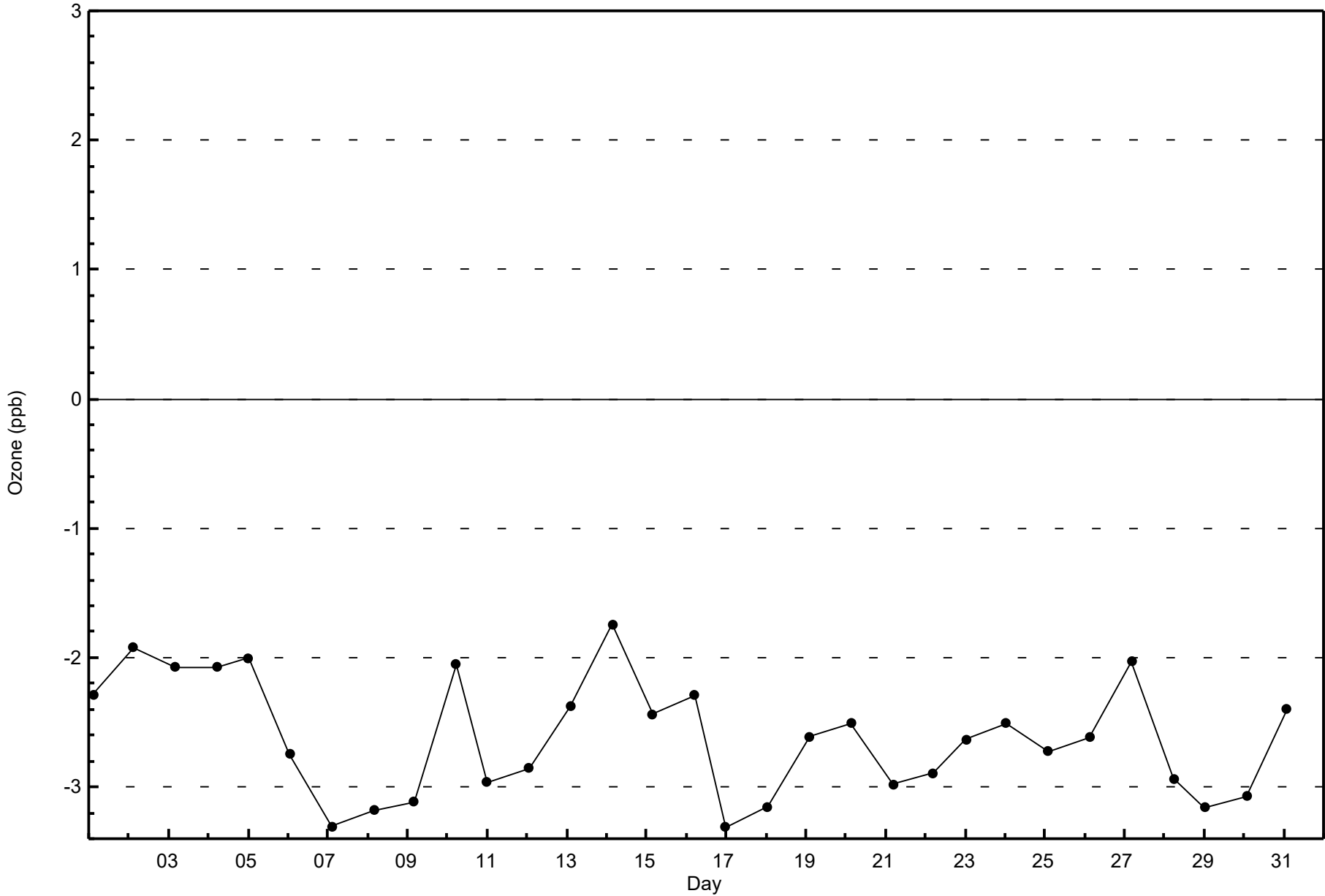
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Ozone (O<sub>3</sub>) - ppb  
Janvier



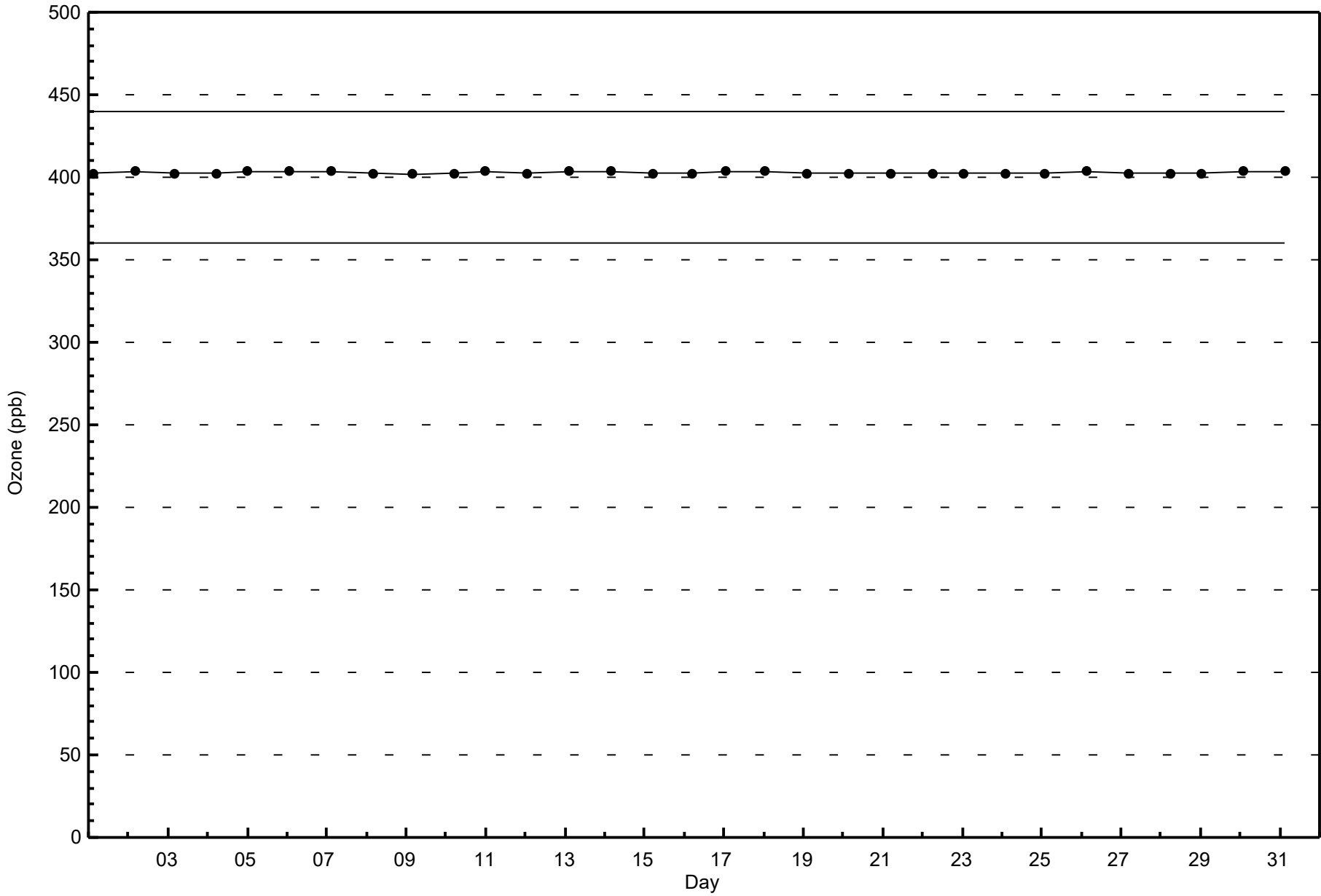






**Wood Buffalo Environmental Association**  
**Span Responses**

**Ozone (O<sub>3</sub>) - ppb**  
**Janvier - May 2024**

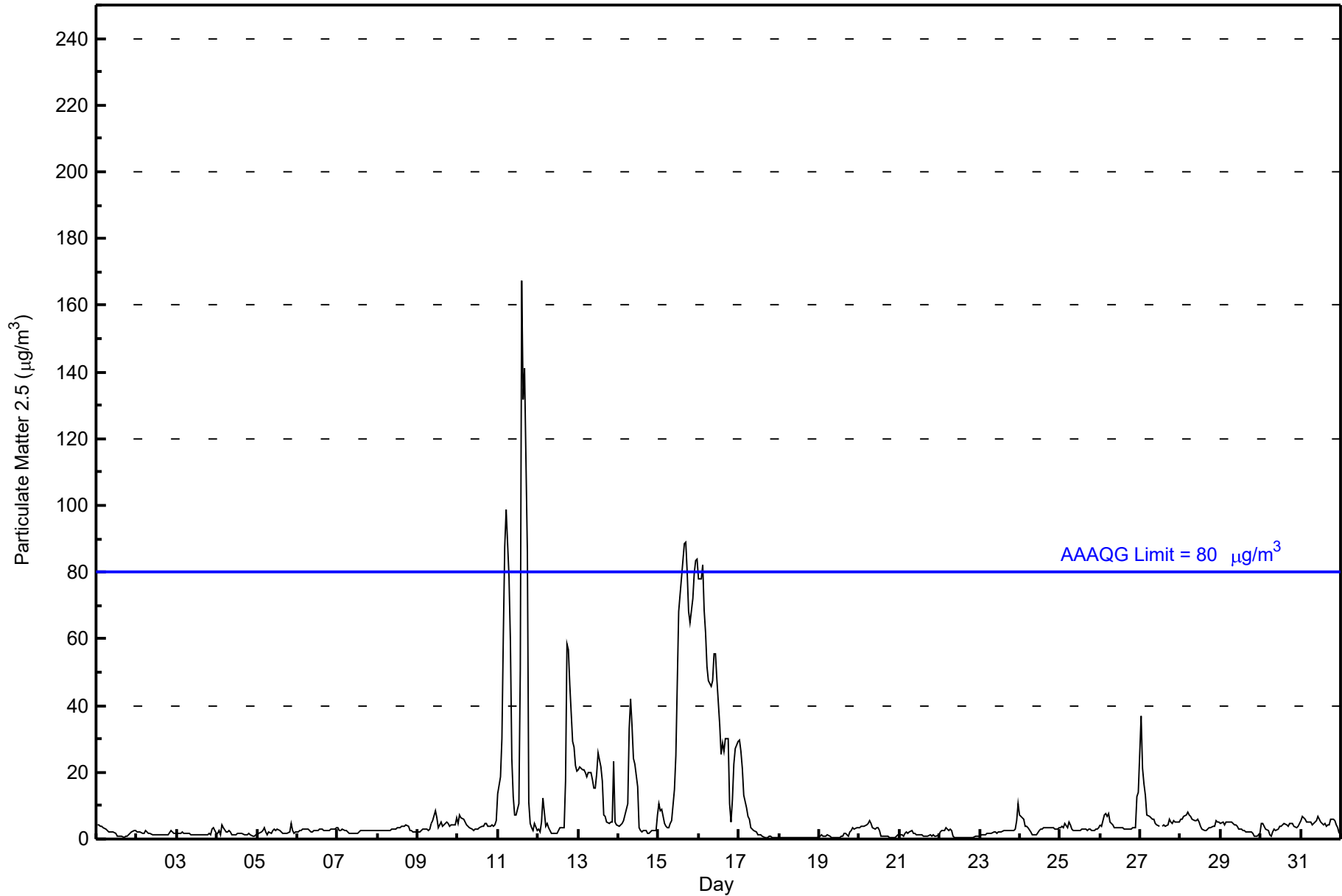




Summary of Hour Averages

Janvier - May 2024

Number of Exceedences (AAAQO):		1-hr: 12		24-hr: 3		Hours in Service:		744																		
Maximum Value: 167.2 µg/m <sup>3</sup> on May 11 15:00		Maximum Daily Average: 46.4 µg/m <sup>3</sup> on May 11				Hours of Data:		743																		
Minimum Value: 0.2 µg/m <sup>3</sup> on May 18 18:00		Minimum Daily Average: 0.4 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		1																		
Maximum Diurnal Average: 11.7 µg/m <sup>3</sup> at hour 15		Minimum Diurnal Average: 6.1 µg/m <sup>3</sup> at hour 10				Hours of Calibration:		1																		
Monthly Average: 8.03 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.9 Q <sub>1</sub> = 1.7 Median = 2.9 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 19.3 P <sub>99</sub> = 85.1				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-May	4.1	4.2	4.0	3.7	3.2	2.9	2.7	2.3	2.1	2.2	2.1	1.7	1.0	0.9	0.8	0.7	0.6	0.7	0.9	1.1	1.6	2.1	2.5	2.5	2.1	4.2
2-May	2.3	2.0	2.1	1.8	1.8	2.3	1.9	1.5	1.7	1.3	1.3	1.2	1.3	1.3	1.4	1.3	1.4	1.3	1.4	1.4	2.5	2.3	1.8	1.6	1.7	2.5
3-May	1.7	1.8	1.8	2.2	1.7	1.6	1.7	1.5	1.4	1.4	1.4	1.4	1.3	1.2	1.2	1.1	1.2	1.2	1.1	1.5	1.4	3.1	3.4	1.5	1.6	3.4
4-May	1.7	2.5	1.4	4.2	3.6	2.0	2.2	2.6	2.0	1.5	1.4	1.5	1.6	1.8	1.7	1.5	1.4	1.4	1.4	1.6	1.2	0.9	0.9	1.1	1.8	4.2
5-May	1.2	1.6	2.0	2.4	3.4	2.2	1.5	2.2	1.7	2.7	2.8	2.7	2.9	2.7	2.1	1.7	1.8	1.8	1.8	2.0	4.5	2.7	1.8	2.0	2.3	4.5
6-May	2.3	2.5	2.5	2.9	2.9	3.0	2.9	2.6	2.0	2.2	2.4	2.3	2.5	2.8	2.9	2.9	2.5	2.5	2.5	2.5	2.9	3.0	3.0	3.3	2.7	3.3
7-May	3.2	2.6	2.6	2.8	2.7	2.7	2.1	1.8	1.8	1.7	1.8	1.5	1.7	2.1	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.7	2.4	3.2
8-May	2.7	2.6	2.6	2.7	2.6	2.6	2.4	2.6	2.9	3.1	3.0	3.0	3.3	3.5	3.7	3.8	3.8	4.3	3.7	2.6	2.6	1.9	2.3	2.3	2.9	4.3
9-May	2.2	2.3	2.7	3.0	3.0	2.9	2.6	2.9	4.6	5.6	8.5	6.3	3.5	4.2	5.1	3.7	4.7	4.9	4.6	3.8	4.0	4.2	4.4	6.3	4.2	8.5
10-May	4.7	7.0	6.4	5.7	5.1	4.4	3.7	3.5	3.0	2.5	2.8	2.8	3.0	3.3	4.0	3.8	4.6	4.6	3.9	4.0	4.1	4.0	4.1	5.7	4.2	7.0
11-May	13.4	18.7	29.9	61.2	87.5	98.6	79.0	59.1	24.2	12.6	7.2	7.1	10.8	50.8	167.2	131.7	141.0	86.0	11.1	4.8	3.2	2.3	4.8	2.4	46.4	167.2
12-May	2.8	2.2	5.0	12.5	3.7	4.6	3.2	2.3	1.8	1.7	1.6	1.8	2.7	3.5	3.4	3.5	17.3	58.4	56.9	46.0	29.3	27.5	22.1	20.4	13.9	58.4
13-May	20.8	21.7	20.7	20.8	20.1	18.7	19.9	19.8	17.9	15.3	15.1	19.5	25.6	21.5	17.3	7.3	6.8	5.3	4.6	4.9	4.9	23.3	5.1	4.1	15.0	25.6
14-May	4.0	4.4	4.6	5.3	7.2	10.5	32.9	41.9	33.9	24.1	22.3	15.9	3.3	2.5	2.3	2.6	2.6	1.8	1.7	2.1	2.4	2.3	2.5	7.1	10.0	41.9
15-May	10.4	8.7	8.9	4.8	3.8	3.5	3.5	4.6	5.5	14.7	25.2	46.8	68.3	73.2	83.5	88.6	88.9	79.9	68.3	65.0	72.1	79.6	83.5	83.7	44.8	88.9
16-May	77.8	78.2	82.3	68.8	61.8	51.7	47.6	45.6	47.3	55.4	55.4	47.7	34.5	25.6	29.0	26.3	30.2	30.2	10.5	5.1	11.9	22.6	27.1	29.4	41.7	82.3
17-May	29.7	26.4	21.2	13.1	9.4	6.9	5.7	3.6	3.0	2.5	2.0	1.5	1.4	1.2	0.7	0.4	0.3	0.3	0.7	0.7	0.4	0.4	0.5	0.5	5.5	29.7
18-May	0.4	0.4	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.5	0.5	0.6	0.6	0.4	0.6
19-May	0.8	1.1	0.9	0.9	0.9	1.1	0.7	0.5	0.4	0.4	0.6	0.5	0.6	0.8	0.8	1.8	1.5	0.7	2.3	2.8	3.3	3.1	3.3	3.3	1.4	3.3
20-May	3.6	3.8	3.9	3.9	4.2	4.5	5.5	4.9	3.5	3.1	3.2	3.3	2.6	0.8	0.8	0.8	0.8	0.8	0.5	0.3	0.5	0.6	0.7	1.1	2.4	5.5
21-May	1.1	1.1	1.1	1.7	1.9	1.8	2.2	2.3	1.8	1.8	1.4	1.3	1.1	1.3	1.0	1.0	1.0	1.1	1.1	1.0	1.1	0.8	0.9	1.2	1.3	2.3
22-May	2.3	2.4	2.5	2.4	3.3	2.4	2.8	2.4	1.1	0.4	0.4	0.3	0.3	0.4	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.8	0.9	1.0	1.2	3.3
23-May	1.0	1.3	1.5	1.3	1.6	1.6	1.6	1.9	2.0	1.9	1.8	2.2	2.1	2.2	2.4	2.4	2.5	2.7	2.5	2.6	2.5	2.8	5.3	10.6	2.5	10.6
24-May	7.3	6.3	6.1	3.8	3.6	3.5	2.2	1.3	1.3	1.1	1.5	2.6	3.0	3.1	3.2	3.4	3.4	3.4	3.4	3.4	3.3	2.9	3.1	3.5	3.3	7.3
25-May	3.6	4.0	3.6	4.8	3.6	5.0	4.1	3.0	2.7	2.7	2.7	2.6	2.7	2.8	2.9	2.8	2.7	3.0	2.8	2.7	2.7	2.9	3.0	3.3	3.2	5.0
26-May	4.3	3.9	7.4	7.5	6.7	7.7	5.0	4.2	3.5	3.4	3.5	3.4	3.3	3.2	3.1	3.1	3.0	3.1	3.1	3.2	3.4	3.3	12.8	14.1	5.0	14.1
27-May	36.8	21.2	16.7	12.9	7.3	6.9	6.5	5.9	6.1	4.5	4.2	3.8	C	4.0	4.1	4.0	4.3	5.8	4.9	4.8	5.4	5.0	5.0	5.0	8.1	36.8
28-May	5.9	6.0	6.6	7.2	8.0	7.0	6.9	5.8	5.5	5.7	5.8	4.9	3.7	2.9	2.5	2.4	2.8	3.3	3.4	3.7	3.8	5.5	5.2	4.9	5.0	8.0
29-May	4.6	5.3	4.3	4.9	5.2	5.1	5.1	4.8	4.2	4.2	3.6	3.0	2.8	2.5	2.6	2.1	2.1	2.3	2.1	1.7	0.9	0.9	0.9	1.9	3.2	5.3
30-May	4.6	4.7	3.8	3.1	2.5	1.4	1.1	2.2	3.0	2.4	3.1	3.7	4.0	4.2	4.5	4.2	4.0	4.6	4.5	4.6	3.7	3.5	3.8	4.8	3.6	4.8
31-May	5.7	6.6	5.9	5.2	5.1	5.1	4.9	4.3	5.1	5.6	7.0	5.8	5.0	4.4	4.8	4.0	4.4	4.1	5.9	5.8	5.4	4.4	3.2	1.6	5.0	7.0
																								Diurnal Average		
																								Diurnal Maximum		
8.6 8.3 8.6 9.0 9.0 8.9 8.5 7.9 6.4 6.1 6.3 6.5 6.7 7.6 11.7 10.2 11.1 10.4 6.9 6.1 6.1 7.2 7.1 7.5																										
77.8 78.2 82.3 68.8 87.5 98.6 79.0 59.1 47.3 55.4 55.4 47.7 68.3 73.2 167.2 131.7 141.0 86.0 68.3 65.0 72.1 79.6 83.5 83.7																										
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Janvier - May 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	593	79.81	79.81
6 - 15	68	9.15	88.96
16 - 25	26	3.50	92.46
26 - 80	44	5.92	98.38
> 81.0	12	1.62	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>**  
**Janvier - May 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	27	74	69	60	54	35	27	17	15	21	32	37	30	42	34	10	584
6 - 15	3	3	5	1	5	5	2	3	4	9	2	1	5	8	8	3	67
16 - 25	1	1	3	1	1	2	2	4	4	0	5	1	0	0	1	0	26
26 - 80	1	2	9	2	7	3	0	1	3	2	6	0	0	0	7	0	43
> 81.0	2	1	4	0	0	0	0	0	0	1	0	0	0	0	2	2	12
<b>Totals</b>	<b>34</b>	<b>81</b>	<b>90</b>	<b>64</b>	<b>67</b>	<b>45</b>	<b>31</b>	<b>25</b>	<b>26</b>	<b>33</b>	<b>45</b>	<b>39</b>	<b>35</b>	<b>50</b>	<b>52</b>	<b>15</b>	<b>732</b>

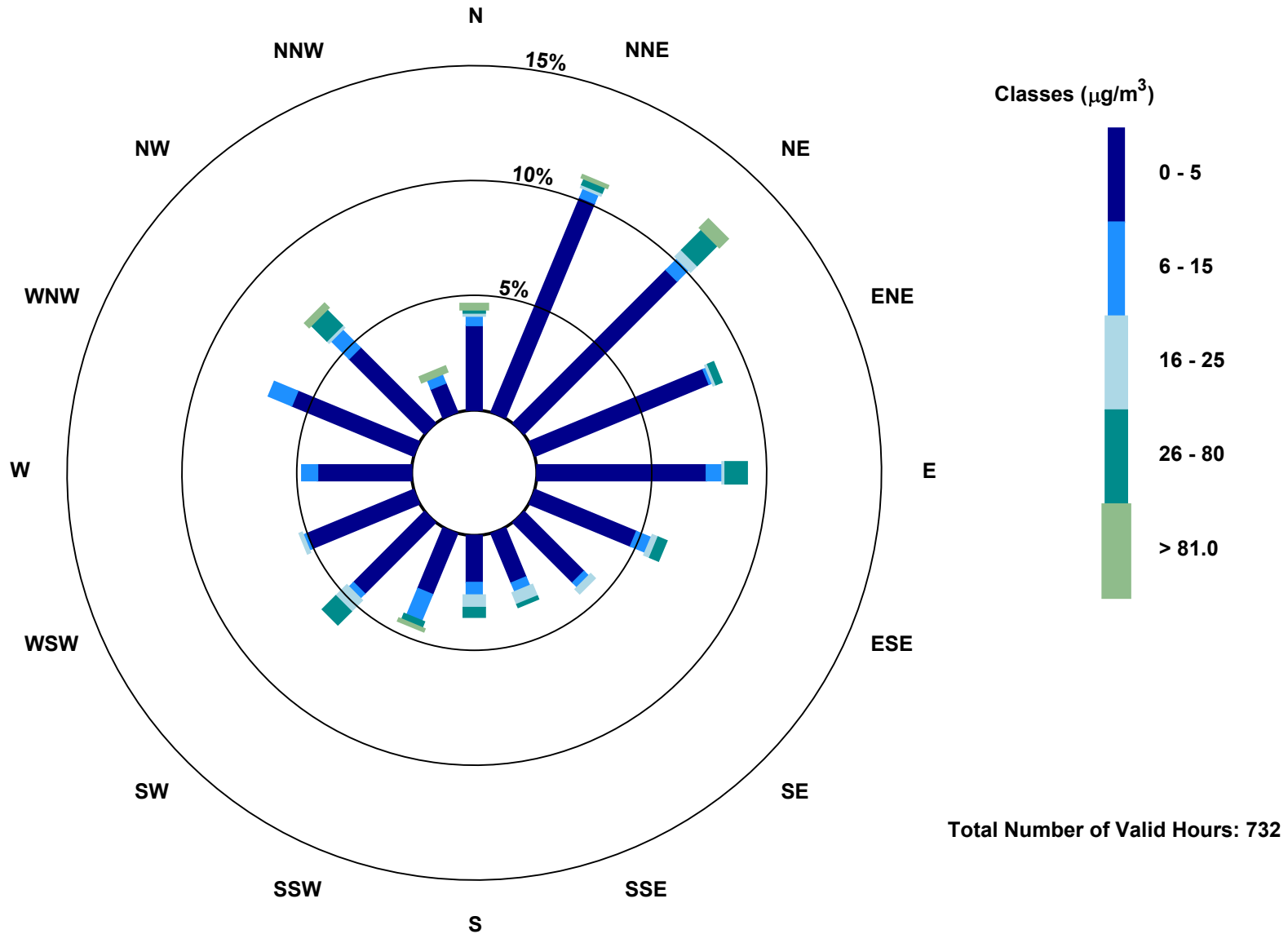
Total Number of Valid Hours: 732

Total Number of Hours: 744



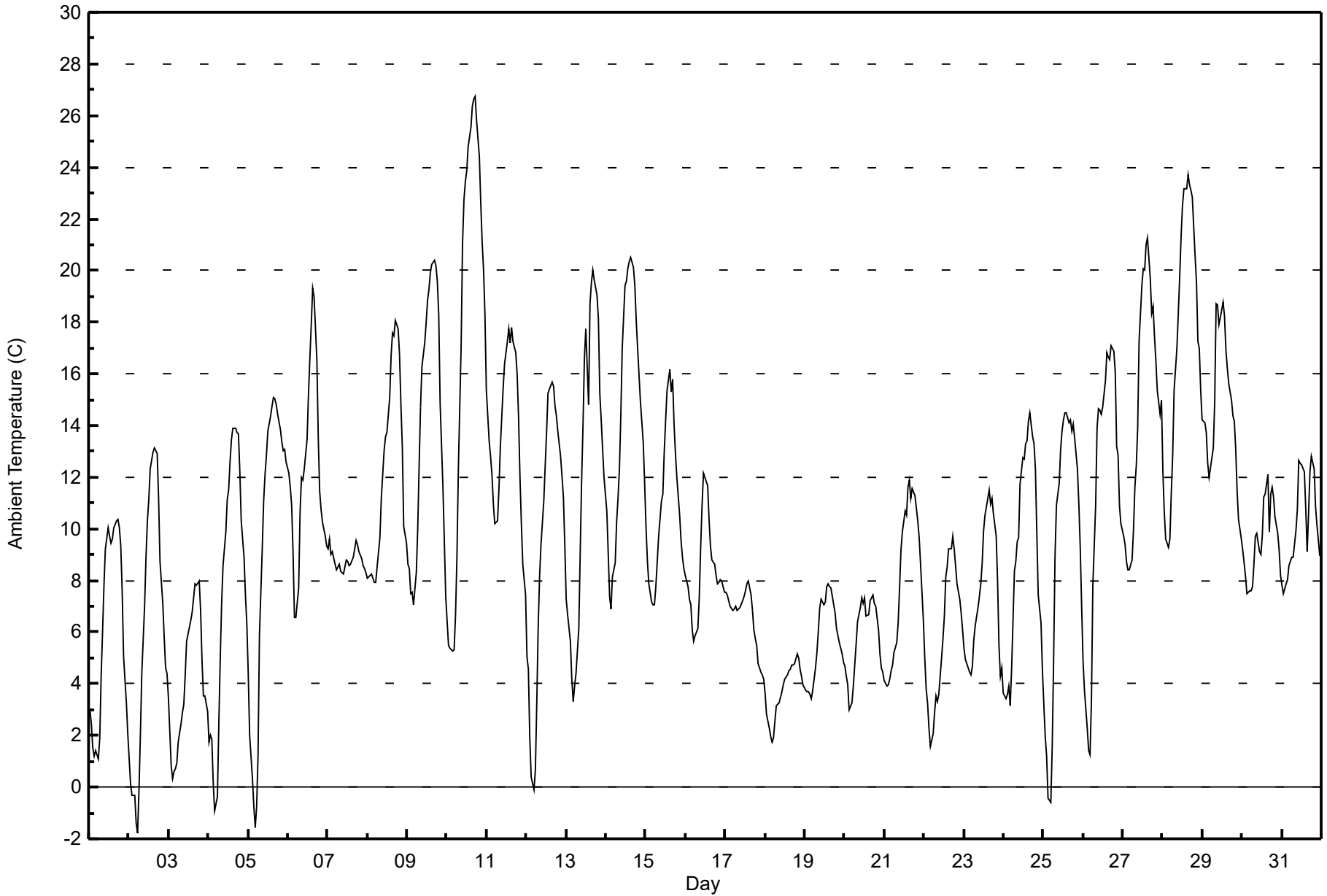
Wood Buffalo Environmental Association  
Wind Rose May 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Janvier





Maximum Value: 26.8 C on May 10 18:00		Maximum Daily Average: 17.8 C on May 10		Hours in Service: 744																																												
Minimum Value: -1.8 C on May 2 06:00		Minimum Daily Average: 3.7 C on May 18		Hours of Data: 744																																												
Maximum Diurnal Average: 14.1 C at hour 16		Minimum Diurnal Average: 4.7 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 9.92 C		Percentiles: P <sub>1</sub> = -0.4 P <sub>10</sub> = 3.4 Q <sub>1</sub> = 6.2 Median = 9.2 Q <sub>3</sub> = 13.3 P <sub>90</sub> = 17.4 P <sub>99</sub> = 23.8		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-May	3.0	2.5	1.6	1.2	1.4	1.1	1.9	4.3	6.1	7.8	9.2	10.0	9.7	9.5	9.6	10.1	10.3	10.4	10.1	9.3	7.6	5.0	3.3	2.0	6.1	10.4																						
2-May	1.1	0.1	-0.3	-0.3	-1.4	-1.8	-0.1	2.0	4.4	7.0	8.9	10.3	11.1	12.3	13.0	13.1	13.0	12.9	11.2	8.8	7.1	5.8	4.6	4.4	6.1	13.1																						
3-May	3.5	0.8	0.3	0.6	0.7	0.9	1.8	2.4	2.9	3.2	4.3	5.6	6.2	6.5	6.8	7.3	7.9	7.8	8.0	6.9	4.9	3.5	3.6	2.9	4.1	8.0																						
4-May	1.8	2.0	1.9	0.2	-0.9	-0.4	2.4	4.9	7.1	8.6	9.9	11.1	11.5	12.6	13.5	13.9	13.9	13.7	13.6	12.2	10.3	8.9	7.4	6.3	7.8	13.9																						
5-May	4.4	2.0	0.3	-0.7	-1.6	-0.8	1.2	5.9	9.2	11.1	12.1	12.9	13.8	14.4	14.8	15.1	15.0	14.8	14.4	13.8	13.3	13.0	13.1	12.6	9.3	15.1																						
6-May	12.1	11.6	10.9	9.0	6.6	6.6	7.7	10.7	12.0	11.9	12.3	13.4	15.2	16.6	17.9	19.3	19.0	16.5	13.5	11.4	10.7	10.3	9.7	9.3	12.3	19.3																						
7-May	9.2	9.6	9.0	9.1	8.6	8.4	8.5	8.6	8.4	8.3	8.5	8.8	8.7	8.6	8.6	8.9	9.2	9.6	9.4	9.1	8.8	8.6	8.5	8.3	8.8	9.6																						
8-May	8.1	8.2	8.2	8.1	7.9	7.9	8.5	9.7	11.2	12.1	13.0	13.5	13.7	15.1	16.7	17.6	17.5	18.1	17.8	16.8	14.8	13.2	10.1	9.4	12.4	18.1																						
9-May	8.7	8.4	7.5	7.5	7.1	8.3	10.0	12.4	14.7	16.3	17.2	18.0	18.8	19.3	19.9	20.2	20.4	20.2	19.6	18.3	14.9	11.6	9.5	7.4	14.0	20.4																						
10-May	6.4	5.5	5.4	5.3	5.3	6.7	8.9	12.3	17.1	21.1	22.7	23.4	23.9	24.8	25.6	26.3	26.7	26.8	25.8	24.4	22.6	21.1	20.0	18.3	17.8	26.8																						
11-May	15.3	13.4	12.8	12.1	10.9	10.2	10.3	11.5	13.2	14.3	15.5	16.4	17.3	17.7	17.2	17.8	17.3	16.8	16.0	14.3	12.0	10.2	8.6	7.4	13.7	17.8																						
12-May	5.0	4.6	1.9	0.4	-0.1	0.7	3.3	6.2	8.1	9.4	11.1	12.5	13.8	15.2	15.4	15.7	15.5	14.8	14.4	13.8	12.8	12.0	11.2	9.4	9.5	15.7																						
13-May	7.3	6.7	5.6	4.2	3.3	3.9	4.4	6.1	9.1	11.8	14.0	16.6	17.7	14.8	18.7	19.5	20.0	19.6	19.0	18.1	15.3	14.2	13.1	12.0	12.3	20.0																						
14-May	10.7	9.0	7.4	6.9	8.2	8.7	10.2	11.2	12.3	14.4	17.0	19.4	19.6	20.1	20.3	20.5	20.1	19.4	18.0	17.0	16.0	14.9	13.4	11.8	14.4	20.5																						
15-May	10.1	8.7	7.9	7.2	7.1	7.1	7.8	8.7	9.7	11.1	11.4	13.0	14.2	15.4	16.1	15.3	15.8	14.1	12.9	12.0	10.5	9.5	8.9	8.5	11.0	16.1																						
16-May	8.2	7.8	7.3	7.1	6.1	5.7	5.9	6.1	7.3	9.3	10.9	12.2	11.8	11.7	10.4	9.3	8.8	8.7	8.2	7.9	7.9	8.0	8.0	7.6	8.4	12.2																						
17-May	7.5	7.4	7.2	7.0	6.8	6.9	7.0	6.9	6.9	7.0	7.2	7.4	7.6	7.9	8.0	7.4	6.9	6.1	5.8	5.5	4.8	4.5	4.3	4.2	6.6	8.0																						
18-May	3.6	2.8	2.3	2.0	1.8	1.9	2.5	3.1	3.3	3.5	3.7	4.0	4.2	4.3	4.5	4.6	4.7	4.7	4.8	5.1	5.0	4.6	4.3	4.0	3.7	5.1																						
19-May	3.7	3.7	3.7	3.6	3.4	3.8	4.6	5.2	6.0	7.0	7.3	7.0	7.1	7.8	7.9	7.8	7.7	7.0	6.7	6.2	5.8	5.6	5.2	4.8	5.8	7.9																						
20-May	4.6	4.3	4.0	3.0	3.3	3.9	4.7	5.6	6.4	6.9	7.3	7.1	7.3	6.6	6.7	7.2	7.3	7.4	7.1	7.0	6.1	5.1	4.6	4.5	5.8	7.4																						
21-May	4.1	3.9	3.9	4.2	4.5	4.7	5.2	5.6	6.3	7.7	9.2	9.9	10.7	10.5	11.6	11.9	11.2	11.5	11.3	10.8	10.3	9.6	8.6	6.5	8.1	11.9																						
22-May	5.0	3.8	3.2	2.3	1.6	2.1	2.9	3.5	3.3	3.6	5.0	5.8	6.6	8.1	8.5	9.2	9.2	9.7	9.2	8.6	7.9	7.3	6.7	6.1	5.8	9.7																						
23-May	5.4	4.9	4.8	4.5	4.3	4.7	5.7	6.3	6.9	7.4	7.9	8.7	9.9	10.5	11.2	11.5	10.9	11.2	10.6	9.7	7.9	5.4	4.3	4.6	7.5	11.5																						
24-May	3.6	3.4	3.6	3.2	4.5	8.4	8.8	9.5	9.7	11.7	12.8	12.7	13.3	13.4	14.2	14.5	13.6	13.3	12.3	9.8	7.4	6.3	4.5	9.1	14.5																							
25-May	3.2	2.0	1.2	-0.5	-0.6	1.6	5.0	9.0	10.9	11.8	13.1	13.8	14.2	14.5	14.5	14.1	14.2	13.8	14.0	13.5	12.3	11.0	9.3	7.0	9.3	14.5																						
26-May	4.9	3.8	2.3	1.4	1.2	3.4	7.8	10.9	13.9	14.6	14.6	14.5	14.7	15.7	16.8	16.6	16.6	17.1	16.9	16.1	13.2	12.8	10.9	10.2	11.3	17.1																						
27-May	9.7	9.4	8.7	8.4	8.4	8.8	9.9	11.6	12.4	13.9	17.2	19.4	20.1	20.0	21.0	21.3	19.7	18.3	18.6	17.5	16.5	15.4	14.4	15.0	14.8	21.3																						
28-May	12.2	10.7	9.6	9.3	9.6	11.4	12.9	15.3	17.0	18.4	19.8	21.3	22.5	23.2	23.2	23.7	23.3	23.1	22.8	20.5	19.6	17.2	17.0	15.4	17.5	23.7																						
29-May	14.2	14.1	13.7	12.5	12.0	12.4	13.1	14.9	18.7	18.7	17.9	18.2	18.8	18.2	16.9	16.2	15.6	15.0	14.4	14.2	13.1	11.4	10.4	9.6	14.8	18.8																						
30-May	9.2	8.7	8.2	7.5	7.6	7.6	7.7	8.6	9.7	9.8	9.1	9.0	9.8	11.3	11.4	12.1	9.9	11.3	11.6	11.2	10.5	9.8	9.2	8.2	9.5	12.1																						
31-May	7.8	7.5	7.9	8.0	8.6	8.7	8.9	8.9	9.9	10.7	12.7	12.5	12.5	12.2	10.8	9.1	10.6	12.2	12.8	12.3	10.8	10.2	9.6	8.9	10.2	12.8																						
																								6.9	6.2	5.5	5.0	4.7	5.1	6.4	8.0	9.5	10.6	11.7	12.5	13.1	13.5	13.9	14.1	14.0	13.8	13.3	12.4	11.1	9.9	9.0	8.1	Diurnal Average
																								15.3	14.1	13.7	12.5	12.0	12.4	13.1	15.3	18.7	21.1	22.7	23.4	23.9	24.8	25.6	26.3	26.7	26.8	25.8	24.4	22.6	21.1	20.0	18.3	Diurnal Maximum







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Janvier - May 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	13	1.75	1.75
0 - 10	404	54.30	56.05
10 - 20	292	39.25	95.30
> 20	35	4.70	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

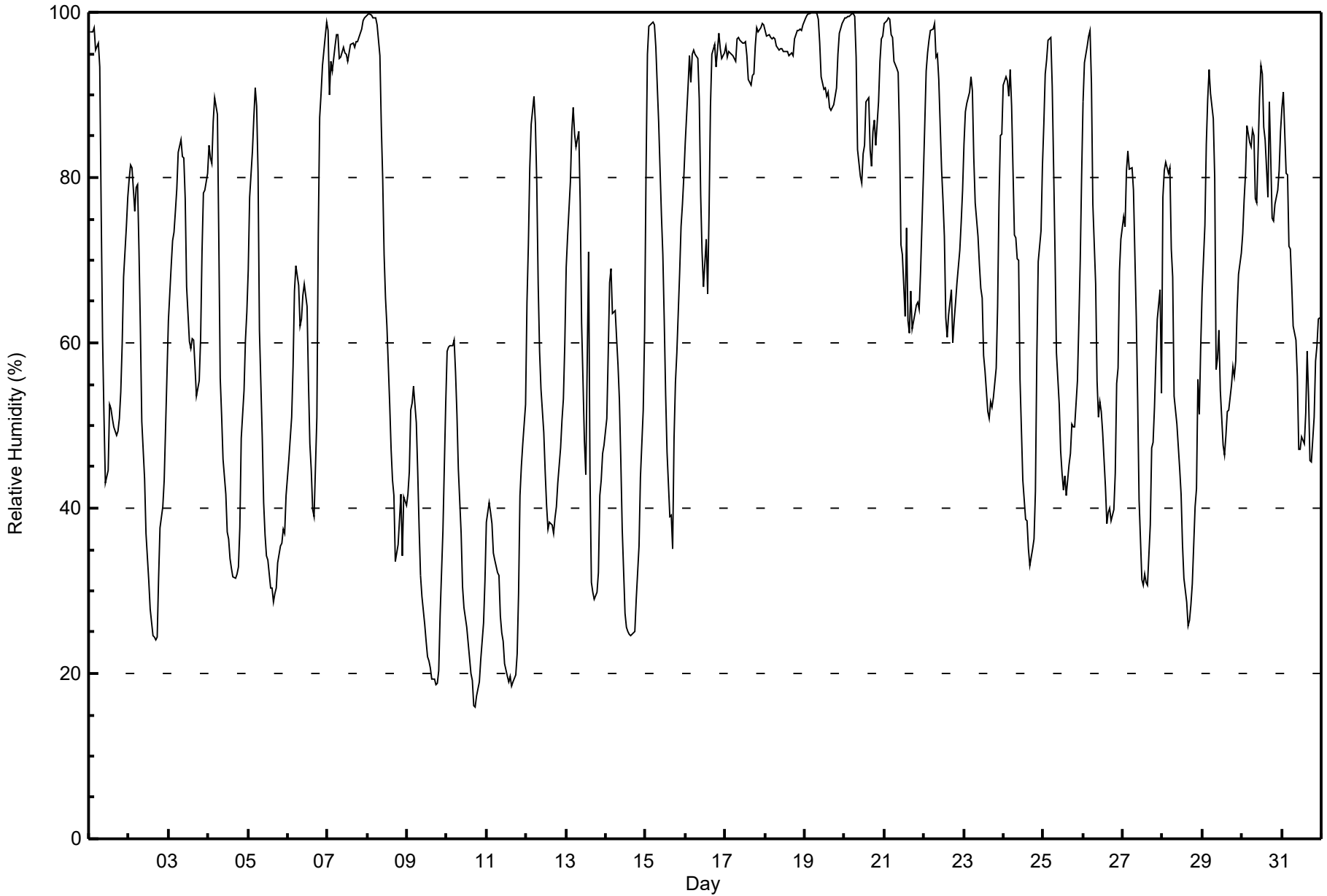
**Relative Humidity (RH) - %**  
**Janvier - May 2024**

Maximum Value: 100.0 % on May 19 06:00      Maximum Daily Average: 96.4 % on May 18																						Hours in Service:	744																								
Minimum Value: 15.9 % on May 10 18:00      Minimum Daily Average: 30.8 % on May 11																						Hours of Data:	744																								
Maximum Diurnal Average: 85.6 % at hour 5      Minimum Diurnal Average: 50.0 % at hour 16																						Hours of Missing Data:	0																								
Monthly Average: 66.23 %      Percentiles: P <sub>1</sub> = 19.0 P <sub>10</sub> = 31.8 Q <sub>1</sub> = 46.0 Median = 67.0 Q <sub>3</sub> = 89.8 P <sub>90</sub> = 96.8 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-May	97.6	97.6	97.7	98.1	95.5	96.2	93.3	76.1	60.6	51.2	43.1	44.5	52.5	52.1	50.9	49.8	48.8	49.3	50.9	54.1	59.8	67.9	74.0	77.6	68.3	98.1																					
2-May	79.9	81.5	81.2	75.9	78.8	79.1	71.2	61.8	50.4	43.6	37.0	34.0	31.1	27.8	24.6	24.4	24.1	24.4	31.6	37.6	40.1	43.4	49.8	56.3	49.6	81.5																					
3-May	62.7	69.3	72.4	73.3	75.9	78.6	83.0	84.5	82.6	82.3	77.4	66.8	60.1	59.4	60.5	60.3	57.0	53.5	55.4	60.5	71.1	78.1	78.4	80.4	70.1	84.5																					
4-May	83.9	82.4	81.8	86.8	89.6	87.6	72.4	55.7	51.3	46.0	41.6	37.2	36.2	34.0	32.8	31.8	31.5	32.0	32.9	37.6	48.5	54.3	60.3	63.7	54.7	89.6																					
5-May	68.8	77.7	83.3	87.4	90.8	88.7	80.6	61.5	48.6	40.7	36.9	34.3	33.8	30.4	30.4	28.6	29.6	30.3	33.3	35.4	35.7	37.4	36.9	41.6	50.1	90.8																					
6-May	46.0	48.5	51.0	57.1	66.3	69.2	67.0	62.0	62.8	65.7	67.0	64.4	55.3	47.9	44.5	39.8	39.0	51.0	73.1	87.2	90.2	93.5	97.1	98.8	64.4	98.8																					
7-May	97.8	89.9	94.1	92.8	96.0	97.3	97.2	94.4	94.6	95.8	95.1	94.9	94.2	95.2	96.1	96.3	95.8	96.5	96.4	96.9	97.9	99.0	99.3	99.6	96.0	99.6																					
8-May	99.7	99.8	99.7	99.3	99.3	99.4	98.4	94.7	86.3	79.8	70.7	65.4	62.0	52.5	47.2	43.3	41.5	33.5	35.5	38.7	41.7	34.2	41.4	40.3	66.8	99.8																					
9-May	41.7	44.5	51.9	52.7	54.7	50.4	44.4	37.6	31.8	29.4	25.9	24.0	22.0	21.6	20.7	19.4	19.2	18.7	18.9	20.4	27.0	37.3	45.1	52.6	33.8	54.7																					
10-May	59.0	59.5	59.7	59.6	60.3	56.5	51.3	44.7	37.0	30.4	27.9	26.7	25.6	23.8	20.1	19.1	16.2	15.9	17.3	19.1	21.7	23.9	26.2	31.2	34.7	60.3																					
11-May	38.3	40.8	39.5	38.2	34.5	33.8	32.2	31.9	27.0	24.9	23.9	21.1	19.6	18.9	19.6	18.4	19.0	19.8	22.4	29.6	41.5	45.1	47.7	52.5	30.8	52.5																					
12-May	64.8	71.8	81.1	86.5	89.9	86.6	79.3	67.2	58.9	54.4	49.2	44.5	40.4	37.5	38.3	38.0	37.0	38.8	40.2	43.0	47.2	50.7	53.3	59.8	56.6	89.9																					
13-May	69.1	73.0	79.5	85.6	88.4	85.3	83.7	85.5	77.0	62.4	55.3	48.1	44.1	71.1	43.8	31.1	29.8	28.9	29.8	32.2	41.5	43.3	46.6	47.6	57.6	88.4																					
14-May	50.8	58.7	67.3	69.0	63.6	63.9	60.5	57.3	53.1	45.8	37.5	27.2	25.6	25.0	24.8	24.5	25.0	25.1	29.1	32.1	32.1	35.5	43.7	51.9	61.6	44.1	69.0																				
15-May	80.7	95.0	98.4	98.7	98.9	98.5	95.8	91.2	86.7	75.4	70.6	62.8	53.8	46.7	39.0	39.1	35.1	48.5	55.3	58.8	68.5	74.0	76.9	80.1	72.0	98.9																					
16-May	84.2	91.1	94.8	91.5	94.9	95.5	94.9	94.4	89.5	78.0	71.0	66.7	72.5	66.0	75.7	88.6	95.0	96.1	93.5	95.3	97.5	95.6	94.5	95.1	88.0	97.5																					
17-May	95.9	94.6	95.3	95.1	94.8	94.4	94.1	96.8	96.9	96.6	96.3	96.3	96.5	94.7	91.9	91.2	92.4	92.6	95.9	98.1	97.6	98.2	98.6	98.4	95.5	98.6																					
18-May	97.7	97.1	97.3	97.0	96.8	97.0	96.7	96.0	95.4	95.5	95.6	95.3	95.2	95.3	94.7	94.9	95.1	94.7	96.7	97.7	97.8	97.9	97.8	98.5	96.4	98.5																					
19-May	99.4	99.7	99.8	99.9	100.0	100.0	100.0	99.9	99.2	96.3	92.1	90.8	90.8	89.8	90.3	88.5	88.2	88.8	89.8	90.9	95.0	97.4	98.7	99.1	95.2	100.0																					
20-May	99.3	99.3	99.5	99.5	99.8	99.9	99.6	94.6	83.4	80.1	79.3	82.9	83.9	89.2	89.7	83.4	81.4	85.7	87.0	83.9	89.2	94.0	96.7	97.2	90.8	99.9																					
21-May	98.6	99.0	99.3	99.2	97.2	96.9	94.1	93.2	92.7	85.2	71.9	70.6	63.1	73.8	62.7	61.1	66.2	61.7	63.5	64.6	64.9	64.1	68.7	80.1	78.9	99.3																					
22-May	86.5	92.9	95.1	96.7	97.8	98.0	98.7	94.6	94.9	91.8	81.0	77.3	73.0	63.1	60.8	63.4	66.5	59.9	62.7	64.9	67.3	71.2	74.6	78.5	79.6	98.7																					
23-May	84.1	88.0	89.0	90.4	92.2	90.6	82.4	76.9	72.8	69.5	66.6	65.4	58.5	56.7	51.7	50.8	52.9	52.2	53.4	57.0	64.3	77.2	85.1	85.2	71.4	92.2																					
24-May	91.2	92.3	91.7	89.9	93.1	88.6	73.1	72.7	70.1	70.1	55.5	43.5	40.9	38.7	38.5	35.1	33.0	35.1	36.2	42.0	58.4	69.8	73.6	81.4	63.1	93.1																					
25-May	86.4	92.6	94.2	96.6	96.9	91.1	81.2	70.8	58.7	52.6	47.0	44.3	42.3	44.0	41.5	45.3	46.6	50.1	49.7	49.9	55.4	62.4	69.9	80.4	64.6	96.9																					
26-May	89.2	93.9	95.9	97.1	97.8	91.3	76.7	67.1	55.4	51.1	52.9	51.7	49.1	42.6	38.1	39.5	40.0	38.4	39.8	44.3	55.1	56.9	68.6	72.5	62.7	97.8																					
27-May	75.3	74.1	80.8	83.1	81.0	81.2	78.5	70.7	63.1	53.1	41.1	31.4	30.6	32.1	31.1	30.6	37.9	47.2	48.0	52.3	58.0	62.8	66.5	54.0	56.9	83.1																					
28-May	77.6	80.9	81.9	80.6	81.1	71.3	67.9	53.6	50.2	47.5	44.7	41.7	35.6	31.4	28.7	25.7	26.5	28.4	30.9	40.2	42.3	55.6	51.3	59.5	51.5	81.9																					
29-May	66.2	74.2	84.1	89.5	93.0	90.2	87.1	80.0	56.9	58.1	61.6	54.2	47.6	46.5	48.9	51.7	51.8	54.8	57.1	56.0	57.9	64.1	68.3	70.9	65.4	93.0																					
30-May	73.1	77.4	80.5	86.3	84.2	83.7	85.8	85.1	77.4	76.9	89.7	93.6	92.5	86.1	84.6	77.6	89.1	82.4	75.0	74.8	76.9	78.5	80.9	85.5	82.4	93.6																					
31-May	88.5	90.4	80.5	80.4	71.7	71.4	67.0	62.0	60.3	55.9	47.1	47.2	48.6	47.8	51.5	58.9	53.5	45.8	45.6	51.1	57.8	59.7	62.8	63.1	61.2	90.4																					
																						78.5	81.5	83.8	85.0	85.6	84.3	80.3	74.7	68.6	64.1	59.8	56.4	54.1	52.9	50.8	50.0	50.5	51.0	53.1	56.3	61.4	65.5	69.1	72.4	Diurnal Average	
																						99.7	99.8	99.8	99.9	100.0	100.0	100.0	99.9	99.2	96.6	96.3	96.3	96.5	95.3	96.1	96.3	95.8	96.5	96.7	98.1	97.9	99.0	99.3	99.6	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Janvier - May 2024**





# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Janvier - May 2024

Maximum Speed: 19 km/h on May 2 16:00	Maximum Daily Speed Average: 10.9 km/h on May 10	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 20 04:00	Minimum Daily Speed Average: 1.1 km/h on May 15	Hours of Data: 744
Maximum Diurnal Speed Average: 3.8 km/h at hour 14	Minimum Diurnal Speed Average: 0.2 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 1.1 km/h 18.5 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 4 Median = 7 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 P <sub>99</sub> = 18	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE5	N6	NNE5	NNE5	NNE5	N3	NNE4	NNE9	NE12	NE14	NNE17	NE17	NE18	NE17	NE16	NE15	NNE15	NE14	NE14	NE13	NE10	NNE3	N3	NW2	NE9.8	NE18
2-May	NE2	NE1	NNE2	NNE3	NNE3	NNE3	NNE5	NNE8	NNE10	NNE12	NNE16	NNE16	NNE16	NNE18	NNE17	NNE19	NNE18	NE17	E11	E9	E4	ESE6	ESE5	E5	NE8.5	NNE19
3-May	E4	N2	NW0	N1	NNW2	N2	NNE4	N2	NNE4	NNE4	NNE6	NE8	NE7	NE6	NNE5	E7	E6	NNE6	ESE6	SSE4	S4	SSW4	SSW5	SSW3	NE2.2	NE8
4-May	SSW4	SSW6	SSW6	SSW7	SSW6	SSW4	SSW1	NNE5	NE8	ENE7	NE7	NE6	NNE4	ESE5	N4	ENE9	ENE8	ENE7	ENE8	ENE5	E6	E9	E7	ESE6	E3.3	ENE9
5-May	SE5	S1	S2	SSW1	SSW1	SW1	W2	S3	SSE6	S10	SSE10	SSE10	SSE8	SE12	SE12	SE11	SSE11	SSE9	SSE7	ESE7	ESE5	ESE6	E6	E9	SSE5.7	SE12
6-May	ESE7	SE6	ESE5	SE4	N1	NNE4	N2	E4	E9	NE8	ENE8	ENE10	ENE14	NE14	NE14	ENE10	SE10	S16	SSE11	SE8	E7	NE6	N4	NNE4	E5.3	S16
7-May	NNE3	NE3	ENE3	ENE6	NE6	NE7	NE7	ENE9	ENE8	ENE8	ENE7	ENE8	ENE9	ENE8	NE6	ENE6	ENE6	ENE4	ENE6	E4	NNW1	WNW0	NE1	ESE1	ENE5.2	ENE9
8-May	S1	SSW3	SSW4	SSW4	SW3	SSW5	SW4	WSW4	WNW5	NW7	NW6	NW6	NW5	NNE4	ESE2	SSW1	NNE3	WSW8	SW10	SW6	SW6	WSW5	SSW6	SSW8	WSW3.0	SW10
9-May	SSW7	SW7	SSW8	SSW9	SSW8	WSW9	W9	WNW8	WNW10	WNW11	WNW12	WNW12	WNW14	WNW14	WNW13	WNW15	NW11	NW10	NW8	NW6	SW1	SSE3	SSE2	SSW3	W6.8	WNW15
10-May	S3	SSW6	SSW8	SSW7	SSW9	SSW11	SSW9	SW10	SW10	WSW12	W16	W16	W17	WSW18	WSW19	W17	WSW18	W18	W17	W13	W11	WSW9	WSW12	NW9	WSW10.9	WSW19
11-May	N13	N7	WNW3	WNW7	NW7	WNW9	WNW10	NW10	WNW14	NW16	NW15	NW16	NW15	NW13	N14	NNW11	N11	N10	N8	NNE9	NNE11	NE10	NE8	NE6	NNW8.6	NW16
12-May	NE5	ENE5	WNW1	SSE0	ENE1	N0	NW2	E2	E5	ENE7	NE9	ENE9	NE11	ENE11	ENE10	ENE10	S5	SW7	S3	S7	SSW7	S6	SSE6	S4	E2.8	NE11
13-May	ESE2	E2	SE3	SE2	SSE2	SSE1	N2	N1	SSW2	S8	S12	S11	SSW12	S1	SW7	WSW8	W11	WSW10	SW8	SW6	SSW4	SSW6	SW5	SSW3	SSW4.1	S12
14-May	S2	SSE3	SSW2	SSW4	SSW7	SSW7	SSW7	SSW7	SSW9	SSW9	SW7	WSW11	WSW11	WSW12	W12	W13	W13	W14	W14	W12	WNW8	WNW9	N3	NNE5	WSW6.6	W14
15-May	WSW3	S2	S4	SW4	WSW3	SSW6	SW5	SSW4	NW2	NNE8	NE6	NE7	NE7	NNE9	NE7	NE7	ESE8	SSE5	SW4	NW3	ESE1	NE2	S4	E1.1	NNE9	
16-May	S3	N1	NE5	NE3	NNE4	N4	NNE5	NNE5	NE6	NE8	NE10	NE8	ENE8	ESE13	ESE9	ENE6	NNE4	ENE5	ESE9	E6	NE7	ENE8	E10	E9	ENE5.5	ESE13
17-May	ENE8	E8	E8	ENE9	ENE9	E9	E8	ENE8	NE8	ENE8	NE7	NE8	NE8	NE9	ENE8	ENE7	ENE6	ENE6	NNE4	N4	NNW3	NNW3	NNW4	ENE6.1	ENE9	
18-May	NNW4	NW5	WNW4	WNW4	WNW5	WNW4	WNW4	WNW6	WNW7	WNW7	WNW7	NW7	WNW8	WNW8	WNW8	WNW7	W7	W7	W4	W3	WNW2	NW1	W3	WSW3	WNW5.1	WNW8
19-May	WSW4	W3	WSW3	WSW3	SW4	WNW2	NNW4	NNW4	N4	NNE7	NE10	NE10	NE10	NE8	NE10	NE10	NE10	NE10	NE10	NE9	NNE7	N3	N2	NNW2	NNE4.5	NE10
20-May	N1	N2	N2	N0	NNE3	N3	N4	NNE6	NNE8	NNE9	NNE10	NE10	NNE11	NNE12	NNE9	NNE8	NNE10	NNE7	NNE7	NNE6	NNE4	NNE2	NE3	N2	NNE5.7	NNE12
21-May	N2	NNW2	N2	ENE2	NE2	E3	ESE4	ESE4	ESE4	E7	ENE8	E10	ENE8	NE8	E9	ENE11	ENE8	ENE8	E8	ENE8	ENE7	E8	E4	ESE2	ENE5.2	ENE11
22-May	E2	NNE2	NNW1	NE2	NNE4	NNE5	NNE5	NNE8	NNE10	NE10	NE9	NE9	NNE9	NNE9	NNE9	N8	ENE8	ENE10	ENE9	ENE8	NE7	NE6	NNE5	NNE4	NE6.3	ENE10
23-May	NNE2	N2	N2	NNE3	NNE3	N3	ENE4	ENE5	NE5	ENE6	ENE7	NE10	ENE7	NE11	ENE9	E10	E10	ENE10	E8	E7	E4	ESE2	ENE1	SE2	ENE5.0	NE11
24-May	W1	S1	NNE0	ENE2	NNW1	WNW1	E3	ESE6	ESE4	NE3	ENE8	ESE8	ESE8	E10	E9	ESE8	ESE9	ESE7	SE7	S6	S4	SE5	SSE4	SE4	ESE4.0	E10
25-May	SW1	ESE2	SE2	S1	S2	WNW1	NW2	SE2	ESE8	ESE10	SE7	ESE9	SE9	ENE9	SSE7	S11	S10	SE10	SE10	SE7	ESE5	SE5	SSE3	SSE2	SE4.6	S11
26-May	SE1	SSE1	NNE0	SSW1	ESE1	NW1	NW1	SSW2	ESE5	SSE5	WSW7	WSW6	SW4	NE6	ENE9	ENE8	NE6	ENE7	E5	E4	ESE4	E4	ESE2	S1	E1.6	ENE9
27-May	SE2	E1	NNW1	ESE1	SE1	S2	NNE1	ENE2	ESE1	S2	E4	ESE9	SE8	SE7	SE7	SE7	SW7	SW2	E3	E4	WNW1	NNE3	E3	SSE3	SE2.3	ESE9
28-May	ENE2	ESE4	SSE1	SW1	SE4	SSE2	SSW3	S8	SW6	SW6	NNW3	WNW2	W7	WNW3	SSW8	SW8	S6	SSE4	E2	ENE4	ENE4	NNE3	NE5	NE3	SSW1.4	SSW8
29-May	N1	ESE5	NE2	NNE3	N2	NNE2	SSW1	SSW4	SW12	WSW13	WSW12	WSW13	WSW15	WSW14	W16	W13	W13	W12	W10	WSW9	W10	WSW7	WSW7	WSW10	WSW7.3	W16
30-May	WSW11	WSW10	WSW11	SW8	WSW9	WSW9	WSW8	W7	WNW9	WNW10	WNW8	WNW6	WNW7	NW9	NNW7	NNW8	NW5	WNW7	NW7	WNW8	WNW7	WNW7	W9	W8	W7.2	WSW11
31-May	WSW6	W7	WNW9	W10	WNW12	WNW11	WNW13	WNW14	WNW14	WNW15	WNW15	WNW14	WNW14	NW13	NW15	NW12	WNW10	W12	WNW12	WNW11	NNW7	NW7	NW8	NW10	WNW10.8	NW15

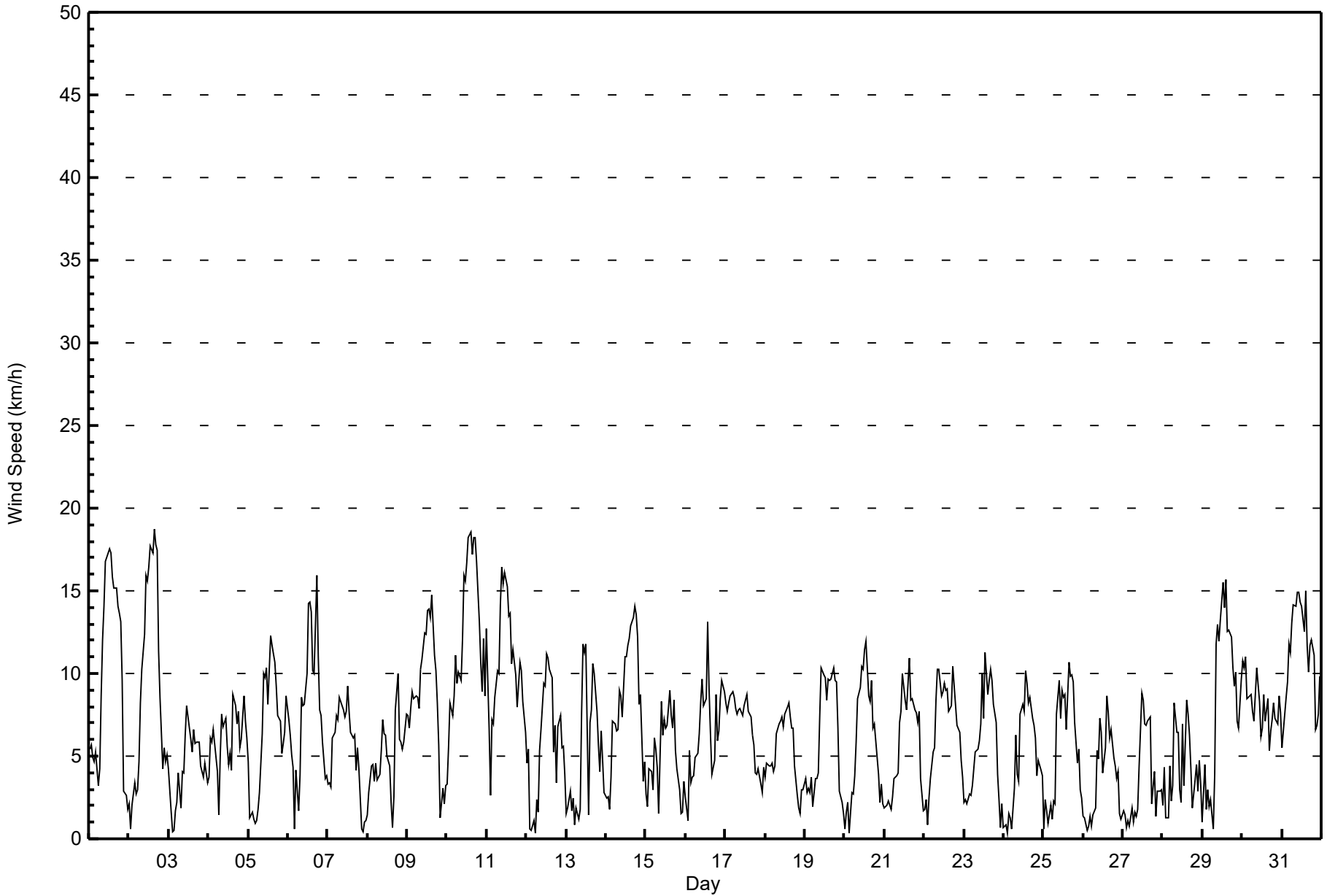
E0.4 SE0.3 SW0.7 SW0.7	WSW0.7 W1.1 NW1.3	NNW1.0 N1.5 N2.1	N3.1 NNE2.8	NNE2.8 NNE3.8	NNE3.2 NNE2.8	NNE1.5 NNE1.1	ENE1.0 ENE1.0	NNE1.1 ENE0.8	E0.5 E0.2	Diurnal Average													
N13 WSW10	WSW11 W10	WNW12	WNW11	WNW13	WNW14	WNW14	NW16	NNE17	NE17	NE18	WSW18	WSW19	NNE19	WSW18	W18	W17	W13	NNE11	NE10	WSW12	NW10	Diurnal Maximum	

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Janvier - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	306	41.13	41.13
6 - 11	351	47.18	88.31
12 - 19	87	11.69	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: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Janvier - May 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	35	47	16	16	21	24	14	17	22	25	13	8	6	17	11	14	306
6 - 11	6	27	54	57	30	19	14	10	10	26	16	20	13	29	15	5	351
12 - 19	2	11	13	1	0	1	2	0	2	1	1	11	17	17	8	0	87
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>	43	85	83	74	51	44	30	27	34	52	30	39	36	63	34	19	744

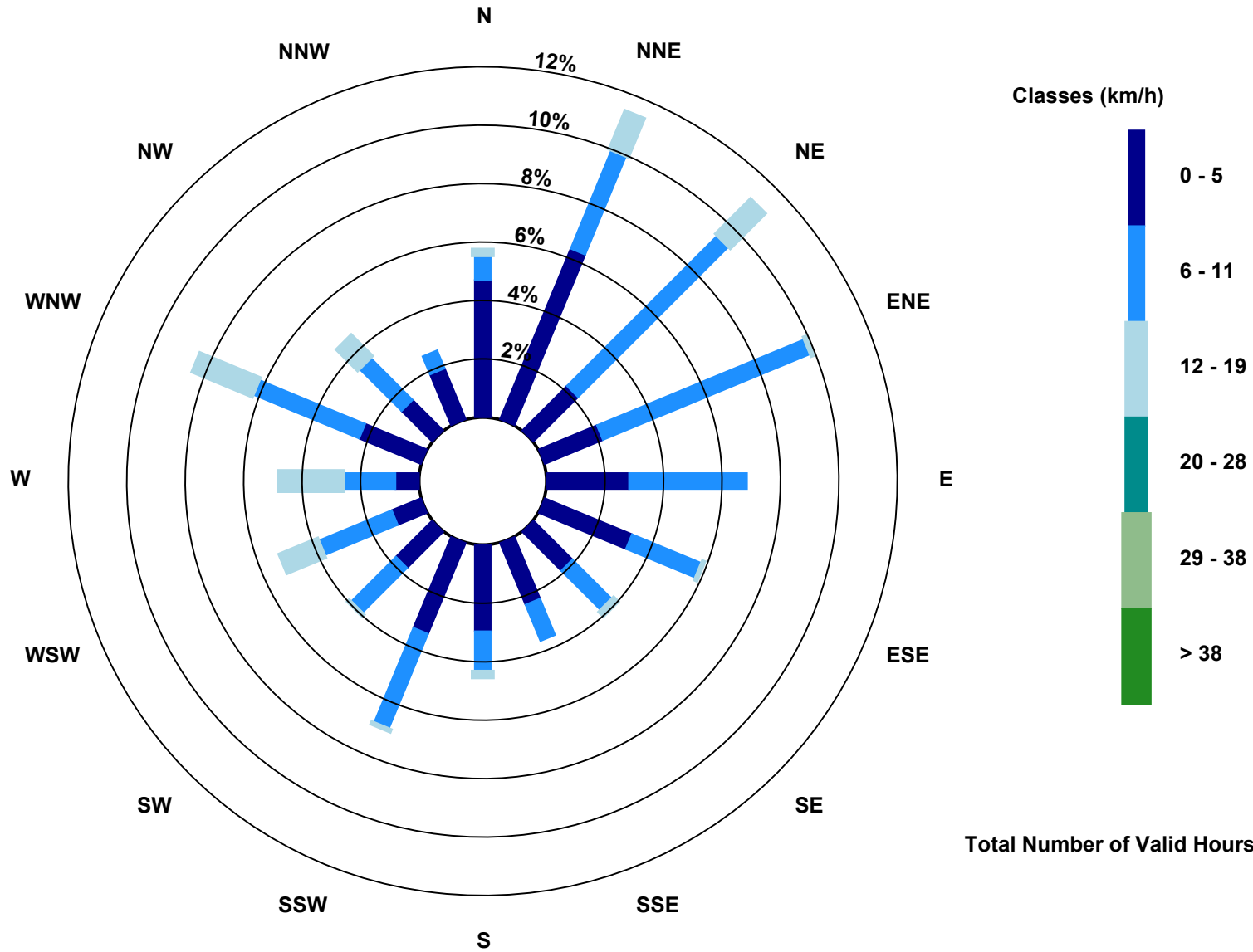
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Janvier







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Janvier - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on May 11 13:00 Minimum Value: 0 km/h on May 5 07:00 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> = 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-May	2	2	2	2	2	1	2	3	3	5	5	5	5	5	4	4	4	4	4	4	3	1	1	1	5
2-May	1	1	1	1	1	1	2	3	4	4	5	5	5	6	6	6	6	5	4	4	2	2	1	1	6
3-May	2	1	1	1	1	1	2	1	1	2	3	3	2	3	3	2	3	2	2	1	1	1	1	2	3
4-May	1	2	1	1	1	1	1	2	3	4	3	3	4	4	3	3	3	2	2	1	3	3	2	2	4
5-May	2	1	1	1	1	1	0	2	4	4	4	4	4	4	4	4	3	3	3	2	2	2	2	3	4
6-May	3	2	2	1	1	2	1	3	3	3	3	4	4	5	4	4	4	5	4	3	3	2	1	1	5
7-May	1	2	2	2	2	2	2	3	3	3	2	3	3	3	2	2	2	1	2	2	1	1	1	1	3
8-May	1	1	1	1	1	1	1	1	2	3	3	3	2	3	2	3	2	3	4	2	2	2	1	2	4
9-May	1	2	2	2	2	3	4	4	4	4	5	6	7	6	6	6	5	5	4	3	1	1	1	1	7
10-May	1	1	2	2	2	3	2	3	3	5	7	6	7	6	7	7	6	7	6	5	4	3	4	6	7
11-May	5	3	2	3	3	3	4	5	6	7	7	7	7	7	6	5	5	4	3	5	3	3	2	2	7
12-May	2	3	2	1	1	1	1	2	2	3	3	3	3	4	3	3	5	3	1	5	2	2	2	1	5
13-May	1	1	1	1	1	1	1	1	2	4	4	4	5	3	3	4	4	5	3	2	1	2	2	1	5
14-May	1	1	1	1	1	1	2	2	3	2	3	4	4	5	5	5	5	6	5	5	3	5	2	3	6
15-May	1	1	2	1	1	2	1	1	1	3	2	3	3	3	4	3	2	4	2	1	2	1	1	2	4
16-May	2	2	2	2	1	1	2	2	3	3	3	3	5	5	3	2	1	3	3	3	3	3	3	3	5
17-May	3	3	3	3	3	3	3	3	3	2	2	2	2	3	3	3	2	2	2	1	2	1	2	2	3
18-May	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	3	2	1	1	1	1	1	3
19-May	1	1	1	1	1	1	1	1	2	3	3	3	3	4	3	4	3	4	3	3	2	2	1	1	4
20-May	1	1	1	1	1	1	2	2	3	3	3	3	3	4	3	3	3	2	2	2	1	1	1	1	4
21-May	1	1	1	1	1	1	1	1	1	2	2	3	4	3	3	3	3	3	3	3	3	3	2	1	4
22-May	1	1	1	2	1	2	2	3	3	3	3	3	4	3	3	4	3	4	3	2	2	2	1	1	4
23-May	1	1	1	1	1	1	2	2	2	2	2	4	3	4	3	3	3	3	3	3	2	1	1	2	4
24-May	1	1	1	1	1	1	2	3	2	2	3	3	3	3	3	3	4	3	2	2	1	1	1	1	4
25-May	1	1	1	1	1	1	1	2	3	4	4	4	4	4	3	3	4	3	3	2	2	2	1	1	4
26-May	1	1	1	1	1	1	1	1	3	2	3	2	2	3	3	2	2	2	2	1	1	1	1	1	3
27-May	1	1	1	1	1	1	1	1	1	1	3	4	4	4	4	4	3	2	1	1	2	1	2	2	4
28-May	2	2	1	2	2	3	2	3	3	3	3	2	4	3	4	3	3	2	1	1	1	2	2	1	4
29-May	1	3	2	1	1	1	1	3	5	5	5	6	6	6	6	6	5	5	4	4	4	3	2	4	6
30-May	5	4	4	3	3	3	3	3	4	4	4	3	3	4	4	5	4	3	4	4	3	3	3	3	5
31-May	2	2	4	4	5	5	6	6	6	7	7	6	6	6	7	6	4	6	5	5	6	4	4	5	7
Diurnal Maximum																									



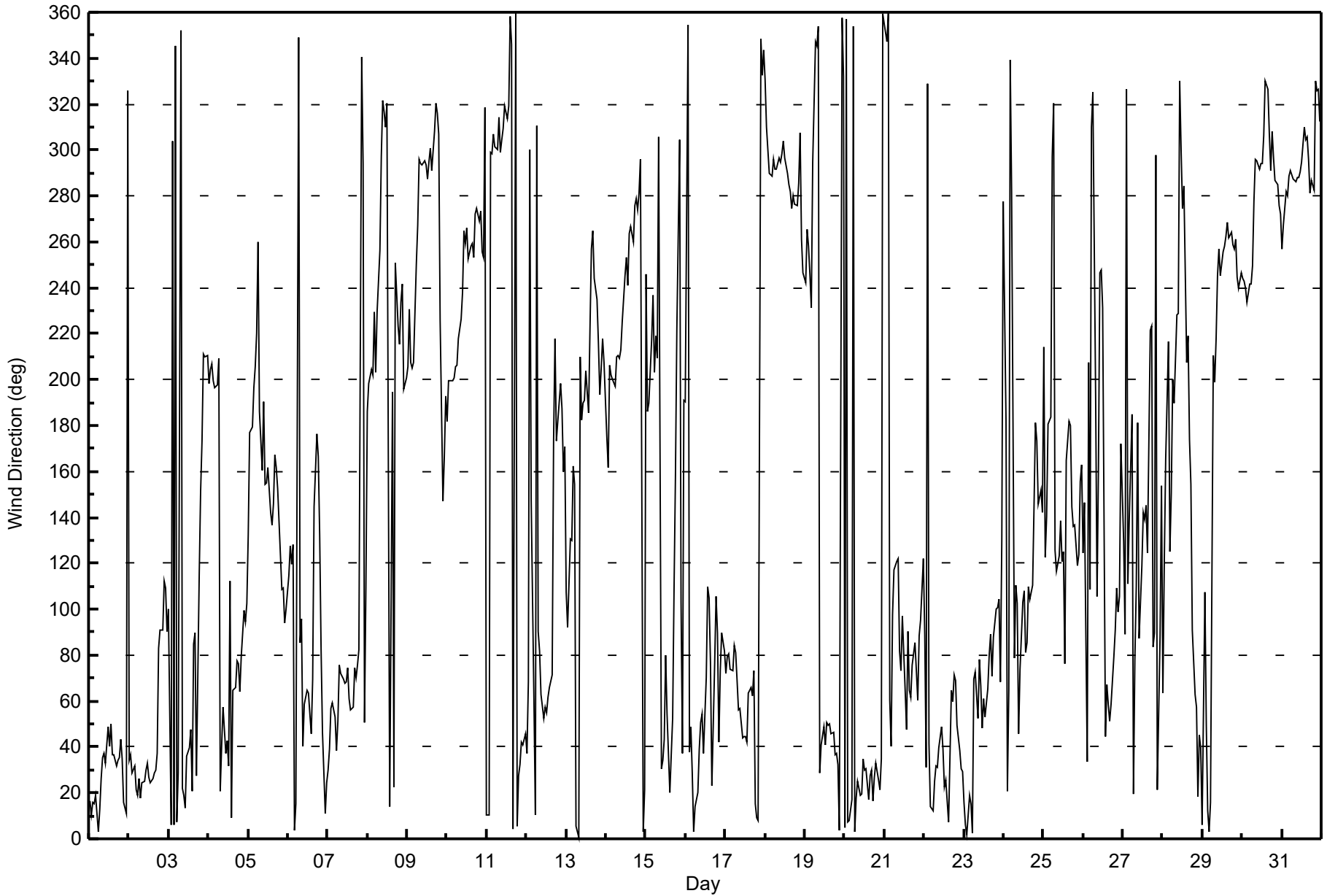
**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Janvier - May 2024**

Direction of Maximum Speed: 29 deg on May 2 16:00 Direction of Maximum Daily Speed Average: 249.8 deg on May 10	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0
Direction of Minimum Speed: 8 deg on May 20 04:00 Direction of Minimum Daily Speed Average: 1.1 deg on May 15	Percent Operational Time: 100.0
Monthly Average Direction: 18.5 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	16	10	16	15	19	3	13	26	35	37	33	49	41	50	36	37	31	34	35	43	34	16	11	326	33.8
2-May	34	37	29	32	21	19	26	17	25	25	30	33	27	24	26	29	30	37	83	91	91	113	109	90	38.0
3-May	100	6	304	6	346	7	28	352	22	19	13	36	40	48	21	85	89	27	115	151	173	211	210	211	54.1
4-May	198	205	207	200	196	198	209	21	40	57	37	43	31	112	9	64	66	77	76	64	79	100	95	103	83.1
5-May	133	177	179	196	206	220	260	186	161	190	155	155	162	142	137	146	167	162	153	123	109	109	94	100	147.8
6-May	115	128	120	128	4	16	349	85	96	40	58	64	64	55	46	70	145	176	166	133	83	47	11	24	86.4
7-May	30	39	57	59	53	38	51	76	72	69	68	68	75	61	56	58	74	70	75	83	340	294	50	109	63.1
8-May	186	198	204	202	230	203	229	257	297	321	316	310	320	14	102	195	22	251	223	215	234	241	196	201	245.6
9-May	206	231	208	205	208	250	267	296	294	294	295	294	287	294	301	291	308	320	316	307	226	147	167	193	278.1
10-May	182	199	200	200	201	206	206	218	226	238	265	260	266	253	258	259	253	272	275	269	274	256	253	318	249.8
11-May	11	10	299	298	307	301	300	314	299	304	309	319	313	319	358	346	4	360	5	28	33	42	41	46	338.2
12-May	37	68	300	148	59	10	311	90	82	63	52	57	55	61	66	72	174	218	174	182	198	187	160	171	90.8
13-May	107	92	131	130	162	154	6	1	210	183	190	191	204	185	223	257	265	244	235	216	194	205	218	208	211.4
14-May	175	162	206	202	200	197	210	211	210	213	225	245	253	241	264	267	260	276	279	274	282	296	3	21	249.7
15-May	246	186	190	217	237	203	219	210	305	30	34	43	80	54	20	37	53	109	158	222	304	103	37	191	79.3
16-May	190	355	38	49	29	3	14	20	39	51	54	37	70	110	105	77	23	77	106	90	42	73	90	82	66.4
17-May	72	79	80	74	73	84	81	69	56	57	44	45	45	42	63	66	62	73	15	9	8	348	333	344	57.0
18-May	331	310	290	289	288	296	291	291	297	295	299	304	296	290	285	282	275	280	277	276	286	307	261	246	290.0
19-May	242	266	258	246	231	295	347	345	354	29	41	49	41	51	49	50	46	46	37	37	33	4	357	332	30.9
20-May	5	357	7	8	17	354	3	18	25	19	19	35	30	31	17	28	30	17	27	33	26	21	35	359	23.2
21-May	355	347	360	61	40	98	117	121	122	82	73	97	65	48	90	65	62	76	86	74	61	89	95	122	76.6
22-May	88	31	329	41	14	12	25	32	31	40	49	39	23	25	17	7	64	60	71	69	50	38	30	29	38.2
23-May	16	6	2	19	16	3	69	73	52	78	67	48	61	53	65	80	89	71	88	100	101	104	68	130	66.9
24-May	277	182	21	65	339	282	79	110	103	46	74	103	108	81	85	110	105	110	144	181	174	146	152	142	109.2
25-May	214	123	140	181	183	297	320	126	117	123	139	121	125	76	165	182	180	144	136	137	119	124	156	163	138.7
26-May	124	147	33	207	109	310	325	192	106	163	246	248	231	44	67	59	51	58	80	91	109	99	106	172	90.8
27-May	130	89	327	111	140	185	20	78	110	181	87	119	142	139	146	125	221	223	83	90	298	22	89	154	129.6
28-May	63	120	165	217	125	151	200	190	228	229	330	300	275	285	208	219	174	154	91	63	58	19	45	39	191.3
29-May	6	107	49	12	3	16	210	199	218	246	257	245	255	258	262	268	261	264	259	257	261	245	240	246	254.3
30-May	244	243	240	234	242	242	250	278	296	295	292	294	294	306	330	327	307	291	308	296	287	285	276	272	277.9
31-May	257	267	282	280	288	291	289	288	286	288	288	290	295	310	305	306	296	281	287	283	330	326	326	313	293.4
89.5 140.5 223.5 221.4 258.6 279.4 310.3 347.6 6.7 2.1 7.8 23.7 12.5 29.5 21.2 27.0 28.2 20.8 75.2 76.7 30.5 69.6 81.2 94.7																									
Diurnal Average																									

All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Janvier - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on May 25 08:00 Minimum Value: 7 deg on May 4 05:00 Percentiles: P <sub>1</sub> = 11 P <sub>10</sub> = 20 Q <sub>1</sub> = 24 Median = 31 Q <sub>3</sub> = 44 P <sub>90</sub> = 62 P <sub>99</sub> = 95																			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-May	18	17	25	21	20	28	25	22	20	22	21	21	20	21	20	19	19	18	16	15	14	24	31	41	41
2-May	32	85	36	19	29	28	22	22	25	23	22	25	24	24	23	25	24	25	31	24	24	18	13	18	85
3-May	23	46	91	96	41	34	28	72	43	54	49	32	35	48	53	32	47	25	31	26	19	19	28	55	96
4-May	38	20	12	7	7	13	59	45	29	62	54	64	88	82	79	37	44	31	27	19	20	20	20	24	88
5-May	24	75	48	39	39	23	27	68	40	32	49	34	47	30	32	27	29	28	32	20	25	31	27	23	75
6-May	27	26	24	26	96	18	58	59	34	25	24	28	23	22	20	35	39	24	25	29	29	18	19	13	96
7-May	25	37	44	22	24	15	22	24	25	27	26	25	27	24	24	26	27	31	26	27	50	41	28	30	50
8-May	44	28	15	13	24	19	24	24	39	48	49	41	46	69	85	95	83	34	29	22	25	20	12	11	95
9-May	12	24	19	16	14	28	27	50	33	34	33	41	37	38	37	31	46	54	56	47	76	16	52	25	76
10-May	26	10	8	13	10	14	16	21	24	33	28	26	26	26	27	26	26	26	22	21	19	21	20	55	55
11-May	34	35	66	37	41	33	34	48	36	40	46	46	44	49	45	48	42	44	34	24	16	14	14	18	66
12-May	23	35	97	87	83	85	38	85	49	43	27	24	24	29	29	25	65	23	31	29	17	25	30	25	97
13-May	58	45	34	69	33	87	39	87	81	31	27	31	30	84	43	29	28	28	28	20	21	18	58	32	87
14-May	49	27	40	29	10	10	21	21	21	25	37	34	36	31	28	30	28	23	21	22	20	38	48	31	49
15-May	50	52	18	20	38	15	21	25	66	27	39	47	47	53	39	23	29	42	33	22	35	51	50	40	66
16-May	55	75	22	49	42	31	21	20	22	25	29	29	41	26	27	29	25	49	25	29	22	30	29	27	75
17-May	27	30	27	27	27	28	28	28	24	24	25	19	20	21	25	25	29	28	34	33	43	49	66	47	66
18-May	52	41	27	27	31	34	36	31	33	33	34	41	36	28	23	23	23	20	20	22	57	68	23	23	68
19-May	23	29	27	24	23	34	41	41	50	25	21	22	22	26	27	27	21	20	18	16	17	33	42	36	50
20-May	56	30	26	72	25	31	28	25	26	26	24	21	20	20	24	24	20	24	24	22	20	20	18	31	72
21-May	30	22	28	58	60	57	33	33	43	35	35	33	39	33	34	31	30	30	30	27	26	27	33	46	60
22-May	46	27	92	60	18	22	23	18	18	19	36	31	35	39	30	44	36	33	29	26	20	15	16	15	92
23-May	32	27	24	26	19	29	43	37	36	39	39	26	42	31	37	31	31	30	32	29	21	32	76	61	76
24-May	71	59	97	40	32	95	68	44	59	51	45	44	43	31	34	39	48	33	28	31	32	15	18	16	97
25-May	80	71	71	67	42	45	23	98	43	35	59	47	44	38	43	28	28	31	28	28	23	16	29	58	98
26-May	78	52	72	76	62	64	57	78	59	62	36	35	48	49	37	28	22	25	27	27	16	17	64	61	78
27-May	39	84	74	70	92	65	86	80	89	72	56	52	43	44	62	52	35	59	22	19	95	61	56	61	95
28-May	79	28	86	93	52	95	68	26	48	50	77	94	52	75	34	42	45	38	74	15	20	48	28	31	95
29-May	75	52	88	51	49	28	93	51	31	31	33	34	32	34	30	30	29	28	30	31	29	29	28	27	93
30-May	34	31	29	28	30	30	30	41	46	41	36	41	42	44	51	53	53	40	50	42	39	35	25	26	53
31-May	23	28	31	31	33	37	33	33	33	33	36	34	38	52	42	47	37	35	34	36	58	60	54	51	60
80 85 97 96 96 95 93 98 89 72 77 94 88 84 85 95 83 59 74 47 95 68 76 61																									
Diurnal Maximum																									



Maximum Speed: 26 km/h on May 31 15:00	Maximum Daily Speed Average: 17.7 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 8 16:00	Minimum Daily Speed Average: 0.9 km/h on May 15	Hours of Data: 733
Maximum Diurnal Speed Average: 4.5 km/h at hour 14	Minimum Diurnal Speed Average: 0.2 km/h at hour 2	Hours of Missing Data: 11
Monthly Average Velocity: 1.6 km/h 4.1 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 5 Median = 9 Q <sub>3</sub> = 12 P <sub>90</sub> = 17 P <sub>99</sub> = 24	Percent Operational Time: 98.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	NNE9	NNE9	NNE8	NNE8	NNE8	NNE7	NNE7	NNE10	NE14	NE17	NE20	NE20	NE20	NE21	NE19	NE18	NE18	NE17	NE16	NE15	NE12	NNE6	N6	NNW6	NE12.5	NE21	
2-May	N6	N4	N5	NNE6	N6	NNE6	NNE6	NNE10	NNE12	NNE14	NNE19	NNE18	NNE20	NNE22	NNE21	NNE23	NNE22	NE21	E14	E11	E6	ESE8	ESE7	E7	NE10.8	NNE23	
3-May	ESE6	NNE3	N3	N3	NNE3	NNE3	NE5	N2	NNE5	NNE5	N7	NE9	NE8	NE7	N7	E8	E7	NNE7	ESE7	SSE6	S6	SW6	SW7	SW5	NE2.7	NE9	
4-May	SSW6	SSW8	SSW8	SSW8	SSW8	SW5	W1	NNE6	NE9	NE8	NE9	NE6	NNE5	ESE6	NNE4	ENE10	ENE9	E8	E10	ENE7	E9	ESE11	E10	ESE8	E3.6	ESE11	
5-May	SE7	SE4	SE2	SE2	UO	UO	SW1	S3	SSE7	S12	SSE12	SSE13	SSE10	SE14	SE14	SSE14	SSE13	SSE11	SSE9	SE9	ESE7	ESE8	E9	ESE12	SE8.0	SE14	
6-May	ESE10	SE8	ESE7	SE7	SE2	NNE5	NE3	E7	E11	NE10	ENE10	ENE12	ENE17	ENE17	NE16	ENE12	SE13	S19	SSE14	SE10	E10	ENE7	NNE6	NNE6	E7.3	S19	
7-May	NE6	NE5	ENE5	ENE8	ENE8	ENE9	ENE9	E11	E11	ENE10	ENE9	ENE10	E12	ENE10	ENE8	ENE7	E8	E5	E7	E5	UO	NW2	UO	UO	ENE7.6	E12	
8-May	SW3	SSW5	SW6	SW6	SW6	SSW6	WSW5	W5	NW7	NW11	NW10	NW9	NW7	N5	E2	ESE0	N3WSW10	SW12	SW8	WSW9	WSW9	SSW9	SSW11	WSW4.4	SW12		
9-May	SW10	WSW10	SW11	SW12	SW11	W12	W11	NW11	NW15	WNW15	WNW18	NW17	WNW19	WNW20	NW19	WNW20	NW17	NW16	NW13	NW9	WNW4	SSW3	S4	SSW6	WNW10.1	WNW20	
10-May	SSW6	SSW8	SSW11	SSW10	SSW11	SSW14	SSW11	SW12	SW11	WSW15	W21	W21	W22	WSW24	W24	WSW22	WSW24	W24	W23	W17	W15	WSW13	WSW16	NW15	WSW14.7	W24	
11-May	N18	N11	NW6	NW12	NW11	NW14	NW16	NW16	NW21	NW25	NW24	NW24	NW24	NW20	N19	NNW16	N17	NNW14	N11	NNE12	NE14	NE13	NE11	NE9	NNW13.5	NW25	
12-May	NE7	E8	E2	NNW2	NNE3	NNE2	NW2	E2	E6	ENE8	ENE11	ENE11	ENE13	ENE13	ENE12	ENE12	S6	SW9	S5	S9	SSW10	S8	SSE8	S6	E3.7	ENE13	
13-May	SSE4	ESE3	SE5	SSE3	SSE5	SE2	NE2	NNE2	S3	S10	SSW14	S13	SSW14	SW2	SW9	W10	W14	WSW13	WSW10	SW8	SW6	SW10	SW7	WSW5	SSW5.6	SSW14	
14-May	SSW4	SSW4	SSW4	SSW6	SSW9	SSW9	SW8	SW8	SW11	SW10	SW9	WSW14	WSW14	WSW15	W16	W17	W18	W19	WNW19	W16	WNW12	WNW14	NNW6	NNE6	WSW9.0	W19	
15-May	W4	SSW3	S7	SW7	WSW5	SSW8	SW7	SW5	NW2	NNE10	NE7	NE9	E8	NE8	NNE11	NE9	NE8	ESE10	SSE6	SW6	NW5	NE2	NE3	SSW4	ENE0.9	NNE11	
16-May	SW4	NW1	NE8	NE5	NE6	N6	NNE6	NNE7	NE7	NE10	ENE12	NE10	ENE11	ESE16	ESE12	E9	NE5	E7	ESE11	E8	NE8	E11	E12	E12	ENE7.0	ESE16	
17-May	E11	E10	E11	E11	E11	E11	E10	ENE10	ENE10	ENE10	NE9	NE10	NE10	NE11	ENE10	ENE10	ENE8	ENE7	NNE6	N5	N6	NNW5	NNW5	NNW7	ENE7.6	E11	
18-May	NNW6	NW7	WNW7	WNW7	WNW7	NW6	WNW7	WNW9	NW11	NW11	NW12	NW11	NW11	WNW12	WNW12	WNW11	WNW9	WNW10	W6	WNW4	WNW3	NW3	W4	WSW4	WNW7.6	WNW12	
19-May	WSW5	W4	W4	WSW4	SW5	WNW2	NNW5	NNW5	N6	NNE9	NE12	NE12	NE12	NE10	NE12	NE11	NE12	NE13	NE11	NE11	NE8	NNE4	N4	N3	NNE5.5	NE13	
20-May	N3	N4	N5	N3	NNE5	NNE5	N5	NNE7	NNE10	NNE11	NNE13	NE12	NNE14	NNE14	NNE11	NNE9	NE11	NNE7	NE9	NE7	NNE6	NNE4	NE5	NNE3	NNE7.5	NNE14	
21-May	NNE2	N3	NNE3	E3	ENE3	ESE3	ESE5	ESE5	ESE5	E8	ENE9	E12	ENE10	NE9	E11	ENE13	ENE10	E11	E10	E10	ENE9	E10	E5	SE4	E6.7	ENE13	
22-May	ENE2	NE4	UO	UO	NNE6	NNE7	NNE7	NNE10	NE13	NE12	NE10	NE10	NNE11	NNE11	NNE11	N9	ENE10	ENE13	ENE11	ENE10	NE9	NE8	NE6	NE6	NE8.4	NE13	
23-May	NNE4	NNE4	N4	NNE4	NNE4	NNE4	ENE5	ENE6	NE6	E7	ENE8	NE12	ENE8	ENE13	ENE10	E12	E12	ENE12	E10	E9	ESE6	ESE5	E3	SE5	ENE6.5	ENE13	
24-May	NE2	NE2	NNW2	NE3	N2	NNW1	E3	ESE8	ESE5	NE4	E9	ESE10	ESE9	E12	E11	ESE10	ESE10	ESE9	SE8	S8	S6	SSE7	S6	SSE6	ESE4.8	E12	
25-May	SSW3	SW2	SSE3	SSW1	SSE4	SW1	UO	SE3	ESE9	SE12	SE9	ESE11	ESE11	E11	SSE8	S13	S11	SE12	SE11	SE9	SE7	SE8	SE5	SE5	SE6.5	S13	
26-May	NNE2	E1	NNE2	N1	NE2	UO	UO	S2	ESE6	SSE6	WSW9	WSW8	WSW5	NE6	ENE11	ENE9	ENE7	ENE8	E6	E6	ESE6	ESE7	ESE2	SSE1	E2.5	ENE11	
27-May	UO	ESE4	NE1	NNW1	ESE1	SSW3	NE1	E2	ESE2	S2	E5	ESE10	SE10	SE9	SE9	ESE9	SW10	SW3	E4	E6	WNW3	NNE5	E5	SE5	SE3.0	ESE10	
28-May	ENE2	ESE7	SSE4	WSW3	SE5	SSE4	S6	S10	SW8	SW8	NW4	WNW3	W9	WNW5	SW10	SW9	S8	SSE5	E3	ENE6	ENE7	NNE5	NE7	ENE5	S1.8	SW10	
29-May	N3	ESE6	NE3	NNE5	NNE4	N4	S1	S7	SW15	WSW17	WSW16	WSW18	W21	W19	W22	W18	W17	W17	W15	WSW13	W14	WSW10	WSW10	WSW13	WSW10.0	W22	
30-May	WSW14	WSW14	WSW15	SW12	WSW12	WSW12	WSW11	WNW11	WNW11	WNW14	WNW17	WNW14	WNW11	WNW11	NW14	NNW11	NW14	NW10	WNW11	NW12	NW14	WNW12	WNW12	WNW13	W12	WNW11.0	WNW17
31-May	W8	W11	WNW14	WNW15	WNW19	WNW19	WNW21	WNW23	WNW22	WNW23	WNW24	WNW23	WNW22	NW21	NW26	NW19	WNW16	WNW18	WNW19	WNW18	NW11	NW12	NW12	NW17	WNW17.7	NW26	

NNE0.3 ESE0.2 WSW0.7 W1.1 WNW1.0 WNW1.8 NW1.8 NNW1.6 N2.3 N3.1 N4.0 NNE3.6 N3.6 NNE4.5 NNE4.0 NNE3.3 NNE1.9 N1.6 ENE1.0 ENE1.0 NNE1.4 NE0.9 ENE0.6 ENE0.2	Diurnal Average
N18 WSW14 WSW15 WNW15 WNW19 WNW19 WNW21 WNW23 WNW22 WNW23 WNW24 WNW23 WNW22 NW21 NW26 NW19 WNW16 WNW18 WNW19 WNW18 NW11 NW12 NW12 NW17	Diurnal Maximum

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

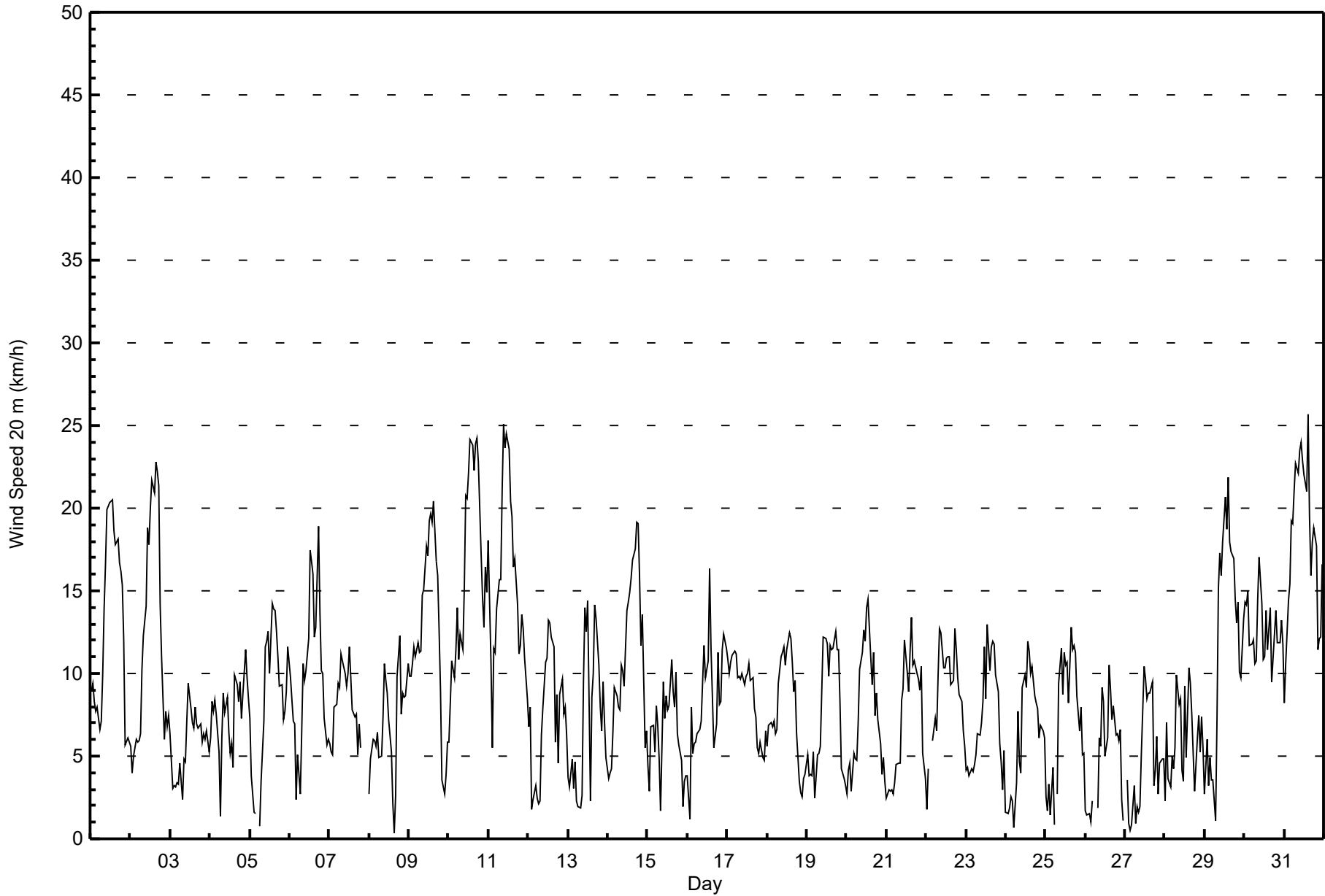
**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on May 11 13:00 Minimum Value: 1 km/h on May 15 22:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 6 P <sub>99</sub> = 8																		Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	2	2	2	2	2	2	2	3	3	5	6	5	6	5	5	4	5	4	4	4	3	1	1	1	6	
2-May	1	1	1	1	1	1	2	3	4	4	5	6	6	6	6	7	7	6	4	5	2	2	1	2	7	
3-May	2	1	1	1	1	1	2	2	1	2	2	2	3	3	2	3	2	2	2	1	1	1	2	3		
4-May	2	2	1	1	1	2	2	2	3	4	3	4	4	3	3	3	3	3	2	2	3	3	3	2	4	
5-May	2	2	1	1	UO	UO	1	3	4	4	5	5	5	5	5	4	4	4	3	2	2	3	3	3	5	
6-May	3	3	2	2	2	2	1	3	4	3	3	4	5	4	4	4	5	6	5	3	3	2	1	1	6	
7-May	2	2	2	2	2	2	3	4	3	3	3	3	3	3	2	3	3	2	2	2	UO	1	UO	UO	4	
8-May	1	1	1	1	1	1	1	2	2	4	4	3	3	2	2	3	2	3	4	2	2	2	2	2	4	
9-May	1	3	2	2	2	3	4	5	5	5	6	7	8	7	7	7	7	6	6	4	1	1	2	2	8	
10-May	2	2	2	3	2	3	3	3	3	5	7	7	7	8	7	8	7	8	7	6	4	3	4	7	8	
11-May	7	4	2	4	4	5	5	6	8	9	10	9	10	9	7	6	6	6	4	5	3	3	3	2	10	
12-May	1	3	3	1	2	1	1	2	2	3	2	3	3	4	3	3	6	4	1	6	2	2	2	2	6	
13-May	2	1	2	2	1	1	1	2	2	4	4	4	5	5	4	4	4	5	3	2	1	2	2	1	5	
14-May	2	1	1	1	1	1	2	2	3	2	3	5	5	5	5	6	6	6	6	5	3	6	2	3	6	
15-May	1	1	2	1	1	2	2	1	2	3	2	3	3	4	4	3	3	4	2	1	2	1	1	2	4	
16-May	3	2	2	2	2	2	2	2	3	3	3	3	5	6	4	3	2	3	4	3	3	4	4	4	6	
17-May	4	3	3	4	4	4	3	3	3	3	2	2	2	3	3	3	2	3	2	2	2	2	2	3	4	
18-May	3	3	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3	3	2	1	2	2	1	1	4	
19-May	1	1	1	1	1	1	2	2	2	3	3	3	4	4	3	4	3	4	3	3	2	2	2	1	4	
20-May	1	1	1	1	2	2	2	2	3	4	4	3	4	4	3	3	4	2	3	2	1	1	1	1	4	
21-May	1	1	1	2	2	2	1	1	2	2	2	3	4	3	4	4	3	3	3	3	3	3	2	1	4	
22-May	2	1	UO	UO	1	2	2	3	3	3	3	3	4	4	4	4	4	4	4	3	2	2	1	1	4	
23-May	1	1	1	1	1	1	2	2	2	2	2	4	3	4	3	3	3	3	3	3	2	1	2	2	4	
24-May	1	1	1	1	1	1	3	3	2	2	3	4	3	4	3	3	5	3	3	3	2	1	1	2	5	
25-May	2	1	2	1	2	1	UO	2	3	4	4	5	4	4	3	4	4	3	3	3	2	3	2	2	5	
26-May	1	1	1	2	1	UO	UO	1	3	3	3	3	2	3	3	2	2	2	2	2	1	1	1	2	3	
27-May	UO	2	1	2	2	2	1	2	1	1	3	5	4	4	4	4	3	3	1	1	3	2	2	2	5	
28-May	2	2	2	3	3	4	3	3	3	3	3	3	5	4	4	4	3	2	2	1	2	2	2	2	5	
29-May	2	4	2	2	2	1	2	3	6	6	6	6	6	7	6	6	5	6	5	5	5	5	3	3	7	
30-May	6	5	5	4	4	4	3	4	6	5	5	4	4	5	5	6	5	3	5	5	4	4	3	3	6	
31-May	2	3	4	5	6	6	7	7	7	8	8	8	8	9	9	8	6	7	7	6	7	5	6	7	9	
																		Diurnal Maximum								
UO - Unstable Operation																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h**  
**Janvier - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	187	25.51	25.51
6 - 11	352	48.02	73.53
12 - 19	156	21.28	94.82
20 - 28	38	5.18	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 20 m (WS20m) - km/h**  
**Janvier - May 2024**

<b>Wind Speed</b> <b>Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	20	30	18	7	14	12	13	9	7	10	11	8	6	7	7	8	187
6 - 11	11	38	45	44	45	30	14	11	15	20	29	10	6	12	17	5	352
12 - 19	3	8	22	13	8	3	5	5	4	3	5	17	16	22	20	2	156
20 - 28	0	5	5	0	0	0	0	0	0	0	0	4	7	9	8	0	38
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>34</b>	<b>81</b>	<b>90</b>	<b>64</b>	<b>67</b>	<b>45</b>	<b>32</b>	<b>25</b>	<b>26</b>	<b>33</b>	<b>45</b>	<b>39</b>	<b>35</b>	<b>50</b>	<b>52</b>	<b>15</b>	<b>733</b>

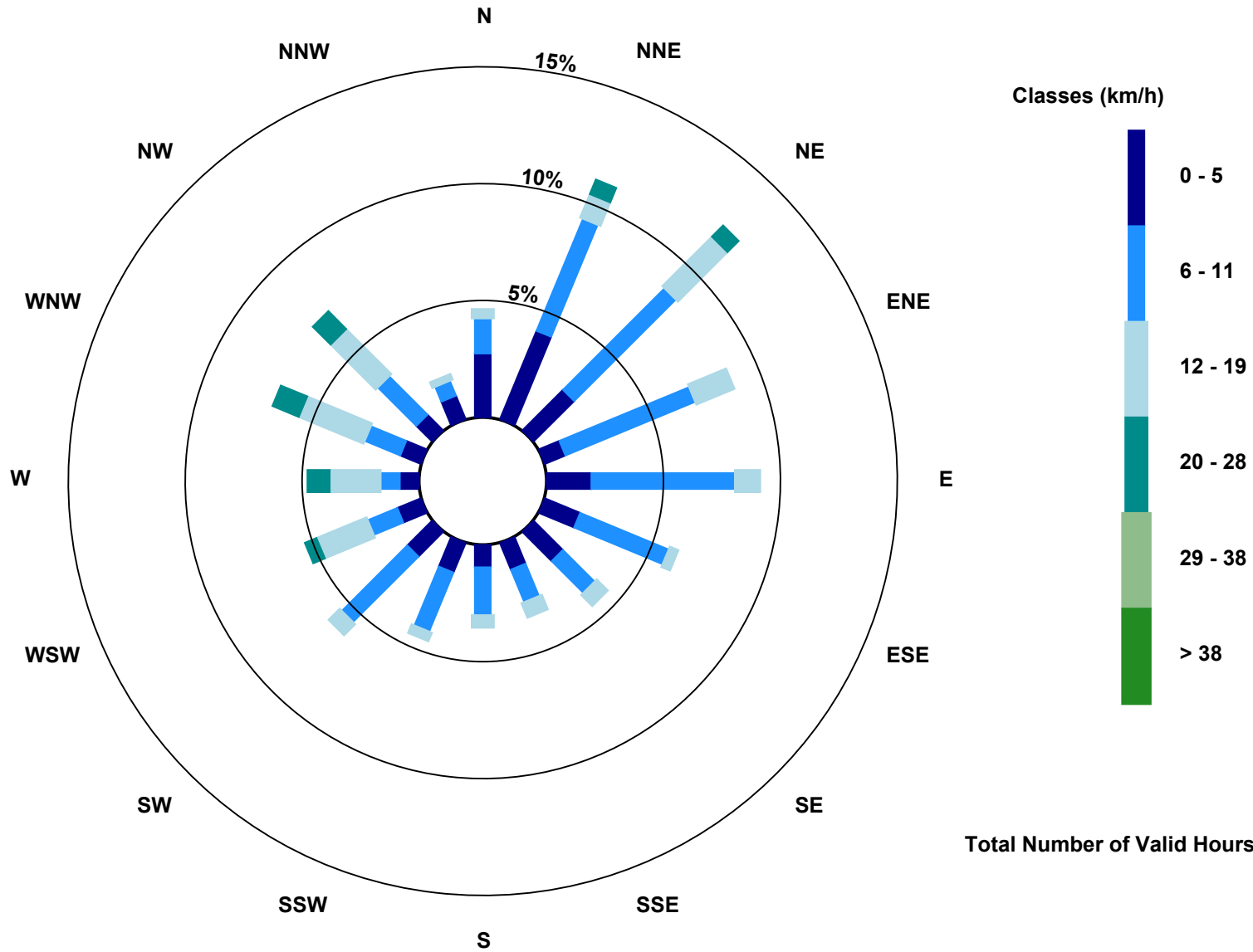
Total Number of Valid Hours: 733

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed 20 m (WS20m) - km/h  
Janvier





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Janvier - May 2024

Direction of Maximum Speed: 309 deg on May 31 15:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 298.1 deg on May 31		Hours of Data:	733
Direction of Minimum Speed: 122 deg on May 8 16:00		Hours of Missing Data:	11
Direction of Minimum Daily Speed Average: 0.9 deg on May 15		Percent Operational Time:	98.5
Monthly Average Direction: 4.1 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-May	15	16	16	17	21	14	18	27	37	38	36	51	44	55	42	41	35	37	38	47	40	16	357	348	34.7
2-May	359	8	10	16	10	16	19	16	22	21	30	33	28	23	27	29	31	41	88	95	98	116	108	92	36.6
3-May	104	14	6	11	25	15	34	353	17	16	8	36	40	49	10	83	84	27	112	149	180	224	221	223	49.3
4-May	208	209	213	212	210	217	264	16	38	54	35	35	29	113	13	70	70	79	80	68	85	102	98	106	86.1
5-May	130	137	134	136	UO	UO	223	176	157	190	156	154	162	143	137	147	161	158	150	124	112	110	99	105	143.6
6-May	118	128	123	132	126	21	39	96	98	48	69	70	70	59	52	76	145	174	162	136	88	63	25	26	93.0
7-May	48	53	67	69	60	45	59	81	79	75	76	76	80	70	67	67	84	79	82	91	UO	323	UO	UO	70.6
8-May	217	208	216	214	234	213	239	269	307	325	323	315	326	8	92	122	9	254	228	224	242	250	208	207	254.8
9-May	216	242	223	218	223	261	274	306	306	302	302	304	292	301	308	298	317	323	320	319	295	198	187	203	287.7
10-May	198	209	208	210	208	211	213	223	230	242	266	260	267	253	260	258	255	276	278	272	275	258	255	316	253.2
11-May	357	354	313	309	318	310	309	321	308	310	317	321	321	320	349	341	351	347	354	24	36	48	46	53	336.4
12-May	54	85	97	335	28	30	311	98	87	65	58	61	60	68	70	75	177	223	174	182	199	189	160	174	96.3
13-May	150	118	124	164	158	135	51	32	183	183	192	190	204	222	224	260	267	246	237	225	214	214	234	238	213.2
14-May	197	196	210	209	207	210	216	218	214	217	231	250	255	247	266	269	261	281	282	277	286	303	348	21	255.6
15-May	266	212	191	226	241	211	225	215	304	28	37	39	83	52	19	38	56	111	156	225	311	54	35	195	71.8
16-May	216	308	41	53	34	5	13	20	42	52	58	39	74	110	106	84	36	82	109	96	51	79	92	86	69.5
17-May	80	88	87	79	79	86	86	76	64	64	52	51	51	46	68	73	67	75	21	360	352	342	332	341	61.2
18-May	328	318	299	295	299	307	299	301	307	305	306	310	307	300	291	286	282	285	281	283	296	310	277	250	298.3
19-May	244	272	271	249	233	301	348	348	351	31	46	53	43	52	53	53	48	51	40	43	37	19	359	349	32.4
20-May	4	4	6	355	18	14	1	15	25	17	20	36	32	33	18	28	34	13	36	41	31	23	40	16	24.2
21-May	19	7	13	92	69	107	117	119	122	86	75	96	66	50	91	70	65	82	88	81	67	92	101	125	81.1
22-May	61	50	UO	UO	18	13	23	31	34	43	51	38	22	30	13	2	63	62	76	74	55	45	38	42	40.3
23-May	31	16	8	19	22	13	73	77	56	81	69	56	64	57	68	84	91	76	90	100	107	104	81	128	70.5
24-May	36	39	348	50	357	339	95	115	109	56	79	106	107	87	88	109	109	109	143	182	191	164	176	163	113.0
25-May	198	215	158	201	160	230	UO	128	121	125	135	117	123	80	162	179	177	145	137	136	124	125	143	145	139.6
26-May	21	79	24	9	40	UO	UO	190	104	163	250	251	237	49	73	65	59	65	81	98	108	103	109	158	88.2
27-May	UO	105	41	328	105	194	41	92	106	185	93	122	143	143	142	123	223	233	87	90	292	16	79	146	129.2
28-May	60	117	164	238	142	151	176	191	231	235	324	295	276	283	215	226	177	163	93	60	57	14	47	67	190.3
29-May	352	111	55	20	19	11	182	191	223	248	256	251	259	263	265	272	261	266	260	258	264	246	243	245	256.9
30-May	246	239	241	234	241	243	252	288	303	303	298	301	302	307	327	322	313	301	310	304	294	292	283	279	284.8
31-May	261	271	286	287	295	296	294	293	293	295	293	295	299	310	309	308	302	290	292	289	326	323	326	315	298.1

16.8 105.0 248.8 262.4 291.8 298.9 314.9 343.1 355.8 351.4 0.2 13.5 4.5 21.6 12.4 19.0 14.0 359.7 57.0 69.7 20.3 50.0 61.1 69.0  
Diurnal Average

UO - Unstable Operation

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction 20 m (WD20m) - deg**

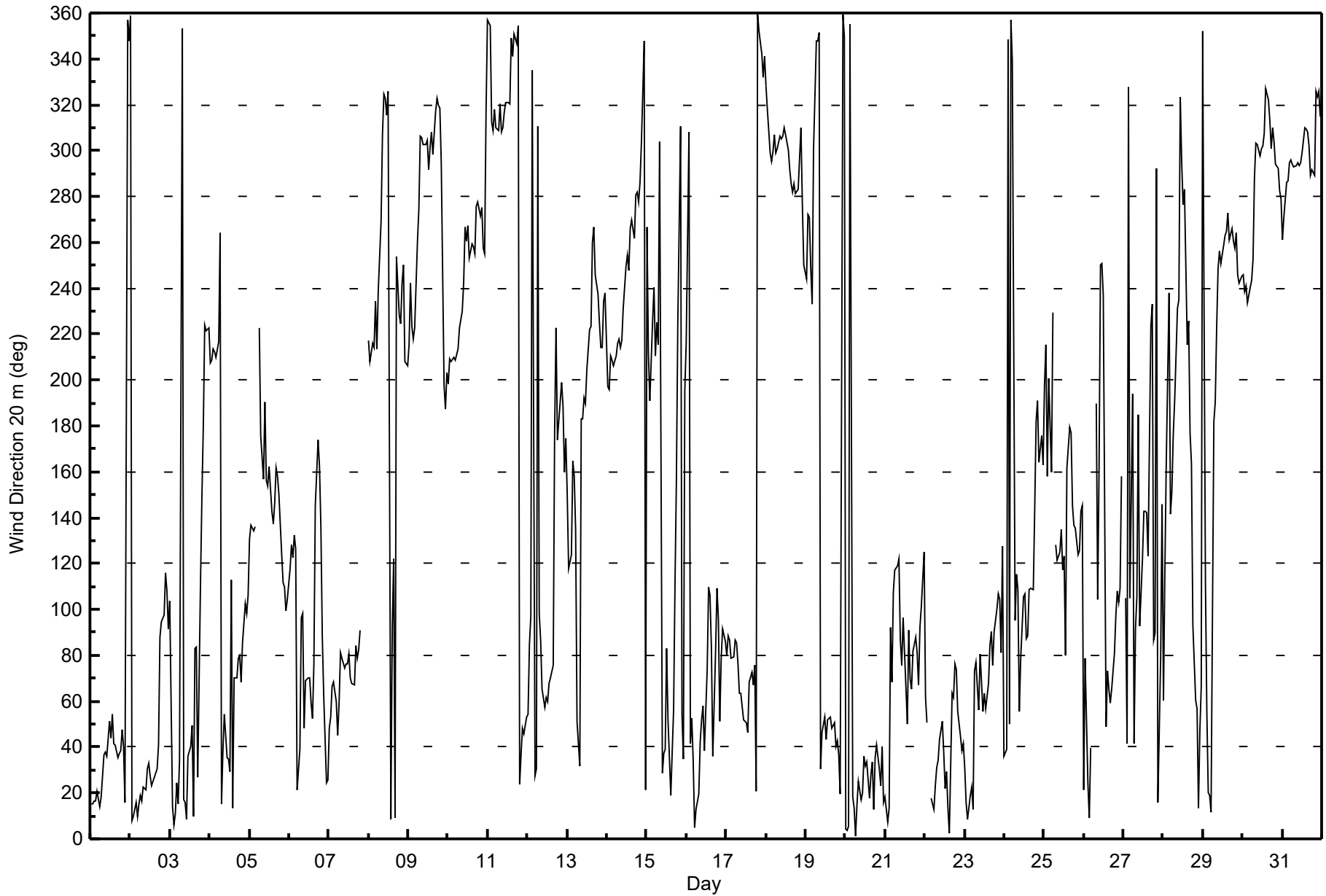
**Janvier - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 102 deg on May 8 16:00	Hours of Data: 733
Minimum Value: 8 deg on May 4 04:00	Hours of Missing Data: 11
Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 15 Q <sub>1</sub> = 19 Median = 24 Q <sub>3</sub> = 33 P <sub>90</sub> = 48 P <sub>99</sub> = 89	Hours of Calibration: 0
	Percent Operational Time: 98.5

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	14	14	17	16	14	15	16	19	16	18	18	19	17	18	18	16	17	16	14	13	13	14	15	16	19
2-May	18	18	17	13	15	15	17	18	20	23	20	24	22	21	21	24	20	21	26	20	19	16	13	14	26
3-May	17	46	21	24	21	20	27	53	38	46	40	27	30	37	48	26	39	27	26	21	15	13	22	41	53
4-May	24	15	10	8	8	14	74	36	25	53	48	60	89	85	78	33	37	25	22	17	17	18	17	19	89
5-May	16	21	40	46	UO	UO	51	62	43	29	43	31	40	28	28	22	25	26	29	16	19	24	22	19	62
6-May	21	21	18	18	55	47	32	32	27	24	21	23	20	19	17	30	34	24	24	25	24	17	16	9	55
7-May	21	26	37	19	20	13	20	21	22	22	23	22	22	21	21	24	21	24	23	23	UO	24	UO	UO	37
8-May	11	18	15	12	17	15	19	20	30	32	35	32	35	61	89	102	81	30	25	20	19	16	12	9	102
9-May	12	19	20	14	14	24	23	35	24	27	25	32	32	28	28	25	34	35	36	30	73	30	38	11	73
10-May	9	9	8	11	10	12	16	19	21	30	26	24	24	22	23	24	23	24	20	19	18	18	17	40	40
11-May	28	24	37	24	27	22	23	32	26	29	33	31	33	36	34	34	31	33	27	26	13	12	11	16	37
12-May	18	26	100	43	38	26	44	79	42	34	22	20	18	24	24	21	66	21	29	26	15	20	25	18	100
13-May	30	36	27	48	13	60	45	71	74	26	26	32	26	82	42	24	26	24	24	17	18	15	47	17	82
14-May	39	22	17	15	8	10	17	19	17	21	29	29	30	28	26	26	24	19	18	19	17	24	37	21	39
15-May	38	48	12	15	25	13	19	22	64	24	33	41	43	50	33	20	26	38	32	20	28	43	21	61	64
16-May	47	70	17	41	34	26	20	19	22	23	24	28	38	22	24	25	20	41	22	25	20	25	23	23	70
17-May	24	25	22	21	22	23	23	24	22	20	21	17	17	17	22	21	26	25	29	26	34	38	43	32	43
18-May	41	25	19	19	20	22	22	20	22	21	24	27	23	19	16	17	20	16	16	21	43	57	19	22	57
19-May	17	26	23	19	17	35	32	32	32	23	18	19	18	23	23	23	18	16	14	14	13	23	27	18	35
20-May	20	13	15	18	14	19	26	25	22	23	23	17	17	18	21	23	19	24	18	17	13	12	13	19	26
21-May	15	15	15	54	43	42	29	27	36	25	26	27	34	32	29	25	24	27	25	23	22	22	24	28	54
22-May	49	17	UO	UO	14	18	23	17	14	15	29	28	28	31	30	38	30	28	25	22	16	12	13	11	49
23-May	17	14	16	17	13	19	39	29	33	34	33	22	37	23	31	24	26	24	24	24	17	21	46	22	46
24-May	47	54	44	36	23	88	50	37	53	46	37	38	38	27	34	47	30	26	29	18	14	15	14	88	
25-May	69	61	51	35	18	54	UO	97	35	29	54	40	38	33	36	27	25	27	25	23	17	13	23	19	97
26-May	62	48	36	46	52	UO	UO	71	46	58	30	33	39	47	30	23	20	20	21	21	9	11	64	76	76
27-May	UO	28	81	67	90	47	82	73	89	66	58	45	42	36	57	48	29	64	17	14	86	46	31	55	90
28-May	79	24	48	50	56	89	45	22	45	43	74	89	50	68	30	39	42	34	67	9	12	39	23	20	89
29-May	54	55	82	23	39	21	93	23	28	28	29	28	26	27	23	25	24	23	23	25	23	23	23	24	93
30-May	28	24	23	23	25	25	24	27	27	23	20	22	26	26	37	34	29	23	30	25	21	21	18	18	37
31-May	21	21	18	17	21	20	20	20	22	23	22	21	26	33	26	29	24	20	22	20	37	34	37	28	37
	79	70	100	67	90	89	93	97	89	66	74	89	89	85	89	102	81	64	67	30	86	57	64	76	

Diurnal Maximum

UO - Unstable Operation





## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS23**  
**FORT HILLS**  
**MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
MAY 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	702	35	42	99.06	11.6	0	2.2	0
TRS(ppb) Average	701	35	43	98.92	1.2	0	0.2	0
THC(ppm) Average	697	35	47	98.39	5.2	-	2.6	-
NMHC(ppm) Average	697	35	47	98.39	2.397	-	0.373	-
CH4(ppm) Average	697	35	47	98.39	3.7	-	2.2	-
NO2 (ppb) Average	700	34	44	98.66	43	0	20	-
NO (ppb) Average	700	34	44	98.66	124	-	20.8	-
NOX (ppb) Average	700	34	44	98.66	161.1	-	33.6	-
PM2.5 (ug/m3) Average	737	1	7	99.19	152.8	0	53	2
Temperature 2 m (C) Average	740	0	4	99.46	26.8	-	17.3	-
Relative Humidity (%) Average	740	0	4	99.46	97.8	-	94.7	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	38	-	23	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
MAY 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	702	0.44	1.2	-	0	0	0.1	0.2	0.3	0.8	11.6
TRS (ppb) Average	701	0.14	0.1	-	0	0	0.1	0.1	0.2	0.3	1.2
THC (ppm) Average	697	2.23	0.4	-	1.9	1.9	2	2.1	2.3	2.8	5.2
NMHC(ppm) Average	697	0.164	0.227	-	0	0	0	0.1	0.2	0.5	2.397
CH4(ppm) Average	697	2.07	0.2	-	1.9	1.9	2	2	2.1	2.3	3.7
NO2 (ppb) Average	700	10.25	10.2	-	0.1	0.7	2.2	6.2	16.8	26.6	43
NO (ppb) Average	700	6.81	15.3	-	0	0	0.2	1	4.9	21.3	124
NOX (ppb) Average	700	17.06	23.3	-	0.1	0.7	2.6	7.5	21.4	49.8	161.1
PM2.5 (ug/m3) Average	737	9.44	18.9	-	0.2	1.9	3.1	4.4	7.2	15.9	152.8
Temperature 2 m (C) Average	740	10.89	4.9	-	1.3	4.8	7	10.6	14.1	17.3	26.8
Relative Humidity (%) Average	740	60.79	21.8	-	15.9	31.1	43	60.8	79	93	97.8
Wind Speed 10 m (km/h) Average	740	13.2	7	-	0	5	8	12	18	23	38
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	30 May 2024 12:00	30 May 2024 12:00	1-3	Maintenance - WBEA internal audit
ALL GASEOUS ANALYZERS	21 May 2024 08:00	21 May 2024 08:00	1	Maintenance - sample manifold cleaned
ALL PARAMETERS	16 May 2024 13:00	16 May 2024 14:00	2	DAS Failure - data not recorded
ALL PARAMETERS	17 May 2024 01:00	17 May 2024 01:00	1	DAS Failure - data not recorded
ALL PARAMETERS	30 May 2024 16:00	30 May 2024 16:00	1	DAS Failure - data not recorded
NO2, TRS	14 May 2024 11:00	14 May 2024 11:00	1	Maintenance - WBEA internal audit
NO2, SO2, THC/NMHC/CH4	17 May 2024 08:00	17 May 2024 08:00	1	Maintenance - verify daily QA response
THC/NMHC/CH4	10 May 2024 16:00	10 May 2024 18:00	3	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	10 May 2024 20:00	10 May 2024 20:00	1	Unstable Operation - excessive baseline drift



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.6 ppb on May 25 10:00	Maximum Daily Average: 2.2 ppb on May 5		Hours of Data:	702
Minimum Value: 0.0 ppb on May 1 06:00	Minimum Daily Average: 0.0 ppb on May 17		Hours of Missing Data:	42
Maximum Diurnal Average: 1.5 ppb at hour 10	Minimum Diurnal Average: 0.2 ppb at hour 5		Hours of Calibration:	35
Monthly Average: 0.44 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.2 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 7.1		Percent Operational Time:	99.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.2		
2-May	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	
3-May	0.1	0.3	0.3	Z	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.3	
4-May	0.1	0.0	0.0	0.2	Z	0.3	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.0	0.1	0.4
5-May	0.1	0.1	0.0	0.1	0.1	Z	0.2	2.3	2.8	7.1	7.5	10.1	5.1	0.5	0.5	1.2	2.8	2.4	2.8	1.9	0.6	0.5	0.4	0.5	2.2	10.1	
6-May	Z	0.4	0.5	0.6	0.5	0.4	0.3	0.5	0.5	0.4	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.4	0.6	5.3	0.5	5.3	
7-May	2.9	Z	1.7	0.5	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	0.0	0.0	0.0	0.0	0.0	0.2	0.3	2.9	
8-May	0.8	0.7	Z	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.3	0.4	0.6	0.5	0.5	0.2	0.2	0.3	0.5	0.5	0.3	0.8	
9-May	0.3	0.1	0.2	Z	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3	
10-May	0.1	0.0	0.6	0.6	Z	1.6	1.0	0.3	0.1	0.1	0.2	0.2	0.3	2.2	1.0	0.7	0.4	0.4	0.5	0.5	0.2	0.2	0.2	0.2	0.5	2.2	
11-May	0.2	0.1	0.6	0.4	0.2	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.6	
12-May	Z	0.3	0.1	0.0	0.0	0.0	0.1	0.4	0.8	0.6	0.4	0.5	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.8	
13-May	0.1	Z	0.0	0.2	0.4	0.1	0.0	0.6	7.1	9.2	7.7	6.2	3.8	1.6	0.5	0.3	1.0	1.8	0.6	0.3	0.2	0.2	0.1	0.1	1.8	9.2	
14-May	0.0	0.3	Z	0.0	0.0	0.1	0.2	0.4	0.7	0.5	0.4	0.6	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.7	
15-May	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	
16-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17-May	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-May	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	0.1	0.0	0.1	
19-May	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	0.0	0.0	0.0	0.1	0.3	0.0	0.3	
20-May	0.2	0.2	0.2	Z	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.2
21-May	0.1	0.2	0.1	0.0	Z	0.2	0.3	M	C	C	C	C	C	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.1	--	0.3	
22-May	0.3	0.8	0.2	0.1	0.3	Z	0.4	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.2	0.8	
23-May	Z	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.6	2.2	0.9	4.8	3.7	0.9	1.2	0.9	0.8	4.8	
24-May	1.0	Z	1.3	1.4	0.5	0.3	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.1	0.4	0.4	0.3	0.7	0.5	3.4	3.4	0.5	0.2	0.4	0.7	3.4	
25-May	0.1	0.1	Z	0.3	0.6	0.8	2.4	1.0	2.3	11.6	1.2	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.6	1.0	11.6	
26-May	0.5	0.4	0.1	Z	0.2	0.4	0.2	0.8	0.9	1.1	0.5	0.3	0.2	0.6	3.2	0.9	0.3	2.2	2.6	2.1	0.8	0.6	0.4	0.4	0.9	3.2	
27-May	0.3	0.3	0.2	0.2	Z	1.0	0.4	2.3	7.5	10.9	3.9	1.0	1.0	1.9	1.3	1.0	1.2	0.4	0.4	0.5	0.8	0.7	0.7	0.6	1.7	10.9	
28-May	0.6	0.3	0.2	0.4	0.2	Z	0.3	0.5	1.0	0.8	1.5	1.9	0.7	0.3	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.4	0.4	0.4	1.9	
29-May	Z	0.2	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.3	0.5	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.5	
30-May	0.0	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	M	0.3	0.3	0.2	DF	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	
31-May	0.2	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2	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	0.1	0.2	

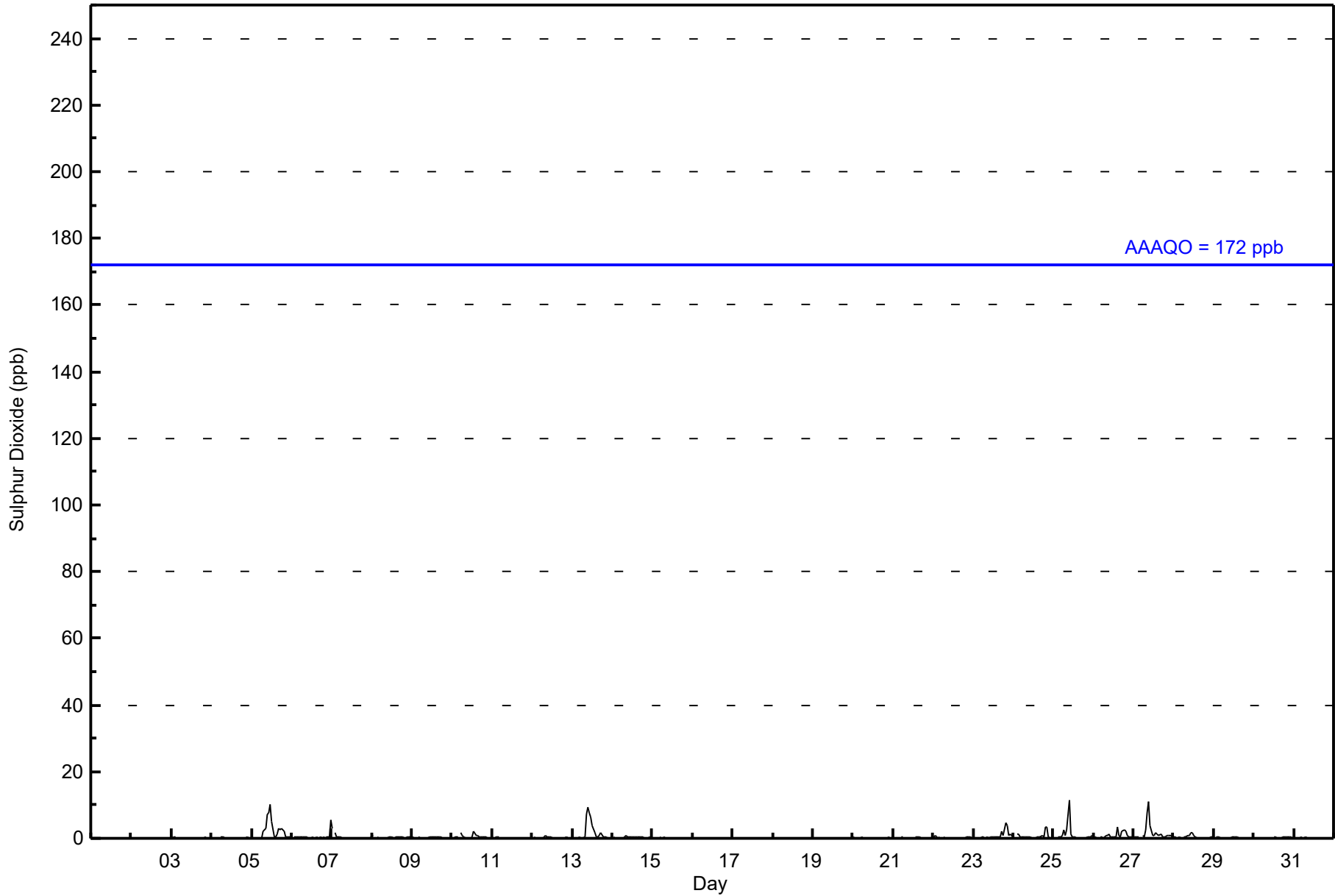
0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.4	0.8	1.5	0.8	0.8	0.5	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.2	0.2	0.4	Diurnal Average	
2.9	0.8	1.7	1.4	0.6	1.6	2.4	2.3	7.5	11.6	7.7	10.1	5.1	2.2	3.2	1.2	2.8	2.4	2.8	4.8	3.7	0.9	1.2	5.3	Diurnal Maximum	

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 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	700	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: 702

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Fort Hills - May 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	104	128	44	26	20	38	54	69	41	30	27	13	10	20	44	32	700
11 - 20	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	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>	104	128	44	26	20	38	54	69	43	30	27	13	10	20	44	32	702

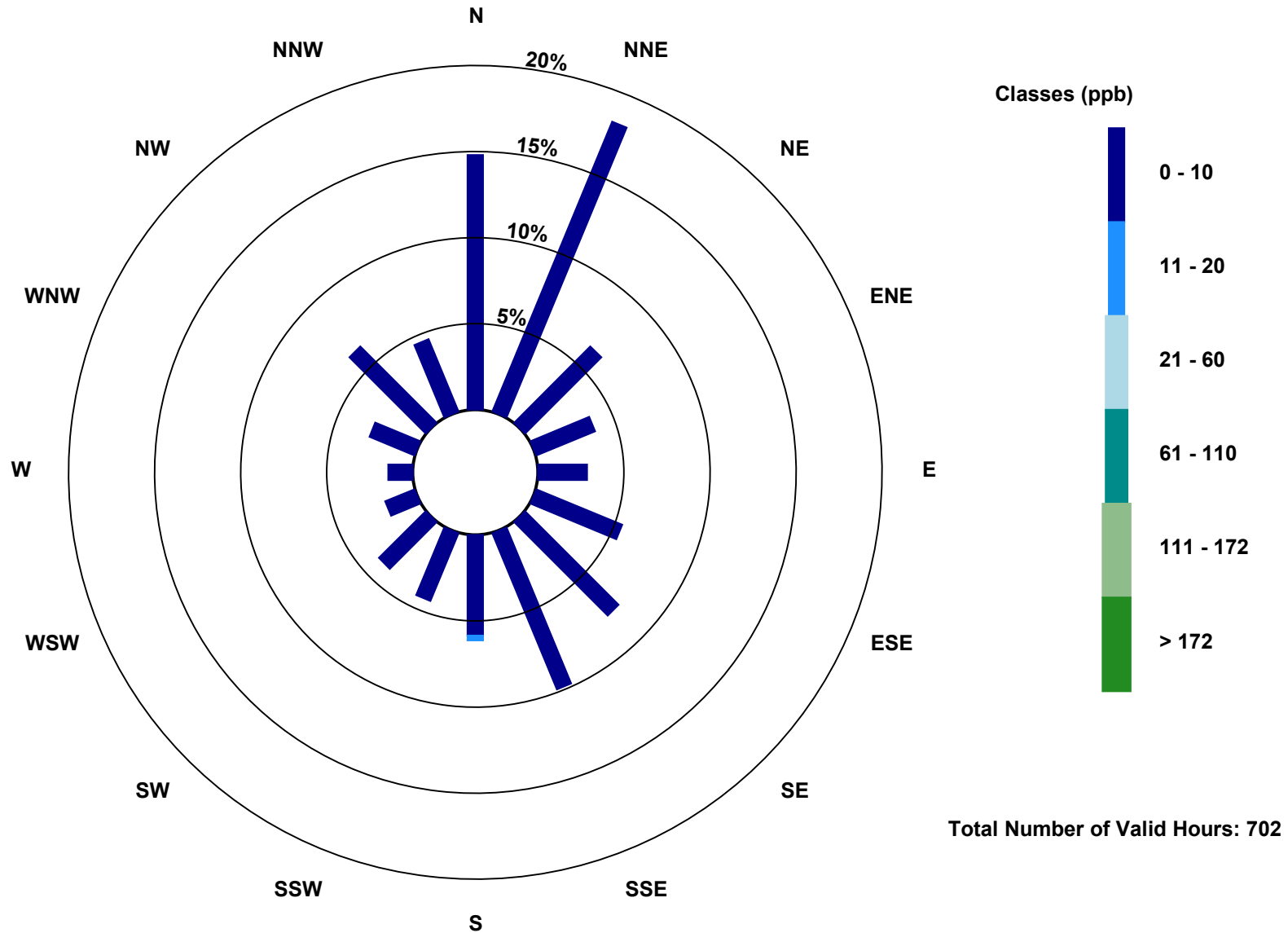
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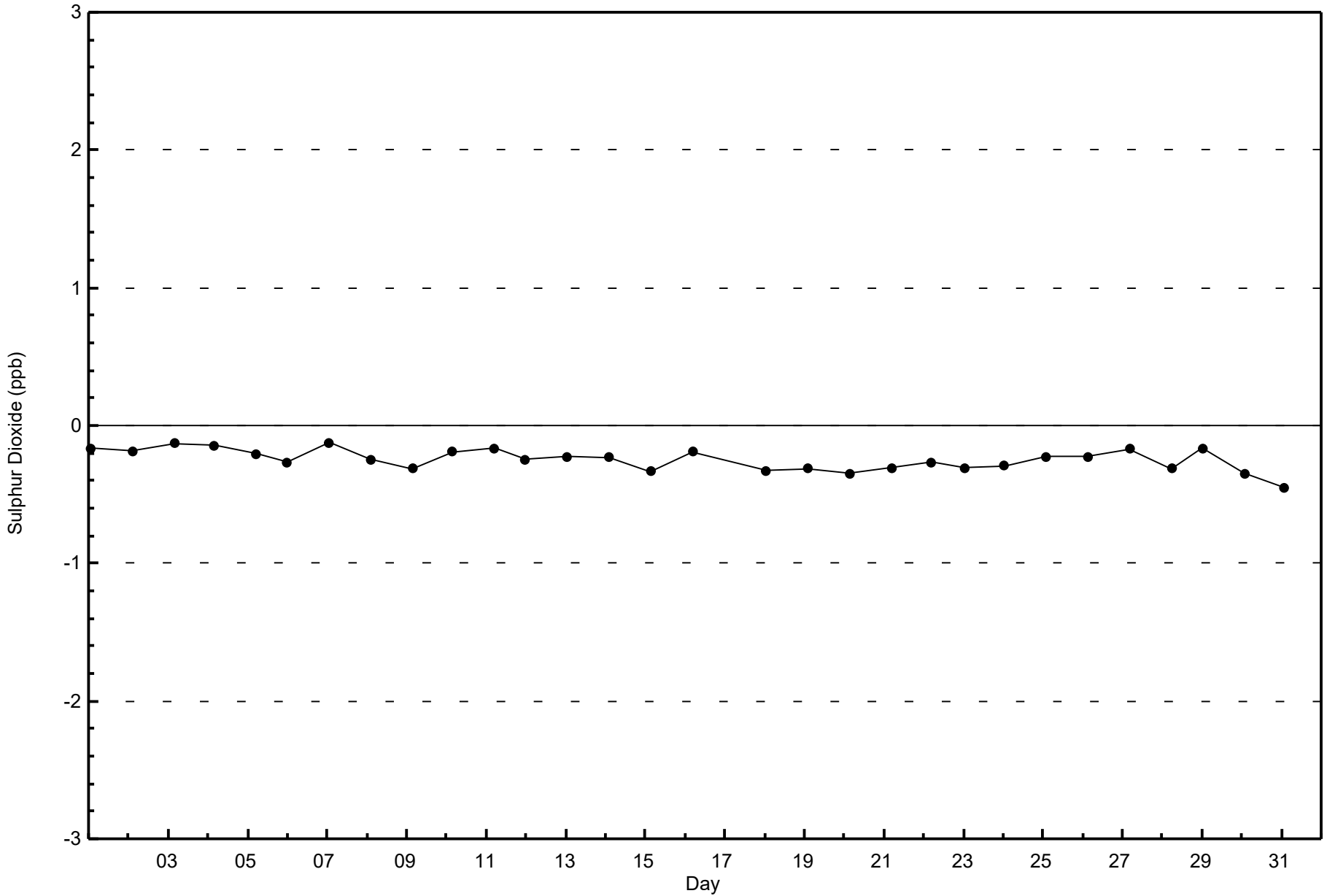
Total Number of Hours: 744

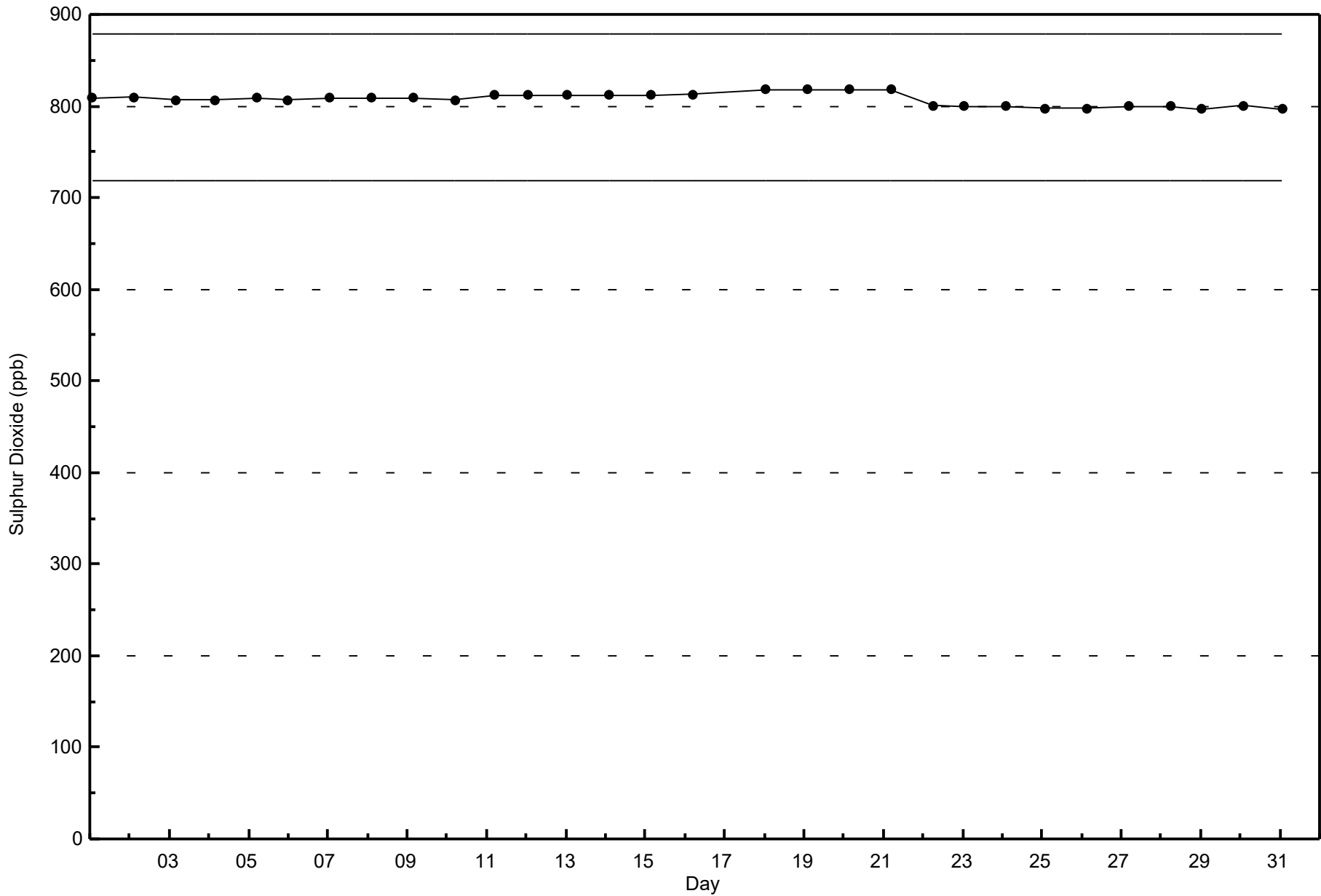


Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Fort Hills

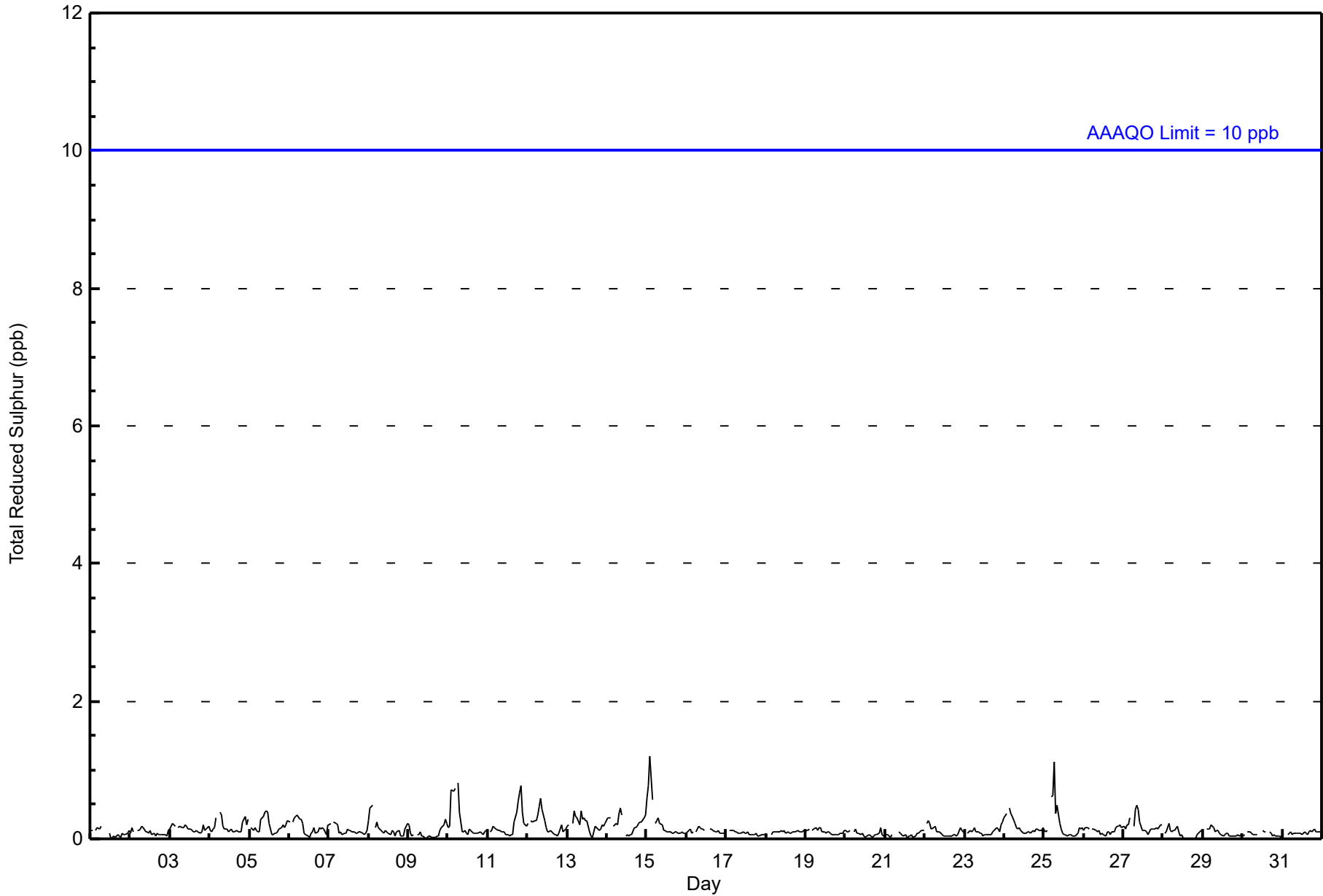














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	701	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: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb  
Fort Hills - May 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	104	125	42	26	22	42	53	69	43	30	27	13	9	21	42	33	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>	104	125	42	26	22	42	53	69	43	30	27	13	9	21	42	33	701

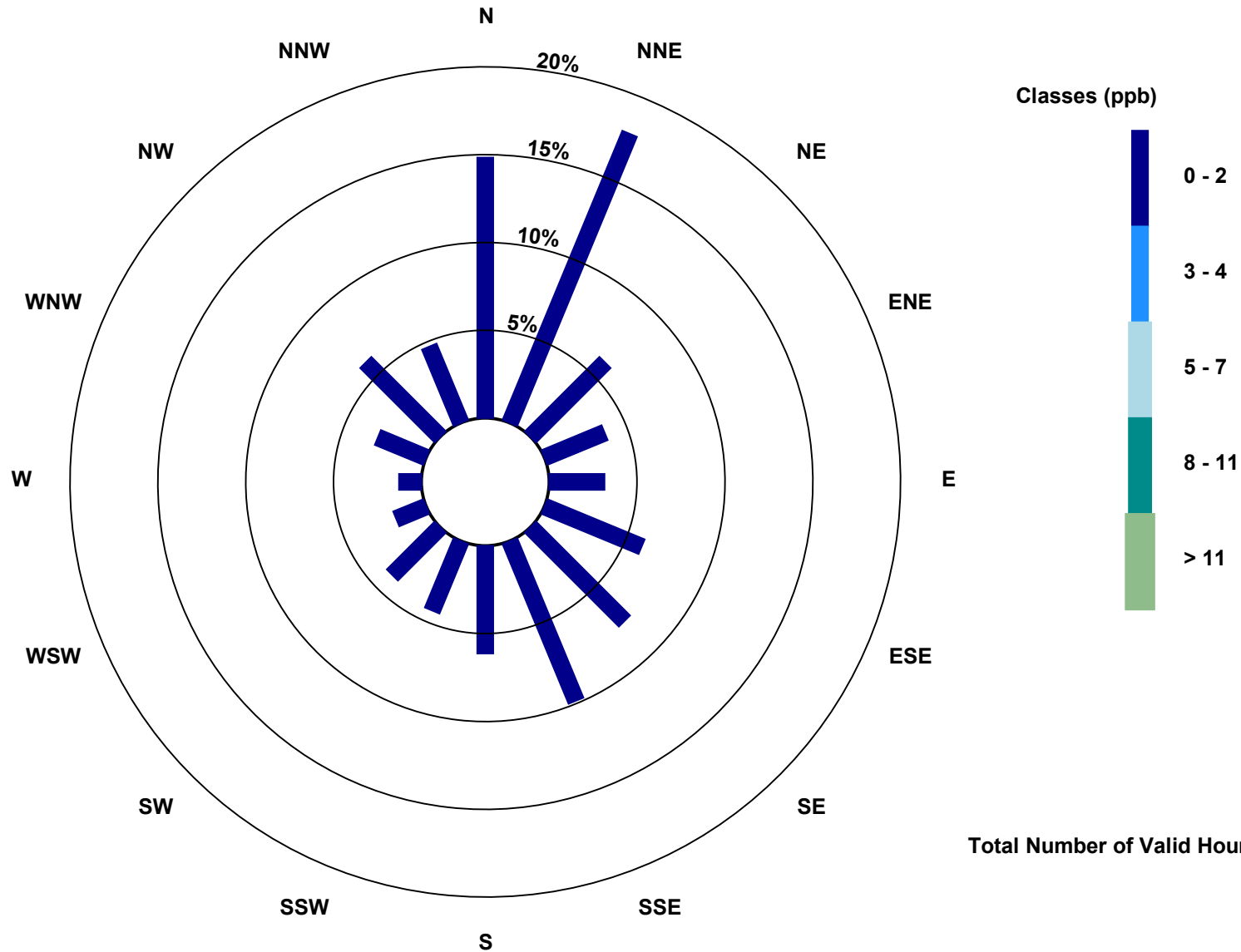
Total Number of Valid Hours: 701

Total Number of Hours: 744

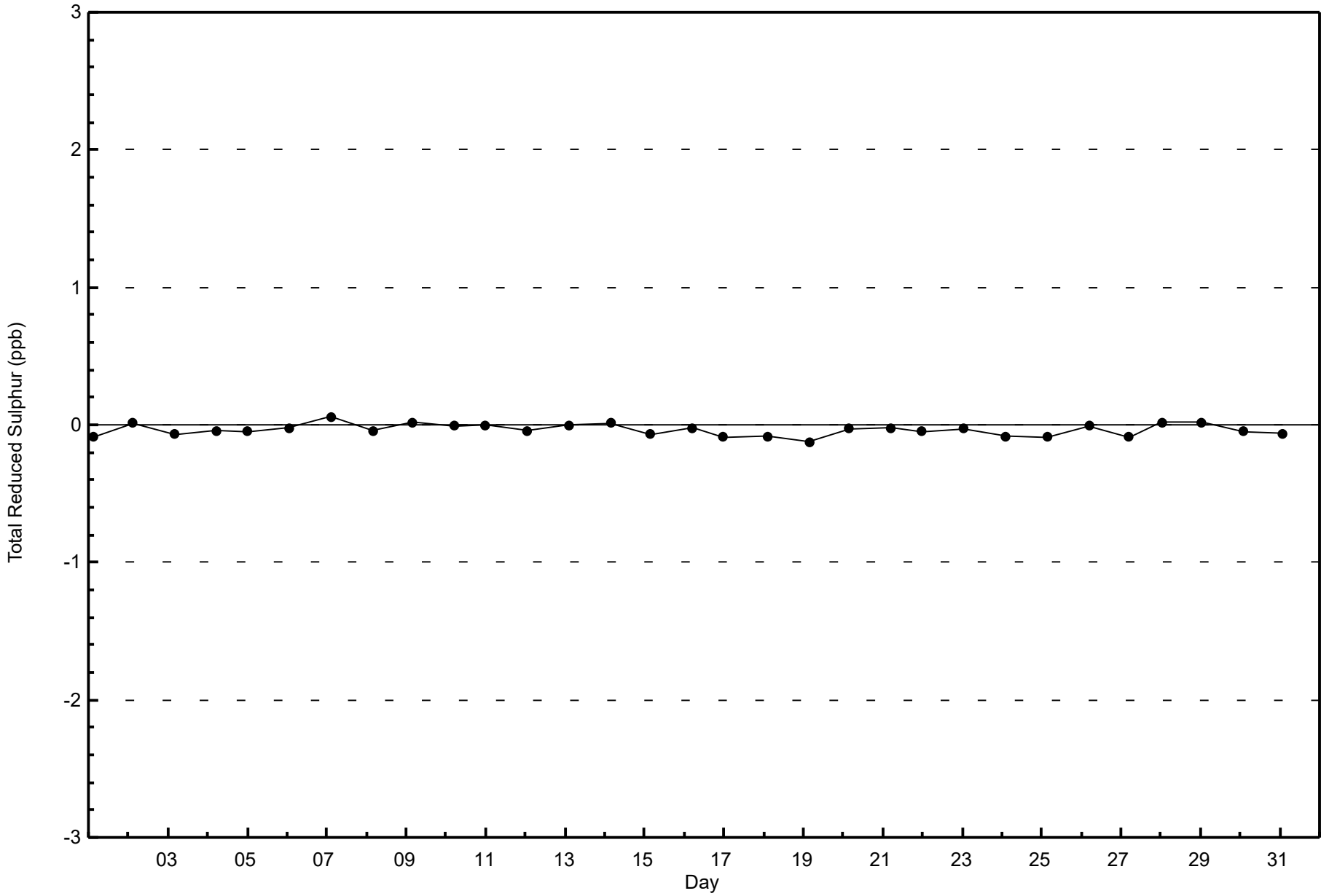


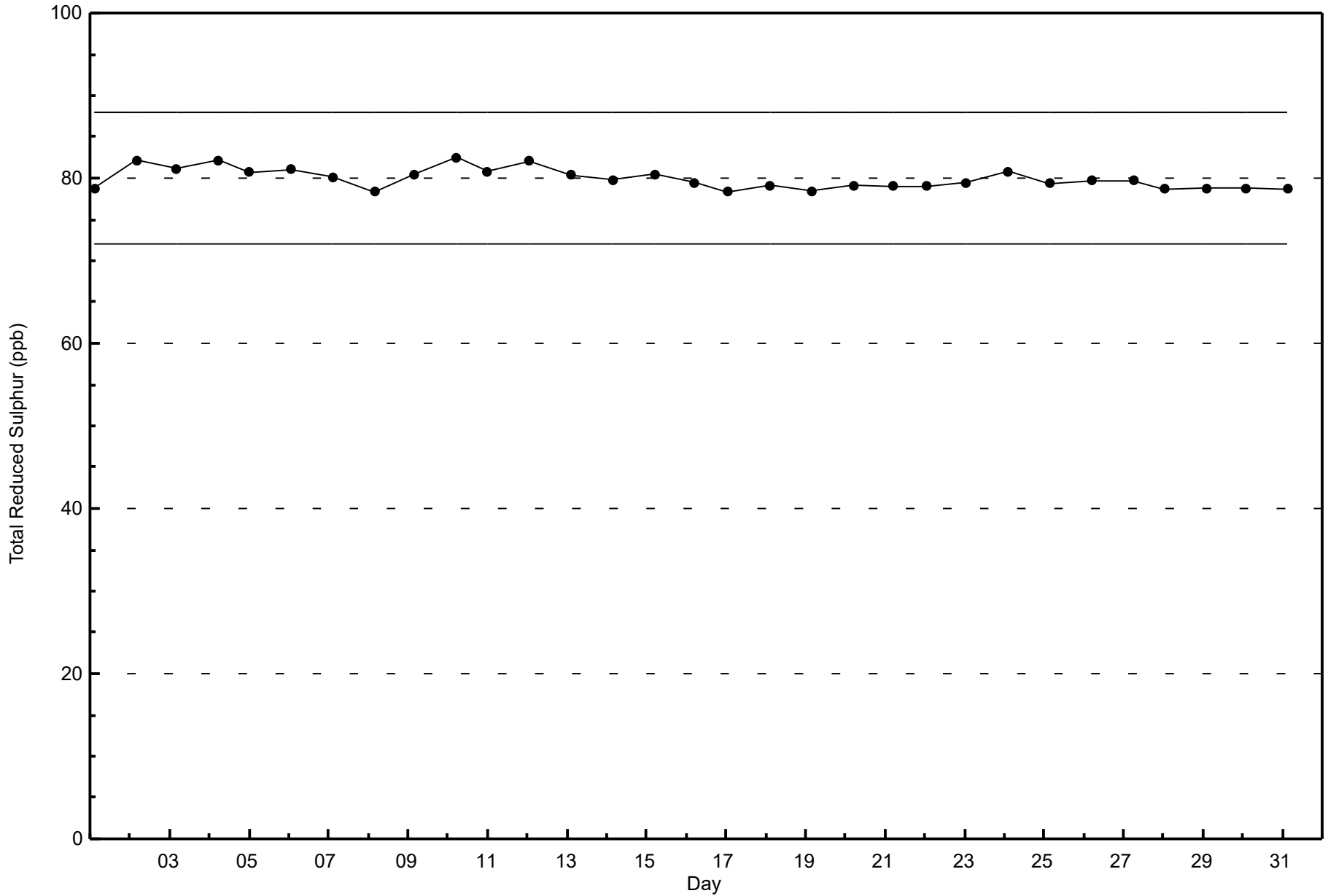
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Fort Hills



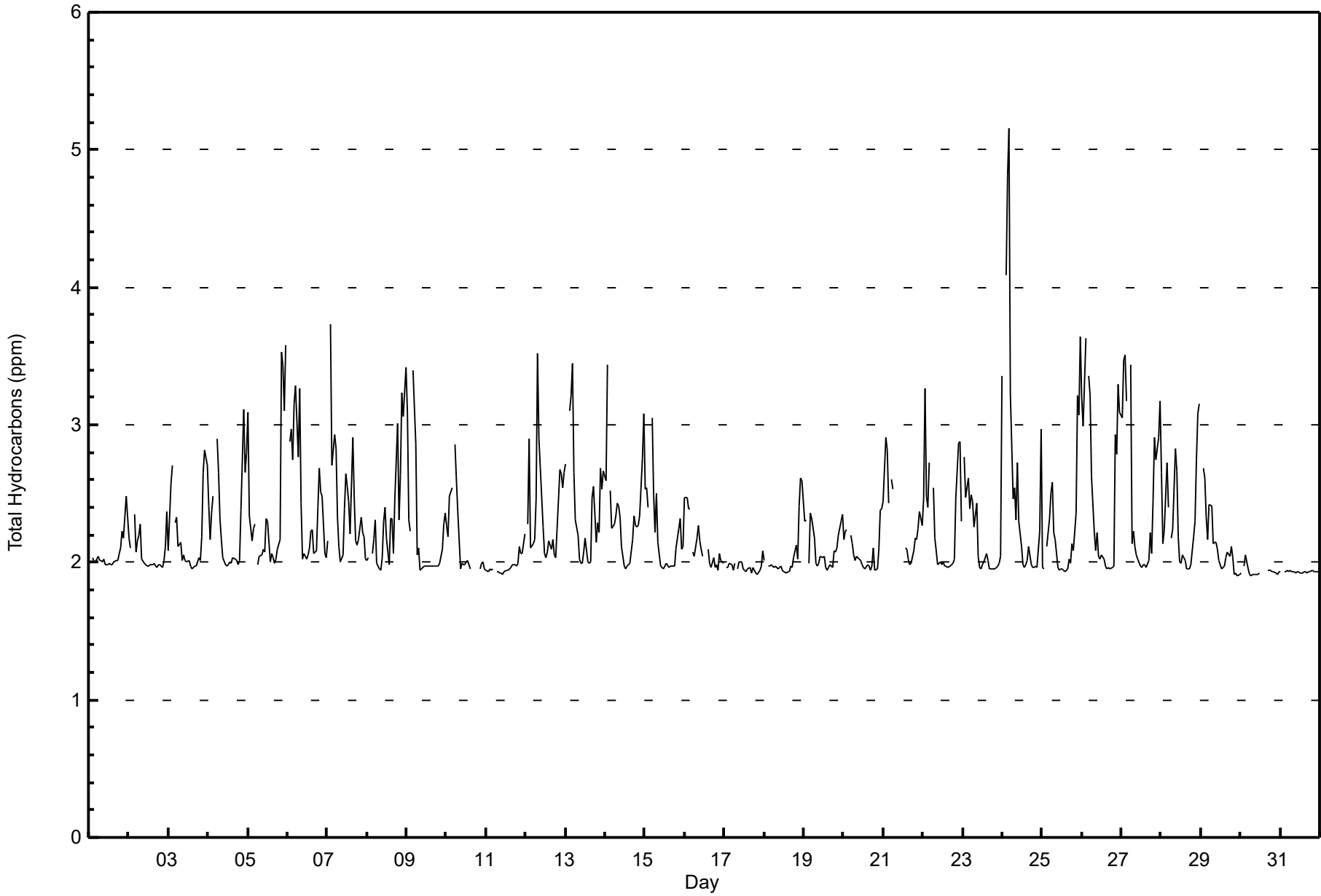
Total Number of Valid Hours: 701













**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	337	48.35	48.35
2.1 - 3.0	316	45.34	93.69
3.1 - 10.0	44	6.31	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Fort Hills - May 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	52	69	22	9	4	6	11	25	21	17	16	8	3	15	37	22	337
2.1 - 3.0	48	57	20	15	16	28	33	38	18	10	9	5	3	4	5	7	316
3.1 - 10.0	4	2	2	2	0	4	10	6	4	3	2	0	2	0	1	2	44
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	104	128	44	26	20	38	54	69	43	30	27	13	8	19	43	31	697

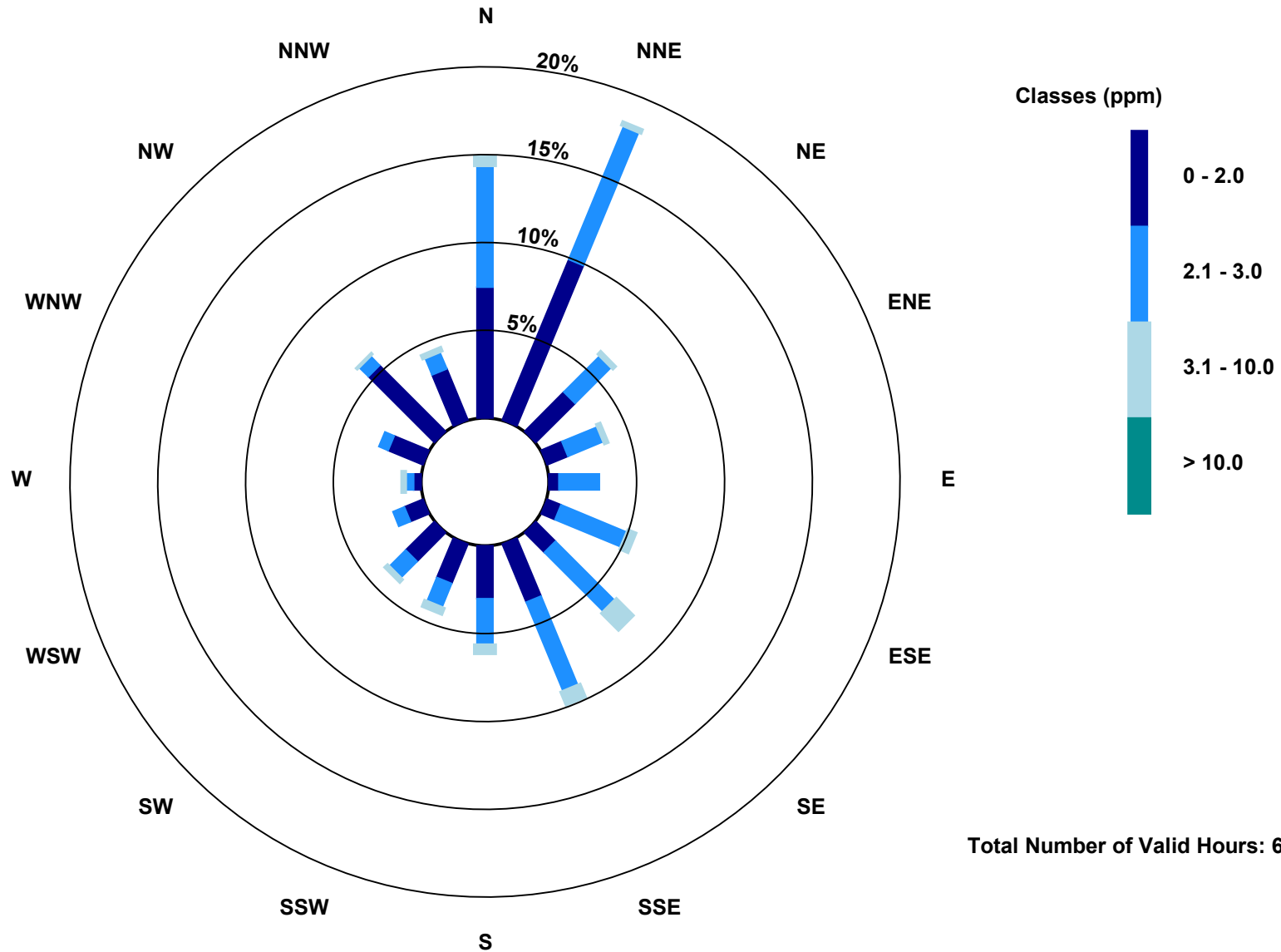
Total Number of Valid Hours: 697

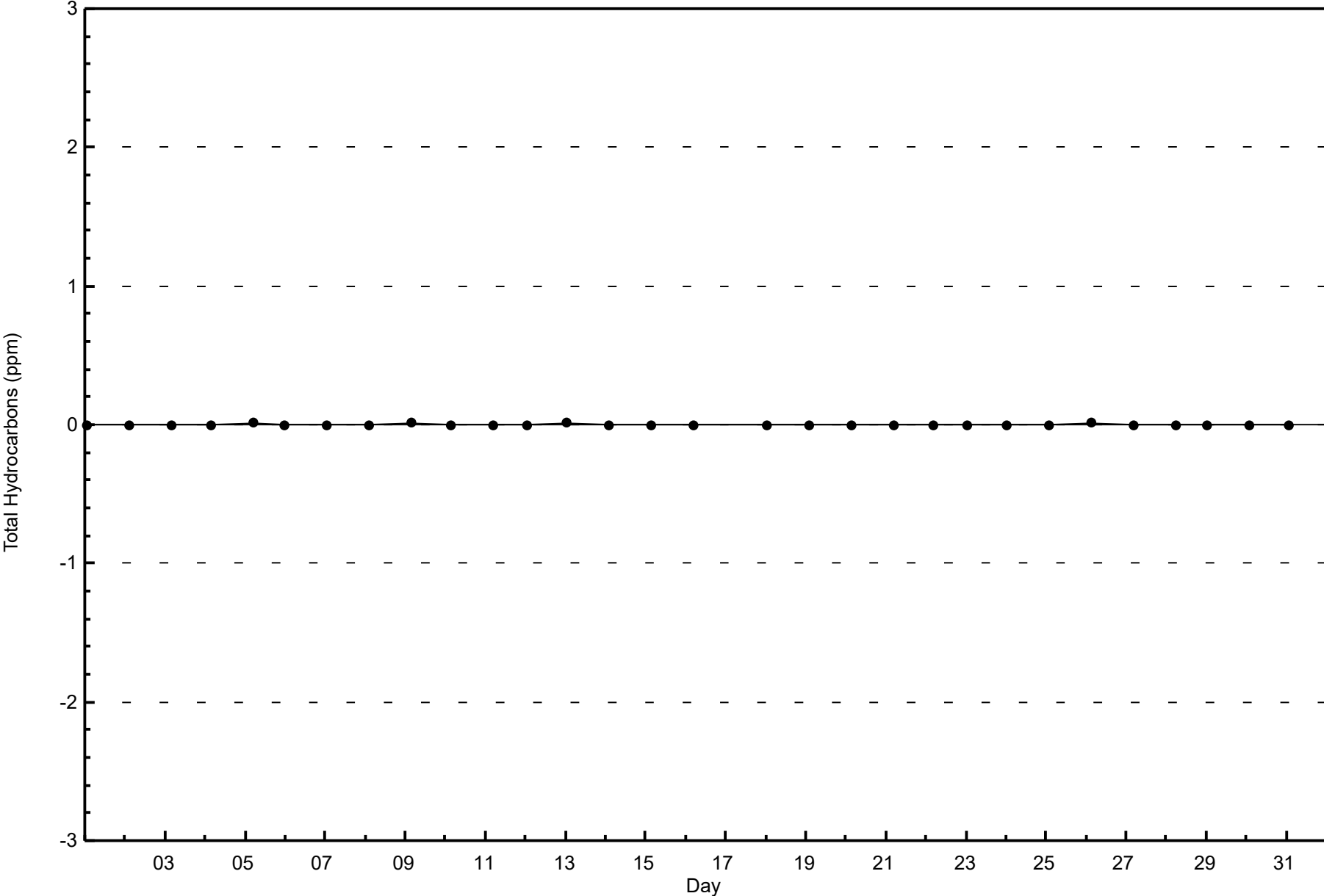
Total Number of Hours: 744

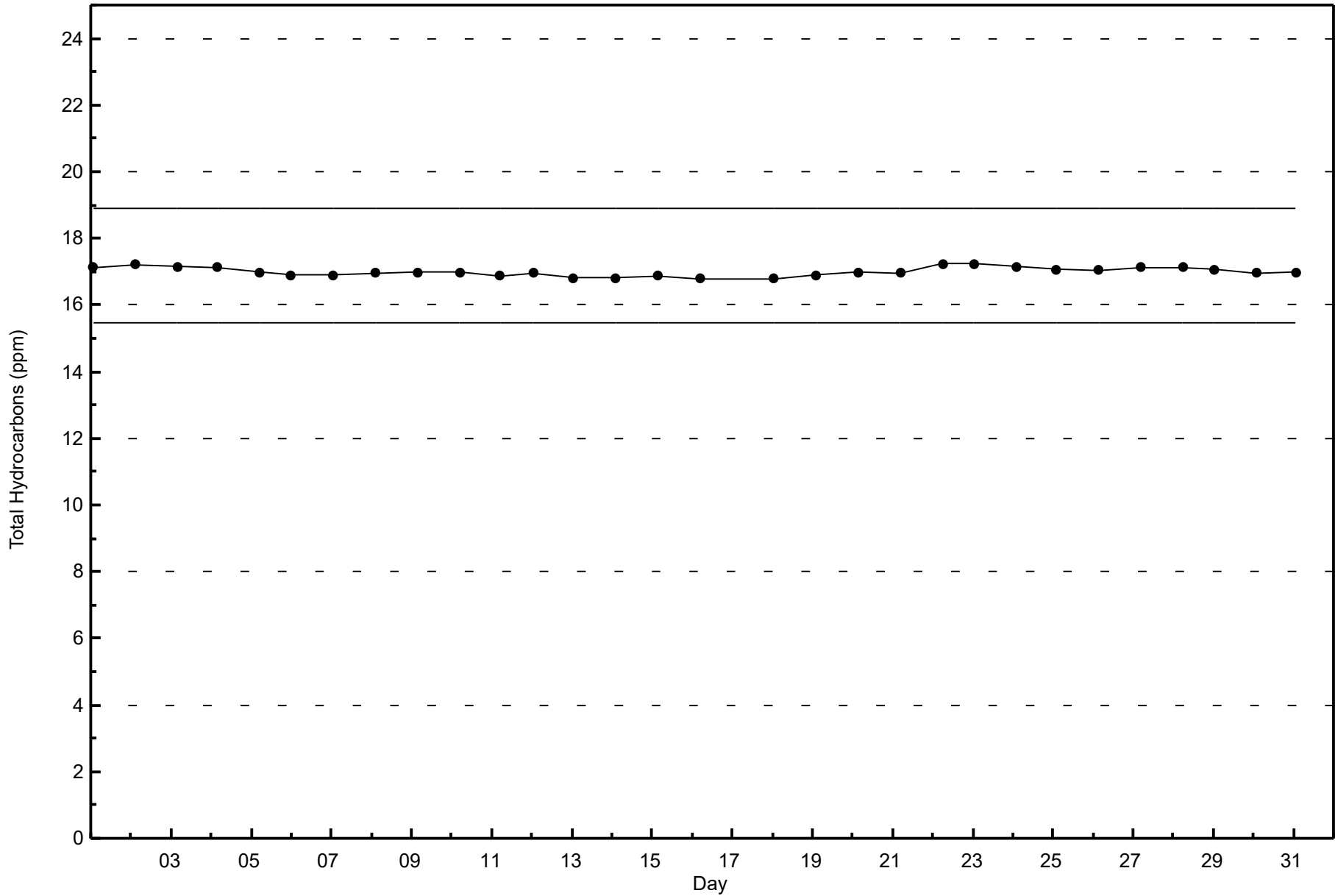


Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Fort Hills





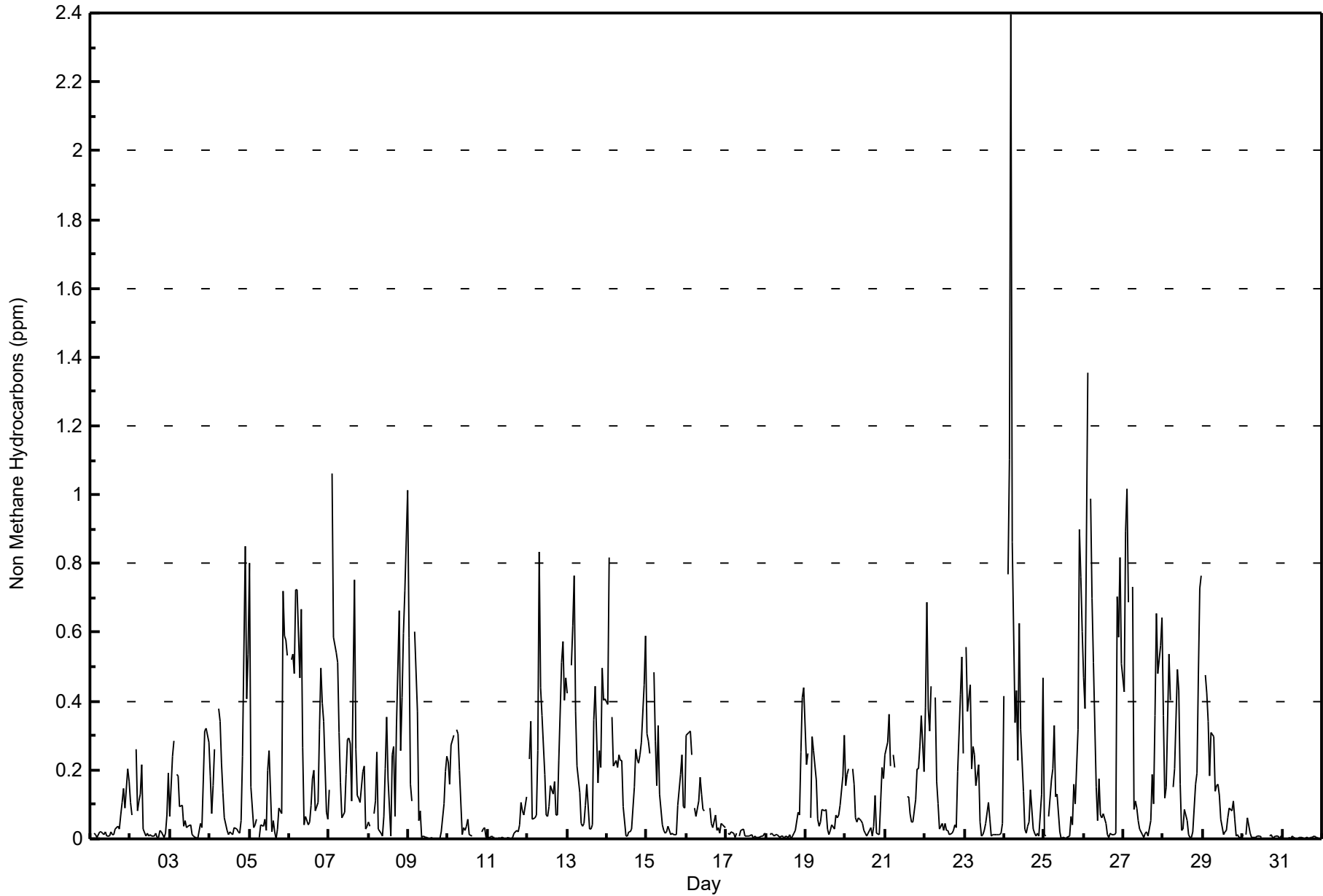




Summary of Hour Averages

Fort Hills - May 2024

Maximum Value: 2.397 ppm on May 24 05:00		Maximum Daily Average: 0.373 ppm on May 24		Hours in Service: 744																							
Minimum Value: 0.000 ppm on May 9 14:00		Minimum Daily Average: 0.003 ppm on May 31		Hours of Data: 697																							
Maximum Diurnal Average: 0.353 ppm at hour 5		Minimum Diurnal Average: 0.037 ppm at hour 14		Hours of Missing Data: 47																							
Monthly Average: 0.164 ppm		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.5 P <sub>99</sub> = 0.9		Hours of Calibration: 35																							
				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-May	0.020	Z	0.017	0.013	0.005	0.020	0.019	0.017	0.014	0.019	0.007	0.008	0.022	0.011	0.012	0.029	0.036	0.028	0.068	0.107	0.146	0.088	0.202	0.169	0.047	0.202	
2-May	0.104	0.068	Z	0.261	0.080	0.110	0.131	0.214	0.030	0.010	0.016	0.009	0.013	0.009	0.010	0.017	0.004	0.002	0.024	0.018	0.006	0.017	0.068	0.190	0.061	0.261	
3-May	0.066	0.238	0.285	Z	0.186	0.182	0.093	0.097	0.039	0.053	0.032	0.035	0.040	0.014	0.006	0.005	0.003	0.001	0.044	0.034	0.172	0.311	0.323	0.280	0.110	0.323	
4-May	0.182	0.073	0.155	0.260	Z	0.380	0.340	0.221	0.133	0.060	0.024	0.014	0.022	0.017	0.012	0.032	0.027	0.021	0.016	0.053	0.240	0.850	0.408	0.536	0.177	0.850	
5-May	0.803	0.149	0.035	0.040	0.057	Z	0.002	0.042	0.037	0.056	0.025	0.200	0.255	0.022	0.052	0.021	0.002	0.028	0.089	0.075	0.721	0.589	0.579	0.532	0.192	0.803	
6-May	Z	0.520	0.537	0.479	0.725	0.726	0.469	0.668	0.264	0.042	0.066	0.041	0.048	0.097	0.176	0.198	0.082	0.106	0.317	0.495	0.396	0.344	0.078	0.056	0.301	0.726	
7-May	0.143	Z	1.062	0.587	0.542	0.514	0.308	0.163	0.061	0.078	0.185	0.287	0.293	0.278	0.111	0.753	0.261	0.126	0.118	0.106	0.194	0.210	0.030	0.036	0.280	1.062	
8-May	0.048	0.037	Z	0.073	0.111	0.253	0.028	0.016	0.010	0.066	0.204	0.356	0.175	0.010	0.245	0.270	0.066	0.325	0.662	0.258	0.413	0.597	0.721	1.014	0.259	1.014	
9-May	0.587	0.159	0.111	Z	0.603	0.370	0.053	0.080	0.004	0.007	0.005	0.004	0.001	0.000	0.002	0.001	0.000	0.000	0.001	0.002	0.020	0.103	0.196	0.241	0.111	0.603	
10-May	0.226	0.157	0.274	0.302	Z	0.318	0.307	0.198	0.012	0.034	0.025	0.035	0.055	0.013	0.007	UO	UO	UO	0.000	UO	0.021	0.030	0.034	0.002	0.108	0.318	
11-May	0.003	0.002	0.010	0.003	0.006	Z	0.004	0.002	0.003	0.005	0.002	0.001	0.003	0.000	0.001	0.005	0.018	0.023	0.021	0.042	0.107	0.079	0.070	0.121	0.023	0.121	
12-May	Z	0.232	0.342	0.055	0.062	0.069	0.255	0.832	0.440	0.359	0.185	0.070	0.065	0.092	0.154	0.131	0.166	0.067	0.069	0.228	0.511	0.573	0.404	0.469	0.254	0.832	
13-May	0.425	Z	0.505	0.618	0.765	0.372	0.211	0.133	0.044	0.038	0.043	0.097	0.157	0.030	0.027	0.041	0.348	0.444	0.161	0.256	0.207	0.497	0.402	0.407	0.271	0.765	
14-May	0.390	0.816	Z	0.353	0.213	0.226	0.209	0.244	0.229	0.226	0.095	0.008	0.007	0.019	0.020	0.029	0.149	0.261	0.232	0.219	0.244	0.279	0.448	0.589	0.239	0.816	
15-May	0.304	0.286	0.247	Z	0.486	0.283	0.153	0.329	0.130	0.041	0.026	0.015	0.022	0.038	0.010	0.017	0.013	0.013	0.011	0.099	0.187	0.245	0.092	0.090	0.136	0.486	
16-May	0.303	0.309	0.312	0.244	Z	0.090	0.067	0.109	0.178	0.131	0.087	0.081	DF	DF	0.091	0.046	0.031	0.069	0.025	0.034	0.015	0.045	0.040	0.032	0.111	0.312	
17-May	DF	0.018	0.012	0.019	0.015	0.004	0.015	M	0.010	0.023	0.028	0.010	0.010	0.009	0.008	0.013	0.002	0.010	0.003	0.003	0.003	0.007	0.008	0.018	0.011	0.028	
18-May	0.013	Z	0.013	0.017	0.010	0.008	0.011	0.011	0.003	0.010	0.007	0.002	0.006	0.003	0.012	0.002	0.009	0.015	0.025	0.078	0.067	0.252	0.412	0.441	0.062	0.441	
19-May	0.218	0.250	Z	0.060	0.296	0.256	0.170	0.056	0.036	0.049	0.084	0.083	0.085	0.027	0.013	0.026	0.040	0.028	0.070	0.060	0.067	0.100	0.183	0.300	0.111	0.300	
20-May	0.153	0.187	0.203	Z	0.204	0.157	0.062	0.048	0.062	0.053	0.043	0.022	0.016	0.009	0.026	0.034	0.010	0.037	0.126	0.018	0.013	0.109	0.207	0.176	0.086	0.207	
21-May	0.245	0.282	0.361	0.212	Z	0.243	0.208	M	C	C	C	C	C	0.124	0.122	0.071	0.047	0.050	0.113	0.205	0.204	0.270	0.358	0.195	-	0.361	
22-May	0.382	0.686	0.378	0.313	0.442	Z	0.412	0.167	0.100	0.029	0.044	0.026	0.044	0.023	0.024	0.012	0.017	0.026	0.043	0.033	0.194	0.418	0.529	0.247	0.200	0.686	
23-May	Z	0.559	0.369	0.449	0.202	0.267	0.245	0.154	0.214	0.050	0.010	0.012	0.026	0.044	0.108	0.059	0.009	0.011	0.014	0.011	0.014	0.013	0.016	0.047	0.126	0.559	
24-May	0.417	Z	0.767	1.102	2.397	0.864	0.337	0.431	0.228	0.628	0.317	0.138	0.030	0.016	0.036	0.048	0.143	0.027	0.018	0.008	0.014	0.010	0.129	0.469	0.373	2.397	
25-May	0.011	0.009	Z	0.065	0.171	0.204	0.331	0.124	0.131	0.020	0.001	0.002	0.005	0.001	0.004	0.006	0.065	0.041	0.158	0.103	0.318	0.898	0.760	0.601	0.175	0.898	
26-May	0.467	0.378	1.356	Z	0.987	0.700	0.512	0.152	0.054	0.176	0.071	0.060	0.073	0.044	0.012	0.005	0.015	0.011	0.013	0.016	0.703	0.586	0.818	0.510	0.336	1.356	
27-May	0.426	0.894	1.017	0.687	Z	0.732	0.087	0.111	0.088	0.053	0.030	0.012	0.006	0.015	0.021	0.009	0.055	0.186	0.101	0.359	0.656	0.479	0.561	0.641	0.314	1.017	
28-May	0.359	0.116	0.151	0.535	0.404	Z	0.150	0.203	0.492	0.430	0.160	0.024	0.027	0.087	0.054	0.011	0.005	0.003	0.019	0.158	0.193	0.475	0.728	0.764	0.241	0.764	
29-May	Z	0.474	0.423	0.341	0.185	0.311	0.298	0.140	0.153	0.158	0.126	0.056	0.012	0.019	0.025	0.062	0.088	0.081	0.111	0.055	0.008	0.012	0.003	0.004	0.137	0.474	
30-May	0.011	Z	0.014	0.059	0.018	0.003	0.003	0.005	0.006	0.007	0.007	0.004	M	M	0.002	DF	0.007	0.010	0.006	0.004	0.007	0.008	0.002	0.007	0.009	0.059	
31-May	0.009	Z	0.002	0.001	0.006	0.002	0.007	0.003	0.001	0.001	0.005	0.005	0.003	0.001	0.005	0.003	0.001	0.003	0.004	0.007	0.006	0.002	0.001	0.001	0.003	0.009	
		0.243	0.287	0.345	0.275	0.353	0.284	0.177	0.171	0.107	0.097	0.065	0.057	0.054	0.037	0.045	0.067	0.057	0.068	0.086	0.105	0.196	0.274	0.284	0.296	Diurnal Average	
		0.803	0.894	1.356	1.102	2.397	0.864	0.512	0.832	0.492	0.628	0.317	0.356	0.293	0.278	0.245	0.753	0.348	0.444	0.662	0.495	0.721	0.898	0.818	1.014	Diurnal Maximum	
Z - zerospan		C - Calibration					M - Maintenance					DF - DAS Failure					UO - Unstable Operation										







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	78	11.19	11.19
0.006 - 0.05	248	35.58	46.77
0.06 - 0.1	117	16.79	63.56
> 0.1	254	36.44	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm**  
**Fort Hills - May 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	6	0	0	0	0	0	5	2	3	2	0	1	7	25	16	78
0.006 - 0.05	44	58	17	9	3	4	10	24	19	15	12	6	2	8	11	6	248
0.06 - 0.1	17	22	11	5	3	11	6	15	6	6	6	3	1	2	2	1	117
> 0.1	32	42	16	12	14	23	38	25	16	6	7	4	4	2	5	8	254
<b>Totals</b>	104	128	44	26	20	38	54	69	43	30	27	13	8	19	43	31	697

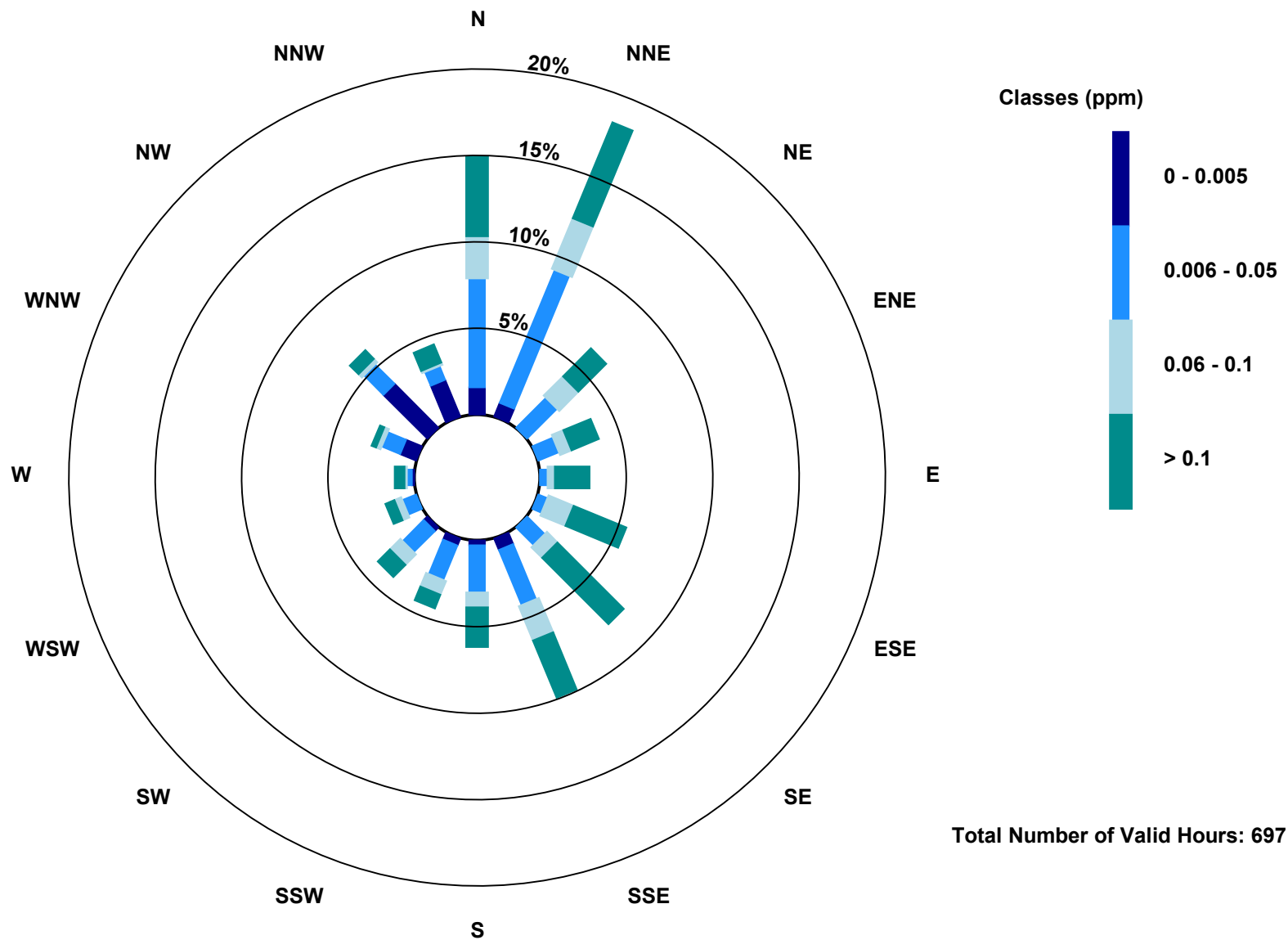
Total Number of Valid Hours: 697

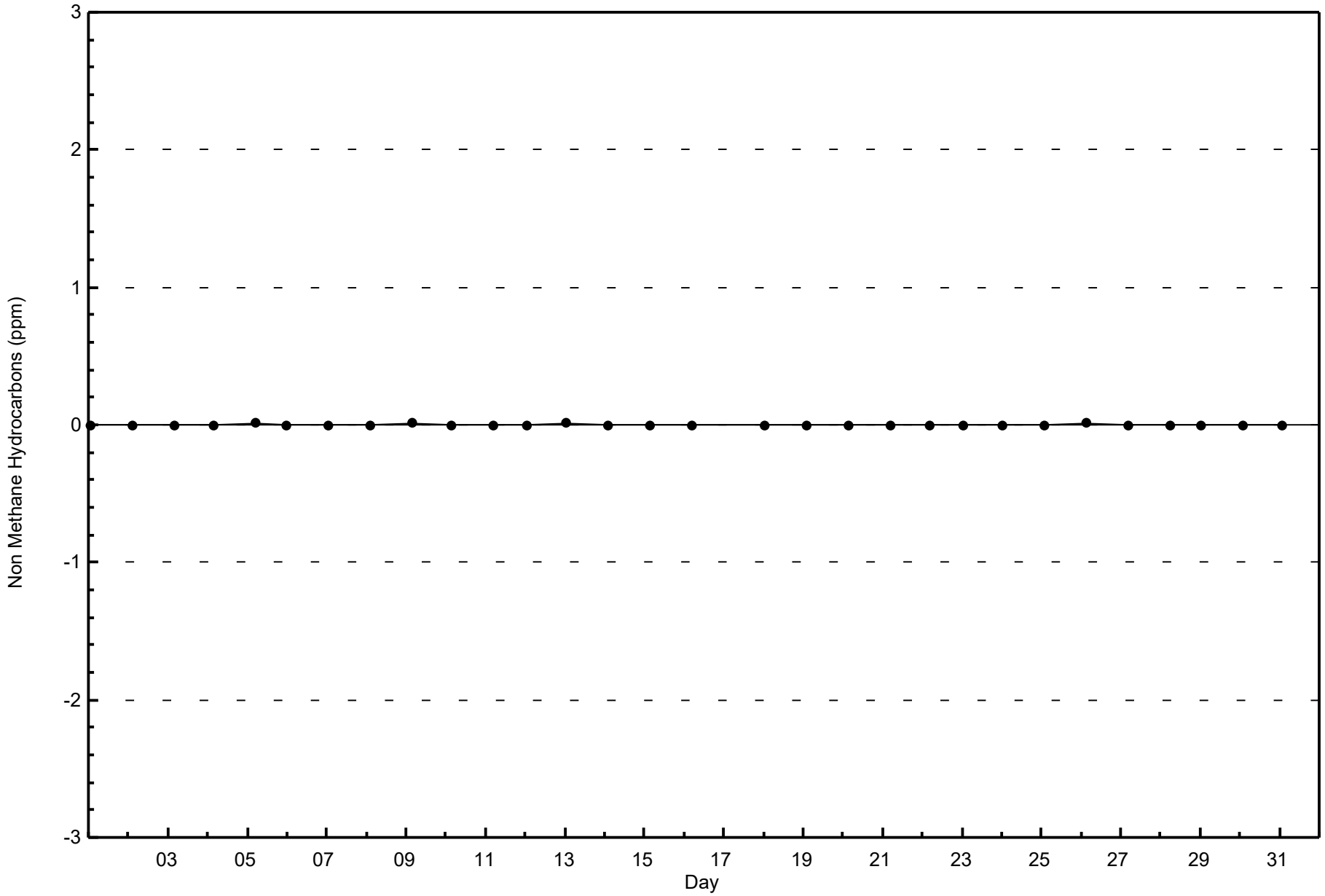
Total Number of Hours: 744

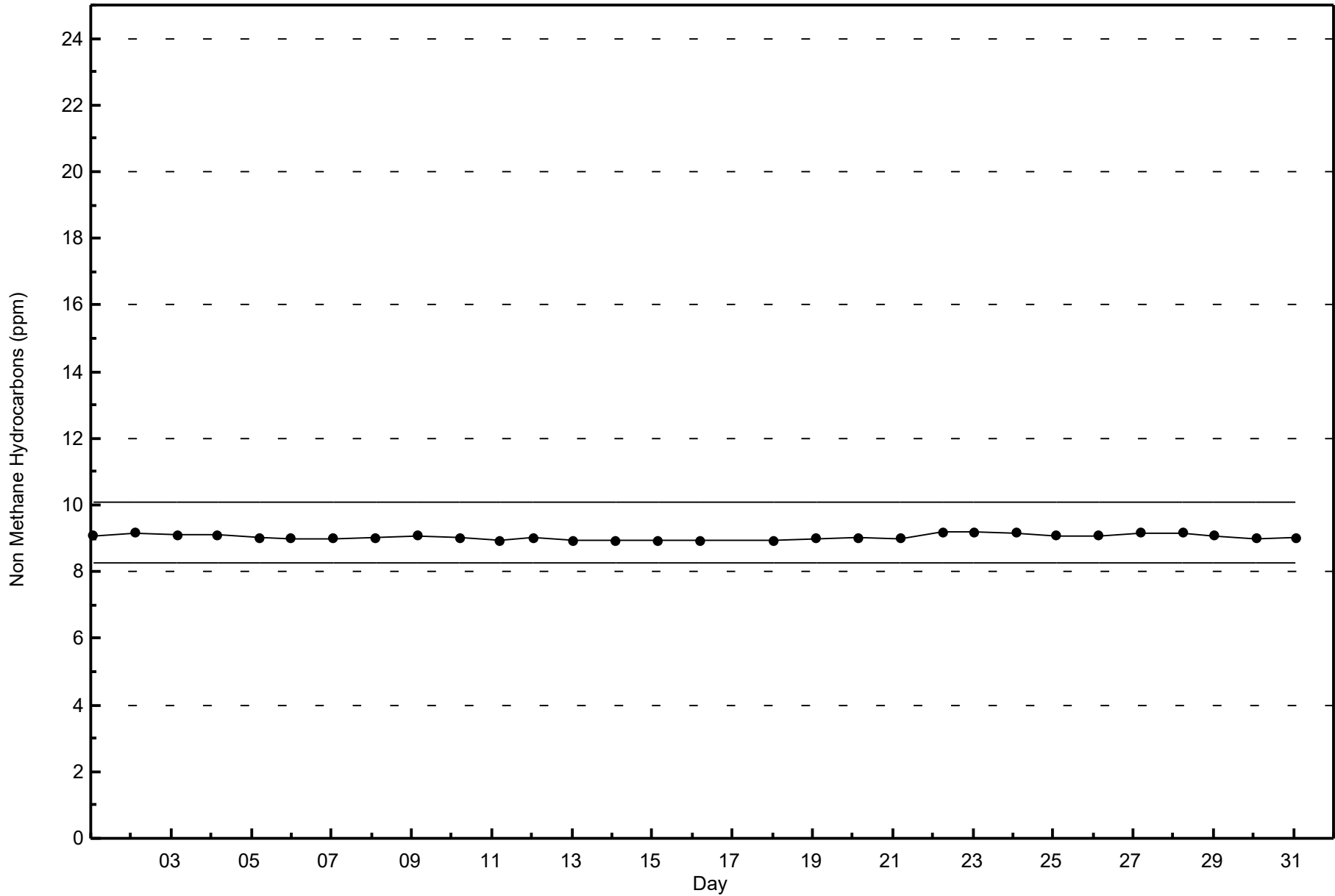


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Fort Hills









# Wood Buffalo Environmental Association

## Summary of Hour Averages

Methane (CH<sub>4</sub>) - ppm

Fort Hills - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.7 ppm on May 24 04:00	Maximum Daily Average: 2.2 ppm on May 24		Hours of Data:	697
Minimum Value: 1.9 ppm on May 30 07:00	Minimum Daily Average: 1.9 ppm on May 30		Hours of Missing Data:	47
Maximum Diurnal Average: 2.2 ppm at hour 3	Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Calibration:	35
Monthly Average: 2.07 ppm	Percentiles: P <sub>1</sub> = 1.9 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.8		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-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.0	2.3		
2-May	2.1	2.0	Z	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	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.2		
3-May	2.0	2.3	2.4	Z	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.5	2.4	2.1	2.5	
4-May	2.2	2.1	2.2	2.2	Z	2.5	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	2.1	2.3	2.2	2.3	2.1	2.5		
5-May	2.3	2.2	2.1	2.2	2.2	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.8	2.8	2.5	3.1	2.2	3.1	
6-May	Z	2.4	2.4	2.3	2.4	2.6	2.3	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.0	2.0	2.2	2.6	
7-May	2.0	Z	2.7	2.1	2.4	2.3	2.0	2.0	1.9	2.0	2.2	2.4	2.3	2.2	2.1	2.2	2.2	2.0	2.0	2.1	2.1	2.0	2.2	2.0	2.1	2.7	
8-May	2.0	2.0	Z	2.0	2.1	2.1	2.0	1.9	1.9	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.3	2.0	2.2	2.6	2.3	2.4	2.1	2.6		
9-May	2.5	2.2	2.1	Z	2.8	2.5	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	2.1	2.1	2.1	2.1	2.8	
10-May	2.0	2.0	2.2	2.2	Z	2.5	2.3	2.2	1.9	2.0	2.0	1.9	1.9	2.0	1.9	UO	UO	UO	1.9	UO	1.9	2.0	2.0	2.1	2.5		
11-May	1.9	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1		
12-May	Z	2.0	2.6	2.0	2.1	2.1	2.2	2.7	2.5	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.1	2.2	2.1	2.7	
13-May	2.3	Z	2.6	2.6	2.7	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.2	2.1	2.3	2.1	2.7		
14-May	2.2	2.6	Z	2.2	2.0	2.1	2.1	2.2	2.2	2.1	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.3	2.5	2.1	2.6		
15-May	2.2	2.3	2.2	Z	2.6	2.2	2.1	2.2	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.6		
16-May	2.2	2.2	2.1	2.1	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	DF	DF	2.0	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.2	
17-May	DF	1.9	1.9	2.0	2.0	1.9	2.0	M	1.9	2.0	2.0	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	1.9	2.0	2.1	2.0	2.1	2.1	
18-May	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.2	2.2	2.2	2.0	2.2		
19-May	2.1	2.1	Z	1.9	2.1	2.1	2.0	1.9	1.9	1.9	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	
20-May	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	2.0	1.9	1.9	1.9	2.0	1.9	1.9	2.0	2.2	2.2	2.0	2.2	
21-May	2.2	2.6	2.5	2.2	Z	2.4	2.3	M	C	C	C	C	C	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.1	--	2.6		
22-May	2.1	2.6	2.1	2.1	2.3	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.3	2.5	2.3	2.1	2.1	2.6	
23-May	Z	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.2	
24-May	2.9	Z	3.3	2.7	2.8	2.4	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.2	3.7		
25-May	2.0	1.9	Z	2.1	2.2	2.3	2.3	2.1	2.0	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.3	2.3	3.0	2.1	3.0	
26-May	2.7	2.6	2.3	Z	2.4	2.5	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.2	2.2	2.5	2.6	2.2	2.7	
27-May	2.6	2.6	2.5	2.5	Z	2.7	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	2.3	2.3	2.3	2.5	2.2	2.7		
28-May	2.3	2.0	2.1	2.2	2.0	Z	2.0	2.0	2.3	2.2	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.1	2.3	2.4	2.4	2.1	2.4	
29-May	Z	2.2	2.2	2.0	2.0	2.1	2.1	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	1.9	1.9	1.9	1.9	2.0	2.2	
30-May	1.9	Z	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	M	M	1.9	DF	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	
31-May	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0

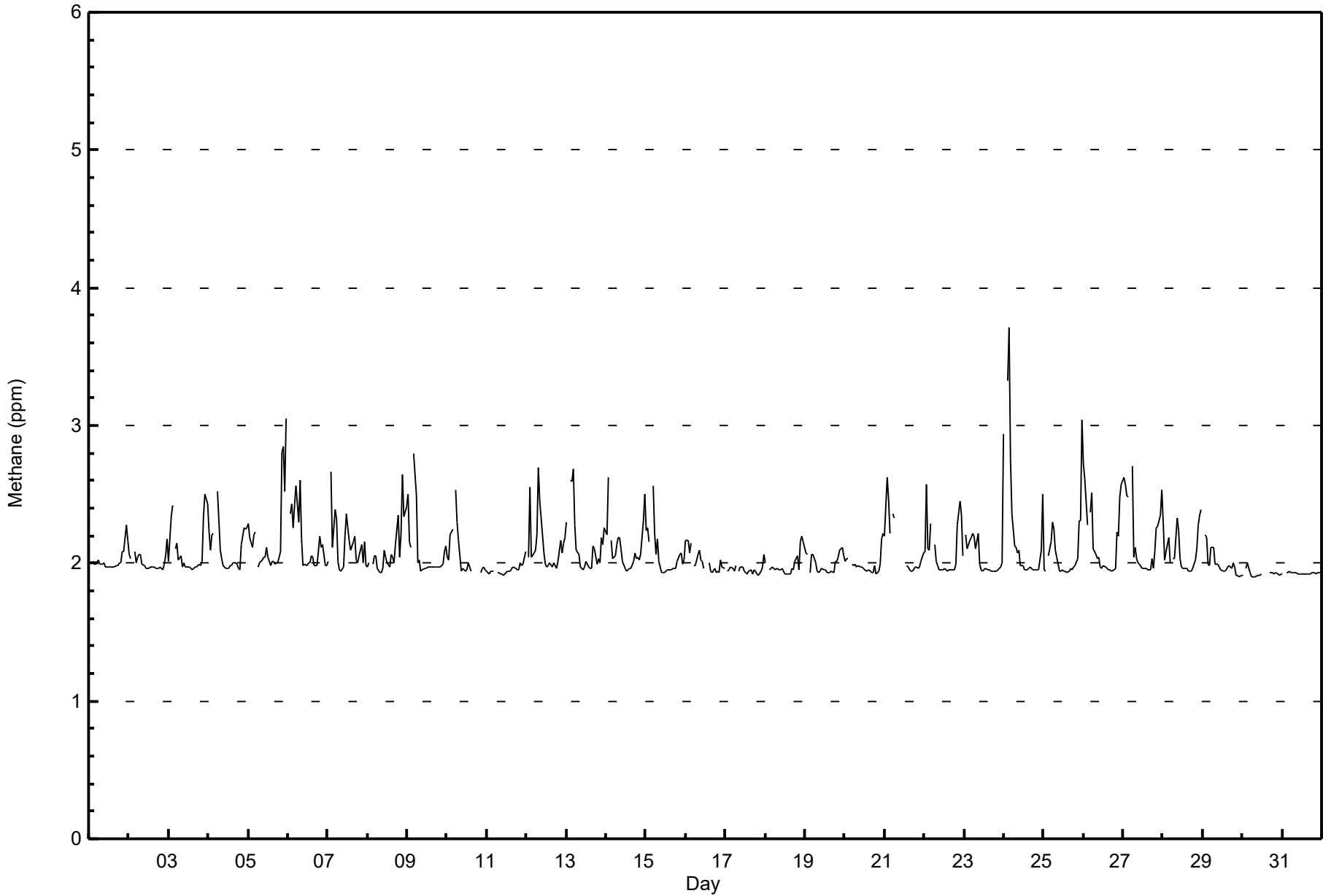
2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	Diurnal Average	
2.9	2.6	3.3	3.7	2.8	2.7	2.3	2.7	2.5	2.3	2.2	2.4	2.3	2.2	2.1	2.2	2.2	2.1	2.3	2.2	2.8	2.8	2.5	3.1	Diurnal Maximum	

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure      UO - Unstable Operation



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	464	66.57	66.57
2.1 - 3.0	230	33.00	99.57
3.1 - 10.0	3	0.43	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - May 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	70	94	29	15	13	16	21	44	27	21	19	12	4	18	38	23	464
2.1 - 3.0	34	34	15	11	7	21	32	24	16	9	8	1	4	1	5	8	230
3.1 - 10.0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	104	128	44	26	20	38	54	69	43	30	27	13	8	19	43	31	697

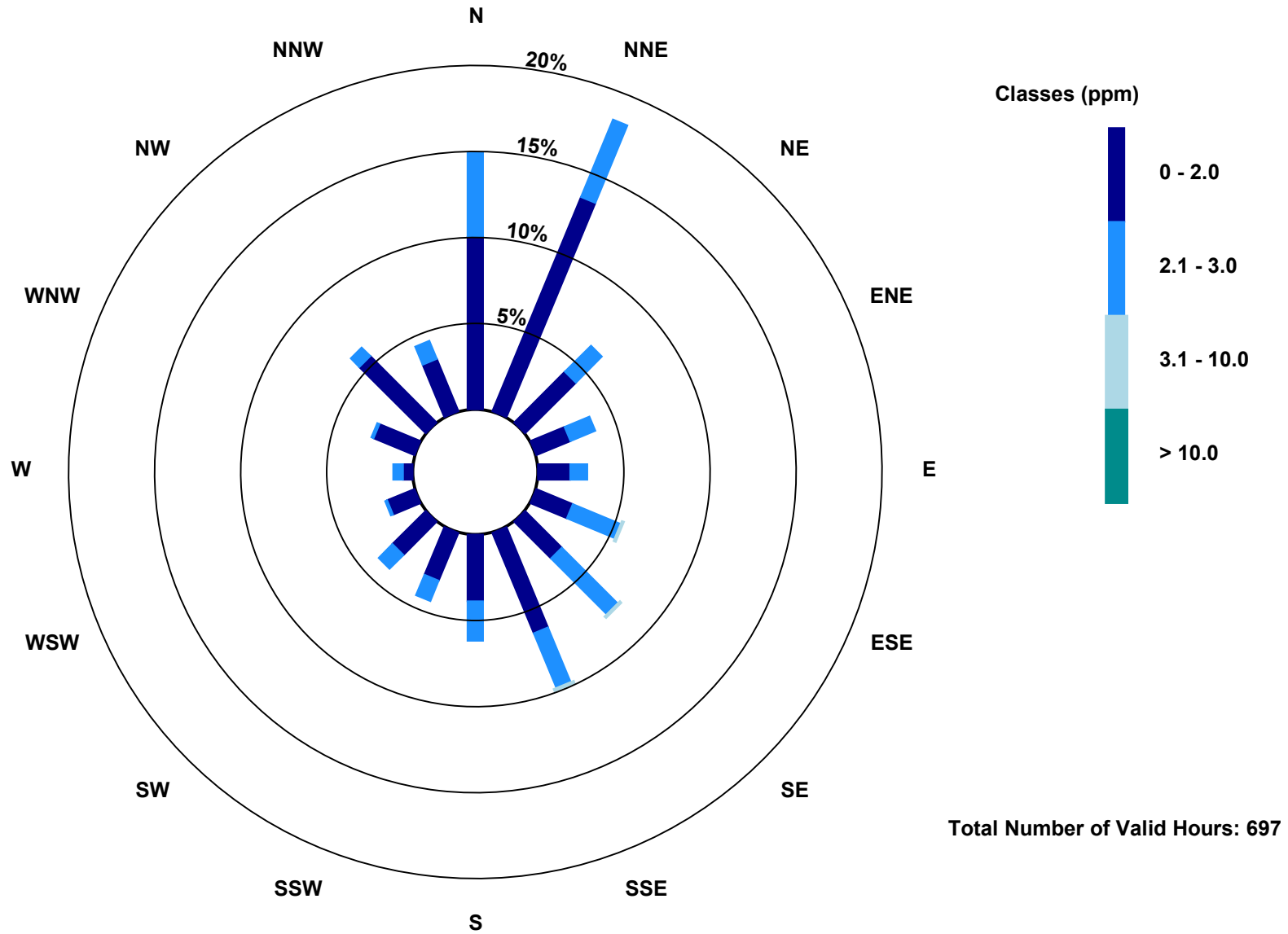
Total Number of Valid Hours: 697

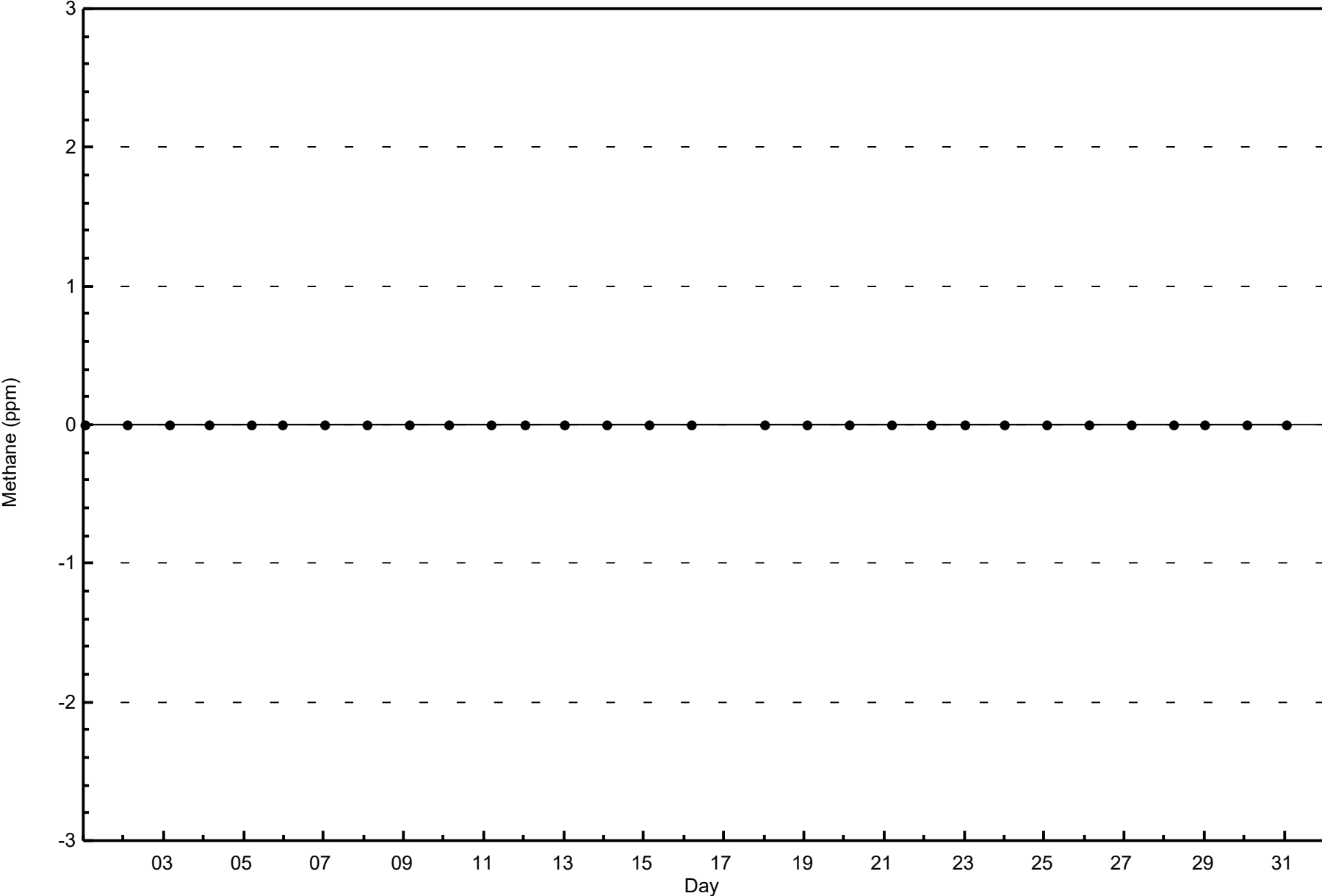
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Methane (CH<sub>4</sub>) - ppm  
Fort Hills

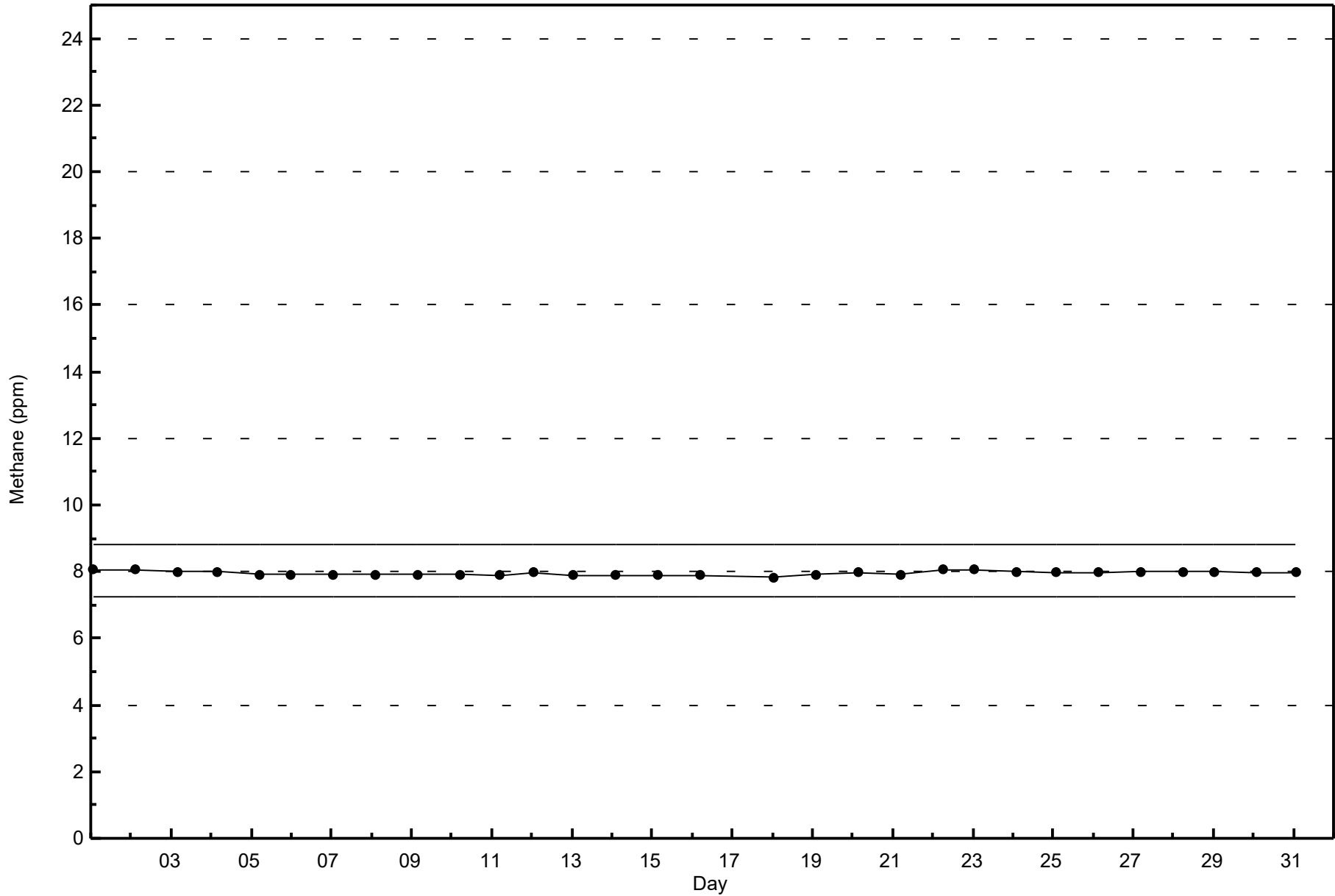






**Wood Buffalo Environmental Association**  
**Span Responses**

**Methane (CH<sub>4</sub>) - ppm**  
**Fort Hills - May 2024**





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

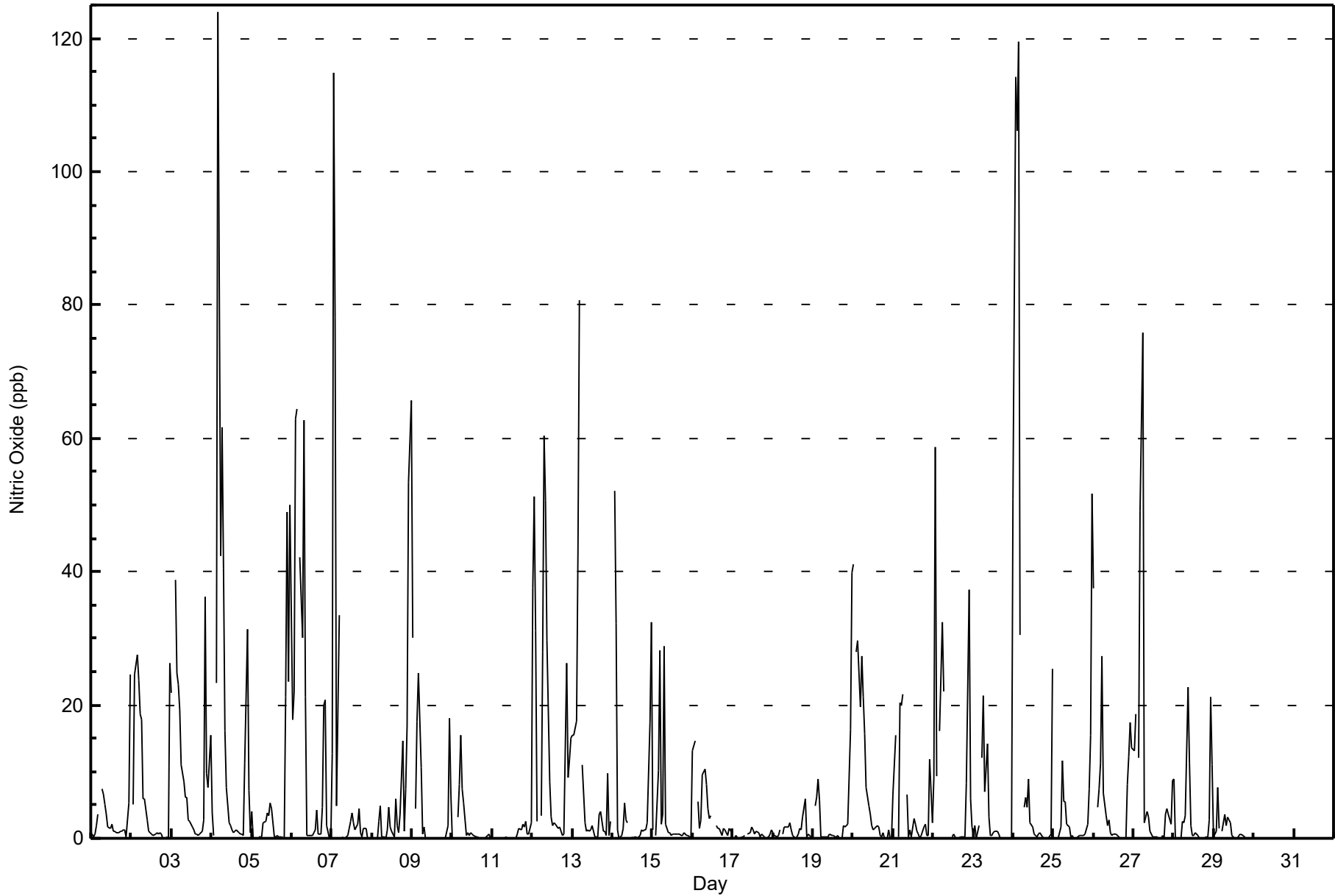
Fort Hills - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																			
Maximum Value: 124.0 ppb on May 4 05:00		Maximum Daily Average: 20.8 ppb on May 24				Hours of Data:		700																			
Minimum Value: 0.0 ppb on May 2 21:00		Minimum Daily Average: 0.0 ppb on May 31				Hours of Missing Data:		44																			
Maximum Diurnal Average: 18.9 ppb at hour 2		Minimum Diurnal Average: 0.6 ppb at hour 14				Hours of Calibration:		34																			
Monthly Average: 6.81 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 1.0 Q <sub>3</sub> = 4.9 P <sub>90</sub> = 21.3 P <sub>99</sub> = 75.8				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-May	0.7	0.2	0.5	1.8	3.5	Z	7.5	6.6	5.0	3.5	1.7	1.6	2.0	1.0	1.0	0.9	0.9	1.0	1.2	1.4	1.2	0.1	5.4	24.6	3.2	24.6	
2-May	Z	5.0	24.6	27.6	23.7	18.6	17.8	5.8	5.9	2.7	1.1	0.8	0.7	0.5	0.7	0.9	0.6	0.9	0.6	0.1	0.0	0.1	0.1	26.4	7.2	27.6	
3-May	21.8	Z	38.7	24.8	23.1	19.2	11.1	8.5	6.1	6.1	2.7	2.5	1.8	1.2	0.6	0.5	0.5	0.7	1.1	2.8	36.3	9.7	7.6	15.4	10.6	38.7	
4-May	3.9	0.5	Z	23.4	124.0	42.3	61.7	40.5	16.0	7.6	2.3	1.9	1.2	0.8	1.0	1.4	0.9	0.7	0.6	0.4	11.2	31.3	7.2	0.9	16.6	124.0	
5-May	4.0	0.0	0.0	Z	0.2	0.1	0.2	2.4	2.5	3.9	3.3	5.3	4.4	0.3	3.0	0.5	0.1	0.2	0.3	0.0	21.1	48.9	23.6	50.0	7.5	50.0	
6-May	17.8	22.0	63.0	64.5	Z	42.1	30.1	62.7	21.1	0.5	0.3	0.4	0.5	0.9	1.3	4.3	0.5	0.5	4.6	19.8	20.9	1.8	0.0	0.0	16.5	64.5	
7-May	12.6	114.9	78.1	5.0	33.4	Z	0.3	0.0	0.0	0.5	1.5	2.6	3.9	2.4	1.4	2.2	4.4	0.9	0.3	1.4	1.5	0.0	0.0	0.0	11.6	114.9	
8-May	Z	0.0	0.0	0.0	2.6	4.9	0.2	0.2	0.1	1.2	4.7	1.7	1.1	0.2	6.0	1.8	0.9	3.5	14.7	1.2	7.4	17.0	53.4	65.7	8.2	65.7	
9-May	30.0	Z	4.4	17.6	24.8	10.7	0.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	18.0	6.5	5.1	30.0
10-May	0.0	0.0	Z	3.2	8.1	15.6	7.4	5.3	0.3	0.8	0.4	0.8	0.7	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.5	0.0	2.0	15.6
11-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.7	1.6	1.3	2.0	1.7	2.6	0.7	0.7	2.2	0.6	2.6	
12-May	37.6	51.3	31.1	2.5	Z	3.5	28.0	60.3	50.6	29.6	8.4	3.3	1.9	2.4	2.1	1.4	1.7	1.0	0.5	0.7	26.3	9.2	11.9	15.0	16.5	60.3	
13-May	15.5	15.5	17.7	43.4	80.8	Z	11.0	2.4	1.1	1.2	1.0	1.2	1.9	0.3	0.3	0.3	3.6	3.9	1.2	1.0	0.4	9.8	0.4	2.6	9.4	80.8	
14-May	Z	52.1	32.1	1.2	0.0	0.3	1.5	5.4	2.7	2.3	Z	0.2	0.1	0.2	0.1	0.1	0.5	1.2	1.1	1.2	1.3	2.4	17.3	32.5	7.1	52.1	
15-May	1.3	Z	0.3	10.1	28.3	2.2	3.5	28.9	2.0	0.9	0.8	0.4	0.7	0.6	0.6	0.6	0.6	0.4	0.3	0.9	0.3	0.5	0.3	0.2	3.7	28.9	
16-May	13.1	14.6	Z	5.4	1.5	2.8	9.5	10.3	8.1	4.5	3.0	3.4	DF	DF	1.9	1.4	1.5	0.5	1.4	1.2	1.0	0.5	1.4	0.8	4.2	14.6	
17-May	DF	0.3	0.5	0.1	0.1	0.2	0.1	0.4	Z	0.6	0.8	1.7	1.2	0.7	1.0	0.8	0.3	0.6	0.4	0.2	0.0	0.2	0.7	1.3	0.5	1.7	
18-May	0.9	0.5	0.2	0.5	1.2	Z	0.7	1.6	1.7	1.7	2.2	1.3	0.5	0.1	0.2	0.7	1.5	1.2	3.1	5.9	0.1	0.6	0.5	0.1	1.2	5.9	
19-May	Z	4.8	6.1	8.8	5.6	0.2	0.3	0.3	0.3	0.2	0.5	0.5	0.5	0.2	0.1	0.5	0.1	0.1	1.9	1.7	1.8	2.1	16.4	39.9	4.0	39.9	
20-May	41.0	Z	28.0	29.7	19.7	27.3	21.2	15.8	7.6	4.9	3.6	1.8	1.3	1.6	2.0	1.8	0.4	0.1	0.8	0.0	0.1	1.3	0.0	0.0	9.1	41.0	
21-May	6.6	15.4	Z	0.2	20.4	20.0	21.6	Z	6.6	0.2	1.4	0.1	3.0	2.2	1.1	0.5	0.1	0.3	1.6	2.2	0.5	0.4	11.9	2.3	5.4	21.6	
22-May	9.1	58.7	9.4	Z	16.2	32.4	21.9	Z	Z	Z	Z	0.3	0.7	0.2	0.0	0.1	0.2	0.1	0.3	0.1	8.3	37.3	6.0	1.7	10.7	58.7	
23-May	0.6	1.9	0.1	1.8	Z	12.1	21.5	6.9	14.3	3.1	0.4	0.4	0.9	1.0	1.0	0.6	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	2.9	21.5	
24-May	50.8	114.3	106.2	119.6	30.6	Z	4.6	6.1	4.6	8.9	2.4	1.7	0.7	0.4	0.3	0.6	0.8	0.3	0.1	0.1	0.0	0.0	0.5	25.4	20.8	119.6	
25-May	Z	0.0	0.0	0.0	1.7	11.6	5.4	5.4	2.1	1.8	0.2	0.5	0.0	0.0	0.0	0.3	0.4	0.4	0.5	0.6	2.1	7.5	15.5	51.7	4.7	51.7	
26-May	37.6	Z	4.6	7.4	11.3	27.4	6.8	3.4	1.8	2.7	0.8	0.4	0.6	0.6	0.3	0.1	0.0	0.1	0.1	0.0	8.1	12.3	17.3	13.6	6.8	37.6	
27-May	13.1	18.6	Z	12.1	49.1	75.8	2.3	3.2	4.1	3.2	1.1	0.3	0.2	0.1	0.1	0.0	0.0	0.4	0.0	3.6	4.5	3.6	2.0	8.7	9.0	75.8	
28-May	8.9	0.0	0.0	Z	0.0	2.5	2.4	3.3	22.6	11.1	1.8	0.4	0.4	0.9	0.5	0.0	0.0	0.0	0.1	0.3	0.3	2.7	21.2	11.0	3.9	22.6	
29-May	0.3	1.1	7.5	1.4	Z	1.1	3.6	1.8	3.2	2.7	2.3	0.3	0.0	0.0	0.0	0.4	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	1.2	7.5	
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	Z	Z	Z	0.1	0.0	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
31-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
																								Diurnal Average			
																								Diurnal Maximum			
13.1 18.9 17.4 15.3 18.9 15.5 9.8 10.0 6.6 3.5 1.7 1.2 1.1 0.6 0.8 0.8 0.7 0.7 1.3 1.6 5.1 6.5 7.7 12.9																											
50.8 114.9 106.2 119.6 124.0 75.8 61.7 62.7 50.6 29.6 8.4 5.3 4.4 2.4 6.0 4.3 4.4 3.9 14.7 19.8 36.3 48.9 53.4 65.7																											
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Fort Hills - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	625	89.29	89.29
21 - 40	46	6.57	95.86
41 - 80	23	3.29	99.14
81 - 159	5	0.71	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Fort Hills - May 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	87	113	37	22	21	35	47	60	41	26	26	13	8	20	40	29	625
21 - 40	15	10	2	2	0	4	3	3	1	3	1	0	1	0	1	0	46
11 - 80	5	5	2	0	0	1	4	1	1	1	1	0	0	0	0	2	23
81 - 159	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	1	5
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	107	129	41	24	21	41	55	65	43	30	28	13	9	20	41	32	699

Total Number of Valid Hours: 700

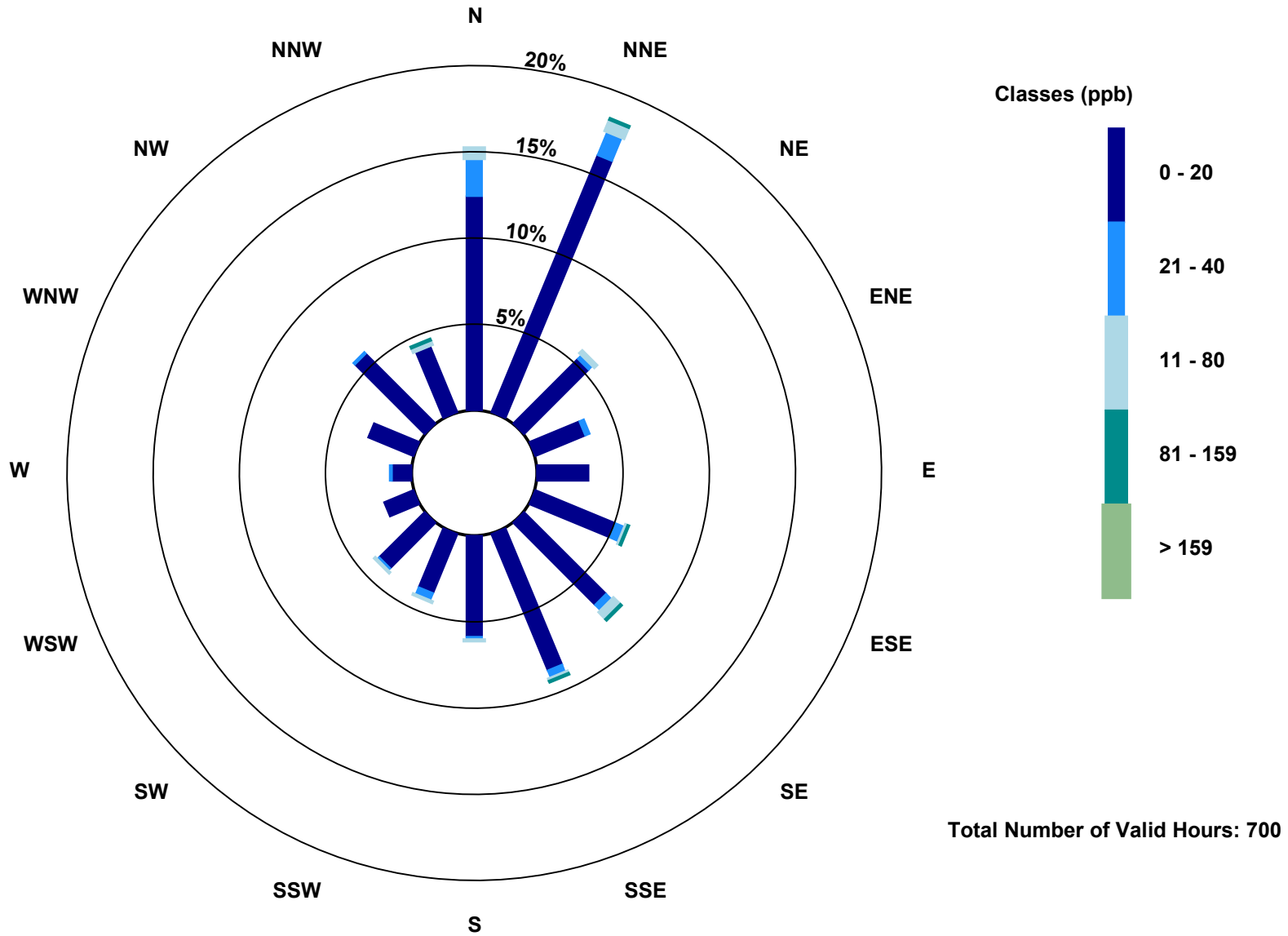
Total Number of Hours: 744

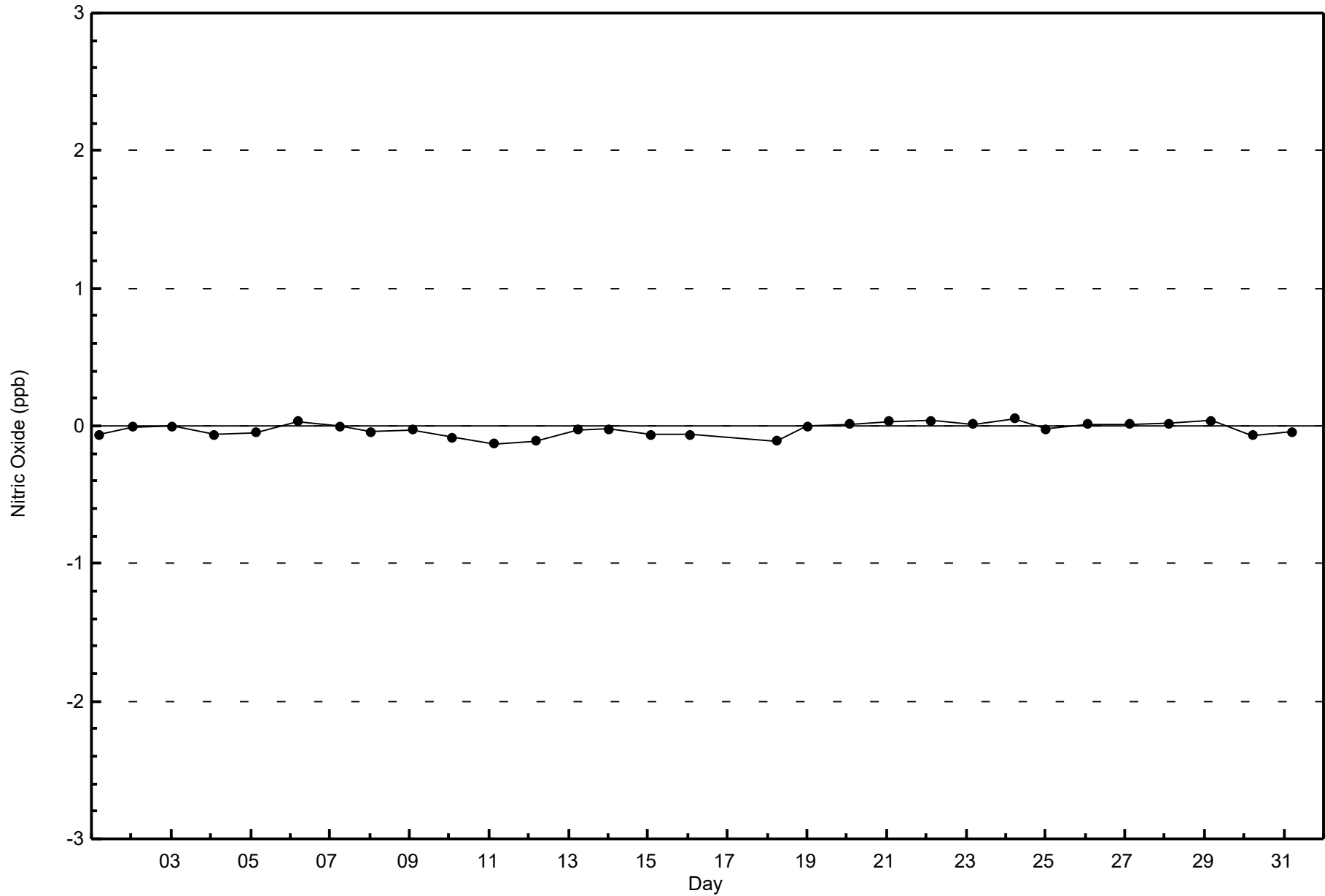


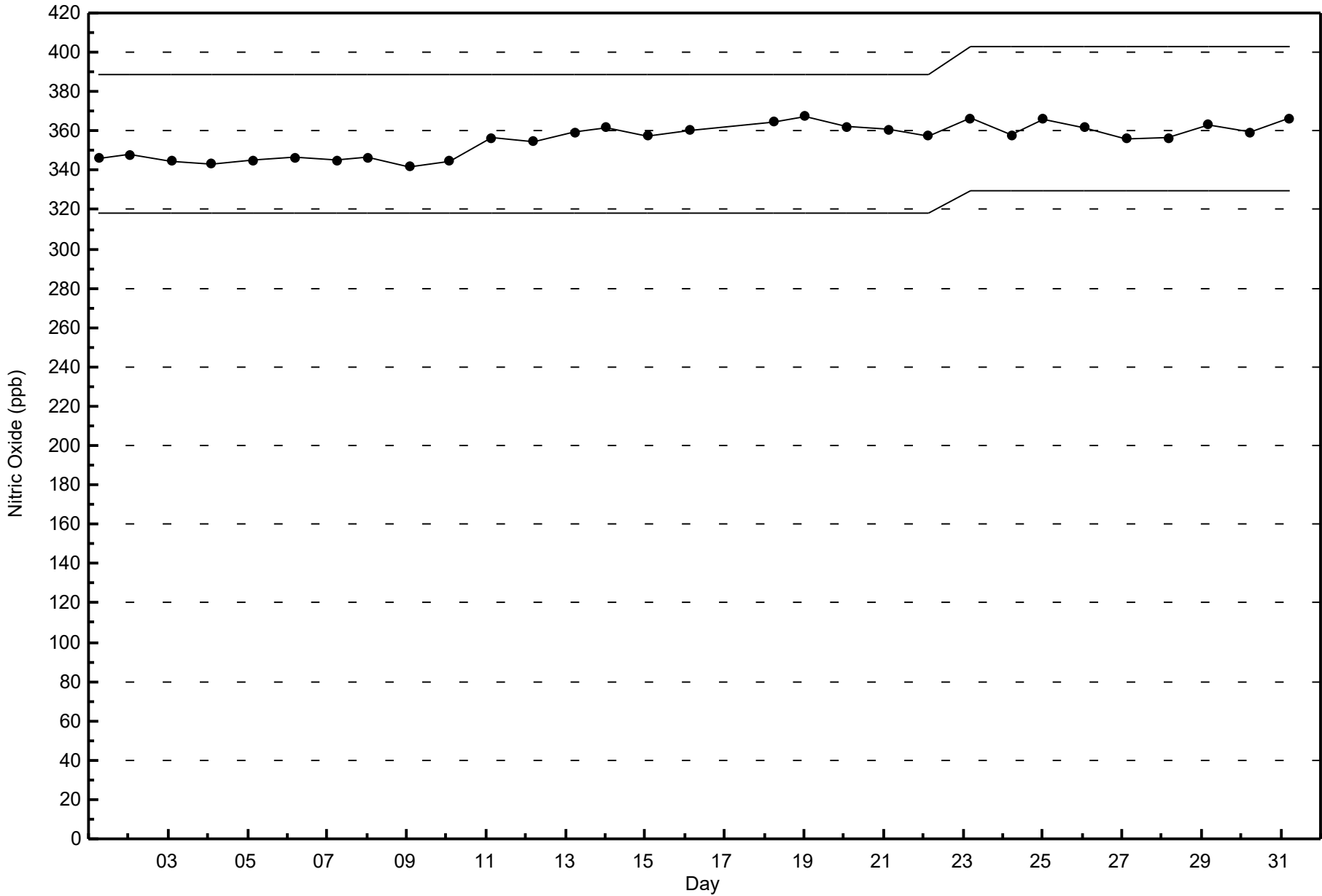


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Fort Hills









# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

## Fort Hills - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 43.0 ppb on May 3 21:00	Maximum Daily Average: 20.0 ppb on May 3		Hours of Data:	700
Minimum Value: 0.1 ppb on May 31 01:00	Minimum Daily Average: 0.4 ppb on May 31		Hours of Missing Data:	44
Maximum Diurnal Average: 19.3 ppb at hour 1	Minimum Diurnal Average: 2.4 ppb at hour 14		Hours of Calibration:	34
Monthly Average: 10.25 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 2.2 Median = 6.2 Q <sub>3</sub> = 16.8 P <sub>90</sub> = 26.6 P <sub>99</sub> = 38.2		Percent Operational Time:	98.7

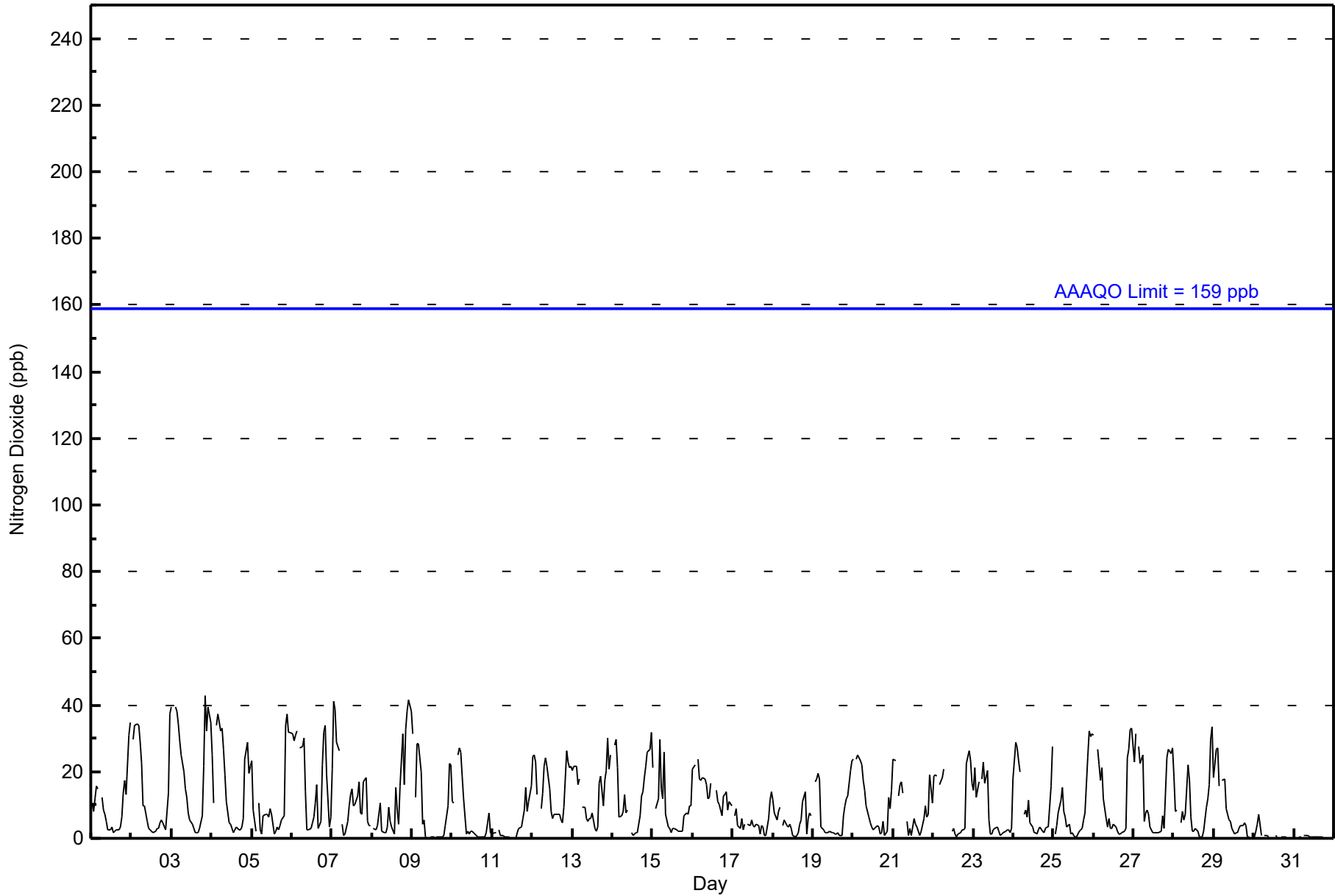
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	10.5	7.9	11.7	15.7	15.0	Z	12.2	8.6	7.3	5.2	2.4	2.5	3.2	1.6	2.2	2.5	2.6	3.5	6.3	13.7	17.5	13.2	30.8	34.8	10.0	34.8
2-May	Z	29.5	33.8	34.5	33.7	28.7	22.3	9.9	9.7	5.0	2.9	2.4	2.3	1.8	2.3	3.1	2.9	4.7	5.6	4.5	2.5	7.9	13.6	37.4	13.1	37.4
3-May	39.4	Z	39.3	38.1	34.3	29.4	25.1	20.1	14.9	12.4	7.6	5.4	4.4	3.1	1.9	1.8	1.7	3.0	6.8	21.6	43.0	32.0	39.5	34.8	20.0	43.0
4-May	25.1	10.8	Z	34.1	37.1	32.2	33.0	26.8	19.1	10.9	4.6	4.2	2.8	1.9	2.4	3.3	2.5	2.7	3.4	6.0	23.7	29.0	19.6	21.8	15.5	37.1
5-May	23.1	8.6	2.1	Z	10.4	2.4	1.2	6.9	7.0	7.3	6.2	9.1	7.4	1.3	2.1	3.3	2.7	3.7	5.3	6.7	33.7	37.4	31.9	31.8	10.9	37.4
6-May	31.2	29.3	31.1	32.3	Z	27.2	27.7	29.9	13.9	2.6	2.4	3.0	4.8	6.2	10.6	16.1	3.1	4.9	22.2	31.9	33.8	19.0	3.2	6.4	17.1	33.8
7-May	20.9	41.2	38.5	28.8	26.1	Z	4.3	1.0	1.4	5.1	9.6	13.1	14.8	9.9	10.2	12.7	16.8	7.6	7.0	17.1	18.4	4.9	3.9	3.8	13.8	41.2
8-May	Z	3.0	2.5	3.9	7.4	10.7	2.2	1.7	1.5	3.5	9.2	5.2	3.2	1.4	15.4	8.5	4.4	15.6	31.2	15.9	32.7	38.2	41.4	38.1	12.9	41.4
9-May	31.5	Z	12.4	28.3	28.3	19.8	4.2	5.3	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.5	0.3	0.3	0.3	0.7	3.9	9.9	22.5	21.9	8.3	31.5
10-May	11.2	10.8	Z	25.2	27.2	25.8	18.5	11.7	1.3	2.0	1.3	2.0	2.0	1.6	0.7	0.6	0.4	0.3	0.3	0.4	1.8	4.8	7.8	1.5	6.9	27.2
11-May	1.3	1.5	1.7	Z	2.5	0.7	0.7	0.5	0.6	0.4	0.3	0.2	0.2	0.2	0.2	1.5	3.1	3.5	6.1	8.3	15.2	8.0	11.0	15.5	3.6	15.5
12-May	24.7	24.8	22.8	13.2	Z	9.0	13.6	21.4	24.3	21.5	15.0	7.9	6.0	7.0	7.2	7.0	7.4	5.3	4.8	9.5	26.2	22.7	21.0	21.5	14.9	26.2
13-May	20.3	21.7	21.7	16.2	17.9	Z	9.4	9.3	6.0	5.0	5.8	6.1	7.7	3.0	2.3	3.3	16.6	18.8	9.8	17.2	20.4	30.0	20.7	25.1	13.7	30.0
14-May	Z	27.9	29.7	21.2	6.3	6.7	8.2	13.1	7.7	8.5	Z	1.6	1.0	1.3	1.6	1.6	6.7	12.6	13.8	18.4	21.4	25.7	26.7	31.7	13.3	31.7
15-May	21.3	Z	8.7	11.9	29.5	14.9	11.7	25.9	7.4	3.2	2.9	1.8	3.0	2.9	2.5	2.1	2.2	2.0	2.3	6.8	7.5	7.2	9.7	9.7	8.6	29.5
16-May	20.9	22.2	Z	23.8	17.6	17.5	18.4	17.9	15.9	11.8	12.1	16.4	DF	DF	14.3	11.1	10.3	6.6	12.7	13.1	13.8	8.3	11.1	9.9	14.6	23.8
17-May	DF	6.9	8.8	4.0	3.1	6.0	2.6	4.3	Z	4.1	3.8	5.7	4.0	3.3	4.2	3.9	1.4	3.8	3.3	1.0	0.7	5.9	11.4	14.0	4.8	14.0
18-May	11.3	7.5	5.5	7.9	9.3	Z	3.9	5.5	3.8	3.3	4.1	2.8	1.0	0.4	0.7	1.8	4.4	5.4	11.1	14.1	1.2	6.1	7.6	6.9	5.5	14.1
19-May	Z	16.8	17.9	19.6	17.6	3.3	2.5	1.7	1.7	1.5	2.0	1.5	1.8	1.3	1.3	1.7	1.0	0.9	6.7	9.6	12.0	12.5	20.2	23.2	7.8	23.2
20-May	23.8	Z	23.9	25.0	23.3	21.9	17.5	14.6	9.9	6.5	4.8	3.3	2.7	2.9	3.9	3.5	1.3	1.7	5.1	0.9	2.3	12.2	8.8	14.3	10.2	25.0
21-May	23.8	23.4	Z	12.6	16.1	16.9	13.7	Z	4.9	0.9	2.9	0.9	5.9	4.3	3.5	2.2	0.9	2.2	5.9	9.6	6.3	7.0	19.2	10.8	8.8	23.8
22-May	18.5	19.0	18.6	Z	16.1	18.1	20.6	Z	Z	Z	Z	2.1	3.0	1.4	0.6	1.3	1.9	2.7	2.4	3.1	22.4	26.4	23.3	16.7	11.5	26.4
23-May	14.2	21.1	12.1	16.9	Z	17.7	22.8	16.7	20.3	5.6	1.3	1.3	2.6	2.8	3.3	2.2	0.9	1.3	1.5	2.2	2.6	2.6	1.6	2.8	7.7	22.8
24-May	17.9	28.7	27.0	23.4	19.8	Z	7.2	8.5	6.2	11.3	4.6	3.4	1.9	1.6	1.4	2.5	3.2	2.3	1.8	2.9	3.2	3.4	15.5	27.4	9.8	28.7
25-May	Z	1.2	3.8	7.7	11.5	15.1	8.2	6.3	3.6	4.4	1.3	1.9	1.0	0.6	0.4	2.1	2.7	3.1	5.3	7.8	24.4	32.0	30.3	31.5	9.0	32.0
26-May	31.0	Z	26.5	22.0	17.4	21.0	11.7	5.9	3.6	5.9	3.0	2.9	4.3	3.5	2.3	1.4	1.3	1.9	2.2	2.9	24.0	26.6	32.5	32.9	12.5	32.9
27-May	22.8	31.3	Z	27.6	22.5	24.9	5.1	7.8	8.5	7.3	3.6	1.7	1.9	1.5	1.9	1.5	2.3	6.6	2.9	13.4	24.1	26.9	25.6	27.2	13.0	31.3
28-May	18.7	8.1	8.4	Z	4.7	8.0	5.7	7.2	22.2	17.5	6.4	2.2	2.1	3.1	2.1	0.5	0.5	0.6	2.2	9.3	11.8	16.0	29.8	33.6	9.6	33.6
29-May	18.3	26.6	27.2	15.7	Z	17.4	18.0	9.1	7.3	5.4	5.2	3.1	1.3	1.6	1.7	3.1	3.7	3.9	4.8	3.7	0.3	0.5	0.2	0.2	7.8	27.2
30-May	0.4	2.1	4.3	7.1	1.0	Z	0.7	0.7	0.7	0.6	Z	Z	Z	0.8	0.5	DF	0.6	0.3	0.4	0.3	0.2	0.2	0.2	0.2	1.1	7.1
31-May	0.1	0.1	0.1	0.3	0.5	Z	0.9	0.7	0.7	0.4	0.5	0.6	0.5	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.9
19.3 16.6 16.9 19.1 16.9 16.5 11.4 10.3 8.0 6.0 4.5 3.8 3.3 2.4 3.4 3.6 3.6 4.3 6.2 8.8 14.6 15.4 17.4 19.0																								Diurnal Average		
39.4 41.2 39.3 38.1 37.1 32.2 33.0 29.9 24.3 21.5 15.0 16.4 14.8 9.9 15.4 16.1 16.8 18.8 31.2 31.9 43.0 38.2 41.4 38.1																								Diurnal Maximum		

Z - zerospan      C - Calibration      M - Maintenance      DF - DAS Failure  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Fort Hills - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	566	80.86	80.86
21 - 40	131	18.71	99.57
41 - 80	3	0.43	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills - May 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	79	105	34	17	18	29	34	58	36	27	23	12	8	20	40	26	566
21 - 40	28	22	7	7	3	12	21	8	7	3	4	1	1	0	1	6	131
11 - 80	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	107	129	41	24	21	41	55	66	43	30	28	13	9	20	41	32	700

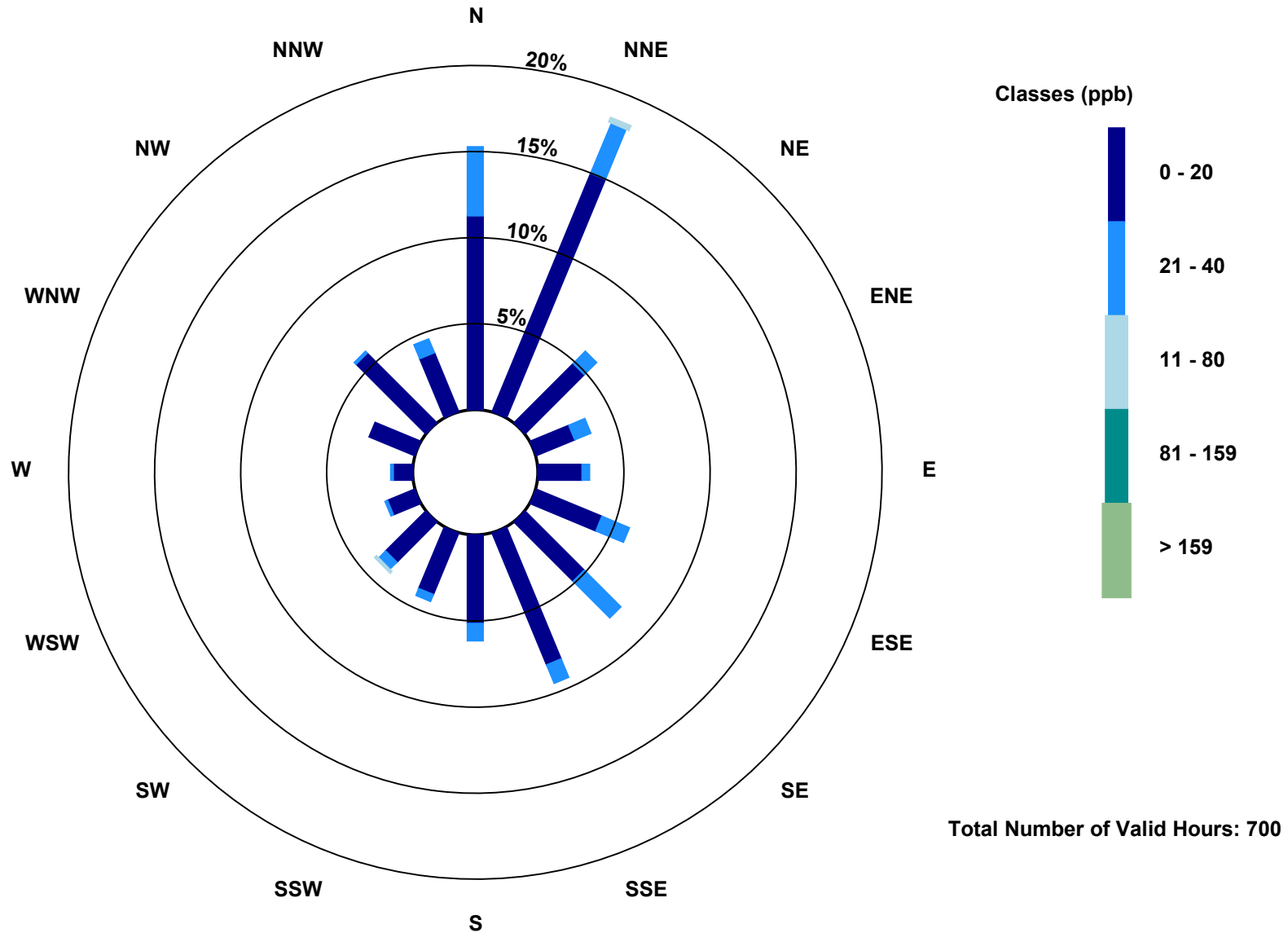
Total Number of Valid Hours: 700

Total Number of Hours: 744

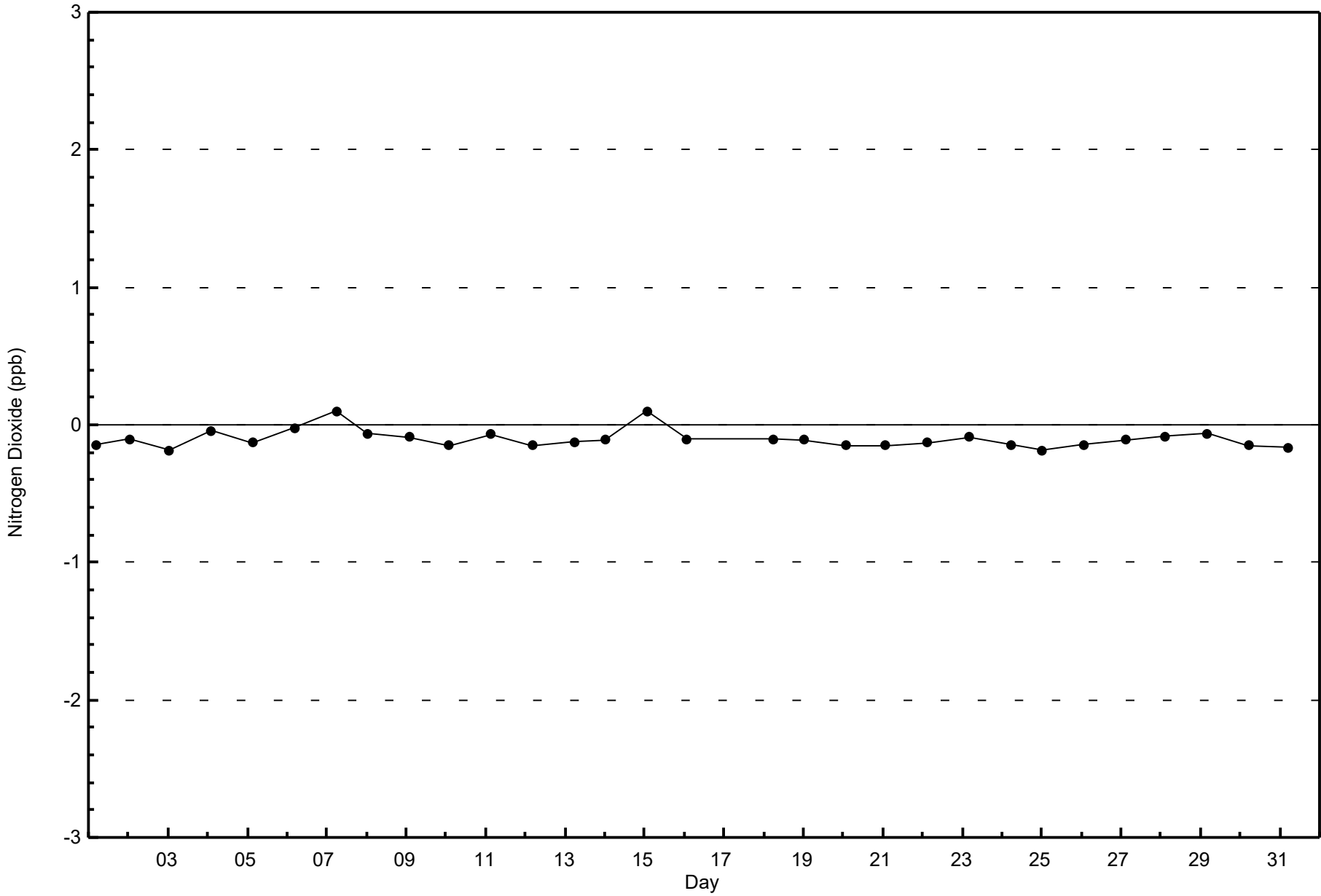


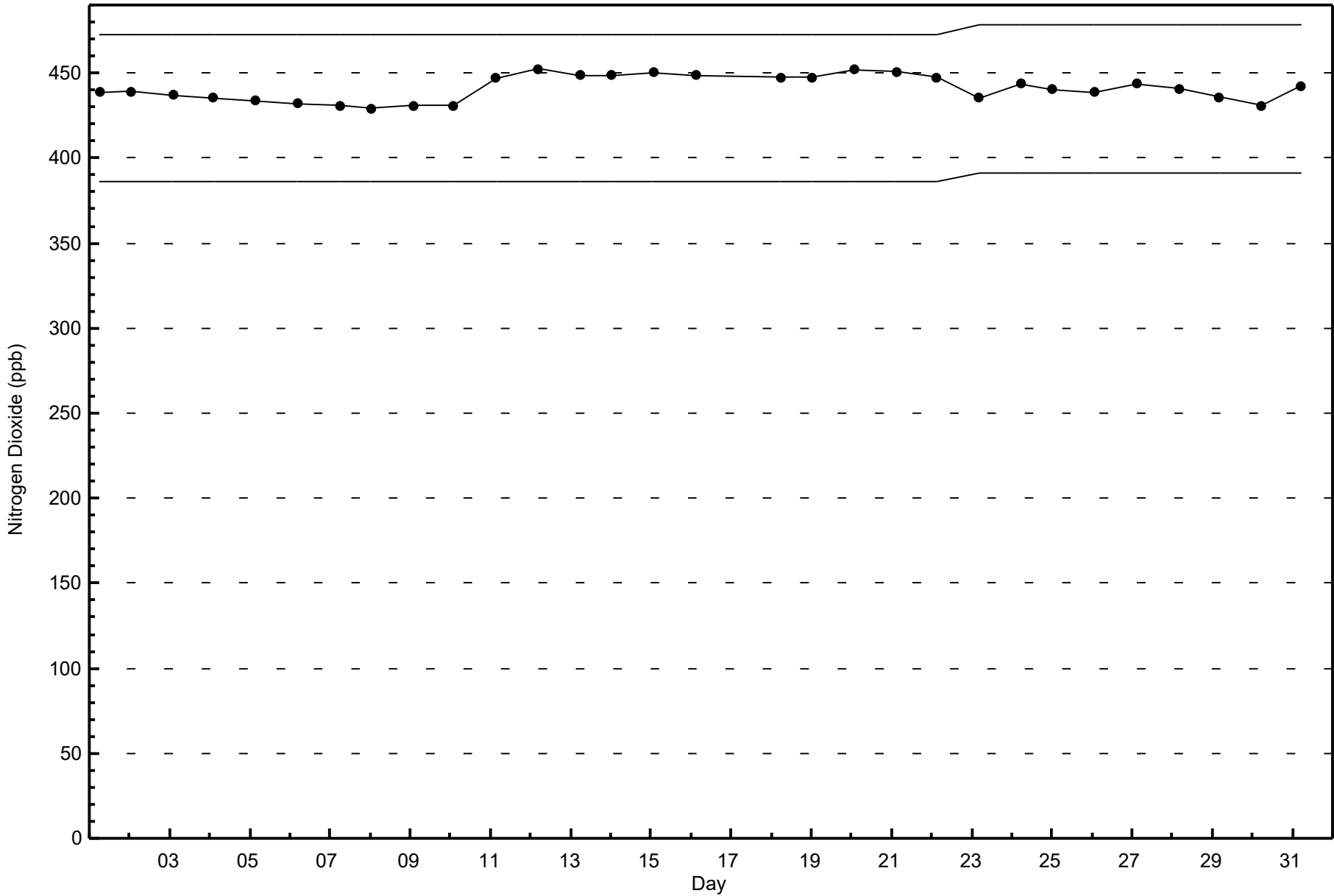
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Fort Hills











**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

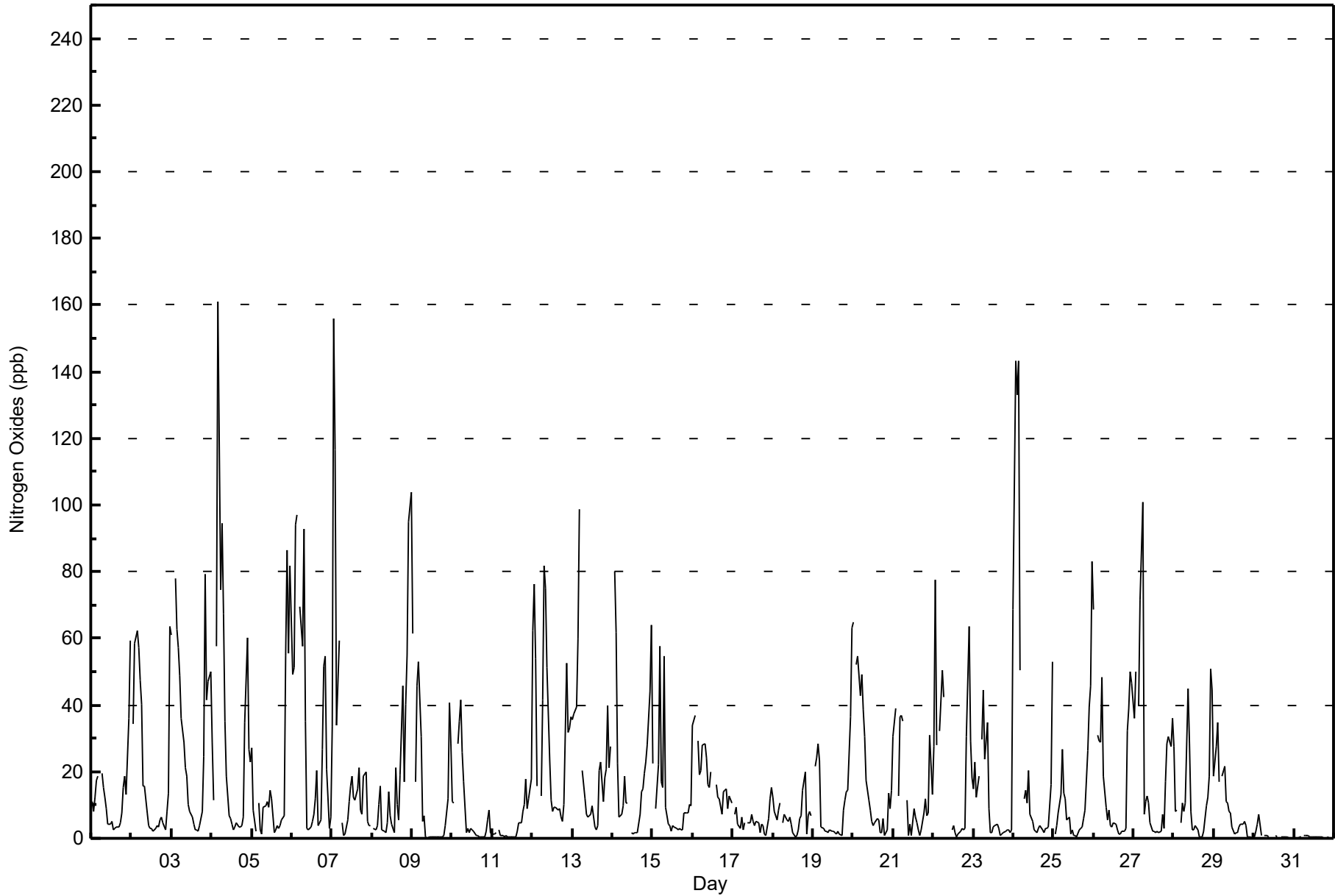
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - May 2024**

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 161.1 ppb on May 4 05:00	Maximum Daily Average: 33.6 ppb on May 6		Hours of Data:	700
Minimum Value: 0.1 ppb on May 31 03:00	Minimum Daily Average: 0.4 ppb on May 31		Hours of Missing Data:	44
Maximum Diurnal Average: 35.8 ppb at hour 5	Minimum Diurnal Average: 3.1 ppb at hour 14		Hours of Calibration:	34
Monthly Average: 17.06 ppb	Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 2.6 Median = 7.5 Q <sub>3</sub> = 21.4 P <sub>90</sub> = 49.8 P <sub>99</sub> = 100.7		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-May	11.2	8.1	12.2	17.5	18.5	Z	19.7	15.2	12.3	8.7	4.1	4.1	5.2	2.6	3.4	3.5	4.5	7.5	15.1	18.7	13.3	36.2	59.4	13.2	59.4	
2-May	Z	34.5	58.4	62.1	57.4	47.3	40.1	15.7	15.6	7.7	4.0	3.2	3.0	2.3	3.0	4.0	3.5	5.6	6.2	4.6	2.5	8.0	13.7	63.8	20.3	63.8
3-May	61.2	Z	78.0	62.9	57.4	48.6	36.2	28.6	21.0	18.5	10.3	7.9	6.2	4.3	2.5	2.3	2.2	3.7	7.9	24.4	79.3	41.7	47.1	50.2	30.5	79.3
4-May	29.0	11.3	Z	57.5	161.1	74.5	94.7	67.3	35.1	18.5	6.9	6.1	4.0	2.7	3.4	4.7	3.4	3.4	4.0	6.4	34.9	60.3	26.8	22.7	32.1	161.1
5-May	27.1	8.6	2.1	Z	10.6	2.5	1.4	9.3	9.5	11.2	9.5	14.4	11.8	1.6	2.4	3.8	2.8	3.9	5.6	6.7	54.8	86.3	55.5	81.8	18.4	86.3
6-May	49.0	51.3	94.1	96.8	Z	69.3	57.8	92.7	35.0	3.1	2.7	3.4	5.3	7.1	11.9	20.4	3.6	5.4	26.8	51.7	54.7	20.8	3.2	6.4	33.6	96.8
7-May	33.5	156.1	116.6	33.8	59.5	Z	4.6	1.0	1.4	5.6	11.1	15.7	18.7	12.3	11.6	14.9	21.2	8.5	7.3	18.5	19.9	4.9	3.9	3.8	25.4	156.1
8-May	Z	3.0	2.5	3.9	10.0	15.6	2.4	1.9	1.6	4.7	13.9	6.9	4.3	1.6	21.4	10.3	5.3	19.1	45.9	17.1	40.1	55.2	94.8	103.8	21.1	103.8
9-May	61.5	Z	16.8	45.9	53.1	30.5	4.9	7.0	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.5	0.3	0.3	0.3	0.7	3.9	11.8	40.5	28.4	13.4	61.5
10-May	11.2	10.8	Z	28.4	35.3	41.4	25.9	17.0	1.6	2.8	1.7	2.8	2.7	2.1	0.9	0.7	0.5	0.4	0.4	0.5	2.0	5.3	8.3	1.5	8.9	41.4
11-May	1.3	1.5	1.7	Z	2.5	0.7	0.7	0.5	0.8	0.4	0.3	0.2	0.2	0.3	0.3	2.2	4.7	4.8	8.1	10.0	17.8	8.7	11.7	17.7	4.2	17.8
12-May	62.3	76.1	53.9	15.7	Z	12.5	41.6	81.7	74.9	51.1	23.4	11.2	7.9	9.4	9.3	8.4	9.1	6.3	5.3	10.2	52.5	31.9	32.9	36.5	31.5	81.7
13-May	35.8	37.2	39.4	59.6	98.7	Z	20.4	11.7	7.1	6.2	6.8	7.3	9.6	3.3	2.6	3.6	20.2	22.7	11.0	18.2	20.8	39.8	21.1	27.7	23.1	98.7
14-May	Z	80.0	61.8	22.4	6.3	7.0	9.7	18.5	10.4	10.8	M	1.8	1.1	1.5	1.7	1.7	7.2	13.8	14.9	19.6	22.7	28.1	44.0	64.2	20.4	80.0
15-May	22.6	Z	9.0	22.0	57.8	17.1	15.2	54.8	9.4	4.1	3.7	2.2	3.7	3.5	3.1	2.7	2.8	2.4	2.6	7.7	7.8	7.7	10.0	9.9	12.3	57.8
16-May	34.0	36.8	Z	29.2	19.1	20.3	27.9	28.2	24.0	16.3	15.1	19.8	DF	DF	16.2	12.5	11.8	7.1	14.1	14.3	14.8	8.8	12.5	10.7	18.7	36.8
17-May	DF	7.2	9.3	4.1	3.2	6.2	2.7	4.7	M	4.7	4.6	7.4	5.2	4.0	5.2	4.7	1.7	4.4	3.7	1.2	0.7	6.1	12.1	15.3	5.4	15.3
18-May	12.2	8.0	5.7	8.4	10.5	Z	4.6	7.1	5.5	5.0	6.3	4.1	1.5	0.5	0.9	2.5	5.9	6.6	14.2	20.0	1.3	6.7	8.1	7.0	6.6	20.0
19-May	Z	21.6	24.0	28.4	23.2	3.5	2.8	2.0	2.0	1.7	2.5	2.0	2.3	1.5	1.4	2.2	1.1	1.0	8.6	11.3	13.8	14.6	36.6	63.1	11.8	63.1
20-May	64.8	Z	51.9	54.7	43.0	49.2	38.7	30.4	17.5	11.4	8.4	5.1	4.0	4.5	5.9	5.3	1.7	1.8	5.9	0.9	2.4	13.5	8.8	14.3	19.3	64.8
21-May	30.4	38.8	Z	12.8	36.5	36.9	35.3	M	11.5	1.1	4.3	1.0	8.9	6.5	4.6	2.7	1.0	2.5	7.5	11.8	6.8	7.4	31.1	13.1	14.2	38.8
22-May	27.6	77.7	28.0	Z	32.3	50.5	42.5	C	C	C	C	2.4	3.7	1.6	0.6	1.4	2.1	2.8	2.7	3.2	30.7	63.7	29.3	18.4	22.2	77.7
23-May	14.8	23.0	12.2	18.7	Z	29.8	44.3	23.6	34.6	8.7	1.7	1.7	3.5	3.8	4.3	2.8	0.9	1.4	1.6	2.2	2.6	2.6	1.6	2.8	10.6	44.3
24-May	68.7	143.0	133.2	143.0	50.4	Z	11.8	14.6	10.8	20.2	7.0	5.1	2.6	2.0	1.7	3.1	4.0	2.6	1.9	3.0	3.2	3.4	16.0	52.8	30.6	143.0
25-May	Z	1.2	3.8	7.7	13.2	26.7	13.6	11.7	5.7	6.2	1.5	2.4	1.0	0.6	0.4	2.4	3.1	3.5	5.8	8.4	26.5	39.5	45.8	83.2	13.7	83.2
26-May	68.6	Z	31.1	29.4	28.7	48.4	18.5	9.3	5.4	8.6	3.8	3.3	4.9	4.1	2.6	1.5	1.3	2.0	2.3	2.9	32.1	38.9	49.8	46.5	19.3	68.6
27-May	35.9	49.9	Z	39.7	71.6	100.7	7.4	11.0	12.6	10.5	4.7	2.0	2.1	1.6	2.0	1.5	2.3	7.0	2.9	17.0	28.6	30.5	27.6	35.9	22.0	100.7
28-May	27.6	8.1	8.4	Z	4.7	10.5	8.1	10.5	44.8	28.6	8.2	2.6	2.5	4.0	2.6	0.5	0.5	0.6	2.3	9.6	12.1	18.7	51.0	44.6	13.5	51.0
29-May	18.6	27.7	34.7	17.1	Z	18.5	21.6	10.9	10.5	8.1	7.5	3.4	1.3	1.6	1.7	3.5	4.3	4.3	5.1	3.8	0.3	0.5	0.2	0.2	8.9	34.7
30-May	0.4	2.1	4.3	7.1	1.0	Z	0.7	0.8	0.7	0.6	M	M	M	0.9	0.5	DF	0.6	0.3	0.4	0.3	0.2	0.2	0.2	0.2	1.1	7.1
31-May	0.1	0.1	0.1	0.3	0.5	Z	0.9	0.7	0.7	0.4	0.6	0.6	0.5	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.9

32.4	35.5	34.4	34.4	35.8	32.0	21.2	20.3	14.6	9.5	6.2	5.0	4.4	3.1	4.1	4.3	4.3	4.9	7.5	10.4	19.6	21.9	25.2	31.8	Diurnal Average	
68.7	156.1	133.2	143.0	161.1	100.7	94.7	92.7	74.9	51.1	23.4	19.8	18.7	12.3	21.4	20.4	21.2	22.7	45.9	51.7	79.3	86.3	94.8	103.8	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 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	519	74.14	74.14
21 - 40	91	13.00	87.14
41 - 80	72	10.29	97.43
81 - 159	17	2.43	99.86
> 159	1	0.14	100.00

Total Number of Valid Hours: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Fort Hills - May 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	75	89	32	15	17	25	29	54	34	25	22	12	7	20	39	24	519
21 - 40	8	21	5	7	4	8	15	6	7	1	2	1	1	0	1	4	91
11 - 80	22	17	2	2	0	6	8	3	2	3	3	0	1	0	1	2	72
81 - 159	2	2	2	0	0	2	3	3	0	1	1	0	0	0	0	1	17
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
<b>Totals</b>	107	129	41	24	21	41	55	66	43	30	28	13	9	20	41	32	700

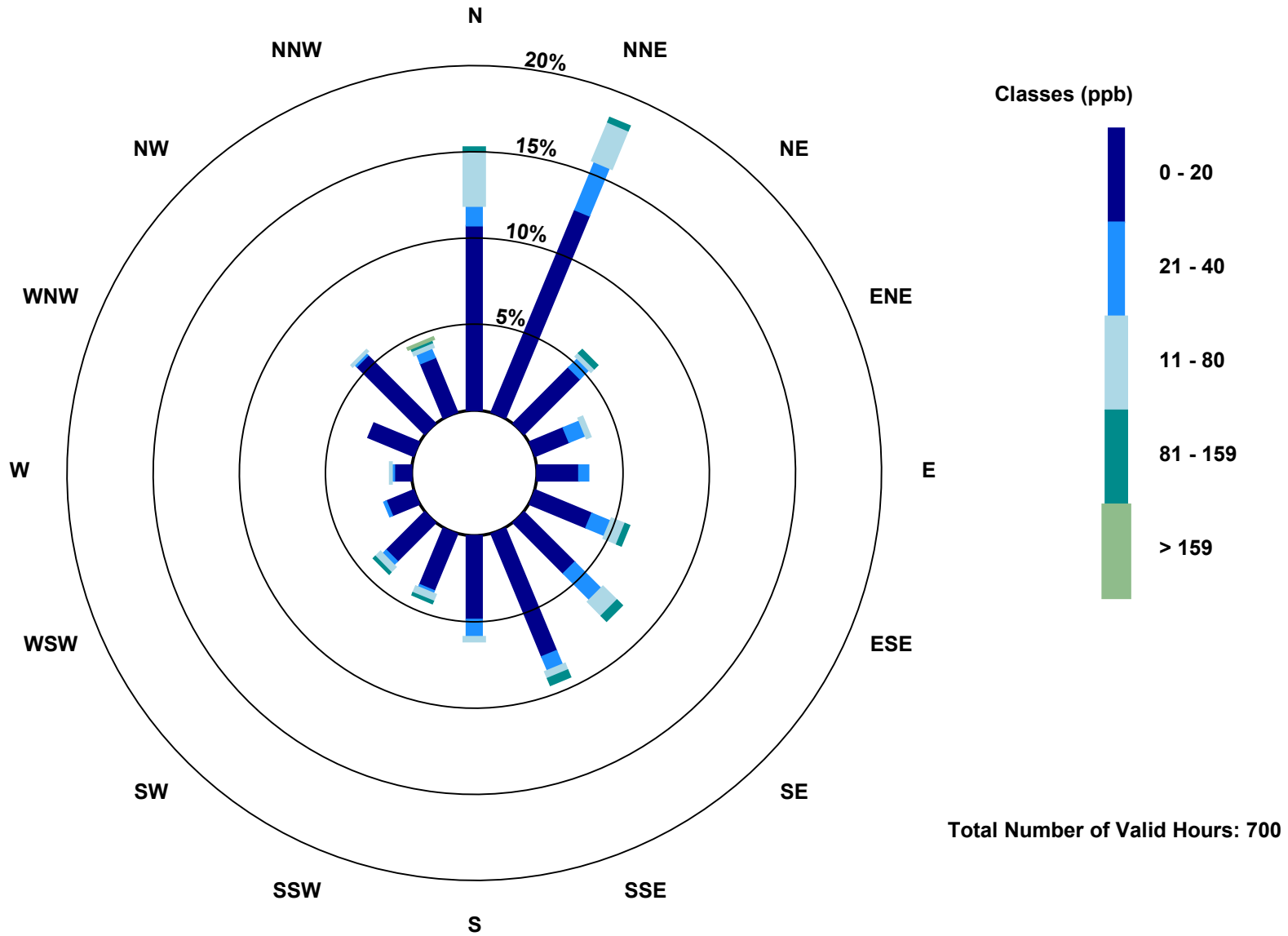
Total Number of Valid Hours: 700

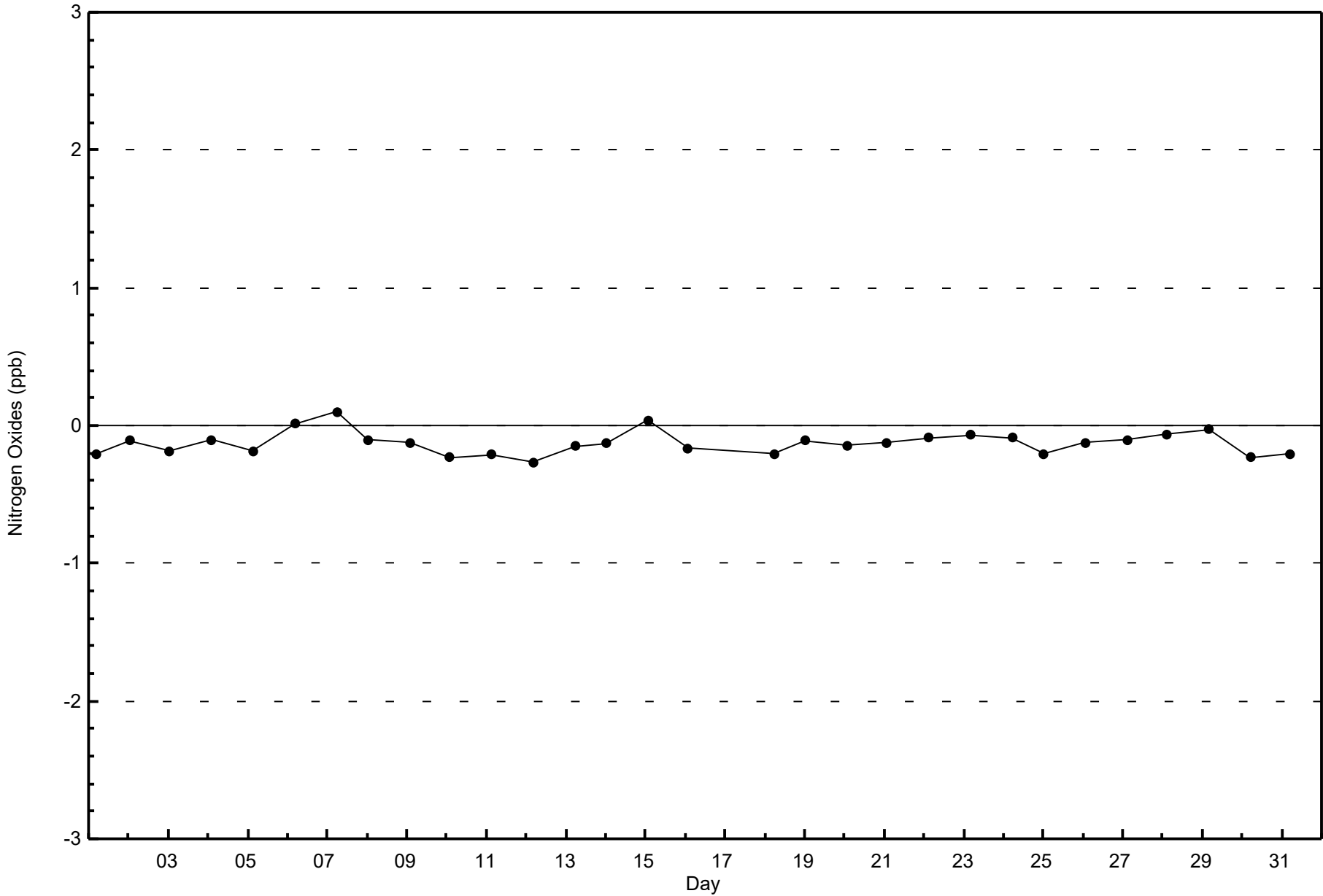
Total Number of Hours: 744



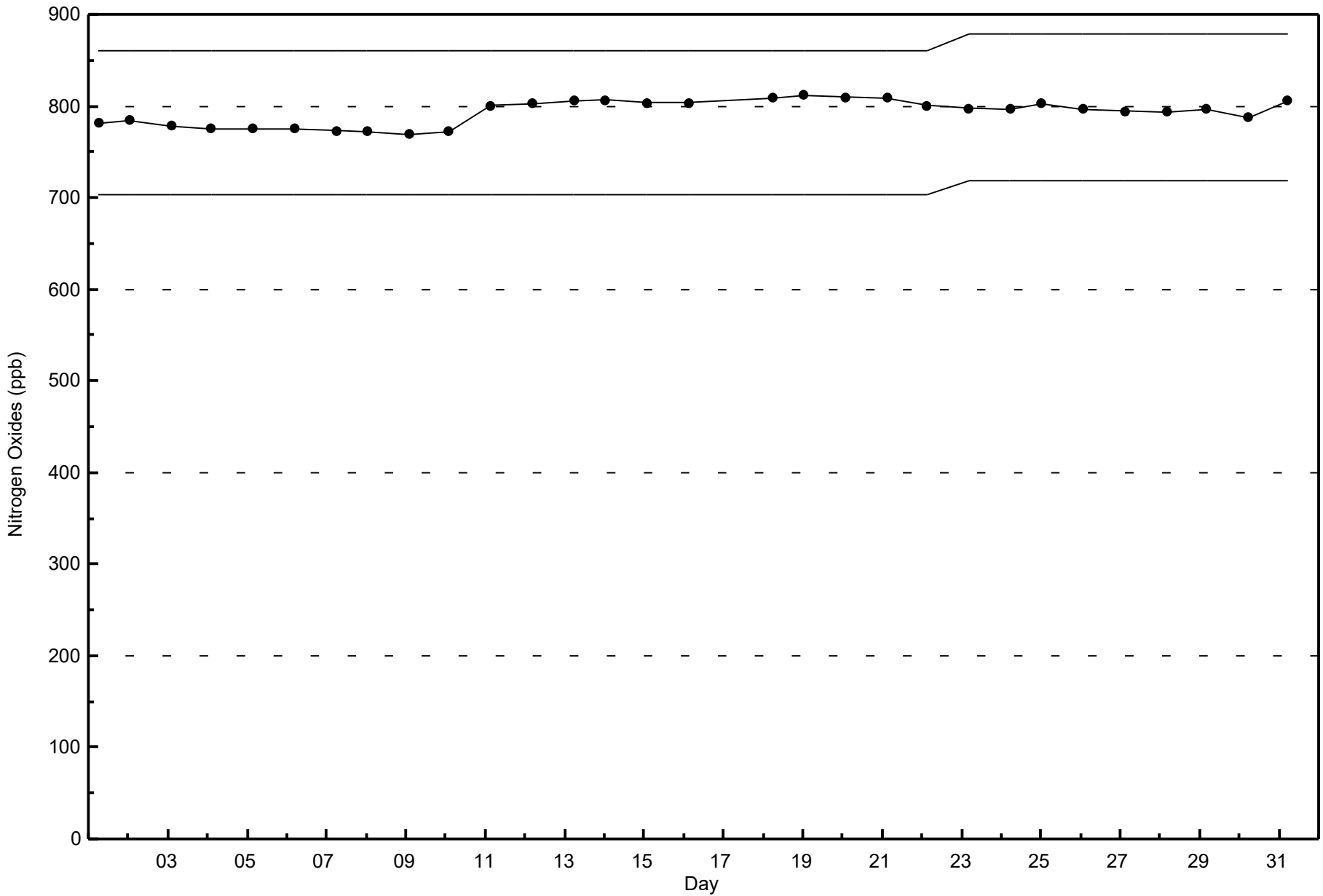
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Fort Hills







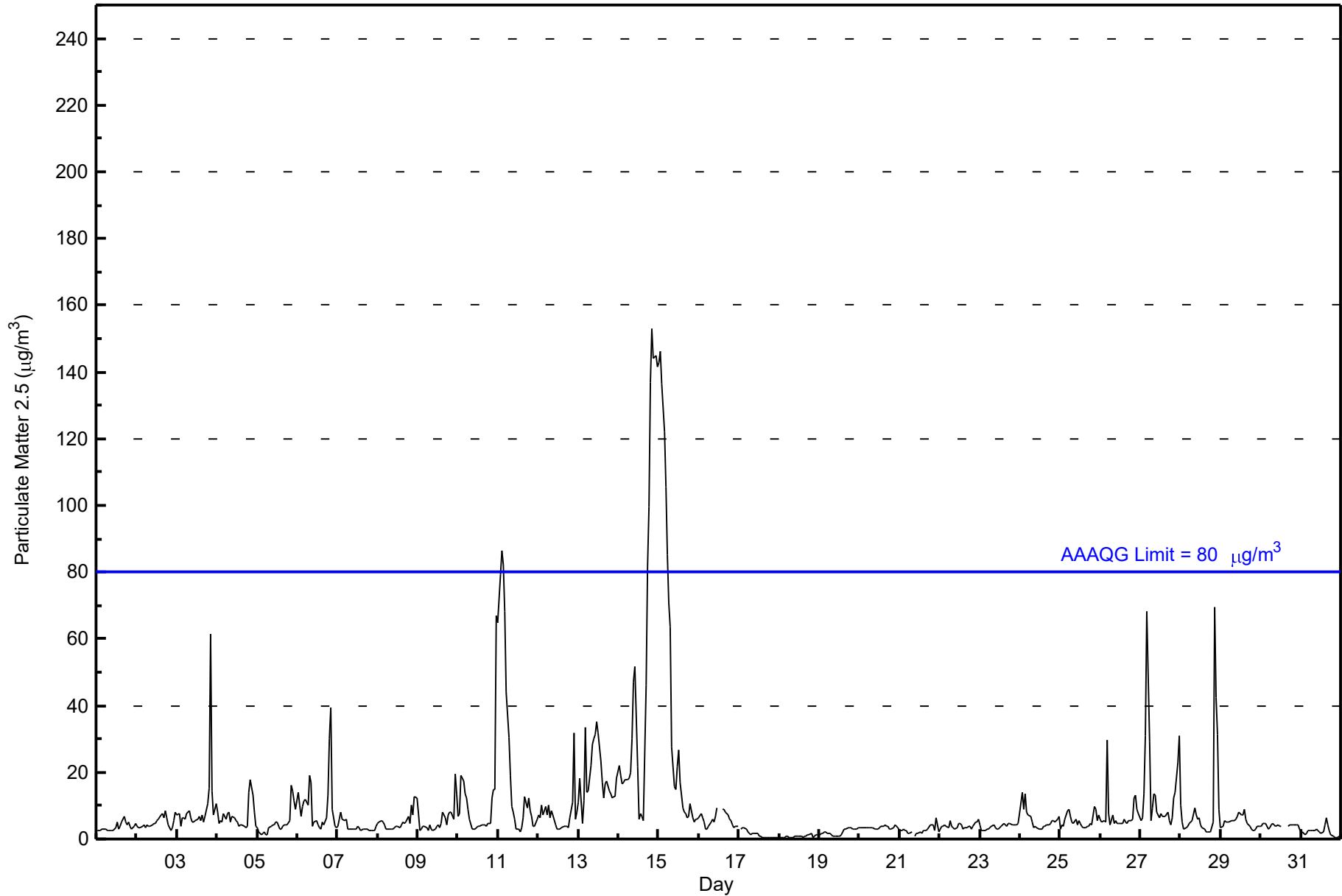




Summary of Hour Averages

Fort Hills - May 2024

Number of Exceedences (AAAQO):		1-hr: 15		24-hr: 2		Hours in Service:		744																		
Maximum Value: 152.8 µg/m <sup>3</sup> on May 14 21:00		Maximum Daily Average: 53.0 µg/m <sup>3</sup> on May 14				Hours of Data:		737																		
Minimum Value: 0.2 µg/m <sup>3</sup> on May 17 21:00		Minimum Daily Average: 0.8 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		7																		
Maximum Diurnal Average: 16.3 µg/m <sup>3</sup> at hour 21		Minimum Diurnal Average: 4.8 µg/m <sup>3</sup> at hour 14				Hours of Calibration:		1																		
Monthly Average: 9.44 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.4 P <sub>10</sub> = 1.9 Q <sub>1</sub> = 3.1 Median = 4.4 Q <sub>3</sub> = 7.2 P <sub>90</sub> = 15.9 P <sub>99</sub> = 131.2				Percent Operational Time:		99.2																		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	2.7	2.7	2.7	2.8	2.8	2.9	2.8	2.7	2.7	2.6	2.7	3.2	4.9	2.9	3.8	5.0	6.9	5.3	4.1	5.0	3.9	3.2	3.8	4.8	3.6	6.9
2-May	3.9	3.3	3.3	3.6	4.0	3.4	4.3	4.0	3.6	4.3	4.7	4.7	5.4	5.7	7.0	7.8	6.3	8.5	6.3	4.0	2.6	3.3	5.6	8.1	4.9	8.5
3-May	7.1	7.5	3.9	6.2	6.4	6.1	7.5	8.3	6.3	5.0	4.9	5.7	6.0	6.6	5.5	7.0	5.2	6.8	10.6	15.3	61.4	14.5	7.1	10.6	9.6	61.4
4-May	8.0	4.7	5.3	5.0	7.8	6.0	7.7	8.2	5.1	7.0	6.5	5.3	5.2	3.9	4.4	4.1	4.0	3.4	3.8	13.9	17.8	13.2	8.0	3.9	6.8	17.8
5-May	3.4	2.0	1.1	1.5	1.9	1.4	1.4	3.5	3.6	4.2	4.3	5.0	4.9	2.9	2.9	3.7	4.4	4.3	4.4	5.6	16.1	14.4	11.6	8.9	4.9	16.1
6-May	14.0	10.2	6.7	9.9	11.3	11.7	10.1	19.0	17.1	3.6	5.1	5.5	4.1	3.3	3.1	5.3	4.1	6.4	13.2	30.2	39.6	9.0	3.7	3.2	10.4	39.6
7-May	4.0	5.8	8.0	6.0	5.7	5.9	3.1	3.1	2.9	2.9	2.9	2.8	3.7	3.5	2.7	2.8	2.8	2.9	2.8	2.7	2.6	2.5	2.7	3.8	3.7	8.0
8-May	4.5	5.3	5.4	5.1	4.1	3.0	2.8	2.8	2.8	2.9	3.5	3.8	3.9	3.6	4.1	5.0	4.5	5.2	7.0	4.7	10.0	7.2	12.6	12.2	5.2	12.6
9-May	7.6	2.7	2.8	3.6	3.7	3.2	2.8	4.1	3.1	2.7	3.1	3.8	4.2	3.3	4.8	8.1	6.3	4.1	7.0	7.9	7.9	5.8	19.3	13.4	5.6	19.3
10-May	7.0	7.5	19.1	17.6	13.4	12.5	8.9	5.7	3.0	3.0	3.0	3.6	3.8	3.9	4.2	4.4	4.1	3.8	4.5	4.6	12.5	15.0	14.9	67.0	10.3	67.0
11-May	64.6	79.2	86.5	82.3	68.1	44.2	30.4	19.1	9.6	7.9	5.9	2.9	3.1	2.0	3.6	6.4	12.8	9.4	12.4	8.3	6.9	3.9	3.8	5.8	24.1	86.5
12-May	7.3	6.3	10.0	7.2	9.9	7.0	10.1	6.2	8.6	7.0	4.3	2.8	3.0	3.1	3.3	3.8	4.0	3.6	3.5	6.5	10.8	31.9	6.0	8.0	7.3	31.9
13-May	11.0	18.1	4.8	11.3	33.6	14.2	14.5	22.0	28.5	29.9	31.2	35.1	31.6	23.3	17.1	12.5	16.6	17.3	14.2	13.4	12.5	12.6	12.9	18.3	19.0	35.1
14-May	22.0	18.9	16.6	17.1	17.7	17.6	18.1	20.0	30.2	47.0	51.9	21.5	5.9	7.7	6.7	5.6	46.2	81.8	99.5	136.7	152.8	144.0	144.8	141.4	53.0	152.8
15-May	142.6	146.1	136.4	121.9	105.3	85.2	70.6	63.7	27.4	15.9	14.7	21.8	26.5	17.0	9.2	8.1	7.5	6.4	6.7	10.5	6.3	5.1	5.8	5.9	44.4	146.1
16-May	6.2	7.6	6.4	4.9	2.9	2.9	3.8	5.2	5.7	5.2	6.6	9.5	DF	DF	9.0	9.0	8.0	7.1	5.8	5.5	4.4	3.2	3.7	4.0	5.8	9.5
17-May	DF	2.9	3.3	3.2	2.9	2.3	1.7	1.5	1.5	1.8	1.7	1.8	1.0	0.7	0.6	0.5	0.4	0.5	0.5	0.4	0.2	0.3	0.5	0.5	1.3	3.3
18-May	0.4	0.3	0.4	0.6	0.7	0.7	0.6	0.5	0.5	0.9	0.7	0.8	1.0	0.7	0.6	0.8	1.0	1.2	1.3	1.8	0.6	0.9	1.3	1.4	0.8	1.8
19-May	1.1	1.6	1.5	2.0	2.3	1.7	1.7	1.4	0.7	0.7	0.7	0.7	0.8	0.7	1.1	2.2	2.8	3.1	3.2	3.5	3.2	2.8	2.9	3.1	2.0	3.5
20-May	3.5	3.2	3.3	3.5	3.5	3.5	3.5	3.4	3.4	3.1	3.2	3.1	3.5	3.8	3.8	4.4	3.8	3.7	3.0	2.8	3.3	4.3	3.8	3.3	3.5	4.4
21-May	2.8	2.4	2.9	2.6	2.6	1.7	1.7	2.3	C	0.8	1.5	1.5	2.0	1.7	2.5	2.7	2.5	3.1	4.3	4.4	4.1	2.4	6.2	2.2	2.7	6.2
22-May	3.1	3.9	4.0	4.1	3.7	3.2	5.4	4.0	3.5	2.9	3.3	4.6	4.8	4.2	3.1	3.2	3.6	3.7	3.7	2.9	3.9	5.0	4.9	6.1	3.9	6.1
23-May	4.2	2.4	2.5	2.6	3.1	3.0	3.3	3.9	4.4	3.4	3.2	3.1	3.6	3.8	4.8	4.1	3.8	4.5	4.5	4.2	4.4	4.3	4.1	4.5	3.7	4.8
24-May	7.5	14.0	8.9	13.3	8.1	7.2	6.6	5.1	3.6	3.8	3.4	3.2	3.2	3.1	3.6	3.9	4.1	4.4	4.7	5.4	5.7	4.9	6.1	6.8	5.9	14.0
25-May	3.1	4.3	3.7	5.8	8.5	8.8	6.9	5.1	4.8	6.0	4.2	5.3	4.5	3.7	3.3	3.6	3.8	3.7	4.7	4.2	9.9	9.1	5.4	7.4	5.4	9.9
26-May	6.1	5.1	5.3	5.2	29.8	7.7	4.3	7.4	4.8	5.5	4.6	4.6	4.7	4.6	5.8	5.1	4.8	5.3	5.6	5.8	12.2	13.1	8.9	7.6	7.2	29.8
27-May	5.4	6.3	13.6	31.0	68.0	29.1	5.5	9.4	13.4	13.2	7.8	6.4	7.5	6.9	7.0	6.6	8.0	5.7	4.4	6.2	12.5	14.0	23.0	30.8	14.2	68.0
28-May	10.2	4.9	3.2	3.4	4.0	4.6	5.1	5.6	9.3	7.2	5.9	6.3	4.2	3.3	3.1	2.3	2.1	2.0	2.3	4.9	69.4	42.3	31.5	8.9	10.3	69.4
29-May	3.3	4.0	5.4	5.0	5.1	5.3	5.7	5.5	5.5	5.7	6.8	8.0	7.0	7.1	8.8	5.8	4.7	3.9	3.1	2.6	2.4	3.1	3.6	3.8	5.0	8.8
30-May	3.9	4.6	4.8	4.7	2.8	3.6	4.3	4.6	4.4	3.9	4.3	3.9	3.8	M	M	DF	3.8	4.1	4.2	4.2	4.4	4.3	4.1	2.8	4.1	4.8
31-May	1.9	2.3	1.4	1.9	2.4	2.5	2.5	2.6	2.6	3.0	2.7	2.2	1.7	2.3	4.4	6.4	4.0	2.4	1.3	0.7	0.4	0.2	0.3	0.7	2.2	6.4
																								Diurnal Average		
																								Diurnal Maximum		
12.4 12.6 12.4 12.7 14.4 10.1 8.3 8.4 7.4 6.9 6.7 6.2 5.6 4.8 4.8 5.0 6.4 7.4 8.3 10.6 16.3 12.9 12.0 13.2																								Diurnal Average		
142.6 146.1 136.4 121.9 105.3 85.2 70.6 63.7 30.2 47.0 51.9 35.1 31.6 23.3 17.1 12.5 46.2 81.8 99.5 136.7 152.8 144.0 144.8 141.4																								Diurnal Maximum		
C - Calibration M - Maintenance 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 - May 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	461	62.55	62.55
6 - 15	201	27.27	89.82
16 - 25	28	3.80	93.62
26 - 80	32	4.34	97.96
> 81.0	15	2.04	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>**  
**Fort Hills - May 2024**

Concentration Ranges (μg/m <sup>3</sup> )	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	71	78	27	20	18	30	35	42	24	23	16	8	6	14	29	20	461
6 - 15	33	41	13	5	4	9	17	19	14	7	12	4	1	3	10	9	201
16 - 25	1	3	2	1	0	2	5	5	4	1	0	1	0	0	1	2	28
26 - 80	5	7	2	1	1	0	0	4	5	0	0	0	1	2	4	0	32
> 81.0	2	5	0	0	1	0	0	0	0	0	0	0	2	2	2	1	15
<b>Totals</b>	112	134	44	27	24	41	57	70	47	31	28	13	10	21	46	32	737

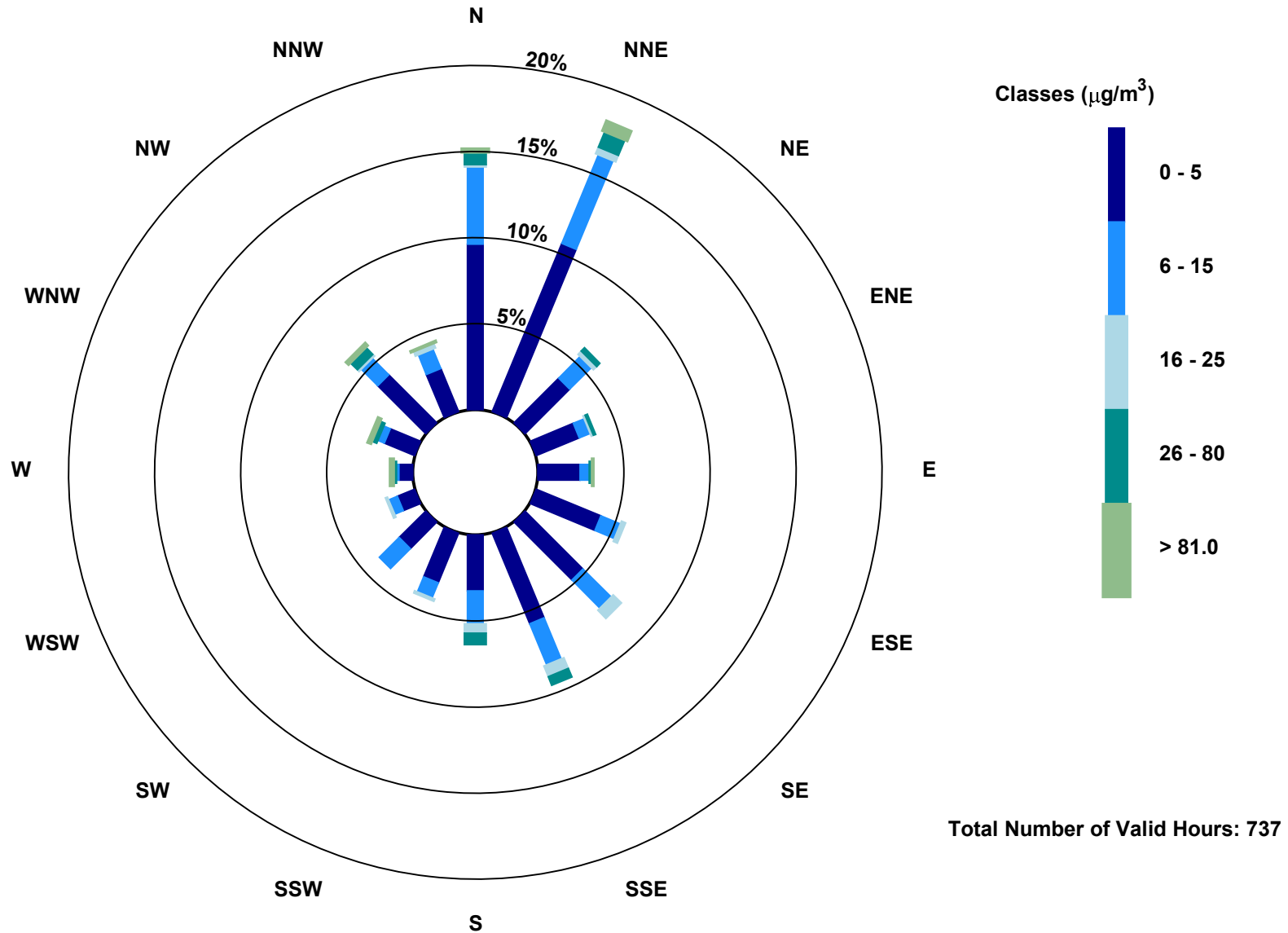
Total Number of Valid Hours: 737

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Fort Hills





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

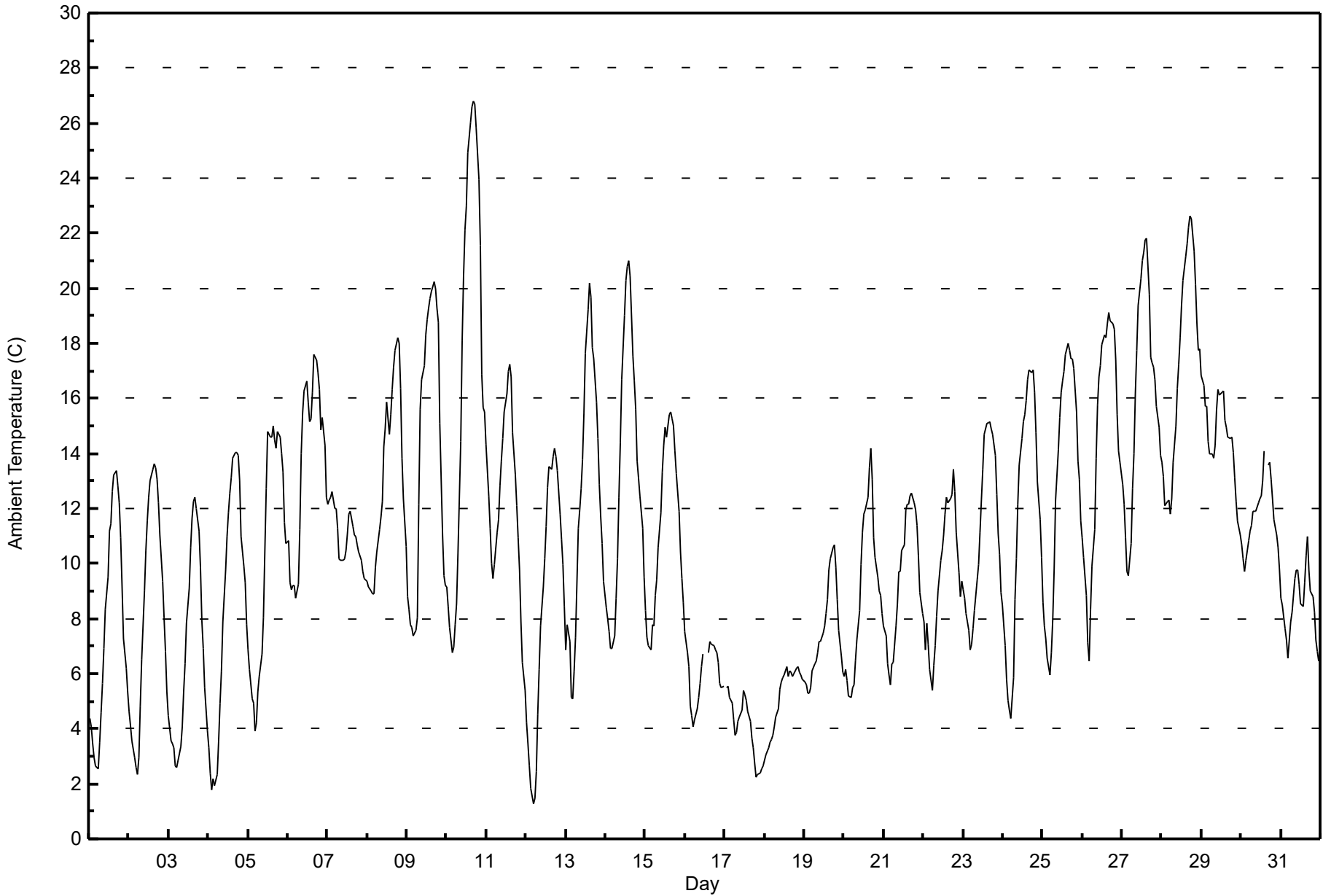
**Ambient Temperature (AT) - C**  
**Fort Hills - May 2024**

Maximum Value: 26.8 C on May 10 17:00		Maximum Daily Average: 17.3 C on May 10		Hours in Service: 744																																													
Minimum Value: 1.3 C on May 12 05:00		Minimum Daily Average: 4.0 C on May 17		Hours of Data: 740																																													
Maximum Diurnal Average: 14.9 C at hour 16		Minimum Diurnal Average: 6.5 C at hour 5		Hours of Missing Data: 4																																													
Monthly Average: 10.89 C		Percentiles: P <sub>1</sub> = 2.3 P <sub>10</sub> = 4.8 Q <sub>1</sub> = 7.0 Median = 10.6 Q <sub>3</sub> = 14.1 P <sub>90</sub> = 17.3 P <sub>99</sub> = 22.8		Hours of Calibration: 0																																													
				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-May	4.4	4.1	3.5	3.0	2.7	2.6	3.5	4.6	5.7	6.9	8.3	9.5	11.2	11.4	12.6	13.2	13.4	12.8	12.2	10.9	9.2	7.3	6.2	5.3	7.7	13.4																							
2-May	4.6	4.1	3.5	3.0	2.6	2.4	3.0	4.9	6.5	9.0	10.5	11.6	12.4	13.0	13.4	13.6	13.5	13.0	12.2	11.0	9.4	8.1	6.8	5.3	8.2	13.6																							
3-May	4.5	3.6	3.4	3.3	2.7	2.6	2.8	3.3	4.1	5.3	6.3	7.8	9.1	10.6	11.7	12.3	12.4	12.0	11.2	9.9	8.0	6.9	5.5	3.9	6.8	12.4																							
4-May	3.3	2.4	1.8	2.2	1.9	2.3	3.5	4.9	6.1	7.9	9.8	11.0	11.9	12.5	13.1	13.8	14.0	14.0	13.0	11.0	9.9	9.3	7.8		8.4	14.0																							
5-May	6.8	6.2	5.1	4.9	3.9	4.2	5.4	5.9	6.7	8.0	10.4	12.7	14.8	14.6	15.0	14.5	14.2	14.8	14.6	14.0	13.3	11.5	10.7		10.3	15.0																							
6-May	10.8	9.3	9.1	9.2	9.2	8.7	9.2	11.3	14.0	15.5	16.3	16.6	15.9	15.2	16.2	17.6	17.4	16.9	16.3	14.8	15.3	14.3	12.4		13.6	17.6																							
7-May	12.2	12.3	12.4	12.6	12.0	12.0	11.3	10.1	10.1	10.1	10.5	11.1	11.8	11.9	11.4	11.0	11.0	10.7	10.4	10.1	9.7	9.4	9.4		11.0	12.6																							
8-May	9.4	9.2	9.0	8.9	8.9	9.9	10.4	11.2	11.7	12.3	14.2	14.9	15.8	14.7	15.4	16.3	17.1	17.7	18.2	18.0	16.4	13.8	12.4	10.6		13.2	18.2																						
9-May	8.8	8.4	7.8	7.7	7.4	7.6	8.0	12.2	15.6	16.7	17.2	18.3	18.9	19.3	19.6	19.9	20.2	20.0	19.3	18.8	15.1	11.0	9.5	9.2		14.0	20.2																						
10-May	9.2	8.4	7.7	6.8	7.0	7.8	8.6	10.4	14.4	18.1	20.4	22.1	23.0	24.9	26.0	26.6	26.8	26.7	25.8	24.0	21.6	16.9	15.7	15.5		17.3	26.8																						
11-May	14.3	12.5	11.3	10.0	9.5	10.0	11.2	11.6	12.8	13.7	14.5	15.5	16.1	17.0	17.3	16.8	14.8	13.2	12.1	10.9	9.8	7.9	6.4	5.4		12.3	17.3																						
12-May	4.2	3.5	2.6	1.9	1.3	1.5	2.4	4.5	6.1	7.7	9.1	10.2	11.4	12.7	13.5	13.4	13.9	14.2	13.9	13.4	11.8	10.9	10.0	8.4		8.4	14.2																						
13-May	6.9	7.8	7.2	5.1	5.1	6.1	7.3	11.3	11.9	12.7	13.8	15.5	17.7	19.2	20.2	19.7	17.9	17.5	15.9	14.6	12.9	11.7	10.7	9.4		12.4	20.2																						
14-May	8.4	8.0	7.5	6.9	6.9	7.4	8.7	10.2	12.4	14.4	16.7	19.0	20.3	20.8	21.0	20.4	17.6	16.6	15.6	13.7	13.1	12.4	11.3	9.5		13.3	21.0																						
15-May	8.3	7.3	7.0	6.8	7.8	7.7	8.8	9.4	10.6	11.9	13.3	14.3	15.0	14.6	15.4	15.5	15.2	15.0	14.1	13.3	11.9	10.4	9.5	8.6		11.3	15.5																						
16-May	7.5	6.8	6.3	4.8	4.5	4.1	4.3	4.7	5.1	5.7	6.2	6.7	DF	DF	6.8	7.2	7.1	7.0	6.8	6.8	6.4	5.6	5.5	5.5		6.0	7.5																						
17-May	DF	5.5	5.6	5.2	5.0	4.3	3.7	3.8	4.3	4.4	4.7	5.4	5.3	5.0	4.6	4.3	3.7	3.3	2.7	2.3	2.3	2.4	2.5	2.7		4.0	5.6																						
18-May	2.9	3.0	3.3	3.5	3.6	3.8	4.1	4.4	4.7	5.4	5.7	5.8	5.9	6.2	5.9	6.1	6.0	5.9	6.0	6.2	6.2	6.0	5.9	5.8		5.1	6.2																						
19-May	5.7	5.6	5.3	5.3	5.5	6.1	6.4	6.5	6.8	7.1	7.2	7.5	7.8	8.2	8.7	9.8	10.2	10.6	10.7	9.8	8.7	7.6	6.6	6.0		7.5	10.7																						
20-May	5.9	6.2	5.7	5.2	5.1	5.5	5.6	6.4	7.2	8.3	10.0	11.2	11.8	11.9	12.4	13.5	14.2	13.0	10.9	10.2	9.5	9.0	8.9	8.2		9.0	14.2																						
21-May	7.7	7.4	6.4	6.0	5.6	6.3	6.4	7.7	8.6	9.7	9.7	10.5	10.7	11.9	12.1	12.2	12.5	12.6	12.2	12.0	11.4	10.3	8.9	8.2		9.5	12.6																						
22-May	7.9	6.9	7.8	7.1	6.1	5.4	6.3	7.0	8.1	9.0	10.1	10.5	11.0	11.8	12.4	12.2	12.4	12.5	13.4	12.6	11.2	9.7	8.8	9.4		9.6	13.4																						
23-May	9.0	8.8	8.2	7.6	6.9	7.0	7.6	8.3	9.4	10.0	11.1	12.3	13.4	14.7	15.1	15.1	15.2	14.9	14.7	13.9	12.5	11.1	10.3	9.0		11.1	15.2																						
24-May	8.5	7.0	5.8	5.0	4.7	4.4	5.8	8.7	10.2	12.2	13.6	14.5	15.1	15.4	15.9	16.7	17.0	16.9	17.0	16.2	14.7	13.0	11.6	10.2		11.7	17.0																						
25-May	8.6	7.7	7.3	6.6	6.0	6.8	8.0	9.8	12.3	14.1	15.3	16.2	16.6	17.0	17.6	18.0	17.7	17.4	17.5	17.1	15.5	13.7	13.0	11.6		13.0	18.0																						
26-May	10.9	10.2	8.8	7.1	6.4	8.3	9.9	11.2	13.8	15.8	16.8	17.2	17.9	18.3	18.2	18.7	19.1	18.8	18.7	18.5	17.4	15.4	14.1	13.7		14.4	19.1																						
27-May	12.9	12.2	10.9	9.7	9.6	10.7	12.7	14.0	16.2	17.7	19.4	20.3	21.0	21.3	21.7	21.8	19.8	17.5	17.3	17.1	16.7	15.7	14.9	14.0		16.0	21.8																						
28-May	13.7	13.1	12.1	12.3	12.3	11.8	12.4	13.7	15.0	16.4	17.3	18.2	19.4	20.3	21.2	21.6	22.2	22.6	22.5	21.4	20.1	18.7	17.7	17.8		17.2	22.6																						
29-May	16.9	16.5	15.7	15.7	14.5	14.0	14.0	13.8	14.3	15.5	16.3	16.1	16.2	16.3	15.2	14.9	14.6	14.5	14.6	14.1	13.1	12.2	11.5	11.0		14.6	16.9																						
30-May	10.7	10.2	9.7	10.1	10.9	11.2	11.4	11.9	11.9	11.9	12.2	12.3	12.5	13.0	14.1	DF	13.6	13.7	13.1	12.4	11.6	11.1	10.6	9.8		11.7	14.1																						
31-May	8.7	8.5	7.6	7.2	6.6	7.2	7.9	8.2	9.4	9.8	9.8	9.3	8.5	8.5	9.3	10.3	11.0	9.8	9.0	8.8	8.2	7.2	6.8	6.4		8.5	11.0																						
																								8.5	7.8	7.3	6.8	6.5	6.8	7.4	8.6	9.9	11.1	12.1	13.0	13.9	14.4	14.6	14.9	14.7	14.4	14.0	13.3	12.1	10.8	9.9	9.0	Diurnal Average	
																								16.9	16.5	15.7	15.7	14.5	14.0	14.0	14.0	16.2	18.1	20.4	22.1	23.0	24.9	26.0	26.6	26.8	26.7	25.8	24.0	21.6	18.7	17.7	17.8	Diurnal Maximum	
DF - DAS Failure																																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Fort Hills - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Fort Hills - May 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	0	0.00	0.00
0 - 10	337	45.54	45.54
10 - 20	372	50.27	95.81
> 20	31	4.19	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

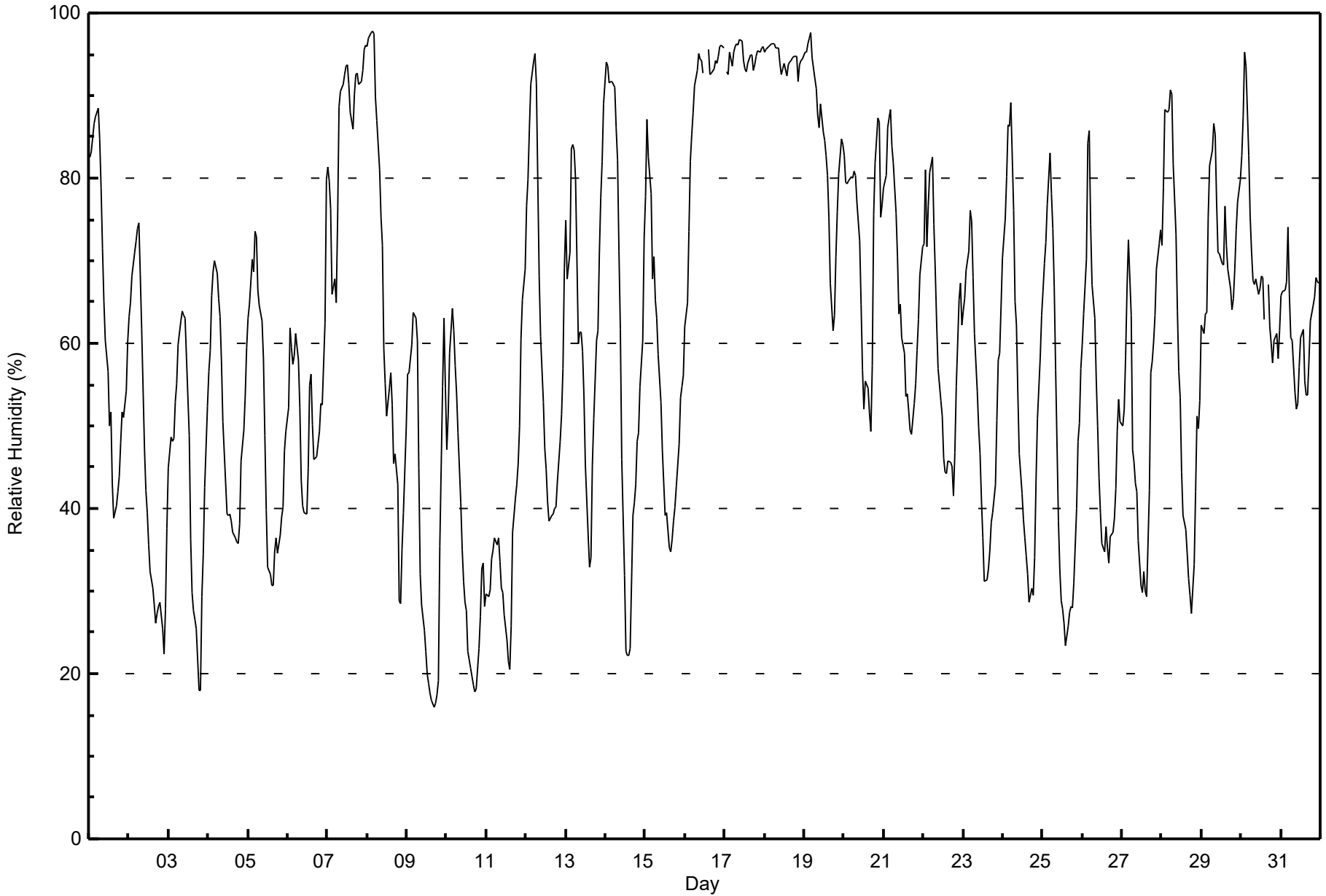
**Relative Humidity (RH) - %**  
**Fort Hills - May 2024**

Maximum Value: 97.8 % on May 8 04:00		Maximum Daily Average: 94.7 % on May 17																				Hours in Service: 744					
Minimum Value: 15.9 % on May 9 17:00		Minimum Daily Average: 36.2 % on May 10																				Hours of Data: 740					
Maximum Diurnal Average: 78.2 % at hour 5		Minimum Diurnal Average: 45.5 % at hour 16																				Hours of Missing Data: 4					
Monthly Average: 60.79 %		Percentiles: P <sub>1</sub> = 18.1 P <sub>10</sub> = 31.1 Q <sub>1</sub> = 43.0 Median = 60.8 Q <sub>3</sub> = 79.0 P <sub>90</sub> = 93.0 P <sub>99</sub> = 96.5																				Hours of Calibration: 0					
																						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-May	82.6	83.3	84.9	86.5	87.4	88.5	84.7	78.9	71.4	65.0	60.4	56.6	50.1	51.7	43.1	38.8	40.3	42.1	43.9	47.9	51.8	51.0	54.2	60.1	62.7	88.5	
2-May	63.2	65.0	68.1	71.1	72.3	73.8	74.6	68.3	61.6	47.4	42.1	39.5	35.6	32.4	30.3	28.3	26.1	27.3	28.2	28.7	25.5	22.4	27.7	37.6	45.7	74.6	
3-May	44.9	48.6	48.2	48.4	52.9	55.1	59.8	62.8	63.9	63.3	63.1	58.3	48.8	36.3	29.8	27.7	26.6	25.4	17.9	18.0	29.2	34.5	42.5	52.3	44.1	63.9	
4-May	56.7	59.1	65.7	68.7	70.0	68.5	65.5	63.2	57.8	50.5	43.0	39.4	39.2	39.4	38.4	37.0	36.5	35.9	35.7	38.1	45.8	49.5	53.7	59.5	50.7	70.0	
5-May	63.0	64.8	70.2	68.6	73.5	72.9	66.5	64.6	62.7	58.1	48.8	39.8	32.9	32.0	30.8	30.6	34.8	36.5	34.5	36.9	39.0	40.2	47.0	49.4	49.9	73.5	
6-May	52.1	61.9	59.5	57.4	58.5	61.1	58.0	52.2	43.5	40.3	39.5	39.3	44.9	54.9	56.3	50.1	45.9	46.3	47.7	49.4	52.7	52.5	62.6	79.8	52.8	79.8	
7-May	81.3	79.6	76.3	65.9	67.8	65.0	75.0	88.6	90.6	91.4	92.6	93.6	93.7	91.4	88.0	86.0	90.1	92.5	92.8	91.3	91.8	93.0	95.6	96.1	86.3	96.1	
8-May	96.0	97.0	97.6	97.8	97.5	89.9	87.0	81.0	75.3	71.9	59.4	55.1	51.2	54.6	56.4	52.6	45.4	46.6	43.0	28.8	28.4	35.1	39.5	49.6	64.0	97.8	
9-May	56.3	56.4	58.1	59.8	63.8	63.0	60.4	44.9	32.0	28.2	25.2	22.7	20.0	18.7	17.6	16.8	15.9	16.4	17.5	19.1	35.5	54.7	63.1	54.5	38.4	63.8	
10-May	47.1	51.4	58.7	64.2	61.5	57.3	53.9	49.2	40.7	35.0	31.2	28.6	27.6	22.7	20.7	19.6	18.7	17.8	18.2	23.0	26.9	32.7	33.4	28.1	36.2	64.2	
11-May	29.6	29.3	30.1	33.8	34.9	36.4	35.7	36.4	33.6	30.3	29.8	27.2	24.1	21.6	20.5	25.8	37.0	41.2	43.0	45.5	50.1	60.5	65.3	69.0	37.1	69.0	
12-May	76.6	79.9	86.0	91.4	94.1	95.2	91.6	79.9	68.1	60.9	53.0	47.3	44.8	40.8	38.4	39.2	39.2	40.0	40.1	43.2	48.2	51.4	57.0	69.2	61.5	95.2	
13-May	74.9	67.8	71.0	83.5	84.0	83.3	79.8	60.0	61.3	61.3	58.9	53.6	45.2	36.8	32.9	34.1	45.2	50.8	60.3	61.5	70.8	77.7	82.0	88.9	63.6	88.9	
14-May	94.1	93.6	91.6	91.6	91.8	91.0	86.1	82.2	71.2	61.7	45.9	31.9	22.8	22.3	22.1	23.0	39.1	40.7	43.0	48.1	49.1	54.7	60.3	72.8	59.6	94.1	
15-May	77.8	87.1	82.6	78.2	67.7	70.5	65.2	63.0	58.7	52.9	47.2	43.1	39.1	39.6	35.2	34.8	36.2	38.5	40.2	42.7	47.8	53.4	54.8	56.1	54.7	87.1	
16-May	62.0	64.9	73.6	82.0	85.2	87.9	91.1	93.1	95.2	94.3	94.2	92.7	DF	DF	95.6	92.6	92.7	93.2	94.2	93.9	94.7	96.0	96.2	95.7	89.1	96.2	
17-May	DF	92.9	92.5	95.3	93.6	95.2	95.9	96.2	96.1	96.7	96.6	94.3	93.2	92.8	93.9	94.9	94.9	93.0	93.7	94.7	95.5	95.3	95.7	95.9	94.7	96.7	
18-May	95.2	95.5	96.0	96.1	96.3	96.3	96.2	95.7	95.7	93.8	92.5	93.2	93.9	92.4	93.8	94.0	94.3	94.5	94.7	94.7	91.8	93.8	94.3	94.4	94.6	96.3	
19-May	95.2	95.3	96.3	96.9	97.6	94.6	92.0	90.9	87.6	86.0	89.0	85.5	84.5	82.7	80.3	75.3	67.2	61.5	63.4	70.5	75.9	80.5	84.8	84.1	84.1	97.6	
20-May	82.7	79.5	79.3	79.7	80.1	80.0	80.8	80.3	77.1	72.4	64.7	56.8	52.0	55.4	54.6	51.5	49.3	57.3	75.6	81.9	87.3	86.8	75.3	76.8	71.6	87.3	
21-May	78.8	80.3	86.1	87.2	88.3	83.9	81.9	75.7	70.5	63.5	64.8	60.7	58.8	53.6	53.9	51.8	49.6	49.0	52.6	55.1	59.2	62.9	68.3	71.7	67.0	88.3	
22-May	72.0	81.1	71.6	76.6	80.7	82.5	74.5	68.8	62.4	57.0	53.1	51.1	46.2	44.4	44.2	45.8	45.6	45.0	41.6	46.7	54.8	65.3	67.2	62.2	60.0	82.5	
23-May	63.9	65.5	68.8	71.1	76.2	74.7	68.0	61.2	54.2	49.9	46.6	41.1	36.5	31.2	31.3	32.7	34.9	38.3	39.5	42.9	50.6	58.0	58.9	64.5	52.5	76.2	
24-May	70.3	75.1	80.2	86.4	86.3	89.1	76.2	65.0	62.1	53.8	46.6	41.8	38.7	36.4	34.2	32.0	28.7	30.4	29.5	34.1	43.4	50.9	58.4	63.3	54.7	89.1	
25-May	66.5	69.6	72.3	76.8	83.0	78.1	73.9	66.7	56.7	38.5	32.5	28.9	27.7	26.1	23.4	25.8	27.5	28.2	28.0	31.1	40.0	48.2	50.4	56.9	48.2	83.0	
26-May	59.9	63.6	70.1	84.3	85.7	74.3	67.2	63.1	55.7	49.9	43.7	39.5	35.8	34.8	37.8	35.3	33.5	36.6	37.1	38.9	42.5	49.3	53.2	50.5	51.8	85.7	
27-May	50.0	52.0	58.5	66.6	72.5	63.3	47.2	45.6	43.0	42.1	36.2	30.6	29.9	32.4	30.0	29.3	42.3	56.4	57.8	60.2	63.4	68.9	72.1	73.8	51.0	73.8	
28-May	71.8	78.8	88.3	88.0	88.4	90.7	90.2	81.7	73.3	63.8	56.6	53.4	44.4	39.2	37.5	34.5	31.5	29.5	27.3	33.2	42.1	51.2	49.7	53.0	58.2	90.7	
29-May	62.2	61.3	63.5	63.7	75.3	81.5	83.5	86.7	85.2	77.0	71.1	70.9	69.7	69.5	76.6	71.9	69.0	66.6	64.1	65.4	69.0	73.7	77.1	79.8	72.3	86.7	
30-May	82.7	87.5	95.2	93.6	82.7	75.3	71.0	67.6	67.2	67.9	65.9	66.7	68.2	67.9	62.9	DF	67.1	62.1	59.9	57.6	60.3	61.2	58.2	61.5	70.0	95.2	
31-May	65.7	66.3	66.4	67.4	74.1	65.9	60.6	60.3	54.1	52.1	52.7	57.1	60.7	61.7	55.5	53.8	53.6	58.0	62.7	64.5	65.7	67.9	67.4	67.3	61.7	74.1	
		69.2	72.1	74.4	76.7	78.2	76.9	74.0	70.1	65.4	60.6	56.4	52.9	48.7	47.2	47.3	45.5	47.1	48.3	49.3	51.2	55.8	60.4	63.4	66.9	Diurnal Average	
		96.0	97.0	97.6	97.8	97.6	96.3	96.2	96.2	96.1	96.7	96.6	94.3	93.9	92.8	95.6	94.9	94.9	94.5	94.7	94.7	95.5	96.0	96.2	96.1	Diurnal Maximum	
DF - DAS Failure																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Fort Hills - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Fort Hills - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	13	1.76	1.76
20 - 40	147	19.86	21.62
40 - 60	197	26.62	48.24
60 - 80	207	27.97	76.22
80 - 100	176	23.78	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Fort Hills - May 2024

Maximum Speed: 38 km/h on May 10 22:00	Maximum Daily Speed Average: 22.7 km/h on May 1	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 9 22:00	Minimum Daily Speed Average: 2.5 km/h on May 13	Hours of Data: 740
Maximum Diurnal Speed Average: 7.5 km/h at hour 19	Minimum Diurnal Speed Average: 3.1 km/h at hour 23	Hours of Missing Data: 4
Monthly Average Velocity: 4.6 km/h 17.4 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 5 Q <sub>1</sub> = 8 Median = 12 Q <sub>3</sub> = 18 P <sub>90</sub> = 23 P <sub>99</sub> = 30	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-May	NNE27	NNE26	N20	NNE19	NNE20	NNE18	NNE18	NNE16	NNE19	NNE19	NNE23	NNE26	NNE27	N27	N26	NNE28	NNE28	N27	N25	NNE25	N23	N22	N19	N20	NNE22.7	NNE28
2-May	NNE19	N17	N13	N12	N11	NNE10	NNE14	NNE15	NNE18	NNE19	NNE20	NNE20	NNE21	NNE22	NNE23	NNE25	NNE26	NNE26	N25	N21	N14	N15	N13	N15	NNE18.0	NNE26
3-May	N12	N10	N11	N13	NNE12	N18	NNE18	N18	NNE17	N14	NNE14	N11	N10	N12	NNE12	NNE14	NNE16	NNE19	NNE20	NNE18	NNE11	N11	N6	NNW5	NNE13.2	NNE20
4-May	NNW6	N5	N7	N7	NNW5	N10	NNE10	NNE12	NNE12	NNE13	NNE12	NNE12	NE12	NNE12	NE10	NE9	ENE9	ENE9	ENE7	ENE7	ENE7	ENE7	SE12	SE14	NE7.4	SE14
5-May	SE11	SSE12	SSE9	SSE10	SW3	S6	SSE12	S9	SSW8	SSW9	SSE7	ESE9	SE15	SSE23	SSE23	SSE21	SSW21	SSE13	SSE11	SSE7	ESE8	SE10	ESE10	ESE6	SSE10.3	SSE23
6-May	N6	N9	N11	N11	N8	N8	N7	NNW7	SSE7	SSE17	SSE25	SE25	SE21	ESE11	ENE6	NE15	E17	E13	NE13	NNE14	NNE16	S8	SSW16	SSW2	E5.6	SSE25
7-May	ENE6	NNE8	NE8	ENE7	NE7	ENE7	ESE13	E8	E9	ENE9	NE10	NE9	NNE8	ENE5	ESE9	SE15	SE10	ESE6	ESE8	SE12	SE14	SSE15	SSE11	SSE12	E6.6	SSE15
8-May	S13	S12	SSW10	S7	SSW8	W8	WNW8	WNW9	WNW6	SW5	SSE5	SE16	SSE17	NW2	NE12	N2	NNE2	E5	ESE1WSW16	SW12	SW8	SW7	SSW3	SSW4.2	SSE17	
9-May	S7	SE5	SSW6	SW6	SSW4	SSW7	SSW9	WNW4	NW22WNW22	W27WNW26WNW26WNW28WNW28	NW25	NW23	NW18	NNW13	N9	NNE3	ESE0	WSW2	S4	WNW10.6	WNW28	WNW10.6	WNW28	WNW10.6	WNW28	
10-May	S5	SSE7	SSE9	SE9	SE11	SSE13	SSE13	S16	SSW20	SW19	SW23WSW22WSW23	W22	W19	W21	W19	WNW23WNW20	NW17	N25	N38	N17	NW10	W7.7	N38	N38	N38	
11-May	NW14	NW12WNW11WNW11WNW15WNW16	NW23	NW25	NW25	NW30	NNW28	NNW31	NNW36	NNW36	NNW33	N29	NNE31	NNE31	NNE33	NNE30	NNE20	NE16	NE15	NE11	NNW19.7	NNW36	NNW19.7	NNW36		
12-May	NNE8	N6	N5	N6	NNW5	NW3	NW2	SSE3	SE8	SE7	ESE7	SE9	SE10	ESE8	SE9	SSE11	SSE12	ESE12	ESE9	E6	ENE7	E7	ESE5	ESE2	ESE4.2	ESE12
13-May	N4	SE4	S2	NNE2	SSE1	S1	SSE2	SSE17	S19	SSE19	S17	SSE12	S6	ESE1	SE4	SW4	NNE18	NE7	N22	NNE14	NNW4	NE7	SSE4	NNW2	SE2.5	N22
14-May	S2	S4	SSE5	SE7	SSE8	SE8	S12	S11	SSE12	S13	S18	SSW18	SW22WSW21WSW22	W15	NNE18	NNE20	NNE24	NNE18	NNE10	E3	NNE6	W3	SSW2.5	NNE24	SSW2.5	NNE24
15-May	NW2	W1	NW5	N7	N6	N6	N9	NE7	NNE13	NNE13	NE11	NE11	NNE13	NNE14	NNE15	NNE17	NNE19	NE20	NE21	NE20	NE20	NE17	NE17	NE15	NNE11.8	NE21
16-May	NNE12	NE11	NNE11	N14	NNE14	N15	NNE18	NNE19	NNE20	NNE22	NNE22	NNE19	DF	DF	N21	NNE22	N23	NNE25	NNE26	NNE24	NNE25	NNE25	NNE23	NNE23	NNE19.6	NNE26
17-May	DF	NNE21	NNE19	N17	NNE26	N22	N18	N21	N21	N20	N22	NNE23	NNE26	NNE26	N26	N26	N25	N27	N22	N20	N15	N16	N16	N16	N21.2	N27
18-May	N16	N17	N17	N17	N17	N16	N16	N19	N20	N21	N24	N21	N21	N23	N22	N22	N23	N21	N19	NNE12	NE15	NNE12	NNE13	NNE13	N17.9	N24
19-May	NNE13	NNE14	NNE15	NNE14	NNE13	NNE12	NNE13	NE14	NE16	NE15	NE18	NE19	NE16	NE17	ENE16	NE16	NE18	NE18	NNE14	N20	N19	N13	NNE12	NNE13	NNE14.7	N20
20-May	NNE15	NNE16	NNE15	N12	NNE14	NNE16	NNE18	NNE16	NNE15	NNE15	N16	NNE15	N16	NNE17	N15	NNE15	NE12	ENE13	SSE14	SSW6	NW1	ENE4	ESE9	ESE7	NNE10.5	NNE18
21-May	SE8	SE7	ESE5	ESE7	ESE7	SE9	SSE7	E5	ESE8	E9	E12	ESE11	SE11	ESE11	ESE15	ESE14	E12	ENE11	ENE12	ENE10	E8	E7	E6	E6	ESE8.4	ESE15
22-May	ENE8	NNE6	ENE11	NE7	NNE11	N13	NNE15	NE15	ENE13	ENE15	NE15	NE17	NE18	ENE13	E9	SE9	SE9	SE7	ESE9	SE11	SE11	ESE6	ENE3	E5	ENE8.4	NE18
23-May	E5	E6	ESE6	ESE7	SE6	SE4	ESE1	ESE5	ESE5	SE9	SE10	ESE9	SSE6	E6	SSE5	S8	SSE10	SSW10	S13	SSW12	SSW9	S10	S12	SSE8	SSE6.3	S13
24-May	SE9	ESE6	SE3	SSE3	SSW3	NW3	WNW3	SSE6	SE9	SE8	SE6	SE9	SSE10	S10	S9	SSE7	SSE8	S8	S8	S10	SSW8	SW9	SW8	SSW6	S5.8	S10
25-May	SSW8	S8	S10	S7	SSE7	S8	SSW10	SSW9	S11	S18	SSE18	SSE18	SSE15	S18	SSE16	SE19	SE15	SSE14	SE8	SSE15	SSE13	SSE12	SE12	SE12	SSE11.9	SE19
26-May	SE14	SSE11	S3	S1	W1	SE4	S7	SW2	SSE7	SE8	SSE13	SSE12	SE12	SSE9	SSW12	S12	S10	SSW10	S7	SE5	ESE7	SE9	SSE8	SE12	SSE7.4	SE14
27-May	SE12	SE12	SSE4	N2	N3	NE2	SSE8	S5	SSE4	S13	SSE14	S17	S15	SSE18	SSE19	SSE17WSW14WSW14	W3	SE8	SE8	S2	N2	ENE2	SSE6.8	SSE19		
28-May	NNW11	N10	N6	E7	ESE9	NNW4	NW7	WNW7	SW7	SW10	SW8	SSW9	SW10WSW12WSW12	SSW13	SW12	SSW13	SW10	WSW4	N4	NNE3	N6	ESE12	WSW3.7	SSW13		
29-May	ENE7	NNE13	NNE12	E6	E11	NNE13	NNE8	N14	N19	N21	N17	NW8	NW6	WNW3	SW14	SW22	SW26	SW23	SW22	SW22	SW23	SW21	SW20	SW16	WSW4.5	SW26
30-May	SSW11	S8	SW4	WNW3	NW12	NNW19	NNW25	NNW25	NNW28	NNW25	NW23	NW19	NW15	NNW9	NNW14	DF	NW15	NNW18	NNW19	NNW19	NW20	NW13	NW16	NW18	NW14.6	NNW28
31-May	NW10	NW18	NW23	NW15	NW8	NW10	NW13	NW12	NW16WNW22	NW24	NW18	NW19	NW23	NW19	NW14	NNW21	NNW25	NNW21	NNW16	NNW23	NNW21	NW20	NNW20	NW17.6	NNW25	

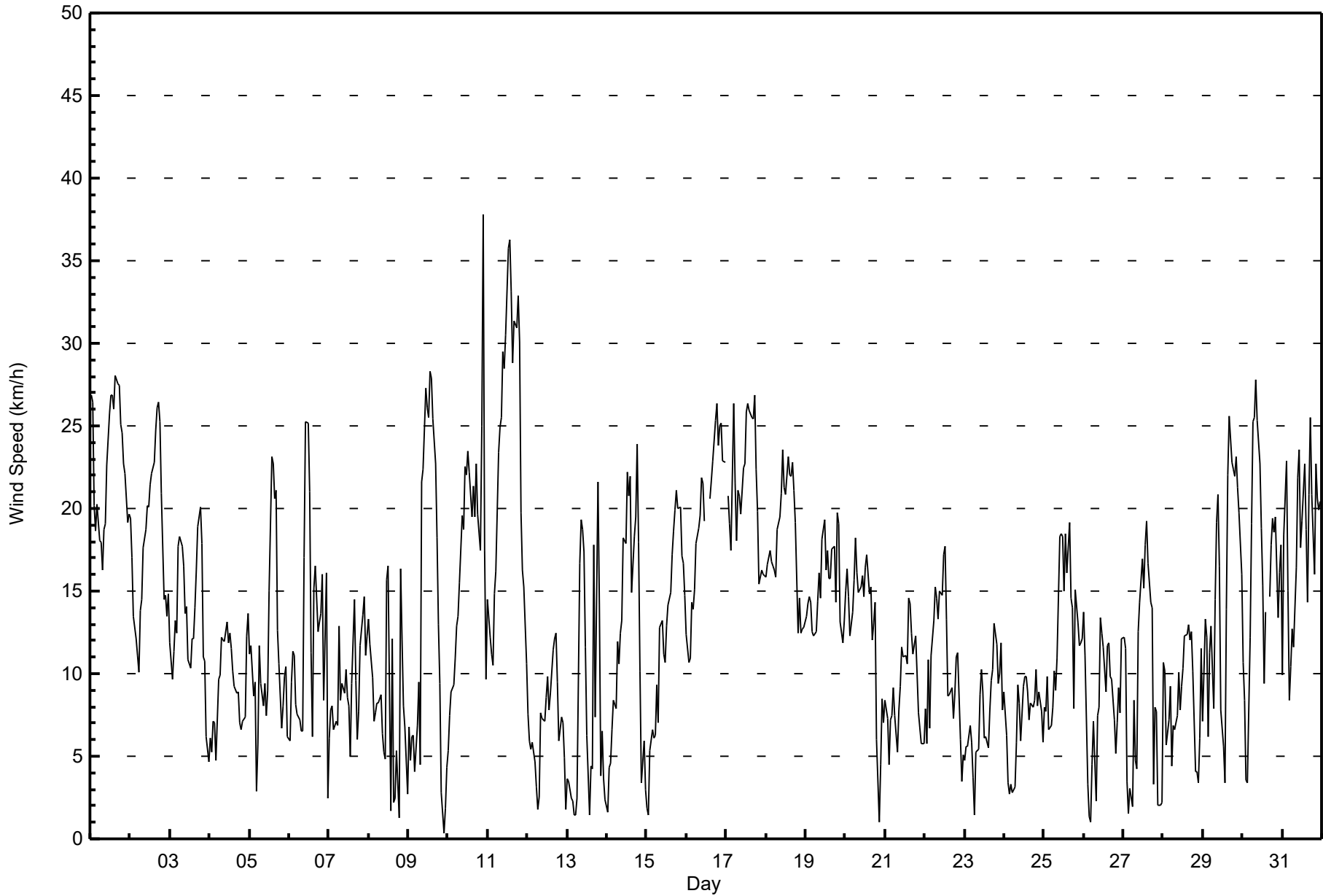
NE3.5 NNE4.4 NNE4.3 NNE4.3 NNE4.6	N5.3 N4.7 N5.1 NNE4.9 NNE3.9 NNE4.2 NNE4.0 NNE3.3	N4.3 N3.9 NNE3.8 NNE5.9 NNE6.6 NNE7.5 NNE6.3 NNE5.9 NNE4.6 NNE3.1	NE3.2	Diurnal Average
NNE27 NNE26 NW23 NNE19 NNE26	N22 NNW25 NNW25 NNW28	NW30 NNW28 NNW31 NNW36 NNW36 NNW33	N29 NNE31 NNE31 NNE33 NNE30 N25 N38 NNE23 NNE23	Diurnal Maximum

DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Fort Hills - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Fort Hills - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	90	12.16	12.16
6 - 11	239	32.30	44.46
12 - 19	266	35.95	80.41
20 - 28	134	18.11	98.51
29 - 38	11	1.49	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Fort Hills - May 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	8	4	1	4	5	9	7	10	10	4	5	2	4	4	7	6	90
6 - 11	25	12	14	17	15	28	32	26	22	18	10	0	1	6	7	6	239
12 - 19	40	77	25	6	4	5	16	30	15	7	4	5	3	3	19	7	266
20 - 28	37	37	4	0	0	0	2	4	0	2	9	6	2	8	12	11	134
29 - 38	2	4	0	0	0	0	0	0	0	0	0	0	0	0	1	4	11
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	112	134	44	27	24	42	57	70	47	31	28	13	10	21	46	34	740

Total Number of Valid Hours: 740

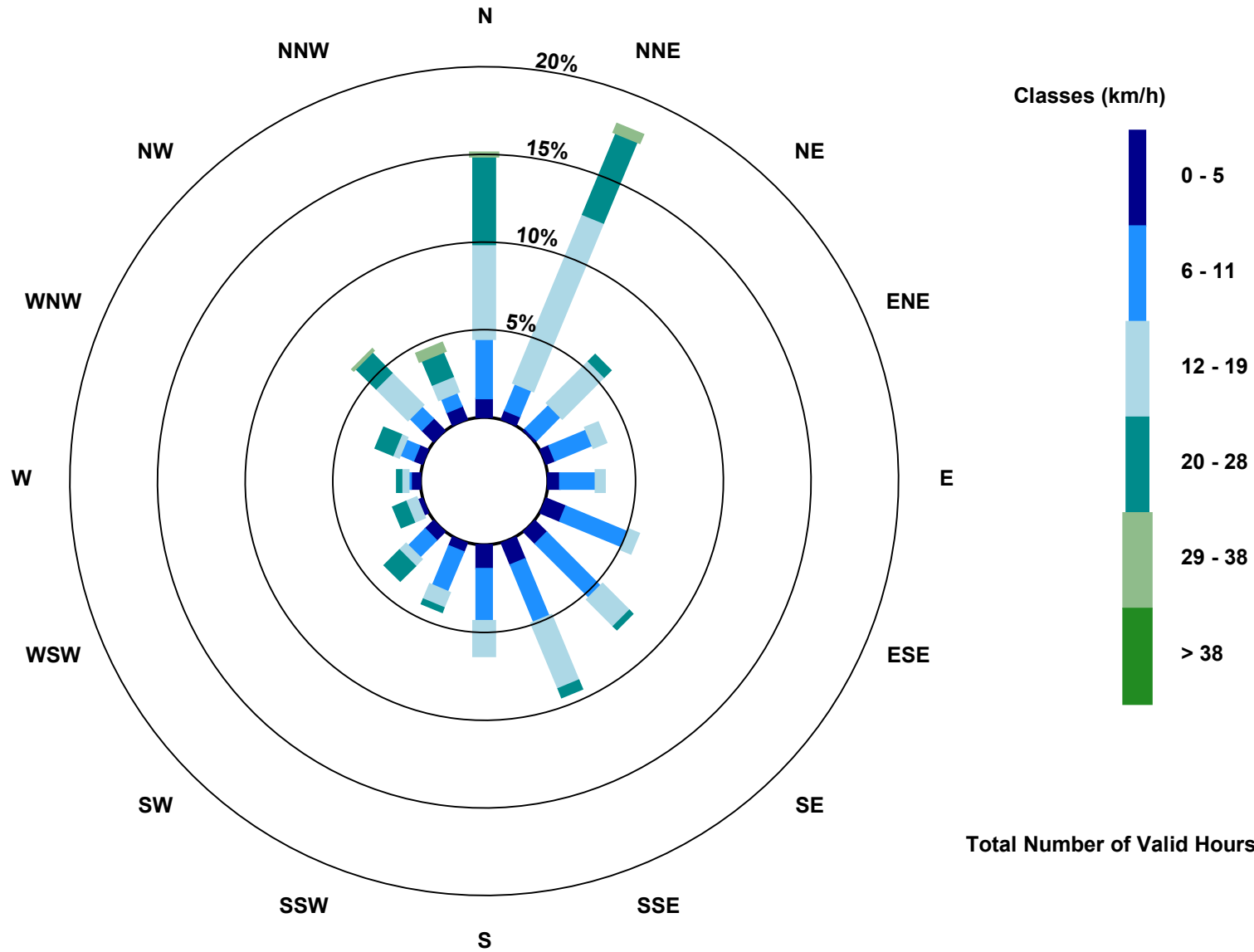
Total Number of Hours: 744





Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Fort Hills





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Fort Hills - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on May 10 21:00 Minimum Value: 1 km/h on May 26 20:00 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: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	4	4	4	3	3	3	3	4	3	4	4	4	5	5	5	5	5	5	5	4	4	3	3	2	5
2-May	2	2	3	2	2	3	3	4	3	5	4	4	4	5	4	5	5	5	4	4	2	2	2	2	5
3-May	3	2	2	2	2	3	3	3	3	2	3	4	4	3	4	3	4	4	3	3	2	2	4	1	4
4-May	1	1	1	1	2	3	2	2	2	3	4	4	4	4	4	3	3	3	2	2	1	1	4	2	4
5-May	2	2	1	2	1	2	2	2	4	2	2	3	8	5	5	5	5	5	2	3	3	1	2	3	8
6-May	3	2	2	2	2	1	1	1	4	4	8	6	4	4	2	3	4	3	3	3	3	3	4	3	8
7-May	1	2	3	1	2	2	4	2	2	2	2	2	2	2	4	3	1	1	2	2	2	2	1	2	4
8-May	2	2	2	3	1	1	2	2	2	1	3	4	4	5	4	3	1	2	2	3	3	1	1	1	5
9-May	2	2	1	2	1	3	3	4	6	7	7	7	7	7	7	6	5	5	3	2	1	1	1	1	7
10-May	1	2	1	1	2	1	2	3	3	3	4	5	5	6	5	5	5	6	7	9	11	8	7	3	11
11-May	4	3	2	3	4	4	7	6	6	7	7	7	8	8	7	6	6	6	6	6	4	3	3	3	8
12-May	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	2	1	1	1	2	3
13-May	1	3	2	1	1	2	4	4	3	3	3	3	4	2	3	6	4	4	5	4	1	2	1	1	6
14-May	1	1	1	1	1	4	2	2	2	2	4	4	5	4	6	6	7	4	4	6	3	3	3	2	7
15-May	1	1	1	2	2	2	5	3	3	3	3	3	4	6	4	6	5	4	4	4	4	4	3	3	6
16-May	3	3	2	3	4	4	3	3	3	3	4	3	DF	DF	4	4	4	5	4	5	5	5	4	4	5
17-May	DF	3	3	5	7	5	4	4	4	4	4	4	5	5	5	5	5	5	5	4	3	3	3	3	7
18-May	3	3	3	3	3	3	3	4	4	5	4	5	4	5	5	4	5	4	4	2	3	2	2	2	5
19-May	2	3	3	2	2	2	2	3	3	3	3	3	3	4	3	3	4	3	3	4	4	2	2	2	4
20-May	2	2	2	2	2	3	3	3	2	2	3	3	3	4	3	4	4	5	5	1	2	1	2	1	5
21-May	2	2	2	1	2	2	2	2	2	3	3	3	3	3	5	4	4	3	3	3	2	1	2	2	5
22-May	2	3	2	4	4	2	3	3	3	4	4	5	4	4	3	3	2	2	3	2	2	2	1	1	5
23-May	1	1	1	2	1	1	2	1	2	3	4	3	3	4	4	4	4	3	5	3	1	2	2	1	5
24-May	1	2	2	2	2	1	1	4	2	3	4	4	4	4	4	4	4	4	4	2	1	1	1	1	4
25-May	1	1	2	1	2	2	2	2	3	4	4	5	5	6	6	5	5	3	3	3	2	1	3	3	6
26-May	2	3	1	1	2	2	2	3	3	3	3	4	3	4	4	4	3	3	1	1	1	1	3	2	4
27-May	2	2	4	2	2	1	2	3	3	4	5	5	5	5	5	3	6	6	4	2	2	1	2	1	6
28-May	5	3	1	2	3	2	2	2	3	3	3	3	4	4	5	5	4	3	3	2	1	1	2	5	5
29-May	2	3	4	3	4	4	3	3	4	4	4	2	2	2	4	3	5	4	4	4	4	3	3	3	5
30-May	3	2	1	2	5	6	6	7	6	6	6	5	4	3	3	DF	4	4	4	4	6	4	4	5	7
31-May	4	6	7	4	4	3	4	4	5	5	6	4	6	6	5	4	5	6	6	4	6	6	6	5	7
Diurnal Maximum																								5	
DF - DAS Failure																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

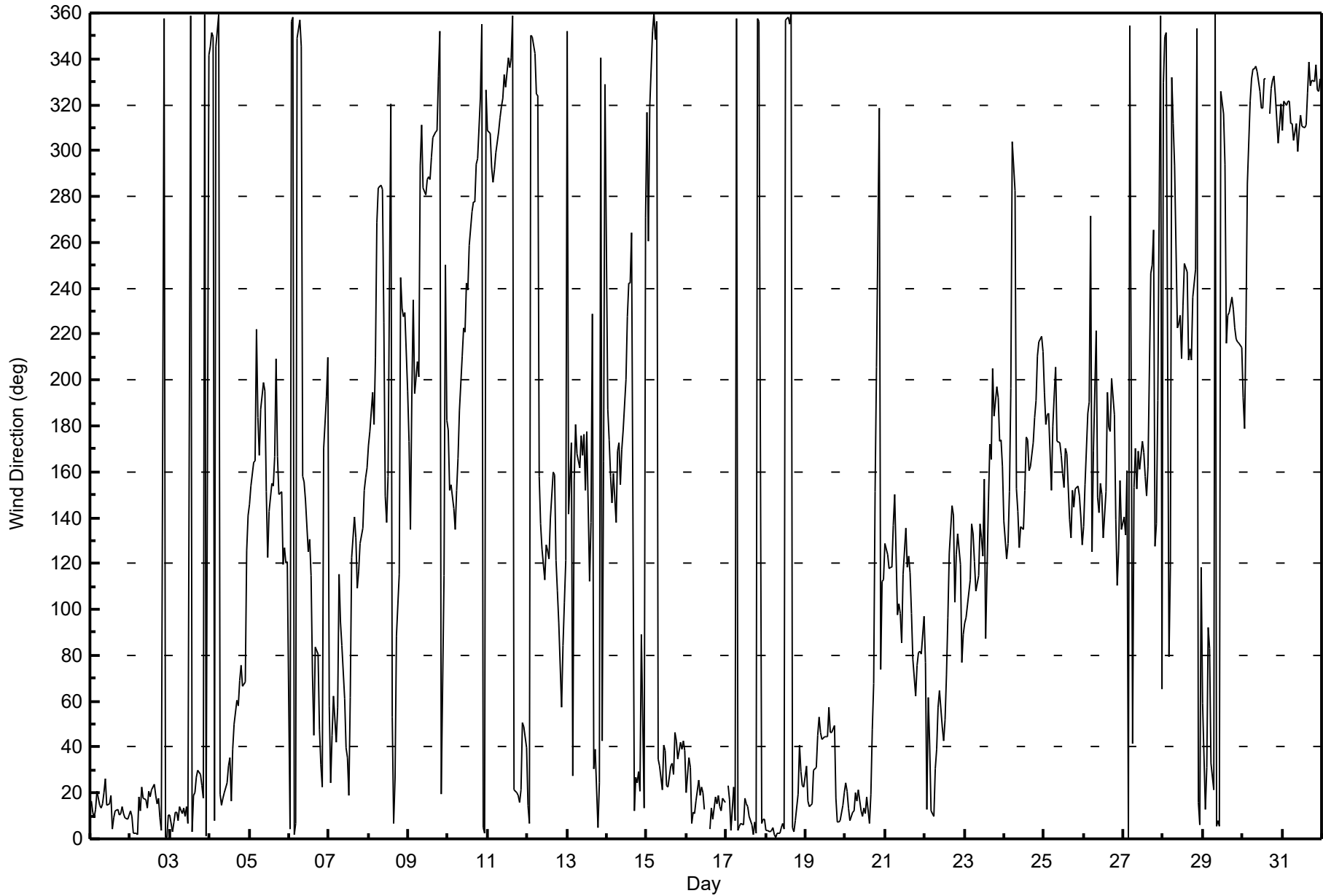
**Wind Direction (WD) - deg**  
**Fort Hills - May 2024**

Direction of Maximum Speed: 5 deg on May 10 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 13.2 deg on May 1	Hours of Data: 740
Direction of Minimum Speed: 115 deg on May 9 22:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 2.5 deg on May 13	Percent Operational Time: 99.5
Monthly Average Direction: 17.4 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-May	16	12	9	13	21	15	14	15	20	26	15	15	19	4	9	12	13	10	11	14	11	9	9	10	13.2
2-May	12	10	2	3	2	18	12	23	17	17	13	21	18	21	24	19	15	18	9	4	357	1	0	11	13.1
3-May	10	3	7	11	12	8	14	11	14	10	14	7	359	3	19	20	27	30	28	23	18	359	1	342	13.6
4-May	345	351	350	8	346	359	19	14	18	20	25	32	35	16	39	50	60	58	69	76	66	68	126	141	36.9
5-May	146	154	164	165	222	183	167	187	199	195	151	122	143	155	154	167	209	167	150	151	120	127	120	121	159.7
6-May	4	356	358	2	6	349	357	345	158	156	148	125	131	115	72	45	84	81	48	32	22	170	193	210	82.9
7-May	58	24	45	62	42	58	115	95	84	61	40	36	19	61	123	141	131	109	116	129	136	152	158	162	100.1
8-May	171	178	195	181	210	269	284	285	283	225	150	138	158	320	53	7	26	89	115	245	231	227	229	195	202.9
9-May	173	135	194	235	194	208	201	293	311	284	280	288	288	287	297	305	308	309	332	352	20	115	250	182	289.0
10-May	178	152	154	144	135	152	166	187	210	223	221	243	239	259	273	277	278	294	296	323	355	5	2	326	262.8
11-May	309	308	293	286	292	299	308	314	319	322	333	328	340	336	341	359	21	20	19	16	21	51	49	40	344.2
12-May	15	6	350	350	343	325	324	158	137	126	113	128	126	122	140	160	158	121	108	94	58	84	103	122	109.4
13-May	352	142	173	27	156	181	168	161	176	167	176	152	178	112	138	229	30	39	5	24	341	43	164	329	127.3
14-May	187	174	158	146	159	138	169	173	155	170	178	200	228	242	242	264	12	27	24	29	21	89	13	271	191.9
15-May	317	260	319	352	360	349	357	35	32	21	41	38	23	22	32	33	28	46	43	35	42	39	43	38	30.0
16-May	20	35	31	6	12	11	17	26	19	23	20	13	DF	DF	4	13	8	18	15	19	14	12	17	16	16.2
17-May	DF	23	17	4	23	8	358	4	5	7	6	17	15	14	10	6	2	7	3	358	357	7	8	9	8.5
18-May	4	3	3	4	5	2	1	2	2	5	7	4	357	358	355	360	5	3	8	20	41	29	23	22	6.1
19-May	32	16	14	15	15	30	31	45	53	46	43	44	45	44	58	46	46	49	18	7	7	8	15	20	31.9
20-May	25	21	13	8	12	13	20	17	21	12	10	13	11	18	7	20	48	68	151	205	319	74	112	113	25.2
21-May	129	124	118	118	119	137	150	98	103	98	85	115	136	118	123	116	98	78	62	76	81	82	80	97	105.8
22-May	77	13	62	41	12	10	30	39	57	65	49	43	52	72	96	125	145	141	103	124	133	120	77	89	66.5
23-May	94	96	102	113	137	133	121	108	115	137	131	123	157	87	147	172	165	205	184	197	192	173	174	162	152.2
24-May	139	122	129	151	196	304	283	153	143	127	136	135	152	175	174	160	163	172	184	191	211	216	219	212	168.9
25-May	194	181	185	186	152	180	193	206	173	172	167	160	153	170	168	139	131	152	145	152	154	150	140	128	161.3
26-May	136	154	185	190	272	125	169	222	149	142	155	150	131	152	194	179	178	201	185	139	110	125	156	135	156.1
27-May	140	133	161	1	354	42	153	170	152	169	161	173	169	158	149	162	246	250	265	127	137	191	359	65	165.0
28-May	329	350	351	80	118	332	312	294	223	225	228	210	233	251	247	209	214	209	236	248	353	16	6	118	243.4
29-May	59	13	31	92	83	33	21	360	6	8	5	326	316	294	216	228	230	236	230	223	218	216	216	214	258.6
30-May	192	179	223	286	322	331	335	336	337	334	326	318	318	331	331	DF	316	327	331	333	324	304	311	320	323.9
31-May	309	322	320	322	321	312	312	304	312	300	309	316	311	310	311	325	338	328	331	330	337	327	326	331	320.0

39.1 26.8 12.1 16.3 18.2 5.1 4.4 6.4 13.3 14.7 21.4 30.5 15.9 359.3 6.0 19.4 14.8 17.7 16.2 18.0 20.2 28.9 33.4 39.4  
 Diurnal Average

DF - DAS Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Fort Hills - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 93 deg on May 7 00:00 Minimum Value: 5 deg on May 24 21:00 Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 10 Q <sub>1</sub> = 12 Median = 16 Q <sub>3</sub> = 24 P <sub>90</sub> = 43 P <sub>99</sub> = 84																	Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	8	10	12	10	8	10	11	15	10	14	13	12	15	16	15	15	13	13	13	10	10	10	10	8	16
2-May	6	10	12	11	11	13	10	15	12	15	18	18	19	20	15	15	14	13	12	13	13	12	13	8	20
3-May	13	13	12	13	11	12	10	11	10	12	18	31	53	19	23	23	24	14	12	10	10	11	60	23	60
4-May	18	12	10	7	28	19	14	14	16	19	21	29	28	31	35	29	36	26	26	15	8	9	21	6	36
5-May	10	7	6	12	37	22	12	12	24	14	30	39	32	18	14	24	15	29	18	15	16	10	14	21	39
6-May	43	17	13	13	9	11	11	13	83	15	16	17	15	22	32	12	23	21	10	13	14	55	9	93	93
7-May	18	13	14	10	23	26	22	21	18	12	11	16	13	49	13	9	9	19	18	9	9	7	6	8	49
8-May	8	9	11	20	23	16	12	13	17	24	47	17	25	91	20	80	70	22	75	11	9	18	13	54	91
9-May	17	44	18	19	24	21	12	70	17	20	16	16	21	18	19	21	18	17	14	12	15	84	50	24	84
10-May	28	21	10	12	8	16	12	13	9	12	14	18	18	19	19	16	15	16	13	17	17	15	17	18	28
11-May	13	12	12	13	13	14	15	15	15	16	18	19	18	15	18	26	13	12	11	11	15	10	11	12	26
12-May	7	12	12	6	19	20	75	54	18	27	32	28	26	33	37	17	18	22	22	24	10	17	18	90	90
13-May	22	79	78	45	80	78	66	11	14	13	14	20	71	77	58	85	20	51	18	17	34	37	43	39	85
14-May	67	13	18	12	17	48	15	20	18	15	23	23	17	18	15	32	27	11	12	18	23	71	40	56	71
15-May	67	52	24	23	15	32	26	21	15	22	25	20	35	30	22	20	21	14	12	12	10	11	11	12	67
16-May	16	27	20	12	23	13	11	9	10	10	10	10	DF	DF	14	12	13	11	9	10	10	13	11	11	27
17-May	DF	10	12	15	11	16	15	15	14	14	13	12	11	12	13	14	15	13	16	15	15	13	14	12	16
18-May	14	15	14	14	13	13	14	14	14	14	13	14	16	16	16	16	14	15	12	20	10	11	10	10	20
19-May	12	9	10	9	9	12	12	11	11	11	10	9	12	11	14	15	15	11	18	11	11	11	9	8	18
20-May	8	9	10	11	12	10	9	11	11	14	15	15	15	14	15	17	22	34	20	21	65	27	20	18	65
21-May	12	14	34	15	18	15	21	30	28	27	26	22	23	25	20	21	26	18	13	15	19	17	21	31	34
22-May	15	29	11	41	20	13	10	13	21	16	16	18	17	19	28	25	21	18	28	12	9	15	18	17	41
23-May	16	16	22	18	22	23	74	25	22	22	27	39	60	64	78	51	37	23	17	13	7	13	9	22	78
24-May	7	19	69	58	47	36	31	43	21	37	60	39	40	32	39	47	48	38	47	24	5	5	7	18	69
25-May	13	16	18	27	16	13	13	25	21	18	22	21	24	18	24	20	27	14	24	11	7	7	13	8	27
26-May	8	27	48	48	84	49	32	66	31	31	27	23	21	44	34	27	30	23	18	17	16	15	38	10	84
27-May	14	14	92	70	68	63	28	64	56	26	26	33	34	21	21	22	40	31	89	24	11	56	71	48	92
28-May	18	18	29	24	30	56	16	21	29	25	28	27	34	28	31	22	20	23	20	22	25	58	46	24	58
29-May	29	28	20	45	18	17	20	15	14	14	17	33	28	43	17	11	11	11	10	10	10	10	9	10	45
30-May	16	16	53	53	16	13	12	13	12	13	14	13	13	13	DF	15	14	14	13	14	13	14	13	13	53
31-May	17	15	14	15	22	16	16	27	17	15	17	17	17	16	16	17	13	14	11	14	13	13	13	13	27
67 79 92 70 84 78 75 70 83 37 60 39 71 91 78 85 70 51 89 24 65 84 71 93																									
Diurnal Maximum																									
DF - DAS Failure																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS25 WASKŌW OHCI PIMÂTISIWIN MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)  
MAY 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	675	34	69	95.3	28	0	2.4	0
H2S(ppb) Average	671	36	73	95.03	1.4	0	0.3	0
Temperature 2 m (C) Average	710	0	34	95.43	28	0	17.4	0
Relative Humidity (%) Average	703	0	41	94.49	100	-	98.1	-
Wind Speed 10 m (km/h) Average	709	0	35	95.3	24	0	14	0
Wind Direction 10 m (deg) Average	709	0	35	95.3	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)  
MAY 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	675	0.42	1.9	-	0	0	0	0	0.1	0.8	28
H2S (ppb) Average	671	0.13	0.2	-	0	0	0	0.1	0.2	0.2	1.4
Temperature 2 m (C) Average	710	10.62	5.6	-	-2.8	3.7	6.2	10.2	14.4	18.4	28
Relative Humidity (%) Average	703	63.69	24.7	-	15.5	29.7	41.8	63.7	85.7	97.7	100
Wind Speed 10 m (km/h) Average	709	6.4	4	-	0	2	3	6	9	12	24
Wind Direction 10 m (deg) Average	709	-	-	-	-	-	-	-	-	-	-



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)

MAY 2024

OPERATIONAL NOTES

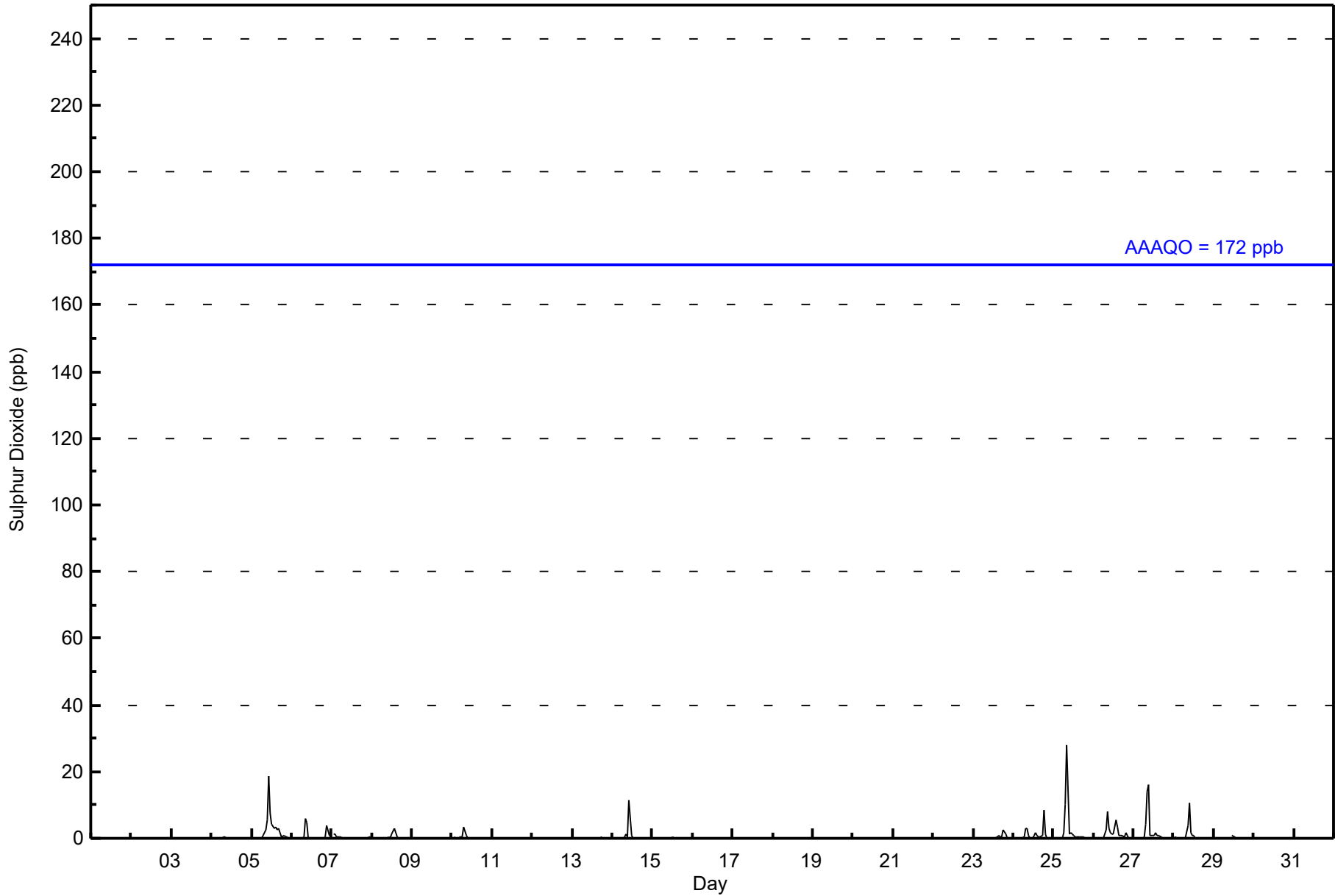
Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	12 May 2024 07:00	13 May 2024 18:00	34 - 36	Station power failure
H2S	29 May 2024 08:00	29 May 2024 08:00	1	Maintenance - sample manifold cleaned
Relative Humidity	07 May 2024 23:00	08 May 2024 05:00	7	Sensor operated out of range
Wind Speed, Wind Direction	14 May 2024 03:00	14 May 2024 03:00	1	Flat line in sensor output signal





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Waskow ohci Pimatisiwin - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	669	99.11	99.11
11 - 20	5	0.74	99.85
21 - 60	1	0.15	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Waskow ohci Pimatisiwin - May 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	83	60	38	22	20	32	69	37	24	24	17	25	40	52	54	72	669
11 - 20	0	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0	5
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>	83	61	38	22	20	32	73	37	24	25	17	25	40	52	54	72	675

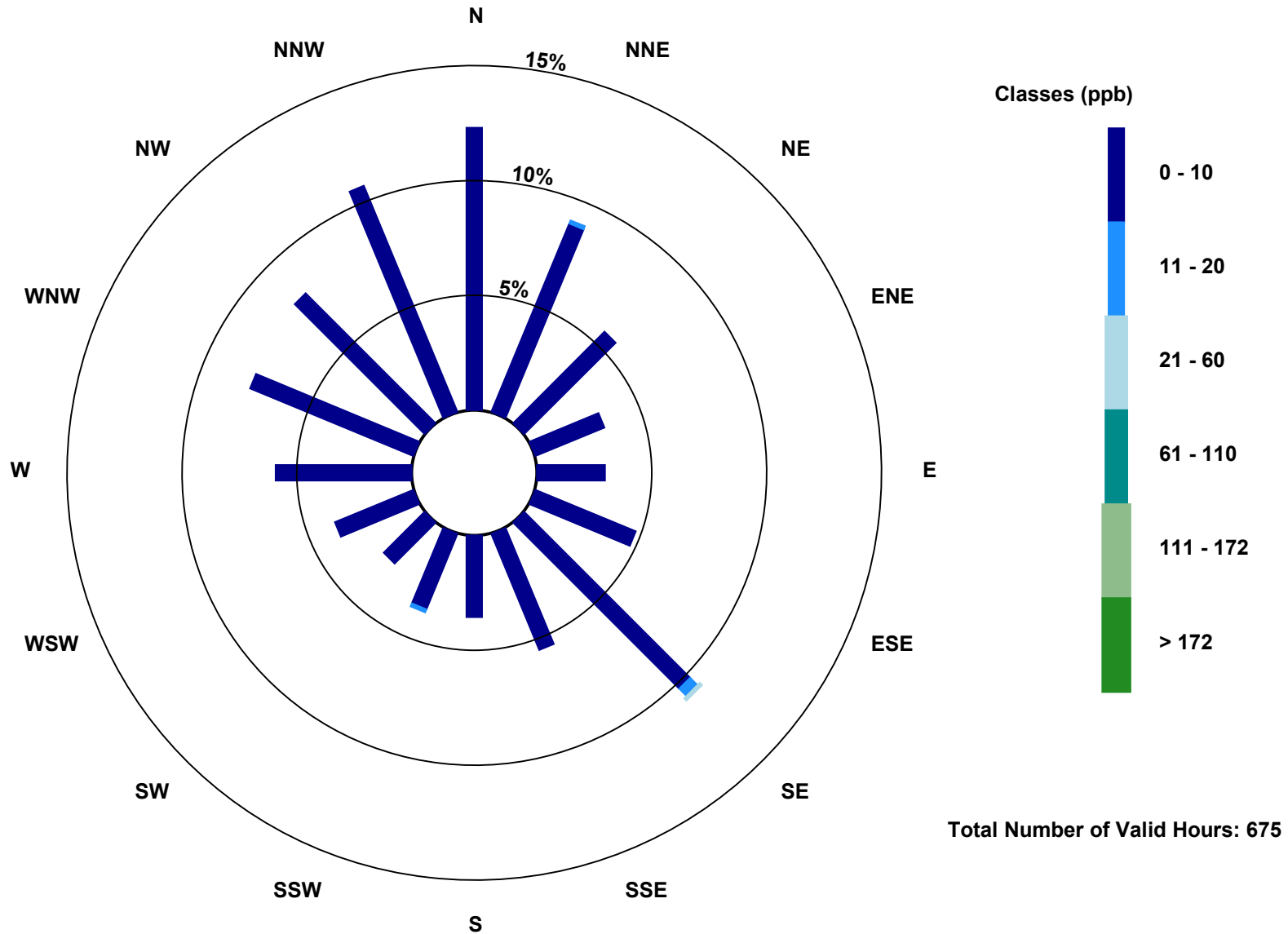
Total Number of Valid Hours: 675

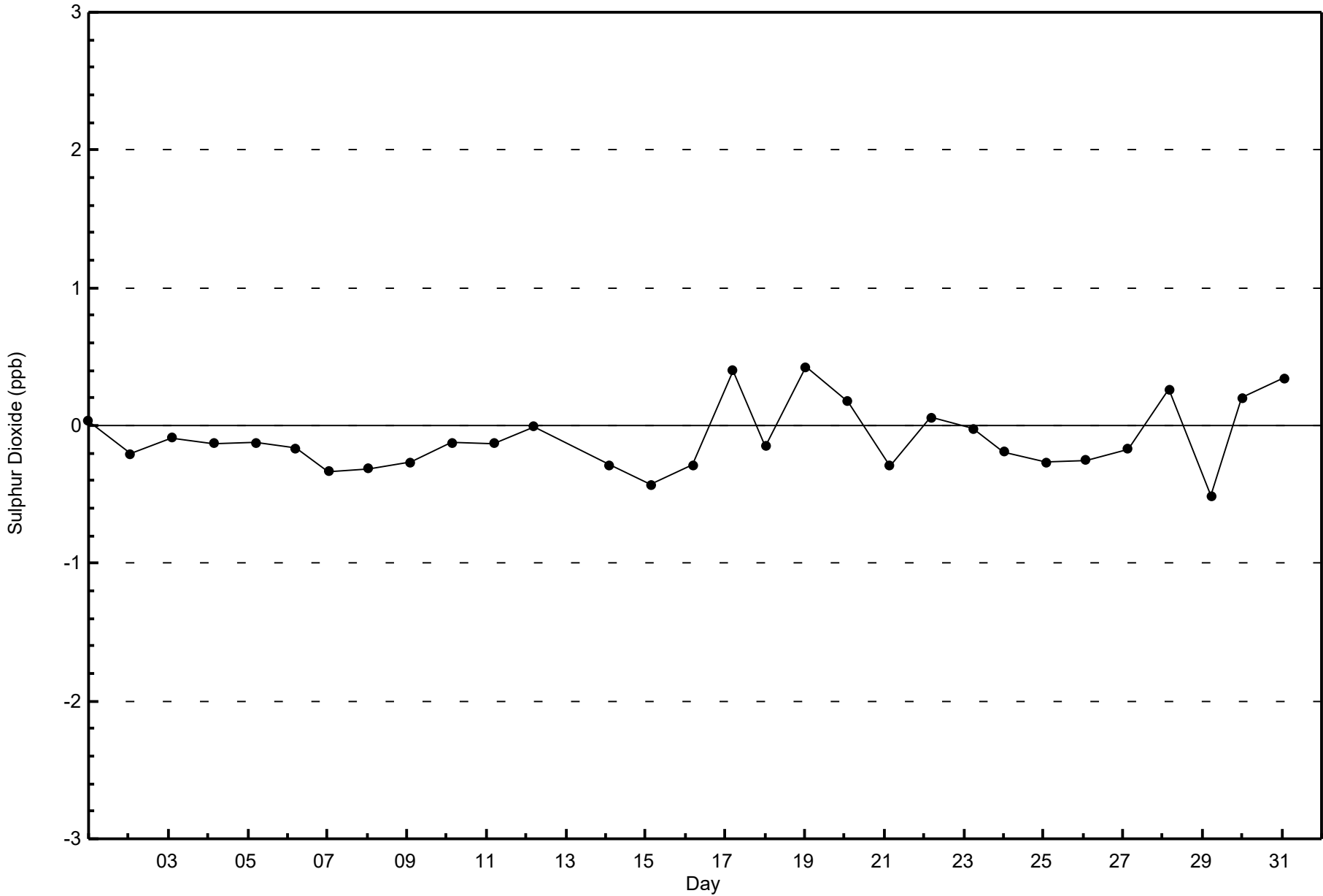
Total Number of Hours: 744

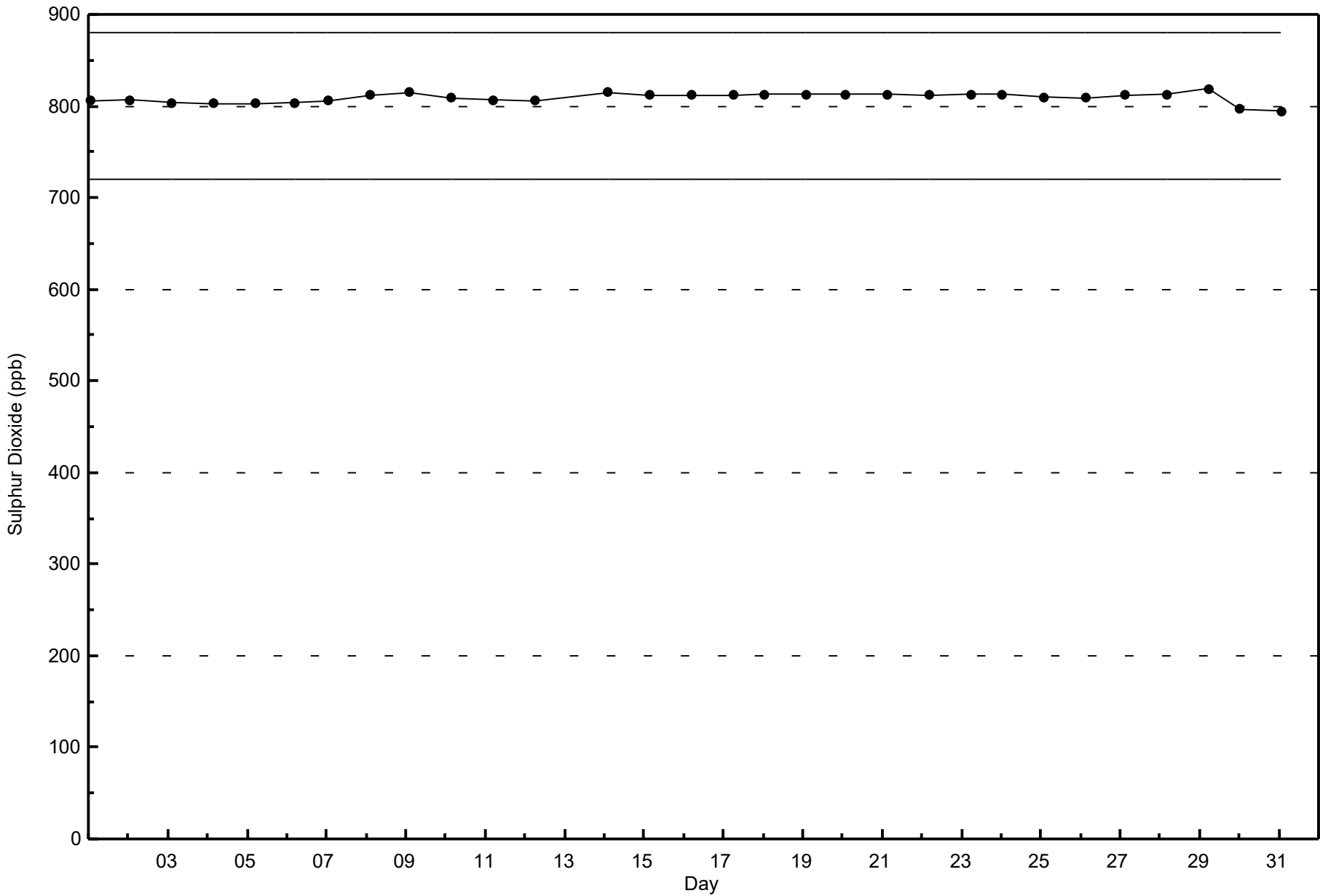


Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Waskow ohci Pimatisiwin







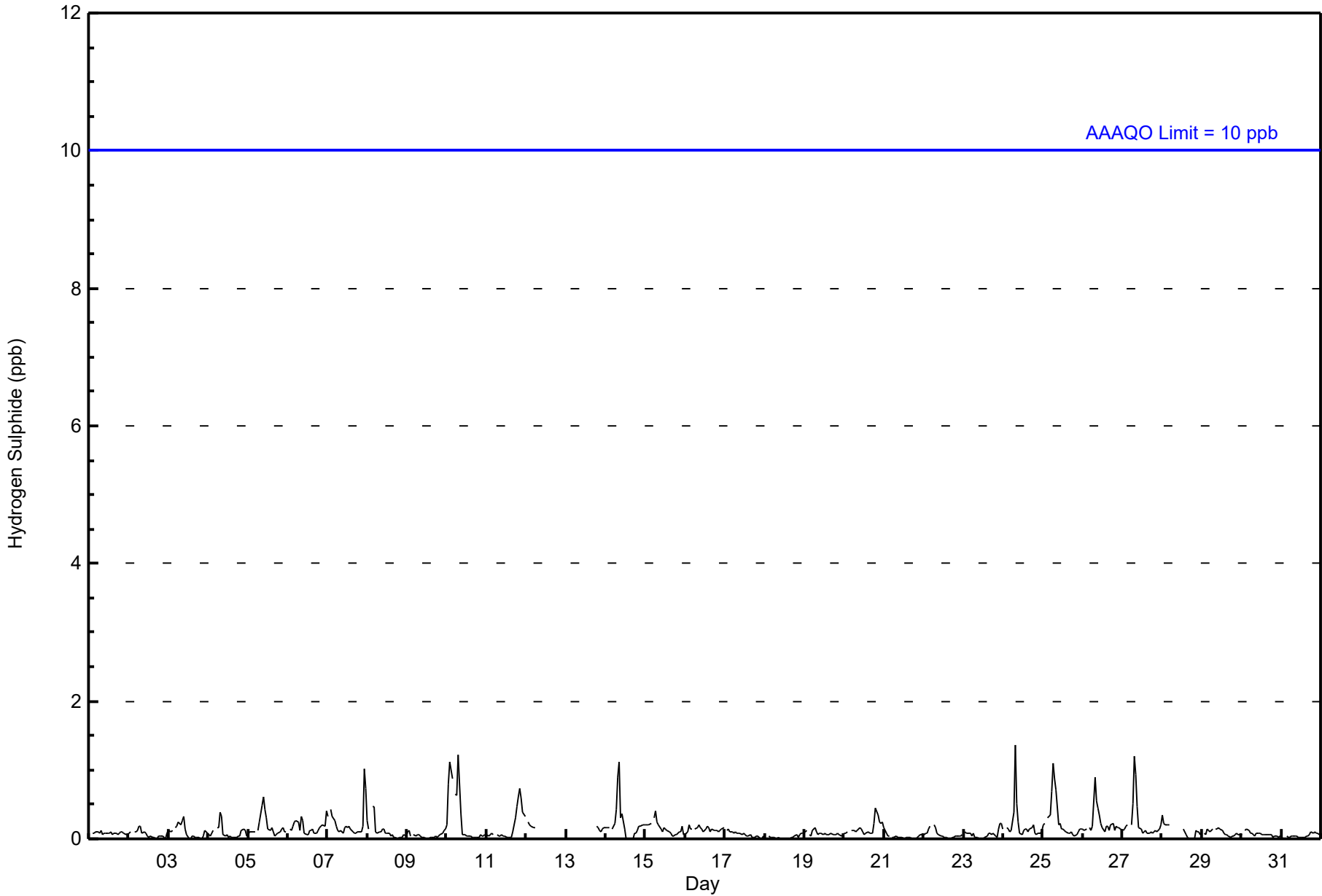






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Waskow ohci Pimatisiwin - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	671	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: 671

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin - May 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	81	62	39	22	20	32	72	35	22	23	19	25	43	49	52	74	670
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>	81	62	39	22	20	32	72	35	22	23	19	25	43	49	52	74	670

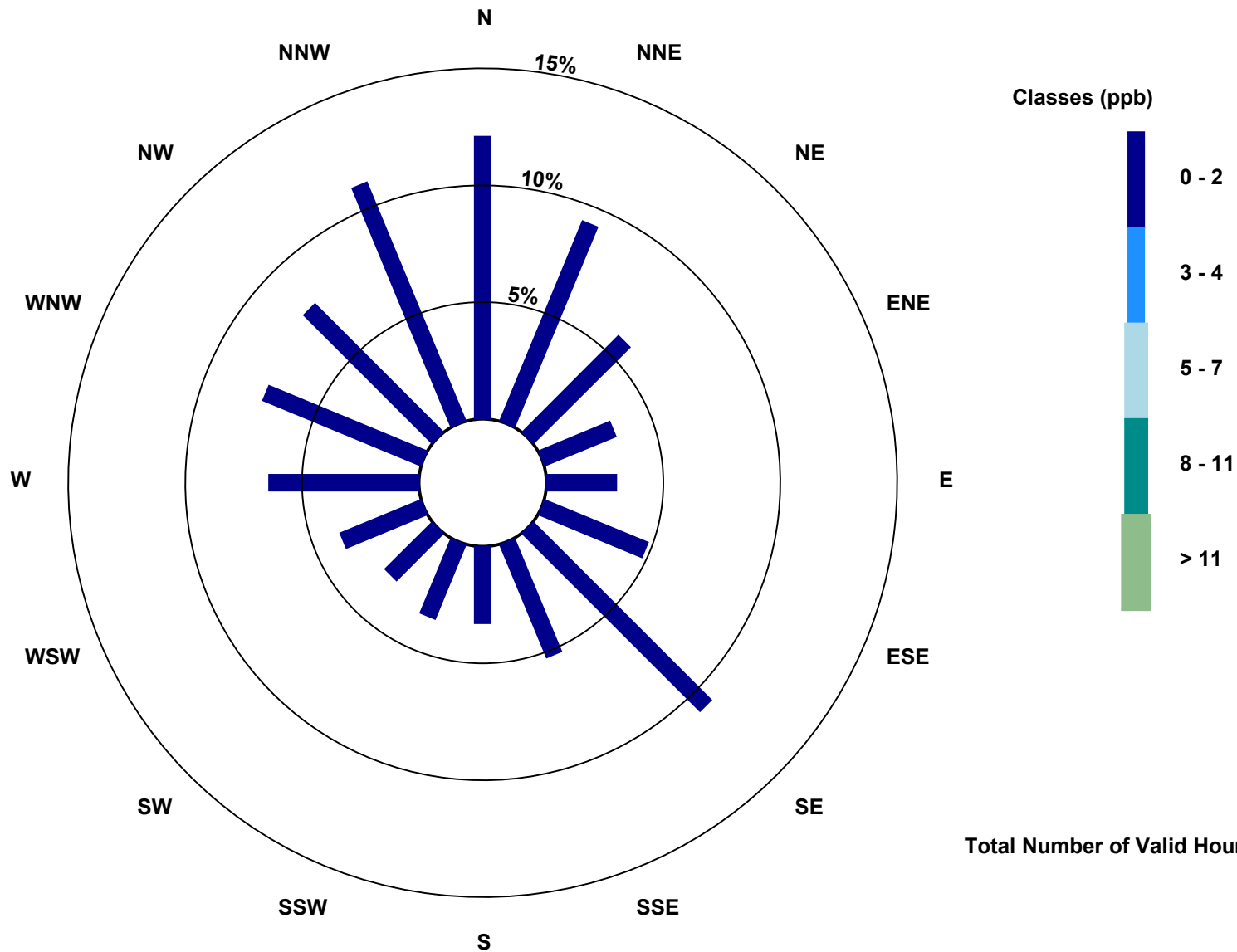
Total Number of Valid Hours: 670

Total Number of Hours: 744

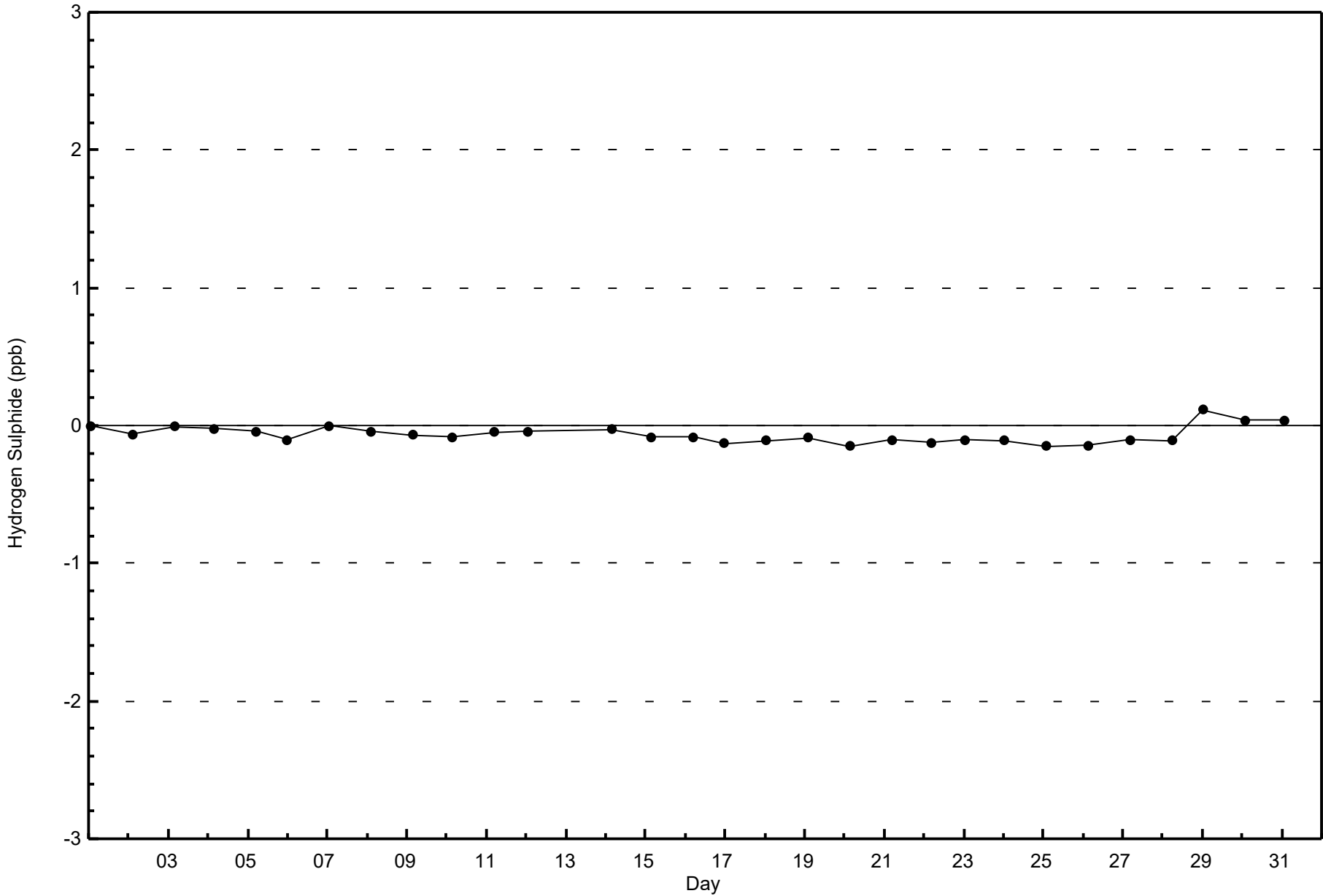


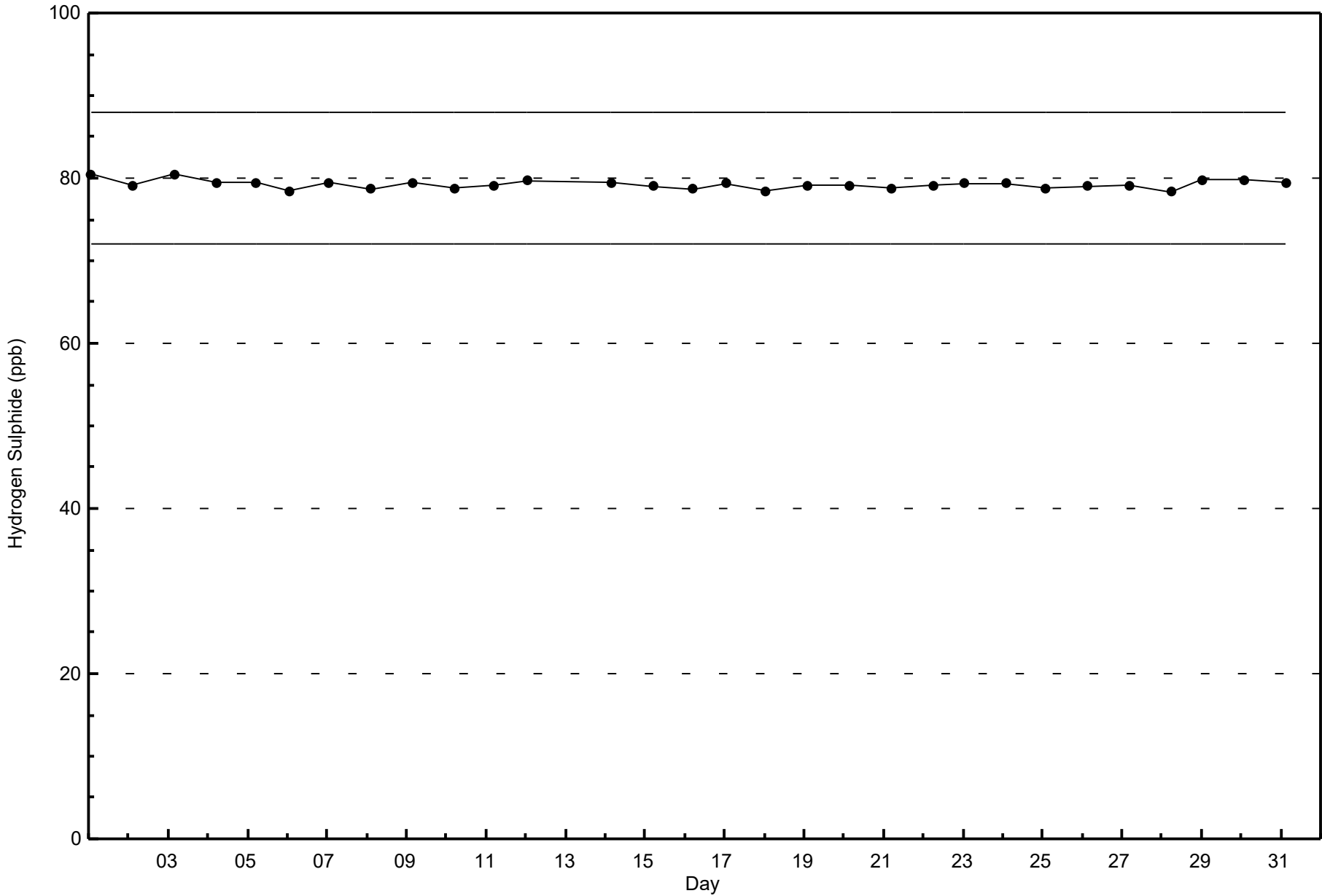
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Waskow ohci Pimatisiwin



Total Number of Valid Hours: 670





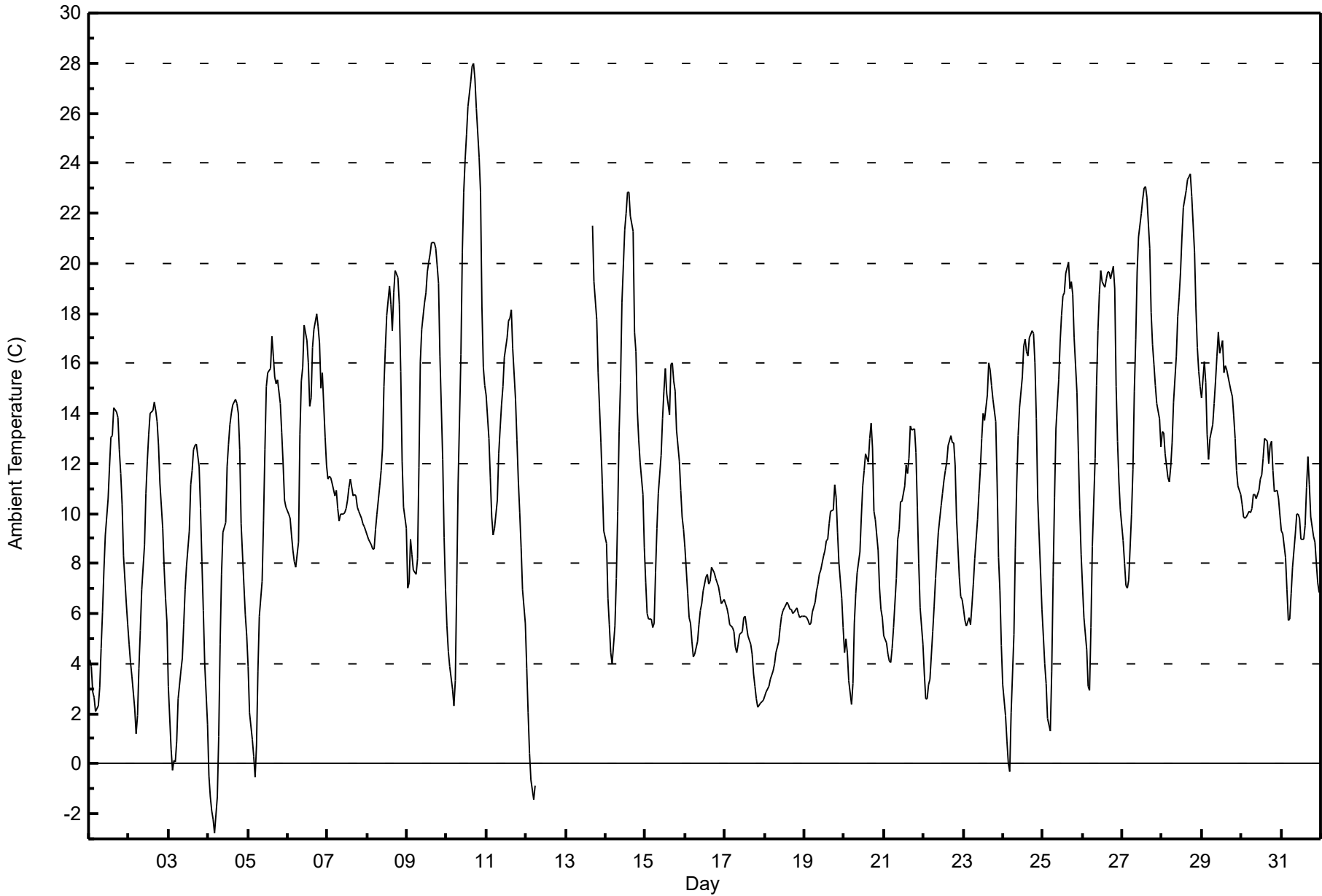


**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Waskow ohci Pimatisiwin - May 2024**

Maximum Value: 28.0 C on May 10 17:00		Maximum Daily Average: 17.4 C on May 28		Hours in Service: 744																						
Minimum Value: -2.8 C on May 4 05:00		Minimum Daily Average: 4.6 C on May 17		Hours of Data: 710																						
Maximum Diurnal Average: 15.5 C at hour 17		Minimum Diurnal Average: 4.7 C at hour 5		Hours of Missing Data: 34																						
Monthly Average: 10.62 C		Percentiles: P <sub>1</sub> = -0.7 P <sub>10</sub> = 3.7 Q <sub>1</sub> = 6.2 Median = 10.2 Q <sub>3</sub> = 14.4 P <sub>90</sub> = 18.4 P <sub>99</sub> = 24.2		Hours of Calibration: 0																						
				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-May	4.1	3.9	2.9	2.6	2.1	2.3	3.0	4.6	6.0	7.8	9.1	10.6	11.9	13.1	13.1	14.2	14.0	13.8	12.5	11.6	10.4	8.3	6.4	5.5	8.1	14.2
2-May	4.8	4.1	3.5	2.2	1.2	1.9	3.8	5.4	6.9	8.7	10.8	12.1	13.1	14.0	14.1	14.4	14.1	13.7	12.7	11.2	9.4	7.9	6.6	5.7	8.4	14.4
3-May	3.1	0.6	-0.3	0.1	0.1	0.9	2.6	3.7	4.2	5.6	7.0	7.9	9.3	11.2	11.7	12.6	12.7	12.8	11.9	10.2	8.1	6.1	4.0	1.6	6.2	12.8
4-May	-0.5	-1.3	-1.9	-2.2	-2.8	-1.3	1.1	4.8	7.6	9.2	9.6	11.9	12.7	13.6	14.0	14.4	14.5	14.4	14.0	12.5	9.6	7.1	5.9	5.1	7.2	14.5
5-May	3.9	2.1	1.0	0.3	-0.5	0.7	3.7	5.9	7.3	9.7	12.5	15.1	15.6	15.8	17.1	16.3	15.5	15.2	15.4	14.4	13.2	12.0	10.6	10.3	9.7	17.1
6-May	10.0	9.8	9.2	8.5	8.0	7.9	8.9	13.2	15.3	15.9	17.5	16.9	16.0	14.3	14.6	16.6	17.4	18.0	17.5	16.8	15.0	15.6	13.0	12.0	13.7	18.0
7-May	11.4	11.5	11.5	11.2	10.7	10.9	10.2	9.7	10.0	10.0	10.2	10.5	11.1	11.4	10.7	10.8	10.7	10.3	10.1	9.8	9.6	9.5	9.3	10.5	11.5	
8-May	9.1	9.0	8.8	8.6	8.6	9.3	10.0	11.1	11.7	12.6	15.1	16.6	17.9	19.1	18.3	17.3	18.8	19.7	19.4	18.4	15.7	12.1	10.3	9.4	13.6	19.7
9-May	7.0	7.3	9.0	8.3	7.7	7.6	8.2	11.8	16.1	17.4	18.4	18.8	19.7	20.0	20.4	20.8	20.8	20.6	20.0	19.2	16.3	12.1	9.0	7.0	14.3	20.8
10-May	5.5	4.5	3.9	3.0	2.3	3.3	7.2	11.2	16.4	20.4	22.8	24.1	25.1	26.2	27.3	27.9	28.0	27.4	26.2	24.2	22.9	18.3	15.8	15.1	17.0	28.0
11-May	14.7	13.0	11.4	9.9	9.2	9.4	10.6	12.4	13.4	14.3	15.1	16.3	17.0	17.7	17.8	18.1	16.6	14.6	13.0	11.3	10.0	8.6	7.0	5.6	12.8	18.1
12-May	3.8	2.0	0.4	-0.7	-1.4	-0.9	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	3.8
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	21.5
14-May	8.8	6.6	5.6	4.4	4.0	5.5	7.4	10.1	13.3	15.2	18.4	21.3	22.0	22.9	22.8	21.9	21.3	17.3	16.4	14.1	12.9	12.1	10.8	8.6	13.5	22.9
15-May	7.2	6.0	5.8	5.8	5.4	5.6	7.6	9.4	10.8	12.3	13.8	14.9	15.8	14.8	13.9	15.9	16.0	15.3	14.9	13.3	12.1	10.9	9.9	9.3	11.1	16.0
16-May	8.6	6.8	5.9	5.6	4.9	4.3	4.4	4.9	5.5	6.1	6.4	6.9	7.4	7.6	7.2	7.3	7.8	7.6	7.4	7.2	7.1	6.7	6.4	6.6	6.5	8.6
17-May	6.4	6.2	5.9	5.6	5.5	5.3	4.7	4.5	4.8	5.2	5.3	5.8	5.9	5.5	5.1	4.8	4.4	3.6	3.1	2.6	2.2	2.4	2.5	2.6	4.6	6.4
18-May	2.7	2.9	3.1	3.3	3.5	3.7	4.0	4.4	4.9	5.4	5.9	6.1	6.2	6.5	6.3	6.1	6.2	6.0	6.1	6.2	6.0	5.8	5.9	5.9	5.1	6.5
19-May	5.9	5.8	5.7	5.6	5.6	6.1	6.5	6.9	7.2	7.6	7.7	8.3	8.5	8.9	9.0	9.6	10.1	10.1	11.1	10.6	9.2	8.0	6.6	5.5	7.8	11.1
20-May	4.5	5.0	4.5	3.3	2.3	3.2	5.6	6.8	7.6	8.5	9.9	11.1	11.7	12.4	12.1	13.0	13.6	12.6	10.1	9.7	8.5	7.0	6.2	5.8	8.1	13.6
21-May	5.1	4.8	4.4	4.1	4.0	4.6	5.4	7.4	9.0	9.4	10.5	10.5	11.1	12.0	11.6	12.2	13.5	13.4	13.4	12.4	10.3	8.0	6.2	4.8	8.7	13.5
22-May	3.6	2.6	2.6	3.1	3.4	5.3	6.3	7.4	8.4	9.2	10.3	10.8	11.3	11.7	12.0	12.7	13.1	12.8	12.8	11.9	9.8	7.5	6.7	6.6	8.4	13.1
23-May	6.2	5.7	5.5	5.8	5.5	6.3	7.2	8.2	9.8	10.8	11.7	13.0	14.0	13.7	14.8	16.0	15.7	15.1	14.6	13.7	11.2	8.3	6.9	4.7	10.2	16.0
24-May	3.2	1.9	0.9	0.0	-0.3	2.0	5.2	8.6	11.2	13.1	14.2	15.4	16.7	17.0	16.5	16.3	17.0	17.3	17.2	16.0	13.8	10.6	7.7	6.1	10.3	17.3
25-May	5.1	4.0	3.2	1.8	1.3	3.7	7.4	10.6	13.4	15.3	16.8	17.9	18.7	18.8	19.6	20.1	19.0	19.3	18.8	17.1	14.9	12.5	10.2	8.3	12.4	20.1
26-May	7.1	5.8	4.6	3.1	2.9	5.5	8.7	12.2	15.1	17.3	18.8	19.7	19.2	19.0	19.4	19.7	19.6	19.4	19.9	19.0	15.1	12.9	11.3	10.2	13.6	19.9
27-May	8.9	8.0	7.1	7.0	7.3	10.0	11.8	14.9	17.0	19.6	21.1	22.0	22.6	23.0	23.1	22.6	20.6	18.0	16.7	16.0	15.1	14.4	13.8	12.7	15.5	23.1
28-May	13.3	13.2	12.4	11.4	11.3	11.9	12.8	14.4	16.3	17.9	18.7	19.7	21.0	22.2	22.9	23.3	23.5	23.6	22.7	20.5	18.2	16.6	15.7	15.1	17.4	23.6
29-May	14.6	16.1	15.2	13.1	12.1	13.0	13.6	14.4	15.3	16.3	17.3	16.4	16.9	15.6	15.9	15.7	15.5	14.9	14.7	13.9	13.0	11.7	11.1	10.7	14.5	17.3
30-May	10.4	9.9	9.8	9.9	10.1	10.1	10.2	10.7	10.8	10.6	10.9	11.4	11.5	12.2	13.0	12.9	12.0	12.7	12.9	11.7	10.9	10.9	10.6	9.9	11.1	13.0
31-May	9.3	9.2	8.3	6.9	5.7	5.8	6.8	7.8	9.2	10.0	10.0	9.8	9.0	9.0	9.6	11.0	12.3	11.2	9.9	9.1	8.9	8.0	7.2	6.9	8.8	12.3
																								Diurnal Average		
																								Diurnal Maximum		
6.9 6.2 5.7 5.1 4.7 5.5 7.1 8.9 10.5 11.8 13.0 13.8 14.4 14.8 15.0 15.3 15.5 15.0 14.4 13.4 11.8 10.2 8.8 7.9																										
14.7 16.1 15.2 13.1 12.1 13.0 13.6 14.9 17.0 20.4 22.8 24.1 25.1 26.2 27.3 27.9 28.0 27.4 26.2 24.2 22.9 18.3 15.8 15.1																										
PF - Power Failure																										







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Waskow ohci Pimatisiwin - May 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	12	1.69	1.69
0 - 10	330	46.48	48.17
10 - 20	328	46.20	94.37
> 20	40	5.63	100.00

Total Number of Valid Hours: 710

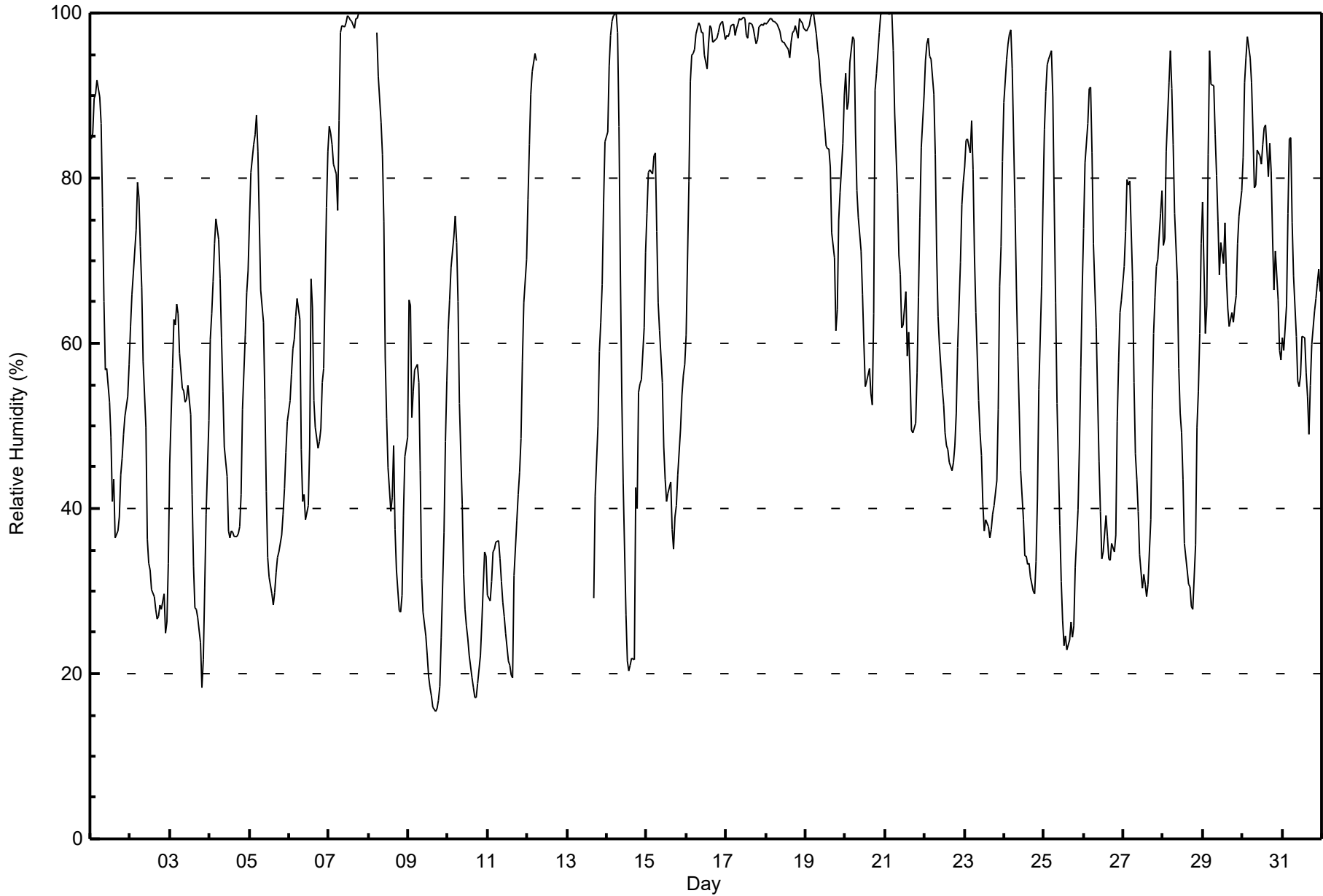
Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Relative Humidity (RH) - %**  
**Waskow ohci Pimatisiwin - May 2024**

Maximum Value: 100.0 % on May 7 19:00																								Hours in Service: 744																									
Maximum Daily Average: 98.1 % on May 17																								Hours of Data: 703																									
Minimum Value: 15.5 % on May 9 17:00																								Hours of Missing Data: 41																									
Minimum Daily Average: 35.7 % on May 11																								Hours of Calibration: 0																									
Maximum Diurnal Average: 86.0 % at hour 5																								Percent Operational Time: 94.5																									
Minimum Diurnal Average: 46.8 % at hour 17																																																	
Monthly Average: 63.69 %																																																	
Percentiles: P <sub>1</sub> = 18.2 P <sub>10</sub> = 29.7 Q <sub>1</sub> = 41.8 Median = 63.7 Q <sub>3</sub> = 85.7 P <sub>90</sub> = 97.7 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-May	84.8	85.5	89.7	90.3	91.8	89.9	86.7	76.4	65.1	56.9	57.0	52.9	48.6	40.8	43.6	36.5	37.4	39.0	44.1	46.1	48.9	51.1	53.5	57.4	61.4	91.8																							
2-May	62.1	65.9	68.5	73.8	79.6	77.7	71.8	66.7	57.9	49.8	36.3	33.4	32.5	30.2	29.3	27.8	26.7	27.0	28.3	27.8	29.6	24.9	26.2	33.4	45.3	79.6																							
3-May	45.4	56.9	62.9	62.2	64.7	63.5	58.8	54.5	54.3	52.8	53.3	54.9	51.4	41.8	33.0	28.0	27.8	26.8	23.7	18.2	21.7	30.3	39.3	50.7	44.9	64.7																							
4-May	60.5	63.5	67.5	72.0	75.1	72.5	67.9	60.6	54.2	47.4	44.0	37.3	36.4	37.3	37.2	36.6	36.5	36.9	37.8	41.7	52.0	61.1	66.1	68.8	53.0	75.1																							
5-May	74.9	80.7	84.0	85.3	87.6	83.3	74.8	66.5	62.5	53.2	42.0	34.1	31.7	29.7	28.3	29.9	32.3	34.1	34.7	36.8	39.4	42.4	46.7	50.6	52.7	87.6																							
6-May	53.1	56.3	59.4	60.6	63.2	65.3	62.9	47.1	40.9	41.7	38.7	40.4	47.4	67.9	64.3	53.1	49.9	47.3	48.2	49.6	55.3	56.9	76.5	83.2	55.4	83.2																							
7-May	86.3	85.4	84.1	81.6	80.5	76.1	86.9	97.6	98.5	98.3	98.9	99.7	99.5	99.2	98.9	98.2	99.3	99.4	100.0	100.0	100.0	100.0	OR	OR	94.0	100.0																							
8-May	OR	OR	OR	OR	OR	97.6	92.4	86.8	82.9	74.7	58.1	50.9	44.9	39.7	41.3	47.6	37.4	32.5	27.6	27.5	29.5	39.1	46.3	48.6	52.9	97.6																							
9-May	65.3	64.6	51.0	54.2	56.8	57.4	55.2	44.6	31.6	27.4	24.6	22.2	19.6	18.3	17.3	15.9	15.5	15.8	16.8	18.5	24.3	37.1	48.1	55.4	35.7	65.3																							
10-May	61.6	65.2	69.2	72.8	75.5	72.2	65.1	52.7	40.6	32.0	27.8	25.7	24.3	22.2	19.4	18.3	17.2	17.0	18.9	22.3	26.0	30.4	34.7	34.3	39.4	75.5																							
11-May	29.5	28.7	31.3	34.8	35.1	35.9	36.2	33.9	31.1	28.7	27.0	24.8	21.5	21.0	19.8	19.6	31.9	38.5	41.8	44.4	48.5	57.8	64.9	70.1	35.7	70.1																							
12-May	77.5	84.1	90.2	92.9	95.1	94.3	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--	95.1																							
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	29.2	41.5	50.0	59.1	62.5	67.2	76.9	84.4	--	84.4																							
14-May	85.6	93.6	97.3	99.0	99.6	100.0	97.6	86.3	68.6	53.9	43.0	27.0	21.5	20.4	20.9	21.9	21.7	42.5	40.0	54.1	55.0	55.6	61.8	70.9	59.9	100.0																							
15-May	75.7	80.6	81.0	80.5	82.7	83.0	73.5	64.9	61.6	55.2	47.4	43.5	40.9	41.8	43.2	37.5	35.1	38.9	40.3	44.0	49.7	53.8	56.1	57.5	57.0	83.0																							
16-May	61.0	79.7	91.8	94.9	95.1	95.6	97.4	98.8	98.5	97.6	97.7	94.9	93.3	96.3	98.4	98.1	96.5	96.8	97.0	97.7	98.5	98.9	99.0	96.8	94.6	99.0																							
17-May	97.3	97.1	97.6	98.4	98.7	97.3	98.2	98.6	99.3	99.2	99.4	99.4	97.2	97.0	98.7	98.6	98.2	97.2	96.2	96.7	98.3	98.6	98.5	98.8	98.1	99.4																							
18-May	98.7	98.8	99.4	99.3	99.1	98.9	98.9	98.6	97.8	96.8	96.4	96.4	96.1	95.6	94.5	96.4	97.6	97.8	98.4	96.9	99.3	98.9	98.9	98.2	97.8	99.4																							
19-May	97.8	98.2	98.4	99.4	100.0	100.0	97.5	95.5	94.2	91.5	90.2	86.1	83.9	83.5	83.6	81.4	73.4	70.4	61.6	64.2	75.0	78.3	84.3	90.1	86.6	100.0																							
20-May	92.7	88.3	89.4	94.1	97.1	96.7	85.7	78.5	75.2	71.2	65.9	59.9	54.7	55.4	56.9	53.9	52.5	63.6	90.7	92.6	97.6	99.8	100.0	100.0	79.7	100.0																							
21-May	100.0	100.0	99.9	100.0	100.0	95.4	87.8	78.1	70.7	68.3	61.9	62.2	66.3	58.4	61.4	56.0	49.5	49.1	50.4	56.4	65.7	75.2	83.7	89.9	74.4	100.0																							
22-May	94.3	96.2	96.9	94.8	94.5	90.2	82.8	70.8	63.3	59.7	54.5	52.5	49.1	47.6	47.2	45.6	44.5	45.5	47.6	51.5	59.4	69.8	76.8	79.4	67.3	96.9																							
23-May	81.3	84.7	84.8	83.1	87.0	81.0	70.6	63.7	53.1	49.1	46.4	40.5	37.3	38.7	37.8	36.4	37.4	39.4	40.4	43.5	52.1	67.0	71.6	82.0	58.7	87.0																							
24-May	89.2	94.3	96.3	97.5	98.0	93.2	76.2	66.4	58.5	51.9	44.5	38.6	34.2	34.2	33.1	33.3	31.6	30.0	29.6	33.5	41.1	54.5	67.0	77.3	58.5	98.0																							
25-May	86.0	90.5	93.7	94.4	95.5	89.8	77.0	64.9	52.8	37.9	31.1	26.4	23.5	24.5	22.9	24.1	26.3	24.4	25.8	32.9	39.8	47.4	57.1	66.7	52.3	95.5																							
26-May	73.9	81.9	86.6	90.9	91.1	83.0	72.1	61.9	53.8	45.7	39.6	33.9	34.7	39.1	36.6	34.0	33.7	35.8	34.7	36.8	50.4	57.6	63.7	65.2	55.7	91.1																							
27-May	69.3	73.6	79.8	79.2	79.7	67.6	55.3	46.6	43.5	39.6	34.5	30.3	32.1	30.9	29.3	30.9	38.7	52.0	61.2	65.6	69.3	70.2	75.7	78.4	55.6	79.8																							
28-May	71.9	72.8	83.2	91.6	95.4	90.8	84.1	75.8	67.6	56.9	51.6	49.2	43.5	35.8	32.6	30.9	30.4	28.1	27.8	35.7	49.8	54.3	61.2	72.1	58.0	95.4																							
29-May	77.1	61.2	64.6	82.9	95.5	91.4	91.1	85.3	80.4	74.7	68.2	72.3	69.6	74.6	68.1	64.3	62.0	63.7	62.5	64.5	65.8	72.0	75.5	78.4	73.6	95.5																							
30-May	82.6	91.6	94.7	97.2	94.6	91.5	85.6	78.8	79.1	83.5	82.8	81.6	84.2	86.2	86.5	80.2	84.2	80.8	72.9	66.4	71.2	65.3	59.1	57.9	80.8	97.2																							
31-May	60.6	59.1	64.6	75.7	84.8	84.9	74.5	68.1	60.8	55.4	54.8	56.1	60.8	60.7	56.4	53.6	48.9	54.9	59.9	63.9	65.4	67.3	68.9	66.3	63.6	84.9																							
																								75.7	78.6	81.3	83.9	86.0	83.9	78.1	71.4	65.5	60.4	55.8	52.7	51.1	50.6	49.7	47.9	46.8	48.9	50.3	53.0	58.0	62.8	66.8	71.1	Diurnal Average	
																								100.0	100.0	99.9	100.0	100.0	100.0	98.9	98.8	99.3	99.2	99.4	99.7	99.5	99.2	98.9	98.6	99.3	99.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Diurnal Maximum
PF - Power Failure      OR - Out of Range																																																	





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Waskow ohci Pimatisiwin - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	16	2.28	2.28
20 - 40	146	20.77	23.04
40 - 60	156	22.19	45.23
60 - 80	158	22.48	67.71
80 - 100	215	30.58	98.29

Total Number of Valid Hours: 703

Total Number of Hours: 744

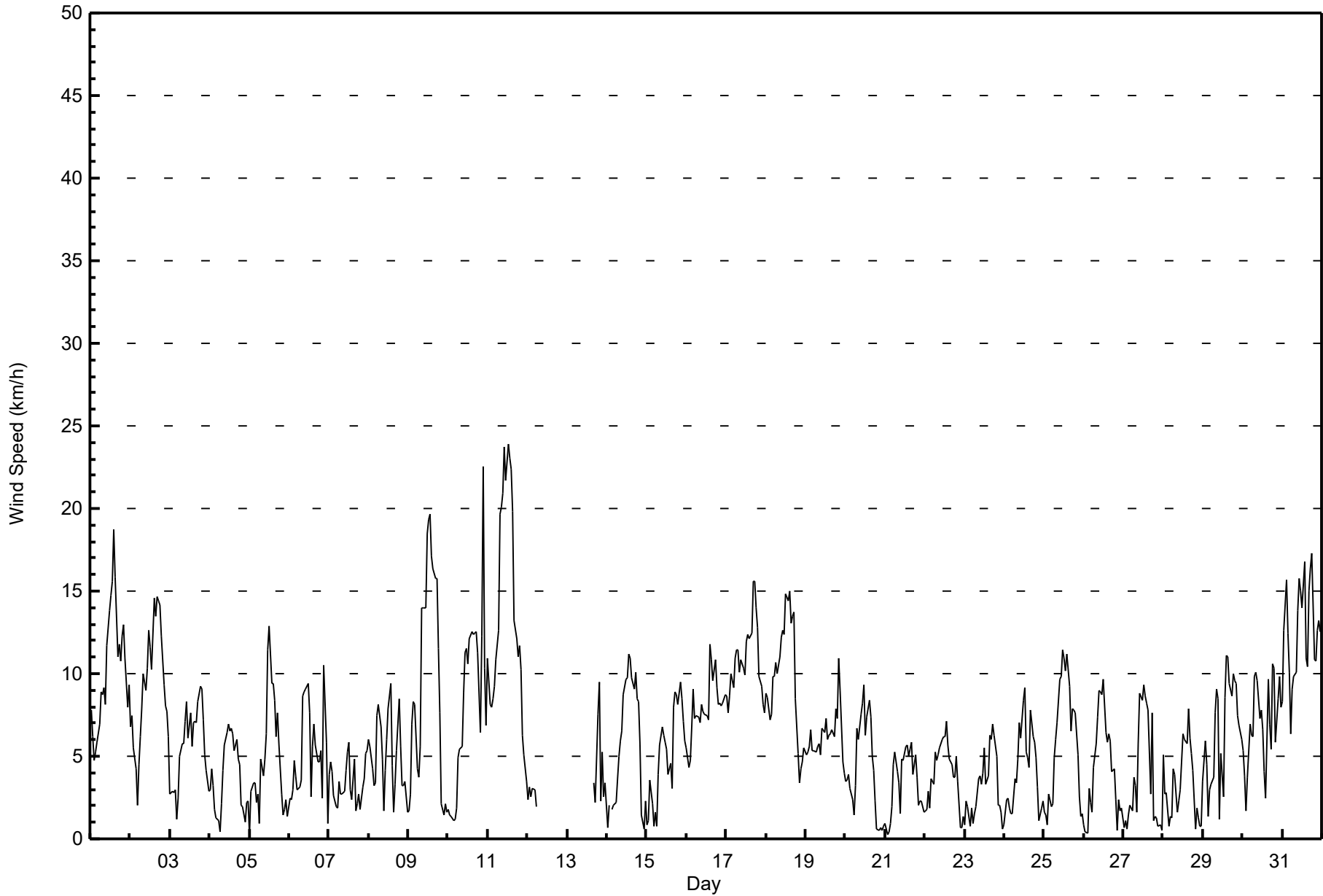


Maximum Speed: 24 km/h on May 11 13:00	Maximum Daily Speed Average: 12.3 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 21 02:00	Minimum Daily Speed Average: 1.5 km/h on May 28	Hours of Data: 709
Maximum Diurnal Speed Average: 3.4 km/h at hour 19	Minimum Diurnal Speed Average: 1.6 km/h at hour 13	Hours of Missing Data: 35
Monthly Average Velocity: 2.3 km/h 342.9 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 2 Q <sub>1</sub> = 3 Median = 6 Q <sub>3</sub> = 9 P <sub>90</sub> = 12 P <sub>99</sub> = 20	Percent Operational Time: 95.3

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-May	N8	N6	N5	N5	N6	N7	N9	NNE9	NNE9	NE8	N12	N14	N15	N16	NNW19	N16	NNE11	NNE12	N11	N12	N13	N11	NNW8	N9	N10.1	NNW19	
2-May	NNW7	NNW7	NNW5	NNW4	NNW2	NNW5	N6	NNE8	N10	N9	NNE10	N13	N12	NNE10	N15	N13	N15	N14	N14	NNW12	NNW9	NNW8	NW8	N6	N8.9	N15	
3-May	NW3	W3	W3	NW3	NNW1	NNW2	NNW5	N6	N6	N7	N8	N6	N8	NE6	NNE7	N7	N7	N8	NNE9	N9	N7	NW5	NW4	W3	N4.9	NNE9	
4-May	W3	W4	W3	WSW2	WSW1	WSW1	ENE0	NE2	NE4	NE6	N6	NE7	NE6	NE7	NE6	ENE5	NE6	NE5	NNE4	NE2	NW2	NNW1	ESE2	SE2	NNE2.4	NE7	
5-May	ESE0	WNW3	WNW3	NW3	W2	NW3	WSW1	SE5	SSE4	SE5	SE6	SE11	SSE13	SE9	SE9	SE8	SSE6	SE8	SE6	SE3	SE1	SE2	SE2	NE1	SE3.5	SSE13	
6-May	NW2	WNW2	NW3	NNW5	NW4	WNW3	NNW3	SE4	SE9	SSE9	ESE9	ESE9	ESE8	E3	N6	NNE7	ENE6	E5	NNE5	NNE5	ENE2	SSE10	S6	W1	E2.0	SSE10	
7-May	NNW4	N5	NNW4	NNW3	N2	NE2	E3	ENE3	NE3	NE3	N4	N5	NNW6	NNW3	ENE2	ESE5	E2	ENE2	E3	E2	ESE3	SE4	SE5	SE5	NE1.7	NNW6	
8-May	SSE6	SSE6	SSE4	SSE3	SW3	W7	W8	WNW7	WNW5	WSW2	ESE4	ESE6	SSE8	SE9	SE4	W2	S3	S5	SSW9	WSW6	SSW3	S3	SW3	WSW2	SSW2.8	SE9	
9-May	SSE2	SW3	W7	WSW8	WSW8	SSW4	SW4	W6	WNW14	WNW14	W14	W18	W19	WNW20	WNW17	WNW16	NW16	NW16	NW12	NW8	NNW2	SW1	WSW2	SSW2	WNW8.7	WNW20	
10-May	SSW2	S1	S1	SW1	S1	SSE2	SSE5	SE5	S6	SSW9	SW11	SW11	WSW11	WSW12	WSW13	WSW12	W12	W13	WNW11	WNW6	NNW12	N23	N10	NW7	W4.9	N23	
11-May	WNW11	WNW8	W8	W8	W9	W11	WNW13	NW20	WNW20	NW21	NW24	WNW22	NW24	NW23	NW22	NW20	NNE13	NNE12	NNE11	NNE12	N10	NE6	NNE5	NNE4	NW11.7	NW24	
12-May	NNW2	WNW3	W3	W3	W3	W2	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	---	WNW3
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	WNW3	NNE2	N8	N10	ENE2	N5	NW3	WSW3	---	N10	
14-May	W1	WSW2	UO	SSE2	SSE2	SE2	SSE4	SSE5	SE6	SSE6	SE9	S10	SSW10	SSW11	SW11	SW10	WSW9	N10	N8	NNW8	NNE6	NNW1	SE1	W2	SSW2.0	SSW11	
15-May	WNW1	WSW1	WNW4	NNW2	WNW1	WSW2	NW1	NNW4	NNE6	NNE7	NNE6	NE6	NE5	N4	SSW5	ENE3	NNE8	NNE9	NNE9	NNE9	NNE9	NE7	NNE6	---	NNE4.0	NNE9	
16-May	NE6	N4	NNW5	NNW7	NNW9	N7	N7	N7	NNE7	NNE8	N8	NNE8	NNE7	NNE7	NNW12	NNW11	N10	N11	N9	N8	N8	N8	N8	NNE9	N7.7	NNW12	
17-May	NNE9	NNE8	N9	N10	NNE9	NNE11	N11	NNW11	NNW10	N11	N10	N10	N12	N12	N12	NNW12	NNW16	NNW16	NNW14	NNW13	NNW10	NNW9	N8	NNW8	N10.5	NNW16	
18-May	NNW9	NNW9	NNW7	N8	NNW10	NNW10	NNW11	NNW10	NNW11	NNW12	NNW13	NNW12	NNW15	NNW14	NNW15	NNW13	NNW14	NNW14	NNW8	NNE5	NE3	NNE4	N5	NNE6	NNW9.6	NNW15	
19-May	NNE5	NNE5	N6	NNW7	N5	NNE5	NNE5	NNE6	NE6	NE5	NNE7	NE6	NNE7	NE6	NE6	NE6	NE7	NE6	NNE8	N7	NNW11	NNW9	NNW5	NNW4	NNE5.8	NNW11	
20-May	NW3	NNW4	NW4	WNW3	WNW2	WSW1	NNW3	NNW7	N6	N8	N8	N9	NNE6	NNE7	N8	N7	NNE5	ENE4	S2	W1	NE1	WSW1	S1	SE1	N3.4	N9	
21-May	SE1	NW0	SE0	SE1	SE2	ESE4	ESE5	ESE4	ENE3	ESE2	E5	E5	E6	ESE6	ENE5	E5	ENE6	E4	NE5	ENE4	ENE2	NW2	NW2	WNW2	E2.6	ENE6	
22-May	W2	WSW2	W3	WSW2	W4	NNW3	N5	NNE5	NE5	NE6	NE6	NE6	ENE6	ENE7	ENE6	ENE5	ENE5	E4	ESE4	ESE5	E3	W1	WSW1	WNW1	NE2.3	ENE7	
23-May	W1	W2	SSW2	ENE1	NW2	NE1	E2	E2	E4	ESE4	NNE3	ENE4	SE6	S3	S4	SE6	SSE6	SE7	SSE6	SSE5	SSE2	SSE2	SW2	SW1	SE2.1	SE7	
24-May	W1	W2	W2	W2	W2	ESE2	SSE4	ESE3	SE5	SE7	SE6	SE8	SSE9	SE5	SSE5	SE4	SE8	SSE6	S6	SSW5	SW3	SSW1	S2	SE2	SSE3.4	SSE9	
25-May	SE2	SW1	W1	SW3	W2	SE2	SSE5	SE6	SE7	SE10	SE10	SE11	SE11	SE10	SE11	ESE9	ESE7	SE8	SE8	SE8	ESE5	SE3	ESE1	SE2	SE5.4	SE11	
26-May	ESE1	ESE0	W0	W3	W2	NNW2	SSE4	SE6	SE7	SE9	SE9	SSE9	SSE10	S6	SE6	SSE6	SE6	SE4	SE4	ESE2	NE1	SSW2	ESE2	SE2	SSE3.7	SSE10	
27-May	S1	SW1	SE1	WSW1	WNW2	SSE2	SE4	SSE3	NNE2	SE6	SE9	SE8	SE9	SE9	SE8	SE8	WSW3	WSW8	E1	S1	W1	ESE1	NE1	E0	SE2.5	SE9	
28-May	WNW5	NW3	NNW3	ESE1	NNE1	NW1	NW4	NW4	SSW2	SSW2	S3	SE5	SSE6	S6	SSW6	SSE8	S6	S5	SSW4	E1	NW2	WNW1	SE1	E1	SSW1.5	SSE8	
29-May	NNE3	NNE6	NE4	E1	NNW3	NNE3	NNW4	NNW8	NNW9	N8	NW1	SW5	SW3	SSW9	SSW11	SSW11	SW9	SSW9	SSW10	SSW10	SSW9	SSW7	S7	S6	SW2.7	SSW11	
30-May	SSE5	SSE4	WNW2	W4	WNW7	WNW6	WNW6	NW10	WNW10	WNW10	WNW7	NW8	WNW7	W4	WNW2	NNW10	WNW7	WNW5	NW11	NW10	NW6	NW8	WNW10	WNW8	WNW6.1	NW11	
31-May	WNW8	NW13	WNW16	WNW12	WNW10	WNW6	WNW9	WNW10	WNW10	WNW14	WNW16	NW15	NW14	NW17	NW11	NW10	NW15	NW16	NW17	NW11	NW11	NNW13	NW13	NW13	NW12.3	NW17	

NNW1.9	NW2.2	NW2.7	NW2.6	NW2.7	NW2.0	NNW2.2	NNW2.6	N2.8	N2.3	N2.5	N1.9	N1.6	NNW1.7	NNW2.5	N2.4	N3.0	N3.1	N3.4	N3.4	N3.1	NNW2.7	NNW1.9	NNW1.7	---	Diurnal Average
WNW11	NW13	WNW16	WNW12	WNW10	NNE11	WNW13	NW20	WNW20	NW21	NW24	WNW22	NW24	NW23	NW22	NW20	NW16	NW16	NW17	NNW13	N13	N23	NW13	NW13	---	Diurnal Maximum

UO - Unstable Operation      PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Waskow ohci Pimatisiwin - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	331	46.69	46.69
6 - 11	297	41.89	88.58
12 - 19	70	9.87	98.45
20 - 28	11	1.55	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Waskow ohci Pimatisiwin - May 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	12	19	18	17	19	25	32	22	15	12	14	18	35	21	24	28	331
6 - 11	55	42	21	5	1	7	42	16	9	13	5	6	8	21	14	32	297
12 - 19	17	4	0	0	0	0	0	1	0	0	0	3	5	9	12	19	70
20 - 28	1	0	0	0	0	0	0	0	0	0	0	0	0	3	7	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>	85	65	39	22	20	32	74	39	24	25	19	27	48	54	57	79	709

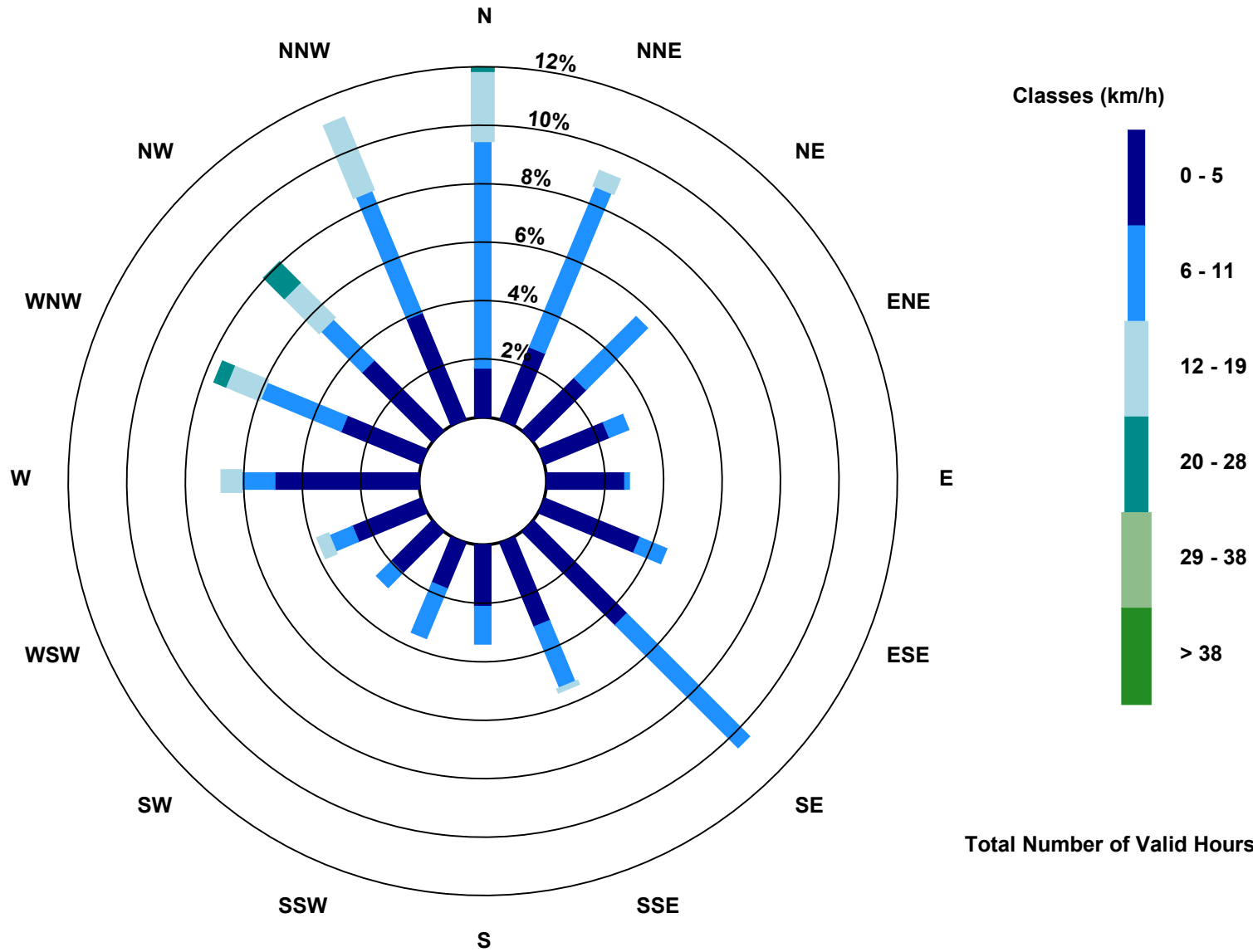
Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Waskow ohci Pimatisiwin





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Waskow ohci Pimatisiwin - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 10 22:00 Minimum Value: 0 km/h on May 4 21:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 2 Q <sub>3</sub> = 3 P <sub>90</sub> = 4 P <sub>99</sub> = 7																	Hours in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 0 Percent Operational Time: 95.3								
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-May	2	2	2	2	2	2	3	3	3	3	4	4	6	6	6	6	5	4	4	4	5	4	3	3	6
2-May	2	2	1	1	1	1	2	3	4	4	4	4	5	5	5	5	5	5	5	4	3	2	2	2	5
3-May	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	4	3	3	3	3	2	1	1	1	4
4-May	1	1	1	1	1	1	1	1	2	3	3	3	3	3	2	2	2	2	2	1	0	1	1	1	3
5-May	1	1	1	0	1	1	1	2	1	2	2	5	4	4	4	3	3	4	2	1	1	1	1	1	5
6-May	1	1	1	1	1	1	1	2	3	4	3	4	3	2	2	3	2	2	1	2	2	4	4	1	4
7-May	1	2	2	1	1	1	1	1	1	1	1	2	2	1	2	2	1	1	1	0	1	1	1	1	2
8-May	2	2	1	1	2	3	2	2	2	1	2	2	3	4	3	1	2	3	4	2	1	1	1	1	4
9-May	1	3	2	3	3	2	2	2	6	5	6	7	8	7	7	6	6	5	4	3	2	1	1	1	8
10-May	1	1	1	1	1	1	2	2	3	3	4	5	5	5	5	5	5	5	5	5	4	9	6	2	9
11-May	4	3	2	3	3	4	5	7	7	7	7	7	7	7	7	6	6	5	5	4	4	3	2	2	7
12-May	1	1	1	1	0	1	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	1
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	4	2	6	5	1	2	2	1	6
14-May	1	0	UO	1	1	1	1	2	2	3	3	4	4	5	4	4	4	4	4	3	1	1	1	1	5
15-May	1	1	1	2	2	1	1	2	2	3	3	2	2	3	2	2	4	4	3	3	3	3	3	2	4
16-May	3	2	1	3	2	2	2	2	3	3	3	3	3	3	4	3	3	4	3	3	3	3	3	4	4
17-May	3	3	3	3	3	4	4	3	3	3	3	3	4	4	4	4	4	4	4	4	3	3	3	2	4
18-May	3	3	2	2	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	2	1	2	2	2	4
19-May	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	2	3	2	3	3	3	3	2	1	3
20-May	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	2	3	1	1	1	1	1	1	3
21-May	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	2	1	2	1	2	1	1	1	2
22-May	1	1	1	1	1	1	2	2	2	2	2	3	2	2	2	2	2	1	2	2	1	1	1	1	3
23-May	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	2	1	1	1	1	3
24-May	1	1	1	1	1	2	1	1	2	3	3	3	3	3	2	2	3	2	2	1	1	1	1	1	3
25-May	1	1	1	1	1	1	2	2	3	3	4	4	4	4	4	4	3	3	3	3	2	1	1	1	4
26-May	1	1	1	1	1	1	2	2	2	3	3	3	4	3	2	3	2	2	1	1	1	1	1	1	4
27-May	1	1	1	1	1	2	1	2	1	2	3	3	4	3	3	3	2	4	1	1	1	1	1	1	4
28-May	3	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	2	2	1	1	1	2	2	3
29-May	2	2	2	1	1	2	2	2	3	3	2	2	1	4	4	5	5	4	4	4	4	3	3	2	5
30-May	2	2	1	2	3	3	2	4	4	4	3	3	3	2	2	4	2	2	4	4	2	3	4	3	4
31-May	3	5	7	5	4	3	4	4	4	6	6	5	5	6	4	4	5	5	6	4	4	4	4	4	7
Diurnal Maximum																									
UO - Unstable Operation      PF - Power Failure																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

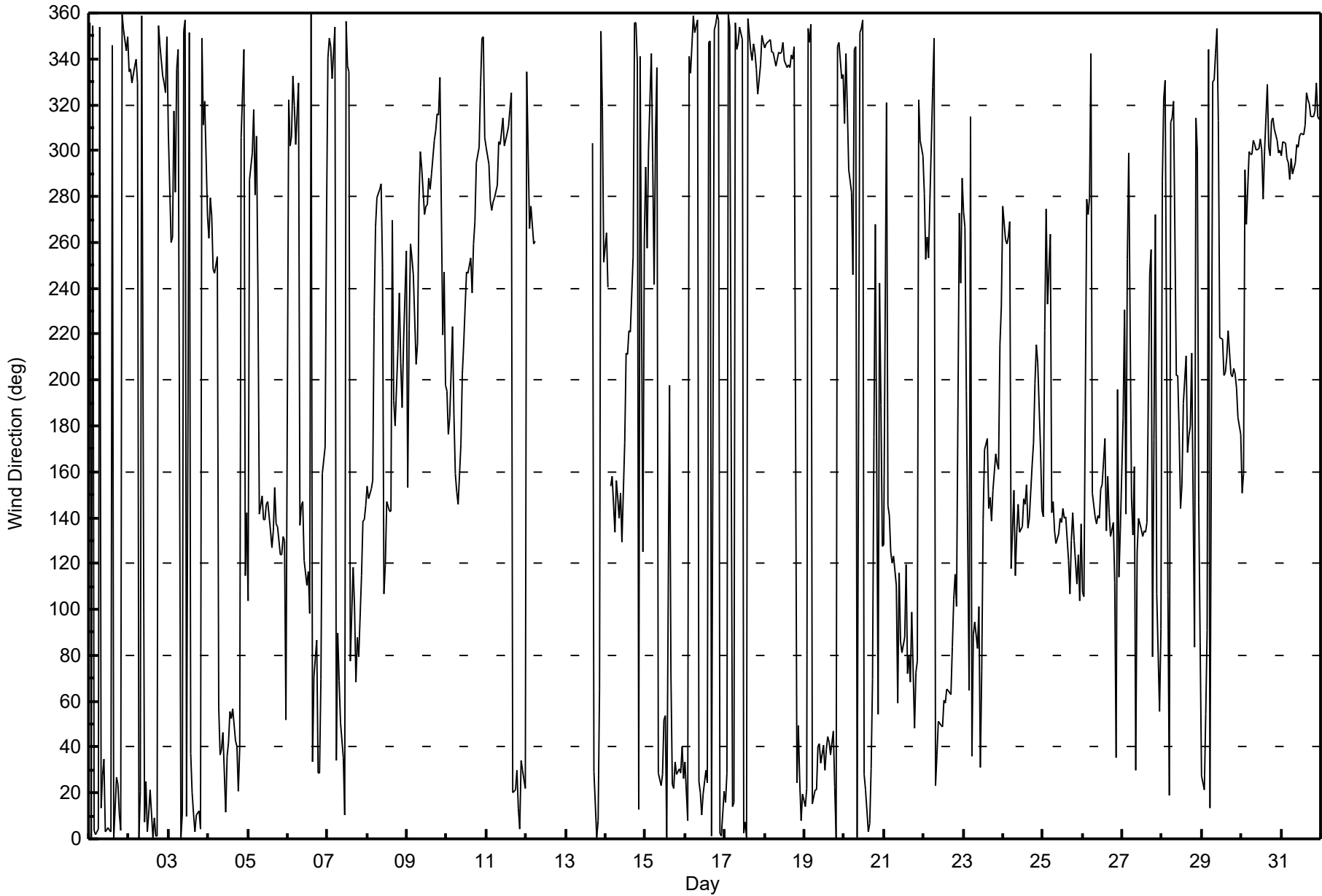
**Wind Direction (WD) - deg**  
**Waskow ohci Pimatisiwin - May 2024**

Direction of Maximum Speed: 307 deg on May 11 13:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 308.3 deg on May 31	Hours of Data: 709
Direction of Minimum Speed: 321 deg on May 21 02:00	Hours of Missing Data: 35
Direction of Minimum Daily Speed Average: 1.5 deg on May 28	Percent Operational Time: 95.3
Monthly Average Direction: 342.9 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-May	356	1	354	3	2	4	354	13	27	35	3	5	4	3	346	0	27	24	11	4	360	353	344	350	3.8
2-May	335	335	329	337	340	330	0	21	359	7	25	3	11	22	1	9	1	1	355	346	333	329	325	350	356.3
3-May	308	260	262	317	282	336	344	1	11	352	357	10	352	37	20	11	3	10	12	4	349	311	321	272	353.7
4-May	262	279	271	248	247	254	58	37	39	46	11	36	42	55	53	57	43	40	21	40	306	344	115	142	32.2
5-May	104	287	299	318	281	306	240	142	150	139	139	146	147	134	127	134	153	137	136	124	124	132	130	52	141.8
6-May	322	302	306	333	320	303	329	137	145	147	121	110	117	98	360	33	71	86	29	29	70	159	171	270	95.8
7-May	341	349	346	331	354	34	90	69	51	35	11	356	337	335	78	118	101	68	88	80	115	138	139	145	47.2
8-May	154	148	152	156	228	267	279	283	286	249	106	119	147	142	143	270	191	180	213	238	208	188	216	257	194.5
9-May	153	222	260	253	246	207	216	277	299	292	272	276	277	288	283	290	304	309	316	316	332	220	247	197	282.9
10-May	195	176	184	223	185	159	152	146	172	203	216	232	247	246	253	238	259	269	295	301	328	349	350	306	263.2
11-May	301	294	278	274	278	279	285	304	303	308	314	302	307	311	318	325	20	21	30	13	4	34	30	22	318.2
12-May	334	300	266	276	260	260	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	--
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	303	29	0	8	66	352	319	252	--
14-May	264	241	UO	154	158	134	156	149	140	151	129	173	212	211	222	221	254	356	356	338	13	341	125	262	204.1
15-May	293	258	301	343	295	242	307	336	29	23	28	52	54	1	198	72	24	22	33	28	31	29	40	26	24.7
16-May	34	8	341	334	346	359	351	357	25	20	11	20	30	25	347	348	1	353	355	359	357	2	1	21	2.4
17-May	16	29	359	354	14	16	356	344	347	354	349	3	7	1	357	344	339	346	343	336	325	337	350	347	352.7
18-May	345	347	348	349	343	343	340	337	343	342	343	347	339	336	338	336	342	340	345	24	50	25	8	19	345.4
19-May	14	22	353	347	355	16	21	21	40	41	33	41	30	39	45	42	37	47	23	0	345	347	331	333	16.7
20-May	312	342	318	292	282	246	344	345	1	352	353	357	28	21	3	7	30	70	175	268	54	242	189	128	356.8
21-May	128	321	145	141	125	120	123	111	59	116	86	81	88	120	72	80	68	99	48	72	77	322	304	298	87.2
22-May	281	252	262	253	279	327	349	23	37	51	49	49	61	59	66	64	63	84	104	115	101	273	242	288	48.3
23-May	273	267	195	65	315	36	89	94	83	102	31	73	139	169	174	144	149	138	152	167	164	161	215	232	140.0
24-May	276	261	260	262	269	118	152	115	134	146	134	136	149	146	154	135	140	163	173	198	216	208	170	143	156.1
25-May	140	222	275	233	263	142	147	134	129	133	140	138	144	140	140	121	107	130	142	130	111	124	104	137	136.2
26-May	107	105	279	272	279	342	151	140	137	141	140	152	154	175	134	158	142	132	138	112	35	196	114	135	147.6
27-May	184	231	142	253	299	148	133	162	30	125	139	135	132	134	134	138	247	257	79	174	272	107	56	92	145.7
28-May	287	323	331	106	19	312	314	322	202	202	178	144	155	190	210	168	176	180	212	84	314	299	146	85	202.1
29-May	28	21	54	91	344	14	330	330	342	353	313	218	218	202	203	210	221	203	201	205	203	196	184	176	219.9
30-May	151	159	292	268	300	299	298	305	303	300	301	305	300	279	300	329	302	298	313	314	310	305	299	300	301.5
31-May	297	304	303	296	295	287	297	290	294	303	301	306	308	307	311	325	322	320	315	315	318	330	315	314	308.3

331.8 321.6 311.6 308.1 309.8 325.5 332.3 344.0 356.5 359.2 4.6 9.5 1.7 340.9 336.2 352.8 354.1 0.1 354.5 353.8 350.0 344.5 337.7 334.6  
 Diurnal Average

UO - Unstable Operation PF - Power Failure  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Waskow ohci Pimatisiwin - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 97 deg on May 14 01:00	Hours of Data: 709
Minimum Value: 6 deg on May 4 03:00	Hours of Missing Data: 35
Percentiles: P <sub>1</sub> = 15 P <sub>10</sub> = 21 Q <sub>1</sub> = 26 Median = 32 Q <sub>3</sub> = 46 P <sub>90</sub> = 69 P <sub>99</sub> = 92	Hours of Calibration: 0
	Percent Operational Time: 95.3

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-May	20	21	20	25	20	23	22	27	28	26	30	25	28	29	23	28	31	29	26	24	23	23	21	19	31
2-May	20	14	16	23	28	29	25	27	29	34	32	27	34	37	30	30	28	27	23	20	17	16	17	24	37
3-May	40	24	36	30	76	37	18	31	31	30	33	49	43	55	43	45	42	33	29	24	20	18	19	23	76
4-May	15	14	6	22	68	74	79	61	51	41	46	45	53	37	38	46	36	39	36	31	35	65	47	27	79
5-May	72	23	19	11	52	13	73	33	35	37	34	29	25	28	33	31	40	40	26	36	40	42	32	54	73
6-May	27	62	46	19	17	27	49	77	27	26	31	26	24	52	19	33	23	24	21	18	68	28	37	77	77
7-May	25	29	60	25	40	50	19	19	25	25	23	22	18	39	45	26	38	27	19	14	28	21	20	20	60
8-May	19	21	21	32	47	30	21	27	29	86	39	33	33	34	84	84	69	60	43	40	41	21	34	89	89
9-May	65	86	30	21	27	60	70	42	26	29	38	33	32	28	31	29	31	23	23	16	53	55	31	61	86
10-May	38	45	55	91	69	52	32	28	48	49	45	47	50	46	44	45	43	39	28	26	19	24	25	18	91
11-May	18	20	21	21	26	29	32	22	23	23	22	27	26	25	24	28	32	31	30	27	25	27	31	33	33
12-May	47	20	29	25	12	33	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	47
13-May	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	PF	91	78	39	34	55	22	52	17	91
14-May	97	33	UO	27	32	44	43	30	34	32	29	48	50	48	46	49	48	30	35	39	34	85	88	72	97
15-May	81	61	42	50	83	73	92	40	34	36	43	45	46	76	66	74	35	29	29	29	27	28	28	27	92
16-May	31	36	24	17	20	25	19	22	27	30	27	29	27	29	20	22	24	22	23	26	25	26	26	26	36
17-May	26	26	26	23	28	26	25	20	21	22	21	25	27	26	25	20	18	23	20	21	18	21	26	23	28
18-May	20	22	25	23	21	20	19	20	21	19	21	23	20	22	21	19	18	18	22	28	30	30	24	24	30
19-May	24	24	22	17	20	24	28	28	28	29	29	28	31	33	30	31	32	30	32	27	19	22	27	19	33
20-May	27	22	17	25	39	60	33	26	30	30	30	30	37	34	32	33	43	48	49	93	63	87	80	63	93
21-May	47	92	85	90	38	29	34	47	56	88	30	26	33	40	29	32	35	43	33	23	69	59	43	40	92
22-May	56	78	46	63	30	33	22	38	38	37	37	34	29	31	36	41	39	27	34	31	24	91	92	59	92
23-May	44	20	39	61	39	59	34	54	40	54	83	62	48	69	80	46	47	28	37	33	39	34	61	82	83
24-May	79	39	34	34	55	63	31	43	61	41	45	37	35	59	53	48	29	37	44	38	36	91	43	32	91
25-May	43	68	83	27	28	47	28	31	30	28	30	30	31	35	32	35	34	35	34	28	30	42	51	42	83
26-May	46	77	86	16	59	54	34	29	30	30	35	38	34	56	35	45	34	33	37	33	67	49	45	51	86
27-May	73	72	85	82	49	70	32	58	77	40	32	32	31	32	34	31	74	52	78	72	75	63	51	79	85
28-May	41	53	61	77	81	92	35	59	90	94	83	61	57	69	68	47	52	54	50	69	42	72	96	83	96
29-May	51	36	45	83	60	63	56	22	23	35	93	45	61	39	41	51	53	47	40	43	43	43	39	42	93
30-May	32	41	58	47	27	28	33	28	27	29	29	26	32	39	81	30	30	26	21	18	20	27	29	29	81
31-May	29	30	27	34	36	42	30	33	34	28	31	26	28	25	27	26	21	21	20	20	21	21	21	20	42
Diurnal Maximum																									
97 92 86 91 83 92 92 77 90 94 93 62 61 76 84 84 91 78 78 93 75 91 96 89																									

UO - Unstable Operation PF - Power Failure



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS26 CHRISTINA LAKE MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
MAY 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	15.5	0	4	0
H2S (ppb) Average	708	36	36	100	1.4	0	0.3	0
NO2 (ppb) Average	705	38	39	99.87	20.2	0	7.1	-
NO (ppb) Average	705	38	39	99.87	20	-	6.1	-
NOX (ppb) Average	705	38	39	99.87	32.5	-	11.8	-
Temperature 2 m (C) Average	744	0	0	100	25.4	-	17.8	-
Relative Humidity (%) Average	744	0	0	100	99.7	-	95.9	-
Wind Speed 10 m (km/h) Average	744	0	0	100	33	-	22	-
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)  
MAY 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	1.5	-	0	0	0	0.1	0.4	1.5	15.5
H2S (ppb) Average	708	0.14	0.2	-	0	0	0	0.1	0.2	0.3	1.4
NO2 (ppb) Average	705	2.19	2.5	-	0.1	0.4	0.6	1.2	2.7	5.4	20.2
NO (ppb) Average	705	1.05	2.2	-	0	0	0.1	0.3	0.7	3.1	20
NOX (ppb) Average	705	3.24	4.4	-	0.2	0.5	0.8	1.5	3.4	8.4	32.5
Temperature 2 m (C) Average	744	9.63	5.4	-	-2.7	2.9	5.8	9.1	13.1	17.2	25.4
Relative Humidity (%) Average	744	65.99	24.1	-	15.4	32.3	47.1	66.1	90.4	96.4	99.7
Wind Speed 10 m (km/h) Average	744	11.7	6	-	0	5	7	11	15	21	33
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)  
MAY 2024

OPERATIONAL NOTES

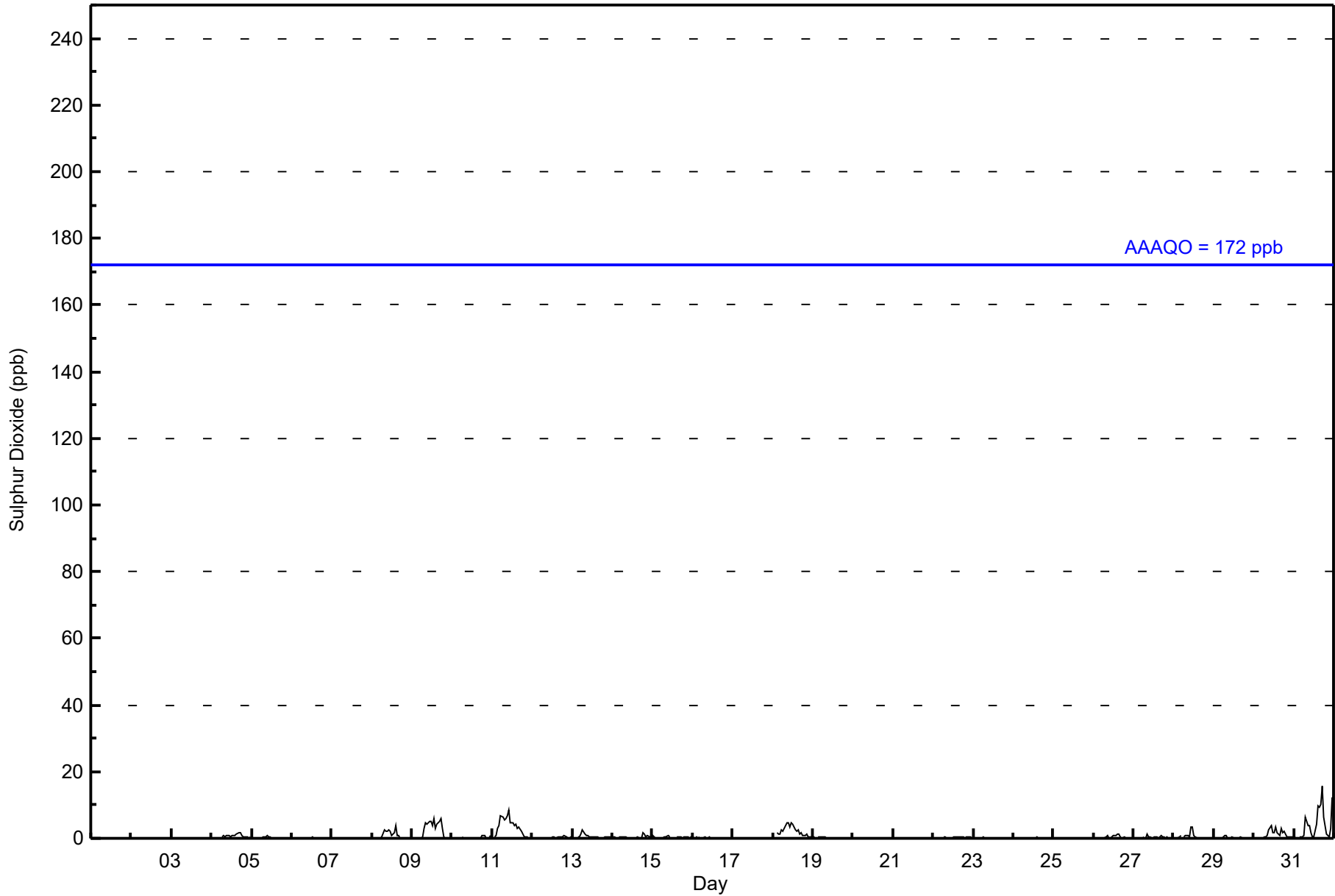
Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, SO2	23 May 2024 13:00	23 May 2024 13:00	1	Maintenance - sample manifold cleaned





Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Christina Lake - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	707	99.72	99.72
11 - 20	2	0.28	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - May 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	6	41	79	40	70	69	63	45	21	32	26	52	57	46	50	10	707
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	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>	6	41	79	40	70	69	63	45	21	32	26	52	57	46	52	10	709

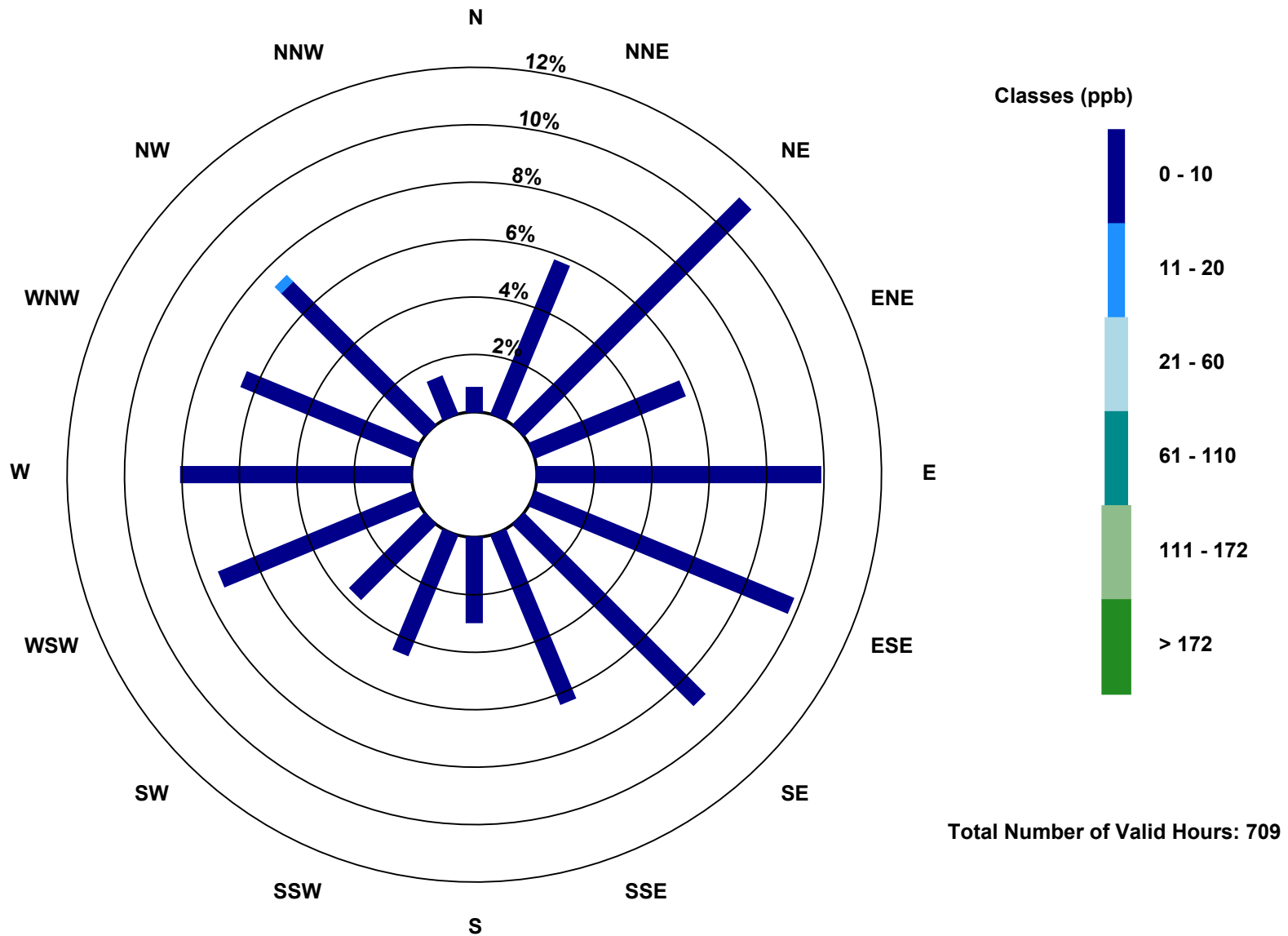
Total Number of Valid Hours: 709

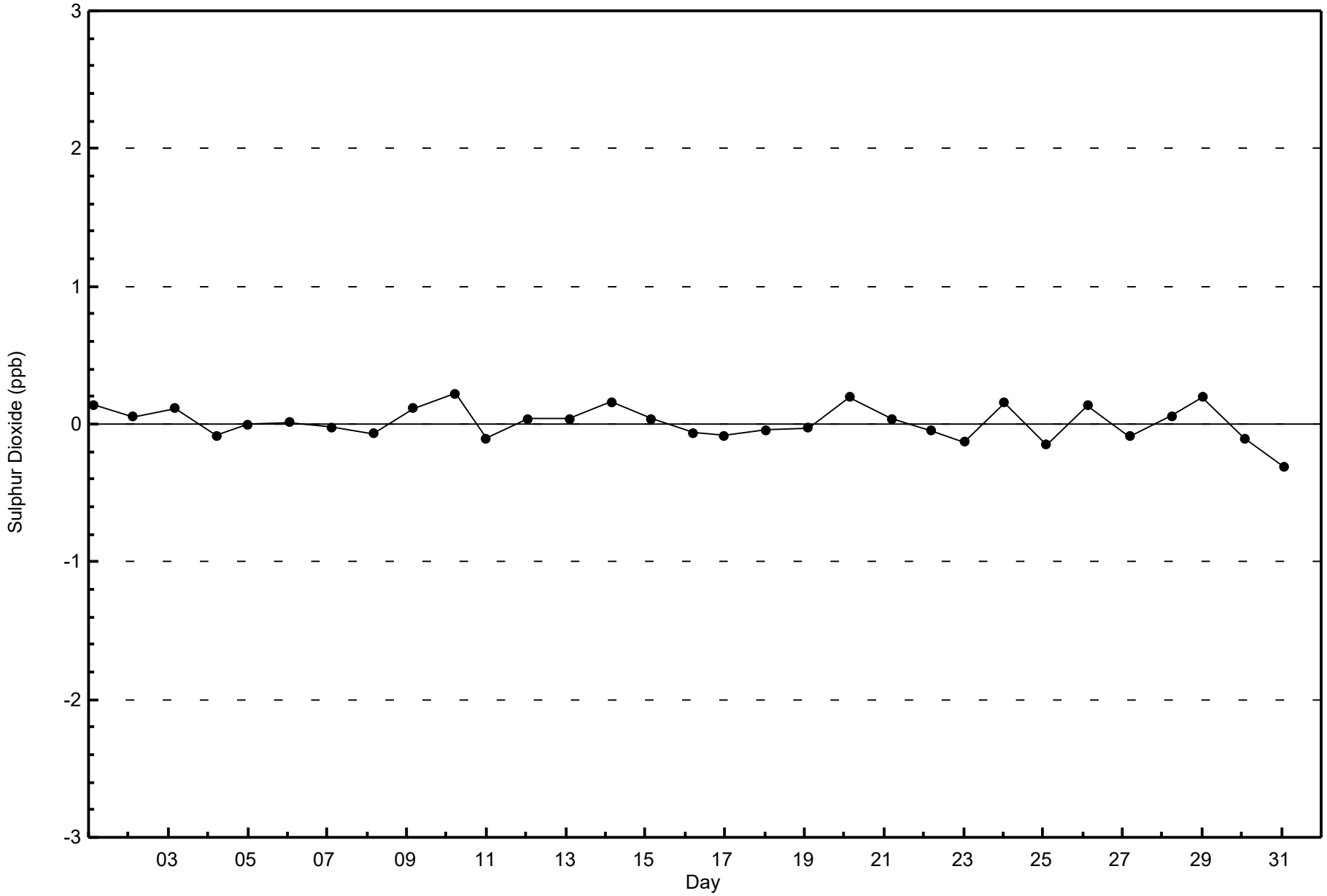
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Christina Lake



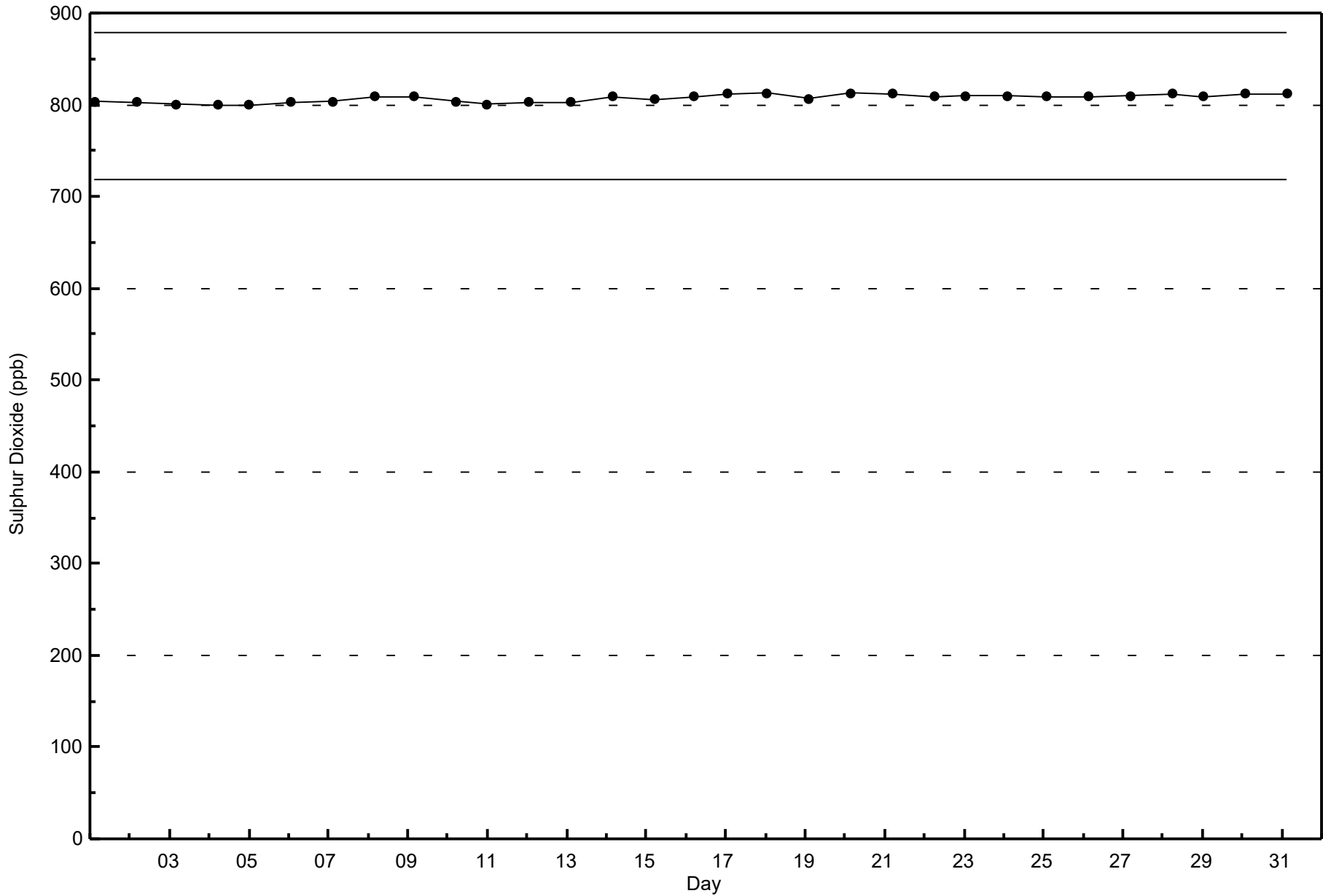






**Wood Buffalo Environmental Association**  
**Span Responses**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Christina Lake - May 2024**





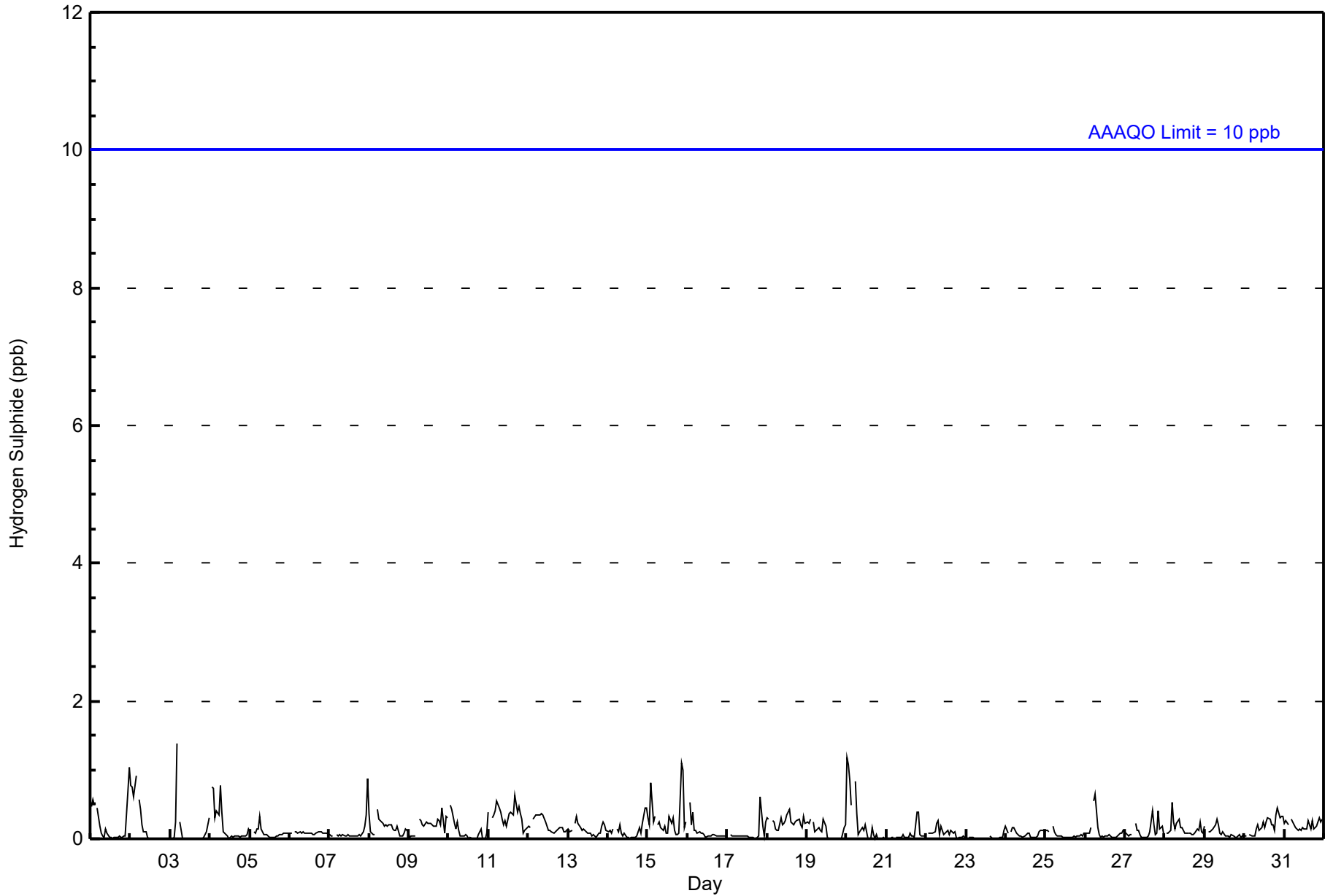
Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb

Christina Lake - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744				
Maximum Value: 1.4 ppb on May 3 05:00		Maximum Daily Average: 0.3 ppb on May 11		Hours of Data: 708																708						
Minimum Value: 0.0 ppb on May 2 12:00		Minimum Daily Average: 0.0 ppb on May 23		Hours of Missing Data: 36																36						
Maximum Diurnal Average: 0.2 ppb at hour 2		Minimum Diurnal Average: 0.1 ppb at hour 15		Hours of Calibration: 36																36						
Monthly Average: 0.14 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 0.9		Percent Operational Time: 100.0																100.0						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	0.5	0.6	0.5	Z	0.4	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	1.0	0.2	1.0
2-May	0.8	0.8	0.6	0.9	Z	0.6	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	0.0	0.0	0.0	0.0	0.2	0.9
3-May	0.0	0.0	0.0	0.2	1.4	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	0.1	0.1	0.3	0.1	1.4
4-May	Z	0.7	0.7	0.3	0.4	0.3	0.8	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.8
5-May	0.1	Z	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
6-May	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
7-May	0.1	0.0	0.0	Z	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	0.0	0.1	0.0	0.1	0.2	0.3	0.9	0.1	0.9
8-May	0.4	0.1	0.1	0.1	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.4
9-May	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.1	0.3	0.3	0.2	0.4
10-May	Z	0.5	0.4	0.2	0.1	0.3	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	0.0	0.0	0.0	0.1	0.1	0.5
11-May	0.4	Z	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.2	0.3	0.2	0.4	0.4	0.4	0.4	0.6	0.4	0.5	0.4	0.3	0.1	0.1	0.2	0.3	0.6
12-May	0.2	0.2	Z	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.4
13-May	0.1	0.1	0.1	Z	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.3
14-May	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.5	0.4	0.1	0.5
15-May	0.3	0.2	0.8	0.2	0.3	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.2	0.3	0.1	0.1	0.1	0.1	1.1	1.0	0.2	0.3	0.3	1.1
16-May	Z	0.5	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
17-May	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	0.6	0.2	0.0	0.3	0.1	0.6
18-May	0.3	0.3	Z	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.3	0.4	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.4
19-May	0.2	0.2	0.3	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.3
20-May	1.2	1.1	0.8	0.5	Z	0.8	0.4	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.2
21-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.1	0.0	0.0	0.0	0.1	0.4
22-May	Z	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
23-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
24-May	0.2	0.1	Z	0.1	0.2	0.2	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	0.1	0.1	0.1	0.1	0.1	0.2
25-May	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2
26-May	0.1	0.1	0.1	0.2	Z	0.5	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.6
27-May	0.1	0.1	0.0	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.1	0.1	0.4	0.1	0.2	0.1	0.1	0.4
28-May	Z	0.1	0.1	0.1	0.5	0.2	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.5
29-May	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.2	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	0.0	0.1	0.1	0.3
30-May	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.3	0.5	0.3	0.3	0.3	0.2	0.5
31-May	0.2	0.3	0.2	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.3	0.1	0.2	0.2	0.3	0.2	0.3	0.2	0.3
																								Diurnal Average		
																								Diurnal Maximum		
																								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**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Christina Lake - May 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  
Christina Lake - May 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	7	39	79	38	69	72	63	44	22	31	28	51	56	46	52	11	708
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>	7	39	79	38	69	72	63	44	22	31	28	51	56	46	52	11	708

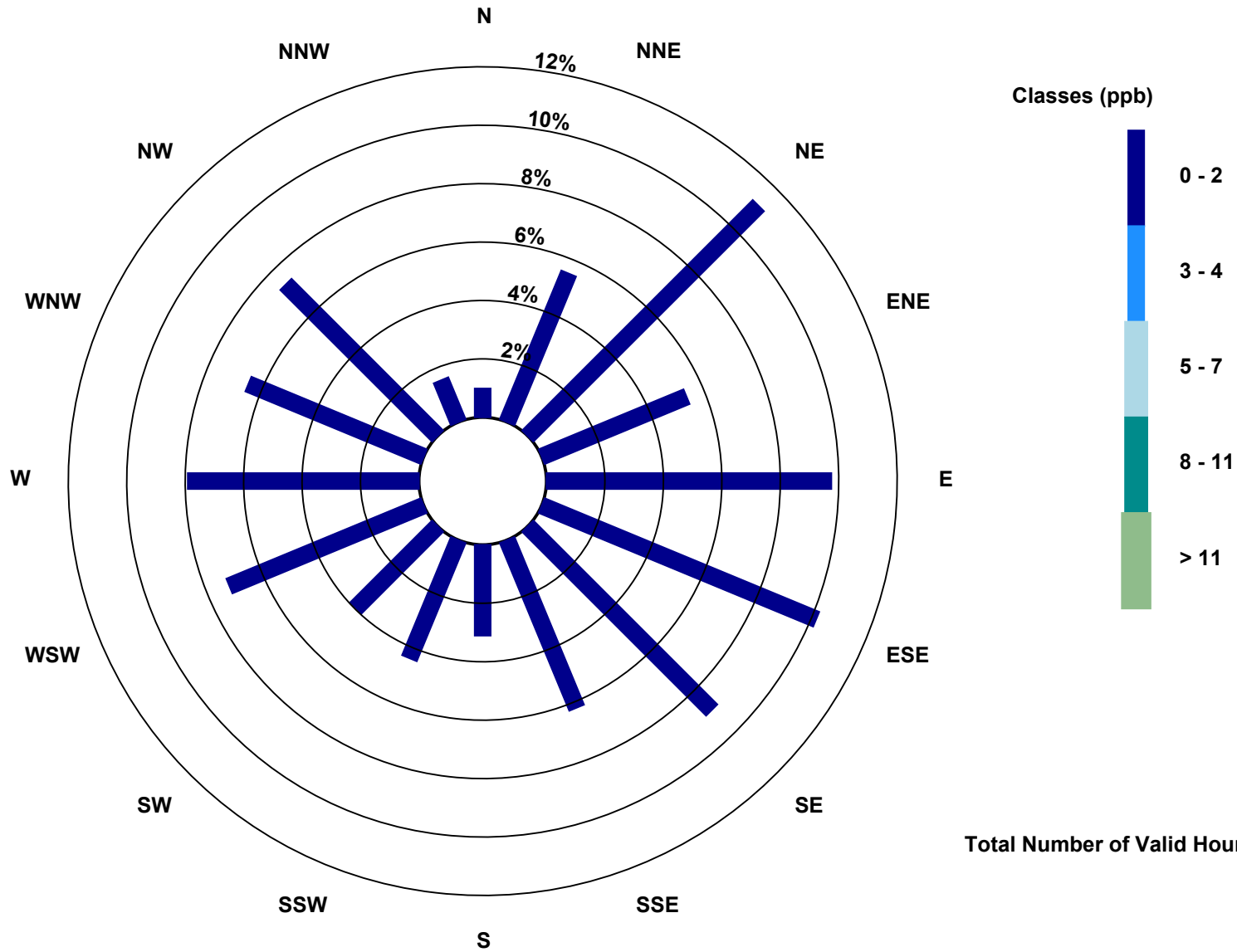
Total Number of Valid Hours: 708

Total Number of Hours: 744

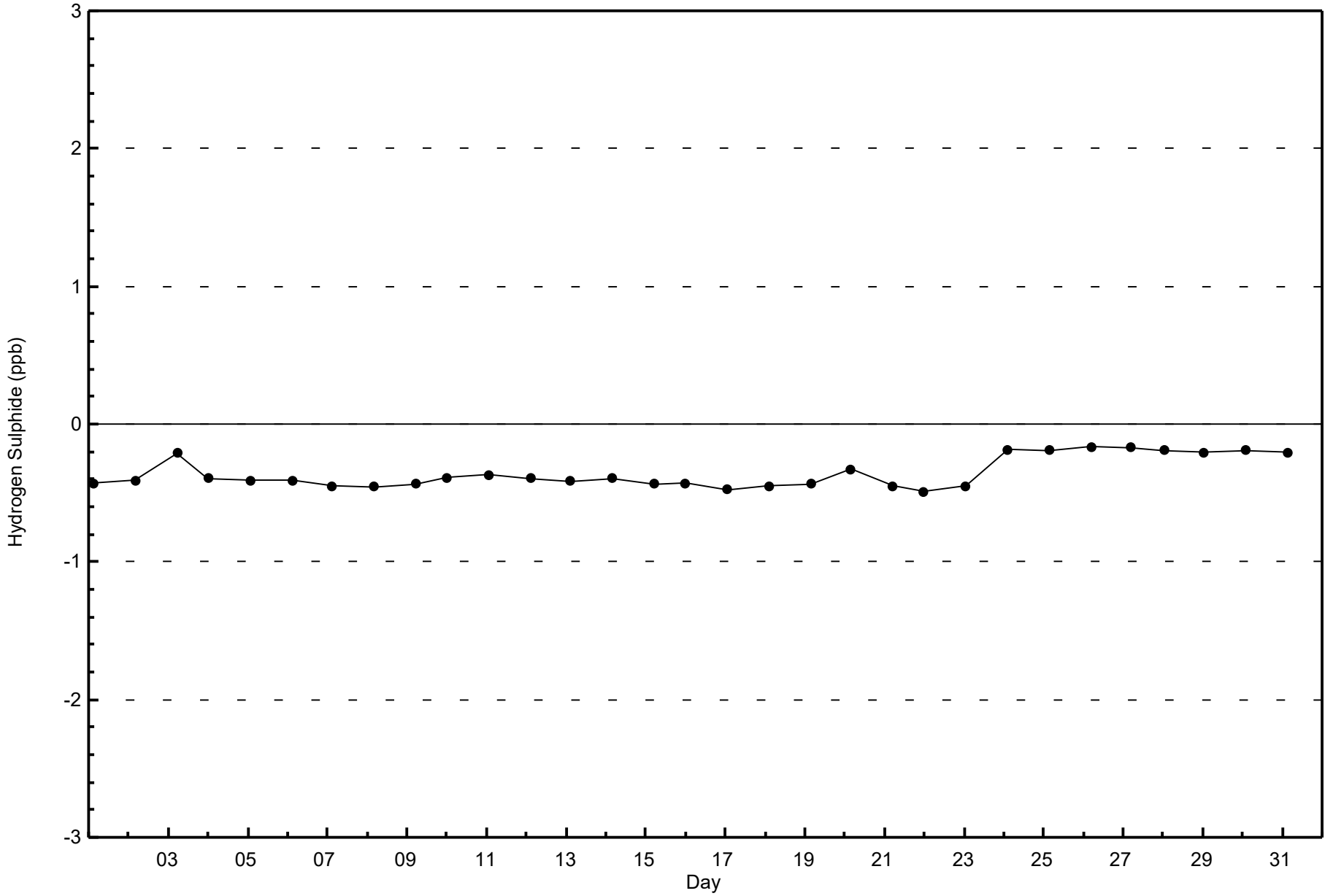


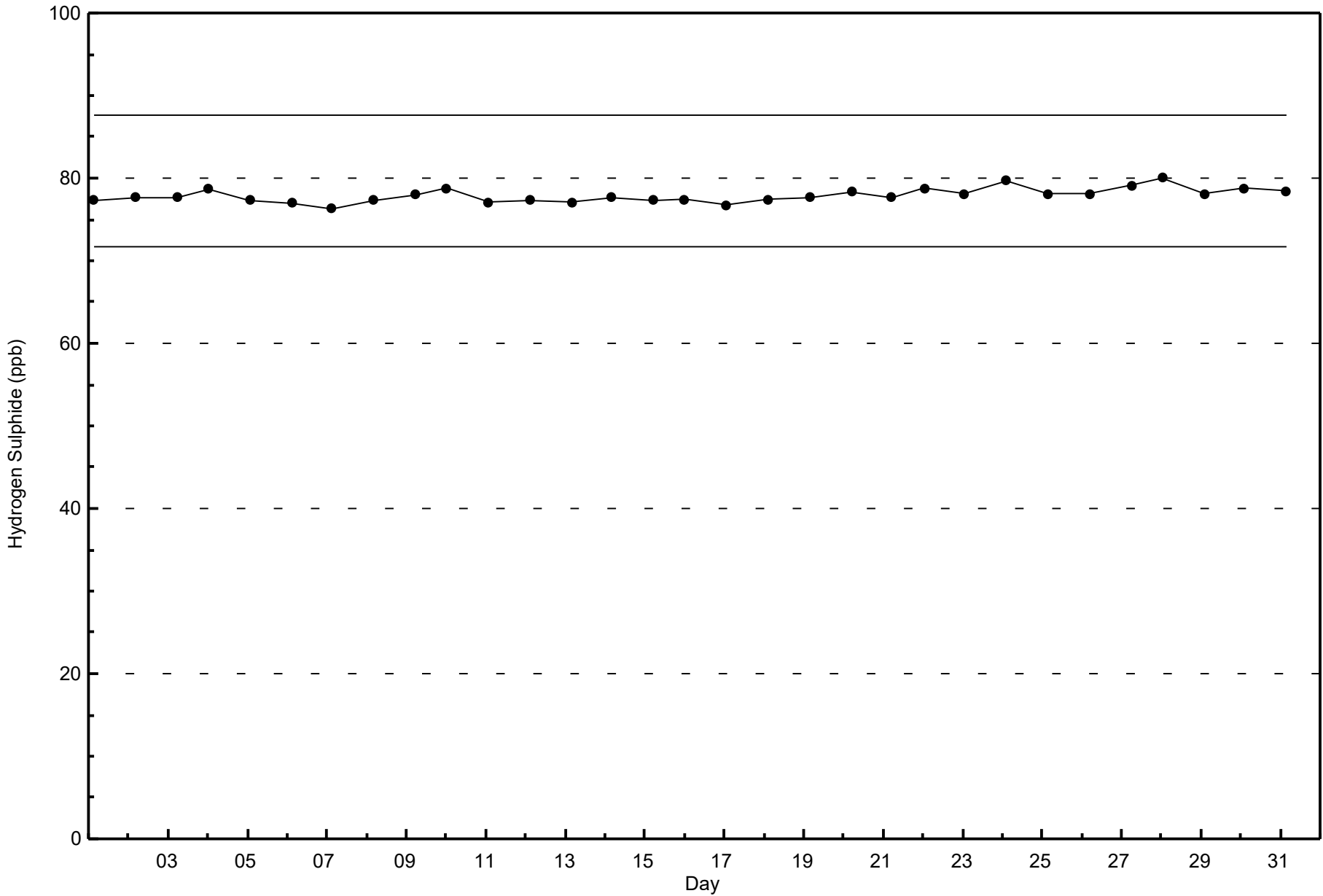
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Christina Lake



Total Number of Valid Hours: 708









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

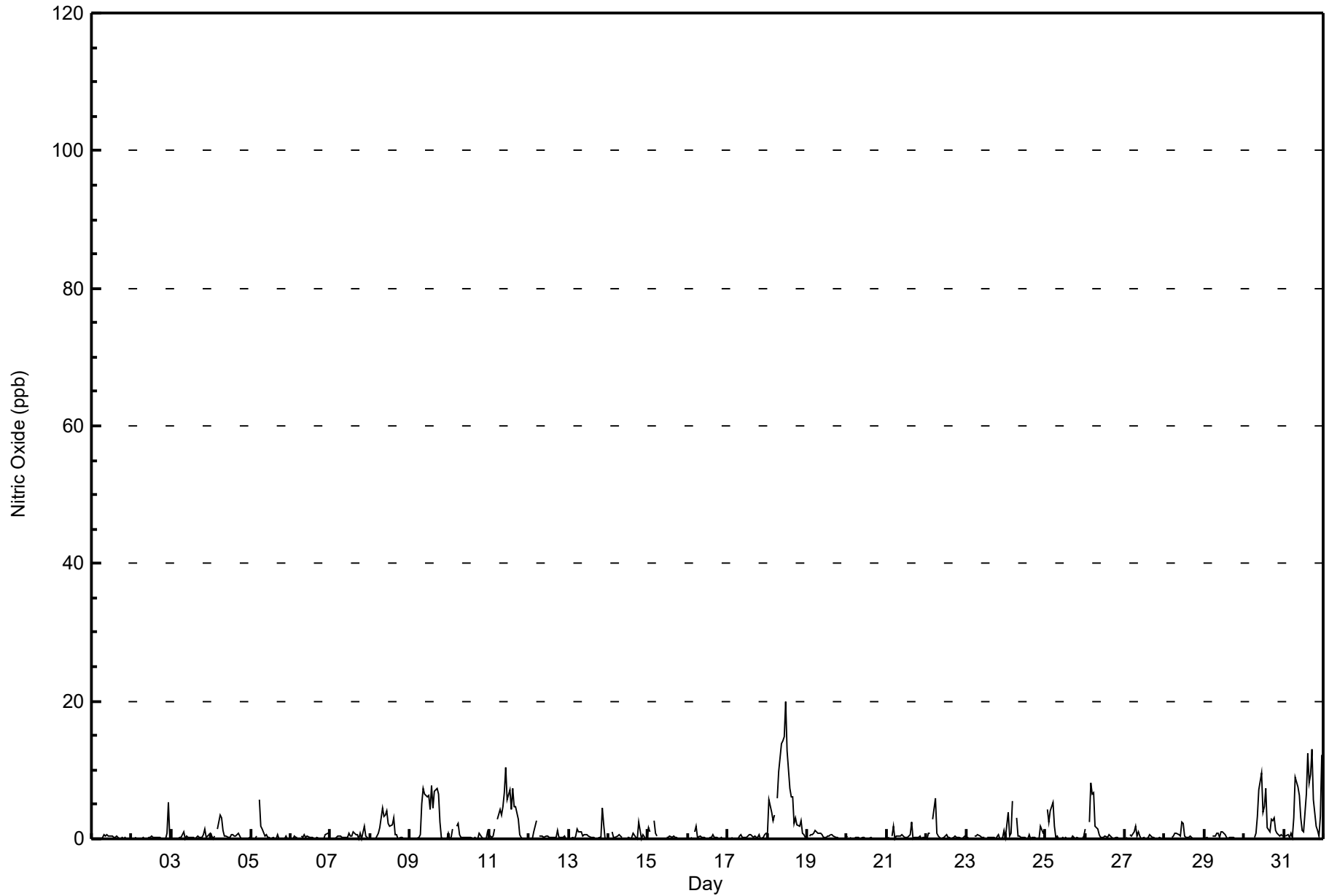
**Nitric Oxide (NO) - ppb**  
**Christina Lake - May 2024**

Maximum Value: 20.0 ppb on May 18 12:00		Maximum Daily Average: 6.1 ppb on May 18		Hours in Service: 744																											
Minimum Value: 0.0 ppb on May 5 20:00		Minimum Daily Average: 0.1 ppb on May 20		Hours of Data: 705																											
Maximum Diurnal Average: 1.9 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 1		Hours of Missing Data: 39																											
Monthly Average: 1.05 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.1 Median = 0.3 Q <sub>3</sub> = 0.7 P <sub>90</sub> = 3.1 P <sub>99</sub> = 12.2		Hours of Calibration: 38																											
				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-May	Z	0.0	0.1	0.0	0.0	0.0	0.2	0.6	0.3	0.6	0.3	0.3	0.4	0.2	0.3	0.4	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.2	0.6					
2-May	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.8	5.2	0.0	0.4	5.2					
3-May	0.0	0.0	Z	0.0	0.1	0.1	0.1	1.1	0.1	0.4	0.2	0.2	0.3	0.1	0.1	0.2	0.4	0.2	0.2	0.7	1.5	0.3	0.5	0.8	0.3	1.5					
4-May	0.4	0.0	0.5	Z	1.4	3.4	3.0	1.2	0.4	0.5	0.3	0.3	0.6	0.5	0.4	0.4	0.8	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.6	3.4					
5-May	0.1	0.0	0.0	0.4	Z	5.6	1.9	1.4	0.5	0.5	0.2	0.1	0.1	0.2	0.1	0.1	0.6	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.5	5.6					
6-May	0.0	0.0	0.4	0.2	0.1	Z	0.3	0.3	0.5	0.3	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.6	0.8	0.8	0.3	0.8					
7-May	Z	0.0	0.0	0.1	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.8	0.4	0.4	1.0	0.6	0.6	0.1	0.9	0.0	1.8	0.5	0.2	0.0	0.4	1.8					
8-May	0.1	Z	0.0	0.1	0.4	0.8	1.7	4.5	3.2	3.4	4.0	2.3	1.8	2.0	3.1	0.6	0.5	0.1	0.2	0.3	0.0	0.0	0.0	0.0	1.3	4.5					
9-May	0.0	0.0	Z	0.0	0.0	0.1	0.6	5.1	7.2	6.4	6.2	6.4	4.3	7.7	4.4	7.0	7.2	6.5	2.4	0.2	0.0	0.0	0.0	0.9	3.2	7.7					
10-May	0.1	0.2	1.5	Z	1.9	2.3	0.6	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.8	0.3	0.0	0.0	0.0	1.1	0.5	2.3					
11-May	0.5	0.1	0.5	1.4	Z	2.9	4.3	3.5	4.7	6.8	10.3	5.7	7.2	4.4	7.4	4.8	4.6	2.8	0.7	0.3	0.0	0.0	0.0	0.0	3.2	10.3					
12-May	0.0	0.0	0.0	1.1	2.6	Z	0.5	0.5	0.5	0.2	0.5	0.3	0.1	0.1	0.2	0.1	0.3	1.2	0.2	0.1	0.1	0.4	0.0	0.0	0.4	2.6					
13-May	Z	0.1	0.2	0.0	0.5	1.4	1.0	1.0	0.5	0.5	0.6	0.6	0.3	0.3	0.1	0.1	0.0	0.1	0.2	0.2	4.5	2.0	0.0	0.0	0.6	4.5					
14-May	0.0	Z	1.0	0.1	0.1	0.4	0.6	0.4	0.3	C	C	0.1	0.1	0.1	0.1	0.8	0.1	0.1	2.5	1.2	0.1	0.5	0.1	0.0	0.4	2.5					
15-May	1.6	0.9	Z	2.7	0.8	0.4	C	C	C	C	C	0.1	0.2	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	2.7					
16-May	0.1	0.1	0.1	Z	1.1	1.8	0.3	0.5	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.7	0.3	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.3	1.8					
17-May	0.0	0.0	0.1	0.1	Z	0.1	0.0	0.3	0.5	0.3	0.1	0.3	0.4	0.6	0.6	0.2	0.5	0.2	0.3	0.7	0.0	0.1	0.7	0.9	0.3	0.9					
18-May	0.7	5.7	3.8	2.7	3.4	Z	5.9	9.8	13.9	14.2	14.8	20.0	12.8	7.4	6.1	6.1	2.2	3.1	2.0	1.9	2.7	0.9	0.5	0.2	6.1	20.0					
19-May	Z	0.4	0.6	0.6	0.8	1.2	0.8	0.7	0.7	0.6	0.3	0.2	0.4	0.4	0.6	0.5	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.4	1.2					
20-May	0.4	Z	0.3	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4					
21-May	0.1	0.1	Z	0.4	1.9	0.1	0.3	0.4	0.4	0.5	0.4	0.3	0.2	0.5	0.6	2.3	0.1	0.2	0.2	0.1	0.3	0.0	0.2	0.2	0.4	2.3					
22-May	0.0	0.7	0.7	Z	2.8	5.8	0.9	0.5	0.1	0.1	0.2	0.3	0.6	0.2	0.3	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.3	0.6	5.8					
23-May	0.1	0.3	0.0	0.1	Z	0.3	0.4	0.6	0.3	0.3	0.1	0.2	M	0.3	0.2	0.1	0.2	0.1	0.1	0.7	0.1	0.0	0.1	1.2	0.3	1.2					
24-May	0.1	3.8	0.4	0.8	5.4	Z	3.0	0.3	0.4	0.1	0.2	0.1	0.0	0.0	0.5	0.0	0.3	0.3	0.1	0.0	0.0	1.8	0.9	0.8	0.8	5.4					
25-May	Z	4.3	2.5	4.0	5.2	1.9	0.3	0.3	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.1	0.3	0.2	0.0	0.2	0.0	0.0	0.1	0.4	0.9	5.2					
26-May	1.5	Z	2.5	8.1	6.5	6.7	1.9	1.4	0.7	0.1	0.2	0.2	0.4	0.3	0.5	0.4	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	1.4	8.1					
27-May	0.0	0.1	Z	0.6	0.4	1.1	1.8	0.4	0.9	0.3	0.1	0.2	0.1	0.1	0.1	0.5	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.3	1.8					
28-May	0.0	0.0	0.0	Z	0.2	0.3	0.7	0.9	0.6	0.3	2.5	2.2	0.4	0.1	0.1	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.4	2.5					
29-May	0.0	0.1	0.0	0.0	Z	0.5	0.4	0.8	0.8	0.3	0.9	1.0	0.5	0.3	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0					
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.8	3.3	7.2	9.5	3.8	4.7	7.4	1.6	1.0	2.8	2.6	3.1	1.3	0.9	0.4	0.6	0.5	2.2	9.5					
31-May	Z	0.5	0.6	0.2	0.8	0.3	3.1	8.9	7.5	6.3	3.1	1.1	1.1	6.6	12.5	8.2	9.4	13.1	5.6	1.8	1.1	0.4	3.3	12.3	4.7	13.1					
		0.2	0.7	0.6	0.9	1.4	1.5	1.2	1.6	1.6	1.8	1.9	1.6	1.3	1.3	1.4	1.2	1.1	1.1	0.7	0.3	0.5	0.3	0.4	0.7	Diurnal Average					
		1.6	5.7	3.8	8.1	6.5	6.7	5.9	9.8	13.9	14.2	14.8	20.0	12.8	7.7	12.5	8.2	9.4	13.1	5.6	1.9	4.5	2.0	5.2	12.3	Diurnal Maximum					
Z - zerospan		C - Calibration			M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Christina Lake - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Christina Lake - May 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  
Christina Lake - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	8	41	79	40	70	70	63	42	22	31	28	50	55	44	51	11	705
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>8</b>	<b>41</b>	<b>79</b>	<b>40</b>	<b>70</b>	<b>70</b>	<b>63</b>	<b>42</b>	<b>22</b>	<b>31</b>	<b>28</b>	<b>50</b>	<b>55</b>	<b>44</b>	<b>51</b>	<b>11</b>	<b>705</b>

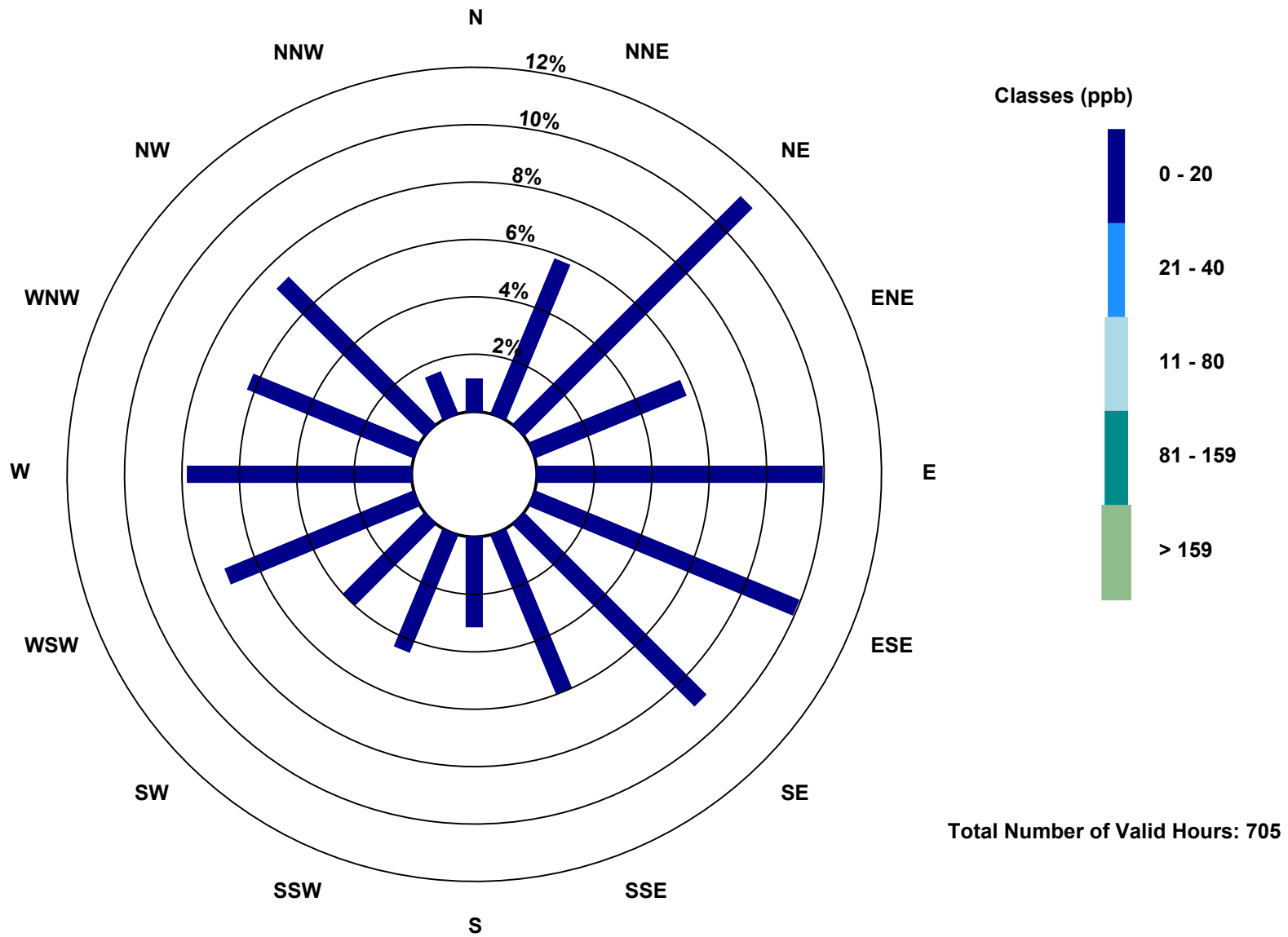
Total Number of Valid Hours: 705

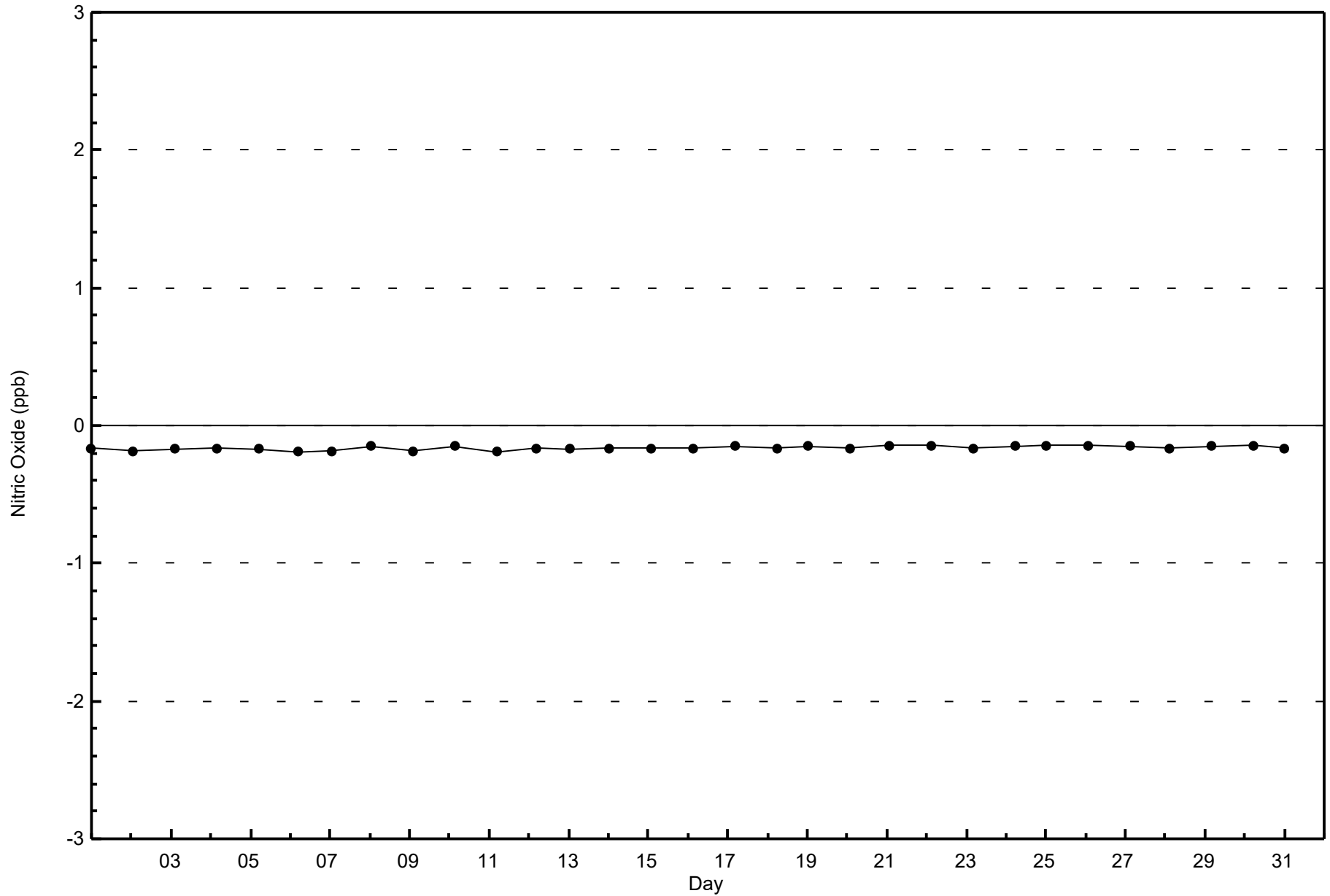
Total Number of Hours: 744

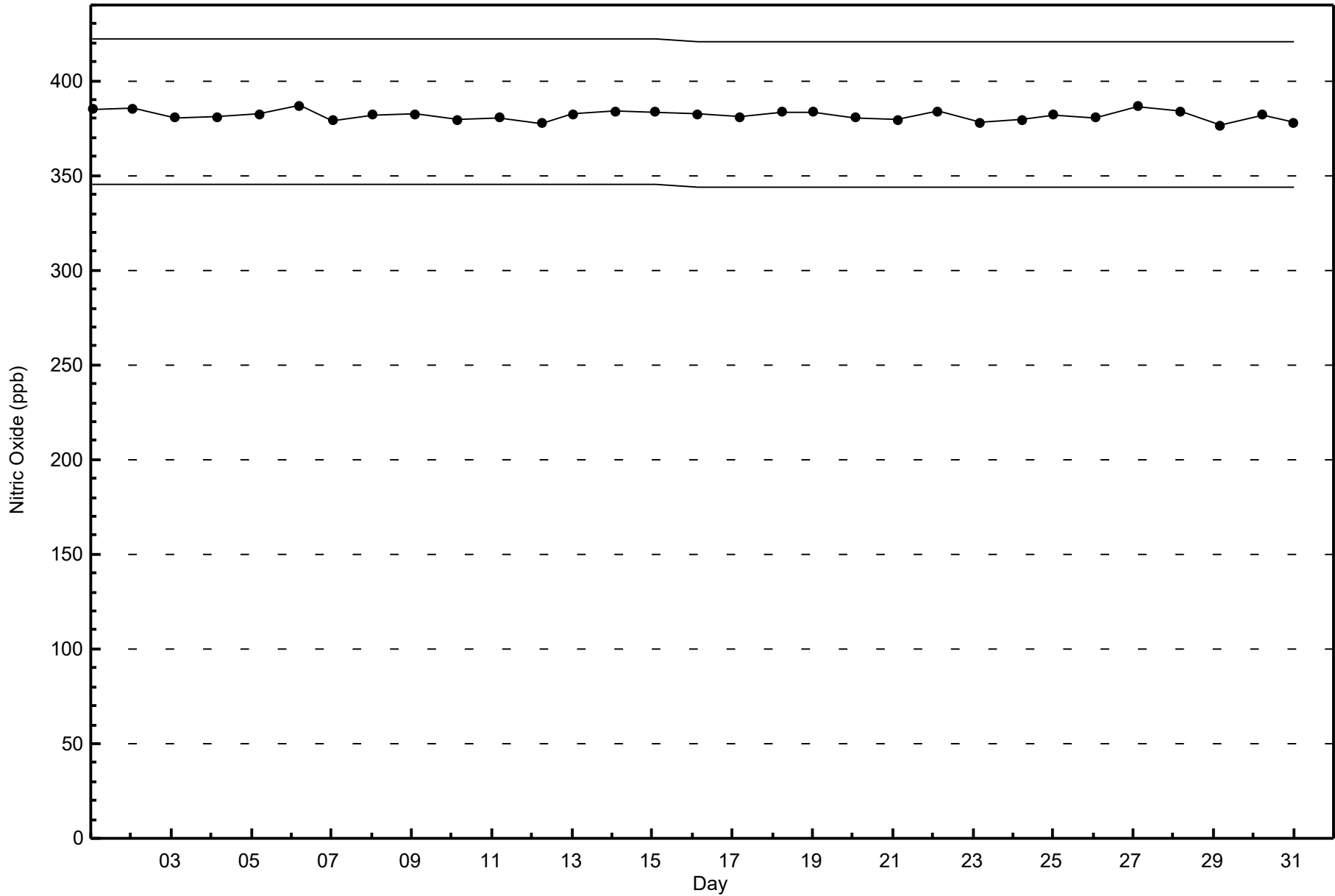


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Christina Lake







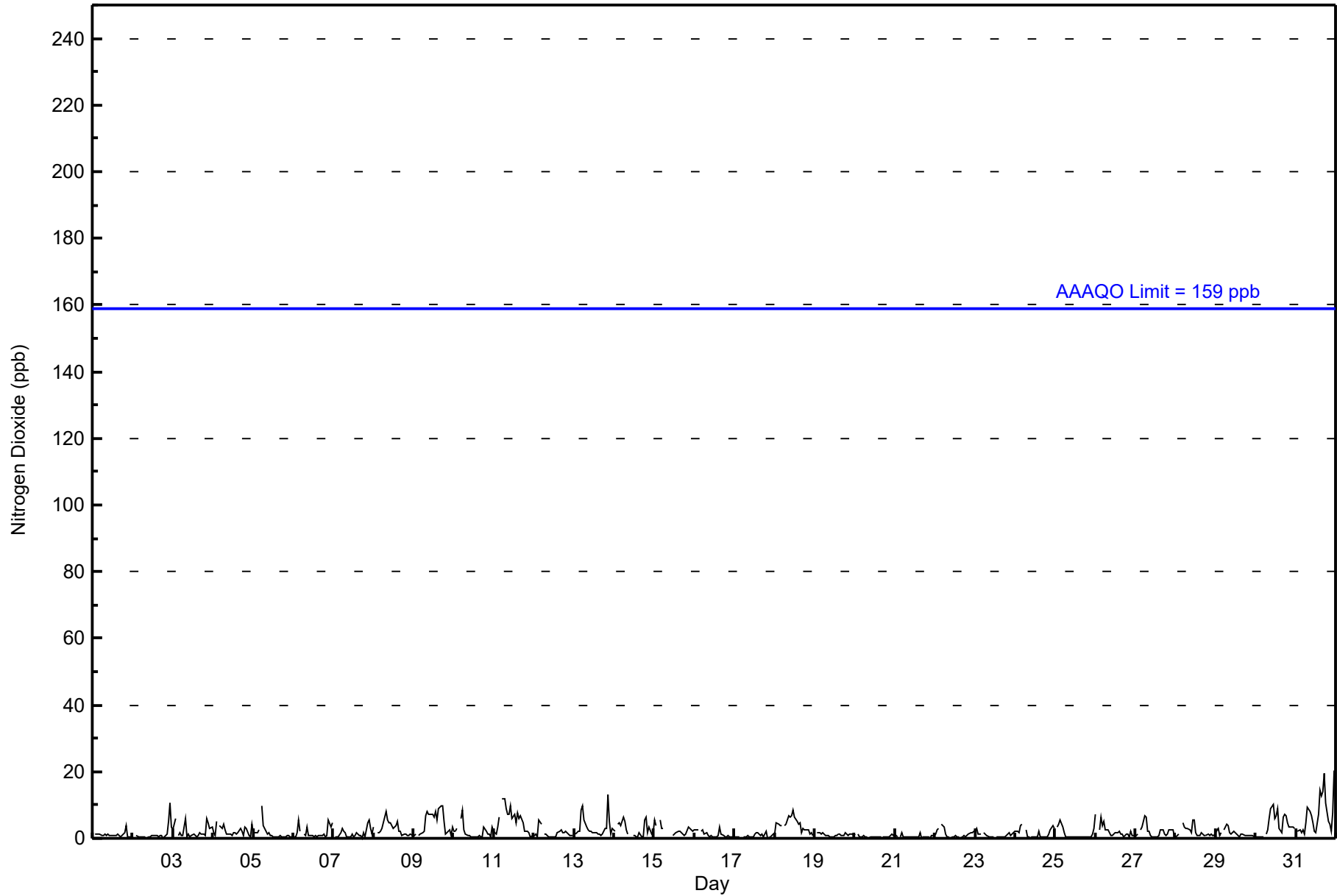






Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Christina Lake - May 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  
Christina Lake - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 20	8	41	79	40	70	70	63	42	22	31	28	50	55	44	51	11	705
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>8</b>	<b>41</b>	<b>79</b>	<b>40</b>	<b>70</b>	<b>70</b>	<b>63</b>	<b>42</b>	<b>22</b>	<b>31</b>	<b>28</b>	<b>50</b>	<b>55</b>	<b>44</b>	<b>51</b>	<b>11</b>	<b>705</b>

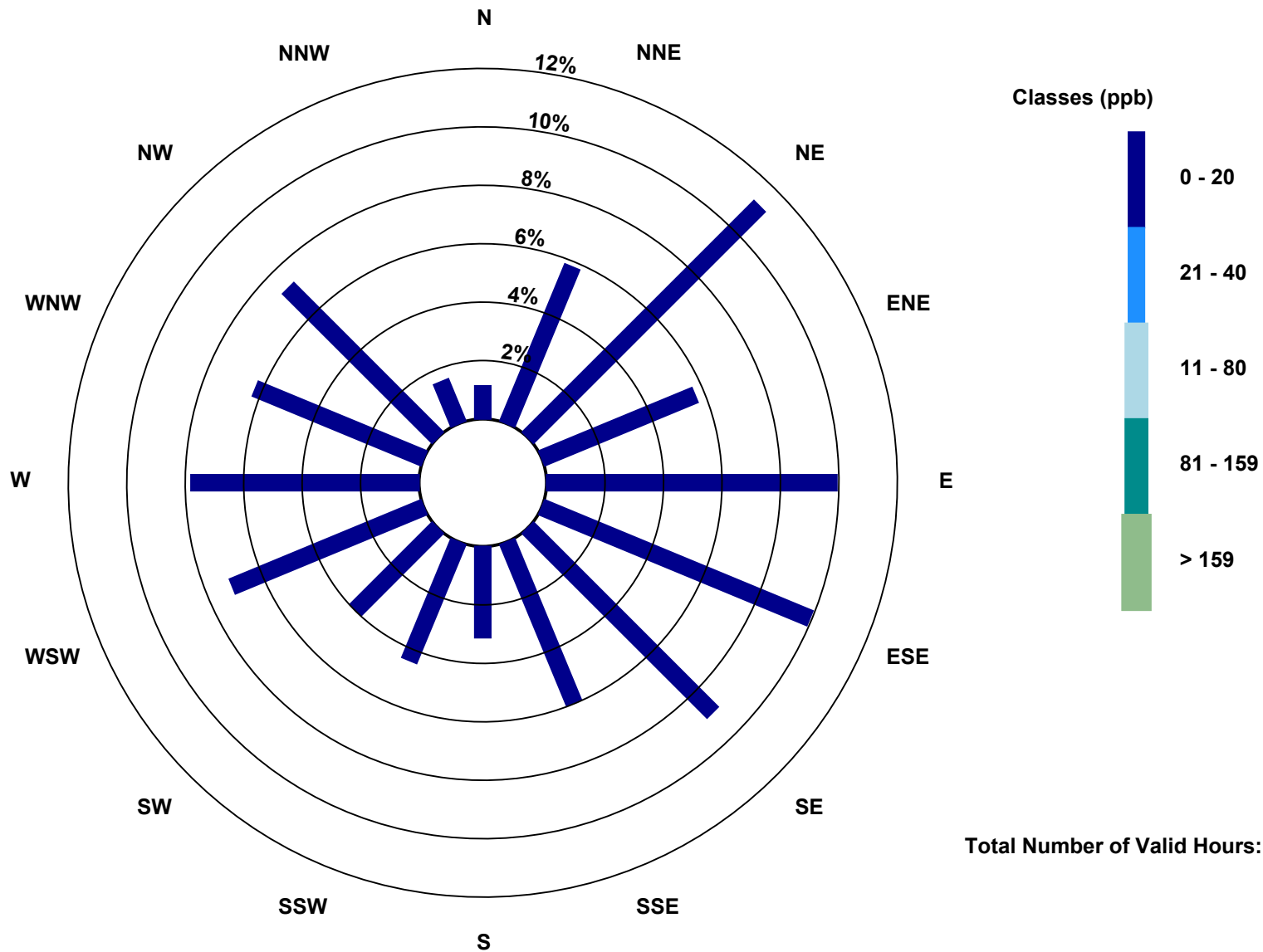
Total Number of Valid Hours: 705

Total Number of Hours: 744

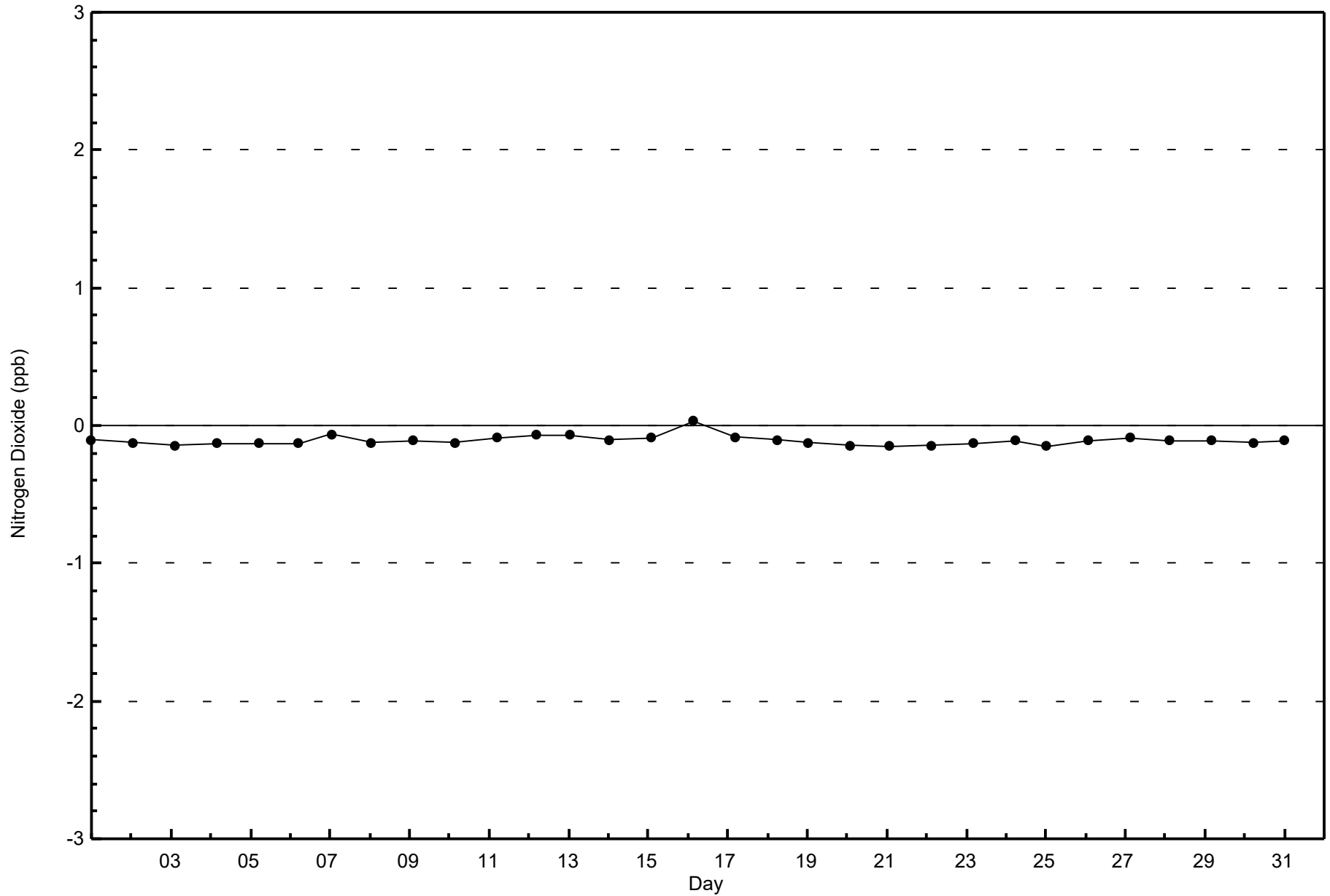


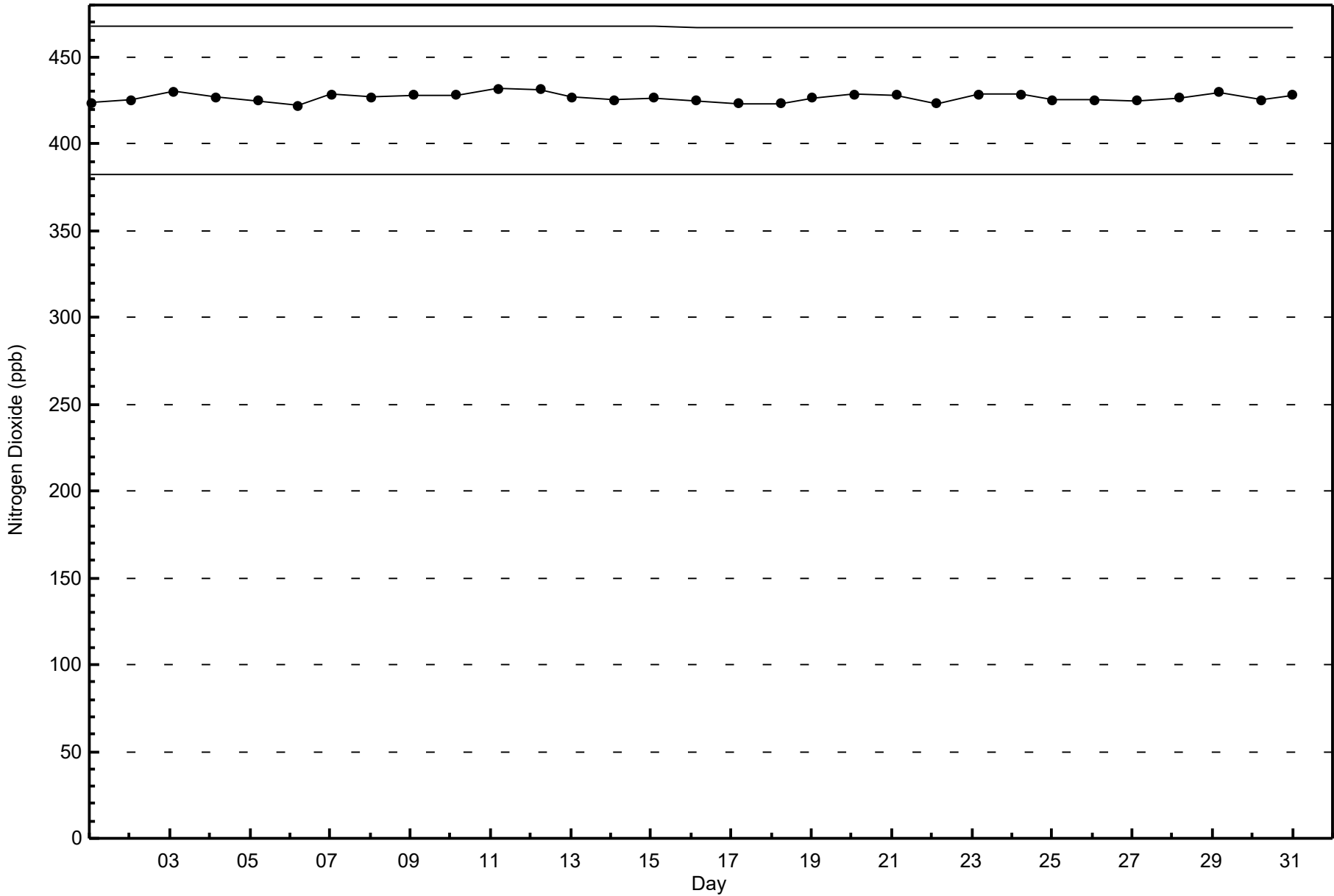
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Christina Lake



Total Number of Valid Hours: 705







**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

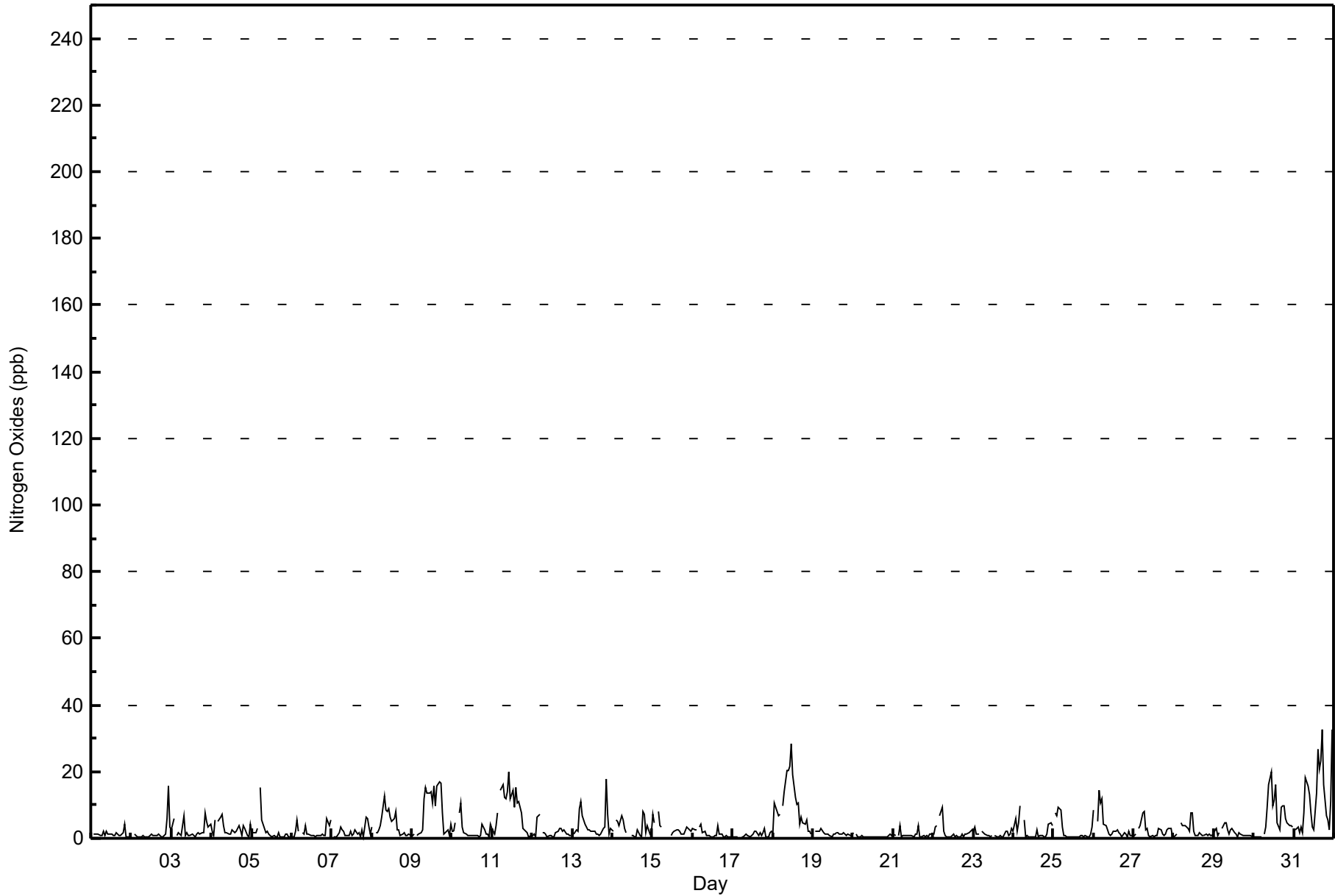
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - May 2024**

Maximum Value: 32.5 ppb on May 31 18:00		Maximum Daily Average: 11.8 ppb on May 31		Hours in Service: 744																								
Minimum Value: 0.2 ppb on May 2 19:00		Minimum Daily Average: 0.6 ppb on May 20		Hours of Data: 705																								
Maximum Diurnal Average: 5.0 ppb at hour 6		Minimum Diurnal Average: 2.0 ppb at hour 20		Hours of Missing Data: 39																								
Monthly Average: 3.24 ppb		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.5 Q <sub>1</sub> = 0.8 Median = 1.5 Q <sub>3</sub> = 3.4 P <sub>90</sub> = 8.4 P <sub>99</sub> = 20.5		Hours of Calibration: 38																								
				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-May	Z	1.2	1.3	1.1	1.1	0.8	0.9	2.0	1.0	1.9	1.1	1.1	1.4	0.9	1.0	1.7	0.7	0.8	1.4	1.9	4.3	0.4	0.6	0.4	1.3	4.3		
2-May	0.4	Z	1.1	0.6	0.6	0.4	0.5	0.7	0.3	0.4	0.6	0.9	1.3	0.9	0.9	0.8	1.1	0.9	0.2	0.3	1.1	6.0	15.6	3.3	1.7	15.6		
3-May	2.5	6.0	Z	0.8	1.7	1.1	1.0	6.9	0.7	1.8	0.8	0.9	1.4	1.1	0.5	1.2	1.9	1.4	1.5	1.6	7.5	5.0	3.3	4.4	2.4	7.5		
4-May	2.2	0.9	5.5	Z	5.3	6.2	7.4	3.9	1.7	1.8	1.4	1.2	2.4	2.3	1.8	2.2	3.7	2.4	1.0	3.6	3.1	0.7	0.5	4.3	2.9	7.4		
5-May	1.8	1.6	1.9	3.1	Z	15.3	5.6	4.2	1.7	2.1	1.1	1.0	0.6	0.8	0.6	0.6	1.6	0.5	0.5	0.4	1.1	1.3	0.4	0.5	2.1	15.3		
6-May	0.5	0.5	2.3	5.6	2.3	Z	1.7	1.3	3.7	1.2	1.4	0.9	0.7	0.9	0.6	0.8	0.9	0.8	1.2	0.7	0.8	6.1	4.0	5.6	1.9	6.1		
7-May	Z	0.4	0.4	0.5	1.9	3.4	2.4	2.0	0.8	0.7	0.9	1.9	0.9	1.2	2.7	1.3	1.5	0.3	2.6	0.4	6.4	5.9	3.3	1.1	1.9	6.4		
8-May	3.4	Z	1.8	1.8	2.7	3.7	6.4	12.6	8.7	8.1	8.7	6.2	4.9	5.8	8.0	2.6	2.5	0.9	1.5	1.6	0.8	0.8	1.3	0.8	4.2	12.6		
9-May	0.8	1.3	Z	0.9	1.2	1.9	2.7	11.9	15.2	13.8	13.6	13.8	10.7	15.6	9.7	15.9	17.0	16.4	7.6	1.3	1.7	2.7	1.0	4.2	7.9	17.0		
10-May	2.3	2.2	4.5	Z	7.7	10.7	3.3	1.5	1.3	0.9	0.8	0.8	0.8	0.7	0.7	0.8	0.5	0.7	4.1	2.6	1.1	1.1	0.5	4.4	2.4	10.7		
11-May	2.8	1.2	3.8	7.6	Z	14.6	16.0	12.4	11.8	13.9	20.0	11.8	14.4	9.2	15.1	10.7	11.2	7.4	2.9	2.5	2.0	1.9	0.6	0.7	8.5	20.0		
12-May	1.0	1.2	0.6	6.5	7.0	Z	1.7	1.6	1.3	0.5	1.0	0.8	0.5	0.5	1.7	2.1	3.0	3.0	2.0	2.4	1.3	1.2	0.8	1.0	1.9	7.0		
13-May	Z	1.2	2.4	2.3	9.1	11.2	6.7	4.4	3.2	2.6	2.6	2.3	2.2	2.2	1.2	1.4	0.8	1.2	3.1	3.3	17.8	7.2	1.1	2.8	4.0	17.8		
14-May	2.0	Z	5.4	4.9	4.0	6.7	5.6	2.8	1.7	C	C	C	C	C	0.9	0.8	0.5	0.6	2.4	0.6	8.2	7.4	1.9	3.9	1.2	1.7	3.0	8.2
15-May	7.0	4.6	Z	8.0	3.7	3.2	C	C	C	C	C	1.0	1.5	2.1	2.4	2.5	2.1	1.3	1.1	1.2	3.6	3.0	2.5	2.1	2.9	8.0		
16-May	2.8	2.5	2.7	Z	3.4	4.4	1.5	2.0	1.0	0.8	0.8	0.6	0.6	0.7	0.9	4.0	1.5	1.3	0.5	0.4	0.9	0.5	0.5	0.3	1.5	4.4		
17-May	0.3	0.3	0.6	0.6	Z	0.5	0.3	0.9	1.3	0.8	0.5	0.8	1.5	2.2	2.1	0.9	1.6	0.7	1.7	2.8	0.2	0.6	1.5	2.2	1.1	2.8		
18-May	1.8	10.4	8.1	6.6	7.1	Z	9.8	14.1	20.5	20.4	21.6	28.3	19.1	12.4	10.2	10.7	4.1	6.2	4.7	4.4	5.3	2.1	2.1	1.2	10.1	28.3		
19-May	Z	2.0	2.3	2.2	2.2	2.8	1.7	1.5	1.4	1.1	0.7	0.5	1.1	1.2	1.9	1.6	1.3	1.1	1.8	1.2	1.0	1.1	1.1	0.9	1.5	2.8		
20-May	1.8	Z	1.4	0.4	0.5	0.9	0.5	0.5	0.2	0.4	0.5	0.4	0.3	0.4	0.5	0.3	0.2	0.3	0.5	0.3	0.5	0.7	1.3	1.0	0.6	1.8		
21-May	1.3	0.7	Z	0.8	3.8	0.4	0.8	0.8	0.8	1.0	0.9	0.7	0.5	1.1	1.2	3.9	0.3	0.5	0.8	0.6	0.8	0.2	1.1	1.1	1.1	3.9		
22-May	1.2	3.3	3.8	Z	6.9	9.2	2.0	1.0	0.4	0.2	0.5	0.9	1.3	0.5	0.8	0.3	0.6	1.1	0.6	1.1	1.2	1.7	1.9	2.6	1.9	9.2		
23-May	2.1	3.2	1.2	1.3	Z	2.0	1.7	1.4	0.8	0.7	0.5	0.7	M	0.9	0.5	0.5	0.8	0.5	0.4	1.9	1.9	0.7	1.3	2.9	1.3	3.2		
24-May	2.1	5.8	2.2	4.7	9.7	Z	5.4	0.6	0.7	0.3	0.5	0.5	0.3	0.3	2.5	0.3	0.7	0.7	0.5	0.5	1.1	4.3	4.8	3.9	2.3	9.7		
25-May	Z	7.6	6.8	9.5	8.6	3.4	0.7	0.8	0.4	0.4	0.5	0.4	0.6	0.5	0.5	0.5	0.9	0.7	0.4	0.7	0.6	0.3	1.3	3.3	2.1	9.5		
26-May	8.5	Z	4.9	14.3	10.4	11.7	4.4	3.9	2.6	1.1	1.0	1.4	1.9	2.1	2.7	1.8	1.3	0.5	1.5	1.3	0.6	2.3	1.0	1.0	3.6	14.3		
27-May	0.8	1.3	Z	3.0	3.8	7.8	8.1	2.5	2.9	1.1	0.5	0.7	0.6	0.7	0.8	2.9	2.7	1.3	0.8	1.1	2.4	2.8	2.8	0.4	2.2	8.1		
28-May	0.4	0.7	1.1	Z	4.7	3.8	3.6	3.8	3.0	2.1	7.8	7.5	2.2	0.9	0.8	1.9	1.4	0.7	0.9	1.3	1.0	1.4	0.9	1.0	2.3	7.8		
29-May	1.6	3.1	1.0	1.9	Z	3.0	4.5	4.7	2.7	1.4	2.6	3.1	1.9	1.2	0.6	1.6	1.3	0.9	0.7	0.7	0.8	0.7	0.7	0.6	1.8	4.7		
30-May	0.5	0.4	0.4	0.3	0.4	Z	1.4	3.5	9.2	15.9	19.8	9.7	11.5	16.2	4.7	2.6	9.1	10.0	9.8	5.9	4.5	3.7	3.8	3.6	6.4	19.8		
31-May	Z	2.7	3.3	1.7	3.4	1.5	7.8	18.2	15.7	12.9	7.6	3.4	2.6	13.7	26.8	20.8	23.3	32.5	16.2	6.9	5.3	2.6	10.8	32.5	11.8	32.5		
		2.1	2.5	2.7	3.5	4.3	5.0	3.9	4.3	3.9	3.8	4.1	3.4	3.0	3.2	3.4	3.3	3.2	3.2	2.6	2.0	2.7	2.3	2.4	3.1	Diurnal Average		
		8.5	10.4	8.1	14.3	10.4	15.3	16.0	18.2	20.5	20.4	21.6	28.3	19.1	16.2	26.8	20.8	23.3	32.5	16.2	7.4	17.8	7.2	15.6	32.5	Diurnal Maximum		
Z - zerospan		C - Calibration					M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Christina Lake - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	697	98.87	98.87
21 - 40	8	1.13	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Christina Lake - May 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	8	41	79	40	70	70	63	42	22	31	28	50	55	42	45	11	697
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	2	6	0	8
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	8	41	79	40	70	70	63	42	22	31	28	50	55	44	51	11	705

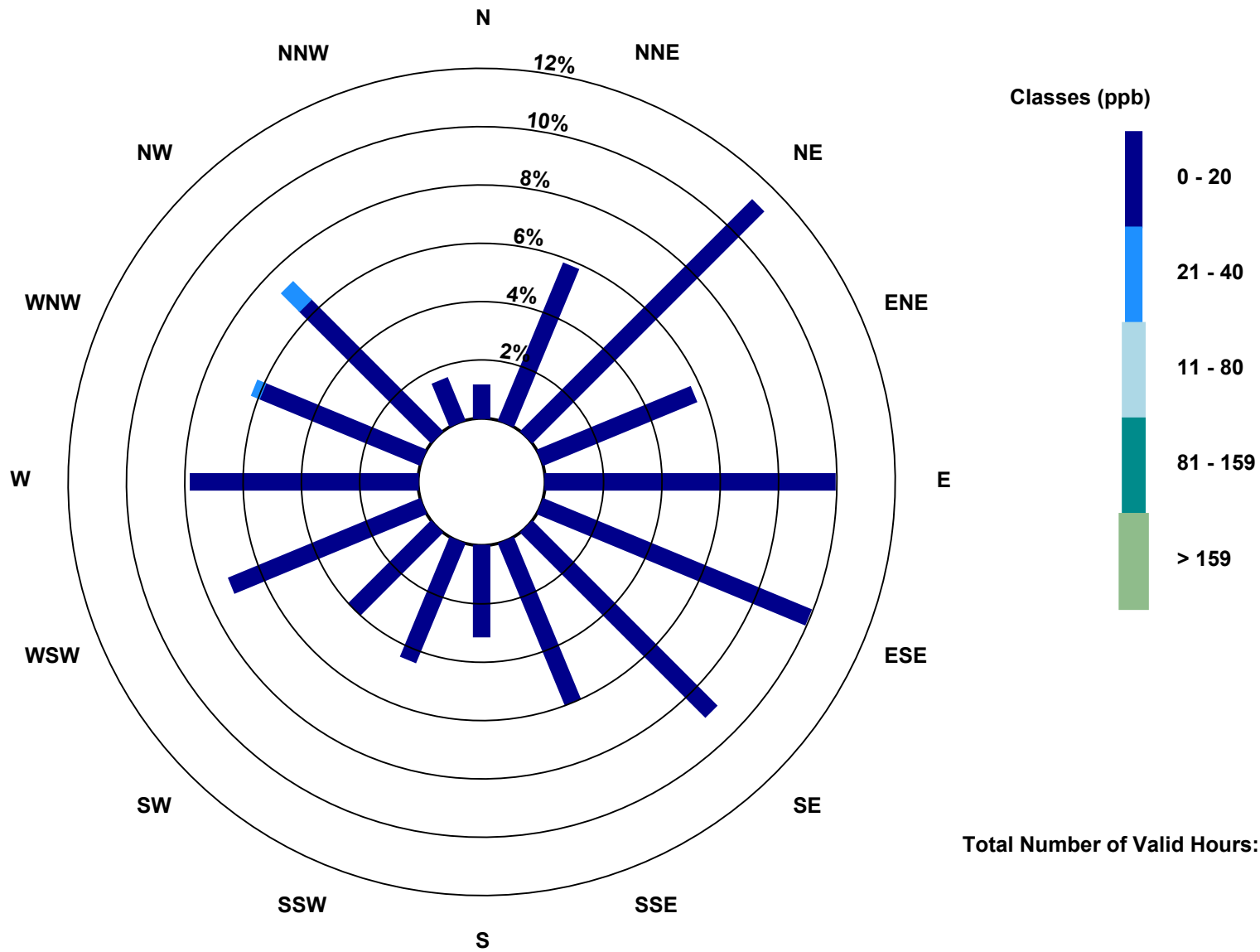
Total Number of Valid Hours: 705

Total Number of Hours: 744

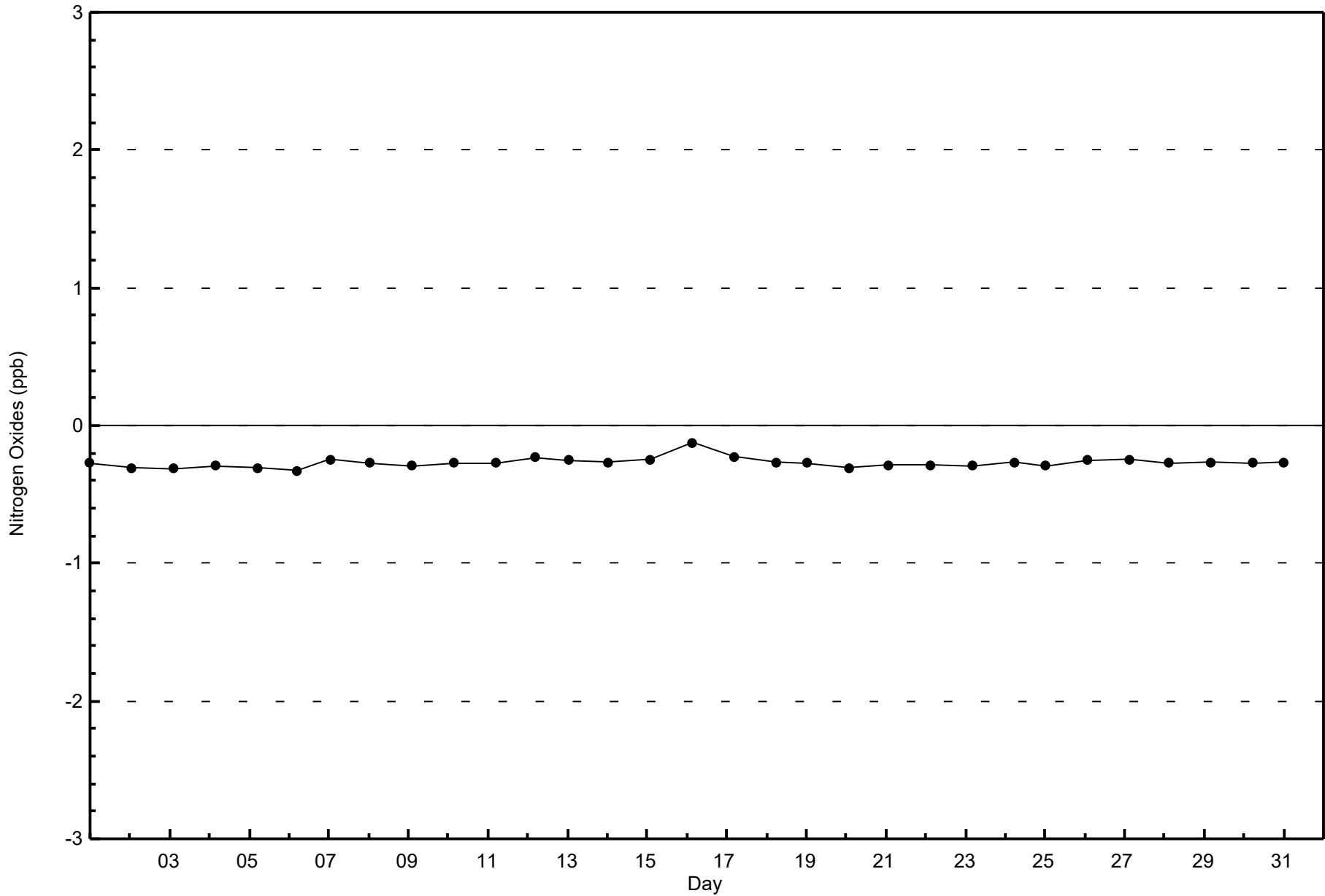


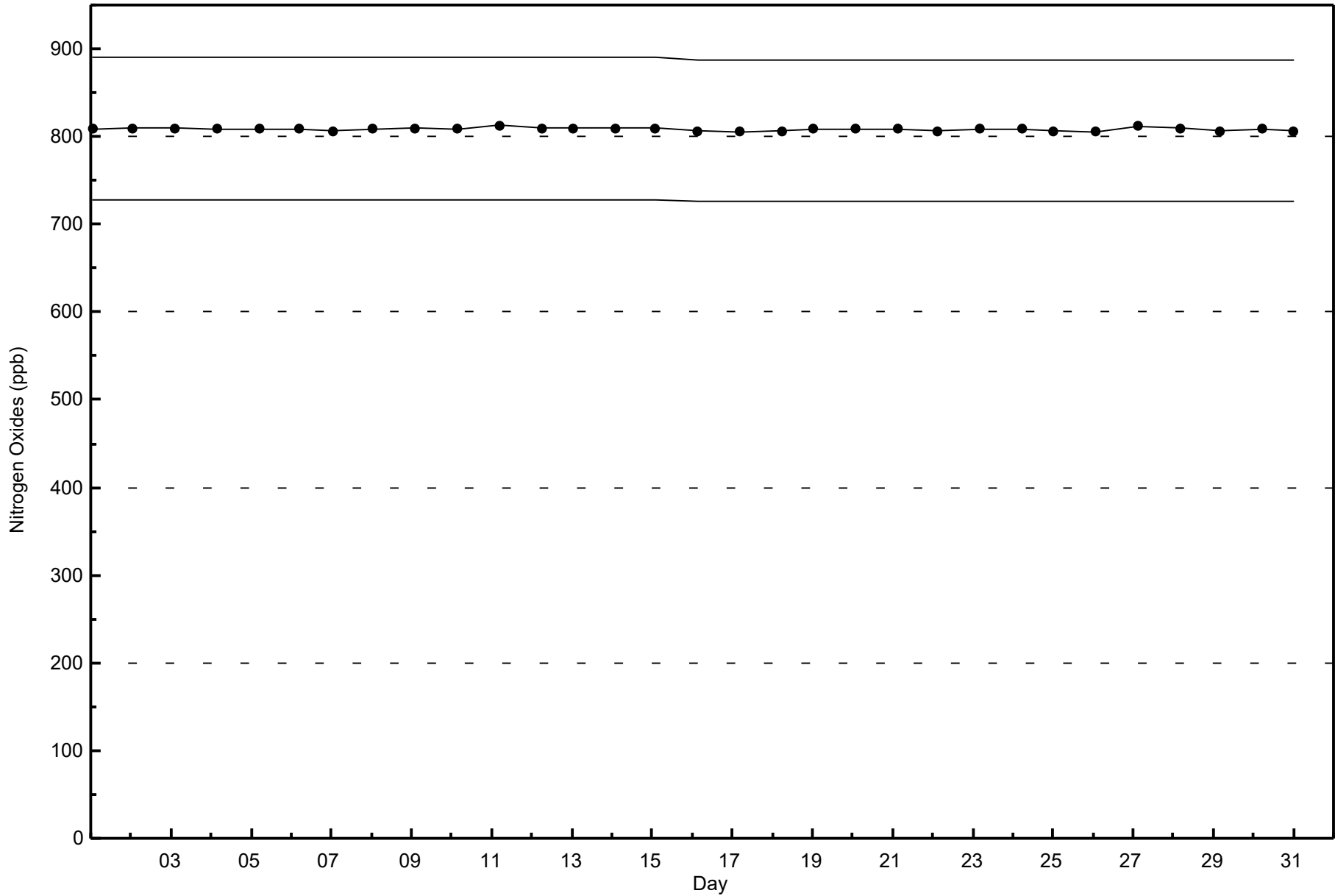
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Christina Lake



Total Number of Valid Hours: 705



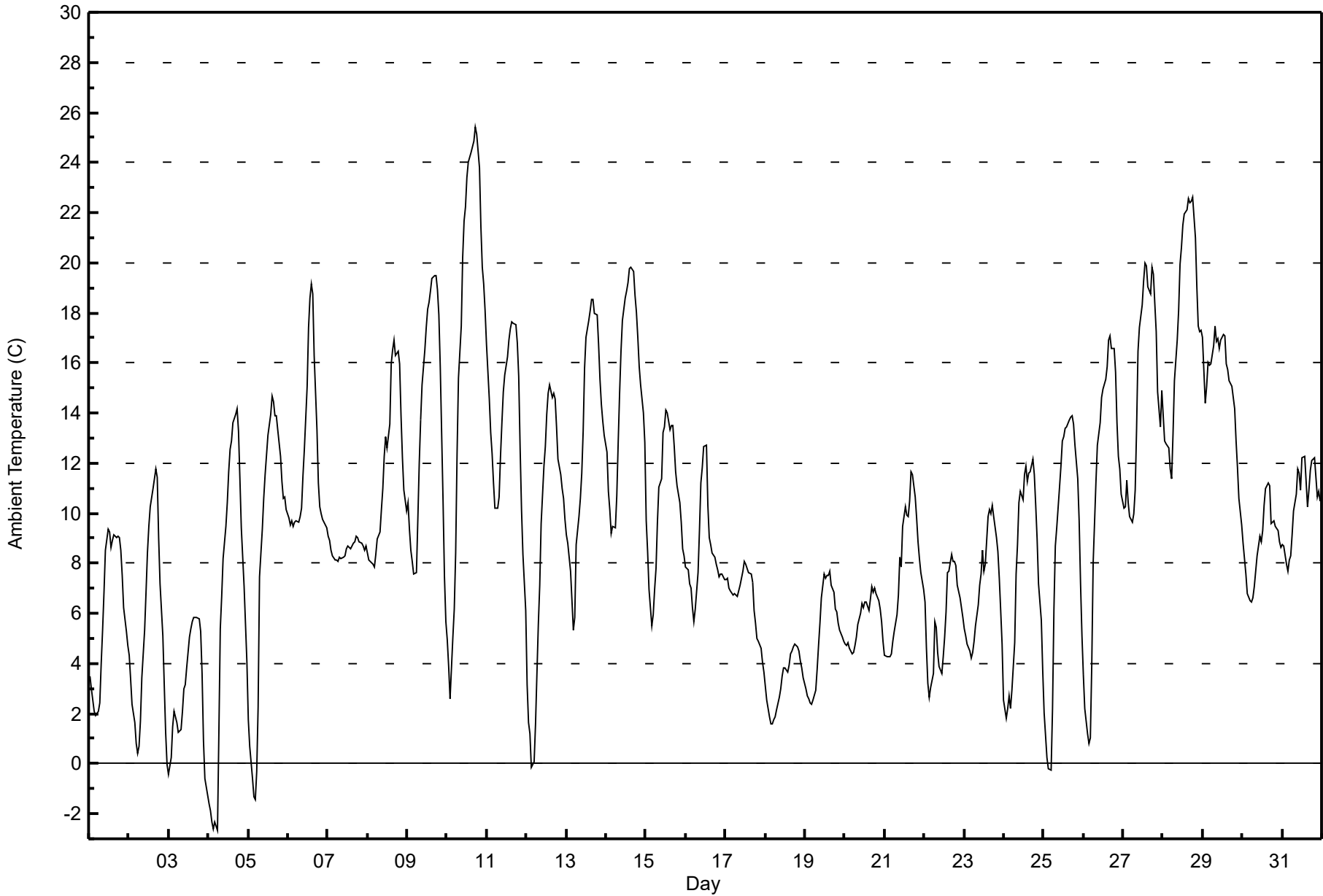




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Christina Lake - May 2024**

Maximum Value: 25.4 C on May 10 18:00		Maximum Daily Average: 17.8 C on May 28		Hours in Service: 744																																												
Minimum Value: -2.7 C on May 4 06:00		Minimum Daily Average: 2.9 C on May 3		Hours of Data: 744																																												
Maximum Diurnal Average: 13.3 C at hour 16		Minimum Diurnal Average: 5.2 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 9.63 C		Percentiles: P <sub>1</sub> = -1.3 P <sub>10</sub> = 2.9 Q <sub>1</sub> = 5.8 Median = 9.1 Q <sub>3</sub> = 13.1 P <sub>90</sub> = 17.2 P <sub>99</sub> = 23.1		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-May	3.5	3.0	2.5	2.1	1.9	2.1	2.4	4.0	5.4	6.9	8.5	9.4	9.3	8.6	8.9	9.1	9.0	9.1	9.0	8.5	7.5	6.2	5.3	4.7	6.1	9.4																						
2-May	4.3	3.4	2.4	1.6	0.8	0.4	0.7	1.7	3.4	5.3	6.9	8.4	9.5	10.3	11.0	11.4	11.7	11.5	9.0	7.2	5.1	3.1	1.3	0.0	5.4	11.7																						
3-May	-0.4	0.2	1.5	2.1	1.9	1.6	1.3	1.4	2.1	3.0	3.1	3.8	5.0	5.4	5.7	5.8	5.8	5.8	5.8	5.3	3.6	0.9	-0.6	-1.2	2.9	5.8																						
4-May	-1.6	-1.9	-2.3	-2.6	-2.3	-2.7	1.2	5.4	6.7	8.2	9.5	10.4	11.7	12.5	12.9	13.6	14.0	14.2	13.2	11.4	9.4	7.1	5.6	4.1	6.6	14.2																						
5-May	1.7	0.7	-0.6	-1.3	-1.4	-0.3	2.3	7.5	9.4	10.6	11.5	12.3	13.1	14.0	14.7	14.4	13.9	13.9	13.4	12.3	11.2	10.6	10.7	10.2	8.5	14.7																						
6-May	9.8	9.5	9.7	9.5	9.7	9.7	9.6	9.9	10.2	11.5	12.5	15.1	17.4	18.6	19.1	18.8	16.3	13.3	11.2	10.3	10.0	9.8	9.5	9.4	12.1	19.1																						
7-May	9.1	8.9	8.5	8.3	8.1	8.1	8.1	8.3	8.2	8.2	8.3	8.6	8.7	8.6	8.6	8.8	8.9	9.1	9.0	8.8	8.8	8.7	8.5	8.7	8.6	9.1																						
8-May	8.4	8.1	8.0	8.0	7.8	8.4	9.0	9.3	10.1	11.0	12.2	13.1	12.6	13.5	16.0	16.5	16.9	16.3	16.4	16.0	13.9	12.2	10.9	10.1	11.9	16.9																						
9-May	10.4	9.4	8.5	8.1	7.6	7.7	9.8	12.0	13.7	15.1	16.5	17.4	18.1	18.4	18.9	19.4	19.5	19.5	18.9	17.9	15.8	10.5	7.5	5.7	13.6	19.5																						
10-May	5.0	3.9	2.6	5.1	6.2	8.4	12.4	15.4	17.5	20.2	21.7	22.2	23.4	24.0	24.4	24.6	24.8	25.4	25.1	23.8	21.4	19.8	19.1	18.1	17.3	25.4																						
11-May	16.8	14.6	13.2	12.4	11.2	10.2	10.2	10.6	12.2	13.6	14.8	15.5	16.2	16.9	17.4	17.6	17.6	17.5	16.8	15.5	12.6	10.2	8.3	6.1	13.7	17.6																						
12-May	3.1	1.6	1.2	-0.1	0.1	1.6	3.6	5.5	7.1	9.6	11.9	12.7	14.0	14.8	15.1	14.6	14.8	14.6	13.4	12.2	11.6	11.0	10.6	9.8	8.9	15.1																						
13-May	9.2	8.8	7.7	6.5	5.3	5.8	8.7	9.8	10.6	11.6	13.3	15.8	17.1	17.7	18.1	18.6	18.5	18.0	17.9	16.7	15.3	14.3	13.7	13.1	13.0	18.6																						
14-May	12.5	10.9	10.1	9.2	9.5	9.4	10.7	12.8	14.8	16.5	17.7	18.6	18.8	19.2	19.8	19.8	19.6	18.7	18.0	17.0	15.9	15.1	14.0	12.8	15.1	19.8																						
15-May	9.7	8.4	7.0	5.5	6.0	6.9	7.8	9.7	11.0	11.4	13.2	13.4	14.1	14.0	13.3	13.5	13.5	12.6	11.7	11.1	10.4	9.6	8.6	8.3	10.5	14.1																						
16-May	7.9	7.8	7.2	7.0	6.2	5.7	6.2	7.6	9.3	11.2	11.8	12.7	12.7	10.3	9.0	8.7	8.4	8.3	8.0	7.7	7.5	7.6	7.6	7.4	8.5	12.7																						
17-May	7.4	7.4	7.0	6.9	6.7	6.8	6.7	6.7	6.9	7.1	7.7	8.1	8.0	7.8	7.7	7.6	7.2	6.1	5.6	5.0	4.9	4.6	4.1	3.7	6.6	8.1																						
18-May	3.1	2.5	1.8	1.6	1.6	1.8	1.9	2.2	2.6	3.0	3.5	3.8	3.8	3.7	4.0	4.4	4.5	4.6	4.8	4.7	4.5	4.1	3.8	3.4	3.3	4.8																						
19-May	3.0	2.7	2.6	2.4	2.4	2.5	2.9	3.8	4.7	5.6	6.6	7.6	7.4	7.5	7.5	7.7	7.1	6.8	6.2	6.1	5.6	5.3	5.0	4.9	5.2	7.7																						
20-May	4.8	4.7	4.8	4.6	4.4	4.5	4.7	5.1	5.6	6.0	6.4	6.2	6.5	6.4	6.1	6.6	7.1	6.8	7.0	6.8	6.5	6.2	5.7	4.9	5.8	7.1																						
21-May	4.3	4.3	4.3	4.3	4.4	4.9	5.3	5.9	6.7	8.2	7.9	9.5	10.3	9.9	9.9	10.5	11.6	11.6	10.7	9.8	8.9	8.2	7.6	6.9	7.7	11.6																						
22-May	6.4	4.6	3.2	2.6	3.0	3.6	5.7	5.5	4.4	3.9	3.6	4.3	5.1	6.1	7.6	7.7	8.4	8.1	8.1	7.9	7.1	6.6	6.2	5.8	5.6	8.4																						
23-May	5.4	5.1	4.8	4.5	4.2	4.4	4.9	5.5	6.3	7.1	7.6	8.5	7.7	8.0	9.9	10.2	10.0	10.3	9.9	9.0	8.5	7.4	6.1	4.8	7.1	10.3																						
24-May	2.6	1.8	2.2	2.7	2.2	2.9	4.8	7.6	8.8	10.4	10.9	10.5	11.5	11.9	11.3	11.6	11.6	12.2	11.5	10.3	9.0	7.2	5.7	3.7	7.7	12.2																						
25-May	2.0	1.1	0.2	-0.2	-0.3	2.2	6.2	8.7	9.4	11.1	11.9	12.9	13.1	13.4	13.4	13.8	13.9	13.9	13.6	12.7	11.4	9.7	7.2	5.1	8.6	13.9																						
26-May	3.6	2.2	1.2	0.8	1.0	4.0	8.0	11.2	12.7	13.2	13.6	14.6	14.9	15.3	15.9	16.9	17.1	16.6	16.6	15.6	13.6	12.3	11.8	10.7	11.0	17.1																						
27-May	10.2	10.3	11.3	10.4	9.9	9.6	10.0	11.0	13.4	16.5	17.4	18.3	19.2	20.0	19.9	19.1	18.7	19.8	19.6	18.4	17.2	14.8	13.4	14.9	15.1	20.0																						
28-May	13.9	12.9	12.8	12.6	11.8	11.4	13.2	15.3	16.9	18.1	19.9	20.6	21.5	21.9	22.1	22.6	22.4	22.4	22.6	21.0	19.1	17.5	17.2	17.3	17.8	22.6																						
29-May	17.0	14.4	15.1	16.0	15.9	16.0	16.7	17.5	16.9	16.9	16.6	16.9	17.1	17.1	16.0	15.8	15.3	15.1	14.6	14.2	12.9	11.8	10.6	9.5	15.2	17.5																						
30-May	8.8	8.2	7.5	6.8	6.5	6.4	6.6	7.1	7.7	8.3	9.1	8.8	9.3	10.3	11.0	11.2	11.1	9.6	9.7	9.7	9.5	9.3	8.9	8.6	8.7	11.2																						
31-May	8.7	8.7	8.0	7.7	8.2	8.3	9.1	10.1	10.8	11.8	11.6	10.9	12.2	12.3	11.3	10.2	10.9	11.7	12.1	12.2	11.4	10.6	10.9	10.5	10.4	12.3																						
																								6.8	6.1	5.6	5.3	5.2	5.6	6.8	8.2	9.2	10.4	11.2	12.0	12.6	12.9	13.1	13.3	13.2	13.0	12.6	11.8	10.6	9.4	8.5	7.8	Diurnal Average
																								17.0	14.6	15.1	16.0	15.9	16.0	16.7	17.5	17.5	20.2	21.7	22.2	23.4	24.0	24.4	24.6	24.8	25.4	25.1	23.8	21.4	19.8	19.1	18.1	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Christina Lake - May 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	17	2.28	2.28
0 - 10	409	54.97	57.26
10 - 20	297	39.92	97.18
> 20	21	2.82	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

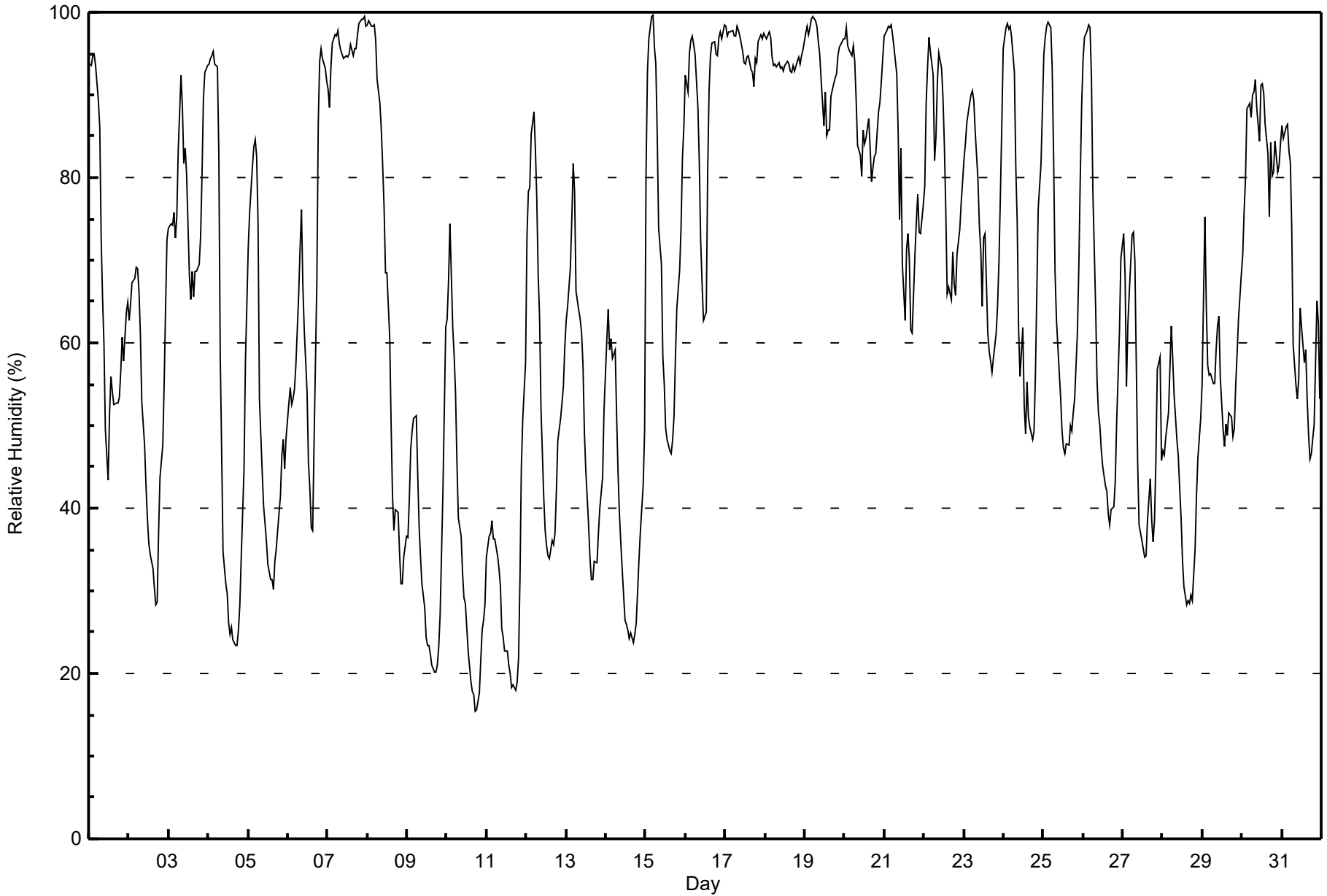
**Relative Humidity (RH) - %**  
**Christina Lake - May 2024**

<b>Maximum Value: 99.7 % on May 15 05:00</b> <b>Maximum Daily Average: 95.9 % on May 17</b>																						Hours in Service:	744																							
<b>Minimum Value: 15.4 % on May 10 18:00</b> <b>Minimum Daily Average: 30.6 % on May 11</b>																						Hours of Data:	744																							
<b>Maximum Diurnal Average: 82.3 % at hour 5</b> <b>Minimum Diurnal Average: 51.7 % at hour 17</b>																						Hours of Missing Data:	0																							
<b>Monthly Average: 65.99 %</b> <b>Percentiles: P<sub>1</sub> = 18.8 P<sub>10</sub> = 32.3 Q<sub>1</sub> = 47.1 Median = 66.1 Q<sub>3</sub> = 90.4 P<sub>90</sub> = 96.4 P<sub>99</sub> = 99.0</b>																						Hours of Calibration:	0																							
																						Percent Operational Time:	100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-May	93.7	93.5	94.8	94.8	93.6	89.4	86.1	72.7	65.4	59.9	49.5	43.4	51.5	56.0	54.1	52.5	52.7	52.8	53.4	56.5	60.7	57.7	63.8	64.9	67.2	94.8																				
2-May	62.7	64.7	67.2	67.8	69.1	69.0	66.3	61.0	52.8	47.6	42.7	38.8	35.8	34.4	32.7	30.3	28.4	28.6	37.1	43.7	47.6	55.2	64.5	72.5	50.9	72.5																				
3-May	73.8	74.4	74.2	75.7	72.7	75.2	83.2	92.4	88.5	81.8	83.5	80.3	68.1	65.3	68.6	65.6	68.6	68.7	69.4	72.8	80.3	89.5	92.7	93.6	77.5	93.6																				
4-May	93.7	94.5	94.7	95.3	93.7	93.4	82.9	58.7	47.2	34.7	30.8	29.6	26.2	24.8	25.5	24.1	23.4	23.4	25.2	28.3	34.1	44.7	57.9	64.6	52.1	95.3																				
5-May	71.5	75.8	81.3	83.8	84.5	82.6	74.7	53.2	44.3	40.2	38.1	35.9	33.3	31.3	31.3	30.1	33.6	35.1	37.3	41.5	46.4	48.2	44.7	48.5	51.1	84.5																				
6-May	52.7	54.6	52.6	53.3	54.4	57.3	65.8	71.4	76.1	67.0	61.6	54.0	45.4	42.3	37.6	37.3	48.0	67.6	86.6	94.1	95.6	94.4	93.3	91.7	64.8	95.6																				
7-May	90.7	88.6	93.3	96.2	97.3	97.2	97.7	96.3	95.4	94.4	94.5	94.7	94.5	95.0	96.1	94.7	95.6	95.7	97.3	98.6	99.1	99.2	99.5	98.4	95.8	99.5																				
8-May	98.5	99.0	98.3	98.2	98.4	96.6	91.8	89.0	85.8	81.4	76.2	68.5	68.5	60.7	50.2	41.5	37.3	39.9	39.5	34.8	30.9	30.9	34.0	36.7	66.1	99.0																				
9-May	36.5	41.1	47.1	49.4	50.8	51.1	44.0	37.9	34.0	30.8	28.0	24.5	23.3	23.4	22.4	21.1	20.2	20.2	21.0	23.2	27.1	42.1	52.0	61.8	34.7	61.8																				
10-May	62.9	67.5	74.4	61.9	58.5	54.0	45.5	38.8	36.7	32.2	29.2	28.5	25.6	22.8	18.9	17.8	17.4	15.4	15.5	17.6	21.6	25.3	26.4	28.3	35.1	74.4																				
11-May	34.1	36.7	36.9	38.5	36.3	36.3	34.2	32.7	30.6	25.4	24.4	22.7	22.7	21.0	20.0	18.3	18.7	18.0	18.9	21.8	31.5	45.1	50.8	57.6	30.6	57.6																				
12-May	72.9	78.2	78.9	85.3	87.9	83.6	77.5	68.3	63.0	52.1	41.2	37.3	35.4	34.3	33.9	36.2	35.7	37.0	42.0	48.2	50.8	52.7	54.7	59.4	56.1	87.9																				
13-May	62.8	64.4	69.1	74.9	81.7	78.4	66.3	64.0	62.8	61.1	57.3	49.2	44.6	38.0	33.8	31.4	31.3	33.6	33.4	37.0	39.9	41.9	43.7	51.9	52.2	81.7																				
14-May	60.3	64.1	59.1	60.5	58.2	59.1	51.1	44.3	39.3	35.7	32.6	26.4	26.0	25.3	24.3	24.9	23.7	24.8	26.1	30.1	33.9	37.3	42.9	49.4	40.0	64.1																				
15-May	80.5	92.7	96.8	99.6	99.7	95.8	93.7	85.1	73.9	69.4	58.2	55.1	49.7	48.3	47.0	46.6	48.3	51.2	58.3	64.3	68.8	73.9	82.4	86.1	71.9	99.7																				
16-May	92.4	90.4	95.1	96.6	97.2	96.1	94.8	88.7	82.1	72.4	67.4	62.7	63.8	80.5	90.5	94.7	96.2	96.5	94.9	94.8	96.9	97.7	96.8	98.4	89.1	98.4																				
17-May	98.3	97.2	97.6	97.6	97.9	97.1	97.2	98.3	97.9	97.1	95.2	94.0	93.8	94.6	94.8	93.0	92.8	91.1	94.4	93.9	96.5	97.3	96.7	97.5	95.9	98.3																				
18-May	97.1	96.8	97.7	97.0	94.6	93.6	93.7	93.5	93.9	93.2	93.3	92.9	93.6	94.1	93.7	93.0	92.7	93.5	93.0	94.0	94.6	93.8	94.7	95.4	94.3	97.7																				
19-May	97.4	98.3	97.3	98.2	99.1	99.4	98.9	98.2	96.4	95.0	91.8	86.3	90.4	85.0	85.8	85.8	89.9	91.3	92.0	92.5	94.8	95.7	96.5	96.7	93.9	99.4																				
20-May	96.7	98.1	96.0	95.5	94.8	95.9	94.1	89.6	83.9	82.7	80.2	85.7	84.0	84.7	87.2	83.6	79.6	81.2	82.5	82.8	87.9	89.1	91.6	94.3	88.4	98.1																				
21-May	97.1	97.8	98.3	98.2	98.5	97.3	95.8	92.5	85.6	74.9	83.6	69.5	62.7	71.4	73.2	70.0	61.5	61.3	70.6	74.8	78.0	73.4	73.3	76.7	80.7	98.5																				
22-May	79.0	89.0	93.4	96.9	95.3	92.4	82.0	84.9	91.6	95.1	93.2	89.7	83.9	76.1	65.9	66.8	65.2	71.0	67.2	65.7	70.7	73.7	76.9	79.5	81.0	96.9																				
23-May	82.2	84.0	86.5	89.0	90.0	90.5	89.3	85.6	79.7	74.1	71.2	64.4	72.7	73.2	61.3	59.0	57.7	56.5	58.2	61.3	64.6	70.0	77.9	86.5	74.4	90.5																				
24-May	95.6	98.1	98.6	97.9	98.3	97.0	92.6	81.2	74.6	61.7	55.9	61.9	52.3	49.1	55.3	51.1	49.8	48.3	49.3	56.1	66.2	76.3	81.7	88.3	72.4	98.6																				
25-May	95.0	97.0	98.3	98.9	98.2	93.1	82.3	68.6	62.8	56.4	53.4	49.4	47.3	46.6	47.7	47.6	50.0	49.4	51.5	53.2	61.4	69.4	79.8	88.7	68.6	98.9																				
26-May	94.2	97.0	97.9	98.5	98.2	92.1	78.4	64.3	55.4	51.5	50.0	47.2	45.1	42.7	42.0	39.2	38.0	39.8	40.1	43.3	50.4	55.8	61.3	70.2	62.2	98.5																				
27-May	73.3	68.2	54.7	62.2	66.0	73.1	73.4	69.9	57.7	45.5	38.0	36.2	35.1	34.0	34.2	38.5	43.6	38.7	35.9	38.5	45.8	56.8	58.3	45.7	51.0	73.4																				
28-May	47.0	46.5	48.5	51.5	56.8	62.1	58.1	53.8	48.3	46.3	42.4	38.8	33.8	30.6	28.3	28.7	28.4	29.4	28.9	35.0	41.5	46.0	48.5	50.9	42.9	62.1																				
29-May	55.1	75.2	64.3	57.3	56.1	56.3	55.1	55.0	59.2	62.1	63.2	55.8	49.4	47.4	50.2	48.8	51.5	51.0	48.7	49.6	55.0	58.8	62.9	68.2	56.5	75.2																				
30-May	70.7	75.9	80.0	88.3	89.0	87.3	89.9	90.4	91.8	88.5	84.5	91.1	91.4	90.2	86.4	83.0	75.3	84.3	80.2	80.6	84.4	80.6	81.6	84.3	84.6	91.8																				
31-May	86.2	84.7	86.1	86.4	83.3	81.9	73.9	59.8	54.9	53.2	55.7	64.2	61.8	57.6	59.1	53.3	49.0	46.0	46.7	50.1	57.6	65.1	62.4	53.2	63.8	86.4																				
																						77.6	80.1	80.9	82.1	82.3	81.4	77.8	72.3	68.1	63.3	60.2	57.4	55.2	54.2	53.3	51.9	51.7	52.9	54.7	57.4	61.8	65.7	69.2	72.3	Diurnal Average
																						98.5	99.0	98.6	99.6	99.7	99.4	98.9	98.3	97.9	97.1	95.2	94.7	94.5	95.0	96.1	94.7	96.2	96.5	97.3	98.6	99.1	99.2	99.5	98.4	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Christina Lake - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Christina Lake - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	11	1.48	1.48
20 - 40	131	17.61	19.09
40 - 60	174	23.39	42.47
60 - 80	150	20.16	62.63
80 - 100	278	37.37	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Christina Lake - May 2024

Maximum Speed: 33 km/h on May 11 10:00	Maximum Daily Speed Average: 21.8 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 28 05:00	Minimum Daily Speed Average: 1.9 km/h on May 15	Hours of Data: 744
Maximum Diurnal Speed Average: 3.5 km/h at hour 11	Minimum Diurnal Speed Average: 0.4 km/h at hour 20	Hours of Missing Data: 0
Monthly Average Velocity: 1.0 km/h 348.7 deg	Percentiles: $P_1 = 2$ $P_{10} = 5$ $Q_1 = 7$ Median = 11 $Q_3 = 15$ $P_{90} = 21$ $P_{99} = 28$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE8	NNE8	NNE8	NNE8	NNE8	NNE10	NE12	NE17	NE15	NE17	NE23	NE25	NE26	ENE25	ENE23	NE22	NE21	NE18	NE17	NE14	NE13	NE12	NNE11	NNE11	NE15.2	NE26
2-May	NNE12	NNE8	NNE9	NNE11	NNE11	NNE12	NNE13	NNE14	NNE18	NNE20	NE24	NE24	NE26	NE22	NE22	NE25	NE28	ENE24	ESE17	ESE12	SE7	SSE6	SE4	SE4	NE13.2	NE28
3-May	SE2	E3	NE6	NNE8	N7	NNE8	NE7	NE7	NE7	NE9	NE11	NE11	NNE10	NE9	E13	ENE10	NE17	ENE11	E8	SE7	SSE2	S3	SW7	SW6	NE5.6	NE17
4-May	SSW6	SSW3	WSW3	SSW5	SSW6	SSW5	SSW4	NNE6	NNE10	NNE10	NE10	NE9	WSW2	SW2	ESE9	NNE7	SE5	SSE6	ESE11	SSE9	SE9	ESE10	ESE8	SE2	ESE3.0	ESE11
5-May	ESE9	ESE6	E5	ESE6	ESE4	SE3	SSE2	SSE8	SSE15	S14	S13	SSE15	SSE14	SE15	SE18	SSE20	SE15	SE16	ESE14	ESE9	E8	E8	ESE9	SE9	SE9.5	SSE20
6-May	SE8	SE9	SSE10	SSE10	SE10	SE7	ESE9	E12	ENE13	E16	E21	E21	ESE24	ESE22	ESE21	SE22	SSE26	SSE22	SE13	E8	E6	ENE9	E8	E9	ESE12.6	SSE26
7-May	E7	E9	E10	E12	E12	ENE12	ENE12	E13	E15	E14	E13	E13	E15	E13	E11	E13	E10	ESE7	E4	E2	SW2	WSW3	WSW2	W6	E8.5	E15
8-May	WSW4	SW5	WSW7	WSW8	WSW8	W12	WNW14	NW14	NW11	NW13	NW16	NW14	WNW14	W8	WNW8	W8	WNW9	WSW10	WSW11	WSW13	WSW11	SW13	SW12	WSW12	W9.0	NW16
9-May	WSW12	WSW13	WSW12	WSW13	W13	W13	W18	WNW20	WNW22	WNW20	WNW21	NW22	NW22	NW25	WNW22	WNW24	NW26	NW24	NW22	NW18	NW8	S6	SSW5	SSW7	WNW15.1	NW26
10-May	S4	SE2	SSW5	SSW8	SSW6	SW5	SW8	W14	W15	WSW18	W22	W24	WSW27	WSW27	WSW26	W27	W25	W25	W23	W16	WSW14	WSW15	WSW20	W18	WSW15.5	W27
11-May	NNW21	N18	NNW17	NW19	NW18	NW19	NW20	NW24	NW28	NW33	NW29	NNW31	NW28	NNW27	NW25	NW25	NW22	NNW24	NW22	N16	NE11	ENE11	E10	E5	NNW19.0	NW33
12-May	ENE5	ESE5	ESE6	SE4	ESE3	E5	ESE6	SSE7	ESE8	ESE10	ESE13	SE14	ESE14	ESE13	SSW12	SW12	ENE4	SSE6	SSW17	S11	S12	S10	SSE12	SSE10	SE7.1	SSW17
13-May	SSE9	SSE8	SSE8	SSE3	WSW1	SSW5	S15	SSW13	S10	SSW14	SSW14	SSW17	SSW16	SW17	WSW15	W11	WSW14	WSW9	SW11	SW11	SW9	SW11	SW12	SW14	SSW10.0	SW17
14-May	SW10	WSW7	WSW7	SW3	WSW8	WSW9	WSW8	W10	W9	WSW8	WSW14	W15	W17	WSW18	W18	W19	W18	W18	WNW18	WNW14	WSW9	NW14	NW11	WNW8	W11.3	W19
15-May	NW16	NW5	S2	SSW7	SW8	WSW4	WSW6	W7	NW9	WNW6	NE8	NE12	NE7	NNE12	N11	N15	ENE16	ESE14	SE11	SSW5	WNW5	W3	SW5	SE1	NNW1.9	NW16
16-May	NNE7	NNE3	SW7	NE2	E7	ESE3	SE2	SE1	E8	E8	E14	ESE15	ESE16	ESE21	ESE13	ENE13	E9	E9	ESE15	ESE10	E9	E9	E10	E8	E8.0	ESE21
17-May	E8	ESE13	E8	E11	ESE10	ESE11	E9	E9	E10	E11	E9	E8	ENE13	ENE13	ENE13	ENE14	ENE15	ENE14	ENE12	NE9	NNE10	NNW16	NNW18	NW17	ENE8.4	NNW18
18-May	NW18	NW16	NW19	WNW16	WNW17	WNW18	WNW20	WNW20	NW17	WNW18	WNW19	NW19	NW19	NW19	NW16	NW15	NW16	NW12	WNW11	WNW11	NW14	NW13	W11	W12	NW15.5	WNW20
19-May	W11	W10	W8	W8	W7	WNW8	NW10	NNW7	NNW9	NNW9	NNE9	NNE8	NE14	NE18	NE14	NE13	NE14	NE13	NE14	NE12	NE10	NE11	NNE9	NE7	NNE6.5	NE18
20-May	NNE8	NNE7	N9	N11	NNE11	NNE10	NNE11	NE10	NNE12	NNE11	NNE15	NNE13	NNE14	NE14	NE13	NNE12	NE12	NE11	NE9	NE10	NE8	NE9	ENE7	E7	NNE10.2	NNE15
21-May	E5	ESE6	ESE2	E4	E3	E5	ESE6	SE8	SE9	SE8	SW7	SE11	SSE8	ENE7	SSW4	SSW9	S9	E7	NE8	NE8	ENE8	ESE13	SE9	E5	ESE5.1	ESE13
22-May	E5	ESE5	ESE7	ESE3	SE3	ESE2	NE5	NE13	NE15	NE14	NE14	NE13	NE12	NE11	NE11	NE12	NE14	NE14	ENE14	ENE11	NE10	NE7	NE9	ENE9	NE9.1	NE15
23-May	NE6	NE6	NE8	ENE6	E5	NE7	ENE8	E7	E8	ENE11	NE11	NE12	NE11	ENE10	ENE10	NE16	NE15	ENE13	ENE15	E11	ENE8	E8	ESE6	ESE5	ENE8.9	NE16
24-May	ESE4	SE4	SE1	E1	SSW2	SE3	ENE6	E6	E14	ESE17	ESE14	ENE14	E8	ENE7	SW5	SSE12	SE13	SSE13	SE14	S8	SSW6	S6	SSE7	SE6	SE6.3	ESE17
25-May	ESE6	SE5	SSE2	SE6	ESE6	ESE5	ESE6	SE9	SE10	SE10	ESE10	ESE16	SE13	SSE13	SSE15	SSE12	SE14	ESE13	ESE14	ESE11	SE8	SE7	SE6	SE5	SE8.9	ESE16
26-May	SSW2	SSE3	SE3	S1	SW2	SSW2	ENE3	SW4	S7	SE5	ESE5	ESE4	SSW4	S2	ESE2	SSE5	ESE5	SE11	SSE6	SE7	SE6	SSE7	SSE6	S5	SSE3.8	SE11
27-May	SSE8	SE9	SSE9	ESE3	ESE4	SSW4	E3	ESE5	S6	SE9	SE12	SE13	SE10	SSE11	SE12	S5	N3	E5	SE11	SE8	NE3	ESE4	S6	SSE14	SE6.5	SSE14
28-May	SSE13	SSE10	SSE10	SSE6	NW0	ESE5	SSE8	SSW13	WSW12	WSW11	NW10	WNW7	SW8	SSW10	SW10	SW7	SSW6	E9	ESE9	ESE8	ESE7	ESE6	SE10	SE10	S4.8	SSE13
29-May	S7	E7	SE9	SE12	SSE14	SSE12	S14	SSW17	WSW20	W19	WSW18	W18	W20	W22	W21	W20	W20	W19	W16	WSW18	W15	WSW14	WSW17	WSW16	WSW12.3	W22
30-May	WSW17	WSW18	WSW17	WSW16	WSW16	W15	W15	W16	WNW20	WNW21	WNW23	WNW18	WNW18	NW18	NW17	NNW18	NW18	WNW18	WNW19	WNW15	W14	W16	W17	W14	WNW15.9	WNW23
31-May	W16	W16	W14	W16	W18	W18	WNW25	WNW28	WNW29	WNW27	WNW25	W22	W26	WNW27	NW30	NW27	WNW22	NW25	WNW21	WNW21	W20	W17	WNW20	NW28	WNW21.8	NW30

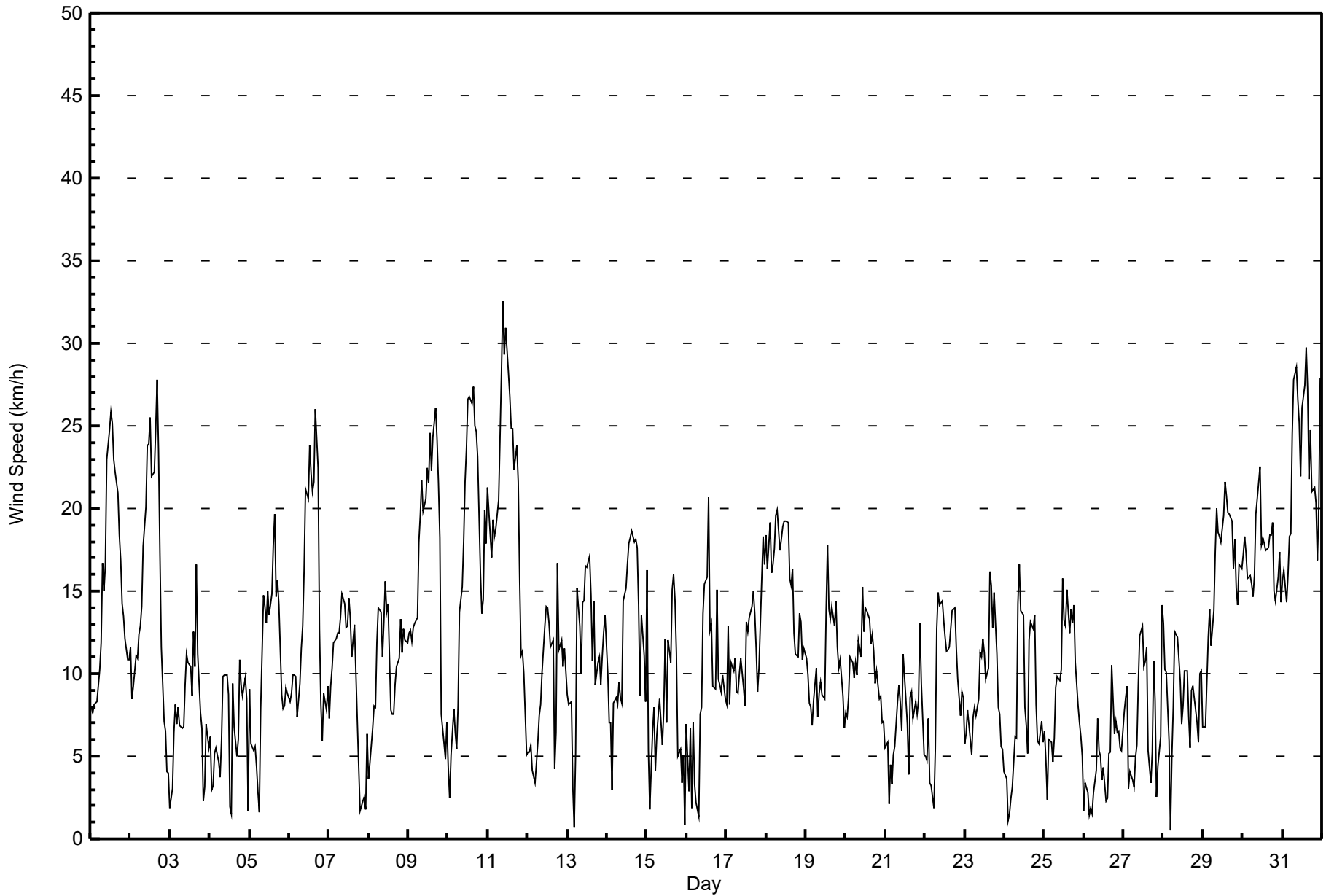
W0.7	SE0.5	SW0.5	WSW0.5	WSW0.9	NNW1.2	NW1.3	NW2.0	NNW2.2	NNW2.6	N3.5	NNE3.2	N2.0	NNE2.6	N2.0	NNW2.6	NNE3.0	NE2.0	E1.3	E0.4	N0.5	SSE0.4	SSW1.4	SW1.8		Diurnal Average
NNW21	N18	NW19	NW19	W18	NW19	WNW25	WNW28	WNW29	NW33	NW29	NNW31	NW28	WNW27	NW30	W27	NE28	NW25	W23	WNW21	W20	W17	WNW20	NW28		Diurnal Maximum

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Christina Lake - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Christina Lake - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	110	14.78	14.78
6 - 11	297	39.92	54.70
12 - 19	247	33.20	87.90
20 - 28	85	11.42	99.33
29 - 38	5	0.67	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Christina Lake - May 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	1	3	3	16	20	19	6	7	14	9	7	1	1	2	0	110
6 - 11	4	31	35	17	40	33	32	24	11	10	14	17	12	8	6	3	297
12 - 19	3	11	34	16	15	18	13	14	5	9	6	26	32	14	27	4	247
20 - 28	0	1	11	4	2	4	1	3	0	0	0	5	14	22	15	3	85
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	8	44	83	40	73	75	65	47	23	33	29	55	59	46	53	11	744

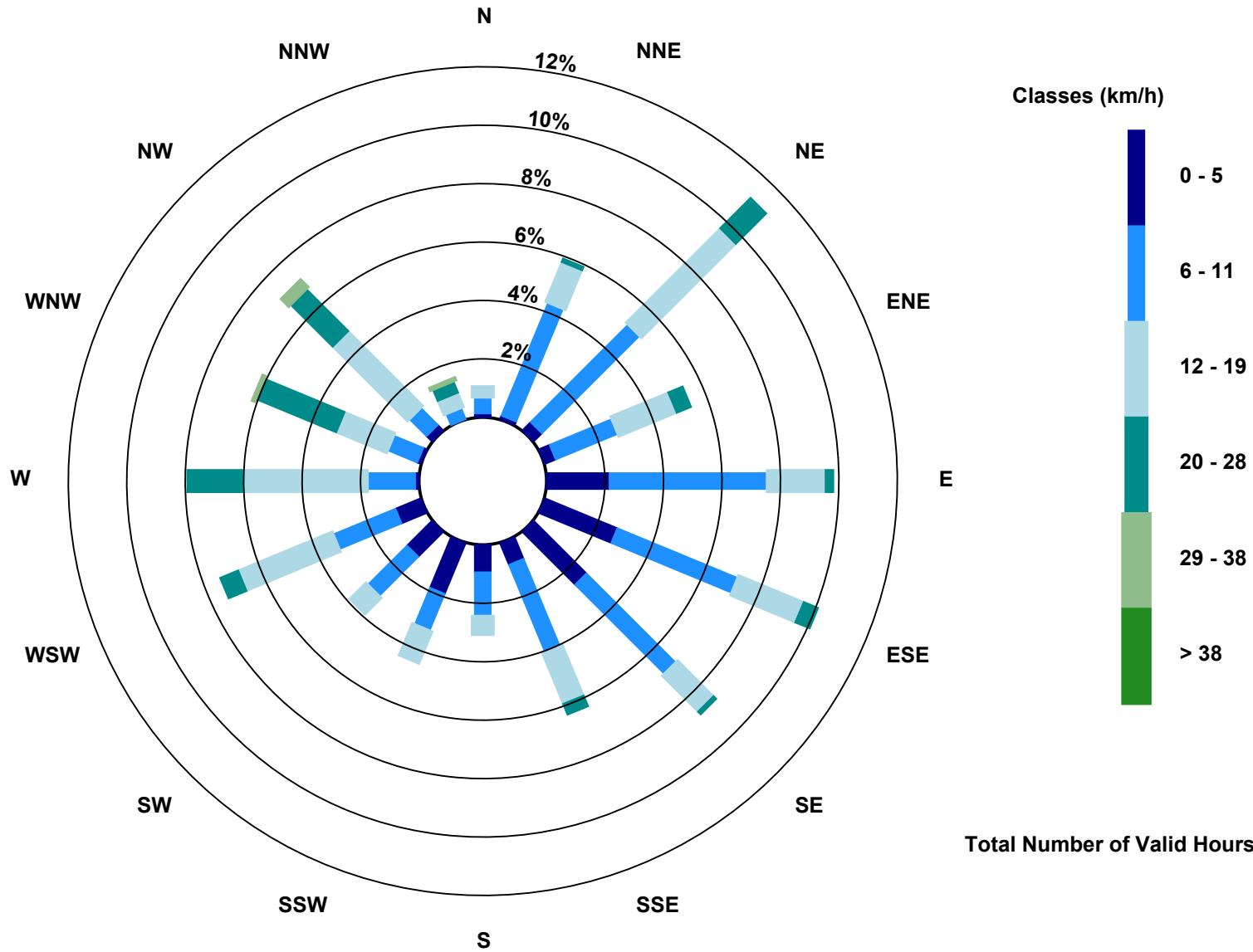
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Christina Lake







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Christina Lake - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 31 13:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 1 km/h on May 21 04:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-May	2	2	2	1	1	2	2	3	3	4	5	5	5	5	4	5	4	3	3	3	3	2	2	2	5
2-May	2	2	2	2	2	2	3	3	4	4	5	5	6	5	6	6	5	5	4	4	1	1	1	1	6
3-May	1	1	2	1	2	1	1	1	1	2	3	3	4	2	3	3	4	3	2	1	2	2	2	2	4
4-May	2	2	2	2	1	1	1	2	2	3	3	4	3	3	4	2	3	3	3	1	1	2	2	1	4
5-May	2	2	1	1	1	1	1	5	3	4	4	6	5	5	3	5	4	3	4	2	1	1	1	2	6
6-May	2	2	2	1	2	1	2	3	3	3	4	5	5	5	5	7	6	6	4	2	1	1	2	1	7
7-May	1	2	2	2	2	2	2	3	4	3	3	3	3	3	2	3	3	2	1	1	1	1	2	2	4
8-May	1	1	1	1	3	4	4	4	3	4	4	4	4	3	3	3	3	2	4	3	2	2	2	3	4
9-May	3	3	2	3	3	4	5	5	5	5	5	7	6	7	7	7	6	6	5	3	6	1	1	1	7
10-May	1	1	2	2	1	3	2	4	4	6	6	7	7	8	8	8	7	7	7	5	3	3	4	5	8
11-May	6	5	4	4	4	4	5	5	6	7	7	7	7	7	6	6	6	5	5	5	2	3	2	1	7
12-May	1	1	1	1	1	1	2	2	2	3	3	3	3	3	4	4	4	3	5	3	3	2	2	2	5
13-May	1	1	2	2	1	2	4	4	3	5	4	4	5	4	4	4	4	3	2	2	2	2	2	3	5
14-May	3	2	2	2	2	2	2	2	3	3	4	5	5	5	6	5	5	6	4	4	2	4	3	5	6
15-May	5	5	1	2	1	1	2	3	3	3	3	4	3	3	6	4	3	3	3	2	2	2	3	2	6
16-May	4	2	3	3	2	1	1	2	2	3	3	4	5	7	3	3	3	2	3	2	2	2	2	2	7
17-May	2	3	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	4	2	2	2	3	3	3	4
18-May	3	4	4	4	4	4	4	5	4	4	5	5	5	5	4	4	4	4	3	3	4	4	3	2	5
19-May	3	2	3	3	3	3	3	2	2	3	2	2	4	3	3	3	4	3	4	2	2	2	2	1	4
20-May	1	1	2	2	3	2	2	2	2	2	4	3	3	3	4	2	3	4	2	2	1	2	1	1	4
21-May	1	1	1	1	1	2	2	2	3	3	3	3	5	4	3	3	3	3	3	3	2	3	3	2	5
22-May	2	1	1	2	1	1	2	2	2	3	3	3	3	5	5	4	3	5	4	3	1	2	2	2	5
23-May	1	2	1	1	1	1	2	2	2	3	3	3	4	3	3	4	3	3	3	3	1	1	1	1	4
24-May	2	1	1	1	1	1	1	2	4	4	4	5	4	5	3	3	3	3	4	2	2	1	1	2	5
25-May	2	2	1	1	2	1	2	3	3	4	3	5	3	4	4	3	3	3	3	2	1	1	1	1	5
26-May	2	2	1	1	2	1	1	3	2	2	2	2	2	1	2	3	4	2	2	1	1	1	1	3	4
27-May	1	2	2	3	2	1	1	1	1	3	3	4	5	5	4	3	2	4	2	1	2	1	3	3	5
28-May	3	2	2	3	3	2	3	3	3	4	4	4	4	4	3	4	3	3	2	1	1	1	2	2	4
29-May	3	2	3	2	3	3	4	5	5	5	5	5	5	7	7	6	5	6	5	4	4	3	4	4	7
30-May	4	5	5	4	4	4	4	4	5	5	6	5	4	5	5	4	6	5	5	4	4	5	4	4	6
31-May	4	5	4	4	5	5	7	7	8	7	7	7	9	8	8	8	6	7	6	6	6	5	6	7	9
Diurnal Maximum																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Christina Lake - May 2024**

Direction of Maximum Speed: 323 deg on May 11 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 291.5 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 317 deg on May 28 05:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.9 deg on May 15	Percent Operational Time: 100.0
Monthly Average Direction: 348.7 deg	

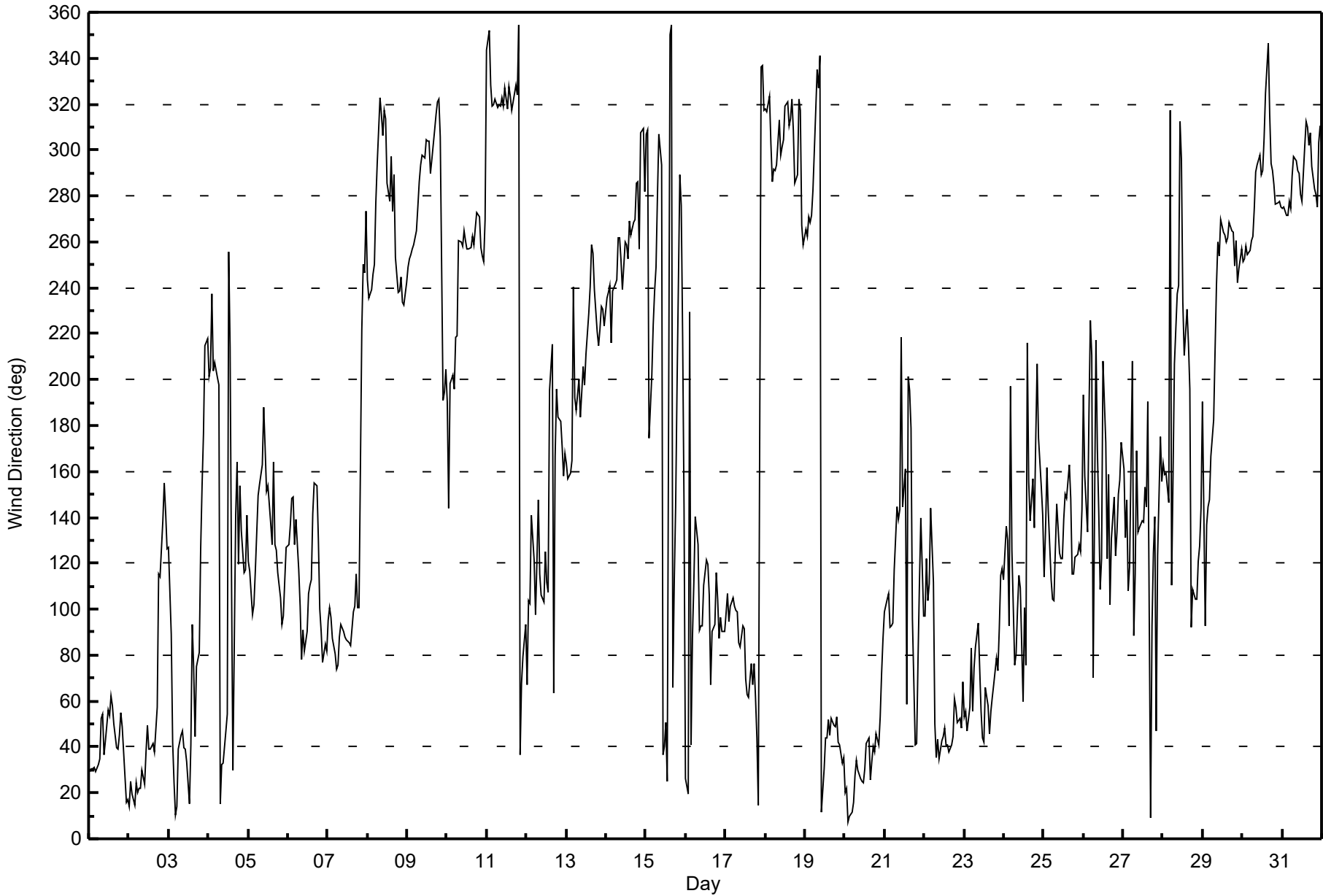
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	29	30	30	31	29	33	35	53	54	37	43	56	54	63	58	50	39	39	45	55	49	38	16	17	44.6
2-May	14	25	20	15	24	20	22	22	30	24	38	49	39	39	41	38	48	57	115	114	138	155	142	126	43.9
3-May	127	89	42	25	10	14	39	45	47	39	39	34	15	41	94	75	45	75	81	126	154	176	215	218	53.5
4-May	202	205	237	204	208	201	198	15	32	33	47	54	256	214	115	30	141	164	120	153	134	116	117	141	116.7
5-May	121	117	98	102	116	133	150	155	163	188	170	151	154	137	128	164	128	126	116	105	93	97	113	127	136.3
6-May	128	137	148	149	128	139	117	101	78	91	82	90	107	110	113	142	155	154	131	100	90	77	85	82	115.7
7-May	95	101	96	87	80	74	75	88	93	90	88	87	86	86	84	99	101	115	101	101	222	250	246	274	90.4
8-May	244	236	239	246	250	277	294	323	315	307	317	314	285	277	297	274	289	253	238	239	245	233	232	242	273.2
9-May	249	253	254	257	259	265	275	286	293	298	297	304	304	304	290	296	309	315	321	322	306	191	195	205	290.2
10-May	190	144	198	202	196	218	219	260	260	258	265	261	257	257	258	263	259	266	273	271	257	254	251	270	256.2
11-May	343	352	328	319	320	322	319	320	319	323	319	327	318	328	323	317	321	328	324	354	37	67	80	94	329.6
12-May	67	104	103	141	121	98	121	147	115	106	103	125	112	107	196	216	64	166	196	184	182	171	158	168	144.3
13-May	163	157	159	165	240	192	187	200	183	194	205	198	211	229	241	259	255	239	221	215	222	232	231	223	212.1
14-May	236	238	241	216	239	242	243	262	262	252	239	260	259	253	269	263	269	270	285	286	257	308	309	282	263.6
15-May	307	308	175	202	224	239	249	280	307	293	37	40	50	25	350	355	66	112	145	197	289	276	218	144	345.2
16-May	26	19	230	41	88	112	140	128	91	92	93	110	121	119	106	67	90	93	116	104	87	96	90	90	99.3
17-May	98	107	94	101	105	102	100	99	85	84	93	92	70	63	62	76	67	76	61	44	15	336	337	317	66.5
18-May	318	317	323	303	286	292	291	294	313	298	301	304	319	321	311	314	322	309	285	289	322	317	267	259	304.7
19-May	266	262	271	268	271	282	317	335	327	341	12	31	44	44	52	45	52	49	49	53	42	41	33	35	15.6
20-May	20	22	7	10	12	16	28	34	30	26	25	24	31	42	44	25	34	41	38	46	41	53	72	87	32.2
21-May	99	104	107	92	93	94	117	145	139	143	219	145	161	59	202	195	179	96	41	41	78	111	140	97	122.3
22-May	97	122	104	111	144	112	50	35	43	35	43	44	48	41	41	38	41	45	61	57	51	52	48	69	51.8
23-May	53	56	47	57	83	55	74	84	94	74	56	44	42	66	58	46	55	61	67	79	73	91	115	118	65.1
24-May	113	136	130	92	197	126	76	80	100	114	109	60	101	76	216	156	138	157	136	173	207	174	153	141	126.4
25-May	114	134	162	142	113	104	104	126	146	125	122	122	139	150	148	163	148	115	116	123	124	128	125	143	131.7
26-May	193	158	134	185	226	211	70	217	170	142	109	122	208	172	122	159	102	131	149	124	133	150	156	173	148.2
27-May	161	131	147	108	118	208	88	115	169	133	136	138	138	153	144	191	9	93	124	140	47	123	175	156	140.0
28-May	163	159	159	147	317	111	158	207	237	241	312	296	234	211	231	216	196	92	109	104	104	121	128	144	175.8
29-May	191	93	137	144	148	166	182	212	241	260	254	270	264	263	260	262	269	265	264	249	261	242	249	257	243.1
30-May	251	253	258	254	256	260	262	275	290	294	298	289	291	305	325	347	316	294	291	285	277	277	277	275	284.0
31-May	274	275	272	271	278	275	289	297	295	291	290	281	278	301	313	310	302	308	293	283	281	275	303	310	291.5
267.9 134.4 215.5 240.7 256.9 292.2 304.5 311.8 337.7 342.4 3.1 22.4 0.3 13.0 356.1 340.2 13.4 39.7 80.4 83.0 353.8 164.1 212.5 231.3																									
Diurnal Average																									

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Christina Lake - May 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Christina Lake - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 109 deg on May 28 05:00 Minimum Value: 7 deg on May 5 21:00 Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 17 Q <sub>3</sub> = 24 P <sub>90</sub> = 40 P <sub>99</sub> = 84																	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-May	12	12	10	10	11	10	9	13	17	19	18	15	15	14	17	15	11	13	11	12	13	10	12	11	19
2-May	13	14	14	11	11	12	13	15	12	16	15	19	18	18	21	17	18	21	15	12	16	8	22	23	23
3-May	49	25	15	18	18	11	17	13	18	24	19	26	39	33	19	20	14	15	19	30	54	37	10	32	54
4-May	15	81	35	18	17	20	30	48	18	29	30	36	97	98	47	49	54	45	24	9	22	18	11	69	98
5-May	9	8	10	8	11	16	27	44	21	26	26	27	27	25	25	17	18	13	12	8	7	7	10	11	44
6-May	10	10	10	10	12	14	14	14	11	12	12	14	14	15	15	21	13	13	15	13	13	8	10	8	21
7-May	11	10	12	11	10	10	10	13	12	11	12	13	11	11	11	12	11	13	15	42	14	17	80	15	80
8-May	25	21	10	11	35	18	18	15	25	23	18	22	17	38	49	55	33	15	15	12	13	8	9	13	55
9-May	13	14	14	17	17	18	16	18	15	17	21	22	22	23	22	19	18	16	11	9	68	17	23	9	68
10-May	16	28	18	20	16	59	20	18	18	22	21	21	19	20	19	18	19	19	19	19	16	16	14	22	59
11-May	27	20	16	11	11	12	14	12	13	17	18	19	18	20	24	19	22	20	17	26	10	12	12	19	27
12-May	20	17	20	20	29	17	25	16	22	21	19	17	16	17	43	37	72	48	18	12	11	11	12	10	72
13-May	14	10	10	40	87	20	17	14	18	20	16	26	22	17	20	27	19	21	12	13	9	9	12	12	87
14-May	13	16	20	61	13	16	17	19	25	34	25	23	22	19	22	23	22	18	16	17	17	27	17	41	61
15-May	20	82	87	25	8	27	29	26	33	51	43	40	50	13	57	28	27	13	18	48	38	49	40	88	88
16-May	65	78	22	80	14	22	31	76	26	34	18	17	14	16	13	14	28	23	11	13	12	16	11	12	80
17-May	16	13	12	13	11	11	12	11	12	11	14	26	16	15	14	13	13	11	11	14	13	12	11	11	26
18-May	10	16	10	23	16	14	12	13	17	15	16	17	15	14	19	19	16	23	23	27	15	22	18	14	27
19-May	19	17	26	25	37	35	24	24	20	20	24	23	14	11	12	15	17	15	11	11	9	9	10	13	37
20-May	10	11	18	13	13	12	11	14	13	19	15	17	13	14	16	16	17	16	13	11	10	11	16	14	19
21-May	13	11	42	14	12	16	23	18	18	35	44	24	47	46	80	20	26	51	19	24	13	12	19	19	80
22-May	22	22	10	29	26	48	30	13	11	11	12	18	20	29	31	21	22	17	16	13	9	12	9	14	48
23-May	11	13	9	15	18	15	14	15	19	21	25	20	28	36	29	23	16	17	12	11	11	10	11	21	36
24-May	20	16	59	43	21	31	22	29	18	20	24	34	51	53	56	16	15	19	15	9	14	29	16	10	59
25-May	16	28	29	21	26	18	21	34	22	33	27	23	25	23	18	23	27	17	14	10	10	7	16	23	34
26-May	61	34	38	54	69	37	34	70	35	36	37	53	53	76	85	83	46	22	22	13	13	12	22	43	85
27-May	40	19	13	57	62	33	49	14	26	24	24	28	39	38	26	59	49	52	15	11	85	35	34	12	85
28-May	11	9	11	69	109	38	33	21	21	28	47	57	53	33	27	36	49	16	16	9	7	10	13	11	109
29-May	55	43	20	11	13	13	15	19	21	20	19	20	19	20	19	20	19	19	18	15	17	14	13	19	55
30-May	16	16	17	16	17	18	18	17	14	14	14	15	14	19	15	20	21	18	13	16	16	16	15	17	21
31-May	16	16	16	17	15	16	15	15	15	17	15	16	19	21	15	16	16	16	16	15	15	16	20	15	21
Diurnal Maximum																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS27**  
**JACKFISH 2/3**  
**MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
MAY 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	10.1	0	2.5	0
H2S (ppb) Average	701	43	43	100	2.2	0	0.5	0
NO2 (ppb) Average	707	37	37	100	5.6	0	0.7	-
NO (ppb) Average	707	37	37	100	3.7	-	0.5	-
NOX (ppb) Average	707	37	37	100	7.8	-	1.2	-
Temperature 2 m (C) Average	744	0	0	100	24.8	-	17.5	-
Relative Humidity (%) Average	744	0	0	100	98.7	-	97	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	23	-	14	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
MAY 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	0.41	1	-	0	0	0	0.1	0.3	0.9	10.1
H2S (ppb) Average	701	0.23	0.2	-	0	0.1	0.1	0.2	0.3	0.4	2.2
NO2 (ppb) Average	707	0.18	0.5	-	0	0	0	0	0	0.6	5.6
NO (ppb) Average	707	0.16	0.3	-	0	0	0	0.1	0.2	0.4	3.7
NOX (ppb) Average	707	0.33	0.7	-	0	0	0	0.1	0.3	0.9	7.8
Temperature 2 m (C) Average	744	8.94	5.2	-	-2.3	3	5.2	8.1	12.1	16.4	24.8
Relative Humidity (%) Average	744	67.04	24.9	-	15.5	32.3	47.7	67.9	92.9	97.3	98.7
Wind Speed 10 m (km/h) Average	742	7.2	3	-	0	3	5	6	9	13	23
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	07 May 2024 21:00	07 May 2024 22:00	2	Flat line in sensor output signal





Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 10.1 ppb on May 9 18:00	Maximum Daily Average: 2.5 ppb on May 31		Hours of Data:	710
Minimum Value: 0.0 ppb on May 1 04:00	Minimum Daily Average: 0.0 ppb on May 19		Hours of Missing Data:	34
Maximum Diurnal Average: 0.9 ppb at hour 11	Minimum Diurnal Average: 0.1 ppb at hour 3		Hours of Calibration:	34
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> = 0.3 P <sub>90</sub> = 0.9 P <sub>99</sub> = 4.8		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-May	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.8	0.8	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.3	0.2	0.1	0.2	0.8																						
2-May	0.1	0.2	0.1	Z	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	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
3-May	0.2	0.6	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	0.6	1.6	0.7	0.1	0.0	0.0	0.0	0.0	0.2	1.6																							
4-May	0.0	0.0	0.0	0.0	0.0	Z	0.4	1.3	0.5	0.9	0.3	0.5	0.7	0.8	1.3	0.8	0.9	0.6	0.4	0.4	0.2	0.2	0.2	0.4	1.3																							
5-May	Z	0.0	0.1	0.1	0.0	0.3	1.0	0.9	1.0	0.3	0.3	0.2	0.2	0.5	0.0	0.0	0.1	0.1	0.1	0.2	1.0	1.1	0.8	0.0	1.1																							
6-May	0.0	Z	0.0	0.0	0.0	0.0	0.6	0.5	0.5	0.6	1.0	0.9	0.6	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.3	1.0																							
7-May	0.2	0.3	Z	0.1	0.3	0.1	0.1	0.4	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.4	0.4																						
8-May	0.1	0.1	0.2	Z	0.0	1.9	1.4	0.2	1.2	3.1	2.6	0.4	1.2	2.0	0.7	0.8	0.2	0.3	0.1	0.2	0.2	0.2	0.1	0.1	3.1	3.1																						
9-May	0.2	0.2	0.2	0.2	Z	0.0	0.0	0.0	5.2	2.4	3.6	3.0	4.4	3.5	4.6	5.0	3.4	10.1	1.5	0.1	0.9	1.2	0.1	0.0	10.1	10.1																						
10-May	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	0.5	0.3	0.0	0.0	0.0	0.6	0.6	0.6																						
11-May	Z	0.1	0.0	0.9	0.7	0.2	0.0	0.0	0.0	0.0	2.6	2.3	2.8	1.6	0.1	0.7	1.4	0.9	0.6	0.0	0.1	0.4	0.1	0.1	2.8	2.8																						
12-May	0.1	Z	0.4	0.0	0.1	0.0	0.0	0.2	0.1	0.3	0.4	0.8	0.4	0.4	0.2	0.2	0.2	0.2	0.5	0.1	0.2	0.1	0.1	0.1	0.8	0.8																						
13-May	0.2	0.4	Z	0.2	0.1	0.2	0.3	0.5	0.5	0.9	1.0	1.0	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0																						
14-May	0.0	0.1	0.3	Z	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.3	0.3	0.0	0.1	2.6	0.0	2.9	0.0	0.2	2.9	2.9																						
15-May	0.6	0.2	0.0	0.0	Z	0.0	0.0	1.3	0.9	0.5	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	1.3	1.3																						
16-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	0.6																						
17-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2																						
18-May	0.1	Z	0.0	1.1	0.3	2.7	3.2	1.2	0.3	0.3	1.9	1.0	0.2	0.3	0.2	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.2	0.4	3.2	3.2																						
19-May	0.4	0.2	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4	0.4																						
20-May	0.1	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3																						
21-May	0.2	0.2	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.3	0.3																						
22-May	0.0	0.0	0.1	0.1	0.0	Z	0.0	1.0	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.4	0.7	0.5	0.7	0.1	0.0	0.0	0.0	0.0	1.0	1.0																						
23-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.3	0.3	0.3	0.0	0.5	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.5	0.5																						
24-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	0.3	0.2	0.1	0.1	0.7	0.7																						
25-May	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	0.1	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.0	0.0	1.2	1.2																						
26-May	0.1	0.1	0.2	Z	0.0	0.0	0.4	0.6	0.3	0.1	0.2	0.6	1.6	1.2	1.3	0.3	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.1	1.6	1.6																						
27-May	0.1	0.1	0.0	0.1	Z	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.2																						
28-May	0.1	0.1	0.1	0.2	0.7	Z	0.2	0.3	0.0	0.1	2.0	0.7	0.1	0.1	0.0	0.0	0.2	0.1	0.4	0.2	0.4	0.6	0.3	0.2	2.0	2.0																						
29-May	Z	0.1	0.1	0.2	0.4	0.6	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.6	0.6																						
30-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.1	4.6	4.8	2.0	0.4	0.1	0.0	0.9	1.0	2.5	0.5	4.4	0.7	0.2	0.1	4.8	4.8																						
31-May	0.1	0.3	Z	0.0	0.0	0.0	1.9	7.7	5.8	2.4	3.7	0.4	0.1	1.7	1.5	3.4	3.4	8.3	9.6	3.6	0.2	0.5	3.0	0.4	9.6	9.6																						
																								0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.7	0.6	0.9	0.6	0.5	0.5	0.4	0.4	0.5	0.8	0.6	0.3	0.3	0.3	0.2	0.1	Diurnal Average
																								0.6	0.6	0.4	1.1	0.7	2.7	3.2	7.7	5.8	4.1	4.6	4.8	4.4	3.5	4.6	5.0	3.4	10.1	9.6	3.6	4.4	2.9	3.0	0.6	Diurnal Maximum

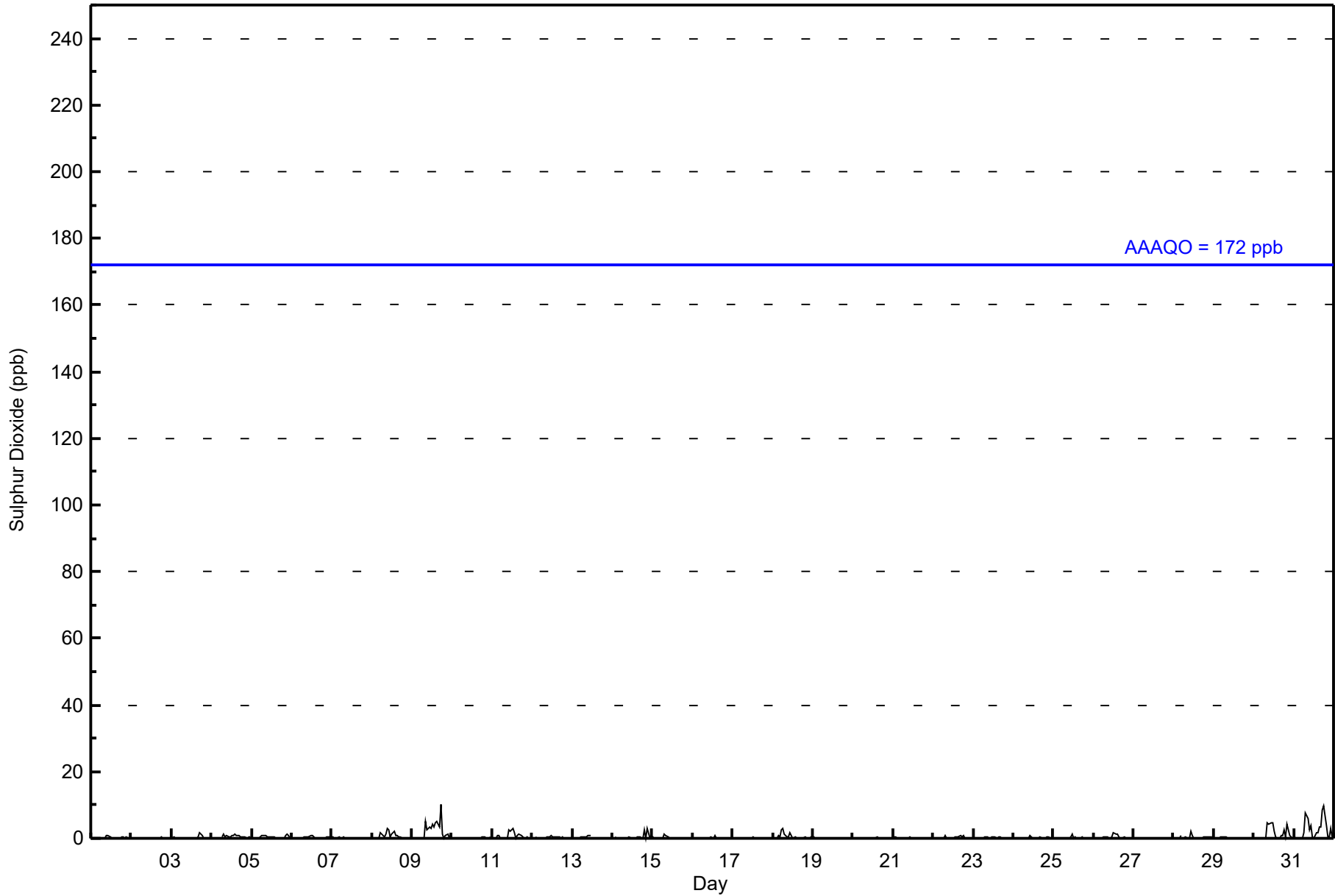
Z - zerospan C - Calibration

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  
Jackfish 2/3 - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	710	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3 - May 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	24	31	13	32	26	22	21	8	13	9	24	16	12	24	4	281
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>	2	24	31	13	32	26	22	21	8	13	9	24	16	12	24	4	281

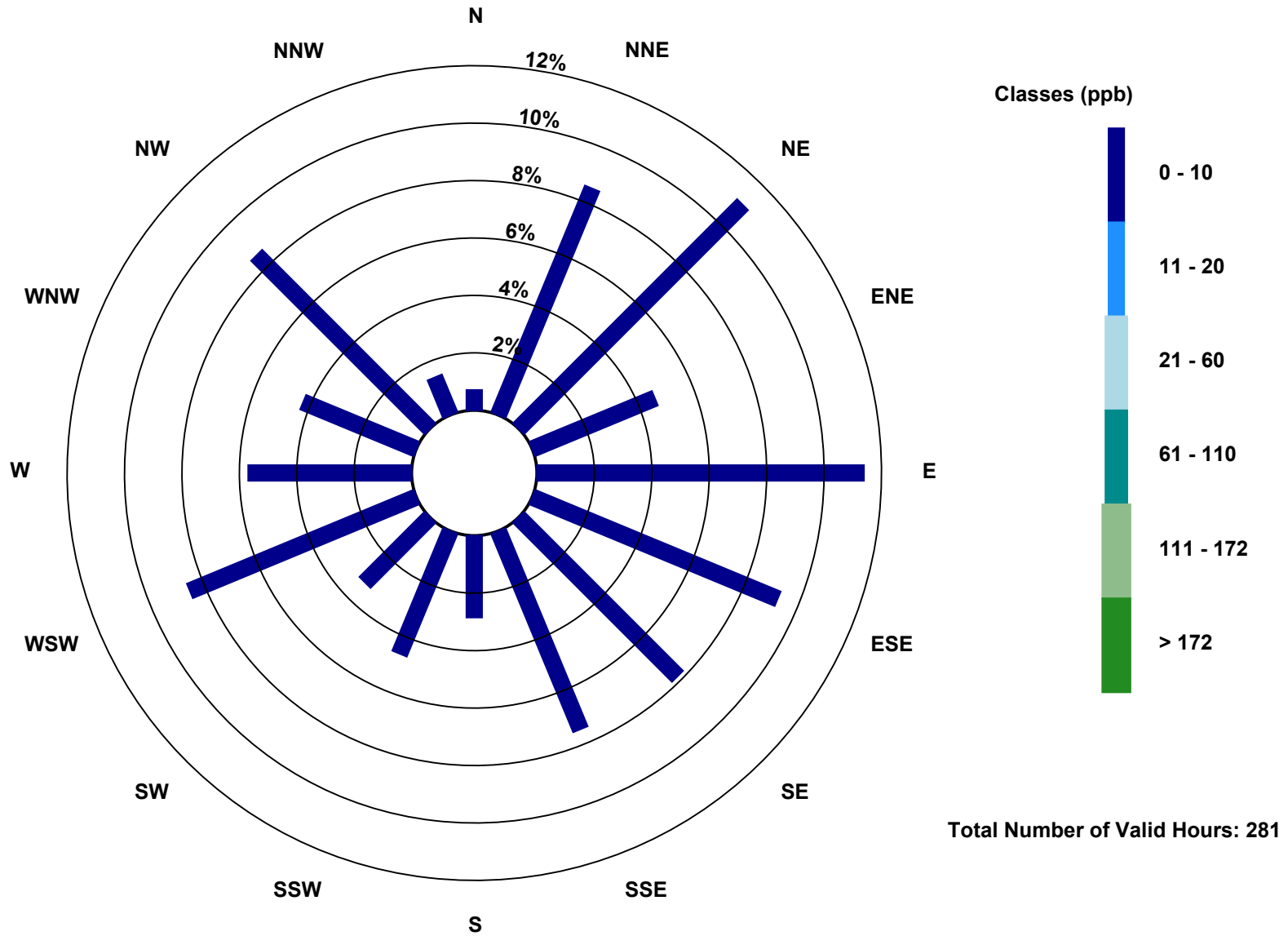
Total Number of Valid Hours: 281

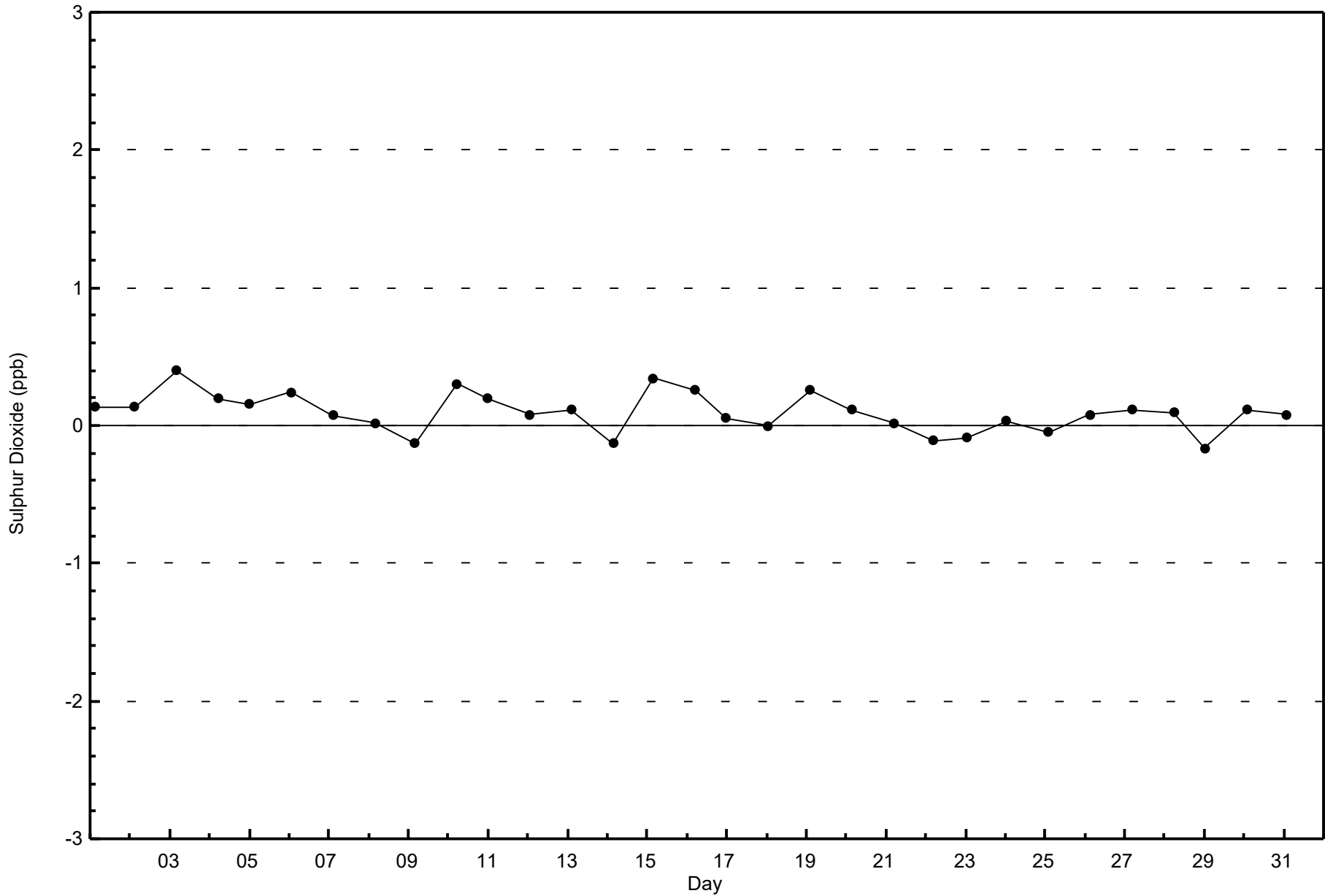
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3

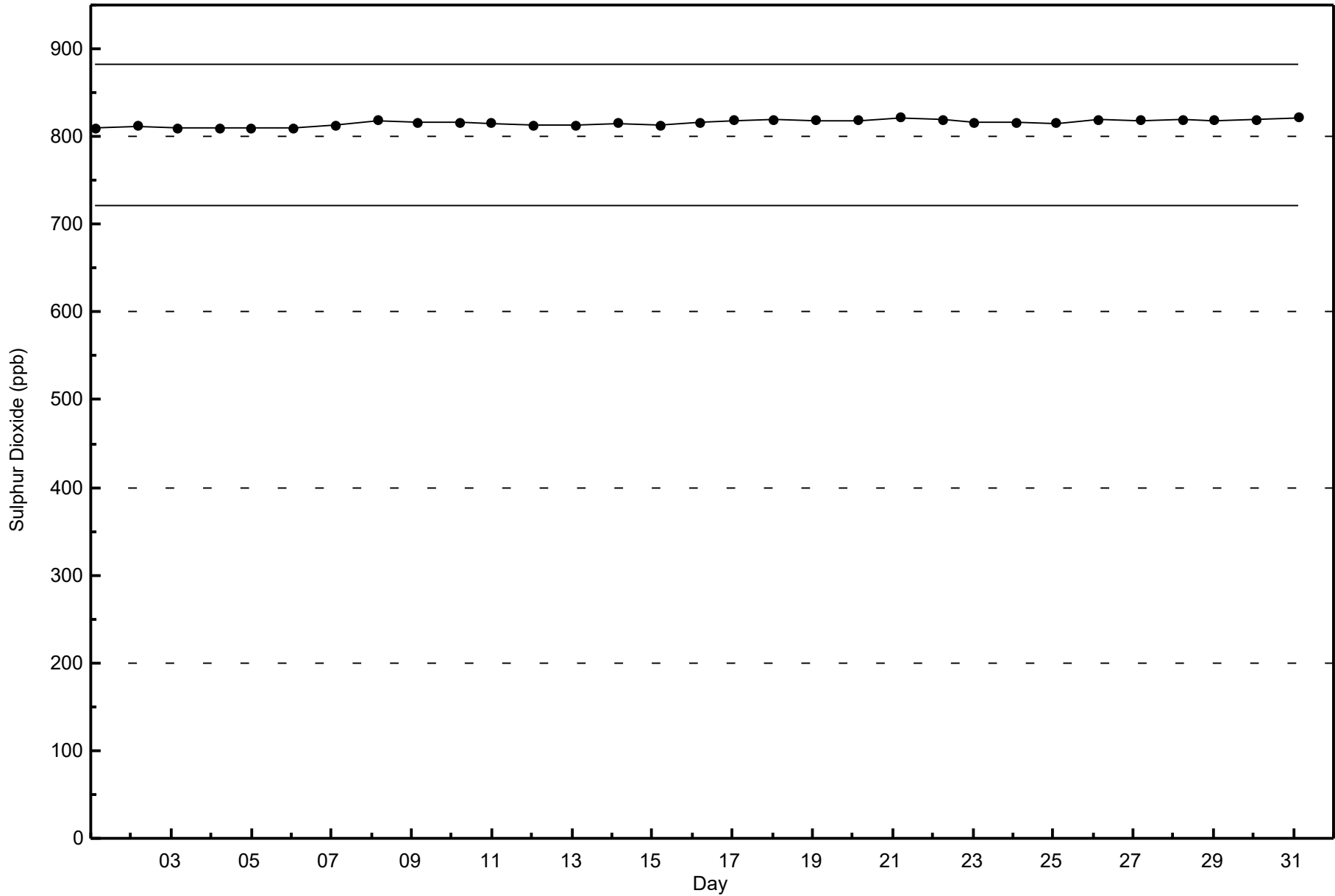






Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Jackfish 2/3 - May 2024



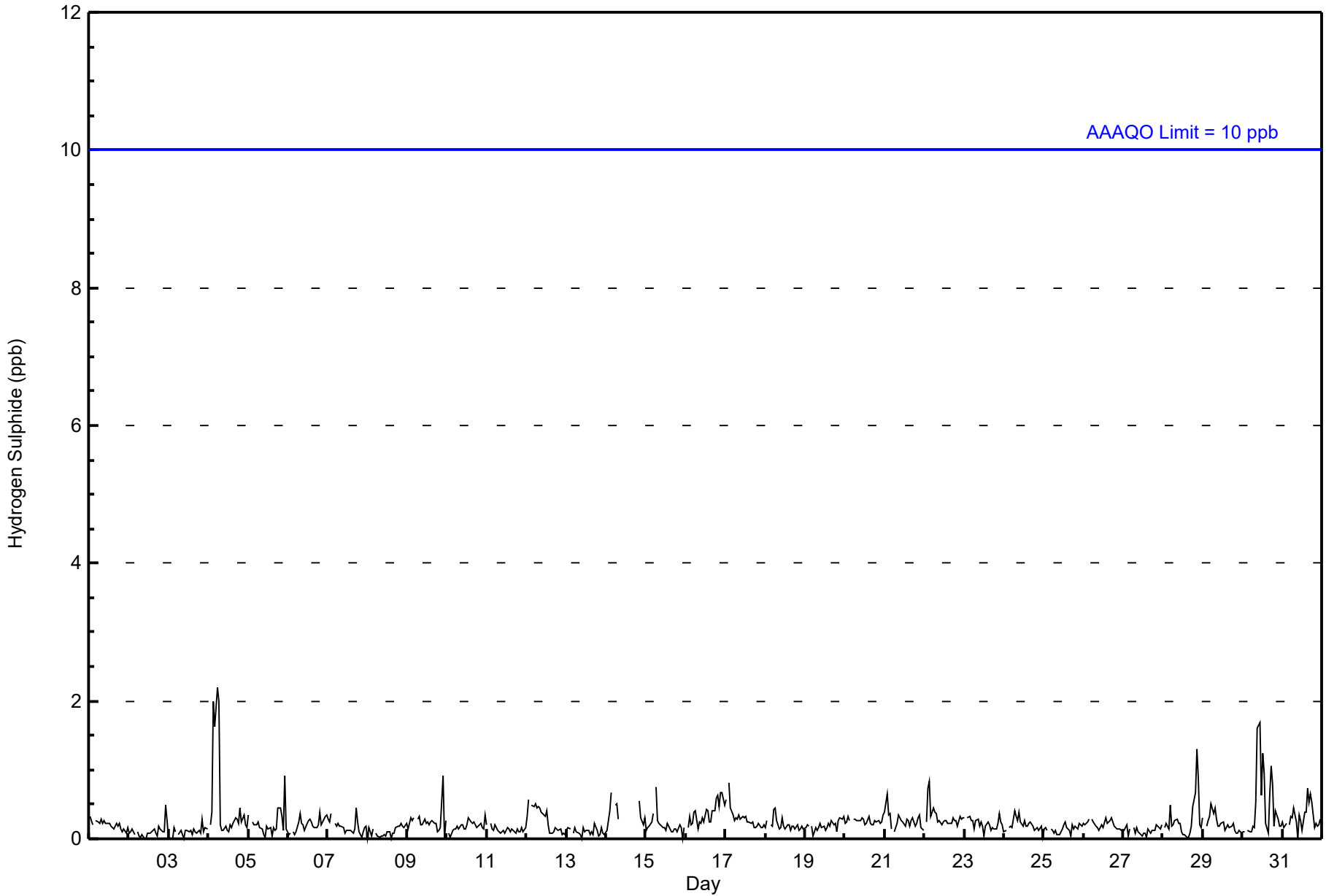






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Jackfish 2/3 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2	701	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: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3 - May 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	22	39	70	49	52	69	43	37	51	25	20	63	52	41	52	14	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>	22	39	70	49	52	69	43	37	51	25	20	63	52	41	52	14	699

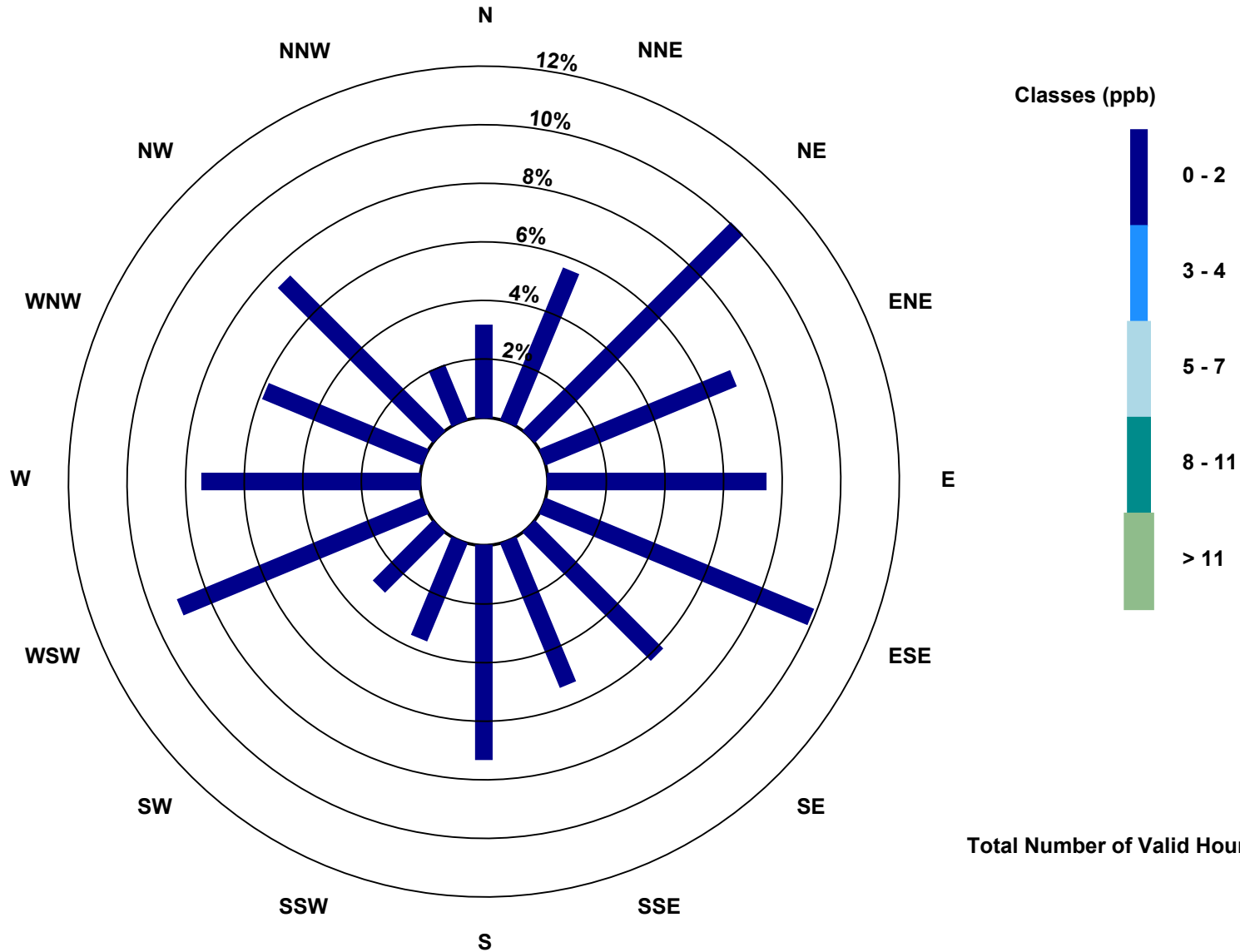
Total Number of Valid Hours: 699

Total Number of Hours: 744

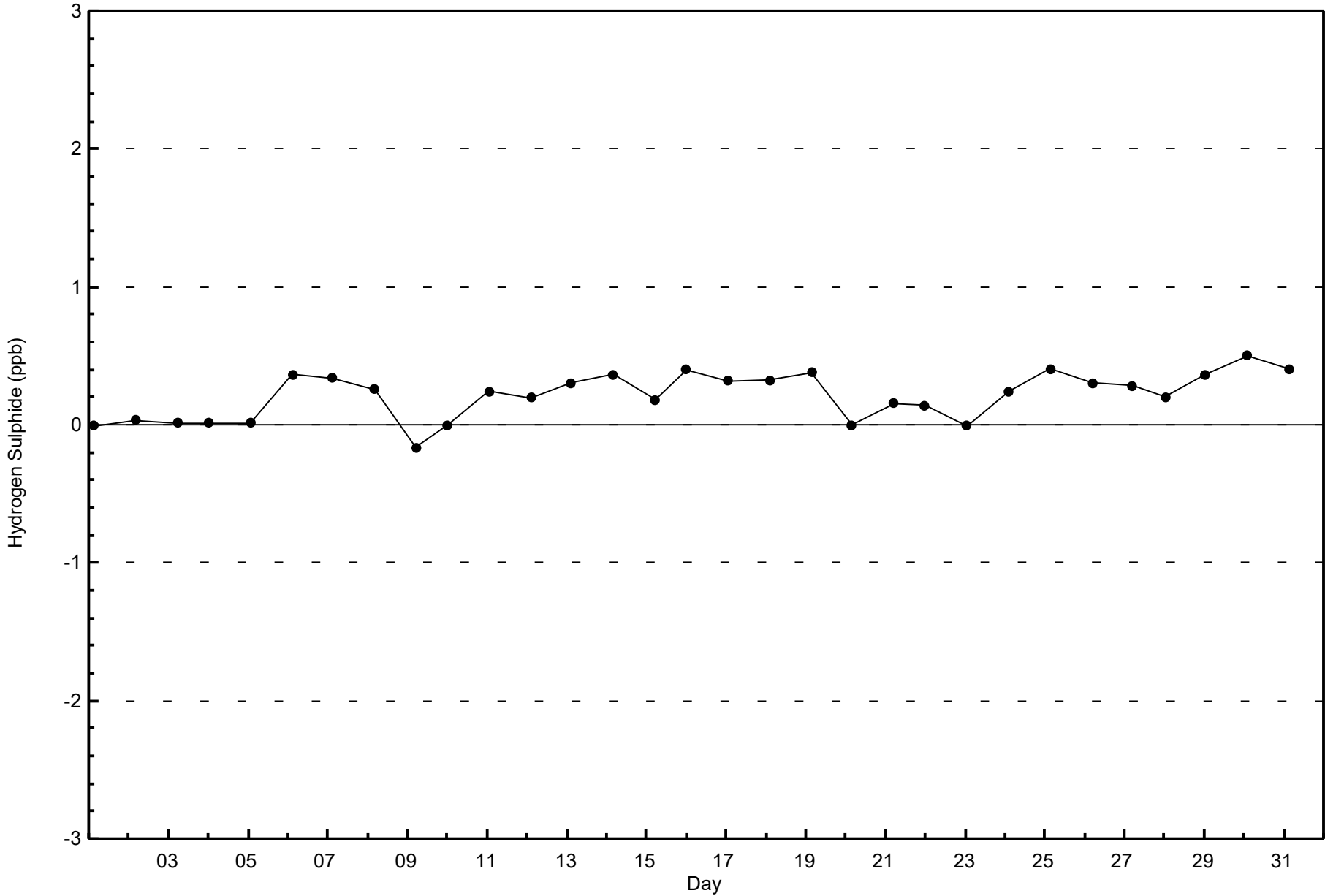


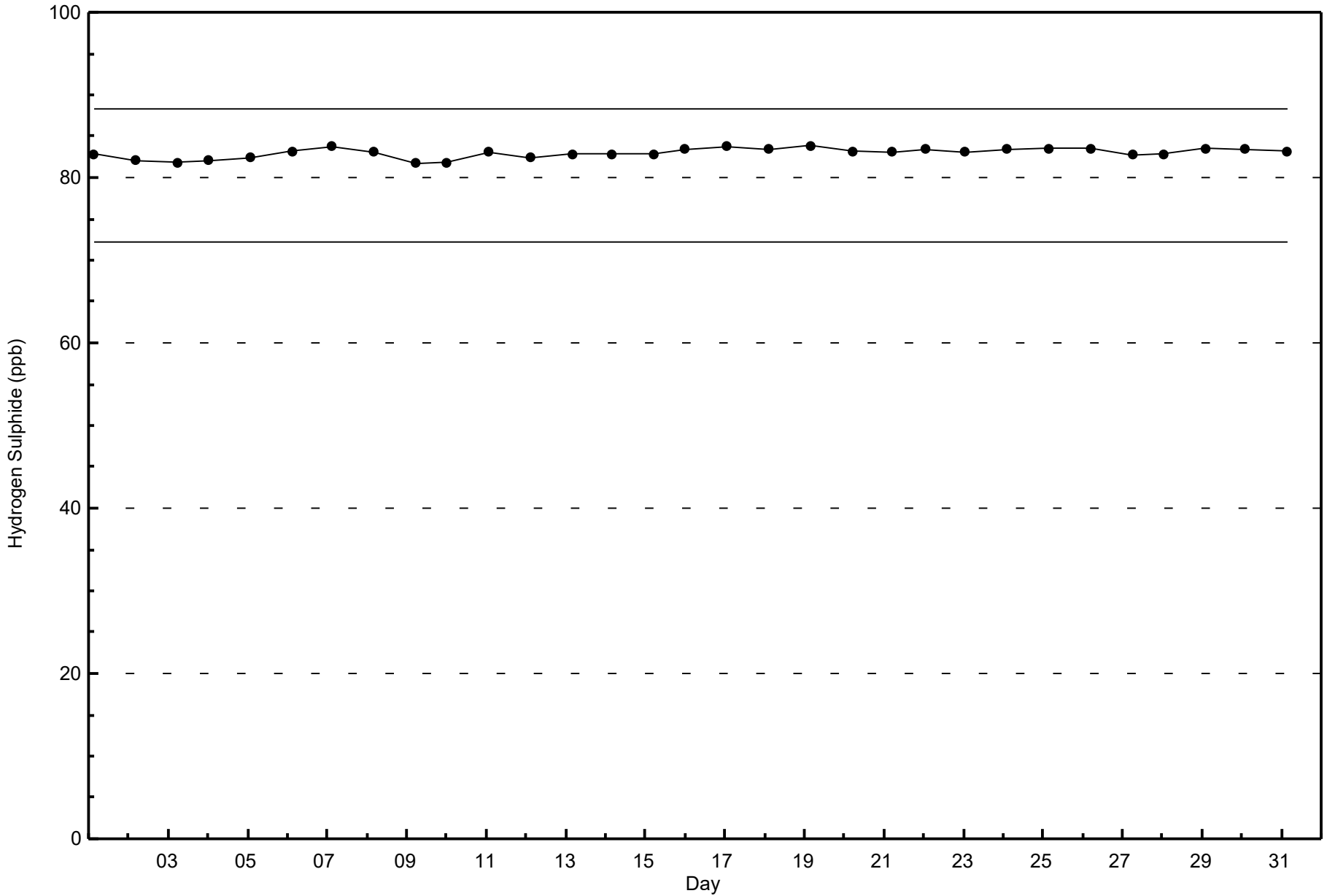
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 699







**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

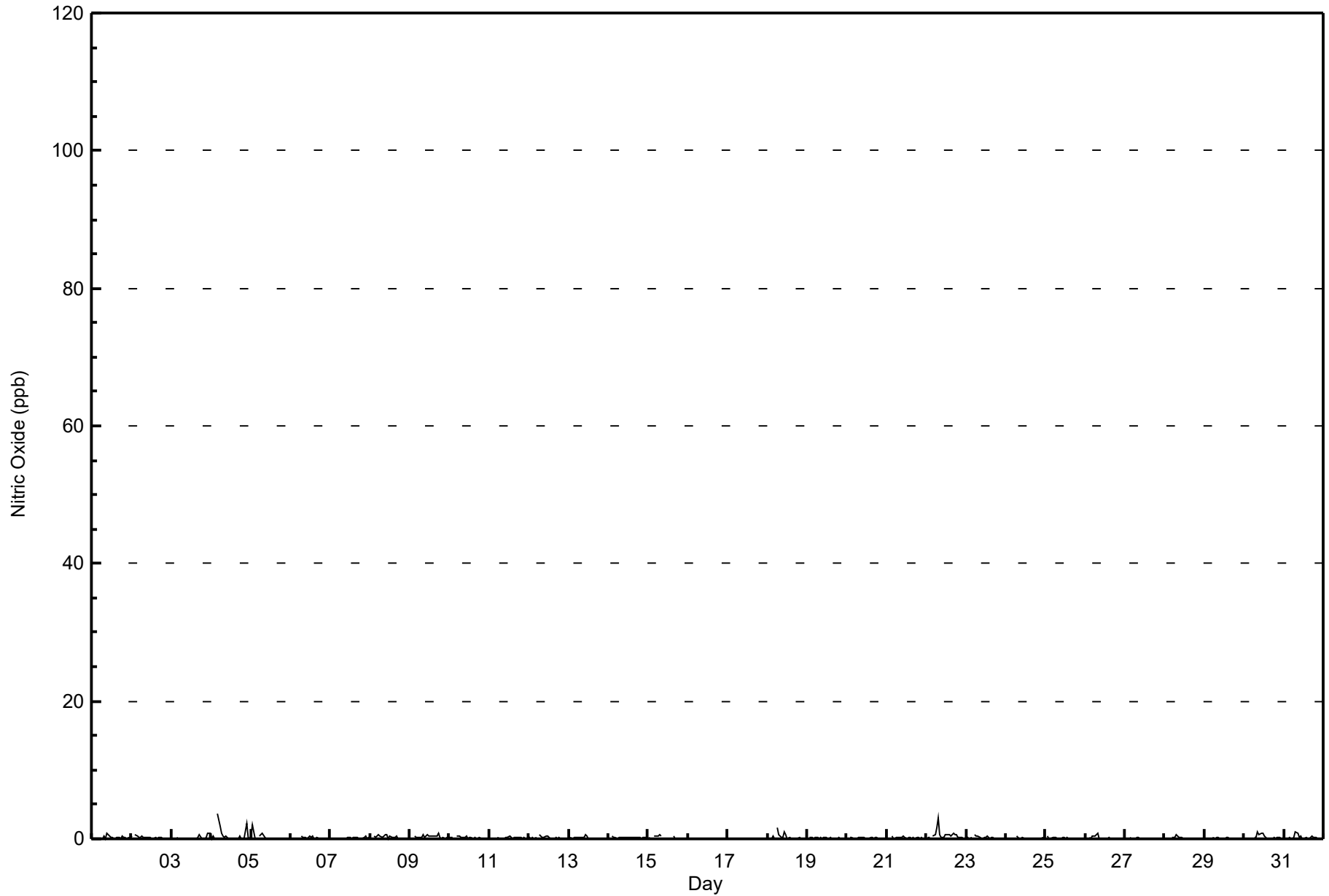
**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - May 2024**

Maximum Value: 3.7 ppb on May 4 05:00		Maximum Daily Average: 0.5 ppb on May 22		Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 1 02:00		Minimum Daily Average: 0.0 ppb on May 16		Hours of Data: 707																							
Maximum Diurnal Average: 0.4 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 21		Hours of Missing Data: 37																							
Monthly Average: 0.16 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> = 1.1		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-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.9	0.7	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.3	0.3	0.1	0.1	0.1	0.3	0.2	0.9	
2-May	0.4	Z	0.6	0.4	0.3	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.6	
3-May	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.2	0.9	0.8	0.1	0.9	
4-May	0.0	0.5	0.0	Z	3.7	1.9	0.8	0.4	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0	0.0	2.2	0.1	0.0	0.5	3.7	
5-May	0.5	2.1	0.0	0.0	Z	0.5	0.7	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	
6-May	0.0	0.0	0.0	0.0	0.0	Z	0.4	0.2	0.2	0.2	0.1	0.4	0.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
7-May	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.1	0.2	0.1	0.3	
8-May	0.2	Z	0.4	0.3	0.4	0.6	0.4	0.2	0.5	0.6	0.5	0.1	0.3	0.2	0.2	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.6	
9-May	0.0	0.0	Z	0.5	0.1	0.2	0.3	0.1	0.6	0.2	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.7	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.7	
10-May	0.1	0.2	0.1	Z	0.5	0.4	0.5	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.2	0.5	
11-May	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.3	0.2	0.4	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.2	0.0	0.0	0.1	0.4	
12-May	0.1	0.1	0.2	0.0	0.2	Z	0.6	0.4	0.2	0.1	0.4	0.4	0.2	0.1	0.1	0.0	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.6	
13-May	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.5	0.5	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	0.5	
14-May	0.2	Z	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	
15-May	0.0	0.1	Z	0.5	0.4	0.4	0.5	0.6	0.4	C	C	C	C	C	C	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.6	
16-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-May	0.0	0.0	0.0	0.4	0.0	Z	1.7	0.6	0.2	0.2	1.1	0.7	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	1.7	
19-May	Z	0.2	0.2	0.1	0.0	0.3	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3	
20-May	0.0	Z	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.3	
21-May	0.0	0.0	Z	0.3	0.0	0.1	0.2	0.3	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.0	0.1	0.4	
22-May	0.0	0.3	0.2	Z	0.5	0.5	1.7	3.0	0.6	0.3	0.3	0.6	0.5	0.6	0.6	0.4	0.8	0.7	0.6	0.2	0.2	0.2	0.1	0.0	0.5	3.0	
23-May	0.1	0.2	0.1	0.1	Z	0.5	0.4	0.4	0.2	0.0	0.0	0.3	0.3	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
24-May	0.0	0.0	0.0	0.0	0.0	Z	0.4	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	0.0	0.2	0.2	0.1	0.4	
25-May	Z	0.3	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
26-May	0.0	Z	0.1	0.0	0.3	0.3	0.5	0.7	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
27-May	0.0	0.0	Z	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
28-May	0.0	0.0	0.0	Z	0.2	0.2	0.2	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
29-May	0.0	0.0	0.0	0.0	Z	0.3	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.1	0.9	0.6	0.9	0.9	0.4	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.1	0.0	0.0	0.2	0.9	
31-May	Z	0.1	0.1	0.1	0.0	0.0	0.3	1.1	0.8	0.3	0.4	0.1	0.0	0.2	0.0	0.1	0.2	0.4	0.2	0.2	0.0	0.0	0.1	0.0	0.2	1.1	
		0.1	0.2	0.1	0.1	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	Diurnal Average		
		0.5	2.1	0.6	0.5	3.7	1.9	1.7	3.0	0.9	0.9	1.1	0.9	0.5	0.6	0.6	0.5	0.8	0.7	0.6	0.3	0.2	2.2	0.9	0.8	Diurnal Maximum	
Z - zerospan		C - Calibration																									



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Jackfish 2/3 - May 2024**







**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Jackfish 2/3 - May 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  
Jackfish 2/3 - May 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	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705
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	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705

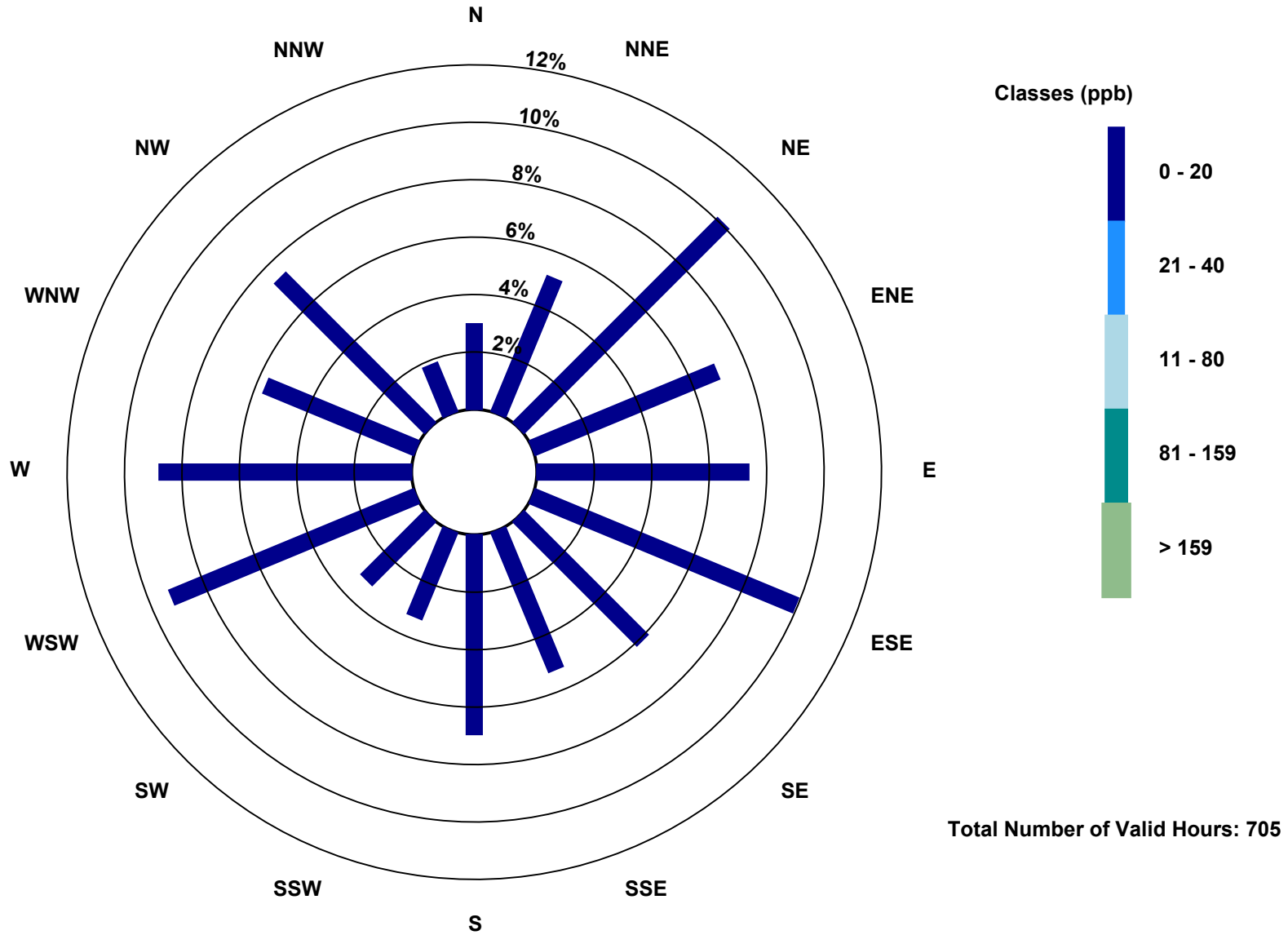
Total Number of Valid Hours: 705

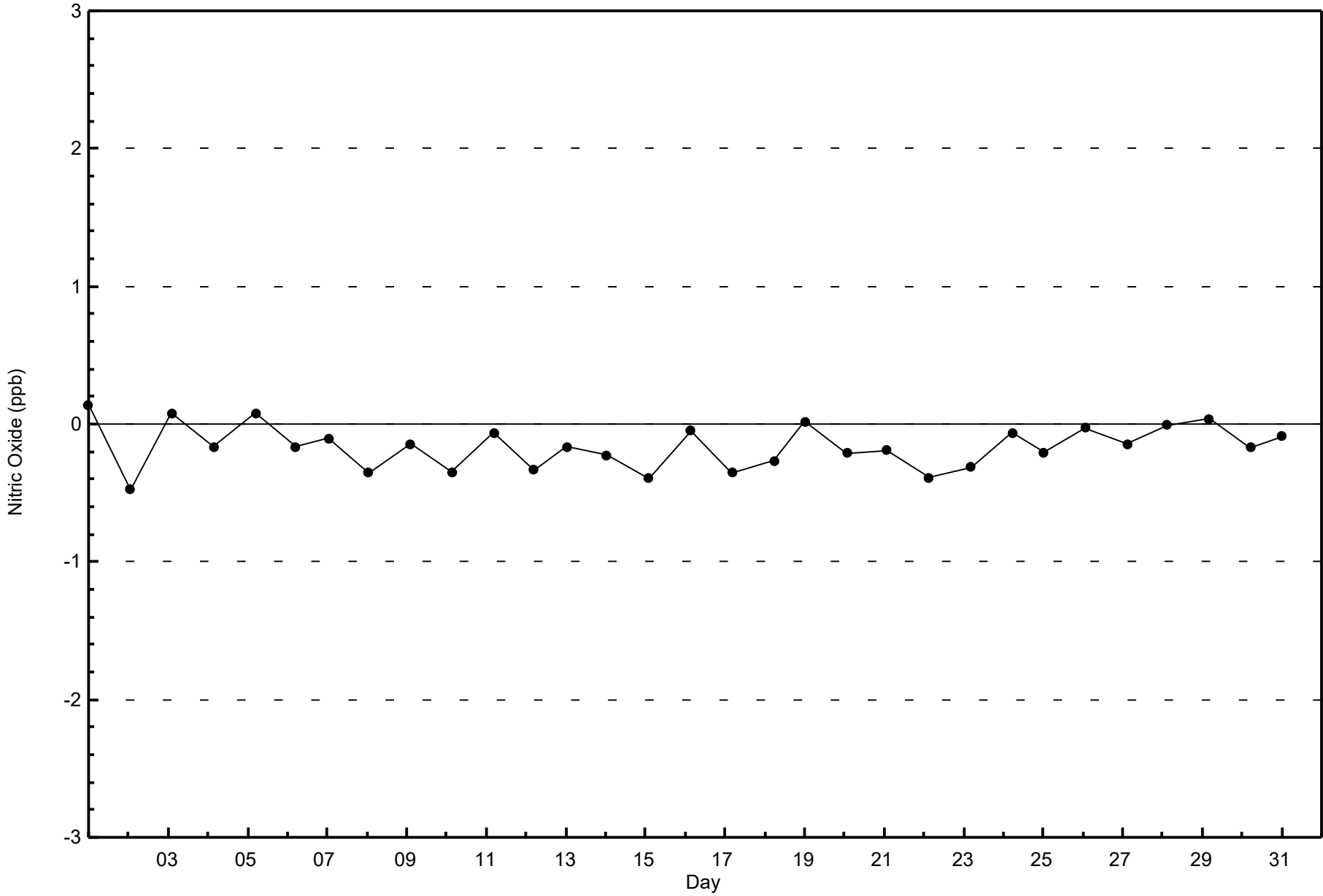
Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Jackfish 2/3

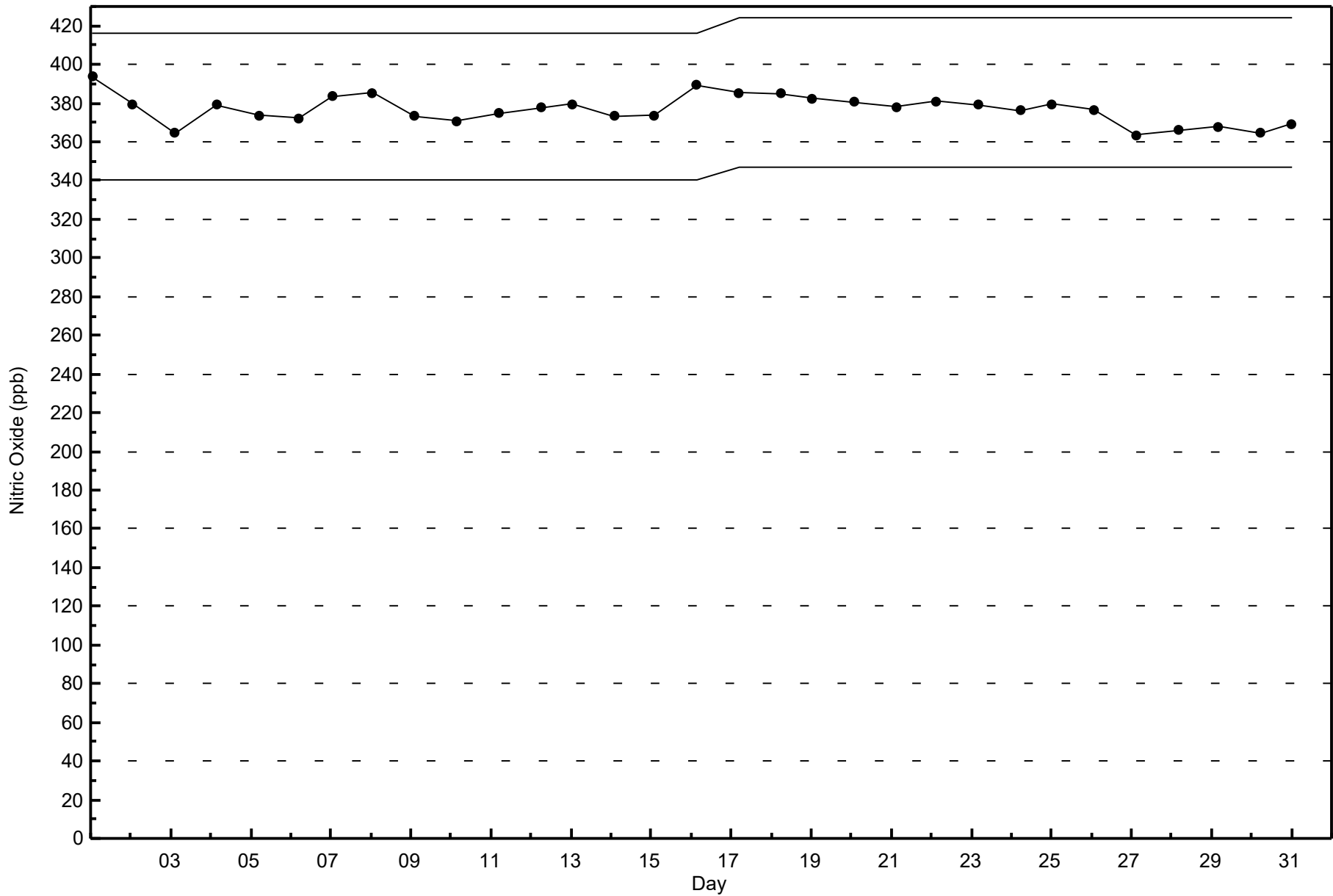






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Jackfish 2/3 - May 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

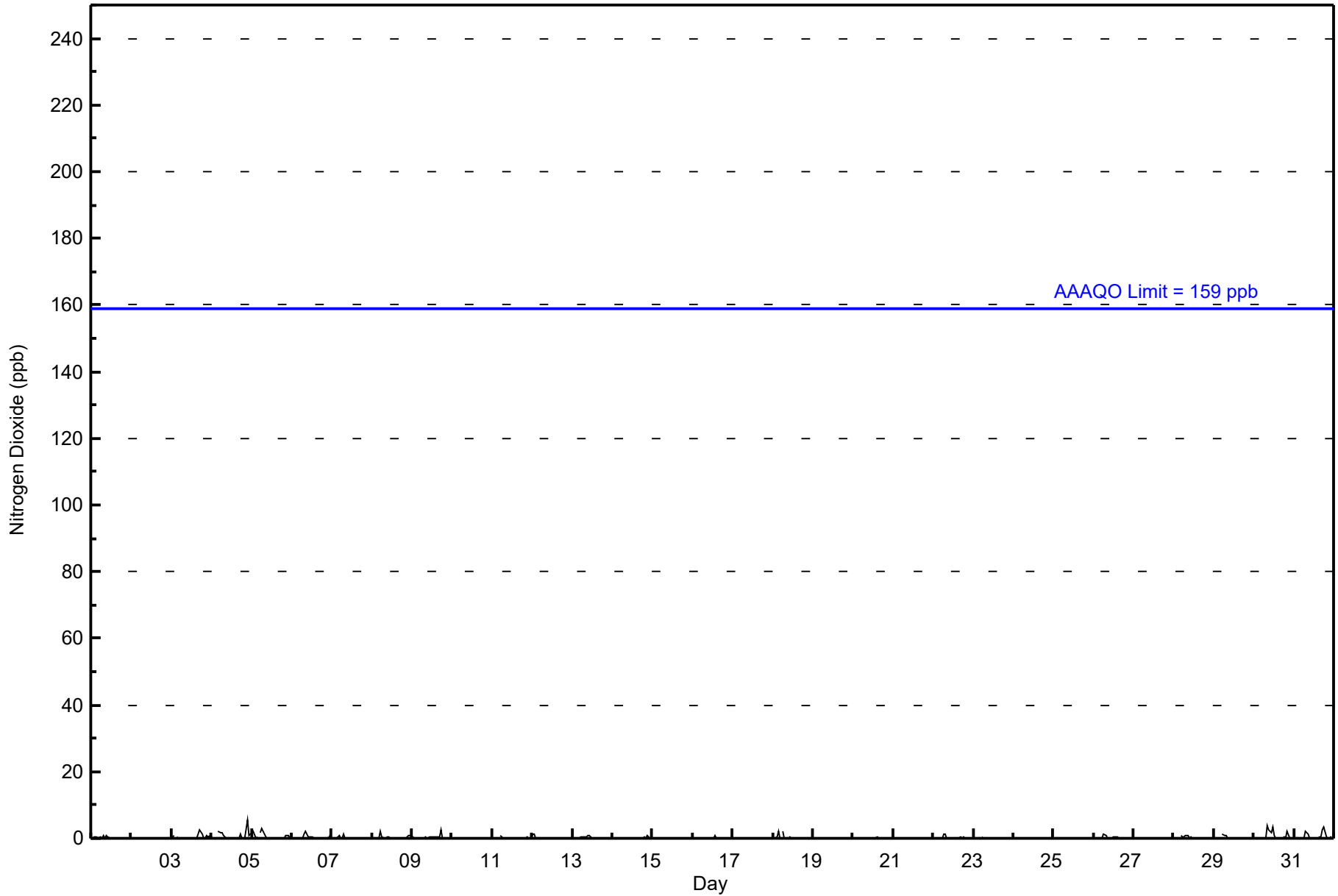
Jackfish 2/3 - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 5.6 ppb on May 4 22:00		Maximum Daily Average: 0.7 ppb on May 4		Hours of Data:														707								
Minimum Value: 0.0 ppb on May 1 05:00		Minimum Daily Average: 0.0 ppb on May 2		Hours of Missing Data:														37								
Maximum Diurnal Average: 0.4 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 3		Hours of Calibration:														37								
Monthly Average: 0.18 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> = 0.6 P <sub>99</sub> = 2.5		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-May	Z	0.3	0.5	0.3	0.0	0.6	0.0	0.7	0.0	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.9
2-May	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-May	0.0	0.9	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	1.1	2.7	1.2	0.2	0.0	0.8	0.3	0.8	0.4	2.7
4-May	0.0	0.0	0.0	Z	2.2	1.7	1.7	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	5.6	0.9	1.2	0.7	5.6
5-May	1.9	2.0	0.0	0.5	Z	1.7	2.8	2.1	0.5	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.8	1.0	0.9	0.0	0.6	2.8
6-May	0.0	0.0	0.0	0.0	0.0	Z	0.2	1.2	2.1	1.3	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.8	0.4	2.1	
7-May	Z	0.0	0.0	0.1	1.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
8-May	0.0	Z	0.0	0.0	0.0	2.2	0.3	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.9	0.2	2.2
9-May	0.4	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.4	0.3	0.4	0.4	0.6	0.5	0.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5
10-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-May	0.0	0.0	0.0	0.0	Z	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.7	
12-May	1.3	1.3	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	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3
13-May	Z	0.1	0.0	0.1	0.0	0.4	0.4	0.5	0.3	0.8	0.8	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	0.2	0.8
14-May	0.0	Z	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	1.0	0.0	0.0	0.1	1.0
15-May	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	--	0.1
16-May	0.0	0.0	0.0	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
17-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-May	0.0	0.0	0.3	2.3	0.0	Z	2.1	0.2	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	0.2	2.3
19-May	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
20-May	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	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
21-May	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
22-May	0.0	0.0	0.0	Z	0.0	0.0	1.1	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	0.5	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.4
23-May	0.0	0.0	0.0	0.2	Z	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
24-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
25-May	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
26-May	0.0	Z	0.0	0.0	0.0	0.2	1.1	0.8	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1
27-May	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
28-May	0.0	0.0	0.0	Z	0.8	0.6	0.5	1.0	0.8	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	0.0	0.0	0.2	1.0
29-May	0.0	0.0	0.0	0.0	Z	1.2	0.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	3.7	2.6	1.9	3.4	1.0	0.0	0.0	0.0	0.0	0.1	0.6	0.0	2.2	0.0	0.0	0.0	0.7	3.7
31-May	Z	0.0	0.0	0.0	0.0	0.0	0.2	2.0	1.2	0.0	0.2	0.0	0.0	0.0	0.6	0.6	2.5	3.2	0.4	0.0	0.0	0.4	0.0	0.0	0.5	3.2
																								Diurnal Average		
																								Diurnal Maximum		
0.1 0.2 0.0 0.2 0.2 0.4 0.4 0.4 0.3 0.2 0.2 0.2 0.1 0.1 0.1 0.0 0.1 0.3 0.2 0.0 0.1 0.3 0.1 0.2																										
1.9 2.0 0.5 2.3 2.2 2.2 2.8 2.1 3.7 2.6 1.9 3.4 1.0 0.7 0.6 0.6 1.1 2.7 3.2 0.6 2.2 5.6 0.9 1.8																										
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Jackfish 2/3 - May 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  
Jackfish 2/3 - May 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	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705
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	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705

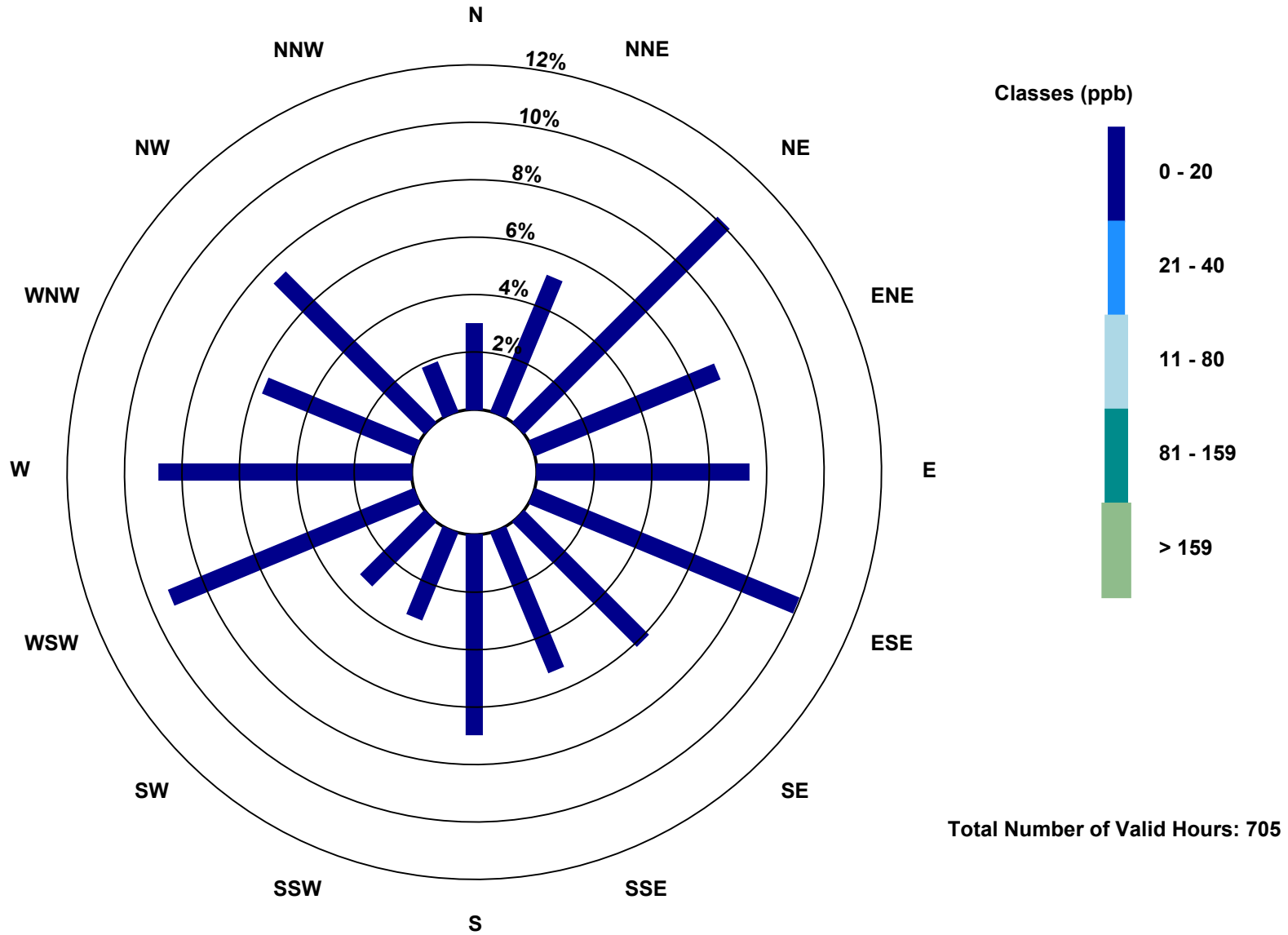
Total Number of Valid Hours: 705

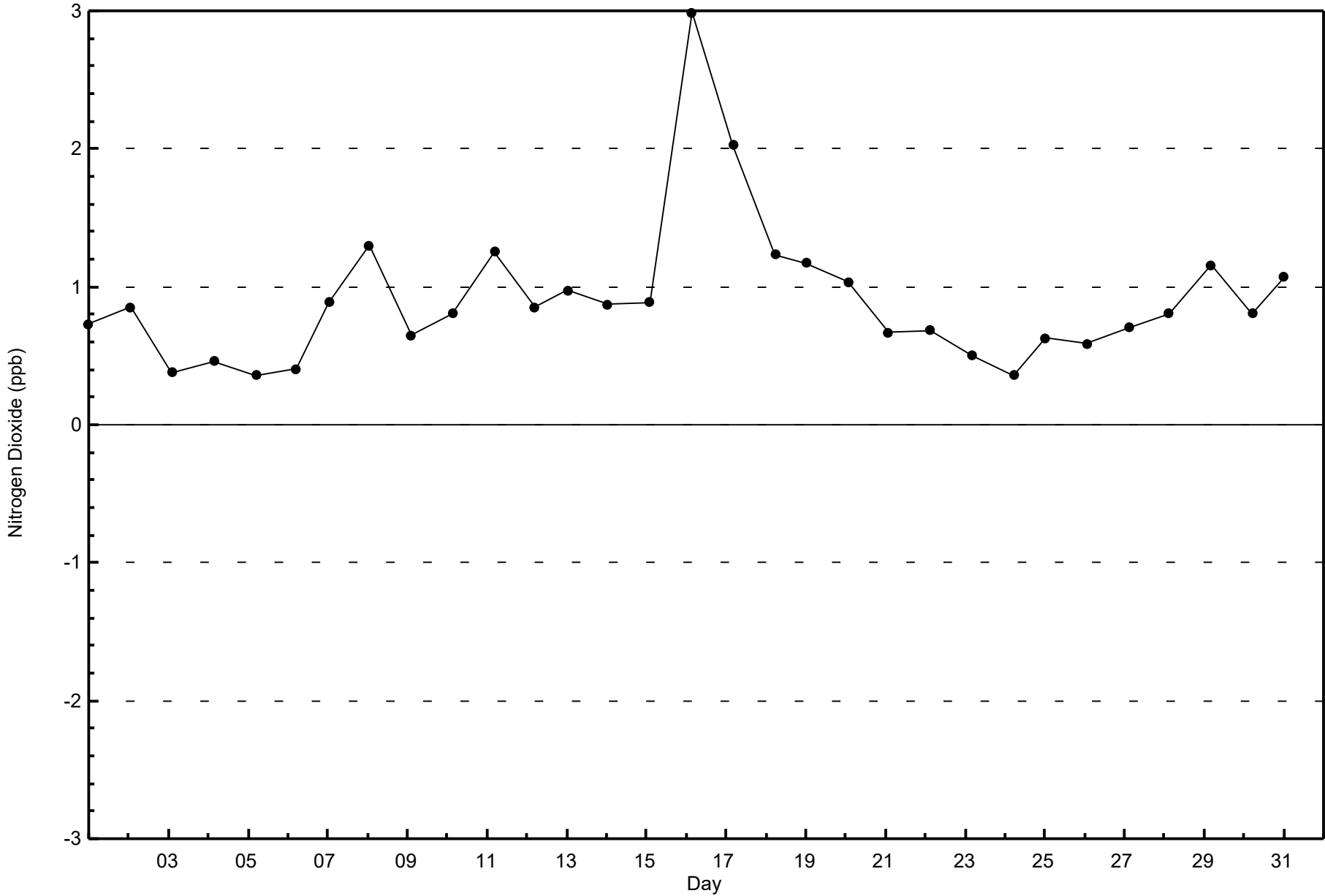
Total Number of Hours: 744

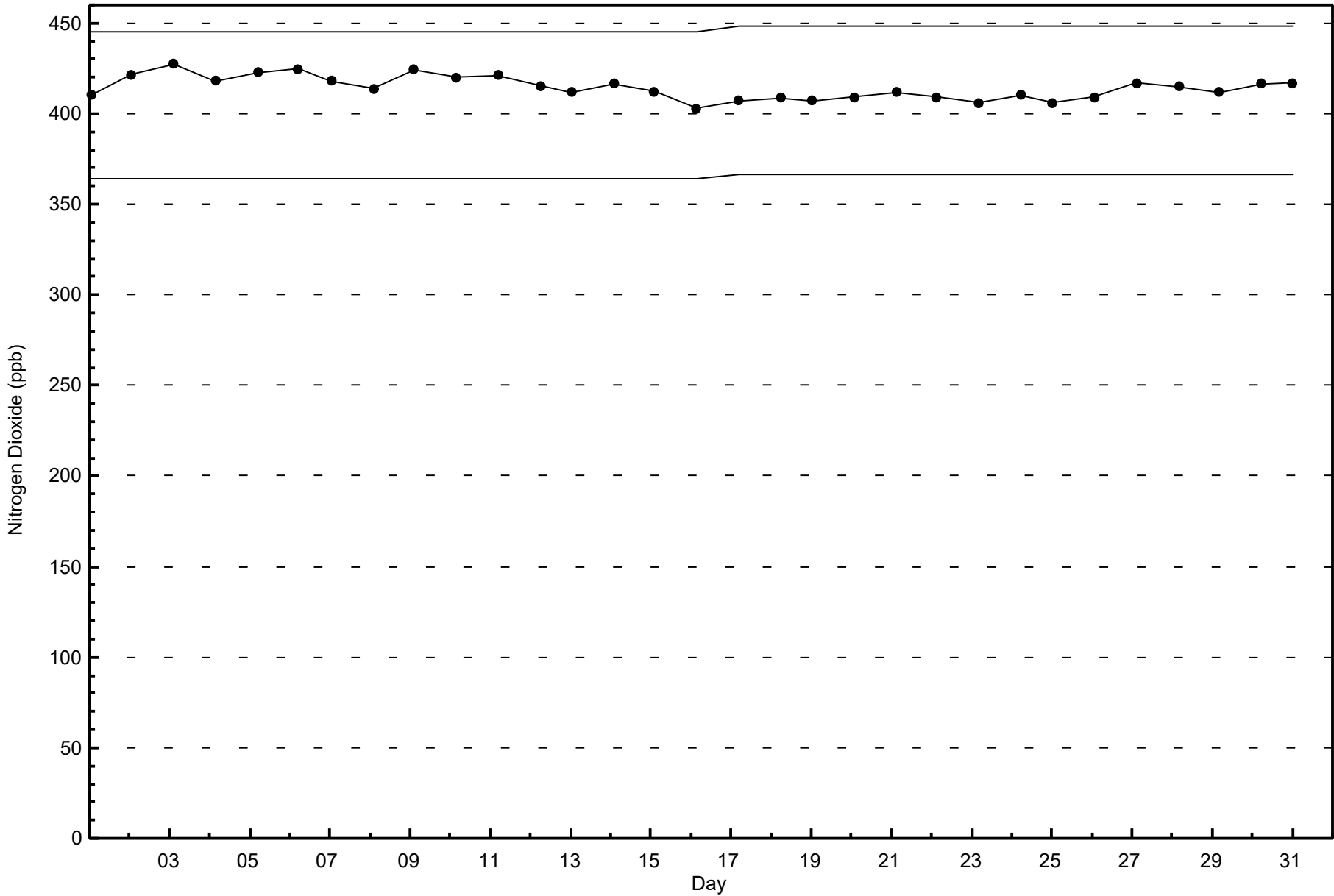


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Jackfish 2/3









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

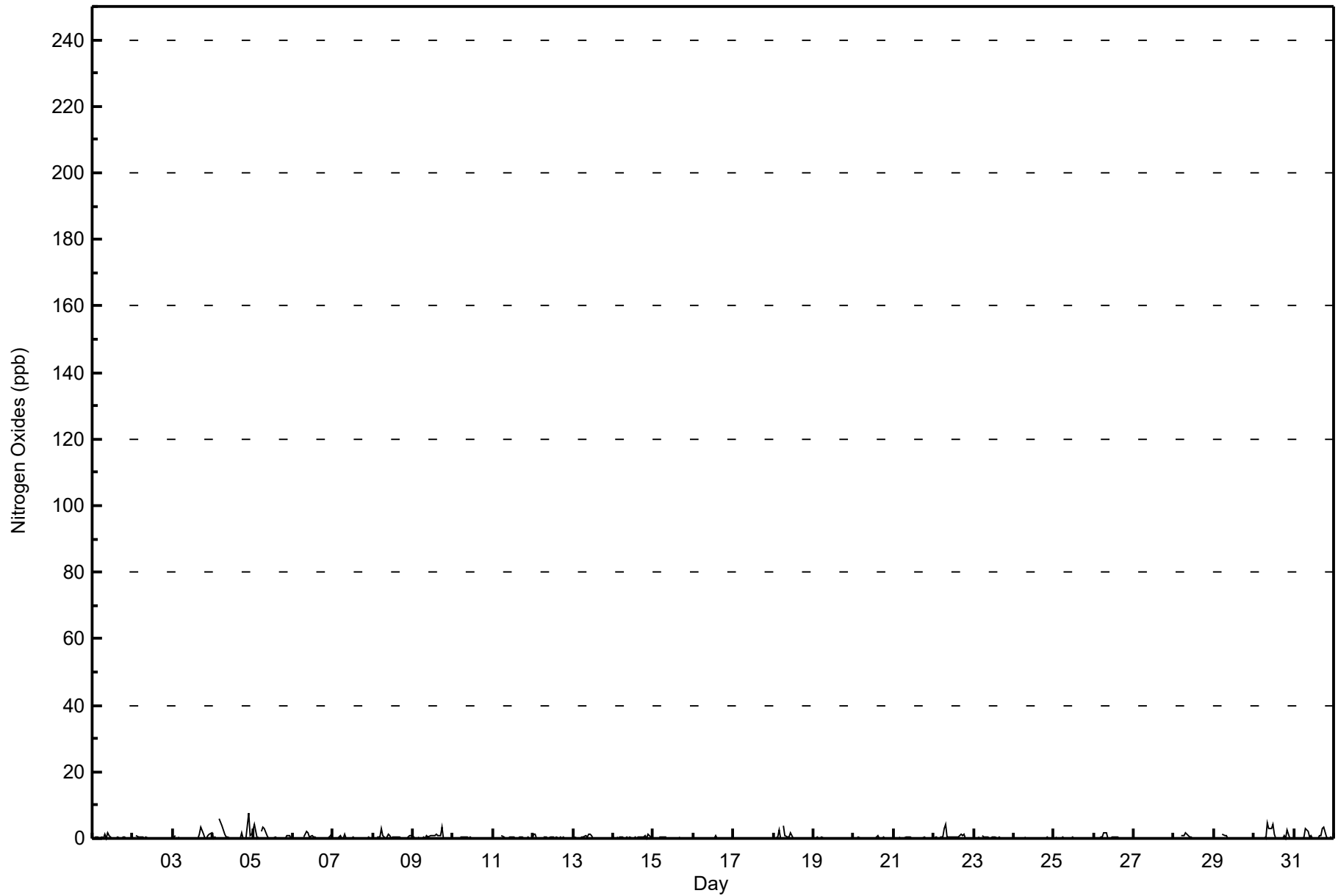
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - May 2024**

Maximum Value: 7.8 ppb on May 4 22:00		Maximum Daily Average: 1.2 ppb on May 4		Hours in Service: 744																						
Minimum Value: 0.0 ppb on May 1 05:00		Minimum Daily Average: 0.0 ppb on May 17		Hours of Data: 707																						
Maximum Diurnal Average: 0.8 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 20		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 = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 0.9 P <sub>99</sub> = 3.6		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-May	Z	0.3	0.5	0.3	0.0	0.6	0.0	1.1	0.0	1.8	1.0	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.3	0.3	0.1	0.2	0.1	0.3	0.3	1.8
2-May	0.4	Z	0.6	0.4	0.3	0.2	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.6
3-May	0.0	0.9	Z	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	3.2	1.2	0.2	0.0	1.0	1.2	1.6	0.5	3.2
4-May	0.0	0.5	0.0	Z	5.9	3.6	2.5	1.2	0.6	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	1.7	0.0	0.0	0.0	7.8	1.0	1.2	1.2	7.8
5-May	2.4	4.1	0.0	0.5	Z	2.2	3.5	2.9	0.7	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.8	1.0	0.9	0.0	0.8	4.1
6-May	0.0	0.0	0.0	0.0	0.0	Z	0.6	1.4	2.3	1.5	0.5	0.7	0.6	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	1.8	0.5	2.3
7-May	Z	0.1	0.0	0.1	1.0	0.1	0.0	1.1	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.2	0.3	0.1	0.2	0.2	1.1
8-May	0.2	Z	0.4	0.3	0.4	2.8	0.7	0.2	0.5	1.1	0.8	0.1	0.3	0.2	0.2	0.2	0.4	0.1	0.0	0.0	0.0	0.5	0.7	1.0	0.5	2.8
9-May	0.4	0.0	Z	0.6	0.1	0.2	0.3	0.1	1.0	0.2	1.0	0.8	0.9	0.9	1.1	1.0	0.7	3.2	0.1	0.1	0.2	0.1	0.2	0.1	0.6	3.2
10-May	0.1	0.2	0.1	Z	0.5	0.4	0.5	0.2	0.2	0.2	0.3	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.2	0.5
11-May	0.0	0.0	0.0	0.0	Z	0.8	0.2	0.0	0.1	0.0	0.3	0.2	0.4	0.2	0.0	0.1	0.2	0.2	0.1	0.1	0.0	0.5	0.0	0.1	0.2	0.8
12-May	1.4	1.4	0.2	0.0	0.2	Z	0.6	0.4	0.2	0.1	0.4	0.4	0.2	0.1	0.3	0.0	0.3	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.3	1.4
13-May	Z	0.3	0.1	0.2	0.1	0.6	0.5	0.7	0.5	1.1	1.3	1.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3
14-May	0.2	Z	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.8	0.1	1.2	0.2	0.2	0.3	1.2
15-May	0.1	0.1	Z	0.5	0.4	0.4	0.5	0.6	0.4	C	C	C	C	C	C	0.5	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	--	0.6
16-May	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	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
17-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-May	0.0	0.0	0.3	2.7	0.0	Z	3.8	0.8	0.2	0.2	1.6	0.7	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	3.8
19-May	Z	0.2	0.2	0.1	0.0	0.3	0.1	0.1	0.2	0.0	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3
20-May	0.0	Z	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.9	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.9
21-May	0.0	0.0	Z	0.3	0.0	0.1	0.2	0.3	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	0.1	0.1	0.0	0.1	0.4
22-May	0.0	0.3	0.2	Z	0.5	0.5	2.8	4.4	0.6	0.3	0.3	0.6	0.5	0.6	0.6	0.4	1.4	0.9	1.1	0.2	0.2	0.2	0.1	0.1	0.7	4.4
23-May	0.1	0.2	0.1	0.3	Z	0.9	0.4	0.6	0.2	0.0	0.0	0.3	0.3	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
24-May	0.0	0.0	0.0	0.0	0.0	Z	0.4	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	0.2	0.0	0.2	0.2	0.1	0.4
25-May	Z	0.3	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
26-May	0.0	Z	0.1	0.0	0.3	0.5	1.6	1.5	0.0	0.0	0.0	0.2	0.4	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6
27-May	0.0	0.0	Z	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
28-May	0.0	0.0	0.0	Z	1.0	0.8	0.7	1.6	1.0	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6
29-May	0.0	0.0	0.0	0.0	Z	1.5	1.0	1.0	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5
30-May	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.1	4.6	3.2	2.8	4.3	1.4	0.1	0.1	0.0	0.0	0.2	0.8	0.0	2.4	0.1	0.0	0.0	0.9	4.6
31-May	Z	0.1	0.1	0.1	0.0	0.0	0.5	3.1	2.0	0.3	0.6	0.1	0.0	0.2	0.0	0.7	0.8	2.9	3.4	0.6	0.0	0.0	0.5	0.0	0.7	3.4
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Jackfish 2/3 - May 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**  
**Jackfish 2/3 - May 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	21	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705
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	36	71	49	52	70	43	37	49	23	22	65	62	40	52	13	705

Total Number of Valid Hours: 705

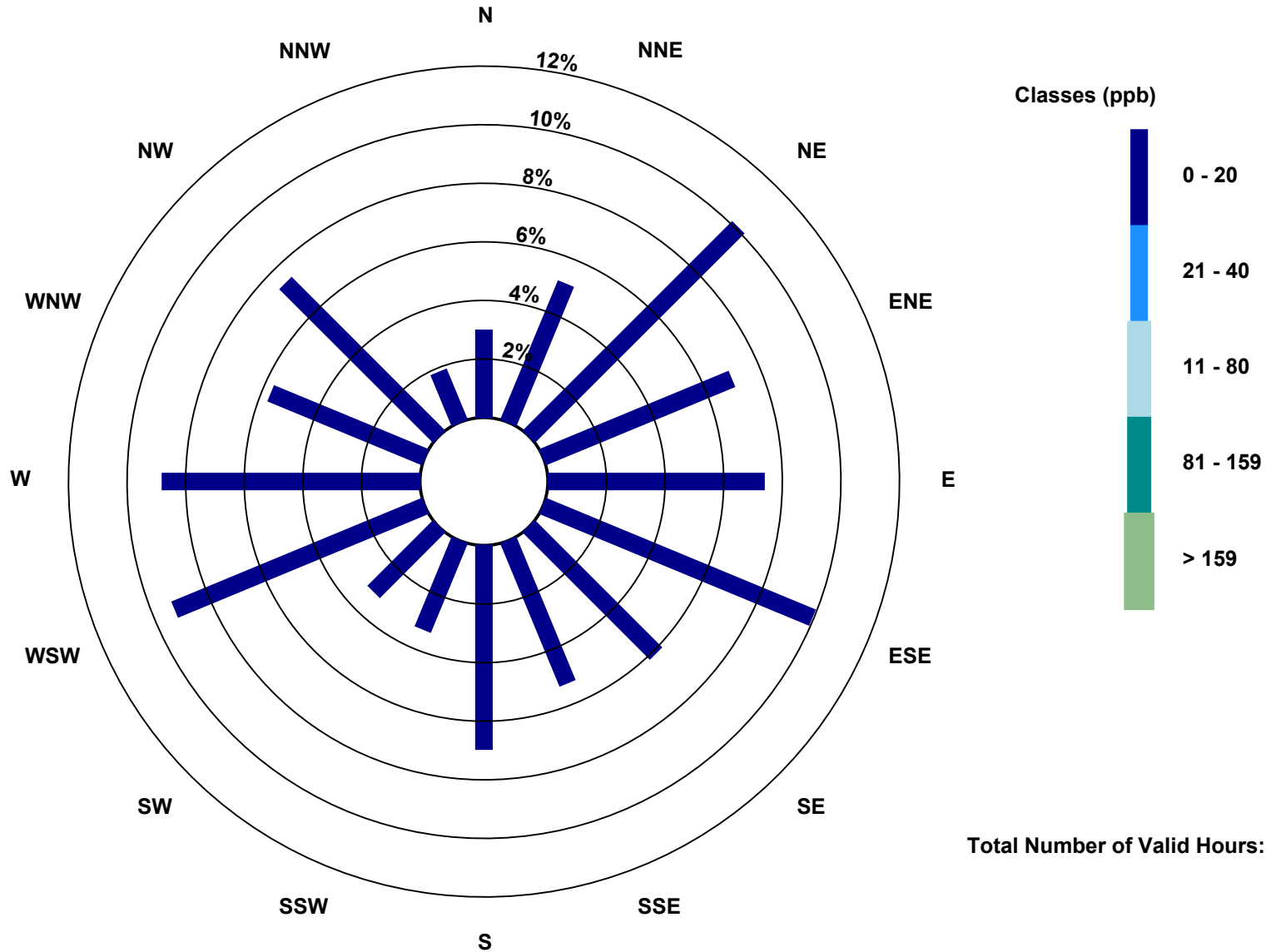
Total Number of Hours: 744



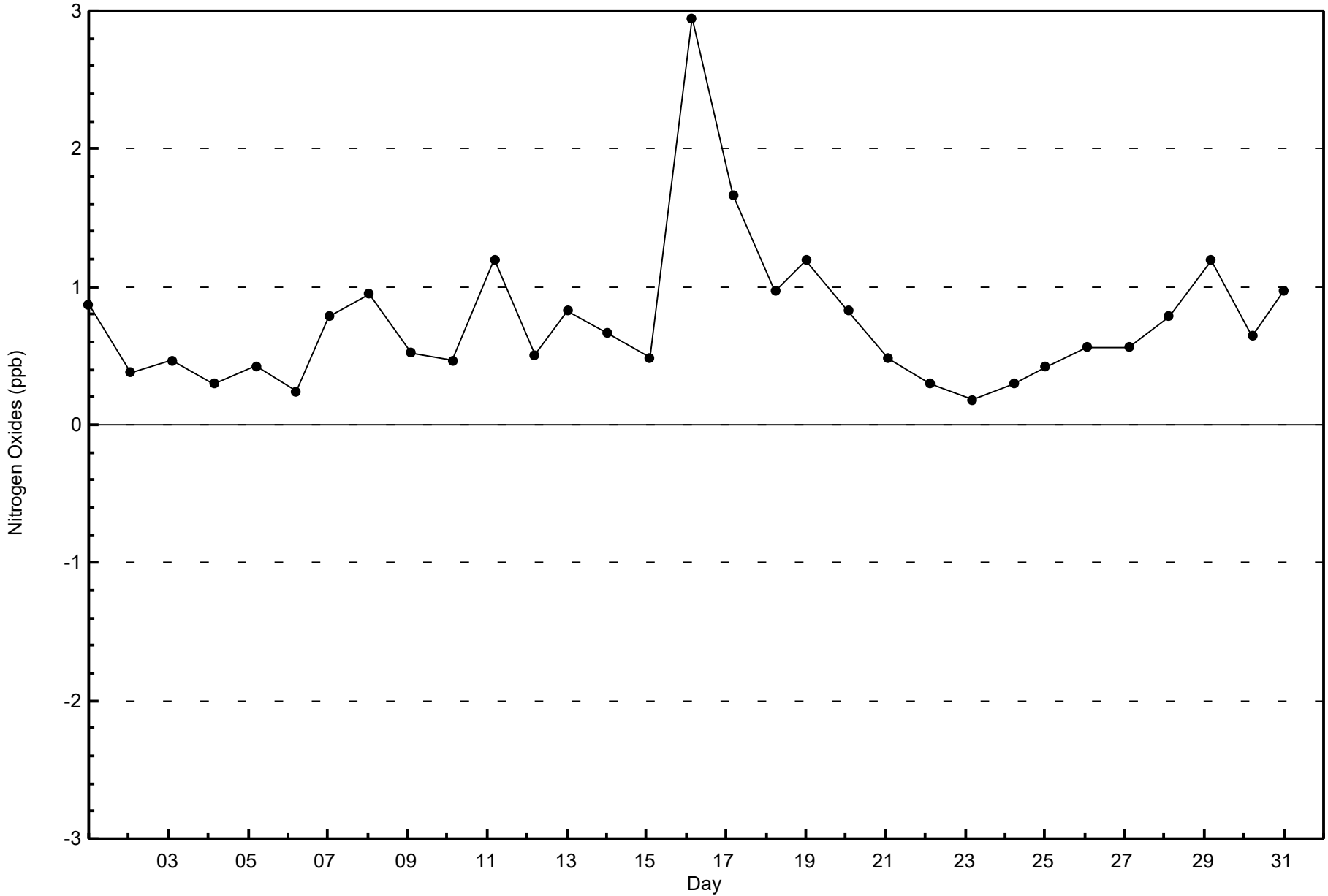


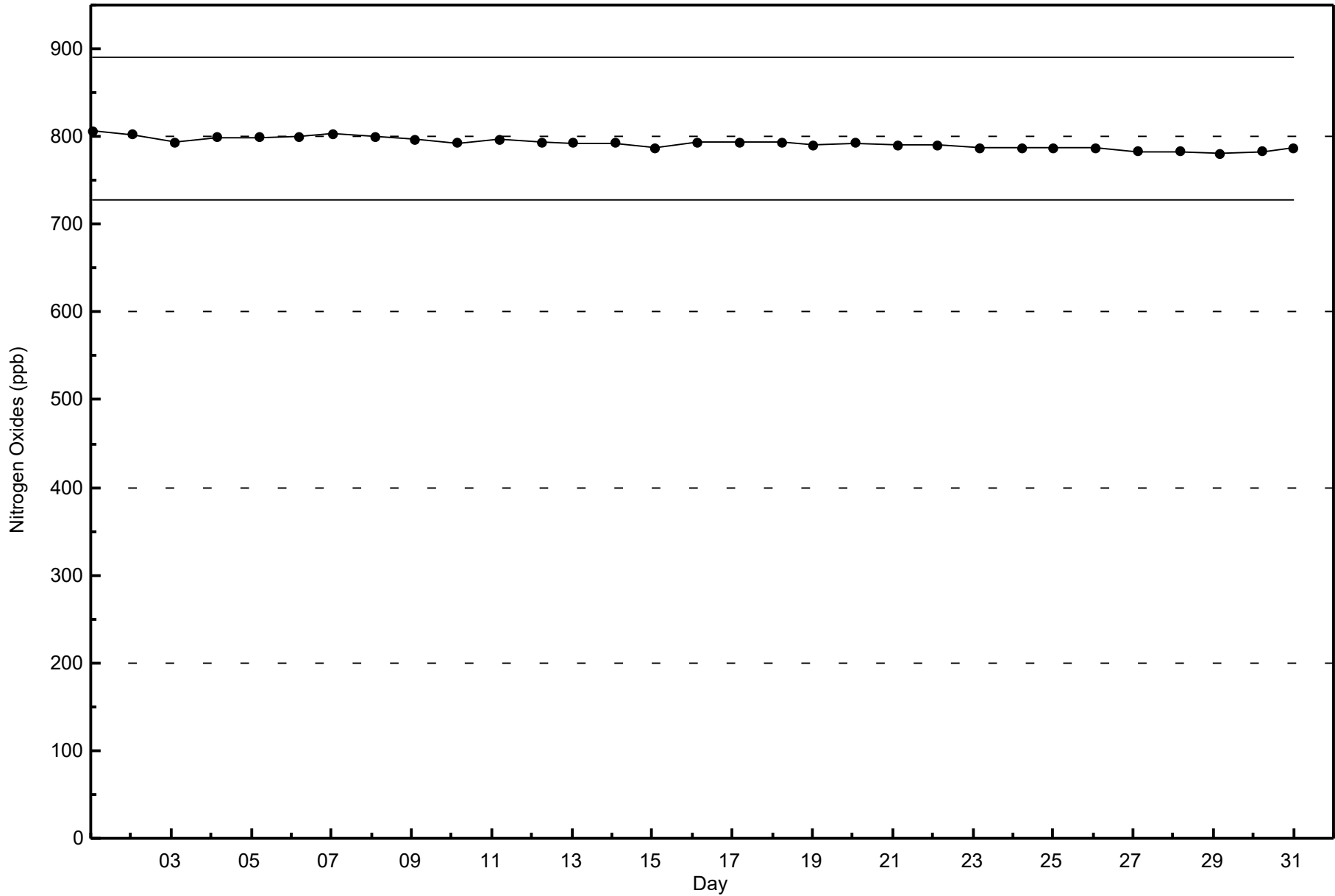
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Jackfish 2/3



Total Number of Valid Hours: 705







**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Ambient Temperature (AT) - C**

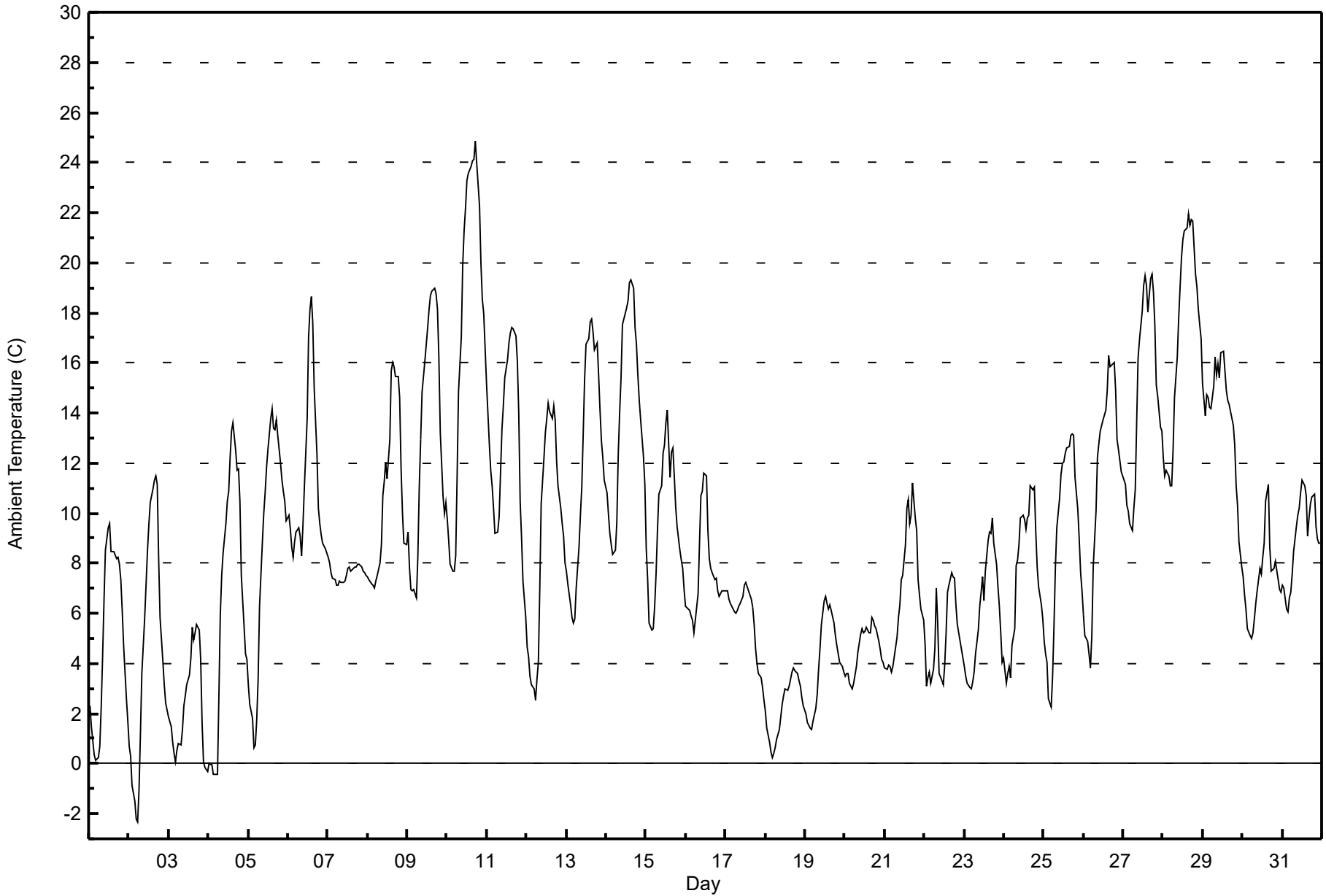
**Jackfish 2/3 - May 2024**

Maximum Value: 24.8 C on May 10 18:00		Maximum Daily Average: 17.5 C on May 10		Hours in Service: 744																							
Minimum Value: -2.3 C on May 2 06:00		Minimum Daily Average: 2.2 C on May 18		Hours of Data: 744																							
Maximum Diurnal Average: 12.5 C at hour 15		Minimum Diurnal Average: 4.9 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 8.94 C		Percentiles: P <sub>1</sub> = -0.4 P <sub>10</sub> = 3.0 Q <sub>1</sub> = 5.2 Median = 8.1 Q <sub>3</sub> = 12.1 P <sub>90</sub> = 16.4 P <sub>99</sub> = 22.3		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-May	2.3	1.4	0.9	0.3	0.1	0.3	0.7	2.3	4.3	6.5	8.5	9.4	9.6	8.5	8.5	8.5	8.2	8.2	8.0	7.4	6.1	4.7	2.6	1.7	5.0	9.6	
2-May	0.7	0.3	-0.9	-1.5	-2.2	-2.3	-1.0	1.2	3.6	5.8	7.1	8.5	9.5	10.4	11.0	11.3	11.5	11.1	8.2	5.9	4.1	3.2	2.4	2.2	4.6	11.5	
3-May	1.8	1.4	0.9	0.4	0.1	0.5	0.8	0.7	1.4	2.3	2.7	3.1	3.5	4.2	5.4	4.9	5.2	5.6	5.4	4.2	1.7	0.1	-0.1	-0.3	2.3	5.6	
4-May	0.0	0.0	0.0	-0.4	-0.4	-0.4	2.7	5.9	7.5	8.4	9.6	10.5	10.9	12.2	13.3	13.6	12.5	11.7	11.7	10.5	7.5	5.5	4.4	4.2	6.7	13.6	
5-May	3.1	2.4	1.8	0.6	0.8	1.7	3.4	6.3	8.8	10.0	10.8	11.8	12.6	13.8	14.2	13.4	13.4	13.8	13.1	12.0	11.3	10.9	10.5	9.7	8.7	14.2	
6-May	9.9	9.4	8.6	8.2	8.8	9.2	9.4	9.1	8.3	9.5	11.1	13.8	17.0	18.2	18.6	17.6	15.0	12.3	10.2	9.6	9.2	8.8	8.6	8.4	11.2	18.6	
7-May	8.2	8.0	7.6	7.4	7.3	7.1	7.1	7.3	7.2	7.2	7.3	7.5	7.8	7.8	7.7	7.8	7.8	7.9	8.0	7.9	7.8	7.7	7.6	7.5	7.6	8.2	
8-May	7.5	7.3	7.2	7.1	7.0	7.3	7.5	8.0	8.8	10.7	11.3	12.1	11.4	13.0	15.7	16.0	15.9	15.5	15.5	14.6	11.8	10.0	8.8	8.7	10.8	16.0	
9-May	9.3	7.8	6.9	6.9	7.0	6.6	8.3	11.0	12.9	14.8	16.1	16.7	17.4	18.1	18.7	18.9	19.0	18.7	18.1	16.2	13.2	10.7	10.0	10.4	13.1	19.0	
10-May	9.7	8.9	7.9	7.7	7.7	8.3	11.4	14.8	17.0	19.9	21.3	22.2	23.3	23.6	23.9	24.1	24.1	24.8	24.0	22.3	20.0	18.5	18.0	16.6	17.5	24.8	
11-May	15.2	12.8	11.7	11.1	10.2	9.2	9.3	9.9	11.6	13.4	14.3	15.4	16.1	16.8	17.2	17.4	17.3	17.1	16.0	14.0	10.5	9.0	7.3	5.9	12.9	17.4	
12-May	4.7	4.3	3.5	3.2	3.0	2.5	3.4	4.0	6.9	10.4	12.2	13.2	13.8	14.4	14.0	13.8	14.3	13.7	12.1	11.1	10.2	9.6	9.1	8.0	9.0	14.4	
13-May	7.7	7.2	6.3	5.8	5.6	5.8	7.0	8.6	9.9	11.0	13.2	15.4	16.7	17.0	17.6	17.7	17.2	16.5	16.8	15.5	14.1	12.9	12.2	11.3	12.1	17.7	
14-May	10.8	10.0	9.2	8.8	8.3	8.5	9.6	12.3	14.0	15.4	17.5	18.0	18.2	18.5	19.2	19.3	19.0	17.4	16.8	15.5	14.5	13.7	12.2	11.2	14.1	19.3	
15-May	8.6	7.4	5.6	5.3	5.4	6.3	7.6	9.3	10.7	11.1	12.4	12.7	13.6	14.1	11.4	12.5	12.6	11.5	10.3	9.5	8.5	8.1	7.8	6.9	9.6	14.1	
16-May	6.3	6.2	6.1	5.9	5.7	5.2	5.7	6.8	8.8	10.7	10.9	11.6	11.5	9.3	8.2	7.8	7.6	7.4	7.4	6.9	6.7	6.8	6.9	6.9	7.6	11.6	
17-May	6.9	6.9	6.6	6.4	6.2	6.1	6.0	6.1	6.3	6.4	6.7	7.1	7.2	7.0	6.9	6.5	6.2	5.6	4.6	4.0	3.6	3.4	3.0	2.5	5.8	7.2	
18-May	2.1	1.4	0.8	0.5	0.3	0.4	0.6	1.0	1.4	1.9	2.4	2.7	3.0	3.0	3.1	3.4	3.7	3.8	3.7	3.6	3.3	3.1	2.6	2.3	2.2	3.8	
19-May	2.0	1.6	1.5	1.4	1.4	1.7	2.2	2.8	3.8	4.6	5.6	6.5	6.7	6.4	6.2	6.3	6.1	5.6	5.1	4.7	4.4	4.1	3.9	3.7	4.1	6.7	
20-May	3.5	3.6	3.6	3.2	3.0	3.2	3.5	3.9	4.4	5.2	5.4	5.2	5.3	5.4	5.2	5.2	5.8	5.7	5.5	5.4	4.9	4.5	4.2	4.0	4.5	5.8	
21-May	3.8	3.7	3.9	3.9	3.7	3.9	4.3	5.1	5.9	6.3	7.3	7.5	8.8	10.2	10.6	9.6	9.9	11.2	9.8	9.3	7.4	6.7	6.2	5.7	6.9	11.2	
22-May	4.8	3.1	3.4	3.7	3.2	3.7	4.6	7.0	5.6	3.6	3.3	3.2	3.9	5.2	6.8	7.1	7.6	7.5	7.4	6.3	5.6	4.9	4.5	4.2	5.0	7.6	
23-May	3.9	3.5	3.2	3.0	3.0	3.2	3.7	4.4	5.3	6.3	6.9	7.4	6.5	7.7	8.9	9.2	9.2	9.8	8.8	8.0	7.1	6.3	5.2	4.1	6.0	9.8	
24-May	4.2	3.2	3.6	3.9	3.5	4.7	5.4	7.9	8.1	8.7	9.8	9.9	9.7	9.4	9.8	9.9	11.1	10.9	11.0	9.2	7.8	7.0	6.3	5.8	7.5	11.1	
25-May	4.9	4.4	4.0	2.6	2.2	3.5	5.5	7.9	9.4	10.6	11.6	12.0	12.1	12.4	12.6	12.7	13.1	13.1	13.1	11.5	10.2	9.0	7.6	6.9	8.9	13.1	
26-May	5.9	5.1	4.9	4.4	3.8	5.1	7.8	10.1	12.2	12.8	13.3	13.5	13.7	14.1	14.9	16.3	15.9	15.9	16.0	14.9	13.0	12.5	12.1	11.7	11.2	16.3	
27-May	11.3	11.1	10.3	10.1	9.6	9.3	10.2	10.9	13.6	16.2	16.9	18.1	19.1	19.5	19.1	18.0	19.4	19.5	18.8	17.5	15.1	14.7	13.4	13.3	14.8	19.5	
28-May	12.2	11.5	11.7	11.5	11.1	11.1	12.5	14.6	16.2	17.8	19.1	20.2	20.9	21.3	21.4	22.0	21.5	21.7	21.7	19.6	19.0	18.1	17.5	17.0	17.1	22.0	
29-May	15.2	13.9	14.7	14.6	14.2	14.2	15.1	16.2	15.5	16.0	15.4	16.4	16.4	15.7	14.9	14.5	14.3	13.8	13.5	12.7	11.1	10.3	8.9	7.9	14.0	16.4	
30-May	7.4	6.7	6.2	5.4	5.1	5.0	5.2	5.8	6.4	6.9	7.8	7.6	8.2	8.8	10.5	11.2	8.6	7.7	7.7	7.8	8.0	7.4	7.0	6.8	7.3	11.2	
31-May	7.2	7.0	6.2	6.1	6.6	6.8	7.6	8.5	9.5	9.9	10.2	10.8	11.3	11.1	10.7	9.1	9.8	10.3	10.7	10.8	9.4	9.0	8.8	8.8	9.0	11.3	
		6.5	5.9	5.4	5.1	4.9	5.1	6.0	7.4	8.6	9.7	10.6	11.3	11.8	12.2	12.5	12.4	12.4	12.1	11.6	10.6	9.3	8.4	7.7	7.2	Diurnal Average	
		15.2	13.9	14.7	14.6	14.2	14.2	15.1	16.2	17.0	19.9	21.3	22.2	23.3	23.6	23.9	24.1	24.1	24.8	24.0	22.3	20.0	18.5	18.0	17.0	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Jackfish 2/3 - May 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	12	1.61	1.61
0 - 10	458	61.56	63.17
10 - 20	256	34.41	97.58
> 20	18	2.42	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

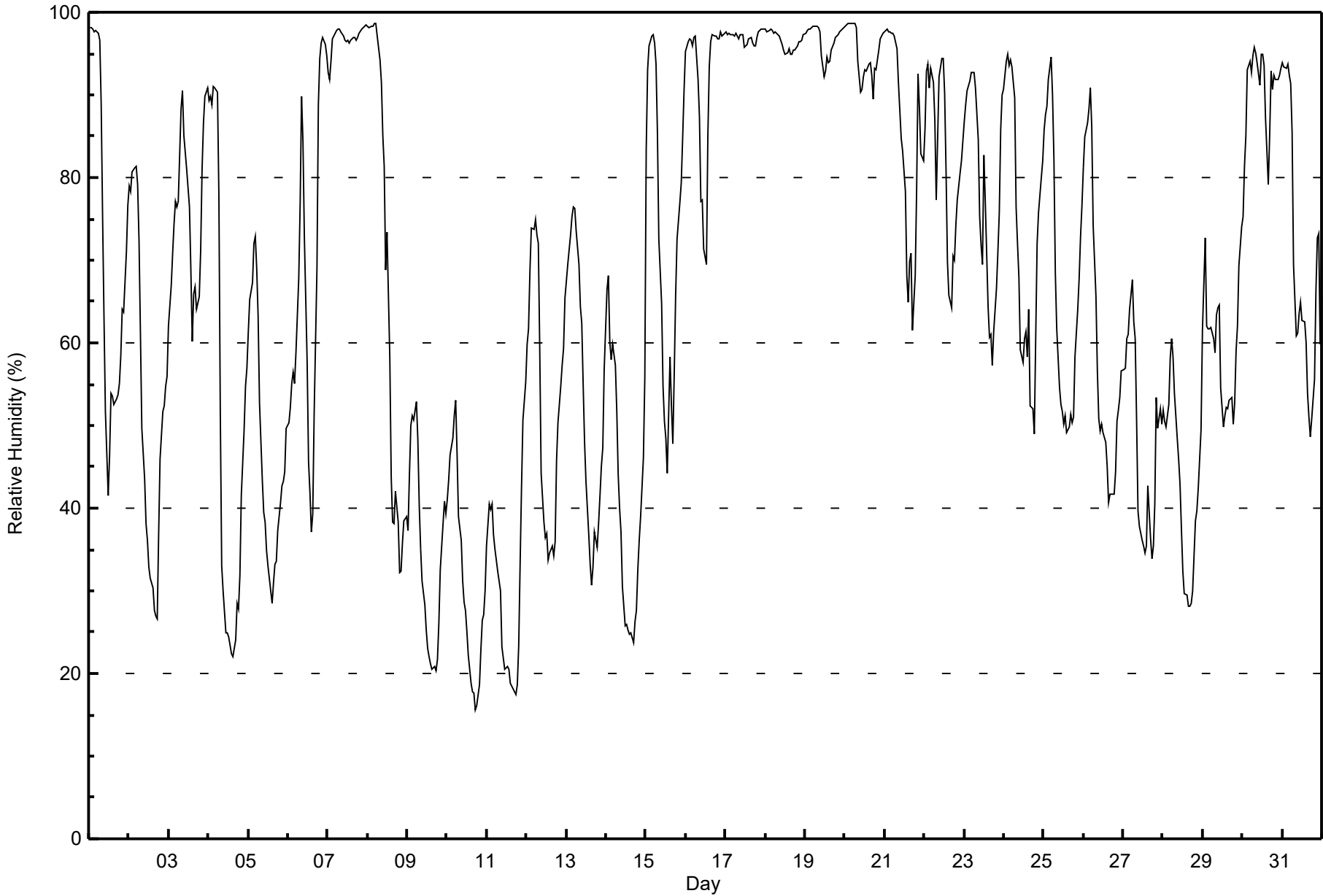
**Jackfish 2/3 - May 2024**

Maximum Value: 98.7 % on May 8 06:00      Maximum Daily Average: 97.0 % on May 17																						Hours in Service:	744																							
Minimum Value: 15.5 % on May 10 18:00      Minimum Daily Average: 30.2 % on May 11																						Hours of Data:	744																							
Maximum Diurnal Average: 81.9 % at hour 5      Minimum Diurnal Average: 53.4 % at hour 16																						Hours of Missing Data:	0																							
Monthly Average: 67.04 %      Percentiles: P <sub>1</sub> = 18.6 P <sub>10</sub> = 32.3 Q <sub>1</sub> = 47.7 Median = 67.9 Q <sub>3</sub> = 92.9 P <sub>90</sub> = 97.3 P <sub>99</sub> = 98.5																						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-May	98.1	98.2	98.0	97.7	97.8	97.5	96.6	88.8	75.2	63.0	51.7	41.5	46.5	54.0	53.5	52.5	53.3	53.7	55.0	58.5	64.1	63.7	71.0	76.7	71.1	98.2																				
2-May	79.0	78.2	80.7	81.2	81.4	79.2	72.3	61.3	49.6	43.5	38.1	36.1	32.9	31.5	30.3	27.7	27.0	26.6	36.8	45.9	51.7	52.4	54.8	56.0	52.3	81.4																				
3-May	62.1	66.9	70.8	74.3	77.1	76.4	77.2	88.3	90.5	85.1	83.1	80.9	76.5	68.8	60.2	66.0	66.7	64.2	65.6	71.1	81.0	86.6	89.9	90.9	75.8	90.9																				
4-May	89.3	89.8	88.9	91.0	90.9	90.3	77.9	51.7	33.0	30.1	24.9	25.0	24.4	23.4	22.4	22.0	24.1	28.5	27.8	31.9	41.5	49.6	54.7	56.9	49.6	91.0																				
5-May	61.3	65.3	67.3	72.1	72.8	68.9	63.2	52.7	43.4	39.5	38.3	34.9	33.0	30.1	28.4	31.1	33.2	33.5	37.3	40.8	42.7	43.2	44.4	49.6	47.0	72.8																				
6-May	50.4	52.2	55.0	56.5	55.1	58.9	67.9	76.7	89.8	84.4	72.8	57.6	45.7	41.9	37.2	39.2	51.6	69.0	88.9	94.5	96.3	97.0	96.1	94.7	67.9	97.0																				
7-May	92.7	91.8	94.1	96.7	97.4	97.8	98.0	97.9	97.6	97.1	96.7	96.5	96.6	96.3	96.7	97.0	97.0	96.6	97.0	97.5	97.9	98.2	98.4	98.4	96.7	98.4																				
8-May	98.3	98.2	98.3	98.4	98.6	98.7	97.1	94.2	91.5	85.0	81.4	68.8	73.3	58.1	43.7	38.2	38.1	42.0	38.4	32.2	32.3	35.7	38.5	39.0	67.4	98.7																				
9-May	37.2	44.1	50.0	51.2	50.6	52.9	48.3	40.3	35.1	31.3	28.3	25.2	23.1	22.1	21.1	20.5	20.8	20.3	21.7	26.2	32.5	38.1	40.9	39.4	34.2	52.9																				
10-May	40.9	43.4	46.4	48.4	51.2	53.1	46.6	39.0	36.1	31.2	28.6	27.6	25.1	22.2	18.9	17.7	17.7	15.5	16.1	18.6	22.8	26.4	27.2	30.0	31.3	53.1																				
11-May	35.5	40.5	39.9	40.4	36.8	35.1	32.4	31.2	29.9	23.3	21.9	20.6	20.8	20.5	18.8	18.4	18.1	17.5	18.7	23.4	33.3	42.5	50.7	55.3	30.2	55.3																				
12-May	59.9	61.7	68.7	73.9	73.7	74.8	73.0	72.0	59.3	44.2	38.4	36.4	36.9	33.7	34.5	35.4	34.2	36.0	45.8	50.4	54.8	57.2	59.3	65.4	53.3	74.8																				
13-May	67.5	69.5	73.1	75.3	76.4	76.2	73.5	69.5	64.4	62.3	54.9	48.0	43.2	36.8	33.2	30.7	32.9	37.2	35.2	38.2	41.5	45.0	47.3	56.8	53.7	76.4																				
14-May	66.4	68.1	60.1	58.0	59.9	57.4	51.8	44.1	40.1	37.1	30.6	25.8	25.9	25.2	24.7	24.9	23.8	26.2	27.7	32.5	36.1	38.9	46.1	55.7	41.1	68.1																				
15-May	83.4	93.1	96.0	97.2	97.3	96.3	93.7	85.5	72.6	64.8	54.7	50.5	48.5	44.2	58.3	52.4	47.9	56.2	65.8	72.5	76.9	79.4	84.7	90.6	73.4	97.3																				
16-May	95.2	96.5	96.8	96.7	96.0	97.0	97.1	91.9	87.3	77.1	77.4	71.4	69.4	85.1	93.5	96.5	97.3	97.1	97.2	96.9	96.8	97.7	97.2	97.5	91.8	97.7																				
17-May	97.7	97.3	97.4	97.4	97.3	97.1	97.4	97.1	96.7	97.3	97.3	95.8	95.9	96.1	96.8	96.9	96.2	96.0	95.9	97.0	97.6	97.9	98.0	98.0	97.0	98.0																				
18-May	97.9	97.7	97.7	98.0	97.8	97.5	97.6	97.4	97.1	96.6	96.0	95.5	95.0	95.1	95.6	94.9	95.0	95.3	95.4	96.0	96.4	96.5	96.6	97.2	96.5	98.0																				
19-May	97.5	97.7	97.9	97.9	98.1	98.2	98.3	98.4	98.1	97.6	94.8	92.3	92.9	94.5	93.9	94.0	95.4	96.3	96.9	97.1	97.4	97.6	97.9	98.2	96.6	98.4																				
20-May	98.3	98.5	98.6	98.7	98.7	98.7	98.7	98.1	94.1	90.4	90.6	92.2	93.1	92.8	93.8	94.0	92.3	89.6	93.3	93.1	95.4	96.8	97.2	97.5	95.2	98.7																				
21-May	97.6	97.9	97.6	97.6	97.5	97.4	97.2	95.7	91.5	88.2	84.7	83.3	78.3	68.1	64.9	69.8	70.9	61.5	68.1	78.5	92.5	88.5	82.9	82.1	84.7	97.9																				
22-May	86.0	92.8	93.7	90.9	93.3	91.6	87.0	77.2	84.7	92.2	94.3	94.4	90.2	80.9	69.8	65.7	64.2	70.4	70.1	74.2	77.2	80.5	82.0	84.4	82.8	94.4																				
23-May	86.7	88.8	90.5	91.8	92.8	92.8	92.7	90.8	84.6	75.2	71.9	69.5	82.7	77.2	64.3	60.6	61.0	57.3	61.4	66.6	71.1	75.8	85.8	90.1	78.4	92.8																				
24-May	90.7	94.0	95.0	93.6	94.3	93.4	89.6	76.5	72.0	67.9	59.1	57.6	60.6	61.4	58.3	64.1	52.3	52.0	48.9	60.7	72.1	75.7	79.9	82.0	73.0	95.0																				
25-May	85.7	87.7	88.7	91.8	94.6	90.0	82.3	68.5	61.8	54.5	52.6	51.7	50.2	51.2	49.1	49.9	51.4	50.4	51.0	58.3	64.1	67.8	72.9	76.6	66.8	94.6																				
26-May	81.1	85.0	86.7	88.3	90.9	86.1	74.3	65.6	56.6	50.9	49.3	50.2	49.1	47.9	45.0	40.8	41.7	41.7	41.6	44.4	50.6	51.8	53.4	56.6	59.6	90.9																				
27-May	56.9	57.0	60.6	61.0	64.0	67.6	62.6	60.6	50.7	39.7	37.8	36.0	35.4	34.6	35.4	42.7	36.3	34.0	35.4	40.5	53.3	49.7	52.0	50.1	48.1	67.6																				
28-May	51.8	50.6	49.8	52.6	58.1	60.4	58.2	53.9	48.4	45.9	42.8	37.4	32.4	29.7	29.4	28.1	28.1	28.4	30.0	38.5	39.7	42.4	45.9	49.5	43.0	60.4																				
29-May	61.6	72.7	62.0	61.6	61.6	61.8	60.6	58.8	63.3	64.2	64.7	54.6	49.9	51.1	52.3	52.0	53.0	53.3	50.2	52.7	59.0	62.0	69.3	74.1	59.4	74.1																				
30-May	75.3	81.3	85.0	93.1	94.0	92.7	94.7	95.7	95.0	93.9	91.2	94.8	94.9	93.6	87.3	79.1	85.2	92.9	90.7	92.5	91.9	91.9	92.4	93.1	90.5	95.7																				
31-May	93.9	93.4	93.3	93.7	92.3	91.4	85.4	69.5	60.8	61.1	63.6	64.9	62.7	62.5	59.9	53.9	51.0	48.7	50.9	55.6	66.3	72.7	73.1	59.9	70.0	93.9																				
																						76.6	79.0	80.0	81.2	81.9	81.5	78.8	73.8	69.4	65.0	61.7	58.6	57.6	55.8	53.9	53.4	53.5	54.4	56.6	60.5	65.4	67.7	70.3	72.3	Diurnal Average
																						98.3	98.5	98.6	98.7	98.7	98.7	98.7	98.4	98.1	97.6	97.3	96.5	96.6	96.3	96.8	97.0	97.3	97.1	97.2	97.5	97.9	98.2	98.4	98.4	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Jackfish 2/3 - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Jackfish 2/3 - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	11	1.48	1.48
20 - 40	129	17.34	18.82
40 - 60	167	22.45	41.26
60 - 80	148	19.89	61.16
80 - 100	289	38.84	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Jackfish 2/3 - May 2024

Maximum Speed: 23 km/h on May 10 16:00	Maximum Daily Speed Average: 13.6 km/h on May 10	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 7 20:00	Minimum Daily Speed Average: 1.0 km/h on May 15	Hours of Data: 742
Maximum Diurnal Speed Average: 1.8 km/h at hour 11	Minimum Diurnal Speed Average: 0.1 km/h at hour 21	Hours of Missing Data: 2
Monthly Average Velocity: 0.4 km/h 276.2 deg	Percentiles: $P_1 = 1$ $P_{10} = 3$ $Q_1 = 5$ Median = 6 $Q_3 = 9$ $P_{90} = 13$ $P_{99} = 17$	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-May	NNE5	NNE5	NE6	NE6	NE6	NE6	NE7	NE10	ENE11	NE10	NE13	NE15	NE15	ENE18	ENE14	NE13	NE13	NE11	NE10	NE9	NE7	NE7	N4	NNE4	NE9.1	ENE18
2-May	NNE3	N4	N3	N3	N3	N4	N5	NNE8	NNE10	NNE10	NE14	NE14	NE17	NE13	NE12	NE14	NE13	NE14	ESE12	ESE7	ESE5	ESE6	ESE5	E5	NE7.2	NE17
3-May	E6	ENE4	NE3	N2	NNW2	N3	NNE4	NE5	NNE4	N5	NNE7	NNE5	NE5	NNE5	ENE6	E5	NE7	NE8	ENE4	SSW2	S3	S3	SW5	NE3.2	NE8	
4-May	SW5	SW6	WSW6	WSW4	WSW5	WSW4	W3	N5	NNE6	N6	N5	NNE4	ESE3	WNW4	WNW3	WSW5	WSW4	ESE3	ESE6	ESE5	S3	S4	S4	SSW6	WSW1.2	NNE6
5-May	SSW5	S6	S6	SSW5	S5	S5	S5	S7	S9	S8	SSE9	SSE9	SE8	ESE11	SSE10	SSE10	SSE7	SE6	ESE8	E7	E8	E8	ESE7	ESE6	SSE6.0	ESE11
6-May	SE5	SE5	SSE5	SSE5	SSE5	SSE6	ESE8	E10	ENE7	E8	ENE10	E12	E13	ESE12	ESE11	SE12	SSE13	SSE13	ESE8	E8	ENE6	ENE6	ENE6	ENE7	ESE7.2	E13
7-May	ENE8	E8	E9	ENE8	ENE8	ENE8	ENE8	E9	E10	E10	E8	E8	E8	E8	E8	E7	E7	ESE7	E3	WSW0	UO	UO	WSW4	WSW5	E6.3	E10
8-May	WSW6	WSW7	WSW7	WSW6	W6	WNW8	NW7	NW6	NW6	NW5	NW7	NW7	WNW7	W6	W4	W8	W9	W6	WSW10	WSW11	WSW8	WSW8	WSW9	WSW10	W6.4	WSW11
9-May	WSW10	W9	WSW11	WSW13	WSW15	W12	W12	W11	WNW12	W11	WNW13	W14	WNW15	WNW13	WNW13	WNW14	WNW12	NW11	NW7	NW4	W3	SW4	SW4	SW7	W9.8	WSW15
10-May	SW7	SW8	SSW9	SSW9	SSW9	SW11	SW11	WSW14	W13	W14	W18	W17	W17	W20	WSW22	WSW23	WSW20	W19	W15	W13	W10	WSW14	WSW15	W12	WSW13.6	WSW23
11-May	NNW9	N7	NNW5	NW7	NW8	NW8	NW9	NW10	NW12	NW13	NW15	NW14	NW14	NW12	NW12	NW10	NW12	NW9	NW8	NNW4	NE4	ENE6	E6	ENE5	NW8.0	NW15
12-May	E5	E6	E6	SE5	SSE6	SSE6	SSE6	SSE6	SE6	ESE7	E9	ESE8	ESE8	S6	SSW8	SW3	SSW4	S5	SSW8	S4	S4	SSE3	S5	S5	SSE4.5	E9
13-May	S5	S5	S6	S6	S6	S6	S6	SSW8	SSW8	SSW10	S10	SSW12	SW11	WSW13	WSW9	WSW11	WSW9	WSW4	SW7	SSW6	SW6	SW8	SW8	SW7	SSW6.9	WSW13
14-May	SW7	WSW6	WSW5	WSW6	WSW5	WSW6	WSW7	W9	W8	WSW8	WSW12	W12	WSW13	WSW14	WSW14	W13	W11	W13	W9	W8	W7	WNW6	W1	W5	W8.3	WSW14
15-May	NW7	N1	SSW2	S4	SW6	WSW6	W4	WNW6	NNW4	NNW3	N5	N4	N4	NNE5	N6	NNE8	NE7	ESE7	SSE5	SSW3	NNE2	WSW2	SSE3	ESE3	NNW1.0	NNE8
16-May	NE4	W1	WSW1	E6	ENE5	ENE4	ENE1	SSE3	ESE5	SE6	E8	E6	ESE8	E13	ESE6	NE5	ENE7	ESE5	ESE9	ESE8	E8	E8	ESE8	ESE7	E5.5	E13
17-May	ESE7	ESE6	E8	ESE8	ESE9	ESE8	ESE7	ESE7	E6	E7	E6	E6	ENE7	ENE8	NE8	ENE7	ENE7	ENE8	ENE8	NE7	N4	N4	NNW5	NW6	ENE5.4	ESE9
18-May	NW6	NW6	NW7	NW7	NW7	WNW8	WNW8	NW8	NW9	NW8	NW9	NW9	NW9	NW8	NW7	NW8	NW6	NW5	NW6	NW5	NW5	NNW5	NW5	WNW4	NW6.8	NW9
19-May	WNW4	WNW4	WNW4	WNW4	WNW4	W4	NW4	NNW4	NNW4	NNW4	NNW4	N5	NNE6	NE8	NE9	NE7	NE7	NE7	NE7	NE7	NE7	NE7	NE5	NE4	NNE3.8	NE9
20-May	NNE3	NNE4	N3	NNW3	N3	N3	NNE5	NNE5	NNE6	NNE7	N6	NNE7	NNE7	NE7	NNE5	NNE5	NNE6	NE6	NNE4	NE4	NNE3	NNE3	ENE4	E3	NNE4.4	NNE7
21-May	ENE4	E4	ESE4	ESE4	SE4	ESE4	SE5	SE6	E6	SE5	ESE7	SE5	ESE6	SE6	E8	ESE7	SE4	SE5	S2	NNE3	NE3	E7	ESE6	SE4	ESE4.4	ESE8
22-May	ESE4	SE2	ESE4	E4	E2	NE3	NE5	NNE6	NNE7	NNE8	NE8	NE9	ENE8	NE8	NE8	NE8	NE9	NE8	ENE6	NE5	NE4	ENE4	NE4	ENE4	NE5.4	NE9
23-May	ENE3	NE4	NE3	NE4	NE3	NE3	ENE5	NE5	ENE4	NE8	ENE7	NNE7	E6	NNE7	ENE8	E7	ENE7	ENE7	E7	ENE6	E4	SE2	S2	SE3	ENE4.7	ENE8
24-May	SSE4	SSE3	SSE3	SSE3	ENE3	ESE3	ENE4	ESE6	ESE7	ESE9	SE7	SE7	SSW6	SSW6	E6	ESE7	SE7	SE6	SSW4	SSW3	SSW3	SSE3	S4	SE4.1	ESE9	
25-May	S4	S4	SSW4	S3	SSE4	SSE5	SSE5	SE6	ESE7	SE8	ESE8	ESE9	ESE9	ESE8	SSE8	ESE7	SE8	SE8	SE7	ESE5	ESE5	SE5	SSE4	SSE4	SE5.5	ESE9
26-May	S5	S5	S5	S5	S5	S4	S5	S6	SE4	ESE5	ENE4	NE3	NE2	ENE2	E3	SW4	NE4	ESE6	SE4	ESE6	ESE5	SE4	S3	SSE3	SE2.9	ESE6
27-May	SSE4	SE5	S5	SSE5	ESE3	E1	S5	S6	S7	S7	SSE7	ESE9	SSE7	SE8	SSE6	WSW4	S5	SE7	SE5	SE3	ENE2	ESE3	SE3	SE5	SSE4.5	ESE9
28-May	SSE5	S5	S6	S4	SSE1	SE3	S6	SSW9	WSW10	W7	W5	WNW6	WSW7	WSW6	WSW6	WSW5	SW4	ENE3	E5	ESE3	E6	ESE7	ESE6	SE6	SSW2.7	WSW10
29-May	SW4	ESE6	SE5	SE6	SSE6	S5	S6	SW12	WSW15	WSW15	W15	WSW14	W14	W15	W14	WSW13	W13	WSW14	WSW14	WSW13	WSW11	WSW11	WSW13	WSW14	WSW9.4	W15
30-May	WSW13	WSW14	W12	WSW13	W13	WSW13	W11	W10	WNW10	WNW10	WNW12	WNW9	NW8	NW9	NW8	NNW8	NW9	WNW9	WNW9	WNW8	WNW9	W10	W9	W9	W9.4	WSW14
31-May	W10	W11	W9	W10	W10	W10	WNW12	WNW14	WNW14	WNW13	WNW14	W15	W19	W16	WNW13	NW13	WNW10	WNW13	WNW11	WNW12	W10	W11	WNW8	NW10	WNW11.8	W19

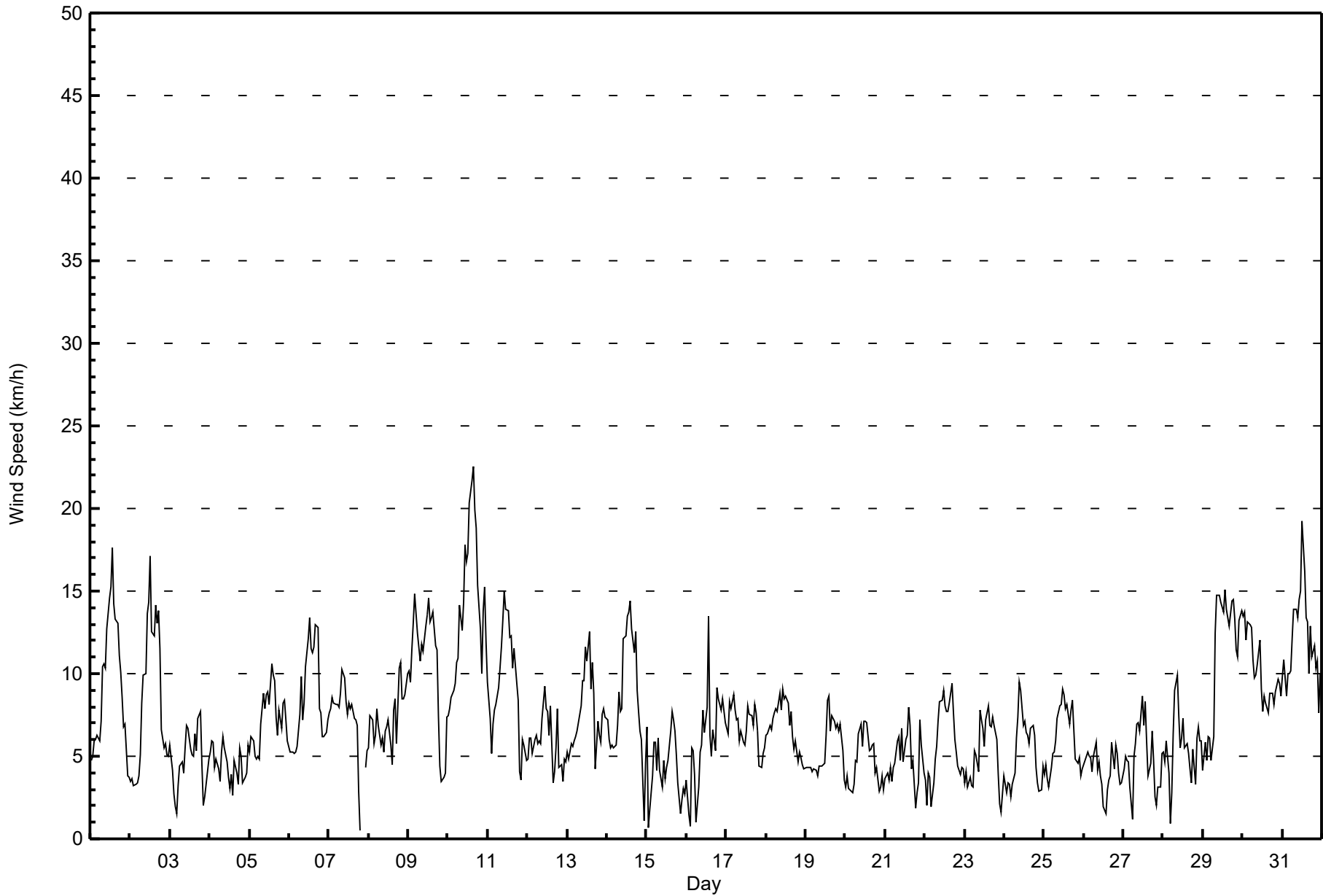
SW1.1SSW1.1SSW1.6SSW1.5	SW1.5WSW1.5WSW1.0	W1.0	NW1.0	NNW1.2	N1.8	N1.6	N1.0	NNW1.0	NW1.2	NNW1.5	NNW0.8	NE0.7	ESE0.6	ENE0.2	NE0.1	S0.4	SSW1.1	SW1.5															Diurnal Average					
WSW13	WSW14	W12	WSW13	WSW15	WSW13	WNW12	WSW14	WSW15	WSW15	W18	W17	W19	W20	WSW22	WSW23	WSW20	W19	W15	WSW13	WSW11	WSW14	WSW15	WSW14															Diurnal Maximum

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Jackfish 2/3 - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	270	36.39	36.39
6 - 11	370	49.87	86.25
12 - 19	98	13.21	99.46
20 - 28	4	0.54	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Jackfish 2/3 - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	22	21	24	19	12	21	24	22	36	10	8	15	9	8	7	12	270
6 - 11	4	18	36	29	39	50	18	16	19	14	13	28	29	18	37	2	370
12 - 19	0	0	13	2	3	2	1	2	0	1	1	24	24	16	9	0	98
20 - 28	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	26	39	73	50	54	73	43	40	55	25	22	70	63	42	53	14	742

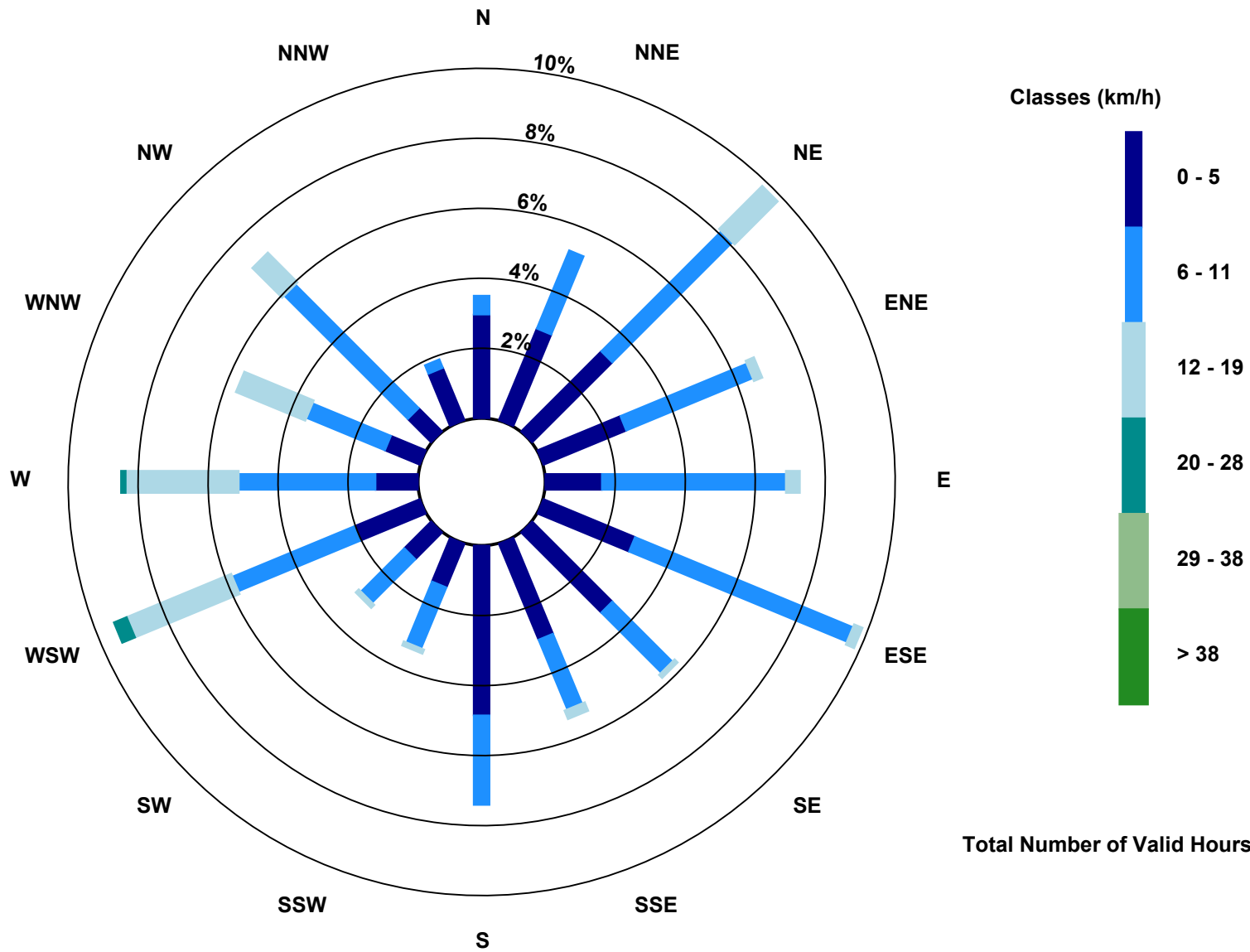
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Jackfish 2/3



Total Number of Valid Hours: 742



**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Jackfish 2/3 - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on May 31 13:00														Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7											
Minimum Value: 1 km/h on May 4 06:00																									
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																									
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-May	1	1	2	1	2	2	2	4	3	4	5	5	6	6	5	5	5	4	3	3	2	3	1	1	6
2-May	1	1	1	1	1	1	2	3	4	4	6	6	7	5	5	6	5	5	4	3	2	2	1	2	7
3-May	2	1	1	1	1	1	2	2	2	2	3	2	3	2	2	3	3	3	3	2	1	1	1	1	3
4-May	1	1	2	1	1	1	1	2	3	3	3	3	3	3	3	3	2	2	2	2	1	1	2	2	3
5-May	1	2	2	1	1	2	2	3	3	3	4	4	4	4	4	4	3	2	2	2	3	3	2	2	4
6-May	2	2	2	2	2	3	3	3	2	3	3	4	5	4	5	5	6	6	3	3	1	1	2	2	6
7-May	2	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3	2	1	1	UO	UO	1	1	4
8-May	1	1	1	1	3	3	3	2	2	2	3	3	2	2	3	3	3	2	3	3	2	2	2	2	3
9-May	2	3	2	3	4	4	4	4	4	4	5	6	6	6	6	6	5	5	3	2	1	1	2	1	6
10-May	1	2	2	2	2	2	2	4	4	4	6	6	6	6	7	7	6	6	7	5	3	4	4	4	7
11-May	4	4	2	3	3	3	4	4	5	5	6	5	6	5	5	4	5	4	4	2	3	2	2	1	6
12-May	1	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	2	3	3	2	2	1	2	2	3
13-May	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	4	4	1	3	2	2	2	2	2	4
14-May	2	2	1	1	1	2	2	2	3	3	4	5	5	5	6	4	5	4	4	3	3	3	1	4	6
15-May	3	2	1	1	1	1	1	3	2	2	3	2	2	3	3	3	3	3	3	1	1	1	2	3	3
16-May	1	2	1	2	2	1	1	2	2	3	2	2	3	5	3	2	2	2	4	3	3	3	3	2	5
17-May	2	2	3	3	3	3	3	3	2	2	2	2	2	2	3	3	2	3	3	2	2	2	2	2	3
18-May	3	3	3	3	3	3	3	3	4	3	4	4	4	3	3	3	3	3	3	2	2	2	2	1	4
19-May	2	2	1	1	2	2	2	2	2	2	2	2	3	3	3	2	3	2	3	2	2	2	2	1	3
20-May	1	1	1	1	1	1	2	2	3	2	2	3	3	3	2	2	2	2	1	1	1	1	1	1	3
21-May	1	1	1	1	2	2	2	2	2	2	3	3	2	3	3	3	2	2	1	1	1	3	2	2	3
22-May	2	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	4	3	4	2	2	1	1	1	4
23-May	1	1	1	1	1	1	2	2	2	3	3	3	2	3	3	3	2	3	2	2	1	1	1	1	3
24-May	2	1	1	1	1	1	1	2	3	3	3	3	3	3	3	2	3	2	2	2	1	1	1	2	3
25-May	1	2	1	1	2	2	2	2	3	3	4	4	3	3	3	3	3	3	3	2	1	2	2	2	4
26-May	1	1	2	1	1	1	2	2	2	2	2	1	2	1	2	2	3	2	2	2	1	2	1	2	3
27-May	2	2	2	2	1	2	2	2	2	3	3	3	3	4	3	2	2	3	3	2	1	1	2	3	4
28-May	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	2	1	2	2	2	2	3
29-May	2	2	2	3	3	2	3	5	5	5	5	5	5	6	5	5	5	5	5	4	4	3	4	4	6
30-May	4	4	4	4	4	4	3	4	4	4	5	4	3	4	4	4	4	4	4	3	3	4	3	3	5
31-May	4	4	3	4	4	4	5	6	6	6	6	6	8	7	6	6	5	6	5	5	4	4	3	5	8
														Diurnal Maximum											
UO - Unstable Operation																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - May 2024**

Direction of Maximum Speed: 257 deg on May 10 16:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 252.8 deg on May 10	Hours of Data: 742
Direction of Minimum Speed: 245 deg on May 7 20:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 1.0 deg on May 15	Percent Operational Time: 99.7
Monthly Average Direction: 276.2 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-May	23	29	34	36	36	37	39	53	58	41	37	50	48	62	60	54	46	35	47	51	48	35	6	12	45.2
2-May	12	7	4	359	9	2	9	21	24	13	36	44	48	36	37	41	48	51	108	117	114	109	110	101	46.1
3-May	96	71	45	11	342	358	30	44	17	7	31	13	33	36	20	63	79	54	52	77	206	185	191	224	44.5
4-May	220	228	243	252	255	248	274	2	23	1	1	14	116	300	303	258	237	117	121	114	173	188	181	207	243.3
5-May	209	175	185	192	185	188	177	171	169	184	150	158	134	120	166	156	151	143	104	89	89	87	102	109	147.2
6-May	130	146	158	163	149	152	117	94	74	79	75	86	91	107	118	131	150	147	117	92	64	60	64	70	108.6
7-May	78	89	89	77	72	72	75	80	85	83	83	80	82	79	83	80	94	102	100	245	UO	UO	253	250	83.4
8-May	247	249	249	248	267	292	317	318	310	314	313	322	282	268	277	271	259	275	250	246	243	239	245	254	269.2
9-May	256	265	254	252	254	264	271	278	286	281	287	281	285	288	292	297	291	306	316	313	263	223	228	226	276.1
10-May	223	217	213	207	209	235	236	254	263	260	259	263	261	259	256	257	254	261	271	266	262	254	254	269	252.8
11-May	334	355	327	325	324	318	318	322	315	326	313	315	308	315	316	319	312	323	326	337	40	68	79	75	325.8
12-May	82	87	99	127	165	168	164	159	142	122	100	107	104	175	206	235	198	189	194	180	176	157	170	183	150.2
13-May	172	179	176	181	182	175	179	197	197	198	190	205	214	238	254	246	252	253	221	210	224	232	230	224	212.4
14-May	224	253	251	252	255	254	255	260	260	252	251	260	255	255	256	270	272	263	277	277	260	302	278	270	260.1
15-May	314	1	195	188	230	244	276	285	335	327	6	359	2	21	11	19	52	121	151	198	19	238	163	105	340.1
16-May	42	264	246	87	76	61	71	148	110	130	82	86	107	100	112	55	78	105	106	105	84	98	103	105	95.8
17-May	104	111	101	107	112	119	109	112	100	83	86	79	66	61	55	70	64	61	61	46	9	354	341	325	77.5
18-May	319	315	316	304	314	295	301	312	316	317	305	315	316	316	318	322	319	322	324	316	321	327	311	301	313.9
19-May	301	292	286	283	285	275	321	335	335	342	340	358	24	38	47	47	50	53	46	53	49	51	42	42	15.2
20-May	15	24	350	343	353	4	16	27	23	30	354	30	31	37	31	22	22	39	21	35	24	24	57	83	24.4
21-May	71	97	105	104	142	113	144	127	97	131	110	135	102	126	101	122	136	131	187	22	55	95	121	133	113.4
22-May	120	130	107	84	84	43	43	14	25	31	37	46	57	53	50	50	54	48	70	52	53	58	49	59	52.1
23-May	67	54	43	47	46	44	62	52	62	54	65	31	82	30	59	82	67	65	87	68	81	129	175	132	63.3
24-May	150	160	165	168	78	121	70	121	118	107	103	130	134	197	209	80	111	140	139	195	201	201	163	173	137.6
25-May	182	189	207	184	161	165	161	146	117	125	112	111	116	122	154	120	128	128	134	122	121	125	153	166	136.8
26-May	172	176	170	176	185	189	186	190	135	105	71	45	41	68	95	223	56	102	132	108	115	134	179	164	142.8
27-May	156	144	179	161	122	94	177	179	176	173	160	118	162	143	149	239	181	141	144	135	67	115	128	142	153.5
28-May	153	179	177	175	164	141	183	210	238	260	281	290	250	250	243	240	225	71	95	104	100	104	113	138	195.9
29-May	223	111	138	138	147	175	183	222	251	255	260	255	265	265	268	257	266	253	250	252	253	245	250	254	246.6
30-May	253	254	259	256	259	258	263	276	288	300	298	290	306	310	316	332	310	297	294	282	288	277	278	267	280.4
31-May	271	281	270	271	278	274	286	292	289	286	284	279	272	279	296	306	301	296	291	289	278	276	286	312	285.1

221.6 208.8 209.0 208.0 225.0 240.5 249.7 261.7 320.4 335.2 351.9 355.9 358.5 339.7 317.6 329.1 344.7 50.0 111.3 69.2 40.6 173.4 201.5 217.7  
 Diurnal Average

UO - Unstable Operation

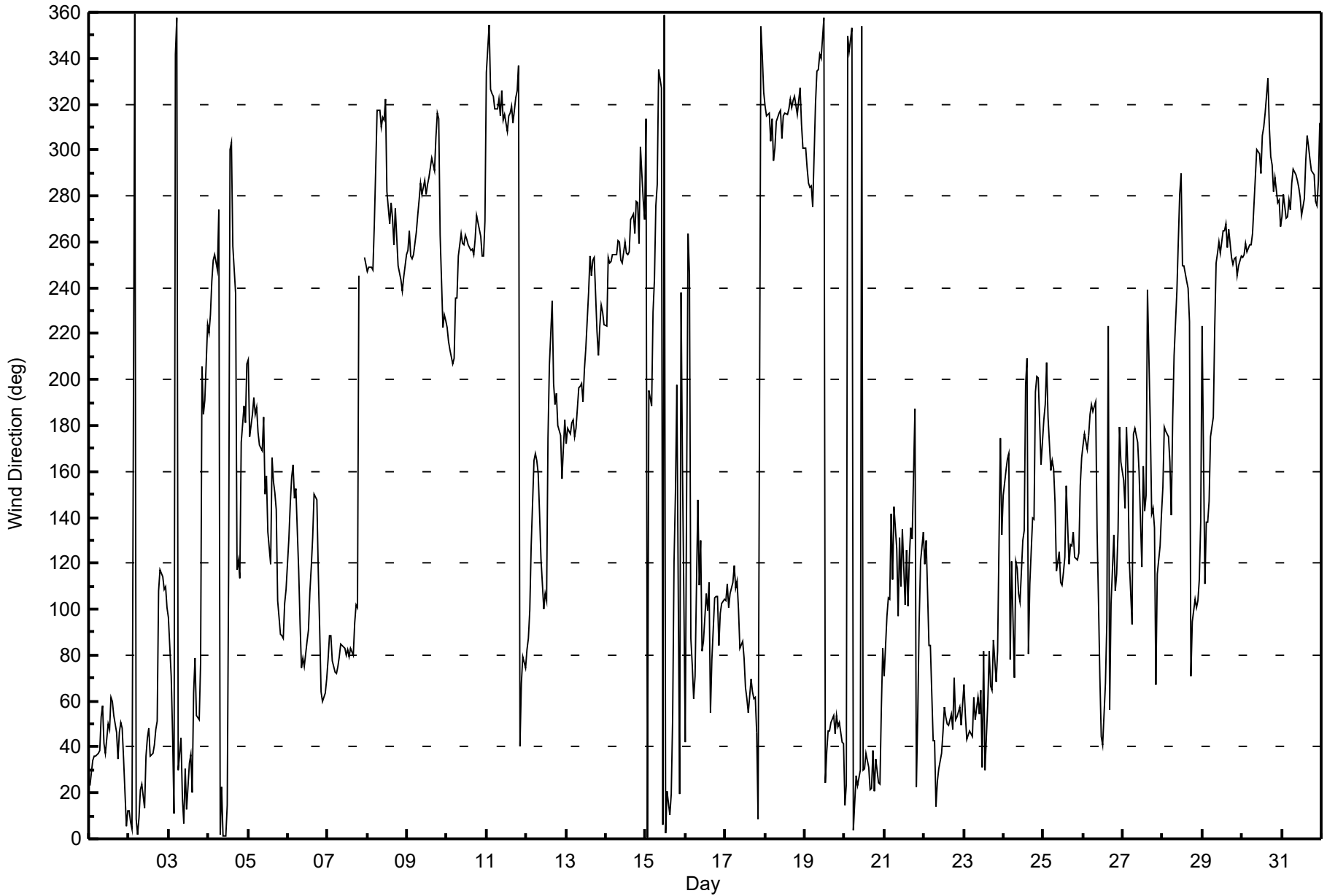
All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - May 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Jackfish 2/3 - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 95 deg on May 28 05:00	Hours of Data: 742
Minimum Value: 8 deg on May 4 06:00	Hours of Missing Data: 2
Percentiles: P <sub>1</sub> = 14 P <sub>10</sub> = 22 Q <sub>1</sub> = 29 Median = 37 Q <sub>3</sub> = 45 P <sub>90</sub> = 54 P <sub>99</sub> = 87	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-May	27	26	24	21	23	21	24	26	29	39	37	37	36	28	31	30	36	37	31	26	28	31	35	37	39
2-May	46	41	37	39	44	46	43	42	40	47	42	39	36	42	43	40	38	34	32	38	34	27	17	23	47
3-May	22	28	42	46	64	45	43	39	49	42	44	46	55	44	58	45	43	32	30	39	33	31	20	19	64
4-May	15	16	22	19	14	8	40	47	45	61	77	93	84	87	87	80	49	62	35	30	29	28	31	23	93
5-May	22	23	19	14	16	28	34	35	44	50	50	49	55	43	45	41	42	48	29	26	24	25	26	29	55
6-May	36	43	49	46	48	43	40	27	24	30	29	31	36	40	40	45	41	43	33	25	23	20	19	23	49
7-May	26	28	25	27	27	30	31	27	28	29	32	29	28	30	27	28	30	28	42	79	UO	UO	11	14	79
8-May	15	14	14	17	38	35	41	42	41	49	47	54	34	55	78	38	27	50	19	19	15	16	13	13	78
9-May	13	21	14	14	18	24	32	38	36	36	39	38	38	41	43	41	40	42	49	61	46	15	24	16	61
10-May	16	18	19	16	15	14	16	20	28	27	30	35	28	25	25	23	24	28	34	29	24	16	17	29	35
11-May	45	48	49	44	43	44	44	45	45	48	46	47	47	48	46	52	45	52	52	76	60	24	22	22	76
12-May	19	21	22	35	31	27	36	37	49	47	35	38	39	61	35	75	69	41	31	37	40	52	41	35	75
13-May	40	41	37	29	29	32	30	28	29	37	42	36	37	27	34	28	34	28	27	26	22	18	22	22	42
14-May	21	19	12	18	24	20	19	26	40	40	33	33	32	29	33	34	36	29	37	35	24	46	90	43	90
15-May	43	90	60	20	17	17	34	45	63	72	73	69	72	72	49	45	44	43	48	37	55	24	62	58	90
16-May	23	65	86	20	23	27	84	53	42	54	32	41	32	31	42	32	35	37	32	32	24	29	27	31	86
17-May	29	39	28	33	31	35	32	34	34	30	33	36	33	29	32	30	29	28	25	28	43	46	45	49	49
18-May	48	46	42	40	43	38	40	41	43	45	41	47	48	47	48	47	47	53	51	45	48	54	45	35	54
19-May	43	42	32	33	36	33	50	51	49	58	51	52	45	35	26	37	31	32	31	29	30	30	28	29	58
20-May	46	41	46	49	57	53	43	44	44	38	53	43	41	34	38	44	43	36	35	31	27	33	22	29	57
21-May	23	31	31	28	50	29	42	40	35	46	41	61	36	55	45	40	44	55	83	47	31	30	39	43	83
22-May	51	51	17	23	35	61	31	48	40	38	38	32	30	39	50	40	37	42	36	28	26	22	23	24	61
23-May	18	19	20	19	23	31	26	37	51	36	40	53	38	53	45	45	43	39	33	28	24	46	30	43	53
24-May	45	39	48	42	30	37	40	54	38	34	40	48	48	47	39	44	43	39	44	39	26	36	44	41	54
25-May	32	33	26	27	35	39	41	50	50	52	48	39	38	50	41	46	43	39	41	32	29	33	49	46	52
26-May	28	24	29	24	18	17	32	37	75	53	67	60	88	88	79	82	83	35	54	26	24	46	41	52	88
27-May	44	37	28	41	46	79	30	31	42	50	59	41	62	52	54	52	59	55	52	68	59	56	68	63	79
28-May	56	55	41	82	95	73	41	35	33	47	63	61	52	63	46	53	41	74	34	22	23	25	31	40	95
29-May	61	38	59	46	53	51	49	29	30	28	31	31	35	34	34	30	36	26	22	23	23	23	20	24	61
30-May	25	24	29	22	25	27	30	38	41	47	41	39	43	43	54	60	48	40	41	33	37	34	35	32	60
31-May	33	37	33	34	37	39	40	40	46	43	40	39	37	41	45	45	46	43	44	42	36	38	38	50	50
	61	90	86	82	95	79	84	54	75	72	77	93	88	88	87	82	83	74	83	79	60	56	90	63	

Diurnal Maximum

UO - Unstable Operation



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS29  
SURMONT 2  
MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)  
MAY 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	2.1	0	0.4	0
H2S (ppb) Average	706	37	38	99.87	0.4	0	0.2	0
THC(ppm) Average	709	35	35	100	2.7	-	2.4	-
NO2 (ppb) Average	706	37	38	99.87	3.7	0	1.6	-
NO (ppb) Average	706	37	38	99.87	2.4	-	0.7	-
NOX (ppb) Average	706	37	38	99.87	4.4	-	2.2	-
PM2.5 (ug/m3) Average	743	1	1	100	106.9	0	69.2	2
Temperature 2 m (C) Average	744	0	0	100	26.1	-	16.7	-
Relative Humidity (%) Average	744	0	0	100	100	-	97.6	-
Wind Speed 10 m (km/h) Average	744	0	0	100	19	-	13	-
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 - SURMONT 2 (AMS29)  
MAY 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	0.14	0.2	-	0	0	0	0.1	0.2	0.3	2.1
H2S (ppb) Average	706	0.06	0.1	-	0	0	0	0	0.1	0.1	0.4
THC (ppm) Average	709	2.28	0.1	-	2.2	2.2	2.2	2.3	2.3	2.3	2.7
NO2 (ppb) Average	706	0.78	0.6	-	0	0.2	0.3	0.6	1.1	1.7	3.7
NO (ppb) Average	706	0.27	0.3	-	0	0	0	0.1	0.4	0.8	2.4
NOX (ppb) Average	706	1.05	0.8	-	0.1	0.3	0.4	0.8	1.4	2.3	4.4
PM2.5 (ug/m3) Average	743	7.83	16.6	-	0.2	0.7	1.5	2.7	4.3	19.9	106.9
Temperature 2 m (C) Average	744	9.11	5.5	-	-3.3	2.4	5.4	8.4	12.4	16.9	26.1
Relative Humidity (%) Average	744	67.77	24.9	-	17.2	30.7	46.9	71.2	91.3	97.7	100
Wind Speed 10 m (km/h) Average	744	6.5	4	-	0	2	3	6	10	12	19
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	13 May 2024 14:00	13 May 2024 14:00	1	Maintenance - sample manifold cleaned



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Surmont 2 - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.1 ppb on May 31 20:00	Maximum Daily Average: 0.4 ppb on May 4		Hours of Data:	709
Minimum Value: 0.0 ppb on May 1 08:00	Minimum Daily Average: 0.0 ppb on May 1		Hours of Missing Data:	35
Maximum Diurnal Average: 0.2 ppb at hour 9	Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Calibration:	35
Monthly Average: 0.14 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.2 P <sub>90</sub> = 0.3 P <sub>99</sub> = 1.0		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-May	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	0.0	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-May	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
4-May	0.1	0.2	0.2	0.1	0.1	Z	0.2	0.6	0.8	1.1	0.8	0.4	0.4	0.4	0.5	0.6	0.9	1.0	1.1	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	1.1
5-May	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5	0.7	0.4	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.7	
6-May	0.0	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
7-May	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	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
8-May	0.1	0.1	0.0	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.2	0.2	0.4	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
9-May	0.3	0.2	0.1	0.1	Z	0.2	0.5	0.5	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	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.5	
10-May	0.1	0.1	0.1	0.1	0.0	Z	0.3	0.6	0.4	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.5	0.6	0.1	0.2	0.5	0.5	0.6	0.1	0.1	0.1	0.2	0.6	
11-May	Z	0.1	1.0	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4	0.2	0.0	0.4	0.2	0.7	0.7	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.0	
12-May	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.5	0.4	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.5	
13-May	0.2	0.2	Z	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.4	C	C	C	C	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	
14-May	0.1	0.2	0.0	Z	0.0	0.0	0.0	0.6	1.2	0.4	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.2	
15-May	0.0	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.4	0.6	0.2	0.2	1.5	1.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.5	
16-May	0.1	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
17-May	Z	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
18-May	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2		
19-May	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	0.2	0.2	0.2	0.2	0.1	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	0.3	
20-May	0.0	0.0	0.1	Z	0.1	0.2	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.3	
21-May	0.2	0.2	0.3	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	0.1	0.1	0.1	0.3	0.2	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
22-May	0.4	0.3	0.4	0.2	0.1	Z	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
23-May	Z	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	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-May	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
25-May	0.1	0.1	Z	0.1	0.1	0.1	0.5	0.5	0.3	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	
26-May	0.2	0.2	0.1	Z	0.2	0.1	0.2	0.9	0.7	0.4	0.4	0.4	0.5	0.5	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.9	
27-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.0	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	1.0	
28-May	0.0	0.0	0.1	0.1	0.0	Z	0.3	0.4	1.0	0.6	0.4	0.3	0.4	0.5	0.3	0.3	0.4	0.4	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	0.3	1.0	
29-May	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
30-May	0.0	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	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	
31-May	0.3	0.1	Z	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.2	0.0	2.1	0.7	0.2	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.1	2.1	

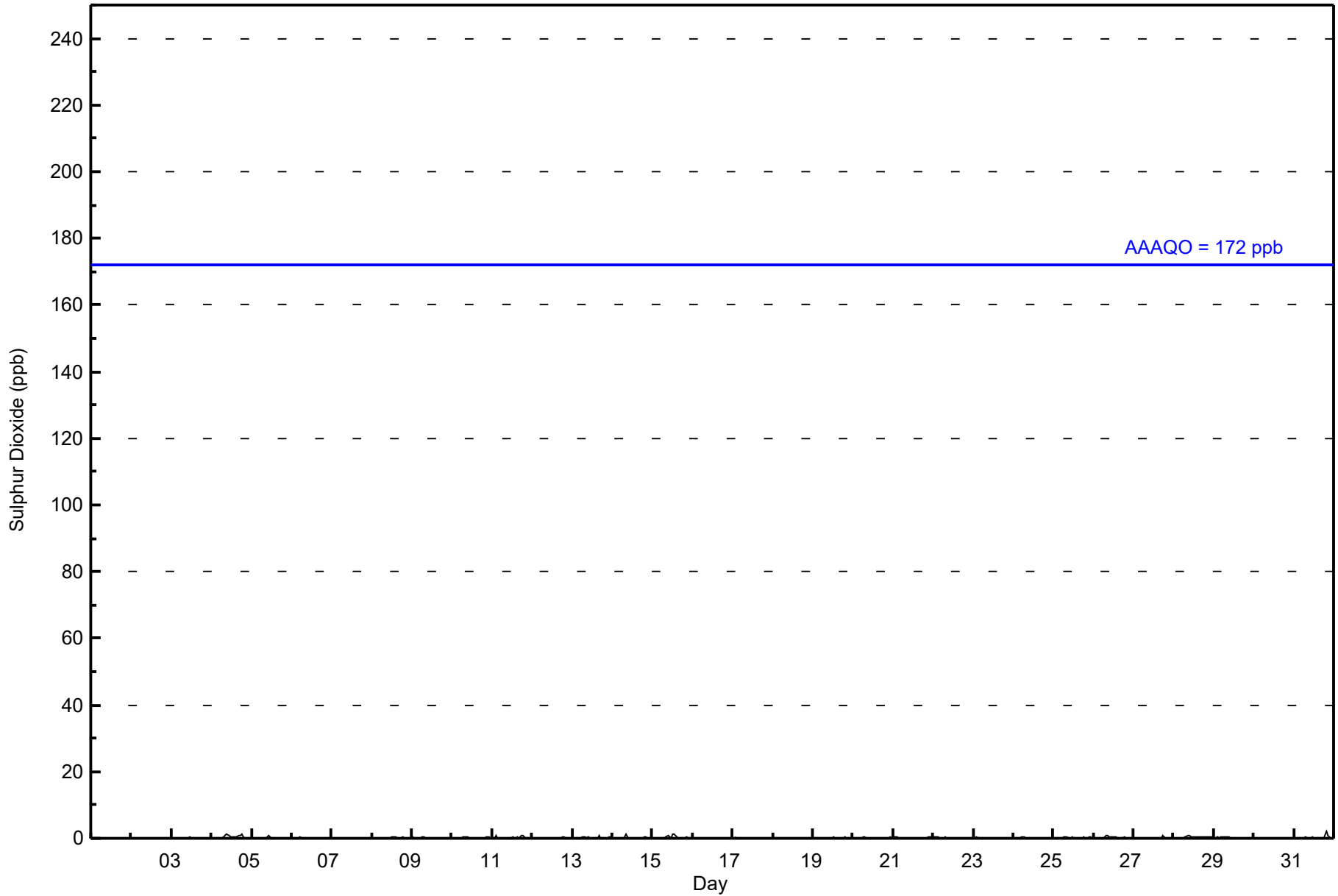
0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	Diurnal Average
0.4	0.3	1.0	0.2	0.2	0.2	0.2	0.5	0.9	1.2	1.1	0.8	0.4	1.5	1.2	0.5	0.6	0.9	1.0	1.1	2.1	0.7	0.5	0.6	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Diurnal Maximum

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Surmont 2 - May 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**  
**Surmont 2 - May 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	17	21	37	41	76	93	46	9	16	24	49	88	63	68	35	26	709
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>	17	21	37	41	76	93	46	9	16	24	49	88	63	68	35	26	709

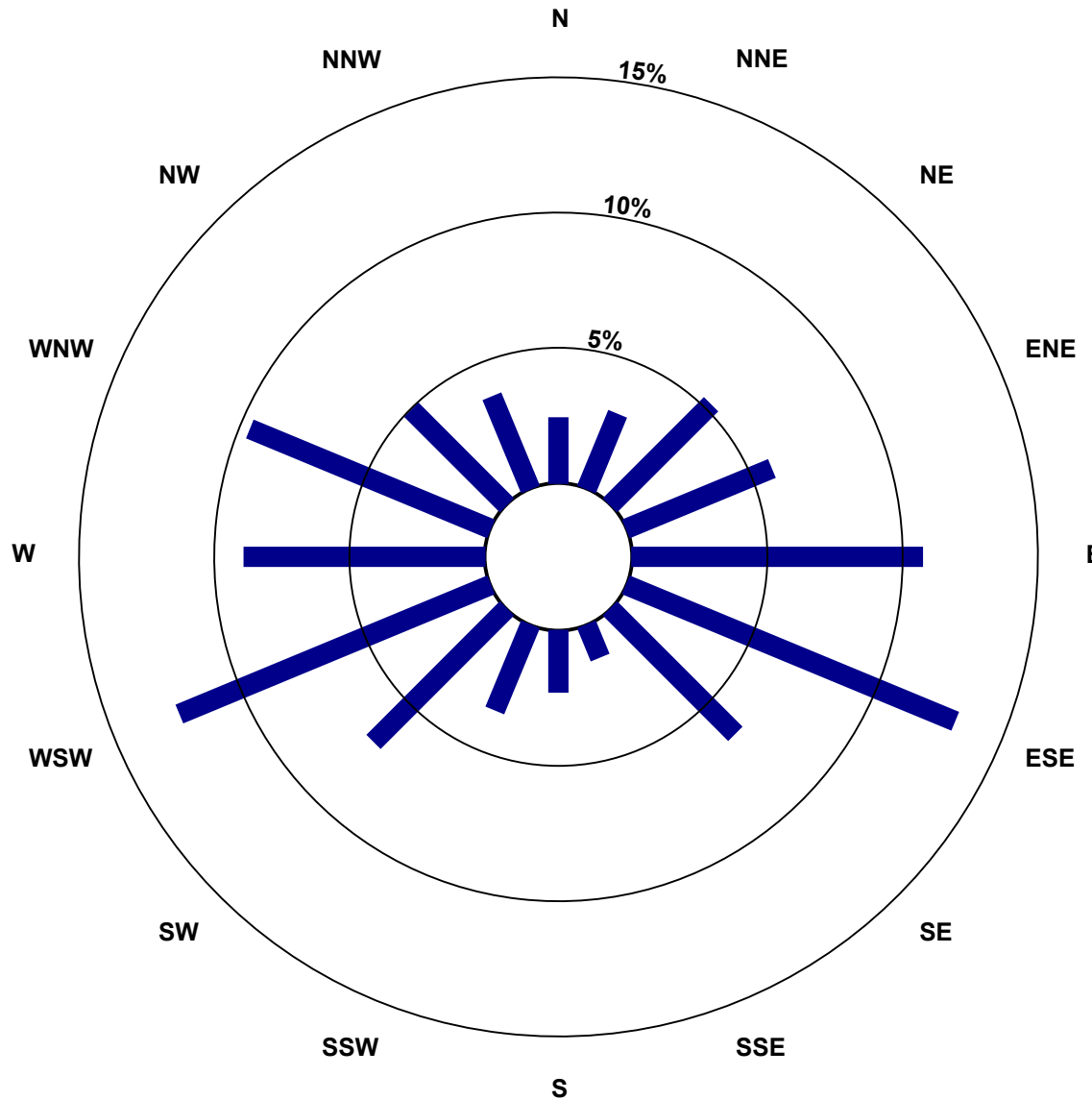
Total Number of Valid Hours: 709

Total Number of Hours: 744

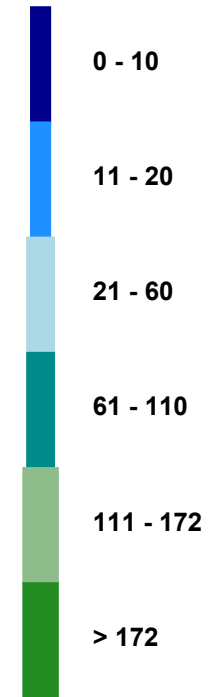


Wood Buffalo Environmental Association  
Wind Rose May 2024

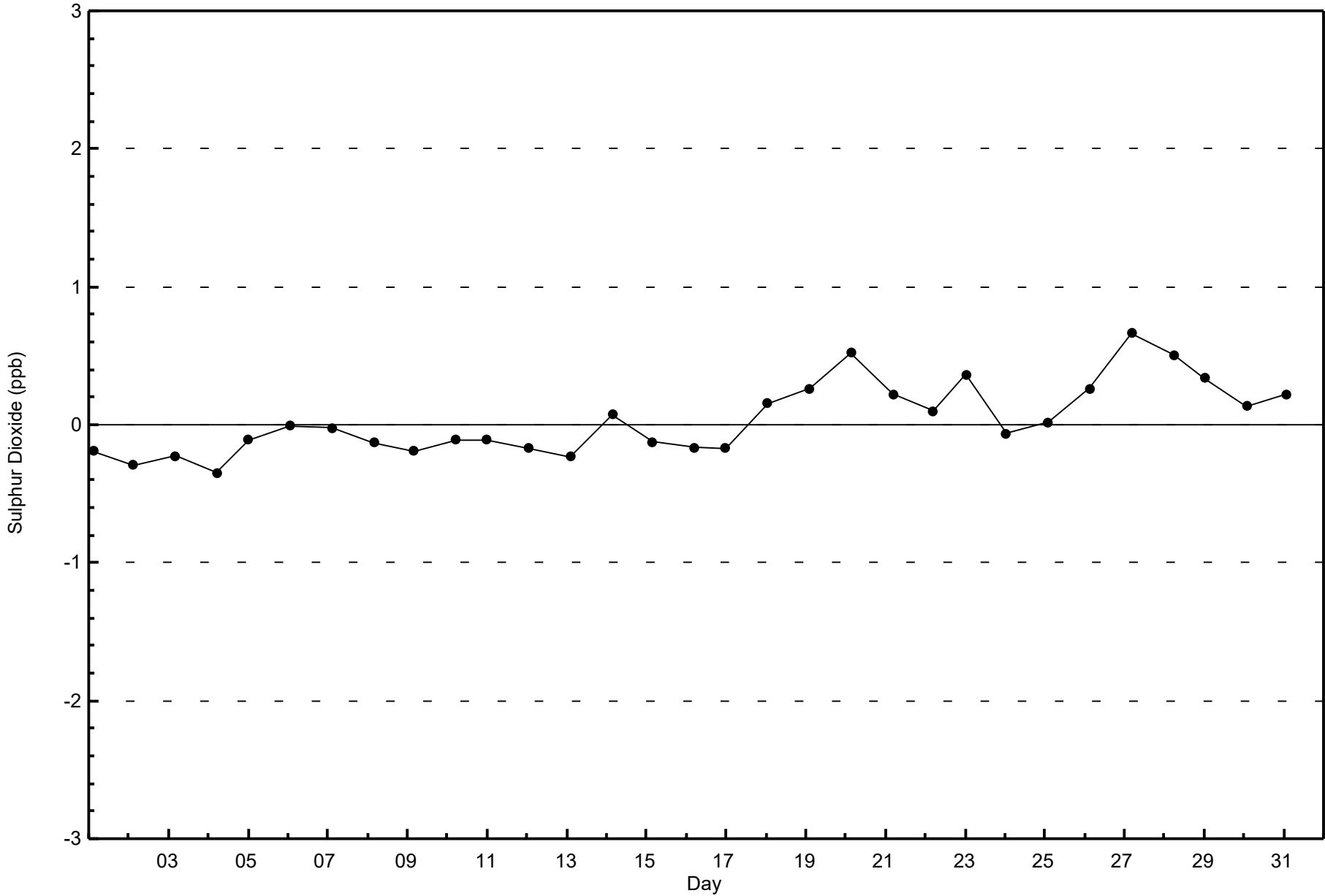
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Surmont 2

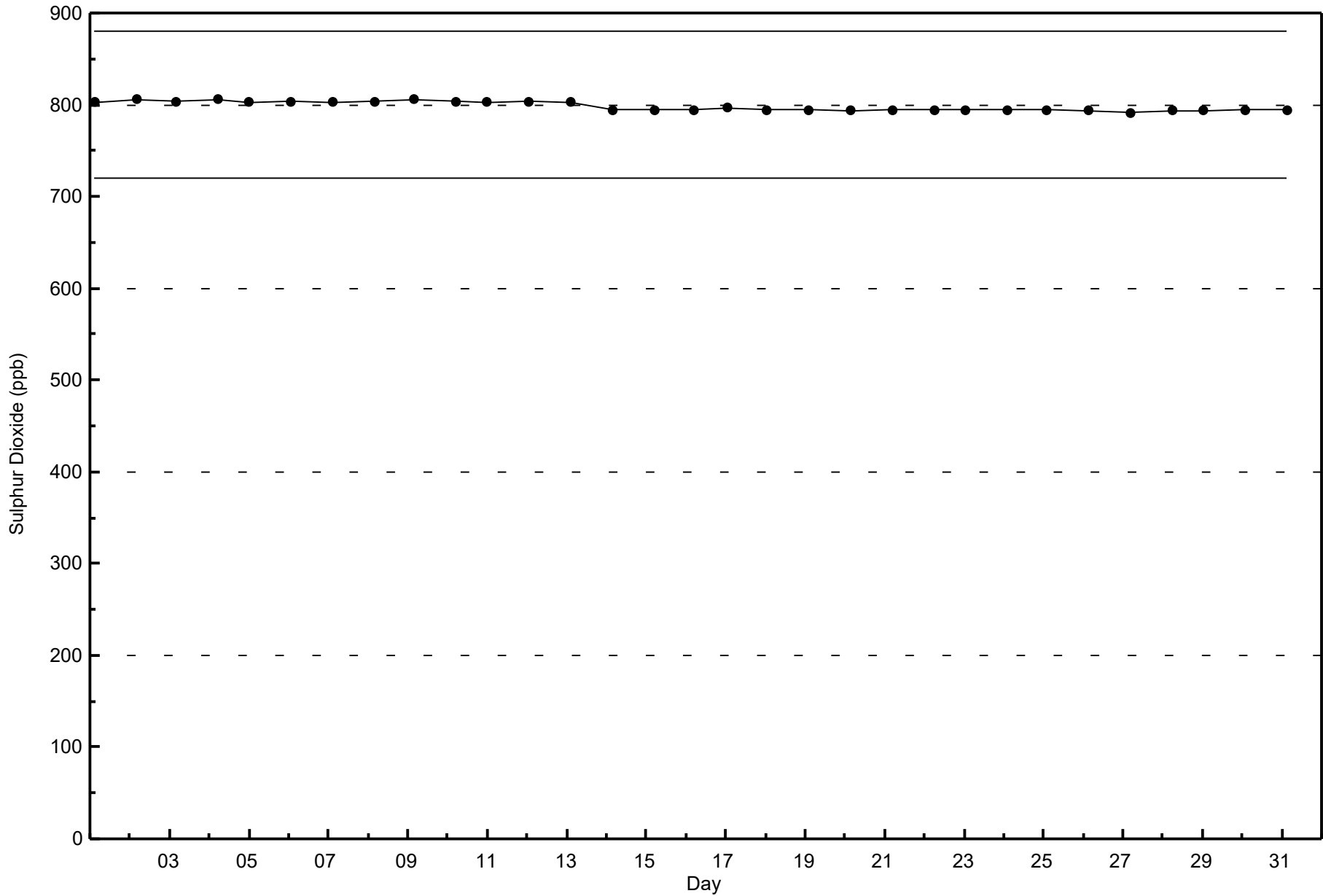


Classes (ppb)



Total Number of Valid Hours: 709



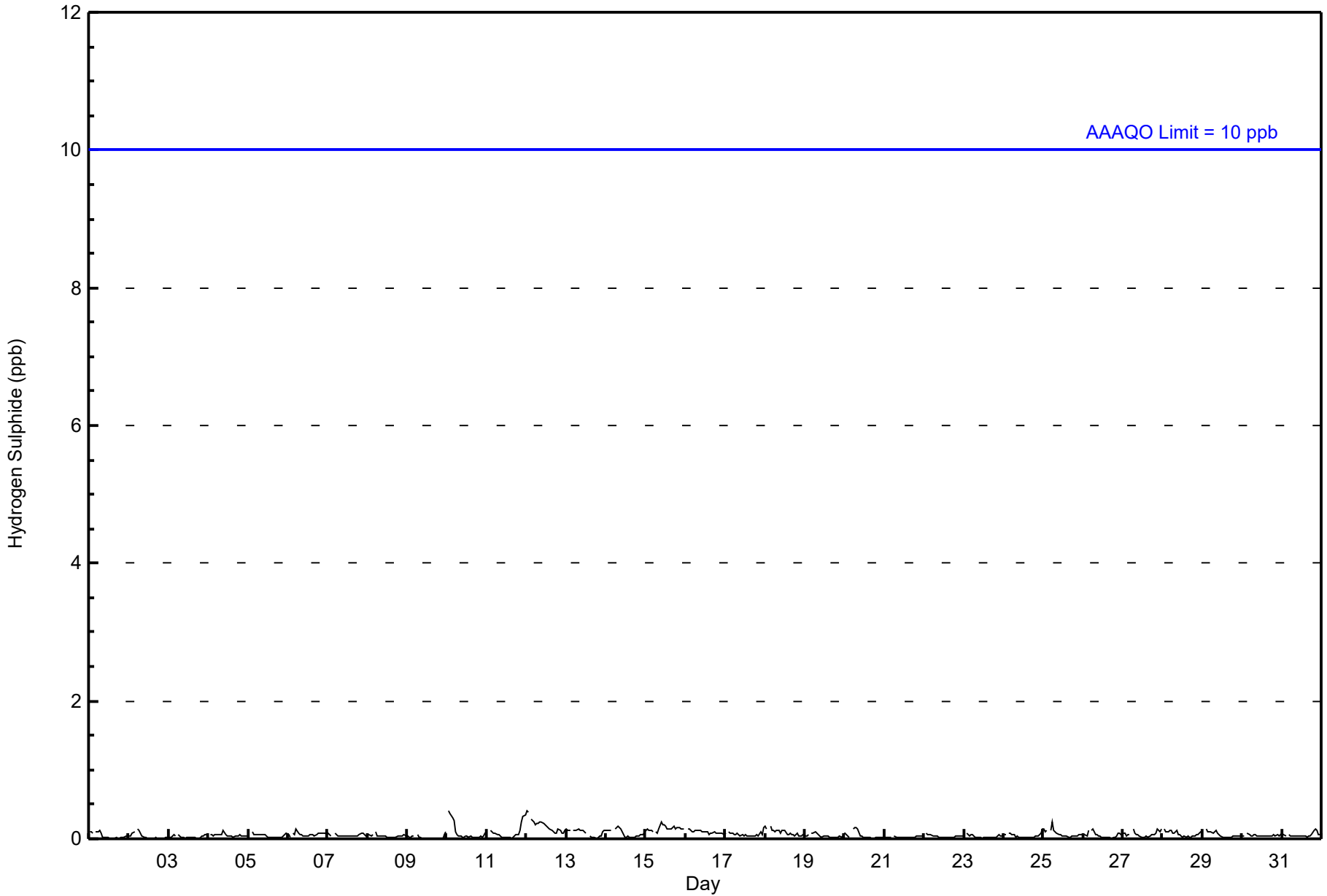






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Surmont 2 - May 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  
Surmont 2 - May 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	21	37	41	74	94	49	8	16	23	51	89	63	60	35	28	706
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	21	37	41	74	94	49	8	16	23	51	89	63	60	35	28	706

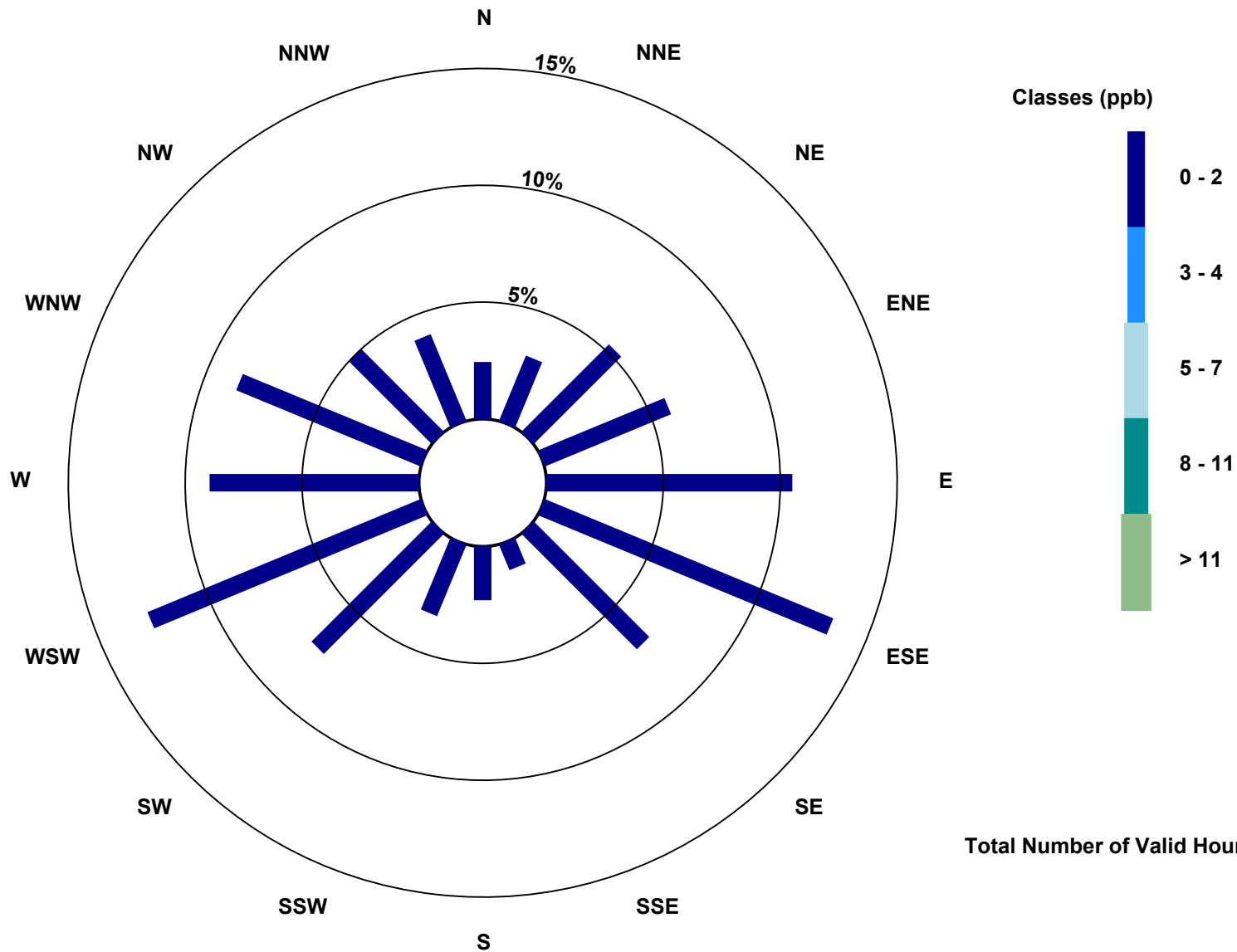
Total Number of Valid Hours: 706

Total Number of Hours: 744

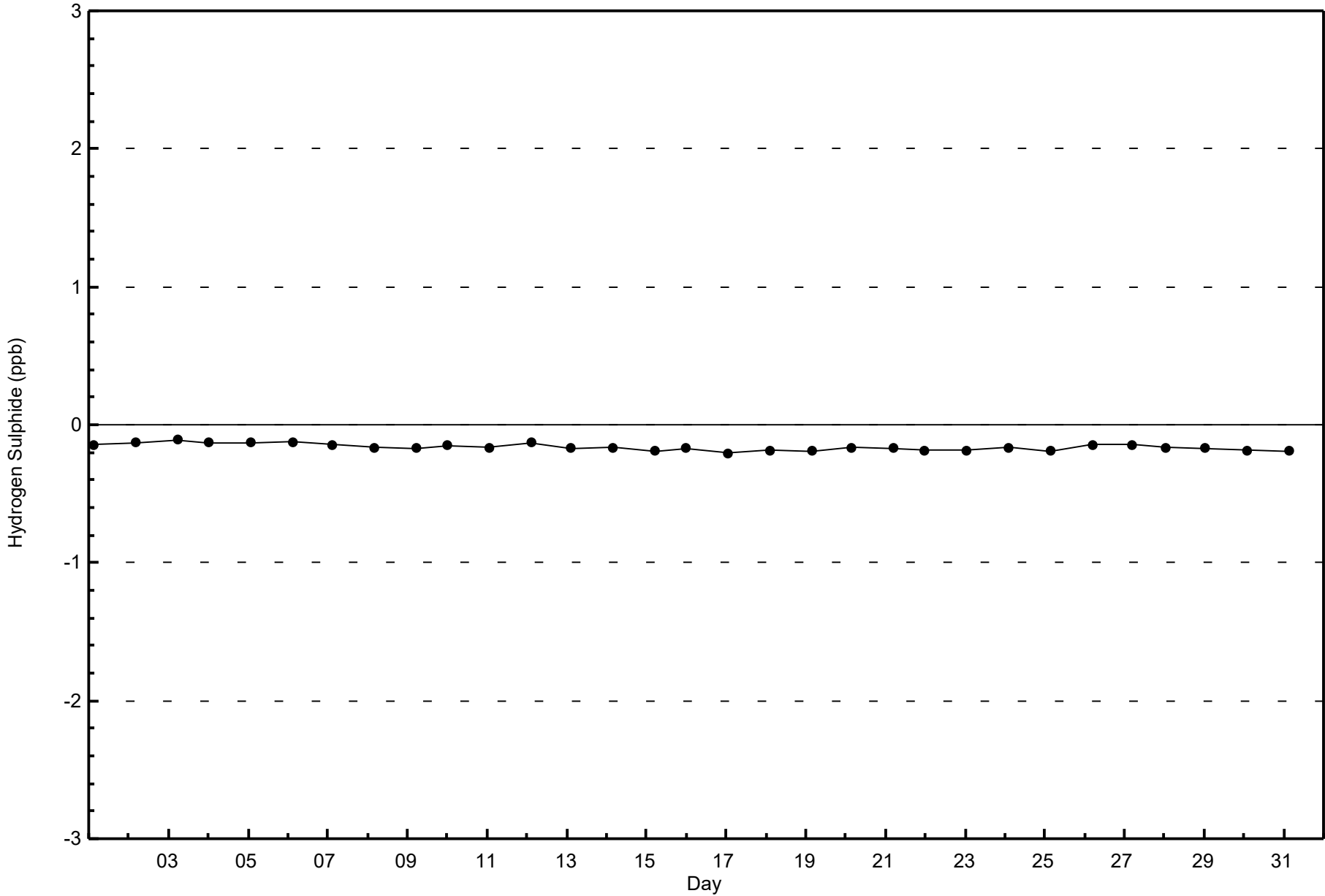


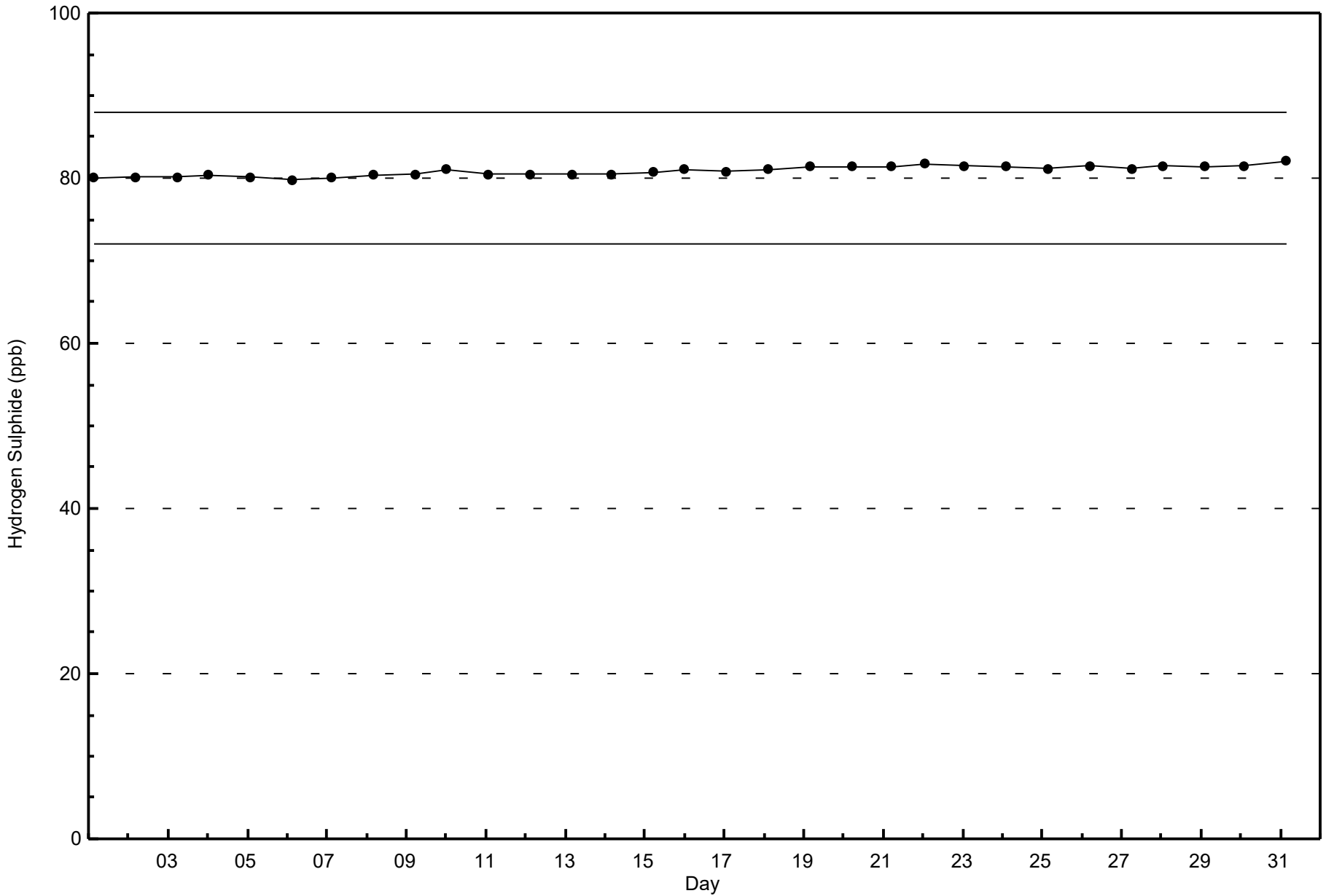
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Surmont 2



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

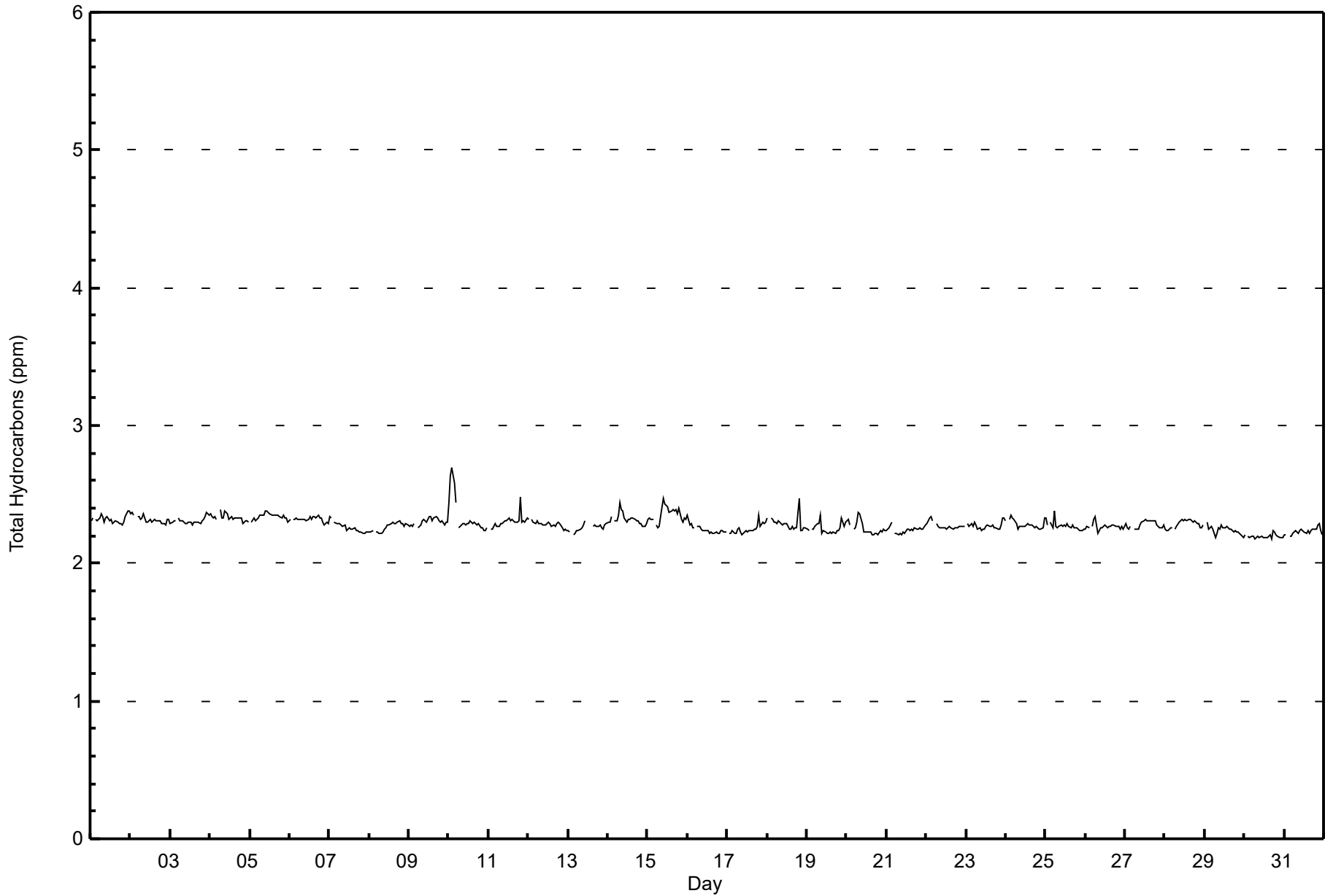
Surmont 2 - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 2.7 ppm on May 10 03:00		Maximum Daily Average: 2.4 ppm on May 15		Hours of Data: 709														709								
Minimum Value: 2.2 ppm on May 30 07:00		Minimum Daily Average: 2.2 ppm on May 30		Hours of Missing Data: 35														35								
Maximum Diurnal Average: 2.3 ppm at hour 3		Minimum Diurnal Average: 2.3 ppm at hour 22		Hours of Calibration: 35														35								
Monthly Average: 2.28 ppm		Percentiles: P <sub>1</sub> = 2.2 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 2.2 Median = 2.3 Q <sub>3</sub> = 2.3 P <sub>90</sub> = 2.3 P <sub>99</sub> = 2.4		Percent Operational Time: 100.0														100.0								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4
2-May	2.4	2.4	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
3-May	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	2.4	2.4	2.3	2.4
4-May	2.4	2.3	2.3	2.3	2.3	Z	2.4	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
5-May	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
6-May	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
7-May	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
8-May	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
9-May	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
10-May	2.4	2.6	2.7	2.6	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.7	
11-May	Z	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	2.3	2.3	2.5	2.3	2.3	2.3	2.3	2.5	
12-May	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	2.2	2.3	2.2	2.3	
13-May	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	C	C	C	C	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
14-May	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
15-May	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.5	
16-May	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
17-May	Z	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
18-May	2.3	Z	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	2.5	2.2	2.2	2.3	2.3	2.3	2.5	
19-May	2.2	2.2	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	
20-May	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	
21-May	2.2	2.3	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.3	
22-May	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	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
23-May	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	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	2.3	
24-May	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	
25-May	2.3	2.3	Z	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	2.2	2.2	2.2	2.2	2.2	2.4	
26-May	2.2	2.3	2.3	Z	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	2.2	2.3	2.3	2.3	2.3	
27-May	2.3	2.3	2.2	2.3	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
28-May	2.2	2.2	2.2	2.3	2.3	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	
29-May	Z	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
30-May	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	
31-May	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	
2.3																								Diurnal Average		
2.4																								Diurnal Maximum		
Z - zerospan C - Calibration																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Surmont 2 - May 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**  
**Surmont 2 - May 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	17	21	37	41	76	93	46	9	16	24	49	88	63	68	35	26	709
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>	17	21	37	41	76	93	46	9	16	24	49	88	63	68	35	26	709

Total Number of Valid Hours: 709

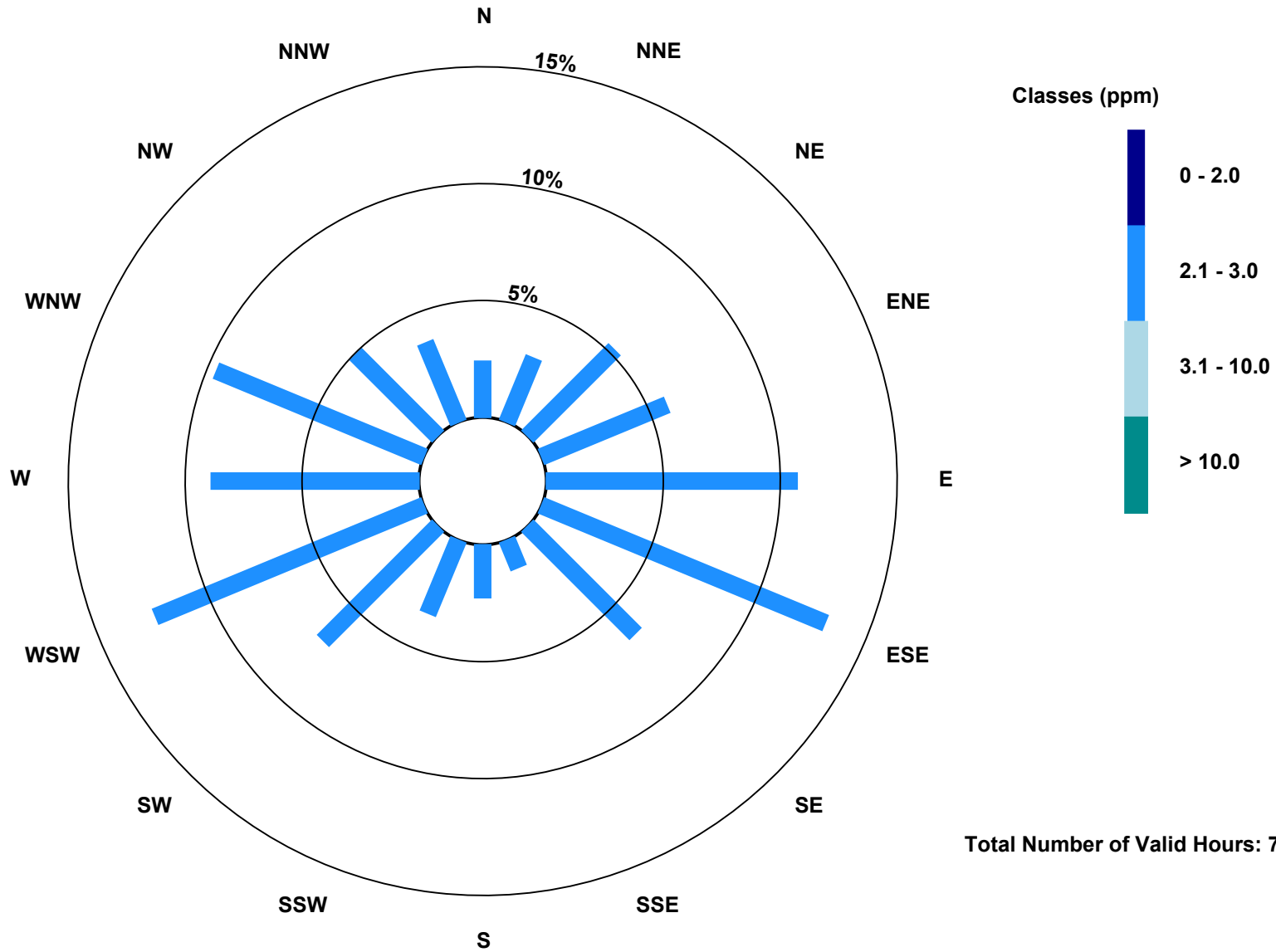
Total Number of Hours: 744



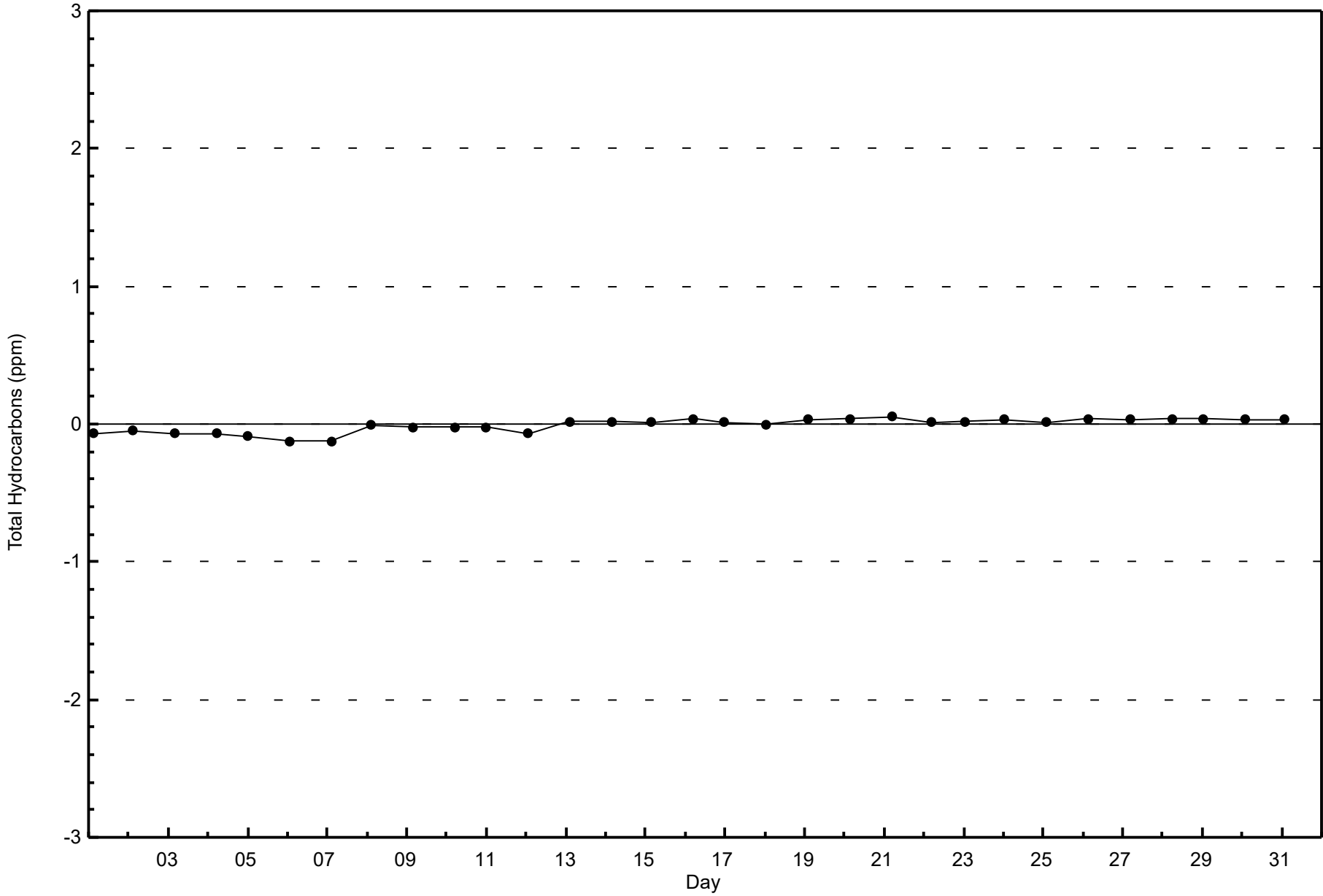


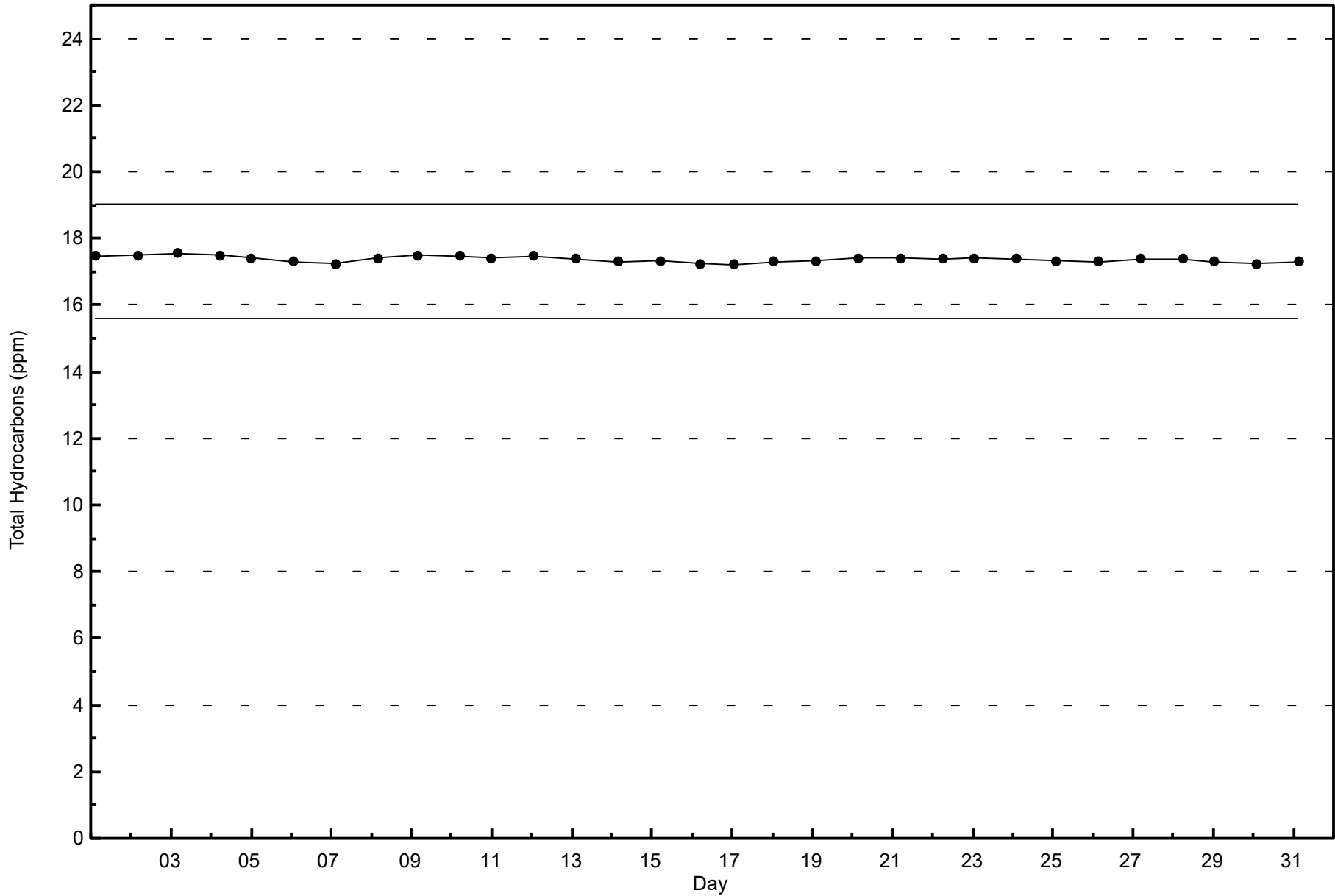
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Surmont 2



Total Number of Valid Hours: 709







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

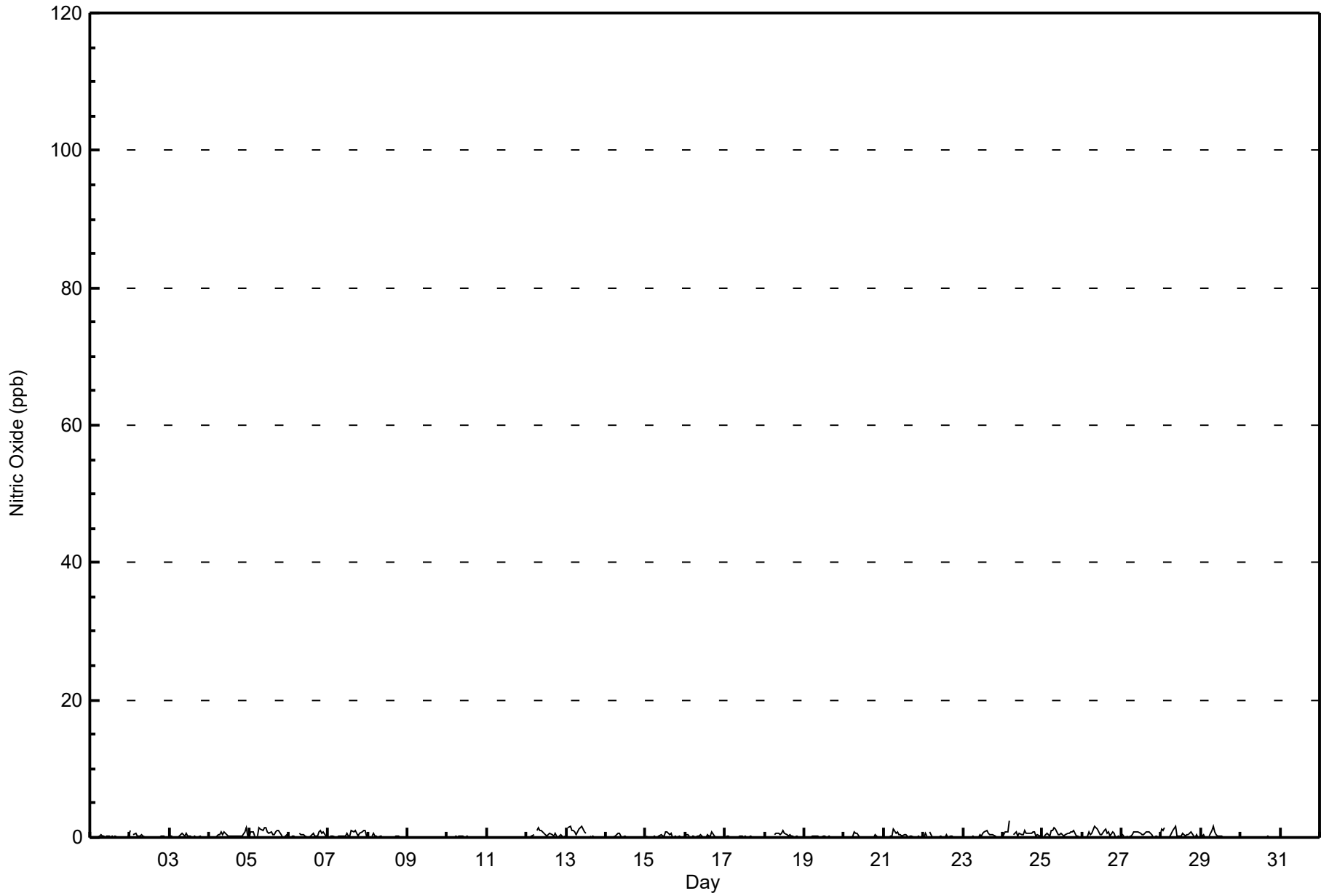
Surmont 2 - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744							
Maximum Value: 2.4 ppb on May 24 05:00		Maximum Daily Average: 0.7 ppb on May 5		Hours of Data: 706														706									
Minimum Value: 0.0 ppb on May 8 17:00		Minimum Daily Average: 0.0 ppb on May 31		Hours of Missing Data: 38														38									
Maximum Diurnal Average: 0.6 ppb at hour 8		Minimum Diurnal Average: 0.1 ppb at hour 24		Hours of Calibration: 37														37									
Monthly Average: 0.27 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.4 P <sub>90</sub> = 0.8 P <sub>99</sub> = 1.5		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-May	Z	0.1	0.1	0.1	0.1	0.2	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.4	0.1	0.5	
2-May	1.0	Z	0.3	0.6	0.2	0.1	0.2	0.4	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.2	1.0	
3-May	0.3	0.3	Z	0.0	0.0	0.1	0.1	0.5	0.5	0.1	0.5	0.1	0.2	0.1	0.1	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.2	0.5	
4-May	0.0	0.0	0.1	Z	0.0	0.4	0.5	0.7	0.4	0.9	0.5	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.9	1.4	0.2	0.4	1.4	
5-May	0.0	0.9	0.7	0.1	Z	0.2	1.4	1.3	1.0	1.4	1.4	0.8	0.6	0.7	0.5	0.4	0.7	1.1	1.0	0.4	0.1	0.1	0.1	0.4	0.7	1.4	
6-May	0.1	0.1	0.1	0.2	0.1	Z	0.6	0.4	0.4	0.5	0.3	0.1	0.1	0.2	0.5	0.5	0.1	0.2	0.8	1.0	0.7	0.9	0.1	0.1	0.4	1.0	
7-May	Z	0.2	0.1	0.2	0.1	0.0	0.1	0.2	0.1	0.3	0.2	0.6	0.2	0.3	1.0	0.9	1.1	0.5	0.2	0.6	0.8	1.1	1.0	0.3	0.4	1.1	
8-May	0.2	Z	0.2	0.6	0.2	0.1	0.1	0.1	0.1	C	C	C	C	C	C	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.0	0.0	--	0.6	
9-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
10-May	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	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
11-May	0.1	0.1	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1
12-May	0.0	0.1	0.1	0.1	0.3	Z	0.9	1.5	1.0	0.9	0.7	0.5	0.3	0.5	0.6	0.5	0.3	0.6	0.1	0.0	0.4	0.2	0.0	0.2	0.4	1.5	
13-May	Z	1.5	1.7	1.0	1.0	0.8	0.4	1.2	1.4	1.5	1.2	0.7	0.6	M	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.7	
14-May	0.1	Z	0.1	0.0	0.1	0.2	0.4	0.5	0.6	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
15-May	0.0	0.2	Z	0.0	0.1	0.2	0.1	0.1	0.2	0.3	0.2	0.1	0.8	0.8	0.3	0.6	0.1	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.8	
16-May	0.3	0.4	0.2	Z	0.2	0.2	0.1	0.3	0.2	0.4	0.1	0.1	0.1	0.3	0.3	0.3	0.9	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.9	
17-May	0.1	0.2	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	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2	
18-May	0.0	0.0	0.0	0.0	0.1	Z	0.4	0.6	0.6	0.4	0.7	1.0	0.6	0.4	0.3	0.5	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.3	1.0	
19-May	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	
20-May	0.0	Z	0.0	0.0	0.1	0.3	0.7	0.7	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1	0.1	0.0	0.2	0.7	
21-May	0.0	0.1	Z	0.1	0.2	0.3	1.2	0.6	0.7	0.4	0.5	0.2	0.4	0.3	0.2	0.1	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.2	0.3	1.2	
22-May	0.1	0.5	0.2	Z	0.9	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.9	
23-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.4	0.2	0.5	0.7	1.0	0.7	0.3	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.2	1.0	
24-May	0.0	0.8	0.7	0.8	2.4	Z	0.5	0.6	0.8	0.3	0.6	0.4	0.5	1.0	0.6	0.6	0.6	0.7	0.8	0.9	0.2	0.4	0.3	0.1	0.6	2.4	
25-May	Z	0.2	0.4	0.6	0.1	1.0	1.1	1.4	1.2	0.5	0.4	0.6	0.4	0.3	0.5	0.6	0.5	0.8	0.8	1.1	0.2	0.1	0.0	0.1	0.6	1.4	
26-May	0.1	Z	0.1	0.1	0.8	0.5	0.7	1.7	1.4	1.1	0.8	0.4	0.4	1.1	1.2	0.6	0.7	0.3	0.8	0.6	0.0	0.0	0.2	0.1	0.6	1.7	
27-May	0.3	0.2	Z	0.2	0.1	0.3	0.5	0.8	0.7	0.7	0.8	0.6	0.5	0.4	0.6	0.8	0.7	0.6	0.5	0.0	0.1	0.2	0.1	0.2	0.4	0.8	
28-May	1.2	1.1	1.5	Z	0.1	0.2	0.6	1.1	1.6	0.2	0.1	0.2	0.2	0.6	0.2	0.3	0.4	0.6	0.8	0.1	0.0	0.4	0.1	0.0	0.5	1.6	
29-May	0.0	0.3	0.1	0.1	Z	0.1	0.9	1.7	0.8	0.5	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	0.0	0.2	1.7	
30-May	0.0	0.1	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	0.0	0.0	0.0	0.1	0.1	
31-May	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	0.0	0.0	0.0	0.1	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan      C - Calibration      M - Maintenance																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Surmont 2 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Surmont 2 - May 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	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706
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>	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706

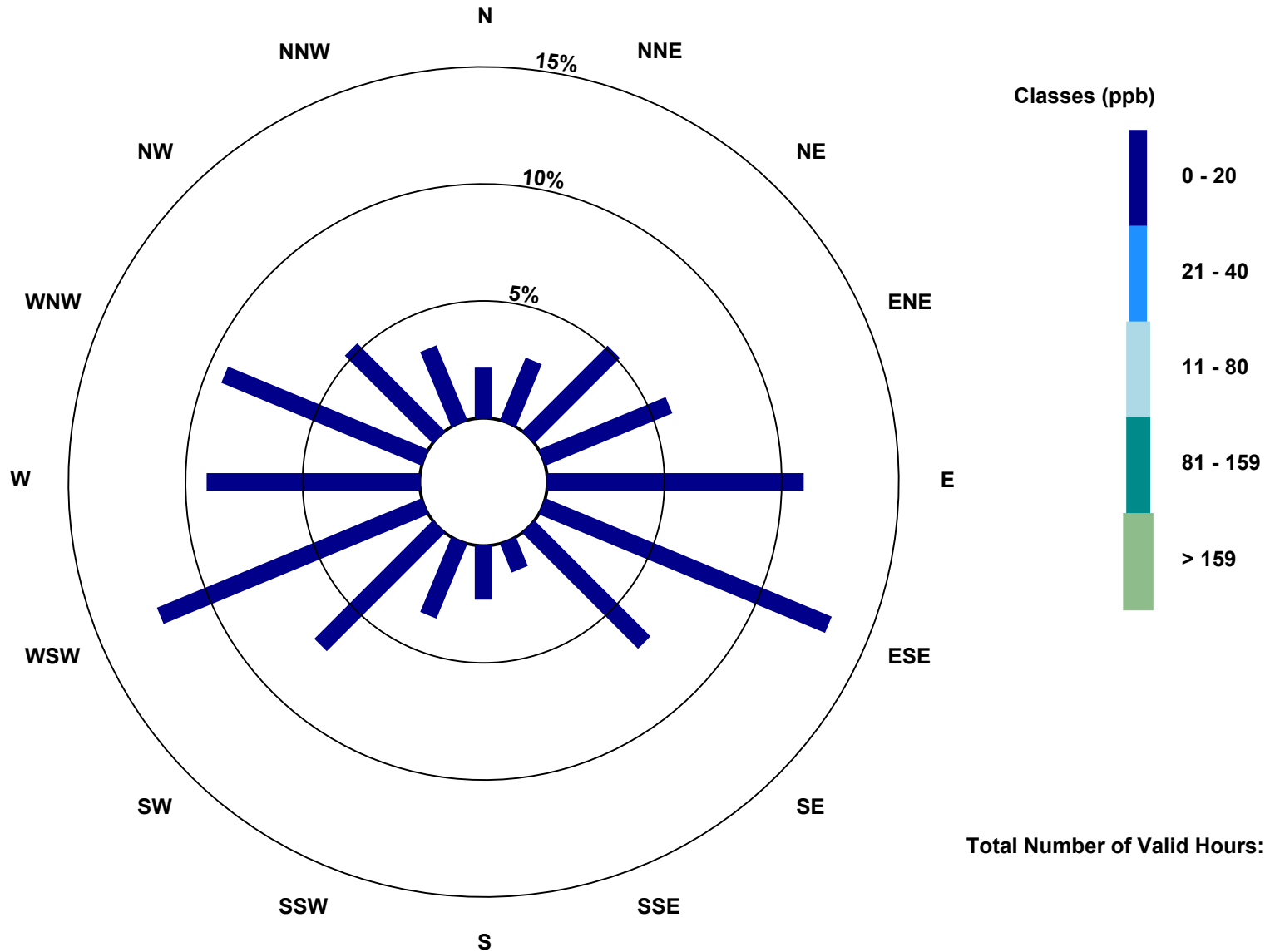
Total Number of Valid Hours: 706

Total Number of Hours: 744



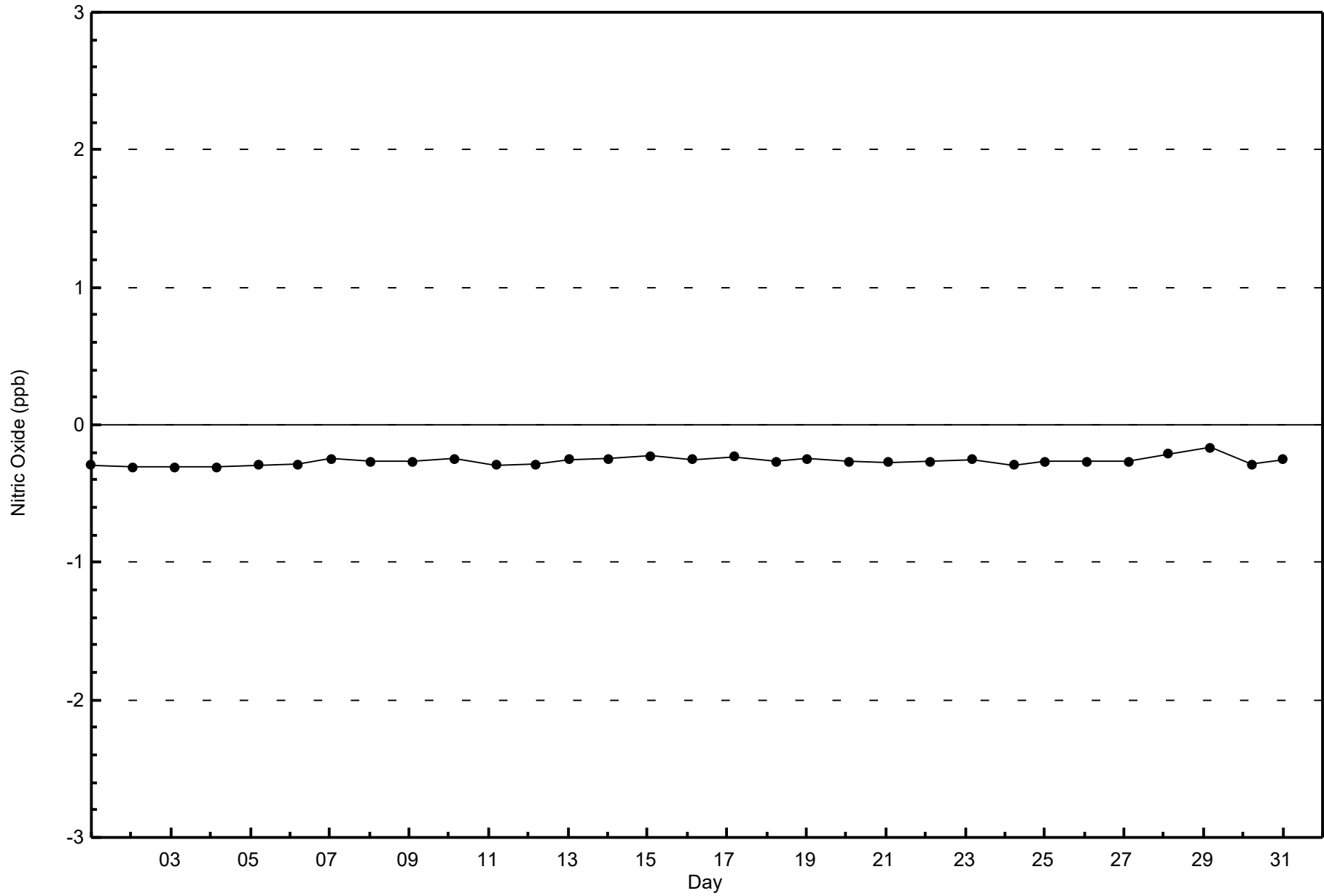
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Surmont 2



Total Number of Valid Hours: 706

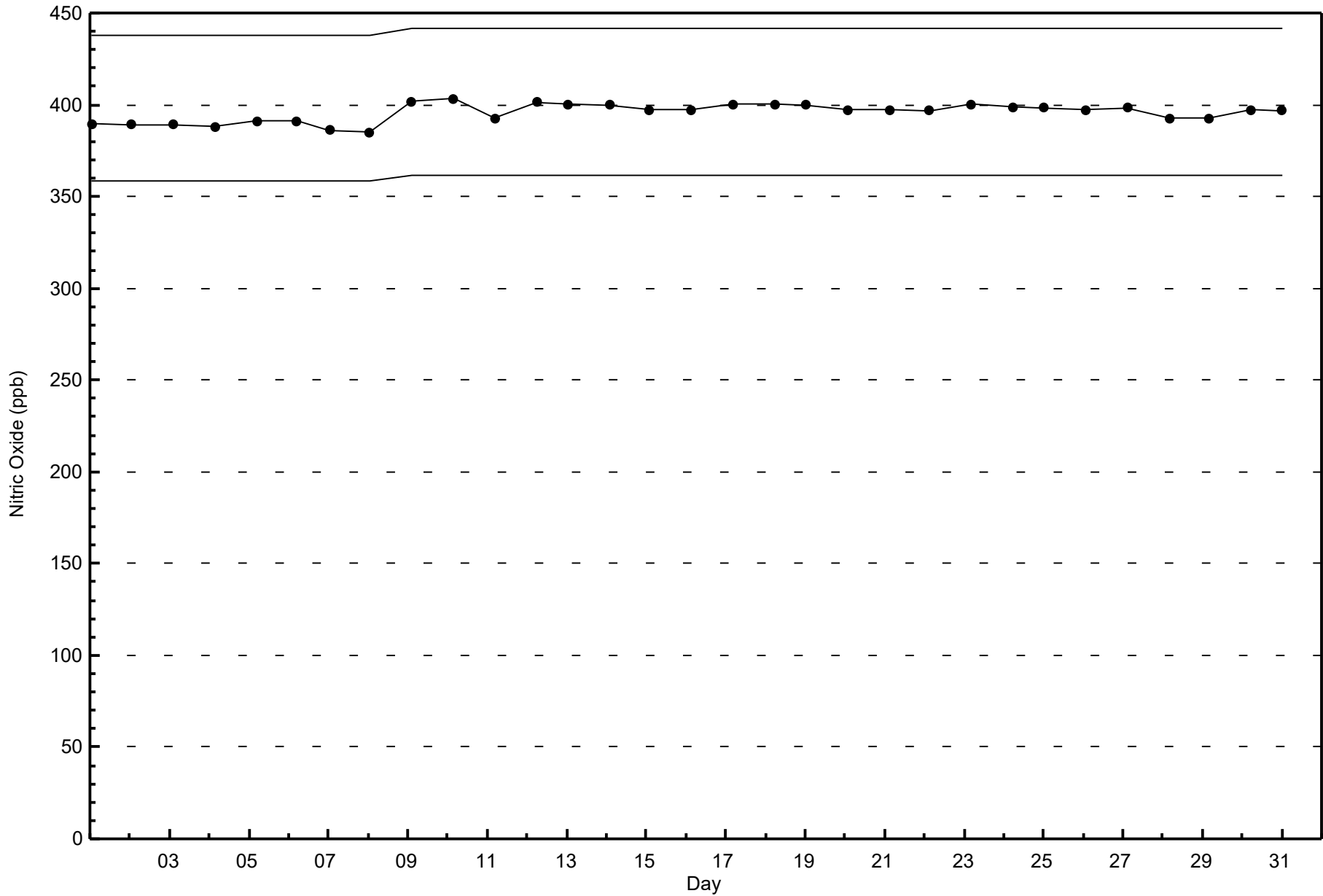






Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Surmont 2 - May 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

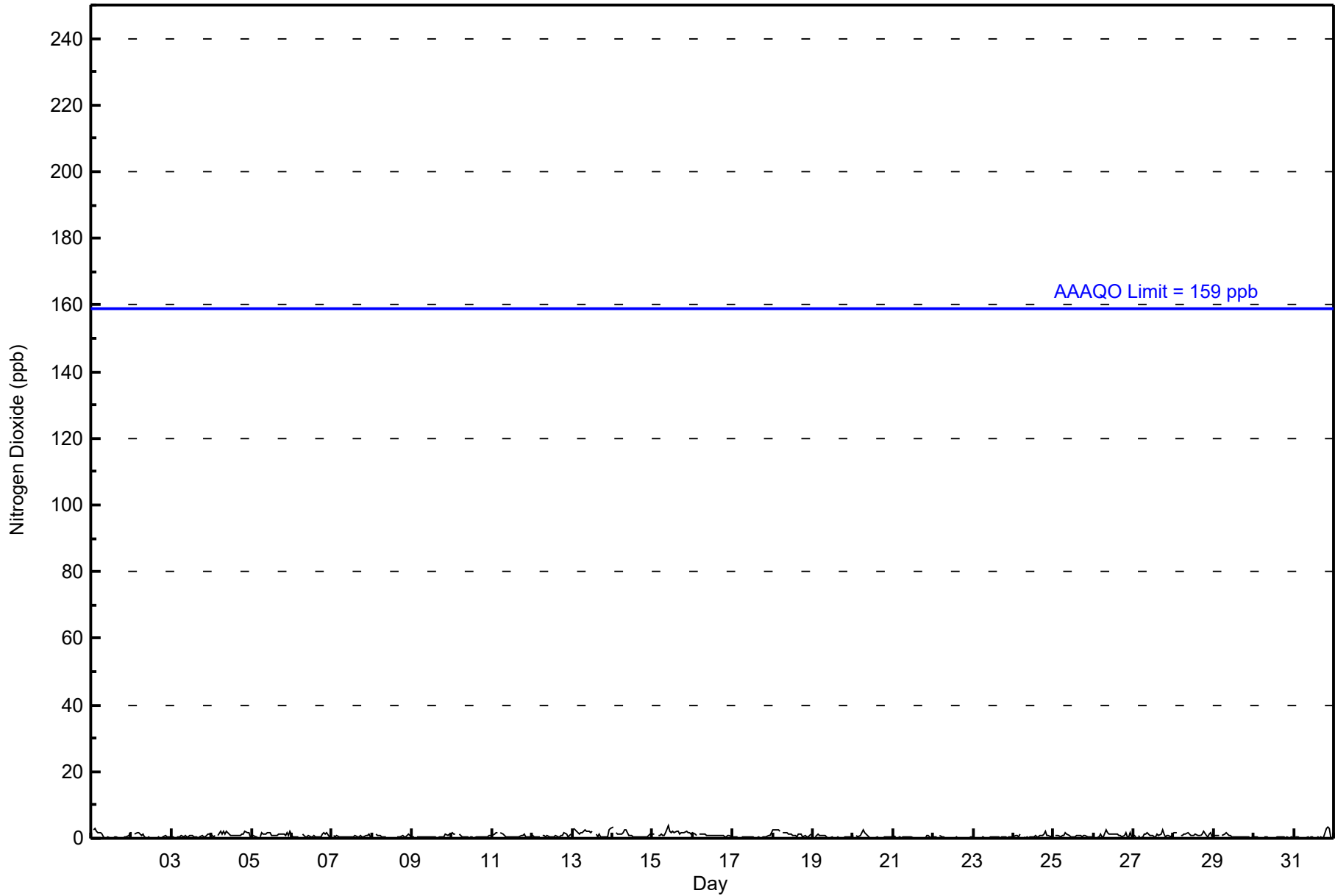
Surmont 2 - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.7 ppb on May 15 10:00	Maximum Daily Average: 1.6 ppb on May 15		Hours of Data:	706
Minimum Value: 0.0 ppb on May 24 10:00	Minimum Daily Average: 0.3 ppb on May 22		Hours of Missing Data:	38
Maximum Diurnal Average: 1.1 ppb at hour 8	Minimum Diurnal Average: 0.5 ppb at hour 14		Hours of Calibration:	37
Monthly Average: 0.78 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.3 Median = 0.6 Q <sub>3</sub> = 1.1 P <sub>90</sub> = 1.7 P <sub>99</sub> = 2.8		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-May	Z	2.5	2.8	2.2	1.9	1.7	1.3	0.6	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.5	0.9	1.6	0.8	2.8
2-May	1.7	Z	1.3	1.7	1.9	1.3	1.0	1.1	0.5	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.7	0.4	0.4	0.3	0.6	1.9
3-May	0.3	0.5	Z	0.4	0.3	0.5	0.8	0.5	0.8	0.4	0.6	0.7	0.8	0.4	0.4	0.5	0.2	0.3	0.8	0.3	0.4	0.9	1.3	1.4	0.6	1.4
4-May	0.7	0.5	0.8	Z	1.0	2.0	1.1	2.3	1.3	2.2	1.4	0.7	0.7	0.7	0.8	1.0	1.0	1.0	1.3	1.2	2.2	1.9	1.9	0.6	1.2	2.3
5-May	0.5	0.8	0.3	0.3	Z	0.6	1.5	1.3	1.2	1.9	1.7	1.5	0.8	0.7	0.7	0.9	1.2	1.2	1.4	1.2	0.8	1.8	0.9	2.1	1.1	2.1
6-May	0.4	0.4	0.6	0.5	0.4	Z	1.2	0.9	0.6	0.6	0.7	0.6	0.5	0.7	0.6	0.5	0.5	0.6	1.2	1.8	1.2	1.7	0.6	0.5	0.8	1.8
7-May	Z	1.0	0.5	0.9	0.5	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.3	0.4	0.7	0.5	0.5	0.7	0.3	0.3	0.9	1.0	1.2	0.6	0.6	1.2
8-May	0.5	Z	1.1	0.9	0.7	0.7	0.4	0.5	0.4	C	C	C	C	C	C	0.5	0.4	0.6	0.9	0.3	0.4	0.8	1.4	0.4	--	1.4
9-May	0.4	0.4	Z	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.3	0.5	0.4	0.3	1.3	0.8	1.1	1.3	0.5	1.3
10-May	1.5	1.4	1.2	Z	1.1	0.8	0.6	0.6	0.6	0.4	0.2	0.3	0.5	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.8	0.9	0.6	1.5
11-May	0.9	1.1	1.8	1.7	Z	1.5	1.2	0.7	0.6	0.3	0.3	0.5	0.6	0.4	0.3	0.4	0.4	0.7	0.9	1.1	0.5	0.6	0.5	0.6	0.8	1.8
12-May	0.7	0.5	0.5	0.4	0.5	Z	0.9	1.0	0.4	0.8	0.5	0.6	0.3	0.3	0.8	0.4	0.5	0.8	1.0	1.8	1.4	0.5	0.7	1.1	0.7	1.8
13-May	Z	2.8	2.0	1.5	1.3	1.6	1.9	2.7	2.2	2.2	2.2	1.9	2.0	M	1.2	0.6	1.2	0.4	0.3	0.3	0.3	0.6	2.6	3.0	1.6	3.0
14-May	3.4	Z	1.7	1.2	1.1	1.3	1.8	2.6	2.4	1.6	1.0	0.7	0.4	0.6	0.5	0.5	0.4	0.5	0.4	0.5	0.5	1.1	1.2	1.1	1.1	3.4
15-May	1.2	1.4	Z	0.8	0.7	1.2	0.9	0.9	1.9	3.7	2.0	1.7	2.2	1.9	2.2	2.0	1.4	1.5	1.9	1.5	2.3	1.5	1.5	1.3	1.6	3.7
16-May	1.5	1.4	1.0	Z	1.2	1.2	1.1	1.4	0.8	0.9	0.7	0.7	0.8	0.8	1.0	0.9	1.0	0.8	0.7	0.5	0.6	0.7	0.7	0.6	0.9	1.5
17-May	0.6	0.5	0.6	0.5	Z	0.6	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.3	0.9	0.8	1.9	0.5	1.9
18-May	2.6	2.5	2.6	2.6	2.0	Z	1.5	1.8	1.7	1.1	1.4	1.4	1.0	0.7	0.6	1.3	1.3	1.2	0.3	0.7	0.3	0.4	0.7	1.1	1.3	2.6
19-May	Z	0.5	1.0	1.2	1.0	0.7	0.8	0.9	0.5	0.2	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.1	0.2	0.3	0.3	0.5	0.4	0.4	0.5	1.2
20-May	0.7	Z	0.8	0.3	0.9	1.6	2.7	1.8	1.1	0.4	0.1	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.5	0.6	0.6	0.5	0.5	0.6	2.7
21-May	0.7	0.3	Z	0.3	0.3	0.1	0.6	0.3	0.5	0.4	0.3	0.3	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.7	1.0	0.3	0.2	0.3	1.0
22-May	0.5	0.4	0.3	Z	0.7	0.4	0.5	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.7
23-May	0.3	0.2	0.2	0.2	Z	0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.5	0.6	0.5	0.5	0.2	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.6
24-May	0.3	0.9	0.7	0.6	1.1	Z	0.3	0.2	0.3	0.0	0.3	0.6	0.5	0.8	0.6	0.5	0.8	0.8	1.2	2.1	0.9	1.0	0.5	1.2	0.7	2.1
25-May	Z	0.7	0.8	0.9	0.6	0.7	1.0	1.6	1.2	0.7	0.3	0.4	0.4	0.6	0.7	0.8	0.8	0.6	0.8	1.0	0.6	0.6	0.4	0.3	0.7	1.6
26-May	0.2	Z	0.4	0.4	1.4	0.4	0.6	2.7	1.9	1.3	1.1	1.3	1.3	1.3	1.1	0.9	1.0	0.6	0.8	1.6	0.3	0.5	1.5	0.5	1.0	2.7
27-May	1.0	0.6	Z	0.9	0.2	0.6	1.3	1.2	1.6	1.2	0.9	0.8	0.6	0.6	1.2	0.8	1.3	2.5	1.4	0.6	0.7	0.7	0.6	1.1	1.0	2.5
28-May	1.5	1.7	1.7	Z	0.9	1.0	1.3	1.2	1.9	1.1	0.9	0.8	0.7	1.1	0.7	0.9	0.9	1.4	2.0	1.0	0.4	1.1	1.6	0.6	1.1	2.0
29-May	0.8	1.0	0.8	0.7	Z	0.9	1.3	1.8	1.4	1.0	0.8	0.6	0.5	0.4	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.4	0.2	0.4	0.7	1.8
30-May	0.4	0.3	0.3	0.2	0.2	Z	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.4
31-May	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.3	2.8	3.4	3.0	0.4	0.2	0.6	3.4

0.9	1.0	1.0	0.8	0.9	0.9	1.0	1.1	0.9	0.8	0.7	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.9	0.9	Diurnal Average	
3.4	2.8	2.8	2.6	2.0	2.0	2.7	2.7	2.4	3.7	2.2	1.9	2.2	1.9	2.2	2.0	1.4	2.5	2.0	2.8	3.4	3.0	2.6	3.0	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**  
**Surmont 2 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2 - May 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	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706
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>	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706

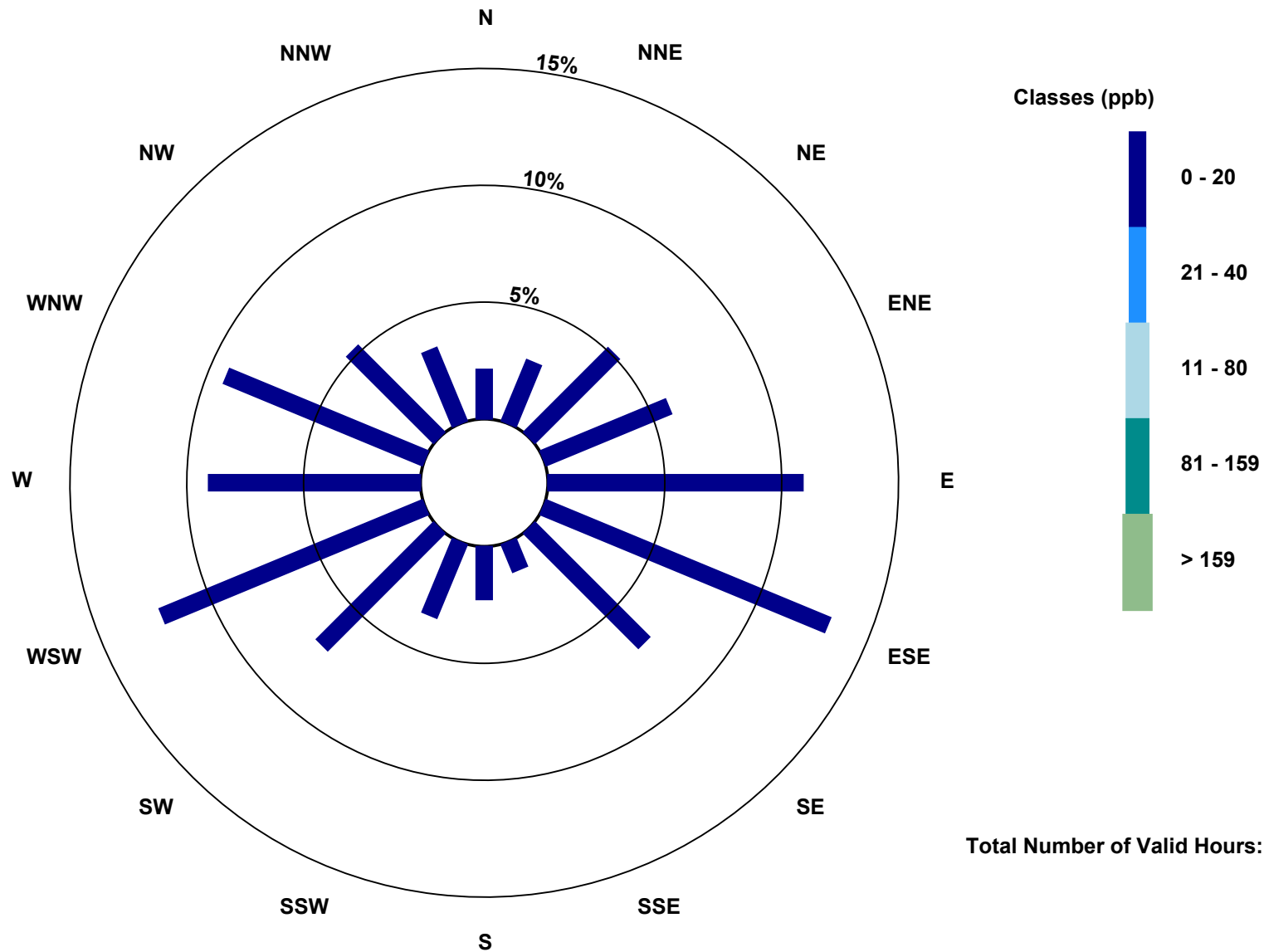
Total Number of Valid Hours: 706

Total Number of Hours: 744

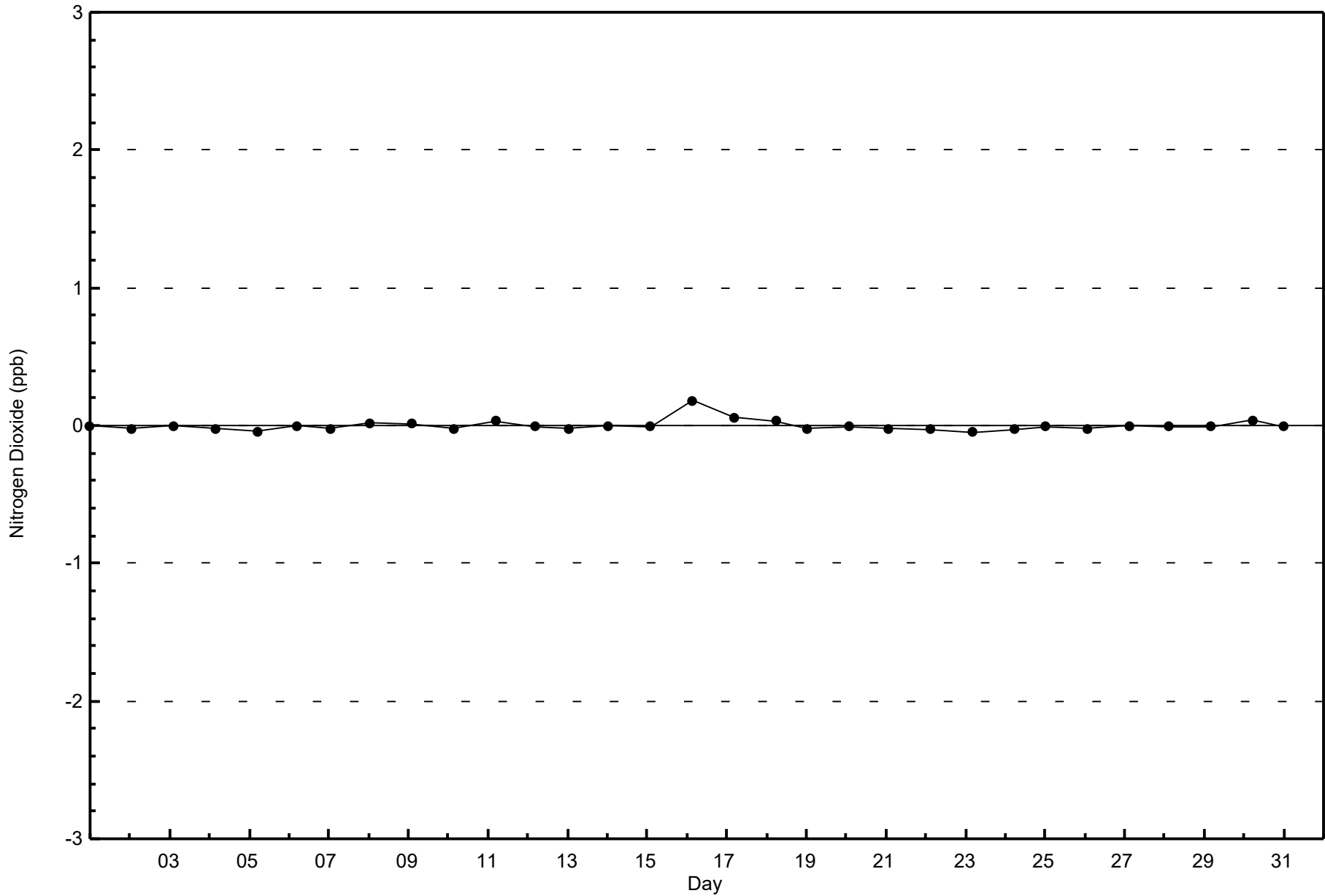


Wood Buffalo Environmental Association  
Wind Rose May 2024

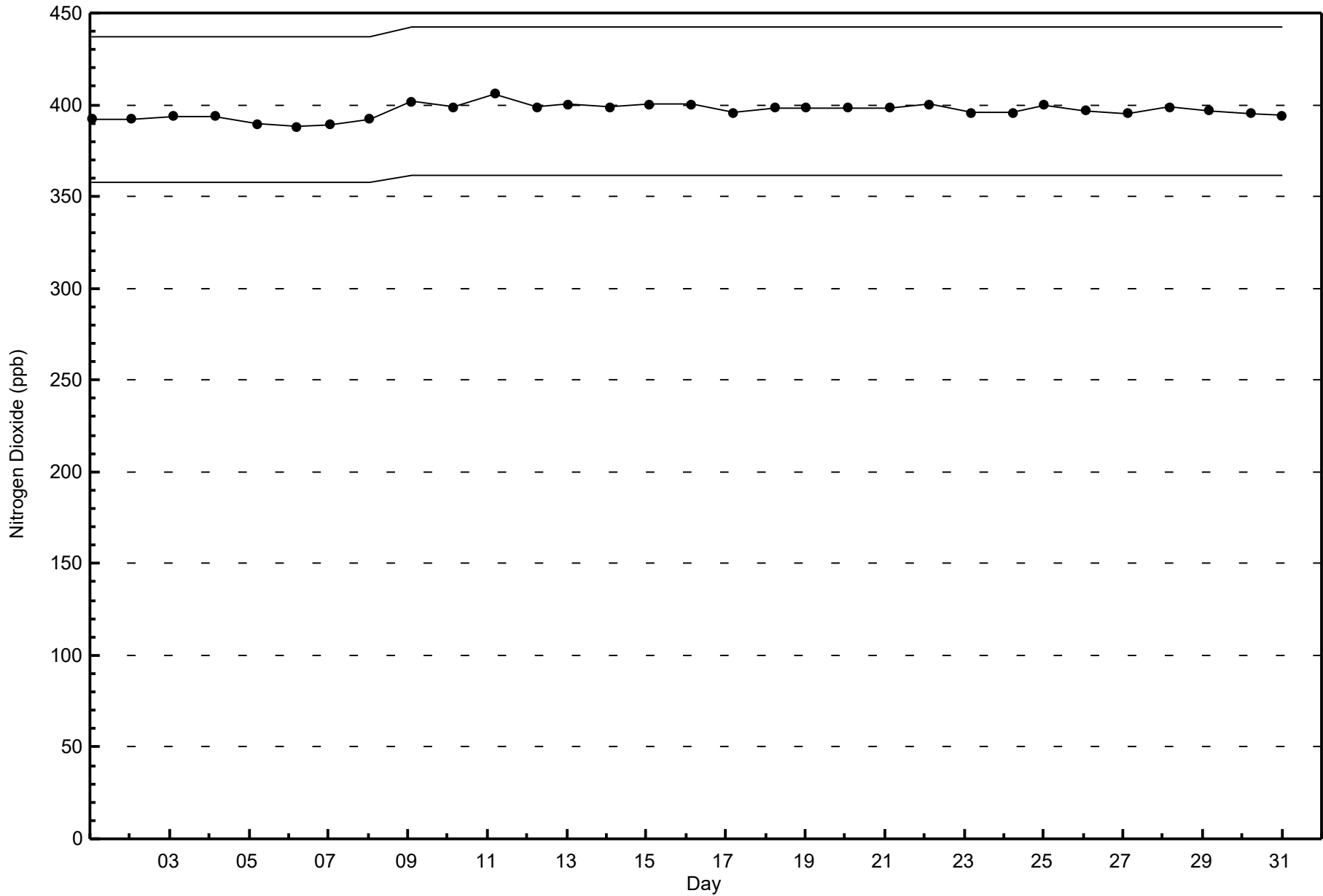
Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Surmont 2



Total Number of Valid Hours: 706





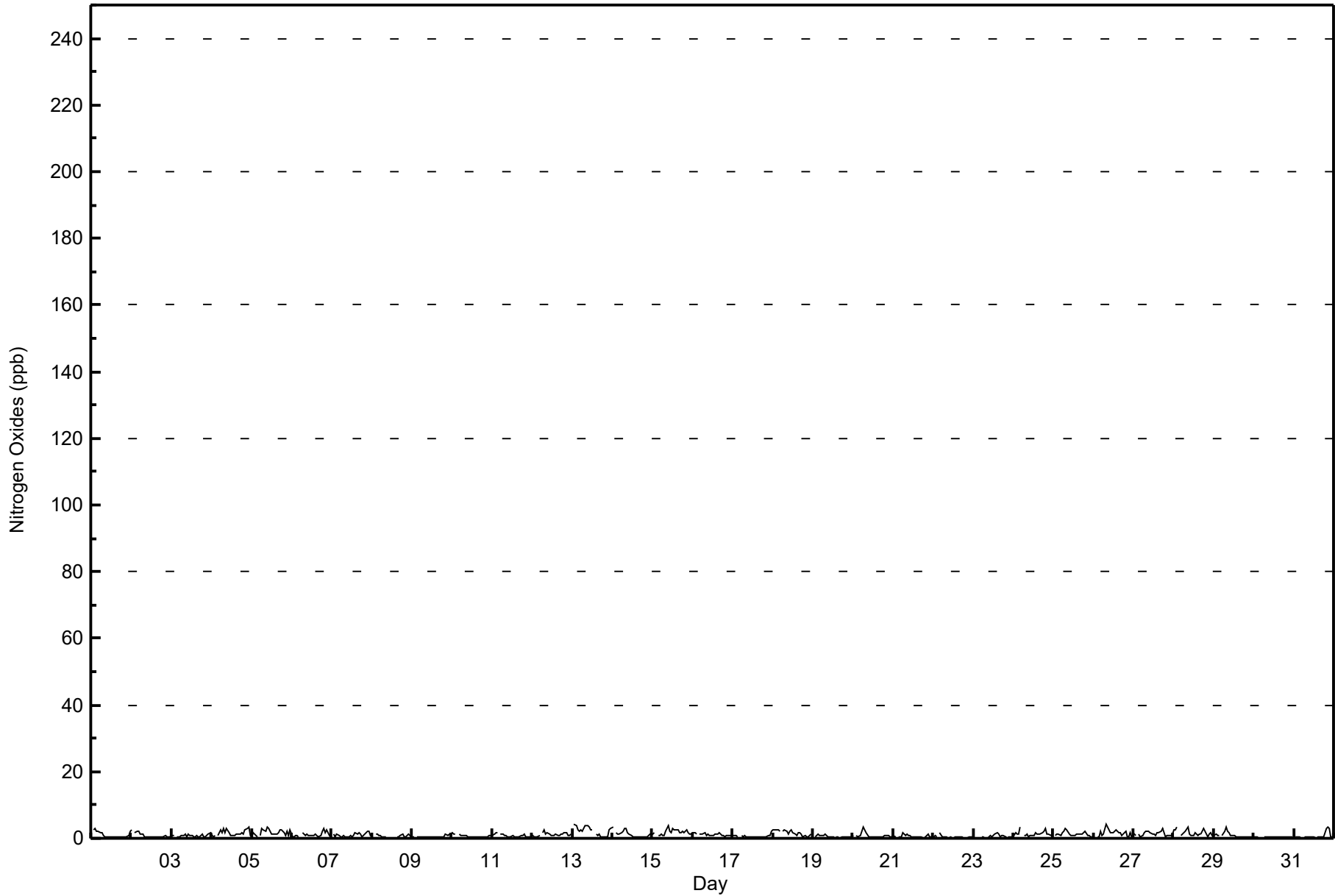






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Surmont 2 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	706	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2 - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Wind Direction</b>																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	<b>Totals</b>
0 - 20	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706
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>	15	20	36	41	77	93	49	9	16	24	50	86	64	65	37	24	706

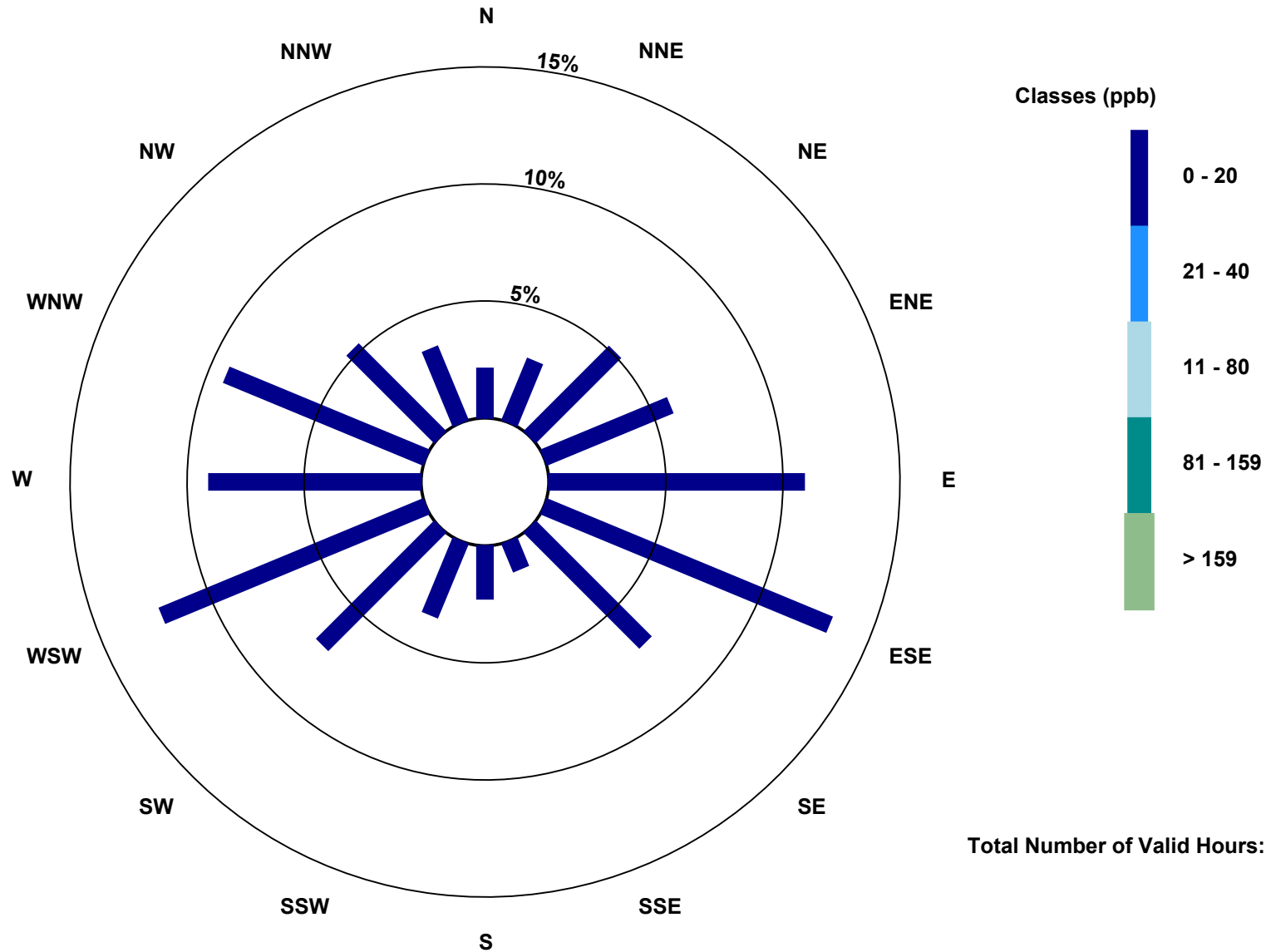
Total Number of Valid Hours: 706

Total Number of Hours: 744

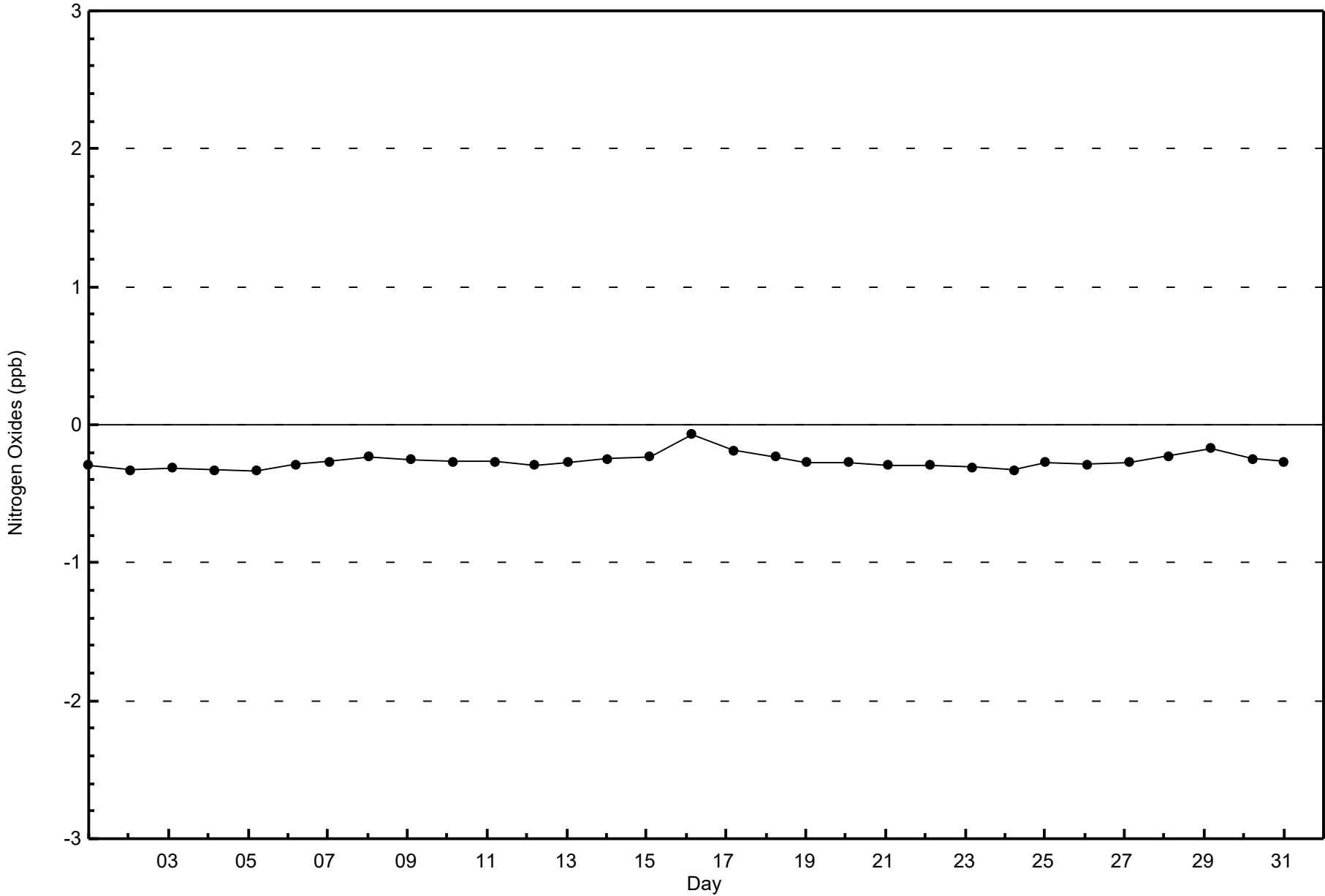


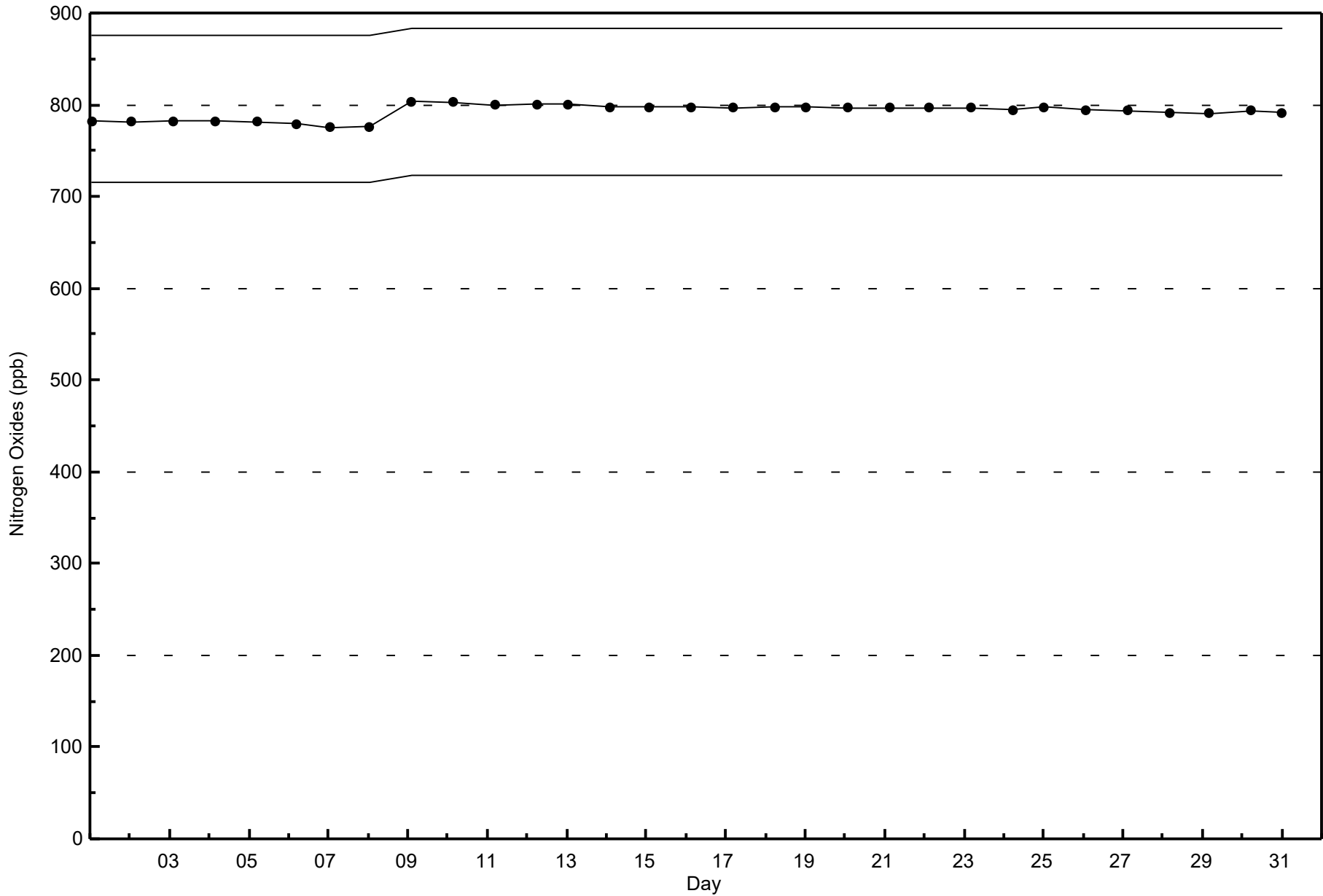
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Surmont 2



Total Number of Valid Hours: 706





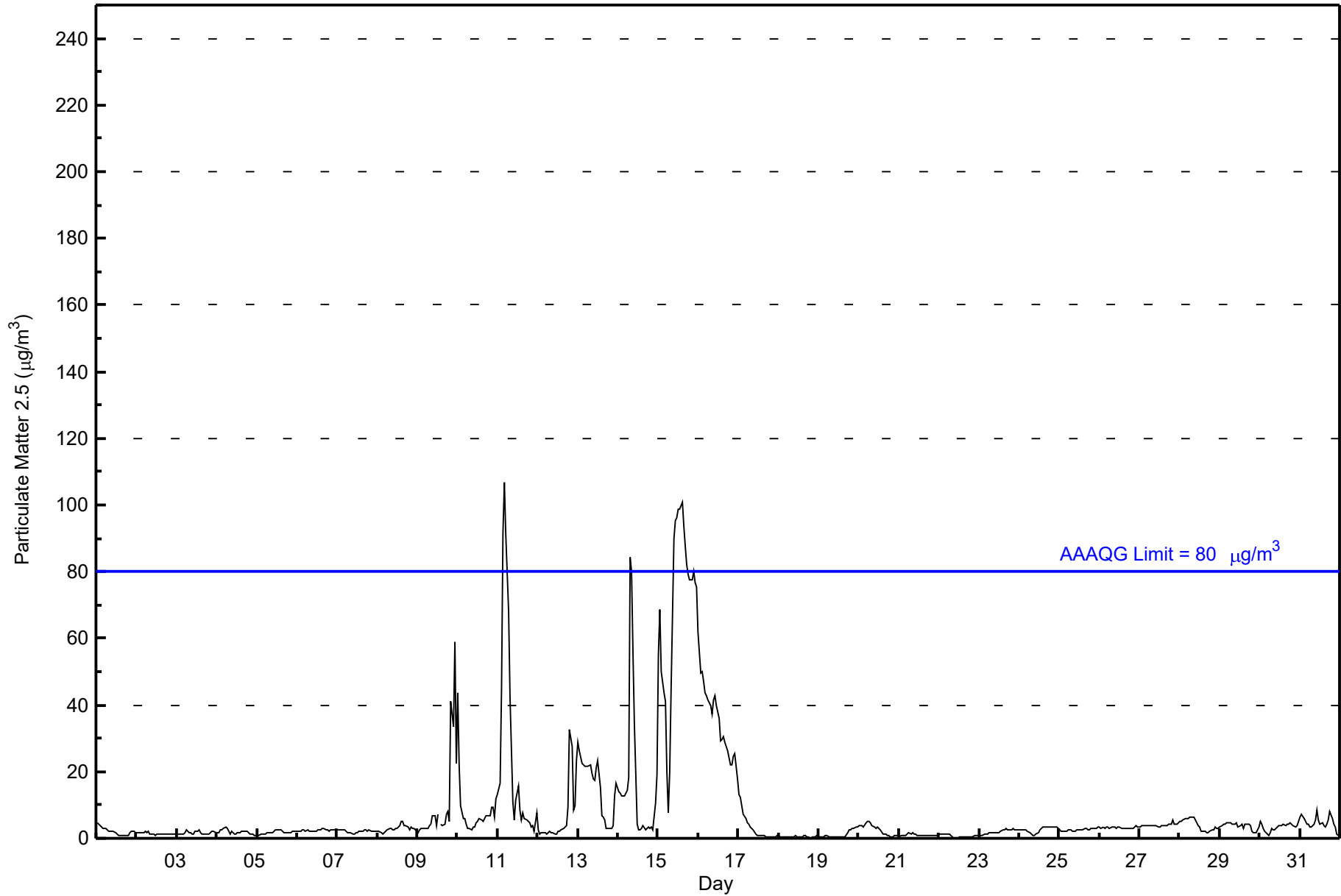




Summary of Hour Averages

Surmont 2 - May 2024

Number of Exceedences (AAAQO):		1-hr: 14		24-hr: 2		Hours in Service:		744																		
Maximum Value: 106.9 µg/m <sup>3</sup> on May 11 05:00		Maximum Daily Average: 69.2 µg/m <sup>3</sup> on May 15				Hours of Data:		743																		
Minimum Value: 0.2 µg/m <sup>3</sup> on May 22 10:00		Minimum Daily Average: 0.5 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		1																		
Maximum Diurnal Average: 9.6 µg/m <sup>3</sup> at hour 5		Minimum Diurnal Average: 6.1 µg/m <sup>3</sup> at hour 18				Hours of Calibration:		1																		
Monthly Average: 7.83 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.3 P <sub>10</sub> = 0.7 Q <sub>1</sub> = 1.5 Median = 2.7 Q <sub>3</sub> = 4.3 P <sub>90</sub> = 19.9 P <sub>99</sub> = 91.2				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-May	4.6	4.2	3.6	3.2	3.2	2.9	2.7	2.3	2.0	2.0	1.9	1.7	1.2	0.9	1.0	0.8	0.9	0.7	0.8	0.9	1.5	2.3	2.0	1.9	2.1	2.1
2-May	1.8	1.7	1.6	1.8	1.7	1.9	1.8	2.0	1.4	1.1	1.2	1.0	1.3	1.1	1.1	1.4	1.4	1.1	1.3	1.3	1.2	1.3	1.2	1.3	1.4	1.4
3-May	1.3	1.4	1.4	1.4	1.4	1.6	2.3	1.8	1.5	1.3	1.4	2.3	2.2	2.4	1.5	1.3	1.2	1.2	1.2	1.4	1.6	2.2	2.0	1.8	1.9	1.9
4-May	1.7	1.8	2.4	2.6	3.1	3.5	2.9	2.3	1.3	2.0	1.3	1.2	1.7	1.6	1.8	2.1	2.1	2.1	2.1	1.9	1.4	1.4	0.9	0.8	2.0	2.0
5-May	0.9	1.0	1.1	1.2	1.3	1.5	1.7	1.5	1.5	1.7	2.3	2.6	2.6	2.7	2.7	2.3	1.7	1.8	1.7	1.9	1.9	1.9	2.1	2.0	2.7	2.7
6-May	1.9	2.0	2.1	2.7	2.3	2.3	2.4	2.3	2.2	2.2	2.1	2.2	2.4	2.5	2.6	2.8	2.8	2.6	2.4	2.3	2.5	2.6	2.7	2.7	2.4	2.8
7-May	2.7	2.7	2.4	2.4	2.4	2.2	1.5	1.7	1.8	1.5	1.4	1.5	1.8	2.1	2.3	2.3	2.4	2.5	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.7
8-May	2.3	2.0	1.7	1.4	1.6	1.9	2.5	2.8	2.8	2.7	2.8	2.9	3.1	4.0	4.9	5.3	4.0	4.0	3.4	2.6	3.2	3.1	2.8	2.0	2.9	5.3
9-May	1.9	2.4	2.9	3.0	2.9	3.0	2.8	3.8	4.4	6.9	7.0	3.6	7.3	C	4.3	3.8	4.4	7.1	7.9	5.1	41.2	33.6	59.0	22.3	10.5	59.0
10-May	43.8	22.2	9.6	5.8	6.0	4.3	2.9	2.8	2.7	3.2	3.4	4.5	5.1	6.1	5.7	5.2	5.8	6.6	6.8	6.9	9.2	9.2	6.3	12.1	8.2	43.8
11-May	13.0	16.7	45.1	91.5	106.9	91.0	68.2	42.2	26.5	11.1	5.4	11.4	15.7	8.6	5.5	7.4	5.9	5.7	5.0	4.5	3.5	3.8	2.2	7.7	25.2	106.9
12-May	2.6	1.5	1.6	1.5	1.5	1.4	1.5	2.0	1.8	1.6	1.4	1.4	2.1	2.0	2.6	3.0	3.5	3.8	9.5	32.6	27.7	8.4	9.9	23.5	6.2	32.6
13-May	28.8	26.3	22.4	21.9	21.4	21.6	21.8	21.9	19.5	17.8	17.4	21.3	23.2	15.4	6.8	6.2	5.6	2.9	2.8	3.0	3.0	3.9	12.9	16.6	15.2	28.8
14-May	14.1	13.4	12.8	12.5	12.9	14.3	18.4	84.4	80.0	56.0	34.2	4.1	2.7	2.6	3.1	3.7	2.5	2.9	3.2	3.0	3.3	2.5	10.7	19.3	17.4	84.4
15-May	55.3	68.7	50.1	43.6	41.0	19.9	7.5	19.9	44.9	89.6	95.4	96.4	98.7	98.9	100.7	93.5	87.9	82.2	79.3	77.5	77.7	80.1	76.7	75.2	69.2	100.7
16-May	62.0	49.8	49.8	47.1	43.7	42.9	41.7	39.8	37.2	41.6	42.7	39.8	36.1	29.3	29.8	30.6	28.7	26.4	24.1	22.2	22.2	24.7	25.3	17.9	35.6	62.0
17-May	13.2	12.4	9.7	7.3	5.9	4.9	4.0	3.5	3.2	2.5	1.3	0.9	0.7	0.7	0.9	0.7	0.6	0.4	0.3	0.5	0.5	0.5	1.0	3.2	13.2	13.2
18-May	0.7	0.5	0.6	0.6	0.4	0.3	0.3	0.3	0.3	0.4	0.7	0.6	0.4	0.4	0.4	0.7	0.8	0.6	0.3	0.2	0.3	0.3	0.6	0.7	0.5	0.8
19-May	0.4	0.3	0.5	0.6	0.7	0.7	0.5	0.4	0.4	0.5	0.4	0.5	0.6	0.5	0.5	0.6	0.6	1.7	2.6	2.5	2.9	3.1	3.5	3.5	1.2	3.5
20-May	3.9	3.9	3.7	3.5	4.5	5.1	4.9	4.8	4.0	3.3	3.0	3.6	2.8	2.5	1.5	1.2	1.3	0.9	0.7	0.6	0.6	0.7	0.9	0.6	2.6	5.1
21-May	0.5	0.7	0.7	0.8	1.0	1.4	1.6	1.3	1.5	1.1	1.1	1.0	0.9	0.8	0.7	0.8	0.9	0.8	0.8	0.7	0.9	0.9	0.9	1.0	1.0	1.6
22-May	1.1	1.5	1.2	1.1	1.4	1.5	1.2	0.9	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.4	0.5	0.6	0.8	0.8	0.9	0.7	1.5
23-May	0.9	0.9	1.0	1.2	1.3	1.5	1.7	1.9	1.9	1.8	1.7	1.8	1.8	2.2	2.5	2.7	2.8	2.6	2.5	2.6	2.8	2.7	2.7	2.7	2.0	2.8
24-May	2.6	2.6	2.5	2.4	2.3	2.1	1.6	1.1	1.0	1.0	1.1	1.6	2.5	3.1	3.2	3.3	3.3	3.2	3.3	3.3	3.4	3.4	3.3	2.8	2.5	3.4
25-May	2.5	2.2	2.2	2.1	2.2	2.4	2.4	2.5	2.2	2.2	2.4	2.5	2.5	2.4	2.6	2.8	2.8	2.7	2.7	2.9	2.9	3.1	3.1	3.2	2.6	3.2
26-May	3.2	3.1	3.2	3.1	3.5	3.4	3.1	3.2	3.3	3.4	3.1	3.5	3.6	2.8	2.8	3.0	3.0	3.1	3.0	3.0	3.0	3.4	4.0	3.5	3.2	4.0
27-May	3.6	3.7	3.6	3.7	3.7	3.8	3.9	3.7	3.7	3.9	3.9	3.5	3.5	3.7	3.8	3.8	3.7	4.3	4.1	4.3	5.7	4.1	4.1	4.6	3.9	5.7
28-May	5.1	5.2	5.4	5.9	5.8	6.1	6.3	6.4	6.3	5.3	4.5	4.0	3.4	2.3	2.0	2.2	1.7	1.9	2.3	2.5	2.7	3.5	3.1	3.1	4.0	6.4
29-May	3.4	3.7	4.2	4.2	4.6	4.9	4.5	4.3	4.4	4.1	4.5	3.3	3.7	4.0	3.1	4.1	4.2	4.2	3.6	2.1	1.5	1.8	1.8	3.6	3.7	4.9
30-May	4.9	4.3	3.1	2.0	1.3	0.9	1.7	2.9	2.3	2.6	3.3	3.7	3.8	4.0	4.1	3.9	4.1	4.1	4.6	4.1	3.7	3.5	3.7	5.1	3.4	5.1
31-May	6.5	7.0	5.8	5.2	4.4	4.0	3.5	3.2	4.2	5.6	8.4	5.7	4.1	4.6	3.7	3.3	4.1	5.5	7.9	6.0	4.1	3.3	1.2	0.7	4.7	8.4
																								Diurnal Average		
																								Diurnal Maximum		
9.4 8.7 8.3 9.3 9.6 8.4 7.2 8.8 8.7 9.0 8.4 7.6 7.8 7.2 6.7 6.6 6.3 6.1 6.2 6.6 7.7 7.1 8.2 7.9																										
62.0 68.7 50.1 91.5 106.9 91.0 68.2 84.4 80.0 89.6 95.4 96.4 98.7 98.9 100.7 93.5 87.9 82.2 79.3 77.5 77.7 80.1 76.7 75.2																										
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m <sup>3</sup> 24-hr 29 µg/m <sup>3</sup>																										





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$**   
**Surmont 2 - May 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	594	79.95	79.95
6 - 15	64	8.61	88.56
16 - 25	27	3.63	92.19
26 - 80	45	6.06	98.25
> 81.0	13	1.75	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>**  
**Surmont 2 - May 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	15	20	32	35	59	77	43	6	16	22	41	79	48	53	24	24	594
6 - 15	0	0	0	0	5	2	0	2	0	4	8	9	16	6	8	4	64
16 - 25	0	0	0	0	6	7	5	1	0	0	2	1	1	0	4	0	27
26 - 80	2	0	1	3	6	9	1	1	1	1	5	4	2	7	2	0	45
> 81.0	0	1	4	3	2	0	0	0	0	0	0	0	2	1	0	0	13
<b>Totals</b>	17	21	37	41	78	95	49	10	17	27	56	93	69	67	38	28	743

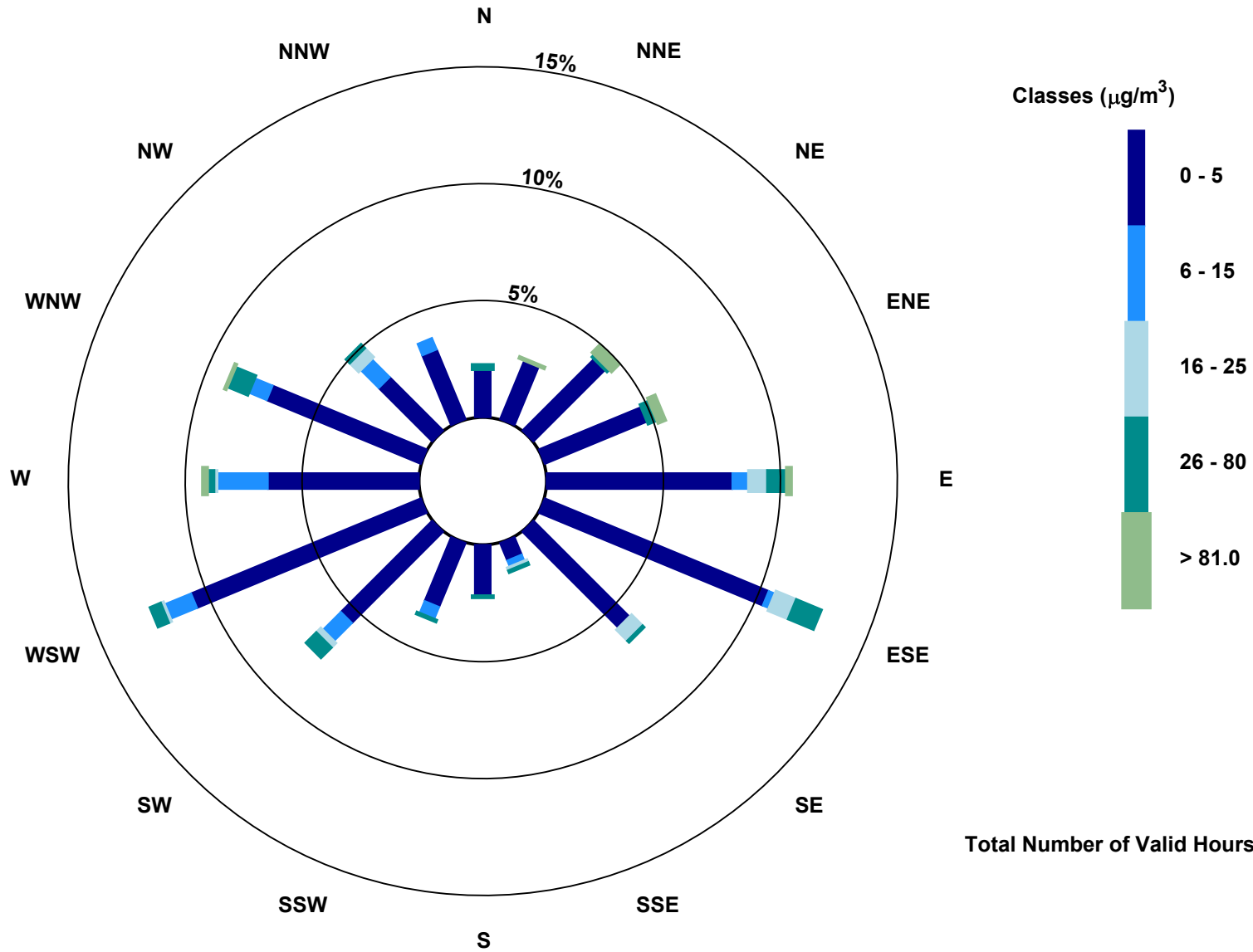
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Surmont 2

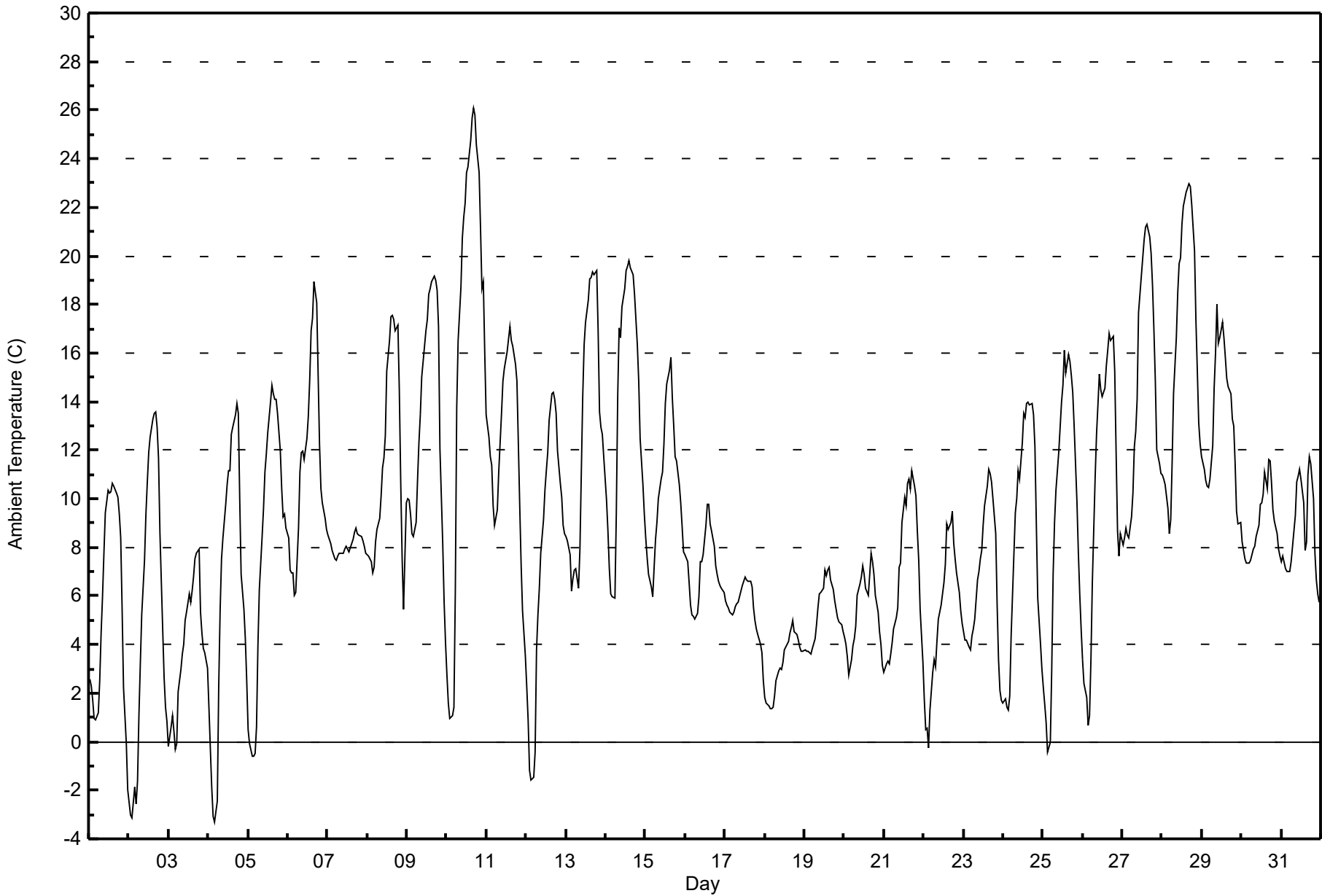




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Surmont 2 - May 2024**

Maximum Value: 26.1 C on May 10 17:00		Maximum Daily Average: 16.7 C on May 10		Hours in Service: 744																																													
Minimum Value: -3.3 C on May 4 05:00		Minimum Daily Average: 3.2 C on May 18		Hours of Data: 744																																													
Maximum Diurnal Average: 13.7 C at hour 17		Minimum Diurnal Average: 4.0 C at hour 5		Hours of Missing Data: 0																																													
Monthly Average: 9.11 C		Percentiles: P <sub>1</sub> = -1.9 P <sub>10</sub> = 2.4 Q <sub>1</sub> = 5.4 Median = 8.4 Q <sub>3</sub> = 12.4 P <sub>90</sub> = 16.9 P <sub>99</sub> = 23.2		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-May	2.5	2.3	1.7	1.0	0.9	1.2	2.5	4.4	6.0	7.8	9.4	10.3	10.3	10.3	10.6	10.5	10.2	10.0	9.3	8.4	5.5	2.2	-0.1	-2.0	5.6	10.6																							
2-May	-2.5	-3.0	-3.1	-1.9	-2.5	-1.6	1.1	3.2	5.2	7.5	9.4	10.7	11.9	12.5	13.3	13.5	13.6	12.9	11.7	8.6	4.6	2.6	1.4	0.8	5.4	13.6																							
3-May	-0.2	0.6	1.1	0.4	-0.3	-0.1	2.1	3.0	3.6	4.0	5.0	5.3	6.1	5.8	6.2	6.7	7.5	7.8	7.9	5.3	4.4	3.9	3.7	3.0	3.9	7.9																							
4-May	1.4	-0.2	-1.8	-3.1	-3.3	-2.5	2.3	5.4	7.5	8.4	9.8	10.6	11.2	11.2	12.6	13.0	13.5	13.9	13.5	10.0	6.9	5.4	4.2	2.5	6.3	13.9																							
5-May	0.5	-0.1	-0.6	-0.6	-0.5	0.6	4.0	6.3	8.4	9.6	11.1	11.9	12.7	14.0	14.7	14.3	14.1	14.1	13.5	11.9	10.4	9.3	9.3	8.8	8.2	14.7																							
6-May	8.4	7.1	6.9	6.9	6.1	6.1	8.8	11.1	11.9	12.0	11.6	12.5	13.4	14.9	16.9	17.4	18.9	18.1	15.2	12.3	10.4	9.8	9.2	8.7	11.4	18.9																							
7-May	8.5	8.3	8.2	7.9	7.5	7.5	7.7	7.8	7.8	7.7	7.9	8.0	8.0	7.8	8.0	8.3	8.6	8.8	8.6	8.5	8.4	8.3	8.0	7.7	8.1	8.8																							
8-May	7.7	7.7	7.4	6.9	7.2	8.2	8.7	9.2	10.1	11.2	11.7	12.6	15.3	16.5	17.5	17.5	17.4	16.9	17.2	14.4	10.7	7.6	5.4	9.8	11.4	17.5																							
9-May	10.0	9.9	9.4	8.6	8.4	9.0	10.8	12.3	13.5	15.0	16.3	16.9	17.4	18.4	18.6	18.9	19.1	19.0	18.6	17.1	12.1	8.1	5.7	4.1	13.2	19.1																							
10-May	2.8	1.6	1.0	1.1	1.4	6.2	13.8	16.5	18.7	20.7	21.6	22.2	23.4	23.6	24.8	25.7	26.1	25.8	24.6	23.4	21.1	18.6	18.9	16.0	16.7	26.1																							
11-May	13.4	12.5	11.8	11.4	9.7	8.9	9.5	11.1	12.3	13.5	14.9	15.4	16.1	16.6	17.1	16.5	16.3	15.6	14.8	12.3	9.7	7.3	5.4	3.6	12.3	17.1																							
12-May	2.3	0.9	-1.2	-1.6	-1.5	-0.4	3.8	5.2	6.3	7.8	9.1	10.4	11.2	11.9	13.2	14.3	14.4	14.1	13.5	11.9	10.7	10.1	8.9	8.5	7.7	14.4																							
13-May	8.5	8.3	7.7	6.2	6.7	7.1	7.1	6.3	7.9	11.1	14.2	16.4	17.3	18.2	19.0	19.1	19.4	19.2	19.4	16.9	13.6	12.9	12.6	11.7	12.8	19.4																							
14-May	10.0	8.7	7.1	6.1	6.0	5.9	9.4	14.3	17.0	16.6	17.9	18.7	19.4	19.6	19.8	19.5	19.2	18.4	17.4	16.4	14.8	12.5	10.6	9.4	13.9	19.8																							
15-May	8.4	7.6	6.9	6.4	6.0	7.2	8.3	9.0	10.0	10.8	11.1	12.2	13.9	14.7	15.3	15.8	14.1	13.0	11.7	11.6	10.6	9.8	8.8	7.8	10.5	15.8																							
16-May	7.7	7.4	6.5	5.6	5.2	5.1	5.0	5.3	6.0	7.4	7.4	7.7	8.9	9.8	9.8	9.0	8.7	8.0	7.3	6.9	6.6	6.4	6.3	6.1	7.1	9.8																							
17-May	5.8	5.6	5.5	5.3	5.2	5.3	5.6	5.7	5.7	5.9	6.4	6.6	6.8	6.7	6.6	6.6	6.4	5.5	5.0	4.6	4.4	4.0	3.6	2.5	5.5	6.8																							
18-May	1.8	1.6	1.5	1.4	1.4	1.4	1.9	2.5	2.9	3.0	3.0	3.3	3.8	4.0	4.1	4.5	4.7	5.0	4.6	4.4	4.2	3.9	3.7	3.7	3.2	5.0																							
19-May	3.8	3.7	3.7	3.6	3.6	3.8	4.3	4.8	5.5	6.1	6.1	6.3	7.1	6.8	7.0	7.2	6.6	6.2	5.8	5.5	5.1	4.9	4.8	4.5	5.3	7.2																							
20-May	4.3	4.0	3.5	2.7	3.4	4.0	4.2	4.8	6.0	6.5	6.8	7.3	6.9	6.3	6.0	6.9	7.7	7.4	6.9	6.0	5.3	4.5	4.0	3.2	5.4	7.7																							
21-May	2.9	3.2	3.3	3.2	3.6	4.0	4.7	5.1	5.5	7.2	7.4	9.0	10.1	9.7	10.6	10.8	10.4	11.2	10.5	10.1	8.7	7.5	5.5	3.3	7.0	11.2																							
22-May	1.7	0.5	0.6	-0.3	1.3	2.9	3.4	3.1	4.1	5.0	5.6	6.1	6.6	7.3	9.0	8.7	9.0	9.5	8.2	7.5	6.9	6.2	5.4	4.9	5.1	9.5																							
23-May	4.5	4.2	4.2	3.9	3.8	4.4	4.6	5.0	6.7	7.0	7.5	7.9	8.9	9.7	10.5	11.2	11.0	10.7	10.0	8.5	5.6	3.4	2.1	1.7	6.5	11.2																							
24-May	1.6	1.7	1.4	1.3	1.9	4.4	7.7	9.4	10.0	11.1	10.8	12.3	13.5	13.4	13.9	14.0	13.9	13.9	13.5	12.1	8.9	5.9	4.0	3.0	8.5	14.0																							
25-May	2.2	1.5	0.8	-0.4	0.0	3.0	6.9	9.0	10.3	11.9	12.9	14.0	14.7	16.1	15.2	15.9	15.7	15.1	14.4	13.0	9.9	7.8	6.1	4.6	9.2	16.1																							
26-May	3.3	2.4	1.8	0.7	1.1	3.4	6.5	10.8	12.6	13.9	15.1	14.5	14.2	14.6	15.5	16.1	16.8	16.5	16.7	15.2	11.8	8.7	7.6	8.6	10.4	16.8																							
27-May	8.1	8.4	8.8	8.5	8.4	9.3	10.2	12.2	12.8	14.1	17.7	19.2	19.9	20.7	21.2	21.3	20.8	20.1	18.8	16.9	14.8	12.0	11.5	11.1	14.4	21.3																							
28-May	11.0	10.8	10.6	9.6	8.5	9.1	11.5	14.3	16.6	18.5	19.7	19.9	21.3	22.0	22.6	22.8	23.0	22.8	22.1	20.2	17.3	15.2	13.1	12.3	16.5	23.0																							
29-May	11.7	11.2	10.7	10.5	10.5	10.8	12.2	14.5	16.0	18.0	16.4	16.6	17.3	16.6	15.8	15.0	14.6	14.3	13.3	13.0	11.5	9.5	8.9	9.0	13.3	18.0																							
30-May	8.2	7.8	7.5	7.3	7.4	7.5	7.7	7.9	8.1	8.5	8.9	9.8	9.8	10.2	11.1	10.4	11.6	11.5	10.6	9.5	9.1	8.5	8.0	7.7	8.9	11.6																							
31-May	7.4	7.6	7.1	7.0	7.0	7.0	7.4	8.0	9.3	10.7	10.9	11.2	10.8	9.8	7.9	8.2	11.0	11.8	11.5	10.0	7.8	6.6	6.1	5.7	8.7	11.8																							
																								5.4	5.0	4.5	4.1	4.0	4.8	6.6	8.0	9.2	10.3	11.1	11.8	12.5	12.9	13.4	13.5	13.7	13.5	12.8	11.4	9.4	7.9	6.9	6.2	Diurnal Average	
																								13.4	12.5	11.8	11.4	10.5	10.8	13.8	16.5	18.7	20.7	21.6	22.2	23.4	23.6	24.8	25.7	26.1	25.8	24.6	23.4	21.1	18.6	18.9	16.0	Diurnal Maximum	





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Surmont 2 - May 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	26	3.49	3.49
0 - 10	427	57.39	60.89
10 - 20	266	35.75	96.64
> 20	25	3.36	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**

**Summary of Hour Averages**

**Relative Humidity (RH) - %**

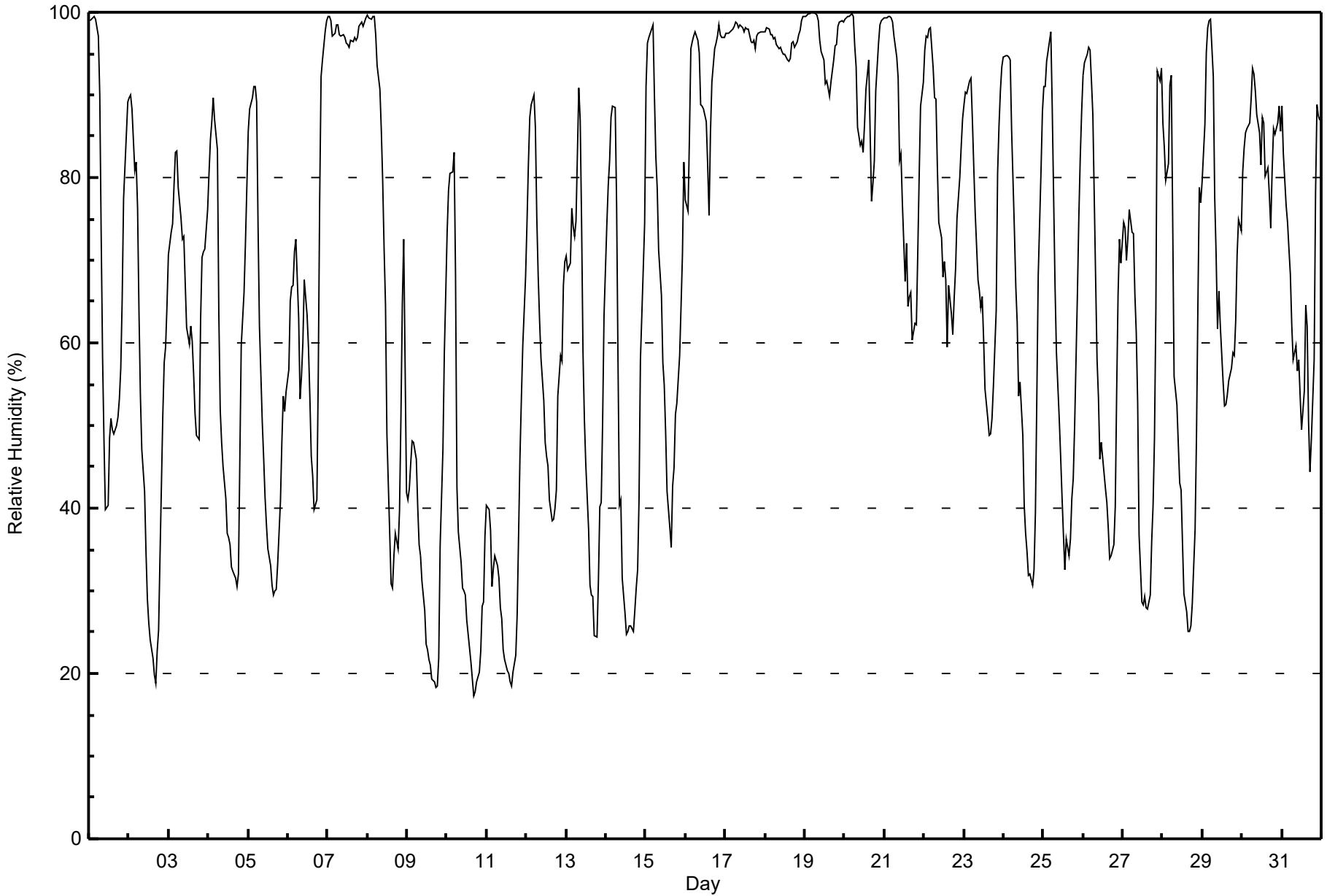
**Surmont 2 - May 2024**

Maximum Value: 100.0 % on May 19 06:00      Maximum Daily Average: 97.6 % on May 7																						Hours in Service:	744																							
Minimum Value: 17.2 % on May 10 17:00      Minimum Daily Average: 32.9 % on May 11																						Hours of Data:	744																							
Maximum Diurnal Average: 87.7 % at hour 5      Minimum Diurnal Average: 48.9 % at hour 17																						Hours of Missing Data:	0																							
Monthly Average: 67.77 %      Percentiles: P <sub>1</sub> = 19.0 P <sub>10</sub> = 30.7 Q <sub>1</sub> = 46.9 Median = 71.2 Q <sub>3</sub> = 91.3 P <sub>90</sub> = 97.7 P <sub>99</sub> = 99.6																						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-May	99.0	99.2	99.3	99.5	99.1	97.2	89.9	73.2	58.2	48.3	39.9	40.3	48.5	50.8	49.5	49.0	50.0	51.0	53.2	56.9	65.3	77.5	85.2	89.2	69.6	99.5																				
2-May	89.7	89.9	88.4	80.8	81.9	76.3	63.7	53.7	47.2	42.1	34.8	29.0	26.1	24.1	21.9	19.9	18.9	22.7	25.3	34.1	51.1	57.7	59.4	64.5	50.1	89.9																				
3-May	70.7	73.4	74.4	79.0	83.0	83.3	78.8	75.1	72.5	72.9	67.4	61.9	59.8	62.0	60.2	56.3	51.5	48.8	48.4	62.9	70.4	71.1	71.3	76.1	68.0	83.3																				
4-May	80.6	84.6	86.7	89.6	86.9	83.5	63.5	51.9	48.0	45.1	41.2	37.0	36.4	35.6	33.0	32.3	31.6	30.6	32.0	46.0	59.6	66.1	72.0	78.8	56.3	89.6																				
5-May	85.6	88.3	89.7	91.0	91.1	89.1	74.3	62.0	50.5	46.1	41.4	37.9	35.1	33.1	30.7	29.5	30.1	30.2	33.1	40.8	48.0	53.6	51.8	54.1	54.9	91.1																				
6-May	56.8	65.1	66.9	66.9	70.9	72.5	63.1	53.3	56.0	60.0	67.7	63.4	59.4	53.4	46.2	43.9	39.9	41.0	56.1	77.4	92.2	94.2	97.8	99.0	65.1	99.0																				
7-May	99.5	99.5	99.0	97.2	97.5	98.5	98.4	97.3	97.2	97.0	96.2	96.1	95.8	96.6	96.4	97.0	96.6	96.9	98.4	98.8	98.3	98.7	99.3		97.6	99.5																				
8-May	99.6	99.3	99.2	99.6	99.5	97.3	93.6	90.6	85.7	79.4	71.4	64.5	49.1	37.0	30.9	30.3	34.2	37.0	35.0	39.7	50.9	64.6	72.6	41.8	66.8	99.6																				
9-May	41.1	42.4	45.5	48.2	47.9	45.9	40.1	35.6	34.2	31.2	27.6	23.6	22.8	21.7	21.1	19.4	19.0	18.3	18.6	21.8	35.5	47.0	58.8	65.9	34.7	65.9																				
10-May	73.3	78.4	80.4	80.7	83.0	68.2	42.5	37.2	33.3	30.4	30.0	29.5	26.5	24.8	21.4	19.3	17.2	17.7	19.0	20.2	22.6	28.2	28.6	36.7	39.6	83.0																				
11-May	40.3	39.8	37.4	30.5	32.7	34.3	33.0	31.5	28.0	26.7	23.0	21.7	20.4	19.9	19.0	18.6	20.1	22.2	27.1	36.6	46.3	53.3	59.7	67.9	32.9	67.9																				
12-May	74.4	81.5	87.2	88.7	90.0	86.2	75.2	68.1	62.8	58.2	53.0	47.9	46.2	45.1	41.1	38.4	38.6	40.0	42.2	53.6	58.4	57.8	67.0	69.8	61.3	90.0																				
13-May	70.4	68.8	69.6	76.3	74.1	72.8	74.7	90.8	86.9	74.4	58.8	50.7	45.3	37.5	30.6	29.5	29.3	24.5	24.5	31.1	40.2	40.7	50.4	63.2	54.8	90.8																				
14-May	74.3	79.0	82.0	87.4	88.6	88.4	76.6	57.6	40.4	41.0	31.5	27.3	24.7	25.2	25.7	25.8	25.1	27.6	30.3	32.6	41.0	57.9	68.8	74.4	51.4	88.6																				
15-May	91.0	96.3	96.9	98.0	98.4	89.9	82.5	78.6	71.1	65.8	57.7	55.0	49.1	42.1	37.6	35.3	42.7	45.0	51.4	52.7	58.5	64.4	70.8	81.8	67.2	98.4																				
16-May	77.3	75.9	85.2	95.7	96.4	97.1	97.7	96.6	95.1	88.8	88.6	88.3	86.8	81.5	75.4	85.5	91.5	95.6	96.2	97.2	98.5	97.3	96.9	96.9	90.9	98.5																				
17-May	97.5	97.5	97.5	97.6	98.0	98.3	98.8	98.6	98.2	98.5	98.2	97.7	98.2	98.0	97.9	96.5	96.3	96.6	95.6	97.1	97.5	97.6	97.7	97.7	97.6	98.8																				
18-May	97.7	98.1	97.9	97.3	97.2	96.8	96.9	96.1	95.6	95.7	95.2	95.0	94.9	94.2	94.0	94.4	96.3	96.4	95.8	96.4	97.2	97.8	99.0	99.4	96.5	99.4																				
19-May	99.6	99.7	99.8	99.8	99.9	100.0	99.8	99.6	99.1	96.7	95.2	94.3	91.4	91.7	90.9	89.8	91.4	94.2	96.0	96.1	98.2	98.8	99.0	98.9	96.7	100.0																				
20-May	99.2	99.3	99.4	99.6	99.8	99.6	95.9	93.4	86.1	84.0	84.5	83.0	86.5	90.6	94.3	85.4	77.2	79.4	82.1	90.5	96.3	98.5	98.9	99.2	91.8	99.8																				
21-May	99.3	99.3	99.4	99.4	99.4	98.9	97.1	94.5	92.0	82.0	82.8	77.0	67.4	72.0	64.4	65.6	66.1	60.4	62.4	62.1	70.9	80.1	88.6	91.6	82.2	99.4																				
22-May	95.4	97.2	97.0	97.9	98.1	93.2	89.6	89.5	81.2	74.6	72.7	67.9	69.9	67.6	59.5	66.9	63.6	61.0	65.4	68.9	75.1	80.0	83.8	87.1	79.3	98.1																				
23-May	88.8	90.4	90.3	91.7	92.1	87.0	81.2	75.8	67.7	66.3	64.3	65.5	60.5	54.4	50.9	48.8	49.0	50.8	54.7	63.9	80.5	86.3	90.6	93.4	72.7	93.4																				
24-May	94.6	94.8	94.8	94.6	94.3	85.8	73.6	66.8	62.4	53.6	55.2	48.9	40.3	37.0	34.8	31.8	32.0	30.7	32.6	39.5	53.3	68.1	80.9	88.0	62.0	94.8																				
25-May	91.0	91.1	94.1	95.3	97.6	88.4	77.6	67.0	58.8	50.8	46.2	41.4	36.8	32.5	36.2	34.3	36.3	41.2	43.6	49.9	66.1	75.3	82.3	88.0	63.4	97.6																				
26-May	92.4	93.9	94.9	95.8	95.5	91.7	87.7	67.7	58.0	53.4	45.9	47.9	46.1	42.4	40.6	37.6	33.9	34.2	35.5	40.2	54.0	65.8	72.5	69.6	62.4	95.8																				
27-May	74.6	73.9	69.9	72.7	76.1	73.4	73.2	65.9	61.2	52.7	36.8	28.7	28.3	29.3	28.0	27.7	29.5	35.9	40.3	48.5	64.0	92.9	91.7	93.2	57.0	93.2																				
28-May	86.6	83.8	79.7	81.7	91.2	92.4	74.9	55.9	52.5	47.8	43.1	42.2	35.8	29.7	27.4	25.1	25.1	25.8	28.5	37.5	48.9	64.5	78.9	77.0	55.7	92.4																				
29-May	79.5	86.5	95.1	98.2	98.9	99.1	92.2	77.6	70.6	61.6	66.3	62.0	55.3	52.4	52.6	53.8	55.5	57.0	58.8	58.5	62.8	70.6	75.0	73.6	71.4	99.1																				
30-May	80.7	83.5	85.5	86.0	86.6	89.5	93.2	92.5	90.5	87.6	85.3	81.5	87.4	86.6	80.2	81.1	77.9	74.0	80.8	86.0	85.3	86.6	88.7	85.7	85.1	93.2																				
31-May	88.7	82.9	76.5	74.6	71.3	68.3	62.3	58.0	59.7	56.7	57.9	53.6	49.5	54.2	64.6	62.0	50.5	44.4	48.4	57.9	78.1	88.9	87.5	86.9	66.0	88.9																				
																						83.5	84.9	85.8	86.8	87.7	85.2	78.8	72.6	67.8	63.5	60.0	56.8	54.2	52.3	50.2	49.4	48.9	49.4	51.9	57.9	66.6	73.6	78.2	80.3	Diurnal Average
																						99.6	99.7	99.8	99.8	99.9	100.0	99.8	99.6	99.1	98.5	98.2	97.7	98.2	98.0	97.9	96.5	97.0	96.6	96.9	98.4	98.8	98.8	99.0	99.4	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Surmont 2 - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	13	1.75	1.75
20 - 40	125	16.80	18.55
40 - 60	149	20.03	38.58
60 - 80	155	20.83	59.41
80 - 100	302	40.59	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Surmont 2 - May 2024

Maximum Speed: 19 km/h on May 10 15:00	Maximum Daily Speed Average: 12.2 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 21 03:00	Minimum Daily Speed Average: 0.9 km/h on May 3	Hours of Data: 744
Maximum Diurnal Speed Average: 2.5 km/h at hour 13	Minimum Diurnal Speed Average: 0.3 km/h at hour 20	Hours of Missing Data: 0
Monthly Average Velocity: 0.3 km/h 339.0 deg	Percentiles: $P_1 = 1$ $P_{10} = 2$ $Q_1 = 3$ Median = 6 $Q_3 = 10$ $P_{90} = 12$ $P_{99} = 17$	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNW6	NNW6	NW5	WNW4	WNW4	WNW4	NNW4	NNE6	NE7	NE11	ENE12	ENE12	NE12	NE12	ENE12	ENE12	ENE10	NE8	NE9	ENE7	NE1	W3	WSW3	WSW2	NE5.1	NE12
2-May	WSW2	WSW3	W3	W4	W4	WNW4	NNW5	NNW7	N8	NNE10	NNE11	NE13	NE14	NE13	NE13	NNE14	NE12	NE12	ENE11	E11	SE1	SE1	SW1	SW2	NNE5.3	NNE14
3-May	SW2	S2	SSW3	SW1	WSW1	S0	N1	E2	E5	E7	ENE5	NE6	N6	N5	N4	N4	NW3	NNE3	NNE1	WSW3	SSW2	SW2	WSW3	SW1	NNE0.9	E7
4-May	WSW2	WSW4	WSW2	W1	WNW2	W3	NNW2	NNW5	NNE7	N6	NNE6	NNE9	NNE10	NE9	NNE7	NNE5	N2	N5	NNE3	E5	ESE2	SE3	SE3	SSW2	NNE2.6	NNE10
5-May	SW2	SSW2	SW3	SW3	SW2	S1	ESE4	ESE6	ESE8	SE9	SE10	ESE12	SE9	ESE13	ESE11	SE9	SE7	SE6	ESE2	SSW1	W1	S2	ESE2	SE5.0	ESE13	
6-May	S1	S1	SSE2	S3	S3	S2	ESE4	ESE7	ESE10	ESE11	E8	E12	E11	E15	E14	E14	E14	ESE14	SE11	SE7	ESE6	ESE6	WSW2	WSW1	ESE6.6	E15
7-May	WSW2	SE1	ESE2	E4	E5	E6	E10	E11	E10	E11	E11	ESE11	E11	ESE11	ESE6	ESE7	ESE6	ESE9	ESE10	ESE5	ESE4	SE3	SE2	E1	ESE6.3	E11
8-May	SSE1	SW2	ENE1	E1	W3	WNW7	WNW5	WNW5	NNW7	NNW8	NNW8	NW7	N9	N7	NNE1	W4	W7	WSW6	SW6	WSW5	SW4	SSW2	W2	WSW8	WNW3.3	N9
9-May	WSW8	WSW12	WSW10	WSW12	W11	W12	WNW10	WNW11	WNW12	WNW12	WNW13	WNW17	WNW14	WNW16	WNW16	NW14	NW14	WNW13	NW9	NW4	WSW4	SW3	SW3	SW3	WNW10.0	WNW17
10-May	SW3	SW2	SW2	SW2	SSW1	WSW5	WSW8	WSW12	WSW10	WSW15	W16	WSW15	W15	W17	W19	W17	WSW18	W17	W15	WSW13	WSW8	WSW7	W9	NNW15	W10.2	W19
11-May	NW8	NW6	WNW8	WNW8	W8	W9	WNW12	WNW13	WNW16	NW16	NW18	NW19	NW19	NW17	NW16	NW14	NW10	NNW9	N8	NNE5	NE5	NNE2	NW2	W1	NW9.6	NW19
12-May	SW2	SSW2	SW1	SSW1	SW1	SSE0	ESE4	SE8	ESE9	ESE7	ESE8	ESE9	E8	ESE9	ESE9	ESE10	ESE9	ESE7	ESE4	NW0	ESE3	SSW2	SSW1	SSE2	ESE4.3	ESE10
13-May	ESE3	SE4	SE5	ESE4	ESE6	ESE7	ESE7	SE8	SE8	ESE8	ESE10	SE11	SE9	SSW7	SW9	WSW10	WSW7	W9	WSW12	WSW6	WSW4	W6	W5	NW3	S3.0	WSW12
14-May	W3	WSW4	WSW3	SW2	SW2	SW1	E1	E2	WSW6	WSW8	W10	WSW10	WSW12	WSW12	WSW13	WSW13	WSW14	W12	W11	W13	WNW8	NNW3	WSW3	WSW6.9	WSW14	
15-May	WSW4	S2	WNW1	ESE1	SSE1	W5	W6	NW5	N8	NNE8	NE7	NE7	E6	ENE5	NE4	ENE4	ENE9	NE5	WNW2	NW2	SW4	W4	SW1	N2	NNE1.6	ENE9
16-May	E5	ESE3	ESE3	ESE1	WNW1	SSW1	ENE2	E3	E7	E8	ENE8	NE6	ENE6	E10	ESE13	ESE10	ESE5	E5	E10	ESE12	E7	E10	E11	E11	E6.3	ESE13
17-May	E11	E12	E12	E12	E11	E11	E8	E9	E9	E8	E8	E9	ENE7	ENE8	ENE8	ENE7	ENE6	E7	ENE4	NW3	NW5	NW5	NW6	NW7	ENE6.1	E12
18-May	NW6	NW5	WNW5	WNW6	WNW7	WNW7	WNW7	WNW8	WNW9	WNW9	WNW10	WNW11	WNW10	WNW11	W11	W10	WNW5	N2	NNE3	NW3	W4	WNW3	WNW4	NW2	WNW6.3	W11
19-May	NNW3	NNW3	NNW3	WNW3	NW3	NNW4	NNW5	NNW6	NE5	ENE8	ENE7	ENE7	ENE8	NE8	ENE8	ENE8	NE7	ENE6	ENE5	NE2	WNW2	WSW2	W3	W1	NE3.4	ENE8
20-May	W3	WSW3	SW1	WSW1	NW3	NNW4	NNW5	N6	N6	NNE6	NE8	NNE8	NE9	NE7	ENE7	NE7	NE7	E7	E8	E5	SE1	WSW2	SW1	WSW2	NE2.9	NE9
21-May	WSW2	WSW1	WSW0	NNW1	ESE2	E3	ESE6	ESE8	ESE7	E8	E8	E9	E9	E8	E10	ENE9	E10	E9	E8	E8	E4	ESE1	S1	WSW2	E5.0	E10
22-May	WSW2	SW1	WNW1	WSW2	NNW1	N1	NE3	ENE7	ENE7	ENE7	ENE7	NE9	NNE9	NE9	ENE7	ENE8	NE7	ENE10	E9	ENE5	ENE1	E3	E1	SE1	ENE4.2	ENE10
23-May	W2	W2	W2	WSW1	WNW1	NE3	E4	ENE5	NE6	E7	E8	E9	E8	ESE8	ESE9	ESE8	E9	E7	ESE7	ESE4	SSW1	SW2	SW2	SW1	E3.6	E9
24-May	SSW1	WSW1	SW2	NNW0	W0	NE2	E5	ESE8	ESE7	E10	ESE10	ESE8	ESE9	ESE10	E10	ESE10	ESE8	SE7	SE6	SE4	S2	SW2	SSW2	SW2	ESE4.4	E10
25-May	SW2	SSW2	SW2	SSW2	WSW2	SE2	ESE7	SE8	SE9	ESE11	ESE13	ESE13	ESE12	ESE9	ESE12	ESE10	SE10	SE11	ESE10	SE6	ESE2	SSW2	SW3	SW2	ESE6.0	ESE13
26-May	SW2	SW2	SW3	SW2	SW1	SSW1	ESE2	ESE6	SE7	ESE9	SE8	SW6	SW6	SSW5	ESE7	SE7	SE4	SE3	ESE6	ESE4	WSW2	WSW3	WSW2	SW3	SSE2.7	ESE9
27-May	SW2	SSW2	SSW2	SW1	SW1	SSW1	S2	SE2	ESE3	SE5	SE9	SE11	ESE10	SE9	SE7	SE8	SE7	SSW6	S3	W5	WSW4	SSW2	WSW4	S2	SSE3.2	SE11
28-May	SSE5	S5	SE5	SW2	W2	SW1	SSE2	ESE5	SSE3	NNW6	NNW4	WSW5	NW2	SSW7	SW6	WSW7	SE3	SE5	SE4	S1	WSW3	S3	W2	WSW4	SSW1.7	WSW7
29-May	W3	WSW1	W3	WSW1	W2	WSW3	SSE3	SE5	ESE6	WSW10	WSW14	WSW13	WSW13	WSW16	WSW13	WSW13	WSW12	WSW11	WSW10	WSW10	WSW8	WSW4	WSW6	WSW10	WSW7.1	WSW16
30-May	WSW11	WSW9	WSW9	WSW11	W10	W9	W10	WNW10	WNW10	WNW10	WNW11	WNW12	WNW11	WNW10	NW9	WNW10	WNW10	WNW11	W11	W9	W10	W9	W9	W10	W9.6	WNW12
31-May	W9	W11	W14	W16	WNW16	WNW14	WNW16	WNW16	WNW15	W16	W17	WNW15	WNW14	WNW16	WNW16	WNW12	W13	W13	W12	NNW10	NW5	NW5	NW6	WNW4	WNW12.2	W17

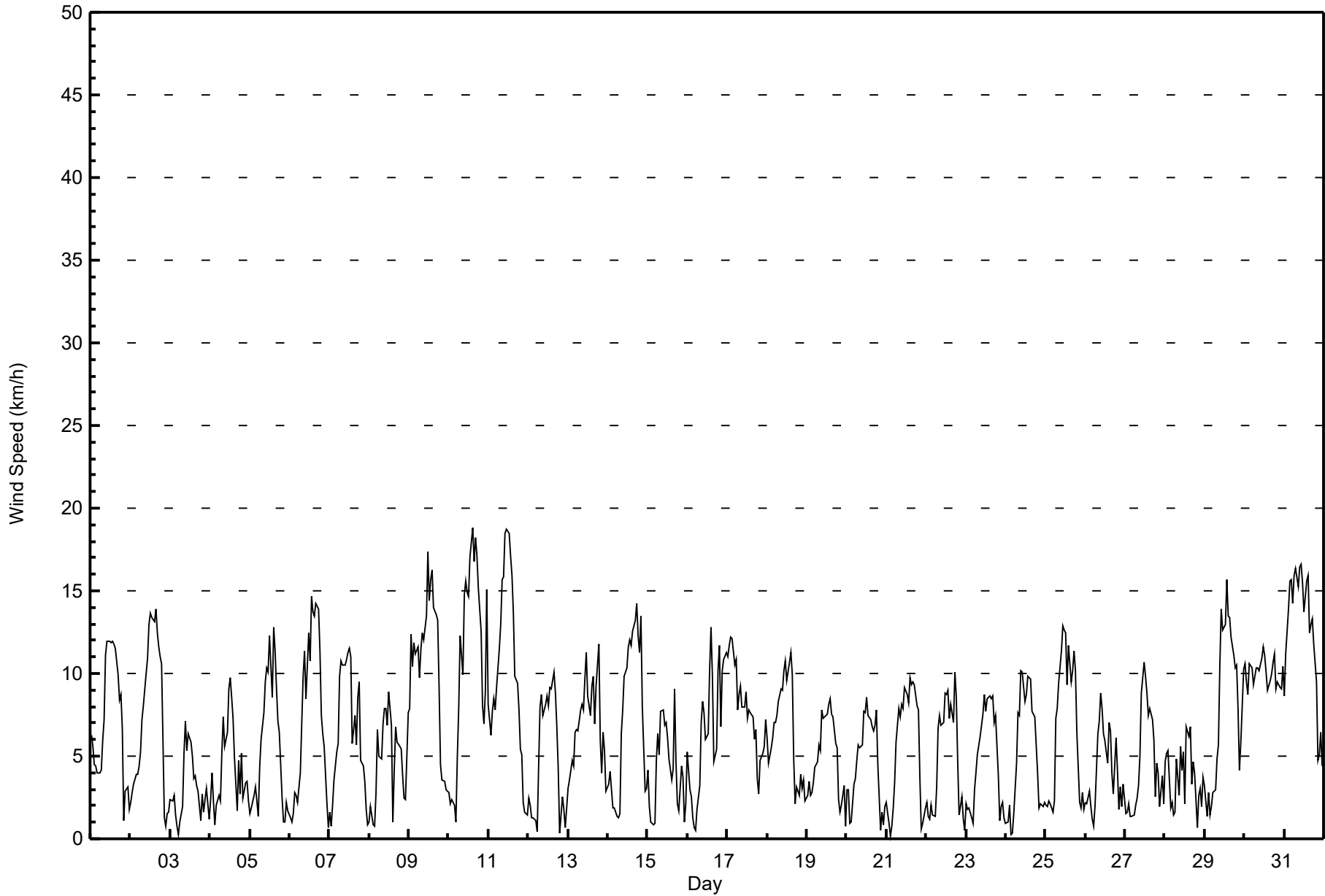
WSW1.8	WSW1.8	WSW1.7	WSW1.9	W1.9	W1.8	NW0.7	NE0.9	ENE1.7	NE2.1	NE2.0	NE1.9	NE2.5	NE1.6	ENE1.5	ENE1.1	ENE1.0	E1.0	ESE1.1	SE0.3	WSW1.4	WSW1.5	W1.8	W1.9	Diurnal Average
E11	WSW12	W14	W16	WNW16	WNW14	WNW16	WNW16	WNW16	W16	NW18	NW19	NW19	NW17	W19	W17	WSW18	W17	W15	WSW13	W13	E10	E11	NNW15	Diurnal Maximum

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	335	45.03	45.03
6 - 11	309	41.53	86.56
12 - 19	100	13.44	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: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Surmont 2 - May 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	8	9	10	19	26	22	10	17	24	51	47	29	19	19	17	335
6 - 11	9	12	20	27	51	60	27	0	0	3	5	26	23	26	10	10	309
12 - 19	0	1	8	4	8	9	0	0	0	0	0	20	17	23	9	1	100
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>17</b>	<b>21</b>	<b>37</b>	<b>41</b>	<b>78</b>	<b>95</b>	<b>49</b>	<b>10</b>	<b>17</b>	<b>27</b>	<b>56</b>	<b>93</b>	<b>69</b>	<b>68</b>	<b>38</b>	<b>28</b>	<b>744</b>

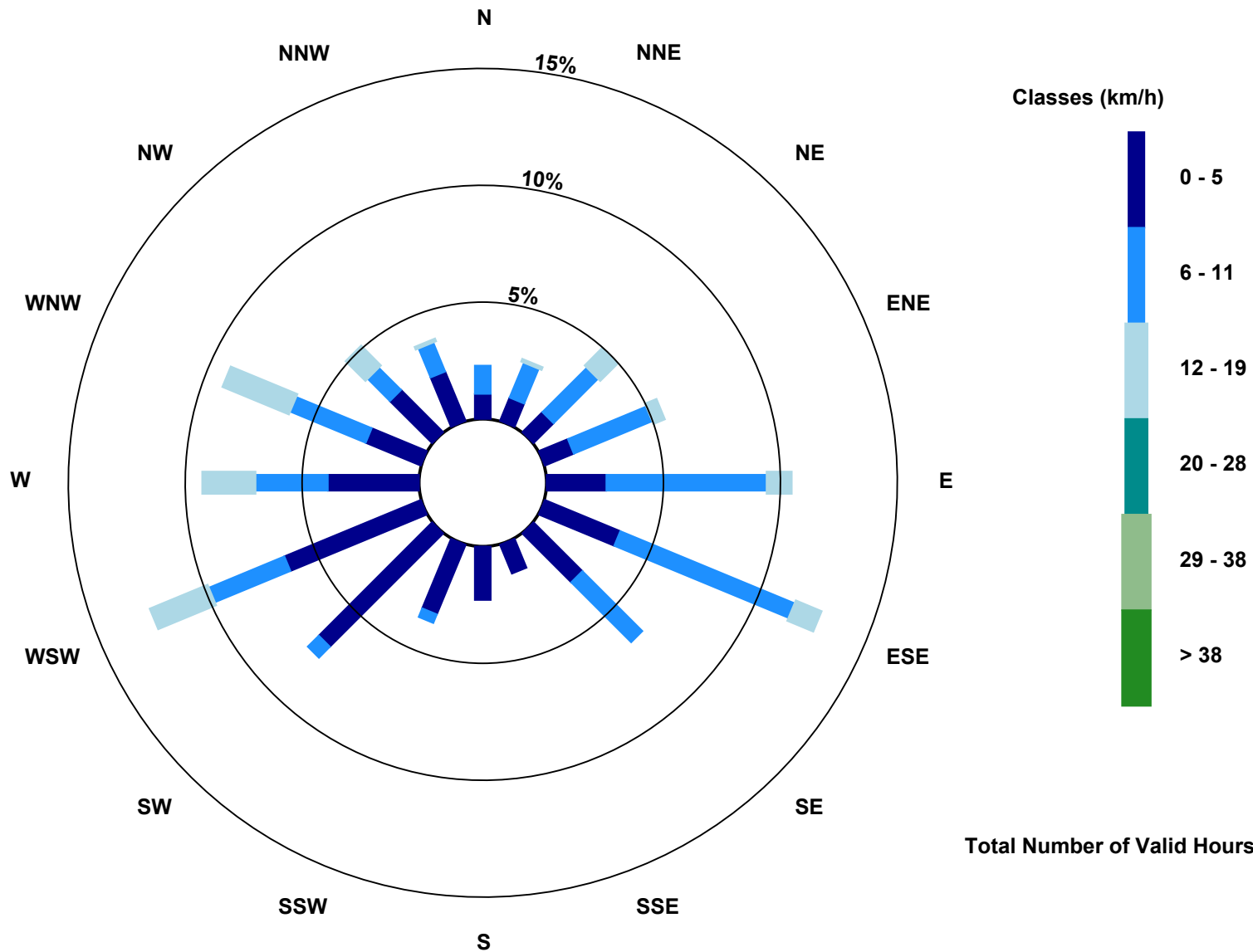
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Surmont 2



Total Number of Valid Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Surmont 2 - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on May 11 12:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0									
Minimum Value: 1 km/h on May 21 01:00																										
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 1 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 6																										
Day	Hourly Period Ending At (MST)																							Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24	
1-May	2	2	2	2	1	1	2	2	2	4	4	4	5	4	4	4	4	3	3	3	1	1	1	1	5	
2-May	1	1	1	1	1	2	2	2	3	4	4	6	5	6	5	6	5	5	4	6	2	1	1	1	6	
3-May	1	1	1	1	1	1	1	1	2	2	2	3	2	3	2	2	2	2	1	1	1	1	1	1	3	
4-May	1	1	1	1	1	1	1	1	2	3	3	3	4	4	3	3	3	2	2	2	1	3	1	1	4	
5-May	1	1	1	1	1	1	1	2	2	3	4	5	5	4	5	5	3	2	2	3	2	1	1	1	5	
6-May	1	1	1	1	1	1	1	3	3	3	3	4	4	5	5	5	5	4	5	4	2	3	1	1	5	
7-May	1	1	1	2	2	2	3	4	4	4	4	4	4	4	2	3	2	3	3	1	1	1	2	1	4	
8-May	1	1	1	1	2	3	2	2	3	3	3	3	3	3	3	3	3	2	3	3	1	1	2	3	3	
9-May	3	4	3	4	4	4	4	4	4	4	5	7	5	6	6	6	6	5	5	4	2	1	2	2	1	7
10-May	1	1	1	1	1	4	3	4	3	5	6	5	5	6	7	6	6	6	5	4	3	3	4	6	7	
11-May	4	2	4	4	3	3	5	5	6	7	7	8	7	6	6	6	4	4	4	3	2	2	1	1	8	
12-May	1	1	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	1	3	
13-May	1	1	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	3	4	3	1	2	2	1	4	
14-May	1	2	2	1	1	1	1	1	2	3	4	4	4	5	5	5	4	5	4	4	4	4	2	1	5	
15-May	2	1	1	1	1	3	2	2	3	3	2	3	3	3	3	2	4	3	1	1	2	2	1	1	4	
16-May	3	1	1	1	1	1	1	2	2	2	2	2	3	5	5	3	2	3	4	3	2	5	4	4	5	
17-May	4	4	4	4	4	3	2	3	4	2	3	3	3	3	3	2	3	3	2	1	2	2	2	3	4	
18-May	2	2	2	2	2	3	3	3	3	3	3	4	4	3	3	3	3	1	1	1	1	1	1	1	4	
19-May	1	1	1	1	1	2	2	2	2	3	3	3	2	3	3	3	3	3	3	1	1	1	1	1	3	
20-May	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	2	2	2	2	3	1	1	1	1	3	
21-May	1	1	1	1	2	1	2	2	2	2	3	3	3	3	4	3	4	3	3	3	1	1	1	1	4	
22-May	2	1	2	1	1	1	1	2	3	3	3	4	3	3	4	4	3	4	3	2	2	1	1	1	4	
23-May	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	2	2	3	1	1	1	1	3	
24-May	1	1	1	1	1	1	2	3	3	4	4	4	4	4	4	4	4	3	4	3	2	1	1	1	4	
25-May	1	1	1	1	1	3	2	3	4	4	5	5	5	4	4	4	4	4	4	2	1	1	1	1	5	
26-May	1	1	1	1	1	1	2	2	3	3	4	3	3	2	3	2	3	2	2	3	1	2	1	1	4	
27-May	1	1	1	2	1	1	1	1	1	2	4	4	5	4	4	3	3	3	2	3	3	1	2	2	5	
28-May	3	2	2	2	1	1	1	2	2	3	3	3	3	3	4	4	3	2	2	1	1	2	1	1	4	
29-May	1	1	2	1	1	1	1	2	2	5	5	4	5	6	5	5	4	5	4	5	4	2	4	5	6	
30-May	5	4	3	4	4	3	3	4	4	4	4	5	5	4	4	4	4	5	4	3	4	4	4	4	5	
31-May	3	4	5	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5	4	4	2	2	3	2	6	
Diurnal Maximum																										



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Surmont 2 - May 2024**

Direction of Maximum Speed: 259 deg on May 10 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 285.8 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 256 deg on May 21 03:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.9 deg on May 3	Percent Operational Time: 100.0
Monthly Average Direction: 339.0 deg	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	330	332	326	300	287	293	334	30	38	42	60	59	48	54	59	63	63	56	53	61	43	264	239	237	38.1
2-May	250	258	267	281	281	300	330	347	4	28	27	47	37	34	34	27	34	55	60	97	133	136	231	216	28.7
3-May	214	187	196	231	241	190	4	81	81	84	71	41	358	3	351	5	318	28	22	248	210	225	249	222	27.7
4-May	242	245	254	268	288	276	343	337	33	4	12	24	32	48	32	12	353	11	23	85	110	124	130	202	22.3
5-May	232	193	231	223	221	169	120	122	120	127	127	126	116	135	111	121	129	128	124	103	204	266	182	121	130.1
6-May	191	171	168	179	188	174	116	108	106	104	92	89	81	97	99	97	90	104	139	140	121	114	245	246	107.8
7-May	251	127	104	98	86	80	90	94	96	99	101	105	97	105	117	110	112	106	108	114	112	125	144	96	102.6
8-May	156	236	61	92	279	283	284	294	328	330	334	323	359	350	24	277	262	240	230	255	234	209	260	253	292.1
9-May	256	257	256	255	264	277	283	286	289	298	295	292	298	288	295	307	305	295	313	316	244	228	225	227	284.2
10-May	224	223	219	224	210	244	247	247	252	257	269	253	266	265	259	264	253	260	260	255	253	249	279	330	260.4
11-May	323	313	300	300	280	275	293	298	302	312	312	304	307	322	324	314	321	333	355	17	40	15	318	259	312.7
12-May	229	210	222	212	216	161	110	129	120	116	107	107	96	108	104	113	107	109	115	318	123	195	203	155	117.4
13-May	114	132	130	111	113	118	113	129	133	122	119	126	132	207	233	256	242	261	258	252	241	262	273	309	177.4
14-May	260	250	240	222	219	215	101	81	237	248	266	257	258	254	248	249	262	252	262	266	266	295	337	246	257.6
15-May	238	178	296	107	153	268	279	320	352	23	43	53	86	60	39	77	76	48	289	326	224	267	231	9	20.5
16-May	96	118	115	123	287	206	63	82	86	88	65	55	62	96	105	103	111	91	90	102	93	91	91	95	91.8
17-May	93	95	96	95	95	96	91	89	88	81	85	81	72	73	63	60	58	81	74	314	313	314	313	312	77.2
18-May	309	308	288	287	284	292	297	302	300	299	295	293	291	284	274	275	300	350	16	304	280	285	297	310	293.6
19-May	330	339	328	300	325	339	332	348	46	66	65	70	59	47	57	60	49	74	74	54	297	255	263	274	36.6
20-May	262	256	228	241	310	333	341	359	7	25	42	26	48	47	58	54	53	86	91	97	125	249	225	249	36.9
21-May	251	248	256	345	102	97	113	108	108	101	96	96	88	83	95	77	86	91	84	85	95	111	182	238	94.6
22-May	240	228	284	253	343	349	51	58	77	67	69	48	33	55	57	59	52	74	82	67	72	89	95	126	60.3
23-May	260	260	268	252	282	36	84	75	51	85	90	85	93	111	112	106	99	93	102	114	204	224	215	232	97.0
24-May	212	240	224	330	261	46	87	105	119	94	110	117	117	115	94	113	119	125	132	135	190	214	212	231	117.3
25-May	230	205	218	206	239	125	113	125	130	114	105	107	103	105	111	118	128	124	119	125	119	192	216	232	121.7
26-May	224	225	230	221	222	211	122	118	124	114	129	223	233	193	118	130	138	135	108	121	239	237	239	231	155.9
27-May	219	192	200	233	231	210	174	126	117	125	142	130	123	124	134	132	126	192	178	275	246	211	250	182	152.0
28-May	150	170	137	235	262	218	148	118	151	334	348	256	325	207	230	245	125	124	139	187	251	190	261	258	200.6
29-May	262	248	268	258	273	254	155	127	115	239	250	257	256	254	257	254	253	251	252	242	248	254	253	239	248.2
30-May	247	244	251	254	261	264	274	285	282	284	283	300	291	298	318	283	286	296	277	279	277	278	270	269	277.3
31-May	266	273	274	278	284	285	286	282	282	280	275	283	297	295	288	285	281	281	279	331	316	319	317	302	285.8

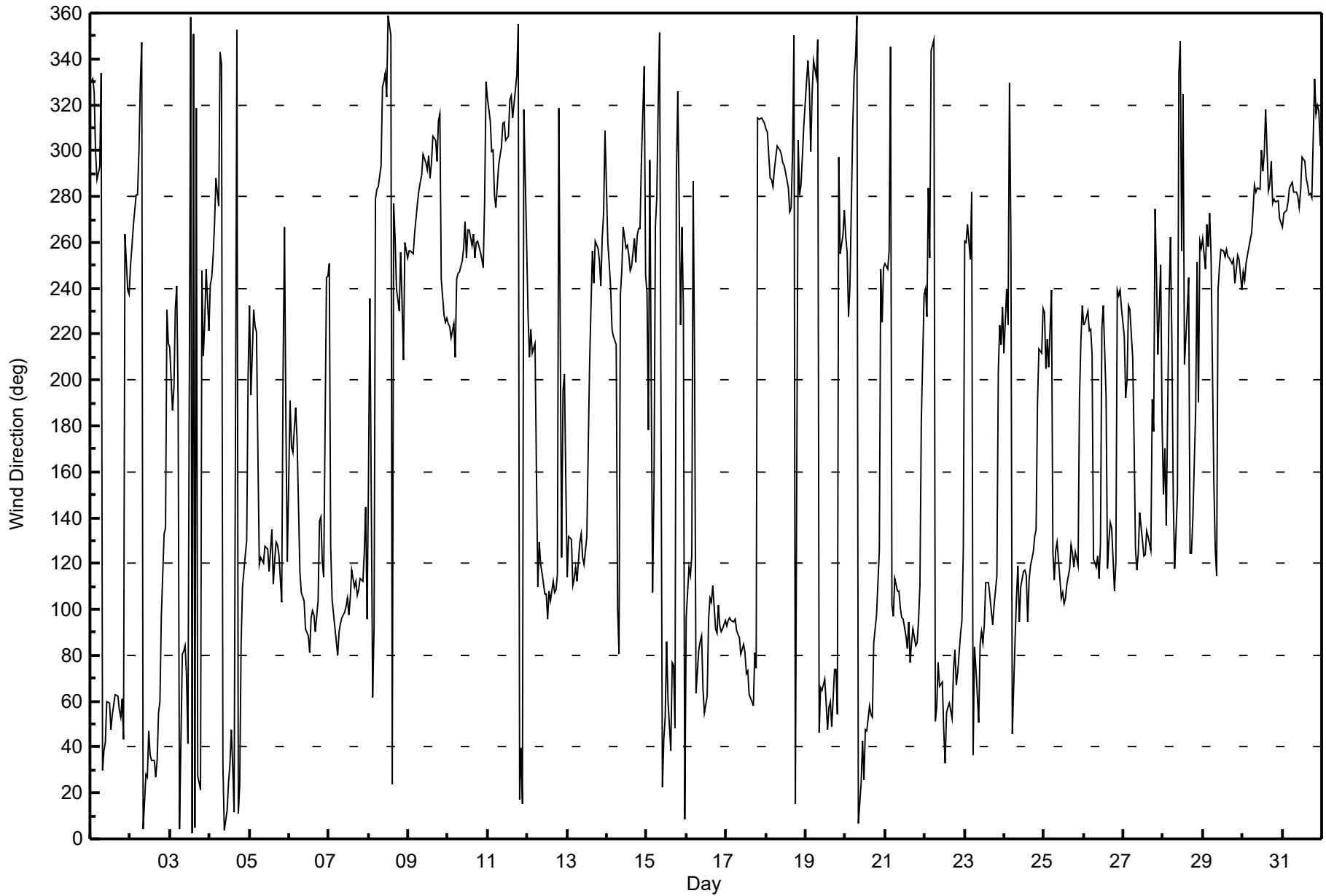
252.9 244.1 247.6 256.4 268.8 278.5 321.2 45.5 60.2 52.3 49.0 45.4 36.0 45.1 57.8 57.8 63.8 87.3 104.8 126.8 243.8 247.6 259.0 265.1  
 Diurnal Average

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Surmont 2 - May 2024**





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Surmont 2 - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on May 8 15:00 Minimum Value: 5 deg on May 20 03:00 Percentiles: P <sub>1</sub> = 14 P <sub>10</sub> = 24 Q <sub>1</sub> = 31 Median = 38 Q <sub>3</sub> = 50 P <sub>90</sub> = 66 P <sub>99</sub> = 91																			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-May	32	33	38	31	29	29	42	41	40	35	34	38	34	35	34	35	34	35	31	30	80	32	19	66	80
2-May	66	34	39	62	26	31	36	35	45	39	48	40	44	43	42	43	41	34	31	26	73	68	49	50	73
3-May	47	54	50	65	80	85	78	65	35	35	61	46	51	51	68	80	63	65	81	32	68	56	21	86	86
4-May	54	19	51	31	46	25	66	48	42	72	64	51	40	36	42	74	98	54	69	28	63	62	37	47	98
5-May	44	70	36	37	37	34	27	36	33	33	37	43	35	50	31	39	37	41	39	54	87	97	62	55	97
6-May	60	73	64	44	40	46	34	27	22	22	26	25	29	24	27	23	26	21	47	54	39	36	33	70	73
7-May	41	81	36	33	22	24	23	21	21	21	21	21	21	22	30	22	27	24	19	20	27	35	70	59	81
8-May	73	50	83	43	71	39	33	36	45	44	41	47	47	60	103	88	44	41	52	21	12	20	67	23	103
9-May	23	23	23	25	27	30	32	32	32	37	36	37	41	41	41	43	42	38	45	45	23	29	20	13	45
10-May	20	21	35	23	57	34	25	25	38	33	33	32	36	32	32	30	31	32	30	28	23	25	43	37	57
11-May	41	34	36	37	29	28	35	37	36	45	42	44	39	41	42	43	47	44	46	45	37	71	63	64	71
12-May	38	43	64	71	69	65	43	37	36	35	30	29	25	28	32	32	28	30	63	84	41	54	90	55	90
13-May	27	46	46	28	28	30	28	40	41	33	34	41	56	62	49	35	53	32	33	27	20	25	35	37	62
14-May	18	15	45	24	13	55	71	69	51	32	38	42	37	40	44	39	33	29	29	27	28	42	45	20	71
15-May	25	50	81	47	58	31	30	49	38	40	38	37	55	69	86	65	34	58	81	63	43	64	86	68	86
16-May	31	42	44	63	96	102	54	48	29	25	29	31	32	24	19	16	22	27	20	17	17	22	22	20	102
17-May	21	21	21	21	20	19	21	23	26	27	26	28	29	30	30	30	34	26	53	41	40	39	46	40	53
18-May	38	40	32	32	26	32	36	37	34	34	32	33	32	28	27	29	42	49	38	40	25	34	39	51	51
19-May	49	32	33	34	41	38	42	36	46	32	29	31	36	32	31	35	30	35	30	42	41	61	19	69	69
20-May	17	12	5	50	42	38	34	40	47	43	30	40	31	33	30	32	36	27	22	28	93	52	64	9	93
21-May	18	24	55	56	80	29	26	19	25	26	29	29	33	31	28	32	28	26	25	27	21	81	59	65	81
22-May	32	55	60	60	79	63	31	33	35	41	46	37	39	41	61	40	44	34	27	31	19	25	31	76	79
23-May	29	14	28	35	40	40	30	30	38	40	35	32	39	32	31	38	26	29	21	39	55	39	27	19	55
24-May	57	81	65	78	70	34	40	32	39	31	34	51	55	40	34	32	38	47	50	49	53	46	39	25	81
25-May	34	41	25	42	35	70	31	45	42	35	29	32	30	58	33	45	46	35	35	37	40	69	39	23	70
26-May	43	24	40	37	47	61	60	36	46	33	53	57	52	61	42	47	77	73	25	50	16	29	47	30	77
27-May	69	59	53	70	66	62	47	53	41	42	55	46	51	52	59	49	44	55	72	61	66	73	25	86	86
28-May	54	51	45	80	56	76	62	39	84	61	80	64	98	61	73	62	87	55	49	76	13	69	93	18	98
29-May	19	87	85	74	66	44	50	48	43	49	32	35	38	34	36	33	37	35	35	41	40	40	50	38	87
30-May	36	35	36	37	33	34	34	36	34	40	37	45	40	47	56	45	40	47	33	35	33	35	31	30	56
31-May	31	31	30	32	35	39	34	34	40	38	34	41	45	41	40	37	38	36	33	49	59	56	54	57	59
	73	87	85	80	96	102	78	69	84	72	80	64	98	69	103	88	98	73	81	84	93	97	93	86	
	Diurnal Maximum																								



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS30  
ELLS RIVER  
MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
MAY 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	36	37	99.87	17.1	0	3.7	0
TRS (ppb) Average	707	36	37	99.87	1.2	0	0.6	0
THC (ppm) Average	707	36	37	99.87	4	-	2.3	-
NMHC (ppm) Average	707	36	37	99.87	1.347	-	0.183	-
CH4 (ppm) Average	707	36	37	99.87	2.8	-	2.2	-
NO2 (ppb) Average	707	36	37	99.87	36.7	0	9.1	-
NO (ppb) Average	707	36	37	99.87	45.4	-	7	-
NOX (ppb) Average	707	36	37	99.87	72.9	-	11.9	-
PM2.5 (ug/m3) Average	742	2	2	100	153.3	0	50.4	2
Temperature 2 m (C) Average	744	0	0	100	27.4	-	17.4	-
Relative Humidity (%) Average	744	0	0	100	97	-	93.9	-
Wind Speed 10 m (km/h) Average	733	0	11	98.52	39	-	23	-
Wind Direction 10 m (deg) Average	733	0	11	98.52	-	-	-	-
Global Solar Radiation (W/m2) Average	744	0	0	100	827.1	-	312	-

Note : Operational time includes periods of data collection and instrument calibration

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
 APRIL 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	684	0.67	2.2	-	0	0	0	0	0.2	1.3	21.4
TRS (ppb) Average	682	0.51	0.2	-	0.4	0.4	0.4	0.4	0.5	0.6	2.6
THC (ppm) Average	671	2.14	0.2	-	2	2	2	2	2.2	2.4	3.7
NMHC(ppm) Average	671	0.051	0.132	-	0	0	0	0	0	0.2	1.101
CH4(ppm) Average	671	2.09	0.1	-	2	2	2	2	2.1	2.2	2.8
NO2 (ppb) Average	681	5.35	6.2	-	0.1	0.4	0.9	2.9	7.3	14.4	32.6
NO (ppb) Average	681	0.78	1.9	-	0	0	0	0.1	0.6	1.9	16.1
NOX (ppb) Average	681	6.13	7.1	-	0.1	0.4	1	3.3	8.3	17.1	35.2
PM2.5 (ug/m3) Average	716	3.93	3.1	-	0.5	1.2	2.1	3.3	4.9	6.9	40.2
Temperature 2 m (C) Average	720	5.09	5.9	-	-10.6	-1.9	0.3	4.5	9.5	13.7	18.5
Relative Humidity (%) Average	720	53.44	24	-	8.9	22.3	31.6	52.6	73.5	88.6	95.9
Wind Speed 10 m (km/h) Average	701	12.8	8	-	0	4	7	12	18	24	36
Wind Direction 10 m (deg) Average	701	287.5	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	720	172.63	225	-	0	0	0.1	50.4	297.5	568.8	770.7

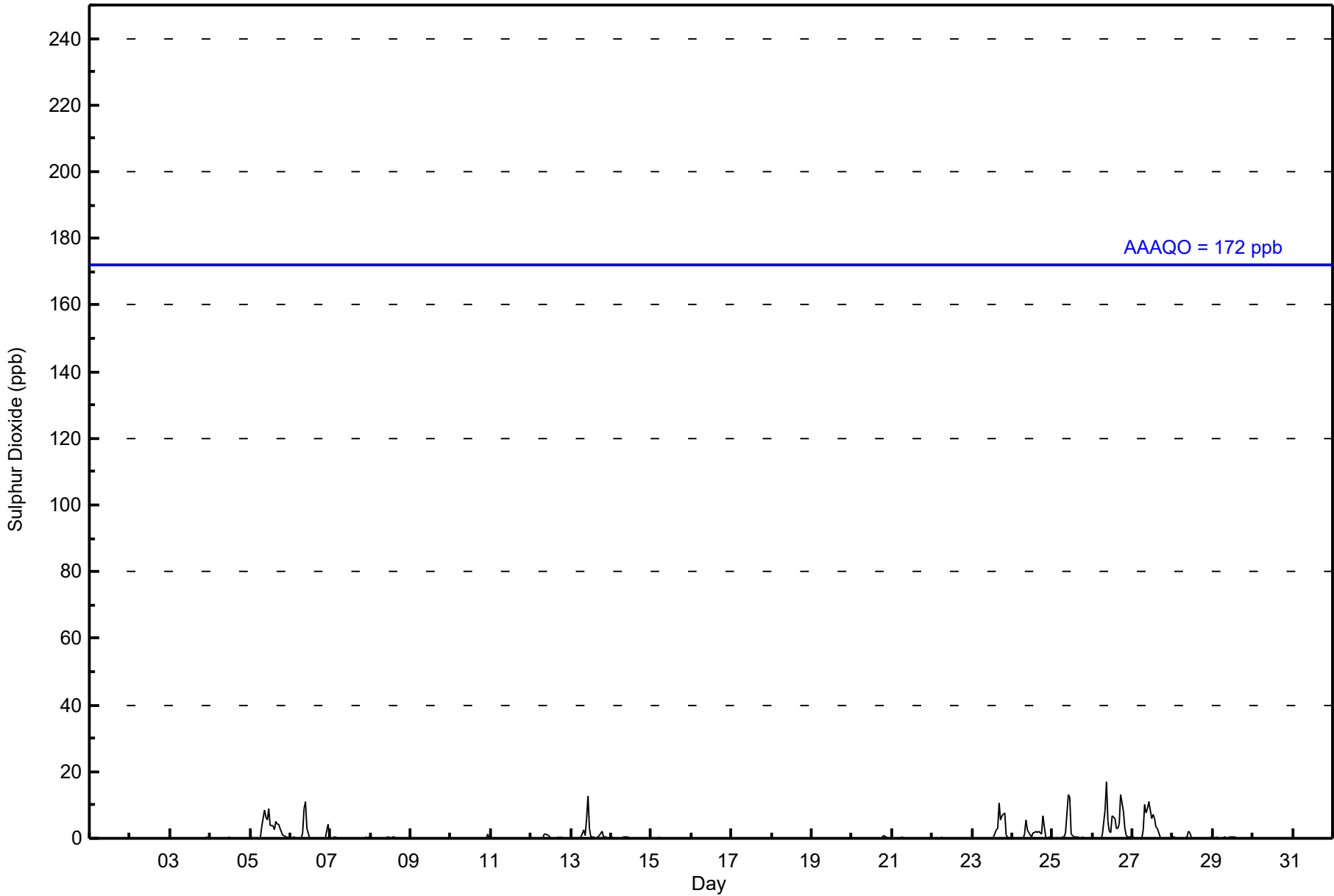
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2	21 May 2024 11:00	21 May 2024 11:00	1	Maintenance - station operator activities
SO2, THC/NMHC/CH4, TRS	22 May 2024 11:00	22 May 2024 11:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	05 May 2024 07:00	05 May 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 May 2024 06:00	12 May 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 May 2024 02:00	13 May 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	13 May 2024 04:00	13 May 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	23 May 2024 00:00	23 May 2024 02:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	24 May 2024 04:00	24 May 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	25 May 2024 01:00	25 May 2024 02:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	26 May 2024 04:00	26 May 2024 04:00	1	Flat line in sensor output signal









**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Ells River - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	700	99.01	99.01
11 - 20	7	0.99	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**  
**Ells River - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	108	102	45	27	20	30	52	47	31	22	35	19	27	43	57	26	691
11 - 20	0	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	108	102	45	27	20	30	56	50	31	22	35	19	27	43	57	26	698

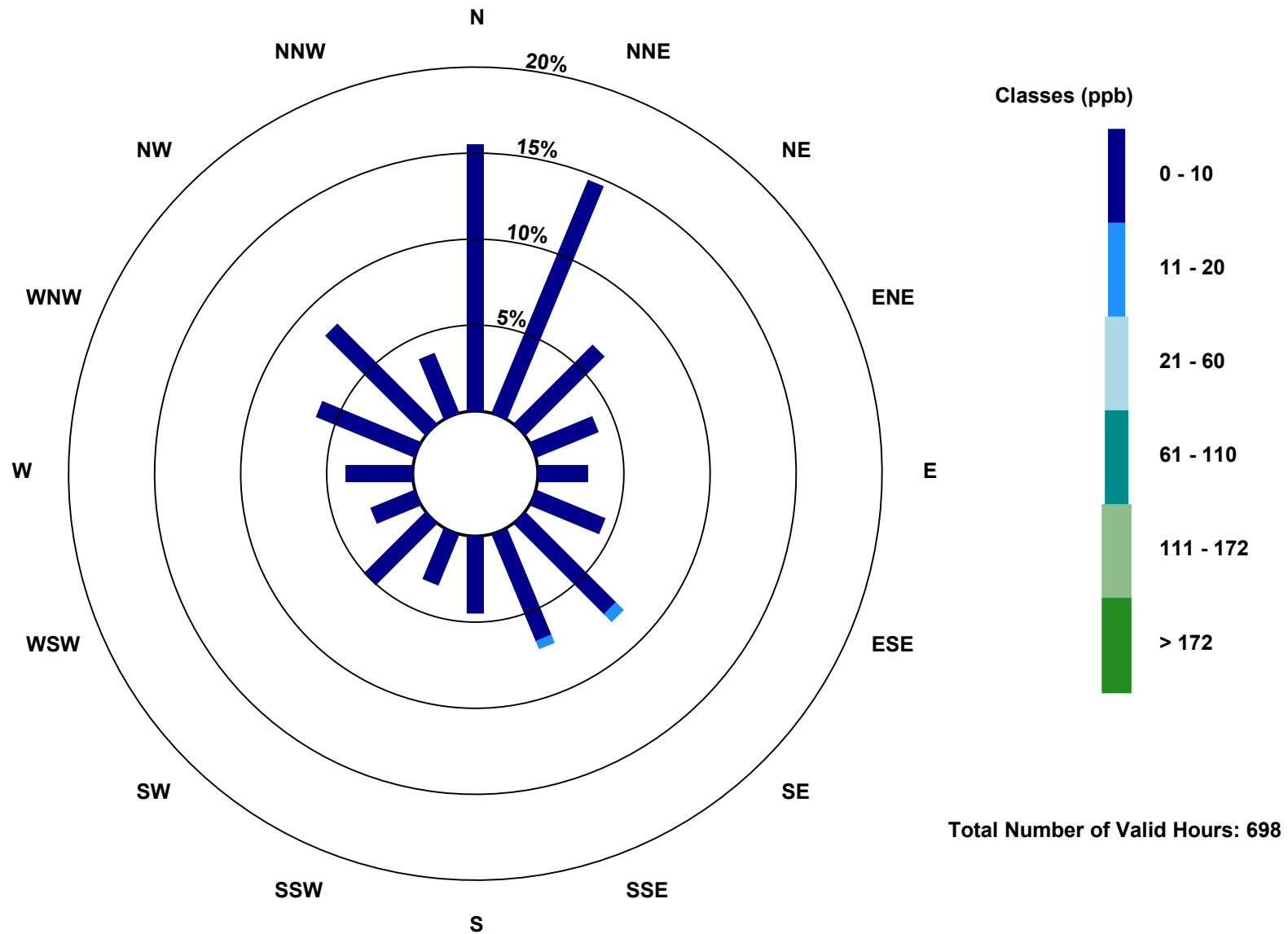
Total Number of Valid Hours: 698

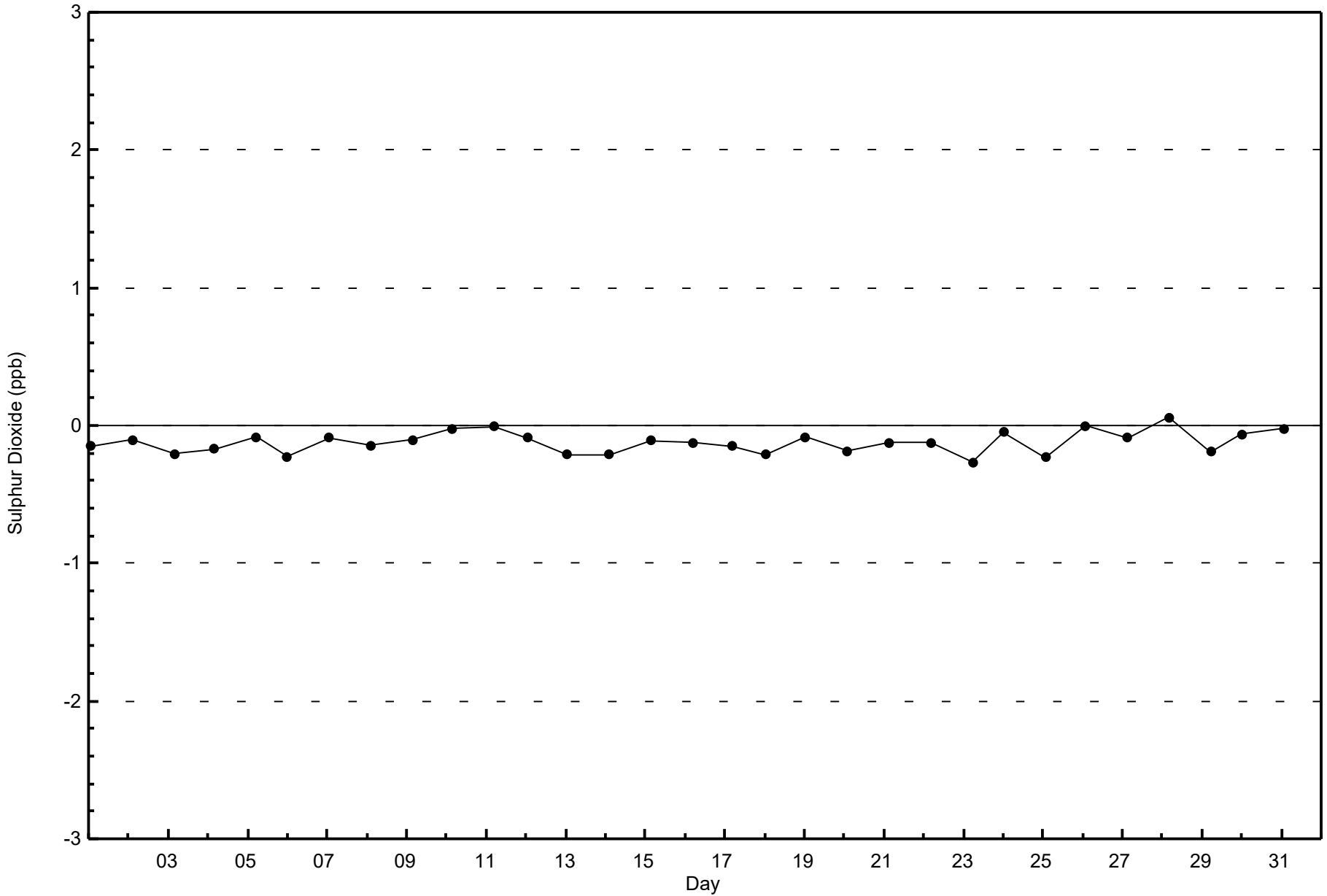
Total Number of Hours: 744

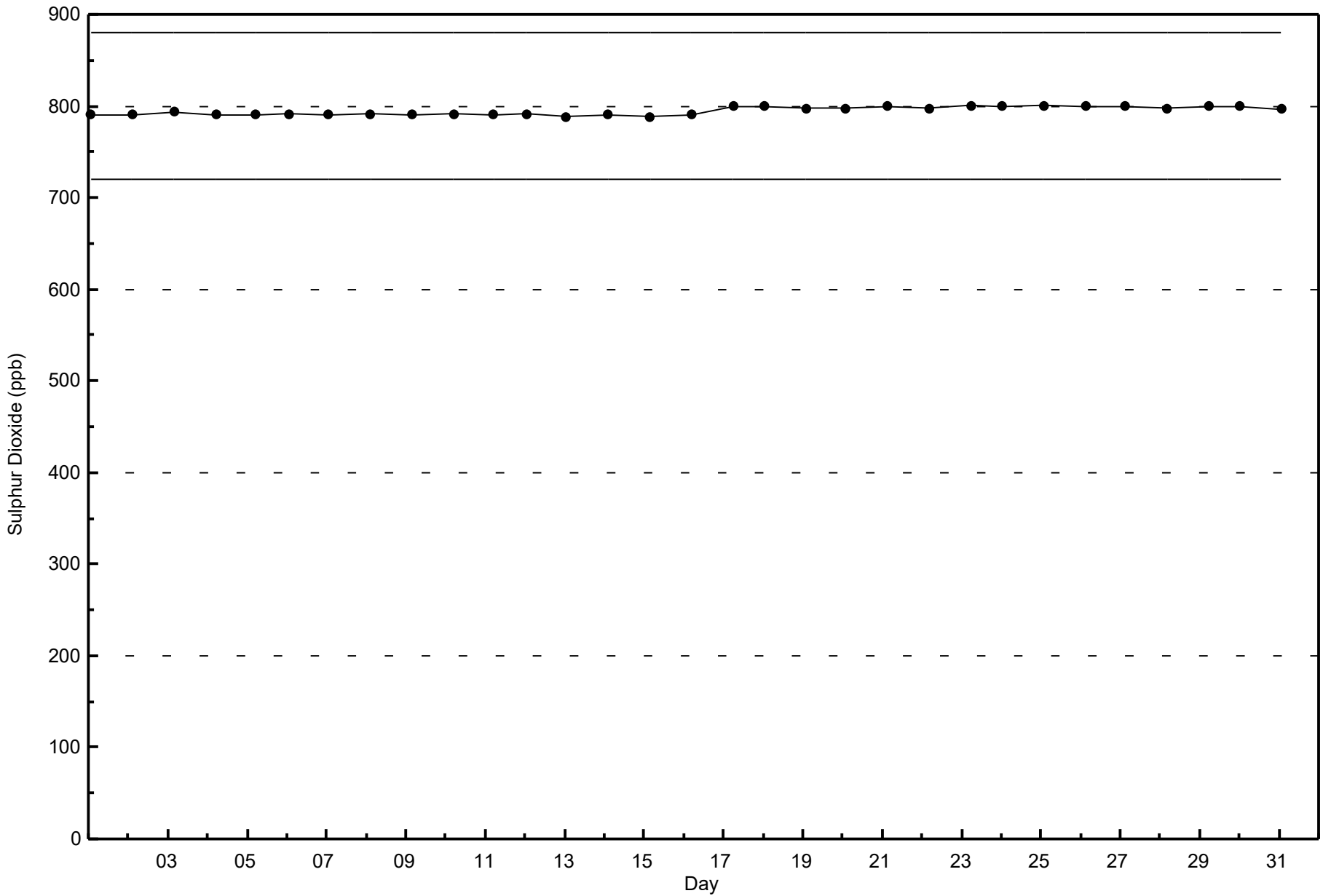


Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Ells River

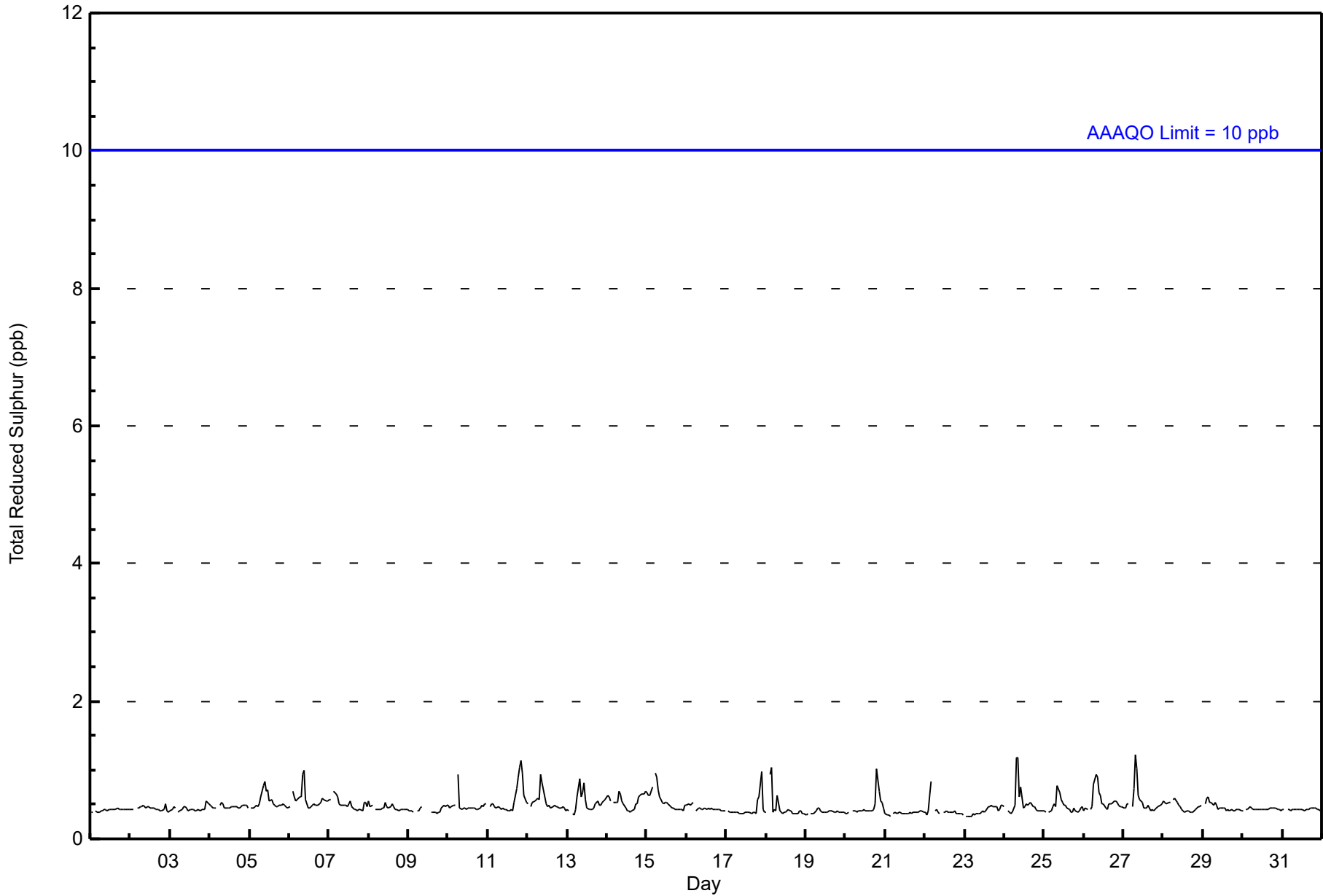














**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb**  
**Ells River - May 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**  
**Ells River - May 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	110	106	45	26	20	32	56	51	29	20	35	20	28	39	59	22	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>	110	106	45	26	20	32	56	51	29	20	35	20	28	39	59	22	698

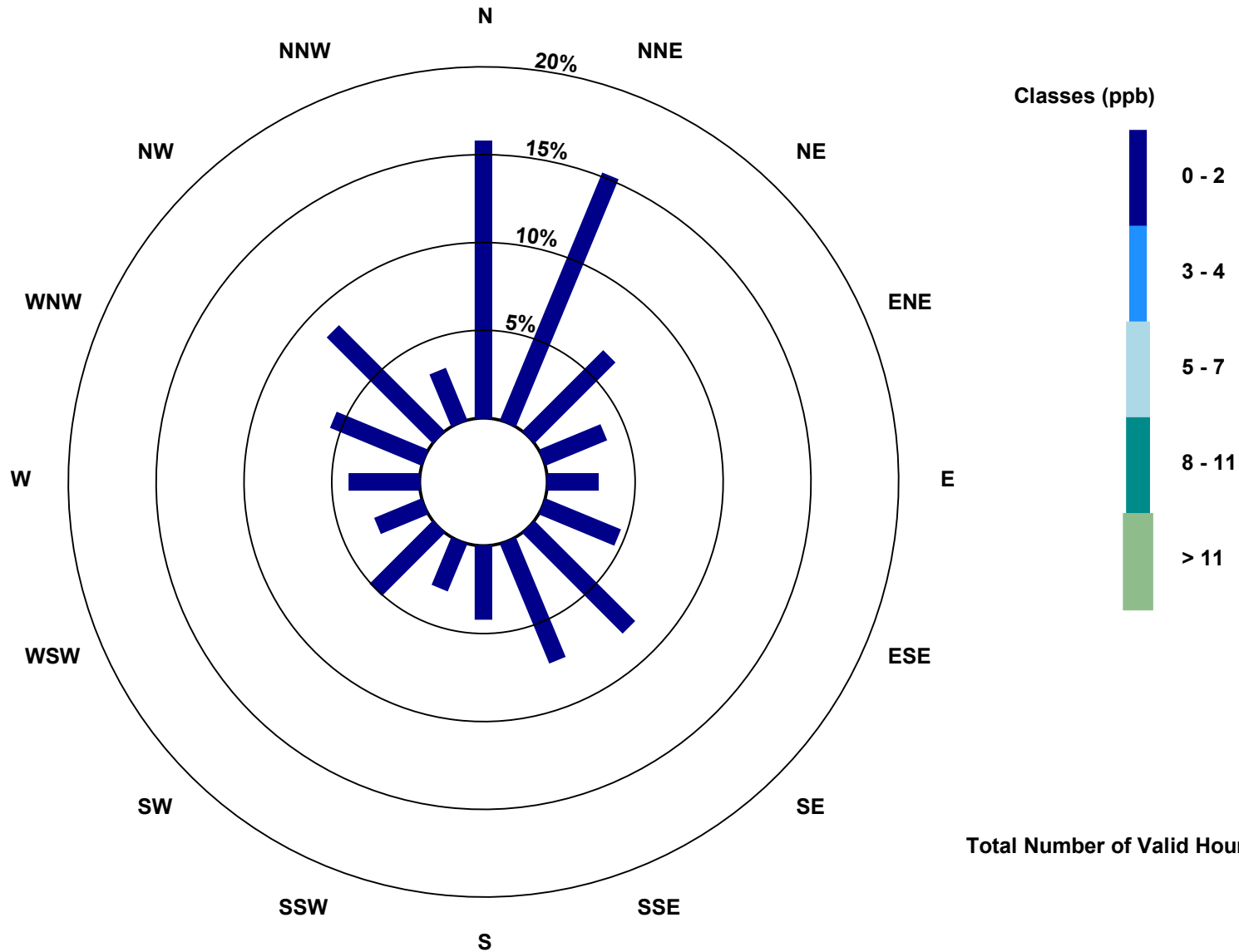
Total Number of Valid Hours: 698

Total Number of Hours: 744

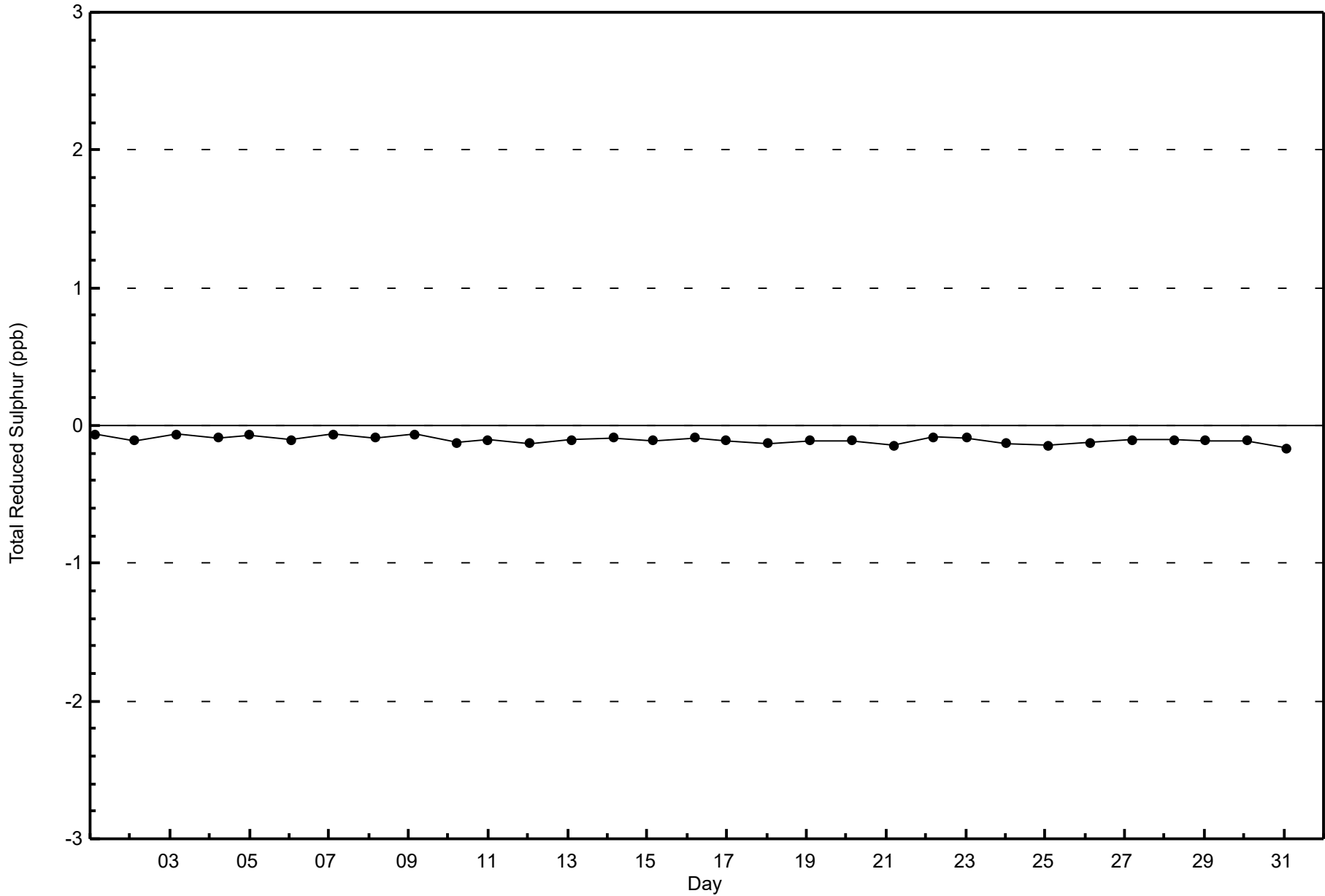


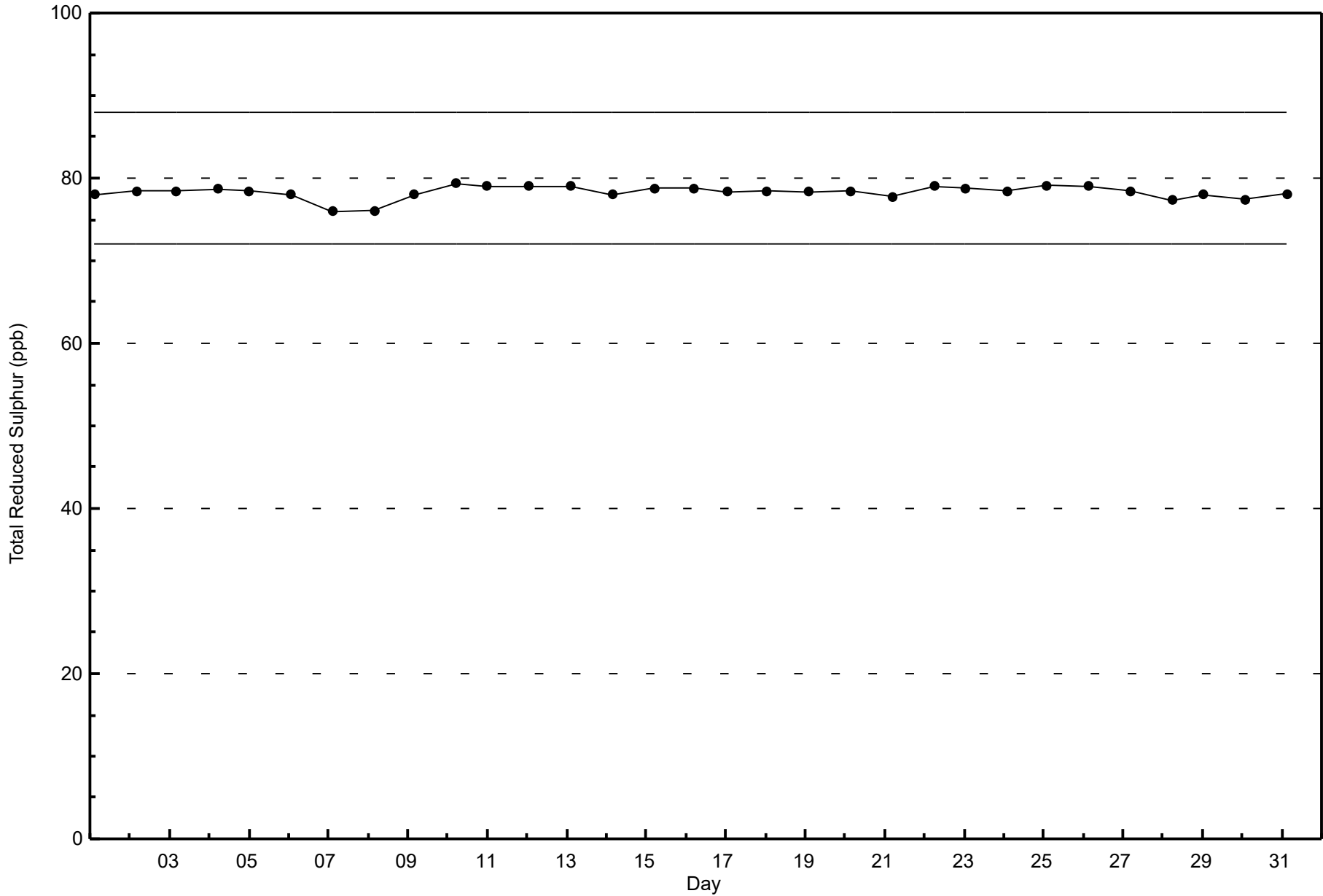
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Reduced Sulphur (TRS) - ppb  
Ells River



Total Number of Valid Hours: 698





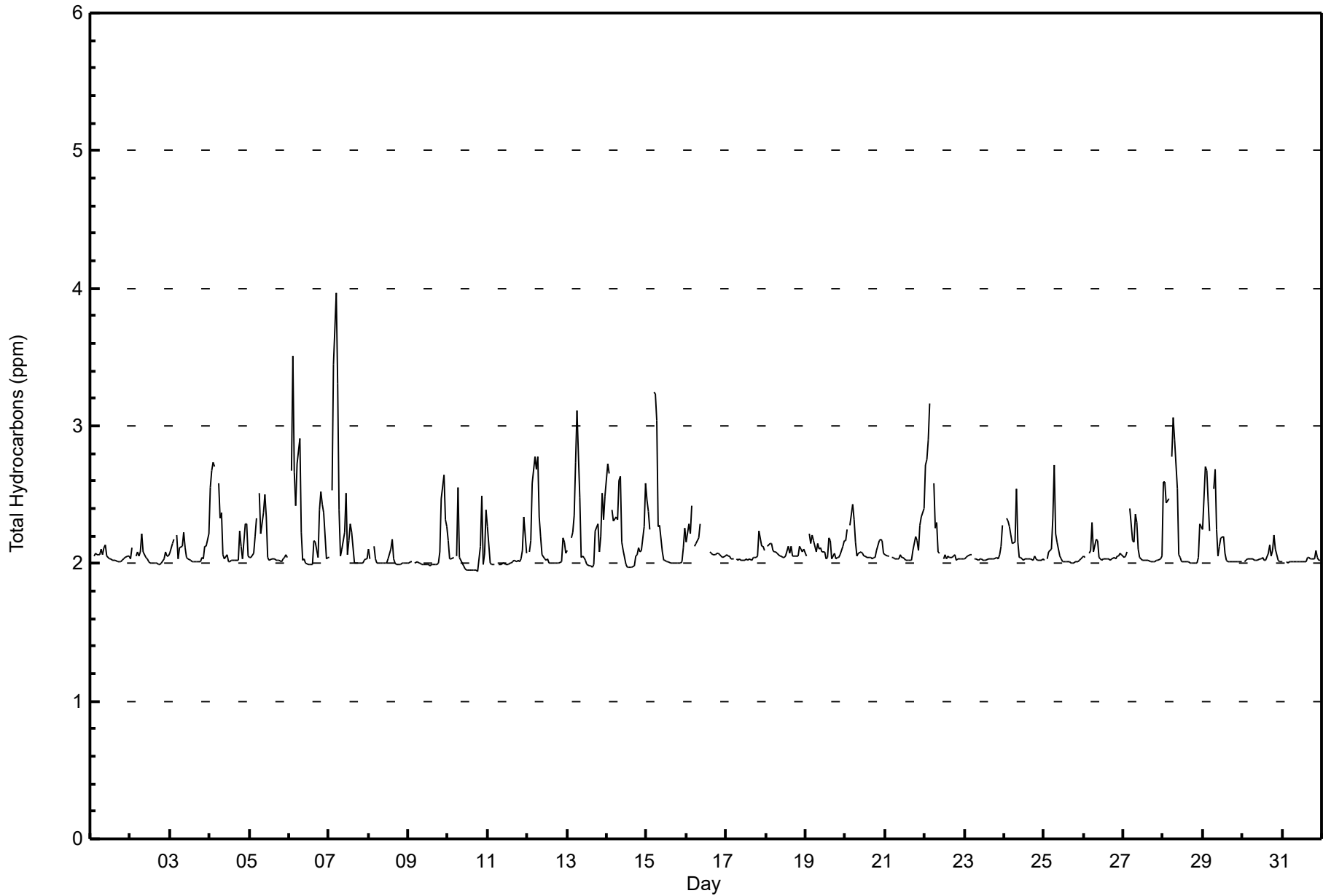


Maximum Value: 4.0 ppm on May 7 05:00		Maximum Daily Average: 2.3 ppm on May 7		Hours in Service: 744																									
Minimum Value: 1.9 ppm on May 10 19:00		Minimum Daily Average: 2.0 ppm on May 31		Hours of Data: 707																									
Maximum Diurnal Average: 2.3 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Missing Data: 37																									
Monthly Average: 2.13 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.4 P <sub>99</sub> = 3.1		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-May	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
2-May	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.2	2.2	
3-May	2.1	2.1	2.2	Z	2.2	2.0	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.2	2.2	
4-May	2.5	2.7	2.7	Z	Z	2.6	2.3	2.4	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.0	2.3	2.3	2.1	2.2	2.7	2.7	2.7	
5-May	2.0	2.0	2.1	2.2	2.3	Z	2.5	2.2	2.4	2.5	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.5	2.5	
6-May	Z	2.7	3.5	2.7	2.4	2.7	2.9	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.0	2.4	2.5	2.4	2.4	2.0	2.0	2.0	2.3	3.5	3.5	3.5	
7-May	2.0	Z	2.5	3.4	4.0	3.3	2.4	2.1	2.1	2.2	2.5	2.1	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	4.0	4.0	
8-May	2.1	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2
9-May	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.6	2.3	2.3	2.1	2.6	2.6	2.6	
10-May	2.2	2.0	2.0	2.0	Z	2.0	2.6	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	1.9	1.9	2.1	2.5	2.0	2.1	2.4	2.1	2.6	2.6	2.6	
11-May	2.3	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.1	2.0	2.3	2.3	2.3	
12-May	Z	2.1	2.2	2.6	2.8	2.7	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	2.2	2.2	2.1	2.2	2.8	2.8	2.8	
13-May	2.1	Z	2.2	2.2	2.3	2.7	3.1	2.5	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.3	2.1	2.2	2.5	2.3	2.5	2.2	3.1	3.1	3.1	
14-May	2.7	2.7	Z	2.4	2.3	2.3	2.3	2.6	2.6	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.6	2.2	2.7	2.7	2.7	
15-May	2.5	2.4	2.2	Z	3.2	3.2	3.0	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	2.1	2.3	2.6	2.2	3.2	3.2	3.2	
16-May	2.2	2.3	2.2	2.4	Z	2.1	2.1	2.2	2.3	C	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.4	2.4	2.4	
17-May	2.1	2.1	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	
18-May	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	2.1	2.1	2.1	2.1	2.1
19-May	2.1	Z	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.2	2.2	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2
20-May	2.2	2.2	Z	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.4	2.4	2.4	
21-May	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.3	2.3	2.4	2.1	2.4	2.4	2.4	
22-May	2.7	2.8	2.9	3.2	Z	2.6	2.3	2.3	2.1	2.1	M	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.2	3.2	3.2	3.2	
23-May	2.0	2.0	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.1	2.3	2.3	2.3	
24-May	Z	2.3	2.3	2.3	2.2	2.1	2.2	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.5	2.5	2.5	
25-May	2.0	Z	2.0	2.1	2.1	2.3	2.7	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.7	2.7	2.7	
26-May	2.1	2.0	Z	2.1	2.1	2.3	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3	
27-May	2.0	2.1	2.1	Z	2.4	2.2	2.2	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.4	2.4	2.4	
28-May	2.6	2.6	2.4	2.5	Z	2.8	3.1	2.9	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.3	2.3	3.1	3.1	3.1	
29-May	2.3	2.7	2.7	2.5	2.2	Z	2.5	2.7	2.2	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	2.0	2.2	2.7	2.7	2.7	
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.2	2.2	2.2	
31-May	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	2.0	2.0	2.0	2.1	2.1	2.1	
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan		C - Calibration				M - Maintenance																							



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Ells River - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Ells River - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	377	53.32	53.32
2.1 - 3.0	321	45.40	98.73
3.1 - 10.0	9	1.27	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 - May 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	40	46	15	13	14	17	43	33	13	18	30	12	13	28	35	3	373
2.1 - 3.0	68	55	27	14	6	13	13	17	17	4	5	7	14	12	21	23	316
3.1 - 10.0	0	1	3	0	0	0	0	0	1	0	0	0	0	3	1	0	9
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	108	102	45	27	20	30	56	50	31	22	35	19	27	43	57	26	698

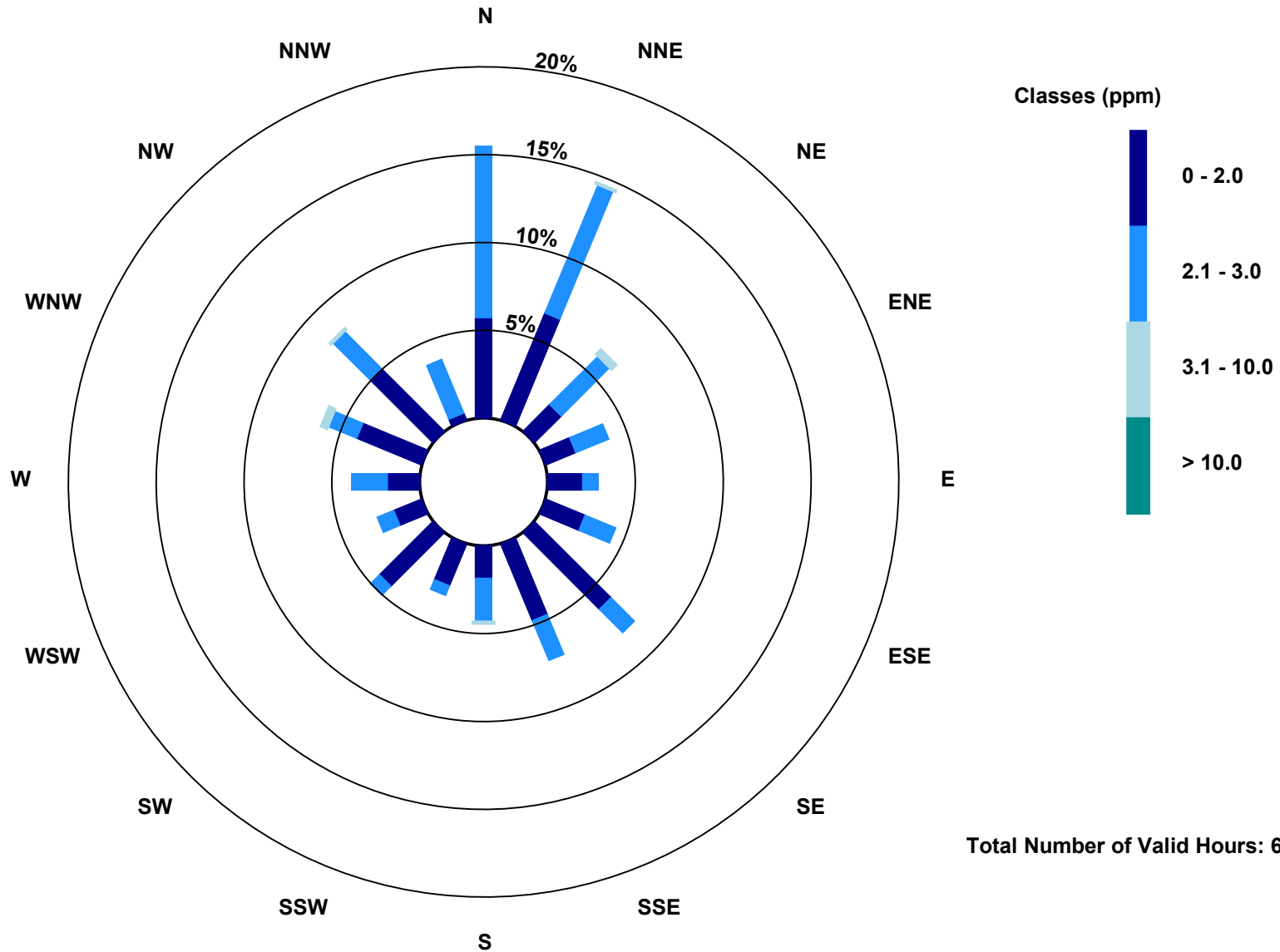
Total Number of Valid Hours: 698

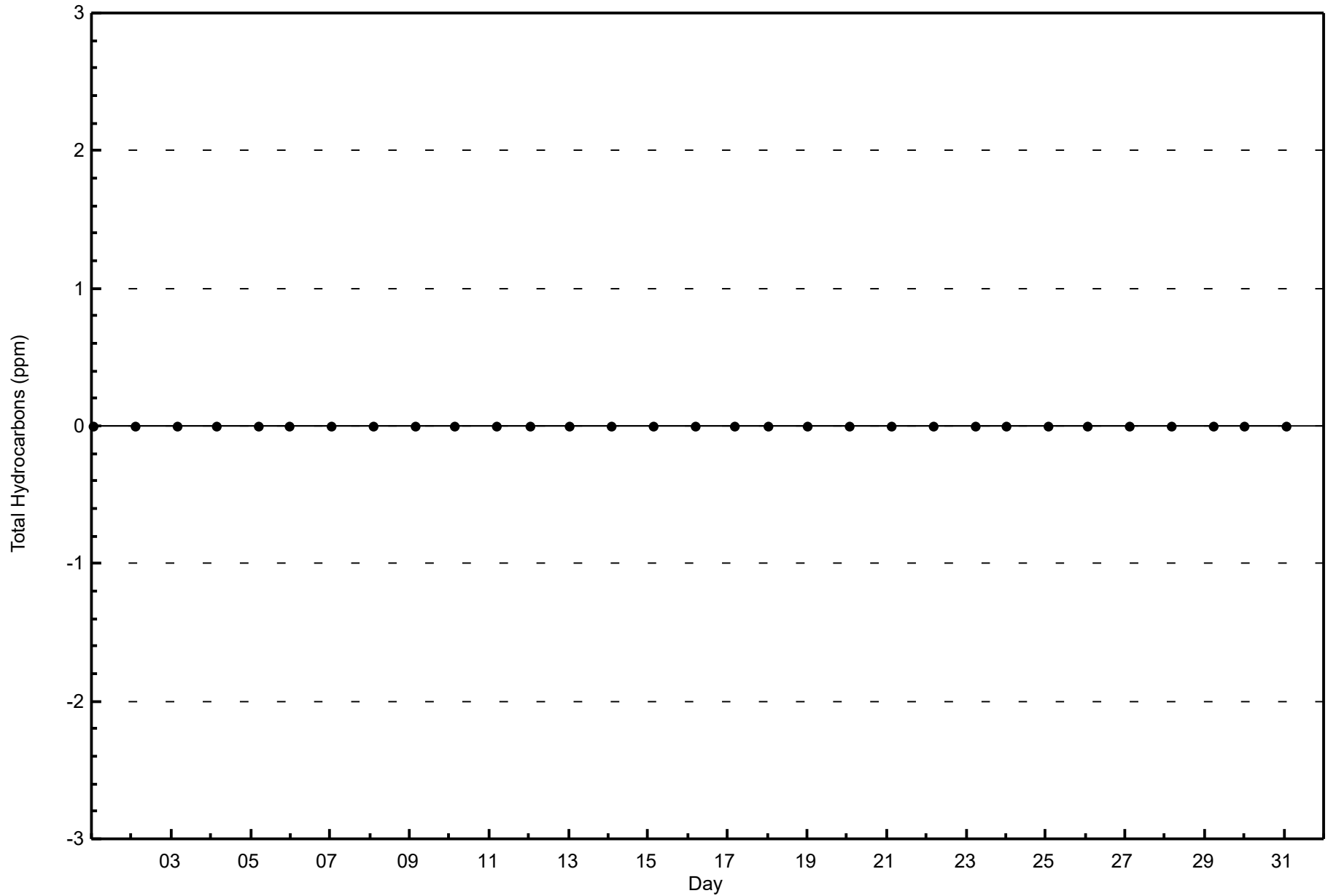
Total Number of Hours: 744

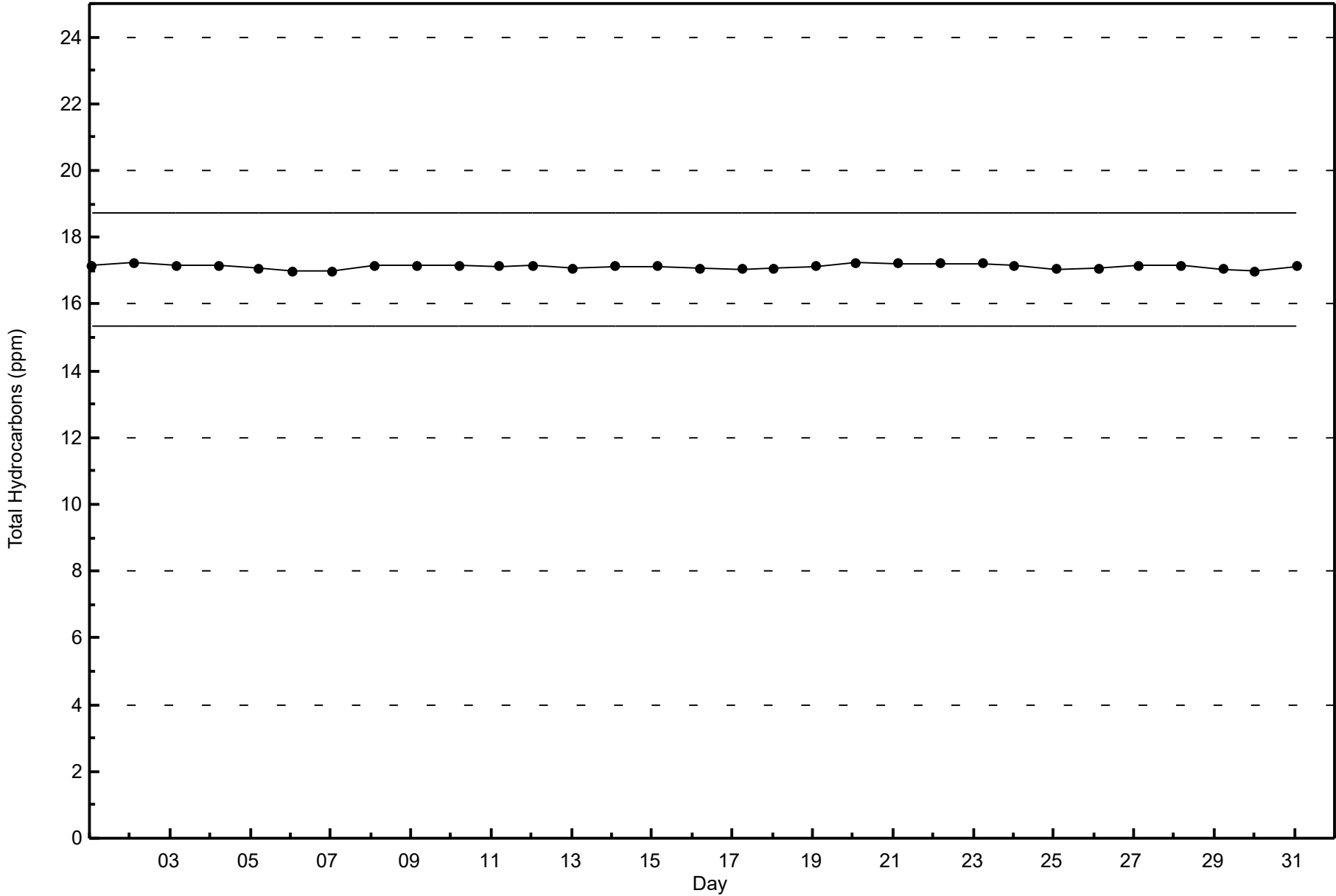


**Wood Buffalo Environmental Association**  
**Wind Rose May 2024**

**Total Hydrocarbons (THC) - ppm**  
**Ells River**





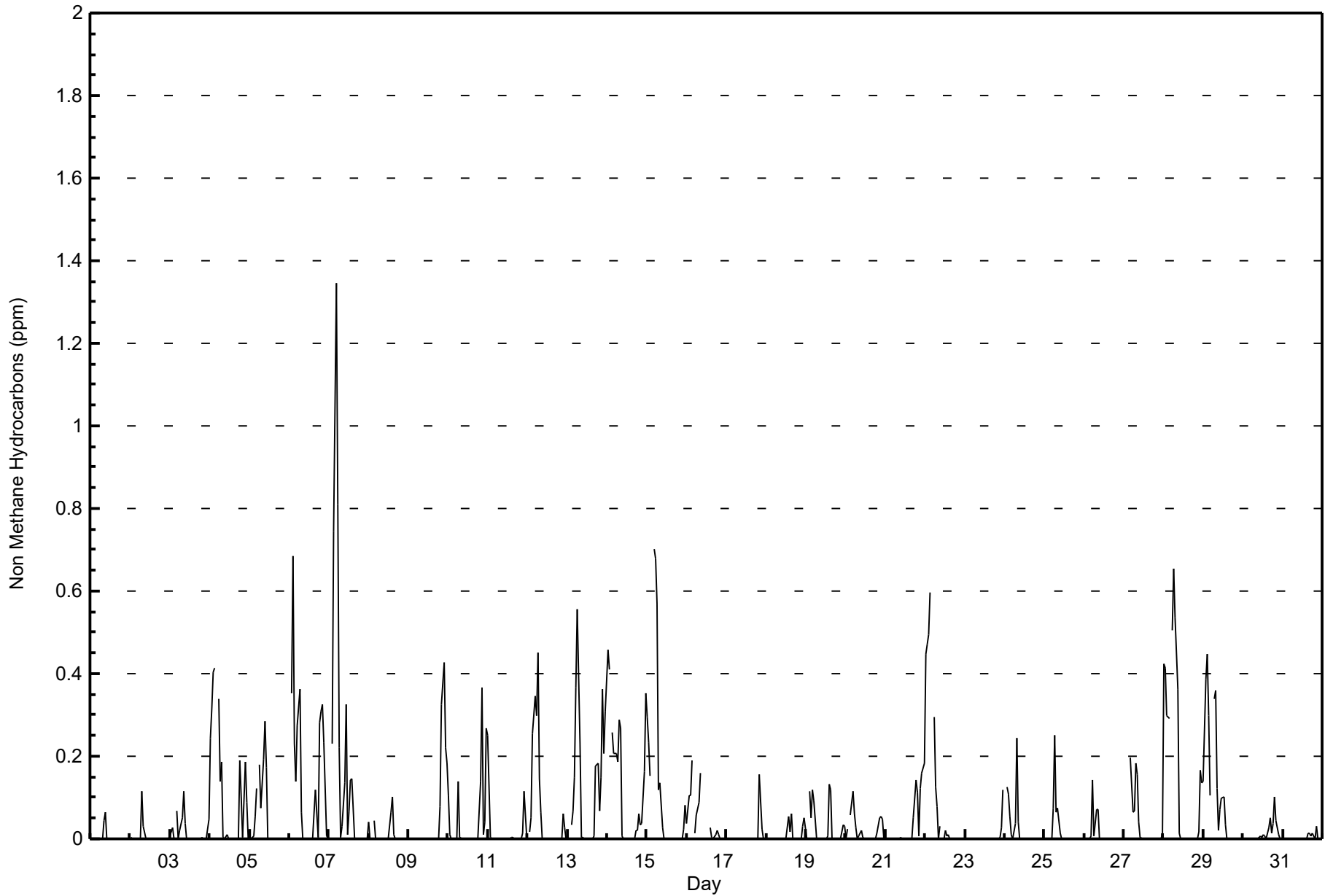




Summary of Hour Averages

Ells River - May 2024

Maximum Value: 1.347 ppm on May 7 05:00		Maximum Daily Average: 0.183 ppm on May 7		Hours in Service: 744																						
Minimum Value: 0.000 ppm on May 1 01:00		Minimum Daily Average: 0.004 ppm on May 31		Hours of Data: 707																						
Maximum Diurnal Average: 0.162 ppm at hour 6		Minimum Diurnal Average: 0.004 ppm at hour 12		Hours of Missing Data: 37																						
Monthly Average: 0.057 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> = 0.6		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-May	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.064
2-May	0.000	0.004	Z	0.000	0.000	0.000	0.000	0.115	0.030	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	0.006	0.115
3-May	0.005	0.026	0.000	Z	0.067	0.000	0.021	0.049	0.116	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.000	0.000	0.048	0.016	0.116
4-May	0.243	0.315	0.403	0.415	Z	0.341	0.138	0.185	0.004	0.000	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.190	0.101	0.002	0.187	0.088	0.000	0.114	0.415
5-May	0.000	0.000	0.007	0.055	0.121	Z	0.180	0.074	0.193	0.285	0.172	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.285	
6-May	Z	0.351	0.684	0.230	0.138	0.275	0.362	0.064	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.120	0.003	0.281	0.309	0.324	0.233	0.007	0.002	0.150	0.684	
7-May	0.000	Z	0.232	0.745	1.347	0.811	0.221	0.002	0.032	0.134	0.324	0.009	0.068	0.142	0.146	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.183	1.347	
8-May	0.041	0.000	Z	0.045	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.065	0.103	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.103	
9-May	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	0.078	0.326	0.426	0.220	0.054	0.426	
10-May	0.106	0.009	0.000	0.000	Z	0.000	0.138	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.138	0.366	0.009	0.040	0.047	0.366	
11-May	0.252	0.004	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.004	0.000	0.000	0.000	0.000	0.000	0.014	0.116	0.000	0.017	0.252	
12-May	Z	0.019	0.052	0.253	0.347	0.297	0.449	0.147	0.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.026	0.000	0.075	0.449	
13-May	0.000	Z	0.032	0.068	0.149	0.366	0.554	0.232	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.005	0.177	0.184	0.069	0.149	0.362	0.206	0.308	0.125	0.554	
14-May	0.458	0.410	Z	0.257	0.208	0.207	0.185	0.288	0.266	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.019	0.062	0.035	0.038	0.161	0.353	0.129	0.458	
15-May	0.294	0.234	0.151	Z	0.702	0.677	0.568	0.120	0.136	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.081	0.131	0.702	
16-May	0.038	0.107	0.104	0.191	Z	0.013	0.056	0.087	0.159	C	C	C	C	C	0.026	0.003	0.000	0.012	0.022	0.011	0.000	0.000	0.001	0.046	0.191	
17-May	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	0.156	0.025	0.000	0.000	0.008	0.156	
18-May	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	0.053	0.018	0.060	0.000	0.000	0.000	0.000	0.000	0.031	0.050	0.009	0.060	
19-May	0.000	Z	0.114	0.050	0.120	0.092	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.131	0.120	0.000	0.000	0.000	0.000	0.000	0.035	0.032	0.030	0.131	
20-May	0.002	0.024	Z	0.059	0.114	0.063	0.027	0.000	0.007	0.019	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.049	0.055	0.048	0.021	0.114	
21-May	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.051	0.142	0.111	0.008	0.120	0.159	0.034	0.182	
22-May	0.446	0.470	0.496	0.596	Z	0.296	0.127	0.079	0.000	0.031	M	0.000	0.019	0.006	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.117	0.596	
23-May	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.026	0.119	0.007	0.119	
24-May	Z	0.125	0.108	0.054	0.010	0.000	0.036	0.244	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.027	0.244	
25-May	0.000	Z	0.000	0.000	0.000	0.074	0.252	0.066	0.076	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.252	
26-May	0.000	0.000	Z	0.000	0.007	0.142	0.007	0.070	0.071	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.142	
27-May	0.000	0.000	0.000	Z	0.197	0.064	0.068	0.184	0.155	0.041	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.032	0.197	
28-May	0.423	0.414	0.300	0.291	Z	0.505	0.655	0.535	0.362	0.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.167	0.136	0.166	0.655	
29-May	0.140	0.385	0.449	0.299	0.103	Z	0.338	0.360	0.121	0.020	0.071	0.100	0.103	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.110	0.449	
30-May	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.007	0.005	0.011	0.006	0.001	0.028	0.050	0.012	0.036	0.100	0.043	0.012	0.000	0.014	0.100	
31-May	0.000	Z	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	0.014	0.015	0.006	0.012	0.000	0.032	0.002	0.000	0.004	0.032	
		0.094	0.116	0.120	0.139	0.140	0.162	0.141	0.094	0.061	0.023	0.020	0.004	0.007	0.010	0.014	0.010	0.006	0.009	0.029	0.032	0.048	0.050	0.044	0.057	Diurnal Average
		0.458	0.470	0.684	0.745	1.347	0.811	0.655	0.535	0.362	0.285	0.324	0.100	0.103	0.142	0.146	0.120	0.120	0.177	0.281	0.309	0.366	0.426	0.220	0.353	Diurnal Maximum
Z - zerospan		C - Calibration				M - Maintenance																				





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm  
Ells River - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 0.005	457	64.64	64.64
0.006 - 0.05	86	12.16	76.80
0.06 - 0.1	73	10.33	87.13
> 0.1	91	12.87	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 - May 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	75	61	21	14	16	23	48	38	15	19	30	13	14	26	31	8	452
0.006 - 0.05	11	17	7	5	1	2	3	2	6	0	2	2	3	5	12	7	85
0.06 - 0.1	16	12	12	4	2	3	2	5	3	1	0	0	2	3	5	2	72
> 0.1	6	12	5	4	1	2	3	5	7	2	3	4	8	9	9	9	89
<b>Totals</b>	108	102	45	27	20	30	56	50	31	22	35	19	27	43	57	26	698

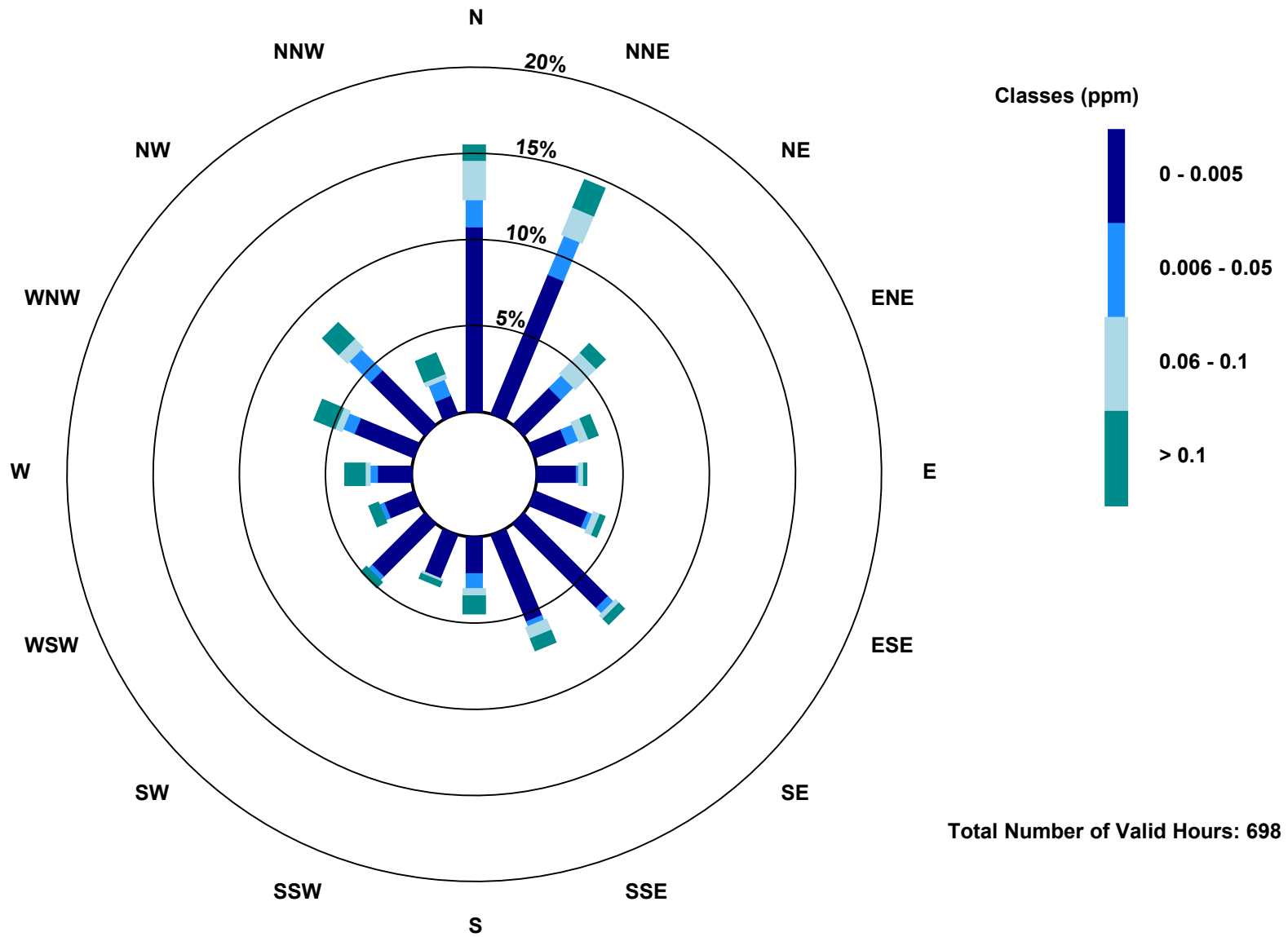
Total Number of Valid Hours: 698

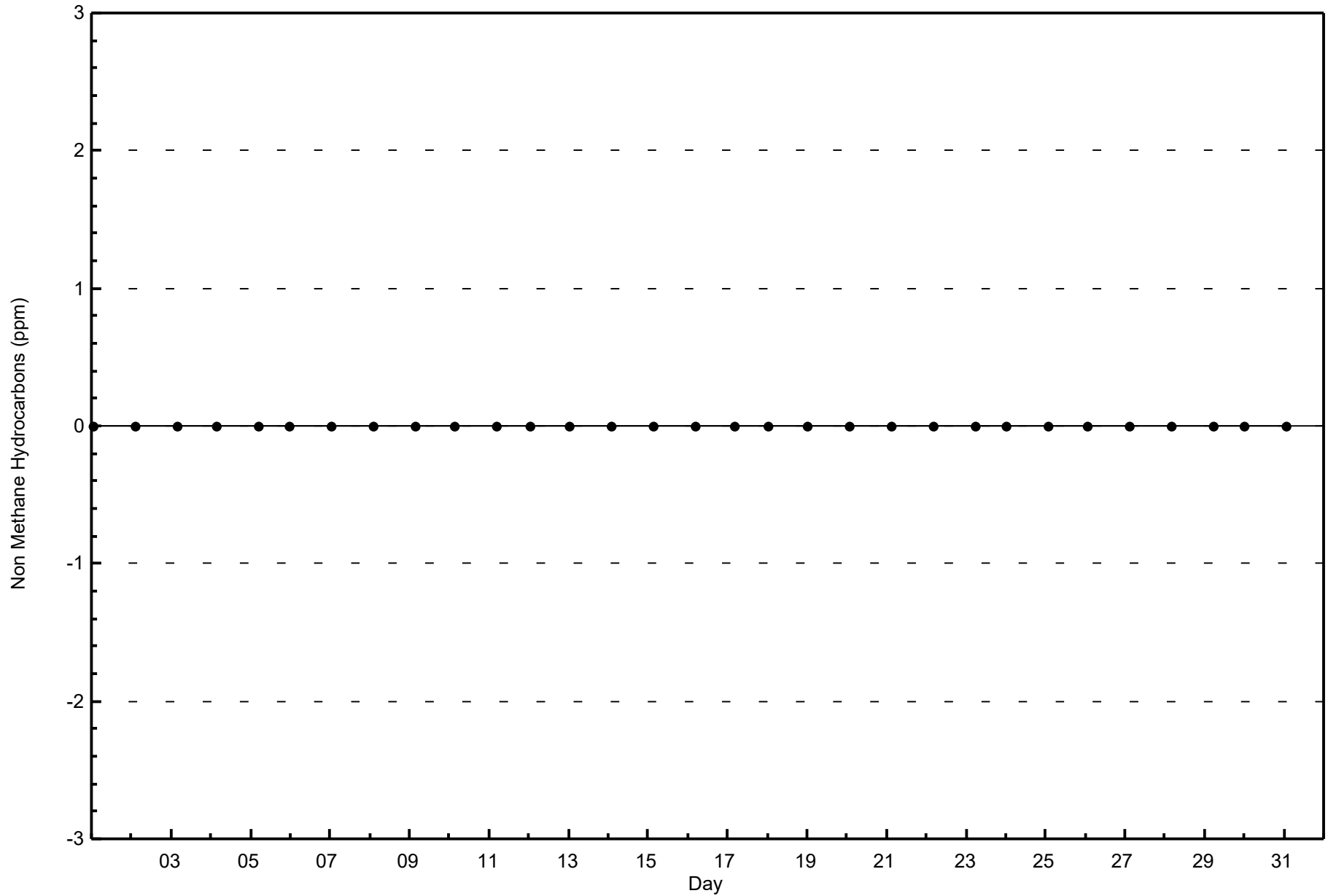
Total Number of Hours: 744

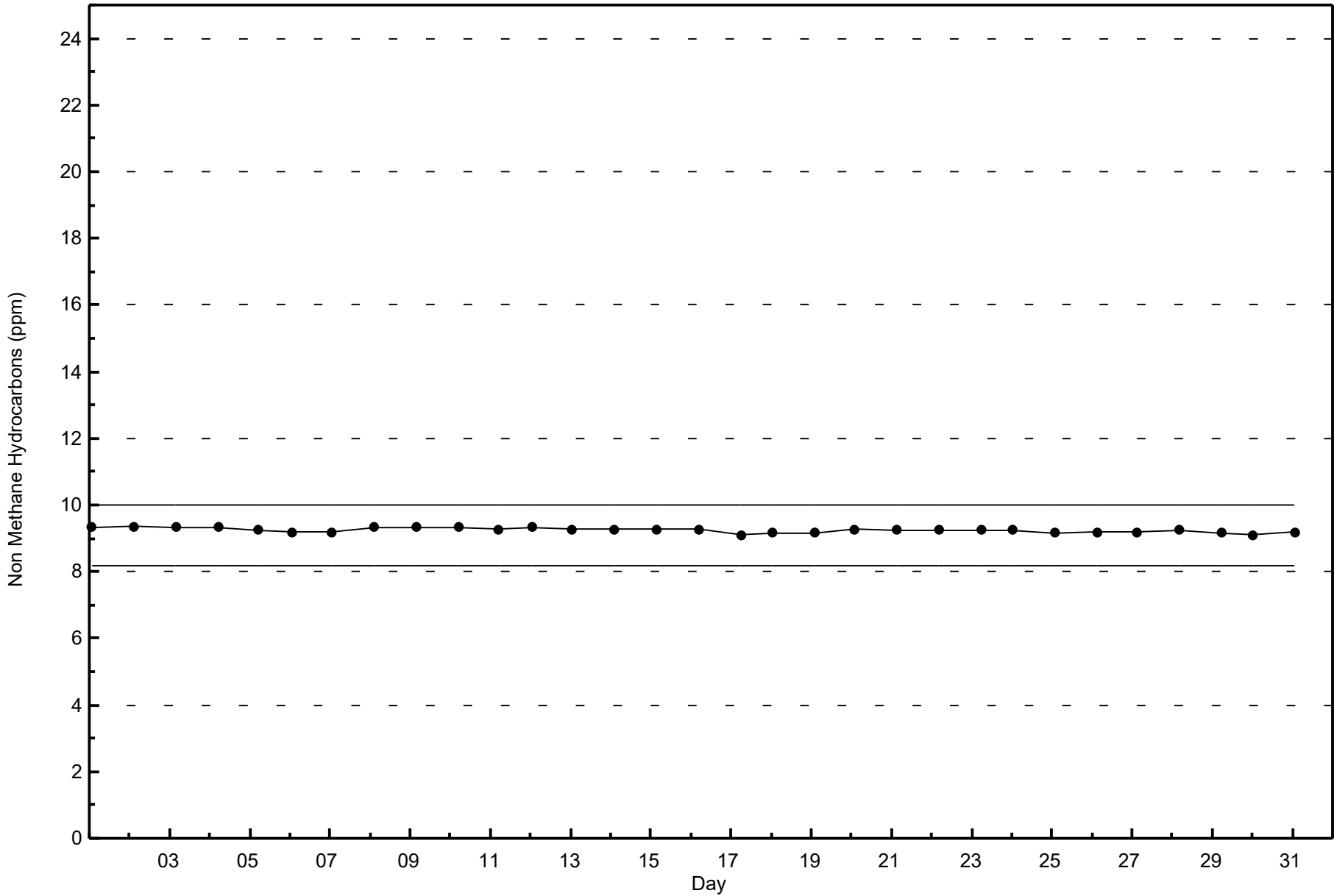


Wood Buffalo Environmental Association  
Wind Rose May 2024

Non Methane Hydrocarbons (NMHC) - ppm  
Ells River









Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH<sub>4</sub>) - ppm

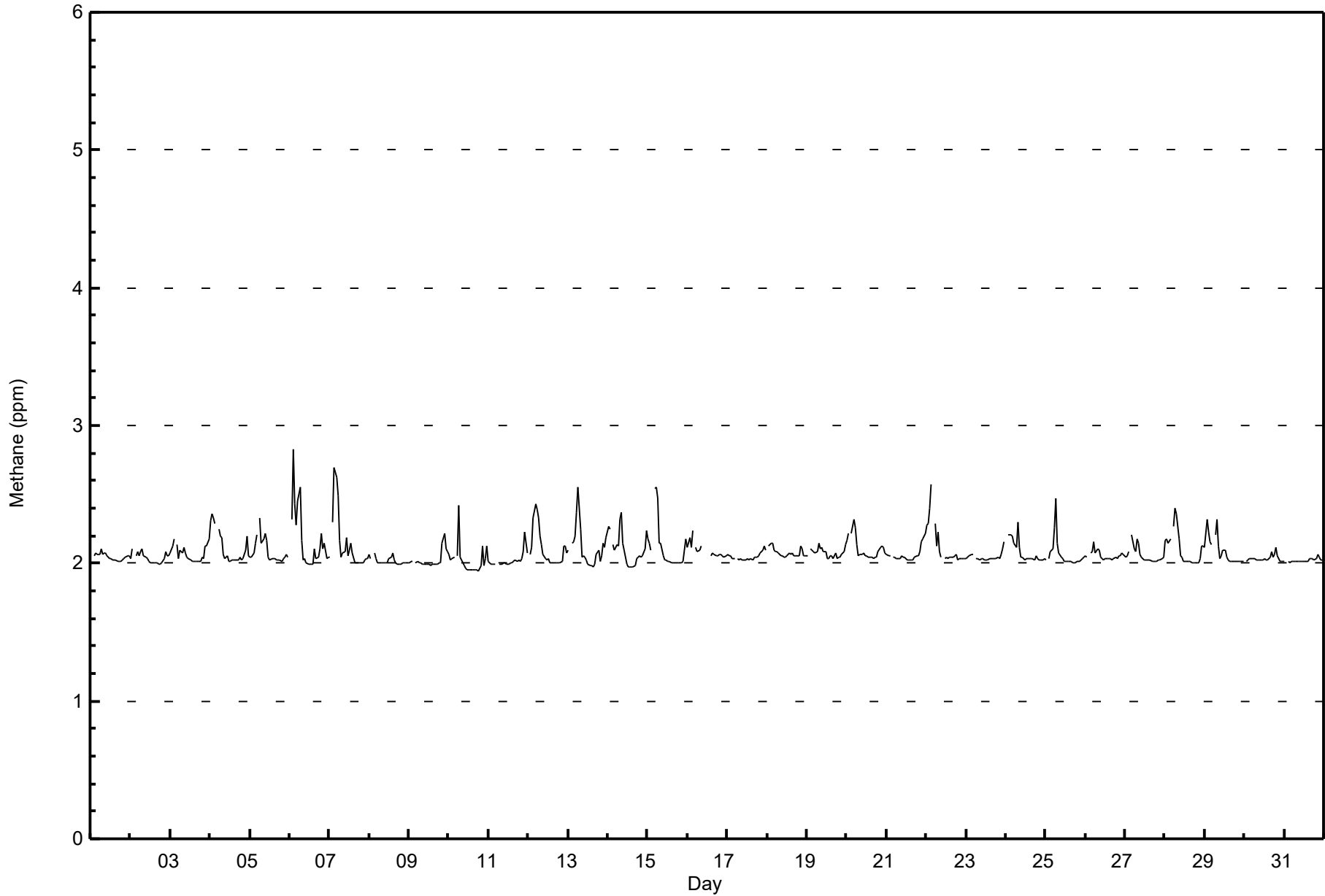
Ells River - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744							
Maximum Value: 2.8 ppm on May 6 03:00		Maximum Daily Average: 2.2 ppm on May 6		Hours of Data: 707														707									
Minimum Value: 1.9 ppm on May 10 19:00		Minimum Daily Average: 2.0 ppm on May 8		Hours of Missing Data: 37														37									
Maximum Diurnal Average: 2.2 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Calibration: 36														36									
Monthly Average: 2.07 ppm		Percentiles: P <sub>1</sub> = 2.0 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.0 Median = 2.0 Q <sub>3</sub> = 2.1 P <sub>90</sub> = 2.2 P <sub>99</sub> = 2.5		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-May	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	
2-May	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	
3-May	2.1	2.1	2.2	Z	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	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2	
4-May	2.3	2.4	2.3	Z	2.2	2.2	2.2	2.2	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.4	
5-May	2.0	2.0	2.1	2.1	2.2	Z	2.3	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.3	
6-May	Z	2.3	2.8	2.4	2.3	2.4	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.0	2.0	2.2	2.8		
7-May	2.0	Z	2.3	2.7	2.6	2.5	2.2	2.0	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.7	
8-May	2.1	2.0	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
9-May	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.1	2.0	2.2	
10-May	2.1	2.0	2.0	2.0	Z	2.0	2.4	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.1	2.0	2.0	2.1	2.0	2.4	
11-May	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.2	
12-May	Z	2.1	2.1	2.3	2.4	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.4
13-May	2.1	Z	2.2	2.2	2.2	2.4	2.6	2.2	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.2	2.1	2.6	
14-May	2.3	2.2	Z	2.1	2.1	2.1	2.1	2.3	2.4	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.2	2.1	2.4	
15-May	2.2	2.1	2.1	Z	2.5	2.6	2.5	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	2.2	2.1	2.6	
16-May	2.1	2.2	2.1	2.2	Z	2.1	2.1	2.1	2.1	C	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	
17-May	2.1	2.1	2.1	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	
18-May	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	2.1	2.1	
19-May	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	2.0	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	
20-May	2.2	2.2	Z	2.2	2.3	2.3	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	2.1	2.1	2.1	2.1	2.1	2.3	
21-May	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	
22-May	2.3	2.3	2.4	2.6	Z	2.3	2.1	2.2	2.1	2.0	M	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.6	
23-May	2.0	2.0	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.2		
24-May	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.3	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	2.0	2.0	2.0	2.1	2.3	
25-May	2.0	Z	2.0	2.1	2.1	2.3	2.5	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	
26-May	2.1	2.0	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
27-May	2.0	2.1	2.1	Z	2.2	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	2.2	
28-May	2.2	2.2	2.1	2.2	Z	2.3	2.4	2.4	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.4	
29-May	2.1	2.3	2.2	2.2	2.1	Z	2.2	2.3	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	
30-May	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	
31-May	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	2.0	2.0	2.0	2.1	
2.1																								Diurnal Average			
2.3																								Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Methane (CH<sub>4</sub>) - ppm**  
**Ells River - May 2024**

<b>Concentration Ranges (ppm)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 2.0	400	56.58	56.58
2.1 - 3.0	307	43.42	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  
Ells River - May 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	41	49	18	18	14	17	43	35	13	18	31	13	13	29	40	4	396
2.1 - 3.0	67	53	27	9	6	13	13	15	18	4	4	6	14	14	17	22	302
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>	108	102	45	27	20	30	56	50	31	22	35	19	27	43	57	26	698

Total Number of Valid Hours: 698

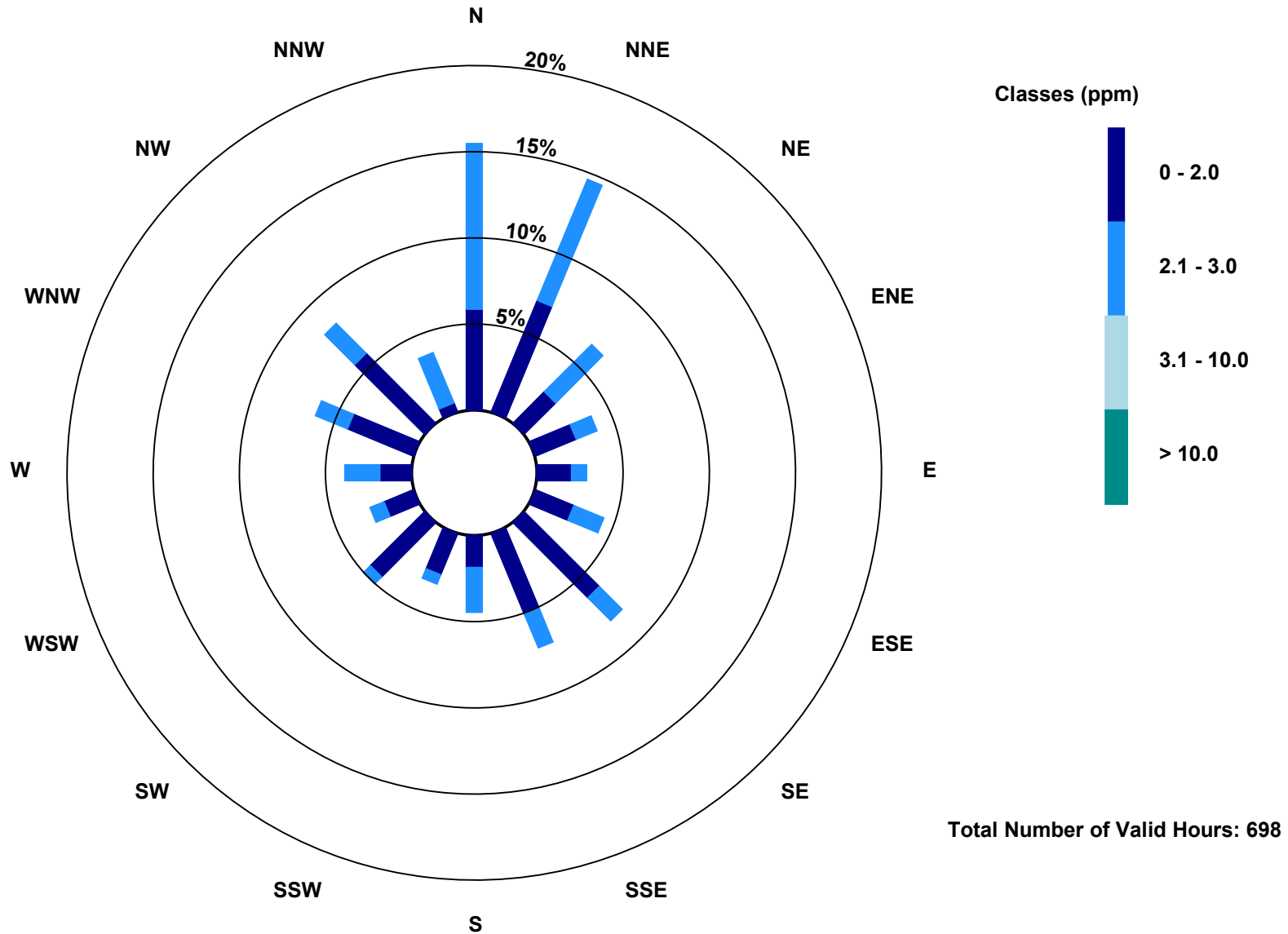
Total Number of Hours: 744

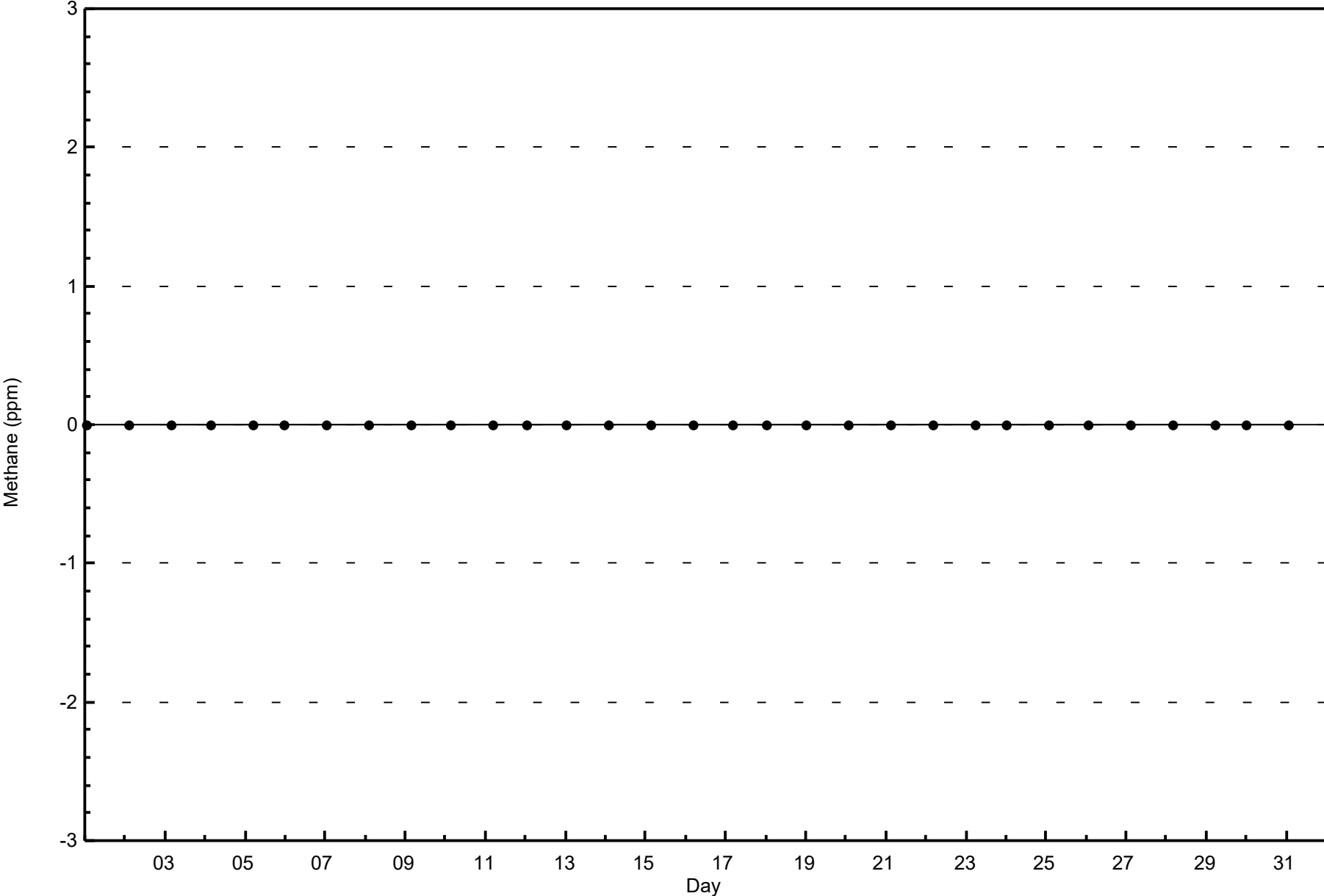




Wood Buffalo Environmental Association  
Wind Rose May 2024

Methane (CH<sub>4</sub>) - ppm  
Ells River

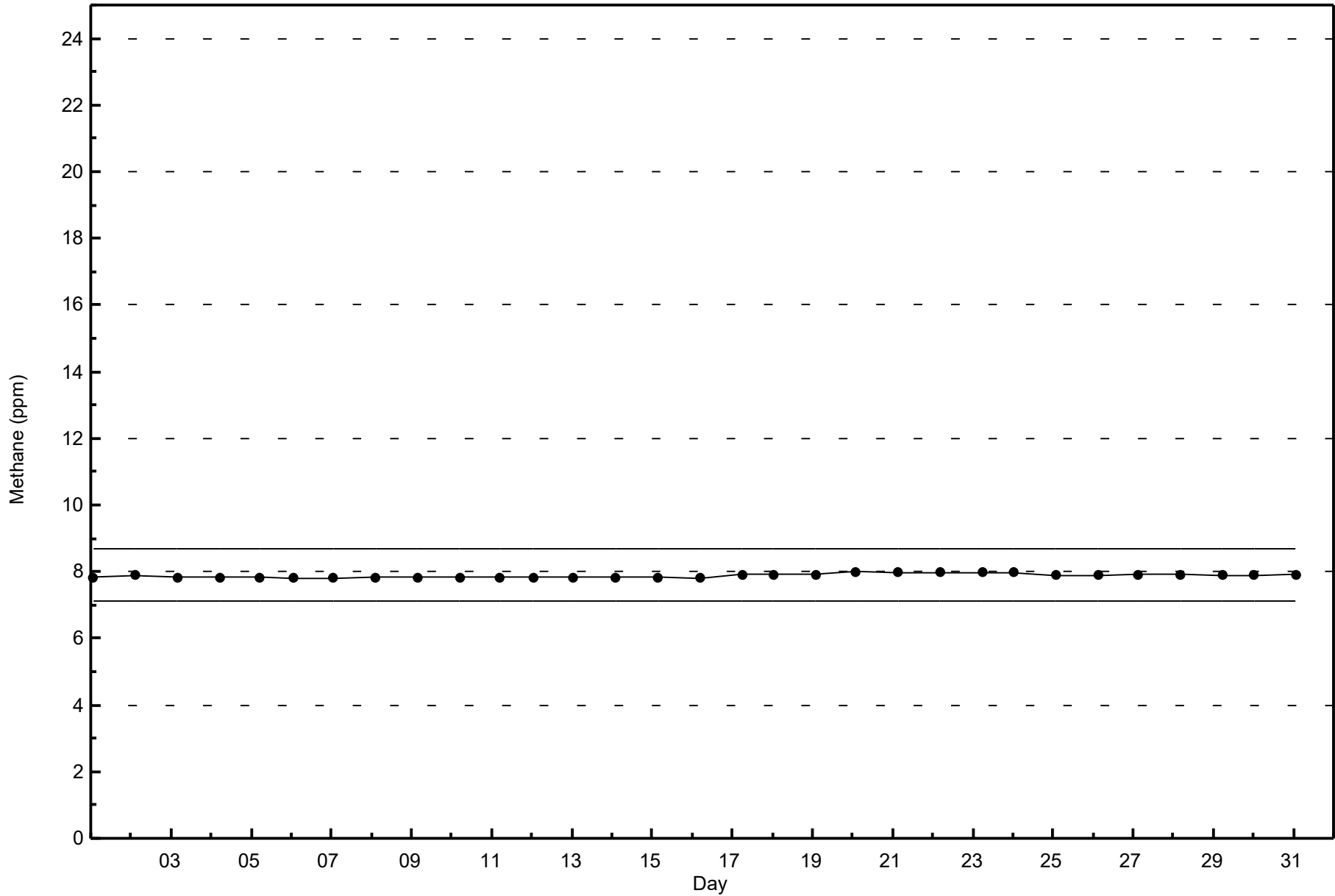






Wood Buffalo Environmental Association  
Span Responses

Methane (CH<sub>4</sub>) - ppm  
Ells River - May 2024





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

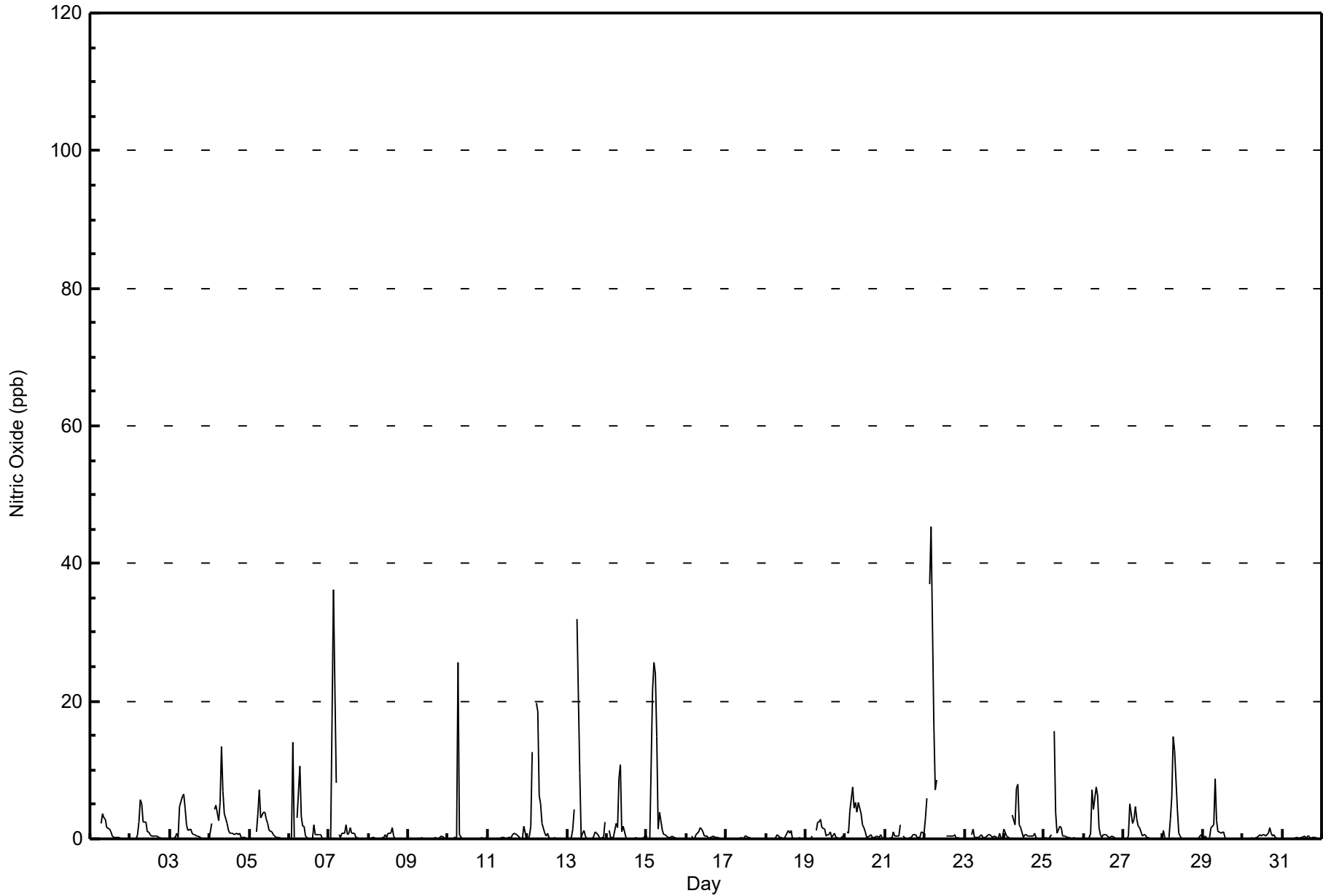
**Nitric Oxide (NO) - ppb**  
**Ells River - May 2024**

Maximum Value: 45.4 ppb on May 22 05:00		Maximum Daily Average: 7.0 ppb on May 22		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on May 1 01:00		Minimum Daily Average: 0.1 ppb on May 9		Hours of Data: 707																																													
Maximum Diurnal Average: 6.0 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 22		Hours of Missing Data: 37																																													
Monthly Average: 1.37 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> = 3.0 P <sub>99</sub> = 21.5		Hours of Calibration: 36																																													
				Percent Operational Time: 99.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-May	0.0	0.0	0.0	0.0	0.1	Z	2.2	3.7	3.2	2.9	1.6	1.5	1.0	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.7																							
2-May	Z	0.0	0.0	0.0	0.6	2.4	5.7	5.0	2.4	2.5	0.9	1.0	0.5	0.4	0.5	0.5	0.3	0.2	0.2	0.0	0.0	0.0	0.0	0.0	1.0	5.7																							
3-May	0.1	Z	0.1	0.3	0.7	0.2	4.8	6.0	6.4	4.5	2.1	1.1	1.5	0.8	0.6	0.5	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	1.3	6.4																							
4-May	1.0	2.3	Z	4.2	4.9	2.7	5.2	13.4	7.0	3.7	2.3	1.2	0.9	0.8	0.8	0.6	0.8	0.7	0.7	0.2	0.1	0.2	0.1	0.0	2.3	13.4																							
5-May	0.0	0.0	0.0	Z	0.9	3.7	7.2	3.0	3.8	3.8	2.9	2.3	1.3	1.1	0.7	0.5	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	1.4	7.2																							
6-May	0.0	0.1	14.0	0.2	Z	3.0	10.5	3.2	1.8	1.9	0.5	0.0	0.1	0.1	0.0	2.0	0.7	0.6	0.6	0.7	0.1	0.0	0.0	0.0	1.7	14.0																							
7-May	0.0	0.0	17.6	36.2	8.1	Z	0.5	0.3	0.9	0.8	2.0	0.6	0.8	1.6	0.8	0.8	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.1	36.2																							
8-May	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.6	0.2	0.8	0.9	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6																							
9-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.0	0.1	0.3																							
10-May	0.0	0.1	Z	0.2	0.2	0.2	25.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	1.2	25.5																							
11-May	0.1	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.7	0.6	0.4	0.2	0.0	0.1	1.9	0.1	0.3	1.9																							
12-May	0.0	0.4	1.8	12.6	Z	19.8	18.5	6.3	5.0	2.2	0.9	0.4	0.8	0.2	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	3.0	19.8																							
13-May	0.0	0.1	0.2	1.4	4.3	Z	31.9	9.6	0.3	0.9	1.3	0.3	0.1	0.0	0.0	0.0	0.3	1.0	0.6	0.2	0.1	0.1	0.1	2.4	2.4	31.9																							
14-May	Z	1.1	0.2	0.1	0.1	2.3	1.7	8.8	10.7	1.1	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.5	1.3	10.7																							
15-May	0.1	Z	0.1	21.6	25.6	24.1	14.8	1.4	3.9	1.2	0.6	0.6	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	4.2	25.6																							
16-May	0.0	0.1	Z	0.4	0.1	0.1	0.6	1.0	1.7	1.3	0.9	0.5	0.4	0.1	0.1	0.1	0.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.4	1.7																							
17-May	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.4	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.5																							
18-May	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.5	0.3	0.3	0.0	0.0	0.4	1.2	0.8	1.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	1.2																							
19-May	0.0	0.0	0.0	0.0	0.5	Z	1.2	2.4	2.4	2.8	1.6	1.3	0.4	0.7	0.6	1.0	0.2	0.7	0.3	0.3	0.0	0.0	0.4	0.4	0.8	2.8																							
20-May	Z	1.1	0.8	4.2	7.5	4.5	5.3	3.9	5.4	3.6	2.1	1.5	1.0	0.3	0.4	0.7	0.1	0.2	0.2	0.5	0.2	0.6	0.1	0.0	1.9	7.5																							
21-May	0.0	Z	0.0	0.2	0.0	1.1	0.4	0.5	0.4	1.9	M	0.3	0.0	0.1	0.1	0.2	0.2	0.5	0.5	0.3	0.2	0.2	1.1	0.8	0.4	1.9																							
22-May	3.1	5.8	Z	37.0	45.4	16.4	7.1	8.6	C	C	C	C	C	0.5	0.5	0.4	0.3	0.3	0.7	0.0	0.3	0.0	0.0	0.0	7.0	45.4																							
23-May	0.0	0.1	0.1	Z	0.6	1.4	0.2	0.2	0.2	0.3	0.5	0.3	0.3	0.2	0.7	0.6	0.4	0.3	0.5	0.3	0.0	0.8	0.0	0.2	0.4	1.4																							
24-May	1.5	0.5	0.3	0.3	Z	3.4	2.0	7.4	8.0	2.0	1.7	0.3	0.5	0.6	0.5	0.5	0.5	0.3	0.8	0.3	0.0	0.0	0.0	0.1	1.4	8.0																							
25-May	0.0	0.2	0.0	0.1	0.6	Z	15.7	3.9	0.8	1.9	1.7	0.4	0.3	0.3	0.3	0.5	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.1	1.2	15.7																							
26-May	Z	0.1	0.1	0.1	0.8	7.1	4.3	7.5	6.3	1.6	0.5	0.3	0.6	0.5	0.4	0.2	0.3	0.5	0.2	0.1	0.0	0.0	0.0	0.0	1.4	7.5																							
27-May	0.0	Z	0.0	0.5	5.1	2.2	2.9	4.7	2.9	1.8	1.6	0.5	0.5	0.6	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.1																							
28-May	1.3	0.2	Z	0.2	2.9	6.2	14.9	12.9	4.4	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	2.0	14.9																							
29-May	0.0	0.5	0.1	Z	0.1	1.6	2.0	8.8	2.6	1.0	1.0	0.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	8.8																							
30-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.2	0.6	0.5	0.7	0.5	0.3	0.8	1.6	0.7	0.5	0.6	0.3	0.0	0.0	0.0	0.3	1.6																							
31-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.0	0.3	0.2	0.4	0.1	0.5	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.5	0.5																						
																								0.3	0.5	1.4	4.6	4.2	4.1	6.0	4.0	2.7	1.5	1.0	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.2	Diurnal Average	
																								3.1	5.8	17.6	37.0	45.4	24.1	31.9	13.4	10.7	4.5	2.9	2.3	1.5	1.6	1.6	2.0	1.6	1.0	0.8	0.7	0.3	0.8	1.9	2.4	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Ells River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Ells River - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	699	98.87	98.87
21 - 40	7	0.99	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**  
**Ells River - May 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	110	108	39	25	20	32	55	51	27	22	34	17	26	42	56	24	688
21 - 40	0	1	1	0	0	0	0	0	2	0	0	0	0	2	0	1	7
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	110	109	40	25	20	32	55	51	29	22	34	17	26	44	57	25	696

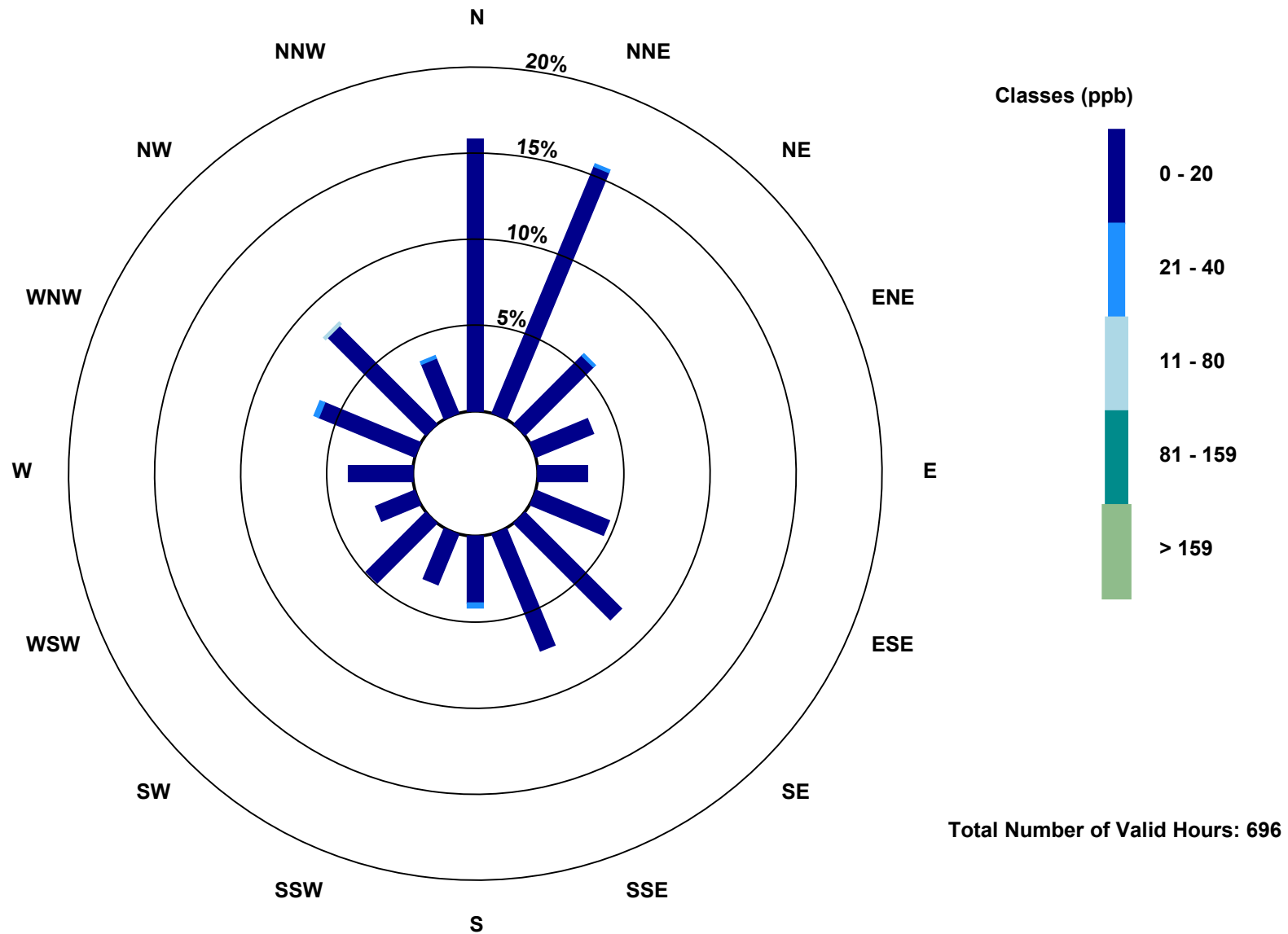
Total Number of Valid Hours: 696

Total Number of Hours: 744

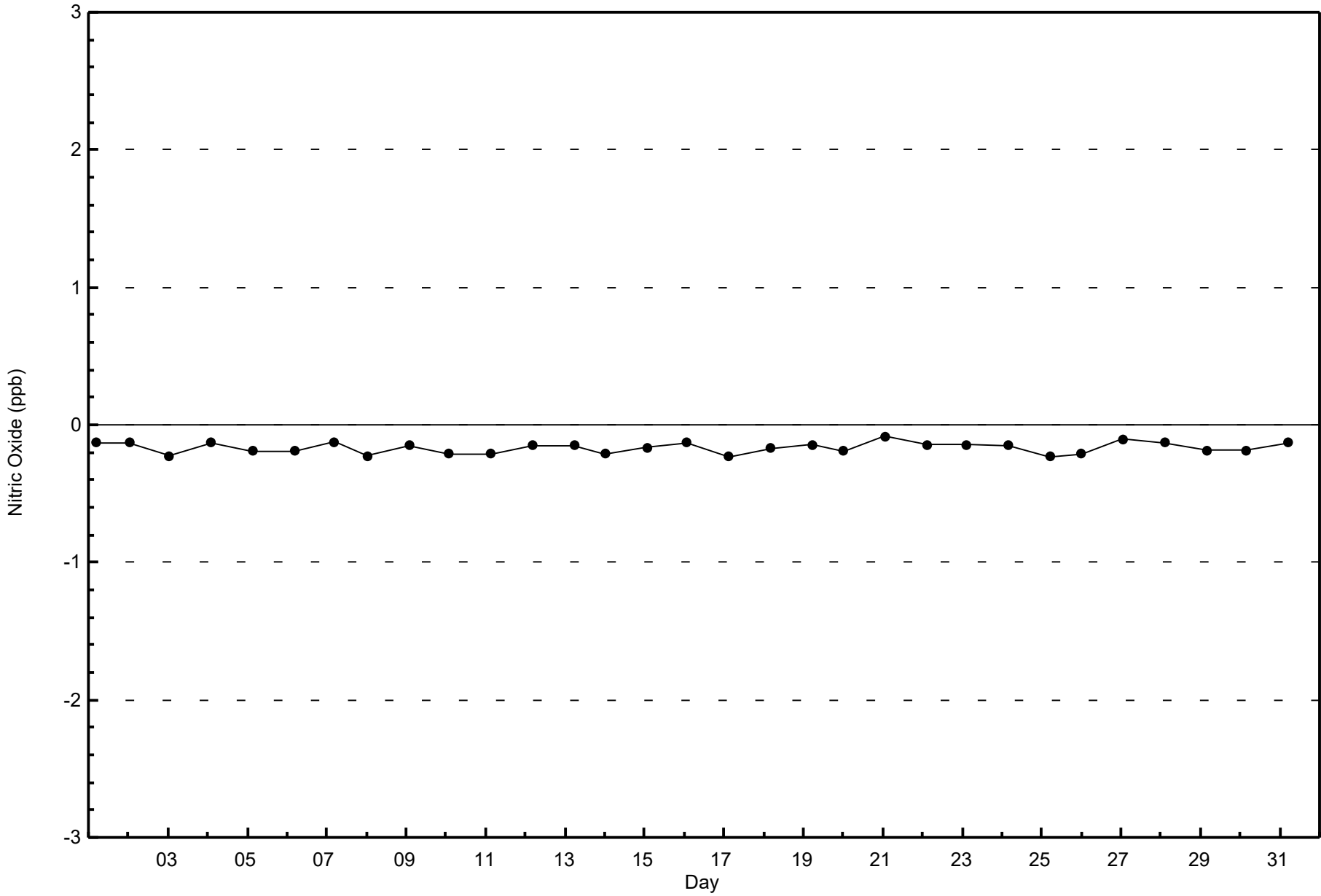


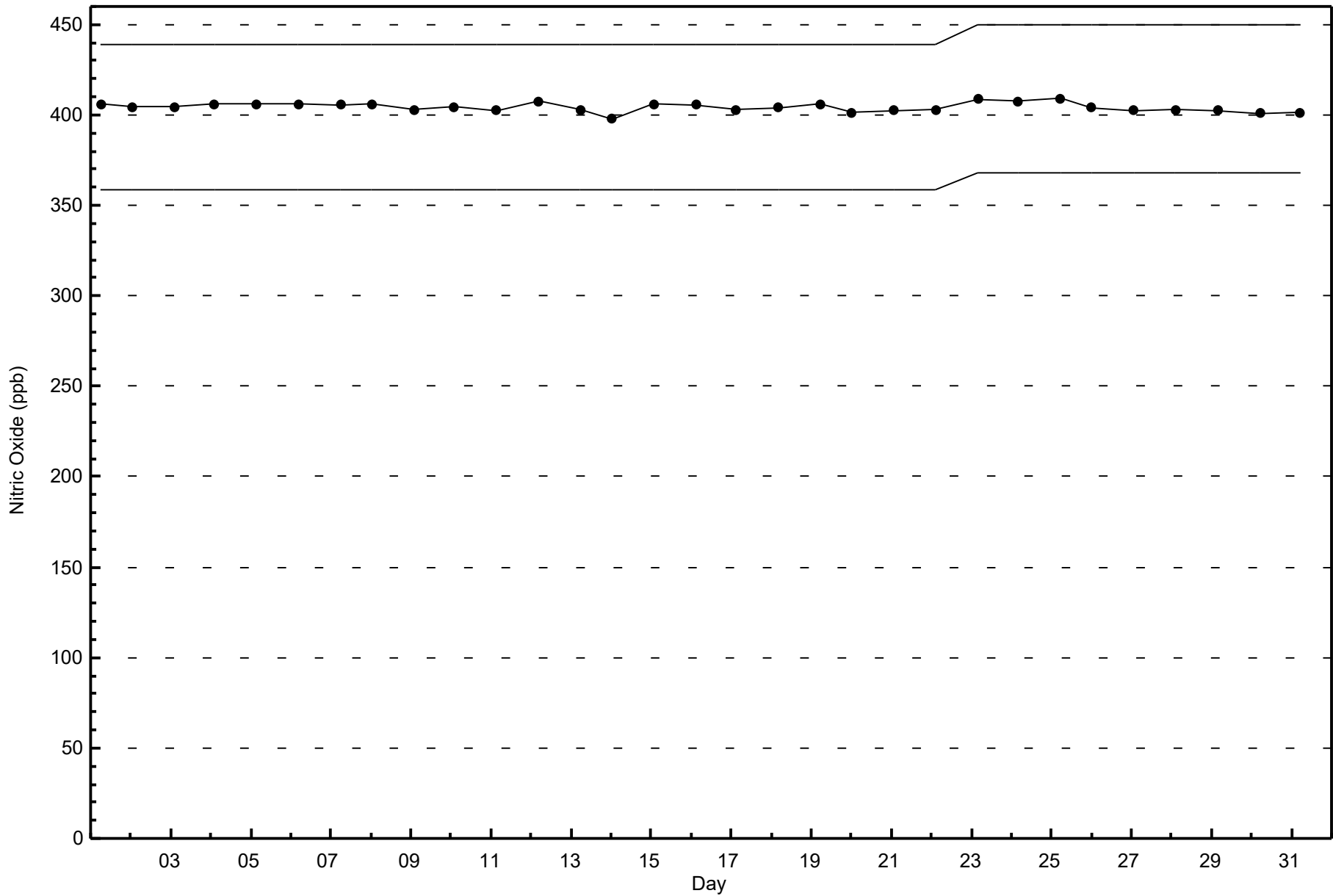
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Ells River











# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Nitrogen Dioxide (NO<sub>2</sub>) - ppb

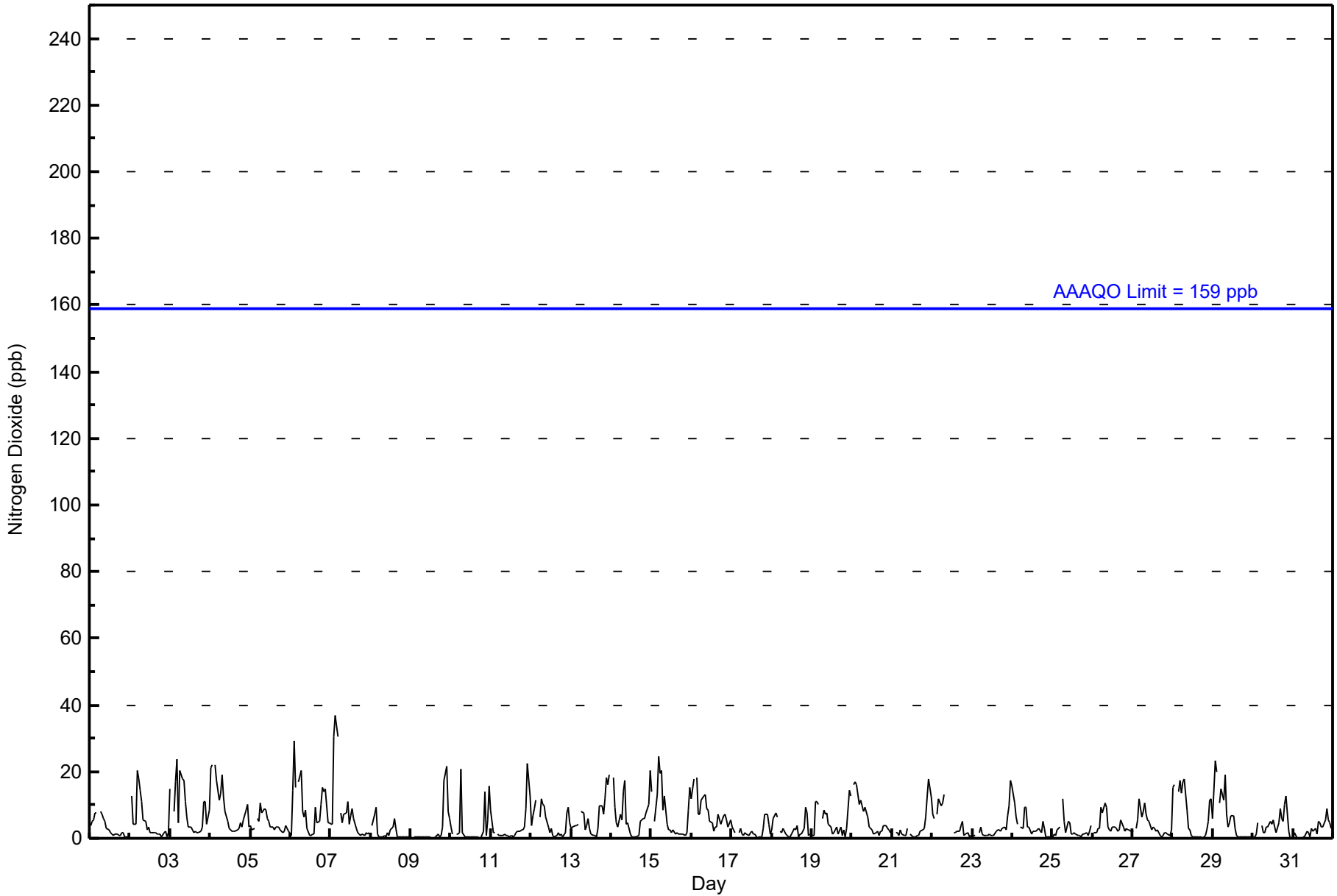
## Ells River - May 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																				
Maximum Value: 36.7 ppb on May 7 04:00		Maximum Daily Average: 9.1 ppb on May 6		Hours of Data: 707																						
Minimum Value: 0.2 ppb on May 9 13:00		Minimum Daily Average: 1.9 ppb on May 8		Hours of Missing Data: 37																						
Maximum Diurnal Average: 9.3 ppb at hour 4		Minimum Diurnal Average: 1.8 ppb at hour 15		Hours of Calibration: 36																						
Monthly Average: 4.94 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.4 Q <sub>1</sub> = 1.2 Median = 2.9 Q <sub>3</sub> = 7.0 P <sub>90</sub> = 12.6 P <sub>99</sub> = 22.3		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-May	3.8	5.2	5.3	7.7	7.8	Z	8.1	7.0	5.8	4.9	2.9	2.7	1.9	1.2	0.9	1.2	1.1	1.0	1.0	1.8	1.8	0.3	0.3	0.4	3.2	8.1
2-May	Z	12.6	4.2	4.3	20.2	17.9	14.6	11.0	5.4	5.2	2.6	3.3	1.8	1.7	1.7	1.3	1.3	1.4	0.6	1.8	2.0	0.5	1.6	5.2	20.2	
3-May	14.8	Z	8.1	17.1	23.7	4.7	20.2	18.0	17.5	11.0	6.5	3.4	3.5	2.5	1.8	2.0	1.8	1.8	2.1	3.2	11.2	11.2	4.2	8.4	8.6	23.7
4-May	21.0	21.9	Z	21.9	17.4	11.3	13.5	19.2	12.2	8.1	5.1	2.8	2.4	2.2	2.3	2.1	2.7	2.8	4.5	3.2	5.6	8.3	10.1	3.3	8.9	21.9
5-May	3.7	2.6	2.9	Z	5.8	5.0	10.8	7.8	8.7	8.3	5.8	4.9	3.5	3.3	2.6	3.4	3.3	3.4	2.5	1.7	2.3	3.9	2.9	2.0	4.4	10.8
6-May	1.0	14.4	29.1	15.3	Z	16.9	20.2	8.0	6.2	8.3	2.8	0.9	1.0	1.3	1.2	9.5	4.8	5.0	10.1	15.2	13.9	14.8	4.7	4.7	9.1	29.1
7-May	4.3	4.2	30.5	36.7	30.3	Z	7.5	4.5	7.4	7.6	11.2	4.3	6.9	8.9	5.8	2.9	1.7	1.4	0.9	1.1	1.0	1.5	1.2	1.9	8.0	36.7
8-May	Z	3.7	7.0	9.4	1.2	0.3	0.3	0.3	0.9	0.6	1.8	1.0	2.7	3.5	6.0	3.1	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.9	9.4
9-May	0.3	Z	0.4	0.4	0.3	0.3	0.3	0.4	0.6	0.3	0.3	0.3	0.2	0.2	0.2	0.6	1.2	0.5	0.9	3.4	17.4	21.8	8.0	6.1	2.8	21.8
10-May	3.5	1.4	Z	1.1	1.2	1.5	20.8	1.9	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	2.2	13.8	0.9	5.6	15.5	3.2	20.8
11-May	8.4	1.9	1.5	Z	1.3	1.0	0.8	0.7	1.1	1.0	0.8	0.5	0.7	0.6	1.0	1.5	2.1	2.2	2.4	2.6	3.5	8.9	22.3	12.9	3.5	22.3
12-May	4.0	6.8	9.1	11.5	Z	6.3	11.9	10.2	9.8	6.3	3.3	1.7	3.1	1.0	0.6	0.8	1.5	0.9	1.2	0.6	1.6	7.6	9.2	4.6	4.9	11.9
13-May	3.1	3.5	3.8	3.9	4.2	Z	8.1	7.6	2.5	3.9	5.9	2.9	1.3	0.8	0.7	0.5	3.1	9.6	9.7	7.1	11.8	18.3	16.2	19.1	6.4	19.1
14-May	Z	18.3	9.2	4.6	3.5	7.0	5.5	14.1	17.3	4.3	4.6	1.3	0.4	0.3	0.3	0.7	5.2	5.4	6.1	5.8	7.6	10.3	20.3	6.6	20.3	
15-May	13.9	Z	5.2	13.2	24.4	19.6	20.5	8.3	12.8	4.4	2.6	2.7	1.9	2.6	1.4	1.8	1.2	1.1	1.1	1.2	0.7	1.5	8.3	15.2	7.2	24.4
16-May	11.8	17.8	Z	18.3	7.1	7.3	11.3	12.8	13.1	8.9	8.6	4.9	4.5	2.2	3.2	3.2	7.0	4.1	5.4	6.9	7.3	5.3	3.2	5.4	7.8	18.3
17-May	3.6	2.5	1.8	Z	1.5	2.8	1.3	1.0	1.8	1.3	0.7	1.8	2.0	1.3	1.2	0.2	0.3	0.4	0.3	3.0	7.1	7.3	4.2	1.2	2.1	7.3
18-May	2.7	6.1	7.8	6.5	Z	2.0	1.8	2.9	1.4	0.9	0.3	0.3	1.2	3.0	2.6	4.0	0.6	1.4	1.2	3.1	9.4	7.5	1.0	1.3	3.0	9.4
19-May	1.0	0.9	11.2	11.2	10.3	Z	5.8	8.5	7.2	7.7	4.3	3.4	1.2	1.7	2.6	3.2	1.3	3.2	1.0	2.6	0.5	2.9	14.3	12.6	5.2	14.3
20-May	Z	16.0	16.8	16.2	10.0	11.4	9.7	8.0	9.3	6.2	3.4	2.8	2.4	1.1	1.5	2.0	0.8	2.2	2.0	3.7	3.8	3.0	2.6	1.7	5.9	16.8
21-May	2.2	Z	1.7	1.9	1.0	2.5	1.1	0.9	0.9	3.0	M	1.3	0.5	0.4	0.5	1.0	0.7	2.0	2.6	3.1	6.4	12.4	17.6	12.1	3.4	17.6
22-May	7.2	6.1	Z	7.1	11.8	9.7	10.6	13.1	C	C	C	C	C	1.8	1.9	2.0	2.2	3.8	5.0	0.7	1.4	1.6	0.6	0.7	4.9	13.1
23-May	0.5	0.8	0.7	Z	1.5	3.6	1.3	0.9	0.7	0.8	1.2	0.8	0.8	0.7	2.1	2.7	2.2	2.7	2.2	2.9	3.2	2.5	6.8	9.8	2.9	17.3
24-May	15.8	10.4	6.2	4.3	Z	3.2	3.1	9.3	9.3	3.4	3.3	1.1	2.0	2.1	2.4	2.8	1.9	5.1	2.9	0.5	0.5	0.4	0.4	0.4	4.0	15.8
25-May	0.5	1.2	0.8	2.7	3.4	Z	11.8	5.1	1.9	4.9	4.5	1.4	1.4	1.6	1.2	1.0	0.7	0.6	1.4	1.2	1.6	1.0	2.0	3.9	2.4	11.8
26-May	Z	1.9	1.8	3.1	3.1	9.3	7.7	10.4	9.4	3.5	2.4	2.0	3.3	3.2	2.9	2.0	2.6	5.4	3.4	2.3	3.0	2.5	2.7	2.3	3.9	10.4
27-May	2.1	Z	2.8	5.4	11.7	6.3	8.1	10.8	7.0	5.4	5.0	2.6	3.3	3.0	2.3	2.5	0.7	0.5	1.0	1.5	1.7	1.2	1.0	2.4	3.8	11.7
28-May	15.3	16.2	Z	13.8	17.4	13.4	16.9	17.7	8.6	3.1	2.5	0.9	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.7	2.6	5.1	11.3	11.7	6.9	17.7
29-May	5.8	23.5	20.1	Z	10.5	14.9	11.5	19.0	7.2	3.2	4.6	6.7	6.6	3.0	0.9	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	6.1	23.5
30-May	0.3	0.3	1.2	4.5	Z	3.7	1.9	1.9	3.4	3.4	5.1	4.4	5.4	3.4	1.6	4.7	8.9	6.0	5.0	10.2	12.5	2.1	0.2	0.2	3.9	12.5
31-May	0.2	1.6	0.2	0.2	0.2	Z	0.4	0.4	2.0	1.6	0.3	3.0	2.2	2.9	1.2	5.2	4.8	3.4	3.4	5.7	8.7	5.7	4.6	2.9	2.6	8.7
5.8 7.8 7.3 9.3 8.9 7.3 8.6 7.8 6.4 4.4 3.5 2.3 2.3 2.0 1.8 2.2 2.1 2.4 2.7 3.3 5.2 5.6 5.8 6.2																								Diurnal Average		
21.0 23.5 30.5 36.7 30.3 19.6 20.8 19.2 17.5 11.0 11.2 6.7 6.9 8.9 6.0 9.5 8.9 9.6 10.1 15.2 17.4 21.8 22.3 20.3																								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  
Ells River - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb**  
**Ells River - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	694	98.16	98.16
21 - 40	13	1.84	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 - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	108	107	37	25	20	32	55	51	27	22	34	17	23	44	56	25	683
21 - 40	2	2	3	0	0	0	0	0	2	0	0	0	3	0	1	0	13
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	110	109	40	25	20	32	55	51	29	22	34	17	26	44	57	25	696

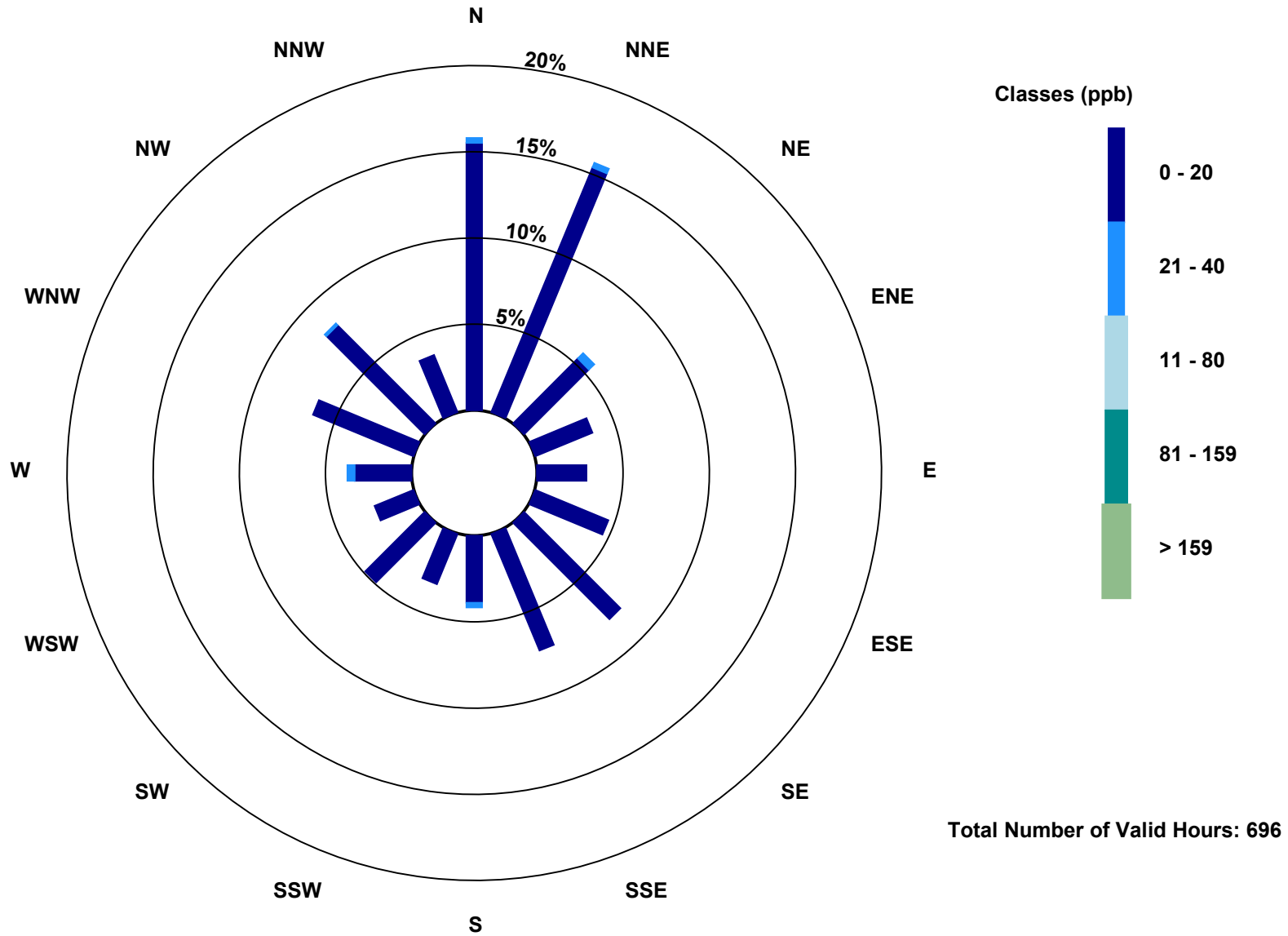
Total Number of Valid Hours: 696

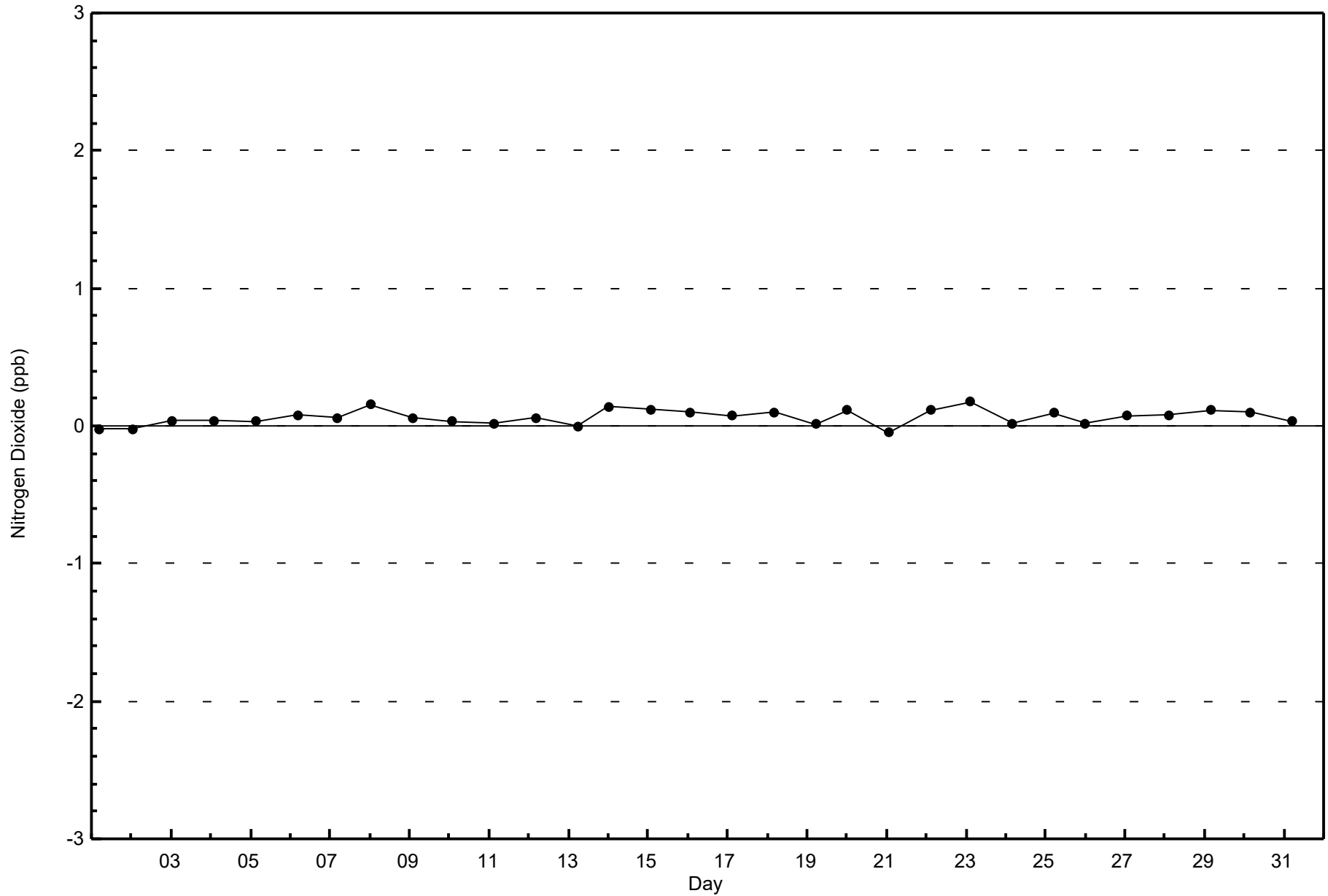
Total Number of Hours: 744



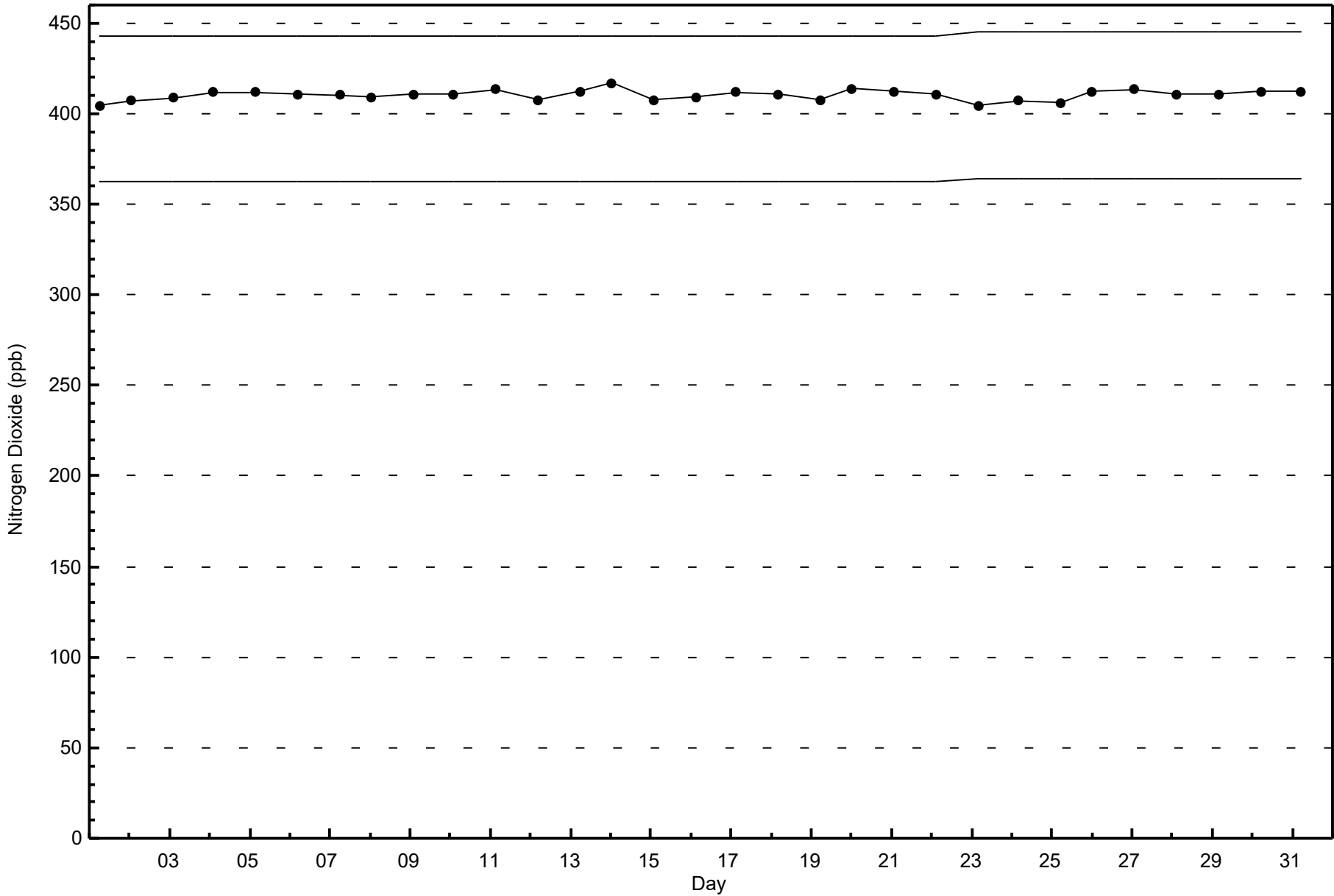
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Ells River







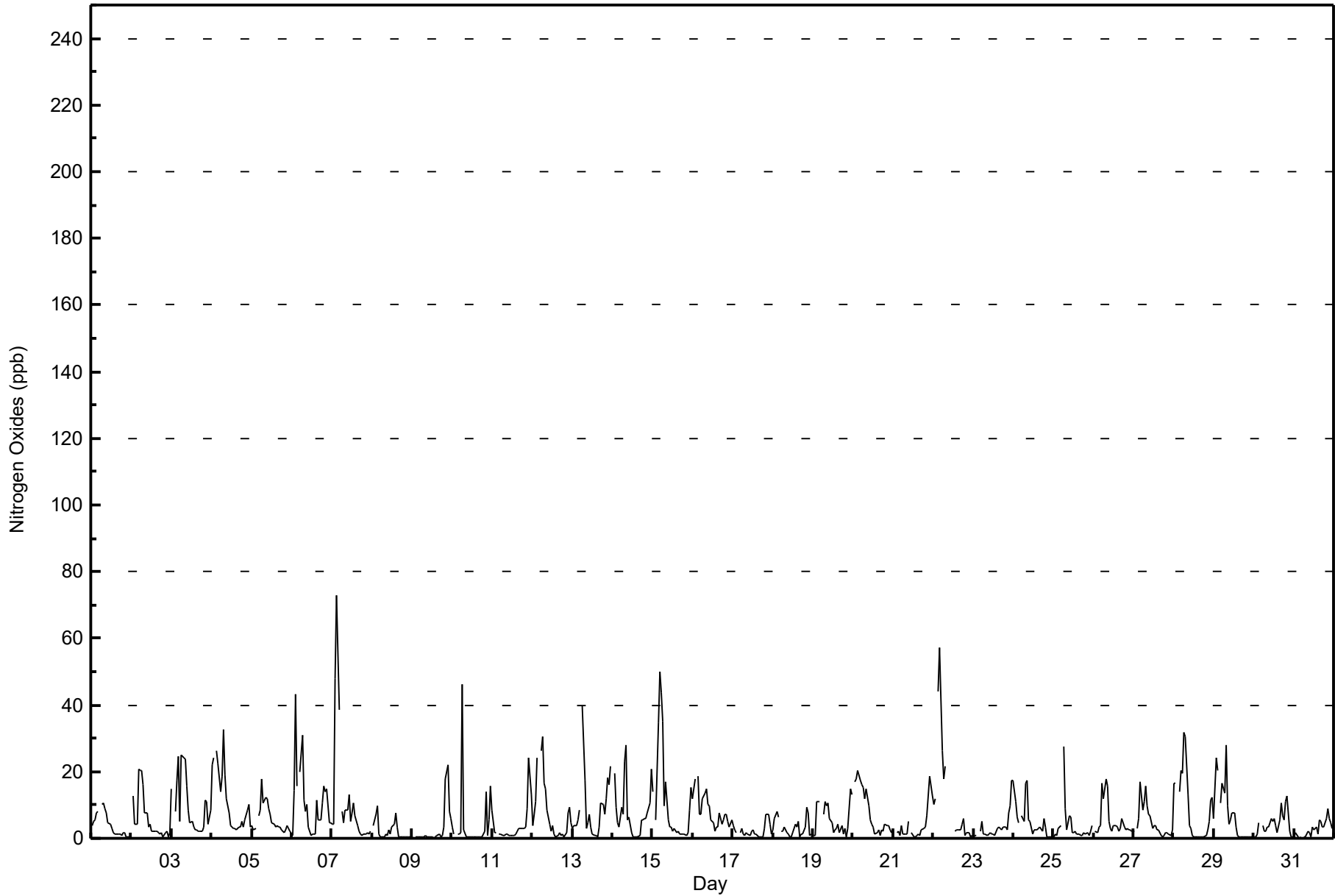






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Ells River - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	668	94.48	94.48
21 - 40	31	4.38	98.87
41 - 80	8	1.13	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**  
**Ells River - May 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	105	104	36	25	20	32	55	51	23	22	34	16	21	40	53	21	658
21 - 40	5	3	3	0	0	0	0	0	4	0	0	1	5	3	2	4	30
11 - 80	0	2	1	0	0	0	0	0	2	0	0	0	0	1	2	0	8
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>	110	109	40	25	20	32	55	51	29	22	34	17	26	44	57	25	696

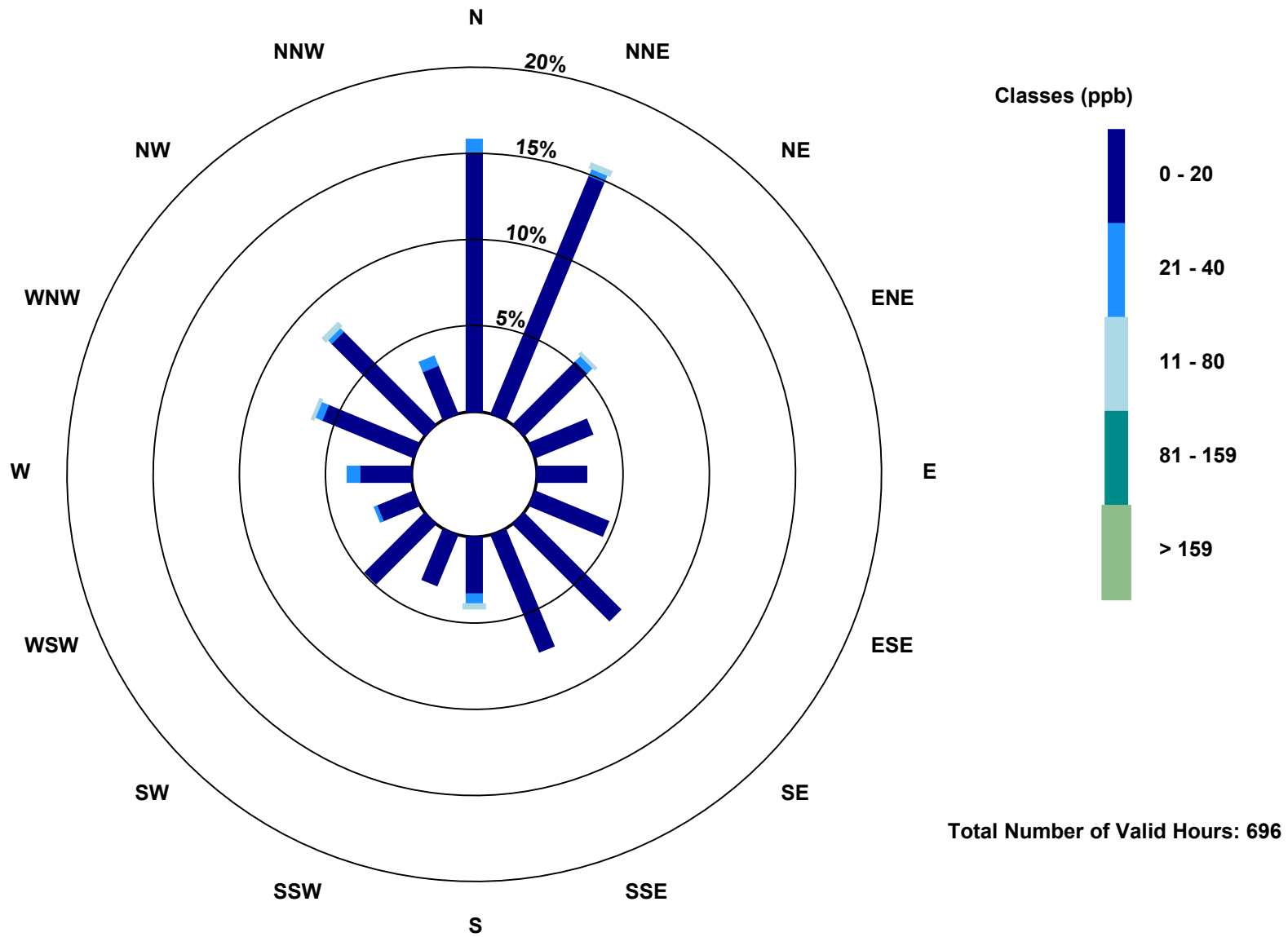
Total Number of Valid Hours: 696

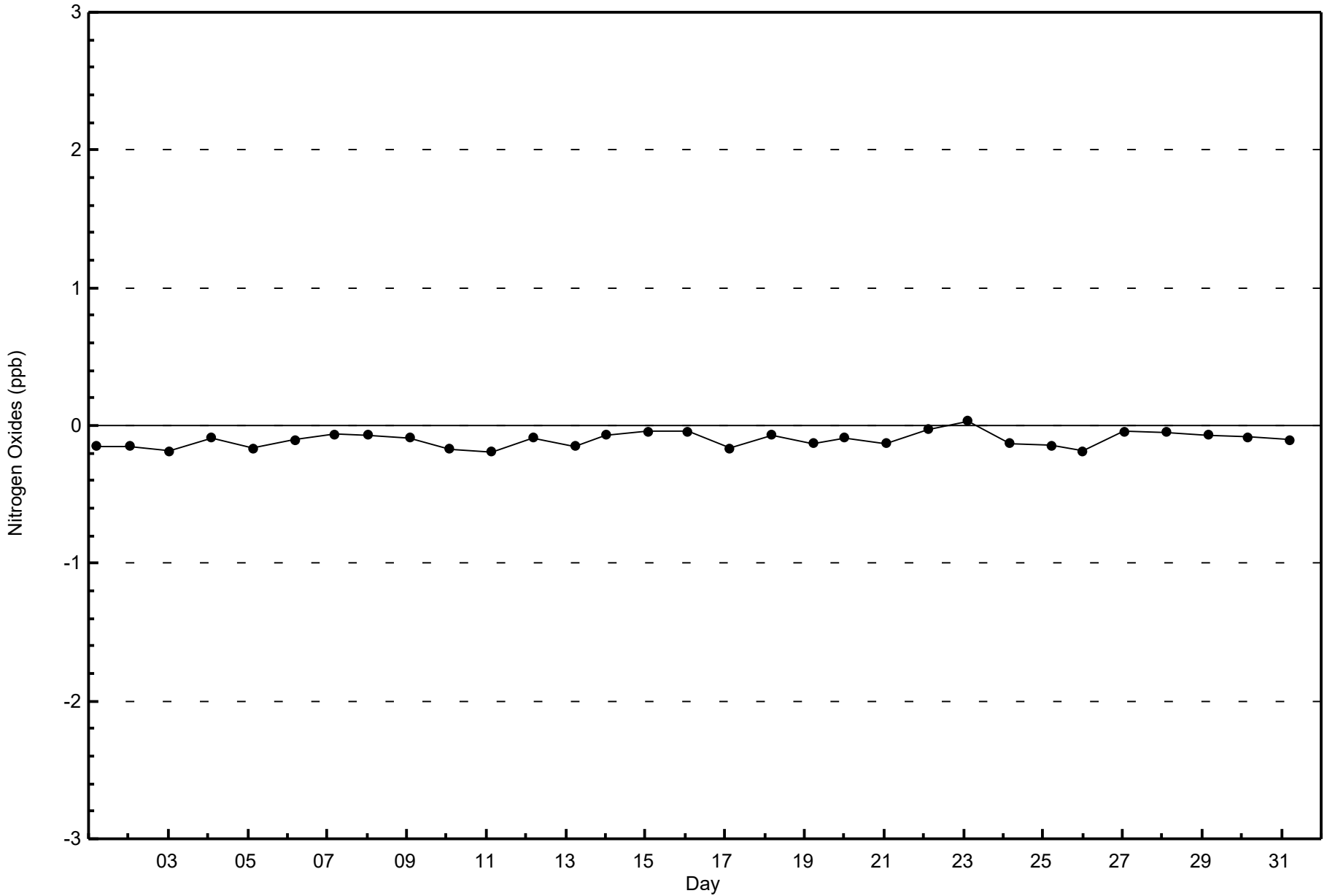
Total Number of Hours: 744

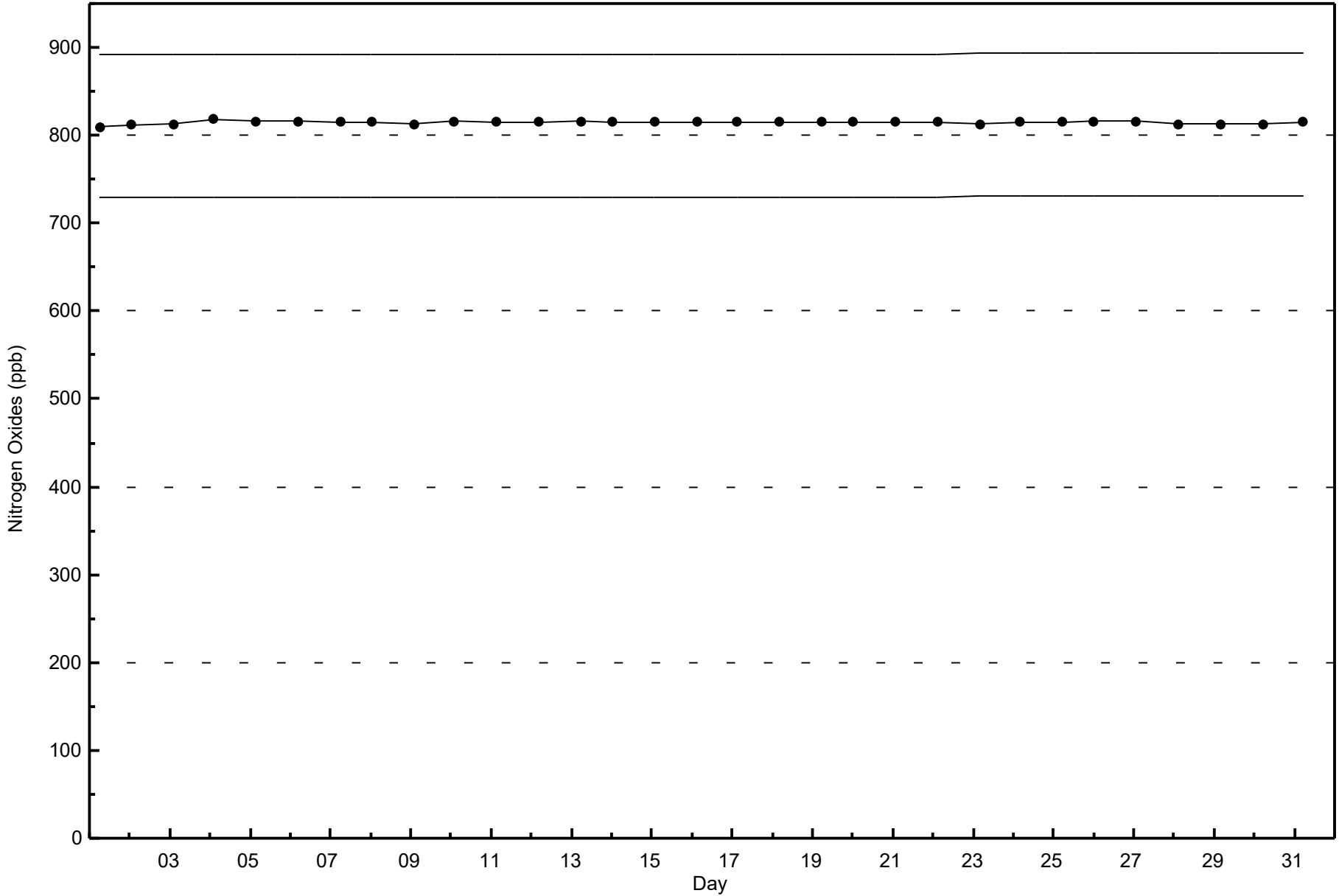


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Ells River







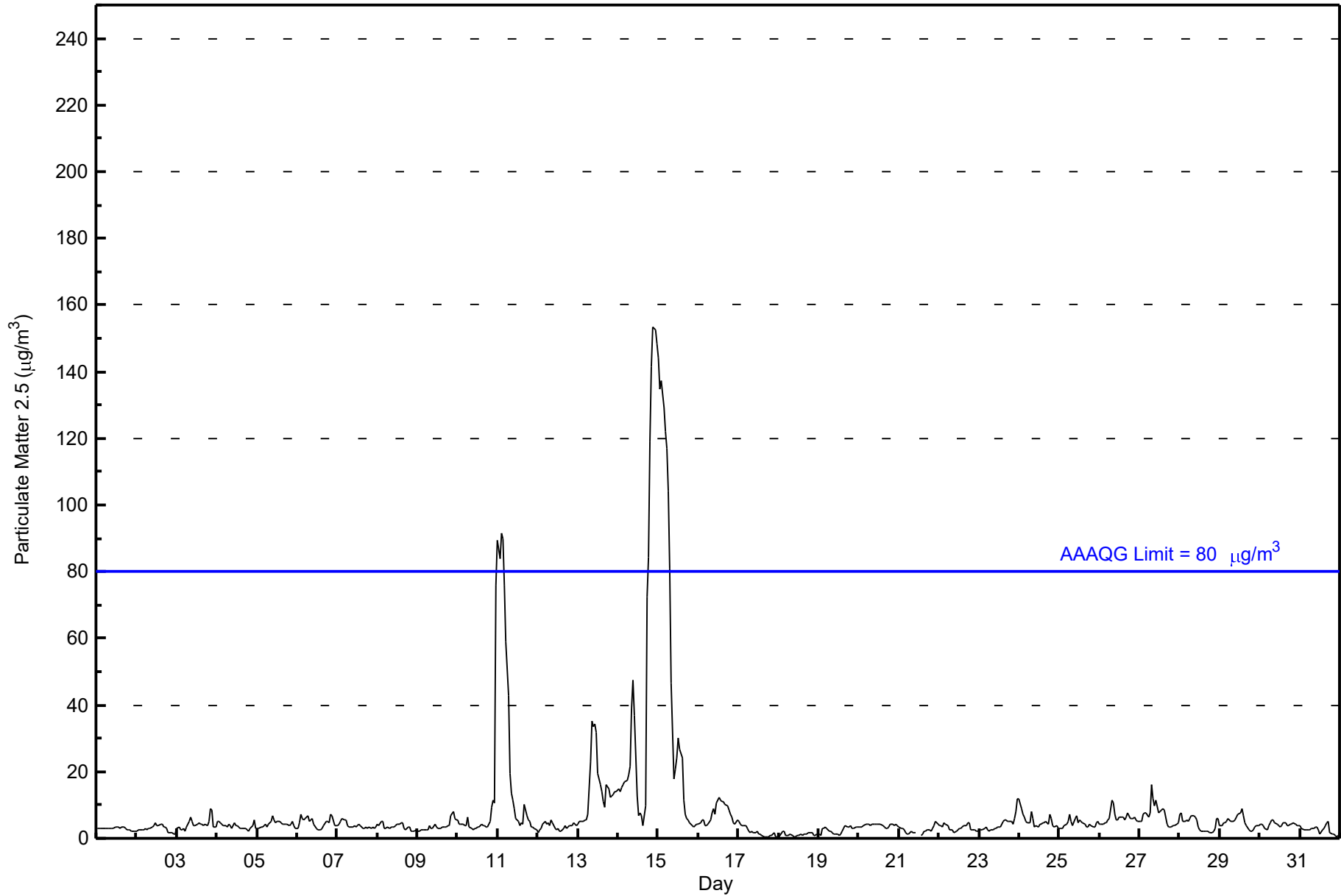




Summary of Hour Averages

Ells River - May 2024

Number of Exceedences (AAAQO):		1-hr: 18		24-hr: 2		Hours in Service:		744																		
Maximum Value: 153.3 µg/m <sup>3</sup> on May 14 22:00		Maximum Daily Average: 50.4 µg/m <sup>3</sup> on May 15				Hours of Data:		742																		
Minimum Value: 0.3 µg/m <sup>3</sup> on May 18 00:00		Minimum Daily Average: 1.1 µg/m <sup>3</sup> on May 18				Hours of Missing Data:		2																		
Maximum Diurnal Average: 11.5 µg/m <sup>3</sup> at hour 3		Minimum Diurnal Average: 4.5 µg/m <sup>3</sup> at hour 17				Hours of Calibration:		2																		
Monthly Average: 8.13 µg/m <sup>3</sup>		Percentiles: P <sub>1</sub> = 0.6 P <sub>10</sub> = 2.0 Q <sub>1</sub> = 2.9 Median = 3.9 Q <sub>3</sub> = 5.4 P <sub>90</sub> = 10.5 P <sub>99</sub> = 126.2				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-May	2.9	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.8	3.2	3.5	3.3	3.0	3.3	3.4	3.1	2.5	2.5	2.5	2.1	2.0	2.2	2.9	3.5
2-May	2.2	2.6	2.5	2.5	2.7	3.0	2.7	2.9	2.9	3.3	3.8	4.7	3.7	4.0	4.3	4.2	3.3	3.2	2.9	1.7	1.7	1.8	1.2	1.4	2.9	4.7
3-May	3.1	3.6	2.4	2.6	2.9	2.1	3.5	4.9	6.2	5.1	3.8	3.7	4.3	4.5	4.1	4.4	3.8	4.1	3.9	5.1	8.8	8.6	3.2	3.6	4.3	8.8
4-May	5.0	5.1	4.8	4.4	4.0	3.7	3.3	4.1	3.6	3.2	4.5	3.9	3.9	3.6	2.8	3.1	3.1	2.8	2.6	2.3	2.9	3.7	5.3	3.2	3.7	5.3
5-May	3.0	3.0	3.2	3.5	3.8	4.2	3.4	4.2	5.0	6.7	5.5	4.6	4.9	4.9	4.5	4.1	4.4	4.1	4.3	4.0	4.4	5.3	4.0	3.0	4.3	6.7
6-May	3.1	4.6	7.0	6.0	5.4	5.9	6.9	5.1	5.5	6.1	4.3	2.9	2.6	2.7	2.7	3.1	3.7	5.1	5.1	4.9	7.4	6.8	3.9	3.7	4.8	7.4
7-May	3.8	4.2	5.0	6.0	5.6	5.5	3.9	3.4	3.6	3.3	4.0	3.4	4.0	4.1	3.7	3.2	3.1	3.2	3.1	3.2	3.0	3.2	3.2	3.3	3.8	6.0
8-May	4.2	4.0	5.0	5.2	2.8	3.0	3.3	3.2	3.3	3.5	3.4	3.9	4.1	4.4	4.5	4.6	2.9	2.6	3.3	3.2	2.3	2.1	2.1	2.4	3.5	5.2
9-May	2.2	2.3	2.4	2.4	2.4	2.6	2.7	4.0	3.1	3.2	4.3	3.6	3.0	2.9	2.8	3.4	3.5	3.3	3.9	4.0	6.7	8.3	6.0	5.7	3.7	8.3
10-May	5.4	4.2	4.1	4.1	4.0	4.0	6.3	3.5	2.8	2.7	2.8	2.9	3.2	3.6	4.1	3.9	3.7	3.5	3.4	5.1	9.5	11.5	10.5	75.7	7.7	75.7
11-May	89.3	83.9	91.4	89.7	75.6	58.9	42.8	19.5	13.8	11.6	8.8	6.1	5.3	3.8	4.7	4.2	10.1	6.6	5.5	4.9	3.4	3.5	3.1	2.4	27.0	91.4
12-May	1.7	2.5	3.1	4.2	5.2	4.2	4.5	3.8	5.4	4.5	3.1	2.3	2.8	2.2	2.2	2.8	4.0	3.1	3.5	3.6	3.9	4.6	4.2	3.7	3.5	5.4
13-May	4.0	5.1	5.1	5.2	5.3	5.6	7.0	22.8	35.2	33.3	34.3	31.9	19.3	16.2	14.1	10.9	9.2	16.2	14.8	12.3	12.5	13.3	14.0	13.8	15.1	35.2
14-May	14.9	14.0	15.3	16.2	17.0	17.4	19.1	21.8	39.1	47.6	36.7	12.5	6.7	7.8	6.8	4.0	9.7	72.6	84.2	119.0	141.3	153.3	152.5	148.1	49.1	153.3
15-May	143.9	134.6	137.3	129.3	121.9	116.8	104.2	80.8	46.7	17.9	20.8	24.0	30.0	26.9	24.3	11.3	7.0	5.7	5.6	4.8	3.8	3.5	3.8	4.4	50.4	143.9
16-May	4.2	4.7	5.3	5.7	3.7	3.7	4.2	5.4	7.5	9.0	7.3	10.4	12.3	11.4	11.0	11.1	10.3	9.6	8.6	7.3	6.3	4.6	4.4	5.4	7.2	12.3
17-May	5.0	4.2	4.0	4.0	3.8	3.0	2.3	1.9	2.0	1.9	1.7	2.0	1.3	1.1	0.9	0.6	0.5	0.5	0.5	0.7	0.9	1.5	0.6	0.3	1.9	5.0
18-May	0.3	1.0	2.0	2.3	0.8	0.8	0.8	1.3	0.7	0.6	0.6	0.7	0.9	1.1	1.0	1.1	1.1	1.3	1.5	1.8	1.6	0.9	1.0	1.2	1.1	2.3
19-May	1.2	1.0	2.9	2.9	3.2	3.1	2.1	2.1	1.7	1.4	1.1	1.2	1.1	1.2	2.2	2.9	3.8	3.6	3.6	3.7	3.1	2.9	3.4	3.3	2.4	3.8
20-May	3.3	3.3	3.5	3.9	4.1	4.0	4.2	3.9	4.2	4.2	4.1	4.1	4.3	4.1	3.8	3.5	3.2	3.1	3.4	4.1	4.1	3.9	4.2	3.7	3.8	4.3
21-May	3.3	3.0	3.0	2.4	1.5	1.4	1.3	2.0	1.7	1.7	1.6	C	C	0.8	1.3	2.1	2.1	2.5	2.5	2.1	2.8	4.0	4.9	4.3	2.4	4.9
22-May	3.7	3.6	3.5	4.5	4.4	3.7	2.8	2.6	2.4	1.6	2.3	2.7	2.9	3.1	3.4	3.9	3.9	4.5	4.6	2.7	2.6	2.7	2.2	2.3	3.2	4.6
23-May	2.5	2.5	2.6	2.9	3.2	2.5	2.0	2.4	2.7	2.9	3.0	3.2	3.4	3.5	5.0	5.6	5.6	5.1	5.1	5.1	4.3	6.1	8.0	11.9	4.2	11.9
24-May	11.9	8.7	7.1	6.2	5.3	4.6	4.7	8.0	5.7	3.2	3.9	3.3	4.1	4.4	4.5	4.5	5.1	4.4	7.1	6.1	3.8	3.3	3.7	3.2	5.3	11.9
25-May	3.0	3.0	3.1	3.8	4.1	5.3	7.3	4.9	4.0	5.9	6.8	4.7	5.4	5.1	4.8	4.3	3.6	3.4	4.2	3.7	3.4	3.5	4.6	5.2	4.5	7.3
26-May	4.3	4.2	4.4	4.7	4.7	5.4	6.1	11.6	10.7	7.4	5.3	5.4	6.2	6.2	6.3	5.5	6.5	7.6	6.0	6.1	5.8	6.2	5.7	5.0	6.1	11.6
27-May	5.0	5.0	7.1	7.4	7.8	6.2	7.7	16.1	12.0	9.9	11.3	7.5	8.2	8.5	8.9	8.6	4.2	3.5	3.3	3.5	3.9	4.0	4.3	4.8	7.0	16.1
28-May	7.0	7.4	5.1	5.3	5.5	5.0	5.9	6.8	6.9	6.2	5.6	3.6	2.3	2.2	2.0	1.9	2.2	2.0	1.6	1.7	2.1	3.1	6.1	5.9	4.3	7.4
29-May	3.8	3.9	4.6	4.6	4.9	5.8	5.2	5.3	5.0	5.4	6.3	7.1	7.8	9.0	7.0	4.6	3.7	2.6	2.2	2.0	2.5	3.4	3.8	4.0	4.8	9.0
30-May	4.2	4.1	4.0	3.0	2.7	3.9	4.7	5.4	5.7	4.6	4.4	3.8	3.3	4.0	4.6	4.7	3.6	3.9	4.2	4.3	4.5	4.2	4.0	3.9	4.2	5.7
31-May	3.8	3.2	2.7	2.5	2.7	2.7	2.7	2.8	2.8	3.4	3.2	2.6	1.4	2.7	3.0	3.9	4.7	5.0	1.8	1.3	1.2	1.0	0.4	0.9	2.6	5.0
																								Diurnal Average		
																								Diurnal Maximum		
11.5 11.0 11.5 11.3 10.5 9.7 9.0 8.7 8.2 7.2 6.8 5.9 5.5 5.3 5.1 4.5 4.5 6.5 6.7 7.6 8.6 9.3 9.0 11.0																										
143.9 134.6 137.3 129.3 121.9 116.8 104.2 80.8 46.7 47.6 36.7 31.9 30.0 26.9 24.3 11.3 10.3 72.6 84.2 119.0 141.3 153.3 152.5 148.1																										
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 - May 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	567	76.42	76.42
6 - 15	127	17.12	93.53
16 - 25	15	2.02	95.55
26 - 80	15	2.02	97.57
> 81.0	18	2.43	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 - May 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	105	76	37	27	17	28	40	31	19	13	29	12	22	34	47	20	557
6 - 15	9	24	4	1	1	4	16	14	7	7	7	5	5	7	9	6	126
16 - 25	0	3	2	0	0	0	0	4	2	2	0	1	0	0	1	0	15
26 - 80	0	3	1	0	0	0	1	3	3	0	0	0	1	2	1	0	15
> 81.0	1	5	1	0	0	0	0	0	1	0	0	2	3	2	2	1	18
<b>Totals</b>	115	111	45	28	18	32	57	52	32	22	36	20	31	45	60	27	731

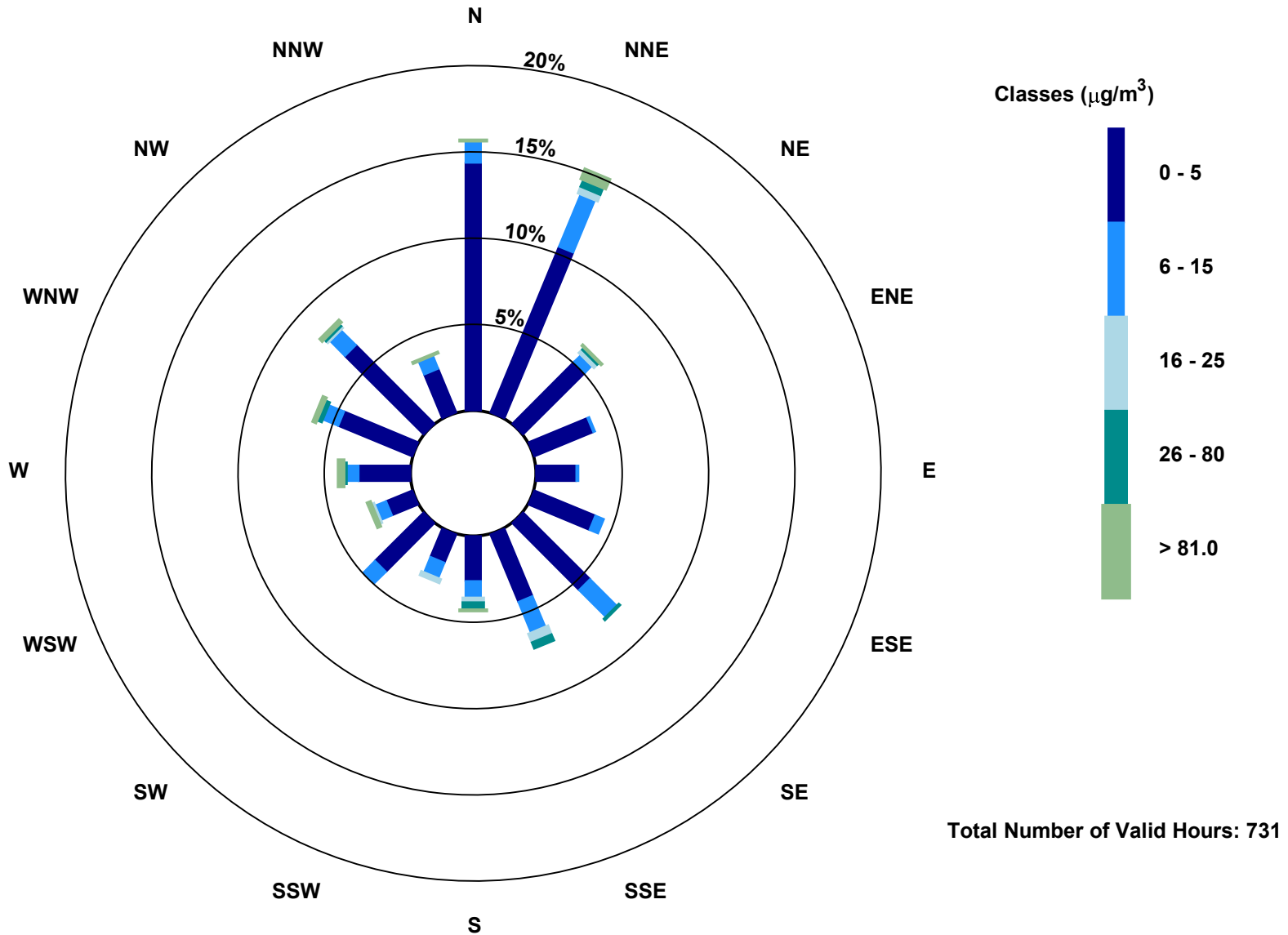
Total Number of Valid Hours: 731

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Particulate Matter 2.5 (PM<sub>2.5</sub>) -  $\mu\text{g}/\text{m}^3$   
Ells River

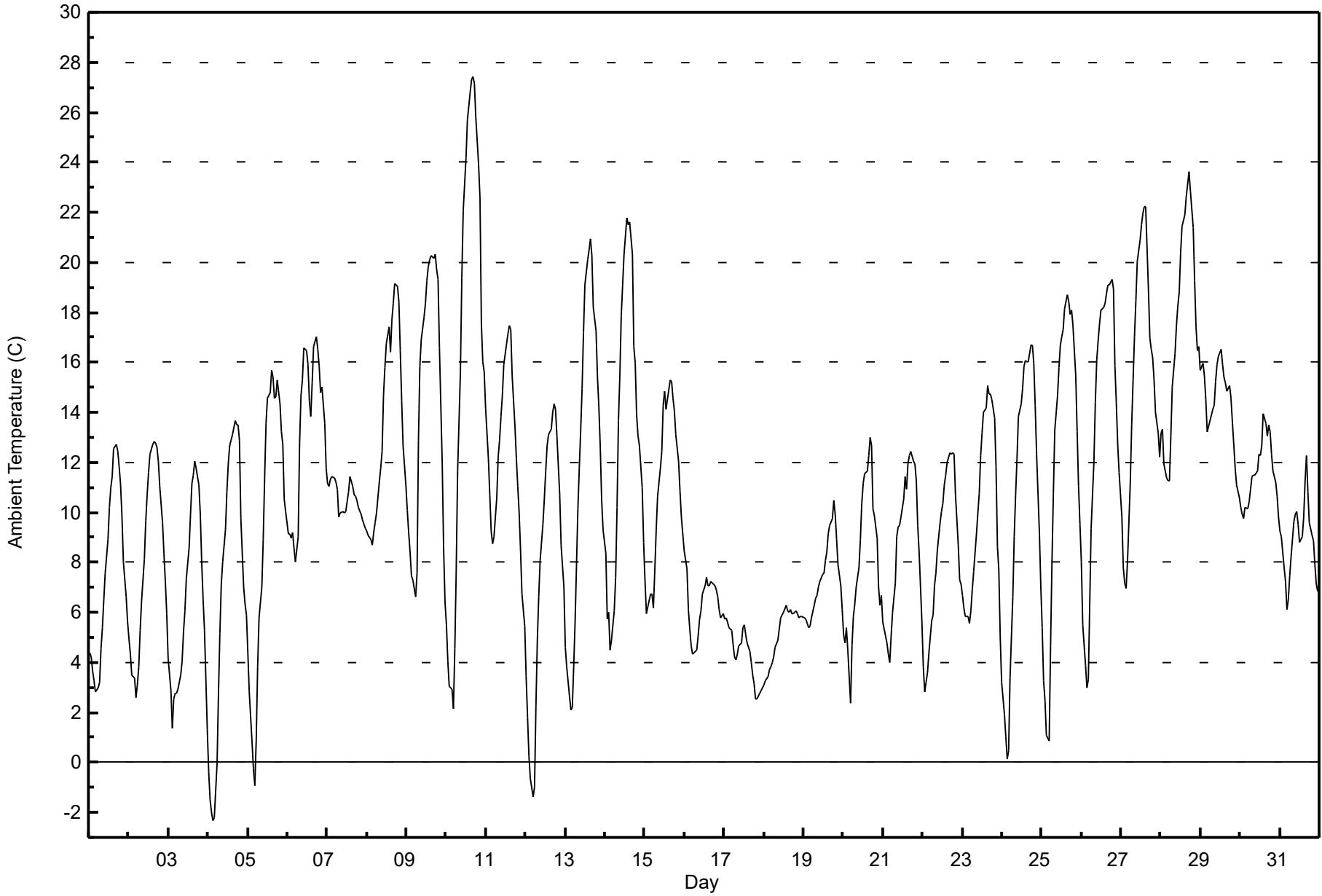




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Ells River - May 2024**

Maximum Value: 27.4 C on May 10 17:00		Maximum Daily Average: 17.4 C on May 28		Hours in Service: 744																																												
Minimum Value: -2.3 C on May 4 04:00		Minimum Daily Average: 4.3 C on May 17		Hours of Data: 744																																												
Maximum Diurnal Average: 14.9 C at hour 16		Minimum Diurnal Average: 5.0 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 10.47 C		Percentiles: P <sub>1</sub> = -0.5 P <sub>10</sub> = 3.9 Q <sub>1</sub> = 6.1 Median = 10.1 Q <sub>3</sub> = 14.1 P <sub>90</sub> = 17.5 P <sub>99</sub> = 23.8		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-May	4.4	4.2	3.7	3.3	2.8	3.0	3.2	4.6	5.4	6.5	7.6	8.9	10.2	11.0	11.5	12.6	12.7	12.4	11.8	11.1	9.8	8.0	6.6	5.6	7.5	12.7																						
2-May	4.9	4.3	3.5	3.4	2.6	3.1	3.8	5.3	6.4	8.1	9.6	10.7	11.6	12.3	12.7	12.8	12.8	12.6	12.1	11.0	9.6	8.3	7.2	6.0	8.1	12.8																						
3-May	4.2	2.9	1.3	2.6	2.7	2.8	2.9	3.5	4.0	5.2	6.1	7.4	8.6	9.9	11.2	11.5	12.1	11.8	11.1	9.9	8.0	6.5	5.3	1.3	6.4	12.1																						
4-May	-0.4	-1.5	-2.0	-2.3	-2.2	-0.1	2.8	5.2	7.1	8.0	9.3	10.8	11.9	12.6	12.9	13.1	13.7	13.5	12.9	9.7	7.0	6.4	5.9		7.0	13.7																						
5-May	4.4	2.8	0.8	-0.3	-0.9	0.9	3.8	5.8	7.0	8.9	11.4	13.6	14.6	14.8	15.7	15.4	14.5	14.6	15.3	14.4	13.2	12.7	10.5	10.0	9.3	15.7																						
6-May	9.1	9.1	9.0	9.2	8.6	8.0	9.1	12.8	14.7	15.3	16.6	16.5	15.9	14.5	13.9	15.2	16.6	17.0	16.5	15.9	14.8	15.0	13.6	11.8	13.3	17.0																						
7-May	11.1	11.0	11.3	11.4	11.4	11.2	10.9	9.8	10.0	10.0	10.0	10.4	10.8	11.4	11.0	10.7	10.6	10.5	10.2	9.9	9.7	9.5	9.4		10.5	11.4																						
8-May	9.3	9.1	8.9	8.7	9.2	9.6	10.0	11.2	11.7	12.4	14.6	15.8	16.8	17.4	16.4	17.7	18.4	19.2	19.0	18.4	16.5	14.5	12.7	11.1	13.7	19.2																						
9-May	10.1	9.2	8.4	7.4	7.3	6.6	7.6	12.9	15.8	16.9	17.8	18.3	19.3	19.8	20.1	20.3	20.2	20.3	19.7	19.3	16.6	11.9	8.5	6.4	14.2	20.3																						
10-May	5.5	4.1	3.0	2.9	2.1	4.6	7.7	11.7	15.7	19.4	22.1	23.1	24.2	25.7	26.8	27.3	27.4	27.2	25.8	23.9	22.6	17.5	16.0	15.6	16.7	27.4																						
11-May	14.2	12.2	10.7	9.3	8.7	9.1	10.6	12.2	12.9	13.8	14.7	15.9	16.8	17.1	17.5	17.3	15.4	13.5	12.2	11.1	10.0	8.5	6.8	5.5	12.3	17.5																						
12-May	3.5	1.8	0.2	-0.6	-1.4	-1.0	2.2	4.9	6.6	8.1	9.5	10.6	11.7	12.7	13.1	13.3	14.0	14.4	14.1	13.1	10.7	8.7	7.8	7.0	7.7	14.4																						
13-May	4.6	3.8	2.7	2.1	2.2	3.8	5.6	10.1	11.8	13.3	15.0	17.2	19.1	20.1	20.5	21.0	20.3	18.2	17.3	15.4	14.2	12.6	10.5	9.3	12.1	21.0																						
14-May	8.4	5.7	6.0	4.5	4.9	6.1	7.4	10.2	13.6	15.5	17.8	20.3	21.0	21.8	21.5	21.6	20.3	16.6	16.0	13.9	13.0	12.6	11.0	8.8	13.3	21.8																						
15-May	7.3	6.0	6.2	6.7	6.7	6.2	7.7	9.3	10.6	11.8	12.4	14.3	18.0	14.1	14.9	15.3	15.2	14.5	14.1	13.1	12.0	10.8	9.8	9.1	11.0	15.3																						
16-May	8.4	7.8	6.1	5.4	4.6	4.3	4.4	4.5	5.1	5.7	6.1	6.8	7.1	7.4	7.1	7.1	7.2	7.1	7.1	6.9	6.6	6.1	5.8	5.9	6.3	8.4																						
17-May	5.8	5.8	5.6	5.4	5.3	4.7	4.2	4.1	4.3	4.6	4.8	5.4	5.5	5.1	4.8	4.4	4.0	3.5	3.1	2.5	2.5	2.8	2.9	3.0	4.3	5.8																						
18-May	3.1	3.3	3.4	3.7	3.8	4.0	4.2	4.6	4.9	5.4	5.8	5.9	6.0	6.3	6.1	6.0	6.1	6.0	6.0	6.0	6.0	5.8	5.8	5.8	5.2	6.3																						
19-May	5.8	5.7	5.5	5.4	5.4	5.8	6.3	6.6	6.7	7.0	7.2	7.5	7.6	8.1	8.4	9.1	9.5	9.7	10.5	9.9	8.9	7.9	7.1	6.1	7.4	10.5																						
20-May	5.1	4.7	5.4	4.5	2.4	4.7	5.9	6.3	7.0	7.8	8.9	10.4	11.2	11.5	11.7	12.3	13.0	12.6	10.1	9.9	9.0	7.0	6.3	6.7	8.1	13.0																						
21-May	5.6	5.0	4.8	4.3	4.0	5.1	6.0	7.2	9.0	9.4	9.5	9.8	10.5	11.4	11.0	11.9	12.3	12.4	12.0	11.9	11.3	9.5	8.4	5.6	8.7	12.4																						
22-May	3.8	2.8	3.2	3.6	4.4	5.6	5.9	7.0	7.6	8.4	9.6	10.0	10.4	11.1	11.5	12.0	12.4	12.3	12.4	12.3	10.7	8.7	7.3	7.1	8.3	12.4																						
23-May	6.7	6.1	5.8	5.8	5.5	6.1	6.9	7.6	9.2	10.0	10.8	12.3	13.2	14.0	14.2	15.1	14.7	14.7	14.5	13.8	11.8	8.7	7.7	5.0	10.0	15.1																						
24-May	3.2	1.9	1.0	0.2	0.5	3.4	6.6	9.0	10.7	12.2	13.8	14.4	15.0	15.9	16.1	16.0	16.0	16.7	16.0	14.3	12.3	9.2	7.0		10.3	16.7																						
25-May	5.4	3.3	2.5	1.1	0.9	4.6	8.0	10.7	13.3	14.7	15.8	16.7	17.0	17.3	18.1	18.7	18.4	17.9	18.1	17.5	15.5	13.2	11.0	9.5	12.0	18.7																						
26-May	8.0	5.5	3.9	3.0	3.3	6.4	9.3	12.0	14.4	16.1	16.8	17.5	18.1	18.2	18.4	18.8	19.1	19.1	19.3	18.9	15.9	14.4	12.7	11.6	13.4	19.3																						
27-May	9.8	7.8	7.2	6.9	8.0	11.2	13.5	15.3	17.0	18.5	20.0	20.9	21.5	22.0	22.2	22.2	18.9	17.0	16.5	16.2	15.3	14.0	13.2	12.2	15.3	22.2																						
28-May	13.2	13.3	11.9	11.4	11.2	11.3	13.1	15.0	16.3	17.5	18.2	18.8	20.4	21.4	21.9	22.6	23.1	23.6	22.9	21.4	19.3	17.4	16.5	16.7	17.4	23.6																						
29-May	15.7	16.0	15.5	14.5	13.2	13.4	13.9	14.1	14.3	15.2	15.9	16.2	16.5	15.9	15.4	15.2	14.8	15.0	14.5	13.6	12.7	11.8	11.1	10.6	14.4	16.5																						
30-May	10.2	9.9	9.7	10.2	10.2	10.4	10.9	11.4	11.5	11.5	11.6	12.3	12.3	12.7	13.9	13.6	13.0	13.5	13.2	12.3	11.6	11.2	10.6	9.8	11.6	13.9																						
31-May	9.3	9.0	7.8	7.2	6.1	6.5	7.5	8.3	9.6	9.9	10.0	9.6	8.8	9.1	9.8	11.3	12.3	10.8	9.6	9.1	8.8	7.9	7.1	6.8	8.8	12.3																						
																								7.1	6.2	5.6	5.2	5.0	5.9	7.2	8.8	10.1	11.2	12.2	13.2	13.8	14.3	14.5	14.9	14.8	14.5	14.0	13.3	12.0	10.4	9.2	8.1	Diurnal Average
																								15.7	16.0	15.5	14.5	13.2	13.4	13.9	15.3	17.0	19.4	22.1	23.1	24.2	25.7	26.8	27.3	27.4	27.2	25.8	23.9	22.6	17.5	16.5	16.7	Diurnal Maximum





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Ells River - May 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	11	1.48	1.48
0 - 10	353	47.45	48.92
10 - 20	341	45.83	94.76
> 20	39	5.24	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

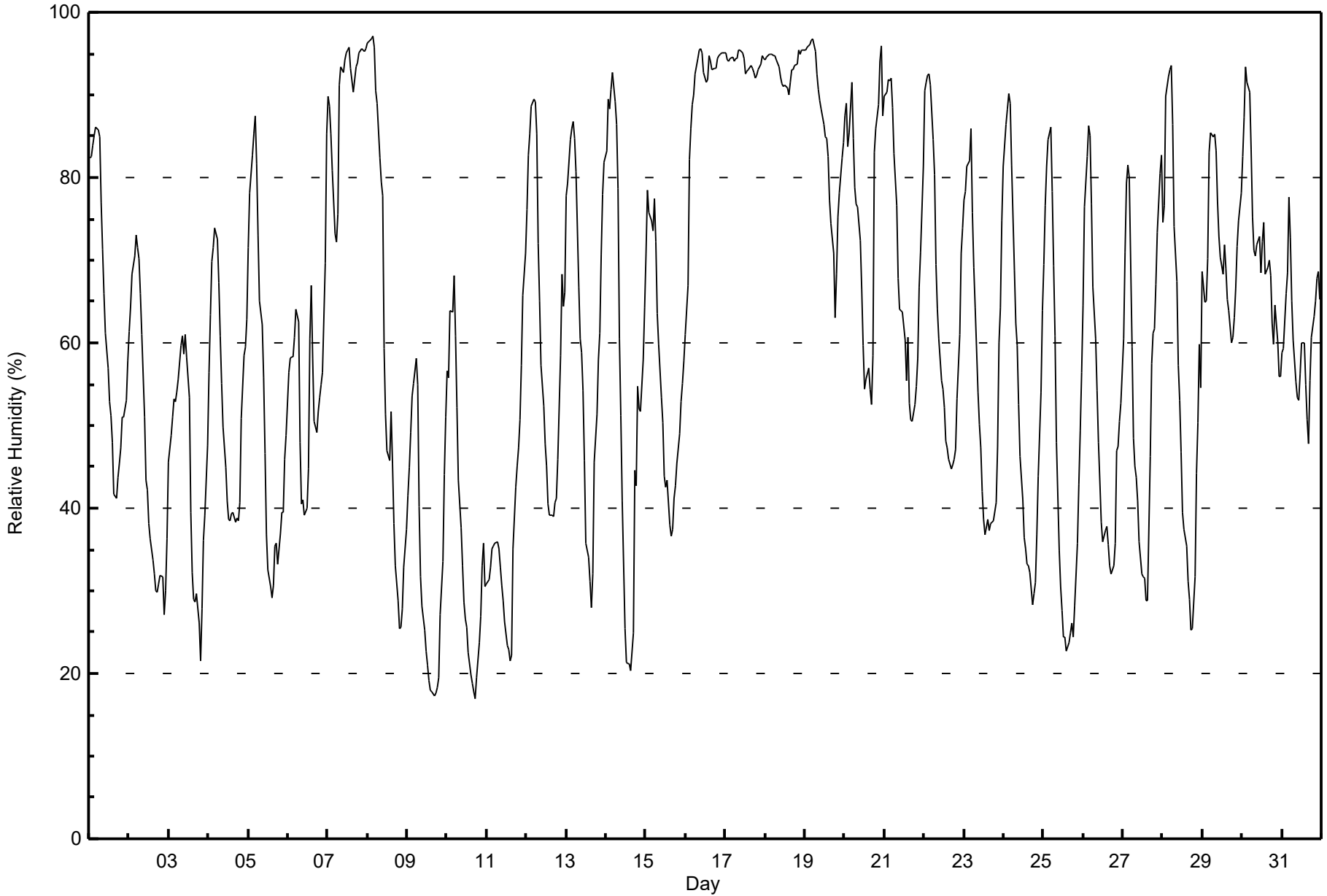
**Relative Humidity (RH) - %**  
**Ells River - May 2024**

Maximum Value: 97.0 % on May 8 04:00 Minimum Value: 16.9 % on May 10 18:00 Maximum Diurnal Average: 81.4 % at hour 5 Monthly Average: 61.65 %		Maximum Daily Average: 93.9 % on May 17 Minimum Daily Average: 33.7 % on May 9 Minimum Diurnal Average: 46.3 % at hour 16 Percentiles: P <sub>1</sub> = 18.9 P <sub>10</sub> = 31.1 Q <sub>1</sub> = 42.8 Median = 60.7 Q <sub>3</sub> = 82.6 P <sub>90</sub> = 93.1 P <sub>99</sub> = 95.9		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-May	82.4	82.5	83.8	85.0	86.2	85.7	85.0	76.9	71.4	65.9	61.2	56.9	52.8	51.1	47.9	41.7	41.2	43.8	45.4	47.2	51.1	51.0	53.1	57.8	62.8	86.2																							
2-May	61.3	64.4	68.3	70.5	73.1	71.5	70.2	65.9	61.0	51.1	43.4	42.3	38.2	36.2	33.7	32.1	30.1	29.8	30.8	31.9	31.6	27.1	30.0	36.2	47.1	73.1																							
3-May	45.6	48.8	51.0	53.2	52.8	54.0	55.7	59.7	60.9	58.7	61.0	58.3	53.3	39.4	32.2	29.0	28.7	29.6	26.0	21.5	27.8	36.0	39.2	47.6	44.6	61.0																							
4-May	56.4	63.3	69.8	71.5	73.9	72.5	67.2	60.8	55.2	49.8	45.0	40.9	38.6	38.5	39.4	39.5	38.3	38.9	38.4	40.6	50.8	58.5	59.4	62.9	52.9	73.9																							
5-May	71.6	78.1	82.6	85.2	87.5	81.7	73.0	65.1	62.3	55.8	46.6	36.7	32.5	30.5	29.2	30.6	35.4	35.7	33.2	36.9	39.5	39.4	45.9	48.9	52.7	87.5																							
6-May	56.5	58.1	58.2	58.3	60.7	64.0	62.5	48.0	40.6	41.0	39.1	39.9	44.8	60.4	67.0	58.1	50.5	49.2	51.6	53.4	55.0	56.4	69.7	85.3	55.3	85.3																							
7-May	89.9	88.6	85.2	80.8	73.3	72.2	75.6	91.2	93.4	92.8	94.3	95.1	95.4	95.7	93.2	90.3	91.9	93.3	93.9	95.0	95.6	95.5	95.2	95.6	90.1	95.7																							
8-May	96.3	96.5	96.8	97.0	95.7	90.5	89.1	82.4	79.5	77.8	59.3	51.3	47.0	45.8	51.6	45.4	38.1	33.1	28.8	25.5	25.7	27.8	32.8	37.5	60.5	97.0																							
9-May	41.6	45.0	49.2	53.6	55.0	58.2	54.9	40.1	31.6	28.2	25.2	22.8	20.9	19.1	18.0	17.8	17.3	17.6	18.3	19.5	27.1	33.6	44.1	51.0	33.7	58.2																							
10-May	56.6	55.7	63.9	63.7	68.1	60.8	52.3	43.5	37.7	33.1	28.6	26.5	25.6	22.6	19.8	18.8	17.9	16.9	19.5	23.7	27.0	33.0	35.8	30.5	36.7	68.1																							
11-May	30.8	31.4	32.8	35.1	35.4	35.8	36.0	35.1	32.9	30.8	28.8	26.2	23.3	22.8	21.5	22.3	35.1	42.6	45.0	47.3	50.7	57.4	65.8	70.8	37.3	70.8																							
12-May	76.1	82.7	85.2	88.6	89.5	89.1	85.2	72.0	65.0	57.4	52.3	47.8	45.1	40.5	39.1	39.2	39.0	40.7	41.1	45.9	58.5	68.3	64.4	66.0	61.6	89.5																							
13-May	77.8	79.3	84.6	85.9	86.7	84.7	80.6	66.8	60.5	58.9	54.3	45.7	35.8	34.0	31.2	27.9	32.1	45.7	51.4	58.0	61.2	70.6	77.9	81.9	61.4	86.7																							
14-May	83.2	89.5	88.3	90.7	92.7	89.2	86.4	78.6	60.5	51.1	40.8	25.4	21.4	21.2	21.2	20.3	24.9	44.6	42.8	54.7	52.0	51.6	58.0	64.2	56.4	92.7																							
15-May	70.8	78.4	75.8	74.8	73.6	77.5	72.2	63.6	59.8	53.5	50.4	43.9	42.6	43.4	38.0	36.7	37.5	41.1	42.7	45.5	49.0	52.9	55.2	57.7	55.7	78.4																							
16-May	61.1	67.0	82.2	86.0	88.9	90.1	92.6	94.4	95.4	95.5	95.0	92.7	91.5	91.9	94.8	94.1	93.1	93.2	93.2	94.4	94.7	95.0	95.1	95.0	90.3	95.5																							
17-May	95.0	94.2	94.1	94.5	94.6	94.1	94.5	94.3	95.3	95.5	95.1	94.4	92.5	92.9	93.1	93.6	93.3	92.7	92.0	92.4	93.1	93.7	94.7	94.4	93.9	95.5																							
18-May	94.3	94.5	94.9	94.9	95.0	94.8	94.7	94.2	93.4	92.3	91.4	91.0	91.2	90.9	90.0	91.5	93.0	93.1	93.5	93.8	95.5	95.0	95.5	95.5	93.5	95.5																							
19-May	95.5	95.7	95.9	96.2	96.6	96.8	95.3	92.6	90.7	89.3	88.2	86.4	84.8	84.8	82.6	77.3	74.3	70.9	63.0	68.3	75.3	78.2	82.3	84.2	85.2	96.8																							
20-May	87.4	89.1	83.7	85.4	91.6	84.8	78.8	76.8	76.5	72.4	66.5	59.7	54.4	55.5	57.0	54.5	52.6	58.5	83.1	86.0	88.8	94.0	95.9	87.5	75.9	95.9																							
21-May	89.8	90.3	91.9	91.7	92.0	88.5	82.9	76.7	67.7	64.1	63.8	63.7	60.3	55.4	60.6	52.7	50.7	50.5	52.6	54.7	58.1	66.8	71.0	81.3	69.9	92.0																							
22-May	90.5	91.5	92.4	92.5	91.2	84.7	80.3	69.5	64.1	60.6	55.4	54.4	52.2	48.1	47.2	46.0	44.8	45.2	45.9	47.2	53.1	61.0	70.8	74.0	65.1	92.5																							
23-May	77.2	78.4	81.3	82.1	86.0	75.8	69.1	64.3	54.1	50.2	47.3	42.1	38.6	36.8	38.6	37.3	38.2	38.2	38.5	40.7	47.4	60.0	64.3	74.7	56.7	86.0																							
24-May	81.4	86.5	88.3	90.1	89.0	81.5	68.8	62.3	59.6	52.6	46.2	40.9	36.5	35.1	33.2	33.0	32.3	28.3	29.6	31.0	36.7	44.0	54.1	64.0	54.4	90.1																							
25-May	69.6	76.6	81.4	84.6	86.1	78.3	69.3	60.8	47.9	34.9	30.5	27.7	24.4	24.5	22.7	23.8	25.0	26.2	24.3	28.2	35.8	42.8	49.3	56.4	47.1	86.1																							
26-May	64.5	76.5	82.5	86.2	85.1	76.7	66.8	60.5	54.2	48.0	43.2	38.3	35.9	37.3	37.9	35.5	33.1	32.0	33.0	35.7	47.0	47.5	50.5	52.7	52.5	86.2																							
27-May	60.5	71.0	79.4	81.5	80.1	59.4	48.5	45.1	43.6	40.9	36.0	32.1	31.6	31.5	28.7	28.8	46.3	57.4	61.2	61.8	67.1	73.4	80.6	82.7	55.4	82.7																							
28-May	74.6	76.6	89.8	92.2	93.0	93.6	86.5	74.1	67.4	57.3	53.1	46.7	39.5	37.5	35.3	31.2	29.0	25.3	25.5	31.7	44.3	50.3	59.8	54.6	57.0	93.6																							
29-May	68.7	65.0	65.1	70.2	83.1	85.5	85.0	85.3	83.3	77.1	72.8	70.3	68.3	71.8	69.0	65.3	64.0	60.0	60.6	63.0	66.6	71.7	74.8	78.2	71.9	85.5																							
30-May	82.5	87.3	93.4	91.6	90.4	83.5	75.3	71.2	70.6	71.8	72.9	68.5	72.2	74.6	68.2	69.2	70.0	68.2	62.4	59.8	64.6	60.2	55.9	56.0	72.5	93.4																							
31-May	58.9	59.3	65.9	68.5	77.6	72.7	65.1	60.3	55.2	53.4	53.1	56.3	60.1	60.0	54.9	50.8	47.8	55.4	60.7	63.2	65.1	67.7	68.6	65.3	61.1	77.6																							
																								72.5	75.5	78.6	80.1	81.4	78.3	74.2	68.8	64.2	60.0	56.2	52.4	50.0	49.4	48.3	46.3	46.6	48.3	49.3	51.6	56.0	60.0	64.2	67.4	Diurnal Average	
																								96.3	96.5	96.8	97.0	96.6	96.8	95.3	94.4	95.4	95.5	95.1	95.1	95.4	95.7	94.8	94.1	93.3	93.3	93.9	95.0	95.6	95.5	95.9	95.6	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Ells River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Ells River - May 2024**

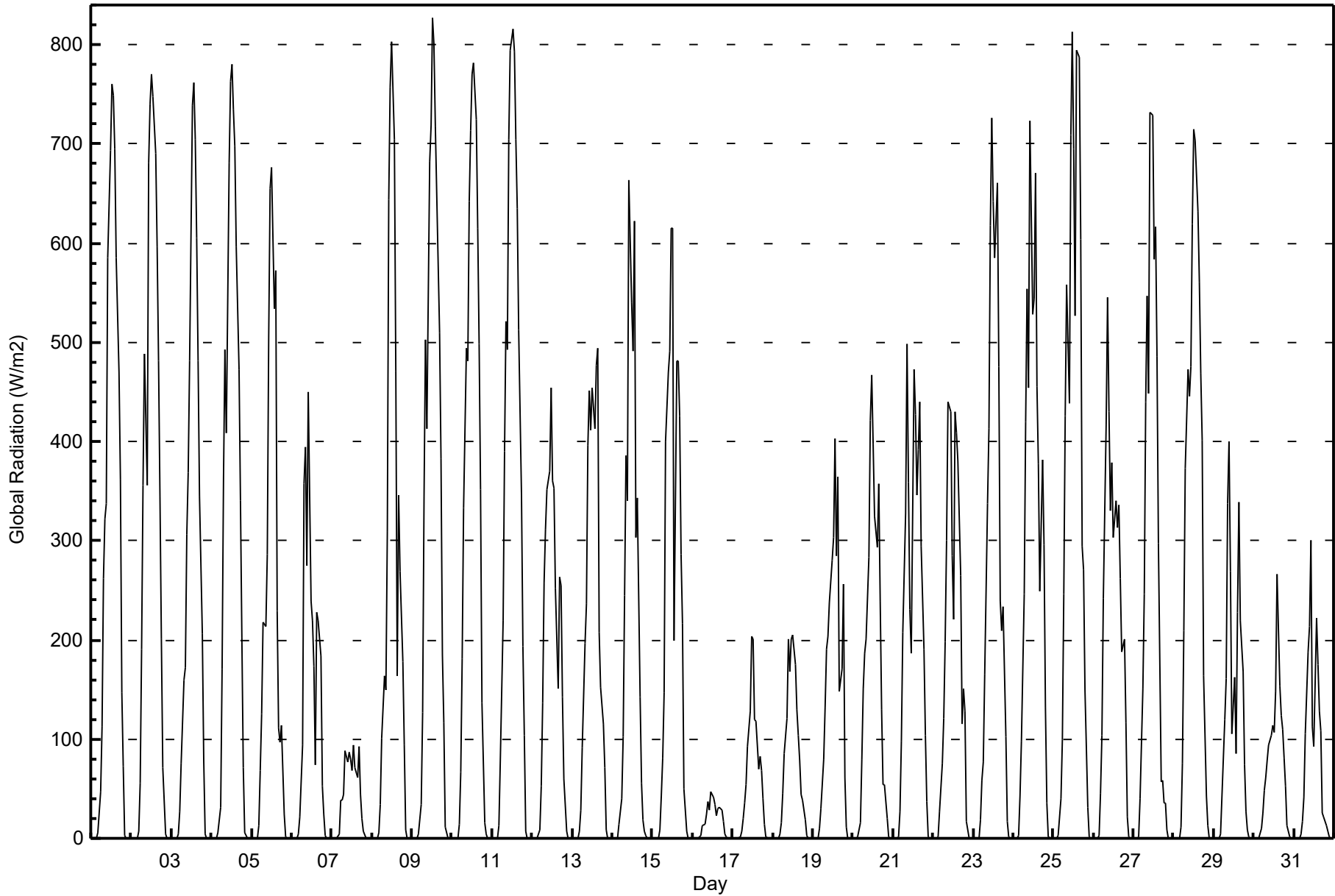
<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	12	1.61	1.61
20 - 40	153	20.56	22.18
40 - 60	195	26.21	48.39
60 - 80	175	23.52	71.91
80 - 100	209	28.09	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 827.1 W/m2 on May 9 13:00		Maximum Daily Average: 312.0 W/m2 on May 25		Hours in Service: 744																							
Minimum Value: 0.0 W/m2 on May 1 01:00		Minimum Daily Average: 15.8 W/m2 on May 16		Hours of Data: 744																							
Maximum Diurnal Average: 478.6 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 3		Hours of Missing Data: 0																							
Monthly Average: 185.54 W/m2		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.2 Median = 78.5 Q <sub>3</sub> = 334.1 P <sub>90</sub> = 551.4 P <sub>99</sub> = 791.1		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-May	0.0	0.0	0.0	0.0	5.7	47.3	113.1	261.8	321.9	338.1	584.7	693.7	760.1	749.6	694.8	585.1	470.5	361.0	146.7	72.6	2.4	0.0	0.0	0.0	258.7	760.1	
2-May	0.0	0.0	0.0	0.0	7.3	55.0	191.1	355.8	488.4	356.0	680.4	739.8	770.6	747.6	690.6	597.0	481.8	343.9	200.4	71.5	4.0	0.0	0.0	0.0	282.5	770.6	
3-May	0.0	0.1	0.1	0.0	4.1	27.5	75.3	159.8	172.6	306.8	368.5	481.8	738.6	761.8	705.4	604.5	480.6	344.2	205.8	78.9	4.0	0.1	0.1	0.2	230.0	761.8	
4-May	0.1	0.1	0.0	0.1	5.0	31.4	170.6	363.3	492.6	409.1	679.9	762.9	780.9	734.7	697.8	596.1	472.9	340.9	202.5	71.8	5.0	0.2	0.1	0.1	284.1	780.9	
5-May	0.1	0.1	0.1	0.1	12.6	68.4	124.9	217.2	213.5	286.3	505.6	655.4	676.3	534.5	572.7	228.9	111.7	97.5	114.2	23.9	1.5	0.2	0.2	0.0	185.2	676.3	
6-May	0.0	0.0	0.0	0.0	3.6	21.4	93.4	356.9	395.0	274.3	450.3	239.8	218.9	173.6	73.7	228.5	219.5	184.3	53.0	24.1	2.7	0.0	0.0	0.0	125.5	450.3	
7-May	0.0	0.0	0.0	0.0	4.0	38.4	38.5	44.6	88.1	77.4	86.8	79.1	67.6	93.4	70.5	61.1	93.0	43.8	20.5	6.8	0.3	0.0	0.0	0.0	38.1	93.4	
8-May	0.0	0.0	0.0	0.0	5.6	34.5	100.8	163.2	149.2	309.2	643.0	756.8	802.7	705.3	471.7	163.7	346.4	268.6	178.5	93.7	8.4	0.3	0.2	0.2	216.8	802.7	
9-May	0.0	0.1	0.0	0.0	4.9	34.7	126.5	344.7	502.4	413.1	681.5	719.1	827.1	800.7	717.7	647.5	510.1	382.4	185.2	117.4	11.1	0.4	0.2	0.1	292.8	827.1	
10-May	0.1	0.1	0.1	0.2	13.8	66.6	180.6	333.3	494.1	481.0	642.0	714.0	769.7	781.3	725.4	614.8	498.1	351.1	136.8	15.5	3.6	0.0	0.0	0.0	284.2	781.3	
11-May	0.1	0.1	0.1	0.3	12.3	77.7	219.8	390.0	521.6	492.7	705.3	793.9	815.4	793.6	705.2	635.4	512.4	345.4	193.3	104.5	7.0	0.2	0.1	0.0	305.3	815.4	
12-May	0.1	0.1	0.2	0.3	9.0	52.7	137.0	258.0	312.0	351.8	370.0	454.5	359.8	352.6	251.3	151.5	263.5	254.4	142.5	59.1	7.4	0.2	0.1	0.2	157.9	454.5	
13-May	0.0	0.0	0.1	0.5	7.4	28.3	90.6	197.1	235.6	396.5	451.7	410.9	454.9	413.5	477.6	493.5	208.0	153.0	115.8	71.1	8.6	0.0	0.1	0.0	175.6	493.5	
14-May	0.1	0.1	0.0	0.5	14.8	39.3	103.1	244.9	385.6	339.6	663.1	539.7	491.9	622.9	302.9	343.8	142.4	55.6	18.4	7.7	2.3	0.0	0.1	0.1	179.9	663.1	
15-May	0.1	0.0	0.0	0.0	9.0	42.6	81.3	146.7	400.0	470.1	491.3	615.3	615.1	199.4	481.3	481.3	425.6	286.0	216.8	49.7	7.0	0.1	0.0	0.0	209.1	615.3	
16-May	0.0	0.0	0.0	0.0	1.7	3.6	13.0	14.3	23.9	37.5	28.4	47.2	41.2	33.7	23.0	29.9	30.7	28.3	17.0	4.9	0.7	0.0	0.0	0.0	15.8	47.2	
17-May	0.0	0.0	0.0	0.0	1.3	7.5	19.7	35.3	53.9	92.0	127.8	203.0	200.6	119.2	117.9	70.1	83.0	67.7	40.0	14.0	1.8	0.0	0.0	0.0	52.3	203.0	
18-May	0.0	0.0	0.0	0.0	4.8	16.0	45.0	85.1	121.6	200.6	167.7	200.8	204.7	175.2	129.9	104.0	78.6	44.1	38.8	18.3	2.6	0.0	0.0	0.0	68.2	204.7	
19-May	0.0	0.0	0.0	0.1	9.7	29.6	80.1	131.9	190.6	203.6	237.6	279.9	303.5	403.0	284.6	363.8	147.6	170.5	256.2	61.7	11.1	0.1	0.0	0.0	131.9	403.0	
20-May	0.0	0.0	0.0	1.4	15.5	79.1	151.3	186.9	200.6	283.0	421.6	466.6	397.2	324.7	293.4	358.0	239.8	128.9	54.3	54.3	19.3	0.7	0.0	0.0	153.2	466.6	
21-May	0.0	0.0	0.0	1.2	27.5	98.0	208.3	327.4	499.0	359.2	230.2	186.2	473.0	427.2	346.7	391.5	440.5	295.1	190.6	104.4	37.0	0.7	0.1	0.1	193.5	499.0	
22-May	0.0	0.0	0.0	0.9	27.7	75.7	120.8	198.3	300.9	440.5	429.3	284.8	220.9	429.7	408.5	380.5	264.9	115.0	151.4	128.0	17.0	0.6	0.0	0.0	166.5	440.5	
23-May	0.0	0.0	0.0	0.5	18.7	58.1	77.5	165.0	337.6	412.6	618.0	725.5	641.8	585.4	660.7	475.8	239.4	209.5	233.0	102.0	16.4	1.0	0.1	0.1	232.4	725.5	
24-May	0.1	0.1	0.1	2.3	42.9	98.7	246.0	420.3	553.1	454.3	722.6	528.4	543.8	671.2	455.8	377.4	248.6	381.0	295.5	131.9	35.5	1.3	0.2	0.1	258.8	722.6	
25-May	0.1	0.1	0.1	2.4	39.3	99.1	246.2	426.3	557.9	438.9	709.6	812.9	695.3	526.3	794.9	787.7	603.9	294.4	270.4	149.2	30.8	1.0	0.1	0.1	312.0	812.9	
26-May	0.1	0.0	0.1	3.0	45.2	103.5	241.7	417.1	545.8	430.4	330.3	378.4	303.9	339.8	312.8	336.6	262.3	188.0	201.0	116.5	20.7	1.0	0.0	0.1	190.8	545.8	
27-May	0.1	0.0	0.0	1.3	39.2	150.6	246.5	439.6	547.2	448.5	732.2	728.8	583.5	616.4	485.3	297.9	57.4	58.5	35.7	35.8	8.0	0.3	0.0	0.0	229.7	732.2	
28-May	0.0	0.0	0.0	0.2	11.3	75.5	208.7	373.5	472.6	445.0	476.2	618.9	715.2	703.3	631.7	560.8	468.2	402.0	163.5	42.9	12.5	0.6	0.0	0.0	265.9	715.2	
29-May	0.0	0.0	0.0	0.1	3.8	43.3	119.4	161.5	337.7	399.5	269.4	105.8	161.8	85.7	228.0	339.0	219.5	168.5	73.5	26.7	8.9	0.8	0.0	0.0	114.7	399.5	
30-May	0.0	0.0	0.0	0.5	10.1	25.0	47.7	61.4	78.4	93.9	104.3	113.3	107.0	147.8	266.2	153.3	123.5	109.9	81.1	52.6	12.5	0.8	0.0	0.0	66.2	266.2	
31-May	0.0	0.0	0.0	0.3	3.8	16.8	40.7	105.3	188.5	213.8	300.1	112.3	93.2	222.2	175.1	128.1	108.2	25.8	22.0	12.5	6.5	0.8	0.0	0.0	74.0	300.1	
		0.0	0.0	0.0	0.5	13.6	53.1	127.7	238.3	328.4	330.8	448.7	466.1	478.6	460.5	427.5	373.8	285.6	209.6	137.2	62.1	10.2	0.4	0.1	0.0	Diurnal Average	
		0.1	0.1	0.2	3.0	45.2	150.6	246.5	439.6	557.9	492.7	732.2	812.9	827.1	800.7	794.9	787.7	603.9	402.0	295.5	149.2	37.0	1.3	0.2	0.2	Diurnal Maximum	



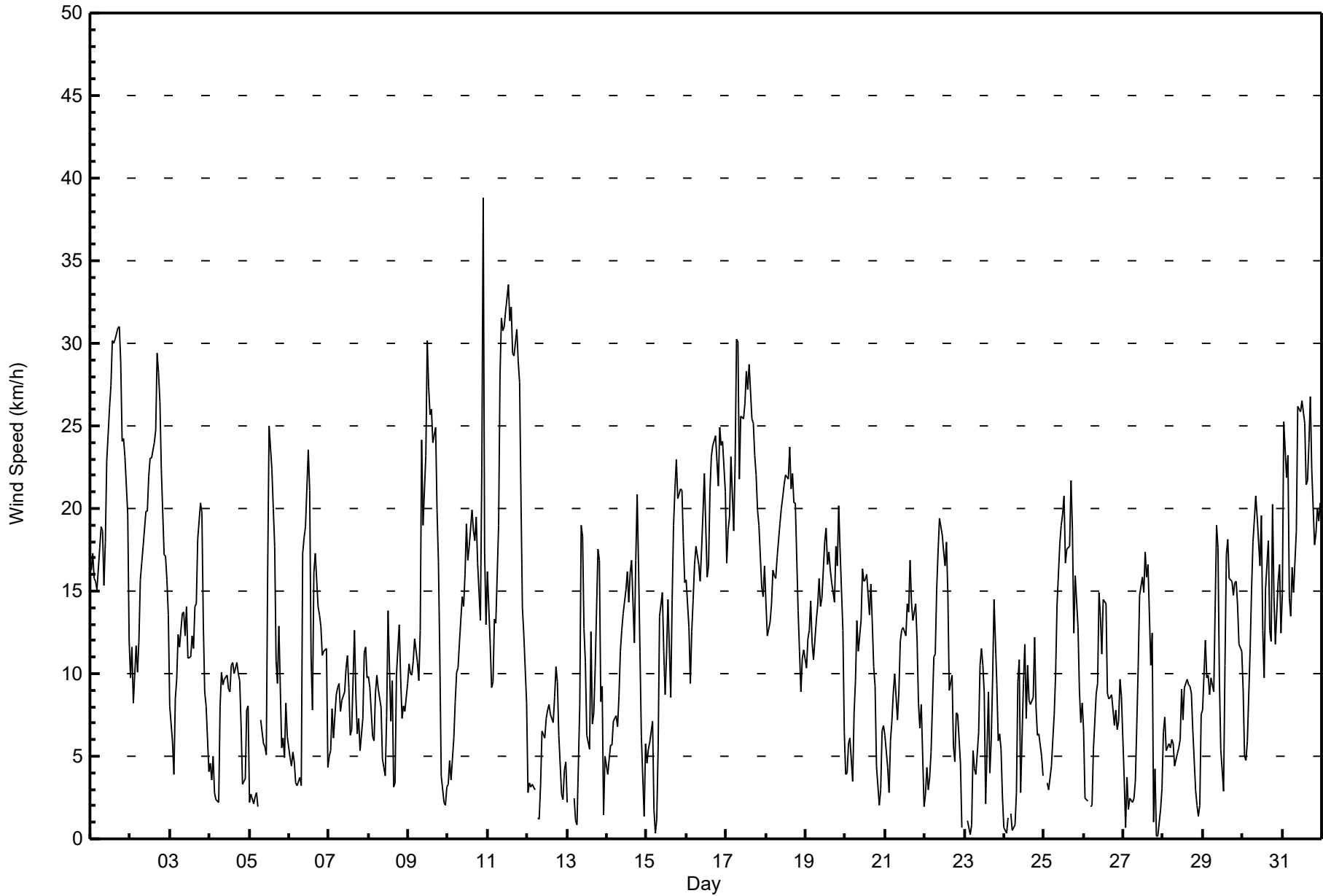


Maximum Speed: 39 km/h on May 10 22:00		Maximum Daily Speed Average: 22.3 km/h on May 17		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on May 27 21:00		Minimum Daily Speed Average: 1.4 km/h on May 13		Hours of Data: 733																						
Maximum Diurnal Speed Average: 7.7 km/h at hour 18		Minimum Diurnal Speed Average: 2.0 km/h at hour 24		Hours of Missing Data: 11																						
Monthly Average Velocity: 4.7 km/h 5.9 deg		Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 3 Q <sub>1</sub> = 7 Median = 11 Q <sub>3</sub> = 17 P <sub>90</sub> = 23 P <sub>99</sub> = 31		Percent Operational Time: 98.5																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-May	NNE16	NNE17	NNE16	NNE16	NNE15	NNE18	N19	NNE19	NNE15	NNE18	N23	N26	NNE27	N30	N30	N30	N31	N31	N29	N24	N24	N23	N20	N12	N22.0	N31
2-May	NNW10	N12	N8	N12	NNE10	N12	NNE16	NNE17	N18	NNE20	N20	N22	NNE23	NNE23	NNE24	NNE25	N29	NNE28	NNE26	N22	N17	N17	N16	N14	N18.1	N29
3-May	N8	NNW6	NNW4	N8	N10	N12	N12	NNE14	NNE14	NNE12	N14	NNE11	NNE11	N12	NNE12	N14	NE14	NNE18	NNE20	NNE20	NNE13	NNW9	NNW8	WNW4	NNE11.1	NNE20
4-May	W5	W4	W5	W3	W2	WNW2	N8	N10	N9	NNE10	NNE10	N9	NE9	NE11	NE11	N10	NE11	NE10	ENE10	ENE7	ENE3	ENE4	ESE8	SSE8	NNE4.9	NE11
5-May	ENE2	N3	NW2	NW3	WNW3	W2	UO	SSE7	SSE6	SE6	E5	SE16	SE25	SE22	SE20	SSE18	SSE11	SSE9	SE13	ESE6	ESE6	ESE5	ESE8	SE6	SE7.6	SE25
6-May	NW5	NNW4	NW5	N5	N3	NW3	NNW4	E3	SE17	SE18	SE19	ESE24	SE21	SE11	N8	NNE16	ENE17	ENE14	NNE14	NNE13	NNE11	S11	S12	WSW4	E5.4	ESE24
7-May	NNE5	N5	NNE8	NE6	NE9	NE9	E9	ENE8	ENE8	NE9	NNE10	NNE11	N9	N6	E7	ESE13	SE9	ESE6	ESE7	ESE5	ESE7	SSE11	SSE12	SSE10	ENE5.4	ESE13
8-May	SSE10	SSE9	SSE6	S6	WSW9	W10	W9	WNW8	W5	S4	SSE4	SSE7	SSE14	SSE7	N10	SW3	SW3	SSW10	SW13	WSW10	SW7	SSW8	SW8	SW9	SSW5.4	SSE14
9-May	SW11	SW10	SW10	SW11	SW12	SSW11	SW10	WNW13	NW24	WNW19	W23	WNW30	WNW27	W26	WNW26	NW24	NW25	NW20	NW17	NW11	NNW4	S2	SW2	SSW3	WNW12.8	WNW30
10-May	SSW3	S5	S4	S6	SSE8	S10	S10	SSW12	SSW15	SSW14	SW16	WSW19	WSW17	WSW18	W20	WSW19	W18	W19	WNW17	NW13	NNW22	N39	NNW17	NW13	W8.1	N39
11-May	NW16	WNW12	WNW9	W10	WNW13	W13	WNW19	NW28	NW32	NW31	NW31	NW32	NW34	NW31	NW32	NNW29	NNE29	NNE31	NNE29	NNE28	NNE21	NE14	NE12	NNE8	NNW18.0	NW34
12-May	N3	NNW3	WNW3	NW3	W3	UO	NNW1	NE1	ESE3	ESE7	ENE6	ENE7	ENE8	SE8	SE8	SE7	ESE9	ENE10	ESE10	ENE6	NNE3	NE2	E4	SSE5	E3.4	ENE10
13-May	NW2	UO	W3	UO	WNW2	SW1	WNW1	SSE8	SSE19	SSE18	SE13	SSE11	SSW6	WSW5	SSW13	S7	N8	NNE10	N18	NNE17	NE8	NNE9	NW1	W5	SE1.4	SSE19
14-May	WSW4	SW5	W6	SSW6	S7	SSE7	SSE7	S9	S11	S13	S14	SSW15	SW16	WSW14	SW16	WSW17	WNW12	NNE17	NNE21	NNE16	NE11	NNE6	NNE1	WSW6	SW3.2	NNE21
15-May	WSW5	W5	W6	NNW7	NNE2	S0	NW1	N6	NNE14	NNE15	NNE11	NE9	NE11	NNE15	NE9	NNE15	NE19	NNE21	NNE23	NNE21	NNE21	NE18	NE15	NNE10.7	NNE23	
16-May	NNE16	NE13	N9	N13	N14	N17	N18	N17	NNE16	NNE17	NNE20	NNE22	NNE16	NNE17	N21	N23	NNE24	NNE24	NNE23	NNE21	N25	NNE24	NNE24	N21	NNE18.6	N25
17-May	NNE17	NNE19	NNE20	N23	NNE19	NNE23	N30	N30	NNE22	N26	N25	N26	NNE28	N27	N29	N25	N25	N23	N22	N20	NNW19	NNW15	N15	N17	N22.3	NNE30
18-May	N14	N12	NNW13	N14	N16	N16	N16	N17	N19	N20	N21	N21	N22	NNW22	NNW24	NNW21	N22	N20	N20	N14	NE11	NNE9	NNE11	NNE11	N16.7	NNW24
19-May	NNE10	NNE12	N13	N14	N12	NNE11	NNE13	NE14	NE16	NE14	NE15	NE18	NNE19	NE17	NE17	NE16	NNE15	NE14	NNE18	N17	N20	N17	N13	N6	NNE14.0	N20
20-May	N4	NNW4	N6	NNW6	NW3	N8	N10	N13	NNE11	N13	N16	N16	N16	NNE16	NNE14	N15	NNE13	NE10	SSE9	S4	W2	ESE3	SE7	ESE7	NNE7.0	N16
21-May	ESE6	SE4	SE3	SE6	SE7	SE9	SE10	ESE7	E9	ENE12	ENE13	E13	E12	ESE14	E14	E17	E14	ENE13	NE14	NE12	ENE8	ENE7	ENE8	NE2	E8.7	E17
22-May	NNW3	WNW4	NW3	WNW4	NW5	N11	NNE11	NE15	NE17	NE19	ENE18	NE17	NE16	NE18	ENE15	ENE9	ENE10	E6	ESE5	SE8	SE8	SE5	SSE1	UO	NE7.6	NE19
23-May	UO	UO	S1	S0	E1	ESE5	E4	E4	E6	E11	E12	ENE11	E9	ESE2	SSE9	SSW4	SE6	SE10	SSE15	S9	S6	SSE6	S5	SSE3	SE4.9	SSE15
24-May	WSW1	SSE0	W1	UO	WSW2	SSW0	ENE1	ESE3	SE9	SE11	SW3	SSE12	ESE7	SSE10	SE8	SSE8	SSE9	SSW12	SSW8	SW6	SW6	SW5	SW4	SSW12	SSE4.7	SSW12
25-May	UO	UO	SSW3	SW3	S4	S6	S8	S10	SSE14	SSE18	SSE19	SE20	SE21	SE17	SE18	SE18	E22	E19	SE12	SE16	SE13	SE9	SE7	SE8	SE11.6	E22
26-May	SE7	WNW2	WNW2	UO	W2	N2	SE5	SE9	SE9	SE15	SSE13	SE11	SSE14	SSE14	SSE9	SSE8	S9	SSE9	SE7	E8	ESE7	SSE7	SE10	SE9	SSE7.1	SE15
27-May	SSE4	WSW1	W4	W2	NNW2	ENE2	NNE2	SSE4	SE7	SE10	SE15	SSE16	SSE15	SE17	SSE16	SE17	W11	WSW12	ESE1	SSE4	NE0	NW0	WNW2	WNW3	SSE4.3	SE17
28-May	WNW6	NW7	WNW5	SE6	ESE6	WNW6	NW6	WNW4	WSW5	WSW5	SSW6	S9	SW7	SW9	WSW10	SSW9	SW9	SW9	SW7	WNW3	NNE2	NNE1	NNE2	ESE8	WSW3.4	WSW10
29-May	NNE8	N12	NE10	ENE10	NE9	NNE10	NNE9	NNW14	N19	N18	N10	WNW5	W3	SW11	SW17	SW18	SW16	SW16	SW15	SW16	SSW16	SSW14	SSW12	S11	W3.3	N19
30-May	S9	S5	W5	W6	NW11	NW15	NW18	NW19	NW21	NW19	NW17	NW20	NW13	WNW10	NW15	NW18	NW13	NW12	NW20	NW15	NW12	WNW16	WNW17	WNW12	NW12.8	NW21
31-May	WNW15	NW25	WNW22	WNW23	WNW15	W13	WNW16	WNW15	NW19	NW26	WNW26	NW26	NW27	NW25	NW21	NW22	NW24	NW27	NW22	NW18	NW18	NNW20	NW19	NW20	NW20.6	NW27
NNW3.1NNW4.2NNW4.0NNW4.1NNW3.3NNW4.2 N5.1 N5.2NNE4.8NNE5.1NNE5.0NNE4.8NNE4.0 N4.1 N4.3 N5.4NNE7.2NNE7.7NNE7.5NNE7.0NNE6.4NNE5.0NNE3.4 N2.0																								Diurnal Average		
NNE17 NW25WNW22WNW23 NNE19 NNE23 NNE30 N30 NW32 NW31 NW31 NW32 NW34 NW31 NW32 N30 N31 N31 NNE29 NNE28 N25 N39 NNE24 N21																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Ells River - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h**  
**Ells River - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	141	19.24	19.24
6 - 11	233	31.79	51.02
12 - 19	235	32.06	83.08
20 - 28	101	13.78	96.86
29 - 38	22	3.00	99.86
> 38	1	0.14	100.00

Total Number of Valid Hours: 733

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Ells River - May 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	9	3	5	6	9	4	8	11	5	9	9	17	17	13	9	141
6 - 11	22	24	18	16	7	19	32	27	18	8	16	4	7	6	3	6	233
12 - 19	45	44	24	7	6	3	15	17	3	9	11	7	4	15	19	6	235
20 - 28	31	30	0	0	1	1	6	0	0	0	0	0	3	6	18	5	101
29 - 38	9	4	0	0	0	0	0	0	0	0	0	0	0	1	7	1	22
> 38	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<b>Totals</b>	115	111	45	28	20	32	57	52	32	22	36	20	31	45	60	27	733

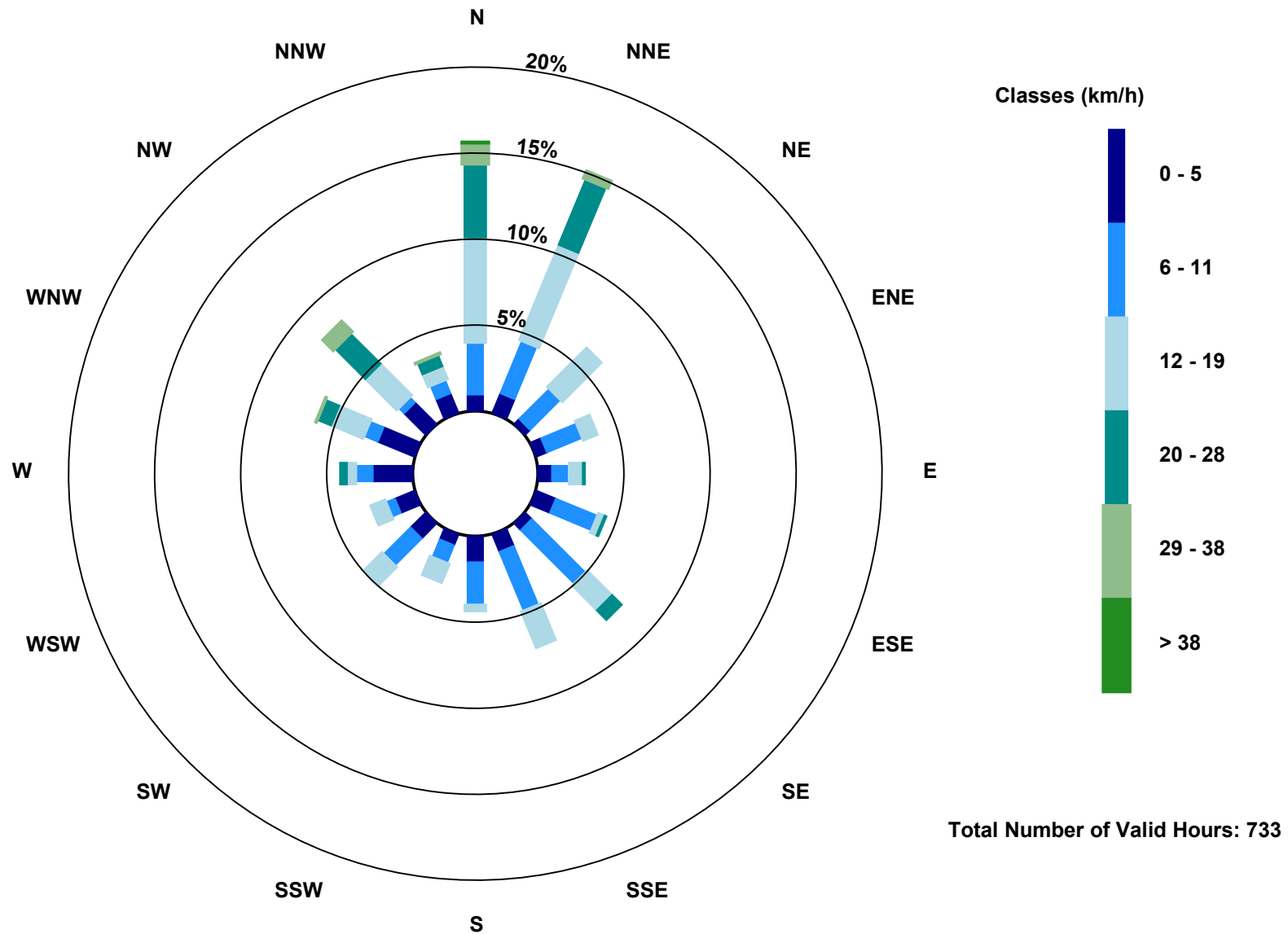
Total Number of Valid Hours: 733

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Ells River





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Ells River - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 13 19:00														Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5													
Minimum Value: 1 km/h on May 4 01:00																											
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																											
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-May	3	2	2	2	3	2	2	3	4	3	4	5	4	4	5	5	5	4	5	5	4	3	4	3	5		
2-May	1	2	3	2	3	2	2	2	3	3	4	5	5	6	5	5	5	5	4	4	2	2	2	2	6		
3-May	3	2	2	2	2	1	2	2	3	3	3	4	4	4	4	5	5	5	4	3	4	2	3	1	5		
4-May	1	1	1	2	2	1	4	1	2	3	4	4	5	5	5	4	4	3	2	2	2	2	2	5			
5-May	1	1	1	1	1	1	UO	3	2	2	2	6	5	6	6	6	6	5	3	1	1	1	1	2	6		
6-May	1	1	1	1	1	1	1	5	3	3	5	5	5	4	2	3	4	3	2	2	4	4	6	1	6		
7-May	2	1	2	1	1	1	2	1	2	2	2	2	1	1	2	3	2	2	2	1	1	2	2	2	3		
8-May	2	1	2	1	2	3	2	2	2	2	2	3	5	5	4	3	3	4	4	3	2	1	2	2	5		
9-May	3	3	4	3	2	2	2	7	5	5	6	8	8	7	7	6	6	5	4	3	3	1	1	2	8		
10-May	2	2	2	1	1	1	2	3	4	4	5	6	6	6	6	7	6	6	5	7	7	9	9	3	9		
11-May	3	2	2	2	3	3	6	6	6	7	6	7	7	7	7	6	5	5	5	5	4	3	2	2	7		
12-May	2	1	1	1	1	UO	1	1	3	2	3	4	4	3	3	2	3	3	2	1	2	1	2	1	4		
13-May	1	UO	1	UO	2	1	1	8	3	4	4	5	5	3	6	5	7	5	9	5	2	1	2	2	9		
14-May	3	1	2	1	2	3	2	2	3	3	4	5	6	5	5	5	5	5	9	4	3	3	1	9			
15-May	2	3	2	3	2	2	2	2	3	3	4	4	5	6	6	5	4	4	3	4	3	3	4	2	6		
16-May	2	2	2	3	2	3	2	2	2	3	3	4	5	3	3	4	4	3	4	3	3	4	3	3	5		
17-May	3	3	3	3	4	6	4	4	4	3	3	4	4	4	4	4	4	4	4	4	3	3	2	2	6		
18-May	2	2	2	2	2	3	2	2	3	3	4	4	3	4	3	4	4	3	3	2	2	2	2	1	4		
19-May	2	2	2	2	1	1	2	2	2	3	3	3	3	3	4	3	4	4	3	2	3	2	2	2	4		
20-May	1	2	1	1	1	2	3	2	1	2	3	3	4	3	3	4	3	3	3	2	2	2	1	1	4		
21-May	1	1	1	1	1	2	2	3	4	4	3	4	5	5	4	4	4	4	2	3	2	1	1	2	5		
22-May	2	1	1	1	1	3	2	3	3	4	4	4	4	5	4	4	4	2	2	2	2	1	1	UO	5		
23-May	UO	UO	2	1	1	1	1	2	3	3	4	5	5	3	4	4	4	4	3	2	1	2	2	2	5		
24-May	2	1	1	UO	1	2	1	2	3	4	4	5	5	4	3	2	4	3	2	1	1	1	1	2	5		
25-May	UO	UO	3	2	2	2	2	2	4	4	4	5	6	6	6	6	5	5	4	3	2	1	1	1	6		
26-May	3	2	1	UO	2	1	2	3	3	5	5	4	4	5	3	3	3	2	3	1	1	2	1	1	5		
27-May	2	1	1	2	1	1	1	2	4	4	6	5	5	5	4	4	5	5	2	1	1	1	1	3	6		
28-May	5	2	2	2	3	1	1	2	2	3	3	3	4	4	4	4	4	4	3	1	2	1	3	3	5		
29-May	2	3	3	3	2	2	2	2	3	3	3	1	2	6	5	6	5	5	5	4	5	4	4	3	6		
30-May	2	2	1	2	3	3	3	4	4	4	4	5	3	3	5	6	3	5	5	5	4	4	4	4	6		
31-May	5	8	7	6	4	4	5	4	7	6	6	5	6	6	5	5	5	5	6	4	4	4	4	4	8		
														Diurnal Maximum													
														5 8 7 6 4 6 6 8 7 7 6 8 8 7 7 7 7 6 9 9 7 9 9 4													
UO - Unstable Operation																											



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

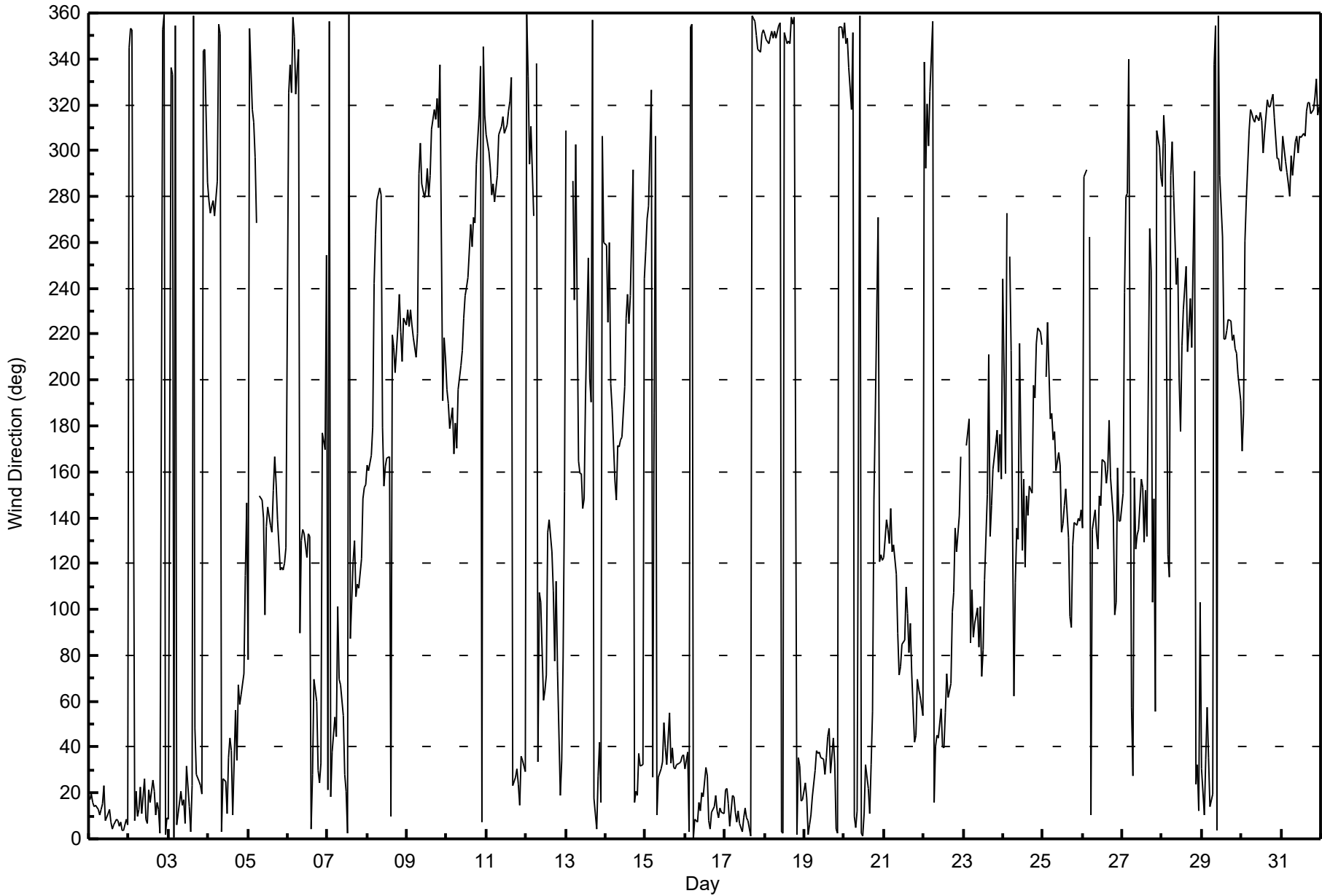
**Wind Direction (WD) - deg**  
**Ells River - May 2024**

Direction of Maximum Speed: 7 deg on May 10 22:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 5.6 deg on May 17	Hours of Data: 733
Direction of Minimum Speed: 55 deg on May 27 21:00	Direction of Minimum Daily Speed Average: 1.4 deg on May 13
Direction of Minimum Speed: 55 deg on May 27 21:00	Hours of Missing Data: 11
Monthly Average Direction: 5.9 deg	Percent Operational Time: 98.5

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-May	17	19	16	14	15	13	10	13	15	23	8	11	13	7	4	6	9	8	6	8	4	4	8	6	9.9
2-May	344	353	353	8	21	10	13	23	11	26	9	7	21	16	26	21	10	16	13	2	353	360	2	9	11.1
3-May	9	336	333	0	354	6	11	21	14	17	7	32	14	3	23	359	48	28	25	23	19	344	344	286	12.6
4-May	278	273	276	278	271	287	355	351	3	27	25	11	35	44	39	10	56	34	67	58	63	72	115	147	28.5
5-May	78	353	318	312	297	268	UO	150	148	140	97	136	144	137	134	152	167	155	139	117	118	117	120	127	138.7
6-May	325	337	325	358	349	325	344	90	130	135	133	122	133	132	4	28	70	60	30	24	33	177	170	255	90.4
7-May	22	356	18	38	53	45	101	70	67	54	28	21	2	360	87	121	130	106	111	109	122	148	153	154	77.4
8-May	163	161	167	179	242	263	278	284	281	179	153	162	166	167	10	220	214	203	223	237	221	208	227	224	211.2
9-May	231	223	230	224	218	210	220	290	304	285	280	283	292	280	289	309	318	314	323	310	338	191	219	209	282.7
10-May	196	190	179	188	168	181	170	196	206	213	227	237	240	245	268	258	271	269	294	315	337	7	346	316	263.3
11-May	307	299	292	281	285	278	289	307	309	311	315	308	311	317	321	332	23	27	31	24	15	36	34	29	331.5
12-May	359	333	294	311	272	UO	338	34	107	103	60	65	71	134	139	125	108	78	112	73	19	34	79	151	89.1
13-May	309	UO	279	UO	287	235	303	165	159	159	144	148	194	253	201	191	357	18	4	27	42	16	306	260	134.4
14-May	258	225	260	198	188	156	148	171	171	174	175	197	227	237	225	237	292	16	21	19	37	32	33	244	216.3
15-May	257	270	276	327	27	185	306	10	27	31	33	51	40	32	55	33	40	31	31	33	33	33	36	37	29.6
16-May	30	38	3	354	355	0	9	7	16	12	20	18	31	28	8	4	12	14	19	12	9	13	12	11	13.2
17-May	22	22	15	6	19	19	11	7	12	7	3	9	14	9	8	1	359	358	356	350	344	343	351	353	5.6
18-May	351	349	346	350	352	349	352	349	354	356	3	2	351	347	348	347	358	355	358	2	36	32	16	17	356.3
19-May	24	18	2	6	10	18	30	39	37	38	35	35	28	35	44	48	29	44	33	4	2	354	354	349	23.7
20-May	356	347	349	336	318	351	10	5	12	359	3	1	11	32	22	11	33	56	147	186	271	121	124	122	17.1
21-May	122	139	135	129	144	125	128	115	90	72	75	85	87	110	98	81	94	72	42	45	69	65	62	54	88.6
22-May	339	292	321	302	326	356	16	40	45	44	57	40	40	55	72	62	68	99	108	136	125	141	167	UO	49.1
23-May	UO	UO	172	183	86	109	88	94	101	84	101	71	82	113	150	211	132	145	161	172	178	160	176	157	128.3
24-May	244	159	273	UO	254	213	62	112	135	131	216	126	157	118	149	141	154	151	198	192	216	223	221	215	163.3
25-May	UO	UO	201	225	183	185	174	178	161	168	163	134	137	145	153	131	97	92	128	138	137	140	139	143	142.6
26-May	135	289	292	UO	262	10	135	143	133	126	150	145	165	164	155	161	183	157	140	98	103	162	138	139	146.8
27-May	151	238	280	281	340	57	27	158	126	133	135	157	153	129	152	132	266	248	103	149	55	309	302	288	153.6
28-May	284	315	303	124	114	289	304	282	241	253	201	178	215	231	250	213	223	235	214	291	24	33	12	103	237.1
29-May	30	11	35	57	35	14	20	338	355	3	359	289	262	218	218	222	226	226	217	220	213	212	203	191	262.5
30-May	169	185	261	279	309	318	316	314	313	315	313	317	313	299	308	322	319	319	322	325	315	297	297	291	309.6
31-May	291	306	296	291	285	280	298	289	304	306	299	306	305	308	306	317	321	321	316	318	323	331	315	319	307.4

348.7 339.4 327.9 339.4 338.9 348.1 357.8 357.4 11.8 23.2 15.8 18.8 17.8 10.8 2.4 4.0 14.8 17.1 16.8 13.7 12.3 11.9 12.9 355.5  
 Diurnal Average

UO - Unstable Operation  
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Ells River - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 95 deg on May 23 14:00		Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5																							
Minimum Value: 6 deg on May 3 21:00																									
Percentiles: P <sub>1</sub> = 7 P <sub>10</sub> = 9 Q <sub>1</sub> = 12 Median = 18 Q <sub>3</sub> = 28 P <sub>90</sub> = 48 P <sub>99</sub> = 85																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-May	9	8	7	9	8	8	9	10	13	15	15	12	15	13	14	18	15	13	13	10	11	11	8	12	18
2-May	12	13	16	9	10	8	8	12	18	14	19	18	19	20	19	18	15	13	11	12	13	12	11	9	20
3-May	10	13	15	13	14	12	10	15	16	20	21	23	24	23	36	21	25	19	10	7	6	9	11	27	36
4-May	10	15	16	37	18	30	19	13	26	21	32	48	51	36	41	42	28	28	21	10	23	14	19	11	51
5-May	61	22	23	24	23	18	UO	18	25	38	40	25	14	12	19	29	50	40	12	26	9	11	7	21	61
6-May	40	23	19	22	21	32	16	74	9	10	21	16	11	22	34	18	15	14	13	7	22	25	26	29	74
7-May	24	14	13	12	15	9	15	11	12	15	9	8	13	26	18	14	9	15	11	10	12	10	9	8	26
8-May	10	8	10	27	20	18	16	16	19	35	74	48	26	84	38	78	79	26	23	20	19	12	16	12	84
9-May	15	17	21	13	13	14	20	36	13	21	20	19	19	23	20	17	15	17	12	10	59	33	49	35	59
10-May	55	15	60	26	10	8	11	16	19	23	27	26	31	29	27	23	23	21	15	19	13	14	18	12	60
11-May	10	13	15	17	16	17	18	15	13	14	16	15	15	16	15	18	20	11	11	8	8	14	8	8	20
12-May	43	16	23	33	22	UO	76	59	61	42	43	40	34	35	29	25	28	17	18	18	30	45	14	21	76
13-May	42	UO	15	UO	28	71	86	90	12	15	26	32	64	65	36	82	82	36	33	13	17	13	61	18	90
14-May	45	18	14	36	15	29	25	16	21	18	24	31	29	37	24	28	52	30	16	43	29	61	92	22	92
15-May	42	32	28	31	67	84	83	41	14	20	22	44	36	30	64	21	16	12	9	9	8	9	9	9	84
16-May	8	9	20	13	12	11	8	8	9	9	6	8	20	9	12	14	9	10	9	8	9	9	7	8	20
17-May	11	11	8	12	18	16	9	12	10	11	13	9	10	10	12	13	13	14	14	12	10	10	12	12	18
18-May	11	12	13	11	13	12	13	11	14	14	12	13	13	13	14	11	14	13	13	13	15	12	7	7	15
19-May	8	10	11	10	7	8	8	9	9	11	10	13	10	16	12	12	9	10	12	12	13	12	11	16	16
20-May	21	17	16	11	13	16	13	12	11	14	13	15	20	15	21	20	18	26	31	30	34	38	17	9	38
21-May	7	9	20	12	6	11	12	23	30	27	22	24	30	22	26	18	23	25	8	11	13	14	6	64	64
22-May	51	28	26	27	14	19	13	12	13	15	18	16	18	17	25	30	25	36	27	20	9	10	83	UO	83
23-May	UO	UO	82	87	76	13	18	35	39	27	34	38	48	95	45	93	63	28	18	14	6	18	15	66	95
24-May	57	86	36	UO	57	83	74	69	19	19	84	49	31	58	41	41	27	48	20	19	11	15	17	52	86
25-May	UO	UO	51	42	43	18	17	19	20	18	21	17	15	24	23	32	16	12	25	12	7	9	9	6	51
26-May	17	47	45	UO	51	61	40	21	28	19	23	24	23	22	44	34	35	20	33	17	8	35	8	22	61
27-May	26	76	18	73	40	61	37	52	48	26	28	26	31	18	21	14	40	28	89	29	81	39	44	64	89
28-May	56	26	52	31	59	18	23	41	39	55	53	42	59	41	41	51	45	50	28	31	49	42	71	35	71
29-May	21	25	19	16	25	21	24	11	14	13	25	26	56	28	22	23	26	25	23	20	20	21	17	16	56
30-May	13	28	24	28	14	11	12	12	12	12	12	11	15	19	18	22	13	13	11	12	13	15	14	13	28
31-May	16	13	14	16	19	19	16	17	15	14	16	14	13	14	13	12	14	12	13	11	13	13	13	12	19
Diurnal Maximum																									
61 86 82 87 76 84 86 90 61 55 84 49 64 95 64 93 82 50 89 43 81 61 92 66																									
UO - Unstable Operation																									



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

### **AMS505 SAWBONES BAY MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
MAY 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	11.7	0	4.5	0
H2S (ppb) Average	706	37	38	99.87	1	0	0.5	0
NO2 (ppb) Average	707	36	37	99.87	19.8	0	10.1	-
NO (ppb) Average	707	36	37	99.87	7.3	-	3.4	-
NOX (ppb) Average	707	36	37	99.87	25.6	-	13.5	-
Temperature 2 m (C) Average	744	0	0	100	25.6	-	17.8	-
Relative Humidity (%) Average	744	0	0	100	99.1	-	95.8	-
Wind Speed 10 m (km/h) Average	744	0	0	100	34	-	24	-
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 - SAWBONES BAY (AMS505)  
MAY 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	0.57	1.5	-	0	0	0	0.1	0.3	1.3	11.7
H2S (ppb) Average	706	0.12	0.2	-	0	0	0	0.1	0.1	0.3	1
NO2 (ppb) Average	707	1.9	3.2	-	0	0	0.1	0.6	2	6.1	19.8
NO (ppb) Average	707	0.42	1.1	-	0	0	0	0	0.1	1.4	7.3
NOX (ppb) Average	707	2.32	4.2	-	0	0	0.1	0.6	2.2	7.5	25.6
Temperature 2 m (C) Average	744	9.05	5.6	-	-2.2	2.2	5	8.4	12.5	17.2	25.6
Relative Humidity (%) Average	744	66.52	24	-	16.4	32.5	47	67.8	90.4	95.8	99.1
Wind Speed 10 m (km/h) Average	744	10.5	6	-	0	4	6	9	13	20	34
Wind Direction 10 m (deg) Average	744	42.7	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	31 May 2024 13:00	31 May 2024 13:00	1	Maintenance - sample manifold cleaned



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Sawbones Bay - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.7 ppb on May 10 23:00	Maximum Daily Average: 4.5 ppb on May 10		Hours of Data:	709
Minimum Value: 0.0 ppb on May 1 09:00	Minimum Daily Average: 0.0 ppb on May 16		Hours of Missing Data:	35
Maximum Diurnal Average: 0.8 ppb at hour 6	Minimum Diurnal Average: 0.3 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 0.57 ppb	Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.1 Q <sub>3</sub> = 0.3 P <sub>90</sub> = 1.3 P <sub>99</sub> = 7.7		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-May	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
2-May	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.2	0.2	0.0	0.1	0.1	0.1
3-May	0.2	0.1	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4-May	0.1	0.1	0.2	0.6	0.3	Z	0.5	0.4	0.2	0.2	0.1	0.1	0.2	1.1	0.8	1.0	1.4	0.7	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.1
5-May	Z	0.3	0.3	0.2	0.3	0.3	0.4	1.0	1.1	0.5	0.3	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0
6-May	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	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-May	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	0.0	0.0	0.1	0.0	0.1
8-May	0.1	1.6	3.2	Z	0.8	0.6	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.3	0.4	0.9	0.9	0.9	1.4	0.2	0.9	0.4	3.1	0.4	0.8	3.2
9-May	2.5	8.0	3.2	8.9	Z	6.5	1.2	0.2	0.0	0.3	0.2	0.2	0.1	0.3	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.5	0.3	0.3	1.4	8.9
10-May	0.3	0.2	0.1	0.0	0.1	Z	0.8	5.4	4.5	4.4	3.4	4.3	4.4	5.6	8.7	8.3	6.2	7.8	3.9	1.0	7.0	8.8	11.7	6.4	4.5	11.7
11-May	Z	0.1	0.2	0.8	0.6	0.3	0.3	0.3	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.6	0.6	0.3	0.3	0.2	0.1	0.1	0.3	0.8
12-May	0.1	Z	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.1	0.1	0.0	0.1	0.3
13-May	0.1	0.0	Z	0.1	0.1	0.1	0.2	0.3	0.4	0.4	0.5	0.4	0.4	0.6	1.3	1.0	3.5	1.8	0.6	0.5	0.7	1.2	0.8	1.2	0.7	3.5
14-May	1.6	1.7	3.7	Z	1.3	5.3	7.1	2.4	3.7	0.9	3.7	3.0	3.9	3.5	3.6	4.5	3.1	1.8	0.8	0.2	0.3	0.3	0.0	0.1	2.4	7.1
15-May	0.1	0.1	0.1	0.0	Z	0.8	0.9	0.2	0.3	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	0.3	0.1	0.9
16-May	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
17-May	Z	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	0.1
18-May	0.0	Z	0.0	0.0	0.2	0.1	0.3	0.4	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.4
19-May	0.2	0.2	Z	0.3	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	0.0	0.0	0.0	0.0	0.1	0.3
20-May	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-May	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
22-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
23-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.2
24-May	0.1	Z	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.3
25-May	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
26-May	0.1	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	0.1
27-May	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	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
28-May	0.0	0.0	0.0	0.0	0.1	Z	0.2	0.3	0.9	3.0	1.3	0.8	0.8	0.7	1.7	0.7	0.4	0.2	0.4	0.3	0.3	0.3	0.2	0.3	0.6	3.0
29-May	Z	0.3	0.2	0.2	0.3	0.3	0.4	0.5	1.7	3.2	4.0	3.8	4.0	4.8	7.7	6.6	3.0	5.9	6.5	5.6	5.2	3.8	1.8	5.9	3.3	7.7
30-May	2.9	Z	6.0	6.1	5.8	6.1	6.7	2.6	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.7	0.3	0.3	1.7	6.7
31-May	0.5	0.1	Z	3.8	0.5	0.4	0.1	0.0	0.1	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	3.8

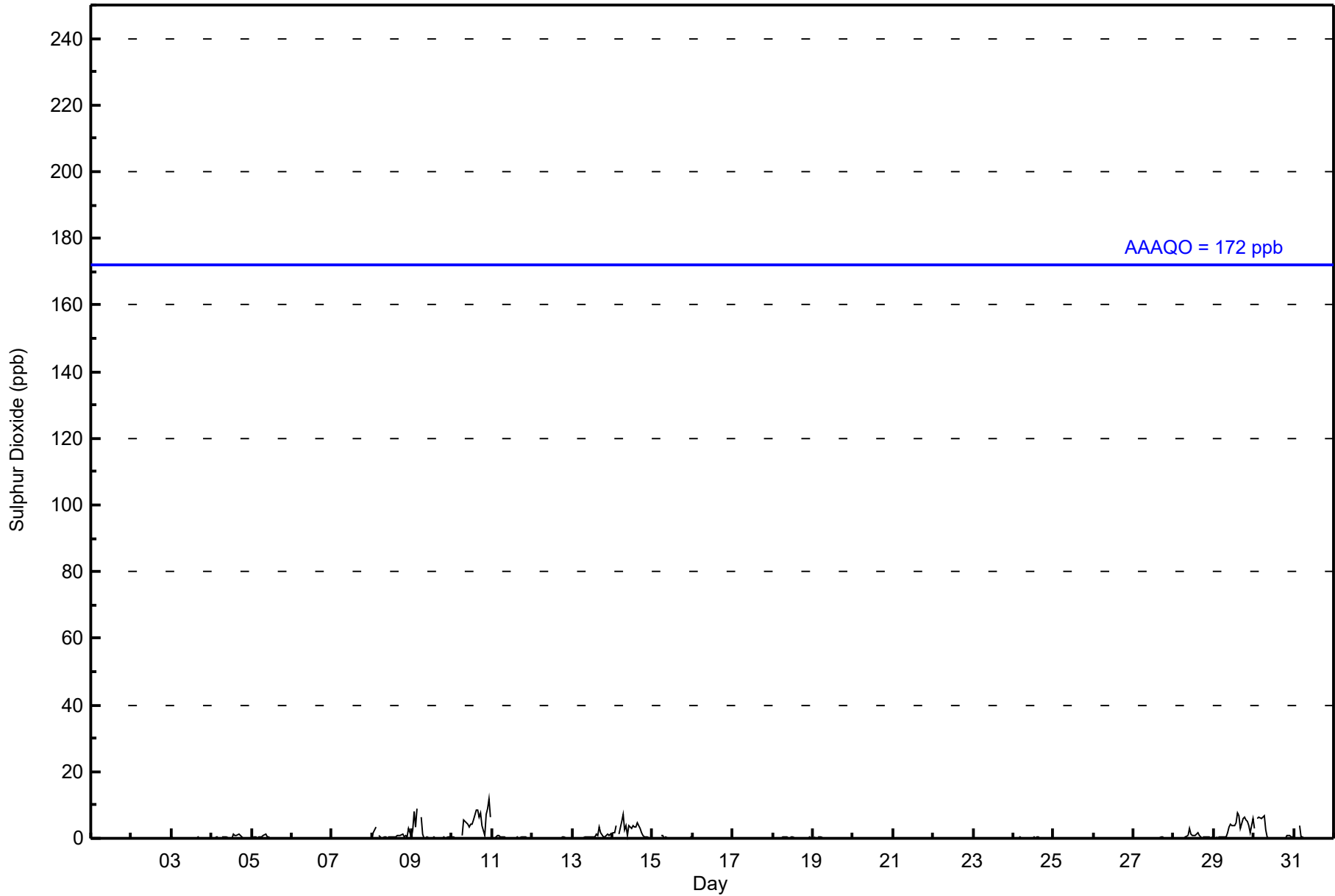
0.3	0.5	0.7	0.8	0.4	0.8	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.8	0.7	0.7	0.5	0.3	0.5	0.6	0.6	0.5	Diurnal Average	
2.9	8.0	6.0	8.9	5.8	6.5	7.1	5.4	4.5	4.4	4.0	4.3	4.4	5.6	8.7	8.3	6.2	7.8	6.5	5.6	7.0	8.8	11.7	6.4	Diurnal Maximum		

Z - zerospan      C - Calibration  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb



Wood Buffalo Environmental Association  
Hourly Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sawbones Bay - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Sawbones Bay - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	708	99.86	99.86
11 - 20	1	0.14	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sawbones Bay - May 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	40	70	37	40	89	63	58	47	23	16	21	43	26	78	45	12	708
11 - 20	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	40	70	37	40	89	63	58	47	23	16	22	43	26	78	45	12	709

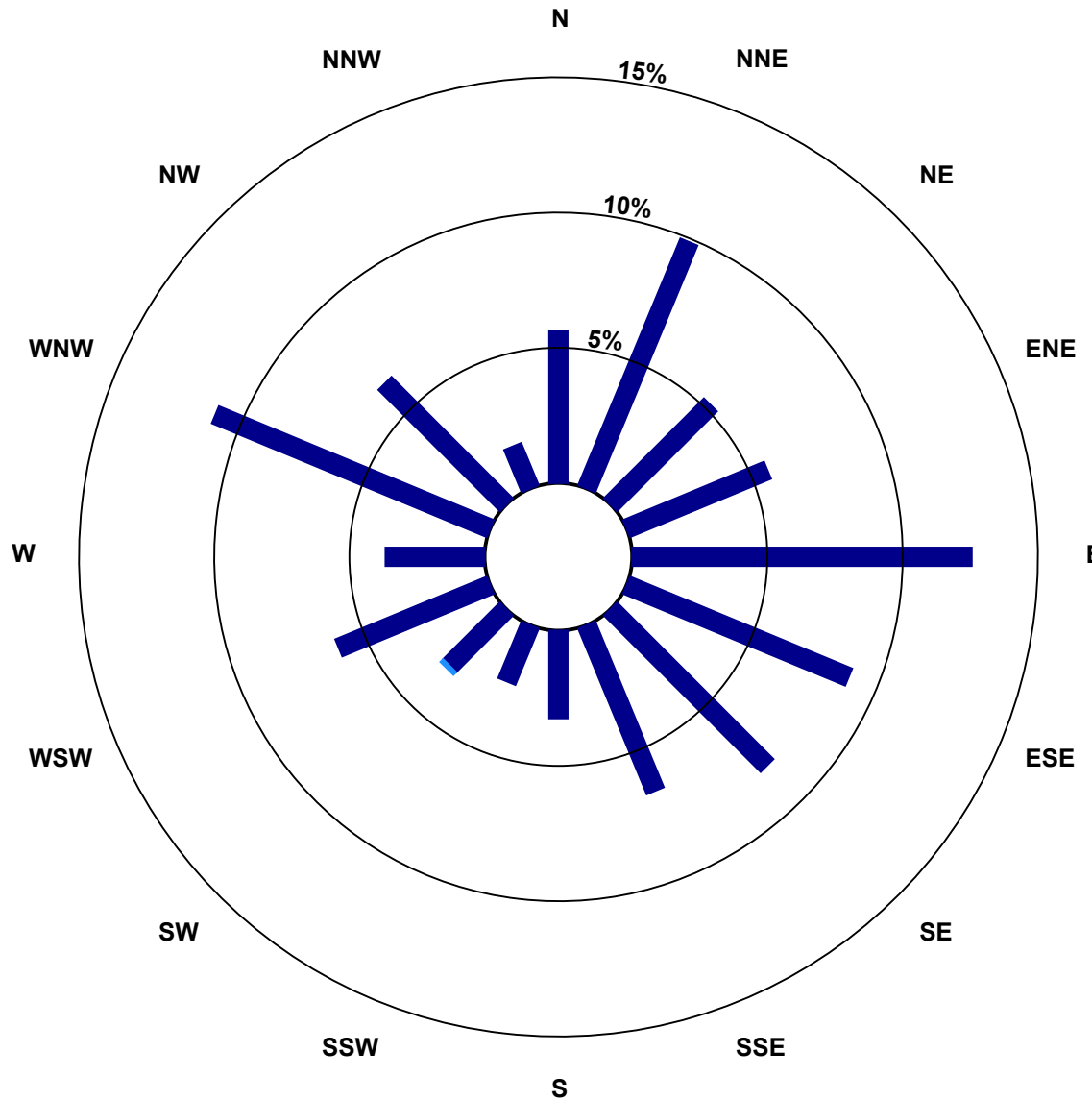
Total Number of Valid Hours: 709

Total Number of Hours: 744

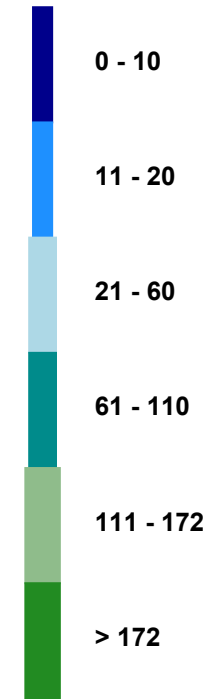


Wood Buffalo Environmental Association  
Wind Rose May 2024

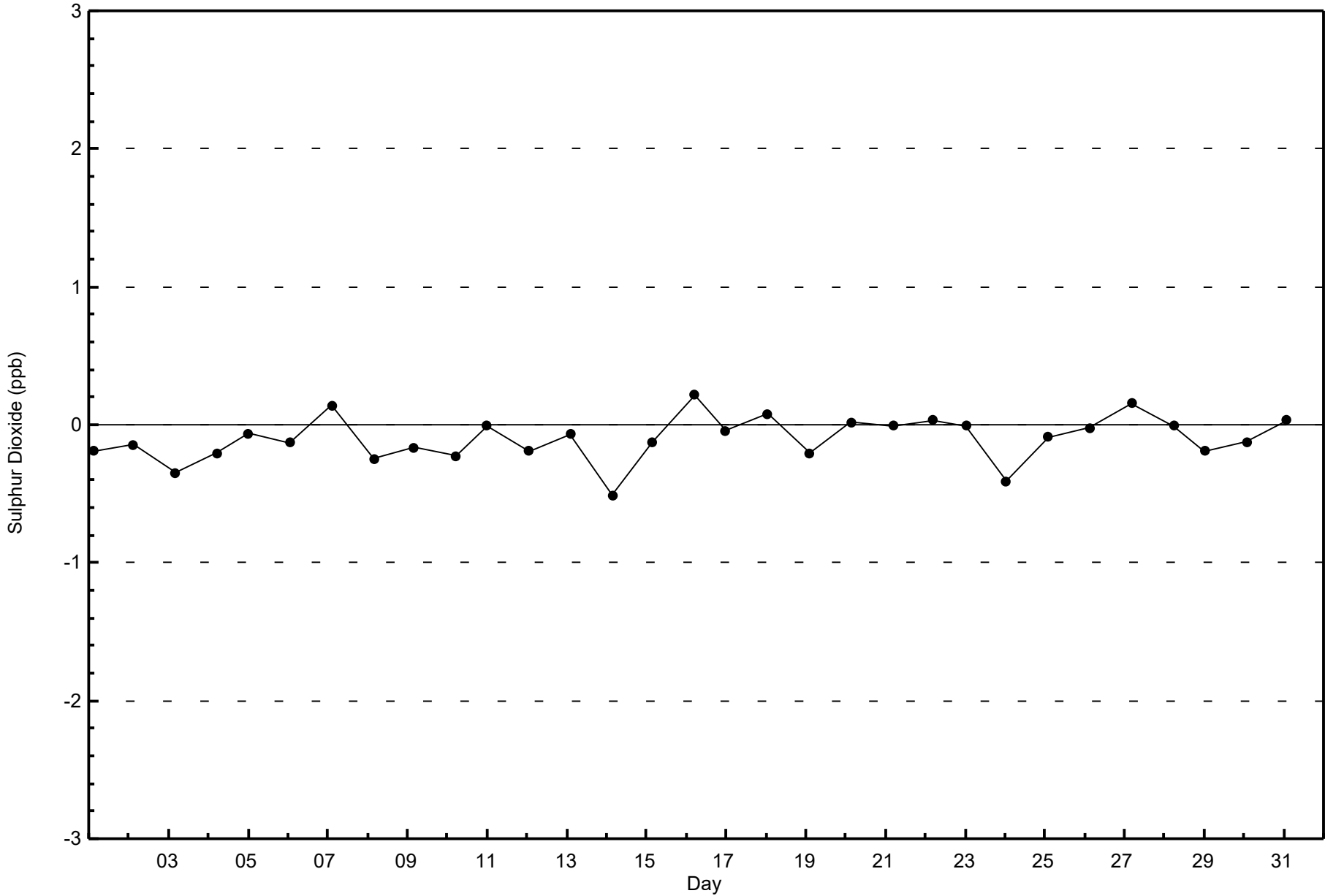
Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Sawbones Bay



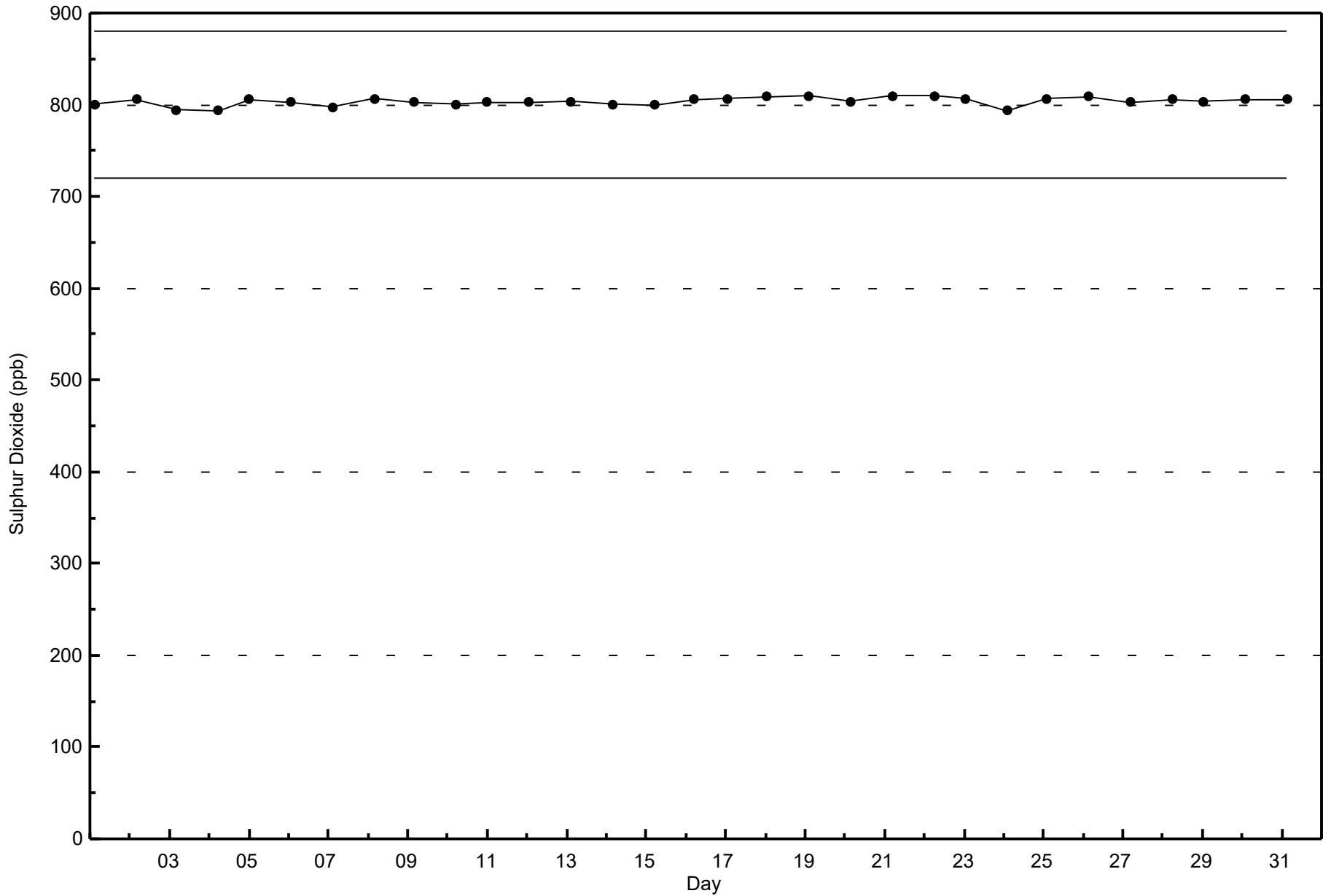
Classes (ppb)



Total Number of Valid Hours: 709





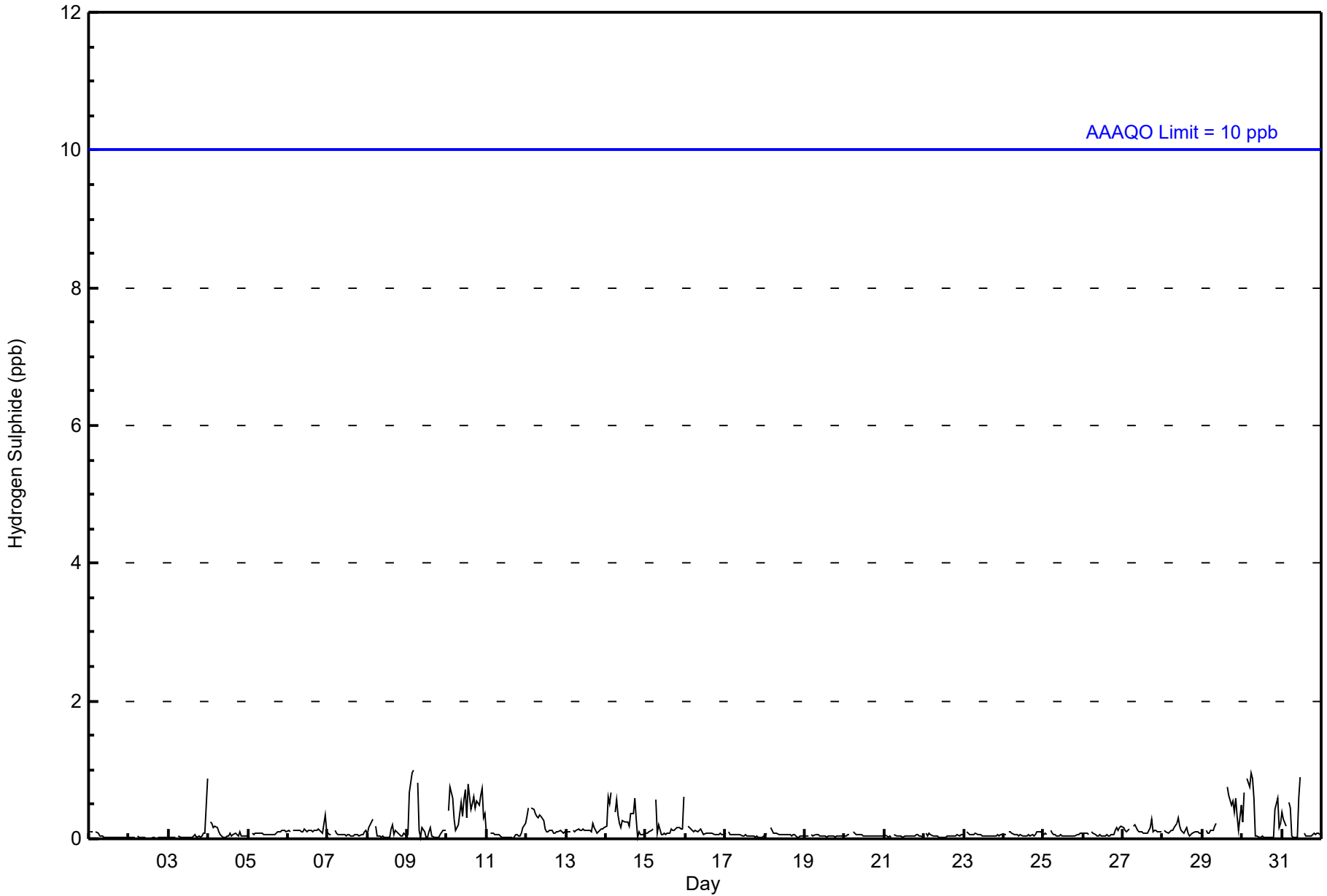






**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Sawbones Bay - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Sawbones Bay - May 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  
Sawbones Bay - May 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	43	69	36	41	89	62	56	48	26	16	20	39	26	79	45	11	706
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>	43	69	36	41	89	62	56	48	26	16	20	39	26	79	45	11	706

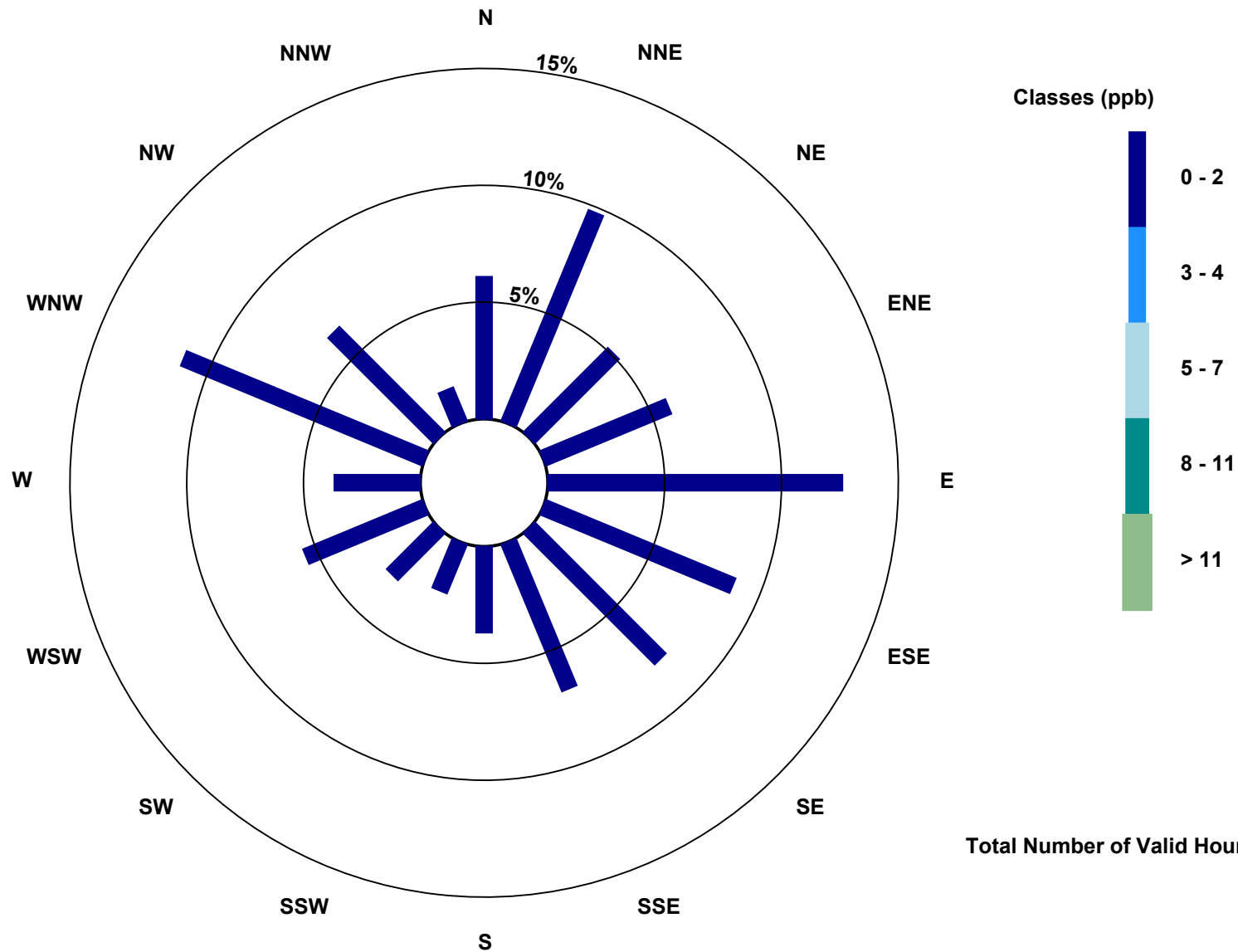
Total Number of Valid Hours: 706

Total Number of Hours: 744

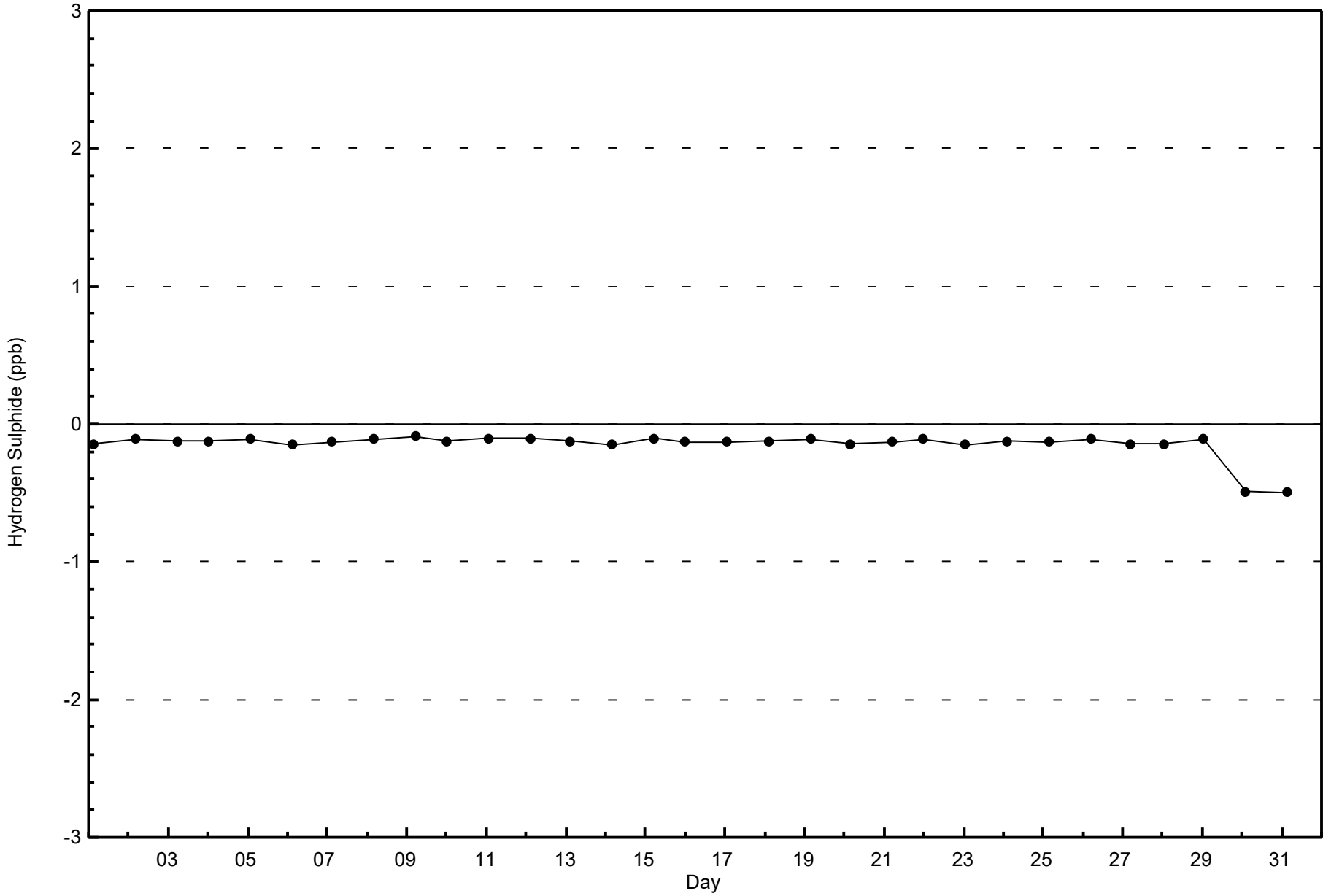


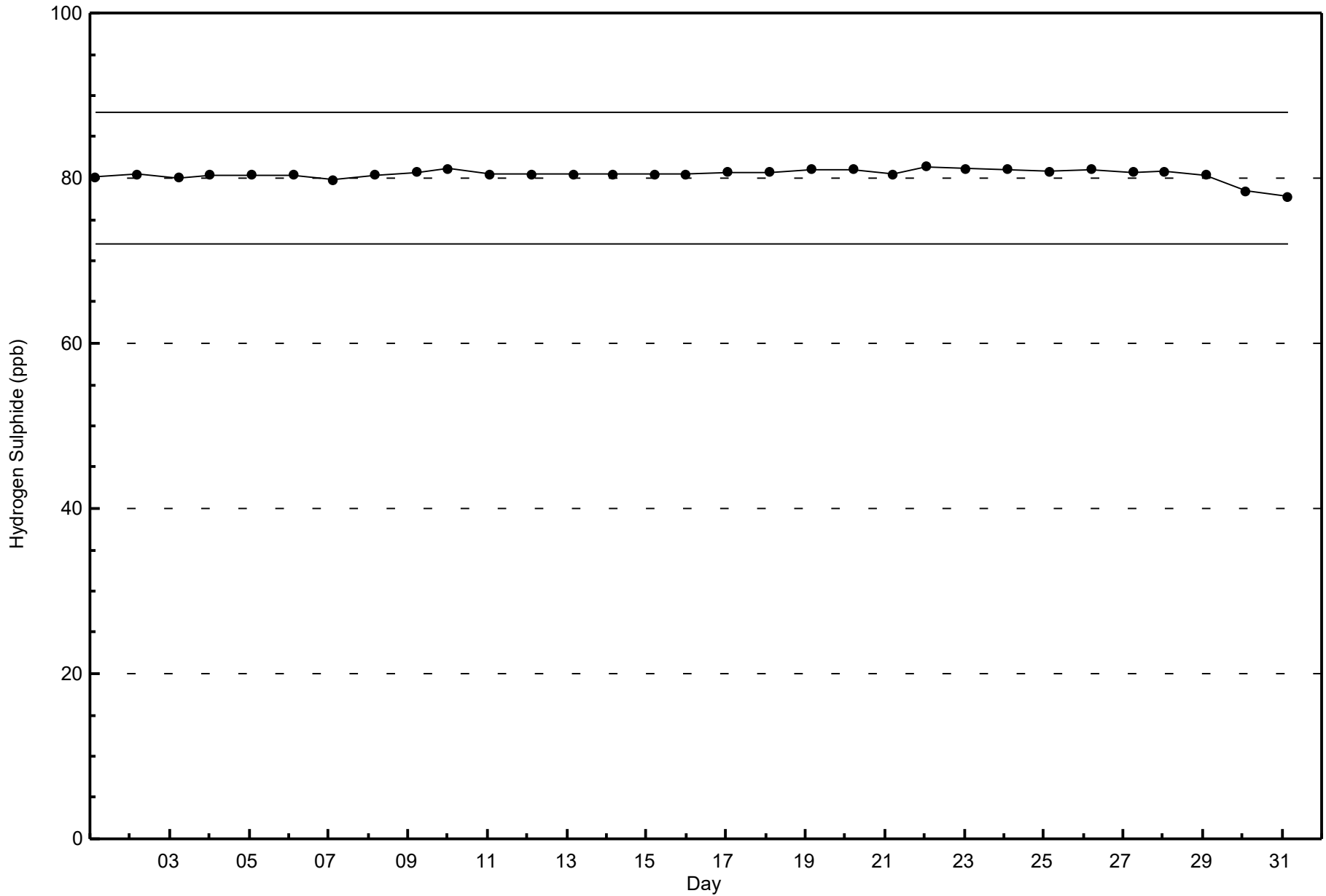
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Sawbones Bay



Total Number of Valid Hours: 706







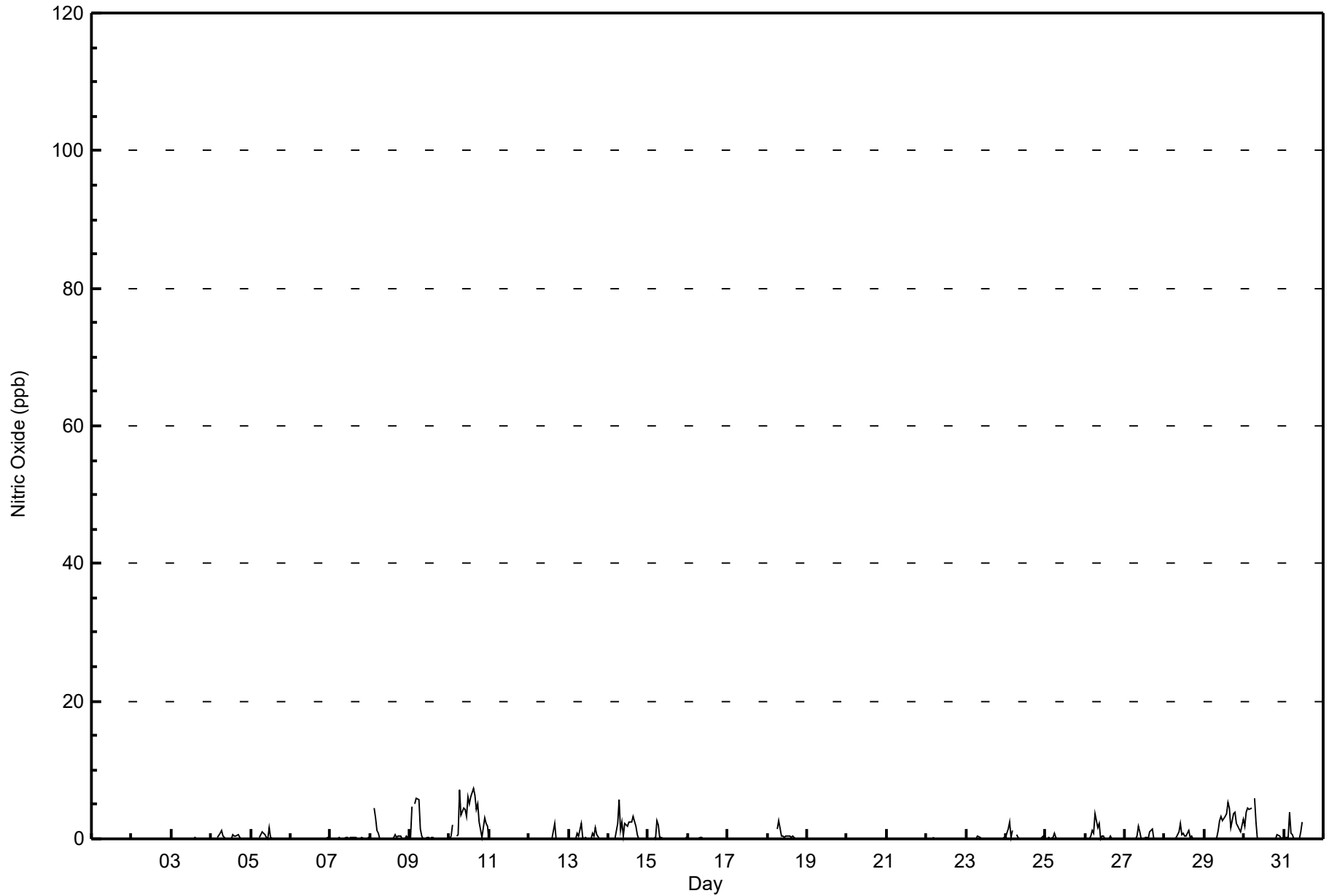


Maximum Value: 7.3 ppb on May 10 15:00		Maximum Daily Average: 3.4 ppb on May 10		Hours in Service: 744																																		
Minimum Value: 0.0 ppb on May 1 02:00		Minimum Daily Average: 0.0 ppb on May 2		Hours of Data: 707																																		
Maximum Diurnal Average: 1.0 ppb at hour 7		Minimum Diurnal Average: 0.1 ppb at hour 20		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 = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 1.4 P <sub>99</sub> = 5.7		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-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
2-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
3-May	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	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
4-May	0.1	0.0	0.0	Z	0.2	0.8	1.2	0.4	0.2	0.0	0.0	0.0	0.0	0.7	0.4	0.4	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
5-May	0.0	0.0	0.0	0.0	Z	0.3	0.6	0.9	0.7	0.1	0.0	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
6-May	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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				
7-May	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.0	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
8-May	0.2	Z	4.5	3.1	1.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.3	0.4	0.4	0.0	0.1	0.0	0.4	0.0	0.5	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
9-May	0.2	4.7	Z	5.0	5.8	5.7	1.3	0.4	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
10-May	0.0	0.4	2.1	Z	0.4	0.6	7.1	3.5	4.6	4.2	3.3	6.2	5.0	6.1	7.3	6.3	4.2	5.0	2.4	0.2	1.7	3.0	2.2	1.9	3.4	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
11-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
12-May	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	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
13-May	Z	0.0	0.0	0.0	0.0	0.8	0.5	2.3	0.3	0.1	0.1	0.0	0.0	0.0	0.8	0.4	1.5	0.6	0.1	0.0	0.0	0.0	0.0	0.3	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
14-May	0.0	Z	0.0	0.0	0.0	0.0	2.2	5.7	1.2	2.4	0.5	2.2	1.9	2.4	2.4	3.2	1.8	0.7	0.0	0.0	0.0	0.0	0.0	1.3	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
15-May	0.0	0.0	Z	0.3	0.0	2.7	2.0	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	0.1	0.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
16-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	0.0	Z	1.5	2.7	0.5	0.3	0.2	0.4	0.3	0.4	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
19-May	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
20-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
21-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
22-May	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	0.0	0.0	0.0	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-May	0.0	0.0	0.0	0.0	Z	0.0	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	0.0	0.0	0.0	0.0	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-May	0.1	1.4	2.5	0.2	1.3	Z	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
25-May	Z	0.0	0.2	0.0	0.1	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
26-May	0.0	Z	0.0	0.3	1.2	0.8	3.7	1.6	2.2	0.1	0.5	0.3	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
27-May	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	1.8	1.1	0.0	0.0	0.2	0.1	0.1	1.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
28-May	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	1.1	2.2	0.7	0.9	0.4	0.4	1.2	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
29-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	1.2	2.5	3.3	2.7	3.3	3.6	5.2	4.5	1.7	3.6	3.8	2.3	1.7	1.4	0.9	2.9	1.9	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-May	1.9	3.9	4.4	4.3	4.5	Z	5.8	2.4	0.1	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.6	4.4	5.8	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
31-May	Z	0.3	0.1	3.8	0.7	0.5	0.0	0.0	0.0	0.0	1.0	2.5	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.8	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	0.4	0.5	0.7	0.6	0.6	1.0	0.6	0.5	0.4	0.4	0.6	0.4	0.5	0.6	0.6	0.4	0.3	0.2	0.1	0.1	0.2	0.1	0.2	Diurnal Average												
		1.9	4.7	4.5	5.0	5.8	5.7	7.1	3.5	4.6	4.2	3.3	6.2	5.0	6.1	7.3	6.3	4.2	5.0	3.8	2.3	1.7	3.0	2.2	2.9	Diurnal Maximum												
Z - zerospan		C - Calibration			M - Maintenance																																	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb**  
**Sawbones Bay - May 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  
Sawbones Bay - May 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	40	72	36	42	89	60	59	45	26	15	22	44	26	75	44	12	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>	40	72	36	42	89	60	59	45	26	15	22	44	26	75	44	12	707

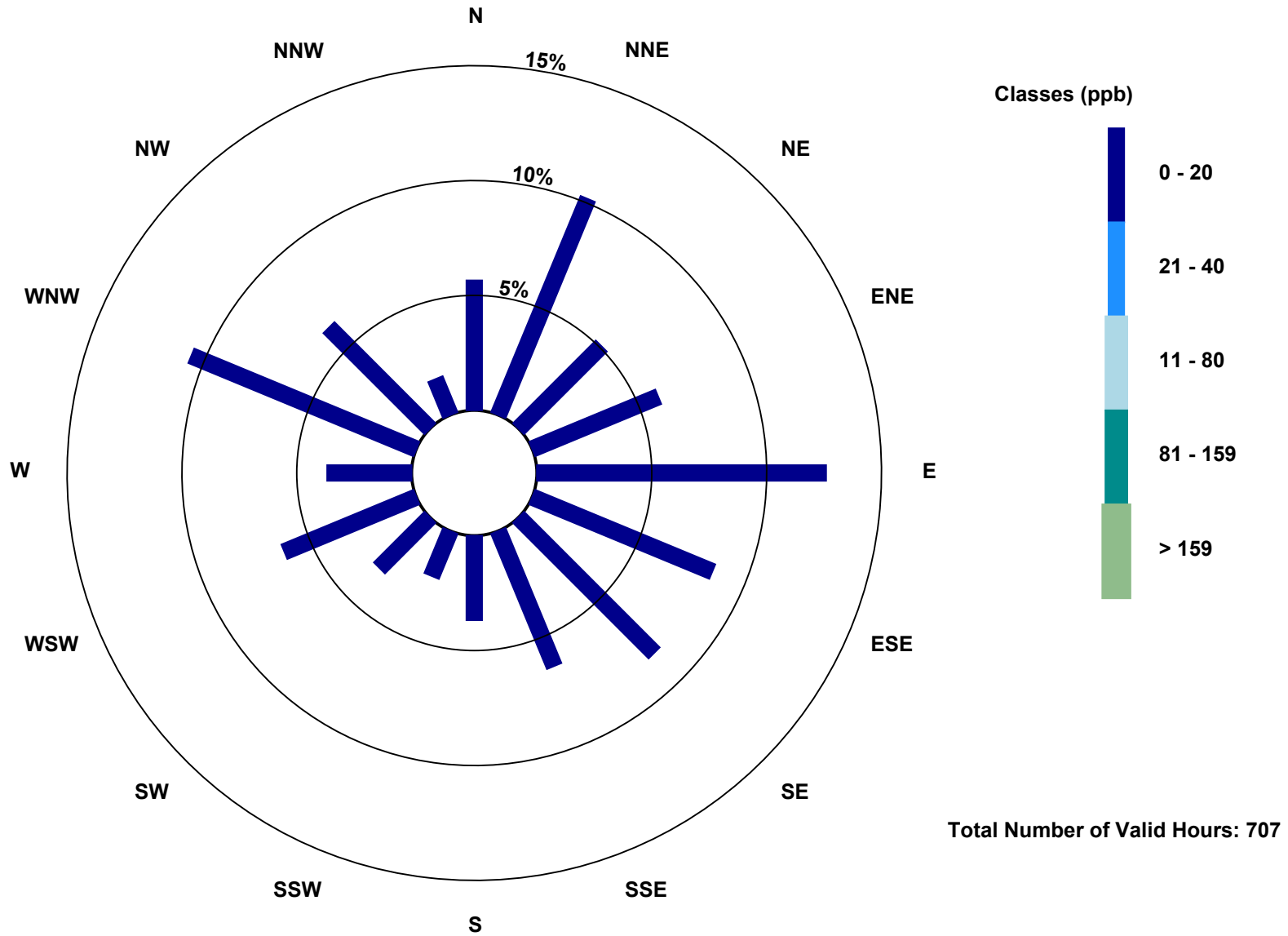
Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Sawbones Bay



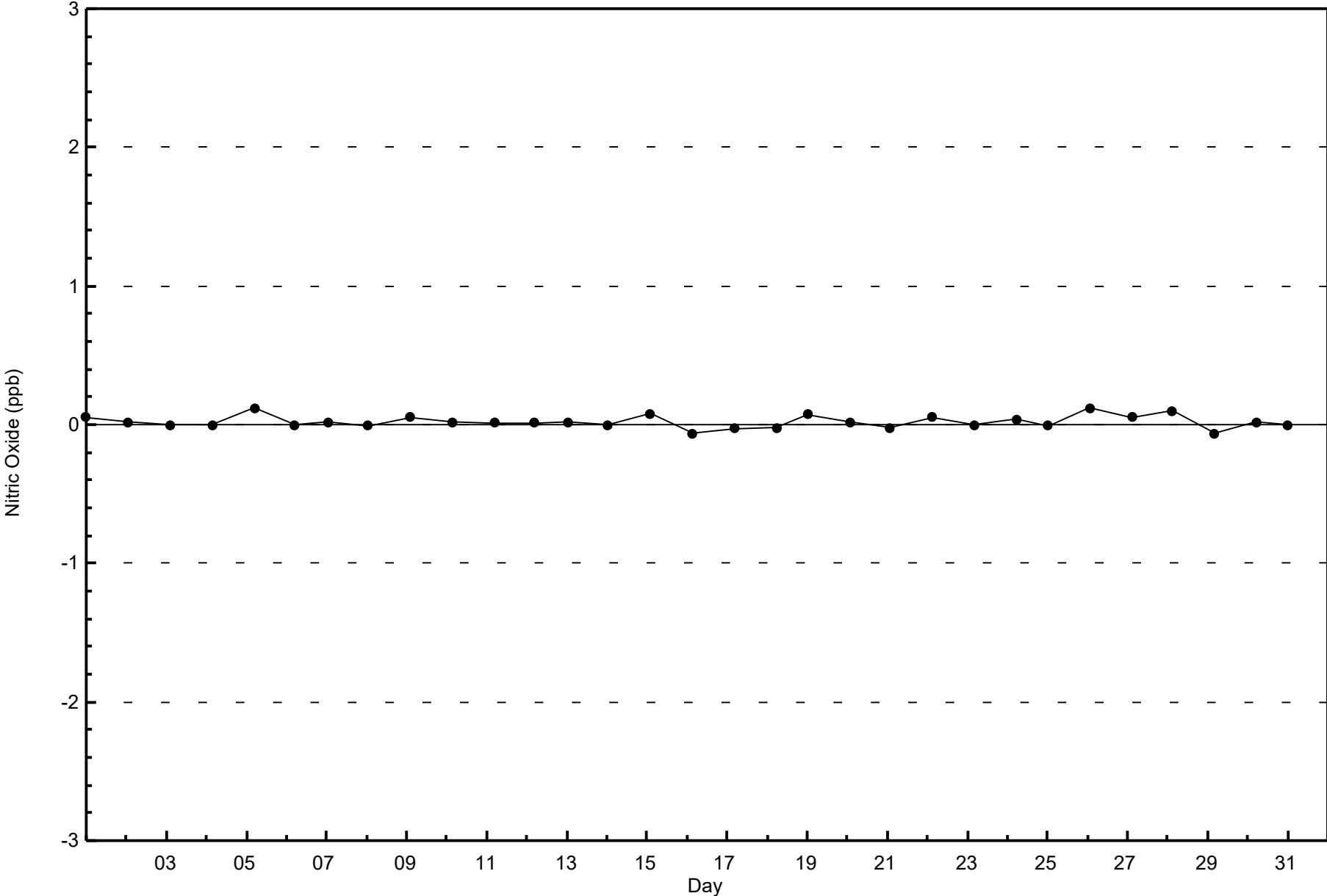


Wood Buffalo Environmental Association

Zero Responses

Nitric Oxide (NO) - ppb

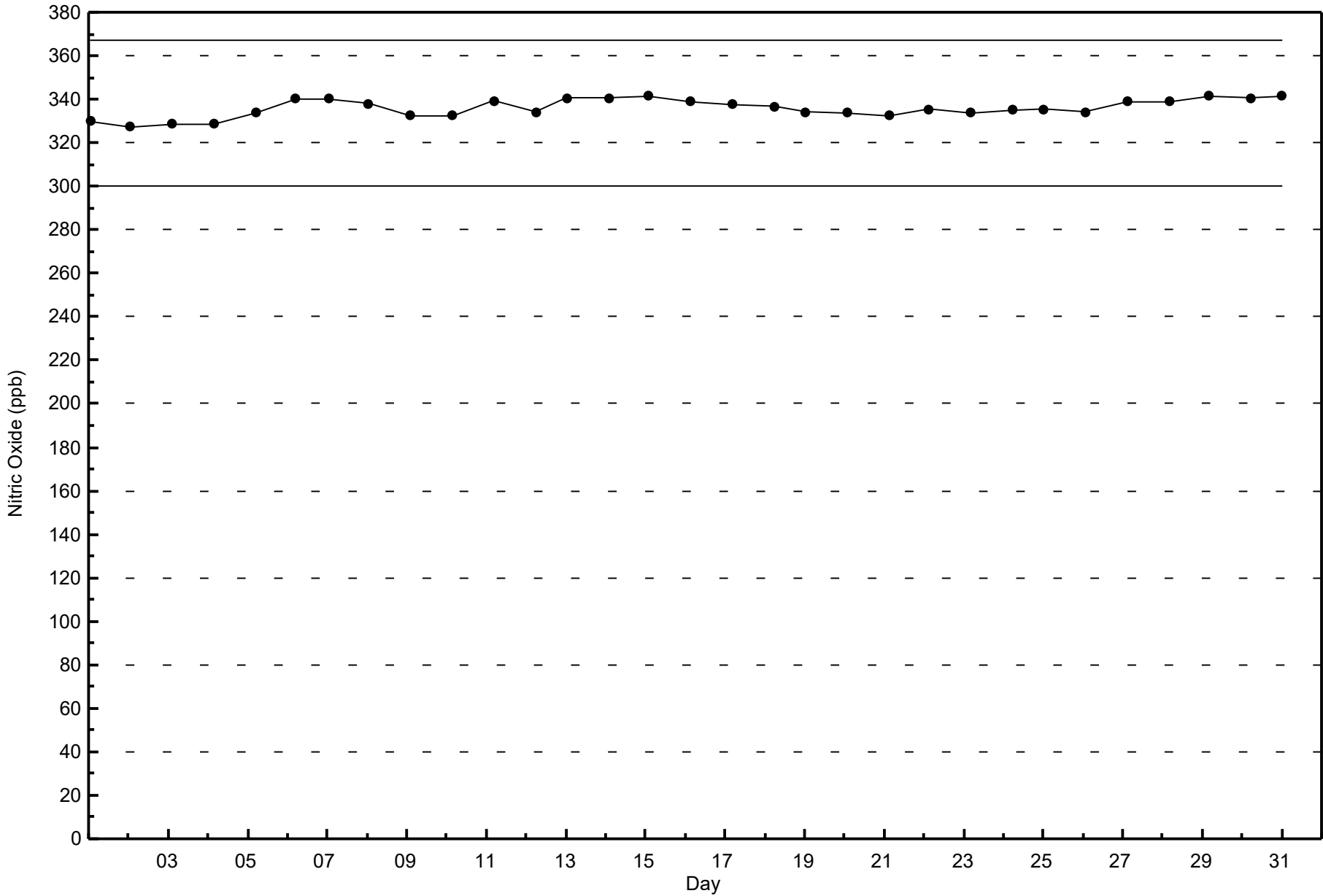
Sawbones Bay - May 2024





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Sawbones Bay - May 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Sawbones Bay - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 19.8 ppb on May 9 05:00	Maximum Daily Average: 10.1 ppb on May 10		Hours of Data:	707
Minimum Value: 0.0 ppb on May 1 08:00	Minimum Daily Average: 0.0 ppb on May 20		Hours of Missing Data:	37
Maximum Diurnal Average: 3.5 ppb at hour 5	Minimum Diurnal Average: 0.9 ppb at hour 20		Hours of Calibration:	36
Monthly Average: 1.90 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> = 2.0 P <sub>90</sub> = 6.1 P <sub>99</sub> = 15.6		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-May	Z	1.1	0.9	0.8	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.1
2-May	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	0.5	0.5	0.1	1.5	5.6	0.4	5.6
3-May	4.4	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.5	0.4	1.0	0.3	0.0	0.4	0.6	1.9	3.1	3.6	0.7	4.4
4-May	3.6	3.7	3.7	Z	4.0	4.1	3.4	1.3	0.8	0.4	0.2	0.2	0.4	2.3	1.7	1.8	3.1	1.7	0.7	1.1	1.6	5.5	3.7	0.9	2.2	5.5
5-May	4.0	2.1	1.6	6.3	Z	4.0	3.1	3.0	2.4	0.8	0.5	1.6	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.7	10.4	16.1	3.2	0.4	2.7	16.1
6-May	0.5	0.5	0.4	0.4	0.5	Z	2.0	0.8	0.8	0.6	0.9	0.6	0.5	0.4	0.4	0.4	0.3	0.5	0.5	0.8	0.6	0.5	4.6	1.3	0.8	4.6
7-May	Z	0.7	0.7	0.6	1.2	1.6	0.4	0.9	1.2	1.6	0.9	0.7	0.9	1.0	1.0	1.3	0.5	0.2	0.2	2.5	1.6	0.3	1.4	1.0	1.0	2.5
8-May	0.8	Z	9.0	6.9	2.8	1.8	0.6	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.7	1.8	1.5	2.3	3.0	0.5	2.5	1.4	10.7	1.8	2.2	10.7
9-May	6.3	16.7	Z	18.1	19.8	14.6	4.0	1.4	0.3	0.6	0.8	0.8	0.1	0.8	0.7	0.5	0.2	0.1	0.1	0.1	0.1	4.0	3.2	4.0	4.2	19.8
10-May	2.9	12.1	15.7	Z	10.1	7.0	8.7	7.5	8.0	6.7	5.8	9.3	7.5	10.0	13.4	13.5	10.3	13.2	8.7	2.4	12.7	18.5	17.1	11.0	10.1	18.5
11-May	0.7	0.5	2.6	1.7	Z	1.8	1.3	1.2	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	2.5	2.2	1.0	0.4	0.2	0.2	0.1	0.8	2.6
12-May	0.1	0.1	0.0	2.6	1.7	Z	0.8	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.1	3.8	1.4	1.1	0.9	0.9	1.2	2.1	0.7	1.2	0.9	3.8
13-May	Z	0.6	0.6	0.4	0.6	3.8	2.9	3.4	2.0	1.7	1.4	1.3	1.1	1.9	3.7	3.0	7.1	4.8	2.6	1.3	1.3	4.0	4.0	2.8	2.4	7.1
14-May	5.2	Z	10.1	5.9	4.4	11.5	16.1	6.6	7.4	2.3	6.7	5.4	7.4	6.9	6.2	8.2	6.1	4.6	1.6	0.2	0.6	0.2	0.2	0.4	5.4	16.1
15-May	0.6	0.4	Z	3.5	3.4	8.9	7.7	0.9	1.1	0.5	0.6	0.6	0.7	0.9	1.8	2.0	1.1	1.0	0.9	1.4	0.9	0.8	3.1	4.2	2.0	8.9
16-May	2.2	1.7	1.1	Z	1.0	0.5	1.6	1.4	1.3	0.8	0.6	0.5	0.9	0.3	0.8	0.8	0.3	0.9	0.6	1.3	1.5	0.9	2.7	2.4	1.1	2.7
17-May	0.6	0.3	0.3	0.2	Z	0.5	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	0.0	0.1	0.1	0.0	0.2	0.2	0.6
18-May	0.3	0.6	1.5	1.8	1.6	Z	2.2	2.2	0.9	0.7	0.7	0.9	0.8	0.8	0.6	0.8	0.7	0.4	0.3	0.1	0.2	0.5	1.0	0.9	0.9	2.2
19-May	Z	0.3	0.4	0.3	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
20-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0
21-May	0.5	0.6	Z	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.7	1.4	0.3	0.2	0.2	0.2	1.4
22-May	0.9	1.5	2.5	Z	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.5
23-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.4	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	7.0	0.5	7.0
24-May	4.8	8.8	12.6	5.5	6.0	Z	1.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	3.8	8.7	0.2	2.3	12.6	
25-May	Z	1.9	2.5	1.0	2.1	1.9	0.5	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	0.8	0.3	1.0	0.5	2.5
26-May	1.7	Z	2.0	6.8	9.2	2.8	3.4	2.0	2.4	0.6	1.6	1.0	0.1	0.1	0.1	1.1	0.0	0.0	0.0	0.0	0.6	2.6	7.3	3.3	2.1	9.2
27-May	4.5	1.5	Z	1.7	3.0	1.1	1.3	1.7	5.0	1.3	0.0	0.0	0.5	0.7	0.4	1.7	4.3	2.0	0.0	0.0	0.1	0.0	0.0	0.1	1.3	5.0
28-May	0.0	0.0	0.0	Z	3.0	1.8	1.0	1.7	3.6	6.0	3.2	3.1	2.2	2.1	4.8	1.6	1.7	0.1	0.4	0.5	0.8	1.2	0.7	0.3	1.7	6.0
29-May	0.5	2.1	1.1	0.7	Z	1.4	2.1	2.5	4.0	5.5	7.5	5.8	6.6	7.2	11.0	10.4	5.4	10.7	11.3	11.2	9.7	8.9	6.4	9.4	6.1	11.3
30-May	7.2	12.1	12.7	14.0	13.4	Z	14.0	6.8	0.9	0.2	C	C	C	C	C	0.0	0.0	0.2	0.0	0.0	2.8	2.6	1.4	1.7	5.0	14.0
31-May	Z	2.0	1.2	7.5	2.4	1.6	0.1	0.0	0.1	0.0	2.4	5.4	M	0.7	0.2	0.0	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.2	1.1	7.5

2.1	2.8	3.2	3.4	3.5	2.7	2.5	1.5	1.4	1.0	1.2	1.3	1.1	1.2	1.6	1.7	1.5	1.5	1.1	0.9	1.7	2.5	2.9	2.1	Diurnal Average			
7.2	16.7	15.7	18.1	19.8	14.6	16.1	7.5	8.0	6.7	7.5	9.3	7.5	9.3	7.5	10.0	13.4	13.5	10.3	13.2	11.3	11.2	12.7	18.5	17.1	11.0	Diurnal Maximum	

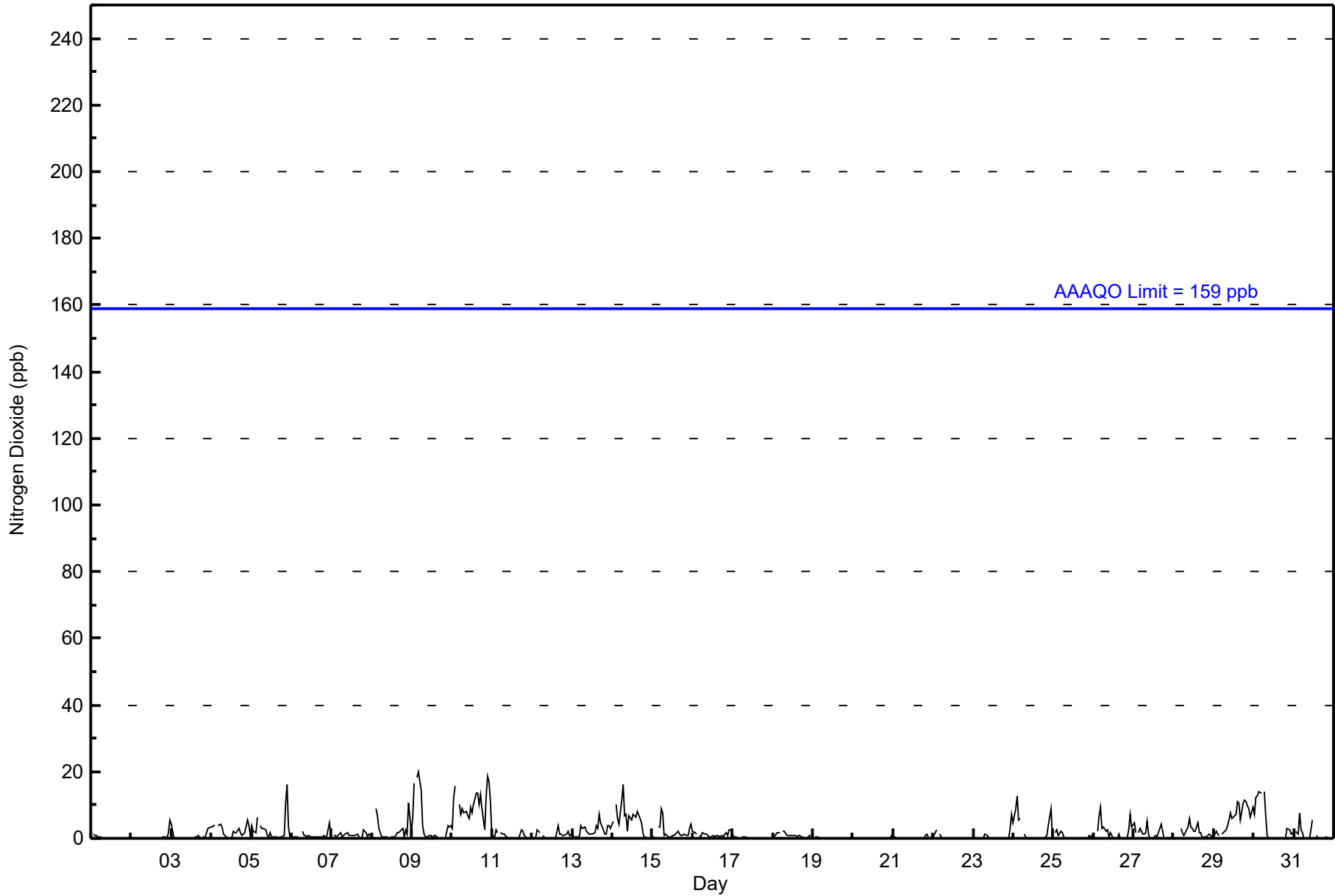
Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb





Wood Buffalo Environmental Association  
Hourly Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - May 2024





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay - May 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  
Sawbones Bay - May 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	40	72	36	42	89	60	59	45	26	15	22	44	26	75	44	12	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>	40	72	36	42	89	60	59	45	26	15	22	44	26	75	44	12	707

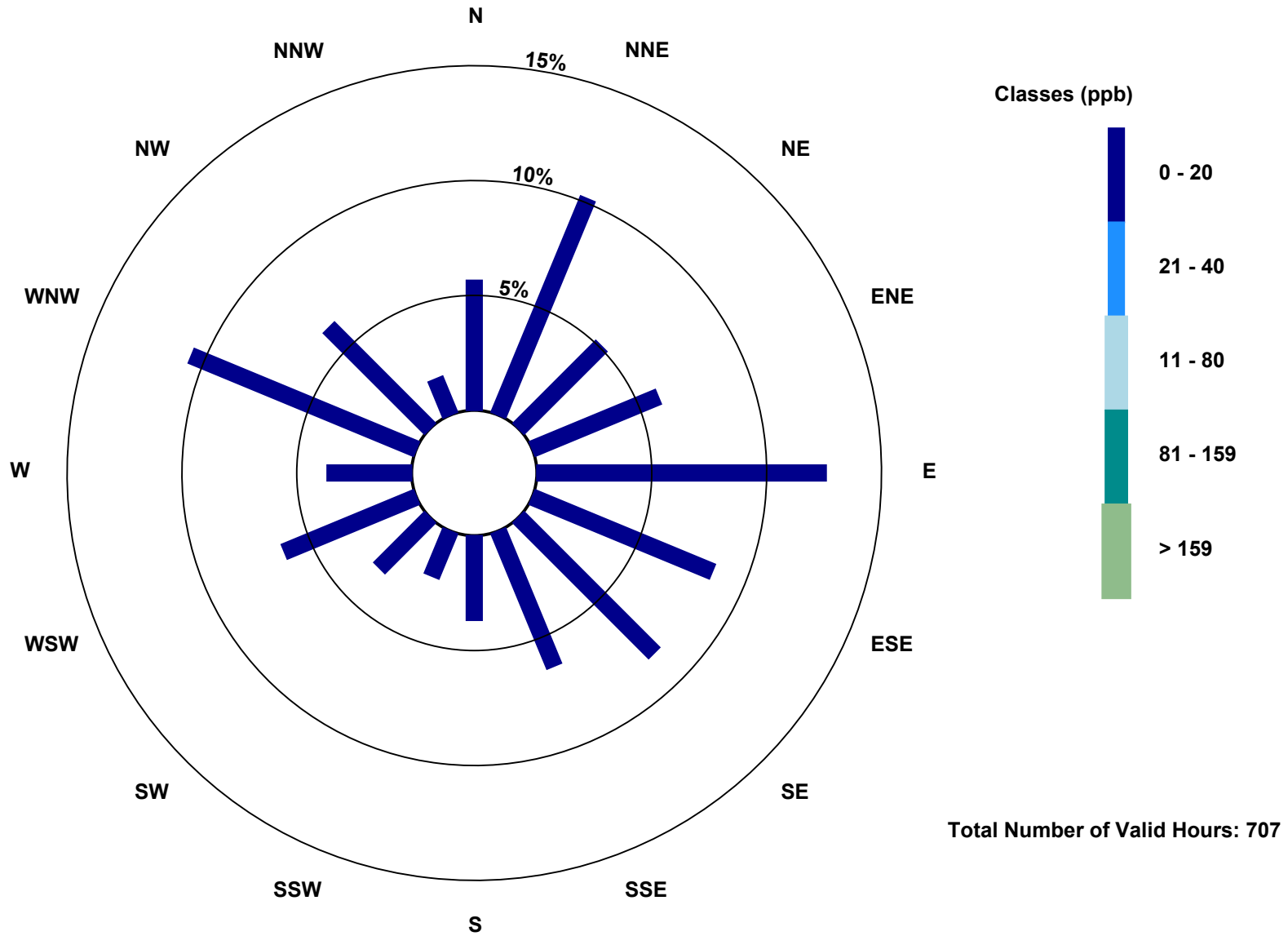
Total Number of Valid Hours: 707

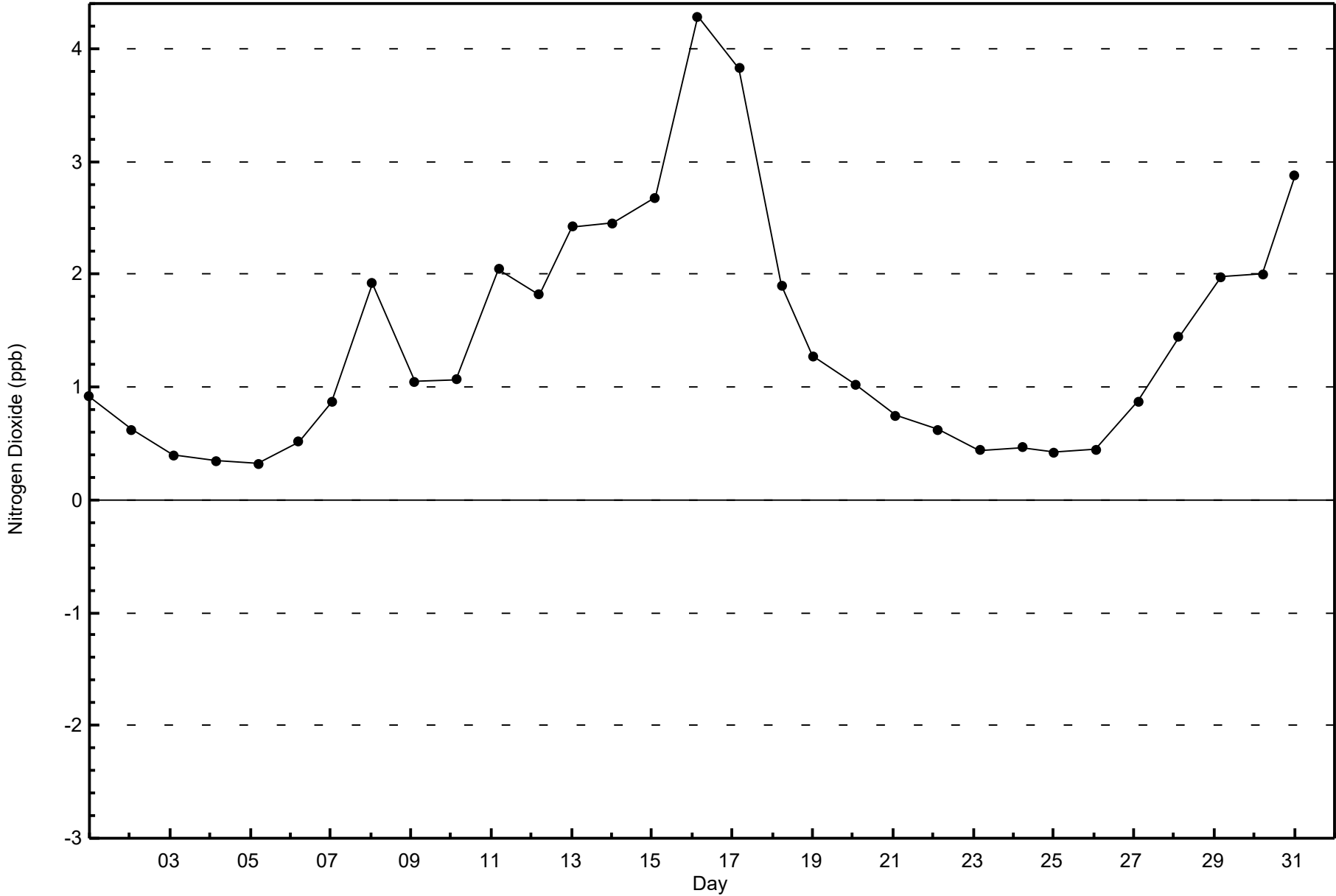
Total Number of Hours: 744

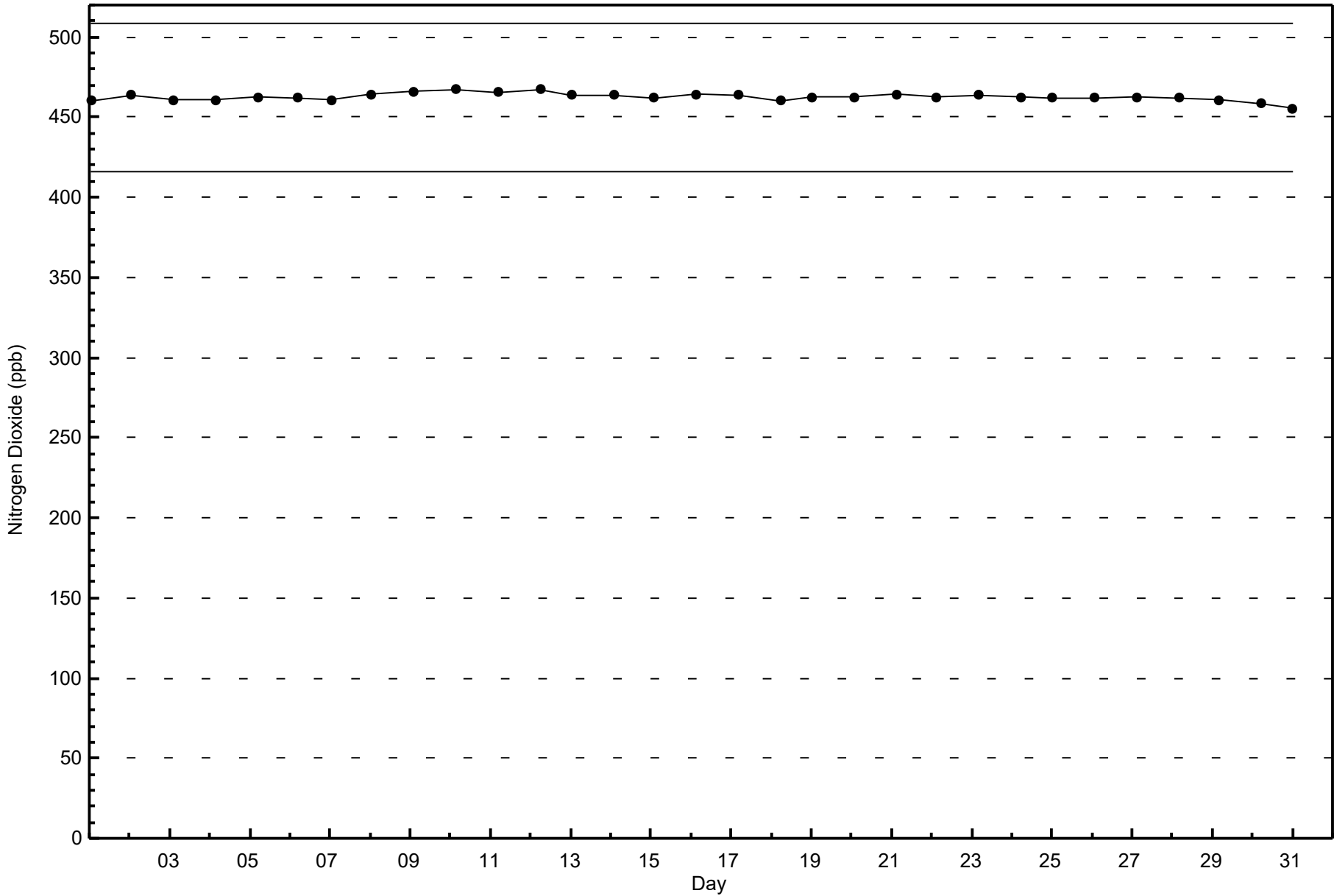


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Sawbones Bay









**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

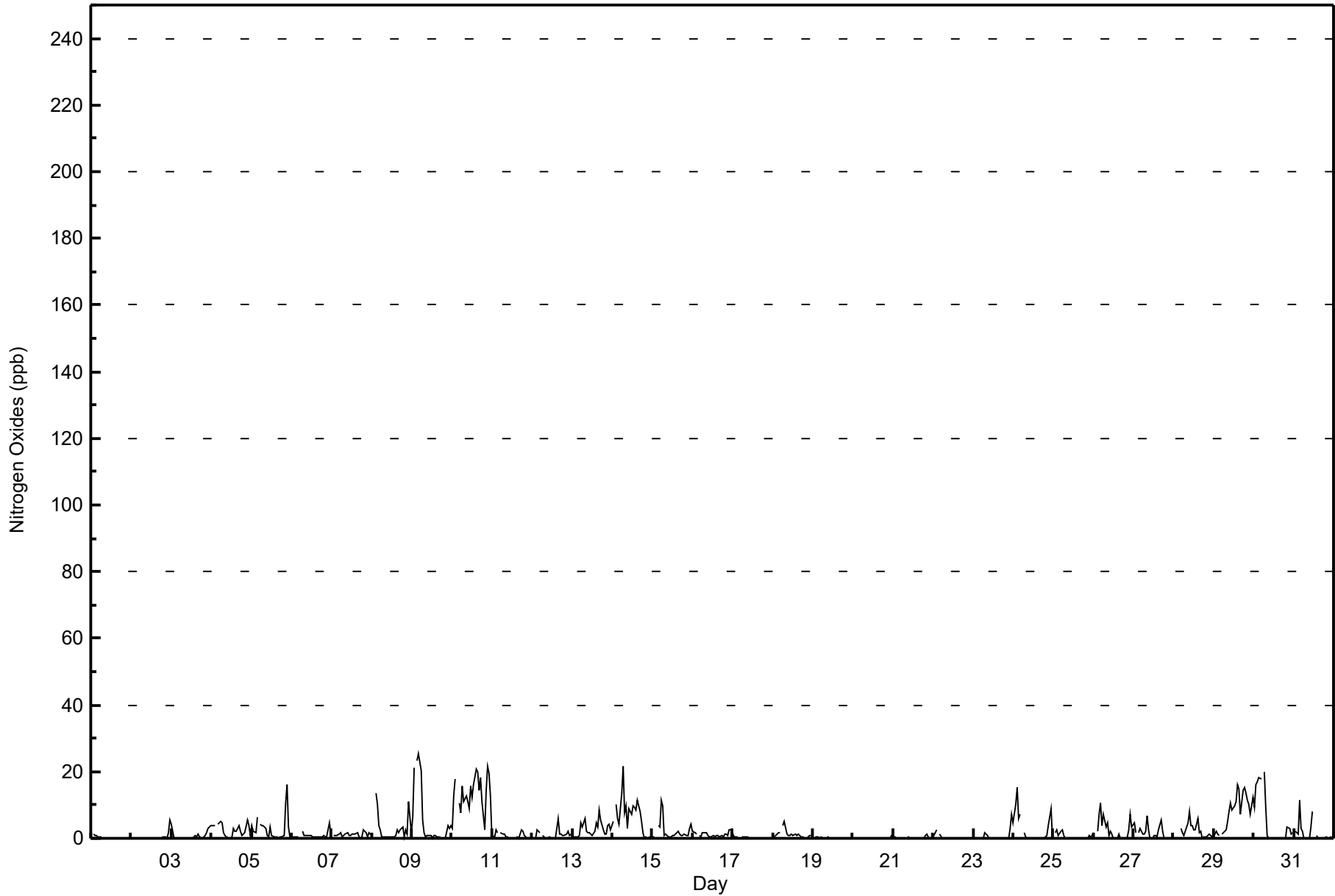
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - May 2024**

Maximum Value: 25.6 ppb on May 9 05:00		Maximum Daily Average: 13.5 ppb on May 10		Hours in Service: 744																						
Minimum Value: 0.0 ppb on May 1 09:00		Minimum Daily Average: 0.0 ppb on May 20		Hours of Data: 707																						
Maximum Diurnal Average: 4.1 ppb at hour 5		Minimum Diurnal Average: 1.0 ppb at hour 20		Hours of Missing Data: 37																						
Monthly Average: 2.32 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> = 2.2 P <sub>90</sub> = 7.5 P <sub>99</sub> = 19.8		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-May	Z	1.1	0.9	0.8	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.1	
2-May	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	0.5	0.5	0.1	1.5	5.6	0.4	5.6
3-May	4.4	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.3	0.7	0.5	1.1	0.3	0.0	0.4	0.7	1.9	3.2	3.7	0.8	4.4
4-May	3.7	3.7	3.7	Z	4.2	4.9	4.6	1.7	1.0	0.4	0.2	0.2	0.4	3.0	2.1	2.2	3.8	1.9	0.7	1.1	1.6	5.5	3.7	0.9	2.4	5.5
5-May	4.0	2.1	1.6	6.3	Z	4.3	3.7	3.9	3.1	0.9	0.5	3.2	0.7	0.3	0.3	0.3	0.2	0.3	0.3	0.7	10.4	16.1	3.2	0.4	2.9	16.1
6-May	0.5	0.5	0.4	0.4	0.5	Z	2.1	0.8	0.8	0.6	1.0	0.6	0.5	0.4	0.4	0.4	0.3	0.5	0.5	0.8	0.6	0.5	4.7	1.4	0.8	4.7
7-May	Z	0.8	0.8	0.7	1.3	1.7	0.4	0.9	1.2	1.8	1.0	0.7	1.1	1.2	1.2	1.5	0.6	0.2	0.2	2.6	1.6	0.4	1.5	1.2	1.1	2.6
8-May	1.0	Z	13.5	10.0	3.9	2.7	0.6	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.8	2.4	1.8	2.7	3.4	0.5	2.6	1.4	11.1	1.8	2.7	13.5
9-May	6.5	21.4	Z	23.1	25.6	20.3	5.3	1.8	0.3	0.7	0.9	0.9	0.1	0.9	0.8	0.5	0.2	0.1	0.1	0.1	0.1	4.0	3.2	4.0	5.3	25.6
10-May	2.9	12.5	17.8	Z	10.5	7.6	15.8	11.0	12.6	10.9	9.1	15.5	12.5	16.1	20.7	19.8	14.5	18.2	11.1	2.6	14.4	21.5	19.3	12.9	13.5	21.5
11-May	0.7	0.5	2.6	1.7	Z	1.8	1.3	1.2	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	2.5	2.2	1.0	0.4	0.2	0.2	0.1	0.8	2.6
12-May	0.1	0.1	0.0	2.6	1.7	Z	0.8	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.1	6.0	1.4	1.1	0.9	0.9	1.2	2.1	0.7	1.2	1.0	6.0
13-May	Z	0.6	0.6	0.4	0.6	4.6	3.4	5.7	2.3	1.8	1.5	1.3	1.1	1.9	4.5	3.4	8.6	5.4	2.7	1.3	1.3	4.0	4.0	2.8	2.8	8.6
14-May	5.2	Z	10.1	5.9	4.4	13.7	21.8	7.8	9.8	2.8	8.9	7.3	9.8	9.3	8.6	11.4	7.9	5.3	1.6	0.2	0.6	0.2	0.2	0.4	6.7	21.8
15-May	0.6	0.4	Z	3.8	3.4	11.6	9.7	1.0	1.3	0.5	0.6	0.6	0.7	0.9	1.8	2.0	1.1	1.0	0.9	1.4	0.9	0.8	3.1	4.3	2.3	11.6
16-May	2.2	1.7	1.1	Z	1.0	0.5	1.6	1.5	1.6	0.8	0.6	0.5	0.9	0.3	0.8	0.8	0.3	0.9	0.6	1.3	1.5	0.9	2.7	2.4	1.2	2.7
17-May	0.6	0.3	0.3	0.2	Z	0.5	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.2	0.6
18-May	0.3	0.6	1.5	1.8	1.6	Z	3.7	4.9	1.4	1.0	0.9	1.3	1.1	1.2	0.9	1.2	0.9	0.4	0.3	0.1	0.2	0.5	1.0	0.9	1.2	4.9
19-May	Z	0.3	0.4	0.3	0.2	0.3	0.0	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
20-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0
21-May	0.5	0.6	Z	0.2	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.7	1.4	0.3	0.2	0.2	0.2	1.4
22-May	0.9	1.5	2.6	Z	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.6
23-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.8	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	7.3	0.6	7.3
24-May	4.9	10.2	15.1	5.7	7.3	Z	1.8	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	3.8	9.0	0.2	2.6	15.1	
25-May	Z	1.9	2.7	1.0	2.2	2.7	0.8	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	0.8	0.3	1.0	0.6	2.7
26-May	1.7	Z	2.0	7.1	10.4	3.6	7.1	3.6	4.6	0.7	2.1	1.3	0.1	0.1	0.1	1.5	0.0	0.0	0.0	0.0	0.6	2.6	7.3	3.3	2.6	10.4
27-May	4.5	1.5	Z	1.7	3.0	1.1	1.3	2.0	6.8	2.4	0.0	0.0	0.7	0.8	0.5	2.7	5.6	2.0	0.0	0.0	0.1	0.0	0.0	0.1	1.6	6.8
28-May	0.0	0.0	0.0	Z	3.0	1.8	1.0	1.9	4.7	8.2	3.9	4.0	2.6	2.5	6.0	1.8	2.1	0.1	0.4	0.5	0.8	1.2	0.7	0.3	2.1	8.2
29-May	0.5	2.1	1.1	0.7	Z	1.4	2.1	2.7	5.2	8.0	10.8	8.5	9.9	10.8	16.2	14.9	7.1	14.3	15.1	13.5	11.4	10.3	7.3	12.3	8.1	16.2
30-May	9.1	16.0	17.1	18.3	17.9	Z	19.8	9.2	1.0	0.2	C	C	C	C	C	0.0	0.0	0.2	0.0	0.0	3.4	3.0	1.4	1.8	6.6	19.8
31-May	Z	2.3	1.3	11.3	3.1	2.1	0.1	0.0	0.1	0.0	3.4	7.9	M	0.7	0.2	0.0	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.2	1.5	11.3
																								Diurnal Average		
																								Diurnal Maximum		
2.2 3.2 3.7 4.0 4.1 3.4 3.5 2.1 2.0 1.4 1.5 1.8 1.5 1.7 2.2 2.4 1.9 1.9 1.3 1.0 1.8 2.7 3.0 2.3																										
9.1 21.4 17.8 23.1 25.6 20.3 21.8 11.0 12.6 10.9 10.8 15.5 12.5 16.1 20.7 19.8 14.5 18.2 15.1 13.5 14.4 21.5 19.3 12.9																										
Z - zerospan C - Calibration M - Maintenance																										



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Sawbones Bay - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	701	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay - May 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	40	72	36	42	89	60	59	45	26	15	22	38	26	75	44	12	701
21 - 40	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	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>	40	72	36	42	89	60	59	45	26	15	22	44	26	75	44	12	707

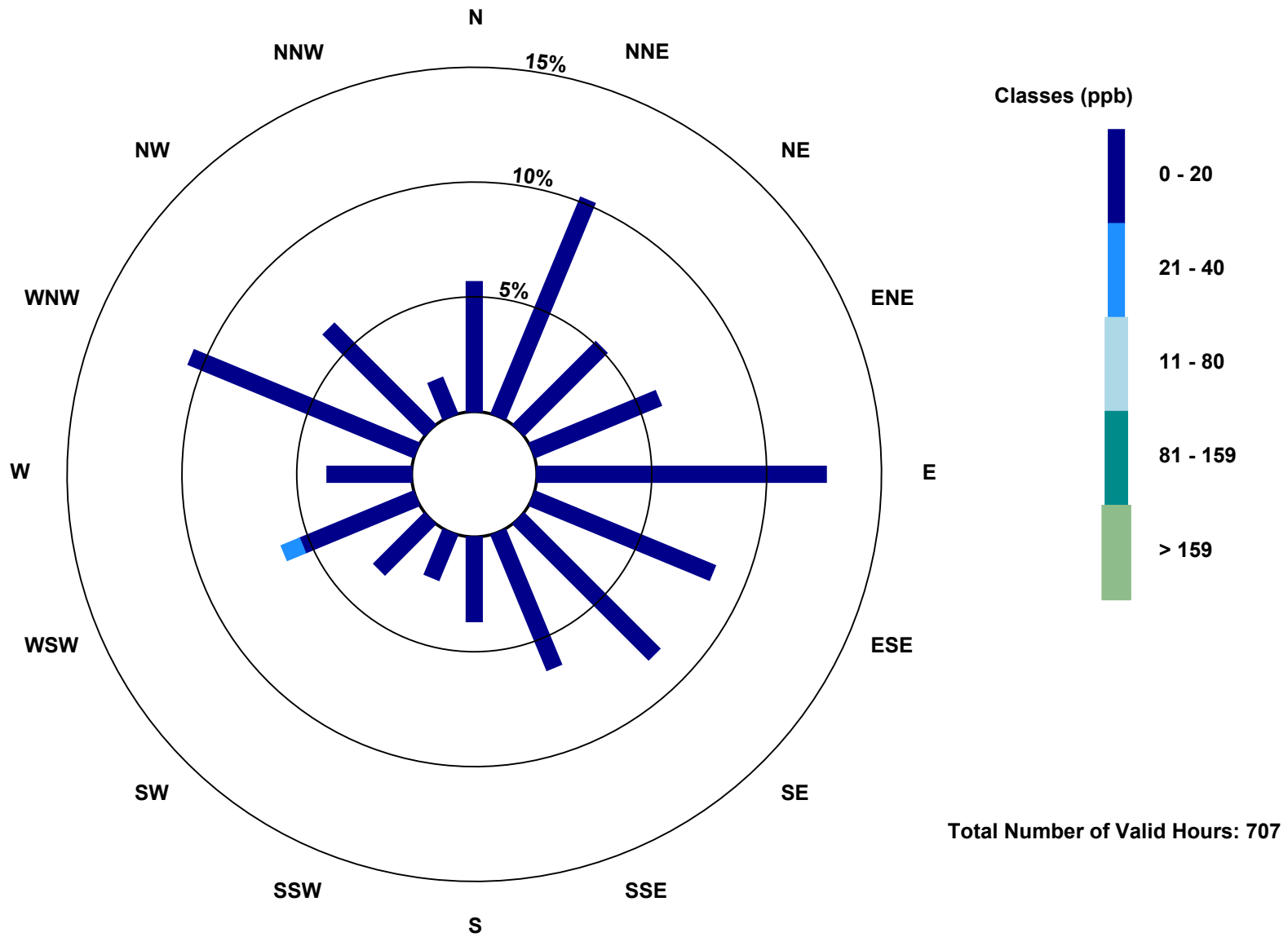
Total Number of Valid Hours: 707

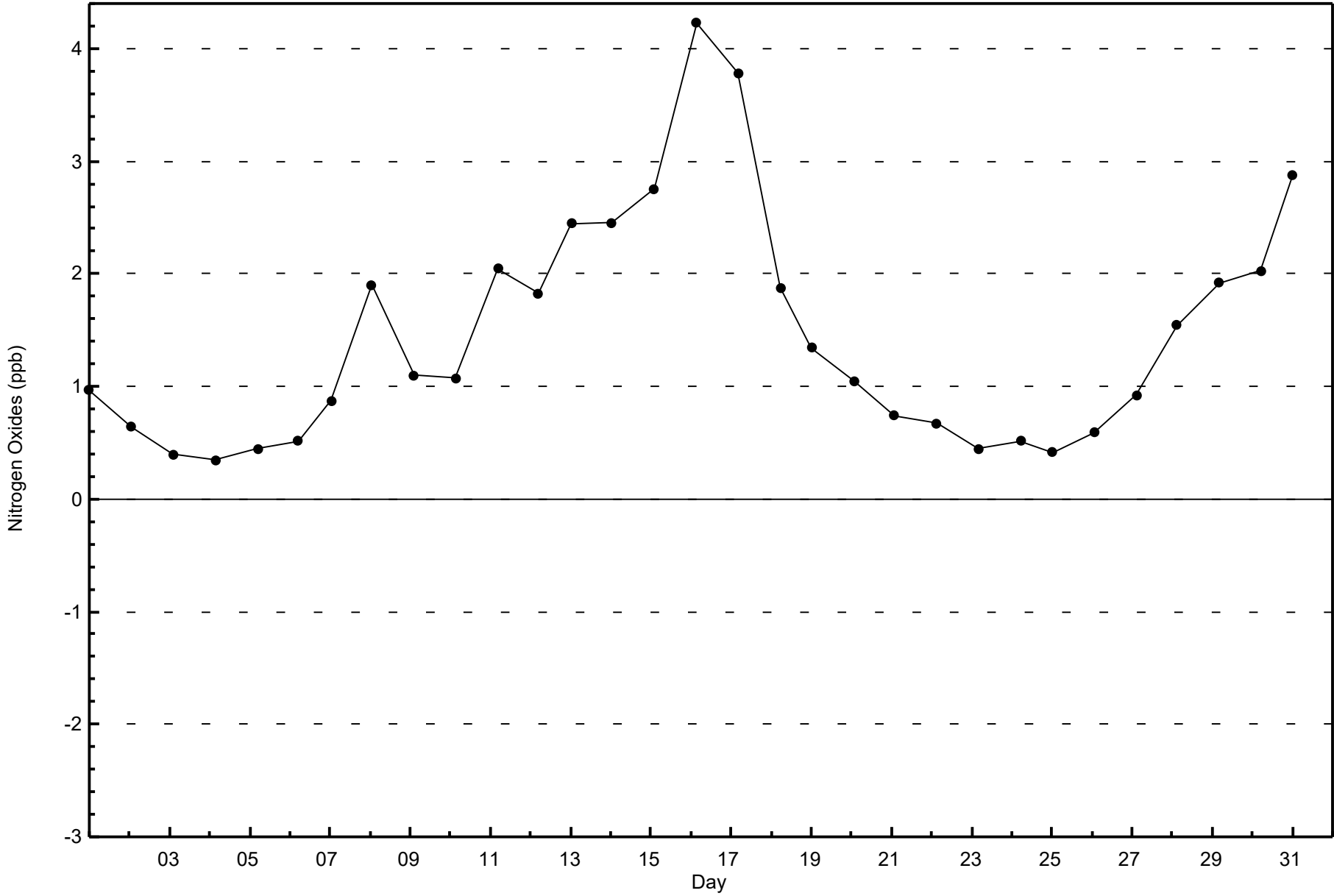
Total Number of Hours: 744

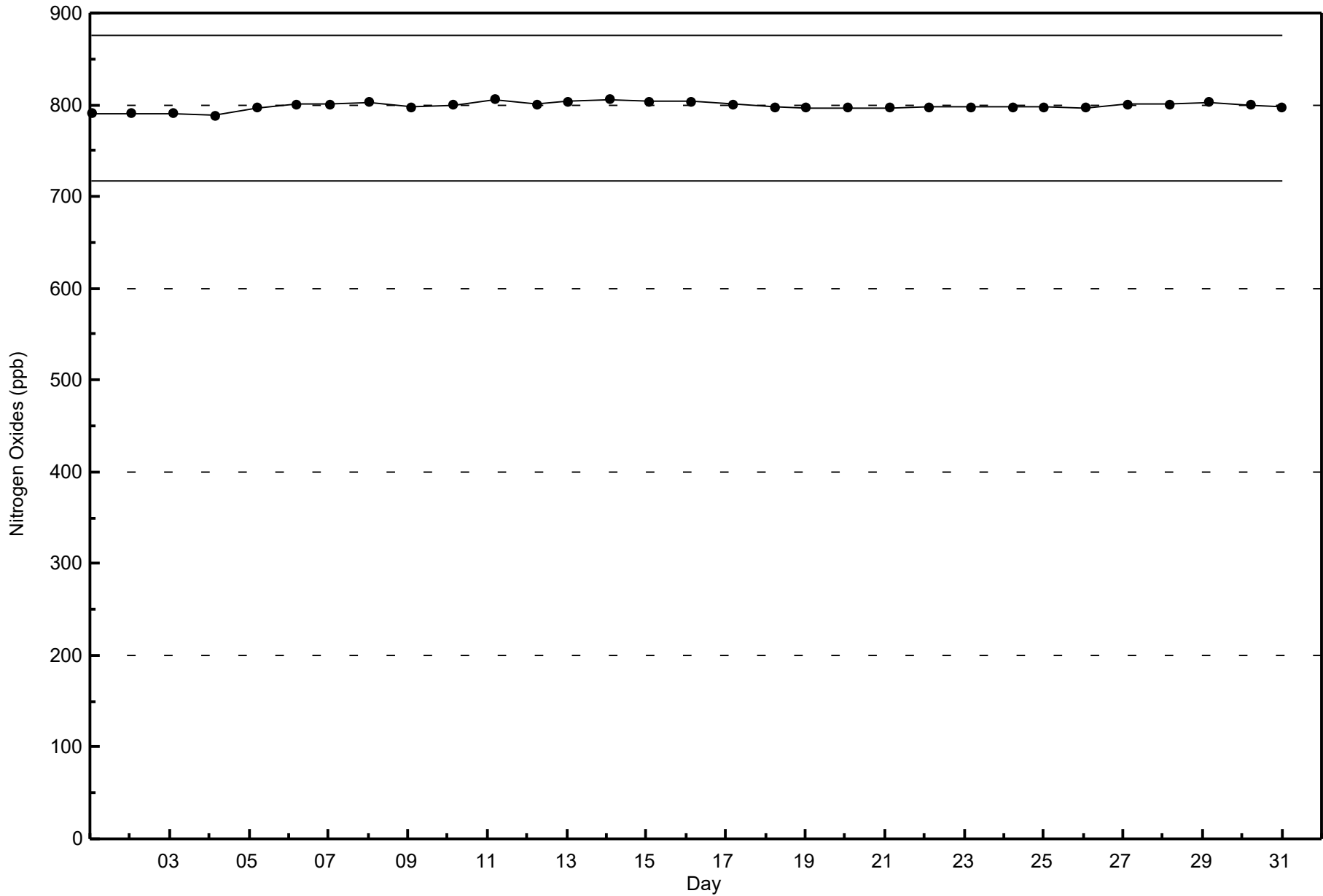


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Sawbones Bay





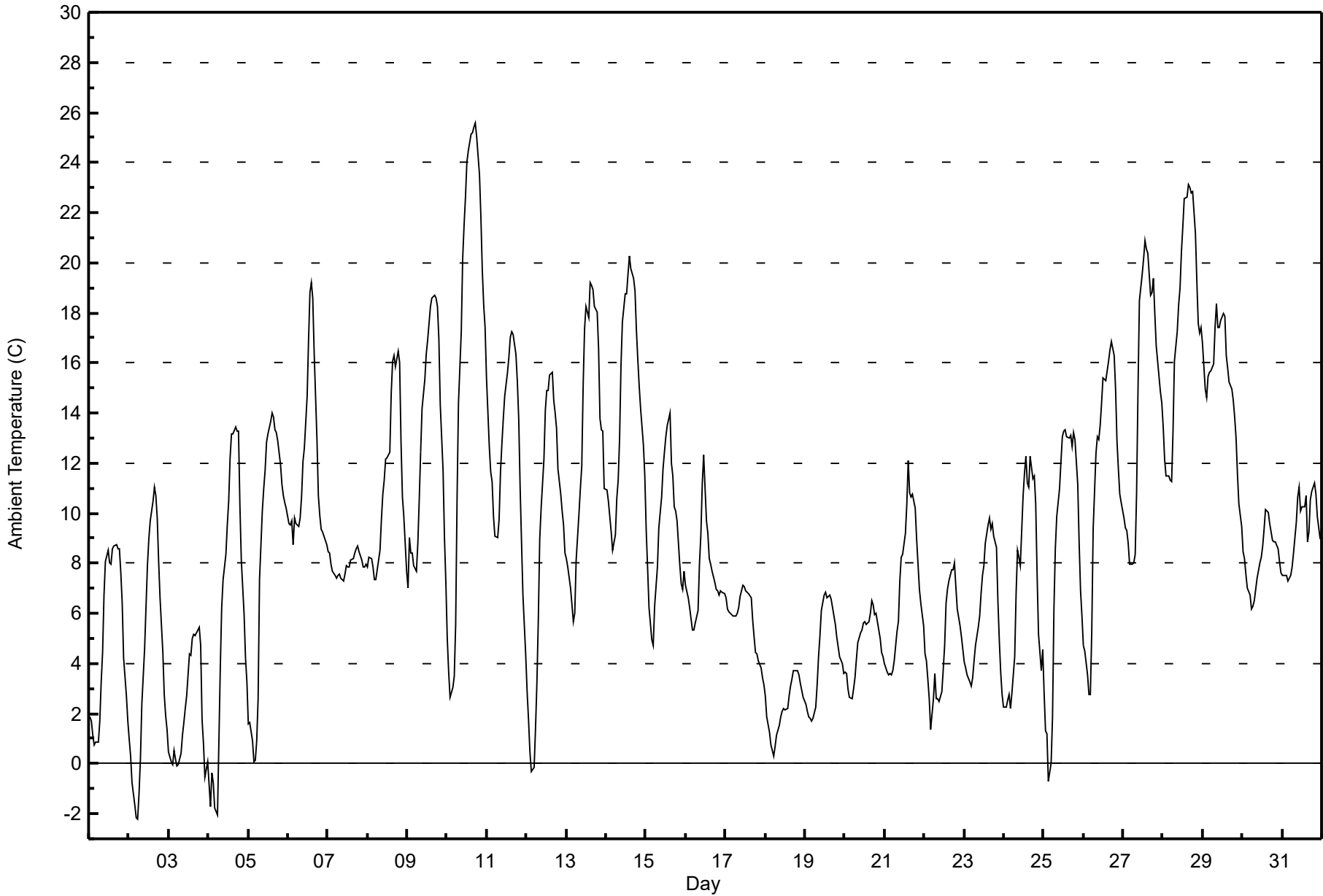




**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - May 2024**

Maximum Value: 25.6 C on May 10 18:00		Maximum Daily Average: 17.8 C on May 28		Hours in Service: 744																																												
Minimum Value: -2.2 C on May 2 06:00		Minimum Daily Average: 2.1 C on May 3		Hours of Data: 744																																												
Maximum Diurnal Average: 13.0 C at hour 15		Minimum Diurnal Average: 4.5 C at hour 5		Hours of Missing Data: 0																																												
Monthly Average: 9.05 C		Percentiles: P <sub>1</sub> = -0.8 P <sub>10</sub> = 2.2 Q <sub>1</sub> = 5.0 Median = 8.4 Q <sub>3</sub> = 12.5 P <sub>90</sub> = 17.2 P <sub>99</sub> = 23.3		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-May	1.9	1.7	1.1	0.7	0.9	0.9	1.7	3.3	4.5	6.7	8.1	8.5	8.0	8.0	8.6	8.7	8.7	8.6	8.6	7.6	6.4	4.2	2.7	1.7	5.1	8.7																						
2-May	1.0	0.3	-0.8	-1.7	-2.2	-2.2	-1.2	0.2	2.3	4.6	6.3	7.9	9.0	9.7	10.5	11.0	10.7	9.8	8.1	6.6	4.4	2.8	1.9	1.4	4.2	11.0																						
3-May	0.5	0.1	0.0	0.5	0.2	-0.1	0.0	0.4	1.1	1.6	2.2	2.7	4.4	4.3	5.0	5.1	5.1	5.2	5.5	4.7	1.8	0.8	-0.5	0.1	2.1	5.5																						
4-May	-0.8	-1.7	-0.4	-0.8	-1.8	-2.0	0.9	3.8	6.2	7.3	8.4	9.6	10.5	12.2	13.2	13.1	13.5	13.3	13.3	10.3	8.1	6.0	4.2	3.3	6.2	13.5																						
5-May	1.6	1.6	0.9	0.1	0.1	0.9	2.6	7.3	10.1	11.0	11.7	12.9	13.1	13.7	14.0	13.8	13.3	13.2	12.9	11.9	11.2	10.7	10.4	10.2	8.7	14.0																						
6-May	9.6	9.5	9.7	8.7	9.8	9.6	9.5	9.8	10.6	12.0	12.6	14.7	16.9	18.8	19.2	18.6	16.4	13.0	10.7	9.9	9.3	9.2	8.9	8.8	11.9	19.2																						
7-May	8.5	8.4	7.9	7.7	7.5	7.4	7.5	7.6	7.4	7.3	7.6	7.9	7.9	7.8	8.1	8.2	8.4	8.6	8.7	8.5	8.2	7.8	7.8	8.0	7.9	8.7																						
8-May	7.9	8.2	8.2	7.8	7.3	7.3	7.7	8.5	9.8	10.7	11.3	12.1	12.2	12.4	14.8	16.1	16.3	15.8	16.5	16.0	12.8	10.6	9.9	7.7	11.2	16.5																						
9-May	7.0	9.0	8.4	8.4	7.9	7.7	8.8	10.5	12.4	14.2	15.4	16.3	16.9	17.6	18.2	18.6	18.7	18.6	18.2	17.0	14.3	11.7	9.1	7.3	13.0	18.7																						
10-May	5.0	3.6	2.7	3.0	3.5	5.6	10.6	14.4	17.3	20.2	21.5	22.6	24.0	24.5	25.1	25.2	25.4	25.6	25.0	23.5	21.8	19.7	18.3	17.4	16.9	25.6																						
11-May	15.4	12.7	11.6	11.3	9.9	9.1	9.0	9.8	11.6	12.8	13.8	14.7	15.7	16.2	17.0	17.3	17.1	16.4	15.3	13.8	11.0	8.9	6.7	4.3	12.6	17.3																						
12-May	2.9	1.8	0.5	-0.3	-0.2	1.4	3.3	5.8	8.9	10.2	12.2	14.1	14.9	14.9	15.5	15.6	14.5	14.0	13.4	11.8	10.7	10.1	9.5	8.4	8.9	15.6																						
13-May	8.2	7.8	7.0	6.3	5.7	6.0	8.1	10.0	11.0	11.9	15.1	17.4	18.3	17.8	19.2	19.1	18.9	18.3	18.0	16.6	13.8	13.4	13.2	11.0	13.0	19.2																						
14-May	10.9	10.5	9.9	9.3	8.5	9.1	10.6	11.3	13.0	15.9	17.6	18.7	18.7	19.5	20.3	19.8	19.4	18.9	17.3	16.1	15.1	14.2	12.7	11.5	14.5	20.3																						
15-May	9.3	7.8	6.2	4.9	4.7	6.3	7.1	7.9	9.4	10.7	11.8	12.5	13.0	13.5	14.0	12.0	11.5	10.2	10.1	9.7	7.9	7.2	6.9	7.7	9.3	14.0																						
16-May	7.1	6.6	6.2	5.8	5.4	5.3	5.6	6.1	8.0	9.1	11.1	12.3	9.7	9.2	8.2	8.0	7.7	7.3	7.0	6.9	6.7	6.9	6.8	6.8	7.5	12.3																						
17-May	6.6	6.2	6.1	6.0	5.9	5.9	5.9	6.0	6.2	6.7	7.1	7.1	6.9	6.9	6.8	6.6	5.7	5.0	4.5	4.4	4.1	3.8	3.4	3.1	5.7	7.1																						
18-May	2.7	1.9	1.3	0.8	0.5	0.3	0.7	1.1	1.5	1.9	2.1	2.2	2.1	2.2	2.7	3.1	3.4	3.7	3.7	3.7	3.6	3.2	2.9	2.6	2.2	3.7																						
19-May	2.3	2.1	1.9	1.8	1.7	1.8	2.2	3.1	4.3	5.1	6.1	6.7	6.8	6.6	6.7	6.7	6.5	5.9	5.5	5.0	4.7	4.3	4.0	3.6	4.4	6.8																						
20-May	3.7	3.6	3.0	2.7	2.6	3.0	3.5	4.2	4.8	5.2	5.4	5.6	5.6	5.6	5.7	6.0	6.5	6.3	6.0	6.0	5.3	5.0	4.5	4.3	4.7	6.5																						
21-May	4.0	3.7	3.5	3.6	3.6	3.7	4.1	5.3	5.7	7.3	8.2	8.4	9.2	10.3	12.1	10.8	10.6	10.8	10.2	9.0	8.0	7.0	6.4	5.5	7.1	12.1																						
22-May	4.4	4.1	3.4	2.6	1.3	2.6	3.6	2.6	2.6	2.5	2.9	3.8	4.7	6.4	7.0	7.3	7.7	7.8	8.0	7.1	6.2	5.5	5.1	4.6	4.7	8.0																						
23-May	4.1	3.8	3.6	3.3	3.1	3.4	4.1	4.7	5.5	5.9	6.8	7.5	7.9	8.8	9.5	9.8	9.4	9.6	9.1	8.6	6.5	4.9	3.7	2.8	6.1	9.8																						
24-May	2.3	2.3	2.6	2.7	2.2	2.8	4.3	6.8	8.5	8.2	7.9	10.7	11.6	12.3	11.2	11.1	12.3	11.4	11.5	10.4	7.5	5.2	3.7	4.6	7.2	12.3																						
25-May	2.8	1.3	1.2	-0.7	0.0	1.8	6.2	8.6	9.8	11.0	12.1	13.1	13.3	13.3	13.0	13.0	13.1	12.7	13.2	13.0	11.2	8.8	6.9	5.9	8.5	13.3																						
26-May	4.7	4.5	3.5	2.7	2.8	5.3	9.4	12.4	13.1	13.0	13.5	14.4	15.4	15.3	15.7	16.1	16.5	16.8	16.3	15.0	12.9	11.8	10.8	10.4	11.3	16.8																						
27-May	9.8	9.4	9.3	8.8	8.0	8.0	8.0	8.4	10.8	14.9	18.5	19.5	20.2	20.9	20.6	20.4	18.7	18.8	19.4	18.0	16.7	16.1	14.9	14.4	14.7	20.9																						
28-May	13.4	12.2	11.5	11.5	11.3	11.3	13.3	16.1	17.2	18.3	19.0	20.4	21.5	22.6	22.6	23.1	23.0	22.8	22.8	21.1	19.3	17.6	17.2	17.4	17.8	23.1																						
29-May	16.8	15.0	14.6	15.4	15.6	15.7	16.0	17.4	18.4	17.4	17.4	17.7	18.0	17.9	16.3	15.8	15.2	15.0	14.5	13.8	13.0	11.5	10.4	9.5	15.3	18.4																						
30-May	8.5	8.2	7.5	7.0	6.7	6.2	6.3	6.5	6.9	7.4	8.0	8.3	8.7	9.4	10.1	10.0	9.6	9.3	8.9	8.8	8.9	8.6	8.1	7.6	8.1	10.1																						
31-May	7.5	7.5	7.5	7.3	7.4	7.5	7.9	8.4	9.7	10.6	11.0	10.1	10.3	10.2	10.7	8.9	9.2	10.5	10.9	11.2	10.7	9.8	9.4	9.0	9.3	11.2																						
																								6.1	5.6	5.1	4.8	4.5	4.9	6.0	7.4	8.7	9.7	10.7	11.6	12.1	12.5	13.0	12.9	12.7	12.4	12.0	11.2	9.7	8.6	7.7	7.1	Diurnal Average
																								16.8	15.0	14.6	15.4	15.6	15.7	16.0	17.4	18.4	20.2	21.5	22.6	24.0	24.5	25.1	25.2	25.4	25.6	25.0	23.5	21.8	19.7	18.3	17.4	Diurnal Maximum





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C**  
**Sawbones Bay - May 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	18	2.42	2.42
0 - 10	445	59.81	62.23
10 - 20	255	34.27	96.51
> 20	26	3.49	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

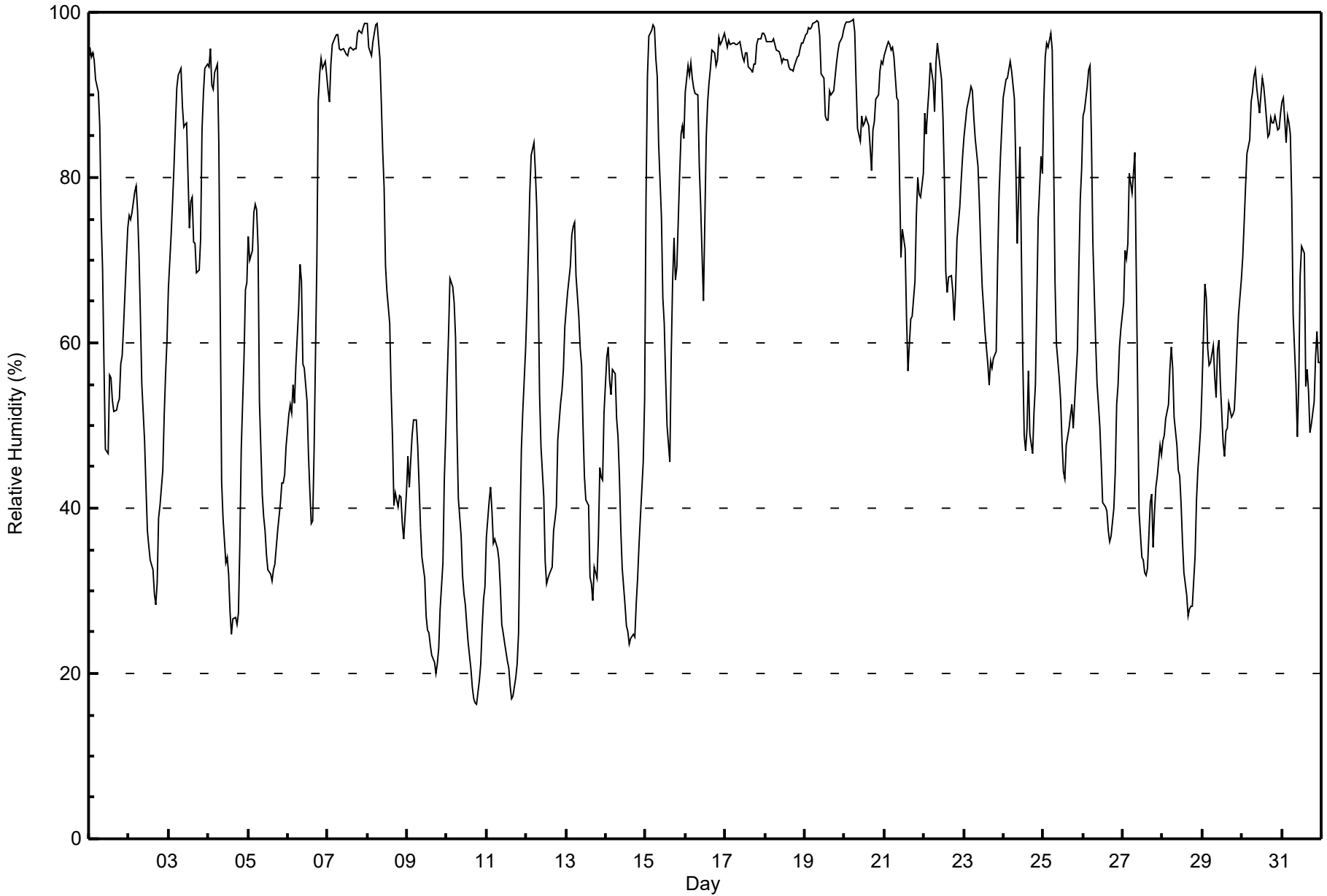
**Relative Humidity (RH) - %**  
**Sawbones Bay - May 2024**

Maximum Value: 99.1 % on May 20 06:00																						Maximum Daily Average: 95.8 % on May 7																						Hours in Service: 744			
Minimum Value: 16.4 % on May 10 19:00																						Minimum Daily Average: 31.7 % on May 11																						Hours of Data: 744			
Maximum Diurnal Average: 82.3 % at hour 5																						Minimum Diurnal Average: 52.4 % at hour 15																						Hours of Missing Data: 0			
Monthly Average: 66.52 %																						Percentiles: P <sub>1</sub> = 19.3 P <sub>10</sub> = 32.5 Q <sub>1</sub> = 47.0 Median = 67.8 Q <sub>3</sub> = 90.4 P <sub>90</sub> = 95.8 P <sub>99</sub> = 98.8																						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-May	95.7	94.7	95.0	94.2	91.8	90.3	86.2	74.9	69.0	57.5	47.1	46.6	56.0	55.7	53.0	51.7	51.8	52.7	53.2	57.4	58.5	62.1	70.1	73.8	68.3	95.7																					
2-May	75.4	74.9	75.7	78.2	78.9	75.9	70.6	63.4	55.1	48.1	42.6	37.2	35.5	33.7	32.5	29.7	28.3	31.0	38.9	40.4	44.5	51.2	56.2	60.3	52.4	78.9																					
3-May	66.7	73.3	77.2	81.3	86.2	90.8	92.3	93.2	88.6	86.2	86.5	86.6	73.8	77.1	77.6	72.1	72.0	68.4	68.8	72.6	85.8	90.2	93.3	93.7	81.4	93.7																					
4-May	93.5	95.6	91.3	90.6	92.7	93.8	84.0	64.1	43.2	38.8	33.4	34.1	32.0	27.4	24.7	26.7	26.7	25.9	27.3	35.7	47.1	58.3	66.5	67.2	55.0	95.6																					
5-May	72.8	70.0	71.2	75.7	76.9	76.1	71.7	53.0	41.7	39.1	37.4	34.4	32.6	32.1	31.2	32.5	33.3	35.3	37.3	40.7	43.1	43.0	44.0	47.5	48.8	76.9																					
6-May	51.4	52.5	51.5	55.0	52.8	57.3	64.3	69.5	67.5	57.5	57.0	52.9	46.4	42.1	38.2	38.5	46.8	70.1	89.4	92.6	94.4	93.2	94.1	92.4	63.6	94.4																					
7-May	90.5	89.2	93.8	96.2	96.9	97.3	97.3	95.6	95.5	95.6	95.2	95.0	94.7	95.6	95.7	95.5	95.6	95.7	97.5	97.8	97.5	98.2	98.7	98.6	95.8	98.7																					
8-May	98.7	95.8	94.7	96.4	97.5	98.4	98.6	94.5	89.2	83.2	78.9	69.3	66.2	62.3	54.3	48.6	40.3	41.9	40.1	41.6	41.4	38.2	36.3	42.1	68.7	98.7																					
9-May	46.3	42.6	45.8	48.9	50.7	50.7	47.5	42.7	37.6	34.0	31.5	27.0	25.3	25.0	23.3	22.1	21.3	20.0	21.2	23.1	27.8	33.5	43.6	49.0	35.0	50.7																					
10-May	55.5	61.1	67.9	66.8	65.0	60.6	49.5	41.2	36.5	31.9	29.7	28.2	25.9	23.8	20.4	18.3	16.9	16.5	16.4	19.1	21.2	25.6	28.9	30.5	35.7	67.9																					
11-May	36.5	40.9	42.6	39.6	35.7	36.3	35.0	33.7	30.3	26.0	24.9	23.7	21.5	20.7	18.5	17.0	17.3	19.5	21.1	24.9	37.6	47.1	51.7	59.1	31.7	59.1																					
12-May	64.4	70.9	78.1	82.8	84.3	80.6	76.3	67.2	53.7	47.4	41.4	33.5	30.8	31.5	32.0	32.9	37.3	38.7	40.2	48.3	52.7	54.2	56.8	61.9	54.1	84.3																					
13-May	64.1	66.0	69.3	73.0	74.1	74.5	68.1	63.2	59.3	57.3	49.9	44.0	41.0	40.3	31.8	30.8	28.9	32.8	31.5	36.4	44.9	43.6	43.4	51.6	50.8	74.5																					
14-May	58.2	59.5	55.4	53.7	56.8	56.3	50.9	48.6	44.0	37.3	32.7	28.2	25.7	25.2	23.6	24.3	24.8	24.3	28.4	31.5	35.6	39.0	45.6	53.2	40.1	59.5																					
15-May	77.6	92.3	97.1	97.7	98.5	98.1	94.4	92.2	84.1	75.3	65.4	62.4	55.7	50.0	45.5	58.7	67.7	72.7	67.7	69.2	80.3	85.3	86.2	84.8	77.5	98.5																					
16-May	90.3	93.5	92.4	94.0	92.1	90.8	90.2	89.9	81.5	76.5	70.7	65.1	84.9	89.1	91.5	93.3	95.3	95.1	93.6	94.3	97.0	96.1	96.5	97.5	89.6	97.5																					
17-May	96.6	95.8	96.6	96.1	96.3	96.3	96.2	96.2	96.4	96.5	94.6	94.0	95.1	95.1	93.4	93.1	92.8	93.8	93.7	96.1	96.8	96.8	97.4	97.4	95.5	97.4																					
18-May	97.2	96.4	96.5	96.4	96.4	96.7	96.1	95.4	95.3	94.7	93.9	94.3	94.2	94.2	93.5	93.0	93.0	92.9	93.5	94.5	94.7	95.6	96.3	96.3	95.0	97.2																					
19-May	97.2	97.5	98.1	98.0	98.2	98.7	98.9	99.0	98.9	97.1	92.5	92.1	87.5	86.9	86.9	90.4	90.0	90.5	92.2	93.8	95.3	96.3	97.0	97.8	94.6	99.0																					
20-May	98.5	98.8	98.8	98.8	99.0	99.1	97.6	91.3	85.9	84.4	87.4	86.3	86.6	87.3	86.2	83.7	80.8	85.8	86.7	89.6	90.0	92.9	94.0	93.7	91.0	99.1																					
21-May	94.7	96.0	96.5	96.1	95.5	95.8	94.6	89.6	89.4	79.8	70.3	73.8	71.3	62.9	56.6	59.8	63.0	63.2	67.4	75.5	80.0	77.9	77.7	80.5	79.5	96.5																					
22-May	87.8	85.3	88.1	90.7	93.9	91.6	88.0	94.0	96.3	94.8	91.9	87.3	79.9	68.7	66.0	67.9	68.2	66.2	62.7	66.4	72.5	76.5	79.7	82.5	81.1	96.3																					
23-May	84.9	86.6	88.3	90.0	91.0	90.5	87.2	84.8	81.3	76.8	71.3	66.8	64.3	61.3	57.4	54.9	57.8	56.9	58.2	59.0	69.5	77.6	82.4	86.1	74.4	91.0																					
24-May	89.7	91.9	92.0	93.1	94.1	92.9	89.5	81.4	72.0	78.0	83.8	57.6	48.7	46.9	49.7	56.6	48.9	46.7	51.6	55.0	65.1	75.1	82.6	80.5	71.8	94.1																					
25-May	89.3	94.7	96.2	95.8	97.5	95.4	82.4	67.3	59.9	55.7	53.0	47.9	44.4	43.5	47.7	49.6	51.2	52.6	49.7	52.9	59.2	69.0	77.2	80.9	67.2	97.5																					
26-May	87.4	88.1	91.0	93.1	93.5	84.6	72.2	60.1	55.1	52.6	49.8	45.4	40.8	40.2	39.6	37.3	36.0	36.7	40.0	44.5	52.6	54.9	59.6	61.7	59.0	93.5																					
27-May	64.9	71.3	70.1	72.0	80.5	78.1	80.4	83.0	68.3	54.5	39.5	34.0	33.7	32.2	31.9	32.7	40.6	41.8	35.3	39.4	42.5	43.8	47.7	46.5	52.7	83.0																					
28-May	48.1	48.8	50.8	52.5	56.8	59.6	57.0	51.0	47.7	44.5	43.9	40.6	35.9	32.2	29.5	27.0	27.7	28.2	28.2	34.3	41.1	44.8	47.2	49.8	42.8	59.6																					
29-May	55.1	67.1	65.4	59.4	57.3	57.6	59.7	56.0	53.4	59.1	60.3	55.3	48.0	46.2	49.4	49.7	52.7	51.1	51.3	51.9	55.4	59.7	63.5	67.7	56.3	67.7																					
30-May	70.3	74.4	78.7	82.9	84.5	89.2	90.3	92.3	93.0	90.8	87.8	90.0	92.0	91.1	89.1	85.0	85.2	87.3	86.7	86.5	87.4	85.8	86.0	87.7	86.4	93.0																					
31-May	89.2	89.6	84.3	87.4	86.6	85.3	77.2	63.3	55.1	48.7	55.1	68.1	71.7	70.8	54.7	56.7	54.0	49.2	50.2	52.8	58.3	61.4	57.7	57.6	66.0	89.6																					
																						77.0	79.2	80.3	81.5	82.3	81.9	78.8	73.9	68.5	64.5	61.3	58.1	56.2	54.6	52.4	52.6	53.1	54.3	55.5	58.6	63.5	66.7	69.6	71.9	Diurnal Average	
																						98.7	98.8	98.8	98.8	99.0	99.1	98.9	99.0	98.9	97.1	95.2	95.0	95.1	95.6	95.7	95.5	95.6	95.7	97.5	97.8	97.5	98.2	98.7	98.6	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Sawbones Bay - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Relative Humidity (RH) - %**  
**Sawbones Bay - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	9	1.21	1.21
20 - 40	119	15.99	17.20
40 - 60	195	26.21	43.41
60 - 80	132	17.74	61.16
80 - 100	289	38.84	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



# Wood Buffalo Environmental Association

## Summary of Hour Averages

# Wind Speed (WS) - km/h

## Sawbones Bay - May 2024

Maximum Speed: 34 km/h on May 31 09:00	Maximum Daily Speed Average: 23.1 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 7 23:00	Minimum Daily Speed Average: 0.6 km/h on May 15	Hours of Data: 744
Maximum Diurnal Speed Average: 3.7 km/h at hour 11	Minimum Diurnal Speed Average: 0.2 km/h at hour 3	Hours of Missing Data: 0
Monthly Average Velocity: 1.3 km/h 312.9 deg	Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 4 Q <sub>1</sub> = 6 Median = 9 Q <sub>3</sub> = 13 P <sub>90</sub> = 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-May	N13	N12	N12	NNE11	NNE10	NNE12	NNE12	NNE11	NNE12	NNE15	NNE17	NNE20	NE18	NE17	NE15	NE15	NNE18	NNE15	NNE13	NE10	NNE12	N8	N9	N9	NNE12.8	NNE20
2-May	N9	N9	N9	N9	N9	N9	N10	N12	N14	N17	NNE20	NNE23	NNE22	NNE21	NNE19	NNE20	NNE19	ENE13	E16	E10	E7	ESE6	E4	E4	NNE11.1	NNE23
3-May	ENE3	NNE3	N6	NNE5	N6	NNE4	N3	NNE4	N2	NNE6	NNE5	NNE6	ENE6	ESE6	S7	NNW2	W2	E5	NE8	SE5	WNW1	SSW2	S2	SW2	NE2.3	NE8
4-May	SSE4	NW1	W4	SSW4	S5	S4	WNW6	N6	N9	N6	N5	N6	NW9	SSE5	SSW5	NNW3	N2	NE4	ENE5	E4	E5	E7	ESE8	ESE8	NE1.2	N9
5-May	ESE6	SE7	SE6	ESE7	ESE7	ESE7	ESE4	SSE9	SSE14	SE13	SE15	SE15	SE14	SE14	SE15	SE12	SE11	ESE9	E6	E5	E6	E8	E9	SE9.1	SE15	
6-May	E8	ESE8	SE10	SE9	SE10	ESE7	E7	E12	ENE10	E13	ENE12	E15	E17	ESE14	ESE16	SE16	SSE23	SSE18	ESE11	E8	ENE7	E7	NE4	ENE6	ESE10.0	SSE23
7-May	E8	E11	E8	E8	ENE7	ENE7	ENE8	E10	E10	E11	E10	E10	E11	E8	E9	E10	E10	E8	E3	E4	ESE4	N0	WSW0	NNW3	E7.1	E11
8-May	WNW3	W12WSW11	W7	SW4WNW11	WNW9	WNW9	WNW10	NW13	NW14	NW14	NW14	WNW10	WNW6	W8WNW11	WNW11	SW7	SSW9	SW10	SW9	SW10	SSW4			W7.7	NW14	
9-May	SW9WSW18	W17WSW17	WSW16	WSW20	W21WNW21	WNW22	WNW21	WNW20	WNW25	WNW23	WNW24	WNW23	WNW25	WNW25	NW23	NW20	NW11	NW6	WNW4	S7	SE5			WNW15.5	WNW25	
10-May	ESE3	SSE5	S7	SSE9	S9	S9	SSW8	SW12	WSW15	WSW18	W24	W24	WSW23	WSW26	WSW26	WSW26	WSW25	WSW26	W27	W23	W18WSW14	SW14	W16	WSW14.9	W27	
11-May	NNW23	NNW13	NW9	NW13	NW12	NW14	NW16	NW21	NW25	NW31	NW32	NW30	NW29	NW28	NW25	NW25	NW22	N18	N16	N10	NNE9	NE7	ENE4	NE3	NW16.7	NW32
12-May	ENE3	ENE4	ENE4	ESE5	SE7	ESE6	ESE6	SE7	SSE8	SE8	E8	ESE8	SSE12	ESE11	SE12	S11	S10	ESE5	SSE9	S12	S9	SSE8	SSE9	SSE8	SE6.9	SE12
13-May	SE7	SE8	SE9	SE8	SSE8	SSE8	SSE10	S10	S11	S12	S15	S15	S15	SSW14	SW17	SW15	WSW16	SW13	SSW12	SSW10	SSW8	SSW11	SSW13	SSW10	S10.0	SW17
14-May	SW5	W7	WSW5	W7	W8	WSW7	WSW6	W8	WSW8	SW8	WSW13	WSW13	WSW17	WSW17	SW19	WSW22	W19	W22	WNW21	WNW20	WNW10	NW11	NNW6	NW6	W10.8	WSW22
15-May	NW9	NW6	SSE3	S6	S5	SW5	WNW6	NW9	NW7	WNW4	N6	NNE8	NNE4	NNE7	E0	NW6	ESE9	ESE12	SE7	S4	ENE1	ENE2	SSE2	SW4	NW0.6	ESE12
16-May	NW3	NNE9	NE3	N1	NE4	ENE4	E3	NNE2	E6	ENE6	ENE8	E10	E12	E14	E10	ENE8	ENE6	ESE14	ESE14	ESE7	ENE5	E11	E10	E10	E6.7	ESE14
17-May	E14	ESE14	E13	E13	E12	E12	ESE12	E12	E10	E10	ENE8	ENE7	NE7	NE8	NE9	NE8	ENE8	NE7	NNE6	NNW7	N6	NNW11	NNW10	NW12	ENE7.0	ESE14
18-May	NW13	NW13	WNW14	NW13	WNW14	WNW16	WNW18	WNW19	WNW17	WNW18	WNW19	WNW18	WNW18	WNW18	WNW17	WNW16	WNW16	WNW17	WNW15	WNW11	WNW10	WNW11	WNW8	WNW10	WNW14.8	WNW19
19-May	WNW13	WNW12	WNW9	WNW9	WNW10	WNW9	WNW7	NW7	NNW7	N8	N8	NNE10	NNE15	NNE12	NE11	NNE11	NE10	NE10	NE9	NNE9	NNE9	NNE7	N6	N6	N6.6	NNE15
20-May	N6	NNW5	NNW6	N6	NNW7	N7	N8	NNE9	NNE11	N12	N13	NNE11	NNE12	NNE12	NNE10	NNE10	NNE10	NE8	NNE9	NNE8	NE6	NNE7	NE4	ENE2	NNE8.0	N13
21-May	ENE3	E6	E6	ESE7	E7	E6	E6	E8	E5	ENE6	E7	E7	ENE7	ESE9	SE13	E10	E11	E7	ENE7	E6	E6	E10	ESE7	ESE4	E6.9	SE13
22-May	NNE2	ENE3	E2	E1	NE3	NNE5	NNE9	NNE11	N10	NNE12	NNE11	NNE11	NNE11	NNE9	NNE12	NNE11	NE10	NE11	NE9	NE8	NNE6	NNE6	NNE5	NE3	NNE7.3	NNE12
23-May	NNE3	NE3	NNE4	NE3	NE3	NNE4	ENE5	E6	ENE5	NE7	NE7	NNE10	NE9	ENE7	ENE7	NE8	ENE8	ENE8	ENE7	ENE4	NE2	ENE2	E3	ENE4	ENE5.1	NNE10
24-May	E4	E6	E6	E5	E5	E4	E6	E7	ESE10	SSE6	SE4	ESE9	ESE11	ESE13	ESE11	SE8	SE6	SE11	SSE11	SSE7	SSE5	SSE5	SSE6	SSE10	SE6.6	ESE13
25-May	SSE6	SSE6	SE5	SE4	ESE6	ESE7	SE5	SE9	SE11	ESE11	ESE10	ESE10	SE8	SSE12	SSE11	SE11	SE10	SE11	SE11	SE9	ESE8	ESE6	ESE6	ESE7	SE8.0	SSE12
26-May	ESE5	ESE7	ESE7	E7	ESE7	SE1	SSE2	SSE6	SSE6	ESE7	SSE4	SE3	ESE3	E4	SE5	ESE6	SE5	SSE6	SSE6	SE4	ESE4	ESE5	ESE4	ESE4	SE4.6	ESE7
27-May	SSE3	SE6	ESE8	E3	SE6	E3	NNE3	E2	E3	SSE6	SSE8	SE12	SSE10	SSE9	SE10	S8	WSW3	S1	SE10	SE7	SE7	SE8	SE8	SSE12	SE5.8	SE12
28-May	SE13	SE9	SE9	SSE12	SSW5	SSE6	SSE9	S12	SW12	WSW11	W9	WSW8	WSW6	SSW8	SW7	SSW6	S3	SE3	ESE9	ESE5	E4	E5	ESE9	SE9	S5.1	SE13
29-May	SSE11	E4	SE8	SE11	SE14	SSE12	SSE13	S16	SW18	WSW19	WSW19	WSW21	W22	W21	WSW23	WSW20	W22	WSW19	WSW18	WSW15	WSW17	WSW13	SW14	WSW20	SW12.4	WSW23
30-May	SW16	WSW19	WSW17	WSW17	WSW17	W20	W19	WNW19	WNW18	WNW19	WNW18	WNW19	WNW17	NW18	NW19	NW13	WNW18	WNW16	WNW14	W18	W17	WNW19	WNW20		W16.1	W20
31-May	W14	WNW18	WNW20	W22	WNW22	WNW21	WNW27	WNW30	WNW34	WNW33	W28	W26	W24	WNW28	NW31	NW26	WNW24	WNW22	WNW23	WNW24	WNW22	NW10	NW19	NW21	WNW23.1	WNW34

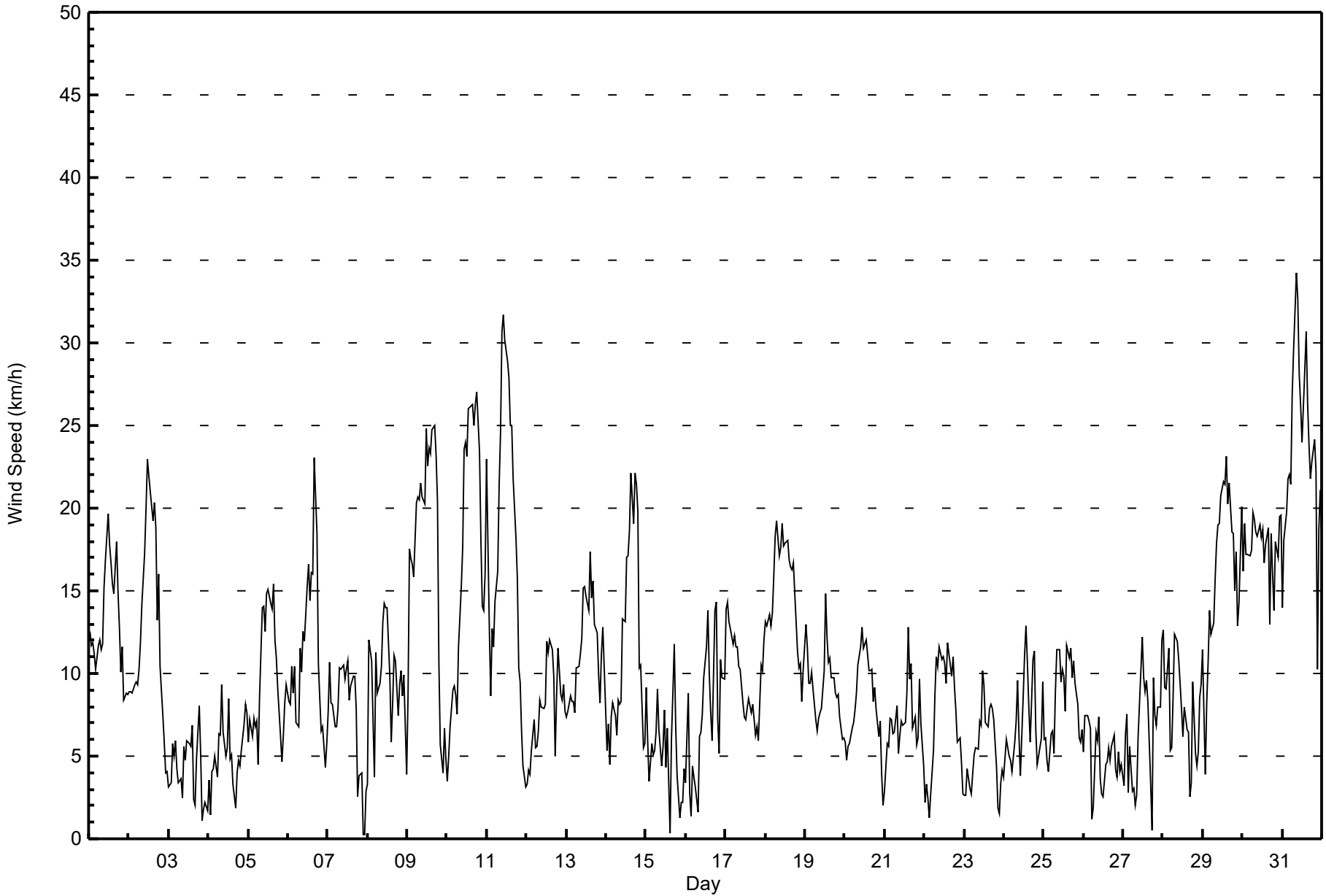
NNE0.5	NNW0.5	SW0.2	SSW0.7	SSW0.7	W1.2	WNW1.9	WNW2.0	WNW2.8	NW3.2	NW3.7	NNW2.9	NNW2.6	NNW1.9	NW1.5	NW2.9	NW2.5	NNW1.0	NNW0.6	NW0.8	NW1.1	NNE0.3	SSE0.5	W0.5		Diurnal Average
NNW23	WSW19	WNW20	W22	WNW22	WNW21	WNW27	WNW30	WNW34	WNW33	NW32	NW30	NW29	WNW28	NW31	NW26	WSW25	WSW26	W27	WNW24	WNW22	W17	WNW19	NW21		Diurnal Maximum

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Sawbones Bay - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	143	19.22	19.22
6 - 11	352	47.31	66.53
12 - 19	174	23.39	89.92
20 - 28	67	9.01	98.92
29 - 38	8	1.08	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Sawbones Bay - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Wind Direction</b>																<b>Totals</b>
	<b>N</b>	<b>NNE</b>	<b>NE</b>	<b>ENE</b>	<b>E</b>	<b>ESE</b>	<b>SE</b>	<b>SSE</b>	<b>S</b>	<b>SSW</b>	<b>SW</b>	<b>WSW</b>	<b>W</b>	<b>WNW</b>	<b>NW</b>	<b>NNW</b>	
0 - 5	6	15	11	18	26	13	12	10	7	5	5	3	2	4	2	4	143
6 - 11	28	34	22	22	55	44	36	29	12	8	7	7	6	22	13	7	352
12 - 19	10	17	4	2	13	8	13	9	7	3	10	23	9	29	16	1	174
20 - 28	0	6	0	0	0	0	0	1	0	0	0	12	14	23	10	1	67
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	3	5	0	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>44</b>	<b>72</b>	<b>37</b>	<b>42</b>	<b>94</b>	<b>65</b>	<b>61</b>	<b>49</b>	<b>26</b>	<b>16</b>	<b>22</b>	<b>45</b>	<b>31</b>	<b>81</b>	<b>46</b>	<b>13</b>	<b>744</b>

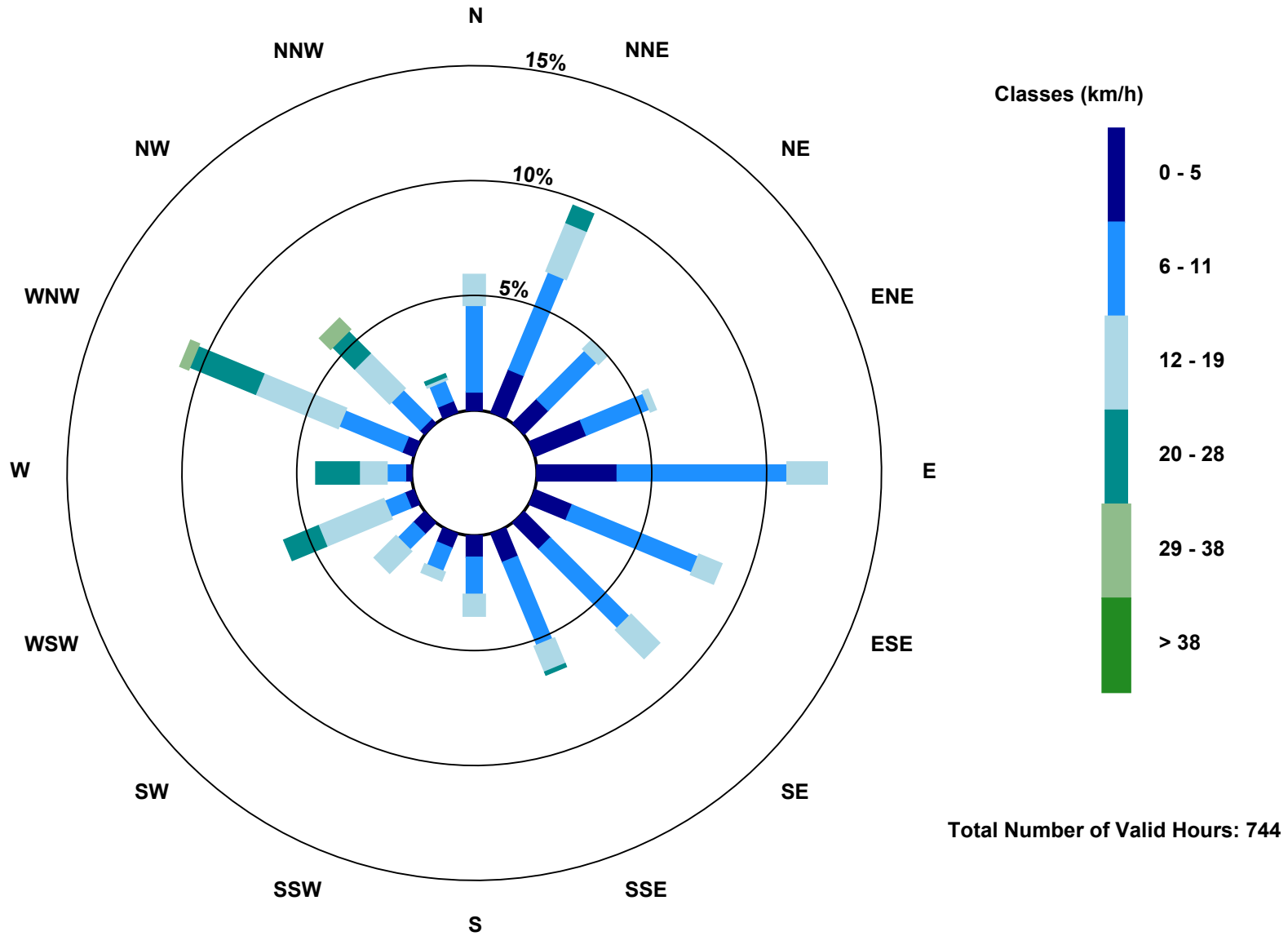
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Sawbones Bay







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Sawbones Bay - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 31 14:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 1 km/h on May 9 22:00																									
Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 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-May	2	2	2	2	2	2	2	3	3	5	5	6	5	5	5	5	4	4	4	3	3	1	1	1	6
2-May	1	1	1	1	1	2	2	2	4	4	5	5	6	6	5	6	6	5	4	3	2	2	1	1	6
3-May	1	1	1	1	2	1	1	1	1	2	2	4	3	3	2	4	3	4	5	3	1	1	2	2	5
4-May	3	2	2	2	1	2	2	2	3	3	4	4	4	3	4	3	3	3	3	2	2	2	2	2	4
5-May	2	1	1	1	1	1	1	3	4	4	4	5	5	4	4	4	3	3	2	2	2	2	2	3	5
6-May	2	2	3	3	3	2	2	4	3	4	4	5	5	5	5	6	6	6	3	3	2	3	2	2	6
7-May	2	3	3	3	2	2	3	4	3	4	3	3	3	3	3	3	3	3	2	1	2	1	1	2	4
8-May	2	4	4	3	5	3	2	2	2	3	4	3	3	3	3	3	3	3	3	2	3	2	2	2	5
9-May	2	5	4	5	5	5	4	4	4	5	5	6	5	6	6	6	7	6	5	4	1	1	2	1	7
10-May	1	2	2	1	1	1	2	3	4	7	7	7	6	6	8	8	7	7	7	6	5	6	3	5	8
11-May	7	5	2	3	3	4	3	5	6	7	7	7	7	7	6	7	7	4	4	3	3	3	2	1	7
12-May	1	1	1	1	1	2	1	2	3	3	3	3	3	3	4	4	6	2	4	3	3	2	3	1	6
13-May	1	1	2	1	1	1	2	3	3	3	4	4	5	5	5	4	5	4	3	2	1	3	3	3	5
14-May	4	3	2	4	3	4	3	2	2	3	5	4	6	6	5	6	5	5	4	4	3	2	2	2	6
15-May	3	4	1	1	2	2	3	2	2	2	3	3	3	2	2	6	4	3	2	2	1	2	3	3	6
16-May	2	2	2	2	1	2	3	1	3	2	3	4	5	4	4	3	3	4	3	4	3	3	3	3	5
17-May	4	4	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	2	1	1	3	2	2	4
18-May	2	3	2	2	2	3	3	3	3	4	4	4	3	3	3	3	3	3	3	2	2	2	2	2	4
19-May	2	2	2	2	2	2	1	1	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	1	3
20-May	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	2	2	1	3
21-May	1	1	2	1	1	2	2	2	2	2	2	2	3	4	4	4	3	3	3	2	2	3	2	2	4
22-May	1	1	2	1	1	1	3	2	3	2	3	3	3	4	4	4	4	4	4	3	1	1	2	1	4
23-May	1	2	2	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	2	1	3
24-May	1	1	1	1	2	2	3	2	3	3	4	4	5	5	3	3	4	3	2	1	1	2	2	2	5
25-May	1	1	1	1	1	1	2	3	4	5	4	4	4	4	4	4	3	3	3	3	2	2	2	1	5
26-May	1	1	1	1	1	2	2	2	3	2	2	3	3	3	3	3	3	3	2	1	1	1	1	1	3
27-May	1	1	1	2	3	2	2	2	2	3	4	5	4	4	4	4	2	3	3	2	2	2	2	3	5
28-May	4	2	2	2	3	4	5	4	4	4	4	4	4	4	4	3	2	2	3	2	2	2	2	3	5
29-May	3	3	2	3	4	3	3	4	6	6	5	5	6	6	6	5	5	6	5	4	6	4	4	7	7
30-May	5	6	5	5	5	5	4	4	3	4	4	4	4	4	4	4	4	5	4	3	3	4	4	4	6
31-May	3	5	4	4	4	4	7	6	7	7	6	7	5	9	8	6	6	5	5	5	6	3	7	5	9
Diurnal Maximum																									
7 6 5 5 5 5 7 6 7 7 7 7 7 9 8 8 7 7 7 6 6 6 7 7																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

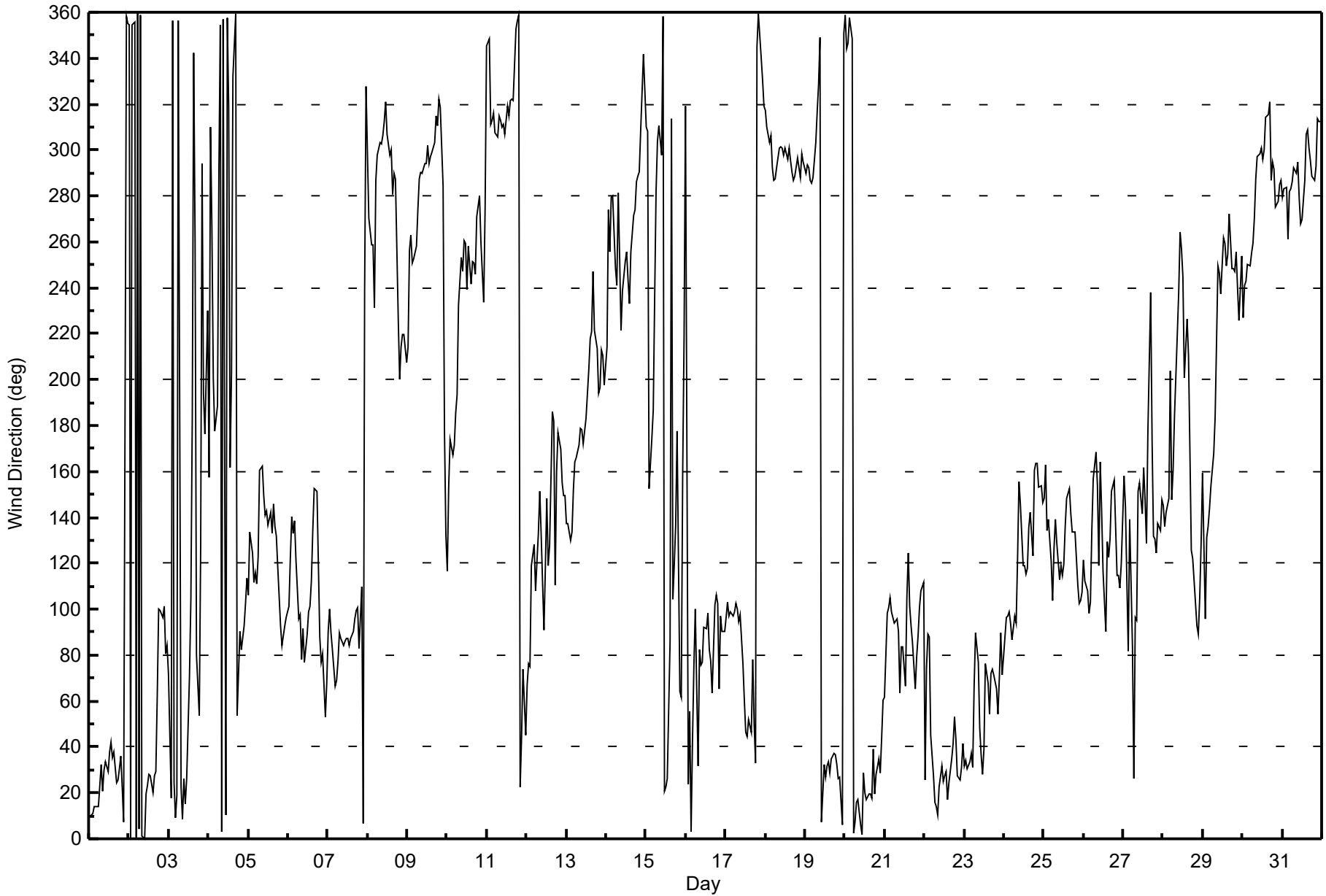
**Wind Direction (WD) - deg**  
**Sawbones Bay - May 2024**

Direction of Maximum Speed: 290 deg on May 31 09:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 289.6 deg on May 31	Hours of Data: 744
Direction of Minimum Speed: 239 deg on May 7 23:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.6 deg on May 15	Percent Operational Time: 100.0
Monthly Average Direction: 312.9 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-May	10	10	11	14	14	14	23	33	21	30	33	30	38	42	36	38	25	26	30	36	22	8	358	355	24.4
2-May	354	0	355	356	1	360	4	359	1	0	19	23	28	28	20	28	29	62	100	100	97	102	80	84	26.3
3-May	72	18	356	24	9	19	357	22	9	26	15	26	71	104	183	342	261	80	53	128	294	194	176	230	40.9
4-May	158	310	266	200	178	189	291	354	3	357	10	358	318	162	203	332	359	54	72	90	82	93	102	114	44.3
5-May	106	134	125	112	116	111	123	161	163	149	141	143	136	142	133	146	136	132	118	93	84	88	93	96	130.2
6-May	101	123	140	133	138	121	96	98	78	91	77	89	99	102	113	134	152	152	119	88	77	81	53	68	111.0
7-May	91	100	90	82	66	69	77	90	88	84	86	87	87	84	87	91	96	99	101	83	110	6	239	328	86.8
8-May	299	270	258	259	232	286	298	303	303	306	312	321	307	298	300	281	290	288	226	200	214	220	220	207	278.2
9-May	214	256	263	251	252	258	274	287	290	290	294	294	302	294	297	299	303	315	311	322	318	284	177	133	286.3
10-May	116	153	174	167	171	186	193	233	253	247	260	259	239	258	242	251	251	246	271	280	260	247	234	275	246.8
11-May	346	348	311	313	316	307	306	315	313	310	311	307	319	315	322	322	321	353	357	359	23	44	74	45	324.3
12-May	67	76	75	119	128	108	121	133	151	133	91	119	148	119	128	186	182	110	160	177	169	155	150	150	139.7
13-May	137	137	130	134	152	164	166	171	179	178	172	177	183	204	218	221	247	221	213	194	197	213	211	198	189.8
14-May	214	274	256	280	280	249	241	281	253	222	239	252	256	243	233	256	272	274	286	289	290	308	342	326	265.6
15-May	310	308	153	174	187	236	282	304	311	298	358	21	23	27	86	313	105	120	137	178	64	61	159	219	322.2
16-May	319	24	56	3	43	75	100	32	82	76	77	92	91	98	82	77	64	102	106	103	65	97	90	90	83.6
17-May	97	103	97	99	97	99	103	100	95	97	76	60	46	45	52	47	78	50	33	345	359	340	331	319	68.9
18-May	317	310	303	306	292	287	288	292	301	301	301	298	301	296	301	295	291	287	288	296	292	288	299	295	296.7
19-May	290	293	292	287	286	288	303	317	329	349	8	32	27	32	34	29	35	37	37	32	26	27	6	351	354.4
20-May	359	344	347	357	348	2	7	16	17	6	2	29	20	17	19	19	18	39	19	28	35	29	44	60	15.2
21-May	62	98	101	105	99	96	94	96	91	63	84	84	66	105	125	101	93	85	65	79	88	101	108	111	93.8
22-May	26	75	89	88	45	28	16	14	10	23	32	25	27	29	17	24	35	41	53	43	28	26	31	41	29.6
23-May	32	34	30	34	37	31	67	90	77	48	36	28	39	76	68	54	72	74	71	65	54	70	90	71	56.8
24-May	79	96	97	99	94	87	97	94	122	156	146	119	119	115	118	135	142	124	160	163	164	153	154	147	125.7
25-May	148	163	134	139	121	104	126	139	129	113	119	115	119	136	148	153	141	134	133	134	110	103	104	107	128.7
26-May	122	112	108	98	103	135	157	168	154	119	164	143	117	90	130	122	131	151	156	136	115	115	109	120	126.0
27-May	158	145	113	82	139	83	26	96	95	151	155	142	162	148	129	177	238	174	132	131	124	137	135	148	139.3
28-May	145	136	142	149	204	148	161	184	220	238	264	257	245	201	227	210	169	126	122	102	93	89	105	129	171.1
29-May	159	96	131	136	144	154	168	184	216	250	246	237	262	259	249	255	272	248	248	247	255	240	226	254	232.7
30-May	227	241	243	250	249	255	259	270	287	297	299	301	296	300	314	316	321	287	295	292	275	277	285	287	280.2
31-May	279	283	284	261	282	283	286	292	290	295	279	268	270	287	307	309	301	296	288	287	293	314	312	312	289.6

29.1 334.7 216.9 196.1 209.2 278.1 293.4 300.5 303.0 317.7 322.2 334.7 334.8 327.3 305.8 304.2 312.6 332.7 334.0 310.3 318.9 31.2 163.7 264.7  
 Diurnal Average

All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Sawbones Bay - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on May 4 17:00 Minimum Value: 5 deg on May 10 04:00 Percentiles: P <sub>1</sub> = 9 P <sub>10</sub> = 12 Q <sub>1</sub> = 15 Median = 20 Q <sub>3</sub> = 29 P <sub>90</sub> = 39 P <sub>99</sub> = 85																			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-May	14	13	12	12	12	12	13	18	16	23	25	20	24	28	29	25	16	17	20	20	16	11	12	11	29																							
2-May	12	13	13	13	13	15	14	16	20	20	18	20	22	19	19	20	22	41	21	18	17	16	23	26	41																							
3-May	31	13	13	14	17	23	30	27	44	26	44	42	40	44	31	90	79	33	38	20	82	74	64	65	90																							
4-May	38	76	34	31	24	21	24	27	23	49	68	72	42	70	68	87	101	61	57	20	33	20	18	15	101																							
5-May	12	12	17	10	9	8	15	21	17	24	24	26	25	25	21	21	20	20	20	20	29	22	20	19	29																							
6-May	16	18	16	18	18	22	18	19	31	24	32	27	26	30	25	27	15	15	21	27	32	31	37	35	37																							
7-May	22	16	26	27	33	35	35	24	24	26	28	25	24	29	27	25	20	18	24	26	27	85	87	35	87																							
8-May	53	15	19	32	86	14	13	12	16	19	19	20	20	26	60	45	30	19	36	14	17	15	14	28	86																							
9-May	16	16	19	16	14	12	15	12	13	15	18	18	20	20	21	17	19	15	16	12	12	36	15	19	36																							
10-May	20	25	8	5	7	12	20	21	21	25	21	22	23	21	19	20	24	21	18	14	13	20	17	30	30																							
11-May	19	15	19	13	14	13	13	16	16	17	17	18	19	20	23	19	24	20	17	13	21	34	38	34	38																							
12-May	40	36	29	16	14	20	20	27	27	35	41	43	25	24	22	30	27	18	25	15	17	12	16	11	43																							
13-May	12	13	16	16	14	8	12	20	17	18	21	21	23	25	22	19	27	19	15	13	13	15	22	43	43																							
14-May	51	32	38	25	40	29	33	14	31	34	25	31	26	27	24	25	21	16	14	11	18	17	19	19	51																							
15-May	25	52	32	13	13	31	29	14	23	49	77	38	64	28	97	78	46	16	25	49	78	35	70	51	97																							
16-May	57	11	64	70	25	35	49	26	33	34	37	28	28	18	30	31	37	19	15	20	31	20	24	23	70																							
17-May	19	15	18	17	18	19	16	17	21	21	30	32	26	30	29	27	30	30	18	20	17	12	13	11	32																							
18-May	12	12	12	11	13	9	10	11	13	12	12	11	12	12	13	12	10	10	10	12	11	9	13	10	13																							
19-May	10	10	11	10	10	13	14	19	17	19	25	20	16	19	19	18	21	21	22	18	13	15	15	10	25																							
20-May	12	11	12	13	11	15	15	15	18	17	18	19	20	19	19	16	18	22	13	14	19	17	32	34	34																							
21-May	25	16	16	13	16	19	22	22	34	38	34	34	35	34	30	24	23	32	32	30	23	17	17	17	38																							
22-May	26	23	36	45	19	15	15	16	17	15	21	21	20	27	19	26	28	29	32	26	16	14	19	27	45																							
23-May	25	25	23	23	24	20	29	26	36	28	34	25	27	48	40	36	36	33	32	32	25	28	21	20	48																							
24-May	19	13	13	17	22	30	20	29	28	32	44	32	30	29	28	31	34	21	16	14	16	10	13	13	44																							
25-May	12	11	13	22	15	8	27	27	26	32	36	42	33	38	26	20	23	20	20	24	12	15	16	11	42																							
26-May	9	9	7	8	10	42	43	25	37	29	26	68	90	45	37	30	32	23	16	14	21	13	23	23	90																							
27-May	44	24	10	37	33	32	37	39	44	26	39	34	40	45	33	55	62	93	19	16	14	16	16	18	93																							
28-May	15	15	15	14	36	36	23	25	25	32	34	48	59	47	52	48	67	34	24	18	22	25	23	17	67																							
29-May	30	80	22	17	17	16	16	20	25	27	23	23	22	23	20	22	16	21	21	21	20	27	22	23	80																							
30-May	20	20	20	19	20	17	14	16	10	12	13	13	12	14	14	14	21	10	13	12	15	14	10	11	21																							
31-May	15	12	10	12	11	12	11	14	13	14	16	15	17	12	15	15	17	13	12	11	16	19	17	15	19																							
Diurnal Maximum																								57	80	64	70	86	42	49	39	44	49	77	72	90	70	97	90	101	93	57	49	82	85	87	65	



## WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY  
MONITORING PROGRAM  
MONTHLY REPORT

**AMS507**  
**KIRBY SOUTH**  
**MAY 2024**

Operations, Data Collection,  
QA/QC, Data Validation and Reporting by:  
Wood Buffalo Environmental Association  
Fort McMurray, Alberta

June 28, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS 507)  
MAY 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	688	36	56	97.31	10	0	4.1	0
H2S (ppb) Average	707	37	37	100	0.7	0	0.2	0
THC (ppm) Average	687	37	57	97.31	2.9	-	2.5	-
NO2 (ppb) Average	643	43	101	92.2	11.2	0	4.7	-
NO (ppb) Average	643	43	101	92.2	6.2	-	2.5	-
NOX (ppb) Average	643	43	101	92.2	16.9	-	7.2	-
Temperature 2 m (C) Average	744	0	0	100	23.8	-	16.9	-
Relative Humidity (%) Average	744	0	0	100	100	-	97.7	-
Wind Speed 10 m (km/h) Average	744	0	0	100	31	-	23	-
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 - KIRBY SOUTH(AMS507)  
MAY 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	688	0.52	1.4	-	0	0	0	0.1	0.3	0.8	10
H2S (ppb) Average	707	0.07	0.1	-	0	0	0	0.1	0.1	0.1	0.7
THC (ppm) Average	687	2.31	0.1	-	2.2	2.2	2.3	2.3	2.3	2.4	2.9
NO2 (ppb) Average	643	1.06	1.3	-	0	0.2	0.4	0.6	1.2	2.2	11.2
NO (ppb) Average	643	0.34	1	-	0	0	0	0	0.1	0.7	6.2
NOX (ppb) Average	643	1.4	2.1	-	0.1	0.3	0.4	0.7	1.4	2.8	16.9
Temperature 2 m (C) Average	744	8.65	5	-	-2.5	2.9	5.1	7.8	11.8	15.6	23.8
Relative Humidity (%) Average	744	68.03	24.3	-	15.5	33.5	47.4	69.8	92.6	97.1	100
Wind Speed 10 m (km/h) Average	744	12.1	6	-	0	6	8	11	15	21	31
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS507)  
MAY 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	01 May 2024 19:00	02 May 2024 14:00	20	Maintenance - stabilization post maintenance
THC	01 May 2024 19:00	02 May 2024 13:00	19	Maintenance - station operator activities
THC	04 May 2024 09:00	04 May 2024 09:00	1	Unstable Operation - excessive baseline drift
NO2	01 May 2024 17:00	02 May 2024 08:00	16	Maintenance - troubleshooting
NO2	02 May 2024 15:00	04 May 2024 08:00	42	Maintenance - stabilization post maintenance





Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO<sub>2</sub>) - ppb

Kirby South - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 10.0 ppb on May 29 20:00	Maximum Daily Average: 4.1 ppb on May 10		Hours of Data:	688
Minimum Value: 0.0 ppb on May 2 18:00	Minimum Daily Average: 0.0 ppb on May 23		Hours of Missing Data:	56
Maximum Diurnal Average: 0.9 ppb at hour 16	Minimum Diurnal Average: 0.1 ppb at hour 2		Hours of Calibration:	36
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> = 0.3 P <sub>90</sub> = 0.8 P <sub>99</sub> = 7.6		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-May	0.5	0.5	Z	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.3	C	C	C	M	M	M	M	M	M	M	--	0.5
2-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0
3-May	0.0	0.0	0.1	0.2	Z	0.4	0.5	0.9	0.8	0.5	0.6	0.3	0.5	0.4	0.7	0.7	0.4	0.2	0.3	0.3	0.2	0.1	0.0	0.1	0.4	0.9	
4-May	0.1	0.0	0.1	0.1	0.1	Z	0.4	0.7	1.3	1.3	1.2	0.7	0.9	0.6	1.2	1.2	0.6	0.5	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.5	1.3
5-May	Z	0.2	0.1	0.1	0.5	1.1	1.7	1.7	1.1	0.4	0.2	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.4	1.7
6-May	0.2	Z	0.7	0.6	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
7-May	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	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1
8-May	0.1	0.1	0.2	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.2	1.1	1.4	1.7	0.2	1.9	0.3	0.3	0.4	1.9	
9-May	0.2	0.5	0.3	0.5	Z	1.4	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	1.4	
10-May	0.1	0.2	0.2	0.2	0.2	Z	0.1	0.6	6.6	8.6	8.1	7.5	8.9	5.6	6.6	9.9	5.0	8.6	7.8	0.0	0.0	0.9	6.6	1.2	4.1	9.9	
11-May	Z	0.0	0.0	0.5	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	0.1	0.0	0.0	0.0	0.5	
12-May	0.0	Z	0.0	0.0	0.0	0.4	0.6	0.7	0.4	0.0	0.1	0.4	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.1	0.1	0.7	0.2	0.7	
13-May	0.3	0.3	Z	0.3	0.3	0.4	0.5	0.6	0.3	0.3	0.3	0.2	0.2	0.1	1.8	2.0	0.9	0.3	0.7	0.1	0.2	0.2	0.2	0.2	0.5	2.0	
14-May	0.1	0.2	0.3	Z	0.4	0.2	0.4	0.2	0.2	3.9	3.9	2.1	2.8	2.4	1.6	6.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2	6.1	
15-May	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	
16-May	0.1	0.1	0.1	0.2	0.1	Z	0.2	0.3	0.4	0.4	0.5	0.3	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.5	
17-May	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	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	
18-May	0.1	Z	0.3	0.2	0.4	0.5	0.6	0.7	1.0	0.6	0.8	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.0	
19-May	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.5	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.5	
20-May	0.0	0.0	0.0	Z	0.4	0.8	0.9	0.3	0.1	0.2	0.4	0.3	0.4	0.3	0.2	0.2	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.9	
21-May	0.2	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	
22-May	0.2	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.6	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	0.6	
23-May	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	
24-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	
25-May	0.2	0.1	Z	0.1	0.0	0.4	0.7	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.7	
26-May	0.3	0.2	0.6	Z	0.6	0.7	0.7	0.4	0.2	0.2	0.1	0.2	0.8	0.8	0.2	0.8	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.8	
27-May	0.1	0.0	0.0	0.0	Z	1.2	2.1	0.6	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.3	2.1	
28-May	0.3	0.6	0.7	0.6	0.8	Z	0.6	0.4	0.4	2.0	0.6	1.3	0.7	0.4	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.4	0.5	2.0	
29-May	Z	0.3	0.4	0.5	0.7	0.5	0.4	0.8	3.9	3.2	6.0	4.5	6.3	4.8	2.3	4.2	3.7	4.8	6.6	10.0	6.8	6.1	6.5	7.1	3.9	10.0	
30-May	6.5	Z	2.6	2.1	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.6	6.5	
31-May	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.1	0.0	0.1	1.4	2.6	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	2.6	

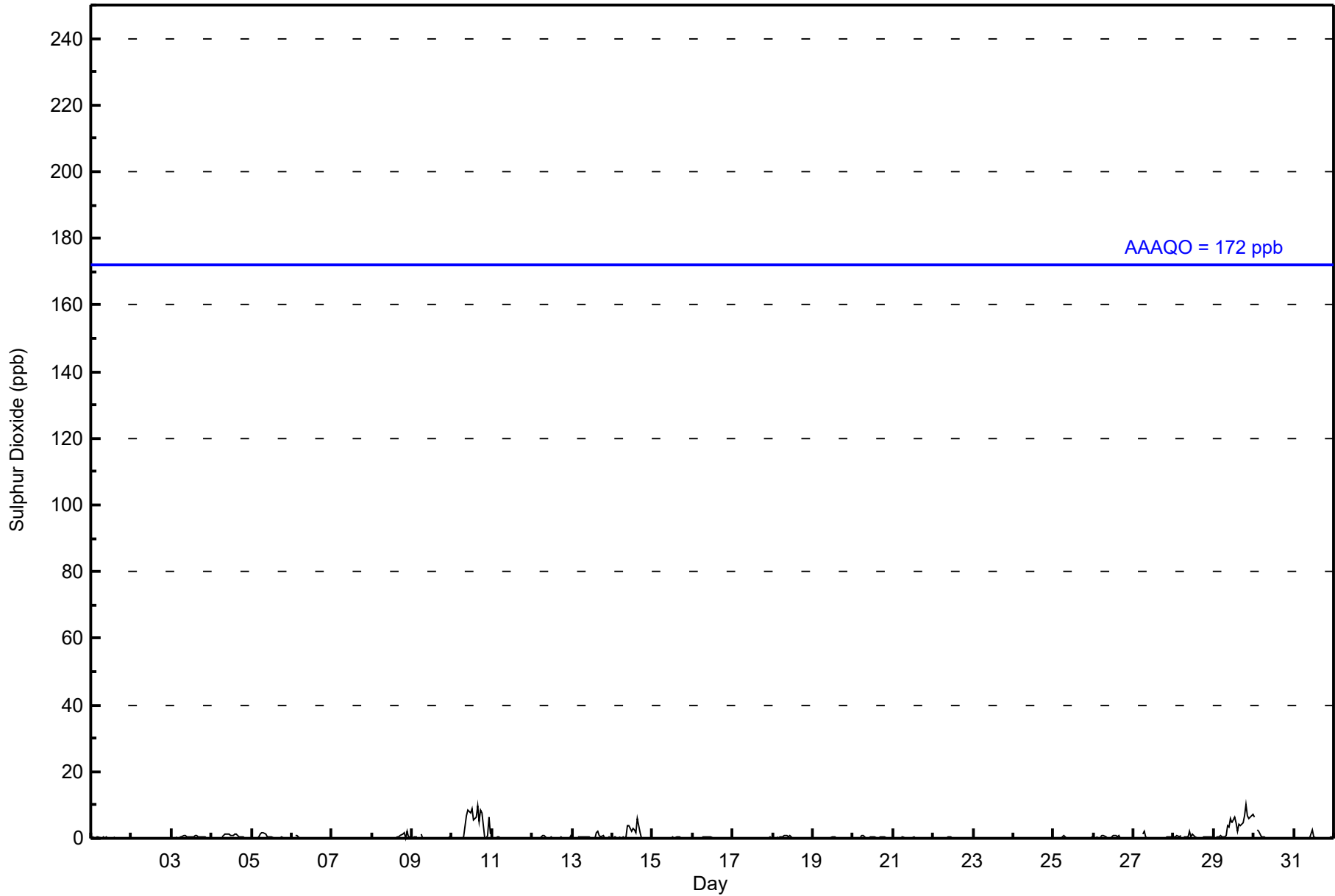
0.4	0.1	0.3	0.3	0.3	0.4	0.4	0.3	0.6	0.8	0.9	0.8	0.8	0.6	0.6	0.9	0.5	0.6	0.6	0.5	0.3	0.4	0.5	0.4	0.4	0.4	Diurnal Average
6.5	0.6	2.6	2.1	0.8	1.4	2.1	1.7	6.6	8.6	8.1	7.5	8.9	5.6	6.6	9.9	5.0	8.6	7.8	10.0	6.8	6.1	6.6	7.1	7.1	7.1	Diurnal Maximum

Z - zerospan      C - Calibration      M - Maintenance  
 Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb    24-hr 48 ppb



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 10	688	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: 688

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Sulphur Dioxide (SO<sub>2</sub>) - ppb**  
**Kirby South - May 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	29	50	44	56	46	62	53	48	31	24	14	62	68	61	26	688
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>	14	29	50	44	56	46	62	53	48	31	24	14	62	68	61	26	688

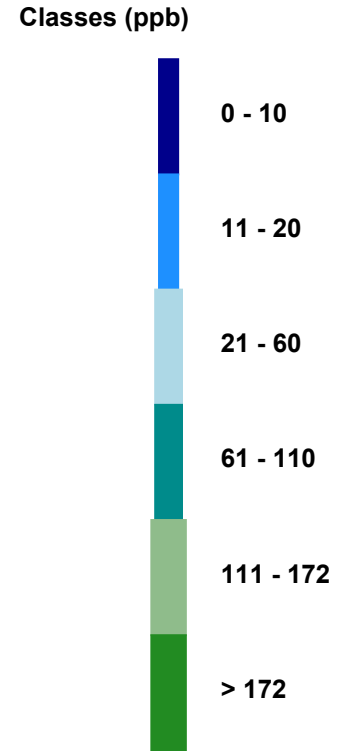
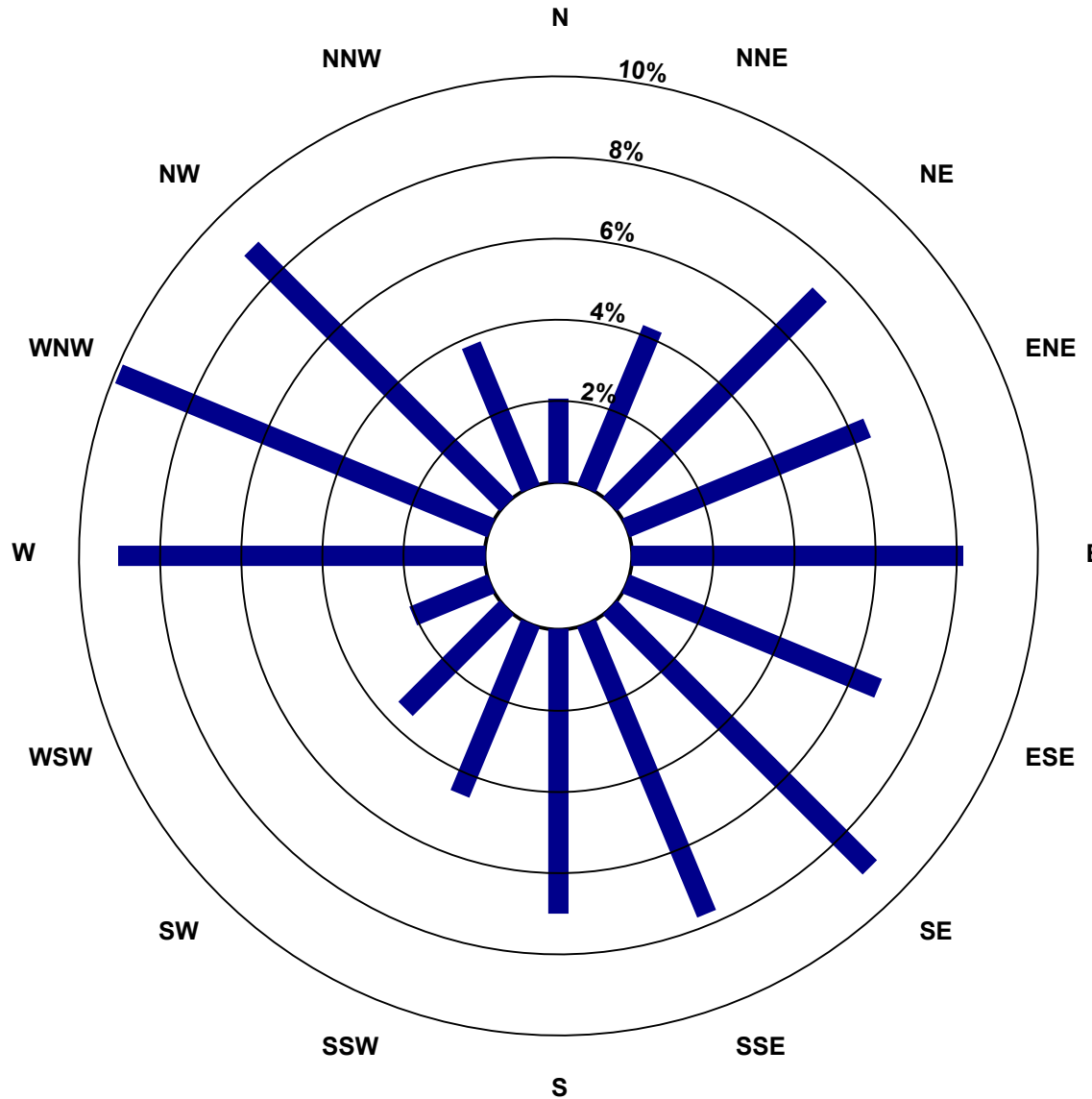
Total Number of Valid Hours: 688

Total Number of Hours: 744

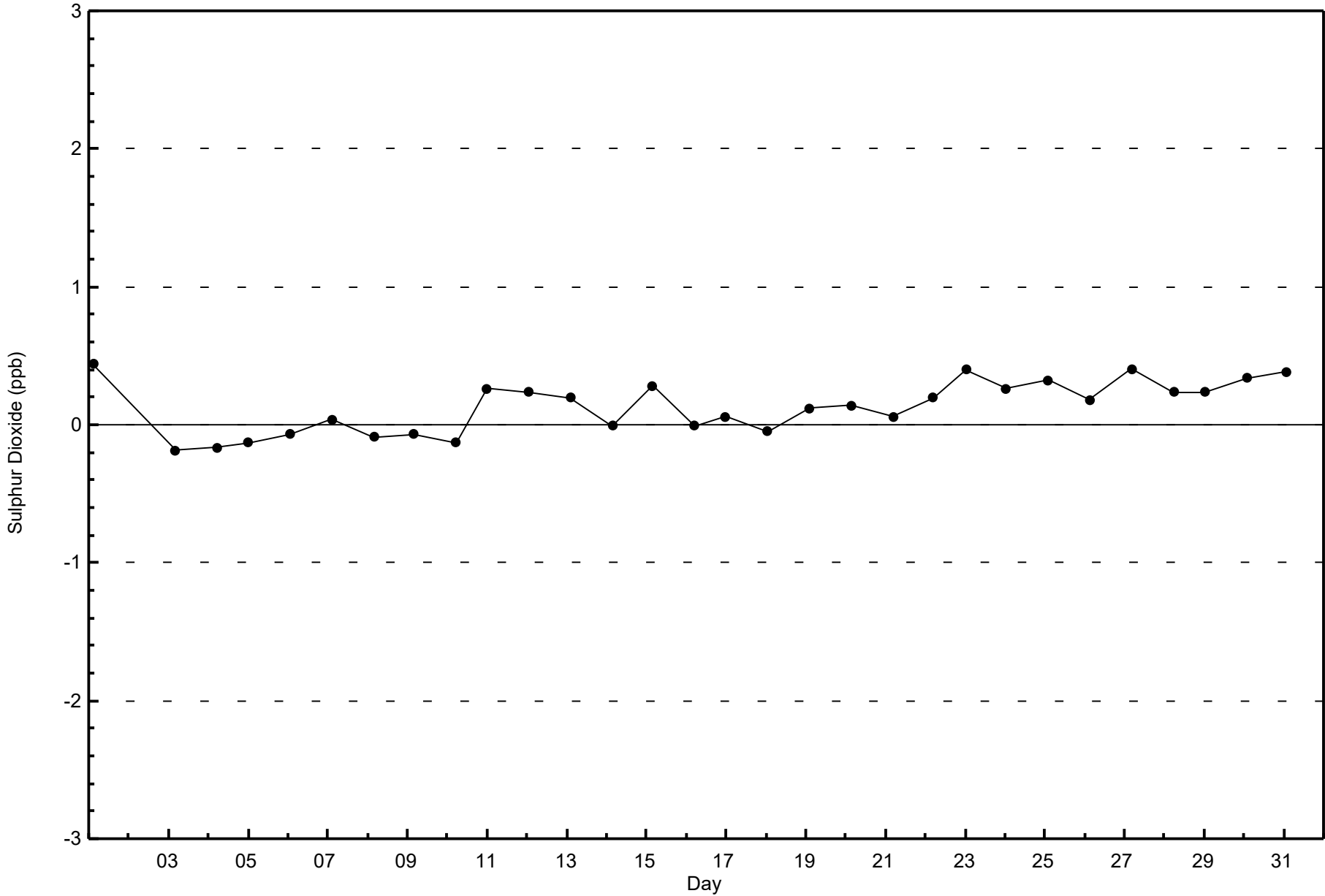


Wood Buffalo Environmental Association  
Wind Rose May 2024

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Kirby South



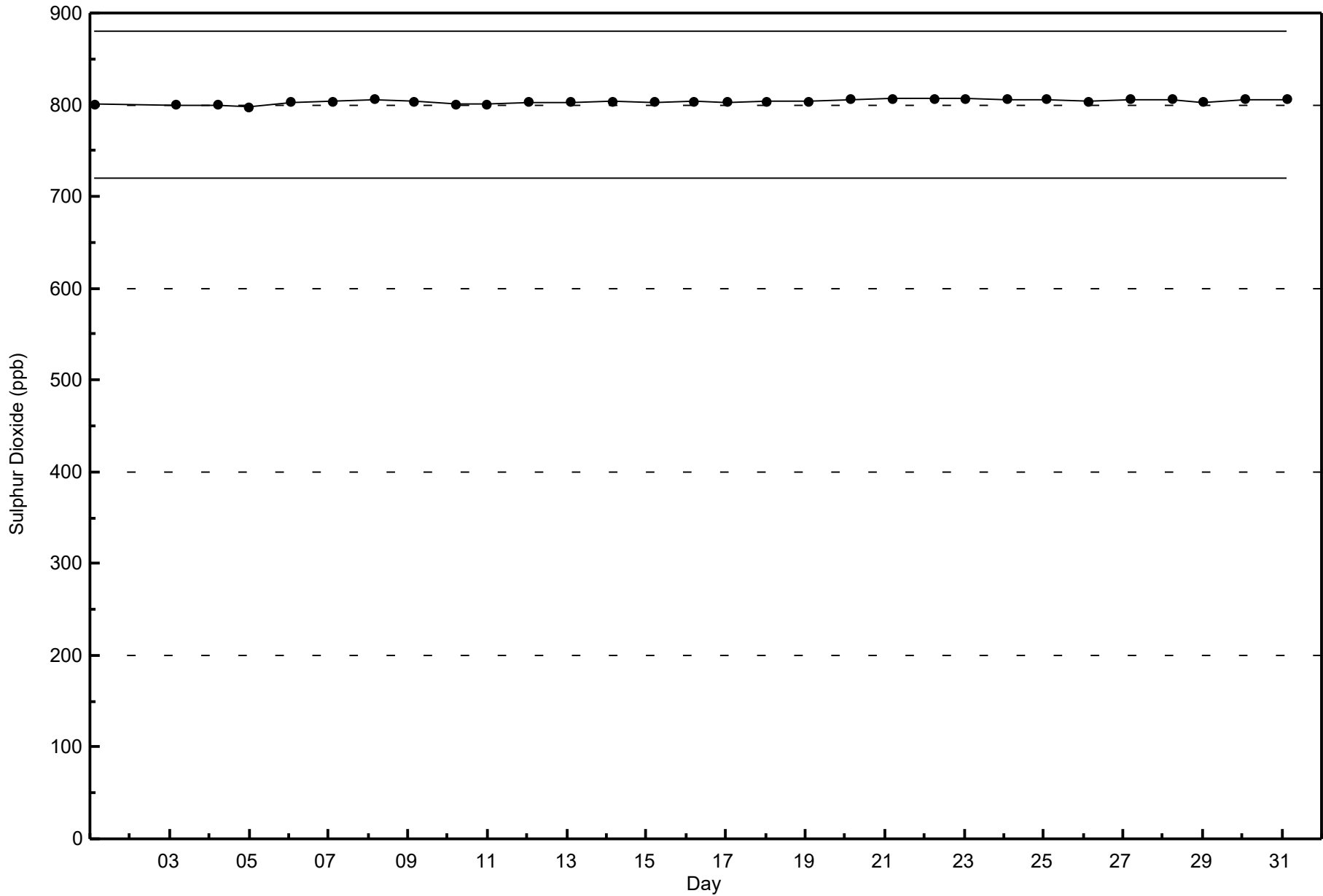
Total Number of Valid Hours: 688





Wood Buffalo Environmental Association  
Span Responses

Sulphur Dioxide (SO<sub>2</sub>) - ppb  
Kirby South - May 2024





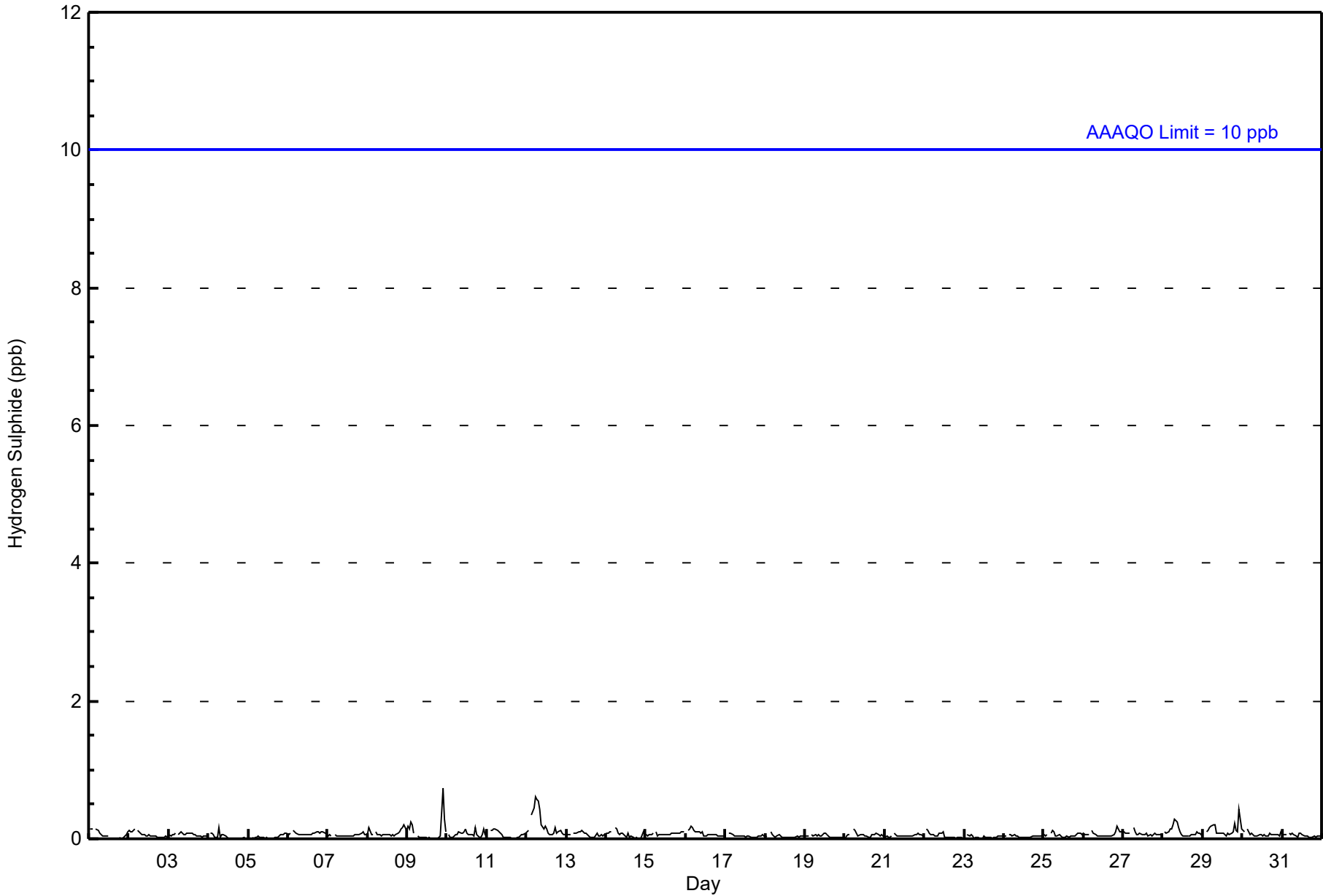
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744				
Maximum Value: 0.7 ppb on May 9 22:00		Maximum Daily Average: 0.2 ppb on May 12																Hours of Data: 707								
Minimum Value: 0.0 ppb on May 1 21:00		Minimum Daily Average: 0.0 ppb on May 23																Hours of Missing Data: 37								
Maximum Diurnal Average: 0.1 ppb at hour 6		Minimum Diurnal Average: 0.0 ppb at hour 15																Hours of Calibration: 37								
Monthly Average: 0.07 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> = 0.1 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-May	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.1	--	0.1
2-May	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
3-May	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
4-May	Z	0.1	0.1	0.1	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.2
5-May	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	0.1	0.1	0.1	0.1	0.1	0.0	0.1
6-May	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
7-May	0.0	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8-May	0.1	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2
9-May	0.2	0.1	0.2	0.2	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	0.7	0.3	0.1	0.1	0.7
10-May	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2
11-May	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
12-May	0.1	0.1	Z	0.3	0.5	0.6	0.6	0.5	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.6
13-May	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	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1
14-May	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2
15-May	0.1	0.0	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	0.1	0.1	0.1	0.1	0.1
16-May	Z	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.2
17-May	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
18-May	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
19-May	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
20-May	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1
21-May	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	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1
22-May	Z	0.1	0.1	0.1	0.1	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	0.1
23-May	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
24-May	0.0	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1
25-May	0.1	0.0	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1
26-May	0.1	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	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
27-May	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
28-May	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
29-May	0.1	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.4	0.1	0.1	0.4
30-May	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
31-May	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
																								Diurnal Average		
																								Diurnal Maximum		
0.1 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 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1																										
0.2 0.2 0.2 0.3 0.5 0.6 0.6 0.5 0.4 0.2 0.1 0.2 0.1 0.1 0.1 0.1 0.1 0.1 0.2 0.1 0.2 0.2 0.7 0.4 0.1																										
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																										





Wood Buffalo Environmental Association  
Hourly Averages

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South - May 2024





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Hydrogen Sulphide (H<sub>2</sub>S) - ppb**  
**Kirby South - May 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  
Kirby South - May 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	15	34	65	42	55	49	59	53	48	31	24	16	59	70	60	27	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>	15	34	65	42	55	49	59	53	48	31	24	16	59	70	60	27	707

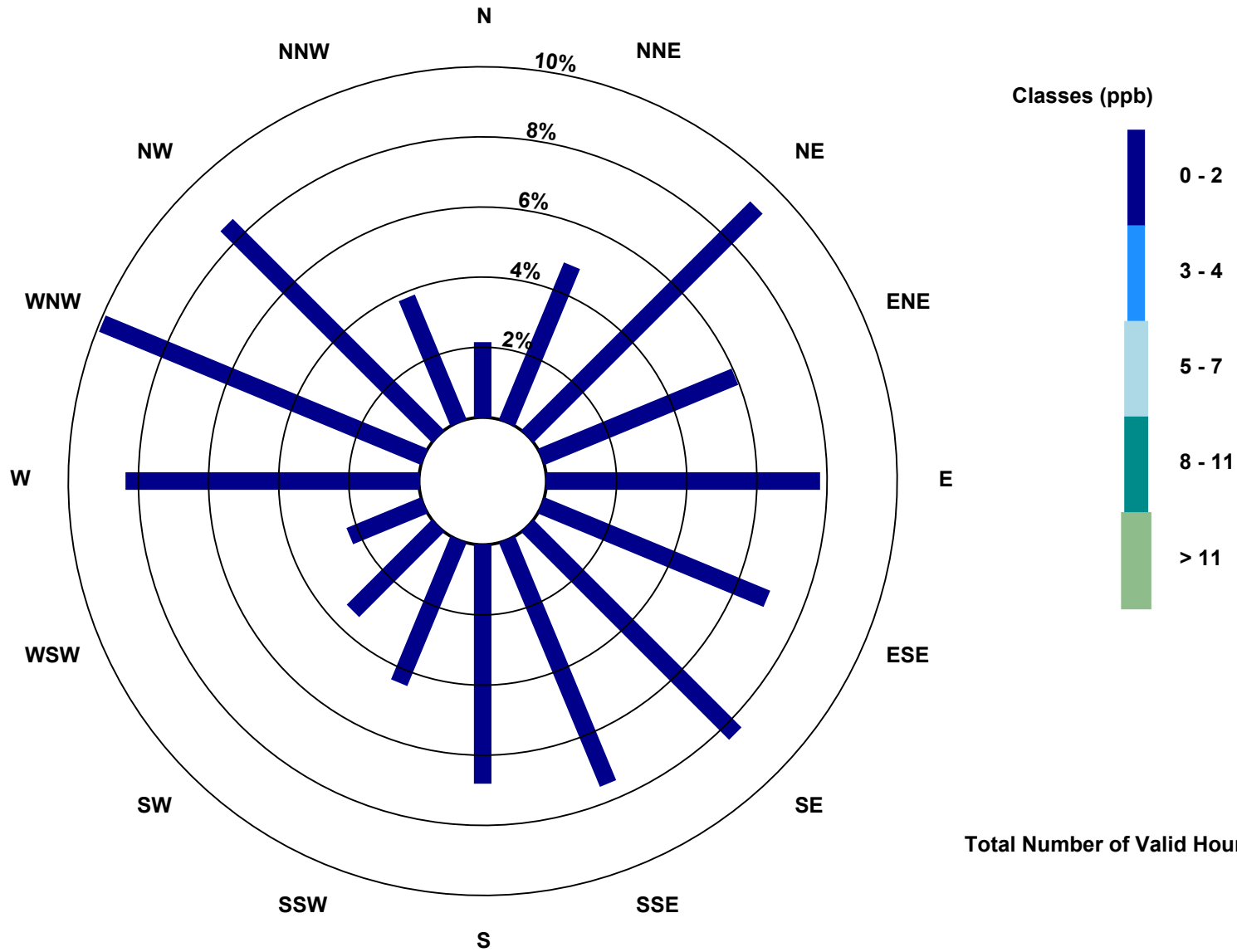
Total Number of Valid Hours: 707

Total Number of Hours: 744

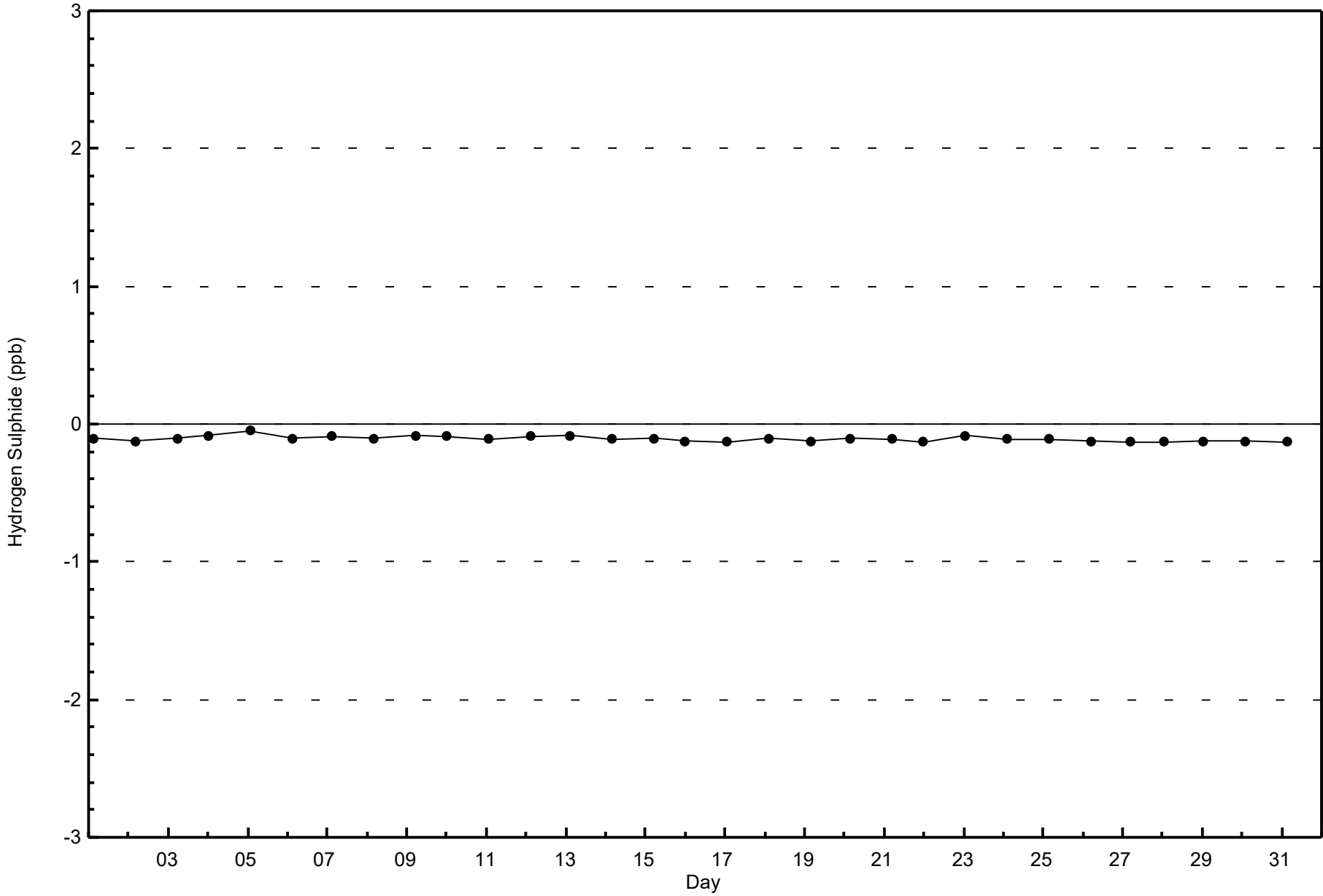


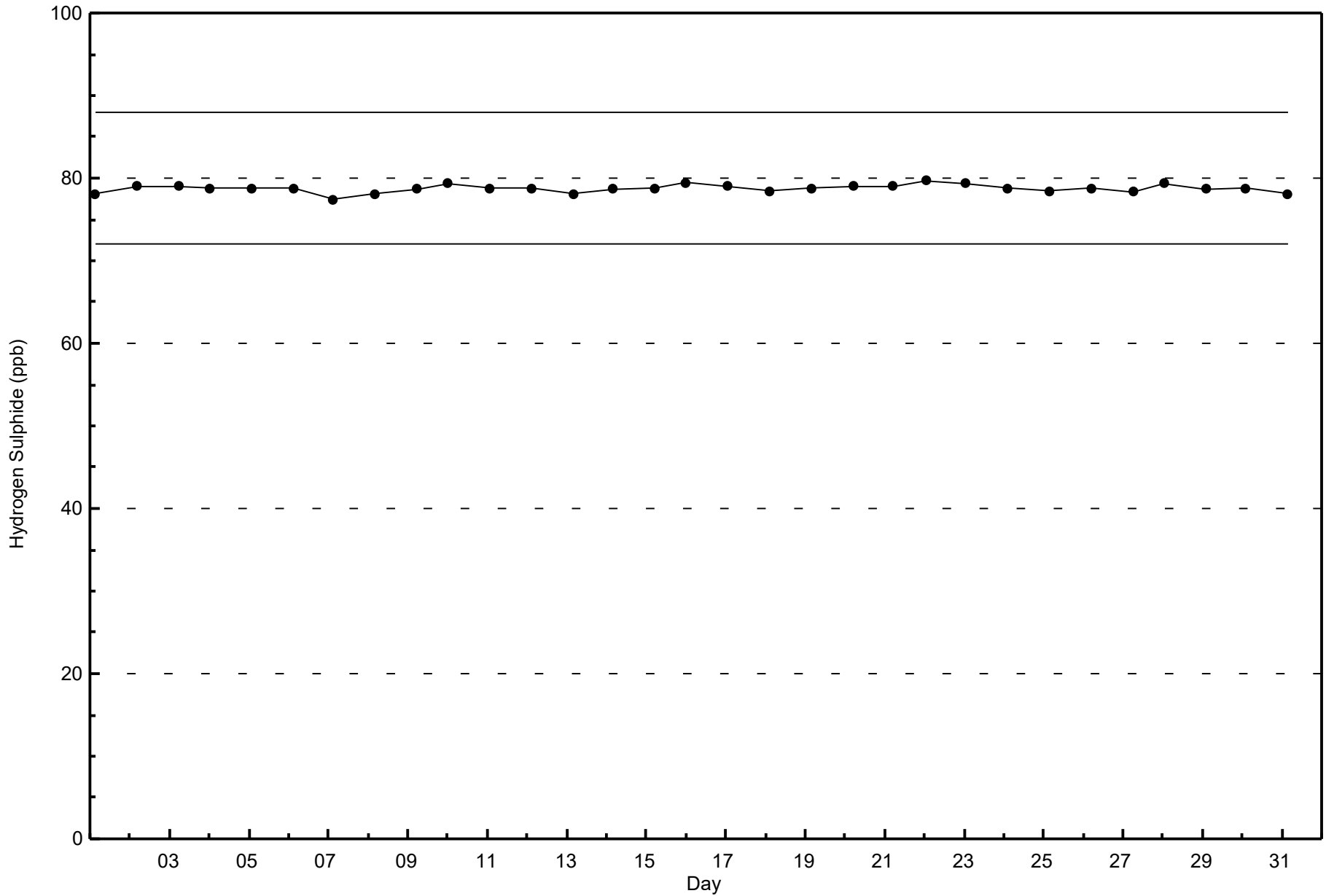
Wood Buffalo Environmental Association  
Wind Rose May 2024

Hydrogen Sulphide (H<sub>2</sub>S) - ppb  
Kirby South



Total Number of Valid Hours: 707





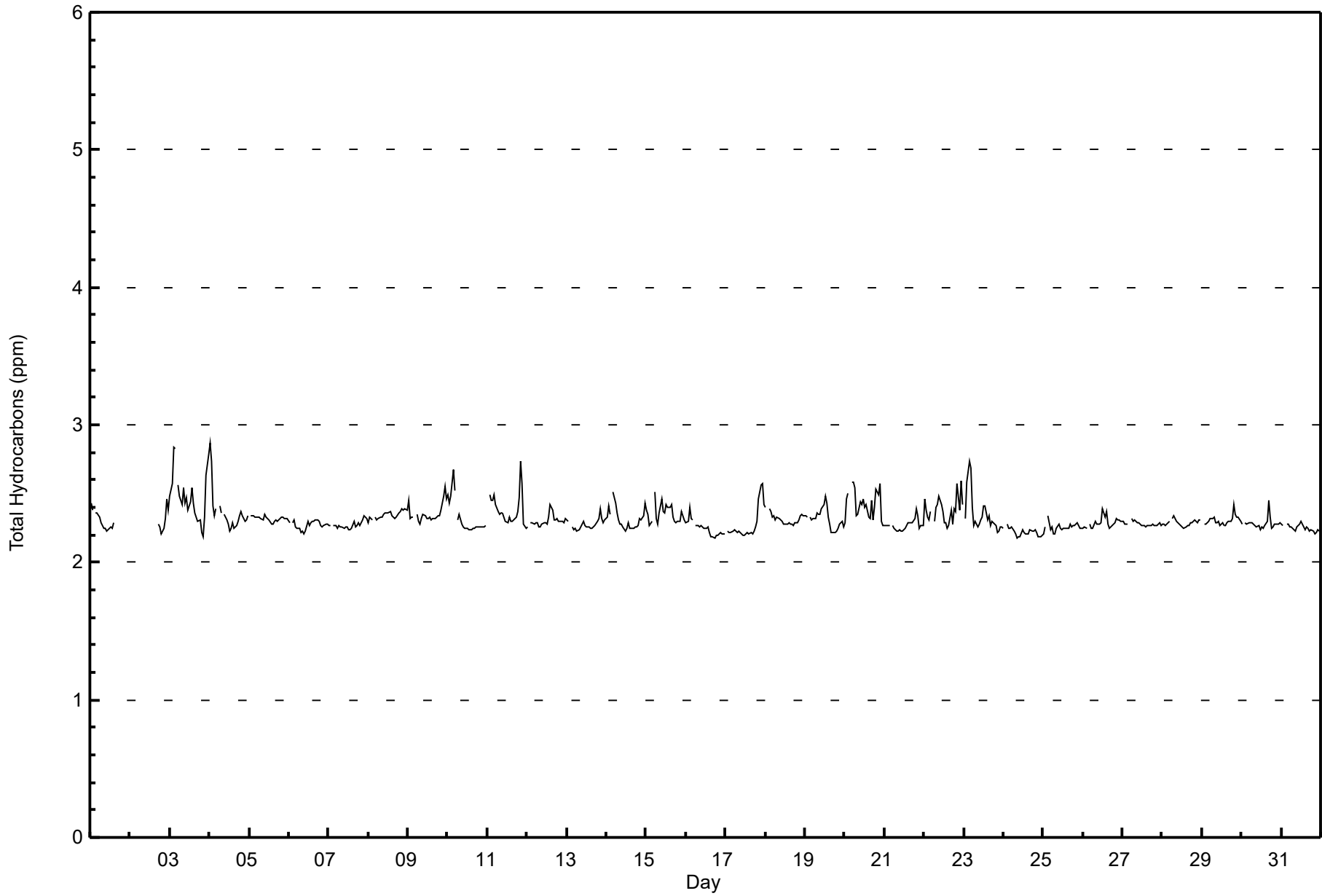


Maximum Value: 2.9 ppm on May 4 01:00		Maximum Daily Average: 2.5 ppm on May 3		Hours in Service: 744																						
Minimum Value: 2.2 ppm on May 16 18:00		Minimum Daily Average: 2.2 ppm on May 24		Hours of Data: 687																						
Maximum Diurnal Average: 2.4 ppm at hour 3		Minimum Diurnal Average: 2.3 ppm at hour 18		Hours of Missing Data: 57																						
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: 37																						
				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-May	2.4	2.4	Z	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	C	C	C	M	M	M	M	M	M	--	2.4
2-May	M	M	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	2.3	2.3	2.2	2.2	2.3	2.5	2.4	--	2.5
3-May	2.5	2.6	2.8	2.8	Z	2.6	2.5	2.4	2.5	2.4	2.5	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.6	2.8	2.5	2.8
4-May	2.9	2.7	2.4	2.3	2.4	Z	2.4	2.4	UO	2.4	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.9
5-May	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
6-May	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
7-May	2.3	2.3	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
8-May	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.4
9-May	2.4	2.3	2.3	2.3	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.5	2.4	2.6
10-May	2.5	2.4	2.5	2.7	2.5	Z	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7
11-May	Z	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	2.3	2.3	2.3	2.3	2.4	2.5	2.7	2.6	2.3	2.2	2.4	2.7
12-May	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	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
13-May	2.3	2.3	Z	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	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4
14-May	2.3	2.4	2.3	Z	2.5	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.5
15-May	2.4	2.3	2.3	2.3	Z	2.5	2.3	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.5
16-May	2.3	2.3	2.4	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	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	2.4
17-May	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	2.3	2.5	2.6	2.6	2.4	2.3	2.6
18-May	2.4	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
19-May	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.4	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.5
20-May	2.3	2.5	2.5	Z	2.6	2.6	2.5	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.4	2.3	2.4	2.5	2.5	2.6	2.3	2.3	2.4	2.6
21-May	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4
22-May	2.5	2.4	2.3	2.3	2.4	Z	2.3	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.6	2.4	2.6	2.4	2.4	2.6
23-May	Z	2.3	2.6	2.7	2.7	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	2.2	2.2	2.3	2.3	2.3	2.7
24-May	2.2	Z	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
25-May	2.2	2.3	Z	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3
26-May	2.2	2.3	2.2	Z	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
27-May	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
28-May	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
29-May	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	2.3	2.3	2.3	2.3	2.4
30-May	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.2	2.3	2.3	2.5	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.5
31-May	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	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	2.3	2.3
																								Diurnal Average		
																								Diurnal Maximum		
2.3 2.4 2.4 2.4 2.3																										
2.9 2.7 2.8 2.8 2.7 2.6 2.5 2.4 2.5 2.5 2.5 2.5 2.5 2.5 2.5 2.4 2.4 2.5 2.3 2.4 2.5 2.7 2.6 2.6 2.8																										
Z - zerospan			C - Calibration				M - Maintenance				UO - Unstable Operation															



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - May 2024**







**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - May 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	687	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: 687

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Frequency Distribution**

**Total Hydrocarbons (THC) - ppm**  
**Kirby South - May 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	14	28	50	44	56	46	62	53	48	31	24	14	62	68	61	26	687
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>	14	28	50	44	56	46	62	53	48	31	24	14	62	68	61	26	687

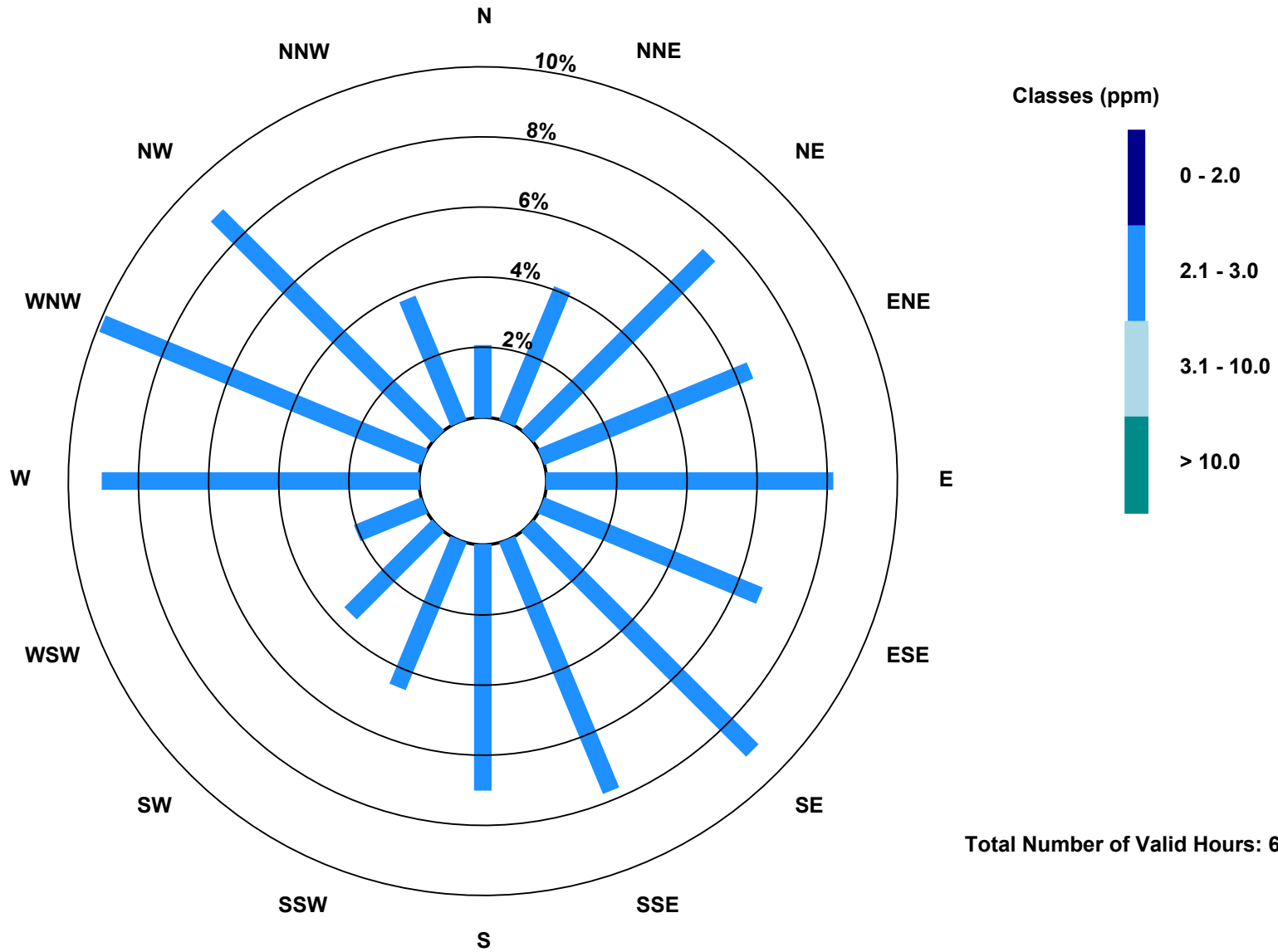
Total Number of Valid Hours: 687

Total Number of Hours: 744

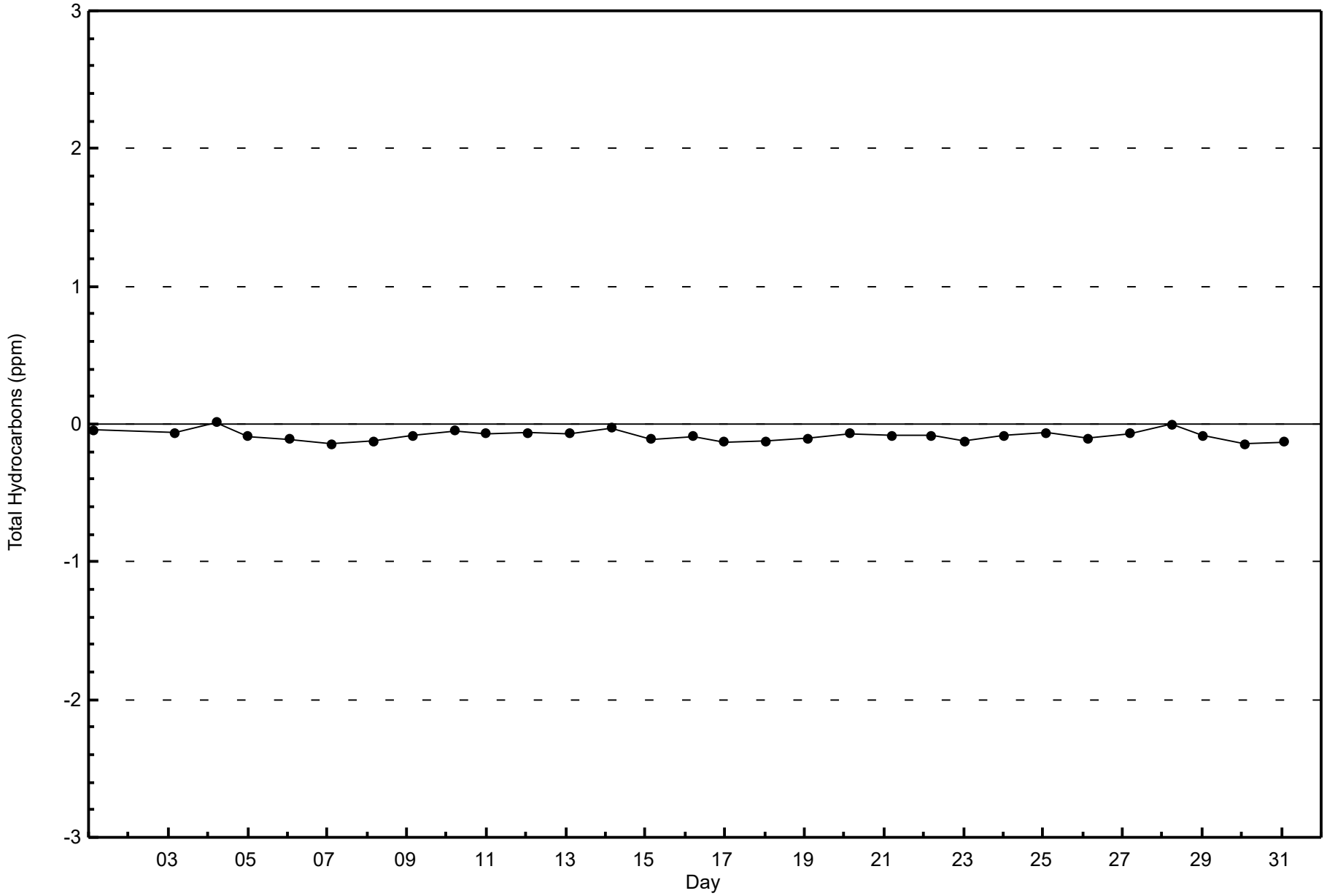


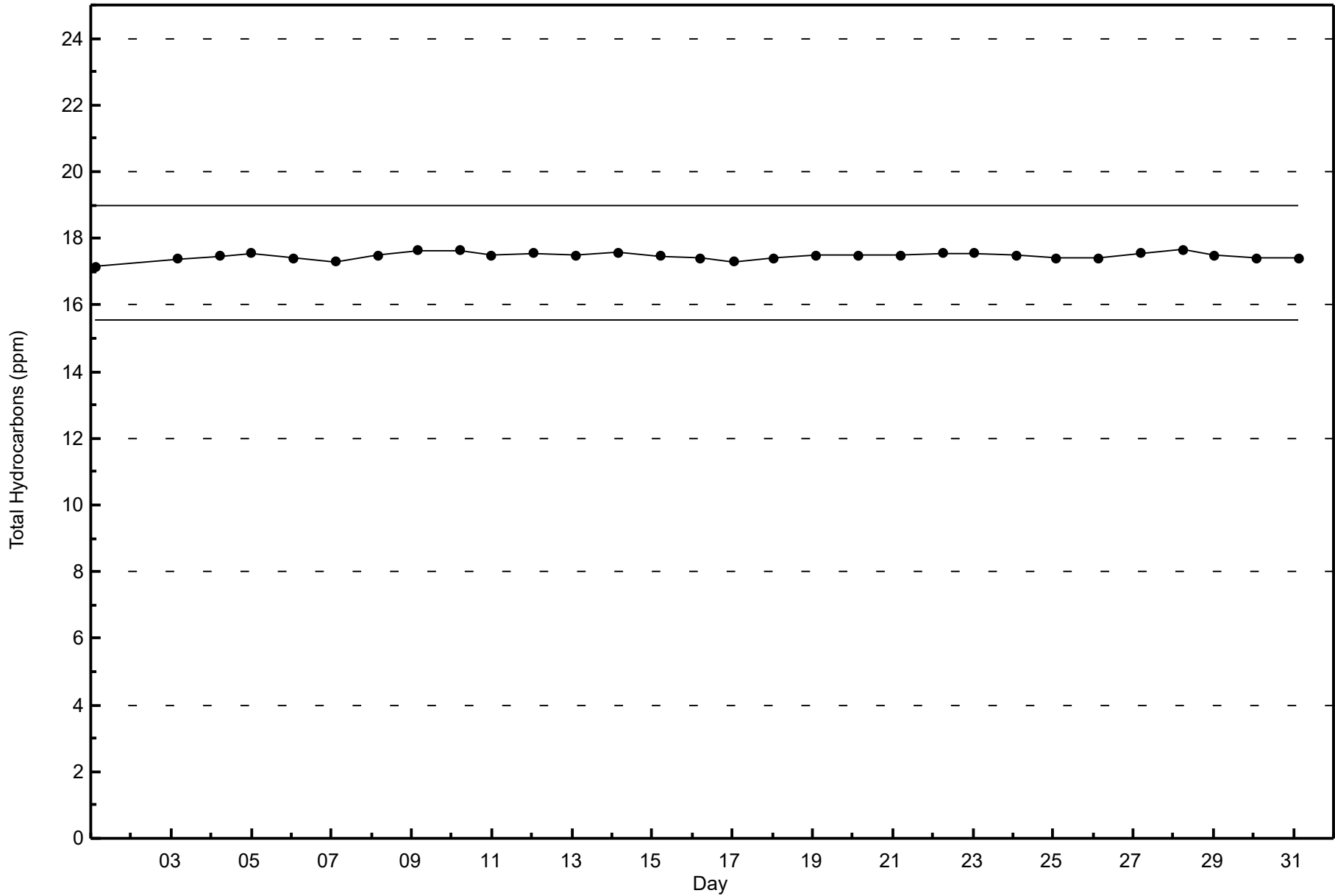
Wood Buffalo Environmental Association  
Wind Rose May 2024

Total Hydrocarbons (THC) - ppm  
Kirby South



Total Number of Valid Hours: 687







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

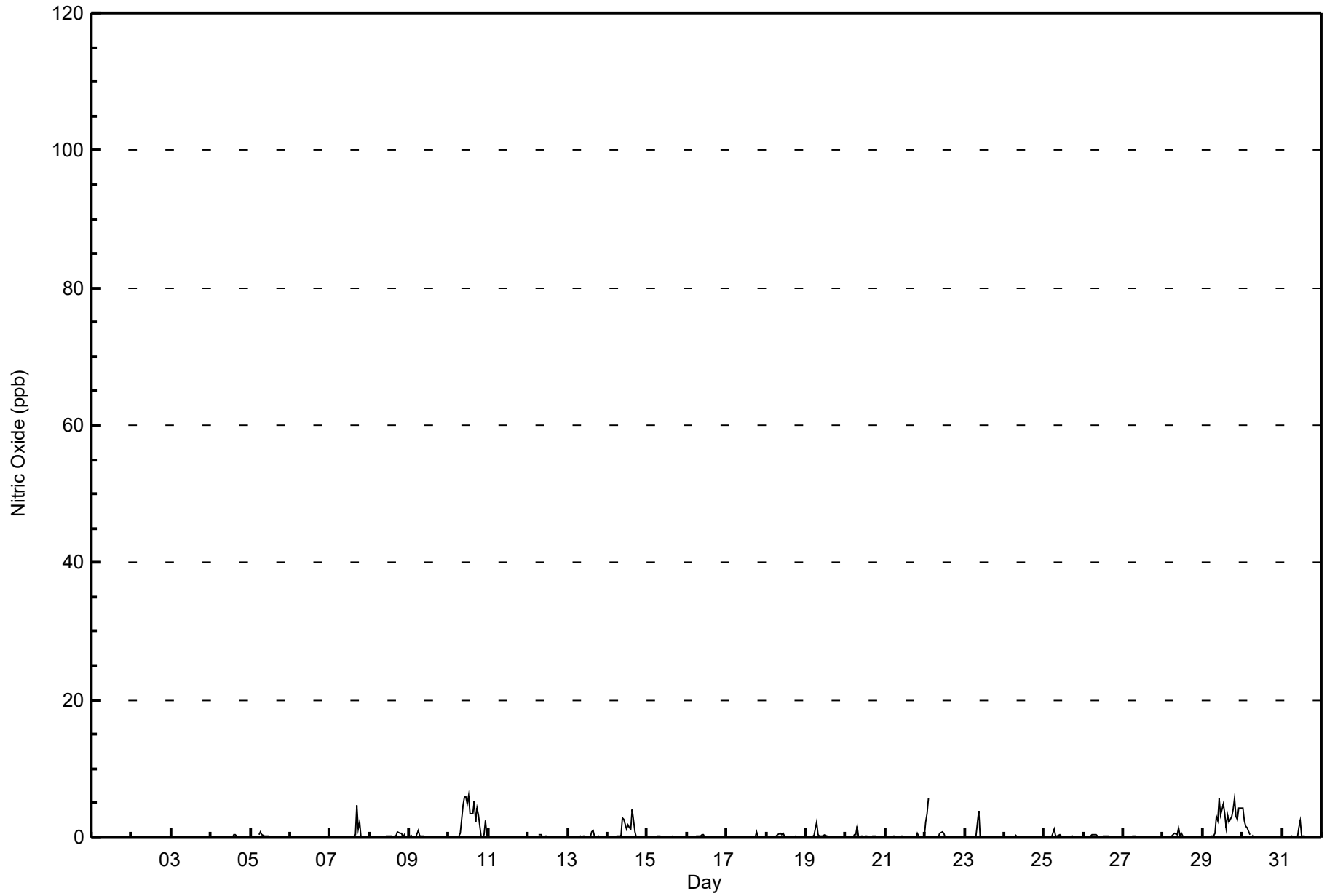
Kirby South - May 2024

Maximum Value: 6.2 ppb on May 10 13:00		Maximum Daily Average: 2.5 ppb on May 29		Hours in Service: 744																							
Minimum Value: 0.0 ppb on May 1 02:00		Minimum Daily Average: 0.0 ppb on May 6		Hours of Data: 643																							
Maximum Diurnal Average: 0.7 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Missing Data: 101																							
Monthly Average: 0.34 ppb		Percentiles: P <sub>1</sub> = 0.0 P <sub>10</sub> = 0.0 Q <sub>1</sub> = 0.0 Median = 0.0 Q <sub>3</sub> = 0.1 P <sub>90</sub> = 0.7 P <sub>99</sub> = 5.1		Hours of Calibration: 43																							
				Percent Operational Time: 92.2																							
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-May	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	M	M	M	M	M	M	M	M	--	0.0	
2-May	M	M	M	M	M	M	M	M	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	--	
3-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
4-May	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.5	
5-May	0.0	0.0	0.0	0.0	Z	0.3	0.8	0.4	0.3	0.2	0.1	0.1	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	0.8	
6-May	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
7-May	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	0.4	4.6	1.2	2.2	0.0	0.0	0.0	0.0	0.0	0.4	4.6	
8-May	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.8	0.7	0.7	0.1	0.5	0.1	0.1	0.2	0.8	
9-May	0.1	0.3	Z	0.2	0.1	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.9	
10-May	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.5	4.7	5.9	6.0	4.8	6.2	3.5	3.5	5.3	2.3	4.3	3.3	0.0	0.0	0.4	2.4	0.4	2.3	6.2	
11-May	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1
12-May	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.4	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4
13-May	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.7	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9	
14-May	0.0	Z	0.1	0.0	0.1	0.2	0.2	0.1	0.1	2.8	2.6	1.3	1.8	1.5	1.2	4.0	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	4.0	
15-May	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
16-May	0.0	0.1	0.0	Z	0.0	0.0	0.2	0.3	0.3	0.3	0.4	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	0.1	0.4	0.4
17-May	0.0	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	0.7	0.1	0.0	0.0	0.0	0.0	0.1	0.7	
18-May	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.4	0.6	0.5	0.6	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	0.6
19-May	Z	0.1	0.1	0.1	0.1	0.3	2.3	0.4	0.2	0.2	0.3	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	
20-May	0.0	Z	0.0	0.0	0.1	0.3	0.5	1.7	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2	1.7	
21-May	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.7	0.1	0.0	0.0	0.0	0.1	0.7	0.7	
22-May	2.2	3.4	5.6	Z	0.0	0.1	0.0	0.0	0.1	0.7	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.6	
23-May	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.2	3.9	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	0.2	3.9	
24-May	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
25-May	Z	0.0	0.1	0.1	0.1	0.6	1.2	0.2	0.1	0.3	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	1.2	
26-May	0.0	Z	0.0	0.0	0.1	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5	
27-May	0.1	0.1	Z	0.1	0.0	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
28-May	0.0	0.0	0.0	Z	0.1	0.2	0.4	0.5	0.4	1.4	0.3	0.6	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	1.4	
29-May	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.7	3.0	2.5	5.6	3.3	4.8	3.5	1.5	3.3	2.3	3.1	4.2	5.7	3.0	2.7	4.2	4.2	2.5	5.7	
30-May	4.3	2.5	1.6	1.4	0.3	Z	0.3	0.0	0.1	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	0.0	0.2	0.5	4.3	
31-May	Z	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.0	1.4	2.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.4	
		0.3	0.3	0.3	0.1	0.1	0.2	0.3	0.3	0.5	0.6	0.7	0.5	0.5	0.4	0.3	0.6	0.4	0.4	0.4	0.3	0.1	0.1	0.3	0.2	Diurnal Average	
		4.3	3.4	5.6	1.4	0.3	0.9	2.3	1.7	4.7	5.9	6.0	4.8	6.2	3.5	3.5	5.3	4.6	4.3	4.2	5.7	3.0	2.7	4.2	4.2	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitric Oxide (NO) - ppb**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	643	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: 643

Total Number of Hours: 744





**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitric Oxide (NO) - ppb  
Kirby South - May 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	12	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643
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>	12	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643

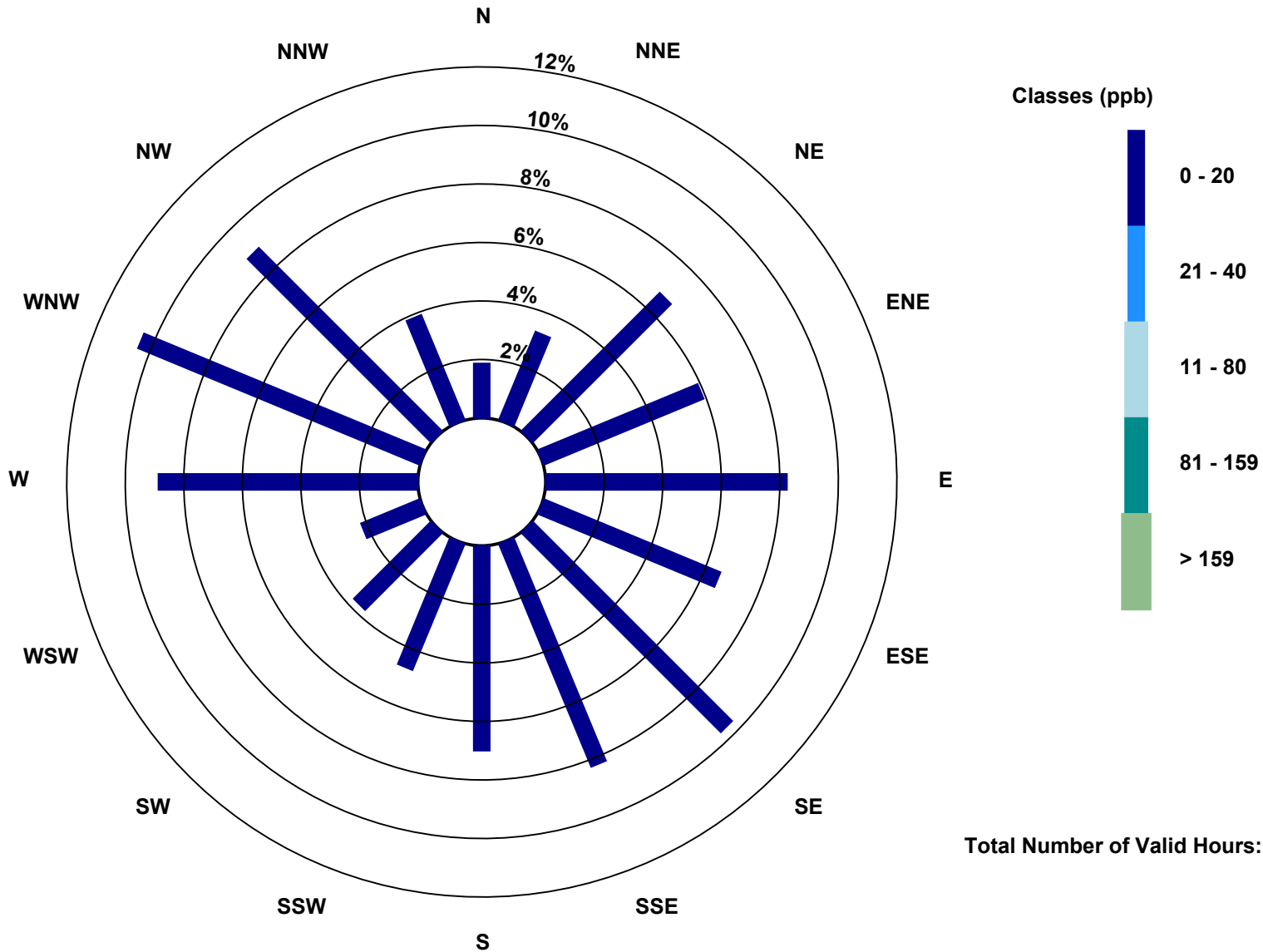
Total Number of Valid Hours: 643

Total Number of Hours: 744

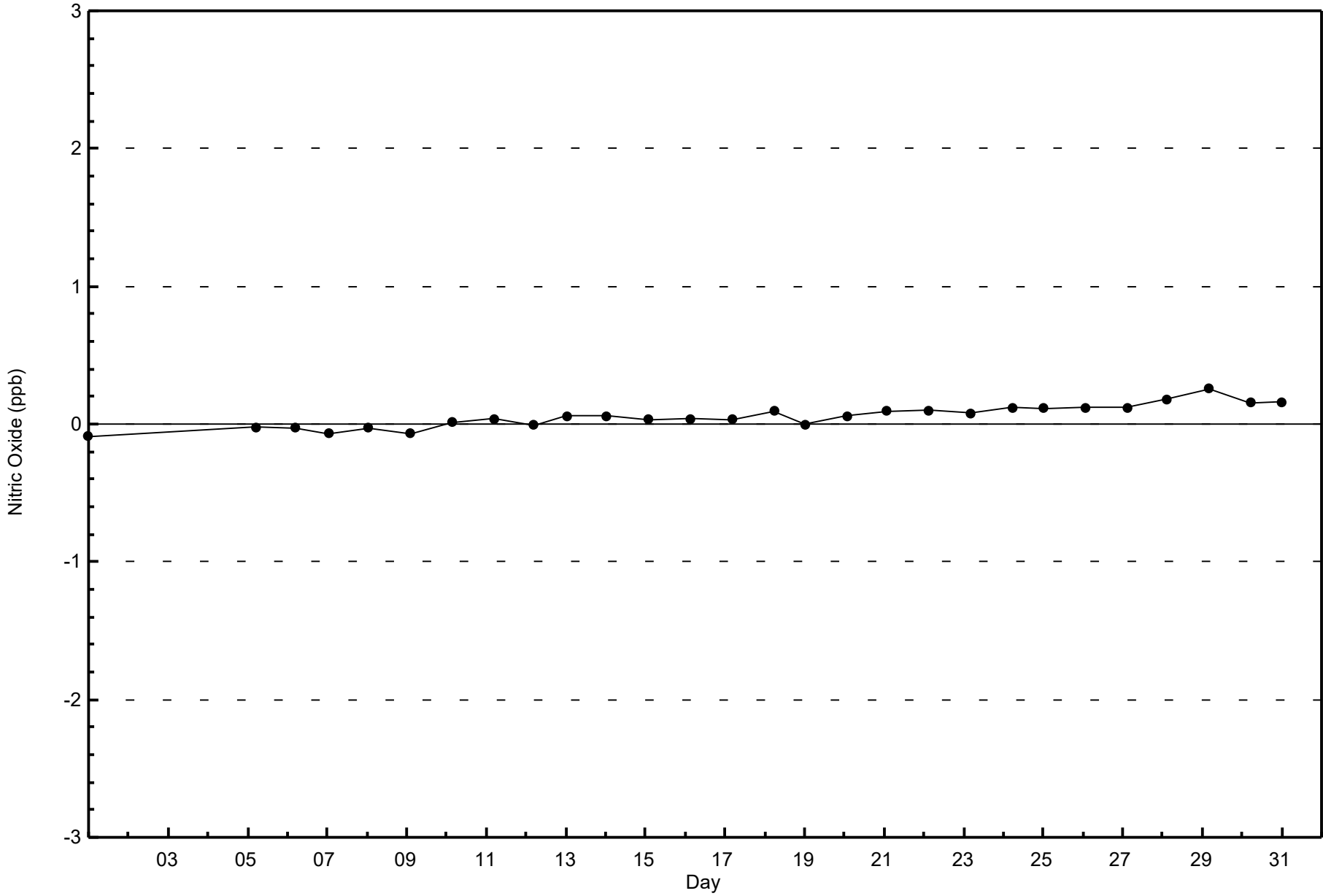


Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitric Oxide (NO) - ppb  
Kirby South



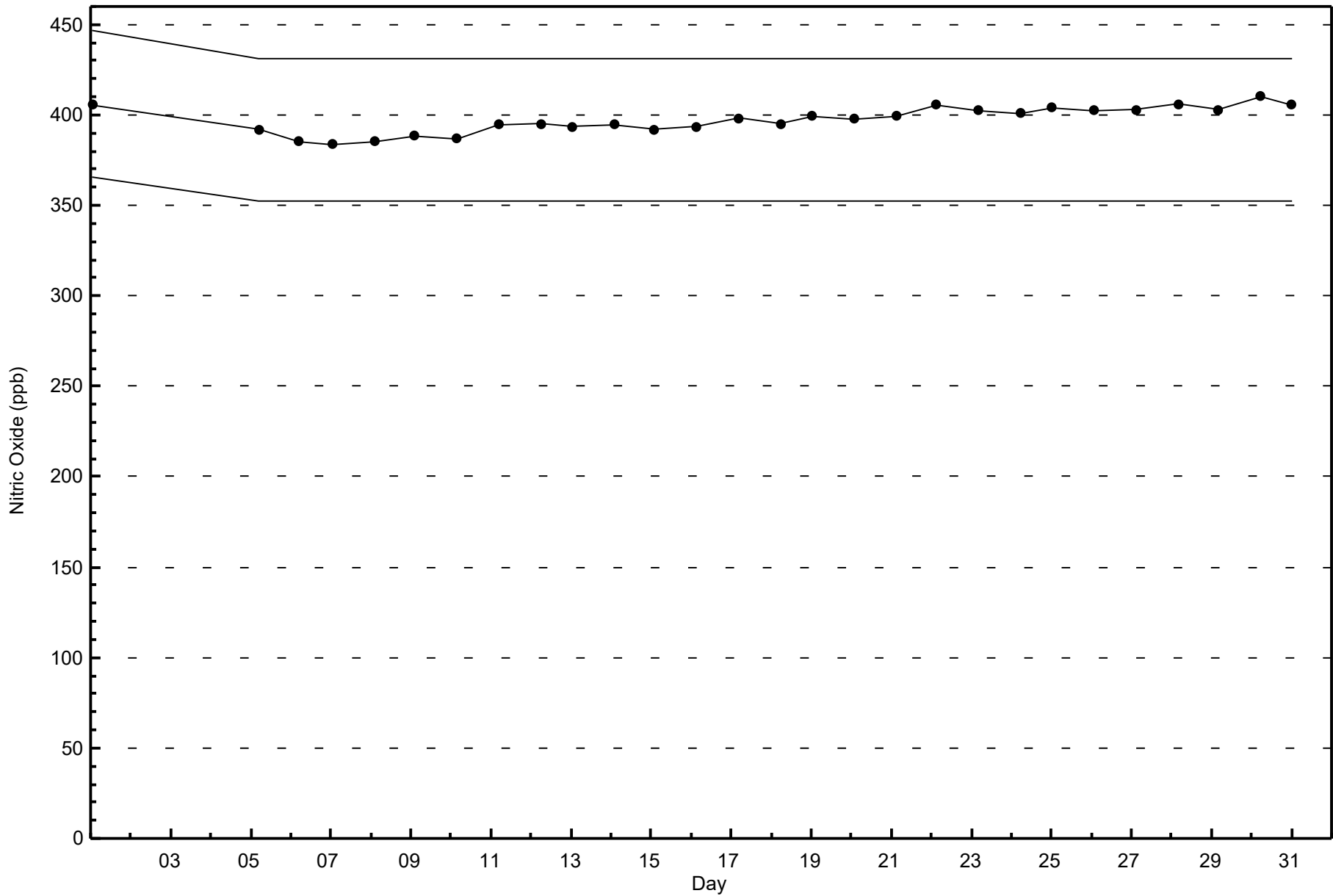
Total Number of Valid Hours: 643





Wood Buffalo Environmental Association  
Span Responses

Nitric Oxide (NO) - ppb  
Kirby South - May 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO<sub>2</sub>) - ppb

Kirby South - May 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 11.2 ppb on May 29 20:00	Maximum Daily Average: 4.7 ppb on May 29		Hours of Data:	643
Minimum Value: 0.0 ppb on May 7 16:00	Minimum Daily Average: 0.2 ppb on May 23		Hours of Missing Data:	101
Maximum Diurnal Average: 1.6 ppb at hour 6	Minimum Diurnal Average: 0.8 ppb at hour 21		Hours of Calibration:	43
Monthly Average: 1.06 ppb	Percentiles: P <sub>1</sub> = 0.1 P <sub>10</sub> = 0.2 Q <sub>1</sub> = 0.4 Median = 0.6 Q <sub>3</sub> = 1.2 P <sub>90</sub> = 2.2 P <sub>99</sub> = 7.3		Percent Operational Time:	92.2

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-May	Z	3.6	3.3	2.6	2.0	1.4	1.0	0.6	0.2	0.3	0.2	0.2	C	C	C	C	M	M	M	M	M	M	M	M	--	3.6
2-May	M	M	M	M	M	M	M	M	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	--	--
3-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--
4-May	M	M	M	M	M	M	M	M	C	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	--	1.6
5-May	1.1	1.0	1.3	0.9	Z	4.3	3.7	2.1	1.1	0.9	0.8	0.9	0.6	0.6	0.6	0.7	0.6	0.7	1.0	0.5	0.5	0.5	0.5	0.7	1.1	4.3
6-May	0.7	1.4	1.7	1.9	1.4	Z	0.8	0.5	0.5	0.5	0.6	0.7	0.5	0.5	0.8	0.6	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.7	1.9	
7-May	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.7	0.7	0.9	0.6	0.4	1.0	0.5	0.6	0.4	1.0
8-May	0.6	Z	0.6	0.6	0.6	0.8	0.7	1.0	0.7	0.6	0.7	0.6	0.7	0.6	0.4	0.8	0.6	1.6	1.7	2.3	0.4	2.8	0.6	0.6	0.9	2.8
9-May	0.6	2.0	Z	1.0	0.4	3.0	0.6	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	1.4	2.1	1.1	0.7	0.8	3.0
10-May	0.4	0.4	0.4	Z	0.6	0.7	1.1	1.3	5.2	5.6	5.5	4.3	6.0	4.4	4.5	6.7	4.1	6.8	6.1	0.4	0.7	2.0	7.3	1.6	3.3	7.3
11-May	0.6	0.8	1.3	1.4	Z	1.9	1.8	1.6	1.0	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.5	0.4	0.7	1.9
12-May	0.4	0.4	0.4	0.4	0.4	Z	2.5	2.3	1.3	0.4	0.8	1.1	0.7	1.1	1.2	1.2	1.2	1.2	1.2	1.1	1.0	1.0	1.0	1.8	1.0	2.5
13-May	Z	1.4	1.4	1.3	1.7	2.2	2.2	1.9	1.6	1.3	1.2	1.1	1.3	1.1	2.3	2.2	1.2	0.8	1.4	0.5	0.4	0.6	0.8	0.9	1.3	2.3
14-May	1.1	Z	1.4	1.0	2.2	2.7	1.2	0.8	0.8	4.0	3.9	2.2	2.8	2.6	2.0	5.4	1.8	0.4	0.3	0.3	0.7	0.6	0.9	0.7	1.7	5.4
15-May	0.6	0.6	Z	0.7	0.8	0.7	0.7	0.9	0.7	0.6	0.9	1.0	1.1	1.3	1.3	1.5	1.7	1.0	0.9	0.8	1.1	1.7	1.3	1.0	1.0	1.7
16-May	1.0	0.8	1.2	Z	1.3	0.9	1.2	1.6	1.3	1.7	1.8	0.8	0.5	0.5	0.4	0.5	0.5	0.9	0.8	0.4	0.4	0.4	0.5	0.4	0.9	1.8
17-May	0.4	0.4	0.3	0.6	Z	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.6	0.3	0.3	0.7	0.5	0.3	0.4	0.7
18-May	0.6	0.7	1.4	1.5	1.8	Z	1.0	1.2	1.4	1.2	1.0	0.4	0.2	0.3	0.3	0.2	0.2	0.3	0.5	0.4	0.5	0.3	0.3	0.3	0.7	1.8
19-May	Z	0.5	0.4	0.3	0.9	1.1	1.2	0.7	0.3	0.4	0.4	0.8	0.5	0.5	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.4	1.2
20-May	0.2	Z	0.9	0.9	1.3	2.6	2.7	2.5	0.4	0.6	0.9	0.6	0.9	0.8	0.7	0.4	0.9	1.3	1.0	0.9	0.7	0.3	0.5	0.2	1.0	2.7
21-May	0.1	0.1	Z	0.8	0.5	0.5	0.6	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	1.0	0.4	0.4	0.3	0.3	0.4	1.0
22-May	0.4	1.2	0.0	Z	0.3	0.1	0.2	0.2	0.2	1.2	1.4	1.0	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.4
23-May	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.1	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.2	0.9	0.2	0.9
24-May	0.2	0.1	0.2	0.2	0.2	Z	1.1	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.5	0.7	1.0	0.3	1.1
25-May	Z	1.5	1.1	1.1	0.6	1.8	2.3	0.8	0.7	0.8	0.6	0.5	0.5	0.5	0.6	0.5	0.5	0.7	0.7	0.5	0.5	0.5	0.6	0.9	0.8	2.3
26-May	1.0	Z	1.7	1.5	1.9	2.2	1.7	1.1	0.8	0.7	0.6	0.8	1.8	1.6	0.9	1.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.7	1.0	2.2
27-May	0.6	0.3	Z	0.3	0.5	2.6	3.3	1.8	0.5	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.2	0.9	3.3
28-May	1.1	1.3	1.8	Z	2.4	2.3	2.4	2.1	1.9	2.9	1.4	1.8	1.2	0.8	0.5	0.5	0.5	0.7	1.0	1.0	0.9	1.0	0.8	1.3	1.4	2.9
29-May	1.5	1.1	1.4	1.8	Z	2.7	2.5	2.3	4.0	3.6	5.9	4.3	5.7	3.9	2.8	5.2	3.3	5.4	7.3	11.2	8.4	7.6	7.8	8.2	4.7	11.2
30-May	7.4	5.1	3.0	2.9	0.9	Z	1.4	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.5	0.7	0.4	0.4	0.5	0.3	2.1	1.3	7.4
31-May	Z	0.4	0.4	0.3	0.3	0.5	0.6	0.3	0.4	0.4	1.8	2.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.2	0.7	0.5	2.3

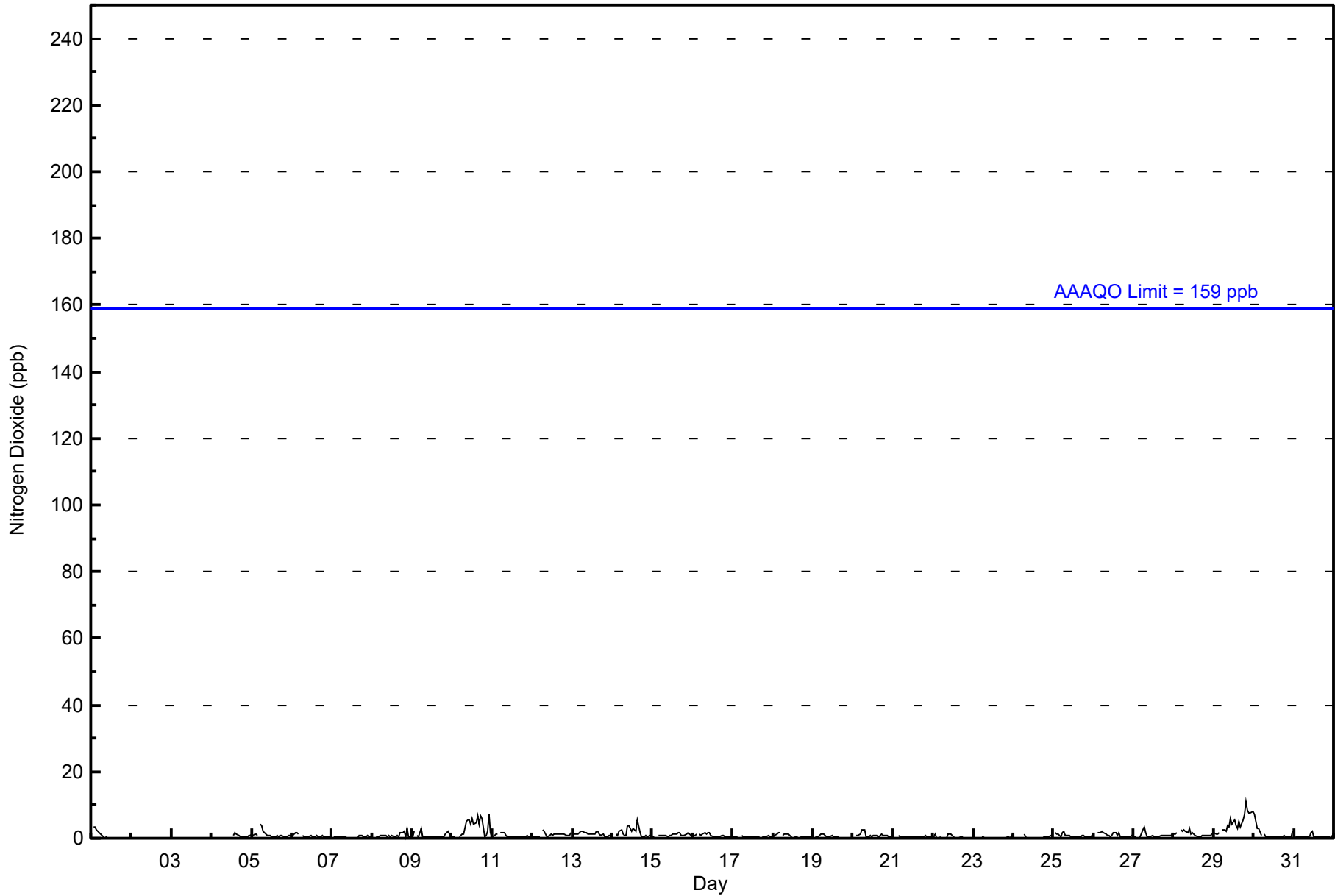
0.9	1.1	1.1	1.0	1.0	1.6	1.4	1.1	1.0	1.1	1.2	1.0	1.1	0.9	0.9	1.2	0.8	1.0	1.1	1.0	0.8	1.0	1.1	1.1	1.1	Diurnal Average
7.4	5.1	3.3	2.9	2.4	4.3	3.7	2.5	5.2	5.6	5.9	4.3	6.0	4.4	4.5	6.7	4.1	6.8	7.3	11.2	8.4	7.6	7.8	8.2	Diurnal Maximum	

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**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	643	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: 643

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South - May 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	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643
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>	12	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643

Total Number of Valid Hours: 643

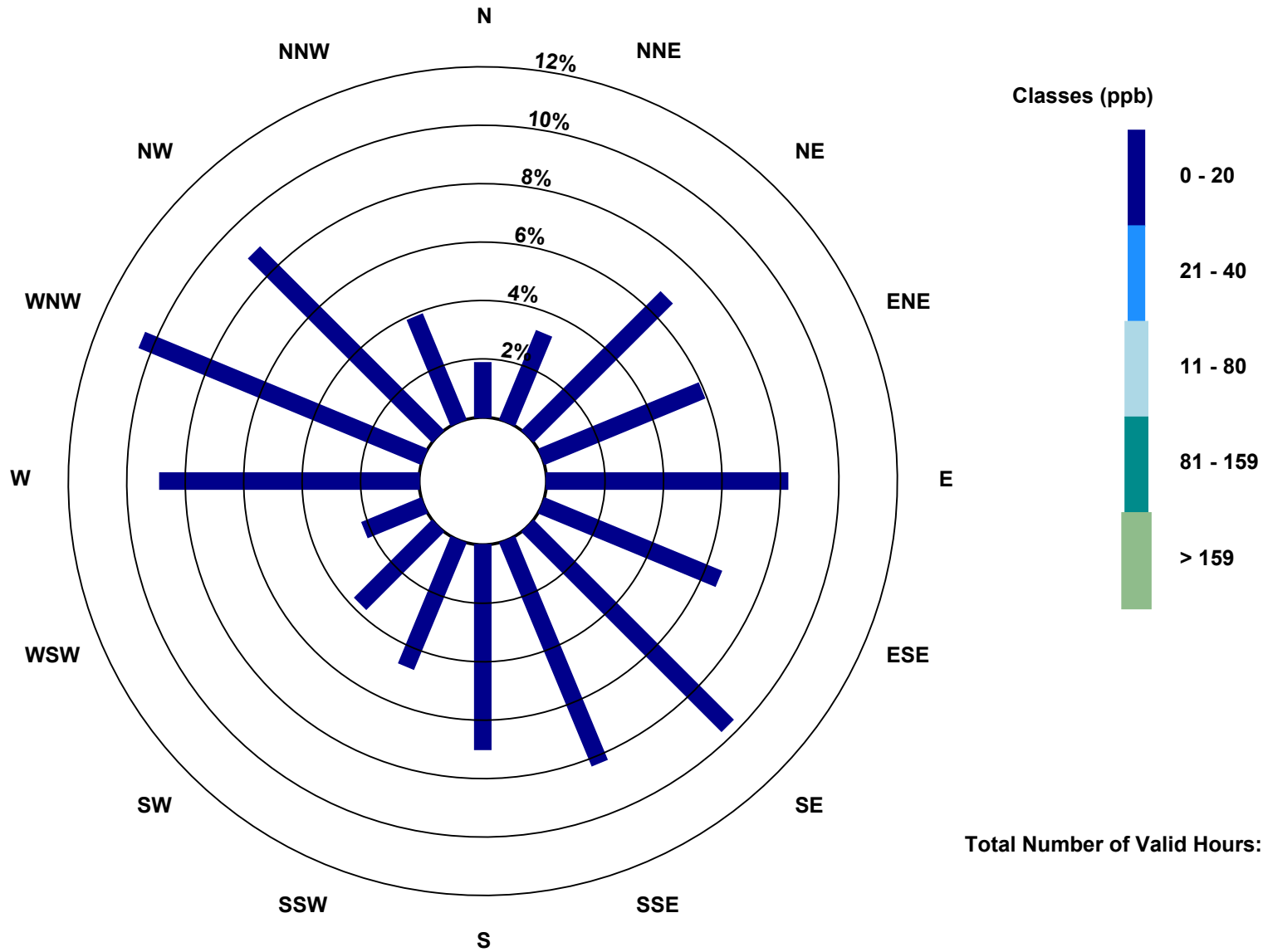
Total Number of Hours: 744



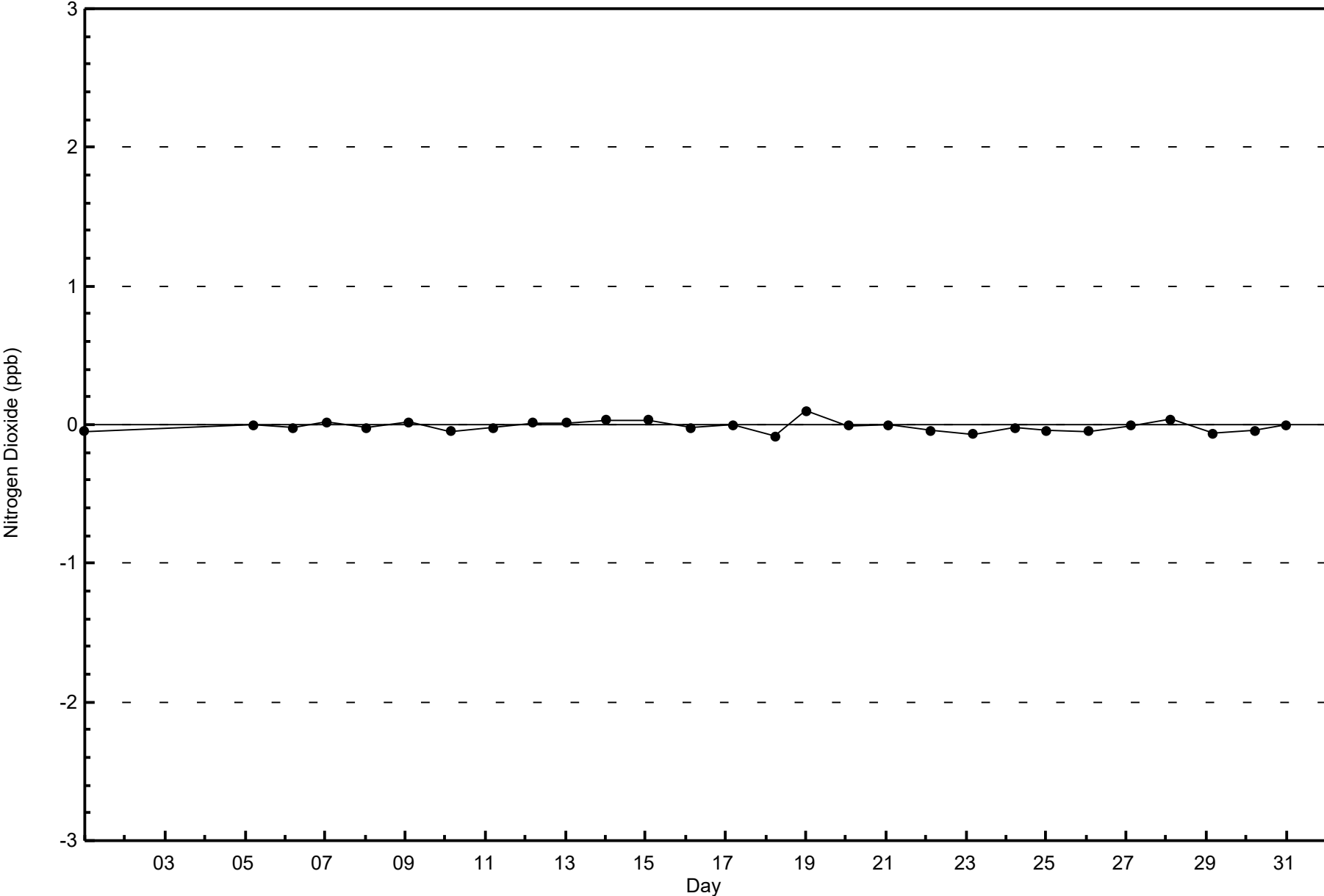


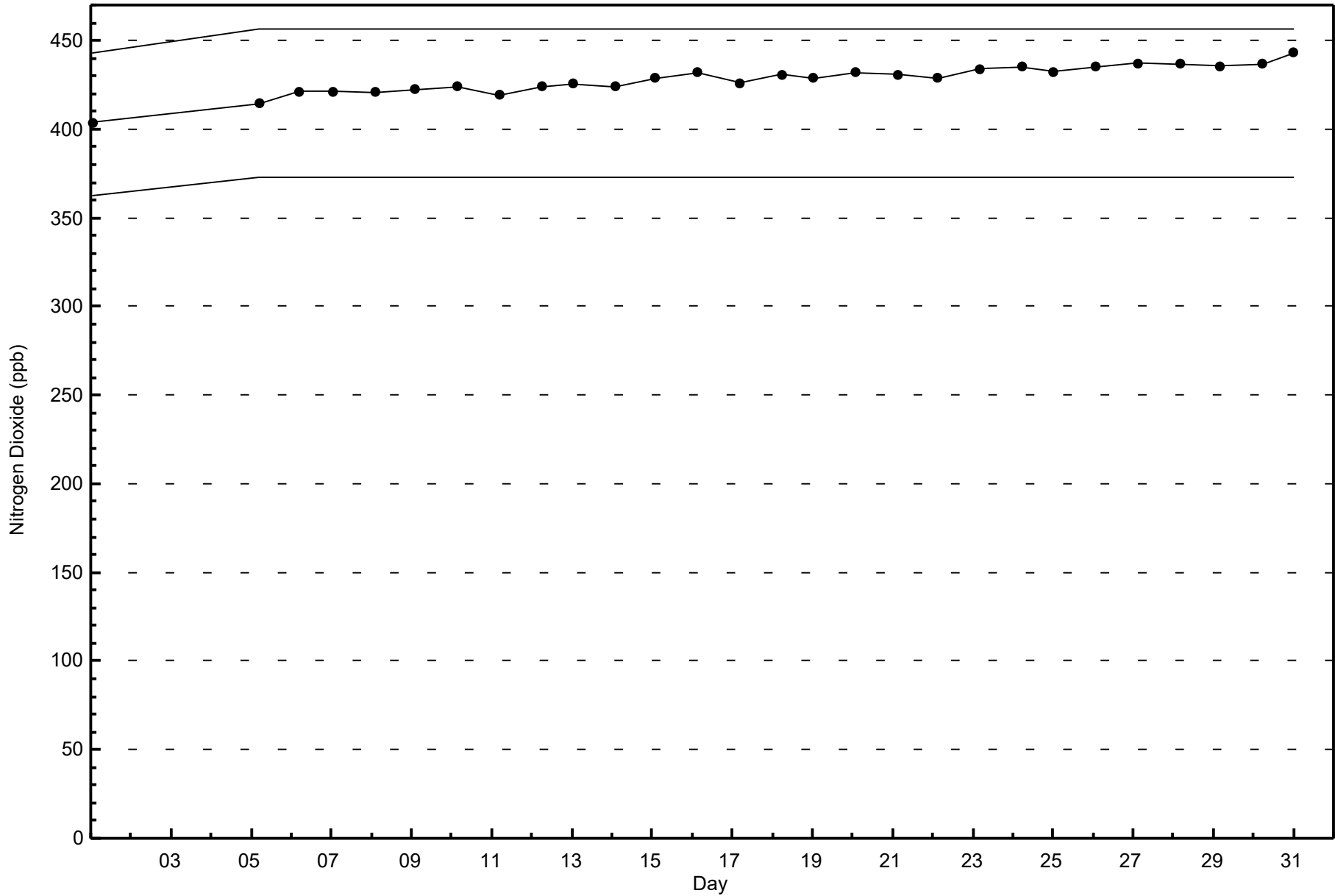
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Dioxide (NO<sub>2</sub>) - ppb  
Kirby South



Total Number of Valid Hours: 643







**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

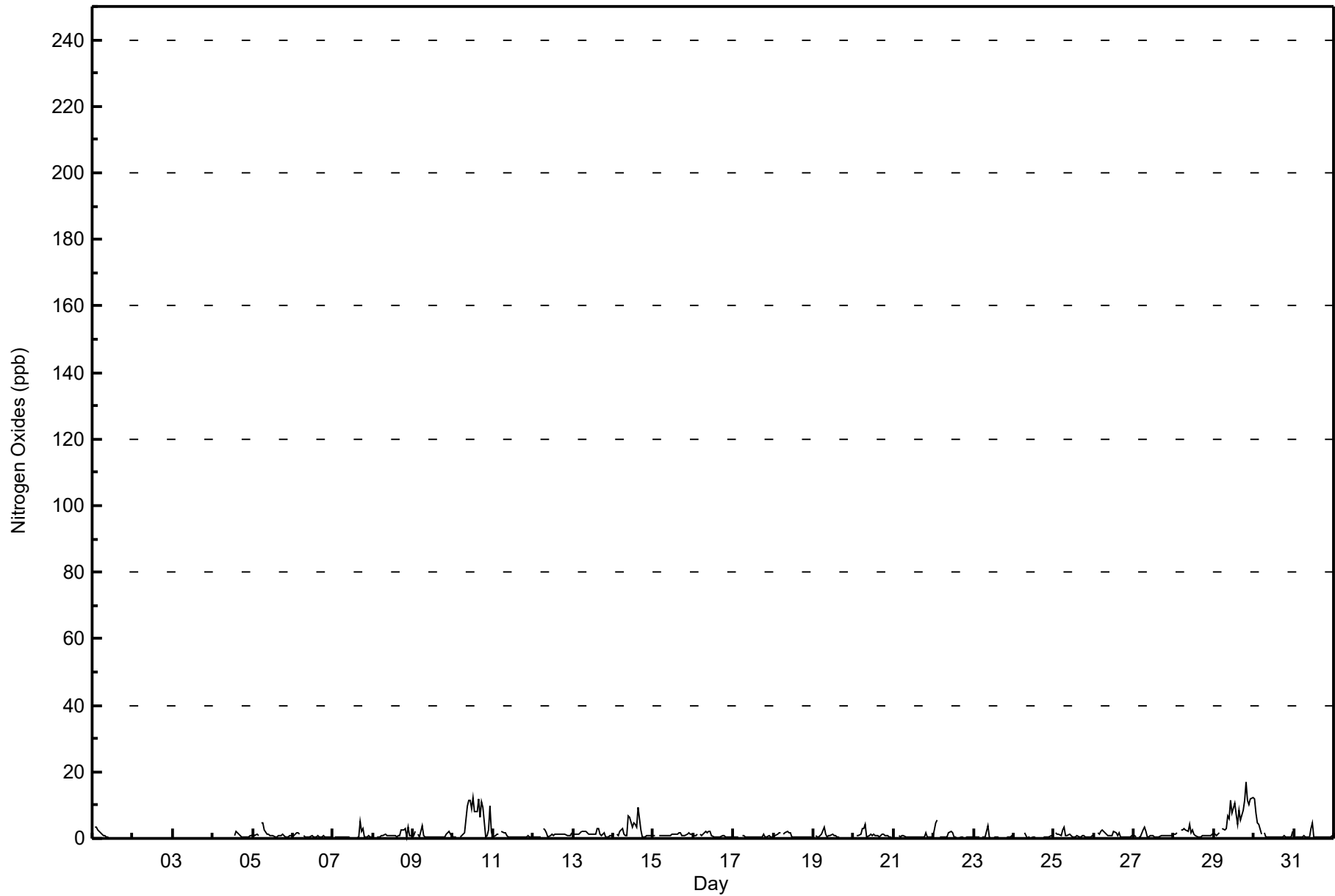
**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - May 2024**

Maximum Value: 16.9 ppb on May 29 20:00		Maximum Daily Average: 7.2 ppb on May 29		Hours in Service: 744																							
Minimum Value: 0.1 ppb on May 21 02:00		Minimum Daily Average: 0.4 ppb on May 24		Hours of Data: 643																							
Maximum Diurnal Average: 1.9 ppb at hour 11		Minimum Diurnal Average: 1.0 ppb at hour 21		Hours of Missing Data: 101																							
Monthly Average: 1.40 ppb		Percentiles: P <sub>1</sub> = 0.2 P <sub>10</sub> = 0.3 Q <sub>1</sub> = 0.4 Median = 0.7 Q <sub>3</sub> = 1.4 P <sub>90</sub> = 2.8 P <sub>99</sub> = 11.5		Hours of Calibration: 43																							
				Percent Operational Time: 92.2																							
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-May	Z	3.6	3.3	2.6	2.0	1.4	1.0	0.6	0.2	0.3	0.2	C	C	C	C	M	M	M	M	M	M	M	M	M	--	3.6	
2-May	M	M	M	M	M	M	M	M	C	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	--	
3-May	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--	--	
4-May	M	M	M	M	M	M	M	M	C	C	C	C	C	0.8	2.1	1.8	0.9	0.6	0.6	0.5	0.5	0.5	0.8	1.0	--	2.1	
5-May	1.1	1.0	1.3	0.9	Z	4.6	4.5	2.5	1.4	1.1	0.9	1.0	0.7	0.6	0.6	0.7	0.7	0.7	1.1	0.6	0.5	0.5	0.7	0.8	1.2	4.6	
6-May	0.7	1.4	1.7	1.9	1.4	Z	0.8	0.5	0.5	0.5	0.6	0.7	0.6	0.5	0.5	0.8	0.6	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.8	1.9	
7-May	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	5.3	1.9	3.1	0.6	0.4	1.0	0.5	0.6	0.8	5.3	
8-May	0.6	Z	0.6	0.6	0.6	0.8	0.7	1.1	0.8	0.7	0.8	0.7	0.8	0.7	0.5	1.0	0.7	2.4	2.4	3.0	0.5	3.3	0.7	0.7	1.1	3.3	
9-May	0.7	2.3	Z	1.2	0.5	3.9	0.7	0.6	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.4	2.2	1.1	0.7	0.9	3.9	
10-May	0.4	0.4	0.4	Z	0.6	0.7	1.3	1.8	9.9	11.5	11.5	9.1	12.2	7.9	8.0	12.0	6.4	11.1	9.4	0.4	0.7	2.4	9.7	2.0	5.6	12.2	
11-May	0.6	0.8	1.3	1.4	Z	2.0	1.9	1.6	1.0	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.5	0.4	0.7	2.0	
12-May	0.4	0.4	0.4	0.4	0.4	Z	2.8	2.7	1.6	0.5	1.0	1.3	0.7	1.1	1.2	1.2	1.2	1.3	1.2	1.1	1.0	1.0	1.0	1.8	1.1	2.8	
13-May	Z	1.4	1.4	1.3	1.7	2.3	2.3	2.1	1.7	1.4	1.3	1.2	1.4	1.1	3.0	3.1	1.4	0.8	1.6	0.5	0.4	0.6	0.8	0.9	1.5	3.1	
14-May	1.1	Z	1.5	1.0	2.3	2.9	1.4	0.9	0.9	6.8	6.5	3.5	4.6	4.1	3.2	9.4	2.6	0.4	0.3	0.3	0.7	0.6	1.0	0.8	2.5	9.4	
15-May	0.7	0.7	Z	0.7	0.8	0.7	0.8	1.0	0.8	0.7	1.0	1.1	1.2	1.4	1.4	1.6	1.8	1.0	1.0	0.9	1.2	1.7	1.3	1.1	1.1	1.8	
16-May	1.0	0.9	1.2	Z	1.3	0.9	1.4	1.9	1.6	2.0	2.2	0.9	0.6	0.6	0.5	0.5	0.5	1.0	0.8	0.4	0.4	0.4	0.5	0.4	1.0	2.2	
17-May	0.4	0.4	0.4	0.6	Z	0.7	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	1.3	0.4	0.3	0.7	0.5	0.3	0.4	1.3	
18-May	0.6	0.7	1.4	1.5	1.8	Z	1.2	1.6	2.0	1.7	1.6	0.5	0.3	0.3	0.4	0.3	0.3	0.4	0.6	0.5	0.6	0.4	0.4	0.4	0.8	2.0	
19-May	Z	0.6	0.5	0.4	1.0	1.4	3.5	1.1	0.5	0.6	0.7	1.3	0.8	0.8	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.7	3.5	
20-May	0.2	Z	0.9	0.9	1.4	2.9	3.2	4.2	0.5	0.8	1.2	0.7	1.1	0.9	0.8	0.5	1.0	1.5	1.1	1.0	0.7	0.3	0.5	0.2	1.2	4.2	
21-May	0.1	0.1	Z	0.8	0.5	0.6	0.8	0.6	0.6	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	1.7	0.5	0.4	0.3	0.3	0.5	1.7	
22-May	2.6	4.6	5.6	Z	0.3	0.2	0.2	0.2	0.3	1.9	2.2	1.6	0.3	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	1.0	5.6	
23-May	0.3	0.3	0.3	0.3	Z	0.4	0.3	0.3	3.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.2	0.9	0.4	3.9	
24-May	0.2	0.1	0.2	0.2	0.2	Z	1.6	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.5	0.7	1.0	0.4	1.6	
25-May	Z	1.5	1.2	1.2	0.7	2.4	3.5	1.0	0.8	1.1	0.8	0.5	0.5	0.6	0.7	0.5	0.6	0.8	0.8	0.6	0.5	0.5	0.6	0.9	1.0	3.5	
26-May	1.0	Z	1.7	1.5	2.0	2.6	2.2	1.4	1.0	0.8	0.7	0.9	2.1	1.8	1.0	1.9	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.8	1.2	2.6	
27-May	0.7	0.4	Z	0.4	0.5	2.7	3.6	2.0	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.9	0.9	1.0	1.2	1.0	3.6	
28-May	1.1	1.3	1.8	Z	2.5	2.5	2.8	2.6	2.3	4.3	1.7	2.4	1.4	0.9	0.5	0.5	0.5	0.7	1.0	1.0	0.9	1.0	0.8	1.3	1.6	4.3	
29-May	1.5	1.1	1.4	1.8	Z	2.8	2.7	3.0	7.0	6.1	11.5	7.6	10.5	7.4	4.3	8.5	5.6	8.5	11.5	16.9	11.4	10.3	12.0	12.4	7.2	16.9	
30-May	11.7	7.6	4.6	4.3	1.2	Z	1.7	0.4	0.6	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.8	0.4	0.4	0.5	0.3	2.3	1.8	11.7	
31-May	Z	0.4	0.4	0.4	0.3	0.6	0.8	0.3	0.4	0.4	3.2	4.7	0.5	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.2	0.7	0.7	4.7	
		1.3	1.4	1.4	1.1	1.1	1.8	1.7	1.3	1.5	1.7	1.9	1.5	1.6	1.3	1.2	1.7	1.2	1.4	1.5	1.2	1.0	1.2	1.3	1.2	Diurnal Average	
		11.7	7.6	5.6	4.3	2.5	4.6	4.5	4.2	9.9	11.5	11.5	9.1	12.2	7.9	8.0	12.0	6.4	11.1	11.5	16.9	11.4	10.3	12.0	12.4	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association**  
**Cumulative Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb**  
**Kirby South - May 2024**

<b>Concentration Ranges (ppb)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	643	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: 643

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South - May 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	12	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643
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	21	43	38	53	42	62	53	45	30	24	14	57	67	57	25	643

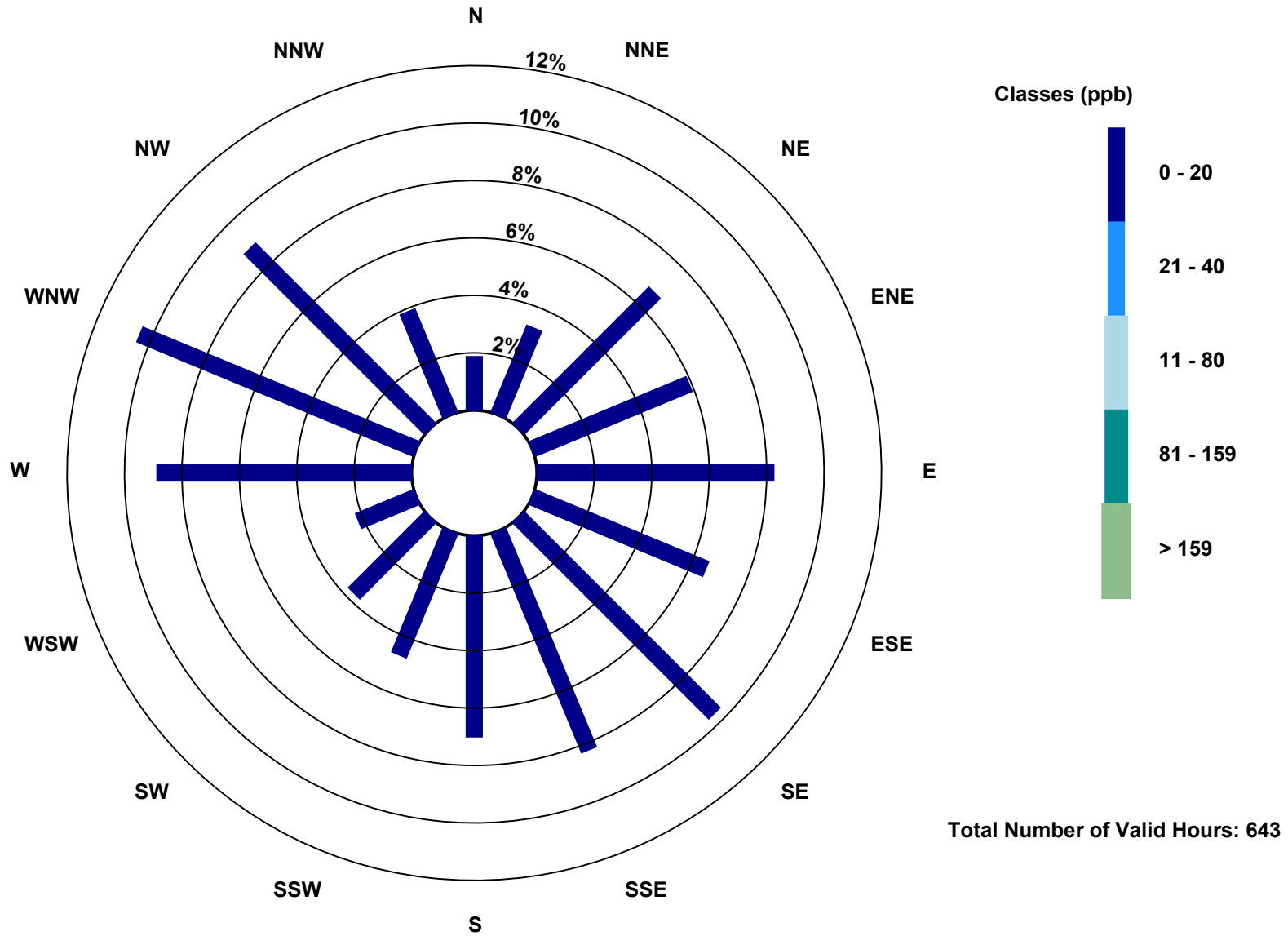
Total Number of Valid Hours: 643

Total Number of Hours: 744

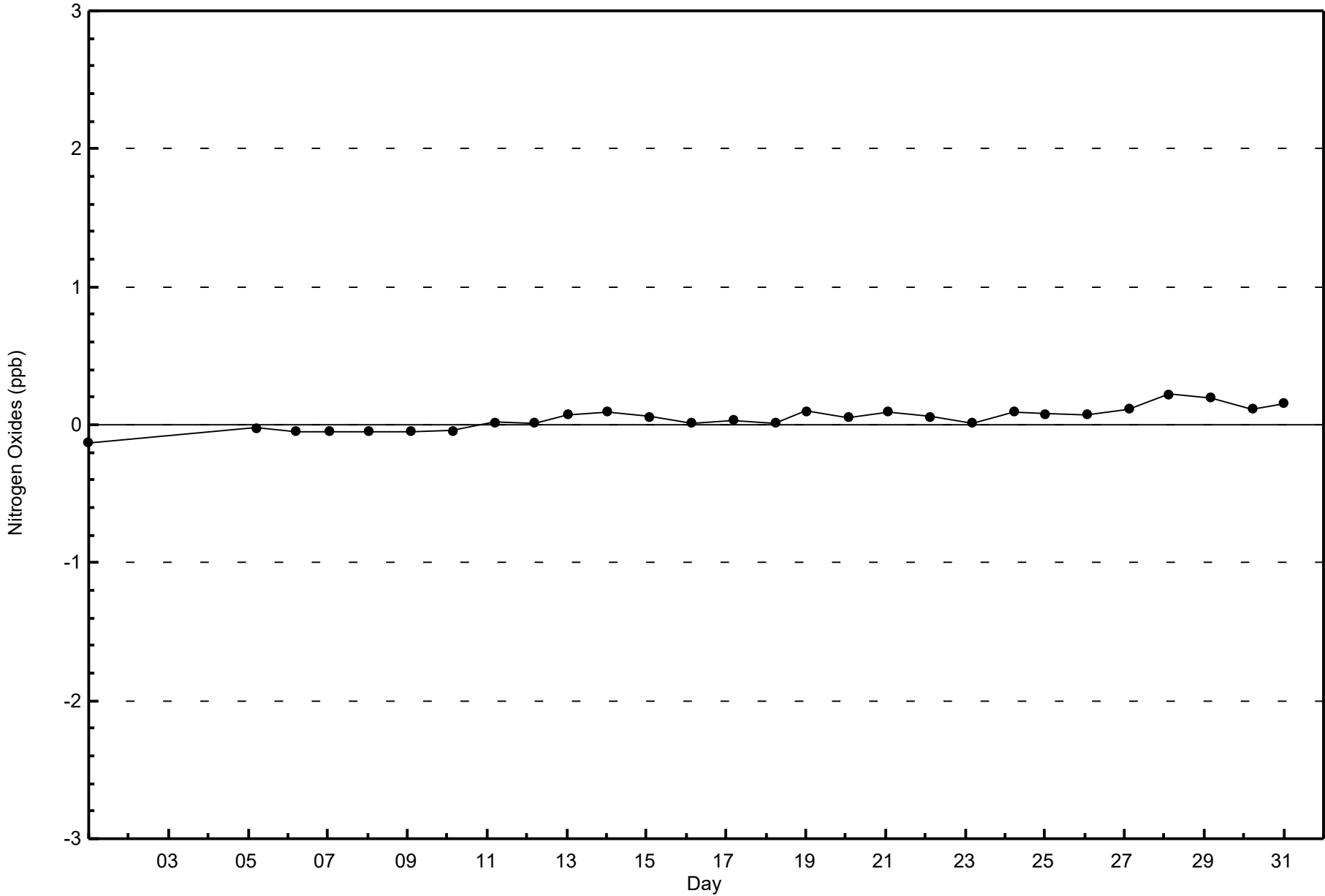


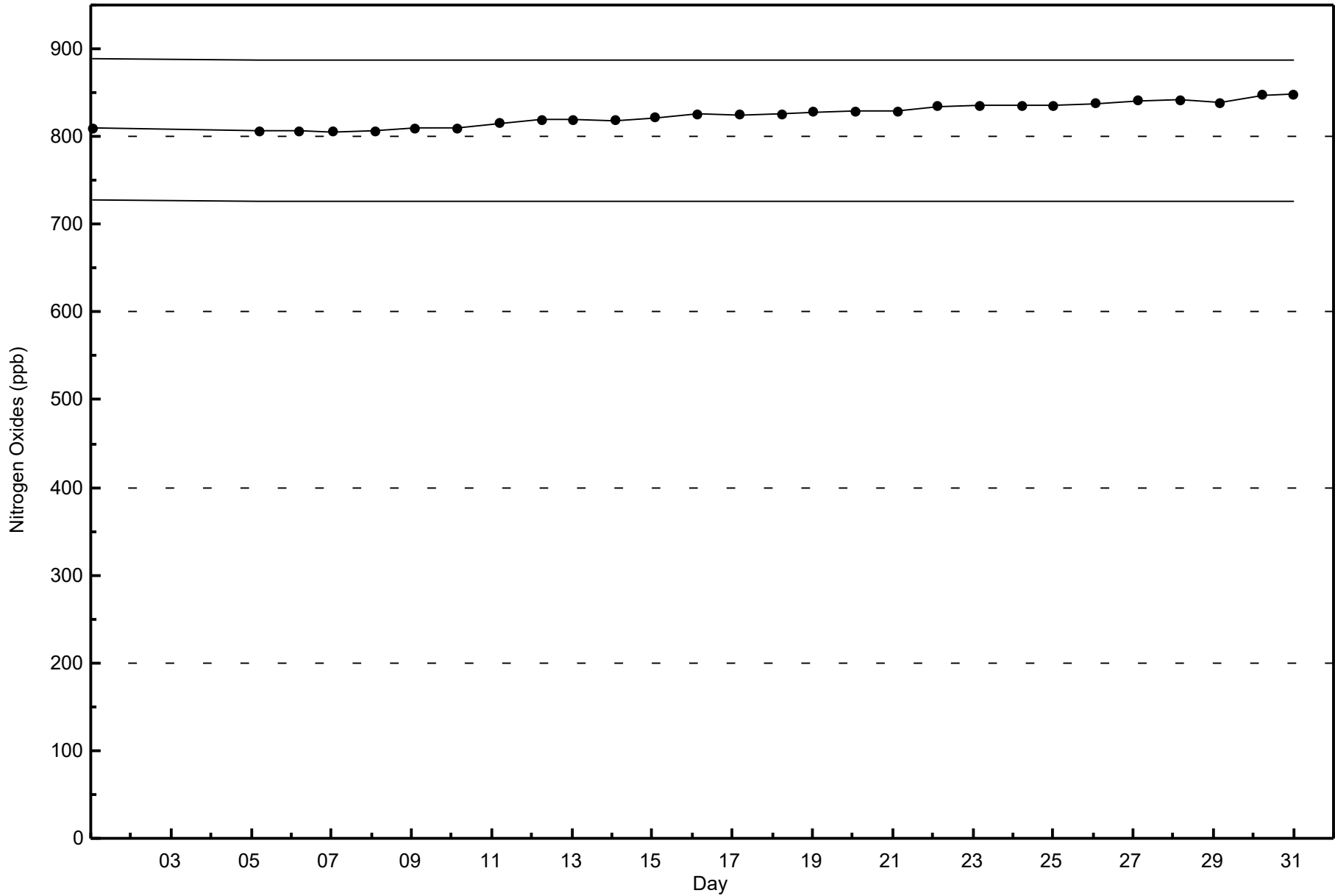
Wood Buffalo Environmental Association  
Wind Rose May 2024

Nitrogen Oxides (NO<sub>x</sub>) - ppb  
Kirby South









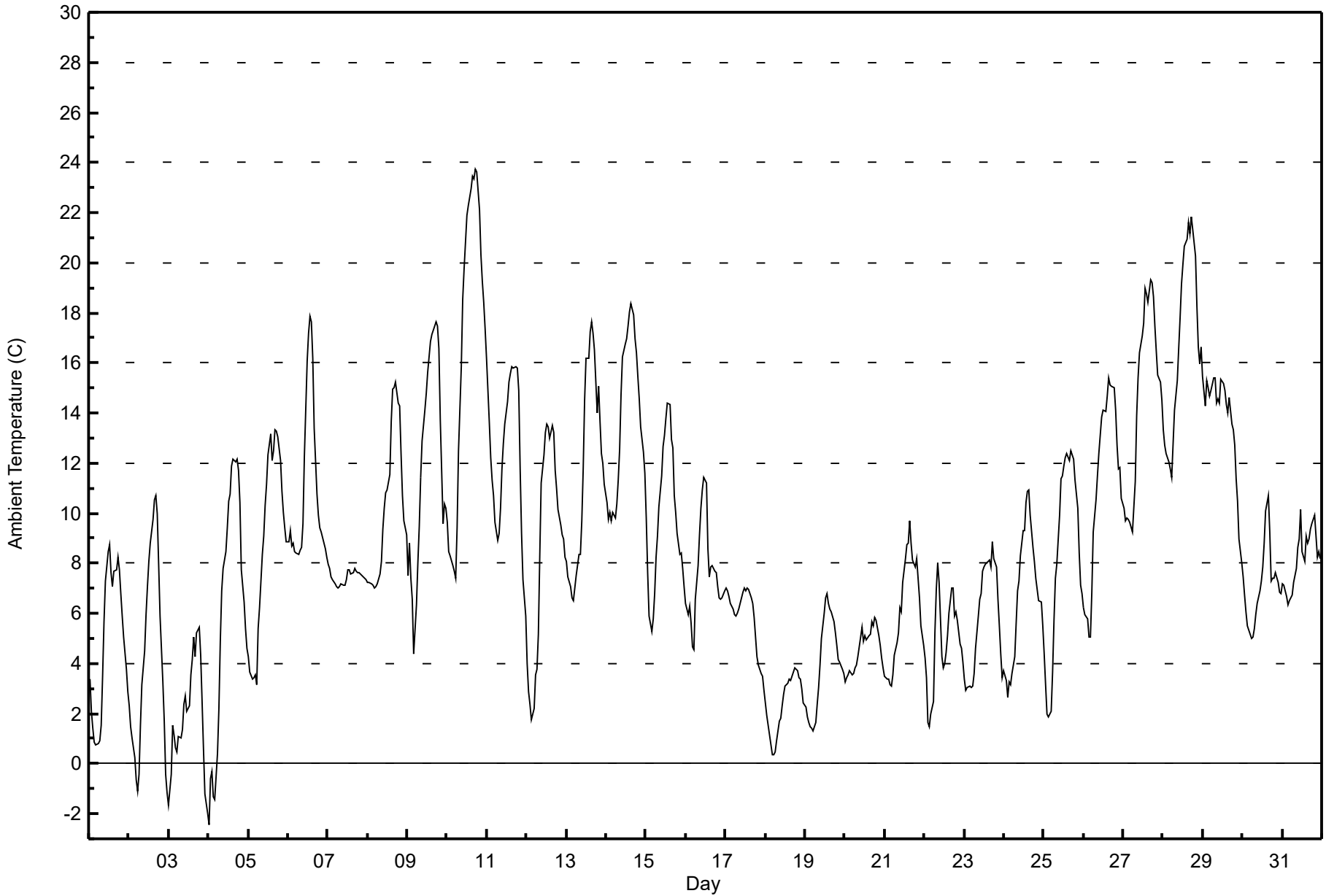


Maximum Value: 23.8 C on May 10 18:00		Maximum Daily Average: 16.9 C on May 10		Hours in Service: 744																							
Minimum Value: -2.5 C on May 4 01:00		Minimum Daily Average: 1.9 C on May 3		Hours of Data: 744																							
Maximum Diurnal Average: 11.9 C at hour 16		Minimum Diurnal Average: 5.0 C at hour 5		Hours of Missing Data: 0																							
Monthly Average: 8.65 C		Percentiles: P <sub>1</sub> = -0.9 P <sub>10</sub> = 2.9 Q <sub>1</sub> = 5.1 Median = 7.8 Q <sub>3</sub> = 11.8 P <sub>90</sub> = 15.6 P <sub>99</sub> = 21.9		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-May	3.4	2.1	1.4	0.9	0.7	0.8	0.9	1.5	3.5	5.7	7.3	8.5	8.8	7.6	7.1	7.7	7.7	8.2	7.7	6.8	5.9	5.0	3.8	2.9	4.8	8.8	
2-May	2.3	1.5	1.0	0.3	-0.6	-1.1	-0.4	1.5	3.2	4.5	6.0	7.0	8.1	8.8	9.8	10.6	10.7	10.0	8.0	5.9	3.3	1.7	-0.4	-1.2	4.2	10.7	
3-May	-1.6	-0.4	1.5	1.1	0.6	0.5	1.1	1.0	1.3	2.4	2.7	2.1	2.3	3.6	4.2	5.0	4.3	5.2	5.4	4.3	2.5	0.6	-1.2	-2.0	1.9	5.4	
4-May	-2.5	-0.6	-0.3	-1.3	-1.4	0.4	2.2	4.9	6.9	7.8	8.4	9.4	10.5	10.8	11.9	12.1	12.0	12.2	11.7	10.4	7.8	6.4	5.4	4.6	6.2	12.2	
5-May	4.3	3.7	3.4	3.5	3.5	3.1	5.4	6.2	8.3	9.1	10.3	11.1	12.3	13.2	12.1	12.5	13.3	13.3	13.0	12.1	10.9	10.0	9.4	8.8	8.9	13.3	
6-May	8.9	9.3	8.7	8.8	8.5	8.4	8.4	8.5	8.6	9.6	12.3	16.1	17.2	17.9	17.6	16.2	13.4	10.8	9.9	9.4	9.3	9.0	8.6	8.3	11.0	17.9	
7-May	8.0	7.8	7.5	7.3	7.2	7.1	7.0	7.1	7.2	7.1	7.1	7.4	7.7	7.7	7.6	7.7	7.8	7.7	7.6	7.6	7.5	7.5	7.4	7.3	7.5	8.0	
8-May	7.3	7.2	7.2	7.1	7.0	7.1	7.2	7.6	8.1	9.3	10.2	10.8	10.9	11.6	13.7	15.0	15.0	15.2	14.4	14.3	12.4	10.7	9.7	9.1	10.3	15.2	
9-May	7.5	8.8	7.4	6.5	4.4	6.4	8.0	9.5	11.4	12.9	14.1	14.8	15.6	16.2	16.8	17.1	17.5	17.7	17.5	16.6	13.7	9.6	10.4	10.2	12.1	17.7	
10-May	9.7	8.5	8.3	7.9	7.7	7.4	9.4	12.5	15.8	18.5	19.8	20.8	21.9	22.3	22.9	23.4	23.3	23.8	23.6	22.1	20.3	19.3	18.4	17.4	16.9	23.8	
11-May	16.2	13.6	12.2	11.3	10.7	9.6	8.9	9.2	10.2	11.8	12.8	13.6	14.4	15.2	15.6	15.8	15.8	15.9	15.8	14.9	11.8	9.2	7.3	5.9	12.4	16.2	
12-May	4.0	2.9	2.4	1.8	2.2	3.5	3.8	5.2	8.3	11.2	12.3	13.2	13.6	13.4	13.0	13.5	13.2	11.7	11.0	10.2	9.5	9.2	9.0	8.2	8.6	13.6	
13-May	8.1	7.4	7.1	6.6	6.5	7.0	7.5	8.3	8.3	9.7	11.8	14.5	16.2	16.2	17.3	17.7	17.2	16.5	14.0	15.1	13.7	12.4	12.0	11.2	11.8	17.7	
14-May	10.4	9.7	10.1	9.7	10.0	9.8	10.3	11.3	12.6	14.7	16.2	16.7	16.9	17.5	18.1	18.4	17.9	17.0	16.4	15.4	14.6	13.4	12.4	11.6	13.8	18.4	
15-May	9.8	7.6	5.9	5.3	5.8	6.8	8.3	9.1	10.2	11.5	12.7	13.1	13.8	14.4	14.4	12.9	12.6	10.7	10.1	9.2	8.3	8.4	7.8	7.0	9.8	14.4	
16-May	6.4	6.0	6.3	5.6	4.7	4.6	6.5	7.9	9.1	10.2	10.9	11.4	11.2	8.6	7.5	7.8	7.9	7.7	7.6	7.1	6.6	6.5	6.6	6.9	7.6	11.4	
17-May	7.0	6.9	6.7	6.4	6.2	6.0	5.9	6.0	6.2	6.4	6.8	7.0	6.9	7.0	6.9	6.6	6.4	5.9	5.0	4.3	4.0	3.6	3.5	2.9	5.8	7.0	
18-May	2.4	1.9	1.1	0.7	0.4	0.4	0.5	0.9	1.7	1.8	2.3	2.8	3.1	3.2	3.4	3.3	3.5	3.7	3.8	3.7	3.4	3.4	3.0	2.4	2.4	3.8	
19-May	2.2	1.9	1.6	1.5	1.4	1.3	1.6	2.4	3.0	3.9	5.0	6.0	6.6	6.8	6.4	6.1	6.1	5.7	5.2	4.7	4.2	4.0	3.7	3.6	4.0	6.8	
20-May	3.3	3.4	3.5	3.7	3.6	3.6	3.9	3.9	4.3	5.1	5.4	4.9	5.1	4.9	5.1	5.2	5.7	5.5	5.8	5.7	5.1	4.7	4.2	3.8	4.6	5.8	
21-May	3.5	3.4	3.4	3.1	3.1	3.5	4.3	4.8	5.2	6.2	6.0	7.2	8.2	8.7	8.8	9.7	8.8	8.1	7.8	8.2	7.4	6.6	5.5	4.7	6.1	9.7	
22-May	4.2	3.4	1.7	1.5	2.0	2.5	5.2	7.0	8.0	7.2	4.3	3.8	4.0	4.5	5.1	6.0	7.0	7.0	5.9	6.1	5.7	4.8	4.6	4.1	4.8	8.0	
23-May	3.4	2.9	3.0	3.1	3.0	3.1	3.6	4.6	5.9	6.5	6.8	7.7	7.9	7.9	8.1	8.2	7.8	8.8	8.2	7.8	6.6	5.5	4.4	3.4	5.8	8.8	
24-May	3.7	3.3	2.7	3.3	3.2	3.6	4.3	5.6	6.9	7.3	8.3	9.3	10.4	10.8	10.9	9.9	9.9	8.6	8.1	7.4	7.0	6.5	6.5	5.5	6.8	10.9	
25-May	4.4	3.2	2.0	1.9	2.1	3.7	5.7	7.4	8.0	9.9	11.4	11.5	11.9	12.2	12.4	12.1	12.5	12.3	12.2	11.3	10.2	8.4	7.1	6.8	8.3	12.5	
26-May	6.2	5.9	5.8	5.1	5.0	6.9	9.2	10.5	11.5	12.4	13.1	13.8	14.1	14.1	14.7	15.4	15.1	15.1	15.0	14.1	12.7	11.8	11.8	10.6	11.2	15.4	
27-May	10.2	9.7	9.8	9.7	9.6	9.2	10.3	11.3	13.9	15.4	16.4	17.1	17.6	19.0	18.8	18.4	19.3	19.2	18.6	17.5	16.5	15.5	15.2	14.5	14.7	19.3	
28-May	13.3	12.7	12.4	12.1	11.8	11.4	12.8	14.1	15.3	16.6	17.8	19.1	20.0	20.7	20.9	21.6	21.2	21.8	21.4	20.3	18.2	16.7	16.0	16.6	16.9	21.8	
29-May	15.4	14.3	15.3	15.0	14.7	14.9	15.4	15.4	14.4	14.6	14.4	15.4	15.2	14.9	14.4	14.0	14.6	13.6	13.3	12.7	11.4	10.5	9.0	8.0	13.8	15.4	
30-May	7.5	6.7	6.1	5.5	5.2	5.0	5.1	5.4	6.0	6.4	6.9	7.3	7.9	8.8	10.1	10.7	9.2	7.3	7.4	7.4	7.6	7.2	6.8	6.8	7.1	10.7	
31-May	7.2	7.1	6.7	6.3	6.5	6.6	6.7	7.2	7.8	8.6	9.0	10.2	8.5	8.1	9.1	8.8	9.0	9.4	9.6	9.9	9.1	8.2	8.5	8.2	8.2	10.2	
		6.3	5.9	5.5	5.2	5.0	5.3	6.1	7.0	8.1	9.2	10.0	10.8	11.2	11.5	11.7	11.9	11.8	11.5	11.0	10.4	9.3	8.3	7.6	7.0	Diurnal Average	
		16.2	14.3	15.3	15.0	14.7	14.9	15.4	15.4	15.8	18.5	19.8	20.8	21.9	22.3	22.9	23.4	23.3	23.8	23.6	22.1	20.3	19.3	18.4	17.4	Diurnal Maximum	



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Ambient Temperature (AT) - C**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C  
Kirby South - May 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	14	1.88	1.88
0 - 10	478	64.25	66.13
10 - 20	235	31.59	97.72
> 20	17	2.28	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

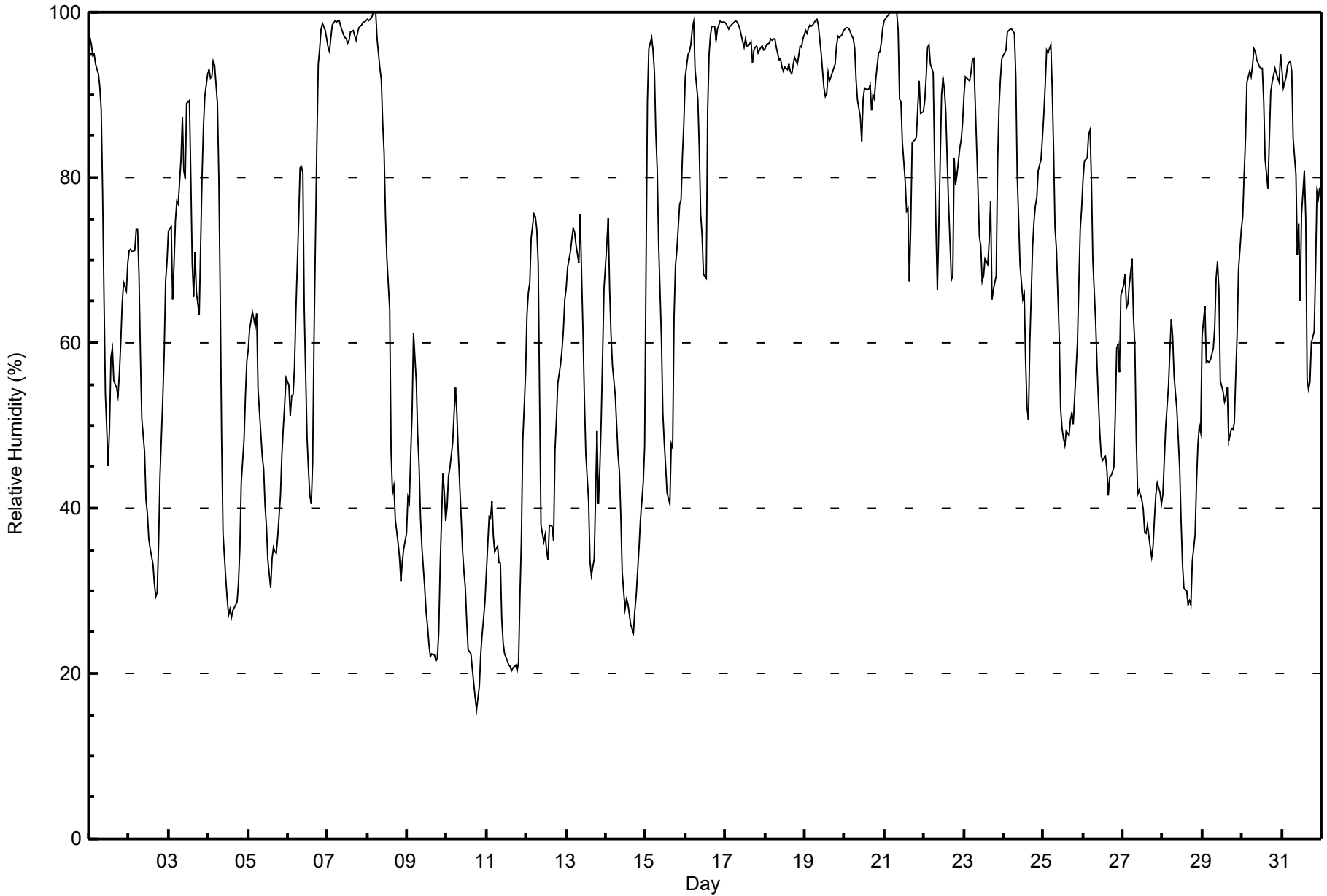
**Relative Humidity (RH) - %**  
**Kirby South - May 2024**

Maximum Value: 100.0 % on May 8 05:00      Maximum Daily Average: 97.7 % on May 7 Minimum Value: 15.5 % on May 10 19:00      Minimum Daily Average: 30.6 % on May 11 Maximum Diurnal Average: 81.6 % at hour 5      Minimum Diurnal Average: 54.5 % at hour 16 Monthly Average: 68.03 %      Percentiles: P <sub>1</sub> = 20.7 P <sub>10</sub> = 33.5 Q <sub>1</sub> = 47.4 Median = 69.8 Q <sub>3</sub> = 92.6 P <sub>90</sub> = 97.1 P <sub>99</sub> = 99.7																								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 Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-May	97.0	96.1	94.8	95.0	93.7	92.5	91.1	88.3	78.5	65.8	53.9	45.1	50.0	58.4	59.3	55.5	54.5	53.6	56.3	60.1	64.8	67.2	66.2	69.7	71.1	97.0																						
2-May	71.1	71.4	71.0	71.2	73.8	73.7	68.2	58.6	50.8	46.7	41.0	39.3	36.3	35.1	33.2	30.9	29.3	29.8	35.8	43.8	53.3	58.8	67.5	69.8	52.5	73.8																						
3-May	73.5	74.1	65.2	69.5	74.8	77.1	76.8	82.2	87.3	80.9	79.9	88.9	89.3	79.9	69.6	65.5	71.0	66.1	63.5	71.7	80.0	86.0	89.8	92.6	77.3	92.6																						
4-May	93.0	92.0	92.1	94.0	93.5	89.0	80.0	65.8	48.5	37.0	31.4	29.0	27.2	27.8	26.8	27.6	28.3	28.7	30.9	35.0	43.0	48.3	53.6	57.8	53.3	94.0																						
5-May	59.1	61.7	63.7	62.8	62.1	63.5	54.4	51.7	46.3	44.8	40.3	37.8	33.7	30.4	34.0	35.2	34.7	34.5	36.5	41.5	46.4	49.6	52.5	55.8	47.2	63.7																						
6-May	54.8	51.2	53.6	53.8	57.0	63.7	75.0	81.2	81.4	80.5	63.9	48.4	44.6	41.6	40.6	45.5	61.1	84.3	93.7	95.7	97.9	98.6	97.8	96.7	69.3	98.6																						
7-May	95.8	95.2	97.0	98.5	98.9	98.8	99.0	98.9	98.2	97.3	96.9	96.9	96.3	96.6	97.6	97.9	97.1	96.6	97.4	98.1	98.5	98.9	98.9	99.0	97.7	99.0																						
8-May	99.2	98.9	99.4	99.8	100.0	100.0	96.7	93.2	91.9	86.7	83.1	75.3	70.1	64.1	46.7	41.9	42.7	38.7	35.8	34.1	31.2	33.5	35.0	37.0	68.1	100.0																						
9-May	41.4	40.6	46.5	51.7	61.2	55.2	48.8	45.1	38.7	35.3	30.4	27.5	25.7	23.6	22.0	22.5	22.2	21.5	21.9	24.9	33.0	44.3	41.8	38.5	36.0	61.2																						
10-May	40.2	43.8	44.9	48.0	51.5	54.5	51.4	46.6	39.0	35.0	32.4	30.4	26.3	22.9	22.3	20.5	18.8	17.1	15.5	18.5	22.3	24.7	26.6	28.7	32.6	54.5																						
11-May	32.2	39.0	38.9	40.8	36.6	34.8	35.4	33.3	33.4	26.6	23.7	22.4	21.5	21.0	20.8	20.3	20.6	21.0	20.3	21.4	29.4	36.1	48.1	56.2	30.6	56.2																						
12-May	63.3	66.1	67.3	72.7	75.7	75.2	73.8	69.6	53.6	38.0	35.9	36.8	35.0	33.7	37.9	37.8	36.1	46.9	50.7	55.1	57.5	59.2	61.5	65.3	54.4	75.7																						
13-May	66.6	69.2	71.0	72.6	74.0	73.4	71.9	69.6	75.5	68.1	61.3	53.3	46.5	40.8	33.6	31.9	32.9	33.8	49.4	40.5	44.7	50.7	58.5	66.7	56.5	75.5																						
14-May	71.8	75.1	66.6	61.0	57.2	53.8	50.2	46.5	44.4	39.0	32.1	27.8	29.1	28.5	27.2	25.9	24.9	27.7	29.4	32.4	35.2	38.7	43.0	47.4	42.3	75.1																						
15-May	68.9	89.3	95.5	97.0	95.3	92.8	85.2	81.0	72.0	60.4	51.6	48.0	45.1	41.9	40.5	47.7	47.2	63.0	69.3	71.2	76.8	77.2	82.6	86.5	70.2	97.0																						
16-May	92.1	95.0	95.2	96.1	98.0	98.8	93.0	89.4	83.5	75.6	73.1	68.3	67.9	88.1	94.9	97.3	98.4	98.3	96.6	98.0	98.4	98.9	98.9	98.9	91.4	98.9																						
17-May	98.6	98.3	97.9	98.4	98.7	98.8	98.9	98.9	98.5	98.0	96.4	95.7	96.7	96.0	96.0	96.4	93.8	95.5	95.8	95.9	95.1	95.8	95.9	95.4	96.9	98.9																						
18-May	95.6	96.0	96.3	96.8	96.5	96.8	96.8	95.8	94.3	94.4	93.4	92.9	93.4	93.1	93.7	92.9	92.6	93.5	94.5	93.7	94.7	95.9	95.8	96.7	94.8	96.8																						
19-May	97.8	97.5	98.1	98.4	98.3	98.5	98.9	99.1	98.5	96.8	95.1	90.9	89.8	90.1	92.7	91.8	92.3	93.2	93.7	96.0	97.1	97.0	97.3	97.8	95.7	99.1																						
20-May	97.9	98.2	98.2	98.0	97.1	96.9	95.5	91.6	89.3	87.4	84.4	89.6	90.8	90.7	90.8	91.3	88.2	90.0	89.4	91.9	95.1	95.2	96.4	98.1	93.0	98.2																						
21-May	99.0	99.4	99.7	100.0	100.0	100.0	100.0	100.0	97.8	89.4	89.2	84.2	79.6	76.0	76.2	67.4	74.3	84.3	84.5	84.8	88.5	91.7	87.8	87.9	89.2	100.0																						
22-May	89.4	92.3	95.8	96.1	93.8	92.8	82.3	73.9	66.5	73.7	90.1	92.0	90.7	87.9	82.3	76.8	67.6	68.1	82.4	79.2	80.4	83.5	84.6	86.6	83.7	96.1																						
23-May	90.0	92.1	92.0	91.7	92.8	94.2	94.4	89.1	78.7	72.9	71.7	67.5	68.2	70.2	69.4	72.3	77.0	65.2	66.4	68.1	81.8	88.4	91.9	94.5	80.9	94.5																						
24-May	94.7	95.5	97.6	97.8	98.0	97.9	97.5	92.2	80.4	75.1	69.6	65.2	65.9	57.7	52.2	50.7	60.1	71.6	74.8	76.6	77.6	80.8	82.3	84.8	79.0	98.0																						
25-May	87.6	91.3	95.4	95.0	96.2	90.6	83.3	73.9	71.3	60.8	52.1	49.7	48.5	47.7	49.4	48.8	50.7	51.6	50.2	53.4	60.0	67.2	73.7	76.3	67.7	96.2																						
26-May	79.9	82.1	82.4	85.3	85.8	79.6	70.0	62.6	57.2	52.9	48.9	46.3	45.8	46.2	44.8	41.6	43.7	43.9	44.9	51.2	59.3	59.8	56.5	65.7	59.8	85.8																						
27-May	67.0	68.2	64.2	64.7	67.0	70.1	63.2	59.7	48.3	41.7	42.3	41.0	39.8	37.1	37.0	37.9	35.3	34.1	35.5	38.9	41.6	43.0	41.9	40.5	48.3	70.1																						
28-May	41.6	45.8	49.8	54.8	58.9	62.9	60.7	56.0	51.8	48.4	44.7	38.4	33.3	30.4	30.0	28.3	28.8	28.4	33.5	36.7	43.1	47.7	50.0	49.2	43.9	62.9																						
29-May	60.8	64.4	57.6	57.8	57.7	58.0	59.3	61.8	67.8	69.9	66.5	55.4	54.1	52.8	53.6	54.6	48.1	49.6	49.5	50.4	56.0	61.0	68.8	73.8	58.7	73.8																						
30-May	75.2	80.4	84.7	91.5	92.8	92.3	93.5	95.6	95.3	94.2	93.3	93.3	93.2	89.2	82.2	78.6	84.5	90.4	91.5	92.4	93.2	92.1	91.5	94.9	89.8	95.6																						
31-May	93.1	90.8	92.2	93.5	93.8	94.1	92.9	84.7	80.3	70.7	74.4	65.1	75.6	80.8	75.0	55.5	54.4	55.2	59.9	61.3	68.7	78.3	77.4	78.8	76.9	94.1																						
																								77.0	79.1	79.5	80.8	81.6	81.3	78.6	75.3	70.9	65.9	62.7	59.4	58.4	57.4	55.9	54.5	55.2	57.3	59.7	61.7	66.0	69.3	71.4	73.8	Diurnal Average
																								99.2	99.4	99.7	100.0	100.0	100.0	100.0	100.0	98.5	98.0	96.9	96.9	96.7	96.6	97.6	97.9	98.4	98.3	97.4	98.1	98.5	98.9	98.9	99.0	Diurnal Maximum



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Relative Humidity (RH) - %**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %  
Kirby South - May 2024**

<b>Concentration Ranges (%)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 20	4	0.54	0.54
20 - 40	123	16.53	17.07
40 - 60	162	21.77	38.84
60 - 80	160	21.51	60.35
80 - 100	288	38.71	99.06

Total Number of Valid Hours: 744

Total Number of Hours: 744





**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Speed (WS) - km/h**  
**Kirby South - May 2024**

Maximum Speed: 31 km/h on May 31 16:00	Maximum Daily Speed Average: 22.3 km/h on May 31	Hours in Service: 744
Minimum Speed Value: 0 km/h on May 3 23:00	Minimum Daily Speed Average: 2.7 km/h on May 15	Hours of Data: 744
Maximum Diurnal Speed Average: 3.2 km/h at hour 15	Minimum Diurnal Speed Average: 0.5 km/h at hour 21	Hours of Missing Data: 0
Monthly Average Velocity: 1.2 km/h 311.2 deg	Percentiles: P <sub>1</sub> = 2 P <sub>10</sub> = 6 Q <sub>1</sub> = 8 Median = 11 Q <sub>3</sub> = 15 P <sub>90</sub> = 21 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-May	NE10	NE12	NE12	NE11	NE13	NE13	NE13	ENE16	ENE17	ENE18	ENE23	ENE24	ENE24	ENE25	ENE24	ENE21	ENE21	NE19	NE17	NE13	NE12	NE12	NNE10	NNE9	ENE15.7	ENE25
2-May	NNE10	NNE10	NNE11	NNE11	NNE12	NE13	NE14	NE17	NE20	NNE20	NE22	NE24	NE25	NE24	NE22	NE20	ENE24	ENE22	E16	ESE12	ESE7	ESE5	ESE2	SSW1	NE13.9	NE25
3-May	NE1	NNW3	N5	N5	NNE6	NNE4	NE8	NE12	NNE12	NE11	NNE11	NE11	NE9	NNE10	NNE10	ENE6	ENE9	ENE5	NE8	E8	E5	SSW4	NW0	WNW3	NE5.9	NNE12
4-May	W5	WSW5	W5	WNW5	NW7	WNW7	WNW6	NNW5	NNE7	N4	NW6	NNE2	W4	WNW3	NW3	WSW8	SW7	SW7	SW10	SW8	SSW8	SSW11	SSW12	SSW11	WSW3.9	SSW12
5-May	SSW11	SSW11	SSW10	S9	S10	S8	S13	S12	S14	S14	S16	S16	SSE15	SSE16	SSE16	S14	SSE14	SE13	ESE10	E9	E8	E9	ESE9	ESE8	SSW10.2	SSE16
6-May	SE9	SSE11	SSE11	SE11	SE11	SE11	ESE11	E13	E13	E16	E20	ESE21	SE21	SE21	SE20	SSE23	SE22	SE16	ESE13	ESE13	E11	ENE10	ENE9	E10	ESE13.3	SSE23
7-May	E9	E11	E12	E13	E13	E13	E12	E12	E15	E14	E13	E12	E13	E13	E12	E11	ESE12	ESE10	SE5	SSE1	SW1	W4	W4	W7	E8.6	E15
8-May	WNW7	W10	WNW9	WNW7	WNW13	NW15	NW13	NNW11	NW11	NW12	NW13	NW11	NW12	NW9	WNW10	WNW12	WNW11	WNW17	WNW15	W12	W11	W11	W11	W12	WNW11.1	WNW17
9-May	WSW10	W17	W16	W15	WSW12	W20	WNW22	WNW22	WNW21	WNW21	WNW23	NW25	NW24	NW24	NW26	NW24	NW22	NW20	NW19	NW12	NW6	W7	WSW6	SW8	WNW16.5	NW26
10-May	SW9	WSW9	SW11	SW11	SW13	SW14	WSW14	WSW14	W17	W20	W27	W29	W31	W31	W31	W30	W26	W29	W26	WNW22	WNW19	W21	W21	W21	W19.8	W31
11-May	NW18	NNE19	NNW12	NNW11	NNW12	NNW15	NW17	NW19	NNW24	NNW26	NNW28	NW28	NW25	NNW24	NNW23	NW21	NNW21	NNW17	NNW15	N11	N5	NE9	ENE11	E9	NNW15.7	NW28
12-May	E7	E7	E7	SE5	SSE6	SSE7	ESE6	SE8	SE11	SE14	SSE13	SE12	S10	SSE5	NE2	ENE4	SSW12	SSW14	S10	SSE8	SSE9	SSE10	S12	S11	SSE7.4	SE14
13-May	S11	S12	S13	S11	S12	SSW12	S13	SSW14	SSW13	SSW13	SSW14	SSW17	SW16	SW15	WSW13	W15	WSW16	W13	WSW9	SW10	SW9	SW11	SW12	SW12	SW11.4	SSW17
14-May	SW10	WSW9	WNW8	WNW11	NW9	WNW10	W10	WNW15	WNW14	W13	W18	WNW18	WNW20	W20	W19	W23	WNW22	WNW18	WNW17	WNW17	WNW8	WNW9	W9	WSW7	WNW13.4	W23
15-May	NW12	N6	S4	SSW5	WSW7	W7	W9	WNW11	NNW10	NNE9	NE7	NE7	N8	N8	NE12	NE16	ENE7	ESE8	ESE9	SE8	S3	WNW5	S3	ENE6	NNE2.7	NE16
16-May	E4	ESE4	N6	E7	ESE7	ESE7	SSE7	SSE8	SE11	SSE11	SE13	SE14	SE13	SSE9	E12	E8	E8	SE8	SE10	E12	E12	ESE10	ESE9	SE10	ESE8.1	SE14
17-May	ESE9	SE8	ESE8	ESE11	ESE10	ESE10	ESE10	ESE9	ESE9	ESE10	ESE9	E9	E9	ENE8	ENE11	ENE12	ENE12	ENE10	ENE12	NE9	NE9	NNE9	N9	N11	E7.8	ENE12
18-May	NNW12	NNW14	NNW14	NW14	NW16	NW16	NW17	NW19	NW19	NW19	NW20	NW19	NW17	NW18	NW16	NW17	NW15	NW13	NW11	NW12	NW10	NW8	NNW9	NW7	NW14.6	NW20
19-May	NW9	NW9	NW9	NW8	NW8	WNW8	WNW9	NNW7	NNW8	NNW8	N7	NNE9	N8	NNE11	NE15	NE13	ENE11	ENE13	ENE12	ENE12	ENE9	NE11	NE10	ENE10	NNE6.9	NE15
20-May	ENE7	NE8	NNE8	N7	NNE9	NNE8	NNE9	NE13	NE12	NNE11	NNE13	NNE12	NNE11	NE9	NE9	NE9	NNE8	NE7	NE6	NNE6	NE6	NNE6	ENE7	E7	NE8.4	NNE13
21-May	E7	E7	E6	SE7	SE6	SE7	SE7	SSE8	SSE8	SSE9	S8	SE9	SE9	SSE10	SSW7	SE7	SSE4	S6	SE3	NE4	E4	ESE7	ESE9	SE8	SE6.0	SSE10
22-May	E5	E1	E7	ESE6	ENE3	ENE5	ENE7	NE9	NE8	NE14	NE16	NE14	NE15	ENE13	ENE11	ENE9	NE12	ENE12	NE8	NE8	NE6	NE6	NE5	NE6	ENE8.2	NE16
23-May	NE6	ENE4	NNE4	NNE6	NNE5	NE5	E7	ENE7	E9	E11	ENE11	ENE12	NE11	ENE10	E12	ENE7	SSE7	ESE8	E9	ESE7	SSE7	SE5	ESE5	SE7	E6.4	E12
24-May	SSE10	SE7	SE5	SE7	SE7	ESE7	ESE9	SE10	SSE12	SE13	ESE13	SSE17	SE17	SE14	SE12	SE10	E10	SE8	SSW10	SW7	SSW6	S8	SSW9	S9	SE8.6	SE17
25-May	S7	SSW4	S5	S5	SSE7	SE8	SSE9	SSE10	S10	S8	SE11	SSE10	SSE10	SSE9	SE12	SE9	SE11	ESE13	ESE11	SE8	SE8	SE8	SSE9	SSE9	SSE8.2	ESE13
26-May	SSE9	S10	S10	S9	S8	S7	S8	SSW10	SSW8	S6	SW4	ESE3	NNE5	NE3	NNE4	SSW2	ESE8	E7	E6	ESE5	E5	SE7	SSE8	SSE8	SSE4.9	S10
27-May	SE8	SE7	SE9	SSE9	SE8	SE7	SE8	S9	S12	SSW12	SSE10	SSE8	SE10	S10	SSW11	SW11	S11	SSE12	SSE12	SSE11	SSE11	SSE12	S16	S16	SSE9.7	S16
28-May	S15	S16	S16	S14	S8	SSE8	SSW11	SW15	WSW14	WNW11	WNW8	WNW10	WNW6	SW10	SW9	SSW10	SSW6	S8	SSE10	SE7	ESE7	ESE9	SE8	SSE13	SSW6.8	S16
29-May	E6	SE10	S11	SSE15	SSE16	S15	SSW15	WSW19	W21	W23	W24	W26	W26	W28	WNW25	W23	W27	W26	W23	W23	W20	W17	W21	W22	W15.5	W28
30-May	W23	W20	W23	W22	WNW22	W22	WNW20	WNW21	NW20	NW22	NW20	NW19	NW18	NNW21	NNW20	NW19	N14	NNW19	NW15	WNW15	WNW14	WNW19	WNW17	W15	WNW17.9	W23
31-May	WNW18	WNW19	WNW18	WNW19	WNW20	WNW18	WNW21	WNW22	WNW25	WNW28	WNW27	WNW29	WNW27	WNW25	WNW27	NW31	NW28	WNW20	WNW18	WNW25	WNW22	WNW20	WNW22	WNW14	WNW22.3	NW31

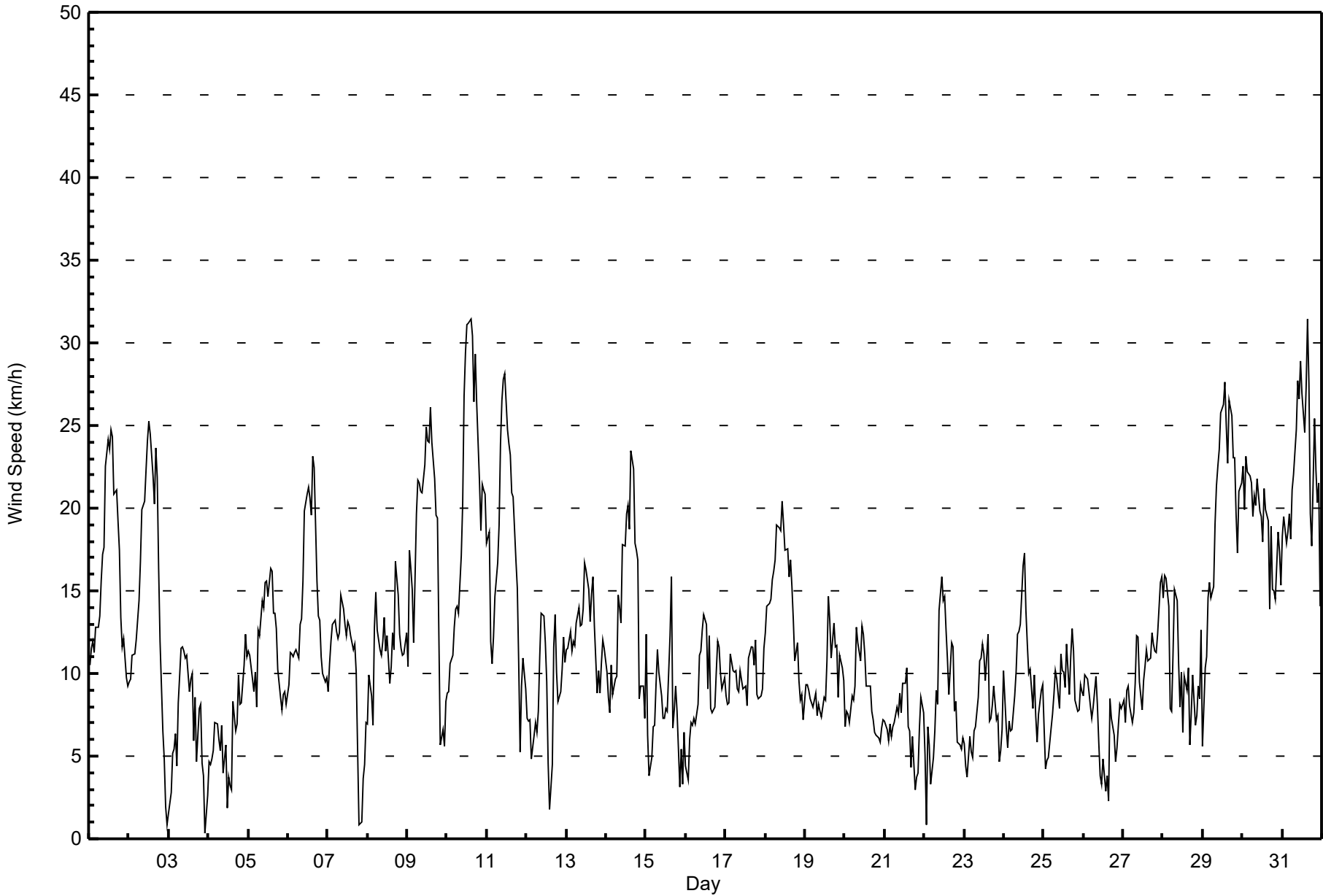
SW0.7	WSW0.8	WSW1.0	SW1.1	WSW0.9	W1.2	W1.3	WNW1.9	NW2.2	NW2.6	NNW2.7	NNW2.5	NNW2.8	NNW2.6	N3.2	NW3.1	NNW1.7	NNW1.1	NNW0.8	NNW1.0	NW0.5	WSW0.9	SW1.5	SW1.9		Diurnal Average
W23	W20	W23	W22	WNW22	W22	WNW22	WNW22	WNW25	WNW28	NNW28	W29	W31	W31	W31	NW31	NW28	W29	W26	WNW25	WNW22	W21	WNW22	W22		Diurnal Maximum

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Speed (WS) - km/h**  
**Kirby South - May 2024**





**Wood Buffalo Environmental Association  
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - May 2024**

<b>Wind Speed Ranges (km/h)</b>	<b>Number of Hours</b>	<b>%</b>	<b>Cumulative %</b>
0 - 5	67	9.01	9.01
6 - 11	353	47.45	56.45
12 - 19	214	28.76	85.22
20 - 28	102	13.71	98.92
29 - 38	8	1.08	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association  
Frequency Distribution**

**Wind Speed (WS) - km/h  
Kirby South - May 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	6	6	5	6	6	5	3	5	5	2	1	5	4	2	2	67
6 - 11	10	26	29	22	31	36	43	37	27	16	16	8	10	19	16	7	353
12 - 19	1	5	25	12	21	6	12	14	19	11	7	7	13	22	28	11	214
20 - 28	0	1	7	9	1	1	4	1	0	0	0	0	29	26	15	8	102
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	6	1	1	0	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Totals</b>	15	38	67	48	59	49	64	55	51	32	25	16	63	72	62	28	744

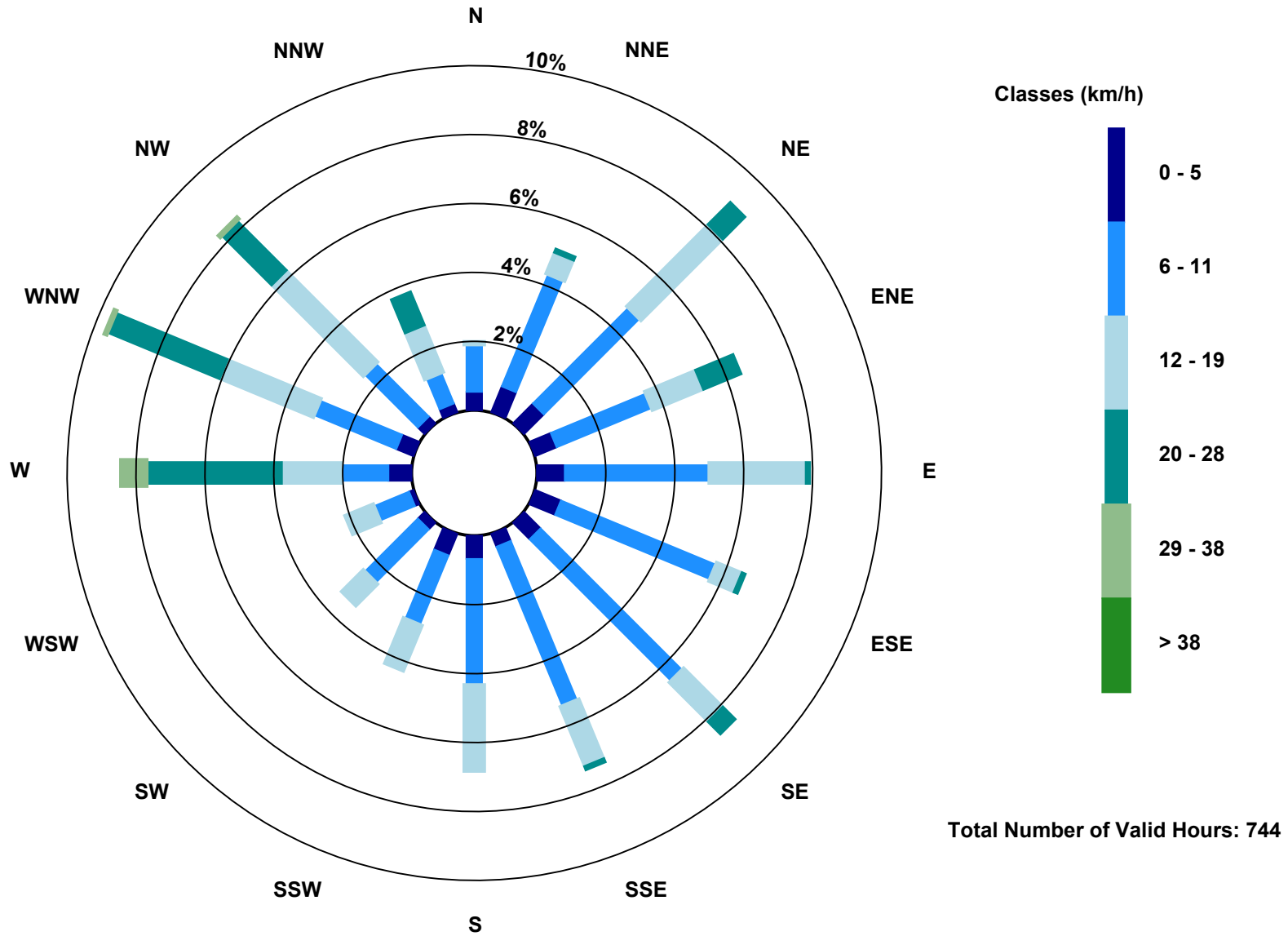
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association  
Wind Rose May 2024

Wind Speed (WS) - km/h  
Kirby South





**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Speed (WS) - km/h**  
**Kirby South - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on May 31 16:00 Minimum Value: 1 km/h on May 4 00:00 Percentiles: P <sub>1</sub> = 1 P <sub>10</sub> = 1 Q <sub>1</sub> = 2 Median = 3 Q <sub>3</sub> = 4 P <sub>90</sub> = 5 P <sub>99</sub> = 7																	Hours in Service: 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-May	2	2	2	2	2	2	3	3	4	4	5	6	5	6	6	5	5	5	4	3	2	3	2	2	6
2-May	2	2	2	2	2	3	3	4	5	5	6	6	6	7	5	6	6	5	4	3	1	1	1	1	7
3-May	2	1	1	1	1	1	3	2	3	3	3	3	3	3	2	3	3	3	4	2	1	2	2	1	4
4-May	2	1	1	1	1	1	1	3	3	3	3	3	3	3	5	4	4	3	2	2	1	1	2	2	5
5-May	2	2	1	1	2	2	3	3	4	4	5	5	4	5	4	4	4	3	2	2	1	1	1	1	5
6-May	2	2	2	2	3	3	3	3	3	4	5	5	6	6	5	6	7	6	3	3	2	2	1	2	7
7-May	2	2	3	3	3	3	3	2	4	3	3	3	3	3	3	2	3	3	2	1	2	1	1	1	4
8-May	1	2	2	2	5	3	2	3	2	2	3	3	2	2	4	4	4	4	3	3	3	3	2	2	5
9-May	2	4	2	3	2	4	4	5	4	4	6	6	6	5	6	6	7	5	5	4	2	1	1	1	7
10-May	2	2	1	2	2	2	3	3	3	6	6	7	8	6	7	7	6	7	6	5	3	4	4	4	8
11-May	6	6	3	2	3	3	3	4	6	7	7	8	7	7	6	6	6	5	4	3	1	3	2	2	8
12-May	1	1	1	1	1	2	2	2	3	3	4	3	3	4	4	3	3	3	4	2	2	2	3	3	4
13-May	2	3	3	3	3	3	3	4	3	4	4	4	4	5	4	4	4	5	4	3	1	2	3	2	5
14-May	2	2	3	3	3	3	3	3	2	4	6	4	5	6	5	7	5	4	5	4	4	1	2	2	7
15-May	4	5	1	3	2	2	3	2	3	3	4	3	3	4	6	4	3	4	2	2	1	3	2	2	6
16-May	2	1	4	2	1	1	3	2	3	3	3	3	4	6	3	2	2	2	3	3	2	2	2	2	6
17-May	2	2	2	3	3	2	2	2	2	2	2	2	3	2	3	3	2	2	3	3	2	2	3	3	3
18-May	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	3	3	2	3	2	2	2	2	4
19-May	2	2	2	2	2	1	2	2	2	2	2	3	2	3	4	3	2	3	3	5	2	2	2	3	5
20-May	2	2	2	2	2	2	3	3	3	3	3	4	3	3	2	2	2	1	2	1	1	1	1	1	4
21-May	1	1	1	2	1	2	1	2	2	2	3	2	3	4	3	2	3	3	3	1	2	3	2	2	4
22-May	2	2	1	1	1	1	3	2	3	5	3	3	3	3	3	4	3	4	3	2	1	1	1	1	5
23-May	1	1	2	1	1	1	2	2	3	3	3	4	4	4	4	4	2	4	2	3	2	1	1	1	4
24-May	2	2	1	1	1	1	2	2	3	3	3	4	5	4	4	2	4	2	3	2	1	2	2	2	5
25-May	1	1	1	2	1	2	2	3	3	3	3	3	3	3	4	3	4	3	2	2	2	2	1	1	4
26-May	1	1	2	1	1	2	3	2	3	3	3	2	2	2	2	3	3	2	1	1	2	1	1	1	3
27-May	2	2	2	2	2	1	2	3	3	3	3	4	4	4	4	5	4	4	3	2	2	3	3	4	5
28-May	3	4	4	3	5	2	4	4	4	3	3	3	3	4	3	3	2	3	3	1	1	1	2	3	5
29-May	3	5	3	3	4	4	4	4	5	5	5	5	5	5	5	5	6	6	5	5	5	5	5	5	6
30-May	6	5	5	5	5	4	4	4	5	5	5	5	4	5	6	5	6	6	4	3	4	4	4	3	6
31-May	4	4	3	3	4	3	4	5	5	6	6	7	8	6	7	9	7	5	4	7	5	4	4	5	9
Diurnal Maximum																									



**Wood Buffalo Environmental Association**  
**Summary of Hour Averages**

**Wind Direction (WD) - deg**  
**Kirby South - May 2024**

Direction of Maximum Speed: 320 deg on May 31 16:00															Hours in Service: 744						
Direction of Maximum Daily Speed Average: 294.1 deg on May 31															Hours of Data: 744						
Direction of Minimum Speed: 306 deg on May 3 23:00										Direction of Minimum Daily Speed Average: 2.7 deg on May 15										Hours of Missing Data: 0	
Monthly Average Direction: 311.2 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-May	42	42	43	49	48	52	56	64	66	65	75	72	74	74	76	70	71	47	47	51	48	44	30	19	59.5
2-May	21	20	29	28	29	35	38	39	40	32	40	45	41	49	46	41	58	70	101	104	119	120	122	198	48.3
3-May	44	334	6	11	31	31	40	45	30	34	24	51	37	12	23	63	77	63	52	84	93	198	306	288	39.3
4-May	273	258	271	298	311	303	289	345	20	351	314	33	279	291	323	243	234	217	227	216	199	201	200	201	252.4
5-May	201	197	193	188	183	175	183	175	190	184	177	174	155	155	163	175	162	136	121	98	92	92	105	119	163.2
6-May	139	148	151	145	139	128	107	89	88	87	93	111	134	130	129	151	143	130	112	104	86	78	78	81	118.3
7-May	94	90	93	87	87	82	85	91	99	96	94	95	94	88	89	90	103	120	132	166	230	271	279	280	93.9
8-May	283	280	287	289	287	309	320	327	321	317	305	312	305	305	303	282	291	282	283	276	277	272	273	275	294.3
9-May	258	280	274	271	249	272	289	295	300	295	302	304	306	309	308	304	309	321	326	321	304	278	251	236	295.7
10-May	233	237	233	230	232	235	239	246	277	273	271	276	275	280	278	276	280	277	278	289	285	279	277	281	270.5
11-May	326	15	347	337	342	336	324	320	333	330	327	324	325	342	334	325	331	328	345	352	355	56	77	80	338.1
12-May	95	101	100	126	148	154	123	133	130	142	152	141	183	164	52	63	196	207	175	157	155	166	172	184	152.7
13-May	186	185	188	186	191	192	189	209	196	211	212	203	236	234	258	260	247	268	251	233	224	221	216	216	217.4
14-May	225	240	289	297	314	286	281	289	286	275	275	291	282	270	270	272	288	294	294	292	298	289	277	257	281.4
15-May	322	9	189	202	244	259	276	298	331	15	48	44	5	7	36	37	74	107	110	126	181	291	188	73	12.7
16-May	84	114	358	86	109	114	153	161	141	147	133	127	127	163	90	93	94	125	130	99	98	105	109	128	118.3
17-May	121	134	120	109	110	109	111	113	117	110	105	90	84	78	75	74	72	71	57	52	34	18	6	350	83.4
18-May	343	334	334	323	318	312	314	322	320	320	321	320	318	319	323	324	318	313	312	321	322	326	329	317	321.4
19-May	321	319	319	318	313	298	300	332	334	338	357	14	11	27	44	51	58	66	63	69	63	51	50	57	17.3
20-May	62	35	31	9	18	24	25	46	40	29	27	27	33	34	46	47	20	45	38	28	35	30	58	94	35.9
21-May	100	96	100	124	124	138	142	158	168	165	171	129	145	152	194	129	165	181	141	45	80	120	114	129	137.5
22-May	101	87	96	106	67	65	67	50	48	38	48	47	54	62	67	61	45	70	54	50	42	56	39	47	57.2
23-May	55	72	26	25	31	51	81	76	82	90	72	66	53	69	87	77	157	104	92	108	147	139	122	133	83.5
24-May	151	142	138	142	134	115	118	133	148	128	107	147	130	135	129	144	94	143	201	214	198	186	193	180	144.2
25-May	174	209	179	184	154	141	150	163	182	170	137	153	148	149	134	144	137	119	123	130	132	146	155	160	149.0
26-May	167	174	169	172	174	173	185	193	197	190	233	103	29	37	25	198	120	99	100	117	97	124	160	153	155.1
27-May	129	131	131	147	133	129	141	175	177	193	153	160	129	189	196	221	170	162	166	168	166	165	171	171	164.3
28-May	169	176	188	175	186	166	192	225	244	290	295	301	293	226	219	209	208	170	159	124	112	112	126	150	192.4
29-May	85	144	169	160	168	186	193	238	264	259	269	277	276	279	285	280	281	277	278	273	277	274	276	276	261.9
30-May	274	277	280	280	285	281	283	291	306	318	319	314	317	327	332	322	355	334	312	289	297	293	295	279	301.4
31-May	293	293	286	282	291	285	286	296	291	291	282	282	296	292	301	320	313	303	291	298	295	286	290	303	294.1

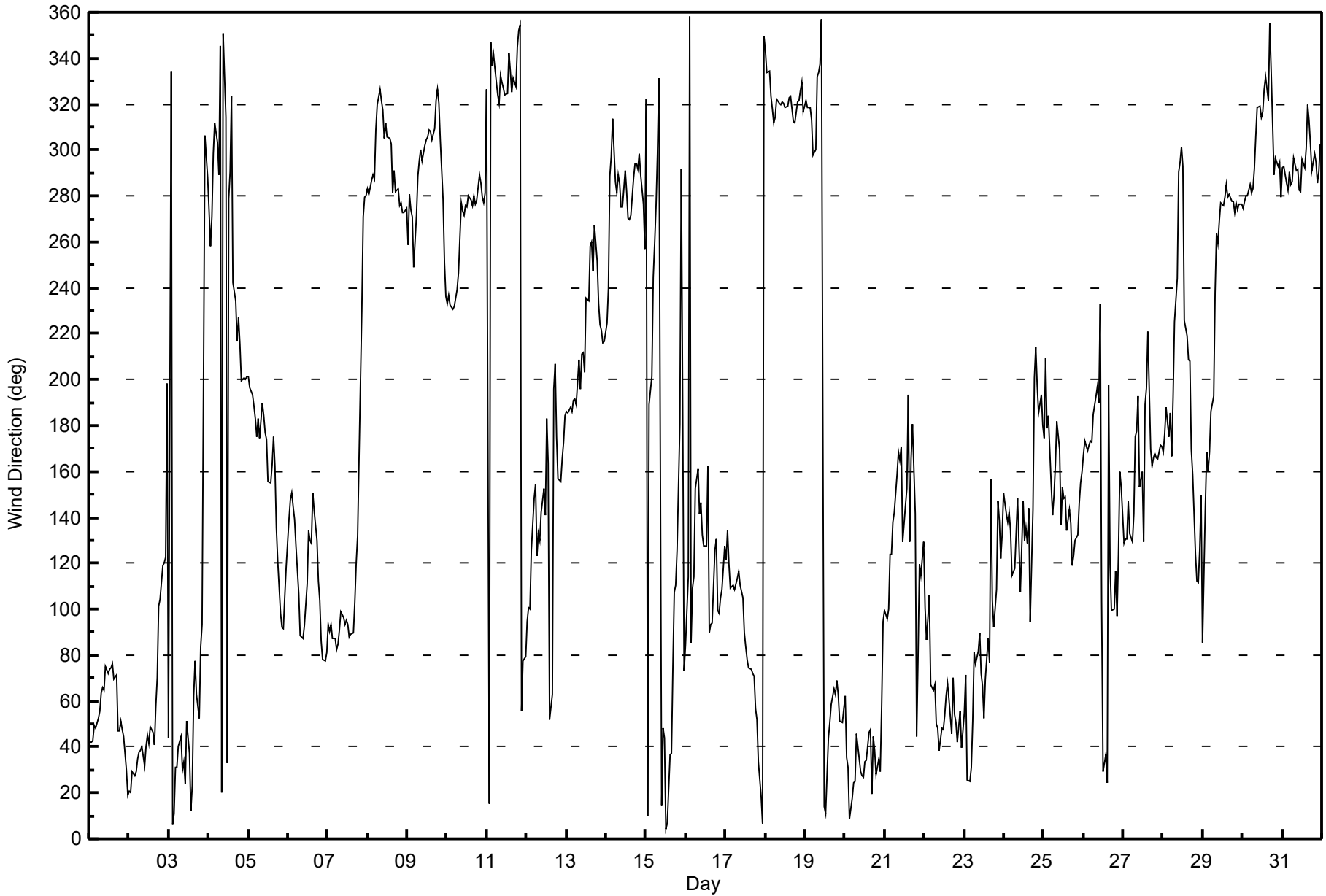
227.0 239.4 243.0 217.9 244.0 261.1 260.9 292.4 313.1 324.9 339.0 348.7 339.7 332.3 351.3 324.8 344.1 343.4 342.7 334.0 316.3 256.9 228.9 215.4  
 Diurnal Average

All monthly, daily, and diurnal averages have been calculated using vector methods



**Wood Buffalo Environmental Association**  
**Hourly Averages**

**Wind Direction (WD) - deg**  
**Kirby South - May 2024**







**Wood Buffalo Environmental Association**  
**Summary of Hour Standard Deviations**

**Wind Direction (WD) - deg**  
**Kirby South - May 2024**

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on May 12 15:00																			Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: 6 deg on May 22 03:00																									
Percentiles: P <sub>1</sub> = 8 P <sub>10</sub> = 11 Q <sub>1</sub> = 13 Median = 16 Q <sub>3</sub> = 22 P <sub>90</sub> = 34 P <sub>99</sub> = 83																									
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-May	14	12	13	12	10	10	11	13	16	16	15	17	18	17	18	20	16	16	15	13	12	12	15	14	20
2-May	14	14	13	12	12	13	15	16	17	19	21	22	20	22	24	23	20	20	17	13	9	9	16	12	24
3-May	81	60	20	18	17	22	16	15	17	23	24	24	33	21	29	52	31	53	53	14	29	52	77	36	81
4-May	19	15	16	15	8	8	13	40	46	84	56	93	87	81	89	48	58	68	15	17	7	9	12	11	93
5-May	11	11	10	9	12	12	17	17	24	25	24	24	31	21	18	20	20	18	18	11	10	8	11	11	31
6-May	14	12	12	12	16	14	15	13	13	14	16	23	21	21	19	14	16	18	14	14	12	12	10	12	23
7-May	12	13	14	12	13	12	13	13	17	15	14	14	14	15	13	14	15	17	17	26	48	15	13	9	48
8-May	11	10	11	10	12	14	12	14	14	15	16	23	16	23	28	28	22	13	11	14	13	12	12	12	28
9-May	12	14	8	13	10	12	11	14	13	15	16	20	19	18	17	19	24	19	16	14	14	9	8	7	24
10-May	8	8	8	9	11	10	11	17	14	17	16	16	16	14	13	14	14	13	13	11	10	11	10	11	17
11-May	30	19	21	16	19	16	14	15	17	20	21	20	20	25	23	24	24	27	23	21	18	25	12	11	30
12-May	11	9	12	16	25	21	17	19	19	22	22	26	27	75	94	65	21	19	17	13	12	14	15	15	94
13-May	14	14	13	14	15	16	16	18	24	19	21	26	24	17	29	25	19	43	34	18	9	9	13	13	43
14-May	12	15	32	11	24	19	16	13	15	21	21	21	20	21	25	18	17	15	13	11	17	9	12	15	32
15-May	27	36	30	25	17	10	17	17	30	25	58	46	54	67	31	18	50	37	18	17	38	31	71	18	71
16-May	19	39	44	21	12	13	29	19	17	18	21	21	27	30	14	17	17	20	20	14	13	13	16	16	44
17-May	16	17	22	14	15	15	14	15	16	15	16	15	15	19	16	15	13	14	12	15	15	20	20	20	22
18-May	18	15	15	14	14	14	15	13	15	13	13	14	15	14	15	14	15	15	16	14	16	17	14	19	19
19-May	14	16	16	16	16	14	14	21	20	24	27	26	22	20	15	15	13	14	12	13	14	13	13	15	27
20-May	26	13	17	19	17	17	20	14	16	23	22	18	21	20	19	25	24	16	19	17	15	16	15	12	26
21-May	11	12	14	14	13	16	16	17	20	30	35	22	26	32	40	39	61	28	80	20	49	34	13	18	80
22-May	27	90	6	14	15	14	16	26	38	18	14	14	15	20	21	46	18	18	24	17	13	14	14	12	90
23-May	11	11	40	16	17	22	18	26	25	23	24	27	35	44	33	50	26	51	16	16	23	16	9	16	51
24-May	12	12	11	13	16	15	14	20	20	19	22	20	26	28	31	23	35	39	16	13	12	8	14	15	39
25-May	13	19	23	38	11	14	17	23	24	43	34	31	23	30	26	22	27	22	16	15	13	14	12	10	43
26-May	10	9	13	10	11	14	25	21	31	55	84	70	55	69	64	85	22	21	18	13	13	16	11	10	85
27-May	20	16	13	11	17	20	17	19	21	24	32	56	43	46	34	22	27	17	16	13	12	13	14	14	56
28-May	14	15	14	15	54	26	24	21	18	27	31	30	61	41	36	42	36	29	23	12	8	9	14	16	61
29-May	63	38	14	13	17	16	17	20	18	16	17	15	13	14	14	14	13	14	13	15	12	14	12	13	63
30-May	14	13	11	12	12	12	11	11	16	14	15	15	14	15	16	16	28	18	16	10	17	16	14	10	28
31-May	12	11	11	10	10	11	12	13	12	12	13	15	14	13	15	15	14	17	13	13	12	10	11	15	17
																			81 90 44 38 54 26 29 40 46 84 84 93 87 81 94 85 61 68 80 26 49 52 77 36						
Diurnal Maximum																									

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

June 28, 2024  
11:44:34 AM  
Request # 4692661

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**Submitted by:** EN6138  
**Submission Date:** Jun 28, 2024 11:43:20 AM

File Type  
Ambient Data

File Name  
AMB-WBEA-202405-V00.xml

**Total Number of Files: 1**

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

June 28, 2024  
9:02:08 AM  
Request # 4692528

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**Submitted by:** EN6138\_DENNY  
**Submission Date:** Jun 28, 2024 9:01:53 AM

File Type  
Airshed Monitoring Report

File Name  
WBEA-202405.pdf

**Total Number of Files: 1**

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**ELECTRONIC TRANSFER SYSTEM  
AIRDATA  
SUBMISSION REPORT**

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June 28, 2024  
9:02:39 AM  
Request # 4692531

**Submitted by:** EN6138\_DENNY  
**Submission Date:** Jun 28, 2024 9:02:33 AM

File Type

Calibration Report

File Name

CAL-WBEA-202405.pdf

**Total Number of Files: 1**

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End of Report