



**WOOD BUFFALO
ENVIRONMENTAL ASSOCIATION**

Unit 3 - 805 Memorial Drive
Fort McMurray, AB T9K 0K4
P: 780.799.4420 E: info@wbea.org
wbea.org

Wood Buffalo Environmental Association

**MARCH 2024
MONTHLY REPORT**

CONTINUOUS MONITORING
April 30, 2024

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





Table of Contents

Continuous Monitoring Summaries

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



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



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



Surmont 2	29-1
Station Summaries	29-2
Station Percentiles	29-3
Station Downtime	29-4
Data Summaries	29-5
Ells River	30-1
Station Summaries	30-2
Station Percentiles	30-3
Station Downtime	30-4
Data Summaries	30-5
Leismer	501-1
Station Summaries	501-2
Station Percentiles	501-3
Station Downtime	501-4
Data Summaries	501-5
Sawbones Bay	505-1
Station Summaries	505-2
Station Percentiles	505-3
Station Downtime	505-4
Data Summaries	505-5
Kirby South	507-1
Station Summaries	507-2
Station Percentiles	507-3
Station Downtime	507-4
Data Summaries	507-5
Blackgold	511-1
Station Summaries	511-2
Station Percentiles	511-3
Station Downtime	511-4
Data Summaries	511-5



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

Unit 3 - 805 Memorial Drive
Fort McMurray, AB T9K 0K4
P: 780.799.4420 E: info@wbea.org
wbea.org

April 30, 2024

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

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

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

The continuous ambient air quality monitoring network stations are:

AMS 01 – Bertha Ganter – Fort McKay	AMS 19 – Firebag
AMS 02 – Mildred Lake	AMS 20 – MacKay River
AMS 03 – Lower Camp (Meteorology)	AMS 21 – Conklin
AMS 04 – Buffalo Viewpoint	AMS 22 – Janvier
AMS 05 – Mannix	AMS 23 – Fort Hills
AMS 06 – Patricia McInnes	AMS 25 – Waskōw ohci Pimâtisiwin
AMS 07 – Athabasca Valley	AMS 26 – Christina Lake
AMS 08 – Fort Chipewyan	AMS 27 – Jackfish 2/3
AMS 09 – Barge Landing	AMS 29 – Surmont 2
AMS 11 – Lower Camp (Air Quality)	AMS 30 – Ells River
AMS 13 – Fort McKay South	AMS 501 – Leismer
AMS 14 – Anzac	AMS 505 – Sawbones Bay
AMS 17 – Wapasu	AMS 507 – Kirby South
AMS 18 – Stony Mountain	AMS 511 – Blackgold



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

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

Government and Non-Government Organizations

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

Indigenous Communities

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

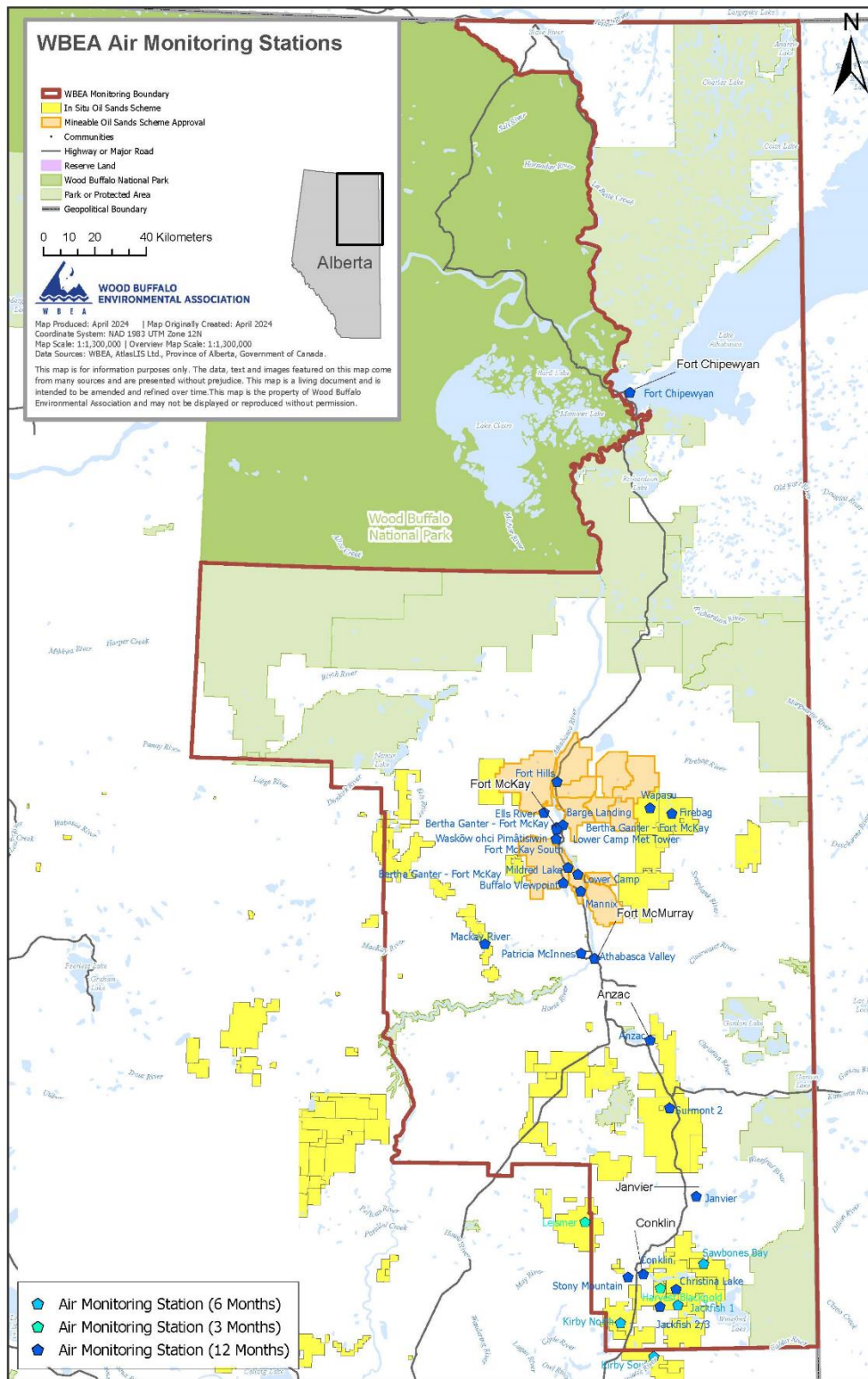


Figure 1. Map of WBEA Continuous Monitoring Network

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

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

There were no ambient concentrations in excess of the Alberta Ambient Air Quality Objectives or Guidelines (AAAQO/AAAQG) as indicated in the Air Monitoring Directive Section RC 15-F for CO, NH₃, NO₂, O₃, SO₂, TRS and TSP.

There were five ground-level concentrations in excess of the 1-hour H₂S objective reported to AEPA; following data validation and processing, four exceedances were confirmed.

There were eighteen ambient ground-level concentrations in excess of the 1-hour PM_{2.5} guideline reported to AEPA; following data validation and processing, seventeen exceedances were confirmed.

There were six ambient ground-level concentrations in excess of the 24-hour PM_{2.5} objective reported to AEPA; following data validation and processing, all exceedances were confirmed.

There were two ground-level concentrations in excess of the 30-day dustfall guideline reported to AEPA; following data validation and processing, all exceedances were confirmed.

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Lower Camp	H ₂ S	6Mar24, 17:00	425664	1-hr	13	12.6	exc
Lower Camp	H ₂ S	7Mar24, 18:00	425706	1-hr	12	11.8	exc
Mildred Lake	H ₂ S	9Mar24, 21:00	425748	1-hr	13	12.8	exc
Lower Camp	H ₂ S	14Mar24, 21:00	425921	1-hr	10	9.5	nae
Fort Hills	PM _{2.5}	20Mar24, 08:00	426146	1-hr	93	92.8	exc
Fort Hills	PM _{2.5}	20Mar24, 09:00	426146	1-hr	87	86.9	exc
Fort Hills	PM _{2.5}	20Mar24, 24:00	426146	24-hr	45	44.9	exc
Fort Hills	PM _{2.5}	21Mar24, 07:00	426188	1-hr	82	81.5	exc
Fort Hills	PM _{2.5}	21Mar24, 08:00	426188	1-hr	85	84.7	exc
Bertha Ganter	PM _{2.5}	21Mar24, 24:00	426186	24-hr	31	31.3	exc
Barge Landing	PM _{2.5}	21Mar24, 24:00	426187	24-hr	33	33.1	exc
Fort Hills	PM _{2.5}	21Mar24, 24:00	426188	24-hr	53	52.9	exc
Mannix	H ₂ S	22Mar24, 05:00	426189	1-hr	11	11.3	exc
Fort Hills	PM _{2.5}	22Mar24, 05:00	426224	1-hr	88	87.6	exc
Surmont 2	PM _{2.5}	22Mar24, 08:00	426247	1-hr	80	80.0	nae
Fort Hills	PM _{2.5}	22Mar24, 20:00	426224	1-hr	107	107.4	exc
Fort Hills	PM _{2.5}	22Mar24, 21:00	426224	1-hr	108	108.3	exc



Barge Landing	PM _{2.5}	22Mar24, 22:00	426225	1-hr	165	164.7	exc
Fort Hills	PM _{2.5}	22Mar24, 22:00	426224	1-hr	151	151.4	exc
Barge Landing	PM _{2.5}	22Mar24, 23:00	426225	1-hr	213	212.8	exc
Fort Hills	PM _{2.5}	22Mar24, 23:00	426224	1-hr	168	167.9	exc
Fort Hills	PM _{2.5}	22Mar24, 24:00	426224	24-hr	44	44.0	exc
Barge Landing	PM _{2.5}	22Mar24, 24:00	426225	24-hr	33	33.3	exc
Fort Hills	PM _{2.5}	23Mar24, 04:00	426246	1-hr	122	122.0	exc
Janvier	PM _{2.5}	27Mar24, 21:00	426357	1-hr	93	93.4	exc
Janvier	PM _{2.5}	27Mar24, 22:00	426357	1-hr	177	177.3	exc
Janvier	PM _{2.5}	27Mar24, 23:00	426357	1-hr	179	178.8	exc
Janvier	PM _{2.5}	27Mar24, 24:00	426357	1-hr	106	106.3	exc
Anzac	PM _{2.5}	30Mar24, 02:00	426459	1-hr	251	250.8	exc
Bertha Ganter	Dustfall		427088	30-day	104	104	exc
Athabasca Valley	Dustfall		427089	30-day	76.7	76.7	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_{2.5}, 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_{2.5} 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, NO₂ concentrations are re-calculated from baseline-corrected NO_x and NO concentrations. Specifically, the NO concentration is subtracted from the NO_x concentration to determine the NO₂ 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 March 2024, there were zero instances that resulted in monitoring instruments operating less than 90% of the time.

3.2 Intermittent Monitoring

The results for time-integrated sampling of precipitation, PAH, VOC, PM_{2.5} ECOC, PM_{2.5}, and PM₁₀ will be submitted in the 2024 Annual Report.

3.3 General Network Notes

The Ammonia (NH₃) 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 (CH₄) measurements are collected at some air monitoring stations in the WBEA network using the Thermo Environmental model 55i direct THC/CH₄/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 NH₃ 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 NH₃ gas, and this is an inherent behavior in the NH₃ analyzer operations due to the properties of the NH₃ gas. Data for 1 hour following the daily spans have been reported as invalid for a total of 31 hours this month.

Cleaning of the manifold on March 20 interrupted the normal operations of all gaseous analyzers, except NH₃ analyzer, for 1 hour.

Unstable operation of the SO₂ analyzer due to flatline in output signal on March 25 and 26 resulted in 30 hours of invalid data. Subsequent maintenance to reboot the SO₂ analyzer and perform a QA check on March 26 resulted in additional 1 hour of downtime.

Intermittent flatlines in the output signal of the wind speed and wind direction all throughout the month resulted in 4 hours of invalid data.

Station 2, Mildred Lake

Cleaning of the manifold on March 26 interrupted the normal operations of the SO₂ and THC/NMHC/CH₄ analyzers for 2 hours.

Station 3, Lower Camp – Meteorology

Periodic failure to record data for the temperature and relative humidity sensors throughout the month resulted in 50 hours of invalid data.

Failure to record data for wind speed, wind direction and vertical wind speed at 45-meter elevation on March 2 resulted in 1 hour of invalid data.

Intermittent flatlines in the output signal of the wind speed, wind direction and vertical wind speed at 45-meter elevation on March 2 to March 6 resulted in 16 hours of invalid data.

Failure to record data for all meteorological sensors on March 2 and 6 resulted in 3 hours of invalid data.

Station 4, Buffalo Viewpoint

No operational issues to report.

Station 5, Mannix

Unstable operation due to excessive baseline drift of the THC/NMHC/CH₄ analyzer on March 8 to March 13 resulted in 56 hours of invalid data. Subsequent maintenance to recalibrate the analyzer on March 10 and maintenance to replace the analyzer on March 13 resulted in additional 2 and 3 hours, respectively.

Cleaning of the manifold on March 20 interrupted the normal operations of H₂S and THC/NMHC/CH₄ analyzers for 1 hour.



Station 6, Patricia McInnes

The NH₃ analyzer required additional time to stabilize to levels below ambient concentrations following the automated daily spans and routine monthly multipoint calibrations. NH₃ analyzers require additional time for stabilization after being exposed to high concentrations, this is due to the physical properties of the NH₃ gas. Data for 1 hour following each daily span has been reported as invalid for a total of 31 hours this month.

Cleaning of the manifold on March 8 interrupted the normal operations of all gaseous analyzers for 1 hour.

Unstable operation of the TRS analyzer due to flatline in output signal on March 9 and 31 resulted in 28 hours of invalid data. Subsequent maintenance to reboot the TRS analyzer on March 10 and 31 resulted in additional 2 hours of downtime.

Station 7, Athabasca Valley

Unstable operation due to flatline in analyzer output signal of CO analyzer on March 11 resulted in 11 hours of invalid data. Subsequent maintenance to reboot the analyzer on March 27 resulted in additional 2 hours of downtime.

Unstable operations due to excessive baseline drift of THC/NMHC/CH₄ analyzer on March 18, 24, 25 and 26 resulted in 15 hours of invalid data. Subsequent maintenance to replace the actuator on March 26 resulted in additional 4 hours of downtime.

Failure to record data of the barometric pressure sensor on March 27 resulted in 1 hour of invalid data.

Note: Automated daily zero-response checks of the O₃ analyzer did not meet WBEA's QC acceptance criteria for the month of March. Therefore, the calibrator zeros from the February, March and April multi-point calibrations were used to validate the analyzer baseline response.

Station 8, Fort Chipewyan

An internal audit interrupted the normal operations of all air quality analyzers on March 7 and 8 resulted in 1 to 4 hours of downtime.

Flatline in the output signal of the wind sensors on March 21 and 22 resulted in 2 hours of invalid data.

Note: The daily span checks for CO₂ analyzer from February 21 to March 8 were outside the 10% AMD criteria due to the nitrogen generator not operating properly. Due to the remote location of the station, the issue was not immediately resolved; nonetheless, on March 7, an in-person visit rectified this issue.

Station 9, Barge Landing

Cleaning of the manifold on March 22 interrupted the normal operations of SO₂, TRS, and THC/NMHC/CH₄ analyzers for 1 hour.

Flatline in the output signal of the wind sensors at 10-meter on March 11 and March 29 resulted in 16 hours of invalid data.



Flatline in the output signal of the wind sensors at 20-meter on March 11 resulted in 15 hours of invalid data.

Note: The daily span check of all the gaseous analyzer was outside the 10% AMD criteria on March 12 due to an interruption in the station calibrator configuration.

Station 11, Lower Camp

Unstable operation due to a depleted support gas on March 25 to 26 resulted in 33 hours of invalid data.

Station 13, Fort McKay South

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

Flatlines in the output signal of the wind sensor on March 20 and 22 resulted in 2 hours of invalid data.

Station 14, Anzac

Maintenance to reinitiate the daily QA check on March 20 interrupted the normal operations of SO₂ and THC/NMHC/CH₄ analyzers for 1 hour.

Maintenance to lower the meteorological tower on March 11 to re-align the wind direction sensor resulted in 4 hours of downtime.

Station 17, Wapasu

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

Station 18, Stony Mountain

Unstable operations due to inconsistent response of the THC/NMHC/CH₄ analyzer on March 1 resulted in 12 hours of invalid data.

Maintenance to replace the support gas cylinder for THC/NMHC/CH₄ analyzer on March 15 resulted in 3 hours of downtime.

Failure to record data of the precipitation sensor on March 26 resulted in 8 hours of invalid data.

Station 19, Firebag

An internal audit interrupted the normal operations of all air quality analyzers on March 18 resulted in 2 to 3 hours of downtime.

Failure to record data for all parameters on March 29 resulted in 8 to 9 hours of invalid data.

Station 20, MacKay River

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 5 hours of invalid data.

Station 21, Conklin

Unstable operations due to excessive baseline noise of THC/NMHC/CH₄ analyzer on March 6 through 9 resulted in 36 hours of invalid data. Subsequent maintenance to replace the THC/NMHC/CH₄ analyzer on March 9 resulted in additional 1 hour of downtime.

Maintenance to replace the support gas cylinder for THC/NMHC/CH₄ analyzer on March 15 resulted in 3 hours of downtime.

Maintenance to adjust the chromatogram retention timing of the THC/NMHC/CH₄ analyzer on March 18 resulted in 4 hours of downtime.

Maintenance to replace the zero-air generator to improve the THC/NMHC/CH₄ analyzer response on March 19 resulted in 4 hours of downtime.

Cleaning of the manifold on March 19 interrupted the normal operations of NO₂, O₃, SO₂, and TRS analyzers for 2 hours.

Maintenance to replace the THC/NMHC/CH₄ analyzer on March 20 resulted in 2 hours of downtime.

A flatline in the output signal of the wind sensor on March 6 and 11 resulted in 2 hours of invalid data.

Note: Automated daily zero-response checks of the O₃ analyzer did not meet WBEA's QC acceptance criteria for March. Therefore, the calibrator zeros from the February, March, and April multi-point calibrations were used to validate the analyzer baseline response.

Note: Relative humidity and temperatures can affect the performance of the SO_x scrubbers in the TRS analyzer. During these events, the sulfur concentrations take a longer period to stabilize during the daily span checks. Therefore, the TRS span was outside of the 10% AMD criteria from March 1 to 5.

Station 22, Janvier

Analyzer failure due to sample pump failure of the SO₂ analyzer on March 10 and 11 resulted in 32 hours of invalid data. Subsequent maintenance to replace the sample pump of SO₂ analyzer on March 11 resulted in additional 3 hour of downtime.

Maintenance to reinitiate the daily QA check on March 11 interrupted the normal operation of the O₃ analyzer for 1 hour.

Maintenance to replace the support gas cylinder for THC/NMHC/CH₄ analyzer on March 22 resulted in 2 hours of downtime.

Maintenance to adjust the chromatogram retention timing of the THC/NMHC/CH₄ analyzer on March 25 resulted in 4 hours of downtime.



Cleaning of the manifold on March 27 interrupted the normal operations of O₃, SO₂, THC/NMHC/CH₄, and TRS analyzers for 1 hour.

Station 23, Fort Hills

No operational issues to report.

Station 25, Waskōw ohci Pimâtisiwin

Cleaning of the manifold on March 22 interrupted the normal operations of SO₂ and H₂S analyzers for 1 hour.

Flatline in the output signal of the wind sensor on March 24 resulted in 1 hour of invalid data.

Station 26, Christina Lake

Cleaning of the sample manifold on March 22 interrupted the normal operation of H₂S and NO₂ analyzers for 1 hour.

Station 27, Jackfish 2/3

Unstable operations due to excessive baseline drift in the output signal of the H₂S analyzer on March 13 and 16 resulted in 2 hours of invalid data.

Station 29, Surmont 2

Station power failure on March 5 interrupted the normal operations of all air quality analyzers for 4 hours.

Cleaning of the manifold on March 6 interrupted the normal operations of H₂S, SO₂, and THC analyzers for 1 hour.

Sensor failure of the wind speed sensor due to communication issues on March 6 and 7 resulted in 25 hours of invalid data. Subsequent maintenance to replace the wind speed sensor on March 7 resulted in additional 4 hours of downtime.

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

Station 30, Ells River

Cleaning of the sample manifold on March 11 interrupted the normal operation of SO₂, THC/NMHC/CH₄ and NO_x/NO/NO₂ analyzers for 1 hour.

Maintenance to recalibrate the THC/NMHC/CH₄ analyzer on March 23 resulted in 4 hours of downtime. Maintenance to replace the THC/NMHC/CH₄ analyzer on March 25 resulted in 7 hours of downtime.



Unstable operation of the THC/NMHC/CH₄ analyzer due to performance within non-compliance of AMD on March 28 resulted in 4 hours of invalid data. Subsequent maintenance to replace the THC/NMHC/CH₄ analyzer on March 28 resulted in additional 8 hours of downtime.

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

Station 501, Leismer

The WBEA completed ambient air quality monitoring at the Leismer air monitoring station, at the Athabasca Oil Leismer facility on April 1, 2024. Removal calibrations were completed in April and are attached with the March monthly calibration report.

A flatline in the output signal of the wind sensor on March 30 resulted in 1 hour of invalid data.

Station 505, Sawbones Bay

Station power failure on March 16 interrupted the normal operations of the H₂S analyzer for 2 hours.

Unstable operations of H₂S analyzer due to H₂S converter operations stalling on March 16 through 18 resulted in 46 hours of invalid data. Subsequent maintenance to reset the H₂S converter on March 18 resulted in an additional 2 hours of downtime.

Cleaning of the sample manifold on March 19 interrupted the normal operation of SO₂ and NO_x/NO/NO₂ analyzers for 2 hours.

The relative humidity sensor operated out of range throughout the month resulting in 41 hours of invalid data.

Note: Automated daily zero-response checks of the NO₂ analyzer did not meet WBEA's QC acceptance criteria for March. Therefore, the calibrator zeros from the February, March, and April multi-point calibrations were used to validate the analyzer baseline response.

Station 507, Kirby South

Unstable operations of the NO_x/NO/NO₂ analyzer due to excessive baseline noise on March 9 resulted in 3 hours of invalid data.

Maintenance to replace and a subsequent stabilization of the NO_x/NO/NO₂ analyzer due to linearity issue on March 13 through 15 resulted in 42 hours of downtime.

Cleaning of the sample manifold on March 15 interrupted the normal operation of H₂S, SO₂ and THC analyzers for 1 hour.



Station 511, Blackgold

The WBEA completed ambient air quality monitoring at the Leismer air monitoring station, at the Harvest Operations Corporation facility on April 1, 2024. Removal calibrations were completed in April and are attached with the March monthly calibration report.

No operational issues to report.

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.

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

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

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



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

R00_2403

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

March 2024

Page 1 of 3

Created: Apr 26 2024 16:00:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	3	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	98	35	0	8.4	0
224816-00-00	SO2(ppb)	2	100	76.9	0	11.5	0
151469-01-00	SO2(ppb)	4	100	53.3	0	12.3	0
189942-00-00	SO2(ppb)	5	100	61.3	0	15.1	0
206355-00-00	SO2(ppb)	6	100	21.8	0	3.2	0
46586-00-00	SO2(ppb)	7	100	17.2	0	2.1	0
73203-02-00	SO2(ppb)	8	100	5.8	0	2.4	0
216466-01-00	SO2(ppb)	9	100	52.7	0	9.0	0
137467-01-00	SO2(ppb)	11	100	104.3	0	18.6	0
236394-00-00	SO2(ppb)	13	100	23.6	0	5.6	0
254465-00-00	SO2(ppb)	14	100	6.3	0	1.3	0
094-03-00	SO2(ppb)	17	100	19.8	0	5.3	0
80105-01-00	SO2(ppb)	18	100	5.1	0	2.1	0
305529-00-00	SO2(ppb)	19	99	13.4	0	3.4	0
318401-00-00	SO2(ppb)	20	100	40.8	0	9.5	0
026-03-00	SO2(ppb)	21	100	5.2	0	1.8	0
364232-00-00	SO2(ppb)	22	95	2.8	0	1.2	0
228044-00-00	SO2(ppb)	23	100	39.7	0	9.9	0
247548-00-00	SO2(ppb)	25	100	35.8	0	7.5	0
231302-00-00	SO2(ppb)	26	100	19.5	0	4.4	0
246984-01-00	SO2(ppb)	27	100	12.1	0	2.5	0
153125-01-00	SO2(ppb)	29	99	12.0	0	1.5	0
	SO2(ppb)	30	100	31.3	0	10.1	0
	SO2(ppb)	501	100	18.5	0	4.4	0
	SO2(ppb)	505	100	14.8	0	2.9	0
	SO2(ppb)	507	100	8.2	0	2.0	0
	SO2(ppb)	511	100	14.3	0	4.6	0
	H2S(ppb)	1	100	2.6	0	1.2	0
	H2S(ppb)	2	100	12.8	1	1.6	0
	H2S(ppb)	4	100	5.3	0	0.7	0
	H2S(ppb)	5	100	11.3	1	1.5	0
	H2S(ppb)	11	100	12.6	2	2.3	0
	H2S(ppb)	17	100	1.2	0	0.2	0
	H2S(ppb)	19	99	1.5	0	0.2	0
	H2S(ppb)	20	100	1.9	0	0.3	0
	H2S(ppb)	25	100	2.7	0	1.1	0
	H2S(ppb)	26	100	0.7	0	0.4	0
	H2S(ppb)	27	100	1.2	0	0.3	0
	H2S(ppb)	29	99	0.4	0	0.1	0
	H2S(ppb)	501	100	0.3	0	0.1	0
	H2S(ppb)	505	93	1.0	0	0.4	0
	H2S(ppb)	507	100	0.8	0	0.1	0
	H2S(ppb)	511	100	5.0	0	0.5	0
	TRS(ppb)	1	100	3.5	0	1.9	0
	TRS(ppb)	6	96	1.4	0	0.5	0
	TRS(ppb)	7	100	2.8	0	0.4	0
	TRS(ppb)	8	100	0.4	0	0.2	0
	TRS(ppb)	9	100	3.7	0	1.1	0
	TRS(ppb)	13	100	3.2	0	1.4	0
	TRS(ppb)	14	100	3.1	0	0.3	0
	TRS(ppb)	18	100	0.4	0	0.3	0
	TRS(ppb)	21	100	0.6	0	0.5	0
	TRS(ppb)	22	100	0.9	0	0.3	0
	TRS(ppb)	23	100	2.3	0	1.0	0
	TRS(ppb)	30	100	1.7	0	0.8	0
	THC(ppm)	1	100	4.2	-	2.8	-
	THC(ppm)	2	100	5.6	-	3.0	-
	THC(ppm)	4	100	3.7	-	2.4	-
	THC(ppm)	5	92	4.0	-	2.3	-
	THC(ppm)	6	100	2.5	-	2.2	-
	THC(ppm)	7	97	3.5	-	2.3	-
	THC(ppm)	9	99	3.4	-	2.3	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

March 2024

Page 2 of 3

Created: Apr 26 2024 16:00:00

APPROVAL NUMBERS	REPORT DATE		CONTINUOUS AMBIENT MONITORING				
	MONTH	YEAR	% TIME OPERATIONAL	ONE-HOUR AVERAGE		24-HOUR AVERAGE	
	3	2024		MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
289664-00-00	THC(ppm)	11	96	4.3	-	3.0	-
241311-00-00	THC(ppm)	13	100	4.9	-	2.7	-
20809-02-00	THC(ppm)	14	100	2.6	-	2.1	-
149968-01-00	THC(ppm)	17	100	2.9	-	2.4	-
237382-00-00	THC(ppm)	18	98	2.4	-	2.3	-
48522-01-00	THC(ppm)	19	98	2.8	-	2.4	-
240008-00-00	THC(ppm)	20	100	3.0	-	2.6	-
48263-01-00	THC(ppm)	21	93	2.5	-	2.2	-
224816-00-00	THC(ppm)	22	99	2.3	-	2.2	-
151469-01-00	THC(ppm)	23	100	7.1	-	3.6	-
189942-00-00	THC(ppm)	29	99	2.7	-	2.4	-
206355-00-00	THC(ppm)	30	97	4.2	-	2.7	-
46586-00-00	THC(ppm)	507	100	3.4	-	2.5	-
73203-02-00	THC(ppm)	511	100	5.0	-	2.5	-
216466-01-00	O3(ppb)	1	100	40.5	0	34.5	-
137467-01-00	O3(ppb)	4	100	50.2	0	43.2	-
236394-00-00	O3(ppb)	6	100	50.6	0	43.1	-
254465-00-00	O3(ppb)	7	100	49.4	0	41.6	-
094-03-00	O3(ppb)	8	99	48.3	0	44.0	-
80105-01-00	O3(ppb)	13	100	43.7	0	37.1	-
305529-00-00	O3(ppb)	14	100	49.5	0	42.9	-
318401-00-00	O3(ppb)	17	100	49.3	0	46.1	-
026-03-00	O3(ppb)	18	100	49.4	0	43.0	-
364232-00-00	O3(ppb)	21	100	51.6	0	41.5	-
228044-00-00	O3(ppb)	22	100	55.7	0	46.9	-
247548-00-00	NO2(ppb)	1	100	45.2	0	24.0	-
231302-00-00	NO2(ppb)	4	100	32.8	0	17.3	-
246984-01-00	NO2(ppb)	6	100	35.9	0	13.7	-
153125-01-00	NO2(ppb)	7	100	46.7	0	14.1	-
	NO2(ppb)	8	99	15.9	0	4.6	-
	NO2(ppb)	9	100	40.3	0	24.8	-
	NO2(ppb)	13	100	33.5	0	14.6	-
	NO2(ppb)	14	100	28.8	0	5.6	-
	NO2(ppb)	17	100	31.7	0	5.9	-
	NO2(ppb)	18	100	7.5	0	4.1	-
	NO2(ppb)	19	99	48.6	0	13.8	-
	NO2(ppb)	20	100	30.9	0	9.9	-
	NO2(ppb)	21	100	18.6	0	5.4	-
	NO2(ppb)	22	100	6.8	0	3.9	-
	NO2(ppb)	23	100	53.5	0	29.4	-
	NO2(ppb)	26	100	30.2	0	8.2	-
	NO2(ppb)	27	100	9.5	0	3.9	-
	NO2(ppb)	29	99	13.0	0	4.5	-
	NO2(ppb)	30	100	46.6	0	26.8	-
	NO2(ppb)	501	100	19.0	0	4.9	-
	NO2(ppb)	505	100	33.3	0	9.9	-
	NO2(ppb)	507	94	18.3	0	3.7	-
	NO2(ppb)	511	100	17.0	0	5.4	-
	CO(ppm)	1	100	0.3	0	0.3	-
	CO(ppm)	7	98	0.5	0	0.2	-
	CO(ppm)	8	100	0.4	0	0.1	-
	CO(ppm)	18	100	0.2	0	0.2	-
	CO2(ppm)	1	100	457.9	-	441.9	-
	CO2(ppm)	8	100	449.1	-	444.7	-
	CO2(ppm)	18	100	450.2	-	445.5	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	96	0.0	0	0.0	-
	PM2.5(ug/m3)	1	100	66.8	0	31.3	1
	PM2.5(ug/m3)	4	100	70.2	0	24.4	0
	PM2.5(ug/m3)	6	100	63.8	0	13.0	0
	PM2.5(ug/m3)	7	100	28.8	0	13.0	0
	PM2.5(ug/m3)	8	100	38.7	0	6.7	0
	PM2.5(ug/m3)	9	100	212.8	2	33.3	2
	PM2.5(ug/m3)	13	100	74.3	0	25.5	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

March 2024

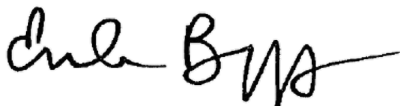
Page 3 of 3

Created: Apr 26 2024 16:00:00

REPORT DATE

MONTH	YEAR
3	2024

CONTINUOUS AMBIENT MONITORING

APPROVAL NUMBERS	PARAMETER	STN. NO.	% TIME OPERATIONAL	ONE-HOUR AVERAGE		24-HOUR AVERAGE	
				MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
289664-00-00	PM2.5(ug/m3)	14	100	250.8	1	18.2	0
241311-00-00	PM2.5(ug/m3)	17	100	18.1	0	7.1	0
20809-02-00	PM2.5(ug/m3)	18	100	17.7	0	6.8	0
149968-01-00	PM2.5(ug/m3)	21	100	45.1	0	8	0
237382-00-00	PM2.5(ug/m3)	22	100	178.8	4	25.4	0
48522-01-00	PM2.5(ug/m3)	23	100	168	10	52.9	3
240008-00-00	PM2.5(ug/m3)	29	99	80	0	15.1	0
48263-01-00	PM2.5(ug/m3)	30	100	43.8	0	21.3	0
224816-00-00	WS(km/h)	1	99	-	-	-	-
151469-01-00	WS(km/h)	2	100	-	-	-	-
189942-00-00	WS(km/h)	4	100	-	-	-	-
206355-00-00	WS(km/h)	5	100	-	-	-	-
46586-00-00	WS(km/h)	6	100	-	-	-	-
73203-02-00	WS(km/h)	7	100	-	-	-	-
216466-01-00	WS(km/h)	8	100	-	-	-	-
137467-01-00	WS(km/h)	9	98	-	-	-	-
236394-00-00	WS(km/h)	11	100	-	-	-	-
254465-00-00	WS(km/h)	13	100	-	-	-	-
094-03-00	WS(km/h)	14	99	-	-	-	-
80105-01-00	WS(km/h)	17	100	-	-	-	-
305529-00-00	WS(km/h)	18	100	-	-	-	-
318401-00-00	WS(km/h)	19	99	-	-	-	-
026-03-00	WS(km/h)	20	99	-	-	-	-
364232-00-00	WS(km/h)	21	100	-	-	-	-
228044-00-00	WS(km/h)	22	100	-	-	-	-
247548-00-00	WS(km/h)	23	100	-	-	-	-
231302-00-00	WS(km/h)	25	100	-	-	-	-
246984-01-00	WS(km/h)	26	100	-	-	-	-
153125-01-00	WS(km/h)	27	100	-	-	-	-
	WS(km/h)	29	95	-	-	-	-
	WS(km/h)	30	99	-	-	-	-
	WS(km/h)	501	100	-	-	-	-
	WS(km/h)	505	100	-	-	-	-
	WS(km/h)	507	100	-	-	-	-
	WS(km/h)	511	100	-	-	-	-
							
SIGNATURE OF ASSOCIATION REPRESENTATIVE							



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS01 BERTHA GANTER - FORT MCKAY MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY - BERTHA GANTER (AMS01)
MARCH 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	696	34	48	98.12	34.8	0	8.4	0
H2S(ppb) Average	707	36	37	99.87	2.6	0	1.2	0
TRS(ppb) Average	707	36	37	99.87	3.5	0	1.9	0
THC(ppm) Average	708	35	36	99.87	4.2	-	2.8	-
NMHC(ppm) Average	708	35	36	99.87	0.357	-	0.156	-
CH4(ppm) Average	708	35	36	99.87	3.9	-	2.7	-
O3 (ppb) Average	708	35	36	99.87	40.5	0	34.5	-
NO2 (ppb) Average	706	37	38	99.87	45.2	0	24	-
NO (ppb) Average	706	37	38	99.87	25.2	-	6.4	-
NOX (ppb) Average	706	37	38	99.87	67.7	-	30.4	-
NH3 (ppb) Average	671	42	73	95.83	0	0	0	-
PM2.5 (ug/m3) Average	742	2	2	100	66.8	0	31.3	1
CO(ppm) Average	708	35	36	99.87	0.3	0	0.3	0
CO2(ppm) Average	708	35	36	99.87	457.9	0	441.9	0
Temperature 2 m (C) Average	744	0	0	100	13.2	-	3.9	-
Temperature 10 m (C) Average	744	0	0	100	13.7	-	4.2	-
Relative Humidity (%) Average	744	0	0	100	89.7	-	78	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	24	-	20	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-
Precipitation (mm) Total	744	0	0	100	0.8	-	9.9	-
Leaf Wetness (% of range) Average	744	0	0	100	5.4	-	3.2	-
Global Solar Radiation (W/m2) Average	744	0	0	100	663.9	-	218.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT MCKAY (AMS01)
MARCH 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	696	1.98	4.6	-	0	0	0	0.1	1.2	6	34.8
H2S (ppb) Average	707	0.25	0.4	-	0	0	0.1	0.1	0.2	0.7	2.6
TRS (ppb) Average	707	0.65	0.5	-	0.3	0.4	0.4	0.5	0.6	1.3	3.5
THC (ppm) Average	708	2.14	0.2	-	2	2	2	2.1	2.2	2.3	4.2
NMHC(ppm) Average	708	0.02	0.053	-	0	0	0	0	0	0.1	0.357
CH4(ppm) Average	708	2.12	0.2	-	2	2	2	2.1	2.1	2.2	
O3 (ppb) Average	708	25.61	8.4	-	1.8	13.6	20.3	26.2	32.6	35.8	40.5
NO2 (ppb) Average	706	9.12	7.3	-	0	1.4	3.5	7.3	13.3	19.2	45.2
NO (ppb) Average	706	1.64	3.2	-	0	0	0	0.1	1.7	5.1	25.2
NOX (ppb) Average	706	10.76	9	-	0	1.4	4	8.4	15.4	22.5	67.7
NH3 (ppb) Average	671	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	742	8.61	8.8	-	0.6	2.5	3.8	5.6	9.8	18	66.8
CO(ppm) Average	708	0.21	0	-	0.1	0.2	0.2	0.2	0.2	0.3	0.3
CO2(ppm) Average	708	428.59	5.8	-	419.6	422.8	424.6	427.2	431.4	436.3	457.9
Temperature 2 m (C) Average	744	-7.63	9	-	-30.3	-20.7	-15	-6.6	-1.1	3.3	13.2
Temperature 10 m (C) Average	744	-7.66	9	-	-30.1	-20.7	-15.3	-6.6	-1.3	3.2	13.7
Relative Humidity (%) Average	744	60.27	14.8	-	23.2	40.5	50	61.1	71.9	78.9	89.7
Wind Speed 10 m (km/h) Average	740	10.1	5	-	0	3	6	10	14	18	24
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	20.83	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	2.43	0.7	-	1.2	1.7	2	2.3	2.6	3.3	5.4
Global Solar Radiation (W/m2) Average	744	133.51	186.9	-	0	0	0	5.9	256.6	459.7	663.9

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS (Except NH3)	20 Mar 2024 12:00	20 Mar 2024 12:00	1	Maintenance - sample manifold cleaned
SO2	25 Mar 2024 23:00	26 Mar 2024 10:00	12	Unstable Operation - flatline in analyzer output signal
SO2	26 Mar 2024 11:00	26 Mar 2024 11:00	1	Maintenance - reinitiated daily QA check
NH3	01 Mar 2024 06:00	31 Mar 2024 06:00	30	Stabilization after daily QA check
Wind Speed, Wind Direction	22 Mar 2024 20:00	22 Mar 2024 20:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Mar 2024 01:00	23 Mar 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Mar 2024 06:00	23 Mar 2024 07:00	2	Flat line in sensor output signal

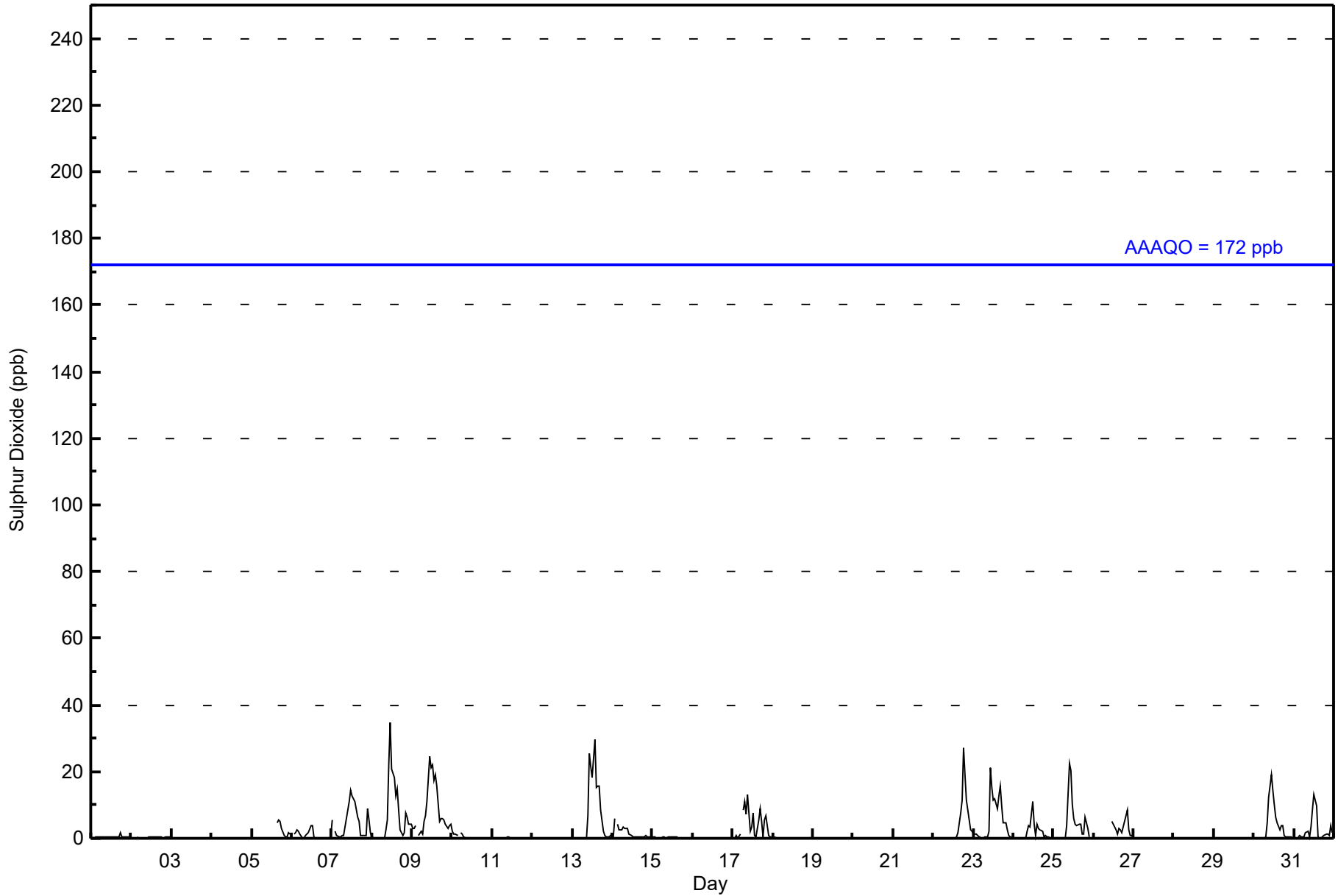


Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 34.8 ppb on Mar 8 12:00	Maximum Daily Average: 8.4 ppb on Mar 9		Hours of Data:	696
Minimum Value: 0.0 ppb on Mar 4 04:00	Minimum Daily Average: 0.0 ppb on Mar 29		Hours of Missing Data:	48
Maximum Diurnal Average: 5.7 ppb at hour 12	Minimum Diurnal Average: 0.4 ppb at hour 6		Hours of Calibration:	34
Monthly Average: 1.98 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 1.2 P ₉₀ = 6.0 P ₉₉ = 22.1		Percent Operational Time:	98.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	1.6	0.4	0.3	0.3	0.3	0.3	0.2	0.4	1.6	
2-Mar	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.2	0.4
3-Mar	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2
4-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
5-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.2	C	C	C	C	4.5	5.3	5.0	2.8	1.0	0.3	0.5	1.7	1.1	1.2	5.3	
6-Mar	Z	1.3	1.6	2.3	2.2	1.1	0.0	0.2	0.7	1.2	1.9	3.9	3.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.9	3.9	
7-Mar	5.5	Z	2.0	0.9	0.5	0.6	0.8	0.9	3.3	8.3	11.1	14.4	12.6	11.7	11.2	6.3	4.9	0.8	0.7	0.8	1.0	9.1	5.6	1.5	5.0	14.4	
8-Mar	0.6	0.4	Z	0.1	0.0	0.0	0.0	0.2	2.5	5.4	22.1	34.8	20.9	18.0	12.8	14.8	8.6	2.6	1.0	1.7	7.5	6.5	4.4	4.1	7.3	34.8	
9-Mar	3.1	3.0	3.6	Z	0.6	1.9	1.2	5.0	6.6	10.9	24.6	21.1	22.1	17.4	19.0	15.6	5.2	5.9	6.0	5.6	4.3	2.8	4.0	4.1	8.4	24.6	
10-Mar	2.2	1.4	1.2	0.7	Z	1.7	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.2	
11-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.3	0.4	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
12-Mar	Z	0.1	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
13-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	25.4	21.7	18.3	29.5	15.1	15.8	15.8	8.3	2.3	0.9	0.6	0.6	0.6	0.7	7.0	29.5	
14-Mar	0.4	6.0	Z	4.2	2.5	2.5	3.2	3.0	3.1	2.8	1.3	0.7	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.8	0.4	0.3	0.4	1.5	6.0	
15-Mar	0.4	0.3	0.4	Z	0.2	0.2	0.5	0.4	0.2	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.5	
16-Mar	0.2	0.2	0.2	0.2	Z	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	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
17-Mar	0.0	0.0	0.7	0.1	1.4	Z	8.6	11.0	7.1	13.1	2.1	3.6	7.7	0.7	0.5	5.3	9.1	4.9	0.4	5.6	7.0	0.7	0.3	0.2	3.9	13.1	
18-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
19-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	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-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	M	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
21-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
22-Mar	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	1.5	7.7	11.6	27.1	18.9	11.4	5.7	2.6	2.0	3.9	27.1	
23-Mar	1.4	1.2	1.1	0.6	0.6	Z	0.2	0.5	0.5	2.3	21.2	15.3	11.5	12.0	8.9	12.6	15.6	9.9	4.6	4.7	2.5	0.9	0.5	0.3	5.6	21.2	
24-Mar	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.0	4.0	3.5	10.9	4.4	0.9	4.1	3.0	2.6	2.0	0.6	1.0	0.6	0.4	0.2	0.1	1.8	10.9	
25-Mar	0.1	Z	0.2	0.1	0.1	0.1	0.0	0.1	3.6	22.7	20.5	10.2	6.1	4.4	3.7	4.0	4.4	1.3	1.4	6.4	3.1	0.3	UO	UO	4.4	22.7	
26-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	5.1	4.3	2.5	1.1	2.8	2.4	1.8	4.9	6.7	8.4	2.6	0.9	0.7	--	8.4	
27-Mar	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	
28-Mar	0.1	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
29-Mar	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
30-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	4.8	12.3	18.9	14.4	10.2	6.5	4.5	2.6	3.8	3.9	0.9	0.5	0.4	0.4	0.3	0.2	3.7	18.9	
31-Mar	0.3	Z	0.4	0.8	0.5	0.4	0.4	1.9	2.3	0.5	3.4	8.4	12.9	9.7	0.6	0.2	0.1	0.3	0.7	1.1	1.1	0.7	3.9	1.7	2.3	12.9	

0.6	0.6	0.5	0.4	0.4	0.4	0.6	0.8	1.3	3.1	5.3	5.7	4.6	3.9	2.8	2.9	2.8	2.0	1.8	1.8	1.6	1.0	0.9	0.6	Diurnal Average	
5.5	6.0	3.6	4.2	2.5	2.5	8.6	11.0	7.1	22.7	25.4	34.8	22.1	29.5	19.0	15.8	15.8	11.6	27.1	18.9	11.4	9.1	5.6	4.1	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	652	93.68	93.68
11 - 20	32	4.60	98.28
21 - 60	12	1.72	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: 696

Total Number of Hours: 744



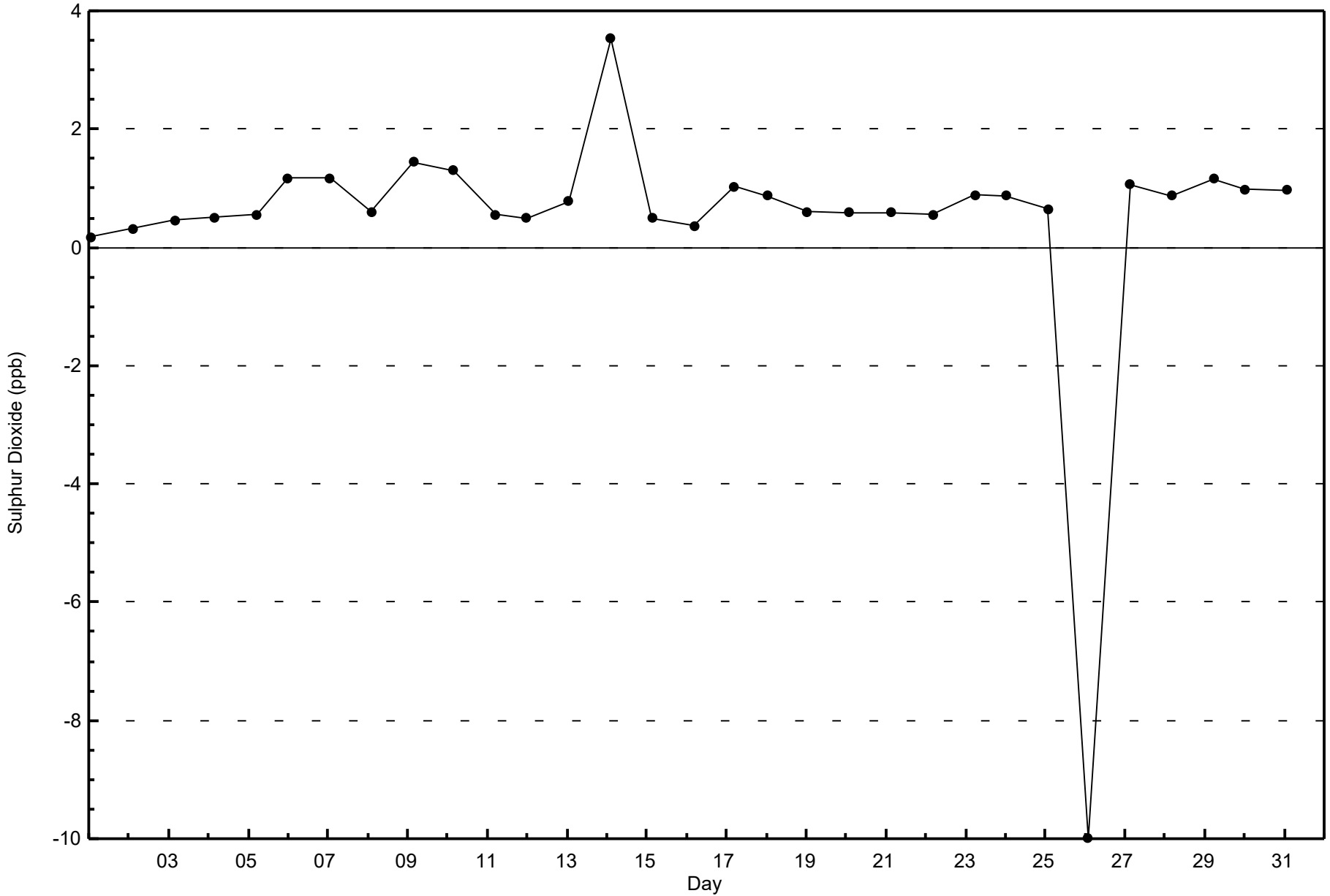
Wood Buffalo Environmental Association
Frequency Distribution

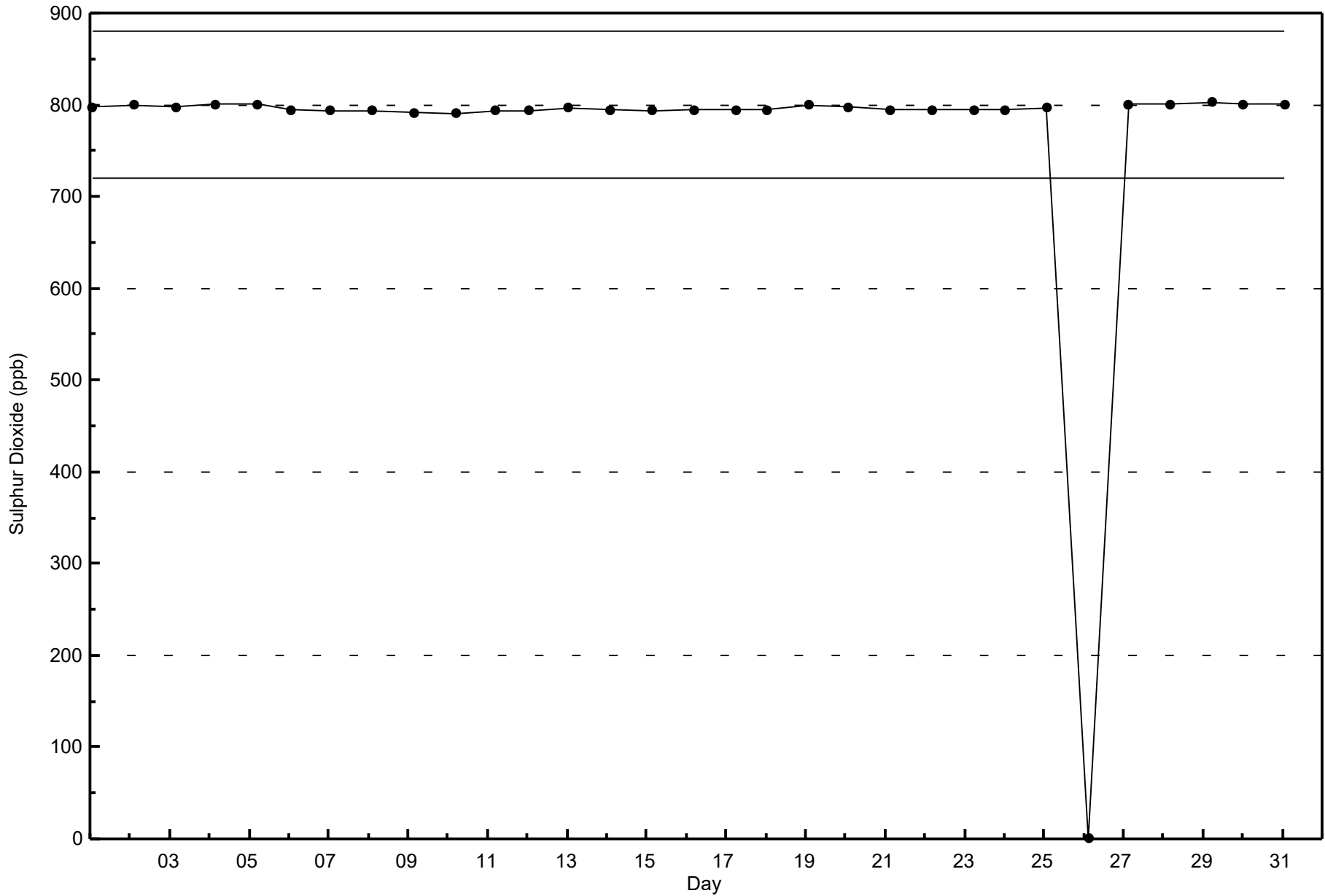
Sulphur Dioxide (SO₂) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	102	122	40	13	2	3	21	91	130	21	8	8	22	22	17	28	650
11 - 20	0	0	0	0	0	0	1	13	16	0	0	0	0	0	1	0	31
21 - 60	0	0	0	0	0	0	0	3	9	0	0	0	0	0	0	0	12
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
Totals	102	122	40	13	2	3	22	107	155	21	8	8	22	22	18	28	693

Total Number of Valid Hours: 693

Total Number of Hours: 744

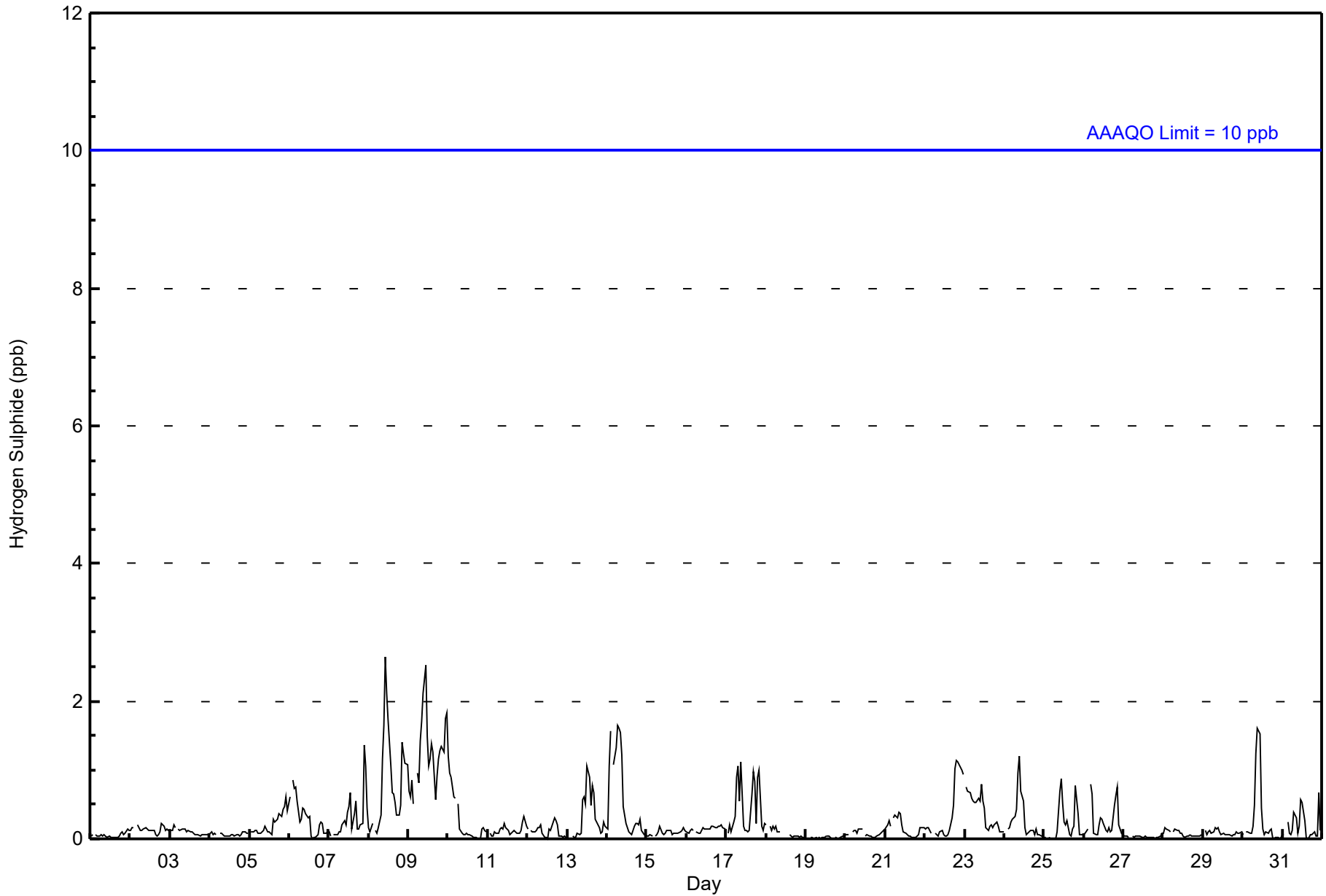






Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	705	99.72	99.72
3 - 4	2	0.28	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Fort McKay - Bertha Ganter - March 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	117	39	13	4	4	23	109	165	20	7	6	23	25	16	26	702
3 - 4	0	0	0	0	0	0	0	1	1	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
Totals	105	117	39	13	4	4	23	110	166	20	7	6	23	25	16	26	704

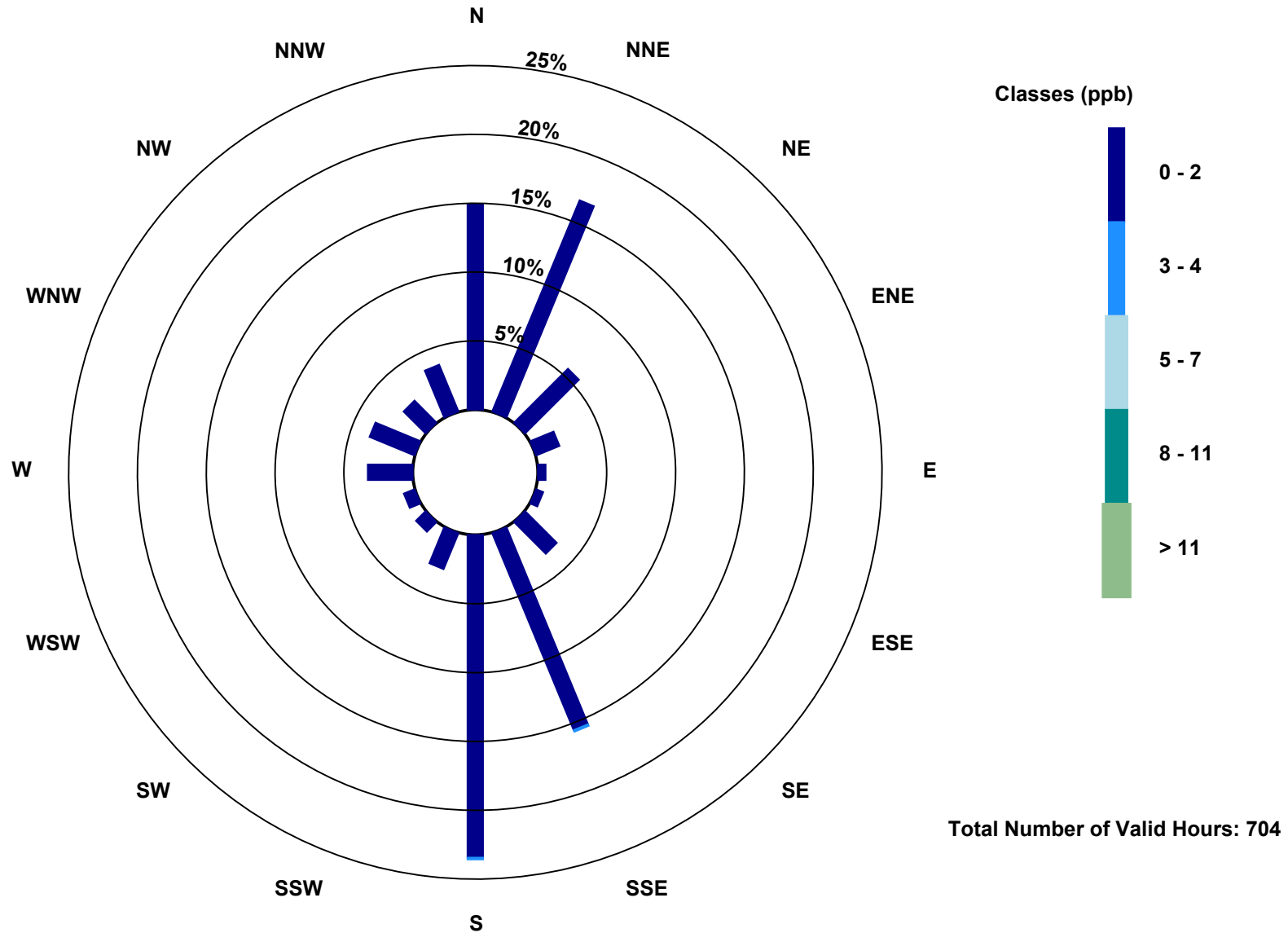
Total Number of Valid Hours: 704

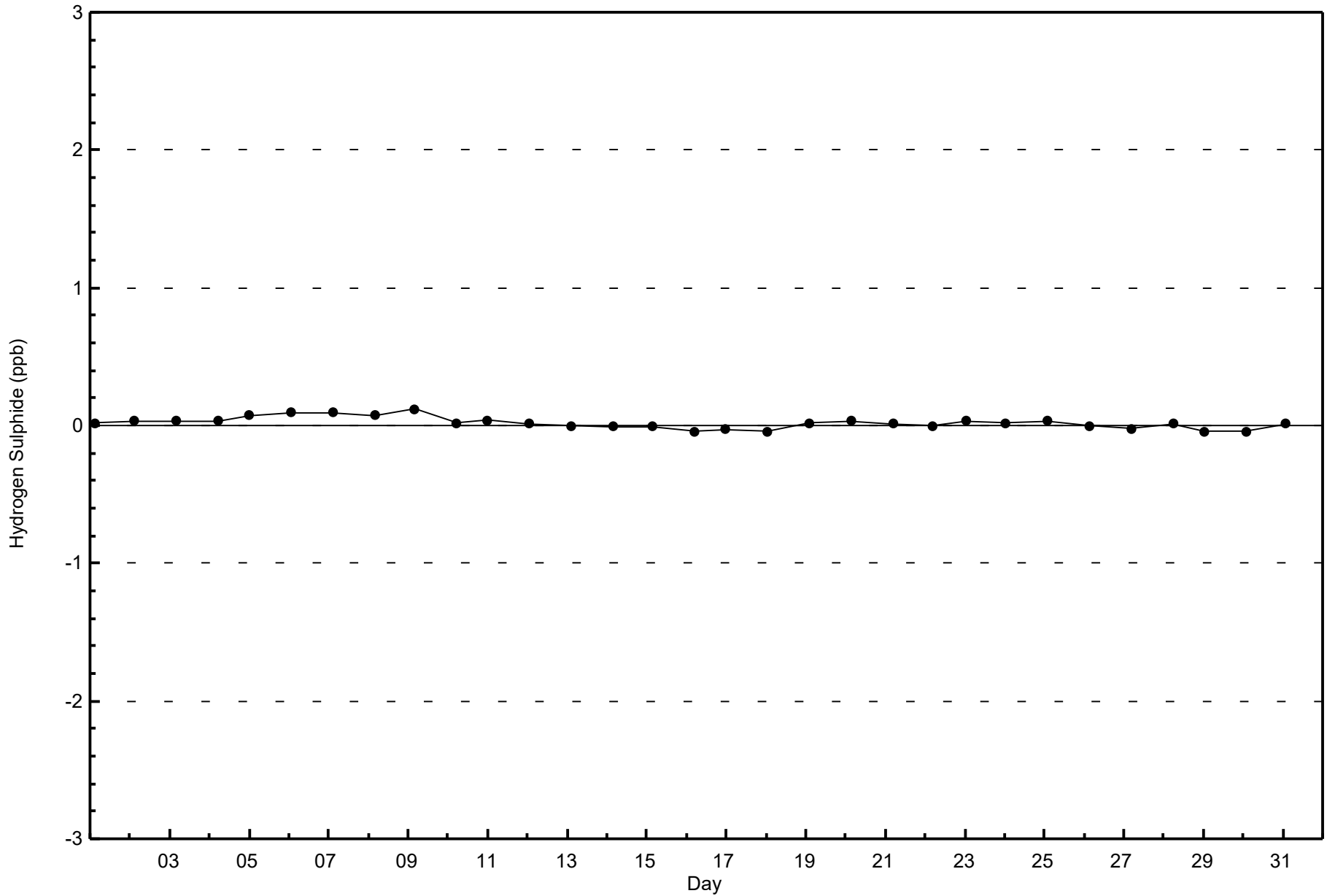
Total Number of Hours: 744

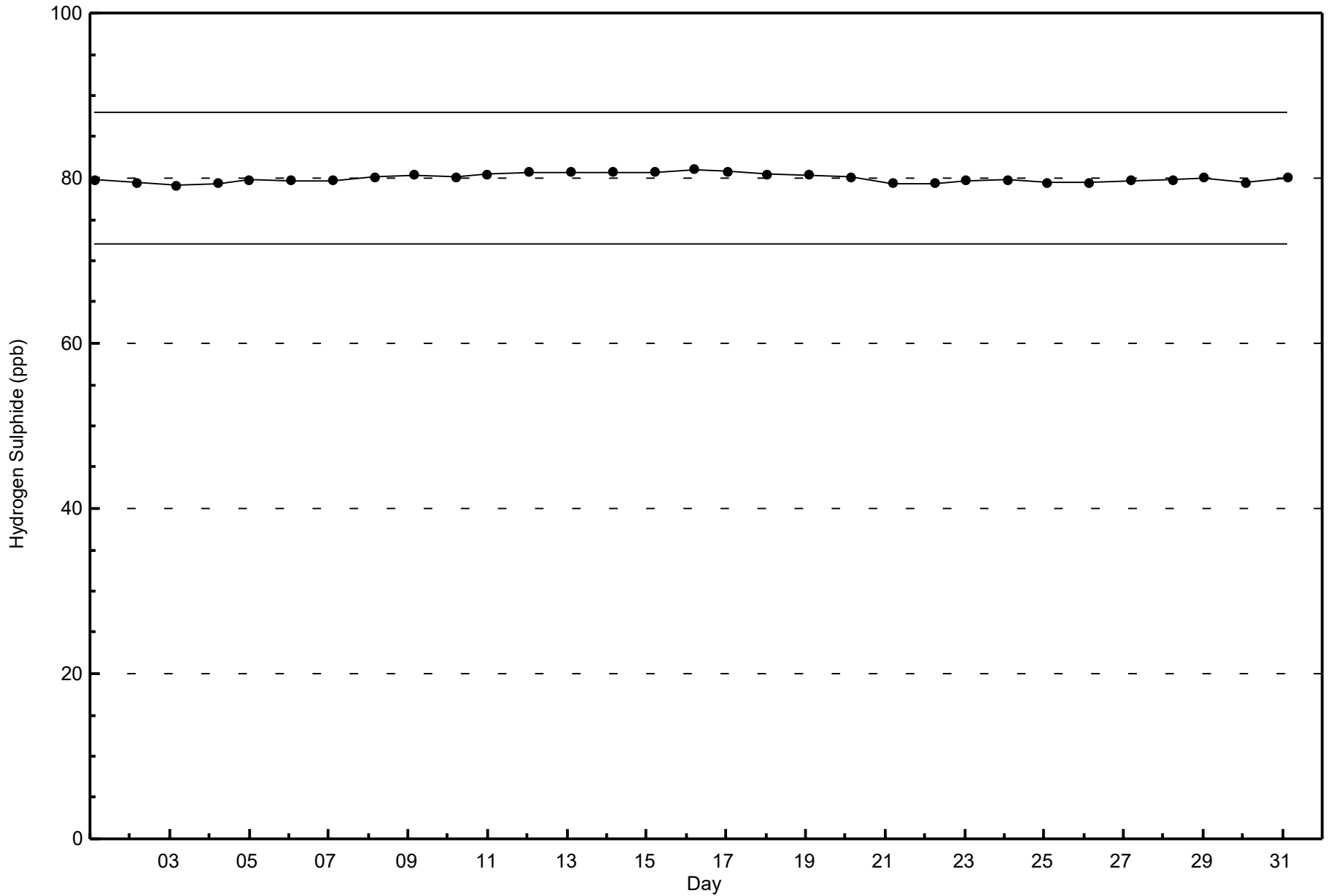


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Fort McKay - Bertha Ganter

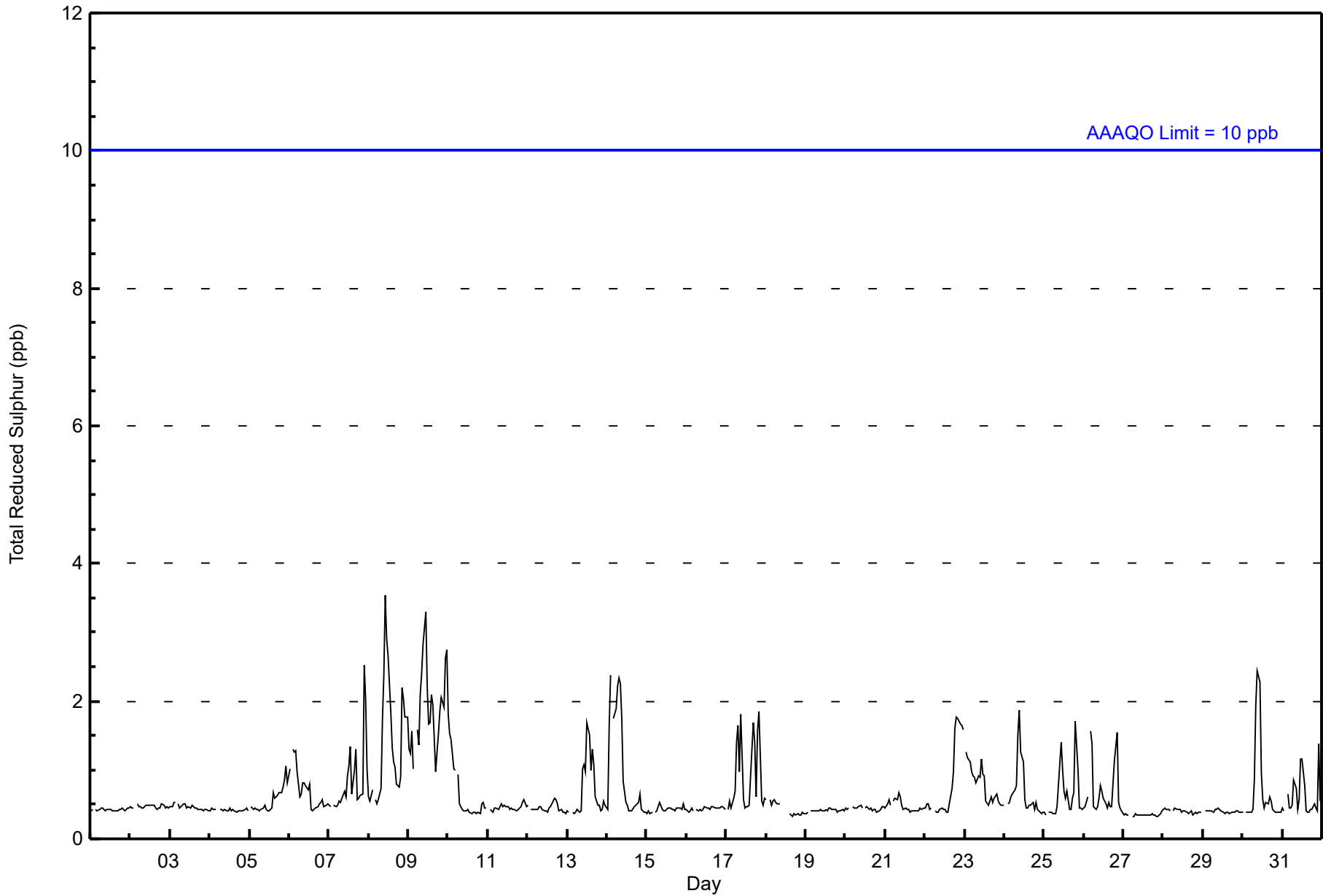








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 3.5 ppb on Mar 8 11:00		Maximum Daily Average: 1.9 ppb on Mar 9		Minimum Daily Average: 0.3 ppb on Mar 27		Hours of Data:		707																																								
Minimum Value: 0.3 ppb on Mar 18 17:00		Minimum Diurnal Average: 0.9 ppb at hour 10		Minimum Diurnal Average: 0.5 ppb at hour 4		Hours of Missing Data:		37																																								
Monthly Average: 0.65 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.4 Q ₁ = 0.4 Median = 0.5 Q ₃ = 0.6 P ₉₀ = 1.3 P ₉₉ = 2.5				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-Mar	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5																							
2-Mar	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5																						
3-Mar	0.5	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5																						
4-Mar	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																						
5-Mar	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.8	1.1	0.8	0.6	1.1																						
6-Mar	1.0	Z	1.3	1.3	1.3	1.0	0.6	0.7	0.8	0.8	0.8	0.7	0.8	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.7	1.3																						
7-Mar	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.6	0.9	1.1	1.3	0.7	1.0	1.3	0.6	0.6	0.6	0.6	2.5	2.0	1.0	0.9	2.5																						
8-Mar	0.6	0.6	0.7	Z	0.6	0.5	0.6	0.7	1.7	2.4	3.5	2.9	2.7	1.8	1.3	1.1	1.0	0.8	0.8	0.9	2.2	2.0	1.8	1.8	1.4	3.5																						
9-Mar	1.3	1.2	1.6	1.0	Z	1.6	1.4	2.1	2.4	2.8	3.3	2.2	1.7	1.7	2.1	2.0	1.0	1.3	1.5	1.8	2.0	1.9	2.6	2.7	1.9	3.3																						
10-Mar	1.8	1.5	1.4	1.0	1.0	Z	0.9	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	0.5	0.6	1.8																						
11-Mar	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.6																						
12-Mar	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.6																						
13-Mar	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	1.0	1.1	1.0	1.7	1.5	1.0	1.3	1.1	0.6	0.5	0.5	0.4	0.4	0.5	0.5	0.7	1.7																						
14-Mar	0.4	1.6	2.4	Z	1.8	1.9	2.2	2.3	2.2	1.8	0.8	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.4	0.4	0.4	0.4	1.0	2.4																						
15-Mar	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5																						
16-Mar	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.5																						
17-Mar	Z	0.4	0.6	0.4	0.6	0.7	1.4	1.6	1.0	1.8	0.6	0.5	0.5	0.5	0.5	1.3	1.7	1.4	0.6	1.6	1.8	0.5	0.5	0.6	0.9	1.8																						
18-Mar	0.6	Z	0.6	0.5	0.5	0.6	0.5	0.5	0.5	C	C	C	C	C	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.6																						
19-Mar	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																						
20-Mar	0.5	0.4	0.4	Z	0.5	0.4	0.5	0.4	0.5	0.5	0.5	M	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5																						
21-Mar	0.4	0.5	0.6	0.5	Z	0.5	0.6	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.7																						
22-Mar	0.5	0.5	0.5	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	1.0	1.6	1.8	1.8	1.7	1.6	1.6	0.8	1.8																						
23-Mar	Z	1.3	1.2	1.1	1.0	0.9	0.9	0.8	0.9	0.9	1.2	0.9	0.9	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.8	1.3																						
24-Mar	0.5	Z	0.5	0.5	0.6	0.6	0.7	0.8	1.5	1.9	1.3	1.1	0.6	0.4	0.5	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.7	1.9																						
25-Mar	0.4	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.5	1.1	1.4	1.0	0.7	0.6	0.7	0.4	0.4	0.6	0.7	1.7	1.0	0.4	0.4	0.4	0.6	1.7																						
26-Mar	0.4	0.5	0.6	Z	1.6	1.4	0.5	0.4	0.5	0.6	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.5	1.1	1.4	1.5	0.5	0.4	0.4	0.7	1.6																						
27-Mar	0.4	0.4	0.3	0.3	Z	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4																						
28-Mar	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4																						
29-Mar	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																						
30-Mar	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.8	1.9	2.4	2.3	1.0	0.6	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.7	2.4																						
31-Mar	0.4	0.4	Z	0.7	0.4	0.4	0.5	0.9	0.7	0.4	0.6	1.1	1.1	0.8	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	1.4	0.5	0.6	1.4																						
																								0.5	0.6	0.7	0.5	0.6	0.6	0.6	0.7	0.8	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.7	0.7	0.6	Diurnal Average
																								1.8	1.6	2.4	1.3	1.8	1.9	2.2	2.3	2.4	2.8	3.5	2.9	2.7	1.8	2.1	2.0	1.7	1.4	1.6	1.8	2.2	2.5	2.6	2.7	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	699	98.87	98.87
3 - 4	8	1.13	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort McKay - Bertha Ganter - March 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	117	39	13	4	4	23	109	160	19	7	6	23	25	16	26	696
3 - 4	0	0	0	0	0	0	0	1	6	1	0	0	0	0	0	0	8
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
Totals	105	117	39	13	4	4	23	110	166	20	7	6	23	25	16	26	704

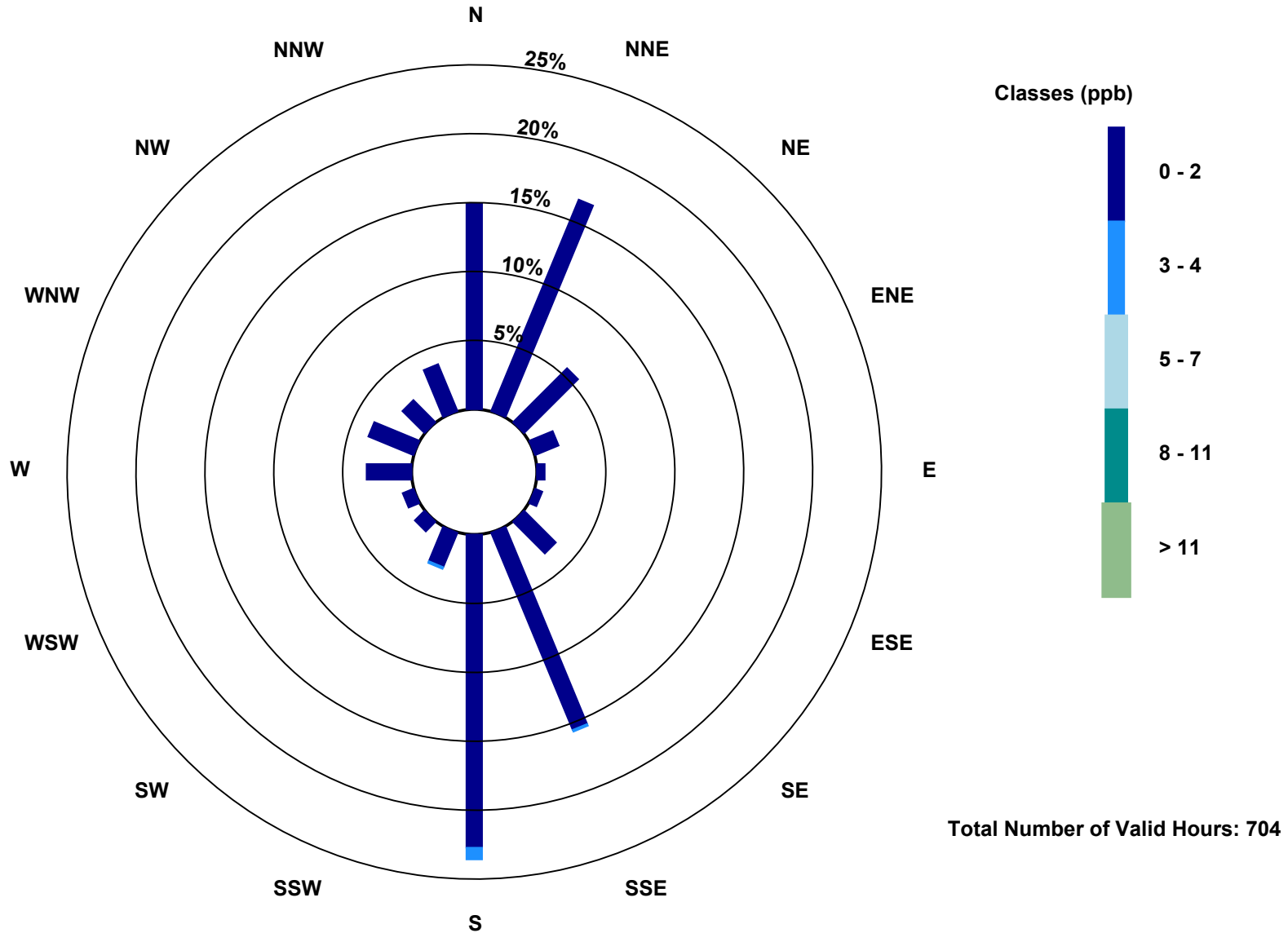
Total Number of Valid Hours: 704

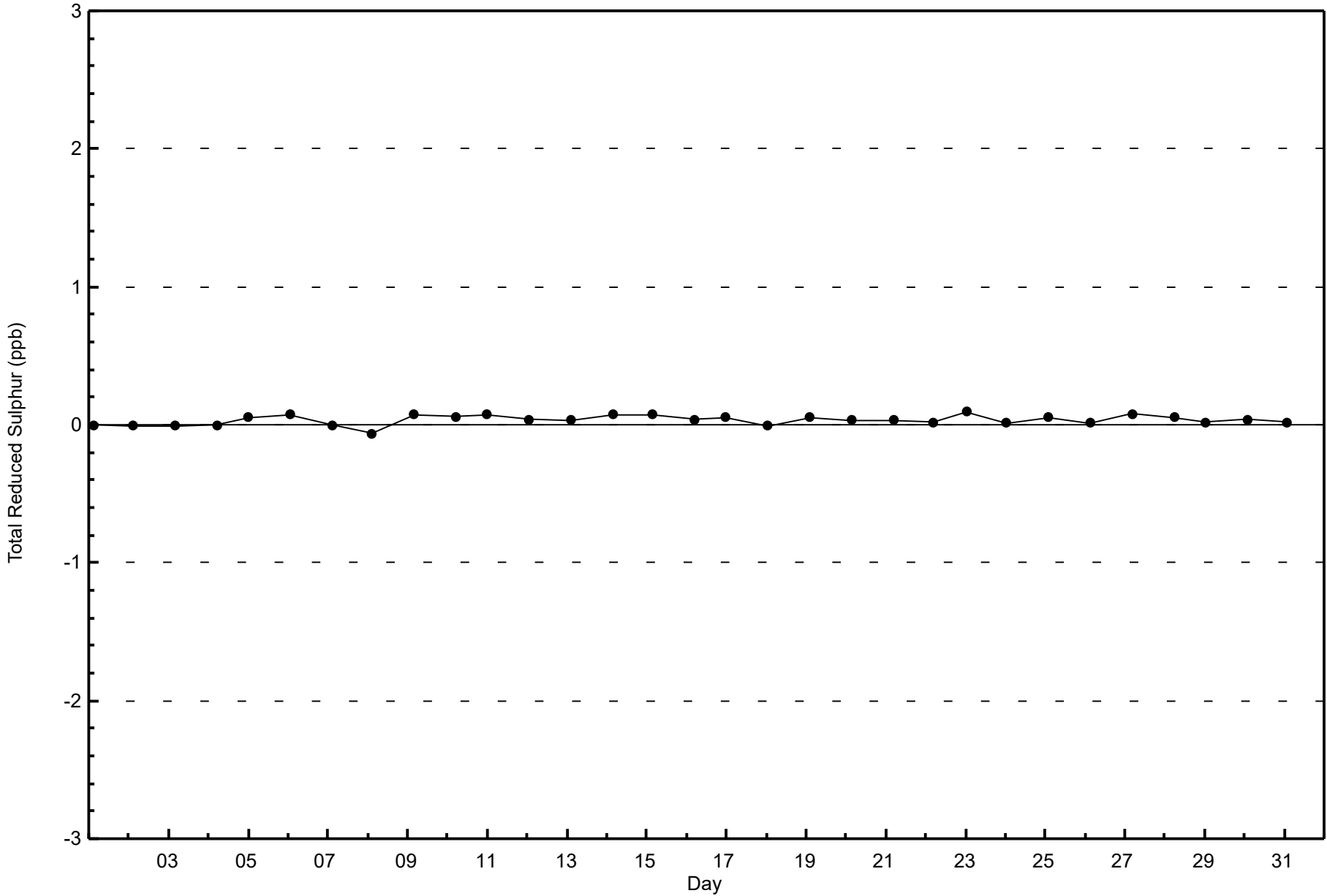
Total Number of Hours: 744

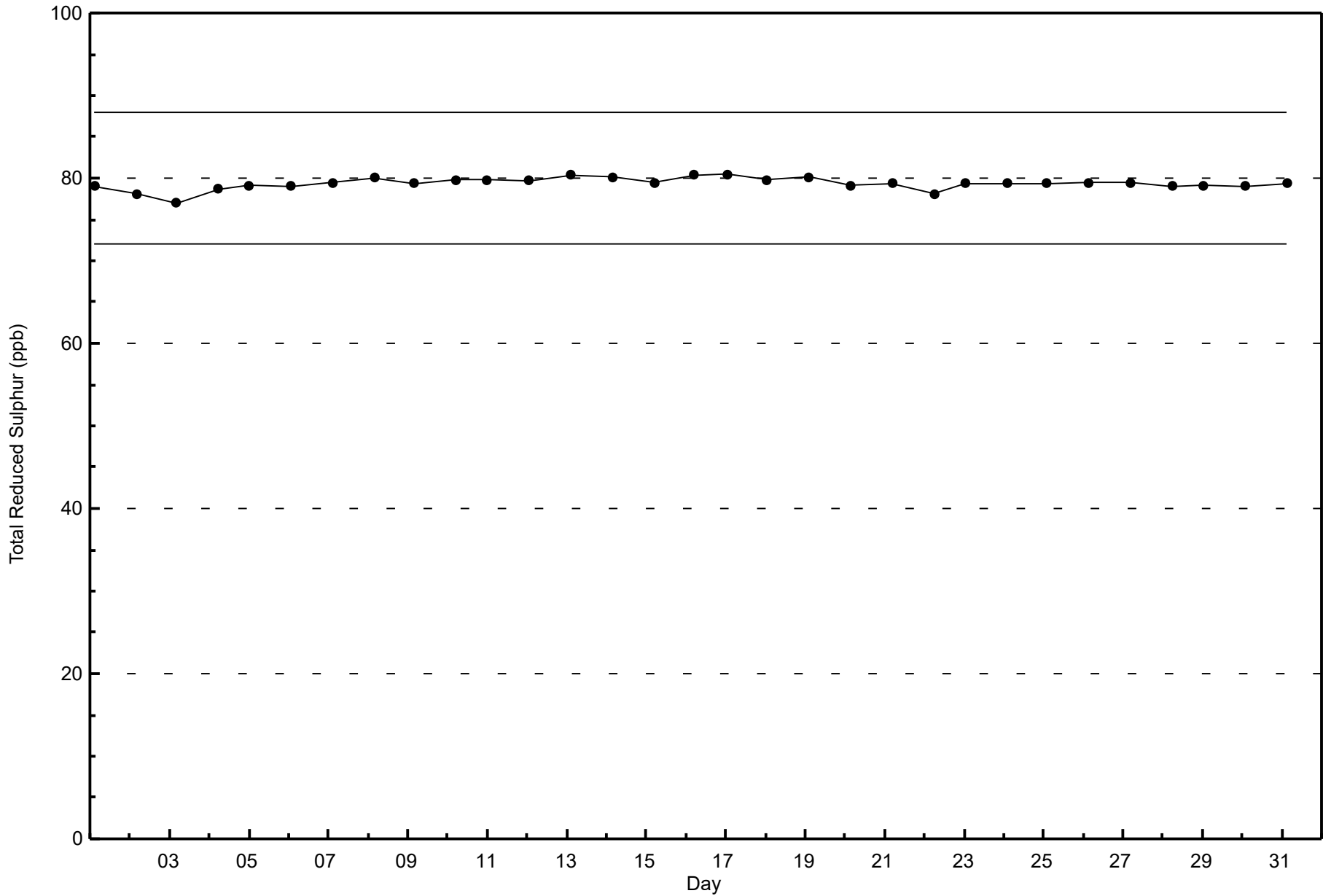


Wood Buffalo Environmental Association
Wind Rose Mar 2024

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







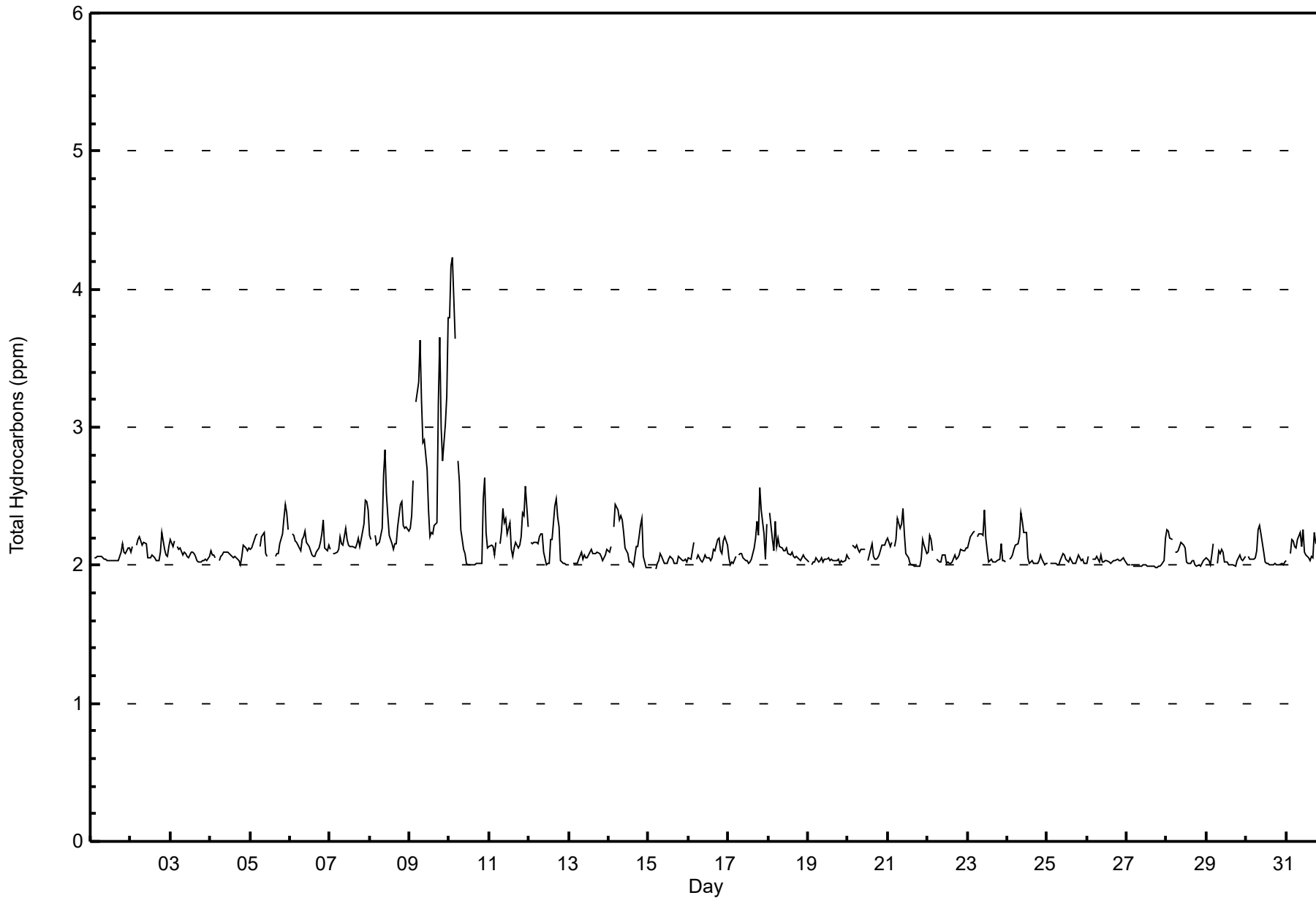


Maximum Value: 4.2 ppm on Mar 10 03:00																				Maximum Daily Average: 2.8 ppm on Mar 9					Hours in Service: 744					
Minimum Value: 2.0 ppm on Mar 15 05:00																				Minimum Daily Average: 2.0 ppm on Mar 27					Hours of Data: 708					
Maximum Diurnal Average: 2.2 ppm at hour 2																				Minimum Diurnal Average: 2.1 ppm at hour 15					Hours of Missing Data: 36					
Monthly Average: 2.14 ppm																				Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 3.3					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-Mar	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	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2		
2-Mar	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
3-Mar	2.2	2.1	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	
4-Mar	2.1	2.1	2.1	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
5-Mar	2.1	2.1	2.2	2.2	2.2	Z	2.1	2.2	2.2	2.1	2.1	C	C	C	C	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.4	
6-Mar	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	
7-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.3	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.5	
8-Mar	2.2	2.2	Z	2.2	2.1	2.2	2.2	2.3	2.7	2.8	2.5	2.4	2.2	2.2	2.1	2.2	2.2	2.3	2.4	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8	
9-Mar	2.3	2.4	2.6	Z	3.2	3.3	3.6	3.2	2.9	2.9	2.7	2.4	2.2	2.2	2.2	2.3	2.3	3.2	3.7	3.0	2.8	3.0	3.2	3.8	2.8	2.8	2.8	3.8	3.8	
10-Mar	3.8	4.2	4.2	3.6	Z	2.8	2.6	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	2.6	2.2	2.1	2.5	2.5	2.5	4.2	4.2	
11-Mar	2.1	2.1	2.1	2.1	2.2	Z	2.2	2.3	2.4	2.3	2.3	2.2	2.3	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.4	2.4	2.6	2.3	2.2	2.2	2.2	2.2	2.6	
12-Mar	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.2	2.2	2.4	2.5	2.4	2.3	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.2	2.2	2.5	
13-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	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	
14-Mar	2.1	2.1	Z	2.3	2.4	2.4	2.3	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.3	2.3	2.1	2.0	2.0	2.2	2.2	2.2	2.2	2.4	
15-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
16-Mar	2.1	2.0	2.1	2.2	Z	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	
17-Mar	2.1	2.0	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	2.1	2.2	2.3	2.2	2.6	2.4	2.2	2.0	2.3	2.1	2.1	2.1	2.1	2.6	
18-Mar	Z	2.4	2.2	2.1	2.3	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.4	
19-Mar	2.0	Z	2.0	2.0	2.0	2.1	2.0	2.0	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	2.1	
20-Mar	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	M	2.0	2.1	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.2	
21-Mar	2.2	2.1	2.2	Z	2.1	2.2	2.3	2.3	2.3	2.4	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.4	
22-Mar	2.1	2.2	2.2	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
23-Mar	2.1	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.4	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.1	2.1	2.1	2.4	
24-Mar	Z	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.3	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.4	
25-Mar	2.0	Z	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	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
26-Mar	2.0	2.1	Z	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
28-Mar	2.3	2.2	2.2	2.2	Z	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3
29-Mar	2.1	2.0	2.0	2.1	2.2	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	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.2	
30-Mar	Z	2.1	2.0	2.0	2.0	2.1	2.1	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	2.0	2.0	2.0	2.0	2.3	
31-Mar	2.0	Z	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.3	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3	
																								Diurnal Average						
																								Diurnal Maximum						
Z - zerospan C - Calibration M - Maintenance																														



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	260	36.72	36.72
2.1 - 3.0	436	61.58	98.31
3.1 - 10.0	12	1.69	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort McKay - Bertha Ganter - March 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	45	11	5	2	3	19	70	27	6	2	2	9	10	7	10	260
2.1 - 3.0	70	76	29	7	0	0	3	41	127	14	6	6	13	12	11	18	433
3.1 - 10.0	0	1	0	1	0	0	0	0	9	1	0	0	0	0	0	0	12
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	102	122	40	13	2	3	22	111	163	21	8	8	22	22	18	28	705

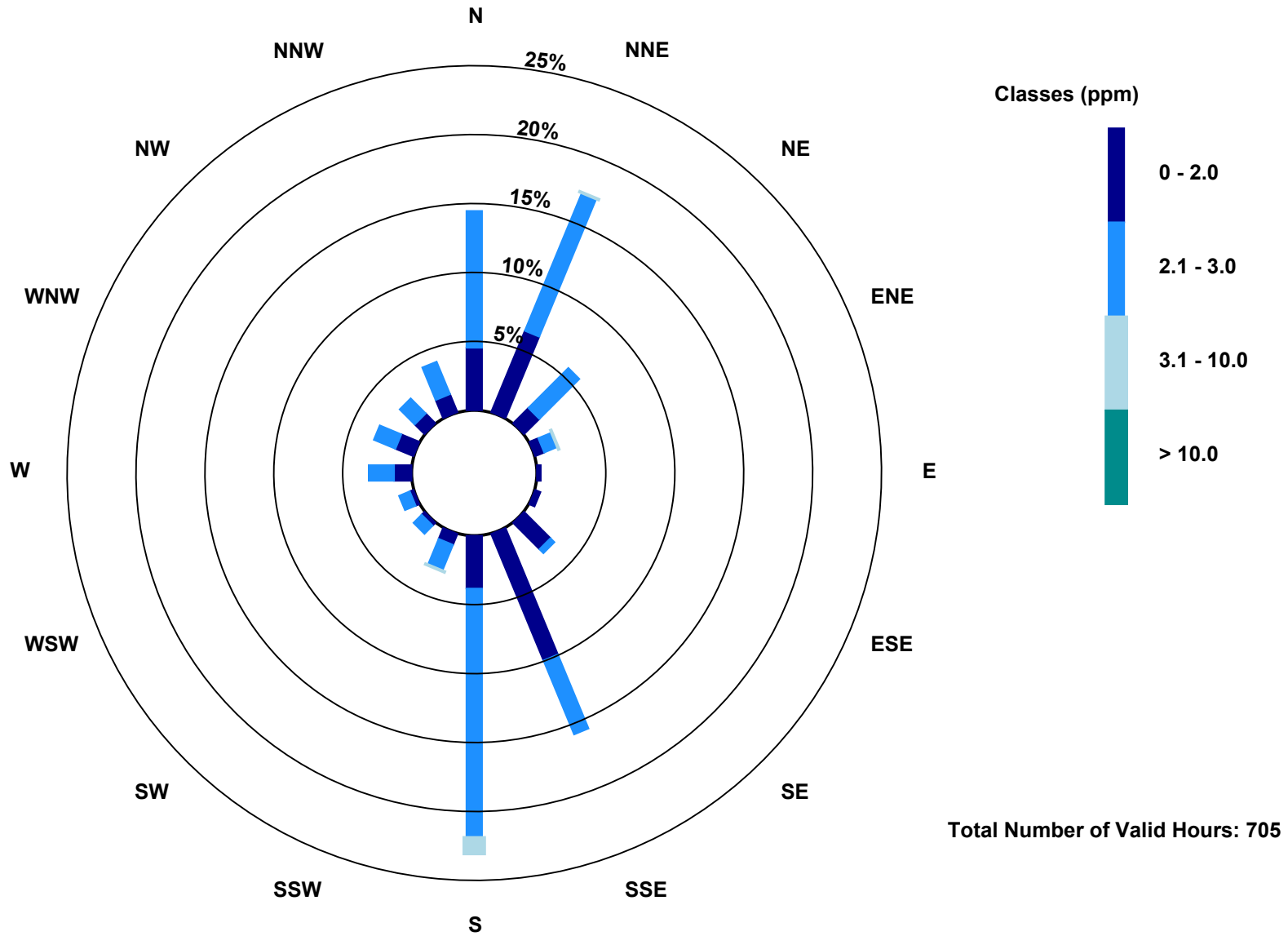
Total Number of Valid Hours: 705

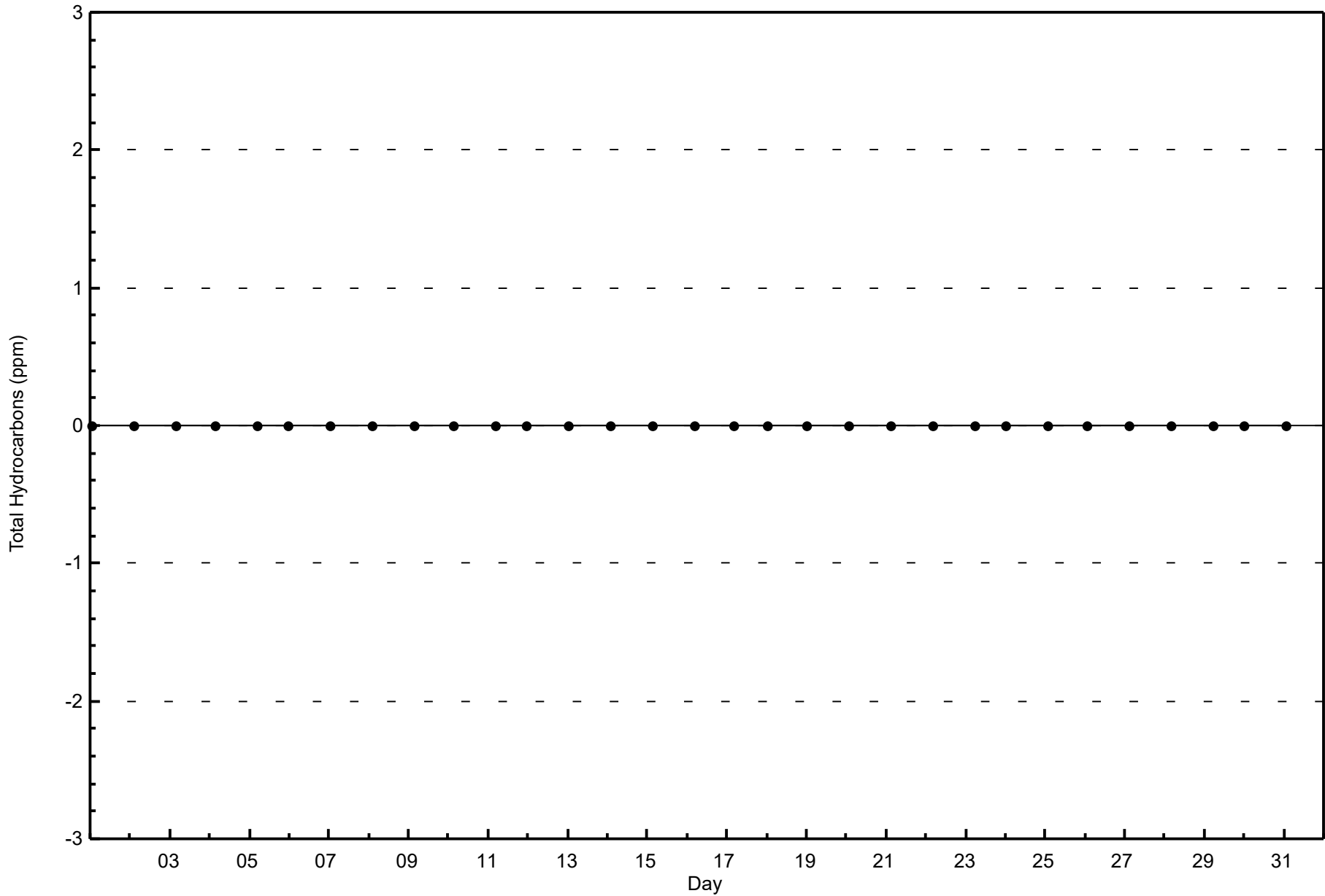
Total Number of Hours: 744

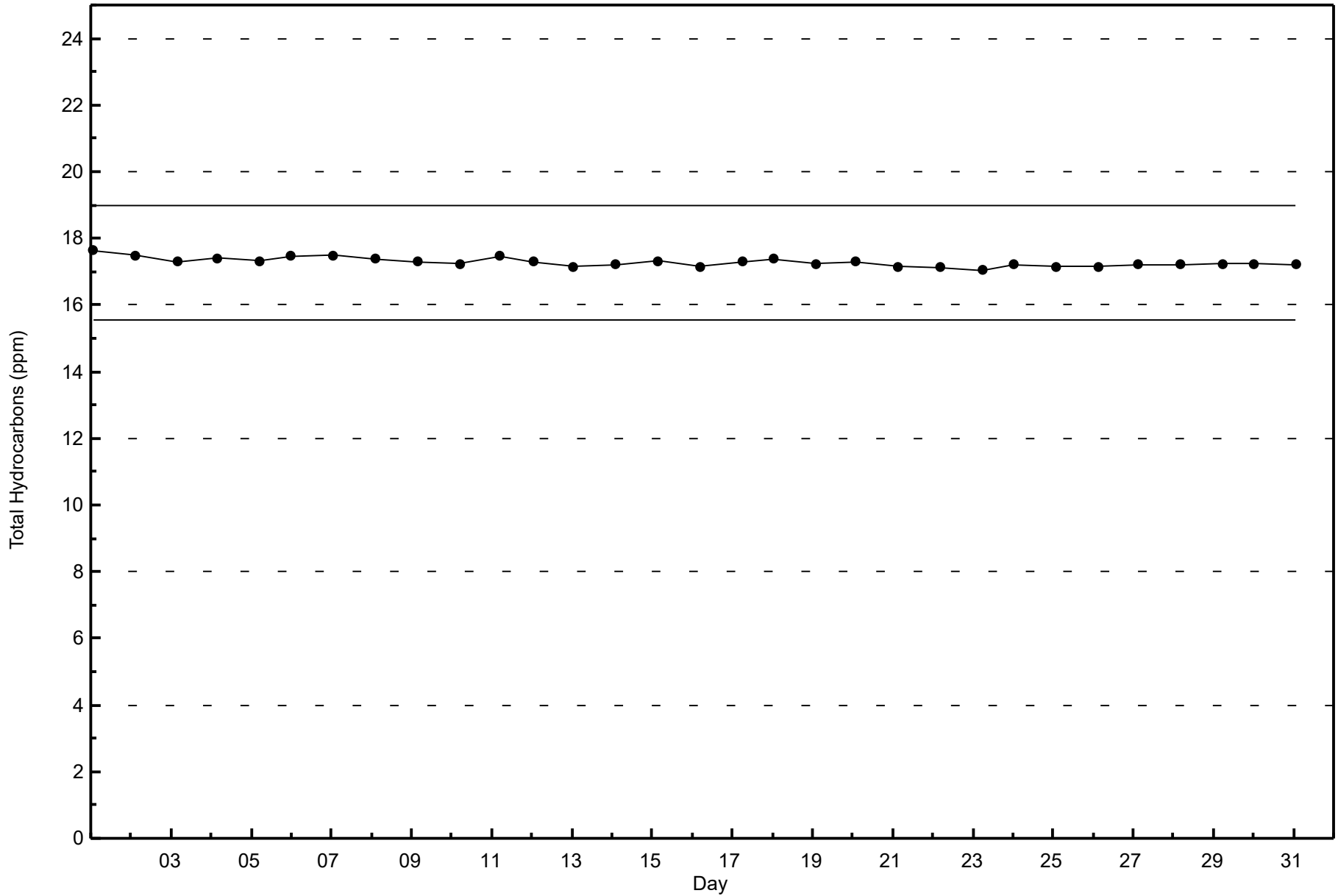


Wood Buffalo Environmental Association
Wind Rose Mar 2024

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









Wood Buffalo Environmental Association
Summary of Hour Averages

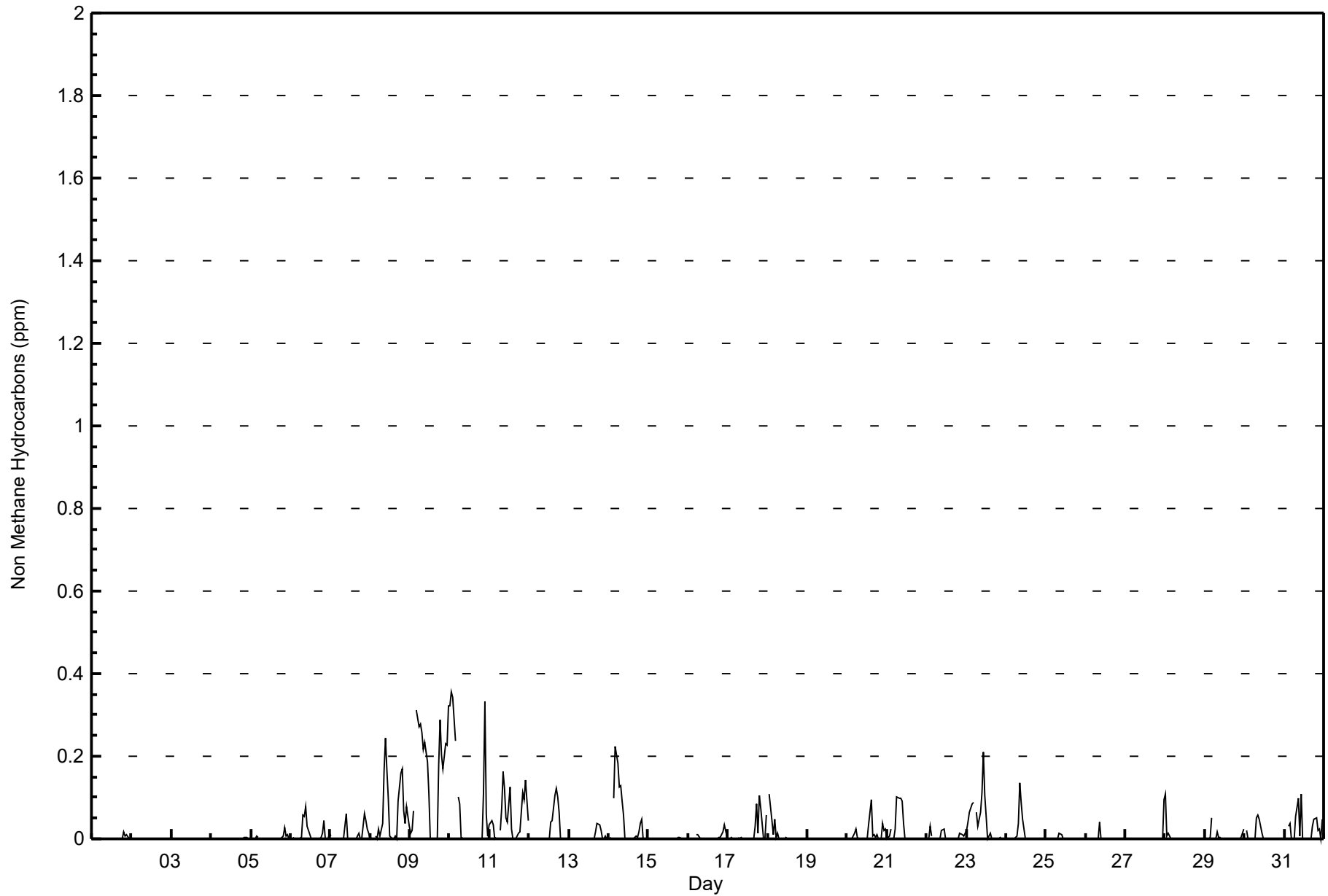
Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 0.357 ppm on Mar 10 02:00		Maximum Daily Average: 0.156 ppm on Mar 9		Hours in Service: 744																																													
Minimum Value: 0.000 ppm on Mar 1 01:00		Minimum Daily Average: 0.000 ppm on Mar 3		Hours of Data: 708																																													
Maximum Diurnal Average: 0.039 ppm at hour 9		Minimum Diurnal Average: 0.003 ppm at hour 14		Hours of Missing Data: 36																																													
Monthly Average: 0.020 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.1 P ₉₉ = 0.3		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-Mar	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	0.016	0.006	0.012	0.002	0.000	0.002	0.016																							
2-Mar	0.000	0.000	Z	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																						
3-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
4-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.004	0.000	0.000	0.000	0.004	0.004																						
5-Mar	0.000	0.000	0.000	0.007	0.003	Z	0.000	0.001	0.000	0.000	0.000	C	C	C	C	0.000	0.000	0.000	0.001	0.005	0.026	0.008	0.009	0.000	0.003	0.026	0.026																						
6-Mar	Z	0.005	0.001	0.000	0.000	0.000	0.004	0.056	0.056	0.078	0.031	0.011	0.000	0.000	0.000	0.000	0.000	0.005	0.015	0.044	0.000	0.000	0.013	0.014	0.078	0.078																							
7-Mar	0.008	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.015	0.002	0.000	0.060	0.043	0.024	0.012	0.010	0.061	0.061																							
8-Mar	0.000	0.002	Z	0.007	0.000	0.024	0.008	0.038	0.167	0.245	0.166	0.097	0.006	0.000	0.000	0.007	0.001	0.090	0.159	0.171	0.067	0.036	0.076	0.032	0.061	0.245	0.245																						
9-Mar	0.014	0.019	0.067	Z	0.311	0.271	0.280	0.258	0.217	0.234	0.186	0.109	0.000	0.000	0.000	0.000	0.002	0.179	0.289	0.205	0.169	0.231	0.229	0.322	0.156	0.322	0.322																						
10-Mar	0.322	0.357	0.344	0.236	Z	0.101	0.085	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.112	0.333	0.057	0.006	0.085	0.357	0.357																							
11-Mar	0.035	0.044	0.034	0.000	0.004	Z	0.022	0.074	0.164	0.120	0.052	0.042	0.124	0.025	0.000	0.000	0.000	0.012	0.016	0.066	0.110	0.096	0.144	0.043	0.053	0.164	0.164																						
12-Mar	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	0.039	0.046	0.106	0.122	0.100	0.064	0.000	0.000	0.000	0.000	0.021	0.122	0.122																							
13-Mar	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	0.018	0.036	0.033	0.021	0.000	0.000	0.007	0.000	0.005	0.036	0.036																							
14-Mar	0.000	0.002	Z	0.098	0.223	0.183	0.125	0.129	0.092	0.057	0.000	0.000	0.000	0.000	0.000	0.007	0.002	0.018	0.036	0.046	0.000	0.000	0.000	0.000	0.044	0.223	0.223																						
15-Mar	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	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.003																						
16-Mar	0.000	0.001	0.000	0.000	Z	0.011	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.002	0.004	0.009	0.016	0.033	0.005	0.004	0.033	0.033																							
17-Mar	0.000	0.000	0.003	0.000	0.000	Z	0.005	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.030	0.086	0.014	0.106	0.075	0.000	0.000	0.058	0.017	0.106	0.106																						
18-Mar	Z	0.107	0.043	0.010	0.048	0.003	0.012	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.107	0.107																						
19-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
20-Mar	0.000	0.000	Z	0.000	0.015	0.024	0.002	0.000	0.001	0.001	0.000	M	0.000	0.035	0.095	0.007	0.009	0.005	0.009	0.000	0.000	0.036	0.021	0.024	0.013	0.095	0.095																						
21-Mar	0.000	0.007	0.025	Z	0.000	0.024	0.103	0.097	0.098	0.090	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	0.021	0.103	0.103																						
22-Mar	0.000	0.001	0.030	0.006	Z	0.000	0.000	0.000	0.000	0.019	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.010	0.007	0.013	0.005	0.030	0.030																							
23-Mar	0.019	0.040	0.064	0.085	0.087	Z	0.065	0.030	0.064	0.110	0.211	0.104	0.054	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.041	0.211	0.211																						
24-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.006	0.036	0.136	0.089	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	0.014	0.136	0.136																						
25-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.015	0.015																						
26-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.002	0.042	0.042																						
27-Mar	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	0.096	0.004	0.096	0.096																						
28-Mar	0.108	0.006	0.014	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.108	0.108																						
29-Mar	0.000	0.000	0.000	0.002	0.052	Z	0.000	0.016	0.002	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	0.005	0.022	0.004	0.052	0.052																						
30-Mar	Z	0.020	0.000	0.000	0.000	0.000	0.000	0.050	0.057	0.047	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.057	0.057																						
31-Mar	0.000	Z	0.029	0.039	0.000	0.000	0.000	0.056	0.099	0.005	0.107	0.000	0.000	0.000	0.000	0.000	0.001	0.031	0.048	0.052	0.022	0.024	0.000	0.046	0.024	0.107	0.107																						
																								0.019	0.024	0.025	0.019	0.029	0.025	0.023	0.027	0.039	0.038	0.028	0.013	0.006	0.003	0.005	0.004	0.006	0.018	0.021	0.023	0.025	0.027	0.020	0.022	Diurnal Average	
																								0.322	0.357	0.344	0.236	0.311	0.271	0.280	0.258	0.217	0.245	0.211	0.109	0.124	0.039	0.095	0.106	0.122	0.179	0.289	0.205	0.169	0.333	0.229	0.322	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	514	72.60	72.60
0.006 - 0.05	110	15.54	88.14
0.06 - 0.1	56	7.91	96.05
> 0.1	28	3.95	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	84	103	23	10	2	3	21	88	86	13	6	4	20	18	13	19	513
0.006 - 0.05	11	12	11	1	0	0	0	11	40	3	2	2	2	3	5	6	109
0.06 - 0.1	7	6	4	1	0	0	1	9	18	3	0	2	0	1	0	3	55
> 0.1	0	1	2	1	0	0	0	3	19	2	0	0	0	0	0	0	28
Totals	102	122	40	13	2	3	22	111	163	21	8	8	22	22	18	28	705

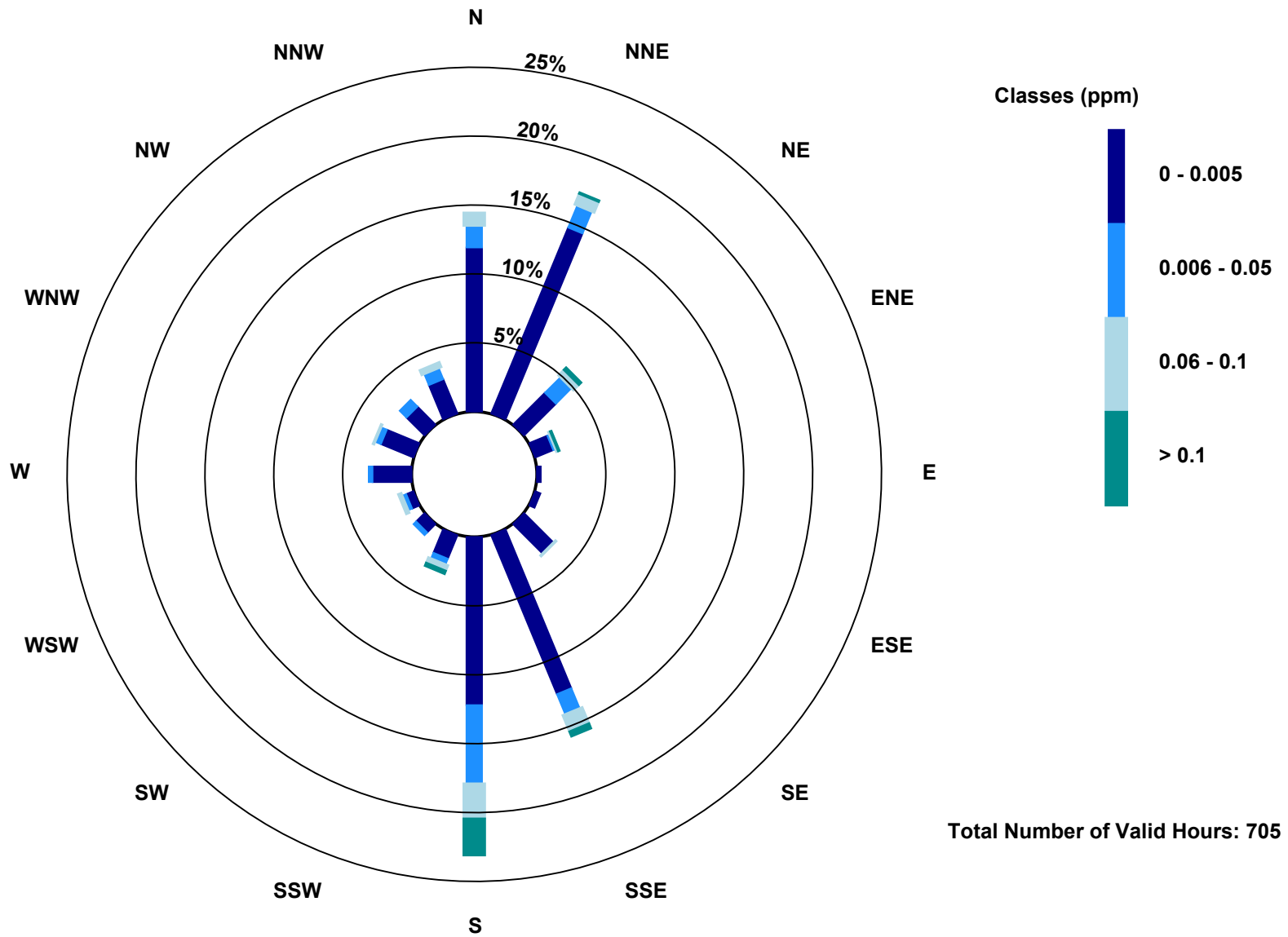
Total Number of Valid Hours: 705

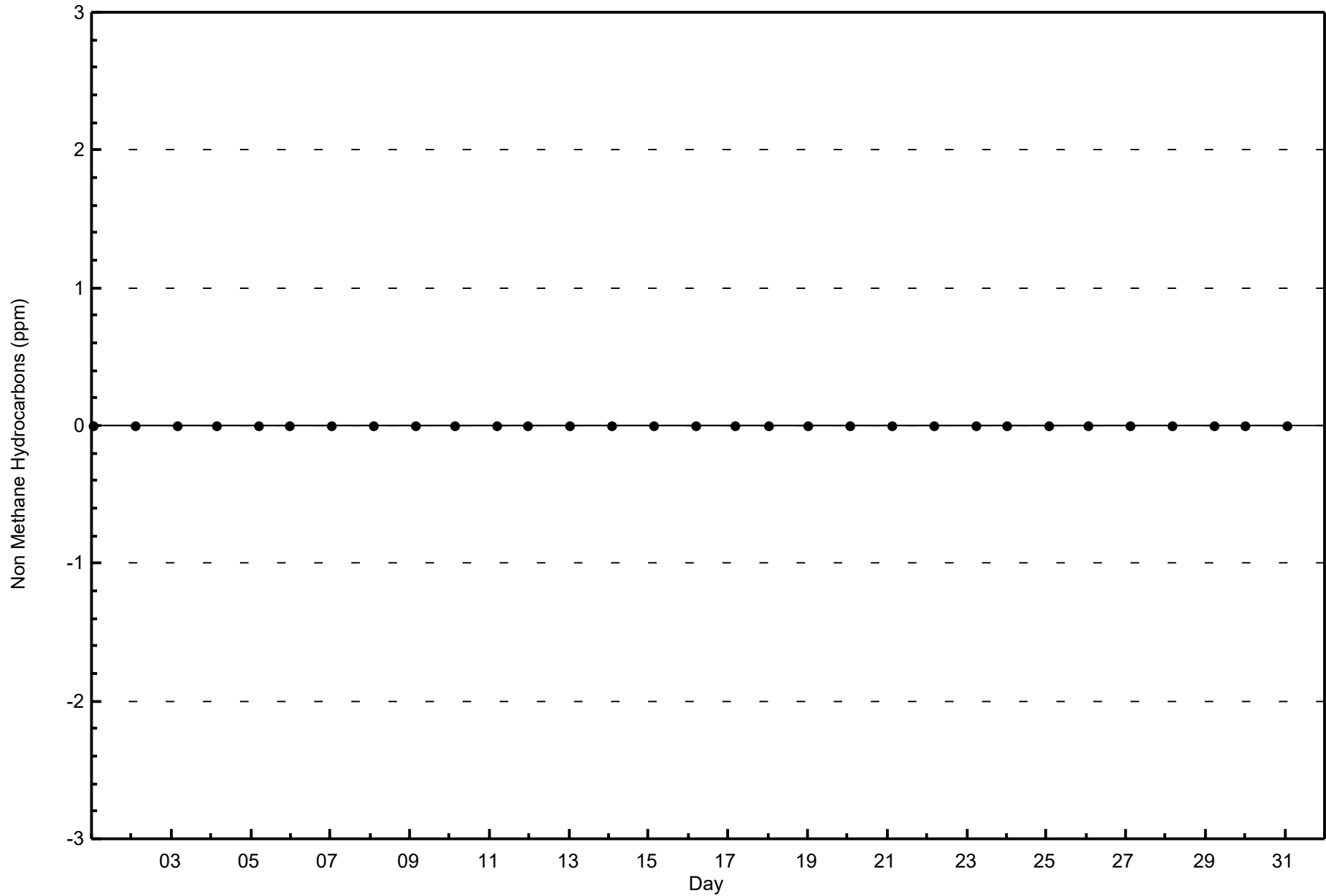
Total Number of Hours: 744

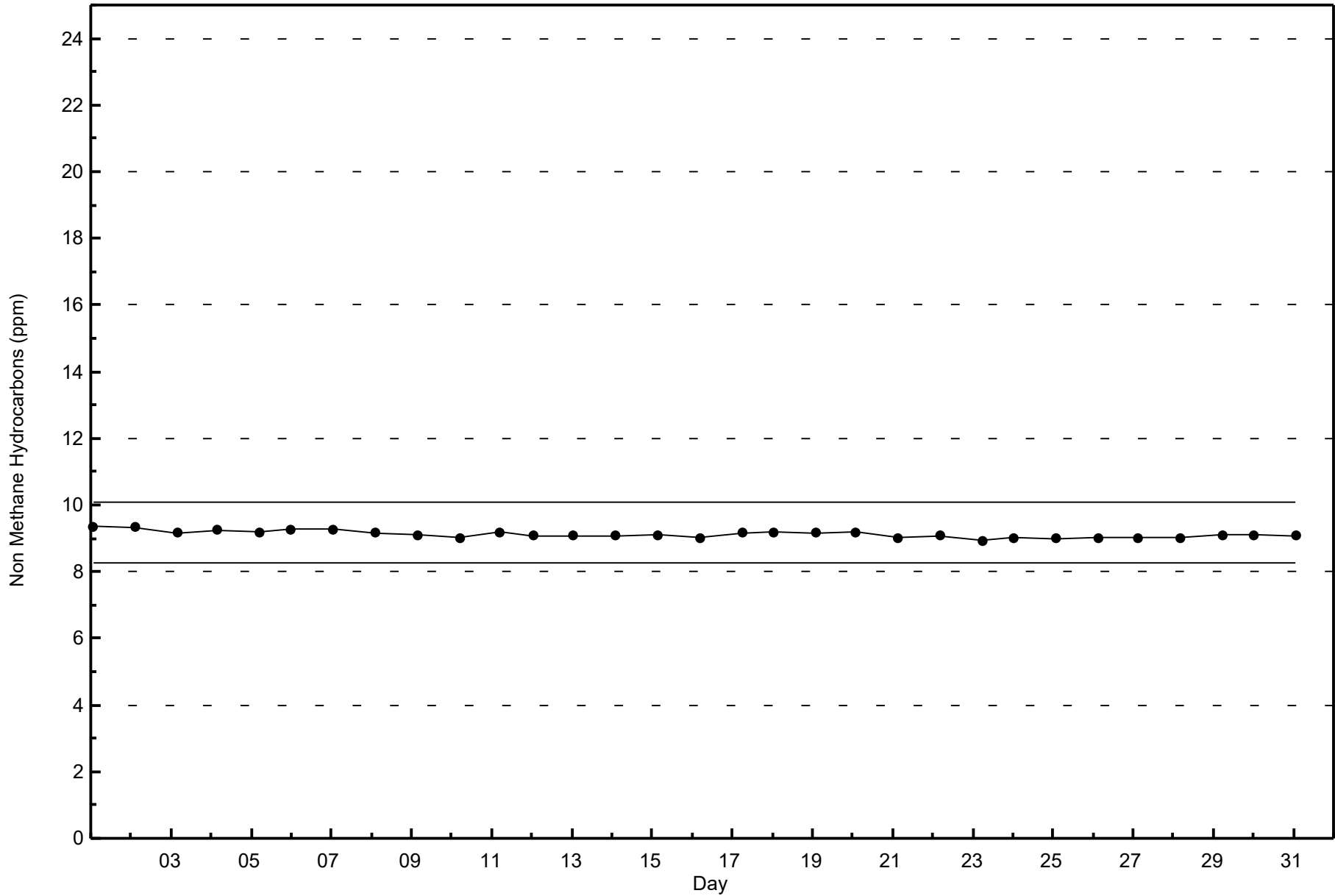


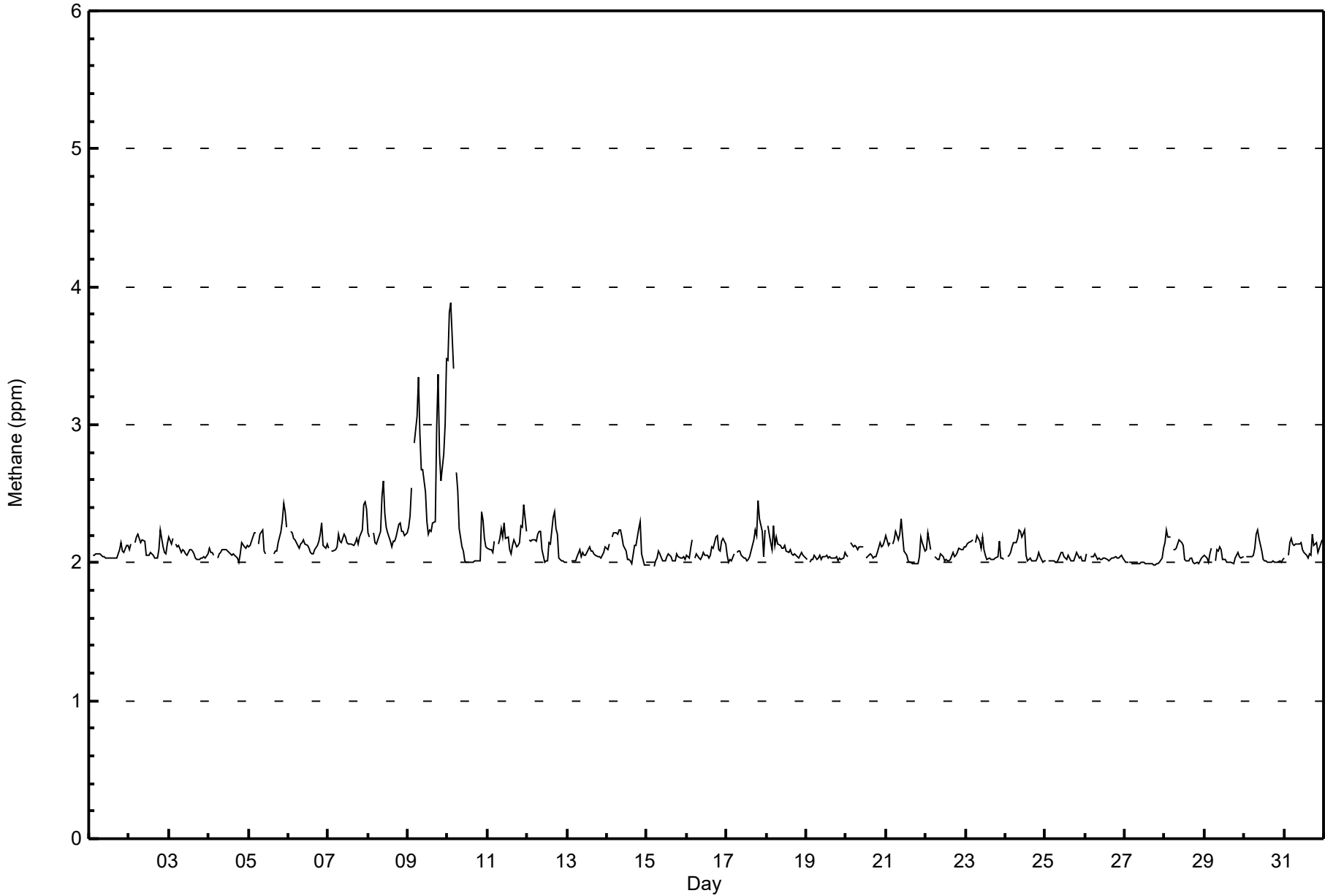
Wood Buffalo Environmental Association
Wind Rose Mar 2024

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











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	268	37.85	37.85
2.1 - 3.0	432	61.02	98.87
3.1 - 10.0	8	1.13	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 (CH₄) - ppm
Fort McKay - Bertha Ganter - March 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	46	11	6	2	3	19	72	29	6	2	3	10	10	7	10	268
2.1 - 3.0	70	75	29	7	0	0	3	39	127	15	6	5	12	12	11	18	429
3.1 - 10.0	0	1	0	0	0	0	0	0	7	0	0	0	0	0	0	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	102	122	40	13	2	3	22	111	163	21	8	8	22	22	18	28	705

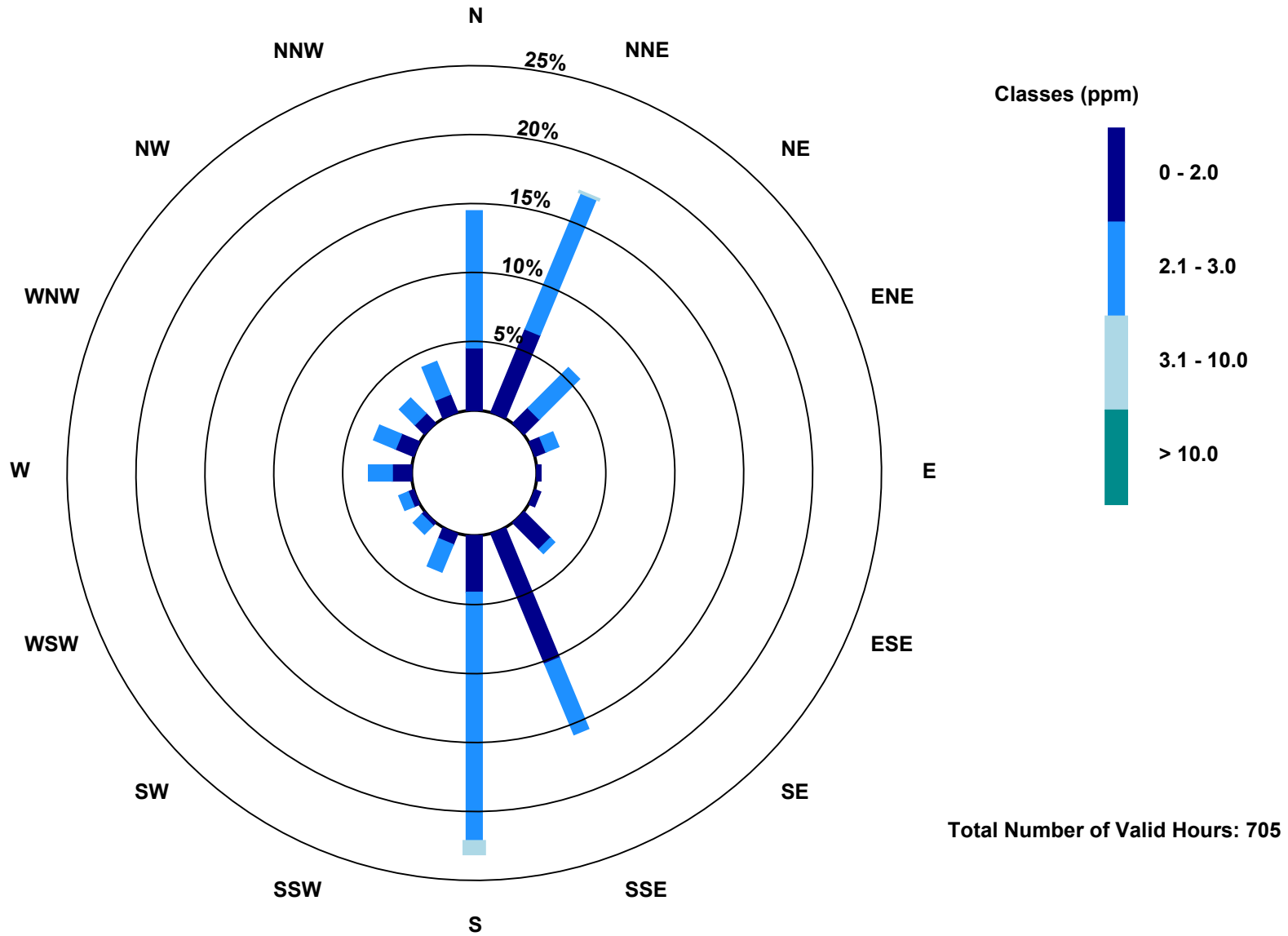
Total Number of Valid Hours: 705

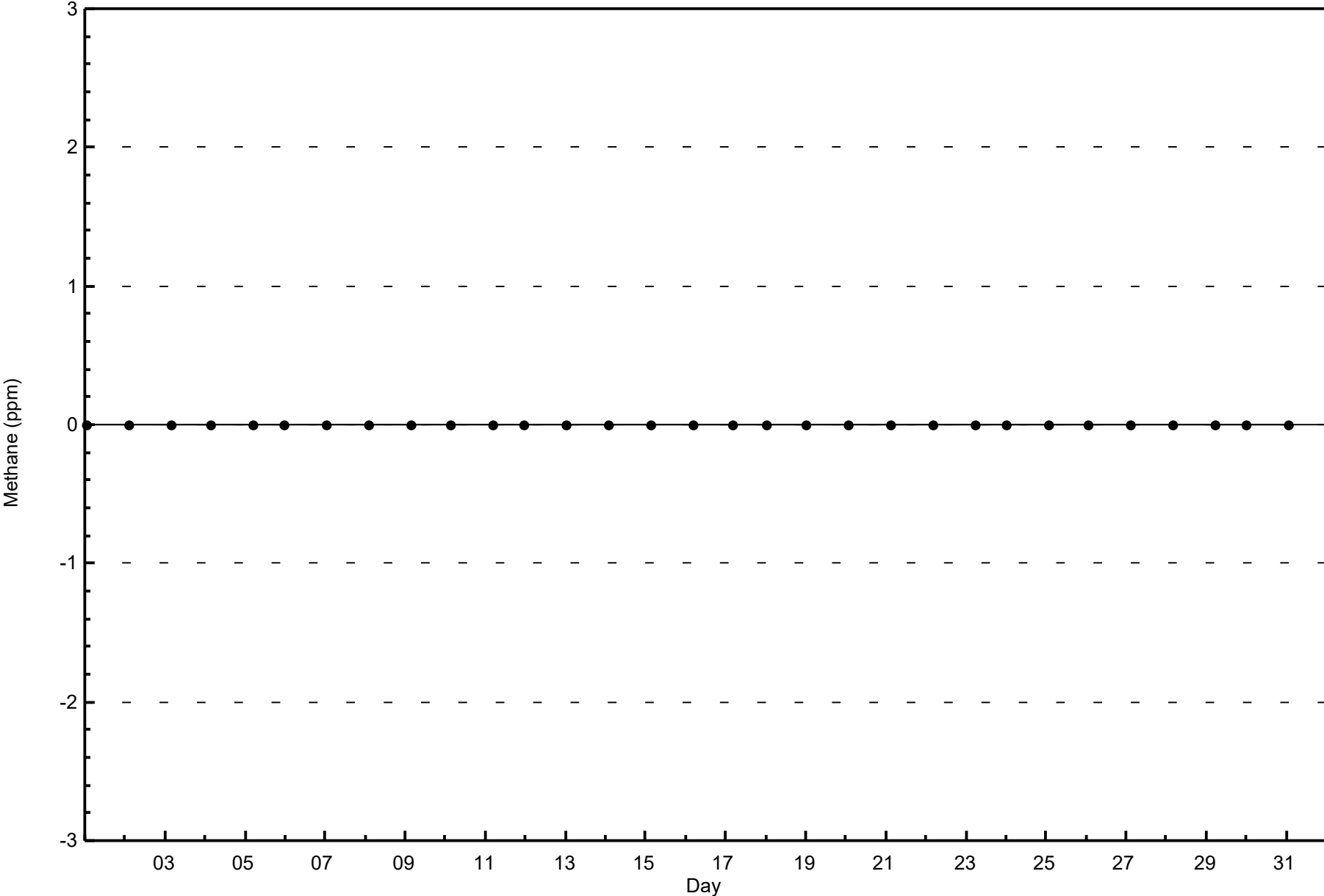
Total Number of Hours: 744

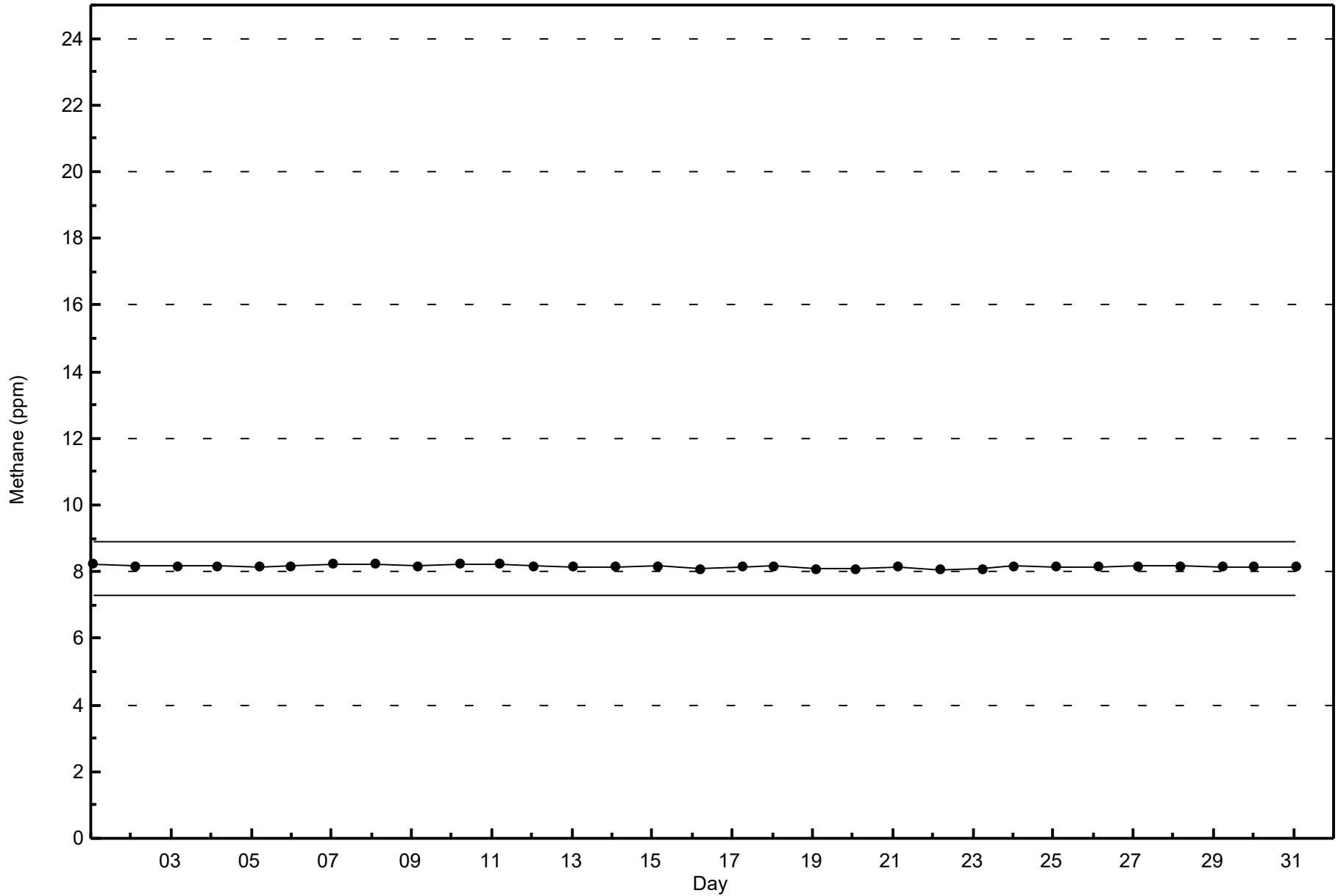


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Fort McKay - Bertha Ganter







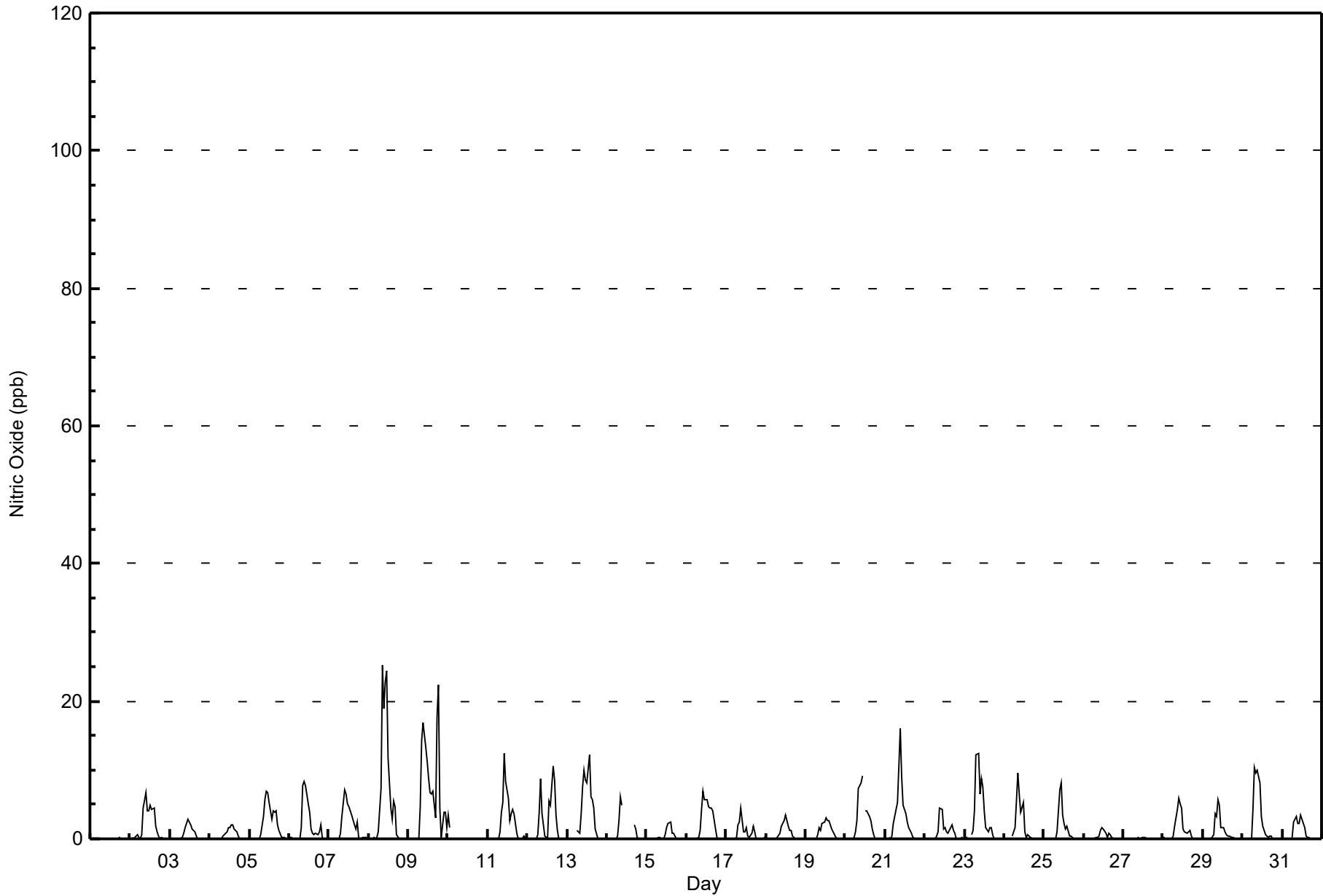


Maximum Value: 25.2 ppb on Mar 8 09:00		Maximum Daily Average: 6.4 ppb on Mar 9		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 27		Hours of Data: 706																							
Maximum Diurnal Average: 5.5 ppb at hour 10		Minimum Diurnal Average: 0.0 ppb at hour 21		Hours of Missing Data: 38																							
Monthly Average: 1.64 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 1.7 P ₉₀ = 5.1 P ₉₉ = 15.9		Hours of Calibration: 37																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.3		
2-Mar	Z	0.3	0.1	0.3	0.7	0.3	0.0	0.7	4.5	6.8	4.2	4.2	4.9	4.3	4.4	1.7	0.9	0.3	0.0	0.3	0.0	0.0	0.0	0.0	1.7	6.8	
3-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.8	1.6	2.1	2.9	2.0	1.5	1.2	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.9	
4-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.9	1.7	1.7	2.0	2.1	1.5	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1	
5-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.5	3.3	5.7	6.9	6.8	5.2	2.9	4.1	3.9	4.0	2.0	1.2	0.1	0.2	0.2	0.1	0.0	2.0	6.9	
6-Mar	0.2	0.2	0.1	0.0	Z	0.0	0.0	1.6	7.7	8.4	7.6	5.1	3.8	1.5	0.8	0.6	0.8	0.7	1.1	1.9	0.1	0.0	0.0	0.0	1.8	8.4	
7-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.7	3.2	7.1	6.5	5.2	4.7	4.0	3.4	2.0	1.4	2.4	0.2	0.1	0.2	0.1	0.1	0.2	1.8	7.1	
8-Mar	Z	0.0	0.0	0.2	0.1	0.1	1.1	7.2	25.2	19.0	22.8	24.4	11.8	4.4	2.9	5.6	4.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	5.7	25.2	
9-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	4.8	14.2	16.9	13.3	11.2	8.7	6.8	6.6	6.9	3.1	17.7	22.5	4.5	0.1	3.9	3.9	1.7	6.4	22.5	
10-Mar	3.4	1.6	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.4	
11-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	1.1	3.9	5.2	12.3	8.4	5.8	2.6	3.7	4.3	3.7	0.8	0.0	0.0	0.0	0.0	0.4	0.0	2.3	12.3	
12-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.6	3.8	8.8	3.7	0.5	0.2	0.2	5.4	4.9	10.5	8.4	3.4	1.1	0.0	0.0	0.0	0.0	0.0	2.2	10.5	
13-Mar	0.0	0.0	0.0	0.0	0.0	Z	1.2	0.8	3.6	7.5	10.0	8.6	8.1	12.1	6.2	5.6	4.5	1.5	0.1	0.0	0.0	0.0	0.0	0.0	3.0	12.1	
14-Mar	Z	0.0	0.0	0.0	0.0	0.1	0.3	2.7	6.1	4.8	C	C	C	C	C	C	2.1	1.4	0.2	0.0	0.0	0.0	0.0	0.0	--	6.1	
15-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.6	1.6	2.3	2.5	0.9	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5	
16-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	1.1	4.2	6.8	5.8	5.7	4.7	4.4	4.4	4.1	1.5	0.2	0.0	0.0	0.0	0.0	0.0	1.9	6.8	
17-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.2	2.0	2.5	4.5	1.0	0.9	1.7	0.5	0.3	0.9	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	4.5	
18-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.7	1.9	2.3	2.6	3.4	1.7	1.3	1.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.4	
19-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.6	1.6	1.2	2.2	2.5	3.1	2.6	2.6	2.1	1.4	0.7	0.1	0.0	0.0	0.0	0.0	0.1	0.9	3.1	
20-Mar	Z	0.0	0.0	0.1	0.0	0.2	1.0	2.6	7.4	8.1	9.1	M	4.0	4.0	3.2	2.7	1.5	0.7	0.0	0.0	0.0	0.0	0.0	0.0	2.0	9.1	
21-Mar	0.3	Z	0.3	0.0	0.4	2.3	3.2	5.2	10.5	16.0	8.9	4.9	3.6	2.4	1.7	1.3	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	2.7	16.0	
22-Mar	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.4	1.0	4.4	4.2	1.5	1.6	1.0	0.8	1.3	2.0	1.2	0.7	0.0	0.0	0.0	0.1	0.0	0.9	4.4	
23-Mar	0.1	0.1	0.2	Z	0.6	1.2	4.0	12.2	12.4	6.5	8.8	7.5	4.0	1.7	1.1	1.7	1.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	2.8	12.4	
24-Mar	0.0	0.0	0.0	0.0	Z	0.3	1.6	5.4	9.5	6.4	3.8	5.4	1.0	0.2	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	9.5	
25-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.0	7.0	8.2	3.5	2.3	1.4	1.8	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.1	8.2	
26-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	1.2	1.6	1.5	0.8	0.3	0.8	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.6	
27-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
28-Mar	0.1	0.2	Z	0.1	0.0	0.0	0.3	1.7	4.3	5.8	5.1	4.4	1.5	1.1	0.8	1.1	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2	5.8	
29-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.5	3.6	3.3	5.8	4.9	1.5	1.6	1.0	0.6	0.4	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.0	1.0	5.8	
30-Mar	0.0	0.0	0.0	0.0	Z	0.1	4.2	10.3	9.5	9.9	8.1	3.2	1.8	1.2	0.7	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.2	10.3	
31-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.2	2.5	3.2	2.2	2.3	3.5	2.8	1.7	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9	3.5	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance																											



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	702	99.43	99.43
21 - 40	4	0.57	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	102	120	41	12	4	4	24	108	160	18	6	7	22	25	16	29	698
21 - 40	0	1	0	0	0	0	0	1	2	0	0	0	0	0	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	102	121	41	12	4	4	24	109	162	18	6	7	22	25	16	29	702

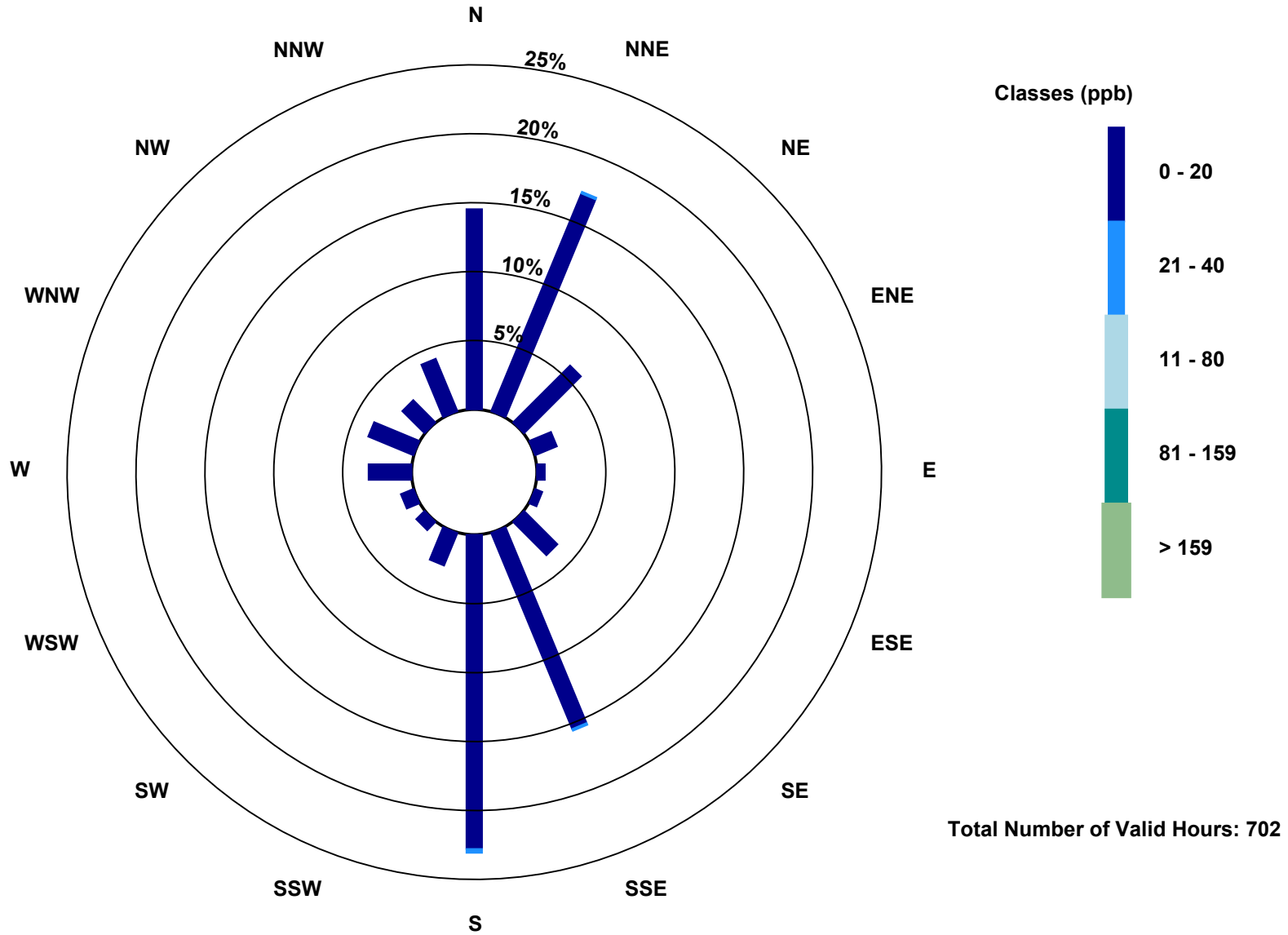
Total Number of Valid Hours: 702

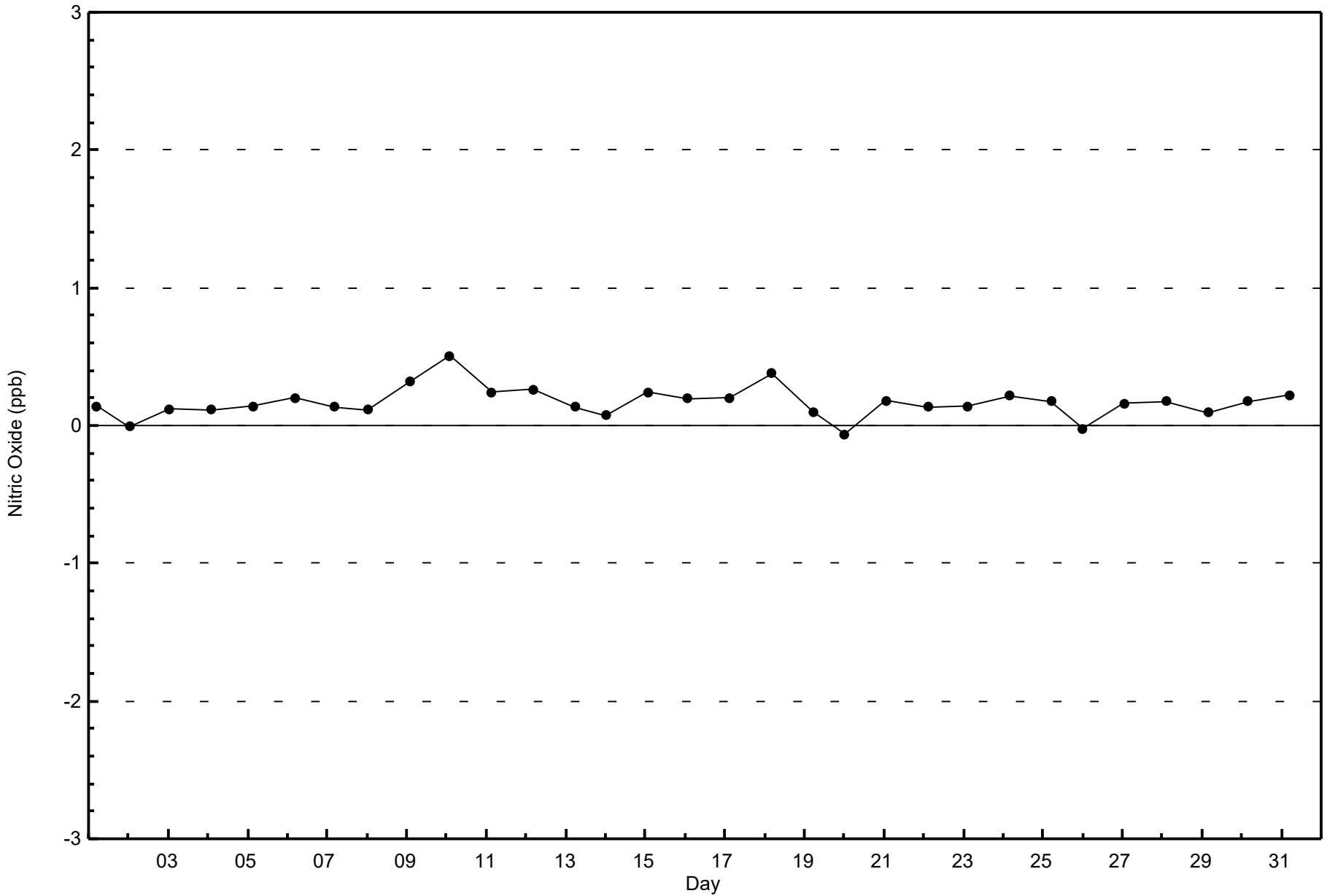
Total Number of Hours: 744

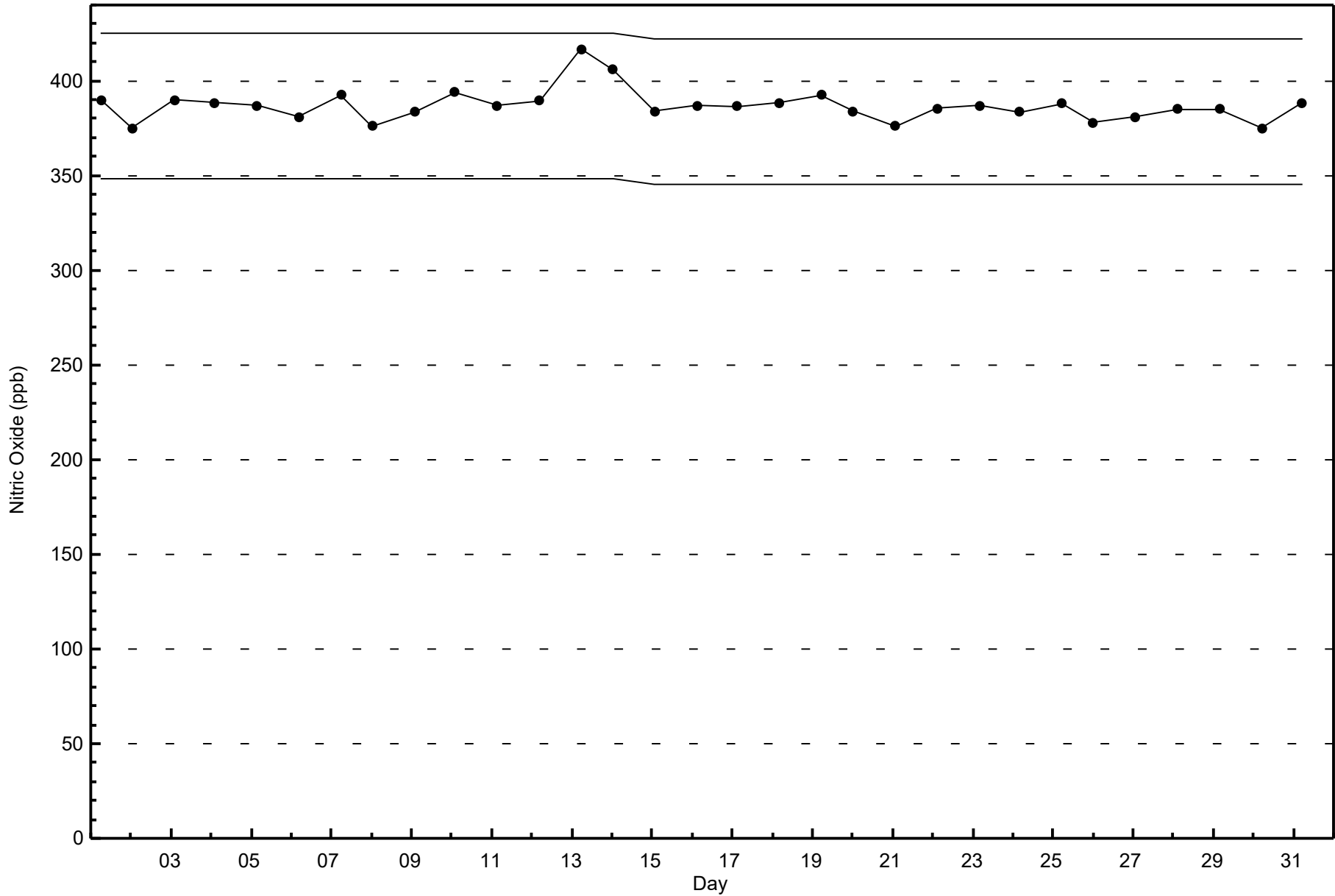


Wood Buffalo Environmental Association
Wind Rose Mar 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 45.2 ppb on Mar 9 19:00	Maximum Daily Average: 24.0 ppb on Mar 9		Hours of Data:	706
Minimum Value: 0.0 ppb on Mar 10 16:00	Minimum Daily Average: 1.5 ppb on Mar 27		Hours of Missing Data:	38
Maximum Diurnal Average: 12.1 ppb at hour 6	Minimum Diurnal Average: 5.0 ppb at hour 15		Hours of Calibration:	37
Monthly Average: 9.12 ppb	Percentiles: P ₁ = 0.1 P ₁₀ = 1.4 Q ₁ = 3.5 Median = 7.3 Q ₃ = 13.3 P ₉₀ = 19.2 P ₉₉ = 33.2		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	1.2	0.9	1.3	0.7	0.7	Z	0.7	0.8	1.0	0.6	0.3	0.1	0.1	0.1	0.1	0.5	0.9	4.5	10.4	12.8	6.8	8.2	15.3	16.4	3.7	16.4
2-Mar	Z	17.5	16.0	21.4	18.2	15.1	11.3	8.5	8.4	8.4	5.2	4.6	5.2	5.0	5.5	3.3	3.1	4.1	8.5	26.5	19.2	13.8	13.8	10.8	11.0	26.5
3-Mar	11.8	Z	11.9	9.8	8.6	8.0	7.4	9.8	7.8	7.3	7.0	7.9	6.2	4.9	4.2	4.3	3.2	1.9	1.9	1.8	2.8	5.5	2.0	5.2	6.1	11.9
4-Mar	5.9	7.8	Z	7.4	5.0	5.6	6.4	8.7	5.4	4.3	3.7	4.4	3.7	4.6	5.1	5.2	5.6	6.4	6.3	9.3	12.7	12.3	10.7	9.7	6.8	12.7
5-Mar	9.3	10.7	13.3	Z	12.6	8.7	8.9	10.3	11.3	11.0	10.0	7.2	6.1	4.5	6.0	7.5	11.2	15.5	29.0	23.1	24.5	22.8	19.7	18.9	13.1	29.0
6-Mar	23.1	20.2	16.6	13.3	Z	13.5	16.2	14.0	14.8	10.7	8.5	6.2	5.0	2.9	2.1	2.4	4.4	9.3	29.4	32.7	25.0	6.5	5.1	5.7	12.5	32.7
7-Mar	6.4	4.7	5.3	6.4	6.6	Z	9.3	10.8	10.7	12.0	9.2	7.5	6.8	6.7	6.9	5.9	8.4	17.3	15.9	18.6	21.3	14.7	16.4	21.9	10.9	21.9
8-Mar	Z	8.1	12.7	12.7	7.7	7.7	16.8	19.5	22.9	19.2	20.7	21.9	14.7	10.7	7.7	15.9	18.3	9.5	10.8	17.0	23.2	16.8	16.6	15.5	15.1	23.2
9-Mar	11.1	Z	9.2	8.0	11.1	18.2	18.3	28.2	30.0	26.5	22.3	18.2	17.5	18.9	18.2	22.2	19.2	33.9	45.2	41.0	32.7	33.6	33.7	34.1	24.0	45.2
10-Mar	33.2	29.7	Z	22.6	13.3	14.6	11.8	4.0	1.3	1.2	0.7	0.4	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	18.0	18.3	10.0	5.9	8.1	33.2
11-Mar	5.1	5.9	5.0	Z	11.5	9.3	10.8	15.0	15.4	11.5	16.2	13.7	9.6	5.5	7.4	10.1	11.6	7.6	7.8	9.2	15.6	27.1	34.6	23.3	12.6	34.6
12-Mar	14.8	13.7	13.4	14.3	Z	16.8	19.7	19.0	14.6	7.3	1.6	1.1	1.1	11.3	11.0	21.7	25.2	24.4	20.2	3.3	2.3	1.4	0.7	0.6	11.3	25.2
13-Mar	1.1	2.3	3.1	2.7	3.2	Z	13.0	6.7	8.4	12.4	14.8	12.8	14.5	17.7	10.8	12.5	14.5	11.8	5.6	6.0	5.6	7.1	10.8	6.0	8.8	17.7
14-Mar	Z	13.4	14.6	13.8	15.3	18.8	18.9	17.2	13.9	11.3	C	C	C	C	C	20.5	23.7	22.7	13.5	11.0	9.7	0.4	0.2	--	23.7	--
15-Mar	0.5	Z	0.3	0.0	0.0	1.7	2.6	6.9	4.6	1.2	1.2	2.3	3.8	5.2	5.5	3.7	3.9	4.5	5.7	8.2	7.7	8.4	10.1	7.7	4.2	10.1
16-Mar	8.5	6.3	Z	16.2	15.5	10.0	8.8	7.6	7.6	8.0	9.6	8.0	8.4	7.7	9.6	13.7	16.0	15.3	17.4	21.2	22.0	21.2	13.8	12.2	12.4	22.0
17-Mar	6.0	2.5	4.3	Z	8.5	9.1	17.6	18.5	12.3	12.9	3.1	2.5	3.8	2.2	2.3	5.0	9.0	9.5	5.4	5.1	11.7	15.2	2.4	14.2	8.0	18.5
18-Mar	14.8	27.3	13.3	14.5	Z	6.9	11.3	8.1	7.6	6.7	7.7	8.0	10.1	8.4	8.1	6.7	4.8	4.7	6.1	5.3	4.8	5.0	4.5	4.6	8.7	27.3
19-Mar	2.3	3.4	3.1	4.1	4.5	Z	5.7	5.2	5.2	2.8	4.3	4.4	5.1	4.7	4.8	4.7	4.6	4.8	5.7	5.1	6.0	5.9	7.7	7.3	4.8	7.7
20-Mar	Z	8.2	9.5	15.3	13.0	19.7	19.0	12.2	13.2	10.8	10.6	M	5.8	6.3	5.9	5.9	5.3	5.9	4.7	7.8	12.5	12.3	13.2	17.7	10.7	19.7
21-Mar	22.2	Z	25.1	22.5	26.6	30.4	28.5	20.7	19.8	18.6	11.8	7.6	6.3	4.7	3.9	3.8	3.4	2.8	2.5	4.2	9.5	21.5	19.1	15.2	14.4	30.4
22-Mar	14.7	13.4	Z	7.3	7.4	6.8	5.2	3.7	2.8	6.3	7.1	3.1	3.5	2.5	2.5	4.0	7.7	11.0	22.7	22.3	21.5	21.6	20.6	18.7	10.3	22.7
23-Mar	17.5	16.6	16.8	Z	21.2	22.0	21.2	18.5	15.1	9.9	12.0	10.6	7.2	4.2	3.2	5.1	6.8	6.4	7.5	8.8	9.0	4.9	5.1	4.3	11.0	22.0
24-Mar	4.7	4.6	6.6	8.9	Z	17.9	17.9	15.6	16.6	14.0	9.5	10.2	2.9	1.3	3.2	3.4	3.2	2.9	2.0	3.9	3.8	2.3	1.3	1.4	6.9	17.9
25-Mar	1.0	0.8	1.3	0.9	1.2	Z	1.0	1.2	4.5	15.5	14.4	7.2	5.5	4.1	5.0	2.2	2.2	1.6	2.4	4.1	2.5	2.3	3.6	3.6	3.8	15.5
26-Mar	Z	2.3	2.2	2.8	3.9	3.8	3.4	3.6	3.2	2.6	3.5	4.4	4.3	2.8	1.5	3.7	4.3	4.0	3.5	3.6	4.2	8.6	6.4	3.3	3.7	8.6
27-Mar	0.8	Z	0.7	0.5	0.5	0.9	1.1	0.9	1.4	1.3	0.8	0.9	0.9	0.8	0.8	0.8	0.9	0.4	0.3	0.4	1.2	2.7	6.4	8.8	1.5	8.8
28-Mar	13.3	22.8	Z	20.4	14.6	13.3	11.6	12.1	12.6	11.2	8.4	6.0	2.5	1.9	1.9	3.3	4.2	2.8	1.8	2.4	0.6	0.4	1.7	7.8	7.7	22.8
29-Mar	12.8	13.3	3.1	Z	14.3	12.6	11.3	16.9	10.2	8.7	6.8	2.4	2.4	1.8	1.7	1.7	2.3	2.5	5.5	6.5	10.6	7.8	6.7	8.3	7.4	16.9
30-Mar	4.0	8.4	9.2	10.2	Z	10.5	14.2	14.2	11.1	11.1	9.5	4.9	3.1	2.5	1.8	1.4	2.1	3.5	3.2	2.8	2.1	2.5	2.2	3.8	6.0	14.2
31-Mar	5.5	6.6	8.4	8.4	3.2	Z	6.0	8.9	7.4	4.5	4.5	5.9	5.6	4.6	2.4	2.3	3.2	3.4	3.0	3.1	2.3	2.1	1.7	2.5	4.6	8.9

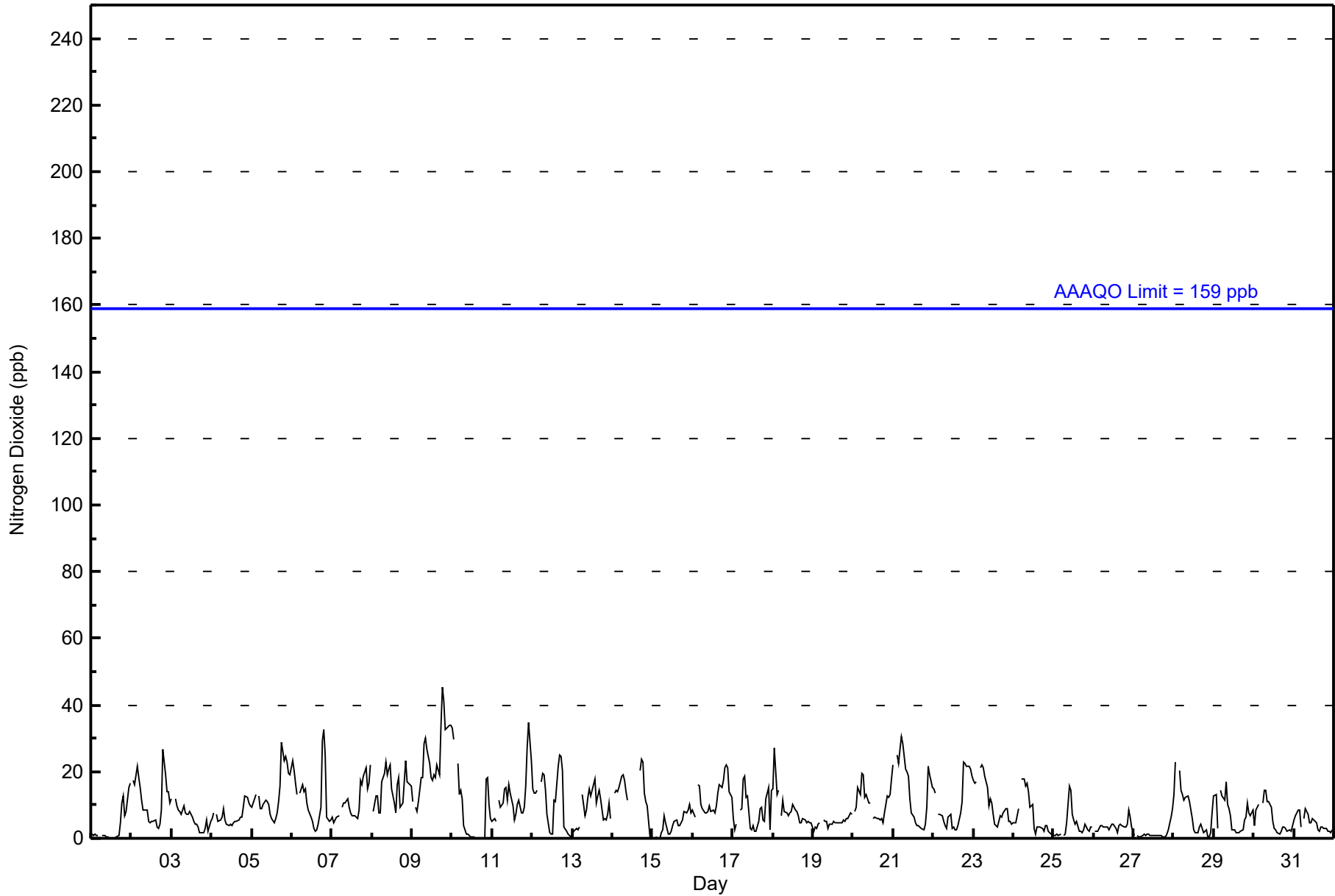
9.7	10.4	8.7	10.2	9.5	12.1	11.5	11.2	10.4	9.3	8.2	6.7	5.7	5.3	5.0	6.1	7.4	8.3	10.1	10.6	11.4	11.0	10.2	10.2	Diurnal Average	
33.2	29.7	25.1	22.6	26.6	30.4	28.5	28.2	30.0	26.5	22.3	21.9	17.5	18.9	18.2	22.2	25.2	33.9	45.2	41.0	32.7	33.6	34.6	34.1	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Fort McKay - Bertha Ganter - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Fort McKay - Bertha Ganter - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	645	91.36	91.36
21 - 40	59	8.36	99.72
41 - 80	2	0.28	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



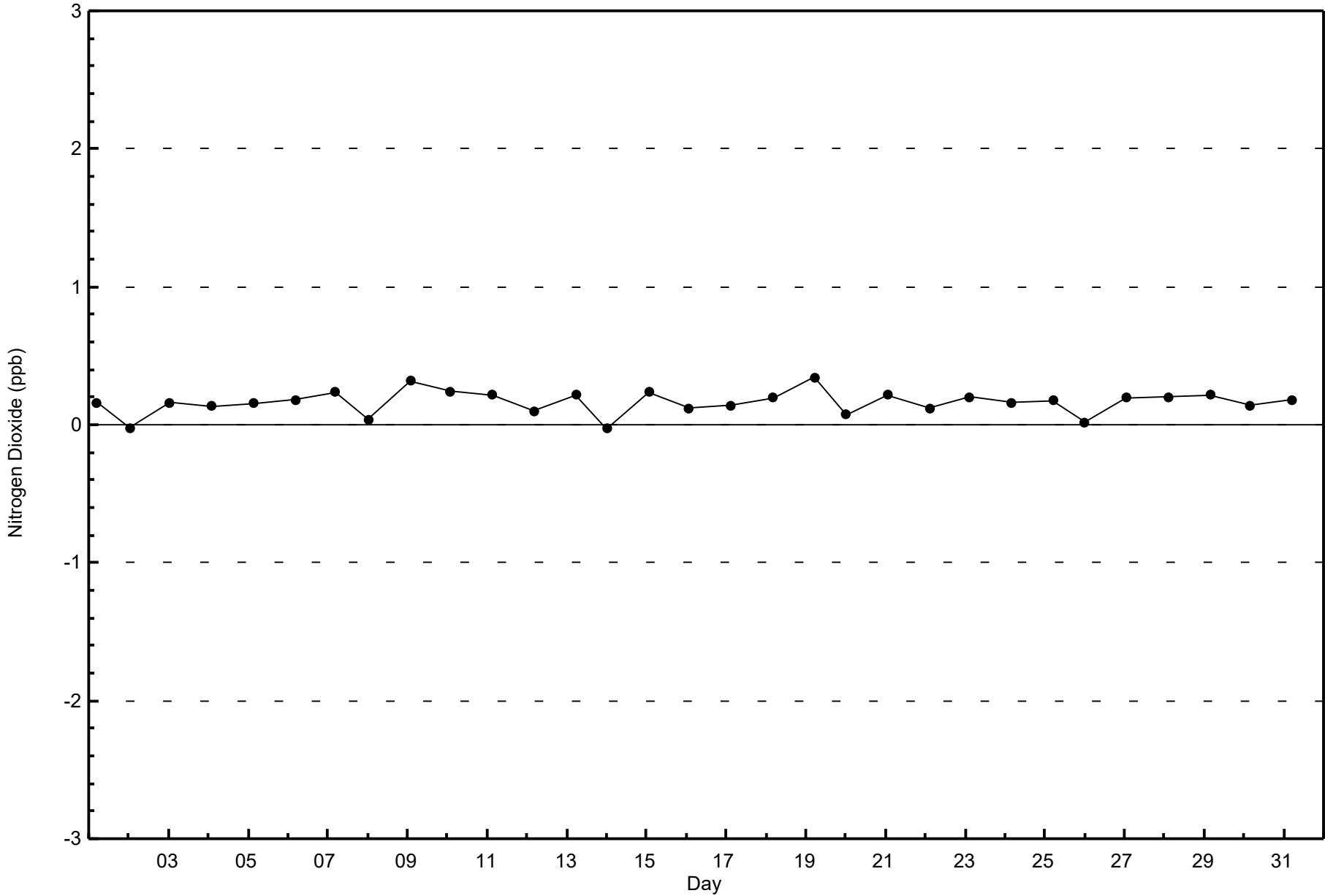
**Wood Buffalo Environmental Association
Frequency Distribution**

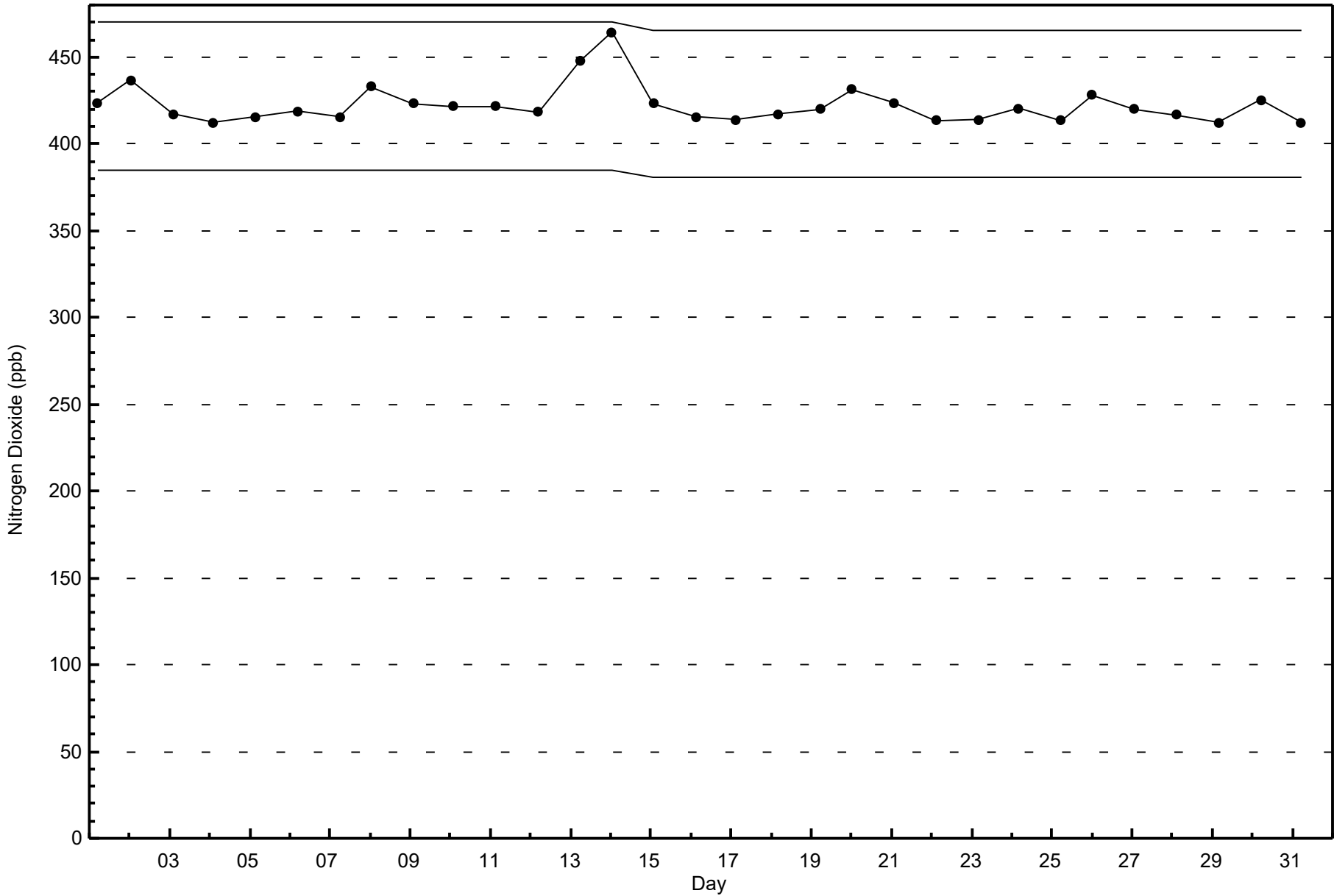
**Nitrogen Dioxide (NO₂) - ppb
Fort McKay - Bertha Ganter - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	96	115	40	11	4	4	24	107	139	13	6	5	22	24	14	20	644
21 - 40	6	5	1	1	0	0	0	2	22	5	0	2	0	1	2	9	56
11 - 80	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	102	121	41	12	4	4	24	109	162	18	6	7	22	25	16	29	702

Total Number of Valid Hours: 702

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

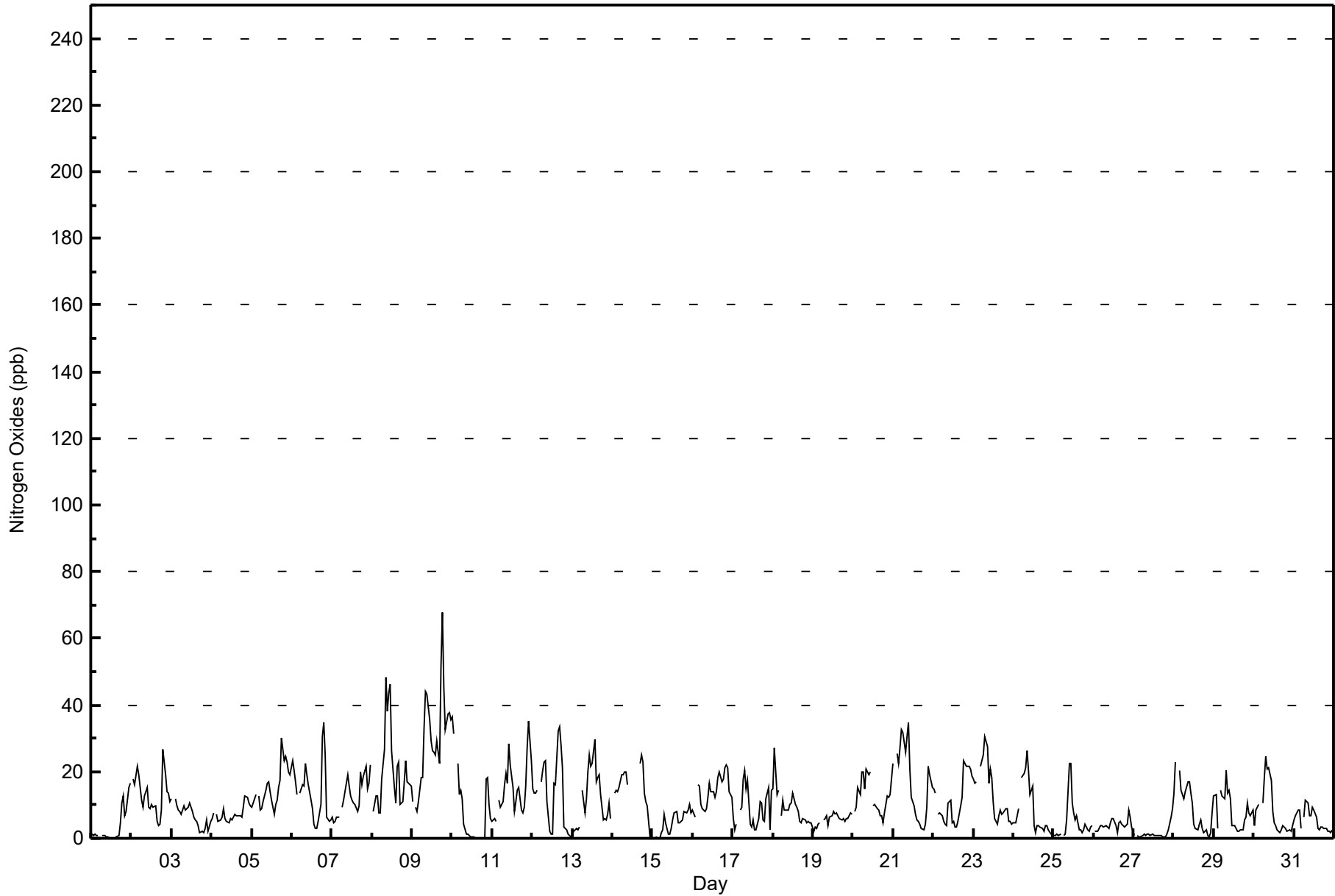
Nitrogen Oxides (NO_x) - ppb
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 67.7 ppb on Mar 9 19:00		Maximum Daily Average: 30.4 ppb on Mar 9		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Mar 10 16:00		Minimum Daily Average: 1.5 ppb on Mar 27		Hours of Data: 706																																													
Maximum Diurnal Average: 15.2 ppb at hour 9		Minimum Diurnal Average: 7.1 ppb at hour 15		Hours of Missing Data: 38																																													
Monthly Average: 10.76 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 1.4 Q ₁ = 4.0 Median = 8.4 Q ₃ = 15.4 P ₉₀ = 22.5 P ₉₉ = 43.2		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-Mar	1.2	0.9	1.3	0.7	0.7	Z	0.7	0.8	1.1	0.6	0.3	0.1	0.1	0.1	0.1	0.5	1.0	4.8	10.4	12.8	6.8	8.3	15.4	16.5	3.7	16.5																							
2-Mar	Z	17.8	16.1	21.7	18.9	15.4	11.3	9.2	12.9	15.2	9.4	8.8	10.1	9.3	9.9	5.0	4.0	4.4	8.5	26.8	19.2	13.8	13.8	10.8	12.7	26.8																							
3-Mar	11.8	Z	11.9	9.8	8.6	8.0	7.4	9.9	8.6	8.9	9.1	10.8	8.2	6.4	5.4	5.2	3.6	1.9	1.9	1.8	2.8	5.5	2.0	5.2	6.7	11.9																							
4-Mar	5.9	7.8	Z	7.4	5.0	5.6	6.4	8.8	5.7	5.0	4.6	6.1	5.4	6.6	7.2	6.7	6.6	6.7	6.3	9.3	12.7	12.3	10.7	9.7	7.3	12.7																							
5-Mar	9.3	10.7	13.3	Z	12.6	8.7	8.9	10.8	14.6	16.7	16.9	14.0	11.3	7.4	10.1	11.4	15.2	17.5	30.2	23.2	24.7	23.0	19.8	18.9	15.2	30.2																							
6-Mar	23.3	20.4	16.7	13.3	Z	13.5	16.2	15.6	22.5	19.1	16.1	11.3	8.8	4.4	2.9	3.0	5.2	10.0	30.5	34.6	25.1	6.5	5.1	5.7	14.4	34.6																							
7-Mar	6.4	4.7	5.3	6.4	6.6	Z	9.3	11.5	13.9	19.1	15.7	12.7	11.5	10.7	10.3	7.9	9.8	19.7	16.1	18.7	21.5	14.8	16.5	22.1	12.7	22.1																							
8-Mar	Z	8.1	12.7	12.9	7.8	7.8	17.9	26.7	48.1	38.2	43.5	46.3	26.5	15.1	10.6	21.5	23.0	10.1	10.8	17.0	23.2	16.8	16.6	15.5	20.7	48.1																							
9-Mar	11.1	Z	9.2	8.0	11.1	18.2	18.3	33.0	44.2	43.4	35.6	29.4	26.2	25.7	24.8	29.1	22.3	51.6	67.7	45.5	32.8	37.5	37.6	35.8	30.4	67.7																							
10-Mar	36.6	31.3	Z	22.6	13.3	14.6	11.8	4.0	1.3	1.2	0.7	0.4	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	18.0	18.3	10.0	5.9	8.3	36.6																							
11-Mar	5.1	5.9	5.0	Z	11.5	9.3	10.8	16.1	19.3	16.7	28.5	22.1	15.4	8.1	11.1	14.4	15.3	8.4	7.8	9.2	15.6	27.1	35.0	23.3	14.8	35.0																							
12-Mar	14.8	13.7	13.4	14.3	Z	16.8	20.3	22.8	23.4	11.0	2.1	1.3	1.3	16.7	15.9	32.2	33.6	27.8	21.3	3.3	2.3	1.4	0.7	0.6	13.5	33.6																							
13-Mar	1.1	2.3	3.1	2.7	3.2	Z	14.2	7.5	12.0	19.9	24.8	21.4	22.6	29.8	17.0	18.1	19.0	13.3	5.7	6.0	5.6	7.1	10.8	6.0	11.9	29.8																							
14-Mar	Z	13.4	14.6	13.8	15.3	18.9	19.2	19.9	20.0	16.1	C	C	C	C	C	22.6	25.1	22.9	13.5	11.0	9.7	0.4	0.2	--	--	25.1																							
15-Mar	0.5	Z	0.3	0.0	0.0	1.7	2.6	7.1	4.8	1.2	1.2	2.9	5.4	7.5	8.0	4.6	4.7	4.9	5.7	8.2	7.7	8.4	10.1	7.7	4.6	10.1																							
16-Mar	8.5	6.3	Z	16.2	15.5	10.0	8.8	7.9	8.7	12.2	16.4	13.8	14.1	12.4	14.0	18.1	20.1	16.8	17.6	21.2	22.0	21.2	13.8	12.2	14.2	22.0																							
17-Mar	6.0	2.5	4.3	Z	8.5	9.1	17.8	20.5	14.8	17.4	4.1	3.4	5.5	2.7	2.6	5.9	10.9	10.5	5.4	5.1	11.7	15.2	2.4	14.4	8.7	20.5																							
18-Mar	14.8	27.3	13.3	14.5	Z	6.9	11.3	8.3	8.3	8.6	10.0	10.6	13.5	10.1	9.4	8.0	5.3	4.8	6.1	5.3	4.8	5.0	4.5	4.6	9.4	27.3																							
19-Mar	2.3	3.4	3.1	4.1	4.5	Z	5.7	5.8	6.8	4.0	6.5	6.9	8.2	7.3	7.4	6.8	6.0	5.5	5.8	5.1	6.0	5.9	7.7	7.4	5.7	8.2																							
20-Mar	Z	8.2	9.5	15.4	13.0	19.9	20.0	14.8	20.6	18.9	19.7	M	9.8	10.3	9.1	8.6	6.8	6.6	4.7	7.8	12.5	12.3	13.2	17.7	12.7	20.6																							
21-Mar	22.5	Z	25.4	22.5	27.0	32.7	31.7	25.9	30.3	34.6	20.7	12.5	9.9	7.1	5.6	5.1	4.2	3.0	2.5	4.2	9.5	21.5	19.1	15.2	17.1	34.6																							
22-Mar	14.7	13.4	Z	7.3	7.4	6.9	5.2	4.1	3.8	10.7	11.3	4.6	5.1	3.5	3.3	5.3	9.7	12.2	23.4	22.3	21.5	21.6	20.7	18.7	11.2	23.4																							
23-Mar	17.6	16.7	17.0	Z	21.8	23.2	25.2	30.7	27.5	16.4	20.8	18.1	11.2	5.9	4.3	6.8	8.4	7.0	7.5	8.8	9.0	4.9	5.1	4.3	13.8	30.7																							
24-Mar	4.7	4.6	6.6	8.9	Z	18.2	19.5	21.0	26.1	20.4	13.3	15.6	3.9	1.5	3.8	3.9	3.5	3.0	2.0	3.9	3.8	2.3	1.3	1.4	8.4	26.1																							
25-Mar	1.0	0.8	1.3	0.9	1.2	Z	1.0	1.2	5.5	22.5	22.6	10.7	7.8	5.5	6.8	2.7	2.5	1.7	2.4	4.1	2.5	2.3	3.6	3.6	5.0	22.6																							
26-Mar	Z	2.3	2.2	2.8	3.9	3.8	3.5	3.8	3.5	3.1	4.7	6.0	5.8	3.6	1.8	4.5	4.9	4.2	3.5	3.6	4.2	8.6	6.4	3.3	4.1	8.6																							
27-Mar	0.8	Z	0.7	0.5	0.5	0.9	1.1	0.9	1.4	1.5	0.9	1.1	1.0	0.9	0.8	0.8	0.9	0.4	0.3	0.4	1.2	2.7	6.4	8.8	1.5	8.8																							
28-Mar	13.4	23.0	Z	20.5	14.6	13.3	11.9	13.8	16.9	17.0	13.5	10.4	4.0	3.0	2.7	4.4	5.3	3.1	1.8	2.4	0.6	0.4	1.7	7.8	8.9	23.0																							
29-Mar	12.8	13.3	3.1	Z	14.3	12.6	11.8	20.5	13.5	14.5	11.7	3.9	4.0	2.8	2.3	2.1	2.7	2.7	5.7	6.5	10.6	7.8	6.7	8.3	8.4	20.5																							
30-Mar	4.0	8.4	9.2	10.2	Z	10.6	18.4	24.5	20.6	21.1	17.6	8.1	4.9	3.7	2.5	1.7	2.5	3.9	3.2	2.8	2.1	2.5	2.2	3.8	8.2	24.5																							
31-Mar	5.5	6.6	8.4	8.4	3.2	Z	6.2	11.4	10.6	6.7	6.8	9.4	8.4	6.3	2.9	2.6	3.4	3.5	3.0	3.1	2.3	2.1	1.7	2.5	5.4	11.4																							
																								9.8	10.5	8.7	10.2	9.6	12.3	12.1	13.5	15.2	14.9	13.6	11.1	9.0	7.8	7.1	8.2	9.1	9.5	11.0	10.9	11.4	11.2	10.4	10.3	Diurnal Average	
																								36.6	31.3	25.4	22.6	27.0	32.7	31.7	33.0	48.1	43.4	43.5	46.3	26.5	29.8	24.8	32.2	33.6	51.6	67.7	45.5	32.8	37.5	37.6	35.8	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	609	86.26	86.26
21 - 40	89	12.61	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: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Fort McKay - Bertha Ganter - March 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	92	113	38	10	4	4	24	99	120	13	6	5	22	24	14	20	608
21 - 40	10	7	3	1	0	0	0	9	37	5	0	2	0	1	2	9	86
11 - 80	0	1	0	1	0	0	0	1	5	0	0	0	0	0	0	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
Totals	102	121	41	12	4	4	24	109	162	18	6	7	22	25	16	29	702

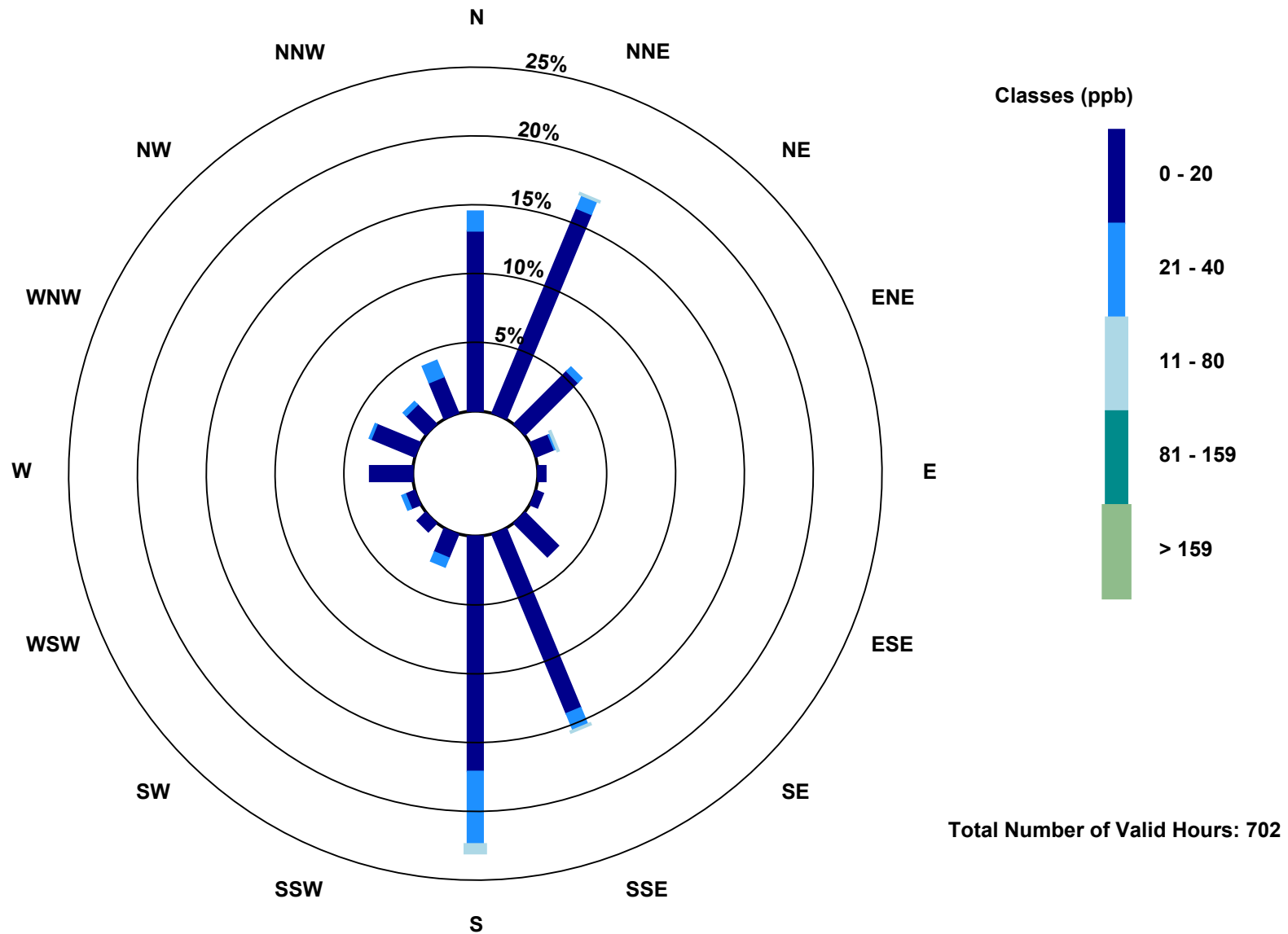
Total Number of Valid Hours: 702

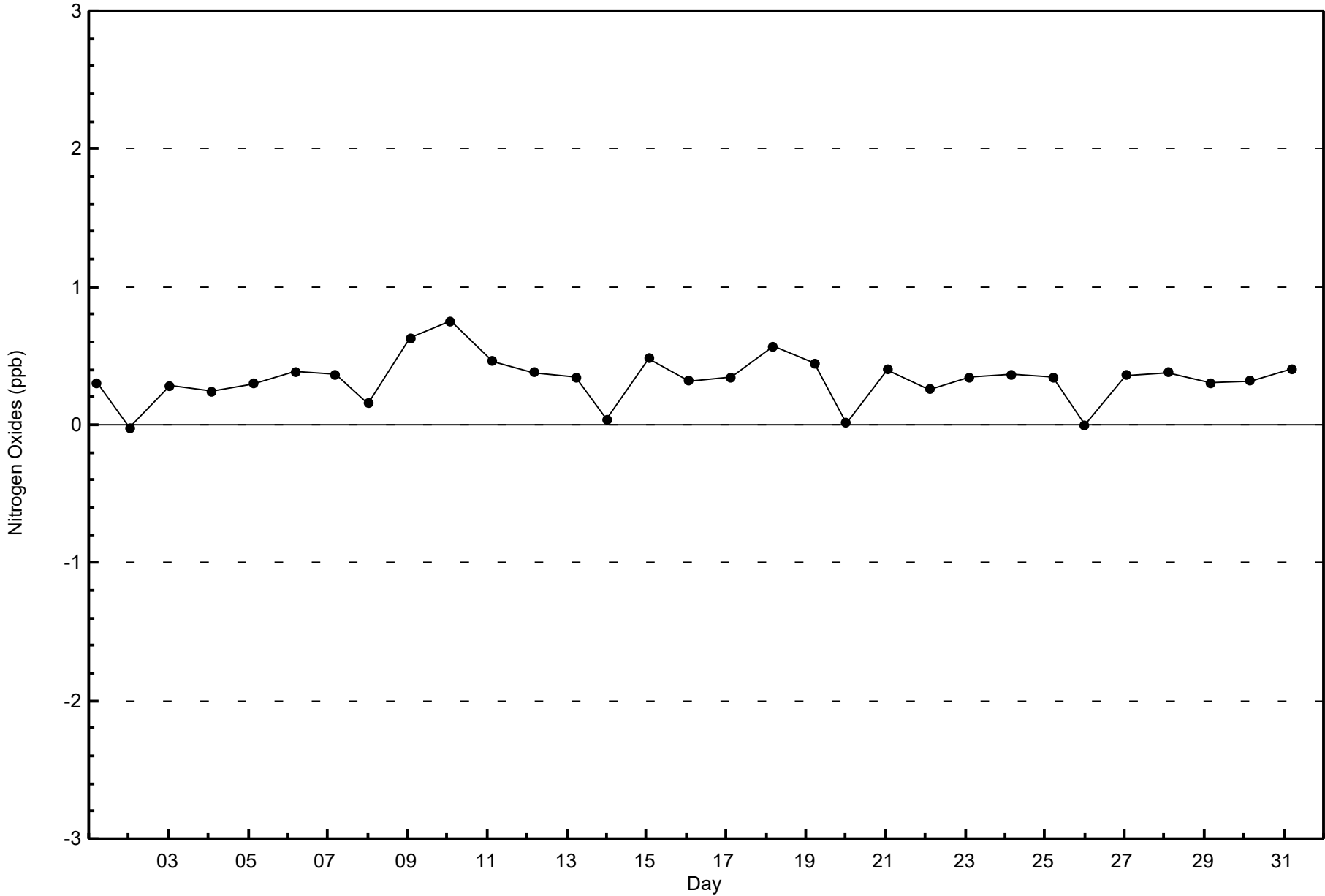
Total Number of Hours: 744

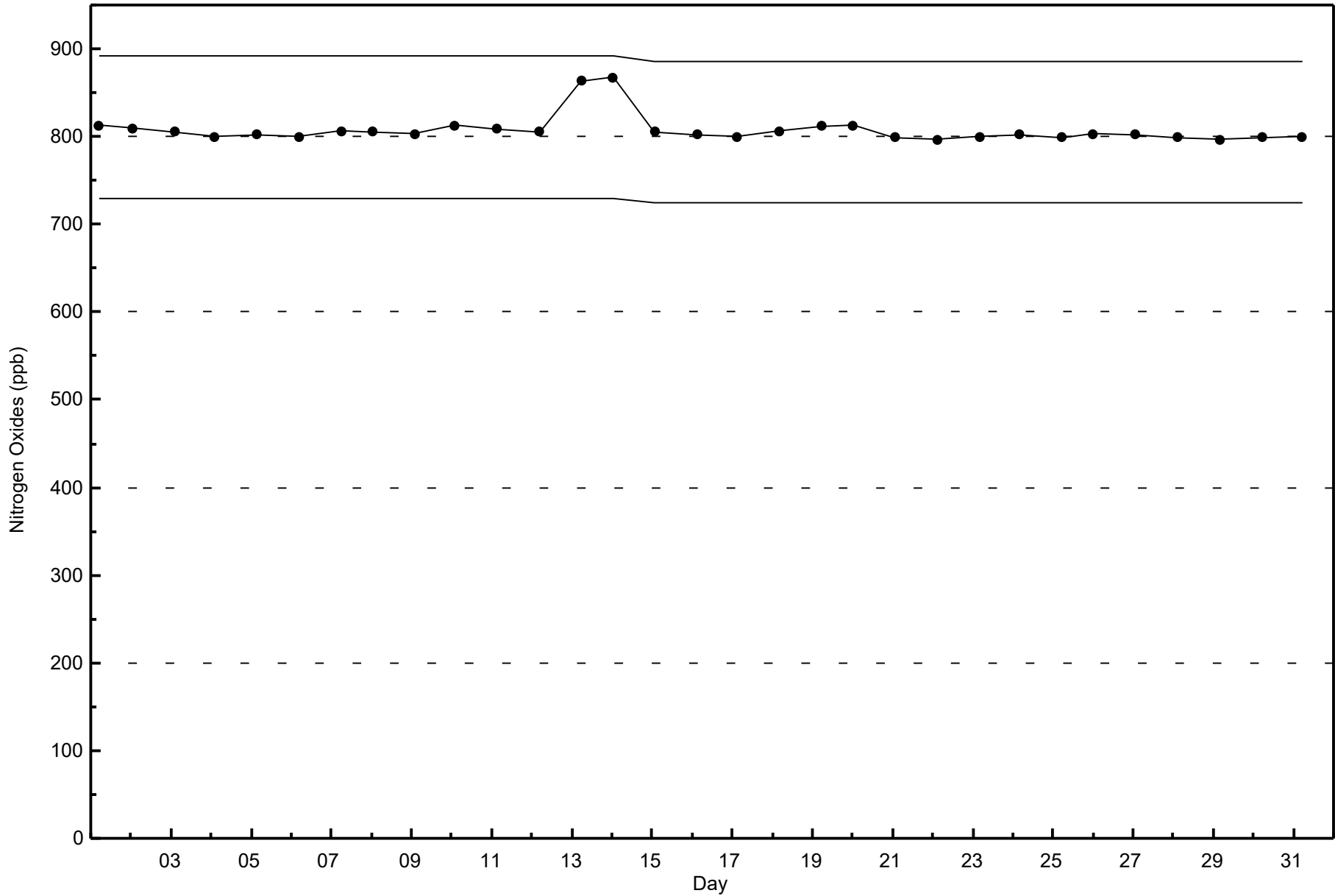


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Fort McKay - Bertha Ganter









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.5 ppb on Mar 10 18:00	Maximum Daily Average: 34.5 ppb on Mar 25		Hours of Data:	708
Minimum Value: 1.8 ppb on Mar 9 23:00	Minimum Daily Average: 17.4 ppb on Mar 9		Hours of Missing Data:	36
Maximum Diurnal Average: 32.1 ppb at hour 15	Minimum Diurnal Average: 19.5 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 25.61 ppb	Percentiles: P ₁ = 3.7 P ₁₀ = 13.6 Q ₁ = 20.3 Median = 26.2 Q ₃ = 32.6 P ₉₀ = 35.8 P ₉₉ = 39.0		Percent Operational Time:	99.9

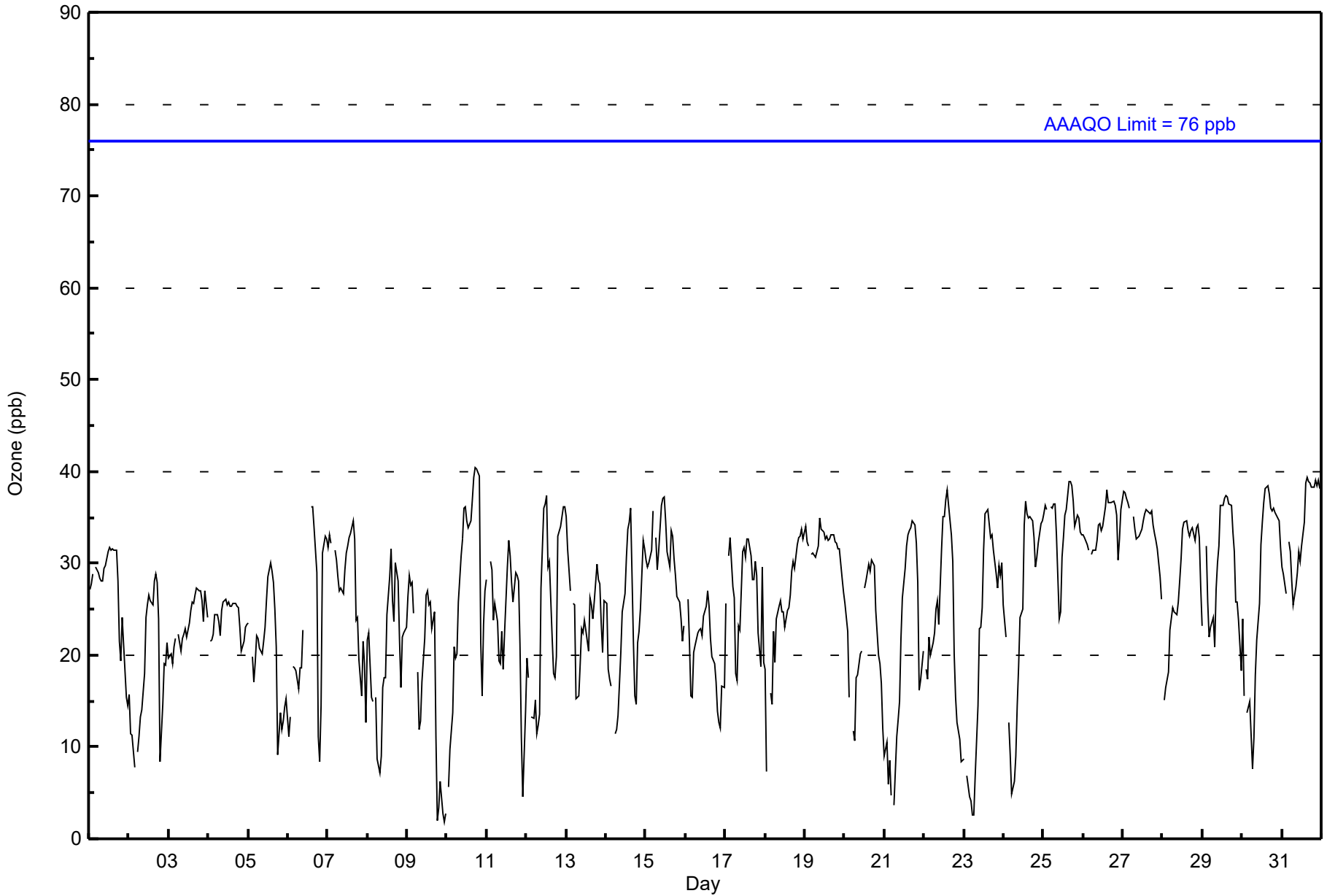
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	27.2	27.8	28.8	Z	29.5	28.9	28.4	28.1	28.1	29.5	29.8	31.3	31.7	31.4	31.5	31.5	31.4	28.1	21.5	19.4	24.1	21.3	15.4	14.5	26.9	31.7
2-Mar	15.8	11.5	11.3	7.9	Z	9.4	11.1	13.2	14.1	18.0	24.1	25.4	26.5	26.0	25.5	28.1	28.9	27.9	23.9	8.4	14.7	19.1	18.9	21.3	18.7	28.9
3-Mar	19.8	20.1	19.1	20.9	21.8	Z	22.3	20.4	21.9	22.3	22.8	22.0	23.5	24.8	25.7	25.7	26.6	27.3	27.0	27.0	25.9	23.7	27.0	24.1	23.6	27.3
4-Mar	Z	21.5	21.7	22.2	24.5	24.4	23.6	22.1	24.9	25.7	26.1	25.4	25.8	25.4	25.3	25.6	25.7	25.3	25.1	23.0	20.4	21.5	23.1	23.3	24.0	26.1
5-Mar	23.4	Z	19.8	17.0	19.2	22.2	21.8	20.8	20.2	21.5	23.0	25.9	28.5	30.1	29.1	28.0	25.0	20.9	9.1	13.8	11.9	12.8	14.4	15.3	20.6	30.1
6-Mar	11.1	13.2	Z	18.8	18.5	18.3	16.4	18.6	18.7	22.7	C	C	C	C	36.1	36.2	33.8	29.0	11.2	8.4	14.5	31.1	33.0	32.6	22.2	36.2
7-Mar	31.7	33.0	32.2	Z	31.5	30.3	28.5	27.0	27.3	26.8	29.3	31.0	31.9	32.8	33.3	34.6	32.6	23.8	24.1	19.6	15.5	21.5	19.1	12.7	27.4	34.6
8-Mar	21.7	22.4	15.4	14.9	Z	15.3	8.7	7.2	8.9	16.5	17.5	17.5	24.4	28.5	31.5	25.9	23.6	30.1	28.1	21.7	16.5	22.0	22.5	23.0	20.2	31.5
9-Mar	26.4	28.6	27.6	27.9	24.5	Z	18.1	11.9	12.9	17.1	21.8	26.6	27.0	25.4	25.8	23.0	24.7	11.2	2.0	3.3	6.2	2.8	1.8	2.8	17.4	28.6
10-Mar	Z	5.6	9.8	13.7	20.9	19.6	20.2	25.7	30.8	32.6	36.0	36.2	34.6	33.8	34.6	36.9	39.3	40.5	40.2	39.6	21.4	15.5	23.3	27.1	27.7	40.5
11-Mar	28.2	Z	30.2	29.3	23.8	25.7	23.6	19.4	19.1	22.5	18.5	22.4	29.5	32.5	30.8	27.9	25.7	28.9	28.7	28.0	21.1	11.0	4.5	13.9	23.7	32.5
12-Mar	19.7	17.5	Z	13.3	13.2	15.2	11.4	12.4	13.6	27.4	36.1	36.5	37.4	29.6	30.1	21.8	18.0	17.6	19.9	33.0	34.1	35.0	36.1	36.1	24.6	37.4
13-Mar	35.0	31.6	27.1	Z	25.6	25.5	15.2	15.6	19.0	22.9	22.4	23.8	22.8	20.5	26.2	25.5	24.0	25.8	29.9	28.2	27.8	23.5	20.3	25.9	24.5	35.0
14-Mar	25.6	18.5	17.4	16.6	Z	11.5	12.0	13.4	16.8	20.3	24.7	26.6	30.7	33.7	34.5	36.0	21.4	15.6	14.6	21.3	22.6	25.0	32.4	31.6	22.7	36.0
15-Mar	30.3	29.6	30.0	31.4	35.8	Z	32.8	29.3	31.3	36.4	37.0	37.3	34.7	31.3	29.6	33.5	33.0	30.6	28.7	26.4	25.8	23.9	21.5	23.3	30.6	37.3
16-Mar	Z	26.0	21.3	15.5	15.4	20.2	21.0	22.4	22.7	22.9	22.1	24.2	25.3	26.9	25.3	21.8	19.9	19.1	17.1	13.9	12.7	12.1	16.7	16.4	20.0	26.9
17-Mar	25.6	Z	30.8	32.8	27.5	26.3	18.0	17.2	23.2	22.8	31.2	31.8	30.6	32.7	32.6	30.8	28.2	28.2	30.2	28.6	22.4	18.8	29.6	19.2	26.9	32.8
18-Mar	18.4	7.3	Z	15.8	14.7	22.5	19.2	24.0	25.4	25.9	24.7	24.7	23.0	24.8	25.2	26.5	29.1	30.2	29.5	32.1	32.7	32.9	33.8	32.7	25.0	33.8
19-Mar	34.1	32.3	31.8	Z	30.9	31.1	30.6	31.2	31.9	34.9	33.8	33.4	32.6	33.0	32.5	32.6	33.1	33.1	32.4	32.2	31.7	31.6	28.4	26.9	32.0	34.9
20-Mar	25.7	24.1	22.5	15.4	Z	11.8	10.7	17.5	17.9	20.1	20.4	M	27.3	28.1	30.0	29.2	30.3	30.1	29.7	24.8	20.0	19.1	17.0	12.1	22.0	30.3
21-Mar	9.0	10.6	6.0	8.6	4.8	Z	3.6	11.2	12.9	14.9	21.8	26.2	29.4	31.8	33.1	33.6	33.9	34.6	34.2	32.2	28.0	16.2	17.2	20.4	20.6	34.6
22-Mar	Z	18.5	17.4	21.9	20.0	21.3	22.4	25.0	26.0	23.4	31.5	35.2	35.2	36.9	38.1	36.2	33.0	30.2	20.1	15.4	12.7	10.8	8.4	8.5	23.8	38.1
23-Mar	8.7	Z	6.8	4.6	4.1	2.6	2.6	6.8	14.5	22.8	23.1	25.2	31.4	35.5	35.8	34.3	32.8	33.1	31.4	28.8	27.4	29.7	28.6	30.1	21.8	35.8
24-Mar	25.4	22.0	Z	12.7	9.1	4.9	6.2	9.0	14.5	18.8	24.1	25.0	34.1	36.8	35.4	35.0	35.0	34.7	32.9	29.6	30.7	32.2	34.3	34.7	25.1	36.8
25-Mar	35.4	36.3	35.9	Z	36.2	35.9	36.5	36.5	33.1	24.0	24.7	30.7	32.8	35.2	35.9	39.0	38.9	38.5	36.7	34.0	35.2	34.9	33.3	33.0	34.5	39.0
26-Mar	33.2	32.7	32.1	31.4	Z	30.9	31.4	31.4	32.5	34.1	34.3	33.6	34.0	36.2	38.0	36.6	36.5	36.5	36.7	36.3	35.2	30.4	32.6	35.8	34.0	38.0
27-Mar	37.8	37.7	37.1	36.6	35.9	Z	35.1	33.7	32.6	32.8	33.0	33.7	34.6	35.4	35.8	35.7	35.4	35.6	34.1	33.3	32.6	31.6	28.5	26.1	34.1	37.8
28-Mar	Z	15.2	16.5	18.1	22.8	23.9	25.2	24.8	24.4	25.8	28.1	30.6	33.7	34.5	34.7	33.6	32.9	33.5	33.8	32.5	33.9	34.1	32.8	27.4	28.4	34.7
29-Mar	23.2	Z	32.0	25.8	21.9	23.0	24.2	20.8	27.1	30.0	31.8	36.3	36.4	37.1	37.3	37.1	36.5	36.3	33.4	31.2	25.8	25.7	23.9	18.3	29.4	37.3
30-Mar	23.9	15.5	Z	13.7	15.0	11.3	7.7	11.0	17.8	21.6	25.6	32.1	34.5	36.5	38.1	38.5	37.5	36.0	35.8	35.9	35.5	34.9	34.6	31.7	27.2	38.5
31-Mar	29.6	28.8	26.7	Z	32.3	31.2	28.1	25.4	27.4	29.0	31.3	30.2	31.9	34.4	38.8	39.4	38.8	38.7	38.4	38.2	39.0	38.4	39.0	38.2	33.6	39.4
24.8 22.6 23.4 19.5 22.3 20.9 19.9 20.4 22.3 24.7 27.0 29.0 30.5 31.4 32.1 31.6 30.5 29.4 27.1 25.8 24.4 24.0 24.3 23.8																								Diurnal Average		
37.8 37.7 37.1 36.6 36.2 35.9 36.5 36.5 33.1 36.4 37.0 37.3 37.4 37.1 38.8 39.4 39.3 40.5 40.2 39.6 39.0 38.4 39.0 38.2																								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 (O₃) - ppb
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	182	25.71	25.71
21 - 50	526	74.29	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 (O₃) - ppb
Fort McKay - Bertha Ganter - March 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	28	27	7	4	0	0	0	9	49	11	5	5	5	6	9	13	178
21 - 50	77	94	33	8	4	4	23	96	117	9	3	2	17	16	9	14	526
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
Totals	105	121	40	12	4	4	23	105	166	20	8	7	22	22	18	27	704

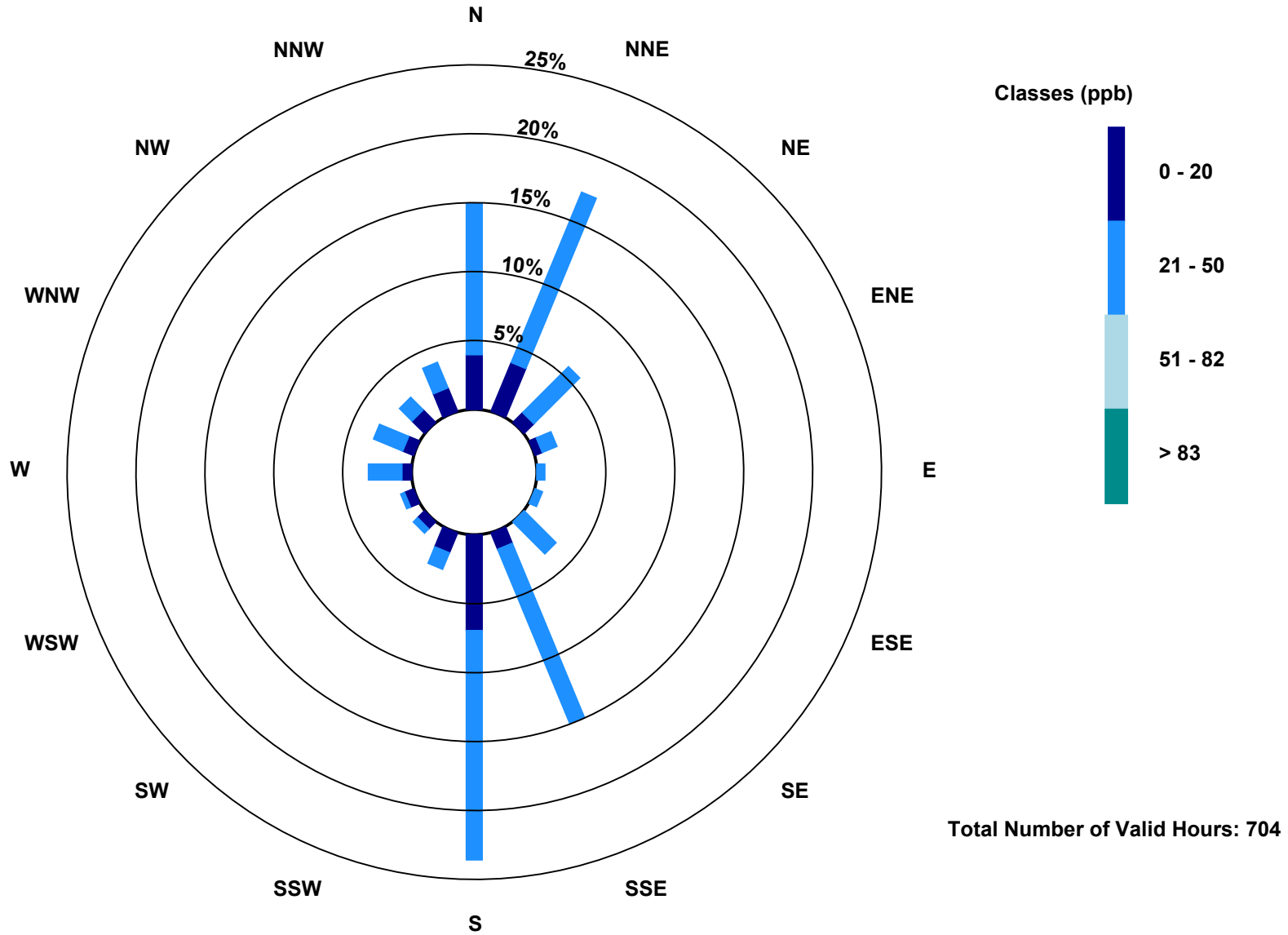
Total Number of Valid Hours: 704

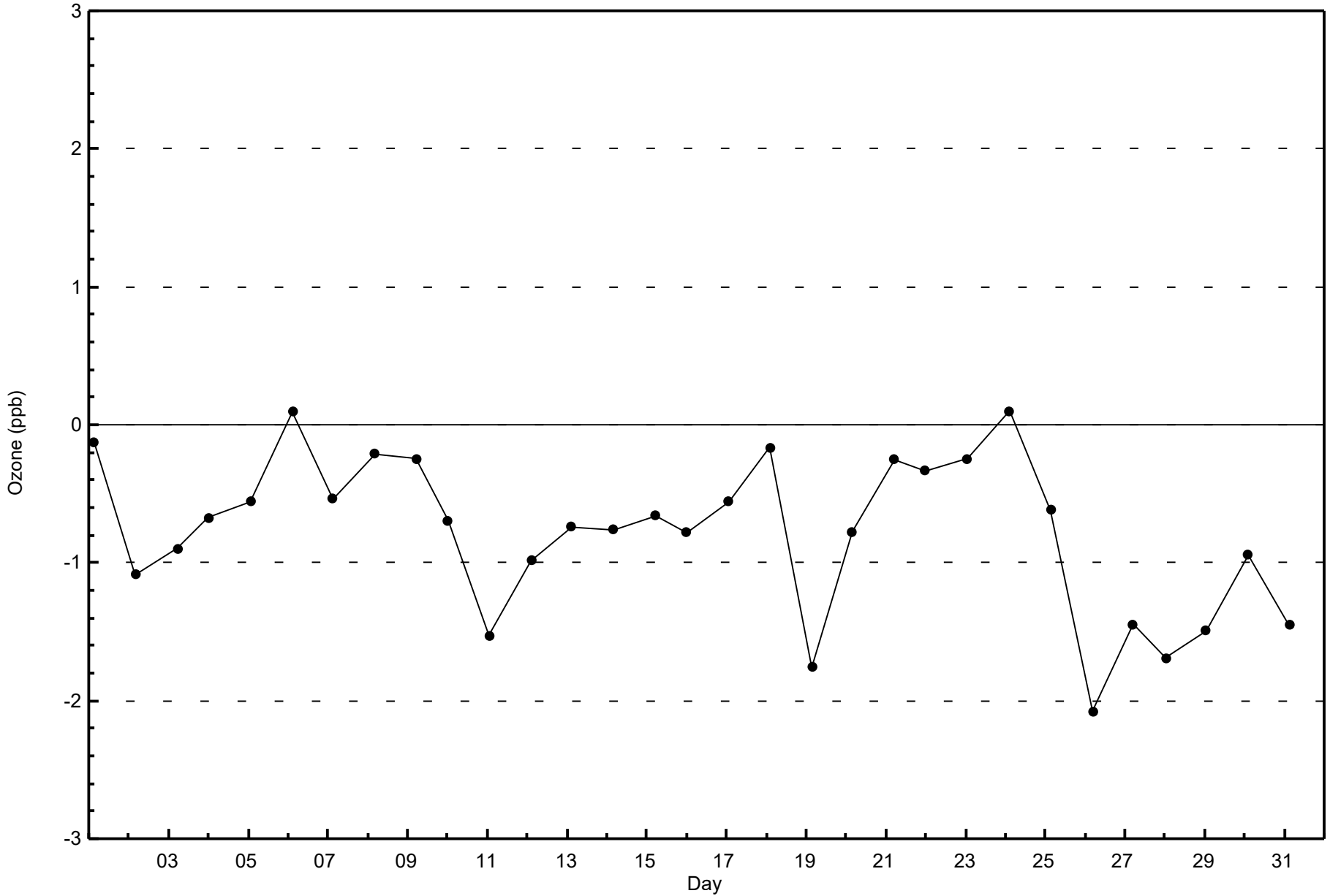
Total Number of Hours: 744

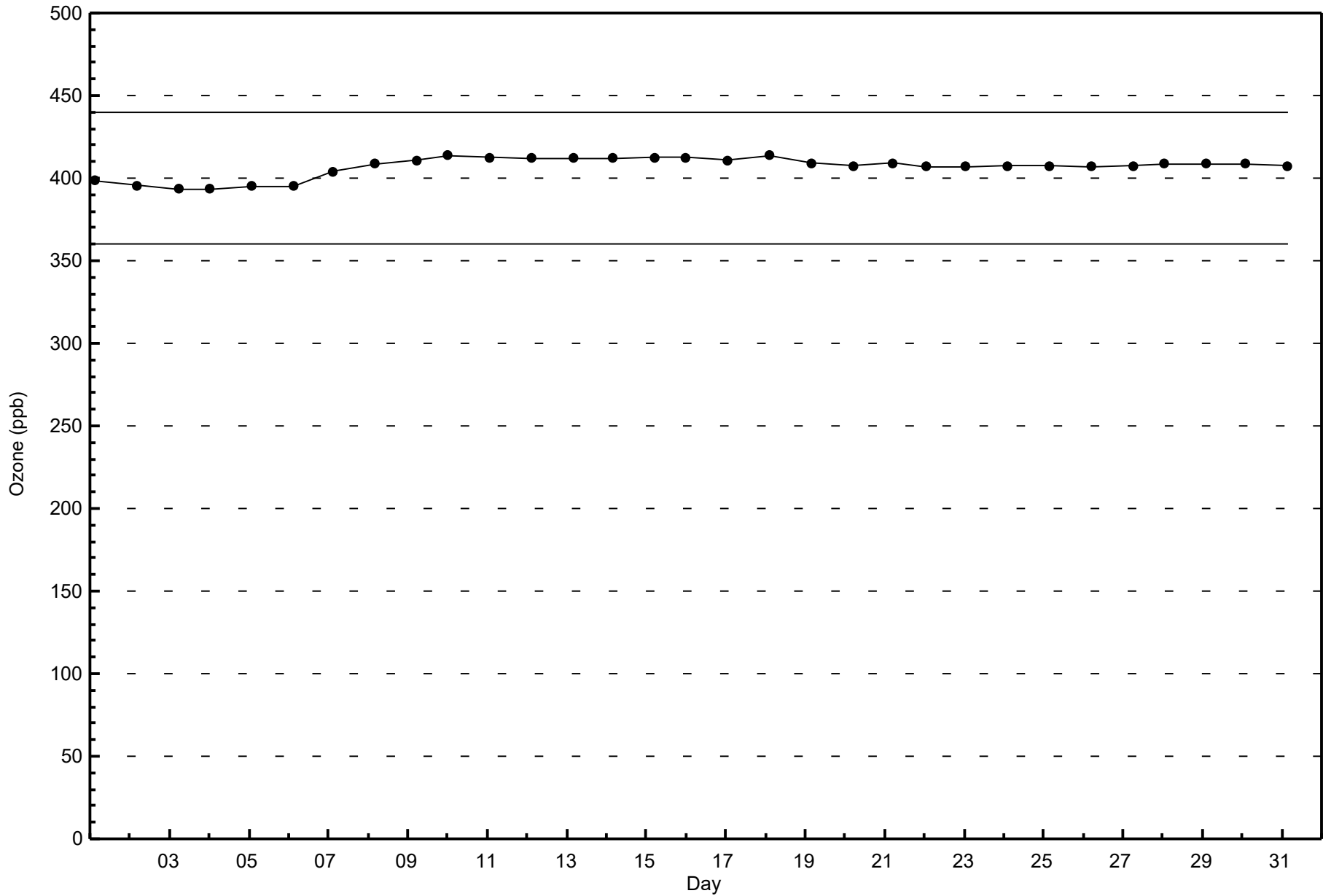


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Fort McKay - Bertha Ganter









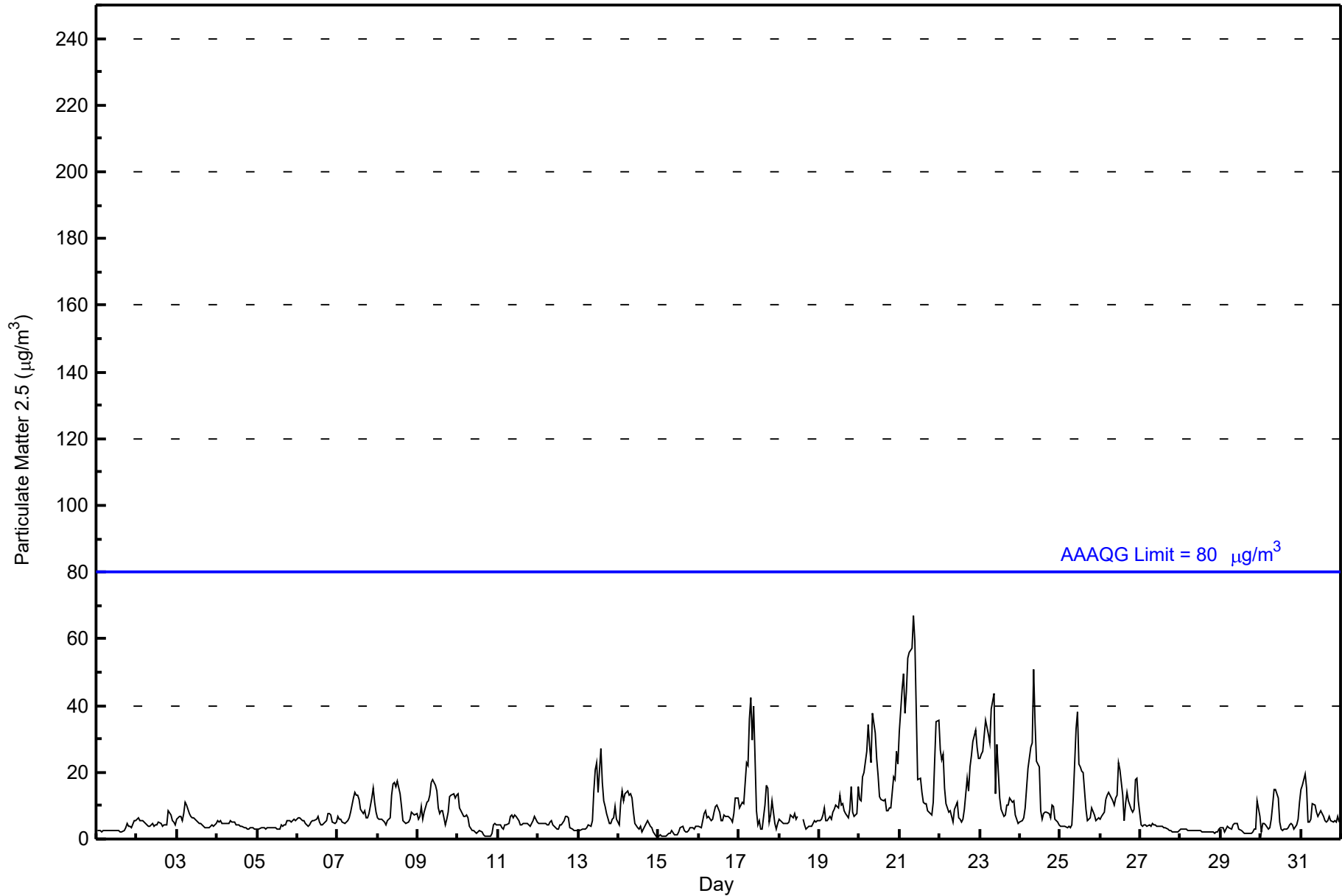
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 1		Hours in Service:		744																																								
Maximum Value: 66.8 µg/m ³ on Mar 21 09:00		Maximum Daily Average: 31.3 µg/m ³ on Mar 21				Hours of Data:		742																																								
Minimum Value: 0.6 µg/m ³ on Mar 15 00:00		Minimum Daily Average: 2.2 µg/m ³ on Mar 15				Hours of Missing Data:		2																																								
Maximum Diurnal Average: 13.4 µg/m ³ at hour 9		Minimum Diurnal Average: 5.9 µg/m ³ at hour 18				Hours of Calibration:		2																																								
Monthly Average: 8.61 µg/m ³		Percentiles: P ₁ = 1.0 P ₁₀ = 2.5 Q ₁ = 3.8 Median = 5.6 Q ₃ = 9.8 P ₉₀ = 18.0 P ₉₉ = 44.6				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-Mar	2.6	2.6	2.4	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.5	2.6	2.4	2.4	2.3	2.3	2.4	3.5	4.5	4.0	3.8	3.4	5.4	5.5	3.0	5.5																						
2-Mar	5.7	6.3	5.5	5.7	5.2	4.5	4.2	3.9	3.8	4.6	3.9	4.1	4.4	5.2	4.7	4.0	4.1	4.0	4.4	8.5	7.2	5.7	5.3	4.4	5.0	8.5																						
3-Mar	6.0	6.7	6.7	5.6	7.5	11.1	10.3	7.7	6.6	6.5	6.4	5.8	5.0	4.7	4.7	4.4	4.0	3.5	3.5	3.4	3.7	4.3	4.0	4.7	5.7	11.1																						
4-Mar	5.4	5.1	5.4	4.6	4.6	4.5	4.6	4.8	5.3	5.0	4.9	4.4	4.3	4.2	3.9	3.7	3.4	3.2	3.1	3.0	3.3	3.2	2.9	3.2	4.2	5.4																						
5-Mar	3.2	3.1	3.3	3.5	3.4	3.1	3.2	3.3	3.3	3.3	3.4	3.2	3.0	3.0	4.2	3.8	4.4	4.3	5.7	5.6	5.2	5.5	6.0	5.3	4.0	6.0																						
6-Mar	6.3	6.2	6.1	5.6	5.5	4.8	4.0	4.4	4.9	5.4	5.6	5.9	6.6	5.0	4.0	4.1	4.8	5.5	7.8	7.5	7.2	5.1	4.8	5.2	5.5	7.8																						
7-Mar	6.8	5.8	6.1	5.2	4.7	5.1	5.6	6.2	7.9	12.3	13.8	12.9	13.0	11.9	8.7	7.8	8.4	6.5	6.5	7.8	12.2	15.2	10.8	8.1	8.7	15.2																						
8-Mar	6.3	5.9	6.0	5.3	5.1	4.4	5.6	6.6	13.3	16.4	16.8	15.9	17.5	13.4	9.6	5.6	5.1	4.6	5.1	6.0	8.1	7.8	7.1	7.5	8.5	17.5																						
9-Mar	6.1	6.9	9.6	6.0	7.9	11.0	11.5	13.0	16.9	17.9	16.1	14.3	9.3	7.6	8.6	8.6	4.3	6.0	8.2	12.8	13.2	13.4	12.3	13.1	10.6	17.9																						
10-Mar	13.4	9.3	8.6	6.6	6.9	7.4	6.3	3.8	2.7	2.4	1.9	1.7	2.2	2.4	2.1	1.4	1.0	0.9	0.8	0.7	1.8	4.3	4.6	4.2	4.1	13.4																						
11-Mar	4.3	4.4	3.4	3.0	4.0	4.4	4.8	6.7	7.4	6.2	7.3	6.8	5.6	4.3	4.3	4.7	4.8	4.8	4.4	4.0	4.5	5.6	6.7	5.2	5.1	7.4																						
12-Mar	4.5	4.5	4.6	4.8	4.5	4.1	4.4	5.1	5.7	4.1	3.4	3.2	2.8	4.4	4.1	5.4	6.7	6.8	6.4	3.5	2.9	2.8	2.6	2.5	4.3	6.8																						
13-Mar	2.6	2.7	2.9	2.9	3.0	3.4	4.3	4.0	5.5	14.4	20.9	23.1	13.9	27.1	17.1	11.6	9.6	7.4	4.5	4.6	5.9	6.5	10.0	5.7	8.9	27.1																						
14-Mar	4.4	10.8	14.2	11.6	13.6	14.3	13.3	13.7	12.4	7.9	4.5	3.4	2.8	3.7	2.0	3.0	4.5	5.5	4.6	3.8	3.4	2.0	0.7	0.6	6.7	14.3																						
15-Mar	1.0	1.2	0.8	0.8	0.8	1.2	1.8	1.9	2.5	1.4	1.2	1.4	2.2	3.3	3.6	2.4	2.1	2.1	2.5	3.3	3.5	2.9	3.9	3.8	2.2	3.9																						
16-Mar	3.9	3.5	5.6	7.7	8.5	6.3	6.7	5.5	6.1	8.1	9.9	10.0	8.0	5.5	5.6	7.2	6.6	6.8	6.2	6.1	5.1	7.4	12.3	12.4	7.1	12.4																						
17-Mar	9.3	10.2	10.9	10.5	22.7	22.2	35.9	42.4	29.7	39.8	8.6	4.3	5.4	2.9	2.8	10.1	16.1	15.2	5.0	7.4	11.3	4.6	2.8	4.6	13.9	42.4																						
18-Mar	5.8	5.6	4.6	4.5	4.5	4.7	5.1	7.3	6.4	7.6	5.8	6.7	C	C	6.1	4.4	3.1	3.5	3.7	4.0	4.7	5.4	5.1	5.6	5.2	7.6																						
19-Mar	5.3	5.7	7.2	9.3	5.6	5.3	6.7	5.9	8.0	8.8	10.2	9.4	13.1	10.4	10.6	8.5	7.5	6.5	9.0	15.6	7.9	6.7	7.7	15.6	8.6	15.6																						
20-Mar	12.0	11.3	18.6	19.7	26.3	34.2	28.0	22.9	37.7	31.7	24.3	18.9	12.7	11.8	11.4	12.0	8.6	8.3	9.2	9.5	18.7	17.9	26.3	22.4	18.9	37.7																						
21-Mar	32.0	44.9	49.6	37.6	44.2	54.3	56.1	57.0	66.8	59.2	38.2	18.0	18.4	13.9	10.9	10.6	10.4	8.4	7.6	7.4	10.9	23.3	35.0	35.7	31.3	66.8																						
22-Mar	26.7	23.7	25.2	15.1	10.5	8.1	8.6	6.9	5.3	9.0	11.1	6.3	6.1	5.3	6.0	8.8	18.1	14.3	21.5	25.2	29.4	32.4	27.6	24.3	15.6	32.4																						
23-Mar	24.3	25.3	26.2	35.6	33.4	31.4	28.9	38.8	43.6	13.6	28.5	20.1	12.2	9.0	6.7	7.3	10.1	10.3	12.5	11.2	11.3	7.1	6.0	4.8	19.1	43.6																						
24-Mar	5.2	5.6	6.3	9.3	15.2	21.0	27.5	28.7	50.7	34.9	23.4	21.7	8.6	6.0	7.5	8.0	8.2	7.6	6.4	10.1	9.5	6.0	5.0	4.3	14.0	50.7																						
25-Mar	3.9	4.0	3.9	3.7	3.5	3.6	3.6	4.3	12.4	33.0	38.2	22.4	21.7	20.5	19.8	8.8	5.7	5.8	6.4	9.5	7.3	5.5	5.8	6.3	10.8	38.2																						
26-Mar	5.7	6.9	8.0	11.7	13.3	14.0	13.2	11.6	10.3	12.1	13.3	23.0	20.8	13.0	5.7	10.7	14.2	11.5	8.8	8.1	8.8	17.8	18.1	11.5	12.2	23.0																						
27-Mar	4.1	3.9	4.2	4.2	3.9	4.3	4.0	4.7	4.3	4.1	4.0	3.8	3.6	3.6	3.2	3.4	2.9	2.6	2.3	2.1	2.0	2.1	2.3	2.7	3.4	4.7																						
28-Mar	3.0	3.1	2.9	2.8	2.6	2.6	2.4	2.4	2.5	2.6	2.5	2.7	2.4	2.2	2.0	2.2	2.2	2.1	2.0	2.0	1.9	2.0	2.3	3.0	2.4	3.1																						
29-Mar	3.3	3.3	2.2	3.1	3.6	3.3	2.9	4.3	4.7	4.5	4.5	3.1	2.7	2.0	1.9	1.7	1.7	1.7	1.8	2.1	2.8	3.0	11.6	6.9	3.5	11.6																						
30-Mar	2.3	4.6	4.8	4.3	3.1	3.3	6.0	10.4	14.8	14.6	12.3	4.9	3.2	2.7	2.8	3.0	3.6	4.2	4.8	4.1	3.1	4.4	6.1	11.1	5.8	14.8																						
31-Mar	14.7	16.2	19.3	15.0	5.2	5.0	5.8	10.7	10.4	7.9	6.9	7.7	8.4	6.7	5.6	5.2	5.5	6.6	5.5	5.2	5.7	5.2	6.7	5.2	8.2	19.3																						
																								7.8	8.4	9.2	8.6	9.2	10.0	10.6	11.3	13.4	13.0	11.4	9.4	8.1	7.3	6.2	6.0	6.3	5.9	6.0	6.7	7.3	7.7	8.6	8.2	Diurnal Average
																								32.0	44.9	49.6	37.6	44.2	54.3	56.1	57.0	66.8	59.2	38.2	23.1	21.7	27.1	19.8	12.0	18.1	15.2	21.5	25.2	29.4	32.4	35.0	35.7	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay - Bertha Ganter - March 2024**

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	353	47.57	47.57
6 - 15	299	40.30	87.87
16 - 25	48	6.47	94.34
26 - 80	42	5.66	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	85	63	23	5	4	3	19	33	43	9	5	2	19	18	8	14	353
6 - 15	18	56	18	5	0	1	3	64	105	12	1	2	3	3	4	4	299
16 - 25	2	3	0	3	0	0	2	13	13	0	1	0	1	3	1	4	46
26 - 80	5	1	0	1	0	0	0	2	11	0	1	4	1	1	5	8	40
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	110	123	41	14	4	4	24	112	172	21	8	8	24	25	18	30	738

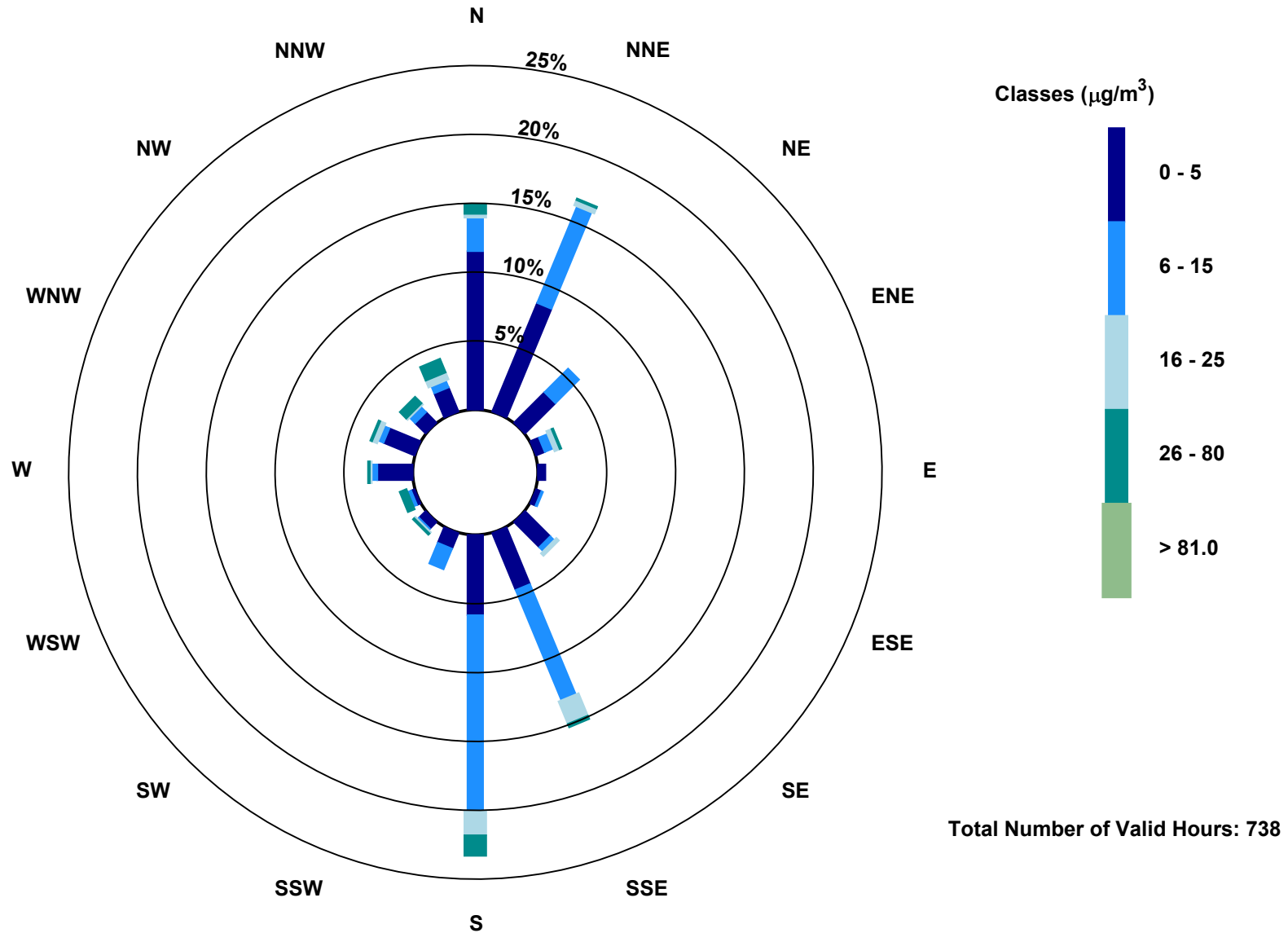
Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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



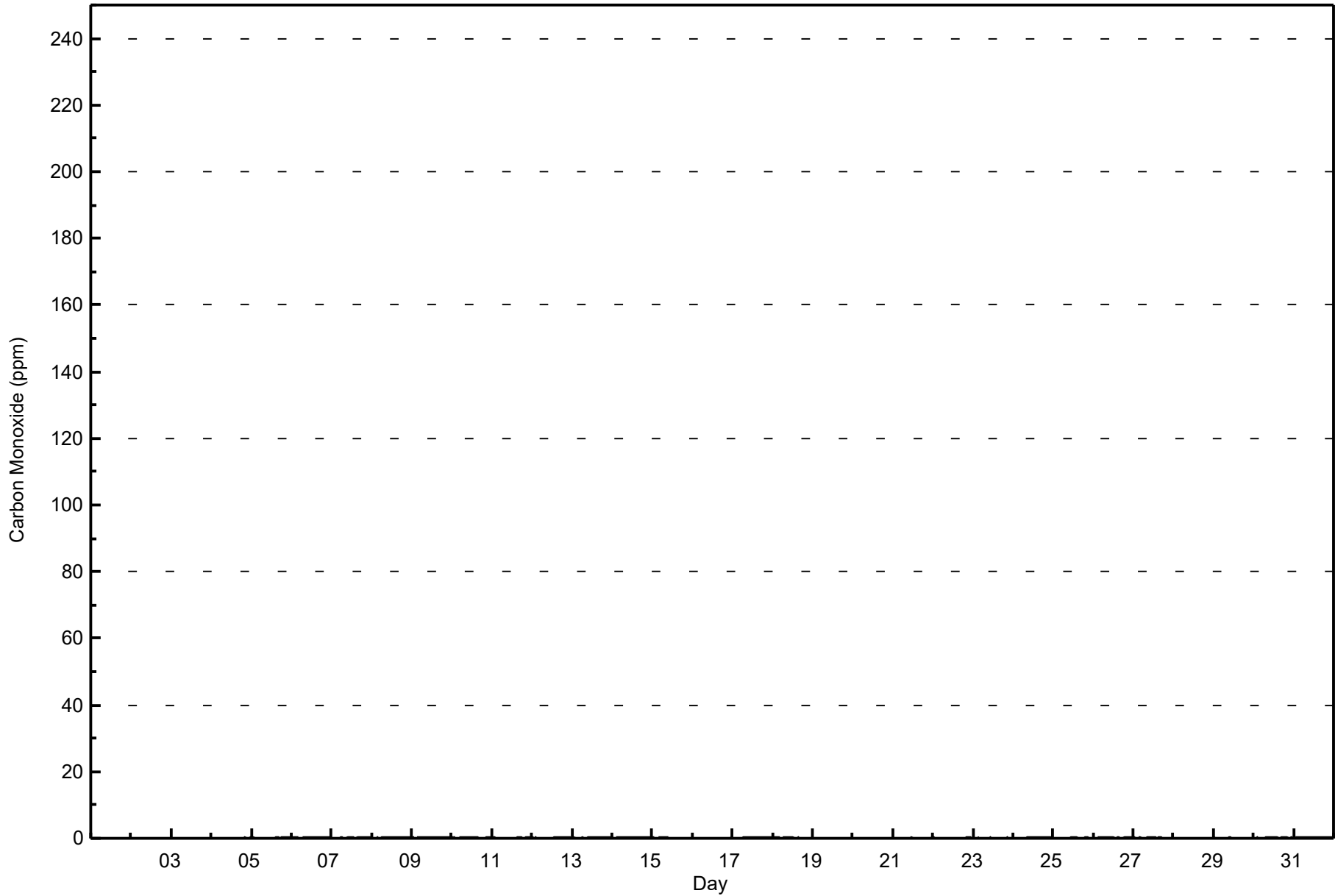


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																										
Maximum Value: 0.3 ppm on Mar 9 22:00		Maximum Daily Average: 0.3 ppm on Mar 9																										
Minimum Value: 0.1 ppm on Mar 19 10:00		Hours of Data: 708																										
Maximum Diurnal Average: 0.2 ppm at hour 21		Hours of Missing Data: 36																										
Monthly Average: 0.21 ppm		Hours of Calibration: 35																										
Minimum Daily Average: 0.2 ppm on Mar 19		Percent Operational Time: 99.9																										
Minimum Diurnal Average: 0.2 ppm at hour 6		Percentiles: P ₁ = 0.2 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.3 P ₉₉ = 0.3																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
2-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
4-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
5-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
6-Mar	0.3	0.2	0.2	0.2	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
7-Mar	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	0.2	0.2	0.2	0.3
8-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
9-Mar	0.3	0.3	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
10-Mar	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
11-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
13-Mar	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	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3
14-Mar	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	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15-Mar	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
16-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
17-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
18-Mar	0.3	0.3	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
19-Mar	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
20-Mar	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	M	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
21-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
22-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
23-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
28-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
29-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
31-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
																								Diurnal Average				
																								Diurnal Maximum				
Z - zerospan C - Calibration M - Maintenance																												
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																												



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	708	100.00	100.00
0.4 - 0.5	0	0.00	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Monoxide (CO) - ppm
Fort McKay - Bertha Ganter - March 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	103	119	40	13	4	4	23	110	164	20	7	7	23	23	16	28	704
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.5 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	103	119	40	13	4	4	23	110	164	20	7	7	23	23	16	28	704

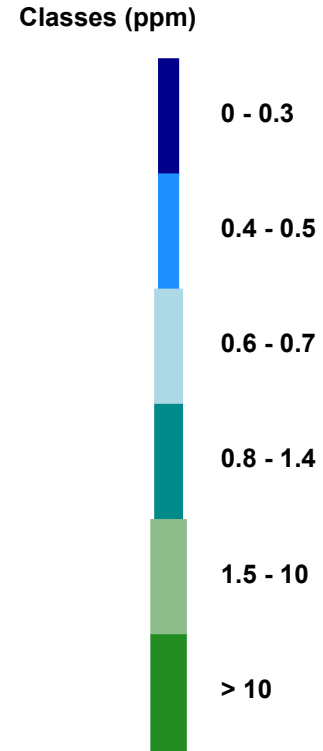
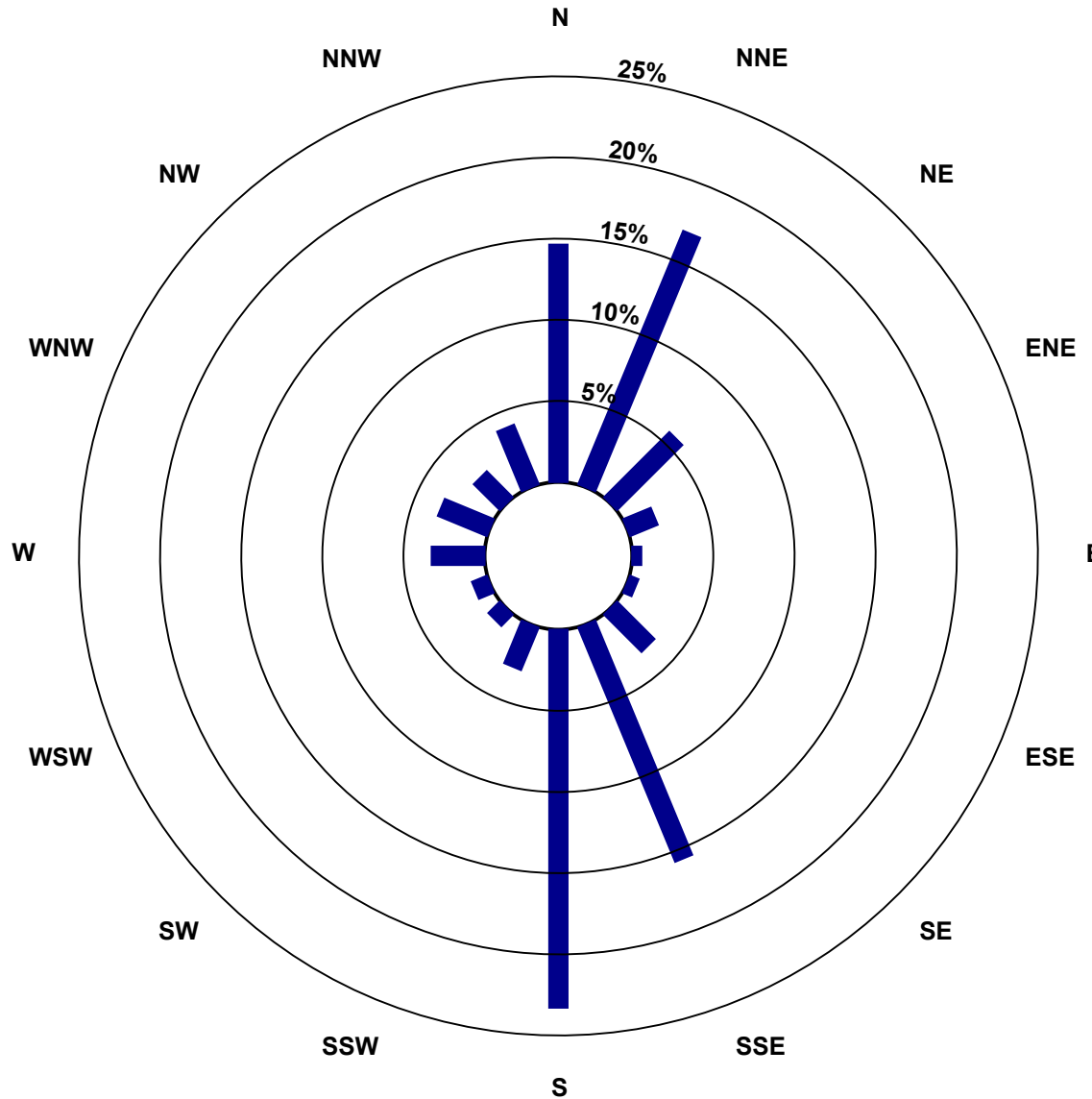
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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



Total Number of Valid Hours: 704

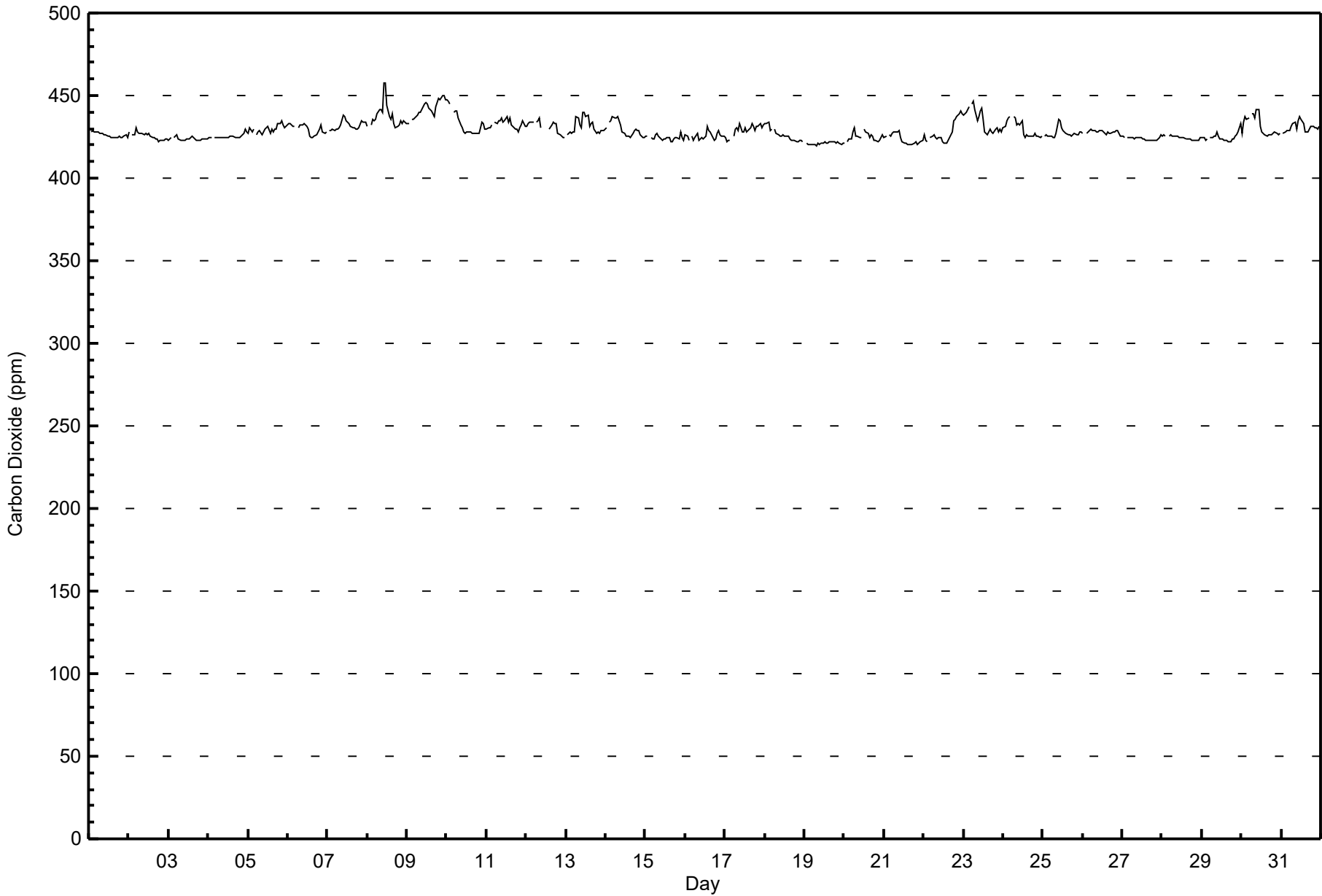


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744					
Maximum Value: 457.9 ppm on Mar 8 11:00				Maximum Daily Average: 441.9 ppm on Mar 9		Hours of Data:																708					
Minimum Value: 419.6 ppm on Mar 19 08:00				Minimum Daily Average: 421.1 ppm on Mar 19		Hours of Missing Data:																36					
Maximum Diurnal Average: 430.6 ppm at hour 11				Minimum Diurnal Average: 426.8 ppm at hour 18		Hours of Calibration:																35					
Monthly Average: 428.59 ppm				Percentiles: P ₁ = 420.4 P ₁₀ = 422.8 Q ₁ = 424.6 Median = 427.2 Q ₃ = 431.4 P ₉₀ = 436.3 P ₉₉ = 447.0		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-Mar	Z	428.1	428.7	428.0	427.8	427.7	427.4	427.3	427.0	426.3	425.9	425.1	425.2	424.7	424.8	424.7	424.3	424.9	425.3	425.0	424.4	425.4	426.0	424.9	426.0	428.7	
2-Mar		Z	426.1	426.6	430.7	427.9	427.3	426.8	426.8	426.2	427.4	426.5	426.8	425.4	424.9	424.5	423.7	423.8	421.8	423.2	422.7	422.5	423.6	423.4	425.5	430.7	
3-Mar	422.9	424.4	Z	424.2	425.8	426.1	424.1	422.9	422.8	422.8	422.9	423.4	423.4	424.7	425.7	424.3	423.3	423.3	423.2	423.2	423.4	423.7	423.5	424.1	423.8	426.1	
4-Mar	424.2	424.5	424.5	Z	424.4	424.6	424.4	424.8	424.7	424.6	424.7	424.7	425.0	425.1	425.2	425.3	424.8	424.8	424.5	424.3	425.4	427.0	429.5	428.4	425.2	429.5	
5-Mar	426.8	430.2	428.1	429.6	Z	426.5	428.4	429.2	426.3	428.4	429.7	430.8	431.4	427.3	429.5	428.3	429.7	430.0	432.7	433.2	434.8	432.3	430.4	431.2	429.8	434.8	
6-Mar	433.1	433.4	432.5	431.4	431.3	Z	430.8	431.9	432.5	432.5	433.3	431.7	429.3	425.5	424.7	424.8	425.2	426.0	428.2	429.7	432.6	427.6	426.8	427.7	429.7	433.4	
7-Mar	Z	428.7	429.1	429.3	429.0	429.4	429.7	430.6	432.4	438.4	437.2	435.0	434.2	432.8	431.3	430.3	430.5	429.6	429.9	430.8	435.0	433.9	434.0	433.6	431.9	438.4	
8-Mar	431.1	Z	432.0	435.8	434.4	435.4	439.3	441.1	441.6	439.7	457.9	457.8	444.1	437.4	435.7	439.3	433.0	430.1	431.0	432.2	434.5	433.2	434.7	433.0	437.6	457.9	
9-Mar	433.0	432.7	Z	435.4	435.7	437.5	438.1	440.0	439.7	441.5	445.2	446.1	444.8	442.3	441.1	440.7	437.6	443.4	445.7	448.1	447.8	450.4	449.9	447.0	441.9	450.4	
10-Mar	447.6	446.3	444.6	Z	440.1	440.5	440.9	436.4	432.2	430.7	427.9	427.5	427.8	427.9	427.8	427.5	427.3	427.2	427.1	427.2	430.8	433.9	433.1	430.1	433.1	447.6	
11-Mar	429.8	430.9	430.8	432.4	Z	434.0	433.1	434.5	434.5	436.5	433.9	434.6	437.4	433.8	436.5	432.4	431.3	429.4	429.3	428.3	430.1	432.4	435.1	431.3	432.7	437.4	
12-Mar	431.3	433.1	433.5	433.9	433.7	Z	433.6	434.6	436.1	430.4	C	C	C	C	429.8	432.1	433.9	433.4	433.3	427.2	426.2	425.5	424.8	424.8	431.1	436.1	
13-Mar	Z	426.1	427.8	427.1	427.8	427.8	437.2	436.2	432.3	430.9	439.8	440.0	437.3	438.2	431.7	433.3	434.0	429.7	427.3	428.4	427.5	428.9	428.5	428.5	431.6	440.0	
14-Mar	430.7	Z	434.2	434.3	437.2	436.3	436.8	437.3	434.9	431.9	428.2	426.9	425.4	425.0	425.1	424.6	427.5	428.6	429.6	429.0	429.1	426.3	424.7	424.5	429.9	437.3	
15-Mar	425.3	425.6	Z	424.4	423.7	424.1	425.9	427.0	425.4	423.3	423.0	423.6	423.4	424.9	424.3	422.1	422.4	423.6	424.5	424.8	424.1	427.9	424.2	423.0	424.4	427.9	
16-Mar	426.1	425.4	422.8	Z	425.3	423.3	424.2	426.7	423.1	423.9	424.4	423.6	425.2	431.4	428.6	428.4	426.6	423.2	423.9	427.5	428.4	425.9	425.4	425.7	425.6	431.4	
17-Mar	424.2	422.4	423.1	422.8	Z	425.2	429.4	430.6	429.2	432.6	427.6	427.9	430.1	428.1	428.8	430.4	433.4	431.3	429.0	431.2	431.8	432.9	430.6	432.2	428.9	433.4	
18-Mar	433.1	433.3	433.8	429.0	430.1	Z	429.4	426.9	426.6	425.5	425.3	426.3	425.7	425.1	425.1	423.5	423.3	422.8	422.8	421.9	422.4	422.7	422.7	422.1	426.1	433.8	
19-Mar	Z	421.4	420.6	420.6	420.3	420.5	420.1	419.6	420.9	420.4	421.3	421.3	421.8	421.4	421.3	421.9	422.2	421.9	421.8	421.1	421.9	421.1	420.1	421.2	421.1	422.2	
20-Mar	421.1	Z	422.3	423.4	424.1	427.9	430.7	425.4	425.2	424.9	424.2	M	429.5	428.1	426.9	425.0	426.1	425.1	422.5	423.1	422.4	423.1	424.7	426.0	425.1	430.7	
21-Mar	424.9	425.1	Z	425.9	425.7	426.9	427.7	427.7	428.0	428.6	424.6	422.2	421.4	421.0	420.4	420.2	419.9	420.7	420.9	421.7	420.2	420.9	421.8	422.5	423.4	428.6	
22-Mar	426.4	422.6	422.5	Z	424.6	425.2	426.3	424.6	423.9	424.8	424.4	422.0	421.4	420.9	421.1	422.5	426.4	427.7	434.4	435.5	437.1	439.3	440.3	438.8	427.5	440.3	
23-Mar	438.4	438.6	439.9	443.4	Z	445.2	446.2	441.6	434.3	437.6	441.0	442.2	435.3	428.4	426.4	428.1	429.3	427.8	427.4	429.2	430.4	428.1	429.3	428.3	434.6	446.2	
24-Mar	430.1	431.0	434.6	436.2	437.2	Z	437.6	436.4	432.4	433.4	431.9	434.7	426.1	424.3	426.3	425.6	425.3	425.0	425.0	426.7	425.3	425.5	424.5	425.1	429.6	437.6	
25-Mar	Z	425.1	425.9	425.3	425.3	425.1	424.9	424.8	426.9	435.8	435.2	430.5	428.6	427.6	427.3	426.6	426.1	425.6	426.3	427.4	426.5	426.6	427.9	428.0	427.4	435.8	
26-Mar	427.0	Z	426.8	427.6	429.1	429.3	428.4	428.5	428.0	427.9	428.8	428.8	428.6	427.1	426.2	427.6	427.5	427.0	427.7	428.2	428.4	428.5	426.9	425.8	427.8	429.3	
27-Mar	425.2	425.0	Z	424.6	424.6	424.4	424.4	424.1	424.2	424.3	424.2	424.3	424.0	423.7	423.3	423.1	423.1	423.0	423.0	423.1	423.3	423.3	424.6	425.9	424.0	425.9	
28-Mar	425.8	426.2	425.8	Z	425.4	426.2	425.7	425.2	425.7	425.3	424.8	424.7	424.7	424.6	423.9	423.5	423.5	423.3	422.9	422.6	422.8	422.7	422.7	424.4	424.5	426.2	
29-Mar	424.3	424.2	422.8	423.7	Z	424.3	424.2	425.6	425.5	427.9	425.7	423.9	423.7	423.0	423.0	422.7	422.3	422.1	423.5	423.8	425.7	426.7	427.7	432.7	424.7	432.7	
30-Mar	427.2	433.9	437.3	436.0	436.1	Z	438.8	438.9	436.1	441.7	441.8	431.7	427.9	426.9	426.2	425.6	426.0	426.5	426.0	427.2	427.5	426.8	426.1	426.8	431.3	441.8	
31-Mar	Z	427.0	428.0	429.0	428.6	429.0	431.0	433.4	434.1	429.9	434.5	437.5	435.7	432.9	427.9	428.1	428.0	429.6	431.1	431.5	430.6	430.2	429.9	430.9	430.8	437.5	
		428.7	428.7	429.2	429.2	429.2	428.8	430.5	430.3	429.5	429.9	430.6	430.2	428.8	427.6	427.1	427.0	427.0	426.8	427.1	427.6	428.2	428.2	428.2	428.1	Diurnal Average	
		447.6	446.3	444.6	443.4	440.1	445.2	446.2	441.6	441.6	441.7	457.9	457.8	444.8	442.3	441.1	440.7	437.6	443.4	445.7	448.1	447.8	450.4	449.9	447.0	Diurnal Maximum	
Z - zerospan		C - Calibration		M - Maintenance																							



Wood Buffalo Environmental Association
Hourly Averages

Carbon Dioxide (CO₂) - ppm
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	10	1.41	1.41
420 - 440	666	94.07	95.48
440 - 460	32	4.52	100.00
460 - 480	0	0.00	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Fort McKay - Bertha Ganter - March 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	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10
420 - 440	103	112	39	12	4	4	22	103	144	18	7	6	23	23	16	28	664
440 - 460	0	1	0	1	0	0	1	5	19	2	0	1	0	0	0	0	30
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
Totals	104	121	39	13	4	4	23	108	163	20	7	7	23	23	16	29	704

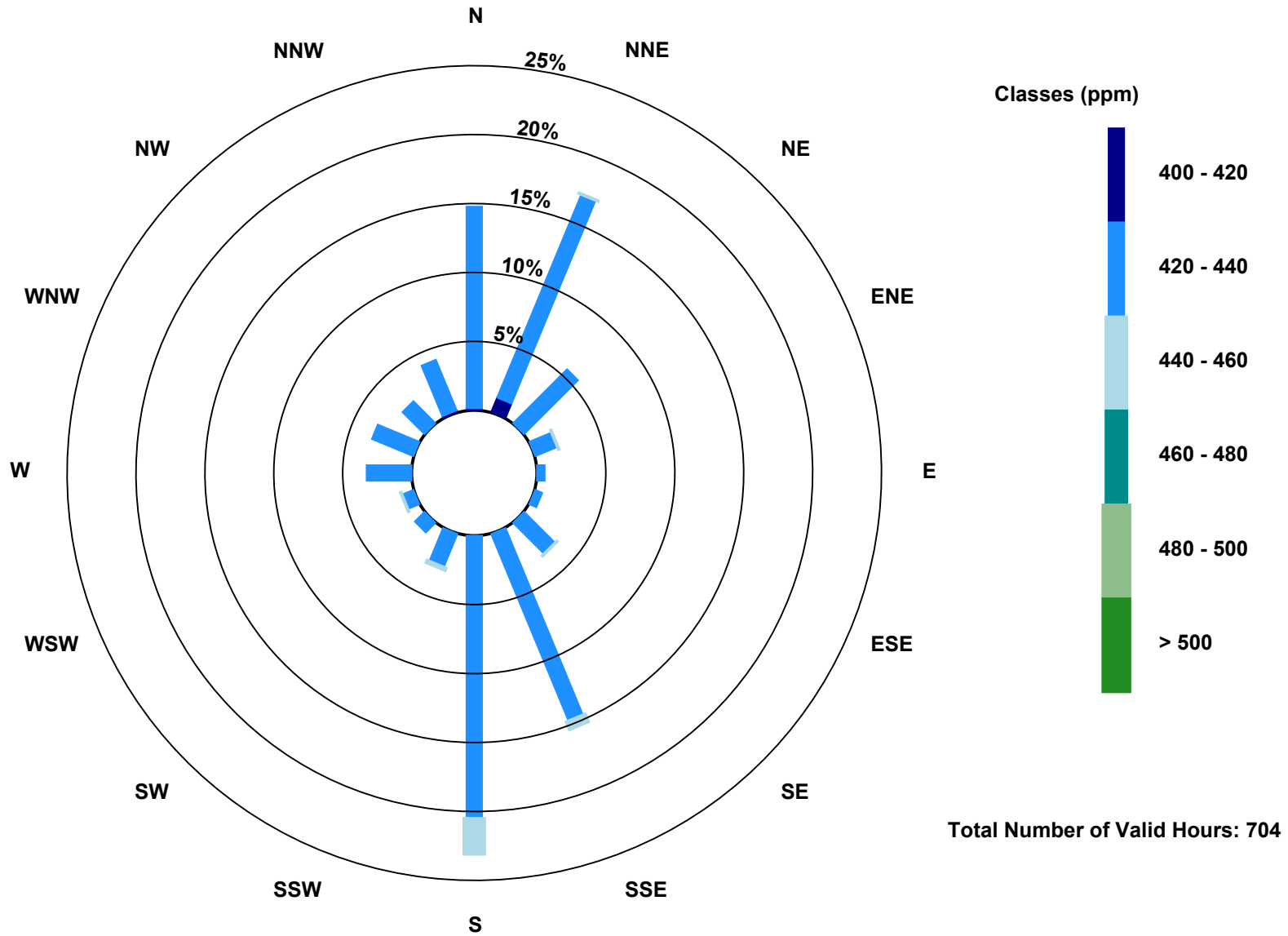
Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Carbon Dioxide (CO₂) - ppm
Fort McKay - Bertha Ganter





Wood Buffalo Environmental Association

Summary of Hour Averages

Ammonia (NH₃) - ppb

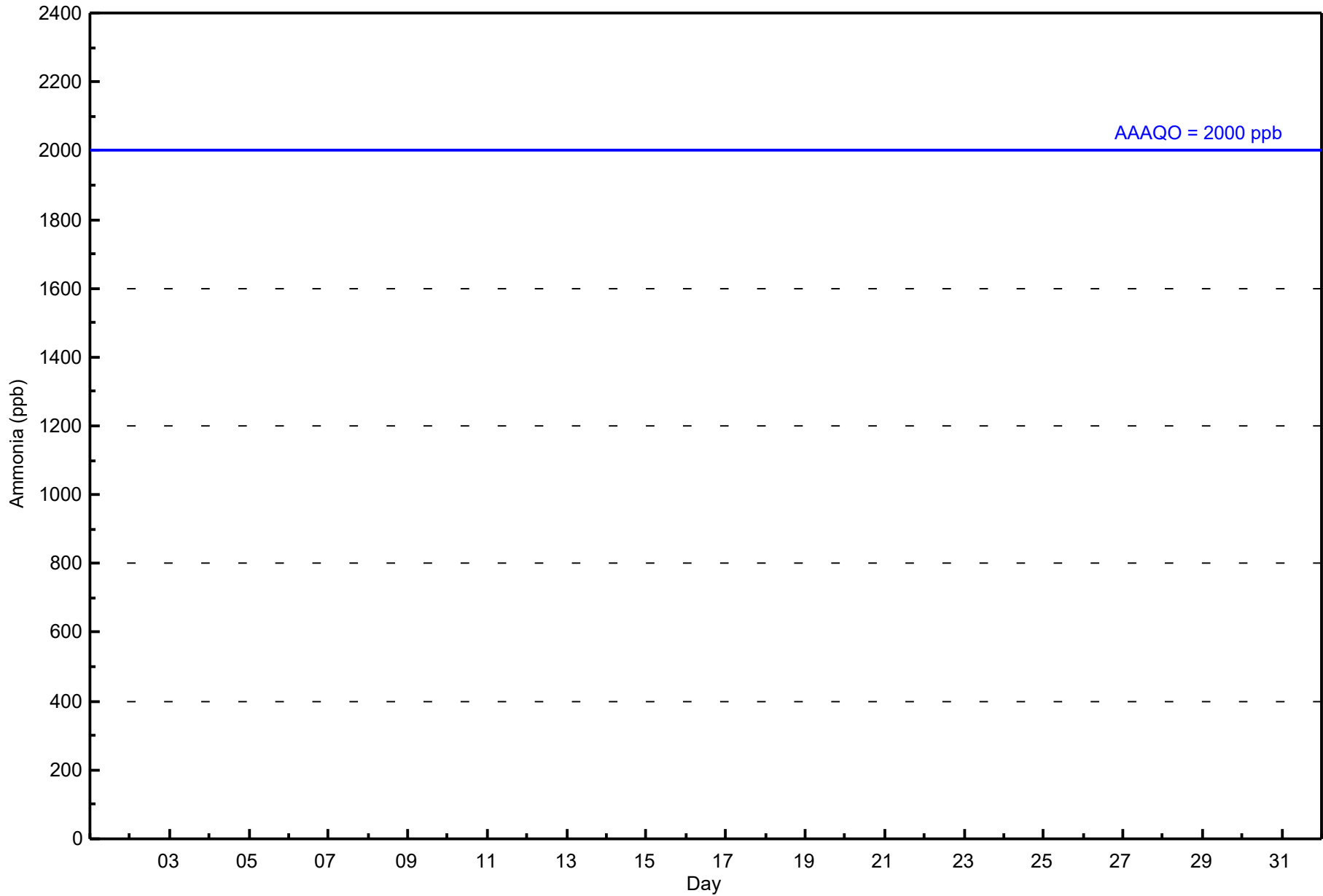
Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																			Daily Average		Daily Maximum				
Maximum Value: 0.0 ppb on Mar 1 01:00		Maximum Daily Average: 0.0 ppb on Mar 1																			Hours of Data: 671		Daily Maximum				
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 1																			Hours of Missing Data: 73		Daily Maximum				
Maximum Diurnal Average: 0.0 ppb at hour 1		Minimum Diurnal Average: 0.0 ppb at hour 1																			Hours of Calibration: 42		Daily Maximum				
Monthly Average: 0.00 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0																			Percent Operational Time: 95.8		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-Mar	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
2-Mar	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
3-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Mar	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
9-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Mar	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
12-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Mar	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
15-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
20-Mar	0.0	0.0	0.0	0.0	0.0	Z	RE	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	--
21-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Mar	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
24-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Mar	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
27-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Mar	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
31-Mar	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
																								Diurnal Average		Diurnal Maximum	
																								Diurnal Average		Diurnal Maximum	
Z - zerospan C - Calibration RE - Recovery																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 5	671	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: 671

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter - March 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	97	116	36	8	3	4	23	106	159	18	6	6	20	20	16	29	667
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
Totals	97	116	36	8	3	4	23	106	159	18	6	6	20	20	16	29	667

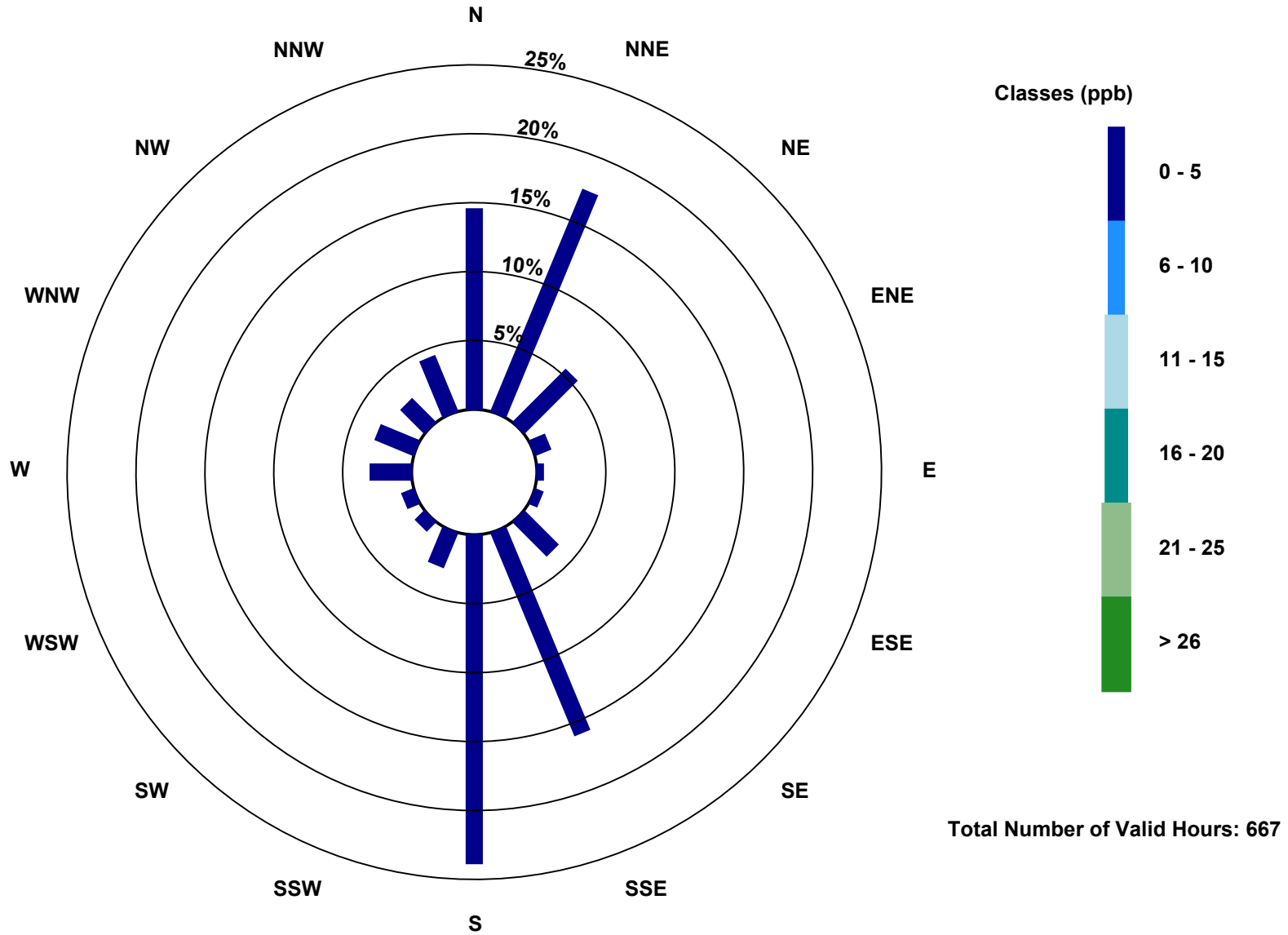
Total Number of Valid Hours: 667

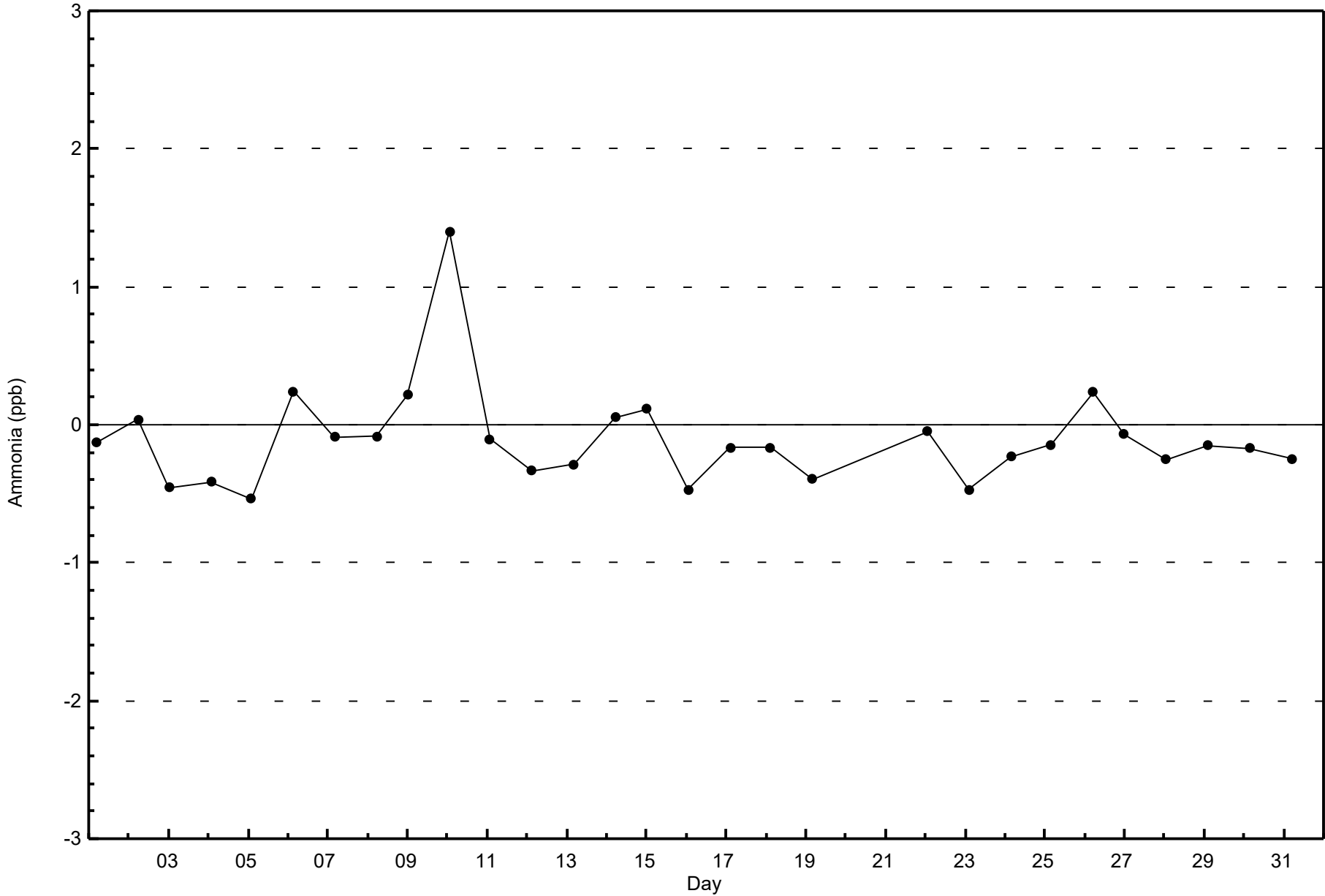
Total Number of Hours: 744

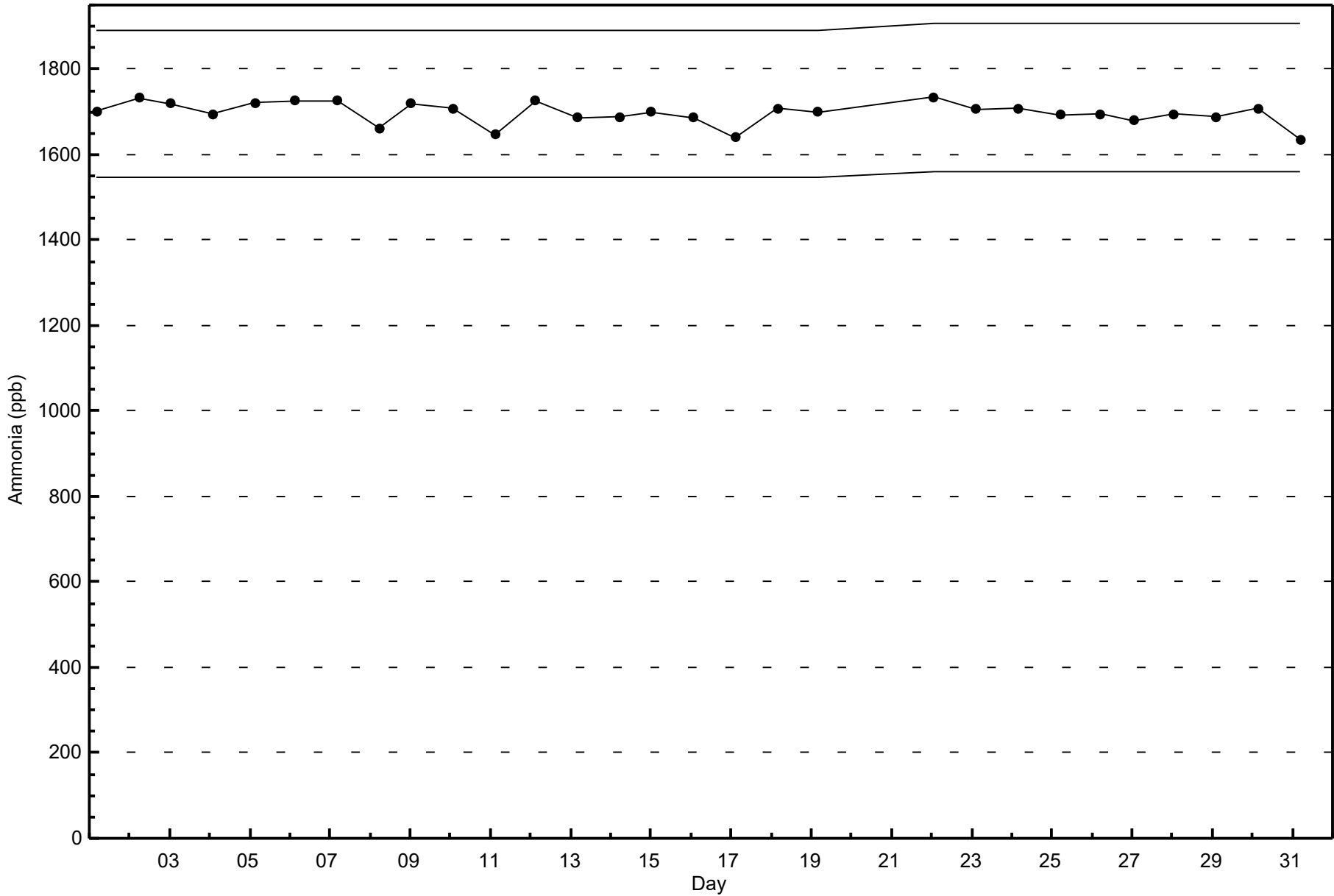


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter









Wood Buffalo Environmental Association
Summary of Hour Averages

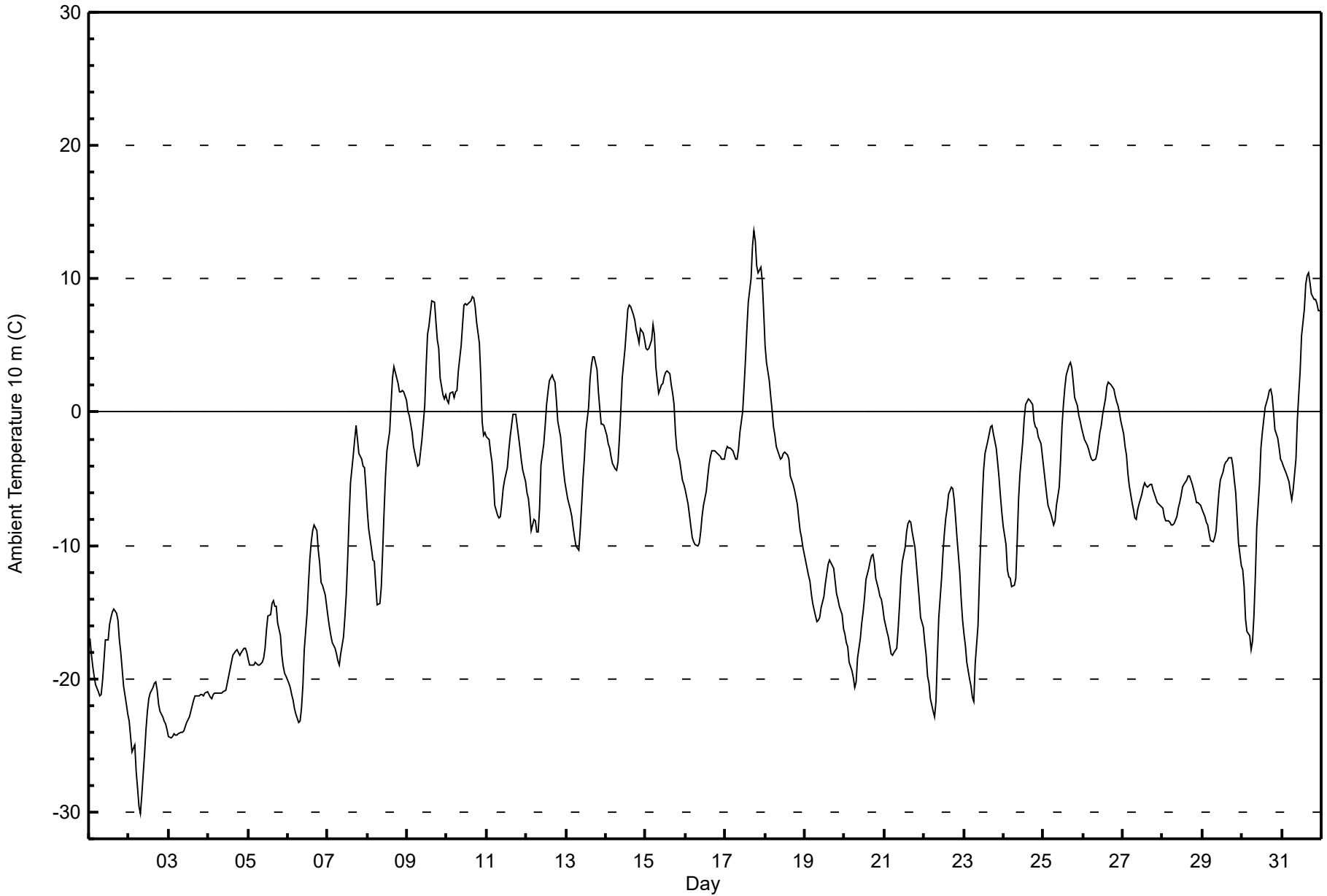
Ambient Temperature 10 m (AT 10m) - C
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 13.7 C on Mar 17 18:00		Maximum Daily Average: 4.2 C on Mar 10		Hours in Service: 744																						
Minimum Value: -30.1 C on Mar 2 08:00		Minimum Daily Average: -24.0 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -3.0 C at hour 17		Minimum Diurnal Average: -12.6 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.66 C		Percentiles: P ₁ = -24.7 P ₁₀ = -20.7 Q ₁ = -15.3 Median = -6.6 Q ₃ = -1.3 P ₉₀ = 3.2 P ₉₉ = 10.2		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-Mar	-17.0	-18.2	-19.0	-19.8	-20.4	-21.0	-21.3	-21.2	-20.2	-18.6	-17.1	-17.0	-15.9	-15.4	-15.0	-14.8	-15.1	-15.6	-17.0	-18.1	-19.3	-20.5	-21.9	-22.7	-18.4	-14.8
2-Mar	-23.2	-24.4	-25.5	-24.9	-26.9	-28.2	-29.6	-30.1	-28.8	-25.6	-23.8	-22.5	-21.5	-21.0	-20.6	-20.3	-20.2	-20.8	-21.9	-22.5	-22.8	-23.2	-23.4	-23.8	-24.0	-20.2
3-Mar	-24.4	-24.5	-24.4	-24.1	-24.2	-24.2	-24.1	-24.0	-24.0	-23.9	-23.6	-23.3	-22.9	-22.4	-22.0	-21.6	-21.3	-21.2	-21.3	-21.1	-21.2	-21.2	-21.0	-21.0	-22.8	-21.0
4-Mar	-21.2	-21.3	-21.5	-21.2	-21.1	-21.1	-21.1	-21.0	-21.1	-21.0	-20.8	-20.3	-19.8	-19.3	-18.8	-18.3	-17.9	-17.8	-18.0	-18.2	-18.0	-17.7	-17.7	-18.0	-19.7	-17.7
5-Mar	-18.5	-19.0	-19.0	-18.9	-18.8	-18.9	-19.0	-19.0	-18.8	-18.4	-17.7	-16.4	-15.3	-15.2	-14.3	-14.1	-14.5	-14.5	-15.8	-16.8	-18.2	-19.0	-19.6	-19.8	-17.5	-14.1
6-Mar	-20.3	-20.7	-21.1	-21.6	-22.2	-22.7	-23.3	-23.2	-22.2	-20.5	-17.8	-15.0	-12.9	-11.0	-9.7	-8.9	-8.5	-8.9	-10.3	-11.3	-12.7	-12.9	-13.7	-14.6	-16.1	-8.5
7-Mar	-15.4	-16.2	-16.8	-17.3	-17.7	-18.1	-18.6	-18.9	-18.1	-16.8	-15.4	-13.6	-11.0	-7.9	-5.3	-3.2	-2.1	-1.0	-2.1	-3.1	-3.5	-4.0	-4.1	-5.6	-10.7	-1.0
8-Mar	-7.4	-8.8	-10.2	-11.0	-11.2	-12.8	-14.4	-14.4	-13.1	-10.4	-7.5	-4.8	-2.9	-1.4	0.7	2.6	3.4	3.0	2.2	1.5	1.6	1.6	1.6	0.9	-4.6	3.4
9-Mar	0.0	-0.3	-0.9	-1.6	-2.6	-3.6	-4.1	-3.9	-3.0	-2.1	0.4	3.4	5.8	6.5	7.4	8.4	8.2	6.7	5.4	4.8	2.6	1.3	0.9	1.3	1.7	8.4
10-Mar	0.9	0.7	1.4	1.5	1.1	1.5	1.6	3.1	5.0	6.6	8.1	8.2	8.1	8.1	8.3	8.6	8.5	8.0	6.8	5.2	2.8	-0.6	-1.7	-1.5	4.2	8.6
11-Mar	-1.9	-2.1	-3.0	-3.7	-5.1	-7.0	-7.8	-8.0	-7.8	-6.9	-5.7	-5.1	-4.2	-2.9	-1.9	-1.0	-0.1	-0.1	-1.0	-1.9	-2.7	-3.6	-4.4	-5.2	-3.9	-0.1
12-Mar	-6.0	-6.5	-7.5	-8.8	-8.0	-8.2	-9.0	-8.9	-7.2	-3.9	-2.4	-1.0	0.6	1.5	2.4	2.8	2.5	2.2	0.9	-0.7	-1.9	-3.1	-4.3	-5.2	-3.3	2.8
13-Mar	-5.8	-6.5	-7.3	-7.8	-8.7	-9.4	-10.0	-10.3	-8.9	-7.0	-5.0	-3.4	-1.4	0.4	2.4	3.6	4.2	4.1	3.2	1.5	0.2	-0.9	-0.9	-1.0	-3.1	4.2
14-Mar	-1.8	-2.3	-2.7	-3.3	-3.8	-4.3	-4.4	-3.8	-2.0	0.1	2.5	4.7	6.3	7.7	8.0	7.9	7.3	6.9	6.2	5.7	5.2	6.3	6.0	5.4	2.4	8.0
15-Mar	4.8	4.7	4.8	5.4	6.6	5.8	3.5	2.3	1.4	2.0	2.1	2.7	3.0	3.1	2.8	2.0	1.4	0.6	-1.5	-2.8	-3.6	-4.4	-5.0	-5.4	1.5	6.6
16-Mar	-5.8	-6.9	-7.7	-8.6	-9.4	-9.7	-9.9	-10.0	-9.8	-9.0	-7.8	-6.9	-6.0	-4.9	-4.0	-3.3	-2.9	-2.8	-3.0	-3.1	-3.2	-3.3	-3.6	-3.5	-6.0	-2.8
17-Mar	-2.9	-2.6	-2.6	-2.7	-2.9	-3.2	-3.5	-3.5	-2.8	-1.5	0.0	2.0	3.9	6.2	8.2	10.1	12.5	13.7	12.9	11.0	10.5	10.9	9.8	7.5	3.8	13.7
18-Mar	5.0	3.8	2.4	1.2	0.1	-1.1	-1.7	-2.6	-3.2	-3.6	-3.4	-3.1	-3.0	-3.2	-3.5	-4.8	-5.1	-5.5	-5.9	-6.9	-8.0	-8.9	-9.4	-10.1	-3.3	5.0
19-Mar	-11.2	-11.8	-12.2	-12.7	-13.6	-14.3	-15.3	-15.7	-15.6	-15.4	-14.7	-13.8	-12.9	-12.1	-11.4	-11.1	-11.3	-11.7	-12.6	-13.6	-14.0	-14.5	-15.2	-16.3	-13.5	-11.1
20-Mar	-16.6	-17.3	-17.6	-18.8	-19.4	-19.9	-20.7	-20.3	-18.5	-17.0	-15.9	-15.0	-13.9	-12.6	-11.7	-11.2	-10.7	-10.7	-11.3	-12.4	-13.3	-13.8	-14.0	-14.6	-15.3	-10.7
21-Mar	-15.5	-16.4	-16.9	-17.5	-18.1	-18.3	-18.0	-17.7	-16.2	-14.4	-12.5	-11.2	-10.1	-9.0	-8.4	-8.2	-8.2	-9.0	-10.2	-11.4	-12.7	-13.9	-15.3	-16.2	-13.5	-8.2
22-Mar	-17.3	-18.2	-19.8	-20.4	-21.5	-22.5	-22.8	-21.7	-18.3	-15.4	-12.5	-10.5	-9.1	-7.9	-7.2	-6.1	-5.6	-5.7	-6.5	-7.9	-9.4	-12.0	-14.0	-15.6	-13.7	-5.6
23-Mar	-16.7	-17.5	-18.7	-20.1	-20.6	-21.4	-21.7	-18.9	-16.0	-12.6	-9.4	-6.7	-4.3	-3.1	-2.1	-1.6	-1.1	-1.0	-1.7	-2.7	-3.7	-4.9	-6.3	-7.6	-10.0	-1.0
24-Mar	-8.5	-10.0	-11.8	-12.3	-12.5	-13.1	-13.0	-12.5	-9.7	-6.5	-4.6	-2.1	-0.5	0.5	0.8	1.0	0.9	0.6	-0.7	-1.1	-1.3	-1.9	-2.4	-3.3	-5.2	1.0
25-Mar	-4.3	-5.2	-6.1	-7.0	-7.6	-8.1	-8.5	-8.2	-7.0	-5.6	-3.5	-1.1	0.5	1.8	2.7	3.5	3.7	3.3	2.3	1.1	0.5	-0.3	-0.7	-1.2	-2.3	3.7
26-Mar	-1.6	-2.1	-2.4	-2.8	-3.2	-3.5	-3.7	-3.5	-3.1	-2.4	-1.5	-1.0	-0.2	1.0	1.9	2.2	2.1	2.0	1.7	1.2	0.8	0.5	0.0	-0.7	-0.8	2.2
27-Mar	-1.7	-2.5	-3.3	-4.5	-5.6	-6.8	-7.3	-8.0	-8.0	-7.4	-6.9	-6.1	-5.6	-5.3	-5.5	-5.6	-5.4	-5.5	-5.8	-6.2	-6.5	-6.8	-7.0	-7.0	-5.8	-1.7
28-Mar	-7.2	-7.8	-8.1	-8.2	-8.3	-8.4	-8.5	-8.3	-7.8	-7.2	-6.8	-6.3	-5.7	-5.4	-5.1	-4.8	-4.8	-5.1	-5.5	-6.3	-6.8	-6.7	-6.9	-7.0	-6.8	-4.8
29-Mar	-7.3	-7.8	-8.3	-8.4	-9.0	-9.6	-9.8	-9.4	-8.8	-7.4	-6.0	-5.1	-4.5	-3.9	-3.8	-3.6	-3.5	-3.4	-4.0	-5.1	-6.0	-7.9	-9.8	-11.5	-6.8	-3.4
30-Mar	-11.8	-13.1	-15.5	-16.4	-16.8	-17.8	-17.2	-15.3	-12.3	-8.7	-5.4	-2.6	-1.5	-0.6	0.4	1.1	1.6	1.7	1.2	0.0	-1.3	-1.9	-2.7	-3.5	-6.6	1.7
31-Mar	-3.8	-4.1	-4.6	-4.9	-5.2	-6.0	-6.6	-5.8	-3.6	-0.6	1.3	3.1	5.7	7.7	9.6	10.2	10.4	9.8	8.8	8.5	8.5	8.1	7.6	7.7	2.6	10.4
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	89	11.96	11.96
-20 - 0	499	67.07	79.03
0 - 10	147	19.76	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

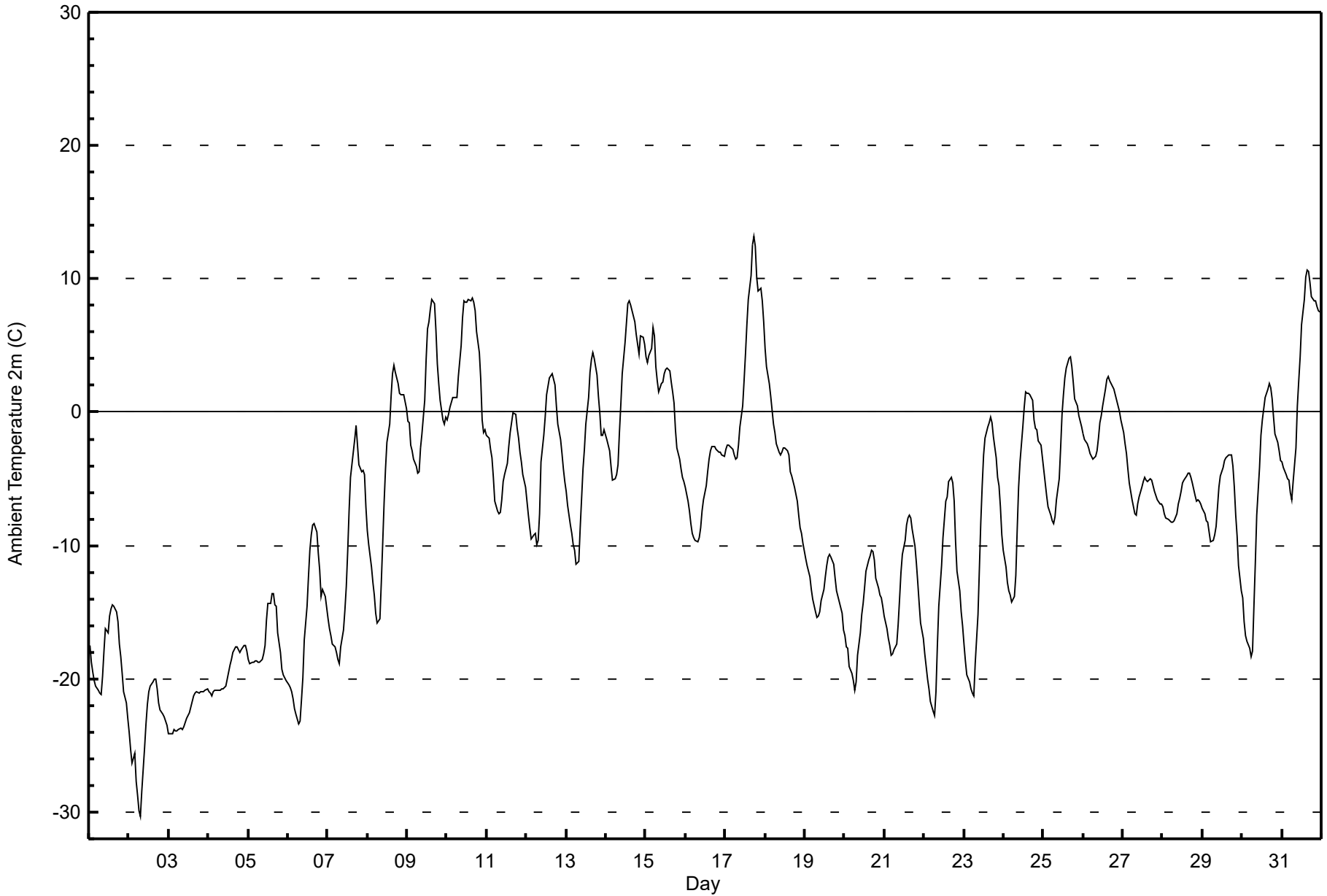
Ambient Temperature 2m (AT 2m) - C
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 13.2 C on Mar 17 18:00		Maximum Daily Average: 3.9 C on Mar 10		Hours in Service: 744																						
Minimum Value: -30.3 C on Mar 2 08:00		Minimum Daily Average: -24.0 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -2.7 C at hour 17		Minimum Diurnal Average: -12.7 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.63 C		Percentiles: P ₁ = -25.2 P ₁₀ = -20.7 Q ₁ = -15.0 Median = -6.6 Q ₃ = -1.1 P ₉₀ = 3.3 P ₉₉ = 10.0		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-17.5	-18.7	-19.5	-20.1	-20.5	-20.8	-21.1	-21.2	-19.8	-17.9	-16.2	-16.5	-15.3	-14.8	-14.5	-14.6	-15.0	-15.7	-17.4	-18.3	-19.6	-20.9	-21.8	-23.0	-18.4	-14.5
2-Mar	-24.0	-25.3	-26.3	-25.6	-27.7	-28.8	-29.9	-30.3	-28.5	-25.2	-23.4	-21.9	-20.9	-20.5	-20.2	-20.0	-20.1	-20.7	-21.8	-22.3	-22.6	-22.9	-23.1	-23.5	-24.0	-20.0
3-Mar	-24.1	-24.2	-24.1	-23.8	-23.9	-23.9	-23.8	-23.7	-23.8	-23.6	-23.3	-22.9	-22.6	-22.1	-21.7	-21.3	-21.0	-21.0	-21.0	-20.9	-21.0	-21.0	-20.8	-20.8	-22.5	-20.8
4-Mar	-20.9	-21.1	-21.2	-21.0	-20.8	-20.8	-20.8	-20.8	-20.8	-20.7	-20.5	-20.0	-19.5	-19.0	-18.5	-18.0	-17.6	-17.8	-18.0	-17.9	-17.6	-17.5	-17.9	-17.9	-19.4	-17.5
5-Mar	-18.5	-18.9	-18.8	-18.7	-18.6	-18.7	-18.8	-18.8	-18.6	-18.1	-17.5	-15.6	-14.3	-13.6	-13.6	-14.4	-14.6	-16.6	-18.0	-19.3	-19.7	-19.9	-20.1	-17.4	-13.6	
6-Mar	-20.4	-20.6	-21.0	-21.5	-22.2	-22.7	-23.4	-23.2	-21.6	-20.0	-17.1	-14.5	-12.4	-10.4	-9.2	-8.5	-8.3	-8.9	-10.6	-11.8	-13.8	-13.3	-13.8	-14.7	-16.0	-8.3
7-Mar	-15.5	-16.2	-16.8	-17.3	-17.6	-18.1	-18.6	-18.8	-17.7	-16.3	-14.9	-13.1	-10.5	-7.4	-4.9	-2.9	-2.0	-1.0	-2.5	-4.0	-4.5	-4.3	-4.7	-7.1	-10.7	-1.0
8-Mar	-8.8	-10.0	-11.6	-12.7	-13.7	-15.0	-15.9	-15.5	-12.7	-9.8	-6.8	-4.3	-2.3	-0.9	1.2	2.9	3.6	3.0	2.1	1.4	1.3	1.4	1.4	0.2	-5.1	3.6
9-Mar	-0.7	-0.8	-2.5	-2.9	-3.5	-4.1	-4.6	-4.5	-2.7	-1.6	0.9	3.9	6.2	6.8	7.8	8.5	8.1	6.2	3.7	2.2	0.9	-0.6	-0.9	-0.4	1.1	8.5
10-Mar	-0.5	-0.1	0.4	1.1	1.1	1.1	1.1	2.6	5.0	7.1	8.3	8.3	8.3	8.5	8.4	8.6	8.3	7.6	6.1	4.4	2.5	-0.6	-1.6	-1.4	3.9	8.6
11-Mar	-1.7	-1.9	-2.8	-3.5	-4.9	-6.7	-7.5	-7.7	-7.5	-6.6	-5.3	-4.6	-3.9	-2.5	-1.6	-0.8	0.0	-0.2	-1.2	-2.0	-3.0	-3.7	-4.6	-5.6	-3.7	0.0
12-Mar	-6.7	-7.8	-8.7	-9.5	-9.2	-9.1	-9.9	-9.6	-7.6	-3.7	-1.8	-0.4	1.3	1.9	2.6	2.9	2.5	2.1	0.5	-0.9	-2.0	-3.1	-4.3	-5.2	-3.6	2.9
13-Mar	-5.9	-7.0	-8.5	-9.1	-9.9	-10.4	-11.4	-11.2	-8.7	-6.5	-4.3	-2.8	-0.9	1.1	3.0	4.0	4.5	4.0	2.8	1.2	-0.1	-1.7	-1.7	-1.3	-3.4	4.5
14-Mar	-2.1	-2.5	-2.8	-4.1	-5.1	-5.0	-4.7	-3.9	-1.5	0.5	2.9	5.1	6.7	8.2	8.3	8.0	7.2	6.8	5.8	5.1	4.4	5.8	5.6	5.1	2.2	8.3
15-Mar	4.1	3.7	4.2	4.8	6.3	5.7	3.4	2.4	1.5	2.1	2.2	2.9	3.2	3.4	3.1	2.2	1.6	0.7	-1.4	-2.7	-3.5	-4.2	-4.9	-5.2	1.5	6.3
16-Mar	-5.6	-6.6	-7.5	-8.3	-9.1	-9.4	-9.6	-9.7	-9.4	-8.6	-7.4	-6.6	-5.6	-4.5	-3.5	-2.9	-2.6	-2.6	-2.8	-2.9	-3.0	-3.0	-3.2	-3.3	-5.7	-2.6
17-Mar	-2.8	-2.5	-2.5	-2.6	-2.8	-3.2	-3.5	-3.4	-2.4	-1.1	0.5	2.4	4.3	6.6	8.4	10.2	12.6	13.2	12.4	10.2	9.1	9.3	8.4	6.8	3.6	13.2
18-Mar	4.8	3.4	2.2	1.2	0.2	-0.9	-1.5	-2.3	-3.0	-3.2	-3.0	-2.6	-2.6	-2.9	-3.2	-4.5	-4.8	-5.2	-5.6	-6.6	-7.7	-8.6	-9.1	-9.9	-3.1	4.8
19-Mar	-11.0	-11.5	-11.9	-12.4	-13.3	-14.0	-15.0	-15.4	-15.3	-14.9	-14.2	-13.3	-12.3	-11.5	-10.9	-10.6	-10.9	-11.4	-12.4	-13.4	-13.8	-14.3	-15.1	-16.4	-13.1	-10.6
20-Mar	-16.8	-17.6	-17.7	-19.1	-19.6	-20.1	-20.8	-20.2	-18.2	-16.5	-15.2	-14.3	-13.2	-11.9	-11.1	-10.8	-10.4	-10.4	-11.1	-12.5	-13.2	-13.8	-14.0	-14.6	-15.1	-10.4
21-Mar	-15.3	-16.2	-17.0	-17.5	-18.2	-18.1	-17.8	-17.4	-15.9	-14.0	-12.0	-10.7	-9.6	-8.5	-7.9	-7.7	-7.9	-8.7	-10.0	-11.3	-12.7	-14.3	-15.9	-17.0	-13.4	-7.7
22-Mar	-18.2	-19.0	-20.1	-20.7	-21.7	-22.4	-22.7	-21.0	-17.5	-14.5	-11.5	-9.4	-8.1	-6.6	-6.4	-5.2	-4.9	-5.3	-6.7	-9.7	-11.9	-13.4	-15.0	-16.1	-13.7	-4.9
23-Mar	-17.4	-18.6	-19.8	-20.2	-20.7	-21.1	-21.3	-18.8	-15.2	-11.7	-8.3	-5.5	-3.2	-2.0	-1.1	-0.8	-0.4	-0.8	-1.8	-3.4	-4.9	-5.5	-7.1	-9.2	-10.0	-0.4
24-Mar	-10.4	-11.6	-12.8	-13.4	-13.8	-14.2	-13.8	-12.2	-8.8	-5.6	-3.7	-1.1	0.4	1.5	1.4	1.4	1.3	0.9	-0.6	-1.2	-1.4	-2.1	-2.4	-3.4	-5.2	1.5
25-Mar	-4.4	-5.3	-6.3	-7.1	-7.7	-8.1	-8.4	-7.9	-6.6	-5.0	-2.7	-0.1	1.3	2.6	3.3	4.0	4.1	3.4	2.2	1.0	0.5	-0.3	-0.7	-1.1	-2.0	4.1
26-Mar	-1.6	-2.0	-2.3	-2.7	-3.1	-3.3	-3.5	-3.3	-2.9	-1.9	-0.8	-0.3	0.5	1.7	2.5	2.7	2.3	2.1	1.8	1.3	0.8	0.5	0.1	-0.6	-0.5	2.7
27-Mar	-1.5	-2.4	-3.1	-4.3	-5.3	-6.5	-7.1	-7.7	-7.7	-6.9	-6.3	-5.6	-5.2	-4.9	-5.1	-5.2	-4.9	-5.1	-5.5	-5.9	-6.3	-6.6	-6.9	-6.9	-5.5	-1.5
28-Mar	-7.1	-7.6	-7.9	-8.0	-8.1	-8.2	-8.3	-8.1	-7.6	-6.9	-6.5	-5.9	-5.3	-5.1	-4.8	-4.6	-4.6	-4.9	-5.3	-6.2	-6.7	-6.6	-6.7	-6.8	-6.6	-4.6
29-Mar	-7.2	-7.7	-8.2	-8.3	-9.0	-9.7	-9.6	-9.2	-8.6	-7.1	-5.7	-4.8	-4.2	-3.6	-3.5	-3.3	-3.2	-3.2	-4.0	-5.7	-7.8	-9.3	-11.6	-13.4	-7.0	-3.2
30-Mar	-13.9	-15.7	-16.7	-17.2	-17.7	-18.4	-17.9	-14.5	-11.3	-7.7	-4.2	-1.7	-0.6	0.3	1.1	1.7	2.1	1.9	1.0	-0.4	-1.6	-2.2	-2.8	-3.6	-6.7	2.1
31-Mar	-3.8	-4.1	-4.6	-5.0	-5.1	-6.1	-6.5	-5.2	-2.7	0.5	2.4	4.1	6.5	8.5	10.1	10.7	10.6	9.8	8.7	8.3	8.4	8.0	7.6	7.6	2.9	10.7
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	91	12.23	12.23
-20 - 0	500	67.20	79.44
0 - 10	145	19.49	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

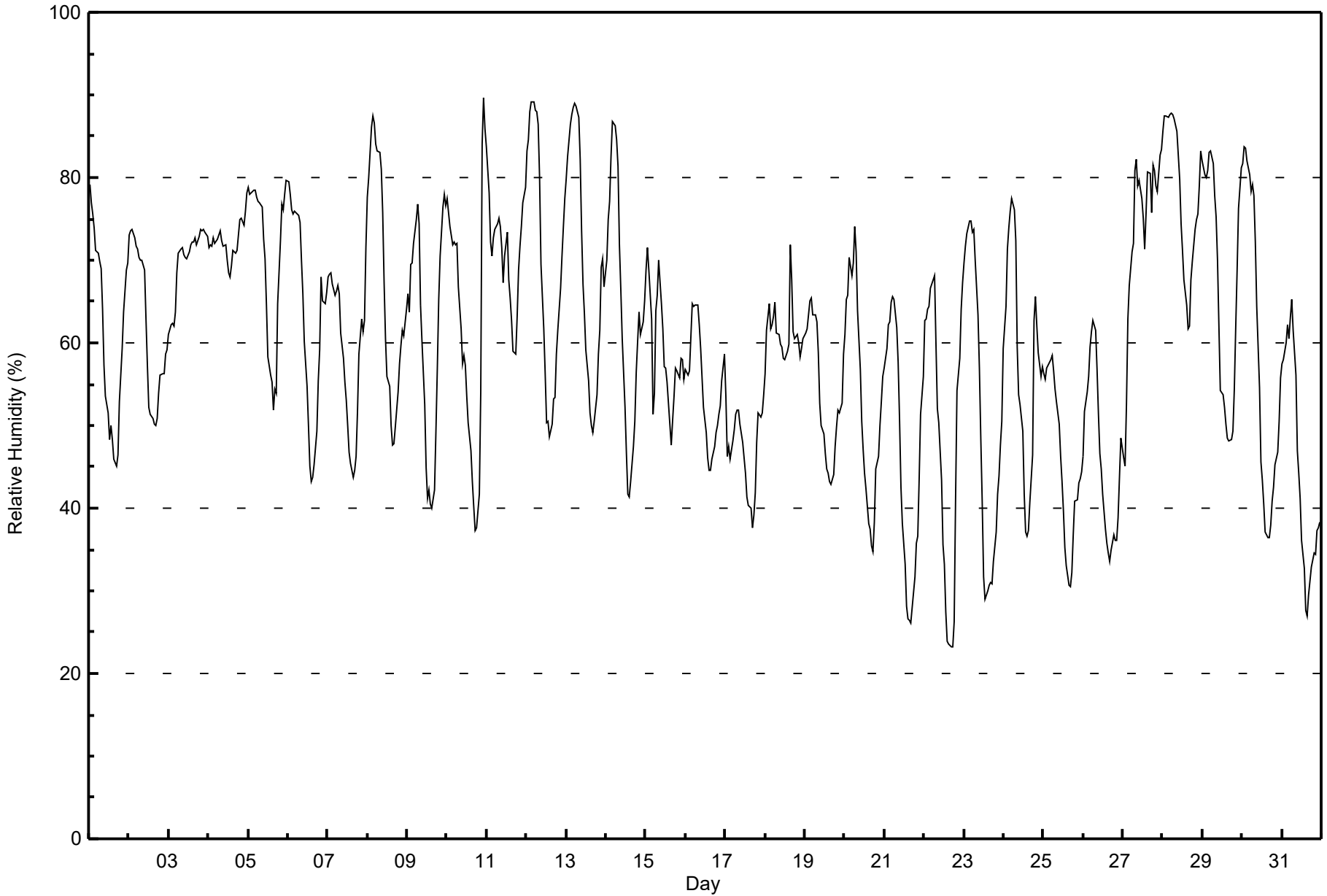
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 89.7 % on Mar 10 23:00																						Maximum Daily Average: 78.0 % on Mar 28																						Hours in Service: 744	
Minimum Value: 23.2 % on Mar 22 17:00																						Minimum Daily Average: 44.8 % on Mar 31																						Hours of Data: 744	
Maximum Diurnal Average: 72.3 % at hour 7																						Minimum Diurnal Average: 46.4 % at hour 16																						Hours of Missing Data: 0	
Monthly Average: 60.27 %																						Percentiles: P ₁ = 26.8 P ₁₀ = 40.5 Q ₁ = 50.0 Median = 61.1 Q ₃ = 71.9 P ₉₀ = 78.9 P ₉₉ = 87.9																						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-Mar	79.2	76.9	75.5	73.9	71.2	70.8	69.8	69.0	64.1	57.3	53.6	51.5	48.3	50.0	48.3	46.0	45.0	46.5	52.9	56.1	59.3	63.7	68.9	69.7	61.1	79.2																			
2-Mar	73.0	73.6	73.6	72.7	71.6	71.4	70.3	70.0	70.0	68.8	62.9	57.3	52.2	51.4	50.9	50.3	50.1	50.9	54.0	56.1	56.4	56.3	58.6	59.2	61.7	73.6																			
3-Mar	61.0	62.2	62.4	62.0	63.7	68.4	70.9	71.3	71.5	70.6	70.4	70.2	71.0	71.9	72.2	72.2	72.7	71.9	72.9	73.7	73.5	73.7	73.5	72.8	69.9	73.7																			
4-Mar	71.5	71.9	71.6	72.7	72.0	72.6	73.1	73.5	72.4	71.7	71.9	70.0	68.4	67.9	69.3	71.2	70.8	71.2	73.1	74.9	75.0	74.2	76.0	78.1	72.3	78.1																			
5-Mar	78.7	78.0	78.3	78.5	78.5	77.7	77.1	77.0	76.4	72.5	70.1	64.6	58.2	56.1	55.2	51.8	54.4	53.8	64.8	72.3	76.7	76.1	78.0	79.6	70.2	79.6																			
6-Mar	79.6	77.9	76.2	75.5	75.9	75.7	75.5	74.5	70.0	66.0	60.2	54.8	49.9	45.0	43.2	43.7	45.3	49.2	55.5	59.2	68.0	65.2	64.8	66.2	63.2	79.6																			
7-Mar	67.9	68.3	68.4	67.0	65.7	66.3	66.9	65.9	61.2	58.1	55.2	53.0	50.1	46.8	45.3	43.8	44.6	46.3	51.7	58.7	62.9	61.3	62.6	71.6	58.7	71.6																			
8-Mar	77.5	80.1	86.2	87.4	86.6	84.0	83.2	83.1	81.0	75.7	67.3	60.6	55.9	54.7	50.1	47.6	47.9	49.8	54.1	57.5	59.7	61.5	60.9	64.0	67.3	87.4																			
9-Mar	65.9	63.7	69.5	69.6	72.1	74.8	76.8	74.5	64.6	60.4	52.5	45.0	41.3	42.1	40.6	40.0	42.2	49.2	57.0	65.2	70.5	76.4	78.0	76.7	61.2	78.0																			
10-Mar	77.5	75.8	74.1	71.8	72.2	71.9	72.0	66.7	61.7	57.5	58.4	57.3	53.5	50.3	47.0	43.1	40.1	37.2	37.7	41.7	54.0	84.0	89.7	86.0	61.7	89.7																			
11-Mar	83.8	78.1	72.2	70.5	72.7	73.7	74.3	75.0	74.0	71.4	67.3	70.5	73.4	67.7	65.4	62.7	58.9	58.6	63.2	68.9	71.6	74.0	77.0	78.9	71.0	83.8																			
12-Mar	83.2	84.6	87.9	89.2	89.2	88.1	87.9	86.4	80.0	69.4	61.7	56.2	50.4	50.5	48.6	50.1	53.3	53.3	58.6	61.5	66.6	70.6	74.1	77.4	70.0	89.2																			
13-Mar	79.9	82.6	86.4	87.7	88.5	89.0	88.7	87.3	82.1	73.6	67.2	63.6	59.2	55.4	51.6	50.0	49.1	50.4	53.8	58.7	61.5	69.1	70.1	66.9	69.7	89.0																			
14-Mar	69.9	74.9	77.1	82.6	86.8	86.2	84.6	81.4	71.8	66.5	60.5	52.3	46.6	41.6	41.3	43.2	47.5	50.5	56.4	60.2	63.8	61.1	62.5	65.2	63.9	86.8																			
15-Mar	68.8	71.6	68.9	63.0	51.4	53.9	64.0	65.8	70.1	64.7	61.8	57.1	56.9	55.3	50.1	47.6	50.7	53.6	57.0	56.6	55.8	58.1	57.9	55.7	59.0	71.6																			
16-Mar	56.8	56.2	56.6	60.7	64.7	64.5	64.6	64.5	62.3	59.3	55.8	52.2	49.2	46.1	44.6	44.5	45.9	47.5	49.2	50.0	51.3	52.4	55.5	58.7	54.7	64.7																			
17-Mar	53.6	46.2	47.4	46.0	48.1	49.5	51.3	51.8	51.8	50.1	48.0	46.0	44.2	41.3	40.4	40.0	37.7	39.2	41.8	47.9	51.5	51.0	51.5	53.7	47.1	53.7																			
18-Mar	56.3	61.5	64.7	61.7	62.2	63.2	64.9	61.2	61.1	59.8	59.5	58.2	58.0	59.0	59.8	71.9	67.7	61.3	60.5	61.0	59.9	58.3	59.3	60.5	61.3	71.9																			
19-Mar	61.1	61.6	63.4	65.1	65.4	63.4	63.5	62.6	58.9	52.8	50.1	49.0	46.6	44.8	44.3	43.2	42.9	44.1	47.5	49.9	51.9	51.4	52.7	58.7	54.0	65.4																			
20-Mar	61.0	65.2	65.7	70.3	68.1	69.7	74.0	71.1	63.9	56.8	50.5	47.2	44.3	42.3	38.2	37.5	35.3	34.8	38.2	44.8	46.3	50.0	52.8	56.0	53.5	74.0																			
21-Mar	57.0	59.2	62.1	62.6	64.9	65.7	65.2	61.9	57.6	50.7	42.5	38.2	33.2	28.1	26.6	26.5	26.1	27.9	31.6	35.7	36.6	43.6	51.4	55.8	46.3	65.7																			
22-Mar	62.6	62.9	64.2	64.5	66.6	67.7	68.1	59.8	52.0	50.4	43.5	35.6	33.1	27.5	23.9	23.5	23.2	23.3	26.3	41.2	54.2	58.1	64.0	67.3	48.5	68.1																			
23-Mar	69.7	71.8	73.1	74.7	74.7	73.4	73.7	70.0	63.4	56.9	48.5	40.8	31.7	28.9	30.0	30.7	31.0	30.8	33.5	37.2	41.6	43.9	47.7	50.5	51.2	74.7																			
24-Mar	59.3	64.4	71.4	73.9	75.8	77.4	76.1	72.3	59.4	53.7	52.6	49.4	41.6	37.1	36.5	37.4	40.8	46.4	62.6	65.6	62.1	58.9	55.9	57.0	57.8	77.4																			
25-Mar	56.2	55.5	56.9	57.3	58.0	58.4	56.6	54.5	52.9	50.1	46.3	43.2	39.6	35.2	33.1	30.6	30.5	32.3	36.8	40.8	41.1	43.0	43.5	44.5	45.7	58.4																			
26-Mar	46.3	51.6	54.1	56.0	59.5	61.4	62.7	61.5	56.9	51.4	46.6	44.8	41.7	37.4	35.7	34.6	33.6	34.9	36.7	36.1	36.1	38.8	43.7	48.4	46.3	62.7																			
27-Mar	46.1	45.0	52.6	62.9	67.0	71.0	72.1	80.9	82.2	78.9	79.6	77.4	75.1	71.4	75.8	80.6	80.4	75.8	81.5	80.8	79.0	78.3	82.7	83.4	73.4	83.4																			
28-Mar	85.7	87.5	87.5	87.2	87.6	87.7	87.6	87.1	85.6	82.6	79.8	74.4	71.1	67.6	64.5	61.6	62.1	67.6	69.9	73.7	74.8	75.6	79.0	83.2	78.0	87.7																			
29-Mar	82.0	80.4	80.0	80.9	83.1	83.2	81.7	77.9	75.2	70.0	62.0	54.2	53.7	52.2	50.2	48.4	48.2	48.3	49.4	54.4	61.9	68.8	76.3	81.2	66.8	83.2																			
30-Mar	81.8	83.8	83.5	82.0	80.3	78.3	79.1	77.9	72.3	64.3	54.5	45.6	43.4	40.5	37.2	36.4	36.5	37.9	40.8	42.6	45.3	46.8	50.6	55.8	58.2	83.8																			
31-Mar	57.5	58.0	60.1	62.3	60.6	63.0	65.3	61.6	56.0	46.9	44.2	41.3	36.1	32.8	27.6	27.0	29.5	31.1	32.9	34.5	34.4	37.3	37.6	38.4	44.8	65.3																			
68.1 68.7 70.1 70.7 71.1 71.7 72.3 70.9 67.2 62.6 58.2 54.2 50.9 48.4 46.7 46.4 46.6 47.6 51.7 55.4 58.2 60.7 63.1 65.2																						Diurnal Average																							
85.7 87.5 87.9 89.2 89.2 89.0 88.7 87.3 85.6 82.6 79.8 77.4 75.1 71.9 75.8 80.6 80.4 75.8 81.5 80.8 79.0 84.0 89.7 86.0																						Diurnal Maximum																							



Wood Buffalo Environmental Association
Hourly Averages

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



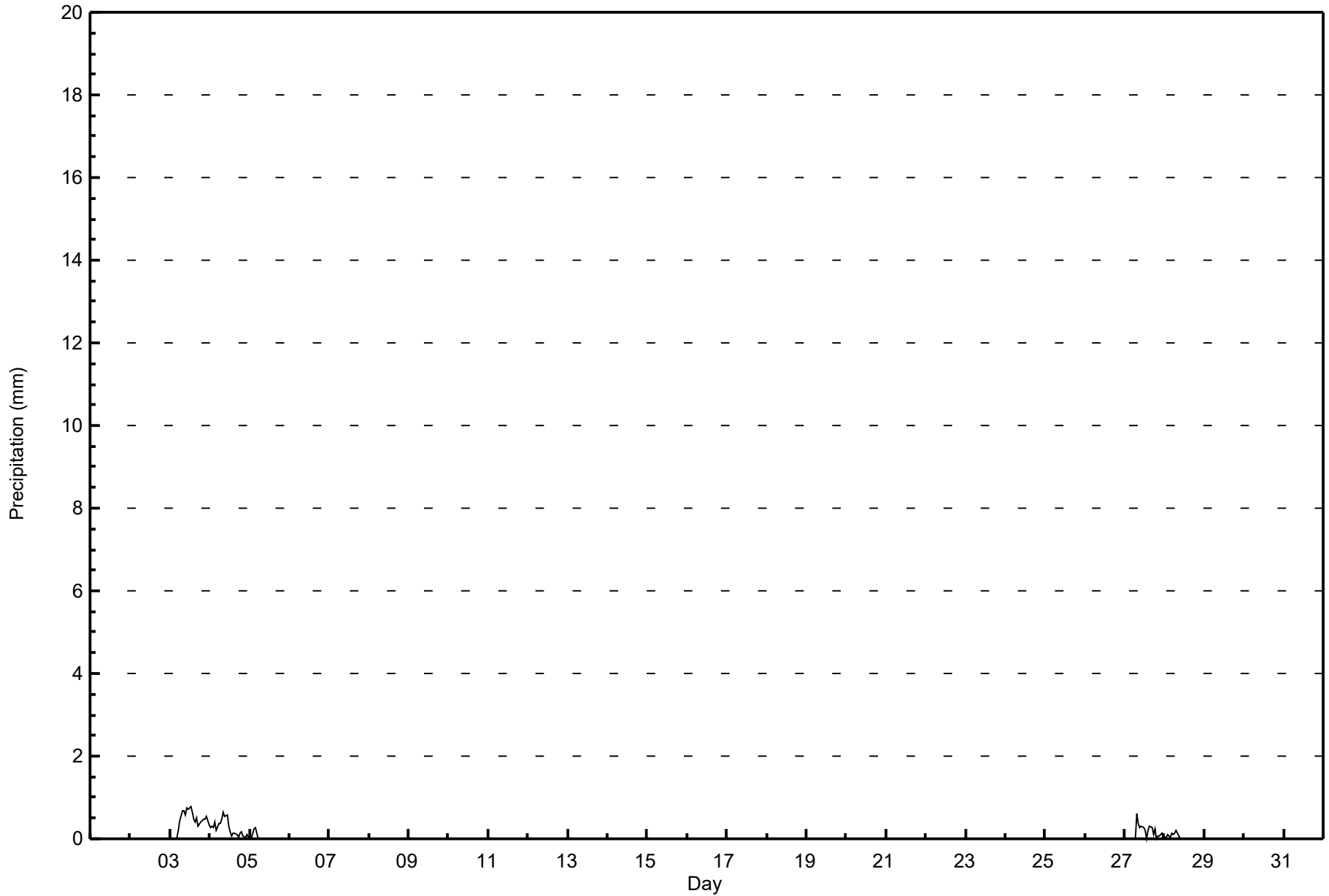


Maximum Value: 0.8 mm on Mar 3 13:00		Maximum Daily Total: 9.9 mm on Mar 3		Hours in Service: 744																									
Minimum Value: 0.0 mm on Mar 1 01:00		Minimum Daily Total: 0.0 mm on Mar 1		Hours of Data: 744																									
Maximum Diurnal Total: 2.0 mm at hour 8		Minimum Diurnal Total: 0.3 mm at hour 1		Hours of Missing Data: 0																									
Monthly Total: 20.83 mm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.6		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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.7	0.7	0.6	0.8	0.7	0.8	0.6	0.5	0.4	0.5	0.3	0.4	0.4	0.5	0.5	0.5	0.4	9.9	0.8			
4-Mar	0.3	0.3	0.3	0.4	0.2	0.4	0.4	0.5	0.7	0.6	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	6.0	0.7			
5-Mar	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3			
6-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	0.3	0.3	0.3	0.2	0.0	0.2	0.3	0.3	0.1	0.2	0.0	0.1	0.1	0.1	0.0	3.4	0.6			
28-Mar	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.2			
29-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average					
																								Diurnal Maximum					



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Fort McKay - Bertha Ganter - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Fort McKay - Bertha Ganter - March 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	719	96.64	96.64
0.4 - 0.5	14	1.88	98.52
0.6 - 0.7	9	1.21	99.73
0.8 - 1.4	2	0.27	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Summary of Hour Averages

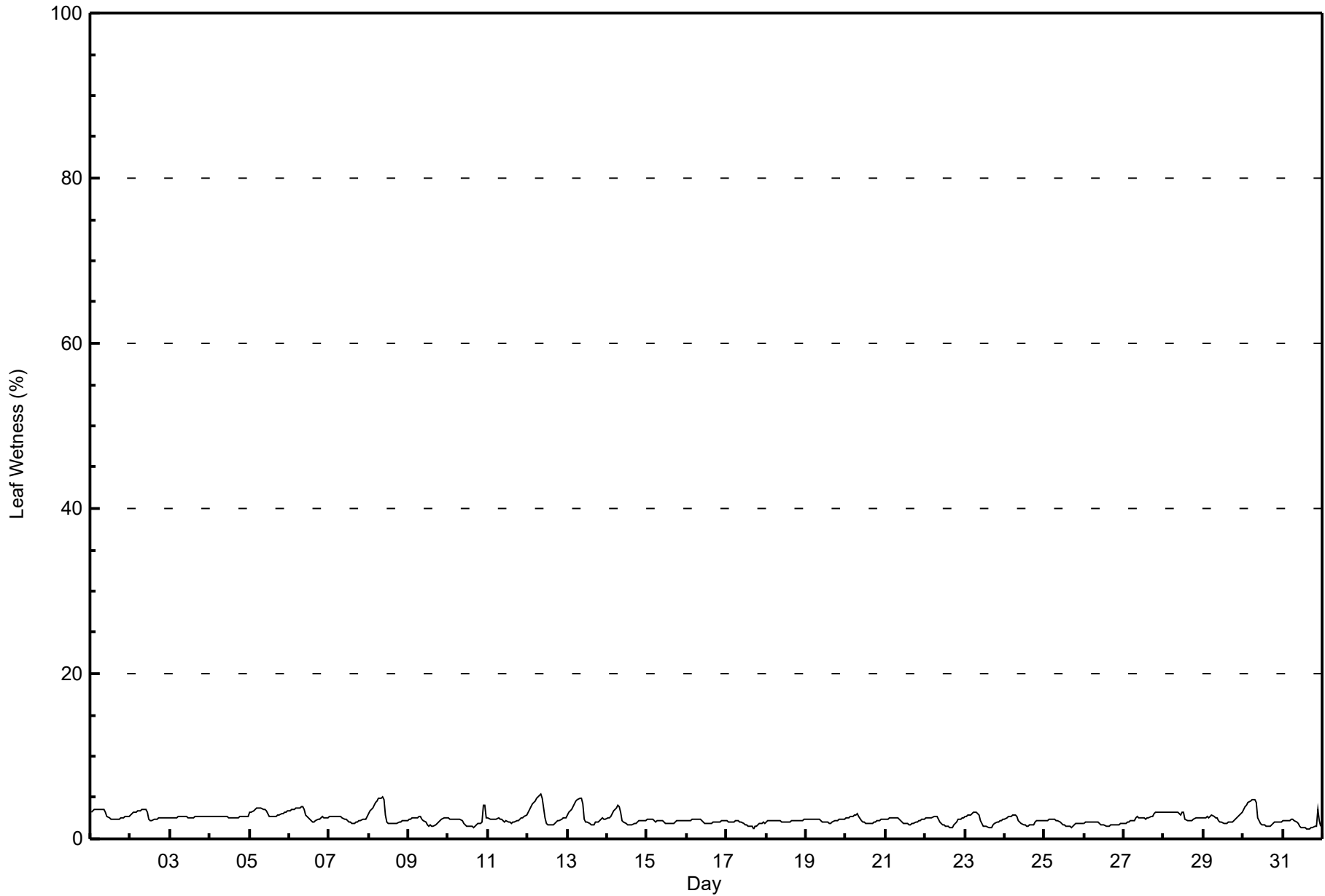
Fort McKay - Bertha Ganter - March 2024

Maximum Value: 5.4 % on Mar 12 09:00 Maximum Daily Average: 3.2 % on Mar 5																				Hours in Service: 744 Hours of Data: 744						
Minimum Value: 1.2 % on Mar 31 16:00 Minimum Daily Average: 1.8 % on Mar 31 Maximum Diurnal Average: 3.0 % at hour 8 Minimum Diurnal Average: 1.9 % at hour 15 Monthly Average: 2.43 % Percentiles: P ₁ = 1.4 P ₁₀ = 1.7 Q ₁ = 2.0 Median = 2.3 Q ₃ = 2.6 P ₉₀ = 3.3 P ₉₉ = 4.9																				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-Mar	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.6	3.5	3.2	2.7	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3.6
2-Mar	2.9	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.6	3.2	2.4	2.3	2.3	2.3	2.3	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.9	3.6
3-Mar	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.6	2.6	2.7
4-Mar	2.6	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.7	2.8	2.6	2.8
5-Mar	3.2	3.3	3.4	3.6	3.7	3.7	3.7	3.7	3.7	3.6	3.5	3.4	3.0	2.7	2.7	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.2	3.7
6-Mar	3.5	3.5	3.5	3.6	3.7	3.7	3.8	3.9	3.9	3.6	2.9	2.5	2.3	2.1	2.1	2.0	2.1	2.3	2.4	2.5	2.7	2.6	2.6	2.6	2.9	3.9
7-Mar	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8	2.0	2.0	2.2	2.3	2.3	2.3	2.3	2.6	2.4	2.6
8-Mar	3.0	3.3	3.7	4.1	4.4	4.6	4.8	5.0	5.1	4.7	2.9	2.0	1.9	1.9	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.2	2.3	3.0	5.1
9-Mar	2.3	2.3	2.6	2.5	2.5	2.6	2.8	2.7	2.4	2.2	2.0	1.7	1.6	1.6	1.5	1.5	1.6	1.8	2.1	2.2	2.4	2.6	2.5	2.6	2.2	2.8
10-Mar	2.5	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.1	1.9	1.6	1.6	1.6	1.5	1.5	1.4	1.5	1.7	1.8	1.9	2.0	4.1	4.0	2.5	2.2	4.1
11-Mar	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.1	2.1	2.0	2.0	1.9	2.0	2.0	2.2	2.3	2.4	2.5	2.6	2.7	2.9	2.3	2.9
12-Mar	3.2	3.6	3.9	4.3	4.6	4.9	5.1	5.3	5.4	4.9	2.6	1.8	1.7	1.7	1.7	1.7	1.9	2.0	2.2	2.3	2.4	2.5	2.5	2.6	3.1	5.4
13-Mar	2.8	3.2	3.6	3.9	4.3	4.5	4.7	4.9	4.9	4.2	2.3	2.1	2.1	1.9	1.8	1.7	1.8	2.0	2.1	2.2	2.3	2.5	2.5	2.4	2.9	4.9
14-Mar	2.5	2.6	2.7	3.0	3.4	3.8	4.0	4.0	3.2	2.3	2.1	1.9	1.8	1.7	1.7	1.7	1.8	1.9	2.0	2.1	2.2	2.2	2.2	2.2	2.4	4.0
15-Mar	2.3	2.4	2.4	2.3	2.1	2.1	2.2	2.2	2.2	2.1	2.1	1.9	1.9	1.8	1.8	1.9	1.9	2.0	2.2	2.2	2.2	2.3	2.3	2.3	2.1	2.4
16-Mar	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.2	2.0	1.9	1.9	1.8	1.8	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.4
17-Mar	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.0	1.8	1.7	1.7	1.6	1.6	1.5	1.2	1.5	1.6	1.8	1.9	1.9	2.0	1.9	1.9	2.2
18-Mar	2.0	2.1	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3
19-Mar	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.2	2.1	2.0	2.0	2.0	1.9	1.9	2.0	2.1	2.2	2.3	2.3	2.3	2.3	2.4	2.2	2.4
20-Mar	2.5	2.5	2.5	2.7	2.7	2.8	3.0	3.0	2.8	2.2	2.0	2.0	1.9	1.9	1.8	1.9	1.9	2.0	2.1	2.2	2.2	2.3	2.3	2.4	2.3	3.0
21-Mar	2.4	2.4	2.5	2.5	2.6	2.5	2.5	2.5	2.4	2.2	2.0	1.9	1.9	1.8	1.8	1.7	1.8	1.9	2.0	2.1	2.1	2.2	2.3	2.4	2.2	2.6
22-Mar	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.4	2.0	1.8	1.6	1.6	1.5	1.4	1.4	1.4	1.6	1.9	2.1	2.3	2.4	2.5	2.6	2.1	2.7
23-Mar	2.7	2.8	2.8	3.0	3.0	3.1	3.2	3.3	3.0	2.1	1.8	1.6	1.5	1.4	1.4	1.4	1.6	1.9	2.0	2.1	2.1	2.2	2.3	2.2	2.2	3.3
24-Mar	2.4	2.5	2.6	2.7	2.8	2.9	2.9	2.7	2.3	2.0	1.9	1.7	1.6	1.6	1.6	1.6	1.7	1.8	2.0	2.2	2.2	2.2	2.2	2.2	2.2	2.9
25-Mar	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.0	1.8	1.7	1.6	1.6	1.5	1.4	1.4	1.6	1.7	1.8	1.8	1.9	1.9	1.9	1.9	2.3
26-Mar	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.9	1.8	2.1
27-Mar	1.9	1.9	2.0	2.1	2.1	2.2	2.3	2.5	2.7	2.6	2.5	2.5	2.5	2.4	2.5	2.5	2.6	2.8	3.1	3.2	3.2	3.2	3.2	3.2	2.6	3.2
28-Mar	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.1	3.0	2.9	3.2	3.1	2.4	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.5	2.6	2.8	3.2
29-Mar	2.6	2.6	2.6	2.6	2.8	2.9	2.8	2.6	2.5	2.3	2.0	2.0	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.3	2.5	2.6	2.9	3.2	2.4	3.2
30-Mar	3.5	3.8	4.1	4.3	4.5	4.7	4.8	4.8	4.4	2.5	1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.7	1.9	2.0	2.0	2.0	2.1	2.1	2.8	4.8
31-Mar	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.0	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.3	1.3	1.4	1.5	1.5	3.5	2.3	1.6	1.8	3.5
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

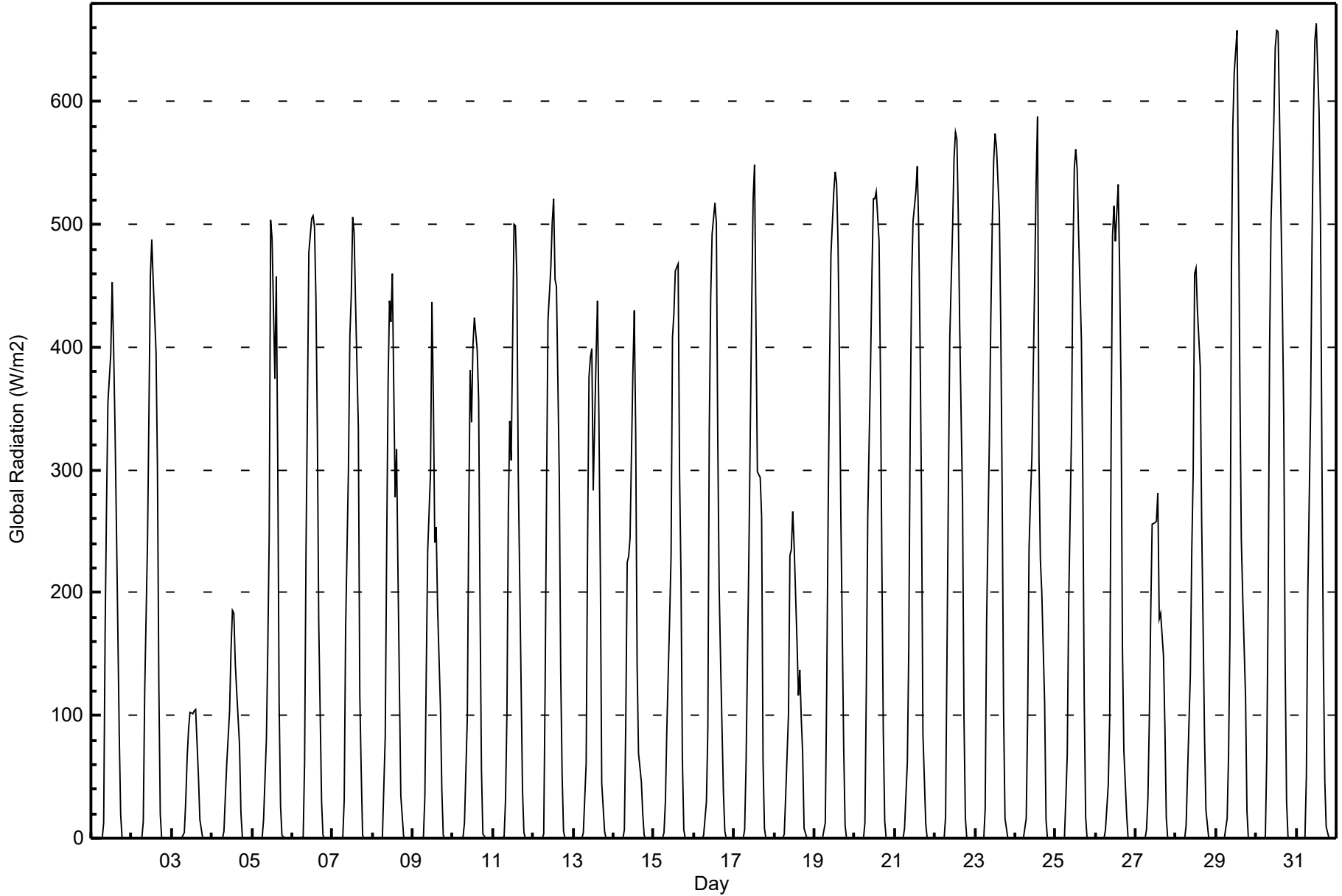
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	19	2.55	2.55
1.5 - 10	718	96.51	99.06
> 10	0	0.00	99.06

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 663.9 W/m2 on Mar 31 13:00 Maximum Daily Average: 218.9 W/m2 on Mar 30																							Hours in Service:	744		
Minimum Value: 0.0 W/m2 on Mar 1 01:00 Minimum Daily Average: 31.0 W/m2 on Mar 3																							Hours of Data:	744		
Maximum Diurnal Average: 465.8 W/m2 at hour 13 Minimum Diurnal Average: 0.0 W/m2 at hour 24																							Hours of Missing Data:	0		
Monthly Average: 133.51 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 5.9 Q ₃ = 256.6 P ₉₀ = 459.7 P ₉₉ = 589.4																							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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.7	165.4	269.7	354.9	394.5	453.1	401.0	335.5	256.2	85.8	19.5	0.5	0.0	0.0	0.0	0.0	0.0	114.5	453.1
2-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	120.0	243.6	346.6	457.7	488.0	454.5	396.6	302.6	124.6	19.6	0.5	0.0	0.0	0.0	0.0	0.0	123.7	488.0
3-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	29.8	65.7	89.1	103.0	101.5	103.6	104.6	77.1	50.0	14.6	0.3	0.0	0.0	0.0	0.0	0.0	31.0	104.6
4-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	34.1	60.7	103.3	153.6	186.1	183.7	142.9	119.4	75.7	21.2	0.8	0.0	0.0	0.0	0.0	0.0	45.3	186.1
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.1	15.0	81.1	155.8	247.8	503.3	489.2	374.1	457.8	311.4	111.1	26.3	1.9	0.0	0.0	0.0	0.0	0.0	115.6	503.3
6-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.6	62.2	234.0	351.2	477.1	504.5	506.7	497.6	440.5	335.6	175.2	29.7	2.6	0.2	0.1	0.0	0.0	0.0	150.7	506.7
7-Mar	0.0	0.2	0.1	0.1	0.0	0.1	0.8	31.3	171.2	302.2	408.7	442.4	506.4	493.2	436.8	333.8	117.3	54.8	2.9	0.0	0.0	0.0	0.0	0.0	137.6	506.4
8-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.3	83.5	234.8	368.7	438.2	420.9	459.8	277.3	316.5	215.5	125.6	34.2	1.6	0.0	0.0	0.0	0.0	0.0	124.1	459.8
9-Mar	0.1	0.1	0.0	0.1	0.1	0.1	0.7	34.2	135.6	233.5	298.6	437.0	357.9	240.5	253.4	187.6	107.7	39.0	2.2	0.0	0.0	0.0	0.0	0.0	97.0	437.0
10-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.7	13.1	97.6	258.4	381.2	339.4	401.9	424.2	397.6	357.5	188.8	55.2	3.9	0.0	0.0	0.0	0.0	0.0	121.6	424.2
11-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.2	31.1	101.5	266.1	340.3	307.4	500.5	499.2	457.2	296.8	213.4	39.7	4.1	0.0	0.0	0.0	0.0	0.0	127.4	500.5
12-Mar	0.0	0.0	0.0	0.0	0.0	0.0	3.9	124.6	283.6	422.4	465.0	501.7	521.3	455.1	449.3	293.8	135.9	51.5	5.8	0.1	0.0	0.0	0.0	0.0	154.7	521.3
13-Mar	0.0	0.0	0.0	0.0	0.0	0.0	4.3	61.5	240.4	375.7	391.3	398.3	283.0	391.6	438.3	342.3	218.8	45.0	6.1	0.1	0.0	0.0	0.0	0.0	133.2	438.3
14-Mar	0.0	0.0	0.1	0.0	0.0	0.0	7.3	95.9	224.6	229.8	244.5	378.7	430.1	330.2	142.0	69.6	46.6	20.0	2.8	0.0	0.0	0.0	0.0	0.0	92.6	430.1
15-Mar	0.0	0.0	0.0	0.0	0.0	0.0	4.8	30.5	88.6	179.9	230.3	407.9	427.1	462.5	468.0	296.8	214.9	64.2	6.4	0.0	0.0	0.0	0.0	0.0	120.1	468.0
16-Mar	0.0	0.0	0.0	0.0	0.0	0.0	2.4	30.5	90.4	331.7	439.9	492.3	517.3	500.9	325.5	204.5	143.5	37.3	5.3	0.0	0.0	0.0	0.0	0.0	130.1	517.3
17-Mar	0.0	0.0	0.0	0.0	0.0	0.0	7.3	61.3	145.7	231.2	434.0	521.4	548.4	418.3	298.5	294.0	261.6	63.1	8.4	0.2	0.0	0.0	0.0	0.0	137.2	548.4
18-Mar	0.0	0.0	0.0	0.0	0.0	0.0	3.4	34.6	101.0	230.9	234.7	266.3	236.9	160.7	116.4	137.0	98.0	68.7	8.6	0.0	0.0	0.0	0.0	0.0	70.7	266.3
19-Mar	0.0	0.0	0.0	0.0	0.0	0.0	12.8	123.3	262.6	384.0	475.6	526.9	542.6	533.9	484.4	389.4	261.4	73.2	10.5	0.0	0.0	0.0	0.0	0.0	170.0	542.6
20-Mar	0.0	0.0	0.0	0.0	0.0	0.0	12.8	122.5	262.0	386.6	462.5	521.2	520.7	527.1	485.9	373.1	222.0	84.9	14.3	0.0	0.0	0.0	0.0	0.0	166.5	527.1
21-Mar	0.0	0.0	0.0	0.0	0.0	0.0	8.2	62.0	156.1	334.2	455.6	501.9	526.8	547.4	496.2	399.4	276.2	85.8	11.5	0.0	0.0	0.0	0.0	0.0	160.9	547.4
22-Mar	0.0	0.0	0.0	0.0	0.0	0.0	17.7	148.1	286.9	409.3	499.2	554.3	575.0	569.6	507.1	415.0	274.8	99.6	16.4	0.0	0.0	0.0	0.0	0.0	182.2	575.0
23-Mar	0.0	0.0	0.0	0.0	0.0	0.0	23.8	175.9	328.2	425.5	500.2	552.4	574.4	562.1	509.0	416.8	283.1	103.6	16.5	0.5	0.0	0.2	0.3	0.0	186.4	574.4
24-Mar	0.0	0.0	0.0	0.0	0.0	0.0	15.6	97.8	236.4	276.5	310.0	456.3	535.1	587.5	310.6	227.3	200.7	110.6	14.8	0.2	0.0	0.0	0.0	0.0	140.8	587.5
25-Mar	0.0	0.2	0.2	0.1	0.1	0.3	32.8	68.6	190.4	330.6	470.9	545.9	561.1	545.5	492.9	405.8	292.7	110.7	17.8	0.3	0.0	0.0	0.0	0.0	169.5	561.1
26-Mar	0.0	0.0	0.0	0.0	0.0	0.0	7.4	43.3	98.7	323.4	491.3	515.5	485.9	532.9	464.1	365.2	155.0	71.6	18.3	0.1	0.0	0.0	0.0	0.0	148.9	532.9
27-Mar	0.0	0.0	0.0	0.0	0.0	0.0	7.1	32.8	96.9	183.5	255.8	256.6	257.8	280.9	179.1	183.2	148.4	90.9	16.5	0.2	0.0	0.0	0.0	0.0	82.9	280.9
28-Mar	0.0	0.0	0.0	0.0	0.0	0.0	10.0	51.4	133.9	234.3	298.0	459.5	464.7	430.3	383.8	256.5	172.3	84.0	22.9	0.4	0.0	0.0	0.0	0.0	125.1	464.7
29-Mar	0.0	0.0	0.0	0.0	0.0	0.0	16.3	67.7	167.5	458.1	579.4	623.5	658.2	525.8	368.7	244.2	196.8	115.2	21.8	0.5	0.0	0.0	0.0	0.0	168.5	658.2
30-Mar	0.0	0.0	0.0	0.0	0.0	1.0	66.6	195.0	400.5	502.6	584.7	644.2	657.7	657.2	588.9	437.6	343.9	142.2	29.7	1.6	0.0	0.0	0.0	0.0	218.9	657.7
31-Mar	0.0	0.0	0.1	0.0	0.0	1.2	50.4	198.8	351.6	486.9	588.4	649.6	663.9	589.7	498.1	306.6	147.5	47.5	9.1	0.3	0.0	0.0	0.0	0.0	191.2	663.9
																							Diurnal Average			
																							Diurnal Maximum			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	406	54.57	54.57
21 - 100	65	8.74	63.31
101 - 300	114	15.32	78.63
301 - 600	152	20.43	99.06
601 - 900	7	0.94	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

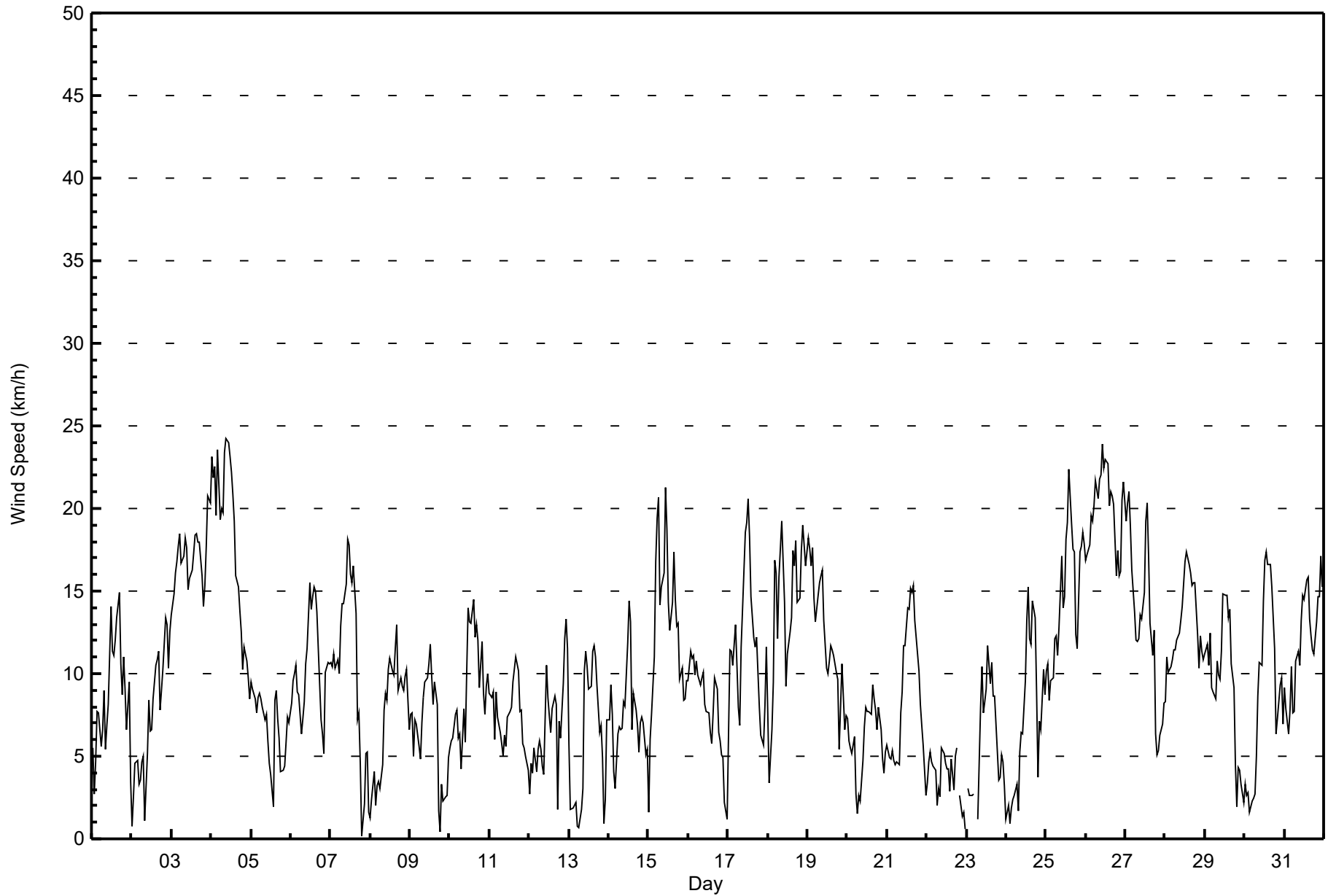


Maximum Speed: 24 km/h on Mar 4 10:00	Maximum Daily Speed Average: 19.8 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 7 20:00	Minimum Daily Speed Average: 1.2 km/h on Mar 5	Hours of Data: 740
Maximum Diurnal Speed Average: 3.9 km/h at hour 13	Minimum Diurnal Speed Average: 0.8 km/h at hour 23	Hours of Missing Data: 4
Monthly Average Velocity: 1.5 km/h 89.4 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 6 Median = 10 Q ₃ = 14 P ₉₀ = 18 P ₉₉ = 23	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-Mar	WNW6	WNW3	W5	W8	W8	W6	W7	W9	W5	W7	W8	NW14	WNW11	WNW11	NW12	NNW13	NNW15	NNW11	NNW9	NNW11	NW9	N7	NNE9	NNE4	NW7.3	NNW15	
2-Mar	N1	NW3	NNW5	NNW5	WNW3	WNW4	WNW5	NW5	NE1	NE5	NE8	NE6	ENE7	NE9	NE11	NE11	NNE11	NE8	NNE9	N10	NNE13	NNE13	NNE10	NNE13	NNE6.2	NNE13	
3-Mar	N14	N15	N16	N17	NNE18	NNE18	NNE17	NNE17	NNE18	NNE18	NNE15	NNE16	NNE16	N17	N18	N18	N18	N18	N16	N14	N15	N18	N21	N20	N16.8	N21	
4-Mar	N23	N22	N23	N20	N24	N19	N20	N20	N23	NNE24	N24	N23	N22	N21	N19	N19	N15	N14	N13	N10	N12	N11	N10	N8	N18.0	NNE24	
5-Mar	N9	N9	N8	N8	N9	N9	N8	N8	N7	NE8	NE6	E5	ESE4	E2	S8	S9	SSE7	SSW6	SSW4	S4	S4	S6	S7	S7	NE1.2	N9	
6-Mar	S8	S10	S10	S11	S9	S9	S6	S7	S8	SSE11	SSE12	SSE16	S14	S15	S15	S15	SSW14	SSW9	SSW7	SSW6	S5	S10	S11	S11	S10.1	SSE16	
7-Mar	S11	S10	S11	S10	S11	S10	S13	S14	S14	S15	SSE18	SSE18	SSE16	S15	S17	S14	S7	SSW8	S5	SSE0	SSE2	S5	S5	WNW2	S10.3	SSE18	
8-Mar	NNW1	NW2	N4	SW2	WSW3	SSW3	S3	S4	S8	SSE9	SSE8	S10	S11	SSE10	S10	S11	S13	S9	S10	S9	S9	S10	S10	S7	S6.6	S13	
9-Mar	S8	S8	S5	S7	S7	S6	S5	S7	S9	S9	S10	S11	S12	S10	S8	S9	SSE8	ENE2	NNE0	S3	S2	SSW3	SSW3	S5	S6.3	S12	
10-Mar	S6	S6	S6	S8	S8	S6	SSE6	W4	W8	SW6	W10	WNW14	W13	W13	WNW15	WNW12	WNW13	NW12	NW9	NNW12	N9	NE8	NNE9	NE10	WNW4.7	WNW15	
11-Mar	NE9	NNE9	NE9	ENE6	NE9	NE7	NE6	NE6	NE5	NE6	NE6	NE7	NE8	NE8	NNE9	N10	NNW11	N10	N8	N8	N6	NNE6	N5	N4	NNE6.8	NNW11	
12-Mar	N3	NNE5	N4	N5	NNE4	NNE5	NNE6	NNE5	ENE4	SSE4	S11	SSE9	SSE7	NE6	NE8	NNE9	NNE8	NNW2	SSE7	SE6	SE9	SE12	SSE13	SE12	E3.2	SSE13	
13-Mar	SE6	SE2	NNW2	ENE2	E2	NNE1	S1	NW2	SSE3	S10	SSE11	S10	S9	S11	S12	S11	S9	S6	SSE7	SSE5	SSE1	S2	S7	S5.3	S12		
14-Mar	S7	S9	S8	SSW4	S3	S6	SSW7	S7	S7	S8	S8	S12	S14	SSW13	SW7	SSW9	S8	S7	S5	S7	S7	SW7	W5	WNW5	SSW6.9	S14	
15-Mar	WNW2	W6	W8	WNW11	NW17	NNW19	NNW21	N14	N15	N16	N21	NNW19	NNE14	NNE13	NNE14	NNE17	NNE15	NNE13	NE13	NNE10	NNE10	NNE8	NNE8	NNE10	N11.0	N21	
16-Mar	NNE10	NNE11	N11	NNE11	NNE10	NNE11	NNE10	NNE9	NNE10	NNE10	NNE8	NNE8	NNE8	NE6	NE6	NNE8	N10	NNE9	N6	NNE6	N5	NNE5	NNE2	N1	NNE7.8	NNE11	
17-Mar	SSE6	SSE11	SSE11	SSE11	S13	S11	S8	S7	S12	S14	S19	S19	S21	S18	S15	SSE12	S12	S12	S10	S8	SSW6	W6	WNW8	NNE12	S9.9	S21	
18-Mar	NNE8	NE3	NE7	NNE10	NNE17	NNE16	NNE12	NNE16	NNE19	NNE17	NNE14	NNE9	NNE11	NNE13	NNE13	NNE17	NNE17	NNE18	NNE14	NNE15	NNE17	NNE19	NNE18	NNE17	NNE14.0	NNE19	
19-Mar	NNE18	NNE18	N17	N18	NNE15	NNE13	NNE15	NNE15	NNE16	NNE16	NNE13	NE10	NE10	NE11	NNE12	NE11	NE11	NE10	NE10	ENE5	NE8	NNE11	NNW7	NNW7	NNE11.9	NNE18	
20-Mar	N7	N6	N5	NNW5	NNW6	NNW3	WSW2	WNW3	N2	ENE5	ENE7	ENE8	ENE8	ENE8	ENE8	ENE8	NE9	NNE8	NNE8	NNE7	N8	N7	NNE5	N4	NNW5	NNE4.9	NE9
21-Mar	N6	NW5	NNW5	NNW5	NW5	NNW4	NNW5	NNW4	N8	N9	NNE12	NNE12	NNE14	NNE14	NNE15	NNE15	NNE15	NNE13	NNE11	NNE10	N8	NNW7	NW6	NW3	NNE8.1	NNE15	
22-Mar	W3	WNW5	NW5	WNW5	W4	W4	SSW2	WSW3	SSW3	SSE6	SSE5	SSE5	SSE4	S4	ESE3	SSE5	SE3	S5	S6	UO	NW3	NW1	WSW2	W1	SSW1.8	SSE6	
23-Mar	UO	WNW3	WNW3	WSW3	WSW3	UO	UO	S1	SSE8	SSE10	SSE8	SE8	SSE9	SSE12	SSE9	SSE11	SSE9	SSE9	SE7	SE4	SSE4	SSE5	SSE5	SSE3	SSE5.5	SSE12	
24-Mar	W1	NW2	WNW1	W2	SW2	SW3	SW3	S2	S5	S6	SSE6	S10	SSE13	S15	S12	SSE12	SSE14	SSE13	S9	SSE4	SE7	SSE7	SSE10	SSE9	S6.5	S15	
25-Mar	SSE10	SSE11	SSE8	SSE10	SSE10	SSE12	SSE12	SSE11	S13	S17	S14	S15	SSE18	SSE19	SSE22	S19	S18	S17	S12	S11	S17	S18	S19	S18	SSE14.6	SSE22	
26-Mar	S17	S17	S18	S20	S19	SSE20	S22	S21	S22	SSE22	SSE24	SSE22	SSE23	SSE23	SSE20	SSE21	SSE21	SSE20	SSE16	SSE17	SSE16	SSE16	SSE20	SSE22	SSE19.8	SSE24	
27-Mar	SE19	SSE20	SSE21	SE19	SE16	SE14	SE12	ESE12	SE12	SE14	SE13	SE15	SE19	SE20	SE17	ESE13	SE11	SE13	E6	ENE5	ENE5	NNE6	NNE7	N8	SE11.6	SSE21	
28-Mar	NNE8	N11	N10	N10	N11	N11	N11	N12	NNE12	NNE13	N14	NNE15	N17	N17	N17	N16	N15	N16	N15	N12	N10	NNW12	NNW11	N11	N12.8	N17	
29-Mar	N11	N12	N11	N12	N9	N9	N8	N11	N10	NNE10	NNE11	NNE15	NNE15	NNE15	NNE13	N14	NNE11	NNE9	NE5	N2	WNW4	WNW4	NW3	W2	N8.8	NNE15	
30-Mar	WNW3	WSW3	SSW3	SW2	SSW2	SSW2	SSW3	S5	SSE9	SSE11	SSE11	SSE14	SSE17	SSE17	SSE17	SSE17	SSE15	SSE13	SSE12	SSE6	SSE7	SSE9	SSE10	SSE7	SSE8.4	SSE17	
31-Mar	S9	S8	S6	S8	S10	S8	S8	S11	SSE11	S11	SSE13	SSE15	SSE15	SSE16	S16	S13	S12	S11	S11	S13	S15	S15	S17	S15	S11.8	S17	

NE1.5	NE1.0	NNE1.2	NNE0.9	NNE1.2	NNE1.3	NNE1.3	NE1.5	E1.8	ESE2.6	ESE3.1	ESE3.1	SE3.9	SE3.5	ESE2.7	ESE2.6	E2.0	E1.8	ENE1.4	ENE1.5	ENE1.3	ENE1.1	E0.8	ENE1.2	Diurnal Average
N23	N22	N23	N20	N24	SSE20	S22	S21	NNE23	NNE24	N24	N23	SSE23	SSE23	SSE22	SSE21	SSE21	SSE20	SSE16	SSE17	NNE17	NNE19	N21	SSE22	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	156	21.08	21.08
6 - 11	328	44.32	65.41
12 - 19	218	29.46	94.86
20 - 28	38	5.14	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

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

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	13	10	5	7	3	2	3	15	23	11	5	8	10	16	11	14	156
6 - 11	48	48	35	7	1	0	6	47	96	8	3	0	12	5	3	9	328
12 - 19	36	64	1	0	0	2	14	35	48	2	0	0	2	4	4	6	218
20 - 28	13	3	0	0	0	0	1	15	5	0	0	0	0	0	0	1	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
Totals	110	125	41	14	4	4	24	112	172	21	8	8	24	25	18	30	740

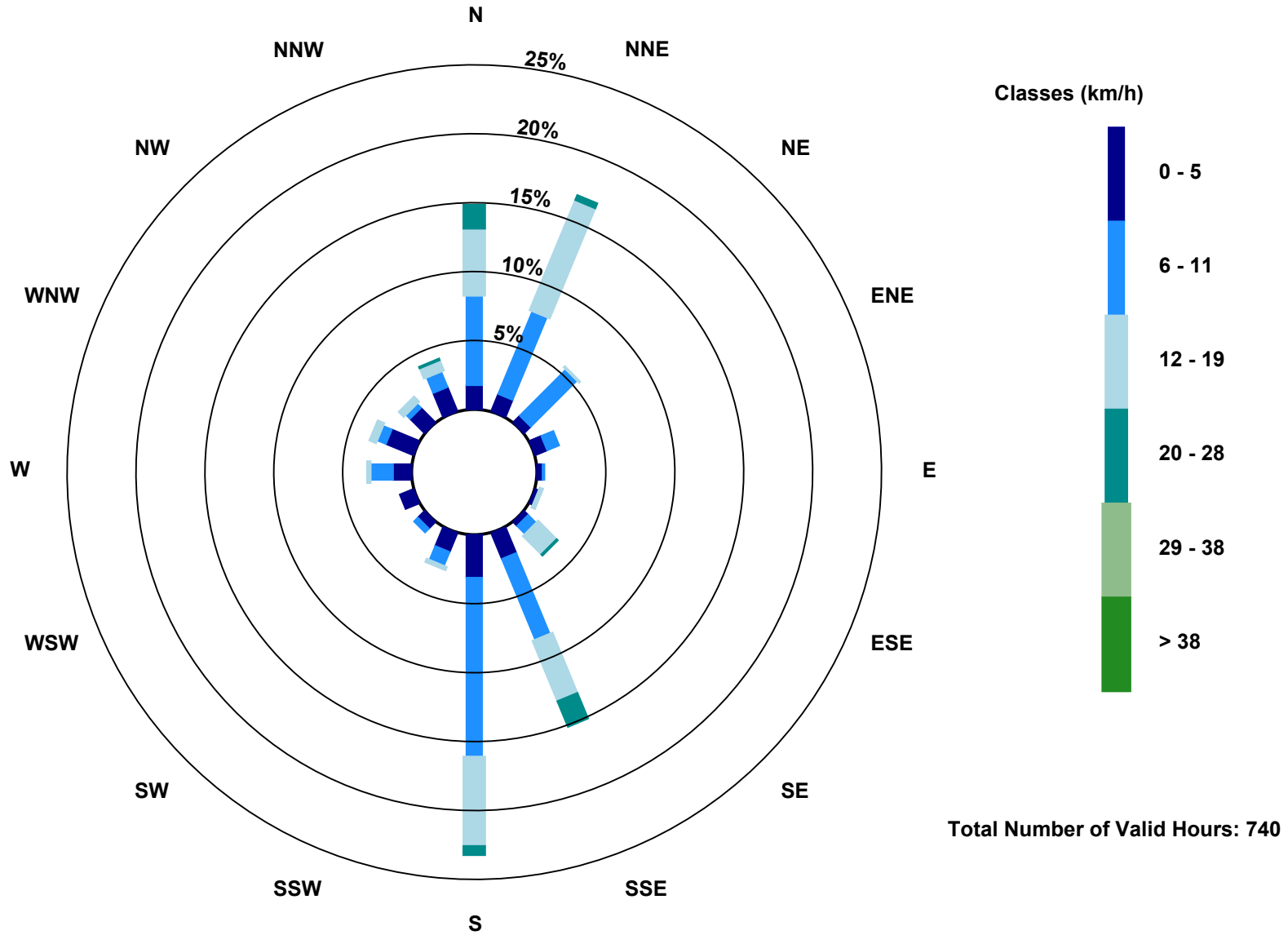
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed (WS) - km/h

Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6 km/h on Mar 27 18:00	Hours of Data: 740
Minimum Value: 1 km/h on Mar 29 21:00	Hours of Missing Data: 4
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6	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-Mar	2	1	1	3	3	2	3	3	2	3	3	5	4	4	4	3	3	3	1	2	1	2	2	3	5
2-Mar	1	1	1	2	2	2	1	1	1	3	3	3	2	3	3	4	3	3	2	2	3	3	3	3	4
3-Mar	3	3	3	4	4	4	4	5	4	5	4	4	4	4	4	4	3	4	4	4	4	4	4	5	5
4-Mar	5	5	5	4	5	4	4	4	5	5	5	6	4	5	4	3	3	3	2	2	2	2	3	1	6
5-Mar	2	2	2	1	2	2	1	2	1	2	2	2	2	2	3	2	2	2	1	1	1	1	2	1	3
6-Mar	1	2	2	2	2	2	1	1	2	2	2	3	3	4	4	4	5	2	2	3	2	2	2	2	5
7-Mar	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	3	2	1	3
8-Mar	1	2	3	2	2	1	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	1	3
9-Mar	1	2	1	1	1	1	1	3	2	2	2	3	2	3	2	2	3	1	2	1	1	1	1	2	3
10-Mar	1	1	1	1	2	2	2	3	3	3	4	6	6	6	6	5	6	4	2	1	2	3	2	3	6
11-Mar	3	3	3	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	1	1	2	1	2	2	3
12-Mar	1	1	1	1	1	1	1	1	1	3	3	2	3	2	2	2	2	1	2	2	2	3	3	2	3
13-Mar	2	2	1	1	1	1	1	1	3	3	2	2	2	2	2	2	2	2	1	2	1	1	2	2	3
14-Mar	2	2	2	1	2	1	2	2	1	1	2	4	4	4	3	3	1	2	2	2	1	2	3	2	4
15-Mar	1	2	3	4	4	5	4	3	4	4	5	4	5	3	4	5	5	3	4	3	4	2	2	2	5
16-Mar	3	3	2	2	3	2	3	3	2	2	3	2	3	2	3	3	2	2	2	2	1	1	1	2	3
17-Mar	5	2	3	2	2	2	2	2	3	4	4	4	4	4	3	3	2	4	3	2	3	2	2	3	5
18-Mar	2	2	3	3	5	4	4	4	5	4	4	3	3	3	4	4	4	5	4	4	5	4	4	4	5
19-Mar	4	4	4	4	4	4	4	4	4	4	4	3	4	3	4	4	4	3	3	2	3	3	2	1	4
20-Mar	1	2	2	1	1	1	1	1	1	2	2	3	3	3	3	3	3	2	1	1	1	1	1	1	3
21-Mar	1	2	2	1	1	1	1	1	1	2	3	3	3	4	4	4	4	4	3	3	1	1	2	1	4
22-Mar	1	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	UO	1	1	1	1	2
23-Mar	UO	1	1	1	1	UO	UO	2	2	2	2	2	2	3	3	2	2	2	2	1	1	1	1	1	3
24-Mar	1	1	1	1	1	1	2	2	2	2	3	4	4	3	3	3	3	4	4	1	2	3	2	2	4
25-Mar	2	2	2	2	2	2	3	2	3	4	3	3	4	5	5	5	5	4	4	3	4	4	4	3	5
26-Mar	4	4	3	4	4	4	4	5	5	5	5	6	5	5	4	5	5	5	4	4	4	3	6	5	6
27-Mar	4	5	5	4	4	4	3	3	3	4	4	3	5	5	5	4	4	6	3	2	2	2	1	1	6
28-Mar	1	2	2	2	2	2	2	2	3	3	3	3	4	4	4	4	4	4	3	2	2	2	2	2	4
29-Mar	2	2	2	3	2	2	2	2	3	3	3	3	4	4	4	4	3	3	2	2	1	1	1	2	4
30-Mar	1	1	1	1	1	1	1	2	3	2	2	3	3	4	4	3	3	3	3	2	2	3	2	1	4
31-Mar	2	2	1	2	2	1	2	2	2	3	2	2	2	3	4	4	3	2	2	3	3	4	4	4	4
	5	5	5	4	5	5	4	5	5	5	5	6	6	6	6	5	6	6	4	4	5	4	6	5	
Diurnal Maximum																									

UO - Unstable Operation



Wood Buffalo Environmental Association
Summary of Hour Averages

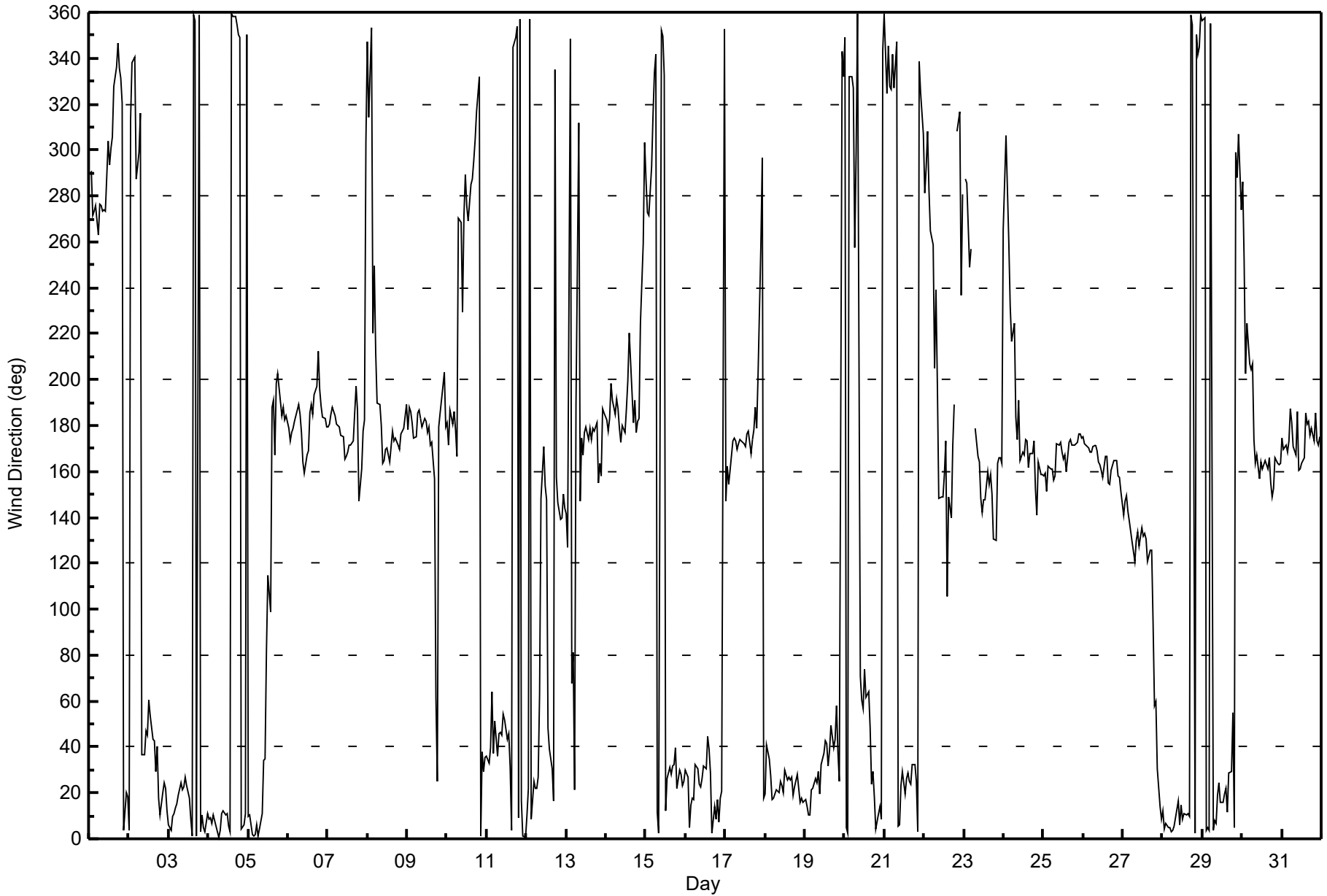
Wind Direction (WD) - deg
Fort McKay - Bertha Ganter - March 2024

Direction of Maximum Speed: 12 deg on Mar 4 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 164.2 deg on Mar 26	Hours of Data: 740
Direction of Minimum Speed: 147 deg on Mar 7 20:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 1.2 deg on Mar 5	Percent Operational Time: 99.5
Monthly Average Direction: 89.4 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-Mar	290	291	271	273	276	263	277	276	273	274	273	304	293	301	306	328	336	347	335	331	320	4	20	19	309.0
2-Mar	4	313	338	340	287	293	299	316	37	36	47	45	61	54	43	43	29	40	18	10	20	24	22	12	21.2
3-Mar	6	4	10	11	14	15	19	25	21	22	27	23	18	8	1	359	356	1	359	3	10	5	3	11	10.4
4-Mar	8	9	6	10	8	3	1	4	11	12	10	11	6	3	360	358	358	355	350	349	4	6	11	350	4.8
5-Mar	10	10	2	1	2	6	1	4	11	34	35	82	115	99	188	191	167	198	202	190	184	188	182	184	37.6
6-Mar	179	173	177	178	182	185	189	185	177	164	160	167	169	186	189	185	194	197	212	196	188	184	183	179	181.3
7-Mar	180	181	185	188	184	181	180	179	176	175	165	166	168	171	171	173	186	197	187	147	161	177	183	303	176.9
8-Mar	347	314	354	220	249	211	190	189	180	164	165	170	170	164	171	178	173	175	172	170	176	178	179	189	176.8
9-Mar	178	188	186	181	175	175	185	187	183	179	183	182	177	179	171	173	157	61	25	179	186	197	203	179	178.8
10-Mar	181	171	187	180	186	178	167	270	269	230	272	289	276	269	285	287	295	304	317	332	1	38	29	35	282.9
11-Mar	36	33	40	64	37	51	36	46	47	45	54	52	44	46	31	4	344	349	354	9	357	16	1	0	26.2
12-Mar	10	22	357	9	25	22	22	27	63	148	171	154	148	48	39	30	16	335	157	146	139	140	150	144	98.8
13-Mar	142	127	348	68	81	22	189	312	147	175	167	177	179	174	179	174	178	178	181	155	164	158	187	185	170.9
14-Mar	182	178	183	198	191	185	192	188	179	172	180	177	187	199	220	207	181	191	177	182	183	225	259	303	191.9
15-Mar	287	273	272	293	315	334	342	11	2	352	350	333	12	26	31	28	32	33	40	22	30	28	23	25	0.9
16-Mar	30	27	5	15	18	17	32	30	24	23	26	31	30	44	39	29	2	14	8	17	7	18	21	353	21.6
17-Mar	147	162	154	160	173	174	173	170	172	174	173	172	171	176	178	168	174	178	188	179	203	259	297	17	174.1
18-Mar	19	41	34	27	17	18	19	21	20	25	23	20	30	25	27	26	27	19	22	28	22	16	18	16	22.3
19-Mar	17	14	10	10	22	22	26	25	29	20	33	37	43	41	32	38	49	39	44	58	38	25	343	332	25.5
20-Mar	349	5	2	332	332	327	258	299	359	71	61	57	74	61	64	48	24	29	18	4	11	14	9	344	22.7
21-Mar	359	324	345	328	326	342	327	347	5	6	23	30	19	26	29	25	24	32	32	25	3	339	325	307	11.4
22-Mar	281	292	308	283	265	259	205	239	198	148	149	149	158	173	106	149	140	171	189	UO	308	317	237	281	204.3
23-Mar	UO	288	285	249	257	UO	UO	179	167	164	149	142	148	148	160	154	159	150	130	130	163	166	166	163	158.4
24-Mar	265	306	283	260	232	217	225	184	174	191	165	169	167	174	174	161	168	168	173	152	141	164	159	159	171.5
25-Mar	158	159	151	162	161	161	156	158	172	172	173	169	166	167	160	173	174	172	171	171	173	177	176	175	168.0
26-Mar	175	172	171	171	169	168	171	171	169	164	163	161	158	167	166	155	155	161	165	165	165	158	157	151	164.2
27-Mar	141	147	149	143	139	129	125	121	130	133	128	135	132	133	130	121	125	125	94	58	60	30	14	9	127.2
28-Mar	12	4	7	5	5	3	3	5	13	17	6	15	9	11	10	11	10	359	355	3	350	342	345	359	4.6
29-Mar	357	357	4	5	4	355	4	8	7	19	25	16	16	19	22	11	29	29	55	5	299	288	307	274	9.0
30-Mar	286	252	202	224	207	204	207	174	164	167	157	164	161	163	165	161	166	155	149	152	166	164	163	164	165.7
31-Mar	174	169	172	169	173	187	181	171	167	186	161	161	163	166	186	180	182	176	179	173	185	173	171	175	173.9

52.1	48.9	27.6	23.6	14.9	25.2	33.0	43.5	84.7	111.1	111.7	122.8	127.2	126.4	118.6	102.6	91.5	88.6	77.2	56.9	63.6	71.3	95.2	67.5
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
Fort McKay - Bertha Ganter - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 93 deg on Mar 13 07:00																			Hours of Data: 740						
Minimum Value: 7 deg on Mar 12 07:00																			Hours of Missing Data: 4						
Percentiles: P ₁ = 10 P ₁₀ = 12 Q ₁ = 14 Median = 19 Q ₃ = 25 P ₉₀ = 39 P ₉₉ = 79																			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-Mar	17	49	27	24	27	42	33	23	49	40	39	26	27	32	28	22	20	24	20	10	8	30	13	71	71
2-Mar	69	34	34	66	42	27	17	11	59	39	26	40	36	33	24	25	22	24	17	20	16	16	17	19	69
3-Mar	22	23	21	19	19	19	17	18	18	17	18	18	17	22	23	24	24	23	24	24	21	20	21	18	24
4-Mar	20	20	20	19	21	20	23	22	20	18	19	19	23	22	21	23	23	22	20	21	22	20	18	21	23
5-Mar	17	18	21	22	22	20	20	24	19	18	29	50	45	78	43	20	19	15	20	12	11	10	11	11	78
6-Mar	11	10	11	12	12	12	13	11	13	11	10	12	15	23	20	18	19	18	19	20	13	12	12	11	23
7-Mar	11	12	13	13	13	13	12	13	14	13	11	11	12	12	13	13	26	22	50	88	80	67	19	73	88
8-Mar	88	68	52	67	52	38	51	49	15	14	15	17	16	14	15	13	11	12	10	11	11	11	14	19	88
9-Mar	11	13	9	10	10	10	11	15	15	16	16	18	14	16	14	12	11	70	64	33	35	39	32	13	70
10-Mar	10	13	13	14	14	14	18	65	36	49	37	26	35	39	30	29	25	17	14	10	30	17	18	19	65
11-Mar	25	23	24	31	17	30	25	29	29	32	39	29	31	25	26	23	22	21	22	19	33	28	59	28	59
12-Mar	37	36	34	21	14	7	7	17	22	42	15	24	35	25	18	20	21	81	11	14	12	13	11	11	81
13-Mar	15	64	45	25	21	52	93	25	49	16	19	17	19	19	15	16	15	13	14	11	15	79	28	14	93
14-Mar	12	12	16	22	56	13	15	15	12	11	21	20	17	23	35	22	16	19	30	29	15	34	56	42	56
15-Mar	81	34	31	22	12	27	21	27	25	25	24	19	26	25	21	18	21	19	18	19	19	16	18	18	81
16-Mar	18	19	24	19	19	18	21	18	21	27	32	32	35	35	43	28	24	20	22	22	27	19	73	89	89
17-Mar	55	14	13	13	12	13	13	13	14	14	15	15	12	14	14	13	13	14	14	14	18	39	22	23	55
18-Mar	24	41	19	20	19	18	19	17	18	21	23	28	22	20	20	21	20	19	21	18	19	19	20	21	41
19-Mar	19	18	21	21	18	18	17	18	20	23	24	30	35	27	27	31	26	21	22	32	19	18	31	8	35
20-Mar	26	30	26	25	16	53	66	49	68	47	34	35	37	35	39	27	29	22	20	23	15	19	20	25	68
21-Mar	27	26	22	24	20	26	20	28	24	26	25	23	23	22	23	21	22	19	17	17	22	22	16	70	70
22-Mar	33	18	12	13	24	18	34	49	57	17	36	57	59	61	72	52	70	49	15	UO	19	39	70	65	72
23-Mar	UO	16	24	14	18	UO	UO	73	18	14	18	20	16	17	39	18	20	22	10	15	24	12	10	13	73
24-Mar	62	39	59	37	27	23	14	80	25	31	24	19	17	19	18	19	16	18	15	17	14	17	13	13	80
25-Mar	13	12	12	11	11	11	13	14	14	13	15	17	14	15	17	16	18	13	12	12	13	13	13	12	18
26-Mar	14	13	13	14	13	13	13	13	13	13	15	15	15	16	16	17	14	14	13	13	13	13	14	14	17
27-Mar	13	15	13	13	18	15	16	16	16	17	18	16	14	15	17	19	22	26	30	30	34	18	20	20	34
28-Mar	18	25	21	22	20	21	20	19	19	18	21	21	23	22	23	23	22	22	24	23	23	15	18	24	25
29-Mar	21	22	20	19	21	23	22	19	23	27	25	24	24	24	26	23	25	26	26	46	14	21	16	33	46
30-Mar	34	31	35	45	34	29	39	14	15	15	16	14	15	14	15	16	14	15	11	12	13	12	12	12	45
31-Mar	12	12	12	12	14	14	12	13	13	23	13	11	13	13	21	19	15	13	13	12	18	14	13	19	23
																			88 68 59 67 56 53 93 80 68 49 39 57 59 78 72 52 70 81 64 88 80 79 73 89						
																			Diurnal Maximum						
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS02
MILDRED LAKE
MARCH 2024

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

APRIL 16, 2024

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

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	707	35	37	99.73	76.9	0	11.5	0
H2S (ppb) Average	708	36	36	100	12.8	1	1.6	0
THC (ppm) Average	707	35	37	99.73	5.6	-	3	-
NMHC(ppm) Average	707	35	37	99.73	0.201	-	0.034	-
CH4(ppm) Average	707	35	37	99.73	5.4	-	2.9	-
Temperature (C) Average	744	0	0	100	13.8	-	4	-
Relative Humidity (%) Average	744	0	0	100	91.7	-	81.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	24	-	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)
MARCH 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	2.17	6.1	-	0	0	0.1	0.3	1.2	4.8	76.9
H2S (ppb) Average	708	0.32	0.7	-	0	0	0.1	0.1	0.3	0.7	12.8
THC (ppm) Average	707	2.06	0.3	-	1.8	1.9	1.9	2	2.1	2.3	5.6
NMHC(ppm) Average	707	0.003	0.018	-	0	0	0	0	0	0	0.201
CH4(ppm) Average	707	2.06	0.3	-	1.8	1.9	1.9	2	2.1	2.3	5.4
Temperature 2 m (C) Average	744	-7.42	8.9	-	-26.8	-20.3	-15	-6.2	-1.2	3.6	13.8
Relative Humidity (%) Average	744	60.94	15.4	-	21.7	39.6	49.8	61.3	73.2	81.3	91.7
Wind Speed 10 m (km/h) Average	744	11.2	5	-	1	5	8	11	15	17	24
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

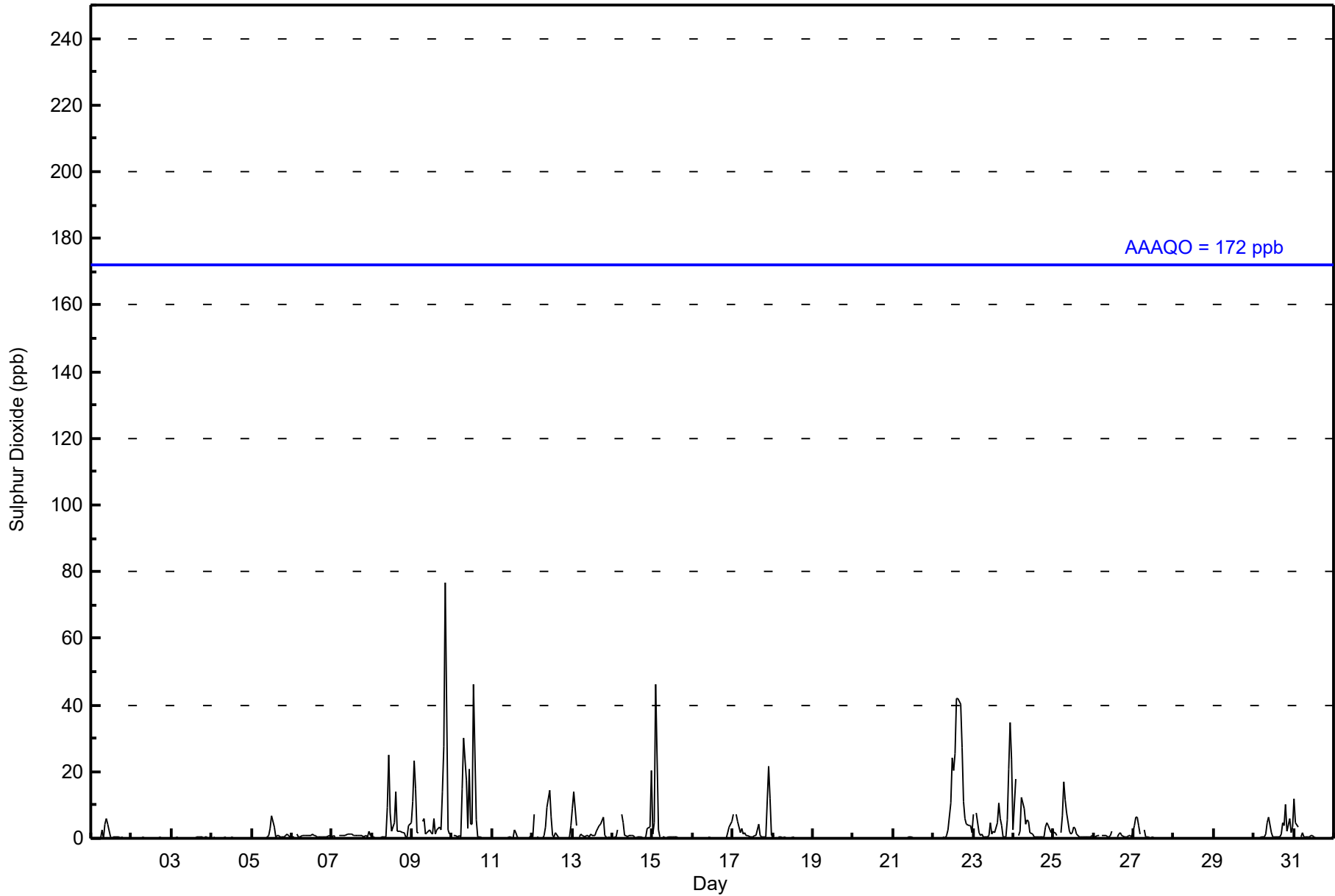
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MILDRED LAKE (AMS02)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	26 Mar 2024 13:00	26 Mar 2024 14:00	2	Maintenance - sample manifold cleaned
THC/NMHC/CH4	26 Mar 2024 13:00	26 Mar 2024 14:00	2	Maintenance - sample manifold cleaned



Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 76.9 ppb on Mar 9 21:00		Maximum Daily Average: 11.5 ppb on Mar 22		Hours of Data:		707																																											
Minimum Value: 0.0 ppb on Mar 5 04:00		Minimum Daily Average: 0.0 ppb on Mar 28		Hours of Missing Data:		37																																											
Maximum Diurnal Average: 3.6 ppb at hour 3		Minimum Diurnal Average: 0.5 ppb at hour 5		Hours of Calibration:		35																																											
Monthly Average: 2.17 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 1.2 P ₉₀ = 4.8 P ₉₉ = 29.9		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-Mar	0.2	0.1	0.0	Z	0.0	0.0	2.6	0.1	4.4	6.1	4.3	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.9	6.1																								
2-Mar	0.1	0.1	0.1	0.0	Z	0.1	0.0	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.2																							
3-Mar	0.1	0.1	0.2	0.3	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.1	0.2	0.2	0.3																							
4-Mar	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3																							
5-Mar	0.1	Z	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.3	1.0	2.9	6.8	3.5	0.6	0.9	0.9	0.6	0.4	0.3	0.8	1.1	1.0	0.6	1.0	6.8																							
6-Mar	0.6	0.5	Z	1.1	0.5	0.6	0.7	0.7	0.8	0.9	0.8	0.9	1.1	0.9	0.7	0.5	0.6	0.5	0.3	0.3	0.5	0.6	0.7	0.6	0.7	1.1																							
7-Mar	0.5	0.7	0.6	Z	0.7	0.9	0.9	0.9	0.9	1.1	1.3	1.3	1.1	1.0	0.8	1.0	1.0	0.9	0.6	0.5	0.7	0.5	1.9	0.9	0.9	1.9																							
8-Mar	0.7	0.3	0.1	0.1	Z	0.1	0.3	0.6	0.6	9.1	25.0	7.6	2.2	4.9	14.1	2.3	2.3	2.2	1.8	1.6	0.6	0.6	3.9	4.6	3.7	25.0																							
9-Mar	10.9	23.2	14.7	1.7	1.5	Z	5.2	5.8	1.2	1.5	2.3	1.6	1.3	6.1	1.4	2.4	3.6	2.7	14.0	27.4	76.9	2.3	1.5	1.2	9.2	76.9																							
10-Mar	Z	0.9	0.7	0.6	0.7	0.6	14.7	30.0	17.4	3.1	20.7	4.4	4.1	46.1	5.7	0.6	0.5	0.5	0.0	0.2	0.1	0.2	0.1	0.1	6.6	46.1																							
11-Mar	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.2	2.5	1.7	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.9	0.3	2.5																							
12-Mar	0.2	7.0	Z	0.5	0.2	0.1	0.1	0.8	3.5	9.4	14.2	6.4	0.7	0.5	1.9	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.6	3.9	2.2	14.2																							
13-Mar	8.8	14.0	3.8	Z	0.4	1.2	1.0	0.2	1.0	0.9	0.6	1.4	0.7	0.7	2.1	2.8	3.7	4.4	6.5	0.7	0.2	0.2	0.3	0.1	2.4	14.0																							
14-Mar	0.2	0.4	0.4	2.6	Z	7.4	4.7	0.9	0.7	0.6	0.8	0.6	0.6	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2	2.8	3.4	20.5	2.1	20.5																							
15-Mar	1.2	4.5	46.0	2.7	0.5	Z	0.2	0.3	0.1	0.3	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	2.5	46.0																							
16-Mar	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	1.7	3.5	4.9	0.6	4.9																							
17-Mar	7.2	Z	7.0	5.1	1.6	3.1	1.3	1.6	1.0	0.6	0.6	0.6	0.6	0.7	0.7	4.1	1.0	0.5	0.3	0.5	0.5	21.6	11.8	0.8	3.2	21.6																							
18-Mar	0.8	0.8	Z	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.8																							
19-Mar	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
20-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
21-Mar	0.0	0.0	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.4	0.4	0.3	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4																							
22-Mar	Z	0.0	0.0	0.0	0.1	0.2	0.4	0.2	0.9	2.4	10.5	24.1	20.3	25.4	42.2	41.9	40.1	26.9	10.9	5.9	4.2	3.9	3.8	1.5	11.5	42.2																							
23-Mar	7.1	Z	7.6	1.5	0.8	1.2	0.5	0.4	0.3	0.8	4.6	1.5	2.0	1.7	4.8	10.7	6.0	3.9	0.6	0.6	5.6	20.9	34.9	23.7	6.2	34.9																							
24-Mar	2.5	17.8	Z	0.8	2.1	12.4	8.7	4.4	5.3	5.3	1.6	1.2	0.4	0.4	0.3	0.4	0.3	0.4	0.5	3.3	4.7	3.7	1.7	3.0	3.5	17.8																							
25-Mar	1.9	1.7	0.8	Z	1.6	6.7	16.7	11.6	7.5	2.3	1.3	1.6	3.4	2.8	1.3	0.6	0.5	0.4	0.4	0.5	0.6	0.6	0.5	0.6	2.9	16.7																							
26-Mar	0.5	0.6	0.7	0.7	Z	0.7	0.8	0.7	0.6	0.5	0.6	2.1	M	M	0.3	1.3	1.8	0.9	0.6	0.5	0.6	0.8	1.0	0.6	0.8	2.1																							
27-Mar	3.8	6.4	6.3	3.8	1.2	Z	2.6	0.4	0.4	0.4	0.2	0.5	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	1.1	6.4																							
28-Mar	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																							
29-Mar	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	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2																						
30-Mar	0.0	0.1	Z	0.1	0.2	0.6	0.4	1.3	4.6	6.5	1.8	0.5	0.6	0.5	0.3	0.3	1.3	4.8	3.8	10.2	2.0	5.8	1.6	3.5	2.2	10.2																							
31-Mar	11.8	4.7	3.5	Z	0.5	1.6	0.5	0.5	0.5	0.5	1.0	1.0	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	1.2	11.8																							
																								2.3	3.3	3.6	0.9	0.5	1.5	2.0	2.0	1.7	1.7	3.2	2.1	1.7	3.4	2.6	2.3	2.1	1.7	1.4	1.7	3.2	2.2	2.4	2.4	Diurnal Average	
																								11.8	23.2	46.0	5.1	2.1	12.4	16.7	30.0	17.4	9.4	25.0	24.1	20.3	46.1	42.2	41.9	40.1	26.9	14.0	27.4	76.9	21.6	34.9	23.7	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 (SO₂) - ppb
Mildred Lake - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	671	94.91	94.91
11 - 20	18	2.55	97.45
21 - 60	17	2.40	99.86
61 - 110	1	0.14	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



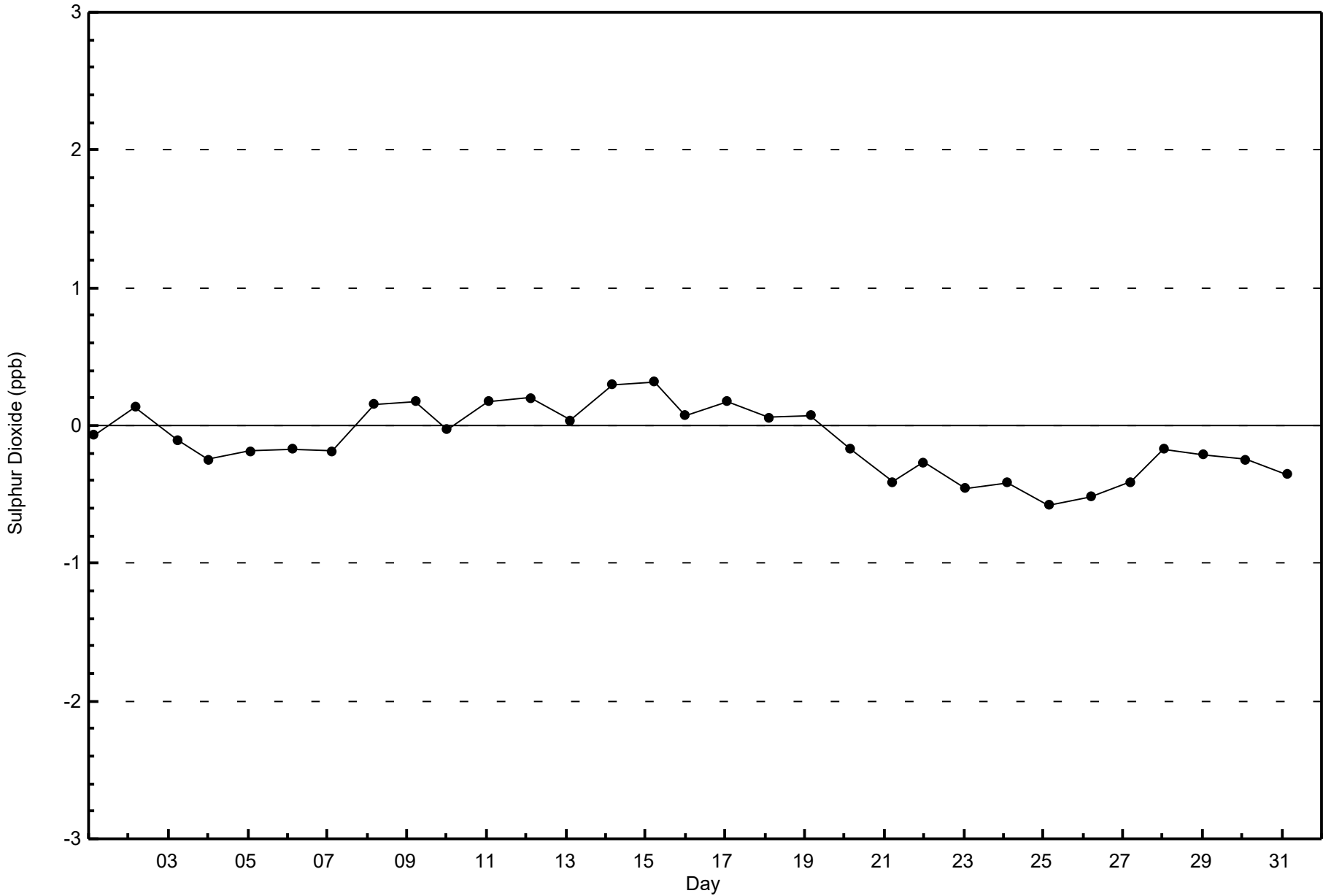
Wood Buffalo Environmental Association
Frequency Distribution

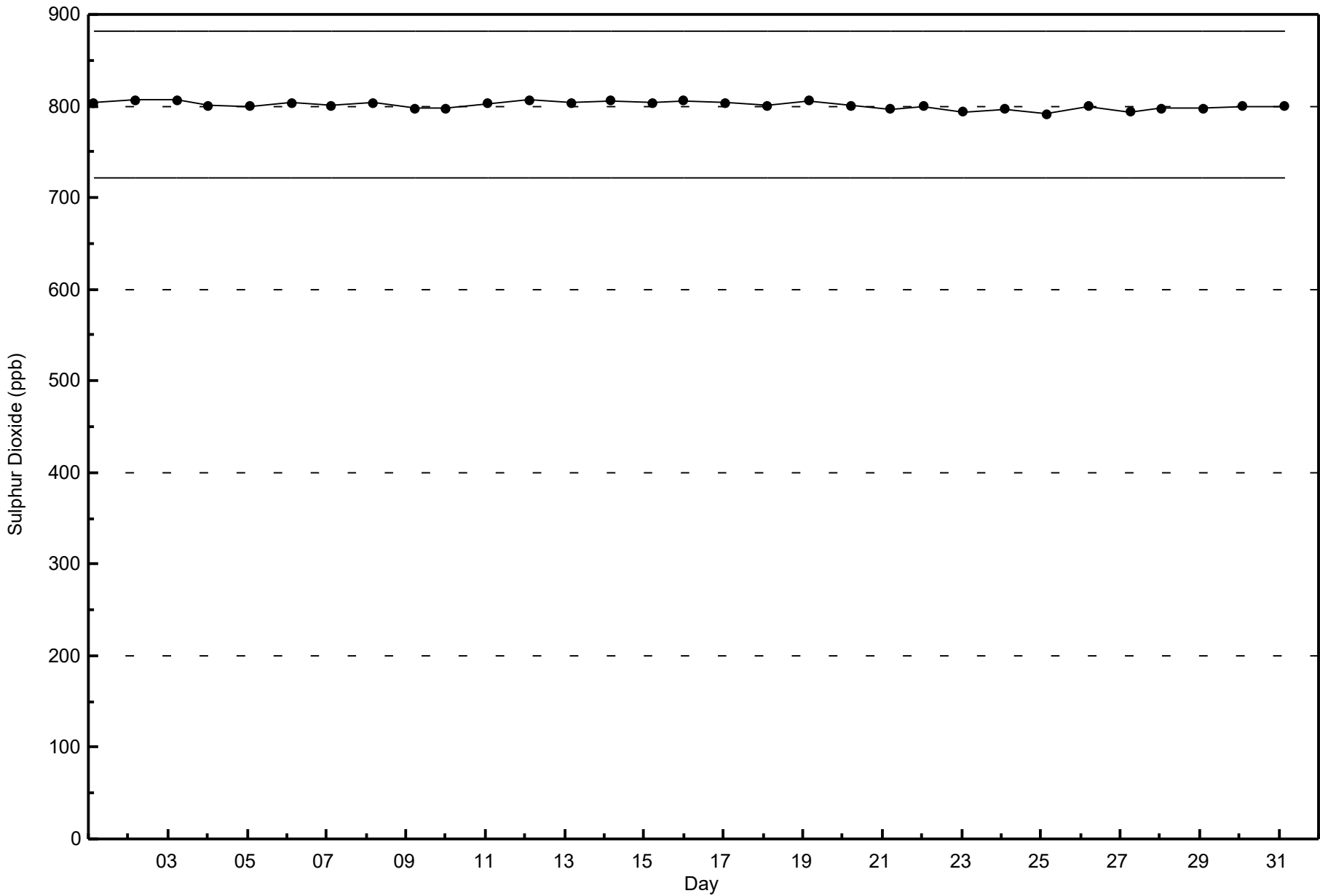
Sulphur Dioxide (SO₂) - ppb
Mildred Lake - March 2024

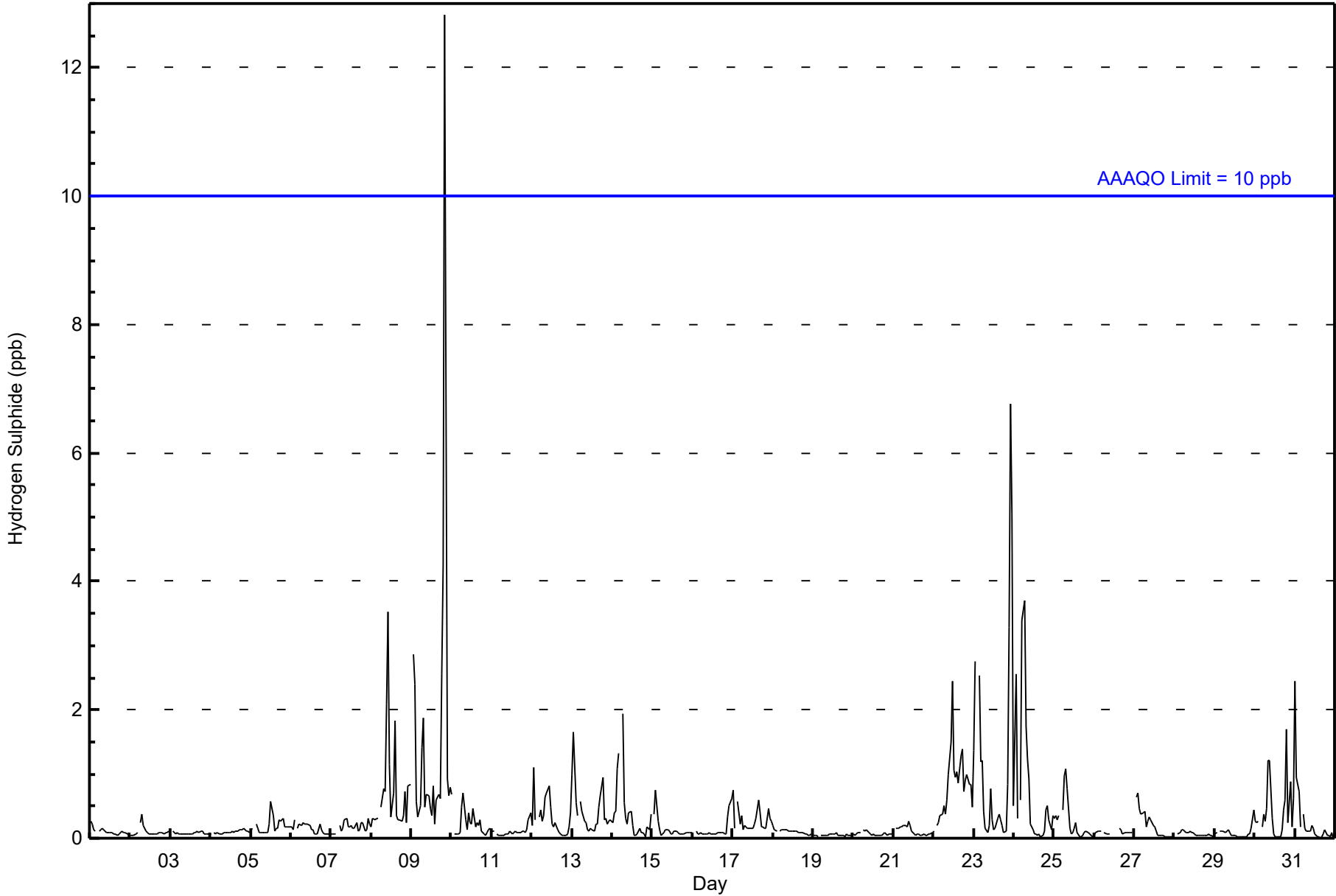
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	163	74	6	4	15	42	107	120	40	12	7	4	8	17	8	44	671
11 - 20	0	0	0	0	1	3	8	1	1	0	0	2	1	1	0	0	18
21 - 60	0	0	0	0	0	0	5	3	3	1	0	4	1	0	0	0	17
61 - 110	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	163	74	6	4	16	45	120	125	44	13	7	10	10	18	8	44	707

Total Number of Valid Hours: 707

Total Number of Hours: 744









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Mildred Lake - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	695	98.16	98.16
3 - 4	10	1.41	99.58
5 - 7	2	0.28	99.86
8 - 11	0	0.00	99.86
> 11	1	0.14	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Mildred Lake - March 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	167	75	5	3	18	43	109	121	43	13	8	10	11	17	8	44	695
3 - 4	0	0	0	0	0	2	6	2	0	0	0	0	0	0	0	0	10
5 - 7	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Totals	167	75	5	3	18	45	115	126	43	13	8	10	11	17	8	44	708

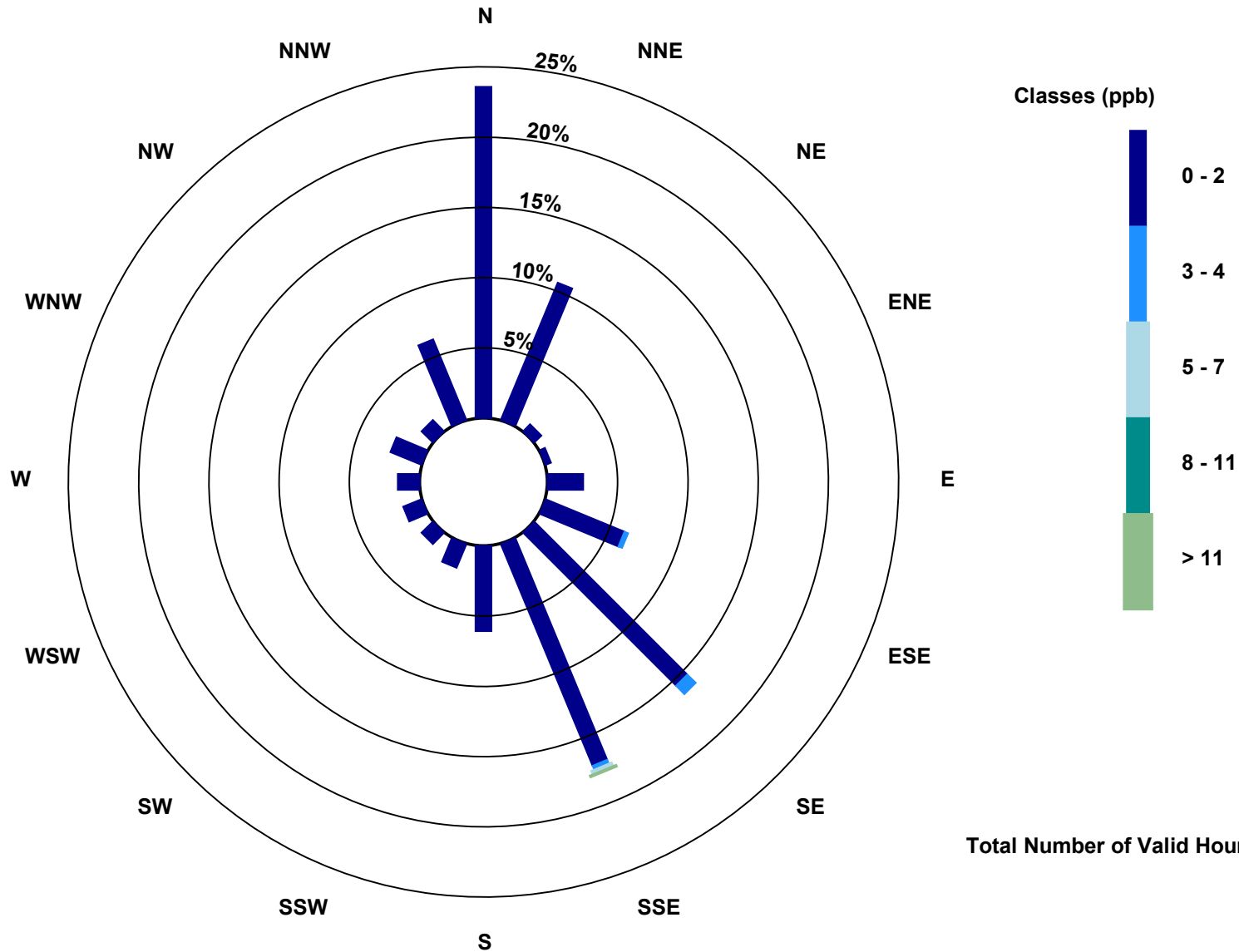
Total Number of Valid Hours: 708

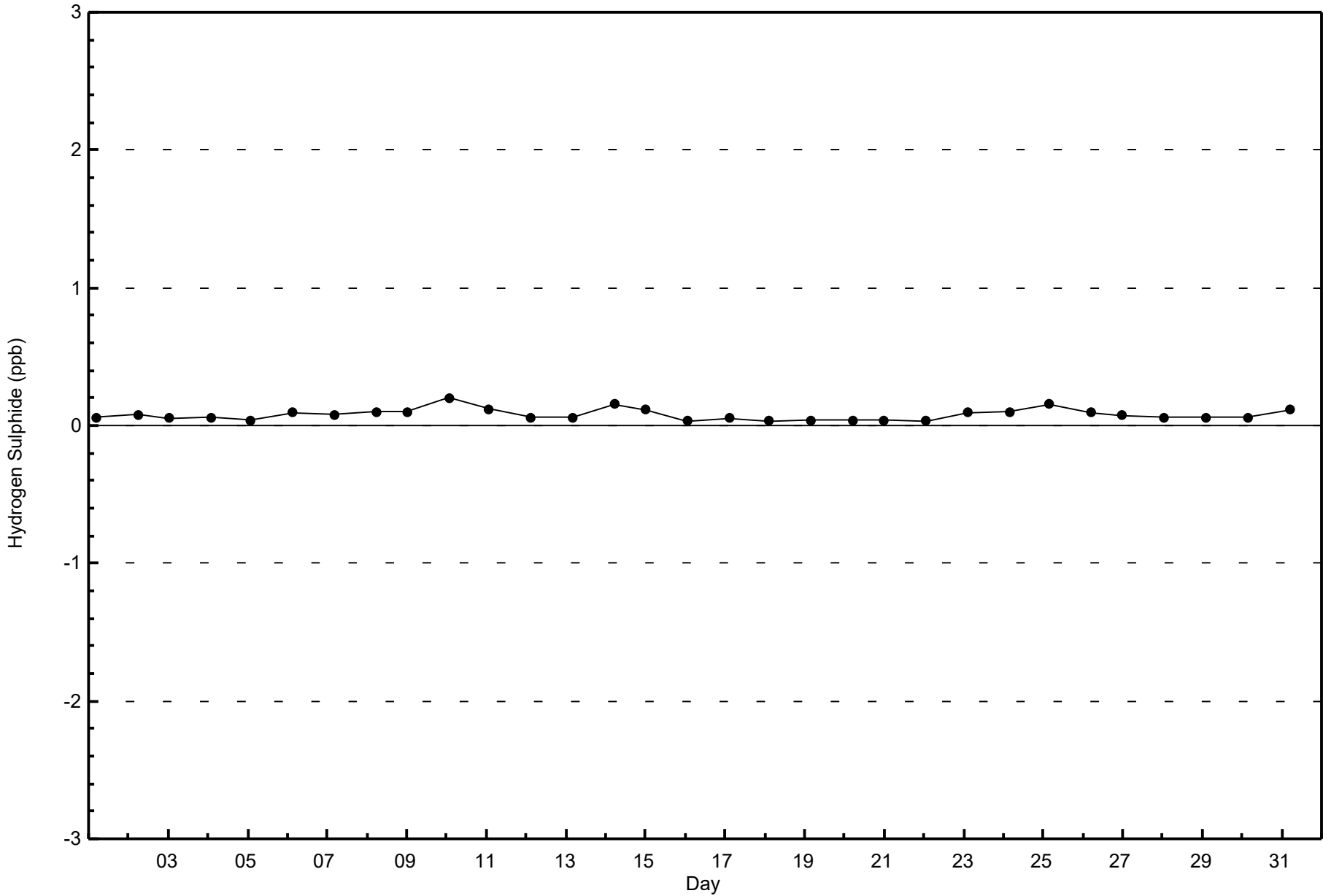
Total Number of Hours: 744

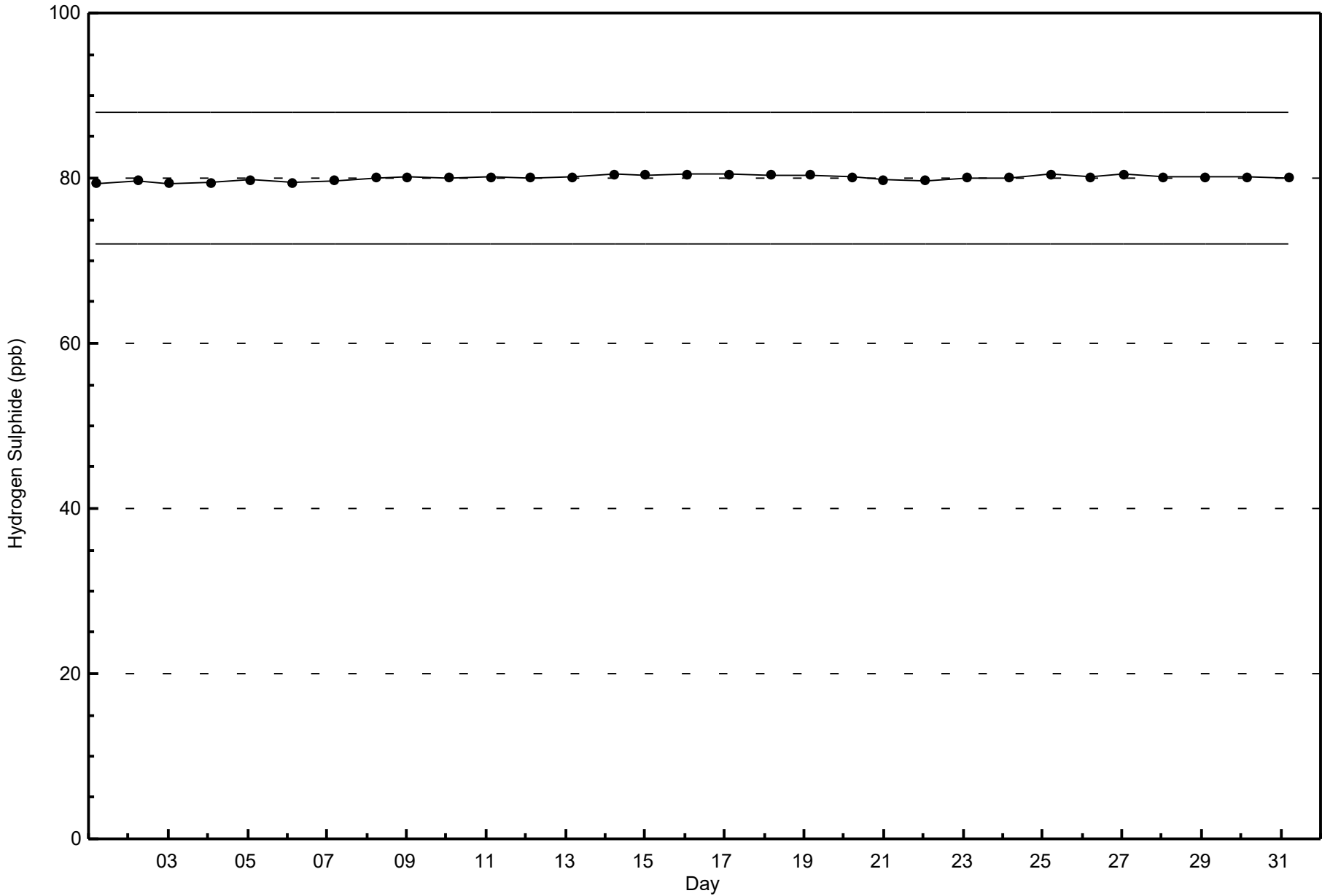


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Mildred Lake









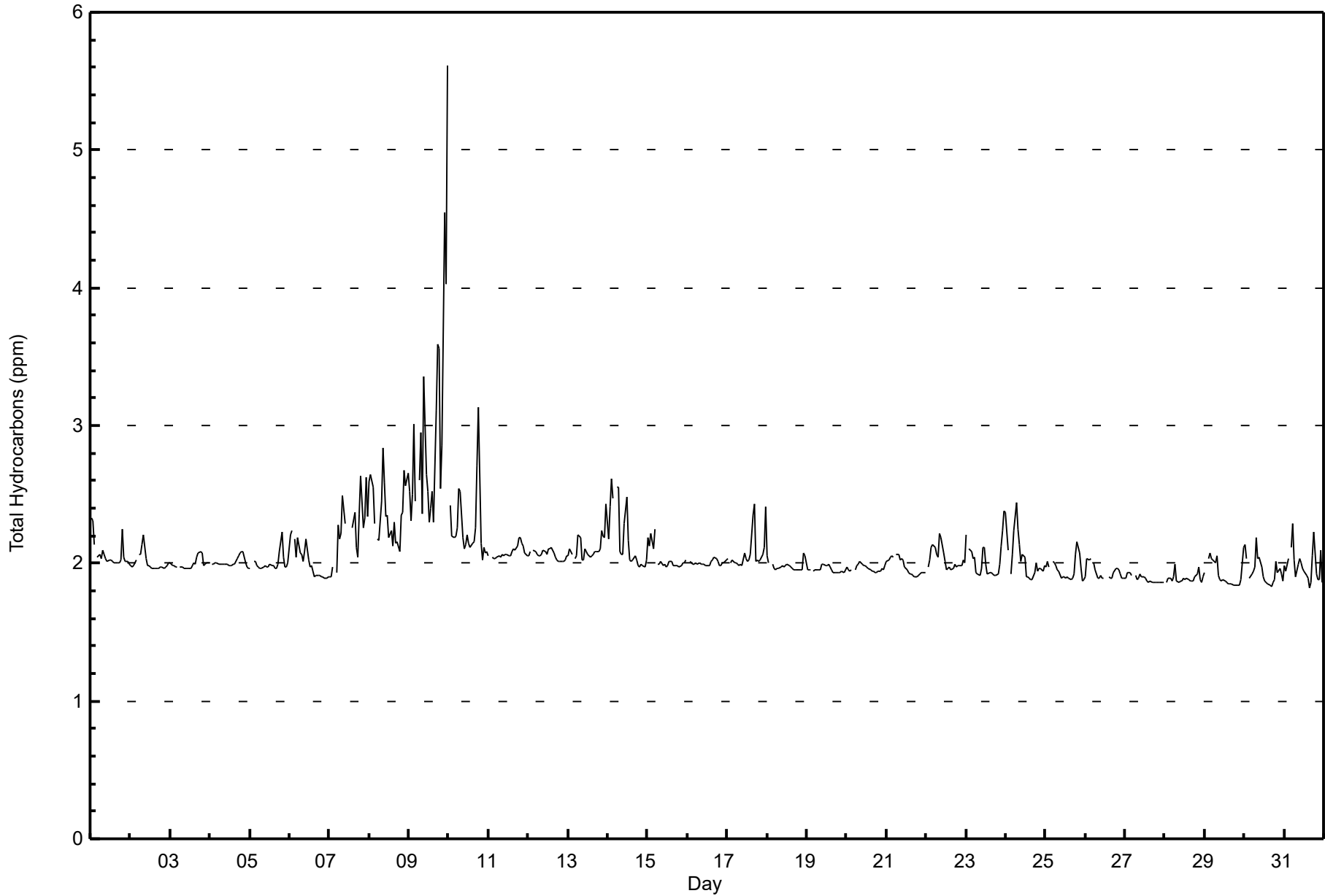
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Mildred Lake - March 2024

Maximum Value: 5.6 ppm on Mar 10 00:00		Maximum Daily Average: 3.0 ppm on Mar 9		Hours in Service: 744																																													
Minimum Value: 1.8 ppm on Mar 31 16:00		Minimum Daily Average: 1.9 ppm on Mar 27		Hours of Data: 707																																													
Maximum Diurnal Average: 2.2 ppm at hour 24		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 37																																													
Monthly Average: 2.06 ppm		Percentiles: P ₁ = 1.8 P ₁₀ = 1.9 Q ₁ = 1.9 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.3 P ₉₉ = 3.1		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-Mar	2.3	2.3	2.1	Z	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.0	2.0	2.0	2.0	2.1	2.3	2.0	2.2																					
2-Mar	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																					
3-Mar	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	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1																					
4-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1																					
5-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																					
6-Mar	2.2	2.2	Z	2.2	2.0	2.2	2.1	2.1	2.0	2.1	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.2																					
7-Mar	1.9	1.9	2.0	Z	1.9	2.3	2.2	2.2	2.5	2.3	C	C	C	C	2.3	2.4	2.1	2.0	2.4	2.6	2.3	2.3	2.6	2.3	2.2	2.2	2.6	2.6																					
8-Mar	2.6	2.6	2.5	2.3	Z	2.2	2.2	2.4	2.8	2.6	2.3	2.4	2.2	2.2	2.1	2.3	2.1	2.2	2.1	2.4	2.4	2.7	2.6	2.7	2.4	2.4	2.8	2.8																					
9-Mar	2.5	2.3	2.5	3.0	2.5	Z	2.6	2.9	2.4	3.4	2.6	2.5	2.3	2.4	2.5	2.3	3.1	3.6	3.6	2.5	2.9	4.5	4.0	5.6	3.0	3.0	5.6	5.6																					
10-Mar	Z	2.4	2.2	2.2	2.2	2.3	2.5	2.5	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.3	2.7	3.1	2.1	2.0	2.1	2.1	2.1	2.3	2.3	3.1	3.1																					
11-Mar	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2																					
12-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1																					
13-Mar	2.1	2.1	2.1	Z	2.0	2.1	2.2	2.2	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.4	2.1	2.1	2.4	2.4																					
14-Mar	2.2	2.4	2.6	2.5	Z	2.6	2.6	2.1	2.1	2.1	2.3	2.5	2.2	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.6	2.6																					
15-Mar	2.2	2.1	2.2	2.1	2.3	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3	2.3																				
16-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	Z	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	2.3	2.4	2.0	2.0	2.0	2.0	2.1	2.1	2.4	2.1	2.1	2.4	2.4	2.4																				
18-Mar	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	1.9	1.9	1.9	1.9	1.9	2.1	2.1	2.0	2.1	2.1																					
19-Mar	2.0	1.9	1.9	Z	1.9	2.0	2.0	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	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0																				
20-Mar	2.0	2.0	1.9	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	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0																				
21-Mar	2.0	2.0	2.0	2.1	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1																				
22-Mar	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																				
23-Mar	2.2	Z	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.2	2.4	2.0	2.0	2.4	2.4																				
24-Mar	2.4	2.1	Z	1.9	2.1	2.2	2.4	2.2	2.1	2.0	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.4	2.4																				
25-Mar	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	2.1	2.2	2.1	2.0	1.9	1.9	2.0	2.0	2.2	2.2																				
26-Mar	1.9	2.0	2.0	2.0	Z	2.0	2.0	1.9	1.9	1.9	1.9	1.9	M	M	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	2.0																				
27-Mar	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	1.9	1.9	1.9																				
28-Mar	Z	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0																				
29-Mar	1.9	Z	2.0	2.1	2.0	2.0	2.0	2.1	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	2.1	2.1																				
30-Mar	2.1	2.0	Z	1.9	1.9	1.9	2.0	2.2	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.2	2.2																				
31-Mar	2.0	1.9	2.0	Z	2.1	2.3	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.8	1.9	2.1	2.2	1.9	1.9	1.9	2.1	1.9	1.9	2.0	2.0	2.3	2.3																				
																								2.1	2.1	2.1	2.1	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	2.1	2.1	2.1	2.0	2.1	2.1	2.2	Diurnal Average	
																								2.6	2.6	2.6	3.0	2.5	2.6	2.6	2.9	2.8	3.4	2.6	2.5	2.3	2.4	2.5	2.4	3.1	3.6	3.6	2.6	2.9	4.5	4.0	5.6	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mildred Lake - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	478	67.61	67.61
2.1 - 3.0	221	31.26	98.87
3.1 - 10.0	8	1.13	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 707
Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mildred Lake - March 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	140	68	5	2	8	29	72	58	30	9	5	2	3	7	5	35	478
2.1 - 3.0	27	6	1	2	8	15	45	61	13	4	2	8	7	11	2	9	221
3.1 - 10.0	0	0	0	0	0	1	1	4	1	0	0	0	0	0	1	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	167	74	6	4	16	45	118	123	44	13	7	10	10	18	8	44	707

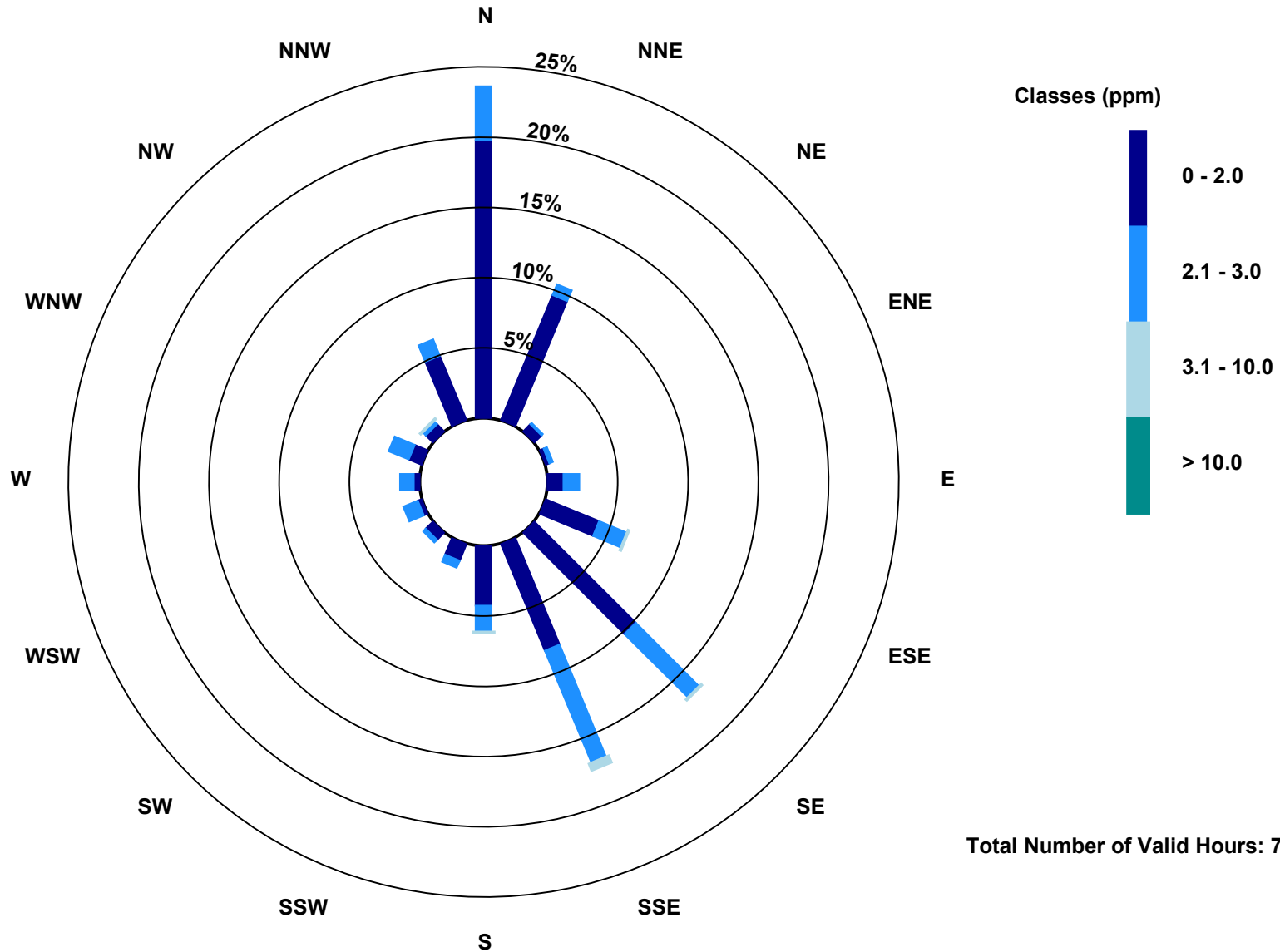
Total Number of Valid Hours: 707

Total Number of Hours: 744

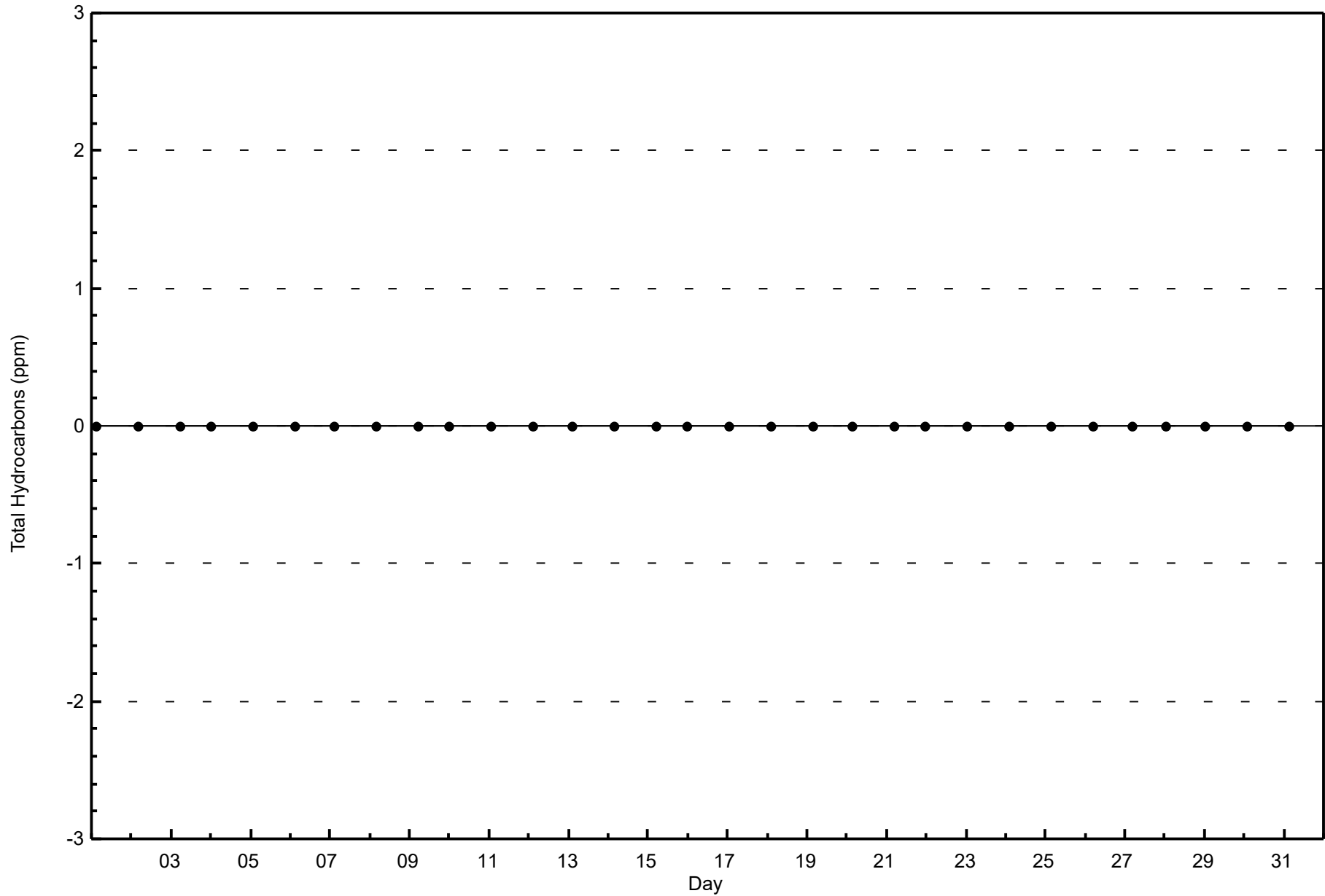


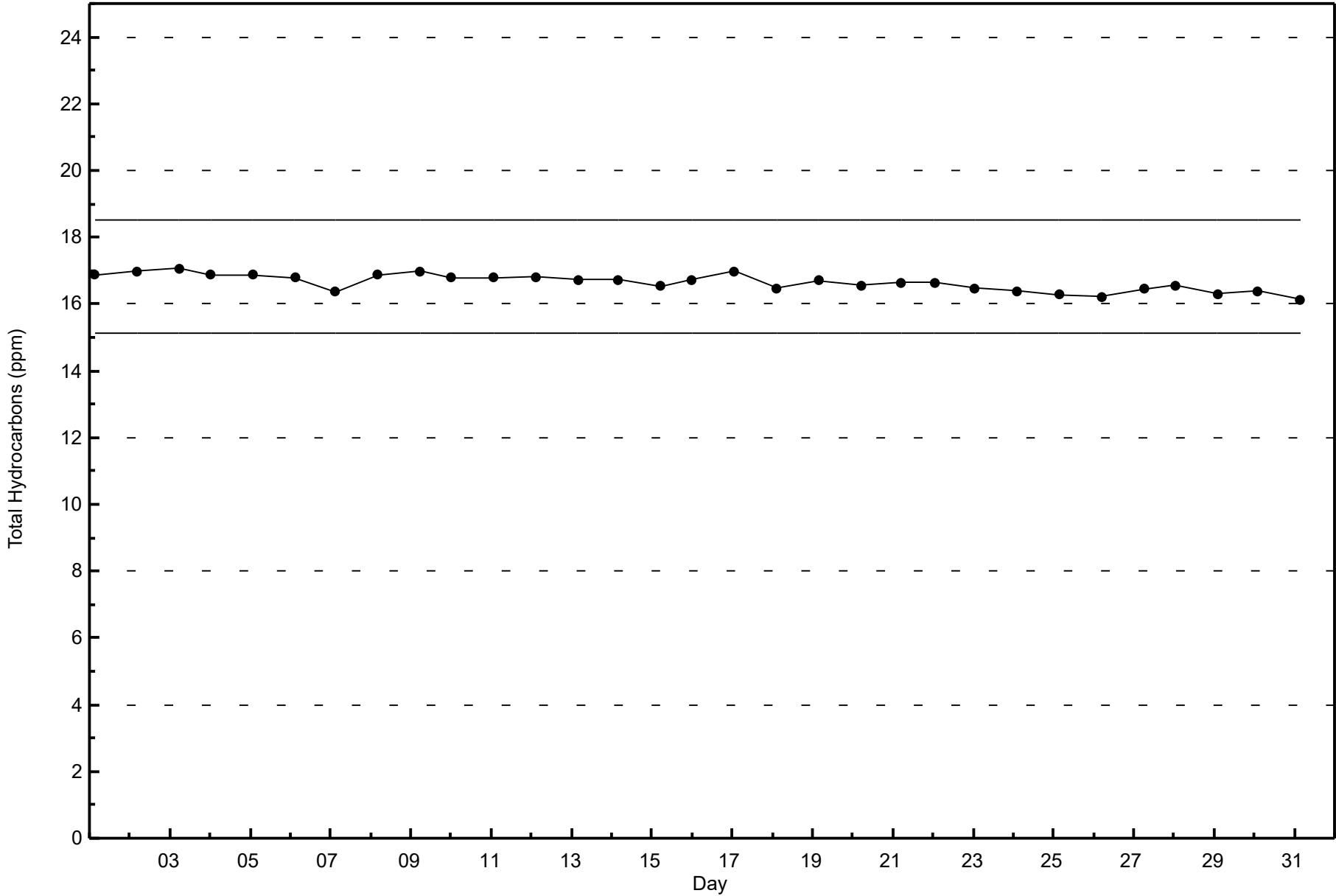
Wood Buffalo Environmental Association
Wind Rose Mar 2024

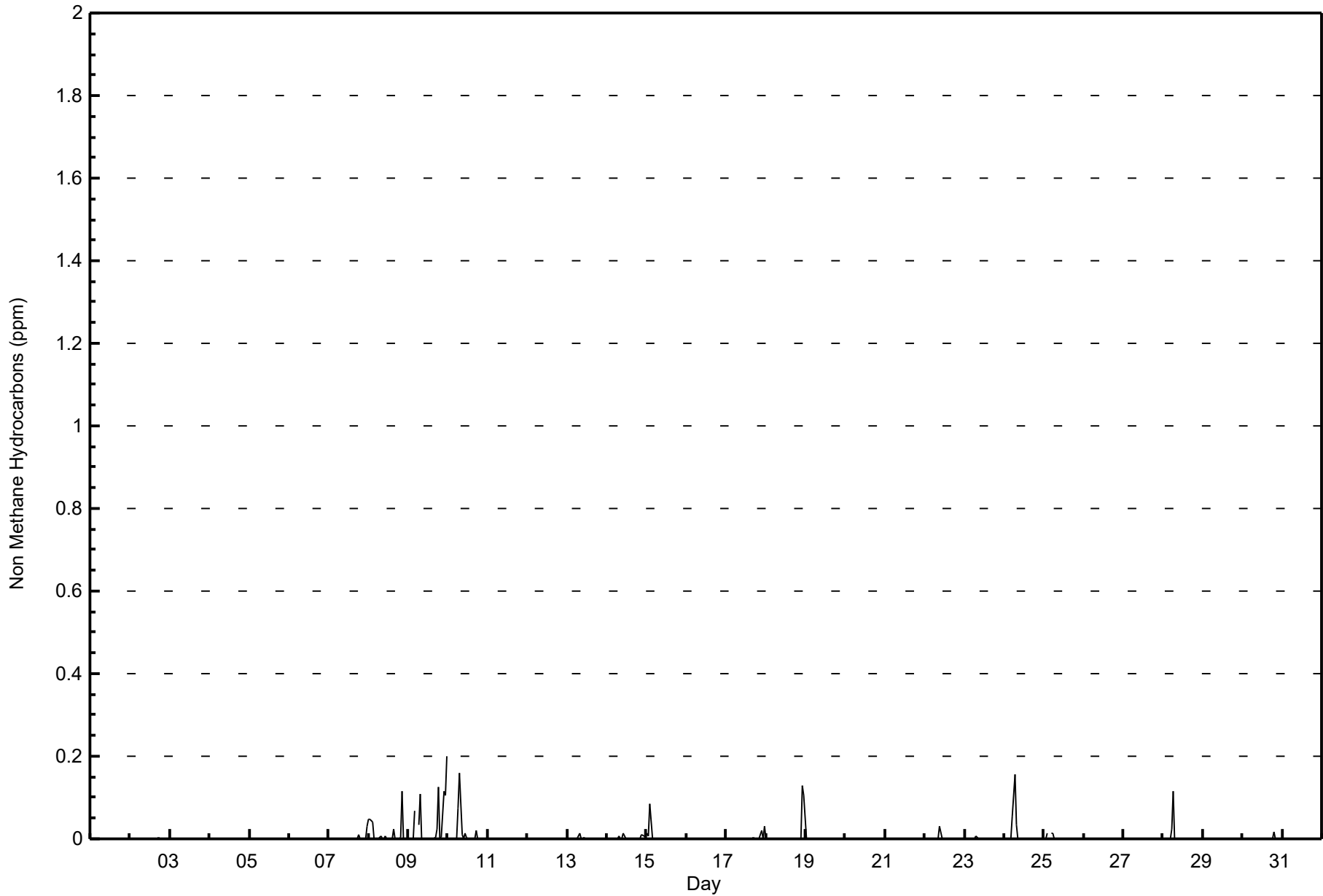
Total Hydrocarbons (THC) - ppm
Mildred Lake



Total Number of Valid Hours: 707









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	662	93.64	93.64
0.006 - 0.05	31	4.38	98.02
0.06 - 0.1	11	1.56	99.58
> 0.1	3	0.42	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



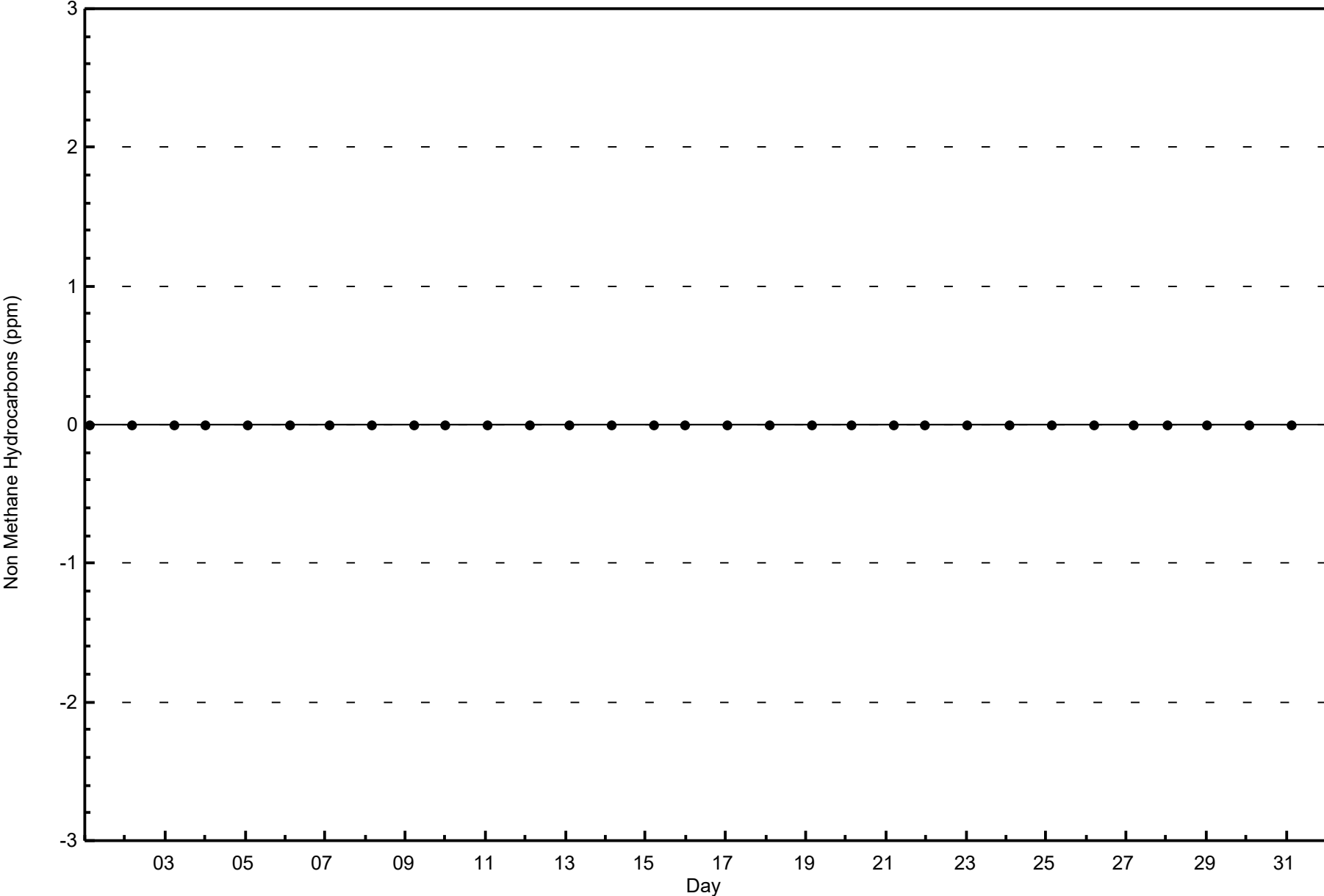
Wood Buffalo Environmental Association
Frequency Distribution

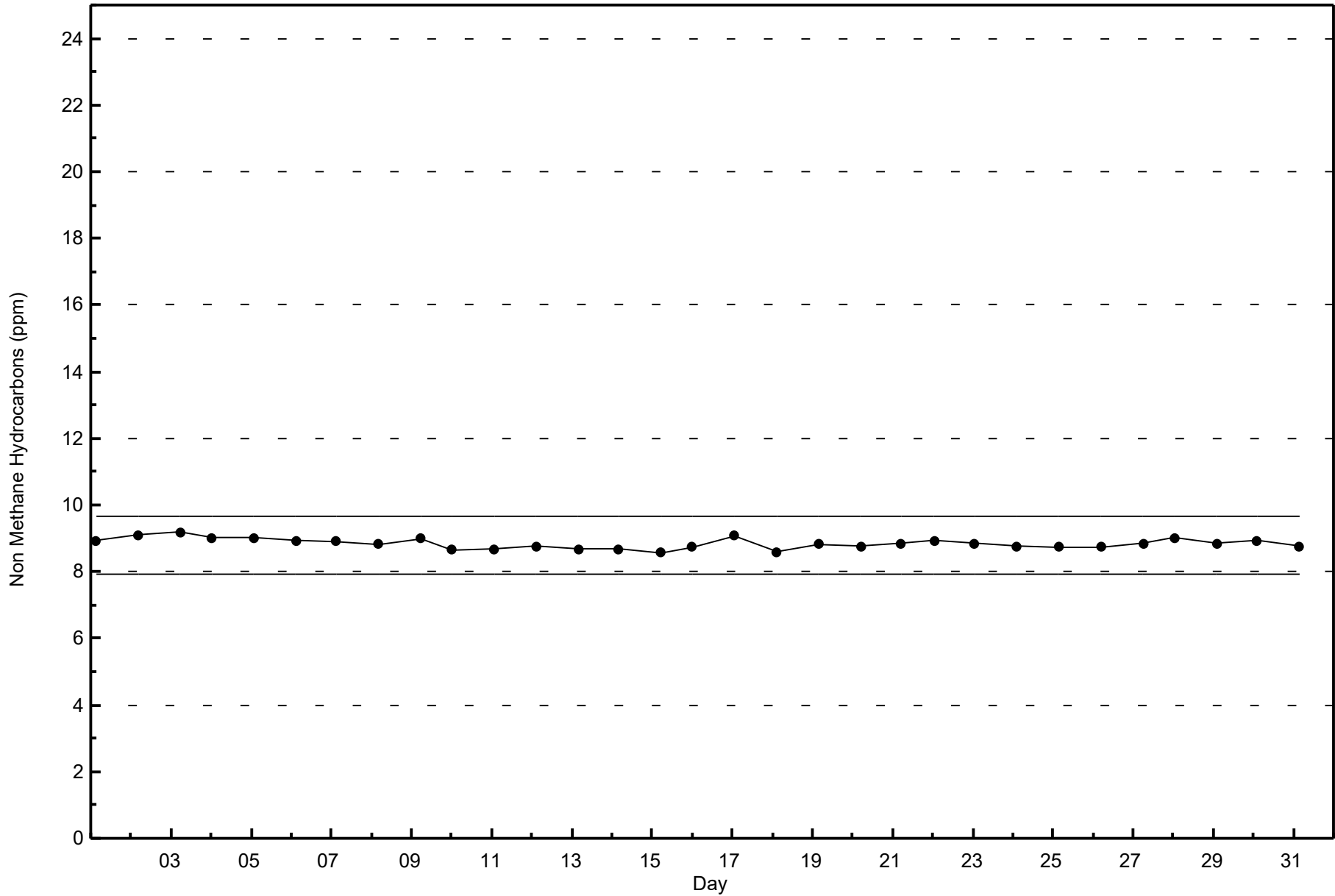
Non Methane Hydrocarbons (NMHC) - ppm
Mildred Lake - March 2024

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	165	72	6	4	16	40	113	109	43	13	6	1	9	16	7	42	662
0.006 - 0.05	1	0	0	0	0	4	5	7	1	0	1	6	1	2	1	2	31
0.06 - 0.1	1	2	0	0	0	1	0	5	0	0	0	2	0	0	0	0	11
> 0.1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	3
Totals	167	74	6	4	16	45	118	123	44	13	7	10	10	18	8	44	707

Total Number of Valid Hours: 707

Total Number of Hours: 744

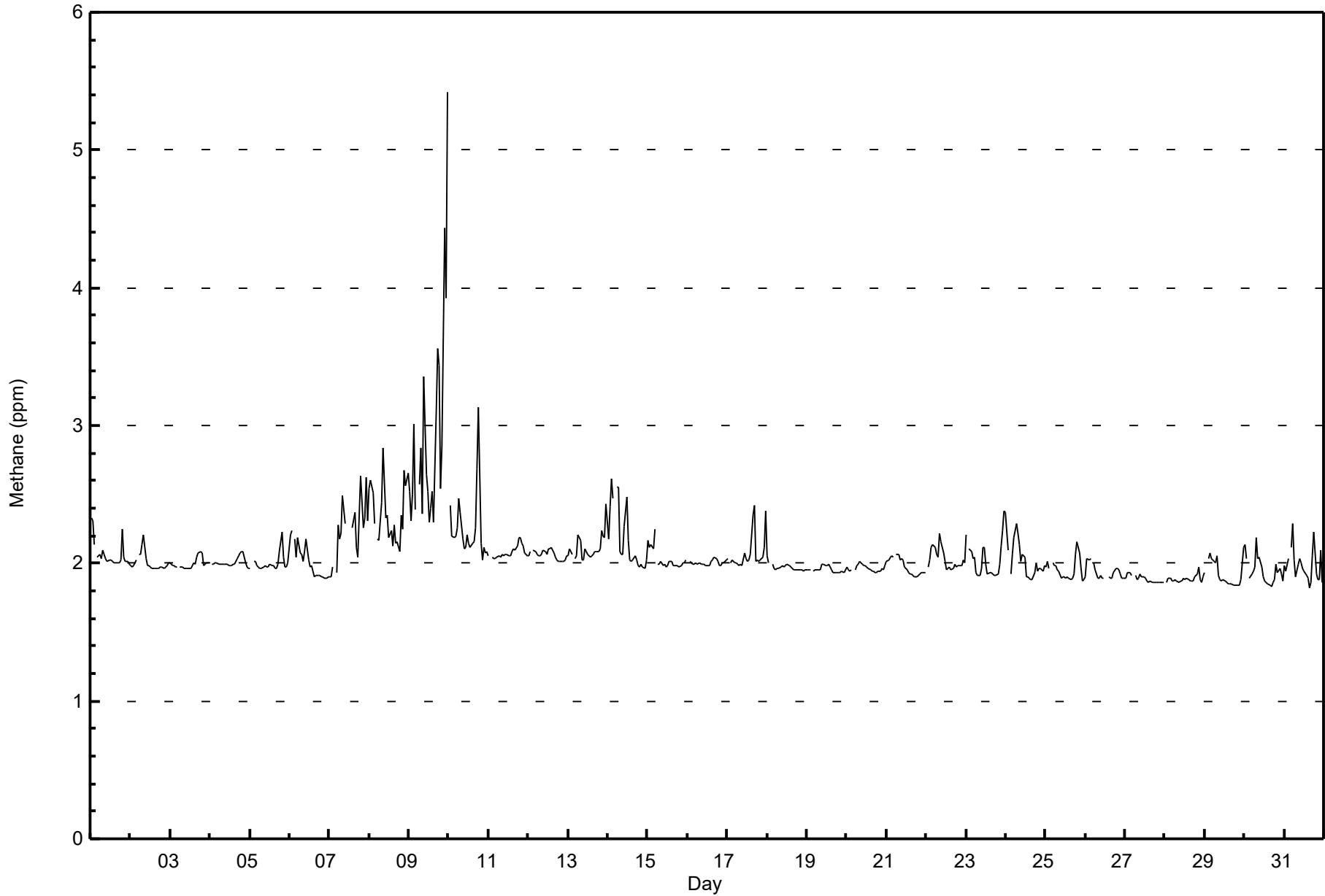






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Mildred Lake - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Mildred Lake - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	481	68.03	68.03
2.1 - 3.0	218	30.83	98.87
3.1 - 10.0	8	1.13	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



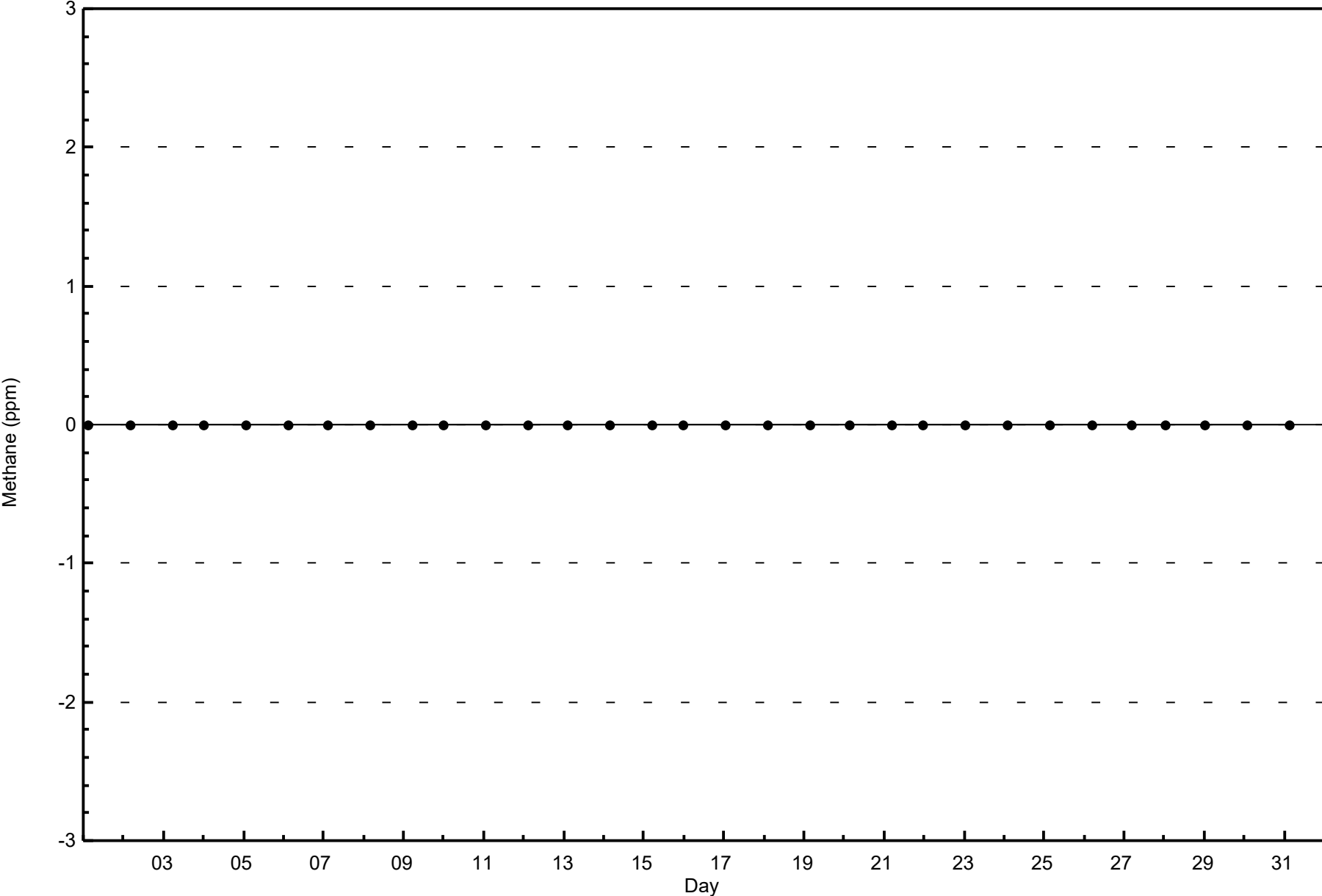
**Wood Buffalo Environmental Association
Frequency Distribution**

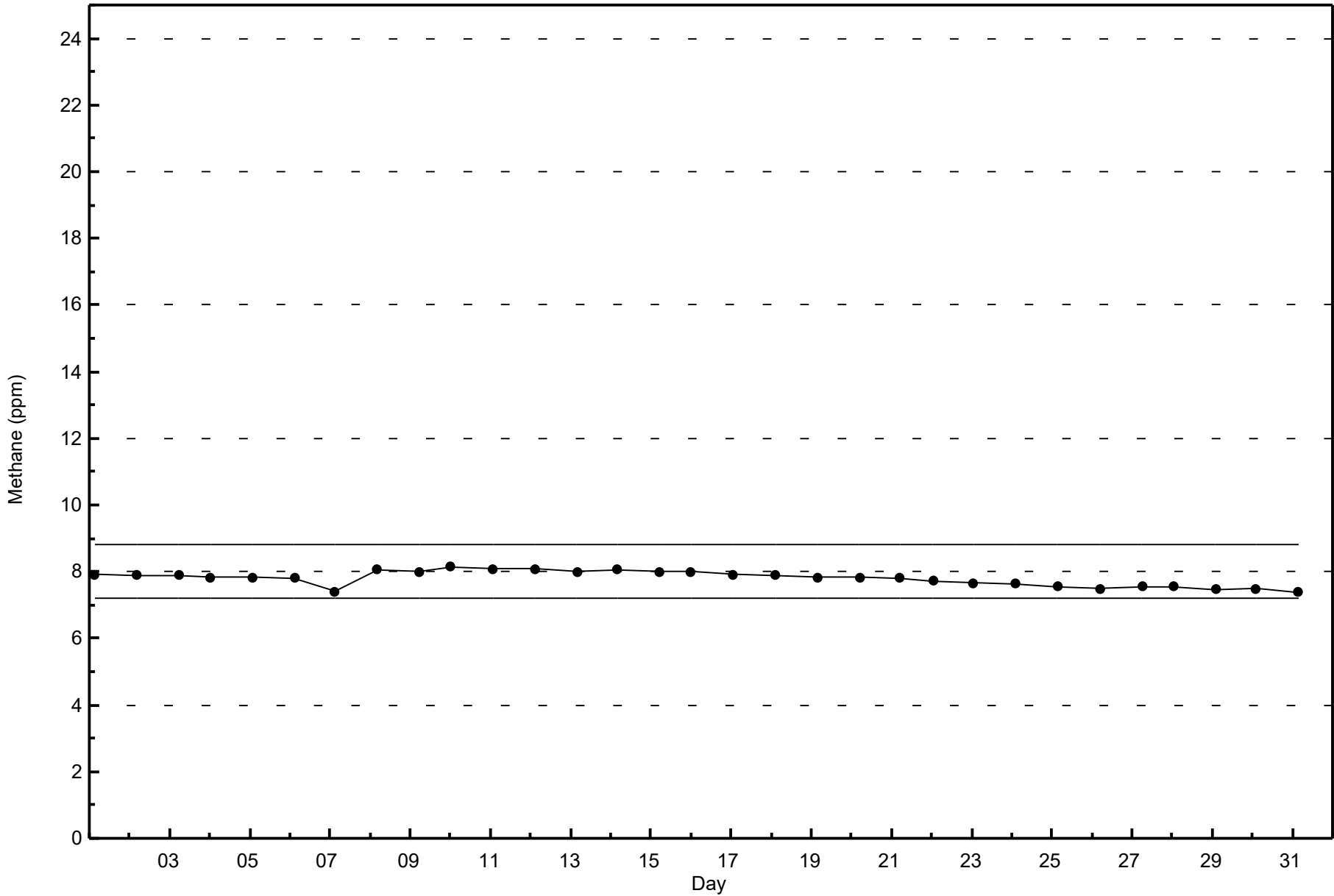
**Methane (CH₄) - ppm
Mildred Lake - March 2024**

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	140	70	5	2	8	29	72	58	30	9	5	3	3	7	5	35	481
2.1 - 3.0	27	4	1	2	8	15	45	61	13	4	2	7	7	11	2	9	218
3.1 - 10.0	0	0	0	0	0	1	1	4	1	0	0	0	0	0	1	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	167	74	6	4	16	45	118	123	44	13	7	10	10	18	8	44	707

Total Number of Valid Hours: 707

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

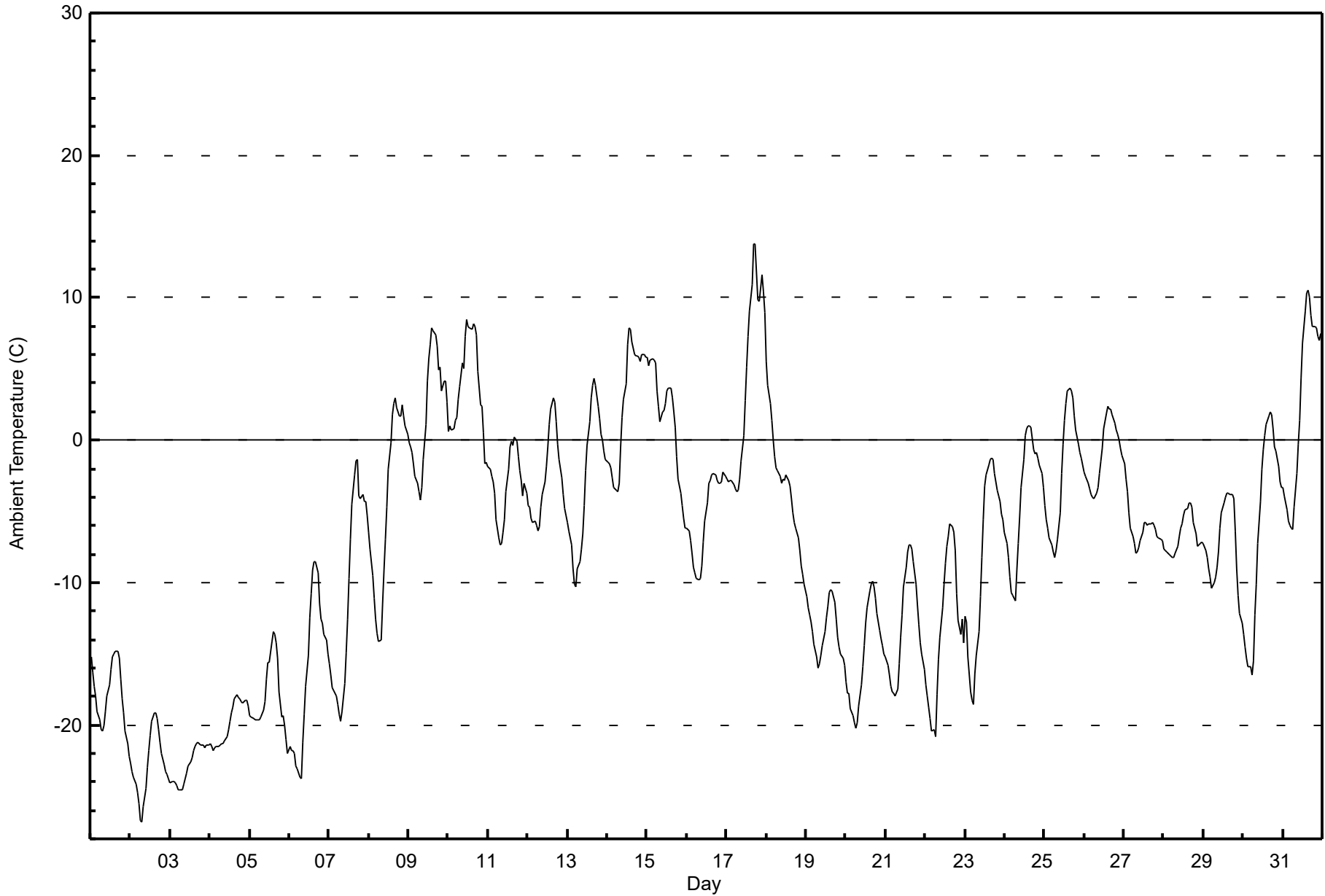
Ambient Temperature (AT) - C
Mildred Lake - March 2024

Maximum Value: 13.8 C on Mar 17 17:00																								Hours in Service: 744																									
Maximum Daily Average: 4.0 C on Mar 17																								Hours of Data: 744																									
Minimum Value: -26.8 C on Mar 2 08:00																								Hours of Missing Data: 0																									
Maximum Diurnal Average: -2.9 C at hour 17																								Hours of Calibration: 0																									
Monthly Average: -7.42 C																								Percent Operational Time: 100.0																									
Minimum Daily Average: -22.8 C on Mar 2																																																	
Minimum Diurnal Average: -11.9 C at hour 7																																																	
Percentiles: P ₁ = -24.5 P ₁₀ = -20.3 Q ₁ = -15.0 Median = -6.2 Q ₃ = -1.2 P ₉₀ = 3.6 P ₉₉ = 10.2																																																	
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-Mar	-15.2	-16.3	-17.2	-18.0	-19.0	-19.7	-20.3	-20.4	-20.0	-19.1	-18.0	-17.2	-16.2	-15.2	-15.1	-14.8	-14.8	-15.4	-16.8	-18.1	-19.1	-20.4	-21.3	-22.2	-17.9	-14.8																							
2-Mar	-22.7	-23.3	-23.7	-24.2	-24.7	-25.5	-26.7	-26.8	-25.8	-24.5	-23.0	-21.8	-20.8	-19.7	-19.2	-19.2	-19.6	-20.3	-21.2	-22.0	-22.8	-23.2	-23.5	-23.8	-22.8	-19.2																							
3-Mar	-24.0	-24.0	-24.0	-24.1	-24.3	-24.5	-24.6	-24.6	-24.2	-23.8	-22.9	-22.6	-22.3	-21.8	-21.5	-21.3	-21.2	-21.4	-21.4	-21.4	-21.6	-21.4	-21.4	-22.8	-21.2																								
4-Mar	-21.3	-21.5	-21.8	-21.6	-21.5	-21.5	-21.4	-21.3	-21.3	-21.1	-20.8	-20.4	-19.7	-19.1	-18.7	-18.2	-17.9	-18.1	-18.2	-18.4	-18.5	-18.2	-18.3	-18.7	-19.9	-17.9																							
5-Mar	-19.4	-19.4	-19.5	-19.7	-19.7	-19.6	-19.6	-19.5	-19.0	-18.4	-16.8	-15.6	-15.6	-14.2	-13.4	-13.6	-14.2	-15.4	-17.7	-19.4	-19.4	-20.1	-21.0	-22.0	-18.0	-13.4																							
6-Mar	-21.5	-21.8	-21.8	-22.0	-22.9	-23.1	-23.7	-23.8	-21.2	-19.2	-17.3	-15.1	-12.5	-10.8	-9.1	-8.6	-8.5	-9.4	-11.5	-12.6	-12.8	-13.7	-14.1	-15.1	-16.3	-8.5																							
7-Mar	-15.7	-16.5	-17.4	-17.6	-18.0	-18.6	-19.3	-19.7	-19.0	-17.1	-14.9	-12.6	-9.7	-7.0	-4.5	-2.4	-1.5	-1.3	-3.9	-4.1	-3.8	-4.3	-4.3	-5.3	-10.8	-1.3																							
8-Mar	-6.5	-7.6	-9.5	-11.1	-12.5	-13.5	-14.2	-14.0	-11.5	-9.1	-7.0	-4.7	-2.0	-0.1	1.7	2.6	3.0	2.3	1.6	1.7	2.5	1.7	1.0	0.4	-4.4	3.0																							
9-Mar	-0.2	-0.5	-0.8	-1.7	-2.6	-3.0	-3.6	-4.2	-3.4	-1.4	1.1	4.1	5.7	6.7	7.8	7.7	7.3	6.6	4.9	5.1	3.5	4.2	4.2	2.6	2.1	7.8																							
10-Mar	0.6	1.0	0.7	0.8	1.4	1.5	2.8	3.8	5.4	5.0	7.3	8.5	8.0	7.9	7.8	8.1	8.0	7.3	4.9	2.5	2.4	0.5	-1.6	-1.6	3.9	8.5																							
11-Mar	-1.9	-2.0	-2.5	-3.0	-3.7	-5.6	-6.8	-7.3	-7.2	-6.4	-5.5	-3.6	-2.0	-0.5	-0.1	-0.3	0.2	-0.1	-1.2	-2.2	-2.8	-3.9	-3.0	-3.7	-3.1	0.2																							
12-Mar	-4.6	-4.7	-5.5	-5.8	-5.7	-5.9	-6.4	-6.1	-4.7	-3.8	-3.0	-1.8	-0.5	1.1	2.2	2.9	2.6	1.3	-0.3	-1.4	-2.6	-3.8	-4.8	-5.3	-2.8	2.9																							
13-Mar	-5.8	-6.4	-7.4	-9.0	-10.1	-10.3	-9.0	-8.5	-7.7	-6.6	-4.6	-2.1	-0.3	1.3	3.0	3.8	4.4	3.8	2.4	1.5	0.5	0.1	-0.8	-1.3	-2.9	4.4																							
14-Mar	-1.6	-1.6	-2.0	-2.6	-3.3	-3.5	-3.7	-3.1	-0.5	1.5	2.9	3.9	6.7	7.9	7.7	6.9	6.0	5.9	5.9	5.8	5.5	6.0	6.0	5.9	2.6	7.9																							
15-Mar	5.9	5.2	5.7	5.7	5.6	5.5	3.4	2.4	1.3	2.0	2.1	2.5	3.4	3.7	3.7	2.9	1.9	0.9	-1.2	-2.8	-3.7	-4.6	-5.5	-6.1	1.7	5.9																							
16-Mar	-6.1	-6.4	-7.0	-7.9	-8.9	-9.4	-9.7	-9.8	-9.7	-8.8	-7.2	-5.7	-4.4	-3.1	-2.8	-2.4	-2.3	-2.5	-2.8	-3.0	-3.1	-3.0	-2.2	-2.5	-5.4	-2.2																							
17-Mar	-2.7	-2.9	-2.8	-2.9	-3.2	-3.4	-3.6	-3.5	-2.7	-1.5	0.4	2.7	5.1	7.3	9.0	10.9	13.8	13.8	11.8	9.8	9.7	11.6	10.4	9.0	4.0	13.8																							
18-Mar	5.5	3.9	2.6	1.4	0.1	-1.2	-1.9	-2.2	-2.5	-3.0	-2.7	-2.8	-2.4	-2.8	-3.2	-4.1	-5.1	-5.8	-6.1	-6.9	-7.7	-8.8	-9.4	-10.1	-3.1	5.5																							
19-Mar	-11.0	-11.8	-12.2	-12.8	-13.5	-14.3	-15.2	-16.0	-15.7	-15.1	-14.5	-13.5	-12.5	-11.7	-10.7	-10.5	-10.6	-11.4	-12.6	-13.9	-14.6	-15.1	-15.4	-15.8	-13.3	-10.5																							
20-Mar	-17.0	-17.8	-17.8	-18.8	-19.4	-19.8	-20.2	-19.9	-18.7	-17.2	-15.9	-14.4	-12.9	-11.7	-10.6	-10.1	-9.9	-10.3	-11.0	-12.2	-13.4	-14.0	-14.5	-15.0	-15.1	-9.9																							
21-Mar	-15.2	-15.8	-16.5	-17.3	-17.7	-17.8	-17.9	-17.5	-15.7	-13.8	-12.3	-10.3	-9.0	-7.9	-7.4	-7.4	-7.6	-8.5	-10.1	-11.6	-12.9	-14.3	-15.0	-16.1	-13.1	-7.4																							
22-Mar	-17.2	-17.9	-18.8	-19.5	-20.4	-20.3	-20.8	-17.9	-15.4	-13.9	-11.8	-10.1	-8.6	-7.5	-6.7	-5.9	-6.0	-6.5	-7.8	-10.8	-12.7	-13.6	-12.6	-14.3	-13.2	-5.9																							
23-Mar	-12.4	-12.7	-15.2	-17.7	-18.2	-18.6	-16.4	-15.1	-13.4	-11.0	-8.3	-5.6	-3.3	-2.5	-1.8	-1.4	-1.2	-1.4	-2.4	-3.5	-4.0	-4.3	-5.2	-5.6	-8.4	-1.2																							
24-Mar	-6.5	-7.2	-8.2	-9.6	-10.7	-10.9	-11.3	-9.1	-7.2	-5.4	-3.3	-1.4	0.3	0.8	1.0	1.0	0.9	-0.6	-0.9	-0.9	-1.2	-1.8	-2.3	-3.4	-4.1	1.0																							
25-Mar	-4.6	-5.6	-6.2	-6.8	-7.3	-7.8	-8.3	-7.7	-7.0	-5.1	-2.4	-0.3	1.4	2.6	3.5	3.7	3.5	2.9	1.7	0.7	-0.3	-0.8	-1.2	-1.7	-2.2	3.7																							
26-Mar	-2.2	-2.6	-3.0	-3.4	-3.8	-4.0	-4.1	-3.7	-3.3	-2.3	-1.4	-0.6	0.8	1.9	2.4	2.1	2.2	1.8	1.2	0.7	0.4	0.0	-0.6	-1.1	-0.9	2.4																							
27-Mar	-1.6	-2.7	-3.6	-5.1	-6.2	-6.7	-7.3	-7.9	-7.8	-7.6	-7.0	-6.4	-5.8	-5.8	-6.0	-5.9	-5.9	-5.8	-5.9	-6.2	-6.7	-6.9	-7.0	-7.0	-6.0	-1.6																							
28-Mar	-7.6	-7.7	-7.9	-8.0	-8.1	-8.2	-8.2	-8.0	-7.4	-6.7	-6.2	-5.9	-5.3	-4.9	-4.8	-4.4	-4.4	-4.7	-5.8	-6.5	-7.5	-7.3	-7.3	-7.2	-6.7	-4.4																							
29-Mar	-7.3	-7.8	-8.3	-9.0	-9.6	-10.4	-10.0	-9.6	-8.9	-7.9	-6.2	-5.1	-4.4	-4.0	-3.7	-3.7	-3.8	-3.8	-4.2	-6.4	-9.0	-10.9	-12.2	-12.8	-7.5	-3.7																							
30-Mar	-13.6	-14.6	-15.4	-15.9	-15.9	-16.5	-15.5	-12.3	-10.1	-7.3	-4.4	-2.0	-0.7	0.3	1.1	1.6	2.0	1.8	0.8	-0.4	-0.8	-1.8	-3.0	-3.3	-6.1	2.0																							
31-Mar	-3.4	-3.9	-4.9	-5.7	-6.0	-6.2	-6.3	-4.7	-2.3	-0.3	1.4	4.3	6.8	9.1	10.3	10.5	10.0	8.8	8.0	8.0	7.9	7.3	7.0	7.5	2.6	10.5																							
																								-8.9	-9.4	-10.1	-10.7	-11.3	-11.7	-11.9	-11.6	-10.5	-9.3	-7.8	-6.3	-4.9	-3.9	-3.2	-2.9	-2.9	-3.4	-4.5	-5.4	-6.1	-6.6	-7.1	-7.6	Diurnal Average	
																								5.9	5.2	5.7	5.7	5.6	5.5	3.4	3.8	5.4	5.0	7.3	8.5	8.0	9.1	10.3	10.9	13.8	13.8	11.8	9.8	9.7	11.6	10.4	9.0	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Mildred Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	78	10.48	10.48
-20 - 0	510	68.55	79.03
0 - 10	148	19.89	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

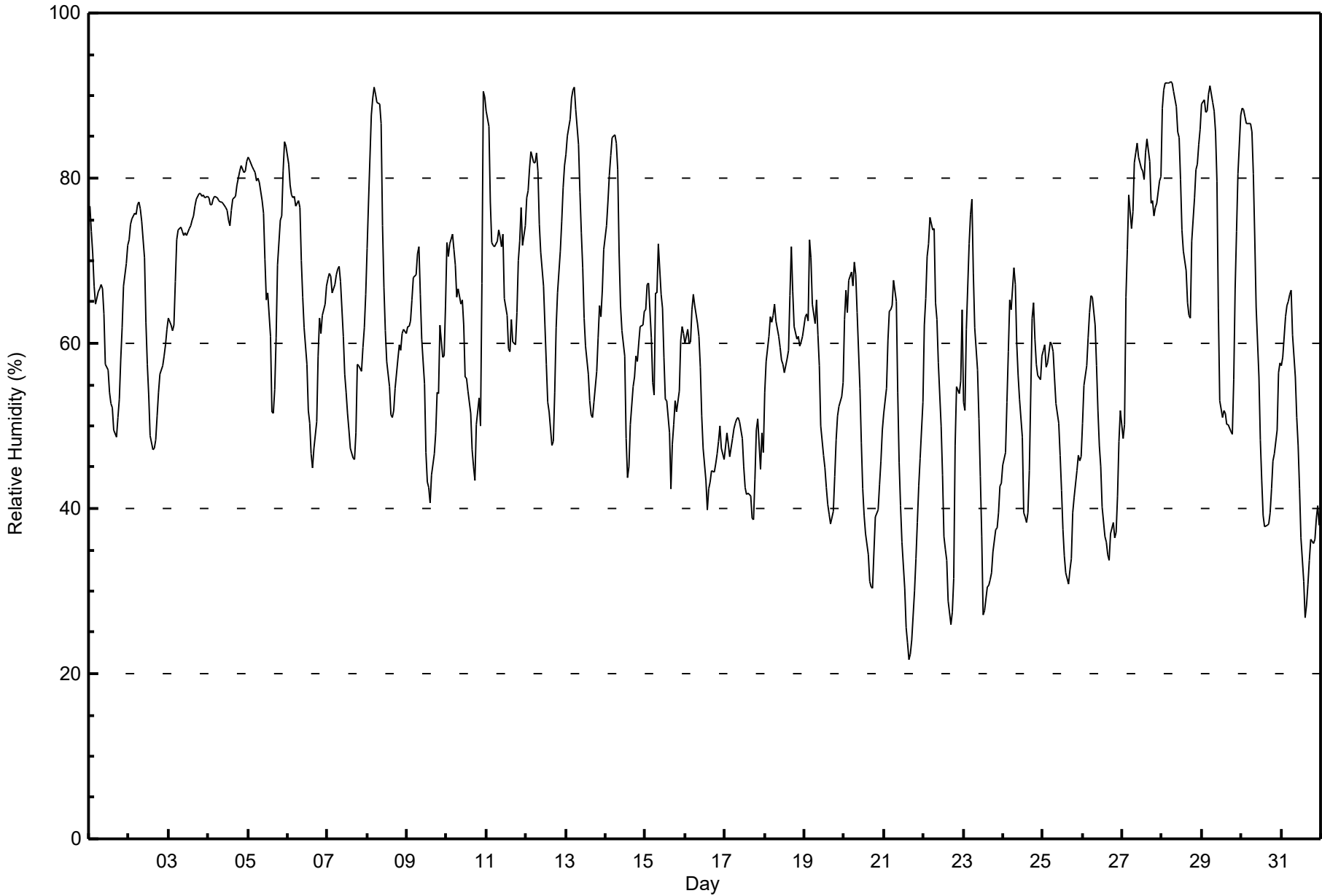
Relative Humidity (RH) - %
Mildred Lake - March 2024

Maximum Value: 91.7 % on Mar 28 06:00																						Maximum Daily Average: 81.4 % on Mar 28																						Hours in Service: 744			
Minimum Value: 21.7 % on Mar 21 16:00																						Minimum Daily Average: 44.2 % on Mar 21																						Hours of Data: 744			
Maximum Diurnal Average: 73.1 % at hour 7																						Minimum Diurnal Average: 47.2 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 60.94 %																						Percentiles: P ₁ = 27.2 P ₁₀ = 39.6 Q ₁ = 49.8 Median = 61.3 Q ₃ = 73.2 P ₉₀ = 81.3 P ₉₉ = 90.9																						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-Mar	76.7	73.6	70.8	66.9	64.7	66.2	66.7	67.1	66.6	63.6	57.5	56.7	54.0	52.7	52.1	49.4	48.6	51.0	53.1	58.0	61.9	66.9	69.7	71.9	61.9	76.7																					
2-Mar	72.6	74.3	75.1	75.8	75.6	76.7	77.1	76.2	74.7	70.3	62.6	57.4	53.7	48.8	47.2	47.3	48.4	51.3	54.1	56.3	57.3	58.5	59.8	61.8	63.0	77.1																					
3-Mar	63.1	62.2	61.5	62.1	67.5	72.6	73.7	74.1	73.6	73.1	73.4	73.0	73.9	74.3	74.9	75.4	76.6	77.5	78.2	78.2	77.8	78.0	77.6	77.9	72.9	78.2																					
4-Mar	77.7	76.7	76.7	77.4	77.7	77.6	77.3	77.2	77.2	76.9	76.5	76.0	75.0	74.2	76.2	77.4	77.7	79.2	80.0	80.8	81.5	80.7	80.9	82.0	77.9	82.0																					
5-Mar	82.5	82.2	81.3	81.0	80.7	79.7	80.0	79.5	77.3	75.8	70.1	65.3	66.1	60.8	51.7	51.4	54.3	60.7	69.5	75.0	75.4	80.8	84.5	83.9	72.9	84.5																					
6-Mar	81.8	79.1	78.0	77.5	77.9	76.6	77.3	76.4	70.0	65.5	61.9	57.5	51.8	50.3	46.6	44.9	47.2	50.5	58.5	63.0	61.2	63.4	64.7	66.9	64.5	81.8																					
7-Mar	67.7	68.5	68.1	66.2	67.2	68.3	68.9	69.3	67.5	60.8	56.3	54.0	51.6	49.5	47.3	46.2	45.9	49.1	57.4	57.3	56.6	59.4	61.8	65.9	59.6	69.3																					
8-Mar	71.5	77.1	87.7	89.7	91.1	90.2	89.2	88.9	86.7	74.2	66.8	61.5	57.8	54.8	51.3	51.0	51.9	54.5	58.1	59.9	59.2	61.1	61.6	61.2	69.0	91.1																					
9-Mar	62.0	62.1	62.7	65.2	68.0	68.3	70.9	71.7	66.0	60.5	55.1	46.8	43.2	42.6	40.7	44.1	46.6	49.2	54.1	53.9	62.2	58.3	58.5	64.6	57.4	71.7																					
10-Mar	72.3	70.5	72.1	73.3	71.4	69.5	65.7	66.6	64.8	65.3	62.2	56.0	55.8	54.2	51.5	47.1	45.2	43.3	50.1	53.4	50.1	67.3	90.5	89.8	62.8	90.5																					
11-Mar	88.2	86.3	77.2	72.2	71.8	71.7	72.3	73.8	72.9	71.6	73.3	65.4	63.4	59.4	59.1	62.8	60.1	59.8	63.8	70.0	72.4	76.5	71.9	74.3	70.4	88.2																					
12-Mar	77.6	78.6	81.2	83.2	81.9	81.9	83.0	80.9	74.4	71.1	67.0	62.2	57.4	53.0	51.7	47.6	48.2	54.0	61.9	66.0	71.1	74.8	78.7	81.6	69.5	83.2																					
13-Mar	82.9	85.1	87.1	89.7	90.7	91.1	88.3	84.0	78.2	73.4	69.2	63.1	59.6	56.3	53.0	51.4	51.0	52.9	56.7	60.8	64.6	63.3	66.4	71.3	70.4	91.1																					
14-Mar	74.3	77.1	80.4	82.8	85.0	85.2	84.3	80.9	70.8	64.7	61.6	58.5	48.5	43.6	45.1	50.1	54.8	56.0	58.5	57.8	60.0	62.0	62.3	63.8	65.3	85.2																					
15-Mar	64.1	67.1	67.3	60.7	55.2	53.7	66.1	66.1	72.0	66.0	64.2	58.3	53.3	53.1	49.2	42.4	47.8	50.1	53.1	51.7	54.2	60.3	62.1	61.1	58.3	72.0																					
16-Mar	60.0	61.7	60.0	60.2	64.1	66.0	64.6	62.3	60.8	57.1	51.2	47.3	43.4	39.8	42.4	43.1	44.6	44.4	45.5	46.7	48.2	50.1	47.2	45.9	52.4	66.0																					
17-Mar	47.5	49.1	47.7	46.3	48.4	49.6	50.3	50.9	51.0	50.5	48.5	45.1	42.6	41.7	41.8	41.5	38.8	38.6	43.5	49.5	50.8	44.8	49.1	46.7	46.4	51.0																					
18-Mar	54.1	57.8	60.9	63.3	62.5	63.4	64.8	62.7	60.8	59.5	58.0	57.4	56.4	58.1	59.2	65.7	71.8	66.3	62.0	60.5	60.9	59.7	60.2	60.9	61.1	71.8																					
19-Mar	63.2	63.6	62.7	72.5	70.3	64.8	62.3	65.3	61.0	57.3	49.9	46.4	44.9	42.5	40.4	39.3	38.2	39.7	43.9	48.4	51.2	52.3	53.6	55.2	53.7	72.5																					
20-Mar	62.9	66.4	63.7	67.6	68.7	67.0	69.8	68.3	63.8	54.6	48.0	42.4	39.1	37.0	34.5	31.1	30.6	30.3	34.8	39.0	39.8	42.9	45.8	49.5	49.9	69.8																					
21-Mar	51.6	54.6	60.4	63.9	64.0	64.6	67.7	65.1	54.1	45.7	40.3	36.0	30.3	25.5	23.8	21.7	22.4	24.1	30.1	34.0	38.3	42.8	46.2	52.8	44.2	67.7																					
22-Mar	62.1	65.4	70.5	72.1	75.2	73.8	74.0	64.9	62.9	57.6	50.0	44.1	36.6	35.2	33.6	28.9	25.9	27.4	31.5	47.7	54.7	53.9	55.4	64.0	52.8	75.2																					
23-Mar	52.8	51.8	61.7	72.1	75.6	77.4	68.4	61.9	56.8	50.8	43.9	36.7	27.1	27.6	30.6	30.7	31.3	32.1	34.8	37.4	37.6	39.5	42.7	43.0	46.8	77.4																					
24-Mar	45.3	46.8	52.9	59.0	65.3	64.1	69.1	67.1	60.0	56.2	53.2	48.6	39.5	39.0	38.2	39.6	44.6	63.1	65.0	60.5	57.5	56.1	55.6	58.4	54.4	69.1																					
25-Mar	59.1	59.8	57.2	57.6	60.1	59.8	58.9	55.8	52.6	50.3	46.5	42.2	37.5	34.2	32.1	30.9	32.5	33.9	39.5	41.3	44.5	46.5	45.8	46.3	46.9	60.1																					
26-Mar	50.4	55.0	57.3	60.7	63.7	65.7	65.6	62.1	57.3	51.9	47.7	45.1	40.2	36.7	36.0	34.4	33.8	36.9	38.4	36.4	37.1	41.6	48.1	51.9	48.1	65.7																					
27-Mar	48.5	50.2	65.6	71.3	78.1	73.9	76.0	81.8	83.1	84.3	82.5	81.3	80.8	79.9	83.1	84.8	82.1	76.9	77.3	75.5	76.5	77.0	79.6	80.1	76.2	84.8																					
28-Mar	88.5	90.7	91.5	91.5	91.5	91.7	91.6	90.6	88.6	85.7	84.9	79.9	73.8	71.2	68.8	64.9	63.4	63.0	72.4	77.7	81.1	81.6	84.0	85.9	81.4	91.7																					
29-Mar	89.0	89.6	88.0	88.2	90.2	91.3	89.1	88.2	85.5	79.7	64.3	53.1	51.0	51.9	51.6	50.2	50.1	49.4	48.9	55.7	66.6	73.6	80.5	87.6	71.4	91.3																					
30-Mar	88.5	88.2	87.4	86.6	86.6	86.6	85.6	80.6	72.9	64.3	56.0	48.2	43.4	39.2	37.8	37.9	38.1	39.5	42.3	45.8	46.5	49.5	56.5	57.7	61.1	88.5																					
31-Mar	57.4	58.3	63.3	64.5	65.1	65.9	66.4	61.0	56.0	51.1	47.6	42.4	36.4	31.2	26.8	28.3	30.8	33.7	36.3	35.8	36.3	38.8	40.3	38.0	46.3	66.4																					
																						67.6	68.7	70.3	71.6	72.8	72.7	73.1	71.7	68.4	64.2	59.7	55.1	51.2	49.0	47.7	47.2	47.8	49.6	53.3	55.9	57.8	60.1	62.6	64.6	Diurnal Average	
																						89.0	90.7	91.5	91.5	91.5	91.7	91.6	90.6	88.6	85.7	84.9	81.3	80.8	79.9	83.1	84.8	82.1	79.2	80.0	80.8	81.5	81.6	90.5	89.8	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Mildred Lake - March 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Maximum Speed: 24 km/h on Mar 26 10:00 Minimum Speed Value: 1 km/h on Mar 2 07:00 Maximum Diurnal Speed Average: 3.5 km/h at hour 20 Monthly Average Velocity: 2.5 km/h 84.5 deg		Maximum Daily Speed Average: 20.2 km/h on Mar 26 Minimum Daily Speed Average: 1.1 km/h on Mar 5 Minimum Diurnal Speed Average: 1.6 km/h at hour 15 Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 8 Median = 11 Q ₃ = 15 P ₉₀ = 17 P ₉₉ = 22		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 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-Mar	WNW9	WNW10	WNW11	W14	WNW15	W13	W15	W12	W16	W15	W15	WNW16	WNW16	WNW13	WNW15	WNW14	NW14	NW10	NNW9	N7	NNW8	N6	N13	NNE11	WNW10.7	WNW16
2-Mar	NE7	NNE7	N7	N6	NNE7	NNE1	N1	N5	N9	NNE10	NNE10	NE8	N9	NE10	NNE11	NE12	NNE12	NNE10	N13	N13	N13	NNE11	NNE11	N12	NNE8.7	N13
3-Mar	N14	N14	N14	N15	N16	N17	N18	N16	NNE17	NNE14	NNE15	NNE15	N16	N18	N17	N19	N17	N15	NNW13	N14	N17	N16	N17	N17	N15.7	N19
4-Mar	N18	N19	N22	N20	N19	N21	N22	N23	N21	N18	N19	N20	N18	N19	N17	N17	N16	N14	N12	N11	N10	N9	N8	N6	N16.6	N23
5-Mar	N7	N7	N7	N7	N9	N10	N9	N10	NNE9	N7	NNE2	SSW3	S7	SSE5	S6	SSW6	SSE6	SSE6	SSE7	SSE6	SSE6	SSE6	SSE5	SE3	NE1.1	N10
6-Mar	ESE5	SE4	SE6	SE7	SE3	SSE6	SE5	SE4	SSE10	SE11	SE13	SE15	SSE14	SSE14	S15	S17	S15	S12	S7	S10	S12	S13	S13	S13	SSE9.6	S17
7-Mar	SSE13	SSE11	SSE8	SSE11	SSE12	SSE15	SSE15	SSE15	SSE15	SSE16	SSE16	SE16	SE17	SE17	SSE17	SE14	S12	SSW7	SE5	SSE7	SSE6	SSE6	ESE2	SW4	SSE11.2	SSE17
8-Mar	WNW3	W6	NNW5	WSW2	SW3	S4	S4	SSE4	SSE6	SE8	SE10	SE12	SSE14	SE11	SE12	SE12	SE13	SE14	SE11	SE14	SSE15	SE13	SE11	SE12	SSE7.7	SSE15
9-Mar	SE11	SE14	SE13	SE12	SSE10	SSE10	SE8	SSE7	S7	S7	SSE9	SSE8	SSE10	SE8	SE9	SE10	SE11	SSE8	ESE6	SE8	SSE6	SSE10	SSE9	SSE6	SSE9.0	SE14
10-Mar	S3	S7	S6	S7	S8	SSW7	WSW7	WSW6	WSW9	SW8	WSW11	W13	W19	W18	WNW14	WNW14	WNW10	WNW9	WNW9	NNW7	NNW9	N9	N10	N10	W5.9	W19
11-Mar	NNE8	NNE6	NE9	NNE7	N10	NNE12	NNE11	NNE10	NNE11	N9	NW10	N8	N7	N5	NNW10	NNW13	NNW13	NNW10	N8	NNW6	N9	NE4	E7	E5	N7.4	NNW13
12-Mar	E4	ESE7	E7	ESE8	ESE10	E10	E8	E7	ESE11	ESE11	ESE15	ESE13	E10	ESE8	SSE8	SE9	ESE10	ESE10	ESE12	E11	E9	ESE11	ESE12	ESE10	ESE9.2	ESE15
13-Mar	ESE7	SE5	ESE4	E3	SE1	ESE3	SSE8	SSE11	SE13	SE13	SE11	SSE12	SSE14	SE11	SE12	SE12	SE10	SE10	SSE13	SSE10	SSE13	SSE10	SSE9	SE9.2	SSE14	
14-Mar	SSE9	SSE11	SSE9	SSE7	SSE6	SE7	SSE7	SSE9	S10	S10	S9	SSE10	S7	SW10	SW9	SSW9	S7	S7	S8	S9	SW7	WSW12	WSW12	WNW7	S7.2	WSW12
15-Mar	NW8	WSW7	WSW13	WNW18	WNW18	NW21	N16	NNW17	N15	NNW20	NNW19	NNW21	NNW20	NNW17	N15	NNE17	NNE14	NNE13	NNE14	NNE14	NNE12	NNE7	NNE7	NNE8	NNW11.9	NW21
16-Mar	NNE6	N7	NNW10	N10	NNE10	N9	NNE9	N9	N9	N10	N10	N8	NNE8	N6	NW10	NNW10	NNW12	N10	N6	N6	N5	NE4	SE11	SE14	N6.5	SE14
17-Mar	SE14	SE16	SE15	SE15	SE15	SE15	SE17	SE18	SE18	SE17	SSE18	SSE16	SSE18	SSE16	SSE17	SE14	SSE11	S13	S9	S8	SW7	WSW13	W13	NNW14	SSE11.3	SE18
18-Mar	NNE9	NNE9	N10	NNE9	N16	N18	N14	N15	N18	N17	NNW15	N13	N12	N14	N15	NNE17	N16	NNE15	NNE13	NNE14	N15	N15	NNE15	NNE14	N13.8	N18
19-Mar	NNE16	NNE13	N13	N14	N13	N14	NNE14	NNE13	NNE15	N15	N13	N12	N11	N11	N12	N14	NNE12	NNE12	NNE11	NNE11	NNE11	NNE8	NNW8	NNW6	N11.9	NNE16
20-Mar	N4	NNE4	NNE5	NNW3	NNW7	N5	N5	N8	NNE8	NNE8	NNE8	N7	N7	N7	NNE8	NNE10	NNE9	NNE8	N7	N8	N9	N9	N8	N8	NNE7.0	NNE10
21-Mar	N9	N8	N10	N10	N10	N10	N9	N9	N9	N10	N12	NNW12	N13	N15	N15	NNE15	NNE14	NNE14	N12	NNE10	N8	N6	N7	N6	N10.3	N15
22-Mar	NNW5	NNW5	N6	N4	ENE2	N2	N2	SE1	SSE5	SSE5	SSW6	S7	S7	S6	SSW6	S6	SSE8	SE7	SE4	SE2	E3	ESE5	SSE5	SSE5	SSE2.4	SSE8
23-Mar	SE8	SE6	ENE3	SE2	SSE3	SSE5	S7	SSE9	SSE9	SSE8	SE8	SSE8	SE7	SE7	SE7	E7	ESE9	E9	E8	ESE8	ESE8	SE9	SSE9	SSE9	SE6.6	SSE9
24-Mar	SSE8	SSE7	S7	S3	E3	ESE5	SSE3	SSE6	SE9	SSE10	SSE11	SE10	SSE16	SE16	SSE13	SE14	SSE14	SSE15	SE9	SE10	SE9	SE12	SE14	SE10	SE9.4	SE16
25-Mar	ESE9	ESE8	ESE10	ESE11	ESE9	SE13	SE15	SE20	SE22	SE16	SSE16	SE17	SE17	SE21	SSE19	SSE19	SSE17	SSE17	SSE13	SSE17	SSE17	SSE16	SSE17	SSE16	SE15.0	SE22
26-Mar	SSE16	SSE17	SSE18	SSE20	SSE20	SSE20	SSE18	SSE18	SSE21	SSE24	SE24	SE22	SE22	SSE24	SSE21	SE22	SE21	SE19	SSE17	SSE21	SSE21	SE20	SE21	SE22	SSE20.2	SSE24
27-Mar	SE20	ESE17	SE19	ESE20	ESE19	ESE20	ESE19	ESE19	ESE18	ESE17	ESE17	ESE19	ESE19	ESE19	ESE18	ESE16	ESE16	E12	E10	E11	ENE10	ENE8	NNE6	NNE6	ESE14.7	ESE20
28-Mar	N7	N8	N8	N8	N9	N9	N10	N10	N11	N12	NNW13	NNW16	N17	N17	NNW19	N17	NNW18	N16	NNW14	NNW12	NNW11	NNW12	NNW13	N12	N12.4	NNW19
29-Mar	N12	N11	N11	N9	N6	NNW6	NNW9	N9	N13	NNW13	N14	NNW16	N15	NNW18	N16	NNW15	N12	NNE10	NNE8	NNE4	NW3	NW4	SW3	SSW4	N9.2	NNW18
30-Mar	SSW4	SSE4	SSW4	SSW5	SSW5	S4	S6	SSE8	SE11	SE11	SE13	SE15	SE17	SE16	SE17	SE16	SE15	SE13	SE12	ESE10	SE13	SE10	SE14	SE16	SE10.3	SE17
31-Mar	SE14	SE14	SSE9	SSE9	SSE10	SE11	SSE7	SSE9	SSE10	SSE10	SE11	SE13	SE12	S12	SSW10	SSW12	S14	SSE12	SSE11	SSE14	S17	SSE14	SSE17	S15	SSE11.6	S17
ENE2.7 E2.6 ENE2.3 ENE1.9 NE2.3 ENE2.5 ENE2.3 ENE2.5 E3.0 E3.0 E2.7 E2.7 ESE2.6 ESE2.5 E1.6 E2.3 E2.5 E2.9 ENE3.2 E3.5 E2.7 ESE2.6 ESE2.6 E2.6																								Diurnal Average		
SE20 N19 N22 ESE20 SSE20 NW21 N22 N23 SE22 SSE24 SE24 SE22 SE22 SSE24 SSE21 SE22 SE21 SE19 SSE17 SSE21 SSE21 SE20 SE21 SE22																								Diurnal Maximum		
All monthly, daily, and diurnal averages have been calculated using vector methods																										



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

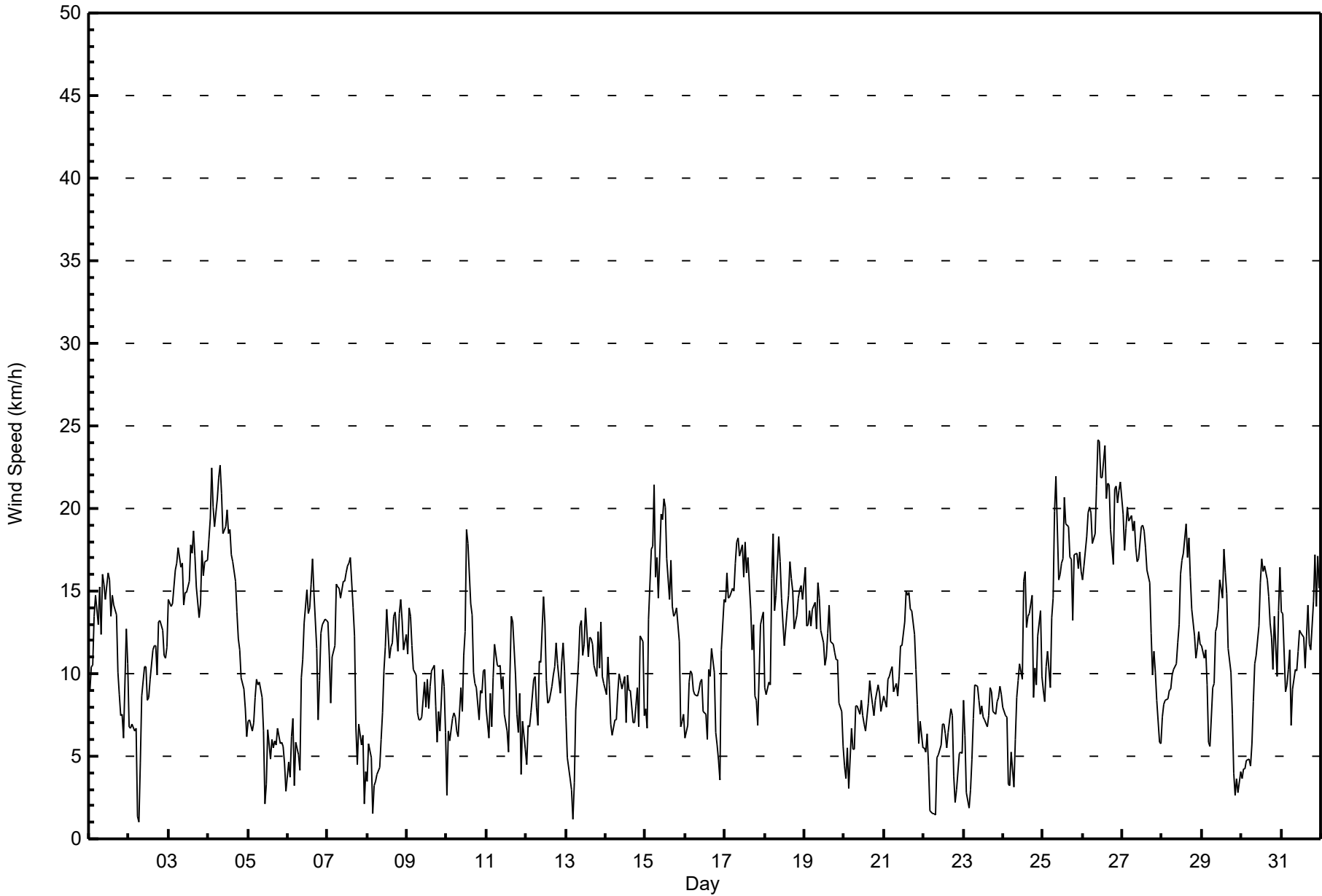
Wind Speed (WS) - km/h
Mildred Lake - March 2024

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



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	75	10.08	10.08
6 - 11	339	45.56	55.65
12 - 19	296	39.78	95.43
20 - 28	34	4.57	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
Mildred Lake - March 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	5	2	2	5	6	12	11	5	6	3	1	0	1	2	4	75
6 - 11	82	42	4	2	13	21	41	62	27	7	5	5	1	6	5	16	339
12 - 19	76	30	0	0	0	18	59	49	14	1	0	4	10	11	1	23	296
20 - 28	7	0	0	0	0	2	12	9	0	0	0	0	0	0	1	3	34
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
Totals	175	77	6	4	18	47	124	131	46	14	8	10	11	18	9	46	744

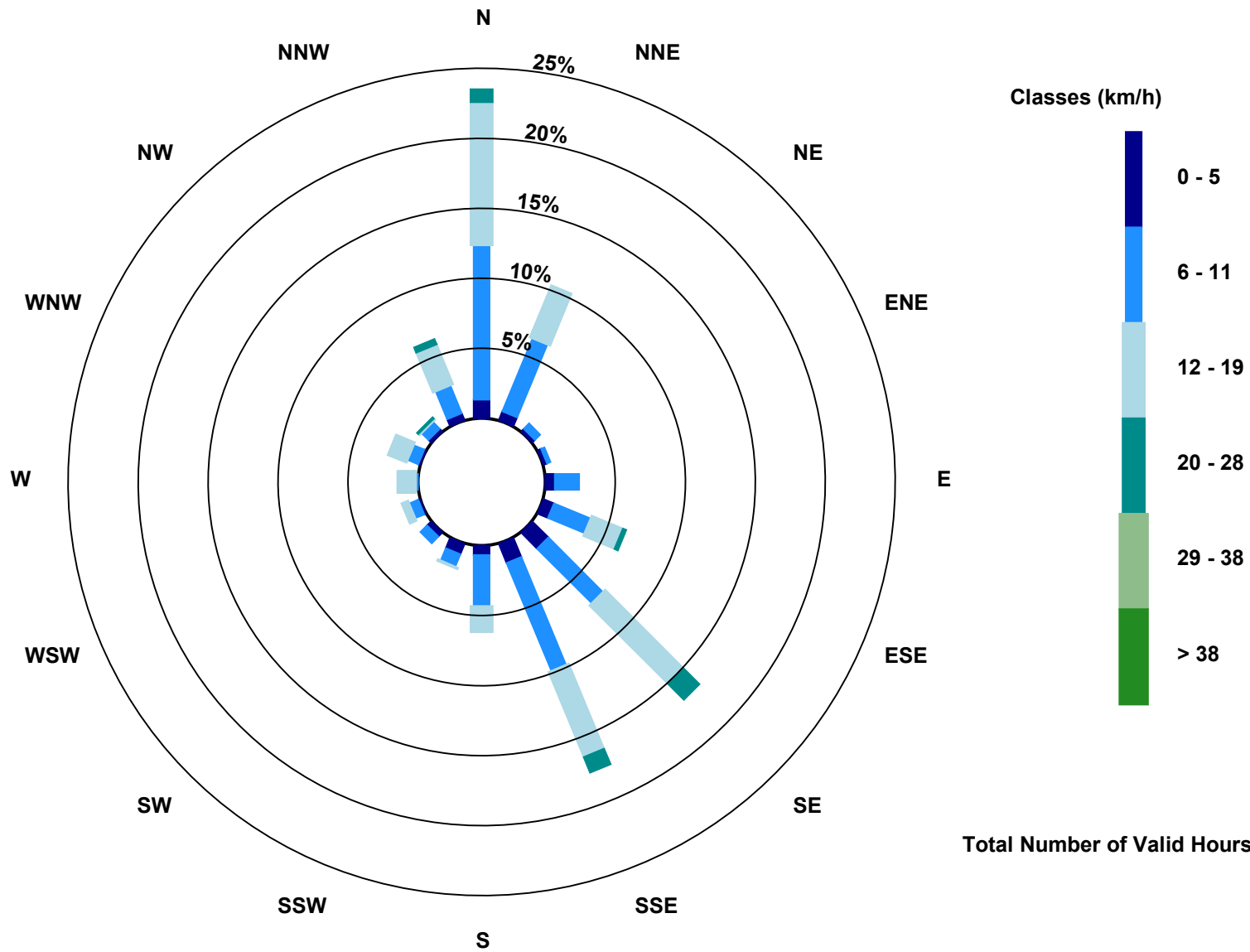
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Mildred Lake



Total Number of Valid Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Mildred Lake - March 2024

Direction of Maximum Speed: 147 deg on Mar 26 10:00		Hours in Service: 744
Direction of Maximum Daily Speed Average: 147.7 deg on Mar 26		Hours of Data: 744
Direction of Minimum Speed: 8 deg on Mar 2 07:00		Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.1 deg on Mar 5		Percent Operational Time: 100.0
Monthly Average Direction: 84.5 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-Mar	291	301	283	276	285	273	273	276	276	272	273	293	298	287	295	297	306	317	339	351	344	356	10	19	297.4
2-Mar	35	23	5	10	29	18	8	357	6	30	32	48	9	40	21	34	19	19	10	7	6	24	24	2	19.5
3-Mar	1	3	6	7	10	8	7	11	14	12	14	15	357	357	356	349	349	349	346	350	353	351	353	356	0.5
4-Mar	358	353	355	357	359	1	357	359	359	357	0	2	1	355	355	352	352	349	351	349	358	4	360	4	356.8
5-Mar	8	6	354	5	1	357	3	4	16	11	30	195	186	167	171	209	156	163	157	165	164	168	150	124	50.7
6-Mar	122	130	130	144	134	150	141	136	149	142	139	144	151	154	185	185	187	187	177	170	173	174	179	178	162.7
7-Mar	166	156	156	155	153	148	150	149	148	148	147	145	143	146	148	146	179	194	145	154	152	147	109	218	152.5
8-Mar	284	280	348	243	225	184	170	168	160	133	144	142	150	137	134	142	144	145	146	143	148	138	134	140	146.8
9-Mar	136	142	143	141	152	161	135	152	174	169	153	162	155	141	146	142	145	156	119	129	151	153	150	153	148.0
10-Mar	189	175	178	175	182	200	244	251	240	226	255	281	281	270	284	282	290	293	321	339	341	358	4	10	276.7
11-Mar	18	31	52	20	1	12	17	22	15	360	319	356	7	8	343	329	331	342	357	340	358	38	97	97	4.6
12-Mar	83	107	84	105	106	95	83	100	115	113	118	116	89	123	156	127	120	109	102	94	101	106	114	115	108.6
13-Mar	123	127	121	88	129	119	165	163	142	139	146	148	148	141	143	135	133	131	132	147	157	160	154	159	143.7
14-Mar	156	148	151	151	157	144	156	167	174	174	172	147	189	220	223	208	174	182	178	182	215	237	239	282	183.9
15-Mar	307	256	255	282	299	318	356	348	356	333	336	327	333	338	2	15	17	17	25	25	24	29	25	25	343.0
16-Mar	28	349	346	359	13	1	13	4	360	5	360	6	19	354	324	334	337	350	4	5	7	52	131	137	5.0
17-Mar	136	138	135	138	142	142	141	142	145	145	149	161	156	158	154	145	163	180	177	190	227	249	281	339	155.7
18-Mar	19	13	10	14	7	8	6	4	355	353	348	352	354	5	3	12	11	22	12	14	7	9	13	13	6.4
19-Mar	13	19	10	360	11	9	13	18	13	9	6	2	359	10	1	6	25	22	30	28	30	13	331	347	11.1
20-Mar	2	19	17	342	348	5	6	9	17	23	23	5	10	9	27	23	29	25	7	6	10	8	3	3	11.9
21-Mar	8	357	355	352	351	354	352	352	4	353	351	341	354	3	1	13	13	15	10	14	10	2	358	354	0.5
22-Mar	346	344	354	8	68	9	7	145	147	157	192	189	178	176	194	185	157	128	131	133	101	103	164	155	152.5
23-Mar	141	132	76	134	156	154	170	168	164	148	145	154	144	136	124	98	102	94	93	105	123	144	151	154	135.3
24-Mar	151	150	172	175	92	123	150	165	142	154	152	144	152	146	151	143	160	153	142	133	125	134	136	125	145.4
25-Mar	105	105	109	121	121	133	132	141	143	140	147	146	140	139	156	162	161	155	154	149	152	158	165	162	144.7
26-Mar	157	152	151	149	147	151	159	161	158	147	145	136	140	149	150	139	139	145	151	147	147	145	144	144	147.7
27-Mar	136	123	128	121	116	116	117	111	112	110	112	113	112	106	106	104	102	101	88	80	72	72	14	30	108.7
28-Mar	357	359	4	1	360	358	358	360	2	1	344	344	350	352	347	354	346	352	347	348	342	340	345	352	351.4
29-Mar	359	358	355	358	355	341	342	355	1	345	351	347	354	344	349	348	358	12	19	31	322	304	233	205	351.9
30-Mar	206	156	203	207	196	170	187	157	145	140	137	138	143	141	141	143	137	132	131	120	134	126	140	139	143.6
31-Mar	140	145	154	153	152	144	160	159	155	147	139	139	144	183	208	193	182	158	165	156	169	158	156	181	160.0

74.2 81.8 61.7 64.5 53.5 63.4 61.7 76.8 88.3 87.8 96.5 96.5 101.9 103.1 93.1 81.0 88.6 84.4 71.0 85.6 86.9 106.3 109.0 100.2
 Diurnal Average

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

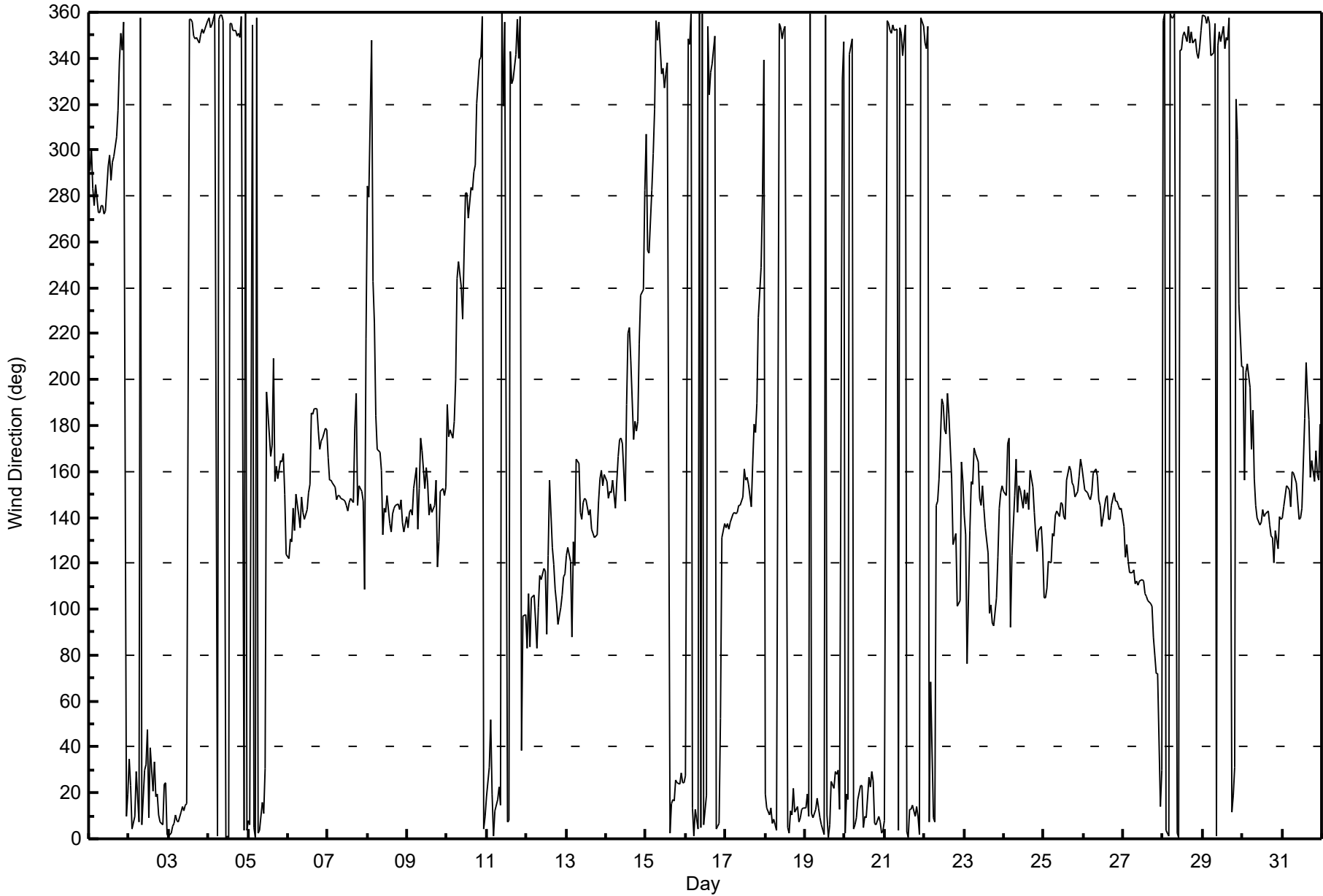
Wind Direction (WD) - deg
Mildred Lake - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 89 deg on Mar 5 12:00 Minimum Value: 7 deg on Mar 22 22:00 Percentiles: P ₁ = 9 P ₁₀ = 12 Q ₁ = 14 Median = 17 Q ₃ = 21 P ₉₀ = 29 P ₉₉ = 64																	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-Mar	15	16	18	18	17	20	19	20	17	18	21	22	20	22	21	19	18	23	18	14	13	13	18	17	23
2-Mar	20	18	15	14	14	74	66	11	20	22	24	33	34	29	28	24	22	18	17	17	17	19	19	17	74
3-Mar	15	16	18	17	17	18	18	18	20	18	19	20	17	16	17	15	15	15	14	14	15	16	16	15	20
4-Mar	16	16	15	15	16	16	16	17	16	15	17	17	18	16	15	14	15	12	12	11	13	15	14	13	18
5-Mar	15	18	15	15	15	15	16	16	22	30	86	89	21	58	33	28	17	13	11	10	15	15	20	27	89
6-Mar	30	45	21	22	64	62	24	29	12	12	14	13	21	16	19	16	16	15	13	13	11	11	14	14	64
7-Mar	13	15	17	12	12	9	10	10	11	11	12	13	14	14	12	13	17	17	21	12	13	11	78	62	78
8-Mar	54	35	41	68	64	23	28	16	19	26	18	16	14	17	17	15	13	12	16	11	11	14	16	14	68
9-Mar	14	10	10	11	11	12	17	16	15	18	20	20	19	23	18	14	11	11	18	13	14	10	11	19	23
10-Mar	51	18	12	15	18	19	38	36	29	30	24	23	19	21	19	19	17	16	9	8	11	13	18	19	51
11-Mar	20	26	21	24	20	19	18	18	18	24	17	38	36	63	20	12	12	16	16	18	18	47	18	25	63
12-Mar	47	27	8	13	14	11	12	15	19	21	19	20	21	29	25	22	20	16	13	13	15	15	16	18	47
13-Mar	17	17	25	22	55	34	17	16	15	17	18	20	15	19	17	17	18	18	18	15	18	14	17	13	55
14-Mar	11	10	10	15	14	18	12	10	13	14	22	11	37	25	23	20	18	17	11	17	42	23	28	48	48
15-Mar	44	38	21	18	16	13	19	22	18	15	14	14	16	20	23	20	22	20	18	17	19	22	22	23	44
16-Mar	23	17	12	21	19	17	21	20	18	26	28	37	36	56	19	21	14	16	20	22	18	39	19	16	56
17-Mar	17	15	16	16	13	13	12	13	12	13	14	16	16	15	13	12	21	13	13	16	25	26	17	27	27
18-Mar	23	24	17	20	17	20	19	19	18	20	21	20	20	19	18	20	22	21	20	21	20	19	20	20	24
19-Mar	20	21	19	19	21	20	20	19	21	21	24	27	43	29	29	21	24	24	19	18	17	20	13	14	43
20-Mar	20	19	18	35	14	15	13	14	22	31	36	55	42	54	44	35	30	21	17	16	16	16	16	15	55
21-Mar	16	15	11	12	11	11	12	12	19	19	17	21	28	24	25	21	22	21	18	18	17	15	16	11	28
22-Mar	9	11	8	20	40	51	31	64	20	34	30	28	32	39	61	37	25	20	22	24	18	7	29	21	64
23-Mar	13	17	44	58	56	19	11	16	17	22	25	24	32	41	49	46	21	16	8	9	17	8	10	13	58
24-Mar	16	14	11	79	46	17	27	18	25	18	16	24	17	16	20	18	20	15	17	21	18	18	16	22	79
25-Mar	14	12	14	18	16	15	15	13	12	16	15	16	19	17	21	18	16	16	13	12	12	14	13	15	21
26-Mar	14	12	12	12	12	13	15	15	15	13	14	17	17	15	17	16	16	15	14	12	12	13	13	13	17
27-Mar	18	20	18	18	17	18	18	16	18	17	18	17	18	16	15	16	15	17	19	17	17	21	28	25	28
28-Mar	12	13	13	14	14	14	13	15	16	16	17	15	17	17	16	18	15	16	13	14	12	11	11	13	18
29-Mar	15	14	14	14	14	14	10	17	17	17	23	18	23	21	21	18	22	22	20	18	17	20	24	11	24
30-Mar	25	24	15	13	20	19	16	18	16	17	17	17	17	18	17	15	17	17	17	18	16	17	15	12	25
31-Mar	14	12	16	13	13	11	16	15	14	15	18	18	18	29	22	17	19	13	17	13	15	14	14	17	29
Diurnal Maximum																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Mildred Lake - March 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS03 LOWER CAMP METEOROLOGY MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)
MARCH 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	693	0	51	93.15	15.3	-	4.5	-
Temperature 45 m (C) Average	741	0	3	99.6	15.6	-	4.7	-
Temperature 100 m (C) Average	741	0	3	99.6	15.8	-	4.8	-
Temperature 163 m (C) Average	741	0	3	99.6	15.4	-	4.7	-
Relative Humidity 20 m (%) Average	693	0	51	93.15	89.9	-	77.4	-
Relative Humidity 45 m (%) Average	741	0	3	99.6	90.2	-	78.4	-
Relative Humidity 100 m (%) Average	741	0	3	99.6	87.7	-	76.8	-
Relative Humidity 163 m (%) Average	741	0	3	99.6	91.9	-	79.5	-
Wind Speed 20 m (km/h) Average	741	0	3	99.6	32	-	27.0	-
Wind Speed 45 m (km/h) Average	724	0	20	97.31	40	-	33.0	-
Wind Speed 100 m (km/h) Average	741	0	3	99.6	44	-	37.0	-
Wind Speed 163 m (km/h) Average	741	0	3	99.6	51	-	39.0	-
Wind Direction 20 m (deg) Average	741	0	3	99.6	-	-	-	-
Wind Direction 45 m (deg) Average	724	0	20	97.31	-	-	-	-
Wind Direction 100 m (deg) Average	741	0	3	99.6	-	-	-	-
Wind Direction 163 m (deg) Average	741	0	3	99.6	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	741	0	3	99.6	0.4	-	0.0	-
Vertical Wind Speed 45 m (km/h) Average	724	0	20	97.31	1.4	-	0.5	-
Vertical Wind Speed 100 m (km/h) Average	741	0	3	99.6	3.5	-	0.9	-
Vertical Wind Speed 163 m (km/h) Average	741	0	3	99.6	4.6	-	1.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)
MARCH 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	693	-6.11	8.6	-	-27.3	-19.3	-12.4	-5	-0.4	4	15.3
Temperature 45 m (C) Average	741	-6.84	8.9	-	-27.2	-19.7	-14.4	-5.8	-0.7	3.8	15.6
Temperature 100 m (C) Average	741	-6.96	8.9	-	-25.5	-19.9	-14.4	-6.1	-0.9	3.9	15.8
Temperature 163 m (C) Average	741	-7.17	8.9	-	-25.3	-20.2	-14.6	-6.5	-1	4	15.4
Relative Humidity 20 m (%) Average	693	58.43	15.4	-	22.5	37.9	46.9	58.7	71.6	78.8	89.9
Relative Humidity 45 m (%) Average	741	58.77	15.3	-	21.7	38.4	47.3	59	71.7	79.1	90.2
Relative Humidity 100 m (%) Average	741	55.81	15	-	20.1	36.6	44.9	55.6	68.2	75.9	87.7
Relative Humidity 163 m (%) Average	741	56.95	15.4	-	21	36.6	46	56.6	69	78.2	91.9
Wind Speed 20 m (km/h) Average	741	11.4	7	-	0	3	6	11	16	20	32
Wind Speed 45 m (km/h) Average	724	16.1	8	-	1	6	10	15	22	27	40
Wind Speed 100 m (km/h) Average	741	19.9	9	-	2	9	13	19	26	32	44
Wind Speed 163 m (km/h) Average	741	22.5	10	-	2	10	15	22	29	36	51
Wind Direction 20 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	724	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	741	-0.34	0.4	-	-1.9	-1	-0.6	-0.2	0	0.1	0.4
Vertical Wind Speed 45 m (km/h) Average	724	0.07	0.4	-	-1.2	-0.4	-0.2	0.1	0.3	0.6	1.4
Vertical Wind Speed 100 m (km/h) Average	741	0.21	0.6	-	-1.7	-0.5	-0.1	0.2	0.5	1	3.5
Vertical Wind Speed 163 m (km/h) Average	741	0.32	0.7	-	-2.4	-0.4	0	0.3	0.6	1.2	4.6

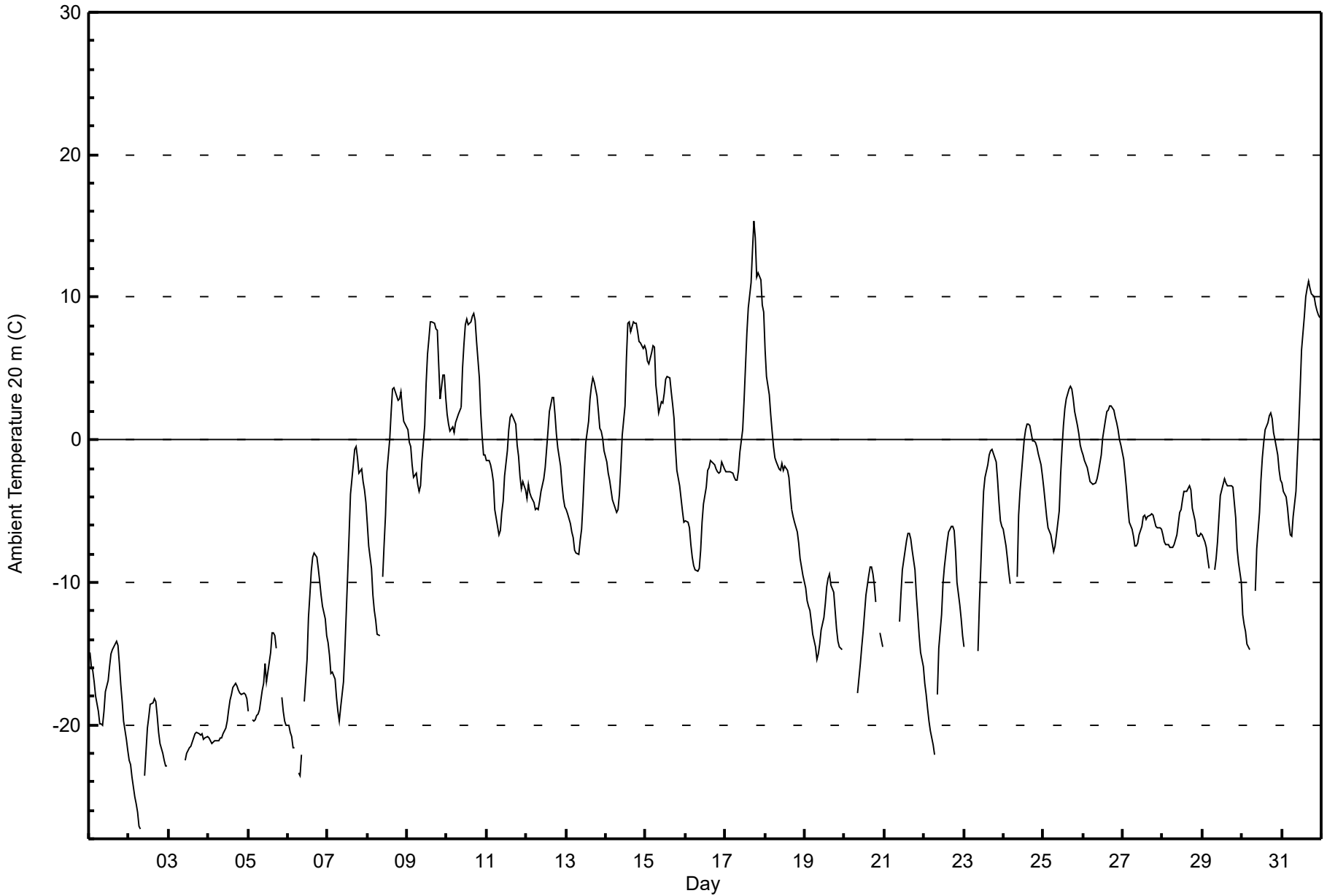
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP MET TOWER (AMS03)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Temperature, Relative Humidity 20m	02 Mar 2024 09:00	02 Mar 2024 09:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	03 Mar 2024 01:00	03 Mar 2024 10:00	10	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	05 Mar 2024 02:00	05 Mar 2024 02:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	05 Mar 2024 19:00	05 Mar 2024 20:00	2	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	06 Mar 2024 10:00	06 Mar 2024 10:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	08 Mar 2024 09:00	08 Mar 2024 09:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	20 Mar 2024 00:00	20 Mar 2024 08:00	9	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	20 Mar 2024 21:00	20 Mar 2024 21:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	21 Mar 2024 01:00	21 Mar 2024 09:00	9	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	22 Mar 2024 08:00	22 Mar 2024 08:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	23 Mar 2024 02:00	23 Mar 2024 02:00	1	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	23 Mar 2024 04:00	23 Mar 2024 08:00	5	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	24 Mar 2024 06:00	24 Mar 2024 08:00	3	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	29 Mar 2024 06:00	29 Mar 2024 07:00	2	DAS Failure - data not recorded
Temperature, Relative Humidity 20m	30 Mar 2024 06:00	30 Mar 2024 08:00	3	DAS Failure - data not recorded
Wind Speed, Wind Direction, Vertical Wind Speed 45m	02 Mar 2024 02:00	02 Mar 2024 02:00	1	DAS Failure - data not recorded
Wind Speed, Wind Direction, Vertical Wind Speed 45m	02 Mar 2024 03:00	02 Mar 2024 09:00	7	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	03 Mar 2024 03:00	03 Mar 2024 09:00	7	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed 45m	06 Mar 2024 07:00	06 Mar 2024 08:00	2	Flat line in sensor output signal
ALL METEOROLOGICAL SENSORS	03 Mar 2024 01:00	03 Mar 2024 02:00	2	DAS Failure - data not recorded
ALL METEOROLOGICAL SENSORS	06 Mar 2024 06:00	06 Mar 2024 06:00	1	DAS Failure - data not recorded



Maximum Value: 15.3 C on Mar 17 18:00		Maximum Daily Average: 4.5 C on Mar 17		Hours in Service: 744																							
Minimum Value: -27.3 C on Mar 2 08:00		Minimum Daily Average: -22.2 C on Mar 2		Hours of Data: 693																							
Maximum Diurnal Average: -2.3 C at hour 17		Minimum Diurnal Average: -10.3 C at hour 7		Hours of Missing Data: 51																							
Monthly Average: -6.11 C		Percentiles: P ₁ = -23.5 P ₁₀ = -19.3 Q ₁ = -12.4 Median = -5.0 Q ₃ = -0.4 P ₉₀ = 4.0 P ₉₉ = 11.0		Hours of Calibration: 0																							
				Percent Operational Time: 93.2																							
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-Mar	-14.9	-15.9	-16.2	-17.0	-18.0	-19.1	-19.9	-20.0	-20.0	-19.1	-17.7	-16.9	-15.9	-15.1	-14.8	-14.5	-14.1	-14.5	-15.7	-17.1	-18.4	-19.7	-21.0	-21.8	-17.4	-14.1	
2-Mar	-22.5	-22.8	-23.6	-25.0	-25.5	-26.1	-27.1	-27.3	DF	-23.6	-21.9	-20.3	-19.4	-18.6	-18.4	-18.2	-18.4	-19.3	-20.6	-21.3	-22.0	-22.5	-22.9	-22.9	-22.2	-18.2	
3-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-22.5	-22.0	-21.6	-21.5	-21.2	-20.9	-20.6	-20.6	-20.6	-20.7	-20.7	-21.0	-20.9	--	-20.6	
4-Mar	-20.9	-21.1	-21.3	-21.2	-21.1	-21.1	-21.1	-21.0	-20.9	-20.6	-20.3	-19.7	-19.0	-18.3	-17.9	-17.4	-17.1	-17.3	-17.5	-17.7	-17.9	-17.8	-17.9	-18.2	-19.3	-17.1	
5-Mar	-19.0	DF	-19.7	-19.8	-19.6	-19.3	-19.3	-18.9	-17.6	-17.1	-15.7	-16.9	-16.3	-15.0	-13.5	-13.6	-13.7	-14.7	DF	DF	-18.0	-19.1	-19.7	-20.0	-17.4	-13.5	
6-Mar	-20.1	-20.5	-20.9	-21.6	-21.6	DF	-23.4	-23.5	-22.1	DF	-18.3	-15.4	-12.4	-10.9	-9.3	-8.3	-7.9	-8.2	-9.0	-9.9	-10.9	-11.7	-12.6	-13.7	-15.1	-7.9	
7-Mar	-14.3	-15.1	-16.4	-16.3	-16.8	-18.1	-19.1	-19.7	-18.8	-17.0	-14.7	-12.1	-9.4	-6.7	-3.9	-1.8	-0.7	-0.4	-1.3	-2.3	-2.0	-2.9	-3.5	-4.4	-9.9	-0.4	
8-Mar	-5.9	-7.5	-9.0	-10.9	-12.0	-12.6	-13.7	-13.8	DF	-9.6	-7.4	-5.3	-2.3	0.0	1.8	3.6	3.6	3.4	2.7	2.8	3.4	2.2	1.3	0.9	-3.7	3.6	
9-Mar	0.7	-0.1	-0.5	-1.7	-2.7	-2.3	-3.1	-3.6	-3.3	-1.4	1.0	3.9	6.1	7.1	8.3	8.3	8.2	7.8	7.7	5.2	2.9	4.5	4.5	3.0	2.5	8.3	
10-Mar	1.8	1.1	0.6	0.9	0.5	1.2	1.5	1.8	2.3	5.1	6.7	8.0	8.4	8.1	8.2	8.6	8.9	8.4	6.9	4.3	1.8	0.2	-1.0	-1.1	3.9	8.9	
11-Mar	-1.5	-1.4	-1.8	-2.2	-2.9	-4.9	-6.1	-6.6	-6.4	-5.0	-4.3	-2.5	-0.8	0.7	1.6	1.8	1.6	1.1	-0.4	-1.1	-2.5	-3.4	-2.9	-3.5	-2.2	1.8	
12-Mar	-4.1	-3.1	-3.7	-4.0	-4.4	-4.9	-4.8	-4.9	-4.3	-3.6	-2.8	-1.9	-0.7	0.6	2.0	3.0	2.9	1.8	0.4	-0.6	-1.8	-3.2	-4.1	-4.7	-2.1	3.0	
13-Mar	-4.9	-5.2	-5.9	-6.5	-6.9	-7.7	-8.0	-8.0	-7.1	-6.3	-4.4	-2.2	-0.2	1.3	2.9	3.8	4.3	4.1	3.1	1.9	0.8	0.6	0.2	-0.8	-2.1	4.3	
14-Mar	-1.6	-2.3	-2.9	-3.5	-4.2	-4.8	-5.1	-4.9	-3.8	-1.9	0.3	2.4	5.7	8.2	8.3	7.5	8.2	8.1	8.1	7.6	6.9	6.8	6.4	6.6	2.3	8.3	
15-Mar	6.4	5.5	5.3	6.2	6.6	6.5	3.9	3.0	1.8	2.7	2.6	3.3	4.2	4.5	4.3	3.3	2.5	1.5	-0.6	-2.1	-3.2	-4.1	-5.0	-5.8	2.2	6.6	
16-Mar	-5.7	-5.8	-6.2	-7.3	-8.3	-8.8	-9.1	-9.2	-9.1	-7.8	-5.8	-4.5	-3.3	-2.1	-1.9	-1.4	-1.6	-1.7	-2.1	-2.2	-2.3	-2.2	-1.5	-2.0	-4.7	-1.4	
17-Mar	-2.2	-2.3	-2.2	-2.2	-2.4	-2.6	-2.9	-2.8	-2.1	-0.9	0.7	2.7	5.1	7.5	9.3	11.0	13.3	15.3	14.2	11.4	11.7	11.2	9.5	9.0	4.5	15.3	
18-Mar	6.3	4.5	3.2	1.7	0.6	-0.5	-1.2	-1.5	-2.0	-2.2	-1.6	-2.1	-1.9	-2.1	-2.6	-3.8	-4.9	-5.4	-5.8	-6.5	-7.3	-8.4	-9.0	-9.6	-2.6	6.3	
19-Mar	-10.4	-11.3	-11.7	-12.0	-12.8	-13.7	-14.6	-15.4	-15.0	-14.3	-13.3	-12.5	-11.5	-10.3	-9.7	-9.4	-10.2	-10.7	-12.0	-13.3	-14.1	-14.5	DF	DF	-12.5	-9.4	
20-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	-17.8	-15.7	-14.6	-13.4	-12.1	-10.9	-9.5	-8.9	-8.9	-9.4	-10.2	-11.4	DF	-13.5	-14.1	-14.5	--	-8.9
21-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	-12.8	-10.8	-9.2	-7.7	-7.0	-6.6	-6.5	-7.0	-7.7	-9.2	-10.9	-12.3	-13.8	-14.9	-15.9	--	-6.5
22-Mar	-17.1	-17.9	-18.9	-19.7	-20.4	-21.4	-22.1	DF	-17.9	-14.7	-12.3	-10.1	-9.0	-8.0	-7.2	-6.4	-6.1	-6.1	-6.4	-7.9	-10.0	-11.6	-12.6	-13.8	-12.9	-6.1	
23-Mar	-14.6	DF	-16.7	DF	DF	DF	DF	DF	DF	-14.9	-11.5	-9.0	-6.1	-3.6	-2.6	-1.8	-1.1	-0.7	-0.7	-1.0	-1.5	-2.9	-4.4	-5.7	-6.1	-5.8	-0.7
24-Mar	-6.2	-7.4	-8.3	-9.3	-10.1	DF	DF	DF	DF	-9.6	-5.3	-3.7	-1.1	0.0	0.7	1.1	1.1	1.0	-0.1	-0.1	-0.2	-0.5	-1.0	-1.7	-2.5	-3.0	1.1
25-Mar	-3.5	-4.4	-5.4	-6.2	-6.6	-7.2	-7.8	-7.5	-6.6	-5.0	-2.5	-0.6	1.0	2.1	2.8	3.5	3.8	3.6	2.9	2.0	1.0	0.4	-0.4	-0.7	-1.7	3.8	
26-Mar	-1.1	-1.5	-2.0	-2.5	-2.9	-3.1	-3.2	-3.1	-2.7	-2.3	-1.7	-1.1	0.1	1.4	1.9	2.1	2.4	2.4	2.1	1.6	1.2	0.7	0.1	-0.4	-0.5	2.4	
27-Mar	-1.4	-2.3	-3.5	-4.7	-5.8	-6.2	-6.7	-7.4	-7.5	-7.2	-6.7	-6.0	-5.4	-5.3	-5.6	-5.4	-5.3	-5.2	-5.3	-5.7	-6.1	-6.2	-6.2	-6.3	-5.6	-1.4	
28-Mar	-6.7	-7.2	-7.3	-7.4	-7.6	-7.6	-7.5	-7.3	-6.7	-5.9	-5.1	-4.9	-4.2	-3.7	-3.6	-3.4	-3.2	-3.6	-4.8	-5.7	-6.6	-6.8	-6.7	-6.6	-5.8	-3.2	
29-Mar	-6.6	-7.2	-7.6	-8.4	-9.0	DF	DF	-9.1	-8.3	-7.1	-5.4	-3.9	-3.1	-2.8	-3.0	-3.2	-3.2	-3.2	-3.3	-3.4	-4.4	-5.5	-7.6	-8.6	-10.0	-5.9	-2.8
30-Mar	-12.3	-13.0	-13.5	-14.4	-14.8	DF	DF	DF	-10.6	-7.7	-5.1	-2.9	-1.2	-0.2	0.7	1.2	1.7	1.9	1.5	0.5	0.0	-1.0	-2.1	-2.9	-4.5	1.9	
31-Mar	-3.1	-3.6	-4.0	-4.8	-5.9	-6.7	-6.8	-5.4	-3.6	-1.3	0.9	3.5	6.3	8.7	10.1	10.7	11.1	10.6	10.2	10.1	9.5	9.1	8.8	8.6	3.0	11.1	
		-7.3	-7.2	-8.6	-8.9	-9.4	-9.2	-10.3	-9.8	-9.4	-8.2	-7.6	-6.1	-4.6	-3.6	-2.8	-2.4	-2.3	-2.5	-2.9	-3.8	-4.9	-5.8	-6.4	-6.7	Diurnal Average	
		6.4	5.5	5.3	6.2	6.6	6.5	3.9	3.0	2.3	5.1	6.7	8.0	8.4	8.7	10.1	11.0	13.3	15.3	14.2	11.4	11.7	11.2	9.5	9.0	Diurnal Maximum	
DF - DAS Failure																											





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	57	8.23	8.23
-20 - 0	470	67.82	76.05
0 - 10	153	22.08	98.12
10 - 20	13	1.88	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 693

Total Number of Hours: 744

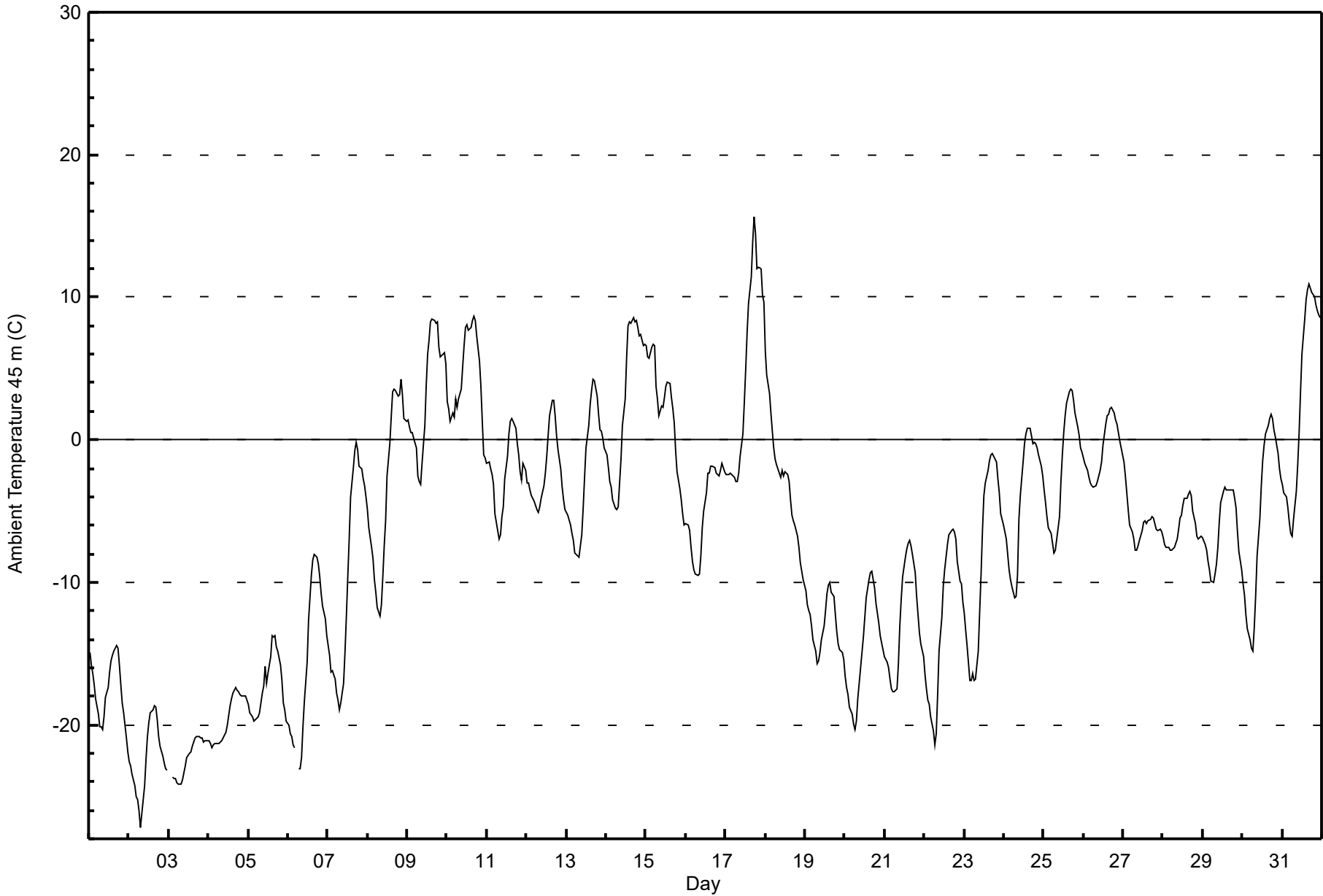


Maximum Value: 15.6 C on Mar 17 18:00																						Maximum Daily Average: 4.7 C on Mar 17				Hours in Service: 744	
Minimum Value: -27.2 C on Mar 2 08:00																						Minimum Daily Average: -22.5 C on Mar 2				Hours of Data: 741	
Maximum Diurnal Average: -2.5 C at hour 17																						Minimum Diurnal Average: -11.6 C at hour 8				Hours of Missing Data: 3	
Monthly Average: -6.84 C																						Percentiles: P ₁ = -24.2 P ₁₀ = -19.7 Q ₁ = -14.4 Median = -5.8 Q ₃ = -0.7 P ₉₀ = 3.8 P ₉₉ = 10.8				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-Mar	-14.9	-15.8	-16.4	-17.1	-18.2	-19.2	-20.2	-20.1	-20.3	-19.5	-18.1	-17.4	-16.3	-15.5	-15.1	-14.8	-14.5	-14.7	-15.8	-17.2	-18.4	-19.1	-20.9	-21.9	-17.6	-14.5	
2-Mar	-22.6	-22.9	-23.4	-24.2	-25.1	-25.2	-26.0	-27.2	-26.2	-24.2	-22.4	-20.8	-19.8	-19.2	-19.0	-18.7	-18.8	-19.6	-20.8	-21.5	-22.2	-22.7	-23.1	-23.2	-22.5	-18.7	
3-Mar	DF	DF	-23.7	-23.8	-23.8	-24.1	-24.1	-24.2	-23.9	-23.4	-22.9	-22.3	-22.0	-21.9	-21.5	-21.2	-20.9	-20.8	-20.9	-20.9	-20.9	-21.2	-21.1	-21.1	-22.3	-20.8	
4-Mar	-21.1	-21.3	-21.6	-21.4	-21.4	-21.3	-21.3	-21.2	-21.1	-20.9	-20.6	-20.1	-19.4	-18.6	-18.2	-17.7	-17.4	-17.6	-17.7	-17.9	-18.0	-18.0	-18.2	-18.2	-19.6	-17.4	
5-Mar	-18.6	-19.1	-19.5	-19.7	-19.7	-19.5	-19.4	-19.1	-17.8	-17.3	-15.9	-17.0	-16.4	-15.3	-13.8	-13.8	-14.5	-14.8	-15.8	-16.9	-18.4	-19.0	-19.8	-17.3	-13.8		
6-Mar	-20.0	-20.6	-20.8	-21.5	-21.6	DF	-23.1	-23.1	-22.3	-20.1	-18.4	-15.6	-12.6	-11.1	-9.5	-8.5	-8.1	-8.2	-8.7	-9.6	-10.8	-11.6	-12.6	-13.8	-15.3	-8.1	
7-Mar	-14.4	-15.1	-16.3	-16.2	-16.8	-17.8	-18.3	-19.0	-18.5	-17.0	-14.9	-12.4	-9.6	-6.9	-4.0	-1.9	-0.7	-0.2	-0.7	-1.9	-2.1	-2.7	-3.2	-4.1	-9.8	-0.2	
8-Mar	-4.9	-6.2	-7.5	-8.3	-9.8	-10.7	-11.8	-12.4	-11.6	-9.6	-7.5	-5.6	-2.6	-0.3	1.6	3.4	3.6	3.5	3.0	3.2	4.3	3.2	1.5	1.3	-3.3	4.3	
9-Mar	1.4	0.9	0.5	0.5	0.1	-0.6	-2.5	-2.9	-3.1	-1.7	1.0	3.9	6.0	7.0	8.2	8.5	8.3	8.2	8.3	6.5	5.8	6.1	6.1	5.3	3.4	8.5	
10-Mar	2.6	2.2	1.3	1.9	1.5	2.8	2.3	2.9	3.6	5.1	6.6	7.9	8.1	7.6	7.9	8.4	8.6	8.3	7.3	5.5	3.7	1.3	-1.1	-1.2	4.4	8.6	
11-Mar	-1.7	-1.6	-2.0	-2.5	-3.2	-5.2	-6.4	-7.0	-6.7	-5.4	-4.7	-2.7	-1.2	0.4	1.3	1.5	1.3	0.8	-0.3	-1.1	-2.2	-2.8	-1.7	-2.2	-2.3	1.5	
12-Mar	-3.1	-3.0	-3.5	-3.9	-4.3	-4.6	-4.9	-5.1	-4.7	-4.1	-3.2	-2.4	-1.1	0.3	1.7	2.8	2.7	1.7	0.4	-0.7	-2.0	-3.3	-4.2	-4.9	-2.2	2.8	
13-Mar	-5.1	-5.3	-6.0	-6.6	-7.0	-7.9	-8.1	-8.2	-7.4	-6.7	-4.8	-2.6	-0.6	1.0	2.5	3.5	4.2	4.1	3.1	1.8	0.7	0.6	0.2	-0.6	-2.3	4.2	
14-Mar	-1.0	-2.0	-2.9	-3.4	-4.2	-4.8	-4.9	-4.7	-3.0	-1.4	1.0	2.9	5.8	8.0	8.2	8.2	8.6	8.3	8.3	7.9	7.3	7.4	6.6	6.7	2.6	8.6	
15-Mar	6.6	5.9	5.7	6.5	6.7	6.6	3.8	2.9	1.7	2.4	2.3	2.9	3.8	4.0	4.0	3.0	2.2	1.2	-0.7	-2.3	-3.4	-4.3	-5.2	-6.0	2.1	6.7	
16-Mar	-5.9	-6.0	-6.4	-7.5	-8.6	-9.1	-9.4	-9.5	-9.4	-8.2	-6.2	-5.0	-3.7	-2.3	-2.3	-1.8	-1.9	-2.0	-2.3	-2.4	-2.5	-2.1	-1.7	-2.2	-4.9	-1.7	
17-Mar	-2.4	-2.4	-2.4	-2.4	-2.5	-2.7	-3.0	-3.0	-2.4	-1.2	0.4	2.5	4.9	7.5	9.6	11.4	13.9	15.6	14.5	12.0	12.1	12.0	10.1	9.7	4.7	15.6	
18-Mar	6.2	4.6	3.3	1.9	0.6	-0.6	-1.4	-1.8	-2.4	-2.6	-2.1	-2.5	-2.2	-2.5	-2.9	-4.2	-5.3	-5.7	-6.0	-6.8	-7.6	-8.6	-9.2	-9.8	-2.8	6.2	
19-Mar	-10.6	-11.6	-12.0	-12.3	-13.1	-14.0	-14.9	-15.7	-15.5	-14.9	-14.0	-13.1	-12.0	-10.8	-10.2	-10.0	-10.7	-11.0	-12.3	-13.5	-14.3	-14.7	-14.9	-15.5	-13.0	-10.0	
20-Mar	-16.6	-17.4	-17.8	-18.7	-19.3	-19.9	-20.3	-19.8	-18.2	-16.0	-15.0	-13.8	-12.5	-11.1	-9.8	-9.3	-9.2	-9.8	-10.5	-11.5	-12.9	-13.7	-14.3	-14.7	-14.7	-9.2	
21-Mar	-15.2	-15.6	-16.0	-16.8	-17.4	-17.7	-17.7	-17.5	-15.7	-13.1	-11.2	-9.6	-8.2	-7.6	-7.2	-7.1	-7.5	-8.1	-9.3	-11.0	-12.3	-13.5	-14.4	-15.2	-12.7	-7.1	
22-Mar	-16.5	-17.5	-18.3	-18.6	-19.4	-20.4	-21.4	-20.7	-17.9	-14.8	-12.5	-10.3	-9.1	-8.2	-7.4	-6.7	-6.3	-6.3	-6.5	-7.0	-8.6	-9.9	-10.1	-11.4	-12.7	-6.3	
23-Mar	-12.2	-13.3	-14.4	-16.9	-16.9	-16.4	-16.9	-16.8	-14.9	-12.1	-9.4	-6.4	-3.9	-3.0	-2.1	-1.4	-1.0	-1.0	-1.1	-1.6	-2.8	-3.7	-5.2	-5.6	-8.3	-1.0	
24-Mar	-6.0	-7.0	-8.0	-9.1	-9.8	-10.3	-11.1	-11.0	-9.5	-5.5	-3.9	-1.5	-0.3	0.4	0.8	0.8	0.8	0.8	-0.3	-0.2	-0.6	-1.0	-1.8	-2.6	-4.0	0.8	
25-Mar	-3.5	-4.4	-5.4	-6.2	-6.6	-7.3	-8.0	-7.7	-7.0	-5.4	-2.9	-1.1	0.6	1.7	2.5	3.3	3.6	3.5	2.8	1.9	0.9	0.3	-0.5	-0.9	-1.9	3.6	
26-Mar	-1.2	-1.6	-2.1	-2.6	-3.1	-3.3	-3.4	-3.3	-2.9	-2.5	-2.1	-1.6	-0.3	1.1	1.7	1.8	2.2	2.2	1.9	1.4	1.1	0.5	-0.1	-0.5	-0.7	2.2	
27-Mar	-1.6	-2.5	-3.7	-4.9	-6.0	-6.5	-7.0	-7.7	-7.8	-7.5	-7.0	-6.4	-5.8	-5.6	-5.8	-5.7	-5.6	-5.4	-5.5	-5.9	-6.3	-6.3	-6.3	-6.4	-5.8	-1.6	
28-Mar	-6.8	-7.3	-7.5	-7.6	-7.7	-7.8	-7.7	-7.5	-7.0	-6.3	-5.5	-5.3	-4.6	-4.1	-4.1	-3.8	-3.6	-3.9	-5.0	-5.8	-6.7	-7.0	-6.9	-6.7	-6.1	-3.6	
29-Mar	-6.8	-7.4	-7.8	-8.5	-9.1	-9.9	-10.1	-9.4	-8.7	-7.5	-5.8	-4.4	-3.6	-3.3	-3.5	-3.6	-3.5	-3.5	-3.6	-4.1	-4.8	-6.5	-7.8	-9.1	-6.3	-3.3	
30-Mar	-10.1	-10.9	-12.3	-13.2	-14.1	-14.7	-14.8	-13.2	-10.9	-8.1	-5.5	-3.2	-1.5	-0.4	0.5	1.0	1.5	1.8	1.5	0.7	0.2	-1.0	-2.0	-2.7	-5.5	1.8	
31-Mar	-3.2	-3.7	-4.0	-4.8	-5.8	-6.5	-6.8	-5.5	-3.6	-1.7	0.5	3.3	6.0	8.5	9.9	10.6	11.0	10.6	10.3	10.1	9.4	9.1	8.7	8.6	3.0	11.0	
																						-7.6 -8.3 -9.4 -9.9 -10.5 -10.6 -11.6 -11.6 -10.8 -9.4 -7.9 -6.4 -5.0 -3.9 -3.1 -2.7 -2.5 -2.7 -3.3 -4.1 -4.9 -5.6 -6.2 -6.7				Diurnal Average	
																						6.6 5.9 5.7 6.5 6.7 6.6 3.8 2.9 3.6 5.1 6.6 7.9 8.1 8.5 9.9 11.4 13.9 15.6 14.5 12.0 12.1 12.0 10.1 9.7				Diurnal Maximum	
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	69	9.31	9.31
-20 - 0	505	68.15	77.46
0 - 10	154	20.78	98.25
10 - 20	13	1.75	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 741

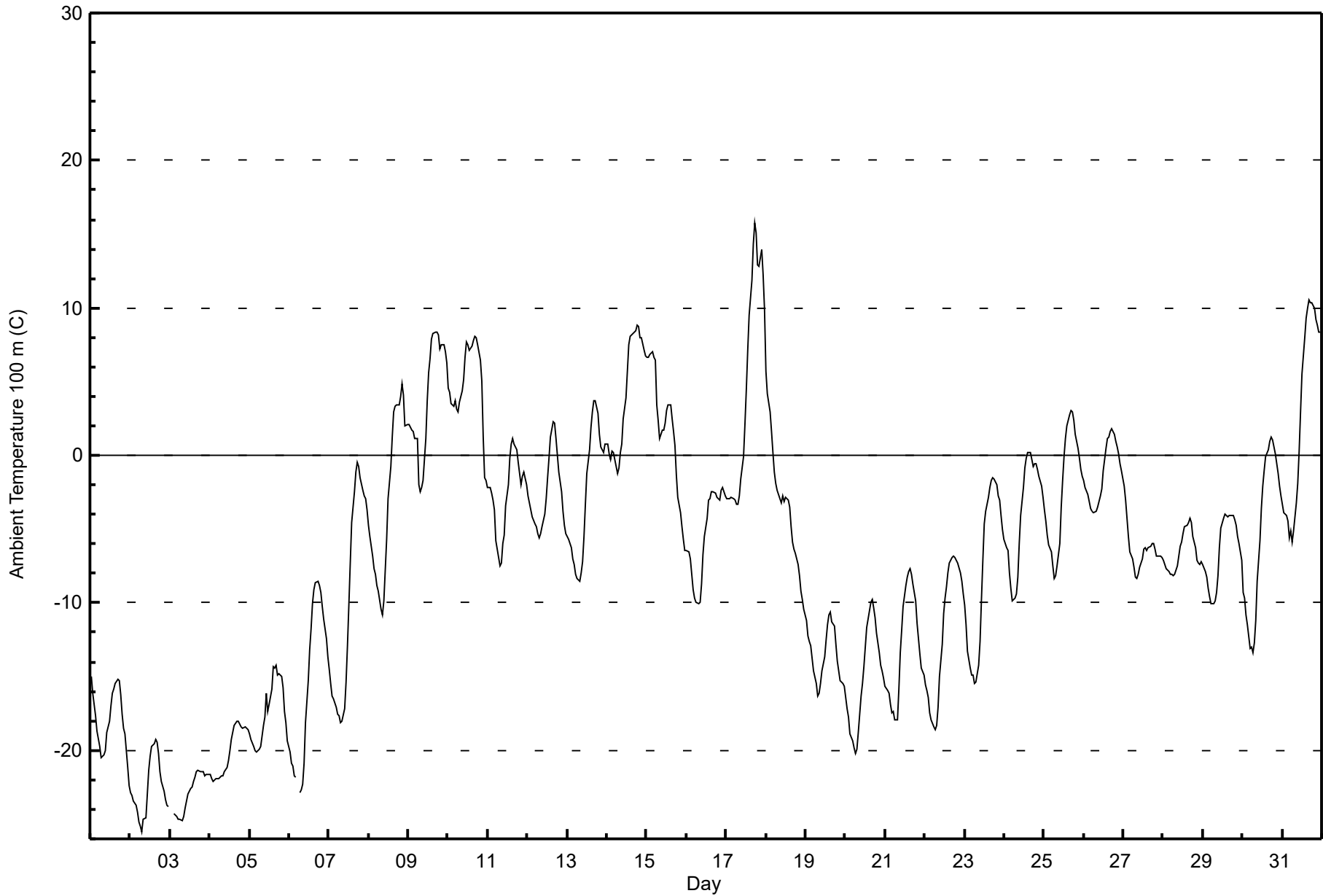
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

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

Maximum Value: 15.8 C on Mar 17 18:00		Maximum Daily Average: 4.8 C on Mar 10		Hours in Service:	744																					
Minimum Value: -25.5 C on Mar 2 08:00		Minimum Daily Average: -22.9 C on Mar 3		Hours of Data:	741																					
Maximum Diurnal Average: -3.0 C at hour 17		Minimum Diurnal Average: -11.3 C at hour 8		Hours of Missing Data:	3																					
Monthly Average: -6.96 C		Percentiles: P ₁ = -24.5 P ₁₀ = -19.9 Q ₁ = -14.4 Median = -6.1 Q ₃ = -0.9 P ₉₀ = 3.9 P ₉₉ = 11.3		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-Mar	-15.0	-16.1	-16.9	-17.6	-18.7	-19.7	-20.5	-20.4	-20.3	-20.0	-18.8	-18.1	-17.0	-16.1	-15.8	-15.5	-15.1	-15.3	-16.2	-17.5	-18.5	-18.8	-21.2	-22.4	-18.0	-15.0
2-Mar	-22.9	-23.1	-23.4	-23.7	-24.2	-24.9	-25.2	-25.5	-24.7	-24.5	-23.0	-21.3	-20.4	-19.7	-19.5	-19.3	-19.4	-20.2	-21.4	-22.1	-22.8	-23.3	-23.7	-23.8	-22.6	-19.3
3-Mar	DF	DF	-24.3	-24.4	-24.4	-24.7	-24.7	-24.8	-24.5	-24.0	-23.5	-22.9	-22.6	-22.5	-22.1	-21.8	-21.5	-21.4	-21.4	-21.4	-21.5	-21.8	-21.7	-21.6	-22.9	-21.4
4-Mar	-21.6	-21.9	-22.1	-22.0	-21.9	-21.9	-21.9	-21.7	-21.7	-21.5	-21.1	-20.7	-20.0	-19.3	-18.8	-18.4	-18.0	-18.1	-18.2	-18.4	-18.5	-18.4	-18.5	-18.6	-20.1	-18.0
5-Mar	-18.9	-19.3	-19.7	-20.1	-20.1	-20.0	-19.9	-19.7	-18.3	-17.5	-16.1	-17.4	-16.9	-15.8	-14.4	-14.4	-14.2	-14.9	-14.8	-14.9	-15.7	-17.3	-18.1	-19.4	-17.4	-14.2
6-Mar	-20.1	-20.9	-21.1	-21.7	-21.8	DF	-22.9	-22.7	-22.3	-20.8	-18.1	-15.3	-13.2	-11.7	-10.1	-9.1	-8.6	-8.6	-8.8	-9.3	-10.3	-11.1	-12.4	-13.7	-15.4	-8.6
7-Mar	-14.6	-15.4	-16.3	-16.5	-17.1	-17.6	-17.6	-18.1	-18.0	-17.1	-15.4	-12.9	-10.1	-7.3	-4.5	-2.4	-1.1	-0.5	-0.7	-1.5	-2.4	-2.8	-2.9	-3.7	-9.9	-0.5
8-Mar	-4.7	-5.5	-6.8	-7.7	-8.1	-8.8	-9.2	-10.4	-10.8	-9.8	-7.7	-5.7	-2.9	-0.8	1.2	2.9	3.3	3.4	3.4	4.0	4.8	4.1	2.0	2.1	-2.8	4.8
9-Mar	2.1	1.9	1.7	1.7	1.2	1.2	-2.0	-2.5	-2.1	-1.7	1.2	3.7	5.6	6.6	7.9	8.3	8.3	8.3	8.2	7.2	7.5	7.5	7.0	6.3	4.0	8.3
10-Mar	4.6	4.3	3.6	3.3	3.7	3.2	3.0	3.6	4.4	5.1	6.6	7.7	7.5	7.1	7.4	7.8	8.1	8.0	7.5	6.5	5.0	1.3	-1.5	-1.7	4.8	8.1
11-Mar	-2.2	-2.1	-2.6	-3.0	-3.7	-5.8	-6.9	-7.5	-7.3	-6.0	-5.4	-3.4	-1.9	-0.2	0.8	1.1	0.8	0.4	-0.4	-1.2	-2.0	-1.4	-1.1	-2.0	-2.6	1.1
12-Mar	-2.7	-3.2	-3.7	-4.2	-4.6	-4.9	-5.3	-5.6	-5.3	-4.8	-4.0	-3.0	-1.5	-0.2	1.2	2.3	2.2	1.1	0.0	-1.1	-2.5	-3.8	-4.7	-5.3	-2.6	2.3
13-Mar	-5.5	-5.6	-6.2	-7.0	-7.4	-8.1	-8.4	-8.6	-8.0	-7.2	-5.5	-3.3	-1.2	0.4	1.9	2.9	3.7	3.7	2.8	1.4	0.5	0.4	0.2	0.8	-2.6	3.7
14-Mar	0.8	0.1	-0.3	0.2	0.2	-0.7	-1.3	-0.9	0.2	0.7	2.4	3.9	5.7	7.5	8.1	8.1	8.3	8.4	8.8	8.7	7.9	8.0	7.1	6.7	4.1	8.8
15-Mar	6.7	6.7	6.9	7.1	6.6	6.4	3.4	2.4	1.1	1.7	1.7	2.2	3.0	3.4	3.5	2.5	1.6	0.7	-1.3	-2.8	-3.9	-4.8	-5.7	-6.4	1.8	7.1
16-Mar	-6.4	-6.5	-7.0	-8.1	-9.1	-9.7	-10.0	-10.1	-10.0	-8.7	-6.7	-5.5	-4.3	-3.0	-2.9	-2.5	-2.5	-2.5	-2.8	-3.0	-3.1	-2.3	-2.2	-2.7	-5.5	-2.2
17-Mar	-2.9	-2.9	-2.9	-2.8	-2.9	-3.0	-3.3	-3.3	-2.7	-1.6	-0.1	2.1	4.5	7.1	9.5	11.9	14.4	15.8	15.1	12.9	12.8	14.0	12.3	9.9	4.7	15.8
18-Mar	5.7	4.2	2.9	1.6	0.2	-1.1	-1.9	-2.3	-3.0	-3.2	-2.7	-3.1	-2.8	-3.0	-3.5	-4.8	-5.8	-6.3	-6.6	-7.4	-8.1	-9.2	-9.8	-10.4	-3.4	5.7
19-Mar	-11.2	-12.2	-12.6	-12.9	-13.7	-14.6	-15.5	-16.3	-16.1	-15.5	-14.6	-13.6	-12.6	-11.5	-10.8	-10.6	-11.3	-11.6	-12.8	-14.0	-14.6	-15.3	-15.4	-15.7	-13.5	-10.6
20-Mar	-16.4	-17.1	-17.7	-18.8	-19.4	-19.8	-20.2	-19.9	-18.8	-16.3	-15.4	-14.3	-13.0	-11.7	-10.5	-10.0	-9.7	-10.3	-11.0	-12.0	-13.4	-14.2	-14.6	-15.1	-15.0	-9.7
21-Mar	-15.7	-16.0	-16.1	-16.9	-17.4	-17.4	-17.9	-18.0	-15.9	-13.4	-11.9	-10.2	-8.8	-8.2	-7.8	-7.7	-8.1	-8.7	-9.9	-11.4	-12.5	-13.4	-14.4	-14.9	-13.0	-7.7
22-Mar	-15.5	-16.0	-16.4	-17.5	-18.0	-18.4	-18.6	-18.3	-17.0	-15.0	-12.8	-10.8	-9.7	-8.9	-7.9	-7.3	-6.9	-6.8	-6.9	-7.1	-7.3	-8.0	-8.6	-9.4	-12.0	-6.8
23-Mar	-10.2	-11.5	-13.3	-14.4	-14.9	-14.9	-15.5	-15.4	-14.2	-12.6	-9.8	-7.1	-4.6	-3.7	-2.8	-2.1	-1.7	-1.5	-1.6	-1.9	-2.7	-3.0	-4.1	-5.0	-7.9	-1.5
24-Mar	-5.7	-6.2	-6.5	-8.0	-9.1	-9.9	-9.6	-9.4	-8.2	-5.9	-4.1	-2.1	-0.9	-0.2	0.2	0.2	0.2	-0.8	-0.6	-0.6	-1.0	-1.4	-2.1	-2.8	-3.9	0.2
25-Mar	-3.7	-4.5	-5.4	-6.0	-6.6	-7.5	-8.3	-8.2	-7.5	-6.0	-3.5	-1.7	-0.1	1.1	2.0	2.7	3.0	2.9	2.4	1.4	0.5	-0.1	-0.9	-1.4	-2.3	3.0
26-Mar	-1.7	-2.1	-2.6	-3.1	-3.6	-3.8	-3.9	-3.8	-3.5	-3.1	-2.8	-2.3	-1.0	0.5	1.1	1.3	1.7	1.8	1.4	1.0	0.6	0.1	-0.5	-1.0	-1.2	1.8
27-Mar	-2.1	-3.1	-4.3	-5.5	-6.6	-7.1	-7.6	-8.3	-8.3	-8.1	-7.6	-7.0	-6.4	-6.3	-6.4	-6.3	-6.2	-6.0	-6.0	-6.4	-6.8	-6.8	-6.8	-6.9	-6.4	-2.1
28-Mar	-7.1	-7.4	-7.7	-7.9	-8.1	-8.1	-8.1	-8.0	-7.5	-6.8	-6.1	-5.9	-5.3	-4.8	-4.8	-4.6	-4.3	-4.5	-5.5	-6.3	-7.1	-7.3	-7.4	-7.2	-6.6	-4.3
29-Mar	-7.4	-7.9	-8.3	-9.0	-9.6	-10.0	-10.1	-9.9	-9.3	-8.1	-6.3	-5.0	-4.2	-4.0	-4.1	-4.1	-4.1	-4.1	-4.1	-4.3	-4.7	-5.5	-5.9	-7.1	-6.5	-4.0
30-Mar	-9.3	-9.7	-10.8	-11.4	-13.1	-13.0	-13.4	-12.7	-11.2	-8.5	-5.8	-3.6	-2.1	-1.0	-0.1	0.4	1.0	1.2	1.1	0.6	0.1	-1.3	-2.1	-2.7	-5.3	1.2
31-Mar	-3.3	-3.9	-4.1	-4.4	-5.6	-5.1	-5.9	-5.1	-3.2	-1.9	0.3	2.9	5.5	8.0	9.3	10.0	10.5	10.3	10.4	10.0	9.2	8.9	8.4	8.4	2.9	10.5
																								Diurnal Average		
																								Diurnal Maximum		
DF - DAS Failure																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

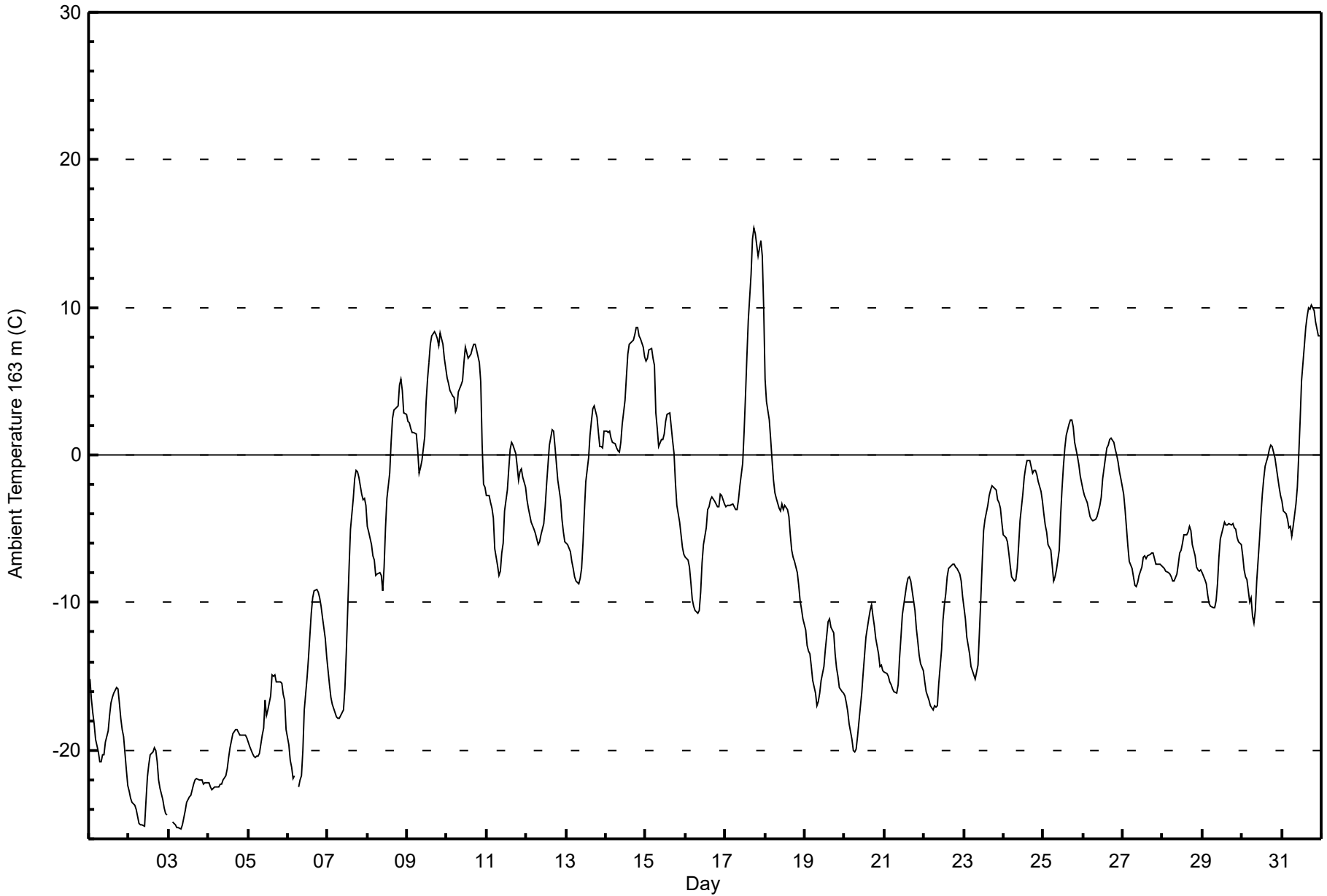
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	72	9.72	9.72
-20 - 0	502	67.75	77.46
0 - 10	155	20.92	98.38
10 - 20	12	1.62	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Maximum Value: 15.4 C on Mar 17 18:00																						Maximum Daily Average: 4.7 C on Mar 10				Hours in Service: 744	
Minimum Value: -25.3 C on Mar 3 08:00																						Minimum Daily Average: -23.4 C on Mar 3				Hours of Data: 741	
Maximum Diurnal Average: -3.4 C at hour 17																						Minimum Diurnal Average: -11.2 C at hour 8				Hours of Missing Data: 3	
Monthly Average: -7.17 C																						Percentiles: P ₁ = -25.0 P ₁₀ = -20.2 Q ₁ = -14.6 Median = -6.5 Q ₃ = -1.0 P ₉₀ = 4.0 P ₉₉ = 11.4				Hours of Calibration: 0	
																										Percent Operational Time: 99.6	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	-15.2	-16.5	-17.5	-18.2	-19.3	-20.2	-20.7	-20.8	-20.3	-20.3	-19.4	-18.7	-17.7	-16.8	-16.5	-16.1	-15.8	-15.9	-16.8	-17.9	-18.6	-19.1	-21.3	-22.4	-18.4	-15.2	
2-Mar	-22.8	-23.2	-23.5	-23.8	-24.0	-24.5	-24.9	-25.1	-25.1	-25.1	-23.5	-21.9	-21.0	-20.3	-20.1	-19.9	-20.0	-20.8	-22.0	-22.6	-23.3	-23.9	-24.3	-24.4	-22.9	-19.9	
3-Mar	DF	DF	-24.9	-25.0	-25.1	-25.2	-25.3	-25.3	-25.1	-24.5	-24.1	-23.5	-23.1	-23.0	-22.7	-22.3	-22.0	-21.9	-22.0	-22.0	-22.3	-22.2	-22.2	-22.2	-23.4	-21.9	
4-Mar	-22.2	-22.5	-22.7	-22.6	-22.5	-22.5	-22.4	-22.3	-22.3	-22.0	-21.7	-21.2	-20.5	-19.8	-19.4	-18.9	-18.6	-18.6	-18.7	-18.9	-19.0	-18.9	-19.1	-19.1	-20.7	-18.6	
5-Mar	-19.4	-19.8	-20.2	-20.4	-20.5	-20.4	-20.4	-20.2	-19.0	-18.5	-16.6	-17.2	-16.3	-14.9	-15.0	-14.9	-15.4	-15.3	-15.4	-15.5	-16.2	-16.6	-16.6	-18.6	-17.7	-14.9	
6-Mar	-19.6	-20.7	-21.2	-21.9	-21.7	DF	-22.5	-22.0	-21.7	-20.0	-17.3	-15.1	-13.7	-12.3	-10.7	-9.7	-9.2	-9.1	-9.3	-9.7	-10.3	-11.0	-12.4	-13.7	-15.4	-9.1	
7-Mar	-14.6	-15.6	-16.4	-16.9	-17.4	-17.8	-17.8	-17.6	-17.3	-15.8	-13.4	-10.5	-7.6	-5.0	-3.0	-1.6	-1.0	-1.2	-1.5	-2.7	-3.0	-2.9	-3.4	-10.1	-1.0		
8-Mar	-4.8	-5.2	-6.1	-6.9	-7.1	-8.2	-8.1	-8.0	-8.2	-9.2	-7.6	-4.9	-3.0	-1.2	0.9	2.4	3.0	3.2	3.4	4.8	5.1	4.3	2.8	2.8	-2.3	5.1	
9-Mar	2.3	2.1	1.8	1.6	1.5	1.5	0.3	-1.3	-0.9	-0.3	1.3	3.6	5.1	6.2	7.5	8.1	8.4	8.1	7.9	7.4	8.3	7.5	6.6	5.8	4.2	8.4	
10-Mar	5.3	4.8	4.4	4.0	3.9	3.0	3.3	4.3	4.8	5.0	6.3	7.3	6.9	6.6	6.9	7.2	7.5	7.6	7.1	6.3	5.0	0.7	-2.0	-2.2	4.7	7.6	
11-Mar	-2.8	-2.7	-3.2	-3.6	-4.2	-6.3	-7.5	-8.1	-7.9	-6.6	-6.0	-3.8	-2.4	-0.9	0.4	0.9	0.7	0.1	-0.7	-1.7	-1.1	-0.9	-1.5	-2.2	-3.0	0.9	
12-Mar	-3.1	-3.6	-4.1	-4.6	-5.1	-5.3	-5.7	-6.0	-5.8	-5.4	-4.6	-3.5	-2.0	-0.6	0.7	1.7	1.6	0.6	-0.5	-1.7	-3.1	-4.4	-5.2	-5.9	-3.1	1.7	
13-Mar	-6.0	-6.1	-6.5	-7.2	-7.7	-8.2	-8.6	-8.8	-8.3	-7.6	-6.0	-3.8	-1.8	-0.2	1.3	2.3	3.1	3.3	2.6	1.5	0.6	0.6	0.5	1.6	-2.9	3.3	
14-Mar	1.6	1.5	1.6	1.2	0.9	0.7	0.5	0.3	0.2	0.9	2.1	3.7	5.3	6.8	7.5	7.6	7.8	8.1	8.6	8.6	8.1	7.9	7.3	6.7	4.4	8.6	
15-Mar	6.4	6.6	7.2	7.2	6.6	6.1	2.9	1.8	0.5	1.0	1.1	1.5	2.3	2.8	2.9	1.9	1.0	0.1	-1.9	-3.4	-4.5	-5.4	-6.3	-6.7	1.3	7.2	
16-Mar	-6.9	-7.1	-7.6	-8.6	-9.7	-10.3	-10.6	-10.7	-10.6	-9.3	-7.3	-6.1	-4.9	-3.7	-3.5	-3.1	-2.9	-3.1	-3.4	-3.5	-3.5	-2.7	-2.8	-3.3	-6.0	-2.7	
17-Mar	-3.5	-3.4	-3.4	-3.4	-3.3	-3.5	-3.7	-3.7	-3.0	-2.1	-0.6	1.6	4.0	6.7	9.2	12.3	14.6	15.4	15.0	14.2	13.5	14.5	13.4	10.0	4.6	15.4	
18-Mar	5.1	3.6	2.3	1.1	-0.4	-1.7	-2.5	-3.0	-3.6	-3.8	-3.4	-3.7	-3.4	-3.7	-4.1	-5.4	-6.5	-7.0	-7.2	-8.0	-8.8	-9.9	-10.4	-11.1	-4.0	5.1	
19-Mar	-11.8	-12.9	-13.2	-13.5	-14.3	-15.3	-16.1	-16.9	-16.7	-16.1	-15.3	-14.4	-13.2	-12.2	-11.3	-11.1	-11.7	-12.1	-13.4	-14.4	-15.0	-15.8	-16.0	-16.1	-14.1	-11.1	
20-Mar	-16.3	-16.8	-17.4	-18.2	-19.3	-20.0	-20.1	-20.0	-19.1	-17.1	-16.1	-14.8	-13.6	-12.4	-11.1	-10.5	-10.2	-10.9	-11.6	-12.4	-13.5	-14.3	-14.2	-14.6	-15.2	-10.2	
21-Mar	-14.7	-14.8	-15.0	-15.3	-15.6	-15.8	-16.1	-16.1	-15.5	-13.8	-12.3	-10.8	-9.5	-8.8	-8.4	-8.2	-8.6	-9.2	-10.5	-11.8	-12.6	-13.5	-14.2	-14.6	-12.7	-8.2	
22-Mar	-15.4	-16.1	-16.3	-16.6	-17.0	-17.3	-17.0	-17.1	-17.0	-15.4	-13.2	-11.2	-10.2	-9.4	-8.2	-7.7	-7.5	-7.4	-7.4	-7.6	-7.7	-8.0	-8.6	-9.5	-12.0	-7.4	
23-Mar	-10.3	-11.1	-12.3	-13.5	-14.3	-14.6	-14.8	-15.2	-14.2	-12.1	-9.8	-7.3	-5.1	-4.3	-3.4	-2.8	-2.3	-2.1	-2.2	-2.4	-3.0	-3.2	-3.6	-4.5	-7.9	-2.1	
24-Mar	-5.4	-5.6	-5.9	-6.6	-7.5	-8.2	-8.5	-8.5	-7.7	-6.2	-4.5	-2.7	-1.5	-0.9	-0.4	-0.4	-0.4	-1.2	-1.0	-1.1	-1.4	-1.8	-2.4	-3.1	-3.9	-0.4	
25-Mar	-4.0	-4.7	-5.3	-6.0	-6.4	-7.5	-8.5	-8.3	-7.8	-6.5	-4.1	-2.3	-0.7	0.5	1.4	2.1	2.4	2.3	1.9	0.9	-0.1	-0.7	-1.4	-1.9	-2.7	2.4	
26-Mar	-2.3	-2.7	-3.2	-3.7	-4.2	-4.4	-4.5	-4.4	-4.1	-3.8	-3.4	-2.9	-1.6	-0.1	0.5	0.7	1.1	1.2	0.8	0.4	0.0	-0.5	-1.1	-1.6	-1.8	1.2	
27-Mar	-2.7	-3.7	-4.9	-6.1	-7.2	-7.7	-8.2	-8.8	-8.9	-8.6	-8.2	-7.6	-7.0	-6.8	-7.0	-6.8	-6.8	-6.6	-6.6	-7.0	-7.4	-7.4	-7.4	-7.5	-7.0	-2.7	
28-Mar	-7.6	-7.7	-7.9	-8.0	-8.1	-8.3	-8.5	-8.5	-8.0	-7.4	-6.7	-6.5	-5.9	-5.4	-5.4	-5.2	-4.8	-5.1	-6.1	-6.8	-7.6	-7.8	-7.9	-7.8	-7.0	-4.8	
29-Mar	-8.0	-8.4	-8.8	-9.5	-10.0	-10.2	-10.4	-10.3	-9.8	-8.7	-6.9	-5.7	-4.9	-4.5	-4.7	-4.8	-4.7	-4.7	-4.7	-4.9	-5.1	-5.6	-5.9	-6.1	-7.0	-4.5	
30-Mar	-6.8	-7.8	-8.3	-8.4	-10.0	-9.7	-10.9	-11.4	-10.5	-8.6	-5.7	-4.1	-2.7	-1.6	-0.7	-0.1	0.4	0.6	0.5	0.2	-0.1	-1.5	-2.2	-2.7	-4.7	0.6	
31-Mar	-3.1	-3.8	-4.0	-4.3	-4.9	-4.8	-5.5	-4.8	-3.4	-2.2	0.0	2.4	5.0	7.4	8.7	9.4	9.9	9.9	10.1	9.8	9.0	8.6	8.0	8.1	2.7	10.1	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure																											





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	80	10.80	10.80
-20 - 0	500	67.48	78.27
0 - 10	152	20.51	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

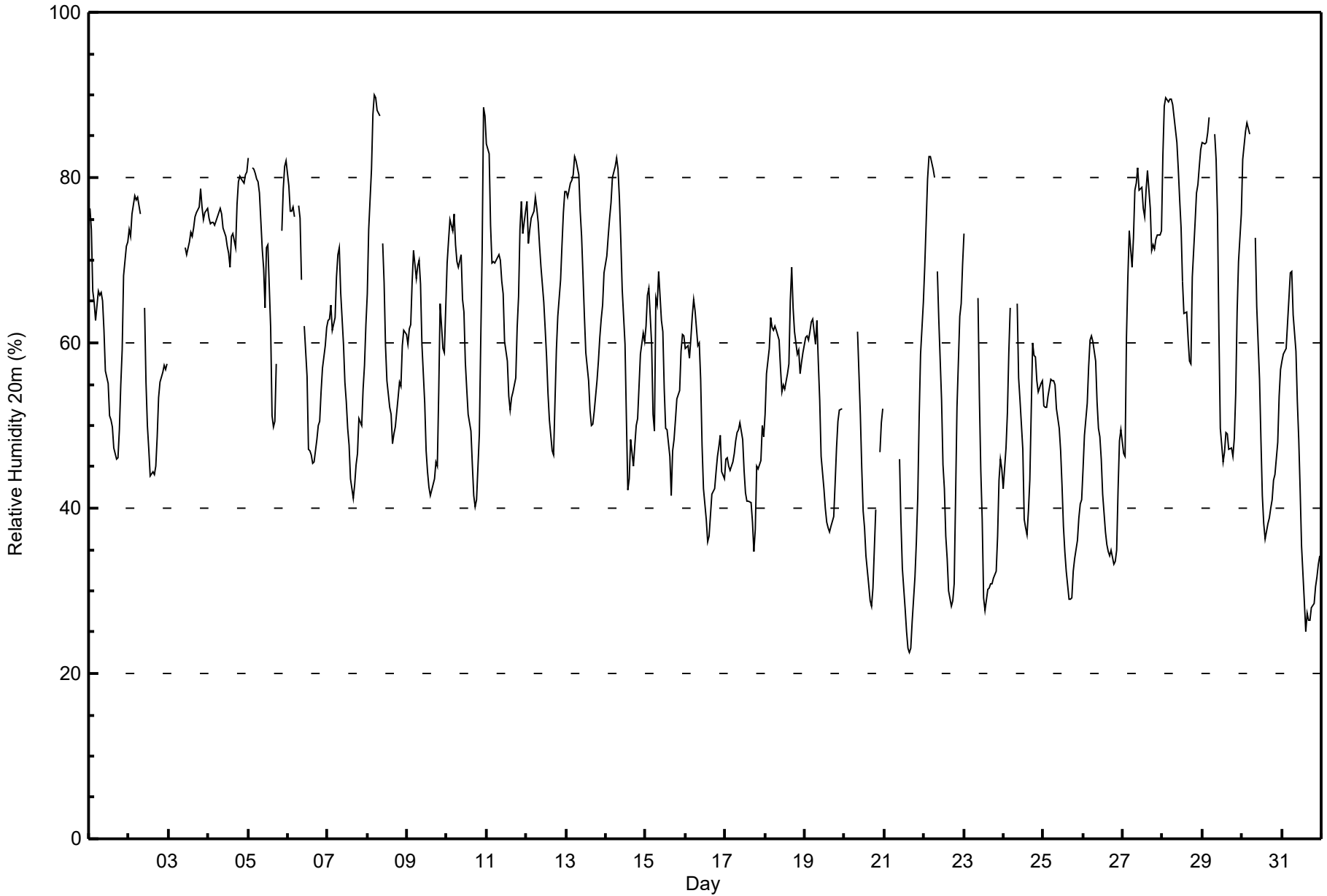
Relative Humidity 20m (RH20m) - %
Lower Camp Met Tower - March 2024

Maximum Value: 89.9 % on Mar 8 05:00																						Maximum Daily Average: 77.4 % on Mar 28				Hours in Service: 744																						
Minimum Value: 22.5 % on Mar 21 16:00																						Minimum Daily Average: 42.8 % on Mar 23				Hours of Data: 693																						
Maximum Diurnal Average: 71.3 % at hour 5																						Minimum Diurnal Average: 45.3 % at hour 16				Hours of Missing Data: 51																						
Monthly Average: 58.43 %																						Percentiles: P ₁ = 26.5 P ₁₀ = 37.9 Q ₁ = 46.9 Median = 58.7 Q ₃ = 71.6 P ₉₀ = 78.8 P ₉₉ = 88.6				Hours of Calibration: 0																						
																						Percent Operational Time: 93.2																										
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-Mar	76.2	73.7	66.3	64.9	62.8	66.3	65.7	66.2	65.2	61.5	56.6	55.1	51.2	50.7	49.9	47.4	46.0	46.1	49.5	54.9	59.1	68.1	71.7	72.1	60.3	76.2																						
2-Mar	73.6	72.9	75.5	77.9	77.4	77.5	76.6	75.6	DF	64.2	55.3	50.0	47.1	43.9	44.5	44.0	45.1	48.6	53.4	55.2	56.4	57.2	56.8	57.4	60.3	77.9																						
3-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	71.6	70.7	72.2	73.4	72.9	73.9	75.3	75.8	76.4	78.7	76.4	74.9	75.8	76.3	--	78.7																						
4-Mar	75.1	74.4	74.6	74.7	74.3	75.2	75.7	76.2	75.6	74.0	72.9	71.7	70.9	69.2	72.8	73.3	71.5	76.7	79.5	80.1	79.8	79.4	80.3	80.6	75.4	80.6																						
5-Mar	82.4	DF	81.2	81.1	80.6	79.9	79.6	78.2	71.3	69.0	64.2	71.5	71.8	61.8	51.1	49.9	50.6	57.5	DF	DF	73.6	78.6	81.3	82.0	71.3	82.4																						
6-Mar	78.9	75.9	75.9	76.4	75.2	DF	76.6	75.1	67.6	DF	62.0	55.9	47.2	46.9	46.4	45.4	45.6	48.3	50.0	50.5	54.1	56.9	59.7	61.9	60.6	78.9																						
7-Mar	62.7	62.9	64.5	61.5	63.0	67.9	70.8	71.6	66.1	59.9	55.3	52.9	49.7	47.6	43.5	41.1	42.9	45.3	46.5	50.9	50.0	54.4	57.3	62.2	56.3	71.6																						
8-Mar	66.0	73.8	81.0	87.6	89.9	89.7	88.2	87.5	DF	72.1	67.3	59.7	55.4	52.2	51.4	47.9	48.9	49.8	53.5	55.3	54.7	59.6	61.6	61.0	65.8	89.9																						
9-Mar	59.9	61.8	62.3	67.3	71.1	67.8	69.3	70.1	67.2	59.8	52.8	47.0	44.4	42.6	41.5	42.3	43.5	45.6	45.1	54.1	64.7	59.4	58.8	64.3	56.8	71.1																						
10-Mar	69.6	72.4	75.0	73.5	75.5	71.9	69.8	69.2	70.8	65.2	63.7	57.6	54.4	51.4	49.4	45.3	41.5	40.2	40.9	48.9	60.4	71.2	88.5	87.4	63.1	88.5																						
11-Mar	84.0	82.8	74.3	69.6	69.8	69.7	70.3	70.7	69.9	67.5	66.0	60.1	57.8	53.6	51.9	53.3	54.1	55.8	61.9	65.6	73.8	77.1	73.3	75.9	67.0	84.0																						
12-Mar	77.2	72.0	73.7	75.1	75.9	77.7	76.3	74.6	71.6	69.2	65.0	61.8	58.3	54.0	50.7	47.0	46.5	53.0	59.1	63.3	67.7	71.9	75.8	78.4	66.5	78.4																						
13-Mar	78.2	77.6	79.3	79.6	80.4	82.6	82.1	80.3	75.9	72.8	68.1	63.1	58.8	55.5	51.9	50.1	50.2	51.7	55.3	57.7	60.6	62.8	64.7	68.4	67.0	82.6																						
14-Mar	70.6	72.8	75.1	77.0	80.1	81.4	82.3	81.0	77.4	72.3	66.4	59.8	50.6	42.2	43.6	48.4	45.1	47.7	50.1	50.8	54.8	58.7	61.2	60.2	62.9	82.3																						
15-Mar	62.1	65.7	66.6	59.9	51.4	49.4	65.4	64.5	68.7	62.8	61.3	54.4	49.7	49.5	46.3	41.5	46.9	48.3	50.7	53.2	54.3	59.0	61.0	60.9	56.4	68.7																						
16-Mar	59.4	59.7	58.2	60.5	63.2	65.2	63.8	59.6	60.0	55.5	47.6	42.4	38.6	35.9	36.6	39.1	41.6	42.4	44.3	46.2	47.4	48.8	44.5	43.6	50.2	65.2																						
17-Mar	46.0	46.1	45.1	44.6	45.6	46.6	48.2	49.2	49.5	50.3	48.3	44.6	41.8	40.9	40.8	40.7	38.4	34.7	37.4	45.1	44.8	45.8	50.0	48.7	44.7	50.3																						
18-Mar	51.3	56.2	59.3	63.0	61.8	61.5	62.0	61.6	60.4	57.0	54.1	54.9	54.4	56.2	57.4	65.1	69.1	64.2	61.3	58.6	59.1	56.3	57.6	58.9	59.2	69.1																						
19-Mar	60.8	60.9	60.4	61.3	62.6	63.0	59.8	62.7	57.7	53.0	46.2	42.3	39.9	38.4	37.6	37.1	37.8	39.0	43.0	47.3	50.6	51.8	52.0	DF	50.7	63.0																						
20-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	61.3	51.3	44.9	39.6	37.7	34.3	30.7	28.8	28.2	30.4	35.1	39.8	DF	46.8	50.3	52.0	--	61.3																					
21-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	46.0	38.4	32.7	27.8	25.1	23.0	22.5	23.1	26.3	31.8	36.0	41.3	51.0	58.6	64.9	--	64.9																					
22-Mar	69.4	74.6	79.9	82.5	82.5	81.0	80.0	DF	68.6	62.8	53.0	45.2	42.3	36.6	33.8	30.0	28.1	28.8	30.9	41.4	52.3	63.2	64.8	69.5	56.6	82.5																						
23-Mar	73.2	DF	81.5	DF	DF	DF	DF	DF	DF	65.5	53.4	44.5	38.7	29.2	27.6	30.2	30.4	30.9	30.8	31.6	32.5	36.7	43.4	46.0	44.8	42.8	81.5																					
24-Mar	42.4	47.4	51.5	58.8	64.3	DF	DF	DF	DF	64.8	55.8	53.0	47.1	38.7	37.6	36.8	39.7	43.4	60.1	58.4	58.2	55.3	54.1	55.0	55.4	51.3	64.8																					
25-Mar	52.4	52.2	52.2	53.6	55.6	55.4	55.4	54.9	52.0	49.7	46.9	42.8	37.7	34.8	32.4	28.9	29.0	29.2	32.3	33.9	36.2	38.8	40.5	41.0	43.2	55.6																						
26-Mar	44.8	48.9	52.6	57.1	60.3	60.8	60.1	57.9	52.9	49.6	48.6	46.0	41.6	37.1	35.5	34.7	34.3	34.9	33.3	33.5	35.0	42.3	48.1	49.6	45.8	60.8																						
27-Mar	46.6	46.3	60.7	68.0	73.6	69.1	72.6	78.4	79.4	81.3	78.6	78.8	76.3	75.3	78.6	80.8	76.3	71.3	71.9	71.4	72.6	73.0	73.0	73.6	72.0	81.3																						
28-Mar	82.7	88.6	89.7	89.2	89.4	89.6	88.8	87.2	84.3	81.0	77.4	73.8	67.5	63.6	63.7	60.5	57.8	57.4	67.9	74.6	78.2	79.2	81.4	83.4	77.4	89.7																						
29-Mar	84.2	84.0	84.2	85.4	87.3	DF	DF	85.3	82.1	75.5	61.4	49.6	45.7	46.8	49.1	48.9	47.1	47.3	46.3	48.5	53.9	63.8	69.9	75.6	64.6	87.3																						
30-Mar	82.3	83.9	85.7	86.7	85.3	DF	DF	DF	72.8	64.4	55.5	48.2	41.5	38.1	36.3	38.1	38.8	40.1	41.0	43.3	44.1	48.0	53.6	56.8	56.4	86.7																						
31-Mar	57.8	58.7	59.3	62.4	65.5	68.4	68.7	63.4	59.0	52.8	48.4	42.2	35.4	28.6	25.1	27.2	26.4	26.5	27.9	28.5	30.6	31.7	33.2	34.3	44.2	68.7																						
																								66.8	67.2	69.5	70.3	71.3	70.3	71.2	70.9	67.3	62.4	57.9	53.5	49.5	46.8	45.7	45.3	45.3	46.9	48.9	51.9	56.0	58.9	61.5	63.4	Diurnal Average
																								84.2	88.6	89.7	89.2	89.9	89.7	88.8	87.5	84.3	81.3	78.6	78.8	76.3	75.3	78.6	80.8	76.3	76.7	79.5	80.1	79.8	79.4	88.5	87.4	Diurnal Maximum
DF - DAS Failure																																																



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	86	12.41	12.41
40 - 60	286	41.27	53.68
60 - 80	263	37.95	91.63
80 - 100	58	8.37	100.00

Total Number of Valid Hours: 693

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

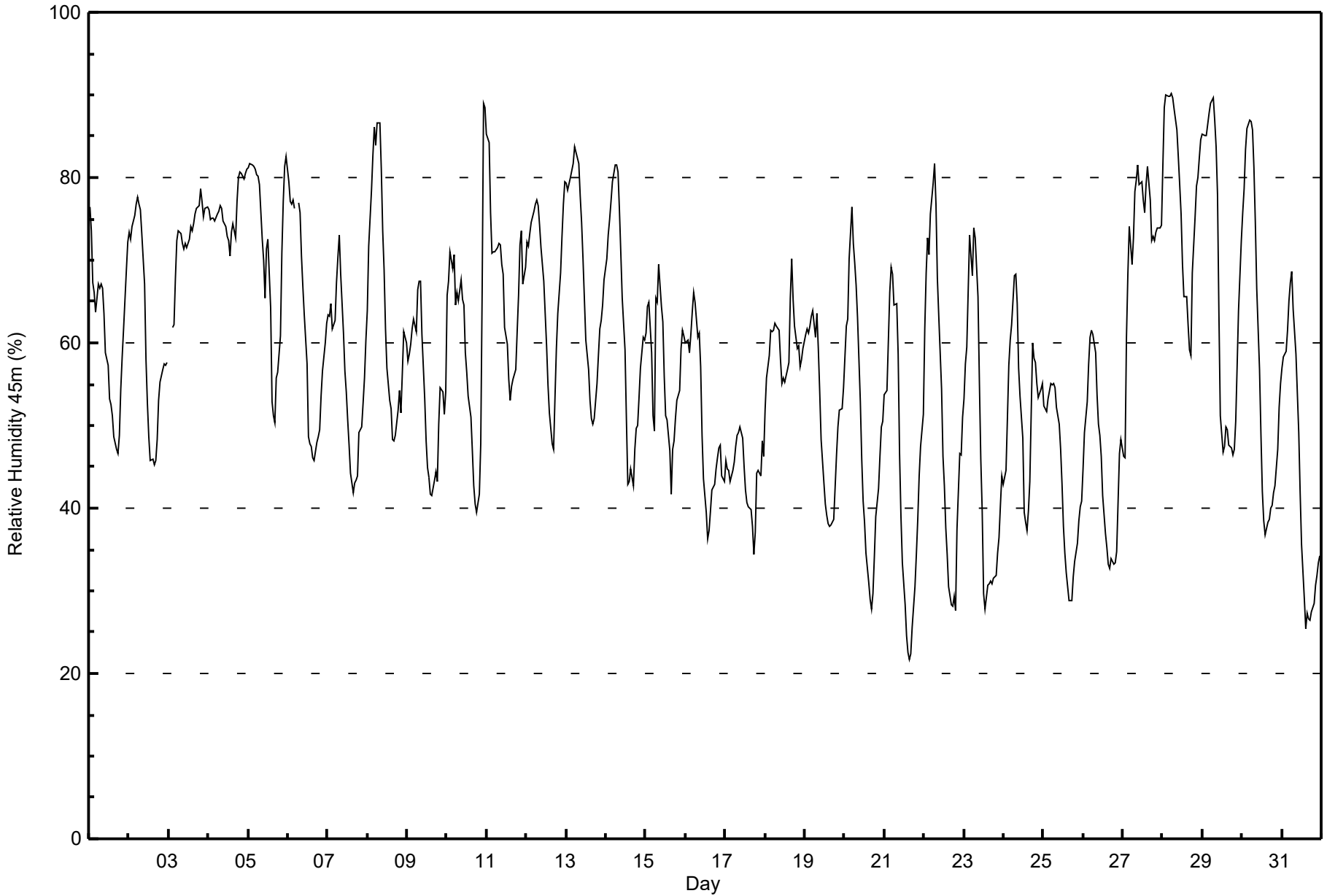
Relative Humidity 45m (RH45m) - %
Lower Camp Met Tower - March 2024

Maximum Value: 90.2 % on Mar 28 06:00																						Maximum Daily Average: 78.4 % on Mar 28																						Hours in Service: 744					
Minimum Value: 21.7 % on Mar 21 16:00																						Minimum Daily Average: 43.0 % on Mar 25																						Hours of Data: 741					
Maximum Diurnal Average: 72.1 % at hour 7																						Minimum Diurnal Average: 45.5 % at hour 17																						Hours of Missing Data: 3					
Monthly Average: 58.77 %																						Percentiles: P ₁ = 26.9 P ₁₀ = 38.4 Q ₁ = 47.3 Median = 59.0 Q ₃ = 71.7 P ₉₀ = 79.1 P ₉₉ = 88.8																						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-Mar	76.5	73.6	67.2	66.0	63.7	67.1	66.7	67.1	66.7	63.6	58.9	57.3	53.2	52.5	51.2	48.6	47.2	46.6	48.9	54.3	58.3	61.7	68.9	72.2	60.7	76.5																							
2-Mar	73.4	72.6	74.0	75.4	76.8	77.6	76.8	76.0	73.2	67.1	58.0	52.7	48.7	45.8	45.9	45.2	45.8	48.4	53.0	55.3	56.7	57.5	57.4	57.7	61.3	77.6																							
3-Mar	DF	DF	61.8	62.3	67.7	72.5	73.6	73.3	72.0	71.4	72.0	71.5	72.5	74.1	73.6	74.4	75.6	76.3	76.7	78.6	77.1	75.3	76.2	76.5	72.9	78.6																							
4-Mar	76.1	74.9	75.1	75.1	74.7	75.6	75.9	76.6	76.3	74.7	74.0	72.9	72.4	70.5	73.5	74.4	72.7	77.1	80.0	80.7	80.5	79.9	80.4	80.9	76.0	80.9																							
5-Mar	81.3	81.8	81.5	81.4	81.0	80.4	80.1	79.1	72.6	70.0	65.4	71.4	72.6	64.3	53.0	51.1	50.3	55.8	56.4	60.8	70.9	77.1	81.3	82.5	70.9	82.5																							
6-Mar	79.4	77.1	76.8	77.4	76.2	DF	77.0	75.8	70.6	66.7	63.4	57.5	48.7	47.8	47.4	46.2	45.8	47.9	48.7	49.5	53.6	56.6	59.9	62.3	61.4	79.4																							
7-Mar	63.4	63.2	64.7	61.7	62.7	67.2	70.3	73.1	68.3	61.2	56.6	54.1	50.6	47.7	44.2	41.8	43.0	43.5	43.9	49.2	49.9	52.7	55.7	60.4	56.2	73.1																							
8-Mar	63.9	71.7	78.5	82.7	86.1	84.0	86.7	86.6	81.1	73.6	68.9	61.7	56.9	53.0	52.0	48.3	48.1	48.8	51.8	54.2	51.6	56.2	61.3	60.0	65.3	86.7																							
9-Mar	57.9	58.6	59.9	61.7	62.8	61.3	66.4	67.4	67.4	61.1	53.3	48.1	44.9	43.7	41.7	41.6	43.3	44.4	43.3	50.2	54.5	54.0	51.4	54.1	53.9	67.4																							
10-Mar	65.7	67.5	71.0	69.0	70.7	64.6	66.0	65.1	67.7	65.3	64.5	58.8	56.5	53.6	51.1	46.9	42.8	40.5	39.5	41.7	47.8	66.3	89.0	88.5	60.8	89.0																							
11-Mar	85.3	84.2	75.8	70.9	70.9	71.1	71.6	72.1	71.9	69.5	68.3	61.8	59.7	55.7	53.0	54.8	55.6	56.7	61.4	65.8	71.8	73.5	67.2	69.1	67.4	85.3																							
12-Mar	72.3	71.7	73.2	74.5	75.9	76.8	77.3	76.6	74.2	71.6	67.5	63.5	59.6	55.0	51.5	47.8	47.2	53.4	59.4	63.6	68.5	72.8	76.8	79.5	67.1	79.5																							
13-Mar	79.4	78.4	80.0	80.9	81.7	83.7	83.1	81.8	77.8	74.6	70.2	65.2	60.4	56.8	53.1	50.9	50.1	50.9	55.1	58.4	61.6	62.7	64.6	67.7	67.9	83.7																							
14-Mar	70.1	73.0	75.0	77.2	79.5	81.5	81.5	80.7	76.1	70.8	65.5	59.2	50.6	42.9	43.3	44.7	42.7	47.0	49.6	50.0	53.5	56.9	60.6	60.3	62.2	81.5																							
15-Mar	61.3	64.3	65.0	58.8	51.2	49.3	65.4	65.0	69.4	64.4	62.5	56.0	51.1	50.6	46.9	41.7	47.1	48.2	50.8	53.1	54.3	59.4	61.5	60.9	56.6	69.4																							
16-Mar	60.0	60.4	58.9	60.9	63.7	66.1	64.9	60.6	61.2	57.2	48.8	43.5	39.5	36.2	37.2	39.7	42.2	42.8	44.7	46.1	47.3	47.6	43.9	43.2	50.7	66.1																							
17-Mar	45.7	44.8	44.5	43.3	44.6	45.5	47.5	48.7	49.2	49.8	48.5	45.0	42.3	40.7	40.1	39.8	37.7	34.4	37.2	44.2	44.5	43.8	48.2	46.3	44.0	49.8																							
18-Mar	51.9	55.8	58.5	61.5	61.4	61.6	62.3	62.0	61.5	57.9	55.1	55.7	55.3	56.7	57.6	65.4	70.2	65.3	62.1	59.4	59.7	57.1	57.9	59.3	59.6	70.2																							
19-Mar	61.1	61.7	61.3	62.1	63.2	63.9	60.6	63.6	59.2	54.2	48.3	43.1	40.5	39.2	38.1	37.7	38.0	38.7	42.5	46.5	49.9	51.9	52.0	54.6	51.3	63.9																							
20-Mar	58.3	62.0	62.9	70.1	76.4	72.1	69.7	67.0	63.1	52.9	45.9	40.8	38.2	34.7	31.1	29.0	27.9	29.7	34.0	39.0	42.4	46.3	49.9	50.5	49.7	76.4																							
21-Mar	53.7	54.3	60.1	66.0	69.1	68.2	64.6	64.8	58.6	46.6	39.0	33.4	28.4	24.5	22.5	21.7	22.4	25.5	30.5	34.5	38.6	43.9	47.4	51.4	44.6	69.1																							
22-Mar	61.8	68.5	72.8	70.6	75.6	79.4	81.7	76.7	67.7	63.2	54.3	46.3	42.8	37.6	34.5	30.5	28.2	28.1	29.3	27.6	37.5	46.6	46.5	50.9	52.4	81.7																							
23-Mar	53.1	57.5	59.5	73.1	70.5	68.2	73.9	72.7	65.6	55.2	46.0	39.7	29.6	27.8	30.7	30.9	31.2	30.8	31.5	31.8	34.6	36.4	40.4	43.8	47.3	73.9																							
24-Mar	42.9	44.6	50.8	57.3	60.4	62.2	68.1	68.3	64.8	56.9	53.6	48.4	39.5	38.3	37.3	39.7	43.2	60.0	58.2	57.6	55.1	53.5	54.5	55.1	52.9	68.3																							
25-Mar	52.4	52.0	51.7	53.2	55.1	54.8	55.1	54.6	52.2	50.2	47.2	42.9	37.8	34.6	32.2	28.9	28.8	28.8	31.8	33.5	35.8	38.5	40.2	40.9	43.0	55.1																							
26-Mar	44.8	49.2	52.8	57.4	60.7	61.5	60.9	58.7	53.7	50.2	48.9	46.3	41.6	37.0	35.3	33.2	32.6	33.9	33.2	33.4	34.7	40.7	46.7	48.3	45.7	61.5																							
27-Mar	46.2	46.0	60.6	68.3	74.1	69.4	72.8	78.4	79.7	81.6	79.2	79.4	77.3	75.8	79.1	81.4	77.3	72.4	72.8	72.4	73.5	73.8	73.9	74.2	72.5	81.6																							
28-Mar	81.5	88.6	90.0	89.8	89.9	90.2	89.6	88.4	85.8	82.6	79.1	75.5	69.6	65.5	65.7	62.2	59.2	58.5	68.4	75.3	79.0	80.1	82.3	84.5	78.4	90.2																							
29-Mar	85.3	85.2	85.1	86.4	87.8	88.9	89.7	86.9	83.8	78.0	63.6	51.3	46.8	47.5	49.8	49.5	47.6	47.3	46.4	47.1	50.5	57.2	63.9	72.4	66.6	89.7																							
30-Mar	75.8	78.6	83.4	86.0	86.9	86.8	85.7	81.1	74.5	66.7	56.8	49.1	42.1	38.4	36.7	38.4	38.7	40.1	40.3	41.9	42.7	47.1	52.3	55.1	59.4	86.9																							
31-Mar	57.0	58.3	59.0	61.5	65.2	67.3	68.6	64.0	58.6	53.8	49.1	41.8	35.6	28.9	25.5	27.3	26.6	26.5	27.4	28.5	30.7	31.9	33.4	34.3	44.2	68.6																							
																								64.6	66.0	67.5	69.1	70.5	70.6	72.1	71.4	68.5	64.0	59.1	54.6	50.5	47.7	46.3	45.6	45.5	46.7	48.7	51.1	53.8	56.7	59.5	61.2	Diurnal Average	
																								85.3	88.6	90.0	89.8	89.9	90.2	89.7	88.4	85.8	82.6	79.2	79.4	77.3	75.8	79.1	81.4	77.3	77.1	80.0	80.7	80.5	80.1	89.0	88.5	Diurnal Maximum	
DF - DAS Failure																																																	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	90	12.15	12.15
40 - 60	296	39.95	52.09
60 - 80	293	39.54	91.63
80 - 100	62	8.37	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

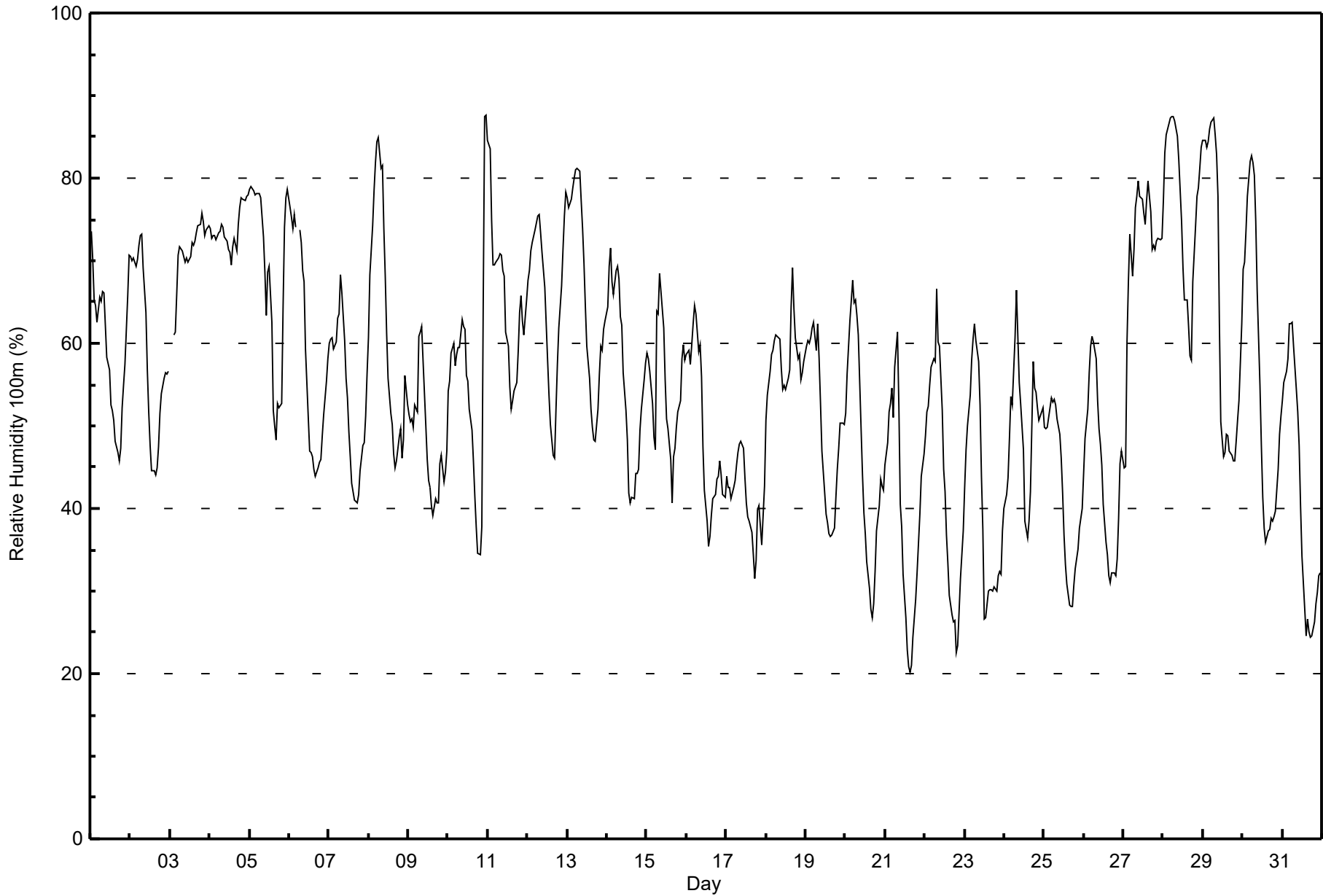
Relative Humidity 100m (RH100m) - %
Lower Camp Met Tower - March 2024

Maximum Value: 87.7 % on Mar 11 00:00 Maximum Daily Average: 76.8 % on Mar 28																						Hours in Service: 744 Hours of Data: 741																											
Minimum Value: 20.1 % on Mar 21 16:00 Minimum Daily Average: 39.5 % on Mar 21 Maximum Diurnal Average: 68.1 % at hour 8 Minimum Diurnal Average: 44.0 % at hour 17 Monthly Average: 55.81 % Percentiles: P ₁ = 24.5 P ₁₀ = 36.6 Q ₁ = 44.9 Median = 55.6 Q ₃ = 68.2 P ₉₀ = 75.9 P ₉₉ = 86.7																						Hours of Missing Data: 3 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-Mar	73.5	70.1	65.2	64.5	62.5	65.5	65.1	66.3	66.1	62.3	58.3	56.8	52.5	51.9	50.7	48.2	46.8	45.8	47.2	52.3	54.9	57.4	65.8	70.6	59.2	73.5																							
2-Mar	70.5	70.0	70.4	69.3	70.1	71.9	73.1	73.2	69.2	63.8	56.7	51.7	47.7	44.6	44.6	44.0	44.8	47.4	51.6	53.9	55.7	56.4	56.3	56.6	58.9	73.2																							
3-Mar	DF	DF	61.1	61.4	66.0	70.6	71.8	71.3	70.4	69.9	70.4	69.9	70.5	72.3	71.8	72.4	73.4	74.2	74.4	75.8	74.8	73.0	73.8	74.2	71.1	75.8																							
4-Mar	73.9	72.8	73.1	73.0	72.6	73.4	73.5	74.4	74.1	72.8	72.3	71.3	71.0	69.5	71.7	72.7	71.1	74.4	76.5	77.6	77.4	77.3	77.8	78.0	73.8	78.0																							
5-Mar	78.6	79.0	78.5	78.0	78.1	78.1	78.1	77.6	72.9	68.7	63.4	68.6	69.3	62.6	51.9	50.0	48.4	52.6	52.2	52.7	64.4	74.1	77.6	78.7	68.1	79.0																							
6-Mar	76.5	75.3	73.9	75.5	74.0	DF	73.7	72.3	68.8	67.4	59.3	50.9	46.9	46.8	46.2	44.7	43.9	45.0	45.6	45.9	48.9	51.3	55.4	58.2	58.5	76.5																							
7-Mar	59.9	60.5	60.7	59.3	60.2	63.0	63.5	68.3	66.1	60.3	55.7	53.3	49.4	46.3	43.1	41.0	40.9	40.6	41.7	44.5	47.6	48.0	51.2	56.3	53.4	68.3																							
8-Mar	60.7	68.3	74.2	78.5	81.9	84.4	85.0	81.2	81.6	73.9	68.1	61.2	55.8	51.6	50.1	46.6	44.9	45.8	48.6	49.6	46.2	48.3	56.1	52.5	62.3	85.0																							
9-Mar	51.3	50.5	50.8	49.9	52.5	51.7	60.9	61.3	62.0	58.0	49.9	45.9	43.4	42.6	40.3	39.2	41.2	40.7	40.8	45.4	46.4	43.3	44.4	47.0	48.3	62.0																							
10-Mar	54.2	55.5	58.9	59.9	57.4	58.7	59.5	59.6	62.9	62.1	61.7	56.1	55.5	52.1	49.5	45.7	41.5	37.8	34.6	34.4	37.7	64.8	87.5	87.7	55.6	87.7																							
11-Mar	84.6	83.5	75.0	69.5	69.5	69.8	70.3	70.8	70.8	68.9	68.1	61.3	59.6	54.8	52.0	53.1	54.2	55.2	59.0	63.8	65.8	62.7	61.1	65.2	65.4	84.6																							
12-Mar	67.7	68.8	71.1	72.1	73.7	74.6	75.5	75.6	73.5	71.0	66.7	62.4	58.0	53.7	50.2	46.4	46.2	52.0	57.5	61.8	66.9	71.4	75.4	78.2	65.4	78.2																							
13-Mar	77.6	76.5	77.5	78.8	80.0	81.1	81.2	80.8	77.2	74.0	69.7	64.4	59.6	55.8	52.1	49.7	48.2	48.2	52.0	56.3	59.7	59.2	61.7	62.8	66.0	81.2																							
14-Mar	64.4	69.4	71.5	67.5	65.9	68.7	69.3	67.8	63.2	62.3	56.5	51.9	48.3	41.8	40.7	41.4	41.1	44.2	44.3	44.8	49.5	52.1	55.5	57.6	55.8	71.5																							
15-Mar	58.7	58.1	56.6	52.8	48.6	47.1	64.0	63.6	68.4	64.1	61.8	55.7	50.9	49.7	45.9	40.7	46.3	47.2	49.8	51.7	53.0	58.1	59.8	57.9	54.6	68.4																							
16-Mar	58.6	59.2	57.5	59.7	62.4	64.6	63.6	59.0	59.8	55.9	47.5	42.2	38.5	35.5	36.6	39.2	41.2	41.7	43.6	43.9	45.8	44.0	41.7	41.3	49.3	64.6																							
17-Mar	43.9	42.6	42.5	41.1	42.6	43.5	45.2	46.8	47.7	48.1	47.3	43.7	40.7	39.0	38.4	37.2	34.3	31.4	33.7	39.8	40.4	35.6	39.1	42.7	41.1	48.1																							
18-Mar	50.6	53.8	56.7	58.7	59.1	60.3	61.0	60.8	60.5	56.9	54.4	55.0	54.4	55.8	56.8	64.5	69.2	64.2	60.8	58.1	58.6	55.6	56.4	57.8	58.3	69.2																							
19-Mar	59.7	60.4	60.0	60.7	61.8	62.5	59.2	62.4	58.1	52.8	46.9	41.8	39.3	38.4	36.9	36.6	36.8	37.6	41.4	44.8	47.3	50.3	50.4	50.1	49.8	62.5																							
20-Mar	51.6	56.3	59.6	62.7	67.6	64.9	65.2	63.3	61.1	49.7	44.0	39.5	37.0	33.6	30.3	27.9	26.7	28.4	32.4	37.3	40.3	43.6	42.7	42.2	46.2	67.6																							
21-Mar	45.2	47.9	51.6	52.7	54.6	51.0	57.1	61.4	52.4	40.5	37.8	32.0	26.9	22.8	20.8	20.1	21.0	24.4	28.9	32.3	35.7	39.4	43.8	46.6	39.5	61.4																							
22-Mar	48.8	51.7	52.4	54.9	57.1	58.1	57.8	66.6	60.2	59.6	51.9	44.8	42.0	36.7	33.3	29.4	27.1	26.3	26.5	22.6	23.5	31.6	34.5	37.2	43.1	66.6																							
23-Mar	42.5	47.2	50.0	53.7	58.0	60.5	62.4	60.3	57.8	52.6	43.9	37.4	26.6	26.8	30.0	30.1	30.2	29.9	30.4	30.0	31.9	32.4	32.1	37.3	41.4	62.4																							
24-Mar	39.9	41.7	43.7	48.5	53.6	52.5	60.7	66.4	60.9	55.3	52.7	47.0	38.4	37.4	36.4	38.4	42.0	57.7	54.6	54.1	52.1	50.6	51.6	52.1	49.5	66.4																							
25-Mar	49.8	49.6	49.8	51.0	53.4	53.0	53.2	52.6	50.8	49.0	46.1	41.8	36.8	33.2	30.8	28.2	28.2	28.1	30.6	32.8	35.0	37.5	38.9	40.0	41.7	53.4																							
26-Mar	44.2	48.5	52.0	56.5	59.7	60.8	60.2	58.1	53.0	49.7	47.8	45.3	40.4	35.9	34.4	31.9	31.0	32.2	32.2	31.9	33.9	38.9	45.5	46.9	44.6	60.8																							
27-Mar	45.0	45.1	60.2	67.4	73.1	68.2	71.4	76.5	77.9	79.7	77.7	77.5	75.8	74.3	77.4	79.7	75.9	71.3	71.8	71.4	72.4	72.7	72.6	72.7	71.2	79.7																							
28-Mar	77.2	83.0	85.3	86.6	87.3	87.5	87.5	87.0	85.2	82.2	78.4	74.7	69.1	65.2	65.3	62.0	58.5	57.9	67.5	74.2	77.7	78.8	81.1	83.8	76.8	87.5																							
29-Mar	84.6	84.5	83.8	84.4	86.0	86.8	87.3	85.3	82.9	77.8	62.6	50.5	46.3	46.8	49.1	48.8	47.0	46.4	45.8	45.8	48.1	50.7	53.0	62.3	64.4	87.3																							
30-Mar	69.0	69.8	73.6	77.7	82.0	82.7	81.8	80.4	74.7	66.4	54.8	47.6	41.4	37.6	35.9	37.3	37.5	38.8	38.5	38.9	39.7	44.8	49.0	51.1	56.3	82.7																							
31-Mar	53.0	55.2	56.7	58.1	62.3	62.3	62.6	59.7	54.4	51.7	47.7	40.3	34.3	27.9	24.7	26.5	25.0	24.4	24.6	26.2	28.5	29.8	31.8	32.2	41.7	62.6																							
																								60.5	61.8	63.0	64.0	65.6	65.9	67.8	68.1	66.0	62.2	57.4	53.0	49.2	46.5	45.1	44.3	44.0	44.9	46.4	48.2	50.3	52.7	55.6	57.4	Diurnal Average	
																								84.6	84.5	85.3	86.6	87.3	87.5	87.5	87.0	85.2	82.2	78.4	77.5	75.8	74.3	77.4	79.7	75.9	74.4	76.5	77.6	77.7	78.8	87.5	87.7	Diurnal Maximum	
DF - DAS Failure																																																	



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	115	15.52	15.52
40 - 60	337	45.48	61.00
60 - 80	253	34.14	95.14
80 - 100	36	4.86	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

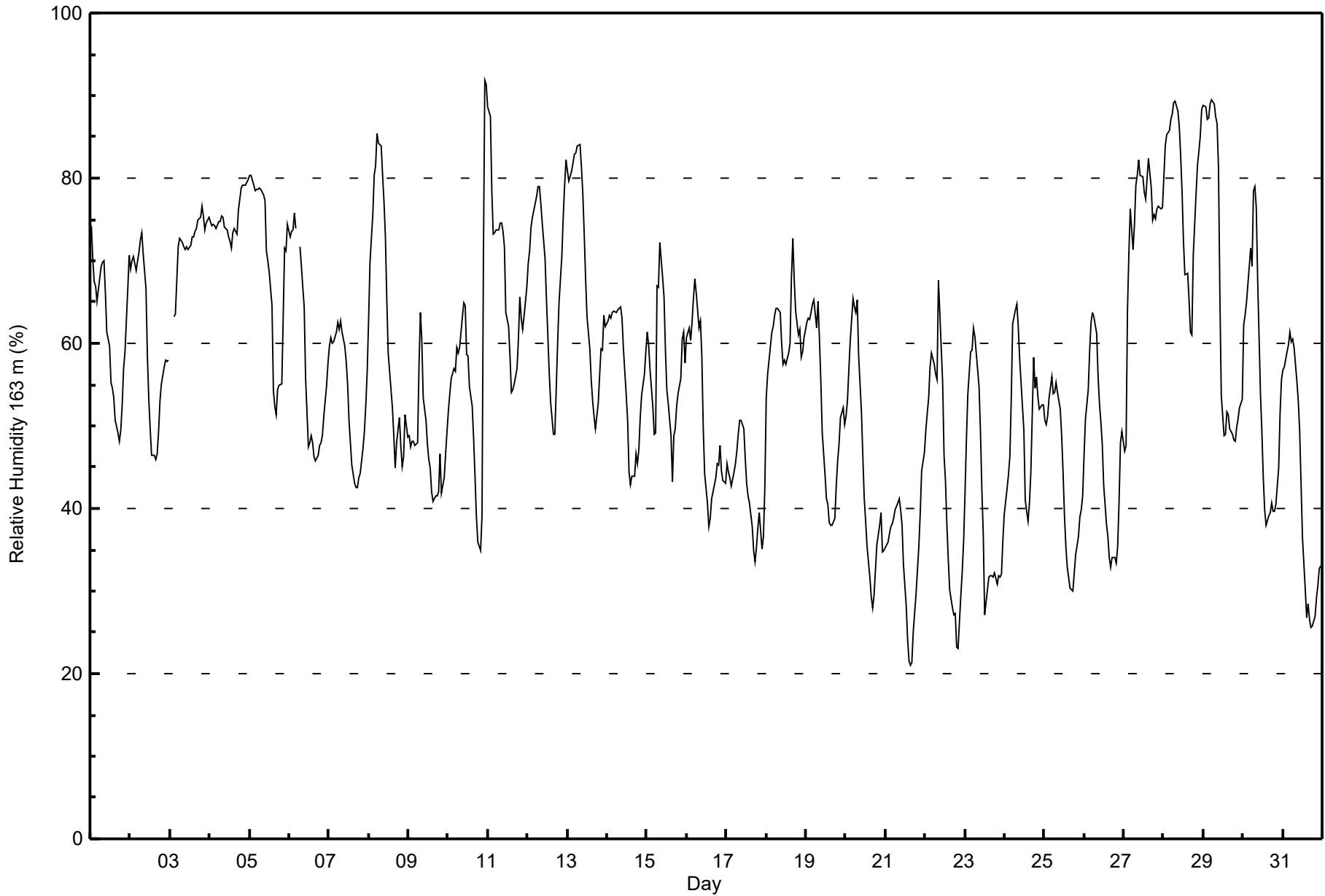
Relative Humidity 163 m (RH163m) - %
Lower Camp Met Tower - March 2024

Maximum Value: 91.9 % on Mar 10 23:00																						Hours in Service: 744				
Maximum Daily Average: 79.5 % on Mar 28																						Hours of Data: 741				
Minimum Value: 21.0 % on Mar 21 16:00																						Hours of Missing Data: 3				
Minimum Daily Average: 34.4 % on Mar 21																						Hours of Calibration: 0				
Maximum Diurnal Average: 68.2 % at hour 8																						Percent Operational Time: 99.6				
Minimum Diurnal Average: 45.9 % at hour 17																										
Monthly Average: 56.95 %																										
Percentiles: P ₁ = 25.6 P ₁₀ = 36.6 Q ₁ = 46.0 Median = 56.6 Q ₃ = 69.0 P ₉₀ = 78.2 P ₉₉ = 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-Mar	74.2	70.2	67.5	67.0	65.1	68.0	69.3	69.7	70.0	66.1	61.4	59.6	55.2	54.6	53.4	50.7	49.2	48.1	49.5	52.5	57.0	59.0	66.5	70.7	61.4	74.2
2-Mar	69.0	70.1	70.5	68.9	70.1	71.1	72.6	73.4	70.8	66.7	58.5	53.2	49.6	46.5	46.5	45.9	46.7	49.3	53.1	55.1	57.1	58.0	57.8	58.0	59.9	73.4
3-Mar	DF	DF	63.2	63.6	67.7	71.6	72.7	72.2	71.7	71.3	71.9	72.9	72.9	73.5	73.9	74.9	75.2	76.6	75.4	73.8	74.6	75.3	72.2	76.6	72.2	76.6
4-Mar	74.8	74.2	74.3	74.3	73.9	74.8	74.7	75.5	75.3	74.1	73.7	72.9	72.4	71.5	73.4	74.0	73.2	76.0	77.4	78.8	79.2	79.2	79.4	79.8	75.3	79.8
5-Mar	80.3	80.4	79.1	78.5	78.6	78.6	78.8	78.6	77.9	77.3	71.2	70.1	68.7	64.5	54.2	52.4	51.3	54.4	54.9	55.1	63.2	71.5	71.2	74.5	69.4	80.4
6-Mar	73.0	73.5	73.6	75.8	73.9	DF	71.6	69.3	66.8	64.3	55.8	47.5	48.0	48.8	47.9	46.2	45.8	46.5	47.6	48.1	48.8	51.3	54.9	57.6	58.1	75.8
7-Mar	59.7	60.7	60.1	60.1	61.4	62.5	61.7	62.7	61.4	59.6	57.8	55.2	50.7	47.9	45.2	43.1	42.6	42.5	43.7	44.2	47.3	49.3	52.5	56.6	53.7	62.7
8-Mar	62.9	69.8	75.5	80.3	81.5	85.4	84.3	84.0	80.4	77.1	72.9	65.3	58.8	54.5	52.2	48.9	45.0	48.0	51.1	47.6	45.0	46.3	51.4	48.7	63.2	85.4
9-Mar	48.8	47.4	48.1	48.2	47.7	48.0	57.4	63.7	60.4	53.4	50.7	47.7	46.0	44.9	42.1	40.8	41.6	41.5	42.0	46.6	41.9	43.7	46.6	49.4	47.9	63.7
10-Mar	51.8	54.0	55.7	56.9	56.6	59.5	58.8	59.4	63.2	65.0	64.5	58.7	58.5	54.8	52.3	48.4	43.9	39.1	35.9	34.9	39.1	70.4	91.9	91.4	56.9	91.9
11-Mar	88.7	87.5	78.5	73.3	73.4	73.8	73.8	74.5	74.5	73.6	71.7	63.8	62.0	58.4	54.1	54.5	55.1	57.0	60.5	65.6	63.0	61.7	63.3	66.7	67.9	88.7
12-Mar	69.6	71.3	74.1	75.3	77.0	77.8	79.0	79.1	77.0	74.6	70.3	65.5	61.0	56.4	52.8	49.0	49.1	54.4	60.0	65.0	70.5	75.3	79.2	82.1	68.6	82.1
13-Mar	80.8	79.7	80.8	81.9	82.9	83.1	83.9	84.1	81.4	78.2	73.3	67.7	63.2	59.4	55.7	53.1	51.2	49.7	52.7	56.2	59.4	59.1	63.4	62.0	68.4	84.1
14-Mar	62.7	63.4	63.0	63.8	63.9	63.7	64.1	64.3	64.4	63.0	59.3	53.7	50.7	44.4	42.9	43.9	44.0	46.6	45.4	47.1	51.1	53.7	56.2	59.0	55.6	64.4
15-Mar	61.4	59.9	56.7	52.4	49.0	49.2	67.0	66.8	72.2	68.0	65.6	59.2	54.3	52.7	48.8	43.2	48.9	49.7	52.4	54.0	55.7	60.6	61.4	57.6	56.9	72.2
16-Mar	60.7	61.8	60.3	62.5	65.4	67.7	66.2	61.9	62.6	58.5	49.9	44.2	40.7	37.7	38.8	41.1	42.1	43.8	45.4	45.3	47.6	44.6	43.3	43.1	51.5	67.7
17-Mar	45.4	44.5	43.7	42.6	44.5	45.4	47.0	49.0	50.6	50.7	49.7	46.2	43.1	41.5	40.6	37.8	35.0	33.6	35.3	37.6	39.5	35.1	36.6	42.5	42.4	50.7
18-Mar	53.3	56.3	59.6	61.3	62.0	63.4	64.2	64.2	63.8	60.1	57.5	57.9	57.4	58.9	60.0	67.9	72.7	67.6	64.0	61.1	61.7	58.3	59.0	60.6	61.4	72.7
19-Mar	62.6	63.0	62.9	63.7	64.7	65.3	61.9	65.1	60.6	55.5	49.2	44.1	41.2	40.5	38.4	38.0	37.9	38.8	42.8	45.8	47.7	51.0	52.2	50.1	51.8	65.3
20-Mar	51.2	53.0	56.7	60.4	65.4	64.5	63.8	65.2	58.4	51.7	46.3	41.1	38.4	35.4	31.7	29.3	28.0	29.5	32.6	35.5	37.9	39.6	34.7	35.0	45.2	65.4
21-Mar	35.3	35.9	36.9	37.9	38.1	38.9	39.8	40.7	41.1	39.8	38.0	33.3	28.2	24.1	21.6	21.0	21.4	25.1	29.7	32.6	35.4	39.5	44.5	46.8	34.4	46.8
22-Mar	49.6	51.5	53.5	57.1	58.9	57.4	56.3	55.5	67.6	63.5	55.2	46.5	43.4	38.1	34.0	30.1	28.0	27.2	27.4	23.3	23.1	29.5	32.4	36.0	43.5	67.6
23-Mar	42.0	48.4	53.8	59.1	59.1	61.9	60.9	58.9	54.7	49.4	42.4	37.0	27.0	28.7	31.7	31.9	31.9	31.7	32.2	30.8	31.9	31.8	32.1	36.0	41.9	61.9
24-Mar	39.3	42.4	44.1	46.3	53.2	62.3	64.0	64.8	62.0	58.1	55.3	49.5	40.9	39.7	38.6	40.7	44.4	58.2	54.6	55.9	53.6	52.0	52.5	52.5	51.0	64.8
25-Mar	50.8	50.1	51.1	53.3	56.0	53.8	54.1	55.3	54.0	52.0	48.7	44.4	39.1	35.4	32.8	30.3	30.2	30.0	32.2	34.3	36.7	39.0	39.9	41.5	43.5	56.0
26-Mar	46.4	50.8	54.4	59.1	62.5	63.7	63.2	61.1	56.0	52.7	50.6	47.8	42.8	38.1	36.6	34.1	32.9	34.1	34.0	33.4	35.4	40.9	48.0	49.3	47.0	63.7
27-Mar	47.0	47.7	64.0	70.8	76.3	71.3	74.4	79.1	80.3	82.3	80.3	80.1	78.3	77.4	80.1	82.3	78.8	75.0	75.6	75.2	76.2	76.6	76.2	76.5	74.2	82.3
28-Mar	80.2	83.9	85.3	85.8	87.1	87.8	89.1	89.3	88.2	86.3	82.8	78.3	72.4	68.3	68.5	65.3	61.4	61.0	70.8	78.2	81.5	83.2	85.1	88.4	79.5	89.3
29-Mar	88.9	88.6	87.1	87.3	89.0	89.6	89.0	87.5	86.6	81.3	65.9	53.7	48.8	49.0	51.7	51.4	49.6	48.9	48.4	48.2	49.8	50.9	52.2	53.2	66.5	89.6
30-Mar	62.2	63.4	65.0	67.2	71.5	69.3	78.4	79.0	76.4	67.7	53.9	49.3	43.7	39.8	38.0	39.2	39.5	40.8	39.7	39.7	40.6	45.0	51.6	55.6	54.8	79.0
31-Mar	56.8	57.1	58.9	59.9	61.4	60.2	60.6	59.4	55.5	53.1	49.3	42.9	36.5	30.1	26.8	28.5	26.6	25.6	25.7	27.0	29.2	30.7	32.7	33.0	42.8	61.4
61.0 62.0 63.2 64.3 65.7 66.3 67.8 68.2 67.3 64.4 59.8 55.1 51.4 48.9 47.2 46.3 45.9 46.7 48.1 49.4 51.0 53.6 56.2 57.7																						Diurnal Average				
88.9 88.6 87.1 87.3 89.0 89.6 89.1 89.3 88.2 86.3 82.8 80.1 78.3 77.4 80.1 82.3 78.8 76.0 77.4 78.8 81.5 83.2 91.9 91.4																						Diurnal Maximum				
DF - DAS Failure																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	114	15.38	15.38
40 - 60	312	42.11	57.49
60 - 80	263	35.49	92.98
80 - 100	52	7.02	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Summary statistics table including Maximum Speed (32 km/h on Mar 31 23:00), Minimum Speed Value (0 km/h on Mar 22 20:00), Maximum Daily Speed Average (26.1 km/h on Mar 26), and Percentiles (P1=1, P10=3, Q1=6, Median=11, Q3=16, P90=20, P99=29).

Main data table with columns for Day, Hourly Period Ending At (MST) 1-24, Daily Average, and Daily Maximum. Rows list hourly wind speed and direction for each day from 1-Mar to 31-Mar.

Summary rows for Diurnal Average and Diurnal Maximum, listing the most frequent wind direction and speed for each metric.

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

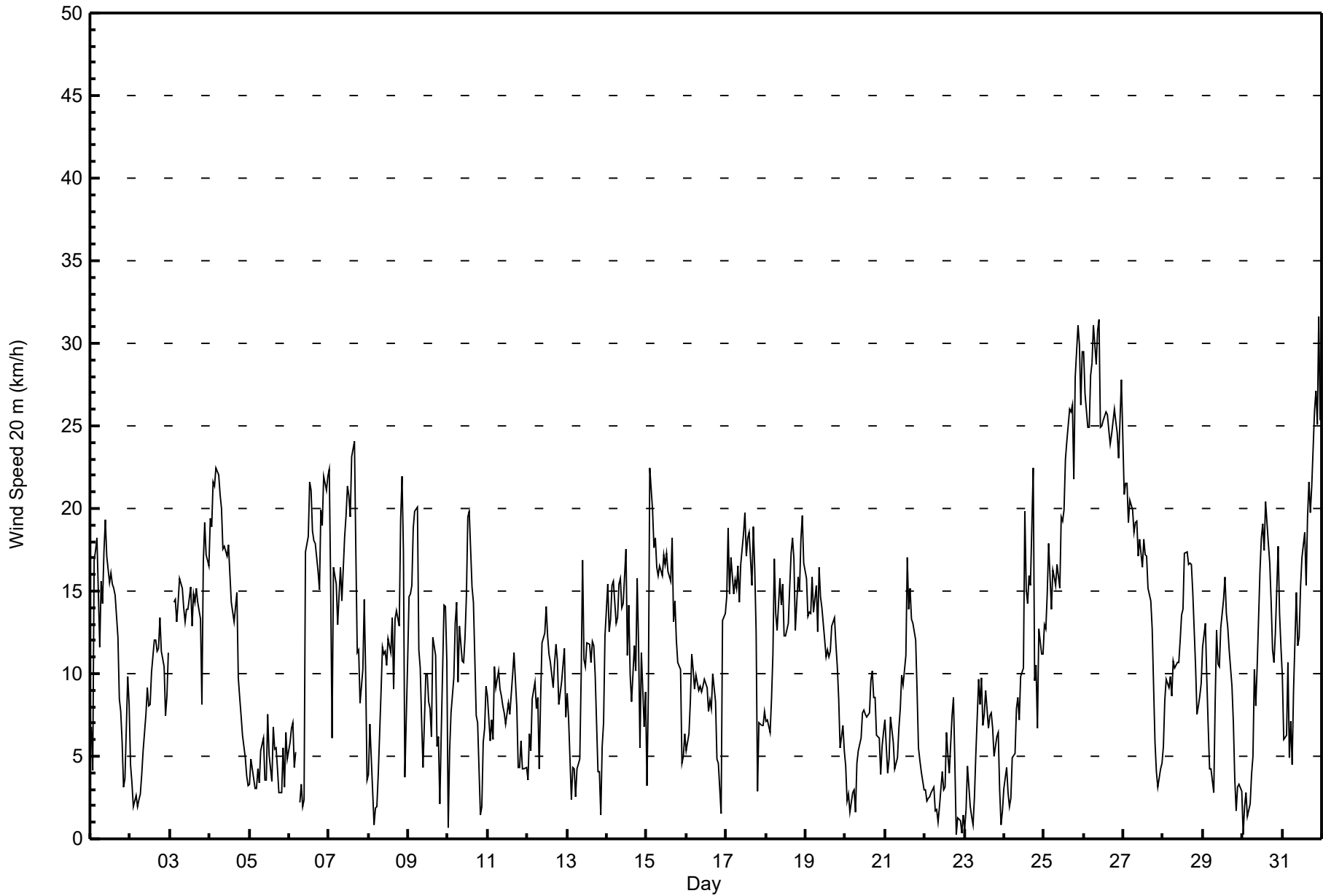
Wind Speed 20 m (WS20m) - km/h
Lower Camp Met Tower - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 26 13:00 Minimum Value: 0 km/h on Mar 22 02:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 5 P ₉₀ = 6 P ₉₉ = 7																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6										
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	2	3	5	7	6	4	5	5	6	5	5	6	6	5	5	5	4	4	3	2	1	2	4	2	7		
2-Mar	2	1	1	2	1	1	1	1	2	4	3	3	3	4	4	4	4	4	5	4	4	3	3	3	5		
3-Mar	DF	DF	4	5	4	5	5	4	5	4	5	5	5	5	5	5	6	5	5	3	6	6	6	6	6		
4-Mar	6	6	7	7	6	7	6	6	6	6	5	6	5	5	5	5	5	4	3	3	2	2	1	1	7		
5-Mar	1	2	1	1	1	1	2	2	2	2	2	1	1	2	3	2	3	2	2	2	2	2	3	3	3		
6-Mar	2	2	3	2	2	DF	1	2	1	3	5	3	4	3	4	3	3	3	2	3	2	3	3	3	5		
7-Mar	3	5	4	3	3	2	2	2	3	2	4	4	4	4	4	3	4	2	2	3	4	2	5	1	5		
8-Mar	2	3	2	1	1	1	1	2	3	3	3	3	4	3	4	4	4	4	4	3	3	6	3	2	6		
9-Mar	3	2	2	3	3	3	2	1	2	1	2	2	2	2	3	3	3	2	3	1	4	1	1	4	4		
10-Mar	1	2	2	2	3	3	3	4	5	4	5	5	6	6	6	5	4	3	2	2	1	2	2	4	6		
11-Mar	3	3	3	3	4	3	3	4	2	3	3	3	3	3	3	4	4	3	2	1	2	2	2	2	4		
12-Mar	2	3	3	4	5	4	3	3	5	5	5	4	2	2	2	2	3	4	5	3	3	4	4	4	5		
13-Mar	4	3	2	2	1	2	2	2	5	4	4	3	4	3	3	4	4	3	3	2	1	4	3	4	5		
14-Mar	4	5	3	4	3	4	3	3	3	3	4	4	3	4	3	2	4	4	4	5	3	3	3	4	5		
15-Mar	2	5	5	6	5	5	6	7	5	7	6	6	7	5	5	7	5	5	4	3	4	2	2	3	7		
16-Mar	2	2	3	3	4	3	3	3	3	3	4	3	3	3	3	3	3	3	2	2	2	3	5	5	5		
17-Mar	5	6	6	6	4	5	5	5	5	5	5	5	3	4	3	3	3	4	3	3	2	4	6	7	7		
18-Mar	3	3	2	3	5	5	5	4	6	6	5	4	4	4	5	6	6	6	5	5	6	6	7	6	7		
19-Mar	6	5	5	5	6	6	6	5	5	5	5	4	5	4	4	4	4	4	4	3	2	2	2	1	6		
20-Mar	3	1	1	1	1	1	1	1	2	2	3	4	3	4	3	3	3	3	3	2	2	2	2	2	4		
21-Mar	2	2	2	2	2	2	2	2	2	2	4	3	5	5	5	5	5	5	4	3	3	2	2	2	5		
22-Mar	1	0	1	0	1	1	1	0	1	1	1	1	2	2	2	2	3	3	2	1	1	1	1	1	3		
23-Mar	1	1	1	1	0	1	1	2	2	3	3	2	2	3	3	3	3	3	2	2	2	2	1	1	3		
24-Mar	2	2	1	1	1	2	2	3	2	3	2	4	5	5	4	5	5	5	4	7	3	5	4	3	7		
25-Mar	4	4	4	5	4	4	5	6	6	6	6	5	7	7	7	6	5	5	4	5	5	5	4	5	7		
26-Mar	4	4	5	5	5	5	5	5	6	6	7	8	8	7	7	7	7	6	5	5	5	5	7	8	8		
27-Mar	7	7	7	7	7	7	6	6	6	6	7	6	7	7	7	6	5	5	4	3	3	3	2	2	7		
28-Mar	2	3	2	2	2	2	3	3	3	3	4	4	5	6	5	6	5	5	6	4	3	3	3	4	6		
29-Mar	4	3	3	4	2	2	1	4	4	4	5	5	5	6	5	4	4	4	3	3	1	1	1	2	6		
30-Mar	1	1	1	1	1	2	3	3	3	4	4	5	5	4	5	4	5	5	4	3	4	6	5	4	6		
31-Mar	4	3	4	4	3	2	2	5	3	3	4	3	5	5	5	5	4	3	3	4	5	5	6	3	6		
																	Diurnal Maximum										
																	7 7 7 7 7 7 6 7 6 7 7 8 8 7 7 7 7 6 6 7 6 6 7 8										
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	160	21.59	21.59
6 - 11	242	32.66	54.25
12 - 19	261	35.22	89.47
20 - 28	68	9.18	98.65
29 - 38	10	1.35	100.00
> 38	0	0.00	100.00

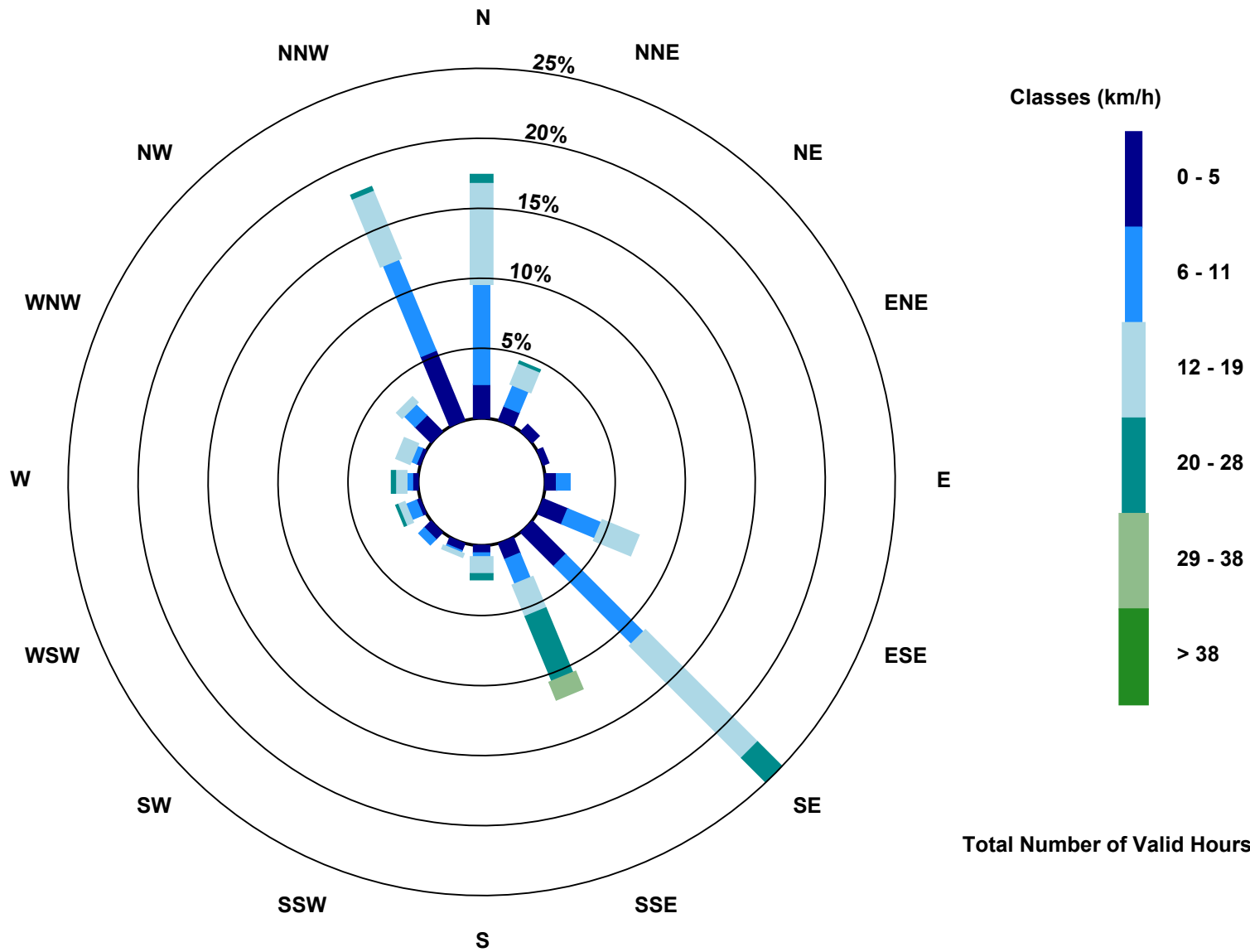
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Maximum Speed: 40 km/h on Mar 27 00:00	Maximum Daily Speed Average: 32.1 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 22 09:00	Minimum Daily Speed Average: 0.8 km/h on Mar 5	Hours of Data: 724
Maximum Diurnal Speed Average: 5.4 km/h at hour 9	Minimum Diurnal Speed Average: 2.1 km/h at hour 14	Hours of Missing Data: 20
Monthly Average Velocity: 3.9 km/h 100.3 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 10 Median = 15 Q ₃ = 22 P ₉₀ = 27 P ₉₉ = 36	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-Mar	W9	NW8	WNW24	WNW25	WNW26	W17	WSW24	W23	WSW25	WSW25	W23	WNW20	WNW21	WNW20	NW20	WNW19	NW17	NW12	NNW14	NNW11	N6	NNW9	N15	N12	WNW15.3	WNW26	
2-Mar	N9	DF	UO	UO	UO	UO	UO	UO	UO	UO	N10	NNE12	N10	N10	N13	N16	N17	NNE16	N17	N20	N17	N15	N11	N12	N16	----	N20
3-Mar	DF	DF	UO	UO	UO	UO	UO	UO	UO	UO	N20	N22	N22	N22	NNW20	NNW22	NNW22	NNW22	NNW22	NNW20	NNW13	N24	N28	N25	NNW24	----	N28
4-Mar	NNW28	NNW28	NNW31	N32	N33	N31	N30	N29	N25	N25	NNW24	NNW25	NNW23	NNW21	NNW20	NNW19	N21	NNW15	NNW14	NNW12	NNW12	NNW9	NNW7	NNW7	NNW21.6	N33	
5-Mar	NNW9	NNW11	NNW9	NNW8	NNW7	NNW8	NNW6	NNW8	N8	N6	NNW4	SSW7	WSW5	WSW4	S7	SW6	SSW6	S7	S10	SSE10	SSE10	SE7	ESE9	E6	WNW0.8	NNW11	
6-Mar	ESE7	E8	ESE9	E5	ESE7	DF	UO	UO	E4	ESE7	SE24	SE22	SSE23	SSE23	SSE20	S20	S20	S20	S21	S26	S25	S28	S25	SSE26	SSE16.0	SSE28	
7-Mar	SSE27	SSE20	ESE10	SSE20	SSE19	SE17	SE19	SE20	SE19	SE21	SE23	SSE23	SSE23	SSE26	SSE27	S20	SSW15	S16	SSE14	SSE13	SE17	SE12	SSE5	SSE18.3	SSE27		
8-Mar	W3	W8	W4	SW3	SSE4	SE7	SE10	SE13	SE14	SE14	SE13	SE13	SE16	SE15	SE18	SE15	SE22	SE24	SE21	SE25	SSE28	SE22	ESE8	ESE15	SE12.7	SSE28	
9-Mar	SE19	SE19	SE19	SE22	SE23	SE22	SE16	SE14	ESE10	SE8	SE13	SSE11	SSE10	SSE9	SE10	SE18	SE15	SE10	SE8	SE7	SE15	SE17	SSE16	SSE15	SE14.2	SE23	
10-Mar	SE6	SE10	SE11	SE13	SE14	SSE12	SSW8	SSE7	SSW8	WSW16	WSW18	W20	W27	W29	W22	WNW19	WNW16	WNW12	NW13	NNW7	N6	NNW11	NNW11	N14	W6.2	W29	
11-Mar	NNE13	NNE9	NNE11	NNE9	N15	N14	N15	N13	N11	NNW10	NW9	NNW8	NW10	NNW9	NNW12	NNW14	NW15	NNW12	NNW9	NNW8	N10	NNE5	ESE10	E5	N9.2	N15	
12-Mar	E7	ESE13	ESE14	ESE16	ESE16	ESE15	ESE14	ESE8	ESE15	ESE19	ESE18	SE18	SE14	SE13	SE12	SE11	ESE16	ESE18	ESE17	ESE14	ESE14	ESE17	ESE18	ESE12	ESE14.2	ESE19	
13-Mar	SE14	ESE13	ESE6	SE6	SE6	ESE5	SE7	SE8	SE17	SE23	SE13	SE13	SE15	SE14	SE15	SE16	SE18	SE17	SE6	SE5	ESE4	SE9	SE12	SE21	SE11.7	SE23	
14-Mar	SE22	SE20	SE19	SE21	SE22	SE22	SE19	SE19	SE20	SE17	SE17	SE19	SSE15	SSW15	SW13	SW13	S15	S13	S19	S16	SW11	WSW20	WSW13	W13	SSE12.8	SE22	
15-Mar	WSW5	WSW17	WSW33	W30	WNW27	NW27	N26	N25	N25	NNW23	NNW25	NNW23	NNW24	N23	N23	NNE27	NNE21	N23	NNE17	N16	NNE15	N6	NNE7	N10	NNW16.3	WSW33	
16-Mar	N7	N9	NNW12	N16	N16	N13	N14	N13	N12	NNW12	NNW12	NNW13	NNW11	NNW10	NW11	NNW10	NW13	NNW12	NNW7	N7	NNW4	ESE3	SE21	SE21	N8.1	SE21	
17-Mar	SE23	SE32	SE25	SE27	SE24	SE26	SE25	SE25	SE25	SE25	SE24	SSE22	SSE20	SSE22	SE25	SE20	SE22	S20	SSE17	SSE7	SSE7	WSW14	W14	N16	SE17.6	SE32	
18-Mar	N10	N12	N11	N14	N18	N27	N21	N19	N23	N21	N21	NNW18	NNW17	N19	N23	N26	N26	N25	N20	N23	N22	N26	NNE30	N26	N20.6	NNE30	
19-Mar	N25	NNE20	NNE21	N20	N25	N21	N22	N18	N24	N21	N19	N16	N15	NNW14	N15	NNE15	NNE18	NNE19	NNE18	NNE15	NNE12	NNW8	NW10	NNW9	N17.1	N25	
20-Mar	N7	N5	N5	N4	NNW5	NNW7	N4	N7	N6	N7	N9	NNW10	NNW9	NNW9	N10	N12	N13	N12	N13	NNW11	NNW10	N7	N8	N10	N8.2	N13	
21-Mar	N11	N7	NNW7	N9	N9	NNW10	NNW7	NNW7	NNW8	NNW9	NNW13	N12	N15	N24	N20	N22	NNE20	NNE19	N19	N15	N11	N10	N8	NNW6	N12.1	N24	
22-Mar	NNW4	NW3	NNW4	NW3	NW3	NW4	NNW3	WNW2	SE1	ESE2	ESE4	SSW3	SSE3	SE6	ESE5	ESE4	SE8	SE11	SE6	SE2	NNW2	ESE2	SE8	SE5	SE17.0	SE11	
23-Mar	SE8	ESE7	N2	NNW5	NNW1	SE7	SE8	SE9	SE10	ESE10	SE11	SE8	SE8	SE10	ESE8	ESE9	ESE10	E10	E7	SE8	SE11	ESE10	SE5	SE4	ESE7.0	SE11	
24-Mar	SE6	SE9	SE7	SE7	SE10	SE9	SE10	ESE10	SE9	SE12	SE13	SSE22	SSE17	SSE17	SE20	SE19	S25	SE13	SE15	SE10	SE21	SE18	ESE17	SE13.0	S25		
25-Mar	ESE20	ESE22	ESE24	ESE27	ESE25	ESE26	SE26	SE27	SE28	SE24	SE27	SE27	SE28	SE33	SE32	SSE28	SSE28	SSE29	SSE25	SSE31	SSE36	SSE34	SSE30	SSE33	SE26.6	SSE36	
26-Mar	SSE33	SSE29	SSE28	SSE28	SSE33	SSE32	SSE34	SSE32	SSE34	SSE34	SE35	SE37	SE37	SSE31	SSE30	SE37	SE36	SE32	SSE29	SSE28	SSE27	SE31	SE38	SE40	SSE32.1	SE40	
27-Mar	SE31	ESE32	SE31	SE28	SE30	SE30	SE27	ESE27	SE27	ESE24	SE26	SE25	ESE26	ESE27	ESE26	ESE22	ESE22	ESE19	E13	E9	E6	ENE5	NE6	NE6	ESE21.2	ESE32	
28-Mar	N8	N12	N15	N13	N15	N13	N15	N15	N15	NNW15	NNW17	NNW19	NNW19	NNW24	NNW23	NNW23	N24	NNW24	NNW23	NNW16	NNW13	NNW14	NNW15	NNW15	NNW16.8	NNW24	
29-Mar	NNW17	N20	N16	NNW11	NNW7	NNW9	NNW7	NNW13	N19	N16	NNW14	NNW18	NNW19	NNW23	N20	N18	NNW16	N15	NNE11	NE9	NNW1	WNW4	W2	WSW6	N12.2	NNW23	
30-Mar	SSW3	SE6	SE9	SE7	SSE5	SE9	SE11	SE13	SE10	SE16	SE20	SSE21	SSE21	SSE19	SSE23	SE21	SE21	SE20	SE19	SE19	SE21	ESE28	ESE25	SE22	SE15.8	ESE28	
31-Mar	SE19	SE11	SE10	SE15	SE7	SE11	SE7	SE14	SE18	SE15	SE15	SE19	SE21	S21	SSW17	S21	S24	SSE23	SSE26	SSE30	SSE31	SSE29	SSE37	SSE29	SSE18.5	SSE37	

E4.8	E5.2	E3.6	E3.5	E3.8	E4.4	E4.5	E4.8	E5.4	E4.3	E4.4	ESE3.5	ESE2.9	ESE2.1	ESE2.3	E3.0	E4.1	E4.0	E3.7	ESE3.9	ESE3.9	ESE4.4	ESE5.2	ESE4.5	Diurnal Average	
SSE33	ESE32	WSW33	N32	N33	SSE32	SSE34	SSE32	SSE34	SSE34	SE35	SE37	SE37	SE33	SE32	SE37	SE36	SE32	SSE29	SSE31	SSE36	SSE34	SE38	SE40	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 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 10 km/h on Mar 18 00:00	Hours of Data: 724
Minimum Value: 1 km/h on Mar 22 21:00	Hours of Missing Data: 20
Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 3 Q ₃ = 5 P ₉₀ = 6 P ₉₉ = 7	Hours of Calibration: 0
	Percent Operational Time: 97.3

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

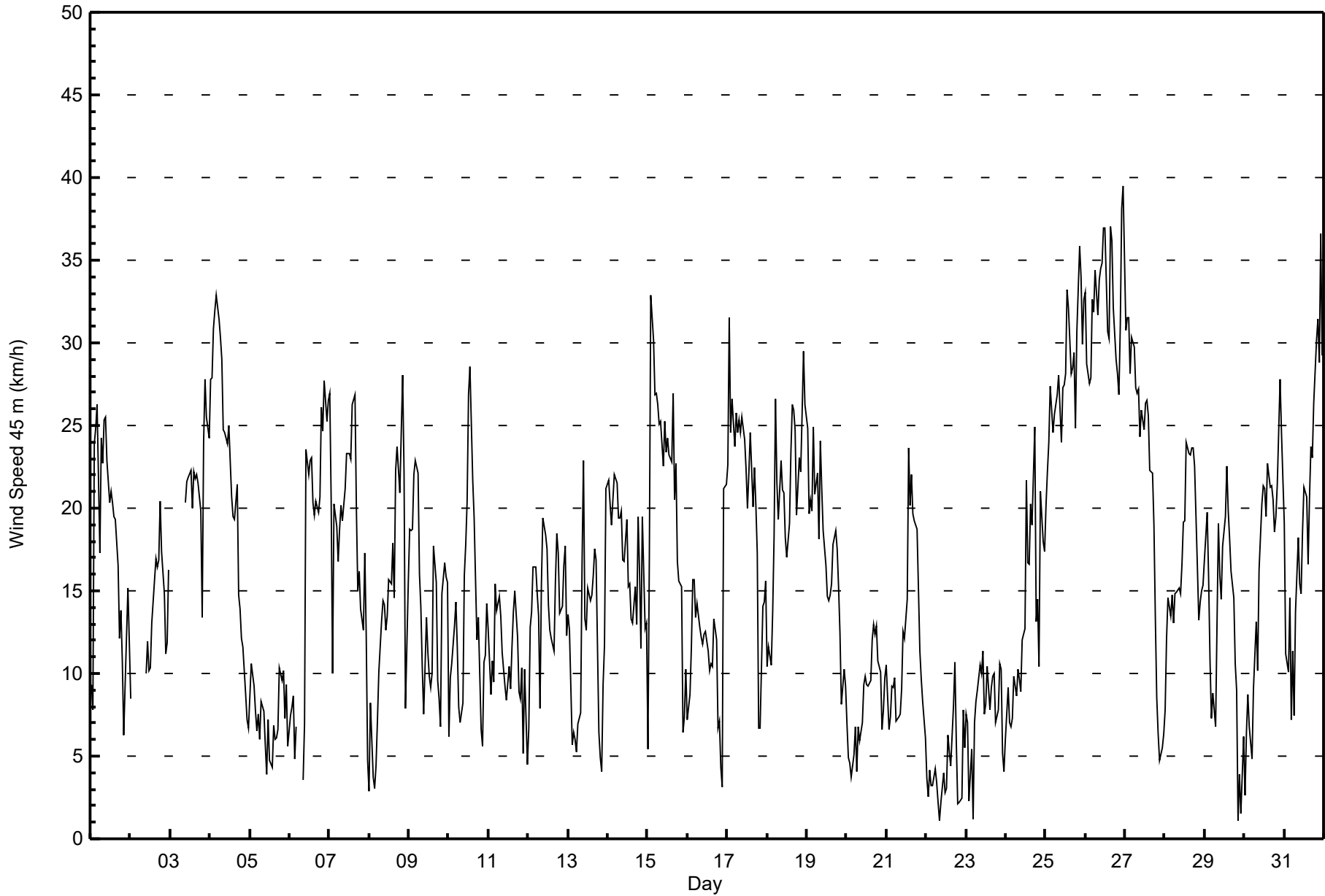
Diurnal Maximum

DF - DAS Failure UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	53	7.32	7.32
6 - 11	192	26.52	33.84
12 - 19	224	30.94	64.78
20 - 28	206	28.45	93.23
29 - 38	48	6.63	99.86
> 38	1	0.14	100.00

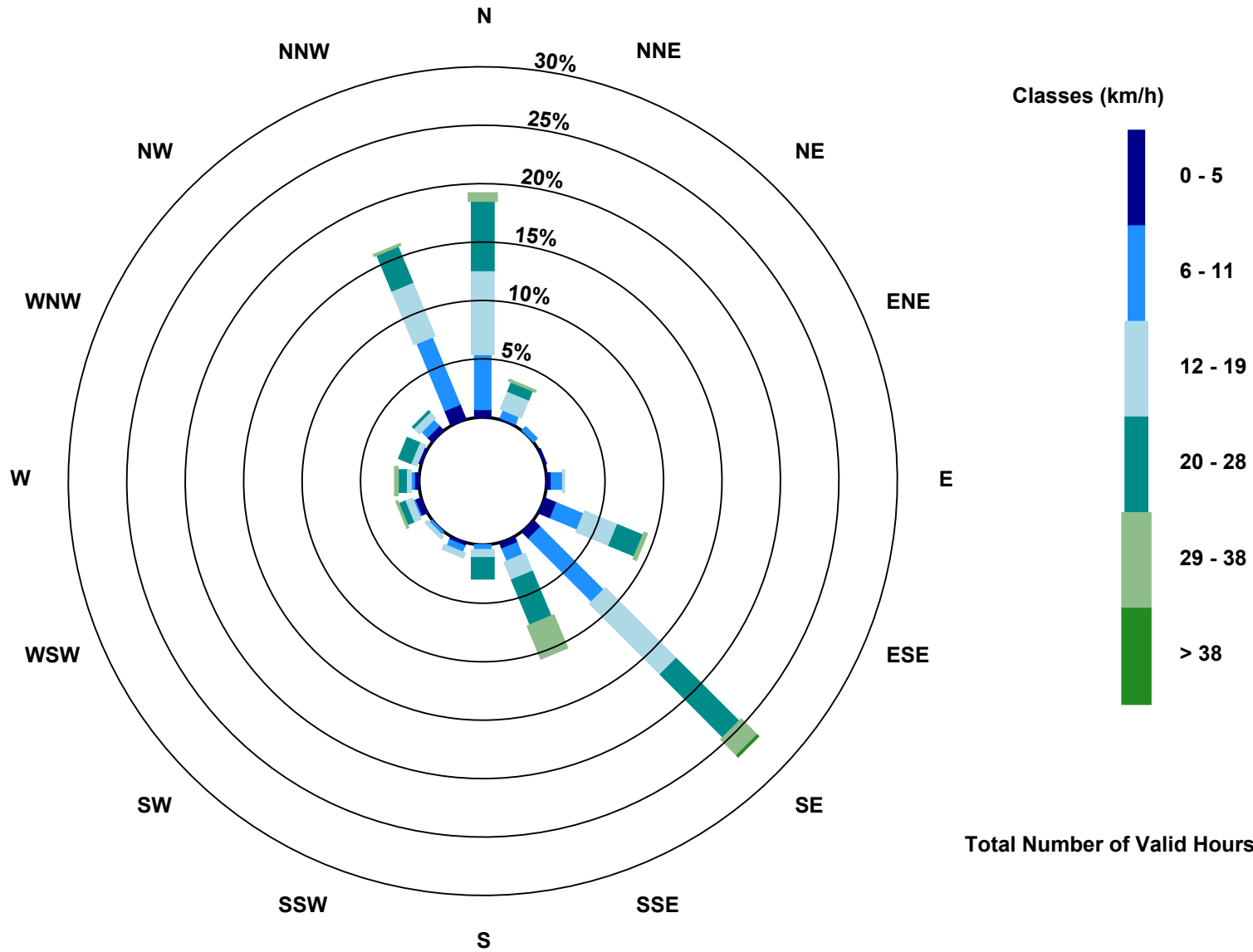
Total Number of Valid Hours: 724

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 100 m (WS100m) - km/h

Lower Camp Met Tower - March 2024

Maximum Speed: 44 km/h on Mar 27 00:00	Maximum Daily Speed Average: 36.2 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 2 km/h on Mar 8 05:00	Minimum Daily Speed Average: 0.8 km/h on Mar 5	Hours of Data: 741
Maximum Diurnal Speed Average: 7.0 km/h at hour 23	Minimum Diurnal Speed Average: 2.1 km/h at hour 14	Hours of Missing Data: 3
Monthly Average Velocity: 4.3 km/h 107.3 deg	Percentiles: P ₁ = 3 P ₁₀ = 9 Q ₁ = 13 Median = 19 Q ₃ = 26 P ₉₀ = 32 P ₉₉ = 41	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-Mar	WNNW10	WNNW16	WNNW29	WNNW30	WNNW31	W21	W29	W29	W30	W29	W26	WNNW23	WNNW23	WNNW23	WNNW23	WNNW23	WNNW23	NW20	NNW16	NNW19	NNW17	N13	NNW19	N20	NNE16	WNNW19.0	WNNW31
2-Mar	NNE14	NNE11	N12	N13	N11	N5	N3	N8	N9	NNE14	NNE13	N11	N11	N15	N18	N19	NNE18	N18	N24	N21	N18	NNE14	N15	N19	N13.9	N24	
3-Mar	DF	DF	N22	N23	N23	N25	N26	N25	N25	N22	N24	N24	N25	NNW26	NNW28	NNW28	NNW28	NNW28	N25	NNW18	N29	N35	N32	N31	N25.8	N35	
4-Mar	N34	N35	N37	N39	N39	N38	N37	N34	N30	N30	N28	N30	N28	NNW26	NNW24	NNW24	N25	NNW19	NNW20	N17	N16	N11	N10	N10	N26.7	N39	
5-Mar	N12	N16	NNW14	NNW13	N11	NNW11	N10	NNW12	N7	N7	NNW4	SW5	SW5	SW5	S8	SSW7	S7	S9	S13	S19	S21	SSE15	SSE16	SE12	SW0.8	S21	
6-Mar	SE11	SE10	SE10	SE9	SE9	DF	SE7	SE9	SE12	SE16	SSE22	SSE23	SSE24	SSE24	S22	S22	S24	S26	S27	S35	S37	S40	S37	S38	SSE20.4	S40	
7-Mar	SSE39	SSE28	SE17	SSE26	SSE25	SSE25	SSE25	SSE22	SSE21	SSE23	SSE24	SSE24	SSE25	SSE26	SSE30	SSE29	S24	SSW19	S19	S25	SSE17	SSE16	S10	WSW5	SSE22.0	SSE39	
8-Mar	WNNW8	WNNW8	NNW9	WNNW4	SW2	SSE3	S7	SSE12	SE17	SE14	SE14	SE18	SE19	SE18	SE21	SE19	SE30	SE31	SE29	SSE30	SSE39	SSE33	SE15	SSE22	SE15.0	SSE39	
9-Mar	SSE22	SSE26	SSE26	SSE26	SSE25	SSE23	SE18	SE18	SSE14	SE12	SE19	SE16	SSE12	SE12	SE15	SE26	SE19	SSE12	SSE11	SE13	SSE19	S21	S23	SSE21	SSE18.3	SSE26	
10-Mar	SSE12	S17	S16	S18	S15	SW15	WSW20	WSW12	WSW20	WSW24	WSW26	W25	W33	W36	W28	WNNW24	WNNW21	WNNW18	NW23	NNW17	NNW16	N13	N15	N18	W12.4	W36	
11-Mar	NNE16	NNE11	NNE12	NNE12	N16	N16	N16	N15	N12	N11	NW10	NNW9	NNW11	NNW10	NNW13	NNW15	NNW17	NNW16	NNW15	NNW15	N8	ESE12	SE22	SE14	N9.7	ESE22	
12-Mar	ESE19	SE20	ESE20	SE25	ESE25	ESE23	ESE20	ESE15	ESE22	SE23	ESE23	SE17	SE12	SE12	SE12	SE12	ESE17	ESE21	ESE22	ESE18	ESE17	ESE21	SE24	SE17	ESE18.9	SE25	
13-Mar	SE20	SE19	ESE12	ESE12	SE10	SE14	SE12	SE12	SE20	SE25	SE14	SE14	SE17	SE15	SE17	SE19	SE21	SE23	SE14	SE12	SE9	SE18	SE19	SSE24	SE16.3	SE25	
14-Mar	SSE22	SSE22	SE19	SE19	SE17	SSE20	SSE16	SSE15	SSE14	SSE12	S12	SSE18	S16	SSW18	SW17	SW18	S16	SSW19	S29	SSW28	SW22	WSW32	WSW26	W22	S15.8	WSW32	
15-Mar	W9	WSW23	WSW41	WNNW41	WNNW37	NW37	N33	N31	N30	NNW27	NNW32	NNW29	NNW29	NNW26	N25	NNE30	NNE24	NNE25	NNE18	N17	NNE19	N9	NNE10	NNE16	NNW20.6	WNNW41	
16-Mar	NNE10	N11	N13	N17	NNE15	N14	N14	N14	N13	NNW13	NNW13	NNW13	NNW12	NNW10	NW11	NNW12	NNW15	NNW14	N8	N8	N4	SE9	SE26	SE27	N8.4	SE27	
17-Mar	SE27	SE37	SE32	SE33	SE31	SE34	SE34	SE33	SE32	SE32	SE27	SSE25	SSE22	SSE24	SE25	SSE24	SSE25	S29	S27	S21	SSW18	WSW28	W28	N20	SSE21.9	SE37	
18-Mar	N14	N16	N14	N17	N23	N31	N27	N22	N25	N24	N23	NNW21	N19	N22	N24	NNE28	N28	N27	N23	N26	N26	N30	NNE35	N30	N23.7	NNE35	
19-Mar	N28	NNE23	NNE23	N22	N27	N24	N25	N20	N26	N22	N20	N18	N16	NNW16	N16	N17	NNE20	NNE19	NNE20	NNE19	NNE19	N11	NNW12	NNW15	N19.6	N28	
20-Mar	N14	NNE12	NNE9	NNE10	NNW9	N10	N7	N9	N8	N7	N10	NNW11	NNW10	NNW10	N11	N13	N13	NNE13	N14	N14	N14	N10	N10	N10	N10.6	N14	
21-Mar	N12	N11	N11	N12	N11	N12	N10	N9	N10	N10	NNW13	N13	N16	N25	N22	N24	NNE21	NNE21	N20	N22	NNE19	NNE17	NNE13	NNE10	N14.9	N25	
22-Mar	N9	NNW9	NNW12	N7	N5	NNW4	N3	SSE5	SSW2	SE3	SE3	S2	SSE3	SE6	SE4	SE4	SE8	SE11	SE7	SSE4	SSE3	ESE9	SSE18	SSE16	SE2.7	SSE18	
23-Mar	SSE18	SE17	ESE11	SE5	SE8	SSE9	SSE9	SSE9	SSE11	SE11	SE11	SE8	SE8	SE10	ESE8	ESE10	ESE11	E10	E8	SE10	SE16	SE18	SE18	SE13	SE10.8	SE18	
24-Mar	SSE15	SSE17	SSE15	SSE9	SE13	SE15	SE15	SSE14	SE14	SE11	SE11	SSE14	SSE23	SSE19	SE18	SE23	SE21	SSE28	SE17	SE20	SE17	SE29	SE25	SE23	SE17.3	SE29	
25-Mar	SE26	SE27	SE29	SE33	SE32	SE31	SE32	SE34	SE34	SE30	SE31	SE30	SE31	SE37	SE36	SSE31	SE31	SSE34	SSE29	SSE35	SSE41	SSE39	SSE39	SSE39	SE32.0	SSE41	
26-Mar	SSE38	SSE32	SSE31	SSE32	SSE36	SSE35	SSE39	SSE35	SSE37	SSE38	SE39	SE42	SE41	SSE34	SSE33	SE40	SE41	SE37	SSE33	SSE32	SSE31	SE37	SE43	SE44	SSE36.2	SE44	
27-Mar	SE37	SE38	SE37	SE33	SE36	SE35	SE31	ESE31	SE32	ESE29	SE30	SE30	ESE31	ESE31	ESE30	ESE27	ESE26	ESE23	ESE16	E11	E9	E7	ENE7	NE7	ESE25.4	SE38	
28-Mar	NNE7	NNE10	N15	N16	N18	N17	N17	N17	N16	N16	NNW19	NNW21	NNW22	NNW27	NNW26	NNW27	N27	N27	NNW28	NNW23	NNW20	NNW22	NNW22	NNW21	N19.8	NNW28	
29-Mar	N20	N22	N21	N17	NNW13	N14	NNW14	NNW19	N21	N18	N17	NNW19	NNW21	NNW25	N23	N21	N19	N17	NNE13	NNE13	NE5	NNW4	NW5	W5	N15.5	NNW25	
30-Mar	SW6	SSE7	SSE5	SSE10	SSE7	SE13	SSE12	SE15	SE13	SE17	SE19	SSE23	SSE22	SSE21	SSE24	SSE23	SE23	SE24	SE25	SE26	SE30	SE32	SE32	SE30	SE18.6	SE32	
31-Mar	SE28	SE20	SE17	SE23	SE15	SE21	SE17	SSE18	SSE17	SE14	SE14	SE18	SE23	S23	SSW18	S23	S29	SSE30	S35	SSE39	SSE41	SSE36	SSE44	S38	SSE23.9	SSE44	

ESE6.6	ESE6.3	E3.8	E3.7	E3.8	E4.5	E4.0	E4.2	E4.6	E4.4	ESE3.8	ESE3.4	ESE3.1	ESE2.1	E2.4	E3.4	E4.3	ESE4.5	ESE4.3	ESE5.0	SE5.3	SE6.3	SE7.0	ESE6.0	Diurnal Average	
SSE39	SE38	WSW41	WNNW41	N39	N38	SSE39	SSE35	SSE37	SSE38	SE39	SE42	SE41	SE37	SE36	SE40	SE41	SE37	S35	SSE39	SSE41	S40	SSE44	SE44	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

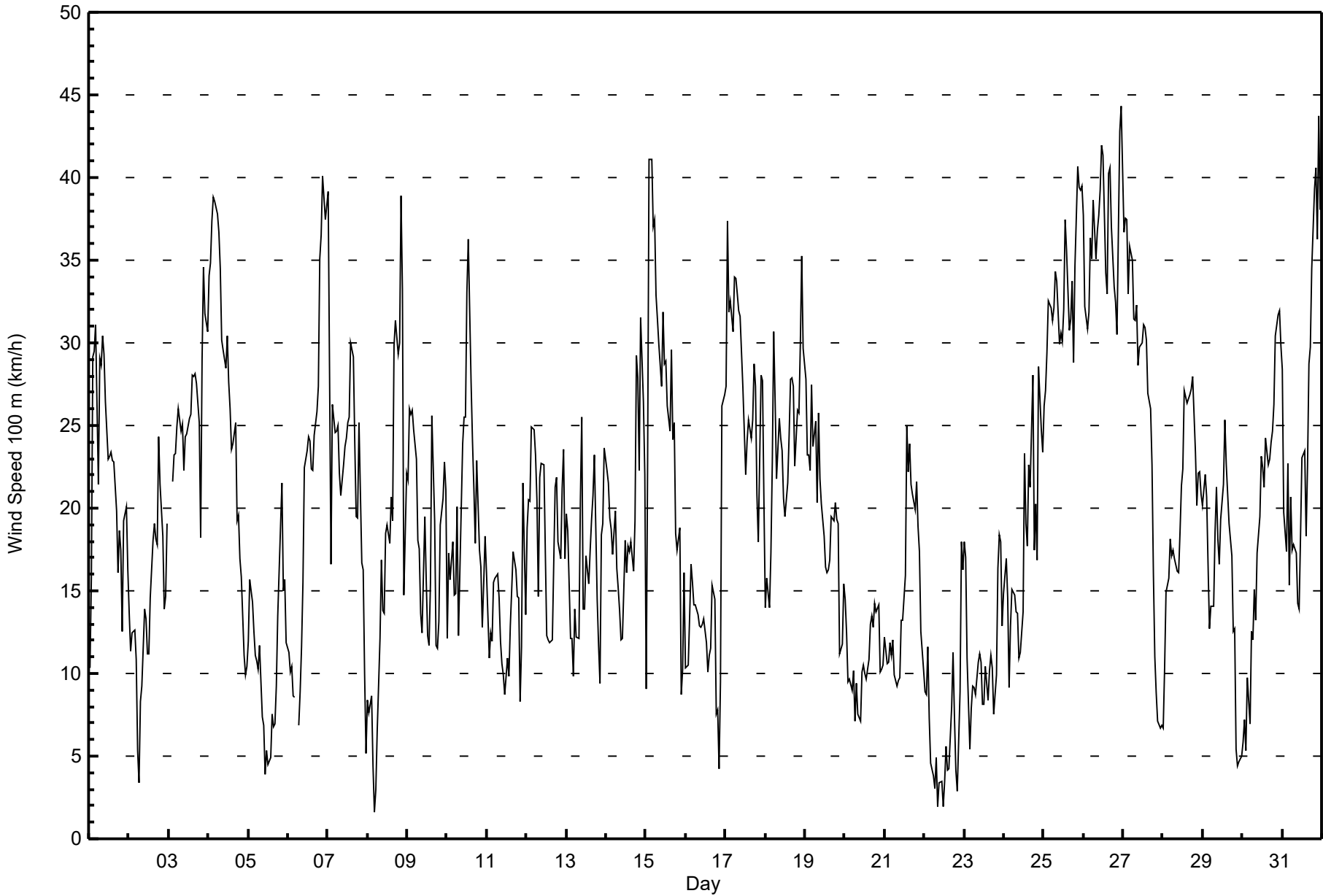
Wind Speed 100 m (WS100m) - km/h
Lower Camp Met Tower - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Mar 18 00:00 Minimum Value: 1 km/h on Mar 22 03:00 Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 7																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6										
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	2	7	3	7	5	5	2	3	2	3	4	5	5	4	4	4	4	3	2	3	2	3	4	3	7		
2-Mar	3	3	3	2	1	2	1	2	2	5	2	3	3	4	3	4	3	3	3	3	4	3	3	3	5		
3-Mar	DF	DF	3	3	3	3	4	3	4	4	4	3	4	4	4	4	5	5	5	3	5	5	5	5	5		
4-Mar	4	4	4	4	4	4	4	4	4	5	4	3	4	3	4	3	3	3	3	3	1	1	2	1	5		
5-Mar	1	2	2	1	1	1	1	1	2	1	2	2	1	2	3	2	4	1	1	5	5	3	2	4	5		
6-Mar	2	2	2	3	4	DF	3	4	2	4	3	3	2	2	4	4	3	3	2	3	2	2	2	2	4		
7-Mar	3	5	5	4	3	4	3	2	2	2	3	3	3	3	4	2	3	2	3	3	3	2	4	3	5		
8-Mar	4	4	2	2	1	1	2	1	2	2	2	3	3	3	4	5	3	3	3	4	2	6	4	5	6		
9-Mar	4	3	3	2	2	3	1	2	2	2	3	3	3	2	6	3	3	3	2	3	2	3	2	2	6		
10-Mar	3	3	2	3	2	2	3	3	7	3	5	4	7	5	6	5	4	3	3	3	2	4	4	3	7		
11-Mar	4	4	3	3	4	3	3	3	2	2	2	3	2	2	2	3	3	2	1	1	3	8	5	5	8		
12-Mar	4	3	3	3	4	3	4	4	3	4	5	4	2	2	2	2	3	4	5	4	4	3	4	4	5		
13-Mar	5	5	2	3	3	3	2	2	5	4	3	3	3	3	3	3	3	4	6	3	3	4	3	2	6		
14-Mar	2	2	1	2	1	2	2	1	2	2	2	2	3	4	5	2	3	4	4	3	2	3	4	6	6		
15-Mar	4	6	4	6	6	5	5	7	4	7	6	6	6	4	4	5	4	4	4	3	4	2	3	3	7		
16-Mar	2	3	2	2	2	2	2	2	2	2	3	3	2	3	2	4	2	3	3	1	1	6	5	4	6		
17-Mar	4	4	5	5	3	3	4	4	3	4	5	5	4	4	4	4	4	5	5	5	5	6	8	9	9		
18-Mar	4	4	3	4	6	5	4	3	5	6	4	4	3	3	2	4	5	5	4	5	5	6	6	5	6		
19-Mar	5	5	5	4	4	5	6	5	3	3	3	5	4	4	4	4	3	3	3	2	2	3	2	2	6		
20-Mar	3	2	3	3	2	1	2	1	2	2	3	3	3	4	3	3	3	2	2	2	2	2	2	1	4		
21-Mar	1	2	1	1	2	1	2	2	1	1	3	3	5	4	4	4	4	4	2	4	3	3	2	2	5		
22-Mar	2	2	1	2	1	1	1	1	1	1	2	1	2	2	2	2	3	1	2	1	1	3	3	2	3		
23-Mar	2	2	3	1	1	1	2	2	2	1	1	2	3	3	3	3	2	2	3	3	3	4	4	4	4		
24-Mar	4	2	3	2	2	2	1	2	2	3	2	4	5	4	4	4	6	5	4	6	5	4	4	3	6		
25-Mar	4	3	2	2	2	2	3	3	4	4	4	3	5	5	6	5	5	5	5	6	5	5	4	4	6		
26-Mar	4	5	5	5	5	5	5	5	6	6	5	5	6	6	6	4	5	6	6	6	6	6	5	6	6		
27-Mar	5	5	5	5	6	4	4	5	5	5	6	5	6	5	6	7	6	5	5	5	4	4	3	2	7		
28-Mar	2	2	1	1	1	2	1	2	2	2	2	3	4	4	4	5	3	4	4	3	2	1	2	3	5		
29-Mar	2	2	2	4	2	2	2	4	3	4	4	4	4	5	4	4	4	4	3	3	3	2	1	2	5		
30-Mar	2	2	1	3	2	3	2	2	3	2	2	5	4	5	4	4	4	4	3	2	3	3	3	2	5		
31-Mar	3	3	4	2	3	2	2	3	2	2	2	3	3	4	5	5	4	3	4	3	5	5	4	4	5		
																	5 7 5 7 6 5 6 7 7 7 6 6 7 6 6 7 6 6 6 6 6 6 8 8 9										
Diurnal Maximum																											
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	30	4.05	4.05
6 - 11	115	15.52	19.57
12 - 19	245	33.06	52.63
20 - 28	212	28.61	81.24
29 - 38	117	15.79	97.03
> 38	22	2.97	100.00

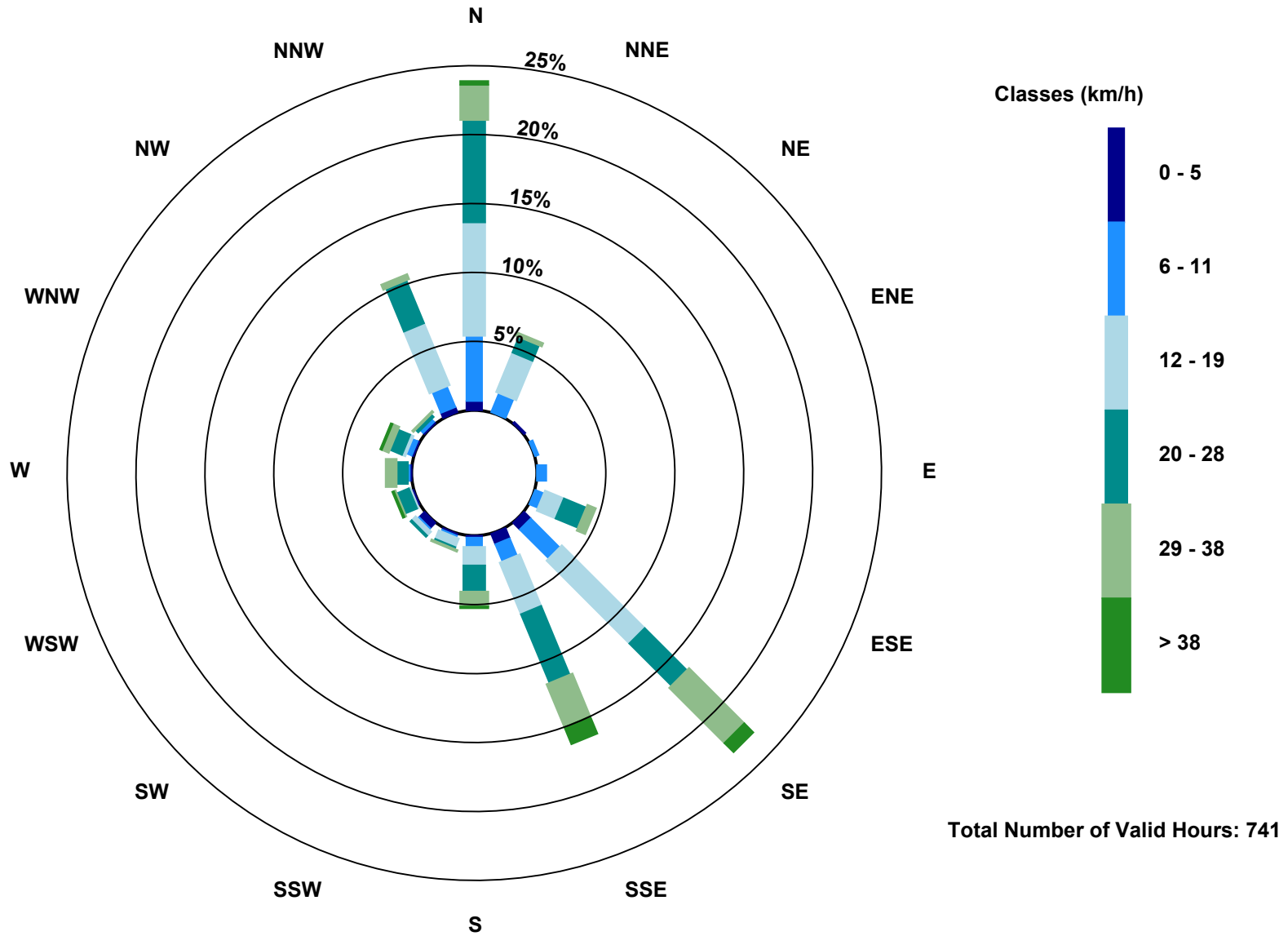
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Maximum Speed: 51 km/h on Mar 15 04:00	Maximum Daily Speed Average: 38.3 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 2 km/h on Mar 22 07:00	Minimum Daily Speed Average: 2.1 km/h on Mar 5	Hours of Data: 741
Maximum Diurnal Speed Average: 8.5 km/h at hour 23	Minimum Diurnal Speed Average: 2.5 km/h at hour 14	Hours of Missing Data: 3
Monthly Average Velocity: 5.1 km/h 118.3 deg	Percentiles: P ₁ = 3 P ₁₀ = 10 Q ₁ = 15 Median = 22 Q ₃ = 29 P ₉₀ = 36 P ₉₉ = 46	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-Mar	WNW15	WNW24	WNW31	WNW32	WNW34	W24	W29	W28	WNW29	W29	W28	WNW24	WNW24	WNW24	WNW24	NW24	NW21	NNW18	NNW20	N25	N16	N20	NNE29	NE26	NW20.7	WNW34	
2-Mar	NE24	NE21	NNE21	NNE20	NNE16	NE14	NNE10	NNE11	NNE15	NNE17	NNE13	N11	N11	NNE15	NNE18	NNE18	NNE17	NNE18	NNE29	NNE26	NNE23	NNE18	NNE18	N21	NNE17.4	NNE29	
3-Mar	DF	DF	N22	N24	N25	N26	NNE28	NNE27	NNE28	NNE23	NNE25	NNE25	N26	N27	N29	N30	N31	N30	N28	N22	N32	N37	N36	N33	N27.7	N37	
4-Mar	N36	N37	N39	N41	N41	N40	N40	N36	N33	N31	N30	N31	N28	N27	N24	N25	N26	N22	N23	N20	N17	N14	NNE13	NNE13	N28.4	N41	
5-Mar	N13	N17	N16	N16	NNE14	N13	N12	N12	NNE7	NNE7	N3	SW2	SW5	SSW5	S8	SSW7	S8	S10	S13	S19	S25	S28	S29	S21	S2.1	S29	
6-Mar	S18	SSE15	SSE16	SSE16	S13	DF	SSE19	S21	SSE18	S21	S27	S25	SSE24	SSE24	S24	S24	S25	S28	S30	S38	S42	SSW42	SSW45	S46	S25.6	S46	
7-Mar	S46	S37	SSE25	SSE30	SSE27	SSE31	SSE31	SSE30	SSE30	SSE28	SSE23	SSE25	SSE27	SSE29	SSE31	SSE29	S26	SSW22	S21	S28	S23	SSW17	SW11	WSW15	S25.3	S46	
8-Mar	W14	WNW15	NW18	NNW12	NW7	SSW4	SSW8	S12	SSE16	SE15	SE15	SSE21	SSE20	SSE17	SE22	SE21	SE35	SE34	SSE29	SSE41	S45	SSE41	SSE30	SSE33	SSE16.3	S45	
9-Mar	SSE29	S32	S31	S29	SSE28	SSE25	SSE19	SSE20	SE21	SE24	SE23	SE20	SSE14	SE15	SE19	SE31	SSE22	SSE17	SSE14	SSE14	S23	S26	S22	S18	SSE21.7	S32	
10-Mar	S17	S22	SSW20	SSW18	SW16	WSW21	WSW25	W22	WSW30	WSW29	WSW30	W29	W37	W40	W31	WNW29	WNW25	WNW22	NW26	NNW24	NNW23	NNE16	NNE20	NNE21	W16.2	W40	
11-Mar	NNE20	NE13	NE14	NE13	N14	NNE16	NNE16	NNE14	NNE11	N10	NNW10	N9	NNW11	NNW9	N12	N15	NNW16	N17	N17	N13	ESE9	SE23	SE25	SE22	NNE9.4	SE25	
12-Mar	SE24	SE26	SE24	SE29	SE31	SE29	SE24	SE21	ESE25	SE25	SE26	ESE17	ESE11	SE11	SE12	ESE13	ESE17	ESE22	ESE24	ESE20	ESE19	ESE24	SE28	SE21	SE21.7	SE31	
13-Mar	SE24	SE24	SE18	SE17	SE17	SE22	SE19	SE18	SE24	SE24	SE14	SE15	SE18	SE16	SE18	SE21	SE23	SE28	SE22	SE22	SE21	SE25	SSE23	S25	SE20.6	SE28	
14-Mar	S21	S20	SSW18	SSW17	SSW17	SSW18	SSW17	SW15	SSW15	SSW12	SSW10	S16	S18	SSW19	SW20	SW20	SSW17	SW22	SSW34	SW32	WSW32	WSW40	WSW36	W31	SW19.3	WSW40	
15-Mar	WNW14	W27	W44	WNW51	NW49	NW45	N38	N35	N32	NNW30	NNW34	NNW31	NNW30	N26	N25	NNE30	NNE25	NNE26	NNE20	NNE20	NNE24	NNE12	NNE15	NNE25	NNW23.9	WNW51	
16-Mar	NNE15	NNE12	N13	N15	NNE15	N13	NNE13	N13	N12	N12	N13	N13	N11	NNW9	NW11	NNW12	NNW15	N15	NNE7	NNE7	NE5	SE15	SE28	SE29	NNE8.2	SE29	
17-Mar	SE30	SE39	SE36	SE36	SE35	SE37	SE37	SE36	SE35	SE34	SSE27	SSE24	SSE22	SSE24	SSE24	SSE29	S28	S32	SSW34	SSW37	SSW32	WSW39	WNW36	NNW26	SSE23.7	WSW39	
18-Mar	NNE19	NNE20	NNE18	NNE20	N27	N33	N30	N22	N26	N24	N23	N20	N19	N22	N24	NNE28	NNE28	NNE29	NNE24	NNE28	N27	N32	NNE40	N31	N25.4	NNE40	
19-Mar	NNE30	NNE27	NNE25	NNE24	NNE28	N25	NNE28	NNE21	N25	N21	N20	N19	N16	NNW16	N16	NNE17	NNE20	NNE19	NNE23	NNE24	NNE26	NNE17	N11	N17	NNE21.0	NNE30	
20-Mar	NNE18	NNE18	NNE18	NNE19	N12	N13	NNE11	NNE11	NNE10	N7	N10	N10	NNW10	NNW10	N11	N12	N13	NNE12	NNE15	NNE19	NNE21	NNE16	ENE11	ENE8	NNE12.6	NNE21	
21-Mar	NE11	NE12	NE12	ENE12	ENE10	ENE9	ENE9	NE9	NE12	N10	N13	N13	N16	N24	NNE22	NNE23	NNE22	NNE22	NNE22	NNE22	NNE27	NNE27	NNE26	NE22	NE20	NNE15.7	NNE27
22-Mar	NE13	NNE5	N5	NNE7	NNE5	NE2	E2	S4	S8	SSE5	S4	S2	SSE3	SSE4	SSE3	SE4	SE7	SE11	SE8	SSE6	S4	SE10	S25	SSE22	SE4.4	S25	
23-Mar	SSE21	SSE19	SE12	SSE6	S5	SSE9	SSE13	SSE14	SSE12	S10	SSE9	S8	SE8	SE10	ESE8	ESE10	ESE11	ESE11	ESE9	SE14	SE22	SE25	SE26	SE20	SE12.5	SE26	
24-Mar	SSE20	SSE19	SSE16	S15	SSE15	SSE15	SSE16	SSE15	SSE19	SSE13	SSE12	SSE13	SSE23	SSE20	SSE18	SE23	SSE21	SSE29	SSE21	SE24	SE23	SE33	SE30	SE29	SE19.7	SE33	
25-Mar	SE31	SE32	SE32	SE36	SE35	SE38	SE38	SE37	SE36	SE33	SE32	SE30	SE33	SE38	SE37	SSE32	SSE33	SSE35	SSE31	SSE39	SSE43	SSE43	SSE46	SSE45	SSE35.2	SSE46	
26-Mar	SSE41	SSE37	SSE35	SSE36	SSE38	SSE39	SSE41	SSE37	SSE39	SSE39	SE39	SE43	SE43	SSE35	SSE34	SE40	SE41	SSE38	SSE36	SSE36	SSE35	SE37	SE44	SE45	SSE38.3	SE45	
27-Mar	SE41	SE42	SE41	SE37	SE40	SE40	SE35	SE36	SE37	SE32	SE32	SE33	ESE34	ESE33	ESE34	ESE31	ESE29	ESE25	ESE18	E13	E11	E9	E8	E8	ESE28.8	SE42	
28-Mar	ENE6	ENE9	NE13	NNE15	NNE18	NNE22	NNE22	NNE19	N16	N15	N18	N22	N24	N27	N26	N28	N27	N27	N29	N28	N24	N24	N25	N22	N20.2	N29	
29-Mar	N21	N24	N24	N22	N18	N19	N18	N23	N21	N19	N16	NNW20	NNW21	N25	N23	N21	N20	N18	NNE13	NE13	NE9	NNE4	NNW5	NW5	N17.1	N25	
30-Mar	WNW5	SW3	S9	SSE11	S13	S13	SSE18	SSE19	SSE16	SE15	SSE20	SSE24	SSE23	SSE21	SSE25	SSE22	SE23	SE26	SE30	SE32	SE36	SE36	SE33	SE29	SSE20.0	SE36	
31-Mar	SE26	SE24	SE23	SSE24	SSE22	SSE25	SSE24	S20	S17	SSE14	SSE14	SE19	SSE24	S25	SSW19	S24	S32	S33	S38	S46	S49	S42	S49	S45	S27.1	SSE49	

ESE7.7	ESE7.1	ESE4.7	ESE4.4	E3.9	E5.0	ESE5.1	ESE4.9	ESE5.4	ESE4.7	ESE3.4	ESE3.5	ESE3.4	SE2.5	ESE2.9	ESE3.9	ESE4.8	ESE5.3	ESE5.1	SE6.2	SE7.0	SE7.9	SE8.5	SE7.4	Diurnal Average
S46	SE42	W44	WNW51	NW49	NW45	SSE41	SE37	SSE39	SSE39	SE39	SE43	SE43	W40	SE37	SE40	SE41	SSE38	S38	S46	S49	SSE43	SSE49	S46	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

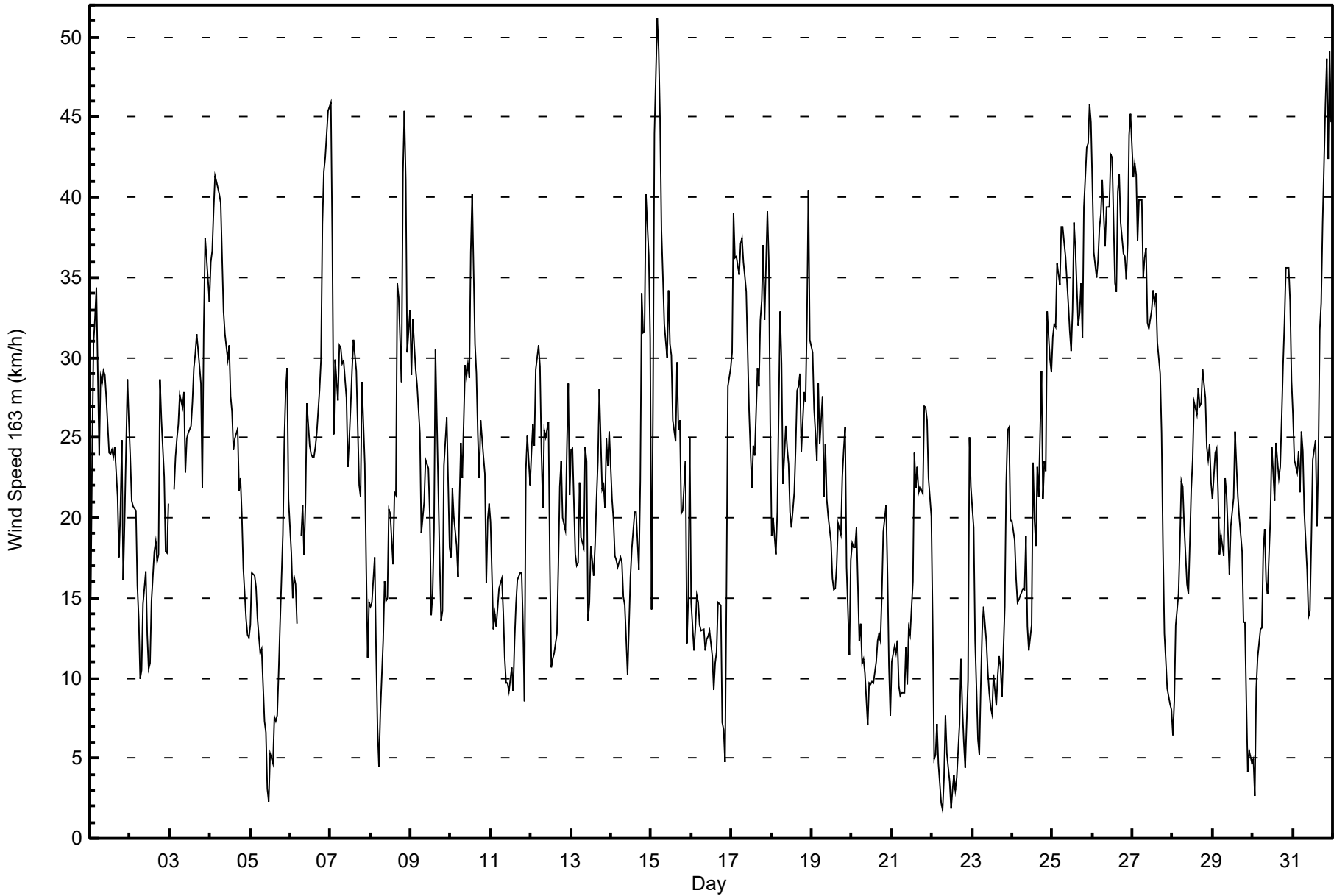
Wind Speed 163 m (WS163m) - km/h
Lower Camp Met Tower - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Mar 11 22:00 Minimum Value: 1 km/h on Mar 30 00:00 Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 7																		Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6																													
Day	Hourly Period Ending At (MST)																								Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Mar	3	6	3	5	4	4	2	3	2	2	4	5	4	4	4	4	3	3	3	2	3	2	6	3	6																						
2-Mar	1	3	4	3	1	2	2	3	2	4	3	3	3	4	3	3	4	3	3	4	4	4	4	3	4																						
3-Mar	DF	DF	3	3	4	4	4	4	5	4	5	4	3	3	3	4	4	4	4	5	4	5	5	5	5																						
4-Mar	4	4	4	4	5	4	4	4	4	5	4	3	4	3	3	3	2	3	3	3	1	2	2	2	5																						
5-Mar	1	3	2	1	1	1	1	1	2	1	2	1	3	2	3	2	3	2	1	5	2	2	2	5	5																						
6-Mar	2	3	2	3	5	DF	4	4	3	3	2	2	2	2	4	3	2	3	2	3	3	1	1	1	5																						
7-Mar	2	4	5	2	2	2	2	2	3	4	3	4	3	5	4	2	3	2	3	3	4	3	3	4	5																						
8-Mar	6	4	3	3	2	2	2	1	2	2	3	2	3	3	3	6	3	3	3	5	2	3	5	3	6																						
9-Mar	3	1	2	1	1	2	2	2	2	2	2	3	3	3	7	4	3	4	4	2	2	3	3	2	7																						
10-Mar	3	2	1	2	2	2	3	3	3	3	4	4	7	4	5	6	5	3	2	3	3	5	4	4	7																						
11-Mar	3	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	1	1	2	3	9	4	4	9																						
12-Mar	3	3	3	2	3	2	3	3	3	4	5	5	2	2	2	3	3	3	3	5	4	3	3	4	5																						
13-Mar	5	5	3	1	3	3	2	2	4	3	3	3	2	3	3	3	3	3	5	3	4	2	3	4	5																						
14-Mar	2	2	2	2	2	2	1	1	1	1	2	4	3	3	5	3	3	4	4	3	3	3	3	8	8																						
15-Mar	6	7	4	7	5	5	5	6	4	6	5	5	4	4	4	6	4	4	4	4	3	3	4	2	7																						
16-Mar	3	2	2	2	3	2	3	3	2	2	3	3	3	3	2	4	2	3	2	1	2	5	4	3	5																						
17-Mar	3	4	4	4	4	3	3	4	3	4	4	5	4	4	3	5	4	4	5	3	3	6	8	8	8																						
18-Mar	5	5	4	4	6	5	5	3	5	5	3	3	2	3	3	4	6	5	5	5	6	7	6	5	7																						
19-Mar	5	4	5	4	4	5	7	5	4	3	3	4	4	4	3	3	3	3	3	2	2	4	2	1	7																						
20-Mar	1	1	2	2	2	1	2	2	2	2	3	3	3	4	2	3	3	2	2	3	3	3	2	2	4																						
21-Mar	3	2	2	1	3	3	2	2	2	1	3	3	5	3	4	4	4	4	3	4	2	2	2	2	5																						
22-Mar	4	2	1	1	1	2	1	2	1	1	1	2	2	2	2	2	3	1	2	1	1	5	2	2	5																						
23-Mar	2	1	3	2	1	3	2	2	1	1	1	2	3	3	3	3	3	3	3	4	3	2	2	3	4																						
24-Mar	2	2	1	1	2	1	1	2	2	3	2	4	4	4	4	4	6	4	4	4	6	4	4	3	6																						
25-Mar	3	3	2	2	2	2	3	2	3	3	3	3	4	4	6	5	5	4	5	5	5	4	3	3	6																						
26-Mar	4	5	5	5	5	6	5	5	6	5	5	4	5	6	7	4	4	5	6	6	6	5	5	5	7																						
27-Mar	4	5	4	5	5	5	4	5	5	5	6	5	6	5	6	6	6	5	5	6	5	5	3	3	6																						
28-Mar	2	2	1	1	1	1	1	2	2	2	2	3	3	3	3	4	3	3	2	2	2	1	1	2	4																						
29-Mar	2	2	2	4	2	2	2	4	3	5	4	3	4	4	4	4	3	4	3	3	1	1	1	1	5																						
30-Mar	1	1	2	1	2	2	1	1	3	2	2	5	4	5	4	4	4	3	3	2	2	3	4	2	5																						
31-Mar	2	2	2	2	3	3	2	2	2	2	1	3	3	4	5	5	5	2	4	3	4	5	4	4	5																						
Diurnal Maximum																								6	7	5	7	6	6	7	6	6	6	6	5	7	6	7	6	6	5	6	6	6	9	8	8
DF - DAS Failure																																															



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	26	3.51	3.51
6 - 11	74	9.99	13.50
12 - 19	195	26.32	39.81
20 - 28	250	33.74	73.55
29 - 38	147	19.84	93.39
> 38	49	6.61	100.00

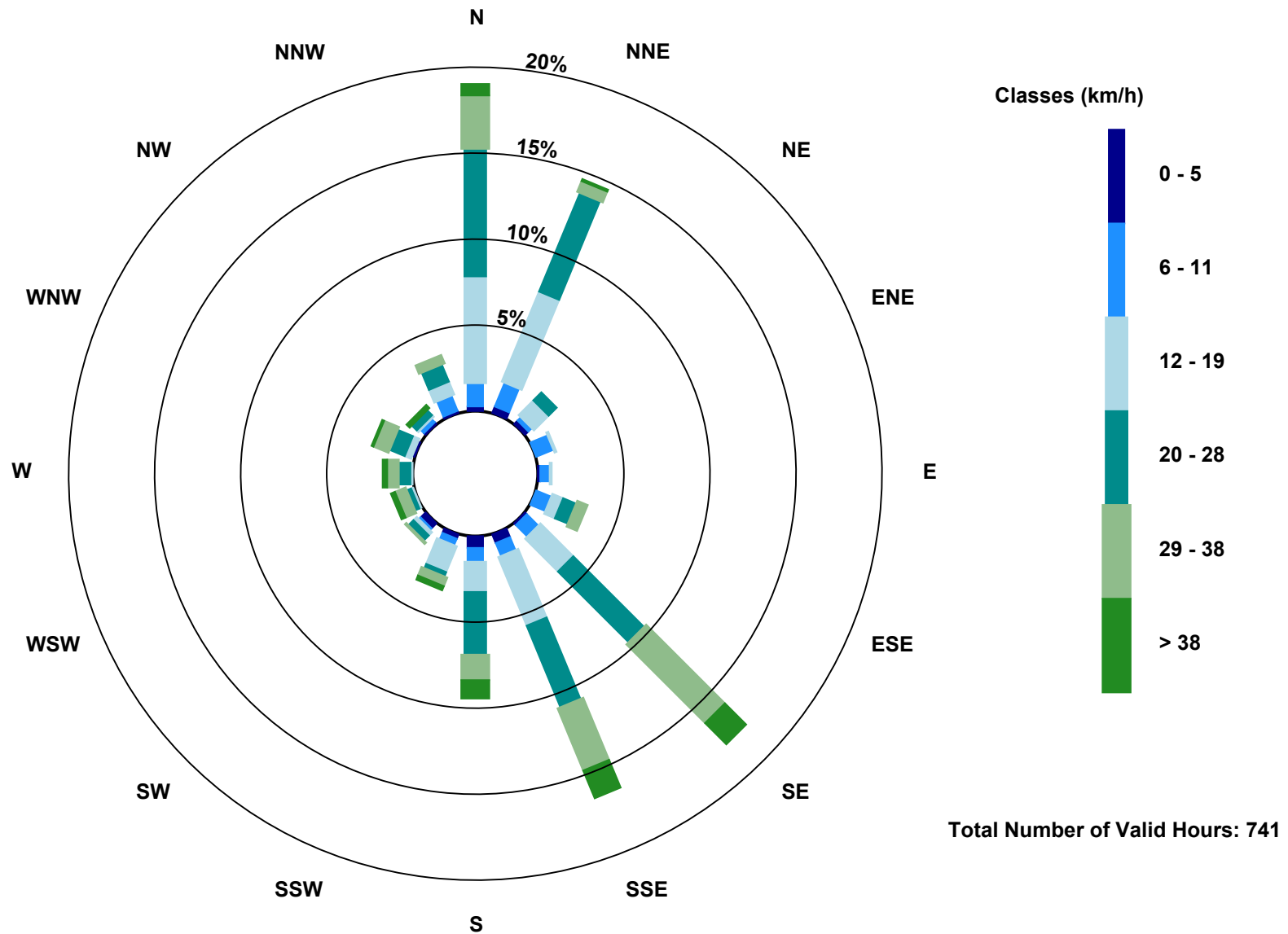
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 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 - March 2024

Direction of Maximum Speed: 156 deg on Mar 31 23:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 151.8 deg on Mar 26	Hours of Data: 741
Direction of Minimum Speed: 157 deg on Mar 22 20:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.7 deg on Mar 5	Percent Operational Time: 99.6
Monthly Average Direction: 109.2 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-Mar	268	317	286	283	288	270	258	260	255	255	267	293	292	305	304	303	306	322	332	339	347	346	1	1	290.1
2-Mar	350	347	351	22	342	322	347	335	354	9	18	360	353	4	6	6	14	359	352	345	349	9	9	352	359.2
3-Mar	DF	DF	355	355	357	352	354	359	360	4	5	1	350	341	342	338	341	343	344	335	347	347	347	344	350.2
4-Mar	346	345	345	349	351	350	349	348	347	349	344	346	346	343	343	343	348	342	340	341	336	333	342	338	345.9
5-Mar	340	340	323	331	333	333	335	340	346	353	335	219	239	246	192	226	203	183	145	136	136	125	124	110	255.3
6-Mar	91	87	103	65	103	DF	108	98	124	95	136	140	156	155	166	183	191	180	175	171	172	165	166	164	157.9
7-Mar	157	145	107	151	149	138	139	139	137	144	152	154	152	151	160	158	168	184	167	156	148	139	135	178	151.0
8-Mar	220	249	273	194	196	151	154	143	145	138	145	138	143	140	137	134	135	129	137	137	144	137	90	118	141.4
9-Mar	131	134	131	139	139	133	133	138	123	130	150	155	165	154	149	144	136	144	133	125	131	140	136	132	138.4
10-Mar	135	133	138	128	128	135	146	133	150	241	247	259	279	265	276	293	300	289	320	345	295	336	336	347	249.3
11-Mar	13	16	31	16	352	350	3	10	358	340	314	331	324	339	328	328	322	325	331	316	358	359	36	351	347.3
12-Mar	11	100	99	105	102	95	106	87	107	122	123	135	142	149	151	140	108	111	109	103	105	104	116	114	116.1
13-Mar	119	103	122	134	130	143	134	131	133	140	136	139	138	140	140	142	143	142	158	164	135	148	142	142	137.7
14-Mar	138	134	132	133	134	138	134	136	132	130	132	136	150	210	231	229	172	175	165	166	217	253	255	277	157.0
15-Mar	222	253	252	275	302	319	351	352	353	336	339	329	337	351	357	14	15	12	15	9	15	10	17	8	338.8
16-Mar	10	11	345	348	7	3	360	359	348	346	342	341	344	329	302	329	323	338	345	357	340	55	128	125	353.1
17-Mar	125	132	125	132	128	128	124	123	128	138	150	165	158	152	145	135	140	171	160	116	118	245	264	352	141.1
18-Mar	356	350	352	358	1	0	353	359	0	353	347	347	347	352	3	10	9	8	9	9	2	357	15	3	0.3
19-Mar	8	16	14	12	8	4	4	7	5	1	356	351	349	344	0	8	23	20	29	20	17	343	317	345	5.4
20-Mar	6	0	17	333	350	348	40	3	355	355	355	343	331	337	352	352	351	12	359	343	341	348	356	4	352.7
21-Mar	2	353	338	349	347	345	332	340	351	355	339	348	352	354	11	360	23	21	360	6	7	349	347	340	357.2
22-Mar	338	322	318	332	334	347	349	338	69	142	104	197	166	140	108	127	152	143	142	157	319	163	323	322	127.7
23-Mar	354	21	342	326	317	214	154	135	134	130	128	128	134	130	125	115	124	92	81	129	130	117	178	31	120.9
24-Mar	112	115	129	121	114	138	130	137	136	143	137	144	162	161	153	145	150	174	143	146	140	126	128	118	144.5
25-Mar	111	105	107	114	108	122	126	128	127	124	138	136	132	133	146	165	163	164	161	162	161	160	162	159	143.6
26-Mar	159	161	158	154	151	159	161	163	160	160	137	133	136	153	152	136	138	150	164	162	163	146	138	139	151.8
27-Mar	126	125	124	127	128	128	127	122	125	122	126	128	122	115	112	113	114	111	98	84	76	49	36	30	118.8
28-Mar	351	350	352	348	351	350	349	346	348	344	345	346	344	345	345	345	350	348	341	340	335	333	339	341	345.4
29-Mar	347	354	350	344	327	337	337	337	357	360	347	342	343	346	355	350	347	3	22	26	270	321	266	291	347.7
30-Mar	130	143	160	186	219	132	132	140	140	142	137	148	162	160	160	148	143	135	131	128	130	120	123	136	142.1
31-Mar	135	133	137	143	117	136	131	132	136	133	136	141	144	174	205	175	181	160	159	159	161	157	156	163	156.0

99.7	97.3	72.5	89.8	76.5	81.8	84.6	90.9	91.9	101.5	108.6	125.4	136.3	142.5	135.1	115.4	116.4	118.7	110.7	123.7	128.7	129.9	119.0	110.7
Diurnal Average																							

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

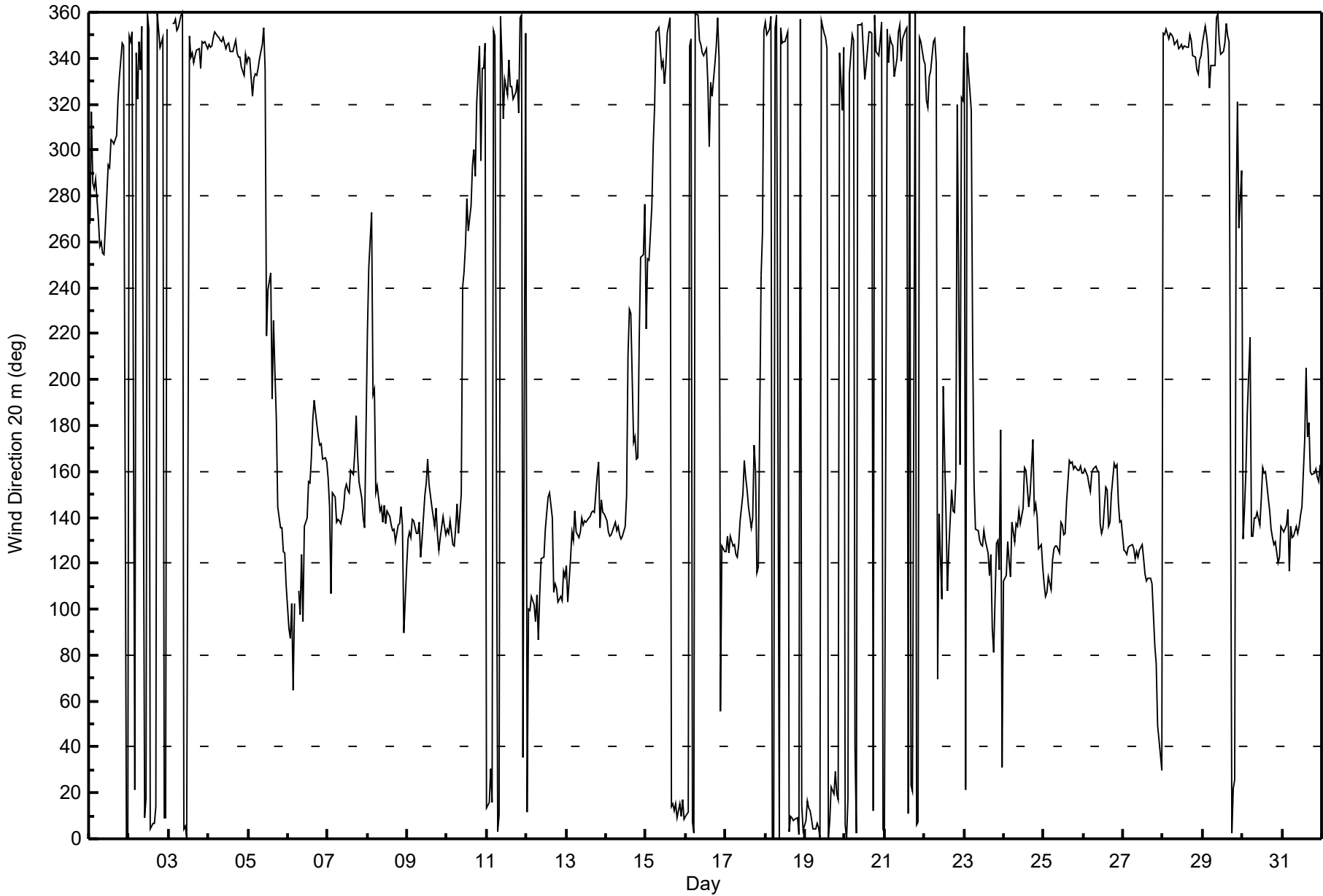
Wind Direction 20 m (WD20m) - deg
Lower Camp Met Tower - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 102 deg on Mar 30 01:00	Hours of Data: 741
Minimum Value: 4 deg on Mar 7 08:00	Hours of Missing Data: 3
Percentiles: P ₁ = 6 P ₁₀ = 9 Q ₁ = 14 Median = 17 Q ₃ = 23 P ₉₀ = 36 P ₉₉ = 82	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-Mar	27	43	15	16	18	21	16	19	17	14	20	22	20	20	20	19	20	23	14	16	44	23	18	15	44
2-Mar	29	27	57	31	51	21	19	15	16	27	23	31	28	28	23	22	22	19	15	16	16	19	17	15	57
3-Mar	DF	DF	15	15	17	17	15	16	18	19	18	19	15	16	16	17	16	17	16	20	14	14	16	16	20
4-Mar	14	15	13	15	13	13	13	14	15	15	14	14	15	16	16	17	14	17	17	17	17	16	15	18	18
5-Mar	21	21	21	16	19	16	22	20	16	59	46	9	22	72	35	20	19	34	28	49	16	29	13	28	72
6-Mar	17	17	14	23	34	DF	48	47	46	77	14	9	7	7	14	10	9	7	5	5	5	6	6	7	77
7-Mar	7	20	32	12	10	7	4	4	8	7	13	11	10	10	9	6	14	9	6	15	13	7	32	44	44
8-Mar	41	25	54	72	38	36	22	7	7	12	13	13	15	15	13	21	16	15	15	7	8	9	54	10	72
9-Mar	10	7	7	5	6	6	9	8	10	23	9	9	20	12	34	13	10	28	28	54	22	6	5	23	54
10-Mar	91	18	11	8	7	9	20	12	36	12	15	17	18	17	21	18	21	19	12	86	39	25	20	16	91
11-Mar	20	22	20	29	15	20	18	18	16	19	24	27	26	24	18	16	16	15	20	18	12	42	44	40	44
12-Mar	57	30	37	27	28	26	19	49	34	25	23	17	10	9	9	17	16	17	18	19	16	19	17	25	57
13-Mar	20	20	67	28	23	67	31	25	24	14	18	16	17	14	16	17	17	21	44	33	76	42	30	20	76
14-Mar	12	16	11	11	10	17	11	7	9	8	12	7	44	17	25	23	10	11	6	16	45	13	25	21	45
15-Mar	70	29	11	21	16	16	16	23	17	19	17	18	19	15	16	20	23	18	19	17	17	24	25	20	70
16-Mar	22	22	16	14	17	21	17	17	15	20	20	20	22	26	27	23	16	16	23	22	38	97	18	17	97
17-Mar	16	16	20	17	15	16	17	16	18	17	16	14	12	11	10	9	11	10	8	58	14	48	82	64	82
18-Mar	26	23	17	12	18	15	18	17	23	20	18	18	17	17	16	18	18	17	19	20	19	17	16	17	26
19-Mar	18	19	19	17	17	17	17	18	18	20	18	25	27	20	26	28	20	17	16	14	15	29	14	24	29
20-Mar	23	36	31	41	16	17	40	14	21	23	30	33	29	36	32	24	23	18	17	18	18	21	14	15	41
21-Mar	13	24	16	10	14	21	26	21	15	14	21	22	23	17	22	20	21	19	17	16	20	17	21	34	34
22-Mar	17	20	27	14	22	14	18	29	56	54	31	36	55	26	25	39	16	16	20	99	48	49	99	45	99
23-Mar	81	34	11	25	30	61	23	15	10	20	16	21	18	20	34	27	29	22	15	21	18	52	83	54	83
24-Mar	33	47	26	43	45	14	15	14	14	31	14	22	13	18	22	17	16	7	22	27	28	17	16	17	47
25-Mar	15	15	13	12	15	15	17	20	19	19	15	15	17	16	17	13	10	9	9	8	7	7	8	8	20
26-Mar	7	7	9	9	11	8	8	8	9	10	16	16	17	16	17	14	15	17	9	10	10	13	14	13	17
27-Mar	15	16	16	17	18	17	16	16	16	16	18	19	18	22	19	19	19	20	24	33	45	66	31	41	66
28-Mar	15	11	10	11	10	11	11	12	13	15	15	17	17	17	17	17	15	16	15	16	17	17	17	16	17
29-Mar	14	13	17	21	22	22	26	17	17	20	25	21	22	20	21	19	17	25	25	66	58	30	24	44	66
30-Mar	102	38	30	39	52	16	41	15	16	22	11	15	14	15	15	15	15	18	18	15	15	14	17	18	102
31-Mar	21	31	35	13	27	16	27	27	9	14	14	10	15	25	27	17	14	7	6	6	8	8	7	8	35
	102	47	67	72	52	67	48	49	56	77	46	36	55	72	35	39	29	34	44	99	76	97	99	64	

Diurnal Maximum

DF - DAS Failure





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 136 deg on Mar 27 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 147.2 deg on Mar 26	Hours of Data: 724
Direction of Minimum Speed: 126 deg on Mar 22 09:00	Hours of Missing Data: 20
Direction of Minimum Daily Speed Average: 0.8 deg on Mar 5	Percent Operational Time: 97.3
Monthly Average Direction: 100.3 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-Mar	268	306	286	283	285	267	257	259	253	255	267	293	294	302	304	301	305	325	335	342	356	336	2	3	290.5
2-Mar	359	DF	UO	UO	UO	UO	UO	UO	UO	9	16	2	355	8	8	7	12	2	356	350	353	8	8	355	--
3-Mar	DF	DF	UO	UO	UO	UO	UO	UO	UO	7	5	3	352	343	344	340	343	345	348	338	350	350	349	347	--
4-Mar	347	346	348	351	353	351	351	350	350	350	347	347	347	344	343	345	349	344	341	343	340	336	346	345	347.6
5-Mar	346	342	336	335	336	337	340	342	350	350	338	213	238	245	191	221	195	180	172	167	159	127	119	100	282.3
6-Mar	105	98	109	80	109	DF	UO	UO	94	122	139	141	154	155	166	183	191	180	176	173	173	169	170	167	159.8
7-Mar	159	147	120	152	152	141	142	139	136	140	146	149	149	147	158	157	170	193	170	161	153	140	136	158	150.7
8-Mar	264	264	276	236	155	137	137	131	132	130	134	132	137	136	133	129	130	129	130	137	153	144	106	120	136.9
9-Mar	130	134	135	142	144	137	125	134	122	124	146	148	158	148	137	132	132	135	140	134	142	146	157	147	138.8
10-Mar	132	132	128	142	136	162	198	152	194	237	244	260	278	264	277	293	299	295	318	335	349	346	345	351	266.0
11-Mar	15	18	31	17	356	356	4	10	0	344	314	334	325	339	328	328	322	329	337	328	349	21	106	99	352.3
12-Mar	94	115	107	116	113	109	114	103	111	123	122	130	137	146	146	133	107	110	109	108	109	109	119	118	117.3
13-Mar	124	114	110	126	134	117	138	130	130	134	131	133	131	134	131	134	132	129	134	140	115	136	133	136	130.5
14-Mar	139	136	130	131	132	135	129	130	128	125	135	137	151	211	232	229	179	187	174	176	215	246	247	276	159.7
15-Mar	249	248	248	275	301	320	354	354	356	337	339	328	337	351	358	13	14	11	14	7	15	10	16	11	338.5
16-Mar	10	9	347	351	7	3	0	359	351	346	344	344	343	332	305	327	323	339	347	359	346	111	127	126	356.6
17-Mar	125	130	124	132	127	130	127	126	127	134	141	157	151	148	139	135	143	177	167	159	162	246	266	352	140.4
18-Mar	2	357	356	0	1	1	358	359	1	354	349	347	348	353	3	9	8	9	10	10	4	1	13	4	1.6
19-Mar	8	16	12	11	8	4	6	8	4	2	358	350	351	344	2	12	21	17	28	16	13	347	320	343	5.4
20-Mar	4	1	6	355	331	337	357	358	354	354	354	344	334	338	352	356	354	11	1	347	348	350	355	359	352.7
21-Mar	357	352	346	351	349	348	342	341	343	348	338	349	351	357	10	2	22	21	2	6	6	352	349	342	357.8
22-Mar	328	326	335	316	320	324	334	299	126	114	112	194	151	136	111	123	145	138	139	132	337	112	129	140	126.2
23-Mar	127	121	10	337	341	131	130	130	124	123	126	127	130	127	123	117	119	93	82	127	125	118	135	138	120.2
24-Mar	136	125	132	130	124	132	131	131	119	142	134	143	160	159	148	141	144	171	140	135	128	127	124	121	139.1
25-Mar	116	111	112	118	115	123	127	129	127	124	134	133	129	131	142	162	161	162	159	158	158	159	162	159	139.5
26-Mar	157	157	154	151	150	156	159	161	159	157	133	130	132	149	148	134	134	145	160	158	158	139	135	136	147.2
27-Mar	125	123	124	125	126	126	125	121	124	122	125	127	122	116	113	112	113	112	100	89	83	68	50	36	118.4
28-Mar	357	352	354	351	354	355	352	349	350	345	346	347	344	345	344	345	351	348	342	342	337	333	338	343	346.5
29-Mar	348	355	352	347	339	347	346	339	359	1	348	341	343	347	355	350	348	5	22	36	336	302	278	251	350.3
30-Mar	213	136	142	143	163	130	134	132	130	134	134	147	158	155	157	145	137	128	127	125	127	121	123	128	136.6
31-Mar	129	129	127	137	125	131	129	131	136	129	134	136	142	173	207	177	183	160	160	159	163	158	155	166	153.5

97.9	100.9	87.8	97.9	84.3	88.3	90.0	91.2	92.9	92.0	99.0	106.6	114.5	114.2	103.1	88.2	97.2	99.4	95.8	108.8	117.7	123.4	114.6	104.7
Diurnal Average																							

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



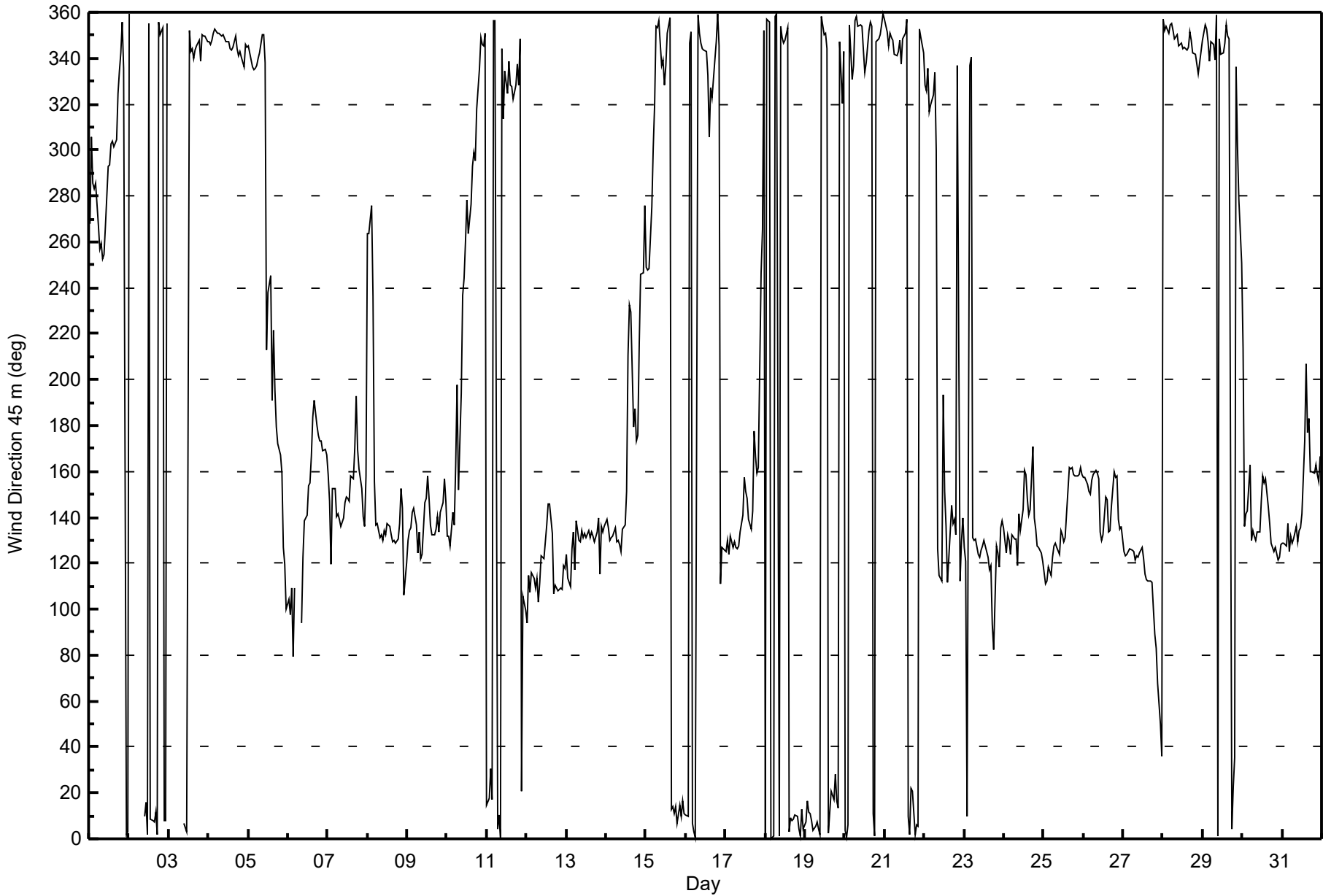
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 91 deg on Mar 16 22:00	Hours of Data: 724
Minimum Value: 2 deg on Mar 9 05:00	Hours of Missing Data: 20
Percentiles: P ₁ = 4 P ₁₀ = 6 Q ₁ = 8 Median = 11 Q ₃ = 15 P ₉₀ = 23 P ₉₉ = 56	Hours of Calibration: 0
	Percent Operational Time: 97.3

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	17	29	8	10	10	17	8	10	9	8	15	18	15	16	17	15	15	18	8	8	22	8	15	11	29
2-Mar	15	DF	UO	UO	UO	UO	UO	UO	UO	30	19	22	23	23	18	15	16	12	7	10	12	12	13	11	30
3-Mar	DF	DF	UO	UO	UO	UO	UO	UO	UO	12	11	12	10	10	10	11	10	11	11	12	10	9	10	10	12
4-Mar	8	9	8	8	8	8	8	8	9	10	9	9	10	10	10	10	8	12	10	10	8	9	9	10	12
5-Mar	7	7	9	8	10	9	12	13	9	23	40	10	26	72	42	20	23	18	7	17	27	12	7	23	72
6-Mar	12	13	11	23	29	DF	UO	UO	21	43	7	7	6	6	14	10	8	7	4	4	4	5	6	7	43
7-Mar	7	12	22	11	10	8	6	4	4	5	12	10	9	9	7	5	15	8	7	8	11	6	13	41	41
8-Mar	56	26	22	18	27	12	9	4	5	8	9	9	10	10	7	11	8	7	8	5	6	8	29	7	56
9-Mar	9	8	9	4	2	6	4	5	6	14	6	10	18	9	24	9	7	16	14	12	6	7	6	9	24
10-Mar	18	11	4	10	12	14	31	30	43	8	11	12	13	12	16	14	16	16	6	12	12	10	15	11	43
11-Mar	15	14	14	24	9	15	12	10	11	14	20	23	22	21	14	11	12	11	9	9	6	52	29	71	71
12-Mar	30	15	11	11	12	12	12	27	16	12	15	13	6	5	7	14	8	9	10	9	10	11	10	13	30
13-Mar	11	13	27	21	17	25	17	14	12	8	12	12	12	10	13	12	10	11	41	33	36	24	17	7	41
14-Mar	3	6	4	4	3	5	3	4	5	4	5	3	39	14	22	19	10	11	5	9	23	8	15	19	39
15-Mar	57	10	5	18	11	14	11	18	11	14	12	13	16	11	11	13	17	12	14	11	12	18	16	11	57
16-Mar	16	16	13	9	10	14	10	11	9	14	13	14	15	18	20	16	12	11	19	16	26	91	9	9	91
17-Mar	8	6	11	8	7	8	9	9	9	8	12	15	12	11	8	6	14	9	6	32	24	23	35	22	35
18-Mar	20	16	14	8	10	9	12	11	19	14	14	12	11	13	9	12	12	12	13	13	13	11	9	9	20
19-Mar	10	12	12	10	9	11	12	13	11	12	12	17	21	15	17	24	14	11	11	8	8	20	10	15	24
20-Mar	16	14	14	21	10	11	19	9	16	16	23	24	22	26	27	18	17	12	10	10	11	15	9	8	27
21-Mar	7	15	9	6	7	10	17	12	11	10	16	16	18	11	16	13	15	15	10	9	8	8	12	12	18
22-Mar	33	20	18	14	15	8	13	19	83	47	33	35	56	24	23	31	14	11	20	30	27	49	6	10	83
23-Mar	8	10	64	7	81	14	4	7	6	15	11	16	14	15	27	21	21	16	14	18	13	7	38	35	81
24-Mar	21	13	10	11	14	6	7	7	12	28	10	19	13	18	19	14	16	7	17	24	22	9	9	10	28
25-Mar	9	6	6	5	6	7	7	8	8	11	8	8	10	9	14	13	9	8	8	7	6	6	7	7	14
26-Mar	6	7	9	8	8	8	7	7	8	9	10	9	10	16	16	7	7	14	9	10	9	9	7	7	16
27-Mar	8	9	9	10	9	9	10	9	9	10	10	11	12	13	12	12	10	12	16	21	30	51	32	34	51
28-Mar	14	5	4	6	4	5	5	7	7	9	9	13	12	11	13	12	10	10	9	9	10	9	9	10	14
29-Mar	9	6	10	13	14	10	14	10	11	12	18	15	15	14	15	13	14	19	19	13	71	20	35	9	71
30-Mar	31	14	7	6	24	8	7	6	13	11	6	12	14	16	14	13	12	11	9	6	8	6	7	8	31
31-Mar	11	17	19	9	19	8	11	11	4	9	11	6	12	24	24	17	14	6	6	6	8	8	6	8	24
	57	29	64	24	81	25	31	30	83	47	40	35	56	72	42	31	23	19	41	33	71	91	38	71	
	Diurnal Maximum																								

DF - DAS Failure UO - Unstable Operation





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 138 deg on Mar 27 00:00															Hours in Service: 744									
Direction of Maximum Daily Speed Average: 147.0 deg on Mar 26															Hours of Data: 741									
Direction of Minimum Speed: 231 deg on Mar 8 05:00															Hours of Missing Data: 3									
Direction of Minimum Daily Speed Average: 0.8 deg on Mar 5															Percent Operational Time: 99.6									
Monthly Average Direction: 107.3 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-Mar	283	298	287	283	284	269	263	267	264	260	269	295	296	302	302	301	305	328	340	348	355	342	10	17	296.1	
2-Mar	22	19	7	3	4	7	354	349	2	20	16	3	358	8	8	9	14	4	2	360	1	12	11	359	6.8	
3-Mar	DF	DF	1	360	1	360	2	5	3	6	6	6	355	347	348	344	346	348	350	347	352	352	352	350	355.2	
4-Mar	351	349	350	353	355	353	353	353	353	353	351	350	350	346	346	346	351	348	348	348	350	349	350	360	359	351.1
5-Mar	355	350	345	347	349	347	351	348	358	358	346	215	229	227	190	212	185	177	176	175	180	155	155	137	216.7	
6-Mar	133	126	130	125	136	DF	129	138	127	137	159	159	153	156	170	185	190	182	179	180	177	179	181	177	166.6	
7-Mar	167	157	146	156	156	155	156	150	150	149	148	148	149	152	156	156	175	197	177	175	168	164	172	247	159.8	
8-Mar	285	299	327	299	231	166	170	158	142	133	133	142	139	139	134	134	132	135	138	152	158	155	142	152	145.6	
9-Mar	150	154	155	156	153	151	128	132	150	139	136	142	152	141	136	134	140	154	155	140	151	173	172	165	149.1	
10-Mar	166	176	177	180	187	215	240	237	237	241	245	262	277	263	277	292	299	299	318	332	344	3	360	3	266.7	
11-Mar	19	21	32	22	1	2	5	8	4	349	318	339	328	340	337	336	330	339	348	335	0	112	124	127	2.2	
12-Mar	123	128	121	125	123	121	123	119	119	125	122	124	126	140	140	125	108	110	111	114	115	115	124	127	121.4	
13-Mar	131	128	120	119	135	126	141	139	133	135	133	131	130	135	133	132	130	129	126	126	135	136	137	147	132.4	
14-Mar	153	148	151	159	164	156	163	165	165	163	169	158	169	209	231	230	187	204	191	199	224	247	248	269	191.1	
15-Mar	279	257	258	283	302	322	355	353	358	336	340	329	335	348	357	14	15	12	18	9	18	11	18	18	337.9	
16-Mar	18	7	349	353	12	1	3	359	355	348	347	345	344	333	313	329	330	344	357	4	359	132	130	129	2.3	
17-Mar	129	133	129	135	133	135	134	133	134	137	141	154	151	152	146	150	160	185	183	180	202	240	269	349	151.0	
18-Mar	10	7	5	5	1	3	1	1	1	353	349	347	349	354	3	12	10	10	10	10	5	3	12	5	3.2	
19-Mar	8	16	14	10	9	4	7	9	5	1	359	352	352	343	2	10	18	17	26	19	22	2	331	345	6.4	
20-Mar	8	19	17	15	331	353	0	1	10	357	355	346	340	340	350	360	360	12	5	0	360	359	11	7	0.4	
21-Mar	8	8	359	2	360	10	1	353	359	350	338	349	353	358	10	4	19	19	5	10	13	14	17	19	5.3	
22-Mar	6	345	343	353	351	344	359	152	202	126	138	187	148	139	134	125	139	133	142	160	149	123	165	155	128.6	
23-Mar	147	139	120	129	128	149	161	164	149	127	130	136	133	127	118	116	121	97	98	124	128	132	127	143	131.7	
24-Mar	149	148	158	159	138	125	142	149	142	146	143	152	159	159	146	141	144	168	145	134	124	131	130	128	143.8	
25-Mar	126	124	124	127	125	128	131	131	130	127	135	133	131	133	142	161	159	160	157	154	156	159	163	160	141.6	
26-Mar	158	155	153	152	150	154	156	158	159	154	135	132	134	150	148	135	136	145	157	154	153	140	137	138	147.0	
27-Mar	126	125	126	126	127	127	126	123	124	123	125	127	122	117	114	113	114	114	103	92	92	85	71	56	119.8	
28-Mar	26	15	11	6	6	7	4	359	357	351	347	347	345	344	344	344	352	349	346	347	344	337	340	348	351.2	
29-Mar	353	358	356	353	347	349	341	347	357	359	349	341	342	347	354	349	350	4	20	33	43	329	311	277	352.5	
30-Mar	216	151	166	152	154	146	156	146	139	137	142	153	157	153	156	147	138	128	127	128	132	128	130	130	140.8	
31-Mar	131	132	136	139	139	144	146	148	158	144	144	135	145	178	207	182	186	166	169	164	168	165	160	174	159.1	

110.2	110.3	89.2	92.2	82.0	84.7	88.8	90.5	95.7	100.6	101.4	108.3	110.6	117.1	100.8	91.9	100.1	108.8	107.3	119.5	127.1	136.7	130.8	120.0	
Diurnal Average																								

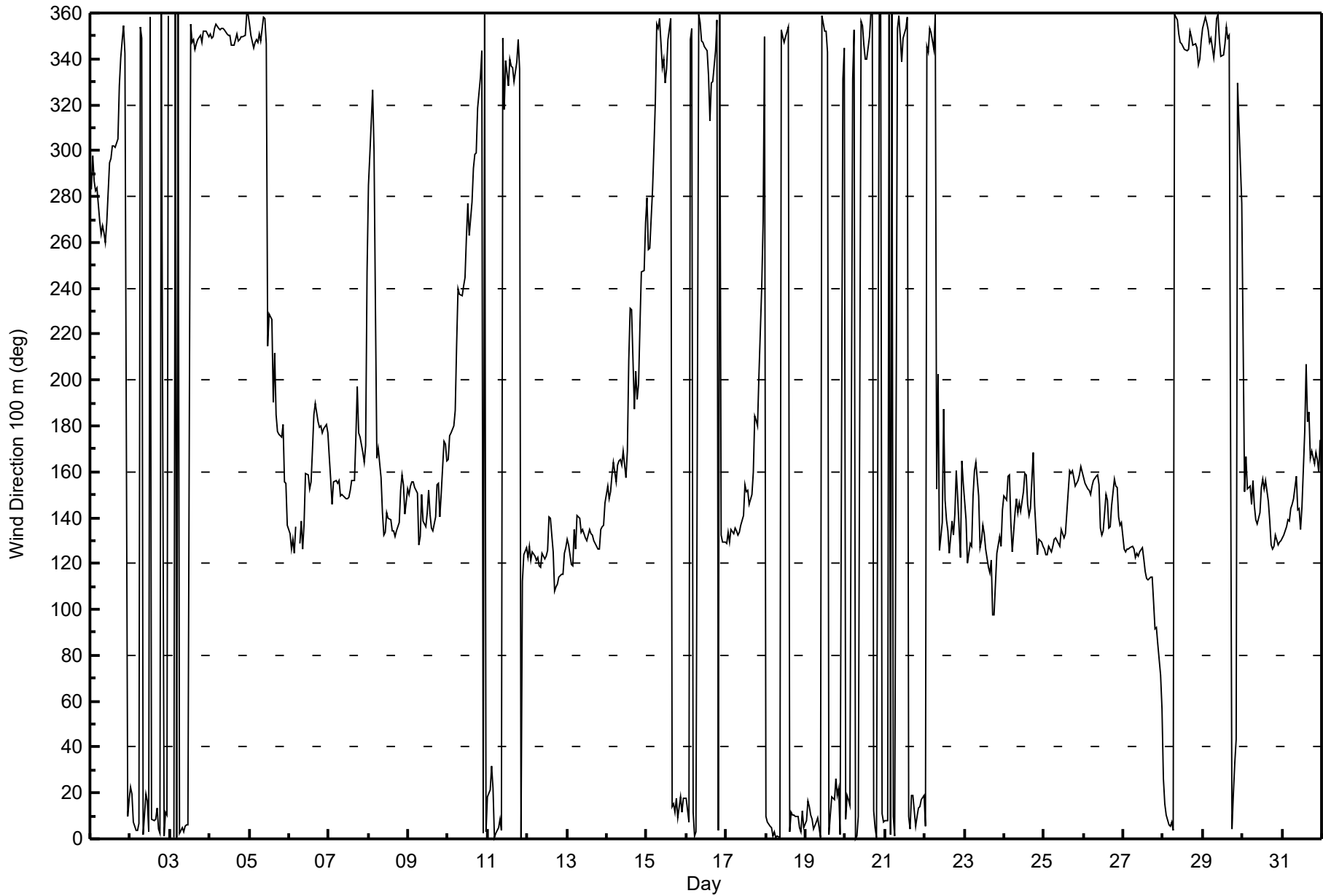
DF - DAS Failure
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 62 deg on Mar 22 12:00 Minimum Value: 1 deg on Mar 6 21:00 Percentiles: P ₁ = 3 P ₁₀ = 5 Q ₁ = 6 Median = 8 Q ₃ = 12 P ₉₀ = 17 P ₉₉ = 39																	Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6										
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	16	15	5	7	8	11	5	6	7	5	14	14	13	11	12	12	12	17	7	6	8	5	14	10	17		
2-Mar	10	15	13	5	5	11	16	5	9	10	13	17	19	16	14	11	13	8	6	8	9	10	11	8	19		
3-Mar	DF	DF	7	6	7	7	7	8	9	9	8	8	7	7	6	6	7	7	7	9	6	5	7	6	9		
4-Mar	5	5	5	5	6	5	5	5	6	6	6	5	7	6	7	6	5	8	7	6	4	7	9	7	9		
5-Mar	6	4	6	3	5	5	5	5	5	12	12	31	29	26	55	39	18	15	10	4	5	7	15	10	17	55	
6-Mar	11	15	14	20	25	DF	27	28	11	13	7	7	4	5	13	10	7	6	2	3	1	2	3	5	28		
7-Mar	4	8	15	8	6	7	5	5	5	8	8	7	7	9	6	4	15	6	6	5	9	7	27	44	44		
8-Mar	38	26	15	34	62	30	17	8	5	9	11	8	6	11	5	6	5	4	4	7	3	5	17	10	62		
9-Mar	8	6	5	4	3	5	8	10	7	5	4	11	13	9	10	6	9	13	14	8	11	7	4	4	14		
10-Mar	14	7	5	5	11	10	6	12	11	5	7	11	10	7	14	11	10	12	4	4	8	11	12	8	14		
11-Mar	11	12	10	20	8	11	11	7	8	15	15	19	17	15	11	10	9	9	4	4	17	43	6	21	43		
12-Mar	8	8	5	5	6	6	6	13	7	7	9	8	9	7	9	13	6	6	5	7	8	7	7	8	13		
13-Mar	6	8	10	11	14	11	10	10	7	5	8	9	8	8	8	7	6	6	11	11	19	8	7	7	19		
14-Mar	5	4	4	8	8	4	6	7	8	7	11	5	27	10	18	15	10	8	2	3	13	4	6	17	27		
15-Mar	22	5	5	10	8	12	9	16	8	11	8	10	12	8	10	10	14	9	13	9	9	14	12	8	22		
16-Mar	13	12	9	8	7	9	8	7	8	10	12	11	12	19	17	12	8	8	14	13	20	26	5	5	26		
17-Mar	5	4	6	6	5	4	4	5	5	5	8	12	11	11	10	8	14	8	4	7	12	11	16	25	25		
18-Mar	16	11	12	7	8	6	9	8	15	11	11	8	7	9	6	9	10	9	10	10	9	9	7	6	16		
19-Mar	8	9	9	8	6	8	8	10	9	9	9	13	14	12	14	18	10	8	7	5	6	17	8	8	18		
20-Mar	8	7	8	16	10	8	10	8	13	13	16	19	16	25	21	16	14	10	6	9	8	10	11	14	25		
21-Mar	8	10	5	5	7	14	8	7	11	10	13	14	17	8	12	12	12	12	8	7	6	5	10	8	17		
22-Mar	11	8	3	10	7	14	35	28	36	20	30	62	41	25	29	30	14	8	24	14	28	18	5	7	62		
23-Mar	5	8	4	8	6	9	7	7	8	7	8	17	13	13	23	18	14	13	16	14	7	4	8	9	23		
24-Mar	11	7	5	8	10	4	7	8	17	22	13	15	10	15	16	14	14	7	15	17	11	5	5	7	22		
25-Mar	6	5	4	3	3	4	3	3	4	6	6	6	6	7	13	11	9	7	7	7	5	5	5	5	13		
26-Mar	6	7	8	8	8	8	7	7	8	8	7	6	8	15	13	5	5	12	9	9	9	7	5	5	15		
27-Mar	6	6	6	7	6	6	7	7	7	8	8	7	8	9	8	9	8	9	13	19	18	36	33	30	36		
28-Mar	20	8	4	5	4	4	4	6	7	8	6	9	10	9	9	10	8	7	6	6	6	3	5	6	20		
29-Mar	6	5	6	6	7	10	4	6	7	9	14	11	11	10	12	9	14	16	14	7	29	18	18	19	29		
30-Mar	40	15	11	8	21	6	11	9	11	5	8	10	13	15	12	13	12	7	6	5	4	4	3	3	40		
31-Mar	4	6	8	4	8	6	7	10	7	9	8	7	10	20	20	15	13	5	4	6	8	8	6	7	20		
																	Diurnal Maximum 40 26 15 34 62 30 35 28 36 22 31 62 41 55 39 30 15 17 24 19 29 43 33 44										
DF - DAS Failure																											





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 292 deg on Mar 15 04:00															Hours in Service: 744											
Direction of Maximum Daily Speed Average: 149.9 deg on Mar 26															Hours of Data: 741											
Direction of Minimum Speed: 87 deg on Mar 22 07:00															Hours of Missing Data: 3											
Direction of Minimum Daily Speed Average: 2.1 deg on Mar 5															Percent Operational Time: 99.6											
Monthly Average Direction: 118.3 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-Mar	300	303	291	285	286	278	278	281	282	274	274	297	299	301	303	304	308	332	347	352	359	351	25	37	305.7
2-Mar	36	35	19	15	26	34	31	33	28	30	24	7	6	15	15	17	24	14	14	15	14	24	24	11	21.0
3-Mar	DF	DF	11	9	9	10	13	16	12	13	14	14	4	357	356	351	353	354	356	357	357	357	357	357	2.9
4-Mar	357	355	356	359	0	359	358	360	0	1	359	359	360	355	354	353	355	356	357	358	3	11	17	17	358.8
5-Mar	9	2	1	10	14	11	9	1	18	16	357	225	215	205	189	201	186	176	181	178	183	182	187	179	178.0
6-Mar	174	166	164	154	173	DF	165	171	168	172	188	174	158	158	174	187	191	185	184	186	186	192	193	190	179.5
7-Mar	181	171	159	167	165	162	164	161	161	158	154	151	154	159	157	159	183	200	187	190	186	192	223	256	170.7
8-Mar	277	299	322	332	309	196	205	181	158	143	144	152	149	148	142	140	136	140	148	162	173	167	159	167	160.0
9-Mar	168	172	172	172	167	165	154	149	146	139	139	145	150	143	140	141	156	165	160	147	175	189	180	171	159.9
10-Mar	177	184	192	199	221	237	257	259	249	253	251	267	279	266	281	293	298	301	320	336	343	19	18	16	273.2
11-Mar	28	35	41	34	9	15	14	14	16	4	329	355	342	345	352	354	347	354	7	354	109	127	128	133	24.4
12-Mar	128	134	130	130	128	128	130	128	123	128	124	120	112	126	125	117	111	113	116	119	122	123	129	132	125.0
13-Mar	134	134	133	129	134	136	140	144	141	141	145	138	135	140	137	136	132	132	134	138	141	138	147	170	138.7
14-Mar	180	178	192	198	206	196	208	215	210	206	205	178	187	212	234	235	198	217	204	218	238	255	256	270	217.7
15-Mar	284	269	273	292	306	325	359	356	2	339	343	332	339	349	1	20	22	16	24	17	25	21	25	27	342.0
16-Mar	31	12	356	1	21	7	15	8	9	358	356	353	352	340	323	340	345	356	19	21	54	137	134	133	18.1
17-Mar	134	138	135	138	140	140	139	138	141	141	148	157	157	157	157	165	179	189	193	198	213	250	284	347	162.0
18-Mar	25	20	17	15	8	8	7	8	6	357	353	352	356	0	7	18	17	17	16	16	11	9	16	10	9.8
19-Mar	13	22	20	16	15	11	14	17	10	4	4	358	357	347	7	13	23	22	31	27	32	19	349	352	13.4
20-Mar	18	23	24	31	7	6	12	21	27	6	357	354	348	348	357	8	9	21	16	19	22	31	67	69	17.4
21-Mar	56	51	56	69	78	63	57	52	36	8	351	356	2	6	16	12	24	25	14	19	25	30	40	47	27.8
22-Mar	43	31	11	12	25	48	87	187	183	166	173	171	152	149	166	136	132	128	139	162	171	142	169	160	140.8
23-Mar	152	148	145	161	170	156	155	168	167	170	156	169	138	131	121	117	123	106	109	125	133	137	136	141	142.2
24-Mar	147	151	160	170	157	153	157	158	153	158	156	162	162	162	151	143	149	167	150	137	128	136	136	134	149.7
25-Mar	134	134	135	137	136	135	136	139	137	133	138	136	135	137	146	163	161	162	159	155	158	161	166	165	146.4
26-Mar	160	158	155	155	154	155	157	159	161	156	139	136	137	154	150	138	139	148	157	155	155	144	141	141	149.9
27-Mar	130	128	130	128	129	129	127	125	127	126	126	127	123	119	116	116	116	116	106	97	97	97	89	80	122.2
28-Mar	74	59	43	33	25	23	18	14	10	5	354	353	351	349	349	349	357	355	353	354	354	350	350	358	1.9
29-Mar	3	7	3	2	360	355	355	358	2	4	351	344	345	351	357	354	356	8	23	39	51	29	329	320	0.1
30-Mar	282	230	172	164	171	173	157	156	157	143	167	159	159	155	157	150	142	131	130	132	138	135	139	140	148.2
31-Mar	142	139	144	149	157	157	163	171	181	162	153	139	153	183	208	188	190	173	179	170	176	174	169	183	168.8

118.7	121.1	107.5	101.7	98.6	98.6	103.4	110.5	114.3	116.1	116.1	115.2	115.2	124.1	107.7	102.1	108.5	115.3	113.4	124.4	136.4	143.3	138.2	130.7
Diurnal Average																							

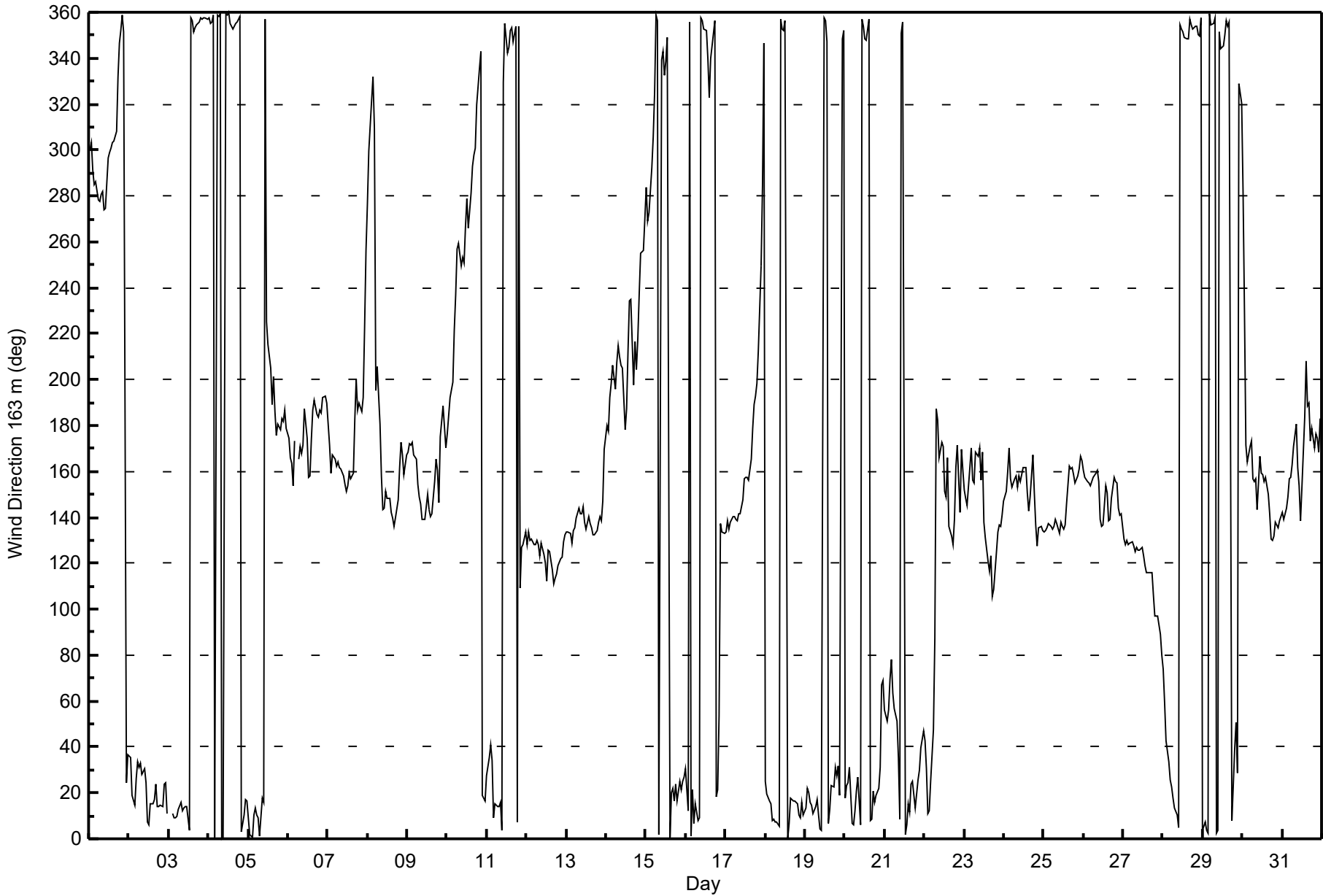
DF - DAS Failure
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0										Hours in Service: 744															
Maximum Value: 69 deg on Mar 22 12:00										Hours of Data: 741															
Minimum Value: 1 deg on Mar 6 22:00										Hours of Missing Data: 3															
Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 5 Median = 7 Q ₃ = 10 P ₉₀ = 15 P ₉₉ = 35										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-Mar	10	8	5	6	6	8	6	6	5	6	12	14	11	10	10	11	10	17	7	5	6	5	12	6	17
2-Mar	3	7	8	4	6	3	6	5	5	9	12	17	18	16	12	11	12	8	5	7	8	10	10	8	18
3-Mar	DF	DF	7	7	7	7	8	8	9	9	8	8	7	6	6	5	6	6	6	8	5	5	7	5	9
4-Mar	5	4	5	5	5	5	5	5	6	7	6	5	8	6	6	5	5	7	6	5	5	7	7	6	8
5-Mar	6	5	6	4	4	7	5	6	13	17	41	57	25	51	31	15	10	9	5	5	2	4	3	7	57
6-Mar	8	9	11	11	15	DF	10	10	9	7	7	10	5	5	12	8	6	5	2	2	2	1	2	3	15
7-Mar	2	7	9	4	5	4	3	4	5	6	7	6	6	7	6	5	13	5	5	6	6	10	21	11	21
8-Mar	27	15	9	8	25	26	19	6	6	8	12	4	7	10	6	7	3	4	6	4	3	5	5	5	27
9-Mar	5	3	3	4	3	3	7	4	3	3	4	7	10	8	9	4	8	10	21	8	9	6	4	4	21
10-Mar	7	6	3	6	10	6	7	7	4	6	5	10	8	5	11	9	7	9	3	5	10	9	10	8	11
11-Mar	8	9	9	17	8	13	12	7	6	20	15	18	14	16	10	10	8	8	4	6	42	8	4	8	42
12-Mar	5	4	4	3	3	3	4	6	5	6	7	8	12	11	12	11	6	6	4	6	7	5	5	6	12
13-Mar	4	4	8	4	6	5	5	7	7	7	11	9	8	8	7	6	5	4	5	5	9	3	9	13	13
14-Mar	8	7	7	9	6	9	8	7	8	7	15	7	19	9	16	12	9	10	4	3	9	4	4	12	19
15-Mar	14	7	5	7	6	13	9	15	8	9	7	8	10	8	11	10	11	8	11	8	7	11	8	4	15
16-Mar	9	12	9	8	8	8	9	9	12	11	13	11	14	22	14	12	8	8	20	15	33	13	5	5	33
17-Mar	5	4	5	5	4	3	4	4	5	5	9	9	10	8	8	8	11	7	5	3	10	12	10	29	29
18-Mar	13	10	11	8	8	7	8	8	14	9	9	7	7	8	7	8	9	8	9	8	9	9	6	5	14
19-Mar	7	7	8	8	6	8	8	10	8	9	9	14	15	13	14	16	9	7	5	3	4	13	10	6	16
20-Mar	4	2	3	5	11	4	7	3	8	17	16	19	18	22	17	18	12	10	5	6	6	10	9	11	22
21-Mar	8	7	7	4	6	13	10	15	6	12	10	16	19	9	11	12	10	11	7	6	4	2	3	3	19
22-Mar	7	20	9	6	9	19	23	28	6	16	22	69	37	31	42	28	15	7	21	10	16	17	2	8	69
23-Mar	5	4	7	17	14	7	4	8	5	10	16	20	21	16	21	15	13	11	13	9	5	4	4	5	21
24-Mar	7	7	6	6	7	3	4	4	12	15	13	14	9	14	17	15	15	7	13	14	7	4	5	5	17
25-Mar	5	4	4	4	4	3	3	4	4	4	6	6	6	7	13	10	8	6	7	7	5	5	3	4	13
26-Mar	6	7	7	7	7	7	6	7	7	8	8	6	9	15	13	5	6	11	7	8	8	7	5	5	15
27-Mar	6	5	5	6	6	5	6	6	6	7	7	6	7	7	7	7	7	8	11	15	17	24	23	23	24
28-Mar	17	11	5	8	3	2	4	5	7	10	6	9	8	8	8	8	8	7	4	4	4	3	3	5	17
29-Mar	7	4	6	4	6	9	6	5	6	9	13	10	11	8	12	9	13	15	13	6	8	26	11	11	26
30-Mar	15	39	7	4	8	12	3	4	6	8	9	9	12	13	11	13	13	6	3	4	4	4	4	4	39
31-Mar	5	5	5	5	6	5	5	9	9	9	7	9	9	18	17	13	13	6	4	5	8	8	6	6	18
	27	39	11	17	25	26	23	28	14	20	41	69	37	51	42	28	15	17	21	15	42	26	23	29	
	Diurnal Maximum																								
DF - DAS Failure																									





Maximum Value: 0.4 km/h on Mar 22 10:00 Maximum Daily Average: 0.0 km/h on Mar 19																						Hours in Service:	744			
Minimum Value: -1.9 km/h on Mar 26 07:00 Minimum Daily Average: -1.3 km/h on Mar 26																						Hours of Data:	741			
Maximum Diurnal Average: -0.2 km/h at hour 20 Minimum Diurnal Average: -0.5 km/h at hour 14																						Hours of Missing Data:	3			
Monthly Average: -0.34 km/h Percentiles: $P_1 = -1.6$ $P_{10} = -1.0$ $Q_1 = -0.6$ Median = -0.2 $Q_3 = 0.0$ $P_{90} = 0.1$ $P_{99} = 0.3$																						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-Mar	-0.8	-0.1	-0.7	-0.7	-0.5	-0.4	-0.7	-0.4	-0.7	-1.0	-0.9	-0.5	-0.9	-0.5	-0.7	-0.6	-0.4	-0.1	0.0	0.0	-0.1	0.1	0.0	0.1	-0.4	0.1
2-Mar	-0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.0	-0.1	-0.1	-0.1	0.0	0.1	0.0	-0.2	-0.1	-0.1	0.1	0.0	-0.1	0.0	0.1
3-Mar	DF	DF	-0.2	-0.2	0.0	-0.2	-0.2	0.0	0.0	0.1	0.1	0.2	-0.2	-0.1	-0.1	0.0	-0.3	-0.1	-0.2	0.3	-0.4	-0.2	-0.2	-0.2	-0.1	0.3
4-Mar	-0.4	-0.2	-0.5	-0.3	-0.3	-0.6	-0.5	-0.4	-0.6	-0.3	-0.4	-0.4	-0.2	-0.1	-0.1	-0.1	-0.2	-0.1	0.1	0.1	0.0	0.0	0.1	-0.1	-0.2	0.1
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.2	0.1	-0.2	-0.5	-0.4	-0.1	-0.4	-0.5	-0.6	-0.1	0.1	0.0	0.0	-0.3	-0.1	0.0	0.1
6-Mar	-0.3	-0.4	-0.4	0.0	-0.3	DF	0.0	0.0	-0.2	0.2	-1.0	-1.0	-1.1	-1.2	-0.9	-1.2	-1.2	-1.1	-0.9	-1.2	-1.2	-1.2	-1.2	-1.1	-0.7	0.2
7-Mar	-1.0	-0.6	-0.4	-0.7	-0.7	-0.6	-0.6	-0.9	-0.8	-1.2	-1.0	-1.1	-1.0	-1.3	-1.4	-1.5	-1.1	-0.7	-0.3	0.0	-0.3	-0.6	-0.3	-0.1	-0.7	0.0
8-Mar	-0.1	-0.2	-0.1	0.0	0.0	0.0	0.0	-0.1	-0.5	-0.6	-0.7	-0.5	-0.8	-0.7	-0.6	-0.3	-0.3	-0.4	-0.5	-0.9	-0.6	-0.6	-0.1	-0.3	-0.4	0.0
9-Mar	-0.5	-0.6	-0.7	-0.5	-0.5	-0.9	-0.4	-0.4	-0.3	-0.3	-0.7	-0.8	-0.5	-0.5	-0.4	-0.6	-0.4	-0.2	0.0	0.1	0.0	-0.1	-0.1	0.2	-0.4	0.2
10-Mar	0.0	-0.1	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.1	-0.5	-0.8	-0.9	-1.1	-1.1	-0.8	-0.7	-0.3	-0.3	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.4	0.0
11-Mar	0.1	0.0	0.1	0.2	-0.2	-0.1	0.1	0.1	-0.1	0.0	-0.3	-0.3	0.0	0.0	-0.1	0.0	-0.5	0.1	-0.1	-0.1	0.0	0.1	0.2	0.0	0.0	0.2
12-Mar	0.0	0.0	0.0	-0.1	-0.2	-0.1	-0.4	-0.1	-0.2	-0.5	-0.4	-0.6	-0.8	-0.7	-0.6	-0.6	-0.4	-0.4	-0.4	-0.3	-0.4	-0.5	-0.5	-0.2	-0.3	0.0
13-Mar	-0.4	-0.2	-0.1	-0.3	-0.1	-0.1	-0.2	-0.4	-0.3	-0.9	-0.6	-0.6	-0.4	-0.5	-0.4	-0.5	-0.5	-0.3	-0.2	-0.3	-0.2	-0.3	-0.5	-0.7	-0.4	-0.1
14-Mar	-0.9	-0.6	-0.6	-0.7	-0.5	-0.7	-0.6	-0.8	-0.4	-0.7	-0.4	-0.9	-0.4	-0.6	-0.4	-0.4	-0.5	-0.5	-0.5	-0.3	-0.2	-0.6	-0.3	-0.6	-0.6	-0.2
15-Mar	-0.1	-0.1	-1.4	-0.8	-0.5	-0.5	-0.2	0.1	-0.2	-0.1	-0.1	-0.4	-0.2	-0.5	-0.4	0.0	0.2	0.2	0.0	0.3	0.1	-0.1	0.0	0.2	-0.2	0.3
16-Mar	0.0	0.0	-0.1	-0.2	0.0	0.1	-0.2	-0.1	-0.2	-0.2	-0.1	0.0	-0.2	0.0	-0.3	0.0	-0.2	-0.1	-0.2	0.0	0.0	-0.1	-0.4	-0.6	-0.1	0.1
17-Mar	-0.5	-0.6	-0.4	-0.8	-0.6	-0.5	-0.4	-0.8	-0.1	-0.7	-0.9	-1.1	-1.1	-0.9	-1.1	-0.7	-0.8	-0.9	-0.3	0.0	0.0	-0.4	-0.3	0.1	-0.6	0.1
18-Mar	-0.1	-0.1	0.0	0.0	0.1	0.2	0.0	0.0	-0.1	-0.1	-0.3	0.0	-0.3	-0.1	0.0	0.2	-0.1	0.1	0.2	0.0	0.0	-0.3	0.4	0.3	0.0	0.4
19-Mar	0.3	0.2	0.1	0.1	0.2	0.0	0.1	0.3	0.1	-0.3	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.2	0.2	-0.1	0.0	-0.2	0.0	0.0	0.3
20-Mar	0.0	0.0	0.1	0.0	0.0	0.0	0.1	-0.1	0.0	0.1	0.2	0.0	-0.1	-0.4	-0.1	-0.1	-0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
21-Mar	0.0	0.0	-0.1	-0.1	-0.1	0.2	0.1	0.3	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	0.1	0.0	0.0	0.1	-0.1	0.2	0.1	0.0	-0.1	0.0	0.0	0.3
22-Mar	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	-0.3	-0.2	-0.1	-0.1	0.3	-0.4	-0.4	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4
23-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.5	0.1	-0.1	0.1	-0.1	-0.3	-0.5	-0.3	-0.1	-0.1	-0.2	-0.3	-0.2	0.1	0.0	0.0	-0.1	0.1
24-Mar	0.0	0.0	0.1	0.1	0.1	0.0	0.0	-0.1	-0.5	-0.2	-0.5	-0.3	-1.1	-0.7	-0.6	-0.7	-0.7	-1.5	-0.4	-0.4	-0.2	-0.3	-0.4	-0.6	-0.4	0.1
25-Mar	-0.4	-0.3	-0.6	-0.9	-0.3	-0.6	-0.6	-0.4	-0.7	-0.5	-0.8	-1.0	-0.9	-1.2	-1.1	-1.6	-1.6	-1.8	-1.0	-1.4	-1.8	-1.7	-1.5	-1.4	-1.0	-0.3
26-Mar	-1.6	-1.7	-1.1	-1.1	-1.2	-1.5	-1.9	-1.8	-1.6	-1.8	-1.0	-0.9	-0.8	-1.4	-1.5	-1.1	-0.8	-1.2	-1.4	-1.1	-1.2	-1.1	-1.0	-1.1	-1.3	-0.8
27-Mar	-0.8	-0.9	-0.8	-0.8	-0.8	-0.9	-0.7	-0.8	-0.7	-0.8	-0.8	-0.5	-0.8	-0.5	-0.6	-0.7	-0.5	-0.3	-0.4	0.0	0.0	0.0	0.0	0.2	-0.5	0.2
28-Mar	-0.1	-0.2	-0.1	-0.2	-0.1	-0.1	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.6	-0.3	-0.3	-0.3	-0.1	-0.1	0.1	0.0	0.2	0.0	-0.2	0.2
29-Mar	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.1	-0.1	0.0	-0.1	-0.1	-0.4	-0.5	-0.1	-0.2	-0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	-0.1	0.1
30-Mar	0.0	0.0	-0.1	0.0	0.0	0.0	-0.1	-0.3	-0.6	-0.6	-0.9	-0.9	-1.1	-0.8	-1.2	-1.1	-0.8	-0.7	-0.3	-0.3	-0.3	-0.6	-0.5	-0.3	-0.5	0.0
31-Mar	-0.1	-0.2	-0.3	-0.4	-0.3	-0.4	-0.5	-0.5	-0.8	-0.7	-0.6	-1.0	-0.7	-1.3	-0.8	-1.0	-1.2	-1.0	-1.0	-1.3	-1.5	-1.3	-1.5	-1.3	-0.8	-0.1
																						Diurnal Average				
																						Diurnal Maximum				
DF - DAS Failure																										



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 4.8 km/h on Mar 26 12:00																				Hours of Data: 741					
Minimum Value: 0.1 km/h on Mar 23 05:00																				Hours of Missing Data: 3					
Percentiles: P ₁ = 0.1 P ₁₀ = 0.6 Q ₁ = 1.1 Median = 1.8 Q ₃ = 2.5 P ₉₀ = 3.1 P ₉₉ = 4.0																				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-Mar	1.3	1.3	2.7	3.0	3.3	2.5	2.8	2.9	3.0	3.0	3.2	3.0	2.9	2.9	2.8	2.7	2.4	1.7	1.3	1.0	0.5	0.5	1.7	1.4	3.3
2-Mar	1.0	0.8	0.7	0.3	0.3	0.1	0.2	0.4	0.9	1.7	1.9	2.1	2.0	2.3	2.4	2.4	2.3	2.0	2.1	2.1	1.9	1.4	1.6	2.0	2.4
3-Mar	DF	DF	2.4	2.5	2.4	2.6	2.7	2.5	2.7	2.6	2.7	2.5	2.6	2.7	2.8	2.8	2.7	2.4	1.7	2.7	3.2	2.9	3.0	3.2	3.6
4-Mar	3.1	3.2	3.4	3.6	3.5	3.3	3.4	3.2	2.8	2.9	2.7	2.9	2.8	2.7	2.5	2.5	1.7	1.6	1.5	1.3	1.0	0.7	0.6	0.6	3.6
5-Mar	0.4	0.6	0.6	0.5	0.5	0.8	0.7	1.1	1.2	1.1	1.4	0.6	0.8	1.4	1.4	1.0	0.5	0.4	0.4	0.5	0.7	0.8	0.8	0.7	1.4
6-Mar	0.8	1.0	0.8	0.9	0.8	DF	0.6	0.5	0.5	1.6	2.6	2.3	1.8	1.7	2.0	1.8	1.7	1.3	0.9	1.2	1.2	1.7	1.5	1.7	2.6
7-Mar	2.1	2.3	1.4	2.1	1.7	1.1	0.7	0.9	1.3	1.5	2.2	2.3	2.1	2.1	2.1	1.7	1.5	0.7	0.5	1.1	1.1	1.1	0.9	0.5	2.3
8-Mar	0.6	0.6	0.4	0.2	0.2	0.1	0.3	0.4	1.0	1.5	1.5	1.8	1.9	2.0	2.0	1.9	2.5	2.5	2.0	1.7	1.6	1.5	0.9	1.1	2.5
9-Mar	1.2	1.1	0.9	1.1	1.5	1.0	0.6	0.5	0.5	0.8	1.0	1.0	0.9	0.8	1.4	1.6	1.2	0.9	0.5	0.2	0.6	0.7	0.6	1.2	1.6
10-Mar	0.5	0.8	1.0	0.8	0.9	1.2	1.6	1.5	1.8	1.2	1.9	2.4	3.5	3.7	2.9	2.8	2.2	1.4	0.9	0.4	0.3	0.8	1.3	1.7	3.7
11-Mar	1.7	1.3	1.4	1.4	1.6	1.8	1.9	1.8	1.4	1.7	1.8	1.7	2.0	1.8	1.8	2.1	2.0	1.5	0.7	0.6	0.6	0.9	1.1	0.9	2.1
12-Mar	1.1	1.4	1.5	2.0	2.2	1.7	1.8	1.5	2.5	2.9	3.1	2.3	1.7	1.4	1.3	1.5	1.9	2.2	1.9	1.6	1.7	2.3	2.2	1.8	3.1
13-Mar	1.8	1.5	0.8	1.0	0.8	0.9	0.8	1.1	2.4	2.7	2.1	1.9	2.4	1.9	2.1	2.0	2.1	2.1	1.2	0.9	0.9	1.2	1.4	2.3	2.7
14-Mar	2.1	2.2	1.9	1.7	1.9	2.3	1.6	1.4	1.8	1.6	2.0	1.7	2.2	1.8	1.4	0.7	0.6	0.9	1.0	0.9	1.1	1.6	1.6	1.8	2.3
15-Mar	0.8	1.6	2.8	3.3	3.1	3.0	3.0	3.1	2.9	3.1	3.4	3.2	3.2	2.8	2.5	3.2	2.7	2.8	2.1	1.8	1.8	0.9	1.0	1.3	3.4
16-Mar	1.1	1.2	1.4	1.8	2.0	1.8	1.8	1.7	1.5	1.9	2.1	2.1	2.0	2.0	1.9	1.8	2.0	1.6	0.9	0.9	0.6	1.2	2.9	2.7	2.9
17-Mar	2.8	3.7	3.3	3.1	2.8	3.0	3.0	3.1	3.1	3.3	2.8	2.3	2.1	2.2	2.0	1.4	1.6	1.2	1.0	0.8	0.9	1.3	1.7	1.9	3.7
18-Mar	1.5	1.2	1.0	1.2	2.0	3.0	2.6	2.2	2.9	2.8	2.6	2.3	2.1	2.2	2.7	3.3	3.3	3.2	2.6	3.0	2.9	3.1	3.6	3.3	3.6
19-Mar	2.8	2.7	2.7	2.5	3.1	2.5	2.9	2.3	3.1	2.8	2.6	2.7	2.6	2.6	2.3	2.4	2.5	2.2	2.1	1.7	1.3	1.3	1.1	0.8	3.1
20-Mar	0.7	0.5	0.3	0.5	0.3	0.4	0.3	0.8	1.5	1.8	2.1	2.1	2.2	2.0	2.1	2.1	1.9	1.7	1.5	1.2	1.2	0.8	0.9	1.1	2.2
21-Mar	1.2	0.8	0.6	0.9	1.0	1.3	1.2	1.2	1.2	1.6	2.1	2.1	2.3	3.0	2.9	3.0	2.7	2.4	2.1	1.6	1.1	0.7	0.4	0.5	3.0
22-Mar	0.4	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.6	1.1	1.5	1.4	1.6	1.8	1.8	1.6	1.4	1.2	0.5	0.2	0.1	0.1	0.2	0.3	1.8
23-Mar	0.2	0.4	0.5	0.2	0.1	0.1	0.2	0.6	1.4	1.9	2.2	1.9	2.0	2.1	1.8	1.8	1.8	1.4	0.9	0.9	0.8	0.6	0.4	0.4	2.2
24-Mar	0.7	0.8	0.4	0.6	0.5	0.7	0.7	1.2	1.0	1.6	1.8	2.1	2.2	2.1	2.2	2.3	2.2	1.8	1.5	1.7	1.4	2.6	2.2	1.8	2.6
25-Mar	2.3	2.4	2.5	2.7	2.6	2.7	3.1	3.5	3.6	3.3	3.3	3.4	3.8	4.0	3.5	2.6	2.4	2.3	2.1	2.4	2.6	2.4	2.6	2.8	4.0
26-Mar	2.5	2.3	2.5	2.7	3.1	2.8	2.8	2.5	2.9	3.1	4.3	4.8	4.6	3.2	3.2	4.1	4.2	3.3	2.7	2.7	2.5	3.2	4.0	4.2	4.8
27-Mar	3.8	4.1	4.0	3.7	3.9	3.9	3.5	3.5	3.6	3.2	3.6	3.6	3.6	3.7	3.5	2.9	3.1	2.7	2.1	1.7	1.3	1.2	1.1	1.1	4.1
28-Mar	0.8	1.1	1.3	1.3	1.3	1.2	1.4	1.6	1.7	1.8	2.1	2.4	2.6	2.9	2.9	3.0	2.8	2.9	2.7	2.0	1.5	1.6	1.8	1.9	3.0
29-Mar	1.9	1.9	1.8	1.3	0.8	0.7	0.6	1.7	2.3	2.2	2.2	2.7	2.8	3.0	2.7	2.3	2.0	2.0	1.4	0.7	0.2	0.2	0.2	0.3	3.0
30-Mar	0.2	0.2	0.2	0.2	0.3	0.5	1.0	1.5	1.5	2.4	2.4	2.4	2.4	2.4	2.2	2.4	2.5	2.6	2.2	1.9	2.3	3.2	2.6	2.4	3.2
31-Mar	2.5	1.5	1.2	1.5	1.0	1.2	1.1	1.7	1.8	2.2	2.2	2.0	2.5	2.2	2.0	2.0	2.1	1.5	1.4	2.1	2.4	2.2	2.7	2.2	2.7
Diurnal Maximum																									
DF - DAS Failure																									



Maximum Value: 1.4 km/h on Mar 26 22:00																				Maximum Daily Average: 0.5 km/h on Mar 17					Hours in Service:	744
Minimum Value: -1.2 km/h on Mar 10 13:00																				Minimum Daily Average: -0.4 km/h on Mar 1					Hours of Data:	724
Maximum Diurnal Average: 0.2 km/h at hour 23																				Minimum Diurnal Average: 0.0 km/h at hour 14					Hours of Missing Data:	20
Monthly Average: 0.07 km/h																				Percentiles: P ₁ = -0.9 P ₁₀ = -0.4 Q ₁ = -0.2 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 1.0					Hours of Calibration:	0
																									Percent Operational Time:	97.3
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-0.9	0.3	-0.9	-0.7	-0.8	0.0	-0.2	0.1	0.3	-0.3	-0.4	-0.5	-1.2	-0.9	-1.1	-0.7	-0.6	-0.2	-0.3	0.0	0.0	0.0	0.0	0.0	-0.4	0.3
2-Mar	-0.2	DF	UO	UO	UO	UO	UO	UO	UO	-0.2	-0.1	-0.2	0.0	0.0	-0.1	0.0	0.2	0.2	0.0	-0.1	0.0	0.3	0.0	0.1	--	0.3
3-Mar	DF	DF	UO	UO	UO	UO	UO	UO	UO	0.2	0.0	0.3	-0.4	-0.3	-0.2	-0.4	-0.5	-0.2	-0.3	0.0	-0.5	-0.5	-0.3	-0.3	--	0.3
4-Mar	-0.6	-0.5	-0.6	-0.5	-0.4	-0.4	-0.5	-0.4	-0.5	-0.5	-0.5	-0.7	-0.5	-0.5	-0.4	-0.2	-0.4	-0.1	0.0	0.0	-0.1	-0.2	0.1	0.0	-0.3	0.1
5-Mar	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	0.1	-0.1	-0.3	0.4	-0.2	-0.1	-0.1	0.2	0.0	-0.3	-0.2	0.2	0.1	0.2	0.6	0.3	0.8	0.3	0.1	0.8
6-Mar	-0.3	-0.6	-0.5	-0.1	-0.3	DF	UO	UO	-0.1	0.3	0.7	0.5	0.1	-0.4	0.1	0.0	-0.1	-0.2	-0.3	-0.4	-0.3	-0.5	-0.3	-0.2	-0.1	0.7
7-Mar	0.1	0.7	0.0	-0.1	0.0	0.2	0.3	0.2	0.2	0.3	0.9	1.0	0.8	0.8	-0.2	-0.4	-0.2	0.1	0.2	0.6	0.3	0.2	0.4	0.3	0.3	1.0
8-Mar	-0.1	-0.1	0.0	0.1	0.2	0.3	0.5	0.6	0.4	0.1	0.0	0.3	0.3	0.2	0.3	0.5	0.9	0.9	0.5	0.4	0.7	0.8	0.2	0.1	0.3	0.9
9-Mar	0.1	0.1	-0.1	0.6	0.8	0.0	0.1	0.1	-0.2	-0.2	0.1	-0.2	0.0	0.0	0.2	0.6	0.2	0.3	0.3	0.4	0.9	0.8	0.3	1.1	0.3	1.1
10-Mar	0.2	0.4	0.4	0.4	0.6	0.2	0.3	0.1	0.4	0.0	-0.3	-0.6	-1.2	-0.8	-0.7	-0.6	-0.3	-0.3	-0.4	0.0	0.1	-0.1	0.1	0.0	-0.1	0.6
11-Mar	0.0	0.0	0.2	0.1	-0.1	0.3	0.2	0.2	-0.2	-0.1	-0.4	-0.5	0.0	0.1	-0.5	-0.4	-0.7	-0.2	-0.1	-0.2	-0.1	0.1	0.4	0.0	-0.1	0.4
12-Mar	0.4	0.3	0.8	0.6	0.4	0.2	-0.1	-0.2	0.6	0.8	0.8	0.4	0.2	0.0	0.2	0.1	0.1	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.8
13-Mar	0.2	0.0	0.3	-0.1	-0.2	0.1	-0.1	-0.4	0.3	0.2	0.2	0.2	0.5	0.2	0.6	0.5	0.7	0.8	0.4	-0.2	-0.3	0.4	0.1	0.2	0.2	0.8
14-Mar	0.4	0.3	-0.1	0.0	0.3	-0.2	0.0	-0.2	0.4	-0.2	0.5	0.1	0.4	0.5	0.1	0.1	0.2	0.2	0.1	0.1	0.0	-0.3	-0.4	-0.9	0.1	0.5
15-Mar	0.0	0.5	-0.4	-0.8	-1.2	-0.9	-0.1	-0.2	0.2	-0.4	-0.5	-1.0	-0.5	-0.4	-0.3	0.1	0.3	0.1	-0.2	0.0	0.1	0.0	0.0	-0.1	-0.2	0.5
16-Mar	-0.1	0.0	-0.1	-0.1	0.0	0.1	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	-0.4	-0.5	-0.5	-0.1	-0.5	-0.2	-0.2	0.0	0.1	0.2	0.6	0.4	-0.1	0.6
17-Mar	0.5	0.8	0.9	0.7	0.6	0.6	0.6	0.5	0.9	0.9	1.1	0.7	0.8	1.1	0.7	0.4	0.3	-0.1	0.2	0.3	0.1	-0.2	0.1	0.1	0.5	1.1
18-Mar	-0.2	-0.2	0.0	0.0	0.1	0.3	0.1	0.3	-0.3	0.0	-0.4	-0.4	-0.4	-0.2	-0.1	0.1	-0.2	-0.2	0.1	-0.3	-0.1	-0.2	0.5	-0.2	-0.1	0.5
19-Mar	0.2	0.3	0.1	0.2	-0.1	0.2	0.0	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.4	-0.1	-0.3	0.0	0.2	0.4	0.4	0.0	0.0	-0.4	-0.2	0.0	0.4
20-Mar	0.1	0.0	0.0	0.1	-0.1	-0.2	0.0	-0.1	0.0	-0.1	-0.3	0.0	-0.5	-0.8	-0.4	-0.3	-0.4	0.0	0.1	0.0	0.0	0.2	0.1	-0.1	-0.1	0.2
21-Mar	-0.1	0.0	-0.1	-0.1	-0.1	0.2	0.0	0.0	-0.2	-0.3	-0.5	-0.5	-0.1	-0.3	0.4	0.0	0.3	0.2	0.2	0.3	0.1	0.0	-0.2	0.0	0.0	0.4
22-Mar	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.6	0.3	-0.3	0.1	0.5	0.2	0.3	0.0	0.3	0.3	0.1	0.1	0.1	0.3	0.1	0.1	0.6
23-Mar	0.3	0.3	0.2	0.1	0.0	0.3	0.2	0.3	0.0	0.7	0.3	0.4	0.4	0.0	-0.2	0.1	0.4	0.1	-0.3	-0.2	0.2	0.7	0.4	0.2	0.2	0.7
24-Mar	0.1	0.4	0.4	0.4	0.3	0.4	0.3	0.4	-0.1	0.2	0.1	0.4	-0.1	0.2	0.4	0.4	0.5	-0.6	0.4	0.5	0.5	0.6	0.6	0.4	0.3	0.6
25-Mar	0.2	0.6	0.3	0.2	0.4	0.3	0.6	0.7	0.6	0.5	0.6	0.7	0.5	0.7	0.8	-0.1	-0.3	-0.7	0.2	0.4	-0.7	-0.5	-0.3	-0.1	0.2	0.8
26-Mar	-0.4	-0.2	1.0	1.0	0.5	0.3	-0.6	-0.9	-0.2	-0.5	0.7	0.8	1.0	0.3	0.3	0.7	1.1	0.7	0.2	0.9	0.6	1.4	1.3	1.2	0.5	1.4
27-Mar	0.4	0.4	0.3	0.5	0.4	0.4	0.6	0.2	0.2	0.2	0.2	0.9	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.4	0.2	-0.3	-0.1	0.0	0.3	0.9
28-Mar	-0.2	-0.1	0.0	-0.1	0.0	0.1	0.0	-0.2	-0.4	-0.3	-0.4	-0.5	-0.3	-0.4	-0.7	-0.2	-0.4	-0.6	-0.4	-0.2	-0.2	-0.3	0.1	-0.1	-0.2	0.1
29-Mar	-0.2	-0.1	0.1	0.1	0.0	0.1	0.1	-0.2	-0.2	0.1	-0.1	-0.3	-0.6	-0.7	0.1	-0.4	-0.2	0.1	0.3	0.2	0.0	0.0	0.1	0.0	-0.1	0.3
30-Mar	0.0	0.3	0.4	0.4	0.1	0.5	0.8	0.4	-0.2	0.3	0.1	0.2	0.0	0.7	0.2	0.1	0.5	0.6	0.8	0.7	0.9	0.4	0.9	1.1	0.4	1.1
31-Mar	0.9	0.3	0.1	0.3	-0.1	0.2	-0.2	-0.1	0.1	0.1	0.3	0.3	0.4	-0.1	0.4	0.1	-0.1	-0.2	-0.2	-0.3	-0.6	-0.3	-0.1	-0.3	0.0	0.9
																								Diurnal Average		
																								Diurnal Maximum		
0.0 0.1 0.1 0.1 0.0 0.1 0.1 0.0 0.0 0.1 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.1 0.1 0.1 0.1 0.1 0.2 0.1																										
0.9 0.8 1.0 1.0 0.8 0.6 0.8 0.7 0.9 0.9 1.1 1.0 1.0 1.1 0.8 0.7 1.1 0.9 0.8 0.9 0.9 1.4 1.3 1.2																										
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 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 3.6 km/h on Mar 10 13:00																				Hours of Data: 724					
Minimum Value: 0.1 km/h on Mar 22 05:00																				Hours of Missing Data: 20					
Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.1 Median = 1.7 Q ₃ = 2.3 P ₉₀ = 2.8 P ₉₉ = 3.4																				Hours of Calibration: 0					
																				Percent Operational Time: 97.3					
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	1.4	1.9	2.4	2.8	3.0	2.5	2.2	2.6	2.4	2.5	3.0	3.3	2.9	2.9	2.7	2.7	2.3	1.7	1.2	1.1	0.5	0.5	1.7	1.3	3.3
2-Mar	1.1	DF	UO	UO	UO	UO	UO	UO	UO	1.6	1.9	2.1	2.2	2.2	2.3	2.2	2.1	1.6	1.7	1.9	1.8	1.5	1.7	1.7	2.3
3-Mar	DF	DF	UO	UO	UO	UO	UO	UO	UO	2.7	2.4	2.6	2.2	2.4	2.5	2.6	2.6	2.6	2.4	1.8	2.3	2.7	2.9	2.7	2.9
4-Mar	2.6	2.7	3.2	2.9	2.8	2.8	2.9	2.6	2.4	2.6	2.4	2.5	2.6	2.3	2.2	1.9	1.6	1.7	1.4	1.2	0.9	0.7	0.7	3.2	
5-Mar	0.5	0.6	0.7	0.6	0.6	0.8	0.8	1.0	0.9	1.2	1.4	0.7	1.0	1.5	1.7	1.1	0.5	0.5	0.5	0.8	1.0	1.0	0.8	0.9	1.7
6-Mar	0.8	1.0	0.9	1.1	1.1	DF	UO	UO	0.7	1.9	1.7	1.6	2.0	1.8	2.3	2.2	1.8	1.4	0.8	1.0	1.1	1.6	1.6	1.9	2.3
7-Mar	2.5	2.4	1.7	2.6	1.8	1.5	1.1	0.7	1.0	1.2	2.0	2.4	2.1	2.0	2.3	1.8	1.5	0.9	0.4	1.3	1.3	0.9	0.6	0.8	2.6
8-Mar	0.8	0.7	0.4	0.4	0.4	0.3	0.4	0.4	0.8	1.1	1.1	1.6	1.6	1.6	1.5	1.7	1.9	1.8	1.9	1.3	1.8	1.6	1.1	1.2	1.9
9-Mar	1.3	1.3	1.3	0.7	0.6	0.5	0.5	0.6	0.6	0.9	0.8	0.9	1.1	0.9	1.4	1.7	1.1	1.1	0.8	0.4	0.5	0.8	0.6	0.9	1.7
10-Mar	0.6	0.9	0.6	0.9	0.7	1.3	1.8	1.5	1.8	1.2	1.6	2.0	3.6	3.5	2.9	2.8	2.5	1.4	1.0	0.4	0.4	1.0	1.4	1.5	3.6
11-Mar	1.6	1.3	1.4	1.4	1.2	1.8	1.7	1.6	1.2	1.6	2.1	1.7	2.3	1.8	1.7	2.1	2.1	1.6	0.7	0.7	0.3	1.3	1.6	1.3	2.3
12-Mar	1.6	1.5	1.4	1.9	2.0	2.0	1.8	1.7	2.3	2.3	3.0	1.8	1.0	0.9	1.0	1.4	1.5	1.6	1.3	1.5	1.4	1.9	2.1	1.8	3.0
13-Mar	1.7	1.6	1.1	1.2	1.1	1.2	1.1	1.2	1.9	1.8	1.8	1.8	2.1	1.6	2.1	1.9	1.8	2.0	1.5	1.2	1.2	1.4	1.4	1.6	2.1
14-Mar	0.7	1.2	1.1	1.0	0.9	1.2	0.8	0.7	0.7	0.6	0.9	0.7	1.5	2.1	1.4	0.5	0.5	1.1	1.1	1.2	1.4	1.5	1.9	2.0	2.1
15-Mar	1.1	1.4	2.1	3.1	2.9	3.4	2.6	3.1	2.6	3.2	3.4	3.3	3.2	2.3	2.1	3.0	2.5	2.5	2.1	1.8	1.7	1.2	1.1	1.2	3.4
16-Mar	1.3	1.2	1.4	1.5	1.6	1.5	1.3	1.4	1.4	1.9	2.0	2.1	2.0	2.0	1.9	2.1	2.0	1.5	0.9	0.7	0.6	1.2	2.1	2.2	2.2
17-Mar	2.2	2.5	2.9	2.2	2.1	2.3	2.6	2.4	2.5	2.3	2.4	2.6	2.2	2.1	1.7	1.2	1.4	1.5	1.1	1.2	1.3	1.2	1.9	1.9	2.9
18-Mar	1.8	1.3	1.1	1.1	1.8	2.5	2.3	2.0	2.7	2.5	2.4	1.9	1.7	1.9	1.9	2.7	2.9	2.9	2.4	2.5	2.6	3.1	3.2	2.5	3.2
19-Mar	2.4	2.7	2.7	2.1	2.3	2.3	2.6	2.3	2.4	2.2	2.3	2.6	2.6	2.5	2.2	2.4	2.5	1.8	2.0	1.3	1.2	1.5	1.0	0.8	2.7
20-Mar	0.8	0.5	0.4	0.7	0.4	0.4	0.3	0.5	1.6	1.9	2.2	2.4	2.3	2.1	2.2	2.0	1.6	1.4	1.3	1.2	1.2	1.0	0.9	0.8	2.4
21-Mar	0.9	0.8	0.6	0.6	0.8	1.3	1.3	1.1	0.9	1.2	2.0	2.1	2.3	2.4	2.6	2.6	2.5	2.3	1.7	1.4	1.0	0.7	0.3	0.4	2.6
22-Mar	0.5	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.4	1.2	1.6	1.6	1.8	2.1	1.8	1.8	1.3	1.0	0.6	0.4	0.2	0.3	0.4	0.5	2.1
23-Mar	0.6	0.6	0.4	0.3	0.3	0.3	0.3	0.5	0.9	1.8	1.7	1.9	2.0	2.0	1.9	1.9	1.9	1.3	1.0	1.2	0.9	0.7	1.0	0.8	2.0
24-Mar	1.2	0.8	0.7	0.8	0.6	0.7	0.7	0.9	0.6	1.6	1.2	2.2	2.6	2.4	2.2	2.1	2.0	1.9	1.5	1.8	1.4	2.0	1.9	1.5	2.6
25-Mar	1.6	1.4	1.5	1.6	1.7	1.6	2.0	2.5	2.6	2.7	2.2	2.4	2.7	3.0	3.0	3.1	2.8	2.7	2.3	3.1	2.9	2.7	3.0	3.3	3.3
26-Mar	2.8	2.9	3.0	3.2	3.3	3.5	3.4	3.0	3.4	3.6	3.3	3.3	3.5	3.4	3.3	2.6	2.7	3.0	3.3	3.4	3.1	2.6	2.6	2.8	3.6
27-Mar	2.9	3.3	3.2	3.2	3.3	3.2	2.9	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.1	2.9	2.6	2.6	2.1	1.7	1.5	1.5	1.3	1.1	3.3
28-Mar	0.9	0.8	0.7	0.9	0.7	0.9	0.9	1.2	1.2	1.5	1.7	2.0	2.4	2.8	2.6	2.9	2.4	2.2	2.4	1.9	1.5	1.6	1.7	1.7	2.9
29-Mar	1.6	1.3	1.4	1.2	0.9	0.7	0.6	1.6	1.7	1.9	2.1	2.5	2.5	2.6	2.4	2.1	1.9	1.7	1.5	0.7	0.4	0.2	0.2	0.5	2.6
30-Mar	0.4	0.3	0.3	0.3	0.4	0.5	1.0	1.0	1.5	1.9	1.4	2.3	3.0	2.7	2.7	2.3	2.0	2.2	1.8	1.4	1.9	1.9	2.0	2.0	3.0
31-Mar	2.3	1.7	1.4	1.2	1.0	1.1	1.0	1.1	0.9	1.6	1.6	1.3	2.1	2.7	2.6	2.5	2.5	1.7	1.6	2.3	2.8	2.5	3.0	2.5	3.0
Diurnal Maximum																									
DF - DAS Failure UO - Unstable Operation																									



Maximum Value: 3.5 km/h on Mar 26 22:00		Maximum Daily Average: 0.9 km/h on Mar 17		Hours in Service: 744																						
Minimum Value: -1.7 km/h on Mar 15 05:00		Minimum Daily Average: -0.6 km/h on Mar 6		Hours of Data: 741																						
Maximum Diurnal Average: 0.3 km/h at hour 2		Minimum Diurnal Average: 0.1 km/h at hour 5		Hours of Missing Data: 3																						
Monthly Average: 0.21 km/h		Percentiles: P ₁ = -1.3 P ₁₀ = -0.5 Q ₁ = -0.1 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 1.0 P ₉₉ = 2.0		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-Mar	-1.0	0.5	-1.2	-0.8	-0.8	0.2	-0.2	0.5	0.3	-0.4	-0.2	-0.6	-1.3	-0.9	-1.3	-0.8	-0.9	-0.3	-0.1	0.1	0.2	0.1	0.3	0.4	-0.3	0.5
2-Mar	0.5	0.2	0.4	0.2	0.4	0.2	0.1	-0.1	0.0	0.5	0.1	0.1	0.4	0.6	0.5	0.6	1.2	0.7	0.6	0.4	0.3	0.7	0.1	0.3	0.4	1.2
3-Mar	DF	DF	0.2	0.4	0.6	0.4	0.3	0.1	0.3	0.6	0.6	0.9	-0.1	-0.1	-0.1	-0.5	0.0	0.1	0.5	0.1	0.0	0.0	0.0	0.2	0.2	0.9
4-Mar	-0.2	-0.1	-0.2	-0.1	0.0	0.1	0.1	0.3	0.2	-0.1	-0.1	-0.2	-0.1	-0.2	-0.2	-0.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.3
5-Mar	0.0	0.0	-0.1	0.0	0.0	0.1	0.2	0.1	-0.3	0.7	-0.4	-0.2	-0.3	0.3	0.2	-0.6	-0.4	0.2	-0.1	-0.1	0.6	0.7	1.2	0.7	0.1	1.2
6-Mar	-0.8	-1.2	-1.2	-0.4	-1.1	DF	-0.1	-0.5	-0.3	1.6	0.8	0.2	-0.4	-1.3	-0.1	-0.4	-0.7	-0.7	-0.9	-1.2	-1.2	-1.2	-1.0	-0.7	-0.6	1.6
7-Mar	-0.2	0.9	0.0	-0.7	-0.5	-0.5	-0.3	0.0	-0.1	0.2	1.4	1.8	1.2	1.7	-0.5	-1.1	-0.6	-0.2	-0.2	0.1	-0.2	-0.5	-0.3	0.3	0.1	1.8
8-Mar	0.1	-0.1	0.1	-0.1	0.0	0.0	0.0	0.2	0.4	0.0	-0.1	0.4	0.3	0.3	0.1	1.2	1.4	1.2	1.1	0.6	0.3	1.4	1.3	-0.1	0.4	1.4
9-Mar	-0.1	-0.2	-0.9	0.5	1.0	-0.4	0.2	0.5	-0.1	0.1	0.4	-0.1	0.0	0.2	1.1	0.8	0.1	-0.3	0.0	0.7	0.6	-0.2	-0.5	0.4	0.2	1.1
10-Mar	0.1	-0.3	-0.6	-0.4	0.0	-0.1	0.6	-0.2	0.2	-0.4	-0.6	-0.7	-1.4	-1.1	-1.1	-0.5	-0.6	-0.3	-0.5	-0.1	0.1	0.1	0.5	0.5	-0.3	0.6
11-Mar	0.4	0.1	0.4	0.5	0.2	1.2	0.4	0.5	-0.2	0.1	-0.2	-0.6	0.3	0.7	-0.4	-0.3	-0.4	0.0	0.0	-0.2	0.0	0.3	0.6	0.5	0.2	1.2
12-Mar	1.0	0.3	1.3	0.9	0.8	0.4	-0.1	0.3	1.7	0.8	1.8	0.3	-0.1	-0.2	-0.2	0.1	0.2	0.8	0.7	0.8	0.6	0.7	0.4	0.7	0.6	1.8
13-Mar	0.1	-0.2	0.9	0.4	-0.1	1.1	-0.2	-0.3	0.8	0.3	0.3	0.4	0.5	0.2	0.8	0.9	1.5	2.0	1.2	-0.1	0.0	1.3	0.3	1.0	0.5	2.0
14-Mar	1.0	0.9	0.3	-0.1	0.1	0.3	0.3	-0.4	0.1	-0.1	0.2	0.1	0.3	0.8	-0.1	-0.3	-0.1	0.0	0.4	0.2	-0.8	-1.0	-0.9	-1.7	0.0	1.0
15-Mar	-0.3	0.7	-0.8	-1.3	-1.7	-1.1	0.7	0.2	0.9	-0.4	-0.3	-1.0	-0.4	-0.2	0.0	1.1	1.6	0.6	0.0	0.3	0.6	0.1	0.2	0.4	0.0	1.6
16-Mar	0.1	0.6	0.1	0.2	0.4	0.4	0.1	0.3	0.1	-0.2	0.1	-0.3	-0.3	-0.7	-0.3	0.3	-0.5	-0.1	0.1	0.3	0.2	0.5	0.7	0.7	0.1	0.7
17-Mar	0.3	0.7	1.5	0.6	0.7	0.7	0.9	0.3	1.1	1.6	2.9	2.0	2.5	2.2	1.3	0.6	0.1	-0.4	-0.2	0.5	-0.1	-0.4	0.6	0.3	0.9	2.9
18-Mar	0.0	0.2	0.2	0.2	0.6	0.8	0.7	0.8	0.3	0.4	-0.1	-0.6	-0.2	0.2	0.0	0.8	0.0	0.2	0.6	0.0	0.2	0.5	1.0	0.2	0.3	1.0
19-Mar	0.7	1.2	0.3	0.5	0.1	1.1	0.3	0.3	-0.1	0.1	-0.1	0.3	0.0	-0.3	0.0	0.5	0.3	0.4	1.0	0.8	0.5	0.1	-0.2	-0.1	0.3	1.2
20-Mar	0.7	0.8	0.4	0.3	-0.2	-0.1	0.1	0.1	0.1	-0.4	0.0	-0.3	-0.8	-0.8	-0.4	-0.3	-0.1	0.2	0.6	0.6	0.5	0.3	0.0	0.1	0.1	0.8
21-Mar	0.2	0.3	0.0	-0.1	0.0	0.1	0.2	0.1	0.1	-0.3	-0.1	-0.6	0.0	-0.1	1.2	0.4	1.6	1.3	0.6	0.8	1.0	0.8	0.2	0.3	0.3	1.6
22-Mar	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.4	0.3	-0.5	0.6	0.4	0.1	-0.1	0.1	0.4	0.3	0.1	0.0	0.3	-0.1	0.3	0.2	0.6
23-Mar	0.6	0.5	0.4	0.1	0.2	0.2	0.0	-0.1	0.4	0.4	-0.1	0.3	0.1	-0.1	-0.2	0.2	0.6	0.1	-0.2	-0.4	0.4	0.7	1.0	0.6	0.2	1.0
24-Mar	0.4	0.8	0.5	0.1	0.4	0.4	0.5	0.5	-0.5	0.2	-0.1	0.6	-0.7	0.6	0.8	0.7	1.2	-1.1	0.6	1.5	1.7	0.8	1.3	0.8	0.5	1.7
25-Mar	0.1	0.6	0.3	-0.2	0.6	0.0	0.4	0.6	0.4	1.1	0.9	0.7	0.8	1.2	1.0	-0.3	-0.2	-1.0	0.7	0.6	-0.9	-1.0	-1.0	-0.8	0.2	1.2
26-Mar	-1.1	-0.1	1.5	1.5	0.4	0.9	-0.7	-1.0	-0.1	-0.5	1.5	0.7	0.8	1.6	0.7	0.5	1.3	1.6	0.5	1.9	1.7	3.5	1.7	1.0	0.8	3.5
27-Mar	0.7	0.8	0.3	0.8	0.4	0.7	1.1	0.3	0.2	0.3	0.4	1.2	0.9	0.8	1.1	0.5	0.6	0.6	0.2	0.5	0.3	-0.4	0.1	0.2	0.5	1.2
28-Mar	0.1	0.4	0.2	0.1	0.1	0.5	0.2	-0.1	-0.1	0.0	-0.3	-0.3	-0.1	-0.6	-0.7	0.3	-0.1	-0.4	-0.4	0.0	0.0	-0.3	0.0	0.1	-0.1	0.5
29-Mar	-0.1	0.2	0.5	0.3	0.2	0.1	0.1	-0.1	-0.3	-0.1	0.0	0.3	-0.3	-0.7	-0.1	-0.2	0.1	0.4	0.5	0.5	0.3	0.1	-0.1	0.1	0.1	0.5
30-Mar	0.1	0.2	0.0	0.2	0.1	0.4	0.7	1.2	-0.3	1.4	0.0	0.0	0.2	1.0	0.4	0.3	0.8	1.2	1.3	1.0	1.2	0.2	1.4	2.2	0.6	2.2
31-Mar	2.2	1.2	0.1	0.8	-0.4	0.8	-0.1	0.2	0.1	0.2	0.3	0.1	0.3	-0.8	0.4	0.1	-0.6	-0.8	-1.3	-1.0	-1.4	-1.0	-0.5	-1.1	-0.1	2.2
																								Diurnal Average		
																								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 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1																				Hours in Service: 744							
Maximum Value: 4.4 km/h on Mar 26 10:00																				Hours of Data: 741							
Minimum Value: 0.2 km/h on Mar 22 07:00																				Hours of Missing Data: 3							
Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.1 Median = 1.7 Q ₃ = 2.4 P ₉₀ = 3.0 P ₉₉ = 4.0																				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-Mar	1.3	1.9	1.8	2.5	2.9	2.4	1.5	1.7	1.7	1.7	2.9	3.4	3.2	3.1	2.7	2.7	2.4	1.5	1.0	1.2	0.6	0.6	2.1	1.5	3.4		
2-Mar	1.3	1.6	1.6	0.6	0.4	0.3	0.3	0.4	0.5	1.9	2.4	2.2	2.5	2.9	2.8	2.9	2.8	1.7	1.7	1.9	2.0	2.0	2.0	1.8	2.9		
3-Mar	DF	DF	1.9	2.2	2.3	2.2	2.3	2.4	3.1	2.7	2.6	2.6	1.9	2.0	2.2	2.2	2.3	2.3	2.4	1.9	2.2	2.3	2.8	2.3	3.1		
4-Mar	2.0	2.2	2.4	2.4	2.6	2.5	2.5	2.2	2.3	2.6	2.1	2.1	2.1	2.2	2.0	1.8	1.8	1.6	1.6	1.2	0.7	0.7	0.8	0.9	2.6		
5-Mar	0.8	0.6	0.5	0.4	0.5	0.5	0.6	0.7	0.8	1.2	1.3	0.8	1.0	1.7	2.1	1.4	0.5	0.6	0.3	0.5	1.1	1.8	1.4	1.4	2.1		
6-Mar	1.4	1.5	1.6	1.9	1.6	DF	1.8	1.7	1.3	1.9	1.7	1.6	2.2	2.1	2.8	2.3	1.6	1.2	0.4	0.3	0.4	0.5	1.1	1.1	2.8		
7-Mar	1.9	2.6	2.7	2.8	2.1	2.1	1.9	1.3	1.6	1.8	2.6	3.2	2.7	2.8	2.6	2.0	1.5	0.9	0.3	0.9	1.7	1.1	1.0	0.9	3.2		
8-Mar	1.3	0.8	0.5	0.4	0.4	0.2	0.3	0.5	0.8	1.1	1.3	1.5	1.6	1.9	1.7	1.5	1.7	1.7	1.7	2.1	1.5	2.1	2.2	2.2	2.2		
9-Mar	2.0	1.9	1.6	1.2	1.0	1.1	0.6	0.6	0.7	0.8	0.9	1.3	1.7	1.3	1.6	1.9	1.6	1.8	1.1	0.7	1.0	1.1	0.6	0.6	2.0		
10-Mar	1.2	1.1	1.0	1.0	0.8	1.2	1.5	1.2	1.6	0.7	0.9	1.7	3.0	2.4	2.5	3.1	2.2	1.5	0.7	0.4	0.6	1.4	1.8	1.6	3.1		
11-Mar	1.9	1.5	1.6	1.4	1.0	1.9	1.8	1.8	1.3	1.7	2.2	1.6	2.6	2.2	1.6	1.8	1.5	1.3	0.5	0.5	0.6	1.8	1.5	1.9	2.6		
12-Mar	1.9	1.5	1.5	1.7	1.9	2.1	1.7	2.1	2.1	2.1	3.2	2.1	1.1	1.1	1.2	1.7	1.5	1.4	1.1	1.3	1.6	1.9	2.1	1.8	3.2		
13-Mar	1.6	1.7	1.4	1.5	1.6	1.7	1.3	1.4	1.7	2.0	1.9	1.7	2.1	1.8	2.1	2.1	1.9	1.8	1.7	1.6	1.7	1.6	1.9	2.0	2.1		
14-Mar	1.1	1.1	0.9	1.0	1.2	1.1	1.1	0.9	1.0	0.8	1.3	0.7	1.9	2.4	1.3	0.5	0.6	1.0	0.9	1.2	1.4	1.0	1.5	2.1	2.4		
15-Mar	1.4	1.2	0.9	2.9	2.8	2.6	2.5	3.2	2.8	3.3	3.2	3.2	3.0	2.4	2.5	3.4	3.1	2.8	2.6	2.1	1.8	1.5	1.3	1.3	3.4		
16-Mar	1.4	1.4	1.4	1.3	1.6	1.6	1.5	1.6	1.2	1.9	2.2	2.4	2.3	2.4	2.2	2.2	1.7	1.2	0.9	0.5	0.7	1.9	1.8	2.1	2.4		
17-Mar	2.1	2.1	2.6	2.2	2.0	1.9	2.2	2.0	2.2	2.3	2.9	3.6	2.7	2.6	2.3	1.9	1.7	1.4	1.1	1.3	1.9	1.0	1.7	2.3	3.6		
18-Mar	2.3	1.8	1.6	1.6	2.3	2.9	2.6	2.2	3.0	2.4	2.5	1.7	1.7	1.8	2.0	3.0	3.4	3.1	2.9	2.7	3.0	3.3	3.5	2.6	3.5		
19-Mar	2.3	3.0	2.9	2.5	2.5	2.6	2.9	2.6	2.5	2.3	2.6	3.0	3.0	2.9	2.6	3.1	2.8	2.3	2.1	1.2	1.2	1.8	1.0	0.6	3.1		
20-Mar	1.4	0.8	0.6	1.1	0.5	0.3	0.4	0.3	1.0	1.5	2.4	2.5	2.4	2.6	2.7	2.5	1.8	1.7	1.2	1.3	1.2	1.3	1.1	0.8	2.7		
21-Mar	0.7	0.9	0.5	0.5	0.5	0.9	0.9	0.8	0.7	1.1	2.2	2.3	2.5	2.6	3.2	2.8	3.0	2.9	1.9	1.5	1.1	1.0	0.8	0.8	3.2		
22-Mar	0.8	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.1	1.5	1.6	1.8	2.0	1.7	1.6	1.5	1.2	0.8	0.7	0.2	0.6	0.8	1.3	2.0		
23-Mar	1.0	0.6	0.4	0.4	0.4	0.5	0.4	0.5	0.7	0.8	0.9	1.3	1.5	2.0	2.1	2.3	2.3	1.4	1.4	1.4	1.0	1.1	1.5	1.1	2.3		
24-Mar	1.3	1.1	0.7	0.6	0.7	0.7	0.7	0.9	1.0	1.6	1.3	2.6	3.2	3.2	3.0	2.5	2.5	1.9	2.0	1.8	1.7	1.9	1.9	1.6	3.2		
25-Mar	1.8	1.4	1.0	1.3	1.3	1.5	1.7	1.9	2.0	2.4	2.3	2.6	2.9	3.3	3.5	3.8	3.4	2.8	2.8	3.8	3.2	2.9	2.7	3.0	3.8		
26-Mar	3.0	3.5	3.9	3.8	4.0	4.0	3.8	3.5	4.1	4.4	3.8	3.4	3.6	4.3	4.1	3.1	3.0	3.6	3.8	4.2	4.0	2.8	3.2	3.5	4.4		
27-Mar	2.9	3.2	3.0	3.5	3.4	3.5	3.2	3.2	3.2	3.1	3.3	3.1	3.4	3.2	3.2	3.0	3.0	3.0	2.4	2.2	2.2	1.9	1.9	1.6	3.5		
28-Mar	1.2	0.8	0.4	0.4	0.6	0.9	0.9	1.0	1.1	1.3	1.6	2.0	2.6	2.7	2.7	3.0	2.4	1.9	1.7	1.5	1.0	0.7	1.1	1.2	3.0		
29-Mar	1.4	1.1	1.1	0.9	0.9	0.5	0.5	1.4	1.5	2.0	2.6	3.2	3.3	2.5	2.8	2.1	2.1	2.0	1.7	0.8	0.6	0.2	0.2	0.4	3.3		
30-Mar	0.7	0.5	0.5	0.4	0.5	0.6	1.0	1.0	1.5	1.2	1.6	2.9	4.1	3.6	3.7	2.9	2.4	2.4	1.9	1.3	1.8	1.7	1.5	1.4	4.1		
31-Mar	1.6	1.7	1.6	1.4	1.8	1.4	1.2	1.3	1.2	1.4	1.4	1.8	2.4	3.1	3.0	3.2	2.4	1.4	1.3	1.8	2.5	2.3	2.8	2.3	3.2		
	3.0	3.5	3.9	3.8	4.0	4.0	3.8	3.5	4.1	4.4	3.8	3.6	4.1	4.3	4.1	3.8	3.4	3.6	3.8	4.2	4.0	3.3	3.5	3.5			
Diurnal Maximum																											
DF - DAS Failure																											



Maximum Value: 4.6 km/h on Mar 26 22:00		Maximum Daily Average: 1.2 km/h on Mar 17		Hours in Service: 744																						
Minimum Value: -2.4 km/h on Mar 6 03:00		Minimum Daily Average: -0.7 km/h on Mar 6		Hours of Data: 741																						
Maximum Diurnal Average: 0.6 km/h at hour 20		Minimum Diurnal Average: 0.2 km/h at hour 13		Hours of Missing Data: 3																						
Monthly Average: 0.32 km/h		Percentiles: P ₁ = -1.3 P ₁₀ = -0.4 Q ₁ = 0.0 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 1.2 P ₉₉ = 2.4		Hours of Calibration: 0																						
				Percent Operational Time: 99.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	1.6	0.0	0.8	0.6	1.6	1.1	1.4	1.4	0.8	1.1	0.6	-0.4	-0.2	-1.0	-0.2	-0.1	0.1	0.4	0.5	0.4	0.5	0.7	0.3	0.5	1.6
2-Mar	0.7	0.2	1.0	0.5	1.0	0.6	0.4	0.2	0.5	0.2	-0.1	0.1	0.4	0.6	0.7	0.5	1.3	0.7	0.8	0.7	0.4	0.5	0.2	0.4	0.5	1.3
3-Mar	DF	DF	0.2	0.1	0.5	0.4	0.6	0.0	0.5	0.5	0.7	0.8	0.0	0.5	0.4	0.2	0.5	0.6	0.7	0.5	0.4	0.2	0.5	0.5	0.4	0.8
4-Mar	0.2	0.4	0.4	0.2	0.3	0.4	0.4	0.6	0.6	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.0	0.1	0.1	0.3	0.1	0.1	0.4	0.4	0.3	0.6
5-Mar	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.0	0.6	-0.7	-0.1	-0.3	0.3	0.2	-0.4	-0.4	0.3	0.0	0.2	0.9	0.8	1.4	0.3	0.2	1.4
6-Mar	-1.1	-1.7	-2.4	-0.7	-1.7	DF	-1.1	-1.7	-0.8	2.6	1.1	-0.1	-1.2	-1.8	-0.2	-0.2	-0.7	-0.6	-0.7	-0.9	-0.8	-0.6	-0.1	0.0	-0.7	2.6
7-Mar	0.2	1.9	0.3	-0.8	-0.7	-1.1	-0.5	-0.2	-0.8	0.1	0.8	1.1	0.7	1.2	-0.7	-1.3	-0.4	0.0	0.1	0.6	-0.2	-0.2	0.1	1.3	0.1	1.9
8-Mar	1.0	0.1	0.3	0.2	0.2	0.1	0.2	-0.1	0.4	-0.1	-0.1	0.3	0.4	0.4	-0.1	1.3	1.9	1.0	1.0	0.9	-0.2	1.6	2.6	-0.4	0.5	2.6
9-Mar	-0.6	-0.9	-1.8	-0.2	0.6	-0.9	0.3	0.9	0.2	0.3	0.6	0.3	-0.1	0.5	1.4	0.9	-0.2	-0.4	0.3	0.6	0.0	0.0	-0.3	0.3	0.1	1.4
10-Mar	0.0	-0.1	-0.3	0.1	0.6	1.0	2.2	0.8	1.5	1.1	1.0	1.0	0.4	0.7	0.0	0.5	0.3	0.2	0.2	0.6	0.7	0.2	0.8	0.8	0.6	2.2
11-Mar	0.5	0.1	0.3	0.5	0.1	1.6	0.5	0.4	-0.1	0.5	0.1	-0.3	0.7	1.0	0.0	0.2	0.3	0.3	0.1	0.3	0.0	0.0	-0.2	0.6	0.3	1.6
12-Mar	0.8	-0.3	0.8	0.3	0.5	-0.2	-0.5	0.4	1.5	0.4	1.3	-0.3	-0.4	-0.5	-0.6	-0.3	-0.4	0.0	0.0	0.3	0.1	0.3	-0.1	0.9	0.2	1.5
13-Mar	-0.4	-1.0	0.9	0.1	0.0	1.8	-0.2	0.2	1.2	0.2	0.1	0.0	0.1	0.0	0.5	0.8	1.5	2.0	1.6	0.0	0.6	1.8	0.3	1.0	0.6	2.0
14-Mar	0.2	0.2	-0.1	-0.2	0.0	0.3	0.3	0.2	0.2	0.1	0.1	-0.1	0.7	1.7	0.9	0.5	0.1	0.7	0.9	1.0	0.3	0.9	1.0	-0.8	0.4	1.7
15-Mar	0.3	2.0	1.1	0.3	-0.2	0.2	1.2	0.9	1.2	0.1	0.6	0.0	0.2	0.2	0.0	1.4	2.1	0.3	-0.3	0.3	0.7	0.2	0.3	0.8	0.6	2.1
16-Mar	0.3	0.7	0.4	0.4	0.3	0.5	0.2	0.4	0.1	0.0	0.2	-0.2	0.0	-0.7	0.3	0.8	0.2	0.2	0.2	0.2	0.1	0.7	0.6	0.4	0.3	0.8
17-Mar	-0.1	0.9	1.7	0.2	0.7	0.7	0.6	-0.1	1.3	1.7	3.5	2.3	3.1	2.8	1.7	0.3	-0.2	-0.2	0.4	2.3	1.1	1.6	2.2	0.6	1.2	3.5
18-Mar	-0.1	0.4	0.3	0.5	0.4	0.8	1.0	1.0	0.5	1.0	0.0	-0.3	0.2	0.4	0.0	0.7	0.1	0.0	0.4	0.1	0.2	0.8	1.1	0.2	0.4	1.1
19-Mar	0.6	1.4	0.5	0.6	0.2	1.1	0.2	0.1	-0.4	0.2	-0.4	1.1	0.1	0.2	-0.2	0.4	0.0	0.3	0.9	0.8	0.6	0.0	0.2	0.2	0.4	1.4
20-Mar	1.1	1.2	0.9	1.1	0.1	0.0	0.3	0.6	0.2	-0.5	0.0	-0.3	-0.7	-0.5	-0.3	-0.3	0.1	0.2	0.9	1.3	1.2	0.6	-0.3	-0.1	0.3	1.3
21-Mar	0.1	0.0	-0.4	-0.3	-0.1	-0.2	-0.1	-0.1	0.3	0.1	0.2	-0.2	0.0	0.1	1.5	0.7	1.5	1.5	0.8	1.0	1.6	1.2	0.0	-0.1	0.4	1.6
22-Mar	0.2	0.2	0.2	0.3	0.2	0.0	0.0	0.1	-0.1	0.1	0.2	-0.3	0.4	-0.1	-0.5	-0.4	-0.4	0.2	0.2	0.3	0.1	0.1	0.3	0.4	0.1	0.4
23-Mar	0.7	0.6	0.4	0.1	-0.1	0.3	0.5	0.1	0.4	0.5	-0.5	0.5	-0.2	-0.4	-0.8	-0.3	0.2	-0.4	-0.6	-0.7	0.0	0.2	1.0	1.1	0.1	1.1
24-Mar	0.5	0.4	0.4	0.1	0.4	0.6	0.4	0.5	-0.6	0.4	-0.1	0.6	-0.8	0.5	0.9	0.9	1.5	-0.7	1.0	1.5	2.3	0.8	1.5	0.6	0.6	2.3
25-Mar	-0.3	0.3	-0.3	-0.9	0.1	-0.6	0.4	1.0	0.1	1.3	1.3	0.7	0.3	1.0	1.0	-0.2	-0.4	-1.0	0.7	0.5	-0.6	-0.8	-0.4	-0.6	0.1	1.3
26-Mar	-1.4	-0.3	0.9	1.0	0.4	0.8	-0.7	-0.7	-0.3	-0.7	1.6	0.1	0.5	2.5	0.9	0.0	1.2	2.0	0.8	2.6	2.3	4.6	1.7	0.4	0.8	4.6
27-Mar	0.4	0.4	-0.2	0.5	0.2	-0.1	0.5	-0.6	-0.5	-0.3	-0.2	0.2	0.0	-0.1	0.0	-0.3	-0.2	0.0	-0.2	0.5	0.0	-0.5	0.0	0.2	0.0	0.5
28-Mar	-0.1	0.0	0.0	0.1	0.6	1.4	0.5	0.0	0.1	0.2	-0.1	0.2	0.3	-0.1	0.2	0.8	0.4	-0.2	0.3	0.5	0.5	0.4	0.6	0.3	0.3	1.4
29-Mar	0.1	0.1	0.7	0.6	0.6	0.4	0.5	0.2	-0.3	-0.2	0.3	1.0	0.1	-0.6	0.2	0.0	0.5	0.5	0.6	0.3	0.1	0.1	0.2	0.2	0.3	1.0
30-Mar	0.4	0.1	0.0	0.1	0.0	-0.1	1.3	1.9	-0.3	1.3	0.0	-0.3	-0.1	1.3	0.0	0.3	1.0	1.2	1.2	1.0	1.2	-0.2	1.5	1.6	0.6	1.9
31-Mar	1.7	1.1	-0.5	0.7	-0.4	1.0	-0.1	0.1	0.0	-0.2	-0.4	-0.4	-0.1	-0.8	0.9	0.6	-0.4	-0.9	-1.3	-1.0	-1.3	-1.2	-0.8	-0.9	-0.2	1.7
																								Diurnal Average		
																								Diurnal Maximum		
																								DF - DAS Failure		



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 1																				Hours in Service: 744					
Maximum Value: 5.0 km/h on Mar 26 10:00																				Hours of Data: 741					
Minimum Value: 0.1 km/h on Mar 22 07:00																				Hours of Missing Data: 3					
Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.1 Median = 1.7 Q ₃ = 2.5 P ₉₀ = 3.2 P ₉₉ = 4.3																				Hours of Calibration: 0					
																				Percent Operational Time: 99.6					
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	1.8	2.0	1.6	2.4	2.6	2.2	1.7	2.1	1.8	1.7	2.9	3.7	3.6	3.4	3.0	2.7	2.5	1.4	1.0	1.1	0.9	0.5	2.2	1.3	3.7
2-Mar	0.9	1.5	1.7	0.7	0.4	0.4	0.4	0.4	0.7	2.1	2.7	2.5	2.9	3.4	3.4	3.4	3.1	1.8	1.7	2.1	2.3	2.2	2.2	1.9	3.4
3-Mar	DF	DF	2.0	2.1	2.5	2.4	2.7	2.9	3.4	2.9	2.6	2.8	1.9	1.8	2.1	1.9	2.1	2.2	2.1	2.1	2.3	2.3	3.0	2.2	3.4
4-Mar	2.1	2.1	2.2	2.4	2.8	2.7	2.5	2.2	2.6	2.8	2.2	2.1	2.4	1.9	1.7	1.5	1.7	1.8	1.6	1.2	0.8	1.0	1.0	0.9	2.8
5-Mar	0.8	0.8	0.6	0.5	0.5	0.6	0.5	0.6	0.9	1.2	1.2	0.8	0.9	1.5	2.4	1.6	0.8	0.7	0.3	0.3	0.5	1.3	0.9	1.4	2.4
6-Mar	1.4	1.5	1.8	2.2	1.9	DF	2.4	2.1	1.8	1.8	1.1	0.9	2.0	2.1	2.8	2.1	1.4	1.1	0.4	0.3	0.2	0.4	0.7	0.6	2.8
7-Mar	1.0	1.9	3.0	1.7	1.3	1.7	1.4	1.3	1.7	2.1	2.6	3.0	2.6	3.0	2.8	2.0	1.6	0.8	0.5	0.6	1.2	0.9	1.0	1.2	3.0
8-Mar	1.7	1.1	0.6	0.3	0.5	0.2	0.3	0.4	0.7	1.2	1.0	1.2	1.7	2.0	1.9	1.7	1.4	2.2	2.1	1.8	1.2	1.8	2.7	1.7	2.7
9-Mar	1.6	1.1	1.1	1.0	1.0	1.2	0.8	0.7	0.8	0.9	1.4	1.4	1.9	1.5	1.9	2.0	2.0	1.8	1.2	0.9	1.0	1.2	0.8	0.7	2.0
10-Mar	1.1	1.1	0.4	0.8	1.0	1.0	1.2	1.2	1.0	0.7	1.0	1.6	2.5	2.0	2.5	2.8	2.2	1.5	0.5	0.5	0.7	1.8	2.3	1.9	2.8
11-Mar	1.9	1.5	1.7	1.4	1.1	2.3	1.8	1.7	1.2	1.8	2.2	1.6	2.7	2.4	1.5	1.3	1.1	0.9	0.5	0.5	0.7	1.7	1.4	1.8	2.7
12-Mar	1.6	1.6	1.5	1.2	1.3	1.4	1.2	2.1	1.7	2.1	2.9	2.1	1.3	1.2	1.5	1.9	1.3	1.1	0.9	1.4	1.6	1.6	1.7	1.8	2.9
13-Mar	1.6	1.5	1.7	1.1	1.6	1.7	1.3	1.5	1.8	2.4	2.1	1.8	2.2	1.9	2.3	2.0	1.9	1.5	1.6	1.4	2.1	1.6	2.2	2.7	2.7
14-Mar	1.4	1.3	1.0	1.2	1.1	1.3	1.1	1.0	1.1	0.7	1.3	0.8	2.5	2.6	1.3	0.5	0.7	1.2	0.8	1.1	1.3	1.4	1.1	1.7	2.6
15-Mar	1.8	1.6	1.2	2.7	2.2	2.8	2.6	3.1	3.0	3.0	3.2	3.2	2.7	2.7	2.8	3.8	3.5	2.8	2.8	2.4	1.7	1.8	1.2	1.0	3.8
16-Mar	1.4	1.6	1.2	0.9	1.6	1.7	1.5	1.7	1.5	1.9	2.4	2.3	2.6	2.9	2.5	2.2	1.2	1.0	0.8	0.4	1.1	2.4	1.7	2.0	2.9
17-Mar	2.0	2.5	2.5	2.4	2.3	2.1	2.4	2.1	2.6	2.7	3.4	3.8	3.1	2.8	2.5	1.7	1.6	1.4	1.4	1.4	1.8	1.4	1.8	2.9	3.8
18-Mar	2.7	2.2	2.1	2.2	2.7	3.2	2.9	2.6	3.0	2.6	2.6	1.6	1.8	1.8	2.2	3.3	3.7	3.1	2.9	2.8	3.2	3.8	3.2	2.7	3.8
19-Mar	2.1	3.1	2.8	2.7	2.5	2.8	2.8	3.0	2.9	2.7	2.7	3.3	3.2	3.4	3.2	3.2	3.0	2.4	1.7	0.9	1.0	2.1	1.1	0.4	3.4
20-Mar	1.0	0.5	0.5	0.8	0.5	0.3	0.4	0.4	0.8	1.5	2.7	2.6	2.7	3.1	3.1	2.9	2.1	1.9	1.0	1.5	1.2	1.5	0.7	0.7	3.1
21-Mar	0.6	0.6	0.6	0.5	0.4	1.0	0.9	0.7	0.6	0.9	2.1	2.5	2.8	2.8	4.0	3.5	3.3	3.0	2.1	1.3	0.8	0.7	0.6	0.3	4.0
22-Mar	0.7	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.5	1.4	1.7	2.0	1.6	1.7	1.7	1.3	1.1	0.9	0.9	0.4	0.9	0.5	1.3	2.0
23-Mar	1.3	0.8	0.5	0.6	0.7	0.4	0.5	0.6	0.6	0.6	1.0	1.3	1.6	2.2	2.2	2.7	2.5	1.5	1.9	1.5	1.2	1.4	1.4	1.2	2.7
24-Mar	1.5	1.3	0.9	0.7	0.8	0.8	0.6	0.6	1.1	2.0	1.5	3.1	3.5	3.6	3.4	3.1	2.8	2.2	2.2	2.0	1.7	2.2	2.1	1.8	3.6
25-Mar	2.0	2.0	1.3	1.7	1.4	1.5	1.5	2.0	2.1	2.1	2.2	2.9	3.1	3.6	4.0	4.3	3.6	3.0	2.9	3.9	2.9	2.7	1.8	2.2	4.3
26-Mar	3.2	3.6	3.9	4.0	3.9	4.1	3.6	3.6	4.0	5.0	4.5	3.8	4.0	4.8	4.6	3.5	3.6	4.0	4.3	4.6	4.7	3.5	4.0	4.1	5.0
27-Mar	2.6	2.9	2.7	3.5	3.3	3.2	3.3	3.2	3.2	2.9	3.2	3.1	3.3	3.0	2.9	2.8	2.9	3.0	2.5	2.6	2.6	2.7	2.5	2.0	3.5
28-Mar	1.4	0.8	0.4	0.5	0.6	0.8	0.9	1.1	1.1	1.3	1.4	1.9	2.4	2.5	2.6	3.0	2.6	2.1	1.4	1.1	0.7	0.5	0.6	1.1	3.0
29-Mar	1.5	1.2	1.2	0.9	0.7	0.6	0.7	1.2	1.5	2.2	2.8	3.7	3.8	2.8	3.1	2.3	2.2	2.4	2.2	0.9	0.5	0.3	0.3	0.2	3.8
30-Mar	0.6	0.3	0.4	0.3	0.5	0.6	0.7	1.0	1.7	1.3	1.4	3.0	4.5	4.2	4.2	3.4	2.7	2.2	1.6	1.2	2.0	2.1	2.0	2.0	4.5
31-Mar	2.0	2.1	1.9	1.9	2.1	1.9	1.5	1.3	1.3	1.4	1.4	2.1	2.4	3.4	3.6	3.0	2.0	1.2	1.3	1.4	2.0	2.2	2.3	2.2	3.6
Diurnal Maximum																									
DF - DAS Failure																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS04 BUFFALO VIEWPOINT MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)
MARCH 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	37	37	100	53.3	0	12.3	0
H2S (ppb) Average	708	36	36	100	5.3	0	0.7	0
THC (ppm) Average	708	36	36	100	3.7	-	2.4	-
NMHC(ppm) Average	708	36	36	100	0.13	-	0.009	-
CH4(ppm) Average	708	36	36	100	3.7	-	2.4	-
O3(ppb) Average	710	34	34	100	50.2	0	43.2	-
NO2(ppb) Average	708	36	36	100	32.8	0	17.3	-
NO(ppb) Average	708	36	36	100	33.1	-	7.1	-
NOX(ppb) Average	708	36	36	100	65.9	-	24.4	-
PM2.5(ug/m3) Average	743	1	1	100	70.2	0	24.4	0
Temperature (C) Average	744	0	0	100	16	-	4.6	-
Relative Humidity (%) Average	744	0	0	100	90.7	-	81.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	23	-	19	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)
MARCH 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	0.75	3.6	-	0	0	0.1	0.2	0.4	0.6	53.3
H2S (ppb) Average	708	0.14	0.3	-	0	0	0.1	0.1	0.1	0.2	5.3
THC (ppm) Average	708	2.13	0.1	-	2	2.1	2.1	2.1	2.1	2.2	3.7
NMHC(ppm) Average	708	0	0.006	-	0	0	0	0	0	0	0.13
CH4(ppm) Average	708	2.13	0.1	-	2	2.1	2.1	2.1	2.1	2.2	3.7
O3(ppb) Average	710	34.1	7.4	-	1.3	24.7	29.8	35.7	39.3	42.5	50.2
NO2(ppb) Average	708	4.53	4.9	-	0.2	0.7	1.3	3	5.6	10	32.8
NO(ppb) Average	708	0.72	2.1	-	0	0	0	0.1	0.6	1.8	33.1
NOX(ppb) Average	708	5.24	6.2	-	0.2	0.8	1.4	3.3	6.8	12	65.9
PM2.5(ug/m3) Average	743	4.81	5.3	-	0.5	1.8	2.7	3.5	4.7	7.6	70.2
Temperature 2 m (C) Average	744	-7.28	9	-	-25.5	-20.4	-14.8	-6.3	-1.3	3.8	16
Relative Humidity (%) Average	744	60.39	15.6	-	22.4	38.4	48.8	61.5	73.2	80.4	90.7
Wind Speed 10 m (km/h) Average	744	10.8	4	-	2	6	8	10	14	18	23
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
<hr/>				
No operational issues to report				



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 53.3 ppb on Mar 22 17:00	Maximum Daily Average: 12.3 ppb on Mar 22		Hours of Data:	707
Minimum Value: 0.0 ppb on Mar 1 06:00	Minimum Daily Average: 0.0 ppb on Mar 4		Hours of Missing Data:	37
Maximum Diurnal Average: 2.4 ppb at hour 15	Minimum Diurnal Average: 0.1 ppb at hour 7		Hours of Calibration:	37
Monthly Average: 0.75 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 12.7		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-Mar	Z	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.0	0.2	0.0	0.1	0.3	0.4	0.4	0.4	0.4	0.2	0.0	0.0	0.2	0.4
2-Mar	0.0	Z	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.7	0.3	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.7
3-Mar	0.1	0.3	Z	0.3	0.1	0.4	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4
4-Mar	0.3	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	0.3
5-Mar	0.0	0.1	0.0	0.0	Z	0.0	0.1	0.0	0.1	0.1	0.3	1.3	5.0	3.8	1.7	0.9	0.4	0.3	0.1	0.2	0.2	0.5	0.5	0.5	0.7	5.0
6-Mar	0.2	0.2	0.4	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.3	0.1	0.2	0.4
7-Mar	Z	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.5	0.9	0.9	0.8	0.6	0.7	0.7	0.8	0.7	0.6	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.9
8-Mar	0.5	Z	0.4	0.3	0.5	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.6	1.0	0.9	0.8	0.6	0.5	0.3	0.3	0.4	0.3	0.4	0.4	1.0
9-Mar	0.5	0.4	Z	0.5	0.5	0.6	0.3	0.3	0.4	0.5	0.7	0.9	0.8	1.0	1.0	0.9	1.1	1.0	0.8	0.7	0.5	0.4	0.5	0.4	0.7	1.1
10-Mar	0.6	0.4	0.3	Z	0.4	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.3	0.2	0.2	0.1	0.2	0.6
11-Mar	0.0	0.2	0.1	0.1	Z	0.3	0.3	0.5	0.4	0.5	2.9	4.3	5.1	5.6	4.0	2.2	1.7	0.7	0.7	0.3	0.3	0.6	0.5	0.2	1.4	5.6
12-Mar	0.4	0.0	0.2	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
13-Mar	Z	0.0	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.5	0.7	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.1	0.2	0.7
14-Mar	0.1	Z	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3
15-Mar	0.2	0.1	Z	0.2	0.0	0.2	0.1	7.2	0.2	5.7	3.2	3.0	5.8	3.9	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	7.2
16-Mar	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	5.7	9.5	8.7	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	1.1	9.5
17-Mar	0.1	0.3	0.1	0.1	Z	0.1	0.2	0.1	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.2	0.2	0.3	0.3	0.4	0.3	0.2	0.1	0.3	0.5
18-Mar	0.3	0.3	0.3	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.3
19-Mar	Z	0.2	0.1	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.3	0.6	1.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	1.6
20-Mar	0.1	Z	0.3	0.3	0.5	0.4	0.2	0.3	0.3	0.3	0.6	0.4	0.3	0.5	2.4	0.5	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.4	2.4
21-Mar	0.1	0.1	Z	0.0	0.0	0.1	C	C	C	C	C	C	0.4	0.1	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.0	--	0.4
22-Mar	0.2	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.5	3.8	7.4	12.8	29.7	33.1	49.7	25.5	53.3	22.3	13.6	11.8	8.3	5.1	3.0	1.2	12.3	53.3
23-Mar	0.6	0.2	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.2	0.3	0.2	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.6
24-Mar	0.1	0.0	0.1	0.0	0.2	Z	0.0	0.2	0.4	0.7	0.8	0.5	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.8
25-Mar	Z	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.6	1.0	0.8	0.6	0.5	0.4	0.5	0.3	0.3	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	1.0
26-Mar	0.3	Z	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.5	0.3	0.4	0.3	0.2	0.1	0.3	0.5	0.6	0.4	0.4	0.3	0.4	0.3	0.5	0.4	0.6
27-Mar	0.5	0.3	Z	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.8	0.1	1.8
28-Mar	2.0	0.2	0.1	Z	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	0.1	0.0	0.0	0.0	0.1	0.3	0.4	0.2	2.0
29-Mar	0.2	0.2	0.2	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.2
30-Mar	0.0	0.0	0.0	0.0	0.1	Z	0.5	0.6	0.9	0.8	0.5	0.1	0.3	0.4	0.3	0.1	0.2	0.1	0.4	0.4	0.3	0.4	0.2	0.2	0.3	0.9
31-Mar	Z	0.4	0.4	0.4	0.1	0.3	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.1	0.4	0.5	0.3	0.5

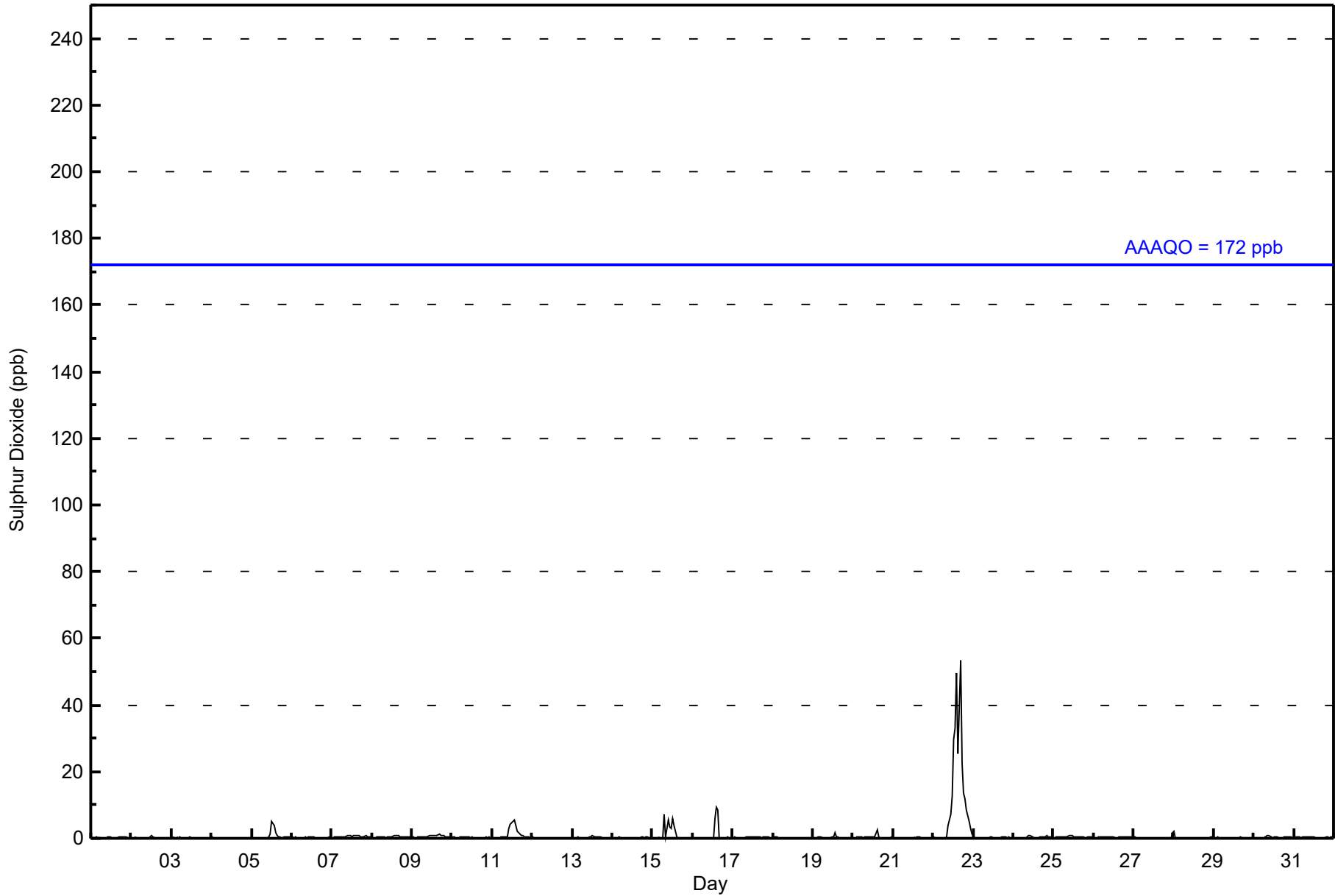
0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.2	0.6	0.7	1.0	1.7	1.9	2.4	1.4	2.0	1.0	0.6	0.6	0.5	0.4	0.3	0.3	Diurnal Average	
2.0	0.5	0.4	0.5	0.5	0.6	0.5	7.2	0.9	5.7	7.4	12.8	29.7	33.1	49.7	25.5	53.3	22.3	13.6	11.8	8.3	5.1	3.0	1.8	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	698	98.73	98.73
11 - 20	3	0.42	99.15
21 - 60	6	0.85	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



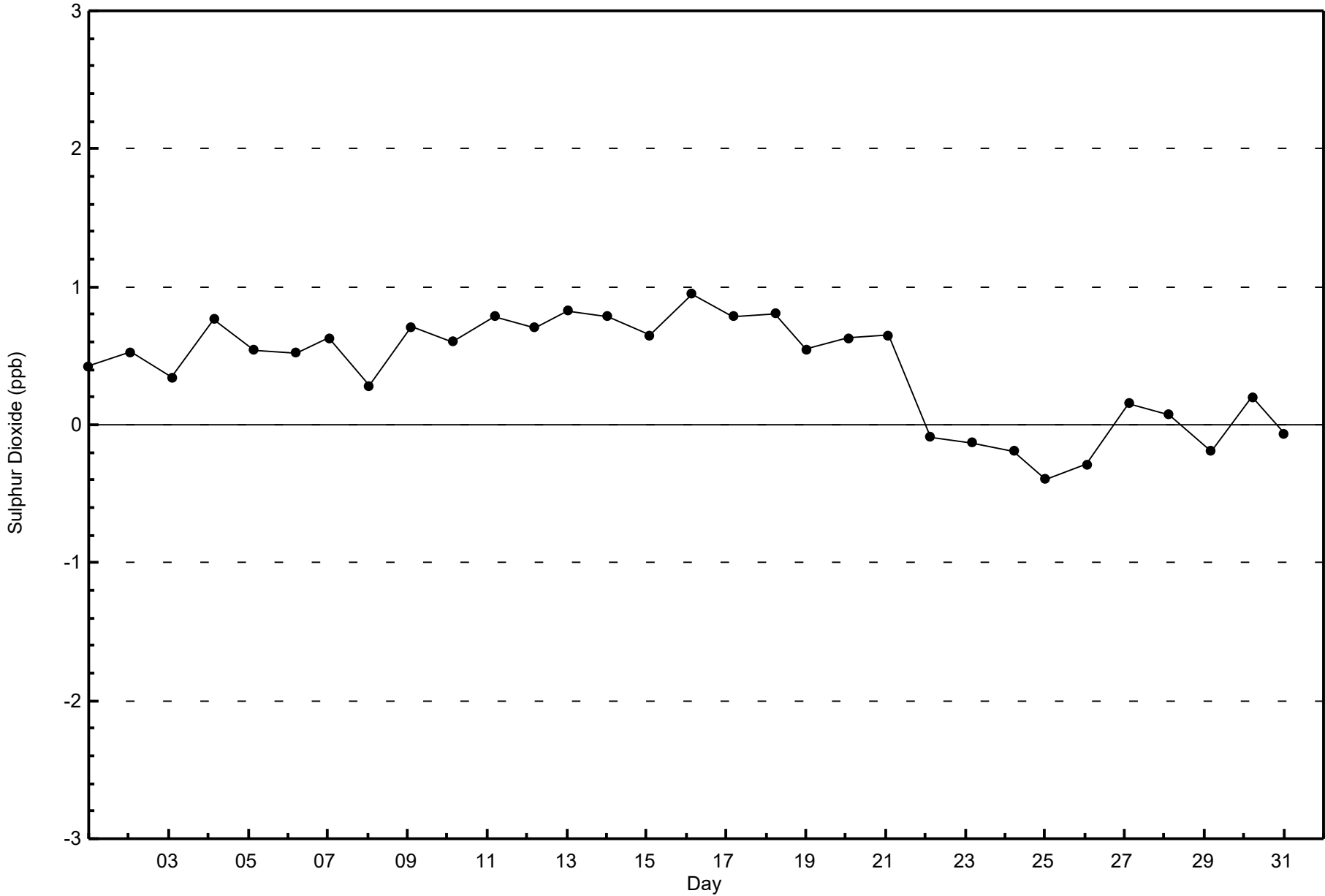
Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - March 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	146	74	6	5	9	37	105	152	35	14	7	9	17	16	15	51	698
11 - 20	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3
21 - 60	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	6
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
Totals	149	74	6	5	9	38	108	152	35	14	7	9	17	17	15	52	707

Total Number of Valid Hours: 707

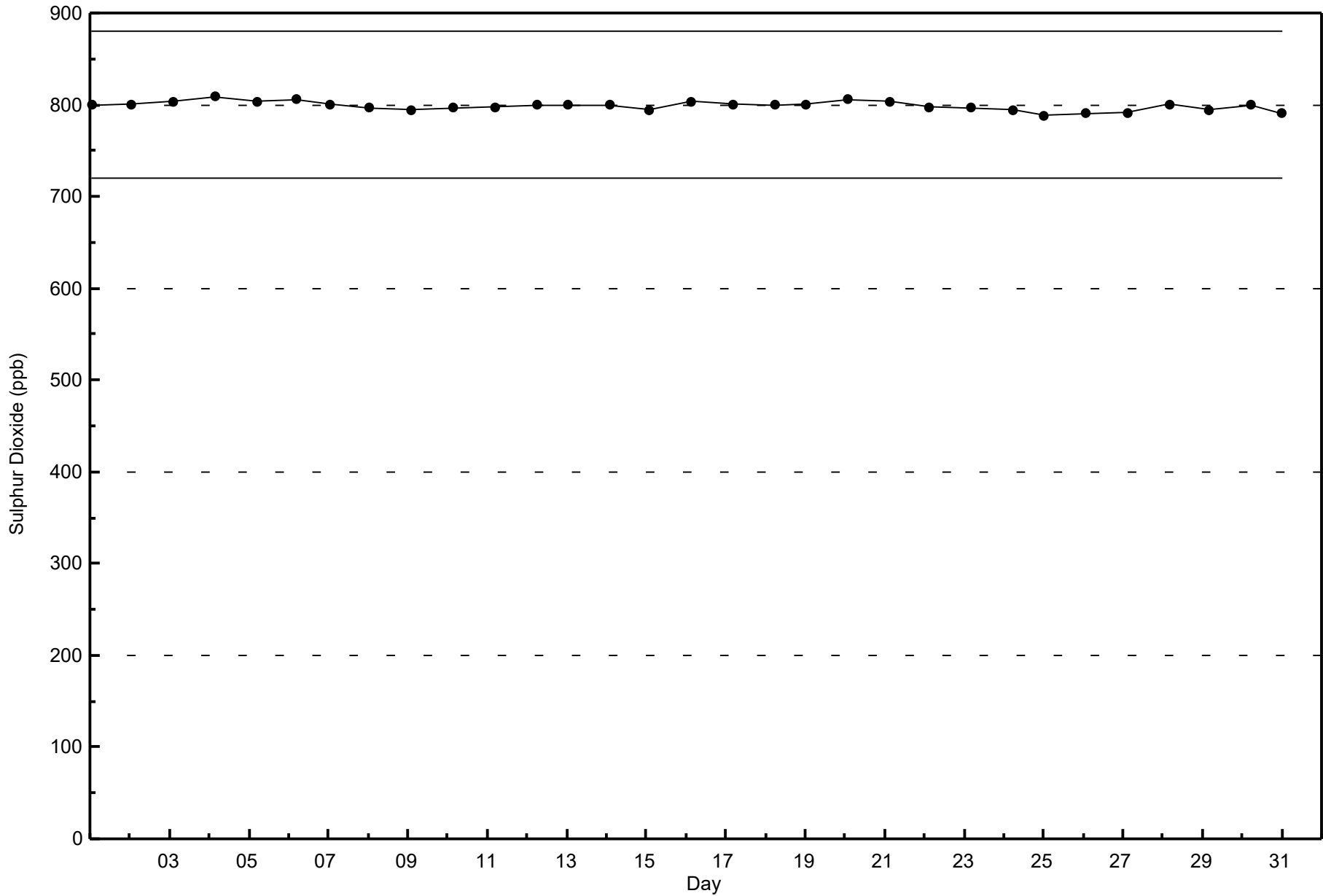
Total Number of Hours: 744

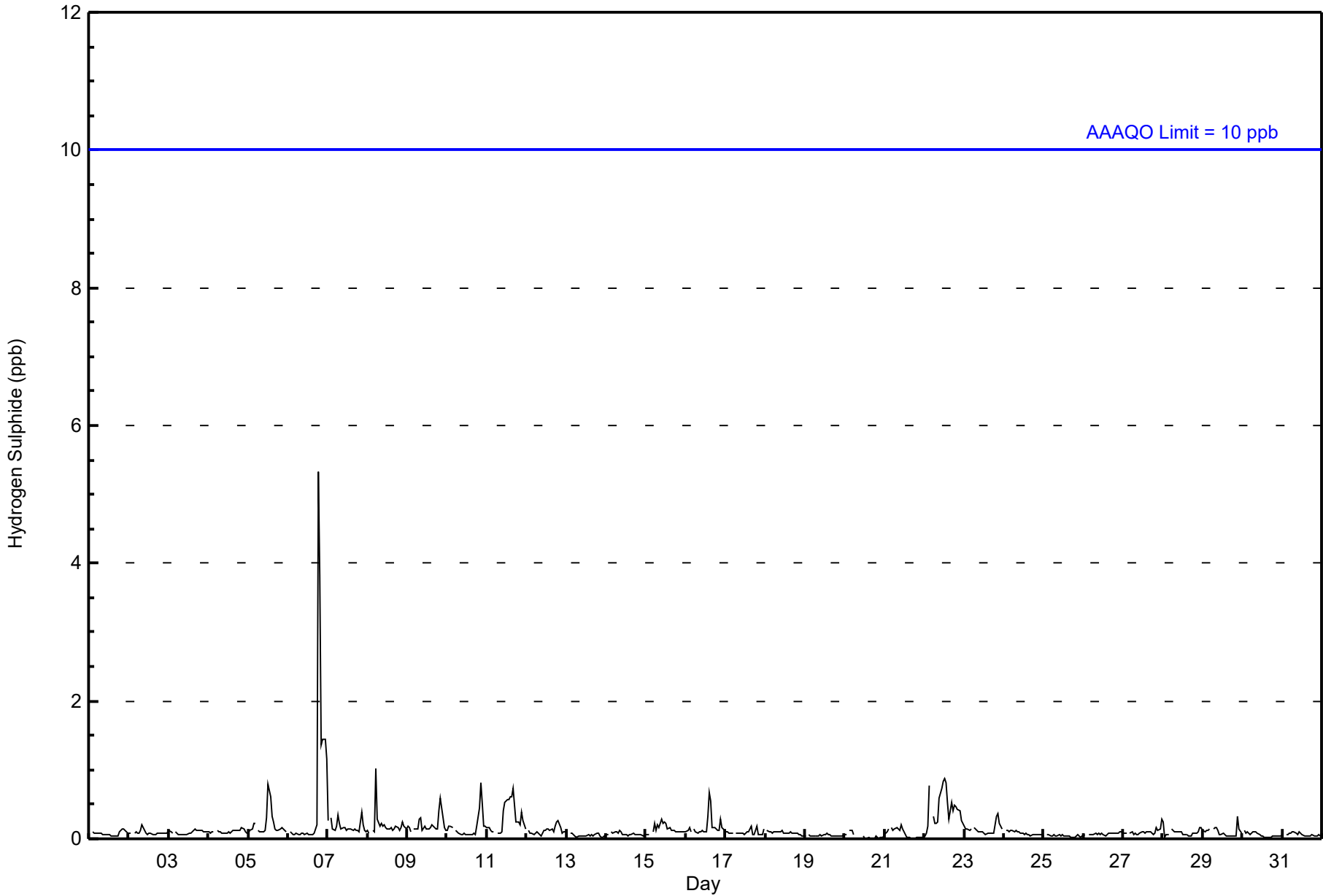




Wood Buffalo Environmental Association
Span Responses

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - March 2024







**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	706	99.72	99.72
3 - 4	1	0.14	99.86
5 - 7	1	0.14	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	155	70	4	6	9	37	111	151	33	13	7	10	18	15	15	52	706
3 - 4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	155	70	4	6	9	37	111	151	35	13	7	10	18	15	15	52	708

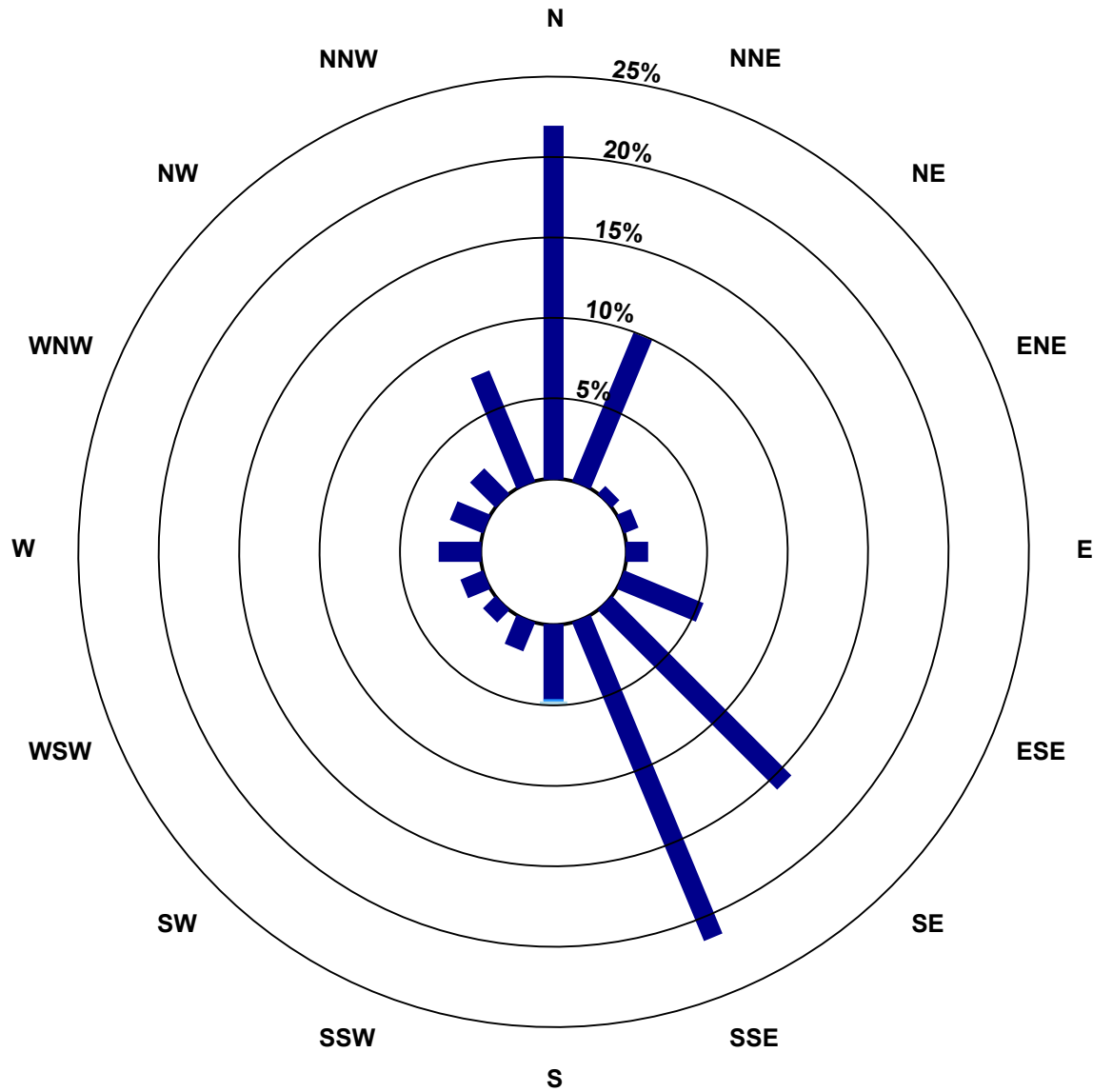
Total Number of Valid Hours: 708

Total Number of Hours: 744

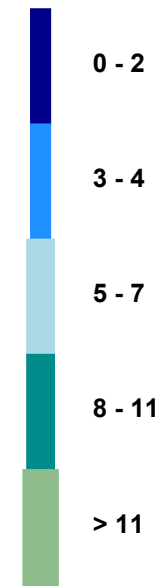


Wood Buffalo Environmental Association
Wind Rose Mar 2024

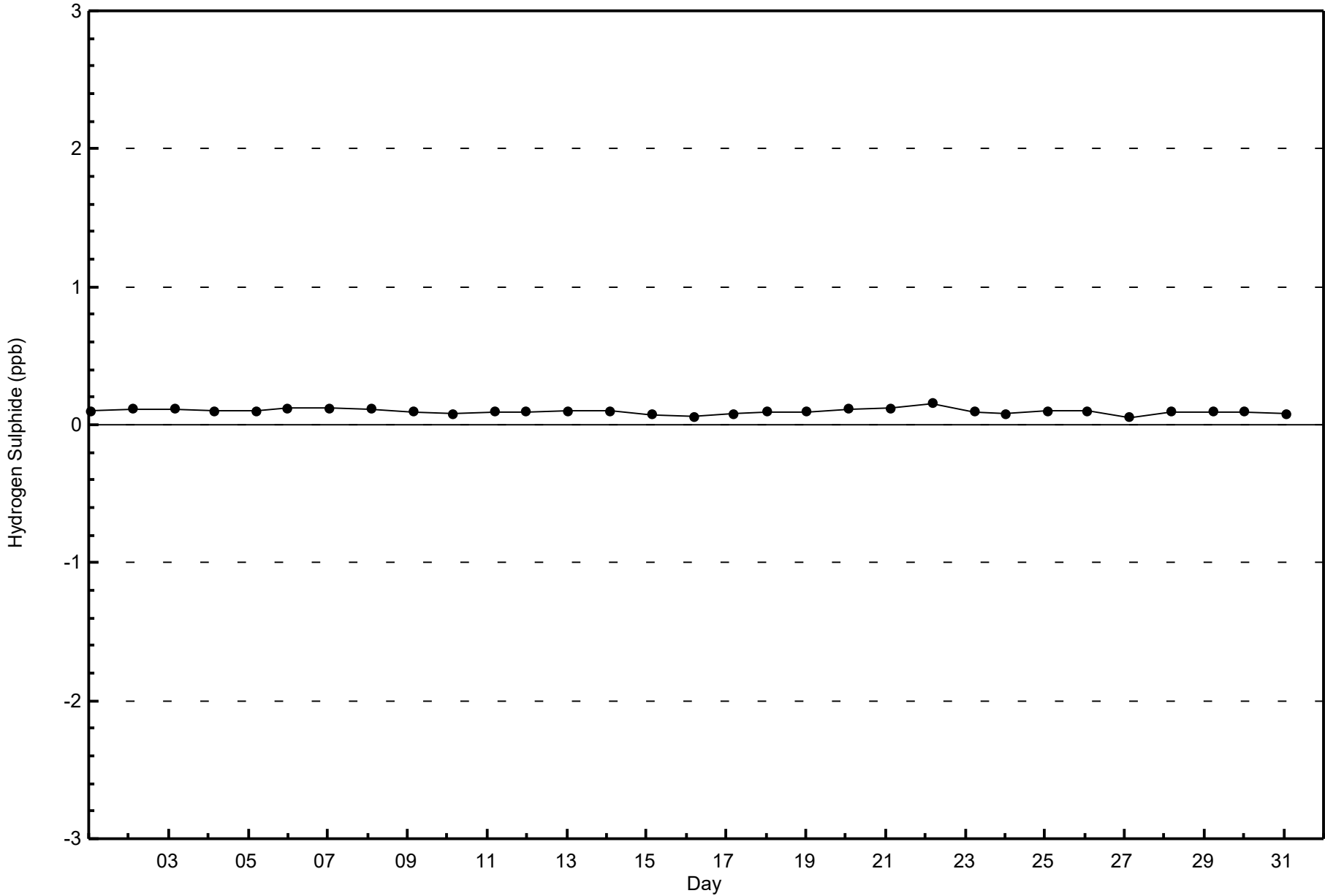
Hydrogen Sulphide (H₂S) - ppb
Buffalo Viewpoint



Classes (ppb)



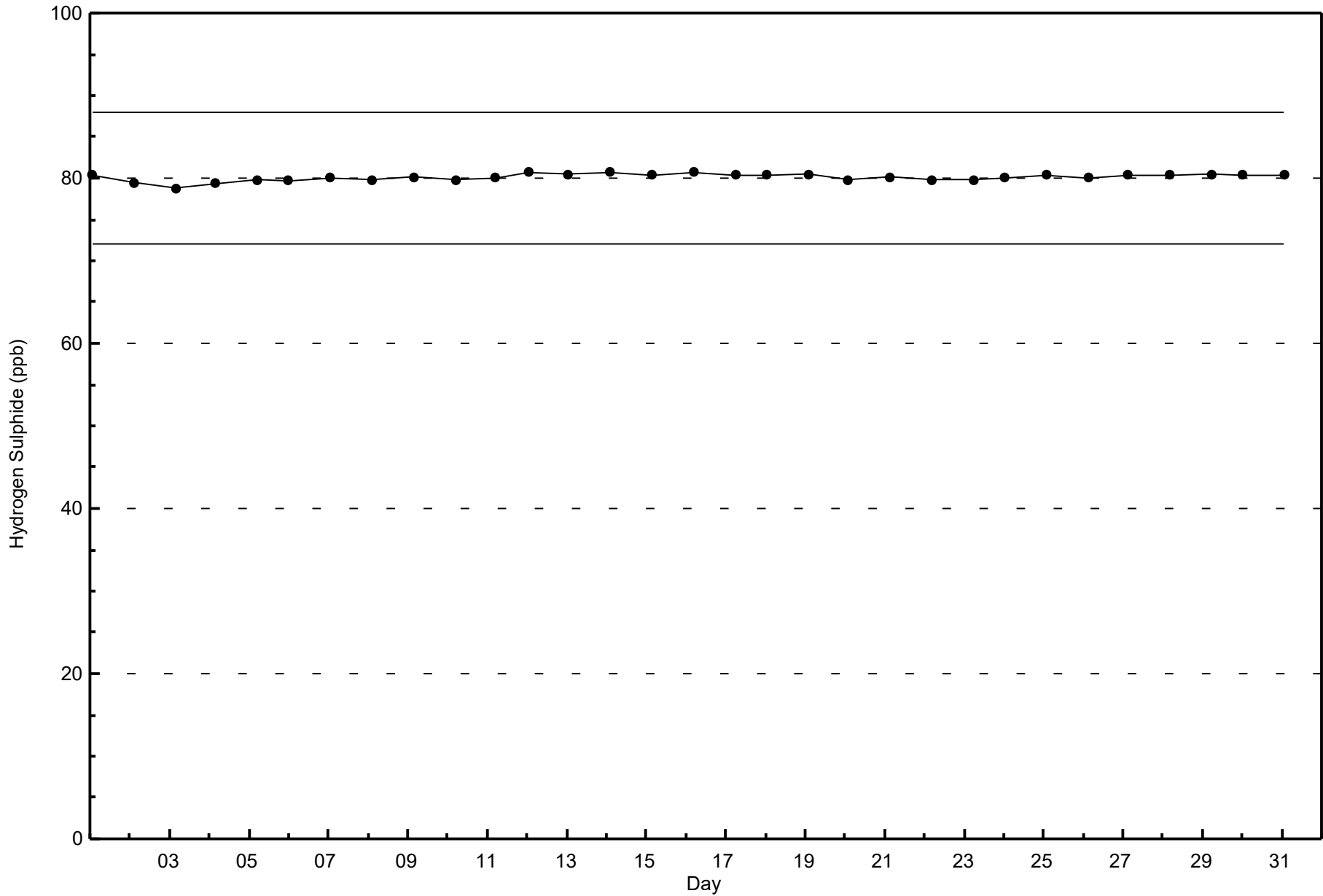
Total Number of Valid Hours: 708





Wood Buffalo Environmental Association
Span Responses

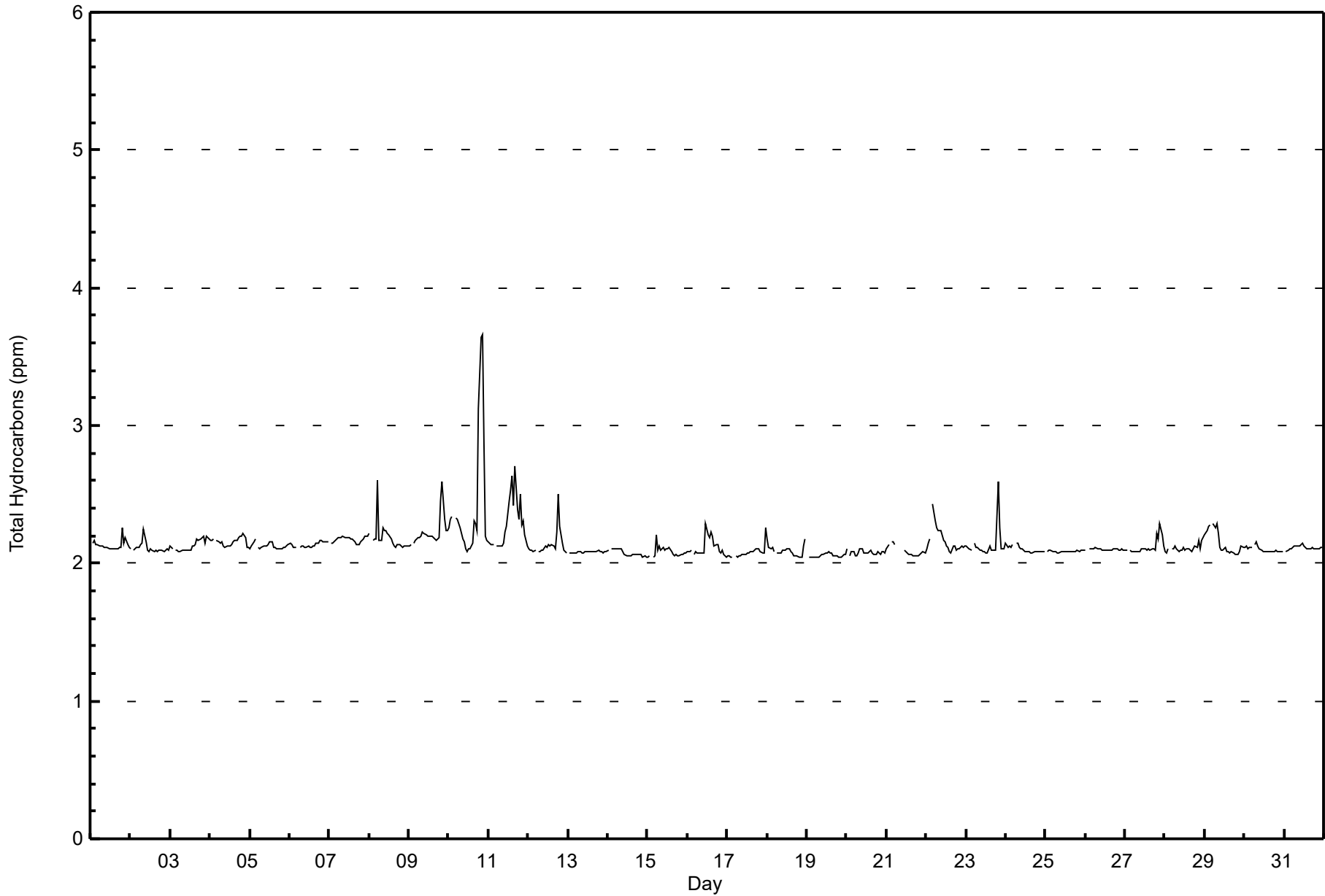
Hydrogen Sulphide (H₂S) - ppb
Buffalo Viewpoint - March 2024





Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	23	3.25	3.25
2.1 - 3.0	682	96.33	99.58
3.1 - 10.0	3	0.42	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	3	11	0	0	0	0	3	1	0	0	0	1	4	0	0	0	23
2.1 - 3.0	147	63	6	5	9	38	105	151	35	14	7	8	13	17	14	50	682
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	150	74	6	5	9	38	108	152	35	14	7	9	17	17	15	52	708

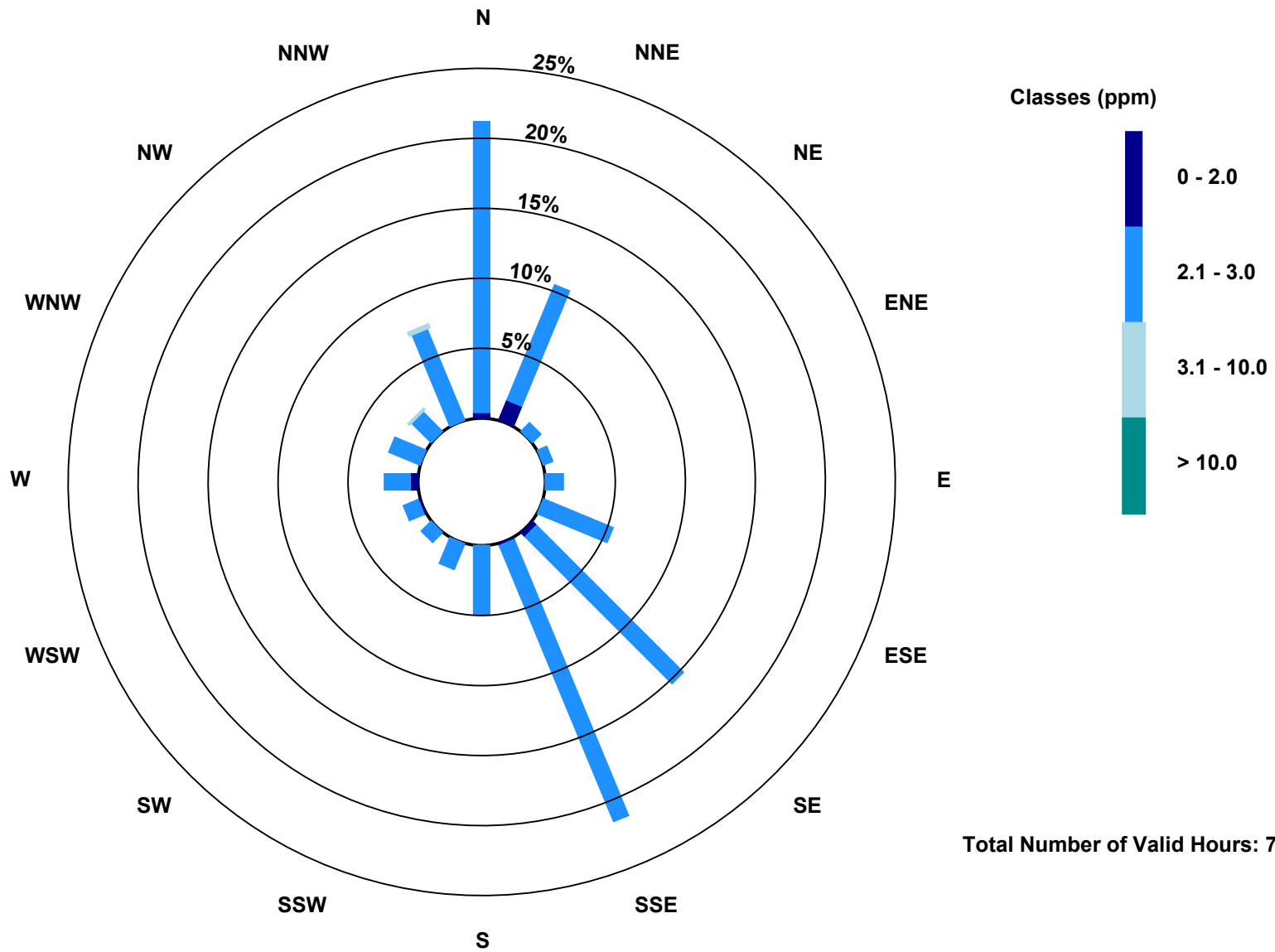
Total Number of Valid Hours: 708

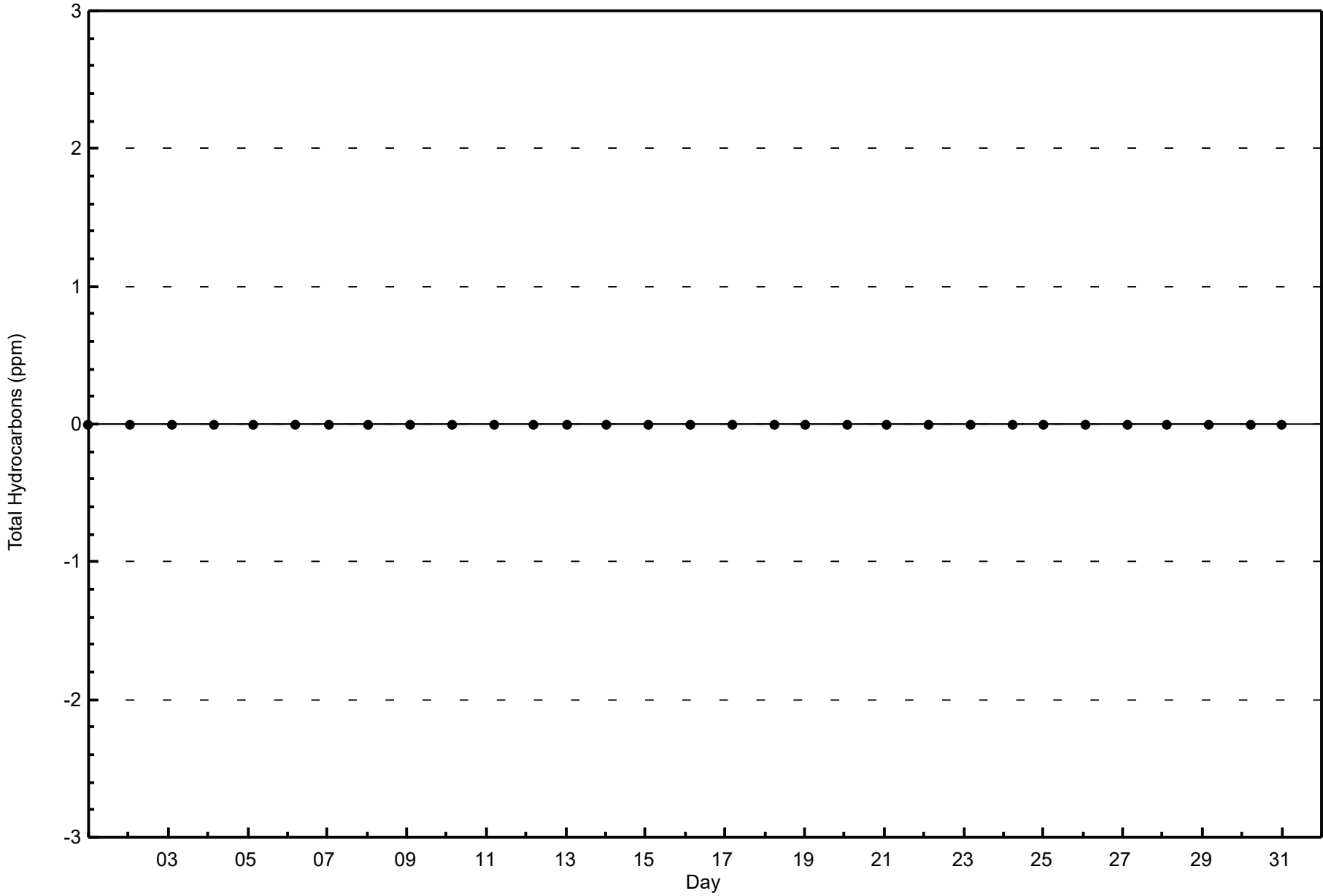
Total Number of Hours: 744

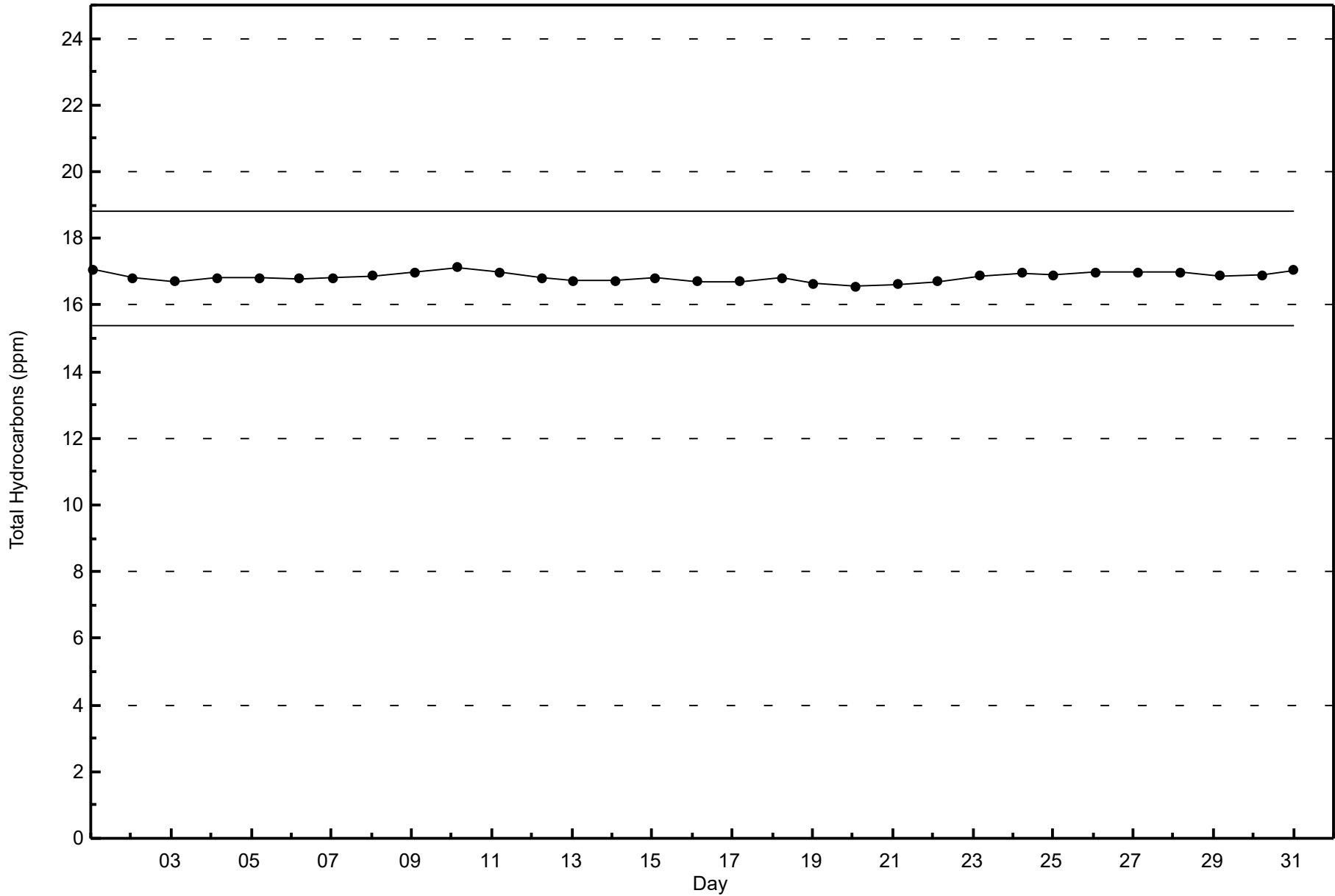


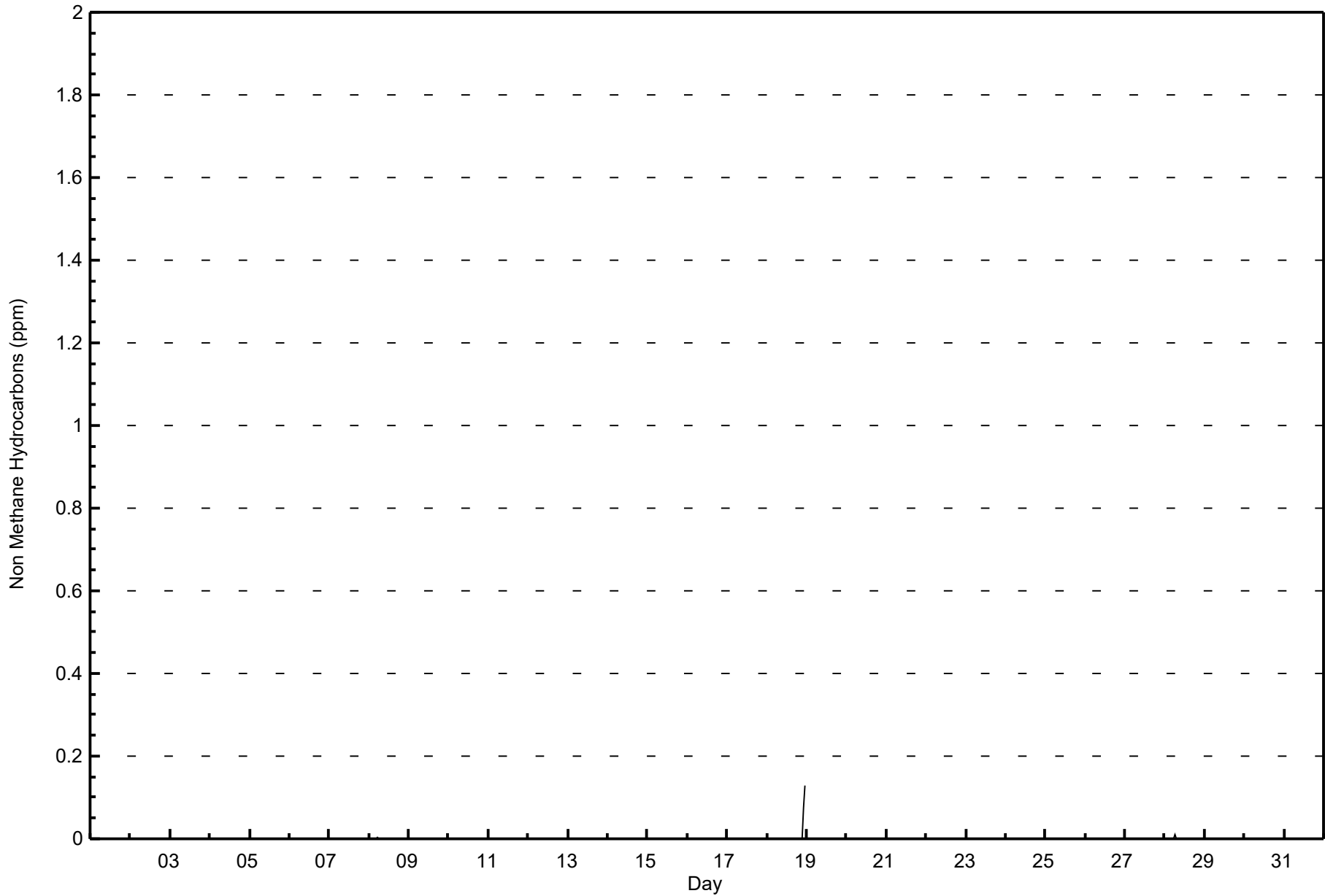
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Buffalo Viewpoint











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	705	99.58	99.58
0.006 - 0.05	1	0.14	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



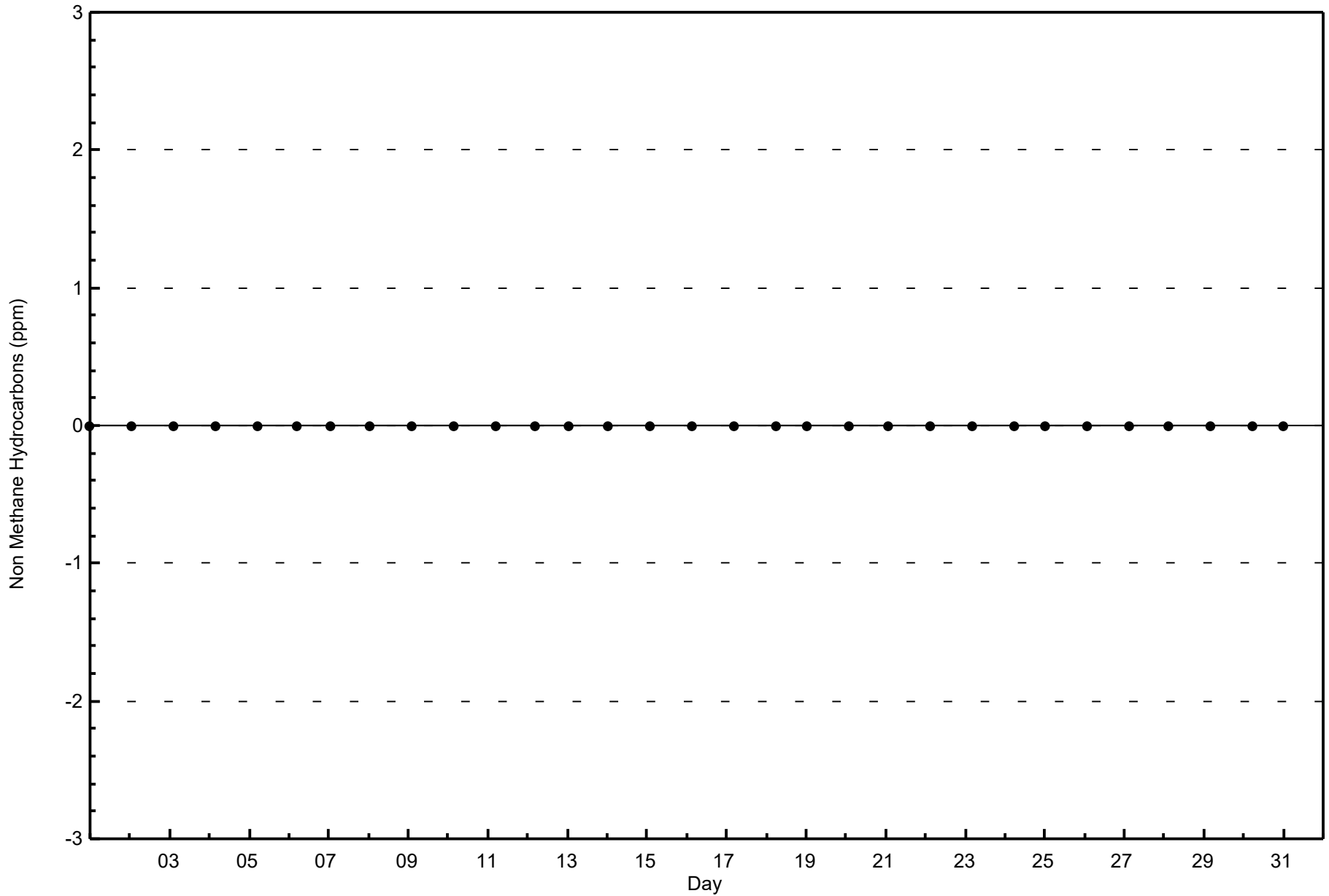
**Wood Buffalo Environmental Association
Frequency Distribution**

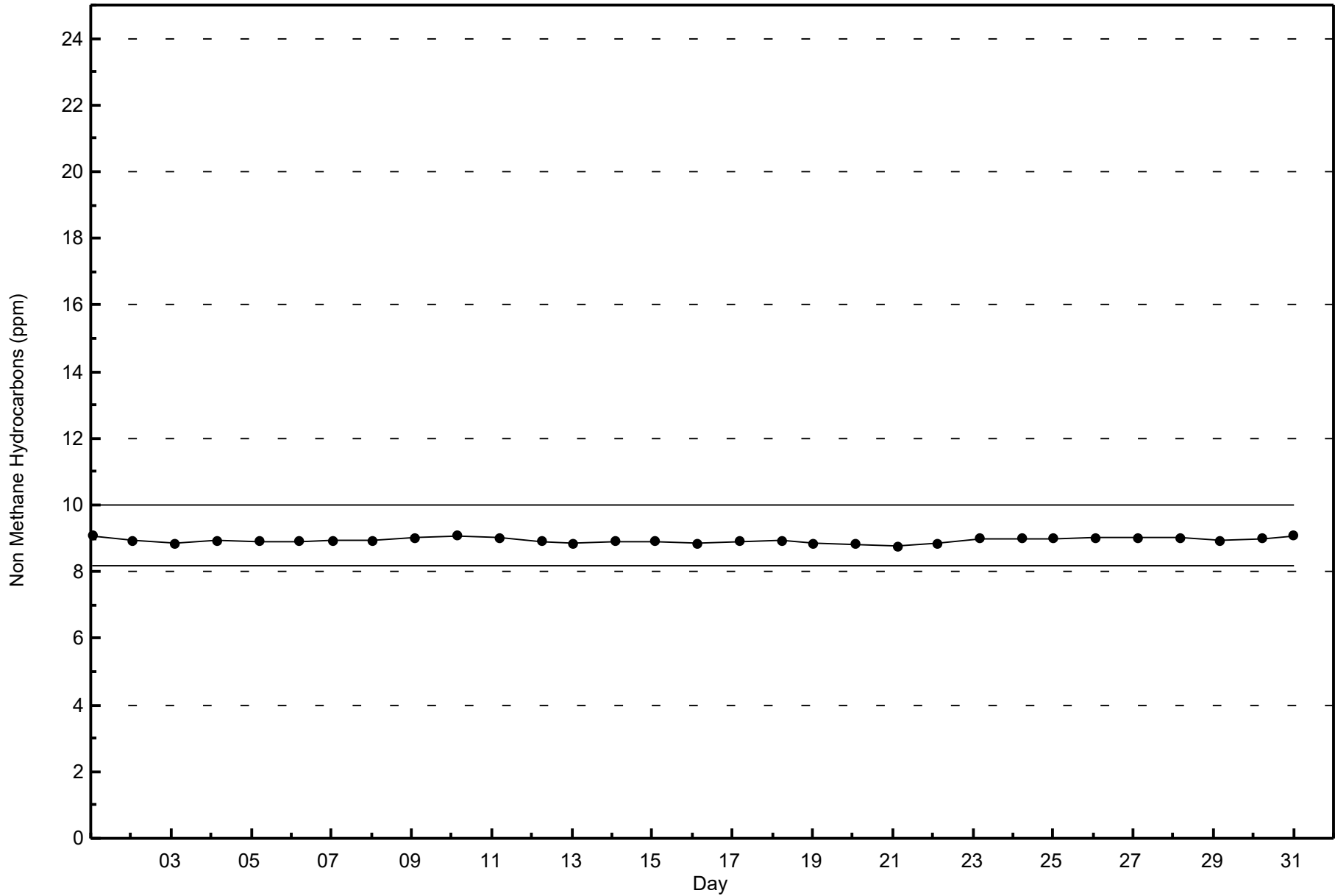
**Non Methane Hydrocarbons (NMHC) - ppm
Buffalo Viewpoint - March 2024**

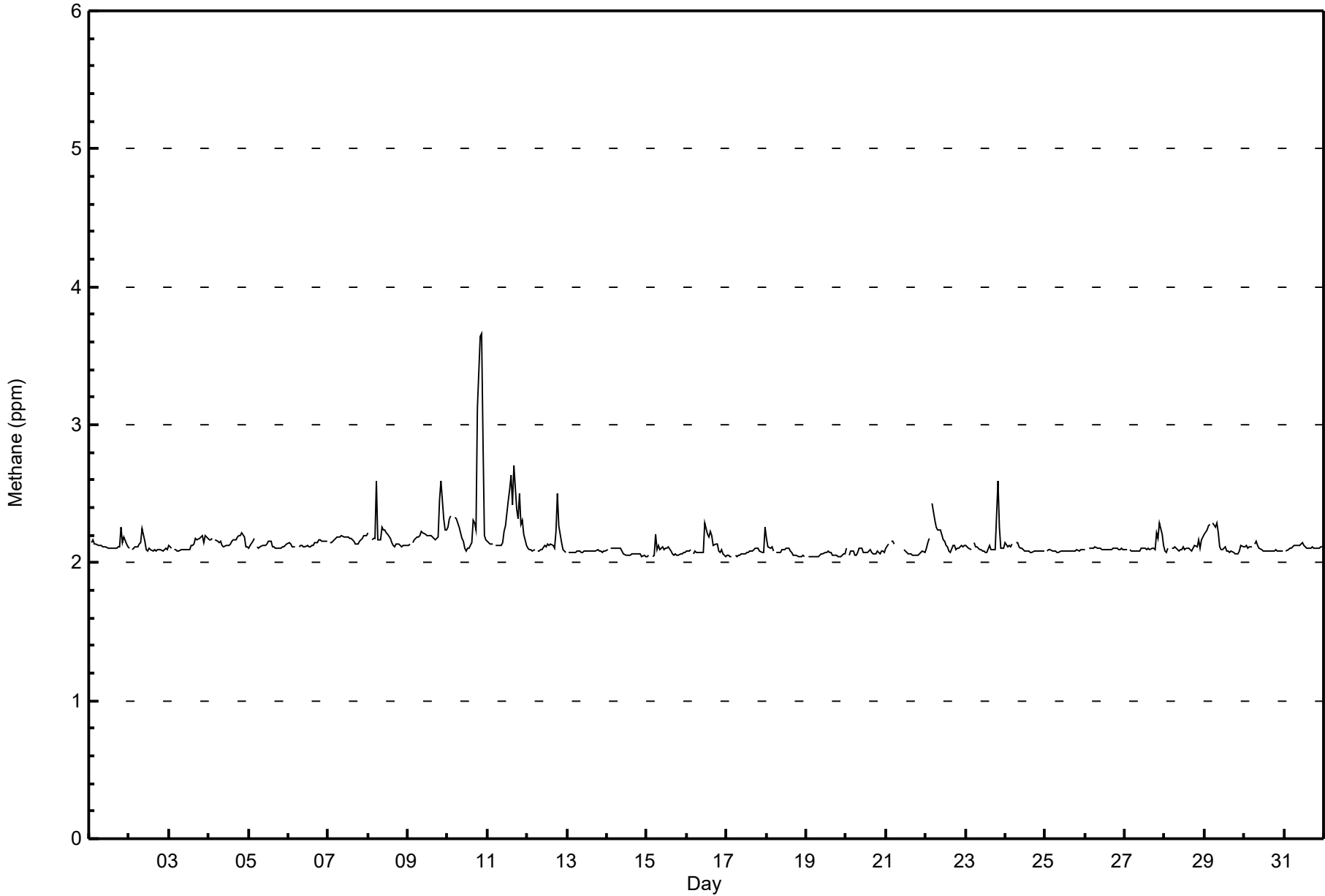
Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	149	72	6	5	9	38	108	152	35	14	7	9	17	17	15	52	705
0.006 - 0.05	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
0.06 - 0.1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	150	74	6	5	9	38	108	152	35	14	7	9	17	17	15	52	708

Total Number of Valid Hours: 708

Total Number of Hours: 744









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Methane (CH₄) - ppm
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	24	3.39	3.39
2.1 - 3.0	681	96.19	99.58
3.1 - 10.0	3	0.42	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	3	12	0	0	0	0	3	1	0	0	0	1	4	0	0	0	24
2.1 - 3.0	147	62	6	5	9	38	105	151	35	14	7	8	13	17	14	50	681
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	150	74	6	5	9	38	108	152	35	14	7	9	17	17	15	52	708

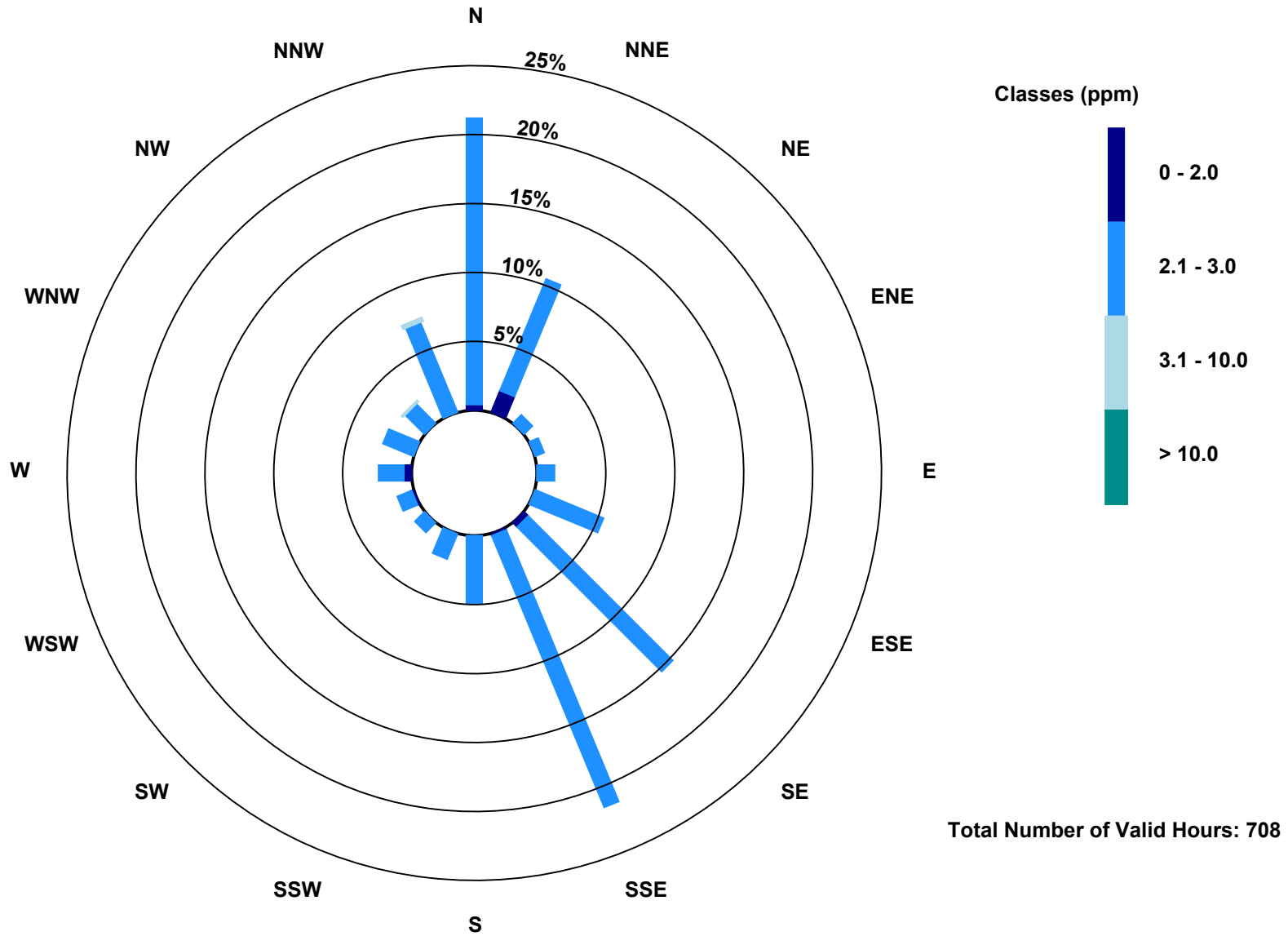
Total Number of Valid Hours: 708

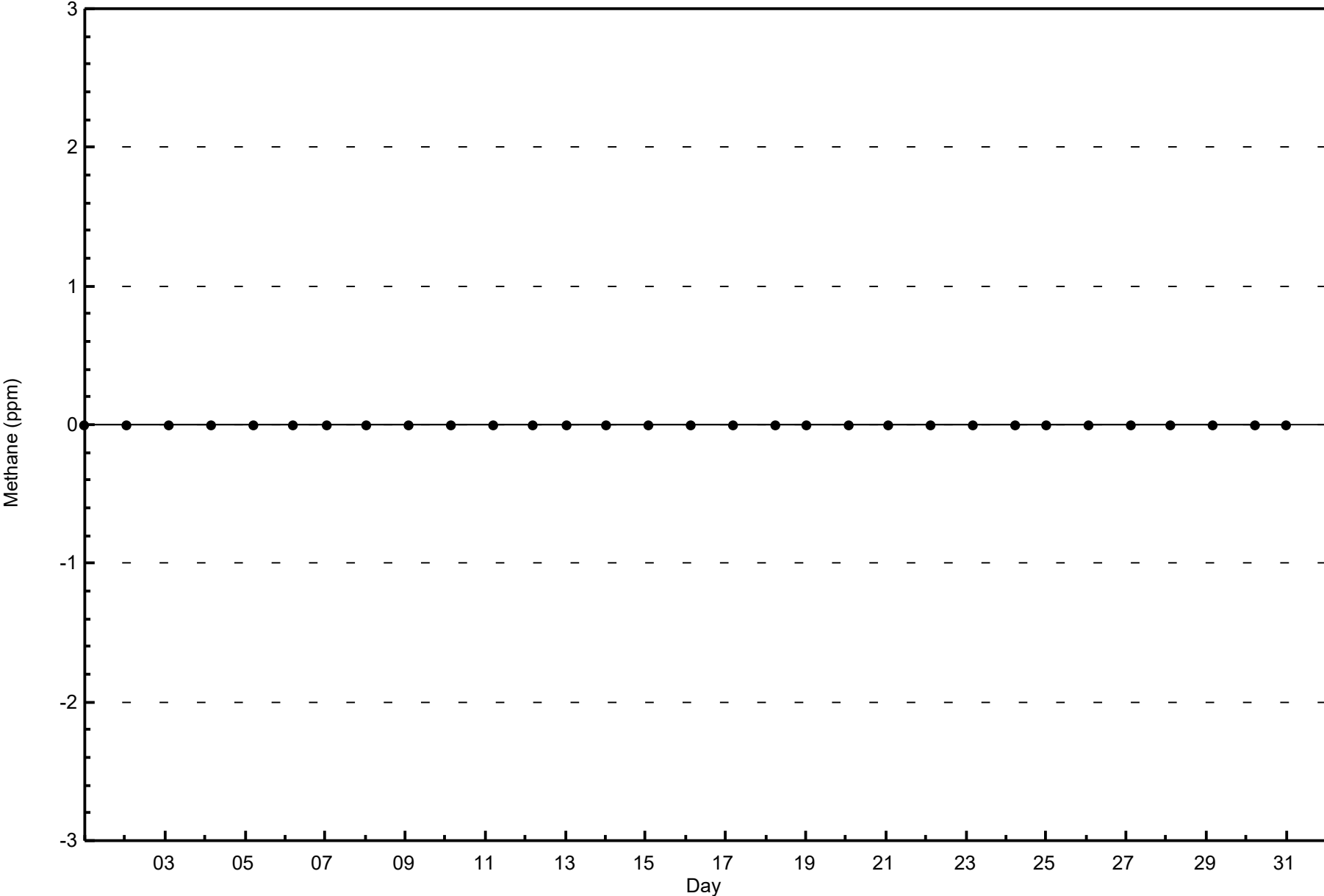
Total Number of Hours: 744

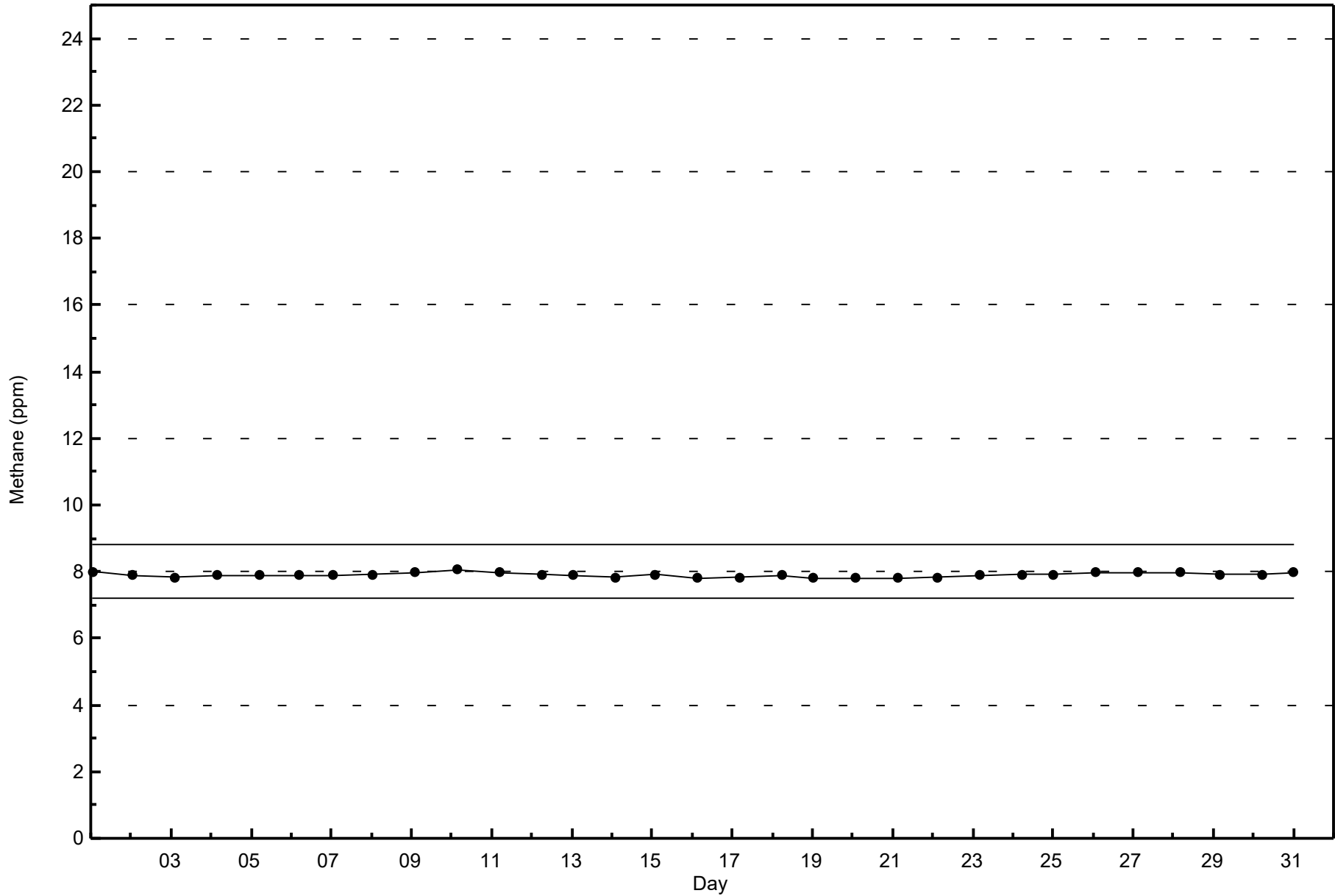


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Buffalo Viewpoint









Wood Buffalo Environmental Association
Summary of Hour Averages

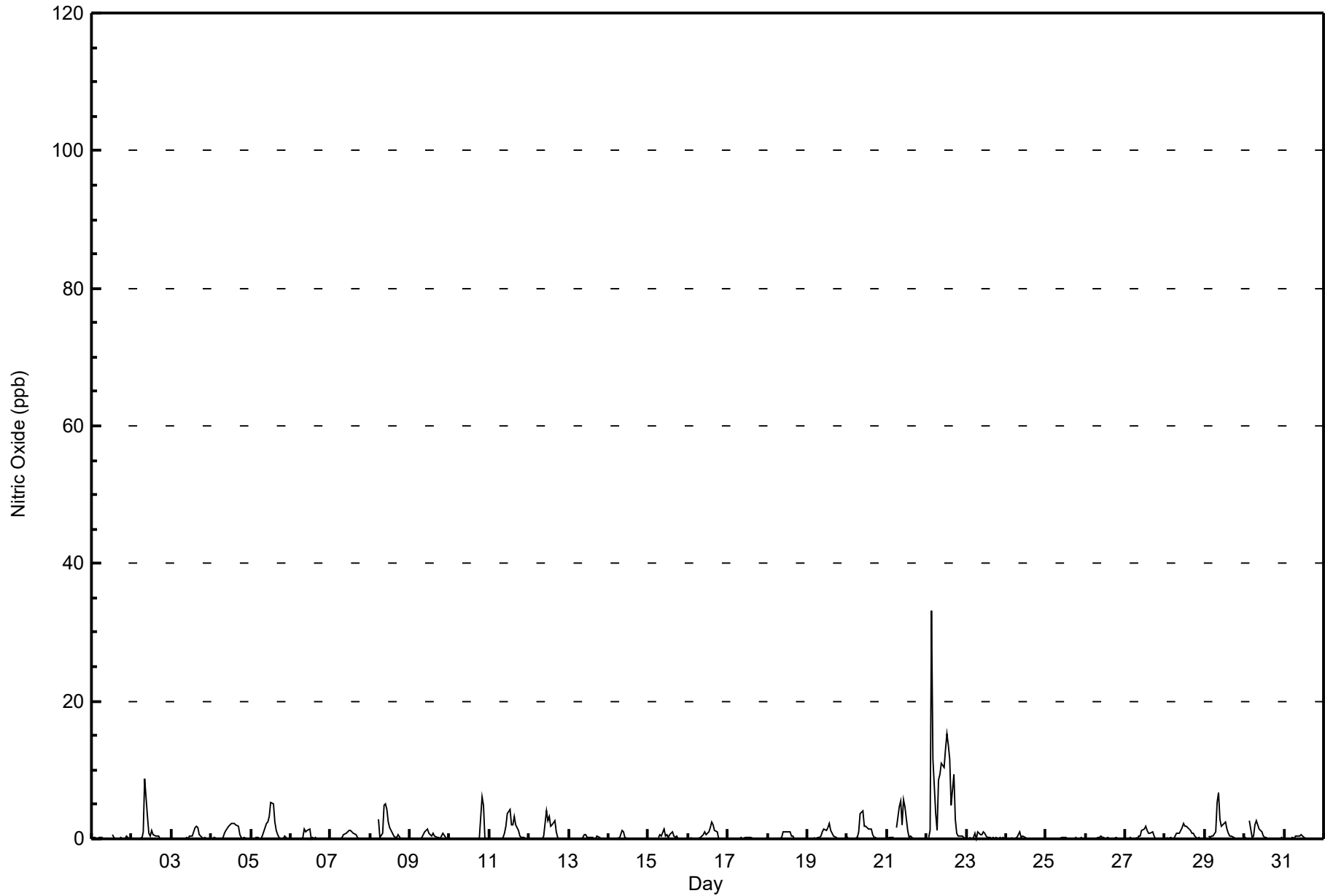
Nitric Oxide (NO) - ppb
Buffalo Viewpoint - March 2024

Maximum Value: 33.1 ppb on Mar 22 04:00		Maximum Daily Average: 7.1 ppb on Mar 22		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 15:00		Minimum Daily Average: 0.1 ppb on Mar 17		Hours of Data: 708																						
Maximum Diurnal Average: 1.7 ppb at hour 9		Minimum Diurnal Average: 0.0 ppb at hour 24		Hours of Missing Data: 36																						
Monthly Average: 0.72 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.6 P ₉₀ = 1.8 P ₉₉ = 10.2		Hours of Calibration: 36																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.1	0.2	0.1	Z	0.3	0.2	0.2	C	C	C	C	0.6	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.6	
2-Mar	0.0	0.0	0.0	0.0	Z	0.2	0.1	1.1	8.6	3.2	0.9	0.4	1.2	0.6	0.3	0.4	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.8	8.6
3-Mar	0.2	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.0	0.5	0.5	1.1	1.7	1.7	1.6	0.7	0.2	0.0	0.1	0.0	0.0	0.1	1.7
4-Mar	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.7	1.2	1.8	2.0	2.3	2.1	2.3	2.0	1.9	0.7	0.1	0.1	0.1	0.1	0.0	0.0	0.1	2.3
5-Mar	0.0	Z	0.1	0.2	0.2	0.0	0.0	0.3	1.5	2.3	2.5	3.3	5.3	5.1	2.3	1.2	0.6	0.2	0.0	0.0	0.3	0.1	0.0	0.0	1.1	5.3
6-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	1.3	1.0	1.2	1.4	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4
7-Mar	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.5	0.8	1.1	1.2	1.2	1.0	0.8	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2
8-Mar	0.0	0.0	0.0	0.0	Z	2.8	0.1	0.8	5.0	5.0	4.3	2.4	1.7	0.7	0.4	0.2	0.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.1	5.0
9-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.3	0.7	1.1	1.3	0.7	0.6	0.5	0.7	0.5	0.3	0.1	0.1	0.4	0.7	0.2	0.0	0.0	0.4	1.3
10-Mar	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	6.1	4.8	0.2	0.1	0.0	0.5	6.1
11-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.9	1.8	3.7	4.3	2.1	2.1	3.2	2.0	1.2	0.5	0.2	0.2	0.2	0.1	0.0	1.0	4.3
12-Mar	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.3	4.1	2.5	3.2	1.8	1.9	2.5	1.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.8	4.1
13-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.6	0.7	0.2	0.2	0.2	0.1	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.7
14-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.6	1.2	0.9	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	1.2
15-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.7	0.4	1.3	0.3	0.5	0.2	0.7	1.0	0.4	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3
16-Mar	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.7	1.1	0.6	0.9	1.6	2.5	2.0	1.3	1.0	0.1	0.0	0.0	0.1	0.0	0.0	0.6	2.5
17-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
18-Mar	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.2	0.9	1.0	1.0	1.1	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	1.1
19-Mar	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.2	0.3	1.0	1.5	1.2	1.6	2.2	1.3	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.2
20-Mar	0.1	0.1	0.0	0.0	Z	0.2	0.2	0.9	3.6	4.1	1.9	1.8	1.7	1.4	1.5	0.7	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.8	4.1
21-Mar	0.0	0.2	0.2	0.3	0.3	Z	1.6	4.7	5.5	2.1	5.6	4.6	1.3	0.2	0.3	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	1.2	5.6
22-Mar	Z	0.3	1.3	33.1	11.6	3.8	1.1	8.5	9.3	11.0	10.3	13.0	15.3	13.6	11.7	4.8	9.3	2.8	0.8	0.3	0.4	0.4	0.2	0.1	7.1	33.1
23-Mar	0.1	Z	0.1	0.1	0.2	0.7	0.1	1.0	0.6	0.7	1.1	0.8	0.3	0.3	0.2	0.0	0.2	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.3	1.1
24-Mar	0.0	0.0	Z	0.1	0.1	0.0	0.3	0.7	0.9	0.3	0.4	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.9
25-Mar	0.0	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.1	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.3
26-Mar	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.2	0.4	0.2	0.1	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4
27-Mar	0.0	0.0	0.0	0.2	0.1	Z	0.2	0.0	0.5	0.4	1.2	1.4	1.7	1.2	0.8	0.9	1.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.4	1.7
28-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.8	0.8	1.2	1.6	2.3	1.9	1.8	1.5	1.2	0.8	0.7	0.5	0.1	0.2	0.1	0.1	0.0	0.7	2.3
29-Mar	0.2	Z	0.4	0.3	0.4	0.4	1.0	5.3	6.6	2.8	1.7	2.0	2.4	1.4	0.7	0.5	0.5	0.2	0.1	0.1	0.0	0.0	0.1	0.0	1.2	6.6
30-Mar	0.3	0.1	Z	2.6	0.1	0.3	2.0	2.7	2.1	1.4	1.0	0.4	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.6	2.7
31-Mar	0.0	0.0	0.0	Z	0.2	0.1	0.0	0.3	0.3	0.4	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.6
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	707	99.86	99.86
21 - 40	1	0.14	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Buffalo Viewpoint - March 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	154	75	5	6	9	37	109	152	35	14	6	9	15	16	14	51	707
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
Totals	155	75	5	6	9	37	109	152	35	14	6	9	15	16	14	51	708

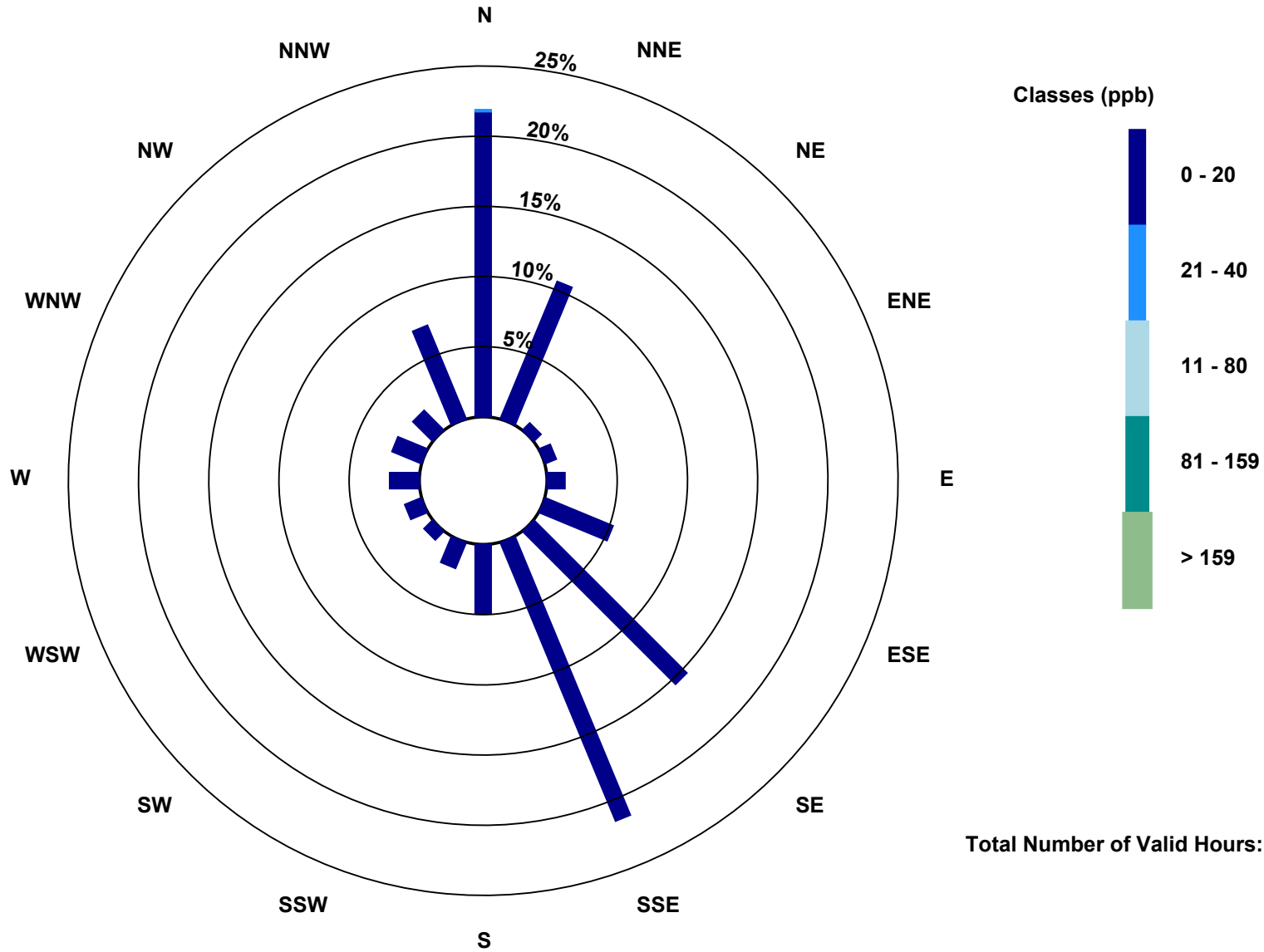
Total Number of Valid Hours: 708

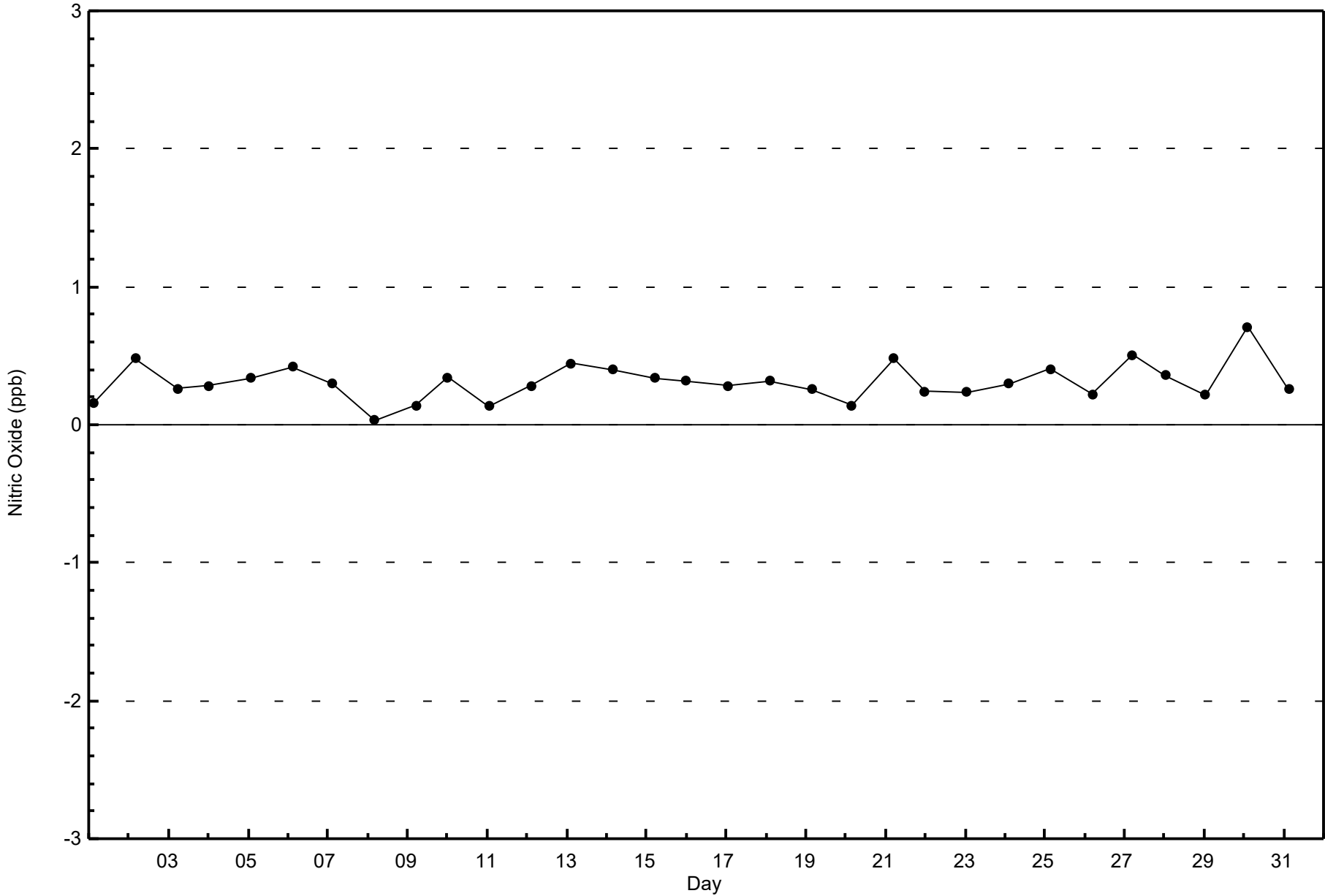
Total Number of Hours: 744

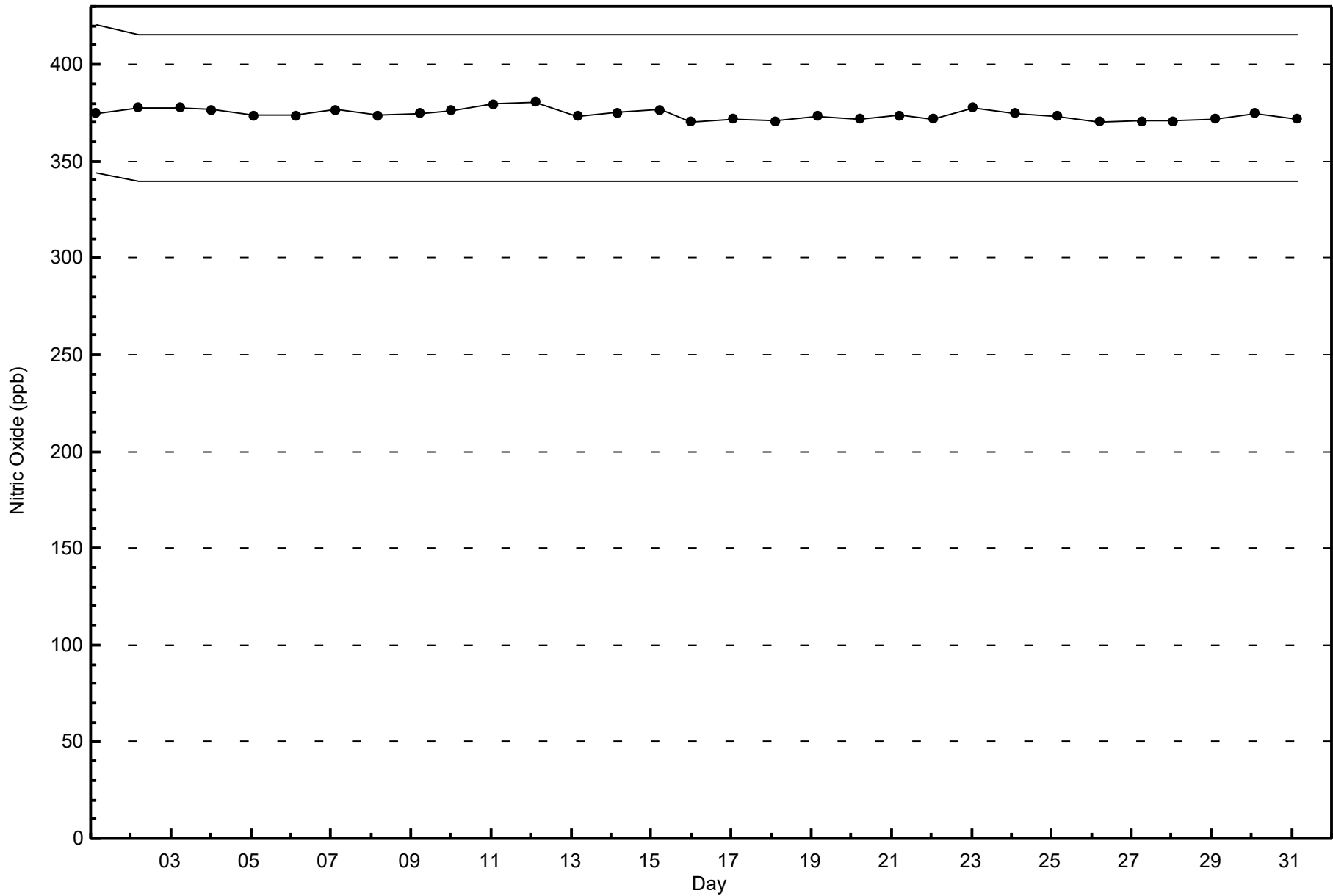


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Buffalo Viewpoint









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 32.8 ppb on Mar 22 04:00	Maximum Daily Average: 17.3 ppb on Mar 22		Hours of Data:	708
Minimum Value: 0.2 ppb on Mar 17 00:00	Minimum Daily Average: 1.0 ppb on Mar 31		Hours of Missing Data:	36
Maximum Diurnal Average: 7.2 ppb at hour 21	Minimum Diurnal Average: 3.2 ppb at hour 2		Hours of Calibration:	36
Monthly Average: 4.53 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.7 Q ₁ = 1.3 Median = 3.0 Q ₃ = 5.6 P ₉₀ = 10.0 P ₉₉ = 22.9		Percent Operational Time:	100.0

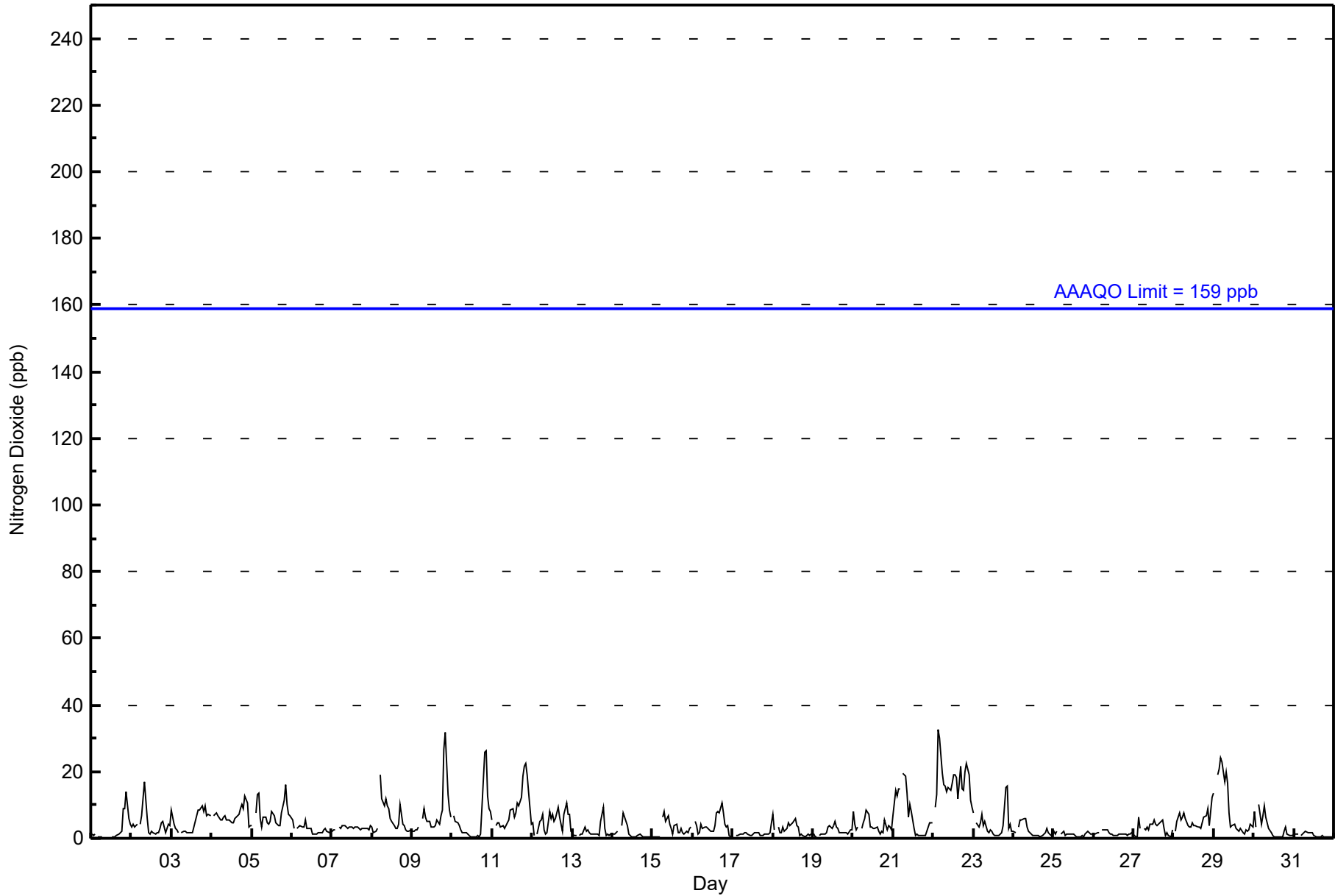
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	1.4	0.9	1.1	Z	0.6	0.5	0.4	C	C	C	C	C	0.5	0.5	0.4	0.7	1.4	1.9	2.1	8.7	8.9	13.9	6.0	4.1	3.0	13.9																							
2-Mar	3.3	4.3	3.2	4.2	Z	4.3	6.7	12.0	16.9	5.8	1.8	1.3	2.1	1.5	1.3	1.6	1.7	3.1	4.6	5.2	1.9	2.8	4.1	3.7	4.2	16.9																							
3-Mar	8.4	4.4	2.8	2.4	1.8	Z	1.6	2.0	2.0	1.6	1.7	1.9	1.8	3.6	5.2	6.9	8.5	8.6	9.6	8.0	9.6	6.8	7.3	6.9	4.9	9.6																							
4-Mar	Z	6.8	7.4	7.7	6.8	5.6	5.7	6.5	6.6	5.5	5.3	4.9	4.8	4.8	5.8	6.5	7.2	8.9	10.2	8.8	12.7	10.4	3.5	3.9	6.8	12.7																							
5-Mar	3.9	Z	7.8	13.0	13.5	6.0	3.4	6.3	6.2	4.8	4.3	5.2	8.0	6.9	4.8	4.4	4.0	3.9	7.8	11.4	16.2	10.3	7.1	6.6	7.2	16.2																							
6-Mar	5.3	2.8	Z	2.8	3.2	3.8	3.5	3.4	5.5	3.0	2.8	3.0	1.2	1.1	1.2	1.3	1.7	1.6	1.7	2.6	2.9	2.1	1.8	2.1	2.6	5.5																							
7-Mar	2.0	2.4	2.7	Z	3.2	2.8	3.9	3.8	3.9	3.1	3.5	3.4	3.2	3.0	3.3	3.6	2.9	2.4	3.0	3.1	2.8	3.1	2.7	3.9	3.1	3.9																							
8-Mar	3.4	1.8	2.3	2.8	Z	18.9	11.8	9.9	11.7	9.6	8.7	6.0	4.9	3.7	3.0	3.0	4.1	10.2	4.3	3.8	2.4	2.3	2.0	2.6	5.8	18.9																							
9-Mar	2.2	2.3	2.6	2.7	3.2	Z	5.9	8.9	6.5	4.9	5.0	3.6	3.3	3.6	4.0	5.4	4.3	6.6	8.3	26.5	31.9	13.2	8.6	6.3	7.4	31.9																							
10-Mar	Z	6.7	5.1	4.6	3.8	2.6	1.9	1.8	1.6	1.4	1.0	0.5	0.6	0.4	0.3	1.0	0.5	1.2	9.4	26.0	26.1	12.8	9.0	8.2	5.5	26.1																							
11-Mar	5.6	Z	3.9	4.6	4.5	3.3	3.9	3.1	3.9	4.6	5.5	8.3	8.7	6.4	7.6	10.4	9.9	12.2	18.7	21.6	22.3	18.9	14.0	4.1	9.0	22.3																							
12-Mar	4.8	0.8	Z	1.1	4.9	5.4	7.1	2.6	1.3	1.9	8.2	6.0	7.3	5.1	6.0	9.3	6.3	4.3	2.3	7.1	10.6	7.0	7.1	2.2	5.2	10.6																							
13-Mar	1.5	0.9	0.9	Z	0.7	1.3	1.2	3.4	2.2	2.4	1.6	1.3	1.2	1.1	1.2	1.2	0.7	5.2	9.5	3.1	0.8	1.3	1.0	1.3	2.0	9.5																							
14-Mar	1.3	1.2	1.6	2.0	Z	4.0	7.8	6.3	5.0	3.9	1.2	0.5	0.4	0.4	0.7	1.3	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	1.8	7.8																							
15-Mar	0.4	0.3	0.4	0.3	0.3	Z	6.2	8.1	5.1	6.6	4.1	2.9	1.2	3.9	4.4	1.5	1.7	2.8	1.6	1.2	2.2	1.8	3.0	3.4	2.8	8.1																							
16-Mar	Z	4.9	3.9	1.3	1.9	4.4	3.0	3.4	3.2	2.8	2.7	2.0	2.2	4.0	7.6	8.1	7.8	10.5	7.7	4.4	3.3	4.0	0.8	0.2	4.1	10.5																							
17-Mar	0.4	Z	0.8	0.9	1.1	1.2	1.2	1.6	1.7	1.2	1.0	1.0	1.3	1.5	1.7	1.7	0.9	1.0	1.0	1.1	1.2	1.2	1.6	4.6	1.3	4.6																							
18-Mar	7.4	2.4	Z	3.2	1.5	1.8	3.3	2.2	2.9	4.8	3.8	4.1	4.7	6.0	3.9	3.5	1.0	1.1	0.7	0.6	1.0	1.1	1.0	1.3	2.8	7.4																							
19-Mar	1.3	0.6	0.4	Z	0.7	1.2	1.2	1.4	1.6	3.2	3.8	3.0	3.7	4.9	3.5	3.0	1.7	1.8	1.5	1.8	1.5	1.4	2.4	2.6	2.1	4.9																							
20-Mar	8.0	4.3	2.4	3.4	Z	2.8	4.6	6.0	8.4	7.2	3.3	3.2	3.1	3.0	3.3	2.0	1.4	2.1	1.8	5.3	2.4	3.9	3.5	2.6	3.8	8.4																							
21-Mar	6.9	14.2	12.9	14.9	14.7	Z	19.4	18.5	13.6	6.3	10.1	8.2	3.1	0.8	1.1	0.8	0.8	0.7	0.9	1.0	2.3	3.5	4.7	4.5	7.1	19.4																							
22-Mar	Z	9.3	13.1	32.8	29.9	19.3	15.9	15.8	13.8	15.4	14.3	16.4	18.9	18.9	18.3	12.0	21.4	15.0	14.2	20.1	22.5	19.2	11.6	9.4	17.3	32.8																							
23-Mar	7.5	Z	4.6	3.6	4.7	7.2	3.8	5.1	2.2	1.8	2.4	2.2	1.3	0.9	0.9	0.8	1.3	1.6	4.0	15.1	15.7	2.9	4.3	2.1	4.2	15.7																							
24-Mar	2.1	1.7	Z	3.3	5.6	5.6	5.8	6.0	3.6	2.0	1.6	1.0	0.8	0.7	0.7	0.7	0.6	0.8	1.1	1.5	2.8	1.6	0.8	1.0	2.2	6.0																							
25-Mar	2.3	1.2	2.1	Z	1.3	1.9	2.0	0.8	1.2	1.1	1.2	1.2	1.1	0.9	0.6	0.5	0.5	0.7	0.6	1.2	2.1	1.7	1.3	1.2	1.2	2.3																							
26-Mar	1.2	1.4	1.6	1.7	Z	2.4	2.6	2.7	2.4	1.8	1.4	1.3	0.8	0.7	0.8	1.1	1.1	1.3	1.2	1.2	1.0	1.2	1.2	1.6	1.5	2.7																							
27-Mar	0.7	0.5	0.5	6.3	2.8	Z	2.8	2.7	3.6	2.5	4.1	4.3	5.4	4.3	3.7	4.1	5.1	5.4	2.9	0.7	1.6	0.7	0.6	2.6	3.0	6.3																							
28-Mar	Z	2.0	5.0	7.5	5.7	6.3	7.6	5.9	3.7	3.5	3.6	4.8	3.7	3.7	3.6	3.2	2.8	4.6	6.3	6.8	8.8	3.8	8.1	12.1	5.4	12.1																							
29-Mar	13.6	Z	19.0	20.8	24.0	22.9	17.0	20.0	16.4	7.5	3.6	3.9	4.4	2.8	2.5	2.2	2.9	1.9	1.2	2.7	2.2	2.6	4.2	3.5	8.8	24.0																							
30-Mar	8.0	3.3	Z	10.2	4.4	6.8	9.8	6.2	4.5	2.9	1.9	0.8	0.5	0.4	0.3	0.3	0.3	0.5	2.0	3.5	1.2	0.7	0.7	0.8	3.0	10.2																							
31-Mar	1.1	1.4	1.1	Z	1.0	1.2	1.9	2.2	1.9	1.5	1.9	1.6	0.9	0.4	0.5	0.3	0.3	0.8	0.5	0.4	0.4	0.3	0.4	0.6	1.0	2.2																							
																								4.0	3.2	4.2	6.3	5.6	5.5	5.6	6.0	5.4	4.2	3.8	3.6	3.4	3.2	3.3	3.3	3.4	4.0	4.6	6.6	7.2	5.1	4.0	3.6	Diurnal Average	
																								13.6	14.2	19.0	32.8	29.9	22.9	19.4	20.0	16.9	15.4	14.3	16.4	18.9	18.9	18.3	12.0	21.4	15.0	18.7	26.5	31.9	19.2	14.0	12.1	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Buffalo Viewpoint - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	695	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: 708

Total Number of Hours: 744



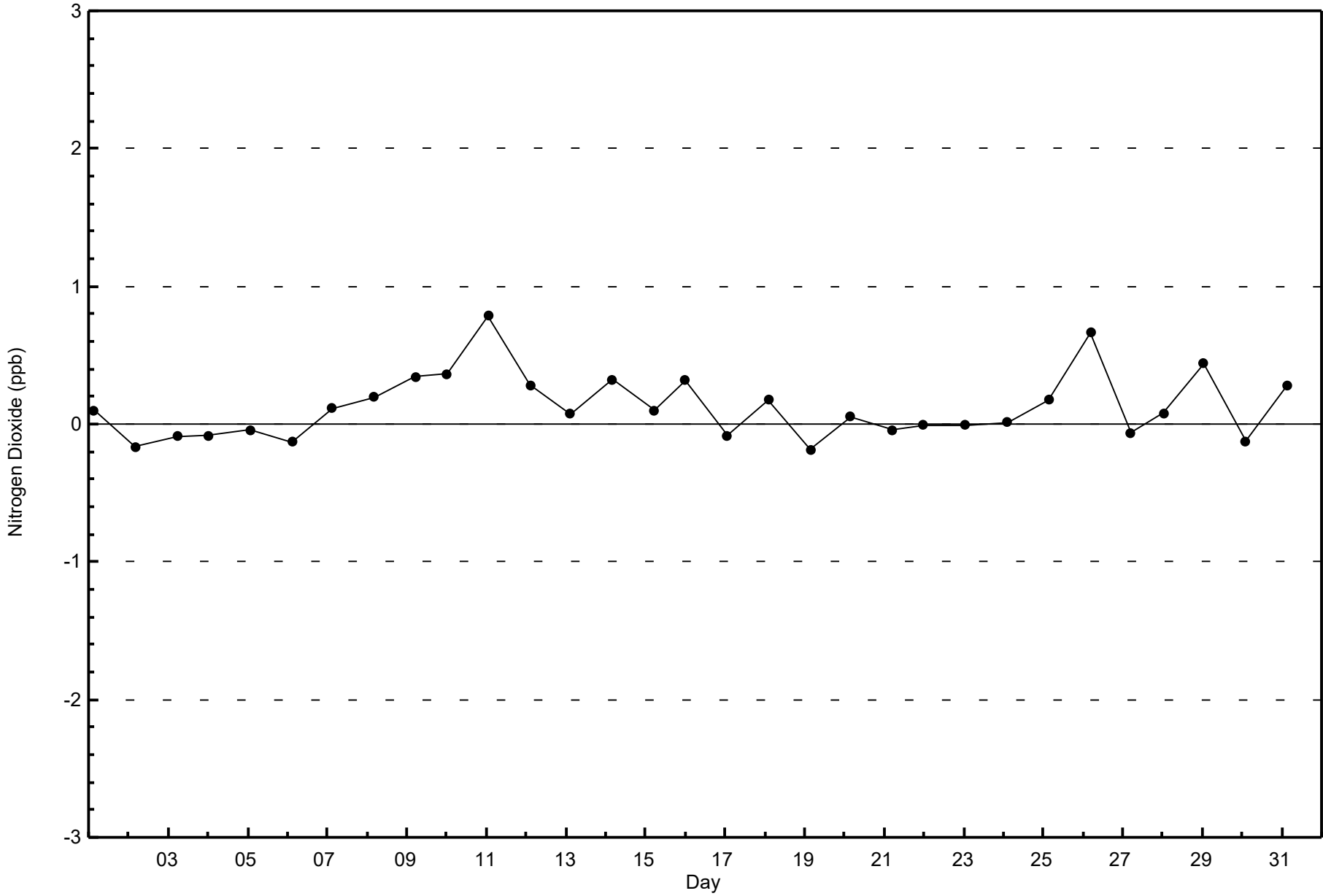
**Wood Buffalo Environmental Association
Frequency Distribution**

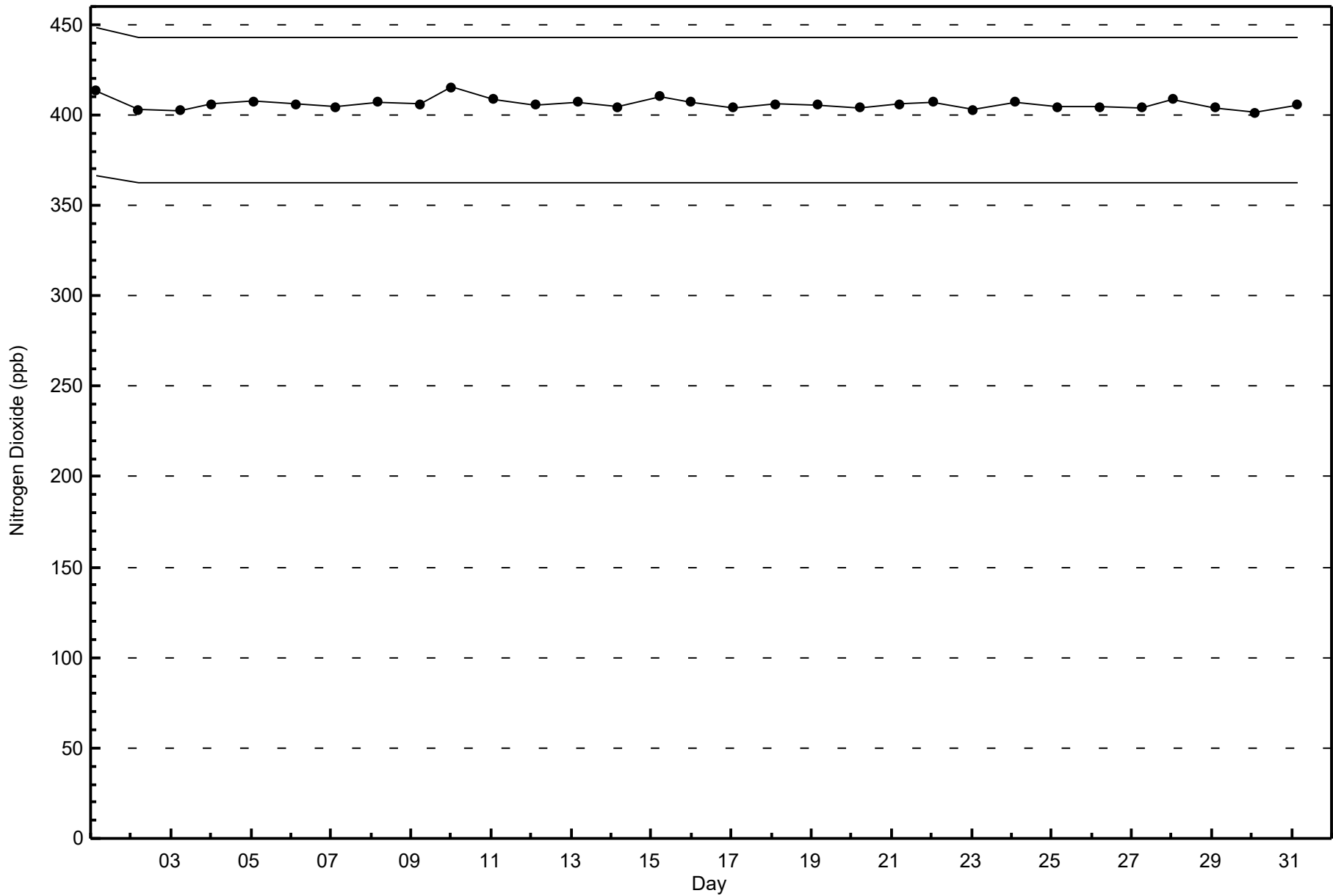
**Nitrogen Dioxide (NO₂) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	151	75	5	6	9	35	107	152	35	14	6	9	15	16	13	47	695
21 - 40	4	0	0	0	0	2	2	0	0	0	0	0	0	0	1	4	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
Totals	155	75	5	6	9	37	109	152	35	14	6	9	15	16	14	51	708

Total Number of Valid Hours: 708

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 65.9 ppb on Mar 22 04:00	Maximum Daily Average: 24.4 ppb on Mar 22		Hours of Data:	708
Minimum Value: 0.2 ppb on Mar 17 00:00	Minimum Daily Average: 1.1 ppb on Mar 31		Hours of Missing Data:	36
Maximum Diurnal Average: 7.8 ppb at hour 4	Minimum Diurnal Average: 3.2 ppb at hour 2		Hours of Calibration:	36
Monthly Average: 5.24 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.4 Median = 3.3 Q ₃ = 6.8 P ₉₀ = 12.0 P ₉₉ = 30.7		Percent Operational Time:	100.0

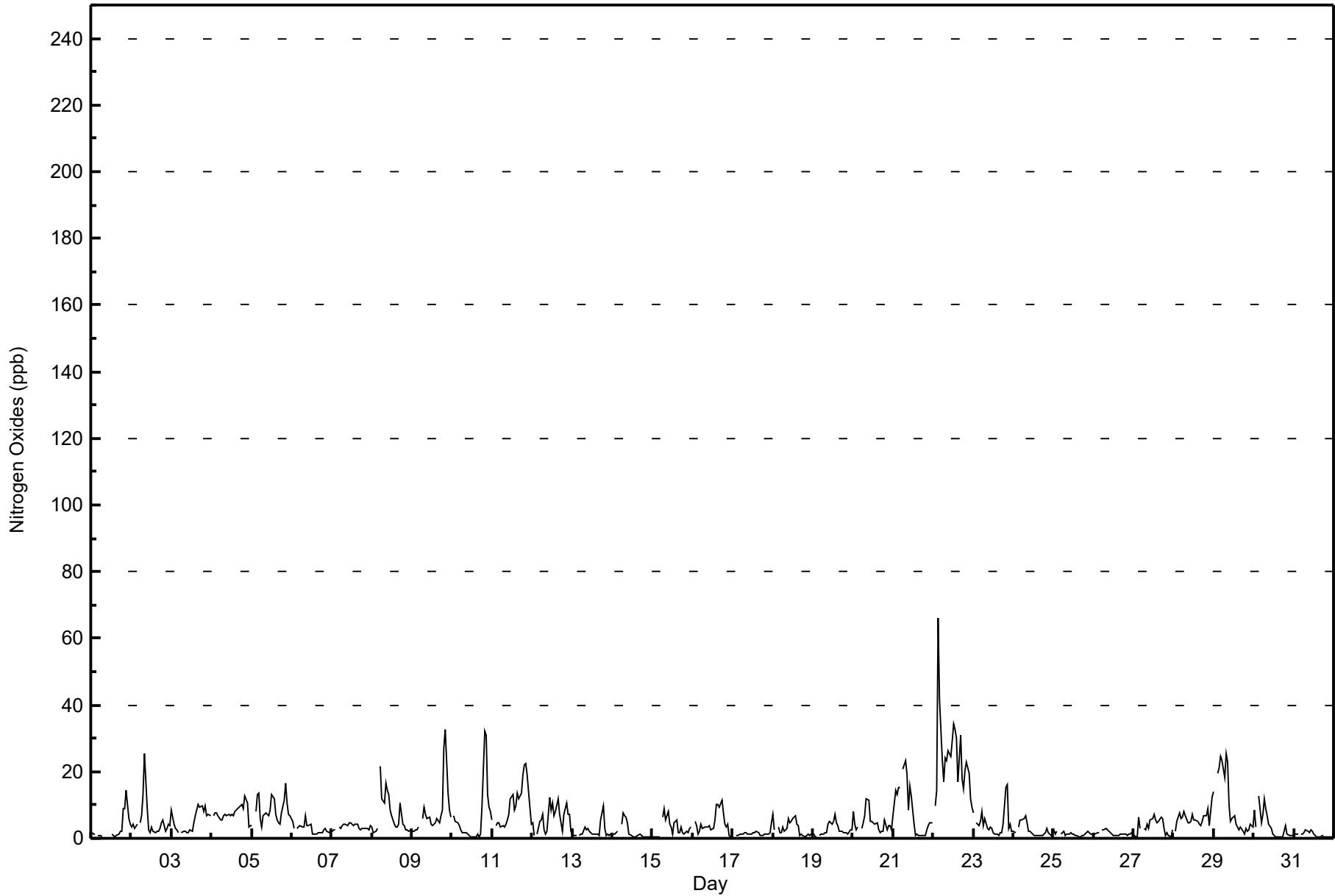
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	1.5	1.1	1.2	Z	0.9	0.7	0.6	C	C	C	C	C	1.1	0.7	0.4	0.8	1.4	2.0	2.1	8.7	8.9	14.3	6.0	4.1	3.1	14.3
2-Mar	3.3	4.3	3.2	4.2	Z	4.5	6.8	13.1	25.5	9.0	2.7	1.7	3.3	2.1	1.6	2.0	2.0	3.1	4.7	5.3	1.9	2.8	4.1	3.7	5.0	25.5
3-Mar	8.6	4.4	2.8	2.4	1.8	Z	1.6	2.1	2.1	1.7	1.7	2.4	2.3	4.7	6.9	8.6	10.1	9.3	9.8	8.0	9.7	6.8	7.3	7.0	5.3	10.1
4-Mar	Z	6.9	7.5	7.8	6.8	5.6	5.7	6.8	7.3	6.7	7.1	6.9	7.1	6.9	8.1	8.5	9.1	9.6	10.3	8.9	12.8	10.5	3.5	3.9	7.6	12.8
5-Mar	3.9	Z	7.9	13.2	13.7	6.0	3.4	6.6	7.7	7.1	6.8	8.5	13.3	12.0	7.1	5.6	4.6	4.1	7.8	11.4	16.5	10.4	7.1	6.6	8.3	16.5
6-Mar	5.3	2.8	Z	2.9	3.2	3.8	3.5	3.5	6.8	4.0	4.0	4.4	1.3	1.3	1.3	1.4	1.8	1.6	1.7	2.6	2.9	2.1	1.8	2.1	2.9	6.8
7-Mar	2.0	2.4	2.7	Z	3.3	2.8	3.9	4.0	4.4	3.9	4.6	4.6	4.4	4.0	4.1	4.2	3.1	2.4	3.0	3.1	2.8	3.1	2.7	3.9	3.5	4.6
8-Mar	3.4	1.8	2.3	2.8	Z	21.7	11.9	10.7	16.7	14.6	13.0	8.4	6.6	4.4	3.4	3.2	4.4	10.8	4.3	3.8	2.4	2.3	2.0	2.6	6.9	21.7
9-Mar	2.2	2.3	2.6	2.7	3.2	Z	5.9	9.2	7.2	6.0	6.3	4.3	3.9	4.1	4.7	5.9	4.6	6.7	8.4	26.9	32.6	13.4	8.6	6.3	7.7	32.6
10-Mar	Z	6.8	5.1	4.6	3.8	2.6	1.9	1.8	1.6	1.4	1.0	0.5	0.6	0.4	0.3	1.1	0.5	1.2	9.4	32.1	30.9	13.0	9.1	8.2	6.0	32.1
11-Mar	5.6	Z	3.9	4.6	4.5	3.3	3.9	3.2	4.1	5.5	7.3	12.0	13.0	8.5	9.7	13.6	11.9	13.4	19.2	21.8	22.5	19.1	14.1	4.1	10.0	22.5
12-Mar	4.8	0.8	Z	1.1	5.0	5.4	7.1	2.6	1.3	2.2	12.3	8.5	10.5	6.9	7.9	11.8	7.3	4.6	2.3	7.1	10.7	7.0	7.1	2.2	5.9	12.3
13-Mar	1.5	0.9	0.9	Z	0.7	1.3	1.2	3.4	2.4	3.0	2.3	1.5	1.4	1.3	1.3	0.7	5.5	9.6	3.1	0.8	1.3	1.0	1.3	2.1	2.1	9.6
14-Mar	1.3	1.2	1.6	2.0	Z	4.1	7.8	6.9	6.2	4.8	1.3	0.6	0.5	0.4	0.7	1.3	0.7	0.6	0.5	0.5	0.5	0.4	0.4	0.4	1.9	7.8
15-Mar	0.4	0.3	0.4	0.3	0.3	Z	6.3	8.8	5.5	7.9	4.4	3.4	1.4	4.6	5.4	1.9	1.9	3.2	1.6	1.2	2.2	1.8	3.0	3.4	3.0	8.8
16-Mar	Z	5.1	4.0	1.3	1.9	4.4	3.0	3.5	3.5	3.5	3.8	2.6	3.1	5.6	10.1	10.1	9.1	11.5	7.8	4.4	3.3	4.1	0.8	0.2	4.6	11.5
17-Mar	0.4	Z	0.8	0.9	1.1	1.2	1.2	1.6	1.9	1.3	1.2	1.2	1.6	1.8	1.9	1.8	0.9	1.0	1.0	1.1	1.2	1.2	1.6	4.7	1.4	4.7
18-Mar	7.4	2.4	Z	3.3	1.5	1.8	3.3	2.3	3.1	5.7	4.8	5.1	5.8	7.0	4.4	4.0	1.0	1.1	0.7	0.6	1.0	1.2	1.0	1.3	3.0	7.4
19-Mar	1.3	0.6	0.4	Z	0.8	1.2	1.3	1.6	1.9	4.2	5.3	4.2	5.3	7.1	4.8	3.9	2.0	1.9	1.5	1.8	1.5	1.4	2.4	2.6	2.6	7.1
20-Mar	8.1	4.4	2.4	3.4	Z	3.0	4.8	6.9	12.0	11.3	5.2	5.0	4.8	4.4	4.8	2.7	1.7	2.3	1.9	5.3	2.4	3.9	3.6	2.6	4.7	12.0
21-Mar	6.9	14.4	13.1	15.2	15.0	Z	21.0	23.2	19.1	8.4	15.7	12.8	4.4	1.0	1.4	1.0	0.8	0.8	0.9	1.0	2.3	3.6	4.7	4.5	8.3	23.2
22-Mar	Z	9.6	14.4	65.9	41.5	23.1	17.0	24.3	23.1	26.4	24.6	29.4	34.2	32.5	30.0	16.8	30.7	17.8	15.0	20.4	22.9	19.6	11.8	9.5	24.4	65.9
23-Mar	7.6	Z	4.7	3.7	4.9	7.9	3.9	6.1	2.8	2.5	3.5	3.0	1.6	1.2	1.1	0.8	1.5	1.7	4.1	15.2	15.9	2.9	4.4	2.1	4.5	15.9
24-Mar	2.1	1.7	Z	3.4	5.7	5.6	6.1	6.7	4.5	2.3	2.0	1.3	0.8	0.7	0.7	0.7	0.7	0.8	1.1	1.5	2.9	1.6	0.8	1.1	2.4	6.7
25-Mar	2.3	1.2	2.2	Z	1.3	1.9	2.1	0.8	1.3	1.4	1.5	1.4	1.2	1.0	0.7	0.5	0.5	0.7	0.7	1.2	2.1	1.9	1.3	1.2	1.3	2.3
26-Mar	1.3	1.4	1.6	1.7	Z	2.5	2.7	2.9	2.6	2.2	1.6	1.4	0.9	0.9	0.8	1.1	1.2	1.3	1.3	1.2	1.0	1.2	1.2	1.6	1.5	2.9
27-Mar	0.7	0.5	0.5	6.5	2.9	Z	3.0	2.7	4.1	2.9	5.3	5.7	7.1	5.5	4.5	5.0	6.1	5.9	3.0	0.7	1.6	0.7	0.6	2.6	3.4	7.1
28-Mar	Z	2.1	5.1	7.6	5.8	6.4	7.9	6.7	4.5	4.7	5.2	7.1	5.6	5.5	5.1	4.4	3.6	5.3	6.8	6.9	9.0	3.9	8.2	12.1	6.1	12.1
29-Mar	13.8	Z	19.4	21.1	24.4	23.3	18.0	25.3	23.0	10.3	5.3	5.9	6.8	4.2	3.2	2.7	3.4	2.1	1.3	2.8	2.2	2.6	4.3	3.5	9.9	25.3
30-Mar	8.3	3.4	Z	12.8	4.5	7.1	11.8	8.9	6.6	4.3	2.9	1.2	0.7	0.6	0.3	0.4	0.4	0.5	2.0	3.6	1.2	0.8	0.8	0.8	3.6	12.8
31-Mar	1.1	1.4	1.1	Z	1.2	1.3	1.9	2.5	2.2	1.9	2.5	2.1	1.1	0.4	0.5	0.3	0.3	0.8	0.5	0.5	0.4	0.3	0.5	0.6	1.1	2.5
	4.0	3.2	4.3	7.8	6.2	5.9	5.8	7.0	7.2	5.7	5.5	5.2	5.0	4.6	4.4	4.1	4.2	4.3	4.7	6.9	7.4	5.1	4.1	3.6		Diurnal Average
	13.8	14.4	19.4	65.9	41.5	23.3	21.0	25.3	25.5	26.4	24.6	29.4	34.2	32.5	30.0	16.8	30.7	17.8	19.2	32.1	32.6	19.6	14.1	12.1		Diurnal Maximum

Z - zerospan C - Calibration



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	680	96.05	96.05
21 - 40	26	3.67	99.72
41 - 80	2	0.28	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint - March 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	145	74	5	6	9	35	107	150	34	13	5	9	15	15	13	45	680
21 - 40	9	1	0	0	0	2	2	2	1	1	1	0	0	1	1	5	26
11 - 80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	155	75	5	6	9	37	109	152	35	14	6	9	15	16	14	51	708

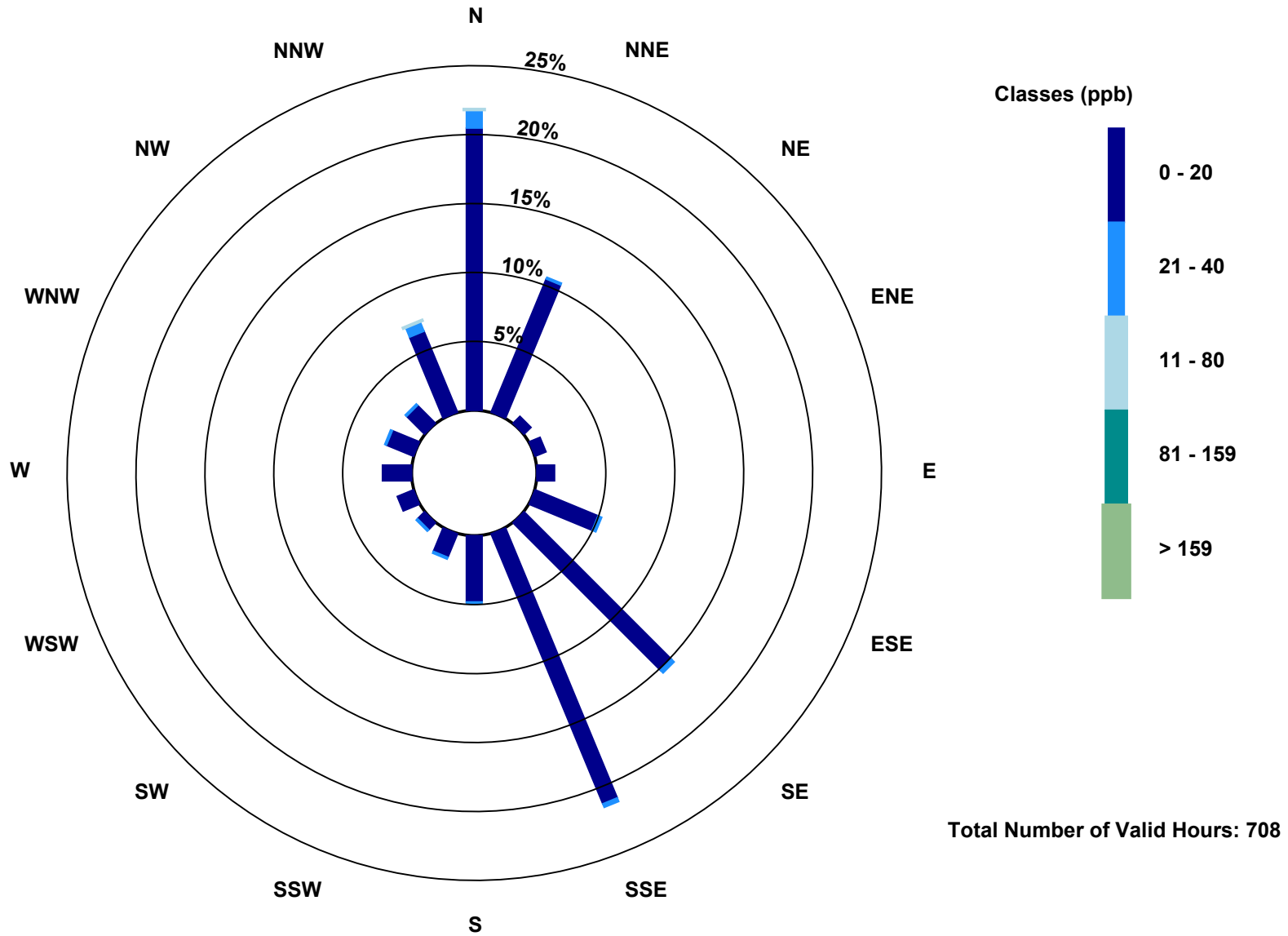
Total Number of Valid Hours: 708

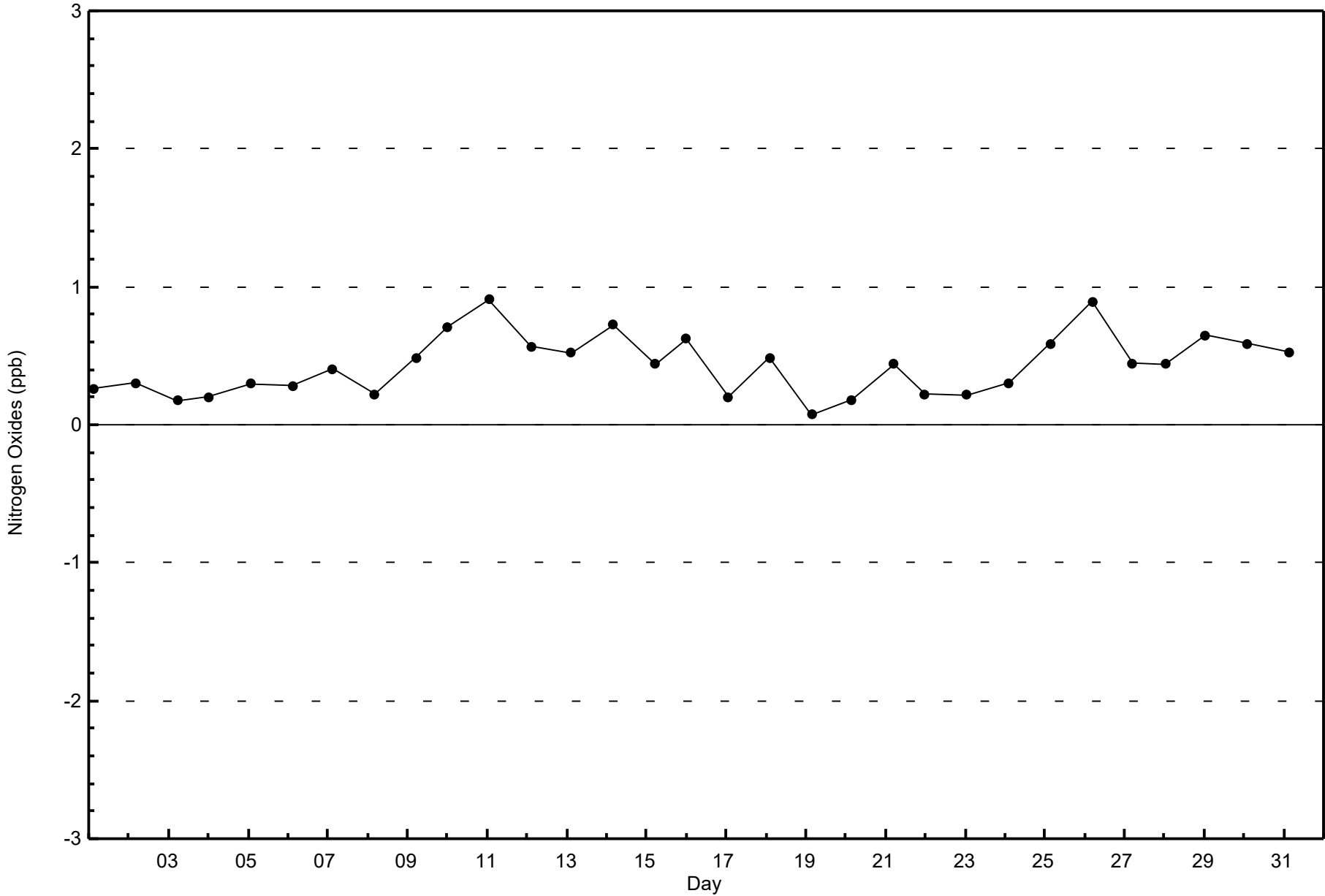
Total Number of Hours: 744

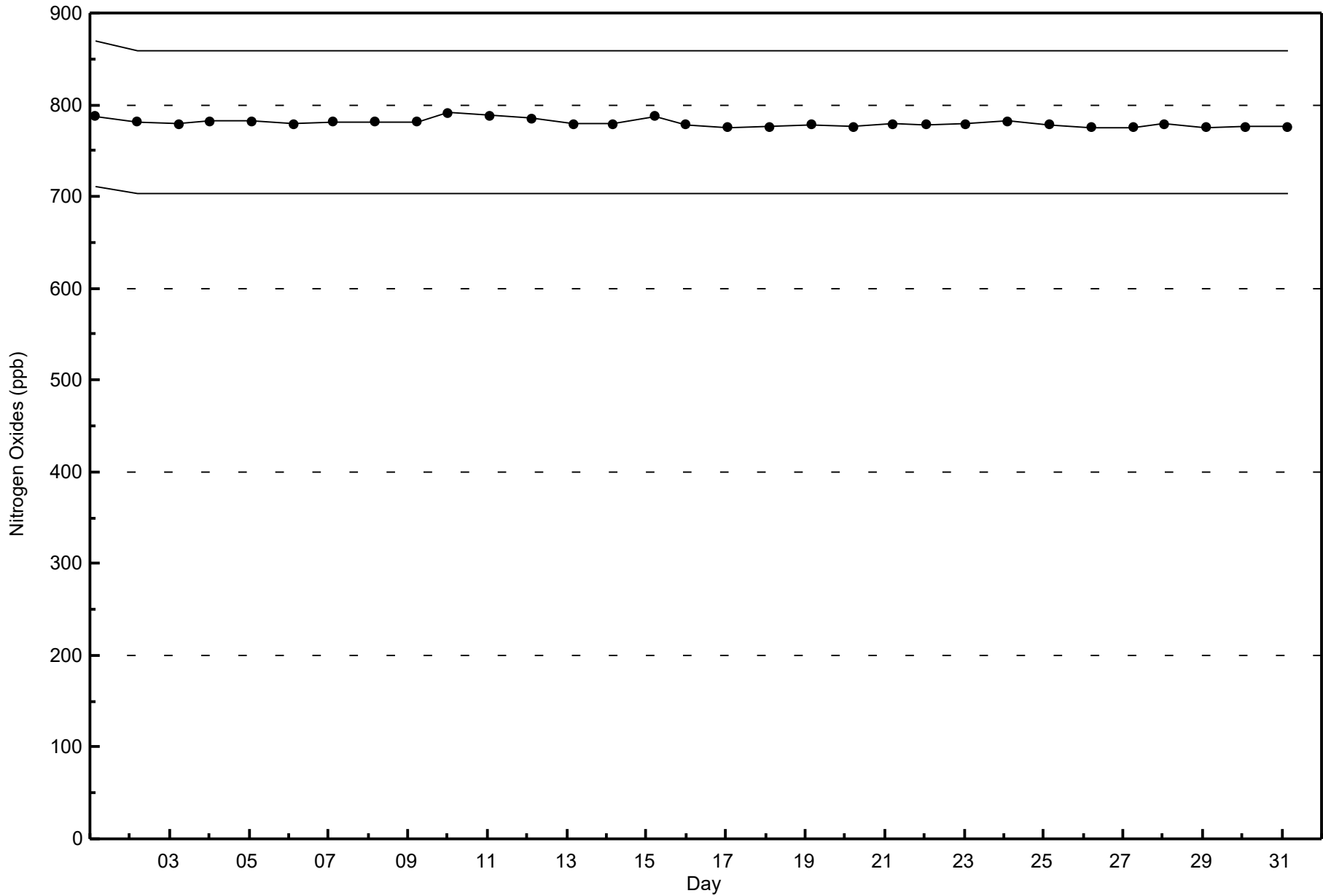


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint









Wood Buffalo Environmental Association

Summary of Hour Averages

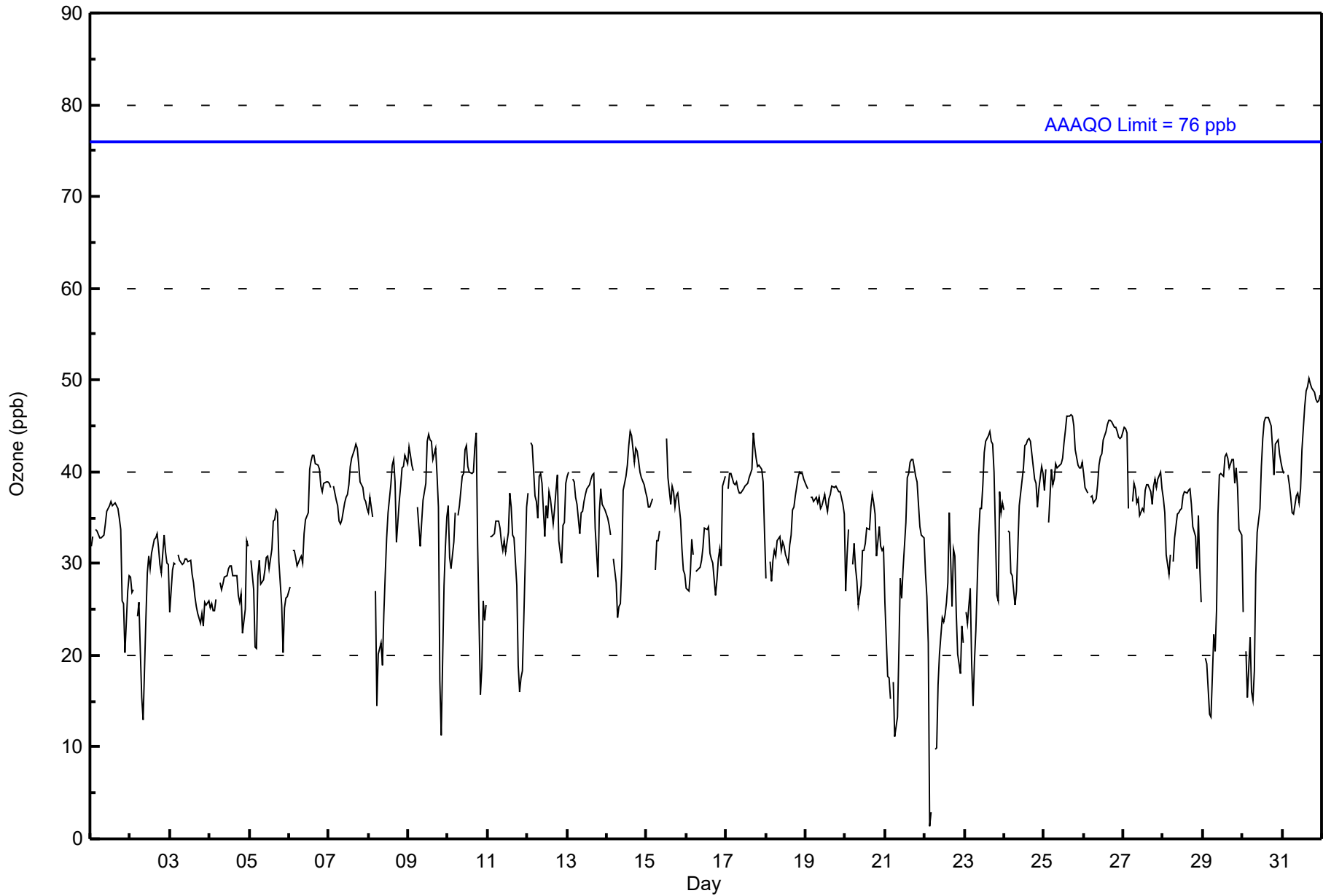
Ozone (O₃) - ppb

Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 50.2 ppb on Mar 31 17:00	Maximum Daily Average: 43.2 ppb on Mar 31		Hours of Data:	710
Minimum Value: 1.3 ppb on Mar 22 04:00	Minimum Daily Average: 21.5 ppb on Mar 22		Hours of Missing Data:	34
Maximum Diurnal Average: 38.8 ppb at hour 16	Minimum Diurnal Average: 29.3 ppb at hour 7		Hours of Calibration:	34
Monthly Average: 34.10 ppb	Percentiles: P ₁ = 13.2 P ₁₀ = 24.7 Q ₁ = 29.8 Median = 35.7 Q ₃ = 39.3 P ₉₀ = 42.5 P ₉₉ = 47.9		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-Mar	31.8	32.9	Z	33.8	33.5	32.8	32.7	32.9	33.1	34.3	35.7	36.3	36.8	36.4	36.5	36.6	36.0	35.0	33.7	26.0	25.6	20.3	27.1	28.7	32.5	36.8																						
2-Mar	28.6	26.9	27.1	Z	24.2	25.7	20.4	15.4	13.0	24.1	29.0	30.7	29.5	31.1	32.7	32.9	33.3	31.8	29.9	29.0	33.1	31.3	30.0	29.9	27.8	33.3																						
3-Mar	24.7	29.3	30.1	29.8	Z	30.9	30.4	29.9	30.1	30.5	30.4	30.2	30.3	28.9	27.8	26.5	25.3	24.6	23.5	24.5	23.2	25.8	25.4	25.9	27.7	30.9																						
4-Mar	25.1	25.6	24.9	24.8	26.1	Z	27.9	27.2	27.7	28.5	28.7	29.5	29.8	29.7	28.6	28.8	28.7	26.6	25.7	26.7	22.4	25.1	32.5	31.9	27.5	32.5																						
5-Mar	Z	30.4	27.1	21.0	20.7	28.7	30.4	27.8	28.2	29.4	30.6	30.7	29.4	31.6	34.6	34.8	35.8	35.5	30.3	25.4	20.3	25.1	26.3	26.3	28.7	35.8																						
6-Mar	27.5	Z	31.5	31.4	30.7	29.8	30.5	30.8	30.0	33.3	34.7	35.6	40.2	41.1	41.8	41.8	40.9	40.8	40.3	38.4	37.9	38.7	38.9	39.0	35.9	41.8																						
7-Mar	38.7	38.3	Z	38.5	36.9	36.3	34.7	34.3	34.7	36.6	37.2	37.6	38.6	40.6	41.4	42.4	42.9	42.5	40.9	38.8	38.3	37.1	36.7	35.9	38.3	42.9																						
8-Mar	35.6	37.1	35.2	Z	26.9	14.4	20.1	21.3	18.9	24.6	28.8	32.8	35.6	38.6	40.7	41.4	38.9	32.4	36.8	38.5	40.5	40.6	41.8	40.9	33.1	41.8																						
9-Mar	42.7	41.7	40.8	40.1	Z	36.2	33.9	31.9	34.5	36.9	38.8	43.4	44.1	43.5	43.2	41.3	42.5	39.6	36.2	17.2	11.3	27.6	31.9	35.1	36.3	44.1																						
10-Mar	36.3	30.6	29.4	32.4	35.6	Z	35.2	36.3	39.5	39.8	42.4	42.9	40.6	39.9	39.7	40.0	42.7	44.3	32.2	15.7	18.7	25.9	23.8	25.4	34.3	44.3																						
11-Mar	Z	33.0	33.0	33.0	33.3	34.6	34.6	33.8	32.4	31.4	32.5	31.2	33.4	37.7	36.1	33.0	32.8	27.7	18.9	16.1	17.6	18.3	23.9	36.2	30.2	37.7																						
12-Mar	37.7	Z	43.2	42.8	37.4	36.8	34.9	39.5	39.8	38.8	32.9	36.3	34.9	37.8	37.0	34.3	36.0	37.9	39.6	32.5	30.0	34.2	34.4	38.7	36.9	43.2																						
13-Mar	39.6	39.9	Z	39.3	38.9	37.2	36.4	33.3	35.6	35.7	36.7	37.6	38.1	38.6	39.2	39.7	39.9	33.9	28.5	35.6	38.1	36.5	36.2	35.8	37.0	39.9																						
14-Mar	35.0	34.2	33.0	Z	30.6	27.9	24.1	25.4	25.7	29.8	38.0	39.5	40.7	42.8	44.4	44.0	41.1	42.6	42.2	41.1	40.0	39.4	38.6	37.8	36.4	44.4																						
15-Mar	37.3	36.1	36.1	37.1	Z	29.3	32.5	32.5	33.6	C	C	C	43.6	39.4	36.5	38.5	37.8	36.2	37.4	37.6	34.8	31.6	29.3	28.8	35.3	43.6																						
16-Mar	27.3	27.0	29.0	32.6	31.0	Z	29.1	29.4	29.6	30.3	31.7	33.8	33.8	34.1	31.1	30.6	30.0	26.6	28.1	30.5	31.6	29.8	38.5	39.6	31.1	39.6																						
17-Mar	Z	38.1	39.8	39.8	38.8	38.6	38.9	38.2	37.7	37.7	38.2	38.4	38.6	38.7	39.3	40.3	44.2	42.7	41.5	40.6	40.8	40.3	39.0	33.4	39.3	44.2																						
18-Mar	28.3	Z	30.1	28.1	30.3	31.5	30.8	32.5	32.9	31.5	32.4	31.8	30.9	30.1	32.1	33.1	35.8	36.1	37.4	39.3	40.0	39.9	39.8	39.3	33.7	40.0																						
19-Mar	38.4	38.1	Z	37.2	37.2	36.7	37.2	36.7	37.2	35.9	36.2	37.6	36.5	35.6	37.0	37.5	38.4	38.2	38.4	38.1	37.8	37.9	36.5	35.3	37.2	38.4																						
20-Mar	27.0	31.0	33.7	Z	29.9	32.2	29.6	28.1	25.5	27.6	31.5	31.4	32.2	33.8	33.7	36.1	37.5	36.7	35.4	30.8	34.0	31.9	31.4	31.7	31.9	37.5																						
21-Mar	25.8	17.8	17.5	15.2	Z	17.1	11.1	13.2	20.5	28.4	26.3	29.4	34.4	39.3	39.9	41.0	41.3	41.3	39.6	38.9	36.4	34.0	33.0	32.8	29.3	41.3																						
22-Mar	29.0	26.3	21.3	1.3	2.9	Z	9.8	9.9	16.8	20.2	24.1	23.7	24.4	25.8	27.9	35.6	25.3	31.6	30.9	24.6	20.2	18.0	23.1	21.4	21.5	35.6																						
23-Mar	Z	24.8	23.4	27.4	19.3	14.5	19.3	22.8	33.2	36.0	36.0	38.5	42.2	43.3	44.0	44.4	43.3	43.0	39.9	26.5	25.9	37.9	35.5	36.5	32.9	44.4																						
24-Mar	35.8	Z	33.5	33.4	29.0	28.7	25.5	27.0	31.8	36.3	37.6	40.5	42.8	43.0	43.4	43.7	43.3	40.6	39.2	38.7	36.2	38.2	40.6	39.8	36.9	43.7																						
25-Mar	37.9	40.3	Z	34.5	40.3	38.7	39.3	40.9	40.4	40.8	40.9	41.5	43.2	44.5	46.1	46.1	46.3	46.1	45.0	42.4	40.7	40.4	40.4	41.0	41.6	46.3																						
26-Mar	39.7	38.3	37.7	Z	37.3	37.3	36.6	37.1	38.6	40.7	41.6	42.0	43.4	44.5	45.2	45.7	45.5	45.5	44.9	44.9	44.4	43.7	43.6	43.8	41.8	45.7																						
27-Mar	44.9	44.7	44.3	36.0	Z	36.8	38.8	38.1	36.6	37.1	35.3	36.0	35.7	38.1	38.6	38.6	37.8	36.5	38.4	39.2	38.2	39.3	40.0	38.2	38.6	44.9																						
28-Mar	37.1	35.6	31.0	28.8	31.0	Z	30.2	32.8	35.3	35.6	35.8	35.9	37.3	37.9	37.7	38.0	38.1	36.4	34.0	32.9	29.5	35.2	29.6	25.8	34.0	38.1																						
29-Mar	Z	19.6	19.0	16.3	13.6	13.3	22.2	20.4	25.1	35.4	39.7	39.8	39.5	41.6	42.0	41.4	40.5	41.3	41.3	38.7	40.4	38.3	33.8	33.2	32.0	42.0																						
30-Mar	24.7	Z	20.4	15.4	21.9	16.0	15.0	18.3	28.8	33.3	35.9	40.6	43.6	45.5	45.9	46.0	45.5	45.0	42.6	39.6	43.0	43.5	42.0	41.0	34.5	46.0																						
31-Mar	40.2	39.8	Z	39.7	38.6	37.2	35.6	35.3	37.3	37.7	36.6	38.2	42.4	47.2	48.7	49.3	50.2	49.5	49.1	48.6	47.9	47.6	47.8	48.4	43.2	50.2																						
																								33.7	33.0	30.9	30.4	29.8	30.0	29.3	29.5	31.1	33.3	34.5	35.8	37.0	38.1	38.5	38.8	38.6	37.7	36.2	33.5	32.9	34.0	34.6	34.8	Diurnal Average
																								44.9	44.7	44.3	42.8	40.3	38.7	39.3	40.9	40.4	40.8	42.4	43.4	44.1	47.2	48.7	49.3	50.2	49.5	49.1	48.6	47.9	47.6	47.8	48.4	Diurnal Maximum

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ozone (O₃) - ppb
Buffalo Viewpoint - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	45	6.34	6.34
21 - 50	665	93.66	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 (O₃) - ppb
Buffalo Viewpoint - March 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	7	0	2	0	1	3	11	4	1	0	0	0	0	1	6	45
21 - 50	146	68	6	4	9	36	107	140	32	13	6	9	19	16	13	41	665
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
Totals	155	75	6	6	9	37	110	151	36	14	6	9	19	16	14	47	710

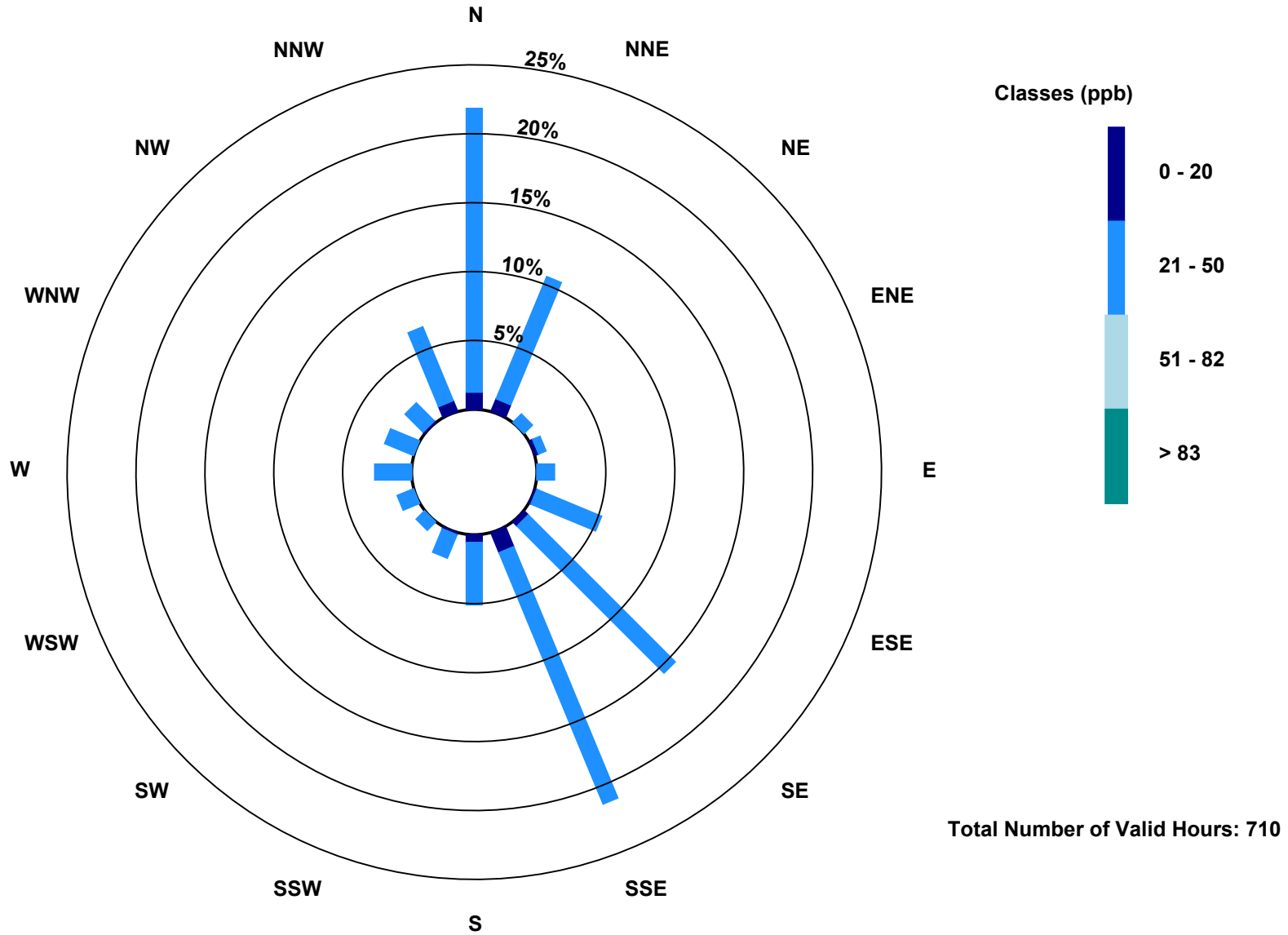
Total Number of Valid Hours: 710

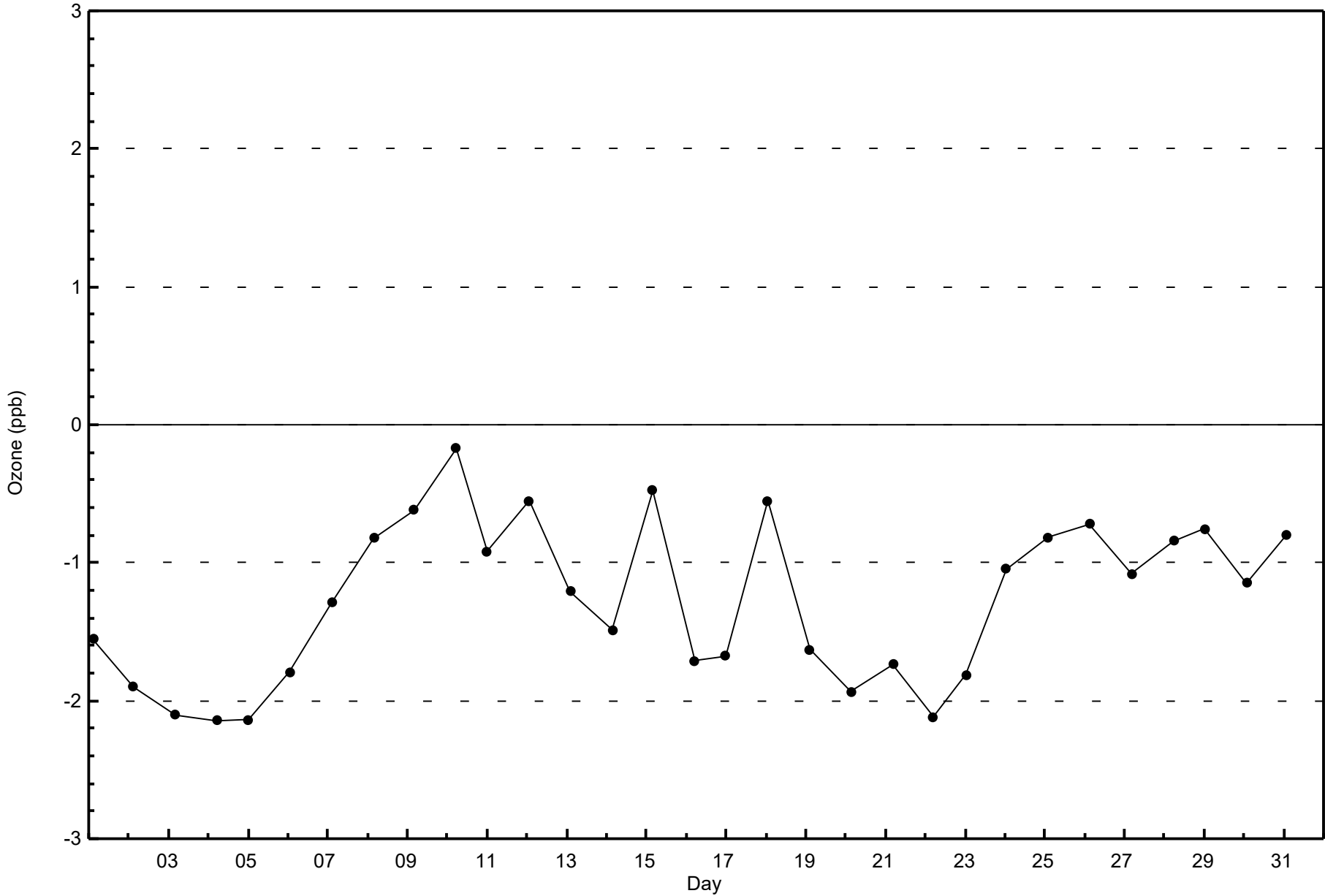
Total Number of Hours: 744

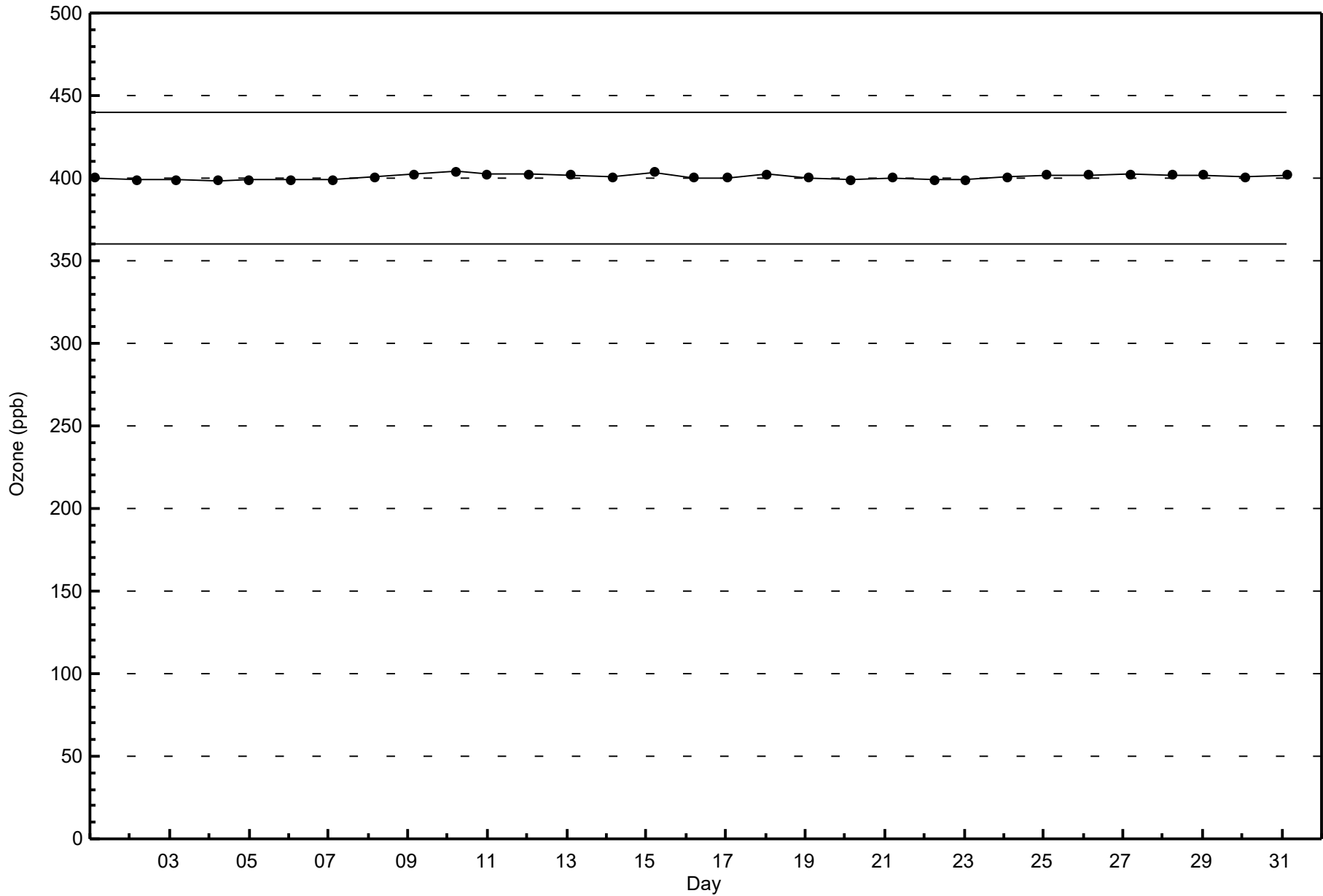


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Buffalo Viewpoint





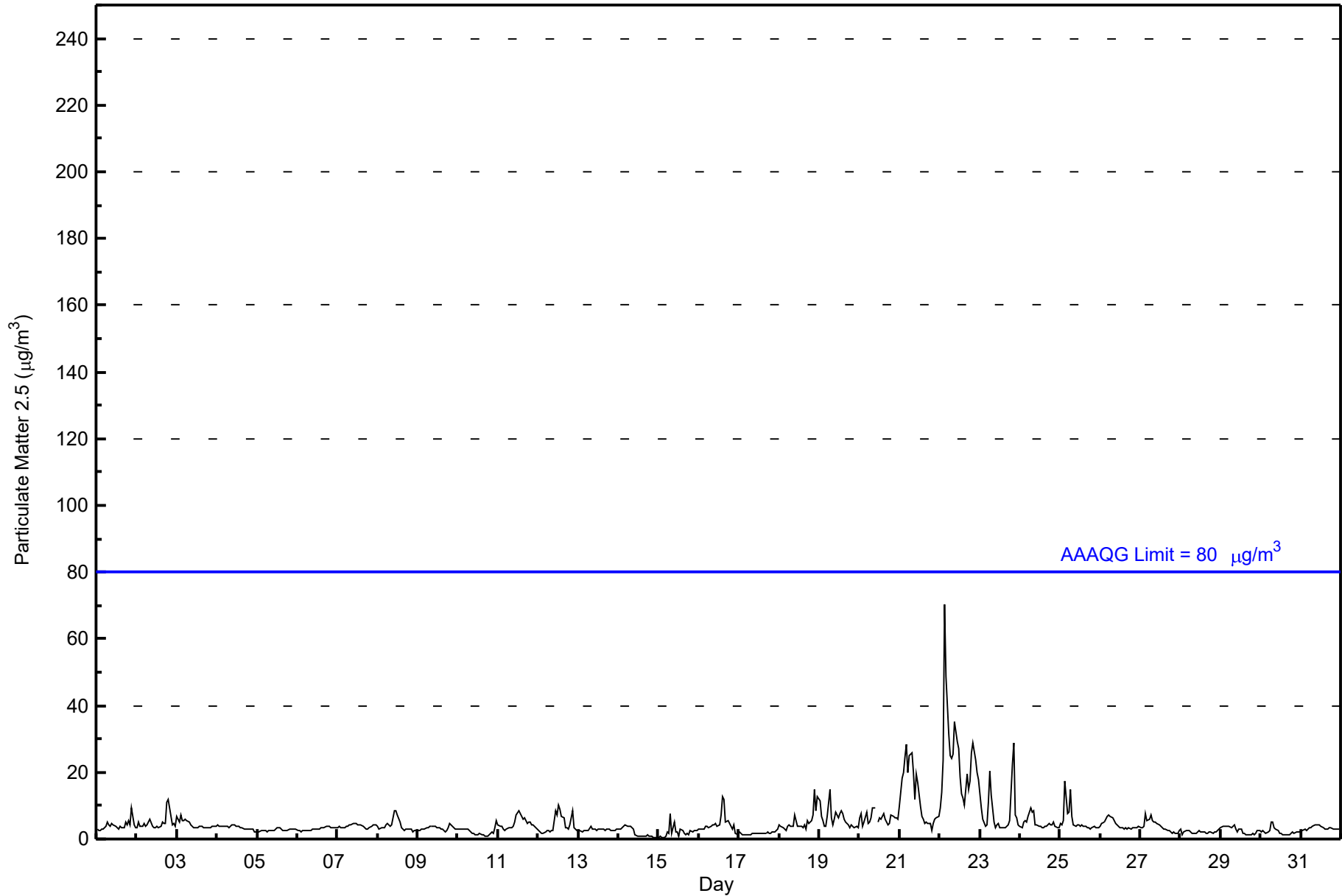




Summary of Hour Averages

Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 70.2 µg/m ³ on Mar 22 04:00		Maximum Daily Average: 24.4 µg/m ³ on Mar 22																	Hours of Data: 743							
Minimum Value: 0.5 µg/m ³ on Mar 14 22:00		Minimum Daily Average: 1.8 µg/m ³ on Mar 17																	Hours of Missing Data: 1							
Maximum Diurnal Average: 6.6 µg/m ³ at hour 4		Minimum Diurnal Average: 3.6 µg/m ³ at hour 18																	Hours of Calibration: 1							
Monthly Average: 4.81 µg/m ³		Percentiles: P ₁ = 0.7 P ₁₀ = 1.8 Q ₁ = 2.7 Median = 3.5 Q ₃ = 4.7 P ₉₀ = 7.6 P ₉₉ = 27.9																	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-Mar	2.8	2.7	2.5	2.8	3.1	3.9	5.0	4.4	3.6	4.7	4.3	3.8	3.5	2.9	3.7	3.4	3.5	5.1	4.0	5.3	4.4	9.1	4.3	3.5	4.0	9.1
2-Mar	3.4	4.9	3.8	3.7	4.7	3.8	4.1	4.9	6.0	4.0	3.4	3.2	3.8	3.5	3.8	5.0	4.8	4.5	11.0	11.8	6.9	4.2	4.7	3.9	4.9	11.8
3-Mar	6.9	5.3	7.0	5.3	5.6	6.0	5.7	4.9	4.2	3.6	3.6	3.5	3.4	3.6	3.9	3.7	3.6	3.5	3.6	3.5	3.6	3.7	3.8	4.0	4.4	7.0
4-Mar	4.1	3.9	3.7	3.6	3.9	4.0	3.8	3.6	4.0	4.1	4.2	3.9	4.0	3.7	3.6	3.2	3.0	3.1	3.0	2.8	2.9	2.8	2.2	2.3	3.5	4.2
5-Mar	2.2	2.3	2.4	2.7	2.7	2.4	2.3	2.4	2.5	2.6	2.6	3.1	3.5	3.4	2.8	2.7	2.5	2.5	2.7	2.9	3.1	2.8	2.9	2.9	2.7	3.5
6-Mar	2.7	2.4	2.3	2.6	2.5	2.5	2.5	2.5	2.7	2.8	2.9	3.1	2.9	2.9	3.3	3.3	3.5	3.7	3.8	3.6	3.4	3.3	3.3	3.6	3.0	3.8
7-Mar	3.6	3.7	3.4	3.3	3.5	3.6	3.9	4.2	4.4	4.7	4.6	4.6	4.3	4.2	4.2	4.0	3.4	3.1	3.1	3.2	3.7	4.3	4.2	4.4	3.9	4.7
8-Mar	3.6	3.1	3.3	3.4	3.6	4.4	4.5	4.0	4.3	6.4	8.5	8.4	7.2	5.3	3.5	2.9	2.7	2.9	2.9	3.1	3.0	2.2	2.4	2.6	4.1	8.5
9-Mar	2.7	2.7	2.8	2.9	3.1	3.3	3.6	4.0	3.8	3.8	3.9	3.6	3.2	3.2	2.9	2.9	2.2	2.5	3.2	4.7	4.1	3.3	3.1	3.0	3.3	4.7
10-Mar	3.0	3.0	2.8	2.8	3.1	3.0	2.9	2.5	1.8	1.6	1.3	1.2	1.3	1.6	1.4	1.1	0.8	0.7	1.1	1.8	2.1	1.8	3.3	5.6	2.1	5.6
11-Mar	4.1	3.8	3.7	2.9	2.5	2.8	3.2	3.2	3.2	3.7	4.9	7.3	8.6	7.6	6.9	6.0	6.2	4.8	5.2	5.0	4.3	4.4	4.0	3.0	4.6	8.6
12-Mar	2.5	2.1	1.8	1.8	2.3	2.5	2.5	2.3	2.7	2.6	8.5	7.3	10.3	8.8	6.7	6.3	3.4	3.3	2.9	4.4	8.3	3.5	2.9	2.5	4.2	10.3
13-Mar	2.4	2.4	2.2	2.3	2.4	2.5	2.7	3.9	3.0	3.1	2.8	2.7	2.8	2.8	2.8	2.6	3.0	3.1	2.6	2.5	2.6	2.7	2.9	2.7	3.9	2.7
14-Mar	3.0	3.1	3.5	3.7	4.2	4.0	3.9	3.6	3.3	2.9	1.3	1.0	0.9	0.8	0.8	0.8	1.0	1.1	1.0	0.9	0.7	0.5	0.5	0.6	2.0	4.2
15-Mar	0.6	0.6	0.6	0.6	1.0	2.0	1.7	7.6	1.9	5.1	2.1	1.9	1.0	3.1	2.6	1.8	1.2	1.5	1.5	2.5	2.2	2.6	2.7	2.7	2.1	7.6
16-Mar	2.9	2.8	2.9	2.8	3.6	3.7	3.5	3.8	4.1	4.2	4.5	3.8	4.3	7.2	12.7	12.1	5.2	5.7	4.6	3.8	2.9	4.3	1.9	1.3	4.5	12.7
17-Mar	2.2	1.6	1.4	1.3	1.4	1.4	1.2	1.3	1.6	1.9	1.8	1.5	1.5	1.7	1.8	1.9	1.8	2.0	1.9	1.9	2.0	2.1	2.3	2.9	1.8	2.9
18-Mar	4.1	3.7	3.2	3.1	2.7	3.8	4.2	3.9	3.8	7.1	5.6	3.8	3.8	3.9	3.4	4.1	3.0	5.4	4.5	5.5	7.0	14.7	8.7	12.9	5.2	14.7
19-Mar	11.4	6.9	5.4	3.7	3.9	6.9	14.8	6.5	4.3	5.8	8.2	6.5	7.5	8.5	7.5	6.1	5.1	4.2	3.4	4.4	3.7	3.3	3.8	3.4	6.0	14.8
20-Mar	6.4	7.5	3.7	5.1	8.0	4.8	5.0	6.4	9.4	9.2	C	5.2	6.4	6.1	7.6	5.8	5.2	4.4	4.7	7.0	6.8	6.4	6.5	6.1	6.2	9.4
21-Mar	9.7	18.2	19.8	24.8	28.4	20.1	25.1	25.8	20.0	11.8	19.5	16.9	9.6	6.8	5.8	4.7	5.0	4.8	4.7	2.6	4.7	6.0	6.4	6.8	12.8	28.4
22-Mar	9.2	13.8	23.7	70.2	48.5	31.4	24.8	23.9	25.4	35.0	29.3	27.3	18.8	13.5	12.1	10.1	19.4	14.7	17.4	25.8	28.6	23.9	19.7	17.8	24.4	70.2
23-Mar	13.6	9.2	6.1	3.8	4.3	11.1	20.5	13.0	5.0	3.6	4.2	4.5	3.2	3.3	3.6	3.3	3.8	4.2	5.5	22.3	28.7	7.3	6.4	4.3	8.1	28.7
24-Mar	3.8	3.3	4.9	5.3	5.2	6.7	9.3	8.0	8.3	4.2	4.2	4.0	3.6	3.4	3.3	3.7	3.6	4.5	4.1	4.3	5.2	3.9	3.2	3.3	4.7	9.3
25-Mar	4.5	4.1	5.7	17.2	7.5	7.9	14.9	6.6	4.4	3.8	4.3	4.2	3.9	4.2	4.0	3.6	3.4	3.4	3.1	3.4	3.7	3.6	3.4	3.4	5.3	17.2
26-Mar	3.9	4.8	5.1	5.7	6.6	7.1	6.8	6.4	5.6	4.8	4.2	3.8	3.6	3.4	3.2	3.2	3.2	3.4	3.0	3.3	3.5	3.4	3.5	3.7	4.4	7.1
27-Mar	3.4	3.6	3.9	7.8	5.5	5.8	7.4	5.4	5.0	5.2	4.7	4.2	3.7	3.5	2.9	2.9	2.6	2.5	2.3	1.7	2.0	1.7	1.6	2.4	3.8	7.8
28-Mar	2.8	1.4	2.0	2.6	2.7	2.5	2.2	1.8	1.6	1.7	1.9	2.4	2.0	2.2	2.0	1.8	1.8	1.9	2.0	1.8	2.1	1.9	2.4	3.1	2.1	3.1
29-Mar	3.5	3.7	3.9	3.6	3.6	3.8	3.2	3.8	4.2	3.0	2.3	2.8	2.8	1.9	1.7	1.3	1.4	1.3	1.4	1.7	1.5	1.8	2.4	2.5	2.6	4.2
30-Mar	2.2	2.3	2.0	1.8	2.1	2.4	5.0	5.1	3.4	3.0	2.7	1.9	1.6	1.3	1.3	1.3	1.3	1.4	1.6	2.0	1.8	2.0	2.0	2.1	2.2	5.1
31-Mar	2.5	2.8	2.9	2.7	3.0	3.6	3.5	3.8	4.1	4.0	4.2	4.2	3.7	3.2	3.1	2.9	3.1	3.4	3.3	3.2	3.1	3.0	3.0	3.1	3.3	4.2
4.3 4.4 4.6 6.6 6.0 5.6 6.6 5.9 5.2 5.3 5.4 5.0 4.5 4.2 4.2 3.8 3.7 3.6 3.9 4.9 5.2 4.5 4.0 4.1																								Diurnal Average		
13.6 18.2 23.7 70.2 48.5 31.4 25.1 25.8 25.4 35.0 29.3 27.3 18.8 13.5 12.7 12.1 19.4 14.7 17.4 25.8 28.7 23.9 19.7 17.8																								Diurnal Maximum		
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Buffalo Viewpoint - March 2024**

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	604	81.29	81.29
6 - 15	107	14.40	95.69
16 - 25	21	2.83	98.52
26 - 80	11	1.48	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Buffalo Viewpoint - March 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	120	51	5	6	9	28	97	138	33	13	6	10	19	13	12	44	604
6 - 15	36	21	1	0	0	8	13	16	1	0	0	0	0	3	3	5	107
16 - 25	3	5	0	0	0	2	3	4	1	1	0	0	0	0	0	2	21
26 - 80	2	1	0	0	0	0	2	1	1	0	1	0	0	1	0	2	11
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	78	6	6	9	38	115	159	36	14	7	10	19	17	15	53	743

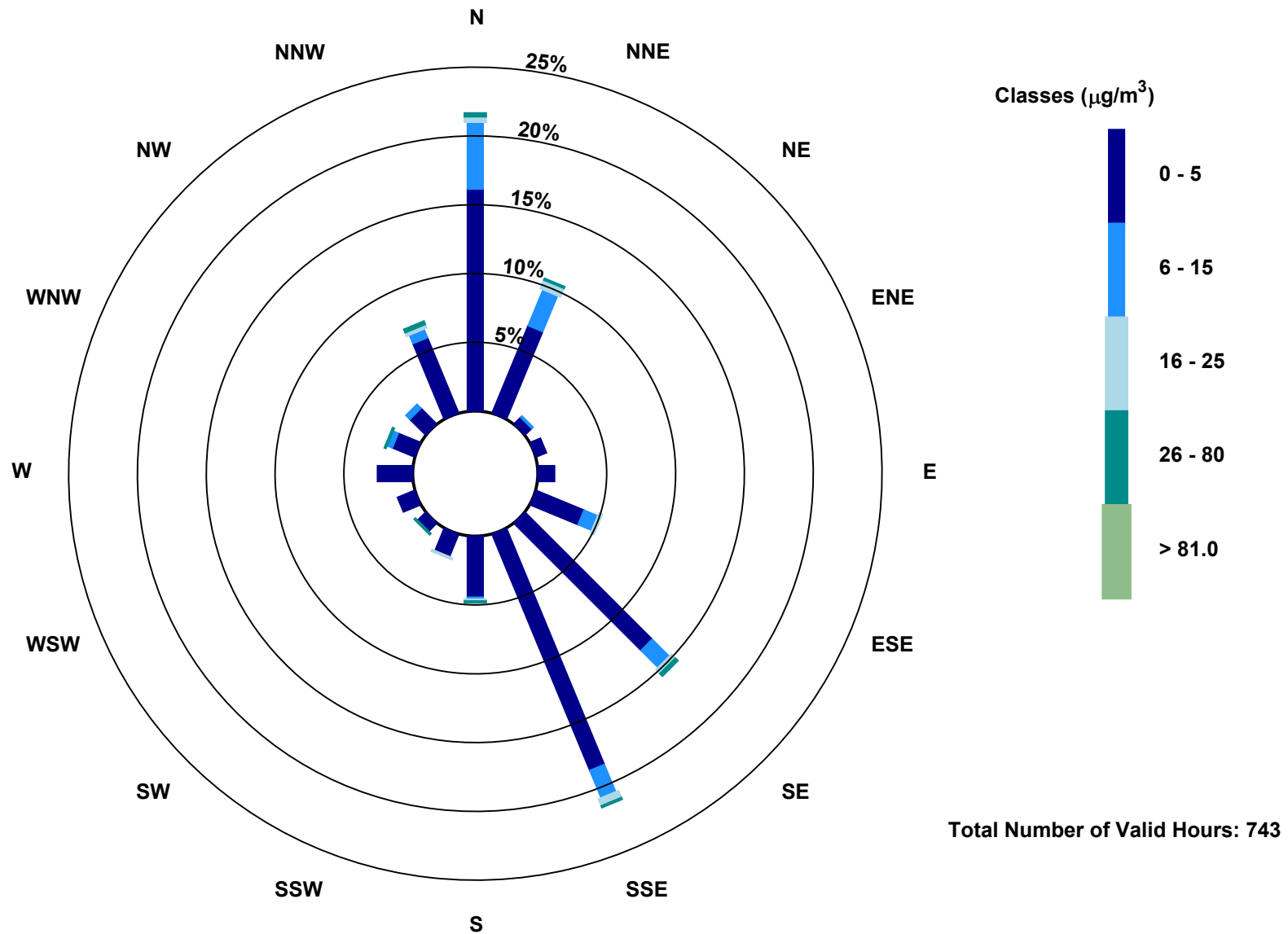
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Buffalo Viewpoint

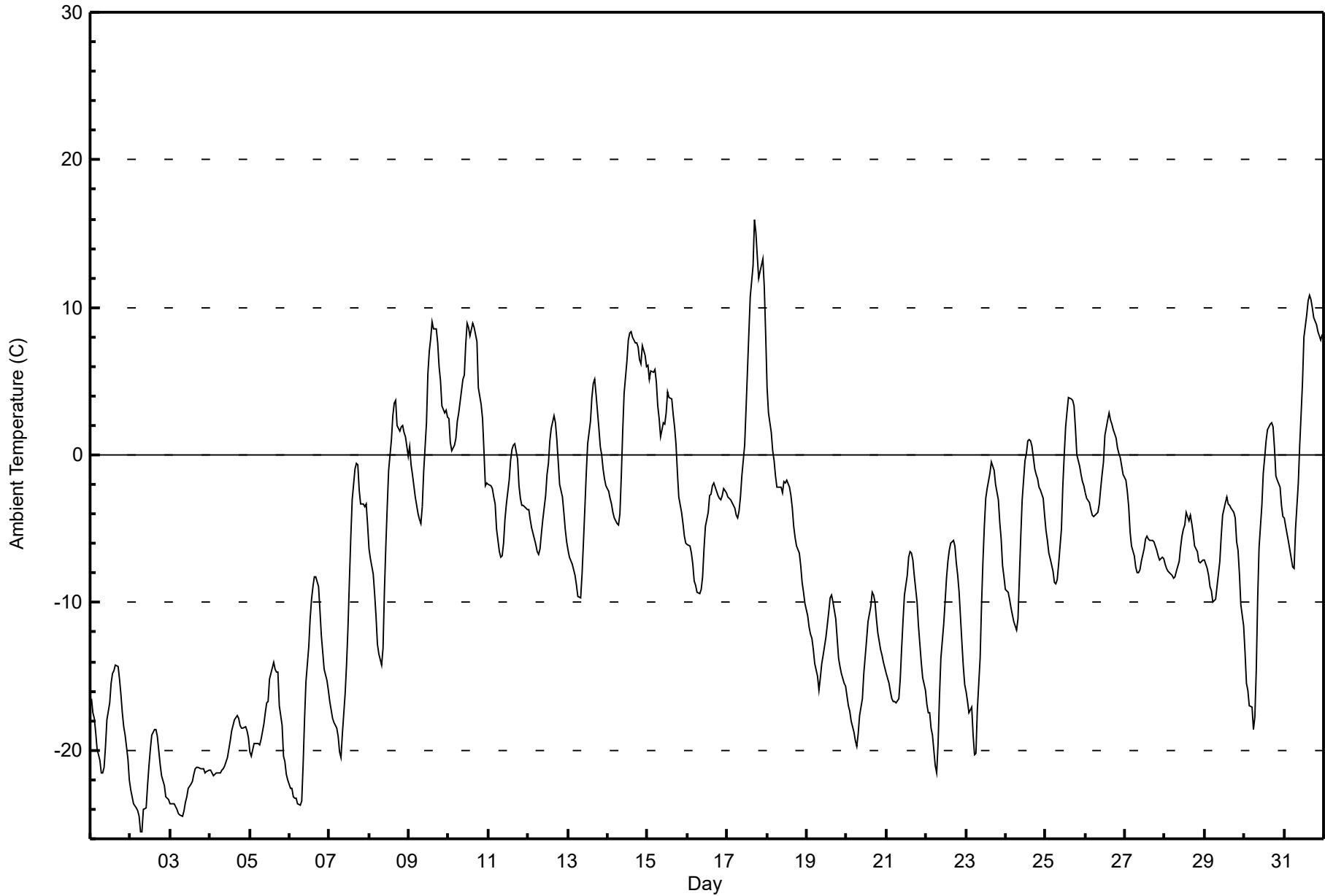




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature (AT) - C
Buffalo Viewpoint - March 2024

Maximum Value: 16.0 C on Mar 17 17:00																								Hours in Service: 744		
Maximum Daily Average: 4.6 C on Mar 17																								Hours of Data: 744		
Minimum Value: -25.5 C on Mar 2 08:00																								Hours of Missing Data: 0		
Minimum Daily Average: -22.6 C on Mar 3																								Hours of Calibration: 0		
Maximum Diurnal Average: -2.4 C at hour 16																								Percent Operational Time: 100.0		
Minimum Diurnal Average: -12.3 C at hour 7																										
Monthly Average: -7.28 C																										
Percentiles: P ₁ = -24.1 P ₁₀ = -20.4 Q ₁ = -14.8 Median = -6.3 Q ₃ = -1.3 P ₉₀ = 3.8 P ₉₉ = 11.2																										
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-Mar	-16.5	-17.4	-17.9	-18.7	-19.9	-20.6	-21.6	-21.5	-21.1	-19.7	-17.9	-16.8	-15.5	-14.8	-14.6	-14.2	-14.3	-15.2	-16.2	-17.5	-18.4	-19.0	-20.6	-22.0	-18.0	-14.2
2-Mar	-22.7	-23.1	-23.6	-23.9	-24.1	-24.5	-25.5	-25.5	-24.0	-23.9	-22.4	-21.0	-19.9	-18.9	-18.6	-18.6	-19.0	-20.1	-21.0	-21.7	-22.4	-23.1	-23.3	-23.3	-22.3	-18.6
3-Mar	-23.7	-23.7	-23.6	-23.8	-24.0	-24.3	-24.4	-24.4	-24.1	-23.5	-23.1	-22.6	-22.3	-22.1	-21.7	-21.3	-21.2	-21.2	-21.3	-21.3	-21.3	-21.5	-21.4	-21.4	-22.6	-21.2
4-Mar	-21.3	-21.5	-21.8	-21.7	-21.6	-21.5	-21.5	-21.4	-21.2	-21.0	-20.5	-19.9	-19.3	-18.7	-18.4	-17.9	-17.6	-17.9	-18.3	-18.5	-18.5	-18.4	-18.7	-19.2	-19.8	-17.6
5-Mar	-20.1	-20.4	-19.6	-19.5	-19.5	-19.5	-19.6	-19.3	-18.3	-17.5	-16.8	-16.7	-15.2	-14.4	-14.1	-14.5	-14.7	-14.7	-17.0	-18.3	-20.4	-20.8	-21.6	-22.0	-18.1	-14.1
6-Mar	-22.6	-22.6	-23.2	-23.2	-23.2	-23.6	-23.7	-23.4	-20.9	-17.9	-15.4	-13.0	-11.1	-9.8	-8.9	-8.3	-8.3	-8.9	-10.5	-12.3	-13.4	-14.5	-15.3	-16.0	-16.2	-8.3
7-Mar	-16.7	-17.3	-17.8	-18.1	-18.5	-19.1	-20.1	-20.4	-18.9	-16.1	-14.1	-11.6	-8.5	-5.6	-3.0	-0.9	-0.5	-0.7	-2.3	-3.3	-3.4	-3.5	-3.3	-4.8	-10.4	-0.5
8-Mar	-6.3	-7.0	-8.0	-9.4	-10.9	-12.8	-13.5	-14.3	-13.1	-9.2	-6.2	-3.5	-1.0	1.0	2.7	3.5	3.7	2.0	1.6	1.9	2.0	1.5	1.3	-0.1	-3.9	3.7
9-Mar	0.6	-0.7	-1.4	-2.1	-2.8	-3.9	-4.3	-4.6	-3.5	-1.1	2.2	5.6	7.1	7.9	9.1	8.6	8.5	7.6	6.0	5.0	3.3	2.9	3.0	2.6	2.3	9.1
10-Mar	2.5	0.8	0.3	0.7	1.2	2.3	2.9	3.6	5.2	5.4	7.5	8.9	8.6	8.0	8.9	8.6	8.1	7.7	4.5	3.4	2.4	0.3	-2.0	-1.9	4.1	8.9
11-Mar	-2.0	-2.1	-2.3	-2.8	-3.3	-5.1	-6.5	-7.0	-6.8	-6.0	-4.4	-3.3	-1.7	-0.4	0.4	0.7	0.8	-0.3	-2.0	-2.9	-3.4	-3.4	-3.5	-3.7	-3.0	0.8
12-Mar	-3.7	-4.3	-4.9	-5.3	-6.0	-6.6	-6.7	-6.4	-5.3	-4.4	-2.8	-1.3	-0.6	1.0	1.8	2.7	2.2	1.1	-0.5	-2.0	-2.8	-3.9	-5.0	-5.9	-2.9	2.7
13-Mar	-6.4	-6.9	-7.4	-7.8	-8.1	-8.8	-9.6	-9.6	-8.0	-5.8	-3.6	-1.3	0.8	2.3	3.9	4.9	5.1	4.1	1.8	0.6	0.0	-0.9	-1.6	-2.1	-2.7	5.1
14-Mar	-2.5	-3.0	-3.3	-3.9	-4.2	-4.7	-4.7	-4.0	-1.4	1.6	4.2	6.4	7.8	8.2	8.4	8.0	7.6	7.6	7.4	6.4	6.2	7.4	6.7	6.0	2.8	8.4
15-Mar	6.1	5.1	5.7	5.6	5.8	4.9	3.3	2.4	1.2	2.2	2.1	2.9	4.2	3.9	3.8	2.7	1.9	0.8	-1.2	-2.9	-3.9	-4.7	-5.5	-5.9	1.7	6.1
16-Mar	-6.0	-6.2	-6.6	-7.4	-8.5	-8.8	-9.3	-9.4	-9.1	-8.3	-6.4	-4.9	-3.9	-2.7	-2.6	-2.1	-1.9	-2.4	-2.8	-2.9	-3.0	-2.8	-2.3	-2.6	-5.1	-1.9
17-Mar	-2.8	-2.9	-3.0	-3.2	-3.6	-4.1	-4.3	-3.8	-2.8	-1.4	0.7	3.1	5.7	8.3	10.8	12.8	16.0	15.1	13.5	12.0	12.5	13.3	11.4	8.1	4.6	16.0
18-Mar	4.6	2.8	1.5	0.3	-0.3	-1.4	-2.2	-2.2	-2.1	-2.5	-1.8	-1.9	-1.7	-2.2	-2.8	-3.6	-4.8	-5.6	-6.1	-6.7	-7.5	-8.6	-9.3	-10.1	-3.1	4.6
19-Mar	-10.9	-11.7	-12.1	-12.5	-13.2	-14.1	-15.0	-15.9	-15.0	-14.2	-13.5	-12.3	-11.4	-10.6	-9.6	-9.5	-10.0	-11.1	-12.4	-13.8	-14.3	-14.8	-15.4	-15.6	-12.9	-9.5
20-Mar	-16.4	-17.0	-17.4	-18.0	-18.8	-19.3	-19.7	-18.9	-17.7	-16.5	-14.8	-13.6	-12.5	-11.3	-10.3	-9.3	-9.5	-10.0	-11.1	-12.0	-13.2	-13.6	-14.0	-14.4	-14.6	-9.3
21-Mar	-14.8	-15.4	-16.1	-16.5	-16.7	-16.7	-16.8	-16.5	-15.2	-13.1	-11.2	-9.4	-8.2	-7.0	-6.5	-6.6	-7.2	-8.2	-10.0	-11.6	-12.9	-14.1	-15.1	-15.9	-12.6	-6.5
22-Mar	-16.8	-17.5	-17.5	-18.5	-18.9	-21.1	-21.6	-19.6	-16.4	-13.8	-11.4	-9.9	-8.4	-7.2	-6.5	-6.0	-5.8	-6.2	-7.3	-8.2	-9.3	-12.7	-14.3	-15.5	-12.9	-5.8
23-Mar	-16.1	-16.7	-17.4	-17.1	-19.0	-20.3	-20.2	-17.3	-13.7	-10.2	-7.2	-4.8	-3.0	-2.3	-1.2	-0.5	-0.8	-1.1	-2.0	-3.0	-4.5	-5.7	-7.5	-8.3	-9.2	-0.5
24-Mar	-9.2	-9.3	-9.8	-10.3	-10.9	-11.3	-11.9	-11.1	-8.2	-5.5	-3.0	-0.4	0.1	1.0	1.1	0.9	0.5	-0.9	-1.4	-1.6	-2.2	-2.4	-2.9	-4.1	-4.7	1.1
25-Mar	-5.1	-5.8	-6.6	-7.0	-7.9	-8.6	-8.7	-8.4	-7.4	-5.0	-2.1	0.0	1.9	3.0	3.9	3.8	3.7	3.3	1.9	0.0	-0.8	-1.4	-1.8	-2.1	-2.4	3.9
26-Mar	-2.5	-2.9	-3.2	-3.7	-4.1	-4.2	-4.1	-3.9	-3.4	-2.2	-1.4	-0.5	1.3	2.3	2.8	2.4	2.1	1.7	1.1	0.5	0.1	-0.2	-0.8	-1.3	-1.0	2.8
27-Mar	-1.7	-2.5	-3.5	-5.2	-6.1	-6.9	-7.6	-8.0	-8.0	-7.8	-7.2	-6.3	-5.7	-5.5	-5.7	-5.7	-5.8	-5.9	-6.2	-6.5	-6.8	-7.1	-6.9	-7.0	-6.1	-1.7
28-Mar	-7.4	-7.7	-7.9	-8.1	-8.2	-8.3	-8.2	-7.9	-7.2	-6.3	-5.5	-5.0	-4.7	-3.9	-4.5	-4.1	-4.7	-5.3	-6.1	-6.5	-7.2	-7.3	-7.2	-7.1	-6.5	-3.9
29-Mar	-7.2	-7.6	-8.2	-8.9	-9.2	-10.0	-9.7	-8.9	-8.1	-7.2	-5.5	-4.1	-3.2	-2.8	-3.3	-3.4	-3.6	-3.9	-4.3	-5.9	-6.4	-8.1	-10.1	-11.5	-6.7	-2.8
30-Mar	-13.3	-15.5	-15.9	-17.0	-17.1	-18.6	-17.7	-14.6	-9.8	-6.3	-3.4	-1.2	-0.2	1.0	1.7	2.1	2.2	1.9	0.5	-1.4	-1.7	-2.2	-3.4	-4.2	-6.4	2.2
31-Mar	-4.3	-4.9	-5.8	-6.5	-7.0	-7.6	-7.6	-5.1	-1.9	0.7	2.7	4.9	7.9	9.5	10.5	10.8	10.5	10.0	9.3	8.8	8.4	8.0	7.8	8.1	2.8	10.8
	-9.2	-9.8	-10.3	-10.8	-11.2	-11.9	-12.3	-11.8	-10.5	-8.9	-7.2	-5.6	-4.3	-3.3	-2.7	-2.4	-2.5	-3.1	-4.3	-5.2	-5.9	-6.5	-7.2	-7.8		Diurnal Average
	6.1	5.1	5.7	5.6	5.8	4.9	3.3	3.6	5.2	5.4	7.5	8.9	8.6	9.5	10.8	12.8	16.0	15.1	13.5	12.0	12.5	13.3	11.4	8.1		Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	81	10.89	10.89
-20 - 0	504	67.74	78.63
0 - 10	147	19.76	98.39
10 - 20	12	1.61	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

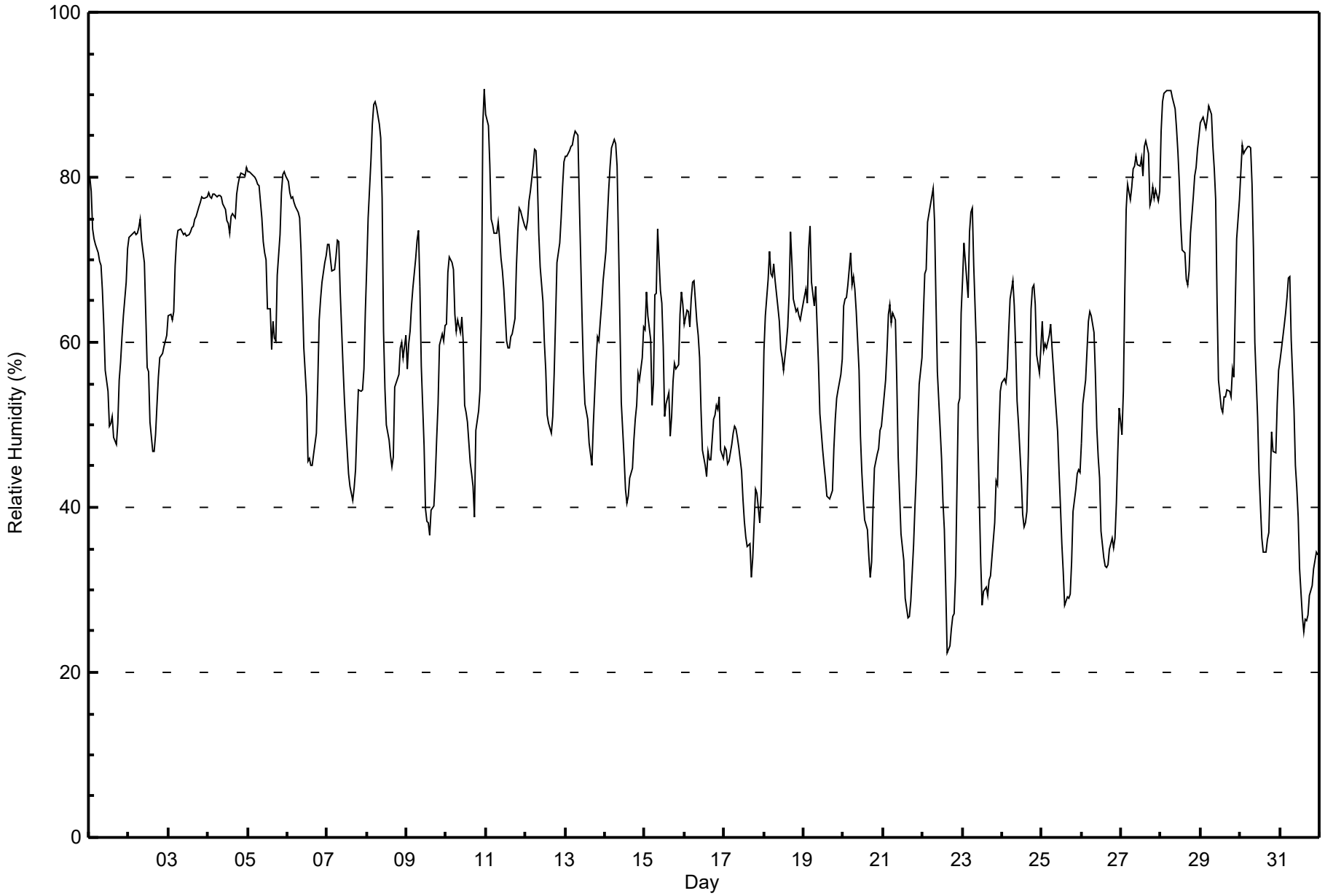
Relative Humidity (RH) - %
Buffalo Viewpoint - March 2024

Maximum Value: 90.7 % on Mar 11 00:00		Maximum Daily Average: 81.4 % on Mar 28		Hours in Service: 744																							
Minimum Value: 22.4 % on Mar 22 16:00		Minimum Daily Average: 42.7 % on Mar 17		Hours of Data: 744																							
Maximum Diurnal Average: 73.3 % at hour 7		Minimum Diurnal Average: 46.4 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 60.39 %		Percentiles: P ₁ = 26.8 P ₁₀ = 38.4 Q ₁ = 48.8 Median = 61.5 Q ₃ = 73.2 P ₉₀ = 80.4 P ₉₉ = 89.1		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-Mar	79.9	78.3	73.8	72.5	71.8	70.8	69.8	69.4	66.2	62.0	56.6	54.1	49.9	50.1	51.0	48.4	47.7	50.1	55.4	57.6	60.6	63.2	67.2	71.3	62.4	79.9	
2-Mar	72.7	72.9	73.0	73.4	73.1	73.2	73.9	74.9	72.3	69.6	63.3	56.9	56.4	50.3	46.8	46.9	48.8	52.4	55.8	58.1	58.7	59.6	60.2	60.8	62.7	74.9	
3-Mar	63.3	63.4	62.7	63.7	69.3	72.5	73.5	73.7	73.3	73.0	73.2	72.9	73.0	73.3	73.9	74.1	75.0	75.3	76.4	77.0	77.7	77.5	77.5	77.6	72.6	77.7	
4-Mar	78.1	77.6	77.5	77.9	78.0	77.7	77.7	77.8	77.6	76.8	76.1	74.8	74.3	73.3	75.3	75.6	75.1	78.0	79.1	80.0	80.5	80.4	80.2	81.2	77.5	81.2	
5-Mar	80.7	80.6	80.4	80.2	80.0	79.6	79.2	79.0	75.1	72.3	70.8	70.1	64.0	64.1	59.2	62.6	60.5	60.2	68.1	73.1	78.2	80.3	80.6	80.2	77.3	80.7	
6-Mar	79.6	78.1	77.5	77.5	76.9	76.4	75.8	75.1	71.2	65.7	59.4	53.4	45.6	46.0	45.1	45.1	46.5	49.0	55.2	62.8	65.3	67.4	69.7	70.6	63.9	79.6	
7-Mar	71.8	71.9	70.2	68.6	68.8	70.3	72.3	72.2	66.3	57.3	53.2	49.9	47.0	44.1	42.6	40.8	42.3	44.5	49.7	54.3	54.0	54.2	56.7	63.8	57.8	72.3	
8-Mar	69.2	75.0	82.1	86.5	88.9	89.1	88.5	86.4	84.8	77.5	61.3	54.5	50.0	48.1	46.2	45.0	46.0	54.5	55.6	56.1	59.3	59.9	58.1	60.8	66.0	89.1	
9-Mar	56.8	59.8	61.4	64.5	66.5	70.2	72.4	73.5	66.7	57.1	47.4	39.8	38.3	38.1	36.6	39.7	40.1	43.6	48.4	52.5	59.7	61.0	60.2	62.0	54.8	73.5	
10-Mar	62.2	68.4	70.4	69.6	68.8	63.3	61.3	62.8	61.2	63.1	60.0	52.4	51.6	50.3	45.4	44.0	42.6	38.9	49.3	51.7	54.2	63.7	86.5	90.7	59.7	90.7	
11-Mar	87.6	86.2	81.5	74.9	74.2	73.3	73.2	74.6	72.5	70.1	68.6	66.5	60.2	59.4	59.4	60.7	61.1	62.9	69.2	73.5	76.2	76.0	75.2	74.1	71.3	87.6	
12-Mar	73.8	74.7	77.1	78.3	81.3	83.3	83.2	79.7	73.1	69.1	64.9	60.0	56.6	51.2	50.3	48.9	51.0	56.0	62.7	69.6	72.1	75.0	78.8	81.8	68.9	83.3	
13-Mar	82.6	82.6	83.2	83.8	83.9	85.0	85.5	85.2	77.2	70.0	62.6	56.4	52.5	50.6	47.8	46.4	45.0	49.9	57.8	60.7	60.1	62.6	64.8	67.4	66.8	85.5	
14-Mar	71.0	74.9	78.4	81.3	83.5	84.5	84.1	81.4	72.4	62.5	52.7	46.1	42.2	40.5	41.4	43.5	44.8	48.2	50.6	52.4	56.3	55.4	58.2	61.8	61.2	84.5	
15-Mar	61.6	66.0	63.2	60.4	52.5	55.1	65.8	65.9	73.8	66.2	64.8	59.4	51.0	52.6	53.9	48.6	50.9	55.3	57.5	56.7	57.3	63.4	66.2	64.5	59.7	73.8	
16-Mar	62.1	63.8	63.7	61.8	65.2	67.3	67.5	62.5	60.9	58.1	51.8	47.0	45.1	43.7	46.7	45.8	45.7	50.7	51.2	52.4	51.9	53.4	46.9	45.9	54.6	67.5	
17-Mar	47.3	46.9	45.2	45.7	47.7	48.9	49.8	49.5	48.4	47.3	44.5	41.0	38.2	36.5	35.3	35.6	31.6	34.0	38.1	42.2	41.6	38.1	41.7	49.6	42.7	49.8	
18-Mar	59.0	63.2	67.6	71.0	68.3	68.0	69.5	67.4	64.3	62.6	59.1	58.2	56.7	59.9	61.8	65.8	73.3	69.7	65.3	63.8	64.1	63.2	62.6	63.7	64.5	73.3	
19-Mar	65.5	66.4	64.8	71.3	74.0	67.3	64.4	66.8	62.1	57.3	51.4	46.9	45.1	43.3	41.3	41.2	41.1	42.0	47.1	50.6	53.3	54.3	56.1	58.0	55.5	74.0	
20-Mar	64.4	65.2	65.5	67.0	70.8	66.9	67.9	66.4	63.7	56.6	48.7	44.3	41.0	38.5	37.2	34.0	31.5	33.3	39.9	44.8	46.5	47.1	49.4	49.8	51.7	70.8	
21-Mar	51.7	55.3	58.9	63.3	64.5	62.4	63.6	62.7	55.2	46.0	41.3	36.7	33.5	29.0	27.8	26.6	26.8	28.7	35.3	40.1	44.2	50.0	54.9	58.1	46.5	64.5	
22-Mar	63.4	68.3	68.9	74.5	75.6	77.5	78.6	74.5	65.1	56.5	49.5	45.9	40.6	37.3	30.2	22.4	23.2	25.2	26.8	27.2	31.8	52.5	53.2	63.5	51.4	78.6	
23-Mar	67.4	72.1	69.8	65.4	73.4	75.8	76.2	69.3	58.9	48.5	40.8	33.4	28.1	29.9	30.3	29.4	31.2	31.8	33.8	38.2	43.2	42.8	49.1	54.0	49.7	76.2	
24-Mar	55.1	55.6	55.1	56.8	61.3	65.3	67.5	64.5	59.3	52.9	50.2	43.6	39.2	37.6	38.1	39.6	46.1	64.1	66.7	66.9	64.6	58.5	56.3	59.4	55.2	67.5	
25-Mar	62.6	59.0	59.9	59.4	60.8	62.2	59.3	56.8	54.1	49.2	44.4	40.2	35.5	32.1	28.2	29.1	29.0	29.5	33.5	39.5	42.2	44.0	44.6	44.2	45.8	62.6	
26-Mar	47.8	52.5	55.4	59.1	62.5	63.7	63.2	61.2	56.2	49.7	46.2	43.6	37.1	33.9	32.8	32.7	33.0	34.9	36.3	35.1	36.3	40.6	46.7	52.0	46.3	63.7	
27-Mar	48.8	54.0	66.0	76.0	79.2	77.3	78.9	81.0	81.4	82.5	81.5	81.3	82.4	80.1	83.7	84.4	82.9	76.5	77.4	78.9	77.5	78.4	77.2	78.3	76.9	84.4	
28-Mar	85.5	89.2	90.1	90.5	90.4	90.4	90.4	89.7	88.4	85.9	83.0	79.4	74.5	71.1	70.9	67.6	67.0	68.6	73.2	77.6	80.2	81.1	83.4	85.0	81.4	90.5	
29-Mar	86.6	87.2	86.6	85.9	87.1	88.7	87.6	83.7	81.1	77.3	64.9	55.5	52.0	51.5	53.4	53.3	54.3	54.1	53.4	56.8	55.7	64.4	72.6	77.3	69.6	88.7	
30-Mar	80.7	84.0	82.9	83.2	83.7	83.7	83.6	79.2	71.3	60.0	50.8	44.2	40.1	36.2	34.5	34.6	36.0	37.0	43.1	49.2	46.8	46.7	52.5	56.6	58.4	84.0	
31-Mar	57.9	59.2	62.1	63.5	65.5	67.7	67.9	60.4	51.9	45.1	42.3	38.9	32.5	26.8	25.0	26.4	26.3	27.0	29.3	30.4	32.6	33.6	34.5	34.2	43.4	67.9	
		67.6	69.4	70.2	71.2	72.5	72.8	73.3	71.8	67.9	62.8	57.6	53.1	49.5	47.7	46.8	46.4	47.0	49.2	52.9	55.8	57.5	59.6	62.0	64.5	Diurnal Average	
		87.6	89.2	90.1	90.5	90.4	90.4	90.4	89.7	88.4	85.9	83.0	81.3	82.4	80.1	83.7	84.4	82.9	78.0	79.1	80.0	80.5	81.1	86.5	90.7	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Buffalo Viewpoint - March 2024





Maximum Speed: 23 km/h on Mar 4 02:00	Maximum Daily Speed Average: 18.9 km/h on Mar 3	Hours in Service: 744
Minimum Speed Value: 2 km/h on Mar 22 06:00	Minimum Daily Speed Average: 0.7 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.1 km/h at hour 19	Minimum Diurnal Speed Average: 0.5 km/h at hour 13	Hours of Missing Data: 0
Monthly Average Velocity: 1.9 km/h 59.5 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 8 Median = 10 Q ₃ = 14 P ₉₀ = 18 P ₉₉ = 21	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	W9WNW10	W12	W17	W19	W13	W12	W17WSW15	W18	W19WNW16WNW16	NW15	NW14	NW15	NW14	NW13	NW11	NNW9	NNW9	N9	N11	NNE9	WNW11.3	W19				
2-Mar	NE7	ENE5	NE3	N6	NNE5	ENE5	ENE2	NNE3	NNE7	NNE10	NNE8	NNE8	N5	NNE8	NNE12	NNE12	N13	N14	NNE17	N17	N17	NNE13	NNE12	N13	NNE9.0	NNE17
3-Mar	N15	N16	N17	N17	N18	N21	N22	N22	N20	N16	N18	N18	N18	N20	N19	N20	N21	N21	N21	N19	N17	N20	N22	N20	N18.9	N22
4-Mar	N18	N23	NNW19	N19	N20	N21	NNW16	NNW16	N16	N17	N15	N18	N19	N17	NNW15	NNW15	NNW14	NNW10	NNW9	NNW7	NW6	N6	N6	NW4	NNW14.3	N23
5-Mar	NNW5	NNW7	N10	N8	N8	N10	N8	N9	N7	N5	NNE6	NNE5	NNW3	N5	NW3	NNW3	ESE3	ESE3	SE6	SSE5	SSE6	SSE7	SSE7	SSE7	NNE2.7	N10
6-Mar	SE8	SSE8	SE8	SSE8	SSE8	SSE8	SSE8	SSE8	SSE8	SSE9	SSE10	SSE11	S15	S14	S16	SSW15	S14	SSW12	S7	S7	SSE7	SSE8	SSE9	SSE10	SSE9.3	S16
7-Mar	SSE11	SSE11	SSE10	SSE11	SSE11	SSE8	SSE7	SSE9	SSE9	SSE11	SSE11	SSE13	SSE13	SSE13	SSE11	S12	SSW12	SSW7	SSE5	SSE7	SSE6	SSE6	S3	WNW2	SSE8.8	SSE13
8-Mar	WNW10	W12	WNW9	NNW2	SW6	SSE7	SSE8	SSE7	S6	SE6	SE8	SE9	SSE10	SE10	SE11	SSE10	SE8	SE6	SSE7	SSE9	SSE10	SE11	SE10	SE10	SSE5.8	W12
9-Mar	SSE10	SE10	SE8	SSE5	SSE3	SSE3	SSE4	SSE6	SSE6	SE6	SE6	SSE8	S8	SSE8	SSE8	SE7	SSE9	S7	SE6	ESE6	SE6	SSE6	SSE6	SE5	SSE6.3	SSE10
10-Mar	S4	S5	S5	SSE7	S6WSW10	NW6	WNW4	WSW16	WSW12	WSW17	W21	W21	W21	W16	WNW15	W11	WNW10	NNW9	NW9	NNW10	N11	N15	N13	W7.7	W21	
11-Mar	NNE11	NNE7	NE8	NNE9	N10	NNE15	NNE13	NNE11	NNE9	N6	NNW6	NNW6	WNW7	WNW7	NW7	NNW10	NNW8	NNW10	NNW8	NNW8	N7	ENE4	SE5	SE7	N6.7	NNE15
12-Mar	SE7	SE10	SE10	ESE11	SE8	SE7	SE10	SE12	SE11	ESE14	ESE11	ESE12	ESE12	SE10	SE9	SE9	SE9	ESE9	E9	ESE5	ESE8	ESE12	SE11	SE8	ESE9.6	ESE14
13-Mar	SE9	SE8	SE7	SE8	SE9	SSE9	SSE10	SSE8	SSE11	SSE10	SSE9	SE10	SSE11	SE10	SE10	SE9	SSE10	SE9	SE8	SE9	SSE10	SSE9	S9	SSE10	SSE9.0	SSE11
14-Mar	SSE9	SSE9	SSE9	SE7	SE9	SE11	SE9	SE10	SSE7	SE5	SW7	SSW8	SSW11	SW14	WSW11	SW7	S5	SSW8	S7	S8	SSW11	WSW18	W13	W15	SSW6.7	WSW18
15-Mar	W15	WNW9	WSW19	W21	NW21	NW21	N21	NNW22	N16	NNW19	NNW19	NNW20	NNW19	N13	N14	NNE19	NNE17	NNE13	NNE13	NNE11	NNE10	NNE7	NNE9	NNE10	NNW12.5	NNW22
16-Mar	NNE9	N7	NNW9	N13	N13	N9	N9	N11	N9	N9	N7	NNW7	NNW7	NW7	WNW8	NW7	N10	N11	N6	N6	NNE6	E3	SE9	SE10	N6.3	N13
17-Mar	SE9	SE11	SE14	SE10	SE9	SSE9	SSE9	SSE10	SSE12	SSE13	SSE14	SSE14	SSE14	SSE12	SSE12	SSE8	SSW13	S12	S9	S11	SSW14	WSW18	W18	NNW13	S9.1	W18
18-Mar	NNE10	N7	N9	N10	N12	N19	N17	N17	N18	N17	N16	N14	N12	N14	N16	N19	N20	NNE19	NNE18	NNE18	N19	NNE22	NNE20	NNE22	N15.8	NNE22
19-Mar	NNE21	NNE20	NNE17	N17	N18	NNE20	NNE19	NNE15	N16	N15	N14	N13	N11	N11	N10	N12	NNE12	NNE13	NNE12	NNE11	NNE10	NNE9	NNW7	N10	N13.7	NNE21
20-Mar	N8	NNE6	NNE8	NNE7	N7	NNE9	NNE8	NNE8	NNE5	NE5	NNE7	NNE7	NNE7	N5	N5	N7	NNE8	NNE9	N10	NNE11	NNE10	NNE11	NNE9	NNE8	NNE7.7	NNE11
21-Mar	NNE11	NNE10	NNE9	NNE9	NNE10	NNE9	N9	N9	NNE9	N9	N11	N9	NNW12	N16	N16	N16	N15	N16	N14	N13	NNE11	N9	N7	N6	N10.8	N16
22-Mar	N4	N5	NNW4	N3	NNW2	SW2	S3	SSE3	SSW4	S2	NNW3	WNW4	NNW3	N5	N7	N5	ESE2	SE6	SE5	SE5	SE5	SE6	SSE6	SSE6	E0.7	N7
23-Mar	SSE7	SSE7	SSE5	S4	S7	SSE9	SSE8	SSE8	S8	SSE7	SE6	SE5	ESE6	ESE8	E8	ESE9	E10	ESE9	E5	ESE5	SSE5	S5	SSE4	SSE6	SE6.1	E10
24-Mar	SSE7	SSE7	SSE7	SSE6	SE7	SE8	SSE8	SSE8	SSE9	SSE9	SSE8	SSE9	SSE13	SSE12	SSE10	SE11	SSE9	SE11	SE7	SE7	SE7	SE9	SE9	SE8	SSE8.5	SSE13
25-Mar	SE8	SE9	SE8	SE10	SE11	SE10	SE12	SE12	SE13	SE12	SE13	SE13	SE14	SE18	S17	S14	S14	SE14	SSE12	SSE9	SSE12	SSE12	SSE12	SSE13	SSE11.7	SE18
26-Mar	SSE12	SSE11	SSE12	SSE12	SSE12	SSE14	SSE14	SSE14	SSE15	SE18	SE18	SE16	SSE17	SSE17	SSE17	SE16	SE16	SE13	SSE11	SE14	SE14	SE14	SE15	SSE15	SSE14.2	SSE18
27-Mar	SE17	SE19	SE18	ESE18	SE18	ESE19	ESE19	ESE19	ESE19	ESE17	ESE17	ESE16	ESE15	ESE16	ESE14	ESE13	ESE13	ESE15	E11	E10	E10	E8	ENE9	ENE9	ESE14.4	SE19
28-Mar	NE6	N8	N9	NNE8	N8	N8	N9	N10	N10	N10	N13	N15	N16	NNW18	N19	N19	N17	NNW16	NNW15	NNW13	N14	NNW14	NNW11	NNW12	N12.1	N19
29-Mar	NNW11	NNW9	N11	N10	NNW8	N8	N10	N10	N10	N12	N14	N16	NNW15	N16	N16	N14	N12	N10	NNE8	NE6	NNW2	WNW5	WSW4	SW5	N9.3	N16
30-Mar	SSW3	SSE8	SSE8	SSE9	S9	SSE9	SSE8	SSE7	SE8	ESE9	SE12	SE11	SE13	SE12	SSE13	SE13	SE13	SE11	ESE9	SE9	SE9	SE10	SSE9	SSE8	SE9.3	SE13
31-Mar	SSE10	SSE11	SSE8	SSE8	SSE10	SSE9	SSE8	SSE7	SSE8	S8	ESE10	ESE13	SSE12	SSW13	SW13	SSW15	S14	SSE11	S11	SSE13	S14	SSE13	SSE14	S17	SSE10.3	S17

ENE2.0	ENE2.1	ENE1.5	NE1.6	NE1.7	NE2.5	ENE2.6	ENE2.3	ENE1.9	ENE2.2	NE2.2	NE1.9	NE0.5	NE0.8	N1.0	NNE1.9	NE2.0	NE2.5	NE3.1	ENE3.0	ENE2.2	E1.7	E1.5	ENE1.8	Diurnal Average
NNE21	N23	WSW19	W21	NW21	N21	N22	NNW22	N20	NNW19	W19	W21	W21	W21	N19	N20	N21	NNW21	N21	N19	N19	NNE22	N22	NNE22	Diurnal Maximum

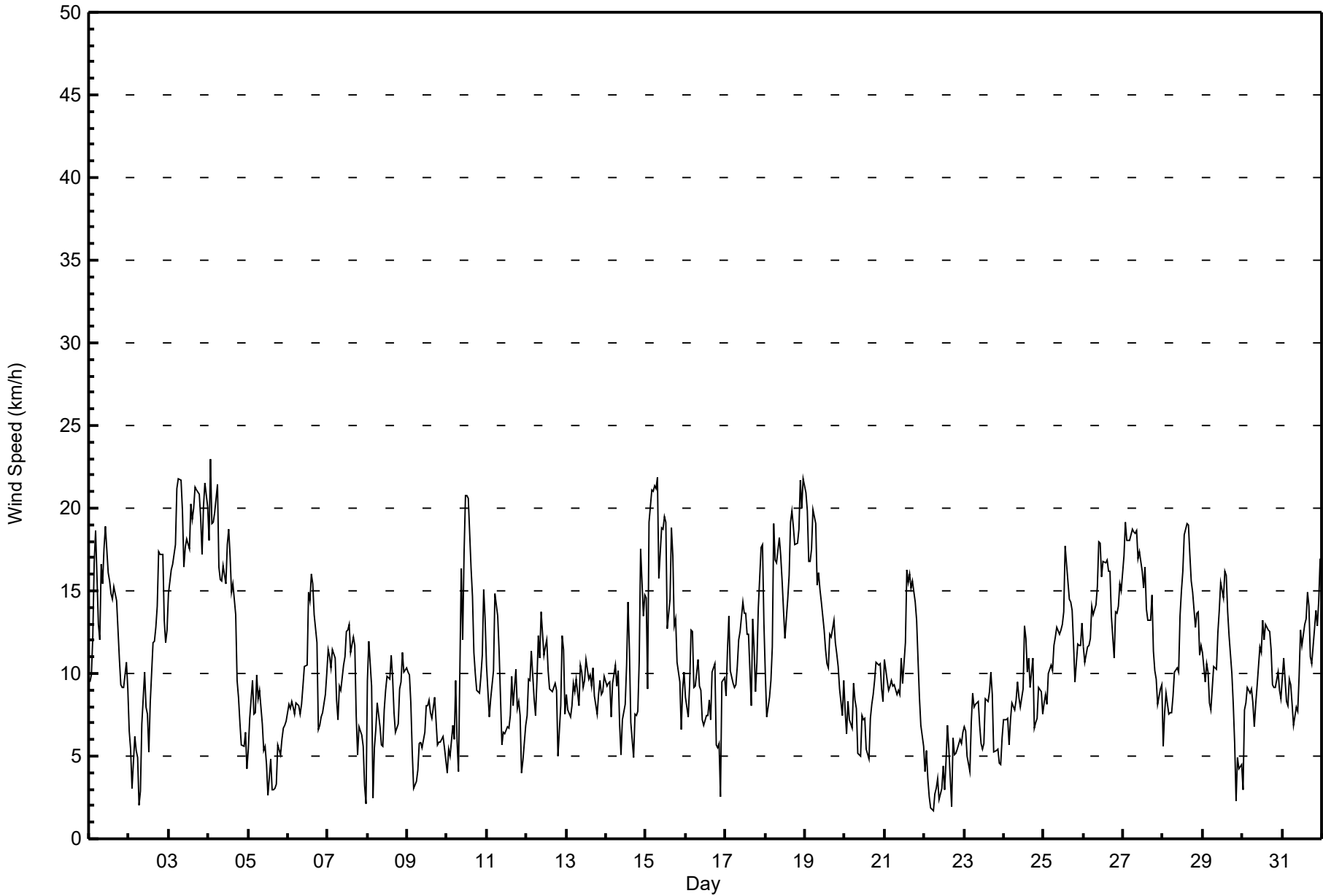
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 10 14:00 Minimum Value: 0 km/h on Mar 30 03:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 6																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	2	3	4	3	3	2	3	4	4	6	5	4	4	4	4	4	3	3	3	2	2	4	3	6
2-Mar	2	2	2	2	2	1	2	2	2	3	3	3	2	3	3	3	3	4	4	4	4	4	3	4	4
3-Mar	4	4	4	4	4	5	5	5	5	4	4	4	4	4	5	5	5	5	5	5	4	5	5	5	5
4-Mar	5	5	5	5	5	5	4	4	4	4	4	5	5	4	4	4	3	2	2	2	2	2	2	1	5
5-Mar	1	1	2	1	2	2	2	2	2	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	2
6-Mar	1	2	1	2	2	2	2	2	2	3	3	4	5	4	5	4	4	4	2	2	2	2	2	3	5
7-Mar	3	3	3	3	3	2	2	3	3	4	4	4	4	4	3	4	3	2	1	2	2	1	1	1	4
8-Mar	2	2	2	2	2	1	1	1	1	2	2	3	3	3	4	3	2	2	2	2	2	3	4	2	4
9-Mar	3	2	3	2	2	1	1	1	2	2	3	3	3	3	3	2	3	2	2	1	1	2	1	1	3
10-Mar	1	1	1	1	2	4	3	5	4	3	4	5	6	7	5	5	4	3	2	2	2	3	3	4	7
11-Mar	3	3	3	2	3	4	3	3	3	2	2	2	2	2	2	3	2	3	2	2	1	2	1	2	4
12-Mar	3	3	3	3	3	3	3	4	4	4	3	3	3	3	3	2	3	3	3	1	3	5	4	2	5
13-Mar	3	2	2	2	3	3	3	2	4	3	3	3	4	3	3	3	3	3	2	2	2	2	2	3	4
14-Mar	2	2	3	2	2	2	2	1	2	1	2	3	4	4	4	2	2	2	2	2	2	5	4	6	6
15-Mar	4	3	4	5	5	5	5	6	4	5	5	5	6	4	4	5	4	4	4	3	3	2	2	3	6
16-Mar	2	2	2	3	3	2	2	3	2	2	2	2	2	2	2	2	2	2	3	1	1	2	3	3	3
17-Mar	3	4	4	3	3	3	3	3	4	4	4	4	5	4	4	3	4	3	2	3	4	5	5	5	5
18-Mar	3	3	2	3	4	5	4	5	5	4	4	4	3	4	4	5	5	5	4	5	5	6	5	6	6
19-Mar	6	5	5	4	4	5	6	5	4	4	4	4	3	3	3	4	3	3	3	3	4	3	2	2	6
20-Mar	2	1	2	2	2	2	2	2	2	2	2	2	3	2	2	3	3	3	2	3	2	2	2	2	3
21-Mar	2	2	2	2	2	2	2	2	3	2	3	3	4	5	4	4	4	4	3	3	3	2	2	1	5
22-Mar	1	1	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	1	2
23-Mar	1	1	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	2	2	1	1	1	1	1	3
24-Mar	1	2	2	1	2	1	1	2	2	3	2	4	4	4	3	4	4	4	3	2	2	3	2	2	4
25-Mar	2	2	2	3	3	3	4	4	4	4	4	4	5	6	6	5	5	5	4	3	4	3	4	4	6
26-Mar	4	3	3	4	4	5	4	5	5	6	6	6	6	6	6	5	5	4	4	5	5	5	6	5	6
27-Mar	6	6	6	5	5	6	5	5	5	5	5	5	4	5	4	4	4	5	4	3	2	3	2	2	6
28-Mar	2	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	3	3	3	3	3	3	4
29-Mar	3	2	2	2	2	2	2	2	4	3	4	4	4	5	4	4	3	3	2	1	1	1	1	1	5
30-Mar	1	1	0	1	1	1	1	1	2	3	3	4	4	4	4	4	4	3	2	2	3	3	2	3	4
31-Mar	3	3	2	2	2	2	2	3	2	2	3	3	4	4	4	5	5	3	4	4	4	4	5	5	5
Diurnal Maximum																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	73	9.81	9.81
6 - 11	396	53.23	63.04
12 - 19	244	32.80	95.83
20 - 28	31	4.17	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
Buffalo Viewpoint - March 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	4	2	4	2	5	7	10	9	2	2	1	0	4	2	9	73
6 - 11	62	49	4	2	7	12	82	113	15	5	3	2	2	8	7	23	396
12 - 19	73	20	0	0	0	21	26	36	12	7	2	7	13	5	4	18	244
20 - 28	16	6	0	0	0	0	0	0	0	0	0	0	4	0	2	3	31
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
Totals	161	79	6	6	9	38	115	159	36	14	7	10	19	17	15	53	744

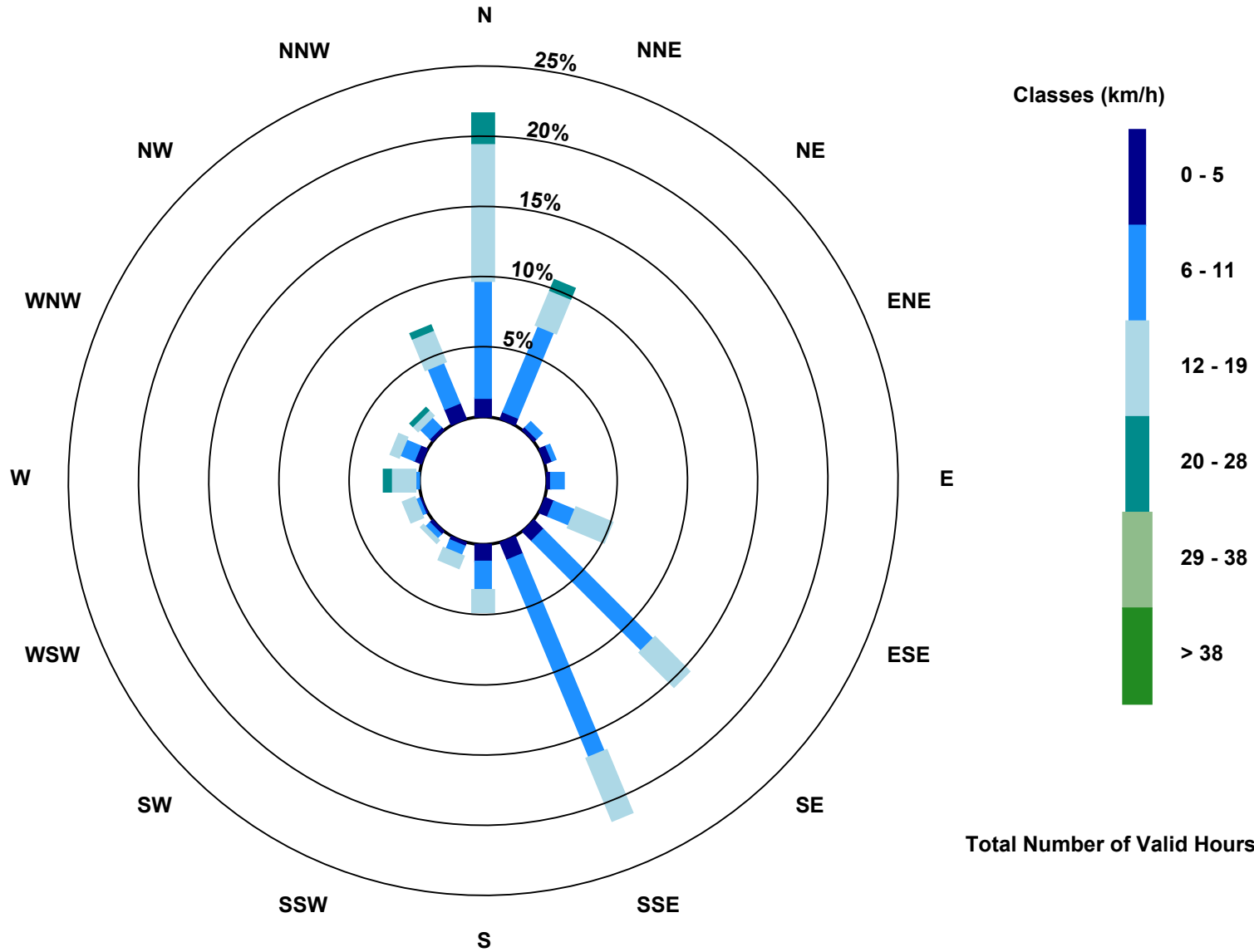
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Buffalo Viewpoint



Total Number of Valid Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Buffalo Viewpoint - March 2024

Direction of Maximum Speed: 350 deg on Mar 4 02:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 358.5 deg on Mar 3	Hours of Data: 744
Direction of Minimum Speed: 221 deg on Mar 22 06:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.7 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 59.5 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-Mar	276	288	281	267	264	262	260	261	254	264	273	302	301	304	306	305	318	319	317	346	339	350	9	30	293.4
2-Mar	49	63	43	11	33	59	67	14	21	31	24	15	358	19	19	26	10	9	13	9	11	18	22	2	19.0
3-Mar	5	7	9	3	5	8	9	10	11	7	8	7	353	354	350	349	349	349	349	350	349	352	350	349	358.5
4-Mar	350	350	347	353	351	350	346	347	350	354	350	351	350	350	347	348	346	339	335	331	325	354	352	320	347.9
5-Mar	344	348	2	1	354	2	0	359	8	9	15	19	333	6	304	345	111	120	132	160	155	153	154	156	18.1
6-Mar	144	151	142	150	157	158	156	155	151	149	147	149	190	190	190	195	191	192	178	170	165	159	159	155	167.9
7-Mar	151	153	164	159	154	157	159	159	159	157	152	153	152	155	155	178	192	195	162	157	154	160	189	286	161.3
8-Mar	286	273	288	344	216	153	154	154	169	132	130	132	149	139	144	152	141	134	155	159	152	143	139	134	155.8
9-Mar	148	141	145	147	147	152	162	167	168	143	132	156	171	167	159	141	154	172	127	117	138	157	148	145	150.8
10-Mar	189	177	171	167	175	237	307	282	250	244	255	262	276	272	276	289	280	287	328	324	335	356	3	3	279.7
11-Mar	18	33	39	16	11	23	23	12	17	5	333	345	293	301	320	336	330	347	348	345	358	63	134	131	3.6
12-Mar	134	128	124	120	126	135	130	129	130	118	103	113	111	124	125	126	126	107	94	110	119	122	125	138	121.3
13-Mar	128	126	127	132	140	150	160	161	152	148	159	145	155	144	137	144	152	137	137	145	152	160	169	161	147.2
14-Mar	162	154	152	143	138	128	138	130	148	143	214	200	208	219	241	227	174	204	180	174	211	249	262	275	193.2
15-Mar	267	286	252	277	310	321	352	345	2	339	328	329	331	349	3	20	19	22	23	15	22	24	17	16	340.3
16-Mar	23	357	347	355	8	358	0	11	3	356	359	330	328	304	286	325	352	354	360	10	28	85	133	134	358.1
17-Mar	132	144	145	143	145	151	148	147	151	149	156	165	155	157	157	150	193	185	176	183	206	239	260	328	169.8
18-Mar	22	355	7	1	358	1	7	4	357	357	357	3	2	6	1	8	10	15	15	15	8	13	13	19	7.0
19-Mar	15	17	12	0	7	14	14	15	8	360	10	4	6	5	2	3	17	24	20	25	29	18	339	352	10.5
20-Mar	2	19	15	18	3	22	12	12	17	36	21	18	19	354	2	10	29	15	3	12	18	15	14	20	14.5
21-Mar	18	23	24	14	14	17	9	11	18	5	357	355	347	1	354	0	359	4	5	10	12	10	5	8	6.4
22-Mar	5	358	340	359	328	221	175	168	192	190	339	284	332	358	4	349	109	127	134	125	126	144	160	150	98.5
23-Mar	148	150	166	187	170	154	160	155	169	150	125	134	123	114	96	122	99	103	99	111	147	169	157	151	137.7
24-Mar	152	155	163	161	138	144	159	167	159	156	156	152	156	149	147	138	148	140	142	125	128	135	142	133	147.8
25-Mar	128	134	133	134	140	138	140	141	144	143	140	141	137	140	176	177	172	166	161	150	153	157	163	161	150.1
26-Mar	157	156	155	149	152	156	159	158	154	146	135	142	167	156	152	137	134	146	150	146	146	146	146	147	149.1
27-Mar	141	138	137	123	124	122	123	120	122	119	113	111	109	110	104	115	110	108	99	83	84	86	76	71	114.5
28-Mar	35	5	8	12	9	9	6	3	3	3	356	350	350	348	352	353	351	347	347	348	354	345	337	340	354.2
29-Mar	343	347	352	351	345	356	355	356	359	357	354	355	347	350	351	352	350	8	22	36	338	284	245	234	351.1
30-Mar	199	149	161	168	171	159	164	162	135	120	124	143	146	144	150	139	128	125	122	126	139	139	147	147	143.4
31-Mar	147	154	167	167	156	157	165	166	166	170	121	112	147	192	220	202	187	168	170	158	174	163	167	188	167.9
68.0 76.9 75.7 52.2 54.5 55.9 57.9 59.6 78.3 71.3 54.9 52.9 50.8 49.9 7.1 27.2 48.3 52.0 46.4 57.5 70.8 81.0 85.3 72.2																									
Diurnal Average																									

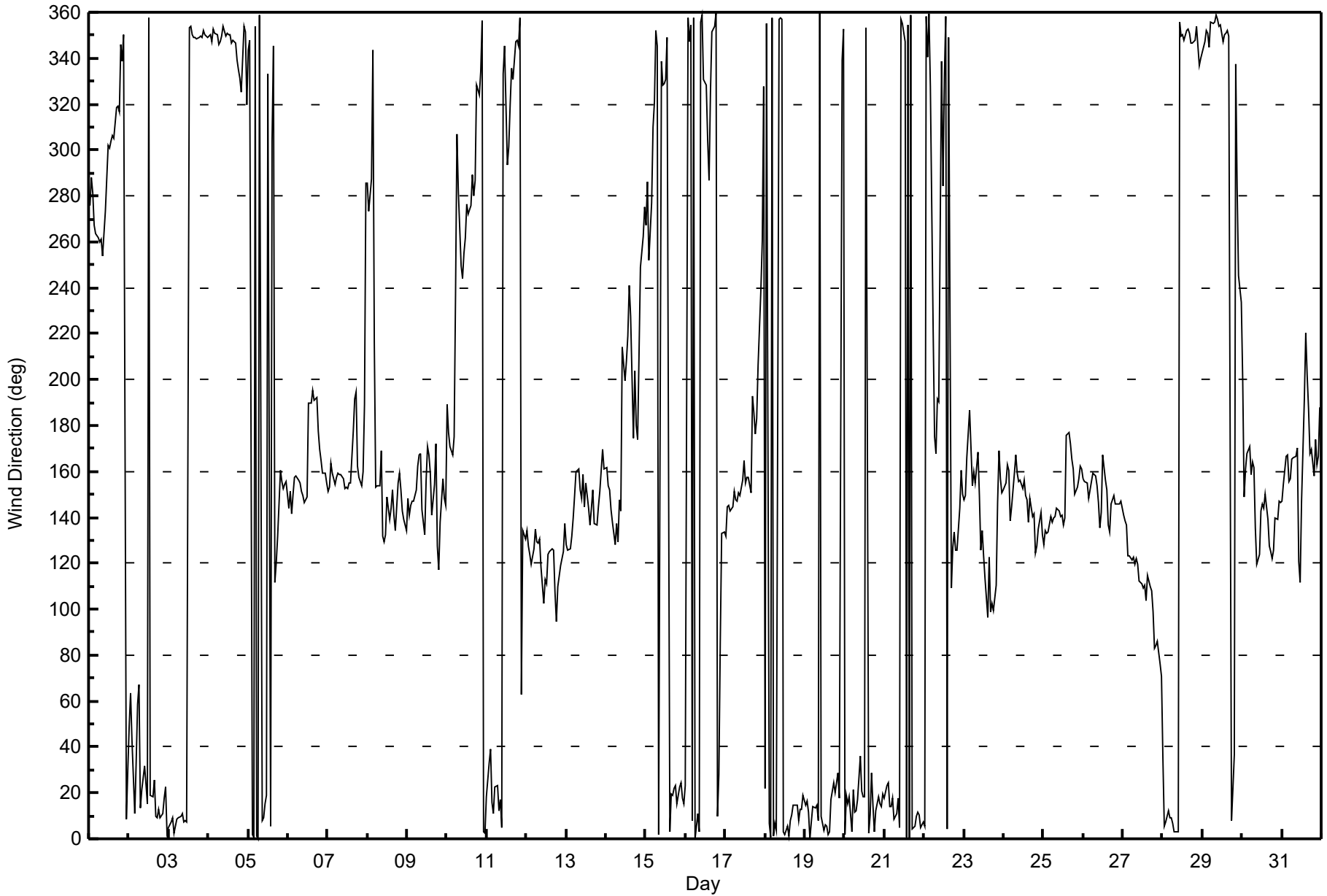
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Buffalo Viewpoint - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 86 deg on Mar 22 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: 4 deg on Mar 22 21:00																									
Percentiles: P ₁ = 8 P ₁₀ = 15 Q ₁ = 18 Median = 22 Q ₃ = 27 P ₉₀ = 32 P ₉₉ = 64																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	13	17	18	13	11	15	11	11	16	15	19	23	22	22	22	23	21	17	20	21	16	15	23	20	23
2-Mar	29	14	23	19	16	16	57	45	18	21	28	34	52	34	23	24	23	19	19	19	19	18	21	21	57
3-Mar	20	19	19	20	20	20	18	18	19	20	19	19	21	19	19	18	18	19	17	19	19	19	20	20	21
4-Mar	19	20	19	19	20	18	18	19	21	22	19	20	21	20	19	19	18	18	17	16	16	23	18	14	23
5-Mar	15	12	16	15	15	17	16	15	18	24	22	23	57	34	72	45	40	15	18	20	10	12	12	13	72
6-Mar	14	15	14	18	19	20	20	21	25	27	24	31	24	25	24	22	24	22	17	20	23	24	25	23	31
7-Mar	25	25	23	23	24	24	25	24	27	30	31	29	30	28	30	27	23	19	19	22	21	24	69	60	69
8-Mar	27	12	27	62	17	7	9	9	17	28	28	28	30	30	28	28	29	23	27	26	25	23	29	19	62
9-Mar	22	21	23	28	62	33	20	22	28	33	35	37	33	29	36	27	27	26	30	12	14	22	22	24	62
10-Mar	42	21	14	16	20	24	42	70	15	18	14	15	19	20	24	23	23	19	14	12	19	18	17	19	70
11-Mar	22	19	20	17	17	18	19	20	22	30	30	31	32	25	29	22	23	17	14	14	9	56	25	30	56
12-Mar	31	24	24	22	24	26	27	25	25	22	21	23	21	26	23	23	23	19	17	18	22	24	25	27	31
13-Mar	23	25	24	23	26	27	24	23	27	29	34	31	31	31	30	33	29	27	21	27	25	26	26	24	34
14-Mar	26	25	28	16	11	13	13	8	12	26	16	26	32	18	20	23	29	22	21	15	21	15	16	22	32
15-Mar	18	23	14	23	19	16	25	24	20	21	19	20	19	27	19	22	20	21	22	22	19	18	19	19	27
16-Mar	20	21	16	18	19	21	22	22	23	20	28	36	29	33	23	27	18	18	34	23	15	53	26	27	53
17-Mar	27	27	27	30	28	26	29	29	29	33	31	31	32	30	29	32	22	23	21	20	20	17	36	36	36
18-Mar	23	31	16	17	19	21	19	22	22	21	20	21	20	20	21	22	22	21	20	20	21	20	20	20	31
19-Mar	20	21	22	21	21	19	20	22	22	21	22	23	22	23	25	22	26	20	22	21	22	29	21	15	29
20-Mar	17	15	15	17	18	16	15	18	35	52	36	41	39	45	55	38	29	23	20	17	17	17	17	17	55
21-Mar	16	15	14	15	13	15	15	16	20	21	19	26	26	22	22	21	22	21	19	18	17	17	18	14	26
22-Mar	28	8	17	27	35	68	33	21	31	81	66	50	86	49	25	33	79	23	15	8	4	13	12	14	86
23-Mar	11	9	10	13	11	6	9	15	25	33	42	45	56	36	35	41	22	20	13	15	22	18	15	14	56
24-Mar	14	20	17	14	16	8	11	16	29	29	34	37	33	32	35	33	34	28	27	22	21	24	25	21	37
25-Mar	23	25	22	24	25	26	30	28	27	30	31	32	32	30	29	31	29	28	27	25	28	26	27	28	32
26-Mar	29	27	27	26	29	29	29	30	30	29	27	33	31	32	31	29	27	29	28	29	27	29	29	29	33
27-Mar	28	28	29	25	26	24	22	22	23	22	19	21	20	20	20	21	20	21	21	18	15	18	15	14	29
28-Mar	28	18	16	19	16	17	16	18	19	20	21	19	20	19	20	21	19	18	17	17	18	18	17	17	28
29-Mar	17	17	18	16	17	13	16	18	21	20	20	20	21	22	22	20	20	20	21	14	41	9	26	10	41
30-Mar	47	8	5	11	10	11	10	18	25	22	27	40	31	36	35	31	27	24	21	21	27	24	26	27	47
31-Mar	27	26	23	22	21	19	16	24	27	31	24	19	38	32	26	22	26	27	29	27	26	28	28	23	38
											47 31 29 62 62 68 57 70 35 81 66 50 86 49 72 45 79 29 34 29 41 56 69 60														
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS05
MANNIX
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
MARCH 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	61.3	0	15.1	0
H2S (ppb) Average	706	37	38	99.87	11	1	1.5	0
THC (ppm) Average	650	32	94	91.67	4	-	2.3	-
NMHC(ppm) Average	650	32	94	91.67	0.279	-	0.068	-
CH4(ppm) Average	650	32	94	91.67	3.7	-	2.2	-
Temperature 2 m (C) Average	744	0	0	100	14	-	3.8	-
Temperature 20 m (C) Average	744	0	0	100	15.3	-	4.5	-
Temperature 45 m (C) Average	744	0	0	100	15.3	-	4.9	-
Temperature 75 m (C) Average	744	0	0	100	15.3	-	4.9	-
Temperature 90 m (C) Average	744	0	0	100	15.3	-	5	-
Relative Humidity 2 m (%) Average	744	0	0	100	91	-	78	-
Relative Humidity 20 m (%) Average	744	0	0	100	92	-	80	-
Relative Humidity 45 m (%) Average	744	0	0	100	93	-	81	-
Relative Humidity 75 m (%) Average	744	0	0	100	100	-	83	-
Relative Humidity 90 m (%) Average	744	0	0	100	98	-	81	-
Wind Speed 20 m (km/h) Average	744	0	0	100	31	-	22	-
Wind Speed 45 m (km/h) Average	744	0	0	100	36	-	28	-
Wind Speed 75 m (km/h) Average	744	0	0	100	40	-	31	-
Wind Speed 90 m (km/h) Average	744	0	0	100	43	-	31	-
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	1.7	-	1.3	-
Vertical Wind Speed 45 m (km/h) Average	744	0	0	100	2.7	-	1.1	-
Vertical Wind Speed 75 m (km/h) Average	744	0	0	100	3.1	-	0.6	-
Vertical Wind Speed 90 m (km/h) Average	744	0	0	100	3.2	-	0.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)

MARCH 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	709	2.82	6.3	-	0	0.1	0.2	0.4	2.2	8.3	61.3
H2S (ppb) Average	706	0.4	0.8	-	0	0.1	0.1	0.2	0.3	0.8	11.3
THC (ppm) Average	650	2.06	0.1	-	1.9	2	2	2	2.1	2.1	4
NMHC(ppm) Average	650	0.013	0.033	-	0	0	0	0	0	0	0.279
CH4(ppm) Average	650	2.04	0.1	-	1.9	2	2	2	2.1	2.1	3.7
Temperature 2 m (C) Average	744	-7.18	8.7	-	-25.1	-19.7	-14.4	-6.2	-1.1	3.3	14
Temperature 20 m (C) Average	744	-7.2	8.8	-	-24.5	-19.9	-14.6	-6.4	-1.3	3.5	15.3
Temperature 45 m (C) Average	744	-7.32	8.9	-	-24.9	-20.1	-14.7	-6.6	-1.3	3.6	15.3
Temperature 75 m (C) Average	744	-7.38	8.9	-	-25.3	-20.3	-14.7	-6.7	-1.2	3.7	15.3
Temperature 90 m (C) Average	744	-7.32	8.9	-	-25.3	-20.2	-14.5	-6.7	-1.2	4	15.3
Relative Humidity 2 m (%) Average	744	60.1	15	-	23	40	50	60	72	80	91
Relative Humidity 20 m (%) Average	744	57.9	15	-	20	38	47	58	71	79	92
Relative Humidity 45 m (%) Average	744	58.3	16	-	20	38	47	58	71	80	93
Relative Humidity 75 m (%) Average	744	58.7	16	-	20	38	48	58	71	81	100
Relative Humidity 90 m (%) Average	744	58	16	-	20	37	47	57	71	80	98
Wind Speed 20 m (km/h) Average	744	14	5	-	1	7	10	14	18	22	31
Wind Speed 45 m (km/h) Average	744	18.4	7	-	0	9	13	18	24	28	36
Wind Speed 75 m (km/h) Average	744	20	8	-	1	9	14	20	26	31	40
Wind Speed 90 m (km/h) Average	744	20.9	8	-	2	10	15	21	27	32	43
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	0.2	0.6	-	-1.3	-0.6	-0.3	0.2	0.7	1	1.7
Vertical Wind Speed 45 m (km/h) Average	744	0.16	0.6	-	-1.4	-0.6	-0.3	0.1	0.6	1	2.7
Vertical Wind Speed 75 m (km/h) Average	744	0.18	0.5	-	-1	-0.4	-0.1	0.2	0.4	0.8	3.1
Vertical Wind Speed 90 m (km/h) Average	744	0.18	0.6	-	-1.6	-0.5	-0.2	0.1	0.5	0.9	3.2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, THC/NMHC/CH4	20 Mar 2024 14:00	20 Mar 2024 14:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	08 Mar 2024 16:00	08 Mar 2024 16:00	1	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	08 Mar 2024 20:00	08 Mar 2024 21:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	08 Mar 2024 23:00	08 Mar 2024 23:00	1	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	09 Mar 2024 03:00	10 Mar 2024 10:00	32	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	10 Mar 2024 11:00	10 Mar 2024 12:00	2	Maintenance - recalibrate analyzer
THC/NMHC/CH4	12 Mar 2024 12:00	13 Mar 2024 05:00	18	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	13 Mar 2024 08:00	13 Mar 2024 09:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	13 Mar 2024 10:00	13 Mar 2024 12:00	3	Maintenance - replaced analyzer



Wood Buffalo Environmental Association

Summary of Hour Averages

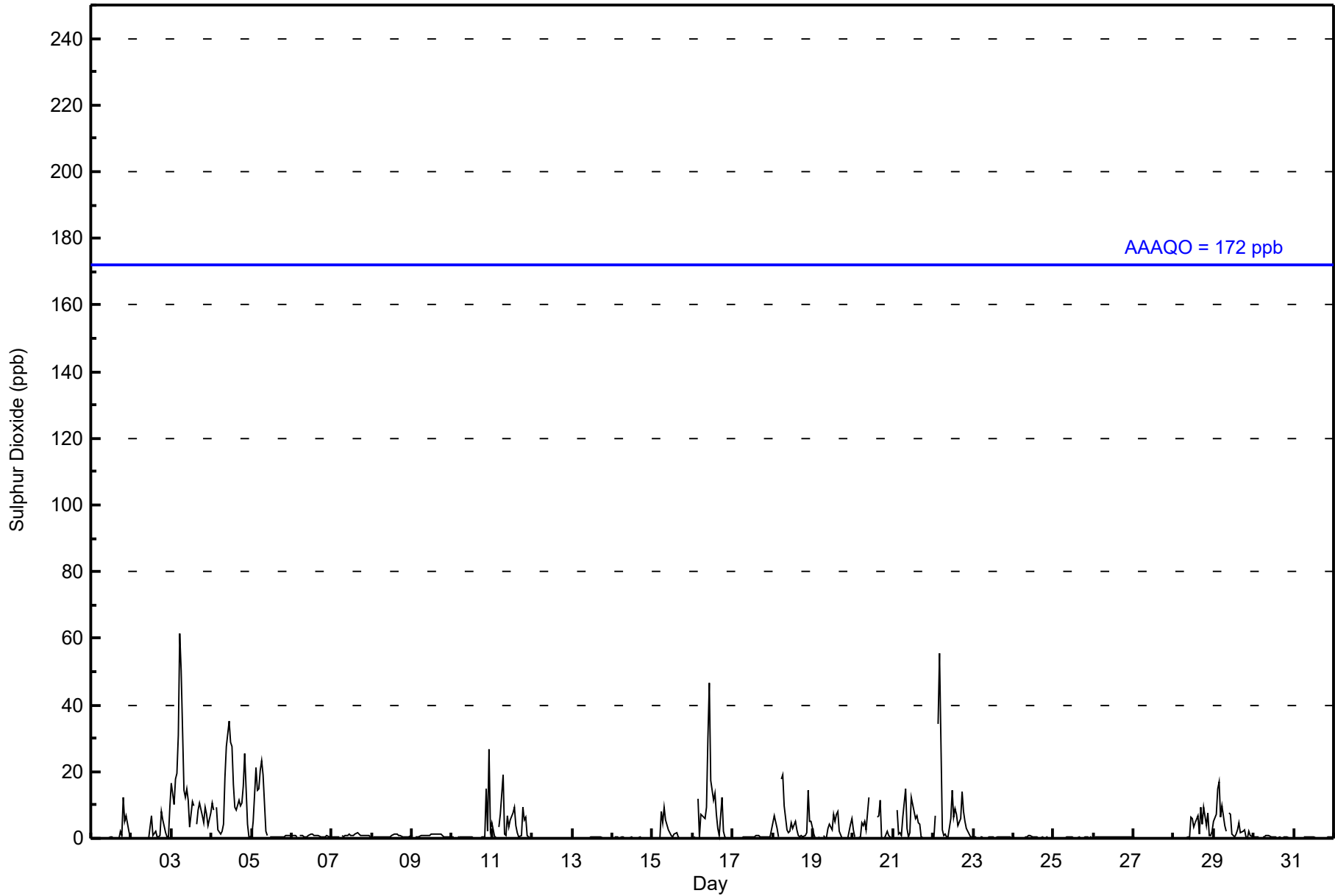
Sulphur Dioxide (SO₂) - ppb

Mannix - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 61.3 ppb on Mar 3 06:00	Maximum Daily Average: 15.1 ppb on Mar 3		Hours of Data:	709
Minimum Value: 0.0 ppb on Mar 2 07:00	Minimum Daily Average: 0.0 ppb on Mar 27		Hours of Missing Data:	35
Maximum Diurnal Average: 5.8 ppb at hour 6	Minimum Diurnal Average: 1.3 ppb at hour 24		Hours of Calibration:	35
Monthly Average: 2.82 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.4 Q ₃ = 2.2 P ₉₀ = 8.3 P ₉₉ = 30.1		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-Mar	0.0	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.4	0.3	0.2	0.1	0.1	0.1	2.0	1.0	12.2	5.1	6.7	2.3	0.1	1.4	12.2																							
2-Mar	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	3.5	7.0	0.8	2.2	0.4	0.4	0.9	8.2	5.4	1.8	0.3	0.4	9.1	1.8	9.1																							
3-Mar	16.6	10.3	17.8	19.6	31.1	61.3	50.6	14.3	12.3	14.9	11.4	3.6	11.2	9.9	Z	4.2	8.3	10.5	6.9	4.5	9.2	7.3	3.9	7.5	15.1	61.3																							
4-Mar	10.4	8.3	Z	9.2	2.5	1.4	2.1	4.4	18.3	27.5	35.2	28.9	27.6	16.0	9.5	8.5	11.6	9.7	10.6	15.6	25.2	4.2	0.6	0.4	12.5	35.2																							
5-Mar	0.7	5.2	21.2	14.6	14.9	20.2	23.1	19.2	2.2	0.7	Z	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.5	0.6	0.9	1.0	0.9	0.8	5.6	23.1																							
6-Mar	0.7	0.7	0.6	0.6	Z	0.9	0.8	0.4	0.6	0.6	0.7	1.1	1.1	0.9	0.9	0.8	0.6	0.6	0.5	0.5	0.5	0.7	0.5	0.5	0.7	1.1																							
7-Mar	0.4	0.5	0.4	0.5	0.5	Z	0.6	0.6	0.7	1.0	1.1	1.0	0.9	1.0	1.1	1.5	1.3	0.8	0.7	0.8	0.8	0.8	0.6	0.5	0.8	1.5																							
8-Mar	Z	0.4	0.3	0.3	0.3	0.5	0.5	0.4	0.2	0.4	0.4	0.5	0.9	1.2	1.4	1.3	0.9	0.6	0.6	0.5	0.5	0.5	0.5	0.7	0.6	1.4																							
9-Mar	0.7	Z	0.5	0.4	0.5	0.8	0.9	0.7	0.9	1.0	1.0	1.2	1.2	1.1	1.1	1.1	1.2	1.1	1.0	0.4	0.5	0.5	0.6	0.5	0.8	1.2																							
10-Mar	0.4	0.4	Z	0.3	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.1	0.1	0.1	0.1	0.2	0.5	0.4	14.7	2.1	26.8	2.4	2.3	26.8																							
11-Mar	4.7	0.6	0.3	Z	3.3	7.3	19.1	1.1	0.7	6.6	3.6	5.4	7.4	9.3	3.6	1.6	0.6	0.7	9.4	5.7	6.4	0.7	0.4	0.2	4.3	19.1																							
12-Mar	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1																							
13-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4																							
14-Mar	Z	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.3																							
15-Mar	0.1	Z	0.1	0.0	0.0	7.9	4.7	9.4	5.5	2.7	1.9	0.9	0.3	1.5	1.8	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	9.4																							
16-Mar	0.0	0.3	Z	12.0	0.5	7.3	6.9	6.0	9.5	30.2	46.7	17.2	11.6	13.4	7.3	2.8	0.8	12.2	1.9	0.3	0.2	0.1	0.1	0.0	8.1	46.7																							
17-Mar	0.0	0.0	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.7	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.4	2.5	0.4	2.5																							
18-Mar	4.6	6.8	2.8	0.6	Z	17.9	18.9	9.6	2.6	1.5	2.2	4.5	2.9	5.3	2.5	0.7	0.2	0.9	0.3	0.9	1.7	14.4	5.3	5.1	4.9	18.9																							
19-Mar	1.2	0.2	0.1	0.1	0.3	Z	0.7	0.1	0.3	3.0	4.2	2.6	7.1	5.1	7.1	8.0	2.1	0.2	0.1	0.1	0.1	0.1	4.4	5.8	2.3	8.0																							
20-Mar	2.6	0.2	Z	0.1	0.5	4.8	3.6	5.1	2.7	12.3	C	C	C	C	6.5	6.6	11.4	0.2	0.1	0.2	2.2	0.7	0.3	0.1	3.2	12.3																							
21-Mar	0.4	Z	8.5	1.4	1.7	0.7	6.2	14.9	2.8	0.3	1.7	12.4	8.2	6.0	6.8	4.7	4.0	0.2	0.1	0.0	0.1	0.1	0.0	0.1	3.5	14.9																							
22-Mar	0.1	6.8	Z	34.5	55.7	2.6	0.8	1.4	0.6	0.3	5.9	14.5	6.3	8.9	7.1	3.8	6.0	13.8	8.2	5.1	2.9	1.5	0.4	0.2	8.1	55.7																							
23-Mar	0.1	0.3	0.4	Z	0.4	0.2	0.2	0.2	0.2	0.3	0.5	0.5	0.4	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.5																							
24-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.3	0.4	0.8	0.8	0.5	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.8																							
25-Mar	0.1	0.0	0.1	0.1	0.0	Z	0.1	0.1	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4																							
26-Mar	Z	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5																							
27-Mar	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2																							
28-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.2	0.1	6.6	5.8	3.3	4.7	6.7	1.5	9.4	4.2	9.3	3.7	7.8	0.9	0.8	2.2	2.9	9.4																							
29-Mar	5.2	7.3	15.0	17.0	6.2	10.0	4.0	2.2	Z	7.7	7.2	1.1	0.5	1.1	2.6	4.5	1.5	2.3	2.5	0.3	0.2	2.0	0.7	0.2	4.4	17.0																							
30-Mar	0.3	0.3	0.3	0.4	Z	0.5	0.6	0.8	0.8	0.7	0.6	0.5	0.5	0.3	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.2	0.1	0.2	0.4	0.8																							
31-Mar	0.1	0.1	0.1	0.2	0.2	Z	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.4																							
																								1.9	1.8	2.8	4.0	4.6	5.8	4.7	3.0	2.1	3.7	4.6	3.6	3.4	3.0	2.4	1.8	2.0	2.1	2.1	1.9	2.7	1.5	1.7	1.3	Diurnal Average	
																								16.6	10.3	21.2	34.5	55.7	61.3	50.6	19.2	18.3	30.2	46.7	28.9	27.6	16.0	9.5	8.5	11.6	13.8	10.6	15.6	25.2	14.4	26.8	9.1	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Mannix - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	657	92.67	92.67
11 - 20	37	5.22	97.88
21 - 60	14	1.97	99.86
61 - 110	1	0.14	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 (SO₂) - ppb
Mannix - March 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	61	93	6	3	11	22	135	158	41	7	3	7	24	16	14	56	657
11 - 20	18	4	0	0	1	1	0	0	0	0	0	0	0	0	3	10	37
21 - 60	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	14
61 - 110	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	89	99	6	3	12	23	135	158	41	7	3	7	24	16	17	69	709

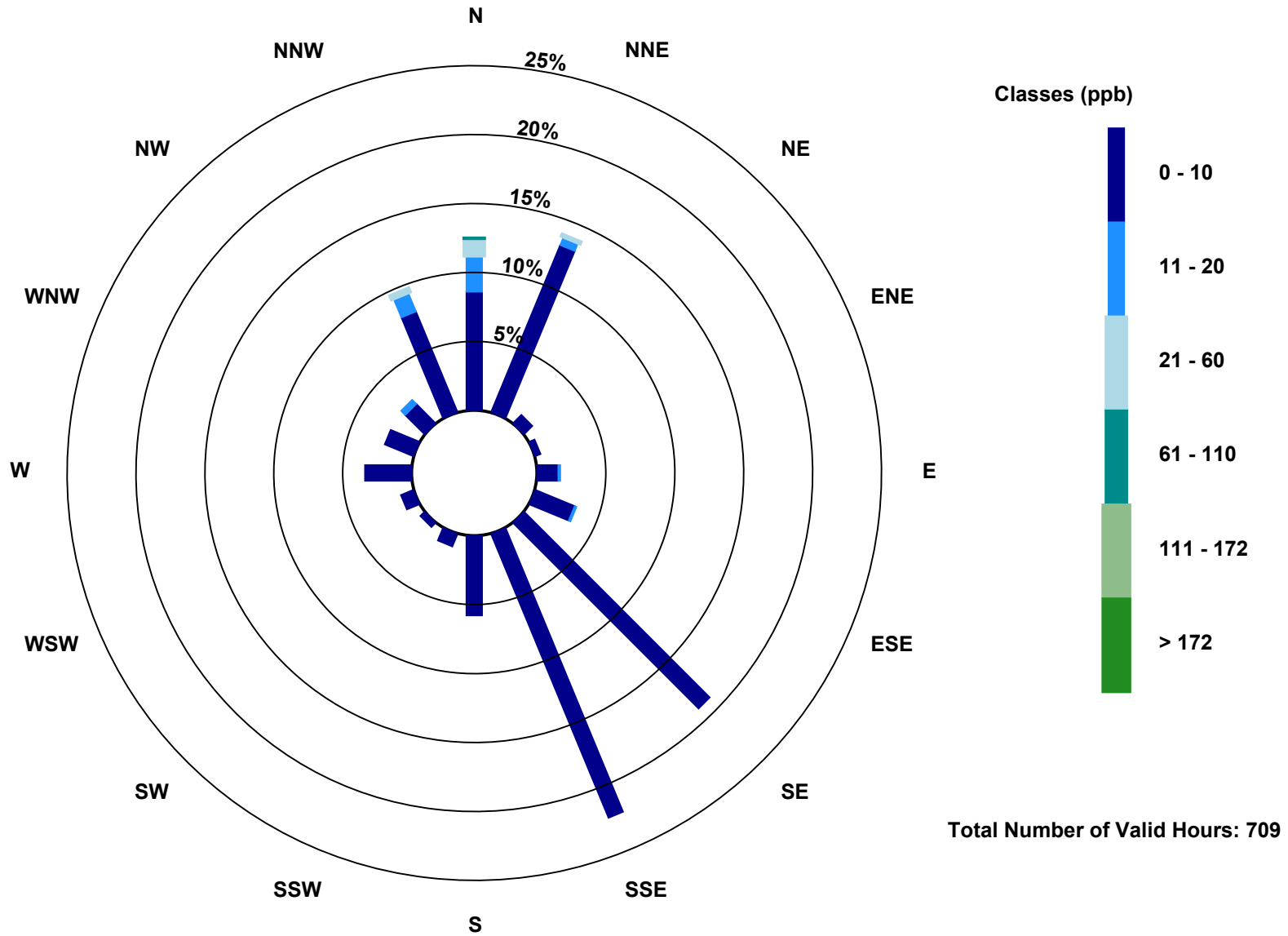
Total Number of Valid Hours: 709

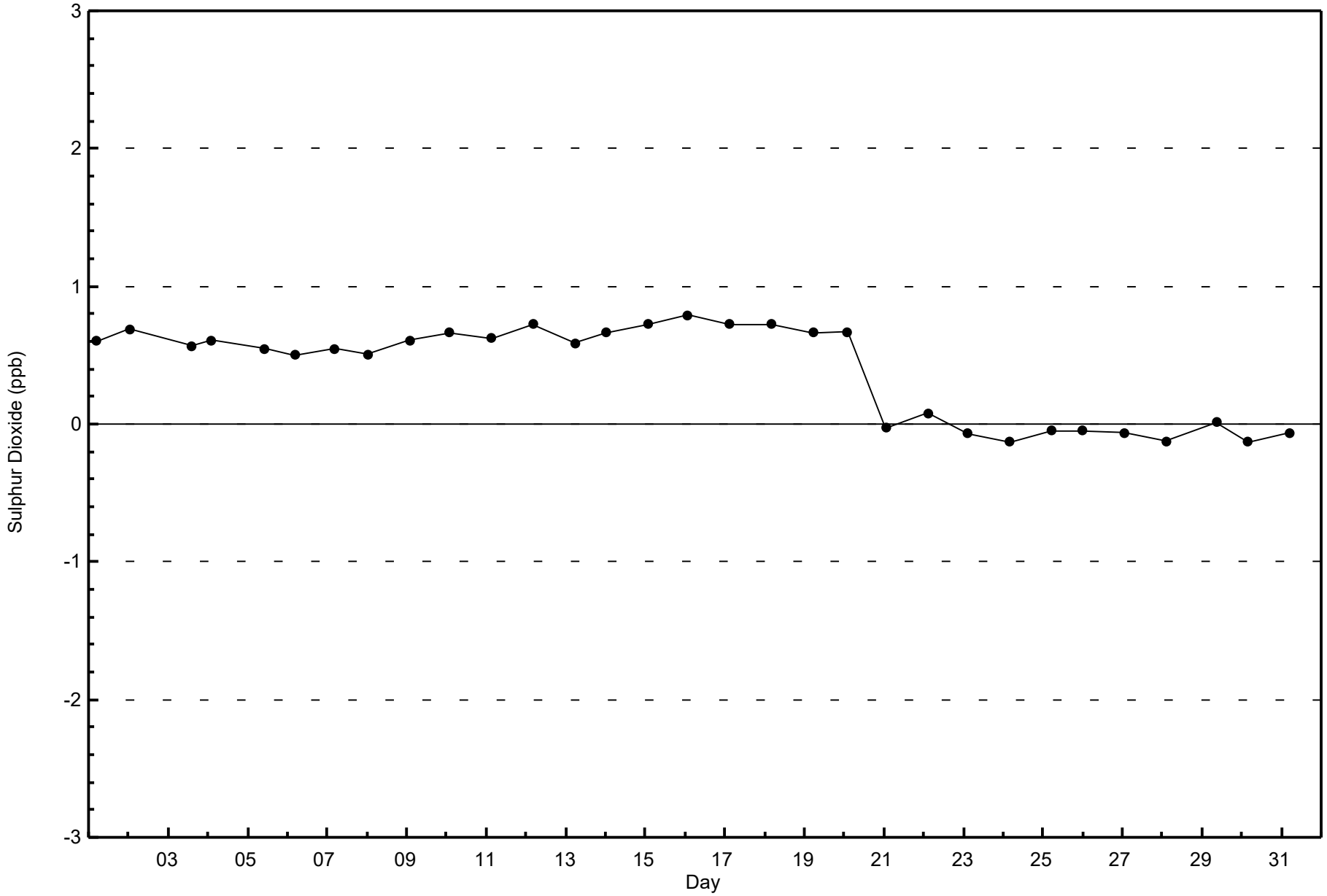
Total Number of Hours: 744

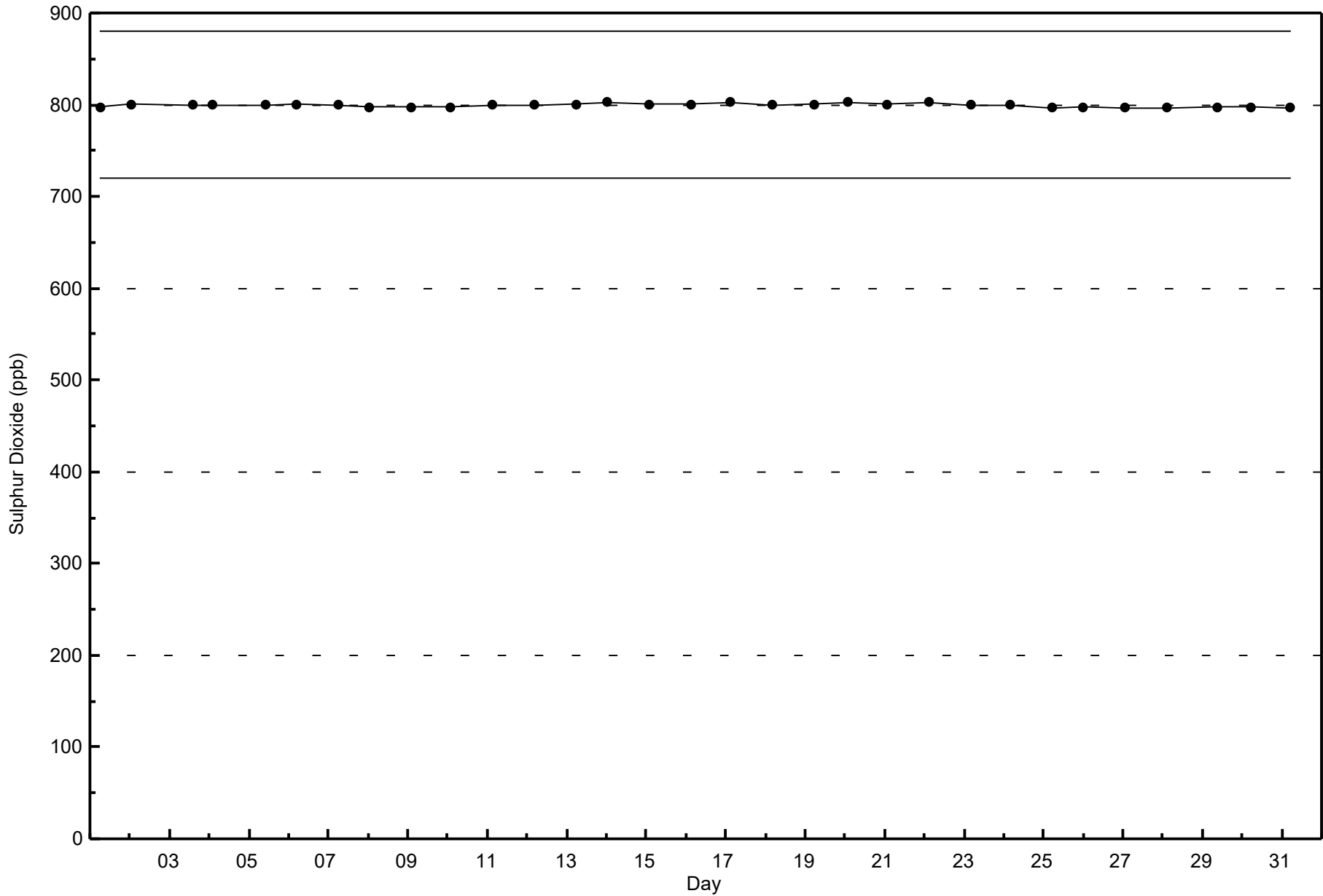


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Mannix





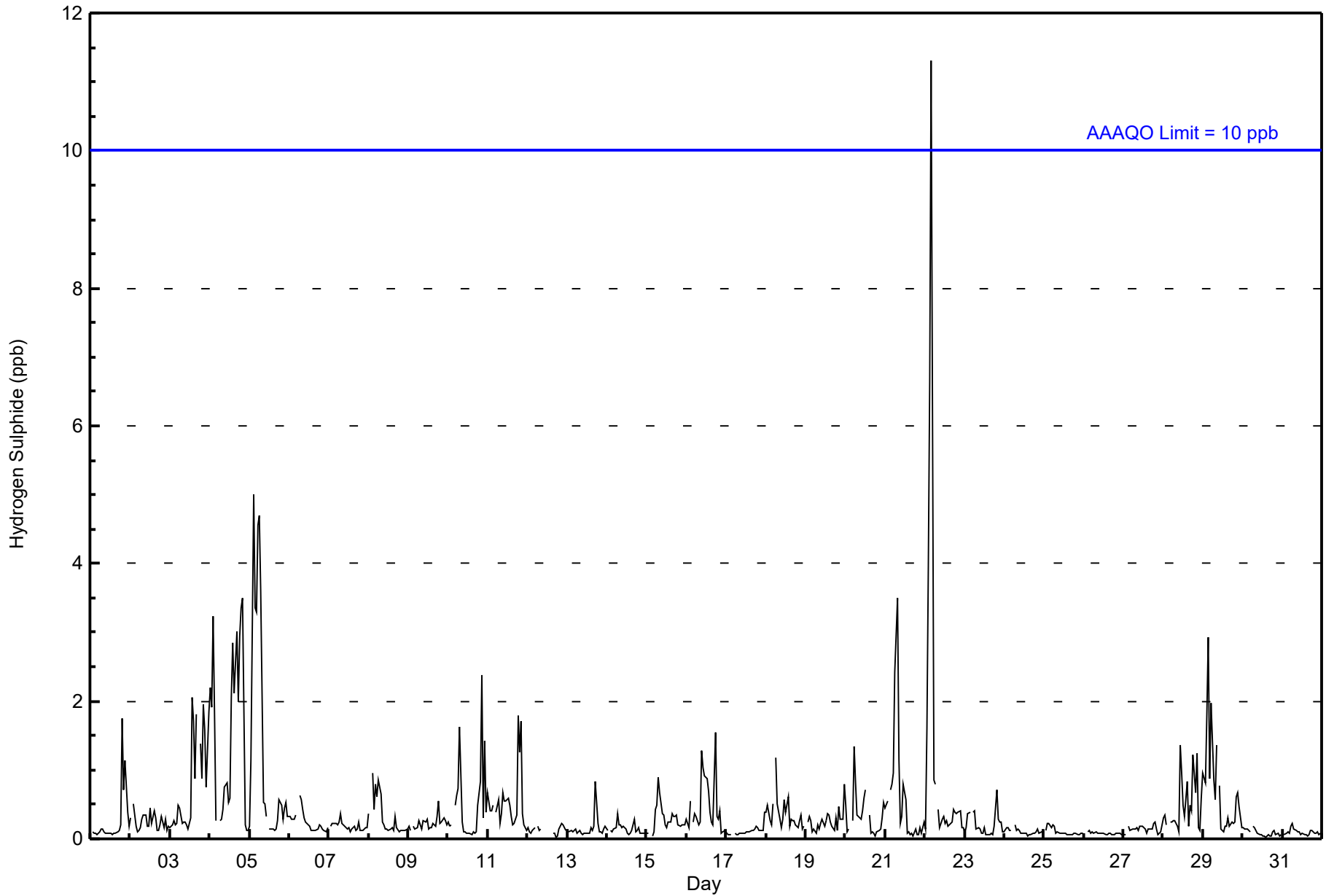




Number of Exceedences (AAAQO):	1-hr: 1	24-hr: 0	Hours in Service:	744
Maximum Value: 11.3 ppb on Mar 22 05:00	Maximum Daily Average: 1.5 ppb on Mar 4		Hours of Data:	706
Minimum Value: 0.0 ppb on Mar 12 18:00	Minimum Daily Average: 0.1 ppb on Mar 26		Hours of Missing Data:	38
Maximum Diurnal Average: 0.8 ppb at hour 5	Minimum Diurnal Average: 0.2 ppb at hour 23		Hours of Calibration:	37
Monthly Average: 0.40 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.8 P ₉₉ = 3.5		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.7	0.7	1.1	0.4	0.2	0.3	1.7	
2-Mar	0.3	Z	0.5	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.2	0.4	0.3	0.1	0.1	0.2	0.3	0.2	0.3	0.1	0.2	0.2	0.5	
3-Mar	0.2	0.2	0.3	0.2	0.2	0.5	0.5	0.2	0.2	0.2	0.2	0.3	2.1	1.7	0.9	1.8	Z	1.4	0.9	1.9	1.6	0.8	1.9	0.8	2.1		
4-Mar	2.2	1.9	3.2	1.8	0.3	Z	0.3	0.3	0.4	0.8	0.8	0.5	0.6	2.0	2.8	2.1	3.0	2.0	2.9	3.4	3.5	0.2	0.1	0.1	1.5	3.5	
5-Mar	0.2	1.1	5.0	3.4	3.3	4.6	4.7	3.6	0.5	0.5	0.3	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.6	0.5	0.3	0.4	0.5	0.3	1.3	5.0	
6-Mar	0.3	0.3	0.3	0.3	0.3	Z	0.6	0.6	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.6	
7-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.4	
8-Mar	0.4	Z	0.9	0.4	0.8	0.6	0.8	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.9	
9-Mar	0.2	0.1	Z	0.2	0.1	0.2	0.3	0.2	0.1	0.3	0.2	0.3	0.1	0.2	0.2	0.2	0.2	0.3	0.6	0.2	0.2	0.3	0.3	0.2	0.2	0.6	
10-Mar	0.2	0.2	0.2	Z	0.5	0.6	0.7	1.6	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.8	2.4	0.3	1.4	0.4	0.5	2.4	
11-Mar	0.7	0.4	0.4	0.5	Z	0.4	0.6	0.2	0.4	0.7	0.6	0.6	0.6	0.5	0.3	0.2	0.2	0.3	1.8	1.3	1.7	0.4	0.2	0.1	0.6	1.8	
12-Mar	0.2	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.1	C	C	C	C	C	C	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.1	--	0.2	
13-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.8	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.8	
14-Mar	0.1	Z	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.4	
15-Mar	0.1	0.1	Z	0.0	0.1	0.4	0.5	0.9	0.7	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.9	
16-Mar	0.3	0.2	0.5	Z	0.2	0.4	0.3	0.2	0.2	1.3	1.0	0.9	0.9	0.7	0.4	0.2	0.2	1.5	0.3	0.3	0.4	0.1	0.1	0.1	0.5	1.5	
17-Mar	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.4	0.1	0.4	
18-Mar	0.4	0.5	0.3	0.2	0.5	Z	1.2	0.5	0.3	0.2	0.3	0.6	0.4	0.6	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.1	0.2	0.4	1.2	
19-Mar	Z	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.3	0.4	0.3	0.2	0.2	0.1	0.3	0.1	0.5	0.3	0.3	0.8	0.3	0.8	
20-Mar	0.5	0.1	0.1	Z	0.3	1.3	0.8	0.3	0.3	0.3	0.4	0.6	0.7	M	0.3	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3	0.5	0.3	1.3	
21-Mar	0.5	0.6	Z	0.7	0.8	1.0	2.4	3.5	1.2	0.2	0.3	0.8	0.6	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.6	3.5	
22-Mar	0.1	1.6	3.9	6.7	11.3	0.9	0.8	Z	0.4	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.4	0.4	0.4	0.4	0.4	0.2	0.2	1.3	11.3	
23-Mar	0.1	0.2	0.4	0.4	Z	0.4	0.4	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.7	0.3	0.2	0.2	0.1	0.2	0.7	
24-Mar	0.1	0.2	0.2	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7
25-Mar	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
26-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
27-Mar	0.1	0.1	Z	0.2	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	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	
28-Mar	0.3	0.3	0.2	Z	0.2	0.2	0.3	0.3	0.2	0.1	1.4	0.9	0.5	0.3	0.8	0.2	0.5	0.4	1.2	0.7	1.2	0.2	0.1	0.6	0.5	1.4	
29-Mar	1.0	0.8	1.8	2.9	0.9	2.0	0.8	0.6	1.4	Z	0.8	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.6	0.7	0.5	0.2	0.7	2.9	
30-Mar	0.2	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	
31-Mar	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
																								Diurnal Average			
																								Diurnal Maximum			

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Mannix - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	689	97.59	97.59
3 - 4	12	1.70	99.29
5 - 7	4	0.57	99.86
8 - 11	0	0.00	99.86
> 11	1	0.14	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Mannix - March 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	103	6	3	12	18	134	158	40	7	3	8	23	16	17	60	689
3 - 4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	12
5 - 7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
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	1	1
Totals	89	103	6	3	12	18	134	158	40	7	3	8	23	16	17	69	706

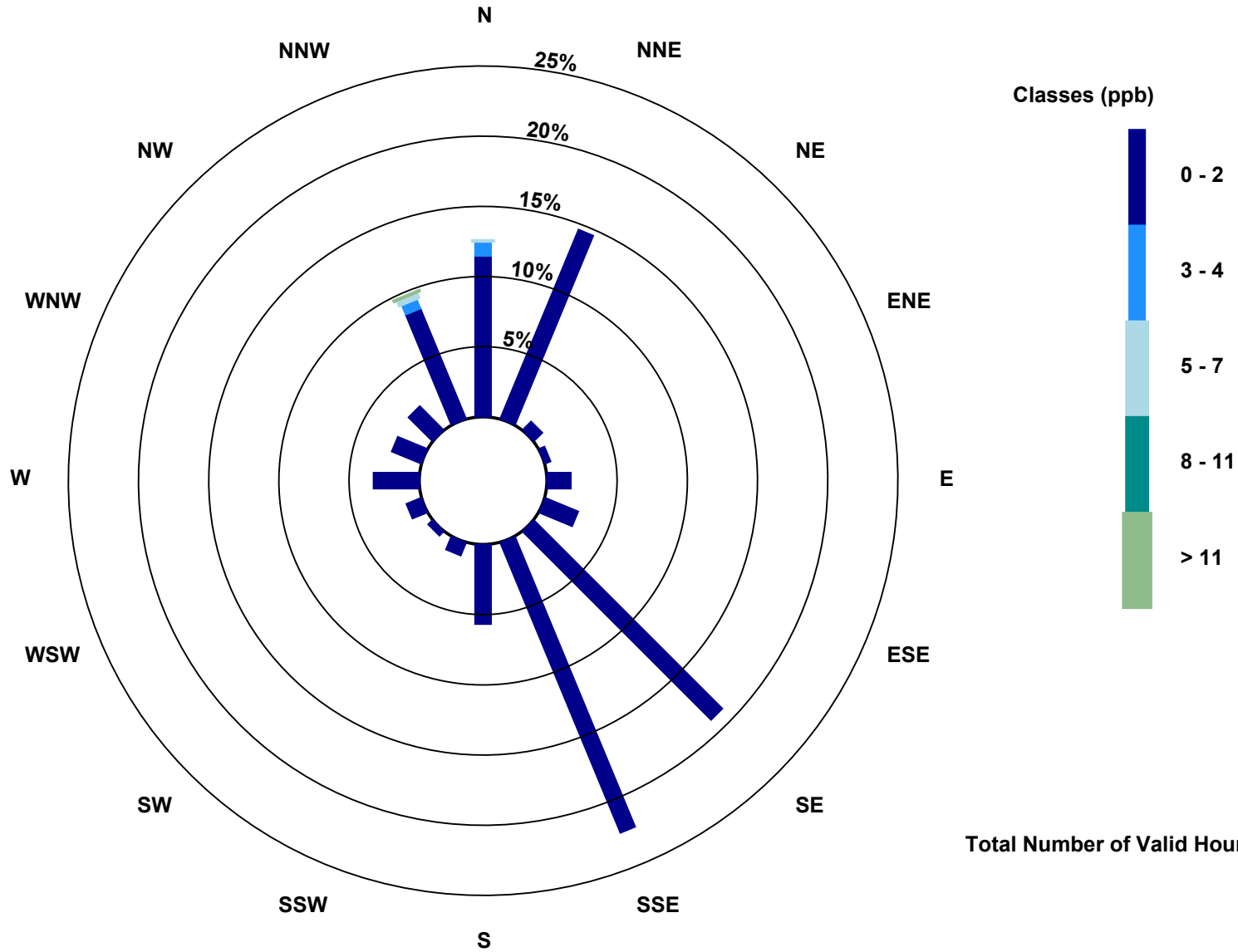
Total Number of Valid Hours: 706

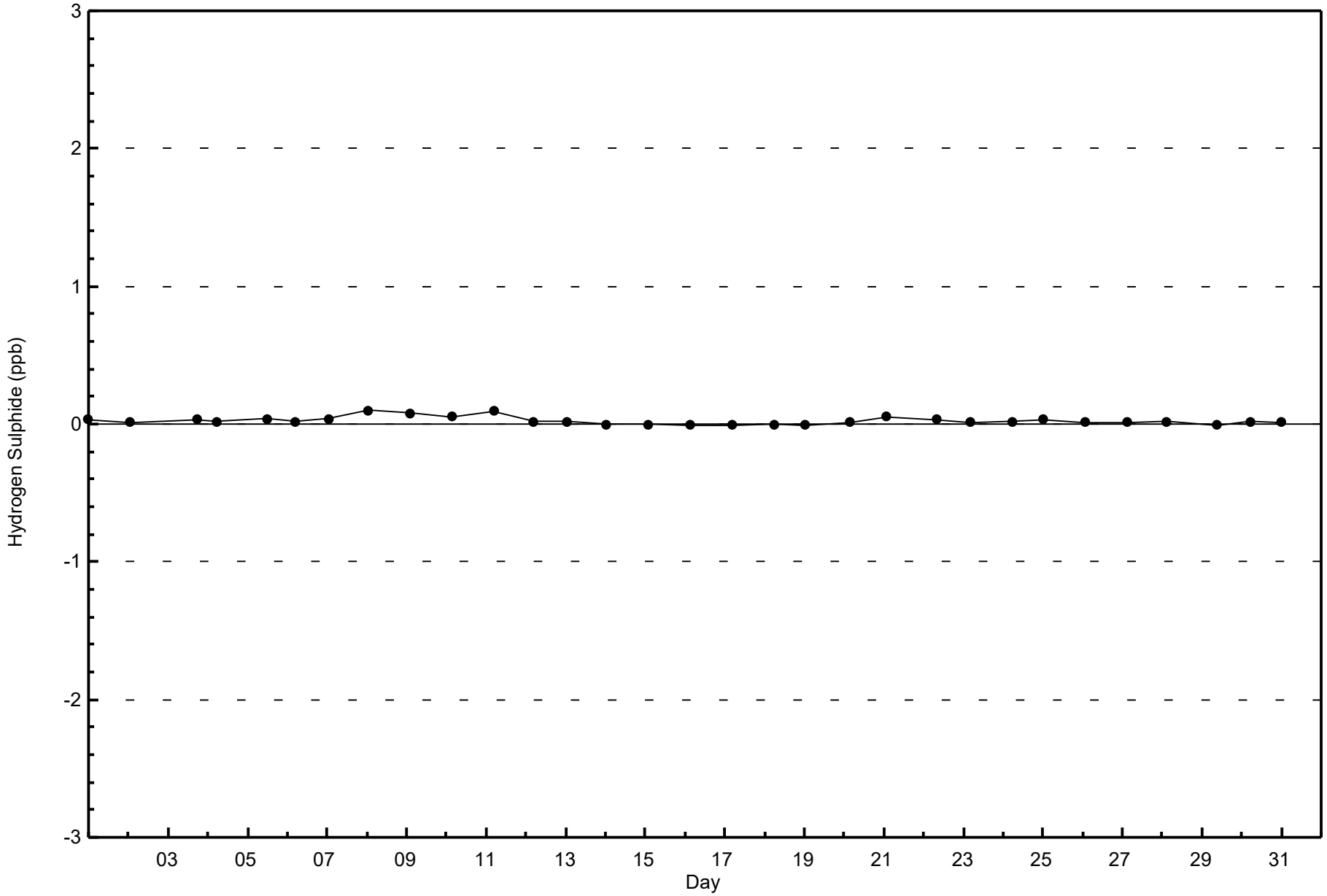
Total Number of Hours: 744

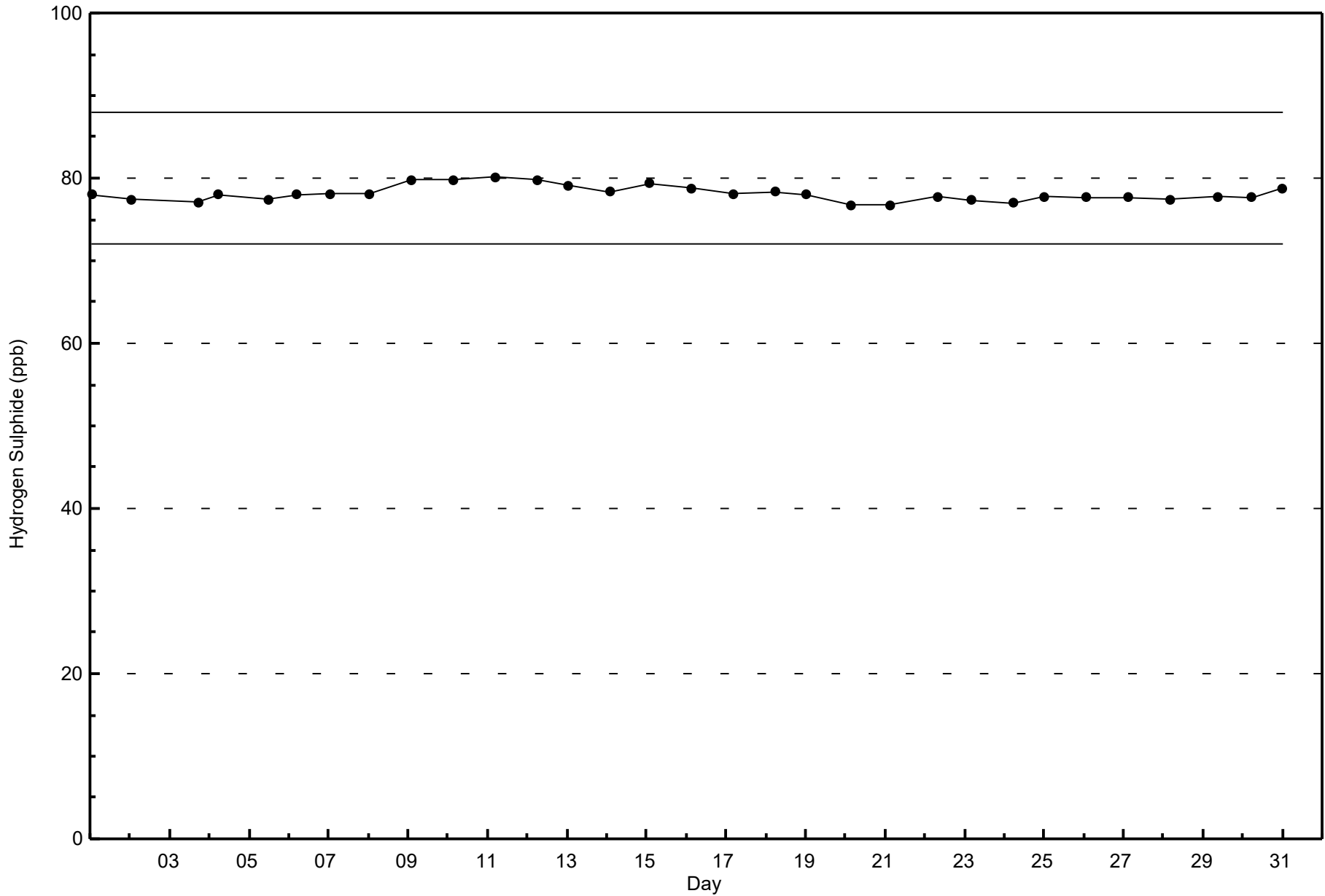


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Mannix









Wood Buffalo Environmental Association
Summary of Hour Averages

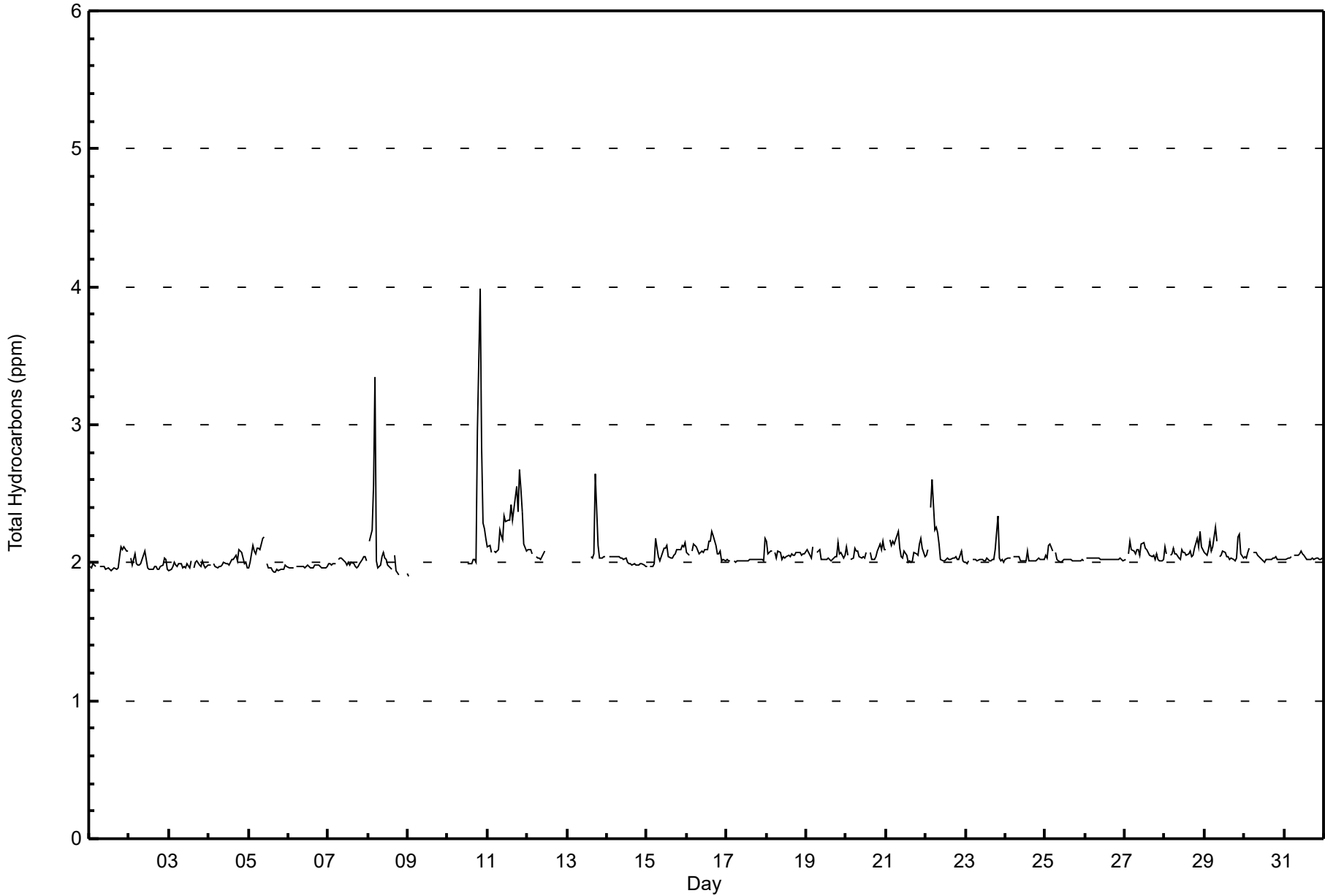
Total Hydrocarbons (THC) - ppm
Mannix - March 2024

Maximum Value: 4.0 ppm on Mar 10 20:00		Maximum Daily Average: 2.3 ppm on Mar 11		Hours in Service: 744																						
Minimum Value: 1.9 ppm on Mar 9 01:00		Minimum Daily Average: 2.0 ppm on Mar 6		Hours of Data: 650																						
Maximum Diurnal Average: 2.1 ppm at hour 20		Minimum Diurnal Average: 2.0 ppm at hour 14		Hours of Missing Data: 94																						
Monthly Average: 2.06 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.6		Hours of Calibration: 32																						
				Percent Operational Time: 91.7																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	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	2.1	2.1	2.1	2.1	2.1	2.0	2.1	
2-Mar	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
3-Mar	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	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
4-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	
5-Mar	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	Z	2.0	2.0	2.0	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.2	
6-Mar	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	
7-Mar	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	
8-Mar	Z	2.2	2.2	2.6	3.3	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	UO	2.1	1.9	1.9	UO	UO	1.9	UO	1.9	2.1	3.3	
9-Mar	1.9	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9	
10-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	2.0	2.0	2.0	2.0	2.0	2.0	3.0	4.0	2.8	2.3	2.3	2.2	4.0	
11-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.6	2.4	2.7	2.5	2.4	2.1	2.1	2.3	2.7
12-Mar	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	2.1
13-Mar	UO	UO	UO	UO	UO	Z	1.9	UO	UO	M	M	M	C	C	2.0	2.0	2.1	2.6	2.1	2.0	2.0	2.0	2.0	2.0	2.6	
14-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
15-Mar	2.0	Z	2.0	2.0	2.0	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
16-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2
17-Mar	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	2.2	2.0	2.2
18-Mar	2.2	2.1	2.1	2.1	Z	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19-Mar	2.1	2.1	2.1	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	2.1	2.1	2.1	2.0	2.1	2.1	2.1
20-Mar	2.1	2.1	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.1	M	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2
21-Mar	2.1	Z	2.2	2.1	2.2	2.1	2.2	2.2	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.1	2.2
22-Mar	2.1	2.1	Z	2.4	2.6	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	2.1	2.0	2.0	2.0	2.1	2.6
23-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.3
24-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	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-Mar	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	2.1
26-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2
28-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.2
29-Mar	2.1	2.1	2.1	2.2	2.1	2.1	2.3	2.2	Z	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.2	2.1	2.0	2.1	2.3
30-Mar	2.0	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
31-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Mannix - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mannix - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	420	64.62	64.62
2.1 - 3.0	228	35.08	99.69
3.1 - 10.0	2	0.31	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mannix - March 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	51	36	0	2	8	8	76	130	35	7	3	2	21	10	1	30	420
2.1 - 3.0	40	64	6	1	2	8	34	8	2	0	0	1	2	6	16	38	228
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	91	100	6	3	10	16	110	138	37	7	3	4	23	16	17	69	650

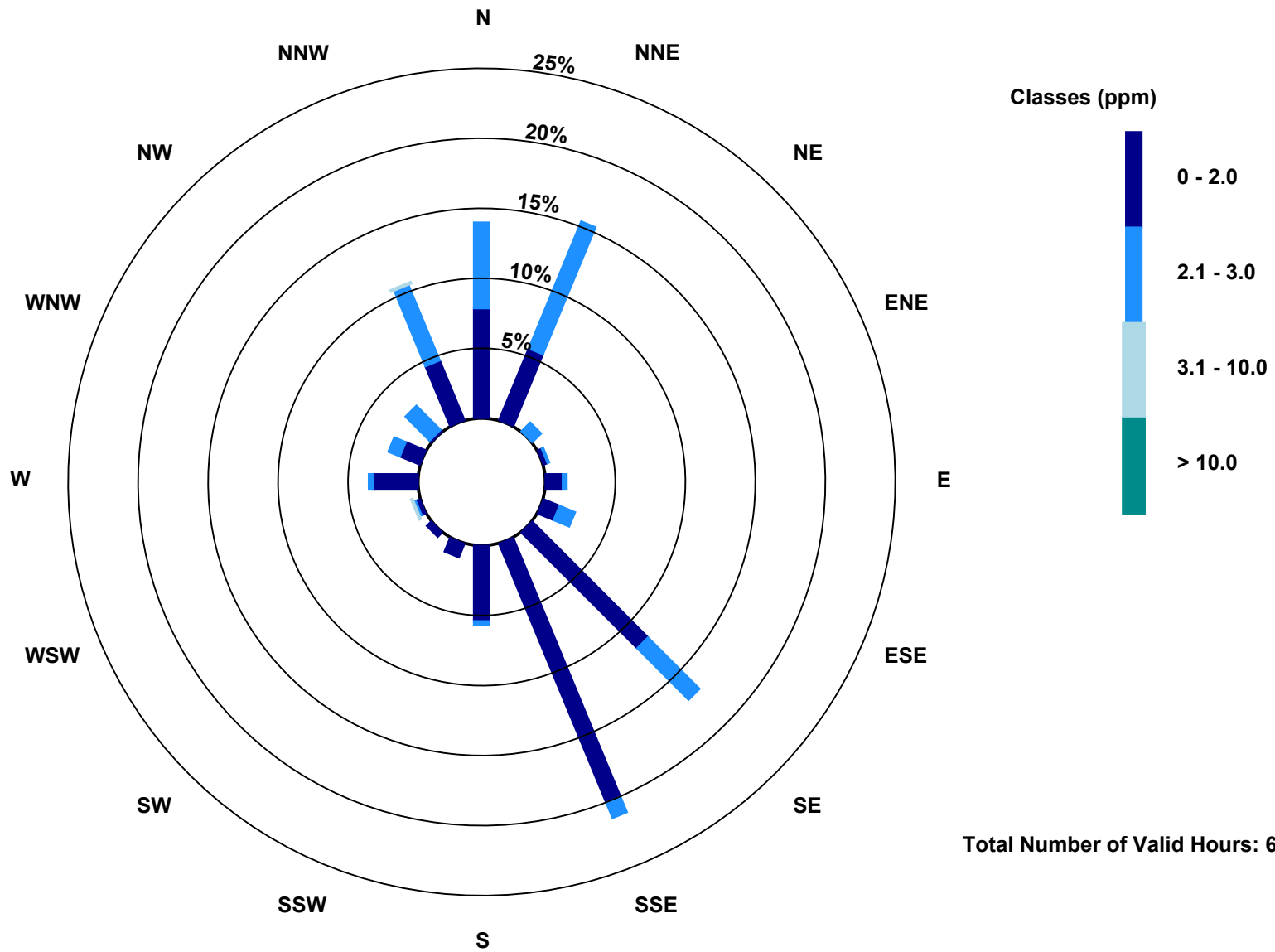
Total Number of Valid Hours: 650

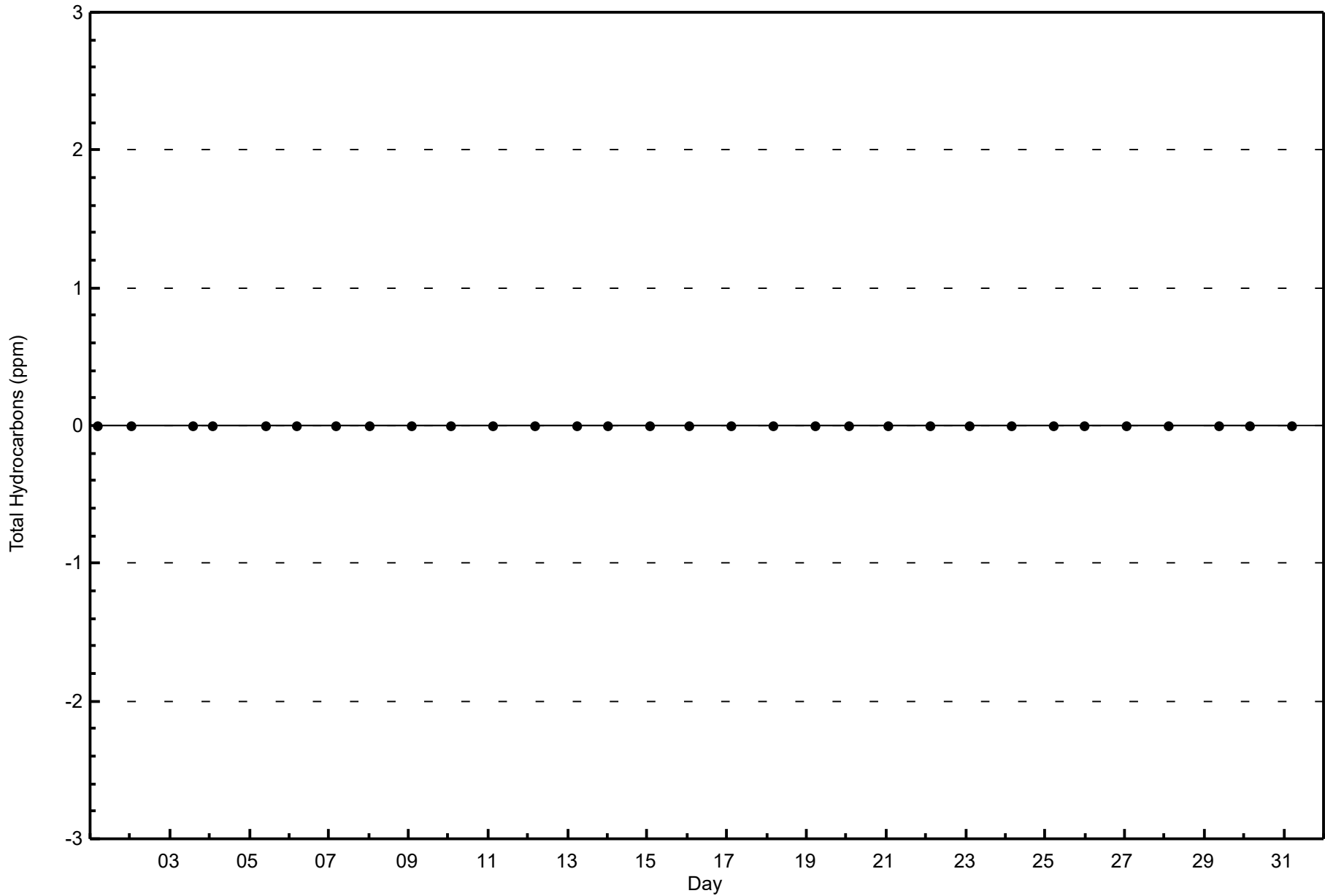
Total Number of Hours: 744

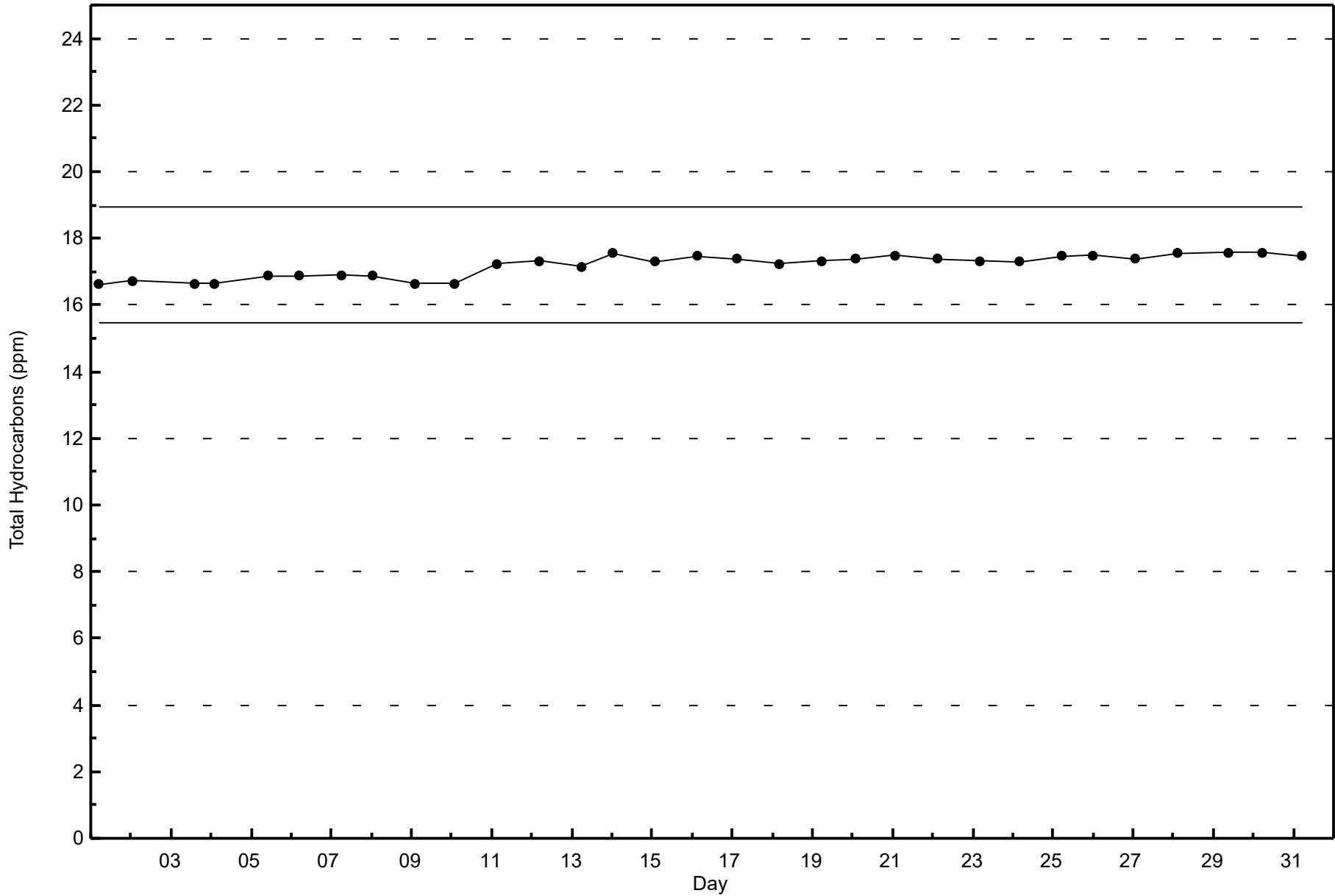


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Mannix

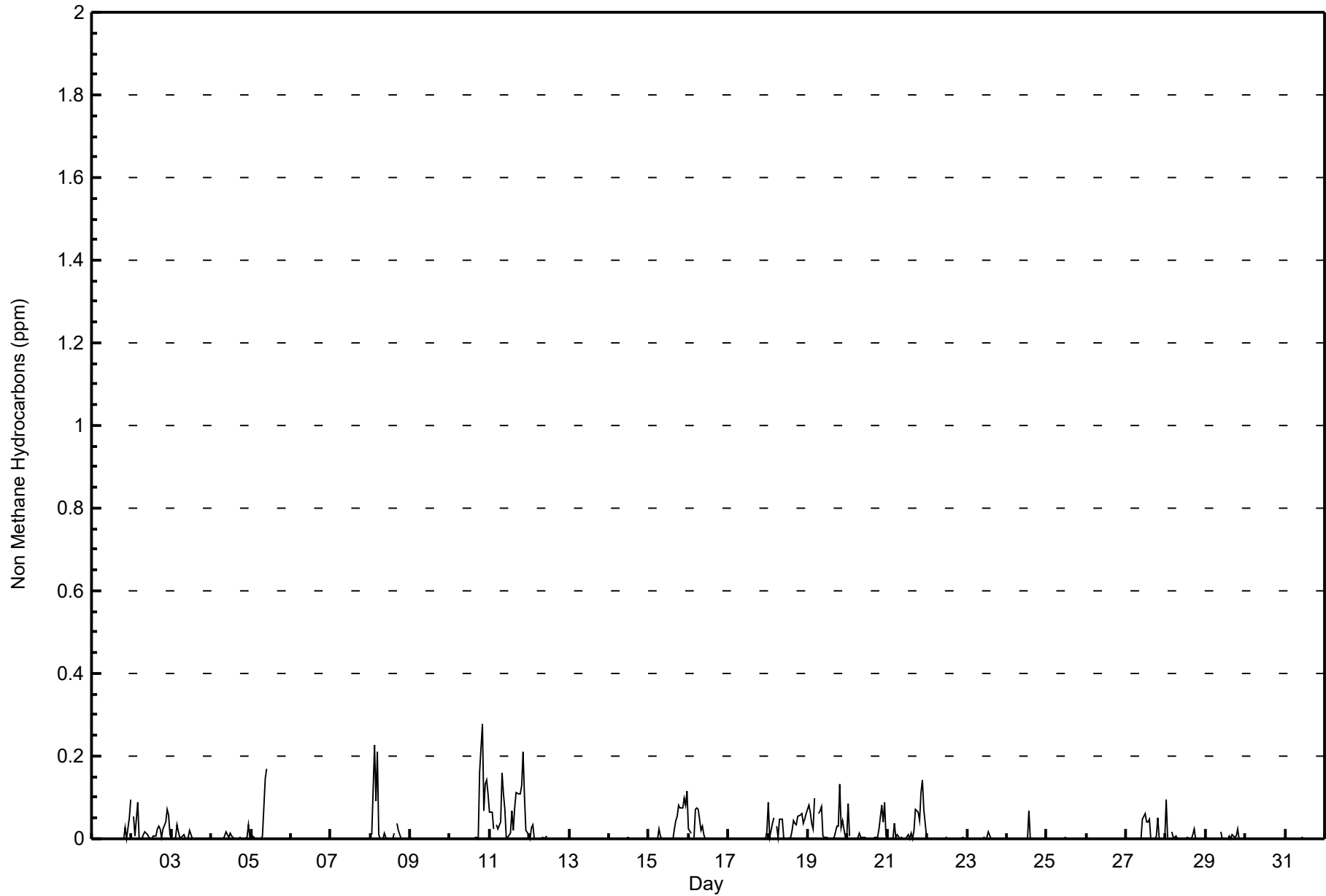








Maximum Value: 0.279 ppm on Mar 10 20:00		Maximum Daily Average: 0.068 ppm on Mar 11		Hours in Service: 744																																												
Minimum Value: 0.000 ppm on Mar 1 01:00		Minimum Daily Average: 0.000 ppm on Mar 6		Hours of Data: 650																																												
Maximum Diurnal Average: 0.030 ppm at hour 20		Minimum Diurnal Average: 0.003 ppm at hour 13		Hours of Missing Data: 94																																												
Monthly Average: 0.013 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.2		Hours of Calibration: 32																																												
				Percent Operational Time: 91.7																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	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	0.029	0.000	0.050	0.096	0.008	0.096																						
2-Mar	Z	0.056	0.006	0.089	0.000	0.000	0.000	0.011	0.017	0.011	0.003	0.001	0.000	0.006	0.006	0.025	0.030	0.023	0.005	0.023	0.041	0.070	0.059	0.010	0.021	0.089																						
3-Mar	0.000	0.000	0.004	0.033	0.016	0.002	0.002	0.010	0.001	0.000	0.005	0.020	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.033																						
4-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.002	0.007	0.018	0.005	0.012	0.007	0.003	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.004	0.034	0.004	0.004	0.034																						
5-Mar	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.008	0.145	0.169	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.169																						
6-Mar	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																						
7-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000																						
8-Mar	Z	0.010	0.228	0.093	0.209	0.010	0.000	0.000	0.013	0.002	0.000	0.000	0.000	0.000	0.014	UO	0.036	0.019	0.000	UO	UO	0.000	UO	0.000	0.033	0.228																						
9-Mar	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO																						
10-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	0.000	0.000	0.000	0.004	0.004	0.000	0.162	0.279	0.067	0.133	0.142	0.109	0.279																						
11-Mar	0.065	0.065	0.022	Z	0.033	0.024	0.041	0.158	0.109	0.070	0.004	0.002	0.013	0.069	0.022	0.073	0.113	0.107	0.107	0.128	0.212	0.100	0.019	0.011	0.068	0.212																						
12-Mar	0.001	0.027	0.035	0.001	Z	0.001	0.000	0.000	0.004	0.000	0.008	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.035																						
13-Mar	UO	UO	UO	UO	UO	Z	0.002	UO	UO	M	M	M	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002																						
14-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004																						
15-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.023	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.045	0.055	0.082	0.074	0.074	0.097	0.082	0.116	0.029	0.116																						
16-Mar	0.023	0.014	Z	0.002	0.071	0.076	0.071	0.021	0.032	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	0.014	0.076																						
17-Mar	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	0.017	0.001	0.017																						
18-Mar	0.089	0.002	0.037	0.052	Z	0.031	0.002	0.047	0.049	0.003	0.000	0.000	0.000	0.002	0.020	0.045	0.038	0.034	0.054	0.059	0.062	0.037	0.049	0.061	0.034	0.089																						
19-Mar	0.082	0.066	0.037	0.025	0.098	Z	0.060	0.066	0.078	0.008	0.003	0.002	0.000	0.000	0.000	0.002	0.002	0.030	0.030	0.133	0.028	0.043	0.004	0.000	0.035	0.133																						
20-Mar	0.083	0.006	Z	0.000	0.000	0.000	0.005	0.014	0.004	0.002	0.002	0.000	0.000	M	0.000	0.000	0.004	0.002	0.003	0.024	0.081	0.040	0.089	0.008	0.017	0.089																						
21-Mar	0.000	Z	0.000	0.000	0.039	0.004	0.010	0.000	0.003	0.000	0.000	0.000	0.010	0.000	0.012	0.002	0.019	0.072	0.065	0.043	0.111	0.142	0.070	0.002	0.026	0.142																						
22-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.005																						
23-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.004	0.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.016																						
24-Mar	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	0.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.068																						
25-Mar	0.000	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.004																						
26-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.047	0.059	0.040	0.042	0.047	0.000	0.000	0.000	0.007	0.052	0.000	0.000	0.000	0.013	0.059																						
28-Mar	0.094	0.002	Z	0.018	0.002	0.004	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.010	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.094																						
29-Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Z	0.018	0.000	0.000	0.000	0.000	0.006	0.000	0.011	0.004	0.005	0.024	0.000	0.000	0.000	0.003	0.024																						
30-Mar	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																						
31-Mar	0.000	0.000	0.000	0.000	0.000	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	0.000	0.000	0.000	0.003																						
																								0.018	0.010	0.016	0.012	0.020	0.007	0.008	0.012	0.017	0.011	0.003	0.004	0.003	0.008	0.005	0.006	0.011	0.013	0.018	0.030	0.025	0.023	0.021	0.015	Diurnal Average
																								0.094	0.066	0.228	0.093	0.209	0.076	0.071	0.158	0.145	0.169	0.047	0.059	0.040	0.069	0.047	0.073	0.113	0.107	0.162	0.279	0.212	0.142	0.142	0.116	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Mannix - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	496	76.31	76.31
0.006 - 0.05	93	14.31	90.62
0.06 - 0.1	54	8.31	98.92
> 0.1	7	1.08	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Mannix - March 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	60	20	2	2	7	9	103	134	37	7	3	3	21	12	13	63	496
0.006 - 0.05	30	40	1	0	2	6	6	3	0	0	0	0	1	2	1	1	93
0.06 - 0.1	1	39	2	0	1	1	1	1	0	0	0	0	0	2	2	4	54
> 0.1	0	1	1	1	0	0	0	0	0	0	0	1	1	0	1	1	7
Totals	91	100	6	3	10	16	110	138	37	7	3	4	23	16	17	69	650

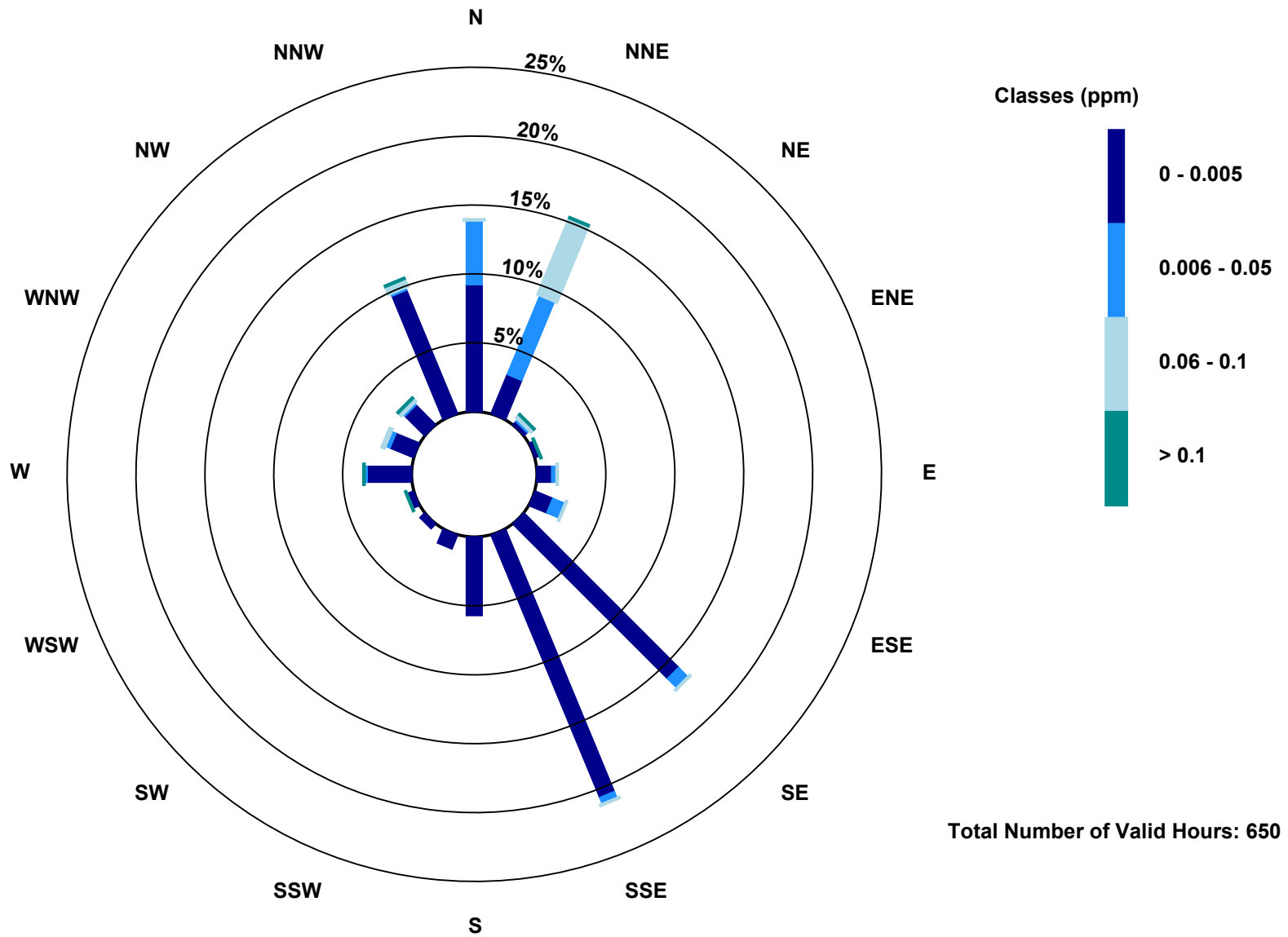
Total Number of Valid Hours: 650

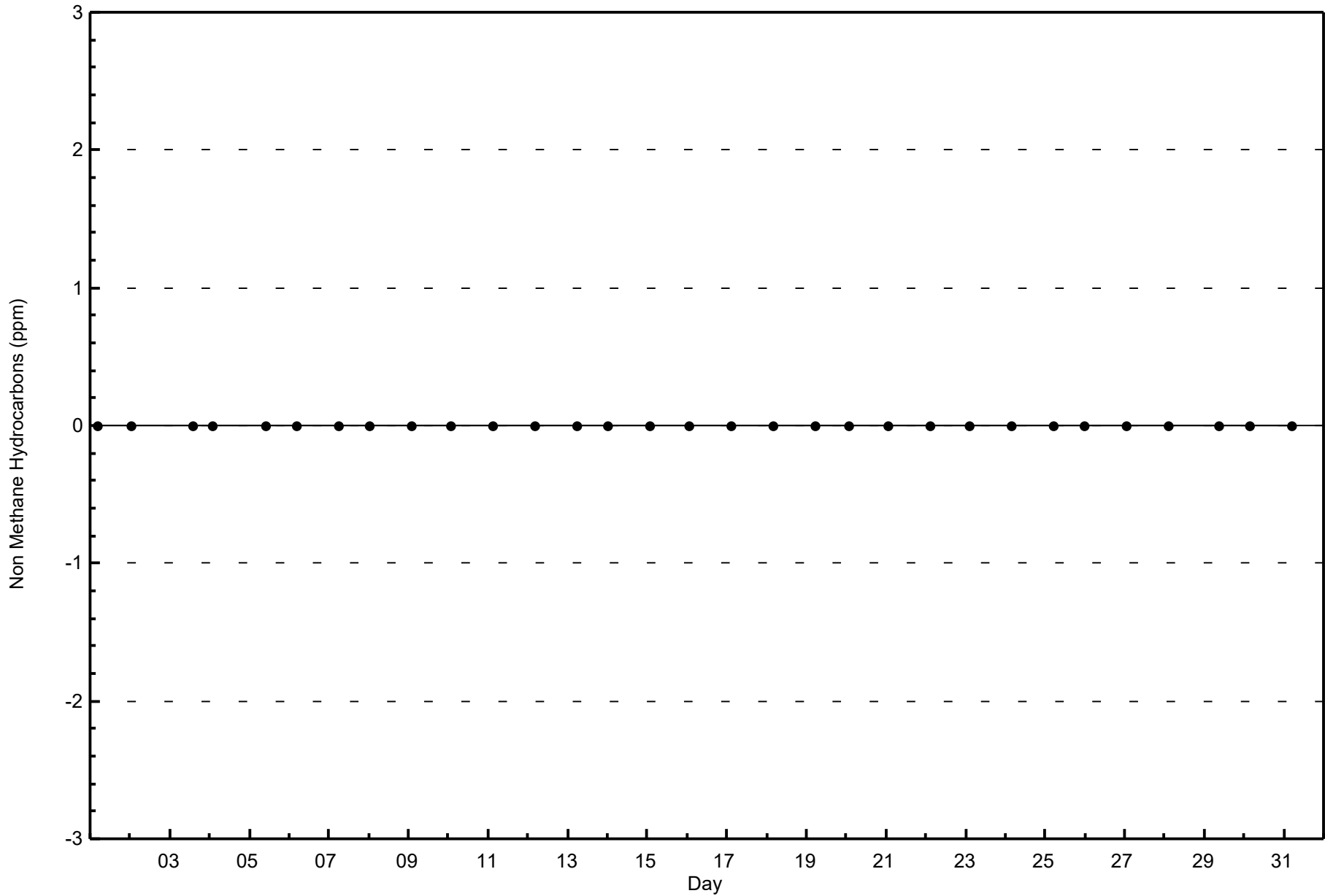
Total Number of Hours: 744

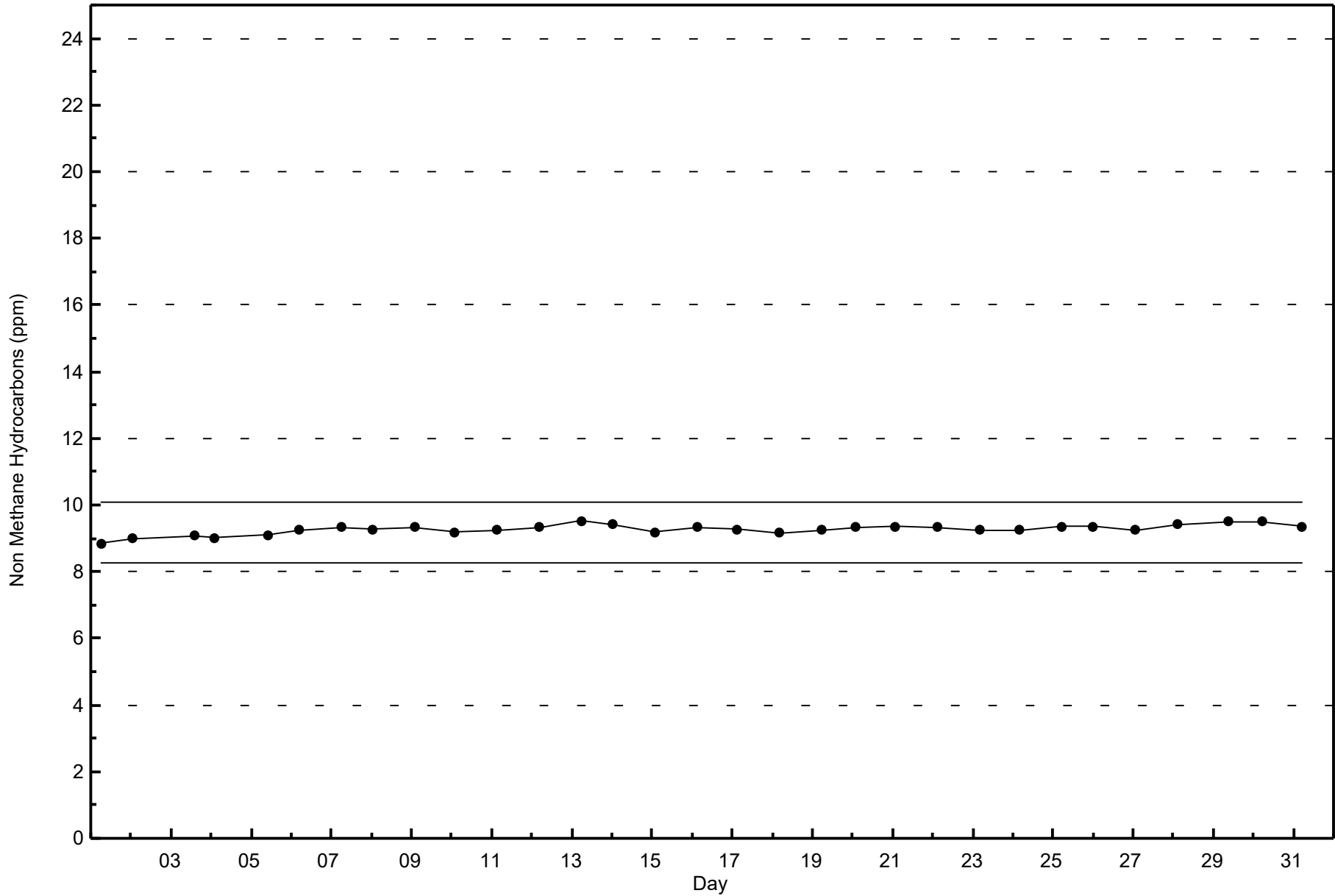


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Mannix









Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

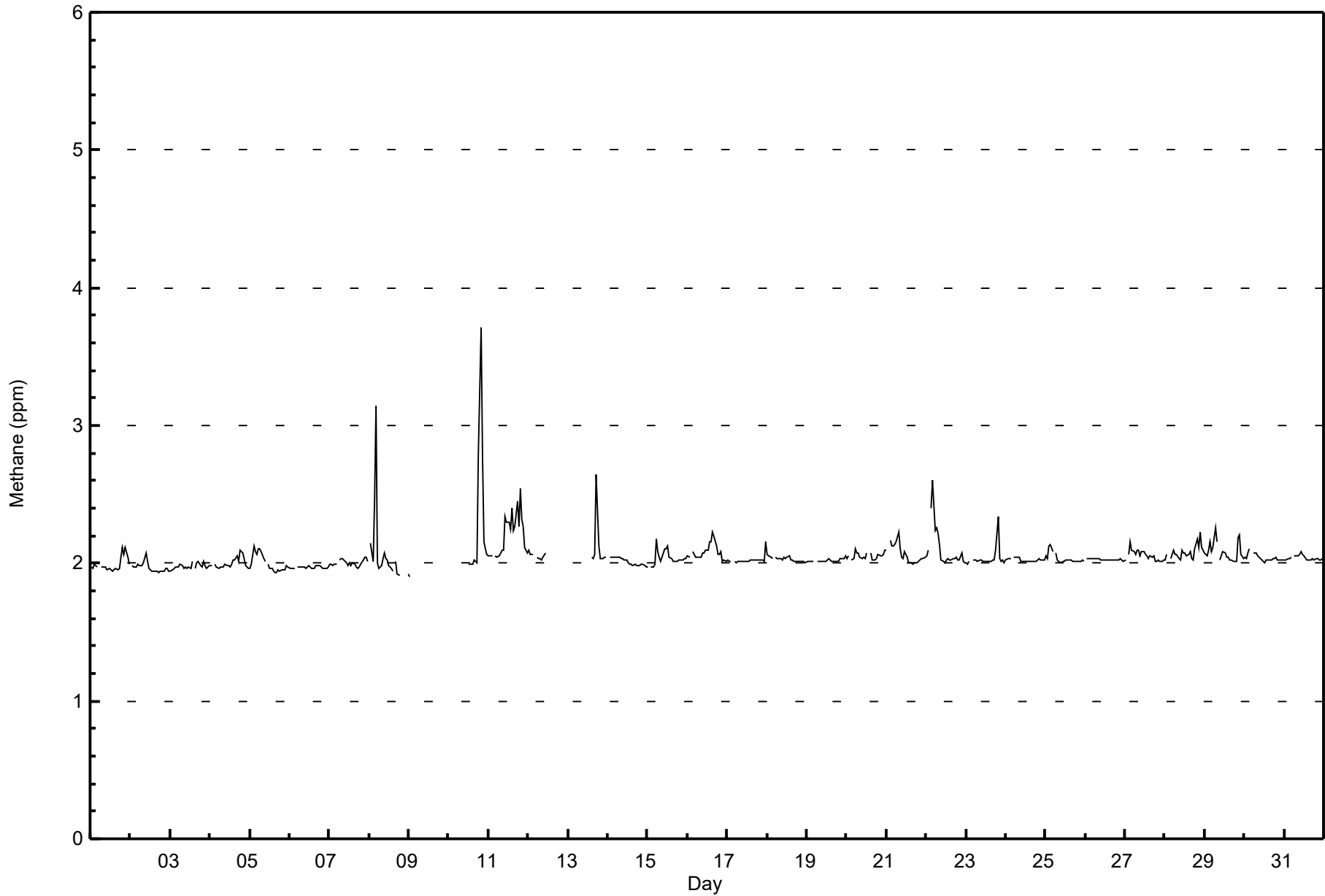
Mannix - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 3.7 ppm on Mar 10 20:00		Maximum Daily Average: 2.2 ppm on Mar 11																	Hours of Data:	650																													
Minimum Value: 1.9 ppm on Mar 9 01:00		Minimum Daily Average: 2.0 ppm on Mar 2																	Hours of Missing Data:	94																													
Maximum Diurnal Average: 2.1 ppm at hour 20		Minimum Diurnal Average: 2.0 ppm at hour 1																	Hours of Calibration:	32																													
Monthly Average: 2.04 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.5																	Percent Operational Time:	91.7																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	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	1.9	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																						
2-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	2.0	1.9	2.0	2.1																				
3-Mar	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	Z	2.0	2.0	2.0	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-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																			
5-Mar	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	Z	2.0	2.0	2.0	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	2.0	2.1																			
6-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																		
7-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																		
8-Mar	Z	2.1	2.0	2.5	3.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	1.9	UO	2.0	1.9	1.9	UO	UO	1.9	UO	1.9	UO	1.9	UO	1.9	2.1	3.1																			
9-Mar	1.9	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9																		
10-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.8	3.7	2.8	2.2	2.1	2.1	--	--	3.7	2.1	3.7																				
11-Mar	2.0	2.1	2.1	Z	2.1	2.0	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.2	2.4	2.2	2.3	2.4	2.3	2.5	2.3	2.3	2.1	2.1	2.2	2.2	2.5	2.3	2.1	2.1	2.5																		
12-Mar	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1																		
13-Mar	UO	UO	UO	UO	UO	Z	1.9	UO	UO	M	M	M	C	C	2.0	2.0	2.1	2.6	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6																		
14-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																		
15-Mar	2.0	Z	2.0	2.0	2.0	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																		
16-Mar	2.1	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2																			
17-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																		
18-Mar	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	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
19-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
20-Mar	2.0	2.1	Z	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	M	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																		
21-Mar	2.1	Z	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																		
22-Mar	2.1	2.1	Z	2.4	2.6	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	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.6																		
23-Mar	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	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.3																		
24-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																		
25-Mar	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	2.0	2.0	2.0	2.0	2.1																		
26-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	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	2.2																		
28-Mar	2.0	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.2	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2																		
29-Mar	2.1	2.1	2.1	2.2	2.1	2.1	2.3	2.2	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	2.2	2.2	2.1	2.2	2.1	2.0	2.1	2.1	2.3																			
30-Mar	2.0	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
31-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
																								2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	Diurnal Average	
																								2.1	2.1	2.2	2.5	3.1	2.2	2.3	2.2	2.1	2.1	2.3	2.3	2.3	2.2	2.4	2.2	2.3	2.6	2.8	3.7	2.8	2.3	2.1	2.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Mannix - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Methane (CH₄) - ppm
Mannix - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	479	73.69	73.69
2.1 - 3.0	169	26.00	99.69
3.1 - 10.0	2	0.31	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Mannix - March 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	57	80	1	3	10	9	77	131	35	7	3	2	22	10	1	31	479
2.1 - 3.0	34	20	5	0	0	7	33	7	2	0	0	1	1	6	16	37	169
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	91	100	6	3	10	16	110	138	37	7	3	4	23	16	17	69	650

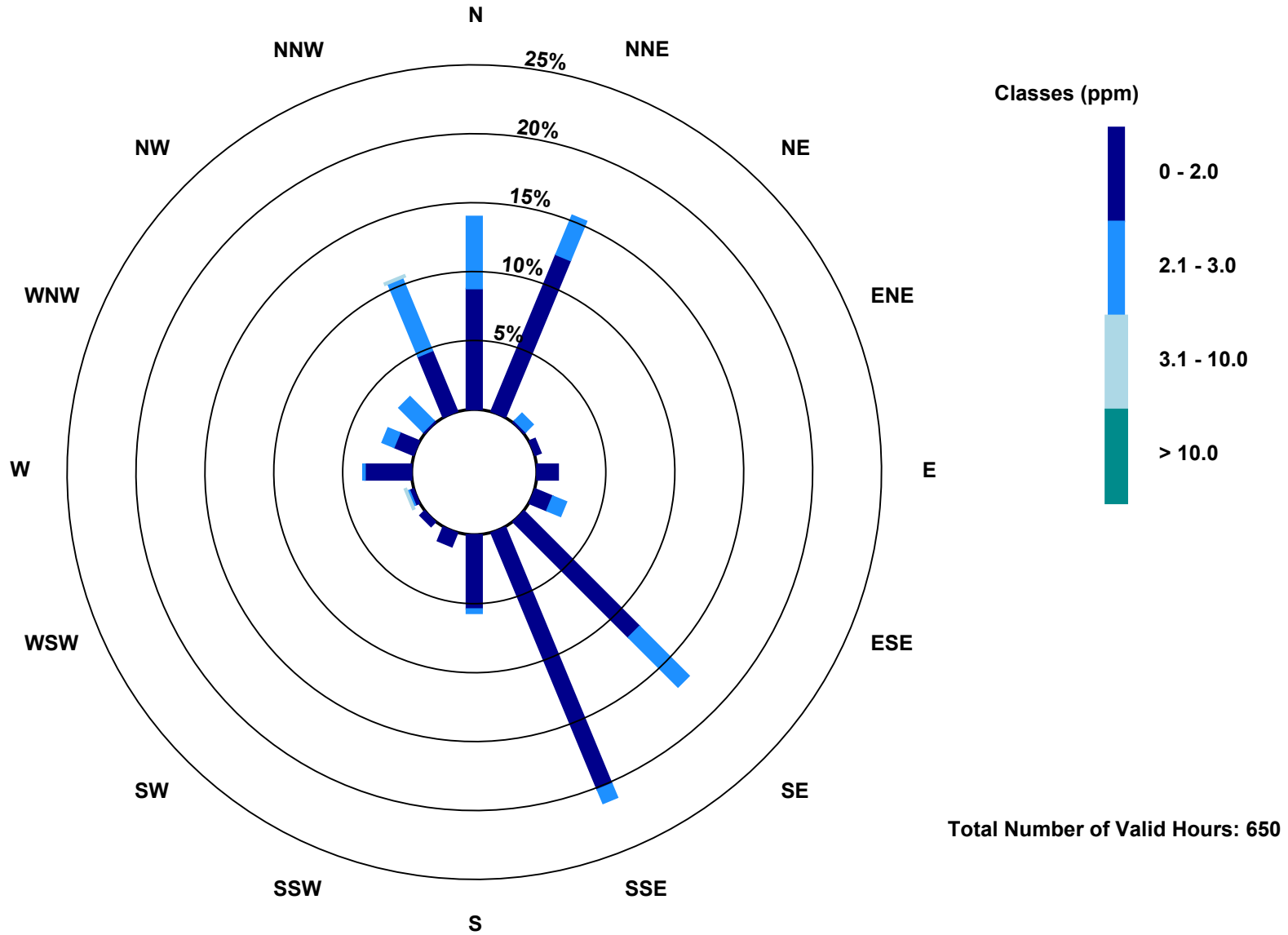
Total Number of Valid Hours: 650

Total Number of Hours: 744

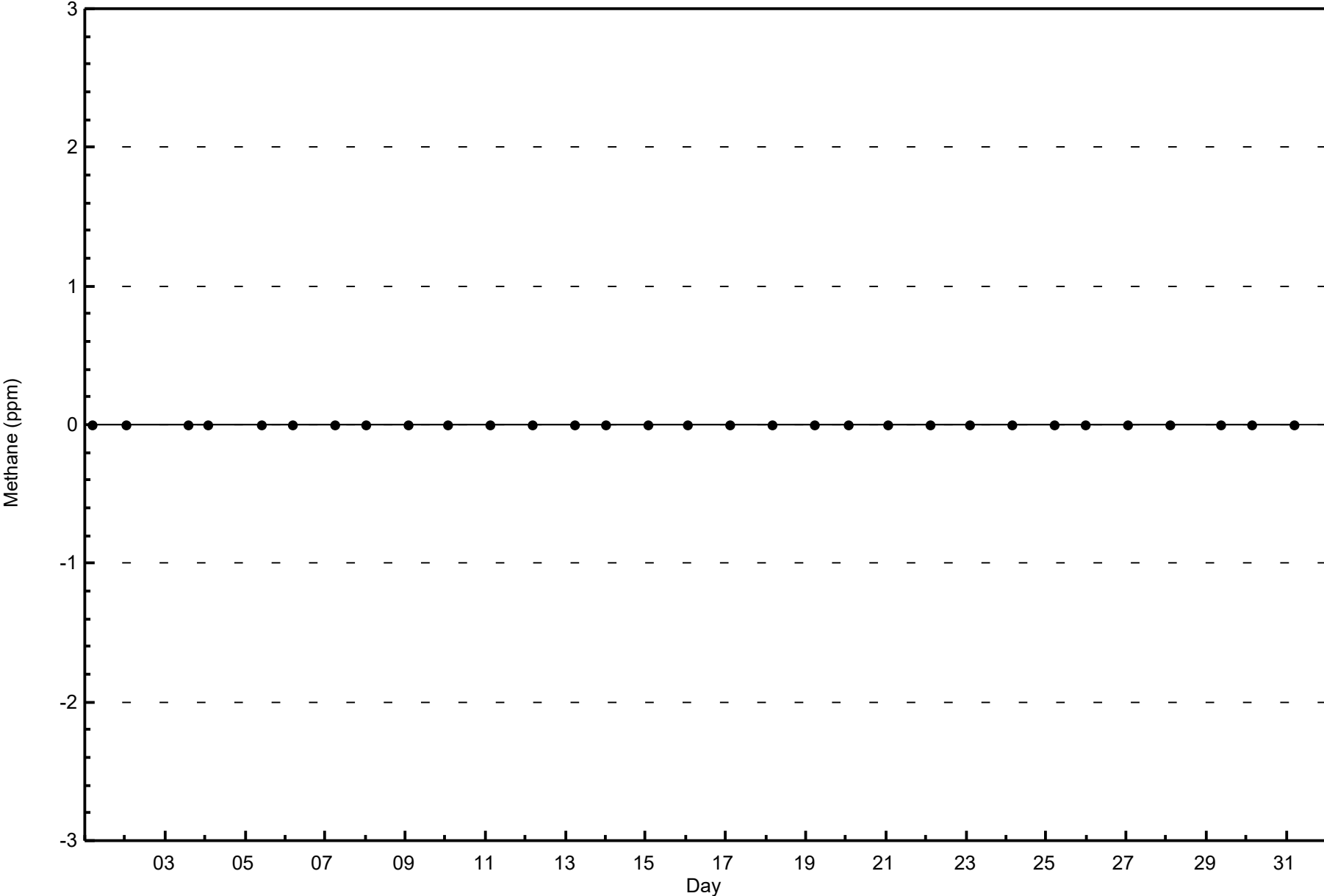


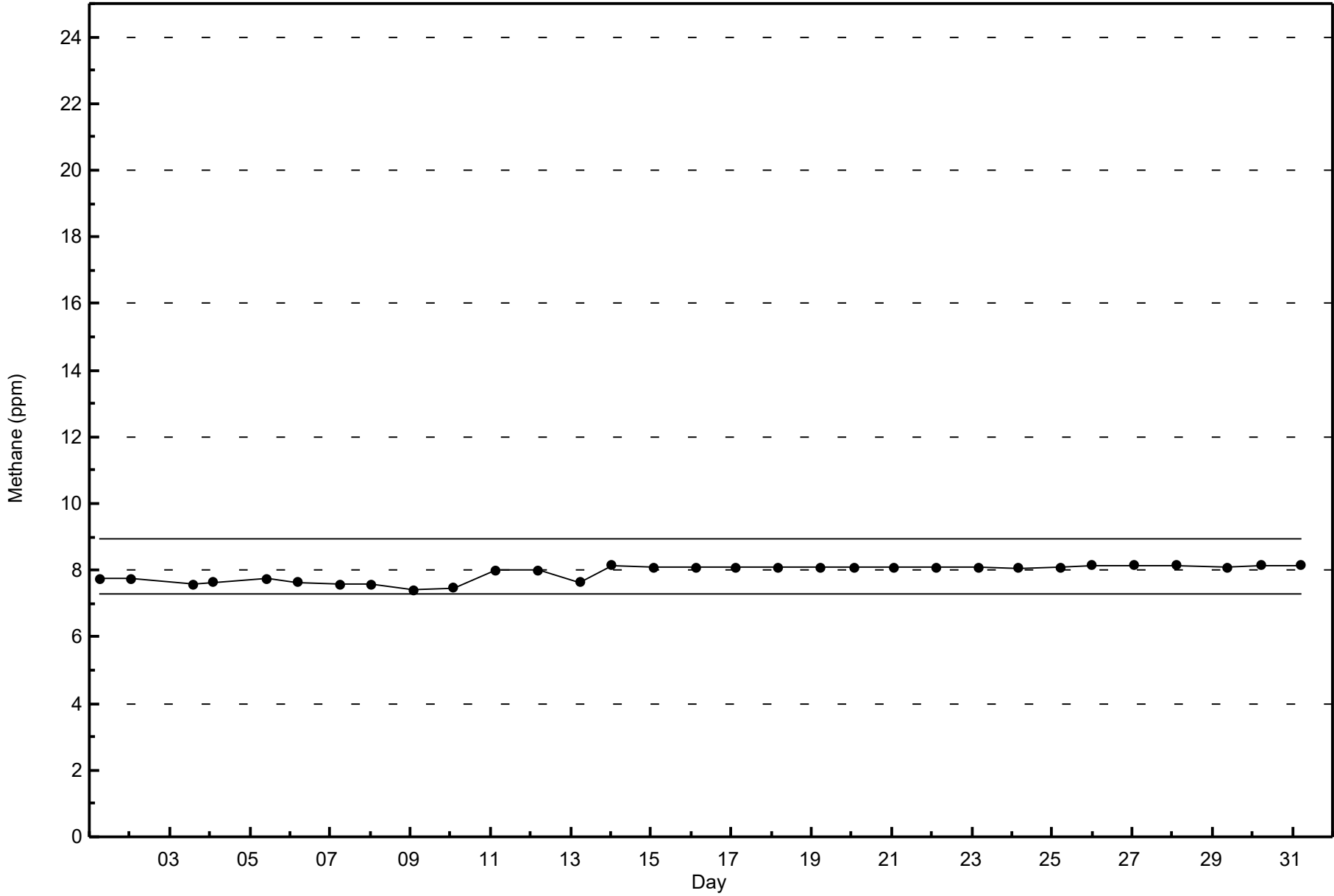
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Mannix



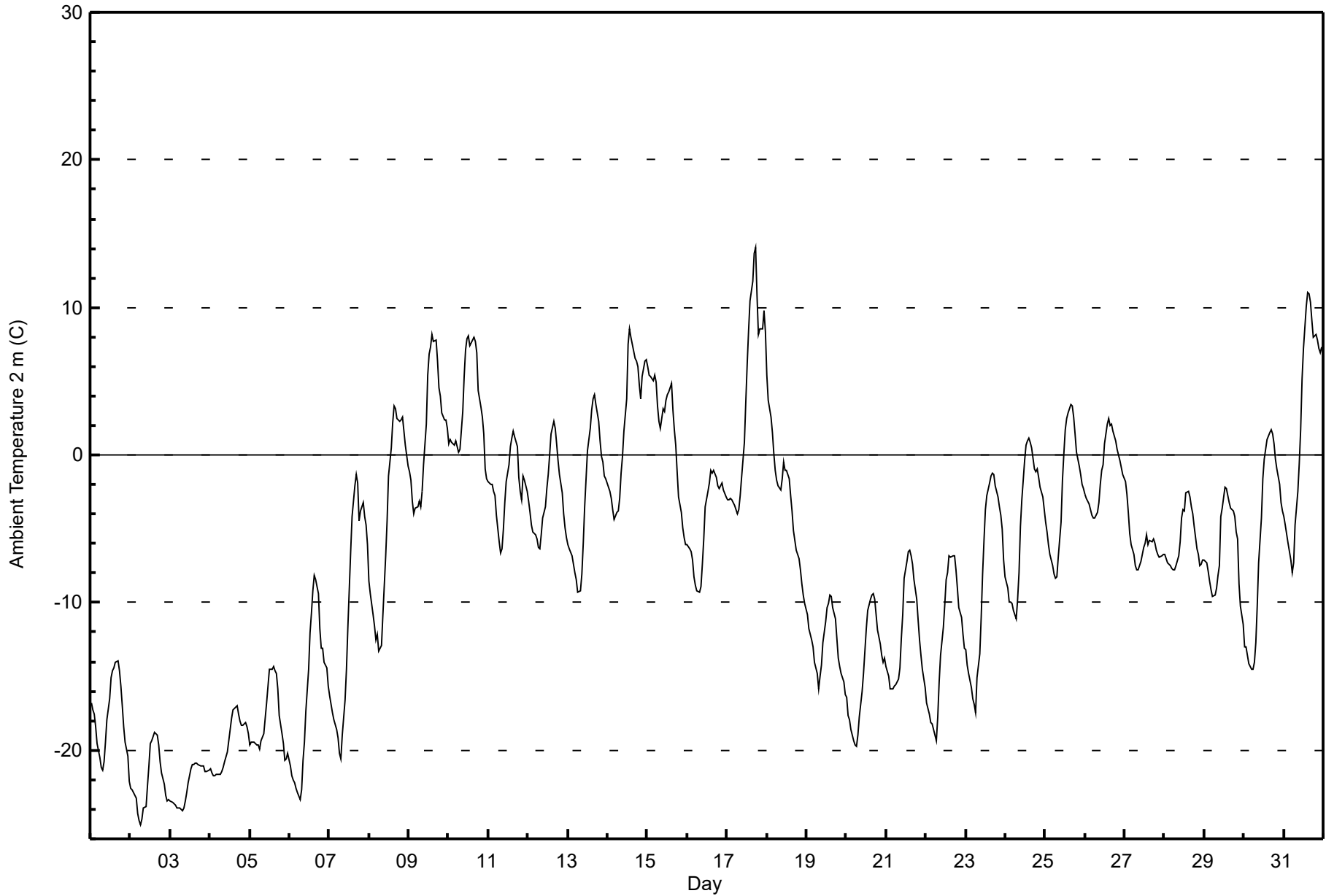
Total Number of Valid Hours: 650







Maximum Value: 14.0 C on Mar 17 18:00 Maximum Daily Average: 3.8 C on Mar 17																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -25.1 C on Mar 2 07:00 Minimum Daily Average: -22.3 C on Mar 3 Maximum Diurnal Average: -2.5 C at hour 16 Minimum Diurnal Average: -11.8 C at hour 7 Monthly Average: -7.18 C Percentiles: $P_1 = -23.9$ $P_{10} = -19.7$ $Q_1 = -14.4$ Median = -6.2 $Q_3 = -1.1$ $P_{90} = 3.3$ $P_{99} = 10.2$																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-16.8	-17.3	-17.5	-18.4	-19.6	-20.4	-21.1	-21.3	-20.7	-19.4	-17.9	-16.5	-15.1	-14.6	-14.4	-14.0	-14.0	-14.7	-15.6	-17.0	-18.4	-19.5	-20.4	-22.1	-17.8	-14.0
2-Mar	-22.6	-22.7	-22.8	-23.2	-24.3	-24.8	-25.1	-24.7	-23.9	-23.8	-22.4	-21.1	-19.5	-19.4	-18.8	-18.9	-19.0	-19.7	-20.8	-21.5	-22.3	-23.1	-23.4	-23.4	-22.1	-18.8
3-Mar	-23.5	-23.5	-23.6	-23.7	-23.9	-23.9	-23.9	-24.1	-23.9	-23.5	-22.2	-21.3	-21.0	-20.9	-20.9	-20.9	-21.0	-21.1	-21.1	-21.1	-21.4	-21.5	-21.4	-22.3	-20.9	
4-Mar	-21.3	-21.6	-21.8	-21.8	-21.7	-21.6	-21.6	-21.4	-21.1	-20.8	-20.1	-19.3	-18.6	-17.9	-17.2	-17.2	-17.0	-17.6	-18.0	-18.3	-18.3	-18.1	-18.4	-18.9	-19.6	-17.0
5-Mar	-19.6	-19.4	-19.4	-19.5	-19.7	-19.6	-20.0	-19.4	-18.8	-17.9	-16.8	-15.6	-14.5	-14.5	-14.4	-14.6	-14.8	-15.8	-17.7	-18.9	-19.6	-20.7	-20.6	-20.2	-18.0	-14.4
6-Mar	-21.0	-21.7	-22.0	-22.2	-22.6	-22.9	-23.4	-22.7	-20.7	-19.5	-17.4	-14.5	-12.0	-10.7	-9.2	-8.2	-8.4	-9.4	-11.8	-13.1	-13.1	-14.0	-14.4	-15.6	-16.3	-8.2
7-Mar	-16.3	-16.9	-17.5	-17.9	-18.6	-19.2	-20.2	-20.6	-19.0	-16.6	-14.5	-11.6	-9.1	-6.5	-4.1	-2.1	-1.4	-1.9	-4.5	-3.8	-3.2	-4.2	-4.7	-6.1	-10.9	-1.4
8-Mar	-8.6	-9.4	-10.8	-11.5	-12.5	-12.2	-13.3	-12.9	-10.8	-8.8	-6.8	-4.4	-1.4	0.5	2.2	3.4	3.1	2.5	2.2	2.4	2.5	1.6	0.6	-0.7	-4.3	3.4
9-Mar	-1.1	-1.7	-3.1	-4.0	-3.6	-3.5	-3.2	-3.5	-2.5	-0.7	2.1	5.4	6.8	7.4	8.2	7.7	7.8	6.4	4.5	4.0	2.9	2.4	2.4	1.8	1.8	8.2
10-Mar	0.7	1.0	0.9	0.7	0.9	0.6	0.2	0.4	3.0	5.3	7.1	7.9	8.0	7.4	7.8	8.0	7.7	6.9	4.4	3.3	2.6	1.5	-1.0	-1.6	3.5	8.0
11-Mar	-1.8	-2.0	-2.0	-2.5	-2.8	-4.1	-5.9	-6.6	-6.3	-5.0	-3.2	-1.8	-0.6	0.6	1.1	1.6	1.3	0.5	-1.5	-2.4	-3.0	-1.4	-1.7	-2.5	-2.2	1.6
12-Mar	-3.1	-3.9	-4.7	-5.2	-5.4	-5.7	-6.2	-6.4	-5.4	-4.3	-3.5	-2.3	-1.3	0.0	1.4	2.3	1.8	0.8	-0.4	-1.3	-2.6	-3.9	-5.0	-5.6	-2.9	2.3
13-Mar	-6.0	-6.4	-6.8	-7.4	-7.9	-8.4	-9.3	-9.2	-8.1	-6.0	-3.5	-1.6	0.3	1.8	3.1	3.8	4.1	3.4	2.2	1.0	0.0	-0.5	-1.4	-1.7	-2.7	4.1
14-Mar	-2.1	-2.4	-2.9	-3.7	-4.3	-3.9	-3.8	-2.9	-1.2	-0.1	1.6	3.8	7.5	8.5	8.0	7.5	6.6	6.4	6.0	4.8	3.8	5.3	6.3	6.4	2.3	8.5
15-Mar	6.0	5.5	5.3	5.1	5.4	4.9	3.3	2.3	1.8	3.2	3.0	3.7	4.1	4.3	4.8	3.0	1.8	0.7	-1.1	-2.8	-3.9	-4.9	-5.6	-6.1	1.8	6.0
16-Mar	-6.1	-6.3	-6.5	-7.1	-8.3	-8.8	-9.2	-9.3	-9.0	-7.4	-5.7	-3.5	-2.5	-1.8	-1.1	-1.2	-1.1	-1.5	-2.1	-2.3	-2.0	-1.9	-2.3	-2.8	-4.6	-1.1
17-Mar	-3.0	-3.1	-3.0	-3.1	-3.4	-3.7	-3.9	-3.7	-2.8	-1.5	0.9	3.6	6.2	8.5	10.4	11.8	13.6	14.0	10.9	8.2	8.6	8.5	9.8	8.3	3.8	14.0
18-Mar	5.4	3.8	2.6	1.5	0.1	-1.1	-1.7	-2.1	-2.4	-1.6	-0.5	-1.0	-1.0	-1.6	-2.7	-3.8	-5.2	-5.8	-6.4	-7.0	-7.7	-8.7	-9.5	-10.1	-2.8	5.4
19-Mar	-10.9	-11.8	-12.1	-12.5	-13.0	-14.1	-14.8	-15.9	-15.0	-14.2	-12.7	-11.3	-10.3	-10.1	-9.5	-9.6	-10.3	-11.1	-12.4	-13.7	-14.3	-14.8	-15.4	-16.2	-12.7	-9.5
20-Mar	-16.4	-17.6	-18.0	-18.6	-19.4	-19.6	-19.8	-19.0	-17.7	-16.0	-14.8	-13.3	-11.7	-10.6	-9.7	-9.5	-9.4	-9.8	-10.8	-11.8	-12.8	-13.6	-14.1	-13.8	-14.5	-9.4
21-Mar	-14.3	-15.0	-15.9	-15.9	-15.9	-15.7	-15.6	-15.1	-14.4	-12.4	-10.8	-8.3	-7.2	-6.5	-6.5	-6.8	-7.4	-8.4	-9.8	-11.2	-12.5	-13.5	-14.5	-15.8	-12.1	-6.5
22-Mar	-16.8	-17.1	-17.5	-18.1	-18.2	-19.0	-19.4	-17.8	-15.3	-13.5	-11.6	-10.1	-8.4	-8.0	-6.8	-6.9	-6.8	-6.8	-7.7	-9.0	-10.3	-11.0	-12.1	-13.1	-12.6	-6.8
23-Mar	-13.2	-14.2	-14.8	-15.7	-16.5	-16.9	-17.5	-15.1	-13.5	-11.0	-8.1	-5.8	-3.7	-2.8	-1.9	-1.4	-1.2	-1.3	-2.1	-2.8	-3.5	-4.1	-5.0	-7.2	-8.3	-1.2
24-Mar	-8.3	-9.0	-9.9	-10.0	-10.0	-10.5	-11.1	-9.8	-8.0	-4.8	-3.1	-0.4	0.6	0.9	1.1	0.9	0.5	-0.9	-1.2	-0.9	-1.5	-2.2	-2.8	-3.7	-4.3	1.1
25-Mar	-4.5	-5.2	-6.0	-6.7	-7.5	-8.1	-8.4	-8.2	-6.9	-4.6	-1.7	0.1	1.7	2.4	2.8	3.5	3.3	2.6	1.4	0.2	-0.7	-1.3	-2.0	-2.3	-2.3	3.5
26-Mar	-2.7	-2.9	-3.3	-3.7	-4.1	-4.3	-4.2	-3.9	-3.2	-2.0	-1.0	-0.6	0.8	2.1	2.5	2.0	2.1	1.6	1.0	0.4	0.1	-0.3	-0.9	-1.3	-1.1	2.5
27-Mar	-1.8	-2.6	-3.8	-5.3	-6.1	-6.7	-7.5	-7.8	-7.8	-7.5	-7.2	-6.3	-5.9	-5.4	-6.0	-5.8	-5.9	-5.7	-6.0	-6.4	-6.7	-6.9	-6.9	-6.7	-6.0	-1.8
28-Mar	-6.8	-7.0	-7.3	-7.5	-7.7	-7.8	-7.8	-7.5	-6.8	-5.9	-4.3	-3.7	-3.8	-2.5	-2.5	-2.9	-3.5	-4.0	-4.8	-6.4	-6.7	-7.5	-7.4	-7.1	-5.8	-2.5
29-Mar	-7.1	-7.3	-7.8	-8.6	-9.1	-9.6	-9.5	-9.0	-8.1	-7.4	-4.2	-3.6	-2.2	-2.3	-2.7	-3.2	-3.6	-3.8	-4.2	-5.2	-5.7	-8.7	-10.3	-11.4	-6.4	-2.2
30-Mar	-13.0	-13.0	-13.6	-14.2	-14.5	-14.5	-14.1	-12.7	-10.2	-7.3	-4.2	-1.7	-0.3	0.4	1.1	1.6	1.7	1.4	0.7	-0.3	-0.9	-2.0	-3.2	-3.8	-5.7	1.7
31-Mar	-4.2	-4.8	-5.9	-6.5	-7.1	-8.0	-7.3	-4.7	-2.4	-0.6	1.8	5.1	7.2	10.1	11.0	10.9	10.3	9.1	8.0	8.1	7.8	7.2	7.0	7.3	2.5	11.0
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

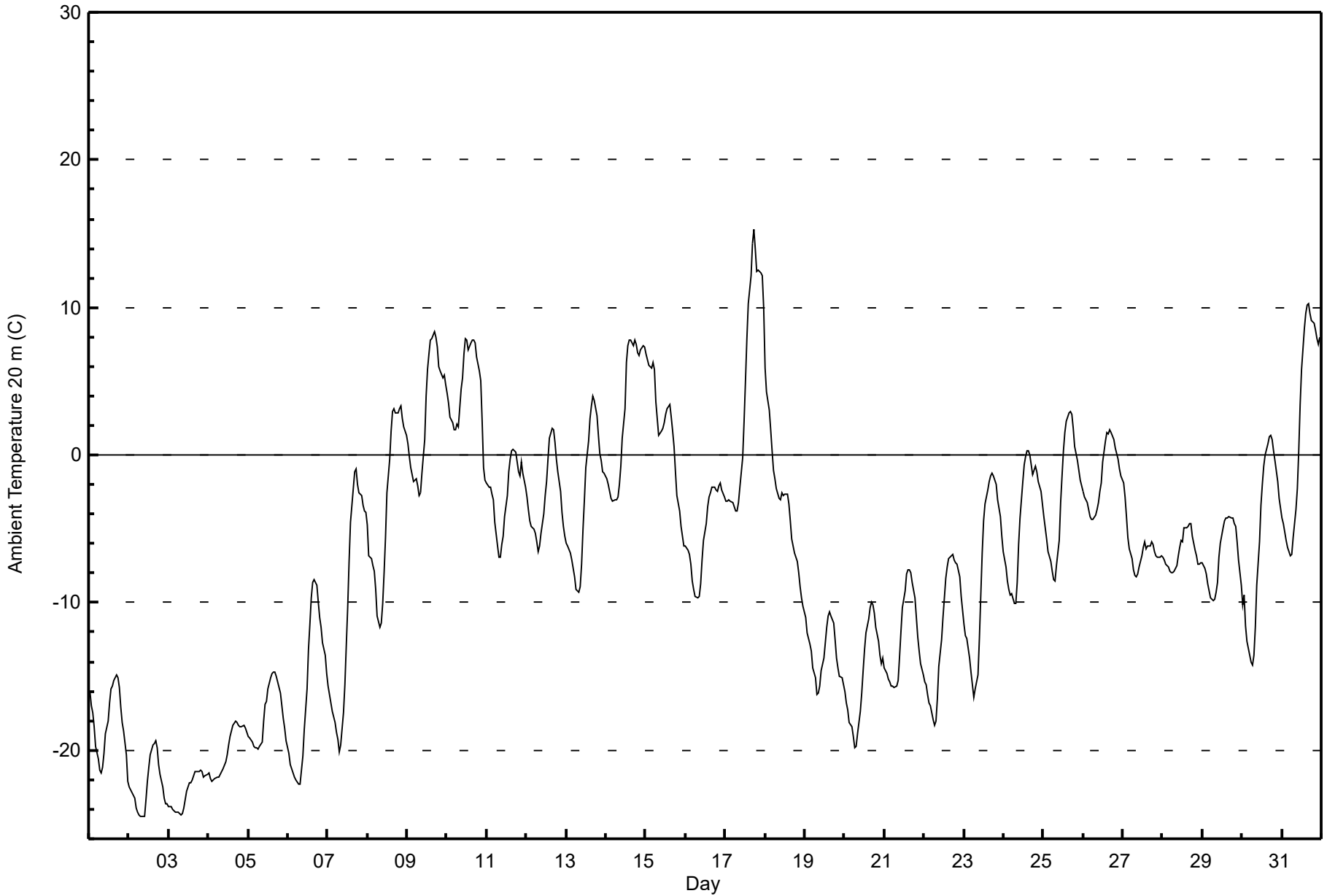
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	73	9.81	9.81
-20 - 0	514	69.09	78.90
0 - 10	148	19.89	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 15.3 C on Mar 17 18:00 Maximum Daily Average: 4.5 C on Mar 17																						Hours in Service:	744			
Minimum Value: -24.5 C on Mar 2 10:00 Minimum Daily Average: -22.8 C on Mar 3																						Hours of Data:	744			
Maximum Diurnal Average: -3.0 C at hour 17 Minimum Diurnal Average: -11.6 C at hour 8																						Hours of Missing Data:	0			
Monthly Average: -7.20 C Percentiles: P ₁ = -24.2 P ₁₀ = -19.9 Q ₁ = -14.6 Median = -6.4 Q ₃ = -1.3 P ₉₀ = 3.5 P ₉₉ = 11.4																						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-Mar	-16.0	-17.0	-17.5	-18.4	-19.7	-20.6	-21.3	-21.5	-21.2	-20.2	-18.9	-18.0	-16.8	-15.9	-15.6	-15.2	-14.9	-15.1	-15.7	-17.1	-18.1	-18.7	-20.3	-22.1	-18.2	-14.9
2-Mar	-22.5	-22.7	-22.9	-23.2	-23.9	-24.2	-24.3	-24.4	-24.5	-24.5	-23.3	-22.1	-21.2	-20.3	-19.6	-19.5	-19.4	-19.9	-21.0	-21.6	-22.4	-23.2	-23.7	-23.7	-22.4	-19.4
3-Mar	-23.8	-23.8	-24.0	-24.1	-24.2	-24.2	-24.2	-24.4	-24.3	-23.9	-23.4	-22.8	-22.2	-22.2	-22.0	-21.7	-21.5	-21.4	-21.4	-21.4	-21.4	-21.8	-21.8	-21.7	-22.8	-21.4
4-Mar	-21.6	-21.9	-22.1	-22.1	-21.9	-21.9	-21.8	-21.6	-21.4	-21.3	-20.8	-20.3	-19.7	-19.0	-18.7	-18.3	-18.0	-18.1	-18.3	-18.4	-18.4	-18.3	-18.5	-18.8	-20.0	-18.0
5-Mar	-19.1	-19.2	-19.5	-19.8	-19.9	-19.9	-19.9	-19.7	-19.4	-18.1	-16.9	-16.7	-15.8	-15.1	-14.8	-14.7	-14.7	-15.0	-15.4	-16.2	-17.0	-17.8	-18.5	-19.3	-17.6	-14.7
6-Mar	-20.2	-21.0	-21.3	-21.5	-21.8	-22.1	-22.3	-22.3	-21.4	-20.4	-18.6	-15.9	-13.2	-11.5	-9.7	-8.7	-8.5	-8.8	-9.9	-11.0	-11.7	-12.7	-13.5	-14.8	-15.9	-8.5
7-Mar	-15.7	-16.2	-16.8	-17.3	-18.2	-18.8	-19.3	-20.1	-19.6	-17.5	-15.5	-12.9	-10.3	-7.2	-4.5	-2.3	-1.1	-1.0	-2.0	-2.5	-2.8	-3.5	-3.8	-3.9	-10.5	-1.0
8-Mar	-4.8	-6.8	-7.0	-7.5	-7.9	-9.1	-10.9	-11.7	-11.4	-10.0	-8.0	-5.6	-2.5	-0.3	1.6	3.0	3.1	2.9	2.9	3.1	3.3	2.5	1.9	1.4	-3.3	3.3
9-Mar	0.8	-0.1	-0.8	-1.3	-1.8	-1.6	-2.1	-2.7	-2.6	-1.3	1.1	4.0	5.8	6.8	7.8	7.9	8.3	7.9	7.4	6.0	5.7	5.2	5.4	4.8	2.9	8.3
10-Mar	4.2	3.6	2.6	2.2	1.7	1.7	2.1	1.9	4.5	5.2	6.8	7.9	7.8	7.2	7.6	7.8	7.8	7.6	6.6	5.7	5.0	2.3	-0.8	-1.7	4.5	7.9
11-Mar	-1.9	-2.1	-2.2	-2.6	-3.0	-4.5	-6.1	-6.9	-7.0	-6.0	-5.5	-4.1	-2.7	-1.2	-0.3	0.2	0.4	0.2	-0.4	-1.2	-1.4	-0.5	-1.3	-2.2	-2.6	0.4
12-Mar	-2.9	-3.7	-4.5	-4.9	-5.1	-5.3	-5.9	-6.6	-6.2	-5.3	-3.9	-2.8	-1.8	-0.2	1.2	1.9	1.8	0.8	-0.3	-1.2	-2.5	-3.9	-4.9	-5.5	-3.0	1.9
13-Mar	-6.0	-6.2	-6.6	-7.1	-7.7	-8.2	-9.1	-9.3	-8.9	-7.4	-5.0	-3.0	-0.9	0.9	2.4	3.3	3.9	3.7	2.7	1.3	0.1	-0.3	-1.1	-1.2	-2.9	3.9
14-Mar	-1.6	-1.9	-2.5	-3.0	-3.1	-3.1	-3.1	-2.9	-2.0	-0.7	1.1	3.2	6.2	7.5	7.8	7.8	7.4	7.8	7.5	7.0	6.7	7.1	7.4	7.3	2.8	7.8
15-Mar	6.9	6.4	6.1	5.8	6.2	5.8	3.6	2.5	1.3	1.6	1.8	2.2	2.8	3.1	3.4	2.6	1.6	0.6	-1.1	-2.7	-3.8	-4.8	-5.5	-6.1	1.7	6.9
16-Mar	-6.2	-6.4	-6.7	-7.4	-8.5	-9.1	-9.6	-9.7	-9.6	-8.7	-7.2	-5.8	-4.6	-3.5	-2.9	-2.6	-2.2	-2.2	-2.3	-2.5	-2.1	-1.9	-2.4	-2.9	-5.3	-1.9
17-Mar	-3.1	-3.2	-3.0	-3.1	-3.2	-3.5	-3.8	-3.8	-3.2	-2.1	-0.2	2.3	5.0	7.9	10.3	12.2	14.3	15.3	14.0	12.4	12.5	12.4	12.2	10.0	4.5	15.3
18-Mar	5.9	4.3	3.0	1.7	0.3	-1.0	-1.6	-2.3	-2.9	-3.0	-2.6	-2.7	-2.6	-3.3	-4.4	-5.7	-6.2	-6.7	-7.2	-8.0	-8.9	-9.7	-10.3	-3.2	5.9	
19-Mar	-11.0	-12.0	-12.4	-12.8	-13.3	-14.4	-15.1	-16.2	-16.2	-15.7	-14.6	-13.8	-12.7	-11.7	-10.9	-10.6	-10.9	-11.4	-12.5	-13.7	-14.4	-15.0	-15.1	-15.5	-13.4	-10.6
20-Mar	-16.0	-16.8	-17.2	-18.1	-18.5	-19.1	-19.8	-19.8	-18.9	-17.4	-16.1	-14.6	-13.2	-12.1	-11.1	-10.4	-9.9	-10.1	-10.7	-11.6	-12.6	-13.6	-14.1	-13.8	-14.8	-9.9
21-Mar	-14.4	-14.8	-15.2	-15.3	-15.7	-15.7	-15.8	-15.7	-15.3	-13.7	-12.0	-10.4	-9.2	-8.1	-7.8	-7.8	-8.0	-8.6	-9.7	-11.0	-12.3	-13.3	-14.1	-14.9	-12.4	-7.8
22-Mar	-15.4	-15.6	-16.3	-16.8	-17.0	-17.9	-18.3	-18.0	-16.6	-14.3	-12.5	-11.0	-9.7	-8.4	-7.6	-7.0	-6.8	-6.7	-7.1	-7.3	-7.4	-8.3	-9.6	-10.5	-11.9	-6.7
23-Mar	-11.4	-12.2	-12.4	-13.7	-14.7	-15.5	-16.4	-15.9	-14.9	-12.4	-9.5	-6.7	-4.5	-3.3	-2.4	-1.8	-1.4	-1.2	-1.4	-2.0	-3.0	-3.6	-4.1	-5.5	-7.9	-1.2
24-Mar	-6.5	-7.6	-8.6	-9.1	-9.5	-9.4	-10.1	-10.1	-8.6	-6.1	-4.3	-1.8	-0.7	0.0	0.3	0.3	0.1	-1.3	-1.0	-0.8	-1.1	-1.8	-2.5	-3.3	-4.3	0.3
25-Mar	-4.1	-4.9	-5.7	-6.5	-7.2	-7.9	-8.4	-8.6	-7.5	-5.8	-3.2	-1.4	0.3	1.5	2.2	2.9	3.0	2.7	1.8	0.6	-0.4	-1.0	-1.7	-2.1	-2.6	3.0
26-Mar	-2.5	-2.8	-3.2	-3.7	-4.1	-4.4	-4.3	-4.1	-3.7	-3.3	-2.5	-1.9	-0.5	1.0	1.5	1.4	1.8	1.5	1.0	0.5	0.1	-0.3	-0.9	-1.4	-1.4	1.8
27-Mar	-1.9	-2.8	-4.1	-5.6	-6.4	-7.0	-7.8	-8.1	-8.3	-8.0	-7.6	-6.8	-6.3	-5.8	-6.4	-6.2	-6.1	-5.9	-6.1	-6.6	-6.8	-7.0	-6.9	-6.8	-6.3	-1.9
28-Mar	-6.9	-7.2	-7.4	-7.6	-7.8	-7.9	-7.9	-7.8	-7.5	-6.9	-6.3	-5.8	-5.9	-4.9	-4.9	-4.9	-4.6	-4.7	-5.5	-6.4	-6.9	-7.4	-7.4	-7.3	-6.6	-4.6
29-Mar	-7.3	-7.6	-8.1	-8.7	-9.2	-9.7	-9.8	-9.8	-9.3	-8.6	-6.9	-6.0	-5.0	-4.4	-4.2	-4.3	-4.2	-4.2	-4.3	-4.7	-4.8	-5.9	-7.1	-8.8	-6.8	-4.2
30-Mar	-10.2	-9.5	-11.6	-12.7	-13.6	-14.0	-14.2	-13.6	-11.7	-8.8	-5.9	-3.4	-2.0	-0.8	0.0	0.7	1.2	1.3	1.1	0.3	-0.4	-1.8	-3.0	-3.6	-5.7	1.3
31-Mar	-4.2	-4.7	-5.8	-6.3	-6.5	-6.8	-6.7	-5.6	-3.7	-2.3	0.3	3.4	5.8	8.5	9.5	10.2	10.3	9.6	9.1	8.9	8.4	7.9	7.5	8.0	2.3	10.3
																						Diurnal Average				
																						Diurnal Maximum				





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	74	9.95	9.95
-20 - 0	520	69.89	79.84
0 - 10	138	18.55	98.39
10 - 20	12	1.61	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

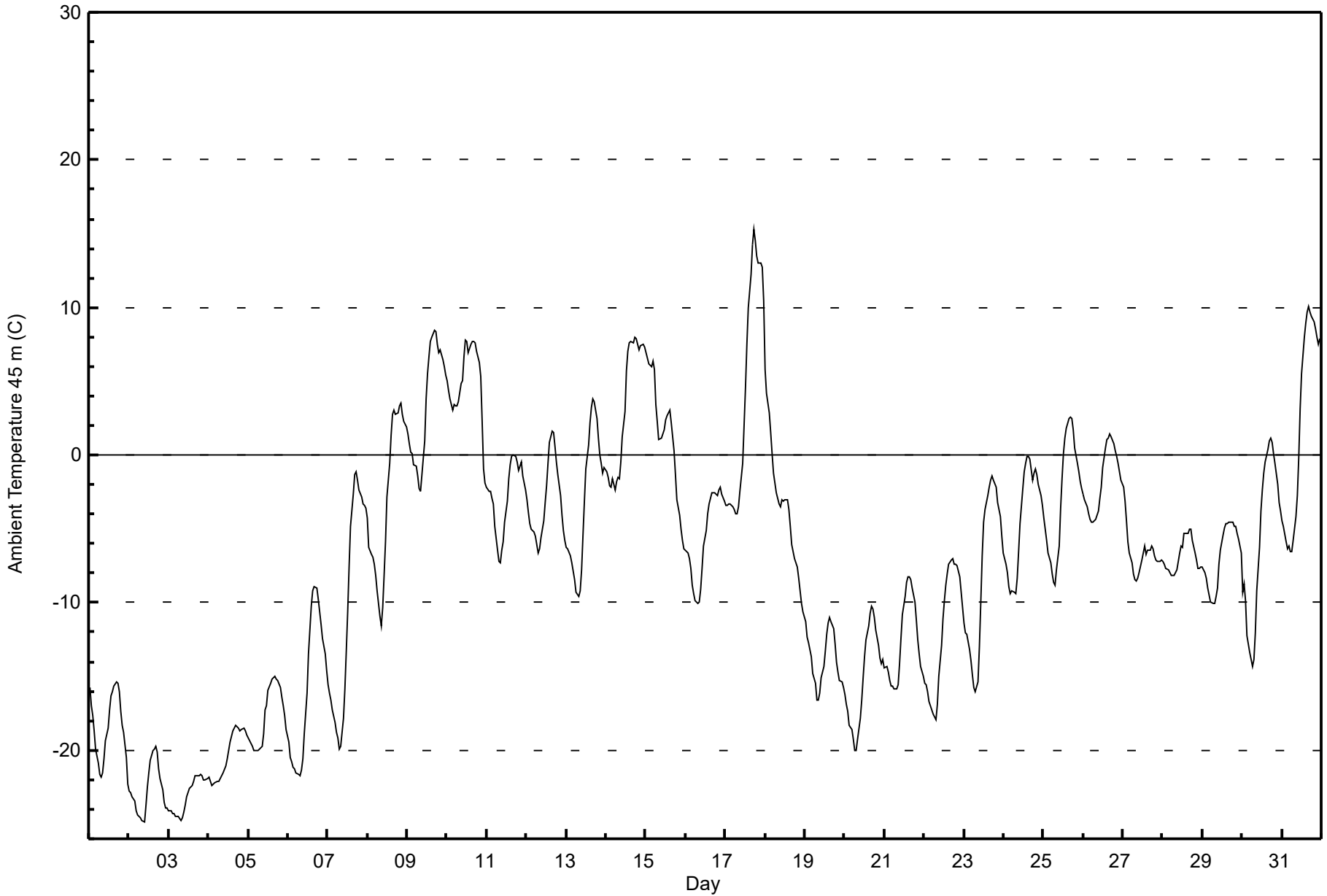
Total Number of Hours: 744



Summary of Hour Averages

Mannix - March 2024

Maximum Value: 15.3 C on Mar 17 18:00		Maximum Daily Average: 4.9 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -24.9 C on Mar 2 10:00		Minimum Daily Average: -23.1 C on Mar 3		Hours of Data: 744																																												
Maximum Diurnal Average: -3.3 C at hour 17		Minimum Diurnal Average: -11.6 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: -7.32 C		Percentiles: P ₁ = -24.5 P ₁₀ = -20.1 Q ₁ = -14.7 Median = -6.6 Q ₃ = -1.3 P ₉₀ = 3.6 P ₉₉ = 11.5		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-Mar	-15.7	-17.0	-17.7	-18.6	-19.9	-20.9	-21.6	-21.8	-21.5	-20.6	-19.3	-18.5	-17.3	-16.3	-16.1	-15.7	-15.3	-15.4	-16.0	-17.3	-18.3	-18.8	-20.5	-22.3	-18.4	-15.3																						
2-Mar	-22.7	-22.9	-23.1	-23.5	-24.1	-24.4	-24.5	-24.6	-24.8	-24.9	-23.8	-22.5	-21.5	-20.7	-20.1	-19.9	-19.7	-20.1	-21.2	-21.9	-22.7	-23.5	-24.0	-24.0	-22.7	-19.7																						
3-Mar	-24.1	-24.1	-24.3	-24.3	-24.5	-24.5	-24.5	-24.7	-24.6	-24.2	-23.7	-23.1	-22.6	-22.5	-22.4	-22.1	-21.8	-21.7	-21.7	-21.7	-21.7	-22.0	-22.0	-22.0	-23.1	-21.7																						
4-Mar	-21.8	-22.1	-22.4	-22.3	-22.2	-22.1	-22.1	-21.9	-21.7	-21.5	-21.1	-20.6	-20.0	-19.4	-19.1	-18.7	-18.3	-18.4	-18.5	-18.7	-18.6	-18.5	-18.7	-19.0	-20.3	-18.3																						
5-Mar	-19.2	-19.3	-19.7	-20.0	-20.1	-20.0	-20.0	-19.9	-19.7	-18.8	-17.3	-17.0	-16.0	-15.5	-15.2	-15.0	-15.0	-15.2	-15.3	-15.7	-16.4	-17.0	-17.6	-18.6	-17.7	-15.0																						
6-Mar	-19.5	-20.5	-20.8	-21.2	-21.3	-21.6	-21.6	-21.7	-21.4	-20.6	-18.9	-16.1	-13.5	-11.9	-10.2	-9.2	-8.9	-9.0	-9.8	-10.6	-11.5	-12.5	-13.5	-14.7	-15.8	-8.9																						
7-Mar	-15.6	-16.1	-16.6	-17.3	-18.2	-18.8	-19.1	-19.9	-19.8	-17.9	-15.9	-13.3	-10.6	-7.5	-4.9	-2.6	-1.4	-1.1	-1.7	-2.4	-2.9	-3.3	-3.4	-3.6	-10.6	-1.1																						
8-Mar	-4.3	-6.2	-6.7	-6.9	-7.4	-8.1	-9.2	-10.9	-11.6	-10.4	-8.2	-5.9	-2.8	-0.6	1.3	2.7	3.0	2.8	2.8	3.3	3.5	2.8	2.3	1.9	-3.0	3.5																						
9-Mar	1.4	0.7	0.2	0.1	-0.7	-0.8	-1.5	-2.3	-2.5	-1.3	1.0	3.8	5.5	6.6	7.7	7.9	8.5	8.3	7.5	7.0	7.1	6.5	6.0	5.5	3.4	8.5																						
10-Mar	5.0	4.4	3.8	3.1	3.4	3.3	3.3	3.6	4.9	5.1	6.6	7.8	7.7	7.0	7.5	7.7	7.7	7.6	7.1	6.2	5.3	2.3	-1.0	-1.9	4.9	7.8																						
11-Mar	-2.2	-2.4	-2.5	-2.9	-3.3	-4.8	-6.4	-7.2	-7.3	-6.4	-5.9	-4.6	-3.1	-1.6	-0.7	-0.1	0.0	-0.1	-0.4	-1.0	-0.7	-0.5	-1.4	-2.3	-2.8	0.0																						
12-Mar	-3.1	-3.9	-4.7	-5.0	-5.2	-5.5	-6.1	-6.6	-6.3	-5.6	-4.5	-3.2	-2.1	-0.6	0.9	1.6	1.5	0.6	-0.5	-1.3	-2.7	-4.1	-5.1	-5.8	-3.2	1.6																						
13-Mar	-6.2	-6.4	-6.8	-7.3	-7.9	-8.5	-9.3	-9.6	-9.2	-7.7	-5.4	-3.1	-1.0	0.6	2.2	3.2	3.8	3.6	2.5	1.2	0.0	-0.6	-1.2	-0.8	-3.1	3.8																						
14-Mar	-1.2	-1.5	-2.1	-2.2	-1.6	-2.4	-1.8	-1.5	-1.6	-0.5	1.3	3.0	5.7	7.1	7.6	7.7	7.6	8.0	7.9	7.5	7.2	7.4	7.6	7.3	3.2	8.0																						
15-Mar	6.9	6.5	6.2	6.0	6.3	5.8	3.4	2.3	1.0	1.1	1.5	1.7	2.4	2.7	3.0	2.2	1.2	0.3	-1.4	-3.0	-4.1	-5.0	-5.8	-6.4	1.5	6.9																						
16-Mar	-6.5	-6.7	-7.0	-7.6	-8.8	-9.4	-9.9	-10.0	-10.0	-9.1	-7.6	-6.2	-5.2	-4.0	-3.3	-2.9	-2.5	-2.5	-2.6	-2.7	-2.4	-2.2	-2.7	-3.2	-5.6	-2.2																						
17-Mar	-3.4	-3.5	-3.3	-3.4	-3.5	-3.7	-4.0	-4.0	-3.5	-2.5	-0.6	2.0	4.6	7.5	10.0	12.2	14.3	15.3	14.5	13.5	13.1	13.0	12.7	10.4	4.5	15.3																						
18-Mar	5.8	4.2	2.8	1.6	0.1	-1.3	-1.9	-2.6	-3.3	-3.5	-3.1	-3.2	-3.0	-3.0	-3.7	-4.8	-6.1	-6.5	-7.0	-7.6	-8.3	-9.2	-10.0	-10.6	-3.5	5.8																						
19-Mar	-11.3	-12.4	-12.8	-13.1	-13.7	-14.8	-15.5	-16.6	-16.6	-16.1	-15.1	-14.3	-13.3	-12.1	-11.4	-11.0	-11.3	-11.8	-12.9	-14.0	-14.7	-15.3	-15.4	-15.7	-13.8	-11.0																						
20-Mar	-16.2	-16.9	-17.3	-18.3	-18.6	-19.3	-20.0	-20.0	-19.2	-17.8	-16.6	-15.1	-13.6	-12.5	-11.6	-10.7	-10.3	-10.4	-11.0	-11.9	-12.9	-13.8	-14.2	-13.8	-15.1	-10.3																						
21-Mar	-14.4	-14.4	-14.7	-15.3	-15.6	-15.7	-15.9	-15.8	-15.5	-14.1	-12.4	-10.8	-9.6	-8.6	-8.3	-8.2	-8.4	-9.0	-10.0	-11.2	-12.5	-13.5	-14.3	-15.0	-12.6	-8.2																						
22-Mar	-15.5	-15.5	-16.0	-16.7	-17.0	-17.5	-17.8	-17.9	-16.9	-15.0	-12.9	-11.1	-9.9	-8.8	-8.0	-7.4	-7.1	-7.0	-7.4	-7.4	-7.5	-8.2	-9.3	-10.3	-12.0	-7.0																						
23-Mar	-11.4	-12.0	-12.1	-13.2	-14.0	-14.9	-15.8	-16.0	-15.4	-13.0	-9.9	-6.9	-4.6	-3.6	-2.8	-2.2	-1.7	-1.5	-1.7	-2.1	-3.2	-3.7	-4.2	-5.5	-8.0	-1.5																						
24-Mar	-6.6	-7.4	-8.0	-8.9	-9.4	-9.2	-9.3	-9.4	-8.3	-6.6	-4.7	-2.3	-1.1	-0.5	0.0	-0.1	-0.3	-1.7	-1.2	-1.0	-1.3	-2.0	-2.7	-3.4	-4.4	0.0																						
25-Mar	-4.3	-5.0	-5.7	-6.6	-7.3	-8.1	-8.7	-8.9	-7.8	-6.2	-3.6	-1.6	0.1	1.2	1.8	2.4	2.6	2.4	1.7	0.5	-0.5	-1.1	-1.8	-2.2	-2.8	2.6																						
26-Mar	-2.6	-3.0	-3.5	-4.0	-4.4	-4.6	-4.6	-4.4	-4.1	-3.7	-2.9	-2.2	-0.8	0.4	1.1	1.1	1.4	1.2	0.8	0.3	-0.1	-0.5	-1.2	-1.7	-1.8	1.4																						
27-Mar	-2.1	-3.1	-4.4	-5.9	-6.6	-7.3	-8.1	-8.4	-8.6	-8.3	-7.9	-7.1	-6.6	-6.1	-6.7	-6.4	-6.4	-6.2	-6.4	-6.8	-7.1	-7.2	-7.2	-7.1	-6.6	-2.1																						
28-Mar	-7.2	-7.4	-7.7	-7.8	-8.0	-8.1	-8.2	-8.1	-7.8	-7.2	-6.6	-6.2	-6.3	-5.4	-5.3	-5.3	-5.0	-5.0	-5.8	-6.6	-7.1	-7.7	-7.6	-7.6	-6.9	-5.0																						
29-Mar	-7.6	-7.9	-8.3	-9.0	-9.5	-9.9	-10.1	-10.1	-9.6	-9.0	-7.4	-6.4	-5.4	-4.9	-4.7	-4.6	-4.5	-4.6	-4.6	-4.8	-4.9	-5.3	-5.7	-6.6	-6.9	-4.5																						
30-Mar	-9.3	-8.7	-9.8	-12.2	-13.4	-13.8	-14.3	-13.8	-12.1	-9.2	-6.3	-3.8	-2.4	-1.2	-0.5	0.4	0.9	1.1	0.9	0.1	-0.5	-2.0	-3.2	-3.8	-5.7	1.1																						
31-Mar	-4.5	-4.9	-5.9	-6.4	-6.1	-6.6	-6.5	-5.8	-4.1	-2.7	-0.2	3.1	5.5	8.0	8.9	9.7	10.1	9.7	9.4	9.0	8.5	8.0	7.5	7.9	2.2	10.1																						
																								-8.4	-8.9	-9.4	-10.0	-10.4	-10.9	-11.3	-11.6	-11.3	-10.3	-8.8	-7.2	-5.8	-4.7	-4.0	-3.5	-3.3	-3.4	-3.9	-4.6	-5.1	-5.7	-6.4	-6.9	Diurnal Average
																								6.9	6.5	6.2	6.0	6.3	5.8	3.4	3.6	4.9	5.1	6.6	7.8	7.7	8.0	10.0	12.2	14.3	15.3	14.5	13.5	13.1	13.0	12.7	10.4	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	80	10.75	10.75
-20 - 0	518	69.62	80.38
0 - 10	136	18.28	98.66
10 - 20	10	1.34	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

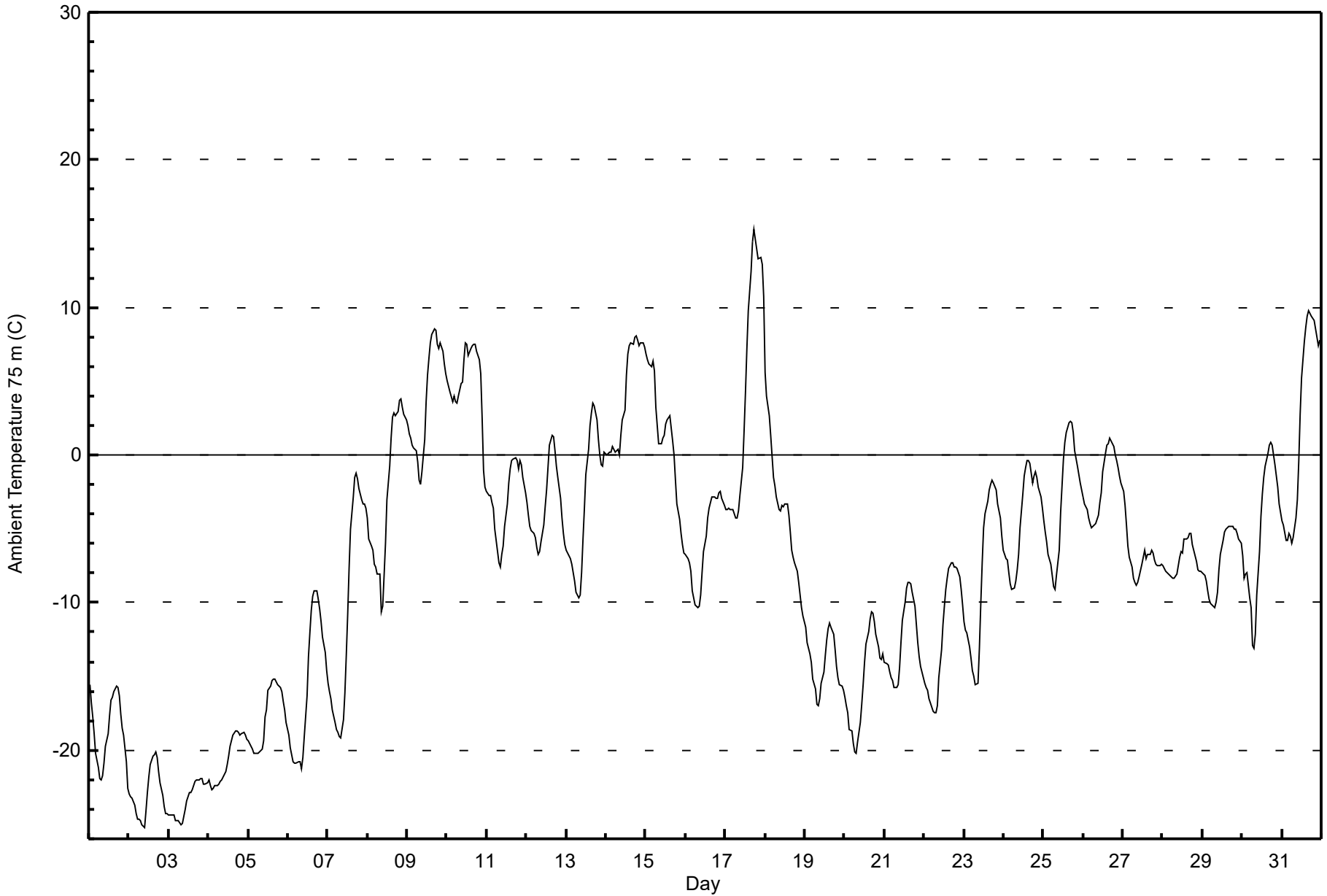


Maximum Value: 15.3 C on Mar 17 18:00																						Maximum Daily Average: 4.9 C on Mar 10				Hours in Service: 744																						
Minimum Value: -25.3 C on Mar 2 10:00																						Minimum Daily Average: -23.4 C on Mar 3				Hours of Data: 744																						
Maximum Diurnal Average: -3.5 C at hour 17																						Minimum Diurnal Average: -11.4 C at hour 8				Hours of Missing Data: 0																						
Monthly Average: -7.38 C																						Percentiles: P ₁ = -24.7 P ₁₀ = -20.3 Q ₁ = -14.7 Median = -6.7 Q ₃ = -1.2 P ₉₀ = 3.7 P ₉₉ = 11.7				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-Mar	-15.5	-16.8	-17.8	-18.9	-20.2	-21.1	-21.9	-22.0	-21.7	-20.9	-19.7	-18.9	-17.6	-16.6	-16.4	-16.0	-15.7	-15.7	-16.4	-17.5	-18.5	-19.0	-20.8	-22.6	-18.7	-15.5																						
2-Mar	-23.0	-23.1	-23.3	-23.7	-24.2	-24.7	-24.7	-24.7	-25.1	-25.3	-24.1	-22.8	-21.9	-21.0	-20.4	-20.3	-20.1	-20.5	-21.5	-22.2	-23.0	-23.8	-24.3	-24.3	-23.0	-20.1																						
3-Mar	-24.4	-24.4	-24.4	-24.4	-24.7	-24.7	-24.8	-25.0	-24.9	-24.5	-24.0	-23.4	-22.8	-22.8	-22.7	-22.4	-22.1	-22.0	-22.0	-21.9	-22.0	-22.3	-22.3	-22.2	-23.4	-21.9																						
4-Mar	-22.0	-22.4	-22.7	-22.5	-22.4	-22.4	-22.3	-22.2	-22.0	-21.9	-21.4	-20.9	-20.4	-19.7	-19.4	-19.0	-18.7	-18.7	-18.8	-18.9	-18.9	-18.8	-19.0	-19.2	-20.6	-18.7																						
5-Mar	-19.4	-19.5	-19.9	-20.2	-20.2	-20.2	-20.2	-20.1	-19.9	-19.3	-17.7	-17.3	-16.0	-15.6	-15.3	-15.2	-15.2	-15.4	-15.5	-15.7	-16.0	-16.7	-17.3	-18.2	-17.7	-15.2																						
6-Mar	-19.0	-19.8	-20.3	-20.8	-20.8	-20.9	-20.8	-20.8	-21.2	-20.5	-19.1	-16.4	-13.7	-12.0	-10.5	-9.5	-9.2	-9.2	-9.7	-10.4	-11.3	-12.3	-13.4	-14.7	-15.7	-9.2																						
7-Mar	-15.5	-16.1	-16.5	-17.3	-18.1	-18.6	-18.7	-19.1	-19.2	-18.0	-16.1	-13.6	-10.8	-7.7	-5.0	-2.8	-1.6	-1.3	-1.6	-2.3	-3.0	-3.4	-3.3	-3.6	-10.5	-1.3																						
8-Mar	-4.3	-5.7	-6.2	-6.5	-7.4	-7.6	-8.0	-8.1	-10.6	-10.2	-8.2	-6.0	-3.0	-0.8	1.2	2.5	2.9	2.6	2.9	3.7	3.8	3.2	2.8	2.4	-2.7	3.8																						
9-Mar	2.0	1.4	1.1	0.7	0.5	0.3	-0.5	-1.7	-2.0	-1.2	1.0	3.6	5.4	6.5	7.6	8.2	8.5	8.5	7.5	7.3	7.6	7.0	6.1	5.5	3.8	8.5																						
10-Mar	5.0	4.7	4.2	3.7	4.0	3.6	3.5	4.0	4.8	4.9	6.5	7.6	7.5	6.7	7.3	7.4	7.5	7.5	7.0	6.4	5.5	2.5	-1.1	-2.2	4.9	7.6																						
11-Mar	-2.5	-2.7	-2.7	-3.2	-3.6	-5.0	-6.5	-7.3	-7.6	-6.8	-6.1	-4.8	-3.4	-1.9	-0.9	-0.4	-0.2	-0.2	-0.4	-1.0	-0.4	-0.6	-1.6	-2.5	-3.0	-0.2																						
12-Mar	-3.3	-4.1	-4.8	-5.1	-5.3	-5.6	-6.2	-6.7	-6.5	-5.9	-4.7	-3.5	-2.4	-0.8	0.6	1.3	1.2	0.3	-0.7	-1.5	-2.9	-4.3	-5.3	-6.1	-3.4	1.3																						
13-Mar	-6.4	-6.6	-7.0	-7.4	-7.9	-8.6	-9.3	-9.7	-9.5	-7.9	-5.6	-3.6	-1.3	0.4	2.0	2.9	3.5	3.4	2.4	1.0	0.0	-0.7	-0.7	0.2	-3.2	3.5																						
14-Mar	0.0	0.1	0.2	0.2	0.5	0.2	0.3	0.4	0.0	1.3	2.4	3.1	5.4	6.8	7.4	7.6	7.5	8.0	8.1	7.8	7.4	7.6	7.6	7.3	4.0	8.1																						
15-Mar	6.8	6.5	6.2	6.0	6.3	5.7	3.3	2.0	0.8	0.8	1.1	1.4	2.1	2.4	2.7	1.8	0.9	0.0	-1.7	-3.3	-4.3	-5.3	-6.1	-6.6	1.2	6.8																						
16-Mar	-6.8	-7.0	-7.3	-7.9	-9.2	-9.7	-10.2	-10.3	-10.2	-9.4	-7.9	-6.6	-5.5	-4.3	-3.6	-3.3	-2.8	-2.8	-2.9	-3.0	-2.6	-2.5	-2.9	-3.4	-5.9	-2.5																						
17-Mar	-3.7	-3.7	-3.6	-3.7	-3.7	-4.0	-4.3	-4.3	-3.8	-2.8	-0.9	1.6	4.3	7.2	9.8	12.4	14.4	15.3	14.6	13.9	13.3	13.4	12.9	10.7	4.4	15.3																						
18-Mar	5.6	4.0	2.6	1.3	-0.1	-1.5	-2.1	-2.9	-3.7	-3.8	-3.4	-3.5	-3.3	-3.3	-4.0	-5.2	-6.4	-6.9	-7.3	-7.9	-8.7	-9.5	-10.3	-10.9	-3.8	5.6																						
19-Mar	-11.6	-12.7	-13.1	-13.5	-14.0	-15.1	-15.8	-16.9	-16.9	-16.5	-15.5	-14.7	-13.6	-12.5	-11.7	-11.3	-11.6	-12.1	-13.2	-14.3	-15.1	-15.6	-15.6	-16.0	-14.1	-11.3																						
20-Mar	-16.4	-17.0	-17.5	-18.6	-18.7	-19.5	-20.1	-20.2	-19.5	-18.2	-16.9	-15.5	-14.0	-12.9	-11.9	-11.1	-10.6	-10.7	-11.3	-12.1	-13.0	-13.8	-13.9	-13.5	-15.3	-10.6																						
21-Mar	-14.1	-14.1	-14.2	-14.7	-15.1	-15.2	-15.8	-15.8	-15.5	-14.4	-12.7	-11.2	-9.9	-9.0	-8.6	-8.6	-8.8	-9.3	-10.3	-11.5	-12.7	-13.6	-14.3	-15.1	-12.7	-8.6																						
22-Mar	-15.5	-15.7	-15.9	-16.5	-16.8	-17.4	-17.5	-17.5	-17.0	-15.1	-13.2	-11.5	-10.2	-9.1	-8.3	-7.7	-7.3	-7.3	-7.6	-7.6	-7.7	-8.3	-9.1	-10.2	-12.1	-7.3																						
23-Mar	-11.3	-11.9	-12.0	-13.0	-13.8	-14.6	-15.0	-15.6	-15.4	-13.1	-10.1	-7.3	-5.0	-4.0	-3.1	-2.4	-2.0	-1.7	-1.9	-2.3	-3.3	-3.8	-4.3	-5.5	-8.0	-1.7																						
24-Mar	-6.5	-7.1	-7.1	-8.0	-8.7	-9.1	-9.0	-8.6	-7.8	-6.8	-4.9	-2.6	-1.4	-0.8	-0.4	-0.3	-0.6	-1.9	-1.4	-1.1	-1.5	-2.2	-2.9	-3.6	-4.3	-0.3																						
25-Mar	-4.4	-5.2	-5.9	-6.8	-7.4	-8.2	-8.9	-9.1	-8.1	-6.5	-3.8	-2.0	-0.3	0.9	1.6	2.2	2.3	2.2	1.5	0.3	-0.7	-1.3	-1.9	-2.4	-3.0	2.3																						
26-Mar	-2.8	-3.3	-3.7	-4.2	-4.7	-4.9	-4.9	-4.7	-4.4	-4.0	-3.3	-2.6	-1.2	0.1	0.7	0.8	1.1	1.0	0.5	0.0	-0.4	-0.8	-1.5	-1.9	-2.0	1.1																						
27-Mar	-2.4	-3.4	-4.7	-6.2	-6.9	-7.6	-8.4	-8.7	-8.8	-8.6	-8.2	-7.4	-6.9	-6.4	-7.0	-6.7	-6.7	-6.5	-6.7	-7.1	-7.4	-7.5	-7.5	-7.4	-6.9	-2.4																						
28-Mar	-7.5	-7.7	-7.8	-8.0	-8.1	-8.2	-8.3	-8.3	-8.1	-7.5	-6.9	-6.5	-6.6	-5.7	-5.7	-5.6	-5.3	-5.3	-6.0	-6.8	-7.2	-7.8	-7.8	-7.9	-7.1	-5.3																						
29-Mar	-7.9	-8.2	-8.6	-9.2	-9.7	-10.1	-10.2	-10.3	-9.9	-9.3	-7.7	-6.8	-5.8	-5.2	-5.0	-5.0	-4.8	-4.9	-4.9	-5.0	-5.0	-5.4	-5.7	-6.0	-7.1	-4.8																						
30-Mar	-6.8	-8.4	-8.1	-8.0	-9.7	-10.3	-12.9	-13.1	-12.2	-9.4	-6.5	-4.2	-2.6	-1.5	-0.7	0.1	0.7	0.9	0.7	0.0	-0.6	-2.2	-3.3	-3.9	-5.1	0.9																						
31-Mar	-4.5	-4.8	-5.7	-5.8	-5.3	-5.5	-5.9	-5.6	-4.3	-3.0	-0.4	2.8	5.2	7.7	8.6	9.4	9.8	9.6	9.4	9.1	8.5	8.0	7.4	7.8	2.2	9.8																						
																								-8.3	-8.9	-9.2	-9.7	-10.2	-10.7	-11.2	-11.4	-11.3	-10.4	-9.0	-7.5	-6.1	-5.0	-4.2	-3.7	-3.5	-3.7	-4.1	-4.7	-5.2	-5.8	-6.4	-7.0	Diurnal Average
																								6.8	6.5	6.2	6.0	6.3	5.7	3.5	4.0	4.8	4.9	6.5	7.6	7.5	7.7	9.8	12.4	14.4	15.3	14.6	13.9	13.3	13.4	12.9	10.7	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 75 m (AT75m) - C
Mannix - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	84	11.29	11.29
-20 - 0	508	68.28	79.57
0 - 10	143	19.22	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

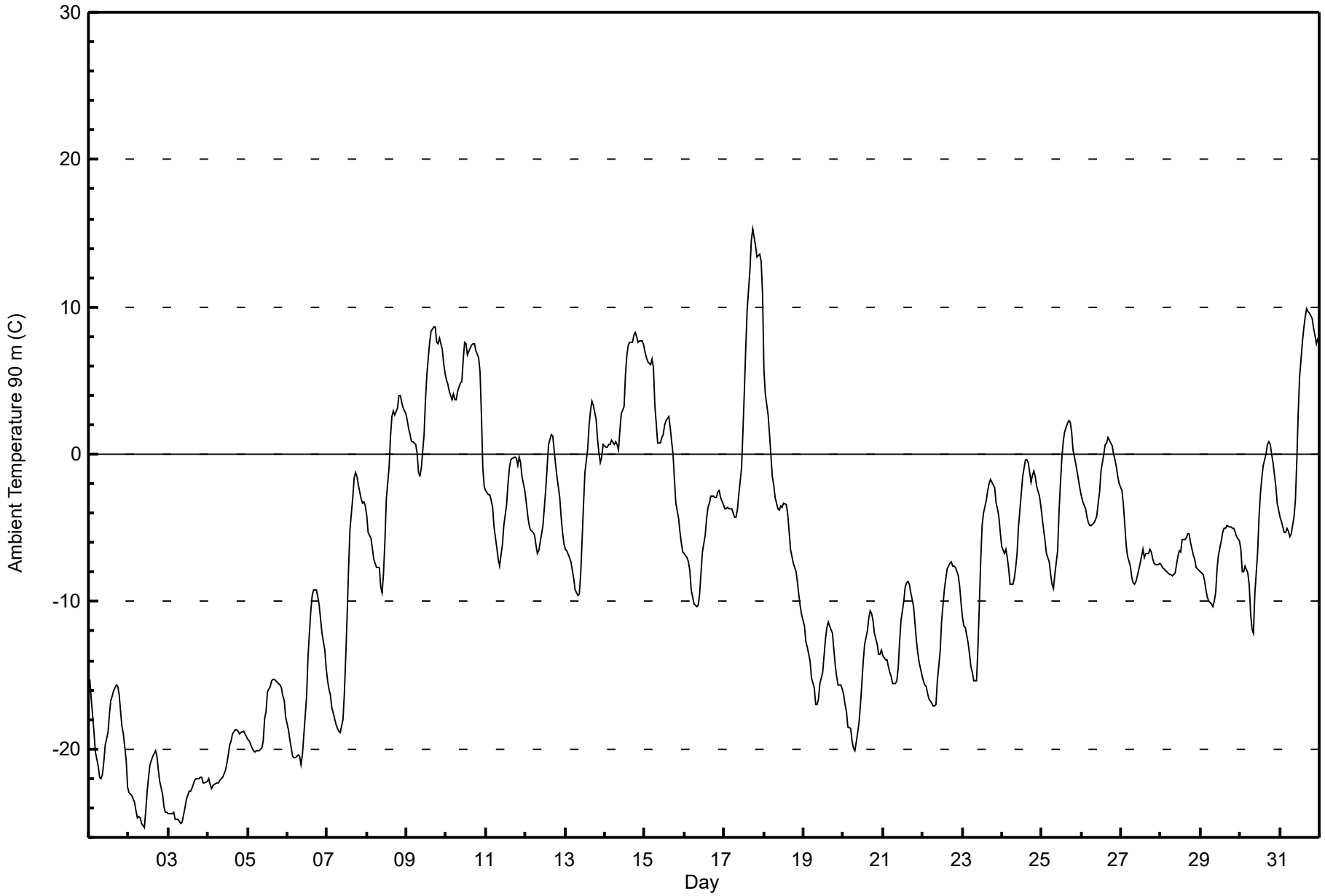
Total Number of Hours: 744



Summary of Hour Averages

Mannix - March 2024

Maximum Value: 15.3 C on Mar 17 18:00		Maximum Daily Average: 5.0 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -25.3 C on Mar 2 10:00		Minimum Daily Average: -23.4 C on Mar 3		Hours of Data: 744																																												
Maximum Diurnal Average: -3.5 C at hour 17		Minimum Diurnal Average: -11.2 C at hour 8		Hours of Missing Data: 0																																												
Monthly Average: -7.32 C		Percentiles: P ₁ = -24.6 P ₁₀ = -20.2 Q ₁ = -14.5 Median = -6.7 Q ₃ = -1.2 P ₉₀ = 4.0 P ₉₉ = 11.9		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-Mar	-15.3	-16.6	-17.7	-18.9	-20.2	-21.1	-21.9	-22.0	-21.7	-20.9	-19.7	-18.9	-17.7	-16.7	-16.4	-16.1	-15.7	-15.8	-16.4	-17.5	-18.5	-19.0	-20.8	-22.6	-18.7	-15.3																						
2-Mar	-23.0	-23.1	-23.2	-23.6	-24.2	-24.6	-24.6	-24.7	-25.1	-25.3	-24.2	-22.9	-21.9	-21.0	-20.5	-20.3	-20.1	-20.5	-21.4	-22.2	-23.0	-23.9	-24.3	-24.3	-23.0	-20.1																						
3-Mar	-24.4	-24.4	-24.3	-24.3	-24.7	-24.8	-24.8	-25.0	-24.9	-24.5	-24.0	-23.5	-22.8	-22.9	-22.7	-22.4	-22.1	-22.0	-22.0	-21.9	-22.0	-22.3	-22.3	-22.2	-23.4	-21.9																						
4-Mar	-22.0	-22.4	-22.6	-22.5	-22.4	-22.3	-22.3	-22.1	-22.0	-21.9	-21.4	-21.0	-20.4	-19.8	-19.4	-19.0	-18.7	-18.7	-18.8	-18.9	-18.9	-18.8	-19.0	-19.2	-20.6	-18.7																						
5-Mar	-19.4	-19.5	-19.9	-20.1	-20.2	-20.1	-20.2	-20.1	-19.9	-19.5	-17.9	-17.4	-16.1	-15.7	-15.4	-15.3	-15.3	-15.4	-15.5	-15.7	-15.8	-16.4	-16.7	-17.8	-17.7	-15.3																						
6-Mar	-18.7	-19.4	-19.9	-20.5	-20.6	-20.6	-20.4	-20.5	-21.0	-20.4	-19.1	-16.4	-13.8	-12.2	-10.6	-9.6	-9.2	-9.2	-9.7	-10.3	-11.1	-12.1	-13.3	-14.5	-15.5	-9.2																						
7-Mar	-15.4	-15.9	-16.3	-17.2	-18.0	-18.4	-18.6	-18.8	-18.9	-18.0	-16.2	-13.6	-10.9	-7.8	-5.1	-2.9	-1.6	-1.3	-1.5	-2.1	-3.0	-3.3	-3.2	-3.5	-10.5	-1.3																						
8-Mar	-4.1	-5.3	-5.7	-6.3	-7.1	-7.4	-7.7	-7.7	-9.0	-9.4	-8.0	-5.9	-3.1	-0.8	1.2	2.6	2.9	2.7	3.1	4.0	4.0	3.6	3.1	2.8	-2.4	4.0																						
9-Mar	2.3	1.8	1.3	0.9	0.9	0.7	0.1	-1.2	-1.5	-0.9	1.3	3.8	5.4	6.6	7.6	8.3	8.7	8.6	7.6	7.5	7.9	7.2	6.2	5.5	4.0	8.7																						
10-Mar	5.0	4.7	4.3	3.7	4.1	3.7	3.7	4.3	4.9	4.9	6.5	7.6	7.5	6.7	7.2	7.4	7.5	7.5	7.1	6.5	5.6	2.7	-1.0	-2.2	5.0	7.6																						
11-Mar	-2.5	-2.7	-2.8	-3.2	-3.6	-5.0	-6.4	-7.1	-7.6	-6.9	-6.2	-4.9	-3.4	-1.9	-0.9	-0.4	-0.2	-0.1	-0.2	-0.8	-0.2	-0.6	-1.5	-2.5	-3.0	-0.1																						
12-Mar	-3.2	-4.1	-4.7	-5.1	-5.3	-5.5	-6.2	-6.7	-6.5	-5.9	-4.8	-3.6	-2.3	-0.8	0.6	1.3	1.3	0.3	-0.7	-1.5	-2.9	-4.3	-5.3	-6.0	-3.4	1.3																						
13-Mar	-6.4	-6.6	-7.0	-7.3	-7.8	-8.4	-9.2	-9.6	-9.4	-8.0	-5.8	-3.4	-1.2	0.4	2.0	2.9	3.6	3.4	2.4	1.1	0.1	-0.6	-0.2	0.7	-3.1	3.6																						
14-Mar	0.5	0.5	0.7	0.7	1.0	0.7	0.8	0.7	0.3	1.6	2.8	3.3	5.4	6.8	7.4	7.6	7.6	8.1	8.2	8.0	7.6	7.7	7.7	7.4	4.3	8.2																						
15-Mar	6.9	6.6	6.3	6.1	6.5	5.8	3.3	2.0	0.8	0.7	1.1	1.3	2.0	2.3	2.6	1.8	0.9	0.0	-1.7	-3.3	-4.4	-5.3	-6.1	-6.6	1.2	6.9																						
16-Mar	-6.8	-7.0	-7.3	-7.9	-9.2	-9.7	-10.2	-10.3	-10.3	-9.5	-8.0	-6.6	-5.5	-4.3	-3.6	-3.3	-2.9	-2.8	-2.9	-3.0	-2.6	-2.5	-2.9	-3.5	-5.9	-2.5																						
17-Mar	-3.7	-3.7	-3.6	-3.7	-3.7	-4.0	-4.3	-4.3	-3.8	-2.8	-0.9	1.7	4.3	7.2	9.8	12.6	14.5	15.3	14.7	14.1	13.4	13.6	13.1	10.9	4.5	15.3																						
18-Mar	5.7	4.0	2.7	1.3	-0.1	-1.5	-2.1	-2.9	-3.7	-3.8	-3.5	-3.6	-3.3	-3.4	-4.1	-5.2	-6.4	-6.9	-7.4	-7.9	-8.7	-9.5	-10.4	-11.0	-3.8	5.7																						
19-Mar	-11.7	-12.7	-13.1	-13.5	-14.0	-15.2	-15.8	-17.0	-17.0	-16.6	-15.6	-14.8	-13.7	-12.5	-11.8	-11.4	-11.7	-12.2	-13.2	-14.4	-15.1	-15.6	-15.6	-16.0	-14.2	-11.4																						
20-Mar	-16.3	-17.0	-17.4	-18.5	-18.6	-19.5	-19.9	-20.1	-19.5	-18.2	-17.0	-15.6	-14.1	-12.9	-12.0	-11.1	-10.6	-10.8	-11.3	-12.1	-12.9	-13.6	-13.6	-13.3	-15.3	-10.6																						
21-Mar	-13.7	-13.9	-14.0	-14.4	-14.8	-15.1	-15.6	-15.6	-15.4	-14.5	-12.7	-11.2	-10.0	-9.1	-8.7	-8.7	-8.8	-9.4	-10.3	-11.5	-12.7	-13.5	-14.1	-15.0	-12.6	-8.7																						
22-Mar	-15.4	-15.7	-15.8	-16.2	-16.6	-16.9	-17.1	-17.1	-17.0	-15.3	-13.3	-11.4	-10.3	-9.2	-8.4	-7.8	-7.4	-7.3	-7.6	-7.6	-7.7	-8.2	-9.0	-10.1	-12.0	-7.3																						
23-Mar	-11.1	-11.7	-11.8	-12.8	-13.6	-14.4	-14.8	-15.4	-15.4	-13.1	-10.2	-7.2	-4.8	-4.0	-3.1	-2.4	-2.0	-1.7	-1.9	-2.3	-3.3	-3.7	-4.2	-5.3	-7.9	-1.7																						
24-Mar	-6.3	-6.8	-6.5	-7.0	-7.8	-8.9	-8.8	-8.5	-7.7	-6.8	-5.0	-2.7	-1.5	-0.9	-0.4	-0.4	-0.6	-1.9	-1.4	-1.1	-1.5	-2.2	-2.8	-3.5	-4.2	-0.4																						
25-Mar	-4.4	-5.1	-5.8	-6.7	-7.3	-8.1	-8.9	-9.1	-8.1	-6.5	-3.9	-2.0	-0.3	0.8	1.5	2.1	2.3	2.2	1.6	0.3	-0.7	-1.3	-1.8	-2.4	-3.0	2.3																						
26-Mar	-2.8	-3.3	-3.7	-4.2	-4.7	-4.9	-4.9	-4.7	-4.4	-4.1	-3.3	-2.6	-1.2	0.0	0.7	0.8	1.1	1.0	0.5	0.0	-0.4	-0.8	-1.5	-1.9	-2.0	1.1																						
27-Mar	-2.4	-3.4	-4.7	-6.2	-7.0	-7.6	-8.4	-8.7	-8.8	-8.6	-8.3	-7.4	-6.9	-6.5	-7.0	-6.7	-6.7	-6.5	-6.7	-7.1	-7.4	-7.5	-7.5	-7.4	-6.9	-2.4																						
28-Mar	-7.5	-7.7	-7.8	-8.0	-8.1	-8.1	-8.2	-8.3	-8.1	-7.5	-6.9	-6.5	-6.7	-5.8	-5.8	-5.7	-5.4	-5.4	-6.0	-6.8	-7.1	-7.7	-7.8	-7.8	-7.1	-5.4																						
29-Mar	-7.9	-8.2	-8.6	-9.2	-9.7	-10.0	-10.2	-10.3	-10.0	-9.4	-7.8	-6.8	-5.9	-5.3	-5.1	-5.0	-4.9	-4.9	-4.9	-5.0	-5.0	-5.3	-5.6	-5.9	-7.1	-4.9																						
30-Mar	-6.4	-7.9	-7.9	-7.6	-8.0	-8.9	-10.8	-11.9	-12.1	-9.5	-6.6	-4.2	-2.7	-1.6	-0.8	0.0	0.6	0.9	0.7	0.0	-0.6	-2.1	-3.3	-3.8	-4.8	0.9																						
31-Mar	-4.2	-4.5	-5.3	-5.3	-5.1	-5.2	-5.6	-5.4	-4.3	-3.1	-0.5	2.8	5.2	7.6	8.6	9.3	9.8	9.7	9.6	9.2	8.6	8.1	7.5	7.8	2.3	9.8																						
																								-8.2	-8.7	-9.1	-9.6	-10.0	-10.5	-11.0	-11.2	-11.2	-10.4	-9.0	-7.5	-6.1	-5.0	-4.3	-3.8	-3.5	-3.7	-4.1	-4.6	-5.1	-5.7	-6.3	-6.9	Diurnal Average
																								6.9	6.6	6.3	6.1	6.5	5.8	3.7	4.3	4.9	4.9	6.5	7.6	7.5	7.6	9.8	12.6	14.5	15.3	14.7	14.1	13.4	13.6	13.1	10.9	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	82	11.02	11.02
-20 - 0	506	68.01	79.03
0 - 10	147	19.76	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

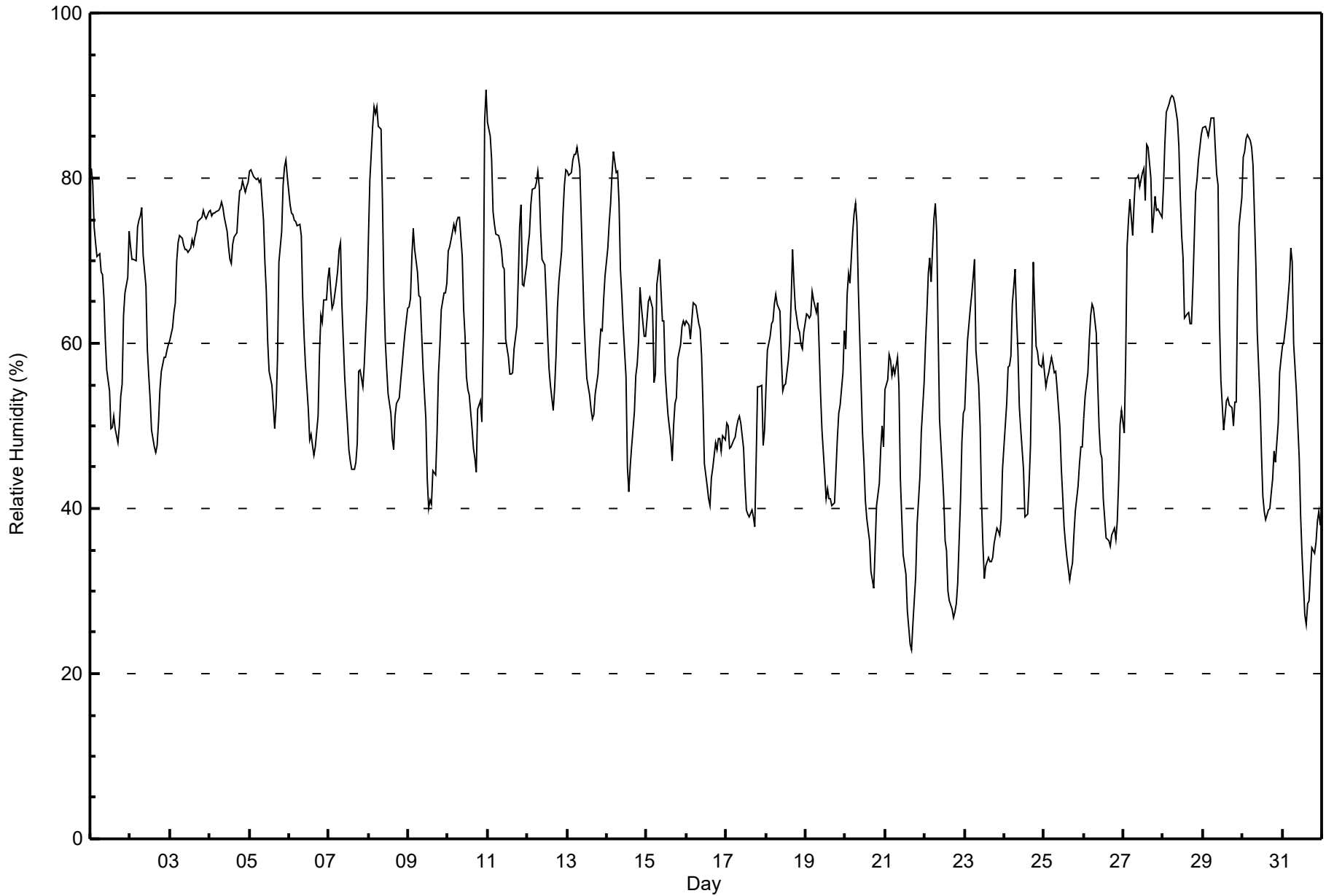


Maximum Value: 91 % on Mar 11 00:00 Maximum Daily Average: 78.4 % on Mar 28																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 23 % on Mar 21 17:00 Minimum Daily Average: 43.5 % on Mar 21 Maximum Diurnal Average: 72.6 % at hour 7 Minimum Diurnal Average: 47.2 % at hour 16 Monthly Average: 60.1 % Percentiles: P ₁ = 28 P ₁₀ = 40 Q ₁ = 50 Median = 60 Q ₃ = 72 P ₉₀ = 80 P ₉₉ = 88																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	81	79	74	72	71	71	69	68	65	60	57	54	50	50	51	50	48	50	54	55	63	66	68	74	62.5	81
2-Mar	72	70	70	70	74	75	75	76	71	67	59	56	53	49	47	47	48	50	54	57	58	58	59	60	61.6	76
3-Mar	60	62	64	65	70	72	73	73	72	71	71	71	72	72	73	74	75	75	75	76	75	75	76	76	71.4	76
4-Mar	76	75	76	76	76	76	76	77	77	75	74	72	70	70	72	73	73	76	78	79	80	78	79	79	75.6	80
5-Mar	81	81	80	80	80	80	80	80	75	70	66	60	57	55	52	50	52	58	70	74	79	81	82	80	71.0	82
6-Mar	77	76	76	75	75	74	74	73	66	61	57	52	48	49	48	46	47	51	59	63	63	65	65	68	62.8	77
7-Mar	69	66	64	65	67	69	71	72	65	56	53	50	47	46	45	45	46	48	57	57	55	57	61	65	58.2	72
8-Mar	73	80	86	89	88	89	86	86	77	67	60	57	54	52	49	47	51	53	53	56	57	59	61	64	66.4	89
9-Mar	64	65	70	74	71	69	66	66	61	57	51	43	40	41	41	45	44	49	56	60	64	66	66	67	58.2	74
10-Mar	71	72	73	74	74	75	75	75	71	64	61	56	54	54	50	47	46	44	52	53	50	62	87	91	63.8	91
11-Mar	87	85	82	76	74	73	73	72	71	69	69	61	58	56	56	56	59	62	68	74	77	67	67	69	69.3	87
12-Mar	72	73	77	79	79	80	81	79	74	70	69	65	61	57	55	52	55	59	64	68	71	76	79	81	69.8	81
13-Mar	81	80	81	82	83	83	84	81	75	69	63	59	56	54	52	51	51	54	56	59	62	62	65	68	67.1	84
14-Mar	72	75	77	80	83	81	81	77	69	66	62	56	45	42	45	47	52	56	58	60	67	64	61	61	64.0	83
15-Mar	63	65	66	64	55	56	67	68	70	63	63	56	54	51	48	46	50	53	53	58	60	62	63	62	59.0	70
16-Mar	63	62	61	63	65	65	65	62	62	59	53	45	43	41	40	44	45	48	47	49	48	47	49	48	53.0	65
17-Mar	50	50	47	47	48	49	50	51	51	50	47	43	40	39	39	40	39	38	46	55	55	55	48	50	47.0	55
18-Mar	55	59	61	62	63	65	66	65	64	58	54	55	55	58	60	65	71	67	64	62	61	60	59	61	61.3	71
19-Mar	64	63	63	63	66	65	64	65	60	54	49	44	41	42	41	41	40	41	45	48	52	53	56	62	53.4	66
20-Mar	59	66	68	67	74	76	77	75	67	55	49	46	41	39	36	32	31	30	35	40	43	47	50	47	52.1	77
21-Mar	54	56	59	58	56	57	56	58	55	44	39	34	32	28	26	24	23	26	32	38	41	44	49	55	43.5	59
22-Mar	60	64	68	70	67	75	77	73	61	51	45	41	36	35	30	29	28	27	27	28	31	41	48	52	48.6	77
23-Mar	52	56	60	64	66	68	70	59	55	50	41	36	32	33	34	34	34	36	38	37	37	39	45	46.2	70	
24-Mar	48	53	57	57	59	65	69	63	59	52	50	45	39	39	39	43	48	70	64	60	59	58	57	58	54.6	70
25-Mar	56	55	56	56	58	57	57	57	54	50	45	42	38	36	34	31	33	33	37	40	43	45	48	47	46.1	58
26-Mar	51	54	56	60	63	65	64	61	55	50	47	46	41	36	36	36	35	37	38	36	38	43	50	52	48.0	65
27-Mar	49	58	72	75	77	73	77	80	80	80	79	81	81	77	84	84	80	73	76	78	76	76	76	75	75.7	84
28-Mar	79	84	88	89	90	90	90	89	87	84	78	73	70	63	64	64	62	62	67	78	80	82	84	85	78.4	90
29-Mar	86	86	86	85	86	87	87	84	81	79	63	56	49	51	53	53	53	52	50	53	53	67	74	78	68.8	87
30-Mar	83	83	85	85	85	84	82	76	70	61	53	47	41	40	39	40	40	42	43	47	46	50	56	58	59.8	85
31-Mar	60	60	63	65	68	72	70	60	54	50	46	39	34	27	26	29	29	32	35	35	36	38	40	38	46.1	72
																		66.7 68.2 69.9 70.7 71.3 72.0 72.6 71.0 66.9 61.7 57.2 52.9 49.5 47.8 47.2 47.2 48.0 50.0 53.2 55.9 57.5 59.5 62.0 63.8				Diurnal Average				
																		87 86 88 89 90 90 90 89 87 84 79 81 81 77 84 84 80 76 78 79 80 82 87 91				Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Mannix - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Mannix - March 2024

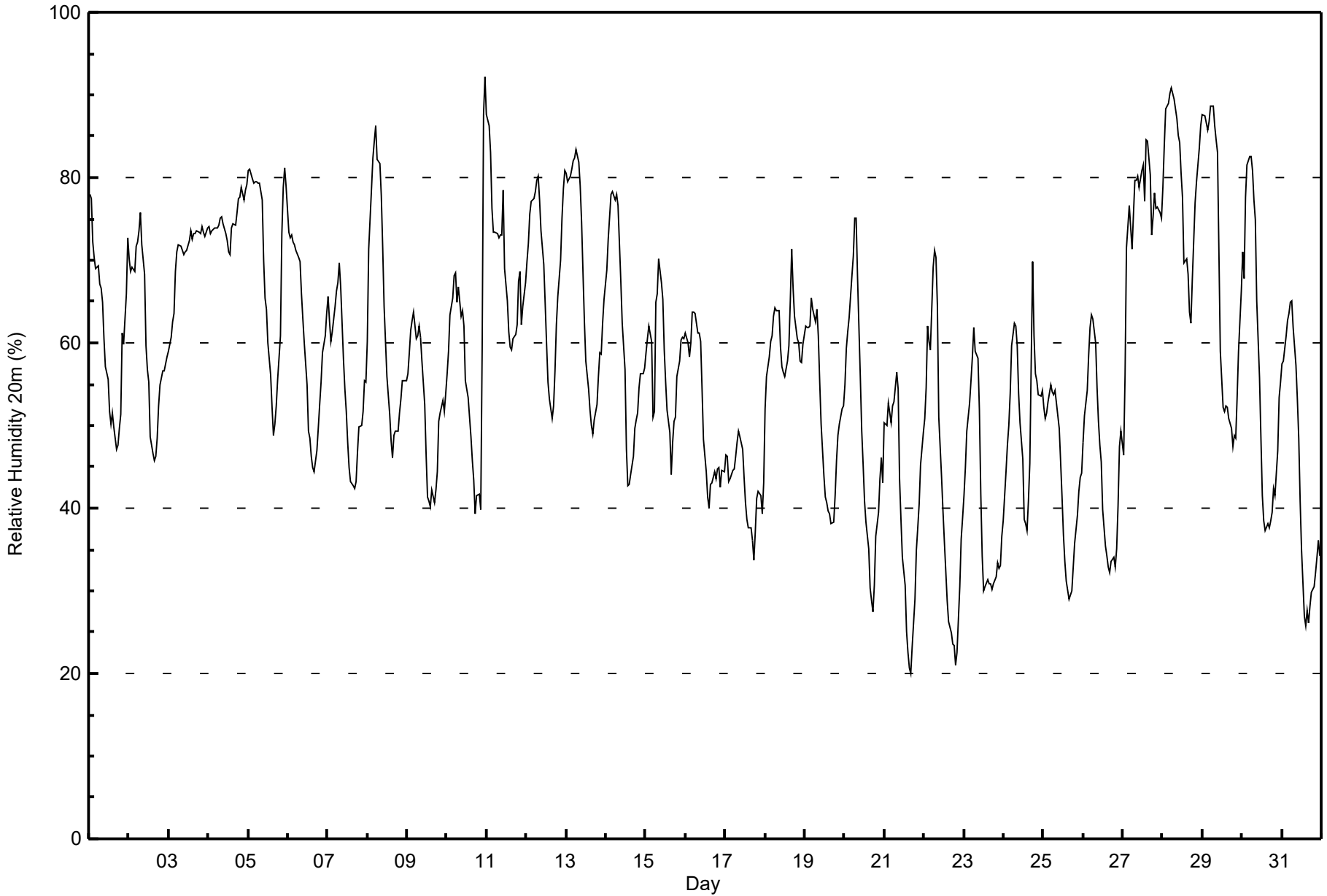
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	79	10.62	10.62
40 - 60	287	38.58	49.19
60 - 80	309	41.53	90.73
80 - 100	69	9.27	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 92 % on Mar 11 00:00 Maximum Daily Average: 80.2 % on Mar 28																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 20 % on Mar 21 17:00 Minimum Daily Average: 40.2 % on Mar 21 Maximum Diurnal Average: 69.9 % at hour 7 Minimum Diurnal Average: 46.0 % at hour 17 Monthly Average: 57.9 % Percentiles: P ₁ = 24 P ₁₀ = 38 Q ₁ = 47 Median = 58 Q ₃ = 71 P ₉₀ = 79 P ₉₉ = 88																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	78	77	72	70	69	69	67	67	65	60	57	56	52	50	52	50	47	48	50	51	61	60	66	73	61.1	78
2-Mar	70	69	69	69	72	72	74	76	72	68	60	57	55	49	47	46	46	49	52	55	57	57	57	58	60.6	76
3-Mar	59	61	63	64	69	71	72	72	71	71	71	71	72	73	73	73	74	73	73	74	73	73	74	74	70.5	74
4-Mar	74	73	74	74	74	74	74	75	75	74	73	72	71	71	74	74	74	76	77	78	79	77	78	79	74.8	79
5-Mar	81	81	80	79	79	80	79	79	77	70	65	64	60	56	52	49	50	52	56	61	73	79	81	79	69.3	81
6-Mar	73	73	73	72	72	71	70	70	66	63	60	55	49	48	46	45	44	47	50	53	55	59	61	64	60.0	73
7-Mar	66	63	60	61	64	66	67	70	67	58	54	52	48	45	43	43	42	43	47	50	50	52	55	55	55.1	70
8-Mar	60	71	79	82	84	86	82	82	78	71	64	60	56	51	48	46	49	49	49	51	53	55	55	55	63.3	86
9-Mar	56	59	61	63	64	60	61	62	61	58	53	46	41	41	40	42	41	42	44	51	52	53	52	54	52.3	64
10-Mar	56	59	63	65	68	68	65	67	63	64	62	55	54	53	49	46	43	39	42	42	40	59	88	92	58.5	92
11-Mar	88	86	83	76	73	73	73	73	73	73	78	69	65	61	59	59	61	61	62	67	69	62	64	67	69.9	88
12-Mar	70	72	76	77	77	78	80	80	77	74	69	65	60	55	53	51	52	57	62	66	70	75	79	81	69.0	81
13-Mar	80	80	80	81	82	82	83	82	79	75	68	63	58	54	52	50	49	51	53	56	59	59	62	65	66.8	83
14-Mar	69	73	75	78	78	77	78	77	72	67	62	57	47	43	43	44	46	50	51	51	55	56	56	57	60.9	78
15-Mar	59	61	62	60	51	52	65	66	70	67	65	59	55	52	49	44	48	50	51	56	58	60	61	60	57.6	70
16-Mar	61	60	58	60	64	64	64	61	61	60	54	48	44	41	40	43	43	44	44	45	45	43	45	44	51.5	64
17-Mar	46	46	43	43	45	45	46	48	49	49	47	44	41	39	38	38	36	34	37	41	42	42	39	43	42.5	49
18-Mar	52	56	58	60	61	63	64	64	64	60	57	56	56	58	60	65	71	67	63	61	60	58	58	60	60.5	71
19-Mar	62	62	62	62	65	64	63	64	61	55	50	44	41	41	40	39	38	38	42	46	49	50	52	52	51.7	65
20-Mar	55	59	61	63	68	70	75	75	68	56	49	45	41	38	35	30	29	27	31	37	39	43	46	43	49.4	75
21-Mar	50	50	53	52	50	52	53	56	54	44	39	34	31	25	23	21	20	23	29	35	38	41	45	49	40.2	56
22-Mar	51	55	62	60	59	69	71	70	65	51	44	40	36	32	29	26	25	24	23	21	23	30	36	39	43.4	71
23-Mar	42	45	49	53	55	58	62	59	58	52	42	34	30	31	31	31	31	30	31	32	33	33	33	37	41.3	62
24-Mar	38	44	48	50	54	60	62	62	60	54	50	46	39	38	37	41	46	70	61	56	55	54	54	54	51.4	70
25-Mar	52	51	52	53	55	54	54	54	53	50	46	41	37	34	31	29	30	30	33	36	39	42	44	44	43.4	55
26-Mar	48	51	54	59	62	63	63	60	55	51	48	46	40	35	34	33	32	34	34	33	35	40	47	49	46.1	63
27-Mar	46	56	72	74	77	71	76	80	80	80	79	81	81	77	85	84	80	73	75	78	76	76	76	75	75.4	85
28-Mar	79	84	88	89	90	91	90	89	87	85	84	81	78	70	70	68	64	62	68	77	79	82	84	86	80.2	91
29-Mar	88	87	87	86	87	89	89	86	85	83	71	59	52	52	52	52	51	50	48	49	48	53	59	66	67.8	89
30-Mar	71	68	78	82	83	82	81	77	75	65	56	48	42	38	37	38	38	38	39	42	42	47	53	55	57.3	83
31-Mar	57	58	61	63	64	65	65	62	57	53	49	41	35	27	26	28	26	28	30	31	32	34	36	34	44.2	65
																		Diurnal Average								
																		Diurnal Maximum								
62.5 64.1 66.3 67.1 68.2 69.1 69.9 69.8 67.6 63.2 59.0 54.5 50.6 47.7 46.7 46.1 46.0 47.1 48.6 50.9 52.9 55.0 57.9 59.6																										
88 87 88 89 90 91 90 89 87 85 84 81 81 77 85 84 80 76 77 78 79 82 88 92																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 20m (RH20m) - %
Mannix - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	1	0.13	0.13
20 - 40	97	13.04	13.17
40 - 60	308	41.40	54.57
60 - 80	282	37.90	92.47
80 - 100	56	7.53	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

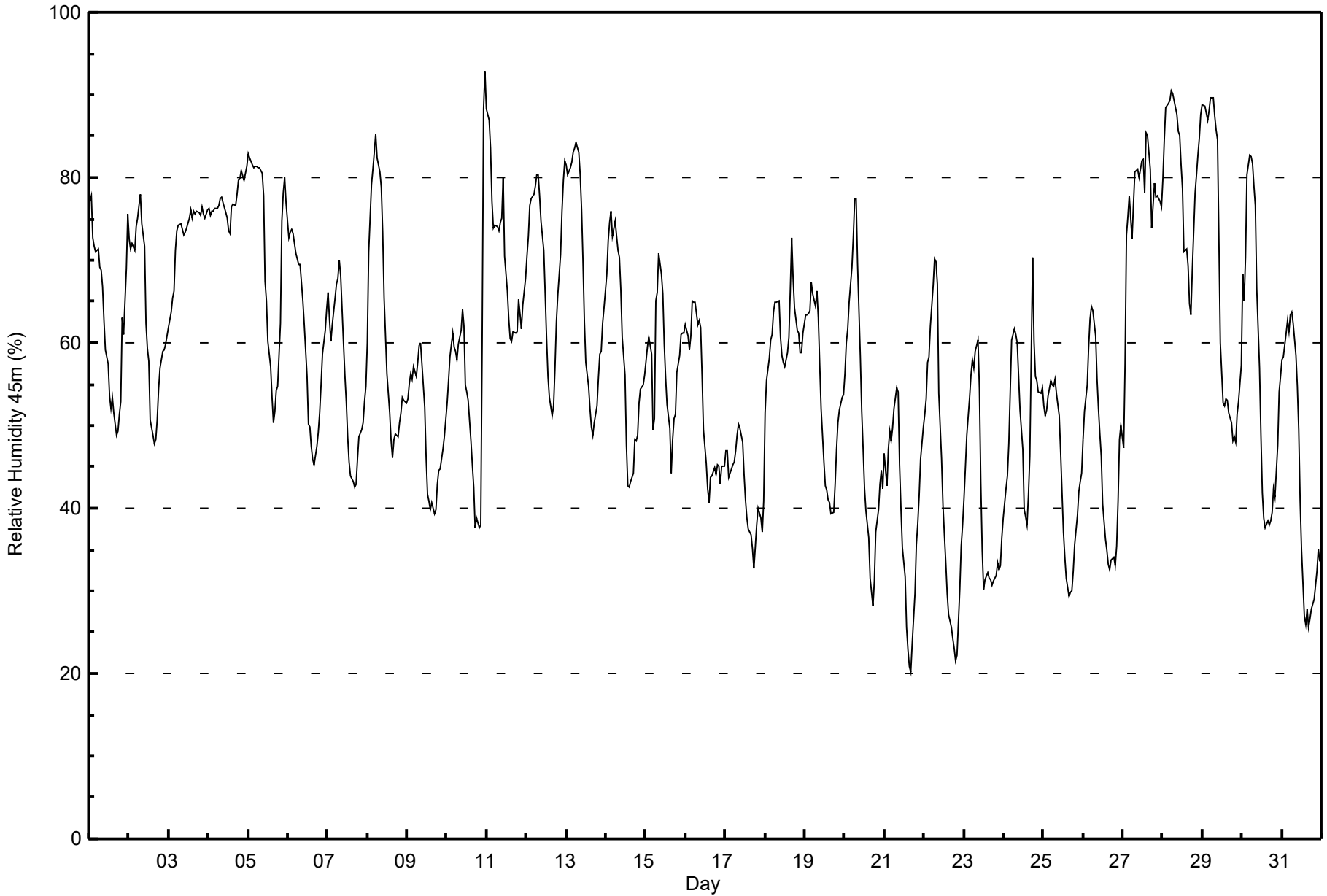


Maximum Value: 93 % on Mar 11 00:00 Maximum Daily Average: 80.9 % on Mar 28																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 20 % on Mar 21 17:00 Minimum Daily Average: 39.6 % on Mar 21 Maximum Diurnal Average: 70.1 % at hour 8 Minimum Diurnal Average: 46.5 % at hour 17 Monthly Average: 58.3 % Percentiles: P ₁ = 25 P ₁₀ = 38 Q ₁ = 47 Median = 58 Q ₃ = 71 P ₉₀ = 80 P ₉₉ = 89																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	77	78	73	72	71	71	69	69	67	63	59	57	54	52	53	52	49	49	51	53	63	61	69	76	62.8	78
2-Mar	73	71	72	71	74	75	77	78	74	72	62	59	58	51	49	48	48	51	54	57	59	59	60	61	63.0	78
3-Mar	62	64	65	66	71	73	74	74	74	73	73	74	75	76	75	76	76	76	76	75	76	76	75	76	73.0	76
4-Mar	76	75	76	76	76	76	77	77	78	77	76	75	74	73	76	77	77	78	80	80	81	80	80	81	77.1	81
5-Mar	83	82	82	81	81	81	81	81	81	78	67	65	60	57	53	50	52	54	55	62	75	78	80	77	70.7	83
6-Mar	73	73	74	73	72	71	70	70	67	65	62	56	50	50	48	46	45	47	49	52	55	59	61	64	60.5	74
7-Mar	66	63	60	62	65	67	68	70	68	60	56	53	49	46	44	43	43	43	46	49	50	50	53	55	55.3	70
8-Mar	60	71	79	81	83	85	82	81	79	73	65	61	56	51	48	46	48	49	49	50	52	53	53	53	62.9	85
9-Mar	53	55	56	56	57	56	58	60	60	58	52	46	42	41	40	41	39	40	43	45	45	47	49	51	49.5	60
10-Mar	53	55	58	61	60	59	58	60	62	64	62	55	54	53	48	45	43	38	39	38	38	60	88	93	56.0	93
11-Mar	88	87	83	77	74	74	74	74	75	75	80	70	66	63	61	60	61	61	61	65	64	62	65	68	70.3	88
12-Mar	71	73	77	78	78	79	80	80	78	75	71	66	61	56	53	51	52	57	63	66	71	76	80	82	69.7	82
13-Mar	82	80	81	82	83	84	84	83	80	76	70	63	58	55	52	50	49	50	52	56	59	59	62	64	67.2	84
14-Mar	68	72	75	76	73	75	73	71	70	66	61	56	48	43	43	43	44	48	48	49	53	54	55	56	59.2	76
15-Mar	58	59	61	59	50	51	65	66	71	68	66	60	56	53	50	44	48	51	51	57	59	61	61	61	57.7	71
16-Mar	62	61	59	61	65	65	65	62	63	62	56	50	45	42	41	44	44	45	44	45	45	43	45	45	52.4	65
17-Mar	47	47	44	44	45	46	47	49	50	50	48	44	41	39	37	37	35	33	35	38	40	39	37	41	42.2	50
18-Mar	52	55	58	60	61	64	65	65	65	61	58	58	57	59	61	66	73	68	64	62	61	59	59	61	61.3	73
19-Mar	63	63	64	64	67	66	64	66	63	58	52	46	43	42	41	41	39	40	43	47	50	52	53	54	53.4	67
20-Mar	56	60	62	65	69	73	77	77	70	58	52	47	42	40	36	31	30	28	31	37	40	43	45	42	50.5	77
21-Mar	47	43	47	49	48	50	52	55	54	45	40	35	32	26	23	21	20	24	30	36	38	41	46	50	39.6	55
22-Mar	51	53	58	58	62	67	70	70	67	54	46	40	37	33	30	27	26	24	23	22	22	30	35	38	43.5	70
23-Mar	41	45	49	53	56	58	57	59	60	54	43	35	30	31	32	32	31	31	31	32	33	33	33	36	41.5	60
24-Mar	39	42	44	48	54	60	62	61	60	56	52	47	40	39	38	42	46	70	60	56	55	54	54	55	51.4	70
25-Mar	52	51	52	54	55	55	55	56	54	51	47	42	37	34	32	29	30	30	32	36	39	42	43	44	43.8	56
26-Mar	48	52	55	60	63	64	64	61	56	52	49	46	41	36	35	33	33	34	34	33	35	41	48	50	46.8	64
27-Mar	47	57	73	75	78	73	77	81	81	81	80	82	82	78	85	85	81	74	77	79	78	78	77	76	76.5	85
28-Mar	80	85	88	89	89	91	90	89	88	86	85	82	79	71	71	69	65	63	69	78	80	83	85	88	80.9	91
29-Mar	89	89	88	87	88	90	90	88	86	85	72	60	53	52	53	53	52	50	48	49	48	51	53	57	67.9	90
30-Mar	68	65	70	80	83	83	82	79	77	67	57	49	42	39	38	38	38	38	40	42	41	48	54	56	57.2	83
31-Mar	58	58	61	63	61	63	64	62	58	55	50	41	35	27	26	28	26	27	28	29	31	32	35	34	43.8	64
																		62.7 64.1 65.9 67.1 68.2 69.1 70.0 70.1 68.8 65.0 60.3 55.5 51.4 48.7 47.5 46.7 46.5 47.4 48.6 50.7 52.7 55.0 57.9 59.5				Diurnal Average				
																		89 89 88 89 89 91 90 89 88 86 85 82 82 78 85 85 81 78 80 80 81 83 88 93				Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 45m (RH45m) - %
Mannix - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 45m (RH45m) - %
Mannix - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	101	13.58	13.58
40 - 60	303	40.73	54.30
60 - 80	268	36.02	90.32
80 - 100	72	9.68	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



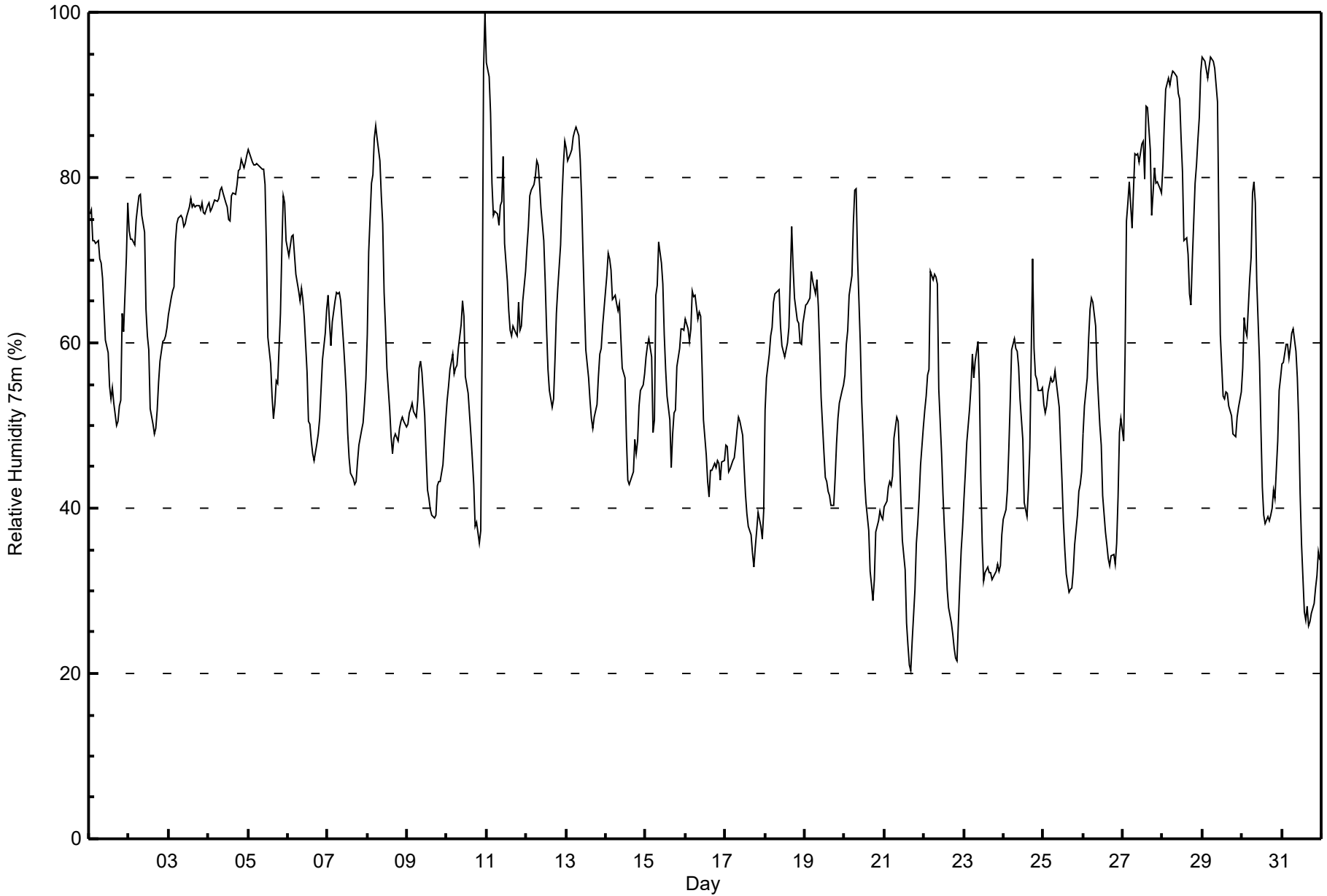
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 75m (RH75m) - %

Mannix - March 2024

Maximum Value: 100 % on Mar 11 00:00																			Maximum Daily Average: 83.3 % on Mar 28						Hours in Service: 744																								
Minimum Value: 20 % on Mar 21 17:00																			Minimum Daily Average: 38.1 % on Mar 21						Hours of Data: 744																								
Maximum Diurnal Average: 70.1 % at hour 8																			Minimum Diurnal Average: 47.2 % at hour 17						Hours of Missing Data: 0																								
Monthly Average: 58.7 %																			Percentiles: P ₁ = 25 P ₁₀ = 38 Q ₁ = 48 Median = 58 Q ₃ = 71 P ₉₀ = 81 P ₉₉ = 93						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-Mar	76	76	72	72	72	72	70	70	68	64	60	59	55	53	55	53	50	50	52	53	64	61	70	77	63.5	77																							
2-Mar	74	72	73	72	75	77	78	78	75	73	64	61	59	52	50	49	50	52	55	58	60	60	61	62	64.1	78																							
3-Mar	63	65	66	67	72	74	75	75	75	74	74	75	76	77	76	77	77	77	77	76	77	76	76	77	74.0	77																							
4-Mar	77	76	76	77	77	77	78	79	79	78	77	76	75	75	78	78	79	81	81	82	81	82	83	83	78.3	83																							
5-Mar	83	83	82	82	82	82	82	81	81	81	79	71	61	57	54	51	53	55	55	64	71	78	77	72	71.5	83																							
6-Mar	70	72	73	73	71	68	66	65	67	65	63	56	51	50	48	47	46	48	49	51	54	58	61	64	59.8	73																							
7-Mar	66	63	60	63	65	66	66	66	65	60	57	54	49	46	44	44	43	43	46	48	50	50	53	56	55.0	66																							
8-Mar	61	71	79	80	85	86	85	82	78	74	66	62	57	52	49	47	48	49	48	50	51	51	51	50	63.0	86																							
9-Mar	50	52	52	53	52	51	53	57	58	56	51	46	42	41	40	39	39	39	43	43	43	45	48	51	47.7	58																							
10-Mar	53	55	57	59	56	57	57	59	62	65	63	56	55	54	49	46	43	38	38	36	37	61	93	100	56.2	100																							
11-Mar	94	92	88	79	75	76	76	74	77	77	82	72	68	64	62	61	62	61	61	65	61	62	65	69	71.8	94																							
12-Mar	72	74	78	78	79	80	82	82	79	76	72	67	62	57	54	52	53	58	64	67	72	77	82	84	70.9	84																							
13-Mar	84	82	83	83	85	86	86	85	82	78	71	65	59	56	53	51	50	51	53	56	59	59	62	64	68.4	86																							
14-Mar	68	71	70	69	65	66	65	64	65	61	57	56	48	43	43	44	48	47	48	52	54	55	56	56	56.6	71																							
15-Mar	58	60	61	58	49	51	66	67	72	70	67	61	57	54	51	45	49	51	52	57	59	62	62	62	58.3	72																							
16-Mar	63	62	60	62	66	66	66	63	64	63	57	51	46	43	41	45	45	45	45	46	45	43	46	46	53.3	66																							
17-Mar	48	47	44	45	46	46	48	50	51	51	49	45	42	39	38	37	35	33	35	37	39	38	36	40	42.4	51																							
18-Mar	52	56	59	61	62	65	66	66	66	62	60	59	58	60	62	68	74	69	65	63	62	60	60	62	62.4	74																							
19-Mar	65	65	65	65	69	67	66	68	64	59	53	47	44	43	42	42	40	40	44	48	51	53	54	55	54.5	69																							
20-Mar	56	60	61	66	68	74	78	79	70	60	53	49	44	41	37	32	31	29	31	37	38	40	39	39	50.5	79																							
21-Mar	40	41	43	43	43	44	49	51	51	46	41	36	32	26	23	21	20	24	30	36	38	41	45	50	38.1	51																							
22-Mar	52	53	56	57	69	68	68	68	67	54	47	42	38	34	30	28	26	25	23	22	22	31	35	38	43.8	69																							
23-Mar	41	44	48	52	55	59	56	58	60	55	44	36	31	32	33	32	32	31	32	32	33	32	33	37	41.6	60																							
24-Mar	39	40	42	47	53	59	60	59	59	57	53	48	41	40	39	42	47	70	59	56	56	54	54	55	51.3	70																							
25-Mar	52	51	52	54	56	55	55	57	55	52	48	43	38	35	32	30	30	30	32	36	39	42	43	44	44.3	57																							
26-Mar	49	52	56	61	64	65	65	62	57	53	50	48	41	37	36	34	33	34	34	33	36	41	49	51	47.6	65																							
27-Mar	48	59	75	77	80	74	78	83	83	83	82	84	84	80	89	89	83	75	78	81	79	80	79	78	78.3	89																							
28-Mar	81	86	91	92	91	92	93	93	92	90	89	85	81	72	73	71	66	65	70	79	82	85	87	93	83.3	93																							
29-Mar	95	94	93	92	93	95	94	93	91	89	74	61	54	53	54	54	52	51	49	49	49	51	52	54	70.3	95																							
30-Mar	57	63	62	61	68	70	78	79	77	67	58	50	42	39	38	39	39	39	40	42	41	48	54	56	54.5	79																							
31-Mar	57	58	60	60	58	59	61	62	59	56	50	42	36	27	26	28	26	26	27	29	30	32	35	34	43.3	62																							
																								62.7	64.4	65.7	66.4	67.8	68.6	69.9	70.1	69.3	66.2	61.7	56.9	52.4	49.5	48.3	47.5	47.2	48.0	48.9	50.9	52.7	55.1	58.0	59.9	Diurnal Average	
																								95	94	93	92	93	95	94	93	92	90	89	85	84	80	89	89	83	79	81	81	82	85	93	100	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 75m (RH75m) - %
Mannix - March 2024

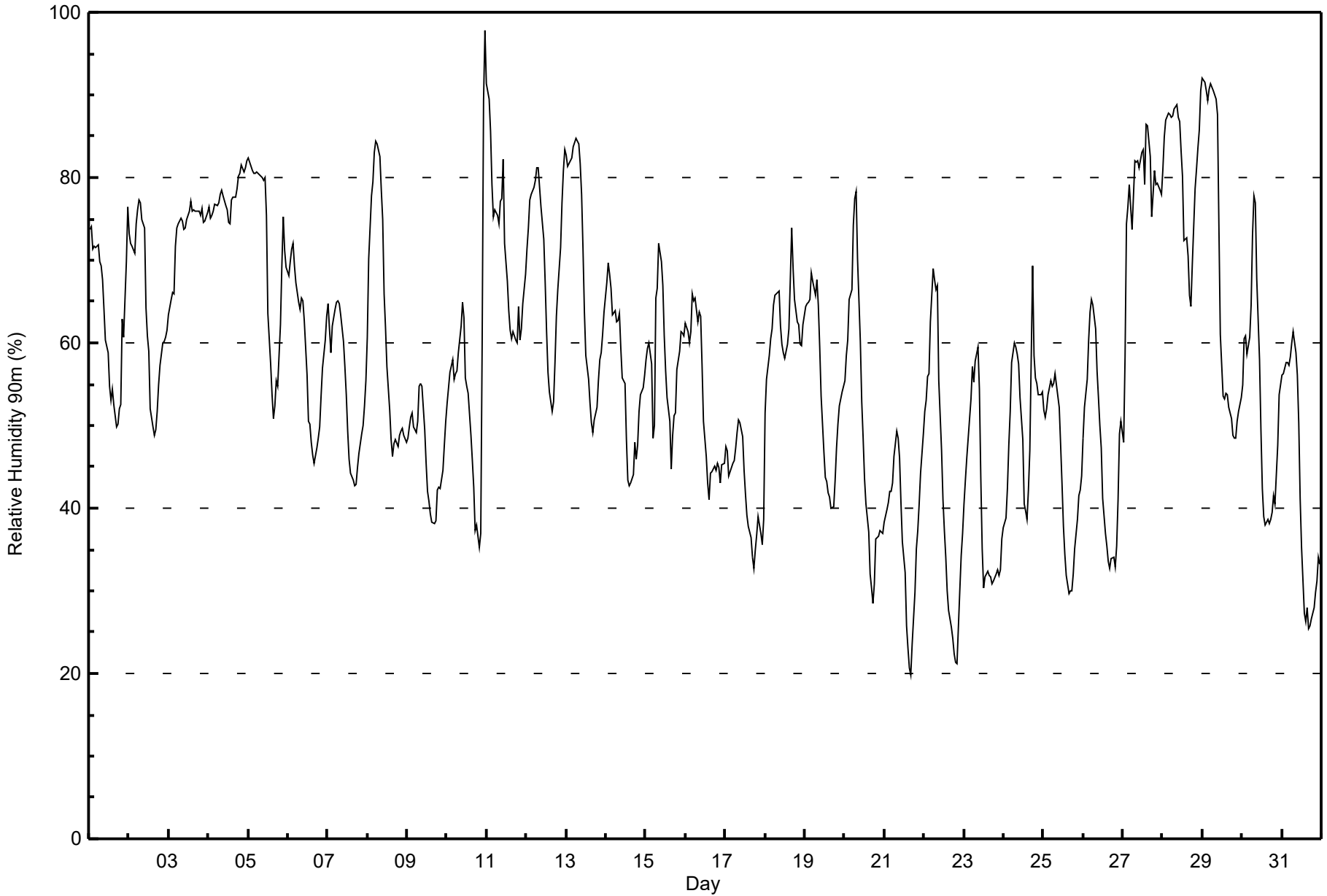
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	102	13.71	13.71
40 - 60	305	40.99	54.70
60 - 80	259	34.81	89.52
80 - 100	77	10.35	99.87

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 98 % on Mar 11 00:00 Maximum Daily Average: 81.3 % on Mar 28																			Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Minimum Value: 20 % on Mar 21 17:00 Minimum Daily Average: 37.2 % on Mar 21 Maximum Diurnal Average: 69.3 % at hour 8 Minimum Diurnal Average: 46.8 % at hour 17 Monthly Average: 58.0 % Percentiles: P ₁ = 25 P ₁₀ = 37 Q ₁ = 47 Median = 57 Q ₃ = 71 P ₉₀ = 80 P ₉₉ = 90																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	74	74	71	72	72	72	70	69	68	64	60	59	55	53	54	53	50	50	52	52	63	61	70	76	63.1	76
2-Mar	73	72	72	71	74	76	77	77	75	74	64	61	59	52	50	49	49	52	55	57	60	60	61	62	63.8	77
3-Mar	63	65	66	66	72	74	74	75	75	74	74	75	76	77	76	76	76	76	76	75	76	75	75	76	73.4	77
4-Mar	76	75	75	76	77	77	77	78	78	78	77	76	75	74	77	78	78	79	80	81	82	81	81	82	77.8	82
5-Mar	82	82	81	81	81	81	81	80	80	80	80	75	64	57	54	51	52	55	55	62	69	75	71	69	70.8	82
6-Mar	68	70	71	72	69	67	65	64	65	65	63	56	51	50	48	46	45	47	48	50	54	57	60	63	59.0	72
7-Mar	65	62	59	62	64	65	65	65	63	60	57	54	49	46	44	43	43	43	45	47	49	50	52	55	54.5	65
8-Mar	61	70	78	79	83	84	84	83	78	75	66	62	57	52	48	46	48	48	47	49	49	50	49	48	62.3	84
9-Mar	49	50	51	52	50	49	50	55	55	55	49	45	42	41	39	38	38	38	42	43	42	45	48	50	46.5	55
10-Mar	53	55	56	58	56	56	57	59	62	65	63	56	55	54	49	46	43	37	38	35	37	60	89	98	55.6	98
11-Mar	91	90	86	79	75	76	75	74	77	77	82	72	67	64	61	60	61	60	60	64	60	62	65	68	71.3	91
12-Mar	71	74	77	78	79	80	81	81	79	76	73	67	61	56	54	52	53	58	63	66	72	77	81	83	70.5	83
13-Mar	83	81	82	82	84	84	85	84	82	78	71	64	58	56	53	50	49	51	52	55	58	59	61	64	67.7	85
14-Mar	67	70	68	67	63	64	63	63	64	59	56	55	48	43	43	43	44	48	46	48	52	54	55	56	55.7	70
15-Mar	58	59	60	58	49	50	65	67	72	70	67	61	57	53	51	45	49	51	52	57	59	61	61	61	58.0	72
16-Mar	62	61	60	61	66	65	65	63	64	63	57	50	46	43	41	44	44	45	45	45	45	43	45	45	53.0	66
17-Mar	47	47	44	44	45	46	47	49	51	50	49	45	42	39	38	36	34	33	35	37	39	37	36	39	42.0	51
18-Mar	52	56	58	61	62	65	66	66	66	62	60	59	58	60	62	68	74	69	65	63	62	60	60	62	62.2	74
19-Mar	64	65	65	65	68	67	66	68	65	59	54	47	44	43	42	41	40	40	43	47	50	52	54	55	54.4	68
20-Mar	55	59	60	65	66	74	78	78	70	60	53	48	43	41	37	32	30	28	31	36	37	37	37	37	49.8	78
21-Mar	38	40	41	42	42	43	46	49	49	46	41	36	32	26	23	21	20	23	30	35	37	41	44	49	37.2	49
22-Mar	52	53	56	56	62	69	68	66	67	55	47	41	37	34	30	28	26	24	22	21	21	30	34	37	43.2	69
23-Mar	40	43	46	51	53	57	55	58	60	54	44	35	30	32	32	32	32	31	31	32	33	32	32	36	40.9	60
24-Mar	38	39	42	48	52	58	60	60	59	57	53	48	41	40	39	42	47	69	58	56	55	54	54	54	50.9	69
25-Mar	52	51	52	54	55	55	55	56	55	52	48	43	38	34	32	30	30	30	32	35	39	41	42	44	44.0	56
26-Mar	49	52	56	60	64	65	65	62	57	53	50	47	41	37	35	34	33	34	34	33	35	41	49	51	47.3	65
27-Mar	48	58	74	76	79	74	78	82	82	82	81	83	83	79	86	86	83	75	78	81	79	79	79	78	77.7	86
28-Mar	81	85	87	88	88	87	88	88	89	87	87	83	80	72	73	71	66	64	70	79	81	84	86	90	81.3	90
29-Mar	92	91	90	89	91	91	91	90	90	88	74	61	54	53	54	54	52	51	49	48	48	51	52	53	69.0	92
30-Mar	55	61	61	59	61	65	73	78	77	68	58	50	42	39	38	39	38	39	40	42	41	48	54	55	53.2	78
31-Mar	56	56	58	58	57	58	60	61	59	56	50	41	35	27	26	28	25	26	27	28	30	31	34	33	42.6	61
																			61.8 63.4 64.7 65.5 66.4 67.6 68.7 69.3 68.7 66.0 61.5 56.6 52.3 49.3 48.0 47.1 46.8 47.6 48.4 50.3 52.0 54.4 57.1 59.1				Diurnal Average			
																			92 91 90 89 91 91 91 90 90 88 87 83 83 79 86 86 83 79 80 81 82 84 89 98				Diurnal Maximum			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 90m (RH90m) - %
Mannix - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	1	0.13	0.13
20 - 40	104	13.98	14.11
40 - 60	310	41.67	55.78
60 - 80	255	34.27	90.05
80 - 100	74	9.95	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 31 km/h on Mar 10 14:00	Maximum Daily Speed Average: 22.4 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 22 07:00	Minimum Daily Speed Average: 1.9 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 4.2 km/h at hour 9	Minimum Diurnal Speed Average: 1.3 km/h at hour 15	Hours of Missing Data: 0
Monthly Average Velocity: 3.0 km/h 106.9 deg	Percentiles: P ₁ = 3 P ₁₀ = 7 Q ₁ = 10 Median = 14 Q ₃ = 18 P ₉₀ = 22 P ₉₉ = 26	Percent Operational Time: 100.0

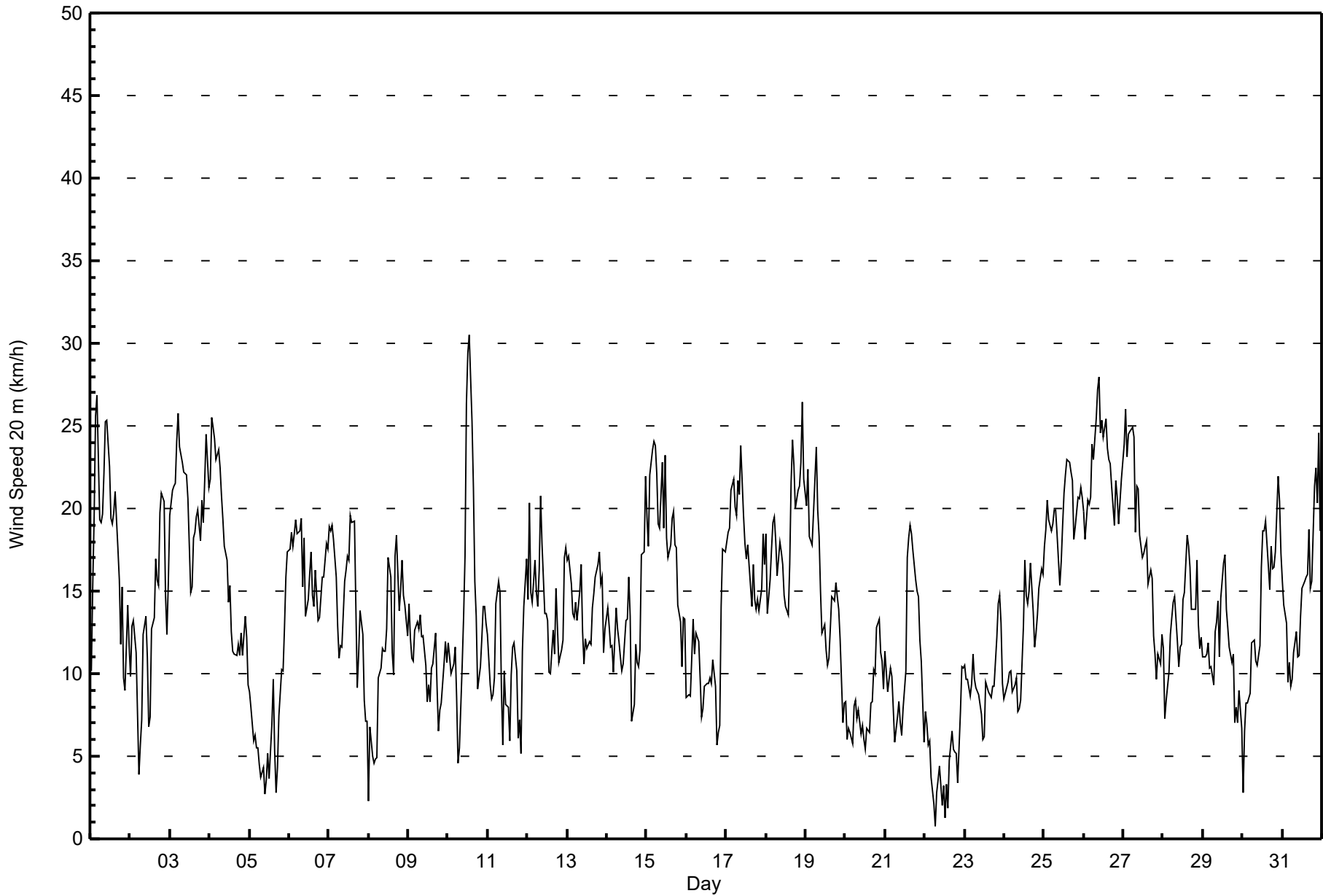
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Mar	W10	W15	W20	W26	W27	W19	W19	W20	W22	W25	W25WNW23WNW19WNW19WNW20WNW21WNW18WNW16	NW12	NNW15	N10	N9	NNE14	NNE12	WNW15.5	W27									
2-Mar	NNE10	NNE13	NNE13	NNE11	N8	N4	N6	N7	NNE12	NNE13	NNE11	NNE7	N7	NNE13	NNE13	NNE17	NNE16	N15	N20	NNE21	NNE20	NNE15	NNE12	N15	NNE12.3	NNE21		
3-Mar	N20	N21	NNE21	NNE22	NNE24	N26	N24	N23	N22	N22	N21	N15	NNW15	NNW18	NNW19	NNW19	NNW20	NNW18	NNW21	NNW19	NNW22	NNW24	NNW21	N20.0	N26			
4-Mar	NNW22	NNW26	NNW25	NNW24	NNW23	NNW24	N22	N21	N19	N18	N17	N14	N15	N13	NNW11	NNW11	N11	N12	NNW11	N12	N11	N14	NNE12	N9	N16.3	NNW26		
5-Mar	NNE9	N8	NNW6	NNW6	N6	NNW5	NNW4	N4	NE4	ENE3	SE4	SSE5	S4	SSE7	SSE10	SSE5	S3	SSE4	SSE7	SSE10	S10	SSE13	SSE16	SSE17	SSE2.8	SSE17		
6-Mar	SSE18	SSE19	SSE18	SSE18	SSE19	SSE18	SSE19	SSE19	SSE15	SSE18	SSE14	SE14	SSE16	SSE17	S15	S14	S16	S13	S13	S15	S16	S16	S18	SSE18	SSE16.3	SSE19		
7-Mar	SSE19	SSE19	SSE19	SSE18	SSE16	SSE13	SSE11	SSE12	SSE12	SSE16	SSE16	SSE17	SSE17	SSE20	SSE19	SSE19	S14	S9	S11	S14	S12	S8	S7	SSW7	SSE14.1	SSE20		
8-Mar	WSW2	W7	W5	NW5	WSW5	SSE5	SSE10	SSE10	SSE12	SE11	SSE11	SSE13	SSE17	SSE16	SSE11	SE10	SE17	SE18	SE14	SSE15	SSE17	SSE15	SSE14	SSE12	SSE9.8	SE18		
9-Mar	SSE14	SSE12	SSE11	SSE11	SE13	SE13	SE13	SSE14	SSE12	SE12	SSE11	SSE8	SSE9	SSE8	SE10	SE11	SSE12	SSE9	SE7	SE8	SE8	SSE11	SSE12	SSE11	SSE10.7	SSE14		
10-Mar	SSE12	S11	S10	S11	SSE12	S9	S5	SSE5WSW11WSW13WSW17	W26	W29	W31	W25WNW21	W16	W13	NW9	NNW10	NNW12	N14	NNE14	NNE13	W8.1	W31						
11-Mar	NNE12	NE9	NE8	NNE9	N10	N14	N16	NNE15	NNE9	NNE6	NW10	NW8	WNW8	NW6WNW10	NW12WNW12	NNW10	NNW6	NNW7	NE5	SE11	SE14	SE17	N5.6	SE17				
12-Mar	SE14	SE20	SE15	SE14	SE17	SE15	SE14	SE16	SE21	SE18	ESE14	ESE14	ESE13	ESE10	ESE10	SE13	ESE11	E15	E13	ESE11	ESE11	SE12	SE17	SE18	SE13.9	SE21		
13-Mar	SE17	SE17	SE15	SE14	SE13	SE14	SSE13	SE15	SE17	SE13	SSE11	SE12	SE12	SE12	SE14	SE15	SE16	SE17	SE17	SE15	SE16	SE11	SSE13	SE14.1	SE17			
14-Mar	SSE14	SSE13	SSE12	SSE12	SSE10	SSE14	SSE13	SSE12	SSE11	SSE10	SSE11	SE13	S13	SW16	SSW14	SSW7	S8	SSW12	S11	S10	SW11WSW17WSW17	W22	S9.8	W22				
15-Mar	W19	W18	W22	W24WNW24	NW24	N22	NNW19	N19	NNW23	NNW19	NW23	NNW18	NNW17	NNW18	NNE19	NNE20	NNE18	NNE18	NNE14	NNE13	NNE10	NNE13	NNE13	NNW14.3	WNW24			
16-Mar	NNE9	NNE9	N9	N11	NNE13	NNE11	NNE12	N12	N10	N7	N8	NW9	NW9	NW9	NW10	NW9	NW11	NNW9	NNE6	NNE6	ESE7	SE14	SE18	SE17	N5.5	SE18		
17-Mar	SE18	SE19	SE19	SE21	SE22	SE20	SE20	SE22	SE21	SE24	SE20	SSE18	SSE17	SSE18	SSE17	SSE18	SSE17	SSE14	SSE17	S14	S14	S14	SSW14	SW15	W18	NW17	SSE14.3	SE24
18-Mar	NNE19	N14	NNE16	NNE18	NNE19	N19	N18	NNE16	NNE18	NNW17	NNW17	NNW15	NNW14	N14	N17	NNE22	NNE24	NNE23	NNE20	NNE21	NNE21	N23	NNE26	NNE22	N18.3	NNE26		
19-Mar	NNE20	NNE22	NNE18	NNE18	NNE18	NNE20	NNE24	NNE20	NNE18	NNE15	N12	NNW13	NNW11	N10	N11	NNE13	NNE15	NNE14	NNE16	NNE15	NNE14	NNE12	N7	NNW8	NNE14.9	NNE24		
20-Mar	NNE8	N6	N7	N6	N6	N8	N8	N7	N8	NNE6	NNE7	N6	N5	NW7	NNW6	NNE8	NNE8	NNE10	N10	N13	NNE13	NNE11	NNE11	NNE9	N7.9	NNE13		
21-Mar	N11	N9	N10	NNE10	NNE10	NNE8	N6	N7	N8	N7	NNE6	NNW8	NNW10	N17	N18	N19	NNE19	NNE17	NNE16	NNE15	NNE15	NNE12	NNE11	NNE6	N11.3	N19		
22-Mar	N8	N7	N6	N6	NNW4	WSW2	SSE1	S3	S4	SE4	E2	E3	ESE1	ENE3	WNW2	E5	E7	ESE5	S5	S5	SSE3	SE8	SSE10	SSE10	ESE1.9	SSE10		
23-Mar	SSE11	SSE10	SSE10	S9	S9	S11	SSE10	SSE9	SSE9	SE8	SE8	SE6	ESE6	ESE9	ESE9	ESE9	SE9	SE9	SE9	SE2	SE14	SE15	SE13	SSE9	SE9.3	SE15		
24-Mar	SE9	SE9	SSE10	SSE10	SE10	SE9	SSE9	SSE10	SE8	SSE8	SSE8	SSE13	SSE17	SSE15	SE14	SE15	SE17	SSE14	SSE12	SE12	SE14	SE15	SE16	SE16	SE11.9	SSE17		
25-Mar	SE18	SE19	SE20	SE19	SE19	SE19	SE20	SE20	SE18	SE15	SE17	SE19	SE21	SE22	SSE23	SSE23	SSE22	SSE22	SSE18	SSE19	SSE21	SSE21	SSE21	SSE21	SE19.5	SSE23		
26-Mar	SSE20	SSE18	SSE21	SSE20	SSE21	SSE24	SSE23	SSE25	SSE27	SSE28	SE25	SE25	SE24	SSE25	SE24	SE23	SE23	SSE21	SSE19	SSE22	SSE21	SE19	SE20	SE22	SSE22.4	SSE28		
27-Mar	SE24	SE26	SE23	SE25	SE25	SE25	SE24	SE19	SE21	SE21	ESE18	ESE17	ESE17	ESE18	ESE18	ESE15	ESE16	ESE16	E12	E11	E10	E11	E11	ENE12	ESE17.3	SE26		
28-Mar	E12	NE7	NNE8	NNE10	N12	NNE13	NNE14	N15	N12	N10	NNW12	NNW12	NNW14	NNW15	NNW18	NNW18	N16	N14	NNW14	NNW14	NNW17	NNW13	NNW11	NNW12	N12.2	NNW18		
29-Mar	N11	NNW11	NNW11	NNW12	NNW10	N10	N9	NNW13	N13	N14	NNW11	NW15	NW17	NNW17	NNW14	N13	N12	N11	NNE11	NNE7	NE8	WNW7	WNW9	W7	NNW10.2	NNW17		
30-Mar	S3	SSE7	SSE8	SSE8	SSE9	SSE12	SSE12	SE12	SE11	SE11	SE12	SSE16	SSE19	SSE19	SSE19	SSE17	SE15	SE18	SE16	SE16	SE17	SE22	SE20	SE17	SE13.8	SE22		
31-Mar	SE16	SE14	SSE13	SE10	SSE11	SSE9	SSE10	SSE11	SSE13	SE11	SE11	SE13	SE15	SSW16	SSW16	S16	S19	SSE15	SSE16	SSE21	S22	SSE20	SSE25	S19	SSE14.2	SSE25		

ESE4.2 ESE3.7 ESE3.2 ESE2.6 ESE2.6 E3.0 E3.5 E3.9 ESE4.2 ESE3.6 ESE2.4 ESE1.9 SSE1.7 SSE1.6 SE1.3 E1.9 E2.8 E2.8 E3.6 E3.5 ESE4.0 ESE4.2 ESE4.1 ESE3.8	Diurnal Average
SE24 SE26 NNW25 W26 W27 N26 SE24 SSE25 SSE27 SSE28 W25 W26 W29 W31 W25 SE23 NNE24 NNE23 NNE20 SSE22 S22 N23 NNE26 W22	Diurnal Maximum

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



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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	38	5.11	5.11
6 - 11	227	30.51	35.62
12 - 19	353	47.45	83.06
20 - 28	124	16.67	99.73
29 - 38	2	0.27	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 - March 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	0	2	2	3	2	2	7	8	0	0	3	1	1	1	3	38
6 - 11	42	34	4	0	5	10	26	46	15	2	1	1	3	4	11	23	227
12 - 19	36	53	0	1	4	11	81	86	19	5	2	4	8	6	4	33	353
20 - 28	14	19	0	0	0	0	33	26	1	0	0	0	12	5	2	12	124
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	95	106	6	3	12	23	142	165	43	7	3	8	26	16	18	71	744

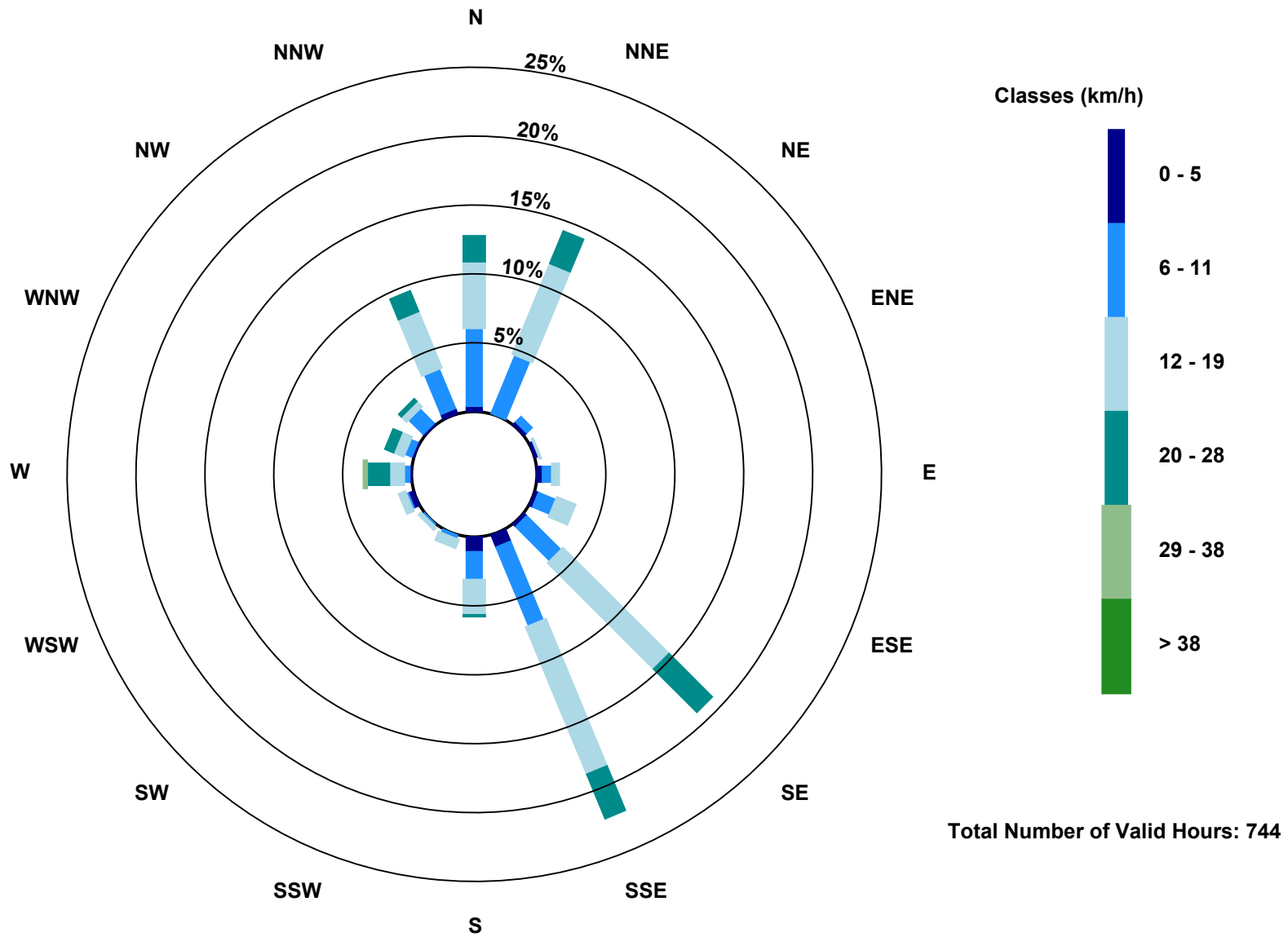
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Maximum Speed: 36 km/h on Mar 10 14:00	Maximum Daily Speed Average: 28.0 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 22 06:00	Minimum Daily Speed Average: 2.9 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 5.7 km/h at hour 23	Minimum Diurnal Speed Average: 1.7 km/h at hour 15	Hours of Missing Data: 0
Monthly Average Velocity: 4.0 km/h 105.1 deg	Percentiles: P ₁ = 3 P ₁₀ = 9 Q ₁ = 13 Median = 18 Q ₃ = 24 P ₉₀ = 28 P ₉₉ = 34	Percent Operational Time: 100.0

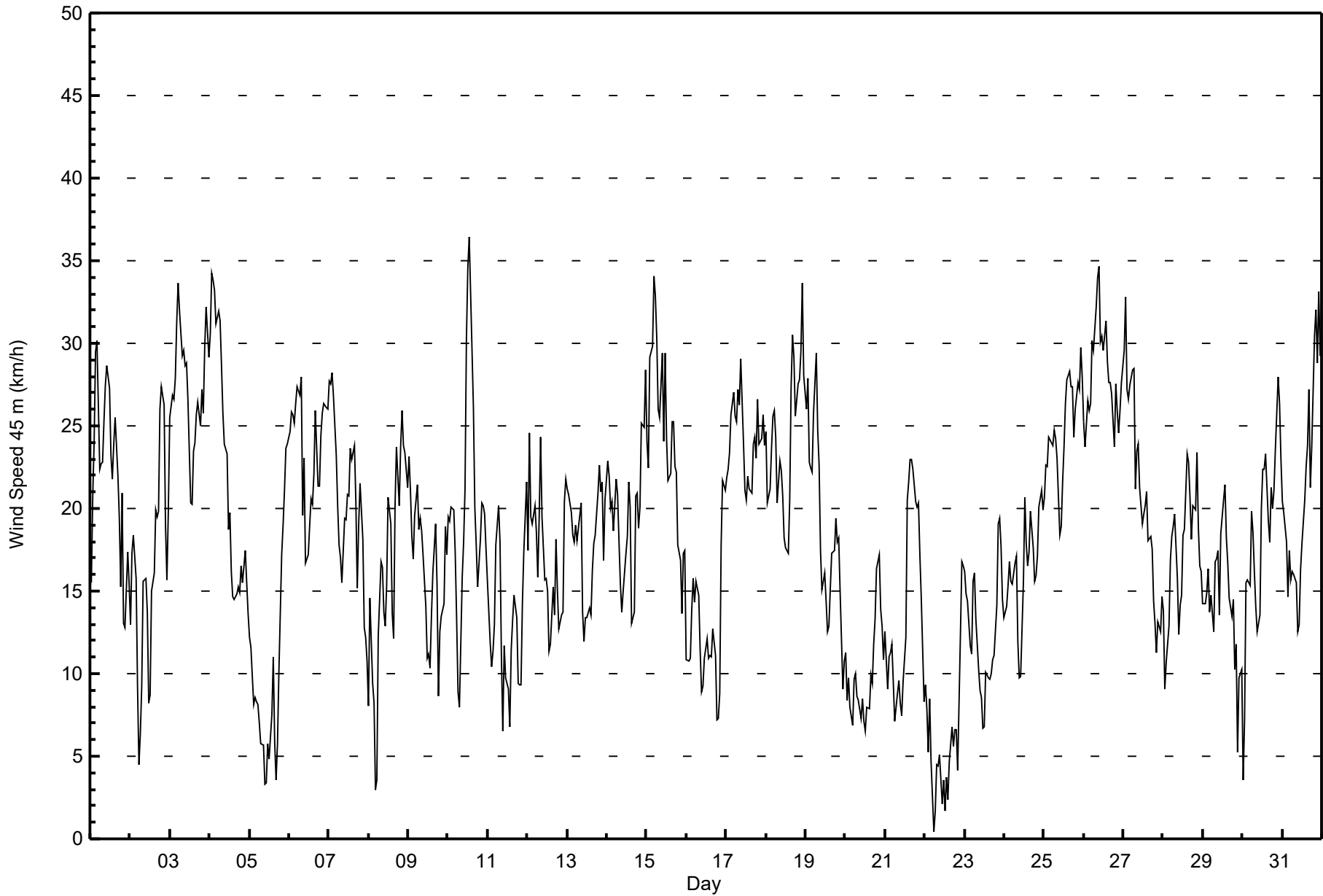
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	W15	W21	W24	W30	W30	W22	W23	W23	W25	W27	W29WNW27WNW23	W22WNW24WNW26WNW22WNW19	NW15 NNW21	N13 NNW13	N17 NNE15	WNW18.7	W30									
2-Mar	NNE13	NNE17	NNE18	NNE16	N9	N4	N6	N9	NNE16	NNE16	NNE14	N8 NNW9	NNE15	N16 NNE20	N20	N20	N26	N27	N26	NNE19	NNE16	N20	NNE15.6	N27		
3-Mar	N26	N27	N27	N28	N31	N34	N32	N29	N30	N29	N29	N27	N20 NNW20	NNW23 NNW24	NNW26 NNW26	NNW25 NNW27	NNW26 NNW30	NNW32 NNW29	N26.5	N34						
4-Mar	NNW31	NNW34	NNW34	NNW33	NNW31	NNW32	NNW31	N29	N26	N24	N23	N19	N20 NNW16	NNW15 NNW15	NNW15 NNW15	NNW15 NNW15	NNW17	N15	N17	N15	N14	N22.0	NNW34			
5-Mar	N12	N12	NNW8	NNW9	N8	NNW8	N7	N6	NNE6	NE3	ESE3	SSE6	S5	SSE8	SSE11	SSE6	S4	SSE6	SSE10	SSE17	S19	SSE21	SSE24	SSE24	SSE3.8	SSE24
6-Mar	SSE25	SSE26	SSE26	SSE25	SSE26	SSE27	SSE27	SSE28	SSE20	SSE23	SSE17	SE17	SSE19	SSE21	S20	S22	S26	S21	SSE21	S24	S26	S26	SSE26	SSE26	SSE23.3	SSE28
7-Mar	SSE28	SSE28	SSE28	SSE27	SSE23	SSE20	SSE18	SE17	SE15	SE19	SE19	SSE21	SE21	SE24	SSE23	SSE24	S20	S15	S19	S22	S18	S13	S12	SSW11	SSE19.6	SSE28
8-Mar	W8	W15	WNW9	NW8	WSW3	SSW4	SSE12	SSE17	SE16	SE14	SE13	SE15	SSE21	SE19	SE14	SE12	SE20	SE24	SE20	SSE24	SSE26	SE24	SSE23	SSE21	SSE12.7	SSE26
9-Mar	SSE23	SSE21	SSE18	SE17	SE20	SE21	SE19	SE19	SE19	SE17	SE14	SE11	SSE11	SE10	SE13	SE16	SSE19	SSE15	SE9	SE13	SE13	SSE14	SSE19	SSE17	SE16.0	SSE23
10-Mar	SSE20	SSE19	S20	S20	S17	SSW13	SW9	SSW8	WSW16	WSW18	WSW21	W30	W35	W36	W30	W26	W20	W18	NW15	NW18	NNW20	N20	N20	NNE18	W11.3	W36
11-Mar	NNE16	NNE12	NNE10	NNE11	N13	N18	N20	NNE18	NNE11	N6	NW12	NW10	WNW9	NW7	WNW11	WNW13	WNW15	NNW13	N9	NNW9	NE9	ESE14	SE17	SE22	N7.3	SE22
12-Mar	SE17	SE25	SE19	SE19	SE20	SE19	ESE16	SE20	ESE24	ESE20	E16	E16	E15	E11	ESE12	SE15	ESE14	E18	E15	ESE13	ESE14	ESE14	SE20	SE22	ESE16.7	SE25
13-Mar	SE21	SE21	SE20	SE18	SE18	SE19	SE18	SE20	SE20	SE14	SSE12	SE13	SE13	SE14	SE14	SE16	SE18	SE18	SE21	SE23	SE21	SE22	SE17	SSE21	SE17.9	SE23
14-Mar	SSE23	SSE22	SSE20	SSE20	SSE19	SSE22	SSE21	SSE18	SSE15	SSE14	SSE15	SSE17	S18	SSW22	SSW20	SSW13	S14	SSW21	S21	S19	SW20	WSW25	WSW25	WSW28	S15.9	WSW28
15-Mar	W24	W22	WSW29	W30	WNW34	NW33	N30	NNW26	NNW25	NW29	NNW24	NW29	NW24	NNW22	NNW22	NNE25	NNE25	NNE23	NNE22	NNE18	NNE17	NNE14	NNE17	NNE17	NNW18.7	WNW34
16-Mar	NNE11	NNE11	N11	N14	NNE16	N14	NNE16	N15	N11	NNW9	N9	NW11	NW12	NW11	WNW11	NW11	NW13	NNW11	NNE7	NNE7	ESE9	SE18	SE22	SE21	N6.8	SE22
17-Mar	SE22	SE22	SE23	SE26	SE27	SE26	SE25	SE27	SE26	SE29	SE24	SE21	SSE20	SSE22	SSE21	SSE21	SSE24	S24	S23	S27	SSW24	SW24	W26	NW24	SSE18.6	SE29
18-Mar	NNE25	N20	N21	NNE24	NNE26	N26	N24	N20	NNE23	NNW22	NNW21	NNW18	NNW18	NNW17	N21	NNE27	NNE30	N29	NNE26	NNE28	NNE28	N29	N34	NNE28	N23.8	N34
19-Mar	NNE26	NNE28	NNE23	NNE22	NNE22	NNE26	NNE29	NNE25	NNE23	N17	N15	NNW16	NNW14	NNW13	N13	N15	NNE17	NNE17	NNE19	NNE18	NNE18	NNE15	N9	NNW11	N18.5	NNE29
20-Mar	NNE11	NNE8	NNE10	N8	N7	N10	N10	N9	N8	N7	NNE8	N7	NNW6	NW8	NNW8	N10	NNE9	NNE12	N13	N16	N17	NNE14	NNE13	NE11	N9.7	N17
21-Mar	NNE13	NNE9	NNE11	NNE11	NNE12	NNE9	NNE7	NNE9	NNE10	N8	N7	NNW10	NNW12	N21	N22	N23	N23	N22	NNE20	N20	NNE20	NNE17	NNE15	NNE8	N13.9	N23
22-Mar	NNE9	N8	N5	N8	N5	N0	ENE2	SSE4	S4	SE5	E2	E4	SE2	ENE4	WNW2	E5	E7	ESE6	SSE7	SSE7	SSE4	SE12	SSE17	SSE17	ESE2.9	SSE17
23-Mar	SE16	SE15	SE14	SE12	SSE11	SSE16	SSE16	SSE13	SSE10	SE9	SE9	SE7	ESE7	ESE10	ESE10	ESE10	ESE10	SE11	SE11	SE14	SE19	SE19	SE18	SE14	SE12.2	SE19
24-Mar	SE13	SE14	SSE15	SE17	SE16	SE15	SE17	SE17	SE12	SSE10	SE10	SSE16	SSE21	SSE18	SE16	SE17	SE20	SSE18	SE16	SE16	SE17	SE20	SE21	SE20	SE16.1	SE21
25-Mar	SE21	SE23	ESE23	SE24	SE24	SE24	SE25	SE24	SE23	SE18	SE19	SE22	SE24	SE26	SE28	SSE28	SSE27	SSE27	SSE24	SE26	SSE28	SSE27	SE30	SSE28	SE24.2	SSE30
26-Mar	SSE25	SSE24	SSE27	SE26	SE26	SSE30	SSE30	SSE32	SSE34	SE35	SE30	SE30	SE30	SSE31	SE29	SE28	SE28	SE27	SSE24	SE28	SE26	SE25	SE26	SE28	SE28.0	SE35
27-Mar	SE30	SE33	SE27	ESE27	SE27	ESE28	SE28	ESE21	ESE23	ESE24	ESE21	ESE19	ESE20	ESE20	E21	ESE18	ESE18	ESE18	E14	E13	ENE11	E13	ENE13	ENE15	ESE20.1	SE33
28-Mar	ENE14	NE9	NNE11	NNE13	N17	N18	N19	N20	N16	N12	NNW14	NNW15	NNW18	NNW19	NNW23	NNW23	N21	N18	NNW20	NNW20	NNW23	NNW19	NNW17	NNW16	N16.0	NNW23
29-Mar	N14	NNW14	NNW15	NNW16	NNW14	NNW15	NNW13	NNW17	NNW17	N17	NNW14	NW18	NW21	NW21	NNW18	NNW17	N15	N13	NNE14	NNE10	NE12	NNW5	WNW10	NNW10	NNW13.5	NW21
30-Mar	W4	SSE7	SSE16	SSE16	SSE15	SE20	SE19	SE16	SE14	SE13	SE14	SSE20	SSE22	SE22	SE23	SE19	SE18	SE21	SE20	SE21	SE24	SE28	SE26	SE23	SE17.9	SE28
31-Mar	SE20	SE20	SE18	SE15	SSE17	SE16	SSE16	SSE16	SSE15	SE13	SE13	SE16	SE18	SSW21	SSW23	S24	S27	SSE21	SSE24	SSE30	SSE32	SSE29	SSE33	S29	SSE20.0	SSE33

ESE5.4	ESE5.3	ESE4.9	ESE4.1	E4.1	E4.5	E5.1	E5.4	E5.3	E4.2	E2.9	ESE2.1	SE1.8	SSE1.9	SE1.7	ESE2.3	E3.4	E3.4	E4.5	E4.8	ESE5.5	ESE5.6	ESE5.7	ESE5.3	Diurnal Average
NNW31	NNW34	NNW34	NNW33	WNW34	N34	N32	SSE32	SSE34	SE35	SE30	SE30	W35	W36	W30	SSE28	NNE30	N29	N26	SSE30	SSE32	NNW30	N34	S29	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: 9 km/h on Mar 27 03:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 0 km/h on Mar 22 06:00																									
Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 4 Q ₃ = 5 P ₉₀ = 6 P 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-Mar	2	2	2	4	3	3	3	3	3	3	4	4	5	5	3	4	4	3	3	4	5	3	5	4	5
2-Mar	3	3	3	5	2	1	2	3	3	4	3	3	3	4	4	3	3	4	4	4	5	4	3	4	5
3-Mar	3	3	3	3	4	4	5	6	5	4	5	5	5	4	5	4	5	5	5	5	6	5	6	6	6
4-Mar	6	6	5	6	5	6	5	5	5	6	7	5	6	4	3	3	3	4	3	3	3	4	3	3	7
5-Mar	2	4	2	2	2	2	2	2	2	1	2	2	4	3	3	3	2	2	1	3	1	2	2	2	4
6-Mar	2	1	1	3	2	4	3	2	3	2	4	3	4	4	5	5	5	4	3	2	3	3	3	3	5
7-Mar	3	3	3	2	3	2	2	2	3	5	3	4	4	4	4	4	4	2	3	2	3	2	2	1	5
8-Mar	2	3	3	2	2	1	5	2	3	3	3	3	4	4	5	2	4	4	3	4	3	2	3	3	5
9-Mar	3	2	2	1	1	2	3	2	3	3	3	3	3	2	5	3	4	4	5	3	2	2	3	1	5
10-Mar	1	1	1	1	3	2	3	3	4	4	5	5	6	7	6	5	4	4	2	2	2	3	3	6	7
11-Mar	4	4	2	2	3	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	5	5	5	5
12-Mar	5	5	4	4	5	5	6	5	6	5	4	4	3	3	4	3	4	3	4	4	4	5	5	4	6
13-Mar	4	5	4	3	3	3	2	4	4	3	3	3	3	3	3	3	3	4	4	4	3	5	2	2	5
14-Mar	2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	2	3	4	3	2	3	3	5	6	6
15-Mar	5	4	4	4	5	4	6	6	7	5	6	6	5	4	5	7	5	5	5	4	3	4	3	4	7
16-Mar	3	3	3	3	2	3	4	2	2	3	2	3	3	3	2	2	2	2	2	1	5	3	5	5	5
17-Mar	4	4	4	5	5	5	5	5	5	5	6	4	4	4	4	4	4	4	3	2	4	4	3	5	6
18-Mar	5	5	4	5	6	6	6	4	5	5	4	4	3	4	4	5	6	6	5	5	5	6	6	6	6
19-Mar	6	5	5	5	5	5	4	5	5	4	4	4	5	4	4	5	4	3	4	4	3	3	2	2	6
20-Mar	3	2	3	2	2	2	1	2	2	2	3	3	3	3	3	3	3	2	2	2	3	2	2	1	3
21-Mar	1	3	2	1	2	2	2	4	2	2	2	4	4	4	4	4	4	5	4	4	3	3	3	3	5
22-Mar	1	1	1	1	1	0	1	1	2	2	2	2	3	3	2	3	3	2	1	1	1	6	1	1	6
23-Mar	1	2	2	1	1	2	1	2	3	2	2	2	4	4	4	4	3	3	3	5	3	3	4	2	5
24-Mar	3	2	2	3	3	2	2	2	4	2	3	4	4	5	4	4	7	7	4	3	3	5	4	4	7
25-Mar	6	5	4	4	4	4	5	5	5	4	4	5	6	6	6	6	5	5	4	4	5	4	4	5	6
26-Mar	4	5	5	5	6	5	6	6	6	7	6	7	7	7	6	7	7	6	5	6	5	6	7	7	7
27-Mar	7	7	9	8	7	7	7	7	7	7	6	5	5	6	5	6	6	5	4	3	3	4	4	4	9
28-Mar	5	2	2	2	1	2	2	1	3	2	3	4	4	4	5	5	5	4	4	3	4	3	4	3	5
29-Mar	3	3	3	3	3	4	3	3	4	6	4	3	4	4	4	4	4	3	4	3	2	1	2	1	6
30-Mar	2	4	1	2	2	3	4	2	3	3	3	5	5	5	6	4	4	4	4	5	4	5	5	4	6
31-Mar	3	4	4	2	1	2	2	2	3	2	3	4	4	5	5	5	5	3	4	5	5	4	5	6	6
																	Diurnal Maximum								





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	23	3.09	3.09
6 - 11	113	15.19	18.28
12 - 19	270	36.29	54.57
20 - 28	282	37.90	92.47
29 - 38	56	7.53	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 45 m (WS45m) - km/h
Mannix - March 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	0	1	2	3	1	2	2	3	1	0	1	1	1	0	1	23
6 - 11	24	25	3	1	2	7	9	13	0	2	1	0	1	6	7	12	113
12 - 19	31	38	1	3	8	11	80	37	10	2	0	2	3	3	7	34	270
20 - 28	33	24	0	0	1	12	75	65	16	6	2	4	13	5	4	22	282
29 - 38	12	2	0	0	0	0	8	10	1	0	0	1	8	1	3	10	56
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	104	89	5	6	14	31	174	127	30	11	3	8	26	16	21	79	744

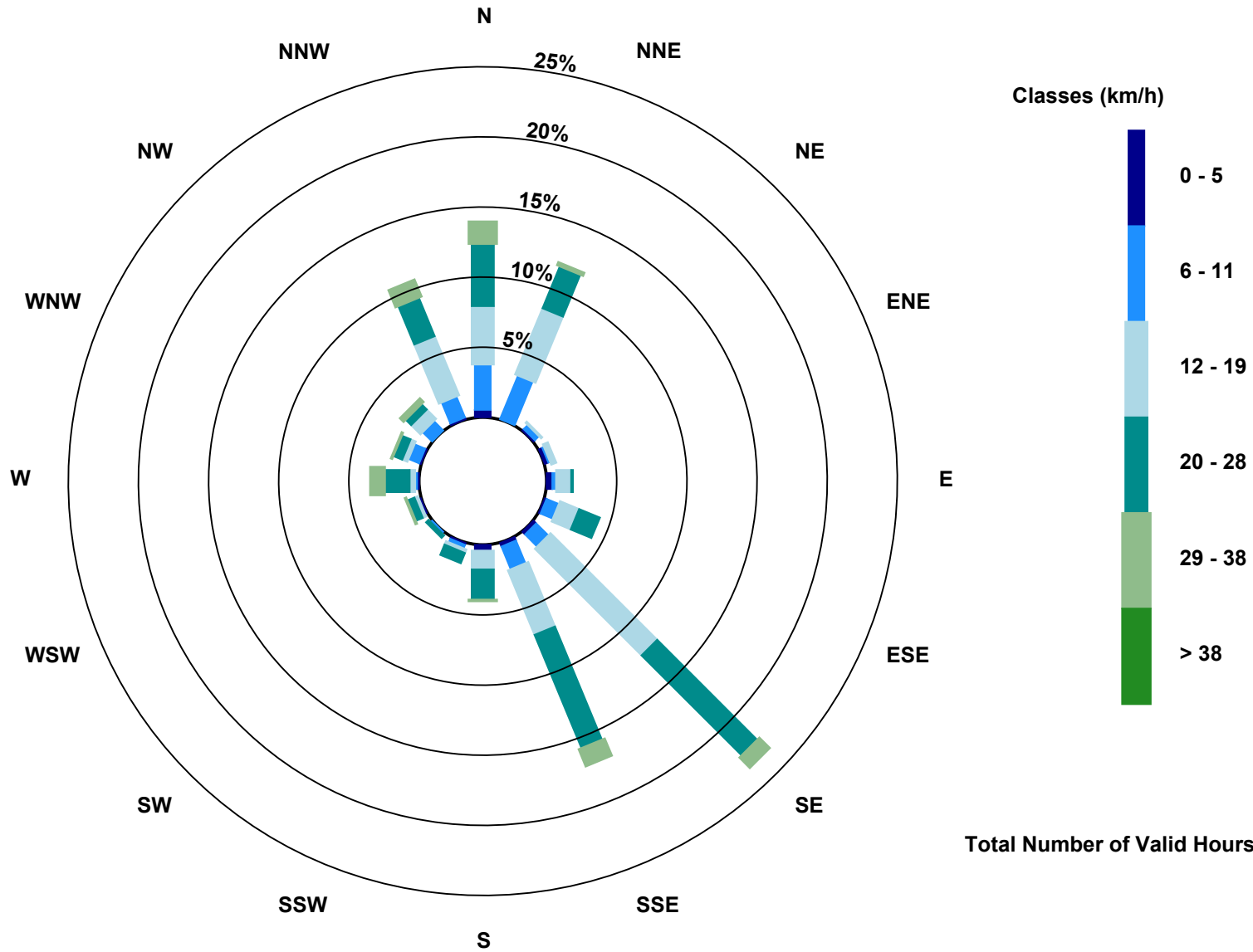
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Maximum Speed: 40 km/h on Mar 4 02:00		Maximum Daily Speed Average: 30.5 km/h on Mar 26		Hours in Service: 744																						
Minimum Speed Value: 1 km/h on Mar 22 07:00		Minimum Daily Speed Average: 3.6 km/h on Mar 22		Hours of Data: 744																						
Maximum Diurnal Speed Average: 6.2 km/h at hour 23		Minimum Diurnal Speed Average: 1.6 km/h at hour 15		Hours of Missing Data: 0																						
Monthly Average Velocity: 3.9 km/h 109.2 deg		Percentiles: P ₁ = 3 P ₁₀ = 9 Q ₁ = 14 Median = 20 Q ₃ = 26 P ₉₀ = 31 P ₉₉ = 38		Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	W21	W26	W27	W32	W32	W25	W25	W26	W28	W29	W30	WNW28	WNW24	WNW22	WNW25	WNW26	WNW23	WNW20	NW17	NNW25	N15	NNW16	N19	NNE19	WNW20.4	W32
2-Mar	NNE17	NNE21	NNE24	NNE20	NNE11	NNE5	NNE7	NNE12	NNE20	NNE17	NNE14	NNE8	N9	NNE16	NNE17	NNE21	NNE21	N21	N28	NNE30	NNE29	NNE22	NNE18	NNE22	NNE17.7	NNE30
3-Mar	N27	N27	N27	N29	N33	N37	N36	N32	N32	N30	N32	N29	N23	NNW23	NNW27	NNW27	NNW30	NNW30	NNW29	NNW31	NNW30	NNW35	NNW38	NNW34	N29.5	NNW38
4-Mar	NNW36	NNW40	NNW40	NNW38	N36	N37	N36	N32	N29	N27	N26	N21	N22	N18	NNW16	NNW17	NNW17	NNW17	NNW18	N19	N17	N20	NNE18	N16	N25.2	NNW40
5-Mar	N14	N13	N9	N9	N10	N9	N9	N7	NNE6	NE4	ESE3	SSE6	SSE5	SSE8	SSE11	SSE6	SSE4	SSE6	SSE11	SSE20	S24	S25	S26	S26	SSE4.1	S26
6-Mar	S26	S28	S28	S29	S29	SSE33	S32	SSE31	S23	SSE24	SSE19	SSE19	SSE21	SSE22	S22	S24	S30	S26	S27	S31	S33	S34	S34	S32	S27.2	S34
7-Mar	SSE34	SSE34	SSE35	SSE31	SSE29	SSE27	SSE25	SE23	SE22	SSE22	SSE21	SSE23	SSE22	SSE26	SSE25	SSE26	S23	S18	S25	S28	S22	SSW16	SSW16	SW13	SSE23.4	SSE35
8-Mar	W13	W22	WNW16	NW11	NW2	SW4	S6	SSE13	SSE21	SE15	SE13	SE18	SSE23	SSE21	SE15	SE13	SE16	SE23	SE26	SSE31	SSE33	SSE32	SSE31	SSE31	SSE14.1	SSE33
9-Mar	SSE29	SSE28	SSE25	SSE23	SE23	SE23	SE18	SE19	SE22	SE20	SE17	SE14	SSE13	SE12	SE16	SE20	SSE25	SSE20	SSE8	SE12	SSE17	S18	S24	SSE19	SSE18.9	SSE29
10-Mar	SSE21	S22	S20	S22	SSW14	SW16	WSW14	WSW12	WSW20	WSW22	WSW24	W32	W36	W38	W31	W27	W22	W20	NW18	NNW22	NNW25	N23	N23	NNE20	W13.7	W38
11-Mar	NNE17	NNE13	NE12	NNE13	N14	N18	N22	NNE20	NNE12	N7	NW11	NW9	NW9	NW7	NW11	WNW13	NW15	NNW15	N12	N11	ENE10	ESE12	SE15	SE21	N8.3	N22
12-Mar	SE15	SE23	SE19	SE16	SE15	SE14	ESE11	SE13	SE17	ESE14	ESE12	ESE13	E12	ESE10	ESE9	SE15	ESE13	E17	E13	ESE11	ESE11	ESE11	SE16	SE20	ESE13.8	SE23
13-Mar	SE20	SE16	SE20	SE17	SE19	SE21	SE22	SE23	SE21	SE13	SSE12	SE13	SE12	SE14	SE11	SE14	SE15	SE13	SE20	SE25	SE25	SE26	SSE23	SSE28	SE18.3	SSE28
14-Mar	SSE29	SSE25	SSE19	SSE19	S17	SSE19	S17	SSW15	S15	S15	S15	SSE19	S20	SSW24	SSW23	SSW17	S17	SSW25	S28	SSW25	SW27	WSW31	WSW31	W33	SSW18.8	WSW33
15-Mar	W27	W26	WSW35	W35	WNW40	NW38	N36	NNW30	N29	NNW33	NNW27	NNW32	NNW27	NNW24	NNW24	NNE28	NNE28	NNE25	NNE25	NNE19	NNE19	NNE16	NNE20	NNE21	NNW21.1	WNW40
16-Mar	NNE13	NNE12	N12	N15	NNE17	NNE16	NNE18	N16	N12	N9	N10	NNW11	NW12	NW11	WNW11	NW11	NW13	NNW12	NNE7	NNE7	ESE9	SE18	SE18	SE20	NNE7.5	SE20
17-Mar	SE19	SE24	SE24	SE27	SE30	SE28	SE28	SE29	SE29	SE31	SE25	SE21	SSE21	SSE24	SSE24	SSE26	S28	S29	S28	S33	SSW30	SW31	W32	NW29	SSE20.3	SSW33
18-Mar	NNE28	N24	NNE25	NNE27	NNE30	N30	N28	NNE23	NNE25	N24	NNW22	NNW20	NNW19	N19	N22	NNE30	NNE34	NNE32	NNE28	NNE30	NNE31	N33	NNE37	NNE31	N26.6	NNE37
19-Mar	NNE29	NNE31	NNE25	NNE25	NNE24	NNE29	NNE31	NNE27	NNE25	NNE18	N16	NNW17	NNW15	NNW13	N13	NNE16	NNE19	NNE18	NNE22	NNE21	NNE22	NNE17	N10	NNW12	NNE20.2	NNE31
20-Mar	NNE14	NNE11	NNE13	NNE9	N8	N10	N10	N9	NNE9	NNE8	NNE9	N8	N7	NW8	NNW8	NNE10	NNE10	NNE12	NNE15	NNE18	NNE20	NNE16	NE14	ENE12	NNE10.5	NNE20
21-Mar	NE12	ENE7	NE10	NE12	NE12	NE8	NE6	NNE7	NE10	NNE8	N8	NNW10	NNW13	N22	N23	N25	N24	NNE25	NNE23	NNE23	NNE26	NNE24	NNE20	NE12	NNE14.6	NNE26
22-Mar	NNE9	NNE6	N5	NNW8	N4	NNE2	NNE1	SE6	SSE5	SE5	ESE2	E3	SE2	ENE4	W2	E4	E6	ESE5	SSE7	SSE7	SSE5	SSE15	SSE21	SSE21	SE3.6	SSE21
23-Mar	SE21	SE17	SE14	SE12	SE11	SE13	SSE20	SSE17	SSE12	SSE9	SE8	SE7	SE6	ESE9	ESE9	ESE9	SE9	SE11	SE11	SE10	SE19	SE21	SE19	SE19	SE12.7	SE21
24-Mar	SSE18	SE18	SSE22	SSE22	SE18	SE19	SE21	SE22	SE15	SSE11	SSE10	SSE16	SSE22	SSE19	SE16	SE17	SE18	SSE20	SE18	SE15	SE17	SE23	SE23	SE19	SE18.1	SE23
25-Mar	SE17	SE19	SE15	SE21	SE19	SE20	SE21	SE23	SE24	SE19	SE17	SE18	SE20	SE26	SSE29	SSE30	SSE30	SSE29	SSE31	SSE33	SSE32	SSE35	SSE33	SE24.1	SSE35	
26-Mar	SSE29	SSE28	SSE30	SSE30	SSE30	SSE34	SSE33	SSE36	SSE37	SSE37	SE31	SE29	SE30	SSE33	SE30	SE27	SE30	SE29	SSE27	SE31	SE29	SE27	SE29	SE31	SSE30.5	SSE37
27-Mar	SE31	SE34	SE24	SE19	SE19	SE21	SE21	ESE16	ESE18	ESE17	ESE16	ESE15	ESE16	E17	ESE14	ESE15	ESE14	E13	E13	E12	E13	E13	ENE15	ESE16.7	SE34	
28-Mar	E14	NE10	NE12	NNE14	NNE17	NNE20	NNE21	NNE20	N17	N13	NNW14	NNW15	NNW20	NNW20	NNW25	NNW25	N23	N20	NNW24	NNW25	NNW28	NNW24	NNW21	NNW19	N17.8	NNW28
29-Mar	N16	N15	N17	NNW19	NNW16	N18	NNW15	NNW20	N19	N19	NNW14	NW19	NW21	NNW23	NNW20	N18	N16	N15	NNE16	NNE13	NE12	N6	WNW7	WNW8	N14.9	NNW23
30-Mar	W10	SSE4	SSE10	SSE15	S16	SSE15	SSE23	SSE21	SSE17	SE14	SE14	SSE21	SSE24	SSE24	SSE24	SE19	SE17	SE17	SE18	SE19	SE26	SE25	SE29	SE27	SE17.8	SE29
31-Mar	SE24	SE25	SE22	SE21	SE24	SSE22	SSE23	SSE20	SSE17	SSE13	SE13	SE17	SE18	SSW22	SSW24	S26	S31	SSE25	SSE30	SSE37	S38	SSE34	SSE39	S35	SSE24.0	SSE39
ESE5.2 ESE5.2 ESE4.5 ESE3.9 E3.8 E4.2 E4.9 E5.1 E5.3 ESE3.6 E2.5 ESE1.9 SE1.6 SSE1.9 SE1.6 ESE2.2 ESE3.2 E3.2 E4.5 ESE5.0 ESE6.1 ESE5.9 SE6.2 SE6.0																								Diurnal Average		
NNW36 NNW40 NNW40 NNW38 WNW40 NW38 N36 SSE36 SSE37 SSE37 N32 NNW32 W36 W38 W31 SSE30 NNE34 NNE32 SSE30 SSE37 SSE38 NNW35 SSE39 S35																								Diurnal Maximum		
All monthly, daily, and diurnal averages have been calculated using vector methods																										



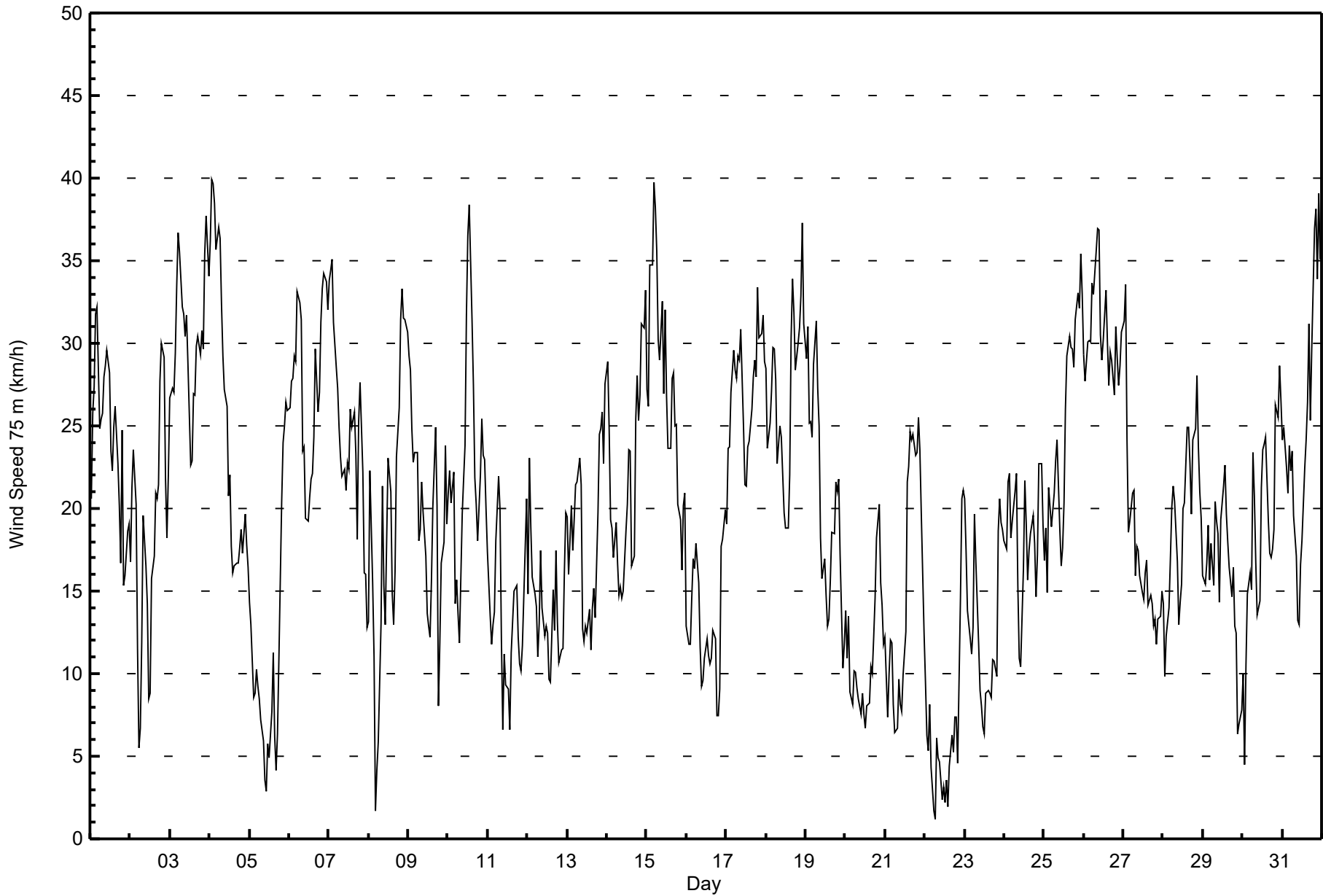
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed 75 m (WS75m) - km/h

Mannix - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 11 km/h on Mar 27 03:00 Minimum Value: 0 km/h on Mar 22 21:00 Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 4 Q ₃ = 5 P ₉₀ = 6 P ₉₉ = 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-Mar	2	2	2	4	3	3	2	3	3	3	3	4	4	4	3	4	4	3	3	3	5	3	5	4	5
2-Mar	3	3	3	6	3	2	2	4	3	4	3	3	3	4	3	3	3	3	4	4	5	4	3	3	6
3-Mar	2	3	2	3	2	4	4	5	4	3	4	4	5	4	5	4	5	5	5	5	7	5	5	6	7
4-Mar	6	5	4	5	5	6	5	5	5	6	7	5	6	4	4	3	4	4	4	3	3	4	3	3	7
5-Mar	2	5	3	2	2	2	2	2	2	1	1	2	4	3	3	3	2	2	1	3	1	1	1	1	5
6-Mar	1	1	1	2	2	1	1	1	3	2	3	3	4	3	5	5	5	4	3	2	2	2	2	2	5
7-Mar	2	3	2	2	2	2	2	1	3	3	3	4	4	4	4	4	5	2	3	2	3	2	2	2	5
8-Mar	4	3	4	1	2	2	2	2	2	4	4	4	4	3	5	3	6	6	2	3	2	2	2	2	6
9-Mar	2	2	3	1	1	1	6	4	4	5	4	4	3	3	5	3	4	5	3	2	2	2	3	2	6
10-Mar	2	1	1	2	2	2	4	4	4	4	4	5	6	6	6	5	4	4	2	2	2	3	3	6	6
11-Mar	4	4	2	2	2	4	2	3	3	3	2	2	2	2	2	2	2	2	2	2	2	5	6	7	7
12-Mar	6	7	5	6	6	6	5	6	7	5	4	4	3	3	3	4	5	3	5	3	4	4	7	6	7
13-Mar	6	6	5	5	4	4	2	3	6	3	3	4	4	4	4	4	4	5	6	4	4	4	3	2	6
14-Mar	2	2	2	2	2	2	2	2	1	1	1	2	4	4	3	2	4	3	2	2	3	3	5	6	6
15-Mar	5	4	5	5	5	5	6	6	7	5	6	7	6	4	4	7	5	4	5	4	3	4	3	4	7
16-Mar	3	3	3	2	2	3	3	2	2	2	2	3	3	3	2	2	2	2	3	1	5	5	6	7	7
17-Mar	7	6	6	6	5	5	5	6	5	5	6	4	3	3	4	4	5	5	3	3	4	4	3	5	7
18-Mar	5	5	4	5	6	7	6	4	6	5	4	4	3	4	4	5	5	6	5	5	4	6	5	5	7
19-Mar	5	5	5	4	5	5	3	5	5	4	4	4	5	4	4	5	3	3	4	4	3	3	2	2	5
20-Mar	3	2	3	3	2	1	1	1	2	2	3	3	3	4	3	3	2	2	2	2	2	2	1	2	4
21-Mar	1	2	2	1	2	2	2	4	2	2	3	3	4	4	4	3	4	4	4	4	3	3	4	3	4
22-Mar	2	2	1	1	1	1	1	2	2	2	2	2	3	2	2	3	3	2	1	1	0	8	1	1	8
23-Mar	1	2	3	2	2	3	2	2	2	2	3	2	3	4	4	3	3	3	3	5	5	4	4	2	5
24-Mar	2	2	3	2	5	2	1	1	5	2	3	4	4	5	5	8	7	5	5	5	6	5	6	6	8
25-Mar	7	7	6	8	7	7	7	7	6	5	6	7	8	8	7	6	5	5	4	4	4	4	4	5	8
26-Mar	4	4	5	5	5	5	5	6	6	7	7	9	9	7	8	9	8	7	5	6	6	6	7	8	9
27-Mar	9	9	11	8	8	9	9	6	7	7	5	5	5	6	5	6	5	5	4	4	3	4	4	4	11
28-Mar	5	2	2	1	1	1	1	1	2	2	3	4	5	5	5	5	5	4	5	3	3	3	5	3	5
29-Mar	3	2	3	4	3	4	3	3	4	6	4	3	3	4	4	4	4	4	4	3	3	1	1	2	6
30-Mar	2	2	1	2	2	4	2	2	4	3	3	5	5	5	6	5	5	6	6	7	5	8	5	3	8
31-Mar	3	4	3	2	2	2	3	2	2	2	3	4	4	6	5	5	5	3	4	5	5	4	5	6	6
Diurnal Maximum																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	22	2.96	2.96
6 - 11	96	12.90	15.86
12 - 19	242	32.53	48.39
20 - 28	249	33.47	81.85
29 - 38	131	17.61	99.46
> 38	4	0.54	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 - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	3	1	1	2	3	2	5	0	0	1	0	1	0	1	0	22
6 - 11	20	17	4	3	1	10	10	13	1	0	0	0	1	3	8	5	96
12 - 19	28	36	8	3	9	16	72	22	8	6	2	2	1	2	5	22	242
20 - 28	24	41	0	0	0	0	56	49	24	6	1	3	13	7	2	23	249
29 - 38	18	14	0	0	0	0	16	40	11	2	1	4	10	0	2	13	131
> 38	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	4
Totals	92	111	13	7	12	29	156	130	44	14	5	9	26	13	18	65	744

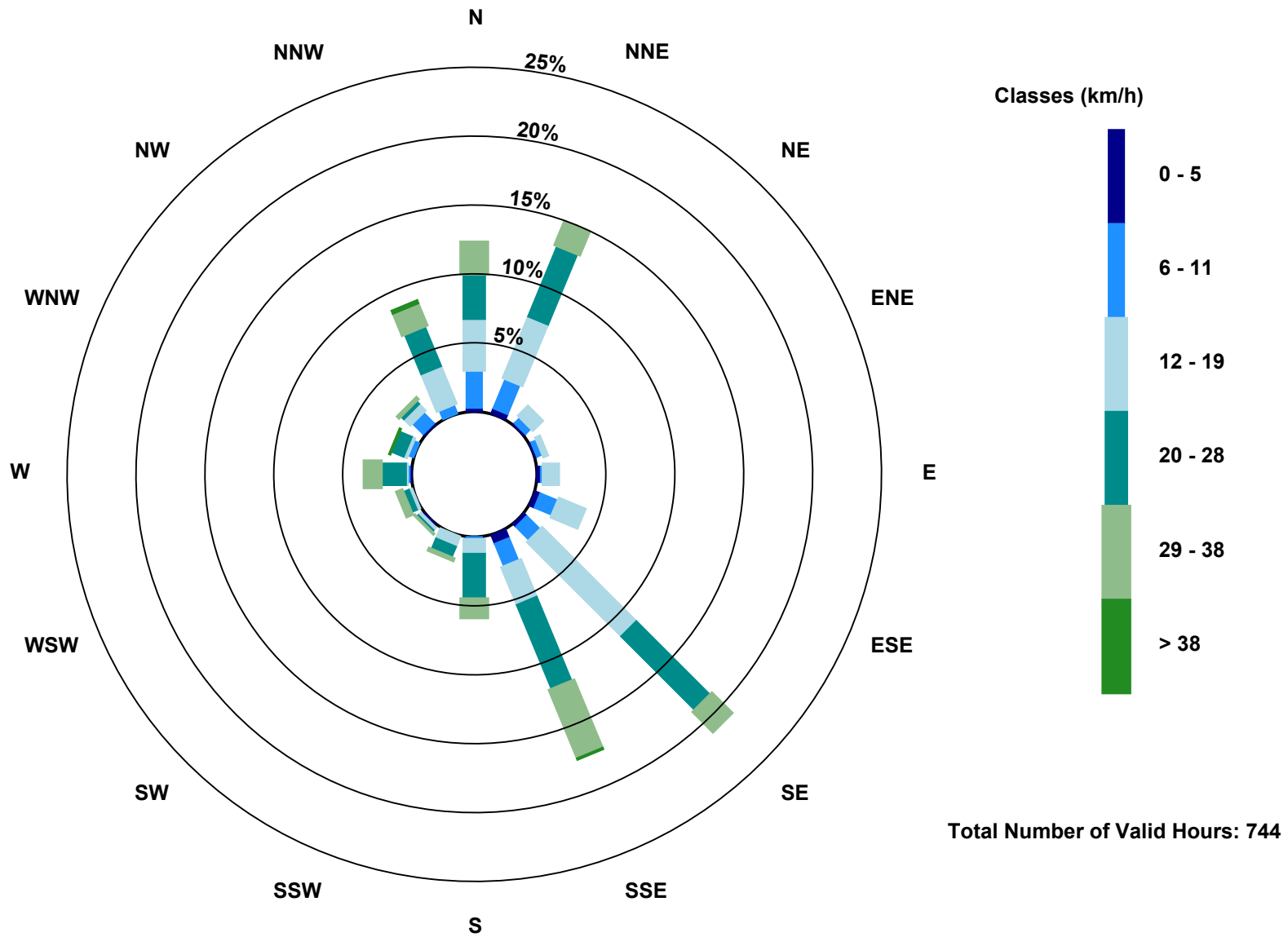
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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

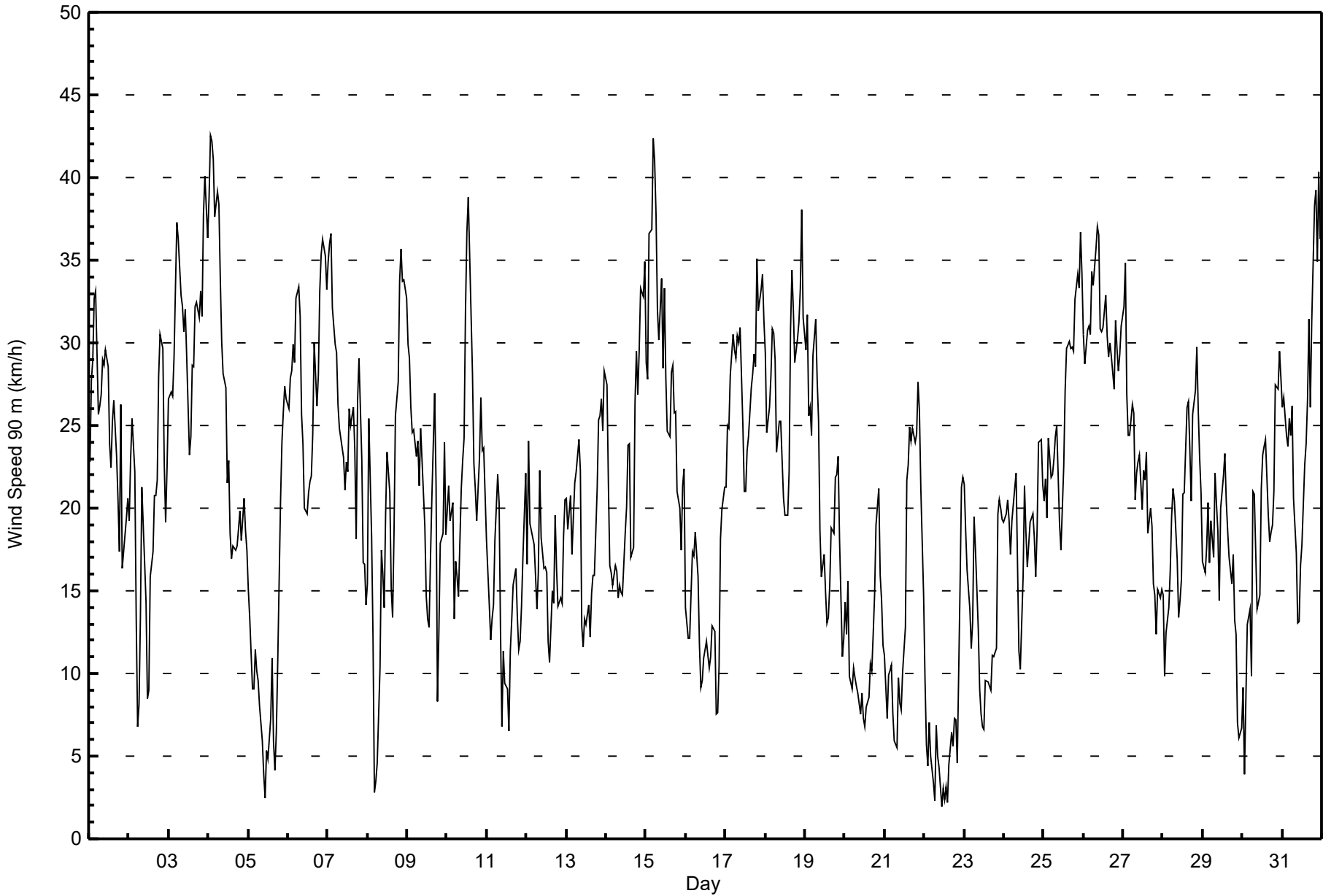




Maximum Speed: 43 km/h on Mar 4 02:00 Maximum Daily Speed Average: 31.1 km/h on Mar 26		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Percent Operational Time: 100.0																								
Minimum Speed Value: 2 km/h on Mar 22 11:00 Maximum Diurnal Speed Average: 6.2 km/h at hour 23 Monthly Average Velocity: 3.8 km/h 108.3 deg		Minimum Daily Speed Average: 3.7 km/h on Mar 5 Minimum Diurnal Speed Average: 1.6 km/h at hour 15 Percentiles: P ₁ = 3 P ₁₀ = 10 Q ₁ = 15 Median = 21 Q ₃ = 27 P ₉₀ = 32 P ₉₉ = 39																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	WNW23	WNW28	WNW29	W33	W33	W26	W26	W27	W29	W29	W30	WNW29	WNW24	WNW22	WNW25	WNW27	WNW23	WNW21	NW17	NNW26	N16	NNW17	N19	NNE21	WNW21.3	W33
2-Mar	NNE19	NNE23	NNE25	NNE22	NNE13	NNE7	NNE8	NNE13	NNE21	NNE17	NNE14	N8	N9	NNE16	NNE17	NNE21	NNE21	N22	N28	N30	NNE30	NNE23	NNE19	N22	NNE18.6	N30
3-Mar	N27	N27	N27	N29	N33	N37	N36	N33	N32	N31	N32	N29	N23	NNW24	NNW29	NNW29	NNW32	NNW32	NNW32	NNW33	NNW32	NNW38	NNW40	NNW36	N30.7	NNW40
4-Mar	NNW39	NNW43	NNW42	NNW41	NNW38	N39	N38	N34	N30	N28	N27	N22	N23	N18	NNW17	NNW18	NNW17	NNW18	NNW19	NNW20	N18	N21	NNE19	N17	N26.6	NNW43
5-Mar	N15	N13	N9	N9	N11	N10	N10	N8	NNE6	NNE4	ESE2	SSE5	SSE5	SSE7	SSE11	SSE6	SSE4	SSE6	SSE11	SSE20	S24	S26	S27	S27	SSE3.7	S27
6-Mar	S26	S28	S28	S30	S29	S33	S33	S32	S26	SSE24	SSE20	SSE20	SSE21	SSE22	S22	S25	S30	S26	S28	S33	S35	S36	S35	S33	S27.8	S36
7-Mar	SSE35	SSE36	SSE37	SSE32	SSE30	SSE29	SSE26	SE25	SE24	SSE23	SSE21	SSE23	SSE22	SSE26	SSE25	SSE26	S24	S18	S27	S29	S23	SSW17	SSW17	SW14	SSE24.1	SSE37
8-Mar	W15	W25	WNW18	NW12	NNW3	SW3	SSW5	SSE10	SSE17	SE16	SE14	SE20	SSE23	SSE21	SE15	SE13	SE19	SE26	SE28	SSE34	SSE36	SSE34	SSE34	SSE33	SSE14.2	SSE36
9-Mar	SSE30	SSE29	SSE26	SSE25	SSE25	SE23	SE24	SE21	SE25	SE23	SE19	SE15	SSE13	SE13	SE17	SE21	SSE27	SSE21	SSE8	SSE12	SSE18	S18	S24	SSE18	SSE20.0	SSE30
10-Mar	SSE20	S21	S19	SSW20	SSW13	SW17	WSW16	WSW15	WSW21	WSW23	WSW24	W32	W37	W39	W32	W28	W23	W21	NW19	NNW23	NNW27	N23	N24	NNE21	W14.8	W39
11-Mar	NNE18	NNE14	NNE12	NNE13	N14	N18	N22	NNE20	NNE13	N7	NW11	NNW9	NW9	NW7	NW11	NW13	NW15	NNW16	N13	N11	E12	ESE14	ESE17	SE22	N8.7	SE22
12-Mar	SE17	SE24	SE19	ESE19	ESE18	ESE16	ESE14	ESE16	ESE22	ESE18	ESE16	ESE16	E16	ESE12	ESE11	SE15	ESE14	E20	E16	ESE14	ESE15	ESE14	ESE18	SE20	ESE16.4	SE24
13-Mar	SE21	ESE19	SE21	SE17	SE19	SE22	SE22	SE24	SE22	SE13	SSE12	SE13	SE13	SE14	SE12	SE15	SE16	ESE16	SE21	SE25	SE26	SE27	SSE25	SSE28	SE19.0	SSE28
14-Mar	SSE27	SSE22	S17	S16	SSW15	S17	SSW16	SW15	SSW15	SSW15	SSW15	SSE19	SSW20	SSW24	SSW24	SSW17	S18	SSW26	S29	SSW27	SW30	WSW33	WSW33	W35	SSW19.3	W35
15-Mar	W29	W28	WSW37	W37	WNW42	NW41	N38	NNW32	N30	NNW34	NNW29	NW33	NW28	NNW25	NNW24	NNE28	NNE29	NNE26	NNE26	NNE21	NNE20	NNE17	NNE21	NNE22	NNW22.5	WNW42
16-Mar	NNE14	NNE12	N12	N15	NNE17	N17	NNE19	N16	N12	N9	N10	NNW11	NNW12	NW11	WNW10	NW11	NW13	N13	NNE8	NNE8	ESE10	SE18	SE20	SE21	NNE7.8	SE21
17-Mar	SE21	SE25	SE25	SE28	SE31	SE30	SE29	SE30	SE30	SE31	SE25	SE21	SSE21	SSE23	SSE24	SSE27	S28	S29	S29	SSW35	SSW32	SW33	W34	NW31	SSE20.4	SSW35
18-Mar	NNE29	N25	NNE26	NNE28	N31	N31	N29	N23	N25	NNW25	NNW23	NNW21	NNW20	NNW20	N22	NNE31	NNE34	NNE32	NNE29	NNE30	NNE31	N33	N38	NNE32	N27.3	N38
19-Mar	NNE30	NNE32	NNE26	NNE26	NNE24	NNE29	NNE31	NNE28	NNE25	N19	N16	NNW17	NNW15	NNW13	N13	N15	NNE19	NNE18	NNE22	NNE22	NNE23	NNE18	N11	NNW12	NNE20.7	NNE32
20-Mar	NNE14	NNE12	NNE16	NNE10	N9	N10	N10	N9	N9	N8	NNE9	N7	N7	NW8	NNW9	N11	NNE10	NNE12	N15	N19	NNE21	NE16	NE14	ENE12	NNE10.8	NNE21
21-Mar	NE11	ENE7	ENE10	ENE10	ENE11	ENE8	NE6	NE6	NE10	NNE8	N8	NNW10	NNW13	N22	N23	N25	N24	N25	NNE24	NNE24	NNE28	NNE26	NNE21	NE15	NNE14.4	NNE28
22-Mar	NE10	NNE6	N4	NNW7	N5	NNE3	NE2	SE7	SSE5	SE4	ESE2	ESE3	ESE2	ENE3	W2	E5	E6	ESE6	SSE7	SSE7	SSE5	SSE15	SSE21	SSE22	SE3.7	SSE22
23-Mar	SE21	SE19	SE16	SE14	SE12	SE13	SSE20	SSE17	SSE13	SSE9	SE8	SE7	ESE7	ESE10	ESE10	ESE9	ESE9	SE11	SE11	ESE12	SE20	SE21	SE20	SE19	SE13.2	SE21
24-Mar	SSE19	SE20	SSE21	SSE19	SSE17	SE19	SSE21	SSE22	SE17	SSE11	SSE10	SSE16	SSE21	SSE19	SE16	SE18	SE19	SSE20	SE18	SE16	SE19	SE24	SE24	SE21	SE18.4	SE24
25-Mar	SE20	SE22	ESE19	SE24	SE22	SE22	SE23	SE24	SE25	SE19	SE17	SE20	SE23	SE27	SSE30	SSE30	SSE30	SSE30	SSE29	SSE33	SSE34	SSE33	SSE37	SSE34	SE25.5	SSE37
26-Mar	SSE30	SSE29	SSE31	SSE31	SSE30	SSE34	SSE34	SSE36	SSE37	SSE36	SE31	SE31	SE31	SSE33	SE30	SE29	SE30	SE29	SSE27	SE31	SE30	SE28	SE29	SE31	SE31.1	SSE37
27-Mar	SE32	SE35	SE27	ESE24	ESE24	ESE26	ESE26	ESE21	ESE22	ESE23	ESE23	ESE20	ESE22	ESE22	ESE23	ESE18	ESE20	ESE19	E15	E15	E12	E15	E15	ENE15	ESE20.7	SE35
28-Mar	E15	NE10	NE12	NNE14	NNE16	NNE20	NNE21	N20	N17	N13	NNW14	NNW16	NNW21	NNW21	NNW26	NNW26	N24	N20	NNW26	NNW27	NNW30	NNW26	NNW23	NNW21	N18.4	NNW30
29-Mar	N17	N16	N18	NNW20	NNW17	N19	NNW17	NNW22	N20	N19	NNW14	NW20	NW22	NNW23	NNW20	N19	N17	N15	NNE17	NNE13	NE12	N7	NW6	WNW7	NNW15.7	NNW23
30-Mar	W9	SSW4	SSE8	SSE13	S14	S10	SSE21	SSE21	SSE17	SSE14	SSE15	SSE21	SSE23	SSE24	SSE24	SE20	SE18	SE19	SE19	SE21	SE27	SE27	SE30	SE28	SE17.3	SE30
31-Mar	SE26	SE27	SE24	SE24	SSE25	SSE24	SSE26	SSE21	SSE17	SSE13	SE13	SE17	SE18	SSW23	SSW24	S27	S31	SSE26	S31	SSE38	S39	SSE35	SSE40	S36	SSE24.9	SSE40
ESE5.0 ESE4.9 ESE4.2 ESE3.6 E3.4 E3.8 E4.6 E4.8 E5.2 ESE3.5 E2.5 ESE2.1 SE1.8 SSE1.8 SE1.6 ESE2.1 E3.1 E3.3 E4.4 ESE4.9 ESE6.0 ESE5.7 SE6.2 SE5.8																								Diurnal Average		
NNW39 NNW43 NNW42 NNW41 WNW42 NW41 N38 SSE36 SSE37 SSE36 N32 NW33 W37 W39 W32 NNE31 NNE34 NNW32 NNW32 SSE38 S39 NNW38 SSE40 NNW36																								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: 9 km/h on Mar 27 03:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 0 km/h on Mar 22 21:00																									
Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P 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-Mar	2	2	2	3	3	3	2	3	3	3	3	4	4	4	3	4	4	3	3	3	5	3	5	4	5
2-Mar	3	3	2	6	3	2	2	4	3	4	3	3	3	4	3	3	3	3	3	3	5	4	3	3	6
3-Mar	2	2	2	2	2	3	4	4	4	3	4	4	5	4	4	4	5	4	5	5	6	4	5	5	6
4-Mar	5	5	3	5	5	5	5	5	5	6	7	5	6	5	4	4	4	4	4	3	3	4	3	3	7
5-Mar	2	5	3	2	2	2	2	2	2	1	1	2	3	3	2	3	2	2	1	3	1	1	1	1	5
6-Mar	1	1	1	2	2	1	1	1	3	2	2	3	3	3	5	5	5	3	3	2	2	2	1	2	5
7-Mar	2	2	2	2	2	2	1	1	2	3	3	4	3	4	4	4	5	2	3	2	3	2	2	2	5
8-Mar	4	3	3	1	3	2	1	1	4	3	3	3	3	3	5	2	5	5	2	3	2	2	2	2	5
9-Mar	2	2	3	1	1	1	4	4	4	4	3	3	3	3	4	2	3	6	3	3	2	2	3	2	6
10-Mar	2	1	1	2	2	3	3	4	4	4	4	5	6	6	6	5	4	4	2	2	2	3	3	6	6
11-Mar	4	4	2	2	2	3	1	3	4	3	2	2	2	2	2	2	2	2	2	2	3	4	5	5	5
12-Mar	5	5	4	4	4	5	4	5	5	5	4	4	3	3	3	3	4	2	4	4	4	5	5	4	5
13-Mar	5	4	4	5	4	3	2	3	5	3	2	3	3	3	3	3	3	4	4	4	3	3	3	2	5
14-Mar	3	2	2	2	2	2	2	2	1	1	1	2	4	4	3	2	4	3	2	2	3	3	5	6	6
15-Mar	5	4	5	5	5	5	6	6	7	5	6	7	6	4	4	7	5	4	4	4	3	4	3	3	7
16-Mar	4	3	3	2	2	3	3	2	2	3	2	4	3	3	2	2	2	2	3	1	5	3	5	5	5
17-Mar	5	4	4	4	4	4	4	5	4	4	5	3	3	3	4	3	5	5	4	3	4	4	3	4	5
18-Mar	5	5	4	4	6	7	6	4	6	5	4	4	3	4	4	5	5	6	5	4	4	6	5	5	7
19-Mar	5	4	5	4	5	4	3	5	4	4	4	4	5	4	3	5	3	3	3	4	3	3	2	2	5
20-Mar	3	2	3	3	3	1	1	1	2	2	3	3	3	3	3	3	3	2	2	2	2	2	1	2	3
21-Mar	2	2	2	1	1	2	2	3	2	2	3	3	4	4	4	3	4	4	3	3	3	3	3	3	4
22-Mar	2	2	1	1	1	0	1	1	2	2	2	2	3	3	2	3	3	2	1	1	0	7	1	1	7
23-Mar	1	1	1	1	2	3	1	2	2	2	2	2	3	4	4	3	3	2	2	4	4	3	4	2	4
24-Mar	1	1	1	3	2	1	1	1	4	2	3	4	4	5	4	5	7	7	4	3	3	5	4	5	7
25-Mar	6	5	4	5	5	5	5	5	5	4	4	5	6	6	6	5	5	5	4	4	4	4	4	5	6
26-Mar	4	4	4	5	5	4	5	6	5	6	6	7	7	6	6	7	7	6	4	5	5	5	6	7	7
27-Mar	8	7	9	6	6	6	6	6	6	6	6	5	5	6	4	6	6	6	4	4	3	4	4	4	9
28-Mar	5	2	2	1	1	2	1	1	2	2	3	4	5	5	5	4	5	4	5	2	3	3	5	3	5
29-Mar	3	2	3	4	3	5	3	3	4	6	4	3	3	4	4	4	4	4	4	2	2	1	1	1	6
30-Mar	1	1	1	2	1	3	2	1	4	3	2	5	5	4	5	4	4	4	4	6	4	6	4	2	6
31-Mar	2	2	2	1	2	2	2	2	2	2	2	3	3	6	5	5	4	2	4	5	5	4	5	6	6
Diurnal Maximum																									
8 7 9 6 6 7 6 6 7 6 7 7 7 6 6 7 7 7 5 6 6 7 6 7																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	22	2.96	2.96
6 - 11	89	11.96	14.92
12 - 19	213	28.63	43.55
20 - 28	264	35.48	79.03
29 - 38	145	19.49	98.52
> 38	11	1.48	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 - March 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	2	1	1	1	4	1	5	0	2	1	0	1	0	0	1	22
6 - 11	24	10	6	5	1	8	5	13	1	0	0	0	1	2	8	5	89
12 - 19	31	30	5	2	9	22	44	21	8	9	3	2	1	2	5	19	213
20 - 28	26	37	0	0	1	14	62	50	19	8	0	3	8	8	3	25	264
29 - 38	20	14	0	0	0	0	20	36	18	2	2	3	12	2	2	14	145
> 38	1	0	0	0	0	0	0	1	1	0	0	0	1	1	1	5	11
Totals	104	93	12	8	12	48	132	126	47	21	6	8	24	15	19	69	744

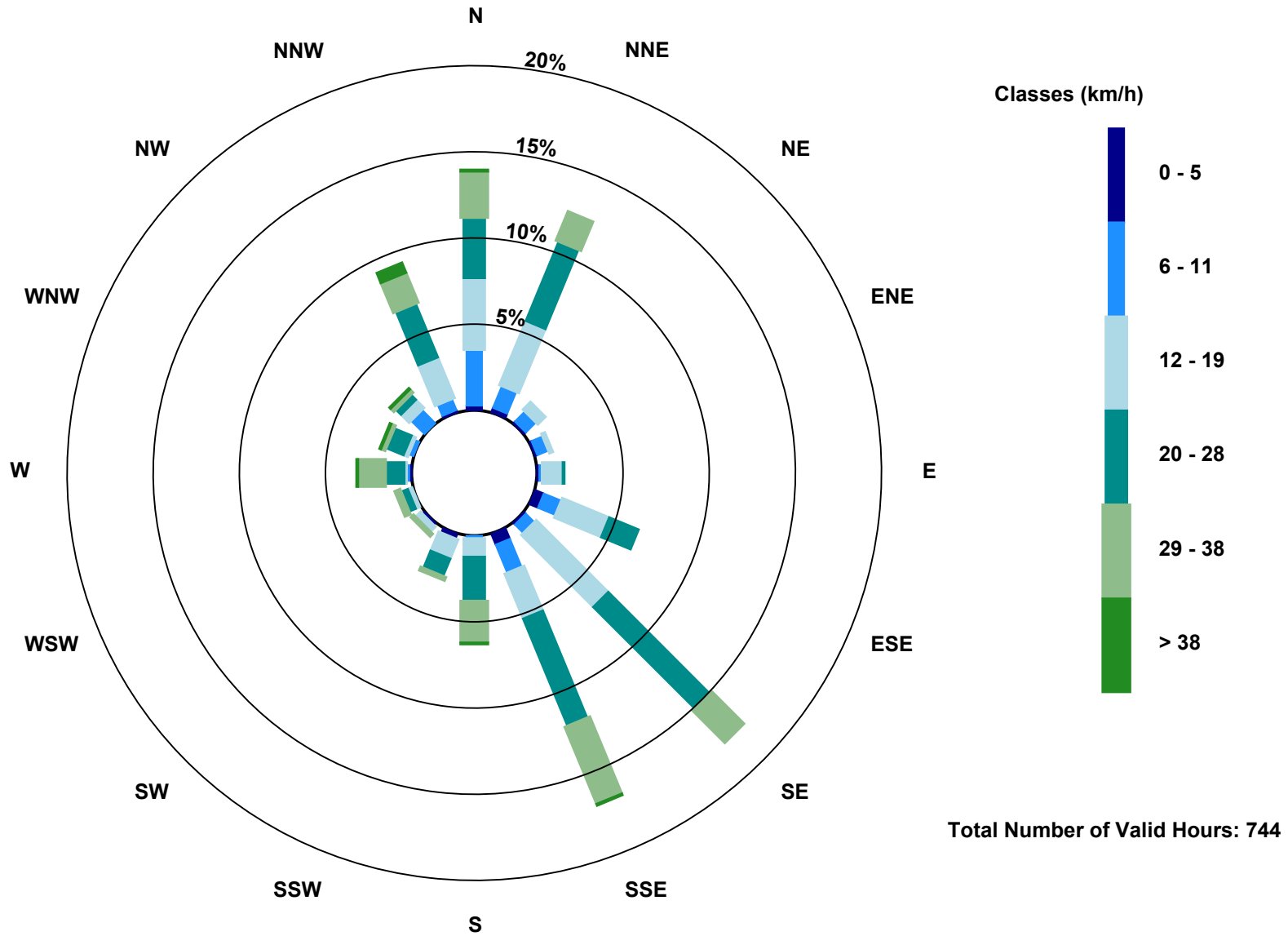
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Direction of Maximum Speed: 277 deg on Mar 10 14:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 148.3 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 161 deg on Mar 22 07:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 1.9 deg on Mar 22		Percent Operational Time:	100.0
Monthly Average Direction: 106.9 deg			

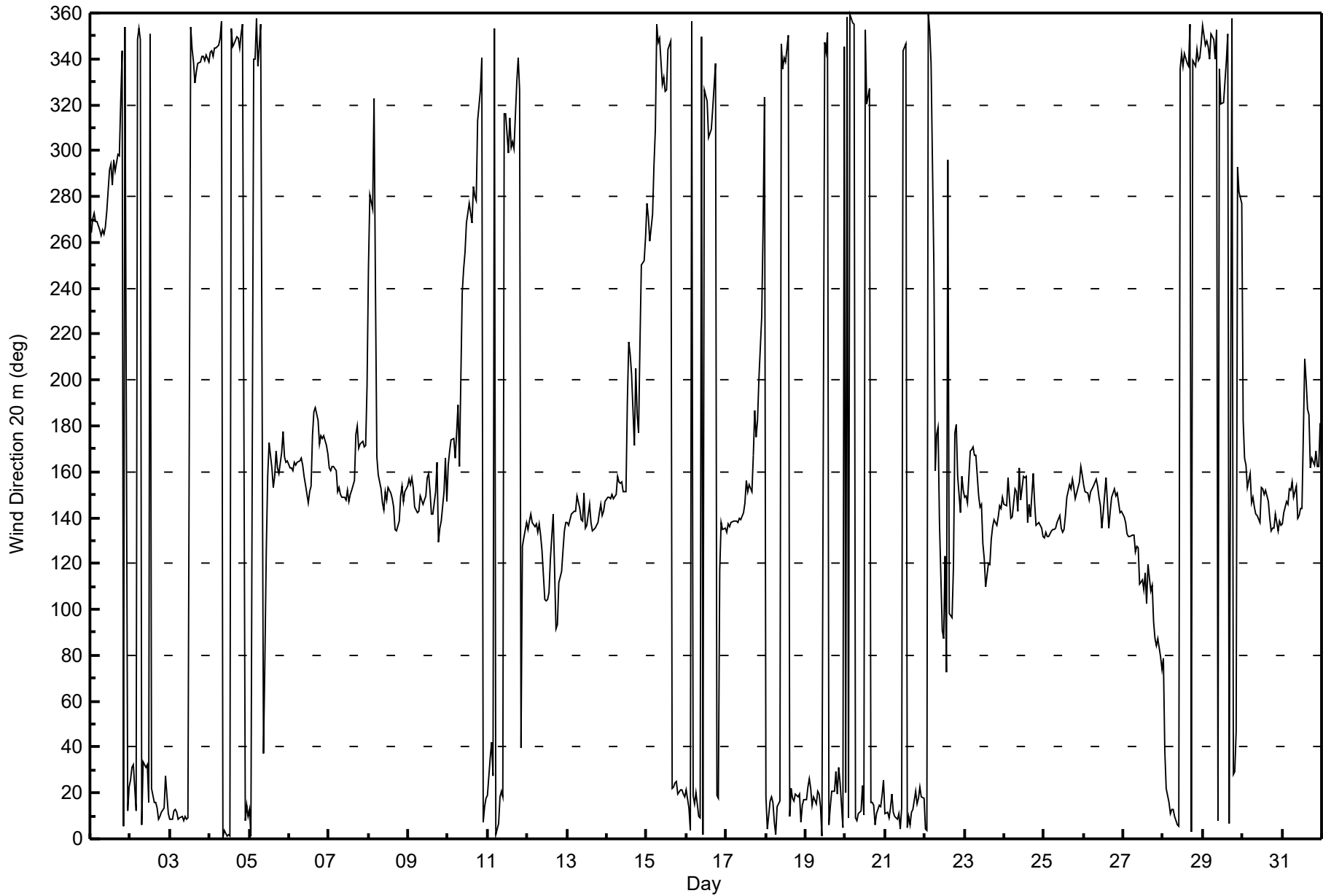
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	264	270	273	269	269	266	263	265	264	267	273	292	294	285	296	291	298	298	322	343	5	354	12	23	287.4
2-Mar	26	31	32	12	349	353	349	6	33	31	32	16	351	22	16	16	14	9	10	12	13	28	19	11	16.5
3-Mar	9	8	12	13	12	9	9	10	8	10	8	9	354	344	339	329	334	338	338	341	341	339	342	339	355.8
4-Mar	343	343	341	345	345	346	349	356	0	3	1	2	1	353	345	346	350	349	345	351	355	8	15	10	352.2
5-Mar	13	1	340	340	358	337	346	355	37	78	126	158	173	162	153	158	169	162	159	168	178	167	164	165	151.1
6-Mar	161	162	161	164	163	164	165	166	163	158	154	146	152	154	176	186	188	183	172	176	174	176	172	168	166.4
7-Mar	162	160	162	162	160	152	153	150	149	149	147	152	147	150	152	157	177	180	170	172	173	171	172	198	159.5
8-Mar	249	281	275	323	240	167	159	153	147	143	151	147	153	151	148	145	135	134	139	149	154	147	151	154	151.7
9-Mar	157	154	157	153	145	142	143	149	147	146	149	157	159	151	142	141	151	164	130	136	139	152	166	147	149.5
10-Mar	163	169	174	174	166	177	189	162	238	248	256	268	273	277	268	284	280	279	313	327	341	7	14	18	267.9
11-Mar	19	36	42	27	353	2	7	18	21	18	316	316	299	314	301	304	301	330	341	327	40	128	131	138	0.3
12-Mar	135	138	142	138	136	137	133	137	133	126	104	104	104	107	122	142	117	92	94	112	117	126	134	138	125.2
13-Mar	138	136	141	142	143	143	150	144	139	139	150	136	137	146	138	134	135	135	138	142	146	141	143	147	140.7
14-Mar	149	149	148	150	148	150	158	156	155	156	151	151	191	217	211	202	172	205	185	177	216	250	252	262	184.6
15-Mar	277	271	261	272	294	309	355	347	349	329	332	326	327	344	348	22	22	24	25	20	21	21	20	19	337.3
16-Mar	21	13	3	356	19	15	20	10	9	350	2	326	321	306	308	310	318	338	19	18	117	138	135	136	8.2
17-Mar	134	138	136	138	138	139	138	138	140	139	142	147	156	151	154	151	167	187	175	182	201	228	268	323	154.6
18-Mar	18	4	16	18	16	7	2	14	17	347	336	341	339	350	10	22	18	16	20	18	19	8	15	17	9.4
19-Mar	17	23	26	22	15	18	15	21	20	14	1	347	343	351	6	14	21	21	29	19	31	24	5	346	15.2
20-Mar	20	358	9	359	356	355	9	8	11	12	23	10	353	321	327	16	16	15	6	11	15	14	19	26	8.2
21-Mar	11	11	9	13	19	12	10	8	11	4	14	344	347	5	10	6	12	13	20	15	18	23	19	18	11.0
22-Mar	4	4	360	353	338	250	161	176	180	138	91	87	123	72	296	98	96	119	177	181	158	142	158	152	120.2
23-Mar	149	150	147	169	169	171	167	167	150	144	146	129	122	110	120	119	131	136	139	137	140	145	144	149	144.5
24-Mar	146	145	157	148	140	140	153	151	143	162	148	158	158	158	138	146	141	159	147	137	137	138	135	132	146.0
25-Mar	131	134	132	132	134	135	135	135	138	141	136	134	135	141	149	155	152	157	153	148	153	155	162	159	143.6
26-Mar	154	152	151	148	152	153	154	157	154	149	145	136	142	157	146	136	143	149	152	149	151	146	142	143	148.3
27-Mar	140	138	133	132	132	132	132	125	128	127	111	113	108	116	103	120	108	110	94	87	84	87	79	74	118.5
28-Mar	79	39	22	16	11	13	13	10	6	6	336	342	337	342	338	337	355	3	339	337	344	339	340	347	355.3
29-Mar	355	346	348	345	340	351	349	340	353	8	336	321	321	330	339	351	7	358	28	29	47	293	282	277	344.3
30-Mar	183	166	163	153	159	147	149	145	141	141	138	153	152	150	152	147	140	134	135	136	142	134	138	137	144.6
31-Mar	137	142	147	146	153	152	156	149	154	140	141	144	144	210	200	188	185	162	166	163	169	162	162	181	162.4

103.3 108.7 112.8 104.4 106.0 100.7 93.7 100.5 101.6 106.8 102.6 113.8 146.6 157.1 136.3 98.5 96.6 91.9 88.3 94.1 104.6 117.3 120.3 118.4
Diurnal Average

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



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Mar 22 13:00 Minimum Value: 4 deg on Mar 5 22:00 Percentiles: P ₁ = 5 P ₁₀ = 8 Q ₁ = 9 Median = 12 Q ₃ = 15 P ₉₀ = 22 P ₉₉ = 64														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-Mar	8	5	6	5	6	7	8	8	7	7	10	14	18	17	12	14	14	12	17	11	16	13	11	13	18	
2-Mar	13	11	11	19	12	17	13	11	13	16	21	34	31	19	19	12	12	11	10	9	10	12	13	11	34	
3-Mar	9	9	9	9	9	9	10	11	11	10	10	11	17	13	13	12	14	12	14	12	12	12	12	13	17	
4-Mar	13	12	10	11	12	12	13	12	14	15	17	17	16	18	17	17	17	14	13	12	13	11	11	14	18	
5-Mar	8	22	18	12	21	15	16	31	36	30	26	26	76	33	19	25	33	22	10	10	7	4	4	5	76	
6-Mar	6	6	6	5	5	5	4	5	7	7	9	9	10	10	18	19	16	14	8	8	10	9	8	9	19	
7-Mar	6	7	7	7	7	8	8	8	9	9	10	10	10	9	9	9	19	14	8	8	12	13	25	22	25	
8-Mar	73	24	29	45	68	46	9	10	10	10	10	10	10	9	12	11	7	8	8	9	8	8	8	7	73	
9-Mar	9	8	5	8	5	7	8	6	9	10	10	15	11	9	13	9	10	13	23	11	11	6	6	8	23	
10-Mar	12	10	7	6	5	14	34	33	20	13	12	9	13	12	12	14	14	8	19	9	10	17	12	15	34	
11-Mar	14	17	17	12	12	15	10	8	17	33	15	25	18	26	12	12	11	14	23	16	40	18	15	11	40	
12-Mar	11	8	9	10	9	10	11	9	9	15	12	13	12	17	18	10	21	9	9	13	13	14	11	9	21	
13-Mar	8	9	10	10	9	10	9	9	10	12	15	10	13	14	14	8	7	8	9	8	9	9	9	8	15	
14-Mar	7	8	8	8	8	7	8	7	8	9	8	9	23	14	12	13	10	13	12	10	16	10	11	12	23	
15-Mar	9	10	10	12	10	11	18	18	13	14	14	14	16	16	15	18	13	13	12	11	13	14	11	11	18	
16-Mar	14	14	15	14	11	15	15	11	12	27	25	29	27	28	18	17	15	14	21	16	44	9	8	9	44	
17-Mar	9	8	8	8	8	9	9	9	9	8	10	15	13	10	9	11	20	16	8	10	13	17	12	37	37	
18-Mar	10	13	11	12	13	16	14	14	15	17	16	14	14	18	13	14	13	13	11	11	12	14	11	12	18	
19-Mar	12	11	13	14	12	12	9	12	14	16	27	27	31	34	29	27	17	13	13	11	12	14	22	14	34	
20-Mar	14	16	22	15	11	17	9	15	17	38	36	50	52	46	45	27	23	14	11	9	9	8	10	13	52	
21-Mar	6	9	9	6	9	11	17	12	14	18	32	34	29	14	13	12	12	13	12	10	11	11	10	13	34	
22-Mar	11	8	11	10	37	38	80	24	41	22	80	58	96	78	89	53	22	25	17	7	18	18	7	7	96	
23-Mar	6	7	7	6	4	5	8	15	13	14	17	23	34	27	26	30	18	11	9	10	9	9	10	8	34	
24-Mar	12	8	4	8	9	9	7	8	30	27	17	16	15	16	16	18	14	16	13	8	9	9	8	9	30	
25-Mar	7	8	6	8	8	8	8	8	10	10	12	10	11	12	13	13	11	10	9	9	8	8	8	8	13	
26-Mar	8	9	9	9	10	9	9	10	10	11	14	10	13	16	16	10	11	12	10	10	10	11	10	11	16	
27-Mar	10	9	11	9	9	10	9	13	13	13	12	15	11	15	11	15	13	13	19	15	18	15	19	17	19	
28-Mar	27	17	10	9	8	8	8	8	10	13	20	18	18	18	14	14	19	16	15	12	12	12	14	13	27	
29-Mar	12	12	12	13	12	13	14	13	18	18	25	15	14	17	21	20	20	19	16	11	12	20	10	11	25	
30-Mar	29	14	5	7	18	9	10	9	11	12	10	15	14	13	13	13	14	8	7	8	9	8	8	8	29	
31-Mar	7	9	9	9	6	8	10	9	11	10	12	11	14	19	20	18	18	9	10	9	11	10	10	16	20	
	73	24	29	45	68	46	80	33	41	38	80	58	96	78	89	53	33	25	23	16	44	20	25	37		
Diurnal Maximum																										





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 45 m (WD45m) - deg

Mannix - March 2024

Direction of Maximum Speed: 271 deg on Mar 10 14:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 143.4 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 350 deg on Mar 22 06:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 2.9 deg on Mar 22		Percent Operational Time:	100.0
Monthly Average Direction: 105.1 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-Mar	270	272	273	267	266	261	260	262	260	262	268	285	289	280	291	285	294	292	317	342	2	345	8	20	284.9
2-Mar	22	25	22	13	360	4	354	4	27	25	26	9	347	18	11	12	10	5	5	8	10	22	17	8	13.0
3-Mar	4	4	6	7	6	4	5	6	4	5	5	6	352	340	335	327	333	335	336	339	337	337	339	336	352.0
4-Mar	340	341	339	341	343	345	347	352	357	0	360	357	358	348	341	341	345	343	339	346	353	4	11	8	348.8
5-Mar	6	358	343	341	359	345	354	359	23	49	119	158	169	162	150	158	172	157	151	167	172	163	162	163	147.8
6-Mar	163	160	160	163	160	161	161	159	164	156	151	144	147	149	172	181	181	177	168	171	169	171	168	164	163.7
7-Mar	157	155	156	159	155	148	147	140	139	145	144	149	144	145	148	153	174	178	169	169	171	180	191	209	157.1
8-Mar	262	277	282	316	250	193	156	150	143	139	141	142	148	146	141	137	126	127	135	147	150	146	149	151	148.8
9-Mar	154	154	147	140	133	131	128	136	137	135	136	143	152	142	134	138	149	160	135	131	135	155	166	152	142.9
10-Mar	160	168	175	178	177	204	235	196	244	245	251	262	267	271	263	279	275	274	308	324	338	2	8	12	261.1
11-Mar	15	29	33	24	352	359	4	16	18	11	314	316	298	310	300	299	299	328	350	337	53	120	125	131	1.3
12-Mar	127	130	134	128	126	127	123	126	123	118	99	99	98	101	117	135	110	85	90	105	108	117	126	131	117.7
13-Mar	130	127	132	133	134	136	141	138	134	134	147	132	132	139	131	128	128	127	130	135	139	138	142	147	134.6
14-Mar	148	148	148	149	152	150	157	161	158	159	154	151	187	211	207	198	173	202	181	183	215	247	249	257	182.2
15-Mar	270	266	255	268	290	306	351	344	346	326	328	322	321	340	344	16	17	20	20	15	17	17	16	16	332.9
16-Mar	21	13	2	354	17	11	15	5	5	345	357	322	318	306	303	306	315	338	15	18	109	131	127	129	7.1
17-Mar	127	132	131	132	134	134	133	133	135	134	138	142	152	147	149	150	166	181	175	184	199	227	264	318	153.7
18-Mar	13	2	11	12	12	2	358	10	12	344	333	337	335	345	6	16	13	11	15	13	14	3	9	12	4.9
19-Mar	12	18	22	16	12	14	12	16	16	11	356	342	340	347	2	10	16	18	23	18	27	19	2	343	11.0
20-Mar	18	13	18	6	354	350	6	4	6	8	17	6	347	317	331	10	12	13	5	8	11	17	26	36	7.9
21-Mar	18	24	20	24	28	20	16	12	16	3	6	341	343	2	6	1	7	10	15	11	14	18	18	27	10.9
22-Mar	12	6	349	349	350	350	78	157	170	137	90	89	141	71	287	86	92	112	164	168	155	142	154	149	118.8
23-Mar	144	138	128	144	148	153	154	159	151	143	141	132	119	108	114	115	123	132	131	126	132	137	136	143	136.8
24-Mar	143	135	148	145	134	131	138	143	136	160	145	155	153	153	132	140	136	153	142	129	131	134	130	127	140.1
25-Mar	125	126	123	125	125	126	127	129	133	136	131	127	128	135	145	150	148	152	149	145	148	150	157	154	138.3
26-Mar	149	147	147	144	146	147	148	152	149	145	140	130	138	152	142	131	138	144	147	144	145	141	138	138	143.4
27-Mar	135	133	126	123	124	123	125	118	120	119	107	108	105	110	98	112	103	107	91	83	78	84	73	69	112.4
28-Mar	75	39	24	17	9	9	9	7	3	1	335	340	335	339	334	332	351	0	335	333	341	335	338	340	351.7
29-Mar	350	346	347	343	340	347	341	337	348	4	333	318	317	326	337	348	4	352	21	25	42	335	292	284	342.9
30-Mar	266	148	153	149	152	144	145	144	141	137	136	149	147	145	146	142	135	127	128	128	135	128	133	131	139.7
31-Mar	132	136	140	141	147	146	152	151	153	138	137	139	141	202	193	182	180	159	164	158	165	159	158	177	158.9

102.4	106.5	111.5	103.1	100.2	96.4	90.7	98.8	96.0	99.8	91.9	104.4	141.0	151.6	133.1	101.7	99.7	96.8	89.9	97.8	105.3	117.1	121.1	119.4
Diurnal Average																							

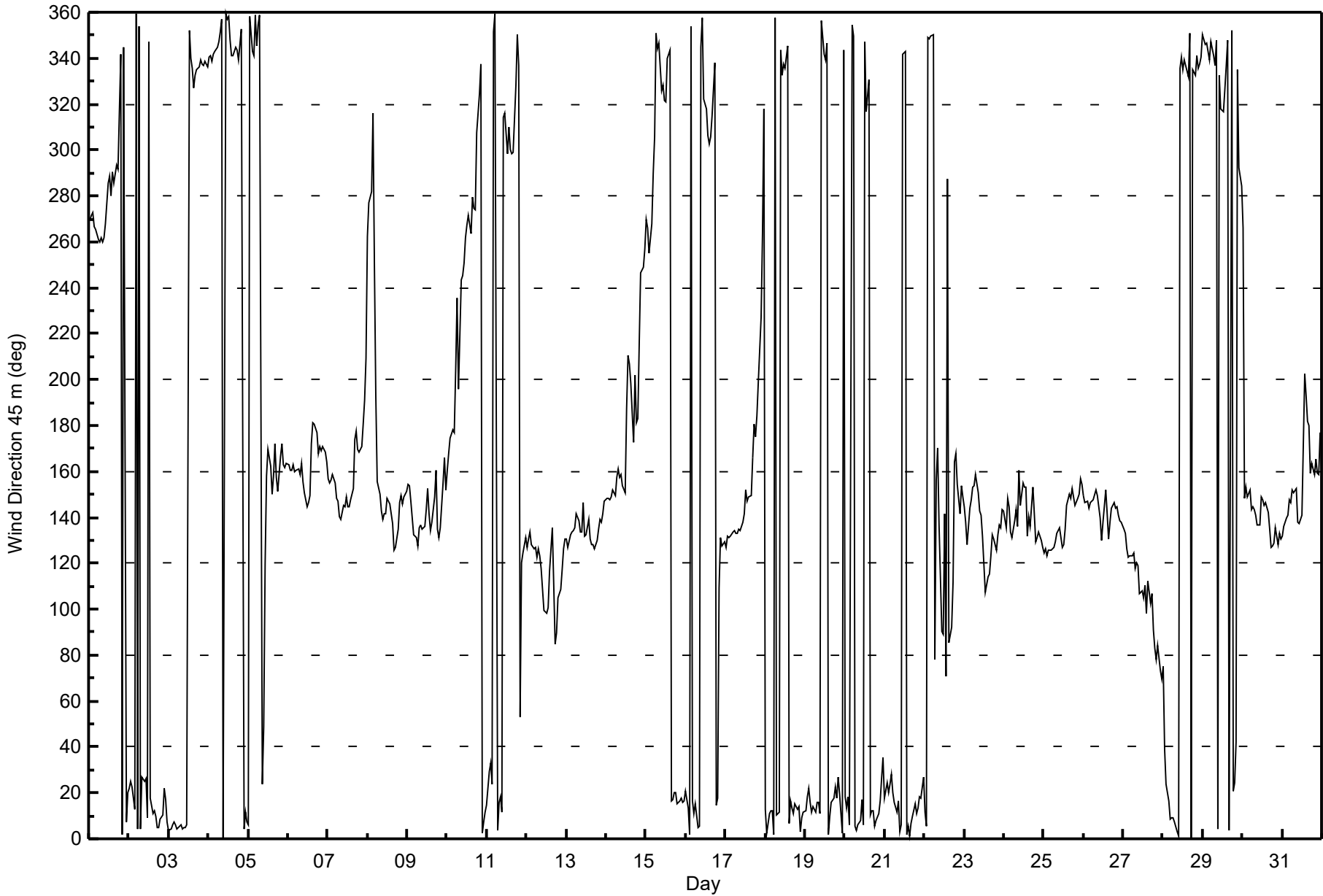
All monthly, daily, and diurnal averages have been calculated using vector methods



Summary of Hour Standard Deviations

Mannix - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0											Hours in Service: 744														
Maximum Value: 94 deg on Mar 22 13:00											Hours of Data: 744														
Minimum Value: 1 deg on Mar 9 05:00											Hours of Missing Data: 0														
Percentiles: P ₁ = 3 P ₁₀ = 5 Q ₁ = 7 Median = 9 Q ₃ = 12 P ₉₀ = 18 P ₉₉ = 59											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-Mar	4	4	5	4	5	5	6	6	6	6	9	12	15	14	10	12	11	10	16	8	15	10	12	10	16
2-Mar	10	8	7	12	12	17	9	11	10	11	15	26	24	15	14	9	9	7	5	6	7	9	9	8	26
3-Mar	5	5	4	5	5	6	6	7	6	5	6	7	12	10	10	9	10	9	10	9	9	8	8	9	12
4-Mar	10	8	7	9	9	9	9	9	11	11	12	14	12	16	12	13	13	10	9	9	9	8	8	9	16
5-Mar	6	18	15	9	14	10	10	21	21	23	28	22	64	29	14	28	34	19	8	11	3	2	3	4	64
6-Mar	3	3	3	3	3	4	2	3	5	4	7	8	8	8	12	11	8	8	4	3	4	4	4	6	12
7-Mar	4	4	4	4	5	5	4	5	7	7	8	8	7	7	7	7	17	9	5	4	8	8	14	12	17
8-Mar	47	11	13	24	66	42	7	7	8	9	10	8	7	7	10	8	6	5	6	6	5	4	4	5	66
9-Mar	5	4	5	4	1	4	5	5	6	7	8	13	10	8	10	6	8	10	29	4	7	7	4	7	29
10-Mar	10	6	4	4	10	17	18	30	11	10	10	9	11	10	11	12	13	6	18	4	7	13	8	11	30
11-Mar	12	13	12	8	8	12	6	6	12	28	12	19	12	20	9	8	7	12	17	13	34	13	13	10	34
12-Mar	10	6	7	8	8	8	9	7	8	12	10	12	9	14	17	8	20	7	8	11	12	13	9	7	20
13-Mar	6	7	7	7	6	7	6	7	8	10	12	9	11	11	12	5	4	6	8	6	6	7	7	4	12
14-Mar	4	4	4	5	4	3	4	7	5	9	5	7	19	10	7	7	6	9	6	6	12	8	8	10	19
15-Mar	7	8	7	10	7	9	16	16	10	12	11	12	12	13	12	14	10	11	9	8	9	10	8	8	16
16-Mar	10	11	14	12	7	12	10	8	10	20	20	25	21	25	13	14	11	12	15	13	39	7	6	7	39
17-Mar	6	7	7	7	7	7	7	8	7	8	8	14	10	8	8	8	16	11	4	5	9	14	9	37	37
18-Mar	7	7	8	8	9	13	10	11	13	13	13	11	10	15	11	10	9	9	8	8	8	11	8	8	15
19-Mar	8	8	9	9	9	8	6	9	9	13	23	23	27	29	27	22	12	9	9	8	9	10	19	13	29
20-Mar	10	15	13	12	13	16	6	10	14	28	26	36	43	37	38	20	21	12	6	6	7	7	9	9	43
21-Mar	5	15	9	7	7	9	16	8	10	16	25	29	24	11	10	9	10	9	9	8	7	8	7	12	29
22-Mar	12	9	16	8	14	88	39	20	31	21	70	43	94	65	73	57	30	25	12	4	14	18	4	5	94
23-Mar	3	7	3	4	3	3	5	8	10	10	14	19	32	24	23	28	17	10	10	8	6	6	8	6	32
24-Mar	8	7	4	5	8	4	5	6	21	21	14	12	13	13	13	17	14	13	11	6	7	7	6	7	21
25-Mar	7	6	5	5	5	5	6	6	8	9	11	8	10	10	11	11	9	8	6	7	6	6	6	6	11
26-Mar	6	7	7	7	8	7	7	7	8	9	12	9	12	13	14	9	9	10	9	8	8	8	8	9	14
27-Mar	9	8	10	8	8	8	7	11	11	11	10	13	9	13	9	14	11	13	16	14	16	14	16	15	16
28-Mar	19	15	8	7	3	4	4	3	6	9	17	16	15	16	11	11	17	13	11	9	8	9	10	10	19
29-Mar	10	10	11	9	10	10	10	9	16	15	20	11	10	13	19	18	18	17	12	8	8	40	7	9	40
30-Mar	61	12	3	4	11	5	6	6	8	9	9	13	12	11	10	13	12	6	5	6	7	5	5	5	61
31-Mar	5	6	7	7	4	4	5	6	7	8	9	9	12	14	14	11	14	7	7	7	8	8	9	10	14
											61 18 16 24 66 88 39 30 31 28 70 43 94 65 73 57 34 25 29 14 39 40 19 37														
Diurnal Maximum																									





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 75 m (WD75m) - deg

Mannix - March 2024

Direction of Maximum Speed: 347 deg on Mar 4 02:00																Hours in Service: 744	
Direction of Maximum Daily Speed Average: 146.6 deg on Mar 26																Hours of Data: 744	
Direction of Minimum Speed: 27 deg on Mar 22 07:00																Hours of Missing Data: 0	
Direction of Minimum Daily Speed Average: 3.6 deg on Mar 22																Percent Operational Time: 100.0	
Monthly Average Direction: 109.2 deg																	

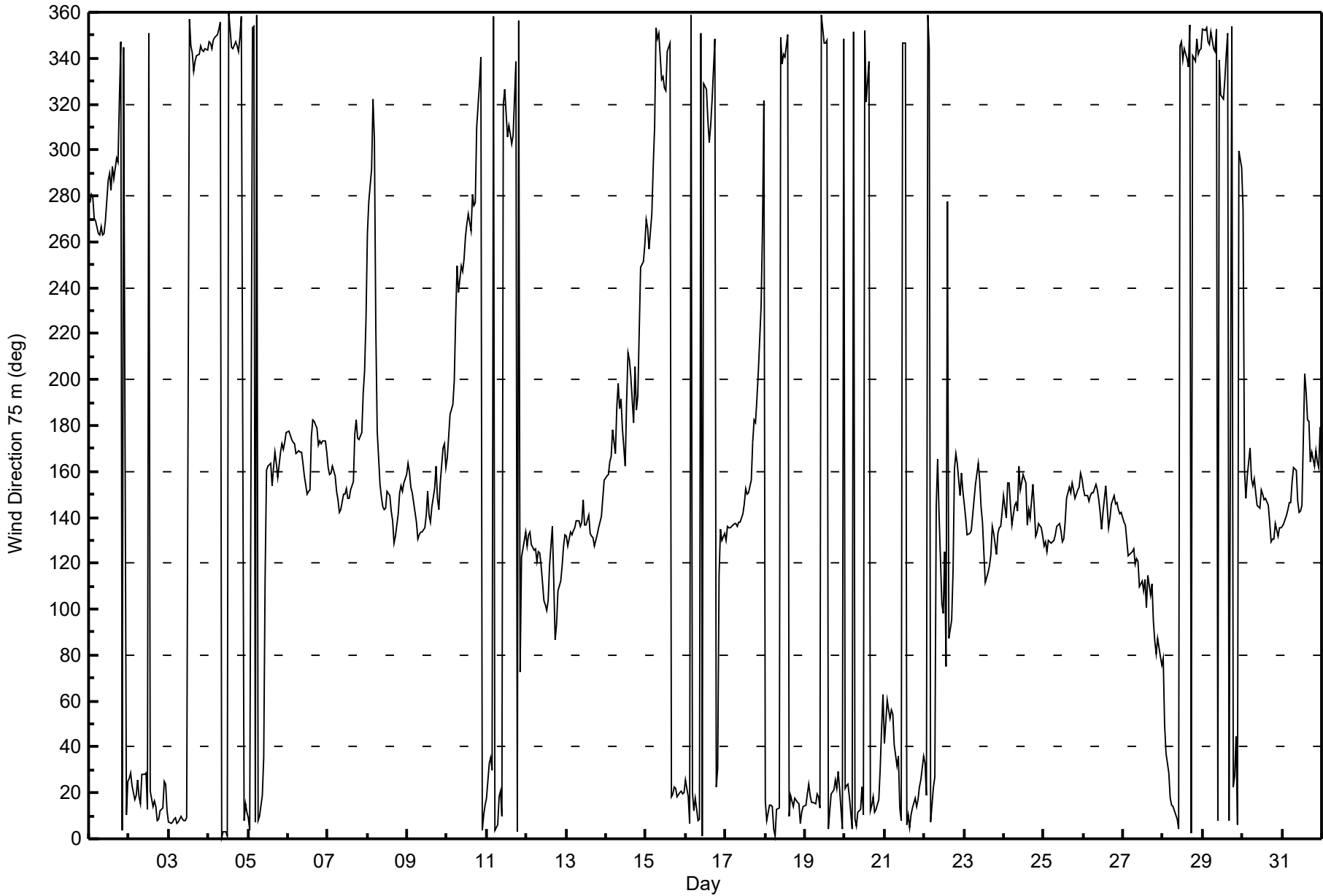
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	277	281	279	270	269	264	263	266	263	264	269	287	290	282	293	287	297	295	322	347	4	345	10	25	288.8
2-Mar	26	29	23	17	19	26	19	15	28	28	29	13	351	20	14	16	14	8	9	12	14	25	24	12	17.9
3-Mar	7	7	7	8	9	7	7	9	9	8	8	9	357	345	342	334	339	341	342	345	343	343	344	343	355.8
4-Mar	347	347	344	348	349	350	352	356	1	3	3	1	360	353	345	344	347	345	343	349	358	8	15	11	353.3
5-Mar	9	4	353	354	8	359	8	10	19	35	114	161	163	164	154	162	168	164	157	168	172	170	172	177	151.6
6-Mar	178	175	174	173	172	168	169	168	169	164	158	150	151	152	175	183	182	179	171	173	172	173	174	169	170.4
7-Mar	162	159	159	162	158	151	147	142	143	150	150	153	148	148	152	156	176	182	174	174	177	194	204	226	161.7
8-Mar	263	277	291	322	304	223	178	154	149	145	143	144	152	150	143	139	129	132	141	151	154	151	155	159	155.8
9-Mar	163	160	153	150	146	138	131	132	134	134	136	141	152	141	138	144	152	162	148	143	155	170	172	162	149.3
10-Mar	166	175	185	189	199	227	250	238	250	247	252	263	268	272	265	281	276	277	310	329	341	3	11	14	266.5
11-Mar	18	33	36	30	358	4	6	18	21	10	320	326	306	310	307	302	307	339	3	357	73	122	126	133	7.1
12-Mar	128	133	133	128	125	126	121	125	124	119	104	102	99	104	119	136	112	87	93	108	112	119	127	132	118.9
13-Mar	132	128	133	133	134	136	138	138	136	138	148	136	137	141	133	132	131	127	132	135	138	141	148	156	137.4
14-Mar	158	159	164	166	178	168	188	198	187	191	179	162	190	212	209	202	181	206	187	193	221	249	251	259	197.2
15-Mar	270	266	257	272	293	310	353	348	351	331	332	327	326	343	347	19	19	22	22	18	20	21	19	20	336.0
16-Mar	26	18	6	359	20	12	18	8	9	351	1	329	326	313	303	310	322	348	23	30	115	135	130	133	11.4
17-Mar	130	136	135	135	137	137	137	136	138	138	141	146	153	150	151	156	172	182	181	191	203	232	266	322	160.0
18-Mar	17	8	14	15	14	5	1	13	13	349	337	342	341	350	10	19	16	14	18	16	15	7	12	14	8.2
19-Mar	15	20	24	19	16	16	15	19	18	13	359	347	347	348	4	12	19	21	25	22	29	22	4	348	14.2
20-Mar	22	23	24	18	4	352	8	6	12	13	23	10	352	321	339	12	15	18	12	13	17	31	48	63	15.7
21-Mar	42	61	56	53	56	55	41	32	36	13	8	347	347	6	10	5	10	13	17	14	17	23	26	36	20.6
22-Mar	33	19	359	344	8	23	27	145	165	142	102	98	125	75	277	88	95	117	161	168	164	149	159	152	127.5
23-Mar	146	140	132	133	135	141	147	154	164	156	145	138	124	112	116	119	124	136	133	124	133	135	136	142	137.7
24-Mar	149	140	155	155	145	137	145	146	143	162	152	158	157	155	137	143	140	154	144	131	134	137	135	132	145.1
25-Mar	128	129	125	130	129	129	130	132	136	137	134	130	131	138	148	153	150	155	152	148	152	153	159	157	142.9
26-Mar	153	150	149	147	149	151	151	154	152	148	142	135	142	154	145	135	140	146	149	146	146	144	142	142	146.6
27-Mar	138	137	130	124	124	125	126	120	122	121	110	112	108	113	101	115	106	111	95	86	80	87	79	76	114.5
28-Mar	79	50	37	29	18	15	14	12	9	4	346	347	339	344	340	337	354	2	341	339	348	342	344	344	357.0
29-Mar	353	352	353	347	346	352	344	343	352	8	339	324	322	331	342	351	8	354	23	27	45	6	300	292	349.2
30-Mar	274	161	148	158	170	157	154	157	151	145	144	152	150	148	148	146	138	130	131	131	137	132	136	135	145.7
31-Mar	136	138	141	143	146	147	156	162	160	147	142	143	145	202	195	183	182	164	168	162	169	164	162	180	161.8

109.0 113.4 112.9 105.9 99.0 93.4 89.3 98.7 100.5 102.9 92.4 106.3 144.7 155.4 137.1 106.0 102.2 100.7 97.1 103.0 112.4 122.6 128.6 125.9
Diurnal Average

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: 88 deg on Mar 22 15:00											Hours of Data: 744														
Minimum Value: 1 deg on Mar 6 08:00											Hours of Missing Data: 0														
Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 6 Median = 8 Q ₃ = 12 P ₉₀ = 17 P ₉₉ = 49											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-Mar	3	4	4	4	5	5	5	6	5	6	8	11	14	13	9	11	9	8	16	6	14	8	15	8	16
2-Mar	8	5	5	7	10	16	12	10	7	9	12	25	23	13	12	7	8	6	5	4	6	8	8	7	25
3-Mar	4	4	3	3	3	4	5	6	5	4	5	6	10	8	8	8	9	7	8	7	7	6	6	7	10
4-Mar	7	6	5	7	7	7	7	8	9	9	11	12	12	14	11	13	12	10	8	7	8	7	7	7	14
5-Mar	5	14	14	11	8	9	8	13	15	19	38	22	65	25	11	21	29	18	6	7	2	4	3	4	65
6-Mar	4	3	4	3	5	2	1	1	5	5	6	7	7	7	11	9	7	5	3	2	3	3	3	5	11
7-Mar	3	3	4	4	4	3	2	3	4	6	7	7	6	6	6	6	15	7	3	4	8	8	8	12	15
8-Mar	33	7	7	20	62	40	28	4	4	11	12	7	6	6	9	8	9	6	5	3	3	3	3	3	62
9-Mar	5	4	4	2	3	4	8	5	5	6	6	10	9	8	8	6	6	9	28	7	10	6	3	6	28
10-Mar	7	6	4	3	14	13	11	18	8	9	9	9	11	9	10	13	11	6	17	6	6	10	7	8	18
11-Mar	10	11	9	7	7	10	5	4	8	27	13	20	12	20	10	8	8	12	10	5	31	14	14	10	31
12-Mar	12	7	7	10	11	12	12	11	11	14	12	12	11	15	16	8	20	6	11	12	14	14	11	7	20
13-Mar	7	10	7	7	5	5	4	5	6	10	10	9	11	9	12	8	7	10	8	5	5	4	7	4	12
14-Mar	3	3	5	9	8	6	9	10	9	11	7	6	17	10	6	5	6	8	5	6	10	7	6	9	17
15-Mar	7	7	6	11	6	8	15	14	8	10	10	11	10	11	10	12	8	9	7	7	8	9	7	6	15
16-Mar	9	10	14	11	6	10	8	7	8	18	18	24	20	23	12	11	11	12	14	12	30	7	8	8	30
17-Mar	8	7	6	5	5	5	5	5	6	5	7	12	8	7	7	7	14	9	4	4	8	13	9	37	37
18-Mar	6	6	6	6	7	11	9	10	11	10	12	9	9	14	9	8	8	7	6	7	7	9	6	7	14
19-Mar	7	6	8	8	8	7	5	7	7	11	20	20	25	27	24	20	12	9	7	6	8	10	17	13	27
20-Mar	8	8	8	11	15	17	7	8	12	23	21	31	42	33	36	18	17	11	5	6	5	7	10	8	42
21-Mar	8	17	13	6	10	14	20	18	9	15	20	25	23	9	8	7	8	7	7	6	5	5	5	9	25
22-Mar	9	14	11	6	18	42	52	10	20	22	71	44	82	71	88	61	30	24	11	4	12	15	2	5	88
23-Mar	2	5	5	5	5	4	4	5	8	12	13	18	28	23	22	26	18	10	12	12	6	5	7	4	28
24-Mar	6	5	6	4	12	2	3	4	17	16	13	11	11	11	13	17	14	12	9	9	7	6	6	9	17
25-Mar	10	9	10	7	8	7	8	7	6	7	11	10	11	10	10	10	17	7	7	6	5	5	5	5	11
26-Mar	6	6	6	6	6	6	7	6	7	7	10	8	12	11	12	9	8	8	8	6	7	7	7	8	12
27-Mar	8	7	11	11	11	11	10	13	12	13	12	14	12	14	10	16	13	15	16	14	17	13	15	14	17
28-Mar	16	13	9	6	3	2	3	3	4	8	15	15	14	15	9	9	15	13	9	6	6	7	7	8	16
29-Mar	9	9	9	8	8	9	8	8	15	13	19	9	10	12	18	17	16	17	9	5	8	32	17	5	32
30-Mar	12	26	3	5	5	7	3	5	7	8	8	11	10	9	9	12	12	8	7	8	6	6	4	3	26
31-Mar	3	4	4	4	2	3	4	5	6	9	9	8	11	14	13	9	13	6	6	6	7	7	8	9	14
											33 26 14 20 62 42 52 18 20 27 71 44 82 71 88 61 30 24 28 14 31 32 17 37														
Diurnal Maximum																									

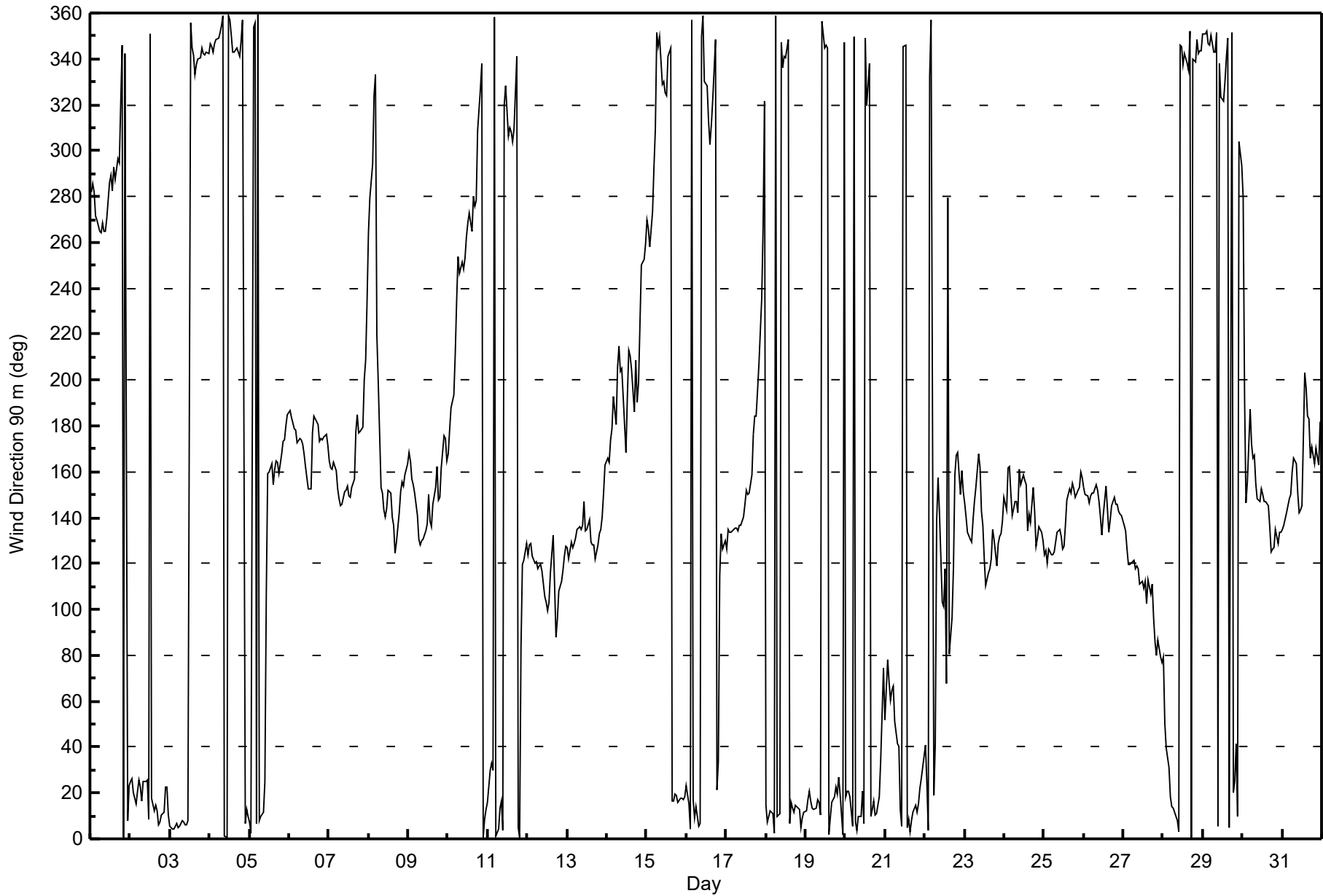




Summary of Hour Standard Deviations

Mannix - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0											Hours in Service: 744														
Maximum Value: 82 deg on Mar 22 15:00											Hours of Data: 744														
Minimum Value: 2 deg on Mar 6 07:00											Hours of Missing Data: 0														
Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 6 Median = 8 Q ₃ = 11 P ₉₀ = 16 P ₉₉ = 46											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-Mar	3	4	3	4	5	5	5	6	5	6	8	10	13	12	8	11	8	7	15	4	13	7	16	7	16
2-Mar	7	4	5	5	8	14	10	8	5	9	12	23	22	11	12	6	8	5	4	4	6	7	8	7	23
3-Mar	4	3	3	3	3	4	4	5	5	4	4	5	9	8	8	7	7	7	7	7	6	5	5	6	9
4-Mar	7	5	5	6	7	6	6	7	8	9	10	11	12	13	11	12	11	9	7	7	8	7	6	6	13
5-Mar	5	13	14	10	7	9	7	11	13	19	45	24	53	27	11	21	28	19	6	6	2	5	2	4	53
6-Mar	4	3	3	3	6	2	2	2	4	5	6	7	8	8	11	9	6	5	3	2	3	2	2	5	11
7-Mar	3	3	4	4	4	3	2	2	3	5	7	7	7	6	6	6	15	7	3	3	9	9	7	10	15
8-Mar	26	6	8	20	46	55	30	6	4	11	12	7	6	6	9	8	7	5	5	3	3	2	3	3	55
9-Mar	4	4	4	2	3	4	5	3	3	5	5	9	9	8	8	6	5	8	28	10	9	6	3	6	28
10-Mar	8	6	4	3	14	11	9	12	7	8	9	9	10	9	10	12	10	5	15	5	6	9	6	7	15
11-Mar	9	11	9	7	7	9	5	4	7	26	14	20	12	20	9	9	8	12	8	6	28	10	11	10	28
12-Mar	10	6	7	8	9	10	10	8	7	10	9	10	8	13	14	8	18	6	8	10	11	12	9	7	18
13-Mar	7	8	6	6	5	5	4	5	6	10	11	9	11	10	12	7	7	7	7	4	5	4	8	4	12
14-Mar	4	4	9	14	9	9	9	8	8	10	7	6	17	9	5	4	6	7	5	5	10	7	6	9	17
15-Mar	7	7	5	10	6	8	14	14	8	9	9	10	9	11	9	11	7	8	7	6	8	8	6	5	14
16-Mar	8	9	13	11	5	9	7	7	8	16	16	22	20	22	11	10	10	11	14	14	25	7	6	7	25
17-Mar	7	6	6	5	5	5	5	6	6	5	7	12	8	7	7	8	13	9	4	4	8	12	9	35	35
18-Mar	6	6	6	5	7	10	8	10	11	9	11	8	8	13	9	7	7	7	6	6	6	9	5	6	13
19-Mar	6	5	7	7	7	6	5	6	6	10	19	19	23	25	22	18	11	8	6	6	7	9	16	13	25
20-Mar	8	7	7	10	15	15	6	9	11	19	19	28	37	32	34	18	16	10	4	5	5	8	10	9	37
21-Mar	9	19	11	8	11	13	23	27	10	15	18	23	22	9	8	6	7	6	6	5	5	4	4	8	27
22-Mar	9	15	9	8	23	14	35	9	17	24	66	45	77	61	82	46	31	22	11	5	11	14	2	5	82
23-Mar	2	5	3	2	4	4	3	5	7	12	13	18	25	22	20	25	16	9	12	10	7	5	6	4	25
24-Mar	7	4	6	4	15	2	2	4	16	17	14	11	12	12	13	18	15	12	9	8	8	6	6	8	18
25-Mar	8	7	6	6	5	5	6	6	6	8	10	8	10	10	11	11	7	7	6	5	5	5	4	5	11
26-Mar	5	6	6	6	6	6	7	6	7	7	10	8	12	11	12	8	8	9	8	7	6	7	7	7	12
27-Mar	8	7	9	8	8	8	7	10	9	9	9	11	8	11	7	12	10	12	15	14	17	13	14	15	17
28-Mar	15	13	9	6	3	2	2	3	4	8	14	14	13	14	8	8	15	13	8	5	5	6	7	7	15
29-Mar	9	9	8	7	7	7	7	7	13	13	17	9	9	11	18	17	16	17	9	5	8	28	19	8	28
30-Mar	10	35	5	6	8	14	3	6	7	7	8	10	10	9	9	14	12	7	6	7	6	6	4	3	35
31-Mar	3	3	4	3	2	2	5	5	6	9	10	8	13	13	13	9	13	7	6	6	7	7	8	9	13
											26 35 14 20 46 55 35 27 17 26 66 45 77 61 82 46 31 22 28 14 28 28 19 35														
Diurnal Maximum																									





Summary of Hour Averages

Mannix - March 2024

Maximum Value: 1.7 km/h on Mar 26 09:00 Maximum Daily Average: 1.3 km/h on Mar 26																						Hours in Service: 744 Hours of Data: 744					
Minimum Value: -1.3 km/h on Mar 3 06:00 Minimum Daily Average: -0.8 km/h on Mar 3 Maximum Diurnal Average: 0.3 km/h at hour 12 Minimum Diurnal Average: 0.1 km/h at hour 18 Monthly Average: 0.20 km/h Percentiles: $P_1 = -1.0$ $P_{10} = -0.6$ $Q_1 = -0.3$ Median = 0.2 $Q_3 = 0.7$ $P_{90} = 1.0$ $P_{99} = 1.4$																						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-Mar	-0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.1	-0.1	-0.3	-0.2	-0.2	-0.4	-0.2	-0.2	-0.4	-0.2	-0.2	-0.3	-0.3	-0.7	-0.3	-0.4	-0.7	-0.2	-0.2	0.0	
2-Mar	0.0	-0.2	0.1	-0.3	-0.4	-0.2	-0.3	-0.3	-0.2	0.0	0.0	0.0	-0.4	-0.4	-0.6	-0.8	-0.6	-0.5	-0.7	-0.9	-0.7	0.0	-0.2	-0.5	-0.3	0.1	
3-Mar	-0.9	-1.1	-0.9	-0.7	-1.1	-1.3	-1.0	-1.0	-0.9	-1.0	-0.9	-0.9	-0.4	-0.5	-0.6	-0.9	-0.9	-0.9	-0.5	-0.9	-0.7	-0.7	-0.9	-0.6	-0.8	-0.4	
4-Mar	-0.7	-1.1	-1.0	-0.7	-0.9	-0.9	-0.9	-0.9	-0.8	-0.5	-0.3	-0.2	-0.2	-0.2	-0.2	-0.4	-0.3	-0.4	-0.5	-0.5	-0.4	-0.6	-0.4	-0.4	-0.5	-0.2	
5-Mar	-0.3	-0.2	-0.1	-0.2	-0.2	-0.1	-0.1	0.1	0.0	0.0	0.1	0.5	0.3	0.4	0.7	0.4	0.2	0.3	0.4	0.4	0.3	0.6	0.9	0.9	0.2	0.9	
6-Mar	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	1.0	0.9	0.8	1.1	1.0	0.5	0.6	0.1	0.2	0.5	0.3	0.3	0.4	0.5	0.8	0.7	1.1	
7-Mar	1.0	1.1	1.1	1.1	0.9	0.7	0.6	0.5	0.6	0.7	1.0	1.2	1.3	1.2	1.0	1.1	0.5	0.3	0.4	0.4	0.4	0.2	0.3	0.1	0.7	1.3	
8-Mar	0.0	-0.2	-0.1	-0.1	0.0	0.2	0.4	0.7	0.7	0.7	0.5	0.8	1.0	0.9	0.5	0.5	0.7	1.0	0.8	0.9	1.1	0.8	0.8	0.8	0.6	1.1	
9-Mar	0.8	0.7	0.4	0.5	0.5	0.7	0.7	0.6	0.6	0.6	0.6	0.3	0.2	0.3	0.5	0.7	0.7	0.5	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.8	
10-Mar	0.5	0.5	0.4	0.3	0.4	0.0	0.1	0.2	0.0	0.0	-0.2	-0.1	-0.2	-0.3	-0.3	-0.3	-0.1	-0.1	-0.3	-0.6	-0.6	-0.5	-0.5	-0.3	-0.1	0.5	
11-Mar	-0.3	-0.1	0.0	-0.1	-0.3	-0.6	-0.7	-0.5	-0.1	0.1	-0.3	0.0	-0.1	0.2	-0.3	-0.3	-0.2	-0.3	-0.2	-0.3	0.2	0.9	0.9	0.8	-0.1	0.9	
12-Mar	1.2	0.8	0.6	0.6	1.0	0.9	1.6	0.9	1.1	1.2	1.0	1.1	0.6	0.7	1.2	0.8	0.9	0.4	0.5	1.0	1.3	1.5	1.1	0.5	0.9	1.6	
13-Mar	0.4	0.5	0.5	0.6	0.6	0.8	0.7	0.9	0.8	0.5	0.6	0.5	0.6	0.7	0.7	0.6	0.8	0.7	0.7	0.8	0.8	0.9	0.9	0.7	0.7	0.9	
14-Mar	0.9	0.7	0.5	0.5	0.5	0.8	0.4	0.6	0.5	0.5	0.6	0.7	0.2	0.1	0.0	0.2	0.4	0.1	0.2	0.3	0.0	-0.2	-0.2	-0.1	0.3	0.9	
15-Mar	-0.1	-0.1	-0.1	-0.2	-0.6	-1.0	-1.0	-0.6	-0.8	-1.0	-0.7	-0.9	-0.5	-0.8	-0.8	-0.4	-0.5	-0.5	-0.5	-0.4	-0.4	-0.2	-0.4	-0.4	-0.5	-0.1	
16-Mar	-0.1	-0.2	-0.3	-0.5	-0.3	-0.2	-0.2	-0.6	-0.4	0.2	-0.2	-0.2	0.1	-0.1	-0.3	-0.1	-0.4	-0.4	0.1	0.0	0.7	0.6	0.8	0.8	-0.1	0.8	
17-Mar	0.8	0.9	0.8	0.9	0.8	1.0	0.9	0.9	1.0	1.0	1.2	0.9	1.1	1.2	1.0	0.9	0.8	0.2	0.4	0.2	0.1	-0.2	-0.3	-0.6	0.7	1.2	
18-Mar	-0.7	-0.7	-0.6	-0.6	-0.7	-0.6	-0.7	-0.6	-0.7	-0.6	-0.6	-0.6	-0.7	-0.7	-0.4	-0.8	-0.5	-1.0	-1.0	-0.5	-0.8	-0.6	-0.8	-1.1	-0.6	-0.7	-0.4
19-Mar	-0.5	-0.6	-0.3	-0.5	-0.7	-0.4	-0.9	-0.6	-0.4	-0.6	0.0	0.2	0.0	0.0	-0.3	-0.4	-0.1	-0.5	-0.3	-0.4	-0.1	-0.4	-0.1	-0.3	-0.4	0.2	
20-Mar	-0.1	-0.3	-0.1	-0.3	-0.2	-0.3	-0.3	-0.1	-0.2	-0.1	0.1	0.1	0.3	-0.2	-0.1	-0.3	-0.4	-0.3	-0.4	-0.5	-0.3	-0.4	-0.2	-0.1	-0.2	0.3	
21-Mar	-0.5	-0.3	-0.4	-0.3	-0.2	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.1	-0.2	-0.7	-0.8	-1.0	-0.7	-0.6	-0.3	-0.4	-0.4	-0.3	-0.2	-0.1	-0.3	0.0	
22-Mar	-0.3	-0.3	-0.2	-0.2	-0.1	-0.1	0.0	0.3	0.4	0.5	0.4	0.0	0.3	0.5	0.5	0.5	0.3	0.6	0.1	0.0	0.1	0.6	0.6	0.6	0.2	0.6	
23-Mar	0.6	0.4	0.3	0.4	0.5	0.4	0.4	0.3	0.6	0.3	0.2	0.1	0.2	0.8	0.6	1.0	0.7	0.5	0.8	1.2	0.6	0.6	0.6	0.5	1.2		
24-Mar	0.5	0.5	0.6	0.7	0.7	0.6	0.4	0.4	0.3	0.6	0.5	0.6	0.8	0.8	0.8	1.0	0.9	0.6	0.7	0.4	0.4	0.7	0.9	0.8	0.6	1.0	
25-Mar	1.0	0.8	0.6	0.6	0.7	1.0	0.8	0.7	1.0	0.7	0.8	0.8	0.9	1.3	1.4	1.1	1.4	1.1	1.1	1.3	1.3	1.2	1.1	1.2	1.0	1.4	
26-Mar	1.0	1.2	1.3	1.3	1.2	1.4	1.3	1.5	1.7	1.5	1.2	1.0	1.4	1.3	1.4	1.1	1.3	1.2	1.0	1.2	1.0	1.0	1.3	1.2	1.3	1.7	
27-Mar	1.0	1.2	1.3	1.2	1.3	1.1	0.8	1.6	1.1	1.2	1.3	1.5	1.0	1.4	0.8	0.9	1.0	1.0	0.9	0.3	0.2	0.0	0.1	0.2	0.9	1.6	
28-Mar	0.4	-0.1	-0.2	-0.3	-0.6	-0.6	-0.7	-0.7	-0.4	-0.4	-0.2	-0.2	-0.4	-0.5	-0.6	-0.6	-0.6	-0.6	-0.4	-0.3	-0.6	-0.7	-0.5	-0.4	-0.6	0.4	
29-Mar	-0.5	-0.6	-0.5	-0.4	-0.4	-0.3	-0.5	-0.6	-0.5	-0.6	-0.1	-0.3	-0.6	-0.5	-0.2	-0.1	-0.3	-0.3	-0.1	-0.1	0.0	-0.3	-0.2	-0.1	-0.3	0.0	
30-Mar	0.1	0.2	0.5	0.5	0.4	0.7	0.8	0.8	0.7	0.8	0.7	0.9	0.7	0.9	0.9	0.8	0.7	0.7	0.5	0.6	0.8	1.1	0.8	0.8	0.7	1.1	
31-Mar	0.8	0.8	0.7	0.3	0.4	0.3	0.5	0.7	0.7	0.7	0.7	0.9	0.7	0.1	0.1	0.4	0.4	0.8	0.8	1.1	0.7	1.1	1.1	0.6	0.6	1.1	
																								Diurnal Average			
																								Diurnal Maximum			



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 3.4 km/h on Mar 4 02:00																				Hours of Data: 744					
Minimum Value: 0.2 km/h on Mar 30 01:00																				Hours of Missing Data: 0					
Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.3 Median = 1.7 Q ₃ = 2.2 P ₉₀ = 2.7 P ₉₉ = 3.2																				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-Mar	0.6	0.8	1.1	1.5	1.6	1.5	1.7	1.6	1.7	1.8	2.2	2.4	2.2	2.0	2.1	2.3	2.1	1.7	1.5	2.0	1.3	1.1	1.7	1.7	2.4
2-Mar	1.5	1.7	1.8	1.7	0.8	0.6	0.5	0.9	1.9	2.2	2.1	1.7	1.9	2.0	2.1	2.1	2.1	1.9	2.2	2.4	2.4	2.2	1.8	2.1	2.4
3-Mar	2.4	2.3	2.3	2.4	2.7	3.0	3.1	2.9	3.0	2.7	2.8	2.8	2.3	2.3	2.5	2.5	2.9	2.8	2.9	2.9	2.6	3.1	3.4	2.9	3.4
4-Mar	3.2	3.4	3.2	3.3	3.2	3.3	3.4	3.1	2.9	2.9	2.9	2.5	2.5	2.1	2.0	1.9	1.9	1.9	1.6	1.7	1.5	1.7	1.4	1.4	3.4
5-Mar	0.9	1.1	1.0	0.8	0.7	0.8	0.7	0.7	0.6	0.9	1.2	1.5	1.6	1.5	1.4	0.9	0.7	0.5	0.4	0.6	0.8	0.5	0.8	1.0	1.6
6-Mar	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1.3	1.1	1.5	1.5	1.6	1.8	1.7	2.2	2.4	2.7	2.0	1.3	1.4	1.8	1.7	1.7	1.6	2.7
7-Mar	1.5	1.6	1.5	1.6	1.3	1.4	1.0	1.0	1.3	1.7	1.8	1.8	2.0	2.1	1.9	1.8	1.8	1.1	0.9	1.3	1.4	0.8	0.7	0.5	2.1
8-Mar	0.6	0.6	0.4	0.3	0.2	0.4	0.3	0.8	1.3	1.3	1.2	1.6	1.8	1.6	1.3	1.1	1.8	2.1	1.5	1.5	1.6	1.5	1.3	1.1	2.1
9-Mar	1.1	0.9	0.5	0.3	0.7	1.2	1.3	1.0	1.4	1.6	1.3	1.3	1.0	0.8	1.3	1.2	1.3	0.8	0.9	0.9	0.6	0.5	0.7	0.7	1.6
10-Mar	0.6	0.6	0.7	0.6	0.6	0.5	0.6	0.7	1.5	1.7	1.8	2.0	2.3	2.5	2.3	1.9	1.6	1.1	0.6	0.9	1.3	1.6	1.7	2.0	2.5
11-Mar	1.8	1.3	1.2	1.1	1.3	1.6	1.8	1.5	1.4	1.4	1.5	1.6	1.4	1.4	1.3	1.2	1.3	1.3	0.6	0.5	0.9	1.6	1.8	2.1	2.1
12-Mar	1.9	2.2	1.7	1.9	2.0	2.0	1.9	1.9	2.6	2.1	2.1	2.0	1.7	1.6	1.5	1.6	1.6	1.6	1.4	1.5	1.8	2.1	2.0	2.0	2.6
13-Mar	1.9	2.0	1.8	1.6	1.5	1.7	1.3	1.8	2.0	1.3	1.5	1.5	1.6	1.5	1.4	1.5	1.4	1.7	1.9	1.8	1.7	1.9	1.3	1.2	2.0
14-Mar	1.2	1.4	1.2	1.0	0.9	1.1	0.9	0.9	1.0	0.9	1.0	1.3	2.0	2.1	1.7	1.0	0.6	1.6	1.4	0.8	1.1	1.8	2.2	2.2	2.2
15-Mar	1.5	1.2	2.1	1.9	2.8	2.6	3.3	2.8	2.8	2.9	2.6	3.1	2.7	2.4	2.8	2.9	2.5	2.2	2.2	1.8	1.8	1.7	1.8	1.9	3.3
16-Mar	1.4	1.2	1.2	1.4	1.7	1.6	1.8	1.5	1.3	1.7	1.8	1.8	2.0	1.6	1.4	1.3	1.3	1.3	0.9	0.7	1.2	1.5	2.0	2.0	2.0
17-Mar	2.1	2.1	2.0	2.2	2.2	2.3	2.1	2.4	2.5	2.6	2.3	1.9	2.0	1.9	1.8	1.4	2.0	2.0	1.3	1.5	1.8	1.5	1.4	2.1	2.6
18-Mar	2.2	1.9	2.1	2.2	2.8	3.0	2.7	2.3	2.5	2.6	2.5	2.2	2.0	2.1	2.2	3.0	3.2	2.9	2.7	2.6	2.8	3.0	3.3	2.8	3.3
19-Mar	2.7	2.8	2.5	2.5	2.3	2.7	2.5	2.6	2.5	2.2	2.3	2.5	2.3	2.2	2.2	2.1	2.1	1.9	2.1	2.0	2.0	1.8	1.0	0.9	2.8
20-Mar	1.1	0.7	1.1	0.9	0.5	0.8	0.9	1.1	1.4	1.7	2.0	2.0	2.0	2.0	1.8	1.8	1.6	1.4	1.2	1.4	1.3	1.1	1.0	0.8	2.0
21-Mar	0.9	0.9	0.8	0.7	0.8	0.9	0.9	1.0	1.4	1.5	1.7	2.1	2.1	2.5	2.6	2.5	2.5	2.3	2.1	1.9	2.0	1.7	1.2	0.8	2.6
22-Mar	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.7	1.2	1.5	1.5	1.7	1.8	1.5	1.6	1.5	1.5	1.0	0.6	0.2	0.2	0.8	0.6	0.7	1.8
23-Mar	0.8	0.8	0.7	0.5	0.5	0.7	0.8	1.3	1.3	1.3	1.6	1.5	1.7	1.9	1.8	1.7	1.3	1.2	1.1	1.6	1.6	1.4	1.4	1.0	1.9
24-Mar	0.8	0.8	0.5	0.9	1.2	1.0	0.6	0.9	1.1	1.4	1.5	1.9	2.2	1.9	1.9	1.9	2.0	1.6	1.3	1.4	1.4	1.7	1.6	1.9	2.2
25-Mar	1.7	2.0	1.8	1.9	2.1	2.1	2.3	2.3	2.2	1.9	1.9	2.2	2.5	2.7	2.6	2.5	2.3	2.2	1.7	2.2	2.2	2.0	2.2	2.1	2.7
26-Mar	1.9	2.0	2.2	2.2	2.3	2.5	2.4	2.6	2.8	3.2	2.8	3.0	2.8	2.8	2.9	2.8	2.7	2.4	2.2	2.4	2.3	2.4	2.5	2.7	3.2
27-Mar	2.8	3.0	2.9	3.0	3.0	3.1	3.0	2.7	2.8	2.7	2.7	2.5	2.4	2.8	2.3	2.1	2.4	2.6	2.1	1.8	1.7	1.7	1.7	1.8	3.1
28-Mar	1.5	0.9	0.9	1.0	1.3	1.3	1.5	1.7	1.6	1.5	1.8	2.0	2.2	2.4	2.7	2.6	2.5	2.2	2.2	2.0	2.3	1.8	1.8	1.8	2.7
29-Mar	1.6	1.4	1.5	1.7	1.4	1.6	1.3	1.8	1.9	2.1	2.1	2.0	2.2	2.5	2.3	2.1	1.8	1.8	1.5	0.8	0.8	0.4	0.2	0.3	2.5
30-Mar	0.2	0.3	0.3	0.7	0.8	1.3	1.5	1.4	1.6	1.5	1.6	2.2	2.1	2.3	2.1	2.0	1.8	1.9	1.6	1.8	2.0	2.4	2.1	1.9	2.4
31-Mar	1.6	1.8	1.4	1.1	0.7	0.7	0.9	1.3	1.5	1.4	1.6	1.7	1.9	2.4	2.5	2.6	2.6	1.3	1.7	2.1	2.5	2.1	2.4	2.8	2.8
	3.2	3.4	3.2	3.3	3.2	3.3	3.4	3.1	3.0	3.2	2.9	3.1	2.8	2.8	2.9	3.0	3.2	2.9	2.9	2.9	2.8	3.1	3.4	2.9	
Diurnal Maximum																									



Summary of Hour Averages

Mannix - March 2024

Maximum Value: 2.7 km/h on Mar 12 22:00 Maximum Daily Average: 1.1 km/h on Mar 26																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -1.4 km/h on Mar 3 23:00 Minimum Daily Average: -0.8 km/h on Mar 3 Maximum Diurnal Average: 0.3 km/h at hour 11 Minimum Diurnal Average: 0.1 km/h at hour 18 Monthly Average: 0.16 km/h Percentiles: P ₁ = -1.0 P ₁₀ = -0.6 Q ₁ = -0.3 Median = 0.1 Q ₃ = 0.6 P ₉₀ = 1.0 P ₉₉ = 1.5																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-0.5	-0.5	-0.6	-0.6	-0.7	-0.5	-0.7	-0.6	-0.8	-0.7	-0.6	-0.7	-0.4	-0.5	-0.8	-0.6	-0.3	-0.4	-0.3	-0.9	-0.2	-0.4	-0.7	0.1	-0.5	0.1
2-Mar	0.4	0.0	0.1	0.0	-0.6	-0.3	-0.3	-0.3	0.4	0.4	0.0	0.2	-0.5	-0.5	-0.2	-0.7	-0.3	-0.2	-0.3	-0.6	-0.3	0.4	0.0	-0.1	-0.1	0.4
3-Mar	-0.8	-0.9	-0.6	-0.3	-0.9	-1.0	-1.0	-0.8	-0.9	-1.1	-0.8	-0.6	-0.1	-0.8	-0.7	-1.1	-1.0	-1.3	-0.7	-1.0	-0.7	-0.9	-1.4	-0.7	-0.8	-0.1
4-Mar	-0.7	-1.1	-1.1	-0.8	-0.7	-0.8	-0.6	-0.6	0.1	0.3	0.3	0.2	0.2	-0.1	-0.4	-0.1	-0.8	-0.4	-0.7	-0.5	-0.4	-0.3	-0.1	-0.4	0.3	
5-Mar	-0.4	-0.2	0.0	-0.3	-0.2	-0.1	-0.1	0.0	-0.1	-0.2	0.1	0.4	0.2	0.3	0.7	0.2	0.3	0.1	0.2	0.3	0.0	0.5	0.7	0.7	0.1	0.7
6-Mar	0.8	0.8	0.8	0.6	0.8	0.8	0.9	1.1	0.6	0.8	0.8	0.6	1.1	0.7	0.5	0.5	0.3	0.1	0.2	0.0	0.1	0.1	0.4	0.6	0.6	1.1
7-Mar	1.0	1.0	1.0	1.0	0.9	0.7	0.6	0.5	0.3	0.5	0.9	1.1	1.3	1.0	0.9	0.7	0.3	0.0	0.2	0.2	0.2	0.1	-0.1	-0.3	0.6	1.3
8-Mar	-0.3	-0.5	-0.3	-0.2	-0.1	0.0	0.2	0.8	0.8	0.5	0.3	0.5	0.9	0.8	0.1	0.1	0.1	0.7	0.8	0.8	1.0	0.9	1.0	0.8	0.4	1.0
9-Mar	0.9	0.6	0.3	0.5	0.5	0.6	0.6	0.3	0.4	0.5	0.4	0.2	0.0	-0.1	0.1	0.4	0.8	0.4	0.5	0.8	0.6	0.2	0.2	0.5	0.4	0.9
10-Mar	0.3	0.2	0.2	0.0	-0.1	-0.3	-0.3	-0.1	-0.5	-0.5	-0.8	-0.6	-0.7	-0.8	-0.7	-0.7	-0.5	-0.4	-0.6	-0.9	-0.9	-0.3	-0.2	-0.3	-0.4	0.3
11-Mar	0.0	-0.1	0.0	0.1	-0.3	-0.4	-0.2	-0.1	0.3	0.3	-0.2	0.2	-0.3	0.2	-0.6	-0.3	-0.4	-0.4	-0.3	-0.3	0.5	1.1	0.8	0.4	0.0	1.1
12-Mar	1.5	0.4	0.2	0.0	0.6	1.0	2.4	0.9	0.6	1.1	1.1	1.3	0.0	0.8	1.8	0.8	1.3	0.1	0.4	1.6	2.2	2.7	1.0	0.2	1.0	2.7
13-Mar	-0.1	0.0	0.1	0.2	0.4	0.5	0.5	0.5	0.7	0.3	0.6	0.1	0.2	0.3	0.4	0.0	0.3	0.1	0.2	0.4	0.5	0.7	0.6	0.7	0.3	0.7
14-Mar	1.0	0.7	0.5	0.5	0.5	0.6	0.0	0.2	0.5	0.3	0.6	0.6	0.1	-0.5	-0.5	-0.2	0.1	-0.5	0.1	0.0	-0.6	-0.9	-0.7	-0.7	0.1	1.0
15-Mar	-0.5	-0.7	-0.9	-0.8	-1.2	-1.1	-0.7	-0.7	-0.3	-1.0	-0.4	-0.6	-0.5	-0.9	-0.8	0.2	0.2	0.0	0.1	-0.2	0.0	0.0	-0.2	-0.2	-0.5	0.2
16-Mar	0.4	0.2	-0.1	-0.3	-0.1	0.1	0.1	-0.7	-0.6	0.6	-0.3	0.1	0.3	-0.2	-0.4	-0.3	-0.6	-0.4	0.1	0.1	0.8	0.1	0.2	0.4	0.0	0.8
17-Mar	0.3	0.6	0.6	0.6	0.5	0.6	0.6	0.7	0.7	0.7	1.3	0.5	1.3	0.8	1.0	0.8	0.6	0.0	0.2	-0.1	-0.5	-0.8	-0.7	-0.7	0.4	1.3
18-Mar	-0.3	-0.6	-0.2	-0.6	-0.3	-0.1	-0.2	0.2	0.0	-0.5	-0.7	-0.7	-0.8	-0.3	-0.3	-0.2	-0.3	-0.6	-0.3	-0.3	-0.2	-0.2	-0.6	-0.1	-0.3	0.2
19-Mar	-0.1	-0.1	0.3	0.1	-0.4	0.0	-0.5	0.1	-0.1	-0.1	0.8	0.8	0.6	0.4	0.2	-0.1	0.2	0.0	0.0	0.0	0.1	-0.1	0.0	-0.4	0.1	0.8
20-Mar	0.2	0.0	0.3	-0.2	-0.4	-0.3	-0.2	-0.2	0.1	-0.1	0.2	0.1	0.7	-0.1	0.0	-0.3	-0.1	-0.1	-0.5	-0.4	-0.2	0.0	0.2	0.2	0.0	0.7
21-Mar	-0.3	0.0	0.0	0.1	0.2	0.4	0.0	0.0	0.0	-0.4	0.0	-0.3	0.0	-0.6	-0.6	-0.8	-0.6	-0.1	-0.1	-0.3	-0.3	-0.1	0.0	0.1	-0.2	0.4
22-Mar	-0.3	-0.1	-0.1	-0.2	-0.1	-0.1	0.0	0.2	0.6	0.6	0.5	-0.2	0.4	1.0	0.6	0.7	0.2	1.0	0.1	-0.1	0.0	0.5	0.4	0.4	0.3	1.0
23-Mar	0.5	0.4	0.1	0.4	0.4	0.4	0.4	0.2	0.3	-0.1	-0.1	0.0	0.0	1.1	1.0	1.0	0.6	0.2	0.8	1.3	0.1	0.3	0.6	0.5	0.4	1.3
24-Mar	0.4	0.5	0.5	0.8	0.9	0.8	0.6	0.5	0.4	0.4	0.2	0.3	0.8	0.8	0.5	1.1	0.6	0.4	0.5	-0.2	0.2	0.5	0.5	0.6	0.5	1.1
25-Mar	0.6	0.5	-0.1	0.3	0.4	0.6	0.3	0.3	0.7	0.0	0.3	0.4	0.4	1.1	1.4	1.1	1.4	1.0	1.1	1.3	1.2	1.0	1.0	1.0	0.7	1.4
26-Mar	0.9	1.0	1.2	1.3	1.0	0.9	1.3	1.1	1.5	1.3	1.2	0.6	1.3	1.0	1.3	1.0	1.3	0.8	0.8	1.2	0.8	0.9	1.2	1.1	1.1	1.5
27-Mar	0.9	0.8	1.4	0.7	0.7	0.7	0.3	2.0	1.0	1.2	1.4	2.0	0.6	1.7	0.5	0.9	1.2	1.1	0.9	0.1	0.2	-0.4	0.0	0.2	0.8	2.0
28-Mar	0.6	0.2	0.1	0.1	-0.2	-0.3	-0.4	-0.5	-0.3	-0.4	0.0	0.1	-0.3	-0.2	-0.3	-0.6	-0.3	0.0	-0.5	-0.8	-0.6	-0.5	-0.4	-0.8	-0.3	0.6
29-Mar	-0.3	-0.5	-0.6	-0.6	-0.5	-0.3	-0.9	-0.8	-0.3	-0.2	0.0	-0.4	-0.6	-0.4	0.3	0.1	0.0	-0.2	0.0	0.2	0.2	-0.1	-0.3	-0.4	-0.3	0.3
30-Mar	-0.1	0.2	0.5	0.7	0.4	0.8	1.0	0.6	0.6	0.7	0.4	1.0	0.5	0.9	0.4	0.5	0.6	0.1	0.0	0.2	0.5	0.6	0.7	0.8	0.5	1.0
31-Mar	0.7	0.6	0.5	0.3	0.3	0.1	0.5	0.6	0.5	0.5	0.6	0.9	0.4	-0.4	-0.2	0.3	0.1	0.6	0.7	0.9	0.8	1.0	1.0	0.5	0.5	1.0
																								Diurnal Average		
																								Diurnal Maximum		



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



Summary of Hour Averages

Mannix - March 2024

Maximum Value: 3.1 km/h on Mar 12 22:00 Minimum Value: -1.0 km/h on Mar 30 18:00 Maximum Diurnal Average: 0.3 km/h at hour 14 Monthly Average: 0.18 km/h		Maximum Daily Average: 0.6 km/h on Mar 12 Minimum Daily Average: -0.4 km/h on Mar 3 Minimum Diurnal Average: 0.0 km/h at hour 2 Percentiles: $P_1 = -0.9$ $P_{10} = -0.4$ $Q_1 = -0.1$ Median = 0.2 $Q_3 = 0.4$ $P_{90} = 0.8$ $P_{99} = 1.5$		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	0.2	0.2	0.3	0.1	0.2	0.1	0.1	-0.1	0.3	0.5	0.3	0.5	0.5	0.0	0.2	0.8	0.4	0.4	-0.6	0.3	0.2	-0.6	0.2	0.2	0.8
2-Mar	0.4	-0.1	0.1	0.4	-0.4	-0.1	-0.1	-0.1	0.4	0.7	0.2	0.3	-0.2	-0.4	-0.1	-0.7	-0.2	0.2	-0.1	-0.2	-0.1	0.5	0.0	0.1	0.0	0.7
3-Mar	-0.6	-0.9	-0.6	-0.1	-0.7	-0.7	-0.8	-0.7	-0.5	-0.9	-0.6	-0.3	0.5	-0.1	-0.1	-0.6	-0.6	-0.5	-0.3	-0.3	0.1	-0.5	-0.9	-0.1	-0.4	0.5
4-Mar	0.0	-0.4	-0.6	-0.2	0.2	0.0	0.4	0.3	1.0	1.3	1.1	1.3	1.1	0.8	0.5	0.2	0.4	-0.1	-0.1	-0.4	0.0	0.0	-0.1	0.2	0.3	1.3
5-Mar	-0.3	0.2	0.5	0.1	0.2	0.4	0.2	0.2	0.0	-0.2	0.1	0.5	0.2	0.2	0.6	0.2	0.3	0.2	0.3	0.4	0.3	0.5	0.5	0.4	0.2	0.6
6-Mar	0.4	0.4	0.3	0.2	0.4	0.6	0.6	0.9	0.6	0.6	0.6	0.2	0.6	0.4	0.7	0.8	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.6	0.5	0.9
7-Mar	1.1	1.1	1.1	1.2	0.8	0.6	0.4	0.0	-0.1	0.3	0.7	0.9	0.8	0.5	0.7	0.7	0.4	0.3	0.4	0.4	0.4	0.1	0.0	-0.1	0.5	1.2
8-Mar	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.9	0.7	0.4	0.1	0.1	0.6	0.5	-0.2	-0.3	-0.7	-0.4	0.0	0.5	0.9	0.7	1.1	1.0	0.3	1.1
9-Mar	0.9	0.7	0.3	0.2	0.0	-0.1	0.0	-0.3	-0.2	-0.1	-0.2	-0.1	0.1	-0.3	-0.4	0.0	0.8	0.6	0.3	0.3	0.3	0.2	0.3	0.5	0.2	0.9
10-Mar	0.5	0.4	0.3	-0.1	0.0	0.0	0.1	0.3	0.2	0.1	-0.2	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.1	-0.3	-0.3	0.1	0.1	-0.3	0.1	0.5
11-Mar	0.1	-0.1	0.0	0.3	0.0	-0.1	0.1	0.0	0.3	0.5	0.3	0.8	-0.1	0.7	-0.1	0.2	0.0	0.1	0.0	0.1	0.5	0.9	0.3	-0.4	0.2	0.9
12-Mar	0.9	-0.6	-0.4	-0.7	-0.1	0.6	2.2	0.2	-0.2	0.6	0.9	1.0	-0.8	0.9	2.1	0.2	1.6	-0.4	0.0	1.7	2.4	3.1	0.3	-0.6	0.6	3.1
13-Mar	-0.9	-0.8	-0.6	-0.5	-0.4	-0.3	-0.1	-0.2	-0.2	0.0	0.4	-0.4	-0.4	-0.1	0.0	-0.8	-0.6	-0.7	-0.7	-0.6	-0.4	-0.1	0.2	0.7	-0.3	0.7
14-Mar	1.0	0.8	0.4	0.5	0.3	0.4	-0.2	-0.2	0.2	0.0	0.4	0.5	0.4	-0.4	-0.3	-0.1	0.4	-0.3	0.2	-0.1	-0.3	-0.1	0.1	0.2	0.2	1.0
15-Mar	0.2	0.1	0.1	0.1	0.3	0.2	0.0	-0.1	0.3	-0.4	0.4	0.6	0.3	-0.6	-0.5	0.7	0.5	0.3	0.2	0.0	-0.1	0.2	-0.1	-0.1	0.1	0.7
16-Mar	0.5	0.4	0.3	0.0	0.0	0.4	0.3	-0.5	-0.3	1.2	0.0	0.9	0.9	0.4	0.1	0.0	-0.1	0.0	0.3	0.4	0.7	-0.7	-0.8	-0.5	0.2	1.2
17-Mar	-0.6	-0.4	-0.4	-0.5	-0.5	-0.4	-0.4	-0.5	-0.2	-0.4	0.7	-0.1	1.1	0.5	0.7	0.9	0.5	0.2	0.4	-0.1	-0.4	-0.3	0.2	0.1	0.0	1.1
18-Mar	-0.1	-0.3	-0.1	-0.7	0.2	0.6	0.8	0.8	0.6	0.1	-0.2	-0.3	-0.5	0.3	0.1	0.0	-0.1	-0.3	-0.1	-0.1	0.0	0.7	-0.5	0.3	0.0	0.8
19-Mar	-0.1	-0.2	0.2	0.1	0.0	0.3	-0.6	0.1	0.1	0.4	1.4	1.3	1.2	1.1	0.6	0.5	0.3	0.0	0.1	0.2	0.1	0.0	0.3	-0.2	0.3	1.4
20-Mar	0.5	0.4	0.6	0.1	-0.2	-0.1	0.3	0.1	0.4	-0.1	0.2	0.2	1.3	0.1	0.4	-0.1	0.2	0.1	-0.2	-0.1	0.0	0.3	0.3	0.5	0.2	1.3
21-Mar	-0.2	0.1	0.1	0.3	0.4	0.7	0.2	0.2	0.1	-0.4	0.0	-0.2	0.3	-0.5	-0.4	-0.6	-0.5	0.2	0.0	-0.2	0.0	0.0	0.2	0.3	0.0	0.7
22-Mar	-0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.8	0.7	0.6	-0.2	0.4	1.3	1.1	1.0	0.0	1.4	0.2	0.0	0.1	0.5	0.6	0.4	0.4	1.4
23-Mar	0.2	0.0	-0.4	0.0	-0.1	0.1	0.3	0.3	0.3	0.0	-0.1	-0.2	-0.3	1.4	1.2	0.7	0.5	-0.2	0.7	1.2	-0.8	-0.5	-0.1	0.1	0.2	1.4
24-Mar	0.3	0.1	0.6	0.9	0.8	0.4	0.2	0.3	0.3	0.4	0.0	0.2	0.6	0.5	-0.1	0.9	0.2	0.2	0.0	-0.9	-0.5	-0.3	-0.4	-0.1	0.2	0.9
25-Mar	-0.4	-0.4	-0.9	-0.8	-0.4	-0.4	-0.7	-0.7	-0.4	-0.7	-0.1	-0.5	-0.5	0.0	0.7	0.6	0.8	0.7	0.7	0.5	0.7	0.7	0.9	0.8	0.0	0.9
26-Mar	0.8	0.5	0.6	0.4	0.3	0.5	0.6	0.5	0.8	0.3	0.2	-0.4	0.2	0.4	0.4	0.0	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.0	0.3	0.8
27-Mar	-0.4	-0.4	0.2	0.1	0.1	-0.4	-0.6	1.9	0.7	0.6	0.9	1.6	0.0	1.1	-0.7	0.5	0.9	0.9	0.5	-0.2	-0.1	-0.9	-0.5	-0.3	0.2	1.9
28-Mar	0.5	0.4	0.3	0.3	0.1	0.0	-0.2	-0.3	0.0	-0.1	0.5	0.9	0.2	0.5	0.2	0.2	0.3	0.6	0.2	-0.1	0.0	0.2	0.2	-0.3	0.2	0.9
29-Mar	0.3	-0.1	-0.2	-0.2	-0.1	0.1	-0.7	-0.2	0.2	0.2	0.6	0.0	-0.2	-0.1	0.8	0.6	0.5	0.2	0.1	0.3	0.2	0.1	0.2	0.1	0.1	0.8
30-Mar	0.3	0.2	0.4	0.8	0.4	0.6	1.0	0.3	0.6	0.4	0.0	0.6	-0.1	0.5	-0.2	0.2	0.3	-1.0	-0.9	-0.8	-0.3	-0.6	-0.2	-0.1	0.1	1.0
31-Mar	0.0	0.0	0.1	0.1	0.0	-0.1	0.7	0.5	0.4	0.2	0.2	0.4	0.0	-0.2	0.0	0.4	0.1	0.5	0.7	0.9	0.9	1.0	0.9	0.4	0.3	1.0
	0.2	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1		Diurnal Average
	1.1	1.1	1.1	1.2	0.8	0.7	2.2	1.9	1.0	1.3	1.4	1.6	1.3	1.4	2.1	1.0	1.6	1.4	0.7	1.7	2.4	3.1	1.1	1.0		Diurnal Maximum



Summary of Hour Standard Deviations

Mannix - March 2024

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



Maximum Value: 3.2 km/h on Mar 12 22:00 Maximum Daily Average: 0.9 km/h on Mar 4		Hours in Service: 744 Hours of Data: 744																								
Minimum Value: -1.6 km/h on Mar 25 03:00 Maximum Diurnal Average: 0.4 km/h at hour 11 Monthly Average: 0.18 km/h		Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Daily Average: -0.5 km/h on Mar 14 Minimum Diurnal Average: 0.0 km/h at hour 4 Percentiles: $P_1 = -1.2$ $P_{10} = -0.5$ $Q_1 = -0.2$ Median = 0.1 $Q_3 = 0.5$ $P_{90} = 0.9$ $P_{99} = 2.0$																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-0.4	-0.3	-0.4	-0.5	-0.6	-0.4	-0.5	-0.4	-0.7	-0.3	-0.2	-0.3	0.1	0.0	-0.3	-0.3	0.5	0.1	0.4	-0.3	0.7	0.4	-0.1	0.8	-0.1	0.8
2-Mar	0.9	0.5	0.9	1.1	-0.3	-0.2	-0.1	0.3	1.0	1.2	0.6	0.4	-0.1	-0.1	0.2	-0.1	0.3	0.7	0.7	0.7	0.8	1.1	0.6	0.7	0.5	1.2
3-Mar	0.0	-0.4	0.1	0.6	0.2	0.3	0.2	0.3	0.5	-0.1	0.2	0.6	1.1	0.3	0.2	-0.3	-0.3	0.0	0.3	0.1	0.5	0.1	-0.3	0.5	0.2	1.1
4-Mar	0.7	0.4	0.1	0.4	1.1	1.0	1.3	1.4	2.2	2.5	2.1	2.0	1.8	1.3	0.7	0.8	0.2	0.2	0.0	0.4	0.6	0.4	0.6	0.9	2.5	
5-Mar	0.0	0.4	0.6	0.2	0.5	0.5	0.4	0.3	0.1	-0.2	0.2	0.3	-0.1	-0.1	0.4	0.0	0.0	0.0	0.0	-0.2	-0.2	-0.2	-0.1	-0.5	0.1	0.6
6-Mar	-0.6	-0.5	-0.5	-0.6	-0.6	-0.5	-0.3	-0.1	-0.2	-0.1	0.1	0.0	0.4	0.1	0.1	0.1	-0.6	-0.5	-0.4	-0.6	-0.7	-0.6	-0.5	-0.3	-0.3	0.4
7-Mar	0.1	0.3	0.2	0.3	0.1	0.3	0.4	0.2	0.1	0.1	0.5	0.5	0.6	0.3	0.3	0.2	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	-0.5	-0.5	0.1	0.6
8-Mar	0.0	-0.2	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.4	0.1	0.1	0.3	0.3	-0.4	-0.4	-1.2	-0.5	0.4	0.2	0.3	0.3	0.4	0.2	0.1	0.4
9-Mar	0.0	-0.2	-0.2	-0.1	-0.1	0.4	0.1	-0.5	-0.1	-0.1	0.0	-0.1	-0.1	-0.3	-0.3	0.1	0.4	0.1	0.2	0.2	0.0	-0.3	-0.3	-0.1	0.0	0.4
10-Mar	-0.1	-0.3	-0.3	-0.6	-0.6	-0.4	-0.4	0.0	-0.4	-0.5	-0.8	-0.4	-0.4	-0.4	-0.3	0.0	-0.1	-0.1	-0.1	-0.2	0.0	0.6	0.7	0.2	-0.2	0.7
11-Mar	0.6	0.2	0.3	0.5	0.2	0.3	0.7	0.5	0.5	0.6	0.1	0.8	-0.4	0.4	-0.2	0.0	-0.3	0.3	0.3	0.3	0.7	0.9	0.0	-0.3	0.3	0.9
12-Mar	1.1	-0.8	-0.5	-1.0	-0.3	0.6	2.0	-0.1	-0.6	0.5	1.1	1.3	-0.4	1.2	2.4	0.3	2.0	0.0	0.3	1.7	2.4	3.2	0.0	-0.7	0.6	3.2
13-Mar	-1.2	-1.2	-0.7	-0.7	-0.4	-0.2	0.3	0.2	0.1	0.0	0.3	-0.5	-0.5	-0.2	-0.1	-0.9	-0.6	-1.1	-0.9	-0.3	0.0	0.4	0.0	-0.1	-0.3	0.4
14-Mar	0.0	0.0	-0.2	-0.2	-0.4	-0.2	-0.7	-0.6	-0.5	-0.6	-0.2	-0.2	-0.1	-1.0	-1.0	-0.6	-0.3	-1.0	-0.6	-0.9	-1.0	-1.1	-0.8	-0.4	-0.5	0.0
15-Mar	-0.4	-0.6	-0.8	-0.6	-0.1	0.1	0.8	0.4	0.9	-0.2	0.6	0.8	0.3	-0.4	-0.1	1.6	1.3	1.0	0.9	0.6	0.4	0.6	0.5	0.4	0.3	1.6
16-Mar	1.0	0.7	0.7	0.3	0.5	1.0	0.8	-0.2	-0.1	1.3	0.2	1.1	1.0	0.3	-0.1	-0.2	-0.2	0.2	0.3	0.4	0.8	-0.6	-1.2	-0.4	0.3	1.3
17-Mar	-0.7	-0.1	-0.1	-0.1	0.1	0.0	0.0	-0.1	0.2	0.2	1.0	-0.2	0.8	0.2	0.5	0.4	-0.4	-0.6	-0.5	-1.1	-1.1	-1.1	-0.5	0.3	-0.1	1.0
18-Mar	0.8	0.4	0.6	0.1	1.3	1.8	1.8	1.7	1.5	0.6	-0.1	-0.1	-0.4	0.8	0.8	1.0	0.9	0.6	0.6	0.8	0.9	2.0	0.6	1.1	0.8	2.0
19-Mar	0.7	0.7	0.9	0.7	0.7	1.3	0.4	0.8	0.8	0.9	1.9	1.6	1.5	1.4	0.9	0.9	0.7	0.5	0.7	0.8	0.8	0.5	0.5	0.0	0.9	1.9
20-Mar	0.9	0.8	1.0	0.3	-0.1	0.0	0.5	0.3	0.6	-0.1	0.2	0.3	1.5	0.0	0.3	0.0	0.4	0.4	0.3	0.4	0.7	0.8	0.7	0.5	0.4	1.5
21-Mar	0.1	0.1	0.2	0.4	0.5	0.7	0.2	0.3	0.2	-0.4	0.1	-0.3	0.4	0.0	0.3	-0.1	0.1	0.8	0.7	0.5	0.8	0.8	0.9	0.8	0.3	0.9
22-Mar	0.0	0.2	0.1	0.0	0.1	0.0	0.1	0.2	0.6	0.7	0.5	-0.4	0.3	1.5	1.0	1.1	-0.1	1.5	0.0	-0.3	-0.1	0.3	-0.1	0.1	0.3	1.5
23-Mar	0.2	0.3	-0.1	0.0	-0.1	0.3	0.3	0.0	0.0	-0.2	-0.2	-0.5	-0.6	1.5	1.2	0.9	0.5	-0.3	0.8	1.2	-0.9	-0.3	0.0	0.5	0.2	1.5
24-Mar	0.2	0.5	0.0	0.2	0.7	1.1	0.3	0.4	0.2	0.1	-0.1	-0.3	0.1	0.1	-0.2	0.7	-0.2	-0.1	0.0	-1.1	-0.5	-0.1	-0.3	-0.1	0.1	1.1
25-Mar	-0.6	-0.7	-1.6	-1.2	-1.0	-1.1	-1.2	-0.6	-0.2	-0.7	0.0	-0.8	-0.6	0.2	0.5	0.3	0.4	0.2	0.2	0.3	0.4	0.3	0.0	0.0	-0.3	0.5
26-Mar	0.3	0.2	0.3	0.2	0.2	0.1	0.3	-0.2	0.2	0.1	0.1	-0.3	0.1	-0.2	0.3	0.1	0.5	0.1	0.0	0.1	0.0	0.2	0.5	0.0	0.1	0.5
27-Mar	-0.2	-0.1	0.2	-0.4	-0.4	-1.0	-1.2	1.8	0.4	0.5	1.2	1.7	0.4	1.4	0.0	0.7	1.2	1.1	0.7	0.0	0.1	-0.7	-0.4	-0.1	0.3	1.8
28-Mar	0.9	0.5	0.6	0.5	0.4	0.5	0.4	0.2	0.4	0.1	0.8	1.2	0.5	1.0	0.4	0.6	0.8	1.3	0.7	0.3	0.6	0.8	0.7	0.2	0.6	1.3
29-Mar	0.7	0.1	0.2	0.3	0.1	0.5	-0.6	0.0	0.7	0.6	0.7	-0.1	-0.3	0.1	1.2	1.0	1.0	0.6	0.5	0.6	0.5	0.2	0.0	0.0	0.4	1.2
30-Mar	0.0	0.0	0.2	0.2	-0.1	0.1	0.3	-0.4	0.4	0.4	-0.1	0.3	-0.6	0.4	-0.6	0.0	0.3	-1.4	-1.2	-1.3	0.1	-0.9	0.4	0.5	-0.1	0.5
31-Mar	0.7	0.7	0.5	0.3	0.0	-0.1	0.1	-0.2	-0.1	0.1	0.3	0.4	-0.1	-0.8	-0.6	-0.3	-0.8	-0.2	-0.2	-0.1	-0.1	0.1	0.1	-0.5	0.0	0.7
	0.2	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1		Diurnal Average
	1.1	0.8	1.0	1.1	1.3	1.8	2.0	1.8	2.2	2.5	2.1	2.0	1.8	1.5	2.4	1.6	2.0	1.5	0.9	1.7	2.4	3.2	0.9	1.1		Diurnal Maximum



Summary of Hour Standard Deviations

Mannix - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 4.3 km/h on Mar 27 08:00																				Hours of Data: 744					
Minimum Value: 0.1 km/h on Mar 22 06:00																				Hours of Missing Data: 0					
Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.1 Median = 1.8 Q ₃ = 2.6 P ₉₀ = 3.1 P ₉₉ = 3.8																				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-Mar	0.4	0.5	0.8	1.5	1.9	1.4	1.4	1.6	1.6	2.2	2.7	2.9	2.9	3.0	2.4	2.7	2.7	1.9	1.9	1.5	1.4	1.1	1.9	1.7	3.0
2-Mar	1.7	1.2	1.3	1.7	1.4	1.2	0.7	0.8	1.7	2.8	2.9	2.8	3.1	2.6	2.9	2.1	2.1	1.7	1.5	1.7	2.1	2.4	2.1	1.7	3.1
3-Mar	1.5	1.5	1.5	1.6	1.7	2.2	2.2	2.4	2.4	2.0	2.0	2.2	2.5	2.6	2.9	2.6	3.0	2.8	2.9	2.8	2.5	2.7	3.0	3.1	3.1
4-Mar	3.5	2.9	2.4	3.2	3.3	3.2	3.2	3.3	3.4	3.4	3.5	3.4	3.2	2.9	2.6	2.6	2.3	2.1	1.7	1.6	1.7	1.5	1.5	1.4	3.5
5-Mar	0.9	1.1	1.2	0.9	1.0	1.1	1.0	1.0	0.7	0.9	1.6	2.0	2.2	2.4	2.3	1.6	1.1	0.9	0.2	0.3	0.2	0.2	0.3	0.8	2.4
6-Mar	0.7	0.6	0.7	0.8	0.8	0.5	0.4	0.4	1.1	1.1	1.3	1.5	2.0	2.1	2.6	2.5	2.2	1.5	0.7	0.7	0.9	1.0	0.9	1.0	2.6
7-Mar	1.1	1.2	1.0	1.2	0.9	0.8	0.5	0.5	0.8	1.5	1.8	2.0	1.9	2.1	2.1	1.8	1.9	0.7	0.6	0.8	1.6	1.1	1.0	0.8	2.1
8-Mar	1.1	0.5	0.5	0.4	0.4	0.3	0.2	0.4	0.6	0.8	1.0	1.5	1.8	1.4	1.4	1.4	1.9	1.8	0.9	0.9	1.0	0.8	1.1	1.0	1.9
9-Mar	0.9	0.7	0.8	0.5	0.3	0.5	1.0	0.9	1.0	1.5	1.4	1.8	1.5	1.2	1.4	0.9	1.4	0.6	0.8	0.6	0.6	1.0	0.7	0.6	1.8
10-Mar	0.4	0.6	0.5	0.5	1.1	1.2	1.3	1.7	2.0	2.0	2.1	2.8	3.1	3.0	3.1	2.4	1.9	1.3	0.6	0.5	0.5	0.9	1.3	1.7	3.1
11-Mar	1.8	1.4	1.2	0.9	1.0	1.2	0.9	1.0	1.3	2.0	2.1	2.2	1.7	2.1	1.4	1.4	1.1	1.0	0.6	0.4	1.6	2.7	2.7	2.4	2.7
12-Mar	2.8	2.1	1.7	2.1	2.9	2.9	2.9	2.6	3.2	3.4	2.6	2.8	2.4	2.8	2.7	1.9	2.6	1.3	1.6	2.8	2.8	3.3	2.9	2.0	3.4
13-Mar	2.0	2.5	1.8	1.3	1.2	1.2	1.2	1.5	2.0	2.2	2.3	2.1	2.5	2.1	2.4	1.8	1.6	2.1	1.7	1.6	1.5	1.3	1.2	0.6	2.5
14-Mar	1.1	0.8	0.8	0.8	1.3	1.2	1.1	1.0	0.9	0.5	0.4	1.0	2.0	2.1	1.5	0.8	0.5	1.1	1.0	0.8	1.1	2.1	2.4	3.1	3.1
15-Mar	2.3	2.0	1.9	2.3	2.7	2.6	3.2	3.0	3.2	2.8	3.3	3.7	3.2	2.6	3.2	2.9	2.6	2.0	2.0	1.6	2.0	1.8	1.6	1.6	3.7
16-Mar	1.8	1.7	1.3	1.6	1.4	1.6	1.8	1.3	1.5	2.4	2.7	2.8	3.0	2.5	1.8	1.6	1.6	1.3	1.1	0.8	2.2	1.4	1.9	2.1	3.0
17-Mar	2.2	2.1	2.0	2.2	2.0	2.2	2.2	2.2	2.4	2.3	2.9	2.3	2.5	2.0	2.1	1.5	1.8	1.6	1.4	1.4	1.9	1.5	1.6	2.3	2.9
18-Mar	2.1	1.7	2.1	2.1	2.7	3.4	3.0	2.5	2.5	2.6	2.9	2.3	2.1	2.5	2.3	2.6	2.5	2.6	2.3	2.3	2.5	3.4	3.0	2.4	3.4
19-Mar	2.5	2.3	2.6	2.3	2.0	2.3	2.1	2.4	2.4	3.1	3.5	3.8	3.9	3.5	3.4	3.0	2.6	2.0	1.6	1.8	1.5	2.0	1.5	1.1	3.9
20-Mar	1.1	1.0	1.3	1.4	0.7	0.6	0.5	0.9	1.8	2.5	2.9	3.4	3.4	3.1	3.5	2.6	2.5	1.9	1.0	0.9	1.0	0.9	0.7	0.8	3.5
21-Mar	0.6	1.2	0.6	0.6	0.6	1.0	0.8	0.8	1.2	1.7	2.7	3.2	3.3	2.8	3.0	2.4	2.2	2.1	1.7	1.7	1.3	1.1	0.8	1.2	3.3
22-Mar	0.7	0.8	0.2	0.2	0.2	0.1	0.2	0.4	1.5	2.1	2.5	2.0	2.9	2.5	2.4	2.7	2.1	1.6	0.8	0.2	0.2	0.9	0.3	0.4	2.9
23-Mar	0.2	0.4	0.4	0.4	0.4	0.4	0.3	0.7	1.0	1.2	1.7	1.9	2.5	3.1	3.3	3.2	2.5	1.5	1.9	2.6	1.7	1.4	1.5	0.8	3.3
24-Mar	0.5	0.6	0.4	0.6	0.7	0.4	0.4	1.0	1.5	1.7	3.0	2.9	3.0	2.9	3.1	2.6	1.7	1.3	1.7	1.8	2.0	2.0	2.0	2.4	3.1
25-Mar	2.4	2.3	2.1	1.7	1.5	1.7	2.0	2.1	2.0	2.3	2.9	2.9	3.1	3.4	3.1	3.2	2.6	2.4	1.8	2.1	2.2	1.8	2.0	2.0	3.4
26-Mar	2.0	2.3	2.5	2.5	2.8	2.6	2.9	2.9	3.2	3.7	3.8	3.5	3.7	3.7	3.6	3.6	3.5	2.9	2.4	3.2	2.8	2.8	3.3	3.0	3.8
27-Mar	3.1	3.4	3.5	3.7	3.8	3.6	3.2	4.3	4.0	3.7	3.8	3.4	2.8	4.1	2.5	3.3	3.4	3.8	2.7	2.6	2.7	2.6	2.8	2.7	4.3
28-Mar	2.0	1.2	1.0	0.8	0.5	0.6	0.7	0.7	0.9	1.4	2.3	2.7	2.6	3.2	3.2	2.9	3.0	2.4	2.2	1.6	2.3	1.7	2.0	1.9	3.2
29-Mar	1.7	1.6	1.7	1.7	1.4	1.4	1.6	1.8	2.0	2.5	3.4	2.3	2.8	3.2	3.0	2.5	2.2	2.0	1.7	0.7	0.6	0.5	0.4	0.2	3.4
30-Mar	0.2	0.4	0.2	0.3	0.3	0.3	0.5	0.9	1.1	1.3	1.6	2.8	3.0	3.3	2.8	2.9	2.8	1.9	1.5	1.8	2.3	2.2	1.4	1.1	3.3
31-Mar	1.0	1.2	0.9	0.6	0.5	0.7	0.9	1.0	1.2	1.5	1.6	1.8	2.5	3.0	3.1	2.9	2.4	1.3	1.5	1.6	2.3	2.3	2.7	3.3	3.3
3.5 3.4 3.5 3.7 3.8 3.6 3.2 4.3 4.0 3.7 3.8 3.8 3.9 4.1 3.6 3.6 3.5 3.8 2.9 3.2 2.8 3.4 3.3 3.3																									
Diurnal Maximum																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS06
PATRICIA MCINNES
MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)
MARCH 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	21.8	0	3.2	0
TRS (ppb) Average	678	35	66	95.83	1.4	0	0.5	0
THC (ppm) Average	707	36	37	99.87	2.5	-	2.2	-
NMHC(ppm) Average	707	36	37	99.87	0.098	-	0.063	-
CH4(ppm) Average	707	36	37	99.87	2.4	-	2.2	-
O3 (ppb) Average	708	35	36	99.87	50.6	0	43.1	-
NO2 (ppb) Average	707	36	37	99.87	35.9	0	13.7	-
NO (ppb) Average	707	36	37	99.87	43	-	7.9	-
NOX (ppb) Average	707	36	37	99.87	74.1	-	20	-
NH3 (ppb) Average	672	40	72	95.7	0	0	0	-
PM2.5 (ug/m3) Average	743	1	1	100	63.8	0	13	0
Temperature 2 m (C) Average	744	0	0	100	16	-	4.6	-
Relative Humidity (%) Average	744	0	0	100	90.5	-	79.7	-
Wind Speed 10 m (km/h) Average	744	0	0	100	27	-	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 - PATRICIA McINNES (AMS06)

MARCH 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	0.95	1.8	-	0	0.1	0.2	0.4	0.8	2.1	21.8
TRS (ppb) Average	678	0.41	0.1	-	0.3	0.3	0.3	0.4	0.4	0.5	1.4
THC (ppm) Average	707	2.08	0.1	-	2	2	2	2.1	2.1	2.2	2.5
NMHC(ppm) Average	707	0.022	0.018	-	0	0	0	0	0	0	0.098
CH4(ppm) Average	707	2.05	0.1	-	2	2	2	2	2.1	2.1	2.4
O3 (ppb) Average	708	33.61	8.2	-	3.9	22.9	28.5	35.4	39.4	42.6	50.6
NO2 (ppb) Average	707	5.75	5.5	-	0	1.2	2.3	4.1	7.4	11.4	35.9
NO (ppb) Average	707	1.45	3	-	0	0.1	0.3	0.7	1.6	3.1	43
NOX (ppb) Average	707	7.2	7.6	-	0	1.5	3	5.3	8.7	14	74.1
NH3 (ppb) Average	672	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	743	5.96	5.2	-	0.6	2.4	3.2	4.4	6.9	10.9	63.8
Temperature 2 m (C) Average	744	-7.14	9.1	-	-27.9	-20.7	-14.1	-6.1	-0.7	3.7	16
Relative Humidity (%) Average	744	59.82	15.9	-	21.9	38.1	48.3	60	73.4	80.9	90.5
Wind Speed 10 m (km/h) Average	744	12.3	6	-	1	5	8	11	16	20	27
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	08 Mar 2024 15:00	08 Mar 2024 15:00	1	Maintenance - sample manifold cleaned
TRS	09 Mar 2024 19:00	10 Mar 2024 09:00	15	Unstable Operation - flatline in analyzer output signal
TRS	10 Mar 2024 10:00	10 Mar 2024 10:00	1	Maintenance - analyzer rebooted
TRS	31 Mar 2024 06:00	31 Mar 2024 10:00	5	Unstable Operation - flatline in analyzer output signal
TRS	31 Mar 2024 11:00	31 Mar 2024 11:00	1	Maintenance - analyzer rebooted
TRS	31 Mar 2024 17:00	01 Apr 2024 00:00	8	Unstable Operation - flatline in analyzer output signal
NH3	01 Mar 2024 06:00	31 Mar 2024 06:00	31	Stabilization after daily span



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Patricia McInnes - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 21.8 ppb on Mar 11 11:00	Maximum Daily Average: 3.2 ppb on Mar 18		Hours of Data:	707
Minimum Value: 0.0 ppb on Mar 1 01:00	Minimum Daily Average: 0.1 ppb on Mar 27		Hours of Missing Data:	37
Maximum Diurnal Average: 2.3 ppb at hour 11	Minimum Diurnal Average: 0.3 ppb at hour 6		Hours of Calibration:	36
Monthly Average: 0.95 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.4 Q ₃ = 0.8 P ₉₀ = 2.1 P ₉₉ = 9.2		Percent Operational Time:	99.9

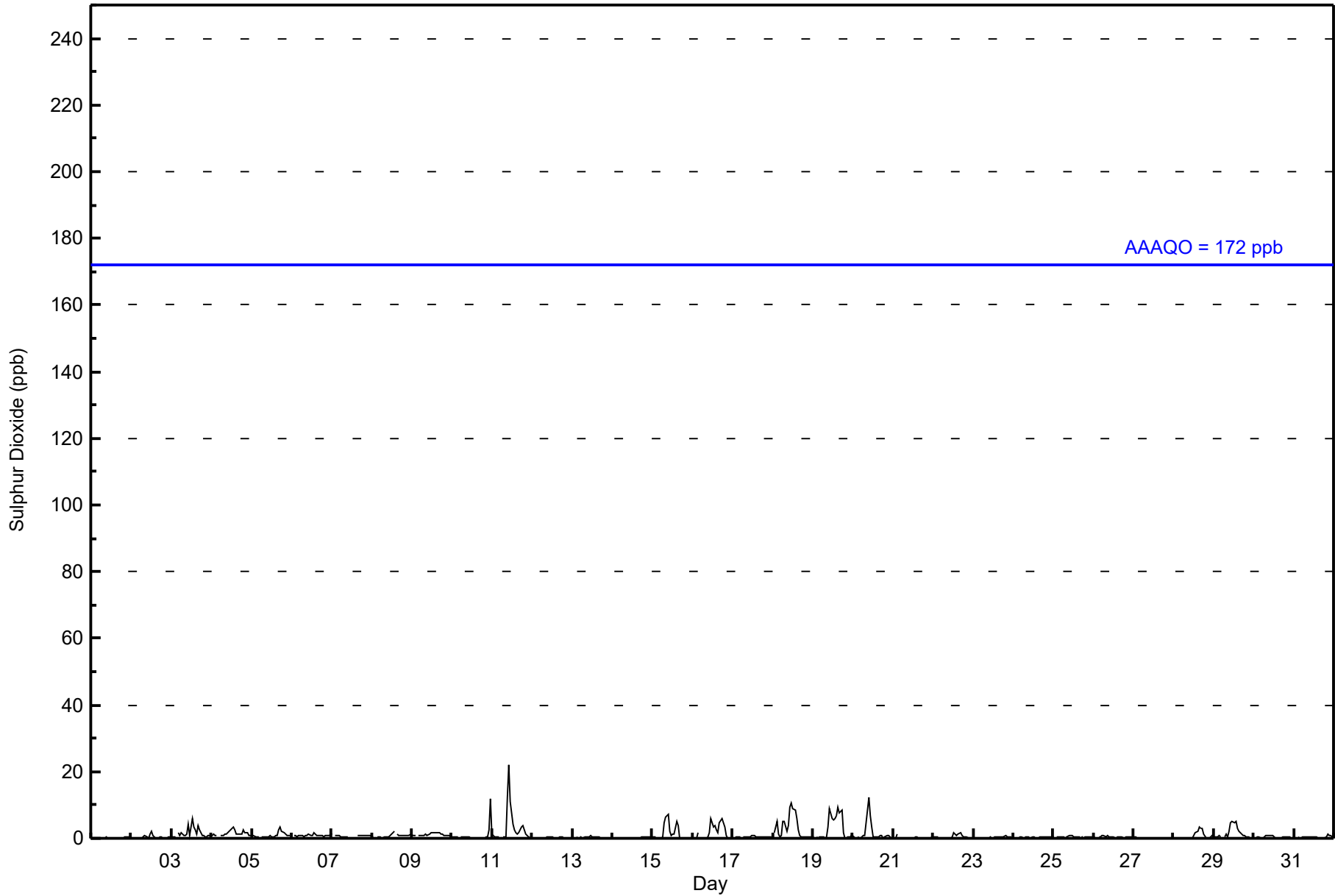
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.3	0.3	0.4	2.0	0.1	0.3																		
2-Mar	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.4	0.8	0.4	0.1	1.1	2.0	0.7	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.4	0.9	0.7	1.6	6.0	0.4	2.0																		
3-Mar	0.3	0.5	0.3	Z	1.9	0.9	1.7	0.8	0.7	1.1	4.1	0.8	6.0	3.3	2.4	1.1	4.0	2.7	0.9	0.7	0.6	0.4	0.9	0.7	1.5	0.8	0.7	1.5	3.3	1.6	6.0																		
4-Mar	0.8	1.1	0.7	0.8	Z	0.9	1.1	0.8	1.1	1.3	2.1	2.4	3.2	3.3	2.7	1.3	1.3	1.2	1.2	2.6	1.8	1.5	0.8	0.7	1.0	0.8	0.8	1.0	3.4	1.5	3.3																		
5-Mar	0.7	0.8	0.6	0.4	0.4	Z	0.6	0.5	0.4	0.5	0.6	0.7	0.5	0.6	0.8	0.8	2.4	3.4	2.2	1.5	1.3	0.9	0.8	0.8	0.9	0.7	1.0	3.4	1.0	3.4																			
6-Mar	Z	0.7	0.7	0.6	0.8	1.1	0.8	0.6	0.7	0.8	1.2	1.1	0.8	1.5	1.4	0.8	0.9	0.7	0.8	0.5	0.9	0.8	0.6	1.2	0.9	0.7	1.0	1.5	0.9	1.5																			
7-Mar	1.3	Z	0.6	0.6	0.7	0.6	0.5	0.4	0.5	0.6	C	C	C	C	C	1.0	0.8	0.9	1.0	1.1	0.9	0.8	0.8	0.7	0.8	0.7	1.0	1.3	0.8	1.3																			
8-Mar	0.5	0.3	Z	0.2	0.3	0.3	0.1	0.3	0.3	0.6	0.6	0.7	1.4	2.1	M	1.1	0.8	0.7	0.7	0.9	0.8	0.7	0.9	1.1	0.7	0.9	1.1	0.7	2.1	0.7	2.1																		
9-Mar	1.0	1.0	0.9	Z	0.8	0.8	0.7	0.8	1.1	1.0	1.3	1.8	1.7	1.5	1.7	1.8	1.6	1.5	1.3	0.9	0.8	0.8	0.7	0.6	1.1	0.7	1.0	1.8	1.1	1.8																			
10-Mar	0.6	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.3	2.6	11.9	0.9	11.9	0.9	11.9	0.9	11.9																			
11-Mar	1.2	0.4	0.3	0.3	0.3	Z	0.5	0.6	0.3	12.2	21.8	11.2	4.3	2.6	1.5	1.2	1.6	3.2	3.7	2.5	1.4	0.7	0.4	0.2	3.2	21.8	3.2	21.8	3.2	21.8																			
12-Mar	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.0	0.2	0.2	0.1	0.2	0.3	0.2	0.3	0.2	0.3																		
13-Mar	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.6	0.7	0.5	0.4	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.7	0.2	0.7	0.2	0.7																			
14-Mar	0.0	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.2	0.2	0.2	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.2	0.5	0.4	0.3	0.2	0.5																			
15-Mar	0.3	0.2	0.4	Z	0.2	0.1	0.3	4.7	6.4	7.3	2.1	0.6	1.2	1.1	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	7.3	1.5	7.3	1.5	7.3																			
16-Mar	0.0	0.0	0.2	1.7	Z	0.1	0.0	0.0	0.0	0.5	1.5	5.8	3.3	3.7	2.4	1.5	4.7	5.9	4.8	3.4	0.8	0.1	0.2	0.1	1.8	5.9	1.8	5.9	1.8	5.9																			
17-Mar	0.1	0.1	0.5	0.5	0.3	Z	0.4	0.5	0.4	0.6	0.5	0.7	0.8	1.0	0.4	0.2	0.3	0.4	0.4	0.4	0.5	0.6	0.4	0.3	0.4	1.0	0.4	1.0	0.4	1.0																			
18-Mar	Z	1.5	5.2	1.3	0.4	0.7	5.2	4.9	2.1	3.7	9.2	10.5	8.9	8.3	6.1	2.5	0.9	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.2	3.2	10.5	3.2	10.5																				
19-Mar	0.2	Z	0.2	0.2	0.4	0.3	0.4	0.2	0.3	3.2	9.1	5.9	5.4	6.0	6.7	9.3	7.7	8.3	1.6	0.2	0.2	0.2	0.2	1.2	2.9	9.3	2.9	9.3	2.9	9.3																			
20-Mar	0.5	0.3	Z	0.2	0.2	0.3	0.7	1.0	4.7	12.3	6.6	3.2	0.3	0.5	0.4	0.5	0.9	0.8	0.0	0.5	1.0	0.7	0.4	0.0	1.6	12.3	1.6	12.3	1.6	12.3																			
21-Mar	0.0	0.0	1.4	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.5	0.6	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.2	1.4	0.2	1.4	0.2	1.4																			
22-Mar	0.3	0.4	0.2	0.4	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.4	1.8	1.1	0.8	1.1	1.8	0.9	0.5	0.3	0.3	0.2	0.2	0.1	0.5	1.8	0.5	1.8	0.5	1.8																			
23-Mar	0.0	0.1	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.2	0.2	0.3	0.3	0.4	0.3	0.3	0.6	0.7	0.4	0.3	0.2	0.2	0.2	0.7	0.2	0.7	0.2	0.7																			
24-Mar	Z	0.0	0.0	0.0	0.2	0.3	0.1	0.3	0.3	0.3	0.1	0.4	0.2	0.2	0.1	0.2	0.4	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.4	0.3	0.2	0.4	0.3	0.4																		
25-Mar	0.3	Z	0.4	0.3	0.4	0.3	0.3	0.2	0.6	1.0	1.1	0.8	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.4	0.4	1.1	0.4	1.1	0.4	1.1																			
26-Mar	0.4	0.4	Z	0.5	0.5	0.7	0.6	0.6	0.7	0.6	0.5	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0.5	0.6	0.6	0.6	0.6	0.5	0.7	0.5	0.7	0.5	0.7																			
27-Mar	0.4	0.3	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.4	0.1	0.4																			
28-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.8	1.6	2.2	3.5	3.1	3.1	1.1	0.1	0.1	0.2	0.4	1.0	0.8	3.5	0.8	3.5	0.8	3.5																			
29-Mar	0.5	0.2	0.6	1.0	0.4	Z	0.3	1.5	0.6	2.1	4.5	5.2	4.6	5.0	3.0	2.1	1.8	0.9	0.7	0.6	0.6	0.3	0.1	0.1	1.6	5.2	1.6	5.2	1.6	5.2																			
30-Mar	Z	0.1	0.2	0.3	0.2	0.2	0.3	1.0	0.9	0.9	0.7	0.7	0.4	0.2	0.0	0.1	0.2	0.3	0.2	0.5	0.4	0.3	0.2	0.2	0.4	1.0	0.4	1.0	0.4	1.0																			
31-Mar	0.2	Z	0.4	0.2	0.2	0.3	0.5	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.5	1.1	0.7	0.7	0.5	0.4	1.1	0.4	1.1	0.4	1.1																			
																								0.4	0.4	0.6	0.4	0.4	0.3	0.5	0.7	0.8	1.7	2.3	1.9	1.7	1.6	1.4	1.2	1.2	1.2	0.8	0.7	0.5	0.4	0.5	0.8	Diurnal Average	
																								1.3	1.5	5.2	1.7	1.9	1.1	5.2	4.9	6.4	12.3	21.8	11.2	8.9	8.3	6.7	9.3	7.7	8.3	4.8	3.4	1.8	1.5	2.6	11.9	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Patricia McInnes - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	702	99.29	99.29
11 - 20	4	0.57	99.86
21 - 60	1	0.14	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	105	67	11	8	20	93	83	69	53	28	24	12	14	21	11	83	702
11 - 20	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4
21 - 60	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	105	71	11	8	20	93	83	69	53	28	24	12	14	21	11	84	707

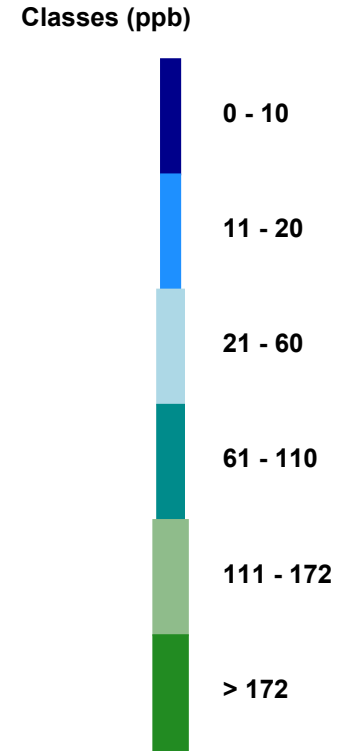
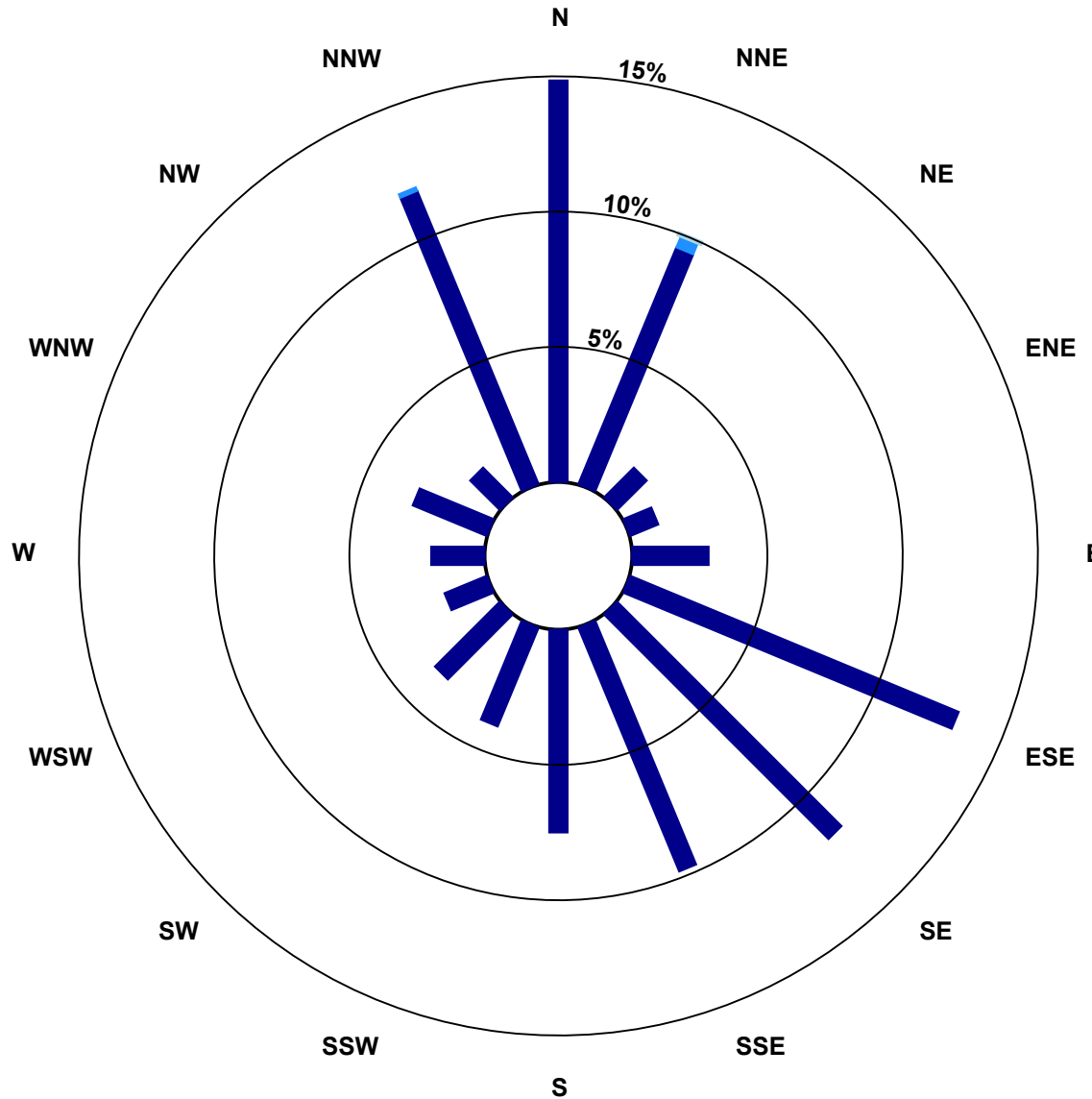
Total Number of Valid Hours: 707

Total Number of Hours: 744

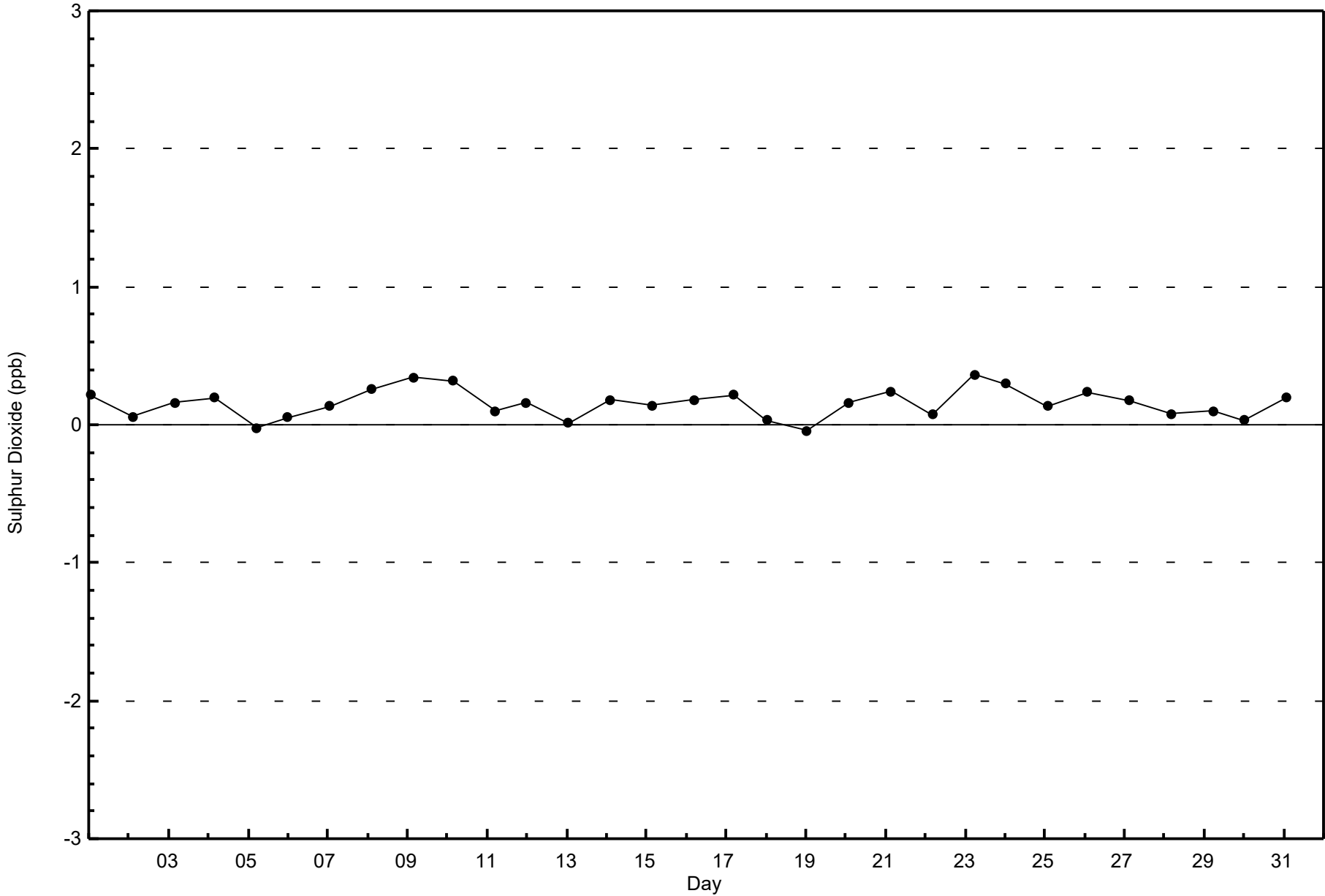


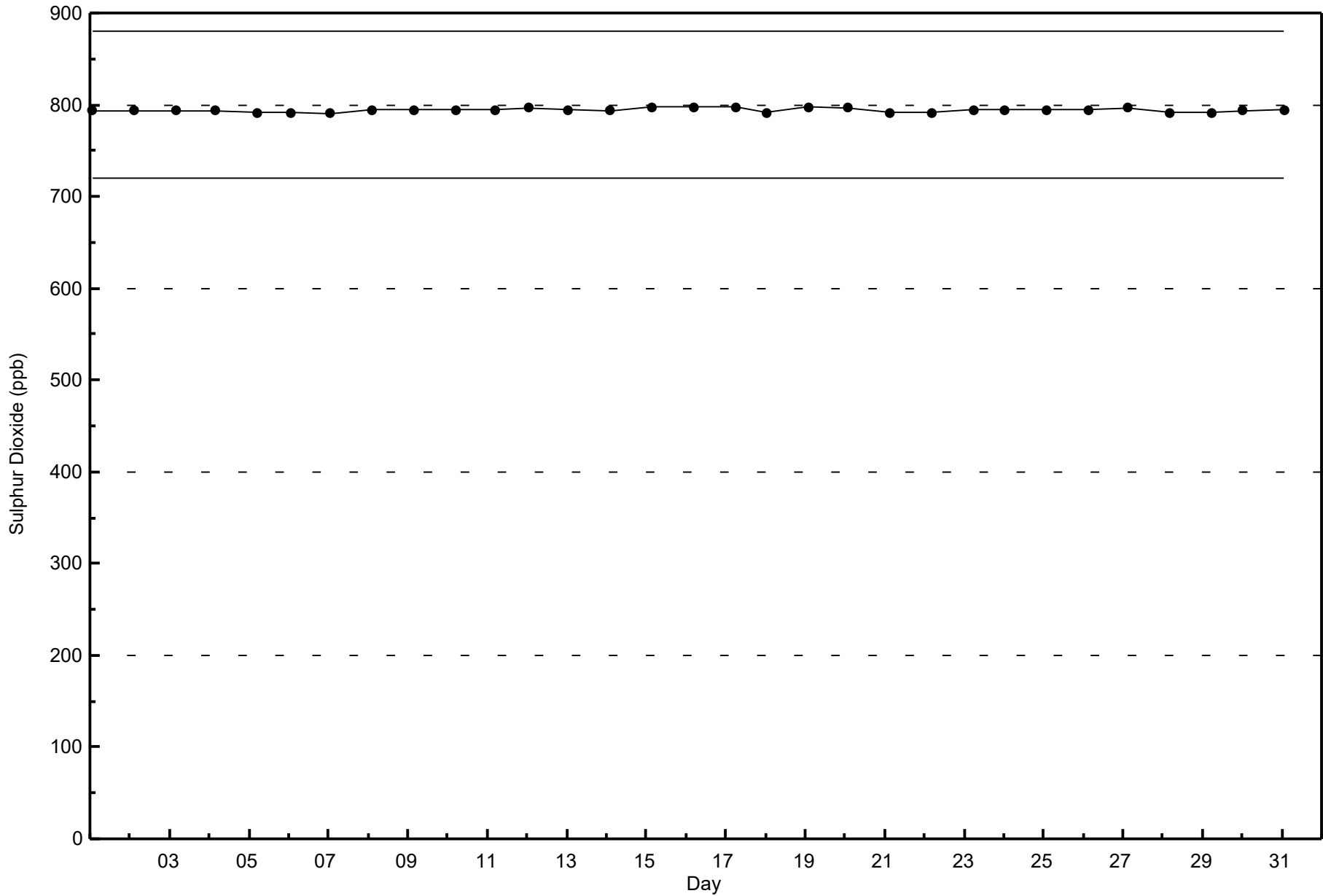
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Patricia McInnes



Total Number of Valid Hours: 707

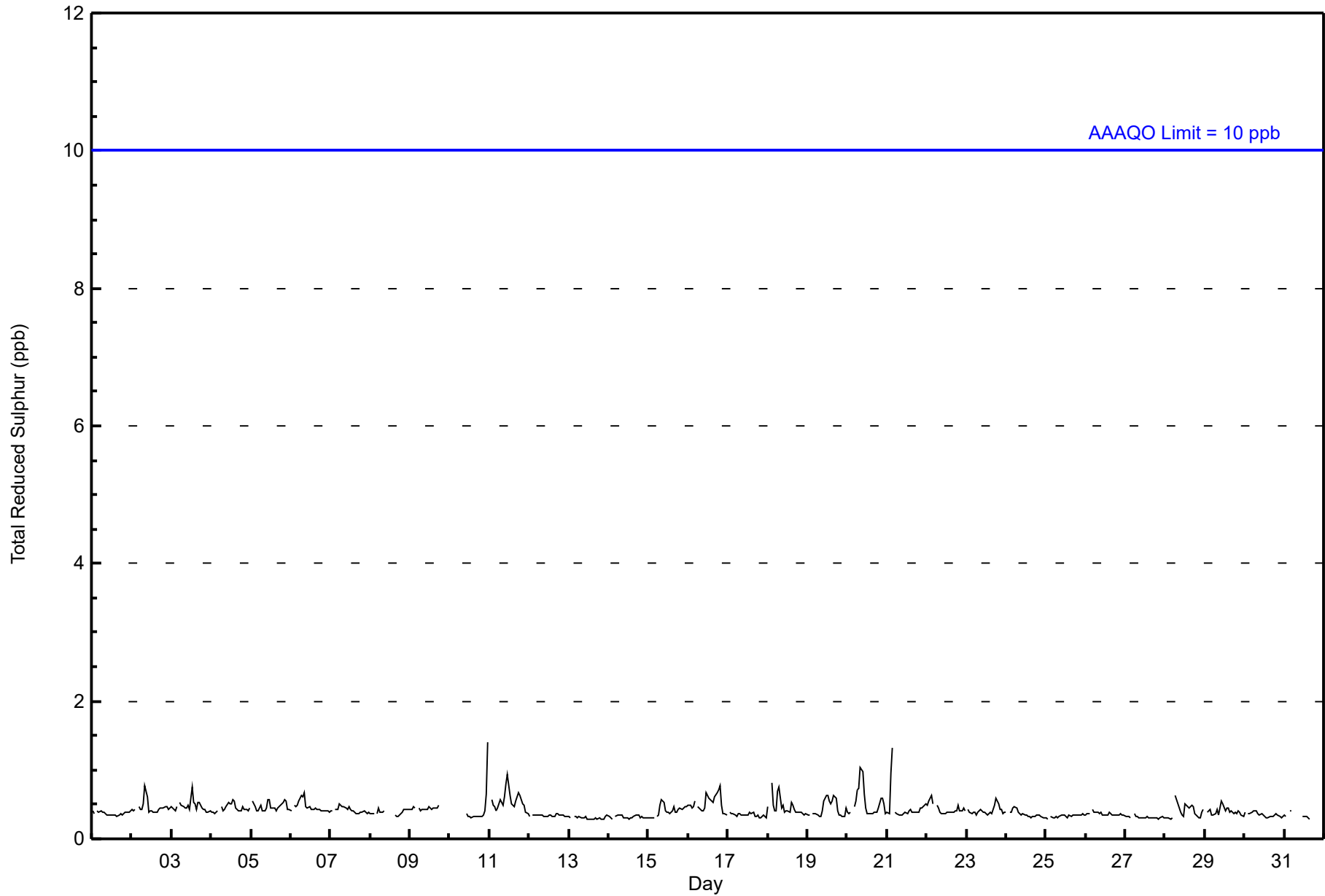






Wood Buffalo Environmental Association
Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Patricia McInnes - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	678	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 678

Total Number of Hours: 744



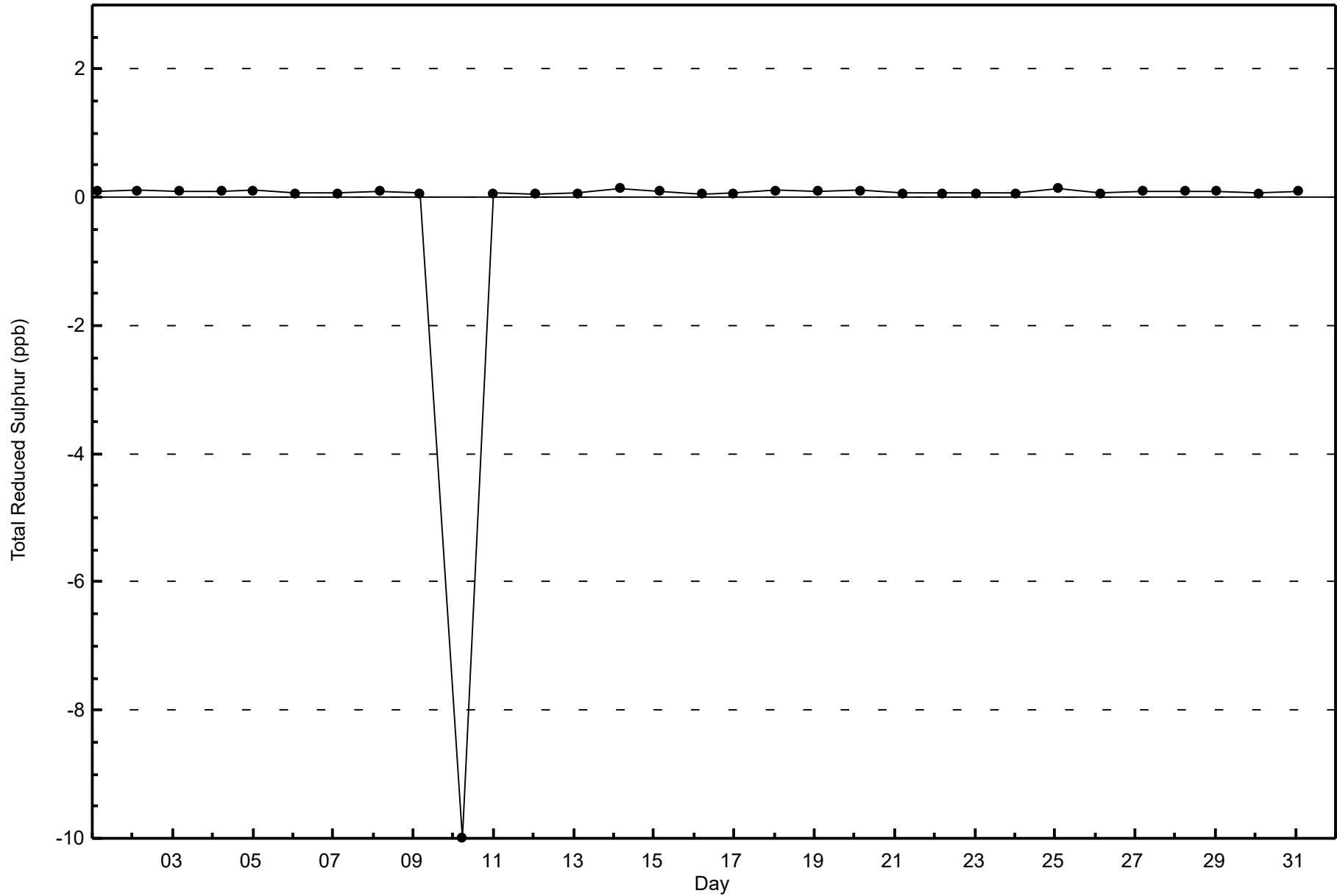
**Wood Buffalo Environmental Association
Frequency Distribution**

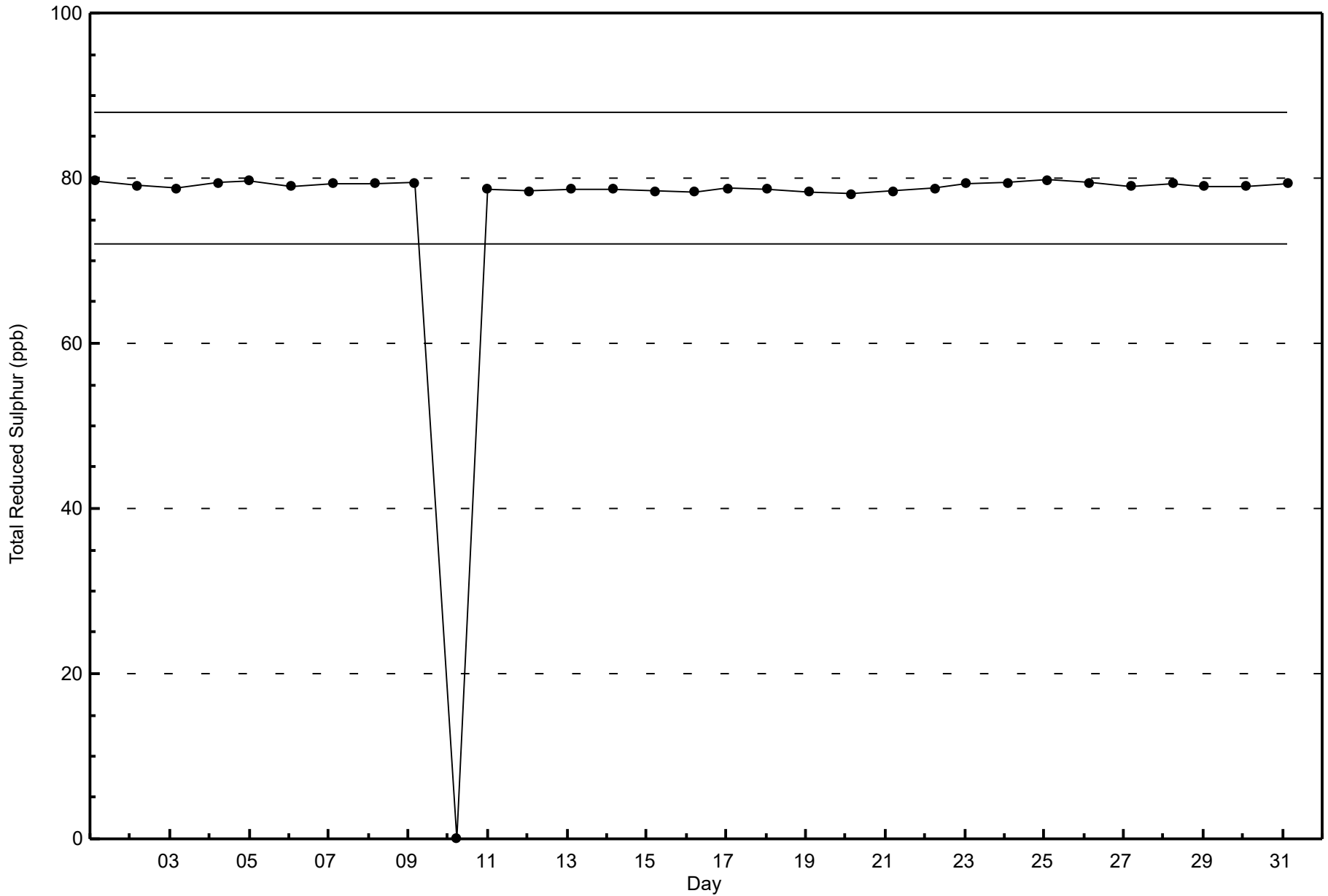
**Total Reduced Sulphur (TRS) - ppb
Patricia McInnes - March 2024**

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	72	11	8	20	92	82	59	42	25	23	11	13	21	9	85	678
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	105	72	11	8	20	92	82	59	42	25	23	11	13	21	9	85	678

Total Number of Valid Hours: 678

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

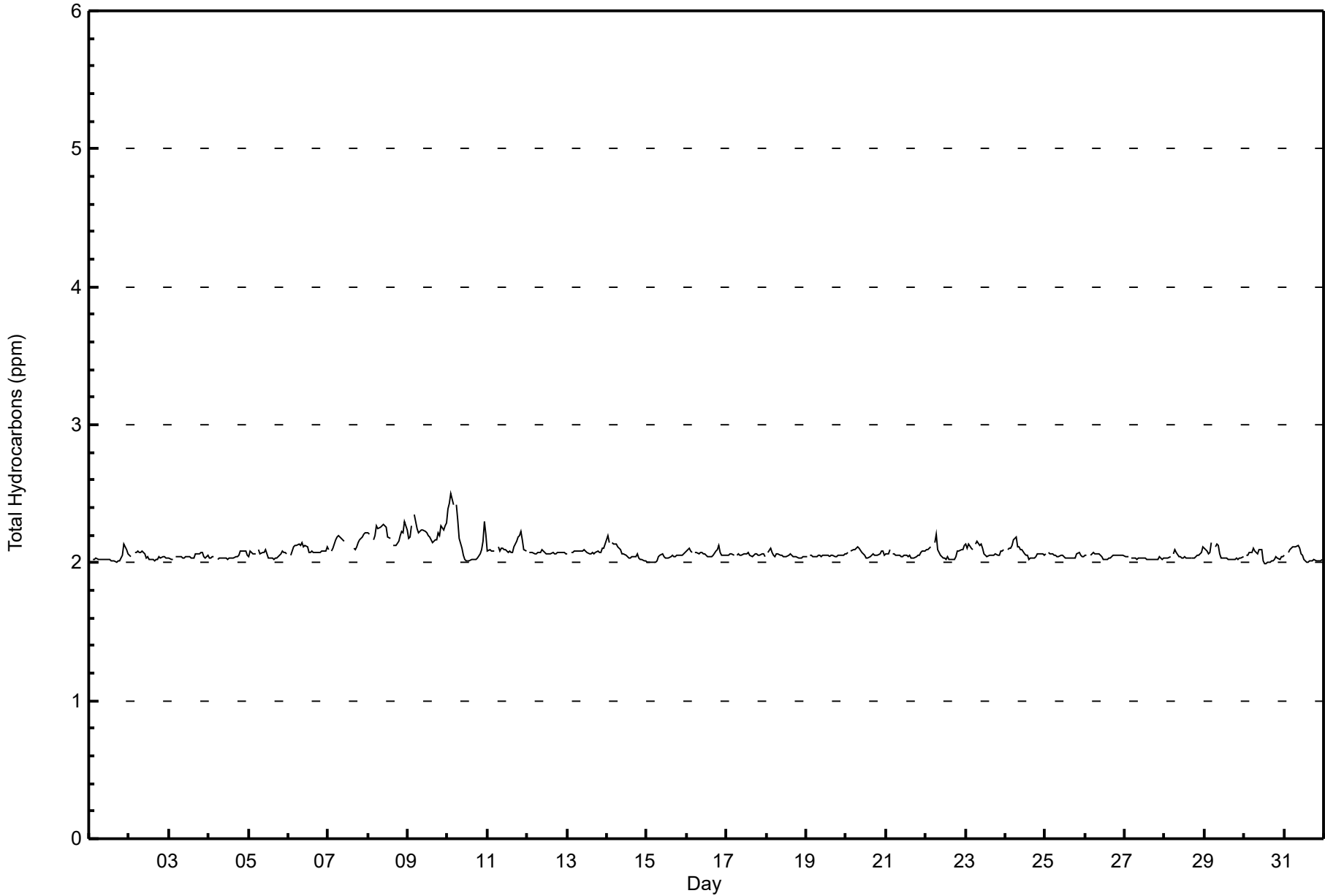
Total Hydrocarbons (THC) - ppm
Patricia McInnes - March 2024

Maximum Value: 2.5 ppm on Mar 10 03:00		Maximum Daily Average: 2.2 ppm on Mar 9		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Mar 30 13:00		Minimum Daily Average: 2.0 ppm on Mar 27		Hours of Data: 707																						
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 37																						
Monthly Average: 2.08 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.3		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-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	
2-Mar	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
3-Mar	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	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.1	
4-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
5-Mar	2.0	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
6-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
7-Mar	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	C	C	C	C	C	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	
8-Mar	2.2	2.2	Z	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	M	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.3	
9-Mar	2.2	2.2	2.3	Z	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.2	
10-Mar	2.4	2.4	2.5	2.4	Z	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	2.1	2.1	2.2	2.3	2.2	2.5	
11-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	
12-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
13-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
14-Mar	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.2	
15-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
16-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
17-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	
18-Mar	Z	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
19-Mar	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
20-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
21-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
22-Mar	2.1	2.1	2.1	2.1	Z	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	2.1	2.1	2.1	2.1	2.1	2.2	
23-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
24-Mar	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	
25-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.1	
26-Mar	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
27-Mar	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-Mar	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	
29-Mar	2.1	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	2.0	2.1	
30-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
31-Mar	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Patricia McInnes - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Patricia McInnes - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	269	38.05	38.05
2.1 - 3.0	438	61.95	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Patricia McInnes - March 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	55	34	5	3	9	23	12	20	14	8	9	6	13	18	2	38	269
2.1 - 3.0	50	37	6	5	11	70	71	49	39	20	15	6	1	3	9	46	438
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
Totals	105	71	11	8	20	93	83	69	53	28	24	12	14	21	11	84	707

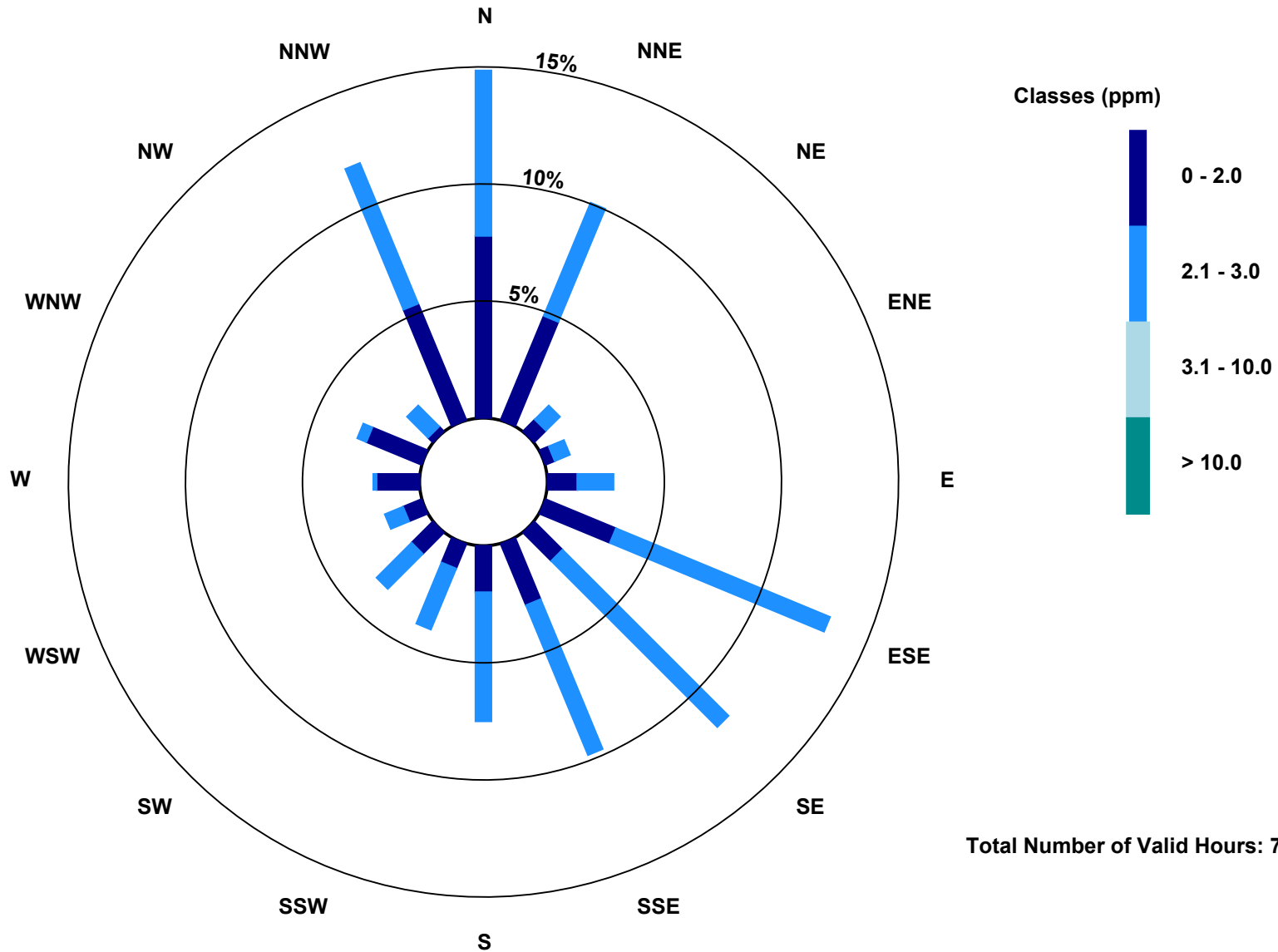
Total Number of Valid Hours: 707

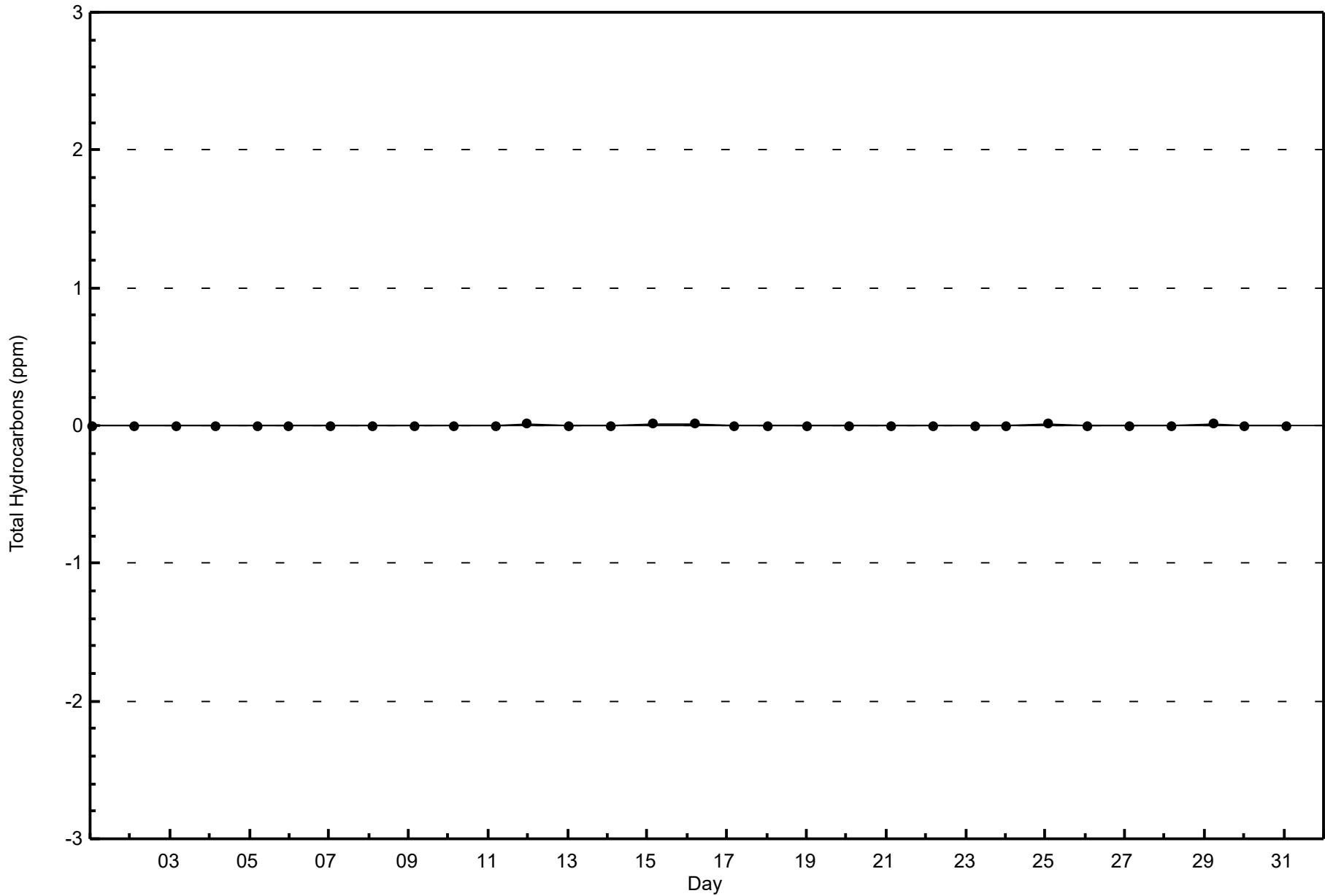
Total Number of Hours: 744

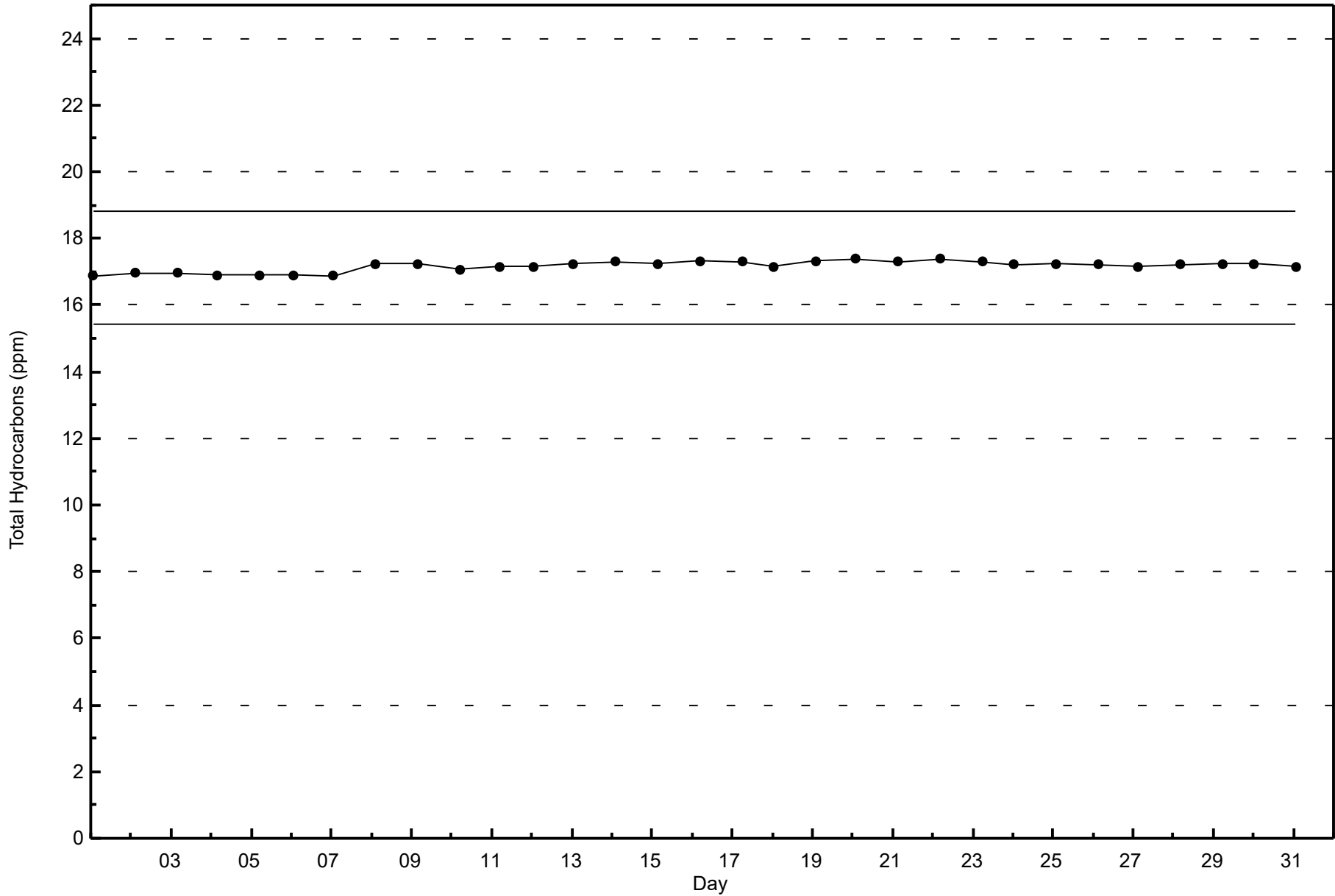


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Patricia McInnes

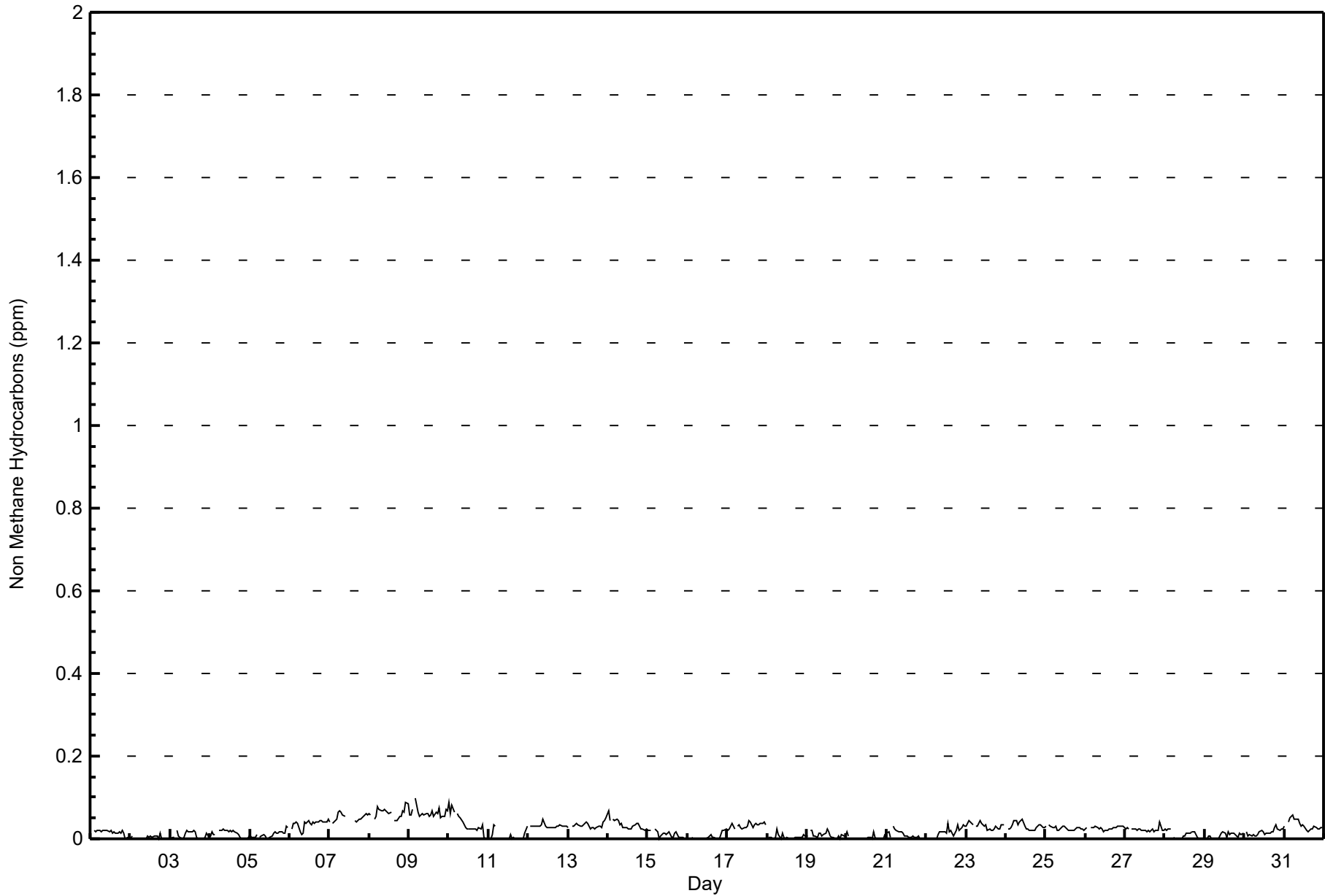








Maximum Value: 0.098 ppm on Mar 9 05:00 Maximum Daily Average: 0.063 ppm on Mar 8																						Hours in Service: 744				
Minimum Value: 0.000 ppm on Mar 1 22:00 Minimum Daily Average: 0.003 ppm on Mar 20																						Hours of Data: 707				
Maximum Diurnal Average: 0.028 ppm at hour 5 Minimum Diurnal Average: 0.019 ppm at hour 15																						Hours of Missing Data: 37				
Monthly Average: 0.022 ppm Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.1																						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-Mar	0.028	Z	0.021	0.017	0.021	0.021	0.018	0.019	0.021	0.022	0.020	0.018	0.020	0.015	0.016	0.015	0.013	0.016	0.015	0.019	0.014	0.000	0.003	0.002	0.016	0.028
2-Mar	0.000	0.006	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.005	0.005	0.004	0.006	0.005	0.006	0.002	0.015	0.000	0.000	0.000	0.000	0.000	0.003	0.015
3-Mar	0.000	0.003	0.003	Z	0.019	0.006	0.005	0.001	0.003	0.014	0.020	0.018	0.017	0.017	0.019	0.016	0.002	0.001	0.002	0.001	0.001	0.004	0.013	0.004	0.008	0.020
4-Mar	0.007	0.016	0.011	0.011	Z	0.020	0.021	0.021	0.023	0.021	0.020	0.016	0.019	0.017	0.021	0.016	0.014	0.010	0.003	0.001	0.000	0.000	0.000	0.003	0.013	0.023
5-Mar	0.010	0.003	0.002	0.003	0.009	Z	0.004	0.005	0.009	0.006	0.000	0.001	0.002	0.008	0.013	0.016	0.015	0.013	0.018	0.018	0.014	0.013	0.030	0.027	0.010	0.030
6-Mar	Z	0.025	0.037	0.038	0.041	0.036	0.017	0.009	0.014	0.039	0.039	0.044	0.038	0.035	0.040	0.037	0.040	0.041	0.043	0.043	0.040	0.042	0.040	0.049	0.036	0.049
7-Mar	0.040	Z	0.038	0.039	0.047	0.064	0.068	0.065	0.059	0.053	C	C	C	C	C	0.043	0.041	0.043	0.047	0.049	0.053	0.058	0.060	0.059	0.051	0.068
8-Mar	0.062	0.058	Z	0.049	0.056	0.078	0.070	0.069	0.068	0.071	0.068	0.066	0.061	0.065	M	0.043	0.043	0.043	0.055	0.054	0.069	0.063	0.088	0.084	0.063	0.088
9-Mar	0.057	0.059	0.071	Z	0.098	0.066	0.056	0.058	0.060	0.057	0.060	0.061	0.055	0.058	0.067	0.053	0.063	0.061	0.075	0.049	0.054	0.056	0.070	0.069	0.062	0.098
10-Mar	0.089	0.062	0.081	0.065	Z	0.060	0.054	0.051	0.042	0.034	0.028	0.025	0.025	0.025	0.023	0.025	0.024	0.022	0.028	0.025	0.035	0.005	0.000	0.000	0.036	0.089
11-Mar	0.001	0.000	0.009	0.033	0.030	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.012	0.031	0.006	0.033
12-Mar	Z	0.030	0.032	0.031	0.030	0.030	0.032	0.032	0.032	0.046	0.030	0.028	0.028	0.027	0.028	0.029	0.027	0.029	0.031	0.033	0.029	0.030	0.030	0.030	0.031	0.046
13-Mar	0.027	Z	0.030	0.030	0.034	0.037	0.033	0.031	0.029	0.034	0.036	0.042	0.037	0.025	0.027	0.027	0.024	0.026	0.032	0.031	0.027	0.042	0.045	0.049	0.033	0.049
14-Mar	0.068	0.044	Z	0.047	0.045	0.047	0.045	0.036	0.036	0.027	0.027	0.028	0.024	0.024	0.030	0.033	0.036	0.036	0.031	0.025	0.025	0.021	0.023	0.023	0.034	0.068
15-Mar	0.022	0.020	0.021	Z	0.022	0.019	0.018	0.002	0.008	0.012	0.014	0.011	0.013	0.018	0.004	0.003	0.014	0.018	0.009	0.004	0.005	0.002	0.000	0.000	0.011	0.022
16-Mar	0.000	0.000	0.000	0.002	Z	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.003	0.006	0.009	0.005	0.003	0.000	0.000	0.000	0.011	0.020	0.021	0.023	0.005	0.023
17-Mar	0.020	0.024	0.030	0.038	0.025	Z	0.032	0.035	0.026	0.025	0.028	0.027	0.030	0.045	0.040	0.028	0.034	0.036	0.034	0.034	0.036	0.036	0.040	0.035	0.032	0.045
18-Mar	Z	0.003	0.003	0.001	0.001	0.003	0.025	0.009	0.000	0.013	0.004	0.000	0.002	0.001	0.000	0.000	0.001	0.004	0.005	0.003	0.005	0.003	0.011	0.006	0.004	0.025
19-Mar	0.008	Z	0.019	0.020	0.006	0.005	0.005	0.015	0.013	0.005	0.012	0.014	0.022	0.016	0.006	0.003	0.002	0.001	0.001	0.006	0.001	0.010	0.007	0.008	0.009	0.022
20-Mar	0.018	0.007	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.003	0.002	0.000	0.016	0.002	0.000	0.000	0.001	0.000	0.001	0.009	0.003	0.018
21-Mar	0.013	0.016	0.002	Z	0.030	0.024	0.020	0.018	0.017	0.015	0.013	0.007	0.006	0.004	0.004	0.003	0.006	0.004	0.005	0.008	0.000	0.000	0.000	0.000	0.009	0.030
22-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.009	0.017	0.019	0.016	0.016	0.014	0.039	0.016	0.020	0.008	0.012	0.020	0.034	0.019	0.026	0.034	0.030	0.015	0.039
23-Mar	0.030	0.037	0.045	0.038	0.033	Z	0.029	0.032	0.045	0.037	0.036	0.031	0.034	0.021	0.023	0.022	0.021	0.024	0.029	0.025	0.025	0.034	0.035	0.035	0.031	0.045
24-Mar	Z	0.024	0.023	0.028	0.033	0.043	0.044	0.033	0.041	0.043	0.048	0.030	0.025	0.025	0.021	0.021	0.022	0.021	0.022	0.032	0.032	0.035	0.029	0.026	0.031	0.048
25-Mar	0.029	Z	0.035	0.032	0.027	0.027	0.029	0.019	0.021	0.027	0.032	0.030	0.027	0.025	0.022	0.019	0.020	0.021	0.023	0.027	0.027	0.024	0.022	0.021	0.026	0.035
26-Mar	0.023	0.026	Z	0.026	0.028	0.028	0.030	0.028	0.023	0.028	0.022	0.018	0.021	0.020	0.024	0.024	0.025	0.028	0.028	0.030	0.030	0.029	0.031	0.031	0.026	0.031
27-Mar	0.024	0.026	0.025	Z	0.023	0.023	0.023	0.021	0.023	0.025	0.020	0.020	0.021	0.018	0.022	0.018	0.022	0.017	0.020	0.020	0.020	0.039	0.020	0.020	0.022	0.039
28-Mar	0.025	0.021	0.023	0.024	Z	0.004	0.000	0.000	0.000	0.000	0.001	0.007	0.008	0.015	0.013	0.014	0.017	0.018	0.015	0.004	0.000	0.000	0.000	0.000	0.009	0.025
29-Mar	0.000	0.000	0.006	0.008	0.000	Z	0.000	0.000	0.000	0.000	0.008	0.014	0.017	0.014	0.003	0.015	0.009	0.014	0.014	0.012	0.008	0.003	0.012	0.012	0.008	0.017
30-Mar	Z	0.016	0.008	0.011	0.007	0.010	0.006	0.007	0.010	0.016	0.020	0.019	0.011	0.012	0.015	0.014	0.015	0.017	0.027	0.033	0.025	0.019	0.024	0.024	0.016	0.033
31-Mar	0.029	Z	0.042	0.050	0.054	0.057	0.048	0.048	0.047	0.038	0.031	0.033	0.029	0.019	0.018	0.022	0.024	0.024	0.029	0.028	0.023	0.025	0.026	0.027	0.033	0.057
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	174	24.61	24.61
0.006 - 0.05	484	68.46	93.07
0.06 - 0.1	49	6.93	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Patricia McInnes - March 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	71	39	4	1	1	3	0	0	0	0	2	0	0	3	9	41	174
0.006 - 0.05	34	32	7	7	19	86	63	58	48	27	16	10	14	18	2	43	484
0.06 - 0.1	0	0	0	0	0	4	20	11	5	1	6	2	0	0	0	0	49
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	105	71	11	8	20	93	83	69	53	28	24	12	14	21	11	84	707

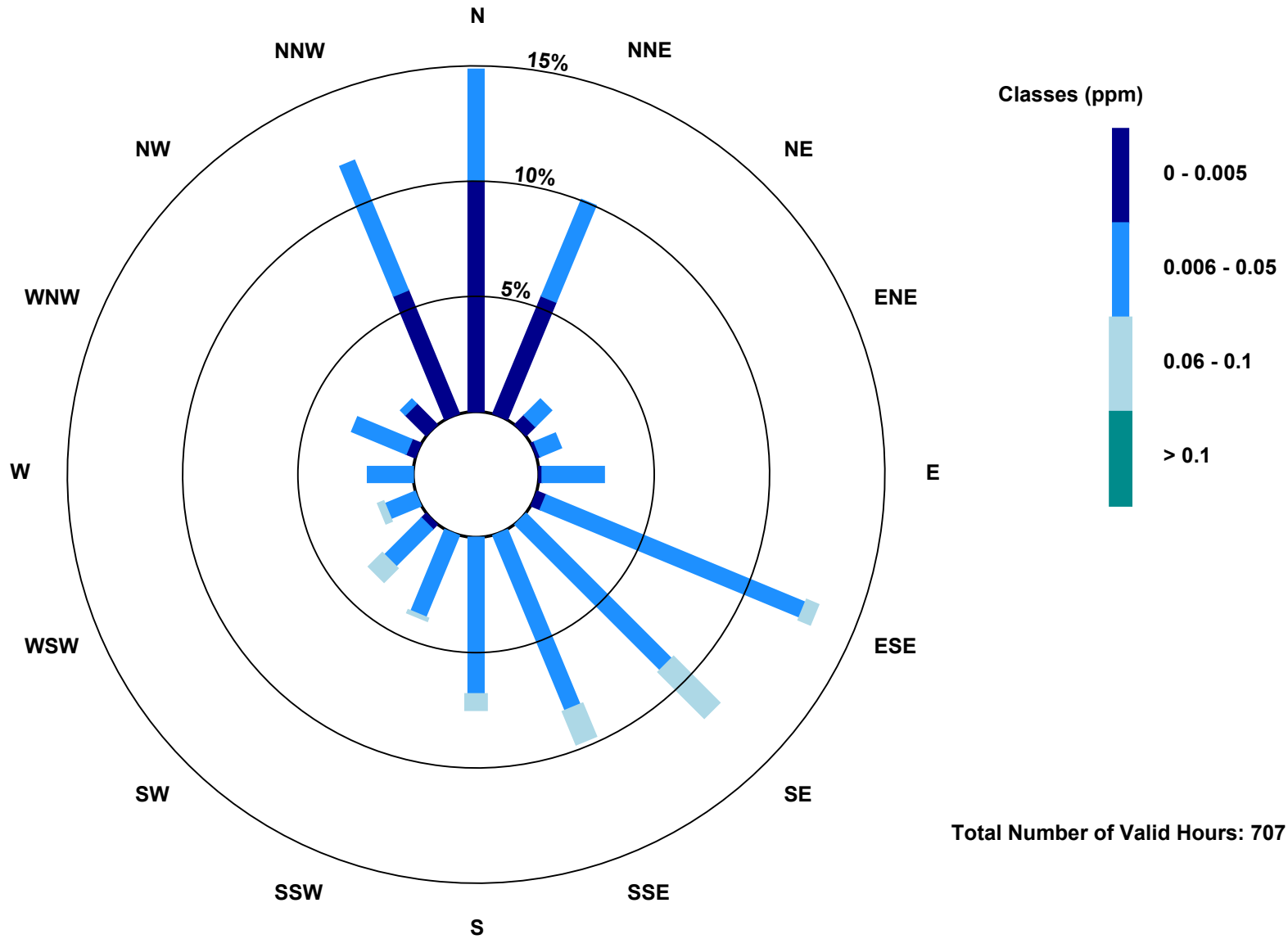
Total Number of Valid Hours: 707

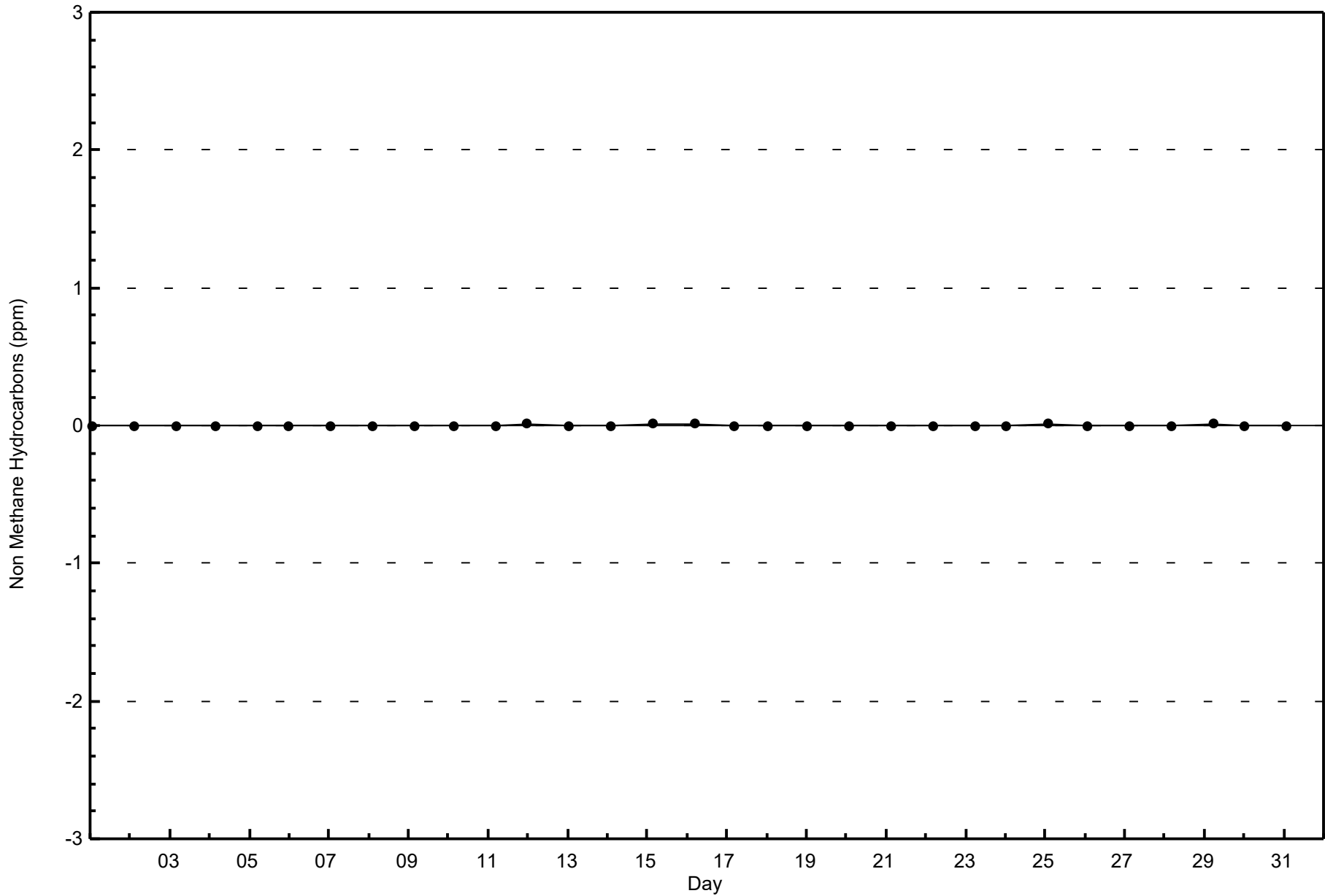
Total Number of Hours: 744

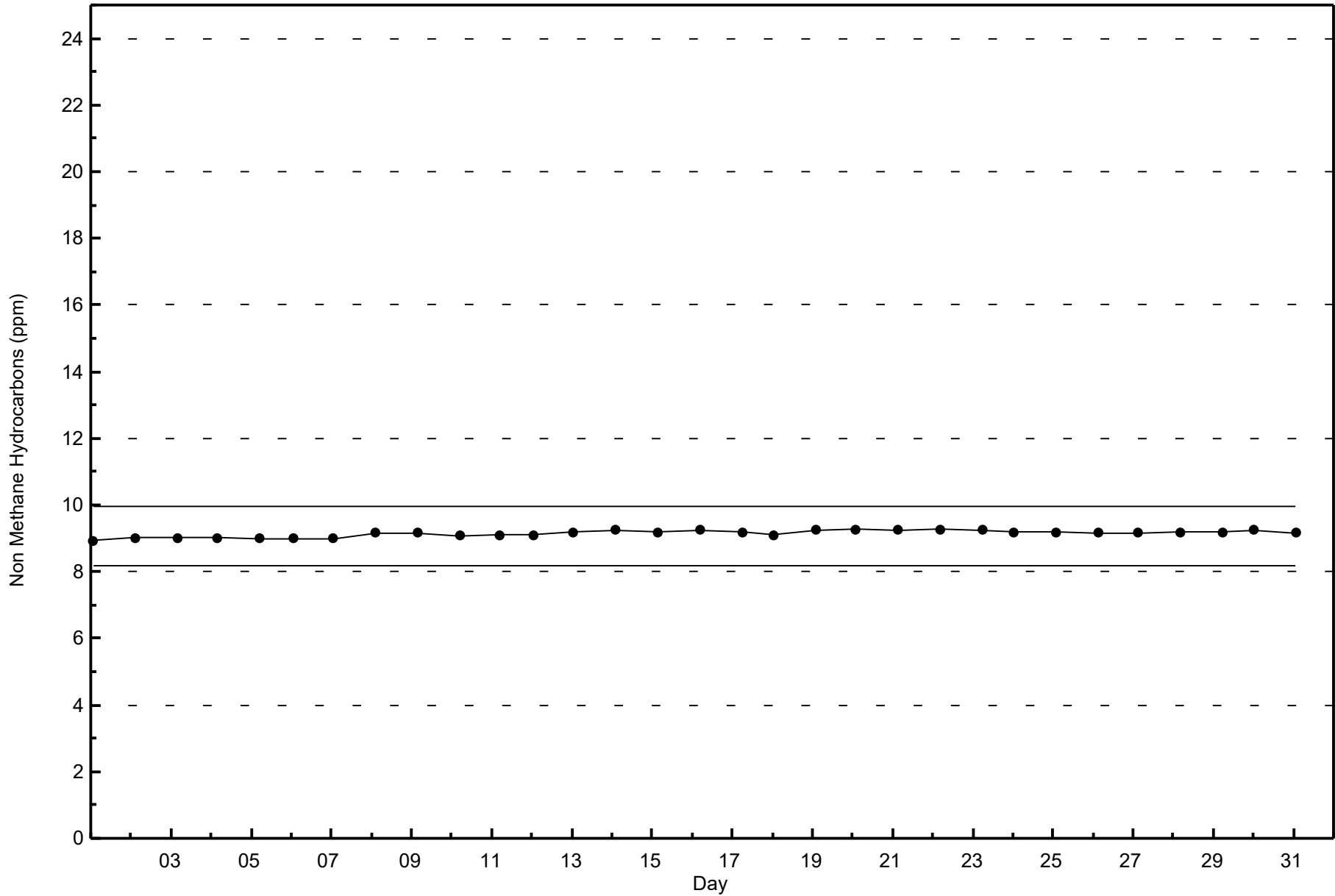


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Patricia McInnes







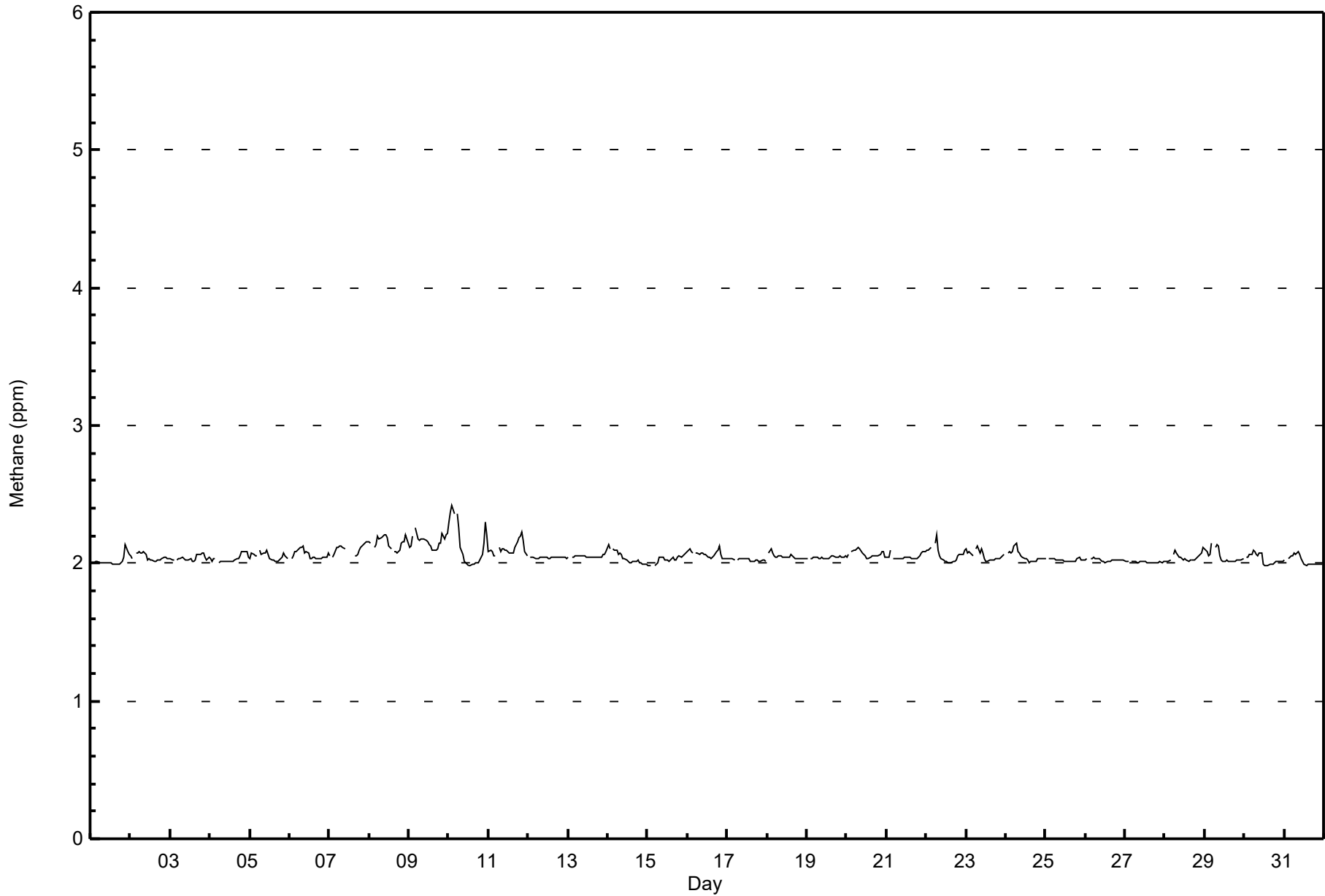


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																													
Maximum Value: 2.4 ppm on Mar 10 03:00		Maximum Daily Average: 2.2 ppm on Mar 9		Hours of Data:														707																															
Minimum Value: 2.0 ppm on Mar 31 14:00		Minimum Daily Average: 2.0 ppm on Mar 27		Hours of Missing Data:														37																															
Maximum Diurnal Average: 2.1 ppm at hour 7		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Calibration:														36																															
Monthly Average: 2.05 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.3		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-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1																								
2-Mar	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																								
3-Mar	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	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1																								
4-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1																								
5-Mar	2.0	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1																								
6-Mar	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1																								
7-Mar	2.1	Z	2.0	2.1	2.1	2.1	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	2.2	2.2	2.1	2.2																								
8-Mar	2.2	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	M	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2																							
9-Mar	2.1	2.1	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3																							
10-Mar	2.3	2.4	2.4	2.4	Z	2.4	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.1	2.4																							
11-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2																							
12-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	Z	2.0	2.0	2.1	2.1	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	2.1	2.1	2.1	2.0	2.1																							
14-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
15-Mar	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	2.1	2.1	2.0	2.1																							
16-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1																							
17-Mar	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																						
18-Mar	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	2.1	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																						
19-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.1																							
20-Mar	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	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1																							
21-Mar	2.0	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1																							
22-Mar	2.1	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
23-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1																							
24-Mar	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	2.0	2.0	2.0	2.0	2.0	2.1																							
25-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
26-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
27-Mar	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-Mar	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1																							
29-Mar	2.1	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	2.0	2.0	2.1																							
30-Mar	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
31-Mar	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
																								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average	
																								2.3	2.4	2.4	2.4	2.3	2.4	2.3	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	2.3	2.2	2.1	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																	



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Patricia McInnes - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Patricia McInnes - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	433	61.24	61.24
2.1 - 3.0	274	38.76	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 (CH₄) - ppm
Patricia McInnes - March 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	63	45	9	7	18	75	37	35	29	16	13	8	14	19	2	43	433
2.1 - 3.0	42	26	2	1	2	18	46	34	24	12	11	4	0	2	9	41	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
Totals	105	71	11	8	20	93	83	69	53	28	24	12	14	21	11	84	707

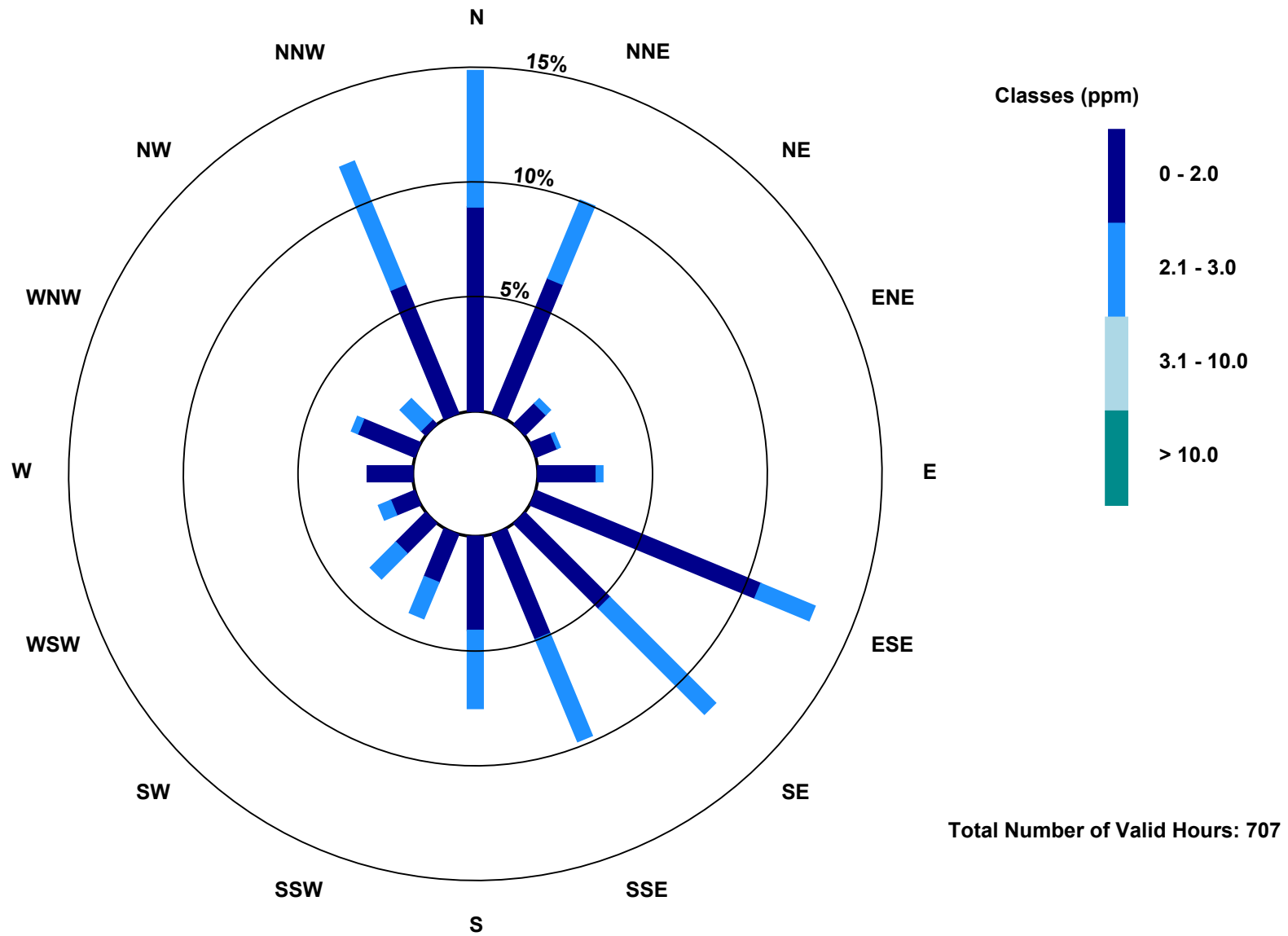
Total Number of Valid Hours: 707

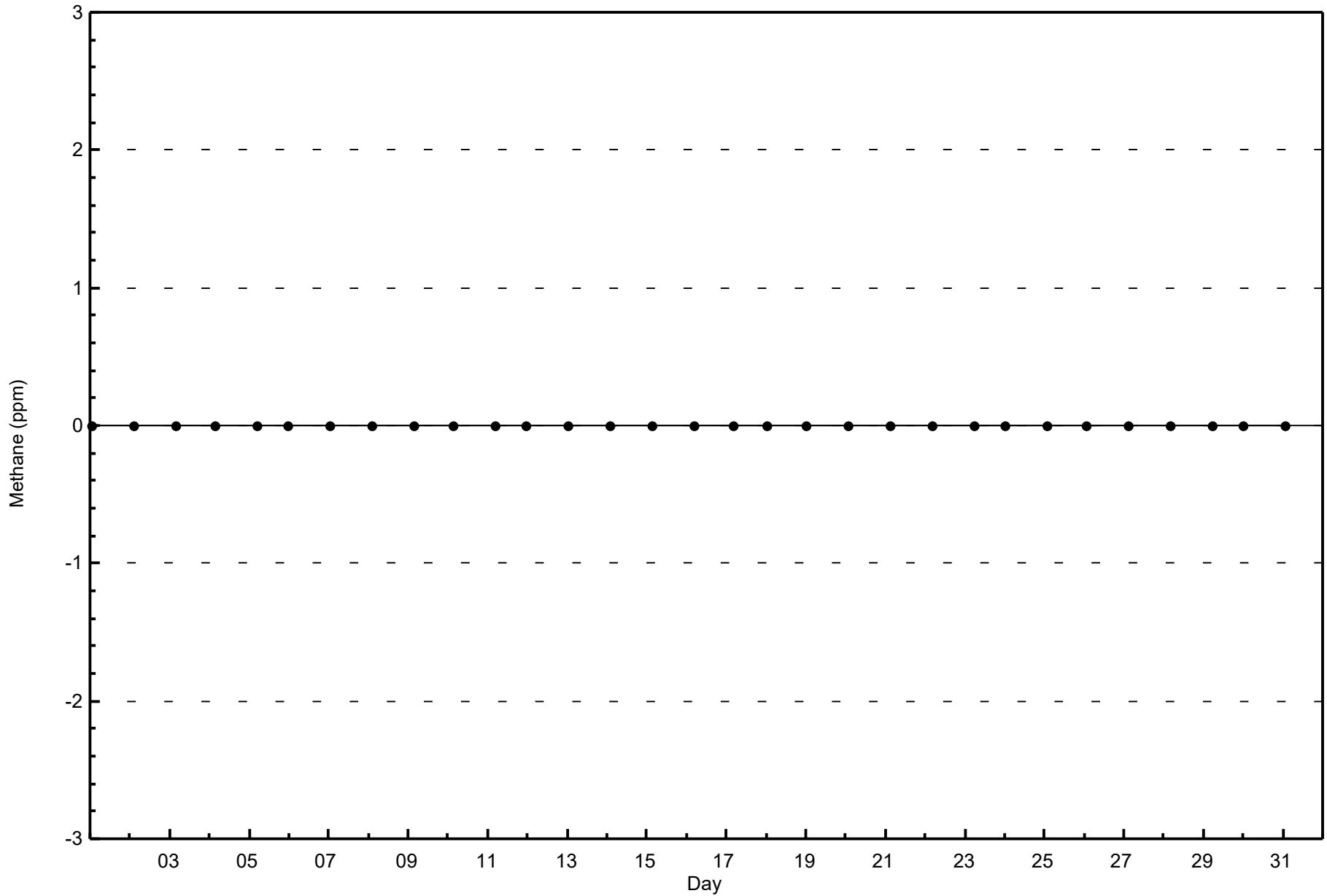
Total Number of Hours: 744

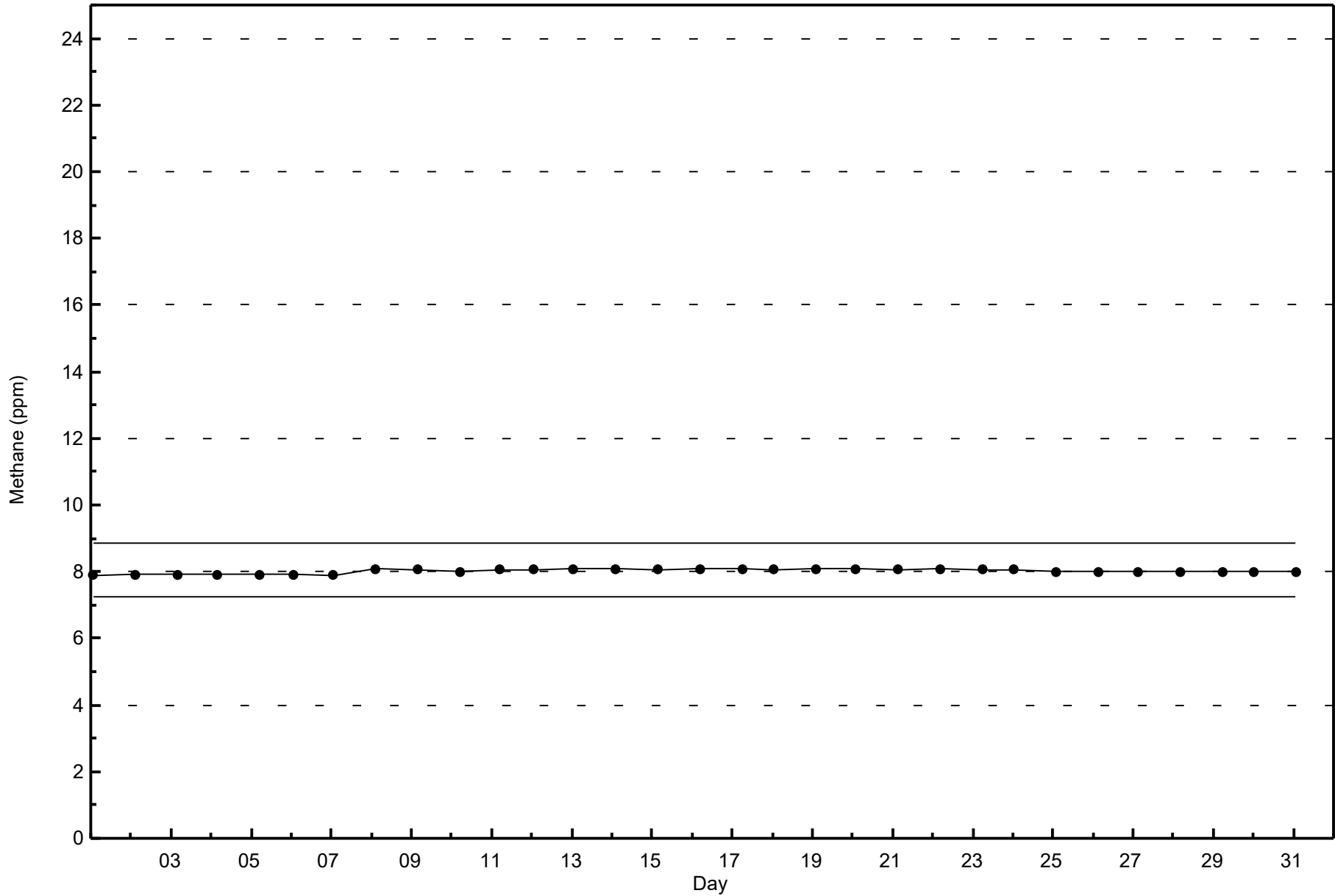


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Patricia McInnes









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

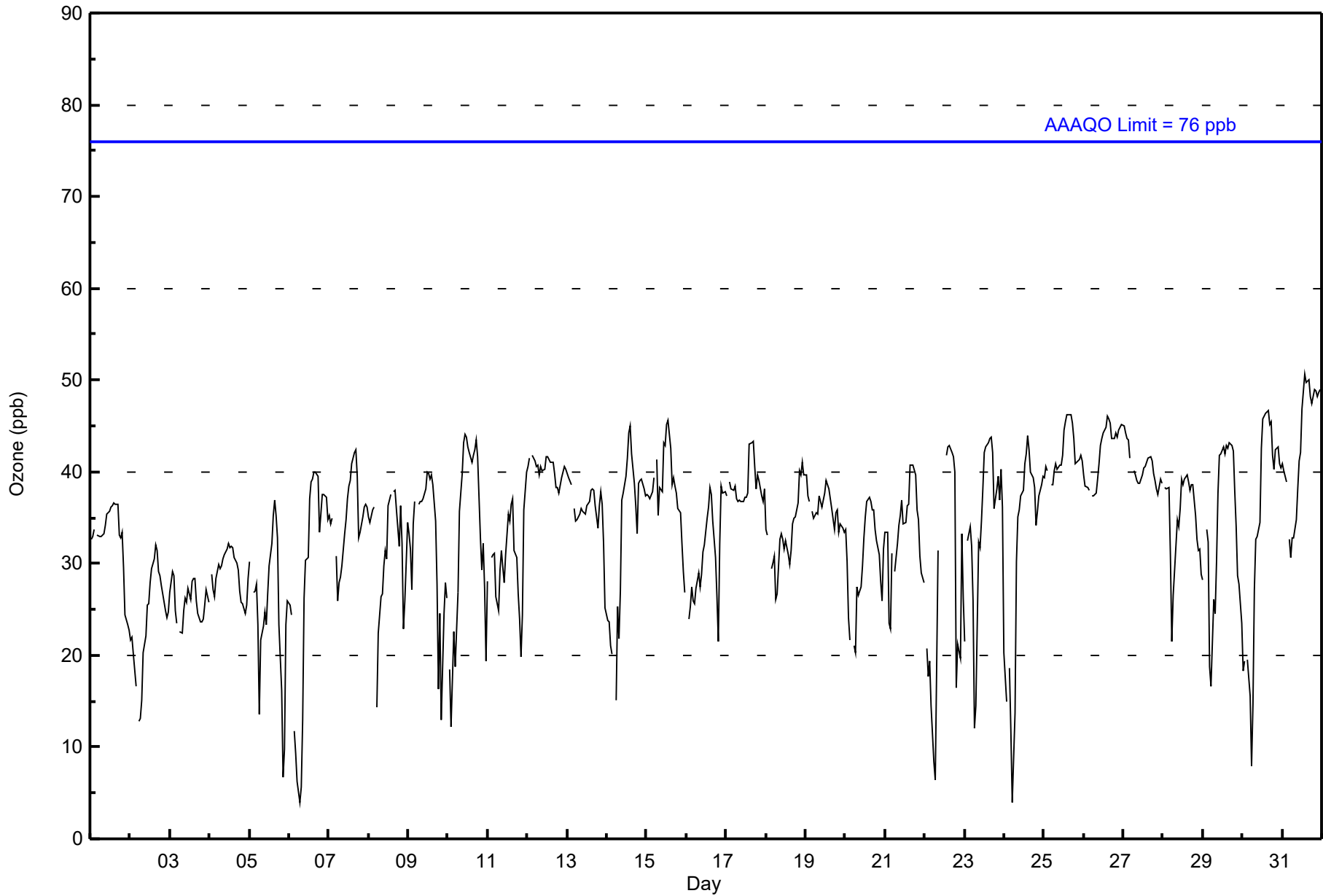
Patricia McInnes - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 50.6 ppb on Mar 31 14:00	Maximum Daily Average: 43.1 ppb on Mar 31		Hours of Data:	708
Minimum Value: 3.9 ppb on Mar 24 06:00	Minimum Daily Average: 24.0 ppb on Mar 2		Hours of Missing Data:	36
Maximum Diurnal Average: 39.7 ppb at hour 15	Minimum Diurnal Average: 24.1 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 33.61 ppb	Percentiles: P ₁ = 8.5 P ₁₀ = 22.9 Q ₁ = 28.5 Median = 35.4 Q ₃ = 39.4 P ₉₀ = 42.6 P ₉₉ = 48.7		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-Mar	32.7	33.0	33.8	Z	33.1	33.0	32.9	33.1	33.3	34.2	35.3	35.7	36.1	36.4	36.6	36.4	36.5	33.1	32.8	33.4	29.6	24.5	23.4	22.7	32.7	36.6
2-Mar	21.7	21.9	20.2	16.6	Z	12.8	13.2	15.0	20.2	22.2	25.5	25.7	28.0	29.4	30.6	32.0	31.4	29.1	28.7	27.6	25.8	24.8	24.2	24.6	24.0	32.0
3-Mar	26.9	29.2	28.6	24.9	23.5	Z	22.5	22.5	24.8	26.2	25.9	27.4	26.1	28.1	28.4	28.3	25.9	24.6	23.7	23.7	23.9	25.5	27.1	25.7	25.8	29.2
4-Mar	Z	28.9	27.1	26.5	28.4	29.9	29.5	29.8	30.5	31.0	31.6	32.2	31.8	31.9	31.8	30.7	30.1	29.2	27.0	25.8	25.6	24.5	25.5	28.4	29.0	32.2
5-Mar	30.2	Z	26.9	27.0	27.7	23.4	13.6	21.6	23.1	24.8	23.4	26.6	29.7	32.2	35.2	37.0	35.3	32.9	23.3	16.1	6.7	9.7	23.3	26.0	25.0	37.0
6-Mar	25.5	24.4	Z	11.7	9.3	6.2	4.0	5.6	12.9	26.3	30.4	30.7	37.1	38.9	39.1	39.9	40.0	39.6	33.4	35.4	37.6	37.5	37.2	34.7	27.7	40.0
7-Mar	35.2	34.3	34.9	Z	30.8	25.9	28.0	28.6	29.7	33.3	34.8	37.1	38.5	39.1	40.9	42.1	42.3	39.6	32.9	33.4	35.0	36.2	36.4	36.2	35.0	42.3
8-Mar	35.1	34.5	35.8	36.2	Z	14.4	22.4	26.4	26.6	29.8	31.4	30.5	36.4	37.6	M	37.8	38.0	35.9	31.8	36.4	32.2	22.9	25.9	34.5	31.5	38.0
9-Mar	33.2	31.6	27.2	34.3	36.8	Z	36.4	36.7	36.8	37.1	38.1	40.0	39.8	39.2	39.7	38.6	34.6	27.8	16.3	24.5	13.0	24.6	28.0	26.2	32.2	40.0
10-Mar	Z	18.5	12.2	22.6	18.7	22.9	26.8	35.7	39.9	43.2	44.1	43.7	42.7	42.1	41.0	41.8	42.5	43.5	41.7	32.8	29.3	32.2	27.3	19.3	33.2	44.1
11-Mar	28.0	Z	30.6	30.9	31.1	26.4	24.8	29.3	31.4	29.5	27.9	30.9	35.4	34.6	36.4	37.1	31.3	30.6	26.7	23.9	19.8	24.3	35.9	40.0	30.3	40.0
12-Mar	40.6	41.6	Z	41.8	41.1	40.6	40.7	39.7	40.6	40.1	40.3	41.6	41.6	41.4	41.1	41.0	39.9	38.2	38.2	37.7	39.4	40.0	40.5	40.3	40.3	41.8
13-Mar	39.8	39.4	38.6	Z	36.0	34.6	34.7	35.3	35.9	35.6	35.5	35.4	36.3	36.7	38.0	38.1	37.9	36.3	33.8	36.3	37.8	36.4	32.1	25.1	35.9	39.8
14-Mar	23.7	23.6	21.1	20.1	Z	15.1	25.3	21.8	27.0	36.9	37.6	39.5	41.5	44.2	45.0	41.9	38.8	36.2	33.2	38.7	39.1	39.2	38.1	37.3	33.3	45.0
15-Mar	37.5	37.4	37.1	37.8	39.3	Z	41.3	35.2	38.3	37.9	43.2	42.9	45.1	45.6	42.6	38.6	39.4	38.5	37.7	36.0	35.5	32.3	29.2	26.9	38.0	45.6
16-Mar	Z	23.9	25.4	27.5	26.0	25.7	27.3	29.0	27.5	28.9	31.2	32.0	34.9	36.2	38.2	37.6	34.7	30.6	26.4	21.5	32.2	38.4	37.6	37.9	30.9	38.4
17-Mar	37.3	Z	38.8	38.1	38.1	38.4	37.1	36.8	37.0	36.7	36.8	37.3	37.2	37.7	42.9	43.2	43.3	40.6	38.2	39.6	39.1	37.4	36.8	38.1	38.5	43.3
18-Mar	33.7	33.1	Z	29.5	30.0	30.8	26.0	26.7	32.6	33.2	32.6	31.6	32.4	30.9	30.0	31.4	34.4	35.0	35.1	36.6	40.1	39.7	41.0	39.7	33.3	41.0
19-Mar	39.6	37.4	36.8	Z	35.7	34.9	35.6	35.4	37.4	36.7	36.1	37.7	39.1	38.6	38.1	37.0	36.0	33.7	35.6	35.9	33.4	34.3	33.9	33.3	36.2	39.6
20-Mar	33.7	30.2	24.2	21.6	Z	21.1	20.4	27.5	26.5	27.5	29.7	32.8	35.1	36.7	37.3	36.8	35.8	35.9	33.7	32.5	31.0	28.1	26.0	31.6	30.2	37.3
21-Mar	33.3	33.4	23.5	22.9	31.1	Z	29.2	32.2	34.2	35.2	37.0	34.3	34.5	36.4	36.4	40.7	40.8	40.8	39.7	35.9	34.8	30.8	28.9	28.0	33.6	40.8
22-Mar	Z	20.8	17.8	19.4	14.5	8.4	6.3	18.8	31.5	C	C	C	C	41.8	42.7	42.9	42.2	41.6	40.0	16.4	21.3	19.7	33.2	26.2	26.6	42.9
23-Mar	21.6	Z	32.5	34.0	31.8	25.9	12.0	14.4	32.3	31.8	34.7	38.1	42.2	42.7	43.1	43.6	43.7	42.0	36.0	38.1	39.5	37.0	40.3	36.2	34.5	43.7
24-Mar	20.3	15.0	Z	18.7	11.9	3.9	13.7	30.2	35.1	35.8	37.3	38.0	40.8	42.0	44.0	42.5	40.0	39.4	38.3	34.1	35.7	37.4	38.6	39.5	31.8	44.0
25-Mar	39.3	40.6	40.1	Z	38.6	38.5	40.1	40.8	40.3	40.7	40.7	41.8	44.6	45.5	46.2	46.2	46.2	45.2	43.7	40.9	41.3	41.4	41.8	41.2	42.0	46.2
26-Mar	39.6	38.5	38.2	38.0	Z	37.3	37.4	37.6	39.2	40.8	42.8	43.6	44.2	44.9	46.1	45.7	45.3	43.6	43.7	44.3	43.7	44.5	44.8	45.1	42.1	46.1
27-Mar	45.1	44.2	43.6	43.4	41.4	Z	40.0	39.7	39.1	38.7	38.7	39.7	40.4	40.6	41.0	41.5	41.7	41.1	39.8	39.1	38.1	37.5	39.2	38.8	40.5	45.1
28-Mar	Z	38.3	38.1	38.3	30.9	21.5	26.6	29.3	34.8	34.0	35.9	39.2	38.6	39.2	39.7	38.8	38.0	38.7	38.6	35.2	32.6	31.4	31.6	28.8	34.7	39.7
29-Mar	28.2	Z	33.8	32.4	18.8	16.7	26.1	24.6	30.4	37.7	41.7	41.9	42.8	41.9	42.8	42.6	43.1	42.9	42.2	37.9	34.0	28.7	27.8	23.6	34.0	43.1
30-Mar	18.3	19.4	Z	19.5	15.5	8.0	14.7	27.2	32.6	33.0	34.4	42.6	45.8	46.1	46.4	46.6	45.2	45.5	41.8	40.3	42.4	42.7	40.9	40.4	34.3	46.6
31-Mar	40.8	40.2	38.9	Z	32.7	30.7	32.8	32.8	34.8	38.1	41.2	42.0	46.8	50.6	49.8	49.9	50.0	48.1	47.4	48.9	48.9	48.2	48.7	49.0	43.1	50.6

32.3	31.3	31.0	28.5	29.0	24.1	26.5	29.0	32.1	33.9	35.2	36.4	38.2	39.0	39.7	39.6	38.8	37.4	34.9	33.5	32.9	32.6	33.7	33.1	Diurnal Average	
45.1	44.2	43.6	43.4	41.4	40.6	41.3	40.8	40.6	43.2	44.1	43.7	46.8	50.6	49.8	49.9	50.0	48.1	47.4	48.9	48.9	48.2	48.7	49.0	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 (O₃) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	51	7.20	7.20
21 - 50	656	92.66	99.86
51 - 82	1	0.14	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 (O₃) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Wind Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
0 - 20	6	0	0	1	0	0	4	9	12	8	2	0	0	0	3	6	51
21 - 50	103	71	10	7	17	92	83	60	44	19	21	12	14	20	6	77	656
51 - 82	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	109	71	10	8	17	92	87	69	56	27	24	12	14	20	9	83	708

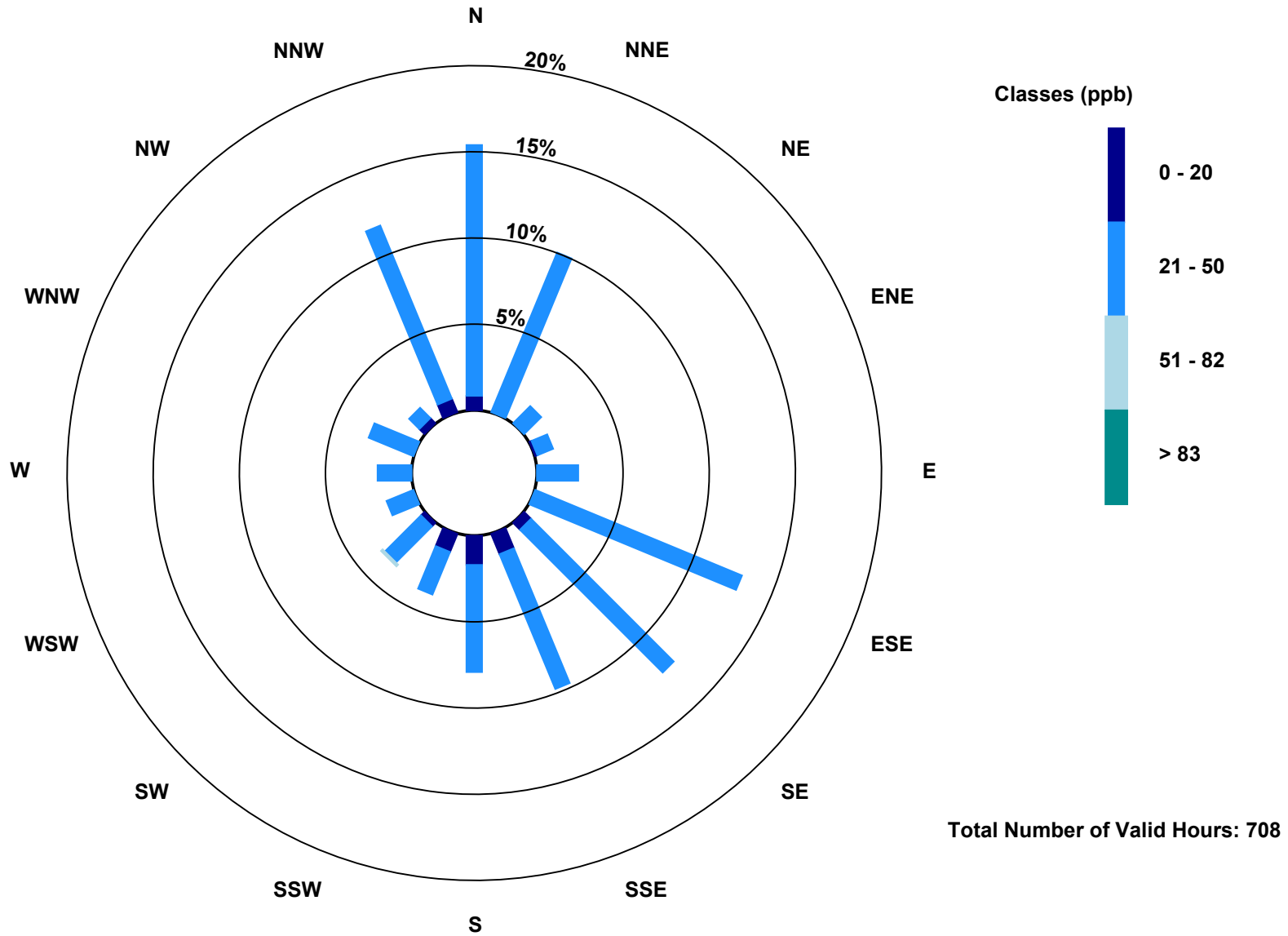
Total Number of Valid Hours: 708

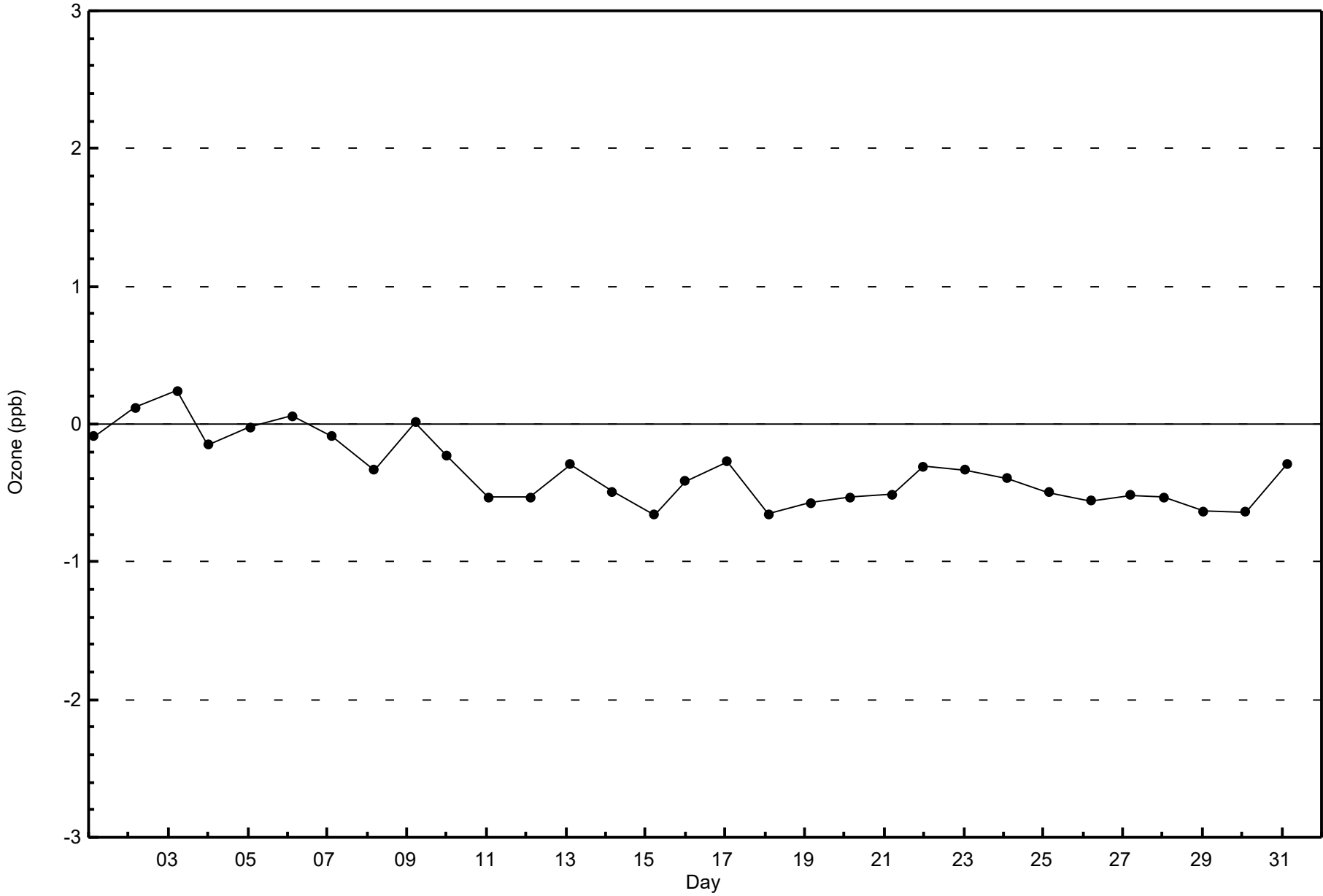
Total Number of Hours: 744

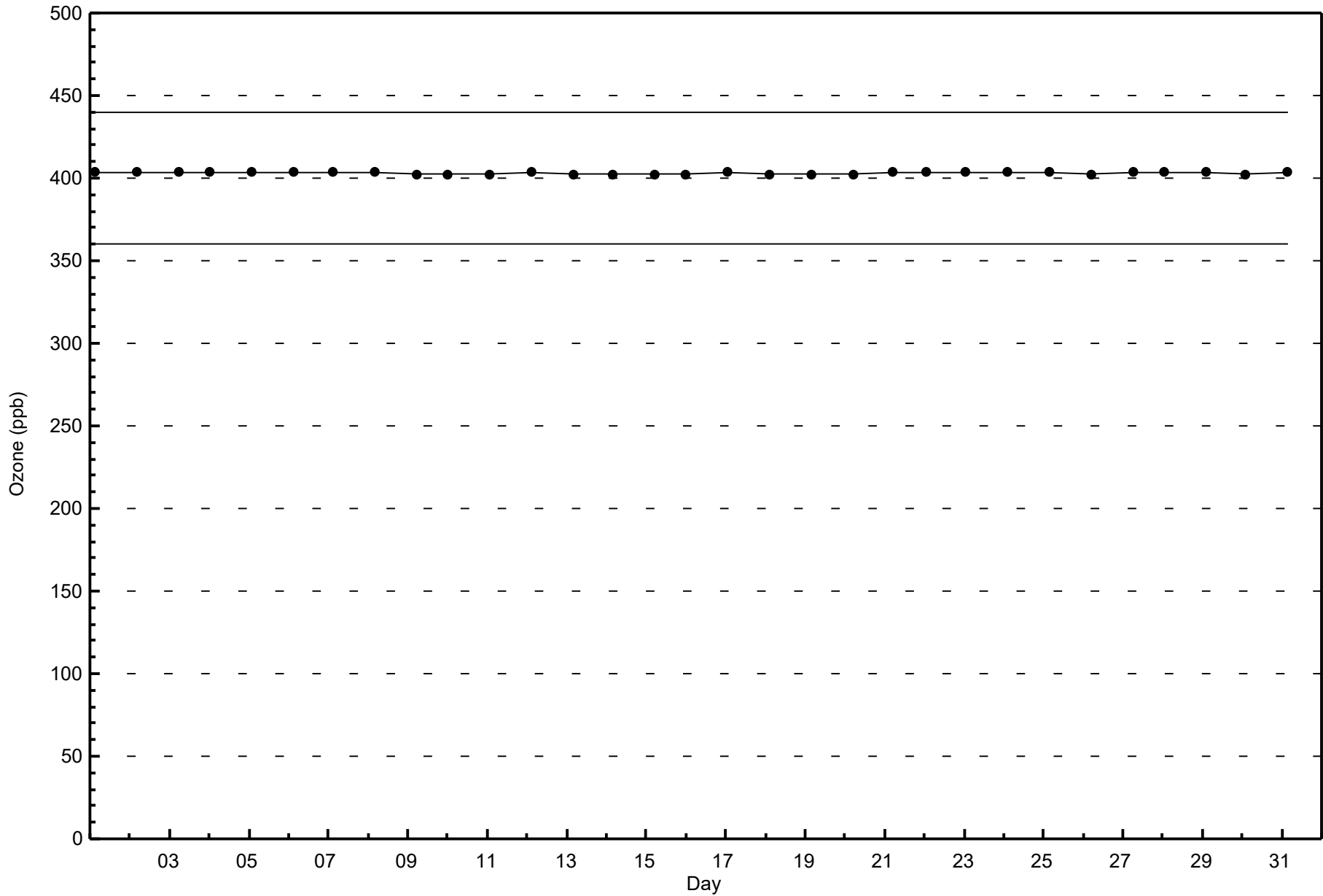


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Patricia McInnes







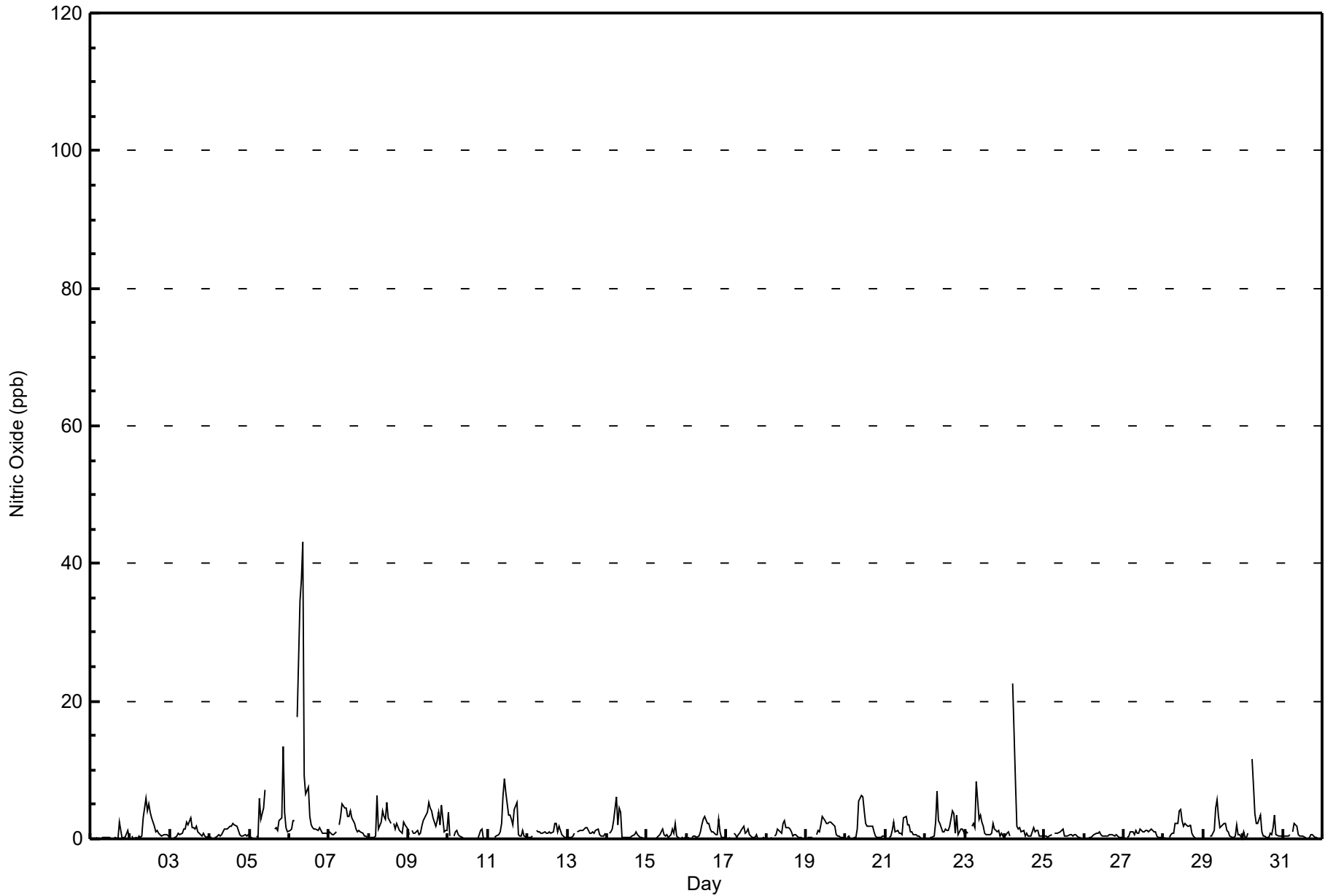


Maximum Value: 43.0 ppb on Mar 6 09:00		Maximum Daily Average: 7.9 ppb on Mar 6		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 03:00		Minimum Daily Average: 0.3 ppb on Mar 1		Hours of Data: 707																						
Maximum Diurnal Average: 3.4 ppb at hour 9		Minimum Diurnal Average: 0.3 ppb at hour 2		Hours of Missing Data: 37																						
Monthly Average: 1.45 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 0.7 Q ₃ = 1.6 P ₉₀ = 3.1 P ₉₉ = 9.2		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.1	0.0	0.0	0.1	0.2	Z	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.0	2.5	1.1	0.1	0.2	0.3	1.2	0.2	0.3	2.5	
2-Mar	Z	0.5	0.1	0.2	0.0	0.3	0.1	0.5	3.0	5.8	4.0	5.1	3.9	3.1	1.8	1.1	1.3	0.8	0.6	0.5	0.7	0.7	0.6	0.4	1.5	5.8
3-Mar	0.2	Z	0.2	0.2	0.4	0.7	0.7	0.7	1.4	1.4	2.5	2.0	3.0	1.7	1.6	1.5	1.8	1.0	0.5	0.4	0.7	0.5	0.3	0.3	1.0	3.0
4-Mar	0.2	0.1	Z	0.2	0.2	0.5	0.5	0.6	1.0	1.3	1.4	1.7	1.8	1.9	2.3	2.1	1.8	1.2	0.6	0.5	0.4	0.6	0.5	0.5	1.0	2.3
5-Mar	0.5	0.1	0.1	Z	0.5	0.3	5.9	2.9	4.5	7.1	C	C	C	C	C	1.4	1.6	1.2	2.6	3.0	13.3	3.8	1.7	1.0	2.9	13.3
6-Mar	1.3	1.4	2.7	2.7	Z	17.6	34.6	37.7	43.0	9.2	6.4	7.5	3.3	2.1	1.6	1.4	1.4	1.1	1.7	1.3	0.8	0.8	0.8	0.7	7.9	43.0
7-Mar	1.0	0.8	0.6	0.7	1.0	Z	2.1	3.3	5.0	4.5	4.4	3.3	3.4	4.0	3.1	2.2	1.4	1.1	1.3	1.0	0.8	0.5	0.4	0.3	2.0	5.0
8-Mar	Z	0.2	0.2	0.1	0.3	6.4	1.4	2.5	4.1	3.3	2.9	5.4	3.0	2.2	M	2.3	1.4	2.2	1.3	1.0	0.9	2.5	2.1	1.5	2.1	6.4
9-Mar	0.6	Z	1.2	0.9	0.9	1.3	0.6	0.8	1.8	2.7	3.4	3.9	5.3	4.5	4.0	3.1	1.9	2.6	3.8	2.0	4.8	0.9	1.2	1.1	2.3	5.3
10-Mar	3.9	0.4	Z	0.5	0.9	1.2	0.6	0.4	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.4	0.0	0.0	0.0	0.5	3.9
11-Mar	0.0	0.0	0.1	Z	0.3	0.3	0.5	1.0	2.3	6.3	8.8	6.6	3.4	3.5	2.8	2.1	4.3	5.2	0.7	0.4	0.4	1.3	0.3	0.2	2.2	8.8
12-Mar	0.2	0.3	0.3	0.4	Z	1.3	1.0	1.0	0.9	0.7	1.0	0.8	0.7	1.1	0.8	1.0	2.2	2.3	1.0	1.8	0.7	0.4	0.2	0.2	0.9	2.3
13-Mar	0.2	0.2	0.2	0.4	0.7	Z	1.1	1.3	1.2	1.2	1.4	1.7	1.6	0.9	0.9	1.1	0.9	1.2	1.3	0.6	0.3	0.5	0.4	0.8	0.9	1.7
14-Mar	Z	0.7	1.1	1.4	2.7	6.0	2.1	4.5	3.9	0.3	0.3	0.3	0.2	0.2	0.4	0.6	0.9	0.5	0.4	0.3	0.1	0.1	0.1	0.0	1.2	6.0
15-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.6	1.4	0.5	0.4	0.6	0.3	0.7	1.5	0.9	2.1	0.5	0.3	0.1	0.3	0.1	0.1	0.5	2.1
16-Mar	0.0	0.1	Z	0.1	0.4	0.4	0.2	0.4	1.0	2.0	2.8	3.2	2.2	2.2	1.3	1.0	1.0	0.7	0.7	2.8	1.0	0.2	0.2	0.1	1.0	3.2
17-Mar	0.0	0.0	0.2	Z	0.9	0.6	0.3	0.5	0.8	1.3	1.7	0.8	1.0	1.4	0.6	0.3	0.2	0.3	0.5	0.0	0.0	0.0	0.1	0.1	0.5	1.7
18-Mar	0.0	0.0	0.0	0.1	Z	0.3	0.6	1.3	1.0	0.9	2.3	2.7	1.7	1.6	1.5	1.1	0.4	0.5	0.7	0.2	0.2	0.1	0.1	0.1	0.8	2.7
19-Mar	0.1	0.2	0.2	0.2	0.3	Z	0.6	1.2	1.1	2.1	3.2	2.6	2.2	2.2	2.4	2.5	2.2	1.9	0.7	0.4	0.4	0.2	0.2	0.1	1.2	3.2
20-Mar	Z	0.2	0.4	0.0	0.1	0.2	0.2	1.5	5.5	6.4	6.1	4.0	2.1	1.9	1.8	1.8	1.8	1.1	0.3	0.2	0.1	0.2	0.3	0.4	1.6	6.4
21-Mar	0.3	Z	0.3	0.3	1.1	2.4	1.1	1.1	0.8	0.9	0.6	3.0	3.3	1.9	2.0	1.0	1.0	0.7	0.6	0.4	0.4	0.3	0.0	0.1	1.0	3.3
22-Mar	0.1	0.0	Z	0.1	0.1	0.4	2.5	6.8	2.6	2.2	1.1	0.9	1.4	1.3	1.2	1.7	4.0	3.7	0.9	3.4	0.7	1.4	1.5	1.1	1.7	6.8
23-Mar	0.4	1.0	0.8	Z	1.7	2.2	1.6	8.3	2.8	3.4	2.5	1.8	0.9	0.7	0.7	0.6	0.9	2.2	1.5	1.0	1.2	0.4	0.8	0.4	1.6	8.3
24-Mar	0.1	0.7	1.0	0.3	Z	22.5	8.4	1.7	1.5	1.6	1.0	1.2	0.4	0.8	0.4	0.4	0.4	1.6	1.0	1.1	1.2	0.4	0.4	0.4	2.1	22.5
25-Mar	0.4	0.3	0.3	0.3	0.7	Z	0.8	0.8	0.9	1.0	1.2	1.5	0.4	0.3	0.4	0.6	0.6	0.5	0.6	0.6	0.2	0.2	0.1	0.1	0.5	1.5
26-Mar	Z	0.1	0.1	0.2	0.3	0.3	0.6	0.9	0.8	1.0	0.5	0.5	0.3	0.4	0.5	0.7	0.6	0.5	0.4	0.7	0.3	0.2	0.2	0.2	0.4	1.0
27-Mar	0.2	Z	0.2	0.3	1.0	1.0	0.7	1.2	0.8	0.8	1.4	1.0	0.9	1.2	1.2	1.0	1.3	1.1	1.0	1.1	0.4	0.3	0.1	0.1	0.8	1.4
28-Mar	0.1	0.1	Z	0.1	0.5	0.8	0.9	2.2	2.3	4.0	4.2	2.7	1.7	2.2	1.8	1.9	2.0	0.8	0.4	0.1	0.0	0.0	0.0	0.0	1.3	4.2
29-Mar	0.0	0.0	0.0	Z	0.5	0.5	1.2	4.4	5.7	3.3	1.7	1.8	2.2	2.3	1.3	1.0	0.3	0.3	0.3	0.4	2.0	0.6	0.7	0.0	1.3	5.7
30-Mar	0.9	0.1	0.3	0.9	Z	11.6	7.8	3.7	2.3	2.2	3.4	0.9	0.4	0.4	0.3	0.3	0.9	0.6	1.6	3.5	0.5	0.4	0.4	0.4	1.9	11.6
31-Mar	0.2	0.3	0.3	0.4	0.6	Z	1.0	2.2	1.8	0.6	0.5	0.4	0.3	0.1	0.0	0.1	0.2	0.5	0.7	0.3	0.1	0.0	0.0	0.0	0.5	2.2
																								Diurnal Average		
																								Diurnal Maximum		
																								3.9 1.4 2.7 2.7 2.7 22.5 34.6 37.7 43.0 9.2 8.8 7.5 5.3 4.5 4.0 3.1 4.3 5.2 3.8 3.5 13.3 3.8 2.1 1.5		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Patricia McInnes - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	99.43	99.43
21 - 40	3	0.42	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
Patricia McInnes - March 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	69	12	8	18	91	86	63	54	29	23	13	12	23	10	85	703
21 - 40	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	107	69	12	8	18	91	86	67	54	29	23	13	12	23	10	85	707

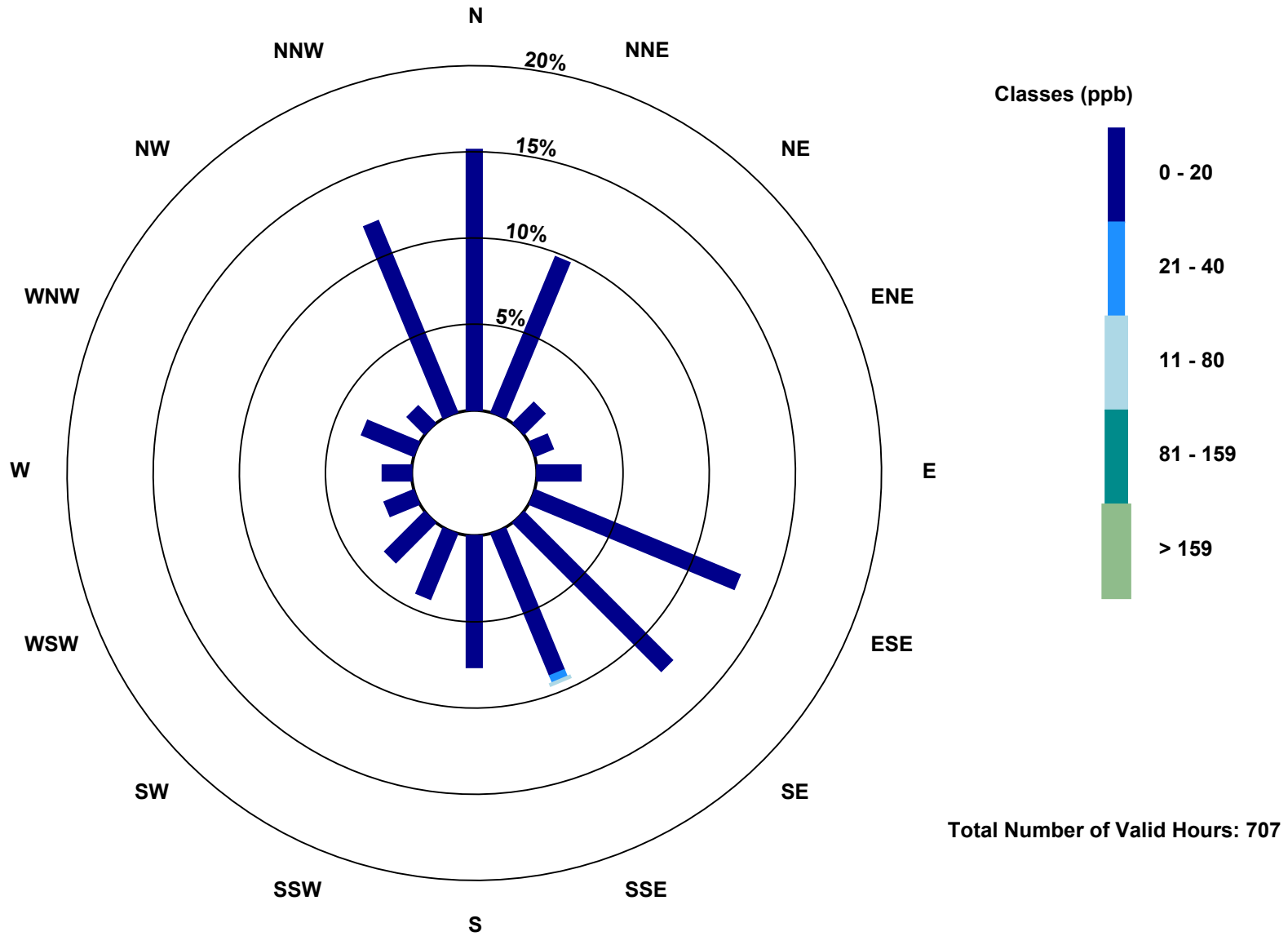
Total Number of Valid Hours: 707

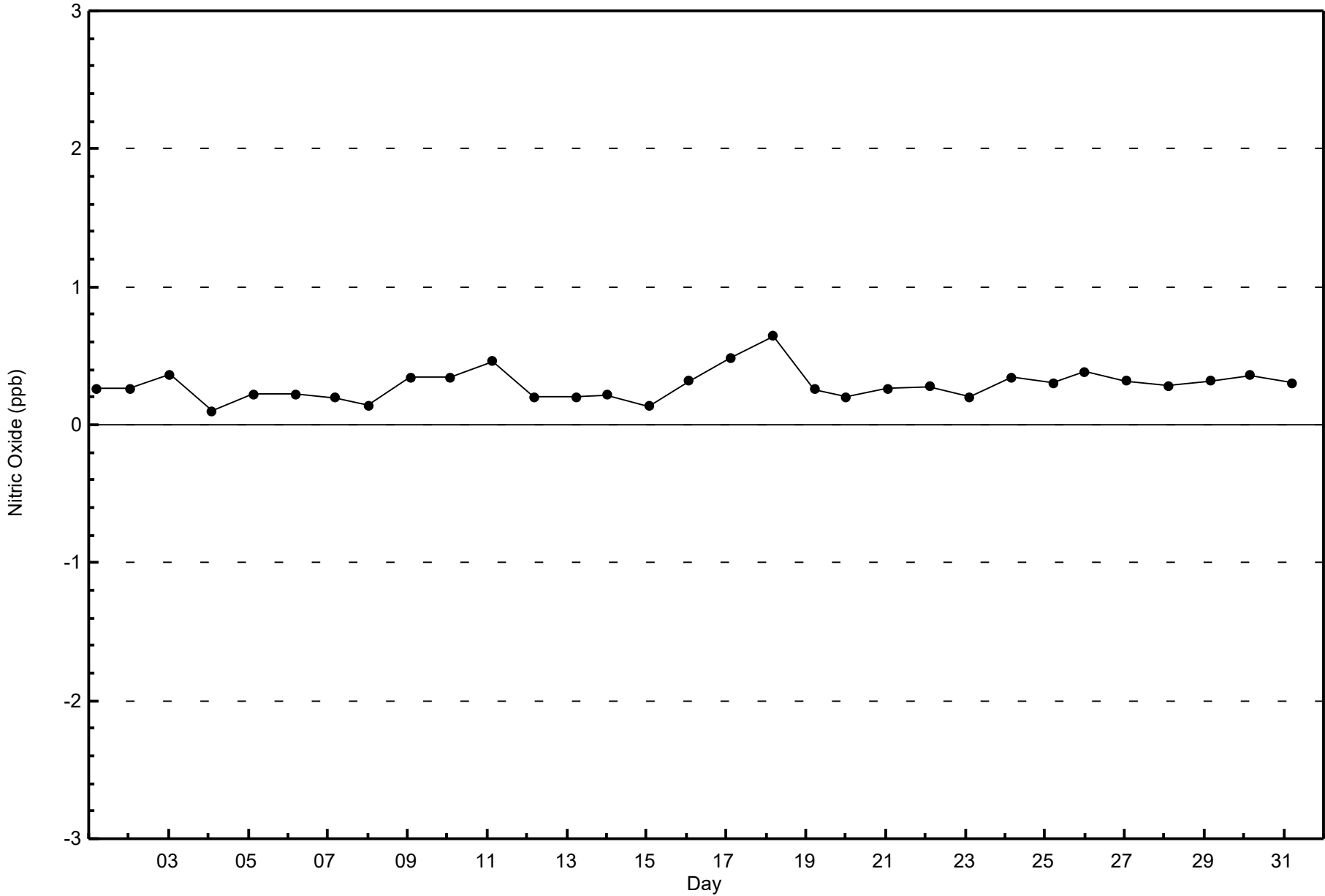
Total Number of Hours: 744

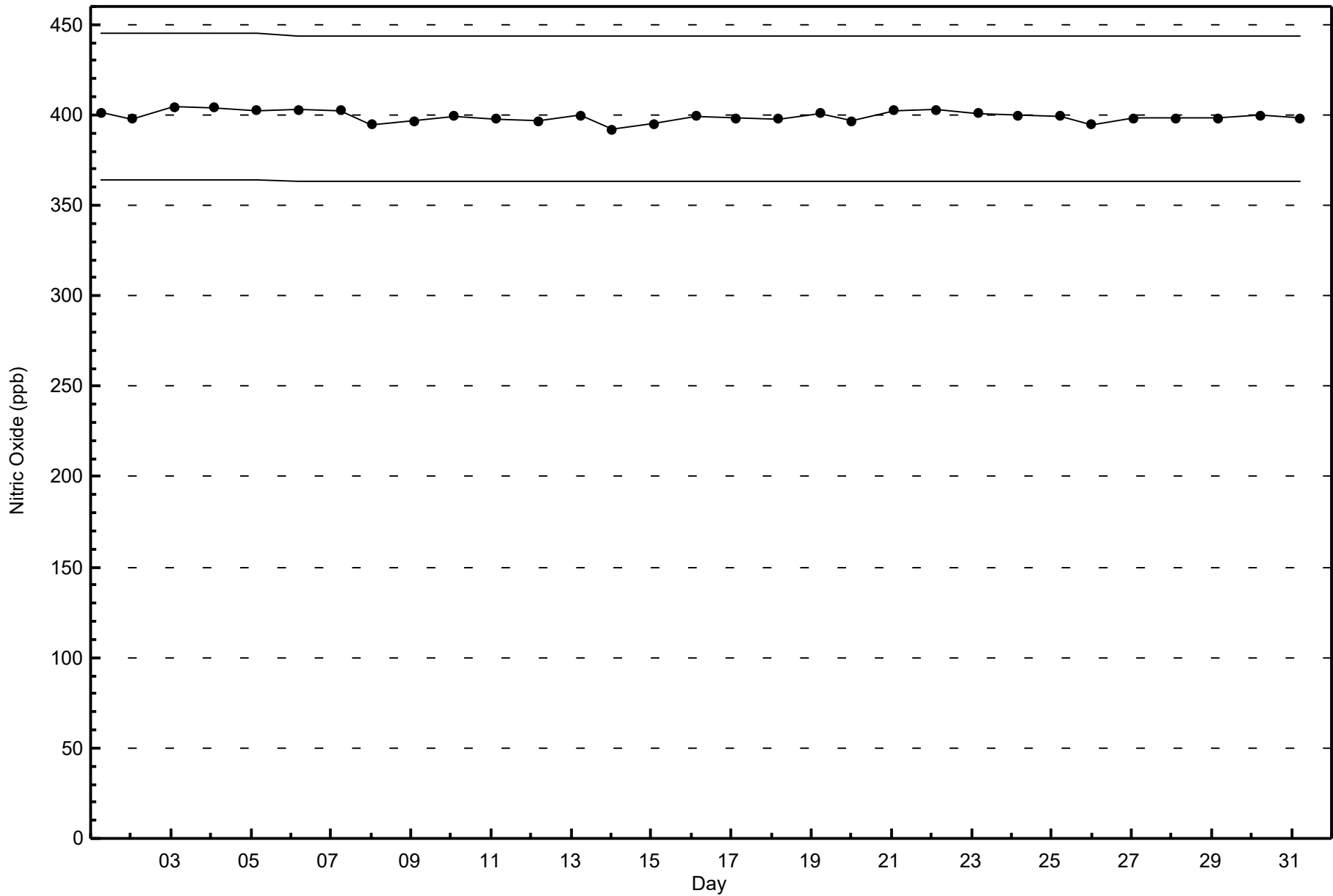


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Patricia McInnes









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

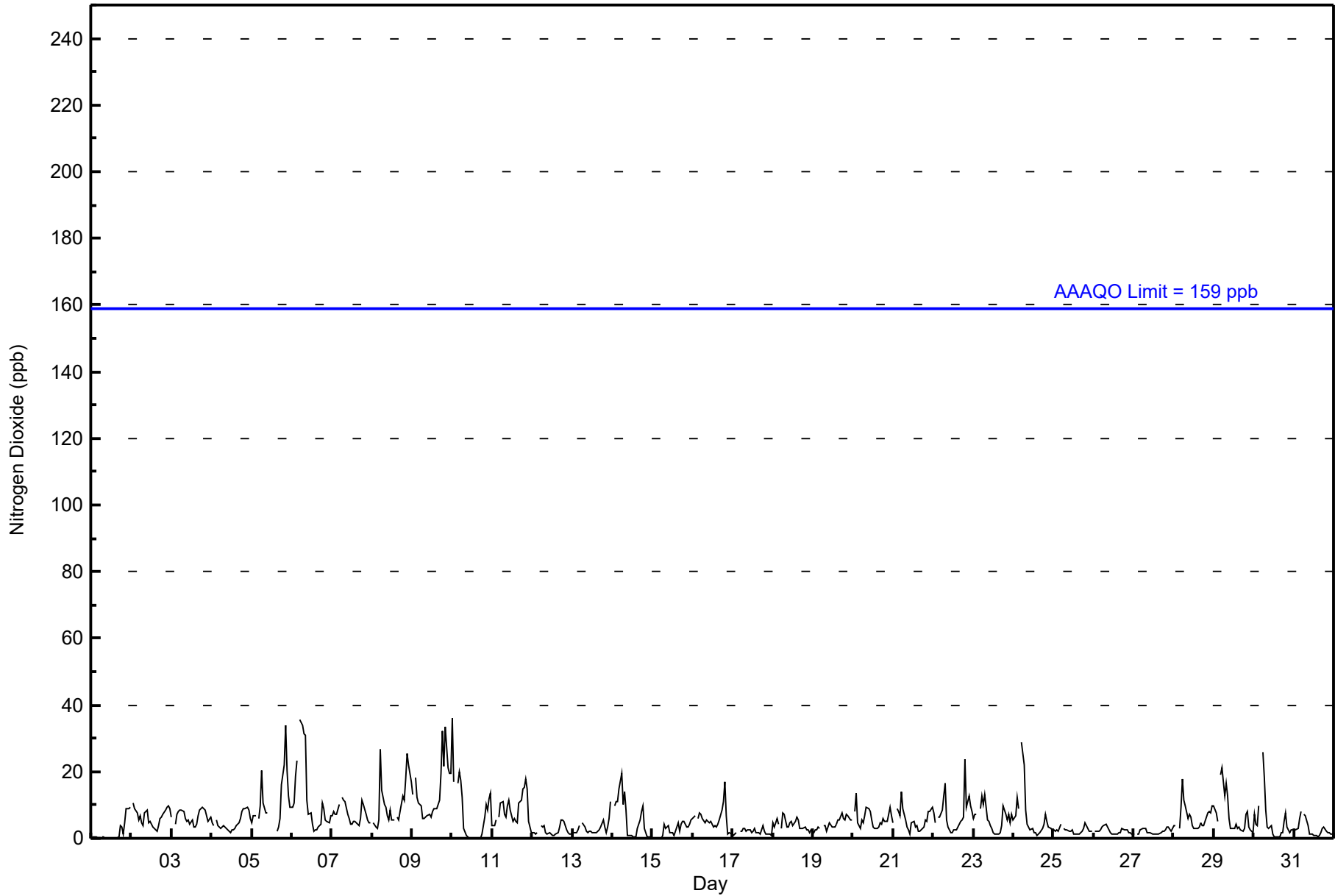
Patricia McInnes - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 35.9 ppb on Mar 10 01:00		Maximum Daily Average: 13.7 ppb on Mar 9		Hours of Data: 707																	7.6		35.9																										
Minimum Value: 0.0 ppb on Mar 10 15:00		Minimum Daily Average: 1.9 ppb on Mar 1		Hours of Missing Data: 37																	12.2		35.6																										
Maximum Diurnal Average: 12.2 ppb at hour 6		Minimum Diurnal Average: 2.6 ppb at hour 15		Hours of Calibration: 36																	5.9		19.7																										
Monthly Average: 5.75 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 1.2 Q ₁ = 2.3 Median = 4.1 Q ₃ = 7.4 P ₉₀ = 11.4 P ₉₉ = 31.0		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-Mar	0.6	0.3	0.3	0.3	0.2	Z	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	4.0	3.4	1.2	4.6	8.8	8.8	9.4	1.9	9.4																							
2-Mar	Z	10.4	8.7	7.5	5.5	6.7	4.5	3.8	7.6	8.3	4.8	5.0	4.3	3.6	2.5	2.1	3.8	6.1	6.4	7.1	8.4	9.4	9.8	8.8	6.3	10.4																							
3-Mar	6.4	Z	4.3	7.1	8.0	8.4	8.3	8.2	6.1	5.0	5.7	4.2	5.7	3.6	3.6	4.1	6.9	8.5	9.3	8.9	8.4	6.7	5.0	6.5	6.5	9.3																							
4-Mar	4.5	3.8	Z	5.6	3.9	3.0	3.6	3.7	3.3	2.8	2.2	1.9	2.4	2.5	3.0	3.7	4.7	6.0	8.0	8.9	8.9	9.5	8.3	6.1	4.8	9.5																							
5-Mar	4.6	6.8	6.9	Z	6.1	9.9	20.2	10.4	7.6	7.7	C	C	C	C	C	2.1	3.4	5.9	16.1	21.9	33.7	20.5	12.5	9.5	11.4	33.7																							
6-Mar	9.3	10.6	18.6	23.2	Z	35.6	33.9	31.3	31.1	11.5	7.2	7.6	4.1	2.3	2.5	2.6	3.3	4.2	10.6	8.8	5.3	4.9	4.5	6.8	12.2	35.6																							
7-Mar	6.7	7.9	7.2	7.1	10.1	Z	12.2	11.6	11.1	7.4	6.0	4.2	4.1	5.1	5.1	4.2	3.8	6.1	11.5	10.0	7.2	5.3	4.8	4.6	7.1	12.2																							
8-Mar	Z	4.7	3.6	2.8	5.3	26.9	14.2	10.3	9.5	6.8	5.6	8.6	5.4	5.4	M	6.3	5.6	8.1	12.5	11.4	17.8	25.3	21.9	16.9	10.7	26.9																							
9-Mar	13.1	Z	18.1	12.1	10.8	9.7	6.0	5.8	6.3	6.8	7.3	6.4	7.9	8.9	8.8	9.0	11.4	19.6	32.0	21.5	33.4	21.2	19.7	19.5	13.7	33.4																							
10-Mar	35.9	17.0	Z	16.5	20.0	17.3	12.1	3.0	1.0	0.4	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.4	6.3	10.3	8.6	11.8	13.4	7.6	35.9																							
11-Mar	3.9	3.9	5.3	Z	6.4	10.8	11.1	7.3	6.5	9.7	11.4	8.5	5.2	6.0	5.0	4.8	10.4	11.4	14.8	15.1	17.7	14.7	5.0	1.9	8.6	17.7																							
12-Mar	1.7	1.7	1.3	1.9	Z	3.8	3.6	3.7	1.5	1.2	1.7	1.2	0.8	1.0	1.3	1.7	3.3	5.3	5.3	4.9	2.5	1.6	1.3	1.3	2.3	5.3																							
13-Mar	1.5	1.5	1.8	2.5	3.7	Z	4.6	3.3	2.1	1.9	2.1	2.3	1.9	1.8	1.6	2.0	2.4	3.6	5.6	3.4	1.9	3.5	5.9	10.9	3.1	10.9																							
14-Mar	Z	9.7	10.9	11.0	15.0	19.7	10.1	13.9	8.6	0.7	0.8	0.7	0.6	0.4	0.5	3.1	5.3	8.1	9.9	3.1	1.7	0.4	0.4	0.2	5.9	19.7																							
15-Mar	0.0	Z	0.1	0.0	0.0	0.0	0.8	4.3	3.1	3.7	1.5	1.7	1.5	0.8	3.5	4.6	2.3	4.4	4.9	5.2	3.3	3.5	4.3	5.6	2.6	5.6																							
16-Mar	6.1	6.6	Z	5.9	7.6	7.4	6.0	4.7	5.3	5.2	4.6	4.9	3.6	4.0	3.5	4.3	5.5	8.3	11.1	16.8	6.9	1.4	1.5	1.3	5.8	16.8																							
17-Mar	1.0	1.3	1.9	Z	2.1	2.2	2.8	2.9	2.2	2.5	2.4	1.8	2.0	2.8	1.8	1.7	1.2	2.4	3.9	2.3	1.4	1.2	1.1	0.8	2.0	3.9																							
18-Mar	4.7	3.5	6.1	4.4	Z	3.1	7.6	7.4	3.5	3.4	4.5	5.2	3.9	5.2	6.3	5.3	2.8	2.8	3.1	3.4	2.5	2.5	1.7	2.5	4.1	7.6																							
19-Mar	1.9	2.6	2.4	3.3	3.0	Z	3.7	3.8	2.3	3.2	4.6	3.6	3.2	3.6	4.3	5.3	5.7	7.7	5.8	5.5	7.3	6.9	5.5	5.5	4.4	7.7																							
20-Mar	Z	8.1	13.5	4.6	3.1	5.6	4.7	6.6	9.3	9.1	8.1	5.5	3.3	3.0	3.1	3.6	4.7	4.1	5.9	5.0	4.9	7.4	9.3	6.7	6.1	13.5																							
21-Mar	4.8	Z	8.7	8.1	6.8	13.8	9.0	5.7	3.6	2.4	1.3	4.5	5.1	3.4	3.7	2.0	2.3	2.4	3.2	5.4	5.1	8.0	8.1	9.5	5.5	13.8																							
22-Mar	7.6	4.8	Z	6.5	6.5	8.3	12.6	16.4	5.3	3.6	1.8	1.6	2.5	2.6	2.6	3.2	5.0	5.3	6.2	23.8	9.4	12.6	9.6	8.1	7.2	23.8																							
23-Mar	5.8	7.1	7.1	Z	9.0	12.6	10.2	13.2	5.5	5.2	3.9	3.0	1.7	1.3	1.1	1.3	1.7	3.8	9.6	7.0	5.7	7.4	4.8	7.4	5.9	13.2																							
24-Mar	5.6	6.7	12.4	8.7	Z	29.0	22.2	8.3	4.1	3.6	2.5	2.8	1.5	1.7	1.0	1.3	1.9	3.1	4.1	7.4	5.2	3.5	2.9	2.3	6.2	29.0																							
25-Mar	2.5	2.1	2.4	2.1	4.1	Z	3.0	2.4	2.4	2.0	2.3	2.7	1.1	1.1	1.2	1.4	1.5	2.1	2.9	4.5	3.0	2.3	2.1	2.0	2.3	4.5																							
26-Mar	Z	2.3	2.2	2.3	2.6	3.5	3.8	4.2	3.4	2.5	1.5	1.1	1.2	1.2	1.3	1.7	1.9	2.9	2.5	2.6	2.5	1.8	1.5	1.2	2.2	4.2																							
27-Mar	1.1	Z	1.3	1.2	2.6	2.9	3.0	2.8	1.9	1.6	1.6	1.1	1.3	1.2	1.3	1.4	1.6	2.2	2.2	2.4	3.2	3.6	2.3	3.1	2.0	3.6																							
28-Mar	4.0	3.8	Z	3.1	9.2	18.0	11.5	9.8	6.0	7.2	6.4	3.8	3.0	3.0	2.9	3.6	4.5	3.7	3.7	6.2	7.6	8.2	7.7	9.8	6.4	18.0																							
29-Mar	9.9	7.8	5.0	Z	19.2	21.2	12.9	16.4	12.6	6.1	3.0	2.8	2.8	4.2	3.1	3.5	2.4	2.3	2.9	7.4	8.0	3.6	2.6	1.7	7.0	21.2																							
30-Mar	7.1	4.1	4.0	9.8	Z	25.9	18.3	8.3	3.6	3.1	3.8	1.3	0.5	0.5	0.4	0.6	1.6	1.8	4.9	7.8	3.2	1.8	2.6	2.6	5.1	25.9																							
31-Mar	2.4	2.7	3.1	6.1	8.1	Z	7.0	6.9	4.0	1.3	1.1	1.2	1.0	0.7	0.5	0.8	1.5	3.0	3.6	2.0	1.6	1.5	1.4	1.3	2.7	8.1																							
																								5.9	5.5	6.0	6.3	6.9	12.2	9.2	7.8	5.8	4.4	3.7	3.3	2.7	2.7	2.6	3.0	3.6	5.1	7.3	8.0	7.8	7.0	6.1	6.0	Diurnal Average	
																								35.9	17.0	18.6	23.2	20.0	35.6	33.9	31.3	31.1	11.5	11.4	8.6	7.9	8.9	8.8	9.0	11.4	19.6	32.0	23.8	33.7	25.3	21.9	19.5	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 (NO₂) - ppb
Patricia McInnes - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Patricia McInnes - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	686	97.03	97.03
21 - 40	21	2.97	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



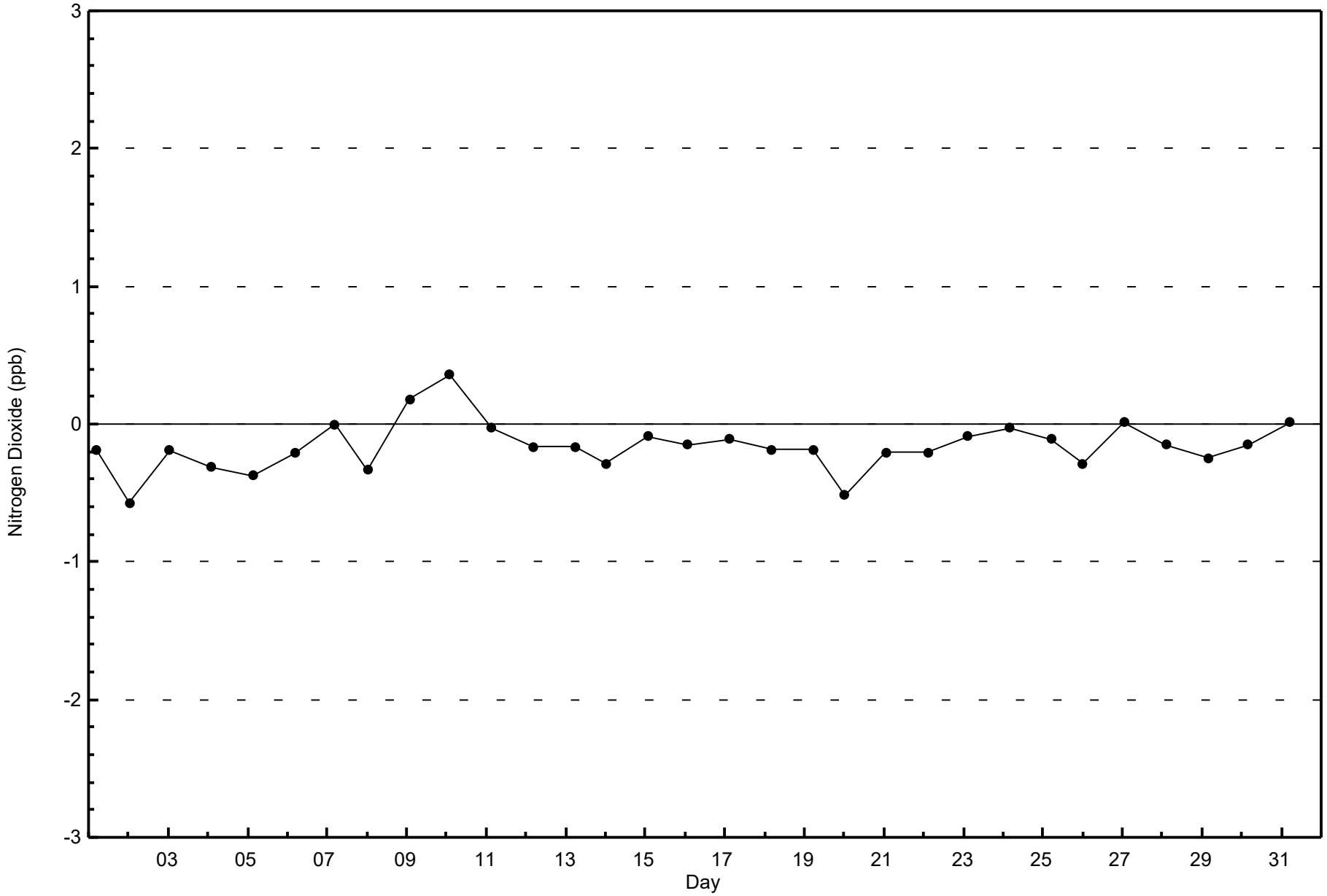
**Wood Buffalo Environmental Association
Frequency Distribution**

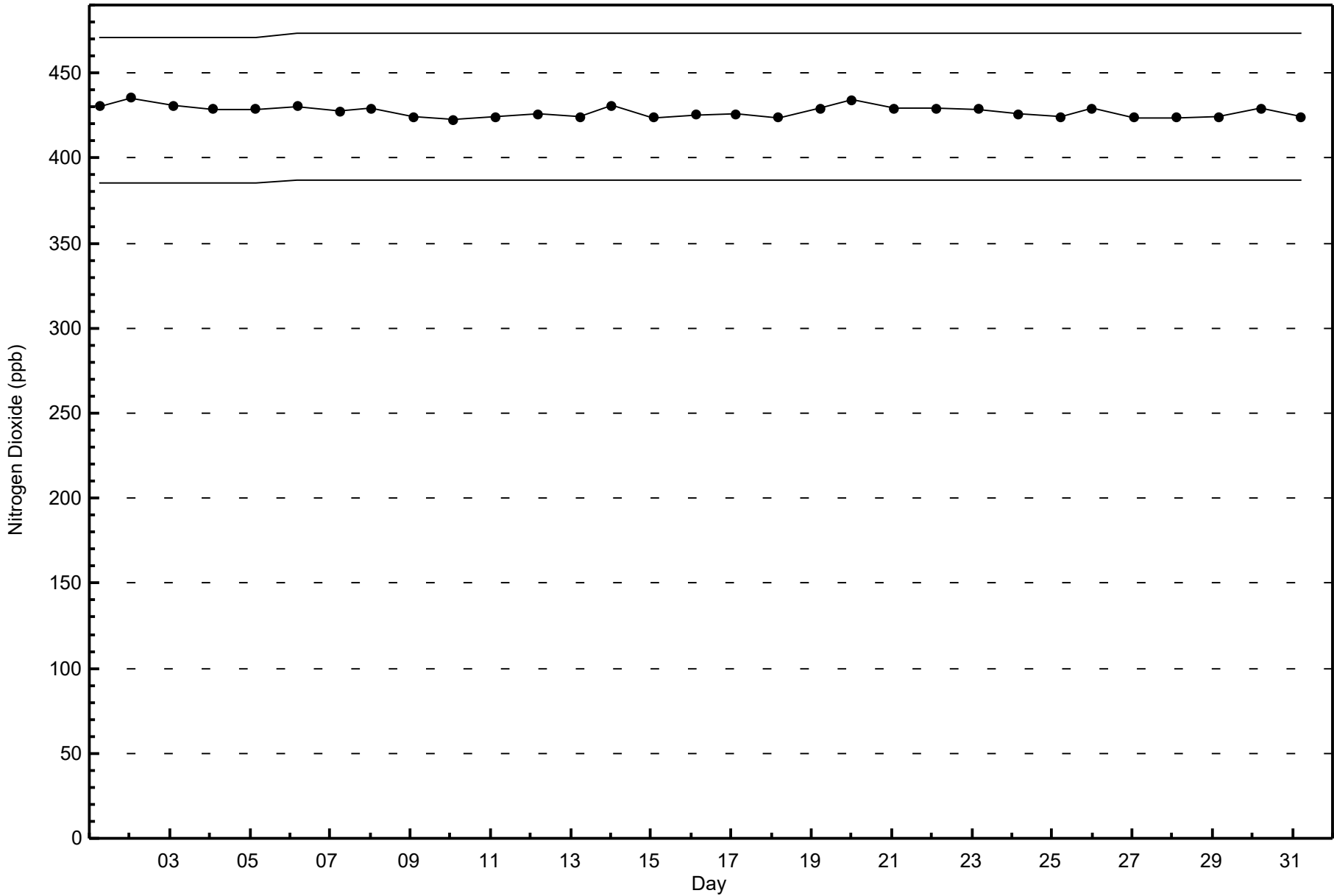
**Nitrogen Dioxide (NO₂) - ppb
Patricia McInnes - March 2024**

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	69	12	8	18	91	82	59	48	28	22	13	12	23	10	84	686
21 - 40	0	0	0	0	0	0	4	8	6	1	1	0	0	0	0	1	21
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
Totals	107	69	12	8	18	91	86	67	54	29	23	13	12	23	10	85	707

Total Number of Valid Hours: 707

Total Number of Hours: 744

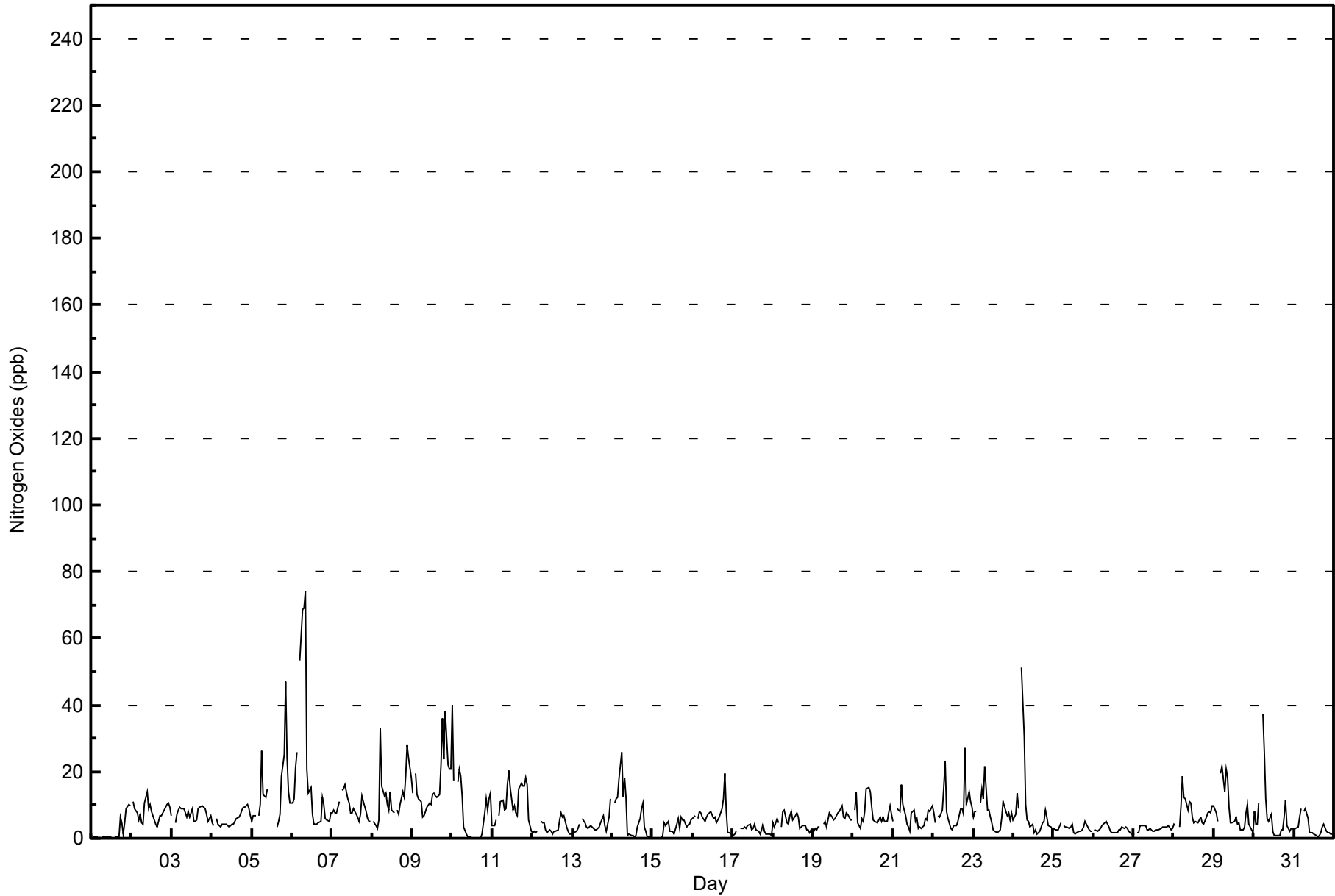






Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Patricia McInnes - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Patricia McInnes - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	674	95.33	95.33
21 - 40	27	3.82	99.15
41 - 80	6	0.85	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_x) - ppb
Patricia McInnes - March 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	69	12	8	18	91	80	55	45	27	21	13	12	23	10	83	674
21 - 40	0	0	0	0	0	0	6	7	8	2	2	0	0	0	0	2	27
11 - 80	0	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	6
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
Totals	107	69	12	8	18	91	86	67	54	29	23	13	12	23	10	85	707

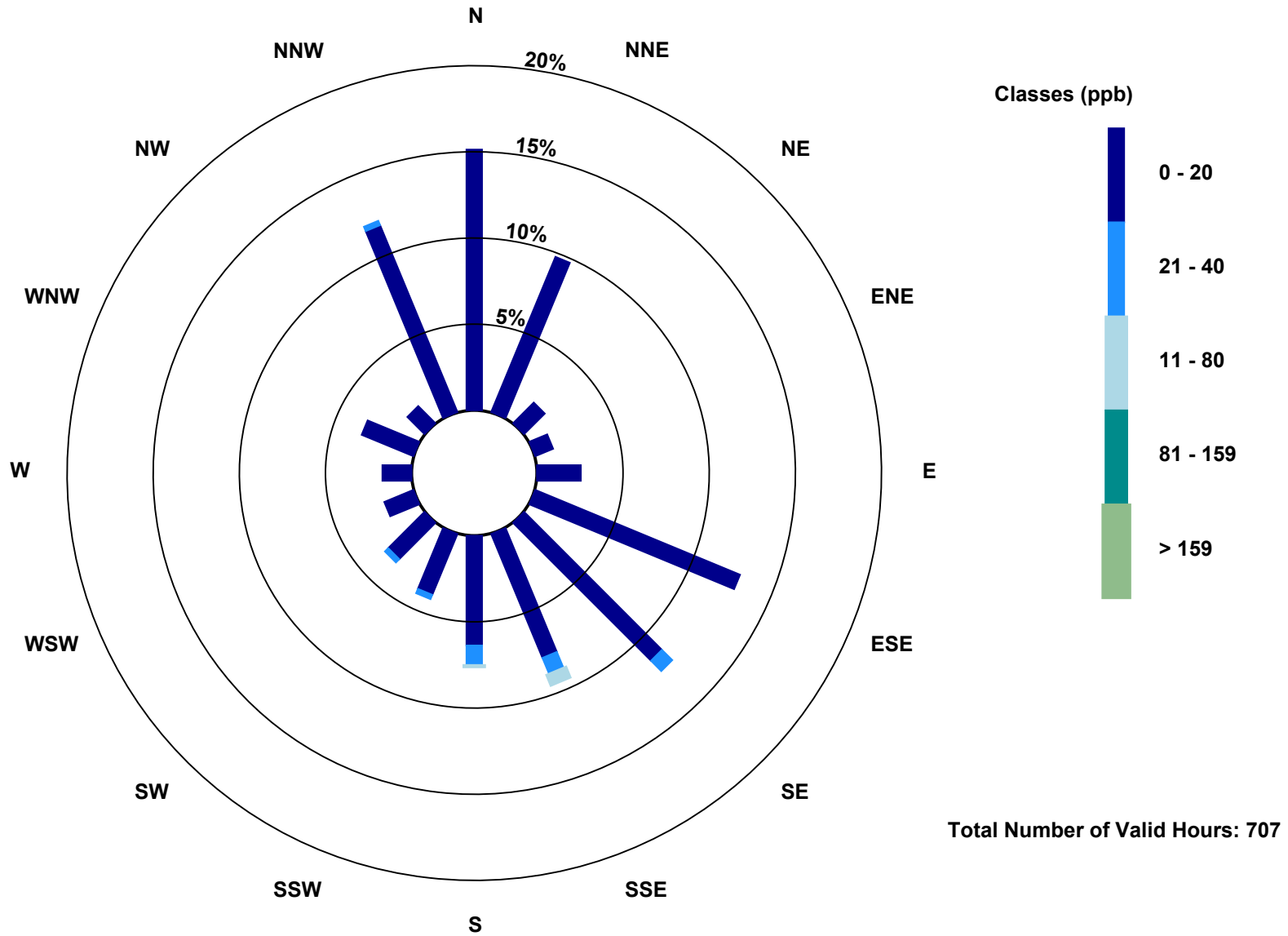
Total Number of Valid Hours: 707

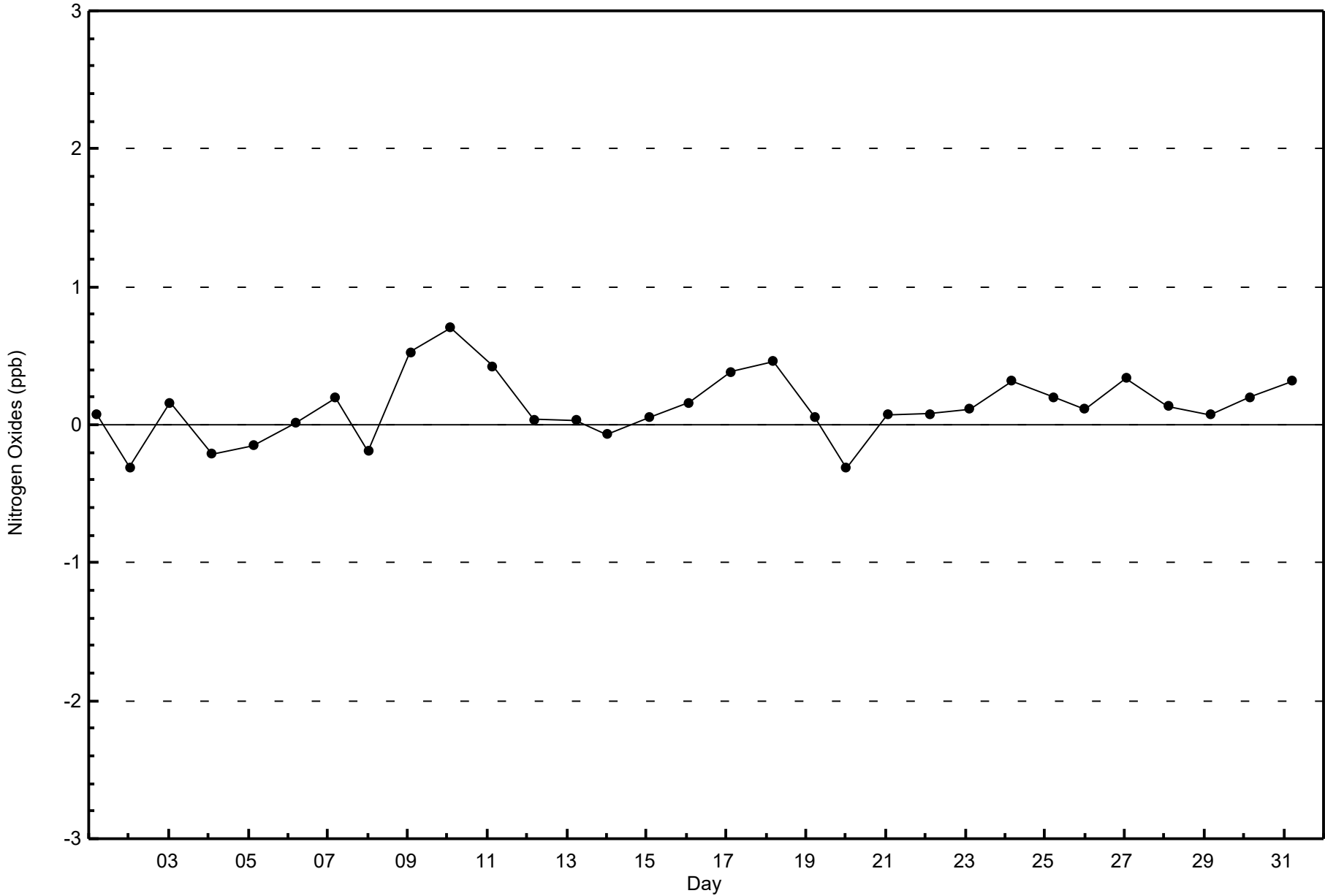
Total Number of Hours: 744

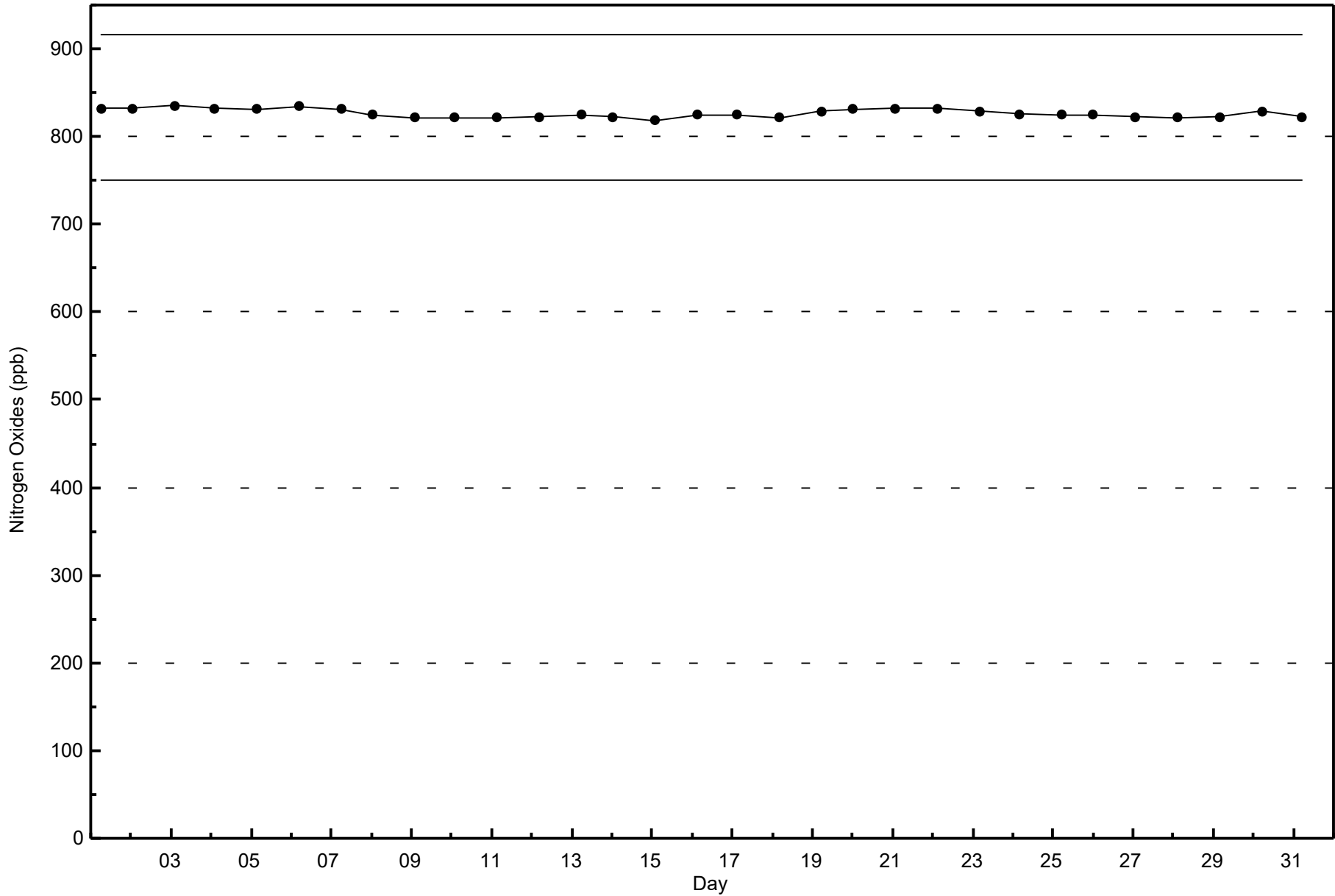


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Patricia McInnes







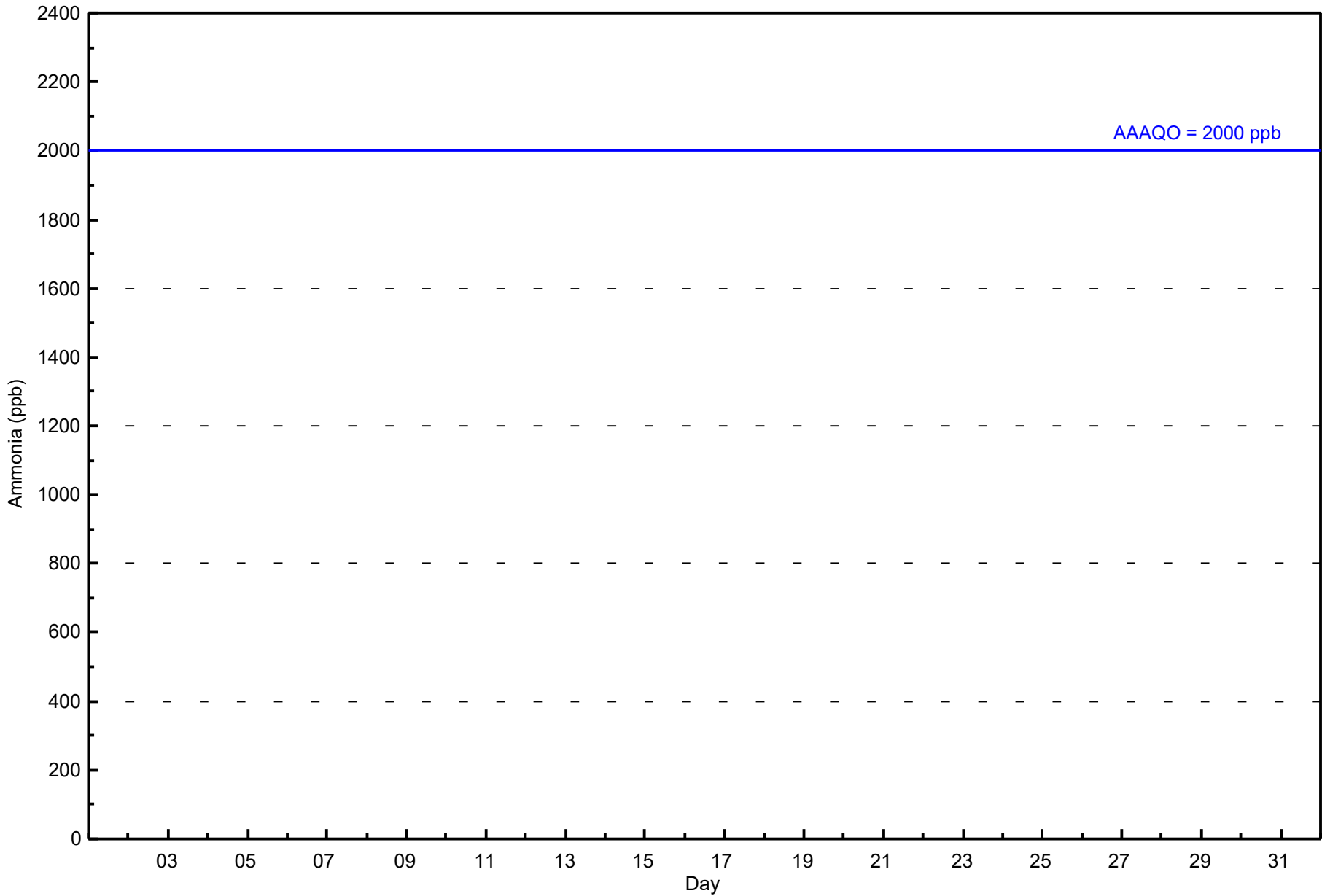


Number of Exceedences (AAAQO): 1-hr: 0		Hours in Service: 744																									
Maximum Value: 0.0 ppb on Mar 1 01:00		Maximum Daily Average: 0.0 ppb on Mar 1																									
Minimum Value: 0.0 ppb on Mar 1 01:00		Hours of Data: 672																									
Maximum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 72																									
Monthly Average: 0.00 ppb		Hours of Calibration: 40																									
Minimum Daily Average: 0.0 ppb on Mar 1		Percent Operational Time: 95.7																									
Minimum Diurnal Average: 0.0 ppb at hour 1		Percentages: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	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
2-Mar	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
3-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
7-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8-Mar	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	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
9-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11-Mar	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
12-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Mar	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
15-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Mar	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
21-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Mar	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
24-Mar	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Mar	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
27-Mar	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Mar	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Mar	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Mar	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
31-Mar	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0																								Diurnal Average			
0.0																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance RE - Recovery																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 2000 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Ammonia (NH₃) - ppb
Patricia McInnes - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ammonia (NH₃) - ppb
Patricia McInnes - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 5	672	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: 672

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Ammonia (NH₃) - ppb
Patricia McInnes - March 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	105	67	12	7	18	90	82	63	48	26	21	13	11	22	6	81	672
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
Totals	105	67	12	7	18	90	82	63	48	26	21	13	11	22	6	81	672

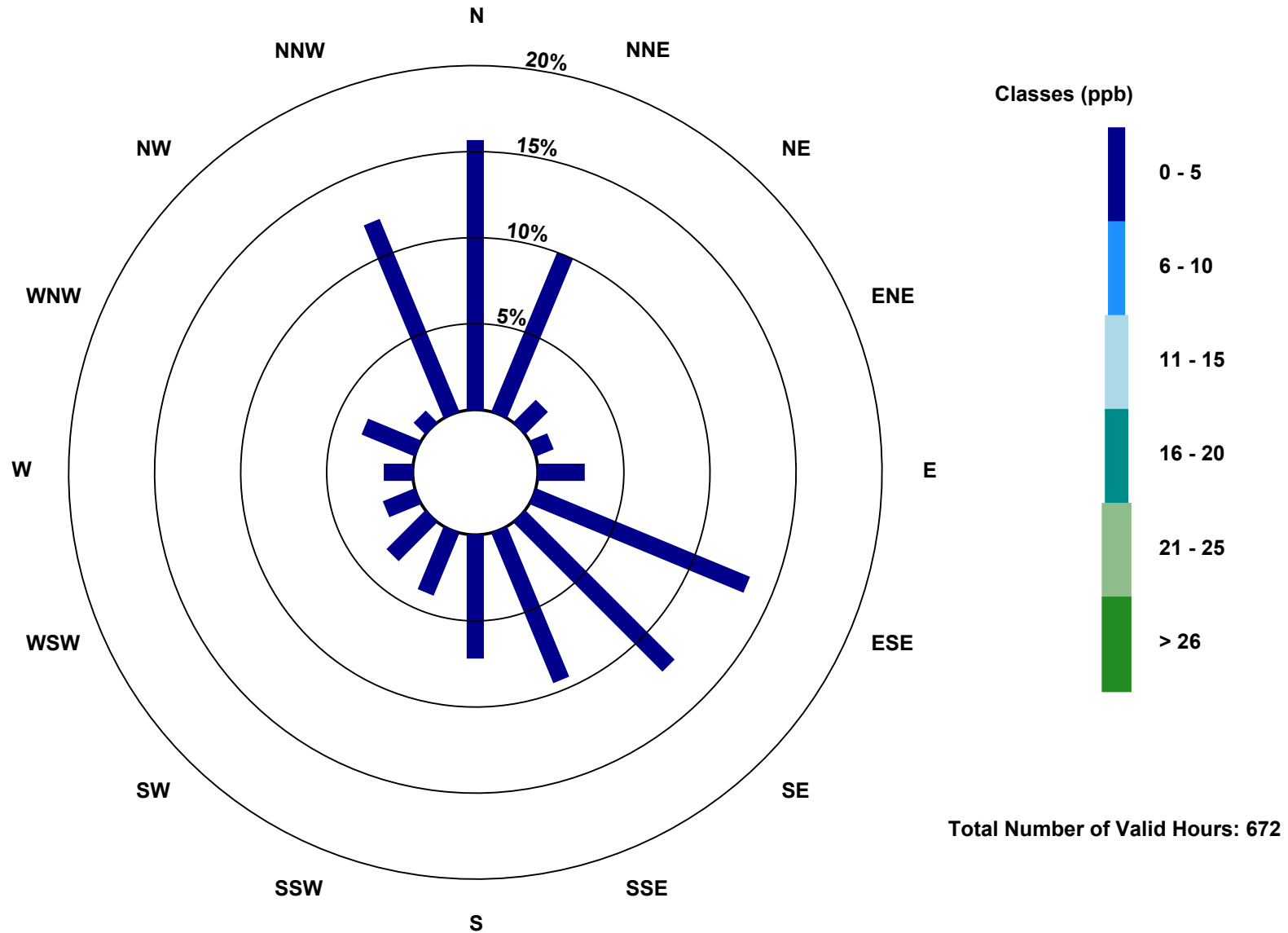
Total Number of Valid Hours: 672

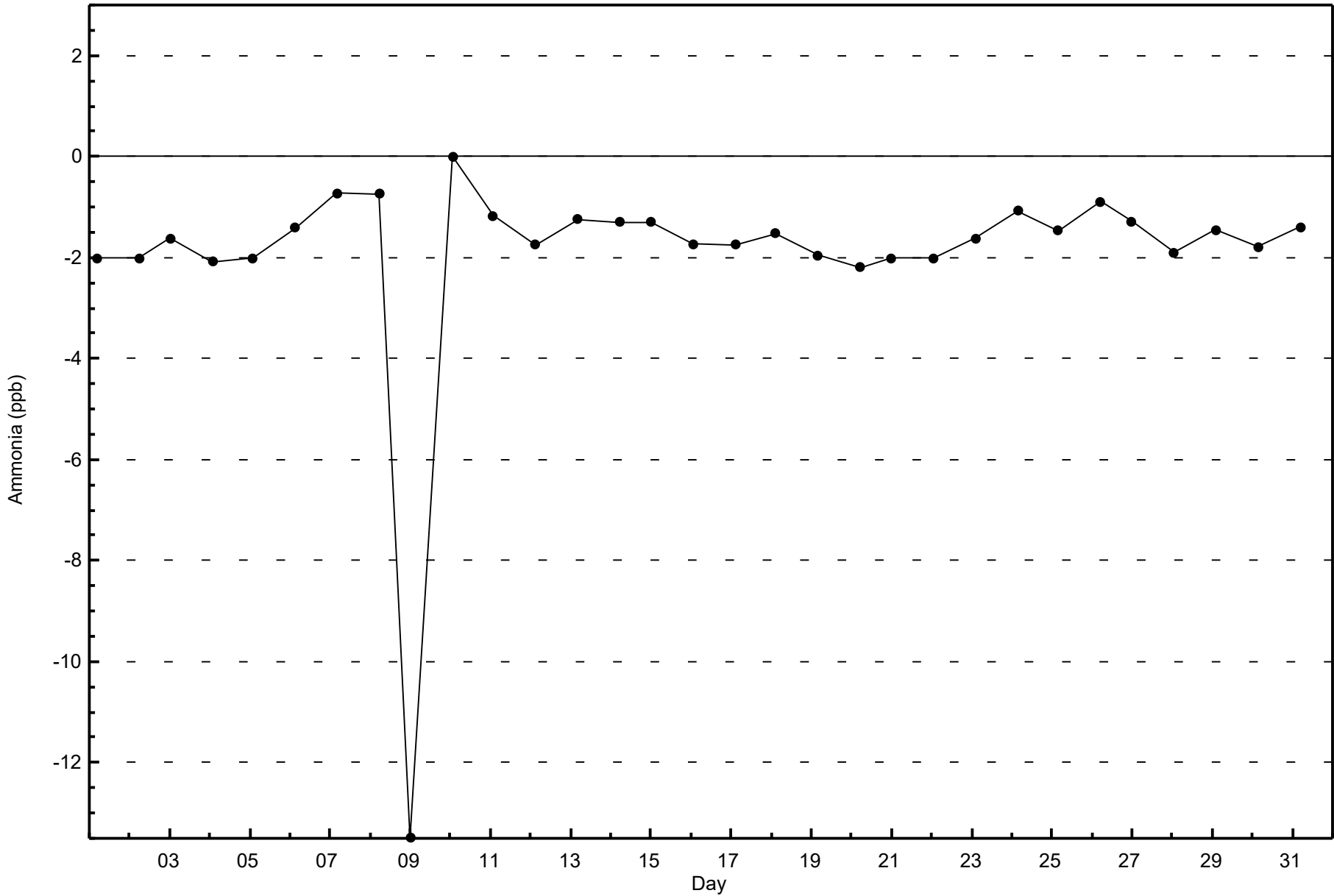
Total Number of Hours: 744

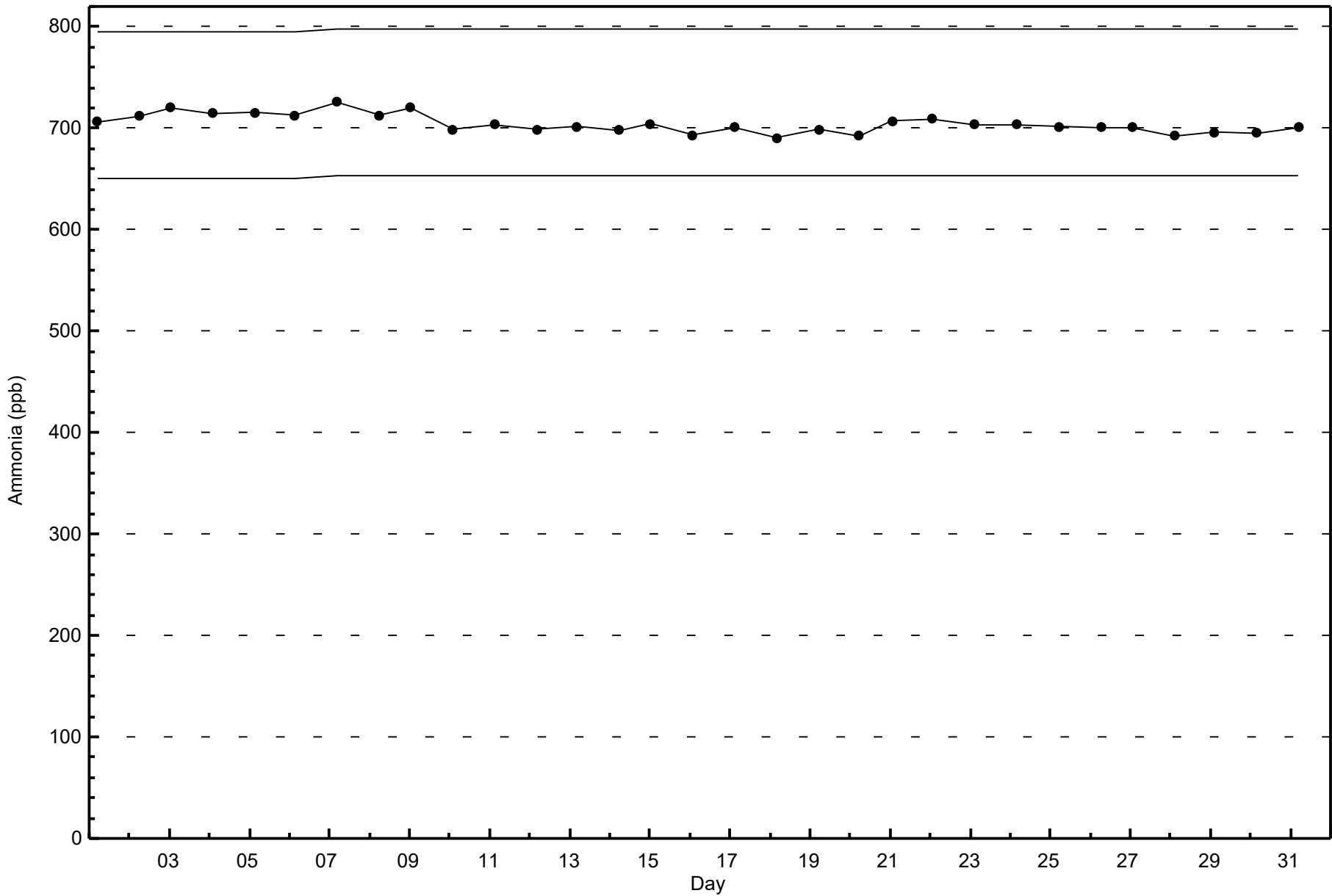


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ammonia (NH₃) - ppb
Patricia McInnes









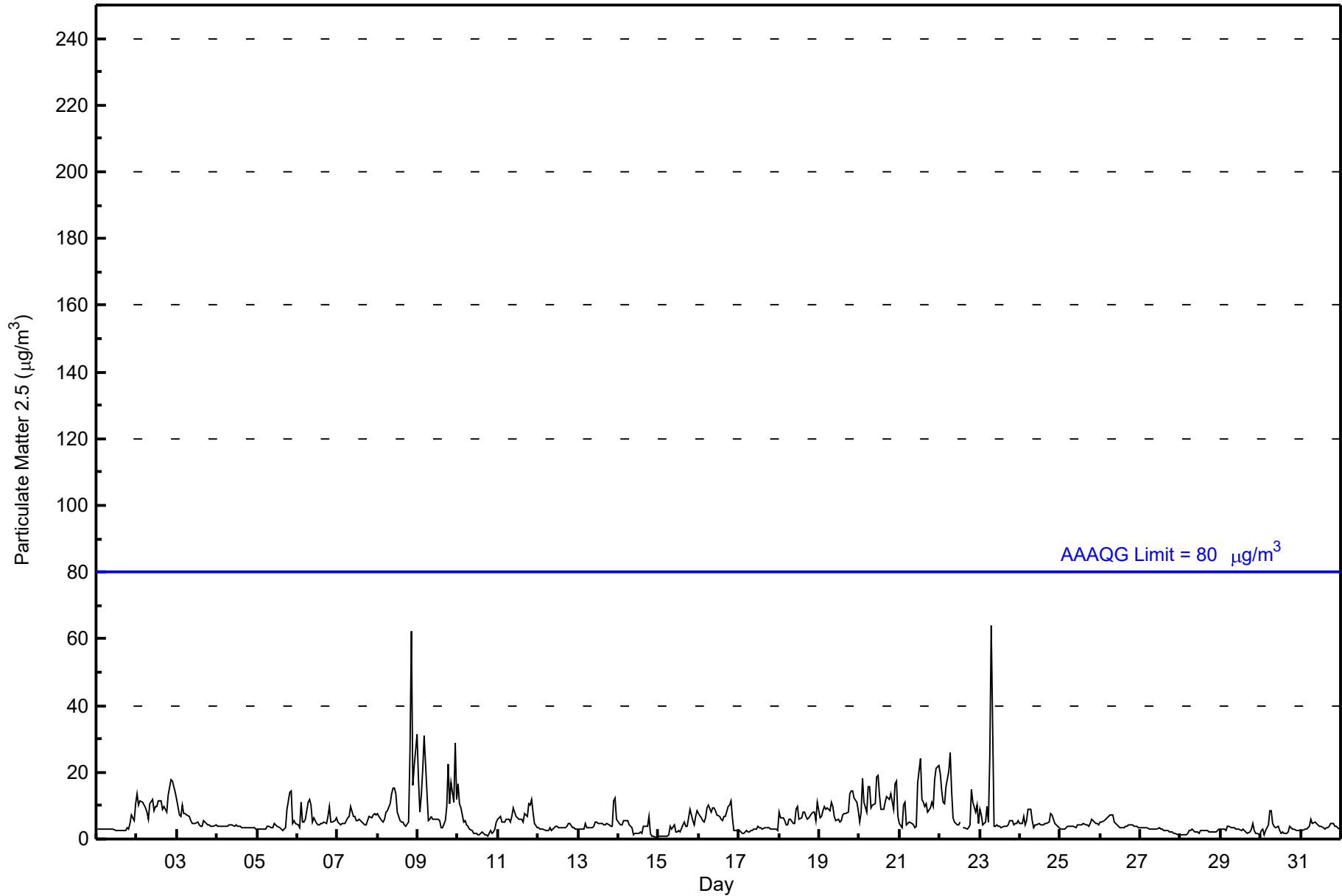
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Patricia McInnes - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																												
Maximum Value: 63.8 µg/m ³ on Mar 23 08:00		Maximum Daily Average: 13.0 µg/m ³ on Mar 8		Hours of Data:														743																														
Minimum Value: 0.6 µg/m ³ on Mar 14 23:00		Minimum Daily Average: 2.2 µg/m ³ on Mar 28		Hours of Missing Data:														1																														
Maximum Diurnal Average: 8.2 µg/m ³ at hour 21		Minimum Diurnal Average: 4.5 µg/m ³ at hour 15		Hours of Calibration:														1																														
Monthly Average: 5.96 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 2.4 Q ₁ = 3.2 Median = 4.4 Q ₃ = 6.9 P ₉₀ = 10.9 P ₉₉ = 24.7		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-Mar	3.0	2.9	2.8	2.9	3.1	3.0	3.0	2.9	2.8	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.7	3.3	3.1	4.6	7.0	5.4	10.6	3.5	10.6																						
2-Mar	13.4	10.2	11.4	11.0	10.0	9.3	8.0	6.0	10.4	11.7	8.5	9.7	9.9	11.4	11.3	9.0	9.8	8.8	8.2	13.2	17.7	17.3	15.5	13.9	11.1	17.7																						
3-Mar	12.0	7.2	6.8	10.3	7.8	7.8	7.2	6.8	5.7	4.7	4.6	4.7	5.0	4.2	4.0	3.9	5.3	5.3	4.2	4.1	3.8	3.8	3.9	4.1	5.7	12.0																						
4-Mar	4.0	3.9	3.8	3.9	3.7	3.8	3.7	4.2	4.1	4.2	3.8	4.2	3.8	3.7	3.8	3.6	3.4	3.5	3.3	3.6	3.5	3.4	3.2	3.1	3.7	4.2																						
5-Mar	3.1	3.2	3.0	2.8	2.8	3.0	3.9	4.0	3.5	3.4	4.8	4.3	3.6	3.2	3.1	2.6	2.9	3.4	8.8	13.8	14.3	4.6	5.6	4.7	4.7	14.3																						
6-Mar	4.4	3.4	10.9	5.1	5.3	5.9	11.1	12.0	10.2	4.9	6.5	4.8	4.1	4.3	4.8	4.9	4.9	4.8	6.7	9.7	4.9	5.2	5.5	6.5	6.3	12.0																						
7-Mar	5.3	4.8	4.1	4.5	4.8	5.3	6.4	6.8	9.9	6.9	6.8	5.6	5.4	6.1	5.5	4.7	4.1	4.3	5.6	6.8	6.2	7.1	7.6	7.4	5.9	9.9																						
8-Mar	7.7	6.8	5.4	4.9	5.9	8.1	8.4	10.6	13.7	15.1	15.2	13.6	8.3	5.7	5.0	4.9	4.3	4.0	4.9	26.3	62.5	16.1	22.2	31.3	13.0	62.5																						
9-Mar	17.8	7.9	13.0	20.6	31.0	14.0	5.5	6.1	6.9	6.1	6.1	6.1	6.0	5.3	3.5	3.3	5.6	9.8	22.3	10.5	17.1	10.8	28.9	11.7	11.5	31.0																						
10-Mar	16.6	10.5	9.5	5.3	5.3	4.0	3.9	2.9	2.4	1.8	1.6	1.6	1.3	1.4	2.2	1.8	1.5	1.2	1.0	2.4	1.8	2.3	3.2	5.3	3.8	16.6																						
11-Mar	6.0	6.6	5.2	4.9	5.1	5.8	5.8	4.9	6.9	9.3	7.8	6.7	5.9	6.1	5.8	5.1	7.7	6.7	10.7	10.2	11.9	8.1	4.5	3.3	6.7	11.9																						
12-Mar	3.5	2.9	2.9	2.8	2.7	2.7	2.6	3.2	2.7	3.0	3.9	3.9	3.4	3.3	3.4	3.5	3.6	3.9	4.6	4.7	3.3	3.3	3.2	3.1	3.3	4.7																						
13-Mar	2.9	3.0	2.9	3.1	4.8	3.3	3.4	3.2	3.3	4.0	4.9	5.2	4.6	4.7	4.5	4.1	4.1	4.5	4.1	3.8	3.9	11.7	12.2	5.8	4.7	12.2																						
14-Mar	4.8	4.2	4.4	5.4	5.5	5.3	4.2	3.8	3.6	1.4	1.5	1.8	1.7	1.9	1.6	3.8	3.7	3.9	6.9	1.8	0.9	0.7	0.6	0.7	3.1	6.9																						
15-Mar	0.8	0.9	0.8	0.7	0.7	0.7	1.2	4.0	2.9	4.2	2.2	2.2	2.4	2.1	4.1	5.2	3.6	3.6	6.5	9.1	5.4	4.4	6.7	8.5	3.5	9.1																						
16-Mar	7.5	6.5	5.7	4.9	6.5	9.4	10.0	8.1	9.4	9.3	8.6	7.3	6.9	6.1	5.6	6.8	6.9	9.9	10.1	11.6	6.6	2.5	2.5	2.3	7.1	11.6																						
17-Mar	2.5	2.1	1.6	1.8	2.3	2.1	2.2	2.5	2.5	2.9	2.9	3.9	3.5	3.5	3.1	3.6	3.2	3.3	3.4	2.9	3.0	3.1	2.9	2.7	2.8	3.9																						
18-Mar	7.9	6.2	6.6	5.4	4.4	4.4	6.0	5.8	4.8	4.8	8.8	9.7	5.8	6.2	8.1	8.0	6.9	6.1	6.5	7.6	7.9	8.0	5.5	10.9	6.8	10.9																						
19-Mar	6.3	6.6	8.5	9.5	9.1	9.3	8.5	11.0	9.6	6.6	5.7	6.0	5.2	5.6	7.2	7.6	7.8	8.2	13.5	14.3	14.3	12.2	11.2	8.5	8.8	14.3																						
20-Mar	5.0	7.8	18.2	10.8	8.2	15.6	15.6	9.5	10.1	10.8	18.5	19.0	13.2	9.0	9.0	11.0	12.9	12.3	11.7	13.5	9.0	16.7	17.3	6.9	12.1	19.0																						
21-Mar	4.5	3.5	10.3	11.1	4.1	4.5	5.0	4.6	4.0	3.6	3.9	16.9	24.0	11.8	10.9	9.8	10.8	8.1	9.4	10.8	9.9	17.8	21.1	22.1	10.1	24.0																						
22-Mar	19.5	14.4	10.9	10.5	15.7	20.4	25.9	14.5	6.3	5.1	4.1	4.1	5.2	C	3.6	3.6	3.0	3.2	4.0	15.0	10.9	8.1	10.1	4.6	9.7	25.9																						
23-Mar	9.0	7.2	4.3	4.9	9.6	5.1	25.1	63.8	3.7	3.9	4.4	4.0	3.8	3.5	3.7	3.7	3.7	4.2	5.7	5.6	4.2	4.7	4.6	5.7	8.3	63.8																						
24-Mar	4.8	4.9	6.6	4.3	5.6	8.8	8.8	5.6	3.6	4.1	4.3	4.6	4.2	4.4	4.1	4.5	4.9	5.2	7.8	7.2	6.1	4.6	3.8	3.4	5.3	8.8																						
25-Mar	3.1	2.9	3.0	3.2	3.7	4.0	3.7	3.8	3.6	3.3	4.2	4.4	4.3	4.3	4.5	4.2	4.3	3.7	4.6	6.0	4.9	4.7	4.7	4.4	4.1	6.0																						
26-Mar	4.9	5.2	5.5	6.1	6.4	6.8	7.3	7.2	5.1	4.7	4.4	3.9	3.5	3.4	3.4	3.7	4.0	4.2	4.2	4.1	3.8	4.0	3.7	3.5	4.7	7.3																						
27-Mar	3.4	3.5	3.5	3.3	3.2	3.1	3.0	2.9	3.0	3.0	3.1	3.2	3.0	2.8	2.7	2.4	2.5	2.2	2.2	2.0	1.9	1.6	1.4	1.4	2.7	3.5																						
28-Mar	1.4	1.4	1.4	1.3	1.8	2.6	2.7	3.1	2.1	2.0	2.0	1.8	2.6	2.4	2.5	2.5	2.6	2.2	1.9	2.0	2.0	2.2	2.5	2.8	2.2	3.1																						
29-Mar	3.0	3.0	2.8	2.7	3.7	3.8	3.2	3.6	3.2	2.8	3.0	2.8	2.4	2.9	2.4	2.1	1.9	2.0	3.0	4.5	2.6	1.8	1.7	1.3	2.8	4.5																						
30-Mar	2.6	2.8	1.5	2.4	4.2	8.4	8.4	4.7	3.7	3.6	3.6	2.7	1.8	2.1	1.8	1.8	2.0	3.8	3.5	2.9	2.9	2.7	2.7	2.7	3.3	8.4																						
31-Mar	2.6	2.7	2.8	3.1	3.5	3.7	6.0	4.7	5.0	4.6	4.1	4.0	3.7	3.2	3.0	3.5	3.6	3.6	4.8	4.7	3.6	3.7	3.3	3.0	3.8	6.0																						
																								6.2	5.1	5.8	5.6	6.2	6.3	7.1	7.6	5.4	5.1	5.4	5.7	5.2	4.6	4.5	4.6	4.8	4.9	6.4	7.7	8.2	6.6	7.3	6.7	Diurnal Average
																								19.5	14.4	18.2	20.6	31.0	20.4	25.9	63.8	13.7	15.1	18.5	19.0	24.0	11.8	11.3	11.0	12.9	12.3	22.3	26.3	62.5	17.8	28.9	31.3	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Patricia McInnes - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	476	64.06	64.06
6 - 15	234	31.49	95.56
16 - 25	26	3.50	99.06
26 - 80	7	0.94	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Patricia McInnes - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	38	20	5	5	20	88	53	45	38	25	18	11	14	21	6	69	476
6 - 15	67	48	5	2	0	10	30	21	20	3	6	2	0	2	3	15	234
16 - 25	6	4	2	0	0	0	3	4	0	1	0	0	0	0	2	4	26
26 - 80	0	0	0	1	0	0	5	1	0	0	0	0	0	0	0	0	7
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	111	72	12	8	20	98	91	71	58	29	24	13	14	23	11	88	743

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

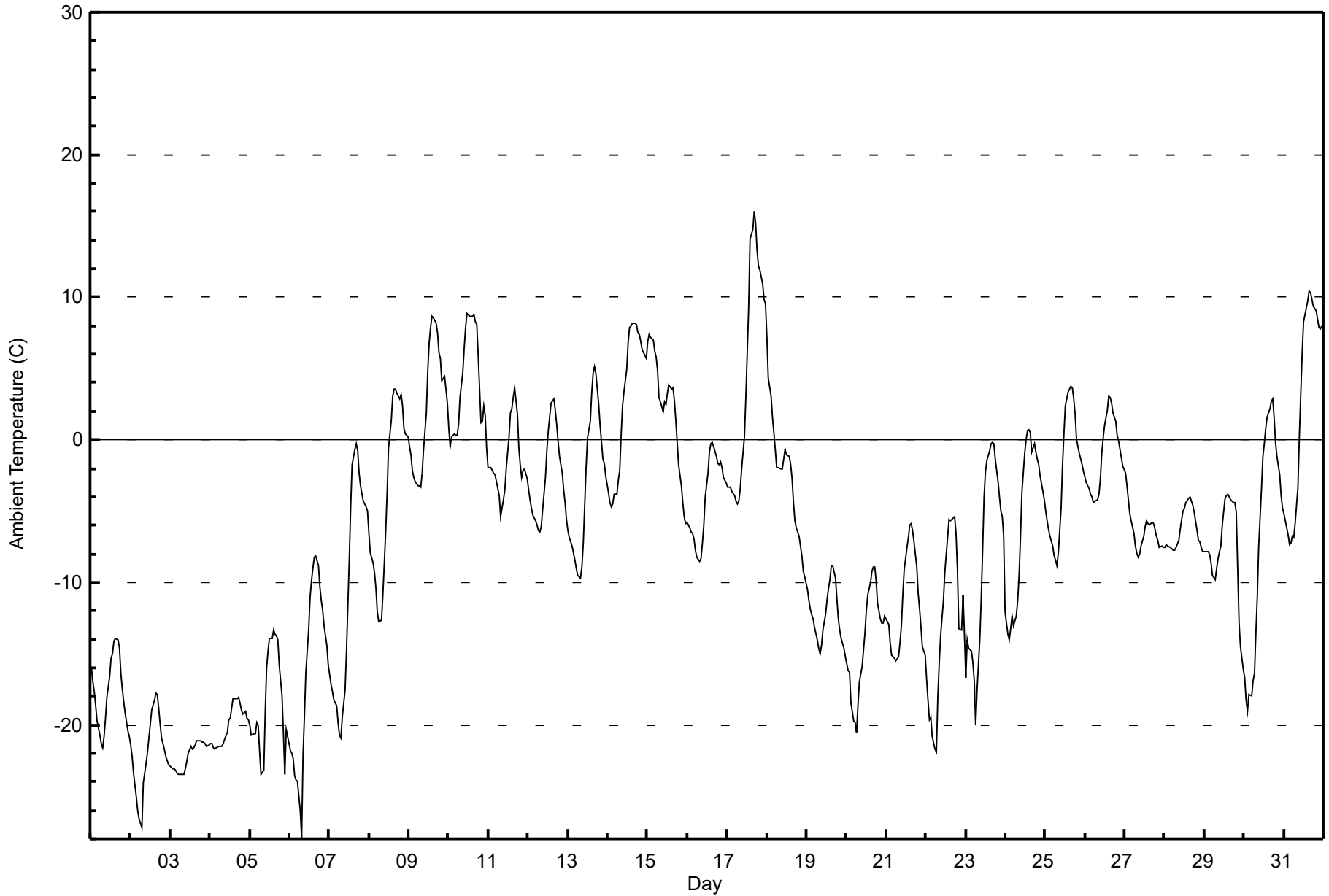
Ambient Temperature (AT) - C
Patricia McInnes - March 2024

Maximum Value: 16.0 C on Mar 17 17:00		Maximum Daily Average: 4.6 C on Mar 17		Hours in Service: 744																						
Minimum Value: -27.9 C on Mar 6 08:00		Minimum Daily Average: -22.2 C on Mar 3		Hours of Data: 744																						
Maximum Diurnal Average: -2.0 C at hour 16		Minimum Diurnal Average: -12.1 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.14 C		Percentiles: P ₁ = -24.0 P ₁₀ = -20.7 Q ₁ = -14.1 Median = -6.1 Q ₃ = -0.7 P ₉₀ = 3.7 P ₉₉ = 10.7		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-Mar	-16.0	-16.9	-17.7	-18.6	-19.8	-20.7	-21.3	-21.6	-20.8	-19.6	-18.1	-16.6	-15.4	-15.0	-14.2	-13.9	-14.0	-14.6	-16.4	-17.5	-18.4	-19.2	-20.4	-20.8	-17.8	-13.9
2-Mar	-21.4	-22.2	-23.4	-25.0	-26.1	-26.6	-26.9	-27.2	-24.0	-22.7	-22.0	-20.9	-20.0	-19.0	-18.2	-17.7	-17.9	-18.9	-19.9	-21.0	-21.7	-22.2	-22.5	-22.8	-22.1	-17.7
3-Mar	-22.9	-23.1	-23.1	-23.2	-23.4	-23.5	-23.5	-23.5	-23.5	-23.1	-22.6	-22.0	-21.6	-21.7	-21.6	-21.4	-21.2	-21.1	-21.2	-21.2	-21.2	-21.3	-21.5	-21.4	-22.2	-21.1
4-Mar	-21.3	-21.3	-21.6	-21.7	-21.6	-21.5	-21.5	-21.3	-21.3	-21.1	-20.5	-19.6	-19.5	-18.8	-18.2	-18.1	-18.1	-18.1	-18.4	-19.0	-19.2	-19.0	-19.6	-19.6	-20.0	-18.1
5-Mar	-20.1	-20.7	-20.6	-20.7	-19.9	-20.0	-21.9	-23.5	-23.2	-21.1	-16.0	-14.8	-13.9	-14.0	-13.4	-13.6	-13.8	-14.1	-15.8	-18.0	-20.7	-23.5	-20.3	-20.8	-18.4	-13.4
6-Mar	-21.8	-22.0	-22.4	-23.6	-23.9	-23.9	-26.0	-27.9	-22.1	-19.4	-16.3	-13.4	-11.1	-10.0	-9.0	-8.2	-8.1	-8.8	-10.3	-11.2	-12.0	-13.1	-14.4	-15.8	-16.4	-8.1
7-Mar	-16.5	-17.2	-17.7	-18.3	-18.7	-19.8	-20.7	-21.0	-19.4	-17.6	-14.8	-11.6	-8.3	-4.7	-1.8	-0.7	-0.3	-0.7	-2.4	-3.2	-4.3	-4.5	-4.7	-5.0	-10.6	-0.3
8-Mar	-6.6	-7.9	-8.7	-9.3	-10.4	-12.1	-12.8	-12.7	-10.8	-8.6	-6.4	-3.7	-0.6	1.4	3.1	3.6	3.6	3.3	2.9	3.1	2.3	0.8	0.4	0.2	-3.6	3.6
9-Mar	-0.5	-1.0	-2.1	-2.7	-2.9	-3.2	-3.3	-3.3	-2.4	-0.7	1.9	4.8	6.8	7.9	8.6	8.5	8.2	7.5	6.1	5.8	4.1	4.4	3.6	2.6	2.4	8.6
10-Mar	0.8	-0.5	0.2	0.4	0.3	0.3	1.1	2.9	4.8	6.4	7.9	8.8	8.8	8.7	8.7	8.8	8.2	8.0	5.9	1.2	1.3	2.4	1.7	-0.5	4.0	8.8
11-Mar	-1.9	-2.0	-2.2	-2.4	-2.4	-2.9	-3.9	-5.4	-4.8	-4.2	-3.5	-2.0	0.2	1.9	2.2	3.0	3.6	1.8	-0.5	-1.8	-2.7	-2.2	-2.1	-2.7	-1.5	3.6
12-Mar	-3.5	-4.2	-4.8	-5.3	-5.7	-6.0	-6.4	-6.5	-6.0	-4.9	-2.6	-0.8	0.6	1.6	2.5	2.9	2.1	1.1	-0.1	-1.2	-2.3	-3.5	-4.4	-5.6	-2.6	2.9
13-Mar	-6.4	-6.9	-7.4	-7.9	-8.4	-9.0	-9.5	-9.7	-9.0	-7.3	-4.6	-2.0	0.1	1.3	3.3	4.6	5.1	4.6	2.5	1.0	-0.2	-1.4	-1.7	-2.5	-3.0	5.1
14-Mar	-3.7	-4.4	-4.7	-4.5	-3.9	-3.8	-2.8	-2.1	0.3	2.3	3.4	5.0	6.8	7.9	8.0	8.2	8.2	8.1	7.5	7.4	6.9	6.4	6.0	5.7	2.8	8.2
15-Mar	6.9	7.4	7.2	7.0	6.2	5.9	4.9	3.0	2.7	2.0	2.6	2.5	3.2	3.9	3.5	3.7	2.8	1.4	-0.2	-1.8	-3.2	-4.4	-5.4	-5.9	2.3	7.4
16-Mar	-5.8	-6.2	-6.5	-6.6	-7.0	-7.7	-8.2	-8.6	-8.4	-7.3	-6.0	-4.0	-2.4	-0.9	-0.3	-0.1	-0.4	-1.1	-1.7	-1.7	-1.6	-2.0	-2.6	-3.0	-4.2	-0.1
17-Mar	-3.3	-3.4	-3.3	-3.6	-4.0	-4.3	-4.5	-4.3	-3.4	-2.0	0.2	3.0	6.1	9.3	14.0	14.7	16.0	15.2	13.3	12.2	11.9	10.9	9.9	9.6	4.6	16.0
18-Mar	7.3	4.4	3.0	1.6	0.5	-0.7	-1.9	-2.0	-2.0	-2.1	-1.4	-0.6	-1.0	-1.1	-1.8	-2.7	-4.4	-5.7	-6.2	-6.7	-7.4	-8.1	-9.3	-9.6	-2.4	7.3
19-Mar	-10.5	-11.3	-11.9	-12.2	-12.6	-13.1	-14.0	-14.6	-15.0	-14.4	-13.3	-12.1	-11.2	-10.4	-9.8	-8.8	-8.9	-9.7	-11.2	-12.6	-13.3	-13.9	-14.7	-15.2	-12.3	-8.8
20-Mar	-15.8	-16.2	-16.3	-18.5	-19.7	-19.8	-20.5	-18.7	-17.0	-15.9	-14.8	-13.6	-12.0	-10.9	-10.0	-9.3	-8.9	-8.9	-9.9	-11.5	-12.6	-12.8	-12.8	-12.4	-14.1	-8.9
21-Mar	-12.6	-13.0	-14.2	-15.1	-15.2	-15.4	-15.5	-15.2	-14.3	-13.0	-10.9	-9.1	-7.5	-6.9	-6.0	-5.9	-6.4	-7.2	-8.9	-10.8	-11.9	-13.1	-14.5	-15.1	-11.6	-5.9
22-Mar	-16.8	-18.3	-19.6	-19.4	-20.8	-21.7	-21.9	-18.1	-15.7	-13.7	-11.3	-9.4	-8.0	-6.8	-5.6	-5.6	-5.5	-5.3	-6.5	-9.1	-13.3	-13.4	-10.9	-13.6	-12.9	-5.3
23-Mar	-16.7	-14.0	-14.6	-14.8	-15.6	-16.9	-20.0	-17.6	-13.9	-11.1	-7.6	-4.1	-2.2	-1.4	-0.8	-0.2	-0.2	-0.2	-1.3	-2.9	-4.0	-5.0	-5.4	-6.8	-8.2	-0.2
24-Mar	-12.1	-13.7	-14.0	-13.2	-12.4	-13.0	-12.4	-11.3	-9.5	-6.8	-3.8	-0.9	0.0	0.6	0.7	0.5	-0.8	-0.3	-0.8	-1.3	-1.8	-2.6	-3.6	-4.2	-5.7	0.7
25-Mar	-5.0	-5.6	-6.3	-6.7	-7.4	-8.2	-8.4	-8.9	-7.9	-4.8	-1.8	0.4	2.4	2.8	3.3	3.8	3.7	2.9	1.7	0.1	-1.0	-1.4	-1.8	-2.2	-2.3	3.8
26-Mar	-2.7	-3.1	-3.4	-3.8	-4.0	-4.4	-4.3	-4.2	-3.8	-2.7	-0.9	0.1	1.0	2.1	3.1	3.0	2.6	1.9	1.3	0.3	-0.1	-0.6	-1.3	-1.9	-1.1	3.1
27-Mar	-2.4	-3.3	-4.2	-5.2	-5.7	-6.6	-7.5	-8.0	-8.3	-8.0	-7.4	-6.8	-6.1	-5.7	-5.9	-6.0	-5.8	-5.8	-6.2	-6.7	-7.1	-7.6	-7.4	-7.5	-6.3	-2.4
28-Mar	-7.5	-7.4	-7.4	-7.5	-7.6	-7.7	-7.8	-7.5	-7.0	-6.3	-5.6	-5.0	-4.8	-4.5	-4.1	-4.1	-4.3	-4.6	-5.1	-6.3	-7.0	-7.2	-7.5	-7.9	-6.3	-4.1
29-Mar	-7.9	-7.8	-7.8	-8.1	-8.7	-9.6	-9.9	-9.1	-8.4	-7.9	-7.4	-5.9	-4.1	-3.9	-3.8	-4.0	-4.2	-4.4	-4.4	-5.1	-9.0	-12.9	-14.6	-16.1	-7.7	-3.8
30-Mar	-16.7	-18.3	-19.0	-17.8	-18.0	-16.9	-16.4	-13.5	-11.0	-7.5	-3.4	-1.2	-0.3	0.8	1.6	2.2	2.7	2.8	1.6	-0.2	-1.2	-2.5	-3.9	-4.8	-6.7	2.8
31-Mar	-5.2	-5.7	-6.7	-7.4	-7.3	-6.8	-6.9	-5.9	-3.3	0.3	3.1	6.1	8.3	9.2	9.8	10.4	10.3	9.9	9.4	9.0	8.5	7.9	7.8	8.0	2.6	10.4
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Patricia McInnes - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	85	11.42	11.42
-20 - 0	497	66.80	78.23
0 - 10	152	20.43	98.66
10 - 20	10	1.34	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

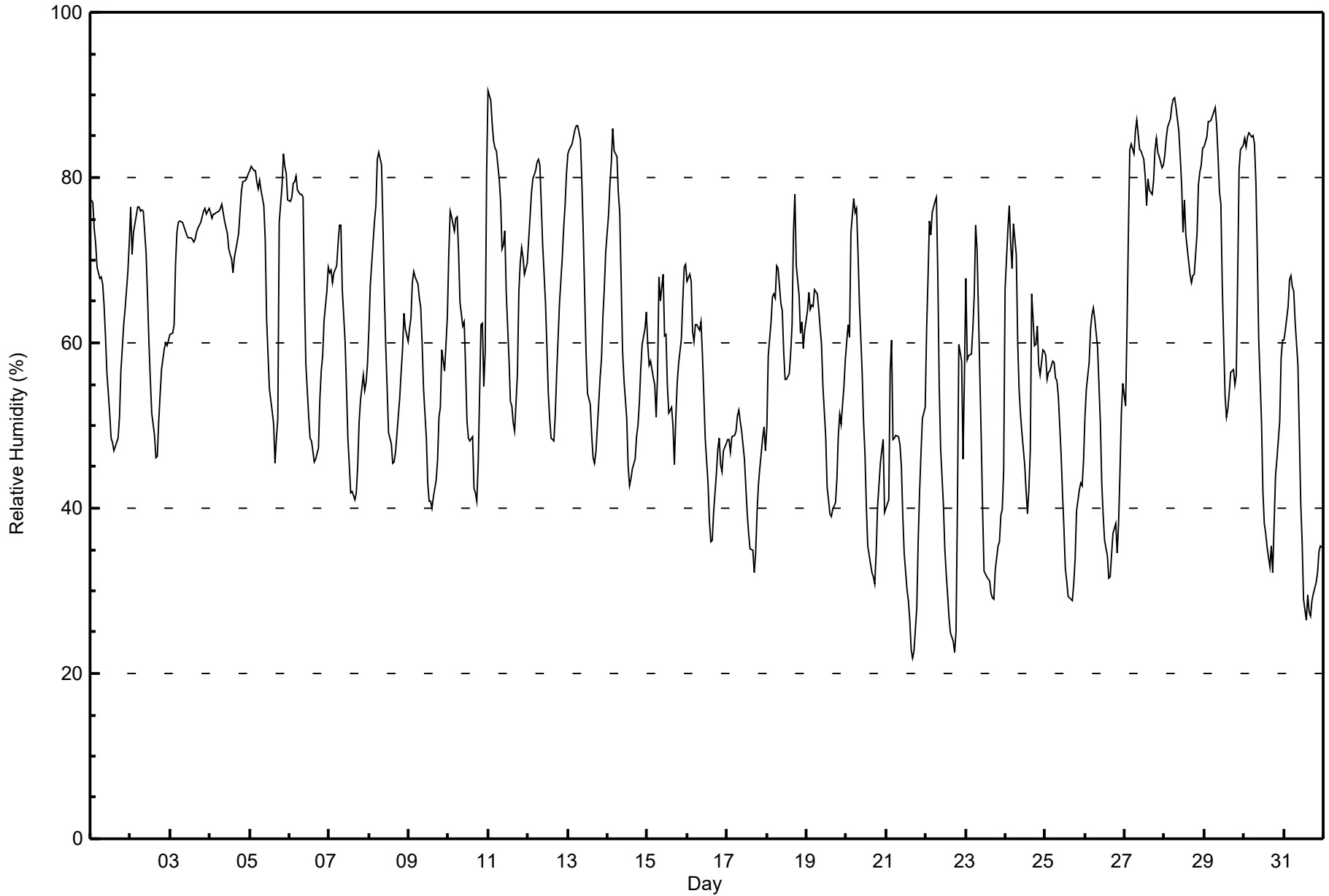
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity (RH) - %
Patricia McInnes - March 2024

Maximum Value: 90.5 % on Mar 11 01:00																						Maximum Daily Average: 79.7 % on Mar 27																						Hours in Service: 744			
Minimum Value: 21.9 % on Mar 21 17:00																						Minimum Daily Average: 40.3 % on Mar 21																						Hours of Data: 744			
Maximum Diurnal Average: 72.8 % at hour 7																						Minimum Diurnal Average: 44.8 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 59.82 %																						Percentiles: P ₁ = 26.4 P ₁₀ = 38.1 Q ₁ = 48.3 Median = 60.0 Q ₃ = 73.4 P ₉₀ = 80.9 P ₉₉ = 87.3																						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-Mar	77.3	76.9	73.7	72.0	69.2	67.8	67.9	67.1	64.7	60.9	56.4	51.6	48.5	47.9	47.0	47.5	48.5	50.9	56.6	59.4	62.2	64.0	68.6	72.1	61.6	77.3																					
2-Mar	76.4	70.7	73.3	75.4	76.4	76.5	76.0	76.0	75.9	70.8	65.8	60.2	55.6	51.5	48.8	46.1	46.3	50.4	53.7	56.7	59.3	60.0	59.6	60.4	63.4	76.5																					
3-Mar	61.0	61.3	62.2	69.6	73.3	74.6	74.7	74.5	74.0	73.6	73.1	72.7	72.7	72.6	72.2	72.6	73.3	74.0	74.6	75.3	76.0	76.2	75.5	76.3	72.3	76.3																					
4-Mar	75.7	75.2	75.6	75.6	75.8	76.0	76.3	76.8	75.7	74.7	73.2	71.3	70.7	70.1	68.4	70.3	72.3	73.2	75.8	78.3	79.5	79.7	80.0	80.4	75.0	80.4																					
5-Mar	80.9	81.3	80.9	80.9	79.5	78.6	79.7	78.4	76.6	72.6	62.9	58.6	54.4	51.7	50.2	45.4	48.5	50.8	74.7	78.9	82.9	81.3	80.5	77.2	70.3	82.9																					
6-Mar	77.2	77.7	79.3	79.5	80.2	78.5	77.9	77.9	77.7	66.3	57.5	51.2	48.4	48.1	46.9	45.7	45.9	47.3	53.2	56.7	58.5	62.7	66.2	69.1	63.7	80.2																					
7-Mar	68.5	68.8	67.2	68.5	69.3	72.1	74.2	74.2	66.4	60.2	54.6	48.5	45.3	41.9	42.1	41.1	41.8	45.0	50.4	53.1	56.2	54.3	55.3	57.4	57.3	74.2																					
8-Mar	61.7	67.0	72.3	74.7	76.6	82.2	83.0	81.5	74.6	66.1	59.7	54.6	49.1	47.7	45.3	45.6	46.8	48.9	53.4	56.5	59.2	63.6	61.8	60.2	62.2	83.0																					
9-Mar	61.7	63.1	67.4	68.6	68.0	67.0	65.5	64.2	59.9	54.3	48.5	43.0	40.9	40.9	40.0	41.3	43.3	45.7	51.0	52.2	59.1	56.6	59.9	63.3	55.2	68.6																					
10-Mar	70.7	75.8	75.3	73.6	75.1	75.3	71.0	64.9	62.0	62.5	57.0	50.6	48.5	48.1	48.7	42.3	41.9	40.9	45.4	62.3	62.4	54.7	59.0	80.5	60.4	80.5																					
11-Mar	90.5	89.4	86.4	84.5	83.6	83.2	79.9	77.2	71.4	71.9	73.5	66.2	57.9	52.9	52.4	50.4	49.3	56.3	66.1	69.7	71.5	70.3	68.4	69.6	70.5	90.5																					
12-Mar	72.3	75.2	78.1	79.8	80.9	81.9	82.2	81.5	76.8	71.8	64.9	59.6	54.1	50.8	48.5	48.2	51.4	56.3	60.4	64.7	70.3	73.9	76.7	80.5	68.4	82.2																					
13-Mar	82.9	83.4	84.1	84.9	85.7	86.2	86.2	84.5	79.3	73.1	65.8	58.6	53.8	52.6	48.8	46.1	45.5	46.7	52.8	55.8	58.2	63.2	66.6	71.1	67.3	86.2																					
14-Mar	75.5	79.1	81.9	85.9	83.2	82.6	78.1	75.8	67.5	59.1	55.7	50.8	45.1	42.8	43.6	44.7	45.9	48.6	50.0	52.7	56.7	59.8	61.8	63.7	62.1	85.9																					
15-Mar	59.9	57.4	57.8	55.7	54.9	51.0	56.1	68.0	65.1	68.3	60.9	61.1	54.9	51.6	52.2	50.0	45.3	50.9	55.1	57.5	60.5	65.0	69.1	69.5	58.2	69.5																					
16-Mar	67.4	68.3	67.5	61.3	60.1	62.2	61.6	62.5	58.6	53.7	48.5	43.1	38.5	36.0	36.1	39.6	44.2	47.1	48.4	45.3	44.4	46.9	47.8	52.1	68.3																						
17-Mar	48.2	48.4	46.8	48.7	48.9	49.3	51.2	51.9	50.5	49.3	46.0	42.5	39.3	36.9	35.0	34.8	32.3	34.6	39.6	42.9	44.9	48.5	49.9	47.0	44.5	51.9																					
18-Mar	49.8	58.5	62.6	65.6	66.0	65.4	69.3	69.1	64.7	63.8	59.0	55.7	55.5	56.3	58.9	62.2	73.4	77.9	69.4	65.8	61.2	62.6	59.3	61.6	63.1	77.9																					
19-Mar	63.9	66.0	64.1	64.5	64.5	66.4	66.0	64.1	61.9	59.9	54.7	48.7	42.5	41.1	39.4	39.0	39.7	40.6	43.6	48.8	51.4	50.2	54.8	58.0	53.9	66.4																					
20-Mar	60.2	62.3	60.6	73.4	77.5	75.8	76.3	71.2	65.1	56.4	50.5	46.7	40.2	35.5	33.2	32.2	31.7	30.8	34.6	40.1	45.5	47.0	48.3	39.4	51.4	77.5																					
21-Mar	40.0	41.0	56.5	60.3	48.4	48.4	48.7	48.6	47.6	45.0	39.2	34.5	30.2	28.8	26.4	22.9	21.9	22.8	27.9	36.1	42.0	46.6	50.8	52.2	40.3	60.3																					
22-Mar	61.4	67.9	74.7	73.0	75.7	77.1	77.6	68.4	54.8	47.2	40.3	35.2	32.0	29.5	26.8	24.9	24.0	22.6	25.2	40.3	59.8	57.7	45.9	56.2	49.9	77.6																					
23-Mar	67.8	58.0	58.5	58.6	61.8	65.7	74.3	71.3	56.0	48.3	39.5	32.4	32.0	31.7	31.2	29.7	29.2	29.0	32.5	35.5	35.9	39.1	39.9	44.5	45.9	74.3																					
24-Mar	66.4	73.7	76.6	72.0	69.0	74.4	70.7	60.2	54.5	51.4	49.2	45.2	42.0	39.4	42.4	46.9	66.0	59.7	59.9	62.0	57.3	56.2	59.2	59.0	58.9	76.6																					
25-Mar	58.4	55.7	56.4	56.6	57.7	57.6	55.7	55.4	53.5	46.4	41.7	37.7	32.7	31.2	29.3	28.9	28.9	30.9	34.0	39.7	42.2	43.0	42.6	45.7	44.2	58.4																					
26-Mar	51.0	54.5	57.7	61.7	63.3	64.2	62.9	59.5	55.0	50.3	43.1	39.1	36.2	34.3	31.5	31.7	34.4	36.9	38.2	34.6	38.1	44.4	51.6	55.0	47.0	64.2																					
27-Mar	52.4	61.7	73.1	83.4	84.0	82.9	85.5	86.9	85.3	83.3	83.2	82.3	80.1	76.7	79.8	78.4	77.9	79.6	83.5	84.8	83.0	82.6	81.2	81.6	79.7	86.9																					
28-Mar	82.8	84.7	86.0	87.1	88.6	89.4	89.7	88.4	85.7	82.6	79.2	73.5	77.3	73.1	69.9	68.3	67.2	68.1	68.2	73.2	79.2	80.6	81.6	83.5	79.5	89.7																					
29-Mar	83.8	84.9	86.7	86.8	86.9	87.5	88.5	86.3	82.6	78.3	76.8	67.0	53.5	51.0	52.0	54.0	56.5	56.8	55.0	56.1	67.9	81.0	83.3	83.9	72.8	88.5																					
30-Mar	84.8	83.7	84.9	85.5	85.0	85.1	84.1	79.5	70.8	60.5	50.5	42.1	38.1	37.0	35.3	32.8	35.4	32.2	38.2	43.9	45.9	50.5	58.1	60.4	58.5	85.5																					
31-Mar	60.3	61.5	64.5	67.7	68.1	66.8	66.3	62.6	57.3	49.0	40.7	35.9	28.9	26.5	29.5	27.4	26.9	28.8	29.6	31.1	32.2	34.7	35.4	35.3	44.4	68.1																					
																						67.4	68.8	70.7	72.1	72.2	72.6	72.8	71.2	66.9	62.5	57.3	52.4	48.5	46.4	45.5	44.8	46.2	47.8	51.6	55.3	58.2	59.8	61.2	63.3	Diurnal Average	
																						90.5	89.4	86.7	87.1	88.6	89.4	89.7	88.4	85.7	83.3	83.2	82.3	80.1	76.7	79.8	78.4	77.9	79.6	83.5	84.8	83.0	82.6	83.3	83.9	Diurnal Maximum	





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Patricia McInnes - March 2024

Maximum Speed: 27 km/h on Mar 10 13:00	Maximum Daily Speed Average: 20.6 km/h on Mar 3	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 23 07:00	Minimum Daily Speed Average: 2.0 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.5 km/h at hour 12	Minimum Diurnal Speed Average: 1.0 km/h at hour 24	Hours of Missing Data: 0
Monthly Average Velocity: 1.9 km/h 62.0 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 8 Median = 11 Q ₃ = 16 P ₉₀ = 20 P ₉₉ = 25	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	WNW12	WNW15	WNW14	WNW16	WNW20	W19	WNW14	W10	W16	WNW20	WNW22	WNW18	WNW19	WNW20	WNW18	WNW18	NW16	NNW12	NNW9	NNW8	NNW8	NNW8	NW6	NNW9	WNW13.6	WNW22	
2-Mar	NNE10	N8	NNW5	NW4	WNW3	NNW4	NW3	NNW4	N8	NNE12	NNE11	N10	NNE12	NNE14	NNE16	N14	N17	N15	N16	N18	N14	N14	N14	N14	N10.4	N18	
3-Mar	N14	N17	N17	N17	N20	N19	N19	N18	N19	N18	N19	N19	NNW21	NNW23	NNW25	NNW24	NNW24	NNW25	NNW26	NNW24	N22	N22	NNW24	NNW23	N20.6	NNW26	
4-Mar	NNW24	NNW26	NNW25	NNW24	NNW25	N25	NNW25	N25	N24	N22	NNW22	NNW21	NNW22	NNW20	NNW18	NNW17	NNW17	NNW14	NNW13	NNW11	NNW12	NNW10	NNW9	NNW10	NNW19.1	NNW26	
5-Mar	NNW8	NW6	NW4	NW5	NNW8	NNW5	SW3	SW5	SW5	SSE2	ESE2	ESE4	E5	SSE5	SE5	SSW7	SW5	WSW4	SSE8	S5	S6	SSW6	SSW8	SSW7	SSW2.1	NNW8	
6-Mar	S7	S7	S7	S5	S7	SSE8	SSE6	SSE5	SSE6	SSE7	SE7	E8	SSE8	S14	S15	S16	S16	S16	S10	S11	S12	S11	S11	S9	S9.0	S16	
7-Mar	SSE10	SSE9	SSE10	SSE10	SE10	SE9	SE10	SE9	SE9	SE11	SE9	SE9	SE10	SE8	S16	S17	SSW16	SSW11	S11	S11	S10	SW16	SW17	SW16	S9.5	SW17	
8-Mar	SW13	WSW11	WSW12	WSW10	WSW8	SW5	SW7	SSW9	S7	SSE8	SSE8	SE7	SE9	ESE8	ESE13	ESE11	SE11	ESE12	SE9	SE10	SE8	SSE8	SE9	SE10	SSE6.3	ESE13	
9-Mar	SE10	SSE10	SE8	SE9	SE9	SE9	SE12	SE11	SE11	SE11	SE10	ESE13	ESE14	ESE11	ESE15	SE11	SE9	SSE7	SSE7	S8	SSE6	S6	SSE7	SSE5	SE9.1	ESE15	
10-Mar	SE5	S2	SSE5	S5	S6	SSE6	S9	SW12	WSW17	W20	WSW24	W23	W27	W25	WNW22	W23	WNW18	W14	WNW7	WNW5	N9	N9	NNW11	NNW16	W9.6	W27	
11-Mar	N15	N10	NNE10	NNE10	NNE11	NNE9	N10	N11	N11	NNE10	NNE11	NNE10	N3	NE4	NNE7	NNE8	NNE6	NNE10	N10	N9	N8	ESE7	ESE13	ESE12	NNE7.6	N15	
12-Mar	ESE13	SE15	SE16	ESE16	ESE15	ESE14	ESE13	ESE13	SE17	ESE15	ESE14	ESE15	E14	E13	ESE12	ESE12	ESE12	E12	E11	E11	E13	ESE15	ESE16	ESE13	ESE13.5	SE17	
13-Mar	ESE12	ESE11	ESE10	SE9	ESE9	ESE11	ESE11	ESE12	ESE13	SE11	SE10	ESE11	ESE11	ESE12	ESE13	ESE12	ESE11	ESE10	SE9	SE11	SE14	SE9	SSE8	SSE7	ESE10.6	SE14	
14-Mar	S6	S9	S9	SSW9	SSW9	SSW9	SW9	SSW5	SSW7	SW14	SW15	SW17	SW17	SW20	SW17	SSW8	SSW7	SW7	S7	SW11	SW14	WSW17	WSW16	WSW17	SW10.8	SW20	
15-Mar	W19	W18	W20	WNW25	WNW24	NW23	NNW21	N22	N23	NNW24	NNW26	NNW22	NNW19	N13	NNE16	NNE17	NNE16	NNE11	N11	N11	N12	N9	N9	NNW10	NNW10	NNW15.0	NNW26
16-Mar	NNW8	NNW7	NNW8	N11	NNE14	N14	N13	N14	N10	N10	N7	NNE6	N6	NNE6	NNE7	NNE10	NNE11	NNE9	NE6	ESE10	ESE14	ESE14	ESE16	NNE7.0	ESE16		
17-Mar	ESE17	ESE16	SE14	ESE15	ESE17	SE17	SE13	SE16	SE17	SE18	ESE18	SE17	ESE17	ESE16	S19	S16	SSW17	SSW13	SSW11	SSW14	SW21	WSW19	WSW19	WNW15	SSE10.8	SW21	
18-Mar	N16	NNW12	NNW9	N9	N12	N18	N11	N9	NNE15	N16	NNW17	N18	N16	N14	NNE17	NNE16	N21	N18	N17	NNE15	NNE20	N18	N20	NNE18	N15.2	N21	
19-Mar	N18	N15	NNE19	NNE17	NNE17	NNE18	NNE18	NNE18	NNE16	NNE15	NNE14	N12	N15	NNE11	NE11	N13	NNE13	NNE14	NNE16	N12	NNE13	NNE14	NNW8	N7	NNE14.0	NNE19	
20-Mar	N8	NNE7	NE7	NW3	NW5	NW4	NW3	NNW10	N11	NNE10	NNE10	NNE10	NNE9	NE8	NE10	NNE10	NNE10	N9	N9	NNW8	NNW10	NNW11	NNE7	ENE6	N7.2	N11	
21-Mar	ENE7	E6	N5	N6	NE8	NE6	NE8	NNE6	NNE7	NNE7	NNE8	NNE11	NE9	NNE13	NNE14	N20	N20	N19	N15	N12	N14	N11	NNW8	NNW8	NNE9.6	N20	
22-Mar	NNW5	N3	N5	N6	N4	N3	ENE1	SE4	SE5	E5	E5	E3	NNE3	NE2	NNE5	E4	NE3	ENE4	SE4	SE4	SE2	SSE5	SE7	SE6	E2.0	SE7	
23-Mar	SE5	ESE7	SE6	SE7	SE7	SE5	SSW1	SE2	SSE8	SSE6	SSE6	E5	ESE5	SE6	SSE7	ESE6	E6	ENE7	ENE6	E10	ESE9	ESE7	SE9	SE6	ESE5.6	ESE10	
24-Mar	S3	S3	S4	SSW5	S5	SSE5	SE5	SE7	SSE7	SE7	SE6	SE6	SE6	SE8	ESE9	S9	S14	S9	ESE12	ESE10	ESE8	ESE9	ESE11	ESE11	SE13	SE6.9	S14
25-Mar	SE12	ESE15	ESE12	ESE14	ESE10	ESE13	ESE18	ESE18	ESE14	ESE15	ESE16	ESE18	SSE20	SSE19	S20	SSE20	S18	S16	SSE15	SSE12	SSE16	SSE16	SSE17	SSE17	SE14.6	SSE20	
26-Mar	SSE15	SSE14	SSE16	SSE18	SSE19	SSE20	SSE21	SSE24	SSE21	SE21	S23	S24	SSE23	SSE23	SSE22	SSE19	SSE18	SSE14	SSE18	SE19	SE18	SE21	SE22	SE21	SSE19.4	SSE24	
27-Mar	SE22	SE22	SE20	ESE19	ESE18	ESE20	ESE18	ESE19	ESE20	ESE22	ESE22	ESE20	ESE21	ESE22	ESE23	ESE24	ESE20	ESE17	E15	E13	E13	ENE12	E13	ENE9	ESE17.9	ESE24	
28-Mar	NE7	NNE7	NNE8	N8	N9	N10	N10	N11	NNE12	N12	NNE12	NNE13	N16	N17	NNW18	N20	NNW20	N17	NNW17	NNW17	NNW17	NNW17	NNW14	NNW13	NNW12	N12.7	N20
29-Mar	NNW12	NNW10	NNW13	NNW14	NNW13	NNW11	NNW12	NNW13	NNW15	NNW19	N15	N11	NNW14	N15	NNW17	NNW15	NNW15	NNW11	N10	NNE7	WNW7	W7	W5	WSW4	NNW11.1	NNW19	
30-Mar	SSW3	SSW5	SSW5	SSW4	S5	S7	S8	SSE8	SSE8	SSE7	E7	SE10	SSE14	SSE14	SSE15	SSE14	SE12	SSE10	ESE9	ESE12	SE14	ESE17	SE10	SE11	SE8.7	ESE17	
31-Mar	SE11	SE11	SE10	SE7	SE7	SE7	SE6	SSE8	SSE8	S10	S11	SSE9	SSW11	SW18	SW19	SSW19	SSW16	S13	S15	S18	S19	S16	S19	SSW23	S11.4	SSW23	

ENE1.8	ENE1.5	ENE1.3	NE1.3	NE1.8	NE2.6	ENE2.4	ENE2.7	ENE2.7	ENE2.9	NE2.6	ENE3.5	ENE2.0	ENE1.6	E1.2	ENE1.4	NE1.8	NE2.7	NE2.6	ENE2.2	ENE1.8	E1.5	SE1.5	ESE1.0	Diurnal Average	
NNW24	NNW26	NNW25	WNW25	NNW25	N25	NNW25	NNW25	N24	NNW24	NNW26	S24	W27	W25	NNW25	ESE24	NNW24	NNW25	NNW26	NNW24	N22	N22	NNW24	SSW23	Diurnal Maximum	

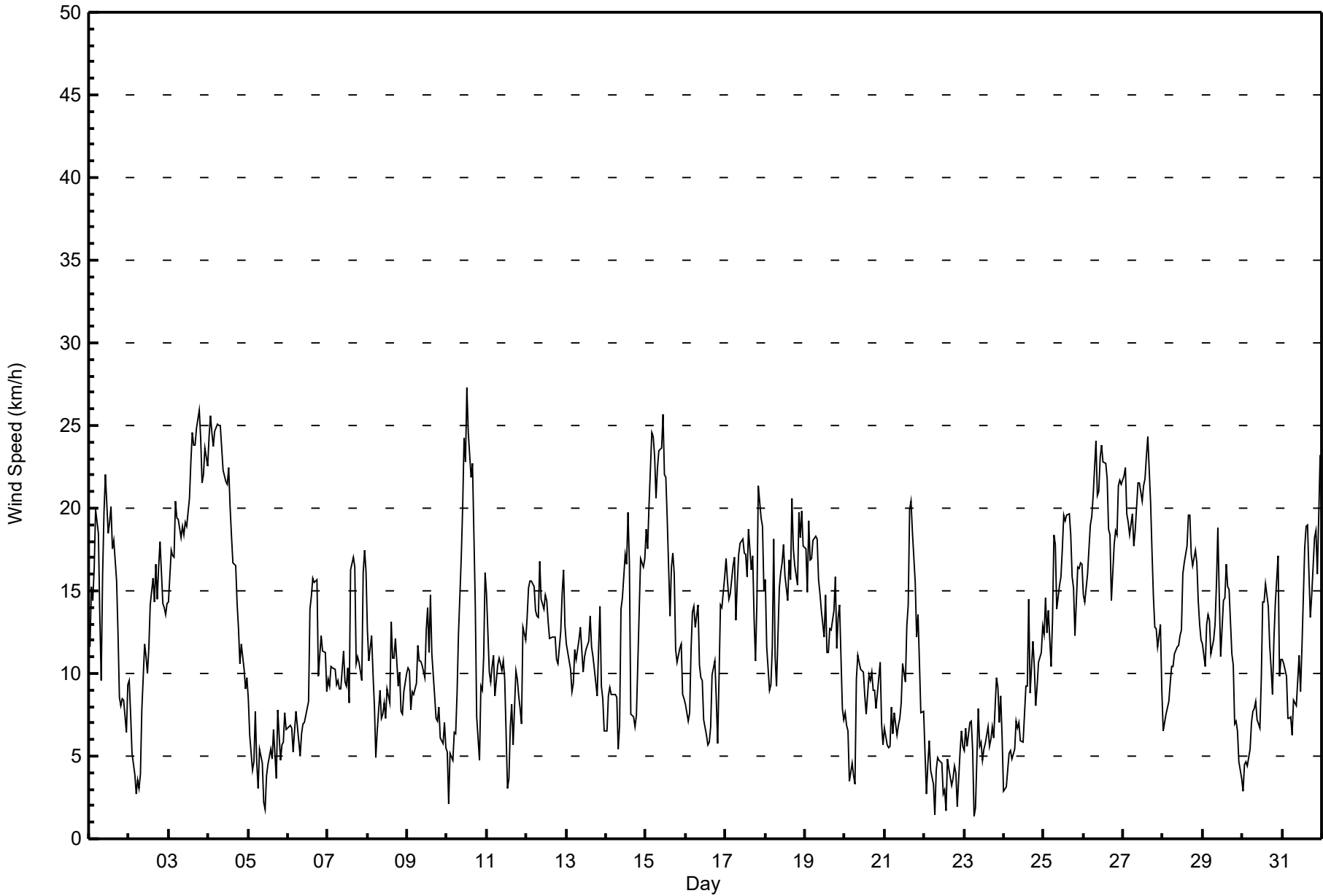
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 18 01:00 Minimum Value: 0 km/h on Mar 20 06:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	3	3	5	4	4	3	3	4	4	4	4	4	5	4	4	4	3	1	1	1	2	2	3	5
2-Mar	2	3	1	1	1	1	1	1	3	2	2	3	3	3	4	3	3	2	3	3	3	2	2	3	4
3-Mar	3	4	3	3	4	4	4	3	3	4	4	4	4	4	5	5	4	5	4	4	4	5	4	5	5
4-Mar	4	5	5	4	5	5	5	5	4	4	4	4	3	3	3	3	3	2	2	1	1	1	1	1	5
5-Mar	1	1	1	1	2	2	2	1	1	1	2	2	2	2	3	3	2	2	1	1	1	2	1	1	3
6-Mar	1	1	1	1	1	1	1	1	1	2	2	2	4	3	4	4	4	3	2	2	2	2	2	1	4
7-Mar	2	1	2	2	2	2	2	2	3	2	2	2	2	2	4	4	4	3	2	2	2	3	2	2	4
8-Mar	2	2	2	3	4	2	1	3	1	2	2	2	2	2	3	3	3	2	1	2	1	1	2	1	4
9-Mar	1	1	1	1	1	1	2	2	2	3	2	3	3	2	3	3	2	1	1	2	1	2	1	1	3
10-Mar	2	1	1	2	2	2	2	4	3	5	5	6	6	5	5	4	4	3	1	1	2	1	2	3	6
11-Mar	4	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4
12-Mar	3	3	3	3	3	3	4	4	4	3	4	4	3	3	3	3	3	3	3	3	3	4	3	4	4
13-Mar	3	3	2	2	2	3	2	3	3	2	2	2	2	2	3	3	2	2	2	3	3	2	2	1	3
14-Mar	1	1	1	1	2	1	2	2	4	3	3	4	4	4	4	2	3	5	2	2	2	2	3	3	5
15-Mar	4	5	5	4	4	5	4	4	5	5	5	5	5	4	4	4	4	3	3	2	2	2	2	2	5
16-Mar	1	1	2	2	3	3	2	3	2	2	3	3	3	2	2	3	2	2	3	1	2	3	3	3	3
17-Mar	4	4	3	3	3	3	3	3	4	4	4	4	4	4	5	4	4	3	2	4	4	3	3	3	5
18-Mar	8	4	2	2	3	4	3	5	3	3	4	4	3	3	3	4	5	4	4	4	5	4	4	4	8
19-Mar	4	4	4	4	3	4	4	4	4	3	3	4	4	4	4	3	3	3	3	2	3	4	2	1	4
20-Mar	2	1	2	1	1	0	1	2	2	2	3	3	3	3	3	3	3	2	2	1	1	2	1	1	3
21-Mar	2	1	1	1	2	1	1	1	2	2	3	4	4	3	4	4	4	3	3	2	2	3	1	1	4
22-Mar	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	0	1	2	1	1	2
23-Mar	1	1	1	1	2	2	1	2	2	1	2	2	3	3	3	3	3	2	1	2	2	2	2	2	3
24-Mar	1	1	1	1	1	1	1	2	3	1	1	2	3	3	4	4	5	3	3	2	2	2	2	2	5
25-Mar	3	3	3	3	3	4	4	4	4	4	3	4	5	5	5	5	5	4	4	3	3	4	4	4	5
26-Mar	3	3	4	4	5	4	5	6	5	5	6	5	6	6	5	5	5	5	5	5	5	6	5	5	6
27-Mar	6	6	4	5	4	4	4	4	5	5	4	5	6	5	5	5	5	5	3	3	3	2	3	2	6
28-Mar	1	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3	4	3	3	3	3	2	2	4
29-Mar	2	2	2	2	2	2	2	2	4	3	3	3	4	4	3	3	3	2	2	2	1	2	1	1	4
30-Mar	1	1	1	1	1	1	1	1	2	2	2	4	4	4	4	4	3	3	2	2	3	4	2	2	4
31-Mar	2	2	2	2	2	2	1	2	2	2	3	3	4	4	5	5	4	3	4	4	5	3	5	6	6
Diurnal Maximum																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	79	10.62	10.62
6 - 11	298	40.05	50.67
12 - 19	279	37.50	88.17
20 - 28	88	11.83	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
Patricia McInnes - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6	3	2	2	6	3	11	7	9	7	5	2	1	3	7	5	79
6 - 11	40	37	10	5	6	28	56	35	27	15	4	3	2	2	2	26	298
12 - 19	52	32	0	1	8	57	17	20	19	6	13	7	5	11	1	30	279
20 - 28	13	1	0	0	0	10	7	9	3	1	2	1	6	7	1	27	88
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
Totals	111	73	12	8	20	98	91	71	58	29	24	13	14	23	11	88	744

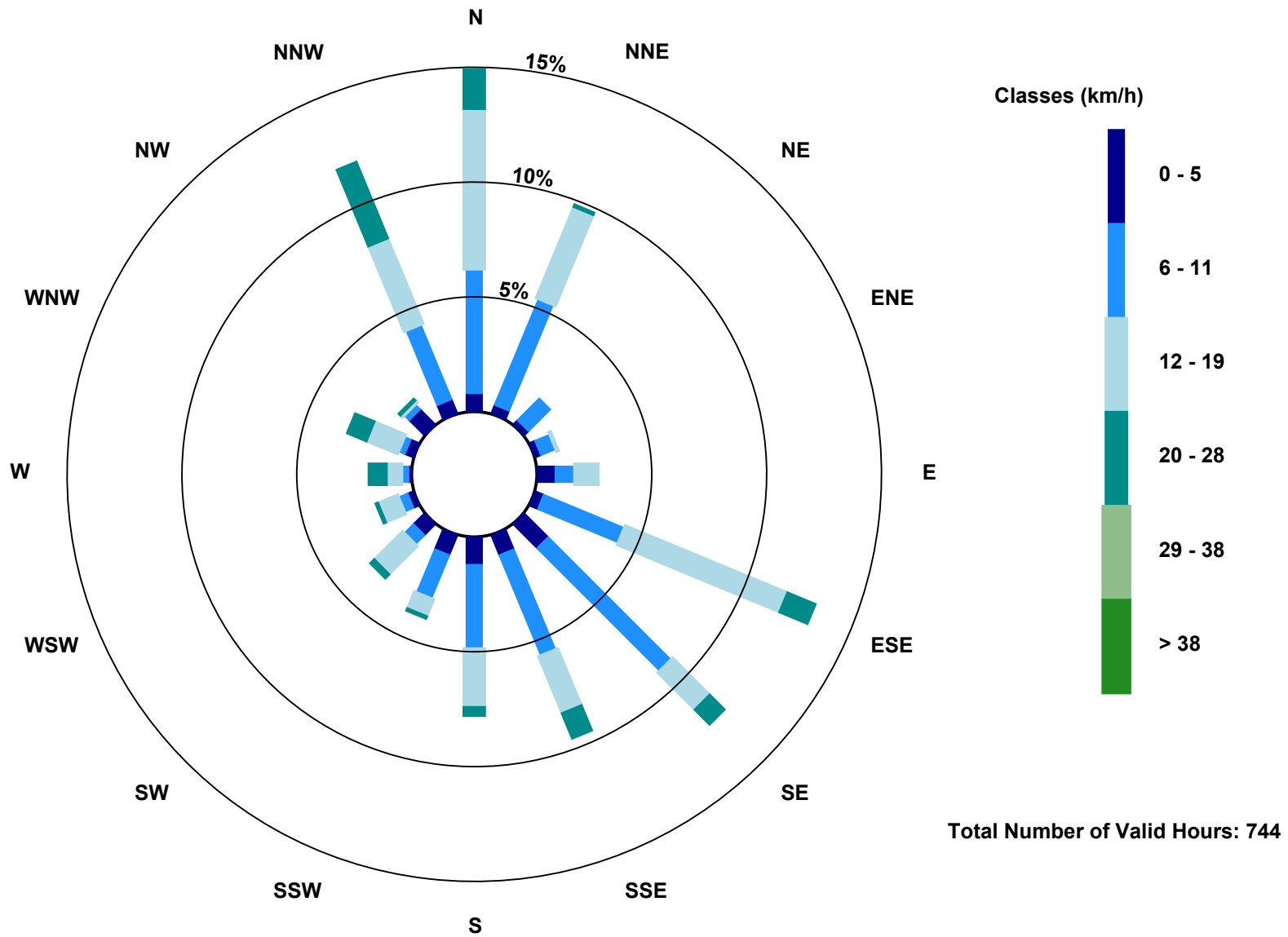
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Patricia McInnes





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Patricia McInnes - March 2024

Direction of Maximum Speed: 267 deg on Mar 10 13:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 352.4 deg on Mar 3	Hours of Data: 744
Direction of Minimum Speed: 207 deg on Mar 23 07:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 2.0 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 62.0 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-Mar	290	298	298	283	283	278	282	274	275	282	288	303	285	283	293	299	308	327	335	332	341	340	322	346	296.2
2-Mar	12	8	343	321	294	345	323	344	7	19	21	8	25	20	16	8	2	350	357	1	356	7	8	2	4.5
3-Mar	2	1	6	3	1	1	1	359	356	354	2	1	346	346	342	343	341	346	346	348	351	350	347	347	352.4
4-Mar	345	345	342	344	346	349	347	349	350	350	347	347	345	347	345	338	339	337	335	332	333	331	329	339	343.8
5-Mar	339	325	307	306	335	329	222	224	216	149	119	110	98	161	144	202	224	239	161	182	182	199	192	196	210.0
6-Mar	184	189	173	174	172	161	158	162	157	148	145	91	161	180	190	188	182	187	174	172	177	185	186	183	174.3
7-Mar	168	157	156	151	146	142	135	134	140	144	131	128	126	133	187	189	205	202	185	173	188	226	230	231	173.3
8-Mar	236	238	244	249	248	221	218	205	172	159	158	134	138	120	114	119	124	122	134	144	140	152	146	142	164.6
9-Mar	146	159	145	141	130	133	129	134	136	134	130	120	119	111	123	125	138	153	164	174	162	170	162	151	137.6
10-Mar	135	181	156	177	171	157	188	224	258	259	256	267	267	279	290	281	289	280	290	292	351	351	344	342	272.8
11-Mar	354	2	23	27	23	15	1	0	1	17	18	29	350	37	29	23	25	15	2	349	350	103	118	112	20.9
12-Mar	123	124	129	122	121	118	119	122	124	119	105	105	95	92	118	116	106	89	97	96	96	108	120	119	112.6
13-Mar	111	113	122	124	120	120	120	122	123	126	132	121	118	117	119	119	116	125	126	129	138	147	168	123.5	
14-Mar	183	177	184	198	207	212	225	204	210	236	228	223	221	234	234	206	207	221	189	221	234	249	242	246	222.3
15-Mar	274	281	281	283	288	309	335	350	349	341	336	343	345	338	354	21	25	32	15	0	356	360	354	353	334.7
16-Mar	345	333	337	3	14	1	5	4	1	356	2	9	32	4	14	27	14	12	25	55	114	118	116	117	24.0
17-Mar	120	122	129	119	123	124	126	124	127	124	121	126	121	120	174	184	198	194	198	210	227	240	253	285	155.8
18-Mar	2	339	346	351	358	9	358	6	13	3	345	352	359	355	15	21	10	11	8	12	15	10	7	15	4.6
19-Mar	9	10	15	17	17	19	12	25	14	25	14	10	349	15	36	356	24	23	17	5	20	19	338	352	13.8
20-Mar	3	20	44	314	304	314	324	348	359	20	31	29	24	39	37	31	23	9	4	339	341	348	12	59	10.3
21-Mar	78	80	357	359	42	55	39	30	28	23	18	23	34	16	14	3	10	7	360	360	8	2	339	345	14.9
22-Mar	340	351	349	359	2	350	73	137	130	97	91	95	33	34	32	93	54	61	138	144	143	167	144	130	80.6
23-Mar	132	119	129	131	134	130	207	130	150	147	151	99	108	143	154	123	83	78	76	101	103	112	134	141	122.5
24-Mar	187	181	188	197	183	152	142	136	154	138	141	125	126	111	172	180	191	116	121	114	114	115	123	126	141.4
25-Mar	125	117	116	115	109	114	121	121	118	121	115	115	157	166	177	157	170	177	168	149	151	156	158	165	141.9
26-Mar	157	153	153	153	157	153	150	153	147	140	172	171	160	150	148	155	162	163	160	138	140	141	141	139	152.3
27-Mar	135	135	125	119	116	115	111	108	111	114	110	110	110	113	111	107	108	103	95	92	82	77	80	66	109.6
28-Mar	43	31	18	11	6	7	5	2	13	8	15	23	349	350	344	351	344	355	344	343	343	344	340	331	356.0
29-Mar	329	328	341	347	340	337	340	340	341	347	353	356	342	350	348	346	343	347	9	26	295	274	275	250	341.4
30-Mar	194	211	204	201	189	171	171	165	161	152	101	146	157	147	150	150	133	147	122	118	128	119	124	124	145.4
31-Mar	129	133	137	146	139	124	142	153	165	171	181	153	206	220	231	208	194	183	176	170	181	172	186	205	179.5
	57.0	68.2	62.4	47.2	42.3	54.0	60.0	68.5	62.9	57.9	50.0	58.2	60.3	58.4	83.1	74.8	35.2	39.6	52.4	69.6	71.2	92.0	137.2	118.9	
	Diurnal Average																								

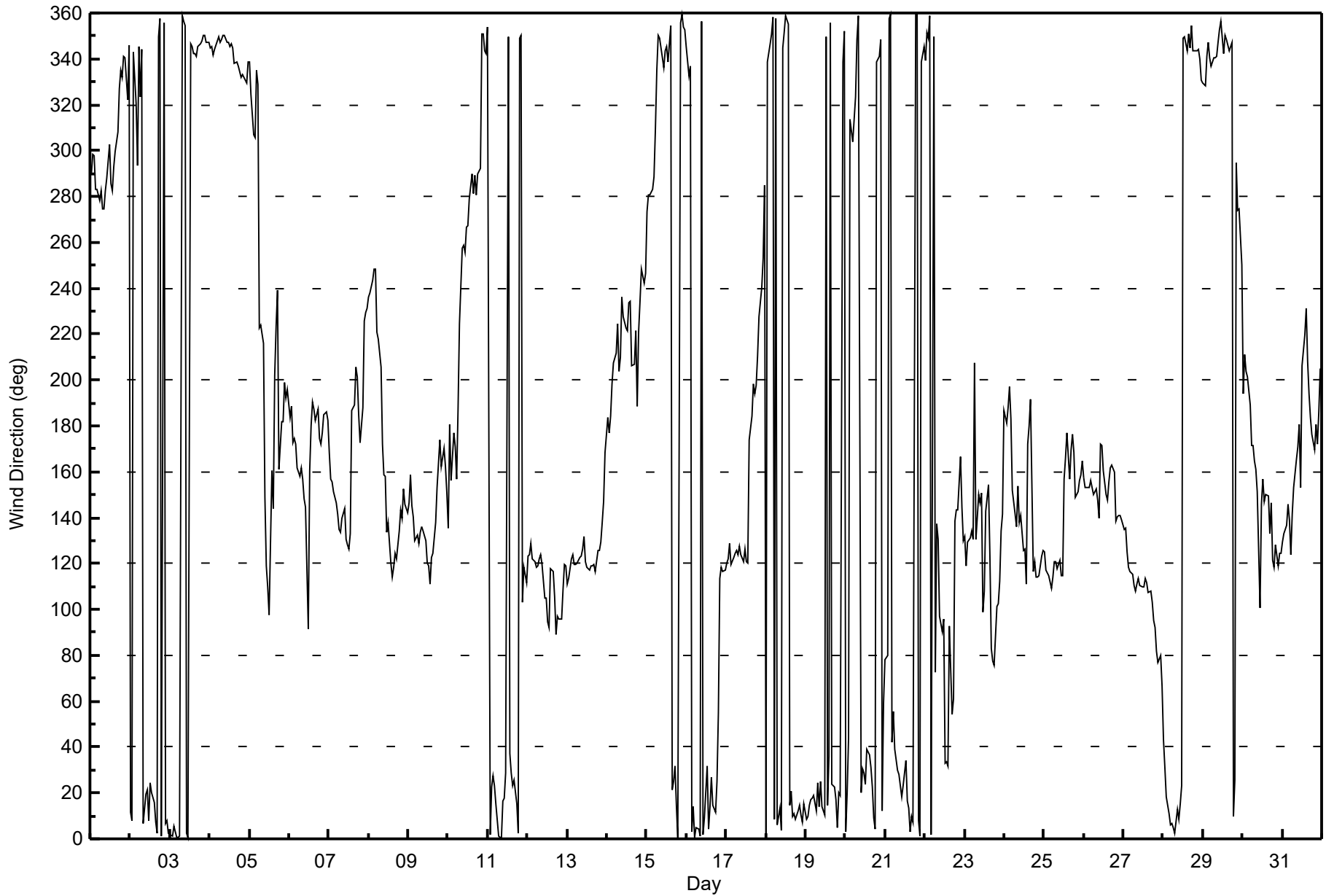
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Patricia McInnes - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 95 deg on Mar 22 14:00 Minimum Value: 5 deg on Mar 9 02:00 Percentiles: P ₁ = 7 P ₁₀ = 10 Q ₁ = 12 Median = 14 Q ₃ = 17 P ₉₀ = 25 P ₉₉ = 68																			Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	11	8	11	11	11	10	13	14	11	13	12	15	21	17	18	18	15	10	8	10	9	10	11	18	21
2-Mar	18	21	12	27	22	20	19	17	18	15	19	25	25	20	18	15	16	14	15	17	14	14	13	14	27
3-Mar	15	15	14	14	16	16	16	16	16	16	15	16	13	12	10	12	11	12	13	13	14	15	14	13	16
4-Mar	12	13	11	11	12	14	13	13	14	14	13	13	11	12	13	11	10	10	8	8	7	7	7	6	14
5-Mar	8	10	19	12	12	22	29	13	14	58	78	51	47	41	54	34	38	53	11	16	9	10	12	13	78
6-Mar	12	11	11	14	12	10	10	15	13	13	18	14	49	17	18	19	15	12	10	10	11	15	11	12	49
7-Mar	12	9	10	10	11	10	11	12	14	13	18	17	15	20	15	14	17	16	11	11	15	11	9	9	20
8-Mar	9	10	9	8	25	15	14	14	14	16	18	20	17	20	14	15	13	10	8	10	10	8	7	7	25
9-Mar	8	5	8	7	8	10	12	13	14	13	15	13	12	13	12	11	12	15	14	10	11	13	11	15	15
10-Mar	22	52	13	24	17	27	15	16	11	11	13	18	12	15	14	13	12	11	10	21	11	12	10	9	52
11-Mar	15	14	15	11	10	14	13	14	15	19	20	21	71	59	20	19	24	18	13	18	17	34	12	13	71
12-Mar	12	12	12	10	10	12	13	13	13	15	17	16	17	20	17	19	16	15	12	12	13	13	12	14	20
13-Mar	14	13	13	15	13	12	13	14	14	16	18	18	16	15	16	17	15	12	11	13	13	13	15	11	18
14-Mar	13	11	11	16	15	11	11	32	28	12	12	13	19	15	12	17	21	32	17	10	11	9	10	13	32
15-Mar	16	10	11	10	10	13	26	17	16	13	12	13	15	17	19	17	15	16	13	15	14	15	14	13	26
16-Mar	13	13	14	16	12	14	13	14	18	18	24	35	52	45	35	32	21	15	16	22	16	12	13	14	52
17-Mar	14	12	13	11	11	11	12	12	13	13	13	14	13	13	15	14	15	13	12	13	12	11	12	18	18
18-Mar	23	13	15	13	16	12	15	19	14	18	16	19	18	19	15	14	15	14	15	14	13	15	16	13	23
19-Mar	16	15	15	14	14	13	14	16	15	16	21	27	25	31	28	27	22	18	12	13	12	17	13	17	31
20-Mar	14	13	23	13	15	11	14	13	17	18	26	23	31	44	24	23	23	19	14	12	9	13	15	21	44
21-Mar	29	29	13	19	11	17	15	17	18	20	26	29	40	22	21	19	16	16	14	13	13	15	9	8	40
22-Mar	15	22	12	11	13	26	61	22	23	33	40	83	79	95	54	69	68	68	16	7	85	23	19	13	95
23-Mar	8	11	12	11	11	9	64	68	16	23	30	47	48	58	46	61	46	21	20	12	10	13	11	21	68
24-Mar	17	16	10	13	8	19	14	13	36	20	26	37	38	22	47	20	45	14	13	12	11	13	12	11	47
25-Mar	11	11	12	13	13	10	12	13	14	14	18	16	22	19	18	16	20	16	12	13	12	12	13	13	22
26-Mar	13	13	13	14	13	13	13	13	13	14	24	18	17	16	19	25	16	21	17	13	13	13	13	13	25
27-Mar	14	15	14	13	12	12	13	12	13	12	13	13	13	13	13	12	13	13	13	13	13	12	12	18	18
28-Mar	14	14	11	10	10	11	13	13	12	13	14	18	13	15	14	16	13	17	13	10	10	11	9	9	18
29-Mar	8	9	10	12	10	8	10	10	10	14	19	24	19	20	19	14	15	14	16	18	17	8	6	17	24
30-Mar	48	9	12	16	12	11	9	12	15	17	30	37	23	22	17	21	24	25	22	11	12	11	10	11	48
31-Mar	11	12	11	15	16	11	17	12	18	15	20	27	37	20	21	15	15	12	12	13	12	12	15	14	37
																			48 52 23 27 25 27 64 68 36 58 78 83 79 95 54 69 68 68 22 22 85 34 19 21						
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS07 ATHABASCA VALLEY MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)
MARCH 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	17.2	0	2.1	0
TRS (ppb) Average	707	37	37	100	2.8	0	0.4	0
THC (ppm) Average	690	35	54	97.45	3.5	-	2.3	-
NMHC (ppm) Average	690	35	54	97.45	0.233	-	0.012	-
CH4(ppm) Average	690	35	54	97.45	3.5	-	2.3	-
O3 (ppb) Average	709	35	35	100	49.4	0	41.6	-
NO2 (ppb) Average	707	37	37	100	46.7	0	14.1	-
NO (ppb) Average	707	37	37	100	31.4	-	5.8	-
NOX (ppb) Average	707	37	37	100	77.1	-	19.3	-
PM2.5 (ug/m3) Average	743	1	1	100	28.8	0	13	0
CO(ppm) Average	697	34	47	98.25	0.5	0	0.2	-
Temperature 2 m (C) Average	744	0	0	100	16.4	-	5.3	-
Relative Humidity (%) Average	744	0	0	100	88.7	-	76.4	-
Barometric Pressure (inHg) Average	743	0	1	99.87	29.7	-	29.6	-
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 - ATHABASCA VALLEY (AMS07)
MARCH 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	0.65	1.4	-	0	0	0.1	0.2	0.5	1.5	17.2
TRS (ppb) Average	707	0.2	0.1	-	0.1	0.1	0.1	0.2	0.2	0.3	2.8
THC (ppm) Average	690	2.02	0.1	-	1.9	1.9	2	2	2	2.1	3.5
NMHC (ppm) Average	690	0.001	0.01	-	0	0	0	0	0	0	0.233
CH4(ppm) Average	690	2.02	0.1	-	1.9	1.9	2	2	2	2.1	3.5
O3 (ppb) Average	709	32.32	8.3	-	5.6	20.6	27	33.8	38.3	42.3	49.4
NO2 (ppb) Average	707	7.57	6.1	-	0.4	2.2	3.6	5.9	9.8	14	46.7
NO (ppb) Average	707	1.79	3	-	0	0.1	0.3	0.8	2	4.5	31.4
NOX (ppb) Average	707	9.37	8.3	-	0.4	2.7	4.4	7.1	11.5	17.7	77.1
PM2.5 (ug/m3) Average	743	4.61	3.3	-	0.5	2.2	2.8	3.7	5.2	7.8	28.8
CO(ppm) Average	697	0.16	0	-	0.1	0.1	0.1	0.2	0.2	0.2	0.5
Temperature 2 m (C) Average	744	-6.73	9.1	-	-29.1	-20.1	-13.9	-5.7	-0.5	4.1	16.4
Relative Humidity (%) Average	744	57.49	15.2	-	22.8	36.7	46.1	57.6	70.5	77	88.7
Barometric Pressure (inHg) Average	743	29.1	0.3	-	28.3	28.8	28.9	29.1	29.3	29.5	29.7
Wind Speed 10 m (km/h) Average	744	10.7	6	-	0	3	6	10	15	19	31
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ATHABASCA VALLEY (AMS07)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	18 Mar 2024 16:00	18 Mar 2024 16:00	1	Unstable Operations - excessive baseline drift
THC/NMHC/CH4	24 Mar 2024 11:00	24 Mar 2024 14:00	4	Unstable Operations - excessive baseline drift
THC/NMHC/CH4	25 Mar 2024 16:00	26 Mar 2024 01:00	10	Unstable Operations - excessive baseline drift
THC/NMHC/CH4	26 Mar 2024 10:00	26 Mar 2024 13:00	4	Maintenance - actuator replaced
CO	28 Mar 2024 00:00	28 Mar 2024 10:00	11	Unstable Operations - flatline in analyzer output signal
CO	28 Mar 2024 11:00	28 Mar 2024 12:00	2	Maintenance - analyzer rebooted
Barometric Pressure	27 Mar 2024 09:00	27 Mar 2024 09:00	1	DAS Failure - data not recorded



Wood Buffalo Environmental Association
Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb
Athabasca Valley - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 17.2 ppb on Mar 20 10:00	Maximum Daily Average: 2.1 ppb on Mar 19		Hours of Data:	709
Minimum Value: 0.0 ppb on Mar 13 22:00	Minimum Daily Average: 0.0 ppb on Mar 22		Hours of Missing Data:	35
Maximum Diurnal Average: 1.5 ppb at hour 11	Minimum Diurnal Average: 0.2 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 0.65 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 1.5 P ₉₉ = 6.5		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-Mar	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.4	0.3	0.2	0.1	0.2	0.4	
2-Mar	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.7	0.5	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.7
3-Mar	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	3.4	2.8	2.5	1.6	2.1	2.9	5.1	2.1	2.4	4.3	4.5	5.1	
4-Mar	3.2	3.1	2.1	Z	4.1	4.6	3.9	3.0	1.3	0.4	0.3	0.2	0.2	0.4	1.0	1.0	1.8	0.9	0.5	0.3	0.5	0.6	0.6	0.4	4.6	
5-Mar	0.3	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.5	0.9	1.3	2.2	1.6	1.0	0.6	0.4	0.3	0.2	2.2	
6-Mar	0.2	0.2	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.7	0.9	0.9	0.5	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.9	
7-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.7	0.9	1.0	1.8	1.7	1.4	1.0	0.9	0.6	0.6	0.7	0.7	0.7	1.8	
8-Mar	0.5	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.4	0.5	0.7	1.0	1.1	1.0	0.9	0.7	0.6	0.5	0.5	0.5	0.6	0.5	1.1	
9-Mar	0.5	0.5	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.8	1.1	1.6	1.6	1.5	1.9	1.9	1.6	0.8	0.7	0.6	0.5	0.3	0.2	0.2	1.9	
10-Mar	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.3	0.4	0.6	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.6	
11-Mar	0.1	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	7.6	8.5	5.1	2.2	1.5	1.1	2.5	2.5	2.1	1.4	1.0	0.5	0.3	0.1	8.5	
12-Mar	0.1	0.1	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	
13-Mar	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.3	
14-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.4	
15-Mar	0.2	0.2	Z	0.3	0.1	0.1	0.1	0.8	0.6	1.3	4.5	3.5	6.5	5.7	3.1	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	6.5	
16-Mar	0.0	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	1.5	2.2	1.6	4.1	4.7	3.8	2.5	0.2	0.1	0.1	0.1	4.7	
17-Mar	0.1	0.1	0.2	0.5	Z	0.2	0.3	0.5	0.5	0.5	0.6	0.7	0.9	1.0	0.8	0.7	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.3	1.0	
18-Mar	0.5	0.4	0.4	0.3	0.1	Z	0.1	0.1	0.2	2.5	6.0	6.2	5.3	7.0	4.7	4.3	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	7.0	
19-Mar	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	1.7	8.4	7.3	6.2	4.1	3.4	4.9	5.4	4.1	0.3	0.3	0.3	0.3	0.4	0.3	8.4	
20-Mar	0.4	Z	0.3	0.3	0.3	0.2	0.2	0.7	1.6	17.2	8.6	1.4	0.4	0.4	0.4	0.5	0.6	0.6	0.2	0.2	0.2	0.2	0.1	0.1	17.2	
21-Mar	0.1	0.1	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	
22-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	C	C	C	C	0.2	0.0	0.0	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.3	
23-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.5	0.9	0.3	0.3	0.4	0.4	0.4	0.6	1.0	0.8	0.4	0.3	0.1	0.1	1.0	
24-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3	
25-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.6	0.9	0.6	0.4	0.2	0.3	0.3	0.2	0.2	0.2	0.4	0.3	0.3	0.4	0.9	
26-Mar	0.3	Z	0.5	0.4	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.4	0.2	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.6	
27-Mar	0.4	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	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.4	
28-Mar	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	1.0	0.9	1.8	1.4	0.6	0.1	0.3	0.6	1.5	0.9	0.6	1.8	
29-Mar	0.9	0.5	0.2	0.8	Z	0.5	0.3	1.5	4.3	3.9	0.2	0.6	3.1	3.5	2.2	1.4	0.4	0.4	0.2	0.2	0.2	0.3	0.3	0.2	4.3	
30-Mar	0.1	0.2	0.2	0.2	0.1	Z	0.2	0.2	0.3	0.5	0.7	0.5	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.5	0.3	0.3	0.7	
31-Mar	Z	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.6	0.7	0.8	0.6	0.5	0.3	0.3	0.3	0.3	0.2	0.4	0.3	0.3	0.3	0.5	0.9	0.9	

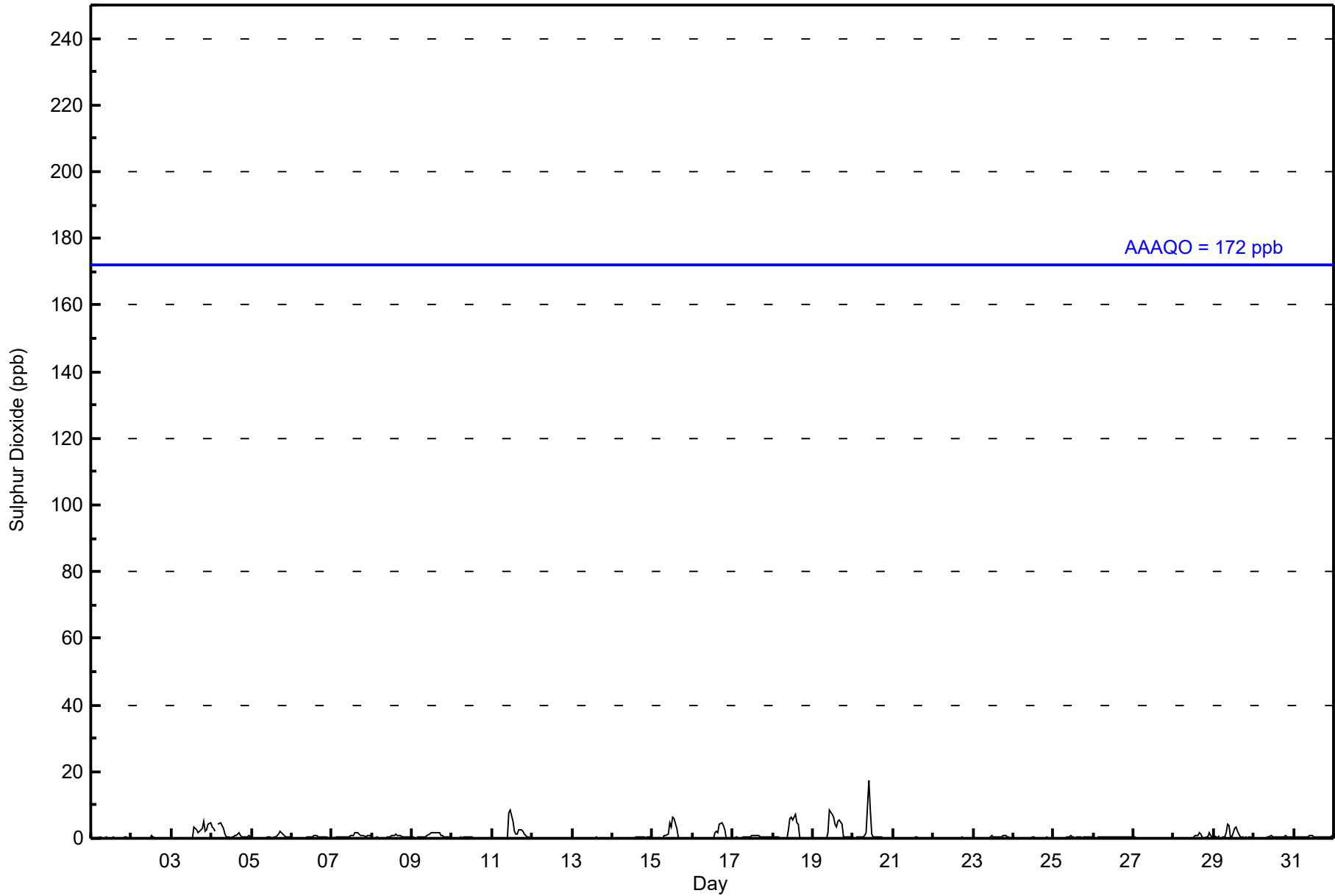
0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4	1.1	1.5	1.2	1.2	1.2	1.0	1.0	0.9	0.8	0.6	0.6	0.4	0.4	0.4	0.4	0.4	0.4	Diurnal Average
3.2	3.1	2.1	0.8	4.1	4.6	3.9	3.0	4.3	17.2	8.6	8.5	6.5	7.0	4.7	4.9	5.4	4.7	3.8	5.1	2.1	2.4	4.3	4.5		Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Athabasca Valley - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Athabasca Valley - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Athabasca Valley - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	55	11	9	13	21	75	161	57	23	17	25	15	15	16	24	171	708
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	55	11	9	13	21	75	161	57	23	17	25	15	15	16	24	172	709

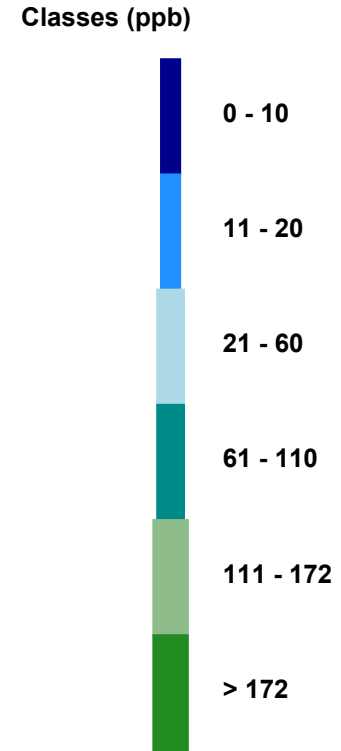
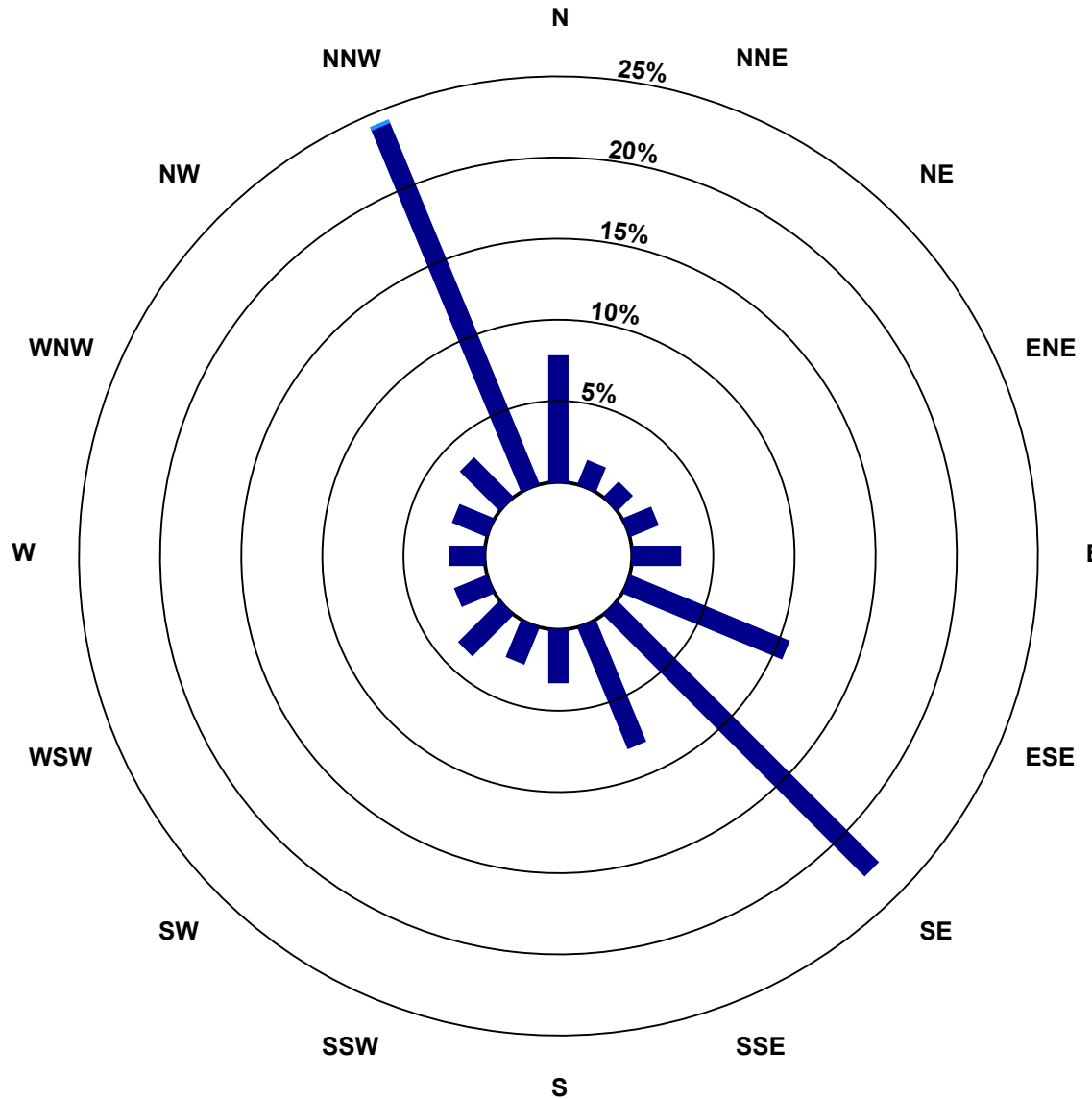
Total Number of Valid Hours: 709

Total Number of Hours: 744

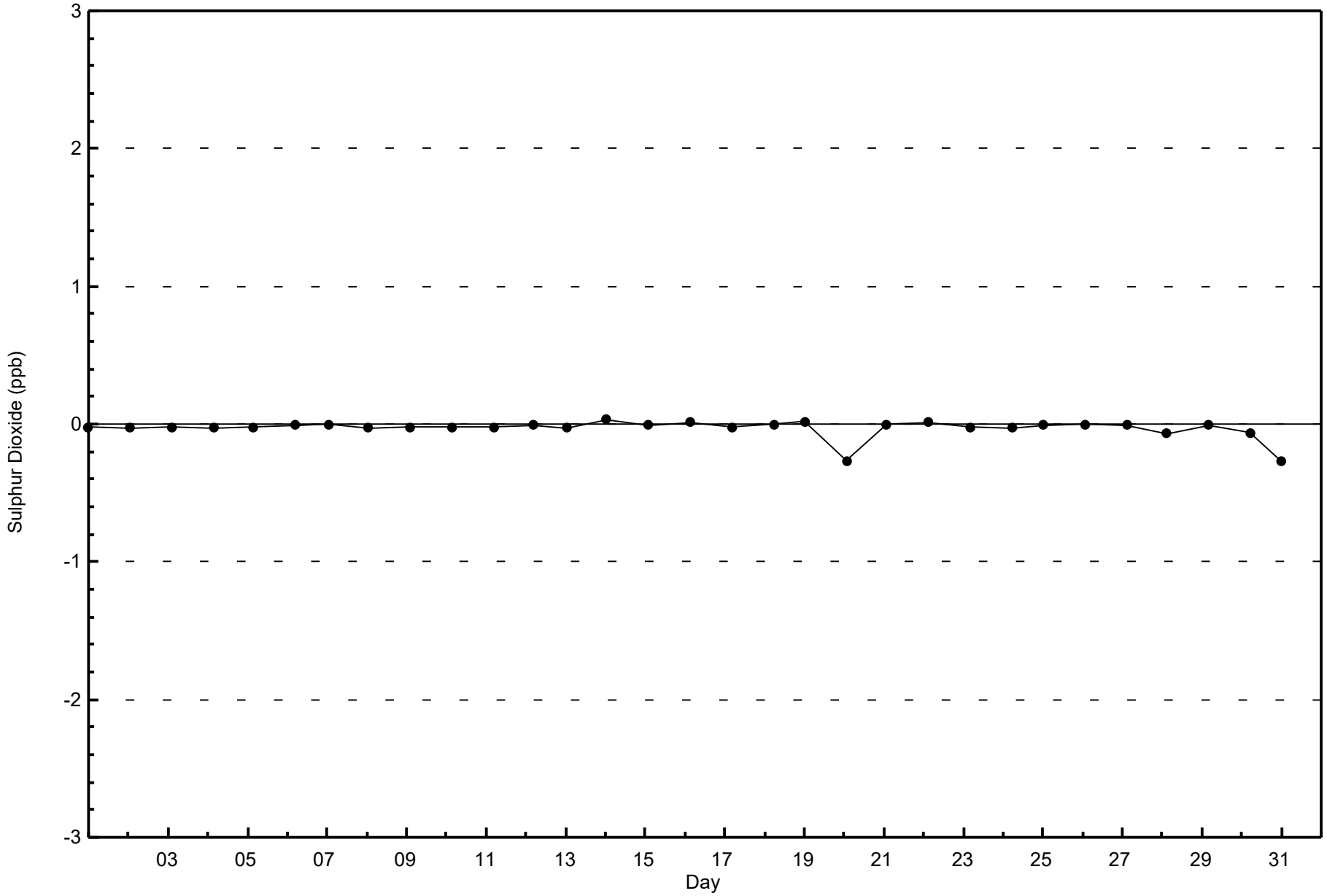


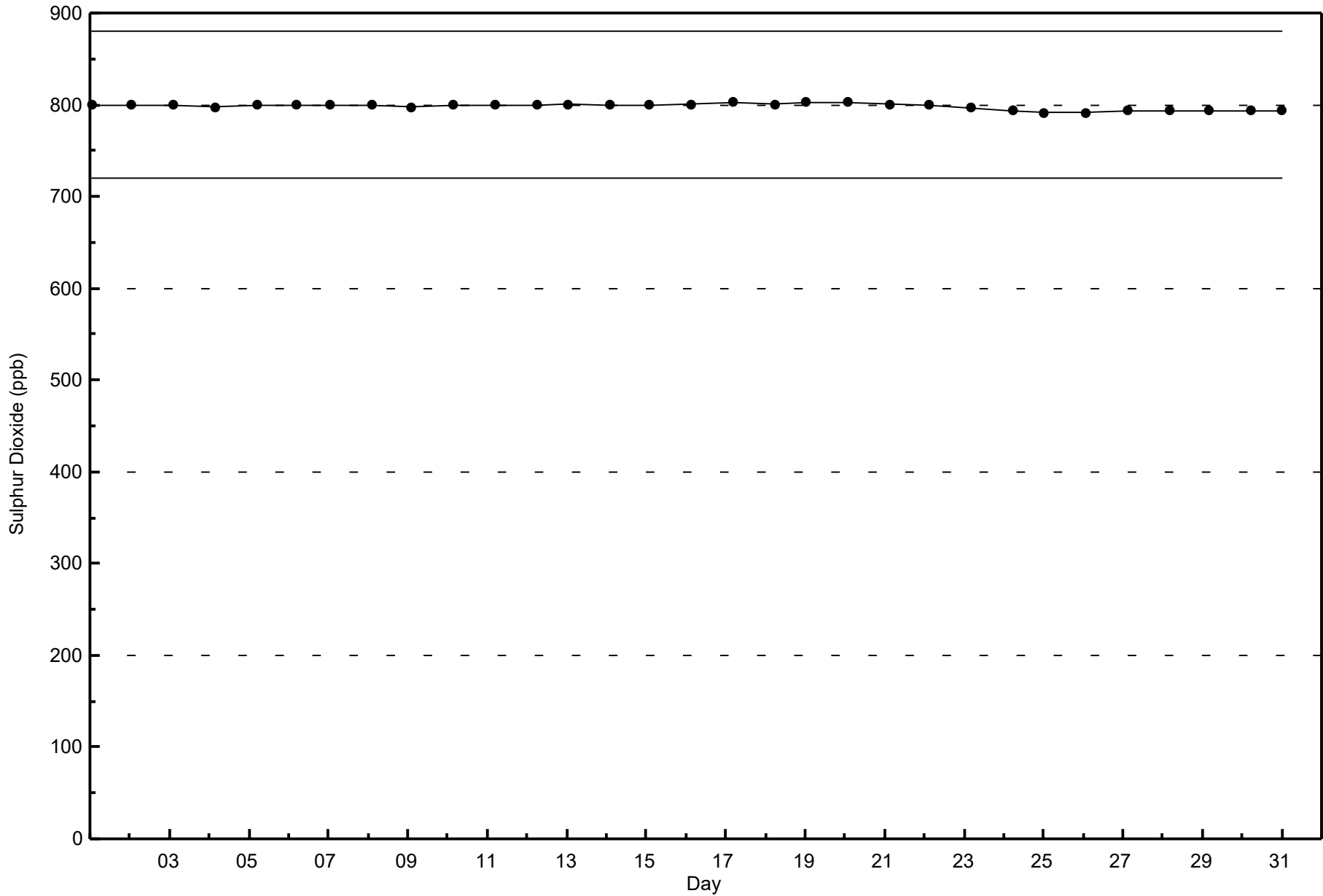
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Athabasca Valley



Total Number of Valid Hours: 709







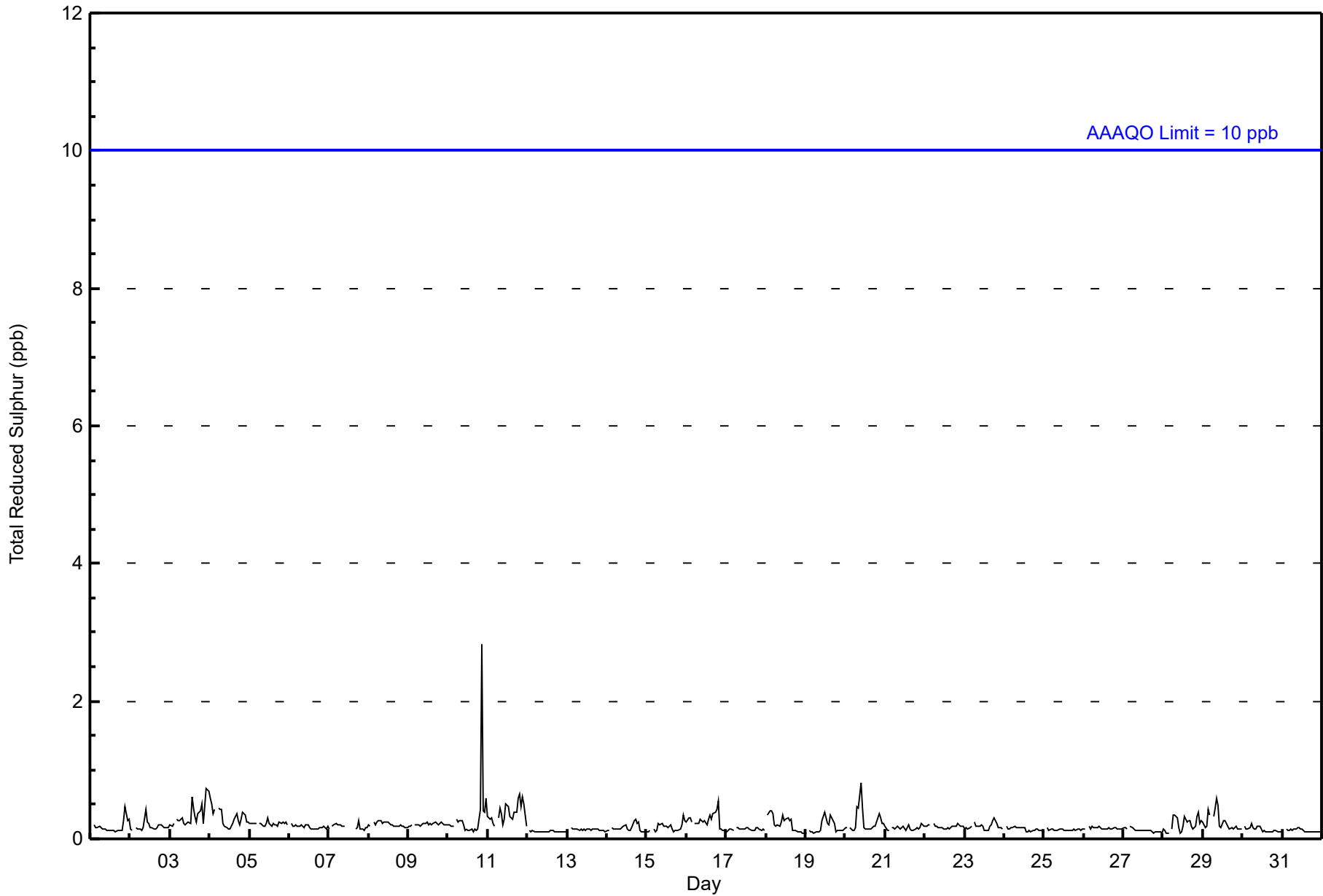
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Athabasca Valley - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 2.8 ppb on Mar 10 21:00		Maximum Daily Average: 0.4 ppb on Mar 11																	Hours of Data: 707								
Minimum Value: 0.1 ppb on Mar 19 00:00		Minimum Daily Average: 0.1 ppb on Mar 12																	Hours of Missing Data: 37								
Maximum Diurnal Average: 0.3 ppb at hour 21		Minimum Diurnal Average: 0.2 ppb at hour 13																	Hours of Calibration: 37								
Monthly Average: 0.20 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.3 P ₉₉ = 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-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.3	0.3	0.2	0.5	
2-Mar	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
3-Mar	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.6	0.4	0.3	0.3	0.4	0.4	0.5	0.2	0.5	0.7	0.7	0.3	0.7	
4-Mar	0.6	0.5	0.4	0.4	Z	0.4	0.4	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.6	
5-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
6-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	
7-Mar	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	C	C	C	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.2	--	0.3
8-Mar	0.2	0.2	Z	0.3	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	0.3
9-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
10-Mar	0.2	0.2	0.2	0.2	Z	0.3	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	0.4	2.8	0.4	0.4	0.6	0.3	2.8	
11-Mar	0.3	0.3	0.3	0.2	0.2	Z	0.3	0.4	0.4	0.2	0.3	0.5	0.5	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.5	0.6	0.5	0.2	0.4	0.6	
12-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13-Mar	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
14-Mar	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3
15-Mar	0.1	0.1	0.1	Z	0.1	0.1	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	0.1	0.1	0.2	0.3	0.3	0.2	0.3	
16-Mar	0.2	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.1	0.1	0.1	0.1	0.3	0.6	
17-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	
18-Mar	Z	0.4	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
19-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
20-Mar	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.5	0.5	0.8	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.8	
21-Mar	0.2	0.1	0.1	Z	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	
22-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
23-Mar	0.1	0.2	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.3	
24-Mar	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	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-Mar	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
26-Mar	0.1	0.2	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	
27-Mar	0.2	0.2	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
28-Mar	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.2	0.3	0.4	0.2	0.3	0.2	0.4	
29-Mar	0.2	0.2	0.2	0.4	0.3	Z	0.3	0.4	0.6	0.5	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.6	
30-Mar	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
31-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.3 0.2 0.2 0.2 0.2			
																								0.6 0.5 0.4 0.4 0.4 0.4 0.4 0.5 0.6 0.8 0.5 0.5 0.5 0.6 0.4 0.3 0.4 0.4 0.6 0.6 2.8 0.6 0.7 0.7			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	706	99.86	99.86
3 - 4	1	0.14	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - March 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	13	7	12	21	75	157	57	22	19	24	15	16	16	26	173	706
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	53	13	7	12	21	75	157	57	22	19	24	15	16	16	26	174	707

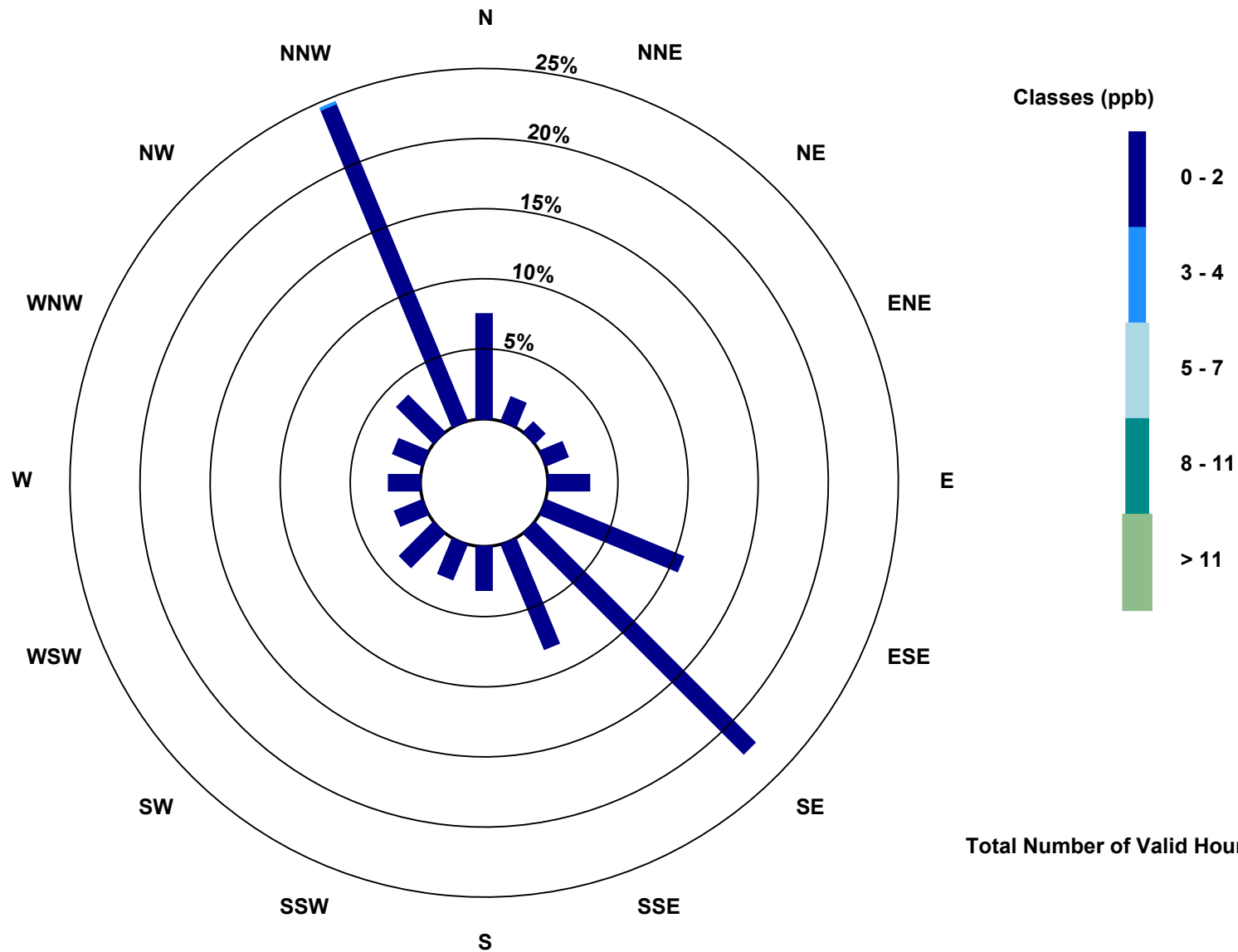
Total Number of Valid Hours: 707

Total Number of Hours: 744

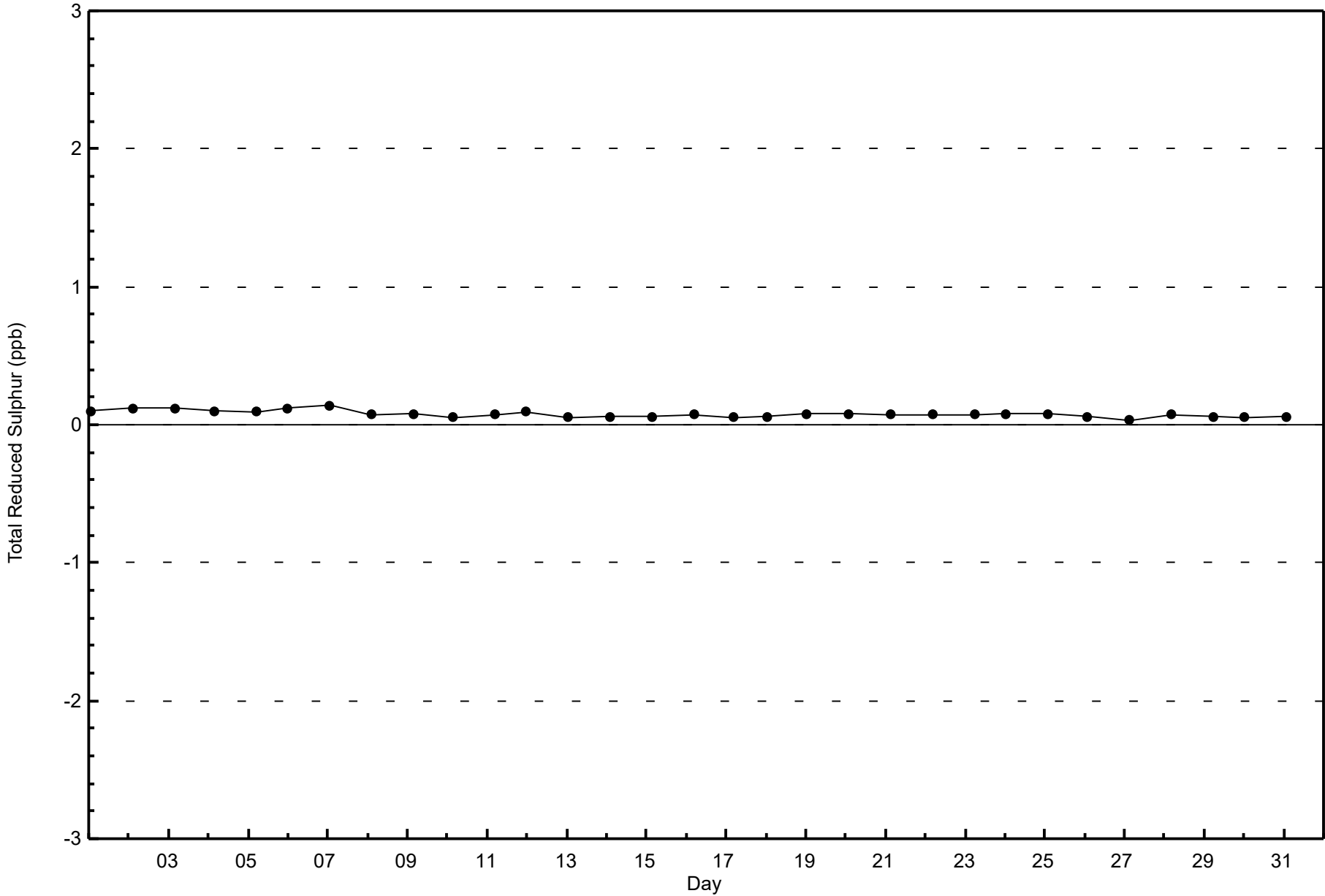


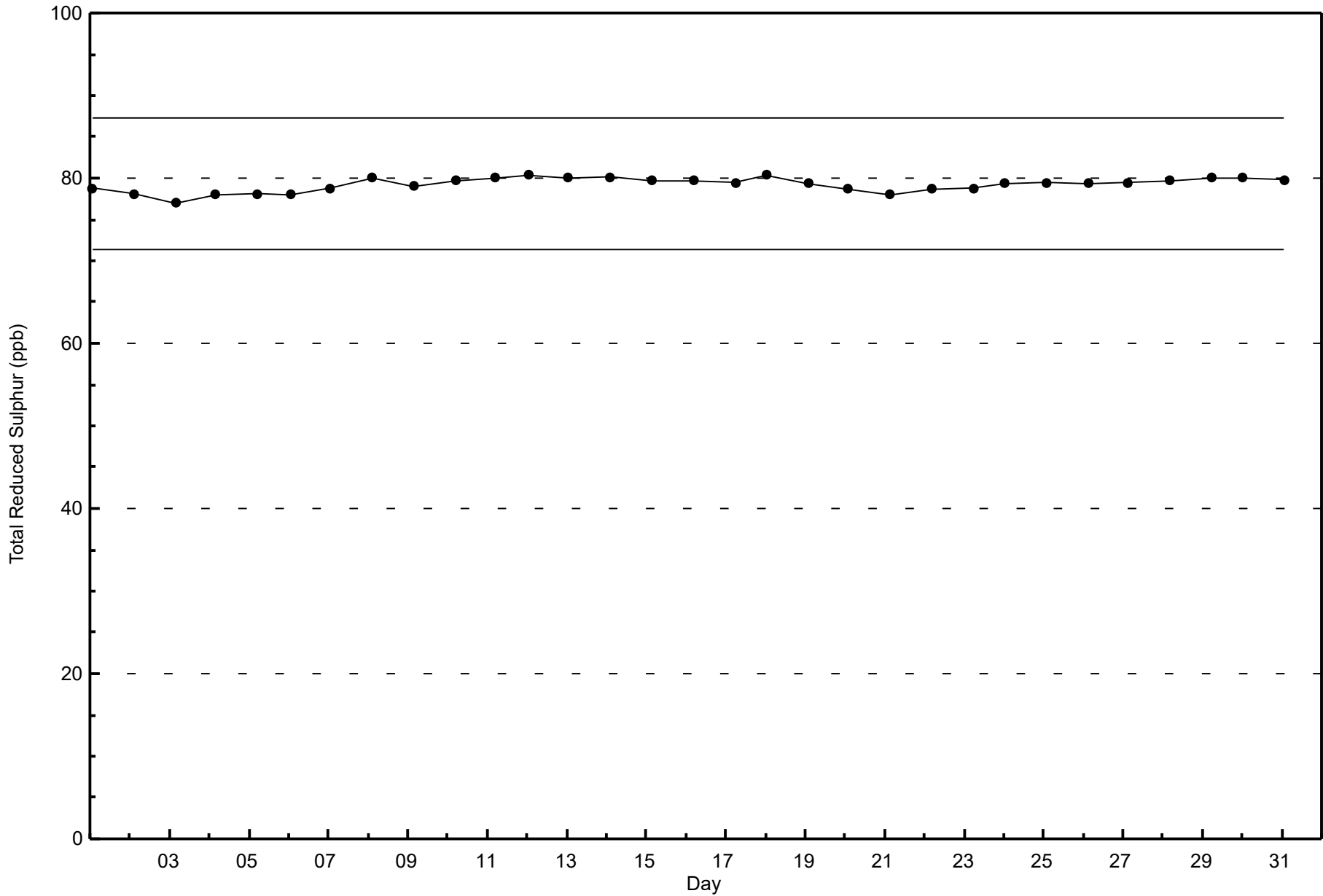
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Athabasca Valley



Total Number of Valid Hours: 707

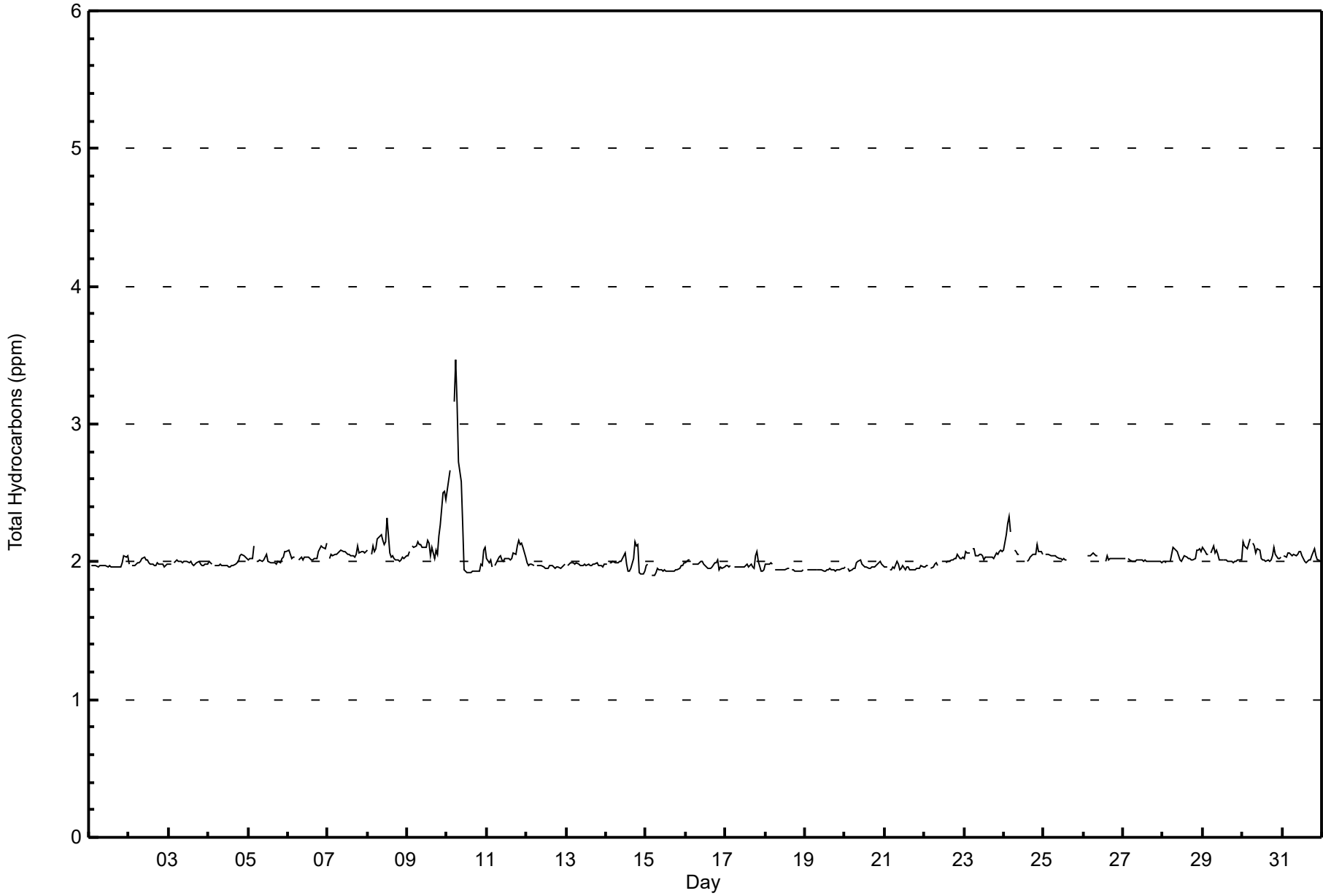






Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Athabasca Valley - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Athabasca Valley - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	533	77.25	77.25
2.1 - 3.0	154	22.32	99.57
3.1 - 10.0	3	0.43	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
Athabasca Valley - March 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	52	10	8	11	19	49	94	37	15	8	17	13	13	16	20	151	533
2.1 - 3.0	3	1	1	1	2	24	58	14	7	8	8	1	2	0	4	20	154
3.1 - 10.0	0	0	0	0	0	0	0	1	1	1	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
Totals	55	11	9	12	21	73	152	52	23	17	25	14	15	16	24	171	690

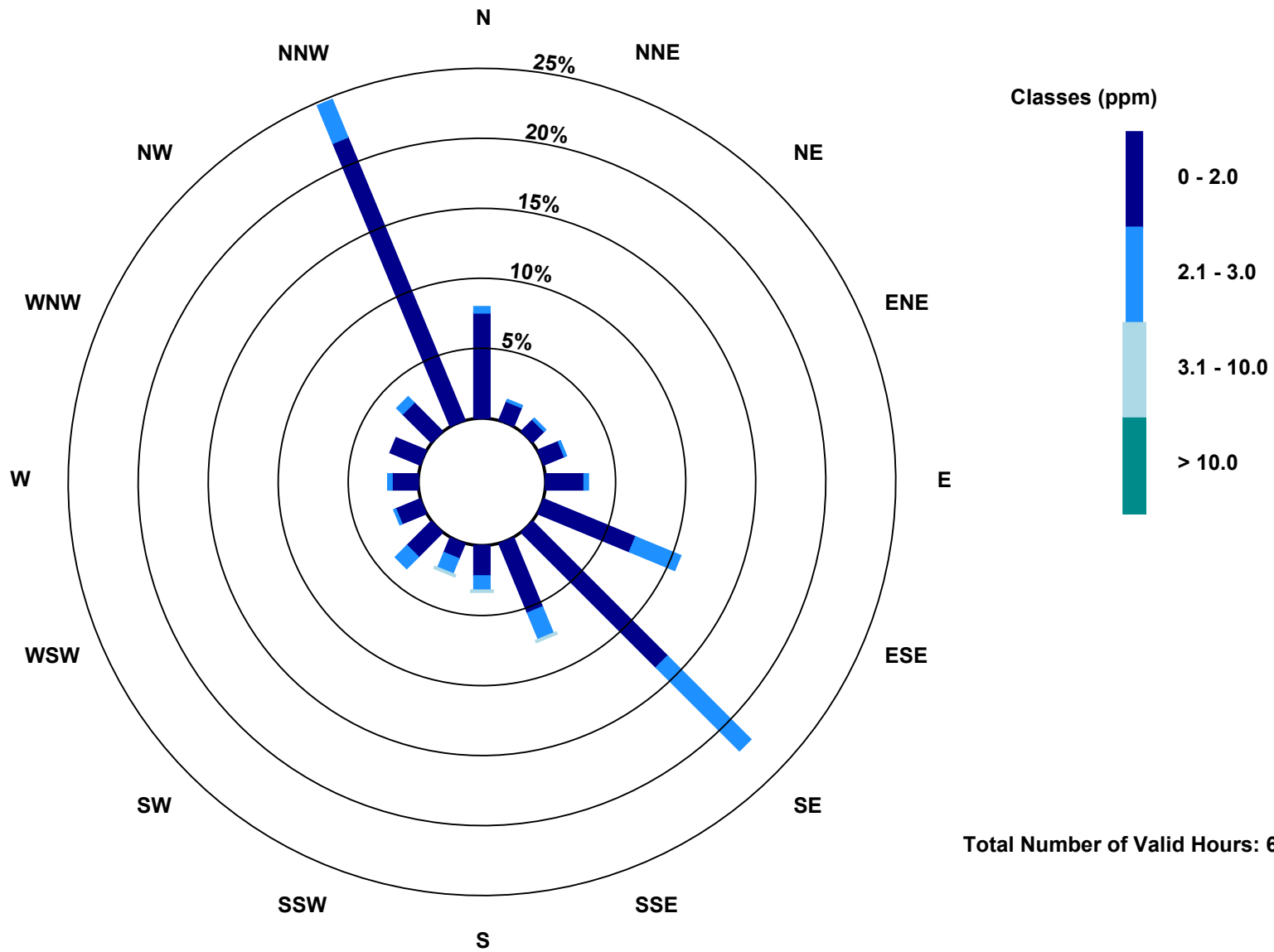
Total Number of Valid Hours: 690

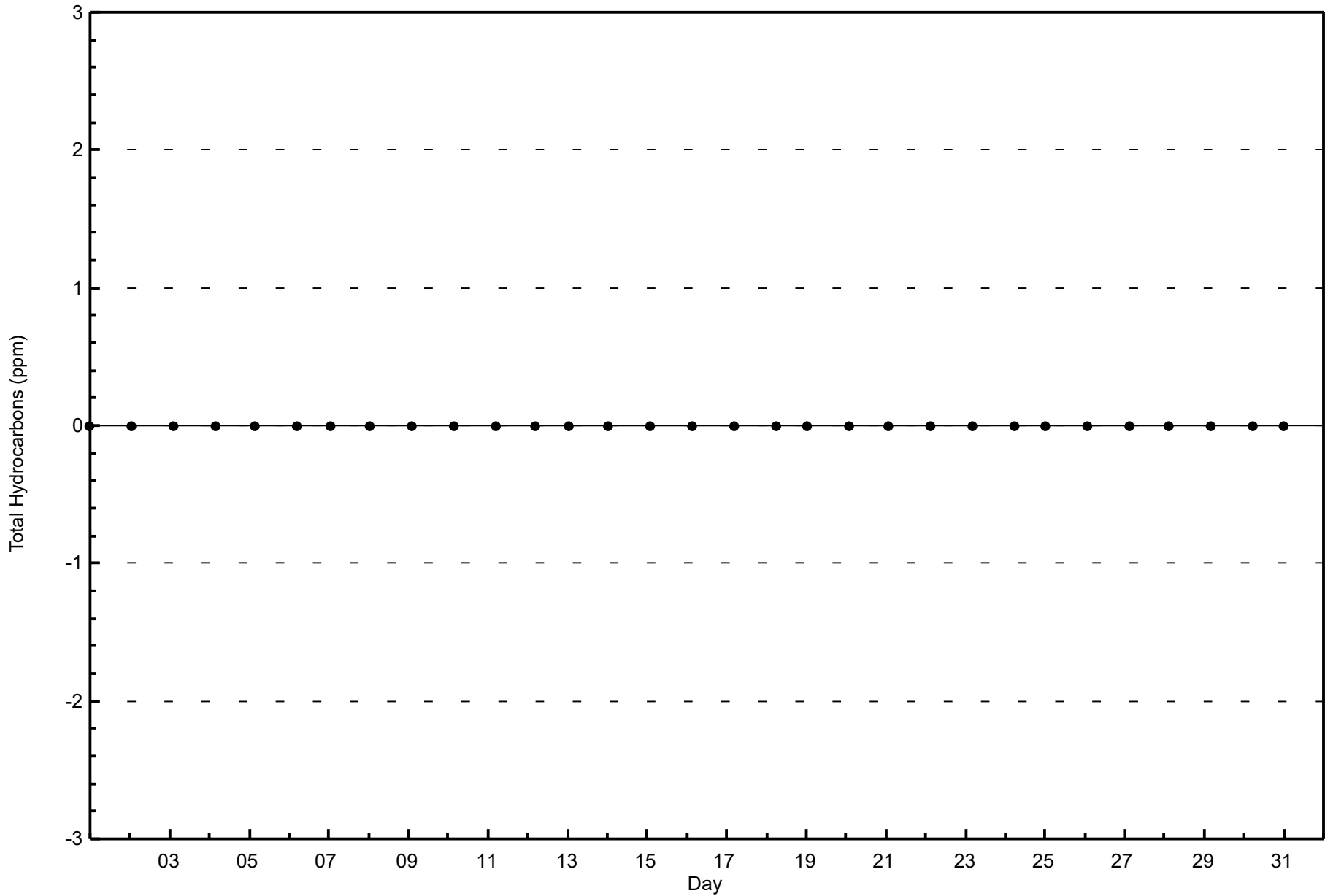
Total Number of Hours: 744

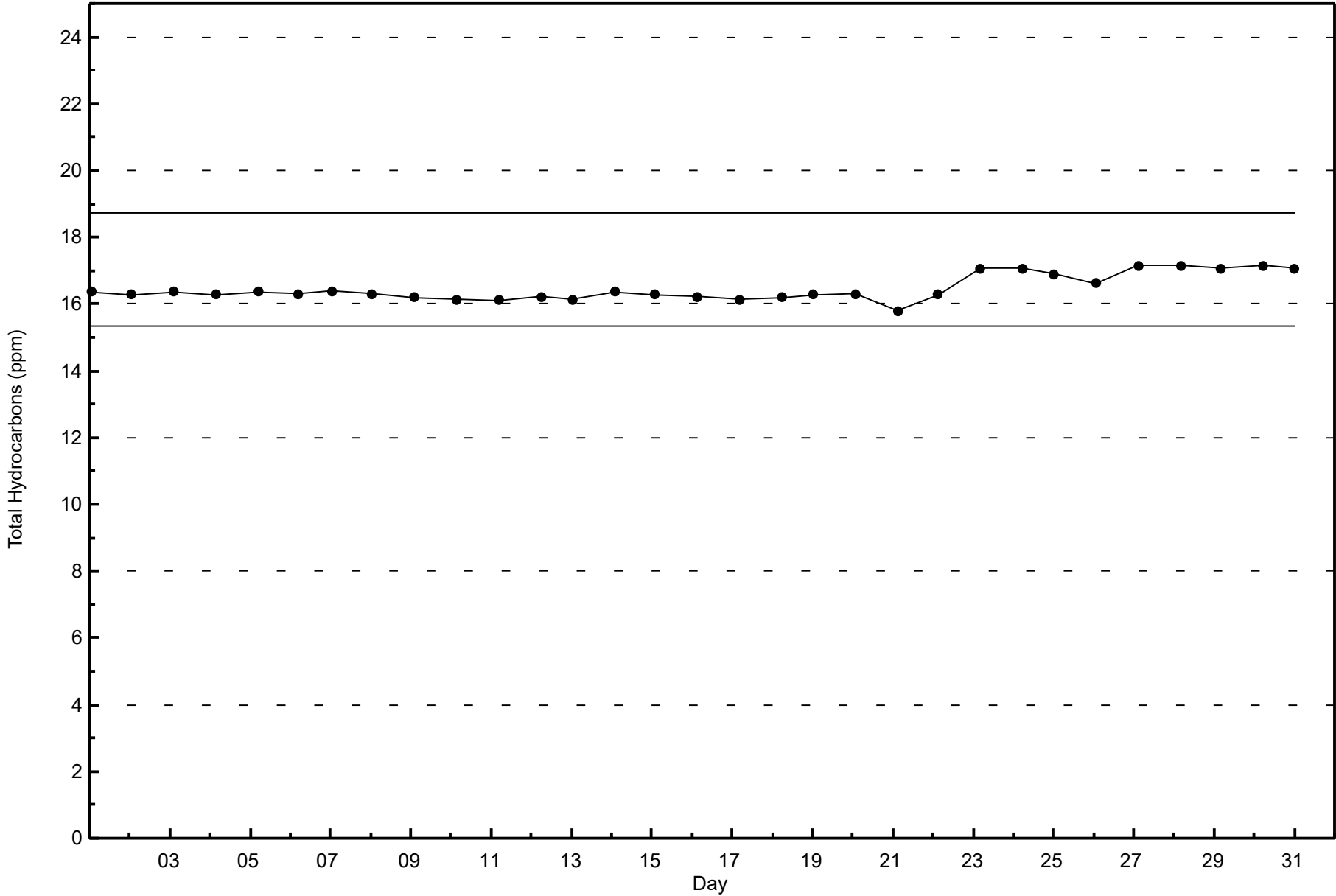


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Athabasca Valley

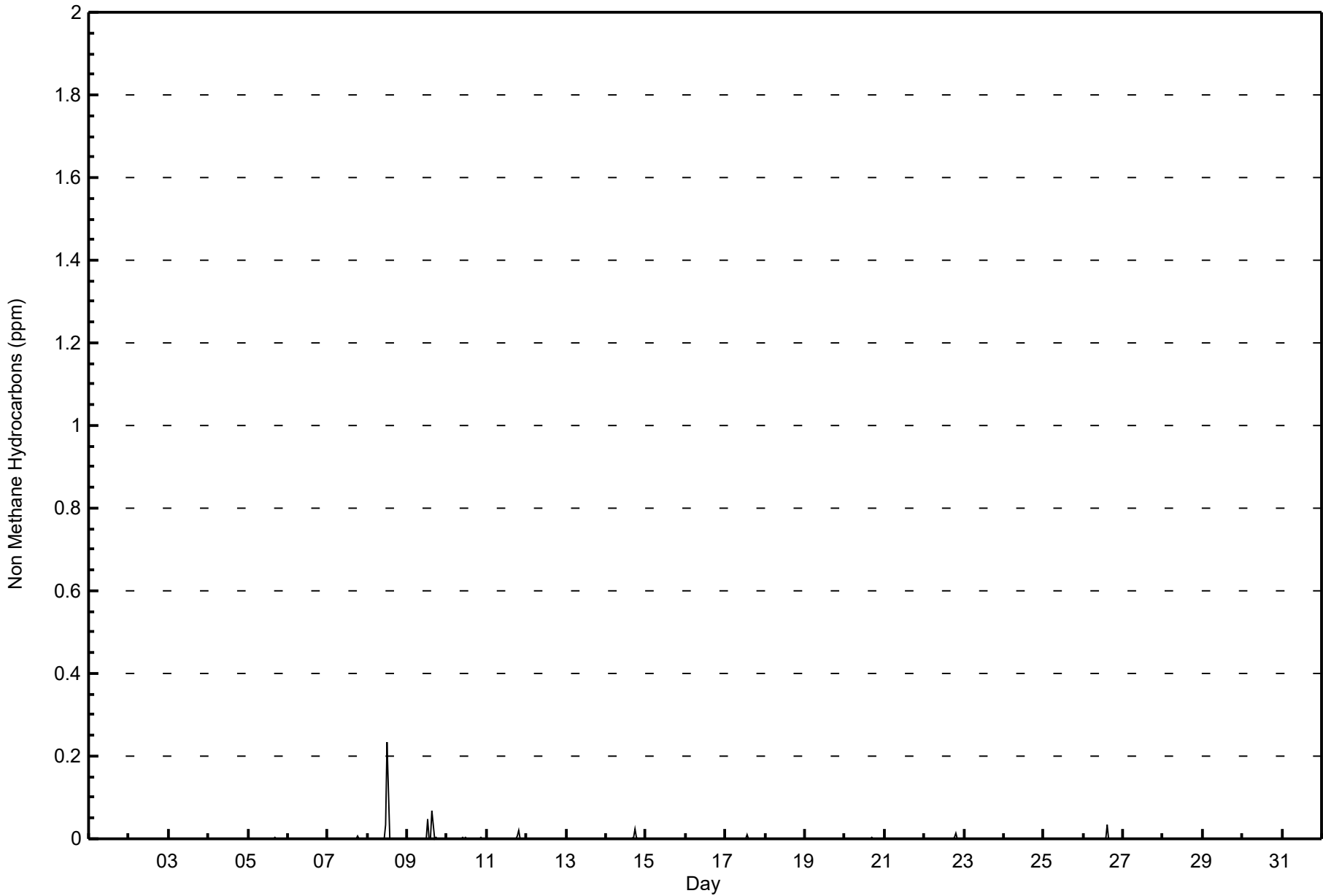








Maximum Value: 0.233 ppm on Mar 8 13:00		Maximum Daily Average: 0.012 ppm on Mar 8		Hours in Service: 744																													
Minimum Value: 0.000 ppm on Mar 1 02:00		Minimum Daily Average: 0.000 ppm on Mar 1		Hours of Data: 690																													
Maximum Diurnal Average: 0.010 ppm at hour 13		Minimum Diurnal Average: 0.000 ppm at hour 1		Hours of Missing Data: 54																													
Monthly Average: 0.001 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0		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-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5-Mar	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	0.001	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	0.002
6-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008
8-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.034	0.233	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.233
9-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.068	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	0.068
10-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	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
11-Mar	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	0.007	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
12-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.024	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024
15-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17-Mar	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	0.011	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	0.011
18-Mar	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	UO	0.000	0.000	0.000	0.000	0.000	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-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
21-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.004	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012
23-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	UO	UO	UO	UO	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
26-Mar	UO	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	M	0.000	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.035	
27-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
28-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010	0.000	0.001	0.002	0.000	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Diurnal Average
		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.034	0.233	0.011	0.035	0.068	0.003	0.024	0.008	0.020	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Diurnal Maximum
Z - zerospan		C - Calibration					M - Maintenance					UO - Unstable Operation																					





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Athabasca Valley - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	679	98.41	98.41
0.006 - 0.05	9	1.30	99.71
0.06 - 0.1	1	0.14	99.86
> 0.1	1	0.14	100.00

Total Number of Valid Hours: 690

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Athabasca Valley - March 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	54	11	9	12	21	71	146	52	23	17	25	14	14	16	24	170	679
0.006 - 0.05	1	0	0	0	0	2	4	0	0	0	0	0	1	0	0	1	9
0.06 - 0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
> 0.1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Totals	55	11	9	12	21	73	152	52	23	17	25	14	15	16	24	171	690

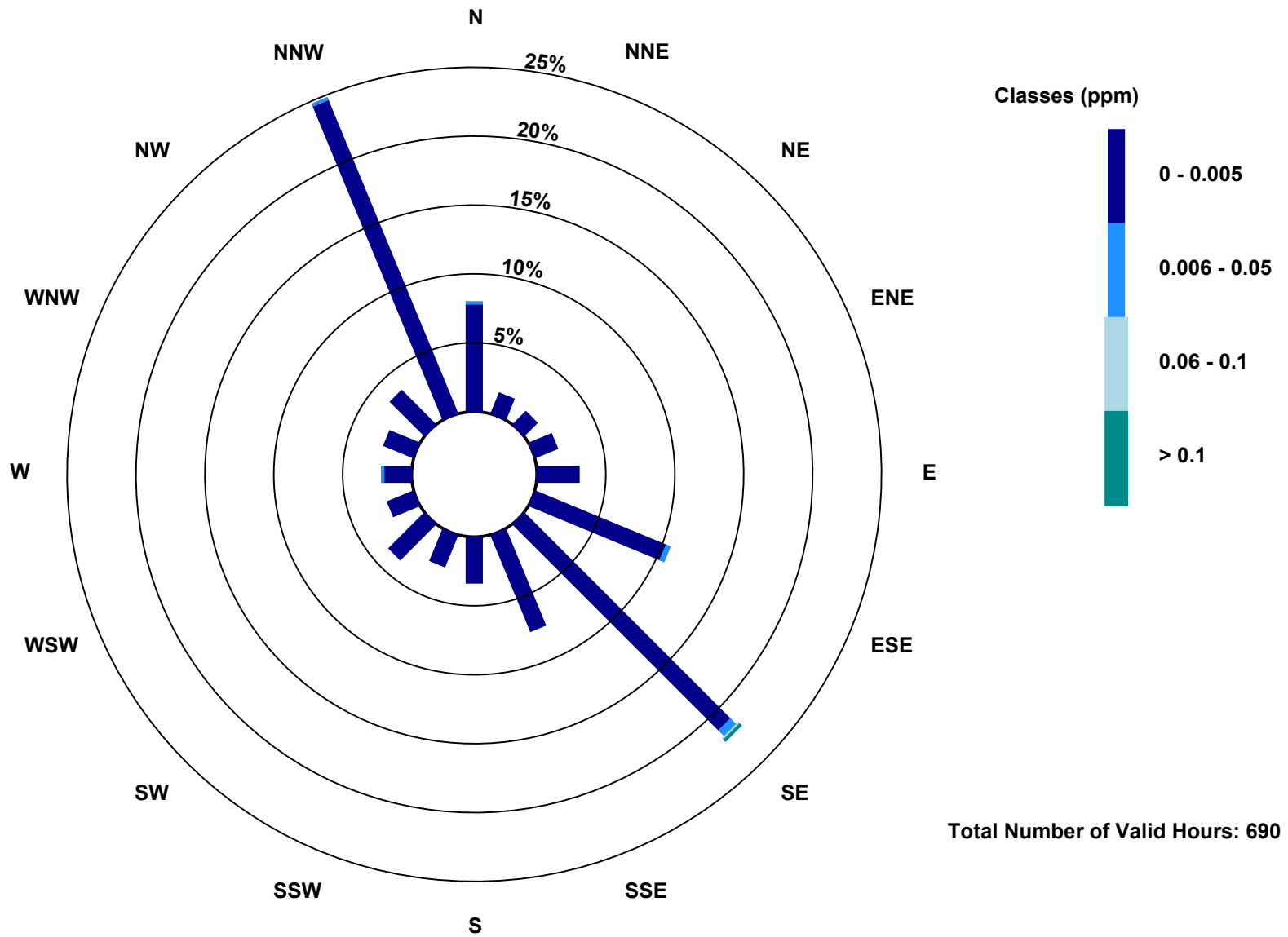
Total Number of Valid Hours: 690

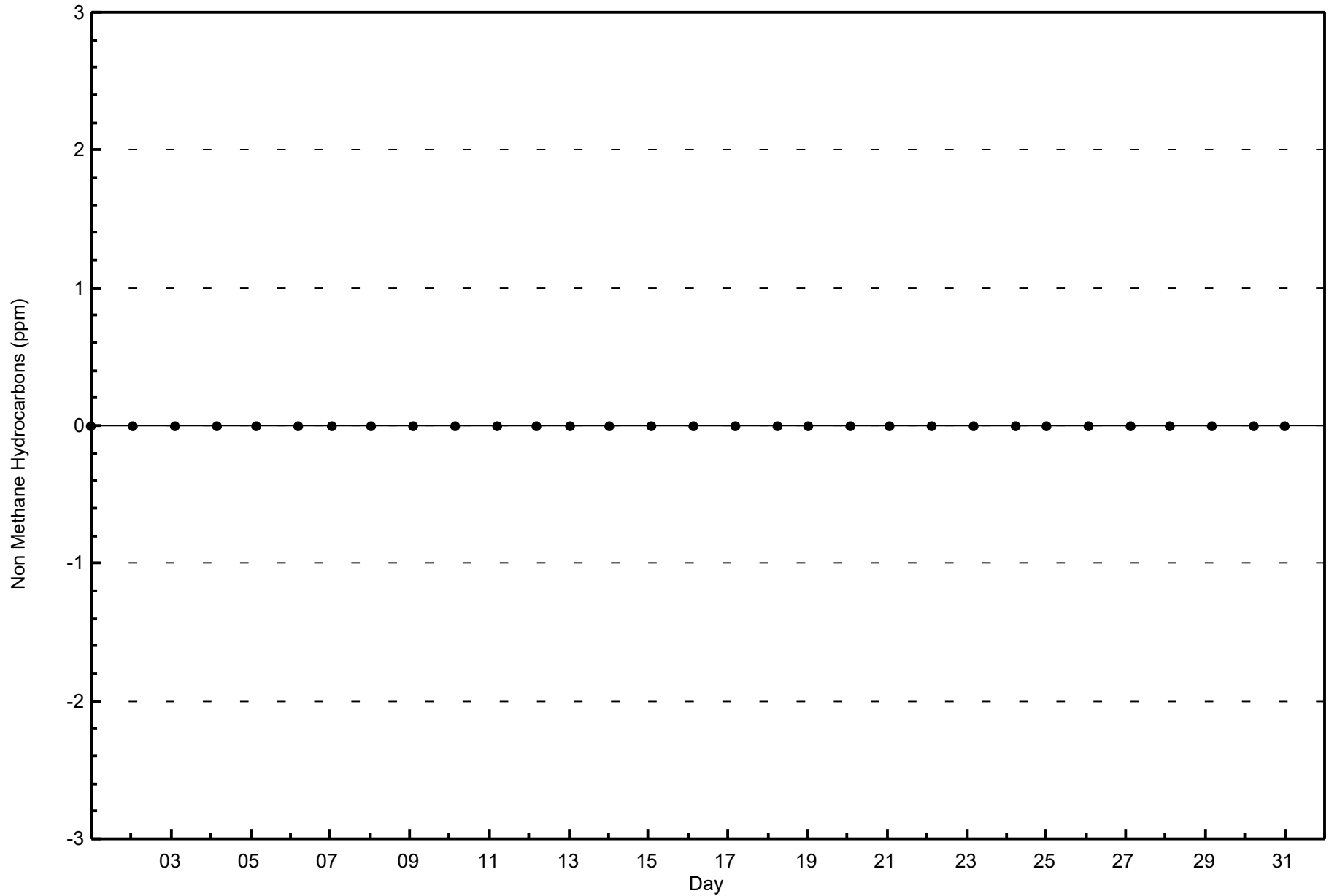
Total Number of Hours: 744

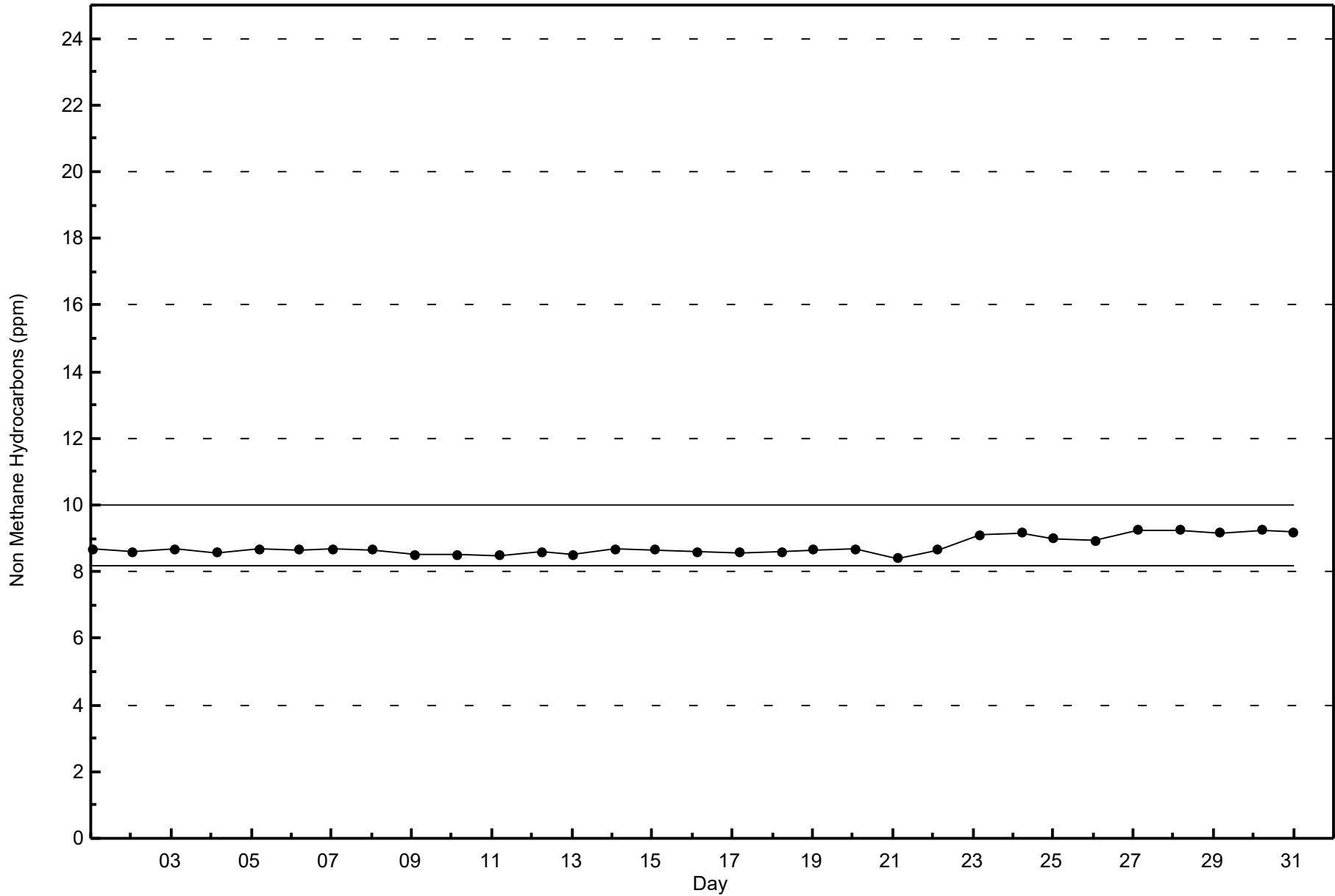


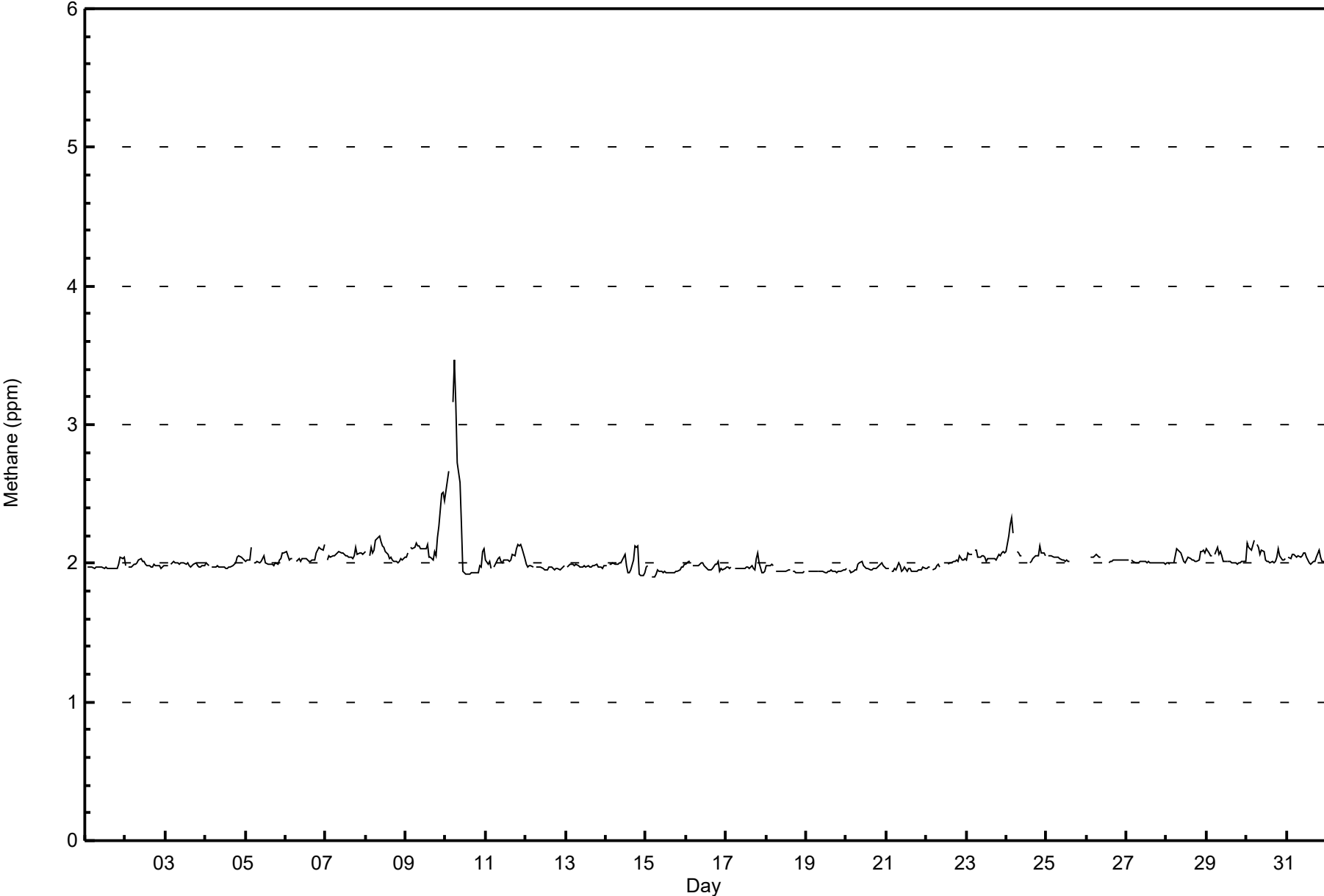
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Athabasca Valley











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Athabasca Valley - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	534	77.39	77.39
2.1 - 3.0	153	22.17	99.57
3.1 - 10.0	3	0.43	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 (CH₄) - ppm
Athabasca Valley - March 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	52	10	8	11	19	49	95	37	15	8	17	13	13	16	20	151	534
2.1 - 3.0	3	1	1	1	2	24	57	14	7	8	8	1	2	0	4	20	153
3.1 - 10.0	0	0	0	0	0	0	0	1	1	1	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
Totals	55	11	9	12	21	73	152	52	23	17	25	14	15	16	24	171	690

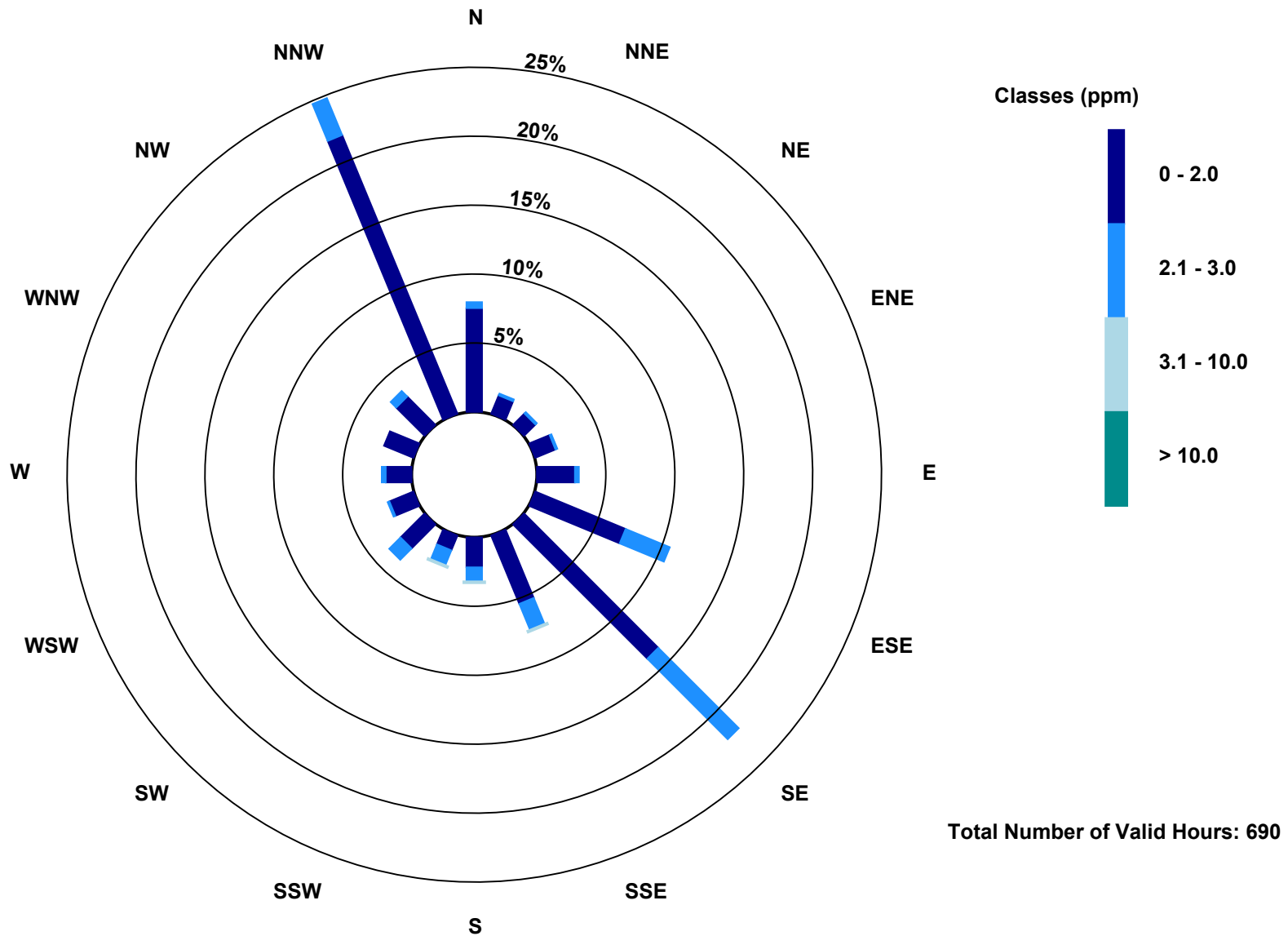
Total Number of Valid Hours: 690

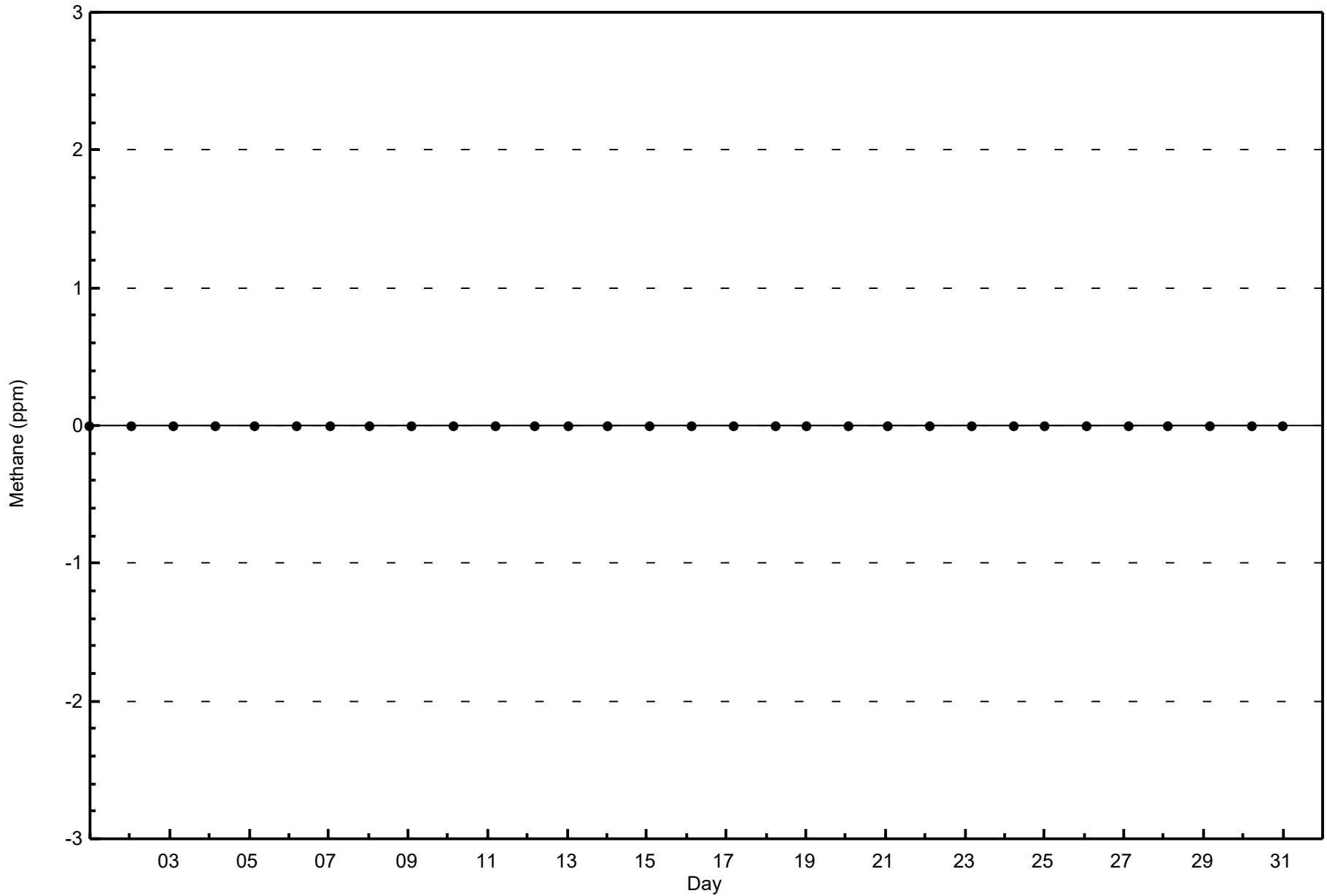
Total Number of Hours: 744

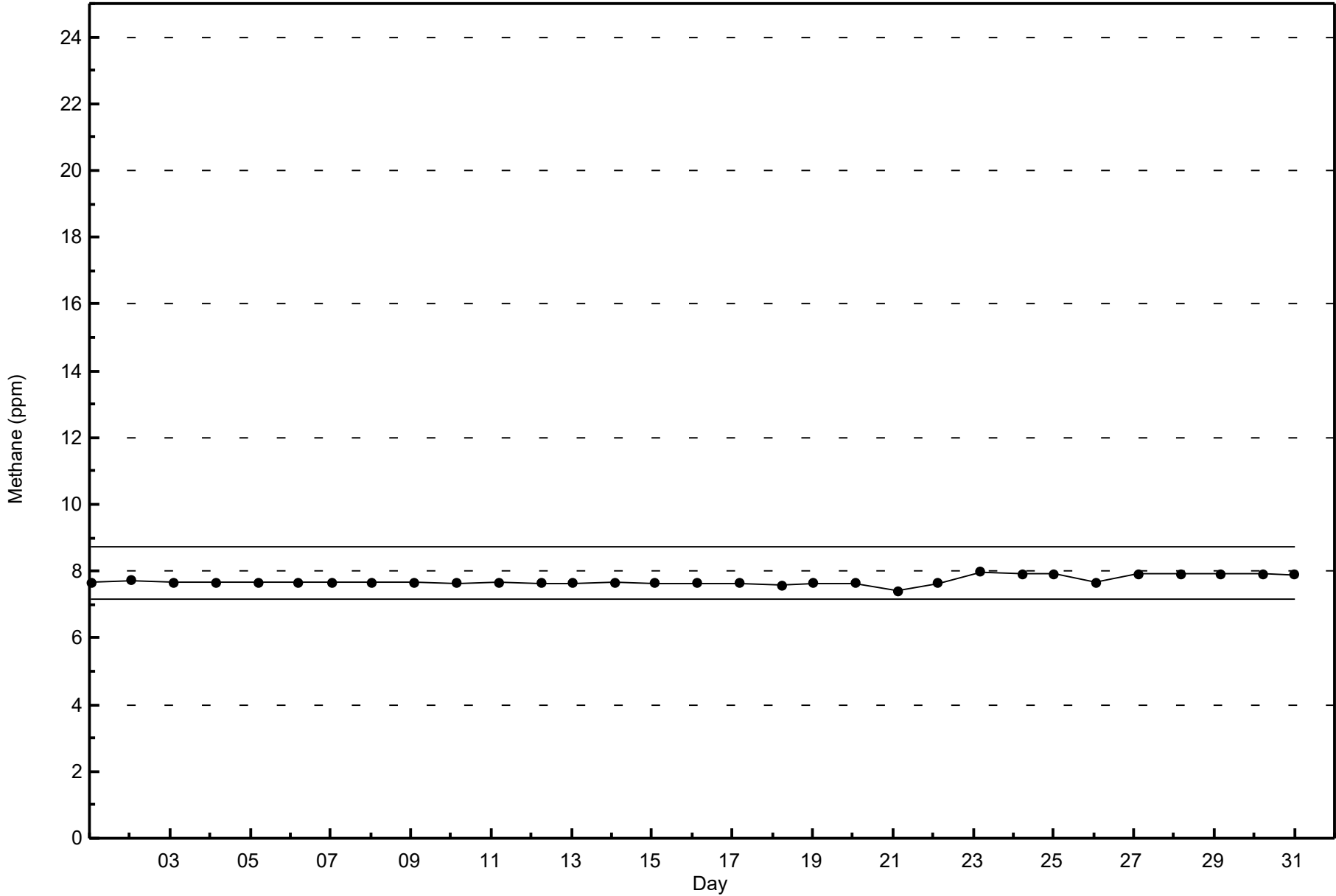


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Athabasca Valley









Wood Buffalo Environmental Association

Summary of Hour Averages

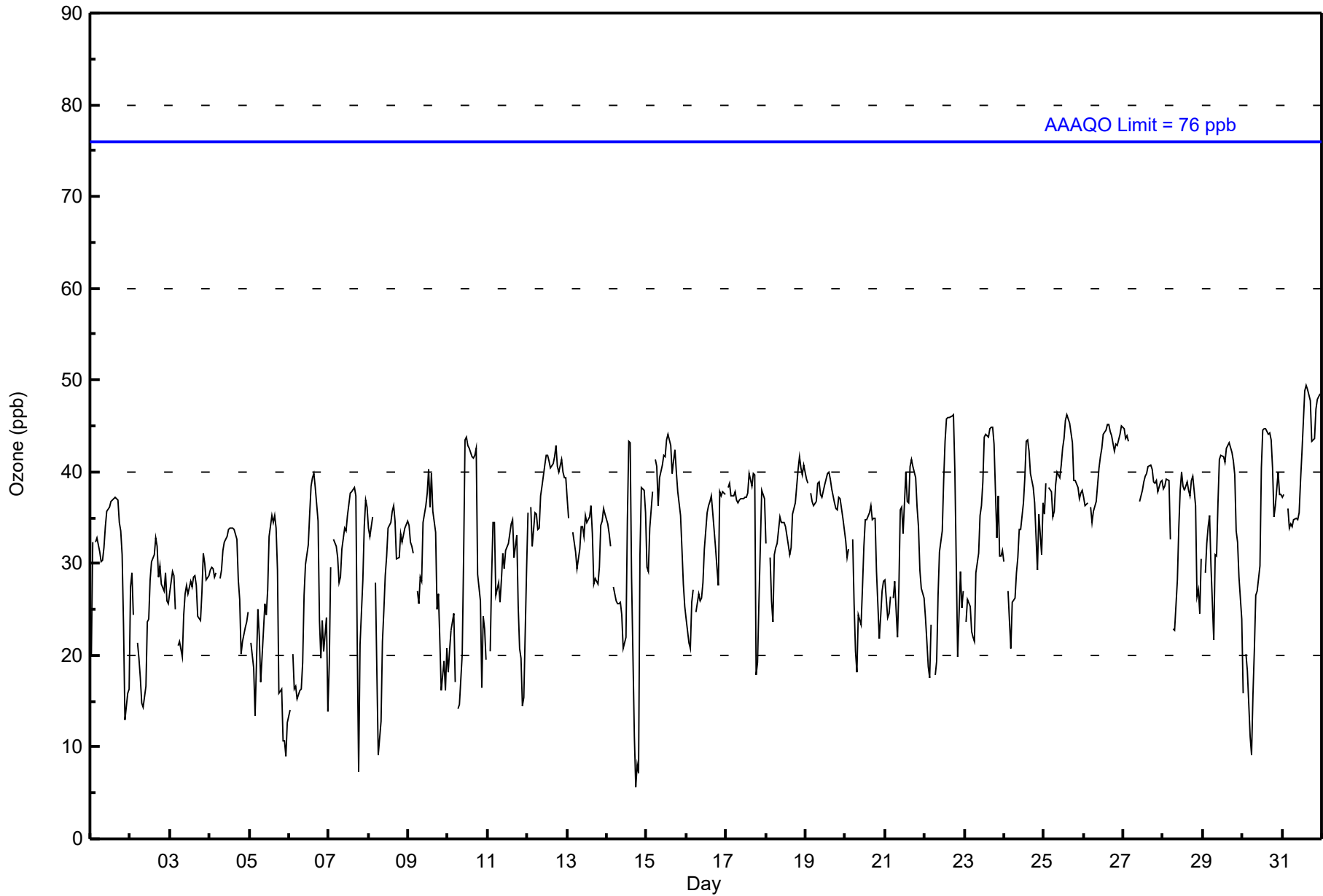
Ozone (O₃) - ppb

Athabasca Valley - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 49.4 ppb on Mar 31 15:00	Maximum Daily Average: 41.6 ppb on Mar 31		Hours of Data:	709
Minimum Value: 5.6 ppb on Mar 14 18:00	Minimum Daily Average: 22.3 ppb on Mar 5		Hours of Missing Data:	35
Maximum Diurnal Average: 39.2 ppb at hour 15	Minimum Diurnal Average: 26.0 ppb at hour 7		Hours of Calibration:	35
Monthly Average: 32.32 ppb	Percentiles: P ₁ = 10.7 P ₁₀ = 20.6 Q ₁ = 27.0 Median = 33.8 Q ₃ = 38.3 P ₉₀ = 42.3 P ₉₉ = 47.7		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-Mar	19.9	32.3	Z	32.4	32.8	31.2	30.3	30.4	31.7	34.0	35.7	36.1	36.8	36.9	37.1	37.2	36.9	34.4	33.6	30.9	23.2	13.0	15.9	16.4	30.4	37.2																						
2-Mar	27.4	29.0	24.3	Z	21.3	19.6	17.5	14.8	14.4	16.7	23.6	24.0	28.3	30.2	30.9	32.8	31.8	28.5	29.7	27.8	27.0	29.0	26.0	25.7	25.2	32.8																						
3-Mar	26.9	29.1	28.7	25.0	Z	21.1	21.5	19.9	24.4	26.6	27.7	26.6	28.0	27.5	28.6	28.8	27.6	24.3	23.9	26.9	31.1	30.0	28.1	28.6	26.6	31.1																						
4-Mar	29.3	29.6	29.5	28.5	28.9	Z	28.4	29.3	31.5	32.4	32.9	33.6	33.9	33.9	33.7	32.7	28.2	26.1	20.1	21.5	23.1	23.7	24.7	29.1	33.9																							
5-Mar	Z	21.4	18.6	13.4	19.2	25.1	22.1	17.1	22.8	25.7	24.4	27.2	33.0	35.3	34.5	35.2	33.9	29.2	15.9	16.4	10.7	10.7	9.0	12.6	22.3	35.3																						
6-Mar	14.1	Z	20.1	16.3	16.6	15.2	16.1	16.3	19.3	26.5	29.8	32.0	35.3	38.5	39.3	39.8	38.3	34.7	23.7	19.7	23.8	20.4	24.1	13.9	25.0	39.8																						
7-Mar	19.1	29.6	Z	32.6	31.8	30.7	28.0	28.5	31.5	33.8	33.5	35.3	36.4	37.7	37.8	38.3	37.3	21.0	7.3	21.3	28.3	33.9	36.9	36.2	30.7	38.3																						
8-Mar	33.9	32.9	35.1	Z	28.0	18.3	9.2	12.7	21.5	24.9	28.7	30.9	33.9	34.4	35.7	36.3	34.6	30.5	30.6	33.3	32.3	33.1	33.8	34.6	29.5	36.3																						
9-Mar	34.2	32.3	31.8	31.1	Z	27.0	25.6	28.5	28.0	34.5	36.3	37.7	40.3	36.2	39.8	35.7	33.4	25.1	26.7	21.7	16.1	19.4	16.2	20.7	29.5	40.3																						
10-Mar	18.1	20.6	22.7	24.6	17.0	Z	14.1	14.7	20.1	30.7	43.5	43.8	42.9	42.6	41.6	41.6	41.7	42.5	28.9	26.0	16.5	24.2	22.8	19.5	28.7	43.8																						
11-Mar	Z	20.5	28.6	34.5	34.5	26.6	28.0	25.8	28.2	31.1	29.4	31.5	32.1	33.3	34.4	34.7	30.7	33.2	25.3	20.7	19.6	14.4	15.4	29.5	27.9	34.7																						
12-Mar	35.5	Z	36.1	31.9	35.5	35.3	33.8	33.8	37.4	38.5	40.7	41.8	41.8	41.2	40.4	40.9	41.6	42.8	40.6	40.0	41.4	40.0	39.3	39.3	38.7	42.8																						
13-Mar	37.0	34.9	Z	33.4	32.4	31.3	29.5	31.6	34.0	34.0	33.0	35.2	34.5	35.1	36.4	33.3	27.8	28.4	27.8	29.5	34.1	34.7	36.0	35.4	33.0	37.0																						
14-Mar	34.4	33.3	31.9	Z	27.4	26.0	25.6	25.6	25.8	24.4	20.7	22.0	34.6	43.3	43.2	28.5	11.1	5.6	8.1	7.2	30.9	38.3	38.0	35.6	27.0	43.3																						
15-Mar	29.7	29.2	33.8	37.8	Z	41.4	40.6	36.2	39.4	40.8	41.9	41.7	43.5	44.1	42.9	39.9	41.2	42.4	40.0	37.8	35.2	31.6	27.7	25.3	37.6	44.1																						
16-Mar	24.0	21.3	20.8	25.8	27.1	Z	24.7	26.7	26.0	26.3	28.0	31.5	35.5	36.4	36.7	37.4	35.5	31.7	29.6	27.5	37.8	37.4	37.9	37.5	30.6	37.9																						
17-Mar	Z	38.3	38.8	37.3	37.4	37.8	37.0	36.5	36.9	37.0	37.1	37.2	37.2	37.7	39.8	38.5	39.9	39.6	17.8	19.3	25.8	38.0	37.5	37.0	35.6	39.9																						
18-Mar	32.2	Z	30.7	26.0	23.6	31.0	31.7	32.2	35.0	34.5	34.5	34.5	34.0	32.0	31.0	31.7	35.3	36.0	36.6	40.3	41.7	40.4	39.6	40.8	34.1	41.7																						
19-Mar	39.3	38.7	Z	37.7	36.7	36.4	36.7	38.7	38.8	37.6	37.2	38.5	39.2	39.8	40.0	39.2	38.1	36.7	36.0	35.8	37.2	37.1	34.9	33.8	37.6	40.0																						
20-Mar	32.5	30.7	31.6	Z	32.7	25.6	20.4	18.1	24.4	23.4	27.5	31.9	34.7	34.8	35.6	36.3	34.7	34.9	34.9	29.1	21.9	24.2	26.9	28.1	29.3	36.3																						
21-Mar	28.2	24.0	24.5	26.3	Z	26.3	28.1	22.0	27.3	35.8	36.1	33.3	40.0	36.7	36.6	40.5	41.4	40.5	39.3	36.1	34.0	29.3	27.3	26.2	32.2	41.4																						
22-Mar	24.1	21.6	18.8	17.5	23.3	Z	17.9	19.3	26.5	31.2	33.5	39.1	43.2	45.7	45.9	45.9	46.1	46.2	40.1	30.0	19.8	29.1	25.2	27.0	31.2	46.2																						
23-Mar	Z	23.7	26.0	25.3	22.6	22.0	21.6	29.0	31.1	35.2	36.3	38.8	43.8	44.0	43.8	44.7	44.8	44.8	43.1	32.8	37.4	30.7	30.9	31.4	34.1	44.8																						
24-Mar	30.2	Z	27.0	23.8	20.8	25.7	26.3	29.0	30.7	33.8	33.8	36.6	39.4	43.3	43.5	42.3	39.9	38.2	36.6	32.9	29.3	35.4	31.0	36.6	33.3	43.5																						
25-Mar	35.4	38.7	Z	38.4	37.9	35.1	35.6	38.6	40.0	39.4	40.8	42.6	43.6	45.7	46.2	45.3	44.3	43.2	39.0	39.1	38.3	37.0	37.7	37.9	40.0	46.2																						
26-Mar	37.3	36.3	36.5	Z	36.2	34.5	35.6	36.8	38.6	40.4	41.7	42.5	44.1	44.5	45.1	45.1	44.5	43.9	42.3	43.1	42.9	43.5	44.1	45.1	41.1	45.1																						
27-Mar	44.7	43.7	44.0	43.4	Z	41.2	C	C	C	C	36.8	37.9	38.9	39.4	39.8	40.5	40.7	40.3	38.9	38.8	39.0	37.8	39.0	39.0	40.2	44.7																						
28-Mar	38.2	38.5	39.2	39.0	32.7	Z	22.8	22.7	28.3	33.8	37.9	40.0	38.5	37.9	38.8	38.0	37.3	39.0	39.5	36.2	26.4	27.1	24.6	30.5	34.2	40.0																						
29-Mar	Z	29.0	32.2	34.0	35.2	29.8	21.7	30.9	30.8	36.6	41.4	41.8	41.7	41.0	42.5	42.8	43.1	42.1	41.2	39.7	33.5	32.4	28.5	24.0	35.5	43.1																						
30-Mar	15.8	Z	20.2	18.4	11.2	9.1	15.8	20.7	26.5	27.0	29.8	40.4	44.5	44.7	44.8	44.1	44.2	43.5	40.5	35.0	36.4	40.0	37.6	37.6	31.6	44.8																						
31-Mar	37.2	37.6	Z	36.0	33.9	34.4	34.0	34.9	34.9	34.7	35.6	39.1	42.2	48.8	49.4	48.9	48.4	47.8	43.3	43.6	46.9	47.9	48.2	48.6	41.6	49.4																						
																								29.9	30.7	29.3	29.6	28.3	28.4	26.0	26.7	29.5	32.0	33.9	35.7	37.9	38.8	39.2	38.6	37.4	35.5	31.8	30.3	30.3	31.1	30.4	30.9	Diurnal Average
																								44.7	43.7	44.0	43.4	37.9	41.4	40.6	38.7	40.0	40.8	43.5	43.8	44.5	48.8	49.4	48.9	48.4	47.8	43.3	43.6	46.9	47.9	48.2	48.6	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Athabasca Valley - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	69	9.73	9.73
21 - 50	640	90.27	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ozone (O₃) - ppb
Athabasca Valley - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	0	1	0	0	2	6	17	9	6	11	3	2	0	0	2	10	69
21 - 50	54	12	8	13	17	66	145	51	15	8	21	12	16	16	22	164	640
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
Totals	54	13	8	13	19	72	162	60	21	19	24	14	16	16	24	174	709

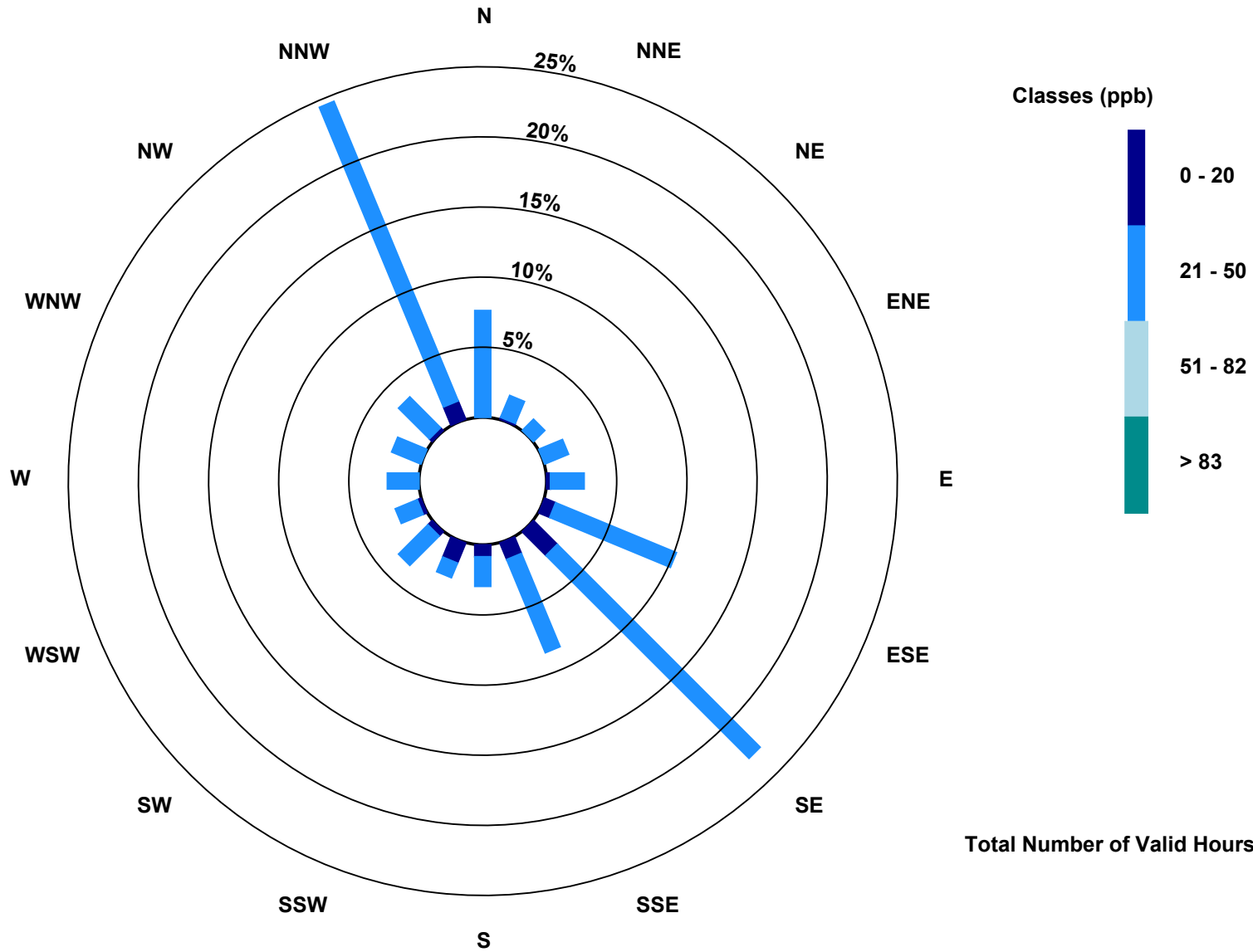
Total Number of Valid Hours: 709

Total Number of Hours: 744

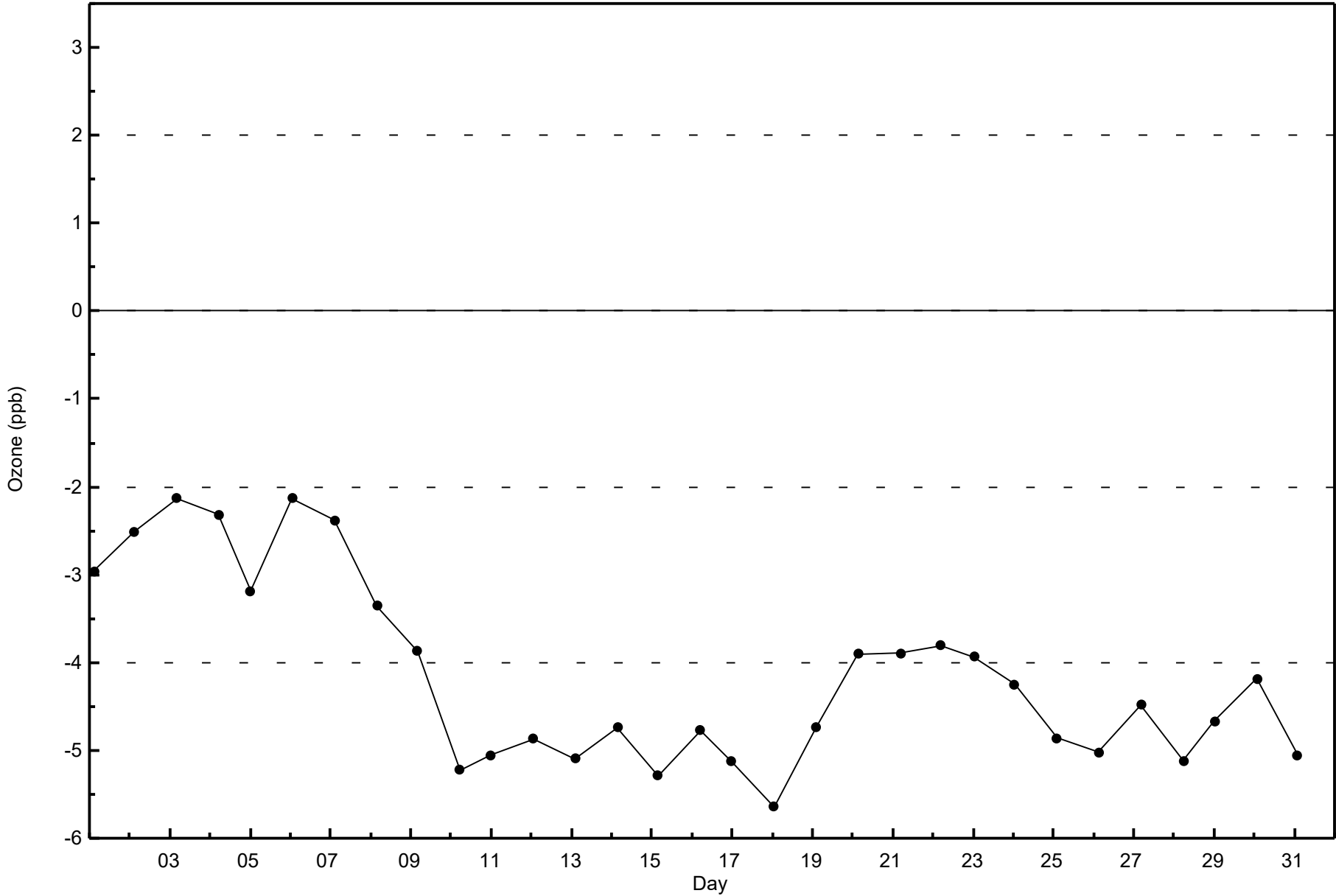


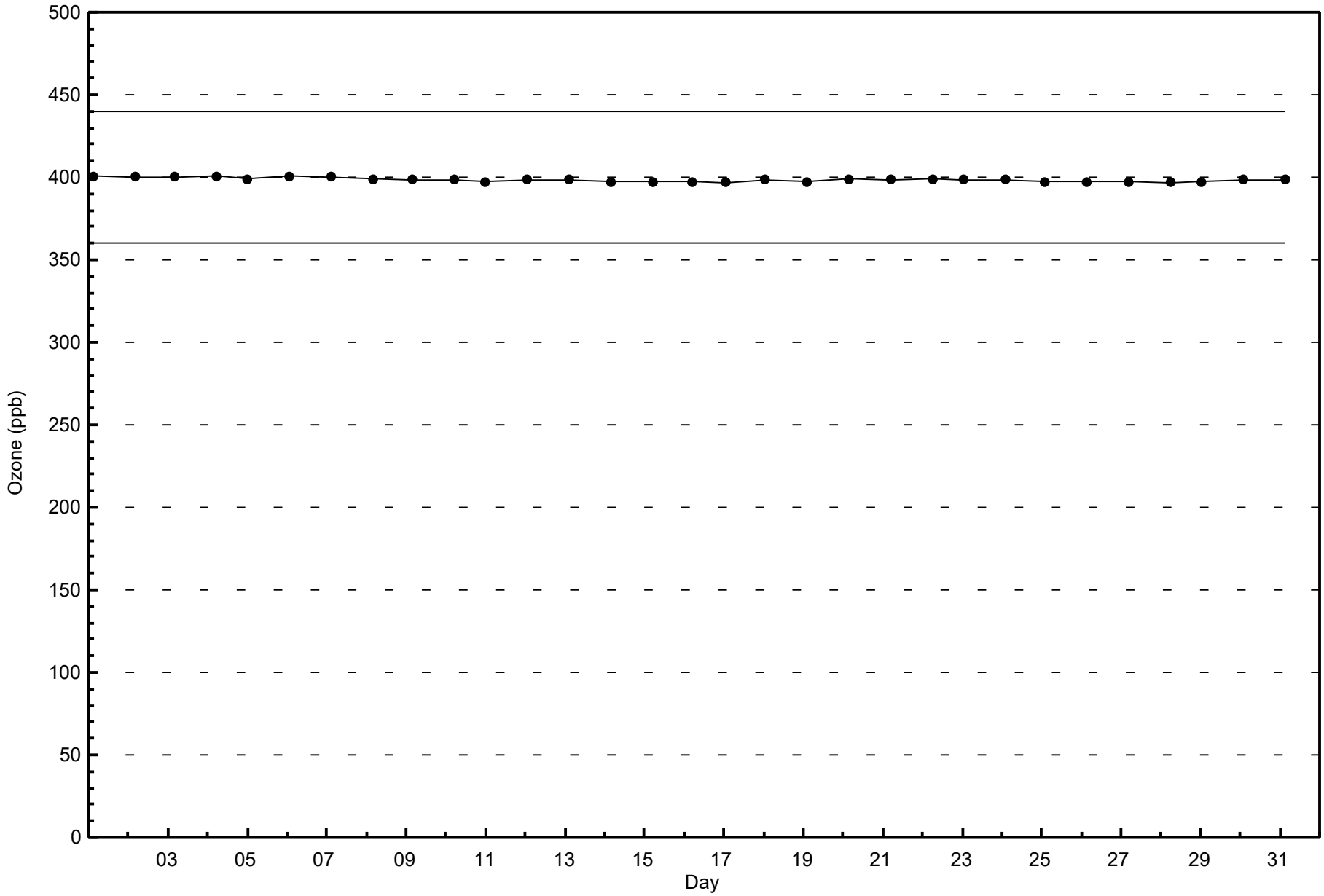
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Athabasca Valley



Total Number of Valid Hours: 709







Wood Buffalo Environmental Association
Summary of Hour Averages

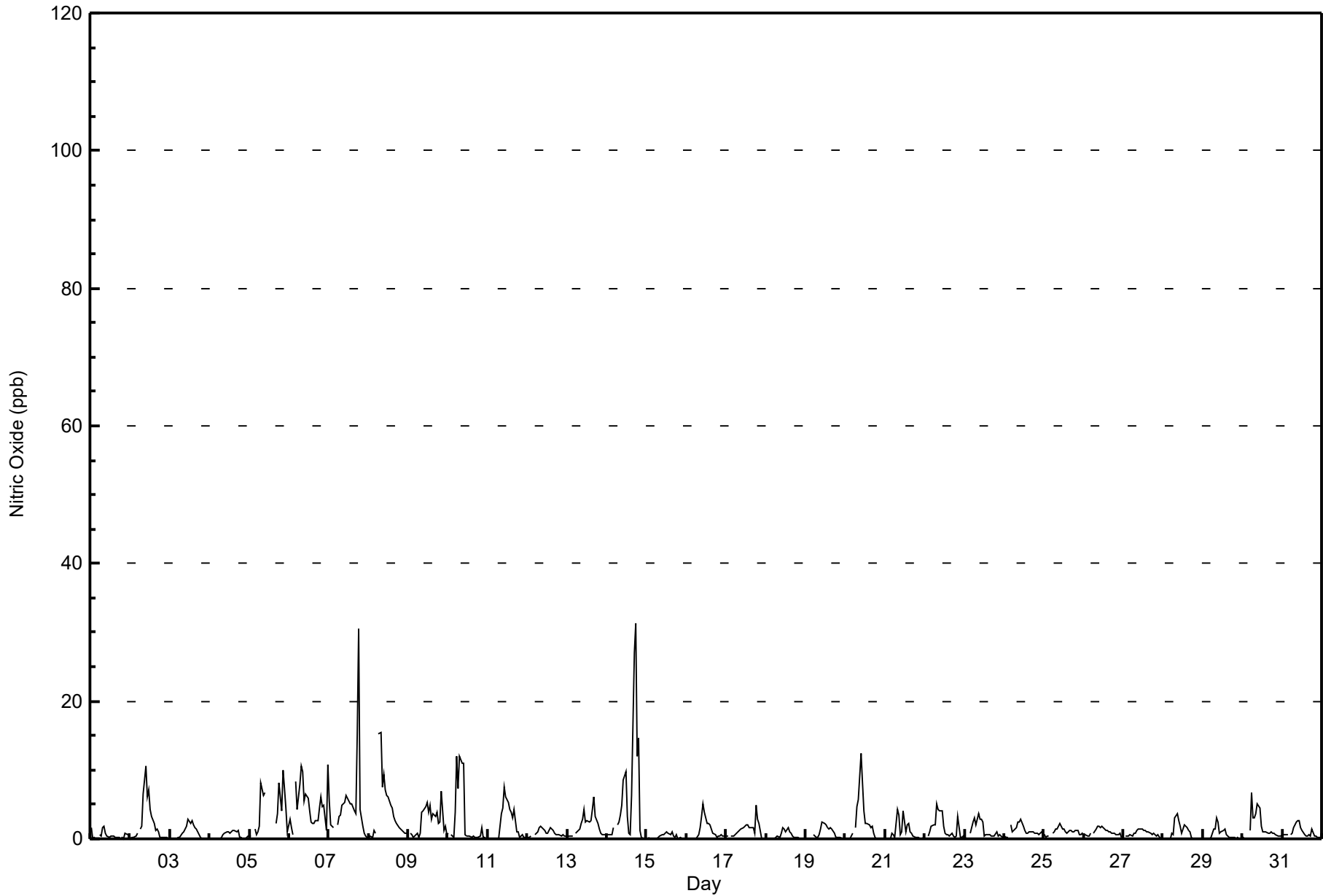
Nitric Oxide (NO) - ppb
Athabasca Valley - March 2024

Maximum Value: 31.4 ppb on Mar 14 18:00 Maximum Daily Average: 5.8 ppb on Mar 14																				Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0						
Minimum Value: 0.0 ppb on Mar 11 04:00 Minimum Daily Average: 0.3 ppb on Mar 15 Maximum Diurnal Average: 3.8 ppb at hour 10 Minimum Diurnal Average: 0.3 ppb at hour 3 Monthly Average: 1.79 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 0.8 Q ₃ = 2.0 P ₉₀ = 4.5 P ₉₉ = 12.4																										
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-Mar	1.6	0.1	0.1	0.1	Z	0.5	0.4	1.7	1.8	0.9	0.4	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.0	0.2	0.1	0.9	0.6	0.6	0.5	1.8
2-Mar	0.1	0.3	0.1	0.4	0.9	Z	1.4	1.9	6.6	10.7	6.2	7.1	4.2	3.3	2.3	1.2	1.4	1.0	0.1	0.1	0.2	0.1	0.3	0.1	2.2	10.7
3-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.8	1.1	1.5	1.9	2.8	2.2	2.6	2.1	1.7	1.4	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.9	2.8
4-Mar	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.2	0.5	0.8	1.0	1.0	0.9	1.1	1.1	1.2	1.1	1.2	0.2	0.2	0.1	0.1	0.2	0.4	0.5	1.2
5-Mar	0.4	0.4	Z	1.3	0.6	0.9	1.8	8.2	6.4	6.8	C	C	C	C	C	C	2.2	3.6	8.2	4.1	9.9	7.3	4.5	1.0	--	9.9
6-Mar	2.9	1.7	0.6	Z	8.3	4.2	8.0	10.7	9.8	5.4	6.6	5.9	4.1	2.4	2.2	2.2	2.7	2.7	4.4	6.1	4.8	4.8	1.2	10.8	4.9	10.8
7-Mar	5.5	1.9	1.8	1.7	Z	2.1	3.3	3.4	4.8	5.3	6.3	6.0	5.5	5.0	5.0	4.1	3.7	15.3	30.4	4.2	1.9	0.8	0.4	0.3	5.2	30.4
8-Mar	0.1	0.3	0.1	1.3	0.8	Z	15.2	15.5	7.5	9.3	7.2	6.3	6.0	4.8	4.5	3.2	2.6	2.3	1.6	1.4	1.2	1.0	0.9	0.9	4.1	15.5
9-Mar	Z	0.8	0.7	0.2	0.5	0.7	0.3	0.9	3.8	4.1	4.6	5.3	3.8	5.0	2.8	3.7	3.2	3.8	2.2	2.5	7.0	1.3	1.8	0.6	2.6	7.0
10-Mar	0.9	Z	0.6	0.3	3.8	12.0	7.4	11.9	11.0	11.0	0.5	0.5	0.4	0.4	0.3	0.4	0.3	0.2	0.2	0.3	1.5	0.2	0.2	0.0	2.8	12.0
11-Mar	0.0	0.0	Z	0.0	0.1	0.1	0.1	1.8	3.6	4.5	7.4	6.1	5.4	4.3	3.8	3.0	4.3	1.0	1.1	0.3	0.4	0.7	0.3	0.2	2.1	7.4
12-Mar	0.2	0.2	0.5	Z	0.7	0.7	1.0	1.6	1.9	1.7	1.2	0.7	0.8	1.2	1.5	1.3	0.9	0.6	0.7	0.5	0.3	0.5	0.4	0.4	0.9	1.9
13-Mar	0.2	0.4	0.3	0.5	Z	0.9	1.1	1.5	2.3	2.7	4.2	2.5	2.7	2.5	2.6	4.3	6.1	3.2	2.3	1.4	0.8	0.7	0.6	0.6	1.9	6.1
14-Mar	0.5	0.6	0.6	0.7	1.5	Z	2.0	2.4	3.6	4.9	8.6	9.7	3.3	0.8	0.7	6.2	27.1	31.4	11.9	14.7	1.2	0.1	0.0	0.0	5.8	31.4
15-Mar	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.7	0.7	1.0	0.7	0.7	0.7	1.0	0.4	0.2	0.6	0.1	0.1	0.1	0.0	0.0	0.3	1.0
16-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.6	1.6	3.3	5.1	3.9	2.2	2.2	2.0	1.4	0.9	0.7	0.2	0.3	0.5	0.5	0.3	0.4	1.1	5.1
17-Mar	0.4	0.4	Z	0.4	0.5	0.5	0.7	0.9	1.2	1.4	1.6	1.7	2.1	2.1	1.5	1.6	1.7	0.8	4.9	2.9	2.2	0.1	0.0	0.0	1.3	4.9
18-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.4	0.3	0.7	1.7	1.4	1.1	1.6	1.1	0.9	0.4	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.5	1.7
19-Mar	0.0	0.0	0.0	0.0	Z	0.6	0.1	0.2	0.6	1.4	2.4	2.3	2.0	1.6	1.4	1.6	1.4	0.8	0.3	0.2	0.2	0.1	0.0	0.0	0.7	2.4
20-Mar	0.0	0.0	0.0	0.0	0.8	Z	1.6	4.7	5.6	12.5	8.1	4.1	2.2	2.2	2.1	1.7	1.8	0.8	0.1	0.0	0.1	0.0	0.0	0.0	2.1	12.5
21-Mar	Z	0.1	0.0	0.0	0.9	0.5	0.2	4.2	3.5	0.6	1.0	4.0	1.0	2.1	2.2	1.1	0.7	0.4	0.2	0.2	0.1	0.1	0.1	0.2	1.0	4.2
22-Mar	0.1	Z	0.3	0.9	1.8	2.0	2.1	5.1	4.3	4.0	4.2	1.9	0.7	0.5	0.6	0.3	0.9	0.4	0.3	0.4	3.2	0.1	0.1	0.3	1.5	5.1
23-Mar	0.1	0.1	Z	0.7	1.6	2.5	3.0	2.0	3.6	2.9	2.9	2.5	0.5	0.6	0.7	0.6	0.5	0.5	0.5	0.9	0.5	0.7	0.5	0.2	1.2	3.6
24-Mar	0.4	0.2	0.2	Z	2.0	1.1	1.5	1.7	2.5	2.4	2.9	1.9	1.2	0.7	0.7	1.0	1.1	1.1	0.8	0.8	0.9	0.7	1.0	0.6	1.2	2.9
25-Mar	0.6	0.3	0.3	0.4	Z	0.8	1.0	1.5	1.3	2.2	1.8	1.4	1.3	1.0	0.9	1.2	1.2	1.1	0.9	1.2	1.2	0.6	0.6	0.8	1.0	2.2
26-Mar	0.5	0.5	0.5	0.5	0.8	Z	0.9	1.5	1.8	1.9	1.7	1.8	1.6	1.3	1.1	1.1	1.1	0.9	0.9	0.7	0.6	0.6	0.7	0.3	1.0	1.9
27-Mar	Z	0.3	0.3	0.3	0.6	0.5	0.7	0.9	1.2	1.4	1.3	1.3	1.3	1.1	1.0	1.0	0.8	0.5	0.8	0.6	0.3	0.6	0.0	0.0	0.7	1.4
28-Mar	0.0	Z	0.0	0.0	0.0	0.8	0.6	3.0	3.7	2.6	1.7	0.9	1.5	2.0	1.6	1.3	1.0	0.3	0.1	0.0	0.1	0.0	0.1	0.0	0.9	3.7
29-Mar	0.0	0.0	Z	0.0	0.0	0.1	1.4	1.4	3.0	2.5	0.9	1.1	1.2	1.5	0.7	0.5	0.2	0.1	0.2	0.1	0.0	0.2	0.1	0.0	0.7	3.0
30-Mar	0.1	0.0	0.0	Z	1.2	6.8	3.1	3.1	3.6	5.2	4.6	1.8	0.9	1.1	0.9	0.9	0.9	1.0	0.8	0.8	0.6	0.4	0.4	0.5	1.7	6.8
31-Mar	0.7	0.6	0.5	0.6	Z	0.7	0.8	1.7	2.5	2.7	2.7	1.7	1.1	0.6	0.4	0.5	0.6	0.3	1.3	0.4	0.4	0.2	0.3	0.1	0.9	2.7
																								Diurnal Average		
																								Diurnal Maximum		
0.6 0.4 0.3 0.4 1.1 1.5 1.9 3.1 3.4 3.8 3.4 3.0 2.1 1.9 1.6 1.7 2.3 2.5 2.5 1.5 1.3 0.8 0.5 0.6 5.5 1.9 1.8 1.7 8.3 12.0 15.2 15.5 11.0 12.5 8.6 9.7 6.0 5.0 5.0 6.2 27.1 31.4 30.4 14.7 9.9 7.3 4.5 10.8																										
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Athabasca Valley - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Athabasca Valley - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.58	99.58
21 - 40	3	0.42	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Athabasca Valley - March 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	12	7	11	21	79	156	59	22	18	24	13	16	15	25	172	704
21 - 40	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	12	7	11	21	79	159	59	22	18	24	13	16	15	25	172	707

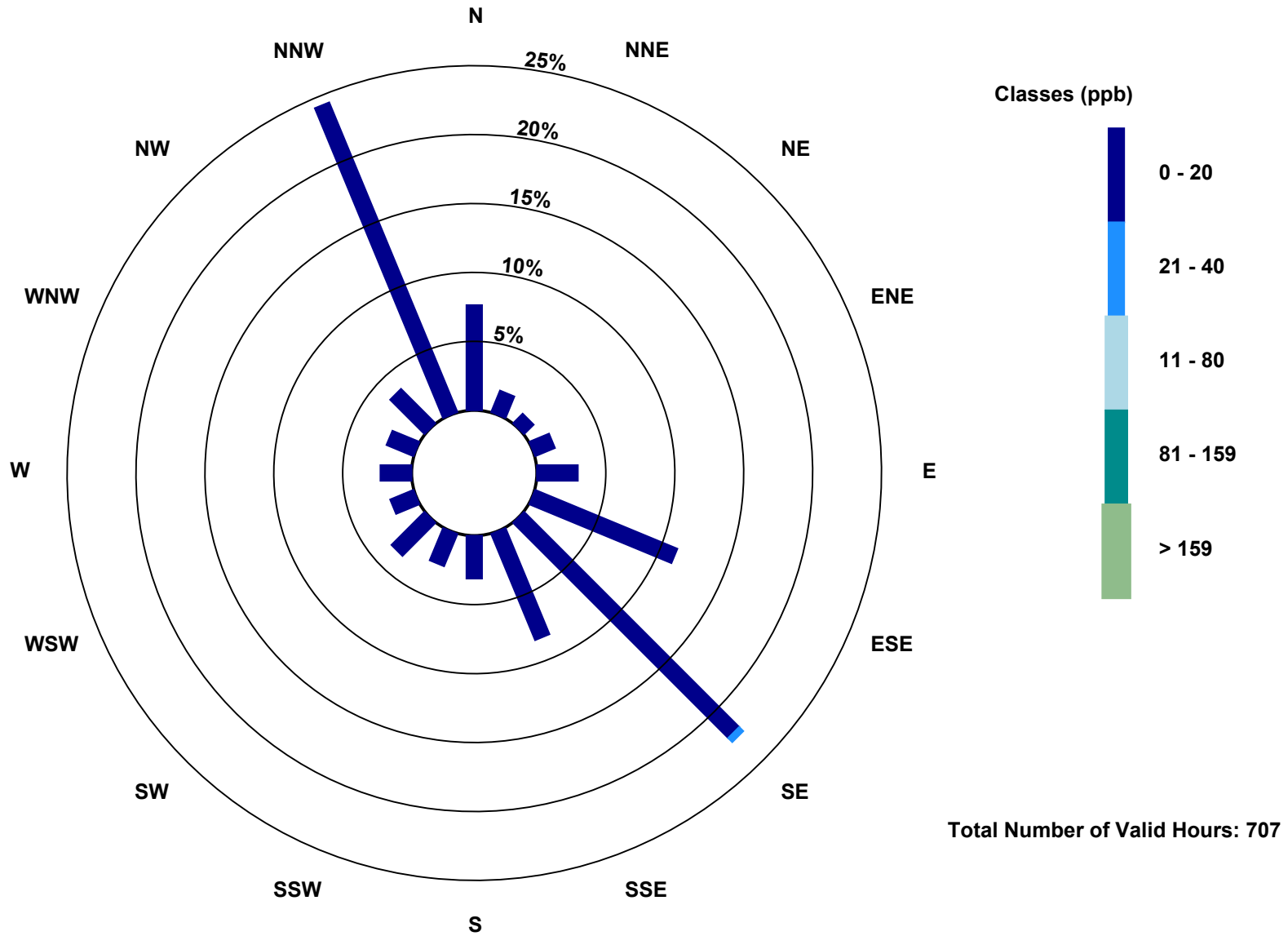
Total Number of Valid Hours: 707

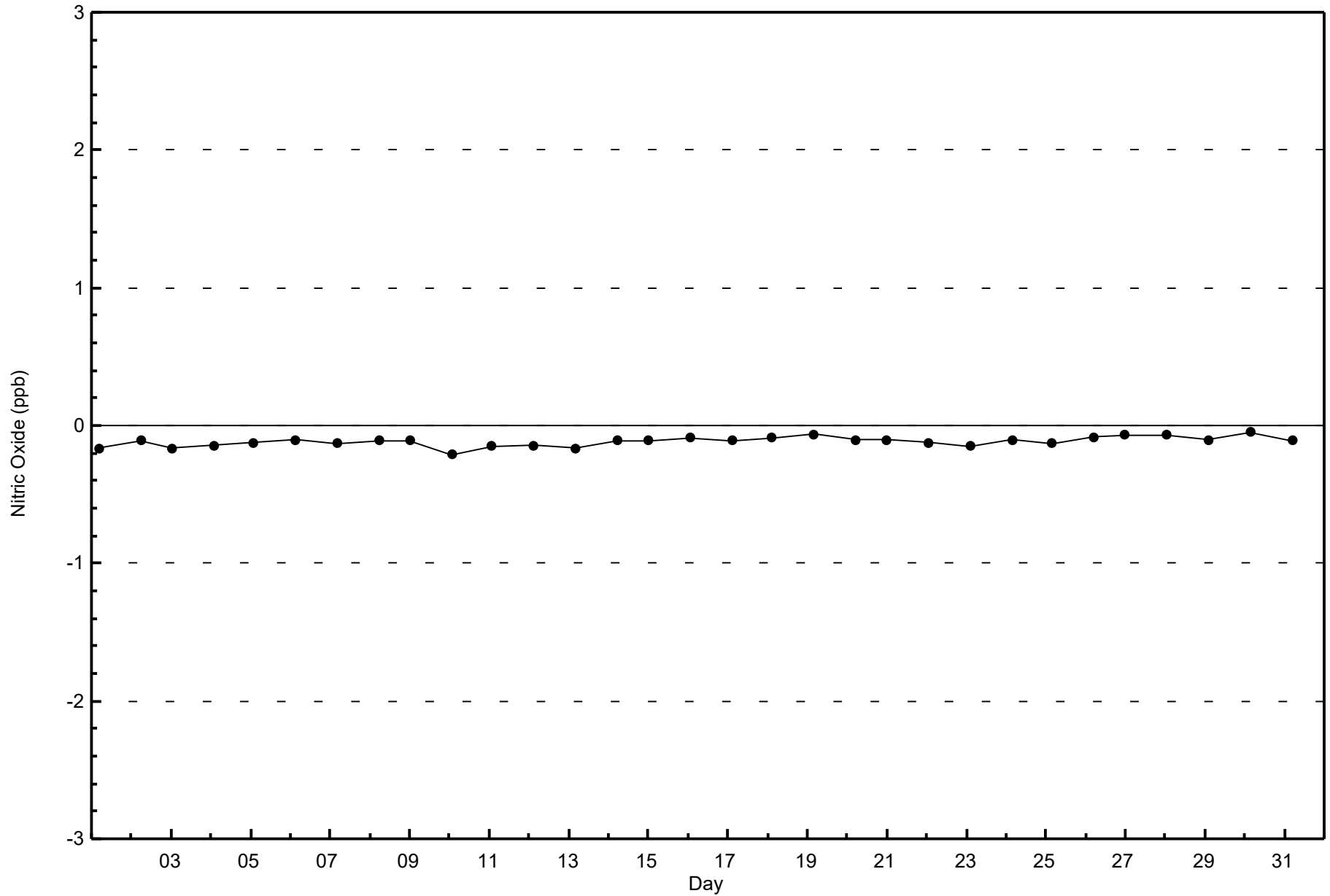
Total Number of Hours: 744

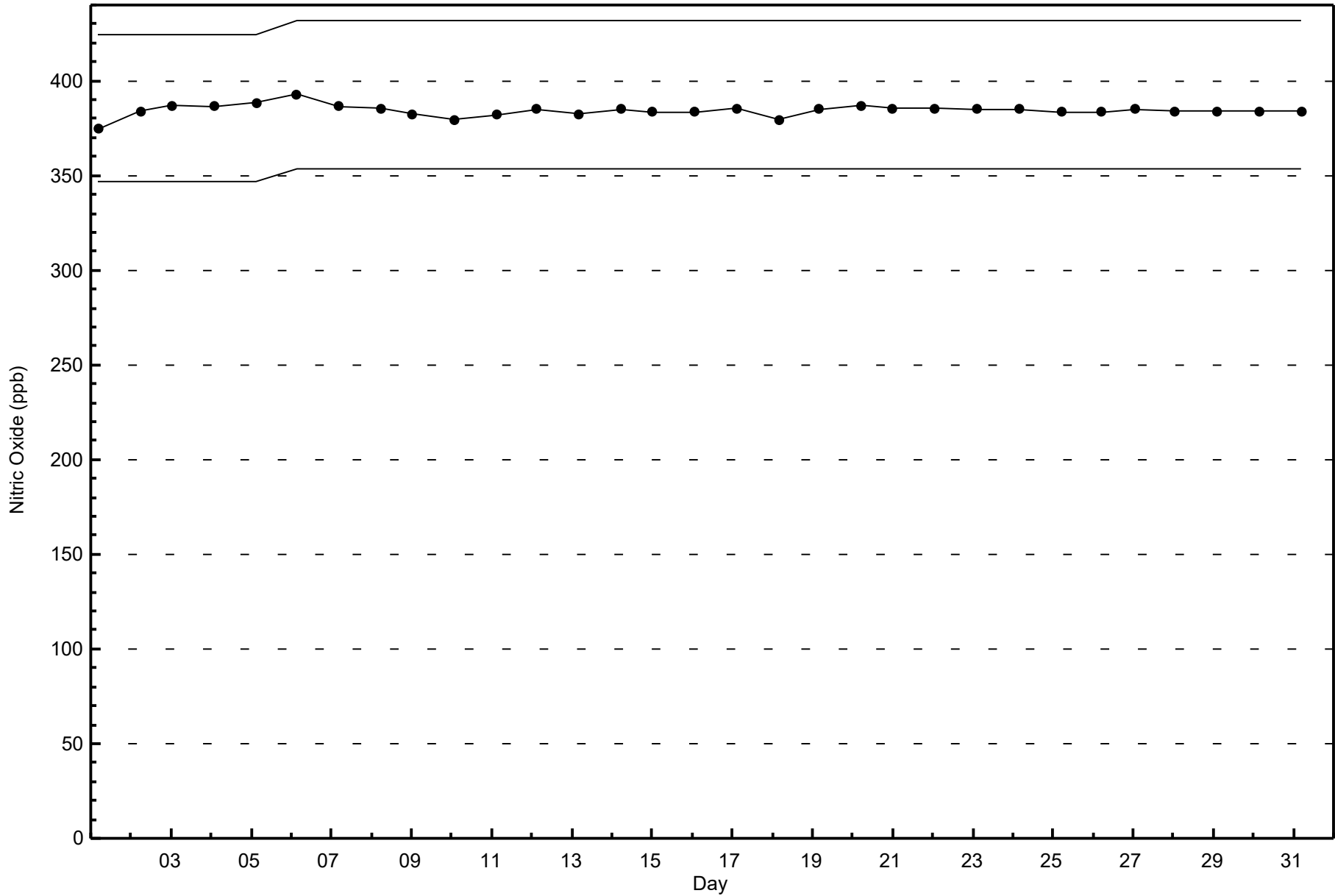


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Athabasca Valley









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 46.7 ppb on Mar 7 19:00	Maximum Daily Average: 14.1 ppb on Mar 7
Minimum Value: 0.4 ppb on Mar 28 00:00	Minimum Daily Average: 2.5 ppb on Mar 27
Maximum Diurnal Average: 12.4 ppb at hour 20	Minimum Diurnal Average: 3.8 ppb at hour 13
Monthly Average: 7.57 ppb	Percentiles: P ₁ = 0.8 P ₁₀ = 2.2 Q ₁ = 3.6 Median = 5.9 Q ₃ = 9.8 P ₉₀ = 14.0 P ₉₉ = 28.6
	Hours of Data: 707
	Hours of Missing Data: 37
	Hours of Calibration: 37
	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	12.9	2.0	2.1	2.5	Z	3.7	5.0	4.1	2.7	1.7	1.0	0.7	0.7	0.7	0.8	0.8	1.1	3.9	4.2	6.0	13.1	23.0	16.5	14.2	5.4	23.0
2-Mar	6.2	4.6	7.0	5.9	7.1	Z	8.1	10.3	11.7	11.9	7.7	7.8	4.7	4.0	3.4	2.4	4.8	8.5	6.6	7.8	8.6	7.0	9.3	9.6	7.2	11.9
3-Mar	Z	5.5	5.6	8.8	9.4	11.7	11.0	13.0	8.3	6.1	5.2	6.6	5.1	5.7	5.0	5.2	6.8	10.5	10.8	7.5	3.0	4.2	5.7	5.4	7.2	13.0
4-Mar	4.8	Z	4.2	5.2	4.8	5.0	6.1	5.5	3.6	2.5	2.2	1.7	1.6	1.9	2.2	2.9	4.1	8.6	10.6	16.7	15.1	13.1	11.5	10.2	6.3	16.7
5-Mar	7.4	11.3	Z	19.3	14.0	7.8	10.7	16.6	9.3	7.1	C	C	C	C	C	C	6.2	11.3	25.5	23.2	28.3	25.0	27.5	22.1	--	28.3
6-Mar	20.3	11.7	10.5	Z	13.2	15.2	13.8	14.2	11.5	6.1	6.8	6.2	5.1	3.6	3.9	4.5	7.0	11.6	24.4	28.6	23.2	26.0	19.7	30.9	13.8	30.9
7-Mar	27.0	15.4	14.1	10.2	Z	11.1	14.0	13.5	10.6	8.3	8.9	7.7	7.7	7.8	9.2	9.3	10.5	29.3	46.7	26.3	17.0	9.3	5.2	5.5	14.1	46.7
8-Mar	7.5	7.9	4.6	14.1	8.7	Z	26.5	21.2	13.0	12.0	10.1	9.5	9.4	9.2	9.8	9.6	11.2	16.2	16.2	13.1	13.9	12.3	10.3	8.4	11.9	26.5
9-Mar	Z	10.1	10.5	10.2	10.0	12.5	10.7	8.9	11.2	9.8	9.4	9.8	8.4	13.9	10.1	14.4	16.4	25.1	23.0	25.1	27.1	16.0	18.3	9.9	13.9	27.1
10-Mar	9.9	Z	9.3	7.3	13.1	21.2	19.5	23.3	19.6	12.8	1.7	1.5	1.4	1.2	0.9	1.3	1.7	1.8	13.8	11.2	22.2	4.8	7.4	12.5	9.5	23.3
11-Mar	8.2	11.8	Z	3.1	2.9	3.3	8.0	12.3	10.5	8.7	10.3	8.4	7.7	7.2	7.3	7.0	12.5	9.8	17.9	20.3	18.4	21.4	17.4	11.4	10.7	21.4
12-Mar	8.0	7.5	7.8	Z	9.3	9.6	10.5	9.5	5.4	4.0	2.4	1.8	1.5	2.1	3.4	3.3	2.2	1.0	4.1	3.3	1.4	3.1	4.1	4.1	4.8	10.5
13-Mar	5.5	7.0	6.5	7.6	Z	9.5	11.5	9.1	6.1	5.4	6.4	3.9	5.2	5.2	4.6	8.5	14.3	13.7	13.9	12.2	7.3	6.0	4.3	4.6	7.8	14.3
14-Mar	5.1	5.4	5.8	6.6	9.9	Z	9.3	8.0	7.0	9.0	13.6	13.3	5.8	2.1	3.2	18.8	37.7	44.1	39.4	36.8	8.4	1.3	1.7	3.2	12.8	44.1
15-Mar	Z	7.9	2.9	1.0	0.9	1.6	2.2	4.5	2.7	2.6	3.2	3.6	3.4	3.2	3.2	3.7	1.5	2.3	4.1	4.6	4.9	5.3	7.1	8.1	3.7	8.1
16-Mar	8.2	Z	11.0	7.6	7.9	8.9	9.2	7.5	8.0	8.1	7.9	6.3	4.0	4.4	4.9	4.7	5.5	8.2	9.2	10.8	4.0	4.0	3.5	3.3	6.8	11.0
17-Mar	3.3	3.7	Z	5.0	5.0	4.8	5.1	5.1	4.2	3.8	3.5	3.4	4.0	4.7	5.3	7.0	5.8	5.3	27.3	24.7	16.2	2.2	1.8	2.1	6.7	27.3
18-Mar	6.3	6.3	5.3	Z	10.2	3.8	3.4	3.8	2.3	3.6	3.9	3.4	3.4	5.5	6.4	6.2	2.9	2.9	3.3	2.1	2.4	3.3	3.6	2.1	4.2	10.2
19-Mar	3.0	2.7	2.5	2.6	Z	3.8	3.4	1.8	2.0	3.4	4.4	4.0	3.6	3.2	3.2	4.1	4.7	5.4	6.0	6.1	4.6	4.3	6.5	6.2	4.0	6.5
20-Mar	6.3	7.2	4.5	1.1	3.5	Z	11.8	14.9	10.7	14.7	10.5	5.8	3.5	3.8	3.9	3.8	5.7	5.5	5.5	10.8	16.8	12.5	9.0	7.8	7.8	16.8
21-Mar	Z	5.9	4.6	4.2	5.9	8.7	7.5	15.7	10.5	2.1	2.3	6.2	1.9	3.9	4.2	2.9	2.8	3.3	5.2	6.7	7.0	10.3	11.7	9.3	6.2	15.7
22-Mar	8.7	Z	10.4	10.0	5.2	8.9	12.1	11.7	7.3	5.8	6.6	3.5	1.8	1.5	1.7	1.2	2.3	2.8	6.9	12.3	18.6	5.6	6.9	5.4	6.8	18.6
23-Mar	2.5	5.4	Z	4.2	10.1	11.6	11.2	6.2	6.7	4.8	5.0	4.8	1.4	1.6	1.8	1.5	1.8	1.9	2.8	13.8	9.2	13.8	9.3	8.7	6.1	13.8
24-Mar	8.7	5.9	5.4	Z	9.0	8.6	10.2	7.8	6.3	5.1	5.8	4.4	3.8	2.4	2.9	3.3	4.1	6.1	7.5	10.7	13.5	8.1	12.1	6.7	6.9	13.5
25-Mar	7.8	5.2	5.9	5.8	Z	9.1	8.7	5.8	4.3	4.9	3.9	3.0	3.1	2.7	2.8	3.1	4.5	5.4	8.8	8.0	7.9	7.9	7.1	6.6	5.8	9.1
26-Mar	5.8	6.0	5.1	4.8	6.1	Z	6.7	6.2	5.5	4.3	3.7	3.8	3.1	3.2	3.7	3.7	4.6	5.2	6.5	5.2	4.7	4.3	3.9	3.0	4.7	6.7
27-Mar	Z	3.3	3.0	3.4	3.7	3.3	3.3	3.8	3.2	2.9	2.7	2.2	2.2	2.3	2.0	2.2	2.2	2.1	2.4	2.4	1.3	2.1	0.9	0.4	2.5	3.8
28-Mar	1.2	Z	0.6	0.5	5.8	15.7	13.4	14.3	10.9	6.6	3.9	2.2	3.3	3.8	3.2	3.8	4.5	2.6	2.2	4.9	13.5	11.8	14.0	8.3	6.6	15.7
29-Mar	10.8	8.7	Z	4.6	4.0	8.1	16.9	8.2	10.1	6.0	2.4	2.2	2.8	3.7	2.6	2.4	1.7	2.5	3.0	4.2	8.6	5.4	4.6	5.3	5.6	16.9
30-Mar	12.7	8.2	7.0	Z	12.3	18.7	9.7	5.7	5.2	6.1	5.5	3.0	2.1	2.4	2.3	2.3	2.7	3.9	6.9	11.7	9.5	4.6	6.0	5.9	6.7	18.7
31-Mar	6.2	5.6	4.9	6.3	Z	6.7	6.6	5.4	5.3	5.1	4.8	3.6	3.0	1.8	1.7	2.1	3.1	3.6	8.5	7.0	3.9	2.5	2.7	2.2	4.5	8.5

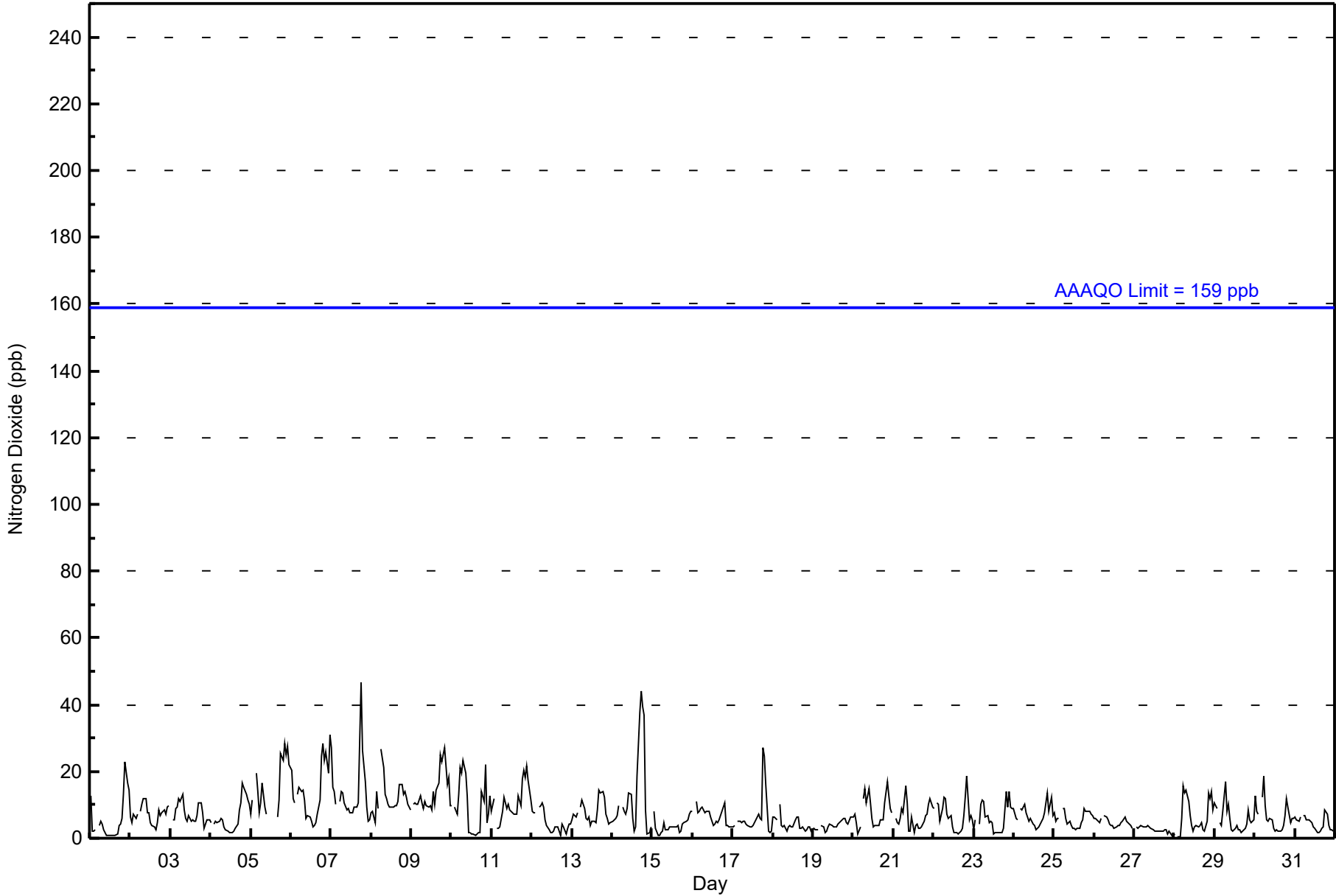
8.2	7.0	6.2	6.2	7.7	9.0	9.9	9.6	7.6	6.3	5.5	4.8	3.8	4.0	4.0	4.9	6.4	8.5	12.0	12.4	11.4	9.0	8.7	7.9			Diurnal Average
27.0	15.4	14.1	19.3	14.0	21.2	26.5	23.3	19.6	14.7	13.6	13.3	9.4	13.9	10.1	18.8	37.7	44.1	46.7	36.8	28.3	26.0	27.5	30.9			Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	675	95.47	95.47
21 - 40	30	4.24	99.72
41 - 80	2	0.28	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley - March 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	12	7	11	20	79	142	52	18	18	24	13	16	15	25	169	675
21 - 40	0	0	0	0	1	0	15	7	4	0	0	0	0	0	0	3	30
41 - 80	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	12	7	11	21	79	159	59	22	18	24	13	16	15	25	172	707

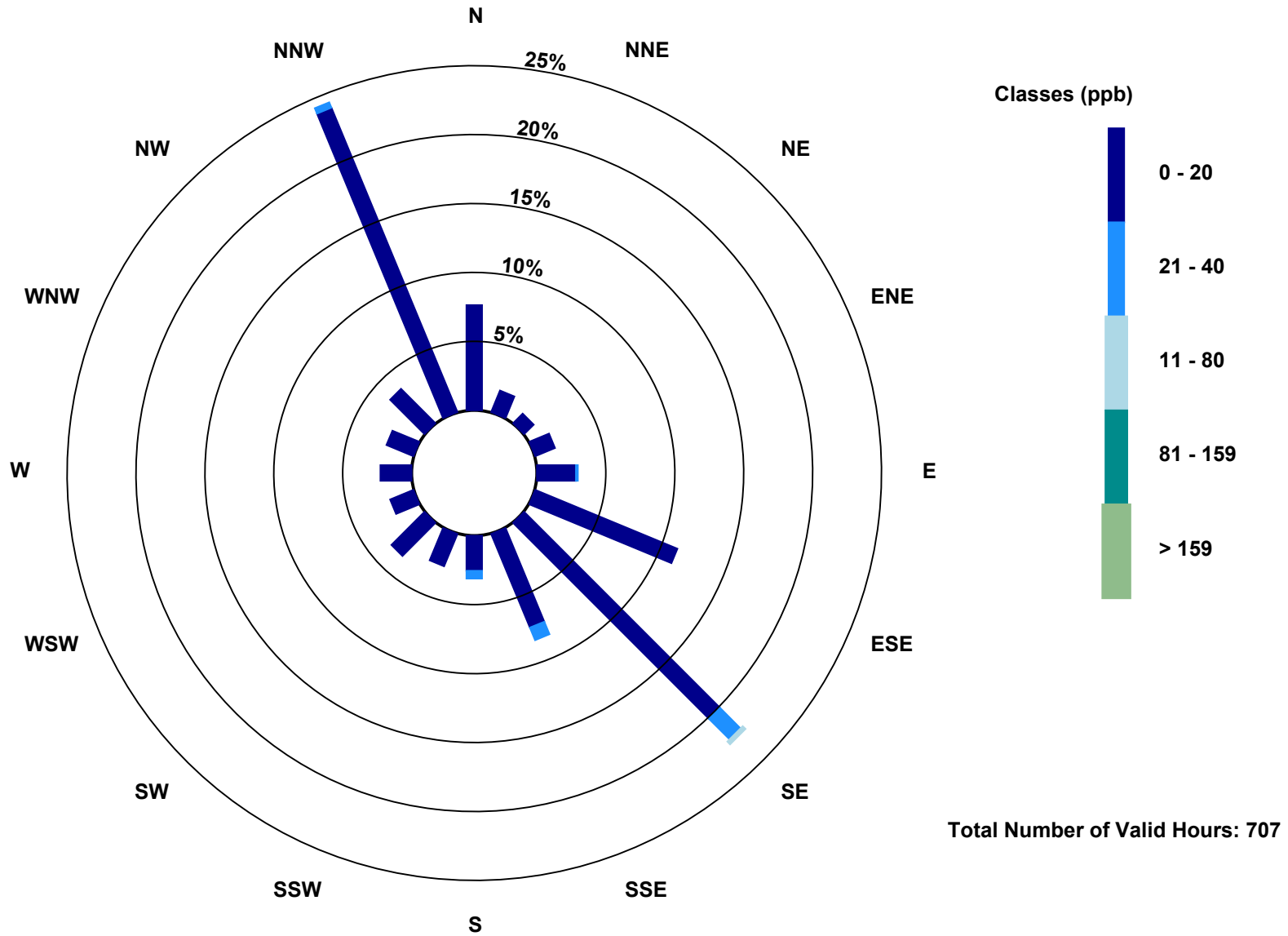
Total Number of Valid Hours: 707

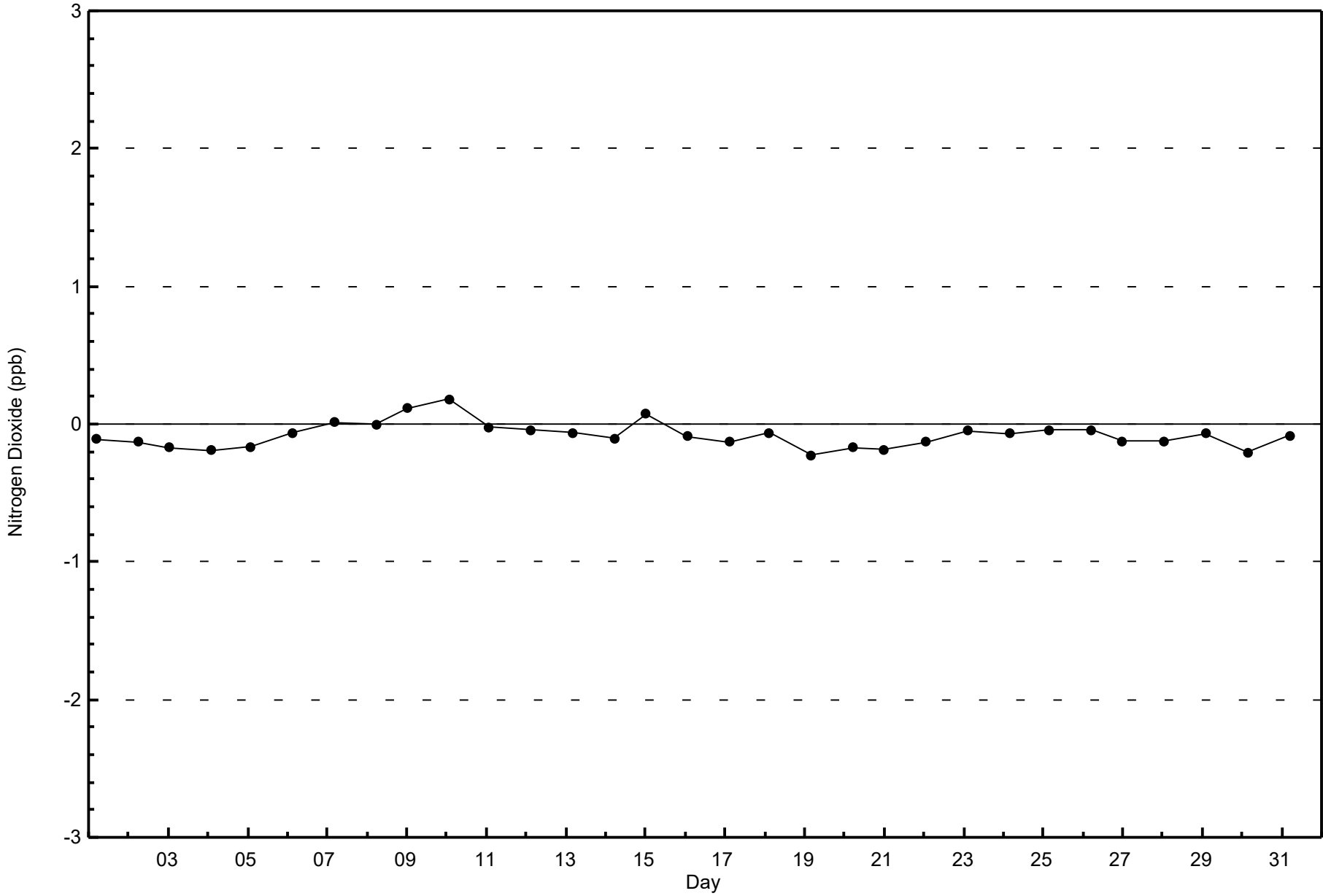
Total Number of Hours: 744

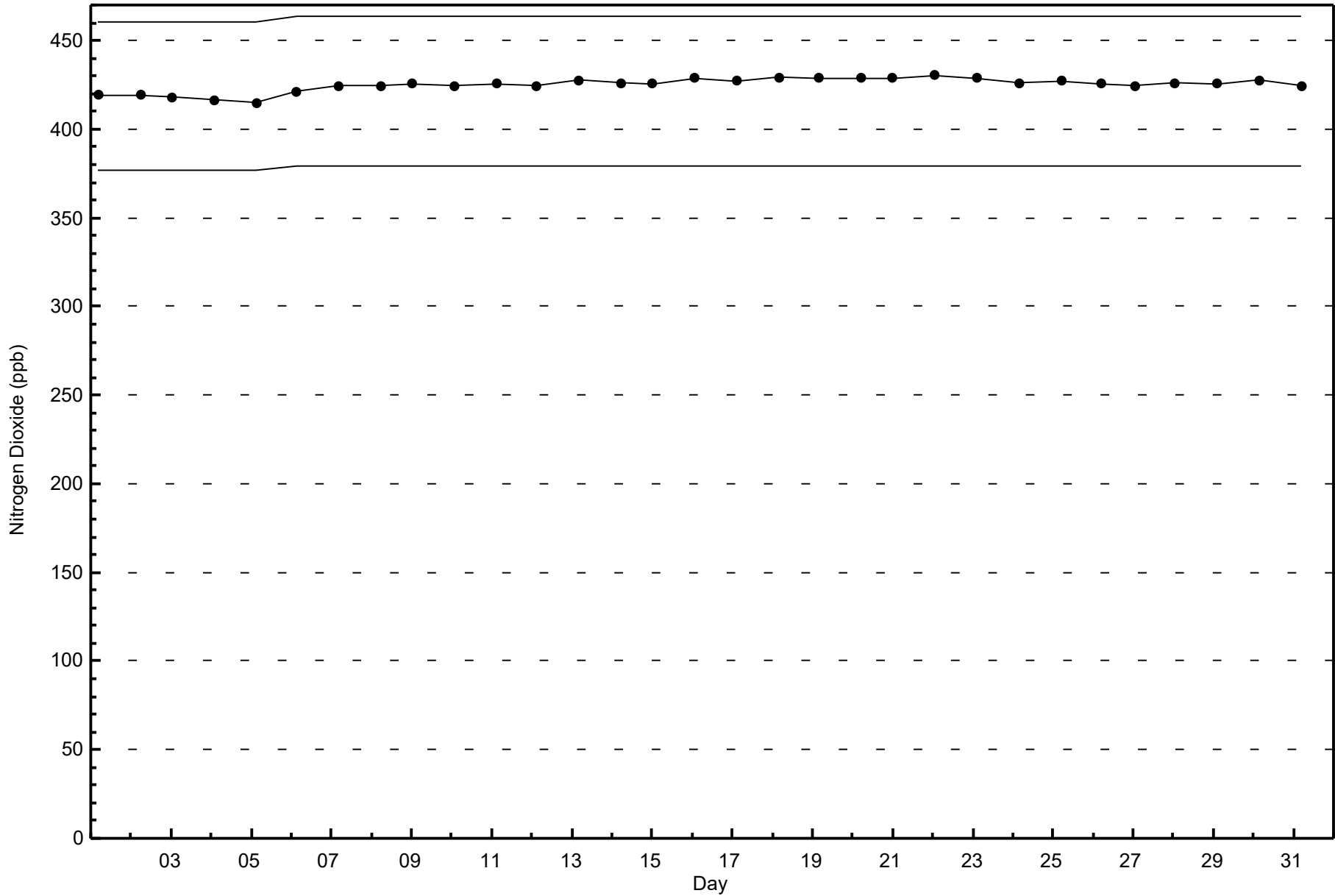


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley









Wood Buffalo Environmental Association
Summary of Hour Averages

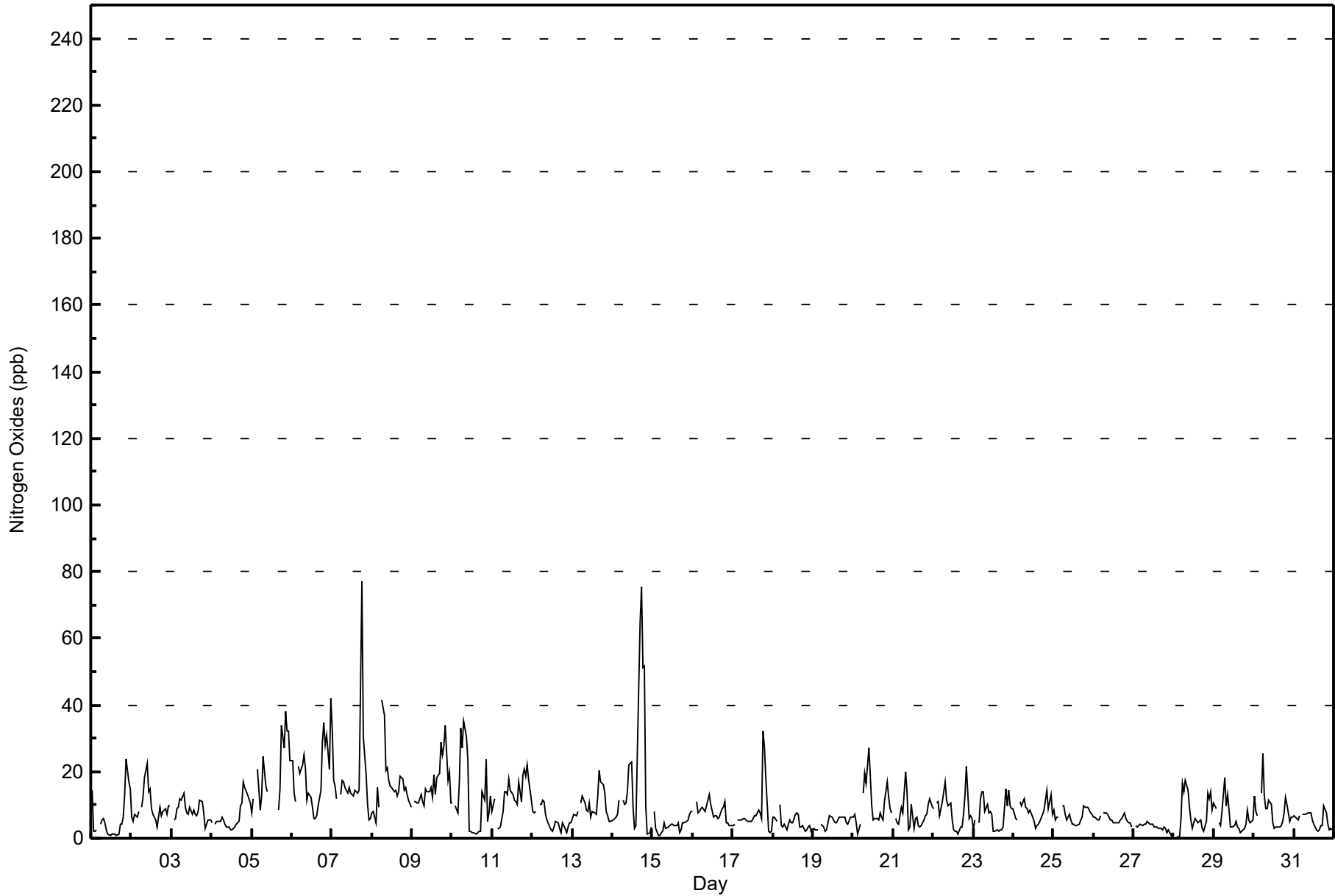
Nitrogen Oxides (NO_x) - ppb
Athabasca Valley - March 2024

Maximum Value: 77.1 ppb on Mar 7 19:00		Maximum Daily Average: 19.3 ppb on Mar 7		Hours in Service: 744																																												
Minimum Value: 0.4 ppb on Mar 28 00:00		Minimum Daily Average: 3.3 ppb on Mar 27		Hours of Data: 707																																												
Maximum Diurnal Average: 14.5 ppb at hour 19		Minimum Diurnal Average: 5.6 ppb at hour 15		Hours of Missing Data: 37																																												
Monthly Average: 9.37 ppb		Percentiles: P ₁ = 1.0 P ₁₀ = 2.7 Q ₁ = 4.4 Median = 7.1 Q ₃ = 11.5 P ₉₀ = 17.7 P ₉₉ = 41.5		Hours of Calibration: 37																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	14.5	2.1	2.2	2.6	Z	4.2	5.4	5.8	4.5	2.6	1.4	1.0	1.1	1.1	1.0	1.4	4.2	4.2	6.2	13.2	23.9	17.1	14.8	5.9	23.9																							
2-Mar	6.3	4.9	7.1	6.3	8.0	Z	9.5	12.2	18.3	22.6	13.9	14.9	8.9	7.3	5.7	3.6	6.2	9.5	6.7	7.9	8.8	7.1	9.6	9.7	9.3	22.6																						
3-Mar	Z	5.6	5.7	8.9	9.5	11.8	11.2	13.8	9.4	7.6	7.1	9.4	7.3	8.3	7.1	6.9	8.2	11.5	11.0	7.5	3.0	4.2	5.7	5.4	8.1	13.8																						
4-Mar	4.8	Z	4.3	5.2	4.9	5.0	6.2	5.7	4.1	3.3	3.2	2.7	2.5	3.0	3.3	4.1	5.2	9.8	10.8	16.9	15.2	13.2	11.7	10.6	6.8	16.9																						
5-Mar	7.8	11.7	Z	20.6	14.6	8.7	12.5	24.8	15.7	13.9	C	C	C	C	C	C	8.4	14.9	33.7	27.3	38.2	32.3	32.0	23.1	--	38.2																						
6-Mar	23.2	13.4	11.1	Z	21.5	19.4	21.8	24.9	21.3	11.5	13.4	12.1	9.2	6.0	6.1	6.7	9.7	14.3	28.8	34.7	28.0	30.8	20.9	41.7	18.7	41.7																						
7-Mar	32.5	17.3	15.9	11.9	Z	13.2	17.3	16.9	15.4	13.6	15.2	13.7	13.2	12.8	14.2	13.4	14.2	44.6	77.1	30.5	18.9	10.1	5.6	5.8	19.3	77.1																						
8-Mar	7.6	8.2	4.7	15.4	9.5	Z	41.7	36.7	20.5	21.3	17.3	15.8	15.4	14.0	14.3	12.8	13.8	18.5	17.8	14.5	15.1	13.3	11.2	9.3	16.0	41.7																						
9-Mar	Z	10.9	11.2	10.4	10.5	13.2	11.0	9.8	15.0	13.9	14.0	15.1	12.2	18.9	12.9	18.1	19.6	28.9	25.2	27.6	34.1	17.3	20.1	10.5	16.5	34.1																						
10-Mar	10.8	Z	9.9	7.6	16.9	33.2	26.9	35.2	30.6	23.8	2.2	2.0	1.8	1.6	1.2	1.7	2.0	2.0	14.0	11.5	23.7	5.0	7.6	12.5	12.3	35.2																						
11-Mar	8.2	11.8	Z	3.1	3.0	3.4	8.1	14.1	14.1	13.2	17.7	14.5	13.1	11.5	11.1	10.0	16.8	10.8	19.0	20.6	18.8	22.1	17.7	11.6	12.8	22.1																						
12-Mar	8.2	7.7	8.3	Z	10.0	10.3	11.5	11.1	7.3	5.7	3.6	2.5	2.3	3.3	4.9	4.6	3.1	1.6	4.8	3.8	1.7	3.6	4.5	4.5	5.6	11.5																						
13-Mar	5.7	7.4	6.8	8.1	Z	10.4	12.6	10.6	8.4	8.1	10.6	6.4	7.9	7.7	7.2	12.8	20.4	16.9	16.2	13.6	8.1	6.7	4.9	5.2	9.7	20.4																						
14-Mar	5.6	6.0	6.4	7.3	11.4	Z	11.3	10.4	10.6	13.9	22.2	23.0	9.1	2.9	3.9	25.0	64.8	75.5	51.3	51.5	9.6	1.4	1.7	3.2	18.6	75.5																						
15-Mar	Z	8.0	2.9	1.0	0.9	1.6	2.2	4.8	3.2	3.3	3.9	4.3	4.4	3.9	3.9	4.7	1.9	2.5	4.7	4.7	5.0	5.4	7.1	8.1	4.0	8.1																						
16-Mar	8.2	Z	11.0	7.6	7.9	8.9	9.3	8.1	9.6	11.4	13.0	10.2	6.2	6.6	6.9	6.1	6.4	8.9	9.4	11.1	4.5	4.5	3.8	3.7	8.0	13.0																						
17-Mar	3.7	4.1	Z	5.4	5.5	5.3	5.8	6.0	5.4	5.2	5.1	5.1	6.1	6.8	6.8	8.6	7.5	6.1	32.2	27.6	18.4	2.3	1.8	2.1	8.0	32.2																						
18-Mar	6.3	6.3	5.3	Z	10.2	3.8	3.5	4.2	2.6	4.3	5.6	4.8	4.5	7.1	7.5	7.1	3.3	3.2	3.6	2.2	2.5	3.3	3.6	2.1	4.6	10.2																						
19-Mar	3.0	2.7	2.5	2.6	Z	4.4	3.5	2.0	2.6	4.8	6.8	6.3	5.6	4.8	4.6	5.7	6.1	6.2	6.3	6.3	4.8	4.4	6.5	6.2	4.7	6.8																						
20-Mar	6.3	7.2	4.5	1.1	4.3	Z	13.4	19.6	16.3	27.2	18.6	9.9	5.7	6.0	6.0	5.5	7.5	6.3	5.6	10.8	16.9	12.5	9.0	7.8	9.9	27.2																						
21-Mar	Z	6.0	4.6	4.2	6.8	9.2	7.7	19.9	14.0	2.7	3.3	10.2	2.9	6.0	6.4	4.0	3.5	3.7	5.4	6.9	7.1	10.4	11.8	9.5	7.2	19.9																						
22-Mar	8.8	Z	10.7	10.9	7.0	10.9	14.2	16.8	11.6	9.8	10.8	5.4	2.5	2.0	2.3	1.5	3.2	3.2	7.2	12.7	21.8	5.7	7.0	5.7	8.3	21.8																						
23-Mar	2.6	5.5	Z	4.9	11.7	14.1	14.2	8.2	10.3	7.7	7.9	7.3	1.9	2.2	2.5	2.1	2.3	2.4	3.3	14.7	9.7	14.5	9.8	8.9	7.3	14.7																						
24-Mar	9.1	6.1	5.6	Z	11.0	9.7	11.7	9.5	8.8	7.5	8.7	6.3	5.0	3.1	3.6	4.3	5.2	7.2	8.3	11.5	14.4	8.8	13.1	7.3	8.1	14.4																						
25-Mar	8.4	5.5	6.2	6.2	Z	9.9	9.7	7.3	5.6	7.1	5.7	4.4	4.4	3.7	3.7	4.3	5.7	6.5	9.7	9.2	9.1	8.5	7.7	7.4	6.8	9.9																						
26-Mar	6.3	6.5	5.6	5.3	6.9	Z	7.6	7.7	7.3	6.2	5.4	5.6	4.7	4.5	4.8	4.8	5.7	6.1	7.4	5.9	5.3	4.9	4.6	3.3	5.8	7.7																						
27-Mar	Z	3.6	3.3	3.7	4.3	3.8	4.0	4.2	5.0	4.6	4.2	4.0	3.5	3.3	3.3	3.0	3.0	2.6	3.2	3.0	1.6	2.7	0.9	0.4	3.3	5.0																						
28-Mar	1.2	Z	0.6	0.5	5.8	16.5	14.0	17.3	14.6	9.2	5.6	3.1	4.8	5.8	4.8	5.1	5.5	2.9	2.3	4.9	13.6	11.8	14.1	8.3	7.5	17.3																						
29-Mar	10.8	8.7	Z	4.6	4.0	8.2	18.3	9.6	13.1	8.5	3.3	3.3	4.0	5.2	3.3	2.9	1.9	2.6	3.2	4.3	8.6	5.6	4.7	5.3	6.2	18.3																						
30-Mar	12.8	8.2	7.0	Z	13.5	25.5	12.8	8.8	8.8	11.3	10.1	4.8	3.0	3.5	3.2	3.2	3.6	4.9	7.7	12.5	10.1	5.0	6.4	6.4	8.4	25.5																						
31-Mar	6.9	6.2	5.4	6.9	Z	7.4	7.4	7.1	7.8	7.8	7.5	5.3	4.1	2.4	2.1	2.6	3.7	3.9	9.8	7.4	4.3	2.7	3.0	2.3	5.4	9.8																						
																								8.8	7.4	6.5	6.6	8.8	10.5	11.8	12.7	11.0	10.1	8.9	7.8	5.9	5.8	5.6	6.5	8.7	11.0	14.5	13.9	12.7	9.8	9.2	8.5	Diurnal Average
																								32.5	17.3	15.9	20.6	21.5	33.2	41.7	36.7	30.6	27.2	22.2	23.0	15.4	18.9	14.3	25.0	64.8	75.5	77.1	51.5	38.2	32.3	32.0	41.7	Diurnal Maximum
Z - zerospan																								C - Calibration																								



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Athabasca Valley - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Athabasca Valley - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	654	92.50	92.50
21 - 40	45	6.36	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_x) - ppb
Athabasca Valley - March 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	12	7	11	20	75	138	48	17	14	24	12	16	15	25	166	654
21 - 40	0	0	0	0	1	4	17	7	5	4	0	1	0	0	0	6	45
11 - 80	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	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
Totals	54	12	7	11	21	79	159	59	22	18	24	13	16	15	25	172	707

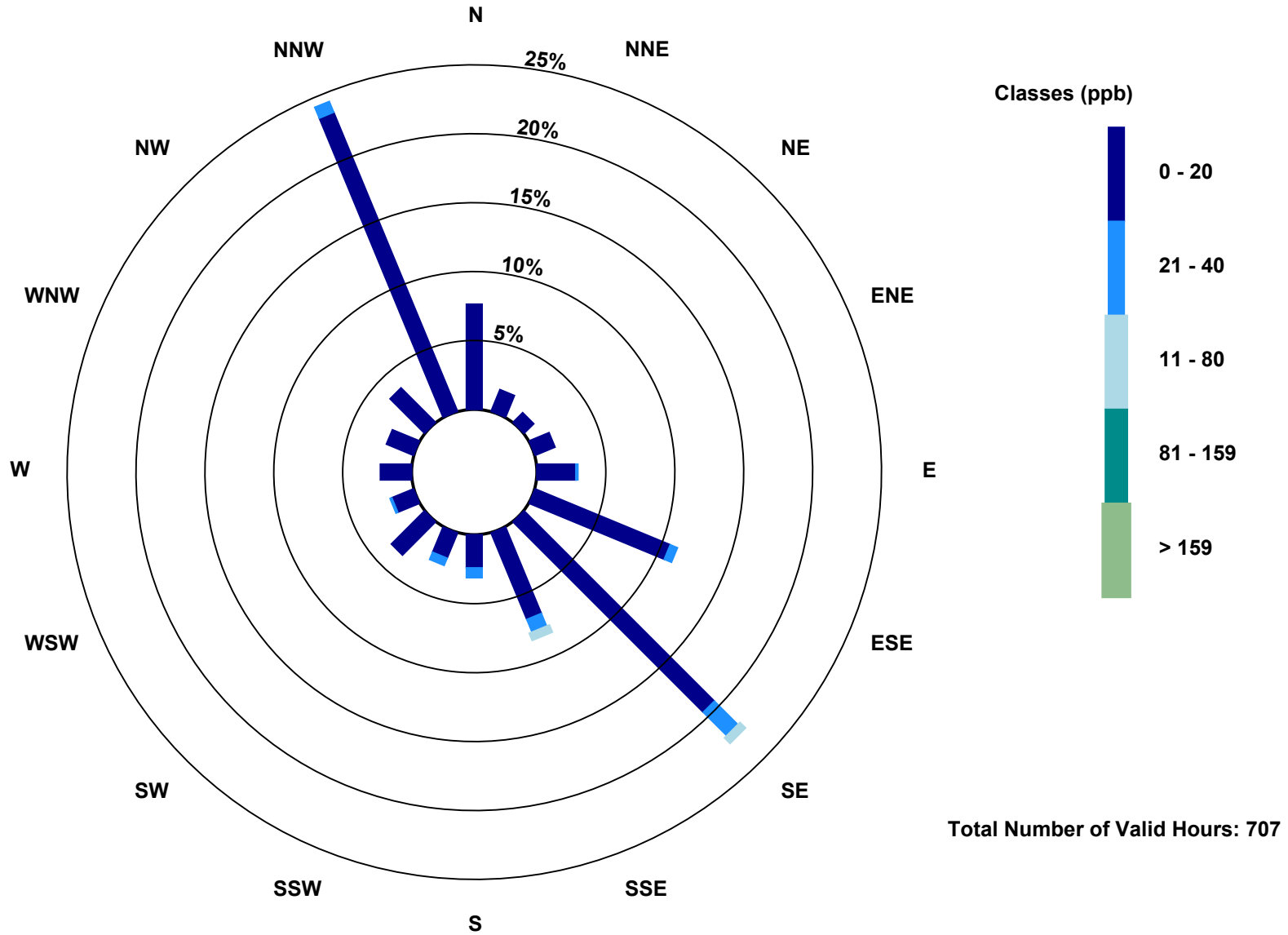
Total Number of Valid Hours: 707

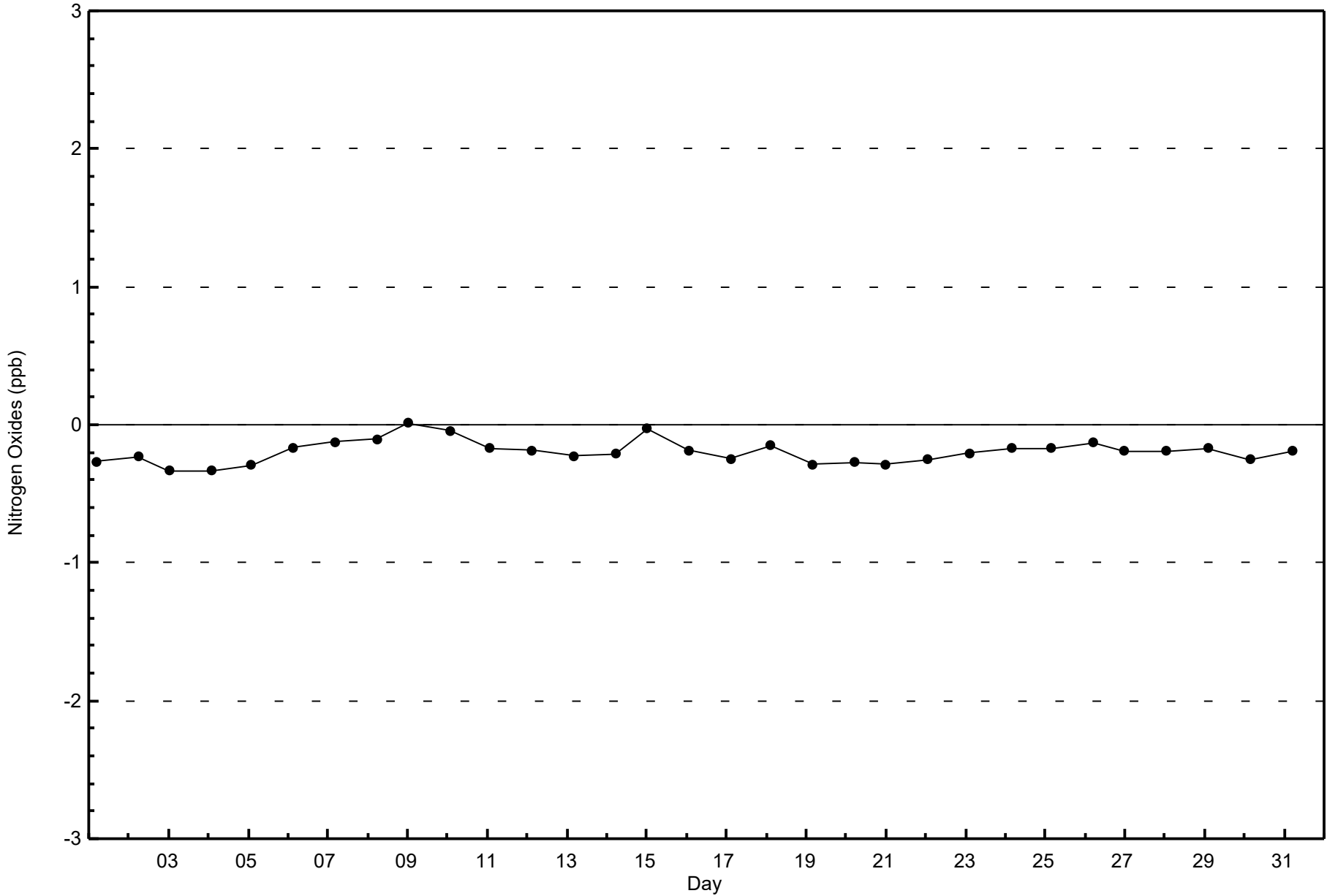
Total Number of Hours: 744

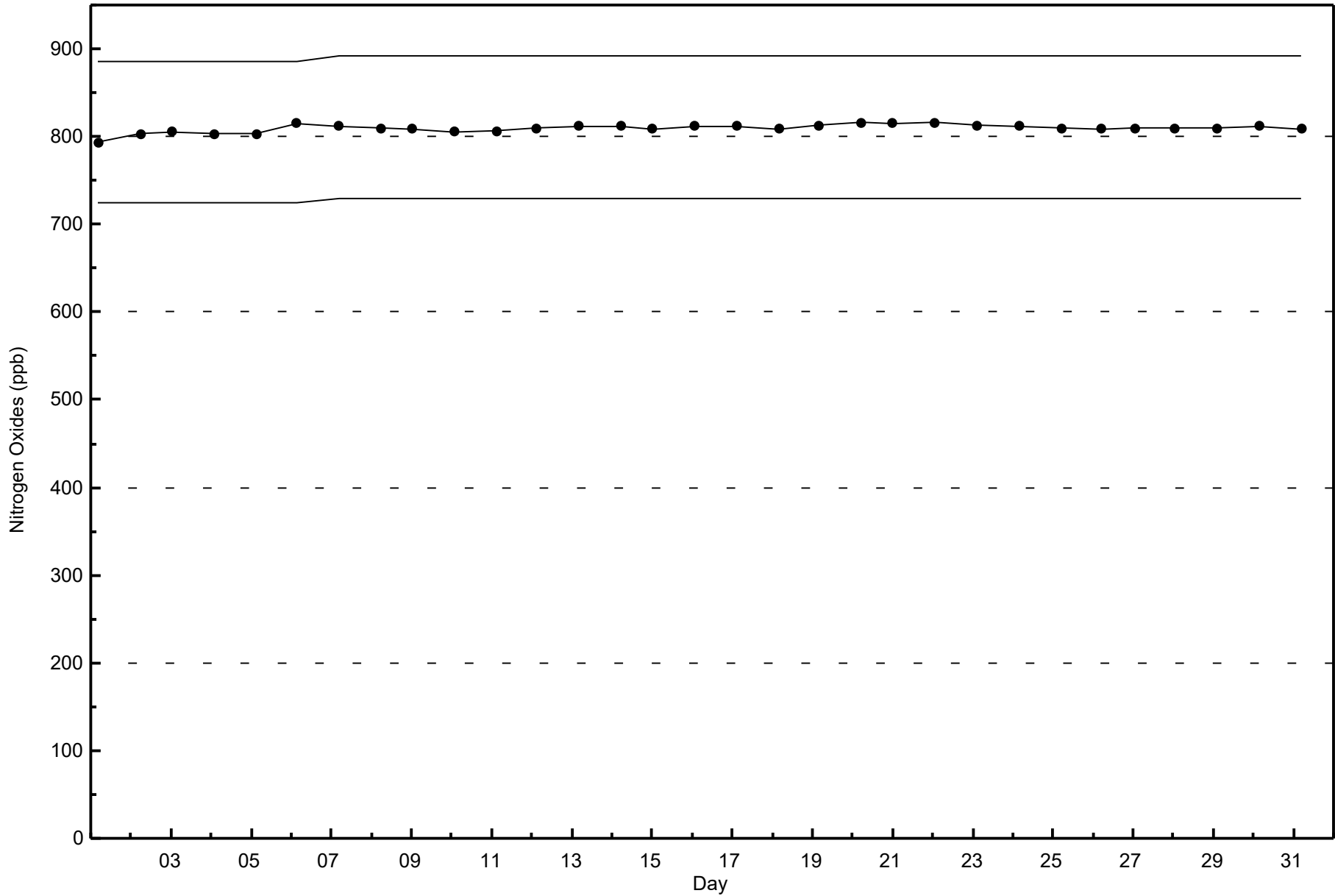


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Athabasca Valley





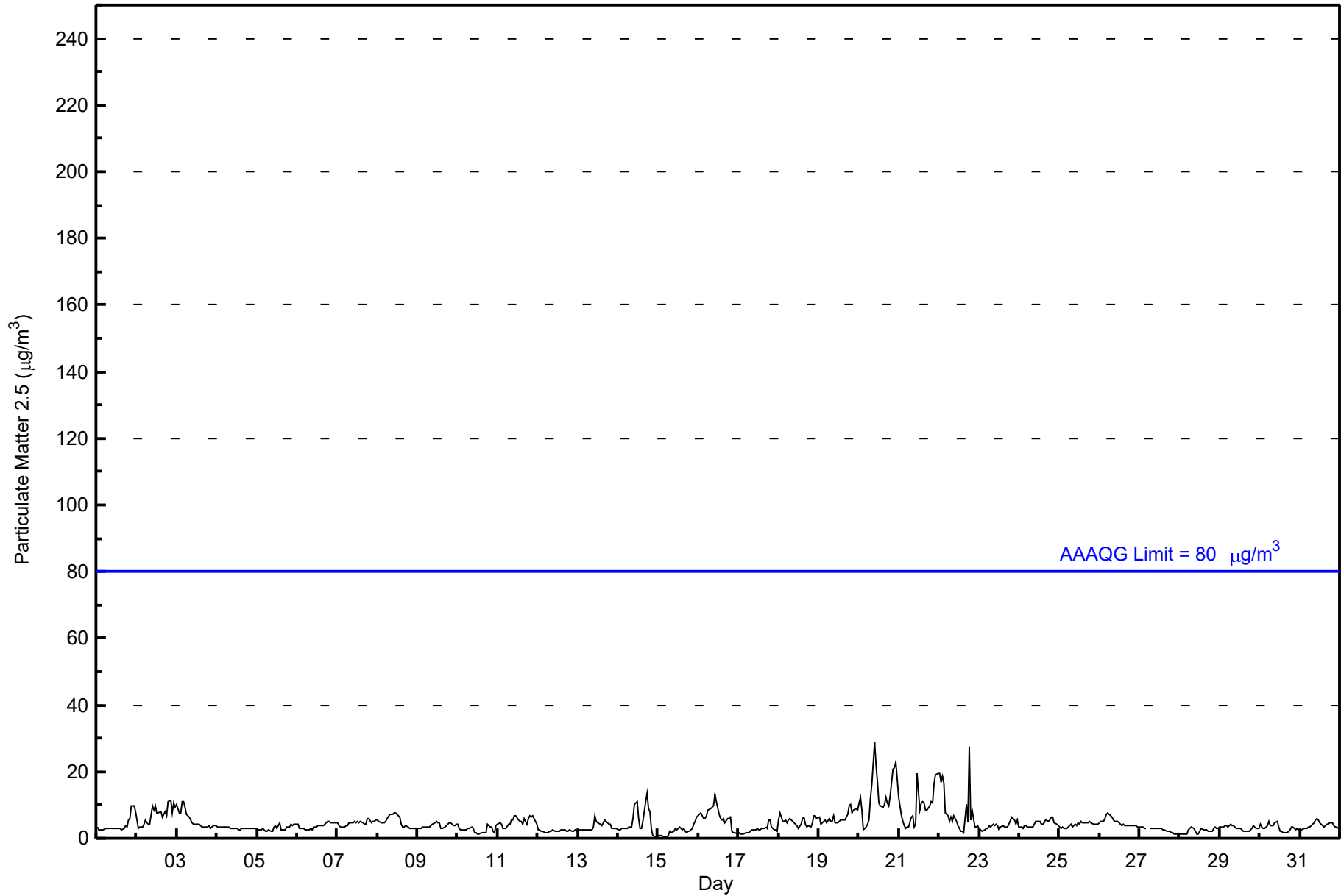




Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 28.8 µg/m ³ on Mar 20 10:00		Maximum Daily Average: 13.0 µg/m ³ on Mar 20														Hours of Data: 743										
Minimum Value: 0.5 µg/m ³ on Mar 15 05:00		Minimum Daily Average: 2.2 µg/m ³ on Mar 12														Hours of Missing Data: 1										
Maximum Diurnal Average: 5.5 µg/m ³ at hour 12		Minimum Diurnal Average: 3.8 µg/m ³ at hour 5														Hours of Calibration: 1										
Monthly Average: 4.61 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 2.2 Q ₁ = 2.8 Median = 3.7 Q ₃ = 5.2 P ₉₀ = 7.8 P ₉₉ = 19.5														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-Mar	3.3	2.5	2.5	2.4	2.6	2.8	2.8	3.0	2.8	3.0	3.0	2.8	2.9	2.8	2.9	2.7	2.9	3.9	3.5	5.6	6.1	9.8	9.9	8.0	3.9	9.9
2-Mar	5.6	2.9	3.4	3.3	4.0	5.3	4.9	4.0	4.2	9.9	8.6	9.7	7.6	7.6	8.1	6.2	7.0	8.0	6.9	11.0	11.4	7.6	10.8	9.5	7.0	11.4
3-Mar	10.0	7.8	7.7	11.1	11.0	9.4	7.1	6.5	5.6	4.7	4.1	4.3	4.1	4.1	3.7	3.3	3.3	3.4	3.6	3.6	3.1	3.4	3.9	3.9	5.5	11.1
4-Mar	3.6	3.5	3.3	3.3	3.4	3.3	3.2	3.3	3.0	2.9	2.9	2.9	2.8	2.7	2.8	2.9	2.9	2.9	2.8	2.9	2.9	2.9	3.0	2.9	3.0	3.6
5-Mar	2.7	2.7	2.7	2.9	2.7	2.2	2.3	2.5	2.3	2.3	3.2	3.7	2.8	4.5	2.7	2.4	2.4	2.6	3.2	3.3	4.2	3.7	4.1	4.4	3.0	4.5
6-Mar	4.3	2.8	2.9	2.8	2.8	2.6	2.6	2.7	2.9	2.7	3.2	3.4	3.6	3.7	3.8	3.7	3.8	4.5	5.3	5.0	4.7	4.7	4.5	4.5	3.6	5.3
7-Mar	4.5	3.6	3.4	3.5	3.5	3.7	3.8	4.5	4.5	4.7	4.9	4.8	5.0	4.6	4.9	4.8	4.1	4.4	5.8	5.8	4.8	5.0	5.3	5.5	4.6	5.8
8-Mar	5.6	5.0	4.7	4.8	4.6	5.1	6.1	7.1	7.3	7.1	7.5	7.8	7.4	6.4	4.3	3.4	3.5	3.6	3.5	3.0	2.8	2.8	2.8	3.1	5.0	7.8
9-Mar	3.0	2.8	3.0	3.2	3.4	3.4	3.4	3.6	3.8	4.4	4.6	5.3	4.5	4.5	3.0	3.0	3.3	4.0	4.1	4.5	4.5	3.8	3.7	4.1	3.8	5.3
10-Mar	4.0	2.9	2.7	2.4	2.6	2.7	2.8	2.9	3.3	3.0	1.7	1.6	1.3	1.2	1.6	1.6	1.6	1.5	4.1	3.3	3.4	2.0	1.7	3.8	2.5	4.1
11-Mar	4.2	4.5	4.1	3.1	2.8	2.9	4.0	4.3	5.5	5.3	6.6	6.6	5.3	5.1	5.0	4.2	6.1	4.3	5.8	6.8	6.4	6.6	6.0	4.0	5.0	6.8
12-Mar	2.6	2.5	2.3	2.1	1.9	1.7	1.8	2.1	2.2	2.4	2.1	2.2	2.2	2.6	2.5	2.4	2.1	2.3	2.4	2.1	2.3	2.3	2.2	2.2	2.2	2.6
13-Mar	2.6	2.5	2.4	2.5	2.4	2.4	2.5	2.7	2.7	3.6	6.7	5.0	4.6	4.4	3.7	4.8	5.5	5.1	4.3	4.4	3.0	3.0	2.9	2.8	3.6	6.7
14-Mar	2.7	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.5	6.0	10.2	11.2	6.0	2.9	3.0	5.1	11.2	13.6	8.7	8.2	2.8	0.7	0.6	0.6	4.9	13.6
15-Mar	0.7	0.9	0.7	0.6	0.5	0.5	1.0	1.9	1.9	2.3	3.0	2.7	3.0	3.2	2.3	3.0	2.2	1.7	2.1	2.0	2.9	4.2	5.1	6.4	2.3	6.4
16-Mar	6.7	7.5	7.0	5.9	6.1	6.8	8.4	8.7	9.5	9.6	13.1	11.0	7.4	6.1	5.7	6.1	4.8	6.0	5.9	6.2	2.0	1.5	1.5	1.4	6.5	13.1
17-Mar	1.8	1.3	1.2	1.3	1.5	1.6	1.8	2.3	2.7	2.6	2.5	2.8	2.4	2.6	3.0	2.9	3.2	3.0	5.6	5.6	3.4	2.7	2.4	2.1	2.6	5.6
18-Mar	5.5	7.7	4.9	5.2	5.4	4.7	5.7	5.7	4.9	4.8	4.3	3.7	3.1	4.0	5.8	6.2	4.4	3.4	3.7	3.4	4.7	6.7	6.7	5.8	5.0	7.7
19-Mar	6.2	4.0	4.5	5.2	5.6	4.5	6.0	5.3	5.1	6.7	4.8	4.6	5.0	5.4	5.5	5.6	5.4	7.3	9.8	10.2	7.6	8.5	8.9	8.4	6.3	10.2
20-Mar	10.7	12.4	8.7	2.7	3.5	4.3	5.3	11.8	16.0	28.8	22.0	16.9	10.7	9.6	9.2	10.1	12.4	10.7	9.6	12.5	20.9	21.4	22.9	17.9	13.0	28.8
21-Mar	12.3	7.0	5.2	3.8	3.2	3.5	3.4	6.5	6.7	3.4	4.3	19.6	8.6	10.4	10.8	10.7	8.4	8.5	9.9	10.9	10.6	16.0	19.0	19.6	9.3	19.6
22-Mar	19.3	17.0	18.5	16.3	7.5	7.0	4.9	6.4	4.9	6.6	5.0	3.9	2.8	2.3	2.3	1.7	10.3	5.1	27.7	5.7	8.7	3.6	3.4	3.6	8.1	27.7
23-Mar	2.5	2.7	2.2	2.4	3.1	3.1	3.6	3.3	4.2	3.8	4.0	3.9	2.6	3.4	4.0	3.4	3.5	3.6	4.2	6.4	5.9	5.6	4.1	5.4	3.8	6.4
24-Mar	3.4	3.3	3.2	3.6	3.6	3.2	3.4	3.4	3.5	4.3	5.1	5.0	5.0	4.1	4.2	4.5	5.4	5.2	5.4	6.5	6.3	4.7	4.4	3.8	4.4	6.5
25-Mar	3.3	3.0	3.3	3.1	3.1	3.5	3.9	4.3	3.5	4.2	4.0	4.7	4.2	5.1	4.5	4.6	4.7	4.7	5.1	4.7	4.4	4.2	4.0	4.1	4.1	5.1
26-Mar	4.8	4.9	5.1	5.8	7.2	7.6	7.1	6.5	5.5	5.1	5.1	5.1	4.5	4.0	4.1	4.0	4.0	4.0	3.9	3.9	3.9	3.7	3.7	3.4	4.9	7.6
27-Mar	3.4	3.5	3.3	3.1	3.1	C	2.9	2.9	3.1	3.0	3.0	3.1	2.9	2.9	2.5	2.3	2.3	2.1	2.0	1.7	1.5	1.4	1.4	1.2	2.6	3.5
28-Mar	1.3	1.3	1.2	1.1	1.5	2.4	2.9	3.5	2.9	2.1	1.4	1.3	2.2	2.9	2.7	2.7	2.6	2.2	2.0	2.2	2.8	3.2	3.0	2.8	2.3	3.5
29-Mar	3.4	3.3	3.6	3.7	3.8	3.4	4.1	3.9	3.9	3.2	2.8	3.0	2.8	2.7	2.1	2.1	2.2	2.3	2.7	3.0	3.9	3.5	3.0	3.0	3.1	4.1
30-Mar	4.1	3.3	3.0	3.1	3.8	5.1	4.0	3.7	3.6	4.7	4.9	3.5	1.9	2.0	1.6	1.9	1.8	2.0	2.7	3.5	3.6	2.7	2.8	2.5	3.2	5.1
31-Mar	2.7	2.7	2.8	2.9	3.1	3.3	3.4	3.8	4.5	5.5	6.0	5.5	4.8	4.0	3.5	3.8	4.1	4.1	4.6	4.6	3.7	3.4	3.2	3.1	3.9	6.0
																								Diurnal Average		
																								Diurnal Maximum		
																								4.9 19.3		
																								4.4 17.0		
																								4.1 18.5		
																								3.9 16.3		
																								3.8 11.0		
																								3.8 9.4		
																								3.9 8.4		
																								4.4 11.8		
																								4.5 16.0		
																								5.2 28.8		
																								5.3 22.0		
																								5.5 19.6		
																								4.3 10.7		
																								4.2 10.4		
																								4.1 10.8		
																								4.1 10.7		
																								4.6 12.4		
																								4.5 13.6		
																								5.5 27.7		
																								5.3 12.5		
																								5.1 20.9		
																								5.0 21.4		
																								5.2 22.9		
																								5.0 19.6		
																								4.9 19.6		
																								8.1 27.7		
																								3.8 6.4		
																								4.4 6.5		
																								4.1 5.1		
																								4.9 7.6		
																								2.6 3.5		
																								2.3 3.5		
																								3.1 4.1		
																								3.2 5.1		
																								3.9 6.0		

C - Calibration

Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m³ 24-hr 29 µg/m³





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Athabasca Valley - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	577	77.66	77.66
6 - 15	149	20.05	97.71
16 - 25	15	2.02	99.73
26 - 80	2	0.27	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - µg/m³
Athabasca Valley - March 2024

Concentration Ranges (µg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	33	9	8	10	18	68	146	57	23	18	25	14	15	13	20	100	577
6 - 15	20	4	1	4	3	10	23	4	1	2	0	0	2	0	6	69	149
16 - 25	3	0	0	0	0	0	0	0	0	0	1	1	0	2	0	8	15
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	56	13	9	14	21	78	169	61	24	20	26	15	17	16	26	178	743

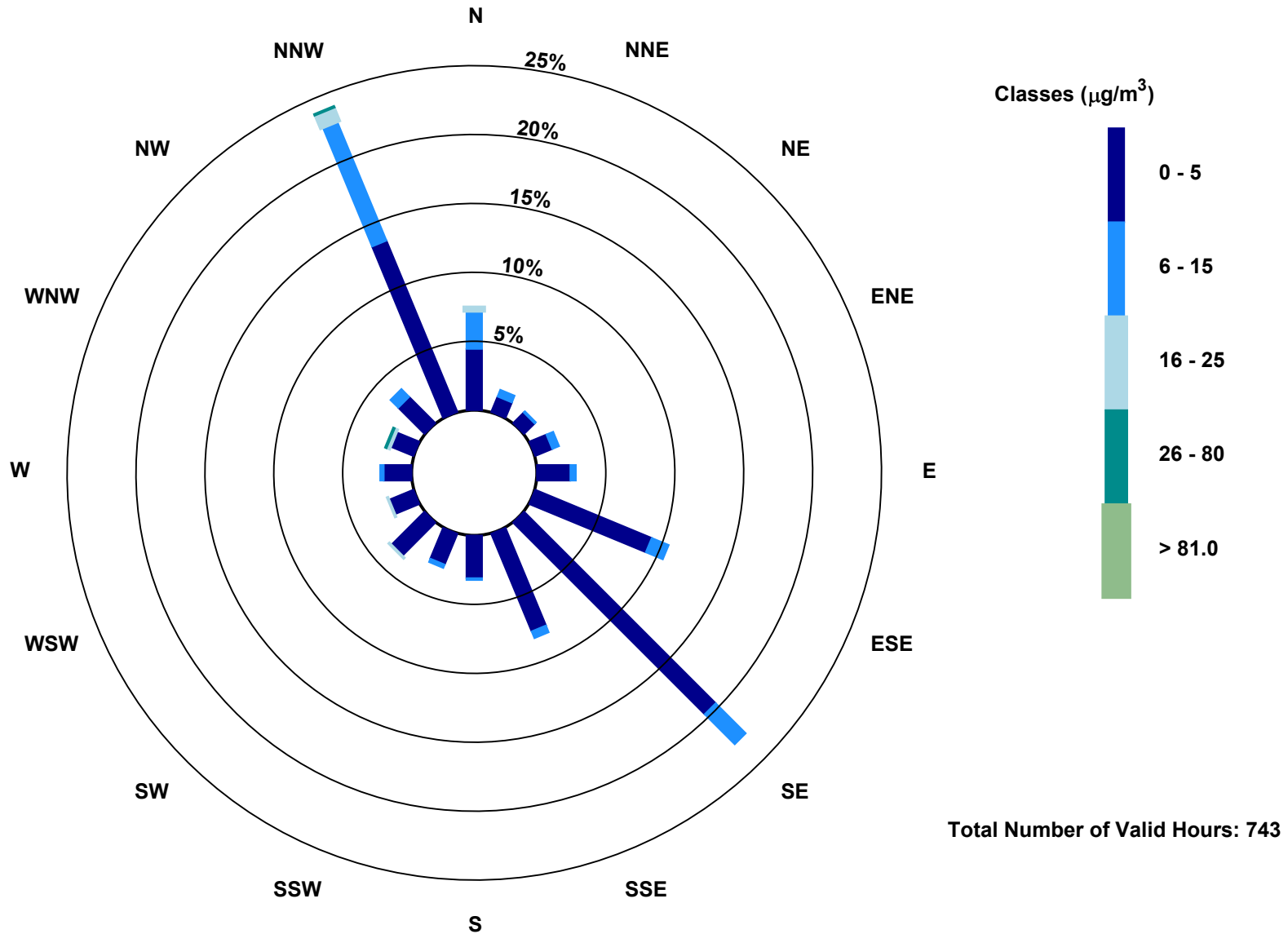
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Athabasca Valley





Wood Buffalo Environmental Association
Summary of Hour Averages

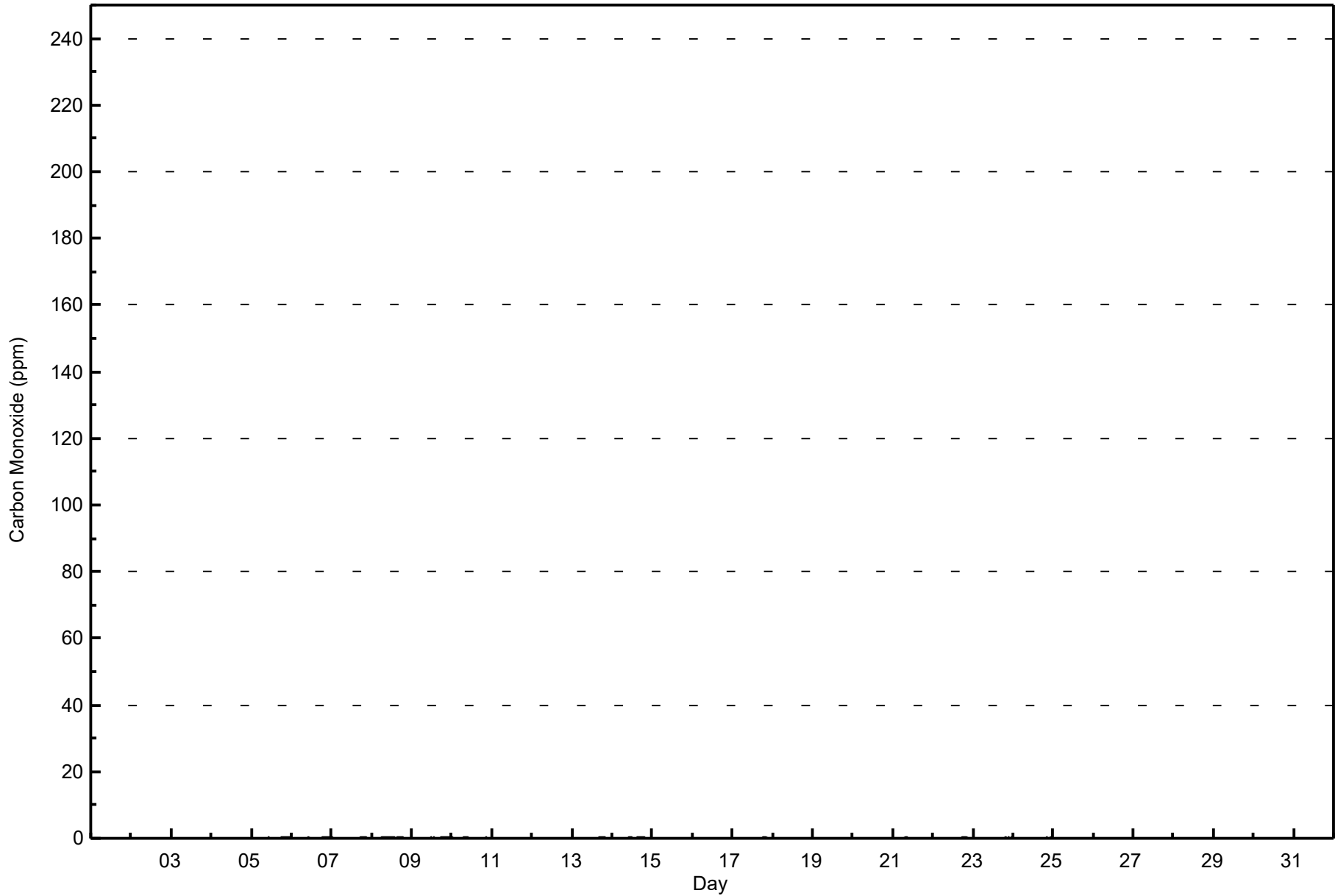
Carbon Monoxide (CO) - ppm
Athabasca Valley - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 0.5 ppm on Mar 14 18:00		Maximum Daily Average: 0.2 ppm on Mar 14				Hours of Data:		697																		
Minimum Value: 0.1 ppm on Mar 27 09:00		Minimum Daily Average: 0.1 ppm on Mar 27				Hours of Missing Data:		47																		
Maximum Diurnal Average: 0.2 ppm at hour 19		Minimum Diurnal Average: 0.1 ppm at hour 3				Hours of Calibration:		34																		
Monthly Average: 0.16 ppm		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.2 P ₉₉ = 0.3				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-Mar	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	0.2	0.2	0.2	0.2	0.2	0.1	0.2
2-Mar	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2
3-Mar	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
4-Mar	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	0.2	0.2	0.2	0.2	0.1	0.1	0.2
5-Mar	0.1	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2
6-Mar	0.2	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2
7-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.4
8-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
9-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3
10-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3
11-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
12-Mar	0.2	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2
13-Mar	0.1	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2
14-Mar	Z	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	0.3	0.5	0.5	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.5
15-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
16-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2
17-Mar	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.3
18-Mar	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
19-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
21-Mar	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
22-Mar	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3
23-Mar	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
24-Mar	0.2	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
25-Mar	0.2	0.1	0.1	0.1	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
26-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2
27-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
28-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
29-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2
30-Mar	0.2	0.1	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2
31-Mar	0.2	0.2	0.2	0.2	0.2	Z	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	0.2	0.2	0.2
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																										



Wood Buffalo Environmental Association
Hourly Averages

Carbon Monoxide (CO) - ppm
Athabasca Valley - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Monoxide (CO) - ppm
Athabasca Valley - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	692	99.28	99.28
0.4 - 0.5	5	0.72	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: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Monoxide (CO) - ppm
Athabasca Valley - March 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	49	10	8	13	21	73	156	58	22	18	24	14	17	16	26	167	692
0.4 - 0.5	0	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	5
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
Totals	49	10	8	13	21	73	160	59	22	18	24	14	17	16	26	167	697

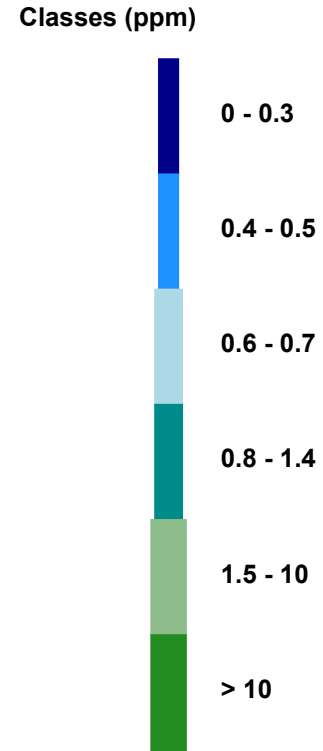
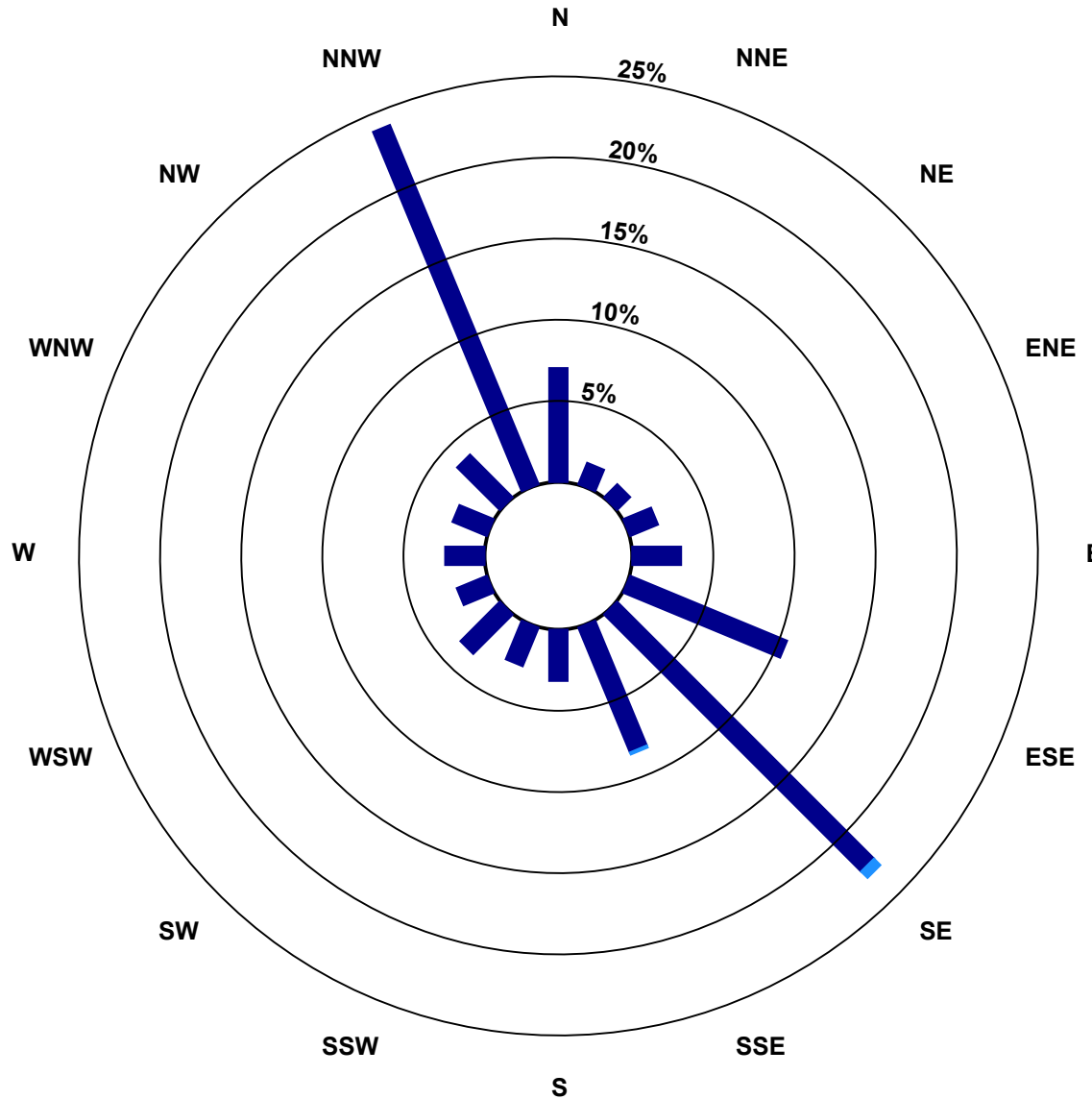
Total Number of Valid Hours: 697

Total Number of Hours: 744

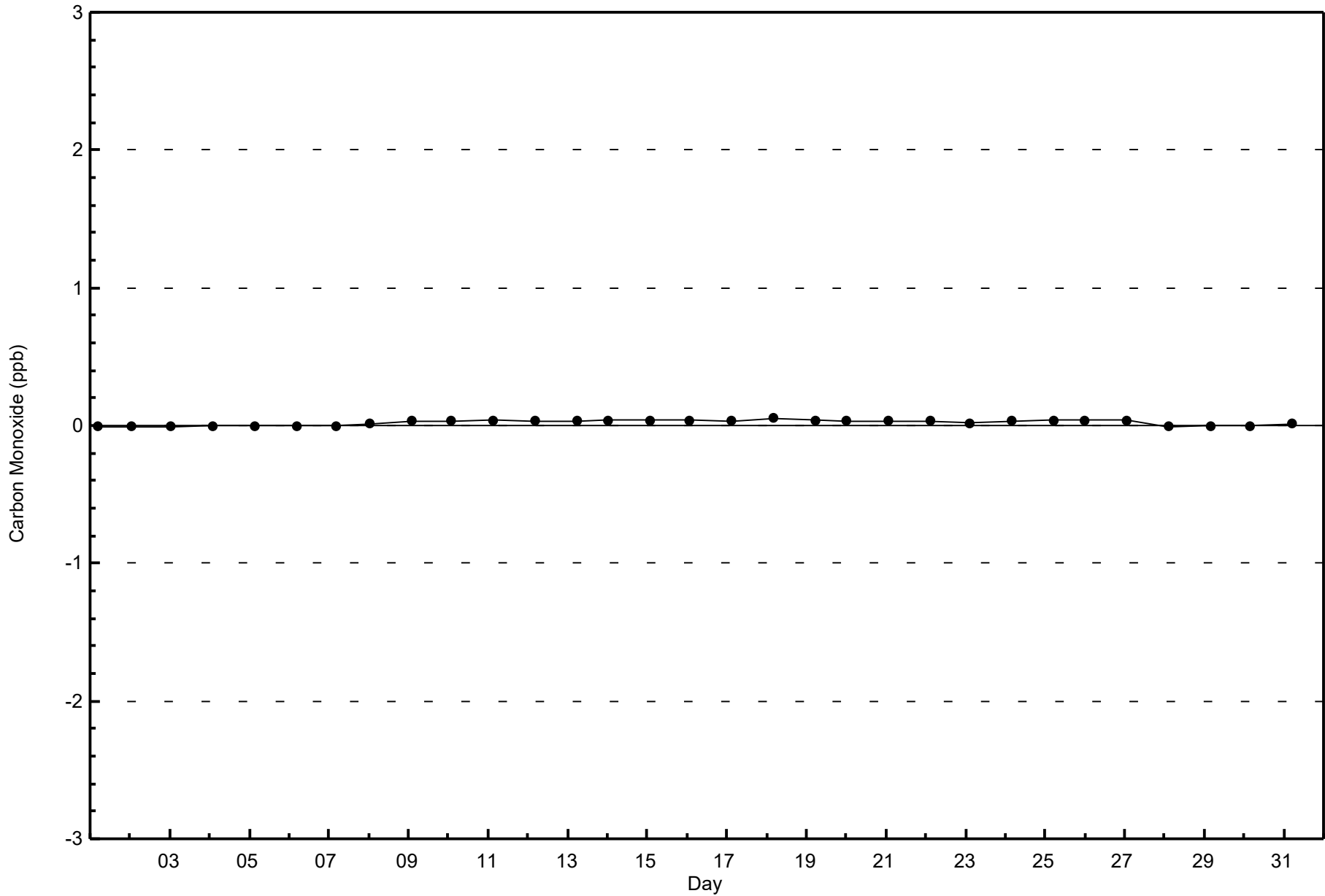


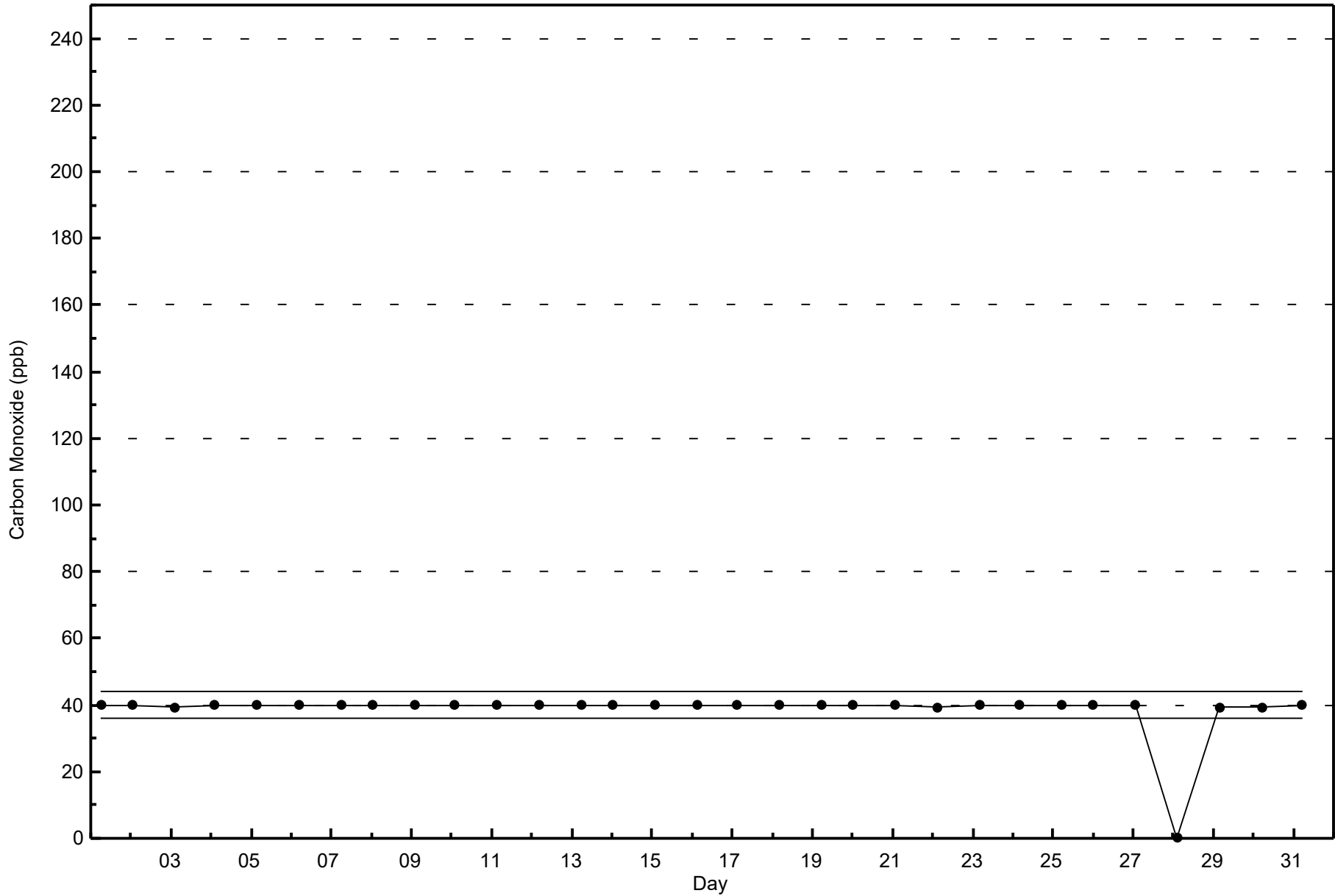
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Carbon Monoxide (CO) - ppm
Athabasca Valley



Total Number of Valid Hours: 697







Wood Buffalo Environmental Association
Summary of Hour Averages

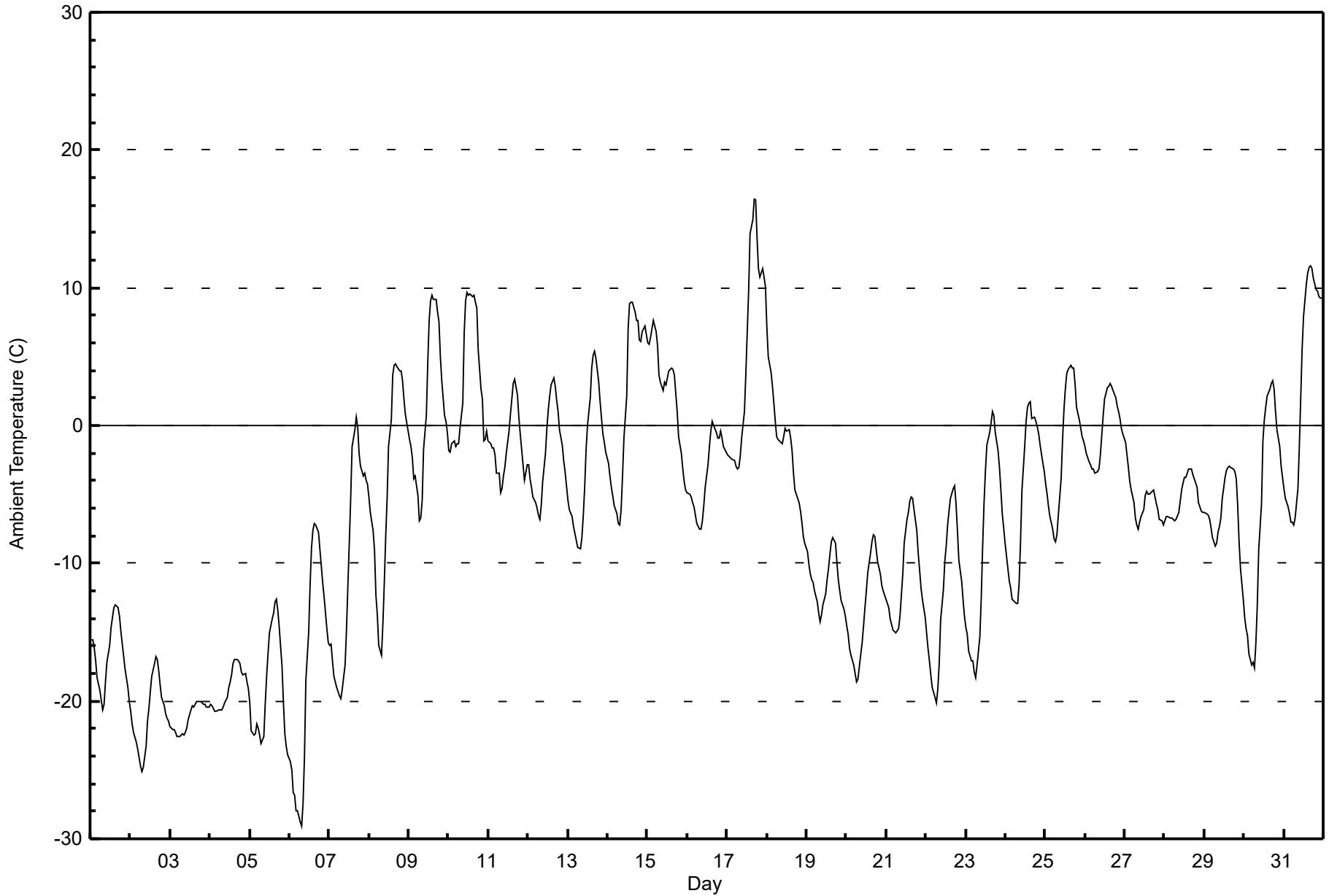
Ambient Temperature (AT) - C
Athabasca Valley - March 2024

Maximum Value: 16.4 C on Mar 17 17:00 Maximum Daily Average: 5.3 C on Mar 17																						Hours in Service:	744			
Minimum Value: -29.1 C on Mar 6 08:00 Minimum Daily Average: -21.2 C on Mar 3																						Hours of Data:	744			
Maximum Diurnal Average: -1.3 C at hour 16 Minimum Diurnal Average: -12.0 C at hour 8																						Hours of Missing Data:	0			
Monthly Average: -6.73 C Percentiles: P ₁ = -25.1 P ₁₀ = -20.1 Q ₁ = -13.9 Median = -5.7 Q ₃ = -0.5 P ₉₀ = 4.1 P ₉₉ = 11.4																						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-Mar	-15.5	-15.5	-16.1	-17.1	-18.3	-19.2	-19.9	-20.6	-20.3	-18.6	-17.2	-16.0	-14.6	-14.0	-13.3	-13.0	-13.2	-13.8	-15.0	-15.9	-16.8	-17.7	-19.0	-20.0	-16.7	-13.0
2-Mar	-20.8	-21.6	-22.3	-22.9	-23.5	-24.1	-24.7	-25.1	-24.8	-23.2	-21.5	-20.6	-19.3	-18.2	-17.3	-16.8	-17.0	-17.8	-18.8	-19.7	-20.3	-20.9	-21.2	-21.5	-21.0	-16.8
3-Mar	-21.9	-22.1	-22.1	-22.3	-22.6	-22.6	-22.6	-22.4	-22.4	-22.3	-22.0	-21.3	-20.7	-20.3	-20.4	-20.2	-20.1	-20.0	-20.1	-20.1	-20.2	-20.2	-20.4	-20.4	-21.2	-20.0
4-Mar	-20.3	-20.3	-20.6	-20.7	-20.7	-20.6	-20.6	-20.6	-20.4	-20.2	-19.7	-19.0	-18.6	-18.1	-17.3	-17.0	-17.0	-17.1	-17.3	-17.9	-18.1	-18.0	-18.6	-19.1	-19.1	-17.0
5-Mar	-20.1	-22.2	-22.5	-22.4	-21.6	-22.0	-22.5	-23.0	-22.6	-20.2	-18.2	-16.5	-15.0	-14.1	-13.6	-12.8	-12.7	-13.4	-14.7	-17.5	-20.1	-22.3	-23.3	-23.9	-19.1	-12.7
6-Mar	-24.4	-25.0	-26.6	-26.8	-28.0	-27.9	-28.8	-29.1	-27.4	-24.1	-18.5	-15.0	-11.7	-8.9	-7.6	-7.1	-7.2	-7.8	-9.0	-10.2	-11.3	-12.4	-14.8	-15.7	-17.7	-7.1
7-Mar	-16.0	-15.9	-17.1	-18.2	-19.0	-19.3	-19.6	-19.8	-19.1	-17.4	-14.9	-11.6	-8.5	-5.3	-1.6	-0.3	0.6	-0.1	-2.0	-2.9	-3.6	-3.5	-3.9	-4.3	-10.1	0.6
8-Mar	-5.1	-6.3	-7.6	-9.1	-12.3	-13.8	-15.9	-16.6	-14.4	-11.3	-8.1	-5.3	-1.5	0.4	3.6	4.4	4.4	4.3	4.0	4.0	3.2	1.9	0.9	-0.4	-4.0	4.4
9-Mar	-1.0	-1.6	-2.3	-3.9	-3.6	-5.1	-6.9	-6.7	-5.5	-1.7	0.8	4.6	7.6	9.1	9.5	9.2	9.2	8.2	7.5	5.0	3.2	0.7	0.3	-0.6	1.5	9.5
10-Mar	-1.8	-1.9	-1.3	-1.1	-1.5	-1.3	-1.3	-0.2	1.7	6.7	9.0	9.7	9.5	9.6	9.4	9.5	9.0	8.5	5.5	2.7	2.0	-1.1	-1.0	-0.4	3.3	9.7
11-Mar	-1.1	-1.3	-1.7	-1.6	-2.1	-3.5	-3.5	-4.8	-4.6	-3.7	-3.0	-2.1	-0.4	0.8	1.9	3.0	3.4	2.2	0.6	-0.7	-1.8	-2.8	-3.9	-2.9	-1.4	3.4
12-Mar	-2.9	-3.9	-4.5	-5.2	-5.6	-6.0	-6.5	-6.8	-5.8	-4.1	-2.0	-0.2	1.1	2.2	2.9	3.4	2.9	1.8	1.0	-0.3	-1.5	-2.5	-3.4	-4.4	-2.1	3.4
13-Mar	-5.4	-6.1	-6.7	-7.4	-7.8	-8.3	-8.8	-9.0	-8.1	-6.5	-4.4	-1.7	0.0	2.0	4.1	5.1	5.4	4.9	3.2	1.8	0.5	-0.6	-1.2	-2.0	-2.4	5.4
14-Mar	-2.8	-3.6	-4.4	-5.1	-5.8	-6.4	-7.2	-7.2	-6.1	-3.7	-0.9	2.1	7.0	8.9	9.0	9.0	8.3	7.7	7.6	6.2	6.1	6.8	7.2	6.6	1.6	9.0
15-Mar	6.0	5.9	6.4	7.7	7.2	6.8	5.8	3.6	3.1	2.6	3.1	3.0	3.4	4.0	4.2	4.0	3.7	2.4	1.1	-0.8	-2.1	-3.2	-4.0	-4.7	2.9	7.7
16-Mar	-4.9	-5.0	-5.2	-5.6	-5.9	-6.5	-7.1	-7.5	-7.6	-6.9	-5.8	-4.5	-2.9	-1.5	-0.4	0.3	0.0	-0.5	-0.9	-0.9	-0.4	-0.9	-1.6	-1.9	-3.5	0.3
17-Mar	-2.1	-2.2	-2.3	-2.4	-2.6	-3.0	-3.2	-3.0	-2.2	-1.0	1.0	3.7	6.8	9.8	13.9	15.0	16.4	16.4	13.6	11.4	10.7	11.4	10.7	10.0	5.3	16.4
18-Mar	7.1	5.0	3.9	2.8	1.6	0.3	-0.8	-1.0	-1.2	-1.3	-0.8	-0.2	-0.4	-0.3	-0.9	-1.8	-3.5	-4.7	-5.0	-5.6	-6.2	-7.0	-8.0	-8.6	-1.5	7.1
19-Mar	-9.2	-10.1	-10.8	-11.2	-11.4	-12.1	-12.8	-13.6	-14.2	-13.7	-13.1	-12.2	-11.2	-10.4	-9.3	-8.5	-8.2	-8.6	-10.0	-11.2	-12.0	-12.7	-13.3	-13.9	-11.4	-8.2
20-Mar	-14.6	-15.2	-16.1	-16.7	-17.3	-18.0	-18.6	-18.4	-17.5	-15.8	-14.5	-13.3	-12.0	-10.7	-9.3	-8.4	-7.9	-8.1	-8.9	-9.8	-10.8	-11.6	-12.0	-12.3	-13.2	-7.9
21-Mar	-12.6	-13.3	-14.0	-14.4	-14.8	-15.0	-15.0	-14.7	-13.8	-12.3	-10.8	-8.6	-6.8	-6.3	-5.5	-5.2	-5.3	-6.1	-7.6	-9.3	-10.5	-11.8	-12.7	-14.0	-10.8	-5.2
22-Mar	-15.1	-16.2	-17.1	-18.1	-19.0	-19.7	-20.1	-19.1	-17.3	-14.2	-11.9	-9.9	-8.8	-7.2	-6.2	-5.3	-4.6	-4.4	-5.7	-7.7	-9.8	-11.3	-12.6	-13.8	-12.3	-4.4
23-Mar	-14.6	-15.2	-16.4	-17.0	-17.1	-17.9	-18.4	-17.4	-15.4	-12.5	-8.8	-5.6	-3.3	-1.5	-0.5	0.2	1.1	0.8	-0.5	-1.9	-3.0	-4.7	-6.4	-7.4	-8.5	1.1
24-Mar	-8.5	-10.3	-11.3	-11.8	-12.6	-12.7	-12.9	-11.5	-8.6	-4.8	-1.5	0.3	1.3	1.7	1.7	0.5	0.7	0.3	-0.1	-0.6	-1.4	-2.7	-3.4	-5.1	1.7	
25-Mar	-4.2	-5.0	-5.9	-6.6	-7.6	-8.3	-8.4	-8.0	-6.5	-3.8	-1.1	1.1	2.6	3.8	4.1	4.4	4.2	4.1	2.9	1.4	0.4	-0.2	-0.8	-1.1	-1.6	4.4
26-Mar	-1.5	-2.1	-2.6	-2.9	-3.2	-3.1	-3.4	-3.3	-3.2	-2.1	-0.7	0.7	1.9	2.8	2.9	3.1	2.8	2.5	2.0	1.5	1.1	0.5	-0.2	-0.6	-0.3	3.1
27-Mar	-1.2	-2.1	-3.1	-4.1	-4.7	-5.6	-6.7	-7.2	-7.5	-7.0	-6.6	-6.1	-5.1	-4.7	-5.0	-5.0	-4.8	-4.7	-5.2	-5.7	-6.1	-6.8	-6.9	-7.2	-5.4	-1.2
28-Mar	-6.9	-6.6	-6.6	-6.7	-6.7	-6.8	-7.0	-6.8	-6.3	-5.5	-4.7	-4.2	-3.7	-3.8	-3.2	-3.2	-3.1	-3.6	-3.8	-4.5	-5.5	-5.8	-6.2	-6.3	-5.3	-3.1
29-Mar	-6.3	-6.5	-6.5	-6.8	-7.4	-8.2	-8.8	-8.5	-7.8	-7.3	-6.7	-5.3	-3.8	-3.2	-3.0	-2.9	-3.1	-3.2	-3.4	-3.9	-5.8	-8.4	-10.4	-12.7	-6.2	-2.9
30-Mar	-14.0	-14.8	-15.3	-16.6	-17.3	-17.2	-17.6	-15.7	-13.0	-9.1	-5.7	-1.1	0.4	1.4	2.1	2.6	3.0	3.3	2.7	1.0	-0.3	-1.6	-2.9	-3.7	-6.2	3.3
31-Mar	-4.6	-5.3	-5.9	-6.4	-7.0	-7.0	-7.2	-6.7	-4.6	-1.5	2.1	5.6	7.9	10.3	11.0	11.5	11.6	11.4	10.7	9.8	9.8	9.4	9.3	9.2	3.1	11.6
																						Diurnal Average				
																						Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Athabasca Valley - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Athabasca Valley - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	78	10.48	10.48
-20 - 0	502	67.47	77.96
0 - 10	148	19.89	97.85
10 - 20	16	2.15	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

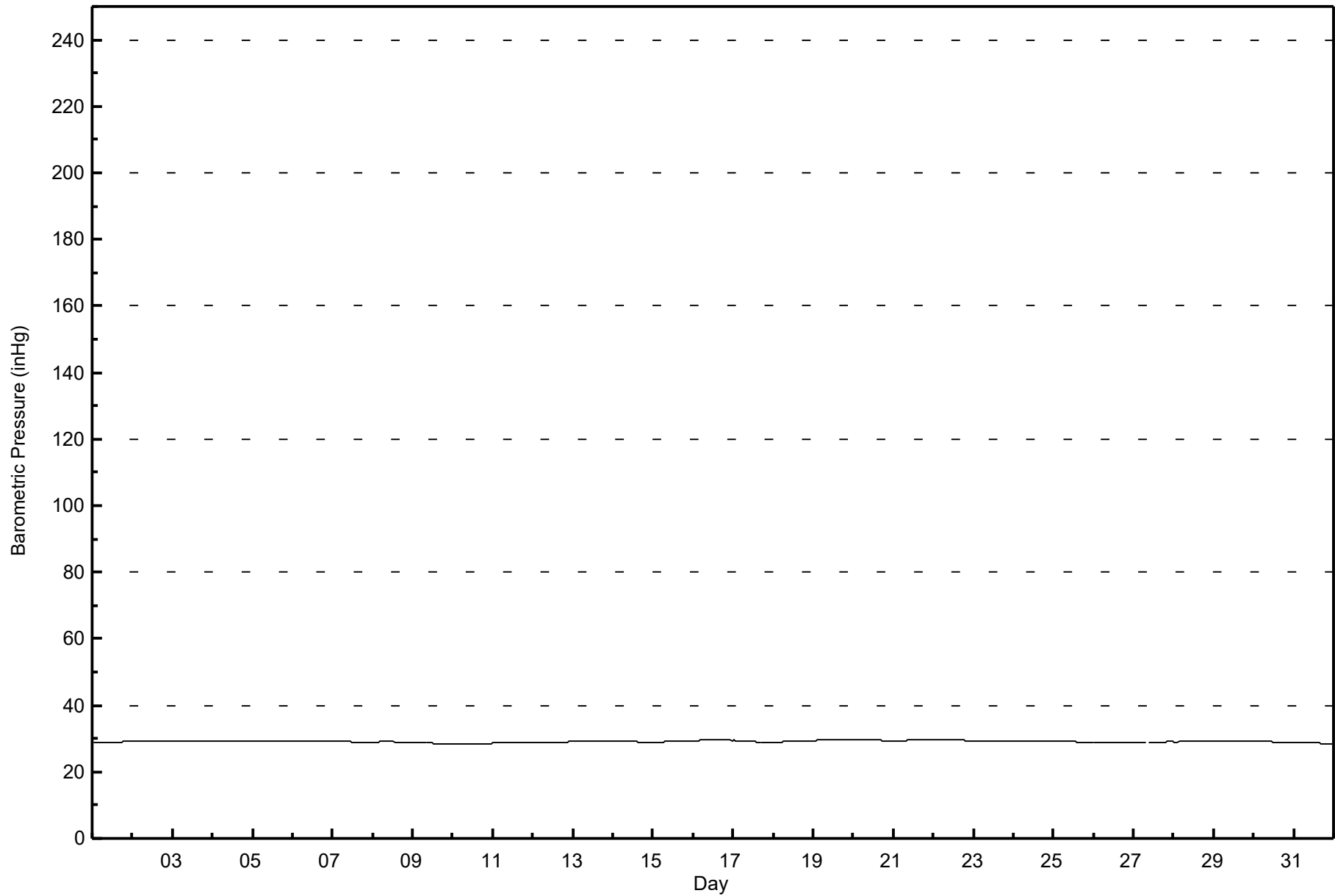
Barometric Pressure (BP) - inHg
Athabasca Valley - March 2024

Maximum Value: 29.7 inHg on Mar 22 08:00 Maximum Daily Average: 29.6 inHg on Mar 22																						Hours in Service: 744 Hours of Data: 743				
Minimum Value: 28.3 inHg on Mar 10 04:00 Minimum Daily Average: 28.4 inHg on Mar 10 Maximum Diurnal Average: 29.1 inHg at hour 9 Minimum Diurnal Average: 29.1 inHg at hour 18 Monthly Average: 29.10 inHg Percentiles: P ₁ = 28.3 P ₁₀ = 28.8 Q ₁ = 28.9 Median = 29.1 Q ₃ = 29.3 P ₉₀ = 29.5 P ₉₉ = 29.7																						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-Mar	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.2	29.2	28.9	29.2	
2-Mar	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.3	29.4
3-Mar	29.4	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	29.1	29.1	29.2	29.4
4-Mar	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
5-Mar	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
6-Mar	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.3
7-Mar	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	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.1
8-Mar	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	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.1
9-Mar	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.5	28.5	28.5	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.3	28.6	28.9
10-Mar	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.4	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.4	28.6
11-Mar	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	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.8	28.9
12-Mar	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	28.9	29.1
13-Mar	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
14-Mar	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	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	29.1	29.2
15-Mar	28.8	28.8	28.9	28.9	28.9	28.9	29.0	29.0	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.1	29.4	
16-Mar	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.5	29.5
17-Mar	29.5	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	29.1	29.5
18-Mar	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.1	29.4
19-Mar	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.6	29.6
20-Mar	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.6
21-Mar	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.5	29.6
22-Mar	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.6	29.7
23-Mar	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.4
24-Mar	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
25-Mar	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
26-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0
27-Mar	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	DF	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-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
29-Mar	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2
30-Mar	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.2
31-Mar	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.5	28.5	28.5	28.5	28.4	28.4	28.4	28.7	28.9	
29.1 29.1																								Diurnal Average		
29.6 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6 29.6																								Diurnal Maximum		
DF - DAS Failure																										



Wood Buffalo Environmental Association
Hourly Averages

Barometric Pressure (BP) - inHg
Athabasca Valley - March 2024

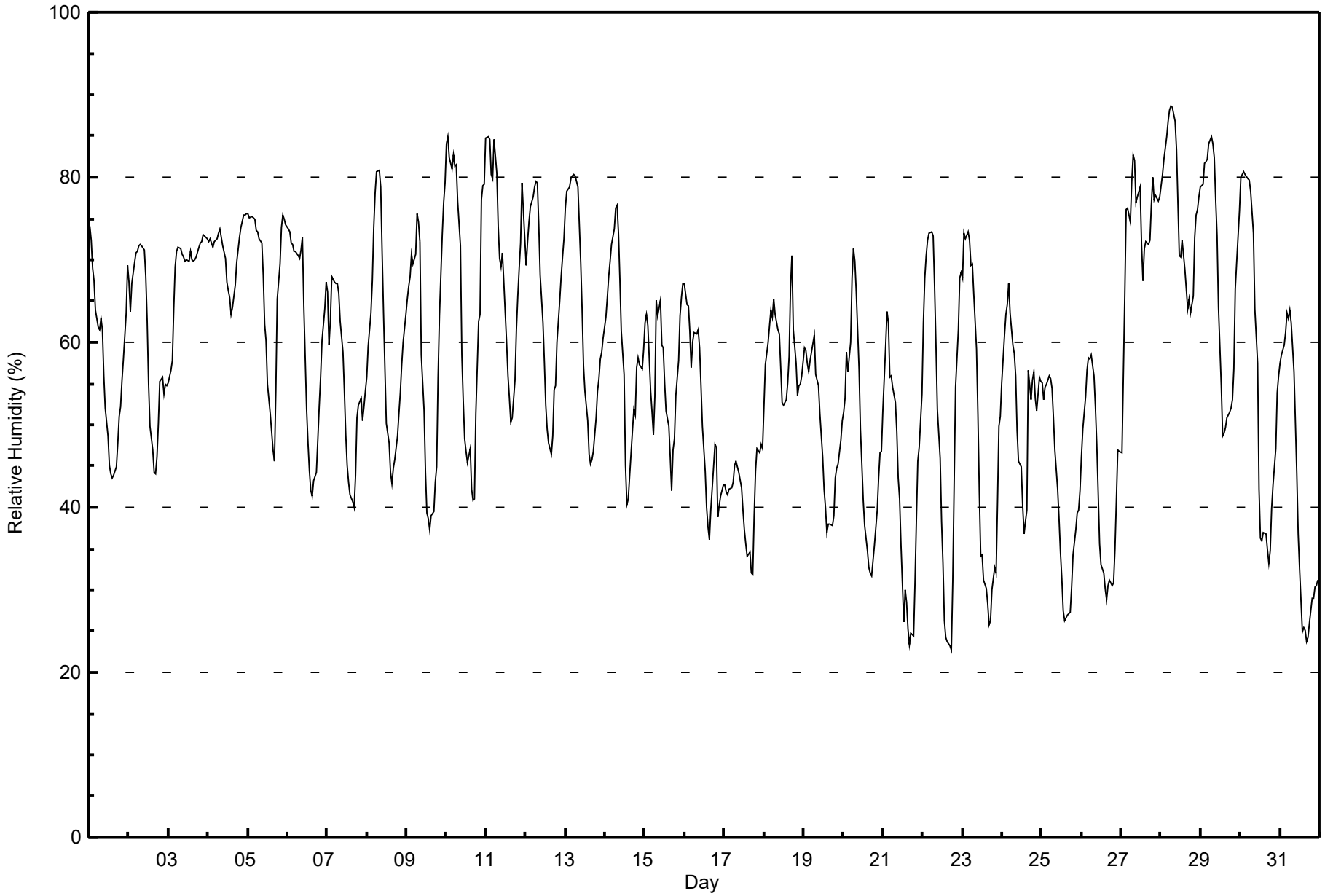




Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity (RH) - %
Athabasca Valley - March 2024

Maximum Value: 88.7 % on Mar 28 07:00		Maximum Daily Average: 76.4 % on Mar 28		Hours in Service: 744																							
Minimum Value: 22.8 % on Mar 22 18:00		Minimum Daily Average: 41.1 % on Mar 25		Hours of Data: 744																							
Maximum Diurnal Average: 69.8 % at hour 7		Minimum Diurnal Average: 42.9 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 57.49 %		Percentiles: P ₁ = 24.5 P ₁₀ = 36.7 Q ₁ = 46.1 Median = 57.6 Q ₃ = 70.5 P ₉₀ = 77.0 P ₉₉ = 84.9		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-Mar	74.1	72.4	69.0	67.5	63.8	61.9	61.5	62.9	61.6	56.0	52.1	48.7	45.0	44.1	43.5	44.0	45.0	47.8	51.0	52.2	55.5	58.0	63.5	69.3	57.1	74.1	
2-Mar	67.3	63.7	67.2	69.7	70.8	71.0	71.7	71.8	71.7	71.2	67.9	62.5	54.9	49.8	47.0	44.2	44.0	46.1	50.2	55.2	55.8	53.8	54.9	54.7	59.9	71.8	
3-Mar	55.2	56.5	57.8	64.1	69.2	71.0	71.6	71.3	70.6	70.3	69.8	69.9	69.9	71.0	69.9	69.9	70.0	70.3	71.6	72.0	72.2	73.0	72.9	72.5	68.9	73.0	
4-Mar	72.2	72.5	72.0	71.6	72.3	72.6	73.2	73.7	72.7	71.7	70.2	67.3	66.3	65.4	63.4	64.2	67.0	69.6	71.2	72.6	73.8	75.4	75.5	75.6	70.9	75.6	
5-Mar	75.5	75.2	75.3	75.2	75.0	73.6	73.3	72.5	72.0	68.2	62.2	60.2	55.0	51.3	49.1	47.0	45.7	54.0	65.2	69.6	73.9	75.4	75.0	74.2	66.4	75.5	
6-Mar	73.7	73.3	72.1	71.8	71.0	71.0	70.5	70.2	71.1	72.7	64.4	51.9	47.8	44.5	42.1	41.3	43.2	44.2	48.1	52.2	55.8	60.2	64.0	67.4	60.2	73.7	
7-Mar	66.1	59.6	62.7	68.0	67.3	67.2	67.2	65.9	62.5	58.8	54.1	48.8	45.2	43.0	41.5	40.6	40.0	43.9	50.8	52.3	53.3	50.5	52.2	54.0	54.8	68.0	
8-Mar	55.8	59.5	63.6	67.5	74.0	78.2	80.7	80.9	78.8	70.9	63.6	56.7	50.2	47.8	44.3	42.8	44.7	45.8	48.7	51.3	53.9	57.3	60.1	63.3	60.0	80.9	
9-Mar	65.2	66.7	67.9	70.7	69.6	70.6	75.6	74.6	72.2	58.5	51.7	44.2	39.3	38.7	37.4	38.9	39.5	43.0	44.9	55.8	63.2	73.1	76.9	79.4	59.1	79.4	
10-Mar	84.1	85.0	82.4	81.0	82.6	81.4	81.6	77.2	71.6	58.5	52.9	48.4	46.7	45.4	47.1	42.2	40.9	41.0	51.3	62.6	63.3	77.4	79.0	79.2	65.1	85.0	
11-Mar	84.7	84.9	84.5	80.3	79.9	84.5	80.5	74.1	70.2	69.2	70.9	67.3	59.9	55.9	53.2	50.4	50.9	55.4	61.5	65.7	69.0	72.0	79.3	72.6	69.9	84.9	
12-Mar	69.4	72.2	74.5	76.5	77.6	78.8	79.5	79.3	74.2	68.1	62.3	57.7	52.3	49.4	47.8	46.4	48.7	54.2	54.7	60.0	65.1	68.0	70.3	72.6	65.0	79.5	
13-Mar	76.2	78.3	78.8	79.7	80.2	80.3	80.2	78.7	74.2	69.7	63.9	57.2	54.0	50.5	46.4	45.3	45.8	46.8	50.8	54.1	55.6	58.0	58.8	60.6	63.5	80.3	
14-Mar	63.0	65.4	68.0	69.8	71.9	73.7	76.2	76.7	73.2	67.7	61.4	56.2	45.0	40.3	41.0	43.8	49.2	51.9	51.2	56.9	58.2	57.4	56.8	59.2	59.8	76.7	
15-Mar	62.3	63.4	62.0	54.1	51.5	48.8	53.3	65.1	63.2	65.0	59.7	59.4	55.0	51.6	49.9	46.0	42.0	46.9	48.3	53.6	57.9	63.2	65.5	67.1	56.5	67.1	
16-Mar	67.1	64.6	64.4	61.4	56.9	60.1	61.2	61.0	61.5	59.3	54.8	49.8	44.3	40.1	37.5	36.1	39.6	45.0	47.6	47.2	38.9	40.1	41.3	42.7	50.9	67.1	
17-Mar	42.7	41.8	41.6	42.3	42.4	43.1	45.1	45.7	44.9	44.2	42.4	39.7	37.2	35.5	34.1	34.6	32.0	31.8	39.0	44.5	47.2	46.6	47.6	47.2	41.4	47.6	
18-Mar	52.1	57.3	60.0	62.0	64.0	63.1	65.3	63.5	61.5	61.0	56.9	52.6	52.3	53.1	55.1	58.4	66.6	70.5	61.6	57.4	53.5	54.7	55.0	55.9	58.9	70.5	
19-Mar	59.2	59.0	57.5	56.4	57.7	58.9	60.9	56.0	55.4	54.7	51.4	46.1	42.3	40.0	36.9	37.9	37.9	37.8	38.9	43.6	44.7	45.2	48.1	50.6	49.0	60.9	
20-Mar	51.6	53.2	58.8	56.5	60.0	67.9	71.3	69.8	66.1	56.7	49.5	45.3	40.9	37.8	34.7	32.8	32.0	31.8	33.5	35.5	39.6	43.5	46.6	46.8	48.4	71.3	
21-Mar	51.7	59.5	63.7	62.4	55.7	56.0	54.5	52.7	49.1	43.6	41.1	35.4	26.1	29.9	28.5	25.2	23.4	24.7	24.3	30.9	38.5	45.7	47.2	53.7	42.7	63.7	
22-Mar	62.4	67.7	70.6	72.4	73.2	73.5	72.9	66.8	59.6	51.9	45.9	38.4	33.1	26.3	24.2	23.7	23.2	22.8	31.0	43.1	54.6	61.5	67.9	68.5	51.5	73.5	
23-Mar	67.9	73.2	72.6	73.5	72.4	69.4	69.5	65.9	59.2	51.2	41.7	34.0	34.2	31.2	30.2	28.2	25.8	26.2	30.0	32.8	32.0	40.4	49.8	50.9	48.4	73.5	
24-Mar	55.0	60.8	63.4	64.5	67.1	63.6	59.7	58.6	55.9	49.4	45.6	44.9	40.1	36.8	38.3	39.7	56.6	53.0	55.4	56.4	53.2	51.6	55.8	55.2	53.4	67.1	
25-Mar	55.0	53.1	54.6	54.8	56.0	55.6	54.4	50.8	47.0	42.2	38.7	34.7	31.3	27.5	26.3	27.0	27.1	27.3	30.4	34.3	37.3	39.4	39.7	42.1	41.1	56.0	
26-Mar	46.1	49.6	53.5	56.5	58.1	58.0	58.5	55.9	52.2	47.6	41.6	35.6	33.0	32.0	30.2	28.8	30.4	31.1	30.5	30.9	34.9	40.8	46.9	46.7	42.9	58.5	
27-Mar	46.7	56.1	65.6	76.0	76.3	74.5	79.5	82.6	82.0	77.0	77.6	78.8	71.9	67.5	71.4	72.2	71.9	72.3	76.7	80.0	77.4	77.8	77.1	77.7	73.6	82.6	
28-Mar	79.0	80.3	82.3	84.9	86.8	88.1	88.7	88.4	86.7	83.5	77.0	70.5	70.3	72.4	68.8	66.5	64.1	65.3	63.5	65.5	72.6	75.4	76.2	77.7	76.4	88.7	
29-Mar	78.7	79.2	81.7	81.9	82.2	84.1	85.0	84.0	82.4	77.3	72.9	64.2	54.7	48.7	48.9	49.7	50.8	51.5	52.1	53.0	56.8	66.4	69.6	75.9	68.0	85.0	
30-Mar	79.9	80.3	80.7	80.3	79.8	79.7	78.2	75.7	73.1	64.1	57.4	42.3	36.2	35.9	37.0	36.7	34.9	33.3	34.7	39.8	42.7	47.2	53.9	56.0	56.7	80.7	
31-Mar	57.4	58.5	59.6	61.2	63.6	63.0	63.8	62.3	56.5	50.4	44.0	36.8	32.5	24.9	25.5	25.1	23.8	24.2	26.0	29.0	29.0	30.3	30.6	31.1	42.0	63.8	
		64.4	65.9	67.4	68.2	68.7	69.1	69.8	68.9	66.2	61.6	57.0	51.8	47.3	44.8	43.6	42.9	43.8	45.5	48.2	51.9	54.2	57.4	59.9	61.3	Diurnal Average	
		84.7	85.0	84.5	84.9	86.8	88.1	88.7	88.4	86.7	83.5	77.6	78.8	71.9	72.4	71.4	72.2	71.9	72.3	76.7	80.0	77.4	77.8	79.3	79.4	Diurnal Maximum	





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Speed (WS) - km/h
Athabasca Valley - March 2024

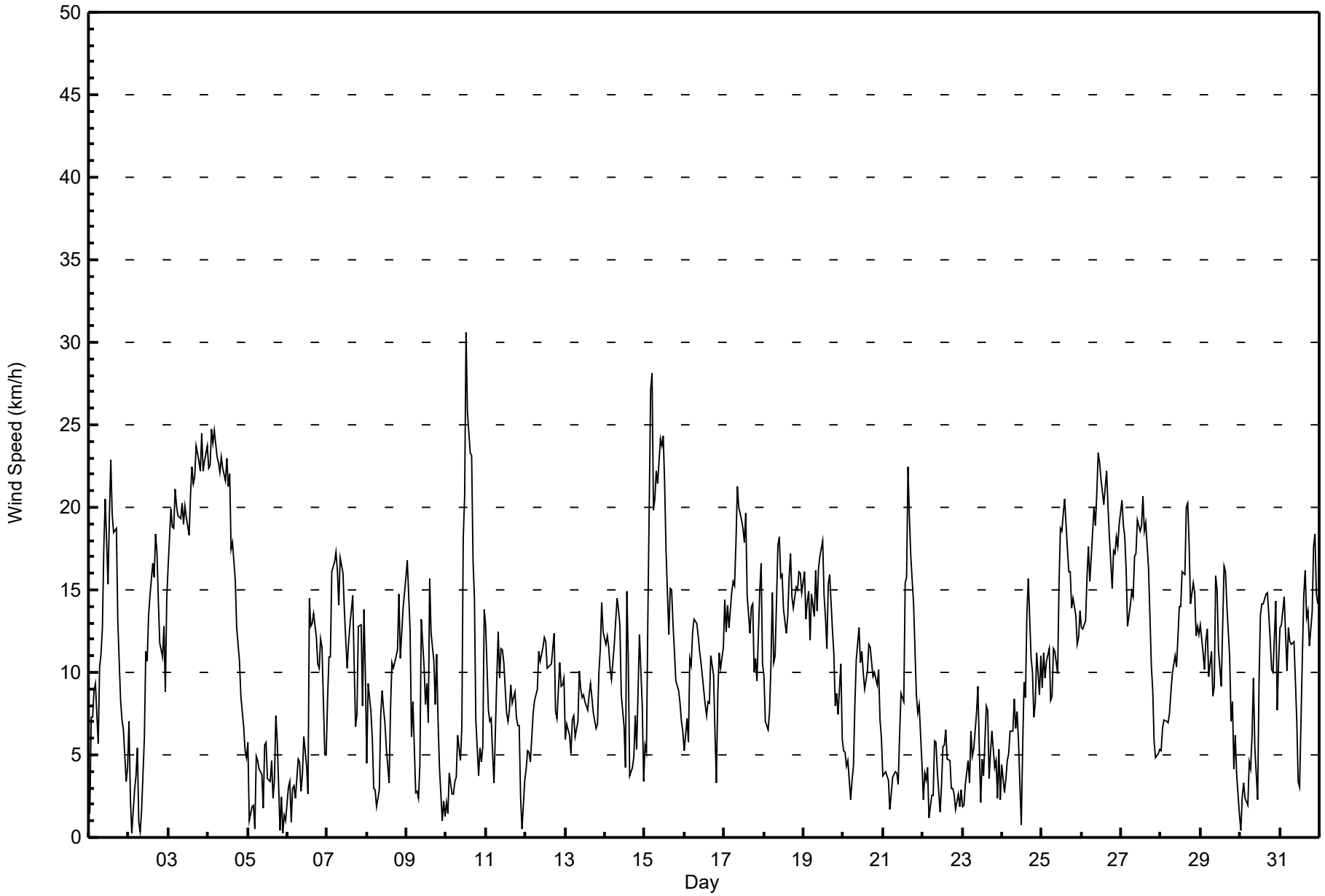
Maximum Speed: 31 km/h on Mar 10 13:00 Maximum Daily Speed Average: 20.8 km/h on Mar 3		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Percent Operational Time: 100.0																									
Minimum Speed Value: 0 km/h on Mar 2 03:00 Maximum Diurnal Speed Average: 2.7 km/h at hour 12 Monthly Average Velocity: 1.4 km/h 49.6 deg		Minimum Daily Speed Average: 1.3 km/h on Mar 22 Minimum Diurnal Speed Average: 0.6 km/h at hour 4 Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 6 Median = 10 Q ₃ = 15 P ₉₀ = 19 P ₉₉ = 24																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	SSW1	SW7	SW7	WSW9	WSW9	SW6	W10	SW11	SW13	W18	W21WNW15WNW20	W23WNW20	NW18	NW19	NNW13	NW11	NNW8	NNW7	NNW6	NNW3	NW4	WNW9.6	W23				
2-Mar	NE7	ESE2	S0	SW3	SW4	SW5	ESE1	WSW0	NNE2	NNW6	NNW11	NNW11	NNW13	NNW15	NNW17	NNW16	NNW18	NNW17	NNW14	NNW12	NNW11	NNW13	NNW9	NNW15	NNW8.1	NNW18	
3-Mar	NNW16	NNW20	NNW19	NNW19	NNW21	NNW20	NNW20	NNW19	NNW20	NNW19	NNW20	NNW19	NNW18	NNW21	NNW22	NNW21	NNW22	NNW24	NNW23	NNW22	NNW24	NNW22	NNW23	NNW24	NNW20.8	NNW24	
4-Mar	NNW22	NNW23	NNW25	NNW24	NNW25	NNW23	NNW23	NNW22	NNW23	NNW22	NNW23	NNW22	NNW23	NNW21	NNW22	NNW17	NNW18	NNW16	NW13	NW12	NNW11	NNW9	NW7	W5	WSW5	NNW17.6	NNW25
5-Mar	WSW6	SSW1	SSE2	ESE2	SE1	S5	S5	S4	SSW4	SSE2	ENE6	ENE6	NE4	NW3	NNW5	NE2	SSW4	S7	S6	SE0	S2	E0	S1	SE1	SSE1.4	S7	
6-Mar	SE3	SE3	SE1	S3	SSW3	S2	SSW5	SSW5	SSW3	SSE4	SE6	SE4	S3	S14	S13	S13	SSE14	SSE12	SSE10	SE10	SE12	SE11	SSE5	SSE5	SSE6.4	SSE14	
7-Mar	SE8	SE11	SE11	SE16	SE17	SE17	SE16	SE14	SE17	SE16	SE14	SE12	SE10	SE12	SE13	SE15	SSE11	SSE7	SE7	SE13	SSE13	S8	SW14	SSW10	SE11.7	SE17	
8-Mar	S4	SSW9	SW8	S6	SW3	SSW3	SSE2	SE3	SE7	SE9	SE8	SE7	SE5	NW3	SE8	ESE11	SE10	SE11	SE11	SE15	SE11	SE12	SE14	SE16	SE7.1	SE16	
9-Mar	SE17	SE15	SE13	ESE6	SE8	ESE3	NE3	E2	SE4	SE13	SE10	SE8	ESE9	SE7	ESE16	SE12	SE11	SE8	SE11	SE7	SSE4	SSW1	SSW2	SW1	SE7.7	SE17	
10-Mar	SW2	SW1	S4	SSW3	SSW3	S3	SSE4	SSE6	ESE5	WSW7	WSW18	WSW21	W31	W26WNW23WNW23WNW17WNW15	WNW7	NW4	NNW5	WSW5	W6	NNW14	W8.2	W31					
11-Mar	NNW13	N8	N7	NNE7	NE5	NE3	N10	NNW12	NNW10	NNW11	NNW11	NNW11	NW8	NNW7	NNW8	NW9	NNW8	NNW9	N7	NNW7	NNW7	NNW2	ESE1	SSE3	NNW7.1	NNW13	
12-Mar	SSE4	SSE5	SSE5	SSE5	SE8	SE8	SSE9	SE9	SE11	SE11	ESE11	E12	E12	ESE10	ESE10	ESE10	E11	E12	ESE8	E7	E11	ESE9	ESE9	SE10	ESE8.4	E12	
13-Mar	SSE6	SSE7	SE6	SSE5	SE7	SE7	SSE6	SSE7	SE10	SE9	SSE8	SE9	SE8	SE8	SE9	SSE9	SSE8	SE8	SE7	SE7	SE10	SE11	SE14	SE12	SE8.2	SE14	
14-Mar	SE12	SE12	SE12	SE10	SE10	SE12	SE13	SE15	SE14	SE13	SE9	ESE7	SSW4	SW15	SW11	SSE4	SE4	SE5	SE7	SSE5	SW9WSW12	SW8	SE3	SSE7.3	SW15		
15-Mar	SE6	SSE5	W13	W27	W28WNW20	NW21	NNW22	NNW21	NNW24	NNW24	NNW24	NNW21	NNW17	N12	NNE15	N15	N13	N11	NNW9	N9	N8	NNW7	N6	NNW12.8	W28		
16-Mar	N5	NNW7	NNW6	NNW11	N10	NNW12	NNW13	NNW13	NNW12	NNW11	NNW11	NNW10	NNW8	NW7	NW8	NNW8	NNW11	NNW10	NNW6	N3	ESE9	ESE11	ESE10	ESE12	N6.5	NNW13	
17-Mar	ESE14	SE12	SE14	ESE13	ESE15	ESE16	SE15	ESE18	ESE21	ESE20	ESE19	ESE19	ESE18	ESE20	SSE15	SE12	SSE14	SSE14	SE10	SE11	SSE10	SW15WSW17WSW10	SE12.3	ESE21			
18-Mar	NNW10	NW7	NW7	NNW8	NNW10	NNW15	NNW11	N11	NNW18	NNW18	NNW16	N16	N14	N12	N13	NNW16	N17	N15	N14	N15	N15	N16	N16	N15	N13.2	NNW18	
19-Mar	NNW16	N13	N14	NNE15	NNE12	N15	N13	N16	N14	NNW16	NNW17	NNW18	NNW15	NNW13	NNW11	NNW15	NNW16	N13	N11	N8	NNE9	N7	NNW11	N6	N12.7	NNW18	
20-Mar	NNE5	NNE5	ENE4	ENE5	N2	WSW3	NW4	NNW8	NNW11	NNW13	NNW11	NNW11	NNW10	NW9	NNW10	NNW12	NNW12	NNW11	NNW10	NNW10	NNW9	NNW10	N7	N6	NNW7.5	NNW13	
21-Mar	ENE4	ENE4	ENE4	NE3	NE2	ENE3	ENE4	ESE4	E4	N3	NNW6	NNW9	N8	NNW15	NNW16	NNW22	NNW19	NNW17	N14	N11	N9	NNW8	NNW8	N4	N7.1	NNW22	
22-Mar	WNW2	WNW4	WSW3	SW4	ENE1	E3	E3	SE6	SE6	ESE4	NW2	NW3	W5	W6	WNW7	WNW5	W5	W3	WNW3	W3	ESE2	WNW3	NW2	E3	W1.3	WNW7	
23-Mar	E2	NW2	W3	SW5	SSE3	SSE6	SSE5	ESE5	SE8	SE9	ESE5	NE2	NW5	ENE4	E8	E8	E4	ENE5	E6	ESE4	ESE5	ESE2	SE5	SSE2	ESE3.2	SE9	
24-Mar	SSE4	SSW3	SW4	S5	S5	SSE6	SE6	SE8	SE7	ESE8	ESE6	WSW1	ENE5	ESE9	S8	SSE13	SE16	ESE11	ESE10	ESE7	ESE8	ESE11	SE9	SE11	SE6.7	SE16	
25-Mar	SE9	ESE11	ESE10	SE11	SE11	SE8	SE9	SE11	SE11	SE10	ESE15	ESE19	ENE19	SE20	SSE21	SSE17	SSE16	SSE16	SSE14	SE14	SE14	SE12	SE12	SE14	SE13.2	SSE21	
26-Mar	SE13	SE13	SE13	SE16	SE18	SE15	SE17	SE20	SE19	SE21	SE23	SSE22	SSE20	SE21	SE22	SE20	SE18	SE15	SE17	SE17	SE18	SE18	SE19	SE18.1	SE23		
27-Mar	SE20	SE19	ESE18	ESE16	ESE13	ESE14	ESE15	ESE15	ESE17	ESE17	ESE19	ESE19	ESE19	ESE21	ESE19	ESE19	ESE16	E13	E10	E9	ENE6	NE5	NNE5	N5	ESE13.8	ESE21	
28-Mar	N5	N7	N7	N7	N7	N8	NNW9	NNW10	NNW11	NNW10	NNW12	NNW14	NNW14	NNW16	NNW16	NNW20	NNW20	NNW18	NNW14	NNW15	NNW15	NNW12	NNW13	NNW12	NNW12.1	NNW20	
29-Mar	NW13	NW11	NNW10	NNW12	NNW13	NNW10	NNW11	NNW9	N9	NNW16	NNW15	N11	NNW9	NNW13	NNW16	NNW16	NNW14	NNW11	N7	NNW8	W4	SW6	S4	SSE1	NNW9.4	NNW16	
30-Mar	SE0	S2	SSW3	SSW2	SSE2	SSE5	ESE4	ESE6	SE10	SE5	NNE2	SSE9	SE13	SE14	SE14	ESE15	ESE15	ESE13	ESE12	ESE10	ESE10	ESE14	SSE8	SE11	SE7.9	ESE15	
31-Mar	SE13	SE13	SE15	SE12	SE10	SE13	SE12	SE12	SE12	SE10	SE7	E3	NNE3	SW11	SW15	SW16	S13	SSE14	SSE12	SE14	SSE18	SSE18	SSE15	S14	SSE10.3	SSE18	
E1.7 ESE1.5 ESE1.1 E0.6 ENE0.7 E1.4 ENE1.7 ENE2.3 E2.6 NE1.9 NNE2.4 NNE2.7 N2.6 NW1.9 NNW1.6 N1.9 NNE2.2 NNE2.5 NE2.5 ENE2.4 ENE2.1 E1.1 SE0.6 E1.3																								Diurnal Average			
NNW22 NNW23 NNW25 W27 W28 NNW23 NNW23 NNW22 NNW23 NNW24 NNW24 NNW24 W31 WNW26 WNW23 WNW23 NNW22 NNW24 NNW23 NNW22 NNW24 NNW22 NNW23 NNW24																								Diurnal Maximum			
All monthly, daily, and diurnal averages have been calculated using vector methods																											



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Athabasca Valley - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Mar 15 03:00 Minimum Value: 1 km/h on Mar 21 07:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 4 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	3	2	2	3	3	3	2	2	4	4	4	6	5	5	4	4	4	2	2	1	1	1	2	6
2-Mar	2	1	1	2	1	2	1	2	2	2	3	2	2	3	3	3	3	3	3	3	3	3	3	4	4
3-Mar	3	3	3	3	4	4	3	3	4	4	5	4	4	5	4	4	4	4	4	5	5	4	4	4	5
4-Mar	4	4	4	4	5	5	4	4	5	4	5	5	4	4	4	4	3	3	2	2	2	1	1	1	5
5-Mar	1	2	2	2	1	2	1	2	1	2	1	2	1	1	2	2	2	1	2	1	1	2	2	1	2
6-Mar	2	3	2	1	1	2	1	2	2	4	2	2	5	4	4	4	4	3	2	2	2	3	1	1	5
7-Mar	3	2	2	3	3	3	3	3	3	3	3	3	2	2	4	4	4	2	2	2	3	4	4	4	4
8-Mar	2	3	3	2	1	1	1	1	3	2	2	1	2	1	2	3	2	2	2	3	2	2	2	2	3
9-Mar	2	3	3	3	2	2	1	1	4	2	2	2	3	2	3	3	2	2	2	3	2	1	1	1	4
10-Mar	1	1	1	2	2	2	2	2	1	6	6	7	5	5	5	4	4	3	3	2	2	1	1	3	7
11-Mar	3	3	2	2	2	1	3	2	2	2	2	2	2	1	2	1	2	2	2	3	2	1	1	2	3
12-Mar	2	1	1	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3
13-Mar	2	1	3	2	2	2	2	2	3	2	2	2	2	2	3	3	2	2	2	2	3	2	3	3	3
14-Mar	2	2	3	3	2	3	2	2	2	2	2	2	4	3	3	1	2	1	1	1	3	4	6	2	6
15-Mar	3	2	9	4	4	4	5	5	7	6	6	5	5	5	3	4	4	3	3	2	2	1	1	9	
16-Mar	1	2	2	3	2	3	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3
17-Mar	4	4	3	4	4	3	3	4	4	5	4	5	5	4	4	3	4	5	2	2	3	5	5	6	6
18-Mar	5	2	2	2	3	4	4	4	4	5	4	4	3	3	3	5	5	4	4	4	5	5	4	4	5
19-Mar	4	4	4	4	3	3	4	4	4	4	4	3	3	4	4	3	3	3	3	2	2	3	2	2	4
20-Mar	1	1	1	1	2	1	1	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	3
21-Mar	1	1	1	1	1	1	1	1	1	2	2	3	3	3	4	5	5	4	3	3	2	2	1	2	5
22-Mar	1	1	1	1	1	1	1	2	2	1	1	2	1	2	1	1	1	1	1	1	2	1	1	1	2
23-Mar	2	1	1	2	2	2	2	2	2	2	2	1	1	2	3	3	2	2	2	2	1	2	2	2	3
24-Mar	2	1	2	1	1	2	2	2	3	2	1	1	2	4	3	4	4	3	4	1	2	3	2	2	4
25-Mar	2	2	2	2	2	2	2	3	3	3	4	5	5	5	5	5	4	4	4	3	3	3	3	3	5
26-Mar	3	3	3	4	4	4	4	5	4	5	6	6	6	6	6	5	5	4	4	4	4	5	4	5	6
27-Mar	5	5	5	5	4	4	4	4	4	5	5	5	5	5	6	6	6	4	3	3	2	1	1	1	6
28-Mar	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	4	4	4	3	3	2	2	2	2	4
29-Mar	2	2	3	2	3	3	3	2	2	3	3	3	3	3	4	4	4	3	2	1	1	3	3	2	4
30-Mar	1	1	1	2	1	2	2	3	2	2	1	7	4	4	4	4	4	4	3	2	2	3	2	2	7
31-Mar	2	3	3	2	3	3	3	3	3	2	2	1	1	5	3	4	4	3	3	3	4	4	4	4	5
Diurnal Maximum																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Athabasca Valley - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	172	23.12	23.12
6 - 11	261	35.08	58.20
12 - 19	242	32.53	90.73
20 - 28	68	9.14	99.87
29 - 38	1	0.13	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Athabasca Valley - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6	8	8	11	9	15	16	24	15	18	10	6	7	5	10	4	172
6 - 11	27	2	1	3	8	27	74	17	5	2	10	5	3	2	10	65	261
12 - 19	23	3	0	0	4	33	70	17	4	0	6	3	2	3	5	69	242
20 - 28	0	0	0	0	0	4	9	3	0	0	0	1	4	6	1	40	68
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	56	13	9	14	21	79	169	61	24	20	26	15	17	16	26	178	744

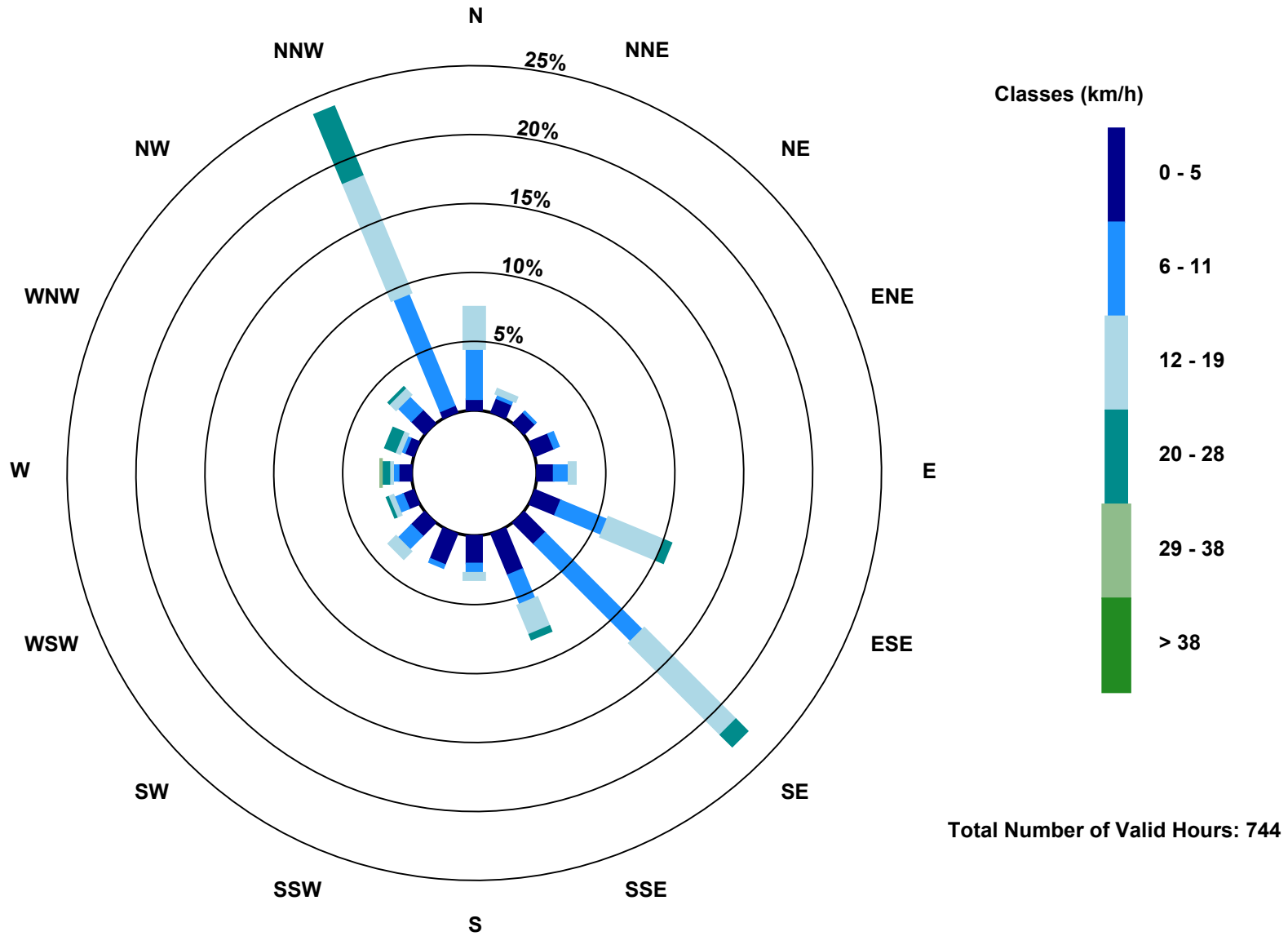
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Athabasca Valley





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Athabasca Valley - March 2024

Direction of Maximum Speed: 276 deg on Mar 10 13:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 335.8 deg on Mar 3		Hours of Data:	744
Direction of Minimum Speed: 185 deg on Mar 2 03:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 1.3 deg on Mar 22		Percent Operational Time:	100.0
Monthly Average Direction: 49.6 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-Mar	208	232	230	250	255	214	260	229	229	266	277	298	292	278	291	309	322	328	324	335	338	344	338	309	285.2
2-Mar	44	117	185	236	216	224	105	248	27	342	337	335	334	335	337	336	337	338	344	346	335	341	348	340	338.1
3-Mar	339	336	336	336	337	337	336	335	336	337	341	339	336	341	336	329	328	329	334	336	338	337	336	335	335.8
4-Mar	333	330	331	332	335	336	335	336	336	337	337	340	338	334	337	333	337	320	320	327	331	321	264	254	332.4
5-Mar	247	199	152	112	144	186	181	179	194	155	74	64	52	309	328	47	201	172	179	125	182	92	189	128	166.8
6-Mar	140	134	138	175	195	190	204	212	193	150	127	124	185	169	191	176	159	160	158	142	136	134	149	147	160.1
7-Mar	139	139	136	137	136	135	134	137	137	140	140	139	145	131	133	131	161	153	144	141	154	188	216	212	145.1
8-Mar	181	200	219	170	218	195	165	143	133	133	125	131	137	310	134	123	124	132	131	135	134	128	133	135	141.5
9-Mar	138	139	134	123	132	111	56	87	129	145	143	137	118	125	122	135	134	137	139	131	168	192	201	227	134.1
10-Mar	232	235	185	210	198	186	157	149	117	254	248	254	276	281	298	284	288	290	284	315	331	257	271	340	274.9
11-Mar	341	352	352	15	34	43	349	335	342	341	343	335	326	329	328	324	327	347	354	339	344	339	121	151	343.4
12-Mar	147	160	157	154	140	140	148	140	143	129	102	99	98	114	123	111	96	79	103	90	90	102	115	126	116.7
13-Mar	148	155	132	147	146	136	151	154	137	145	158	138	143	130	133	157	162	142	138	142	142	141	133	141	143.2
14-Mar	142	138	143	139	138	137	135	134	133	140	131	117	205	226	229	167	134	138	134	161	222	238	227	131	157.2
15-Mar	141	149	263	269	278	300	325	336	342	331	335	329	331	338	353	13	8	3	6	348	355	353	348	355	329.1
16-Mar	359	337	329	341	356	341	335	342	332	340	345	333	337	322	322	339	341	347	342	7	111	116	109	115	350.6
17-Mar	121	126	125	121	121	123	124	123	123	121	123	122	123	123	151	144	167	164	136	132	163	231	251	255	137.5
18-Mar	330	311	320	327	335	343	346	350	338	339	340	349	352	351	358	342	359	359	5	3	7	359	356	3	349.1
19-Mar	343	2	2	13	12	9	10	11	356	341	340	336	342	334	339	335	338	350	2	358	12	357	337	4	352.4
20-Mar	25	30	70	58	354	254	315	344	344	334	337	331	328	323	330	335	335	332	340	331	339	345	4	355	341.0
21-Mar	58	77	77	50	37	64	71	115	82	358	327	345	10	337	335	336	343	344	354	356	355	347	339	7	354.6
22-Mar	301	295	257	231	59	80	86	131	126	110	309	309	280	274	289	283	268	277	286	269	103	291	324	81	276.0
23-Mar	85	311	260	215	148	154	153	118	139	135	122	48	309	58	80	87	91	78	86	120	106	123	131	152	116.3
24-Mar	159	211	221	187	191	148	135	132	127	120	119	248	59	105	170	154	140	121	120	122	123	122	142	129	135.9
25-Mar	132	119	122	125	126	131	133	135	132	131	121	115	122	143	151	154	149	147	154	143	143	144	142	141	136.5
26-Mar	140	135	133	134	142	141	127	132	125	127	129	143	149	154	126	126	126	129	134	131	131	133	130	132	133.6
27-Mar	132	130	120	121	115	114	115	111	120	118	121	118	115	116	116	113	108	100	97	93	74	52	29	11	113.0
28-Mar	360	358	357	349	352	352	346	344	338	341	339	339	342	341	340	333	333	341	346	336	334	332	328	332	340.1
29-Mar	318	310	337	334	341	338	333	344	350	343	341	349	345	342	334	337	338	342	360	329	277	229	187	158	334.9
30-Mar	135	188	198	197	164	153	106	111	133	132	13	153	143	136	125	119	117	117	121	117	121	120	149	137	129.6
31-Mar	137	135	131	132	128	133	131	131	132	137	134	99	27	226	227	218	176	159	150	146	155	155	163	185	154.3

88.9	113.0	112.1	98.3	78.4	92.3	59.6	76.1	80.9	51.2	23.6	13.6	357.8	324.9	338.9	359.5	14.9	31.3	53.0	59.1	78.7	97.7	146.2	97.9
Diurnal Average																							

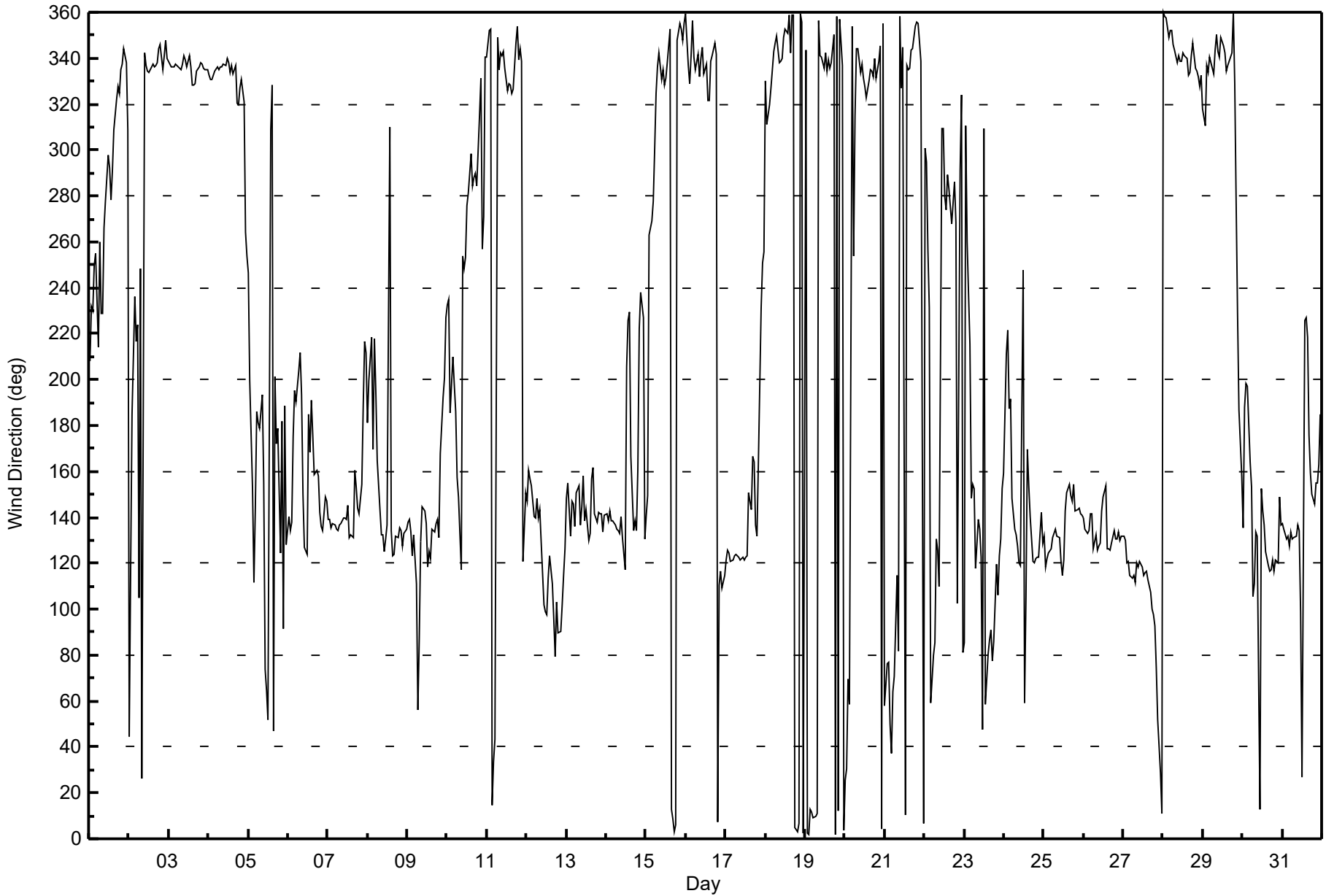
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Athabasca Valley - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 104 deg on Mar 5 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: 7 deg on Mar 5 11:00																									
Percentiles: P ₁ = 8 P ₁₀ = 11 Q ₁ = 14 Median = 18 Q ₃ = 26 P ₉₀ = 54 P ₉₉ = 92																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	98	54	16	14	22	49	19	8	14	12	13	23	21	17	18	18	12	13	14	17	10	19	40	53	98
2-Mar	24	66	89	67	37	13	76	87	75	16	13	18	14	14	13	12	9	11	17	18	18	14	21	12	89
3-Mar	12	9	8	9	10	11	10	9	11	13	12	12	15	12	8	9	9	10	10	11	11	10	9	9	15
4-Mar	9	8	8	9	11	11	9	10	10	11	11	13	13	10	14	11	12	10	8	8	10	13	15	11	15
5-Mar	15	84	61	75	79	22	26	23	31	76	7	10	57	53	42	77	62	16	38	94	70	104	82	94	104
6-Mar	71	86	92	40	39	54	18	21	50	82	31	84	96	21	27	17	17	12	10	11	11	13	31	13	96
7-Mar	10	9	11	11	12	11	12	14	11	12	13	15	14	14	19	15	28	24	19	12	14	44	20	27	44
8-Mar	50	30	59	28	44	46	61	52	28	19	22	19	40	39	20	15	12	13	13	12	13	12	11	10	61
9-Mar	10	10	13	47	22	88	55	71	70	11	12	17	20	17	12	18	13	13	11	23	39	101	63	60	101
10-Mar	51	81	30	33	48	56	59	35	30	76	18	21	11	16	13	18	12	10	15	40	47	20	25	13	81
11-Mar	13	16	18	17	22	36	16	10	12	12	13	15	21	17	14	15	18	18	19	29	22	64	89	58	89
12-Mar	41	28	28	27	19	17	18	18	16	21	21	21	22	29	26	24	20	10	19	17	16	19	23	18	41
13-Mar	32	19	27	26	16	19	23	19	18	21	23	22	20	23	29	24	16	21	18	20	17	16	15	15	32
14-Mar	14	13	15	15	16	13	11	11	11	9	12	24	70	14	15	34	20	25	12	29	16	14	57	61	70
15-Mar	62	52	23	9	10	11	28	12	18	14	16	12	14	16	18	17	20	19	15	19	18	18	15	15	62
16-Mar	17	12	13	15	17	13	8	15	12	17	15	15	21	18	21	17	13	15	29	57	20	18	21	20	57
17-Mar	17	18	15	15	14	14	12	12	11	13	13	14	16	13	20	16	27	14	12	12	30	18	20	55	55
18-Mar	46	22	22	13	18	16	19	19	11	13	17	18	17	19	20	16	18	18	20	19	18	19	19	21	46
19-Mar	16	18	21	17	18	18	20	17	19	17	13	11	17	18	30	12	11	22	20	19	17	26	11	19	30
20-Mar	14	13	20	28	51	45	34	15	15	11	16	16	14	17	20	14	12	12	12	9	13	12	19	14	51
21-Mar	35	19	22	30	63	46	19	36	27	64	18	31	47	12	15	14	16	16	17	17	17	15	9	24	64
22-Mar	37	22	32	29	86	71	57	24	30	46	89	64	19	24	22	22	30	53	24	22	92	38	43	49	92
23-Mar	82	60	27	34	68	27	36	41	21	15	39	75	39	66	29	30	70	23	15	31	25	55	22	72	82
24-Mar	38	48	28	28	26	35	25	18	45	25	29	90	17	29	39	28	23	15	13	13	12	13	15	13	90
25-Mar	15	13	12	12	13	18	21	16	20	22	17	18	19	21	20	23	18	18	15	15	15	15	16	15	23
26-Mar	16	15	15	14	16	17	14	15	14	16	17	19	20	23	16	15	15	16	16	16	16	17	16	16	23
27-Mar	17	18	15	17	19	19	19	19	16	18	17	18	19	18	19	19	21	20	19	21	23	23	32	14	32
28-Mar	18	14	14	15	16	17	16	15	12	12	11	12	15	13	14	13	11	15	17	15	9	8	9	9	18
29-Mar	11	9	18	9	13	14	11	16	17	15	15	20	24	18	15	16	16	23	19	13	24	29	56	86	86
30-Mar	94	63	45	65	48	28	49	35	18	42	72	65	23	23	23	20	19	16	14	13	15	13	25	13	94
31-Mar	10	12	11	14	20	14	14	16	14	16	25	71	67	62	16	18	24	14	18	16	15	14	17	24	71
98 86 92 75 86 88 76 87 75 82 89 90 96 66 42 77 70 53 38 94 92 104 89 94																									
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS08 FORT CHIPEWYAN MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)
MARCH 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	34	36	99.73	5.8	0	2.4	0
TRS (ppb) Average	705	36	39	99.6	0.4	0	0.2	0
O3(ppb) Average	706	34	38	99.46	48.3	0	44	-
NO2(ppb) Average	705	35	39	99.46	15.9	0	4.6	-
NO(ppb) Average	705	35	39	99.46	3.8	-	1.2	-
NOX(ppb) Average	705	35	39	99.46	16.2	-	5.7	-
PM2.5(ug/m3) Average	742	1	2	99.87	38.7	0	6.7	0
CO(ppm) Average	708	34	36	99.73	0.4	0	0.1	-
CO2(ppm) Average	707	34	37	99.6	449.1	-	444.7	-
Temperature 2 m (C) Average	744	0	0	100	6.7	-	-0.4	-
Relative Humidity (%) Average	744	0	0	100	92.1	-	83.2	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	37	-	29	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-
PC(mm) Total	744	0	0	100	2.3	-	6.9	-
Leaf Wetness (% of range) Average	744	0	0	100	48.5	-	6.6	-
Global Solar Radiation (W/m2) Average	744	0	0	100	669	-	213.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)

MARCH 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	0.37	0.8	-	0	0	0	0.1	0.3	1	5.8
TRS (ppb) Average	705	0.16	0	-	0.1	0.1	0.1	0.1	0.2	0.2	0.4
O3(ppb) Average	706	37.44	4.6	-	16.2	31.5	34.6	37.7	40.6	43.4	48.3
NO2(ppb) Average	705	1.17	1.8	-	0	0.1	0.2	0.5	1.2	3.4	15.9
NO(ppb) Average	705	0.23	0.5	-	0	0	0	0	0.3	0.6	3.8
NOX(ppb) Average	705	1.4	2.1	-	0	0.1	0.3	0.6	1.5	4.1	16.2
PM2.5(ug/m3) Average	742	3.06	2.2	-	0.9	1.7	2.2	2.7	3.5	4.6	38.7
CO(ppm) Average	708	0.08	0	-	0	0	0	0.1	0.1	0.1	0.4
CO2(ppm) Average	707	437.04	3.8	-	430.7	432.3	433.8	436.9	439.6	442.1	449.1
Temperature 2 m (C) Average	744	-11.81	7.8	-	-30.6	-22.2	-17.8	-11.4	-6.2	-1.1	6.7
Relative Humidity (%) Average	744	64.88	11.5	-	37.6	49	56.6	65.8	73	79.9	92.1
Wind Speed 10 m (km/h) Average	742	15.9	8	-	1	7	10	15	22	27	37
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	17.12	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	1.99	2.9	-	1.1	1.4	1.6	1.7	1.8	1.9	48.5
Global Solar Radiation (W/m2) Average	744	142.17	194.5	-	0	0	0	6.1	275.8	469.1	669

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT CHIPEWYAN (AMS08)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	07 Mar 2024 17:00	08 Mar 2024 12:00	1-4	Maintenance - WBEA internal audit
Wind Speed, Wind Direction	21 Mar 2024 00:00	21 Mar 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Mar 2024 05:00	22 Mar 2024 05:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association
Summary of Hour Averages

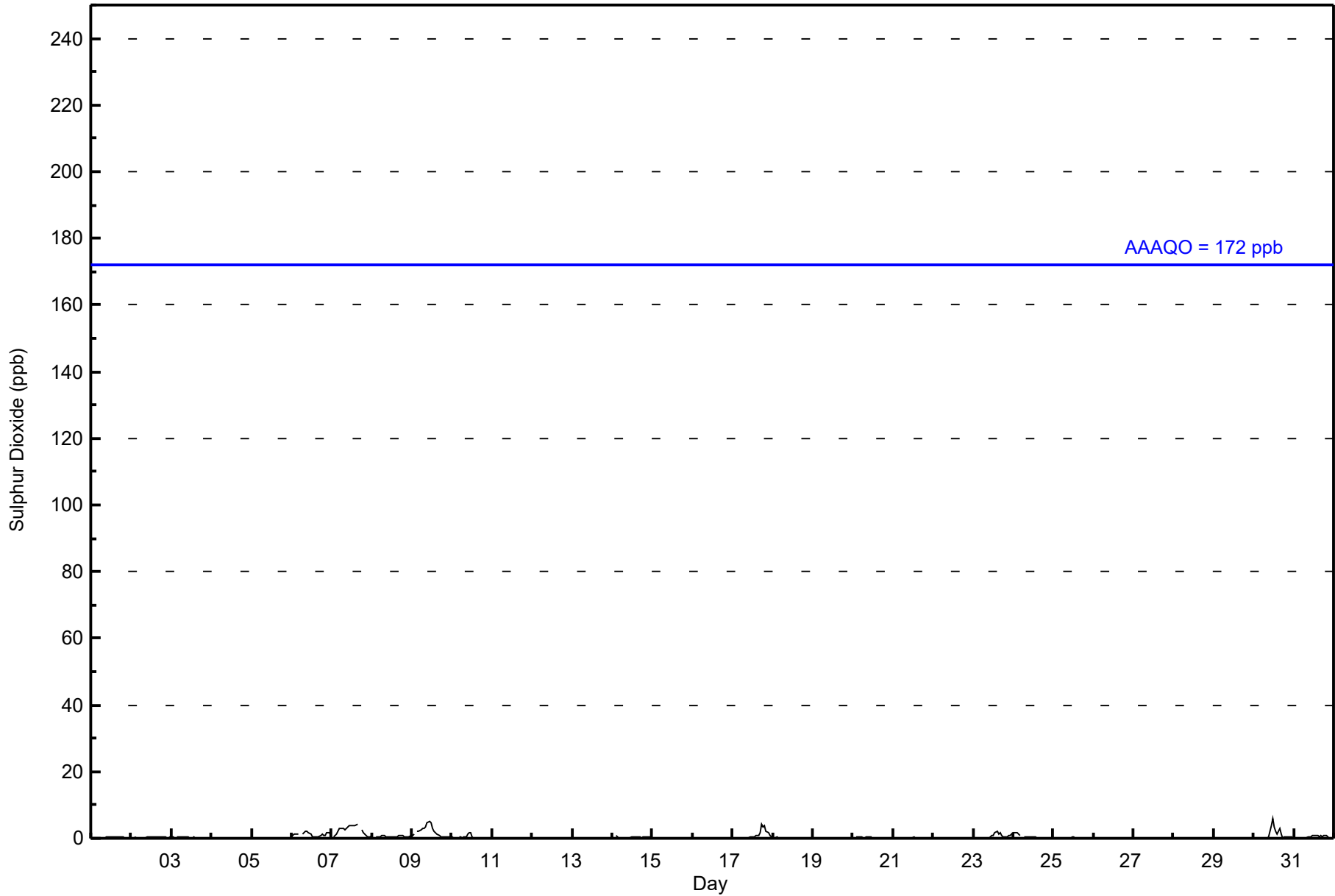
Sulphur Dioxide (SO₂) - ppb
Fort Chipewyan - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5.8 ppb on Mar 30 12:00 Maximum Daily Average: 2.4 ppb on Mar 7		Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 34 Percent Operational Time: 99.7																									
Minimum Value: 0.0 ppb on Mar 12 03:00 Maximum Diurnal Average: 0.7 ppb at hour 12 Monthly Average: 0.37 ppb		Minimum Daily Average: 0.0 ppb on Mar 16 Minimum Diurnal Average: 0.2 ppb at hour 24 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 1.0 P ₉₉ = 3.9																									
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-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.4
2-Mar	0.1	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.4
3-Mar	0.2	0.3	Z	0.3	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	0.1	0.1	0.1	0.1	0.1	0.1	0.3
4-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
5-Mar	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	0.0	0.1	0.0	0.0	0.2	0.1	0.2	
6-Mar	0.7	1.2	1.2	1.2	1.4	Z	1.4	1.6	2.0	2.1	1.6	1.2	0.5	0.3	0.4	0.4	0.5	0.8	1.2	0.9	1.0	1.6	1.6	0.9	1.1	2.1	
7-Mar	Z	0.4	0.6	1.1	2.8	3.0	2.8	2.8	2.7	3.5	3.8	3.7	3.8	3.9	3.7	4.3	M	M	2.5	1.6	0.9	0.6	0.5	0.6	2.4	4.3	
8-Mar	0.7	Z	0.4	0.4	0.3	0.5	0.7	0.7	0.6	0.4	0.3	0.3	0.4	0.3	0.5	0.5	0.7	0.9	0.6	0.5	0.4	0.3	0.4	0.6	0.5	0.9	
9-Mar	1.0	1.3	Z	2.3	2.2	2.4	2.8	3.1	3.6	4.7	5.3	4.8	3.1	1.9	1.9	1.3	0.8	0.5	0.5	0.4	0.3	0.3	0.2	0.2	2.0	5.3	
10-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.3	0.3	1.3	1.8	1.7	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.3	1.8	
11-Mar	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12-Mar	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-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.3	Z	0.8	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.5	0.4	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.1	0.3	0.8	
15-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
16-Mar	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-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.5	0.5	0.8	0.9	1.9	4.1	3.4	4.0	2.2	1.8	0.8	0.4	1.0	4.1	
18-Mar	0.1	0.2	0.2	0.2	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	0.2	
19-Mar	Z	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	
20-Mar	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
21-Mar	0.1	0.2	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	
22-Mar	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
23-Mar	0.1	0.1	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.2	0.3	0.7	1.0	1.6	2.1	1.4	1.7	0.9	0.6	0.4	0.6	0.8	0.8	1.2	0.6	2.1	
24-Mar	1.6	1.9	1.9	1.4	1.0	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.5	1.9	
25-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
26-Mar	0.0	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	
27-Mar	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-Mar	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	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	
29-Mar	0.0	0.0	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
30-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	4.0	5.8	3.5	2.0	1.2	2.8	1.2	0.1	0.2	0.5	0.6	0.3	0.3	0.3	1.0	5.8	
31-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.7	0.7	0.8	0.6	0.5	0.6	0.5	0.9	1.0	0.3	0.2	0.2	0.1	0.4	1.0	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.3 0.3 0.3 0.4 0.3 0.3 0.3 0.4 0.5 0.7 0.7 0.5 0.5 0.5 0.5 0.3 0.3 0.4 0.4 0.3 0.3 0.2 0.2			
																								1.6 1.9 1.9 2.3 2.8 3.0 2.8 3.1 3.6 4.7 5.3 5.8 3.8 3.9 3.7 4.3 1.9 4.1 3.4 4.0 2.2 1.8 1.6 1.2			
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 (SO₂) - ppb
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort Chipewyan - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Fort Chipewyan - March 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	22	22	55	118	198	34	34	44	17	6	4	6	13	33	53	47	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
Totals	22	22	55	118	198	34	34	44	17	6	4	6	13	33	53	47	706

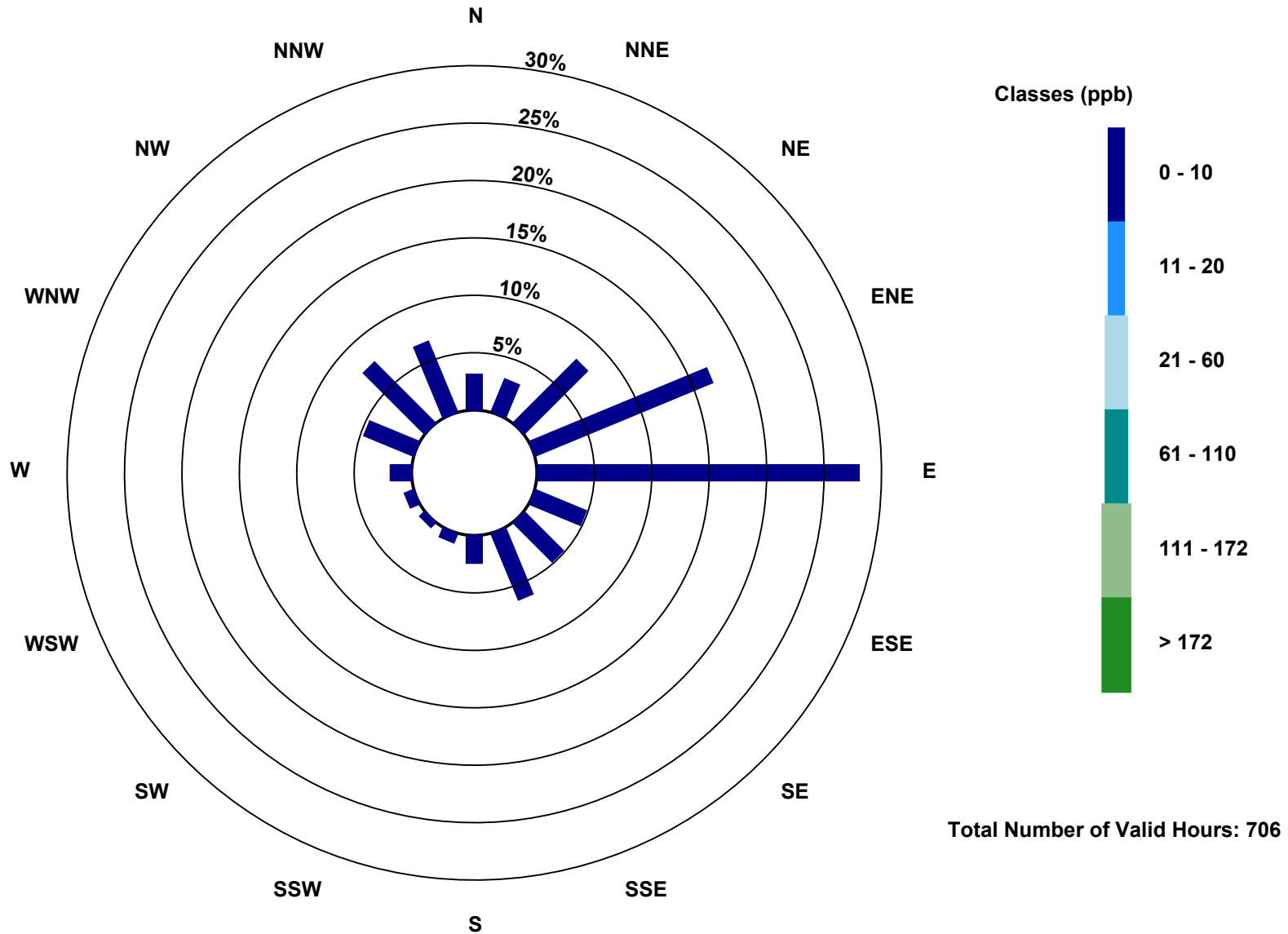
Total Number of Valid Hours: 706

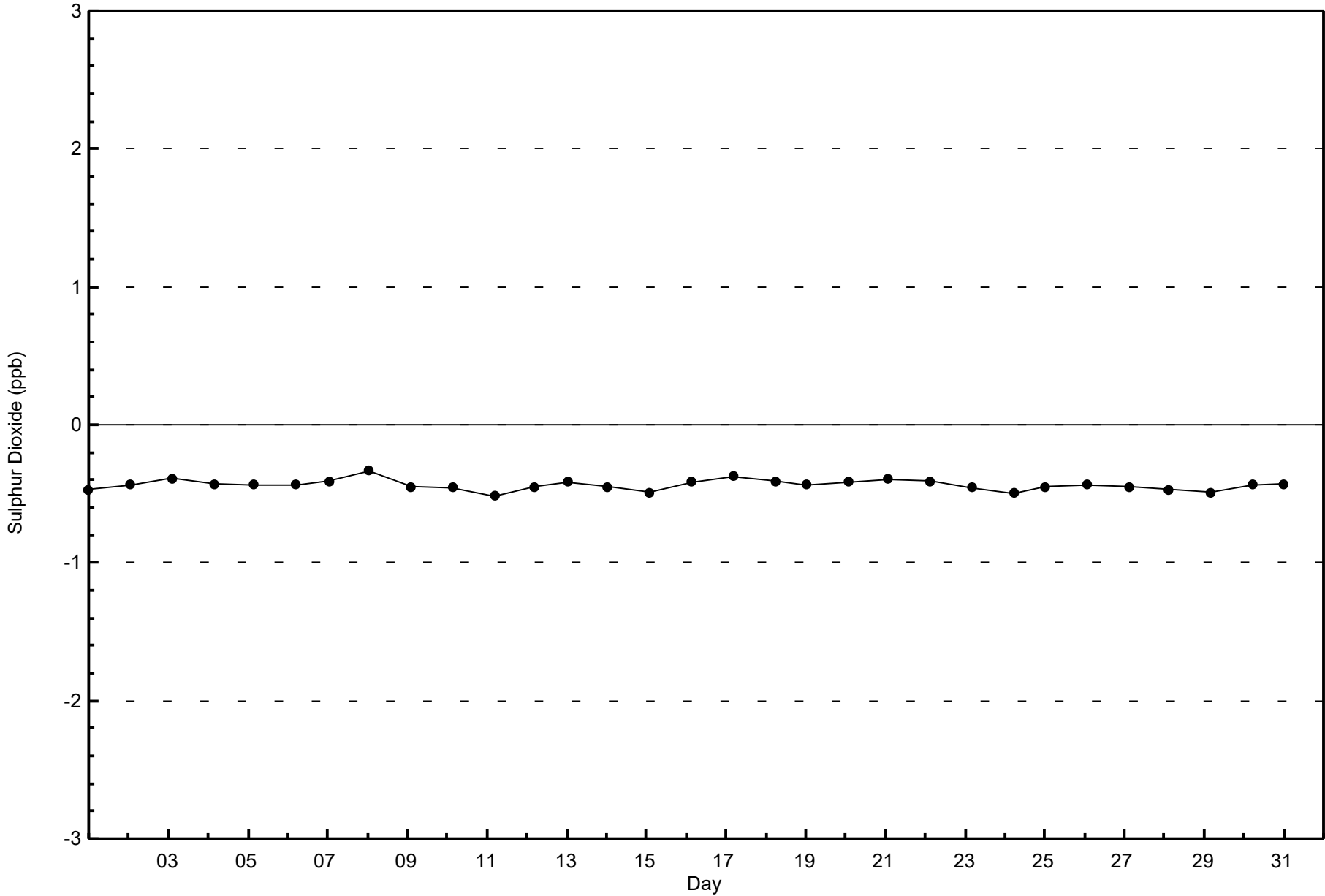
Total Number of Hours: 744

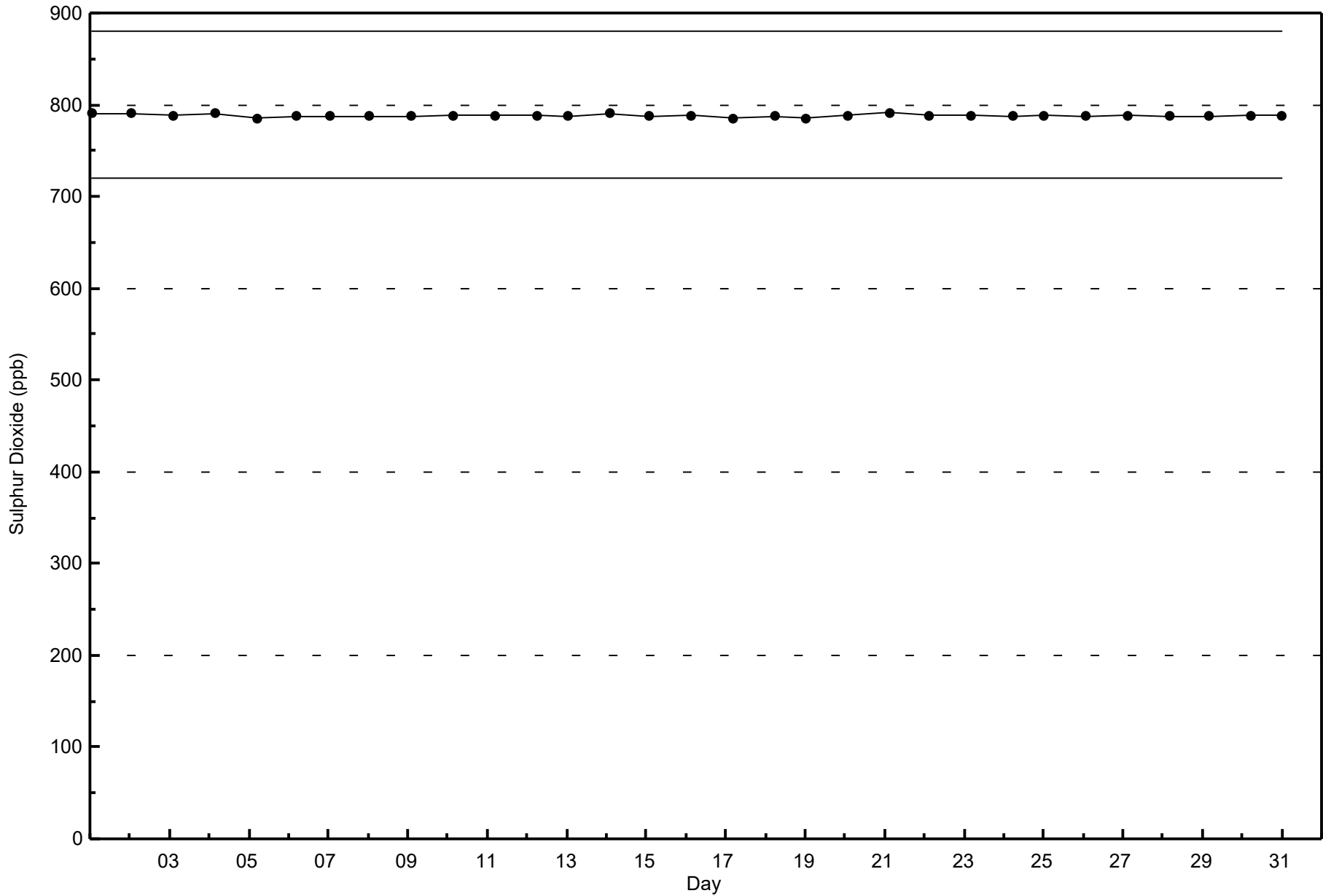


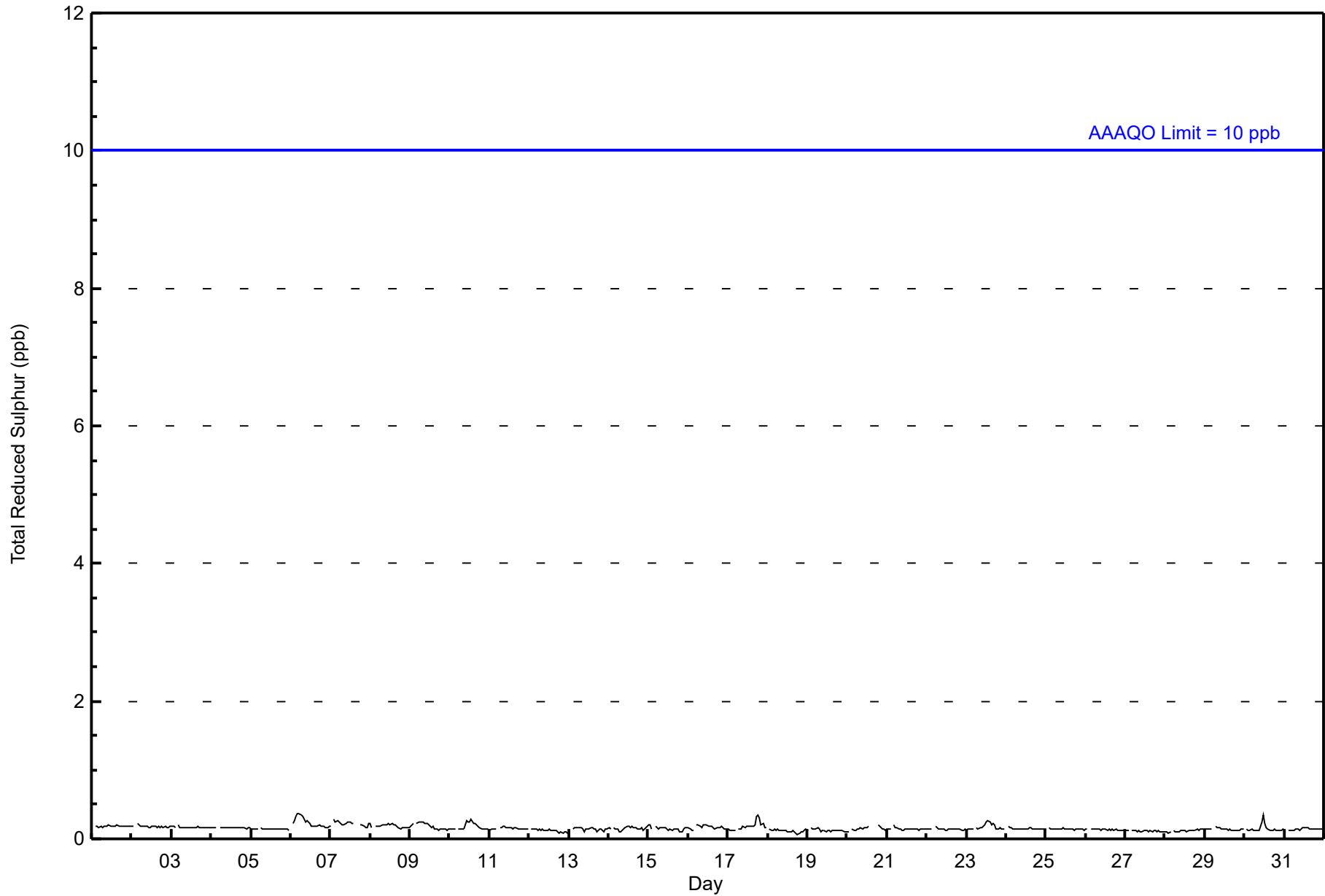
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Fort Chipewyan











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort Chipewyan - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 Chipewyan - March 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	18	24	55	118	197	33	34	43	18	6	3	5	13	33	54	50	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
Totals	18	24	55	118	197	33	34	43	18	6	3	5	13	33	54	50	704

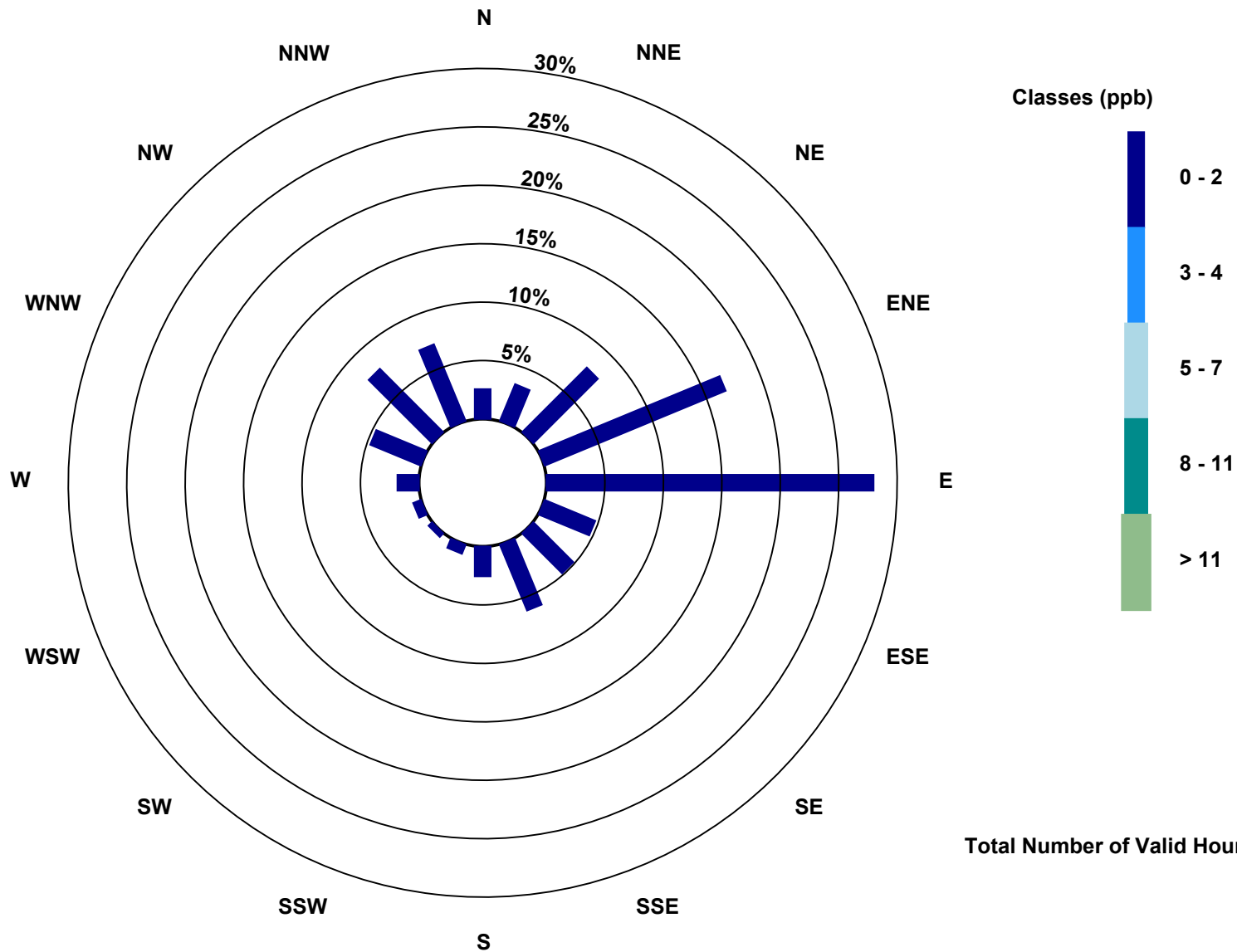
Total Number of Valid Hours: 704

Total Number of Hours: 744

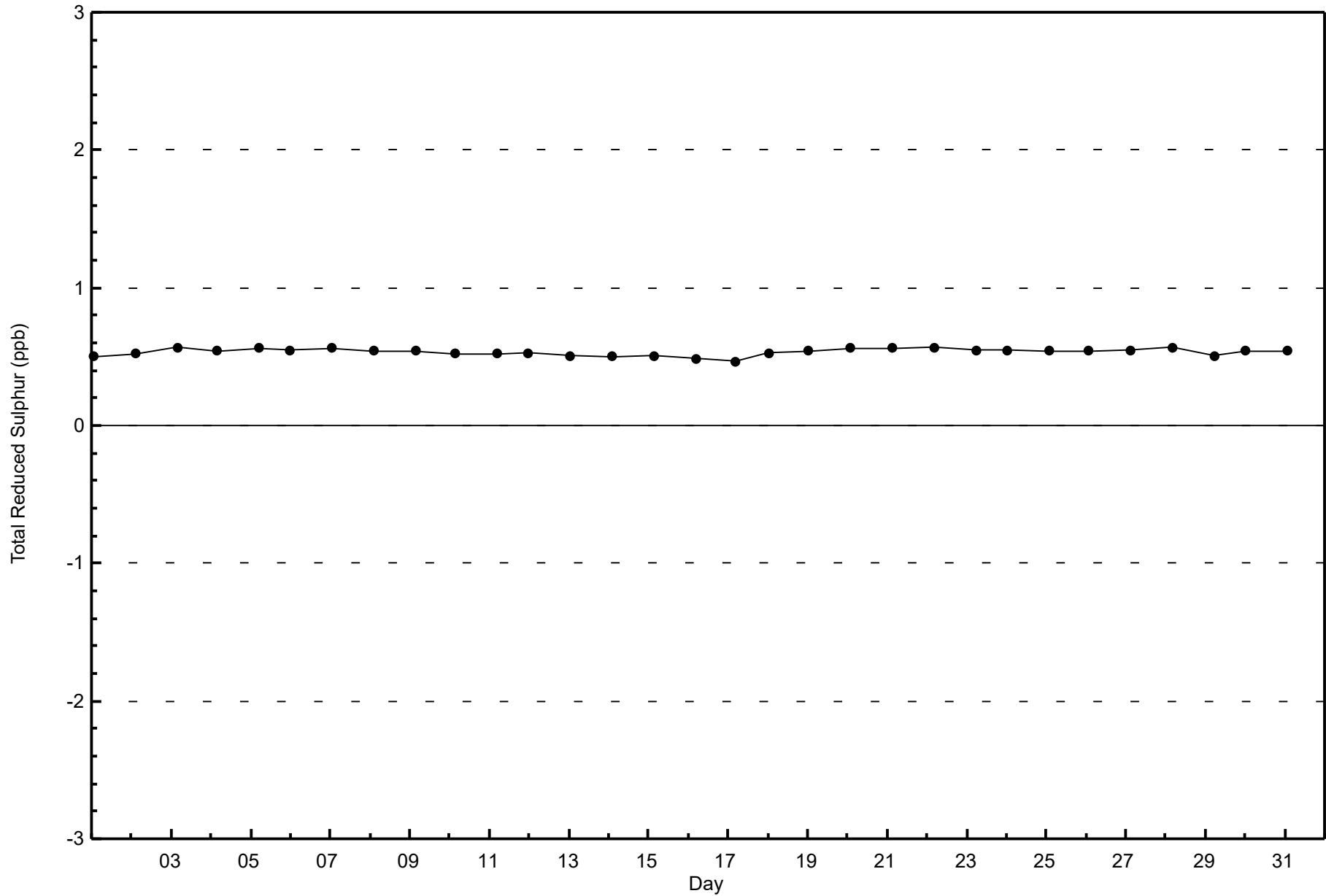


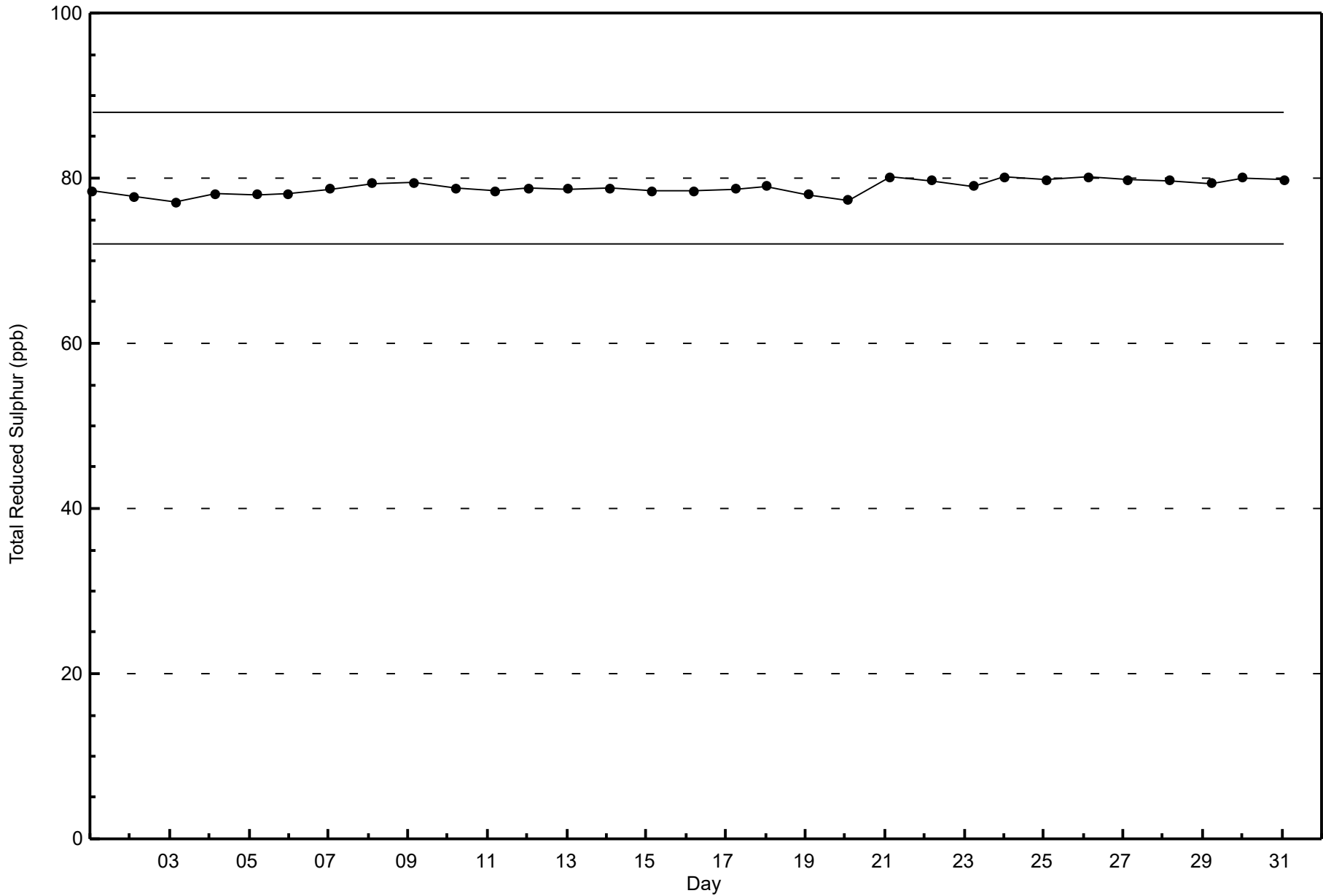
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Fort Chipewyan



Total Number of Valid Hours: 704







Wood Buffalo Environmental Association
Summary of Hour Averages

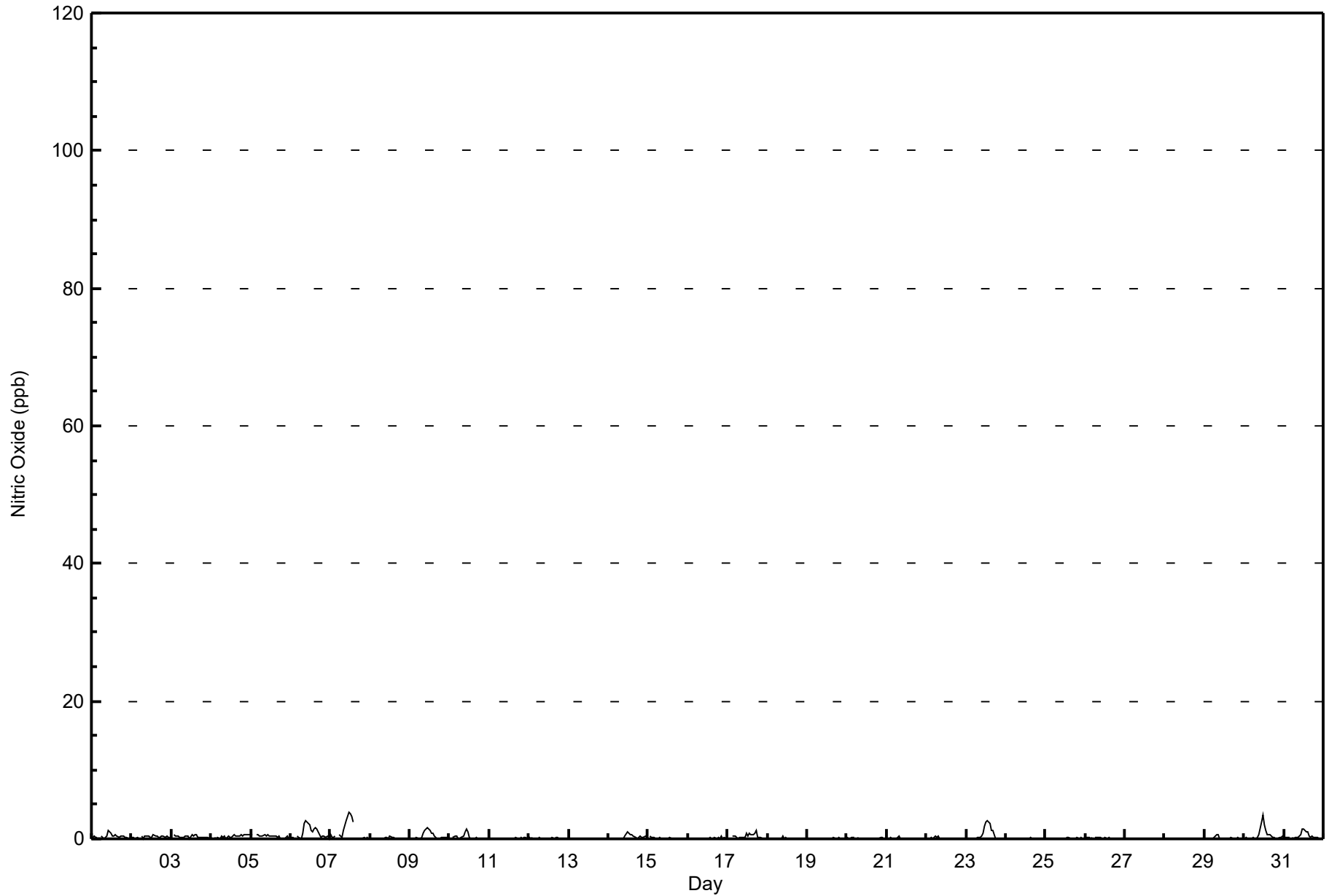
Nitric Oxide (NO) - ppb
Fort Chipewyan - March 2024

Maximum Value: 3.8 ppb on Mar 7 12:00		Maximum Daily Average: 1.2 ppb on Mar 7		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 2 08:00		Minimum Daily Average: 0.0 ppb on Mar 27		Hours of Data: 705																						
Maximum Diurnal Average: 0.6 ppb at hour 12		Minimum Diurnal Average: 0.1 ppb at hour 24		Hours of Missing Data: 39																						
Monthly Average: 0.23 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 2.6		Hours of Calibration: 35																						
				Percent Operational Time: 99.5																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.2	0.3	0.2	0.2	Z	0.3	0.2	0.1	0.2	0.3	1.2	0.9	0.4	0.3	0.6	0.5	0.2	0.3	0.4	0.3	0.1	0.2	0.1	0.2	0.3	1.2
2-Mar	0.3	0.2	0.0	0.3	0.0	Z	0.4	0.0	0.4	0.4	0.4	0.3	0.3	0.7	0.4	0.4	0.3	0.3	0.4	0.5	0.1	0.4	0.2	0.2	0.3	0.7
3-Mar	Z	0.6	0.4	0.3	0.4	0.3	0.3	0.2	0.4	0.4	0.5	0.0	0.6	0.5	0.6	0.5	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.0	0.3	0.6
4-Mar	0.2	Z	0.2	0.1	0.1	0.0	0.4	0.3	0.3	0.1	0.5	0.2	0.2	0.4	0.6	0.4	0.4	0.3	0.6	0.5	0.6	0.6	0.6	0.5	0.3	0.6
5-Mar	0.6	0.7	Z	0.7	0.6	0.4	0.4	0.5	0.6	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.1	0.1	0.0	0.3	0.3	0.0	0.4	0.7
6-Mar	0.1	0.2	0.1	Z	0.3	0.2	0.0	0.9	2.2	2.6	2.5	2.1	1.3	1.1	1.3	1.6	1.4	0.6	0.2	0.3	0.4	0.2	0.3	0.0	0.9	2.6
7-Mar	0.5	0.3	0.3	0.4	Z	0.5	0.3	0.3	1.3	2.6	3.2	3.8	3.8	3.3	2.5	M	M	M	M	0.1	0.2	0.0	0.1	0.1	1.2	3.8
8-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.2	0.3	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
9-Mar	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.8	1.1	1.6	1.4	1.2	0.9	0.8	0.5	0.1	0.0	0.0	0.2	0.3	0.2	0.1	0.2	0.4	1.6
10-Mar	0.2	Z	0.1	0.5	0.3	0.1	0.1	0.2	0.4	1.0	1.4	1.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	1.4
11-Mar	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	0.2	0.1	0.0	0.2	0.0	0.2	0.2	0.0	0.0	0.2
12-Mar	0.2	0.0	0.1	Z	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
13-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
14-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.4	1.0	0.9	0.5	0.5	0.3	0.2	0.0	0.2	0.3	0.2	0.2	0.4	0.1	0.2	1.0
15-Mar	Z	0.4	0.3	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4
16-Mar	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	0.2	0.1	0.1	0.0	0.4	0.1	0.1	0.1	0.1	0.4
17-Mar	0.0	0.1	Z	0.4	0.4	0.3	0.0	0.1	0.1	0.2	0.3	0.9	0.4	0.8	0.6	0.6	0.8	1.1	0.2	0.2	0.2	0.1	0.0	0.0	0.3	1.1
18-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
19-Mar	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	0.0	0.0	0.3	0.0	0.1	0.0	0.2	0.3	
20-Mar	0.1	0.0	0.0	0.1	0.2	Z	0.1	0.1	C	C	C	C	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.2
21-Mar	Z	0.0	0.1	0.0	0.0	0.1	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
22-Mar	0.0	Z	0.1	0.2	0.1	0.4	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	0.0	0.0	0.1	0.4
23-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.9	1.7	2.4	2.6	2.2	1.3	1.3	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.6
24-Mar	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	0.0	0.0	0.0	0.0	0.1	0.0	0.1
25-Mar	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	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.2
26-Mar	0.1	0.2	0.1	0.0	0.1	Z	0.3	0.1	0.2	0.1	0.1	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
27-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.5	0.6	0.6	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	0.1	0.6
30-Mar	0.0	0.2	0.0	Z	0.0	0.1	0.0	0.0	0.2	0.5	2.4	3.4	2.0	1.1	0.7	0.7	0.3	0.1	0.1	0.0	0.0	0.3	0.2	0.4	0.6	3.4
31-Mar	0.3	0.1	0.2	0.2	Z	0.2	0.0	0.3	0.2	0.3	0.6	1.3	1.4	1.0	0.9	0.3	0.1	0.4	0.2	0.2	0.1	0.0	0.0	0.0	0.4	1.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Fort Chipewyan - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort Chipewyan - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Fort Chipewyan - March 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	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703
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
Totals	21	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703

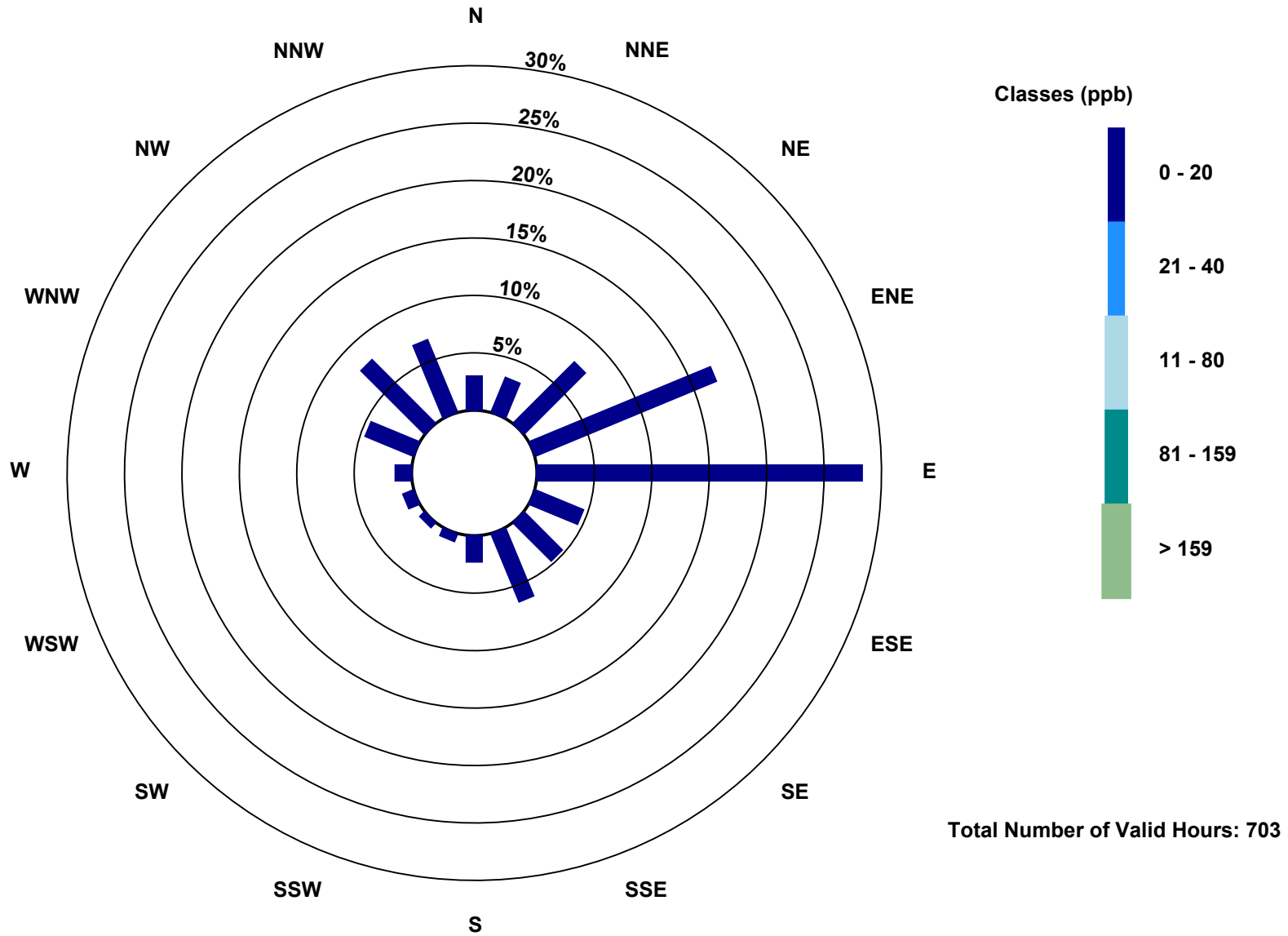
Total Number of Valid Hours: 703

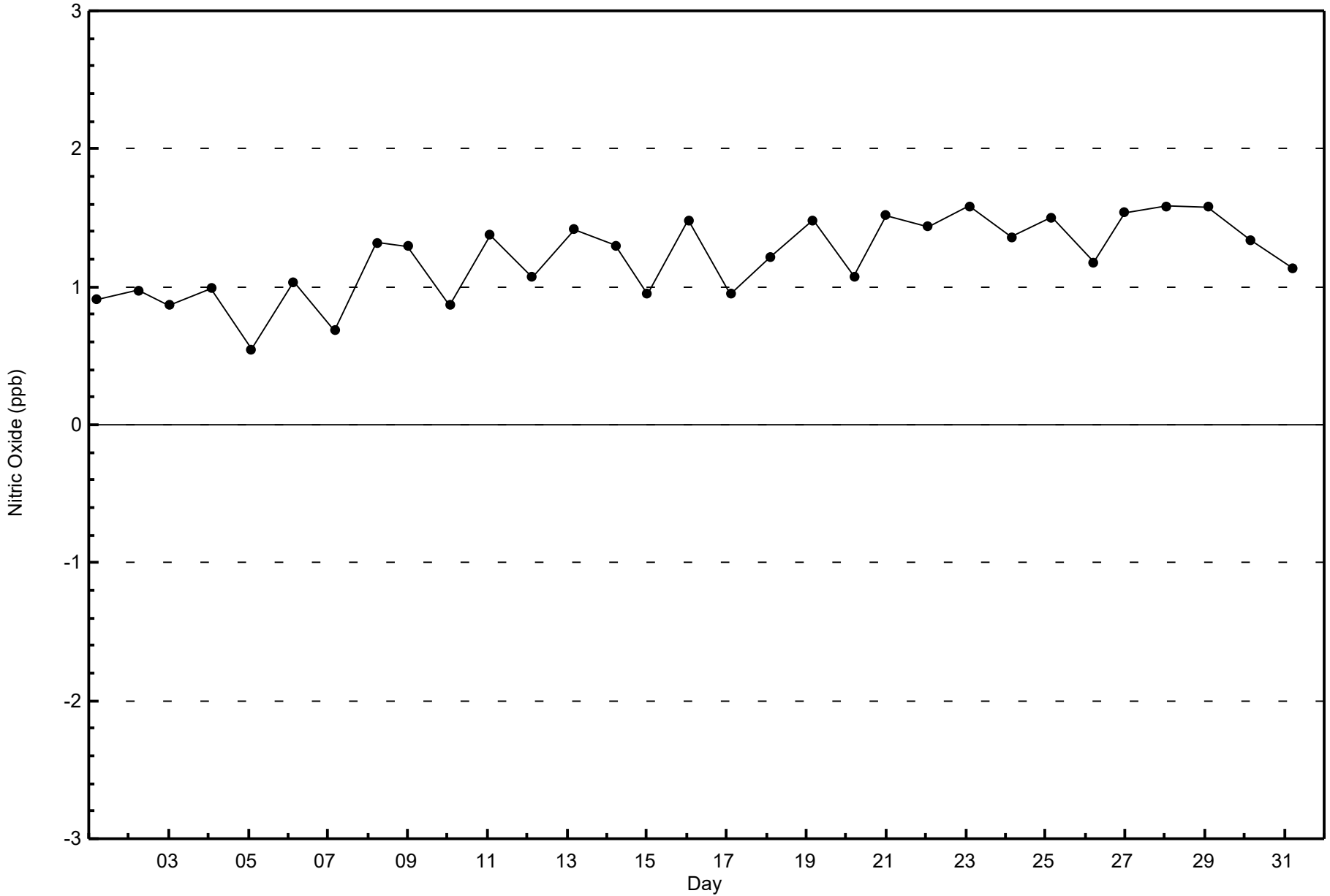
Total Number of Hours: 744

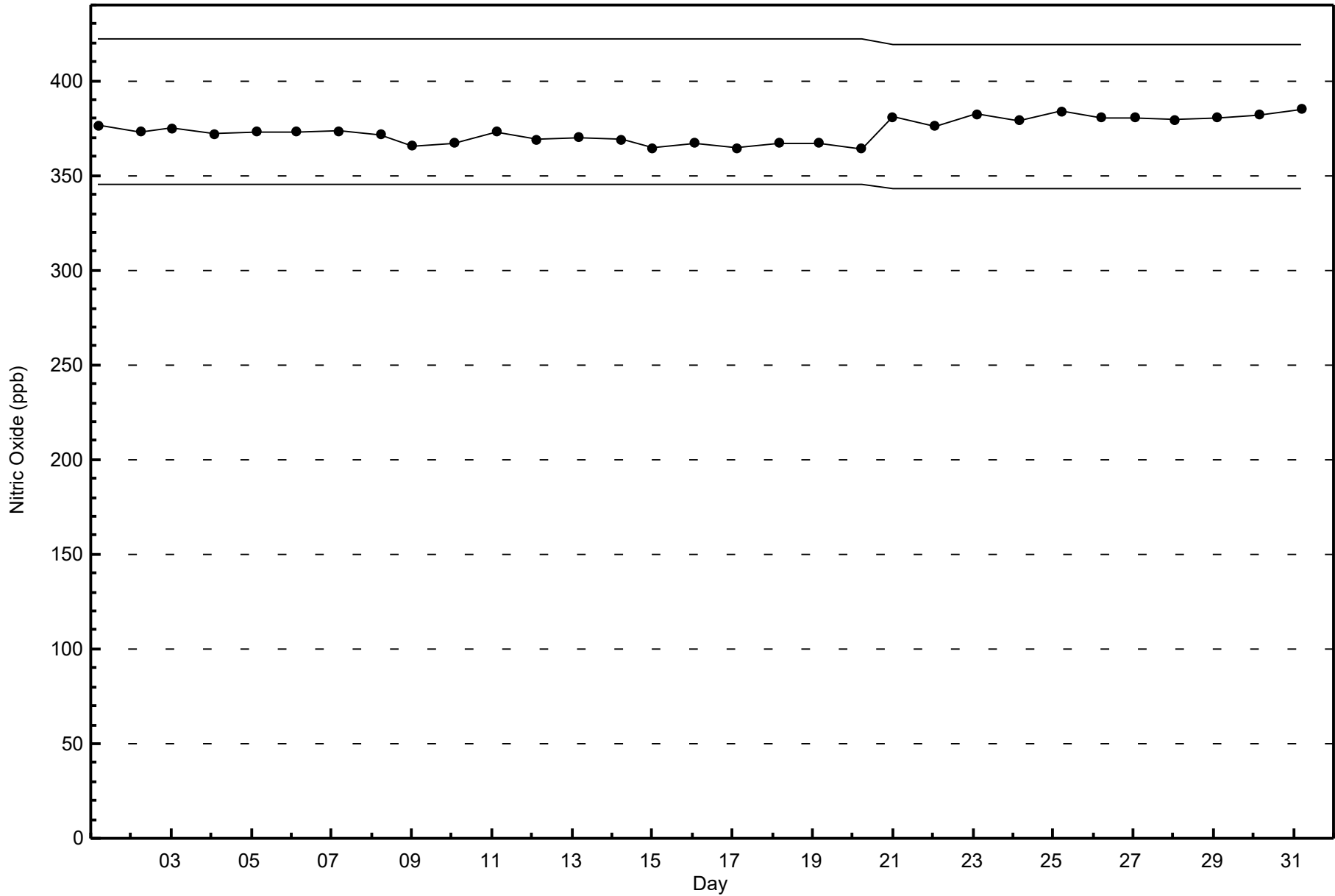


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Fort Chipewyan









Wood Buffalo Environmental Association
Summary of Hour Averages

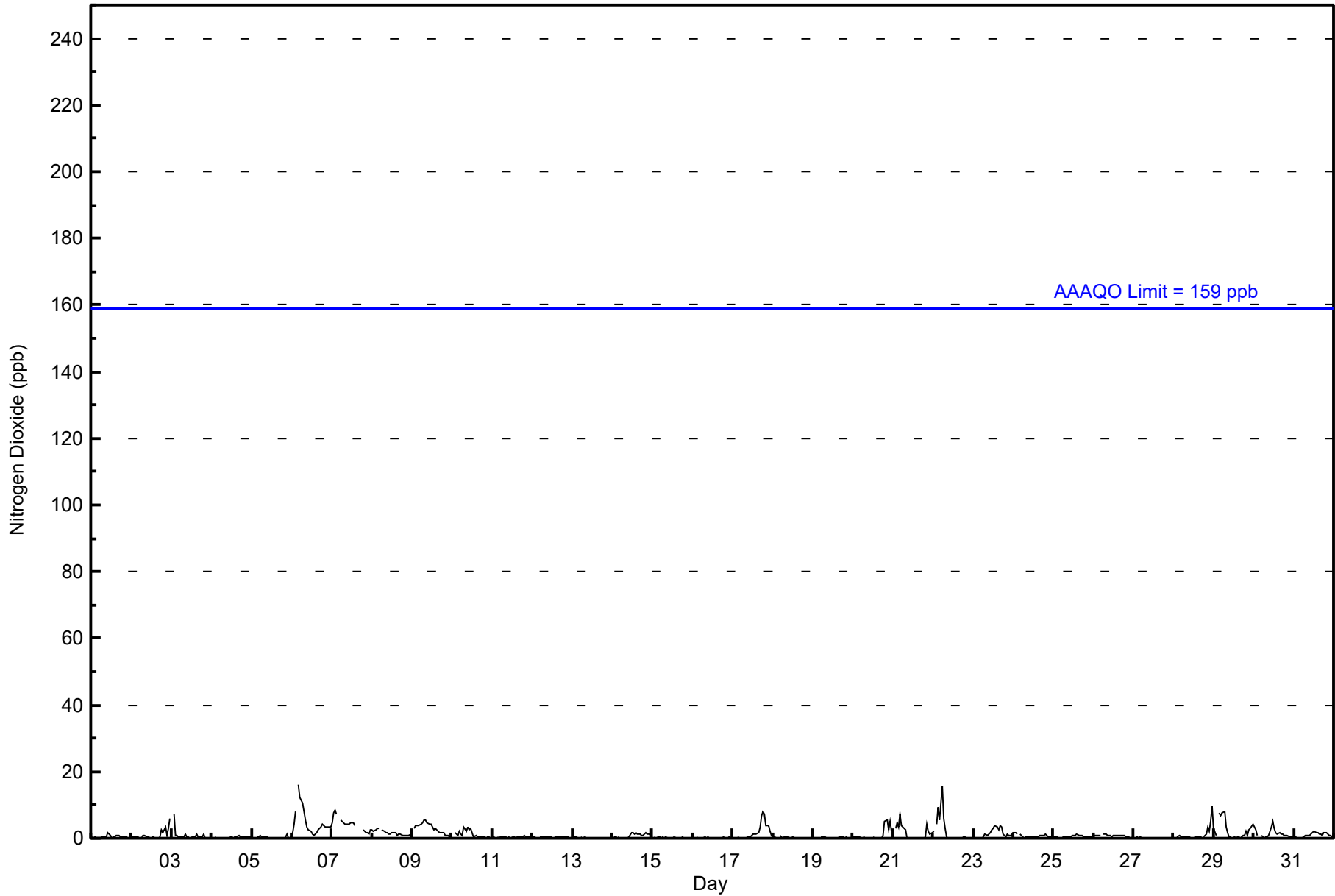
Nitrogen Dioxide (NO₂) - ppb
Fort Chipewyan - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 15.9 ppb on Mar 6 05:00		Maximum Daily Average: 4.6 ppb on Mar 6				Hours of Data:		705																																								
Minimum Value: 0.0 ppb on Mar 4 07:00		Minimum Daily Average: 0.1 ppb on Mar 13				Hours of Missing Data:		39																																								
Maximum Diurnal Average: 2.2 ppb at hour 6		Minimum Diurnal Average: 0.7 ppb at hour 16				Hours of Calibration:		35																																								
Monthly Average: 1.17 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.5 Q ₃ = 1.2 P ₉₀ = 3.4 P ₉₉ = 8.1				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-Mar	0.3	0.2	0.3	0.1	Z	0.3	0.3	0.3	0.3	0.4	1.6	0.9	0.2	0.3	0.6	0.7	0.7	0.5	0.4	0.3	0.4	0.4	0.2	0.4	0.4	1.6																						
2-Mar	0.3	0.4	0.3	0.3	0.4	Z	0.6	0.8	0.8	0.5	0.3	0.2	0.1	0.3	0.2	0.2	0.2	0.3	2.5	1.9	3.2	0.9	2.9	5.9	5.9	5.9																						
3-Mar	Z	7.4	0.7	0.7	0.5	0.5	0.3	0.4	1.4	0.3	0.3	0.2	0.4	0.6	1.3	0.5	0.6	0.3	1.3	0.1	0.2	0.1	0.1	0.8	7.4	7.4																						
4-Mar	0.1	Z	0.3	0.2	0.2	0.1	0.0	0.1	0.2	0.1	0.1	0.3	0.3	0.1	0.4	0.4	0.7	0.5	0.3	0.3	0.5	0.6	0.3	0.4	0.3	0.7																						
5-Mar	0.1	0.2	Z	0.6	0.4	0.8	0.5	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.1	0.2	1.1																						
6-Mar	1.5	4.4	7.9	Z	15.9	12.3	10.4	8.1	5.3	3.4	2.6	2.1	1.2	0.9	1.3	1.9	2.7	3.5	4.3	3.8	3.2	3.2	3.2	3.5	4.6	15.9																						
7-Mar	4.8	7.8	8.4	7.1	Z	5.3	5.0	4.8	4.4	4.4	4.4	4.5	4.6	4.5	3.9	M	M	M	M	2.7	1.9	1.6	1.4	2.5	4.4	8.4																						
8-Mar	2.5	2.0	2.6	2.9	2.8	Z	2.5	2.0	1.6	1.5	1.3	1.2	1.7	1.8	1.7	1.0	1.1	1.3	0.9	0.9	0.9	0.8	1.0	0.7	1.2	1.6	2.9																					
9-Mar	Z	3.0	3.8	3.8	3.8	4.1	4.7	5.3	5.4	4.8	4.3	4.1	3.2	2.6	3.0	2.4	1.9	1.5	1.8	1.9	0.9	0.8	0.6	0.7	3.0	5.4																						
10-Mar	0.8	Z	1.5	0.8	2.0	1.4	0.7	3.3	2.1	3.4	2.6	2.9	1.5	0.3	0.8	0.4	0.6	0.4	0.3	0.3	0.2	0.4	0.3	0.1	1.2	3.4																						
11-Mar	0.4	0.4	Z	0.5	0.2	0.3	0.3	0.4	0.6	0.1	0.4	0.2	0.3	0.3	0.2	0.5	0.3	0.4	0.5	0.7	0.4	0.5	0.4	0.6	0.4	0.7																						
12-Mar	0.3	0.5	0.4	Z	0.6	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.0	0.3	0.3	0.5	0.5	0.6	0.3	0.4	0.3	0.0	0.2	0.3	0.6																					
13-Mar	0.1	0.3	0.3	0.1	Z	0.3	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3																						
14-Mar	0.1	0.5	0.6	0.2	0.3	Z	0.2	0.0	0.0	0.0	0.4	1.5	1.6	1.1	1.7	1.4	1.1	0.7	0.9	1.4	1.7	1.3	1.3	0.7	0.8	1.7																						
15-Mar	Z	0.5	0.1	0.3	0.5	0.2	0.3	0.2	0.3	0.2	0.0	0.0	0.1	0.3	0.0	0.2	0.1	0.1	0.3	0.1	0.1	0.0	0.2	0.2	0.2	0.5																						
16-Mar	0.1	Z	0.4	0.1	0.0	0.2	0.1	0.5	0.1	0.3	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.4	0.1	0.2	0.2	0.3	0.2	0.2	0.5																						
17-Mar	0.1	0.1	Z	0.3	0.1	0.1	0.1	0.1	0.2	0.6	0.5	0.7	1.2	1.3	1.2	1.6	3.6	6.8	8.1	7.2	4.0	3.7	2.0	1.0	1.9	8.1																						
18-Mar	0.6	0.3	0.2	Z	0.7	0.4	0.2	0.4	0.3	0.6	0.2	0.1	0.4	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.7																						
19-Mar	0.1	0.1	0.0	0.2	Z	0.5	0.3	0.3	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.1	0.3	0.2	0.1	0.3	0.2	0.5																						
20-Mar	0.3	0.4	0.4	0.5	0.4	Z	0.6	0.6	C	C	C	C	0.5	0.1	0.1	0.1	0.1	0.0	0.7	4.9	5.4	2.4	5.1	2.0	1.3	5.4																						
21-Mar	Z	2.9	4.5	3.2	7.2	4.0	3.6	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.6	4.4	2.0	1.1	1.9	1.7	7.2																						
22-Mar	2.3	Z	4.2	9.4	5.6	15.5	6.0	2.9	0.3	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.3	0.5	0.0	0.0	0.0	0.0	2.1	15.5																						
23-Mar	0.0	0.0	Z	0.2	0.0	0.0	0.4	1.1	1.0	1.2	1.5	2.4	3.1	3.7	3.2	2.4	3.7	3.5	1.4	0.6	1.1	0.9	0.7	1.0	1.4	3.7																						
24-Mar	1.5	1.5	1.2	Z	1.1	0.8	0.2	0.3	0.3	0.5	0.6	0.3	0.5	0.6	0.6	0.6	0.7	0.7	1.0	1.2	0.8	0.5	0.6	0.4	0.7	1.5																						
25-Mar	0.5	0.3	0.4	0.3	Z	0.6	0.5	0.3	0.3	0.5	0.5	0.9	0.9	1.0	1.1	0.8	0.8	0.7	0.4	0.6	0.6	0.5	0.5	0.6	0.6	1.1																						
26-Mar	0.7	0.9	1.0	1.0	0.9	Z	1.1	1.1	0.9	0.9	0.8	0.5	0.7	0.7	0.8	0.7	0.7	0.7	0.7	0.6	0.4	0.5	0.2	0.4	0.7	1.1																						
27-Mar	Z	0.4	0.4	0.2	0.3	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.0	0.2	0.0	0.2	0.0	0.1	0.1	0.1	0.0	0.6	0.2	0.6																						
28-Mar	0.4	Z	0.5	0.7	0.6	0.5	0.4	0.6	0.3	0.4	0.1	0.2	0.2	0.4	0.4	0.4	0.5	0.1	0.5	1.1	3.2	2.1	5.1	9.8	1.2	9.8																						
29-Mar	2.9	0.8	Z	7.7	6.9	7.7	7.9	3.2	1.6	0.3	0.3	0.2	0.3	0.2	0.4	0.3	0.2	0.7	0.8	2.2	0.8	2.4	3.1	4.3	2.4	7.9																						
30-Mar	3.5	2.4	1.0	Z	0.8	0.4	0.0	0.4	0.3	0.8	3.5	4.9	3.1	1.6	1.2	1.5	1.2	1.2	0.9	0.8	0.9	0.4	0.5	0.3	1.4	4.9																						
31-Mar	0.9	0.4	0.1	0.2	Z	0.6	0.5	0.7	0.9	0.9	1.1	1.8	2.0	1.7	1.7	1.3	1.4	1.0	1.5	1.8	1.1	0.7	0.9	0.6	1.0	2.0																						
																								1.0	1.5	1.6	1.6	2.1	2.2	1.6	1.4	1.0	0.9	0.9	1.0	0.9	0.8	0.8	0.7	0.8	0.9	1.0	1.2	1.2	0.9	1.0	1.3	Diurnal Average
																								4.8	7.8	8.4	9.4	15.9	15.5	10.4	8.1	5.4	4.8	4.4	4.9	4.6	4.5	3.9	2.4	3.7	6.8	8.1	7.2	5.4	3.7	5.1	9.8	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 (NO₂) - ppb
Fort Chipewyan - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Fort Chipewyan - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Fort Chipewyan - March 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	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703
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
Totals	21	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703

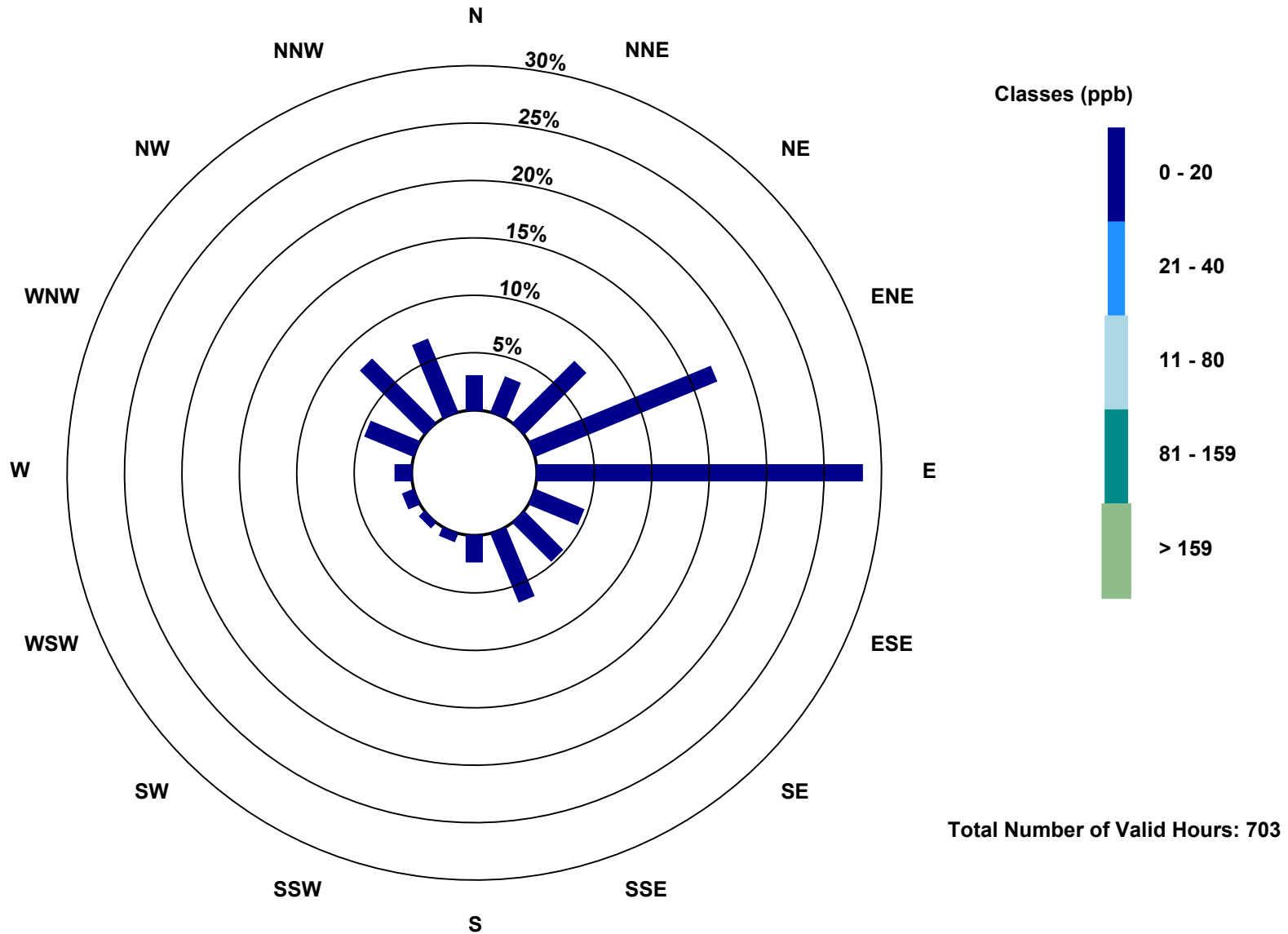
Total Number of Valid Hours: 703

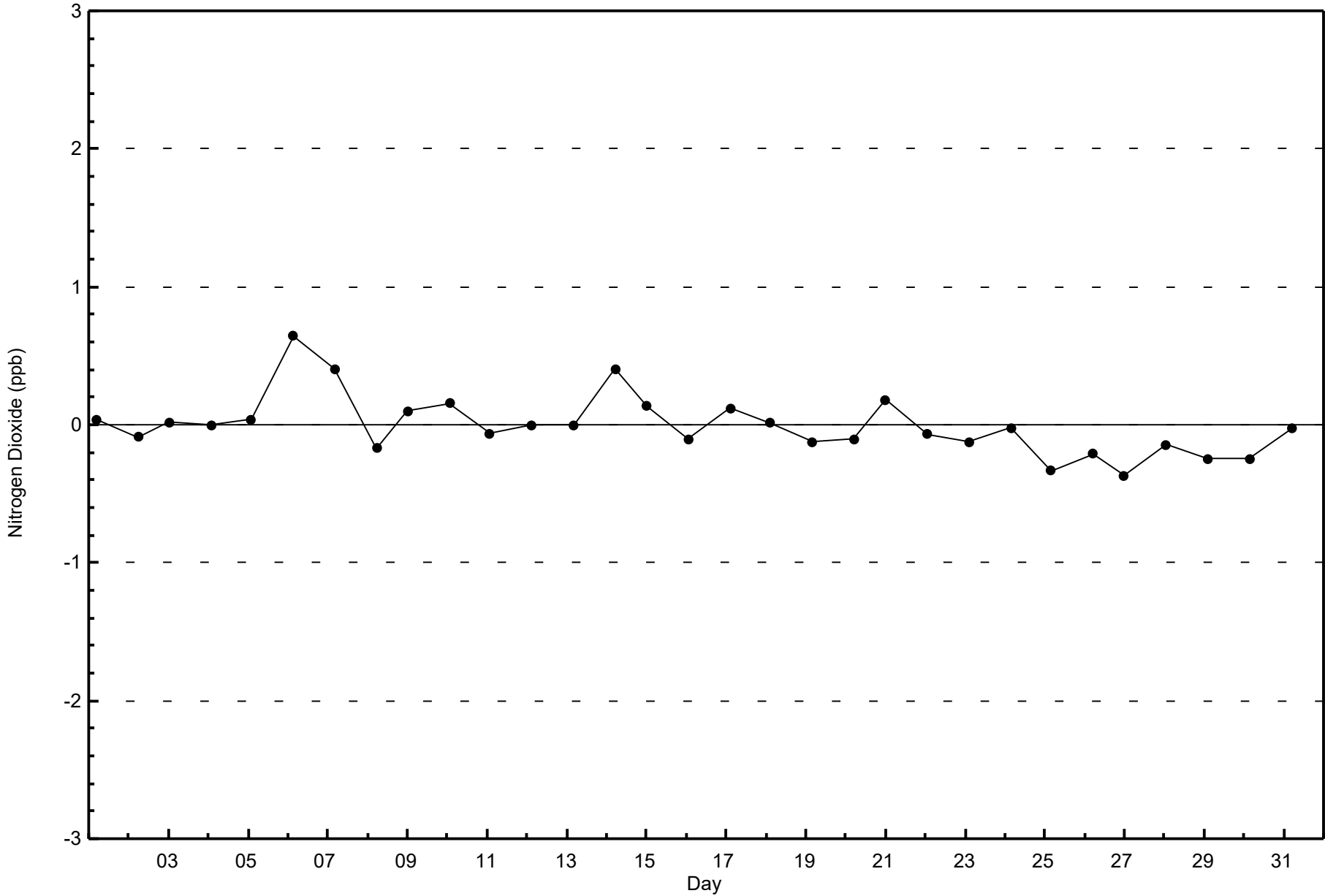
Total Number of Hours: 744

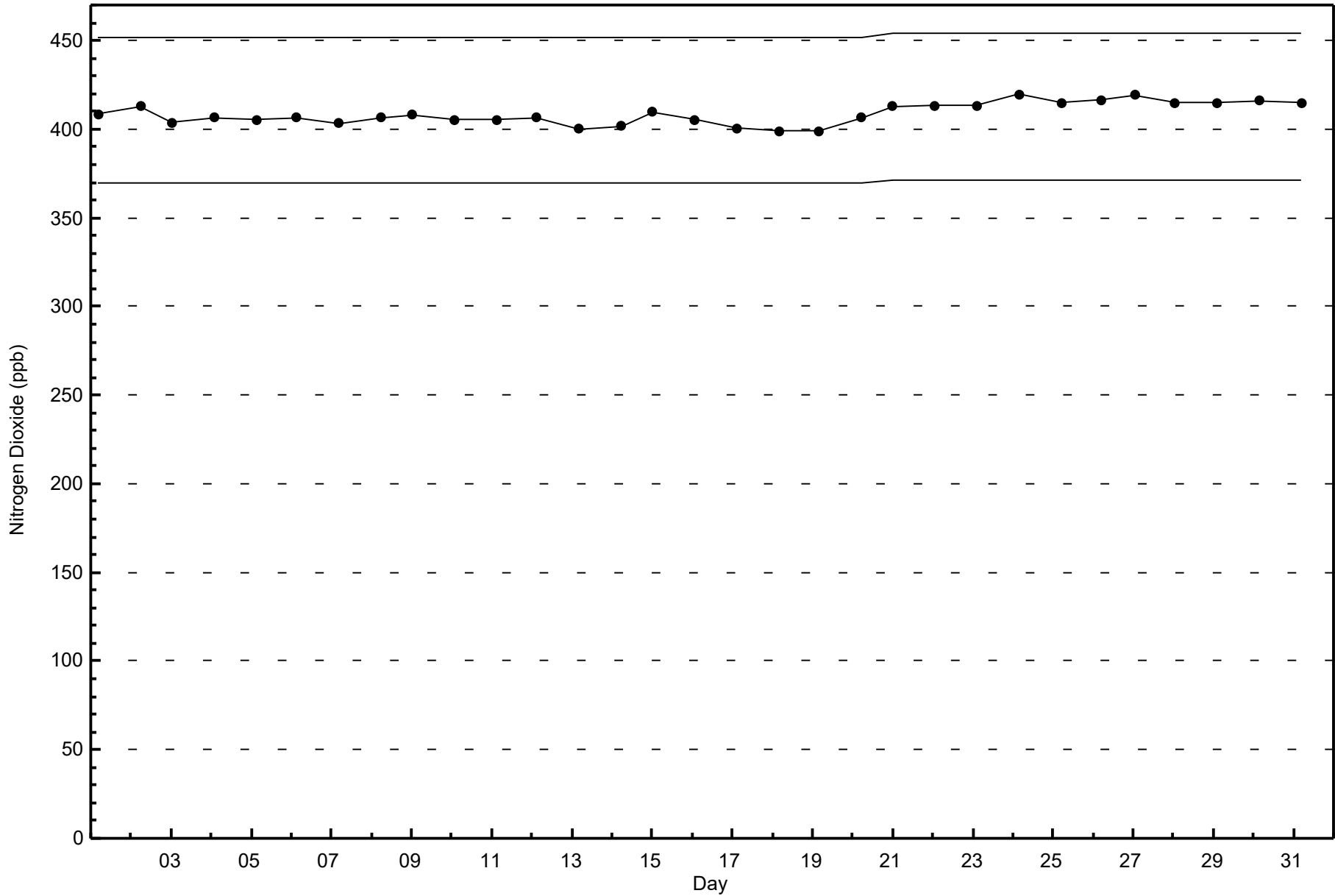


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Fort Chipewyan









Wood Buffalo Environmental Association
Summary of Hour Averages

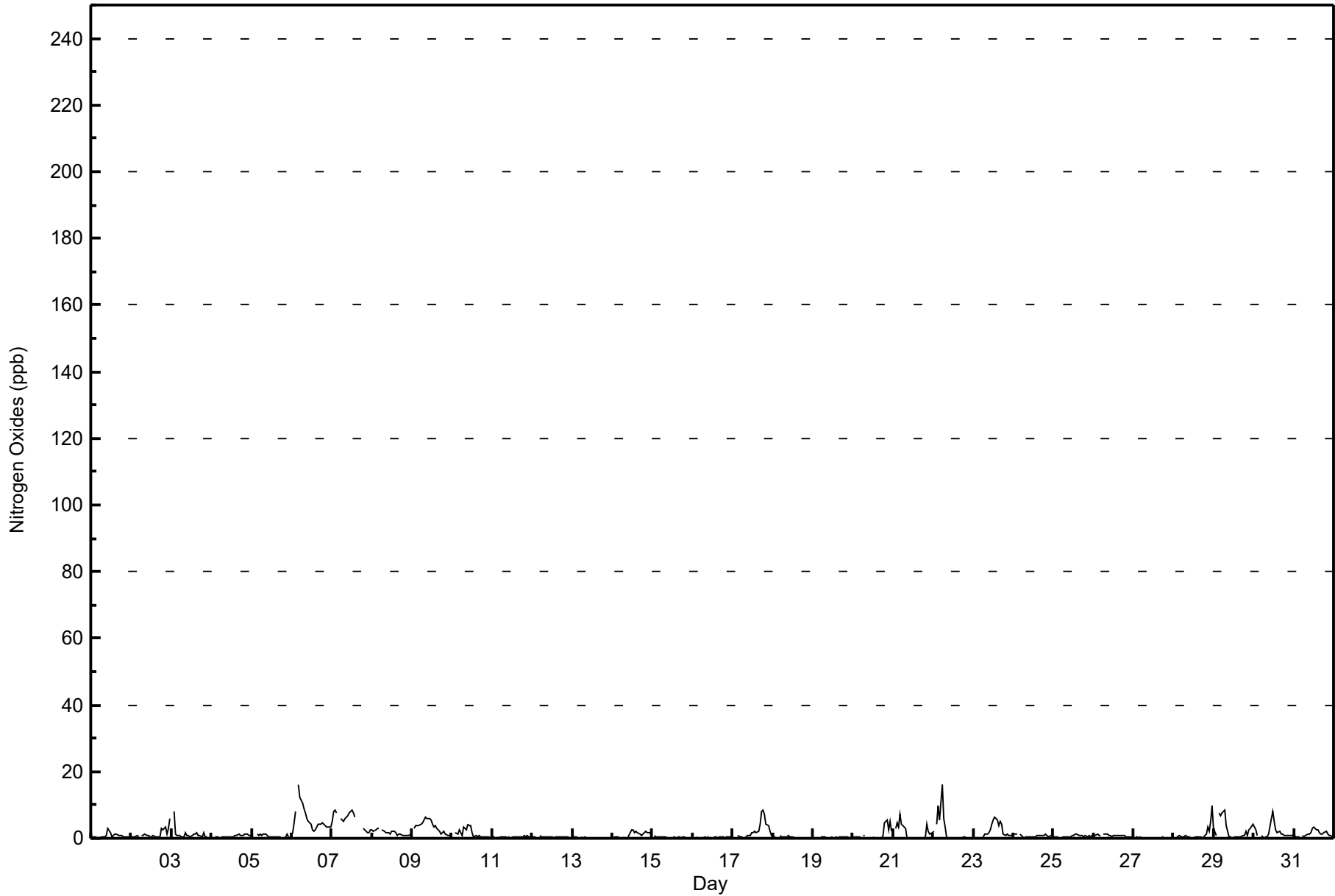
Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - March 2024

Maximum Value: 16.2 ppb on Mar 6 05:00		Maximum Daily Average: 5.7 ppb on Mar 7		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Mar 12 23:00		Minimum Daily Average: 0.1 ppb on Mar 13		Hours of Data: 705																																												
Maximum Diurnal Average: 2.3 ppb at hour 6		Minimum Diurnal Average: 1.0 ppb at hour 16		Hours of Missing Data: 39																																												
Monthly Average: 1.40 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 0.6 Q ₃ = 1.5 P ₉₀ = 4.1 P ₉₉ = 8.7		Hours of Calibration: 35																																												
				Percent Operational Time: 99.5																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	0.5	0.5	0.5	0.3	Z	0.6	0.5	0.4	0.5	0.7	2.8	1.8	0.6	0.6	1.2	1.2	0.9	0.8	0.8	0.6	0.5	0.6	0.3	0.6	0.8	2.8																						
2-Mar	0.6	0.6	0.3	0.6	0.4	Z	1.0	0.8	1.2	0.9	0.7	0.5	0.4	1.0	0.6	0.6	0.5	0.6	2.9	2.4	3.3	1.3	3.1	6.1	1.3	6.1																						
3-Mar	Z	8.0	1.1	1.0	0.9	0.8	0.6	0.6	1.8	0.7	0.8	0.2	1.0	1.1	1.2	1.8	0.7	0.9	0.5	1.5	0.3	0.5	0.2	0.1	1.1	8.0																						
4-Mar	0.3	Z	0.5	0.3	0.3	0.1	0.4	0.4	0.5	0.2	0.6	0.5	0.5	0.5	1.0	0.8	1.1	0.8	0.9	0.8	1.1	1.2	0.9	0.9	0.6	1.2																						
5-Mar	0.7	0.9	Z	1.3	1.0	1.2	0.9	1.1	1.2	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.1	0.1	0.4	1.4	0.3	0.1	0.6	1.4																							
6-Mar	1.6	4.6	8.0	Z	16.2	12.5	10.4	9.0	7.5	6.0	5.1	4.2	2.5	2.0	2.6	3.5	4.1	4.1	4.5	4.1	3.6	3.4	3.5	3.5	5.5	16.2																						
7-Mar	5.3	8.1	8.7	7.5	Z	5.8	5.3	5.1	5.7	7.0	7.6	8.3	8.4	7.8	6.4	M	M	M	M	2.8	2.1	1.6	1.5	2.6	5.7	8.7																						
8-Mar	2.5	2.0	2.6	2.9	2.8	Z	2.5	2.1	1.6	1.7	1.6	1.2	2.1	2.0	1.8	1.0	1.1	1.3	0.9	0.9	0.8	1.0	0.7	1.2	1.7	2.9																						
9-Mar	Z	3.0	3.8	3.8	3.9	4.1	4.7	5.4	6.2	5.9	5.9	5.5	4.4	3.5	3.8	2.9	2.0	1.5	1.8	2.1	1.2	1.0	0.7	0.9	3.4	6.2																						
10-Mar	1.0	Z	1.6	1.3	2.3	1.5	0.8	3.5	2.5	4.4	4.0	3.9	1.7	0.3	0.8	0.4	0.7	0.4	0.3	0.4	0.2	0.4	0.3	0.1	1.4	4.4																						
11-Mar	0.4	0.4	Z	0.5	0.2	0.3	0.3	0.4	0.6	0.1	0.4	0.2	0.3	0.3	0.2	0.6	0.5	0.5	0.5	0.9	0.4	0.7	0.6	0.6	0.4	0.9																						
12-Mar	0.5	0.5	0.5	Z	0.7	0.6	0.6	0.3	0.3	0.3	0.3	0.3	0.4	0.2	0.0	0.4	0.3	0.6	0.6	0.6	0.3	0.4	0.3	0.0	0.2	0.4	0.7																					
13-Mar	0.1	0.3	0.3	0.1	Z	0.3	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3																						
14-Mar	0.1	0.5	0.6	0.2	0.3	Z	0.3	0.0	0.0	0.0	0.8	2.5	2.5	1.6	2.2	1.7	1.3	0.7	1.1	1.7	1.9	1.5	1.7	0.8	1.0	2.5																						
15-Mar	Z	0.9	0.4	0.4	0.5	0.2	0.3	0.4	0.3	0.2	0.0	0.0	0.1	0.4	0.0	0.3	0.2	0.1	0.3	0.2	0.1	0.0	0.2	0.2	0.3	0.9																						
16-Mar	0.1	Z	0.4	0.1	0.0	0.2	0.1	0.5	0.1	0.3	0.0	0.1	0.1	0.3	0.2	0.1	0.4	0.3	0.5	0.1	0.6	0.3	0.4	0.3	0.2	0.6																						
17-Mar	0.1	0.2	Z	0.7	0.5	0.4	0.1	0.2	0.3	0.8	0.8	1.6	1.6	2.1	1.8	2.2	4.4	7.9	8.3	7.4	4.2	3.8	2.0	1.0	2.3	8.3																						
18-Mar	0.6	0.3	0.2	Z	0.7	0.4	0.2	0.4	0.3	1.0	0.2	0.3	0.5	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.3	1.0																						
19-Mar	0.1	0.1	0.0	0.2	Z	0.5	0.3	0.3	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.4	0.3	0.3	0.4	0.3	0.3	0.1	0.5	0.2	0.5																						
20-Mar	0.4	0.4	0.4	0.6	0.6	Z	0.7	0.7	C	C	C	C	0.5	0.1	0.1	0.2	0.1	0.0	0.7	4.9	5.6	2.6	5.1	2.0	1.3	5.6																						
21-Mar	Z	2.9	4.6	3.2	7.2	4.1	3.7	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.6	4.4	2.0	1.1	1.9	1.7	7.2																						
22-Mar	2.3	Z	4.3	9.6	5.7	15.9	6.1	3.3	0.3	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.3	0.5	0.0	0.0	0.0	0.0	2.1	15.9																						
23-Mar	0.0	0.0	Z	0.2	0.0	0.0	0.4	1.3	1.3	1.7	2.4	4.1	5.5	6.3	5.4	3.7	5.0	4.1	1.4	0.6	1.1	0.9	0.7	1.0	2.0	6.3																						
24-Mar	1.5	1.5	1.2	Z	1.1	0.8	0.2	0.3	0.3	0.5	0.6	0.3	0.5	0.6	0.7	0.7	0.8	0.7	1.0	1.2	0.8	0.5	0.6	0.5	0.7	1.5																						
25-Mar	0.5	0.3	0.4	0.3	Z	0.6	0.5	0.3	0.3	0.5	0.5	0.9	1.0	1.1	1.2	0.8	0.8	0.7	0.4	0.8	0.6	0.7	0.5	0.6	0.6	1.2																						
26-Mar	0.8	1.1	1.1	1.0	1.0	Z	1.4	1.2	1.1	1.0	0.9	0.5	1.0	0.7	0.9	0.7	0.7	0.7	0.7	0.6	0.4	0.5	0.2	0.4	0.8	1.4																						
27-Mar	Z	0.4	0.4	0.2	0.3	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.2	0.1	0.0	0.2	0.0	0.2	0.0	0.1	0.1	0.1	0.0	0.6	0.2	0.6																						
28-Mar	0.4	Z	0.5	0.7	0.6	0.5	0.4	0.6	0.3	0.4	0.1	0.2	0.2	0.4	0.4	0.4	0.5	0.1	0.5	1.1	3.2	2.1	5.1	9.8	1.2	9.8																						
29-Mar	2.9	0.8	Z	7.7	6.9	7.7	8.4	3.8	2.2	0.3	0.3	0.2	0.3	0.2	0.4	0.3	0.4	0.7	0.8	2.2	1.0	2.4	3.1	4.3	2.5	8.4																						
30-Mar	3.5	2.6	1.0	Z	0.8	0.5	0.0	0.4	0.5	1.3	5.9	8.3	5.1	2.7	1.9	2.2	1.5	1.3	1.0	0.8	0.9	0.7	0.7	0.7	1.9	8.3																						
31-Mar	1.2	0.5	0.3	0.4	Z	0.8	0.5	1.0	1.1	1.2	1.7	3.1	3.4	2.7	2.6	1.6	1.5	1.4	1.7	2.0	1.2	0.7	0.9	0.6	1.4	3.4																						
																								1.1	1.6	1.7	1.7	2.2	2.3	1.7	1.5	1.3	1.3	1.5	1.7	1.4	1.3	1.3	1.0	1.0	1.0	1.1	1.4	1.3	1.0	1.1	1.4	Diurnal Average
																								5.3	8.1	8.7	9.6	16.2	15.9	10.4	9.0	7.5	7.0	7.6	8.3	8.4	7.8	6.4	3.7	5.0	7.9	8.3	7.4	5.6	3.8	5.1	9.8	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	705	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - March 2024**

Concentration Ranges (ppb)	Wind Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
0 - 20	21	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703
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
Totals	21	23	53	120	199	32	33	45	16	5	4	7	10	32	55	48	703

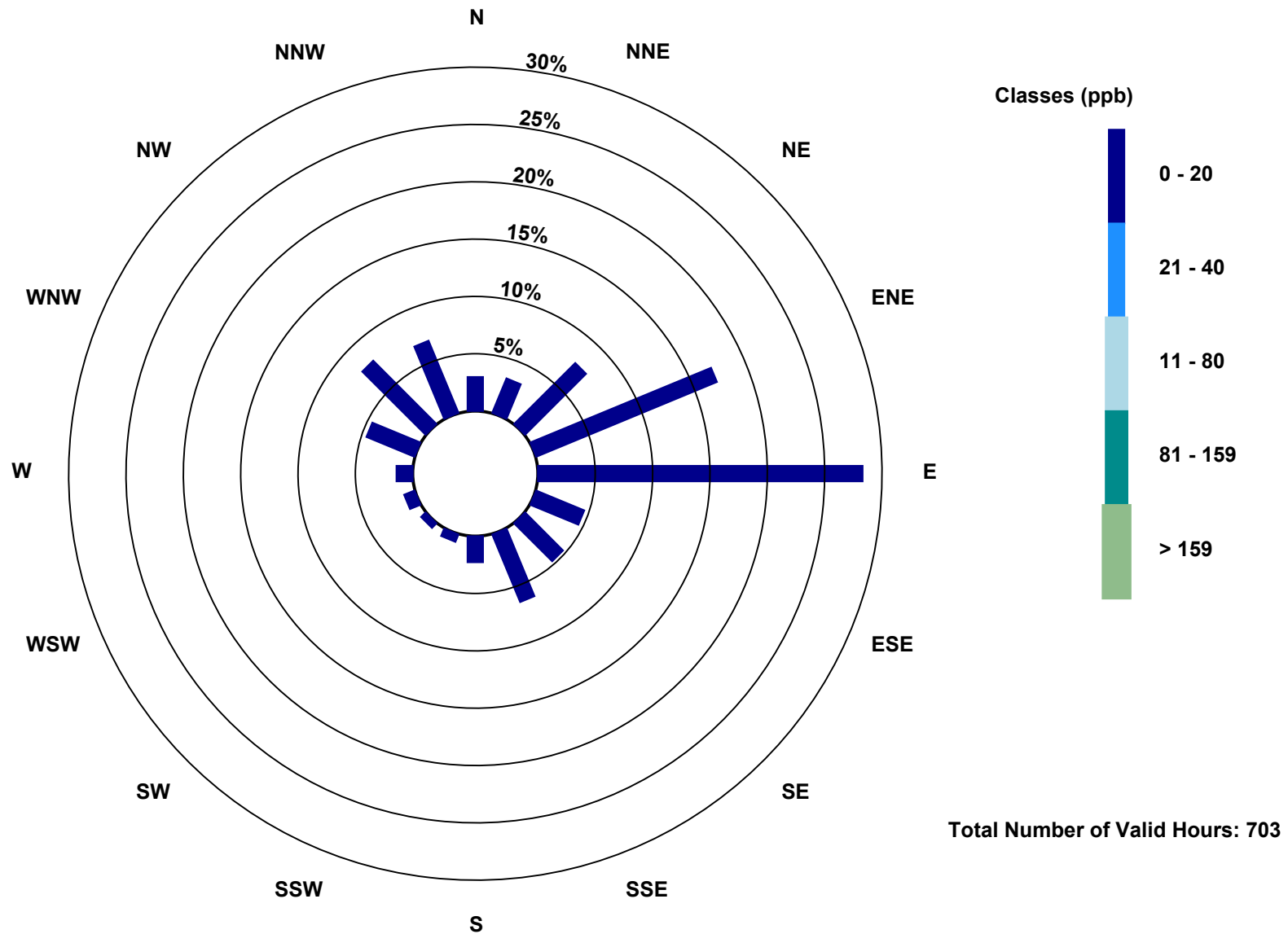
Total Number of Valid Hours: 703

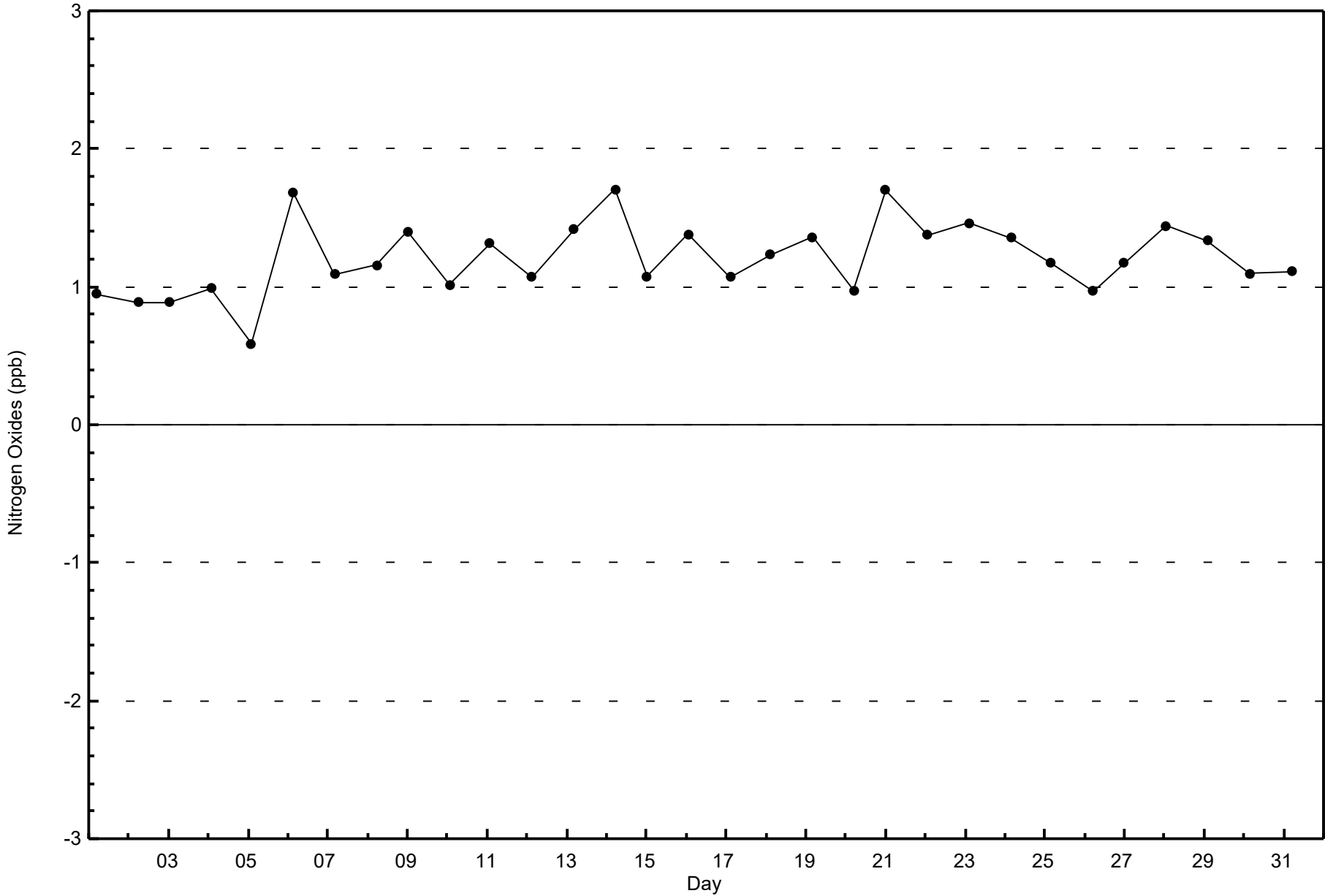
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan

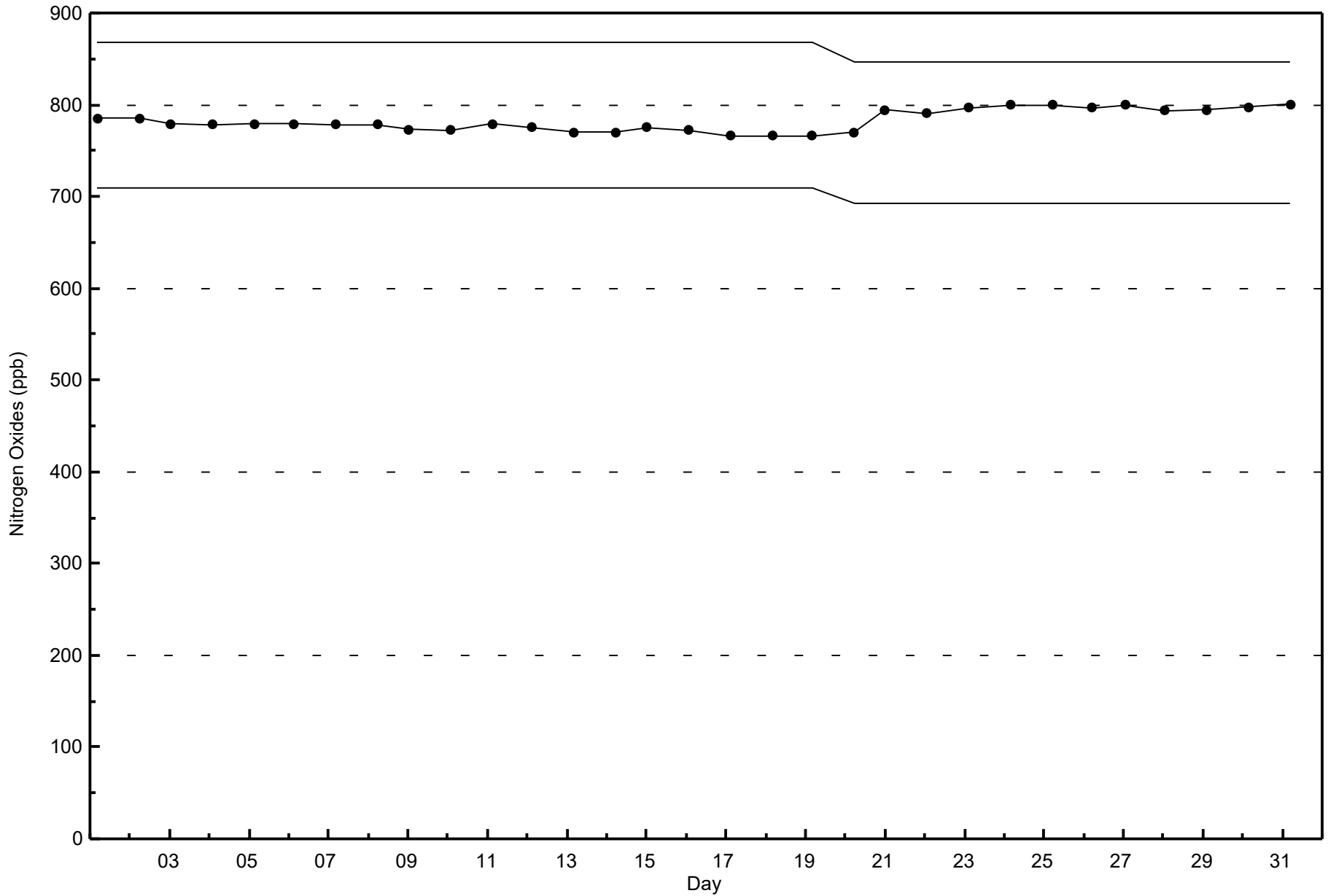






Wood Buffalo Environmental Association
Span Responses

Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Fort Chipewyan - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 48.3 ppb on Mar 10 04:00	Maximum Daily Average: 44.0 ppb on Mar 25		Hours of Data:	706
Minimum Value: 16.2 ppb on Mar 6 05:00	Minimum Daily Average: 30.8 ppb on Mar 6		Hours of Missing Data:	38
Maximum Diurnal Average: 39.0 ppb at hour 16	Minimum Diurnal Average: 35.7 ppb at hour 6		Hours of Calibration:	34
Monthly Average: 37.44 ppb	Percentiles: P ₁ = 24.9 P ₁₀ = 31.5 Q ₁ = 34.6 Median = 37.7 Q ₃ = 40.6 P ₉₀ = 43.4 P ₉₉ = 46.8		Percent Operational Time:	99.5

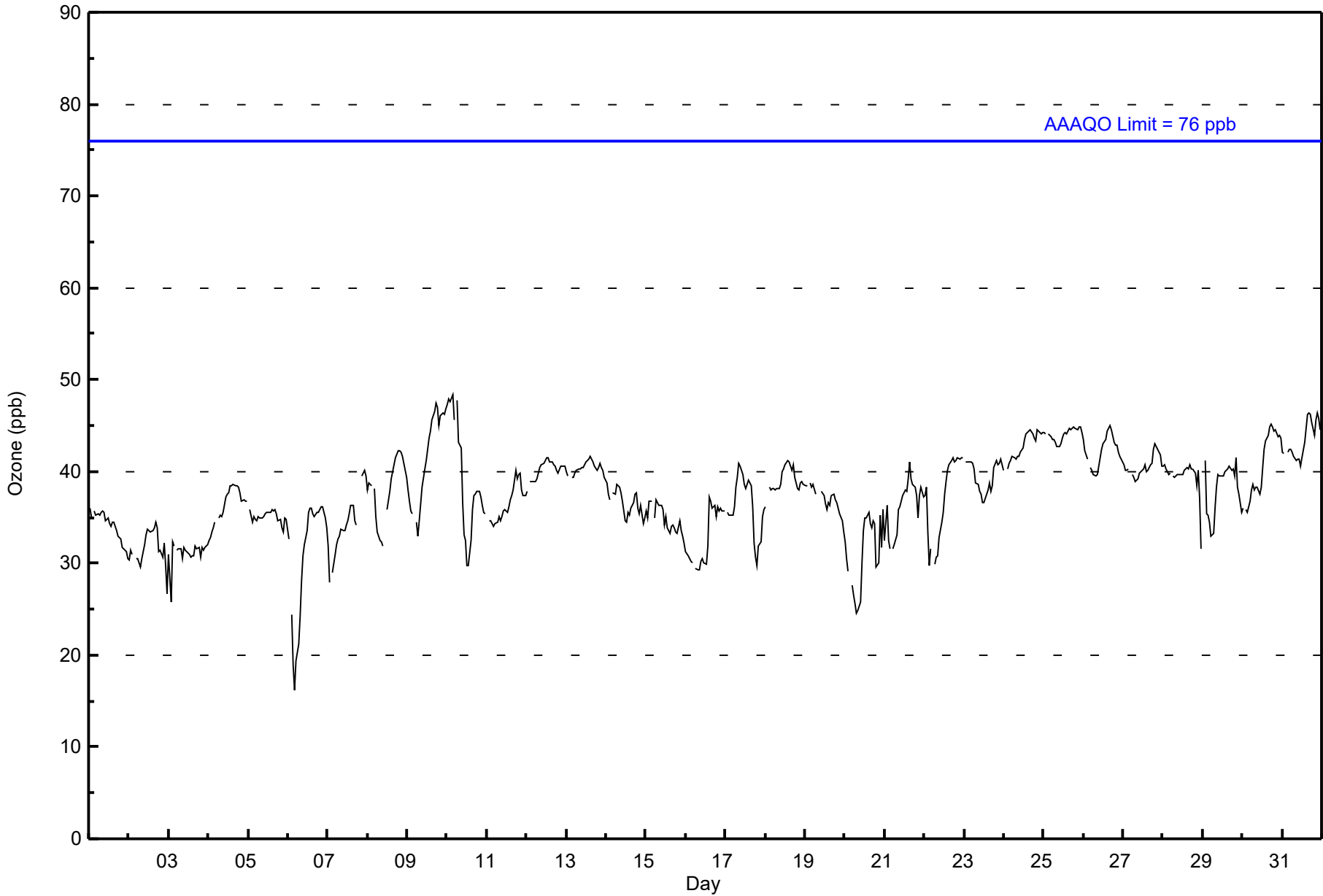
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	36.0	35.1	Z	35.7	35.3	35.3	35.3	35.5	35.7	35.6	34.6	34.9	34.3	34.1	34.5	34.5	33.6	33.0	32.8	32.6	31.8	31.5	31.2	30.5	34.1	36.0																						
2-Mar	30.4	31.4	30.9	Z	30.5	30.5	30.1	29.6	30.6	32.0	33.0	33.7	33.6	33.4	33.6	33.8	34.4	33.9	31.3	31.5	30.6	32.2	29.7	26.7	31.6	34.4																						
3-Mar	31.0	25.8	32.3	31.8	Z	31.4	31.6	31.6	30.6	31.7	31.4	31.3	30.9	30.7	30.8	30.8	31.8	31.6	31.7	30.7	31.7	31.5	31.8	32.1	31.2	32.3																						
4-Mar	32.4	32.8	33.4	33.9	34.5	Z	35.0	35.2	35.2	35.6	37.2	37.5	37.7	38.4	38.5	38.5	38.5	38.5	38.3	37.7	36.8	36.8	36.7	36.7	36.3	38.5																						
5-Mar	Z	35.8	34.5	35.0	34.7	34.6	35.0	35.0	35.0	35.1	35.4	35.5	35.6	35.6	35.9	35.7	35.8	35.3	34.7	34.8	33.9	33.4	34.9	34.7	35.0	35.9																						
6-Mar	32.6	Z	24.5	19.0	16.2	19.4	21.2	24.2	28.0	30.8	32.0	33.6	35.6	36.0	36.0	35.5	35.1	35.5	35.5	35.9	36.2	36.2	34.9	33.9	30.8	36.2																						
7-Mar	31.9	28.0	Z	28.9	30.9	32.1	32.6	33.0	33.7	33.6	33.6	34.2	34.6	35.4	36.4	36.3	34.6	34.2	M	M	39.5	39.8	40.1	39.5	34.4	40.1																						
8-Mar	37.9	38.7	38.5	Z	38.2	35.1	33.4	32.4	32.3	31.9	M	M	35.8	37.9	39.2	40.0	40.8	41.5	42.3	42.3	42.1	41.7	40.8	39.4	38.2	42.3																						
9-Mar	38.0	36.8	35.7	35.4	Z	34.5	32.9	34.7	36.4	38.2	40.2	41.2	42.4	43.6	44.3	45.6	46.6	47.5	47.0	44.9	46.1	46.4	46.2	46.8	41.4	47.5																						
10-Mar	47.3	48.0	47.6	48.3	45.6	Z	47.8	43.2	42.6	36.6	33.1	32.5	29.7	29.7	32.6	35.9	37.4	37.5	37.8	37.8	37.3	36.3	35.6	35.4	38.9	48.3																						
11-Mar	Z	34.6	34.6	34.4	34.0	34.4	34.5	35.1	34.6	35.0	35.6	35.9	35.6	36.1	36.9	37.3	38.0	40.1	39.3	39.6	39.8	37.9	37.3	37.4	36.4	40.1																						
12-Mar	37.8	Z	38.9	38.9	38.9	38.9	39.1	39.7	40.4	40.7	40.9	41.1	41.5	41.5	41.1	41.0	40.7	40.6	40.1	39.9	40.6	40.5	40.5	40.6	40.2	41.5																						
13-Mar	39.9	39.6	Z	39.3	39.3	39.8	40.2	40.3	40.3	40.4	40.4	40.7	41.0	41.4	41.7	41.4	41.1	40.6	40.2	40.5	40.8	40.5	40.1	39.3	40.4	41.7																						
14-Mar	38.7	37.6	36.9	Z	37.6	37.5	38.6	38.4	38.2	37.6	36.7	34.6	34.5	35.5	35.2	36.0	36.7	37.5	37.6	36.0	35.4	36.2	34.3	34.9	36.6	38.7																						
15-Mar	35.7	34.9	36.8	36.8	Z	34.9	36.9	36.7	36.3	36.3	35.8	34.2	35.1	33.8	33.3	34.1	34.2	33.8	33.4	33.2	34.6	33.6	32.9	32.1	34.8	36.9																						
16-Mar	31.2	30.8	30.5	30.2	30.1	Z	29.5	29.2	29.4	30.3	30.5	30.1	29.9	31.9	37.2	36.8	36.0	36.3	35.1	36.1	35.6	36.0	35.6	35.7	32.8	37.2																						
17-Mar	Z	35.6	35.3	35.2	35.3	36.2	38.3	39.3	41.0	40.5	39.7	38.6	38.1	38.6	39.0	38.4	36.1	32.2	30.7	29.7	31.9	32.3	35.1	35.8	36.2	41.0																						
18-Mar	36.2	Z	38.2	38.0	38.1	38.1	38.0	38.1	38.1	38.6	40.0	40.3	40.7	41.1	41.1	40.6	40.1	40.8	39.4	38.1	37.9	38.7	38.9	38.5	39.0	41.1																						
19-Mar	38.4	38.5	Z	38.7	38.3	38.5	37.6	C	C	C	37.8	37.4	36.5	35.9	36.7	36.3	37.4	37.6	36.9	36.6	36.0	35.4	34.6	33.4	36.9	38.7																						
20-Mar	32.3	30.5	29.2	Z	27.6	26.6	25.6	24.5	24.8	25.8	30.1	33.6	35.0	34.9	35.6	34.4	33.8	34.6	34.3	29.6	30.1	35.3	31.7	35.9	31.1	35.9																						
21-Mar	32.6	36.4	32.4	31.6	Z	31.5	32.0	33.1	35.9	36.1	36.7	37.3	38.0	37.8	39.1	41.1	39.3	38.6	38.3	37.3	34.9	37.4	38.3	37.2	36.2	41.1																						
22-Mar	37.4	38.3	33.4	29.7	31.6	Z	30.0	30.6	30.9	32.8	34.4	35.6	37.5	38.8	40.1	40.8	41.1	41.4	41.1	41.3	41.5	41.3	41.5	41.5	37.1	41.5																						
23-Mar	Z	41.1	41.1	41.1	41.0	40.9	40.3	38.8	38.6	37.8	37.5	36.5	36.6	37.0	38.0	38.8	37.8	38.4	40.5	41.1	40.8	40.9	41.4	40.8	39.4	41.4																						
24-Mar	40.1	Z	40.2	40.8	41.2	41.6	41.5	41.4	41.6	41.7	42.1	42.1	42.6	43.4	44.1	44.3	44.4	44.5	44.1	43.7	43.4	44.5	44.4	44.1	44.2	42.8	44.5																					
25-Mar	44.2	44.1	Z	44.1	43.8	43.5	43.4	43.2	42.7	42.7	43.0	43.6	44.1	44.2	44.0	44.7	44.6	44.8	44.8	44.7	44.6	44.8	44.8	44.3	44.0	44.8	44.8																					
26-Mar	43.4	42.3	41.4	Z	40.4	40.2	39.7	39.5	39.7	40.6	41.5	42.4	43.1	43.4	44.4	44.6	45.0	44.5	43.2	42.9	42.8	42.2	41.6	41.3	42.2	45.0																						
27-Mar	40.7	40.1	40.1	40.2	Z	39.6	39.3	38.9	39.1	39.2	39.8	40.2	40.3	40.7	40.0	40.1	40.8	40.9	42.4	43.1	42.8	42.5	41.8	40.6	40.6	43.1																						
28-Mar	40.5	40.7	40.3	39.7	39.8	Z	39.5	39.4	39.6	39.6	39.7	39.6	39.6	40.1	40.4	40.3	40.7	40.2	40.2	39.9	38.4	40.1	37.1	31.6	39.4	40.7																						
29-Mar	Z	41.2	35.4	35.2	34.5	33.0	33.2	35.9	38.3	39.7	39.6	39.6	39.6	39.9	40.1	40.3	40.6	40.2	40.3	39.6	41.5	38.3	37.5	35.6	38.2	41.5																						
30-Mar	36.0	Z	35.8	35.5	36.8	38.0	38.6	38.0	38.2	38.2	37.6	38.3	40.5	42.4	43.3	43.9	44.9	45.2	44.8	44.3	44.5	43.8	44.0	43.6	40.7	45.2																						
31-Mar	42.1	42.0	Z	42.1	42.3	42.4	42.2	41.6	41.2	41.3	41.3	40.6	41.5	43.1	44.7	46.2	46.3	46.2	45.4	43.9	45.7	46.4	45.8	44.6	43.4	46.4																						
																								37.1	36.9	35.9	36.1	36.0	35.7	35.9	35.9	36.3	36.5	37.0	37.2	37.5	38.0	38.6	39.0	39.0	38.9	38.8	38.3	38.4	38.5	38.1	37.6	Diurnal Average
																								47.3	48.0	47.6	48.3	45.6	43.5	47.8	43.2	42.7	42.7	43.0	43.6	44.1	44.2	44.7	46.2	46.6	47.5	47.0	44.9	46.1	46.4	46.2	46.8	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 (O₃) - ppb
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Fort Chipewyan - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	3	0.42	0.42
21 - 50	703	99.58	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ozone (O₃) - ppb
Fort Chipewyan - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3
21 - 50	22	22	53	117	197	32	33	45	18	6	4	7	11	33	53	48	701
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
Totals	22	22	53	117	197	33	35	45	18	6	4	7	11	33	53	48	704

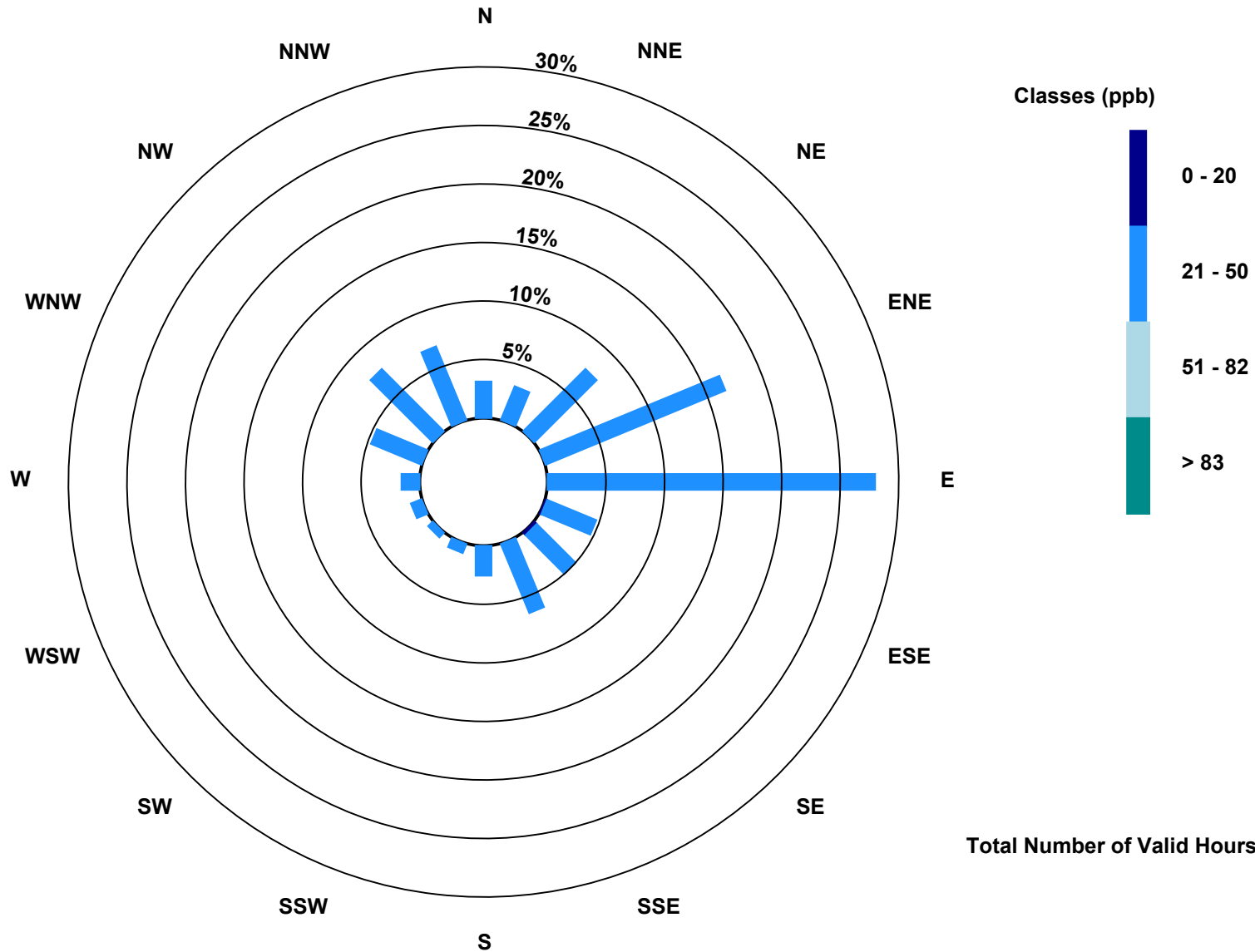
Total Number of Valid Hours: 704

Total Number of Hours: 744

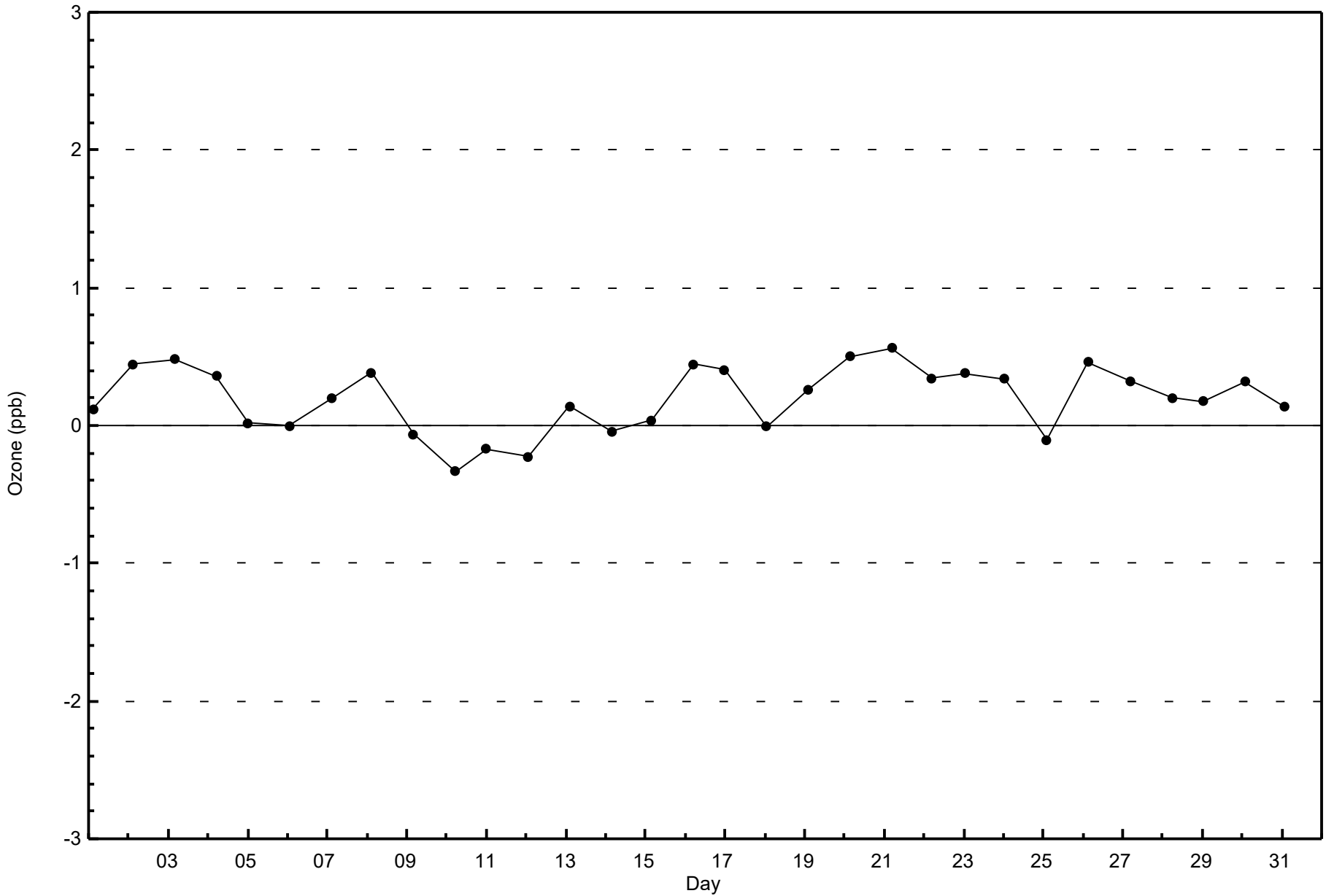


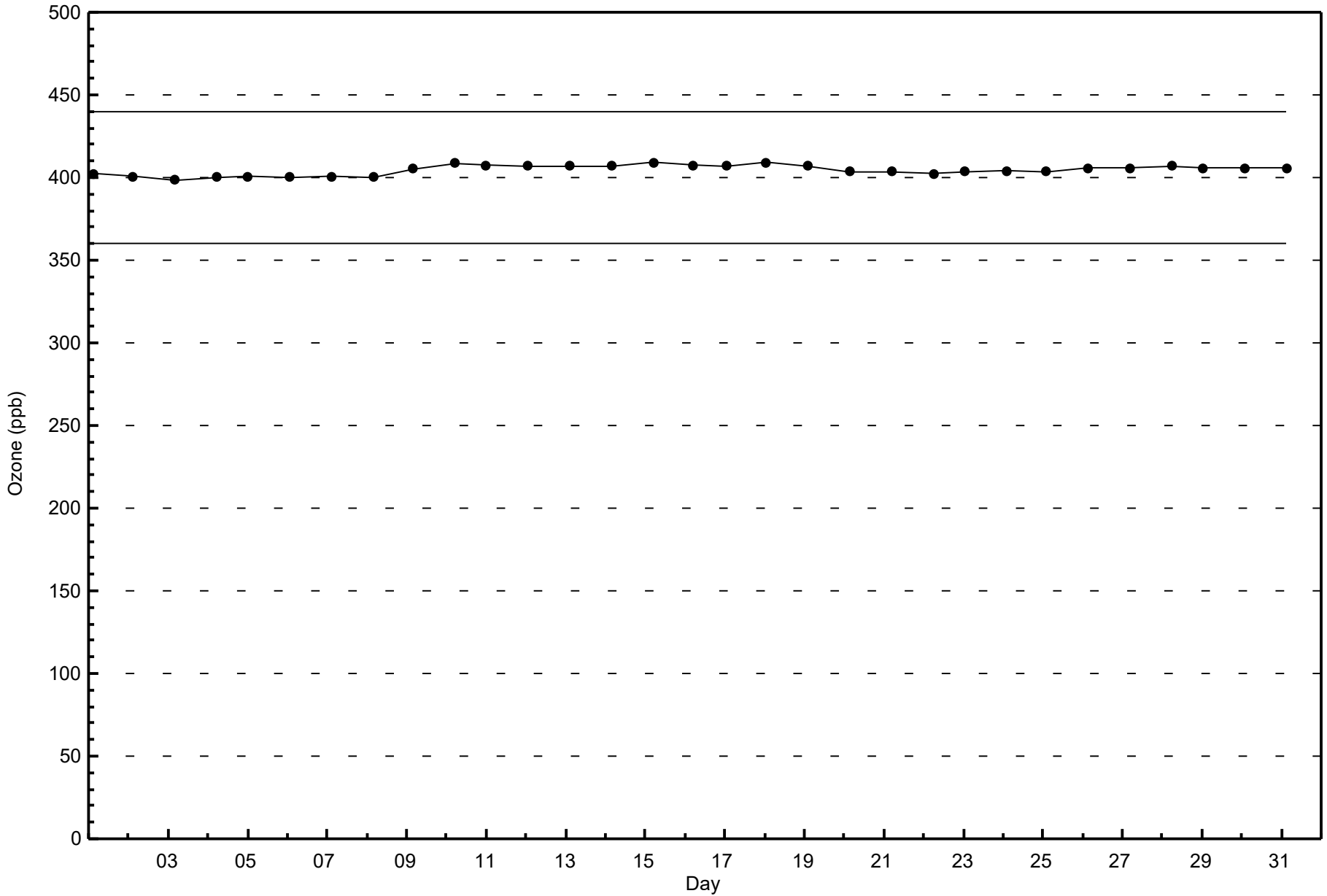
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Fort Chipewyan



Total Number of Valid Hours: 704



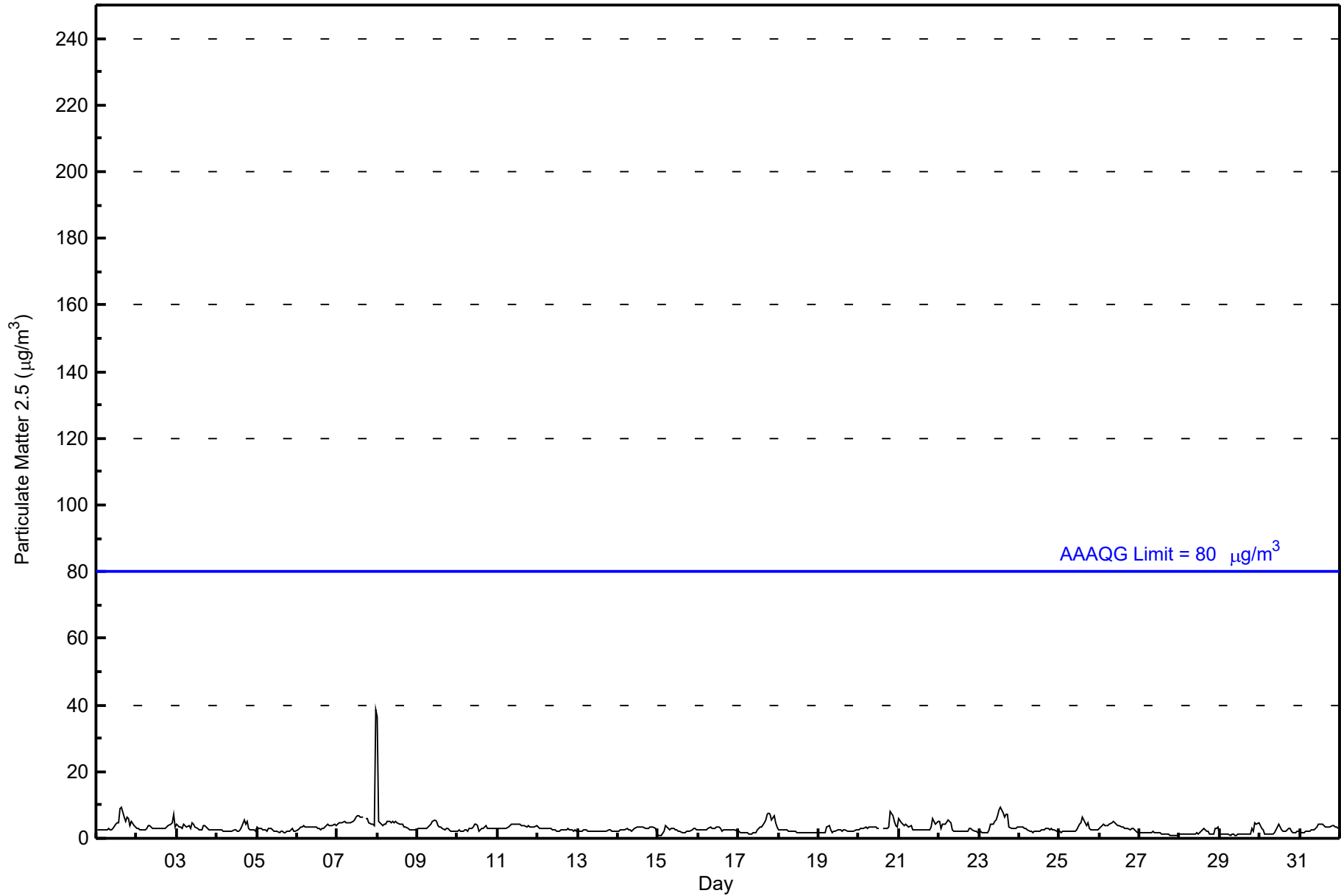




Summary of Hour Averages

Fort Chipewyan - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																											
Maximum Value: 38.7 µg/m ³ on Mar 8 00:00		Maximum Daily Average: 6.7 µg/m ³ on Mar 7																	Hours of Data: 742																													
Minimum Value: 0.9 µg/m ³ on Mar 29 07:00		Minimum Daily Average: 1.4 µg/m ³ on Mar 27																	Hours of Missing Data: 2																													
Maximum Diurnal Average: 3.9 µg/m ³ at hour 24		Minimum Diurnal Average: 2.6 µg/m ³ at hour 4																	Hours of Calibration: 1																													
Monthly Average: 3.06 µg/m ³		Percentiles: P ₁ = 1.0 P ₁₀ = 1.7 Q ₁ = 2.2 Median = 2.7 Q ₃ = 3.5 P ₉₀ = 4.6 P ₉₉ = 7.6																	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-Mar	2.5	2.5	2.6	2.7	2.7	2.7	2.7	3.0	2.7	2.6	2.8	4.3	4.5	4.8	9.0	9.5	6.5	5.1	6.5	6.0	3.6	5.0	3.8	3.6	4.2	9.5																						
2-Mar	2.9	2.8	2.7	2.7	2.7	2.7	2.8	3.8	3.8	2.9	2.9	2.8	2.8	3.0	3.0	2.9	2.8	2.8	3.4	3.6	4.4	4.5	7.3	3.3	3.3	7.3																						
3-Mar	4.2	3.4	3.5	3.1	4.1	3.8	3.3	4.0	3.1	4.5	4.0	3.2	3.0	2.7	2.7	3.7	3.7	4.0	3.0	2.6	2.5	2.6	2.6	2.6	3.3	4.5																						
4-Mar	2.5	2.5	2.4	2.4	2.2	2.2	2.1	2.3	2.2	2.3	2.4	2.4	2.3	2.0	2.5	3.6	5.5	4.0	5.2	2.8	2.5	2.4	2.3	2.2	2.7	5.5																						
5-Mar	3.2	3.0	3.0	2.4	2.5	2.4	2.1	2.8	2.8	2.4	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.8	2.1	2.2	2.6	3.0	2.3	2.2	2.3	3.2																						
6-Mar	2.4	2.9	3.2	3.5	3.7	3.5	3.4	3.3	3.3	3.3	3.3	3.5	3.1	2.8	2.7	2.9	3.2	3.7	4.1	4.0	3.9	3.9	4.1	4.0	3.4	4.1																						
7-Mar	4.2	4.6	4.7	4.7	4.9	4.7	4.9	4.8	4.7	5.2	5.7	6.2	6.8	6.7	6.4	6.3	M	5.8	6.0	4.9	4.3	4.2	3.9	38.7	6.7	38.7																						
8-Mar	36.4	5.0	4.1	3.9	4.1	4.2	5.2	4.9	4.5	5.0	4.8	4.9	4.6	4.2	4.1	4.0	3.6	3.3	2.8	2.7	2.6	2.6	2.5	2.6	5.3	36.4																						
9-Mar	2.8	2.8	3.0	3.1	3.1	3.2	3.5	3.8	4.3	5.0	5.3	5.0	4.0	3.5	3.4	3.0	2.7	2.9	2.8	2.6	2.1	1.9	2.1	2.1	3.2	5.3																						
10-Mar	2.1	2.4	2.3	2.2	2.6	2.5	2.2	2.8	2.8	3.3	4.3	4.4	3.8	2.2	3.0	3.0	3.3	3.7	3.1	3.0	2.8	3.1	3.0	3.1	3.0	4.4																						
11-Mar	3.0	2.9	3.0	3.1	3.0	3.1	3.3	3.9	4.1	4.1	4.2	4.1	4.1	4.1	4.0	3.9	3.7	3.3	3.7	3.6	3.4	3.6	3.6	3.6	3.6	4.2																						
12-Mar	3.3	3.0	2.8	2.9	2.9	2.9	3.0	2.9	2.8	2.7	2.5	2.3	2.0	2.2	2.4	2.6	2.7	2.7	2.8	2.7	2.5	2.3	2.4	2.2	2.6	3.3																						
13-Mar	2.4	2.2	2.3	2.3	2.4	2.4	2.1	2.2	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.6	2.5	2.2	2.0	2.2	2.2	2.2	2.6																						
14-Mar	2.3	2.6	2.7	2.6	2.6	2.9	2.4	2.4	2.3	2.5	2.8	3.5	3.6	3.3	3.6	3.3	3.1	3.0	3.0	3.3	3.5	3.2	3.0	1.3	2.9	3.6																						
15-Mar	0.9	0.9	1.0	2.2	3.8	3.6	2.8	2.6	2.9	3.0	2.7	2.6	2.0	1.9	1.8	1.7	1.8	2.0	2.1	2.3	2.5	2.8	2.8	2.7	2.3	3.8																						
16-Mar	2.7	2.5	2.5	2.6	2.6	2.7	2.8	3.3	3.0	3.0	3.2	3.2	3.2	3.0	2.3	2.4	2.6	2.7	2.8	2.6	2.6	2.3	2.4	2.1	2.7	3.3																						
17-Mar	1.9	1.7	1.8	1.8	1.8	1.6	1.3	1.2	1.1	1.5	1.8	2.7	3.0	3.5	3.5	4.7	5.6	7.1	7.6	7.2	5.4	6.7	4.6	3.5	3.4	7.6																						
18-Mar	2.5	2.5	2.6	2.6	2.6	2.5	1.9	2.1	2.1	2.1	1.9	1.8	1.9	1.8	1.8	1.7	1.8	1.7	1.7	1.8	1.7	1.6	1.7	1.8	2.0	2.6																						
19-Mar	1.7	1.7	1.7	1.7	1.9	3.4	3.8	2.4	1.9	2.1	2.3	2.3	2.4	2.5	2.3	2.5	2.5	2.1	2.1	2.3	2.2	2.3	2.4	2.5	2.3	3.8																						
20-Mar	2.5	2.8	3.0	3.2	3.2	3.2	3.2	3.5	3.4	3.5	3.2	2.9	3.0	C	2.8	2.9	2.9	2.8	3.5	8.0	6.8	4.9	4.0	3.4	3.6	8.0																						
21-Mar	6.0	4.5	4.3	3.7	4.3	3.7	3.4	4.0	2.6	2.4	2.3	2.6	2.7	2.7	2.6	2.4	2.5	2.5	2.7	3.3	6.1	5.2	4.1	4.9	3.6	6.1																						
22-Mar	5.1	3.1	4.2	4.3	4.0	5.4	5.1	4.6	2.6	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	2.0	2.9	2.9	2.3	2.0	1.9	1.7	2.9	5.4																						
23-Mar	1.9	2.1	1.7	1.7	1.7	1.6	2.4	4.2	4.3	5.1	5.5	6.9	8.3	9.2	7.6	6.4	7.4	7.1	3.4	2.8	3.1	3.1	2.9	3.3	4.3	9.2																						
24-Mar	3.4	3.4	3.3	3.0	3.0	2.4	2.1	2.0	1.9	2.0	2.2	2.1	2.3	2.5	2.6	2.5	2.9	2.9	2.7	2.8	2.7	2.4	2.2	2.2	2.6	3.4																						
25-Mar	2.0	1.8	2.0	2.1	2.0	2.2	2.0	2.0	2.1	2.0	2.6	3.6	4.3	4.8	6.5	4.5	3.9	4.6	2.9	2.7	2.6	2.7	2.6	2.7	3.0	6.5																						
26-Mar	3.0	3.5	4.0	3.9	4.0	4.0	4.3	4.8	5.1	4.8	4.2	3.9	3.7	3.3	3.3	3.1	3.0	2.9	2.6	2.8	2.8	2.6	2.2	1.9	3.5	5.1																						
27-Mar	1.7	1.5	1.7	1.6	1.6	1.5	1.7	1.7	2.0	1.9	1.8	1.6	1.5	1.4	1.3	1.2	1.2	1.1	0.9	0.9	0.9	0.9	1.0	1.4	1.4	2.0																						
28-Mar	1.2	1.1	1.1	1.1	1.2	1.2	1.4	1.4	1.4	1.4	1.5	1.5	1.7	2.0	3.0	2.5	2.3	2.1	1.4	1.2	1.3	2.9	3.2	3.4	1.8	3.4																						
29-Mar	1.3	1.1	1.1	1.2	1.4	1.2	0.9	1.4	1.3	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	2.8	1.9	4.5	4.1	4.8	1.7	4.8																						
30-Mar	3.7	3.1	2.4	1.4	1.4	1.2	1.3	1.2	1.3	1.6	3.4	4.3	3.3	2.3	2.0	2.2	2.5	3.1	2.8	2.1	1.6	1.9	2.1	2.2	2.3	4.3																						
31-Mar	2.2	1.8	1.8	2.0	2.1	2.2	2.2	2.6	2.7	2.8	3.3	4.1	4.2	4.4	3.8	3.6	3.6	3.3	3.4	3.9	3.7	3.4	3.3	3.1	3.1	4.4																						
																								3.8	2.6	2.7	2.6	2.8	2.8	3.0	2.8	2.9	3.0	3.2	3.2	3.1	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.0	3.1	3.0	3.9	Diurnal Average
																								36.4	5.0	4.7	4.7	4.9	5.4	5.2	4.9	5.1	5.2	5.7	6.9	8.3	9.2	9.0	9.5	7.4	7.1	7.6	8.0	6.8	6.7	7.3	38.7	Diurnal Maximum
C - Calibration M - Maintenance																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Chipewyan - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	708	95.42	95.42
6 - 15	32	4.31	99.73
16 - 25	0	0.00	99.73
26 - 80	2	0.27	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Chipewyan - March 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	23	23	54	122	199	33	32	42	17	5	3	7	13	28	55	50	706
6 - 15	0	1	2	4	8	0	3	4	1	1	1	0	0	4	3	0	32
16 - 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26 - 80	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	23	24	56	126	207	34	35	46	18	6	4	7	13	33	58	50	740

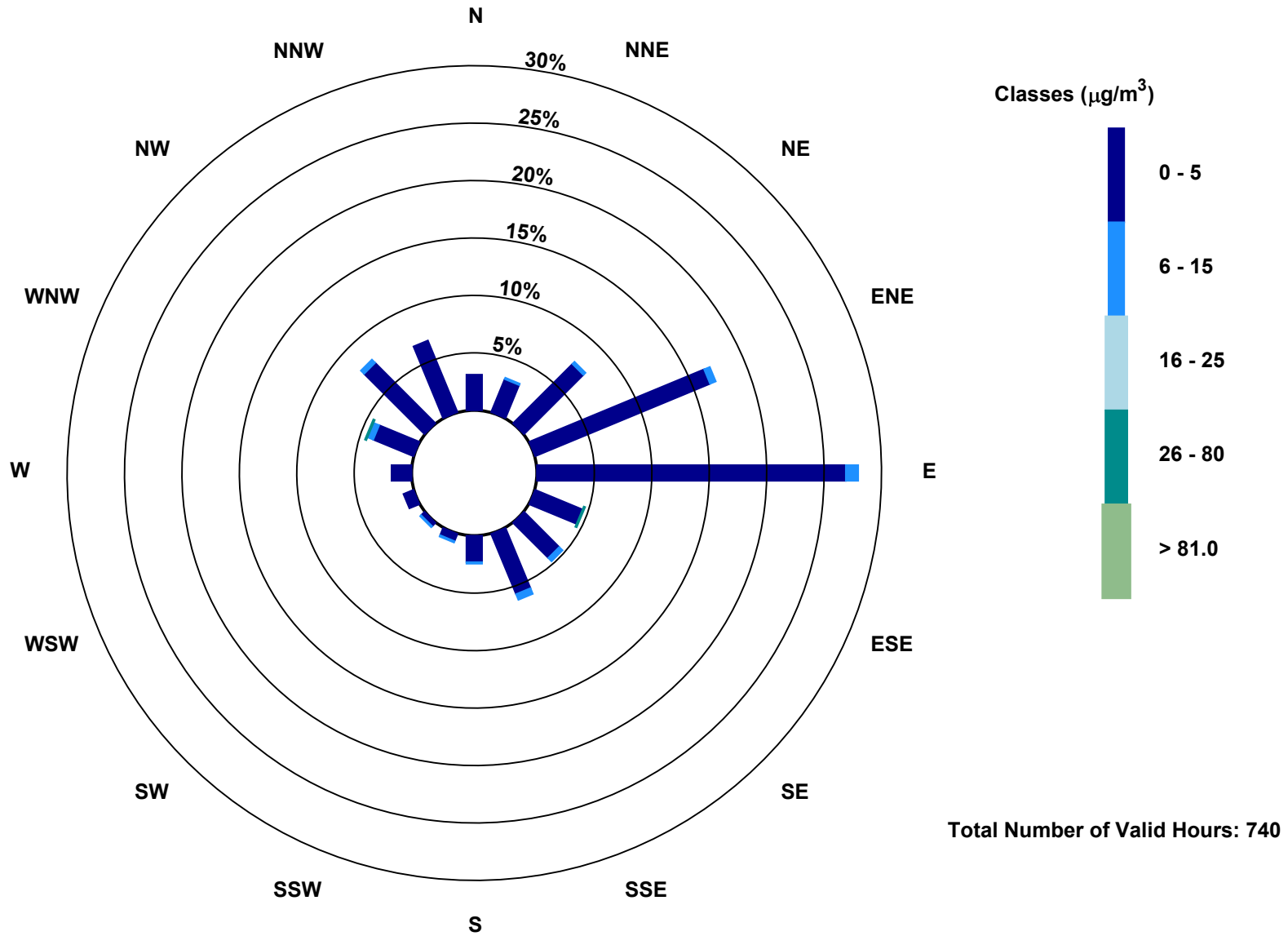
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

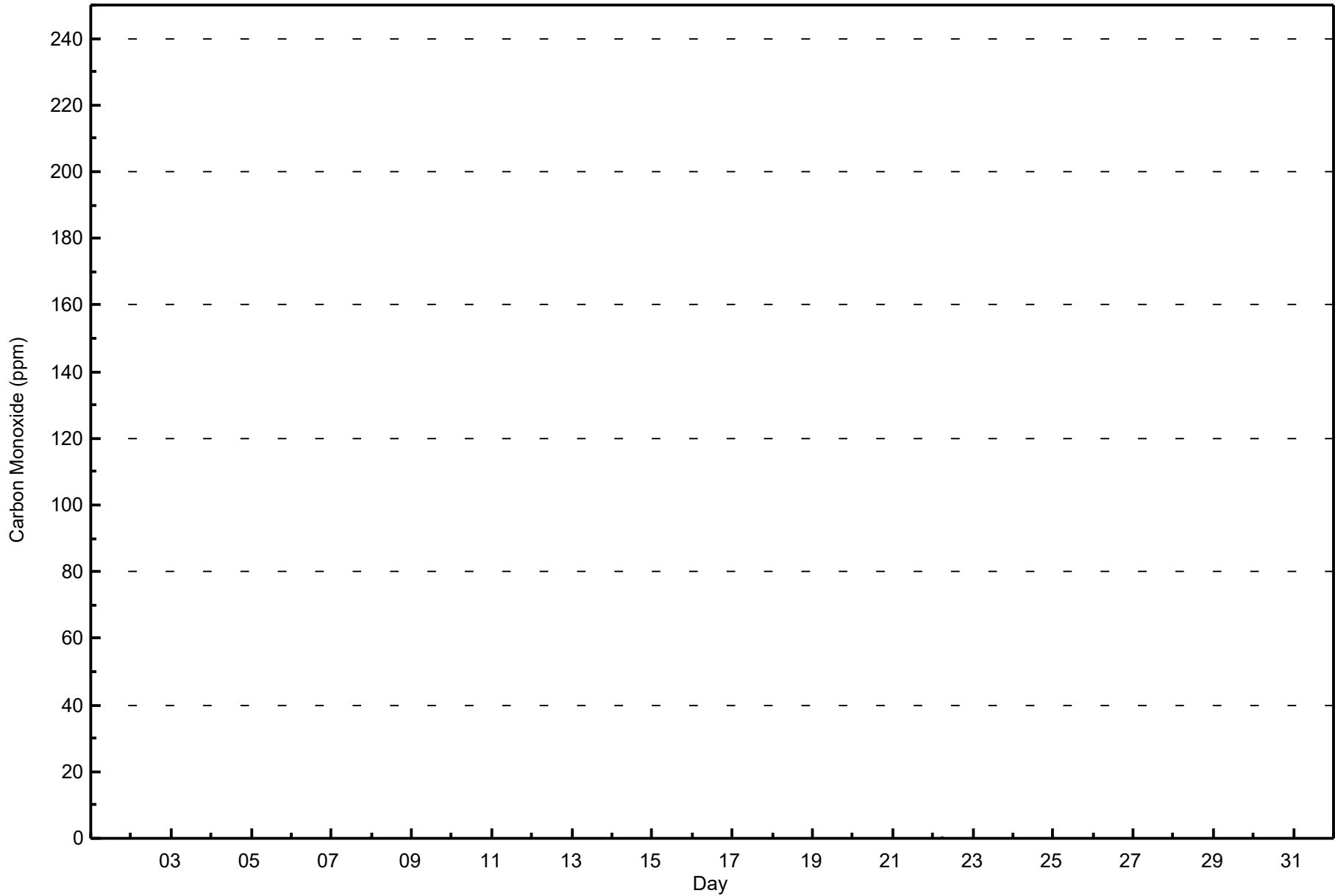
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Chipewyan





Wood Buffalo Environmental Association
Hourly Averages

Carbon Monoxide (CO) - ppm
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Monoxide (CO) - ppm
Fort Chipewyan - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	707	99.86	99.86
0.4 - 0.5	1	0.14	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Monoxide (CO) - ppm
Fort Chipewyan - March 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	22	21	54	120	200	32	33	45	18	5	4	7	13	29	55	47	705
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.5 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	22	21	54	120	200	32	33	45	18	5	4	7	13	30	55	47	706

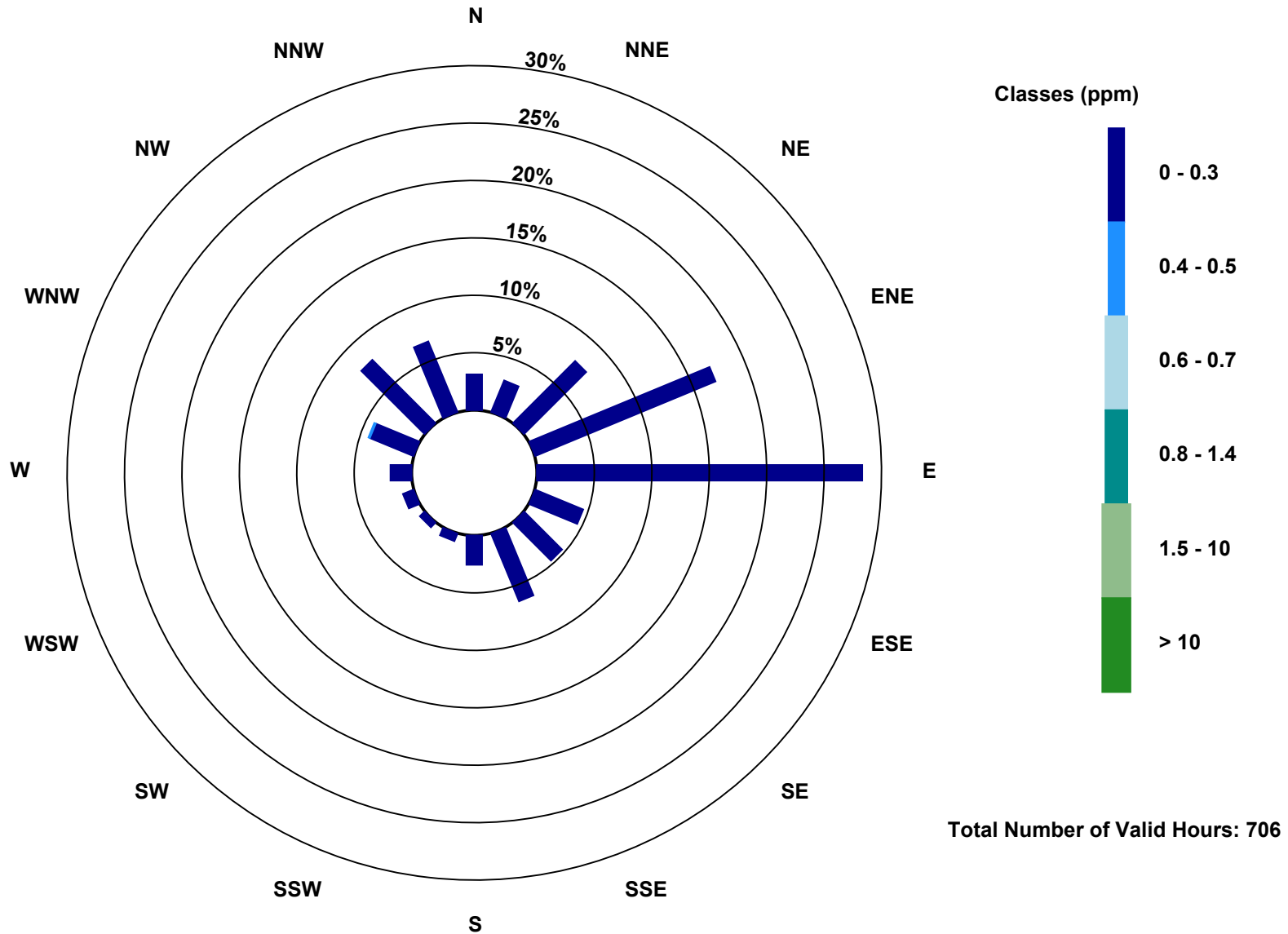
Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

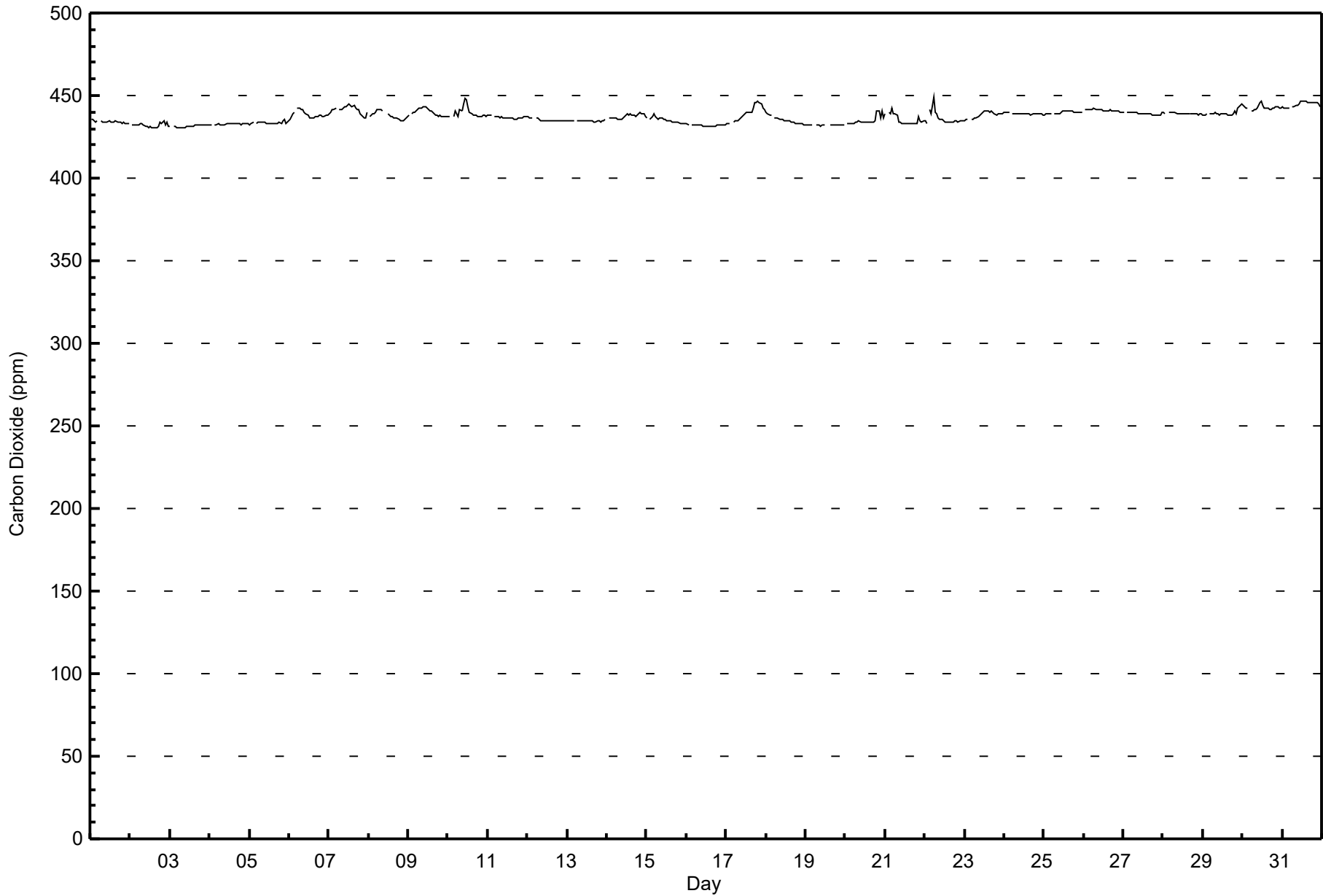
Carbon Monoxide (CO) - ppm
Fort Chipewyan





Wood Buffalo Environmental Association
Hourly Averages

Carbon Dioxide (CO₂) - ppm
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Fort Chipewyan - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	0	0.00	0.00
420 - 440	578	81.75	81.75
440 - 460	129	18.25	100.00
460 - 480	0	0.00	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Dioxide (CO₂) - ppm
Fort Chipewyan - March 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	22	21	53	107	160	27	5	19	15	3	1	7	9	28	51	48	576
440 - 460	0	0	1	13	39	5	28	26	3	2	3	0	4	2	3	0	129
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
Totals	22	21	54	120	199	32	33	45	18	5	4	7	13	30	54	48	705

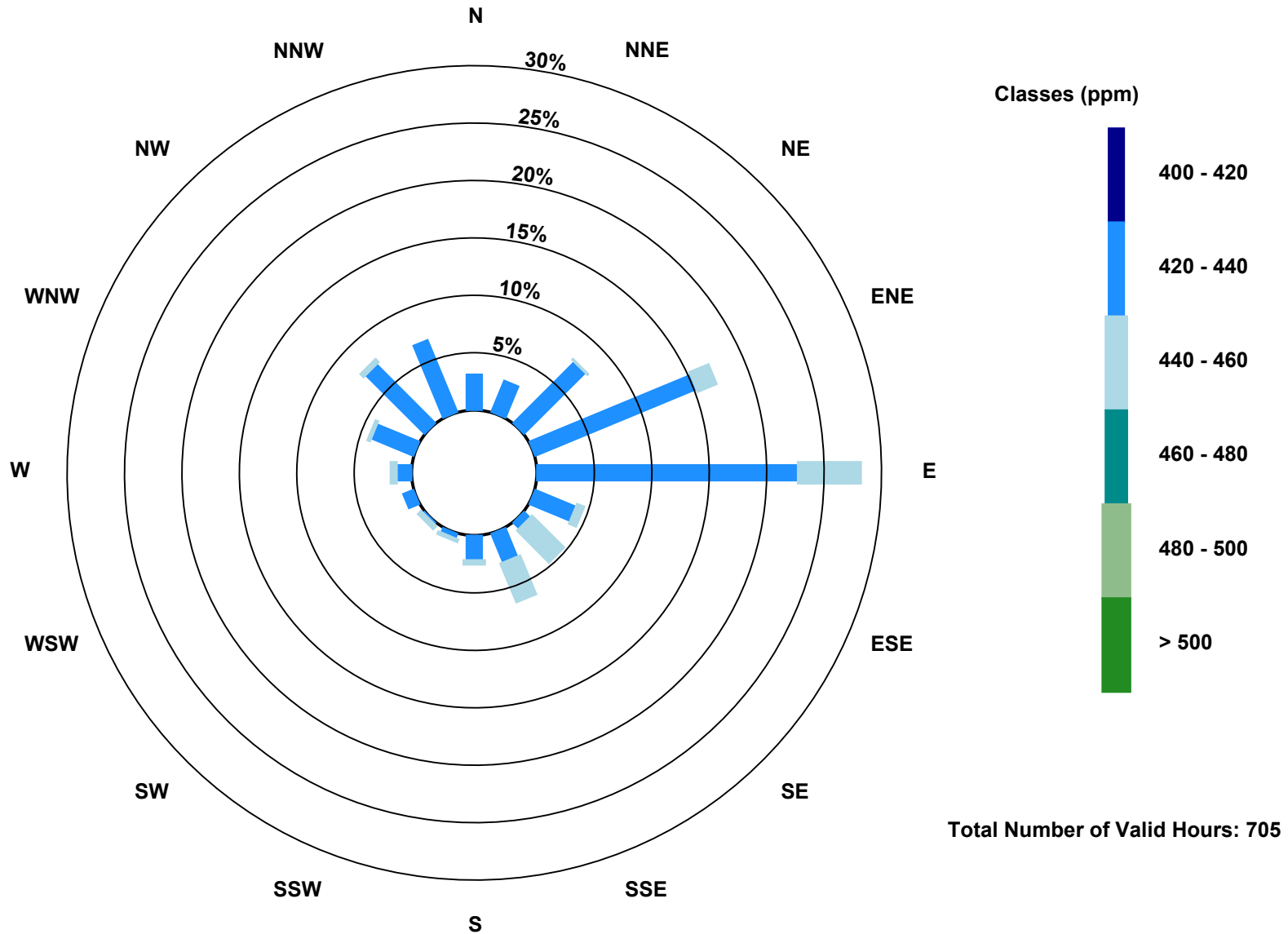
Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Carbon Dioxide (CO₂) - ppm
Fort Chipewyan



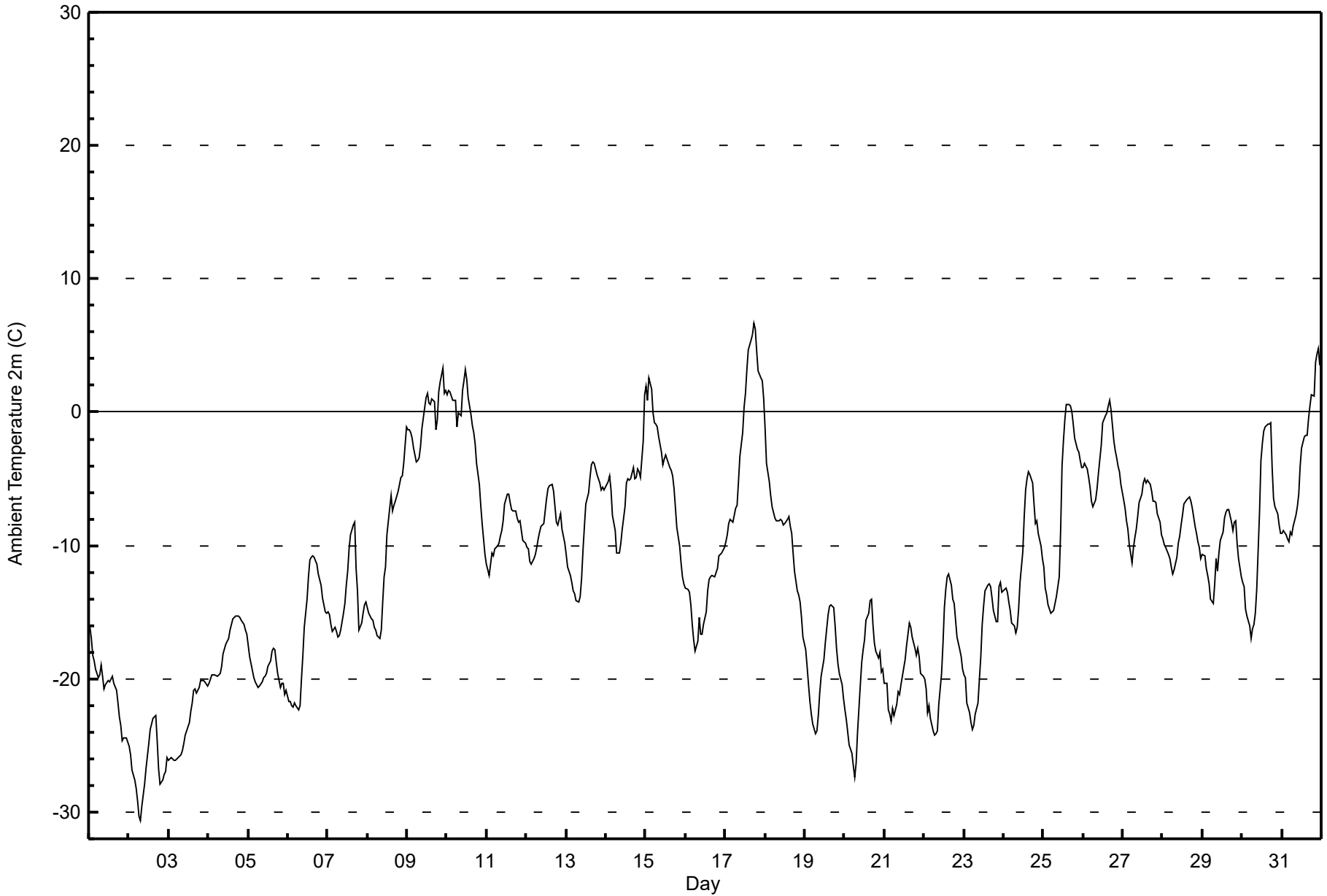


Maximum Value: 6.7 C on Mar 17 18:00		Maximum Daily Average: -0.4 C on Mar 9		Hours in Service: 744																						
Minimum Value: -30.6 C on Mar 2 08:00		Minimum Daily Average: -26.6 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -8.4 C at hour 16		Minimum Diurnal Average: -15.4 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -11.81 C		Percentiles: P ₁ = -27.6 P ₁₀ = -22.2 Q ₁ = -17.8 Median = -11.4 Q ₃ = -6.2 P ₉₀ = -1.1 P ₉₉ = 4.1		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-Mar	-16.1	-17.0	-18.2	-18.7	-19.3	-20.0	-19.7	-19.0	-19.8	-20.8	-20.5	-20.2	-20.3	-20.0	-19.8	-20.3	-20.9	-21.8	-22.8	-23.5	-24.6	-24.4	-24.5	-24.8	-20.7	-16.1
2-Mar	-25.1	-25.7	-26.8	-27.6	-28.2	-29.1	-30.3	-30.6	-29.6	-27.9	-26.7	-25.8	-24.9	-23.8	-23.0	-22.8	-22.8	-24.6	-26.7	-27.9	-27.5	-27.2	-27.0	-25.9	-26.6	-22.8
3-Mar	-26.2	-25.9	-26.1	-26.1	-26.1	-26.0	-25.9	-25.7	-25.4	-24.8	-24.2	-23.9	-23.3	-22.4	-21.8	-20.9	-20.7	-21.0	-20.6	-20.1	-20.1	-20.1	-20.3	-20.5	-23.3	-20.1
4-Mar	-20.3	-20.0	-19.7	-19.8	-19.7	-19.8	-19.7	-19.6	-19.0	-18.1	-17.3	-17.2	-17.0	-16.3	-16.0	-15.5	-15.3	-15.3	-15.4	-15.6	-16.0	-16.3	-16.7	-16.7	-17.5	-15.3
5-Mar	-17.5	-18.3	-19.4	-19.9	-20.2	-20.4	-20.6	-20.6	-20.3	-19.9	-19.8	-19.6	-19.1	-18.6	-17.9	-17.7	-17.9	-18.7	-19.6	-20.7	-20.3	-20.3	-21.1	-20.8	-19.5	-17.5
6-Mar	-21.7	-21.7	-22.0	-22.2	-21.8	-22.0	-22.3	-22.0	-20.1	-18.3	-16.2	-14.1	-12.3	-11.1	-10.9	-10.8	-10.9	-11.5	-12.2	-12.6	-13.0	-13.9	-15.0	-15.1	-16.4	-10.8
7-Mar	-15.0	-15.2	-15.9	-16.5	-16.1	-16.5	-16.9	-16.8	-16.4	-15.1	-14.3	-13.0	-11.9	-10.3	-9.2	-8.5	-8.2	-11.8	-13.5	-16.3	-15.8	-15.1	-14.5	-14.2	-14.0	-8.2
8-Mar	-14.6	-15.1	-15.5	-15.6	-16.1	-16.4	-16.8	-16.9	-16.3	-14.3	-12.3	-11.6	-9.2	-7.2	-6.2	-7.4	-7.0	-6.7	-6.0	-5.4	-4.9	-4.7	-3.8	-1.1	-10.5	-1.1
9-Mar	-1.3	-1.4	-1.5	-1.9	-2.7	-3.7	-3.7	-3.5	-2.6	-1.2	0.4	1.2	1.4	0.7	0.6	1.0	0.8	-1.3	-0.6	1.6	2.2	3.4	1.5	1.6	-0.4	3.4
10-Mar	1.3	1.6	1.5	0.9	0.9	0.9	-1.1	-0.1	-0.3	1.6	2.4	3.2	2.5	1.1	-0.2	-1.0	-1.6	-2.4	-3.9	-5.4	-7.0	-8.4	-9.6	-10.6	-1.4	3.2
11-Mar	-11.4	-12.2	-11.4	-10.5	-10.8	-10.2	-10.0	-9.8	-9.3	-8.9	-8.1	-6.9	-6.2	-6.2	-6.8	-7.3	-7.4	-7.4	-8.0	-8.2	-8.2	-8.9	-9.6	-9.8	-8.9	-6.2
12-Mar	-10.1	-10.3	-11.2	-11.4	-11.0	-10.7	-10.1	-9.5	-9.0	-8.5	-8.4	-7.4	-6.4	-5.7	-5.5	-5.4	-6.0	-7.1	-8.2	-8.4	-7.6	-8.7	-9.3	-9.8	-8.6	-5.4
13-Mar	-10.7	-11.6	-12.3	-12.8	-13.4	-13.7	-14.2	-14.3	-13.9	-12.5	-10.4	-8.5	-6.9	-6.0	-4.8	-3.9	-3.7	-3.8	-4.6	-5.0	-5.3	-5.8	-5.7	-5.8	-8.7	-3.7
14-Mar	-5.4	-5.3	-4.8	-5.9	-7.8	-8.8	-10.5	-10.5	-10.5	-9.8	-8.8	-7.0	-5.3	-5.0	-5.1	-5.0	-4.1	-5.0	-4.9	-4.2	-4.4	-4.9	-2.1	1.3	-6.0	1.3
15-Mar	1.9	0.9	2.6	1.7	-0.1	-0.8	-0.9	-1.1	-1.9	-3.0	-3.9	-3.5	-3.2	-3.5	-4.1	-4.3	-4.7	-5.7	-7.2	-8.7	-10.1	-11.3	-12.4	-12.9	-4.0	2.6
16-Mar	-13.2	-13.3	-13.5	-14.4	-16.0	-17.1	-17.9	-17.1	-15.4	-16.7	-16.7	-16.0	-15.0	-13.4	-12.5	-12.3	-12.2	-12.3	-12.1	-11.7	-10.8	-10.7	-10.5	-10.2	-13.8	-10.2
17-Mar	-9.7	-9.2	-8.4	-8.0	-8.2	-7.7	-7.2	-6.9	-5.2	-3.4	-1.5	0.3	1.4	3.2	4.7	5.5	5.9	6.7	6.3	4.6	3.1	2.6	2.4	1.0	-1.2	6.7
18-Mar	-1.2	-3.8	-5.2	-6.2	-7.1	-7.5	-7.9	-8.2	-8.2	-8.1	-8.2	-8.4	-8.4	-8.0	-7.9	-8.5	-9.1	-10.6	-11.9	-13.4	-13.7	-14.3	-15.4	-16.9	-9.1	-1.2
19-Mar	-17.8	-19.1	-20.4	-21.7	-22.7	-23.4	-24.2	-23.9	-22.7	-21.1	-19.9	-18.5	-17.3	-16.3	-15.2	-14.5	-14.4	-14.7	-16.0	-17.7	-18.9	-19.6	-20.4	-21.5	-19.2	-14.4
20-Mar	-22.3	-23.1	-24.1	-24.9	-25.6	-26.6	-27.4	-26.3	-24.0	-20.5	-18.7	-17.9	-17.1	-15.6	-15.0	-14.1	-14.1	-16.0	-17.3	-17.9	-18.5	-18.1	-19.5	-19.3	-20.2	-14.1
21-Mar	-20.3	-20.3	-22.3	-22.6	-23.1	-22.2	-22.8	-21.9	-21.0	-21.2	-20.4	-19.8	-18.5	-17.5	-16.7	-15.9	-16.1	-16.9	-17.7	-18.2	-17.7	-18.3	-19.6	-19.8	-19.6	-15.9
22-Mar	-20.0	-20.8	-22.5	-22.0	-22.9	-23.9	-24.2	-24.1	-23.9	-21.9	-19.6	-17.4	-14.7	-13.3	-12.4	-12.1	-13.0	-14.0	-14.3	-15.6	-16.9	-17.8	-18.4	-19.3	-18.5	-12.1
23-Mar	-19.7	-19.9	-21.8	-22.5	-23.3	-23.8	-23.4	-22.6	-21.8	-20.1	-18.4	-15.9	-14.6	-13.5	-13.0	-12.9	-13.1	-13.9	-14.9	-15.7	-15.7	-13.1	-12.8	-13.5	-17.5	-12.8
24-Mar	-13.4	-13.2	-13.5	-14.2	-14.8	-15.9	-16.1	-16.5	-16.1	-14.7	-12.8	-10.5	-7.9	-5.9	-5.0	-4.5	-4.6	-5.3	-6.9	-8.3	-8.1	-9.1	-10.0	-11.0	-10.8	-4.5
25-Mar	-11.6	-13.2	-13.7	-14.4	-15.1	-15.0	-14.9	-14.3	-13.8	-12.4	-8.9	-4.1	-2.2	-0.6	0.6	0.6	0.5	0.0	-0.9	-1.9	-2.8	-3.0	-3.6	-4.2	-7.0	0.6
26-Mar	-4.2	-3.8	-4.2	-4.9	-5.6	-6.6	-7.1	-6.6	-5.7	-4.6	-3.5	-2.5	-0.8	-0.3	-0.1	0.5	0.9	0.2	-2.2	-2.9	-3.4	-4.1	-4.5	-5.4	-3.4	0.9
27-Mar	-6.6	-7.2	-8.1	-8.8	-10.0	-11.3	-10.1	-9.4	-8.8	-7.9	-6.8	-6.2	-5.3	-5.0	-5.3	-5.1	-5.4	-6.0	-6.7	-6.7	-6.8	-7.6	-8.2	-9.2	-7.4	-5.0
28-Mar	-9.5	-9.9	-10.1	-10.7	-11.0	-11.6	-12.1	-11.8	-10.9	-9.9	-9.3	-8.4	-7.8	-6.9	-6.6	-6.4	-6.4	-6.6	-7.2	-8.6	-9.1	-9.7	-10.2	-11.0	-9.2	-6.4
29-Mar	-10.7	-10.8	-11.8	-12.2	-12.9	-14.0	-14.4	-12.9	-11.0	-11.9	-10.6	-9.6	-9.0	-7.9	-7.6	-7.3	-7.3	-8.3	-8.9	-8.3	-8.2	-9.9	-11.0	-12.3	-10.4	-7.3
30-Mar	-12.7	-13.1	-14.8	-15.3	-16.0	-17.0	-16.3	-15.9	-15.1	-13.3	-7.5	-3.7	-2.3	-1.4	-1.1	-0.9	-0.9	-0.7	-4.2	-6.5	-7.1	-7.6	-8.5	-9.1	-8.8	-0.7
31-Mar	-9.1	-8.9	-9.2	-9.5	-9.7	-9.0	-9.2	-8.5	-7.7	-7.1	-6.2	-4.1	-2.7	-1.9	-1.8	-1.7	-0.5	0.5	1.3	1.3	3.7	4.4	4.8	3.5	-3.6	4.8
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT 2m) - C
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT 2m) - C
Fort Chipewyan - March 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	131	17.61	17.61
-20 - 0	558	75.00	92.61
0 - 10	55	7.39	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

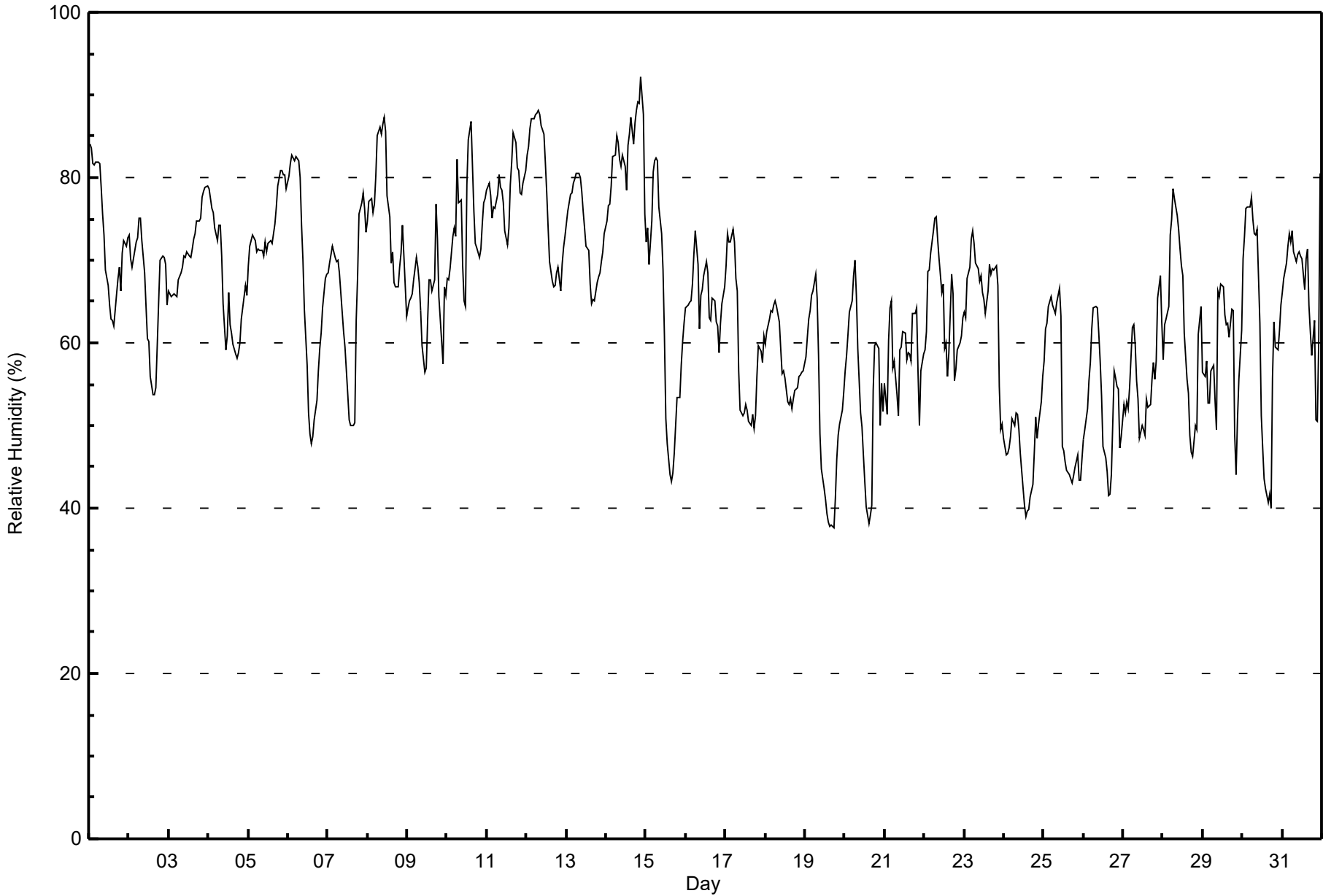
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity (RH) - %
Fort Chipewyan - March 2024

Maximum Value: 92.1 % on Mar 14 22:00																						Maximum Daily Average: 83.2 % on Mar 14																						Hours in Service: 744			
Minimum Value: 37.6 % on Mar 19 18:00																						Minimum Daily Average: 47.0 % on Mar 24																						Hours of Data: 744			
Maximum Diurnal Average: 72.5 % at hour 7																						Minimum Diurnal Average: 58.7 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 64.88 %																						Percentiles: P ₁ = 39.4 P ₁₀ = 49.0 Q ₁ = 56.6 Median = 65.8 Q ₃ = 73.0 P ₉₀ = 79.9 P ₉₉ = 87.6																						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-Mar	84.1	83.6	81.8	81.6	81.9	81.8	81.7	78.8	75.6	73.0	68.9	66.9	64.5	62.9	62.6	62.1	65.9	67.8	69.2	66.3	70.8	72.4	71.7	72.8	72.9	84.1																					
2-Mar	73.0	70.2	69.1	71.1	72.1	72.7	75.1	75.0	72.4	68.4	64.4	60.6	60.2	56.0	53.8	53.8	54.6	59.6	65.0	70.0	70.6	70.3	69.5	64.6	66.3	75.1																					
3-Mar	66.3	65.6	65.8	65.9	65.8	65.6	67.6	68.5	69.2	70.5	70.3	71.0	70.5	70.3	71.4	72.6	73.3	74.8	74.7	75.1	77.6	78.3	78.8	79.0	71.2	79.0																					
4-Mar	78.7	77.5	76.3	75.7	73.9	72.4	74.3	74.2	70.6	64.7	59.1	60.8	66.1	62.3	61.2	59.9	58.6	58.1	58.8	60.0	62.9	65.6	66.9	65.8	66.8	78.7																					
5-Mar	69.4	71.6	73.1	72.6	72.4	71.1	71.4	71.2	71.2	70.5	72.1	71.1	72.0	72.4	72.0	73.2	74.5	76.4	79.0	80.9	80.8	80.3	80.4	78.6	74.1	80.9																					
6-Mar	80.2	81.6	82.7	82.4	82.0	82.5	82.1	79.9	74.2	70.0	64.0	57.3	51.5	48.9	47.8	48.6	50.7	53.0	56.7	59.3	61.2	64.3	67.8	68.3	66.5	82.7																					
7-Mar	68.4	69.7	70.7	71.8	70.3	69.8	69.9	68.4	66.0	61.3	59.5	56.6	53.7	50.6	50.0	49.9	50.4	62.6	68.0	75.6	76.9	78.2	76.3	73.4	65.3	78.2																					
8-Mar	74.8	77.1	77.4	75.7	76.7	80.2	85.2	86.2	85.2	86.5	87.3	85.5	77.7	75.3	69.6	71.0	67.3	66.7	66.8	69.2	70.8	74.2	70.7	63.3	75.9	87.3																					
9-Mar	64.2	65.1	65.4	66.0	67.7	70.4	69.2	67.3	63.9	59.7	56.4	57.0	62.8	67.7	67.5	66.3	67.6	76.9	72.6	65.6	62.8	57.5	66.8	65.8	65.5	76.9																					
10-Mar	67.9	67.6	69.0	72.9	73.9	72.9	82.3	76.9	77.3	69.3	65.1	64.4	79.2	84.6	86.7	81.4	76.0	72.1	71.5	70.3	71.4	74.5	76.9	77.4	74.2	86.7																					
11-Mar	78.4	79.2	77.9	75.2	76.5	76.3	77.9	80.4	78.7	78.6	77.0	73.6	71.9	73.8	79.2	81.8	85.4	84.2	81.1	80.8	78.2	78.0	79.3	80.8	78.5	85.4																					
12-Mar	82.6	83.8	86.0	87.1	87.2	87.6	87.8	88.1	87.7	86.3	85.2	81.9	78.1	74.0	69.9	67.4	66.8	67.0	68.5	69.1	66.2	69.4	71.6	72.9	78.0	88.1																					
13-Mar	74.5	75.9	77.9	78.2	79.4	79.8	80.5	80.5	79.9	78.2	76.0	74.0	71.8	71.2	67.1	64.8	65.2	65.0	67.3	67.9	68.5	69.9	71.1	73.2	73.2	80.5																					
14-Mar	74.8	76.5	76.8	79.0	82.6	82.7	85.0	84.2	82.2	81.3	82.7	81.3	78.5	83.9	85.3	87.3	84.0	86.6	88.1	89.1	89.0	92.1	87.6	75.6	83.2	92.1																					
15-Mar	72.2	74.0	69.4	74.7	80.7	82.1	82.4	82.0	76.5	73.2	68.8	60.9	50.9	47.7	44.1	43.1	44.3	46.7	50.0	53.3	53.3	57.2	60.2	62.3	62.9	82.4																					
16-Mar	64.3	64.6	64.9	65.0	67.1	70.8	73.6	69.6	61.7	65.7	66.5	68.1	69.9	68.5	63.1	62.7	65.4	65.1	62.6	62.1	58.9	62.4	64.7	66.7	65.6	73.6																					
17-Mar	69.3	73.2	72.3	72.2	73.7	72.2	67.8	66.3	56.6	51.8	51.2	51.6	52.6	51.9	50.5	50.1	51.4	49.7	51.2	55.9	59.7	59.0	57.5	60.9	59.5	73.7																					
18-Mar	59.8	61.3	62.9	63.8	63.8	64.6	65.1	64.4	62.5	59.3	56.2	56.6	55.7	52.9	52.5	53.2	52.0	53.3	54.2	54.5	55.9	56.1	56.4	56.7	58.1	65.1																					
19-Mar	58.3	60.7	62.8	63.9	65.7	66.3	68.3	65.5	58.6	49.0	44.8	42.4	41.1	39.3	38.4	37.7	38.0	37.6	41.1	45.9	48.9	50.2	51.8	54.0	51.3	68.3																					
20-Mar	56.6	58.4	61.1	63.7	65.0	68.1	70.0	65.8	59.3	51.6	49.8	46.5	43.3	40.1	38.1	39.2	40.3	54.2	59.7	60.1	59.3	50.0	55.0	51.7	54.5	70.0																					
21-Mar	55.0	51.4	60.3	64.2	65.1	57.0	57.8	53.7	51.2	59.1	59.5	61.3	61.2	58.0	58.8	58.7	57.9	63.5	63.5	64.3	56.4	50.0	56.6	58.7	58.5	65.1																					
22-Mar	59.1	61.4	68.7	68.8	70.8	73.6	75.1	75.3	72.6	70.1	66.0	67.2	59.3	60.0	56.0	58.9	68.3	65.9	55.5	56.8	59.2	60.0	60.8	63.0	64.7	75.3																					
23-Mar	63.8	63.1	67.7	69.2	72.5	73.6	72.0	69.6	69.0	67.5	68.2	66.1	65.3	63.6	66.3	69.4	68.3	68.9	68.8	69.4	67.0	54.7	49.4	50.2	66.0	73.6																					
24-Mar	48.5	46.5	46.5	47.3	48.6	50.9	51.5	51.3	49.5	46.6	42.3	40.3	39.0	39.7	39.8	41.4	42.8	46.8	51.0	48.5	50.1	52.8	55.9	47.0	55.9																						
25-Mar	57.8	61.7	62.3	64.4	65.6	64.6	64.0	63.6	64.9	66.6	63.2	47.4	47.0	45.5	44.7	44.1	43.6	43.1	43.9	44.8	46.5	43.5	43.3	46.0	53.4	66.6																					
26-Mar	48.3	49.4	52.1	55.5	57.6	61.7	64.2	64.5	64.2	61.2	57.8	53.5	47.5	46.2	44.4	41.5	41.6	44.1	56.5	55.8	54.8	54.4	47.3	48.7	53.0	64.5																					
27-Mar	52.6	51.6	52.9	52.0	54.6	61.9	62.2	59.8	55.5	53.2	48.4	49.9	49.5	48.9	53.2	52.1	52.6	55.6	57.7	55.5	57.7	65.4	68.2	62.3	55.5	68.2																					
28-Mar	57.9	62.1	62.9	64.4	73.1	75.0	78.7	77.5	75.4	73.7	71.4	69.3	68.2	61.2	55.6	54.0	48.8	46.8	46.3	49.9	49.4	60.9	62.7	64.5	62.9	78.7																					
29-Mar	56.4	55.9	57.8	52.7	52.7	56.6	57.3	53.1	49.6	66.2	65.6	67.0	66.8	63.4	62.2	62.4	60.7	64.1	63.9	48.9	44.0	50.6	55.6	61.5	58.1	67.0																					
30-Mar	70.1	72.8	76.2	76.4	76.5	77.7	74.9	73.2	73.0	73.8	62.4	51.2	47.4	43.6	42.4	40.7	41.6	40.0	55.7	62.5	59.5	59.2	61.5	64.6	61.5	77.7																					
31-Mar	66.1	67.7	69.7	71.8	73.2	72.1	73.5	71.1	69.8	70.6	71.0	70.6	70.2	66.4	70.1	71.3	64.6	61.3	58.4	62.7	50.7	50.5	60.1	80.5	67.3	80.5																					
																						66.2	67.1	68.4	69.2	70.6	71.4	72.5	71.2	68.6	67.1	64.7	62.4	61.1	59.7	58.8	58.7	58.7	60.4	62.0	63.0	62.5	63.2	64.5	65.1	Diurnal Average	
																						84.1	83.8	86.0	87.1	87.2	87.6	87.8	88.1	87.7	86.5	87.3	85.5	79.2	84.6	86.7	87.3	85.4	86.6	88.1	89.1	89.0	92.1	87.6	80.8	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Fort Chipewyan - March 2024**

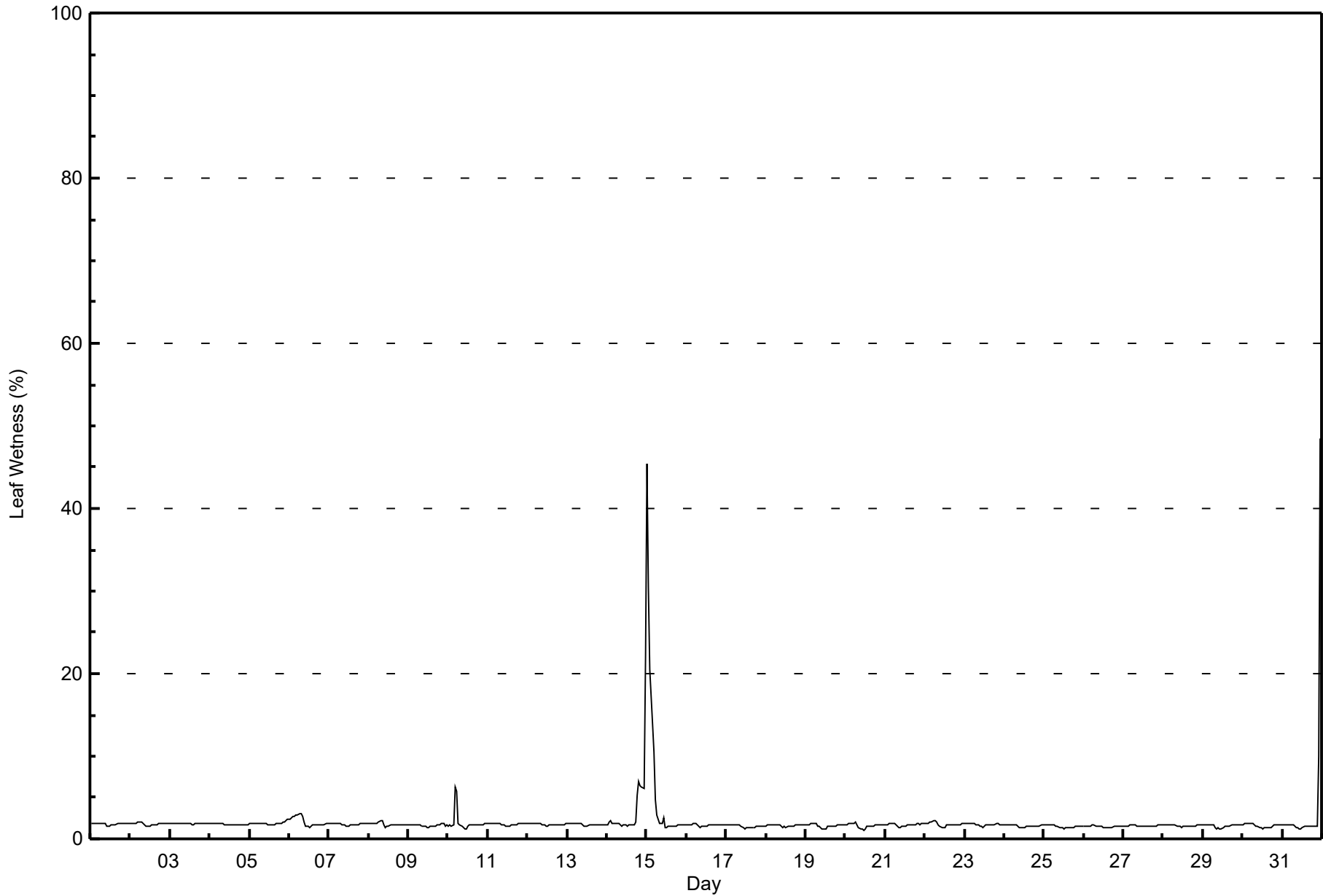
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	10	1.34	1.34
40 - 60	234	31.45	32.80
60 - 80	427	57.39	90.19
80 - 100	73	9.81	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 48.5 % on Apr 1 00:00 Maximum Daily Average: 6.6 % on Mar 15																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: 1.1 % on Mar 20 12:00 Minimum Daily Average: 1.5 % on Mar 26 Maximum Diurnal Average: 3.9 % at hour 24 Minimum Diurnal Average: 1.4 % at hour 12 Monthly Average: 1.99 % Percentiles: P ₁ = 1.2 P ₁₀ = 1.4 Q ₁ = 1.6 Median = 1.7 Q ₃ = 1.8 P ₉₀ = 1.9 P ₉₉ = 8.7																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.6	1.6	1.6	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.9
2-Mar	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	1.9	1.6	1.5	1.5	1.5	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.8	2.1
3-Mar	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.9
4-Mar	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9
5-Mar	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.1	2.2	2.3	1.9	2.3
6-Mar	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0	2.7	2.1	1.5	1.5	1.4	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	2.1	3.0
7-Mar	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.8
8-Mar	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.2	2.1	1.6	1.4	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	2.2
9-Mar	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.6	1.8	1.9	1.6	1.6	1.6	1.9
10-Mar	1.6	1.6	1.6	1.6	6.2	5.8	1.9	1.7	1.5	1.3	1.1	1.3	1.5	1.7	1.7	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	2.0	6.2	6.2
11-Mar	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.6	1.5	1.5	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.8
12-Mar	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.9
13-Mar	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.9
14-Mar	1.7	2.0	2.2	1.8	1.9	1.9	1.9	1.8	1.6	1.5	1.7	1.6	1.6	1.6	1.7	1.7	1.7	2.0	5.3	7.0	6.5	6.2	6.2	22.1	3.6	22.1
15-Mar	45.4	30.6	20.6	13.9	10.5	4.8	2.9	2.3	1.9	1.8	2.6	1.4	1.3	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.7	1.7	6.6	45.4
16-Mar	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.6	1.4	1.4	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.9
17-Mar	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.5	1.6	1.5	1.7
18-Mar	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.5	1.4	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.7
19-Mar	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.6	1.5	1.3	1.2	1.2	1.2	1.5	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.8
20-Mar	1.7	1.8	1.8	1.8	1.9	1.9	2.0	1.6	1.4	1.1	1.1	1.1	1.1	1.5	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.6	2.0
21-Mar	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.5	1.4	1.4	1.5	1.5	1.5	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.9
22-Mar	1.8	1.8	1.9	2.0	2.1	2.2	2.2	2.0	1.7	1.5	1.4	1.4	1.4	1.6	1.6	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	2.2
23-Mar	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.7	1.6	1.5	1.5	1.4	1.5	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.9
24-Mar	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.7
25-Mar	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.7
26-Mar	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.5	1.6	1.5	1.6
27-Mar	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.6	1.7
28-Mar	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.7	1.5	1.4	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.6	1.8
29-Mar	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.4	1.1	1.3	1.2	1.2	1.3	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.8	1.6	1.8
30-Mar	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.7	1.5	1.5	1.4	1.3	1.2	1.4	1.4	1.4	1.4	1.4	1.5	1.6	1.6	1.7	1.7	1.7	1.6	1.9
31-Mar	1.7	1.7	1.7	1.7	1.8	1.7	1.7	1.6	1.4	1.3	1.3	1.2	1.3	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	10.0	48.5	3.9	48.5
																								Diurnal Average		
																								Diurnal Maximum		
3.2 2.7 2.4 2.2 2.3 2.1 1.9 1.8 1.7 1.6 1.5 1.4 1.5 1.6 1.6 1.6 1.6 1.7 1.8 1.9 1.9 1.9 2.2 3.9 45.4 30.6 20.6 13.9 10.5 5.8 3.0 3.0 2.7 2.1 2.6 1.8 1.8 1.8 1.8 1.8 2.0 5.3 7.0 6.5 6.2 10.0 48.5																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Leaf Wetness (LW) - %
Fort Chipewyan - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	83	11.16	11.16
1.5 - 10	620	83.33	94.49
> 10	7	0.94	95.43

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Precipitation (PC) - mm

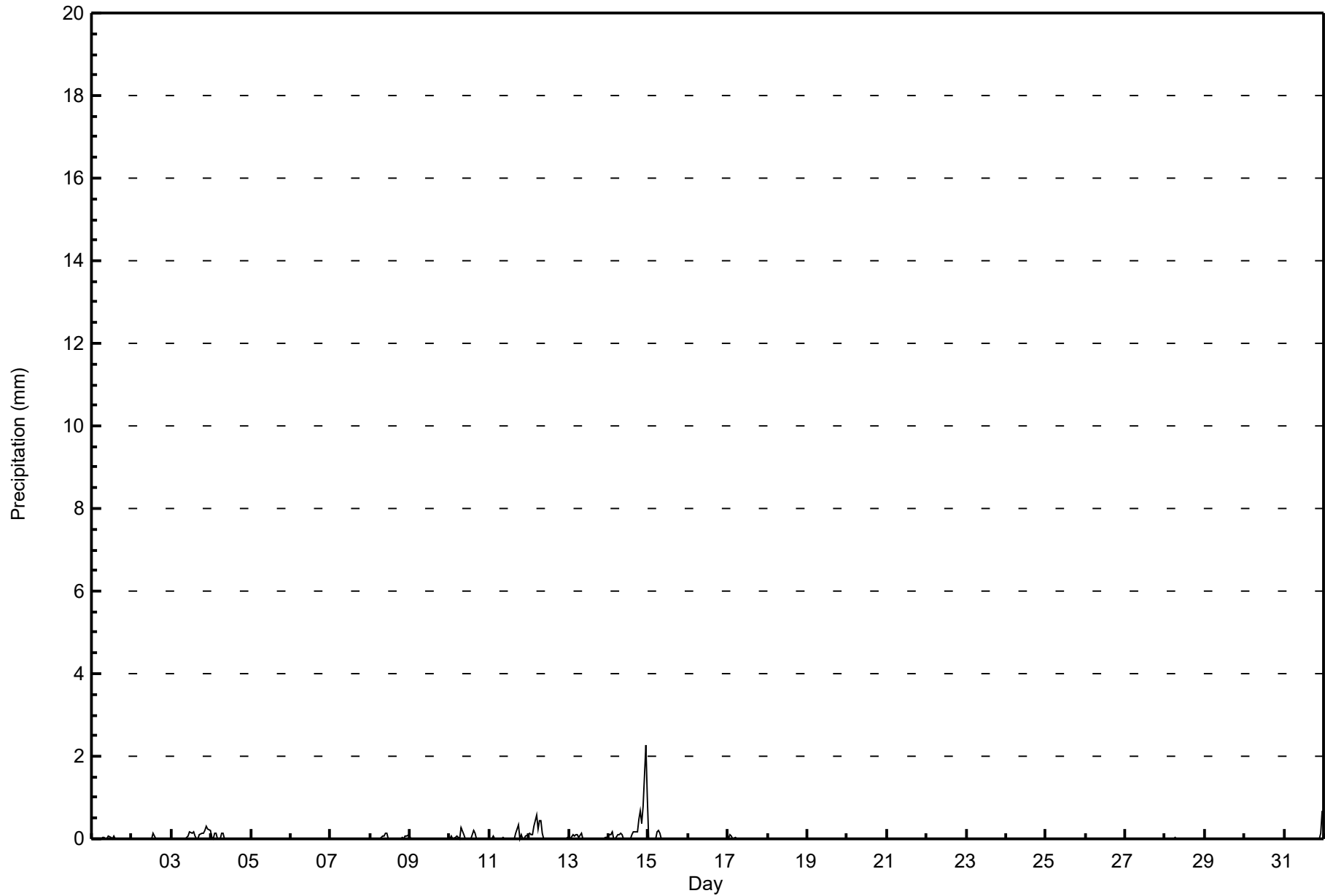
Fort Chipewyan - March 2024

Maximum Value: 2.3 mm on Mar 14 23:00 Maximum Daily Total: 6.9 mm on Mar 14		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																								
Minimum Value: 0.0 mm on Mar 1 01:00 Maximum Diurnal Total: 2.8 mm at hour 23 Monthly Total: 17.12 mm		Minimum Daily Total: 0.0 mm on Mar 5 Minimum Diurnal Total: 0.1 mm at hour 13 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.1 P ₉₉ = 0.4																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
2-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
3-Mar	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	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.2	2.0	0.3
4-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.7	0.1
9-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3
11-Mar	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.1	0.0	0.0	0.1	0.1	0.9	0.3
12-Mar	0.1	0.1	0.1	0.3	0.6	0.3	0.4	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	0.0	0.1	2.5	0.6
13-Mar	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	0.1
14-Mar	0.1	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.5	0.7	0.4	0.8	2.3	1.0	6.9	2.3
15-Mar	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2
16-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1
18-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	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	0.1
29-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.8	0.7
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Fort Chipewyan - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Fort Chipewyan - March 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	734	98.66	98.66
0.4 - 0.5	4	0.54	99.19
0.6 - 0.7	3	0.40	99.60
0.8 - 1.4	2	0.27	99.87
1.5 - 10	1	0.13	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



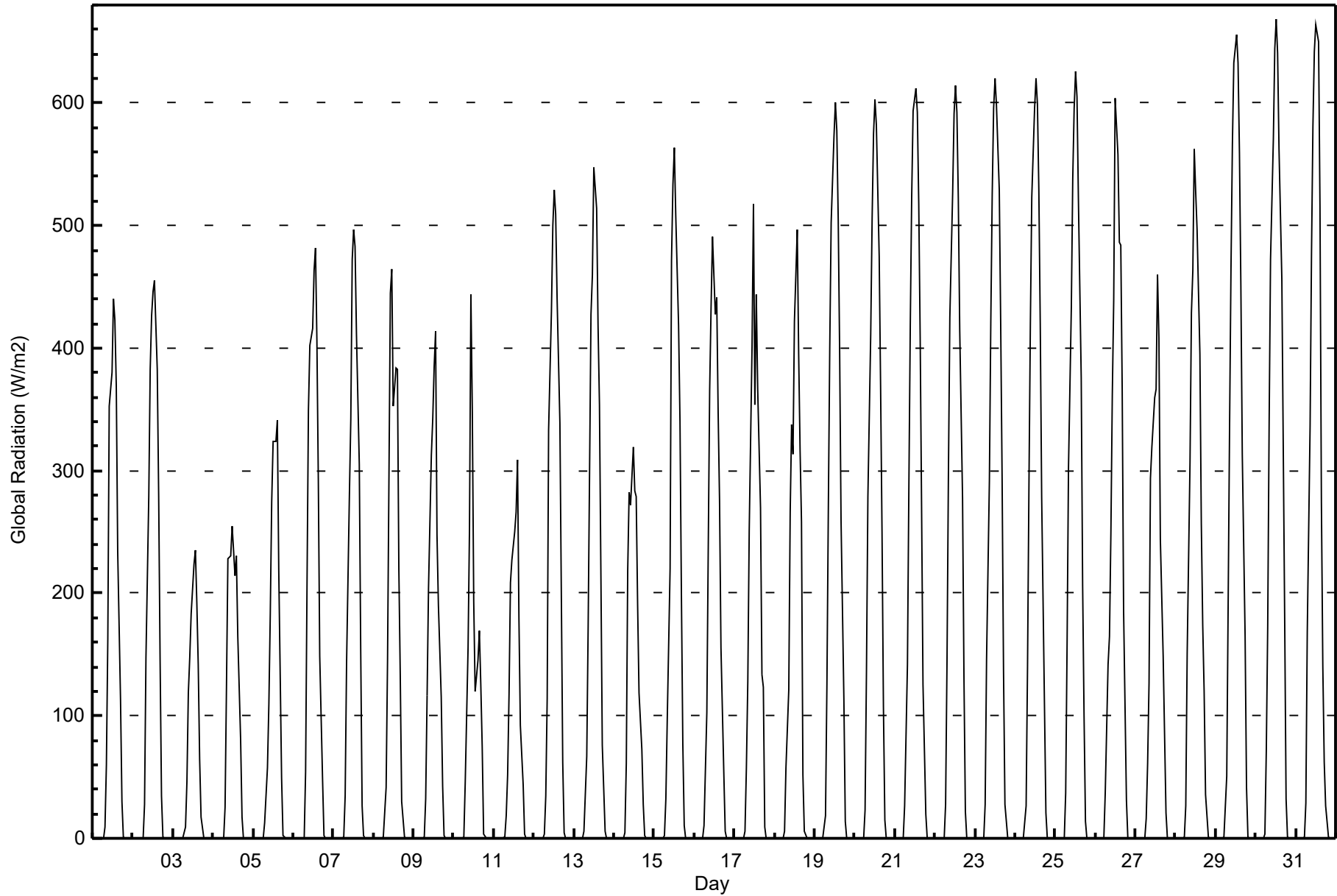
Wood Buffalo Environmental Association

Summary of Hour Averages

Global Radiation (GR) - W/m2

Fort Chipewyan - March 2024

Maximum Value: 669.0 W/m2 on Mar 30 13:00		Maximum Daily Average: 213.9 W/m2 on Mar 30		Hours in Service: 744																						
Minimum Value: 0.0 W/m2 on Mar 1 01:00		Minimum Daily Average: 57.5 W/m2 on Mar 3		Hours of Data: 744																						
Maximum Diurnal Average: 474.8 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 3		Hours of Missing Data: 0																						
Monthly Average: 142.17 W/m2		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 6.1 Q ₃ = 275.8 P ₉₀ = 469.1 P ₉₉ = 632.9		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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	60.0	162.1	352.4	380.1	439.8	422.5	369.0	234.0	113.0	29.8	0.7	0.0	0.0	0.0	0.0	0.0	107.2	439.8
2-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.2	27.9	147.0	279.3	382.6	425.9	445.6	454.8	383.2	279.7	146.8	34.7	0.7	0.0	0.0	0.0	0.0	0.0	125.3	454.8
3-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.0	46.1	119.2	147.3	183.3	223.1	235.0	191.9	142.3	64.9	17.5	0.4	0.0	0.0	0.0	0.0	0.0	57.5	235.0
4-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.8	124.6	228.1	230.9	254.6	234.7	214.3	230.7	164.3	80.6	17.6	0.6	0.0	0.0	0.0	0.0	0.0	75.3	254.6
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.1	12.6	57.5	109.8	182.8	274.2	323.5	324.2	340.9	219.0	134.8	49.7	2.3	0.0	0.0	0.0	0.0	0.0	84.6	340.9
6-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.5	53.8	206.1	348.8	402.7	416.5	463.2	482.2	405.2	292.3	148.6	48.5	2.2	0.0	0.0	0.0	0.0	0.0	136.3	482.2
7-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.3	34.1	143.1	279.6	341.9	473.0	497.0	483.3	411.1	305.2	155.0	26.9	2.0	0.0	0.0	0.0	0.0	0.0	131.4	497.0
8-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.1	41.5	145.4	295.2	445.4	464.2	353.0	384.1	382.3	220.6	132.3	29.5	1.0	0.0	0.0	0.0	0.0	0.0	120.6	464.2
9-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.9	32.4	116.6	204.3	312.1	342.2	384.8	414.3	248.1	190.7	115.3	42.8	1.9	0.0	0.0	0.0	0.0	0.0	100.3	414.3
10-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.2	46.2	155.7	252.5	443.8	347.6	193.6	119.8	145.5	169.6	125.1	74.8	3.4	0.0	0.0	0.0	0.0	0.0	86.6	443.8
11-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.9	18.0	51.6	117.6	208.1	226.9	250.2	265.8	309.3	179.7	92.7	43.4	4.0	0.0	0.0	0.0	0.0	0.0	73.7	309.3
12-Mar	0.0	0.0	0.0	0.0	0.0	0.0	2.9	34.9	113.6	333.6	429.4	500.2	529.2	509.5	441.5	338.7	201.1	62.7	4.6	0.0	0.0	0.0	0.0	0.0	145.9	529.2
13-Mar	0.0	0.0	0.0	0.0	0.0	0.0	5.7	67.2	173.2	300.0	427.5	460.2	547.5	514.6	418.6	353.5	217.6	76.1	6.1	0.0	0.0	0.0	0.0	0.0	148.7	547.5
14-Mar	0.0	0.0	0.0	0.0	0.0	0.0	5.2	61.6	218.9	282.4	272.6	319.6	283.9	279.3	191.1	118.8	72.1	27.3	1.8	0.0	0.0	0.0	0.0	0.0	88.9	319.6
15-Mar	0.0	0.0	0.0	0.0	0.0	0.0	2.0	32.2	98.0	220.2	471.2	533.9	563.4	508.8	417.8	340.3	199.3	77.5	10.7	0.0	0.0	0.0	0.0	0.0	144.8	563.4
16-Mar	0.0	0.0	0.0	0.0	0.0	0.0	10.6	102.5	235.7	365.1	432.8	490.9	427.6	441.4	348.4	275.2	155.7	53.7	6.2	0.0	0.0	0.0	0.0	0.0	139.4	490.9
17-Mar	0.0	0.0	0.0	0.0	0.0	0.0	5.5	57.7	127.9	250.8	401.6	517.8	353.9	444.2	366.7	269.8	133.8	122.9	9.5	0.0	0.0	0.0	0.0	0.0	127.6	517.8
18-Mar	0.0	0.0	0.0	0.0	0.0	0.0	5.9	57.9	120.9	265.9	338.1	313.7	422.3	496.4	395.6	317.0	258.7	51.7	6.0	0.0	0.0	0.0	0.0	0.0	127.1	496.4
19-Mar	0.0	0.0	0.0	0.0	0.0	0.1	18.8	125.5	268.9	400.2	502.4	573.1	600.2	577.2	504.8	397.5	259.4	114.0	13.4	0.1	0.0	0.0	0.0	0.1	181.5	600.2
20-Mar	0.1	0.0	0.0	0.0	0.0	0.1	23.6	137.0	279.4	411.3	505.8	575.3	603.2	582.0	474.3	367.6	250.4	107.3	14.6	0.1	0.0	0.0	0.0	0.0	180.5	603.2
21-Mar	0.0	0.0	0.0	0.0	0.0	0.1	26.4	141.9	286.4	418.4	522.9	593.1	611.9	592.4	518.1	408.9	271.4	125.2	19.3	0.4	0.0	0.1	0.0	0.1	189.0	611.9
22-Mar	0.0	0.1	0.0	0.0	0.0	0.2	27.4	143.6	296.9	425.0	527.0	590.7	613.8	592.6	521.7	414.5	277.5	131.1	21.7	0.4	0.1	0.1	0.2	0.0	191.0	613.8
23-Mar	0.1	0.1	0.0	0.0	0.0	0.2	27.4	146.4	291.4	421.7	525.8	595.9	620.0	598.4	528.6	420.0	293.7	136.8	27.4	0.3	0.0	0.0	0.0	0.0	193.1	620.0
24-Mar	0.0	0.0	0.0	0.0	0.0	0.3	26.9	141.2	287.6	419.3	523.7	595.9	620.1	599.7	528.8	419.6	279.2	106.7	21.1	0.4	0.0	0.0	0.0	0.0	190.4	620.1
25-Mar	0.0	0.0	0.0	0.0	0.0	0.4	37.3	159.5	303.0	433.5	538.7	596.1	625.9	604.7	521.9	375.9	206.5	100.3	13.8	0.2	0.0	0.0	0.0	0.0	188.2	625.9
26-Mar	0.0	0.0	0.0	0.0	0.0	0.5	37.0	141.5	165.3	249.2	362.3	438.6	604.1	558.4	486.5	484.1	366.7	185.5	30.6	0.3	0.0	0.0	0.0	0.0	171.3	604.1
27-Mar	0.0	0.0	0.0	0.0	0.0	0.3	15.6	61.0	127.0	294.0	318.9	359.2	366.2	459.8	408.5	244.0	149.2	83.7	21.0	0.4	0.0	0.0	0.0	0.0	121.2	459.8
28-Mar	0.0	0.0	0.0	0.0	0.0	0.6	26.7	151.0	306.9	428.7	463.3	562.3	527.4	496.6	394.8	257.2	173.7	120.1	36.2	0.9	0.0	0.0	0.0	0.0	164.4	562.3
29-Mar	0.0	0.0	0.0	0.0	0.0	1.2	50.9	191.7	335.6	463.9	566.0	633.3	656.2	632.5	559.3	451.2	313.8	164.4	42.0	1.5	0.0	0.1	0.0	0.1	211.0	656.2
30-Mar	0.1	0.1	0.0	0.0	0.0	2.9	70.9	172.8	337.7	472.2	571.0	644.3	669.0	640.3	562.5	456.6	319.7	181.0	32.2	1.2	0.0	0.0	0.0	0.0	213.9	669.0
31-Mar	0.0	0.0	0.0	0.0	0.0	1.6	28.6	168.8	336.9	477.4	580.4	641.7	663.5	649.9	515.1	273.9	140.5	62.0	25.9	0.8	0.0	0.0	0.0	0.0	190.3	663.5
		0.0	0.0	0.0	0.0	0.3	14.9	84.0	192.4	313.8	410.7	462.1	474.8	470.3	403.9	302.6	188.7	80.8	12.4	0.2	0.0	0.0	0.0	0.0	Diurnal Average	
		0.1	0.1	0.0	0.0	2.9	70.9	191.7	337.7	477.4	580.4	644.3	669.0	649.9	562.5	484.1	366.7	185.5	42.0	1.5	0.1	0.1	0.2	0.1	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Global Radiation (GR) - W/m2
Fort Chipewyan - March 2024

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	389	52.28	52.28
21 - 100	61	8.20	60.48
101 - 300	126	16.94	77.42
301 - 600	151	20.30	97.72
601 - 900	17	2.28	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Fort Chipewyan - March 2024

Maximum Speed: 37 km/h on Mar 27 15:00	Maximum Daily Speed Average: 28.9 km/h on Mar 12	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 21 22:00	Minimum Daily Speed Average: 2.9 km/h on Mar 20	Hours of Data: 742
Maximum Diurnal Speed Average: 10.7 km/h at hour 18	Minimum Diurnal Speed Average: 6.9 km/h at hour 1	Hours of Missing Data: 2
Monthly Average Velocity: 8.7 km/h 79.7 deg	Percentiles: P ₁ = 2 P ₁₀ = 7 Q ₁ = 10 Median = 15 Q ₃ = 22 P ₉₀ = 27 P ₉₉ = 32	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-Mar	WSW8WSW13	W17WNW14WNW16WNW14WNW15WNW19	NW22	NW20	NW18	NW18WNW21WNW19WNW18WNW19	NW16	NW15	NW13WNW13WNW12WNW13	NW11	WNW9	WNW15.1	NW22														
2-Mar	WNW10	NW11	NW9	NW10	NW10	W7	W8	WNW7	WNW8	WNW9	NW9	W11WSW10	W7	W6	WNW2	NNW7	NE4	E6	ENE6	ENE3	N3	NNE6	NNE10	NW5.3	NW11		
3-Mar	NE6	NE8	ENE13	ENE17	NE12	NE12	NE12	NE10	NE12	NE14	NE17	NE18	NNE17	NNE15	NNE21	NNE21	NE21	NE21	NNE18	NNE16	N11	N10	N9	N10	NE13.6	NE21	
4-Mar	N11	N10	N12	NNE11	N10	NNE11	N11	NNE10	N11	NNE13	NE23	NE25	NE25	NE28	NE28	NE26	NE25	NE22	NE19	NE19	NE19	NE18	NE15	NE13	NE16.7	NE28	
5-Mar	NNE11	NE12	NE12	NE11	NE7	NE11	NE11	NE7	NE8	NE9	E15	E14	E14	E11	E14	E15	E15	E15	E18	ENE15	E9	ENE9	ENE10	E14	E13	ENE11.3	E18
6-Mar	E11	E9	E9	ESE7	SE8	SE8	SE9	SE9	SSE11	SSE16	SSE15	S19	S25	SSE23	SSE24	SSE22	S23	S22	S23	S23	S20	S20	S15	S12	SSE14.7	S25	
7-Mar	S10	SSE9	SSE10	SE12	SSE14	SSE14	SE13	SE12	SE14	SSE15	SSE16	SE18	SE19	SSE16	SSE16	SE16	SE14	E11	ENE7	E10	E8	E8	E4	WNW3	SE10.9	SE19	
8-Mar	ESE2	E3	E7	ENE8	E8	ENE8	E4	ENE7	ENE8	ENE8	E9	E13	E15	E18	E22	E22	E23	E24	E22	E21	E22	E19	ESE13	S19	E12.7	E24	
9-Mar	S13	SSW12	SSE7	SSE10	ESE9	E9	SE12	SE13	SE8	SE10	SE17	SE14	ESE17	E18	E18	E18	E17	E14	E14	E10	ESE8	SE7	E11	E13	ESE10.8	E18	
10-Mar	E15	E15	ENE11	ENE11	ENE9	ENE9	E8	NE3	SW8	W13	W16	W15	W19WNW20WNW16WNW15WNW17WNW15	NW16	NW17	NW17	NW9	WNW8WNW11							NW6.5	WNW20	
11-Mar	W10	W13	NW12	NNW13	NNW9	N9	NNW12	NNW13	W4	NW5	N5	WSW3	SSW6	ESE6	E11	E15	E18	ENE21	ENE20	ENE22	ENE27	ENE30	ENE32	ENE30	NE7.8	ENE32	
12-Mar	ENE31	ENE33	ENE33	ENE31	ENE30	ENE29	ENE28	E29	E30	ENE33	ENE33	ENE32	ENE29	NE26	NE28	NE28	NE30	NE26	NE25	ENE25	ENE31	ENE26	ENE26	ENE31	ENE28.9	ENE33	
13-Mar	ENE30	ENE29	ENE29	ENE29	ENE30	ENE31	ENE30	ENE27	ENE28	ENE28	ENE28	ENE28	ENE31	ENE32	ENE31	ENE28	ENE27	ENE25	ENE26	ENE26	E24	E24	E23	E22	ENE27.7	ENE32	
14-Mar	E15	E13	E11	E10	E8	E7	E7	E9	E9	E7	ENE7	ENE7	ENE7	E9	E10	E11	E12	E13	E7	E12	E15	E11	WSW8WNW17	E8.1	WNW17		
15-Mar	W14WNW15	NW23	NW24	NW23	NW18	NW18	NW16	NW18	NW18	NW19	NW21	NW21	NW24	NW21	NNW20	NNW17	NNW15	NNW14	NNW13	NNW9	NNW9	NNW6	NNW9	NNW8	NW16.0	NW24	
16-Mar	NNW7	N8	N9	NNE8	N7	NW6	N3	WNW1	ESE2	E11	E13	E15	E12	E15	E20	E21	ENE19	ENE20	ENE23	ENE24	ENE26	ENE25	ENE27	ENE27	ENE12.7	ENE27	
17-Mar	ENE26	E26	E22	E23	E27	E26	E26	E23	ESE23	SSE22	SSE29	SSE28	SE23	SSE23	SSE25	S28	S21	SSW19	SW14WNW14WNW12	NW15	NW17	NW13		SE11.1	SSE29		
18-Mar	NW18	NW19	NW19	NW17	NW19	NW18	NW17	NW16	NW16	NW19	NW18	NW18	NW17	NNW18	NNW16	NNW16	NNW16	NNW16	NNW14	NNW14	NNW11	NNW12	NNW13	NNW13	NW15.8	NW19	
19-Mar	N11	NNW11	NNW9	NNW7	NNW7	NW8	NW9	NW9	NW11	NNW12	NNW11	NNW11	NW13	NW12	NNW10	NNW11	NW11	NNW9	NNW6	NNW7	NNW8	NNW6	N9	NNW7	NNW9.2	NW13	
20-Mar	NNW9	NNW12	N4	N7	NNW9	NNW5	NNW7	NW4	NNW4	SSW5	S4	NW2	NW7	NNW6	NW6	WSW4	SW8	E6	ENE7	ENE6	ENE7	ENE5	ENE6	UO	N2.9	NNW12	
21-Mar	NE2	NNE1	ENE3	E3	ENE6	ENE8	ENE6	E6	E5	E14	E19	E18	E15	ESE12	E14	E13	E11	E10	E8	E5	ENE5	NE1	NNE1	ENE2	E7.6	E19	
22-Mar	WSW2	W2	SE1	ENE1	UO	ENE5	ENE8	E8	E10	E9	E7	E8	E9	E12	E13	E12	E14	E14	ENE11	ENE10	E11	E10	E11	E8	E8.2	E14	
23-Mar	E11	E10	E12	E12	E14	E14	E13	E15	E16	E13	E12	E10	E13	E15	E18	E18	E15	E18	E18	E18	E14	E18	E21	ENE20	E14.9	E21	
24-Mar	ENE21	ENE21	ENE23	ENE25	ENE25	ENE26	ENE28	ENE27	ENE24	ENE22	ENE22	ENE25	ENE25	ENE26	ENE23	NE24	ENE25	ENE24	ENE23	ENE20	ENE24	ENE27	E27	E24	ENE23.9	ENE28	
25-Mar	E22	E21	E21	E21	E22	E20	E19	E21	E19	E16	ESE17	SSE25	SSE27	SSE26	SSE25	SE25	SSE24	SE24	SE28	SE26	SSE26	SSE26	SSE25	SSE26	SE19.8	SE28	
26-Mar	SSE26	SSE28	SSE29	SSE26	SSE22	SE25	SE24	SE25	SE26	SE29	SE28	SE29	SSE30	SE30	SSE28	SSE25	S26	SE23	ESE24	ESE32	ESE33	ESE32	SE33	ESE27	SE26.5	ESE33	
27-Mar	ESE22	ESE21	E19	ESE27	E26	E25	E27	E27	E31	E30	ESE32	ESE36	ESE30	E30	E37	E32	ESE30	E29	E27	E28	ESE28	ESE20	E16	ENE12	E26.4	E37	
28-Mar	ENE18	ENE23	ENE21	ENE20	ENE20	NE21	NE21	NE20	NE21	ENE20	ENE19	ENE19	ENE19	ENE21	ENE24	NE22	NE17	NE14	NNE13	NNE11	NNE12	NNE11	NE8	NNE9	NE17.2	ENE24	
29-Mar	NE14	NE9	NNE6	NNE9	N6	N6	N5	N2	ESE4	ESE13	ESE8	ESE10	E13	E13	E12	E10	E11	E8	E8	E4	SSW2	E4	ENE5	E7	ENE6.5	NE14	
30-Mar	ENE9	E9	E10	E11	E12	E12	E14	E12	E13	E16	SE18	SSE24	SSE25	SSE26	SSE25	SSE23	SSE20	SSE17	ESE13	E14	E13	ESE14	ESE15	ESE13	ESE13.2	SSE26	
31-Mar	E14	E15	E14	E15	E15	E17	E17	E15	E16	E14	E12	E11	E13	E17	E19	E21	E24	E24	E23	E18	SE25	S24	SSW21	SW12	E14.0	SE25	

ENE6.9	ENE7.0	ENE7.5	ENE8.3	ENE8.4	ENE8.8	ENE8.4	ENE7.8	E7.6	E8.1	E8.5	E8.6	E8.4	E9.1	E10.6	E10.6	E10.0	E10.7	ENE10.2	ENE10.2	E9.9	E9.1	E8.0	ENE7.0	Diurnal Average
ENE31	ENE33	ENE33	ENE31	ENE30	ENE31	ENE30	E29	E31	ENE33	ENE33	ESE36	ENE31	ENE32	E37	E32	ESE30	E29	SE28	ESE32	ESE33	ESE32	SE33	ENE31	Diurnal Maximum

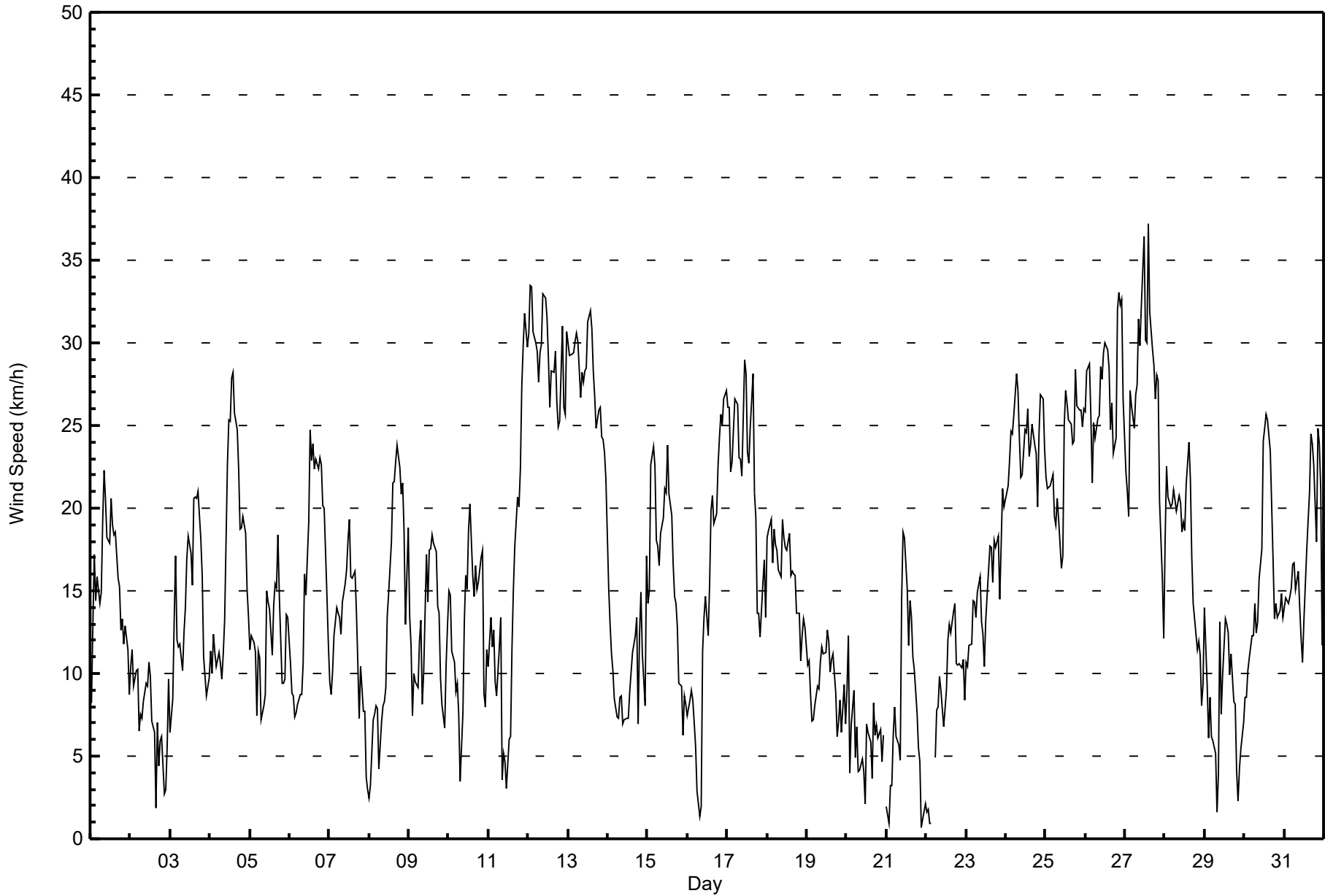
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Fort Chipewyan - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 15 05:00 Minimum Value: 0 km/h on Mar 29 23:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 3 P ₉₀ = 5 P ₉₉ = 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-Mar	2	3	4	3	3	3	3	5	6	6	6	5	5	5	5	5	4	4	3	3	2	3	4	2	6	
2-Mar	3	4	3	3	3	2	2	1	2	3	3	3	3	3	2	2	3	1	3	2	2	2	3	2	4	
3-Mar	3	2	2	3	3	2	2	2	3	4	4	4	5	5	6	5	4	5	4	4	3	3	3	3	6	
4-Mar	3	3	4	3	3	3	3	3	3	5	5	6	6	6	6	5	5	4	4	3	3	4	3	3	6	
5-Mar	2	2	2	3	2	3	3	2	2	2	2	1	1	1	1	1	1	2	3	3	2	3	2	2	3	
6-Mar	1	1	1	1	1	1	1	2	3	2	2	4	3	4	3	3	4	2	2	2	2	2	3	3	4	
7-Mar	2	2	2	2	3	3	2	2	2	3	3	3	2	3	2	2	2	2	1	2	3	1	1	2	3	
8-Mar	2	2	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	
9-Mar	4	4	3	2	2	1	3	2	3	4	3	3	2	2	1	2	3	2	2	1	1	2	1	1	4	
10-Mar	2	2	2	3	3	2	2	1	3	5	3	4	4	5	4	4	4	5	5	6	5	3	3	3	6	
11-Mar	3	3	3	3	3	3	4	4	3	2	1	2	1	3	1	2	2	2	3	2	2	2	2	3	4	
12-Mar	3	3	3	3	4	3	3	2	2	3	3	3	5	4	4	4	4	4	3	3	3	3	3	3	5	
13-Mar	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	2	2	2	2	2	2	2	2	3	
14-Mar	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	2	3	3	3	1	4	3	5	4	5	
15-Mar	3	3	6	8	8	6	6	5	6	6	6	7	8	8	7	7	5	5	4	3	3	2	3	3	8	
16-Mar	2	3	3	3	2	3	2	1	2	2	1	1	1	2	1	2	3	2	2	3	2	2	3	2	3	
17-Mar	2	2	2	3	2	2	2	2	3	4	5	6	5	3	5	5	3	4	3	2	3	5	5	5	6	
18-Mar	6	6	6	6	5	6	6	5	5	6	7	6	6	6	6	6	6	6	5	5	5	5	5	5	7	
19-Mar	4	4	3	2	3	3	2	3	3	5	4	5	4	4	4	4	4	3	2	3	2	2	2	3	5	
20-Mar	2	3	4	3	2	1	3	2	2	1	2	2	3	3	3	3	2	2	2	1	1	1	1	UO	4	
21-Mar	2	1	1	1	2	2	1	2	1	3	2	2	2	2	1	1	1	1	2	1	1	2	1	1	3	
22-Mar	1	1	2	1	UO	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	1	1	1	2	
23-Mar	1	2	2	2	2	1	1	2	2	2	1	1	1	1	2	1	1	2	2	1	1	3	2	1	3	
24-Mar	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	4	3	3	2	3	2	2	3	4		
25-Mar	2	2	2	3	3	3	2	2	2	1	4	4	5	4	4	3	4	4	3	4	3	4	4	4	5	
26-Mar	4	4	4	5	3	3	3	3	3	4	4	4	5	5	5	4	4	5	2	3	4	4	4	4	5	
27-Mar	2	2	3	2	3	2	2	3	3	3	5	5	5	6	3	3	4	5	3	4	5	4	2	2	6	
28-Mar	5	2	2	2	3	3	3	3	3	3	3	3	3	4	3	4	4	4	3	2	2	2	3	3	5	
29-Mar	4	5	2	2	2	1	1	2	3	2	2	2	1	1	2	1	1	2	1	1	1	2	0	1	5	
30-Mar	1	1	1	1	1	1	2	1	2	2	4	4	4	4	4	4	4	4	1	2	2	2	3	1	4	
31-Mar	2	1	1	2	2	2	2	1	2	2	3	1	2	1	2	2	2	2	2	2	4	3	6	5	6	
																	Diurnal Maximum									
UO - Unstable Operation																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Fort Chipewyan - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	48	6.47	6.47
6 - 11	208	28.03	34.50
12 - 19	248	33.42	67.92
20 - 28	190	25.61	93.53
29 - 38	48	6.47	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Fort Chipewyan - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6	2	4	8	8	3	1	0	1	2	0	3	2	3	3	2	48
6 - 11	17	12	12	28	58	6	7	5	1	1	2	3	5	8	14	29	208
12 - 19	0	8	18	9	95	9	12	10	5	2	2	1	6	20	32	19	248
20 - 28	0	2	21	56	38	9	11	29	11	1	0	0	0	2	9	1	190
29 - 38	0	0	1	25	8	7	4	3	0	0	0	0	0	0	0	0	48
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	23	24	56	126	207	34	35	47	18	6	4	7	13	33	58	51	742

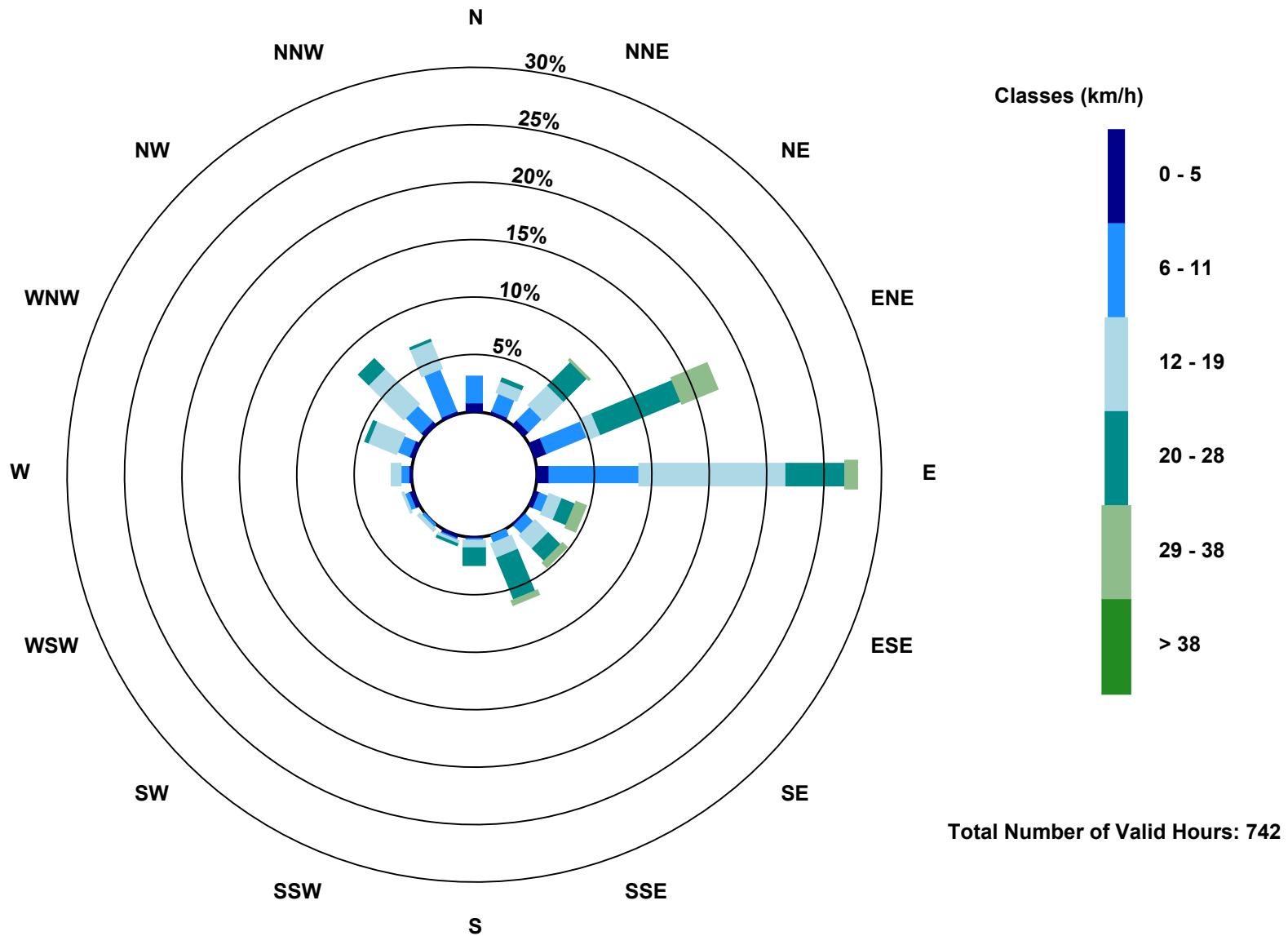
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Fort Chipewyan





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Fort Chipewyan - March 2024

Direction of Maximum Speed: 81 deg on Mar 27 15:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 68.9 deg on Mar 12	Hours of Data: 742
Direction of Minimum Speed: 35 deg on Mar 21 22:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 2.9 deg on Mar 20	Percent Operational Time: 99.7
Monthly Average Direction: 79.7 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-Mar	239	258	273	282	286	286	286	298	307	312	305	305	293	295	300	303	309	308	307	302	289	300	308	300	295.7
2-Mar	290	318	319	317	314	280	280	286	287	301	306	279	252	271	281	299	343	38	79	72	58	1	24	28	311.1
3-Mar	41	49	66	59	42	50	49	36	34	45	47	43	32	20	26	32	44	39	32	25	7	5	354	352	35.3
4-Mar	358	2	11	14	10	14	11	18	11	21	43	46	45	44	52	49	50	48	47	46	54	50	47	47	38.2
5-Mar	31	43	50	47	36	53	53	54	39	54	87	90	94	92	95	86	80	83	77	86	71	71	85	94	72.0
6-Mar	95	92	97	108	139	128	125	136	158	165	162	170	175	161	163	165	169	169	169	173	170	173	180	183	160.3
7-Mar	175	166	148	145	152	148	139	142	141	155	158	144	142	152	148	143	146	94	72	92	91	96	80	301	140.1
8-Mar	105	101	83	76	82	73	79	78	77	77	81	86	85	84	81	84	79	82	88	88	90	95	104	176	88.6
9-Mar	188	192	164	147	119	98	130	135	126	128	143	126	109	83	87	86	88	100	99	98	114	138	93	80	115.1
10-Mar	82	80	77	78	69	76	95	39	232	267	279	267	270	283	300	303	302	303	308	320	315	305	292	282	307.6
11-Mar	273	281	306	328	331	350	327	327	260	320	6	251	196	110	100	81	80	76	72	73	76	78	77	73	55.3
12-Mar	73	73	72	75	70	71	73	80	84	78	74	72	69	56	53	56	56	54	53	60	69	74	75	76	68.9
13-Mar	74	75	74	72	74	76	74	74	76	76	74	75	74	73	73	74	74	76	77	77	81	84	91	95	76.4
14-Mar	92	95	91	88	85	91	92	89	94	81	75	72	72	81	85	95	90	97	83	86	86	85	249	283	87.0
15-Mar	275	287	310	320	322	324	323	324	322	322	319	320	321	321	331	335	335	330	334	333	344	343	338	342	322.3
16-Mar	343	358	360	17	354	326	11	297	105	88	95	91	88	89	85	79	76	74	75	77	78	74	72	76	70.7
17-Mar	78	82	89	88	85	89	98	101	121	147	166	167	146	148	165	178	184	207	235	284	285	313	319	315	132.1
18-Mar	315	315	311	311	307	312	312	312	314	318	325	324	324	330	335	340	348	346	339	343	343	343	344	348	325.9
19-Mar	349	348	338	330	327	321	311	324	325	341	334	331	326	321	329	330	319	336	345	348	340	347	351	346	333.4
20-Mar	331	342	354	349	341	343	340	325	336	201	191	307	318	333	321	238	219	96	75	69	73	64	68	UO	351.9
21-Mar	47	16	71	86	66	59	67	81	98	95	89	92	99	102	93	92	97	82	85	80	64	35	22	74	86.5
22-Mar	241	269	129	76	UO	76	78	79	85	80	79	83	85	85	84	84	84	83	77	78	83	86	81	92	82.8
23-Mar	84	85	86	88	92	93	86	85	83	88	89	93	92	90	93	95	91	93	100	101	91	84	81	78	89.3
24-Mar	74	75	72	73	70	73	73	73	72	72	69	65	70	69	63	55	58	58	58	61	71	78	79	81	69.3
25-Mar	81	84	83	81	79	79	83	90	97	96	115	148	159	158	153	141	147	143	142	140	148	149	152	151	124.9
26-Mar	156	163	164	162	151	141	144	144	143	141	138	144	147	139	149	151	171	142	116	118	121	120	128	121	141.5
27-Mar	107	102	92	105	95	81	86	92	98	97	106	112	115	100	81	90	104	92	93	94	106	111	96	64	97.3
28-Mar	66	77	70	62	57	55	53	52	56	58	57	59	69	62	63	56	49	42	31	18	25	30	38	26	54.7
29-Mar	41	41	22	23	11	6	2	7	115	102	110	103	96	95	92	100	87	90	80	81	211	82	72	80	75.2
30-Mar	77	82	83	83	81	84	94	89	86	88	129	153	157	158	166	158	155	160	103	86	89	102	102	104	120.5
31-Mar	86	88	94	97	93	86	83	83	81	86	87	84	88	85	84	84	81	85	88	99	140	170	212	231	98.5

71.8 69.9 67.6 67.7 63.8 67.3 70.5 72.6 78.9 81.2 88.8 95.8 98.2 88.2 85.7 85.6 84.7 80.4 76.5 76.5 83.7 86.1 81.8 78.0
 Diurnal Average

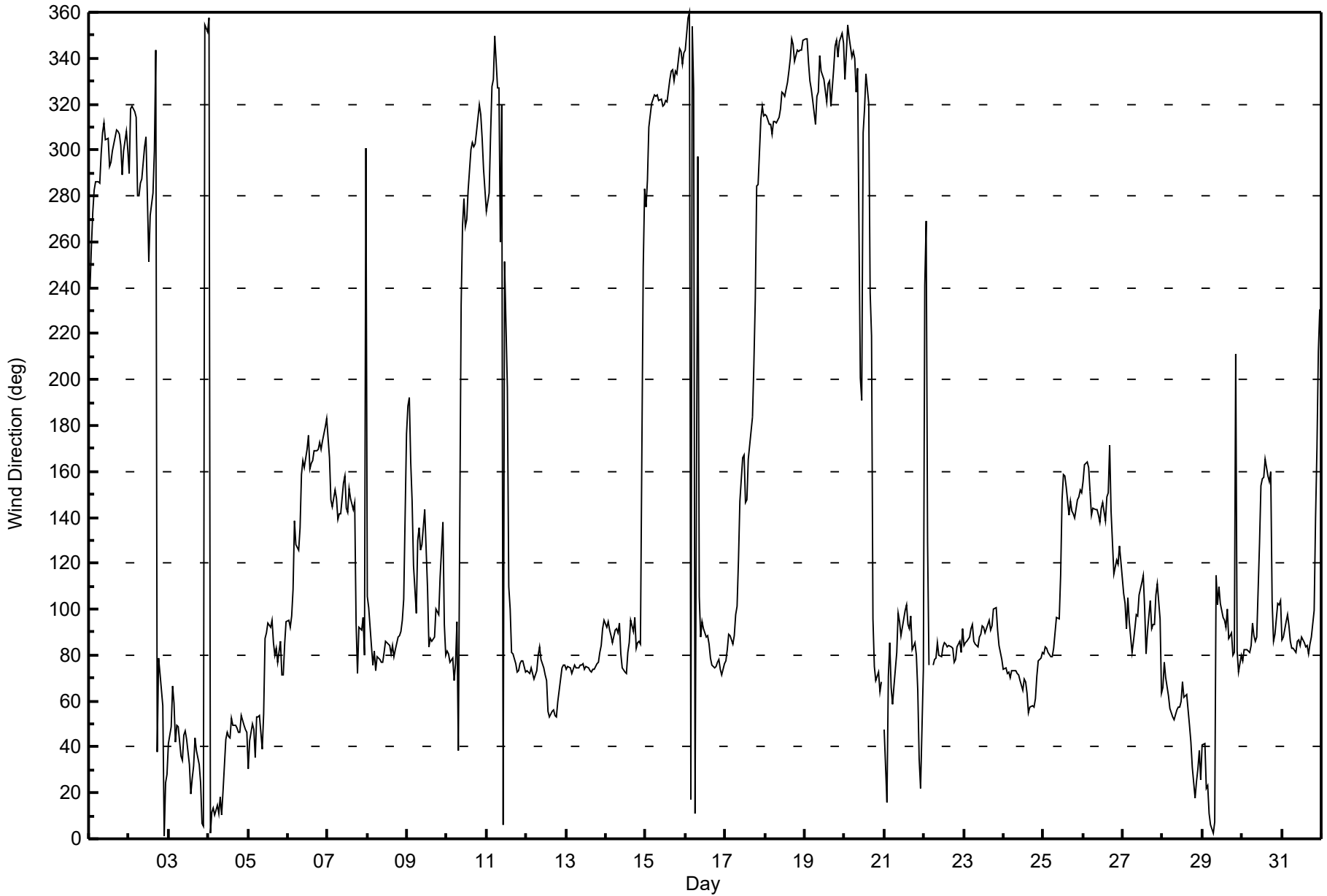
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Fort Chipewyan - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Mar 2 16:00 Minimum Value: 3 deg on Mar 22 23:00 Percentiles: P ₁ = 4 P ₁₀ = 5 Q ₁ = 6 Median = 10 Q ₃ = 18 P ₉₀ = 25 P ₉₉ = 72														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-Mar	22	13	14	13	13	12	12	15	16	18	18	19	16	18	18	18	18	15	15	17	13	16	17	21	22
2-Mar	16	19	18	16	19	15	12	12	15	24	27	19	31	46	52	96	25	40	27	7	31	30	25	16	96
3-Mar	33	15	8	9	11	12	16	14	15	11	11	13	15	18	15	14	11	11	14	15	18	19	20	17	33
4-Mar	18	20	18	19	19	18	21	20	19	19	12	12	11	12	10	10	10	10	10	11	10	9	11	9	21
5-Mar	12	12	13	19	16	15	12	15	18	13	4	5	5	6	4	4	5	4	5	27	10	13	6	9	27
6-Mar	6	7	7	14	15	11	9	16	12	7	8	10	7	10	9	9	9	6	6	5	6	6	6	9	16
7-Mar	12	14	20	14	15	16	14	12	11	12	11	9	7	13	10	7	7	30	8	6	9	10	19	45	45
8-Mar	80	59	7	8	6	8	34	6	4	6	5	3	4	5	4	7	5	4	5	5	4	6	22	7	80
9-Mar	13	18	36	15	21	19	17	13	36	21	14	20	11	5	4	5	10	9	7	13	14	28	8	6	36
10-Mar	6	5	12	8	11	38	23	43	38	15	16	20	14	16	18	19	16	18	16	19	19	23	20	15	43
11-Mar	19	12	18	19	19	19	17	17	67	44	40	66	16	32	12	4	4	4	5	5	5	5	4	6	67
12-Mar	5	5	6	6	7	6	7	5	4	5	5	6	9	9	7	8	8	8	8	7	6	6	6	5	9
13-Mar	6	6	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	6	6	6	6	6
14-Mar	6	8	5	6	12	7	8	5	8	10	7	6	7	6	11	7	9	6	12	7	20	8	47	12	47
15-Mar	12	14	17	21	22	23	22	21	22	22	19	20	22	22	24	24	24	22	21	25	25	26	18	17	26
16-Mar	20	20	20	18	22	30	54	72	62	6	6	7	7	7	4	5	7	6	5	6	5	6	6	5	72
17-Mar	5	4	6	6	4	4	4	5	9	13	9	11	10	11	11	9	8	12	15	14	13	18	19	20	20
18-Mar	19	20	17	19	16	19	21	19	20	19	24	24	24	23	27	26	25	24	23	23	22	24	23	22	27
19-Mar	21	19	23	24	26	23	14	21	23	27	31	33	29	27	37	31	26	29	20	18	18	20	17	21	37
20-Mar	15	16	45	35	16	26	34	73	49	28	62	93	46	46	53	88	14	28	9	4	6	7	6	UO	93
21-Mar	24	49	17	9	13	6	8	18	15	7	5	4	7	10	6	6	6	7	9	8	7	72	24	61	72
22-Mar	80	50	78	85	UO	13	6	7	4	4	5	5	6	4	4	4	4	4	6	5	5	4	3	6	85
23-Mar	4	8	6	8	6	7	5	5	4	4	4	4	4	5	5	5	5	5	6	3	7	6	4	4	8
24-Mar	4	4	5	5	6	6	5	5	6	6	7	8	7	7	8	7	7	7	7	6	7	5	5	4	8
25-Mar	4	6	6	7	6	6	6	5	6	5	26	8	11	13	10	9	9	8	7	7	8	9	10	9	26
26-Mar	10	9	8	9	10	6	7	6	7	7	9	11	10	11	17	15	12	21	5	5	5	8	8	9	21
27-Mar	5	7	11	6	11	4	5	6	6	7	9	7	8	15	5	7	11	8	7	7	9	6	12	11	15
28-Mar	10	5	6	7	7	7	7	8	9	10	11	13	13	10	9	11	14	15	12	14	15	13	21	21	21
29-Mar	15	65	20	14	33	15	21	60	35	6	8	7	6	7	6	7	6	8	6	9	39	56	7	5	65
30-Mar	6	5	3	3	5	8	7	7	6	5	32	11	13	11	10	12	11	11	18	3	6	11	11	7	32
31-Mar	6	6	6	7	7	5	4	4	4	5	6	5	4	4	4	4	4	5	5	11	12	18	20	15	20
80 65 78 85 33 38 54 73 67 44 62 93 46 46 53 96 26 40 27 27 39 72 47 61																									
Diurnal Maximum																									
UO - Unstable Operation																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS09 BARGE LANDING MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)
MARCH 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	52.7	0	9	0
TRS(ppb) Average	707	36	37	99.87	3.7	0	1.1	0
THC(ppm) Average	704	35	40	99.33	3.4	-	2.3	-
NMHC(ppm) Average	704	35	40	99.33	0.106	-	0.005	-
CH4(ppm) Average	704	35	40	99.33	3.4	-	2.3	-
NO2 (ppb) Average	708	36	36	100	40.3	0	24.8	-
NO (ppb) Average	708	36	36	100	76	-	14.2	-
NOX (ppb) Average	708	36	36	100	110.6	-	34.1	-
PM2.5(ug/m3) Average	743	1	1	100	212.8	2	33.3	2
Temperature (C) Average	744	0	0	100	14.3	-	4.2	-
Relative Humidity (%) Average	744	0	0	100	91.4	-	79.6	-
Barometric Pressure (inHg) Average	744	0	0	100	29.6	-	29.5	-
Wind Speed 10 m (km/h) Average	728	0	16	97.85	17	-	14	-
Wind Direction 10 m (deg) Average	728	0	16	97.85	-	-	-	-
Wind Speed 20 m (km/h) Average	729	0	15	97.98	27	-	23	-
Wind Direction 20 m (deg) Average	729	0	15	97.98	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)

MARCH 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	708	2.09	4.9	-	0	0	0.1	0.3	1.8	6.3	52.7	
TRS(ppb) Average	707	0.5	0.4	-	0.2	0.2	0.3	0.3	0.5	1	3.7	
THC(ppm) Average	704	2.06	0.1	-	1.9	2	2	2	2.1	2.2	3.4	
NMHC(ppm) Average	704	0	0.004	-	0	0	0	0	0	0	0.106	
CH4(ppm) Average	704	2.06	0.1	-	1.9	2	2	2	2.1	2.2	3.4	
NO2 (ppb) Average	708	11.24	9	-	0.3	1.8	4.4	8.4	16.5	25.3	40.3	
NO (ppb) Average	708	3.19	7.2	-	0	0	0.1	0.7	3.1	8.2	76	
NOX (ppb) Average	708	14.42	14.3	-	0.3	2	5	10	19.3	32	110.6	
PM2.5(ug/m3) Average	743	10.23	13.3	-	0.7	3.2	4.4	6.6	11	19.7	212.8	
Temperature (C) Average	744	-7.3	9	-	-29.7	-20.5	-14.5	-6.4	-0.9	3.8	14.3	
Relative Humidity (%) Average	744	61.28	15.7	-	17.8	39.3	49	62.4	73.8	81.3	91.4	
Barometric Pressure (inHg) Average	744	29.01	0.3	-	28.2	28.7	28.8	29	29.2	29.4	29.6	
Wind Speed 10 m (km/h) Average	728	7.2	3	-	0	3	5	7	10	12	17	
Wind Direction 10 m (deg) Average	728	90.7	-	-	-	-	-	-	-	-	-	
Wind Speed 20 m (km/h) Average	729	12.7	5	-	1	6	9	12	16	21	27	
Wind Direction 20 m (deg) Average	729	92.2	-	-	-	-	-	-	-	-	-	

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)
MARCH 2024

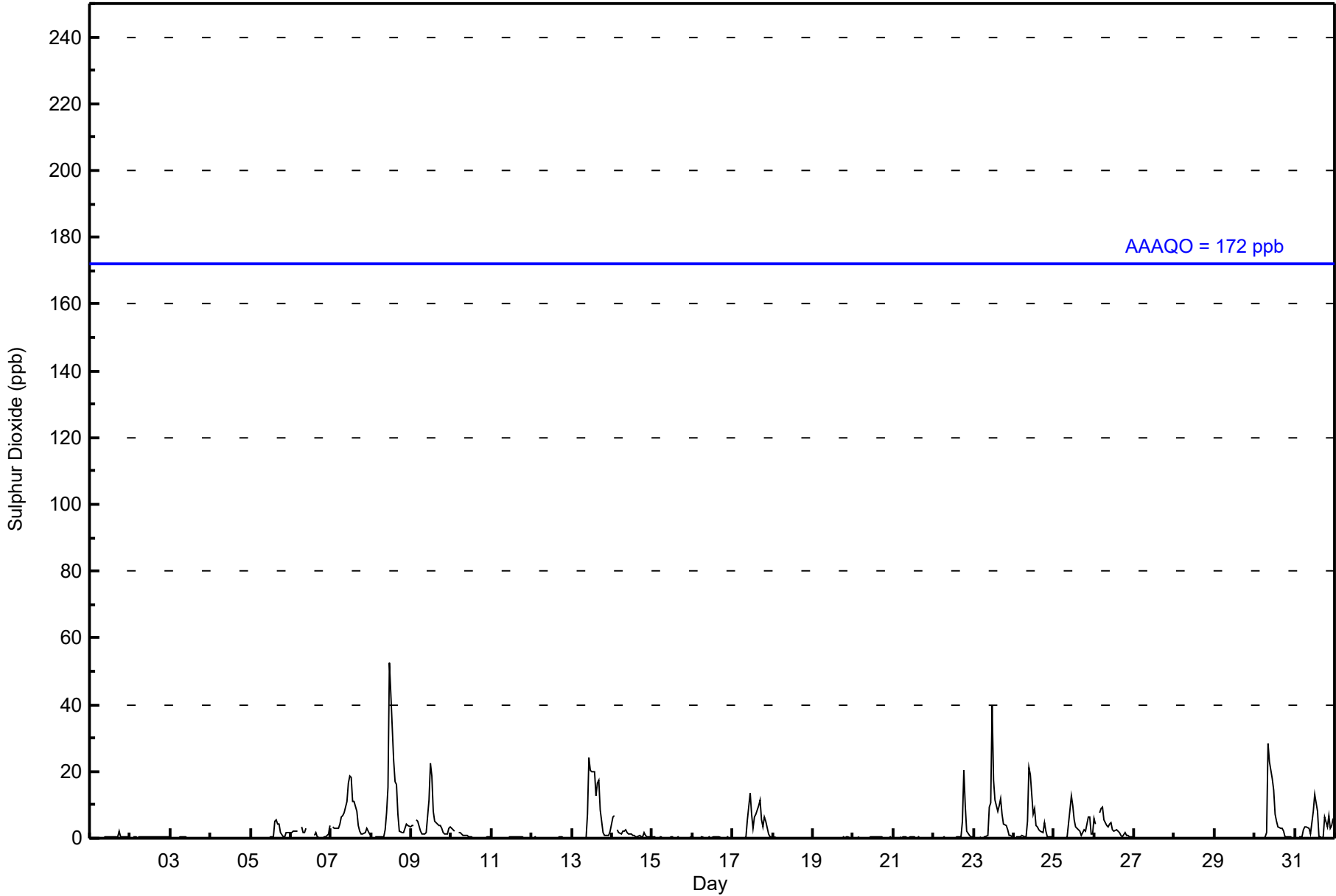
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, TRS, THC/NMHC/CH4	22 Mar 2024 11:00	22 Mar 2024 11:00	1	Maintenance - sample manifold cleaned
THC/ NMHC/ CH4	28 Mar 2024 10:00	28 Mar 2024 13:00	4	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction 10m	11 Mar 2024 10:00	12 Mar 2024 00:00	15	Flat line in sensor output signal
Wind Speed, Wind Direction 10m	29 Mar 2024 23:00	29 Mar 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction 20m	11 Mar 2024 10:00	12 Mar 2024 00:00	15	Flat line in sensor output signal



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Barge Landing - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Barge Landing - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	671	94.77	94.77
11 - 20	28	3.95	98.73
21 - 60	9	1.27	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 (SO₂) - ppb
Barge Landing - March 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	96	113	28	5	8	37	66	131	52	14	8	19	15	7	13	44	656
11 - 20	0	0	0	0	0	0	0	16	10	1	1	0	0	0	0	0	28
21 - 60	0	0	0	0	0	0	0	2	6	1	0	0	0	0	0	0	9
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
Totals	96	113	28	5	8	37	66	149	68	16	9	19	15	7	13	44	693

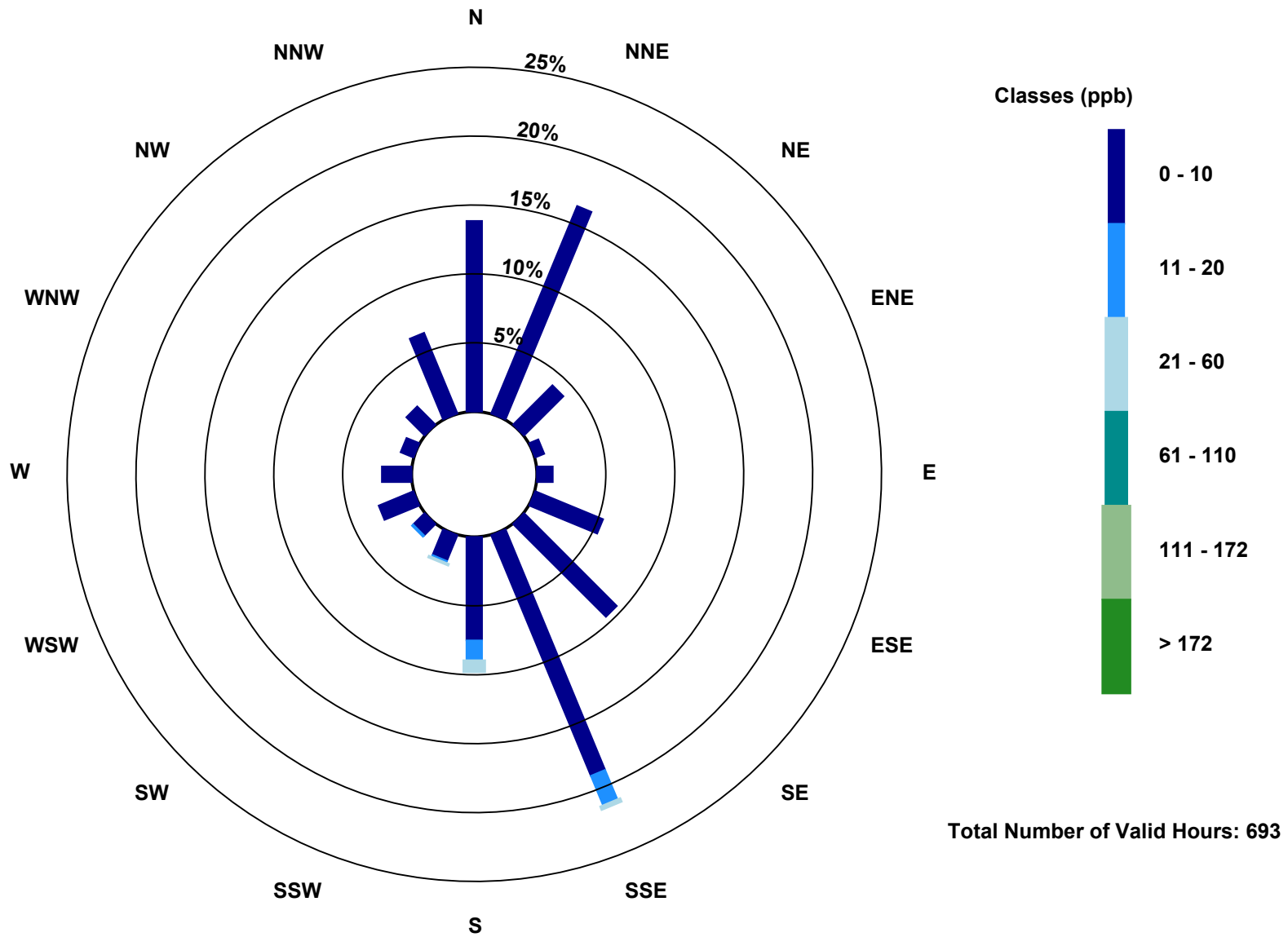
Total Number of Valid Hours: 693

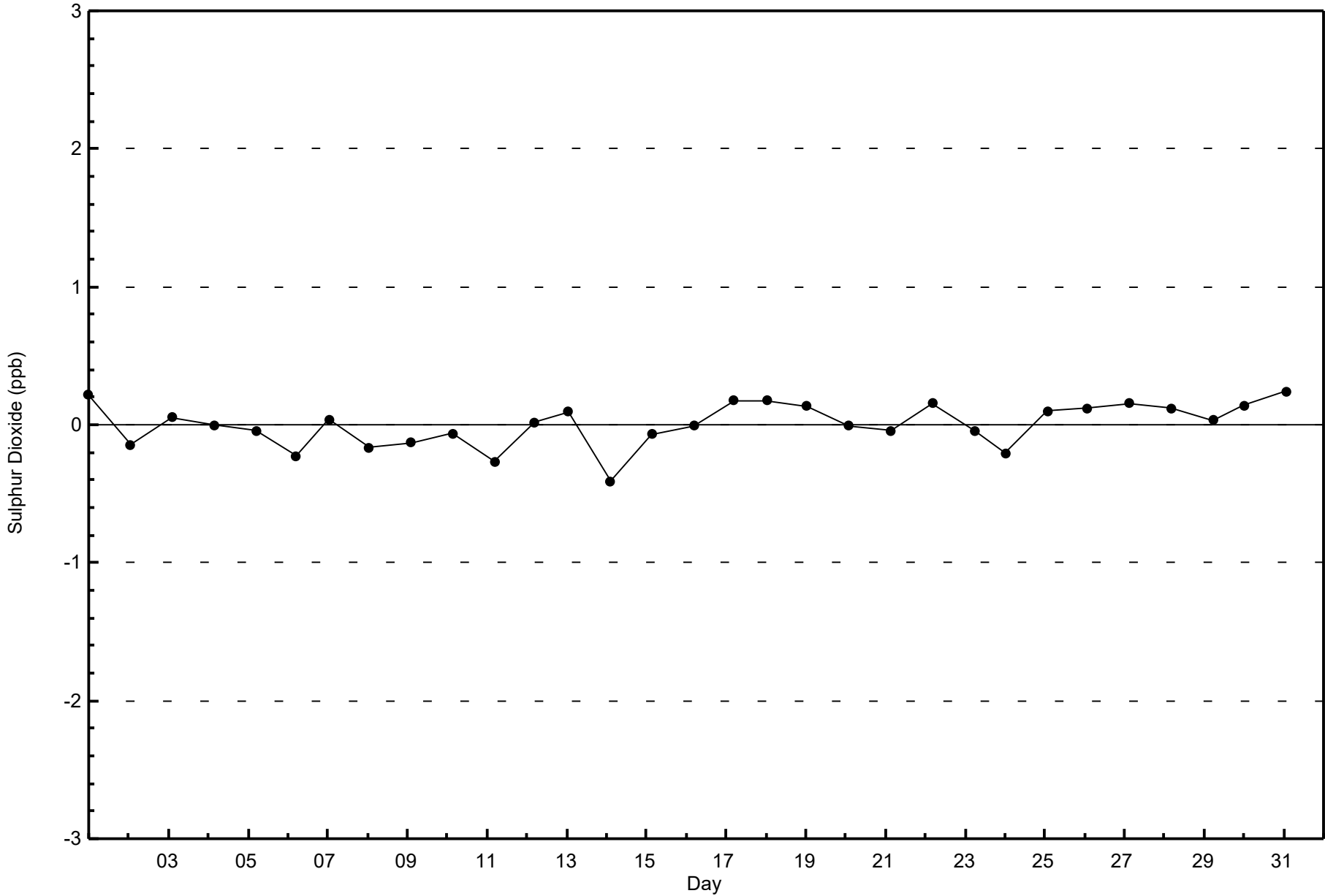
Total Number of Hours: 744

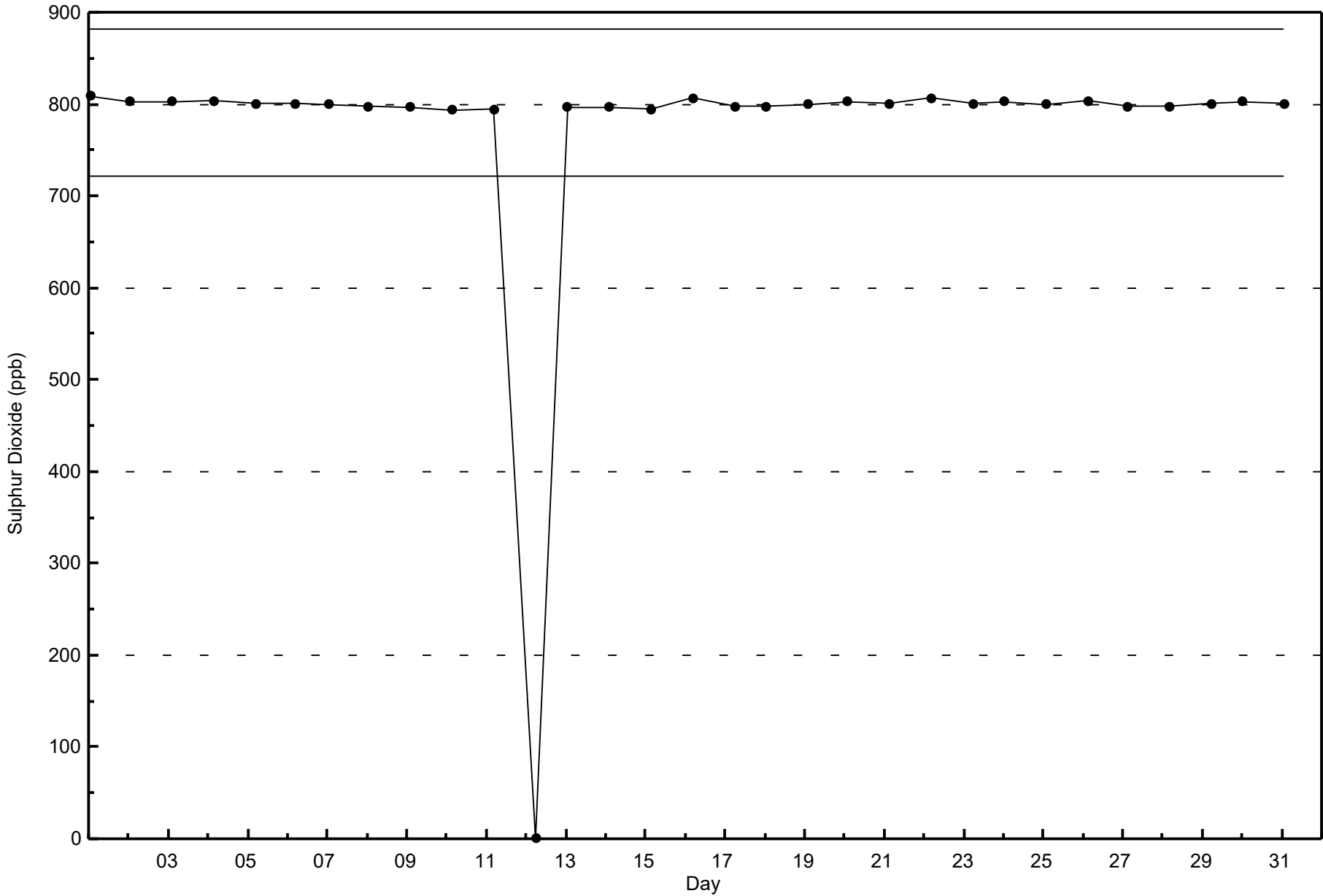


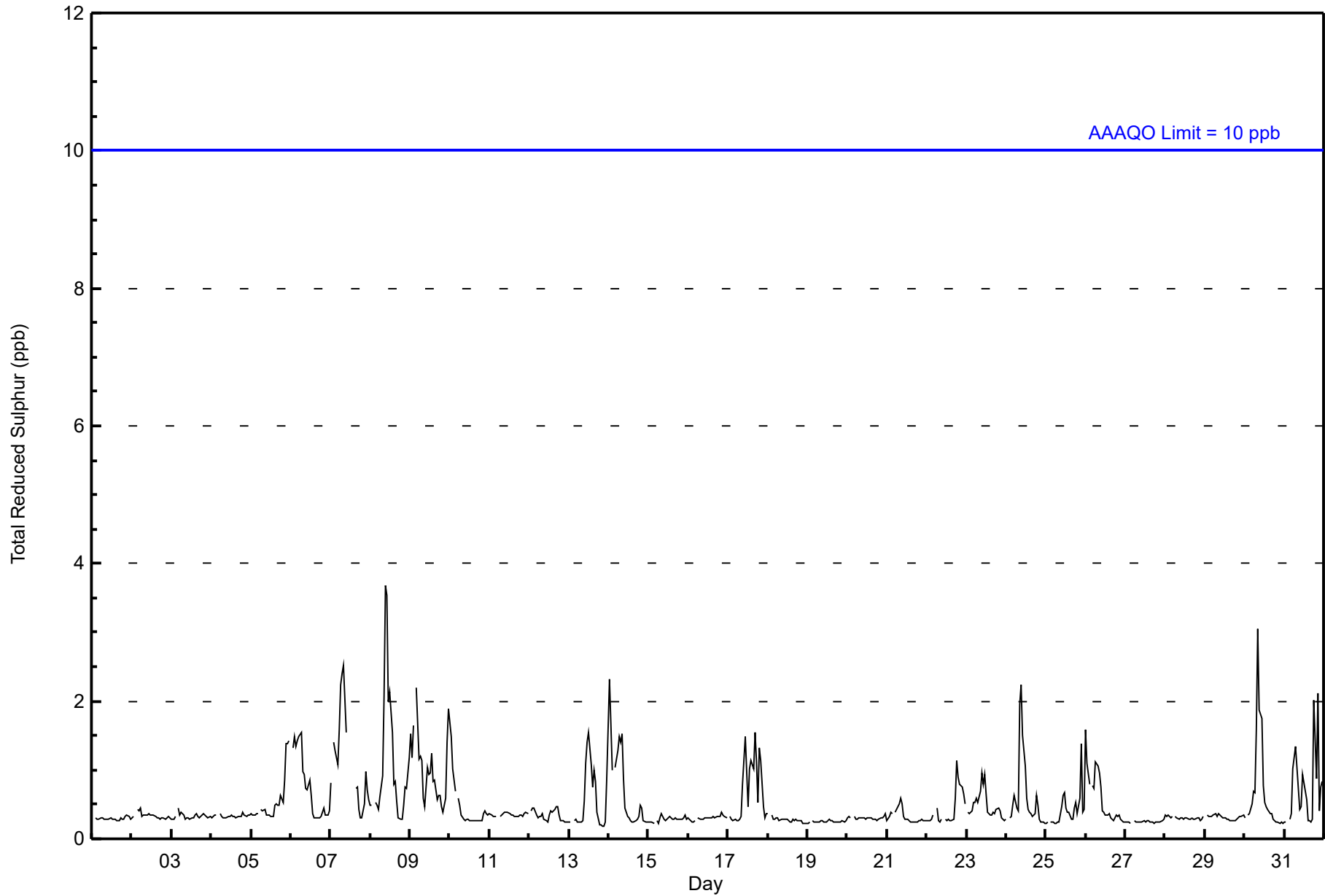
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Barge Landing











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Barge Landing - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	703	99.43	99.43
3 - 4	4	0.57	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Barge Landing - March 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	95	114	27	5	9	33	68	149	65	16	8	18	16	7	14	44	688
3 - 4	0	0	0	0	0	0	0	2	1	0	1	0	0	0	0	0	4
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	95	114	27	5	9	33	68	151	66	16	9	18	16	7	14	44	692

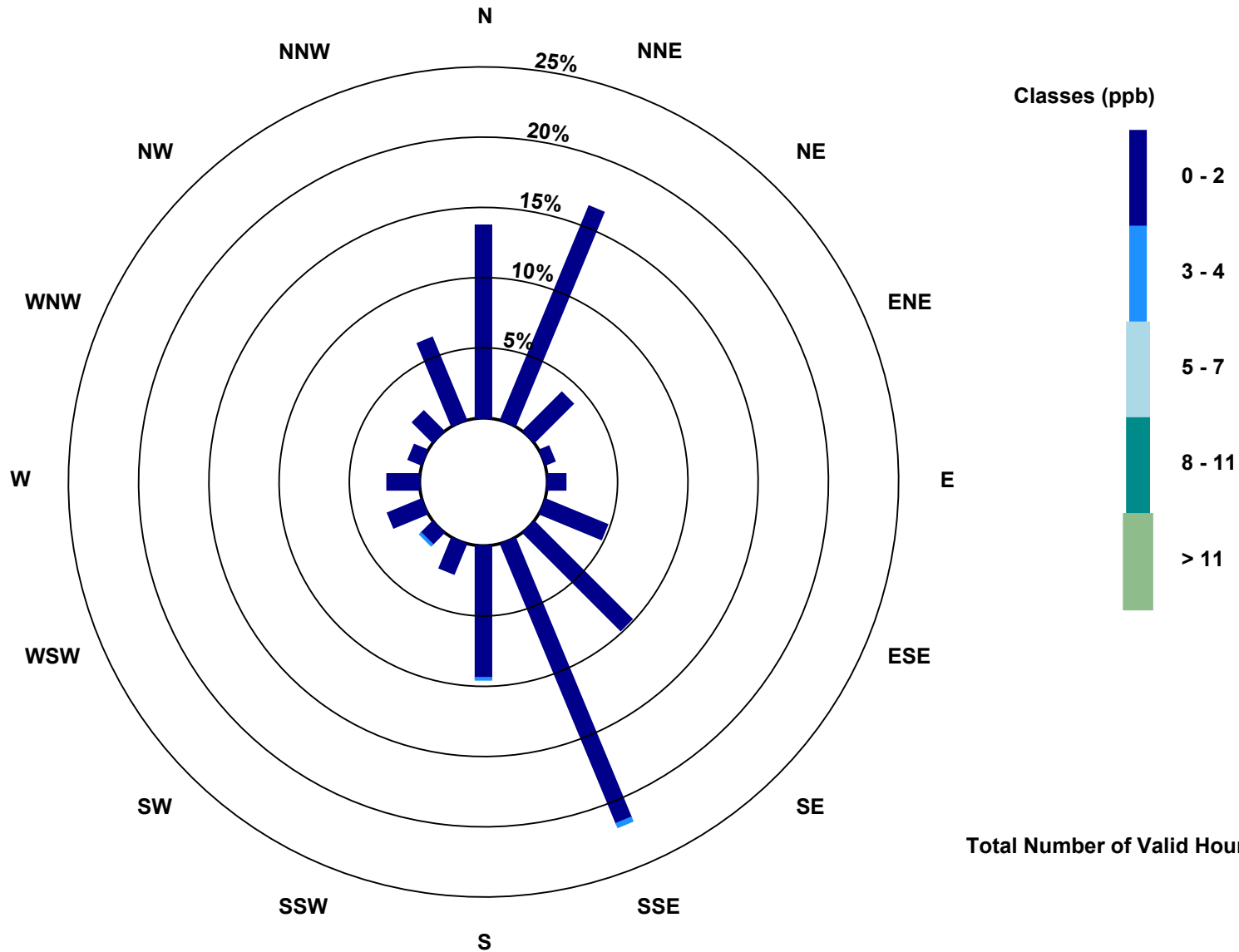
Total Number of Valid Hours: 692

Total Number of Hours: 744

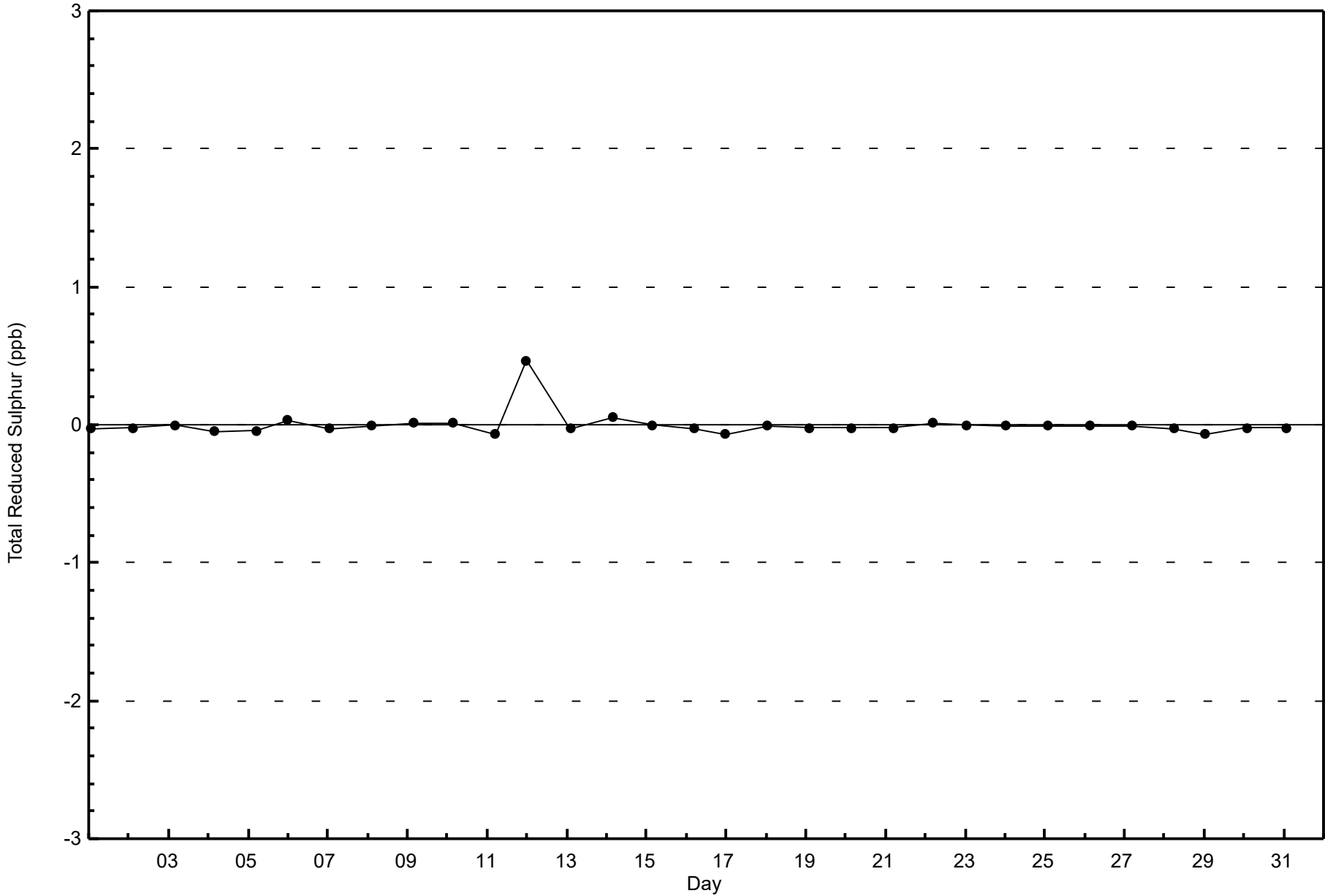


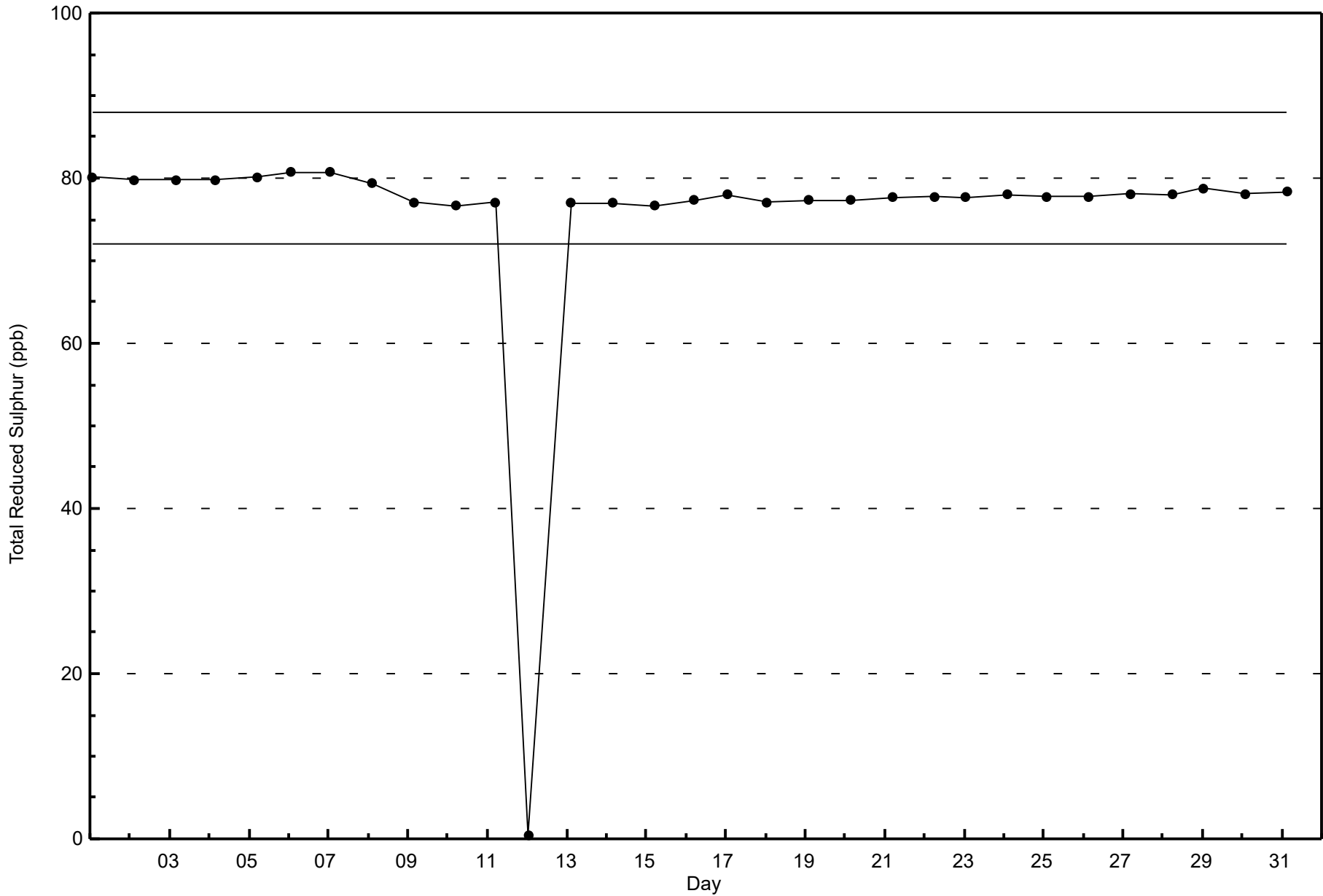
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Barge Landing



Total Number of Valid Hours: 692







Wood Buffalo Environmental Association
Summary of Hour Averages

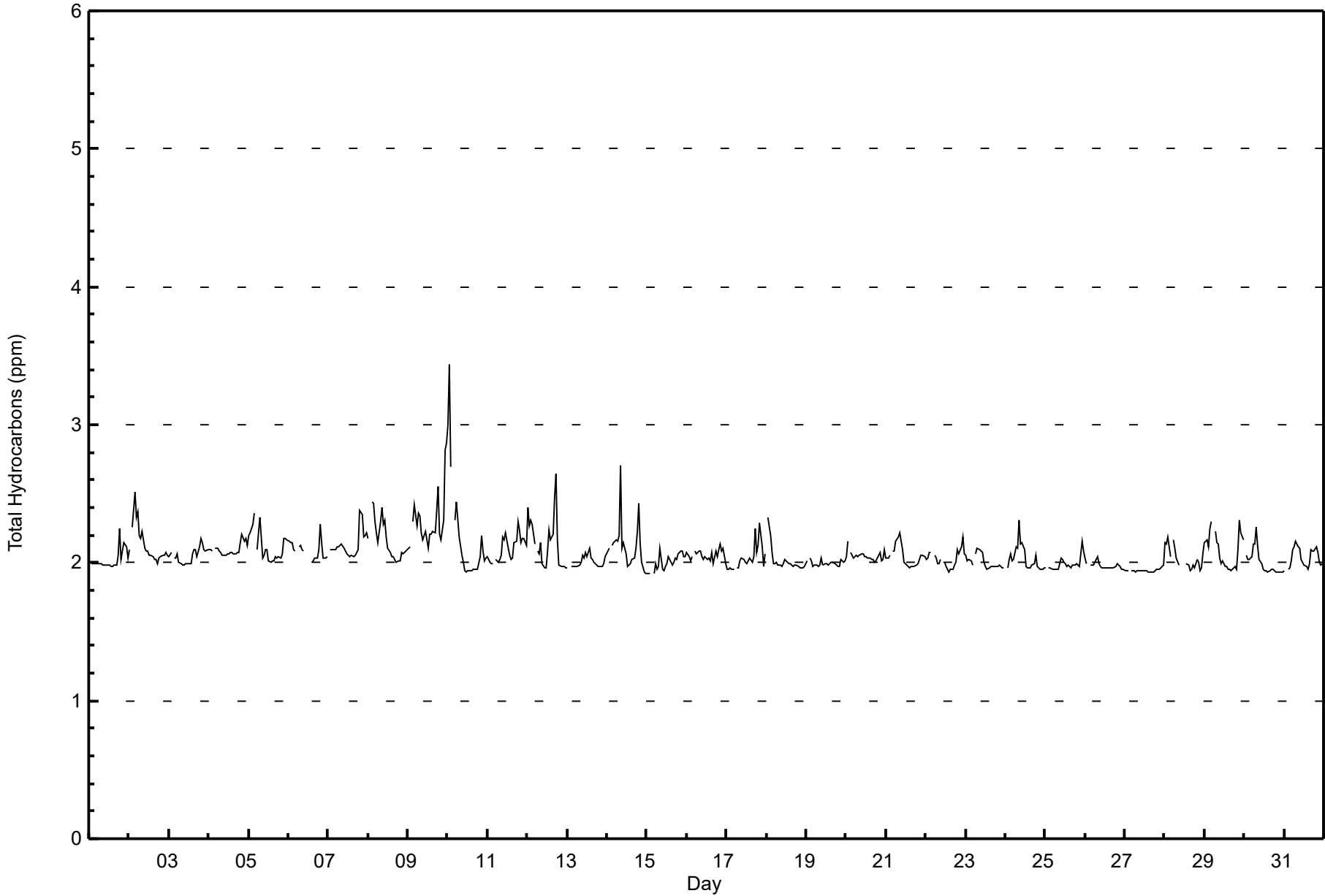
Total Hydrocarbons (THC) - ppm
Barge Landing - March 2024

Maximum Value: 3.4 ppm on Mar 10 02:00		Maximum Daily Average: 2.3 ppm on Mar 9		Hours in Service: 744																									
Minimum Value: 1.9 ppm on Mar 15 05:00		Minimum Daily Average: 1.9 ppm on Mar 27		Hours of Data: 704																									
Maximum Diurnal Average: 2.1 ppm at hour 2		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 40																									
Monthly Average: 2.06 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.6		Hours of Calibration: 35																									
				Percent Operational Time: 99.3																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
1-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.1	2.1	2.1	2.0	2.0	2.2	2.5		
2-Mar	2.1	Z	2.3	2.5	2.3	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
3-Mar	2.0	2.1	Z	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
4-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	
5-Mar	2.2	2.2	2.3	2.4	Z	2.1	2.2	2.3	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.4	
6-Mar	2.2	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.0	2.0	2.0	2.0	2.1	2.3	2.1	2.0	2.0	2.0	2.1	2.3	2.3	
7-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.4	
8-Mar	2.2	Z	2.4	2.4	2.3	2.2	2.1	2.3	2.4	2.3	2.3	2.2	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	2.4	
9-Mar	2.1	2.1	Z	2.3	2.4	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.4	2.6	2.2	2.2	2.3	2.8	2.9	2.3	2.3	2.9	2.9	
10-Mar	3.0	3.4	2.7	Z	2.3	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.2	2.1	2.0	2.0	2.2	2.2	3.4	3.4	
11-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.3	
12-Mar	2.4	2.3	2.3	2.3	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.5	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6	
13-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
14-Mar	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.7	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.1	2.0	1.9	1.9	2.1	2.1	2.1	2.7	
15-Mar	1.9	1.9	1.9	Z	1.9	2.0	2.0	2.0	2.1	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	
16-Mar	2.1	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	
17-Mar	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	2.2	2.1	2.1	2.3	2.1	2.0	2.1	2.0	2.0	2.0	2.3	
18-Mar	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.3
19-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
20-Mar	2.0	2.2	Z	2.1	2.0	2.0	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	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.2	
21-Mar	2.0	2.0	2.0	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.2	
22-Mar	2.0	2.0	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	M	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.2	
23-Mar	2.1	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1
24-Mar	Z	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.3	2.1	2.1	2.1	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	2.3	
25-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.0	2.0	2.0	2.2	
26-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
27-Mar	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	1.9	1.9	2.0	2.0	1.9	1.9	2.0	2.0
28-Mar	2.1	2.1	2.2	2.0	Z	2.2	2.1	2.0	2.0	M	M	M	M	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.1	2.0	2.1	2.0	2.2	
29-Mar	2.1	2.2	2.1	2.3	2.3	Z	2.2	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.1	2.3	2.2	2.2	2.1	2.1	2.1	2.3	
30-Mar	Z	2.1	2.0	2.0	2.0	2.1	2.1	2.3	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.3	
31-Mar	1.9	Z	1.9	2.0	2.0	2.1	2.1	2.2	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	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan C - Calibration M - Maintenance																													



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Barge Landing - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Barge Landing - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	408	57.95	57.95
2.1 - 3.0	295	41.90	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Barge Landing - March 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	81	21	4	3	29	56	80	23	9	6	14	13	5	6	19	406
2.1 - 3.0	55	32	7	1	5	8	10	68	45	7	3	5	2	2	7	25	282
3.1 - 10.0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	92	113	28	5	8	37	66	149	68	16	9	19	15	7	13	44	689

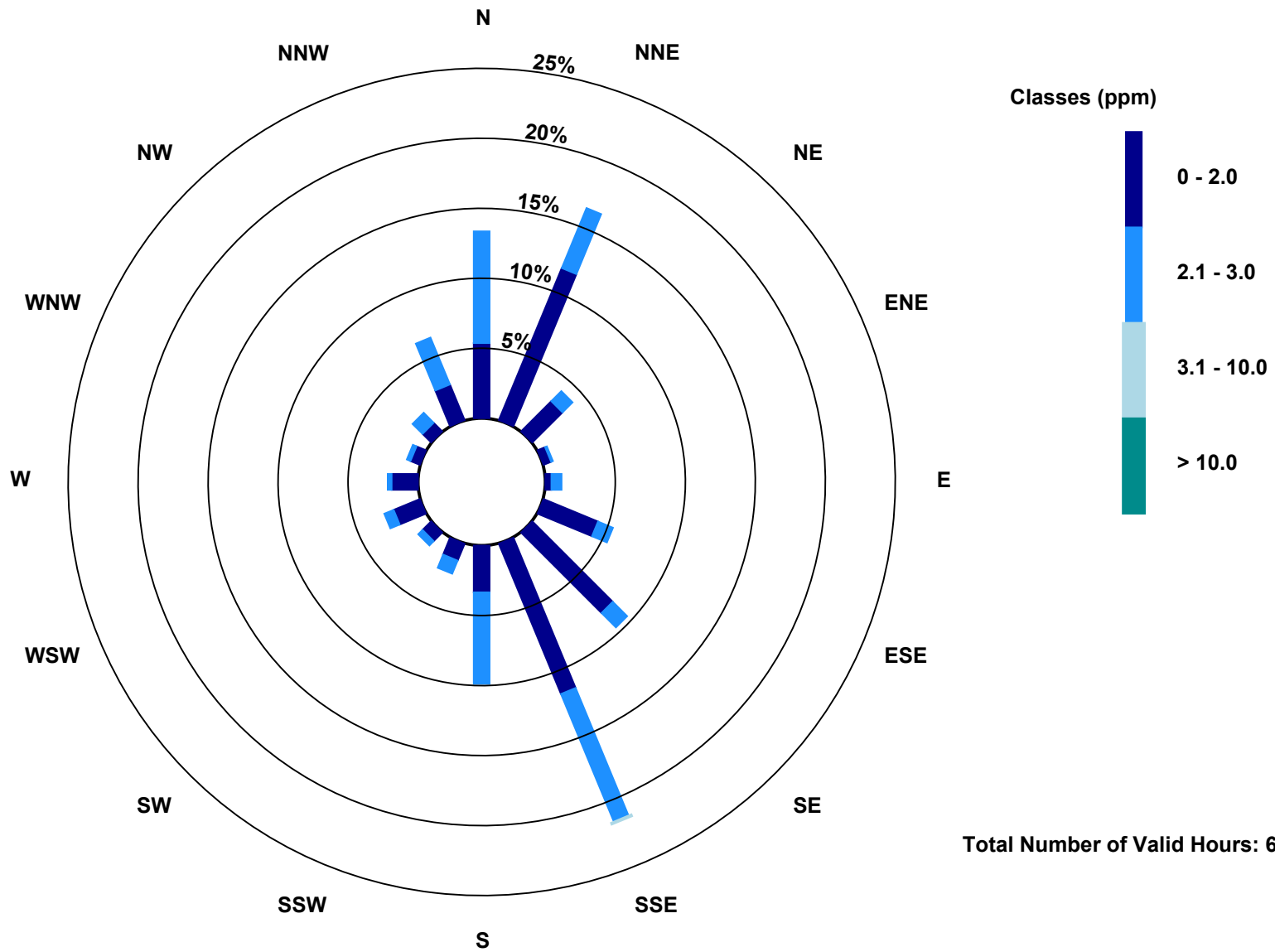
Total Number of Valid Hours: 689

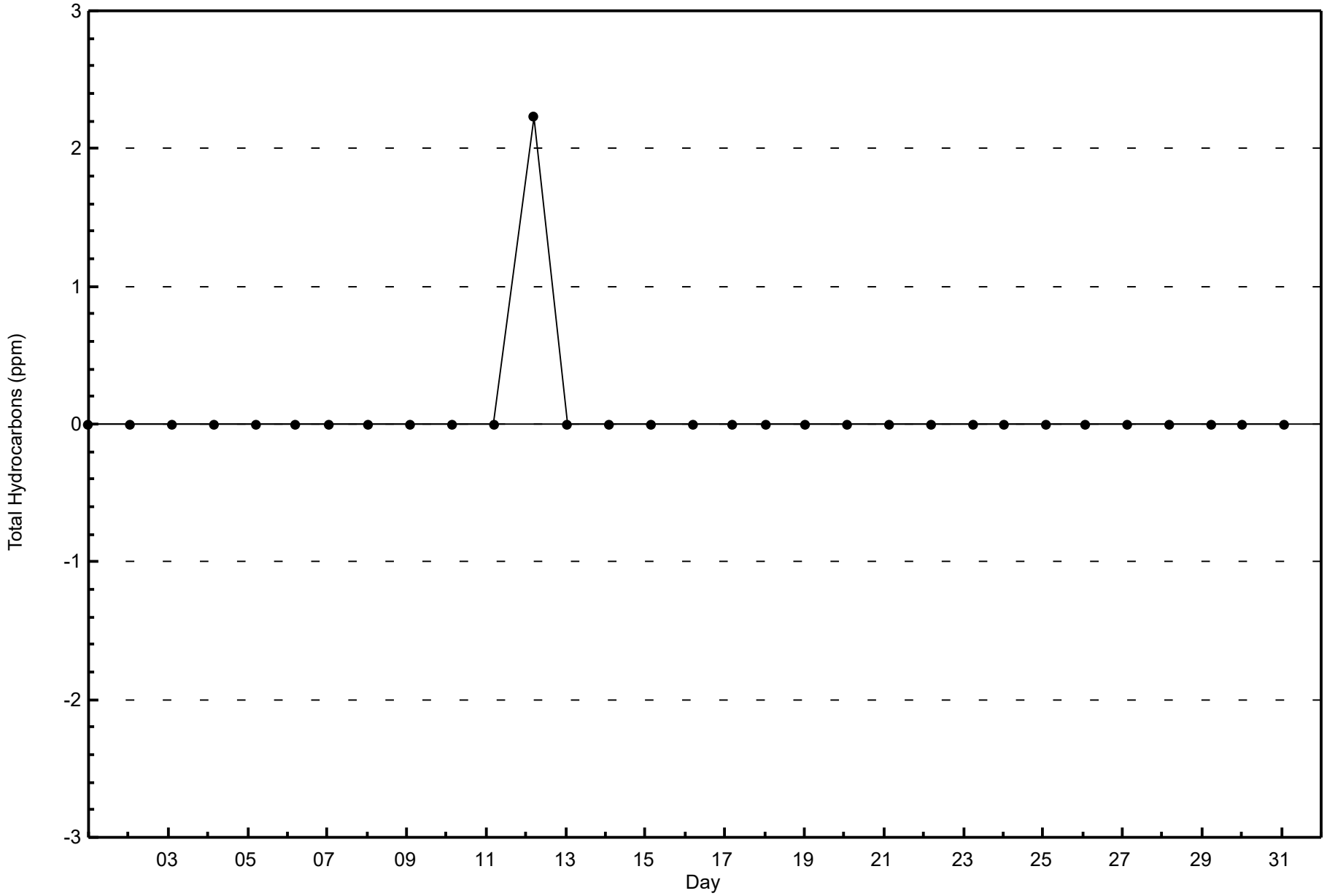
Total Number of Hours: 744

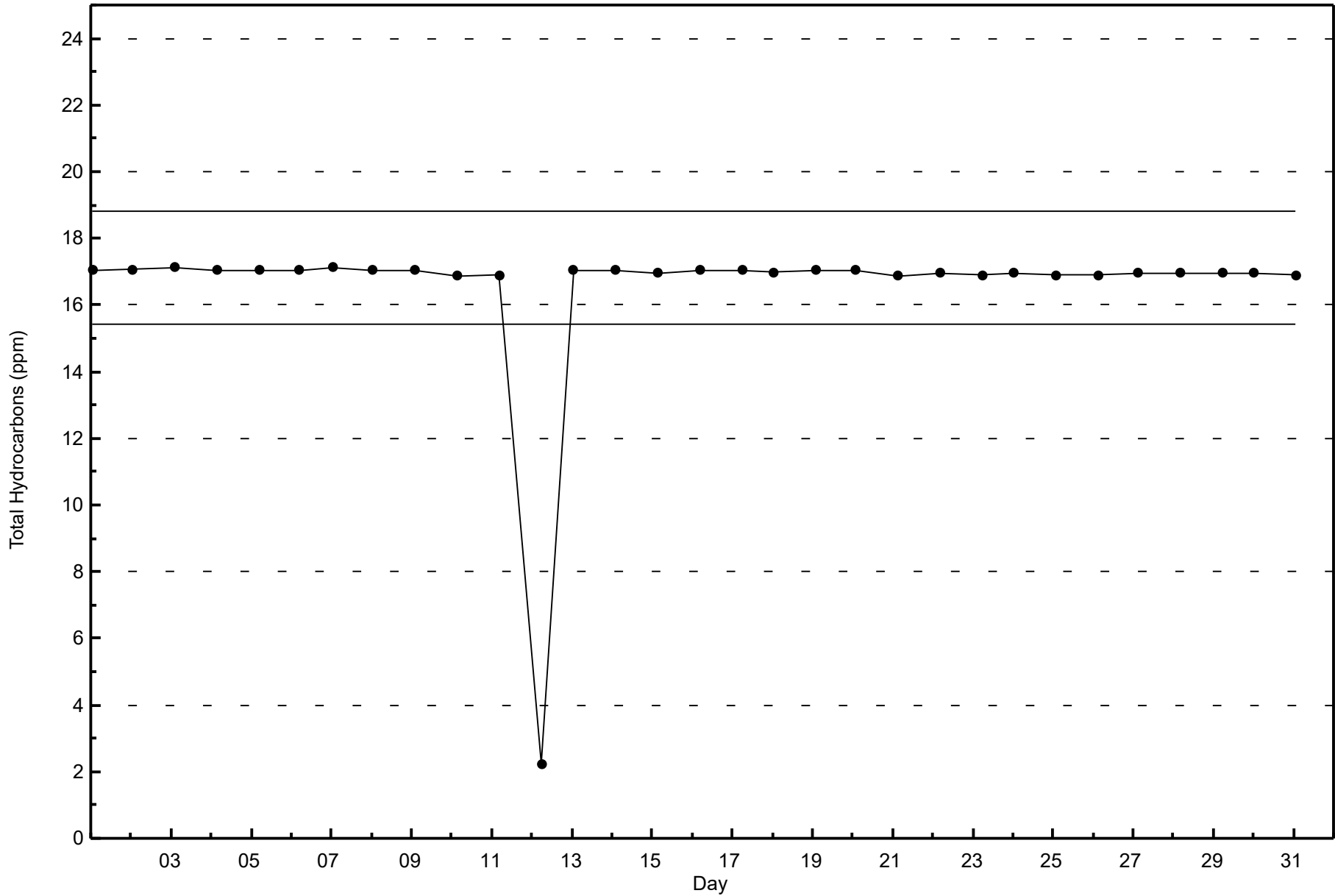


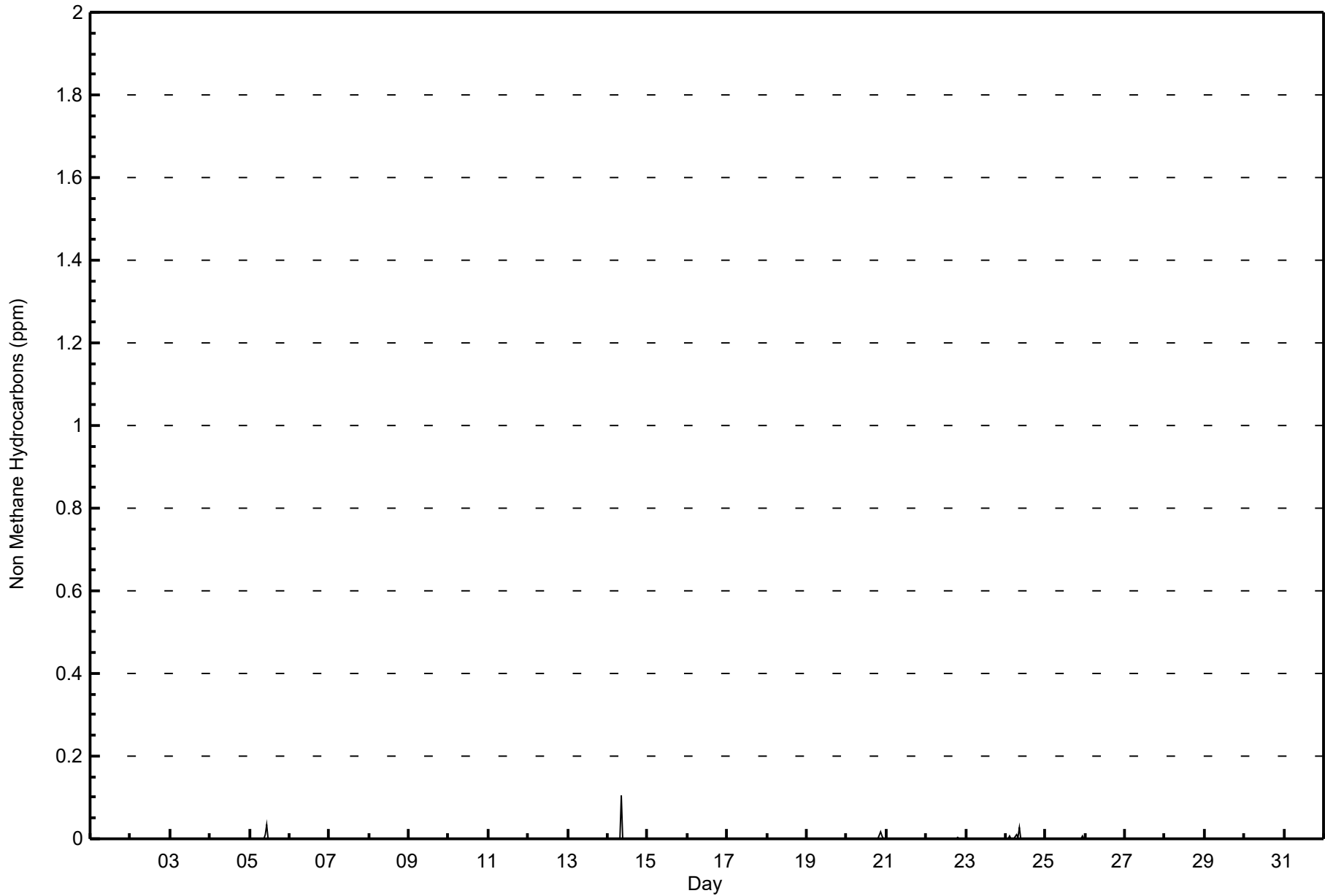
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Barge Landing











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	695	98.72	98.72
0.006 - 0.05	8	1.14	99.86
0.06 - 0.1	1	0.14	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing - March 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	92	110	27	5	8	37	66	144	68	16	9	19	15	7	13	44	680
0.006 - 0.05	0	3	1	0	0	0	0	4	0	0	0	0	0	0	0	0	8
0.06 - 0.1	0	0	0	0	0	0	0	1	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
Totals	92	113	28	5	8	37	66	149	68	16	9	19	15	7	13	44	689

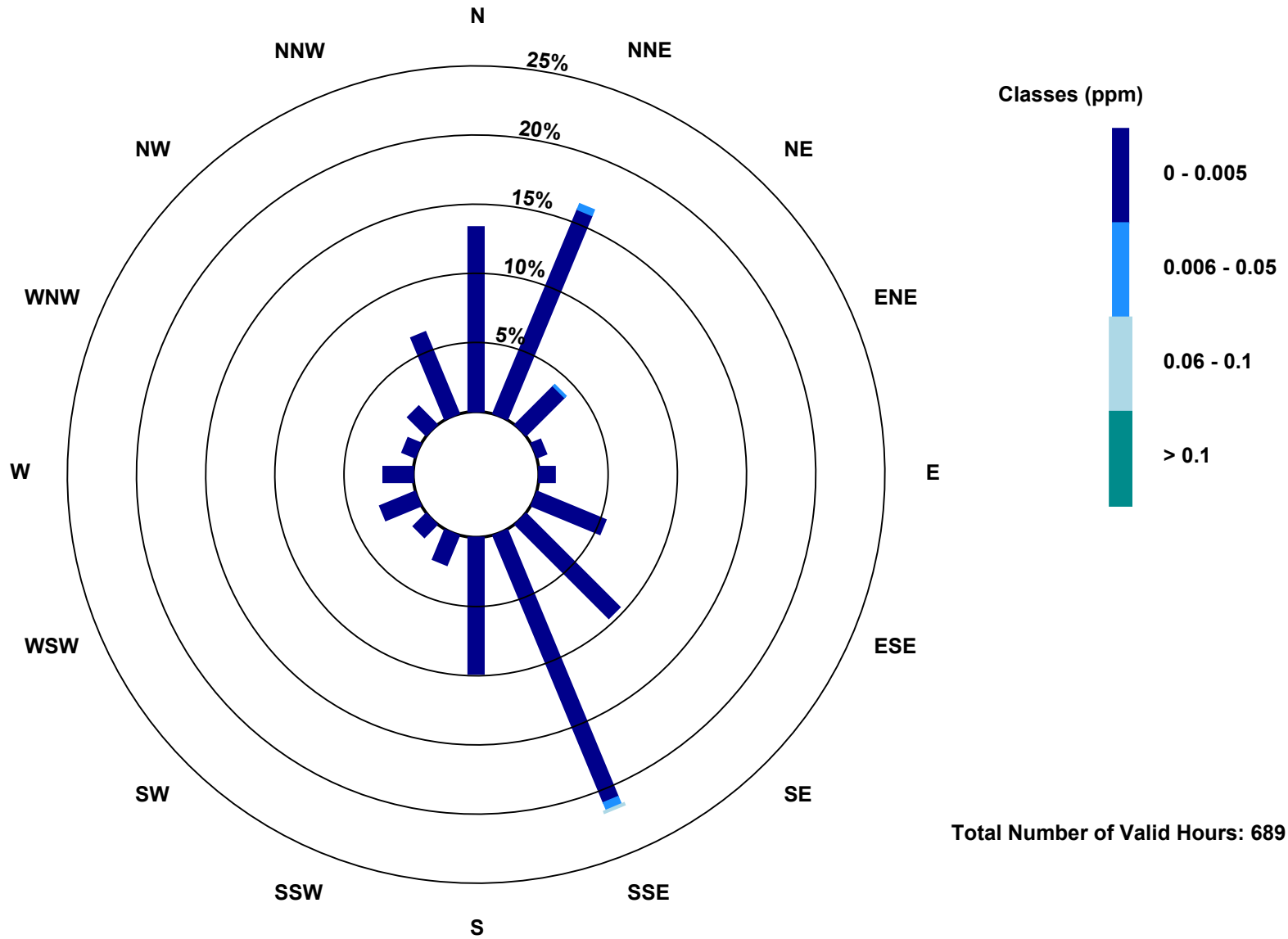
Total Number of Valid Hours: 689

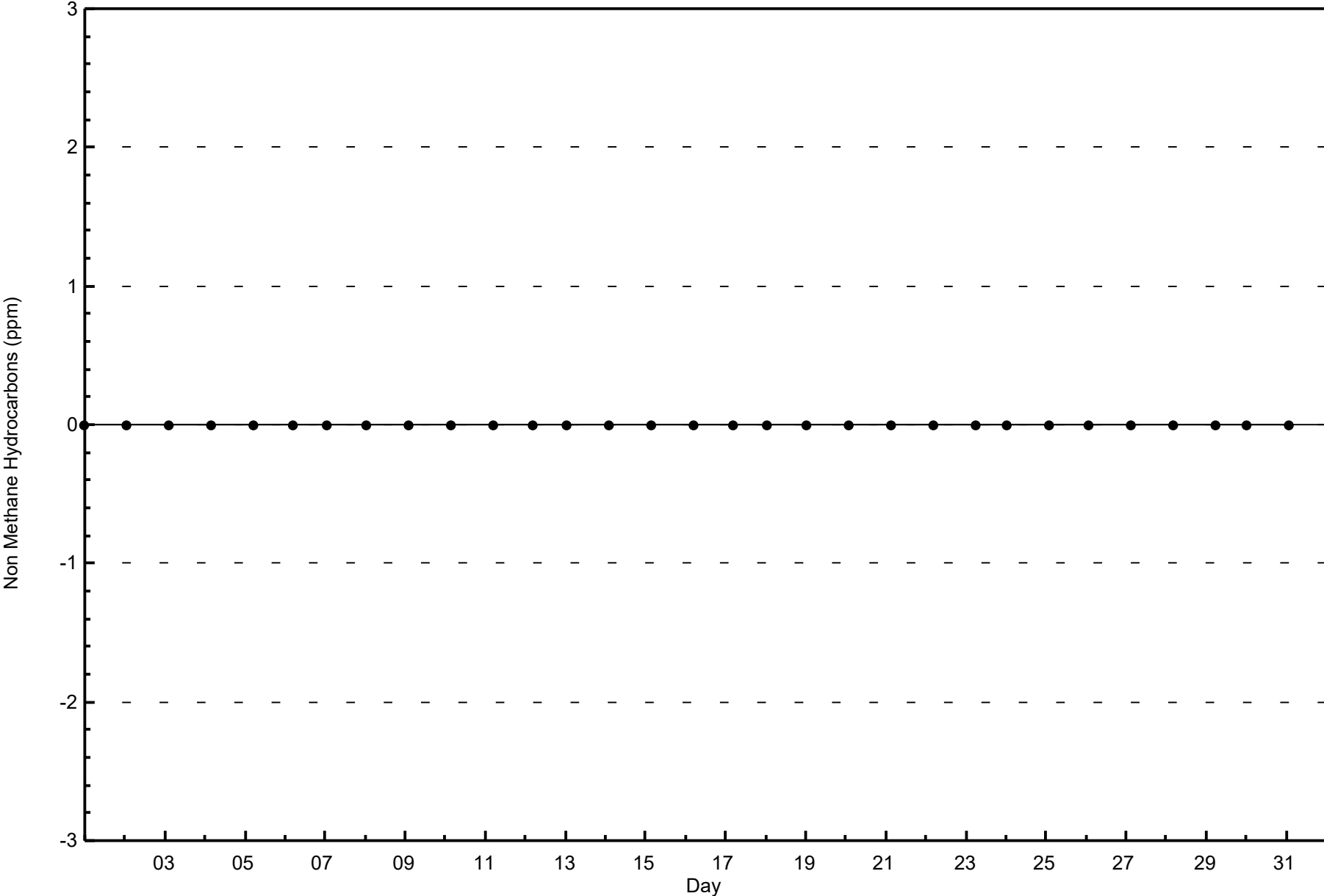
Total Number of Hours: 744

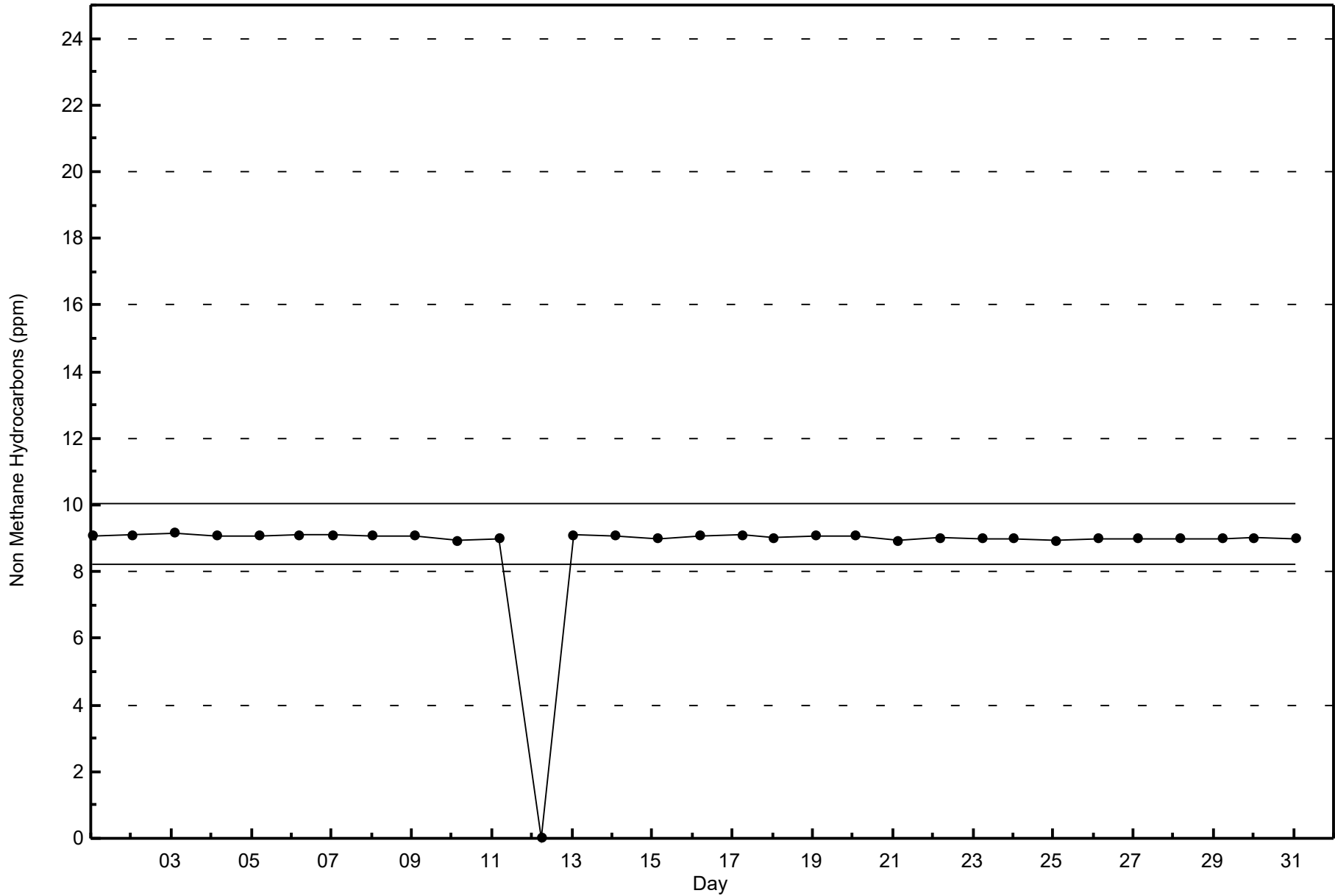


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing



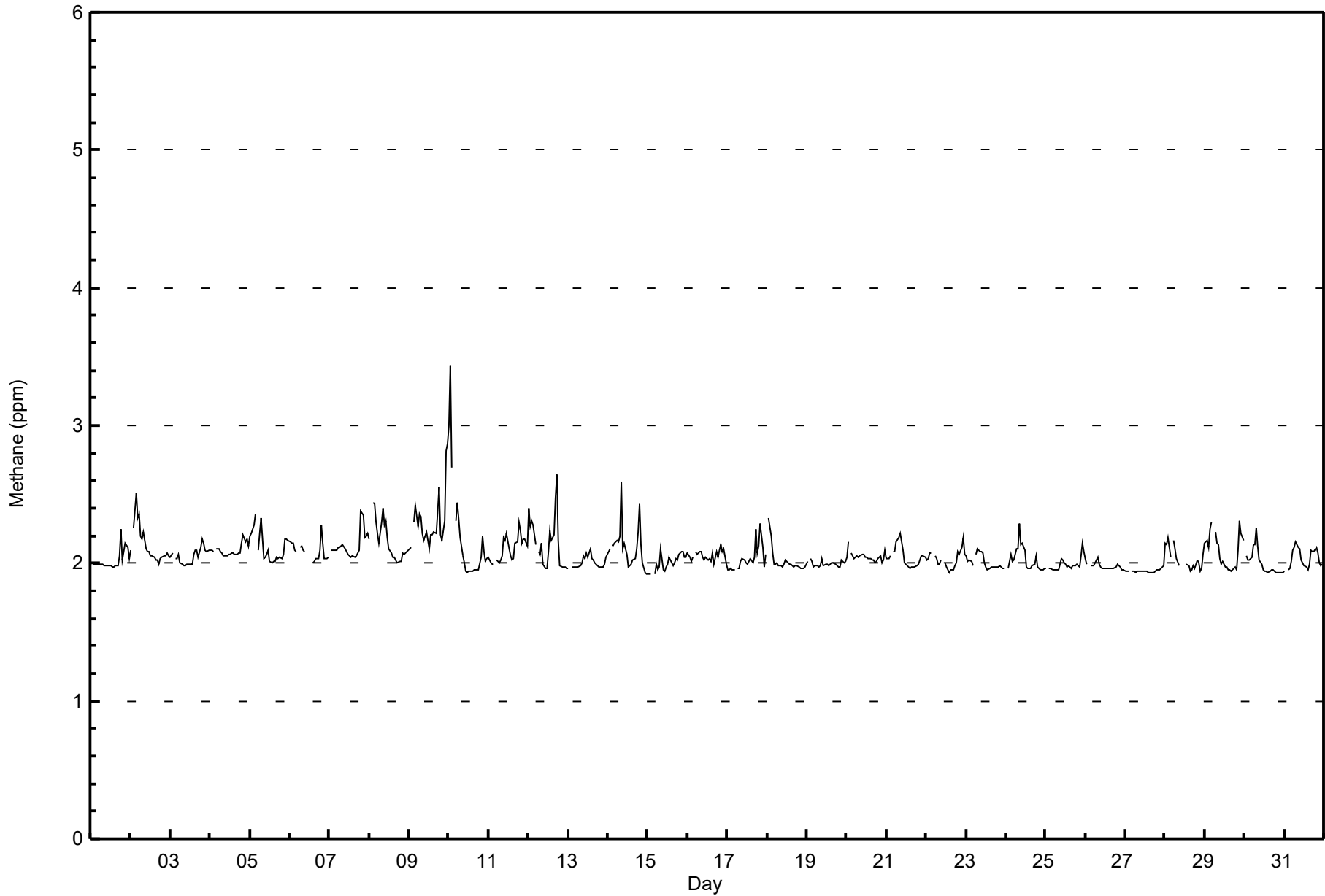






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Barge Landing - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Barge Landing - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	409	58.10	58.10
2.1 - 3.0	294	41.76	99.86
3.1 - 10.0	1	0.14	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Barge Landing - March 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	82	21	4	3	29	56	80	23	9	6	14	13	5	6	19	407
2.1 - 3.0	55	31	7	1	5	8	10	68	45	7	3	5	2	2	7	25	281
3.1 - 10.0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	92	113	28	5	8	37	66	149	68	16	9	19	15	7	13	44	689

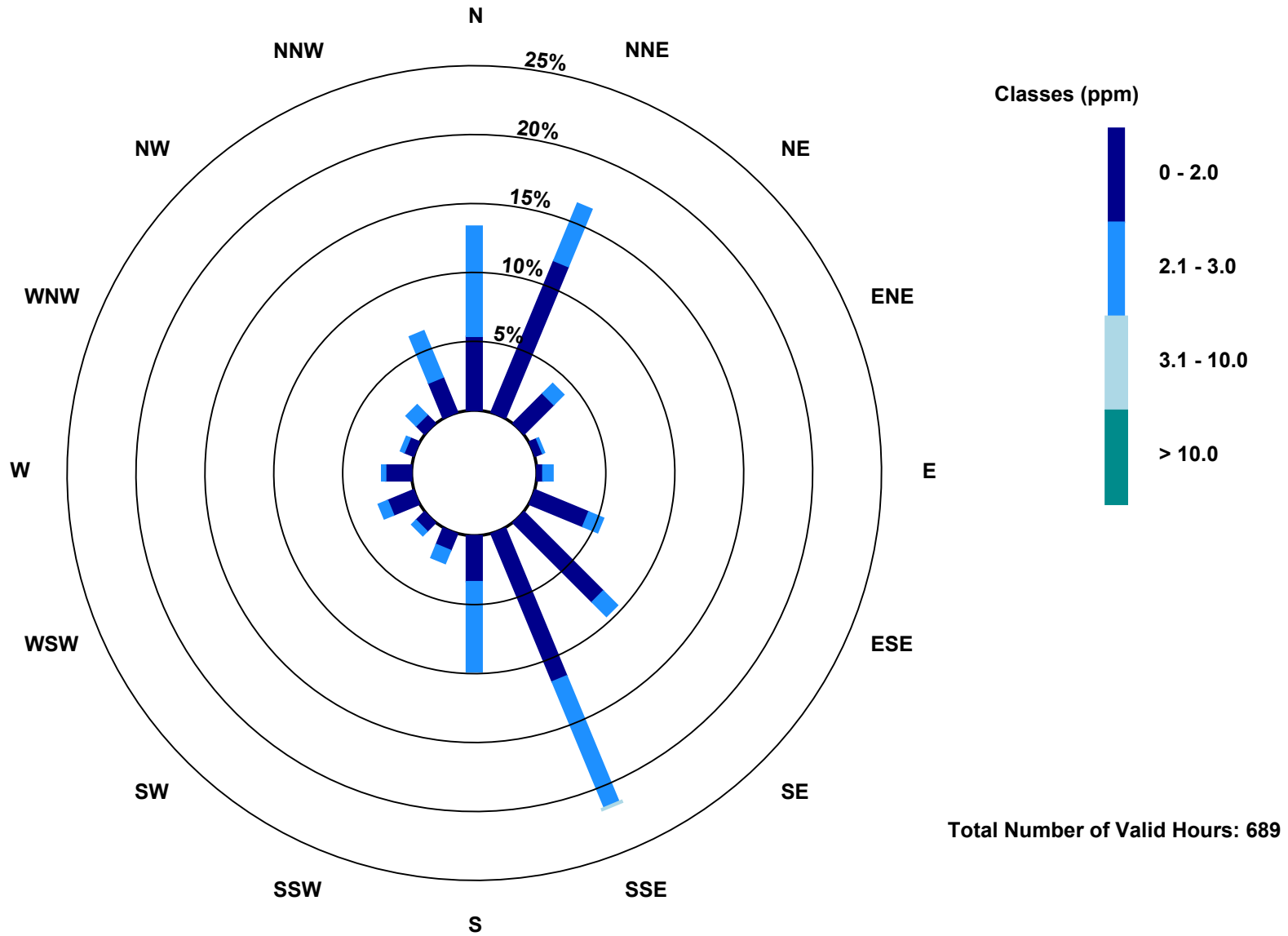
Total Number of Valid Hours: 689

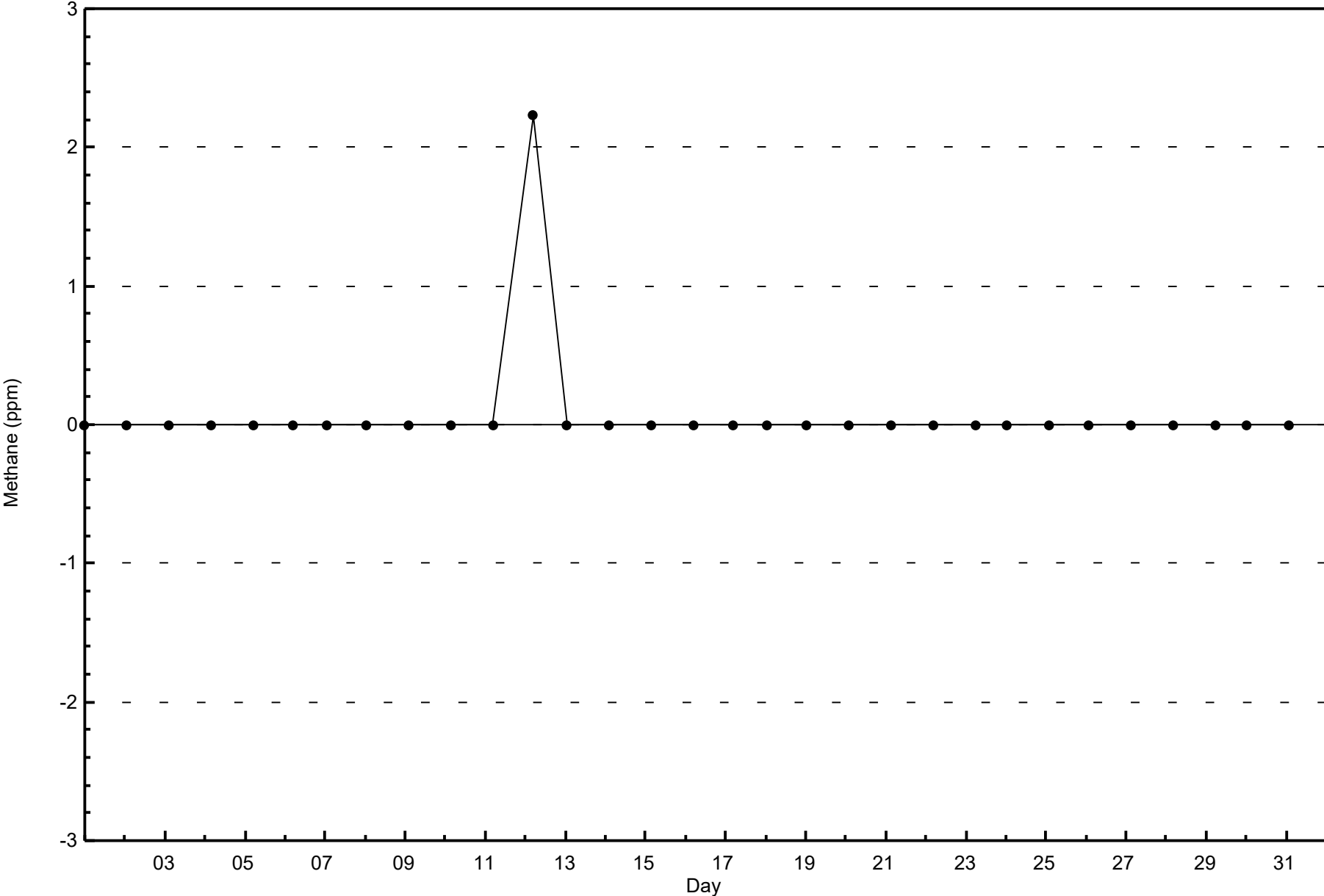
Total Number of Hours: 744

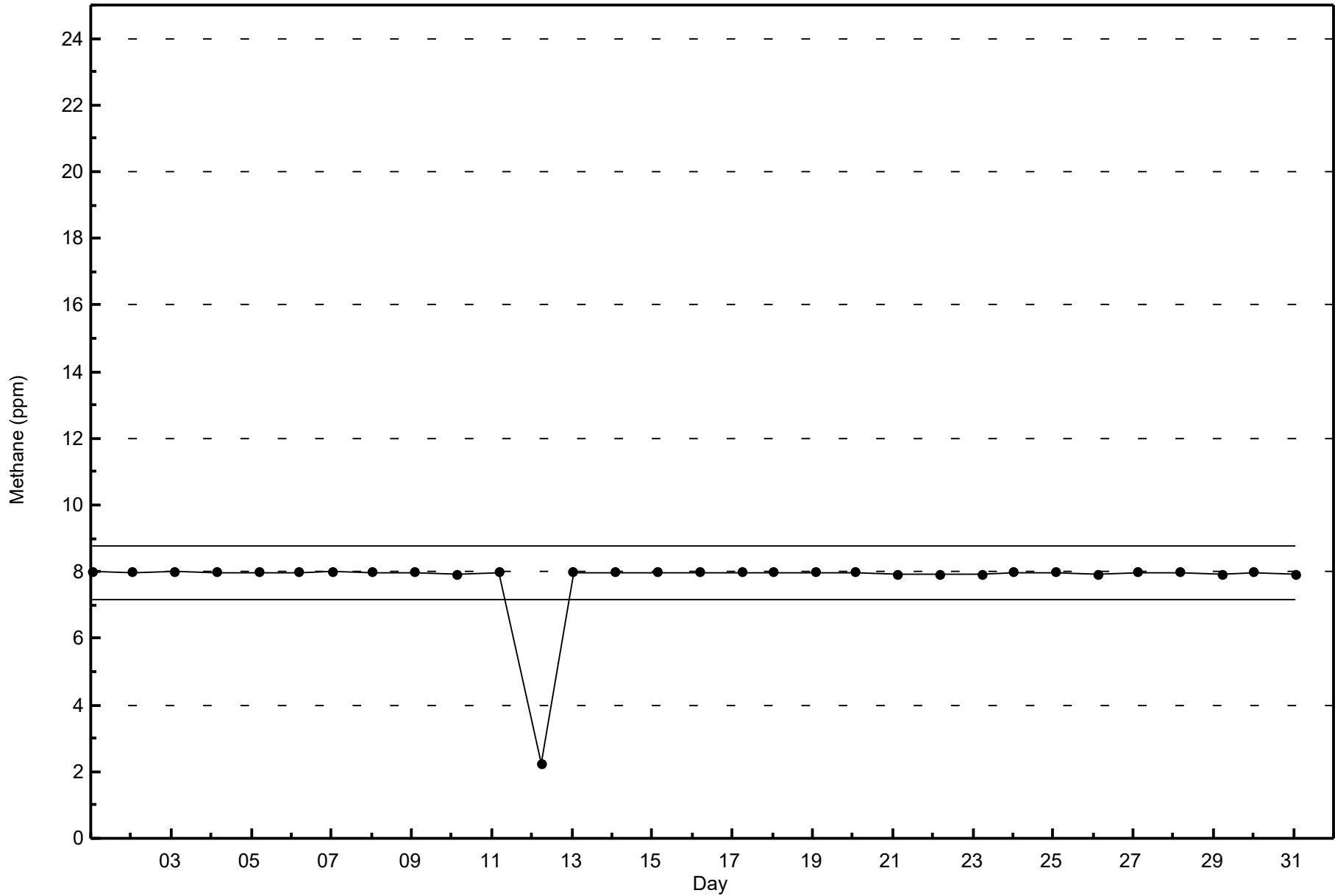


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Barge Landing







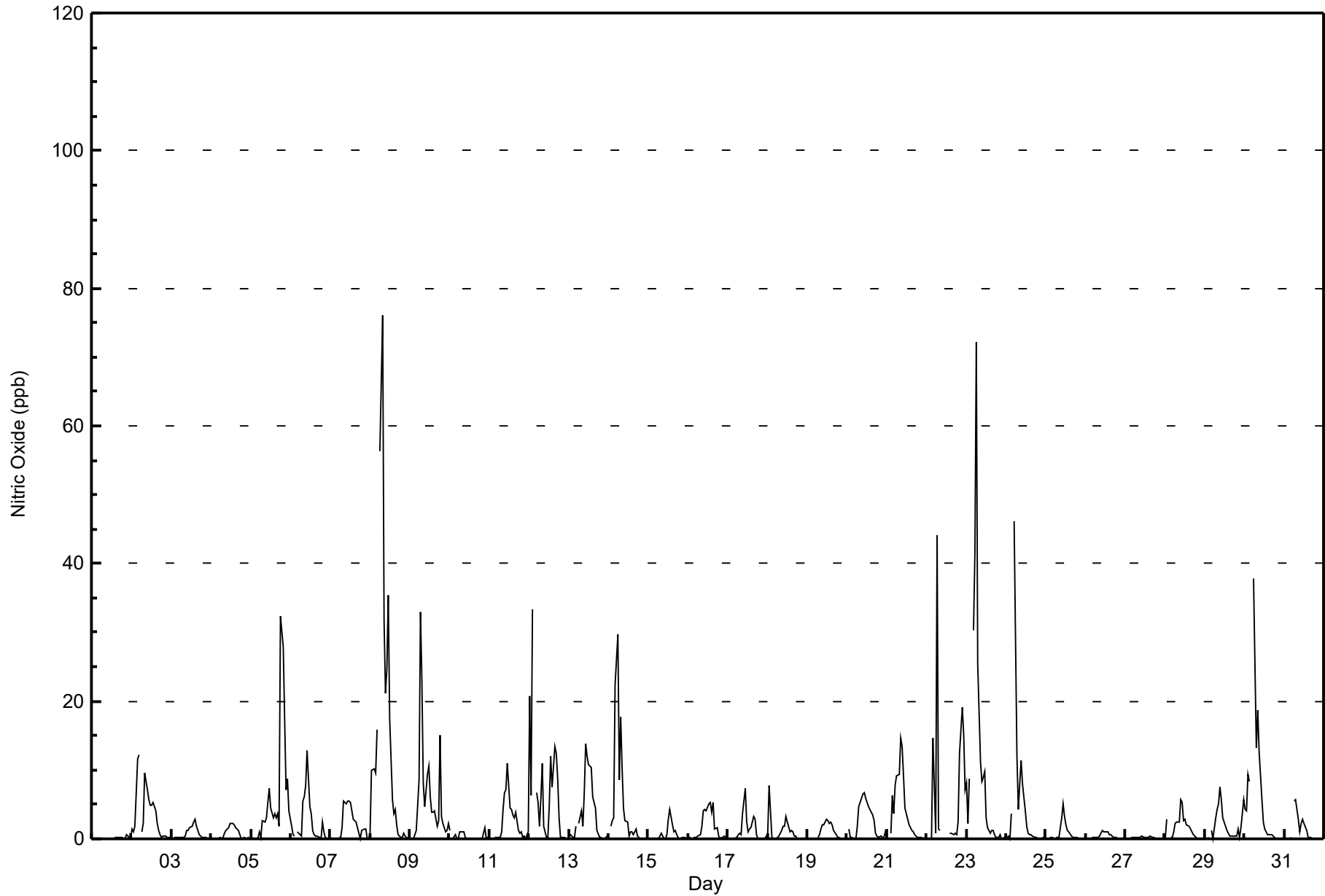


Maximum Value: 76.0 ppb on Mar 8 08:00		Maximum Daily Average: 14.2 ppb on Mar 8		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.1 ppb on Mar 1		Hours of Data: 708																						
Maximum Diurnal Average: 9.1 ppb at hour 7		Minimum Diurnal Average: 0.8 ppb at hour 24		Hours of Missing Data: 36																						
Monthly Average: 3.19 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.7 Q ₃ = 3.1 P ₉₀ = 8.2 P ₉₉ = 35.2		Hours of Calibration: 36																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.0	0.1	0.7	0.2	0.1	0.1	0.1	
2-Mar	1.5	0.9	1.9	11.6	12.3	Z	1.0	2.2	9.5	7.1	5.8	4.8	5.0	5.2	4.2	2.3	1.3	0.6	0.2	0.3	0.3	0.3	0.2	0.1	0.1	
3-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	1.1	1.2	1.6	1.8	2.4	2.8	1.7	1.2	0.5	0.2	0.2	0.1	0.1	0.0	0.1	0.1	
4-Mar	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.2	0.8	1.3	1.5	2.2	2.3	2.3	2.0	1.6	1.2	0.5	0.0	0.0	0.1	0.1	0.2	0.0	0.0	
5-Mar	0.0	0.1	Z	0.1	0.3	1.0	0.3	2.7	2.5	3.1	5.3	7.4	4.5	3.2	3.6	3.0	3.7	1.8	32.4	27.9	17.3	7.2	8.7	4.1	4.1	
6-Mar	1.7	0.6	0.4	Z	1.1	0.7	0.4	5.5	6.2	7.6	12.9	4.6	3.6	1.3	0.7	0.4	0.3	0.1	0.0	2.5	1.0	0.1	0.1	0.1	0.1	
7-Mar	0.1	0.0	0.1	0.1	Z	0.2	0.2	1.7	5.5	5.0	5.6	5.4	5.2	4.1	2.9	2.5	1.7	0.9	0.0	1.3	1.5	1.5	0.0	0.0	0.0	
8-Mar	0.8	10.0	10.1	9.6	16.0	Z	56.3	76.0	31.7	21.2	24.6	35.3	17.5	5.6	3.7	4.3	2.1	0.6	0.1	0.2	0.7	0.4	0.2	0.1	0.1	
9-Mar	Z	0.1	0.0	0.5	1.2	8.6	33.0	23.2	8.1	4.6	9.4	10.6	6.0	3.8	4.0	4.1	1.8	2.7	15.0	3.3	2.2	1.1	1.2	2.3	2.3	
10-Mar	1.3	Z	0.1	0.5	0.0	0.0	1.0	0.9	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.7	0.1	0.1	0.1	
11-Mar	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.9	4.2	6.8	7.1	11.0	4.5	4.3	3.5	3.1	3.9	1.3	0.7	1.0	0.1	0.4	0.1	1.1	1.1	
12-Mar	20.7	6.2	33.4	Z	6.8	5.4	1.8	5.8	11.1	1.8	0.2	0.3	4.9	12.0	7.6	13.3	12.5	8.8	3.0	0.3	0.1	0.3	0.1	0.0	0.0	
13-Mar	0.1	0.7	0.2	0.2	1.9	Z	2.3	4.0	1.9	6.8	13.9	11.9	10.9	10.4	6.1	5.2	4.5	1.3	0.2	0.2	0.1	0.1	0.0	0.5	0.5	
14-Mar	Z	1.8	2.7	3.1	22.3	29.7	8.6	17.7	10.4	4.5	2.6	2.4	0.4	0.9	1.0	0.5	1.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	
15-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.9	0.0	0.0	0.6	2.9	4.3	2.0	1.0	1.2	0.6	0.2	0.1	0.2	0.1	0.1	0.1	0.1	
16-Mar	0.1	0.1	Z	0.2	0.1	0.2	0.3	0.6	1.9	4.1	4.3	4.1	5.1	5.2	3.9	5.3	1.4	1.6	0.4	0.1	0.1	0.1	0.4	0.0	0.0	
17-Mar	0.0	0.1	0.0	Z	0.1	0.2	0.7	0.7	0.7	3.6	7.4	2.5	1.0	1.5	1.6	3.3	2.8	0.7	0.0	0.0	0.0	0.0	0.0	0.3	0.3	
18-Mar	0.6	7.8	0.1	0.1	Z	0.0	0.1	0.4	1.2	1.8	1.8	3.2	2.4	1.1	1.2	1.0	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
19-Mar	0.0	0.0	0.0	0.1	0.1	Z	0.1	0.5	1.4	2.1	2.1	2.8	2.7	2.2	2.4	2.0	1.3	0.6	0.2	0.1	0.1	0.1	0.0	0.0	0.0	
20-Mar	Z	1.5	0.2	0.1	0.0	0.0	1.9	4.7	5.2	6.5	6.6	5.9	5.3	4.8	3.9	3.5	2.7	0.9	0.3	0.1	0.5	0.2	0.2	1.0	1.0	
21-Mar	0.1	Z	0.9	6.3	3.6	7.8	9.1	9.4	14.6	13.4	9.2	4.4	2.7	2.1	1.6	1.3	0.9	0.5	0.2	0.2	0.2	0.1	0.1	0.1	0.1	
22-Mar	0.1	0.0	Z	0.1	14.5	0.7	44.1	1.5	1.2	C	C	C	C	C	0.7	0.8	0.5	0.7	0.7	2.5	12.5	19.2	15.1	7.1	7.1	
23-Mar	8.1	2.1	8.8	Z	30.3	41.6	72.2	25.5	11.3	8.4	8.9	9.8	3.1	1.6	0.9	1.2	1.3	0.7	0.2	0.3	0.6	0.1	0.1	0.1	0.1	
24-Mar	0.1	0.3	0.0	3.7	Z	46.1	12.2	4.3	7.9	11.5	7.8	4.1	1.8	0.7	0.6	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	
25-Mar	0.0	0.0	0.1	0.2	0.3	Z	0.2	0.2	0.3	3.0	5.0	3.4	2.1	1.3	1.1	0.5	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	
26-Mar	Z	0.0	0.0	0.1	0.2	0.1	0.2	0.4	0.9	1.3	1.1	1.1	1.0	0.6	0.7	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
27-Mar	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.1	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
28-Mar	0.2	2.9	Z	0.1	0.3	1.0	2.3	2.5	2.3	5.8	5.2	2.7	2.9	2.0	1.9	1.4	0.9	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	
29-Mar	0.1	0.0	0.2	Z	1.2	0.1	3.1	4.3	5.0	7.6	5.8	3.2	1.9	1.3	0.9	0.5	0.3	0.5	0.4	0.4	1.4	0.2	1.7	5.8	5.8	
30-Mar	4.3	4.1	9.3	8.3	Z	37.8	25.4	13.2	18.7	12.6	5.8	2.5	1.3	1.0	0.6	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
31-Mar	0.1	0.0	0.0	0.0	0.3	Z	5.4	5.7	2.9	1.0	2.3	2.8	2.2	1.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Barge Landing - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Barge Landing - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	686	96.89	96.89
21 - 40	16	2.26	99.15
41 - 80	6	0.85	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



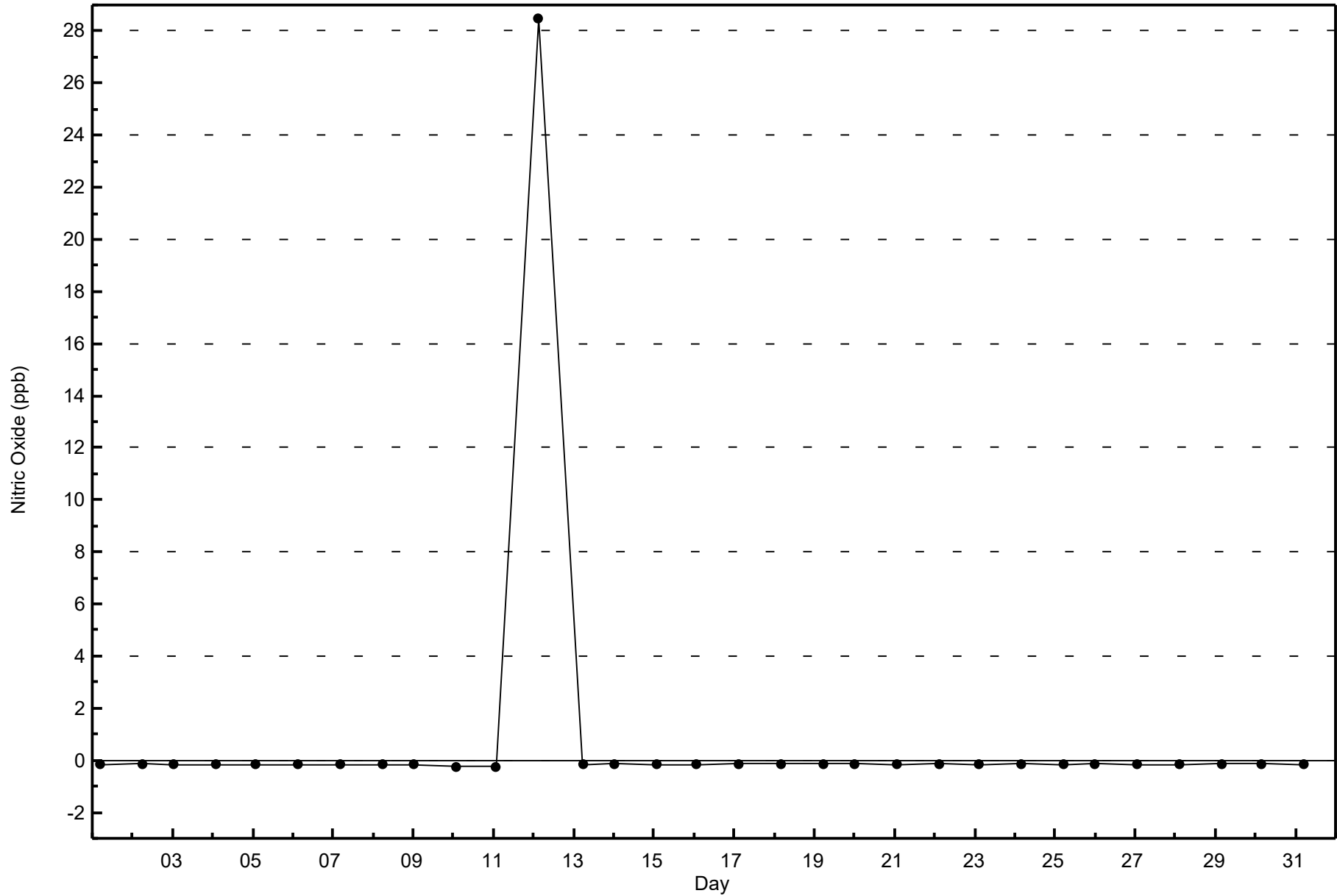
Wood Buffalo Environmental Association
Frequency Distribution

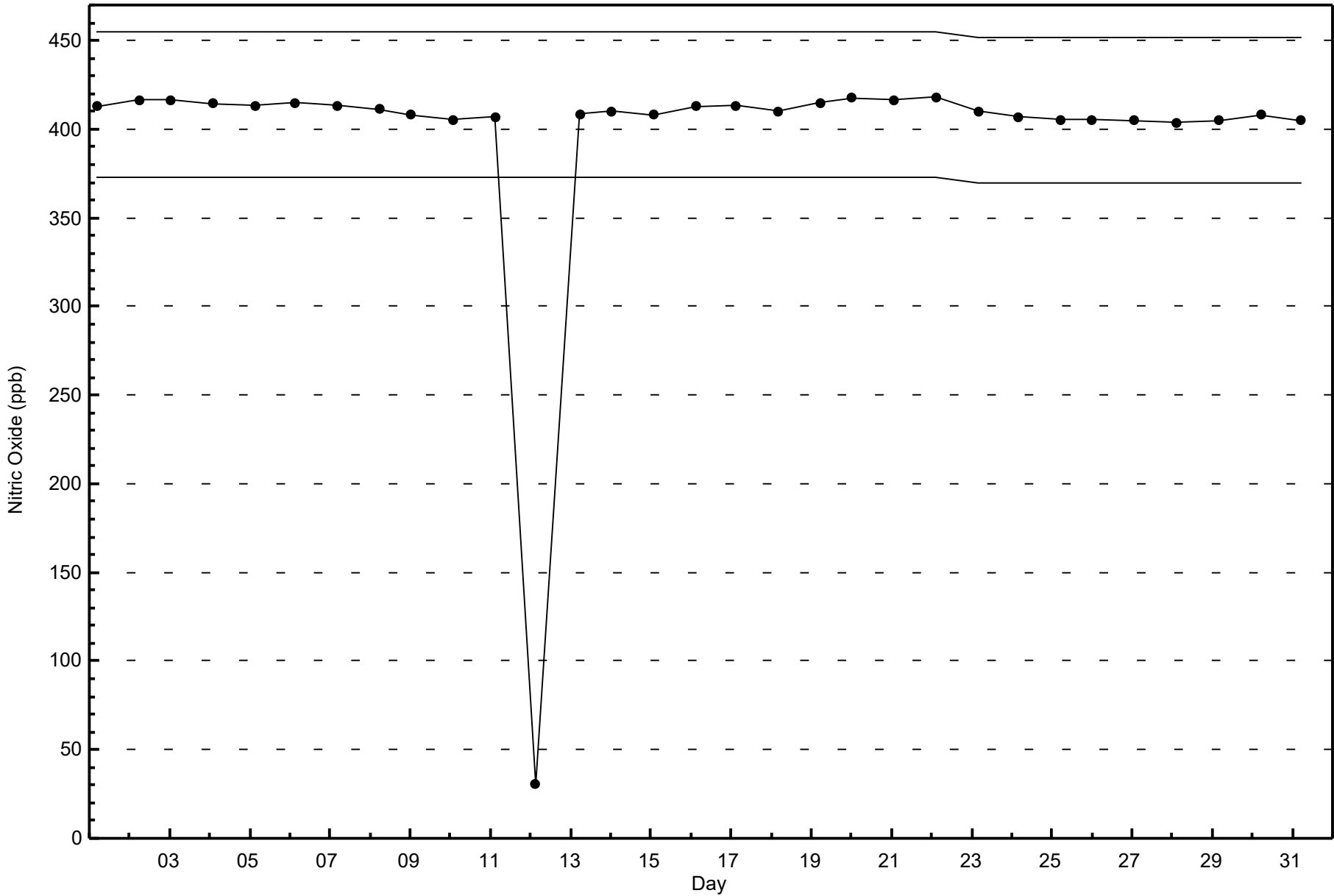
Nitric Oxide (NO) - ppb
Barge Landing - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	95	114	28	5	9	34	59	144	65	15	7	17	14	8	13	44	671
21 - 40	0	0	0	0	0	2	3	6	4	0	1	0	0	0	0	0	16
11 - 80	0	0	0	0	0	0	3	1	1	0	1	0	0	0	0	0	6
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
Totals	95	114	28	5	9	36	65	151	70	15	9	17	14	8	13	44	693

Total Number of Valid Hours: 693

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

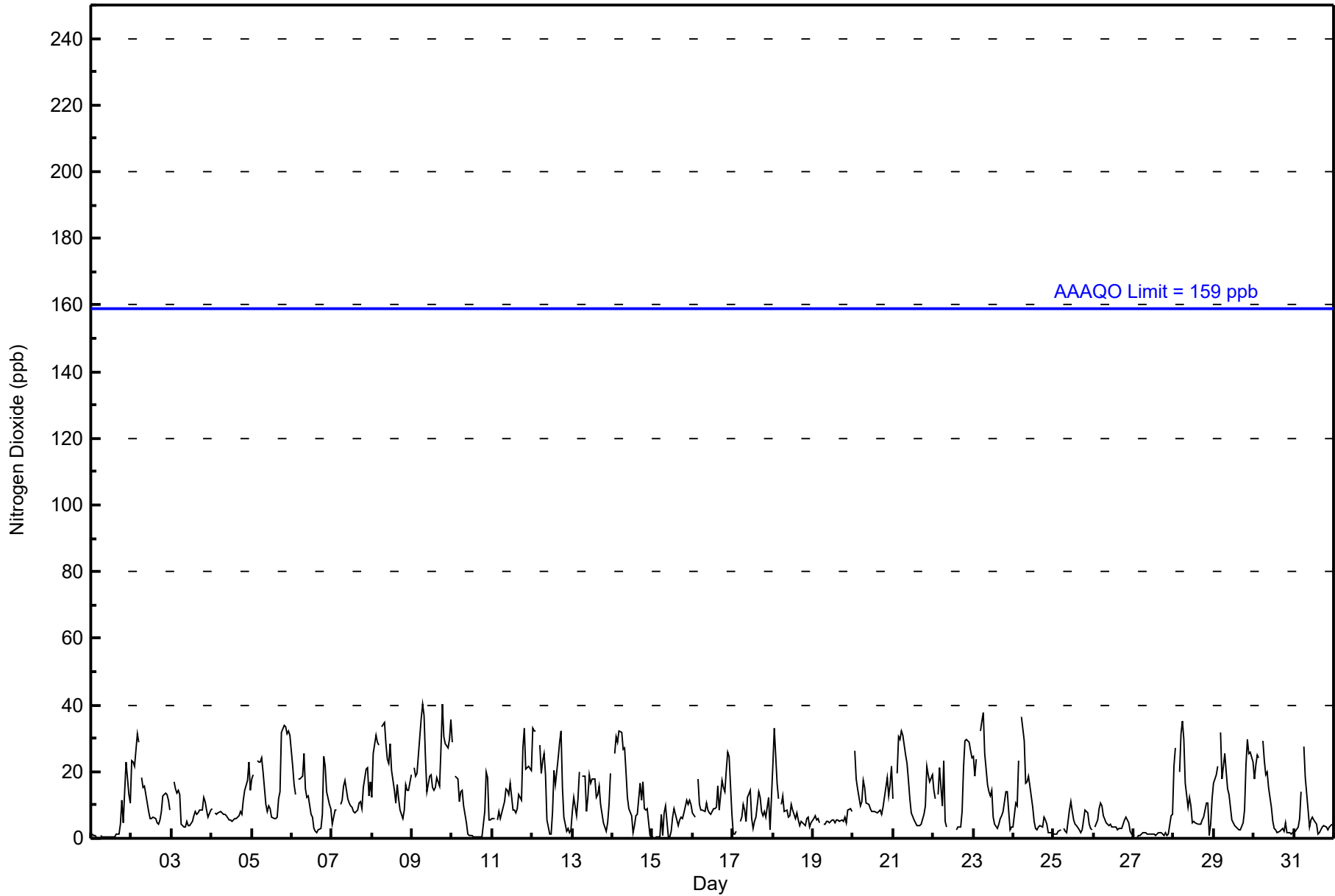
Barge Landing - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 40.3 ppb on Mar 9 19:00		Maximum Daily Average: 24.8 ppb on Mar 9																	Hours of Data: 708																														
Minimum Value: 0.3 ppb on Mar 1 12:00		Minimum Daily Average: 1.7 ppb on Mar 27																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 17.5 ppb at hour 7		Minimum Diurnal Average: 5.7 ppb at hour 15																	Hours of Calibration: 36																														
Monthly Average: 11.24 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 1.8 Q ₁ = 4.4 Median = 8.4 Q ₃ = 16.5 P ₉₀ = 25.3 P ₉₉ = 35.1																	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-Mar	1.4	1.0	0.9	0.6	Z	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.6	1.1	1.4	4.3	11.3	4.7	14.0	23.0	13.3	10.4	4.0	23.0																							
2-Mar	23.4	22.7	21.4	31.5	28.9	Z	18.4	15.3	15.5	10.7	8.0	6.1	6.1	6.5	6.0	4.5	4.3	5.3	7.9	12.7	13.5	13.0	11.6	8.5	13.1	31.5																							
3-Mar	Z	16.9	15.0	13.4	14.6	13.3	4.4	3.3	3.4	4.9	4.0	3.7	5.1	6.6	8.1	7.3	7.6	8.4	8.3	12.3	10.9	8.5	6.3	8.5	8.5	16.9																							
4-Mar	8.8	Z	7.6	7.2	7.7	8.2	7.5	7.3	7.1	6.6	5.6	5.4	5.0	5.3	5.8	6.1	6.7	8.0	7.1	11.6	14.2	17.4	22.8	14.2	8.8	22.8																							
5-Mar	17.9	19.2	Z	23.3	22.7	22.8	24.1	20.1	10.3	7.9	9.6	8.7	6.2	5.8	5.8	6.2	11.7	14.0	31.7	34.0	33.6	31.2	32.1	30.9	18.7	34.0																							
6-Mar	21.7	16.1	13.3	Z	17.7	17.6	18.5	25.3	14.7	12.4	12.6	7.4	6.2	2.8	2.2	1.9	2.4	2.9	7.2	24.4	21.7	14.1	10.0	8.9	12.3	25.3																							
7-Mar	4.2	6.4	8.6	8.3	Z	10.0	11.4	15.6	17.5	11.7	10.4	9.8	9.2	8.2	7.5	8.3	10.8	11.2	9.1	15.4	20.8	21.0	12.8	17.1	11.5	21.0																							
8-Mar	12.2	25.3	31.1	29.0	27.9	Z	33.6	34.6	28.5	23.7	22.3	28.3	20.5	14.6	10.8	16.0	11.8	8.4	5.8	8.4	16.1	14.2	14.2	18.9	19.8	34.6																							
9-Mar	Z	21.3	18.7	19.4	25.1	35.9	40.2	36.7	24.0	13.9	18.5	19.1	15.4	14.6	15.2	18.3	15.5	27.0	40.3	30.3	28.5	27.2	29.5	35.5	24.8	40.3																							
10-Mar	29.0	Z	18.7	17.6	10.9	14.1	14.4	9.8	4.7	1.2	0.8	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.4	8.0	19.8	18.4	5.3	5.5	7.9	29.0																							
11-Mar	6.0	6.1	Z	5.4	8.1	6.1	9.4	11.1	15.0	14.4	13.0	16.4	8.4	8.4	7.7	8.7	13.3	11.6	27.1	33.2	20.9	21.1	21.7	20.3	13.6	33.2																							
12-Mar	33.2	32.2	32.2	Z	28.0	19.4	23.3	25.6	19.1	5.4	1.1	1.1	8.2	20.3	16.0	24.3	29.0	32.2	15.2	6.4	2.3	2.8	1.5	2.5	16.6	33.2																							
13-Mar	8.1	12.3	6.8	11.8	19.9	Z	18.5	18.8	8.0	12.4	19.2	16.6	17.8	17.9	12.3	13.3	15.7	10.3	4.7	3.5	2.3	4.6	10.2	19.5	12.4	19.9																							
14-Mar	Z	25.3	30.3	29.0	32.0	31.8	26.5	27.0	19.8	12.3	9.0	6.6	1.8	3.8	6.9	7.3	16.7	11.6	16.9	9.1	8.4	8.7	0.9	0.9	14.9	32.0																							
15-Mar	0.5	Z	0.5	0.3	0.4	7.2	0.8	7.6	9.8	0.4	0.4	2.3	6.4	9.0	5.4	3.9	5.3	6.2	6.0	7.7	11.4	10.2	11.5	10.3	5.4	11.5																							
16-Mar	7.5	6.2	Z	18.0	10.1	8.5	8.6	8.1	10.4	8.6	7.8	7.3	8.7	9.0	9.3	15.8	8.6	17.2	15.3	13.8	20.5	25.9	24.7	7.0	12.0	25.9																							
17-Mar	1.2	1.4	2.2	Z	4.9	6.5	10.1	8.4	5.0	12.1	14.6	5.8	2.9	5.1	6.4	13.9	12.3	8.1	6.8	7.9	6.4	12.3	2.4	12.1	7.3	14.6																							
18-Mar	22.0	33.1	16.7	11.8	Z	10.2	12.7	7.9	8.4	6.4	6.7	10.2	8.5	6.0	7.8	5.5	3.8	5.0	4.8	3.8	6.0	6.2	3.5	4.5	9.2	33.1																							
19-Mar	6.0	6.7	5.6	6.0	4.7	Z	4.3	4.3	5.2	5.2	4.6	5.6	5.3	4.7	5.3	5.5	5.1	5.3	4.9	6.5	4.5	8.4	8.7	7.9	5.7	8.7																							
20-Mar	Z	26.3	18.0	14.9	9.6	11.1	17.3	15.2	10.8	10.2	9.1	8.2	7.9	8.2	7.5	8.0	8.5	7.2	9.3	12.2	18.3	12.8	16.0	21.6	12.5	26.3																							
21-Mar	11.7	Z	19.3	30.7	29.5	32.0	31.1	24.8	22.3	17.3	11.9	7.6	5.5	4.5	3.8	3.9	4.0	4.3	7.0	9.7	21.4	18.9	16.9	18.9	15.5	32.0																							
22-Mar	14.2	12.0	Z	13.0	21.0	9.6	23.4	5.1	3.4	C	C	C	C	C	2.5	3.2	3.3	8.1	21.3	29.4	29.8	28.7	26.4	24.0	15.5	29.8																							
23-Mar	24.4	18.7	23.6	Z	32.2	35.0	37.9	25.5	16.3	13.9	12.9	14.5	6.5	4.3	2.9	4.4	6.0	6.7	7.9	13.8	13.8	7.9	2.6	3.3	14.6	37.9																							
24-Mar	3.3	10.8	9.8	23.2	Z	36.3	29.3	16.5	17.1	18.5	15.8	9.3	5.1	2.8	2.7	3.4	3.8	3.5	6.3	5.7	4.3	1.9	1.9	1.4	10.1	36.3																							
25-Mar	1.2	1.4	1.3	2.0	2.6	Z	3.0	2.2	1.8	8.6	11.1	8.1	5.7	4.1	3.9	2.4	1.9	2.5	5.3	8.3	7.8	4.1	3.0	2.5	4.1	11.1																							
26-Mar	Z	3.5	5.5	8.8	10.7	9.8	6.7	4.8	4.1	3.9	4.2	3.3	3.4	3.3	2.7	3.0	3.1	3.1	5.5	6.4	5.3	4.7	2.0	1.4	4.7	10.7																							
27-Mar	0.7	Z	0.6	0.8	1.0	1.5	1.9	1.5	1.4	1.2	1.3	1.3	1.1	0.7	1.2	1.8	1.7	1.3	1.0	1.5	1.0	1.4	6.9	7.2	1.7	7.2																							
28-Mar	21.8	27.0	Z	19.9	31.3	35.1	29.7	16.4	9.4	12.3	9.7	4.7	5.1	4.5	4.4	4.2	4.1	5.3	6.3	10.6	10.7	0.7	4.3	11.8	12.6	35.1																							
29-Mar	16.5	19.0	21.8	Z	31.8	17.8	25.6	19.9	14.9	13.1	9.4	5.5	3.7	3.2	2.9	2.5	2.4	4.5	8.5	22.2	29.6	25.4	26.0	22.9	15.2	31.8																							
30-Mar	17.6	21.9	24.9	24.3	Z	29.3	23.2	19.0	19.8	15.4	9.3	5.1	3.1	2.4	1.8	2.2	2.6	3.0	2.3	4.5	1.9	1.7	1.4	1.5	10.4	29.3																							
31-Mar	2.0	2.2	3.3	6.0	13.8	Z	27.4	18.3	8.3	3.2	5.3	6.3	5.6	4.2	1.2	1.5	2.7	3.3	3.8	3.4	2.5	3.5	3.9	4.2	5.9	27.4																							
																								12.2	15.2	13.8	14.5	17.2	17.2	17.5	14.7	11.5	9.6	9.0	7.8	6.5	6.4	5.7	6.7	7.3	8.1	10.2	12.3	13.6	12.9	11.4	11.7	Diurnal Average	
																								33.2	33.1	32.2	31.5	32.2	36.3	40.2	36.7	28.5	23.7	22.3	28.3	20.5	20.3	16.0	24.3	29.0	32.2	40.3	34.0	33.6	31.2	32.1	35.5	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Barge Landing - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Barge Landing - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	589	83.19	83.19
21 - 40	119	16.81	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 (NO₂) - ppb
Barge Landing - March 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	79	108	25	4	5	29	54	123	56	14	5	16	12	7	12	30	579
21 - 40	16	6	3	1	4	7	11	28	14	1	4	1	2	1	1	14	114
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
Totals	95	114	28	5	9	36	65	151	70	15	9	17	14	8	13	44	693

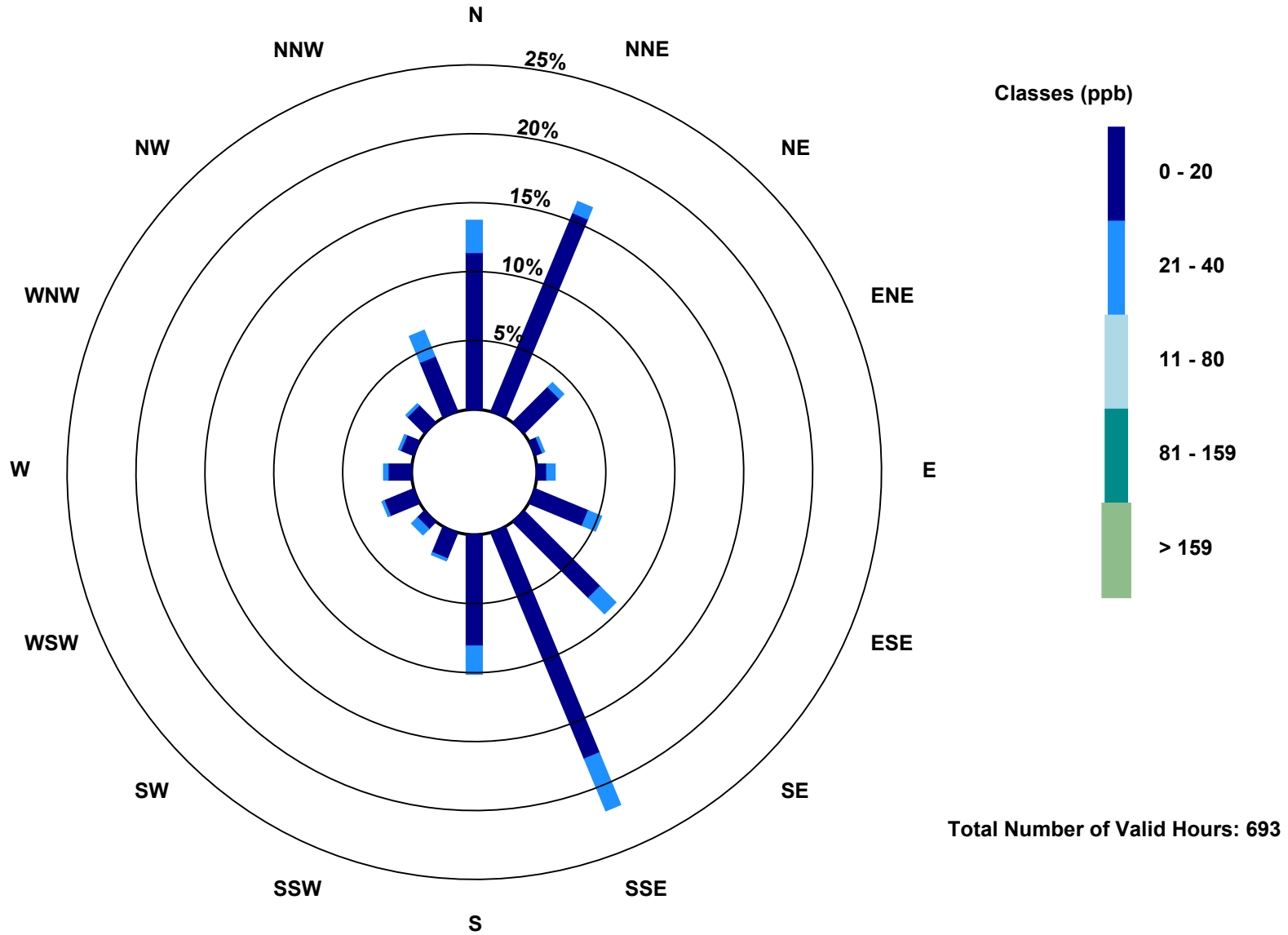
Total Number of Valid Hours: 693

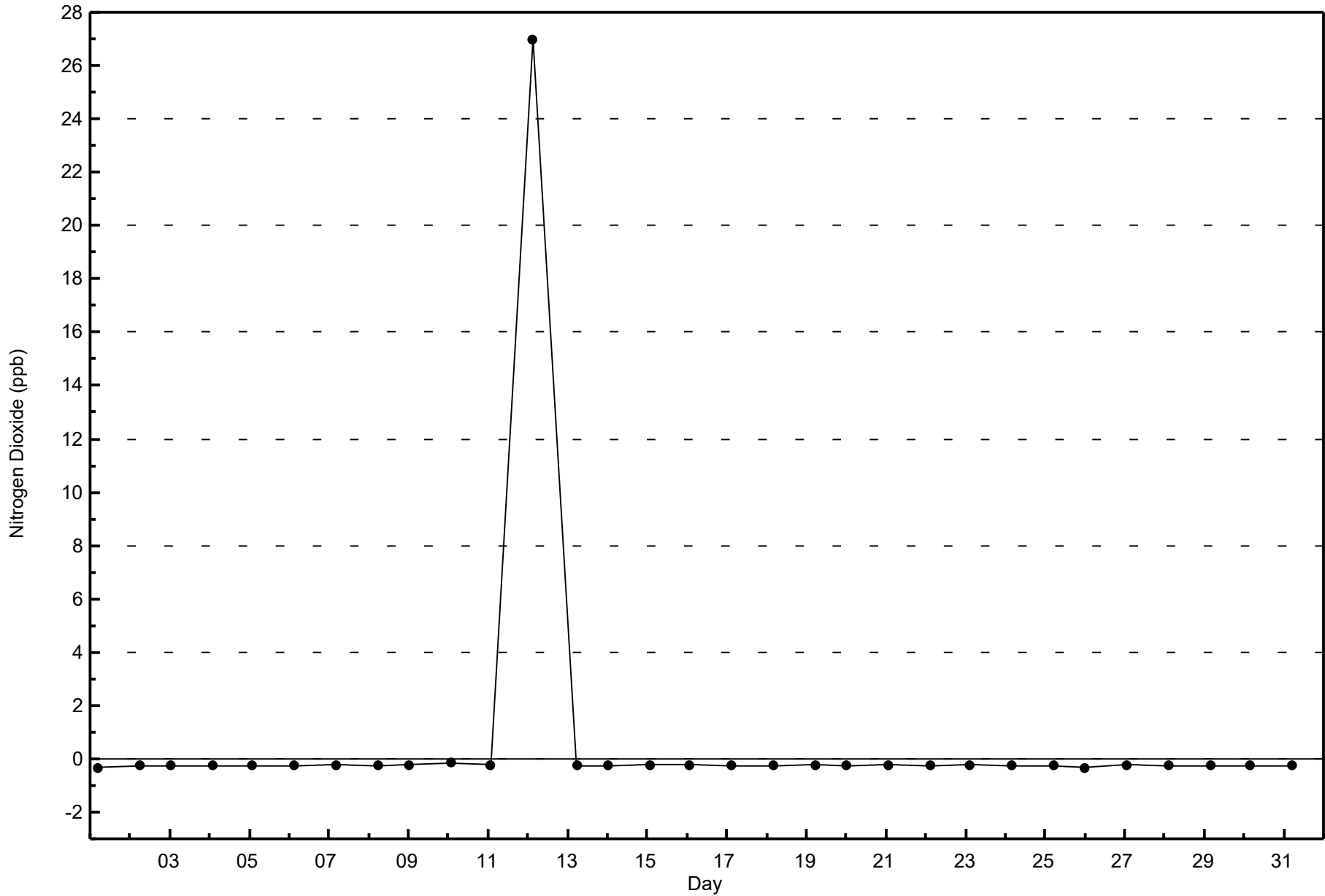
Total Number of Hours: 744

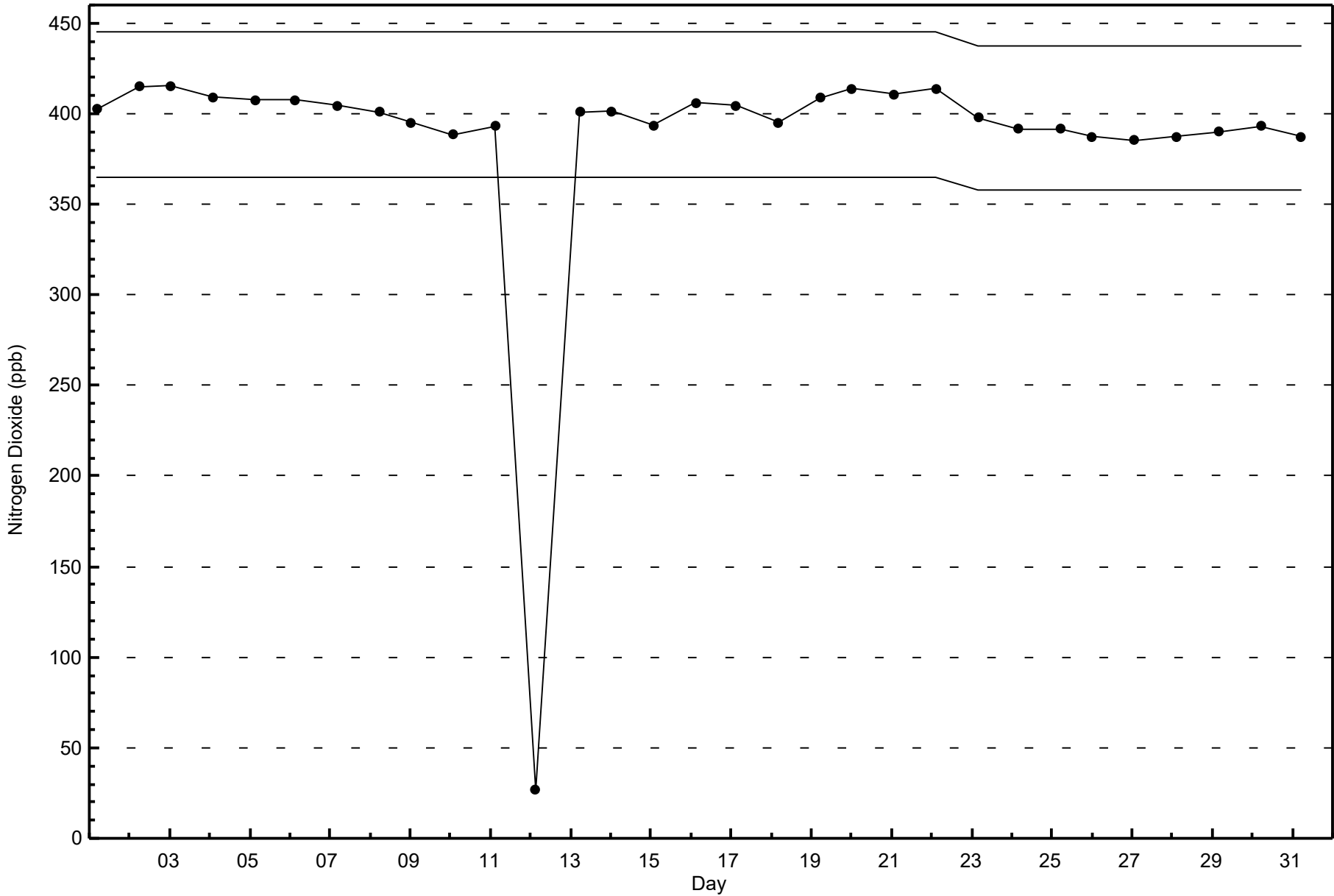


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Barge Landing









Wood Buffalo Environmental Association
Summary of Hour Averages

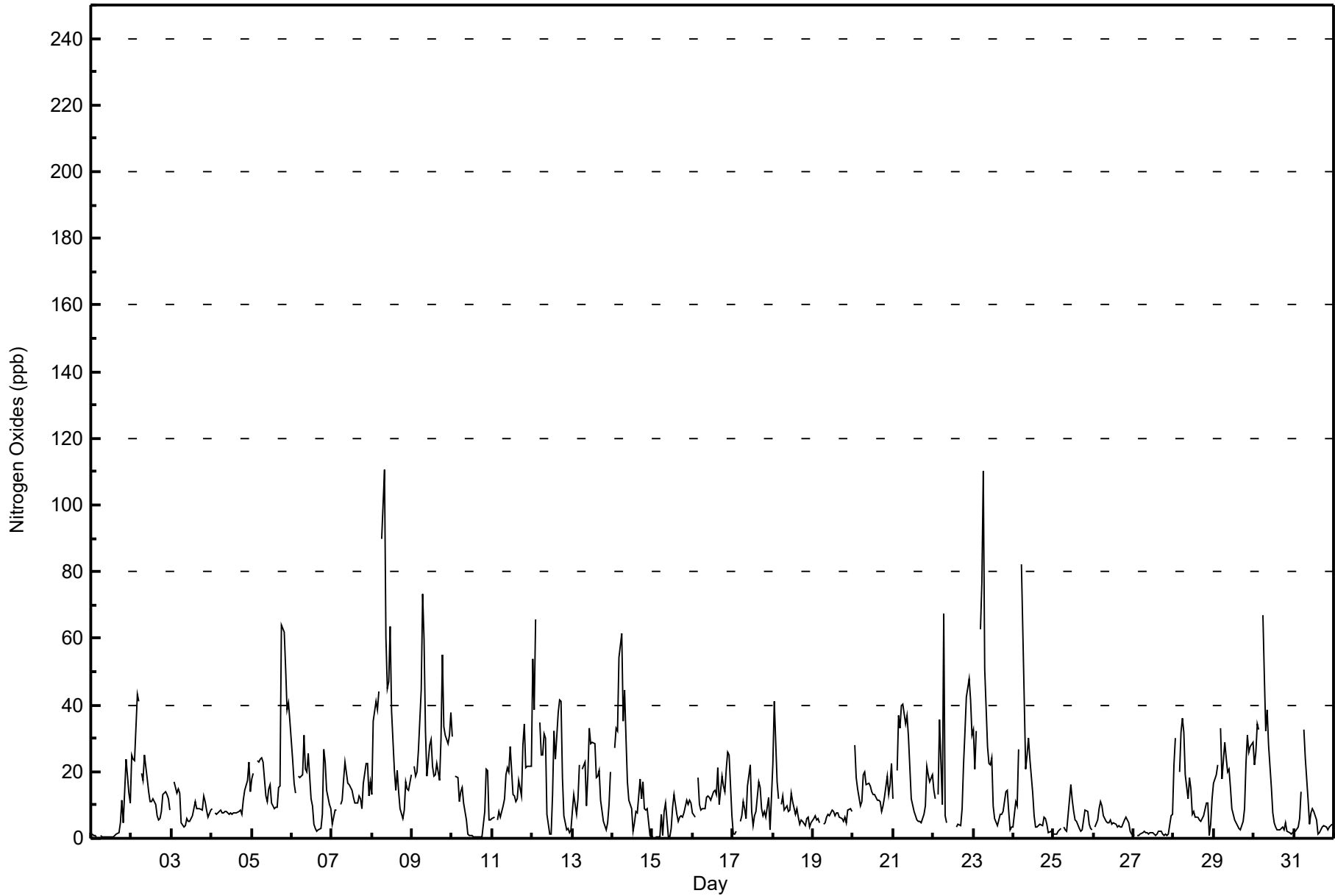
Nitrogen Oxides (NO_x) - ppb
Barge Landing - March 2024

Maximum Value: 110.6 ppb on Mar 8 08:00																						Maximum Daily Average: 34.1 ppb on Mar 8																						Hours in Service: 744					
Minimum Value: 0.3 ppb on Mar 1 14:00																						Minimum Daily Average: 1.9 ppb on Mar 27																						Hours of Data: 708					
Maximum Diurnal Average: 26.7 ppb at hour 7																						Minimum Diurnal Average: 7.9 ppb at hour 15																						Hours of Missing Data: 36					
Monthly Average: 14.42 ppb																						Percentiles: P ₁ = 0.4 P ₁₀ = 2.0 Q ₁ = 5.0 Median = 10.0 Q ₃ = 19.3 P ₉₀ = 32.0 P ₉₉ = 67.0																						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-Mar	1.4	1.0	0.9	0.6	Z	0.7	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.7	1.3	1.6	4.6	11.5	4.7	14.1	23.7	13.5	10.5	4.1	23.7																							
2-Mar	24.9	23.6	23.3	43.1	41.2	Z	19.4	17.5	25.0	17.8	13.8	10.9	11.1	11.7	10.2	6.8	5.6	5.9	8.1	13.0	13.8	13.3	11.8	8.6	16.5	43.1																							
3-Mar	Z	17.1	15.2	13.6	14.8	13.5	4.6	3.5	3.9	6.0	5.2	5.3	6.9	9.0	10.9	9.0	8.8	8.9	8.5	12.5	11.0	8.6	6.3	8.6	9.2	17.1																							
4-Mar	8.9	Z	7.6	7.3	7.8	8.3	7.6	7.5	7.9	7.9	7.1	7.6	7.3	7.6	7.8	7.7	7.9	8.5	7.1	11.6	14.3	17.5	23.0	14.2	9.6	23.0																							
5-Mar	17.9	19.3	Z	23.4	23.0	23.8	24.4	22.8	12.8	11.0	14.9	16.1	10.7	9.0	9.4	9.2	15.4	15.8	64.1	61.9	50.9	38.4	40.8	35.0	24.8	64.1																							
6-Mar	23.4	16.7	13.7	Z	18.8	18.3	18.9	30.8	20.9	20.0	25.5	12.0	9.8	4.1	2.9	2.3	2.7	3.0	7.2	26.9	22.7	14.2	10.1	9.0	14.5	30.8																							
7-Mar	4.3	6.4	8.7	8.4	Z	10.2	11.6	17.3	23.0	16.7	16.0	15.2	14.4	12.3	10.4	10.8	12.5	12.1	9.1	16.7	22.3	22.5	12.8	17.1	13.5	23.0																							
8-Mar	13.0	35.3	41.2	38.6	43.9	Z	89.9	110.6	60.2	44.9	46.9	63.6	38.0	20.2	14.5	20.3	13.9	9.0	5.9	8.6	16.8	14.6	14.4	19.0	34.1	110.6																							
9-Mar	Z	21.4	18.7	19.9	26.3	44.5	73.2	59.9	32.1	18.5	27.9	29.7	21.4	18.4	19.2	22.4	17.3	29.7	55.3	33.6	30.7	28.3	30.7	37.8	31.2	73.2																							
10-Mar	30.3	Z	18.8	18.1	10.9	14.1	15.4	10.7	5.7	1.4	0.8	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.4	8.0	20.6	20.1	5.4	5.6	8.2	30.3																							
11-Mar	6.1	6.2	Z	5.5	8.2	6.3	9.6	12.0	19.2	21.2	20.1	27.4	12.9	12.7	11.2	11.8	17.2	12.9	27.8	34.2	21.0	21.5	21.8	21.4	16.0	34.2																							
12-Mar	53.9	38.4	65.6	Z	34.8	24.8	25.1	31.4	30.2	7.2	1.3	1.4	13.1	32.3	23.6	37.6	41.5	41.0	18.2	6.7	2.4	3.1	1.6	2.5	23.4	65.6																							
13-Mar	8.2	13.0	7.0	12.0	21.8	Z	20.8	22.8	9.9	19.2	33.1	28.5	28.7	28.3	18.4	18.5	20.2	11.6	4.9	3.7	2.4	4.7	10.2	20.0	16.0	33.1																							
14-Mar	Z	27.1	33.0	32.1	54.3	61.5	35.1	44.7	30.2	16.8	11.6	9.0	2.2	4.7	7.9	7.8	18.0	11.9	17.1	9.1	8.4	8.7	0.9	0.9	19.7	61.5																							
15-Mar	0.5	Z	0.5	0.3	0.4	7.2	0.8	8.0	10.7	0.4	0.4	2.9	9.3	13.3	7.4	4.9	6.5	6.8	6.2	7.8	11.6	10.3	11.6	10.4	6.0	13.3																							
16-Mar	7.6	6.3	Z	18.2	10.2	8.7	8.9	8.7	12.3	12.7	12.1	11.4	13.8	14.2	13.2	21.1	10.0	18.8	15.7	13.9	20.6	26.0	25.1	7.0	13.8	26.0																							
17-Mar	1.2	1.5	2.2	Z	5.0	6.7	10.8	9.1	5.7	15.7	22.0	8.3	3.9	6.6	8.0	17.2	15.1	8.8	6.8	7.9	6.4	12.3	2.4	12.4	8.5	22.0																							
18-Mar	22.6	40.9	16.8	11.9	Z	10.2	12.8	8.3	9.6	8.2	8.5	13.4	10.9	7.1	9.0	6.5	4.3	5.3	4.9	3.8	6.0	6.2	3.5	4.5	10.2	40.9																							
19-Mar	6.0	6.7	5.6	6.1	4.8	Z	4.4	4.8	6.6	7.3	6.7	8.4	8.0	6.9	7.7	7.5	6.4	5.9	5.1	6.6	4.6	8.5	8.7	7.9	6.6	8.7																							
20-Mar	Z	27.8	18.2	15.0	9.6	11.1	19.2	19.9	16.0	16.7	15.7	14.1	13.2	13.0	11.4	11.5	11.2	8.1	9.6	12.3	18.8	13.0	16.2	22.6	15.0	27.8																							
21-Mar	11.8	Z	20.2	37.0	33.1	39.8	40.2	34.2	36.9	30.7	21.1	12.0	8.2	6.6	5.4	5.2	4.9	4.8	7.2	9.9	21.6	19.0	17.0	19.0	19.4	40.2																							
22-Mar	14.3	12.0	Z	13.1	35.5	10.3	67.5	6.6	4.6	Z	Z	Z	Z	Z	3.2	4.0	3.8	8.8	22.0	31.9	42.3	47.9	41.5	31.1	22.2	67.5																							
23-Mar	32.5	20.8	32.4	Z	62.5	76.6	110.1	51.0	27.6	22.3	21.8	24.3	9.6	5.9	3.8	5.6	7.3	7.4	8.1	14.1	14.4	8.0	2.7	3.4	24.9	110.1																							
24-Mar	3.4	11.1	9.8	26.9	Z	82.4	41.5	20.8	25.0	30.0	23.6	13.4	6.9	3.5	3.3	3.9	4.2	3.7	6.4	5.8	4.3	1.9	2.0	1.4	14.6	82.4																							
25-Mar	1.2	1.4	1.4	2.2	2.9	Z	3.2	2.4	2.1	11.6	16.1	11.5	7.8	5.4	5.0	2.9	2.1	2.7	5.5	8.4	7.9	4.1	3.0	2.5	4.9	16.1																							
26-Mar	Z	3.5	5.5	8.9	10.9	9.9	6.9	5.0	4.5	4.8	5.5	4.4	4.5	4.3	3.3	3.7	3.5	3.4	5.7	6.5	5.3	4.7	2.0	1.4	5.1	10.9																							
27-Mar	0.7	Z	0.6	0.8	1.1	1.6	2.0	1.6	1.6	1.5	1.6	1.6	1.4	0.8	1.4	2.2	2.0	1.4	1.0	1.5	1.0	1.4	6.9	7.3	1.9	7.3																							
28-Mar	22.0	29.9	Z	20.0	31.6	36.1	32.0	18.9	11.7	18.1	14.9	7.4	8.0	6.5	6.3	5.6	5.0	5.9	6.6	10.6	10.7	0.7	4.3	11.8	14.1	36.1																							
29-Mar	16.6	19.0	22.0	Z	33.0	17.9	28.7	24.2	19.9	20.7	15.2	8.7	5.6	4.5	3.8	3.0	2.7	5.0	8.9	22.6	31.0	25.6	27.7	28.7	17.2	33.0																							
30-Mar	21.9	26.0	34.2	32.6	Z	67.1	48.6	32.2	38.5	28.0	15.1	7.6	4.4	3.4	2.4	2.7	3.1	3.4	2.4	4.5	1.9	1.7	1.4	1.5	16.7	67.1																							
31-Mar	2.1	2.2	3.3	6.0	14.1	Z	32.8	24.0	11.2	4.2	7.6	9.1	7.8	5.5	1.3	1.6	2.8	3.4	3.8	3.4	2.5	3.5	3.9	4.2	7.0	32.8																							
																								13.7	16.7	16.4	16.2	21.6	24.5	26.7	21.7	17.0	14.7	14.4	12.9	10.0	9.3	7.9	8.9	9.0	9.0	12.0	13.6	14.9	14.0	12.4	12.5	Diurnal Average	
																								53.9	40.9	65.6	43.1	62.5	82.4	110.1	110.6	60.2	44.9	46.9	63.6	38.0	32.3	23.6	37.6	41.5	41.0	64.1	61.9	50.9	47.9	41.5	37.8	Diurnal Maximum	
Z - zerospan C - Calibration																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Barge Landing - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Barge Landing - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	544	76.84	76.84
21 - 40	126	17.80	94.63
41 - 80	34	4.80	99.44
81 - 159	4	0.56	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_x) - ppb
Barge Landing - March 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	104	25	4	3	27	51	112	45	12	5	16	12	7	11	28	537
21 - 40	18	10	2	1	6	4	7	27	20	3	1	1	2	1	2	13	118
11 - 80	2	0	1	0	0	5	5	11	4	0	3	0	0	0	0	3	34
81 - 159	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	4
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	95	114	28	5	9	36	65	151	70	15	9	17	14	8	13	44	693

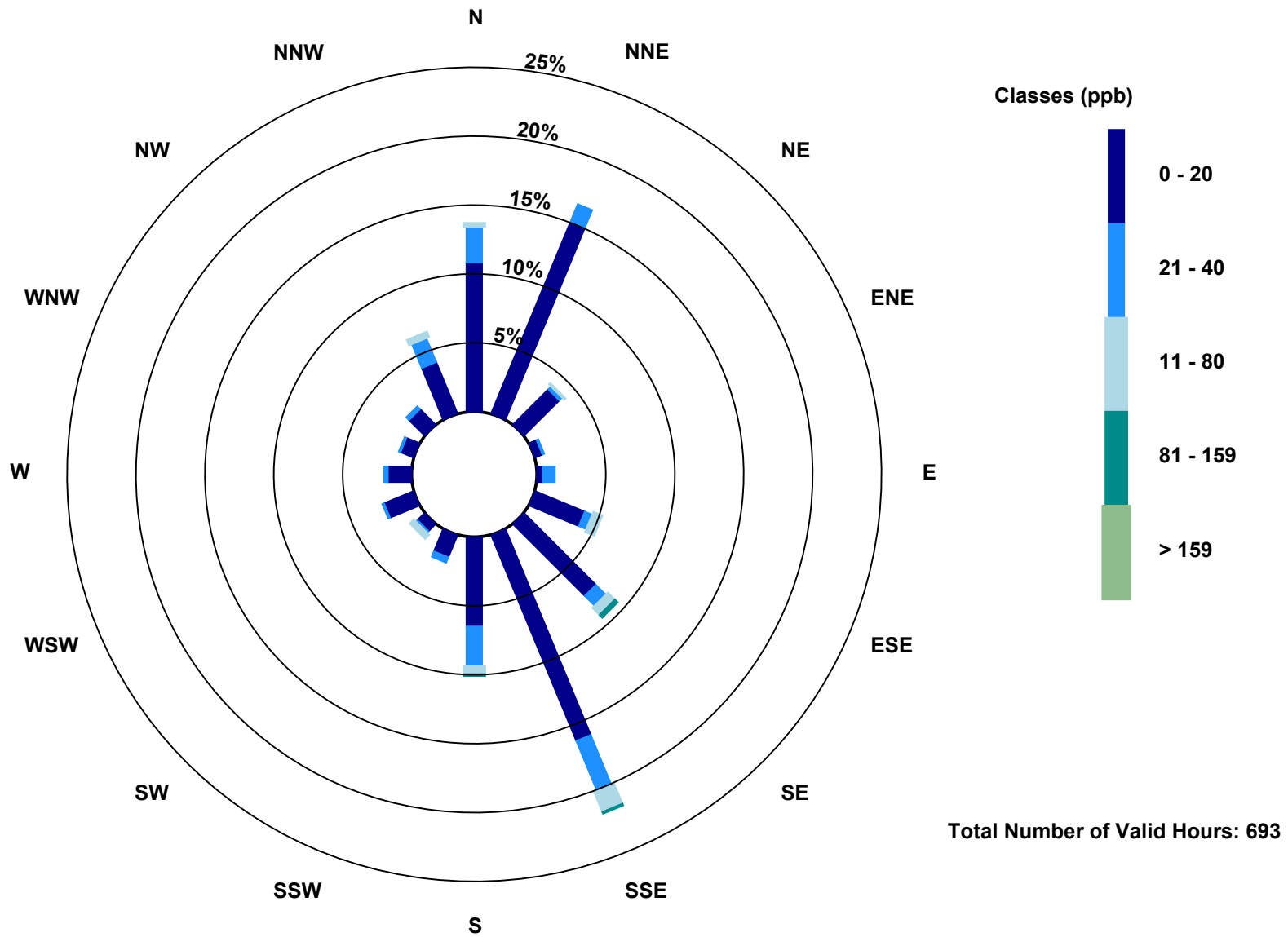
Total Number of Valid Hours: 693

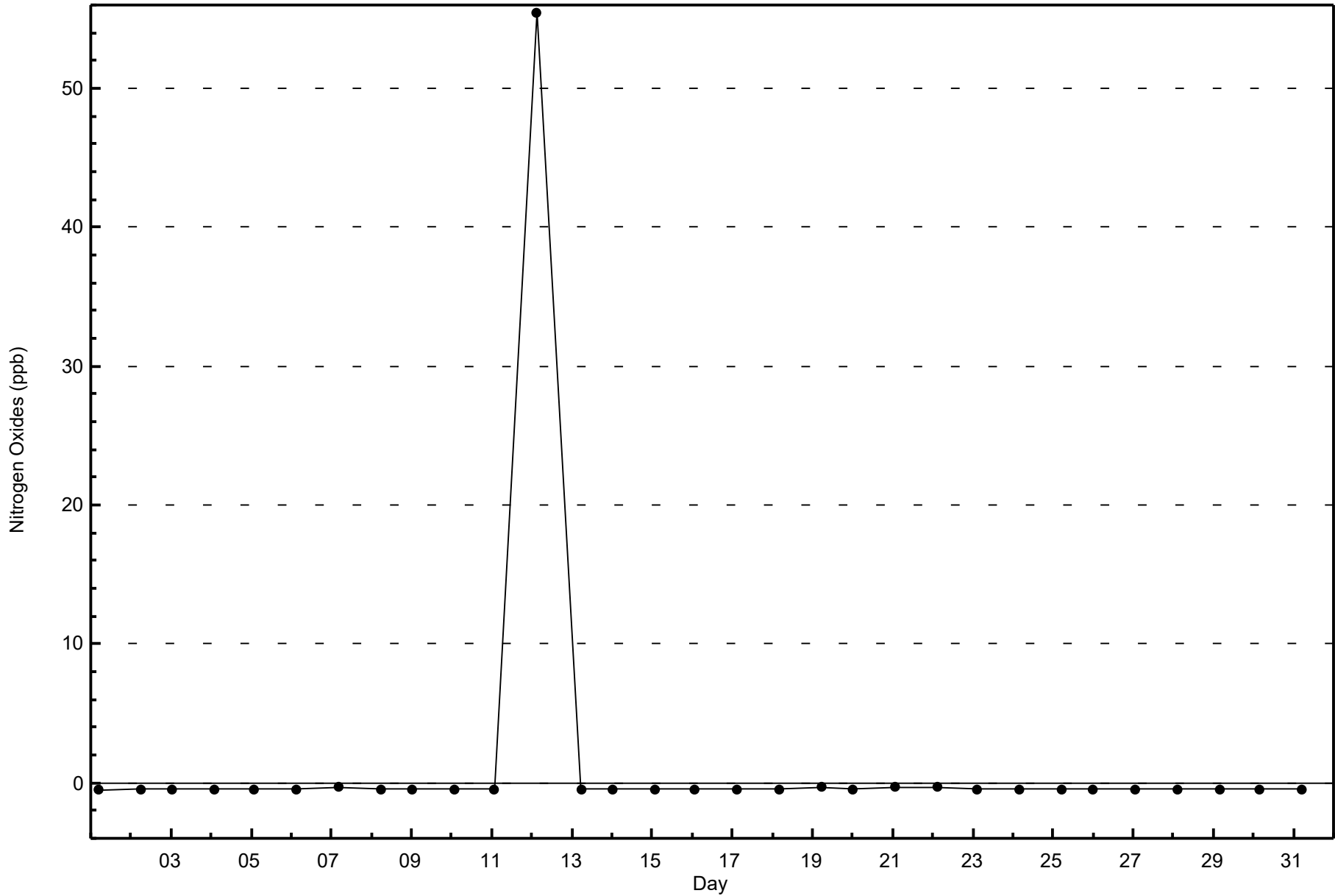
Total Number of Hours: 744

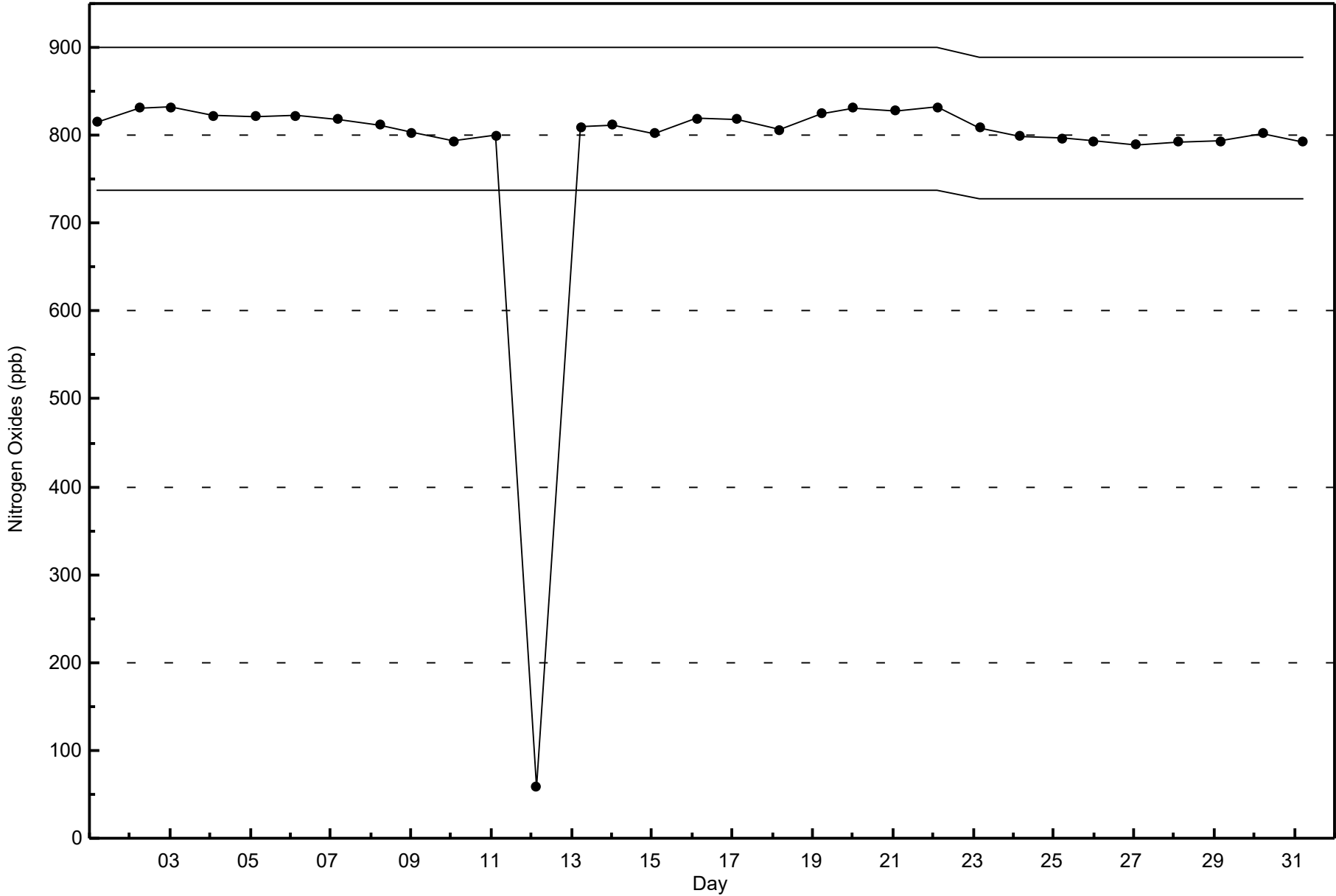


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Barge Landing









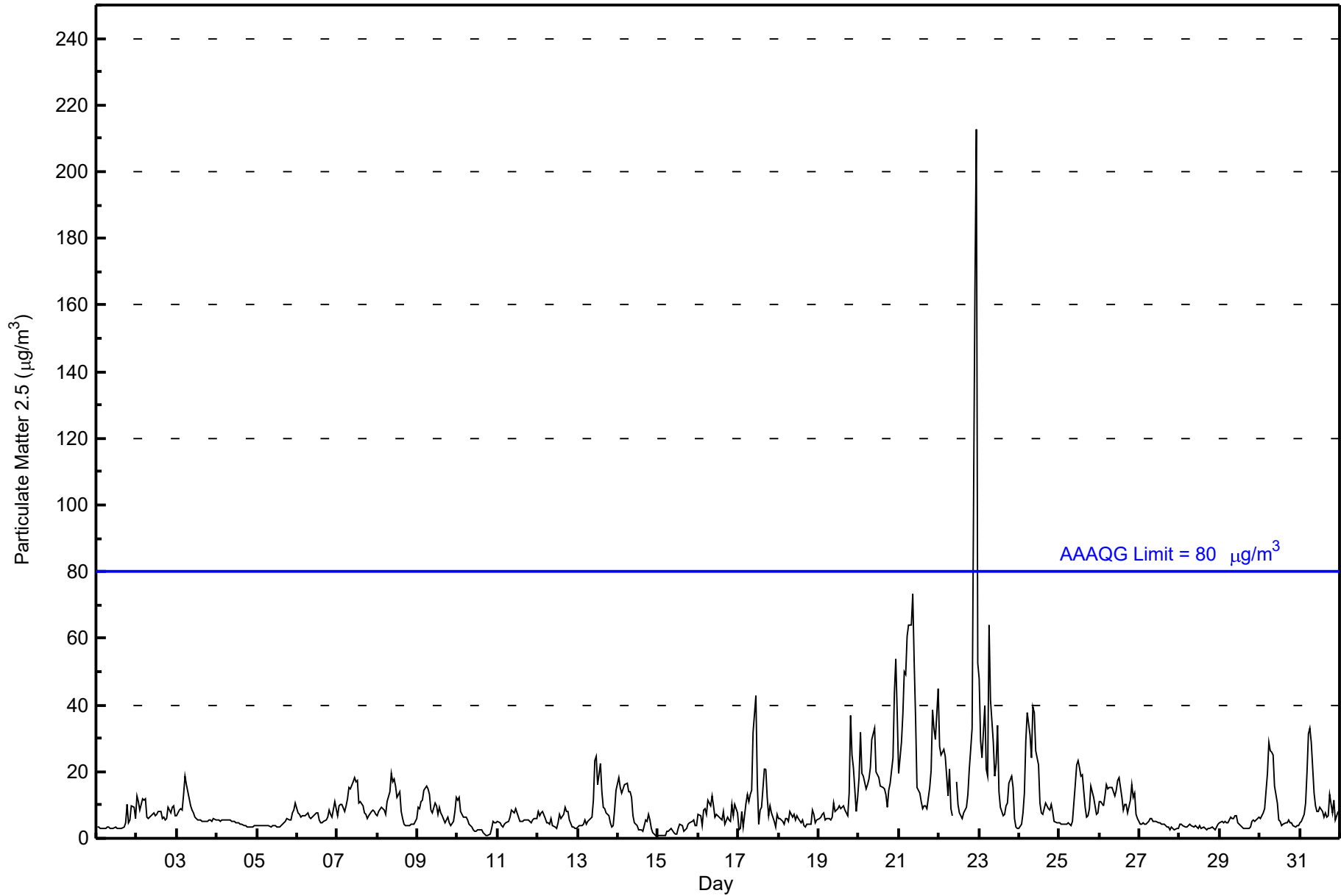
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Barge Landing - March 2024

Number of Exceedences (AAAQO):		1-hr: 2	24-hr: 2	Hours in Service: 744																	Hours of Data: 743					
Maximum Value: 212.8 µg/m ³ on Mar 22 23:00		Maximum Daily Average: 33.3 µg/m ³ on Mar 22																	Hours of Missing Data: 1							
Minimum Value: 0.7 µg/m ³ on Mar 15 01:00		Minimum Daily Average: 2.7 µg/m ³ on Mar 15																	Hours of Calibration: 1							
Maximum Diurnal Average: 14.9 µg/m ³ at hour 23		Minimum Diurnal Average: 6.2 µg/m ³ at hour 18																	Percent Operational Time: 100.0							
Monthly Average: 10.23 µg/m ³		Percentiles: P ₁ = 1.0 P ₁₀ = 3.2 Q ₁ = 4.4 Median = 6.6 Q ₃ = 11.0 P ₉₀ = 19.7 P ₉₉ = 53.5																								
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-Mar	3.3	3.3	3.1	2.9	3.1	3.1	3.3	3.2	3.1	3.1	3.2	3.4	3.1	3.1	3.0	3.1	3.3	4.5	10.1	4.7	5.4	9.6	9.1	5.9	4.3	10.1
2-Mar	12.6	11.0	8.7	12.0	11.4	12.0	6.5	6.1	6.3	7.4	7.5	6.7	7.1	8.0	7.8	6.0	6.3	5.5	6.1	9.4	7.8	9.3	9.6	6.6	8.2	12.6
3-Mar	6.8	8.3	9.0	8.6	13.0	18.5	16.2	11.8	9.9	8.4	7.7	6.5	5.6	5.4	5.5	5.1	5.2	5.2	5.0	5.3	5.5	5.3	5.7	5.6	7.9	18.5
4-Mar	5.4	5.4	5.3	5.3	5.6	5.4	5.5	5.3	5.5	5.1	5.0	4.8	4.8	4.6	4.3	4.1	3.8	3.7	3.5	3.6	3.4	3.4	3.6	3.6	4.6	5.6
5-Mar	3.7	3.7	3.7	3.8	3.9	3.9	3.9	3.8	3.5	3.6	3.9	3.9	3.4	3.2	4.0	4.4	4.7	5.0	5.8	5.5	5.4	7.5	8.3	10.4	4.7	10.4
6-Mar	7.8	7.1	6.6	6.8	7.0	6.6	7.5	6.4	5.7	6.3	6.9	7.7	7.8	5.5	4.6	4.6	5.1	5.3	6.3	8.3	7.2	6.4	11.0	8.7	6.8	11.0
7-Mar	6.8	9.8	10.2	10.1	7.9	9.8	11.7	15.3	15.0	16.9	18.4	17.1	17.4	10.5	10.9	9.6	7.8	7.0	6.1	6.7	8.2	8.4	7.9	7.2	10.7	18.4
8-Mar	6.6	8.0	9.2	9.1	8.6	7.1	11.0	14.1	19.6	17.1	17.9	15.7	12.1	13.9	8.0	5.8	4.2	3.8	3.7	3.6	4.3	4.1	4.2	6.1	9.1	19.6
9-Mar	9.1	9.0	11.2	11.6	14.6	15.6	15.0	13.1	8.7	7.4	10.7	9.6	7.1	9.3	7.5	6.8	4.6	5.7	6.4	4.7	3.9	5.1	8.2	12.2	9.1	15.6
10-Mar	11.6	12.4	7.9	6.6	6.5	6.3	5.5	4.3	3.3	2.7	2.2	2.1	2.5	2.8	2.5	1.7	1.2	1.0	0.8	1.3	2.9	5.0	4.7	4.6	4.3	12.4
11-Mar	5.0	4.7	3.6	3.4	4.2	4.5	4.9	6.4	8.6	7.9	7.5	8.9	6.5	5.1	4.9	5.0	5.7	5.4	5.5	5.3	4.7	5.6	5.8	5.8	5.6	8.9
12-Mar	8.2	6.6	7.8	8.0	5.9	4.5	4.5	4.3	5.8	3.9	3.3	3.1	4.5	7.2	5.9	7.4	9.3	8.2	7.9	5.3	3.4	3.2	3.0	3.0	5.6	9.3
13-Mar	3.4	3.6	3.7	4.4	5.6	4.3	5.0	6.0	6.3	11.4	23.4	24.5	16.2	22.3	13.8	9.5	8.9	7.7	6.8	4.5	3.5	4.0	8.3	14.5	9.2	24.5
14-Mar	18.1	15.2	13.6	14.8	15.9	16.7	14.0	14.0	12.3	7.0	4.8	3.8	2.7	2.5	2.7	2.2	5.6	5.0	7.2	5.6	2.9	1.6	0.8	0.7	7.9	18.1
15-Mar	0.7	0.8	0.9	0.9	1.0	1.9	1.9	2.4	3.1	1.5	1.1	1.3	3.0	4.4	3.6	2.1	2.6	3.2	4.4	4.7	5.1	5.4	3.7	3.9	2.7	5.4
16-Mar	7.2	6.6	3.8	8.4	8.8	7.1	11.5	9.6	12.7	9.8	6.5	7.3	6.4	5.9	5.5	8.2	4.0	6.4	5.3	5.2	10.1	6.9	10.3	7.5	7.5	12.7
17-Mar	2.6	3.0	8.3	3.2	10.6	13.2	11.0	13.3	14.6	31.7	42.8	16.3	4.2	8.5	9.2	20.8	20.7	12.3	6.7	9.5	7.6	5.1	3.3	7.1	11.9	42.8
18-Mar	5.9	5.9	4.9	4.4	6.0	5.7	5.3	8.0	6.5	7.2	5.7	6.7	5.7	4.7	5.5	3.9	3.5	4.4	4.1	4.2	8.4	7.4	4.9	5.5	5.6	8.4
19-Mar	6.0	6.5	7.2	7.5	5.4	5.9	5.9	5.5	6.5	10.6	8.0	8.8	9.9	8.8	9.3	9.9	8.7	6.6	13.5	37.0	24.9	21.1	7.9	12.3	10.6	37.0
20-Mar	18.4	31.9	19.7	18.6	14.8	16.0	17.9	21.0	29.9	32.9	19.7	18.9	18.4	15.6	15.2	15.0	13.0	9.3	14.2	16.5	24.2	43.5	53.9	37.4	22.3	53.9
21-Mar	19.4	28.7	37.1	50.1	49.0	60.8	64.2	63.9	73.5	52.9	36.0	15.3	13.6	11.2	9.0	9.8	9.8	8.9	15.1	20.2	38.5	33.2	29.8	44.9	33.1	73.5
22-Mar	27.5	25.2	25.9	26.9	24.6	12.8	20.7	8.8	6.9	C	17.0	10.3	7.6	6.6	5.8	7.7	9.3	13.2	20.6	26.7	32.9	164.7	212.8	52.5	33.3	212.8
23-Mar	47.8	29.4	24.3	39.7	20.9	18.5	64.1	41.5	28.9	18.7	22.5	33.9	14.2	9.5	6.7	7.2	9.8	10.5	16.4	18.6	15.1	6.1	3.5	3.0	21.3	64.1
24-Mar	3.0	4.1	7.6	13.4	29.3	37.7	31.0	24.0	39.4	37.9	26.2	21.9	10.6	7.7	7.2	8.9	10.5	9.0	8.7	10.2	8.2	5.2	4.5	4.6	15.4	39.4
25-Mar	4.8	4.3	4.2	4.1	4.3	4.6	4.2	3.9	4.9	16.1	21.9	23.3	21.2	18.5	19.2	9.5	6.5	6.6	9.1	15.9	12.2	9.8	7.3	7.6	10.2	23.3
26-Mar	11.2	11.1	9.9	12.9	16.3	15.0	15.2	15.1	14.0	12.7	14.3	17.3	18.0	12.4	8.3	10.1	10.4	7.8	11.6	16.2	12.1	13.6	7.3	6.0	12.5	18.0
27-Mar	4.4	4.3	4.6	4.2	4.2	5.1	6.1	5.7	5.1	4.9	5.0	4.6	4.5	4.3	4.1	4.1	3.6	3.4	2.7	3.2	3.0	2.5	2.9	2.8	4.1	6.1
28-Mar	4.2	4.2	3.9	3.6	3.6	3.8	4.1	3.7	3.3	3.7	3.4	3.0	4.0	2.9	3.3	2.9	2.6	3.0	3.2	3.3	3.1	2.6	3.4	4.4	3.5	4.4
29-Mar	4.5	4.9	4.6	5.1	4.6	4.6	6.2	6.1	5.9	6.9	6.6	4.7	3.8	3.4	2.8	2.8	3.0	2.9	3.4	4.9	5.5	5.2	5.3	6.3	4.8	6.9
30-Mar	5.8	6.7	7.7	9.0	19.3	28.7	26.2	25.7	24.8	15.6	10.4	5.5	4.9	3.8	4.4	4.5	4.5	5.7	4.5	4.8	3.6	3.6	3.8	3.9	9.9	28.7
31-Mar	4.7	4.9	7.1	10.6	20.1	31.4	32.8	28.9	13.5	9.9	7.9	8.0	9.4	8.0	6.3	7.6	6.5	6.7	13.2	7.5	11.3	5.6	6.7	7.9	11.5	32.8
9.2 9.4 9.2 10.6 11.5 12.6 14.3 13.0 13.1 12.7 12.2 10.5 8.4 7.7 6.8 6.8 6.6 6.2 7.7 9.1 9.5 13.6 14.9 10.1																								Diurnal Average		
47.8 31.9 37.1 50.1 49.0 60.8 64.2 63.9 73.5 52.9 42.8 33.9 21.2 22.3 19.2 20.8 20.7 13.2 20.6 37.0 38.5 164.7 212.8 52.5																								Diurnal Maximum		
C - Calibration																										
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Barge Landing - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	290	39.03	39.03
6 - 15	337	45.36	84.39
16 - 25	66	8.88	93.27
26 - 80	48	6.46	99.73
> 81.0	2	0.27	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Barge Landing - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	55	41	17	2	4	19	39	21	9	8	3	14	12	7	7	25	283
6 - 15	37	64	7	3	5	11	19	103	48	6	3	4	5	0	5	9	329
16 - 25	4	9	1	0	0	2	7	24	10	1	3	1	0	1	0	3	66
26 - 80	5	2	4	0	0	3	6	11	3	1	0	1	0	0	2	10	48
> 81.0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Totals	101	116	29	5	9	37	71	159	70	16	9	20	17	8	14	47	728

Total Number of Valid Hours: 728

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

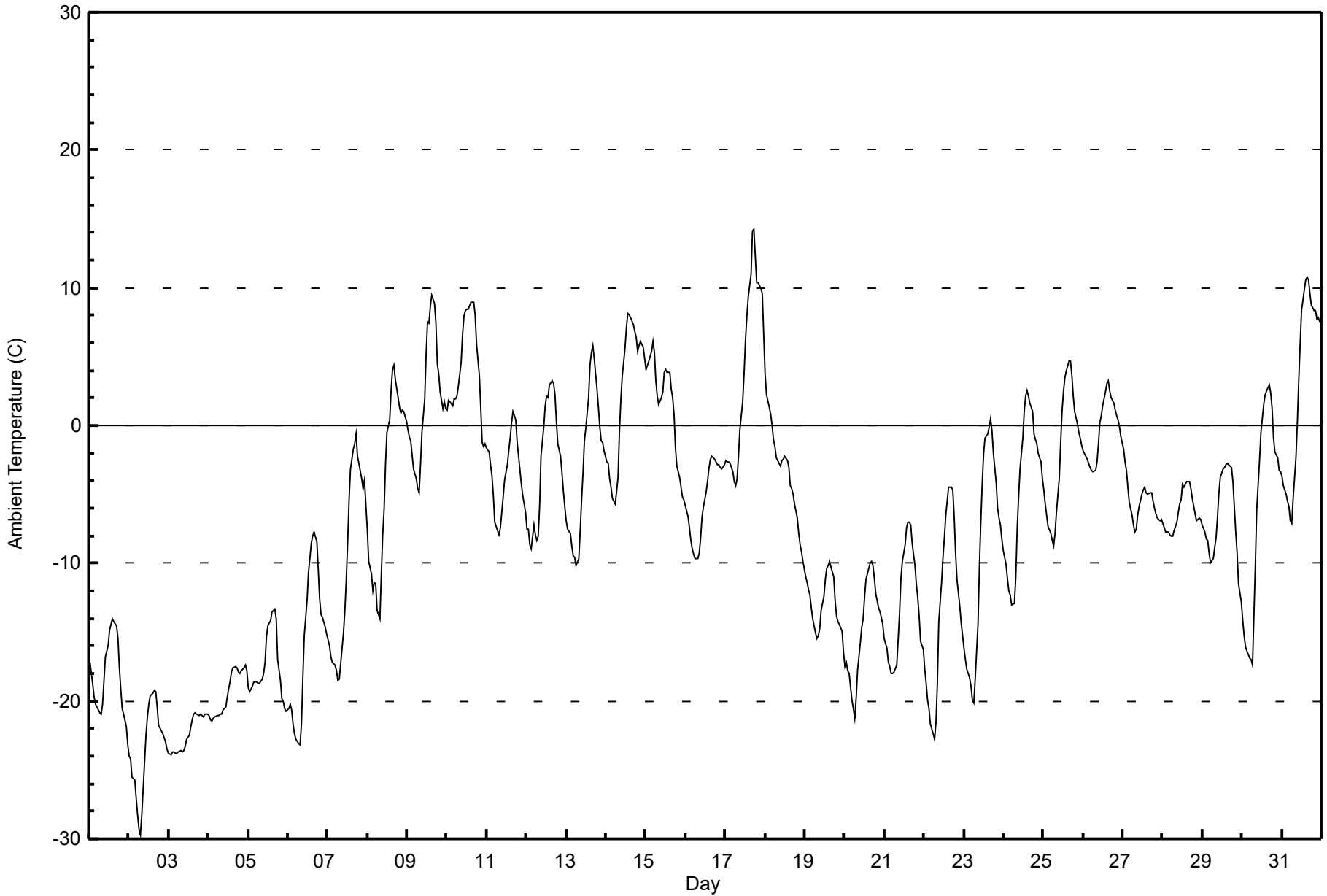
Ambient Temperature (AT) - C
Barge Landing - March 2024

Maximum Value: 14.3 C on Mar 17 18:00		Maximum Daily Average: 4.2 C on Mar 10		Hours in Service: 744																						
Minimum Value: -29.7 C on Mar 2 08:00		Minimum Daily Average: -23.5 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -2.1 C at hour 17		Minimum Diurnal Average: -12.4 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.30 C		Percentiles: P ₁ = -24.3 P ₁₀ = -20.5 Q ₁ = -14.5 Median = -6.4 Q ₃ = -0.9 P ₉₀ = 3.8 P ₉₉ = 10.4		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-Mar	-17.2	-18.0	-18.8	-19.7	-20.2	-20.7	-20.9	-21.0	-20.2	-18.5	-16.8	-16.0	-14.8	-14.5	-14.0	-14.2	-14.6	-15.5	-17.6	-19.2	-20.6	-20.9	-21.8	-23.2	-18.3	-14.0
2-Mar	-24.0	-24.2	-25.5	-25.8	-27.1	-28.3	-29.3	-29.7	-28.2	-24.4	-22.5	-21.2	-20.2	-19.7	-19.5	-19.2	-19.3	-20.4	-21.8	-21.9	-22.4	-22.7	-23.0	-23.5	-23.5	-19.2
3-Mar	-23.8	-23.9	-23.7	-23.6	-23.8	-23.8	-23.7	-23.6	-23.7	-23.6	-23.2	-22.8	-22.5	-21.9	-21.4	-21.0	-20.8	-20.9	-21.0	-20.9	-21.0	-21.1	-20.9	-20.9	-22.4	-20.8
4-Mar	-21.1	-21.4	-21.4	-21.2	-21.1	-21.1	-21.0	-21.0	-20.9	-20.7	-20.4	-19.7	-19.1	-18.6	-17.9	-17.6	-17.4	-17.6	-17.9	-18.0	-17.8	-17.6	-17.4	-17.8	-19.4	-17.4
5-Mar	-19.0	-19.3	-18.9	-18.6	-18.6	-18.6	-18.7	-18.8	-18.4	-18.0	-17.2	-15.4	-14.5	-14.1	-13.5	-13.4	-13.3	-14.0	-17.0	-18.5	-19.9	-20.0	-20.5	-20.7	-17.5	-13.3
6-Mar	-20.5	-20.3	-20.6	-21.6	-22.3	-22.8	-23.0	-23.2	-21.6	-18.3	-15.3	-12.7	-10.7	-9.7	-8.6	-8.0	-7.7	-8.5	-10.5	-12.6	-13.7	-13.9	-14.6	-15.1	-15.7	-7.7
7-Mar	-15.6	-16.0	-16.8	-17.2	-17.4	-17.8	-18.5	-18.5	-17.3	-15.1	-13.4	-11.2	-8.4	-5.4	-3.2	-1.8	-1.3	-0.6	-2.3	-2.7	-3.9	-4.6	-4.0	-5.8	-9.9	-0.6
8-Mar	-7.5	-9.8	-10.8	-12.0	-11.4	-11.5	-13.5	-14.0	-10.9	-7.9	-6.1	-2.8	-0.5	0.4	2.5	4.0	4.3	3.4	2.0	1.4	0.9	1.1	1.0	0.4	-4.1	4.3
9-Mar	-0.3	-0.8	-1.1	-2.1	-3.1	-3.9	-4.6	-4.9	-2.9	-0.5	1.9	5.2	7.5	7.5	8.7	9.4	8.9	7.4	4.5	3.8	2.4	1.2	1.7	1.2	2.0	9.4
10-Mar	1.1	1.8	1.7	1.4	1.9	2.0	2.2	2.9	4.6	6.6	7.9	8.4	8.5	8.4	9.0	8.9	9.0	8.0	5.9	3.7	1.3	-1.2	-1.5	-1.4	4.2	9.0
11-Mar	-1.7	-2.0	-2.9	-3.6	-5.1	-7.0	-7.7	-8.0	-7.4	-6.4	-5.2	-4.0	-2.8	-1.9	-0.9	0.2	1.0	0.4	-1.2	-2.3	-3.3	-4.3	-5.1	-6.3	-3.6	1.0
12-Mar	-7.6	-7.5	-8.7	-9.0	-7.2	-7.9	-8.3	-8.0	-5.9	-2.3	-0.1	1.4	2.2	2.0	2.9	3.3	3.0	2.2	0.3	-1.3	-2.2	-3.4	-4.8	-5.9	-3.0	3.3
13-Mar	-6.9	-7.5	-7.8	-8.8	-9.5	-9.6	-10.2	-9.7	-7.6	-5.4	-3.4	-1.1	-0.2	2.1	4.4	5.3	5.8	4.9	2.6	1.3	-0.1	-1.1	-1.2	-1.8	-2.7	5.8
14-Mar	-2.6	-2.8	-3.8	-4.5	-5.3	-5.7	-4.8	-3.7	-0.5	1.8	3.6	5.6	7.2	8.1	8.0	7.8	7.3	6.9	6.4	5.4	5.8	6.1	5.7	4.9	2.4	8.1
15-Mar	4.1	4.4	4.7	5.4	6.1	5.3	3.2	2.1	1.5	2.1	2.4	3.9	4.0	3.9	3.8	2.6	2.1	0.8	-1.7	-2.9	-3.7	-4.5	-5.2	-5.4	1.6	6.1
16-Mar	-5.8	-6.7	-7.4	-8.3	-9.0	-9.4	-9.7	-9.7	-9.2	-8.1	-6.6	-5.9	-4.8	-4.0	-3.0	-2.5	-2.2	-2.4	-2.7	-2.8	-2.9	-3.1	-3.2	-2.8	-5.5	-2.2
17-Mar	-2.5	-2.6	-2.6	-2.7	-3.3	-4.0	-4.4	-3.9	-2.3	-0.3	1.7	3.7	6.2	7.9	9.3	11.0	14.2	14.3	12.3	10.4	10.4	9.9	9.5	6.6	4.1	14.3
18-Mar	3.7	2.3	1.3	0.8	0.0	-1.0	-1.6	-2.3	-2.8	-2.9	-2.6	-2.4	-2.3	-2.6	-3.1	-4.4	-4.6	-5.0	-5.7	-6.7	-7.8	-8.6	-9.1	-9.9	-3.2	3.7
19-Mar	-11.0	-11.4	-11.9	-12.3	-13.3	-14.1	-15.0	-15.5	-15.3	-14.8	-13.4	-12.4	-11.2	-10.4	-10.2	-9.9	-10.2	-11.0	-12.7	-13.8	-14.2	-14.4	-15.0	-16.5	-12.9	-9.9
20-Mar	-17.5	-17.2	-17.8	-18.0	-20.0	-20.6	-21.2	-19.8	-17.8	-15.8	-14.6	-14.0	-12.5	-11.2	-10.4	-10.0	-9.8	-10.1	-11.1	-12.2	-13.2	-13.6	-13.9	-14.4	-14.9	-9.8
21-Mar	-15.4	-16.2	-17.2	-17.5	-18.0	-18.0	-17.9	-17.4	-15.6	-13.6	-11.1	-9.9	-8.6	-7.5	-7.0	-7.1	-7.3	-8.6	-10.2	-11.5	-12.6	-13.9	-15.6	-16.3	-13.1	-7.0
22-Mar	-17.7	-18.7	-19.9	-20.5	-21.6	-22.4	-22.8	-21.6	-18.7	-14.2	-11.4	-9.6	-8.1	-6.6	-5.5	-4.5	-4.5	-4.7	-6.6	-9.2	-11.2	-13.1	-14.3	-15.2	-13.4	-4.5
23-Mar	-16.2	-17.0	-17.7	-18.4	-18.9	-19.9	-20.1	-18.4	-14.4	-10.3	-7.0	-4.3	-2.1	-1.0	-0.6	-0.1	0.5	-0.4	-2.1	-4.2	-6.0	-6.7	-7.2	-8.3	-9.2	0.5
24-Mar	-9.0	-10.1	-11.1	-12.0	-12.4	-13.0	-12.9	-10.9	-7.4	-5.2	-3.1	-0.9	1.0	2.2	2.5	2.1	1.6	1.0	-0.6	-1.0	-1.4	-2.1	-2.7	-3.9	-4.6	2.5
25-Mar	-4.7	-5.7	-6.5	-7.3	-7.8	-8.4	-8.7	-7.8	-6.3	-3.9	-1.3	1.0	2.4	3.5	4.0	4.7	4.7	3.7	2.1	1.0	0.1	-0.5	-0.9	-1.4	-1.8	4.7
26-Mar	-1.9	-2.0	-2.4	-2.7	-3.1	-3.3	-3.4	-3.2	-2.6	-1.4	0.2	0.7	1.5	2.5	3.1	3.3	2.5	2.0	1.7	1.1	0.7	0.4	-0.1	-0.8	-0.3	3.3
27-Mar	-1.8	-2.6	-3.3	-4.4	-5.6	-6.5	-7.2	-7.8	-7.5	-6.5	-5.9	-5.0	-4.7	-4.5	-4.9	-5.0	-4.8	-4.9	-5.4	-6.0	-6.4	-6.7	-6.9	-6.8	-5.5	-1.8
28-Mar	-7.1	-7.5	-7.8	-7.8	-7.9	-8.1	-8.0	-7.6	-7.0	-6.3	-5.7	-5.4	-4.3	-4.5	-4.0	-4.1	-4.0	-4.6	-5.3	-6.4	-6.9	-6.8	-6.8	-6.8	-6.3	-4.0
29-Mar	-7.2	-7.7	-8.2	-8.3	-9.2	-10.0	-9.7	-8.8	-8.2	-6.6	-4.9	-3.7	-3.2	-3.0	-2.9	-2.8	-2.8	-3.0	-4.1	-5.9	-7.7	-9.3	-11.5	-12.8	-6.7	-2.8
30-Mar	-14.1	-15.3	-16.1	-16.4	-16.9	-16.9	-17.4	-13.7	-10.2	-6.1	-2.6	-0.5	0.5	1.6	2.3	2.7	3.0	2.3	1.2	-0.9	-1.9	-2.3	-3.2	-3.4	-6.0	3.0
31-Mar	-3.6	-4.4	-5.0	-5.5	-5.9	-6.9	-7.1	-5.2	-2.3	0.2	3.3	5.9	8.4	9.9	10.6	10.8	10.6	9.6	8.7	8.3	8.3	7.7	7.8	7.5	3.0	10.8
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Barge Landing - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature (AT) - C
Barge Landing - March 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	83	11.16	11.16
-20 - 0	494	66.40	77.55
0 - 10	158	21.24	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

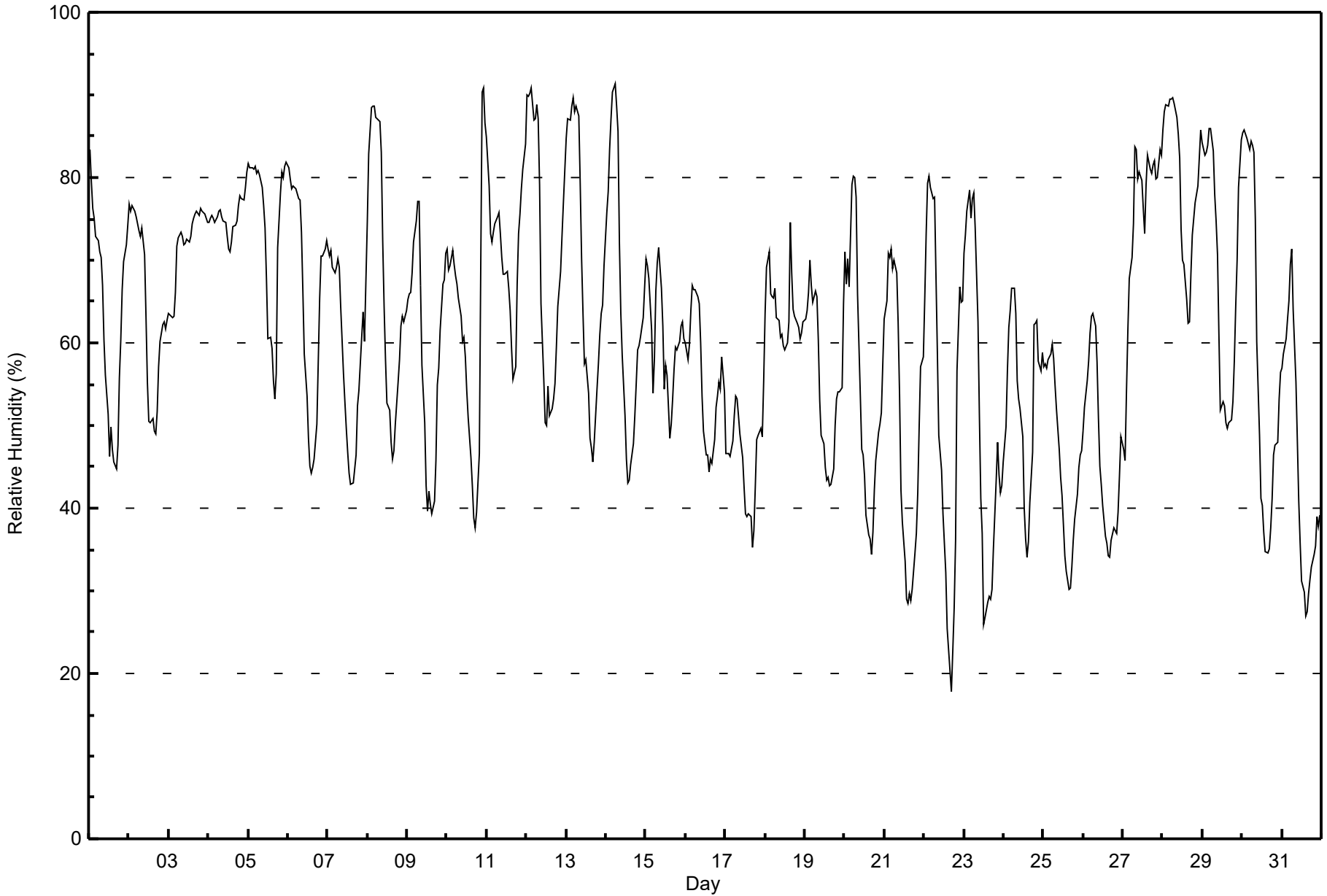
Relative Humidity (RH) - %
Barge Landing - March 2024

Maximum Value: 91.4 % on Mar 14 06:00		Maximum Daily Average: 79.6 % on Mar 28		Hours in Service: 744																							
Minimum Value: 17.8 % on Mar 22 17:00		Minimum Daily Average: 45.2 % on Mar 31		Hours of Data: 744																							
Maximum Diurnal Average: 74.5 % at hour 7		Minimum Diurnal Average: 46.3 % at hour 17		Hours of Missing Data: 0																							
Monthly Average: 61.28 %		Percentiles: P ₁ = 27.7 P ₁₀ = 39.3 Q ₁ = 49.0 Median = 62.4 Q ₃ = 73.8 P ₉₀ = 81.3 P ₉₉ = 89.8		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-Mar	83.4	79.5	76.3	75.1	72.9	72.3	71.1	70.3	67.0	60.4	56.1	51.3	46.2	49.9	47.0	45.6	44.8	47.6	55.7	60.3	66.5	69.9	71.9	74.3	63.1	83.4	
2-Mar	76.9	76.0	76.7	76.0	75.2	74.4	73.6	73.0	73.8	70.7	63.2	55.2	50.5	50.4	50.9	49.4	49.0	51.7	57.2	60.1	62.2	62.5	61.7	62.7	63.9	76.9	
3-Mar	63.6	63.2	63.0	63.2	66.1	71.7	72.7	73.4	72.8	71.9	72.0	72.6	72.2	72.9	74.4	75.1	75.6	76.0	75.5	76.2	75.9	75.7	75.5	74.5	71.9	76.2	
4-Mar	74.6	75.1	75.5	75.1	74.6	75.2	75.9	76.1	75.3	74.7	74.5	72.9	71.3	71.0	72.3	74.0	74.3	74.8	76.6	77.8	77.5	77.2	78.8	80.7	75.2	80.7	
5-Mar	81.6	81.2	81.3	81.0	81.3	80.5	80.8	80.4	78.8	76.7	73.8	67.8	60.6	60.7	59.2	55.5	53.2	56.3	71.4	78.2	80.7	79.9	81.4	81.9	73.5	81.9	
6-Mar	81.2	79.8	78.7	78.9	78.8	78.7	77.4	77.3	73.3	66.2	58.7	53.6	48.5	45.1	44.3	44.9	45.9	50.1	57.9	65.4	70.5	70.5	71.4	72.3	65.4	81.2	
7-Mar	71.3	70.6	71.3	69.2	68.6	69.1	70.2	69.1	64.4	56.2	52.9	49.6	46.7	44.2	43.0	43.0	44.8	46.5	52.3	54.2	60.8	63.8	60.2	67.5	58.7	71.3	
8-Mar	74.5	82.9	88.4	88.6	88.7	87.4	87.2	86.8	83.1	72.4	64.4	58.0	52.6	51.8	47.9	45.9	46.9	50.2	55.3	57.9	62.0	63.2	62.5	64.0	67.6	88.7	
9-Mar	65.2	65.9	66.0	68.6	72.2	74.8	77.0	77.2	66.9	57.2	50.3	42.7	39.7	42.0	40.5	39.3	40.8	45.7	55.0	56.9	61.6	67.1	67.6	70.8	58.8	77.2	
10-Mar	71.3	68.8	69.4	71.3	69.4	68.1	67.1	65.5	63.2	60.2	60.7	58.2	54.2	51.0	46.1	42.7	38.8	37.7	39.5	46.6	69.3	90.3	90.9	86.6	62.0	90.9	
11-Mar	84.8	78.9	73.3	72.2	73.5	74.4	75.3	75.7	73.2	70.3	68.3	68.3	68.7	66.6	63.9	59.3	55.6	57.1	67.1	73.3	75.5	78.6	81.0	84.1	71.6	84.8	
12-Mar	89.9	89.8	90.3	90.8	86.9	87.2	88.8	87.1	79.2	64.8	55.6	50.3	50.0	54.8	51.2	52.0	53.2	55.1	59.6	64.4	68.6	72.9	77.0	80.8	70.8	90.8	
13-Mar	84.8	87.1	87.0	88.7	89.7	88.0	88.6	87.5	79.3	70.2	63.6	57.5	58.0	53.9	48.5	47.3	45.6	48.0	54.5	57.5	61.0	63.6	64.5	69.3	68.5	89.7	
14-Mar	75.8	78.2	83.3	87.1	90.3	91.4	88.6	85.5	72.0	63.6	58.5	51.1	45.9	43.0	43.3	45.2	47.7	51.1	55.0	59.1	59.7	60.7	63.1	66.8	65.3	91.4	
15-Mar	70.2	69.3	67.7	61.5	53.8	58.2	66.3	69.7	71.5	66.6	62.0	54.5	57.3	56.2	48.4	50.1	53.2	56.8	59.4	59.2	60.1	62.1	62.6	60.4	60.7	71.5	
16-Mar	60.1	58.0	59.9	64.0	66.9	66.5	66.4	65.5	64.7	60.1	53.6	49.3	46.5	46.4	44.4	45.9	45.4	48.2	52.2	53.5	55.3	54.5	58.2	54.1	55.8	66.9	
17-Mar	46.7	46.6	46.7	46.3	48.1	51.2	53.6	53.2	51.1	48.9	46.1	42.6	39.3	39.1	39.3	39.0	35.2	37.3	42.6	48.3	48.8	49.7	48.7	55.4	46.0	55.4	
18-Mar	63.5	69.2	70.9	66.0	65.6	65.4	66.5	63.0	62.7	60.7	61.0	59.6	59.1	60.0	62.5	74.5	68.5	64.1	63.3	62.4	61.9	60.4	61.1	62.5	63.9	74.5	
19-Mar	63.0	63.9	66.0	69.9	66.9	64.9	66.2	65.5	60.4	53.1	48.8	47.7	45.0	43.4	43.8	42.8	42.8	44.7	50.1	53.2	54.1	54.1	54.6	64.8	55.4	69.9	
20-Mar	70.9	67.0	70.1	66.8	79.2	80.2	80.0	77.6	66.0	53.5	47.1	46.5	43.9	39.1	36.8	36.2	34.3	37.2	42.1	45.7	49.1	50.1	51.5	57.2	55.3	80.2	
21-Mar	62.9	65.0	70.9	70.3	71.4	69.0	69.9	68.5	62.4	53.7	42.2	38.3	33.6	29.0	28.5	29.7	28.9	30.2	34.5	36.9	41.8	49.9	57.2	58.3	50.1	71.4	
22-Mar	65.4	73.3	79.4	80.1	78.8	77.4	77.6	68.2	58.8	48.9	44.6	39.3	35.7	32.1	25.4	22.9	17.8	22.6	28.0	36.1	56.6	66.8	65.0	65.1	52.7	80.1	
23-Mar	70.8	73.1	75.9	78.4	75.1	77.5	78.1	74.0	62.5	51.1	41.2	36.9	25.9	26.7	28.6	29.3	29.0	30.1	35.1	43.4	47.9	44.0	41.8	42.7	50.8	78.4	
24-Mar	45.6	49.8	56.6	61.9	63.8	66.7	66.7	63.5	55.4	53.3	52.1	48.6	40.0	36.3	34.1	35.9	40.7	46.7	62.1	62.4	62.7	57.7	56.6	58.9	53.3	66.7	
25-Mar	57.2	57.5	56.9	58.0	58.6	59.9	58.2	54.9	52.1	47.1	43.8	41.6	37.9	34.2	32.3	30.2	30.3	32.8	36.1	38.6	41.7	44.9	46.5	46.9	45.8	59.9	
26-Mar	49.3	52.2	55.4	57.8	61.2	63.2	63.5	62.1	57.7	50.9	45.0	42.9	40.3	36.6	35.7	34.2	34.0	36.0	37.6	37.4	37.0	39.5	43.9	48.6	46.7	63.5	
27-Mar	47.1	45.8	54.1	61.5	67.8	70.3	74.4	83.6	83.5	79.9	80.6	79.6	76.2	73.2	79.2	82.8	81.1	80.4	81.6	82.1	79.8	79.9	83.4	82.7	74.6	83.6	
28-Mar	85.8	88.1	88.9	88.7	89.6	89.6	89.6	88.9	87.3	85.2	82.3	73.8	70.0	69.4	65.2	62.4	62.5	68.4	73.0	76.9	78.0	79.0	82.5	85.7	79.6	89.6	
29-Mar	84.2	82.7	83.0	83.9	85.9	85.9	83.3	78.1	74.7	70.7	61.0	51.9	52.9	52.3	50.3	49.6	50.4	50.7	52.9	57.9	64.4	69.9	78.8	84.6	68.3	85.9	
30-Mar	85.5	85.7	85.2	84.7	83.4	84.3	83.8	83.1	74.9	60.1	48.9	41.2	40.3	37.1	34.7	34.5	35.1	37.7	41.1	46.4	47.7	48.0	53.2	56.4	58.9	85.7	
31-Mar	57.0	58.6	60.6	63.0	65.1	69.5	71.4	64.0	55.2	48.1	40.9	35.8	31.2	29.8	27.0	27.4	29.6	31.4	32.8	34.4	35.4	39.0	37.8	39.1	45.2	71.4	
		69.8	70.4	71.9	72.5	73.2	74.0	74.5	73.2	68.5	62.2	57.2	52.9	49.7	48.3	46.7	46.7	46.3	48.5	53.5	56.9	60.5	62.8	64.2	66.4	Diurnal Average	
		89.9	89.8	90.3	90.8	90.3	91.4	89.6	88.9	87.3	85.2	82.3	79.6	76.2	73.2	79.2	82.8	81.1	80.4	81.6	82.1	80.7	90.3	90.9	86.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Barge Landing - March 2024



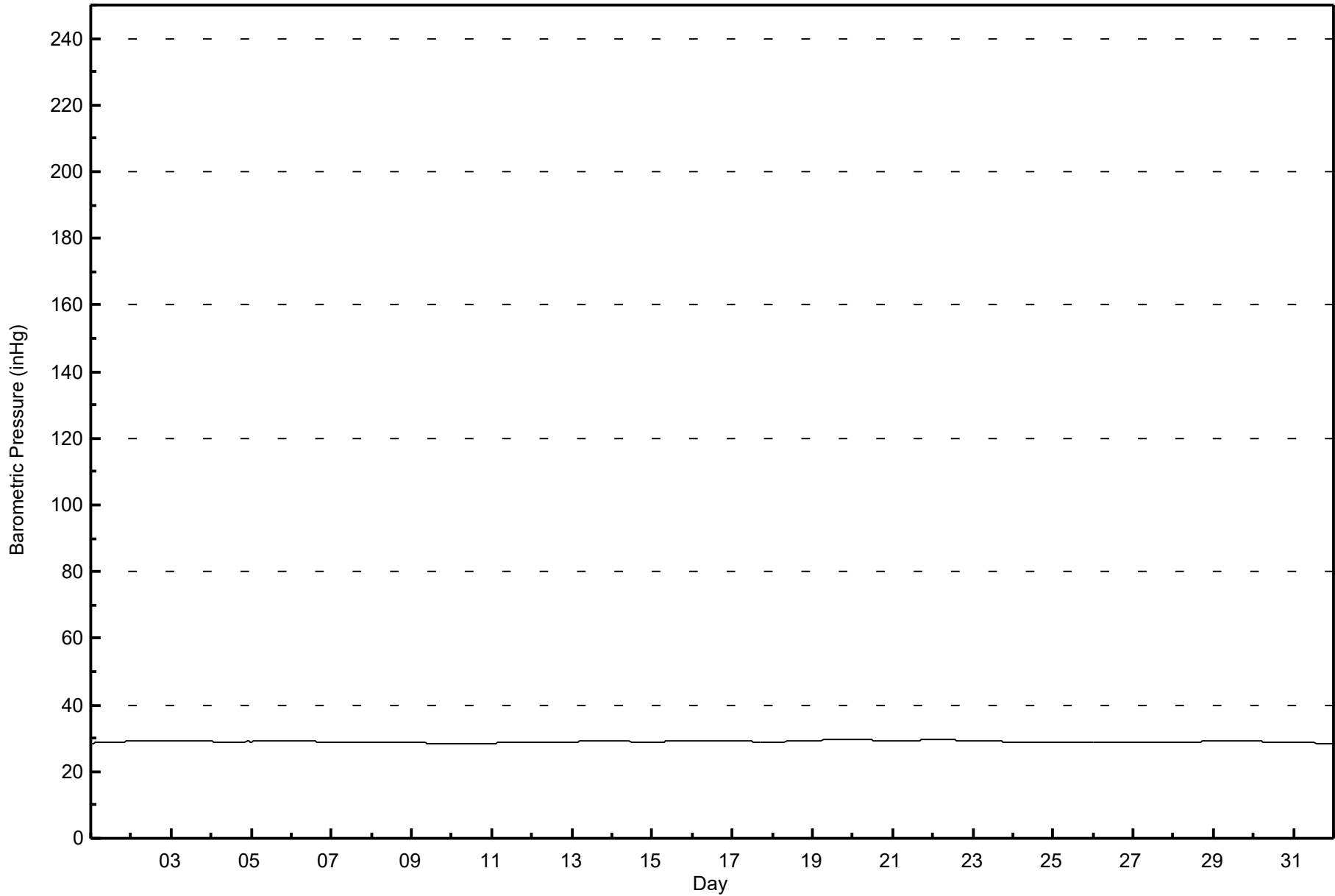


Maximum Value: 29.6 inHg on Mar 22 06:00 Maximum Daily Average: 29.5 inHg on Mar 22																						Hours in Service: 744					
Minimum Value: 28.2 inHg on Mar 10 05:00 Minimum Daily Average: 28.3 inHg on Mar 10																						Hours of Data: 744					
Maximum Diurnal Average: 29.0 inHg at hour 10 Minimum Diurnal Average: 29.0 inHg at hour 18																						Hours of Missing Data: 0					
Monthly Average: 29.01 inHg Percentiles: P ₁ = 28.2 P ₁₀ = 28.7 Q ₁ = 28.8 Median = 29.0 Q ₃ = 29.2 P ₉₀ = 29.4 P ₉₉ = 29.6																						Hours of Calibration: 0					
																						Percent Operational Time: 100.0					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	28.8	29.1	
2-Mar	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.3
3-Mar	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	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.2	29.3
4-Mar	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
5-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1
6-Mar	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	29.0	29.1	29.1
7-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
8-Mar	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
9-Mar	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.5	28.5	28.4	28.4	28.4	28.4	28.3	28.3	28.3	28.3	28.3	28.3	28.2	28.5	28.7	
10-Mar	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.2	28.3	28.3	28.3	28.3	28.3	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.3	28.5	
11-Mar	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.7	28.8	
12-Mar	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	29.0	29.0	28.9	29.0	
13-Mar	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	
14-Mar	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	28.9	28.9	28.9	28.9	28.8	28.8	28.7	28.7	28.7	28.7	28.7	29.0	29.1	
15-Mar	28.7	28.7	28.7	28.8	28.8	28.9	28.9	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.1	29.3	
16-Mar	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	
17-Mar	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.0	29.0	28.9	28.9	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	29.0	29.4	
18-Mar	28.8	28.8	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.1	29.3	
19-Mar	29.3	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	
20-Mar	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.4	29.5	
21-Mar	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.5	
22-Mar	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.5	29.6	
23-Mar	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.3	
24-Mar	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	
25-Mar	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	
26-Mar	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	
27-Mar	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	28.9	29.0	
28-Mar	29.0	29.0	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	29.1	29.1	29.1	29.1	29.1	29.0	29.1	
29-Mar	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	
30-Mar	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.1	
31-Mar	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.4	28.4	28.4	28.3	28.3	28.3	28.3	28.6	28.8	
																								Diurnal Average			
																								Diurnal Maximum			



Wood Buffalo Environmental Association
Hourly Averages

Barometric Pressure (BP) - inHg
Barge Landing - March 2024





Maximum Speed: 17 km/h on Mar 26 10:00	Maximum Daily Speed Average: 13.8 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 20 08:00	Minimum Daily Speed Average: 0.7 km/h on Mar 5	Hours of Data: 728
Maximum Diurnal Speed Average: 2.9 km/h at hour 20	Minimum Diurnal Speed Average: 1.0 km/h at hour 11	Hours of Missing Data: 16
Monthly Average Velocity: 1.7 km/h 100.9 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 7 Q ₃ = 10 P ₉₀ = 12 P ₉₉ = 16	Percent Operational Time: 97.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	WNW3	W6	WSW8	WSW9	WSW8	WSW7	WSW7	WSW7	WSW8	WSW10	WSW9	NNW10	WNW9	W9	NW8	NNW9	NW9	NNW6	NNW5	NNW4	NW3	N4	NNE4	NE3	WNW5.3	WSW10	
2-Mar	ENE3	NNE3	NNW4	N3	NNW1	NW1	WNW2	NW2	NW3	NNE5	NNE6	NNE6	NNE7	NNE7	NNE8	NE8	NNE8	NE6	NNE5	NNE6	NNE8	NNE8	NNE9	N8	NNE5.0	NNE9	
3-Mar	N9	N9	N9	N10	N10	N9	NNE12	NNE12	NNE12	N12	NNE12	NNE12	N12	N11	N10	N9	N10	NNW10	N12	N10	N10	N12	N14	N13	N10.6	N14	
4-Mar	N13	N12	N11	N13	N14	N13	N13	N14	N12	N12	N12	N11	N11	N10	N7	NNW8	N9	N9	NNW8	NNW7	N8	N7	N5	N5	N10.2	N14	
5-Mar	NW2	NNW4	NNW3	N4	N3	NNE5	N4	N4	N5	NNE5	NNE5	NNE5	NNE4	NNE1	SW4	SW8	S5	SSW4	SSE3	SSE4	SE5	SE5	SE6	SE5	NE0.7	SW8	
6-Mar	SE6	SE6	SSE6	SSE5	SSE6	SSE5	S5	SSE5	S5	S7	SSE7	SSE9	SSE10	SSW11	SSW12	S12	SSW11	SSW8	SSW6	SSE6	S5	SSE7	SSE7	SSE8	S7.0	SSW12	
7-Mar	SSE9	SSE9	SSE8	SSE9	SSE8	SSE8	SSE9	SSE10	SSE10	SSE9	S10	SSE9	SSE10	SSE10	SSE11	S10	S6	SSW7	S5	S3	ESE4	SE4	S5	W2	SSE7.4	SSE11	
8-Mar	W3	W2	NNW4	SSW2	SW2	S3	SE3	SE4	SSE6	S7	SW5	S8	S9	SSE7	SSE6	S7	SSE8	SSE6	SSE7	SE7	SE7	SE8	SE8	S6	SSE4.6	S9	
9-Mar	SSE7	S6	S6	SSE6	SSE6	SSE5	SE4	S5	S6	S5	SSW6	S8	S9	S7	SSE6	SSE4	SSE6	SE5	ESE3	SE4	SE3	SSE3	SSE5	SE5	SSE5.2	S9	
10-Mar	SSE6	SSE6	SSE5	SSE5	SSE6	S5	S4	S3	SW5	SW9	WSW13	W14	W13	WSW16	W14	W14	W11	WNW8	NW5	NNW5	NNE4	NE5	NE8	NE8	WSW3.9	WSW16	
11-Mar	NE7	NE7	NE6	ENE5	NE7	ENE7	ENE6	ENE5	ENE5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NE7	
12-Mar	E2	N2	E2	E4	E5	ENE4	ENE4	NE2	E3	ESE8	ESE9	ESE7	ENE4	NNE6	NNE6	N6	NNW4	NNW1	SE7	ESE6	ESE8	SE9	SE8	SE6	E3.7	SE9	
13-Mar	SE2	ESE4	ESE5	E4	ESE5	ESE5	SE5	ESE4	SE5	S7	S7	S7	SSW7	S7	S8	S7	S7	SSE7	SE6	SE9	SE7	SE5	S2	SSE4	SSE4.9	SE9	
14-Mar	SE6	SE6	SE4	S1	SSE1	SE4	SSE4	SE4	SSE4	S6	S7	S10	S11	SSW10	SW6	SW8	S6	S6	S5	S7	S8	SW8	SW3	W4	S5.0	S11	
15-Mar	WSW1	SW5	WSW12	W12	NW11	NNW11	NNW12	NNE10	N9	NNW10	NNW13	NW10	NNE8	NNE9	NNE10	NNE11	NNE9	NNE8	NNE9	NNE8	NE8	NNE6	NE5	NE7	N6.5	NNW13	
16-Mar	NNE8	NNE8	NNE6	N7	NNE7	NNE7	NNE7	NNE7	NE6	NNE7	NNE7	NNE7	NNE7	N6	NNE5	N6	N6	N5	NNE3	NNE3	NNE2	N3	E2	SE5	NNE5.3	NNE8	
17-Mar	SE7	SE8	SE9	SE8	SE6	SE6	SE5	SE5	SSE7	SSE9	SSE12	S13	SSE12	SSE11	SSE10	SSE8	SSE8	S9	SSE7	SSE7	S7	WSW7	WNW5	N7	SSE6.6	S13	
18-Mar	NNW3	NNE3	NNE5	NNE7	N11	N11	N8	N10	N11	NNE11	NNE9	NNE7	NNE8	NNE8	NNE9	NNE11	NNE10	NNE11	NNE11	NNE10	N11	N12	NNE12	NNE12	NNE9.1	NNE12	
19-Mar	N12	N10	N11	N10	NNE10	NNE10	NNE10	NNE11	NNE11	N11	NNE9	NNE8	NNE7	NE9	NNE9	NE8	NE9	NE8	NE7	ENE7	NE7	NE7	N5	NW3	NNE8.2	N12	
20-Mar	N4	N5	N4	N3	NW3	NNW3	S1	ESE0	SW2	NNE3	NE6	NNE7	NNE7	N7	NNE7	NNE7	NNE6	NNE5	NNE5	NNE4	NNE4	NE5	NE3	N4	NNE3.9	NNE7	
21-Mar	NNW4	NNW3	N2	N3	N3	NNW5	NNW3	NNW3	NNW3	NW5	N7	N8	NNE9	NNE9	NNE10	NNE9	NNE9	NNE9	NNE9	NE9	NNE6	N4	NW1	NNW3	NNE5.3	NNE10	
22-Mar	NNW2	NW3	W2	WNW2	S2	SW3	S1	SW4	SW3	WSW4	WSW4	WSW6	WSW5	W5	SW1	NNE1	E3	ESE3	S4	ESE2	E1	ESE2	ESE4	ESE3	SW1.2	WSW6	
23-Mar	ESE3	E2	ESE3	ESE5	SE4	SE3	SE4	SSE3	S6	S7	SSE5	S5	S5	SSE8	SSW6	SSE6	SSE6	ESE7	ESE6	E4	ESE4	SE6	SE7	ESE7	SE4.5	SSE8	
24-Mar	ESE5	SE3	ESE3	ESE4	SE3	SE4	SE3	SE4	SSE5	SSW5	S5	SSW5	SSE10	SSE10	SSE8	SE8	S9	SSE9	SSE7	ESE7	ESE9	ESE10	SE11	ESE10	SE6.0	SE11	
25-Mar	SE10	SE8	SE8	SE10	SE12	SE10	SE8	SE8	SE10	S9	S8	SSE11	SSE13	SSE14	SE17	SSE13	SSE12	SSE12	SE11	SE12	SE12	SE12	SE13	SE13	SE12	SSE10.6	SE17
26-Mar	SSE12	SSE13	SSE12	SSE13	SE13	SSE13	SSE15	SSE14	SSE14	SSE17	SSE16	SE16	SE16	SE16	SSE13	SE16	SE16	SE13	SE12	SE12	SE12	SE13	SE13	SE14	SE13.8	SSE17	
27-Mar	ESE16	SE16	SE14	ESE14	ESE13	ESE13	ESE11	ESE11	ESE11	ESE11	ESE11	ESE10	ESE14	ESE15	ESE13	ESE11	ESE11	E7	E6	ENE6	ENE5	NE5	NNE4	N4	ESE9.7	SE16	
28-Mar	N5	N4	N5	N5	NNW4	N5	N5	N6	NNE7	N7	N7	N9	N10	N10	N10	N9	NNW9	NNW9	N8	NNW6	NNW6	NNW6	NNW6	NNW6	N6.8	N10	
29-Mar	NNW7	NNW8	N6	NNW6	NNW5	NNW5	NNW5	N7	N6	NNE7	NNE7	N9	NNE10	N10	NNE9	N7	NNE7	NNE6	NE4	NE5	NNW1	W1	UO	W1	N5.6	N10	
30-Mar	S1	SSW2	SSE3	SE3	SE3	SE4	SE3	SE5	SSE6	S6	S8	SSE10	SSE11	SSE12	SSE12	SE11	SSE11	SE11	SE10	ESE7	SE8	SE10	SE8	SE8	SE6.9	SSE12	
31-Mar	SSE7	SE6	SE6	SE5	SE5	SSE5	SSE6	SSE8	S8	S8	S8	SSE9	SSE10	SSE10	S12	S10	S9	SSE8	SSE9	SSE9	S12	SSE10	SSE14	SSE10	SSE8.3	SSE14	

E1.9	E1.4	E1.3	E1.4	E1.6	ENE1.6	E1.6	E1.8	ESE1.3	SE1.1	SE1.0	SE1.1	SE1.8	SE2.0	ESE1.6	ESE1.4	ESE1.8	E2.1	E2.4	E2.9	E2.7	E2.5	ESE2.7	E2.1	Diurnal Average		
ESE1.6	SE1.6	SE1.4	ESE1.4	N14	N13	SSE1.5	SSE1.4	SSE1.4	SSE1.7	SSE1.6	SE1.6	SE1.6	WSW1.6	SE1.7	SE1.6	SE1.6	SE1.3	SE1.2	SE1.2	SE1.2	SE1.2	SE1.3	N14	SE1.4	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

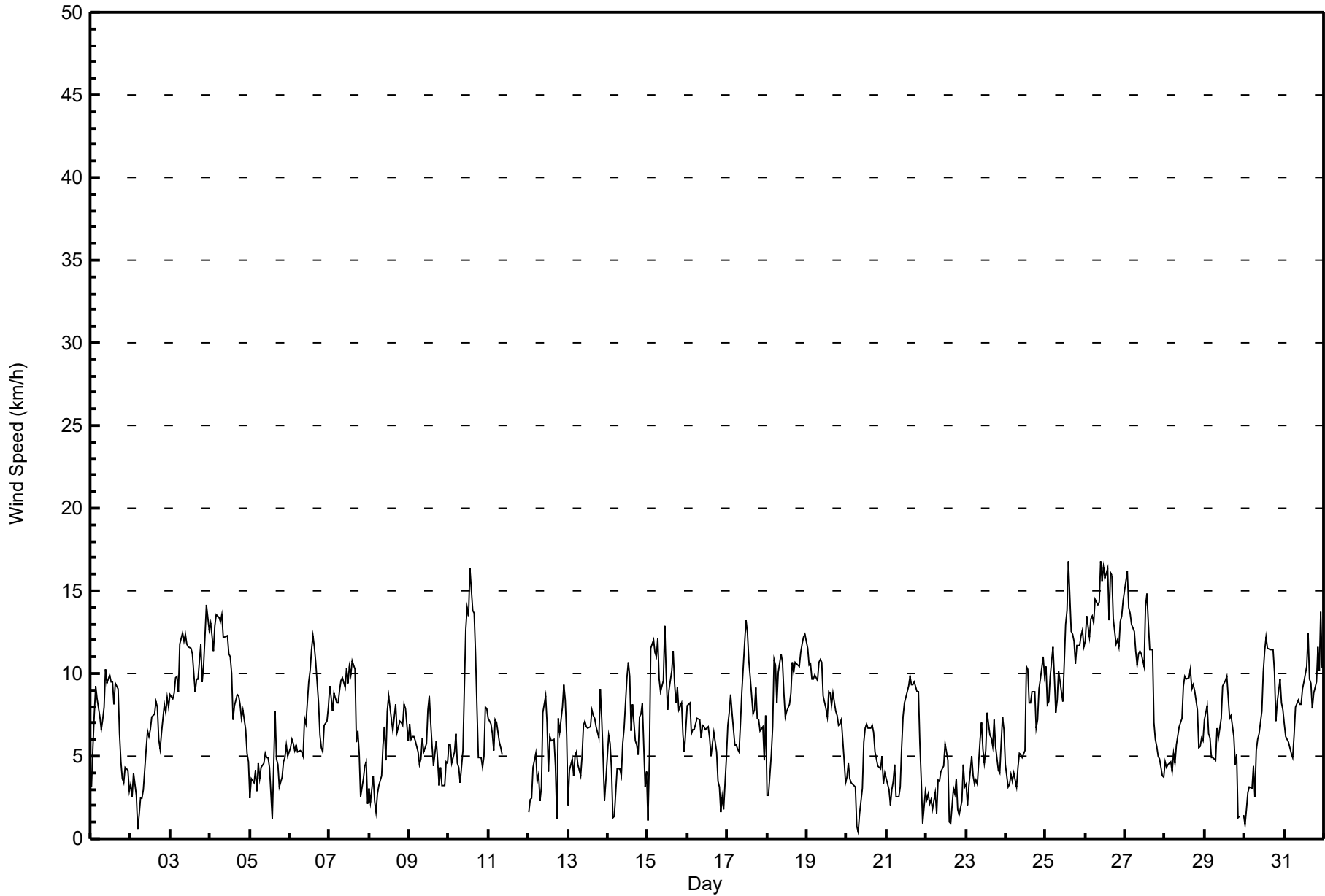
Wind Speed (WS) - km/h
Barge Landing - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 26 16:00 Minimum Value: 0 km/h on Mar 30 06:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Hours of Calibration: 0 Percent Operational Time: 97.9							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	1	2	2	3	2	2	2	3	2	3	3	4	4	4	3	3	3	2	1	1	1	2	3	1	4
2-Mar	1	1	1	1	1	1	1	1	1	3	2	2	2	2	2	3	3	2	1	2	2	2	3	3	3
3-Mar	3	3	3	3	3	3	4	4	4	4	3	3	4	3	3	3	3	3	4	3	4	4	5	4	5
4-Mar	4	5	3	5	5	5	4	4	5	4	4	4	4	3	2	3	3	3	3	2	3	2	2	2	5
5-Mar	1	1	1	1	1	2	1	1	1	1	1	1	1	1	4	3	2	2	1	0	0	1	1	1	4
6-Mar	1	1	2	1	1	2	1	1	2	3	3	3	4	5	5	5	4	3	2	1	1	2	2	3	5
7-Mar	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	2	1	2	2	2	2	1	4
8-Mar	1	2	1	1	2	1	1	1	2	2	1	3	3	3	3	3	3	2	2	2	1	1	2	2	3
9-Mar	2	2	2	2	1	1	1	2	2	2	3	3	3	3	2	2	2	2	2	2	1	1	1	1	3
10-Mar	1	2	1	1	2	2	1	2	3	3	5	5	5	6	6	5	5	3	2	1	2	2	3	2	6
11-Mar	2	2	2	2	3	3	2	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3
12-Mar	1	1	1	2	1	1	1	1	2	3	3	2	2	1	1	2	2	1	2	2	2	3	3	2	3
13-Mar	1	2	1	1	1	1	1	1	2	3	3	3	2	2	3	3	3	2	2	3	2	1	1	2	3
14-Mar	1	2	1	1	1	1	1	1	1	2	2	4	4	4	3	3	2	2	2	2	3	3	3	3	4
15-Mar	2	2	4	4	4	4	5	3	3	3	4	3	3	3	3	3	3	3	3	3	3	2	1	3	5
16-Mar	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	3	3
17-Mar	2	3	3	3	2	1	1	2	3	4	5	5	5	4	4	3	3	3	2	2	2	2	3	3	5
18-Mar	2	1	2	2	4	4	3	3	4	3	3	2	2	3	3	3	3	3	3	4	4	4	4	4	4
19-Mar	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	1	4
20-Mar	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	2
21-Mar	2	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	2	1	1	1	3
22-Mar	1	0	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
23-Mar	1	1	1	1	1	1	1	2	3	2	2	2	2	3	3	3	3	2	1	1	1	1	1	1	3
24-Mar	1	1	1	1	1	1	1	1	2	2	2	3	4	4	3	4	4	3	3	2	2	3	3	2	4
25-Mar	3	2	2	2	3	3	3	3	4	3	3	4	5	5	6	6	5	5	4	3	4	5	5	5	6
26-Mar	5	5	5	5	5	5	6	5	5	6	6	6	6	6	5	7	5	5	4	4	4	4	4	4	7
27-Mar	5	5	5	4	4	4	3	3	3	4	4	3	5	4	4	5	4	3	2	2	2	2	1	1	5
28-Mar	1	1	1	1	1	2	1	2	2	2	2	3	3	3	3	3	3	3	3	3	2	1	2	2	3
29-Mar	2	2	2	2	1	1	1	2	2	2	2	3	3	3	3	2	2	2	1	1	1	1	UO	1	3
30-Mar	1	1	1	1	1	0	1	2	2	2	3	3	4	5	4	5	4	4	3	1	2	2	2	2	5
31-Mar	3	1	1	1	1	2	2	3	3	3	3	3	4	4	5	4	4	3	3	3	4	4	5	4	5
Diurnal Maximum																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Barge Landing - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Barge Landing - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	249	34.20	34.20
6 - 11	389	53.43	87.64
12 - 19	90	12.36	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 728

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Barge Landing - March 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	28	24	9	10	9	22	34	20	24	5	11	4	8	4	11	26	249
6 - 11	56	75	19	4	2	21	43	72	43	9	5	11	3	3	4	19	389
12 - 19	17	8	0	0	0	7	19	24	4	1	0	3	5	0	0	2	90
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
Totals	101	107	28	14	11	50	96	116	71	15	16	18	16	7	15	47	728

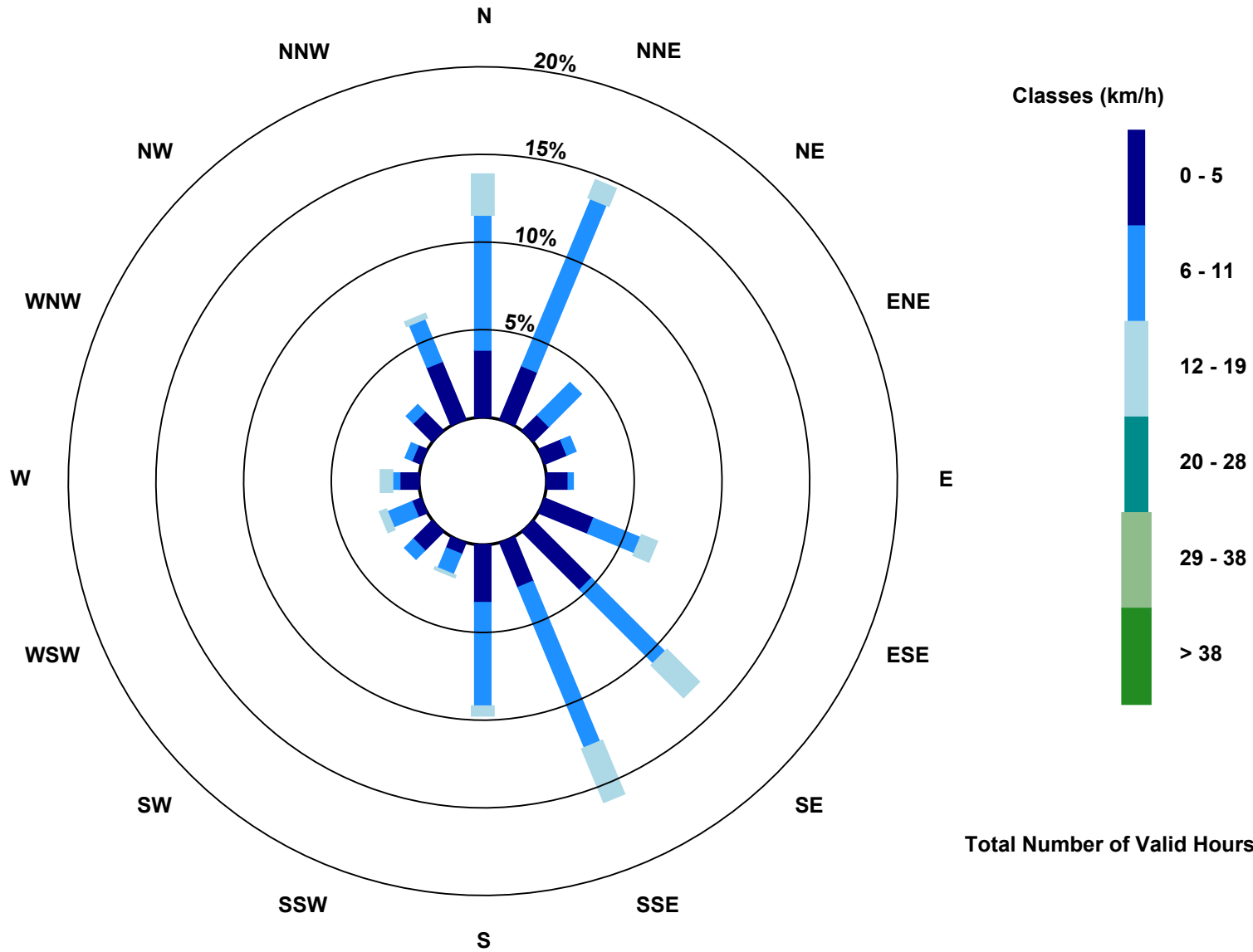
Total Number of Valid Hours: 728

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Barge Landing



Total Number of Valid Hours: 728



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Barge Landing - March 2024

Direction of Maximum Speed: 149 deg on Mar 26 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 145.2 deg on Mar 26	Hours of Data: 728
Direction of Minimum Speed: 123 deg on Mar 20 08:00	Hours of Missing Data: 16
Direction of Minimum Daily Speed Average: 0.7 deg on Mar 5	Percent Operational Time: 97.9
Monthly Average Direction: 100.9 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-Mar	292	272	251	251	258	243	240	249	245	250	258	298	298	276	319	327	326	339	343	335	322	1	12	56	285.5
2-Mar	70	26	343	349	337	320	299	320	326	21	32	25	22	32	22	35	28	39	12	17	17	23	27	9	19.1
3-Mar	358	357	4	7	359	4	14	14	17	10	16	12	4	5	359	351	352	348	351	356	358	356	353	355	2.0
4-Mar	356	354	351	351	350	351	354	352	352	353	354	353	356	356	351	346	350	350	343	344	354	359	7	352	352.3
5-Mar	310	348	342	355	3	12	356	1	7	14	18	19	21	23	235	218	186	197	156	150	135	137	136	145	38.2
6-Mar	144	144	149	154	148	161	176	168	190	179	164	156	165	192	193	188	192	199	196	164	169	161	158	157	172.0
7-Mar	159	164	158	164	165	165	162	160	168	168	172	168	168	161	164	169	172	202	178	186	112	127	177	263	166.2
8-Mar	270	259	339	195	225	187	141	132	149	170	227	184	184	166	166	170	147	147	147	146	135	137	139	170	162.9
9-Mar	158	170	189	164	157	155	144	170	176	176	194	184	176	169	163	163	157	141	119	140	145	167	167	144	164.6
10-Mar	150	163	153	150	166	180	169	187	231	230	254	261	261	254	270	263	276	294	314	340	28	37	51	51	251.2
11-Mar	51	55	56	58	54	58	62	66	64	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-
12-Mar	80	11	83	88	93	70	73	37	79	113	118	116	57	16	16	0	342	338	128	114	123	125	126	127	91.7
13-Mar	128	117	116	101	113	122	124	117	135	180	184	175	208	178	183	188	174	152	142	130	136	136	175	166	153.2
14-Mar	142	140	128	173	156	127	155	139	155	175	173	189	190	206	218	214	184	187	175	172	187	221	218	278	182.7
15-Mar	240	230	251	275	308	333	338	12	349	336	337	325	12	29	29	23	28	33	33	26	40	32	34	34	355.5
16-Mar	27	28	19	3	24	27	33	24	37	21	32	19	24	11	12	11	8	7	12	17	29	353	97	129	23.0
17-Mar	130	139	132	138	140	143	141	132	157	167	168	173	163	161	160	164	160	176	167	162	181	241	289	7	159.7
18-Mar	334	33	27	20	10	4	7	9	7	13	15	19	26	22	18	18	18	18	20	13	11	11	12	17	14.4
19-Mar	6	5	358	3	15	16	20	19	17	8	24	19	21	35	28	36	38	45	51	57	51	35	352	320	21.0
20-Mar	350	351	5	350	326	328	189	123	226	33	35	17	12	6	29	19	22	27	24	12	23	47	45	352	14.4
21-Mar	336	328	352	353	349	344	346	348	330	325	5	3	22	28	23	24	31	32	32	36	18	9	308	345	11.8
22-Mar	331	310	280	296	191	228	173	227	232	237	251	251	249	267	222	16	80	121	181	117	79	107	111	106	225.4
23-Mar	108	89	103	108	132	125	131	147	183	173	165	178	177	153	197	165	154	122	113	91	111	132	128	122	141.9
24-Mar	120	125	115	113	127	125	137	128	149	205	188	203	150	152	162	143	169	163	152	119	110	123	125	122	142.5
25-Mar	124	136	129	130	129	133	139	136	146	170	171	168	160	159	142	165	165	151	142	139	144	158	163	159	148.9
26-Mar	157	157	153	148	145	152	159	160	157	149	148	143	142	144	148	136	136	135	141	142	143	135	132	125	145.2
27-Mar	122	130	132	122	119	117	114	115	115	116	111	116	113	112	113	109	111	100	88	66	63	42	21	10	111.1
28-Mar	4	355	350	352	342	350	350	0	12	7	5	10	5	4	5	7	2	347	342	349	332	327	336	340	355.7
29-Mar	347	346	349	348	341	340	340	358	358	25	22	360	14	11	16	7	20	31	50	54	332	274	UO	261	4.9
30-Mar	183	213	153	137	128	124	143	140	166	182	172	167	155	149	147	145	157	127	127	112	131	131	138	139	145.5
31-Mar	147	138	142	135	142	167	156	157	169	188	176	159	157	160	186	181	175	158	156	151	170	154	148	164	161.3

88.6 93.5 92.1 86.2 82.6 77.9 87.3 82.3 112.4 145.2 128.1 144.3 125.9 126.1 123.1 115.0 106.1 98.7 93.6 88.4 95.1 98.8 102.2 90.9
 Diurnal Average

UO - Unstable Operation

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

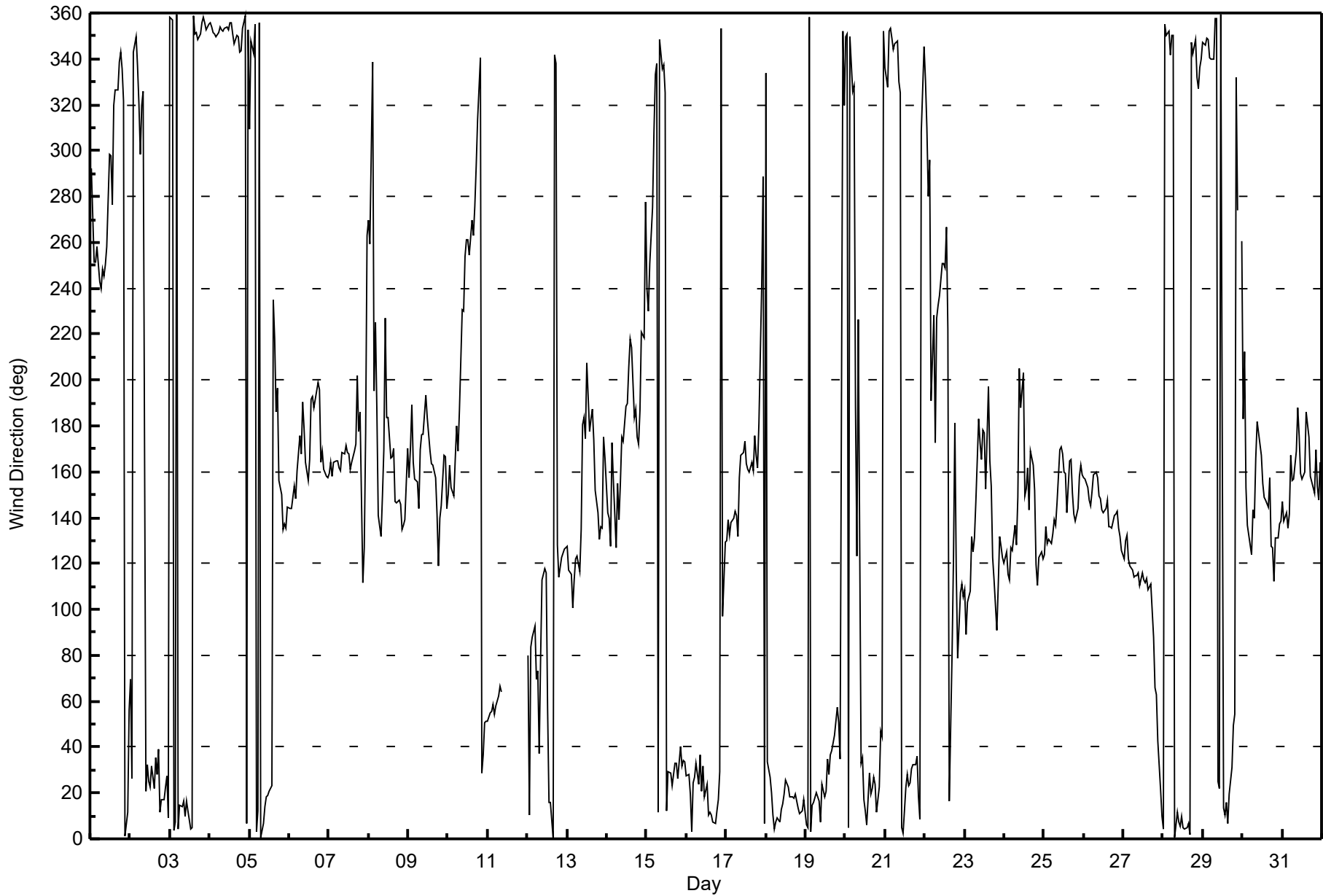
Wind Direction (WD) - deg
Barge Landing - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Mar 20 08:00 Minimum Value: 6 deg on Mar 5 21:00 Percentiles: P ₁ = 9 P ₁₀ = 14 Q ₁ = 18 Median = 22 Q ₃ = 29 P ₉₀ = 39 P ₉₉ = 83																			Hours in Service: 744 Hours of Data: 728 Hours of Missing Data: 16 Hours of Calibration: 0 Percent Operational Time: 97.9						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	32	21	16	18	21	17	20	24	19	20	31	31	32	36	30	22	19	21	17	15	15	30	39	36	39
2-Mar	27	40	11	41	81	64	19	20	27	47	27	33	30	29	24	24	21	21	18	17	17	18	19	19	81
3-Mar	18	17	18	18	20	20	19	18	18	19	17	18	19	20	21	20	20	19	21	20	20	20	19	21	21
4-Mar	21	20	20	21	20	20	20	21	22	22	21	21	22	24	24	23	22	20	19	19	19	20	22	24	24
5-Mar	39	23	24	17	19	16	13	18	19	19	24	32	39	84	93	30	39	25	27	9	6	9	13	12	93
6-Mar	14	15	19	18	17	22	22	20	37	30	36	26	30	35	33	30	28	25	20	16	17	18	18	20	37
7-Mar	22	25	22	23	24	26	23	24	27	31	30	32	30	31	29	27	32	25	21	58	41	29	39	57	58
8-Mar	26	57	18	57	61	38	27	18	27	31	31	36	35	33	33	30	24	22	18	16	12	11	14	23	61
9-Mar	19	20	19	17	17	19	14	21	27	33	38	32	30	29	32	32	25	20	37	13	17	23	17	13	38
10-Mar	18	21	20	19	26	26	28	37	53	21	27	25	28	25	31	28	31	29	26	21	44	37	13	12	53
11-Mar	13	13	16	15	15	15	16	15	20	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	20
12-Mar	51	27	15	16	13	10	12	32	62	23	20	26	66	19	19	23	24	74	15	12	12	13	13	11	74
13-Mar	31	29	12	13	13	8	11	10	26	36	37	42	32	39	36	34	28	23	16	12	15	12	40	29	42
14-Mar	13	13	14	73	56	24	30	30	40	27	30	28	31	28	25	23	27	28	29	20	25	24	85	74	85
15-Mar	93	51	21	28	23	34	20	24	28	20	20	23	30	21	21	18	23	22	22	24	21	21	22	19	93
16-Mar	18	19	21	18	21	19	19	20	24	28	28	26	30	31	34	27	21	22	21	33	45	20	51	44	51
17-Mar	15	20	17	18	16	16	14	17	28	31	28	29	28	27	28	30	25	25	21	20	22	36	53	29	53
18-Mar	58	30	22	21	20	20	20	21	22	22	22	23	24	24	21	20	21	20	18	21	21	20	19	20	58
19-Mar	19	21	20	21	20	20	20	20	21	21	27	30	35	27	26	26	23	22	21	21	21	20	25	14	35
20-Mar	11	14	33	39	16	13	72	103	90	75	36	30	26	29	36	27	27	26	16	19	23	20	36	16	103
21-Mar	31	20	20	25	16	16	20	21	27	28	27	25	23	24	25	23	20	21	18	18	22	25	79	19	79
22-Mar	32	28	35	31	38	14	32	16	15	41	49	35	48	57	98	101	63	70	25	34	18	47	11	13	101
23-Mar	18	31	14	6	17	15	9	50	29	33	45	54	52	38	49	47	42	20	11	11	25	9	8	9	54
24-Mar	12	17	14	9	13	10	27	15	28	54	43	50	34	36	42	41	32	28	23	11	12	12	12	12	54
25-Mar	13	17	14	13	12	17	19	24	33	38	32	30	31	23	34	30	25	19	17	21	26	26	25	38	
26-Mar	26	24	24	22	22	24	25	26	26	25	28	26	26	26	28	25	20	18	21	21	22	18	17	15	28
27-Mar	14	18	19	16	15	16	15	15	17	16	17	18	17	15	16	17	17	23	23	24	23	21	20	15	24
28-Mar	17	17	18	19	17	19	19	21	19	21	21	19	23	23	24	20	22	23	19	18	18	17	19	20	24
29-Mar	18	18	20	20	16	15	20	25	27	29	27	25	24	24	24	27	23	22	24	15	43	50	UO	62	62
30-Mar	80	39	40	29	47	7	50	24	36	38	35	34	35	30	33	28	28	20	14	12	13	12	15	19	80
31-Mar	22	15	16	13	16	19	22	23	29	35	35	30	33	32	31	31	26	23	23	21	27	25	23	31	35
Diurnal Maximum																									
93 57 40 73 81 64 72 103 90 75 49 54 66 84 98 101 63 74 37 58 45 50 85 74																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Barge Landing - March 2024





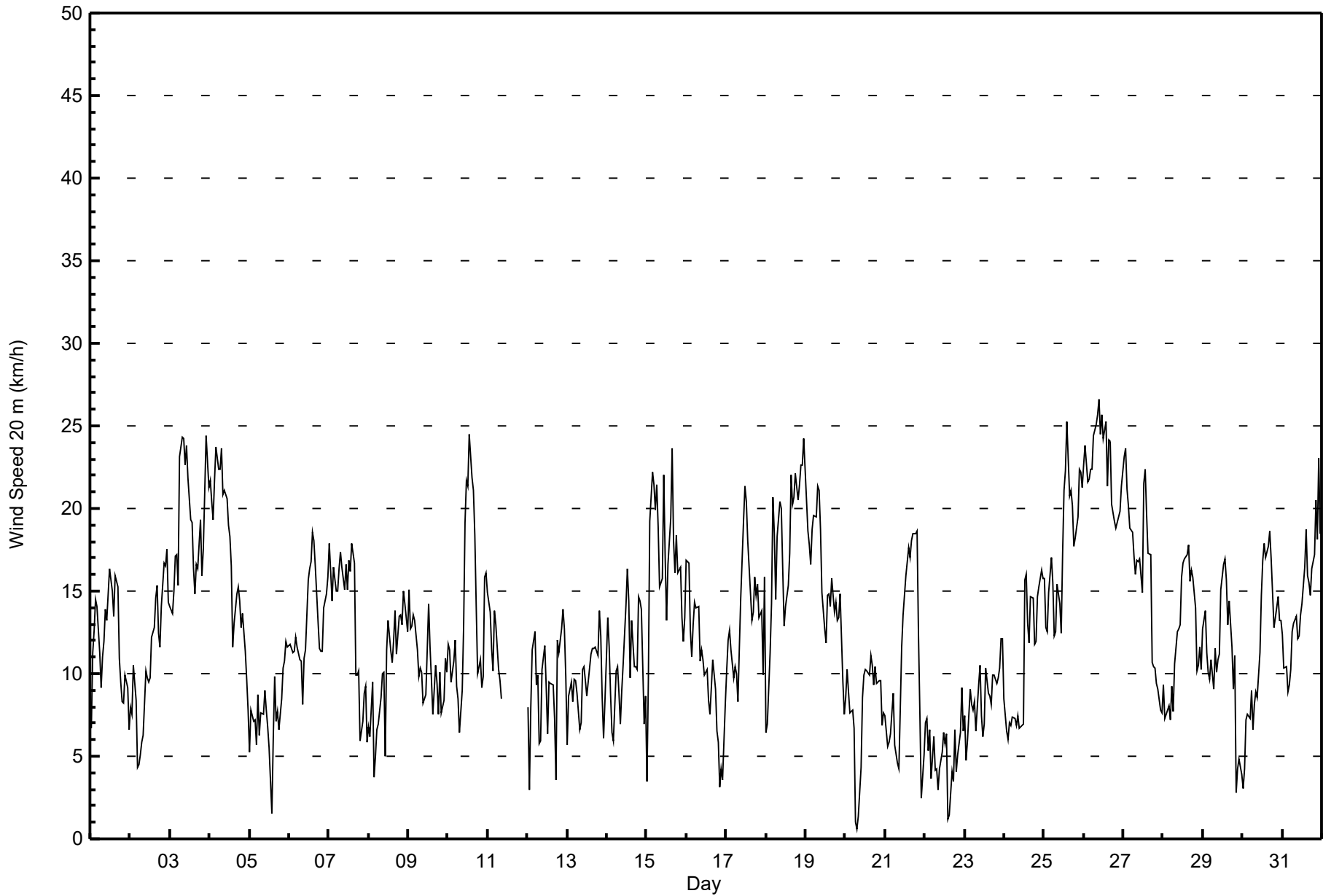
Maximum Speed: 27 km/h on Mar 26 10:00		Maximum Daily Speed Average: 22.5 km/h on Mar 26		Hours in Service: 744																						
Minimum Speed Value: 1 km/h on Mar 20 08:00		Minimum Daily Speed Average: 0.6 km/h on Mar 5		Hours of Data: 729																						
Maximum Diurnal Speed Average: 4.7 km/h at hour 20		Minimum Diurnal Speed Average: 1.4 km/h at hour 12		Hours of Missing Data: 15																						
Monthly Average Velocity: 2.7 km/h 97.6 deg		Percentiles: P ₁ = 3 P ₁₀ = 6 Q ₁ = 9 Median = 12 Q ₃ = 16 P ₉₀ = 21 P ₉₉ = 24		Percent Operational Time: 98.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	WNW7	W11WSW13	WSW14	W14WSW11	WSW9	WSW11	WSW12	WSW14	W13WNW16	WNW16	W15	NW14	NW16	NW15	NNW11	NNW9	NNW8	NW8	N10	NNE9	NE7	WNW9.1	WNW16			
2-Mar	ENE8	NNE8	NNW11	N8	N4	NNW4	NW5	NW6	NNW6	NNE10	NE10	NNE10	NNE10	NNE12	NNE13	NNE15	NNE15	NE12	NNE12	NNE14	NNE17	NNE17	NNE18	N14	NNE10.1	NNE18
3-Mar	N14	N14	N15	N17	N17	N15	NNE23	NNE24	NNE24	N23	NNE24	NNE22	N19	N19	N16	N15	N17	NNW16	N19	N16	N18	N21	N24	N21	N18.7	N24
4-Mar	N22	N20	N19	N22	N24	N22	N22	N24	N21	N21	N19	N18	N16	N12	NNW13	N15	N15	NNW14	NNW13	N14	N11	N10	N8	N17.3	N24	
5-Mar	NW5	NNW8	NNW7	N7	N6	NNE9	N6	N8	N8	NNE9	NNE8	NNE7	NNE6	NNE2	SW6	SSW10	S7	SSW8	S7	SSE8	SSE10	SSE11	SSE12	SSE12	ENE0.6	SSE12
6-Mar	SSE12	SSE11	SSE11	SSE11	SSE12	SSE12	S11	SSE11	S8	S11	SSE11	SSE16	SSE16	S17	S19	S18	S17	SSW13	SSW12	S11	S11	SSE14	SSE15	SSE16	S12.8	S19
7-Mar	SSE18	SSE16	SSE14	SSE16	SSE15	SSE15	SSE16	SSE17	SSE16	SSE15	S17	SSE15	SSE17	SSE16	SSE18	SSE17	S10	SSW10	S10	S6	ESE7	SSE9	S9	WSW6	SSE13.1	SSE18
8-Mar	W7	W6	NNW10	W4	SW5	SSW7	S7	SSE9	SSE10	S10	SW5	S11	S13	SSE11	SSE11	SSE12	SSE14	SSE11	SSE13	SSE14	SE13	SE15	SE14	S13	SSE8.1	SSE15
9-Mar	SSE15	S13	S13	S14	SSE13	SSE11	SSE10	S10	S10	S8	S9	S11	S14	SSE12	SSE10	SSE8	SSE10	SSE9	SE8	SE10	SSE8	SSE8	S11	SSE10	SSE10.5	SSE15
10-Mar	S12	SSE11	SSE9	SSE11	S12	SSW9	S8	SSW6	WSW9	SW13	W19	W22	W21	WSW24	W22	W21	W18	WNW14	NW10	NNW11	NNE9	NE10	NE16	NE16	WSW6.5	WSW24
11-Mar	NE15	NE14	NE12	NE10	NE14	NE13	NE10	ENE10	ENE8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NE15
12-Mar	ESE8	E3	ESE8	ESE11	E13	E9	E10	NE6	E6	ESE10	ESE12	ESE9	NE6	NNE10	NNE9	N9	NNW7	NNW4	SE12	ESE11	SE13	SE14	SE13	SE10	E6.8	SE14
13-Mar	SE6	SE9	ESE9	ESE8	ESE10	SE10	SE9	SE7	SE7	S10	S10	S10	SSW9	S10	S11	S12	S11	SSE12	SSE11	SE14	SE12	SE9	S6	S8	SSE8.8	SE14
14-Mar	SSE13	SSE12	SSE9	S6	SSE6	SE10	SE9	SSE9	SSE7	S9	S11	S14	S16	SSW14	SSW10	SSW13	S10	SSW10	S10	S15	S14	SW14	WSW7	W9	S9.6	S16
15-Mar	WSW3	SW10	WSW19	W22	WNW21	NNW20	NNW21	N19	N15	NNW16	NNW22	NW17	N13	NNE17	NNE19	NNE24	NNE18	NNE16	NNE18	NNE16	NE16	NNE13	NNE12	NNE13	N12.3	NNE24
16-Mar	NNE17	NNE17	NNE13	N11	NNE13	NNE14	NNE14	NNE14	NNE11	NNE11	NNE11	NNE10	NNE10	NNE8	N8	N9	N11	N9	NNE7	NNE6	NNE3	N4	E4	SE8	NNE9.4	NNE17
17-Mar	SE10	SE12	SE13	SE11	SE10	SSE10	SSE10	SE8	SSE12	SSE15	SSE19	S21	SSE20	SSE18	SSE16	SSE13	SSE14	S16	S15	SSE15	S13	WSW14	WNW10	N16	SSE11.2	S21
18-Mar	N6	NE7	NNE11	NNE14	N21	N18	N14	N18	N20	NNE20	NNE16	NNE13	NNE14	NNE15	NNE17	NNE22	NNE20	NNE21	NNE22	NNE21	N21	N23	NNE23	NNE24	NNE17.6	NNE24
19-Mar	N21	N19	N18	N17	NNE19	NNE20	NNE20	NNE21	NNE21	N19	NNE15	NNE13	NNE12	NNE15	NNE15	NNE14	NE16	NE14	NE14	NE13	NE13	NNE15	N10	NW8	NNE15.1	NNE21
20-Mar	N9	N10	NNE9	N8	NNW8	NNW7	WNW1	SE1	WSW1	NE4	NNE9	NNE10	NNE10	N10	NNE10	NNE11	NNE11	NNE9	NNE10	NNE9	NNE10	NE10	NE7	N8	NNE7.4	NNE11
21-Mar	NNW7	NNW6	N6	NNW6	NNW8	NNW9	NNW6	N5	NNW4	NNW8	N12	N14	NNE16	NNE17	NNE18	NNE17	NNE18	NNE18	NNE18	NNE19	NNE12	NNE8	NNW2	N5	NNE10.1	NNE19
22-Mar	NNW7	NNW7	NW5	NW7	SW4	SW6	SW4	SW4	SSW3	SW4	WSW5	W6	WSW6	W6	WSW1	NE1	E4	ESE3	S7	SSE4	ESE5	ESE6	ESE9	SE6	SW1.3	ESE9
23-Mar	ESE7	ESE5	SE6	SE9	SE8	SE8	SE8	SE7	S9	S10	SSE7	S6	S7	SSE10	S9	S9	SSE8	SE10	ESE10	ESE9	ESE10	SE10	SE12	SE12	SE8.0	SE12
24-Mar	SE8	SE7	SSE6	SE7	SE7	SE7	SSE7	SE7	SSE7	SSW7	S7	S7	SSE16	SSE16	SSE13	SSE12	SSE15	SSE15	SSE12	SE12	ESE15	SE15	SE16	SE16	SSE10.0	SE16
25-Mar	SE16	SE13	SE13	SE15	SE17	SE15	SE12	SE13	SSE15	SSE14	SSE12	SSE17	SSE21	SSE22	SSE25	SSE21	SSE21	SSE20	SSE18	SE18	SSE20	SSE22	SSE22	SSE21	SSE17.3	SSE25
26-Mar	SSE23	SSE24	SSE22	SSE22	SSE22	SSE22	SSE24	SSE25	SSE26	SSE27	SSE24	SSE26	SSE24	SSE25	SSE21	SE24	SE24	SE20	SSE19	SSE19	SSE19	SE19	SE20	SE21	SSE22.5	SSE27
27-Mar	SE23	SE24	SE21	SE20	ESE19	ESE19	ESE17	ESE16	ESE17	ESE17	ESE17	ESE15	ESE21	ESE22	ESE20	ESE17	ESE17	E11	E10	ENE10	ENE9	NE9	NNE8	NNE8	ESE14.7	SE24
28-Mar	NNE9	N7	N8	N8	NNW7	N9	N8	N11	NNE13	N13	N13	N16	N17	N17	N17	N18	N16	NNW16	NNW16	N14	NNW10	NNW10	NNW12	NNW10	N12.0	N18
29-Mar	N13	NNW14	N11	N10	NNW10	NNW11	NNW9	N11	N10	NNE11	NNE11	N15	NNE17	N17	NNE16	N13	NNE14	NNE12	NE9	NE11	N3	WNW4	NNW5	NW4	N10.1	N17
30-Mar	NW3	WSW4	SSW7	SSE8	SSE7	SSE9	SSE7	SSE8	SSE9	S9	SSE11	S15	SSE17	SSE18	SSE17	SSE18	SSE19	SE17	SE15	ESE13	SE13	SE15	SE13	SE13	SSE11.0	SSE19
31-Mar	SSE12	SSE10	SSE10	SE9	SSE9	S10	SSE13	SSE13	S14	S12	S12	SSE14	SSE14	SSE16	S19	S16	S15	SSE15	SSE16	SSE17	S21	SSE18	SSE23	SSE18	SSE14.2	SSE23
E3.1 E2.2 E1.7 E2.0 E2.2 E2.4 E2.4 ENE2.8 E2.2 ESE1.6 ESE1.5 SE1.4 ESE2.6 ESE2.9 ESE2.3 E2.0 E2.7 E3.0 E3.9 E4.7 E4.6 E3.9 E3.9 E3.4																								Diurnal Average		
SE23 SSE24 SSE22 W22 N24 SSE22 SSE24 SSE25 SSE26 SSE27 SSE24 SSE26 SSE24 SSE25 SSE25 SE24 SE24 NNE21 NNE22 NNE21 NNE21 NNE23 N24 NNE24																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 20 m (WS20m) - km/h
Barge Landing - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 07:00 Minimum Value: 0 km/h on Mar 29 23:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 7																	Hours in Service: 744 Hours of Data: 729 Hours of Missing Data: 15 Hours of Calibration: 0 Percent Operational Time: 98.0										
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	2	2	2	3	3	2	3	3	3	4	4	5	5	5	5	4	4	3	2	1	2	4	4	2	5		
2-Mar	2	3	2	3	3	1	1	1	2	4	3	2	2	3	3	4	4	3	3	3	4	4	5	4	5		
3-Mar	3	4	4	5	5	5	6	6	6	6	5	5	5	5	5	4	5	5	6	5	5	6	7	6	7		
4-Mar	7	7	5	7	7	7	7	7	7	6	7	6	6	5	4	4	5	4	4	3	4	3	3	3	7		
5-Mar	2	2	2	2	1	3	1	2	2	2	2	2	2	2	6	4	2	2	1	1	1	1	1	1	6		
6-Mar	1	2	2	2	2	2	2	2	3	2	3	3	4	5	5	5	4	4	2	2	2	2	2	2	5		
7-Mar	3	4	3	3	3	3	3	4	4	4	4	4	4	4	5	4	3	3	2	3	3	3	2	2	5		
8-Mar	1	1	1	2	2	2	1	1	2	2	2	3	3	3	3	3	4	2	2	2	1	1	2	3	4		
9-Mar	2	2	2	2	2	2	2	2	3	2	3	3	4	4	2	2	2	3	3	2	2	2	1	1	4		
10-Mar	2	2	1	2	2	2	2	2	4	4	7	5	6	6	7	6	6	4	2	2	4	4	4	4	7		
11-Mar	4	4	3	2	4	3	3	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4		
12-Mar	2	1	2	2	1	1	1	2	2	4	3	3	3	2	2	2	2	2	2	3	3	4	2	2	4		
13-Mar	1	2	1	1	1	1	1	1	2	3	3	3	2	3	3	3	3	3	2	3	2	1	2	3	3		
14-Mar	1	3	1	1	1	2	2	2	2	2	4	4	4	4	3	4	2	2	3	3	2	3	4	4	4		
15-Mar	4	3	5	5	5	6	7	5	4	4	6	5	4	4	5	5	5	5	5	5	4	3	3	4	7		
16-Mar	4	4	4	3	4	3	4	3	3	3	3	3	3	2	3	3	3	3	2	2	1	1	2	4	4		
17-Mar	2	3	3	3	2	2	1	2	3	4	5	5	5	5	5	4	3	4	2	2	2	3	4	6	6		
18-Mar	3	2	4	4	6	6	5	5	6	5	5	3	4	4	5	5	5	6	5	6	6	7	6	6	7		
19-Mar	6	5	5	5	5	5	5	5	5	5	5	4	4	4	4	4	4	4	4	3	3	4	3	1	6		
20-Mar	2	2	3	3	1	1	1	1	2	3	4	3	3	3	3	3	3	3	2	2	2	2	2	1	4		
21-Mar	3	1	1	1	1	1	1	1	2	2	3	3	4	4	5	5	5	5	4	5	3	3	1	2	5		
22-Mar	2	1	1	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	2	2	1	2		
23-Mar	1	1	1	1	1	1	1	2	3	2	2	2	2	3	3	3	3	2	1	1	1	1	1	1	3		
24-Mar	2	1	1	0	1	1	1	1	2	3	2	4	5	5	4	4	4	4	4	3	3	3	2	3	5		
25-Mar	3	3	2	3	3	3	3	3	4	3	4	5	5	6	6	6	5	6	4	4	4	5	5	5	6		
26-Mar	5	5	5	5	5	5	6	6	6	6	7	6	6	6	7	5	5	5	5	4	4	5	5	5	7		
27-Mar	5	6	6	4	4	4	3	4	3	4	4	4	5	4	5	6	5	4	3	3	2	2	2	2	6		
28-Mar	2	2	2	2	2	2	2	4	3	3	4	4	5	4	5	4	4	4	4	4	2	2	3	3	5		
29-Mar	3	4	3	3	2	2	2	4	3	3	4	5	4	5	5	4	4	3	2	1	2	1	0	1	5		
30-Mar	2	2	1	1	2	1	2	2	3	3	3	4	4	5	5	5	4	4	3	2	2	2	2	3	5		
31-Mar	3	2	2	1	1	2	2	3	3	3	3	3	4	5	5	4	4	3	3	4	5	4	5	6	6		
																	Diurnal Maximum										
																	7 7 6 7 7 7 7 7 7 6 7 6 6 6 7 7 6 6 6 6 6 7 7 6										
UO - Unstable Operation																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 20 m (WS20m) - km/h
Barge Landing - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	42	5.76	5.76
6 - 11	301	41.29	47.05
12 - 19	298	40.88	87.93
20 - 28	88	12.07	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 729

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 20 m (WS20m) - km/h
Barge Landing - March 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	2	2	0	3	3	1	1	0	1	6	5	1	2	5	6	42
6 - 11	33	40	13	5	5	16	32	53	42	11	2	8	6	2	5	28	301
12 - 19	47	54	14	0	1	15	29	78	26	4	2	6	5	3	4	10	298
20 - 28	17	20	0	0	0	3	9	27	2	0	0	1	5	1	0	3	88
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
Totals	101	116	29	5	9	37	71	159	70	16	10	20	17	8	14	47	729

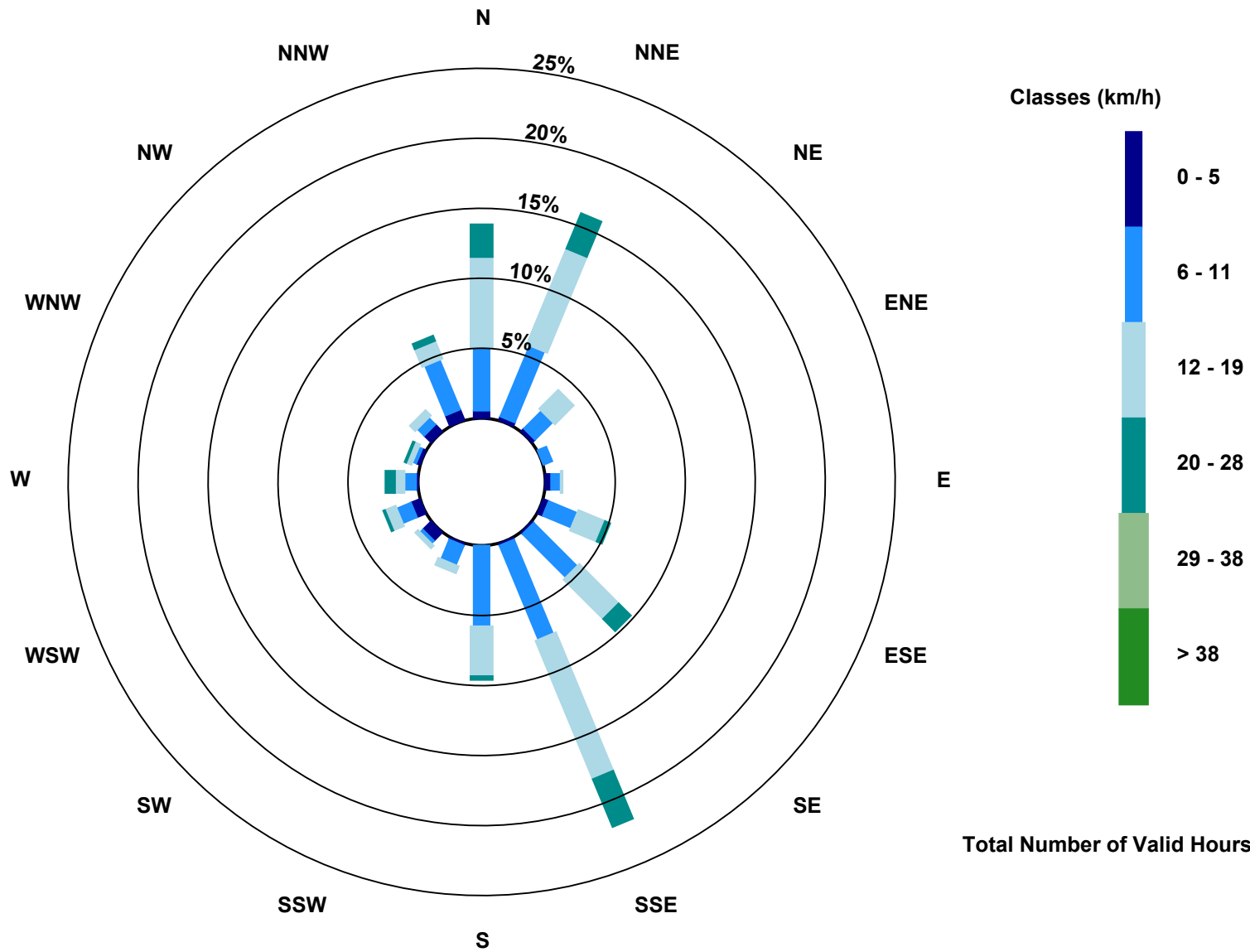
Total Number of Valid Hours: 729

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed 20 m (WS20m) - km/h
Barge Landing



Total Number of Valid Hours: 729



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Barge Landing - March 2024

Direction of Maximum Speed: 153 deg on Mar 26 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 149.7 deg on Mar 26	Hours of Data: 729
Direction of Minimum Speed: 127 deg on Mar 20 08:00	Hours of Missing Data: 15
Direction of Minimum Daily Speed Average: 0.6 deg on Mar 5	Percent Operational Time: 98.0
Monthly Average Direction: 97.6 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-Mar	289	273	254	254	260	243	246	255	251	254	262	290	296	279	312	324	322	336	343	333	321	1	24	46	290.4
2-Mar	64	26	347	354	354	340	319	323	345	25	34	25	24	30	24	31	25	35	14	19	16	21	25	9	17.9
3-Mar	1	358	2	8	0	5	13	14	14	10	15	12	4	5	357	350	350	347	352	356	359	355	352	356	2.3
4-Mar	356	353	350	352	351	353	355	352	353	354	353	353	354	354	351	346	350	349	344	345	354	360	11	0	352.7
5-Mar	319	348	345	355	3	12	355	1	7	13	18	19	23	31	231	211	184	198	169	165	153	158	157	159	59.1
6-Mar	157	155	156	160	157	163	171	168	177	176	166	159	166	187	190	187	190	197	197	174	171	166	164	162	172.2
7-Mar	160	164	162	164	166	165	162	162	167	166	171	168	166	163	163	167	171	200	183	187	112	150	183	250	167.1
8-Mar	273	262	334	260	235	205	180	158	158	169	217	175	178	165	162	167	151	150	152	152	144	146	146	170	168.3
9-Mar	162	171	183	170	166	164	165	174	174	171	180	178	174	167	164	163	156	149	137	145	162	161	177	166	166.6
10-Mar	169	168	167	165	170	193	187	212	242	231	260	265	265	256	272	267	278	288	304	330	33	44	51	51	253.0
11-Mar	51	52	53	55	52	55	56	59	59	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-
12-Mar	108	88	115	104	101	89	91	54	83	117	123	118	55	15	13	358	342	336	133	117	124	128	129	131	98.6
13-Mar	138	129	123	107	119	129	140	131	146	175	177	169	200	171	179	182	171	156	148	135	143	145	173	174	153.1
14-Mar	156	152	148	169	162	144	166	159	164	174	174	187	187	202	212	213	189	192	177	178	191	224	243	275	184.2
15-Mar	254	236	254	274	300	328	335	10	349	335	335	324	11	27	26	21	27	31	31	26	35	29	27	28	354.5
16-Mar	26	25	17	4	23	25	30	23	31	19	28	21	20	13	8	10	8	7	12	18	27	356	94	133	22.1
17-Mar	134	145	139	145	145	151	147	139	158	167	168	171	164	161	162	164	163	177	169	167	186	240	287	11	163.2
18-Mar	0	35	27	18	11	5	7	8	8	13	15	17	23	21	17	17	16	16	18	13	11	11	12	15	14.2
19-Mar	6	4	359	4	13	16	18	17	15	8	21	17	19	31	29	32	35	40	45	50	45	31	355	322	19.3
20-Mar	349	358	19	356	328	335	301	127	237	35	33	16	12	11	28	21	19	24	22	15	25	42	40	355	13.7
21-Mar	337	330	350	347	347	341	342	349	340	327	5	4	20	26	22	23	28	28	29	32	23	15	327	9	11.8
22-Mar	341	330	318	321	225	230	226	223	212	228	255	260	253	265	249	38	80	122	181	149	103	102	116	131	224.9
23-Mar	119	121	131	129	146	133	139	146	172	170	163	173	173	156	191	169	154	124	116	103	116	140	132	131	142.9
24-Mar	136	140	158	131	136	142	162	145	154	198	174	189	152	155	160	148	167	163	155	124	112	126	129	125	146.6
25-Mar	127	141	132	135	132	137	144	144	151	165	167	165	160	160	147	166	163	153	147	145	149	160	162	160	151.7
26-Mar	159	158	155	152	150	154	160	160	158	153	153	147	148	148	153	141	141	141	148	148	148	141	137	129	149.7
27-Mar	124	134	138	127	122	120	116	117	117	118	112	119	115	114	114	110	113	99	86	65	62	46	28	19	111.7
28-Mar	12	359	358	359	345	354	355	6	13	7	4	9	2	3	4	7	3	348	344	350	335	328	337	340	356.9
29-Mar	349	348	349	352	343	340	341	357	357	23	21	1	13	10	14	4	18	26	46	48	8	289	330	326	3.9
30-Mar	305	237	204	167	163	150	160	151	165	175	168	169	157	153	150	150	157	133	130	117	136	137	143	145	152.1
31-Mar	152	147	149	143	147	169	163	162	169	183	175	163	162	162	182	179	177	161	160	155	169	157	152	166	163.4

91.5 97.9 96.3 92.6 86.3 86.1 96.1 78.5 95.8 117.2 102.5 130.0 120.6 118.5 112.5 98.7 95.3 91.8 92.5 88.9 96.0 99.5 100.7 93.1
Diurnal Average

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



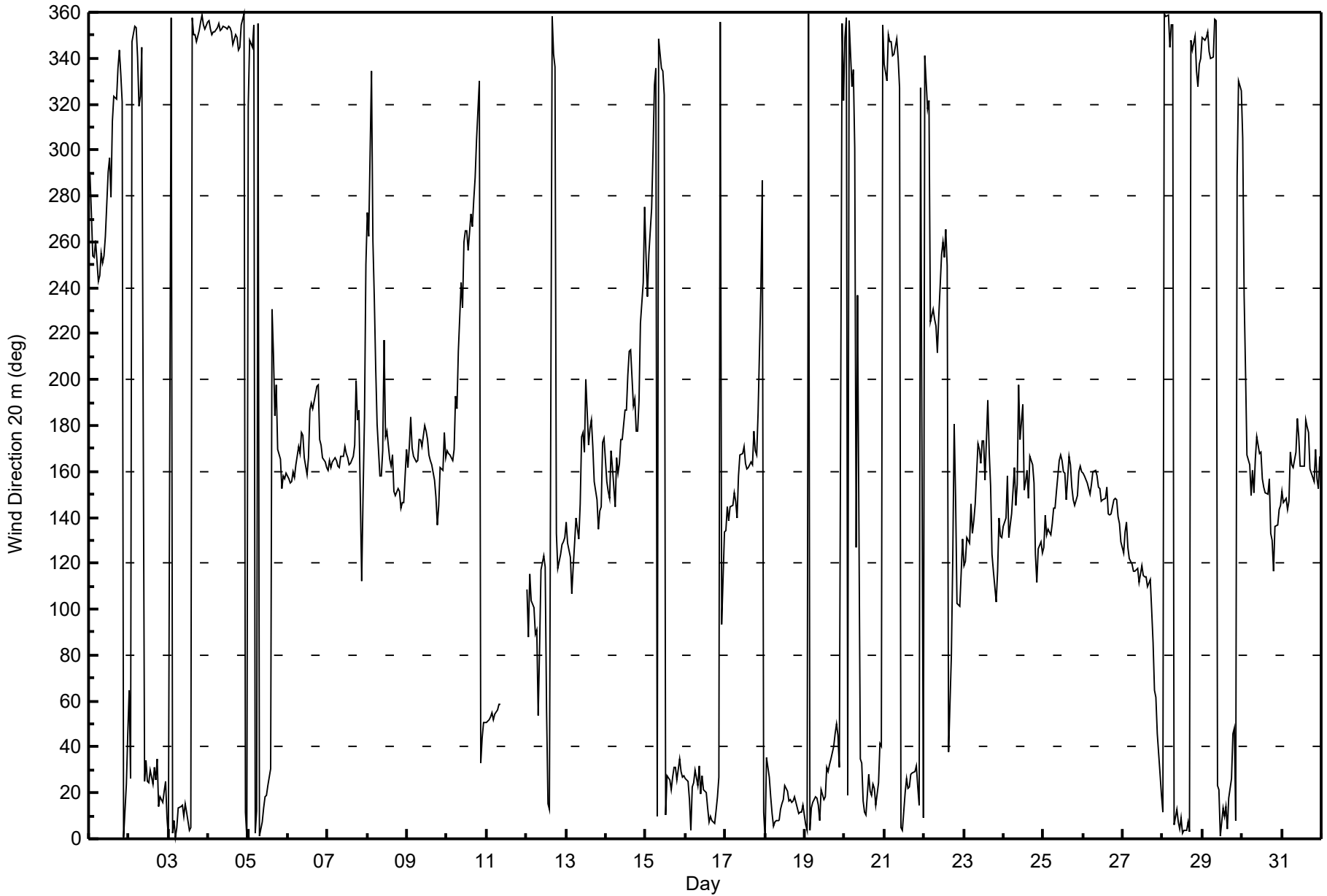
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 20 m (WD20m) - deg
Barge Landing - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 103 deg on Mar 22 15:00	Hours of Data: 729
Minimum Value: 3 deg on Mar 5 21:00	Hours of Missing Data: 15
	Hours of Calibration: 0
	Percent Operational Time: 98.0
Percentiles: P ₁ = 5 P ₁₀ = 9 Q ₁ = 12 Median = 15 Q ₃ = 19 P ₉₀ = 25 P ₉₉ = 76	

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	20	13	10	12	12	12	17	17	14	15	21	21	21	23	24	17	16	20	14	11	10	27	19	25	27
2-Mar	16	27	11	10	28	22	11	8	17	22	21	22	18	20	17	16	14	16	13	11	11	12	12	16	28
3-Mar	16	17	16	15	16	17	13	13	12	14	13	14	15	15	17	18	16	16	17	17	18	17	16	18	18
4-Mar	18	18	17	18	19	17	18	16	19	18	18	18	19	20	21	18	16	16	14	16	17	17	16	23	23
5-Mar	21	17	15	14	15	12	12	16	15	12	16	26	32	86	85	26	29	15	23	5	3	5	6	6	86
6-Mar	6	7	9	8	7	10	10	9	20	17	18	13	16	23	21	18	18	14	10	11	9	9	8	9	23
7-Mar	10	12	11	10	12	12	11	11	13	17	18	18	17	19	15	14	18	17	11	42	31	20	16	39	42
8-Mar	26	28	13	56	19	16	16	11	15	16	33	25	19	19	19	17	14	13	9	8	8	6	7	12	56
9-Mar	8	9	10	7	8	8	8	11	14	18	26	21	19	17	16	19	12	11	9	6	11	11	8	8	26
10-Mar	8	10	9	10	11	14	16	20	34	17	20	14	19	18	20	18	17	16	18	15	35	28	7	5	35
11-Mar	6	6	7	9	6	9	9	10	11	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	11
12-Mar	13	39	8	5	4	8	9	20	22	19	18	23	48	14	14	18	18	67	12	9	8	10	9	8	67
13-Mar	10	11	8	10	9	7	7	8	17	26	25	25	27	21	22	19	17	13	10	9	9	10	21	16	27
14-Mar	7	7	8	18	24	14	11	14	20	14	17	19	19	21	18	14	17	15	14	11	13	16	63	39	63
15-Mar	80	28	13	15	14	32	16	18	24	14	14	19	28	15	13	12	16	16	14	16	14	15	14	13	80
16-Mar	13	13	15	15	15	12	13	13	16	18	18	20	21	21	24	20	14	18	16	25	36	14	50	23	50
17-Mar	11	12	13	13	9	10	8	13	16	19	15	15	15	15	16	16	13	15	10	11	13	23	40	22	40
18-Mar	40	16	14	14	15	16	16	16	16	16	18	16	17	16	16	13	15	15	13	15	14	15	15	14	40
19-Mar	15	17	17	19	15	14	14	13	14	15	19	25	26	18	20	17	17	17	15	13	15	14	20	11	26
20-Mar	13	12	19	31	10	11	85	84	82	63	29	22	20	21	25	19	17	17	11	14	15	12	23	16	85
21-Mar	13	12	11	16	11	10	13	17	25	19	21	17	17	16	18	15	14	14	13	12	14	17	67	16	67
22-Mar	6	10	16	19	33	10	17	19	29	40	28	34	37	35	103	100	51	62	12	23	14	13	16	9	103
23-Mar	8	13	11	4	12	7	5	15	15	17	30	46	40	25	40	34	34	17	7	5	14	7	6	5	46
24-Mar	8	14	15	14	15	12	28	11	17	49	29	48	22	25	31	33	18	16	12	8	9	9	8	8	49
25-Mar	9	11	10	9	9	11	12	14	14	18	24	17	17	18	15	20	16	14	12	11	11	12	12	13	24
26-Mar	13	12	12	13	12	13	13	13	13	14	18	17	17	17	18	18	13	13	12	12	13	13	12	13	18
27-Mar	10	13	14	13	12	13	11	12	12	12	13	14	12	12	13	14	13	18	18	16	17	14	15	11	18
28-Mar	14	15	14	17	12	15	15	16	14	16	17	16	20	20	18	15	18	19	13	15	13	12	13	16	20
29-Mar	14	15	16	16	12	9	14	20	22	20	22	21	17	18	17	23	15	15	15	5	48	21	15	26	48
30-Mar	28	26	19	11	21	8	20	14	20	26	23	24	24	20	23	20	16	15	10	8	9	9	10	12	28
31-Mar	12	9	9	8	10	9	9	13	16	25	22	19	22	20	21	19	17	12	13	11	17	15	14	20	25
	80	39	19	56	33	32	85	84	82	63	33	48	48	86	103	100	51	67	23	42	48	28	67	39	
	Diurnal Maximum																								

UO - Unstable Operation





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS11 LOWER CAMP MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)
MARCH 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	104.3	0	18.6	0
H2S (ppb) Average	706	38	38	100	12.6	2	2.3	0
THC (ppm) Average	677	34	67	95.56	4.3	-	3	-
CH4(ppm) Average	677	34	67	95.56	4.2	-	2.9	-
NMHC(ppm) Average	677	34	67	95.56	0.14	-	0.076	-
Temperature (C) Average	744	0	0	100	14.6	-	4	-
Relative Humidity (%) Average	744	0	0	100	89.7	-	78.3	-
Barometric Pressure (inHg) Average	744	0	0	100	29.8	-	29.7	-
Wind Speed 10 m (km/h) Average	744	0	0	100	32	-	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 - LOWER CAMP (AMS11)
MARCH 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	3.36	11.1	-	0	0	0.1	0.2	1.1	6.1	104.3
H2S (ppb) Average	706	0.47	1.2	-	0	0	0	0.1	0.4	1	12.6
THC (ppm) Average	677	2.24	0.3	-	2	2	2.1	2.2	2.3	2.5	4.3
CH4(ppm) Average	677	2.22	0.2	-	2	2	2.1	2.2	2.2	2.4	4.2
NMHC(ppm) Average	677	0.012	0.022	-	0	0	0	0	0	0	0.14
Temperature 2 m (C) Average	744	-7.09	8.9	-	-27.1	-20.4	-14.7	-5.6	-0.8	3.8	14.6
Relative Humidity (%) Average	744	62.24	14.8	-	24.7	41.6	52.1	63.1	73.8	80.9	89.7
Barometric Pressure (inHg) Average	744	29.21	0.3	-	28.4	28.9	29	29.2	29.4	29.6	29.8
Wind Speed 10 m (km/h) Average	744	11.5	6	-	0	3	7	11	15	19	32
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	25 Mar 2024 03:00	26 Mar 2024 11:00	33	Unstable Operation - depleted support gas



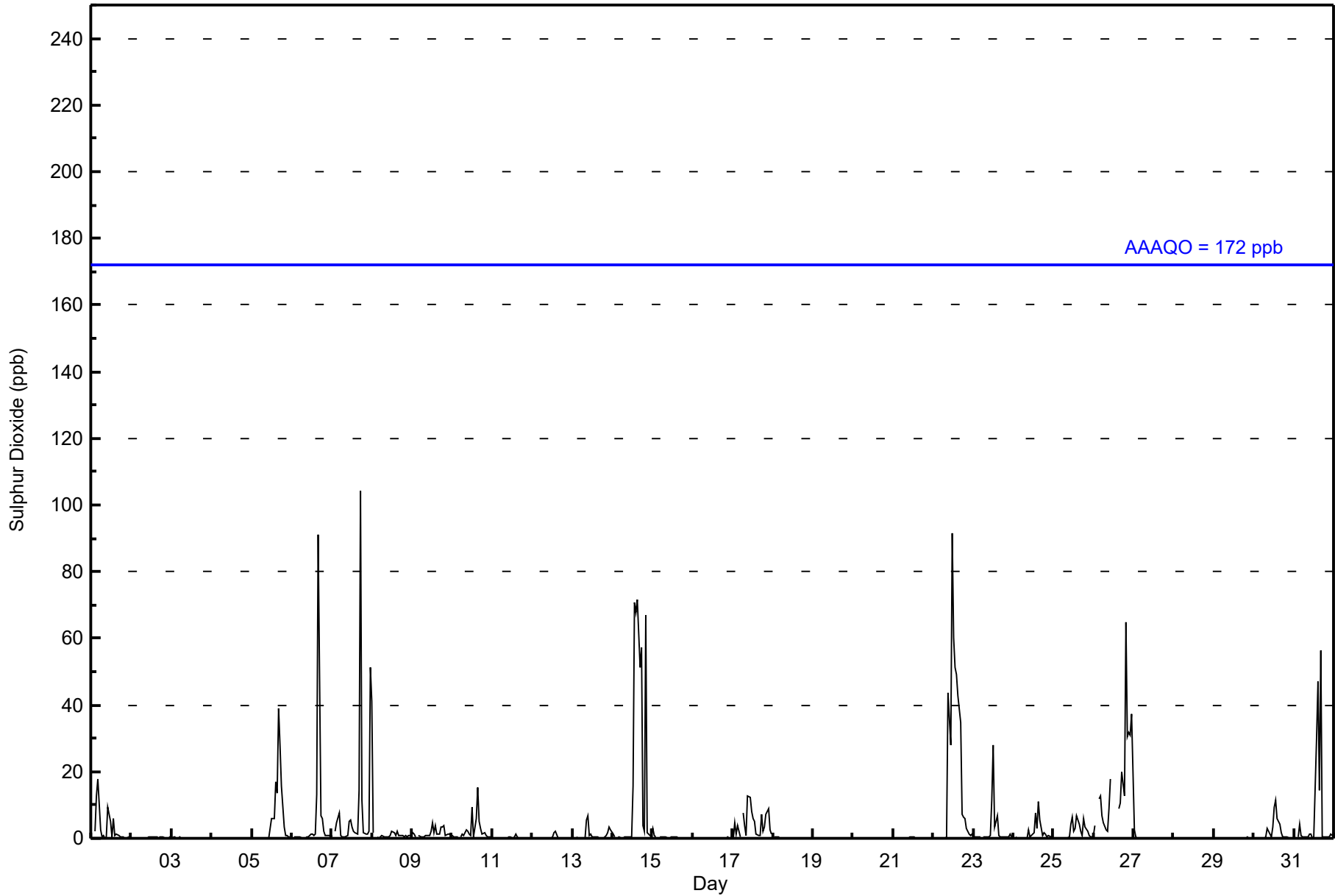
Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Lower Camp - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																											
Maximum Value: 104.3 ppb on Mar 7 18:00		Maximum Daily Average: 18.6 ppb on Mar 22		Hours of Data: 709																																													
Minimum Value: 0.0 ppb on Mar 12 04:00		Minimum Daily Average: 0.0 ppb on Mar 19		Hours of Missing Data: 35																																													
Maximum Diurnal Average: 10.2 ppb at hour 17		Minimum Diurnal Average: 0.4 ppb at hour 3		Hours of Calibration: 35																																													
Monthly Average: 3.36 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 1.1 P ₉₀ = 6.1 P ₉₉ = 64.6		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-Mar	0.0	Z	2.0	12.9	17.9	2.7	0.3	0.7	0.2	0.4	9.2	5.1	0.3	5.9	1.0	1.1	0.8	0.3	0.3	0.3	0.1	0.2	0.2	0.2	2.7	17.9																							
2-Mar	0.1	0.2	Z	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.5																							
3-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2																							
4-Mar	0.0	0.1	0.1	0.1	Z	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	0.0	0.0	0.1	0.0	0.1	0.1	0.1																							
5-Mar	0.0	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	2.8	5.8	5.7	16.9	13.8	38.8	28.1	15.6	3.3	0.8	0.7	0.4	0.6	5.8	38.8																							
6-Mar	Z	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.4	0.6	1.1	1.1	0.8	1.3	13.1	91.3	6.9	5.7	2.0	1.0	0.9	0.8	0.6	5.7	91.3																							
7-Mar	0.7	Z	2.3	4.6	7.5	0.8	0.5	0.4	0.6	0.8	5.3	5.6	3.3	2.2	1.7	1.3	14.5	104.3	11.5	1.5	1.3	1.1	2.0	51.4	9.8	104.3																							
8-Mar	41.2	1.6	Z	0.3	0.2	0.4	0.9	0.5	0.4	0.5	0.5	0.9	2.2	1.5	1.1	1.9	0.9	0.9	0.7	0.5	0.9	0.5	0.7	0.7	2.6	41.2																							
9-Mar	1.6	1.4	0.6	Z	0.7	0.4	0.4	0.5	0.7	0.6	0.9	2.3	4.7	1.7	3.9	1.1	1.3	3.5	3.3	3.8	1.0	1.3	1.1	0.9	1.6	4.7																							
10-Mar	0.9	0.6	0.6	0.5	Z	0.6	1.3	0.8	2.6	2.1	1.5	0.7	9.4	0.3	5.8	15.2	4.9	2.9	1.3	1.5	0.7	0.3	0.3	0.2	2.4	15.2																							
11-Mar	0.2	0.2	0.2	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.4	0.4	0.1	0.2	1.4	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2	1.4																							
12-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.4	1.9	1.9	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.3	1.9																							
13-Mar	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	5.7	6.7	0.8	1.3	0.3	0.2	0.4	0.3	0.2	0.2	0.3	0.8	1.6	3.4	2.7	1.1	6.7																						
14-Mar	1.3	0.4	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	15.6	70.8	67.7	71.5	51.3	57.1	3.9	2.1	66.8	1.8	0.8	1.0	18.0	71.5																							
15-Mar	2.8	1.0	0.5	Z	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.3	2.8																							
16-Mar	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	0.0	0.0	0.2	0.0	0.0	0.0	0.2																							
17-Mar	0.0	4.6	1.2	4.0	0.6	Z	7.4	4.0	0.8	12.8	12.5	8.0	6.1	5.1	1.4	0.7	0.8	7.3	2.0	3.4	7.2	8.9	2.6	1.4	4.5	12.8																							
18-Mar	Z	0.5	0.4	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
19-Mar	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-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1																							
21-Mar	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.5	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.5																							
22-Mar	0.1	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.3	43.8	27.9	91.7	60.3	51.1	49.1	42.7	34.5	7.1	6.5	5.9	3.0	1.2	0.8	1.4	18.6	91.7																							
23-Mar	0.5	0.4	0.4	0.4	0.3	Z	0.2	0.2	0.3	0.4	0.7	11.6	27.8	3.3	6.8	0.8	0.4	0.3	0.5	0.4	0.4	0.4	1.2	0.5	2.5	27.8																							
24-Mar	Z	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	2.4	0.6	1.2	1.5	7.5	2.9	11.1	5.5	0.9	1.5	1.2	0.5	0.8	0.5	0.1	1.7	11.1																							
25-Mar	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6	4.4	6.2	2.1	3.0	6.7	4.1	2.0	1.0	5.9	3.3	2.1	0.8	0.4	0.6	1.9	6.7																							
26-Mar	1.0	4.0	Z	11.9	12.5	6.7	4.8	2.6	2.0	9.0	17.9	C	C	C	C	8.8	10.8	19.8	12.5	65.0	30.7	31.9	30.8	37.4	16.9	65.0																							
27-Mar	2.5	0.2	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	0.1	2.5																							
28-Mar	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	0.1	0.0	0.0	0.0	0.1																							
29-Mar	0.0	0.1	0.1	0.0	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.1	0.0	0.1	0.6																							
30-Mar	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.6	2.9	2.1	0.4	3.3	9.2	11.6	6.0	4.1	1.9	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	1.9	11.6																						
31-Mar	0.0	Z	0.6	4.1	0.9	0.4	0.5	0.3	0.5	1.4	1.2	0.1	0.5	30.1	47.1	14.4	56.2	0.5	0.2	0.3	0.4	0.6	1.1	0.8	7.0	56.2																							
																								2.1	0.7	0.4	1.5	1.6	0.5	0.6	0.4	0.6	2.8	2.8	4.8	5.1	6.8	7.5	6.7	10.2	7.8	2.3	3.1	3.8	1.7	1.6	3.3	Diurnal Average	
																								41.2	4.6	2.3	12.9	17.9	6.7	7.4	4.0	5.7	43.8	27.9	91.7	60.3	70.8	67.7	71.5	91.3	104.3	15.6	65.0	66.8	31.9	30.8	51.4	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Lower Camp - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	658	92.81	92.81
11 - 20	22	3.10	95.91
21 - 60	21	2.96	98.87
61 - 110	8	1.13	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 (SO₂) - ppb
Lower Camp - March 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	52	10	2	4	35	187	60	7	1	1	6	17	21	48	98	109	658
11 - 20	0	0	0	0	0	9	5	3	1	0	1	1	2	0	0	0	22
21 - 60	0	0	1	0	4	6	1	4	3	0	1	1	0	0	0	0	21
61 - 110	0	0	0	1	0	0	1	1	1	1	3	0	0	0	0	0	8
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
Totals	52	10	3	5	39	202	67	15	6	2	11	19	23	48	98	109	709

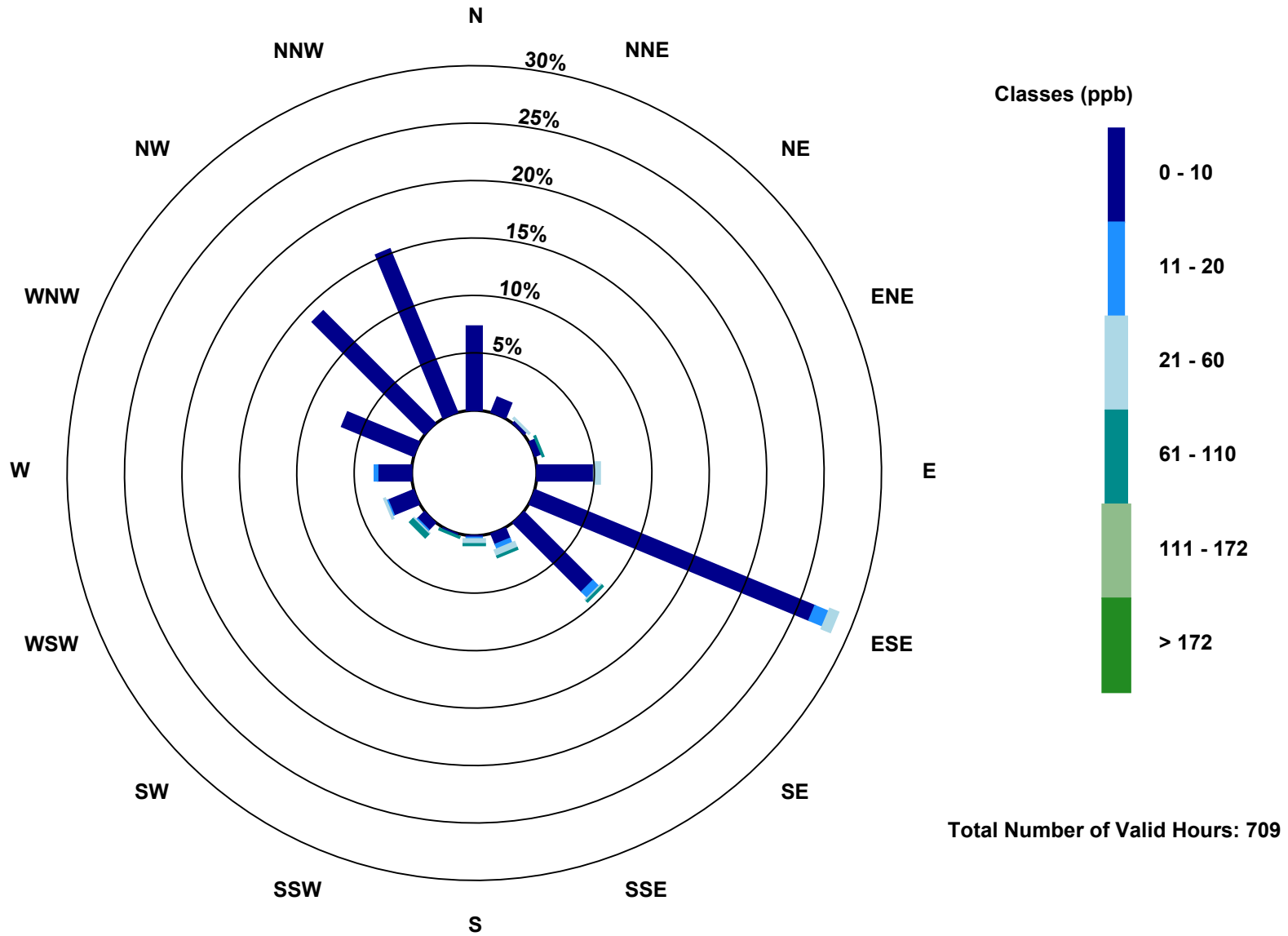
Total Number of Valid Hours: 709

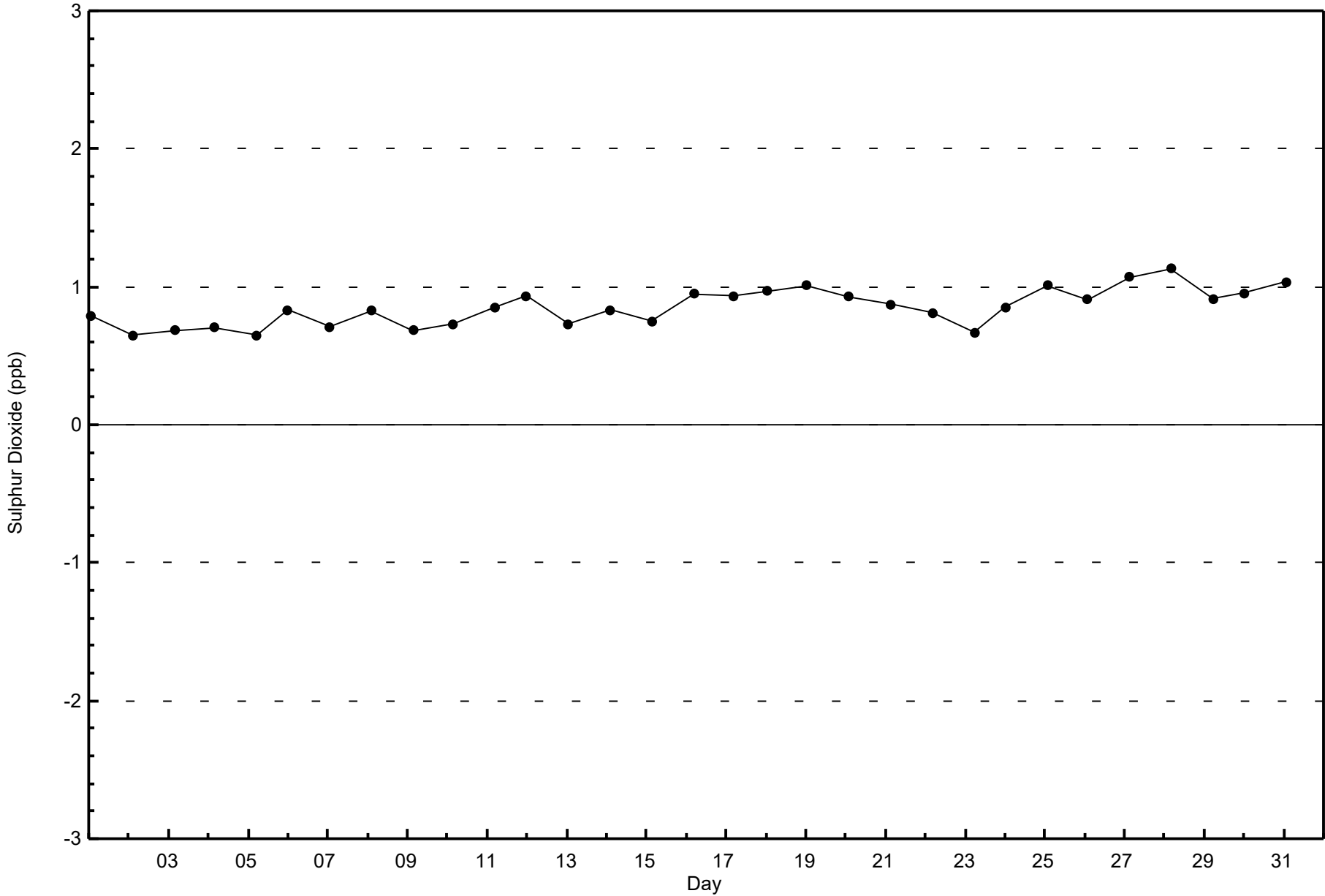
Total Number of Hours: 744

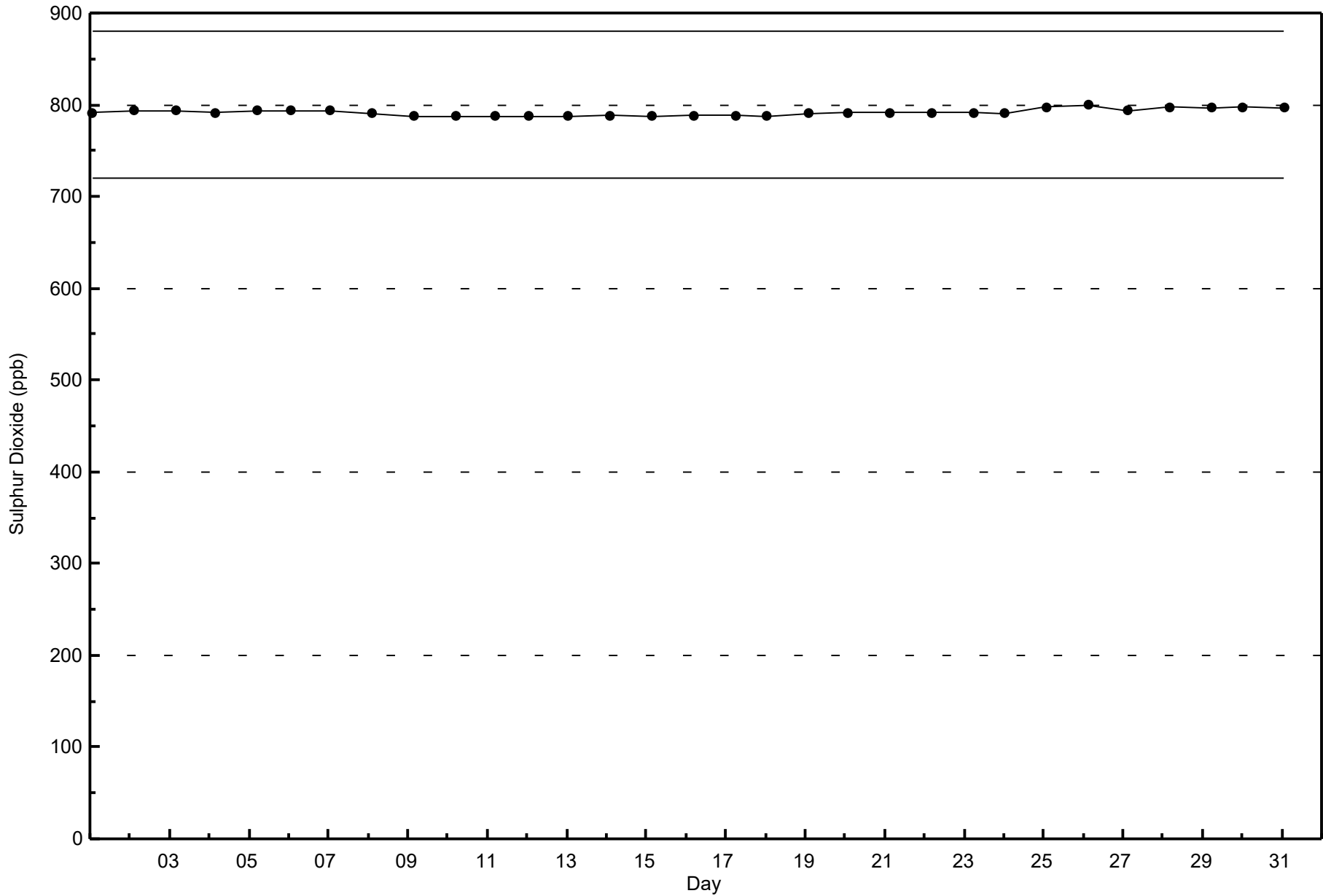


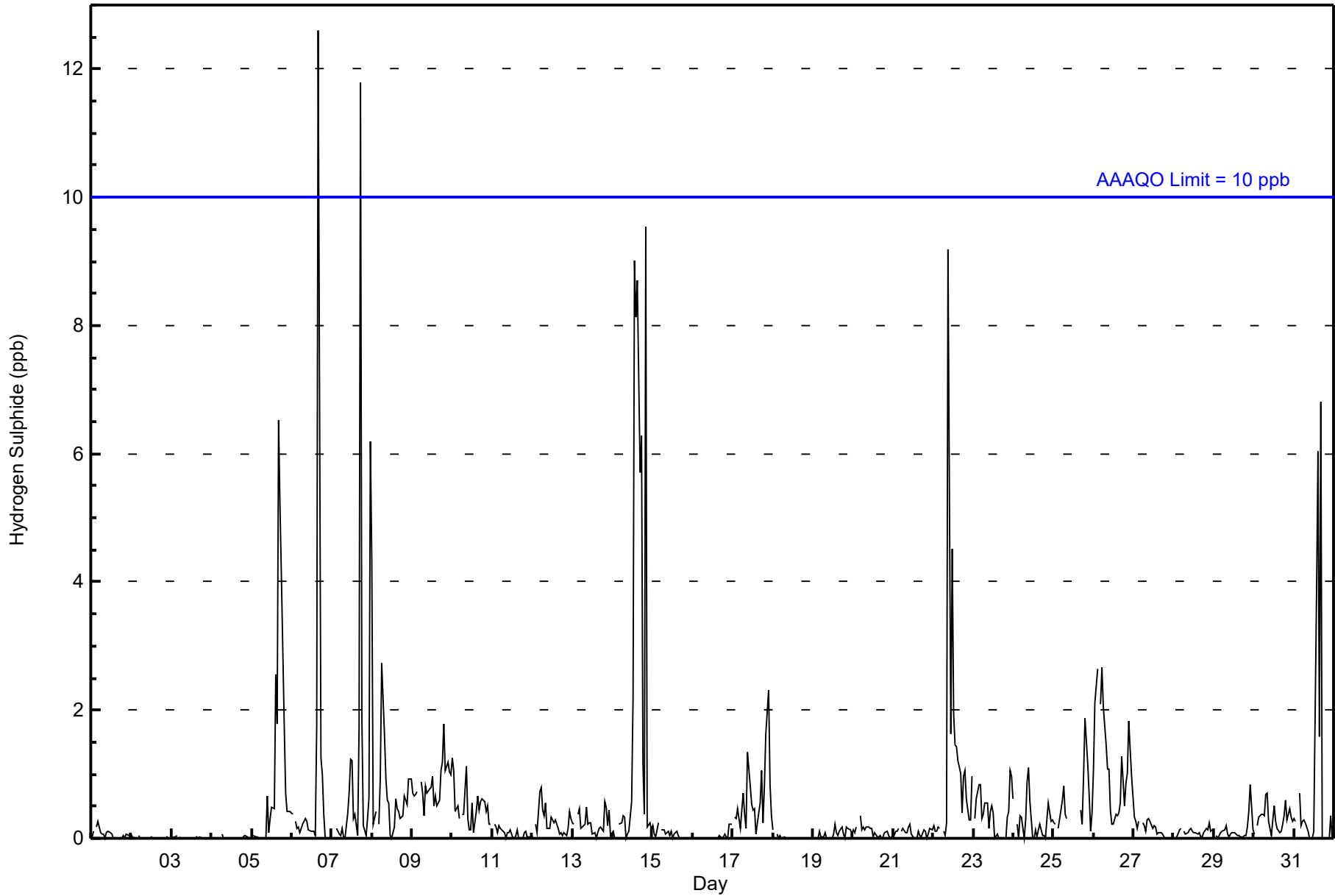
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Lower Camp











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Lower Camp - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	684	96.88	96.88
3 - 4	7	0.99	97.88
5 - 7	8	1.13	99.01
8 - 11	5	0.71	99.72
> 11	2	0.28	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Lower Camp - March 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	10	2	4	37	198	66	10	1	0	7	19	21	52	97	107	684
3 - 4	0	0	0	0	0	1	2	1	1	1	0	1	0	0	0	0	7
5 - 7	0	0	0	1	0	0	0	3	3	0	1	0	0	0	0	0	8
8 - 11	0	0	1	0	0	0	0	0	0	1	3	0	0	0	0	0	5
> 11	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Totals	53	10	3	5	37	199	68	15	6	2	11	20	21	52	97	107	706

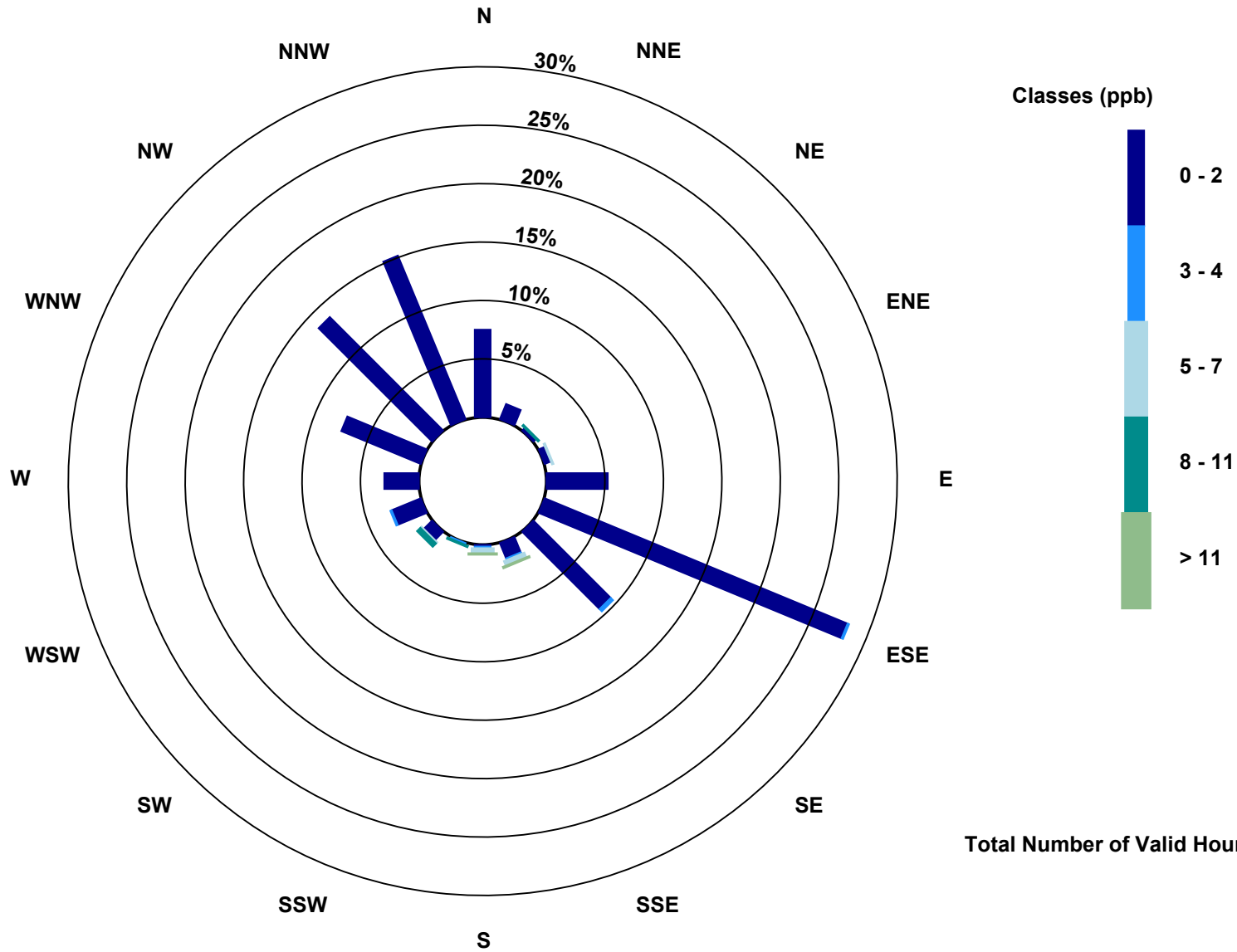
Total Number of Valid Hours: 706

Total Number of Hours: 744

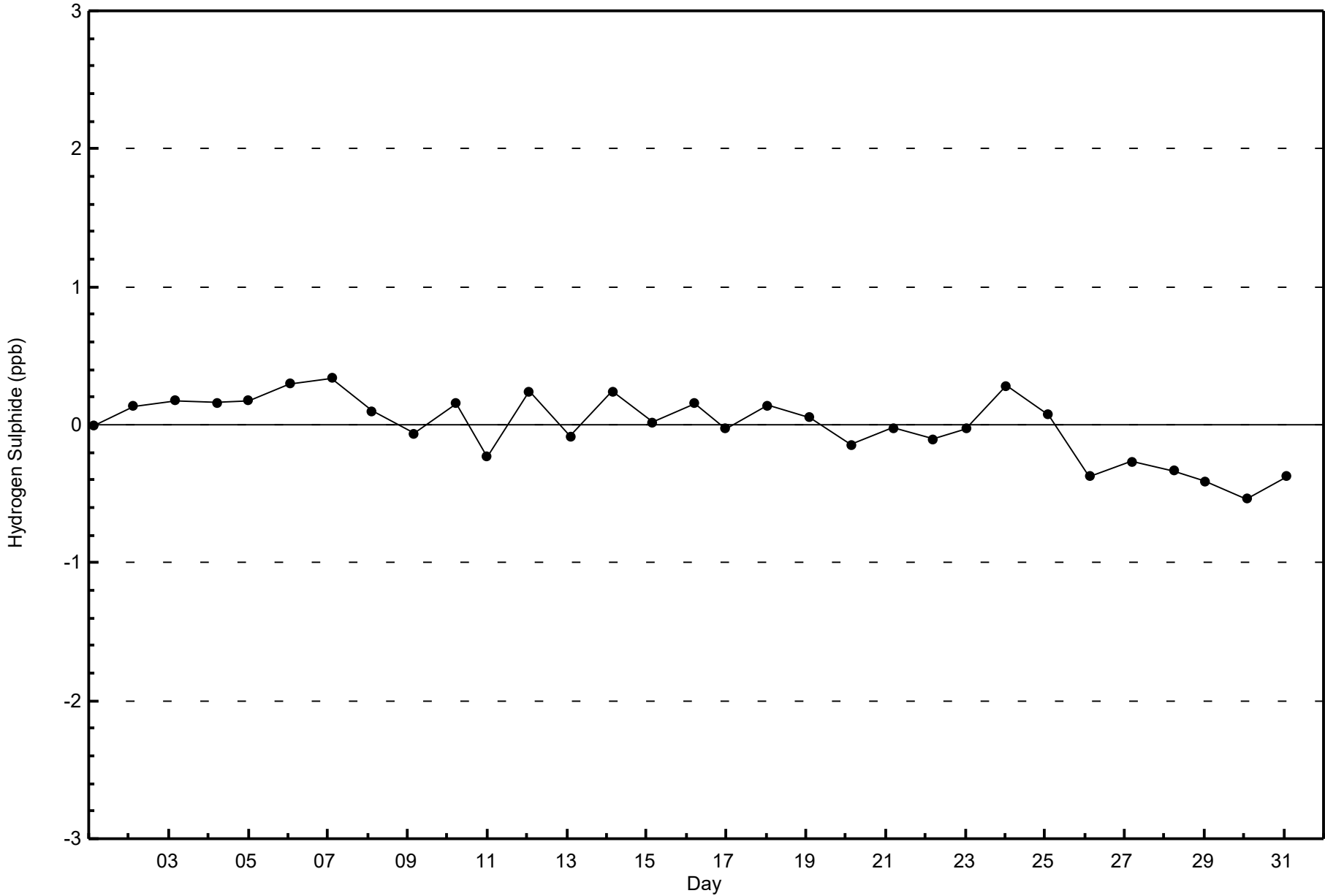


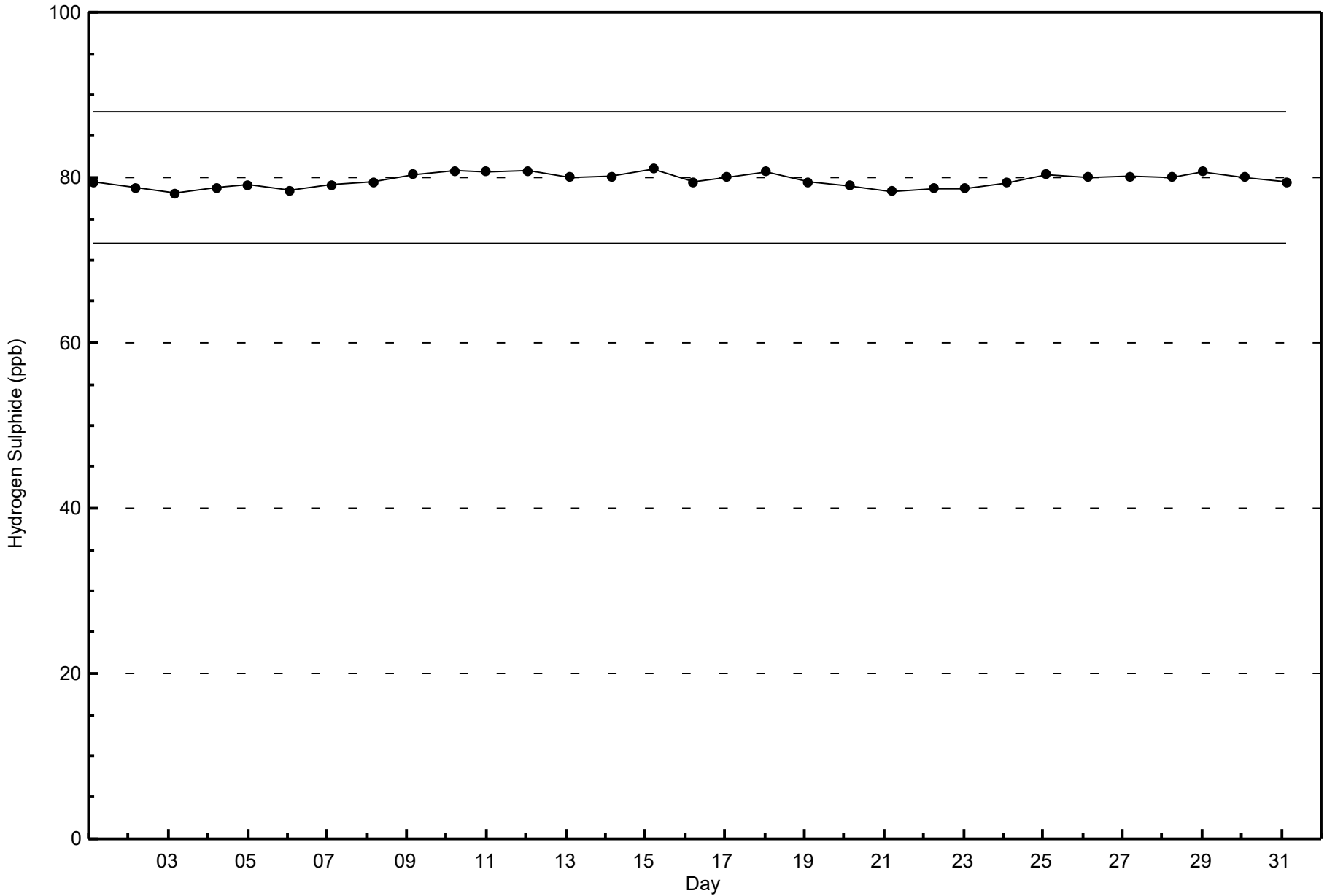
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Lower Camp



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

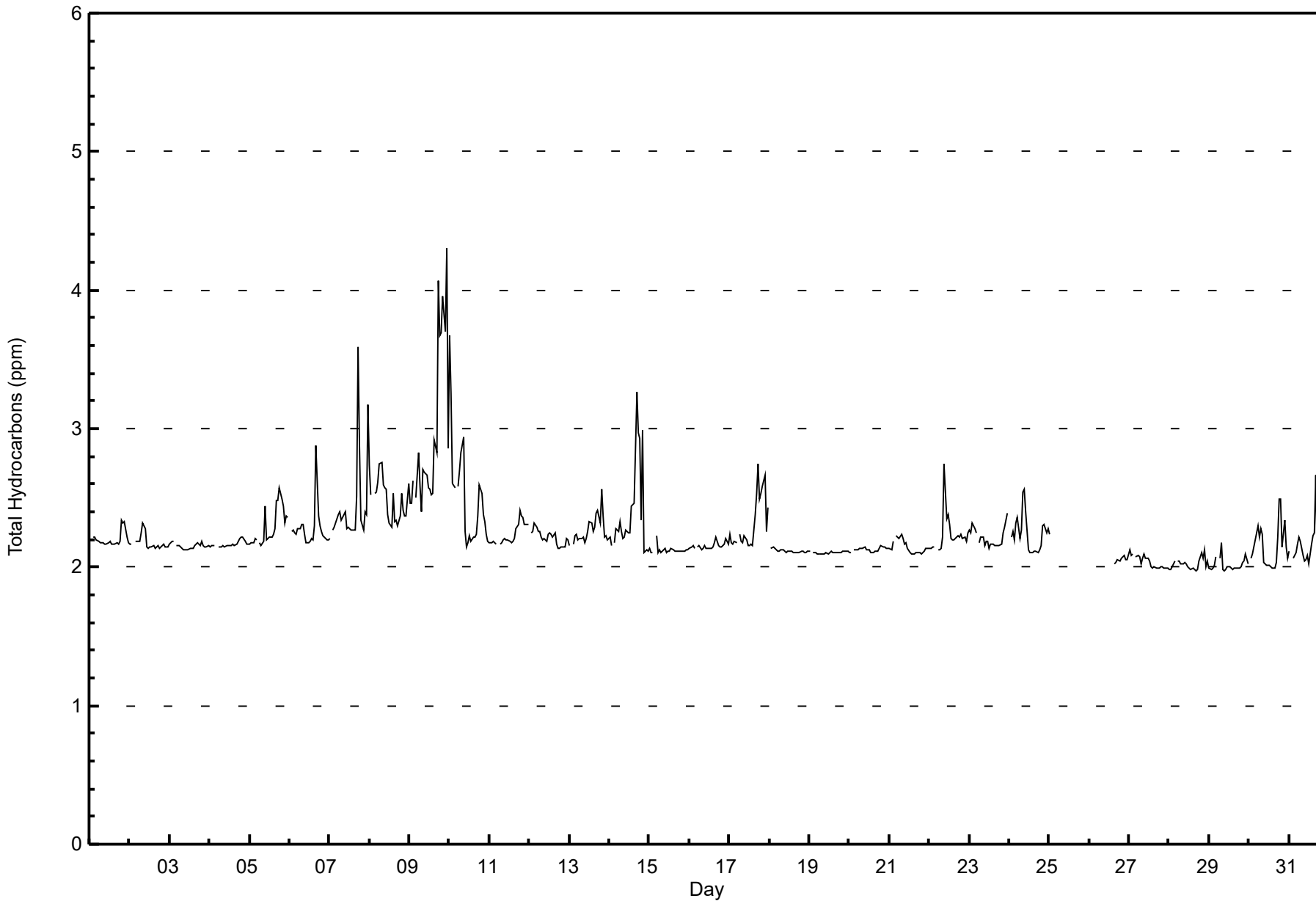
Lower Camp - March 2024

Maximum Value: 4.3 ppm on Mar 9 23:00		Maximum Daily Average: 3.0 ppm on Mar 9		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Mar 28 17:00		Minimum Daily Average: 2.0 ppm on Mar 29		Hours of Data: 677																						
Maximum Diurnal Average: 2.3 ppm at hour 18		Minimum Diurnal Average: 2.2 ppm at hour 13		Hours of Missing Data: 67																						
Monthly Average: 2.24 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.3 P ₉₀ = 2.5 P ₉₉ = 3.6		Hours of Calibration: 34																						
				Percent Operational Time: 95.6																						
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-Mar	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	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3
2-Mar	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.3
3-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2
4-Mar	2.1	2.2	2.2	2.2	Z	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
5-Mar	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.5	2.6	2.5	2.4	2.3	2.4	2.4	2.3	2.6
6-Mar	Z	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.9	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.9
7-Mar	2.2	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.5	3.6	2.9	2.3	2.3	2.4	2.4	3.2	2.4	3.6	
8-Mar	2.7	2.5	Z	2.5	2.5	2.6	2.7	2.8	2.6	2.6	2.6	2.4	2.3	2.3	2.5	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.4	2.6	2.5	2.8
9-Mar	2.5	2.5	2.6	Z	2.5	2.8	2.6	2.4	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.9	2.8	4.1	3.7	3.7	4.0	3.7	4.3	2.9	3.0	4.3
10-Mar	3.7	3.3	2.6	2.6	Z	2.6	2.7	2.8	2.9	2.3	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.6	2.5	2.4	2.3	2.2	2.2	2.5	3.7
11-Mar	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	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.4
12-Mar	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3
13-Mar	2.2	Z	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	2.4	2.3	2.6	2.4	2.2	2.2	2.2	2.3	2.6	
14-Mar	2.2	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.4	2.5	3.3	3.0	2.9	2.3	3.0	2.1	2.1	2.1	2.1	2.4	3.3
15-Mar	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	2.1	2.1	2.1	2.2
16-Mar	2.1	2.1	2.2	2.1	Z	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2
17-Mar	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	2.4	2.5	2.7	2.5	2.5	2.6	2.7	2.3	2.4	2.3	2.7
18-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2
21-Mar	2.1	2.1	2.2	Z	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	2.2
22-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.7	2.3	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	2.7
23-Mar	2.3	2.2	2.3	2.3	2.2	Z	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	2.3	2.3	2.3	2.4	2.2	2.4
24-Mar	Z	2.2	2.3	2.2	2.3	Z	2.4	2.2	2.3	2.5	2.6	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.2	2.6
25-Mar	2.2	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.2
26-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
27-Mar	2.1	2.1	2.1	Z	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	2.1
28-Mar	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	2.1	2.0	2.0	2.0	2.1
29-Mar	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.2
30-Mar	Z	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.5	2.5	2.1	2.3	2.1	2.1	2.2	2.5
31-Mar	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.0	2.1	2.1	2.0	2.2	2.2	2.3	2.7	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.7
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan																										
C - Calibration																										
UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Lower Camp - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Lower Camp - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	70	10.34	10.34
2.1 - 3.0	596	88.04	98.38
3.1 - 10.0	11	1.62	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Lower Camp - March 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	1	3	0	1	7	11	10	0	0	0	0	1	0	2	20	14	70
2.1 - 3.0	51	7	3	4	29	174	39	12	5	2	11	18	23	46	77	95	596
3.1 - 10.0	0	0	0	0	0	6	0	3	1	0	0	0	0	0	1	0	11
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	52	10	3	5	36	191	49	15	6	2	11	19	23	48	98	109	677

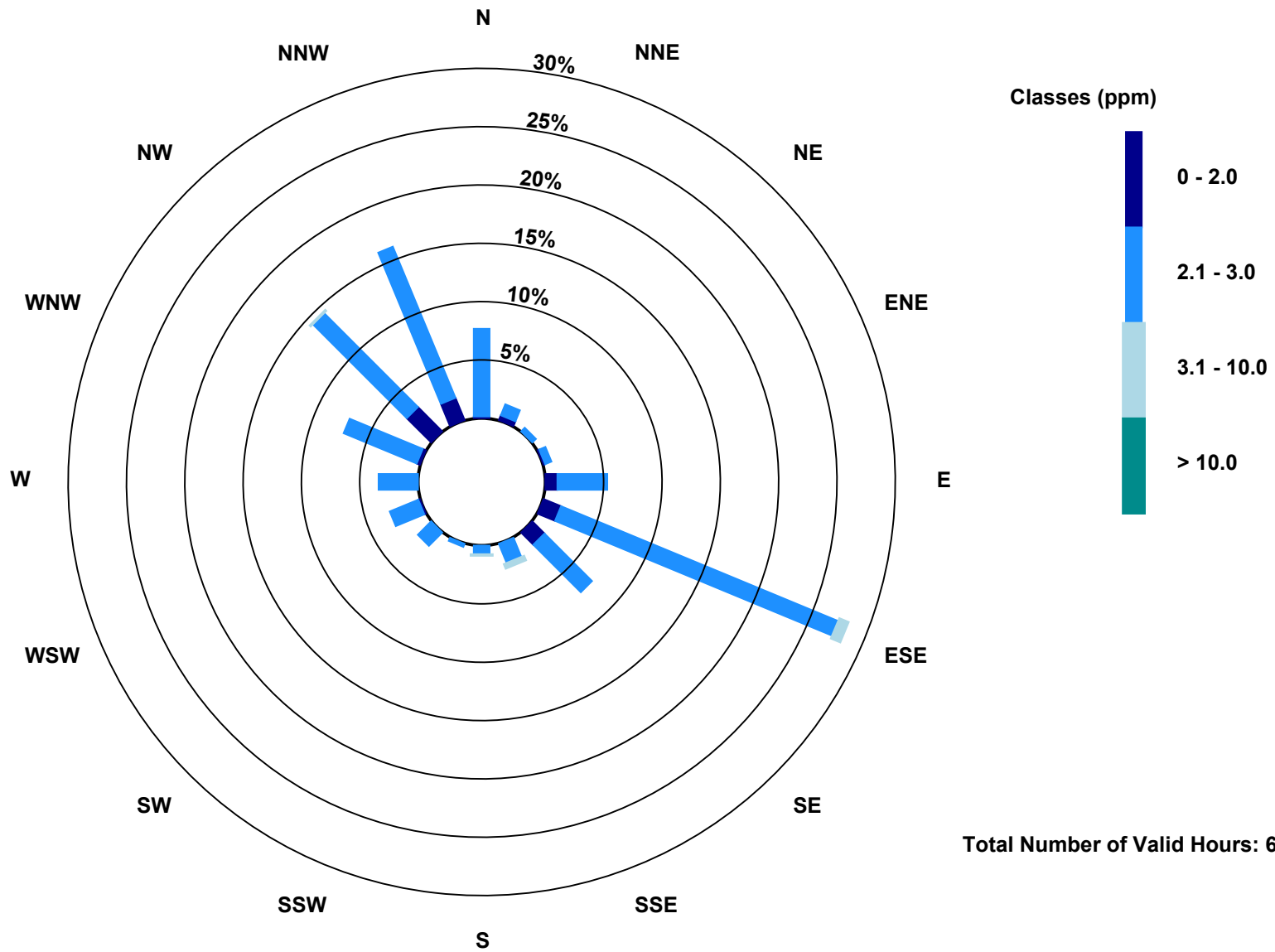
Total Number of Valid Hours: 677

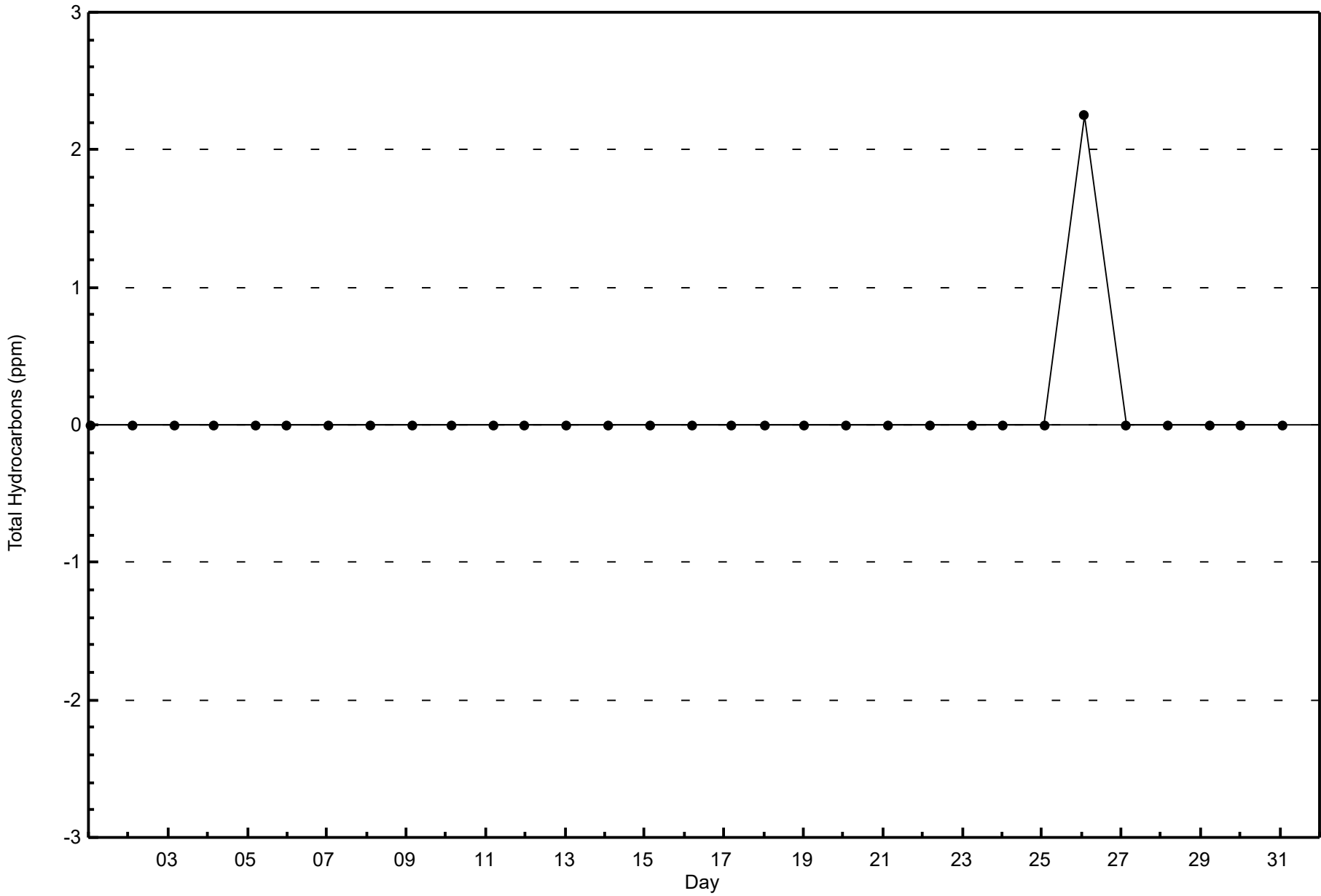
Total Number of Hours: 744

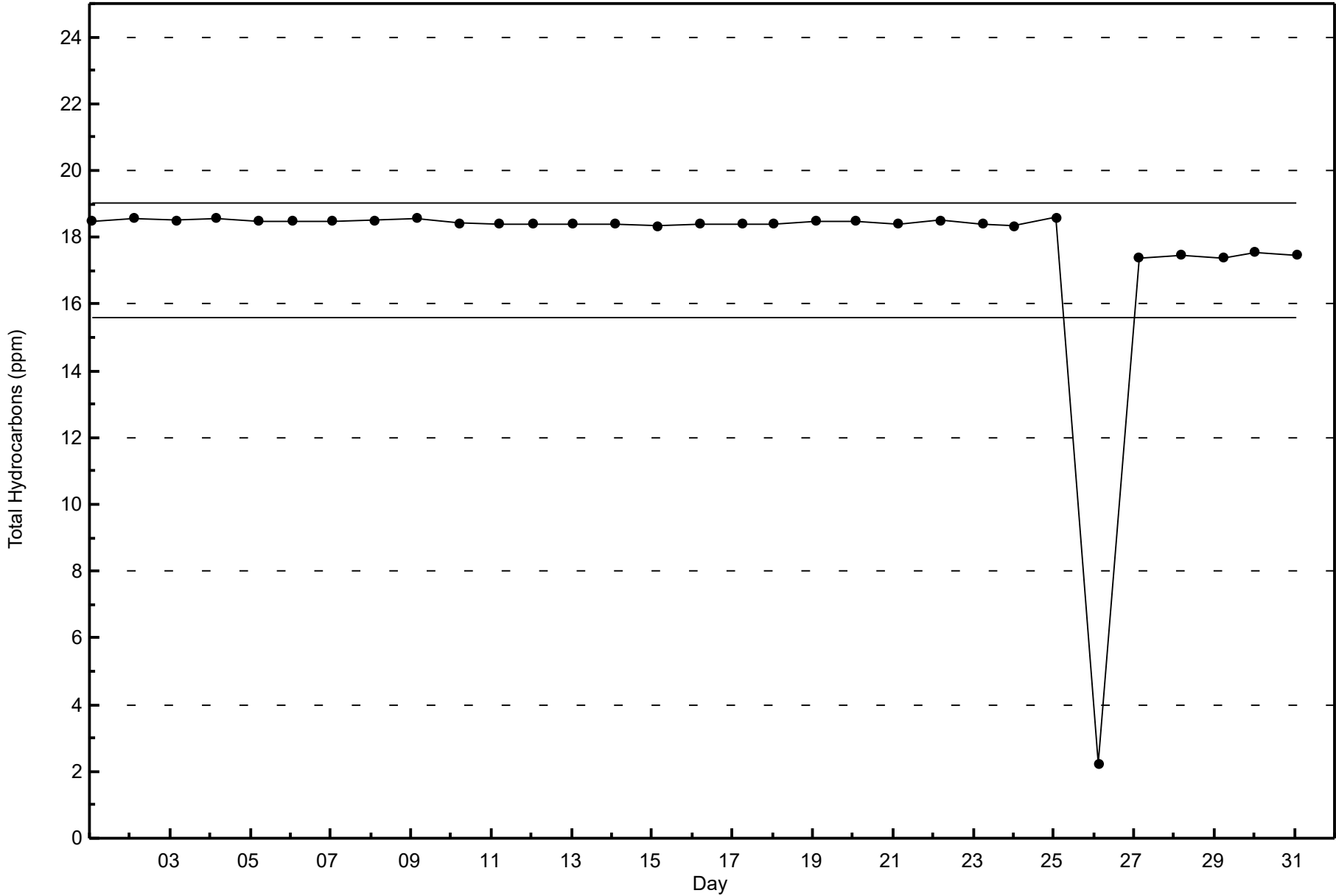


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Lower Camp







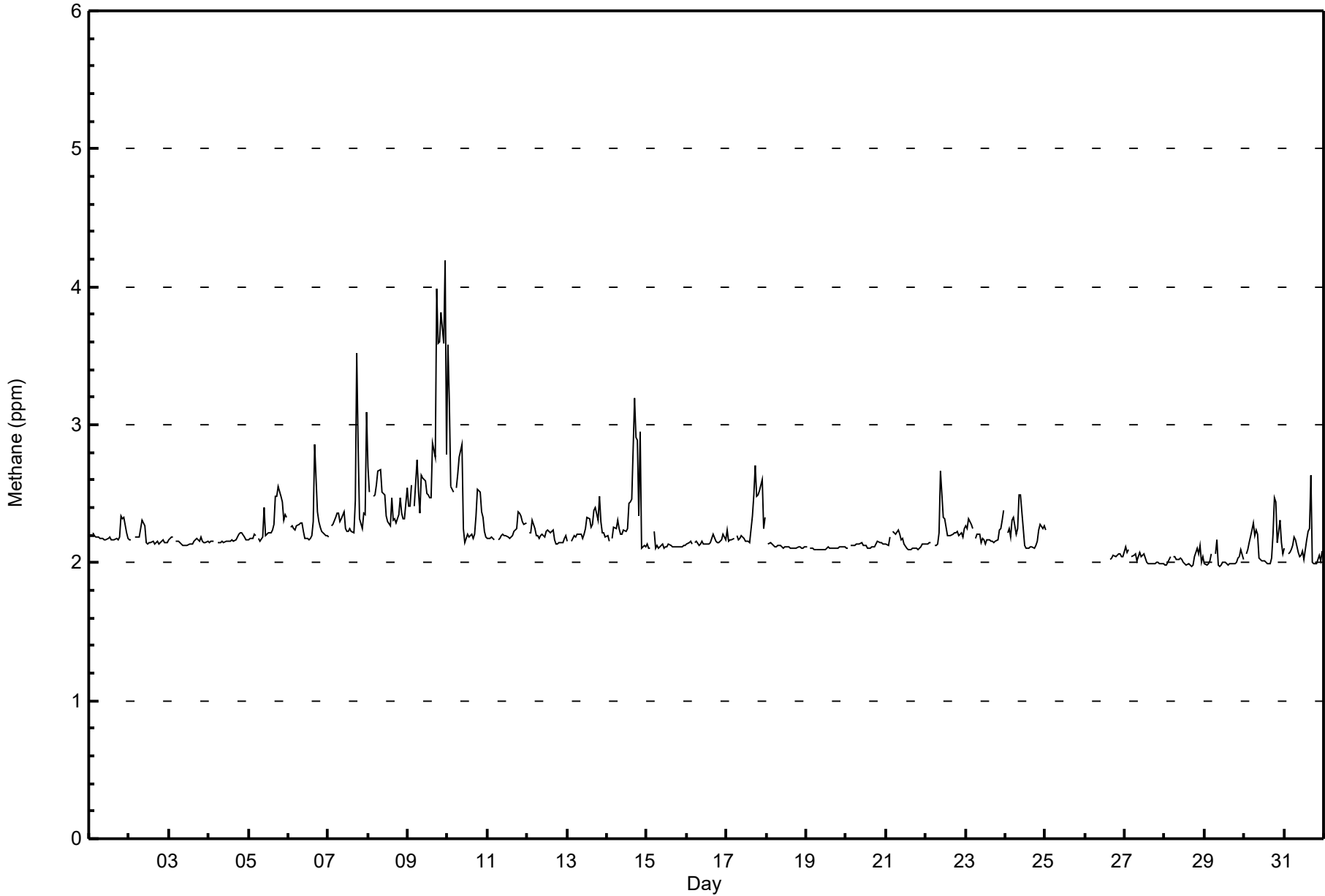


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																											
Maximum Value: 4.2 ppm on Mar 9 23:00		Maximum Daily Average: 2.9 ppm on Mar 9		Hours of Data: 677																																													
Minimum Value: 2.0 ppm on Mar 28 17:00		Minimum Daily Average: 2.0 ppm on Mar 29		Hours of Missing Data: 67																																													
Maximum Diurnal Average: 2.3 ppm at hour 18		Minimum Diurnal Average: 2.2 ppm at hour 13		Hours of Calibration: 34																																													
Monthly Average: 2.22 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.2 P ₉₀ = 2.4 P ₉₉ = 3.5		Percent Operational Time: 95.6																																													
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-Mar	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	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3																					
2-Mar	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.3																			
3-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2																			
4-Mar	2.1	2.2	2.2	2.2	Z	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																			
5-Mar	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.5	2.6	2.5	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.6																			
6-Mar	Z	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.9	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9																			
7-Mar	2.2	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.4	2.2	2.2	2.2	2.3	2.2	2.2	2.5	3.5	2.8	2.3	2.2	2.4	2.3	3.1	2.4	2.4	2.3	3.1	2.4	3.5																			
8-Mar	2.7	2.5	Z	2.5	2.5	2.6	2.7	2.7	2.5	2.5	2.5	2.3	2.3	2.3	2.5	2.3	2.3	2.3	2.3	2.5	2.4	2.3	2.3	2.5	2.4	2.3	2.3	2.5	2.4	2.7																			
9-Mar	2.4	2.4	2.6	Z	2.4	2.7	2.5	2.4	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.9	2.8	4.0	3.6	3.6	3.8	3.6	4.2	2.8	2.9	2.9	4.2	2.8	2.9	4.2																			
10-Mar	3.6	3.2	2.6	2.5	Z	2.5	2.6	2.8	2.9	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.5	2.4	2.3	2.2	2.2	2.5	2.5	2.5	2.5	2.5	3.6																			
11-Mar	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	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4																			
12-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																		
13-Mar	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.5	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.5																			
14-Mar	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	2.4	2.4	2.5	3.2	2.9	2.9	2.3	2.9	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.1	3.2																			
15-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																			
16-Mar	2.1	2.1	2.2	2.1	Z	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																		
17-Mar	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	2.1	2.3	2.5	2.7	2.5	2.5	2.5	2.6	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7																		
18-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																		
19-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																		
20-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																		
21-Mar	2.1	2.1	2.2	Z	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	2.1	2.1	2.1	2.2																		
22-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.7	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.7																		
23-Mar	2.3	2.2	2.3	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.2	2.2	2.2	2.2	2.4																		
24-Mar	Z	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.5	2.5	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.5																			
25-Mar	2.2	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.2																		
26-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.0	2.0	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																		
27-Mar	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
28-Mar	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																		
29-Mar	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																		
30-Mar	Z	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5																		
31-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.0	2.1	2.1	2.0	2.2	2.2	2.2	2.6	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.6																		
																								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	Diurnal Average	
																								3.6	3.2	2.6	2.5	2.5	2.7	2.7	2.8	2.9	2.7	2.6	2.5	2.5	2.5	2.5	2.9	3.2	4.0	3.6	3.6	3.8	3.6	4.2	3.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				UO - Unstable Operation																					



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Lower Camp - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Methane (CH₄) - ppm
Lower Camp - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	75	11.08	11.08
2.1 - 3.0	591	87.30	98.38
3.1 - 10.0	11	1.62	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Lower Camp - March 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	1	3	0	1	7	16	10	0	0	0	0	1	0	2	20	14	75
2.1 - 3.0	51	7	3	4	29	169	39	12	5	2	11	18	23	46	77	95	591
3.1 - 10.0	0	0	0	0	0	6	0	3	1	0	0	0	0	0	1	0	11
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	52	10	3	5	36	191	49	15	6	2	11	19	23	48	98	109	677

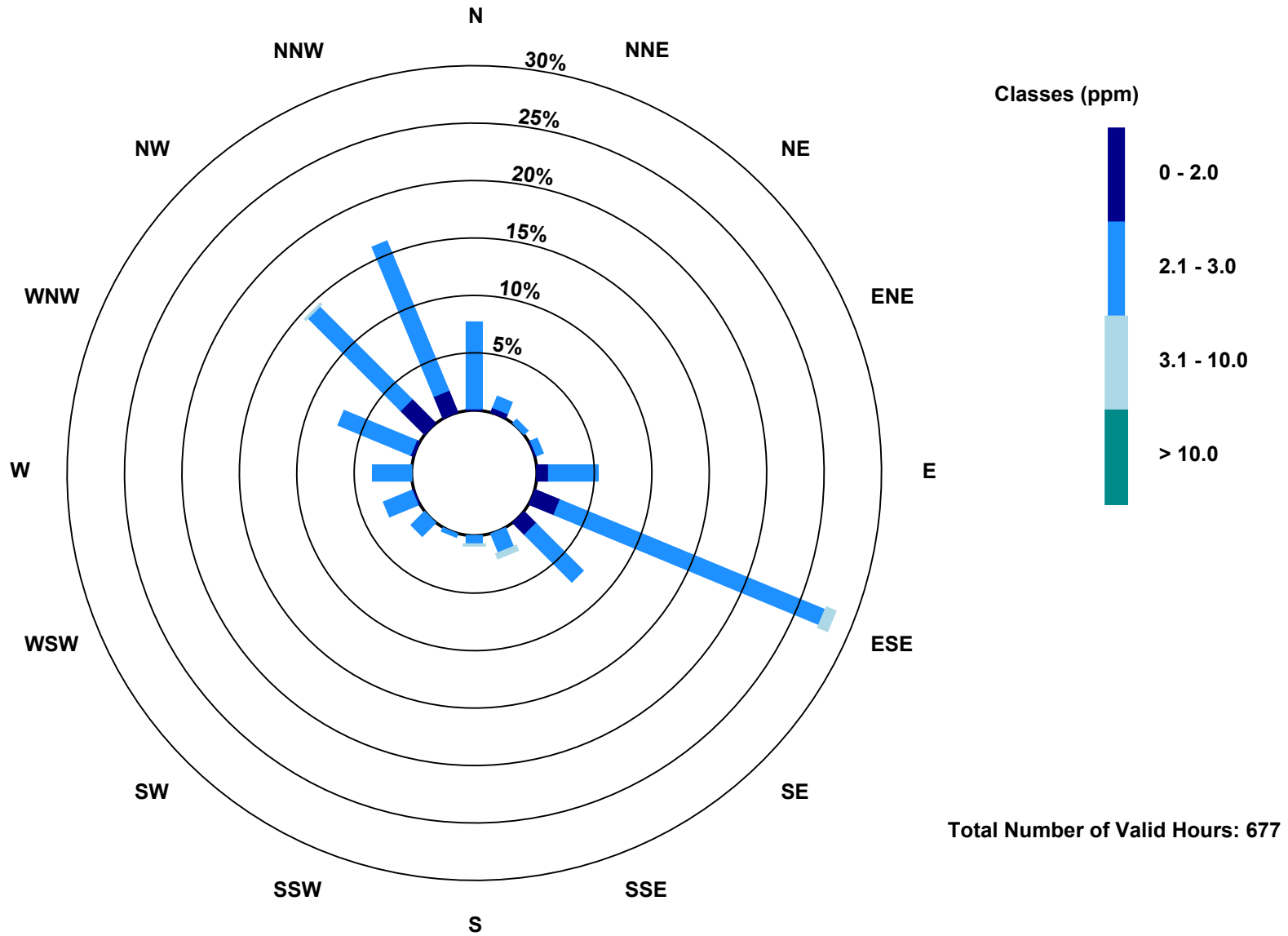
Total Number of Valid Hours: 677

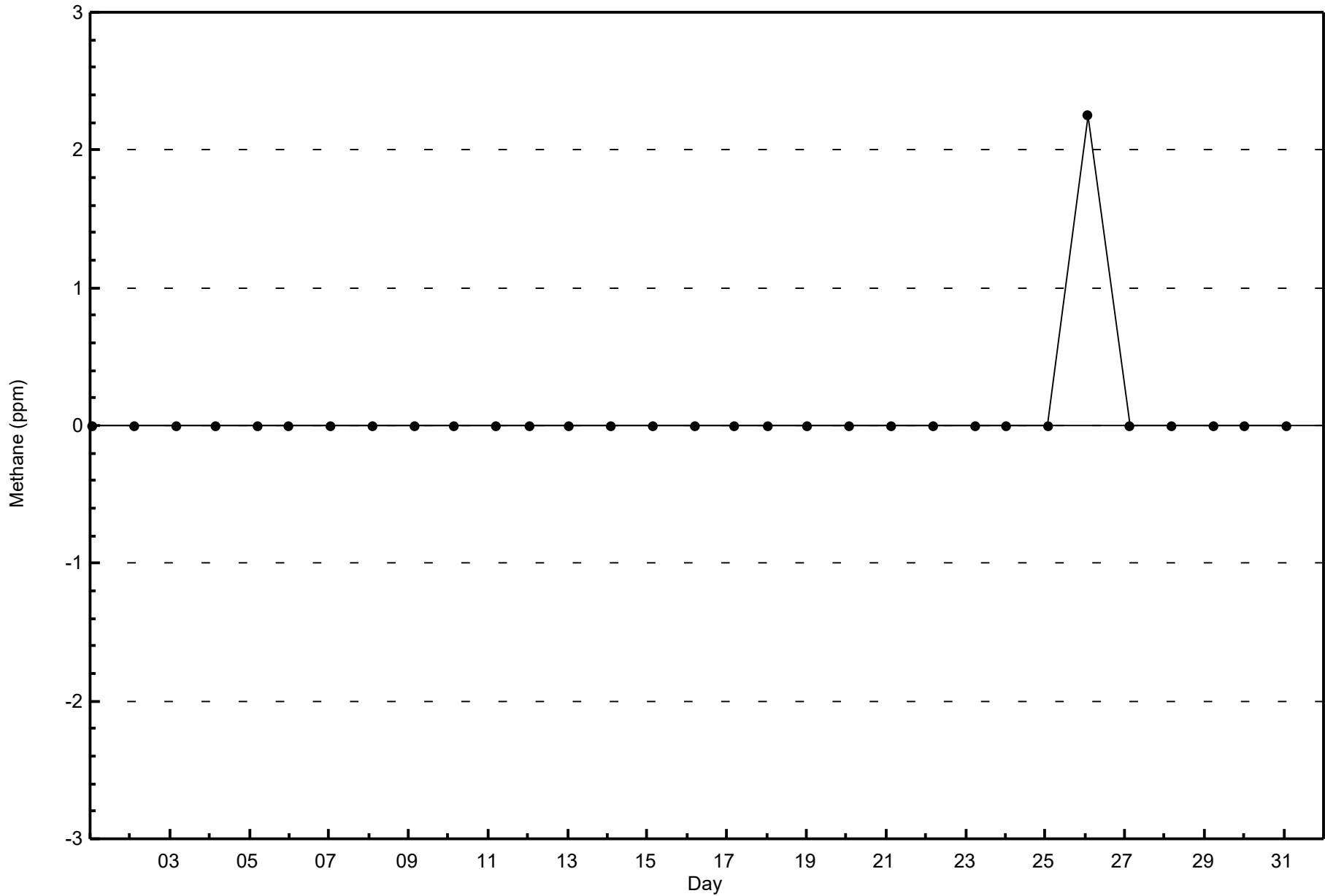
Total Number of Hours: 744

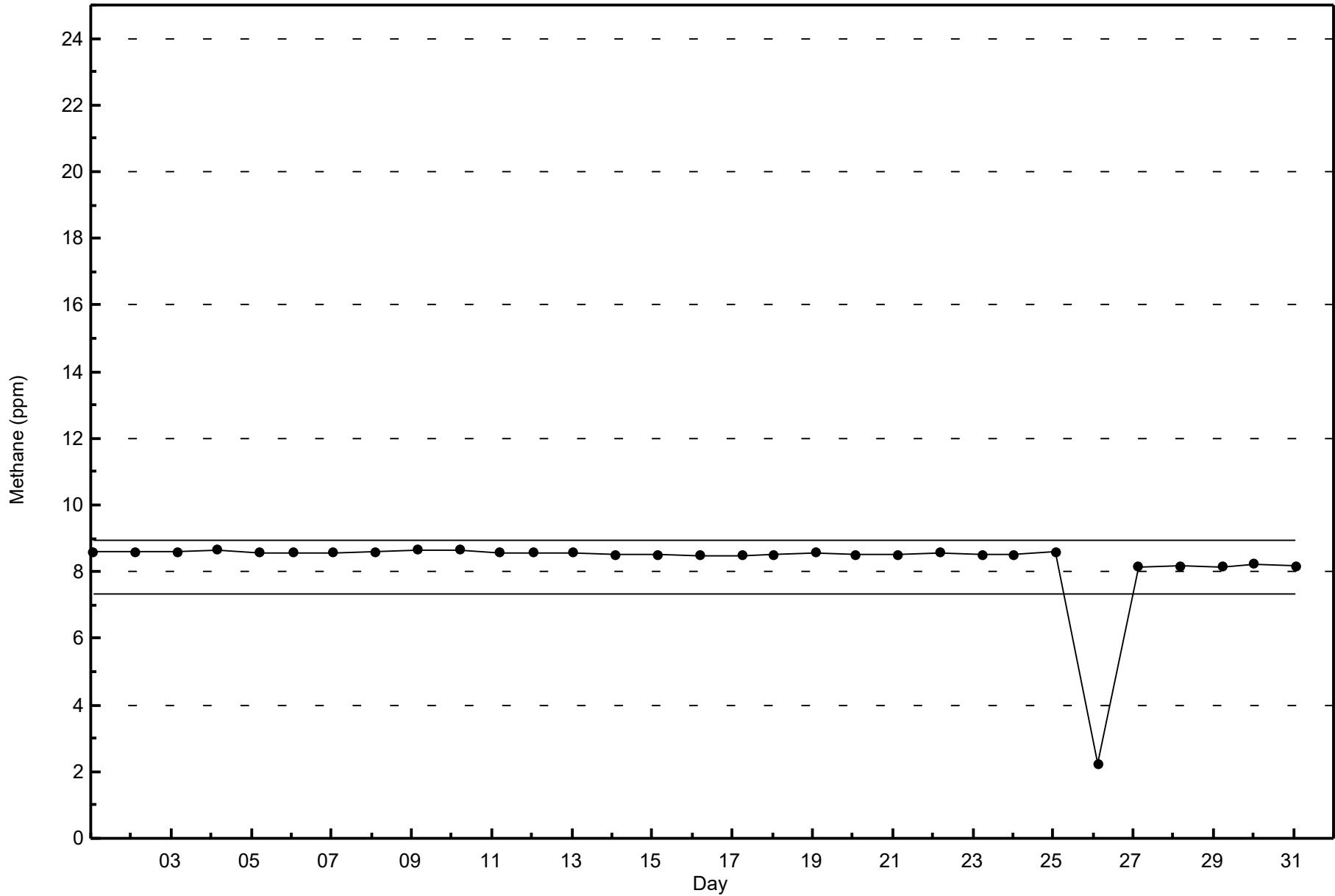


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Lower Camp





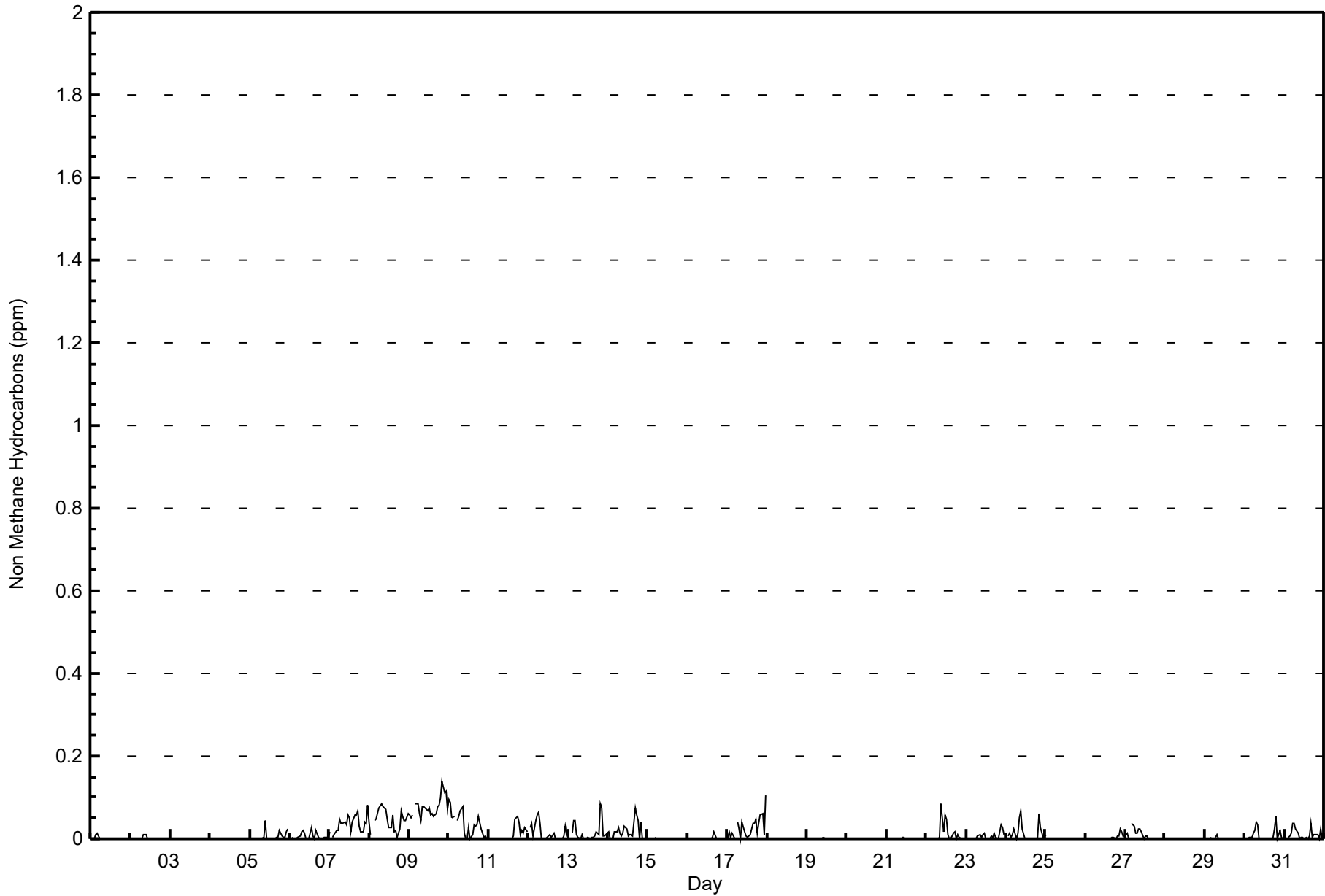




Summary of Hour Averages

Lower Camp - March 2024

Maximum Value: 0.140 ppm on Mar 9 21:00		Maximum Daily Average: 0.076 ppm on Mar 9		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Mar 1 07:00		Minimum Daily Average: 0.000 ppm on Mar 3		Hours of Data: 677																							
Maximum Diurnal Average: 0.017 ppm at hour 10		Minimum Diurnal Average: 0.006 ppm at hour 14		Hours of Missing Data: 67																							
Monthly Average: 0.012 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.1		Hours of Calibration: 34																							
				Percent Operational Time: 95.6																							
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-Mar	0.001	Z	0.000	0.011	0.012	0.001	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.012	
2-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.011	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.011	
3-Mar	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	
4-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
5-Mar	0.000	0.000	0.000	0.001	0.000	Z	0.000	0.000	0.002	0.042	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.003	0.022	0.008	0.003	0.004	0.019	0.023	0.006	0.042	
6-Mar	Z	0.003	0.002	0.001	0.001	0.003	0.007	0.016	0.022	0.014	0.001	0.001	0.013	0.028	0.007	0.000	0.022	0.004	0.002	0.002	0.001	0.002	0.004	0.001	0.007	0.028	
7-Mar	0.017	Z	0.004	0.010	0.019	0.019	0.047	0.037	0.037	0.040	0.035	0.058	0.051	0.018	0.042	0.057	0.058	0.067	0.031	0.016	0.017	0.042	0.036	0.081	0.036	0.081	
8-Mar	0.040	0.011	Z	0.045	0.049	0.060	0.074	0.086	0.078	0.073	0.070	0.047	0.027	0.026	0.059	0.016	0.021	0.005	0.025	0.067	0.055	0.044	0.044	0.063	0.047	0.086	
9-Mar	0.058	0.052	0.058	Z	0.086	0.084	0.062	0.043	0.078	0.076	0.072	0.067	0.073	0.057	0.061	0.053	0.060	0.079	0.082	0.098	0.140	0.113	0.116	0.070	0.076	0.140	
10-Mar	0.093	0.089	0.051	0.054	Z	0.045	0.054	0.068	0.078	0.014	0.001	0.001	0.026	0.001	0.010	0.033	0.031	0.034	0.055	0.023	0.015	0.005	0.006	0.000	0.034	0.093	
11-Mar	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	0.001	0.006	0.048	0.053	0.041	0.011	0.019	0.013	0.026	0.016	0.010	0.053		
12-Mar	Z	0.027	0.039	0.007	0.043	0.058	0.065	0.037	0.000	0.001	0.000	0.003	0.008	0.011	0.005	0.012	0.000	0.000	0.000	0.000	0.001	0.006	0.030	0.008	0.016	0.065	
13-Mar	0.000	Z	0.014	0.046	0.044	0.009	0.003	0.000	0.009	0.001	0.000	0.001	0.003	0.001	0.002	0.003	0.008	0.018	0.012	0.084	0.073	0.006	0.007	0.011	0.015	0.084	
14-Mar	0.018	0.000	Z	0.000	0.016	0.017	0.026	0.014	0.005	0.013	0.031	0.023	0.007	0.010	0.009	0.007	0.073	0.059	0.045	0.001	0.042	0.000	0.000	0.000	0.018	0.073	
15-Mar	0.001	0.000	0.000	Z	0.003	0.000	0.001	0.000	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
16-Mar	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	0.002	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.015	
17-Mar	0.005	0.017	0.003	0.014	0.000	Z	0.040	0.023	0.000	0.039	0.016	0.007	0.003	0.006	0.012	0.037	0.037	0.048	0.014	0.039	0.057	0.062	0.010	0.104	0.026	0.104	
18-Mar	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	0.000	0.000	0.000	0.000	0.000	0.001	
19-Mar	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	0.000	0.000	0.000	0.002	
20-Mar	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	
21-Mar	0.000	0.000	0.000	Z	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	0.002	
22-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.005	0.085	0.016	0.058	0.047	0.009	0.001	0.000	0.012	0.016	0.002	0.009	0.003	0.000	0.000	0.000	0.011	0.085	
23-Mar	0.000	0.000	0.000	0.000	0.001	Z	0.000	0.007	0.011	0.003	0.009	0.013	0.001	0.000	0.001	0.007	0.005	0.012	0.002	0.001	0.016	0.035	0.029	0.010	0.007	0.035	
24-Mar	Z	0.005	0.013	0.004	0.009	0.023	0.000	0.015	0.051	0.067	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.060	0.026	0.002	0.009	0.013	0.067	
25-Mar	0.006	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.006
26-Mar	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	0.001	0.002	0.004	0.001	0.006	0.005	0.024	0.017	0.007	--	0.024	
27-Mar	0.009	0.014	0.000	Z	0.036	0.029	0.014	0.012	0.023	0.025	0.016	0.000	0.007	0.005	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.036	
28-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
29-Mar	0.000	0.000	0.001	0.000	0.002	Z	0.002	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.011	
30-Mar	Z	0.000	0.000	0.003	0.003	0.014	0.020	0.040	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.005	0.023	0.054	0.001	0.022	0.002	0.000	0.010	0.054	
31-Mar	0.003	Z	0.003	0.006	0.015	0.039	0.037	0.025	0.012	0.001	0.004	0.002	0.001	0.002	0.001	0.006	0.036	0.003	0.011	0.011	0.009	0.002	0.022	0.001	0.011	0.039	
		0.010	0.009	0.008	0.008	0.014	0.017	0.016	0.015	0.016	0.017	0.010	0.010	0.009	0.006	0.007	0.008	0.014	0.014	0.012	0.014	0.017	0.013	0.012	0.014	Diurnal Average	
		0.093	0.089	0.058	0.054	0.086	0.084	0.074	0.086	0.078	0.085	0.072	0.067	0.073	0.057	0.061	0.057	0.073	0.079	0.082	0.098	0.140	0.113	0.116	0.104	Diurnal Maximum	
Z - zerospan		C - Calibration				UO - Unstable Operation																					





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	442	65.29	65.29
0.006 - 0.05	184	27.18	92.47
0.06 - 0.1	51	7.53	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 677

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp - March 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	51	8	1	1	18	64	19	7	3	0	6	12	16	38	92	106	442
0.006 - 0.05	1	1	1	3	14	96	26	3	2	1	5	7	7	10	4	3	184
0.06 - 0.1	0	1	1	1	4	31	4	5	1	1	0	0	0	0	2	0	51
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	52	10	3	5	36	191	49	15	6	2	11	19	23	48	98	109	677

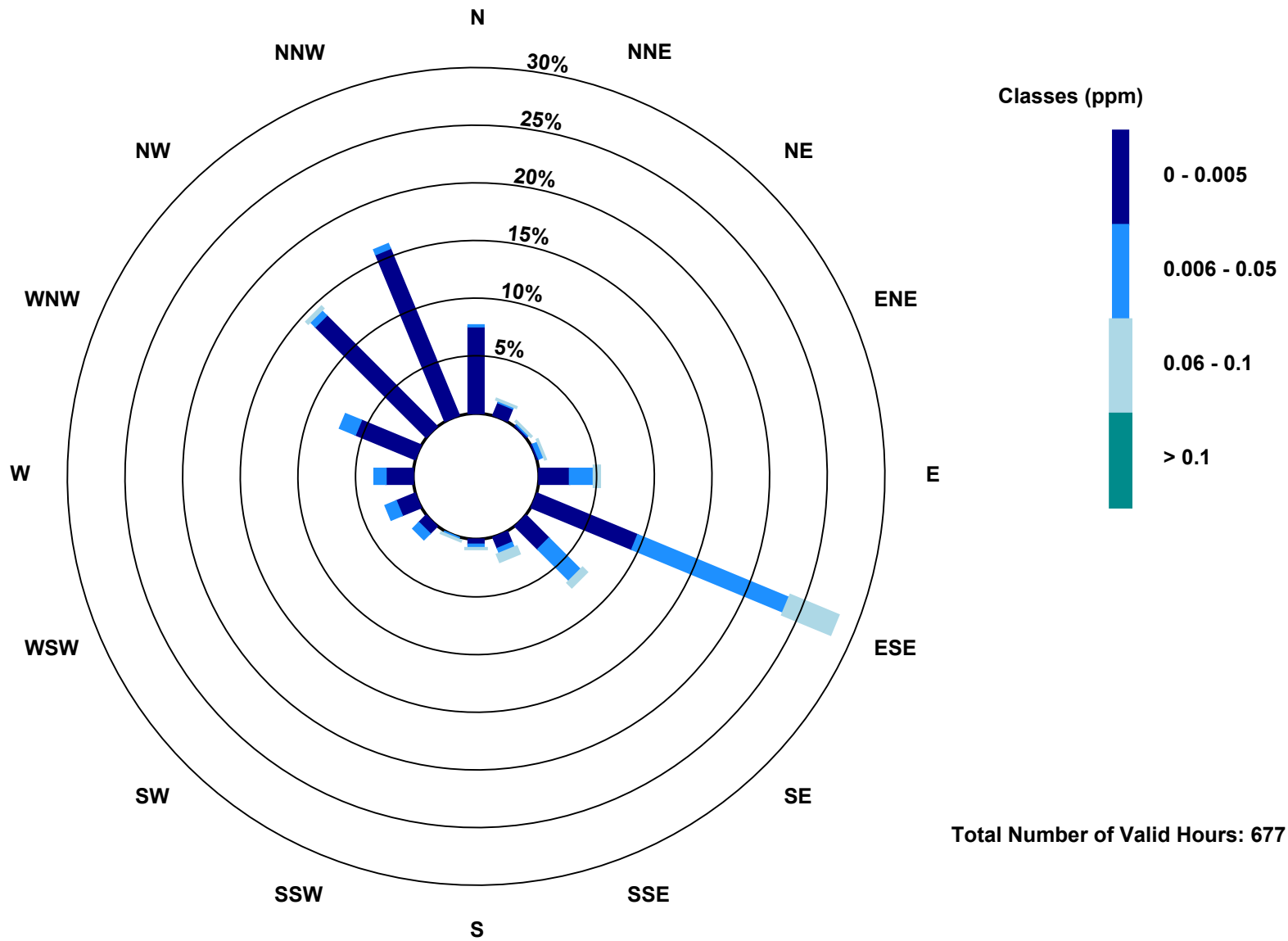
Total Number of Valid Hours: 677

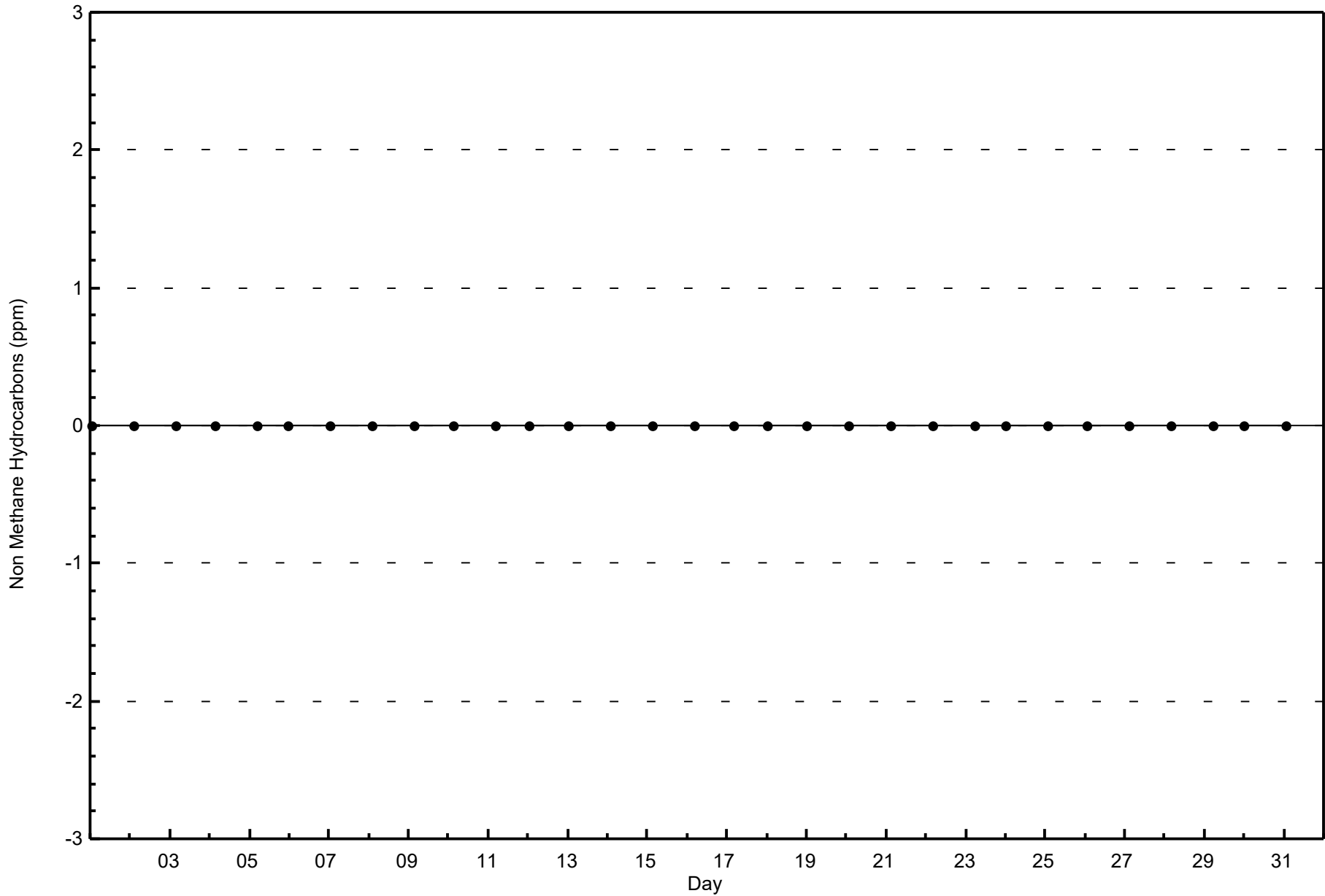
Total Number of Hours: 744

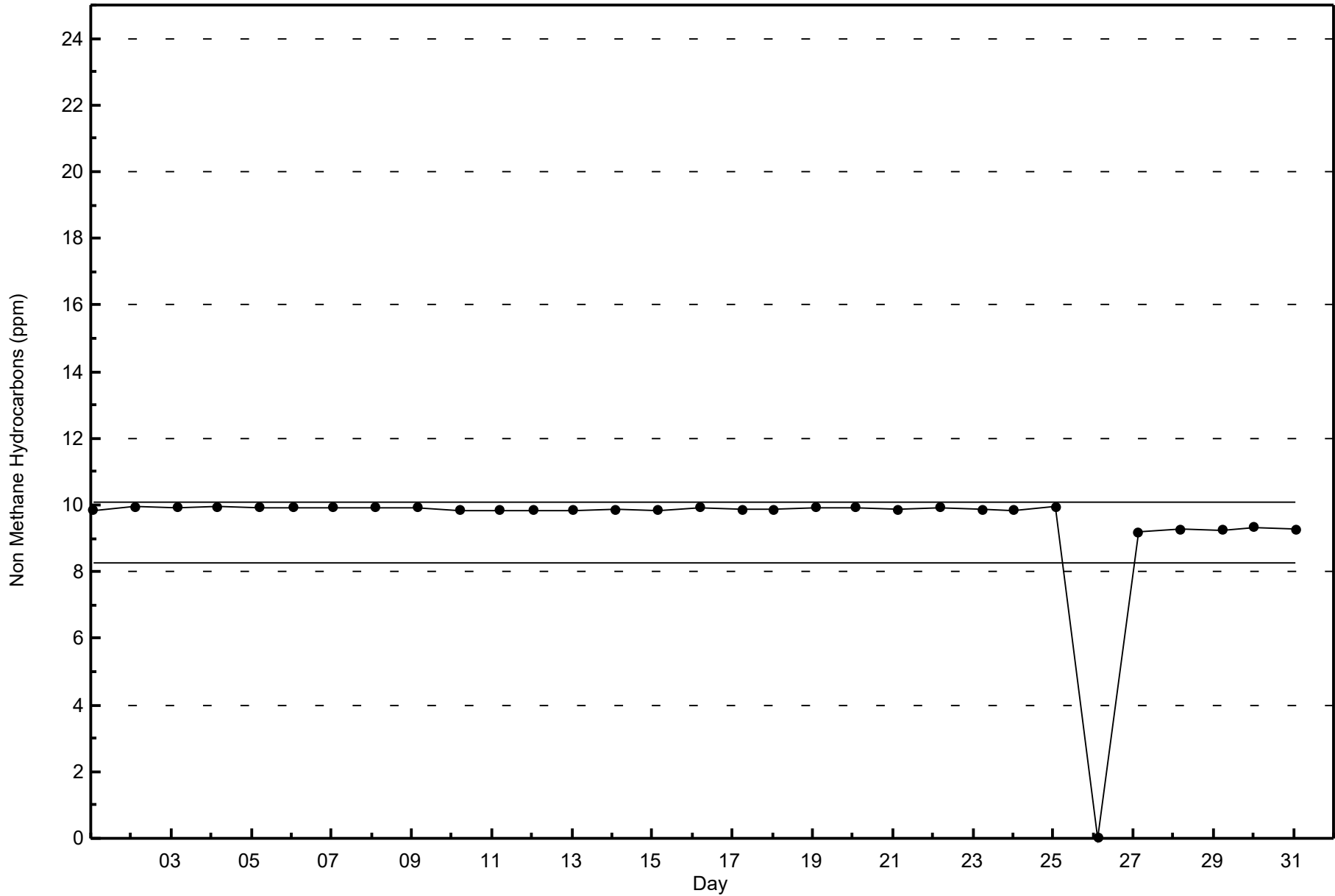


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp







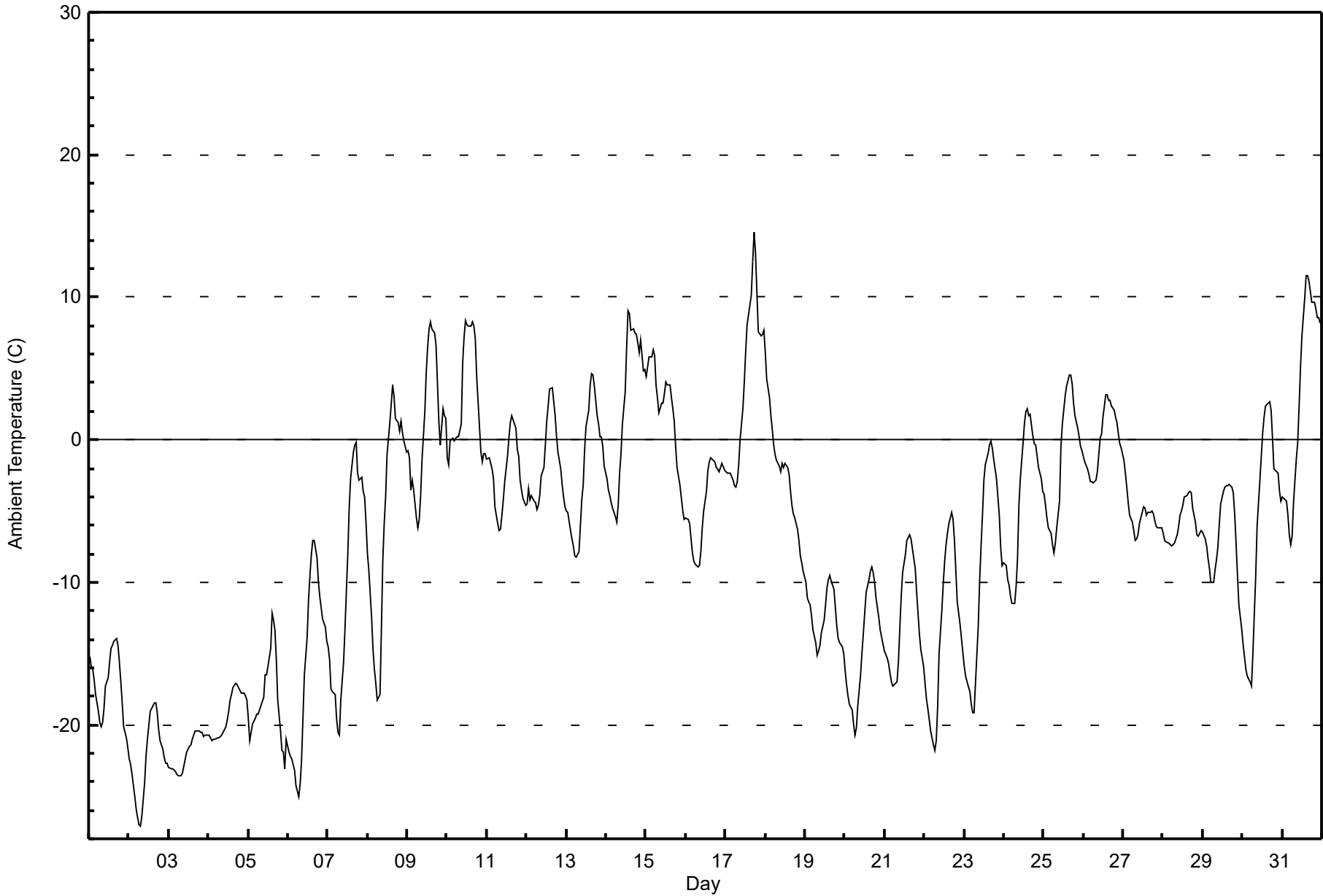


Maximum Value: 14.6 C on Mar 17 18:00 Maximum Daily Average: 4.0 C on Mar 17																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: -27.1 C on Mar 2 08:00 Minimum Daily Average: -22.4 C on Mar 2																						Hours of Missing Data: 0 Hours of Calibration: 0				
Maximum Diurnal Average: -2.1 C at hour 16 Minimum Diurnal Average: -12.1 C at hour 7																						Percent Operational Time: 100.0				
Monthly Average: -7.09 C Percentiles: P ₁ = -24.2 P ₁₀ = -20.4 Q ₁ = -14.7 Median = -5.6 Q ₃ = -0.8 P ₉₀ = 3.8 P ₉₉ = 10.2																										
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-Mar	-15.2	-16.0	-16.1	-16.9	-17.9	-19.0	-19.8	-20.1	-19.9	-18.8	-17.3	-16.7	-15.6	-14.7	-14.4	-14.2	-13.9	-14.4	-15.6	-17.0	-18.4	-20.1	-21.0	-21.6	-17.3	-13.9
2-Mar	-22.4	-22.8	-23.5	-25.1	-25.9	-26.6	-27.1	-27.1	-26.4	-24.1	-22.2	-21.0	-20.0	-19.1	-18.6	-18.4	-18.5	-19.2	-20.3	-21.1	-21.7	-22.3	-22.7	-22.7	-22.4	-18.4
3-Mar	-23.0	-23.1	-23.1	-23.2	-23.3	-23.5	-23.6	-23.6	-23.4	-22.9	-22.4	-21.9	-21.5	-21.4	-21.0	-20.7	-20.5	-20.4	-20.5	-20.5	-20.5	-20.8	-20.7	-20.7	-21.9	-20.4
4-Mar	-20.7	-20.9	-21.2	-21.1	-21.0	-20.9	-20.9	-20.8	-20.7	-20.2	-19.7	-19.0	-18.3	-17.9	-17.4	-17.1	-17.2	-17.4	-17.6	-17.7	-17.8	-18.0	-18.3	-19.3	-17.1	-17.1
5-Mar	-19.5	-21.1	-19.9	-19.7	-19.5	-19.3	-19.2	-18.9	-18.4	-18.1	-16.5	-16.5	-15.9	-14.6	-12.2	-12.7	-13.3	-15.4	-18.2	-20.4	-21.9	-21.9	-23.1	-21.0	-18.2	-12.2
6-Mar	-22.0	-22.2	-22.4	-22.8	-23.2	-24.3	-25.1	-24.2	-22.5	-19.5	-16.5	-13.9	-11.2	-9.5	-8.0	-7.1	-7.1	-8.2	-9.9	-11.0	-11.7	-12.5	-13.2	-14.2	-15.9	-7.1
7-Mar	-14.6	-15.4	-17.5	-17.7	-17.9	-19.6	-20.5	-20.7	-18.3	-15.6	-13.3	-10.6	-8.0	-4.8	-2.7	-0.9	-0.4	-0.2	-2.4	-2.9	-2.6	-3.7	-4.0	-5.7	-10.0	-0.2
8-Mar	-7.9	-9.1	-12.4	-14.7	-16.1	-17.1	-18.2	-17.9	-13.3	-8.4	-5.9	-4.0	-1.0	1.2	2.5	3.8	3.1	1.5	1.2	0.7	1.3	0.5	-0.1	-0.9	-5.5	3.8
9-Mar	-0.8	-1.2	-3.6	-2.8	-3.5	-5.5	-6.2	-5.6	-3.9	-1.3	2.0	4.7	6.5	7.8	8.3	7.8	7.5	6.6	4.0	1.3	-0.4	2.2	1.7	1.5	1.1	8.3
10-Mar	-1.3	-1.7	-0.1	0.1	-0.1	0.1	0.2	0.2	1.1	5.4	7.2	8.4	8.1	8.0	8.0	8.2	8.0	7.1	4.4	0.9	-0.9	-1.5	-1.0	-1.0	2.8	8.4
11-Mar	-1.3	-1.3	-1.6	-2.1	-2.7	-4.7	-5.8	-6.4	-6.3	-5.3	-4.2	-2.9	-1.2	0.2	1.2	1.7	1.4	0.8	-0.7	-1.2	-2.8	-3.5	-4.1	-4.6	-2.4	1.7
12-Mar	-4.5	-3.4	-4.2	-3.9	-4.3	-4.4	-4.9	-4.6	-4.0	-2.5	-2.0	-0.4	1.2	2.3	3.5	3.7	2.7	1.7	0.2	-0.9	-2.0	-3.1	-4.0	-4.7	-1.8	3.7
13-Mar	-5.0	-5.1	-6.4	-6.9	-7.4	-8.2	-8.3	-7.9	-6.1	-4.2	-3.2	-0.7	0.9	2.1	3.9	4.6	4.6	3.7	1.7	1.1	0.3	0.2	-0.4	-1.9	-2.0	4.6
14-Mar	-2.8	-3.5	-3.9	-4.4	-4.8	-5.3	-5.7	-4.6	-2.3	-1.0	1.1	3.3	6.4	9.1	8.8	7.7	7.8	7.5	7.4	6.8	6.1	7.0	4.8	5.0	2.1	9.1
15-Mar	4.4	5.1	5.8	5.9	6.3	6.0	3.9	3.0	1.9	2.6	2.6	3.3	4.0	3.9	3.8	3.0	2.2	1.3	-0.5	-2.0	-3.1	-4.0	-4.9	-5.6	2.0	6.3
16-Mar	-5.5	-5.6	-5.9	-6.9	-8.0	-8.5	-8.8	-8.9	-8.8	-7.9	-6.2	-5.0	-3.6	-2.2	-1.5	-1.3	-1.3	-1.5	-1.9	-2.1	-2.2	-1.9	-1.6	-2.1	-4.6	-1.3
17-Mar	-2.3	-2.4	-2.3	-2.3	-2.8	-3.2	-3.4	-2.9	-1.7	0.0	2.2	4.1	6.2	8.1	8.8	10.1	12.5	14.6	13.1	10.3	7.6	7.3	7.4	7.6	4.0	14.6
18-Mar	6.1	4.2	3.0	1.7	0.7	-0.4	-1.1	-1.4	-1.9	-2.2	-1.6	-1.9	-1.7	-1.9	-2.4	-3.6	-4.6	-5.1	-5.5	-6.2	-7.0	-8.1	-8.6	-9.2	-2.5	6.1
19-Mar	-10.0	-11.1	-11.4	-11.6	-12.4	-13.3	-14.2	-15.1	-14.9	-14.4	-13.6	-12.7	-11.6	-10.5	-9.8	-9.5	-9.9	-10.5	-11.8	-13.0	-14.0	-14.3	-14.5	-15.0	-12.5	-9.5
20-Mar	-16.2	-17.2	-18.0	-18.6	-18.9	-19.9	-20.7	-20.2	-18.7	-16.5	-14.9	-13.5	-12.0	-10.7	-9.8	-9.2	-8.9	-9.4	-10.0	-11.1	-12.4	-13.3	-13.8	-14.3	-14.5	-8.9
21-Mar	-14.8	-15.3	-15.7	-16.4	-17.0	-17.3	-17.2	-17.0	-15.6	-13.2	-11.0	-9.3	-8.0	-7.1	-6.8	-6.6	-6.9	-7.7	-9.0	-10.7	-12.2	-13.7	-14.7	-16.0	-12.5	-6.6
22-Mar	-17.1	-18.2	-18.9	-19.7	-20.4	-21.4	-21.9	-21.2	-18.7	-15.0	-12.0	-10.1	-8.6	-7.3	-6.6	-5.9	-5.1	-5.6	-7.1	-9.2	-11.4	-13.0	-14.0	-14.9	-13.5	-5.1
23-Mar	-15.9	-16.6	-16.9	-17.7	-18.6	-19.2	-19.2	-17.0	-13.1	-9.8	-7.5	-5.3	-2.8	-1.8	-1.0	-0.4	-0.1	-0.6	-1.4	-2.7	-4.0	-5.3	-7.6	-8.9	-8.9	-0.1
24-Mar	-8.6	-8.9	-9.8	-10.2	-11.0	-11.5	-11.5	-10.4	-8.3	-4.6	-2.7	-0.2	1.2	2.0	2.1	1.7	1.8	0.2	-0.3	-0.4	-1.1	-2.0	-2.7	-3.6	-4.1	2.1
25-Mar	-3.8	-4.7	-5.5	-6.1	-6.6	-7.4	-7.9	-7.2	-6.2	-4.3	-0.4	1.1	2.1	3.1	3.7	4.5	4.5	3.9	2.6	1.7	0.8	0.2	-0.5	-0.8	-1.4	4.5
26-Mar	-1.2	-1.6	-2.0	-2.5	-2.9	-3.0	-3.0	-2.8	-2.3	-1.1	0.1	0.4	1.6	3.2	3.2	2.7	2.8	2.4	2.1	1.6	1.2	0.4	-0.2	-0.5	-0.1	3.2
27-Mar	-1.5	-2.3	-3.3	-4.4	-5.3	-5.8	-6.3	-7.0	-6.9	-6.6	-5.9	-5.1	-4.7	-4.8	-5.3	-5.1	-5.1	-5.0	-5.2	-5.6	-6.1	-6.1	-6.1	-6.2	-5.2	-1.5
28-Mar	-6.5	-7.0	-7.2	-7.3	-7.4	-7.4	-7.4	-7.2	-6.7	-6.1	-5.3	-5.0	-4.6	-4.0	-3.9	-3.7	-3.6	-3.7	-4.8	-5.8	-6.7	-6.7	-6.6	-6.4	-5.9	-3.6
29-Mar	-6.4	-7.0	-7.4	-8.4	-9.0	-10.0	-10.0	-9.2	-8.4	-7.5	-6.0	-4.5	-3.6	-3.3	-3.2	-3.2	-3.2	-3.3	-3.7	-5.2	-7.3	-9.5	-11.6	-13.3	-6.8	-3.2
30-Mar	-14.3	-15.2	-16.1	-16.6	-17.0	-17.2	-15.0	-12.3	-9.6	-6.0	-2.9	-1.2	0.5	1.6	2.4	2.6	2.7	2.0	0.1	-2.0	-2.1	-2.3	-3.6	-4.3	-6.1	2.7
31-Mar	-4.0	-4.1	-4.3	-5.3	-6.6	-7.4	-6.7	-4.4	-1.3	-0.2	2.4	5.1	7.3	10.0	11.5	11.5	11.2	10.5	9.6	9.6	9.2	8.6	8.6	8.2	3.3	11.5
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Lower Camp - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Lower Camp - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	81	10.89	10.89
-20 - 0	502	67.47	78.36
0 - 10	152	20.43	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

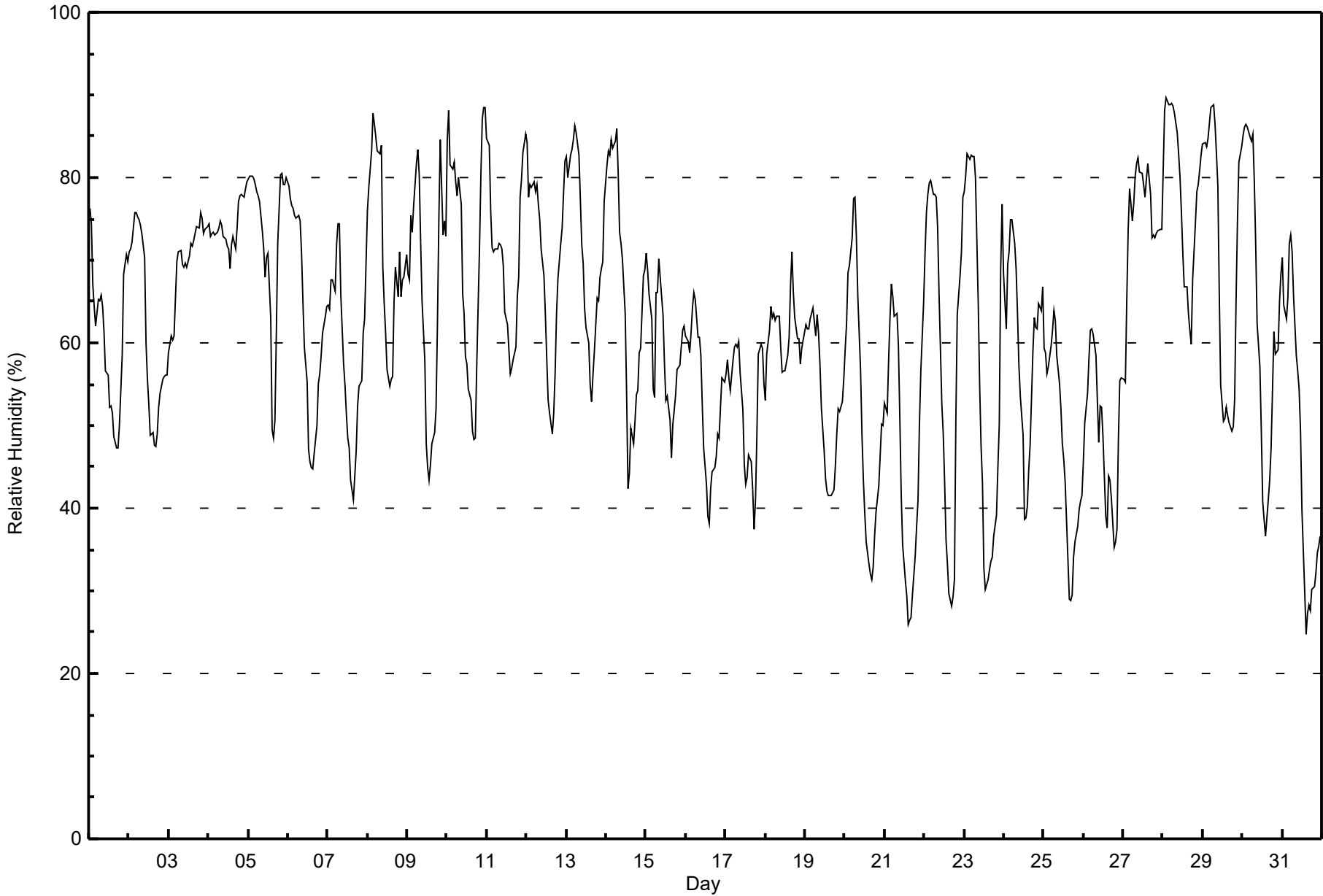
Relative Humidity (RH) - %
Lower Camp - March 2024

Maximum Value: 89.7 % on Mar 28 03:00																						Maximum Daily Average: 78.3 % on Mar 28																						Hours in Service: 744	
Minimum Value: 24.7 % on Mar 31 15:00																						Minimum Daily Average: 46.9 % on Mar 21																						Hours of Data: 744	
Maximum Diurnal Average: 74.3 % at hour 7																						Minimum Diurnal Average: 47.8 % at hour 15																						Hours of Missing Data: 0	
Monthly Average: 62.24 %																						Percentiles: P ₁ = 28.5 P ₁₀ = 41.6 Q ₁ = 52.1 Median = 63.1 Q ₃ = 73.8 P ₉₀ = 80.9 P ₉₉ = 88.4																						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-Mar	76.3	74.4	67.1	64.4	62.0	65.2	65.1	65.7	64.4	61.4	56.7	56.1	52.2	52.4	51.5	48.7	47.3	47.4	50.0	54.3	58.5	68.3	70.7	69.8	60.4	76.3																			
2-Mar	71.0	71.3	72.2	75.7	75.7	75.2	74.9	74.3	73.2	70.3	59.9	55.6	52.6	48.9	49.2	47.6	47.5	49.0	52.2	54.0	55.6	55.9	56.1	56.0	61.4	75.7																			
3-Mar	58.8	60.8	60.4	60.8	65.4	69.8	71.0	71.1	69.5	69.2	69.7	69.2	70.5	72.1	71.7	72.3	73.2	74.0	74.0	75.7	75.1	73.3	73.7	74.0	69.8	75.7																			
4-Mar	74.4	72.9	73.2	73.4	73.0	73.5	73.9	74.7	74.2	72.9	72.5	71.6	71.3	69.1	71.8	73.0	71.3	74.0	77.0	77.8	78.0	77.6	78.6	79.4	74.1	79.4																			
5-Mar	79.8	80.1	80.1	79.8	79.2	78.3	77.7	77.2	73.5	71.3	67.9	70.3	70.9	63.0	49.6	48.5	50.7	61.1	72.1	80.3	80.5	79.1	79.2	79.9	72.1	80.5																			
6-Mar	79.0	77.4	76.7	76.2	75.4	75.1	75.5	74.7	70.8	64.9	59.5	55.3	47.1	45.6	44.9	44.7	46.6	50.0	55.1	56.3	58.5	61.2	63.1	64.4	62.4	79.0																			
7-Mar	64.5	64.1	67.6	67.6	66.4	71.9	74.5	74.5	66.0	57.5	54.8	51.3	48.4	47.3	43.4	41.1	43.9	47.0	52.4	54.7	55.5	61.3	62.9	69.5	58.7	74.5																			
8-Mar	76.0	78.8	83.2	87.9	86.4	84.9	83.3	82.9	83.9	69.2	64.7	61.2	56.7	54.7	55.6	55.9	64.9	69.1	65.5	71.0	65.5	67.6	67.9	70.6	71.1	87.9																			
9-Mar	68.3	67.6	75.4	73.5	76.6	81.6	83.4	80.4	72.2	65.2	57.8	47.8	44.9	43.4	45.3	47.7	49.1	52.0	62.3	74.8	84.6	73.1	74.7	72.9	65.6	84.6																			
10-Mar	84.6	88.2	81.5	81.0	81.8	79.5	77.8	79.9	76.7	65.9	63.6	58.3	57.5	54.5	53.1	49.3	48.3	48.5	56.9	71.4	80.3	87.1	88.5	88.4	70.9	88.5																			
11-Mar	84.7	83.9	75.9	71.5	71.1	71.4	71.4	72.0	71.8	71.4	69.3	63.8	62.3	59.2	56.3	57.0	57.9	59.5	65.7	67.9	77.7	79.9	83.0	85.2	70.4	85.2																			
12-Mar	84.2	77.6	79.2	78.7	79.6	78.4	79.2	76.8	74.9	71.3	68.2	63.6	58.2	53.1	51.5	49.0	51.6	56.4	63.5	67.8	72.1	73.9	78.2	82.1	69.5	84.2																			
13-Mar	82.6	80.0	82.8	83.4	84.6	86.3	85.4	82.7	77.3	71.8	69.6	64.3	61.9	60.0	54.9	52.8	56.0	59.1	65.4	65.1	68.0	69.0	69.7	77.2	71.2	86.3																			
14-Mar	81.6	83.2	82.7	84.6	83.6	84.5	86.0	80.5	73.4	72.0	70.2	63.5	53.8	42.3	44.2	49.6	47.7	50.6	53.7	54.3	58.8	59.3	68.2	68.8	66.5	86.0																			
15-Mar	70.9	68.8	65.9	62.9	54.5	53.4	66.2	66.1	70.1	65.7	63.3	57.6	53.1	53.5	50.7	46.1	50.1	51.9	53.7	56.8	57.3	59.5	61.6	62.0	59.2	70.9																			
16-Mar	60.8	60.1	58.9	61.2	64.3	66.1	65.2	60.7	60.7	58.4	52.6	47.2	42.9	38.9	38.1	42.4	44.4	44.9	46.3	49.0	48.4	52.2	55.8	55.3	53.1	66.1																			
17-Mar	56.3	58.0	55.8	54.3	57.9	59.5	59.9	59.5	60.1	56.5	51.8	45.2	43.0	43.7	46.5	45.7	42.2	37.5	41.1	49.0	58.7	59.9	59.4	55.1	52.4	60.1																			
18-Mar	53.1	58.6	61.5	64.3	63.1	63.5	62.7	63.2	63.3	59.6	56.5	56.5	56.6	58.4	60.7	66.9	71.1	66.1	63.1	60.6	60.6	57.5	59.3	60.3	61.1	71.1																			
19-Mar	62.3	61.8	61.6	62.8	63.6	64.3	60.8	63.4	61.2	57.5	52.2	47.0	43.6	42.1	41.6	41.6	41.5	42.3	45.1	49.0	52.0	51.6	52.8	55.5	53.2	64.3																			
20-Mar	59.1	62.4	68.5	69.4	72.7	77.5	77.6	72.9	65.8	56.6	48.8	43.5	39.4	35.9	33.2	32.1	31.3	32.9	36.6	39.4	42.7	46.5	50.2	50.0	51.9	77.6																			
21-Mar	52.7	51.6	57.8	63.1	67.1	65.6	63.3	63.6	59.7	51.0	41.6	35.6	31.2	29.3	25.9	26.5	26.7	29.4	34.2	37.7	41.0	50.1	56.7	64.9	46.9	67.1																			
22-Mar	70.9	75.8	77.9	79.4	79.7	78.0	77.9	77.7	73.8	65.9	52.5	49.0	43.0	36.0	33.2	29.6	28.1	29.3	31.3	50.7	63.4	68.1	70.9	77.6	59.2	79.7																			
23-Mar	78.4	80.2	82.9	82.3	82.8	82.5	82.6	80.0	64.6	54.7	47.4	43.1	32.6	30.1	31.3	32.5	33.6	34.0	36.6	39.1	44.9	50.1	69.0	76.8	57.2	82.9																			
24-Mar	68.4	61.8	69.6	71.0	74.9	74.9	72.1	69.0	63.5	57.3	53.5	48.8	38.7	38.9	40.2	44.6	47.6	59.0	63.0	61.9	61.7	64.7	64.0	66.8	59.8	74.9																			
25-Mar	59.4	58.9	56.4	57.1	59.7	61.6	63.9	62.8	58.5	55.1	52.1	47.9	45.9	43.2	38.5	29.0	28.8	29.5	34.1	35.9	37.8	39.9	40.9	41.6	47.4	63.9																			
26-Mar	45.5	50.4	53.9	58.1	61.5	61.7	61.1	58.5	53.0	48.0	52.3	52.2	48.6	38.9	37.6	43.9	43.3	41.1	35.3	35.9	37.4	48.2	55.4	55.8	49.1	61.7																			
27-Mar	55.5	55.3	65.3	73.7	78.7	74.8	76.9	80.2	81.7	82.4	80.6	80.6	79.2	77.7	79.9	81.7	78.0	72.8	73.1	72.7	73.2	73.6	73.8	73.7	74.8	82.4																			
28-Mar	81.0	88.2	89.7	88.9	88.9	89.0	88.7	87.7	85.5	83.0	80.1	75.8	70.8	66.8	66.8	63.6	61.5	59.9	67.7	74.5	78.2	79.2	80.9	82.7	78.3	89.7																			
29-Mar	84.0	84.2	83.7	84.7	86.6	88.4	88.7	86.4	82.9	78.9	66.1	55.0	50.5	50.9	52.2	51.2	50.3	49.3	49.8	53.2	65.3	74.8	81.8	83.8	70.1	88.7																			
30-Mar	85.0	86.1	86.4	86.2	85.0	84.5	85.2	79.6	72.0	62.4	57.1	49.5	40.9	38.6	36.6	41.1	43.4	47.3	54.3	61.3	58.6	59.1	64.8	68.3	63.9	86.4																			
31-Mar	70.3	64.6	62.9	65.5	72.1	73.1	71.1	65.8	58.5	56.7	54.5	49.3	39.8	29.8	24.7	27.2	28.3	27.7	30.1	30.5	32.3	34.5	35.4	36.6	47.5	73.1																			
70.3 70.5 71.5 72.4 73.3 74.0 74.3 73.0 69.6 64.6 60.2 56.0 51.9 49.0 47.8 47.8 48.6 50.1 53.6 57.5 60.7 63.1 66.0 67.9																						Diurnal Average																							
85.0 88.2 89.7 88.9 88.9 89.0 88.7 87.7 85.5 83.0 80.6 80.6 79.2 77.7 79.9 81.7 78.0 74.0 77.0 80.3 84.6 87.1 88.5 88.4																						Diurnal Maximum																							



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Lower Camp - March 2024



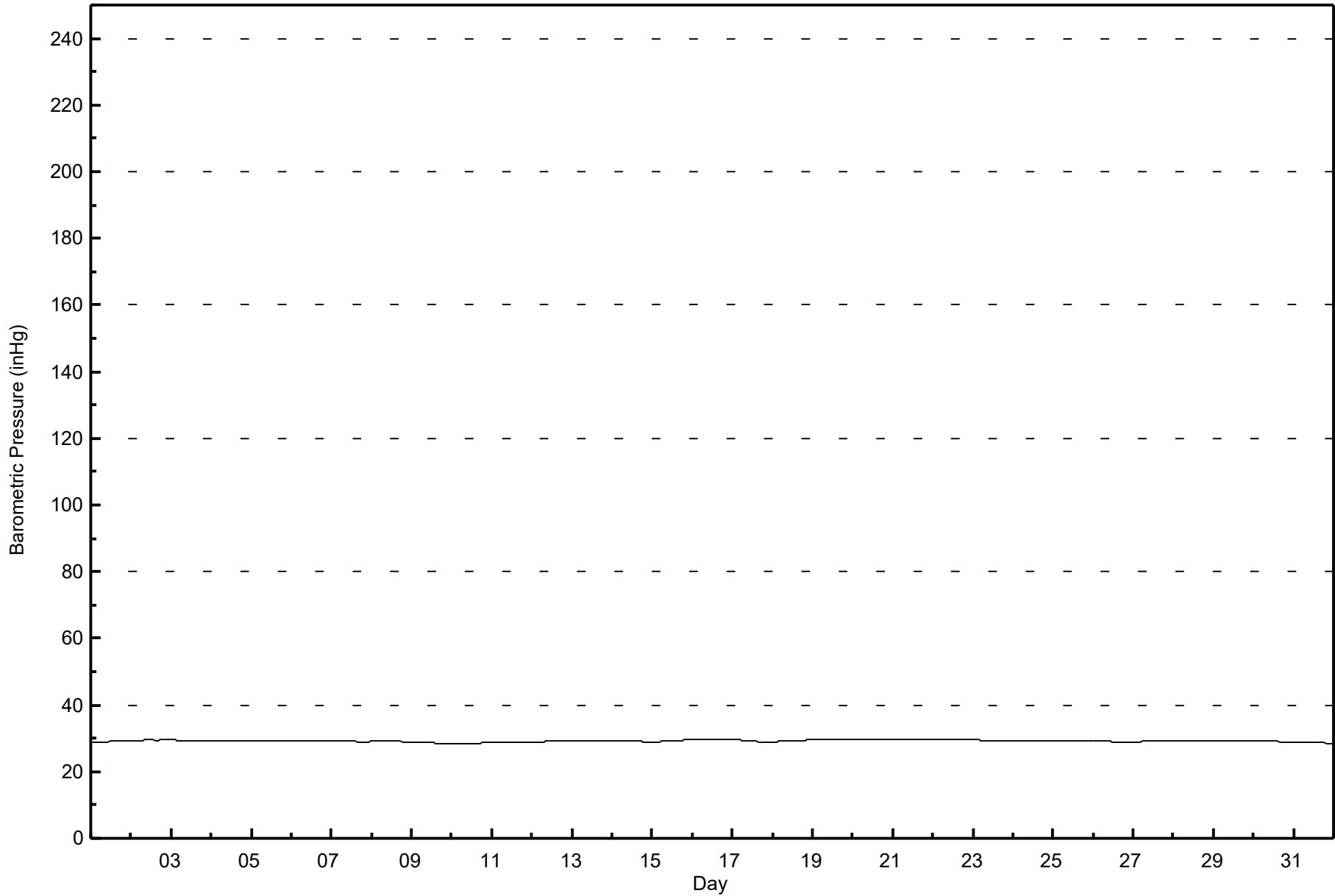


Maximum Value: 29.8 inHg on Mar 22 06:00 Maximum Daily Average: 29.7 inHg on Mar 22																						Hours in Service: 744																									
Minimum Value: 28.4 inHg on Mar 10 04:00 Minimum Daily Average: 28.5 inHg on Mar 10 Maximum Diurnal Average: 29.2 inHg at hour 10 Minimum Diurnal Average: 29.2 inHg at hour 18 Monthly Average: 29.21 inHg Percentiles: P ₁ = 28.4 P ₁₀ = 28.9 Q ₁ = 29.0 Median = 29.2 Q ₃ = 29.4 P ₉₀ = 29.6 P ₉₉ = 29.8																						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-Mar	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.3	29.3	29.0	29.3																					
2-Mar	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.5																					
3-Mar	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.4	29.5																					
4-Mar	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																					
5-Mar	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3																					
6-Mar	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3																					
7-Mar	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.2																					
8-Mar	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.2																					
9-Mar	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.4	28.7	28.9																					
10-Mar	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.5	28.7																					
11-Mar	28.7	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	28.9	29.0																					
12-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.0	29.2																					
13-Mar	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3																					
14-Mar	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	29.1	29.1	29.1	29.0	29.0	29.0	28.9	28.9	28.9	28.9	29.2	29.3																					
15-Mar	28.9	28.9	28.9	29.0	29.0	29.0	29.1	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.3	29.5																					
16-Mar	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.6	29.6	29.6																					
17-Mar	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.1	29.1	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.2	29.5																					
18-Mar	29.0	29.0	29.0	29.0	29.1	29.1	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.3	29.5																					
19-Mar	29.5	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7																					
20-Mar	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.6	29.5	29.5	29.6	29.7																					
21-Mar	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.7																					
22-Mar	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.7	29.8																					
23-Mar	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.5																					
24-Mar	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																					
25-Mar	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	29.2	29.2																					
26-Mar	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	29.0	29.0	29.1																					
27-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.1	29.1	29.2																					
28-Mar	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.2	29.3																					
29-Mar	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3																					
30-Mar	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.3																					
31-Mar	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.8	29.0																					
																						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 Average	
																						29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.7	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Barometric Pressure (BP) - inHg
Lower Camp - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Lower Camp - March 2024

Maximum Speed: 32 km/h on Mar 27 02:00	Maximum Daily Speed Average: 21.1 km/h on Mar 27	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 8 04:00	Minimum Daily Speed Average: 1.3 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 5.1 km/h at hour 9	Minimum Diurnal Speed Average: 1.6 km/h at hour 21	Hours of Missing Data: 0
Monthly Average Velocity: 2.7 km/h 71.5 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 7 Median = 11 Q ₃ = 15 P ₉₀ = 19 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-Mar	WSW8	W7	W17	W19	W20	WSW16	WSW19	WSW18	SW21	WSW21	WSW20	W19	W18	WNW19	WNW18	W18	WNW16	WNW11	NW9	NW7	NW4	WNW2	NNW9	NNW8	W12.8	SW21	
2-Mar	NW4	WNW3	NW3	NNW2	NW2	NNW2	NNW3	WNW5	NW4	NNW7	N11	NNW9	NNW8	NNW11	N14	N15	N15	N14	NNW13	NW10	NNW9	N9	NNW9	NNW12	NNW7.8	N15	
3-Mar	NNW10	NNW11	NNW14	NNW14	NNW15	NNW14	NNW15	NNW16	NNW15	N15	N17	NNW17	NNW15	NW14	NW15	NW15	NW15	NW14	NW13	NW10	NW15	NW17	NNW17	NW15	NNW14.3	NNW17	
4-Mar	NW16	NW17	NW18	NNW19	NNW20	NNW20	NNW20	NNW18	NNW16	NNW15	NNW16	NW14	NNW16	NNW15	NW14	NW12	NW13	NNW14	NW11	NW9	NW8	NW7	WNW6	WNW4	W4	NW13.2	NNW20
5-Mar	W4	W4	W5	WNW5	WNW6	WNW4	NW6	NNW4	ESE6	WNW4	SW6	W5	N4	S5	SW5	SW4	S2	SE1	ESE1	ESE5	SE5	SE7	ESE9	SW1.4	ESE9		
6-Mar	ESE8	ESE6	ESE6	ESE10	SE5	ESE11	ESE8	SE5	ESE11	ESE15	ESE17	ESE14	SE12	SE13	SE11	SSE9	S8	SSE7	SSE7	SSE8	SSE6	SE8	SE8	SE9	SE8.8	ESE17	
7-Mar	SE13	SE14	E5	ESE9	ESE9	ESE9	ESE9	ESE10	ESE12	ESE14	ESE13	SE14	SE14	ESE14	SE13	SE13	SE9	SSE5	SSE7	SE7	SE8	SE11	SE9	S2	SE9.8	ESE14	
8-Mar	WSW5	WSW8	WNW3	NNW0	ENE0	ESE1	SSW0	ESE2	ESE10	ESE12	ESE13	ESE15	ESE16	ESE14	ESE13	ESE12	ESE14	ESE14	SE10	ESE13	SE14	SE13	ESE6	ESE6	ESE7.8	ESE16	
9-Mar	ESE8	ESE9	E11	SE11	ESE13	ESE14	ESE9	ESE10	ESE9	ESE8	ESE8	ESE9	ESE8	SE7	ESE9	SE9	ESE8	SSE3	ESE3	ESE2	ESE7	ESE8	ESE8	ESE9	ESE8.3	ESE14	
10-Mar	NW1	ESE4	ESE11	ESE12	ESE12	ESE11	ESE11	ESE13	ESE13	SW8	WSW11	WSW15	W21	WSW20	WSW15	W16	W11	WSW10	WSW5	SW1	WNW2	WNW5	WNW8	NW8	SW4.1	W21	
11-Mar	N9	N6	NNE10	N8	NNW11	NNW12	N11	N12	NNW10	NW9	NNW10	WNW8	WNW10	WNW9	NNW11	WNW13	WNW14	WNW11	W6	W7	NW3	WNW3	NW4	WNW5	NW7.6	WNW14	
12-Mar	NE5	E13	E10	E18	E19	E18	E12	E10	E22	ESE21	ESE24	ESE16	ESE13	ESE10	ESE10	ESE9	E14	E16	E13	E14	E14	E16	E19	ESE18	E14.6	ESE24	
13-Mar	ESE17	E13	E3	S3	NNE2	ENE3	ESE4	E8	ESE17	ESE19	ESE15	ESE14	ESE16	ESE15	ESE16	ESE15	ESE15	ESE13	ESE6	SSE3	ESE2	ESE9	ESE11	ESE15	ESE10.2	ESE19	
14-Mar	ESE15	ESE17	ESE17	ESE15	ESE16	ESE18	ESE14	ESE14	ESE17	ESE15	ESE15	ESE15	ESE12	SSW9	SW5	SW4	SSE6	SSE6	SE9	SE9	SW5	WSW12	NW2	W8	SE8.9	ESE18	
15-Mar	SW3	WSW11	SW25	WSW23	W22	WNW20	NNW17	NNW17	NNW18	NW18	NW19	NW20	NW19	NNW17	NNW17	N23	N19	N17	N14	N13	N10	NNW5	N6	NNW7	NW12.1	SW25	
16-Mar	N6	N8	NNW10	NNW11	N14	NNW12	NNW11	NNW11	NNW9	NW9	NW10	NW11	NW9	WNW9	NNW10	WNW10	WNW12	NW9	NW6	NNW5	NW4	ESE5	ESE20	ESE20	NNW6.3	ESE20	
17-Mar	ESE22	ESE24	ESE24	ESE22	ESE20	ESE20	ESE21	ESE23	ESE21	ESE21	ESE18	SE13	ESE13	ESE15	ESE16	ESE12	ESE13	SE8	SE7	SE8	E3	NNE1	W7	NW10	ESE13.5	ESE24	
18-Mar	NW7	NW7	NW6	NNW8	NNW12	NNW21	NNW14	NNW15	NNW17	NNW17	NW16	NW13	NNW12	NNW14	NNW17	N22	N19	NNW19	N14	NNW17	NNW16	NNW19	N22	NNW19	NNW14.8	N22	
19-Mar	N18	N17	N15	N16	N18	N17	NNW16	N14	N19	N17	NNW14	NNW13	NW12	NW12	N12	N14	N15	N16	NNE14	N10	N7	NW7	WNW8	NW7	N13.1	N19	
20-Mar	N5	NNW3	N3	NW3	NW4	NW3	NNE3	N4	NNW6	NNW6	NNW8	NW8	WNW9	WNW8	NW9	NNW10	N10	NNW11	NNW10	NW7	NW7	NNW5	NNW7	N6	NNW6.2	NNW11	
21-Mar	NNW7	NW5	WNW5	NW6	NW7	NW7	WNW7	WNW7	NW6	NNW9	NW11	NW10	NNW11	N17	N18	N17	N18	N17	N13	NNW10	NNW6	NW4	WNW4	NW3	NNW8.6	N18	
22-Mar	NW3	NW2	WNW3	NNW3	NNW3	NNW3	NNW3	N4	NNW2	NE2	E5	ENE4	ESE6	E6	E5	E3	ESE7	ESE8	SE3	WNW2	WNW2	N1	NW2	WNW1	ENE1.3	ESE8	
23-Mar	NW2	NW2	W5	W4	WNW2	NNW1	NNW2	ENE2	ESE11	ESE13	ESE11	ESE11	ESE9	ESE10	E9	E10	ESE10	E9	NNE3	ESE2	SE3	E2	W1	NW3	E3.7	ESE13	
24-Mar	NW1	NE3	NNW2	NNE3	N1	ESE6	ESE8	ESE10	ESE11	ESE10	ESE11	ESE11	SE11	SE11	ESE13	ESE15	ESE13	SSE11	ESE7	ESE10	ESE7	ESE16	ESE12	ESE11	ESE8.1	ESE16	
25-Mar	E16	E17	E19	E22	E20	E22	ESE24	ESE26	ESE28	ESE24	ESE22	ESE22	ESE25	ESE28	ESE23	SE14	SE14	SE13	SE11	SE13	SE15	SE15	SE15	SE16	ESE18.4	ESE28	
26-Mar	SE15	SE12	SE15	SE17	SE19	SE16	SE15	SE14	SE17	SE18	ESE29	ESE31	ESE31	ESE20	ESE20	ESE27	ESE26	SE19	SE13	SE13	SE12	ESE20	ESE26	ESE27	SE19.3	ESE31	
27-Mar	ESE29	ESE32	ESE31	ESE28	ESE28	ESE29	ESE27	ESE26	ESE26	ESE25	ESE26	ESE26	ESE27	ESE25	E25	E22	E22	E19	E13	E10	ENE6	E5	NNE4	NNE6	ESE21.1	ESE32	
28-Mar	NNW7	NNW9	NNW9	NW7	NNW8	NW6	NW7	NW8	NW9	NNW10	NW11	NW13	NW14	NW17	NW17	NW17	NNW17	NW15	NW13	NW11	WNW9	NW10	NW10	NW9	NW11.0	NW17	
29-Mar	NNW11	NNW13	NW9	WNW6	W6	WNW5	W4	WNW8	NNW13	NNW12	NW11	NW15	NW15	NW17	NNW15	NW13	NNW12	NNW12	NNE8	N4	WSW3	WNW5	NW3	NW2	NW8.7	NW17	
30-Mar	WNW1	NNW1	NW2	WNW2	WNW2	NE2	ESE9	ESE12	ESE14	ESE17	ESE17	ESE15	SE13	SE14	SE14	ESE15	ESE16	ESE16	ESE13	ESE12	ESE11	E21	ESE17	ESE12	ESE10.3	ESE21	
31-Mar	ESE14	SE10	SE8	ESE11	ESE10	ESE12	ESE12	ESE15	ESE14	ESE16	ESE15	ESE15	SE14	SSE10	S9	SSE10	SSE9	SE10	SE10	SE13	SE13	SE13	SE17	SE12	SE11.7	SE17	

ENE2.8	ENE2.9	ENE2.1	ENE2.2	NE2.5	ENE3.1	ENE2.9	ENE3.6	E5.1	E4.7	E4.0	E3.0	E2.3	ENE1.7	ENE2.1	NE2.6	NE3.3	NE2.8	NE2.2	ENE1.9	ENE1.6	E2.5	E3.0	ENE2.4	Diurnal Average
ESE29	ESE32	ESE31	ESE28	ESE28	ESE29	ESE27	ESE26	ESE28	ESE25	ESE29	ESE31	ESE31	ESE28	E25	ESE27	ESE26	E19	N14	NNW17	NNW16	ESE21	ESE26	ESE27	Diurnal Maximum

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

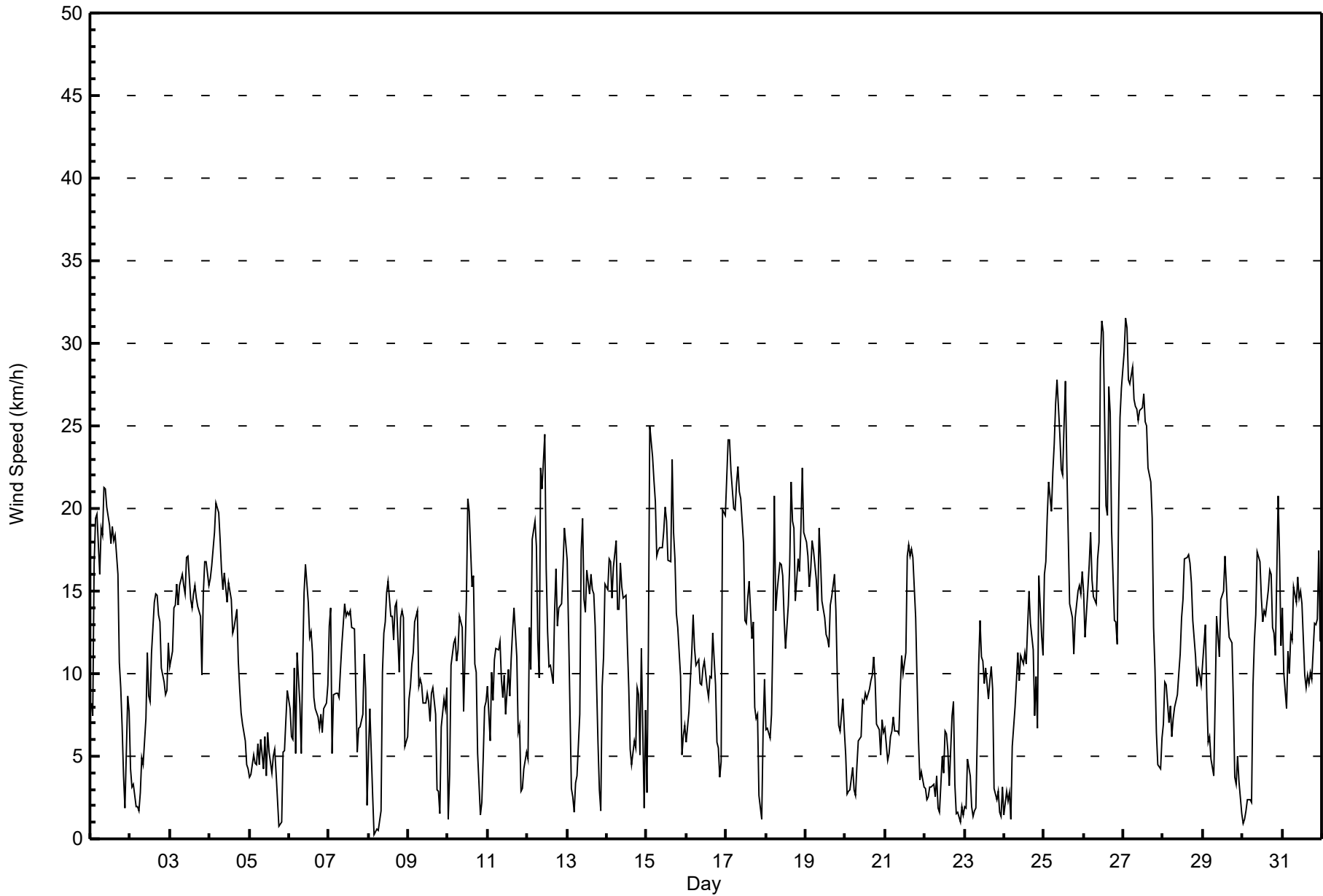
Wind Speed (WS) - km/h
Lower Camp - March 2024

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Lower Camp - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Lower Camp - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	143	19.22	19.22
6 - 11	250	33.60	52.82
12 - 19	279	37.50	90.32
20 - 28	65	8.74	99.06
29 - 38	7	0.94	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 - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	7	6	4	4	8	12	5	3	4	1	7	3	10	24	26	19	143
6 - 11	12	3	0	1	9	66	25	12	2	1	2	6	6	21	44	40	250
12 - 19	33	1	0	0	18	84	41	0	0	0	0	7	5	6	31	53	279
20 - 28	3	0	0	0	6	42	0	0	0	0	2	4	3	1	1	3	65
29 - 38	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	7
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	55	10	4	5	41	211	71	15	6	2	11	20	24	52	102	115	744

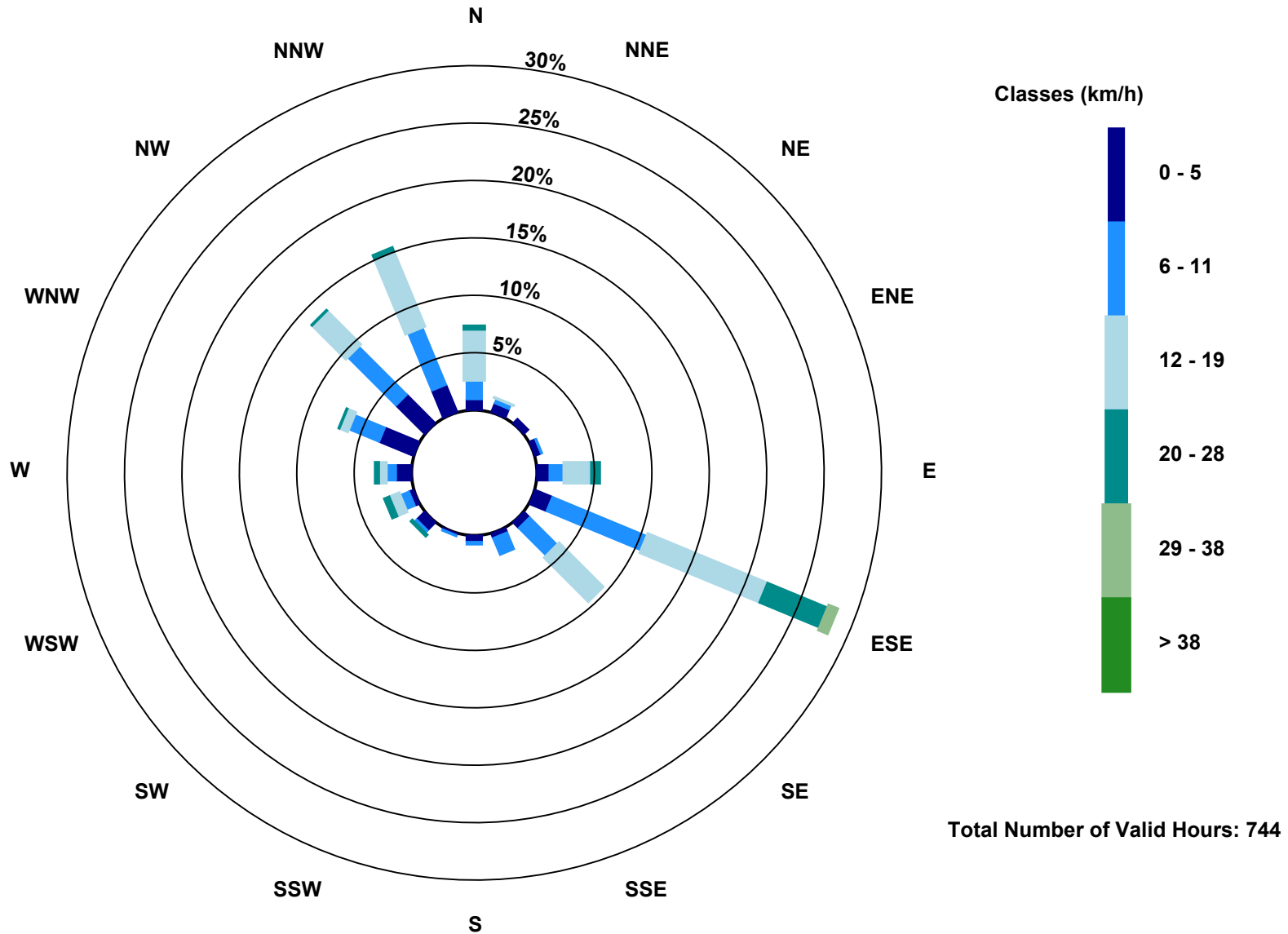
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Lower Camp





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Lower Camp - March 2024

Direction of Maximum Speed: 107 deg on Mar 27 02:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 103.5 deg on Mar 27	Hours of Data: 744
Direction of Minimum Speed: 330 deg on Mar 8 04:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 1.3 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 71.5 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-Mar	258	278	268	259	260	244	242	237	236	239	252	272	273	283	288	280	286	300	307	310	317	302	346	343	268.2
2-Mar	325	285	319	343	308	344	339	293	304	346	349	343	338	347	351	354	357	351	334	320	331	349	344	337	340.1
3-Mar	327	332	337	337	339	334	339	347	341	349	350	344	328	315	319	312	316	321	322	312	326	326	329	321	330.8
4-Mar	322	322	323	330	332	331	330	329	329	331	326	327	329	314	319	321	329	320	314	315	307	297	295	275	323.6
5-Mar	274	272	275	276	283	291	290	306	335	120	287	221	259	351	170	233	226	179	124	108	120	126	125	119	236.0
6-Mar	111	117	117	119	126	119	114	124	119	115	116	119	141	140	142	164	174	160	160	149	150	142	144	141	132.5
7-Mar	133	124	93	123	121	114	118	117	111	119	123	131	129	123	140	144	146	167	152	132	125	124	125	183	127.5
8-Mar	237	244	286	330	61	103	195	102	118	120	117	114	120	119	114	111	115	110	125	120	124	126	123	117	121.4
9-Mar	122	121	100	126	123	109	121	122	119	117	118	123	120	127	118	128	119	164	122	106	120	123	123	120	120.1
10-Mar	319	114	122	117	119	122	123	119	122	229	237	247	261	252	257	268	259	250	248	226	294	298	298	318	225.4
11-Mar	354	357	23	3	335	341	349	350	348	318	289	293	293	294	297	299	296	293	275	271	304	293	308	300	318.3
12-Mar	45	93	83	96	101	96	92	87	98	109	107	113	116	119	119	114	89	94	91	96	94	91	99	106	99.5
13-Mar	104	85	93	170	12	72	113	91	107	114	107	112	111	112	116	118	115	121	148	115	123	116	116	116	110.6
14-Mar	116	118	117	115	120	119	120	122	119	118	116	117	123	192	223	218	154	150	137	140	222	248	312	270	131.4
15-Mar	215	238	233	253	279	291	330	333	336	313	317	305	314	332	336	2	7	352	3	353	1	345	8	346	319.2
16-Mar	349	355	328	329	359	347	345	336	331	320	324	323	317	297	282	303	297	312	324	333	311	104	108	109	335.7
17-Mar	107	112	107	112	107	109	110	108	110	115	119	134	123	123	120	120	120	144	137	132	83	22	259	305	115.2
18-Mar	324	319	321	335	344	345	332	345	346	338	325	321	329	335	347	358	355	347	351	348	346	340	358	344	342.4
19-Mar	349	1	359	352	349	352	341	357	353	351	343	336	323	316	349	0	359	4	17	5	2	322	291	316	349.0
20-Mar	349	329	350	309	325	313	17	351	343	332	328	322	299	303	321	344	349	347	344	317	311	330	344	352	332.1
21-Mar	344	314	299	310	305	308	298	302	315	333	316	323	337	351	360	351	9	8	352	347	348	311	301	305	337.7
22-Mar	316	315	297	329	328	333	332	352	342	47	83	65	104	96	91	88	122	121	138	293	297	355	318	293	60.4
23-Mar	317	310	272	278	300	329	334	72	114	115	113	108	111	105	98	99	104	79	16	111	130	96	280	308	101.1
24-Mar	315	52	335	19	5	103	117	116	118	116	113	117	137	127	120	119	121	160	119	110	114	108	108	103	116.0
25-Mar	95	87	88	92	91	101	108	109	106	105	114	113	111	112	120	139	141	143	139	138	143	143	142	140	114.4
26-Mar	142	137	130	128	127	134	140	141	140	136	113	111	113	122	123	114	115	124	142	134	134	119	115	116	124.2
27-Mar	107	107	105	110	109	111	111	104	107	106	110	111	107	103	99	99	99	96	91	79	75	82	26	31	103.5
28-Mar	333	335	334	325	329	323	324	326	326	329	324	326	324	322	322	325	336	325	317	311	303	305	311	315	323.1
29-Mar	329	336	322	302	275	284	278	303	335	335	325	319	317	324	331	326	334	345	14	8	249	286	306	315	323.9
30-Mar	294	331	308	298	299	52	116	113	112	113	114	123	132	125	130	121	116	113	113	106	113	101	104	116	114.4
31-Mar	118	125	125	120	110	119	117	114	115	109	113	117	124	152	182	154	156	140	144	139	138	134	134	139	128.6
69.5 73.2 60.5 74.9 51.2 63.3 72.2 69.8 81.3 87.4 84.3 86.8 92.5 71.2 61.9 44.9 56.0 49.2 45.6 66.0 73.5 93.4 80.8 76.0																									
Diurnal Average																									

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

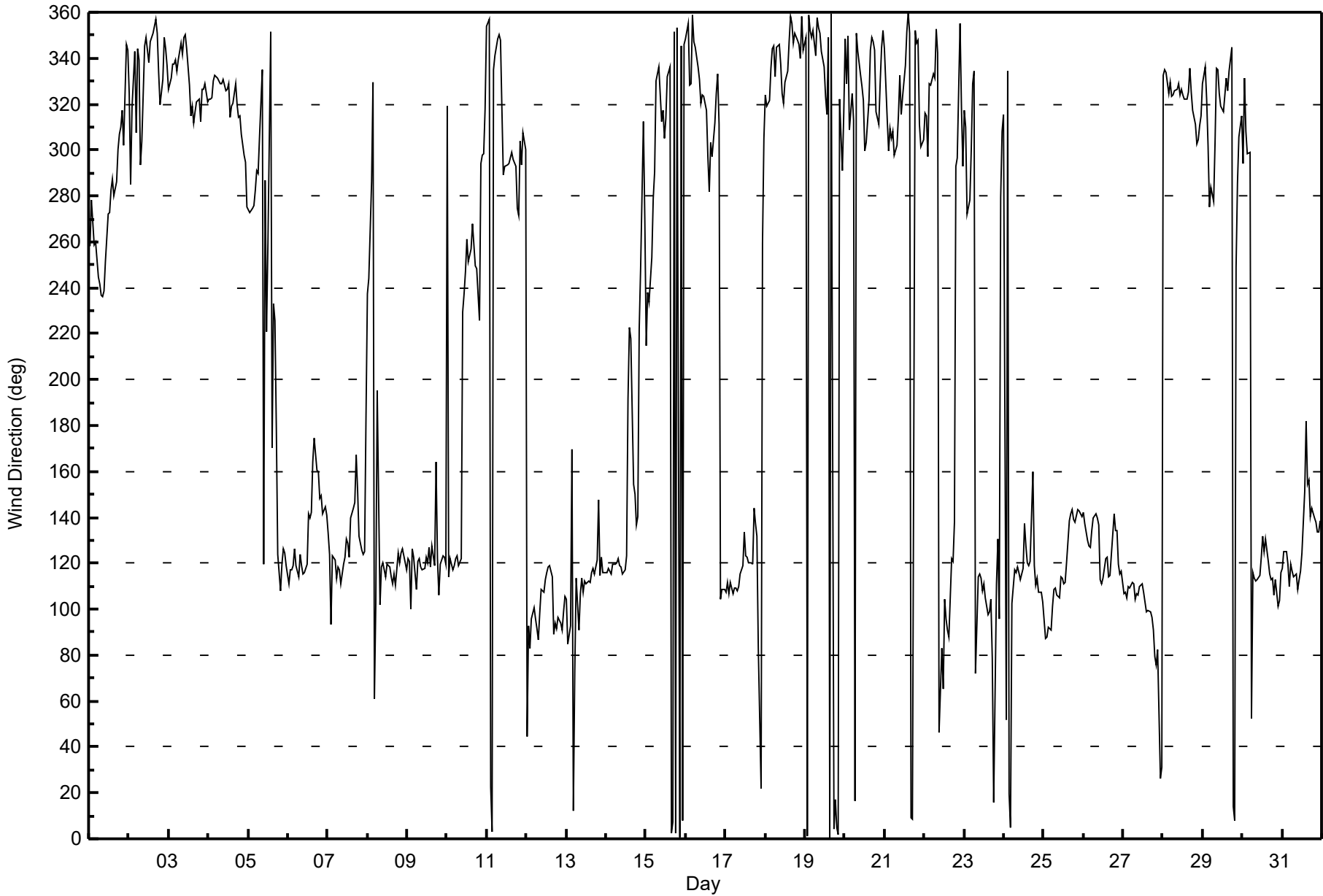
Wind Direction (WD) - deg
Lower Camp - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 106 deg on Mar 5 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: 5 deg on Mar 14 11:00																									
Percentiles: P ₁ = 6 P ₁₀ = 8 Q ₁ = 13 Median = 18 Q ₃ = 26 P ₉₀ = 42 P ₉₉ = 93																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Mar	27	23	12	13	11	14	12	12	12	11	14	16	13	15	14	16	15	18	14	16	38	35	25	18	38
2-Mar	36	36	54	60	36	42	37	13	24	40	17	33	31	24	19	19	18	17	16	17	19	18	18	15	60
3-Mar	20	18	14	15	14	17	17	15	17	15	16	16	17	15	17	15	18	19	19	18	18	17	17	17	20
4-Mar	17	16	17	17	15	16	16	17	18	17	18	18	18	16	17	17	16	18	16	17	13	11	12	13	18
5-Mar	16	14	11	11	14	10	14	21	57	50	37	13	34	59	58	36	46	54	106	88	26	19	13	17	106
6-Mar	18	36	36	14	34	11	27	71	8	11	11	13	25	24	28	35	29	24	18	19	19	18	21	20	71
7-Mar	18	16	75	46	22	11	11	11	9	8	20	24	21	17	26	26	26	27	16	16	19	10	31	56	75
8-Mar	30	17	64	94	101	94	93	84	19	8	7	8	8	11	8	12	8	10	15	8	9	11	65	20	101
9-Mar	15	18	16	11	8	6	6	10	10	11	9	12	10	18	16	21	14	61	69	95	19	7	8	17	95
10-Mar	92	59	7	6	6	9	10	7	14	21	22	16	12	13	14	13	16	13	32	74	33	30	29	19	92
11-Mar	21	23	19	21	18	21	20	15	19	22	13	19	18	19	15	12	15	12	11	13	23	51	47	43	51
12-Mar	74	20	18	8	7	9	14	40	7	9	9	9	7	9	7	19	13	11	11	12	11	10	9	10	74
13-Mar	11	22	75	56	83	73	72	22	11	8	8	9	8	8	8	11	10	11	61	72	97	19	15	10	97
14-Mar	6	6	6	11	8	6	10	9	5	5	5	29	30	40	32	25	26	15	25	56	15	83	43	83	
15-Mar	81	23	10	19	10	15	19	26	17	19	18	17	18	16	16	19	19	17	18	15	30	35	34	18	81
16-Mar	23	22	18	17	15	17	18	15	20	20	23	21	23	25	19	19	11	17	20	27	28	96	8	8	96
17-Mar	8	7	9	9	8	9	8	8	7	10	14	29	23	15	10	8	9	22	28	22	74	88	47	39	88
18-Mar	37	29	24	21	17	15	20	18	21	17	18	18	19	19	17	17	19	17	18	17	18	20	16	15	37
19-Mar	15	18	18	17	15	16	17	19	17	19	21	23	25	23	28	27	16	16	13	13	21	28	13	26	28
20-Mar	31	33	36	31	20	27	41	16	16	27	32	29	27	33	33	32	27	14	15	19	18	22	15	15	41
21-Mar	18	24	22	12	13	15	18	22	20	18	23	24	27	20	20	24	17	17	18	13	21	23	21	30	30
22-Mar	30	32	25	26	27	23	28	16	76	75	20	44	32	27	42	56	23	10	71	35	18	81	40	34	81
23-Mar	29	27	10	15	26	30	29	67	9	8	9	7	11	15	33	25	20	19	86	70	44	87	51	24	87
24-Mar	82	86	70	68	93	56	12	9	7	32	11	23	30	33	20	18	23	31	33	31	50	11	18	16	93
25-Mar	12	9	7	6	8	10	6	6	6	8	8	9	8	8	20	27	28	26	27	24	25	24	23	24	28
26-Mar	24	26	20	19	18	23	26	26	25	28	10	8	10	22	22	8	10	22	28	25	26	14	11	11	28
27-Mar	8	7	9	9	8	8	9	9	9	9	9	8	10	11	9	11	12	13	16	24	40	80	64	35	80
28-Mar	18	12	14	17	16	18	17	17	17	16	17	18	18	17	19	18	18	18	16	15	15	11	12	16	19
29-Mar	17	13	19	28	15	18	22	19	16	16	21	20	20	19	18	19	21	21	26	68	33	31	26	61	68
30-Mar	63	58	33	19	43	69	12	7	9	9	6	20	27	29	26	18	13	12	12	10	15	7	10	17	69
31-Mar	11	19	25	14	20	8	7	5	6	7	7	6	20	41	40	34	30	21	23	21	22	20	21	23	41
	92	86	75	94	101	94	93	84	76	75	37	44	34	59	58	56	46	61	106	95	97	96	83	61	
	Diurnal Maximum																								



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Lower Camp - March 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS13 FORT MCKAY SOUTH MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)
MARCH 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	23.6	0	5.6	0
TRS(ppb) Average	708	36	36	100	3.2	0	1.4	0
THC(ppm) Average	708	35	36	99.87	4.9	-	2.7	-
NMHC(ppm) Average	708	35	36	99.87	0.472	-	0.047	-
CH4(ppm) Average	708	35	36	99.87	4.4	-	2.6	-
O3(ppb) Average	708	35	36	99.87	43.7	0	37.1	-
NO2(ppb) Average	707	36	37	99.87	33.5	0	14.6	-
NO(ppb) Average	707	36	37	99.87	39.3	-	5.2	-
NOX(ppb) Average	707	36	37	99.87	61.2	-	18.7	-
PM2.5(ug/m3) Average	744	0	0	100	74.3	0	25.5	0
ET(C) Average	744	0	0	100	14	-	3.5	-
RH(%) Average	744	0	0	100	92.7	-	79.1	-
WS(km/h) Average	742	0	2	99.73	27	-	21	-
WD(deg) Average	742	0	2	99.73	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)
MARCH 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2(ppb) Average	708	1.75	3.6	-	0	0.2	0.2	0.4	1	5	23.6
TRS(ppb) Average	708	0.61	0.4	-	0.4	0.4	0.4	0.5	0.6	1	3.2
THC(ppm) Average	708	2.15	0.2	-	2	2	2.1	2.1	2.2	2.3	4.9
NMHC(ppm) Average	708	0.003	0.028	-	0	0	0	0	0	0	0.472
CH4(ppm) Average	708	2.15	0.2	-	2	2	2.1	2.1	2.2	2.3	4.4
O3(ppb) Average	708	26.54	9.6	-	0.7	12.4	19.8	27.9	34.3	37.9	43.7
NO2(ppb) Average	707	7.95	6	-	0	1.4	3.6	6.4	11.3	16.5	33.5
NO(ppb) Average	707	2.07	3.6	-	0	0	0	0.8	2.4	5.6	39.3
NOX(ppb) Average	707	10.02	8.2	-	0	1.9	4.1	8.1	14	19.6	61.2
PM2.5(ug/m3) Average	744	7.32	7.5	-	0.5	2.4	3.3	4.8	8.1	16.3	74.3
Temperature 2 m (C) Average	744	-8.27	9.4	-	-31.2	-21.3	-16.1	-7.1	-1.7	3.5	14
Relative Humidity (%) Average	744	63.13	15.6	-	24.9	41.2	51	64	75.4	82.7	92.7
Wind Speed 10 m (km/h) Average	742	9.8	6	-	0	2	5	9	14	18	27
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	21 Mar 2024 13:00	21 Mar 2024 13:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	20 Mar 2024 01:00	20 Mar 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Mar 2024 21:00	22 Mar 2024 21:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb
Fort McKay South - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 23.6 ppb on Mar 8 12:00	Maximum Daily Average: 5.6 ppb on Mar 8		Hours of Data:	708
Minimum Value: 0.0 ppb on Mar 8 06:00	Minimum Daily Average: 0.2 ppb on Mar 29		Hours of Missing Data:	36
Maximum Diurnal Average: 4.5 ppb at hour 12	Minimum Diurnal Average: 0.3 ppb at hour 6		Hours of Calibration:	35
Monthly Average: 1.75 ppb	Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.4 Q ₃ = 1.0 P ₉₀ = 5.0 P ₉₉ = 16.5		Percent Operational Time:	99.9

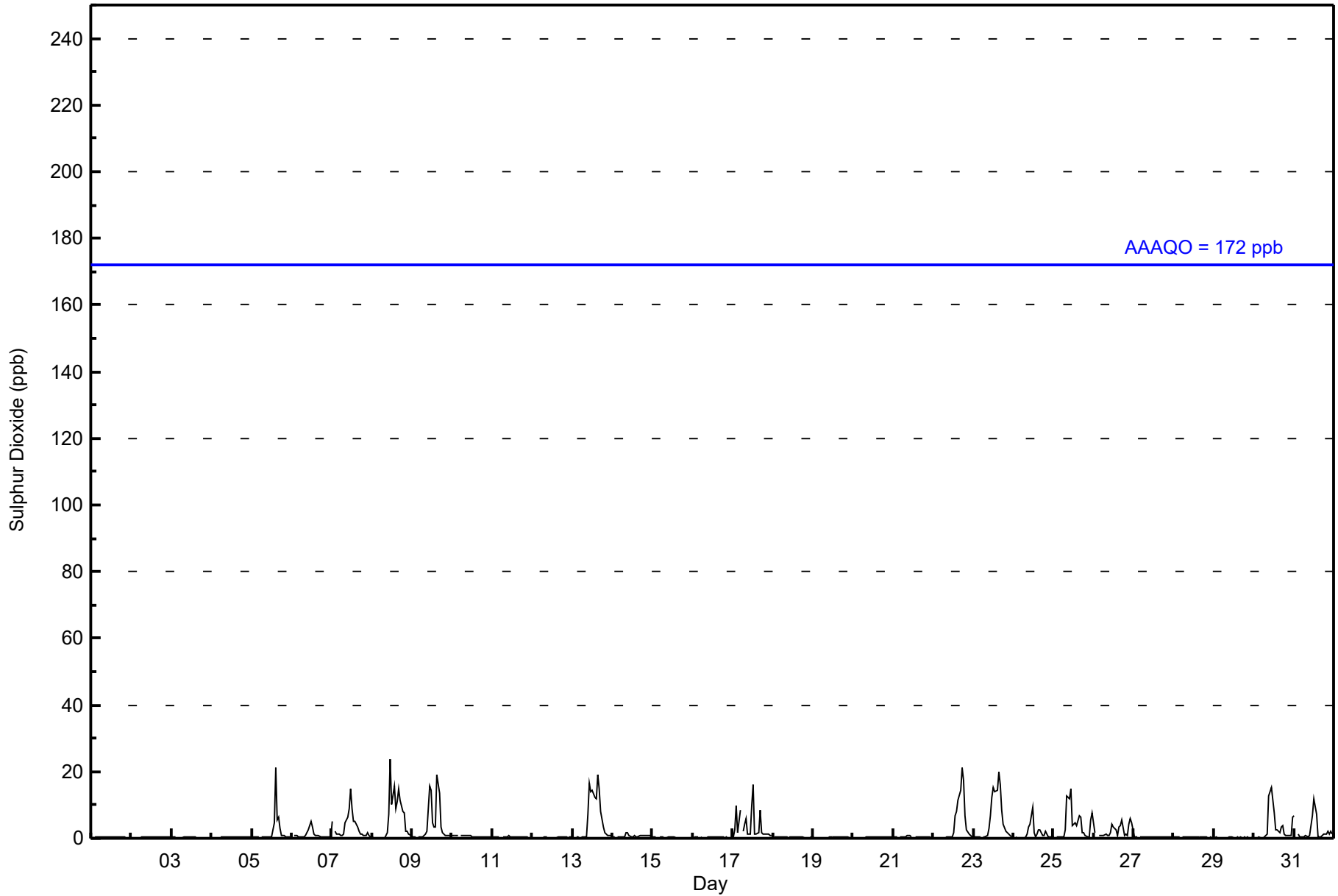
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	0.5	Z	0.2	0.3	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.4	0.6																						
2-Mar	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.5																						
3-Mar	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3																						
4-Mar	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3																						
5-Mar	0.2	0.2	0.2	0.2	0.3	Z	0.4	0.4	0.4	0.4	0.5	0.5	0.6	4.5	21.3	5.7	6.4	3.1	0.8	0.7	0.5	0.4	0.4	0.4	2.1	21.3																						
6-Mar	Z	0.6	0.8	0.8	0.5	0.4	0.3	0.3	0.8	1.7	2.6	5.1	3.2	1.1	0.8	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.5	0.4	1.0	5.1																						
7-Mar	4.9	Z	1.9	1.1	1.1	0.7	0.8	1.3	4.5	6.4	9.0	15.0	8.9	5.0	5.0	3.4	2.1	1.4	1.2	1.0	1.0	1.5	1.0	0.6	3.4	15.0																						
8-Mar	0.4	0.4	Z	0.1	0.0	0.0	0.0	0.1	0.9	1.7	7.3	23.6	10.0	15.7	8.9	10.9	14.8	11.4	8.1	7.5	2.3	2.2	1.2	0.8	5.6	23.6																						
9-Mar	0.4	0.4	0.5	Z	0.2	0.2	0.2	1.0	1.1	2.1	15.6	14.6	4.6	3.4	3.3	19.0	13.5	3.4	1.7	1.1	1.0	0.9	0.9	0.9	3.9	19.0																						
10-Mar	0.8	1.0	0.9	0.8	Z	0.8	0.9	0.9	0.9	0.8	0.9	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.6	1.0																						
11-Mar	0.4	0.4	0.3	0.4	0.4	Z	0.3	0.3	0.3	0.3	0.8	0.4	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.8																						
12-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	C	C	C	C	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.4																						
13-Mar	0.3	Z	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.2	7.0	16.6	14.1	14.5	12.2	11.8	19.0	14.7	7.9	3.4	1.5	1.1	0.9	0.6	0.7	5.6	19.0																					
14-Mar	0.5	0.4	Z	0.3	0.4	0.3	0.4	0.6	0.5	1.7	1.9	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.6	0.7	1.9																					
15-Mar	0.6	0.5	0.5	Z	0.3	0.2	0.3	0.2	0.1	0.4	0.3	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.3	0.6																					
16-Mar	0.2	0.3	0.2	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3																					
17-Mar	0.5	2.6	9.7	1.9	8.6	Z	2.1	4.3	5.9	1.1	1.2	9.6	16.0	1.2	1.2	1.8	8.3	1.6	1.2	1.1	1.1	1.2	0.8	0.7	3.6	16.0																						
18-Mar	Z	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.6																					
19-Mar	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.3																					
20-Mar	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.5																						
21-Mar	0.4	0.3	0.3	Z	0.3	0.3	0.3	0.5	0.7	0.8	0.7	0.6	M	0.6	0.6	0.5	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.2	0.4	0.8																						
22-Mar	0.2	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.4	0.4	0.4	0.4	1.8	6.8	8.1	11.4	14.3	21.2	17.3	6.6	2.5	1.3	0.8	0.5	4.2	21.2																						
23-Mar	0.4	0.3	0.3	0.4	0.4	Z	0.2	0.5	0.9	3.1	6.9	12.1	15.2	14.1	14.6	19.8	16.0	8.4	4.1	2.2	1.6	1.1	0.8	0.6	5.4	19.8																						
24-Mar	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.6	1.4	3.6	4.4	9.1	1.5	0.6	1.1	2.5	2.6	1.0	0.6	2.0	1.4	0.6	0.5	0.4	1.5	9.1																						
25-Mar	0.4	Z	0.3	0.4	0.5	0.4	0.4	2.6	12.5	11.7	14.9	3.9	4.4	4.6	3.9	6.9	6.4	1.9	1.6	0.6	0.6	0.6	5.5	7.7	4.0	14.9																						
26-Mar	4.8	1.7	Z	0.7	0.7	0.8	0.8	1.2	1.0	1.0	1.7	4.1	3.6	2.4	0.9	3.4	3.8	5.3	0.8	1.3	1.0	4.2	5.9	4.8	2.4	5.9																						
27-Mar	0.6	0.4	0.4	Z	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.6																					
28-Mar	0.4	0.3	0.4	0.4	Z	0.4	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.5																					
29-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2																					
30-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.5	1.0	1.4	12.7	15.2	11.2	7.5	2.7	2.4	1.7	3.4	3.8	1.1	0.9	0.8	0.7	0.9	6.4	3.3	15.2																						
31-Mar	6.9	Z	1.5	0.5	0.4	0.4	0.4	1.0	0.6	0.7	3.7	6.9	11.9	7.3	0.5	0.5	0.5	1.0	1.2	1.1	2.3	1.5	2.0	1.2	2.3	11.9																						
																								1.0	0.5	0.8	0.4	0.6	0.3	0.4	0.6	1.3	2.0	3.6	4.5	3.8	2.9	2.9	3.6	3.7	2.5	1.6	1.1	0.7	0.7	0.8	1.0	Diurnal Average
																								6.9	2.6	9.7	1.9	8.6	0.8	2.1	4.3	12.5	12.7	16.6	23.6	16.0	15.7	21.3	19.8	16.0	21.2	17.3	7.5	2.5	4.2	5.9	7.7	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 (SO₂) - ppb
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Fort McKay South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	672	94.92	94.92
11 - 20	33	4.66	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: 708

Total Number of Hours: 744



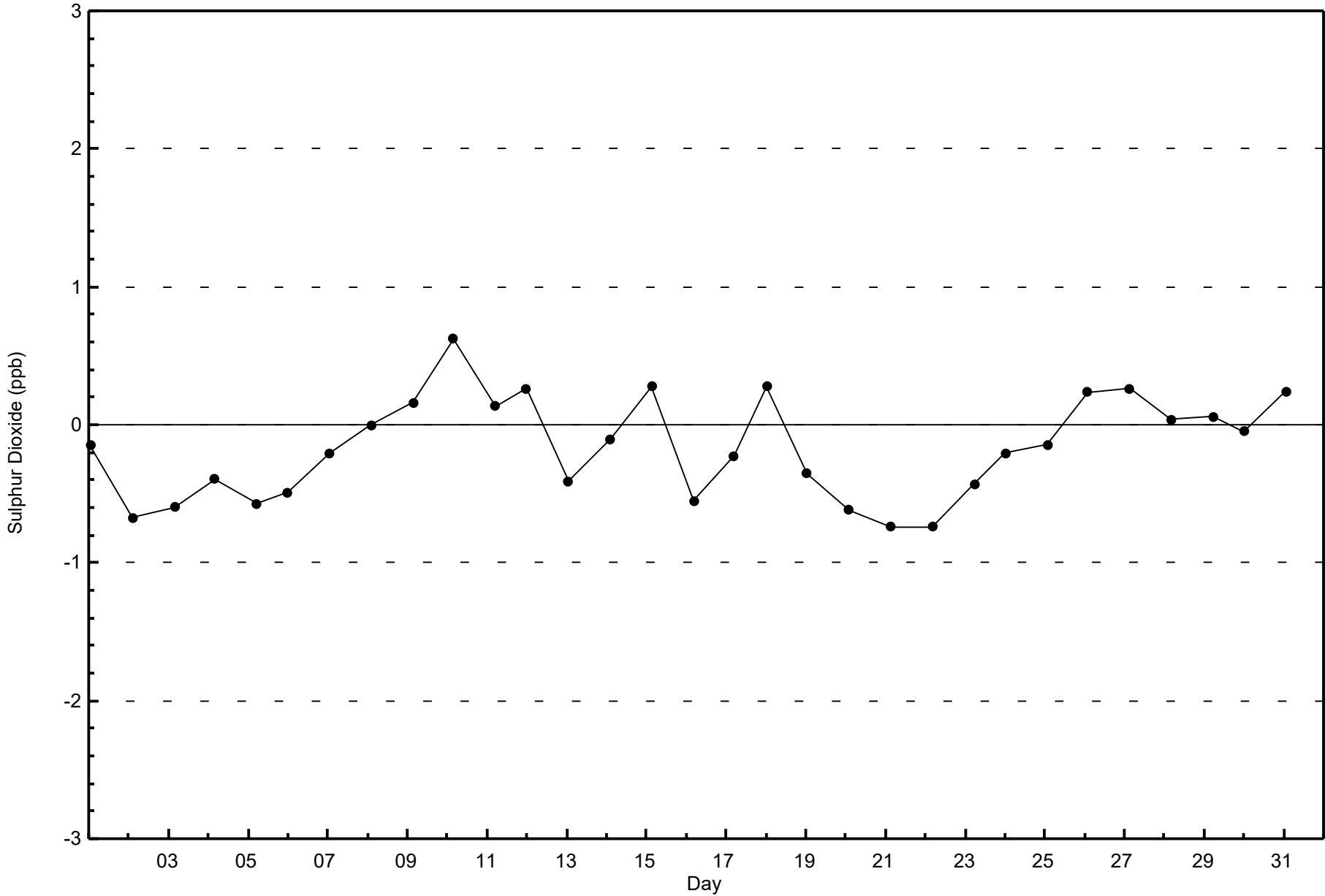
Wood Buffalo Environmental Association
Frequency Distribution

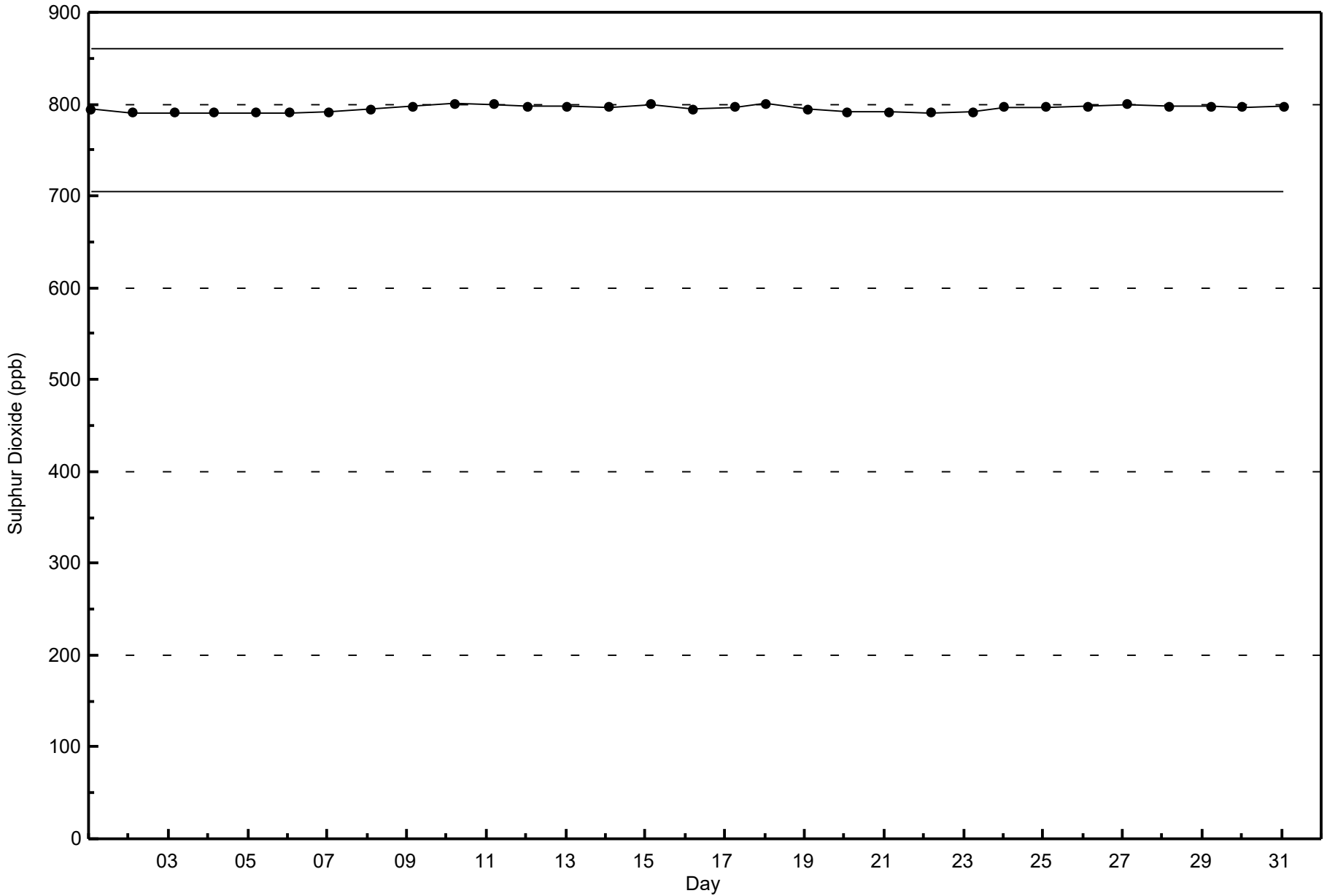
Sulphur Dioxide (SO₂) - ppb
Fort McKay South - March 2024

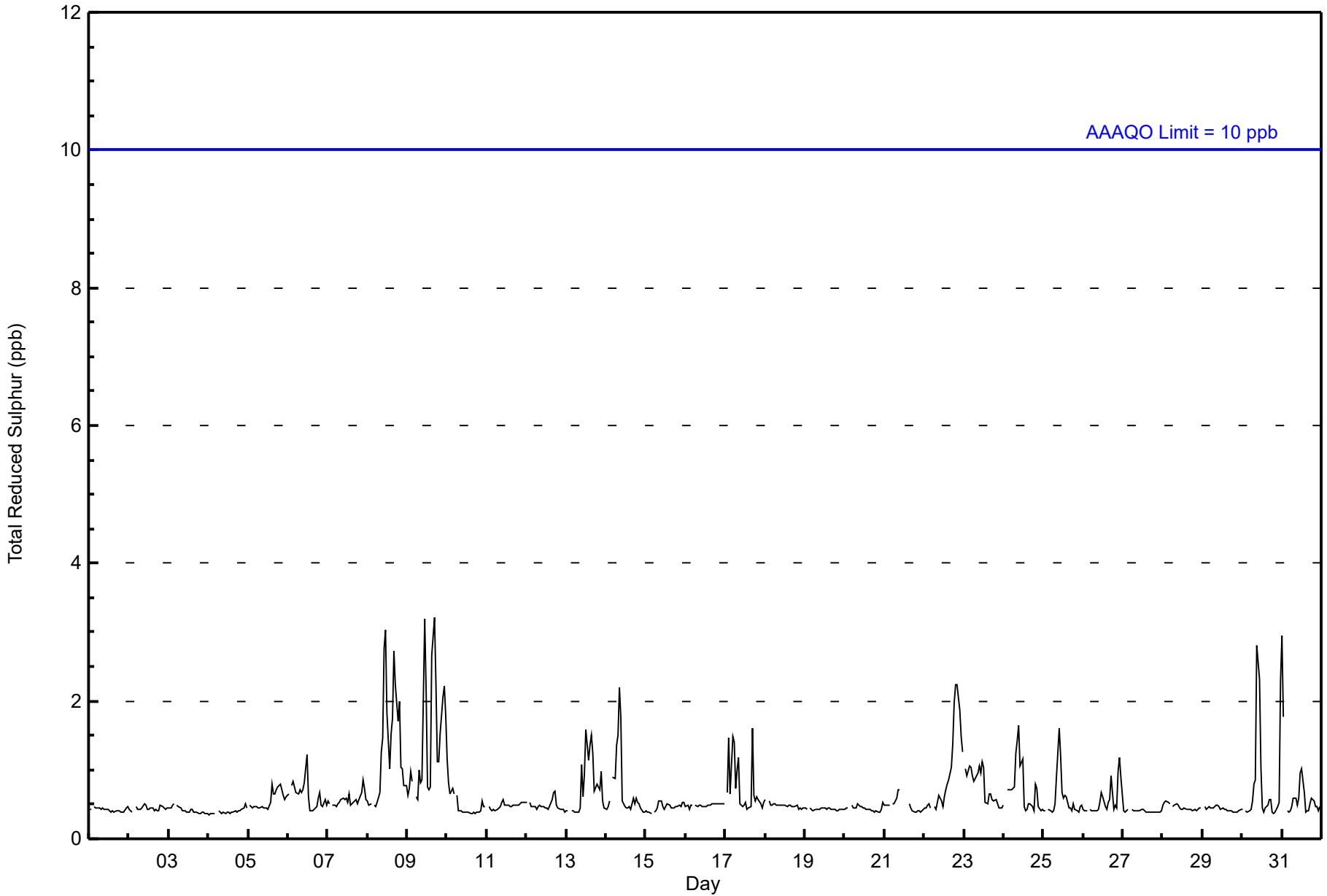
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	161	84	6	1	3	11	39	115	73	34	26	30	18	13	24	32	670
11 - 20	0	0	0	0	0	1	8	19	4	1	0	0	0	0	0	0	33
21 - 60	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	3
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	6	1	3	12	47	135	78	36	26	30	18	13	24	32	706

Total Number of Valid Hours: 706

Total Number of Hours: 744









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort McKay South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	700	98.87	98.87
3 - 4	8	1.13	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 - March 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	160	81	6	1	3	12	43	134	78	37	25	32	18	12	22	34	698
3 - 4	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	8
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
Totals	160	81	6	1	3	12	46	139	78	37	25	32	18	12	22	34	706

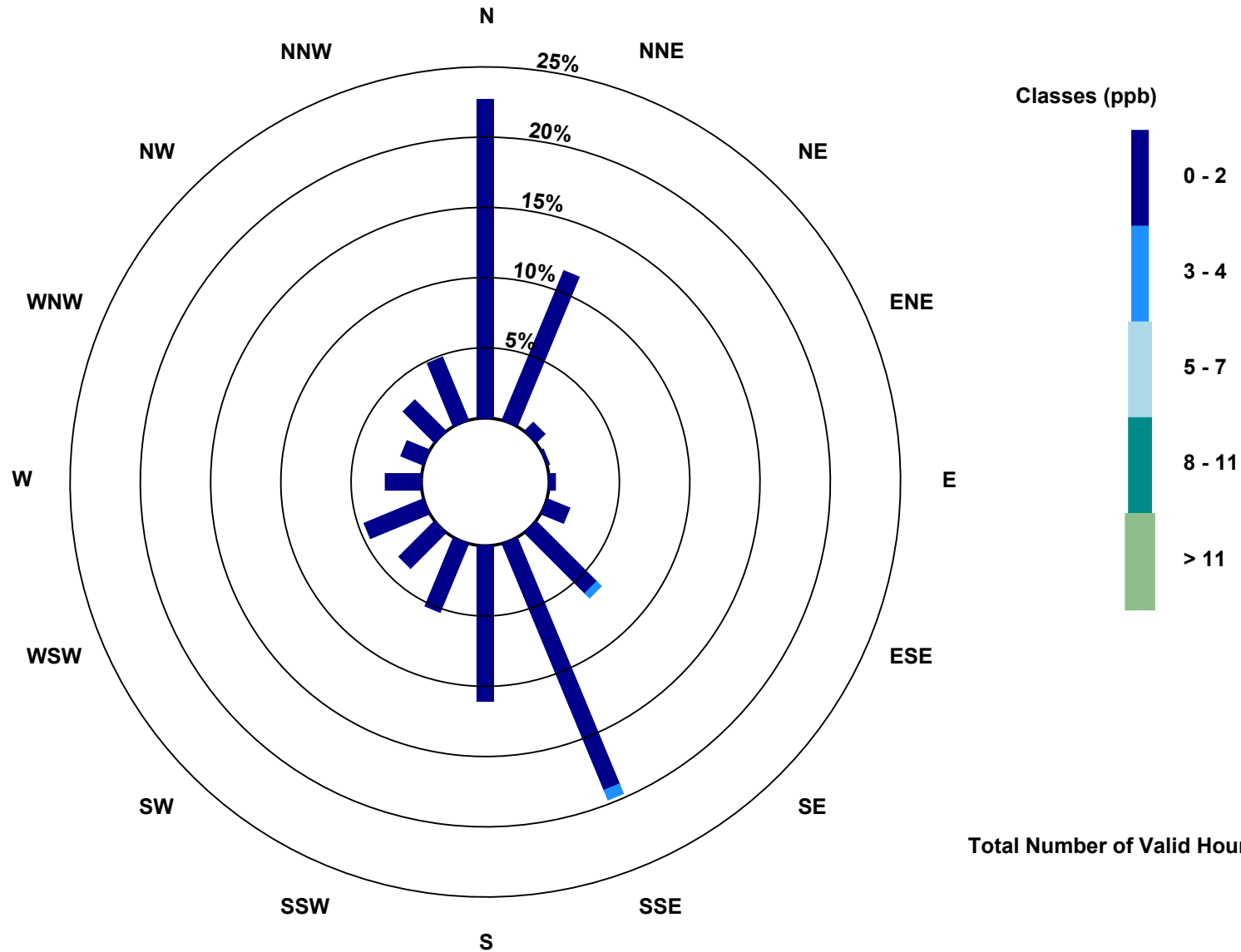
Total Number of Valid Hours: 706

Total Number of Hours: 744

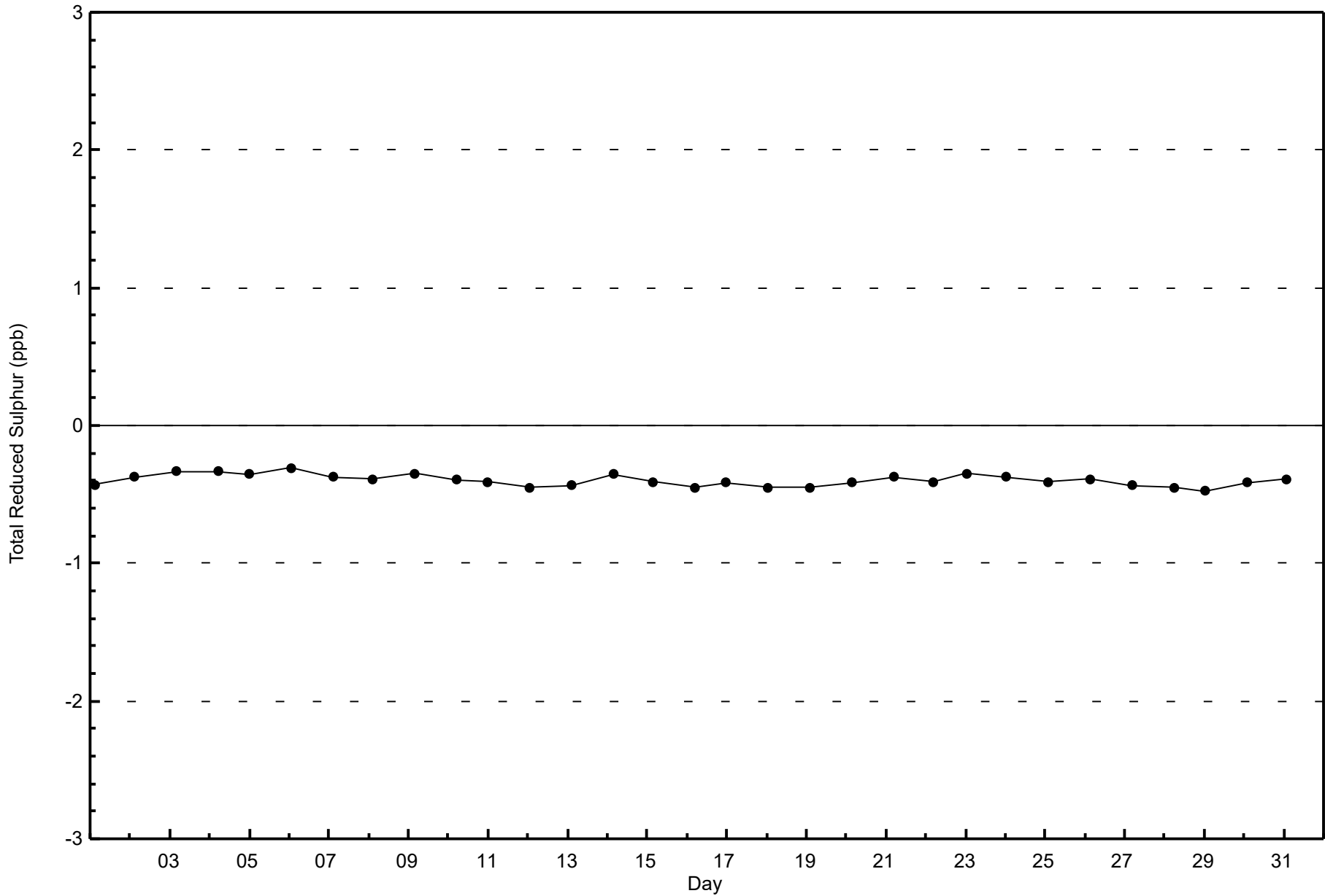


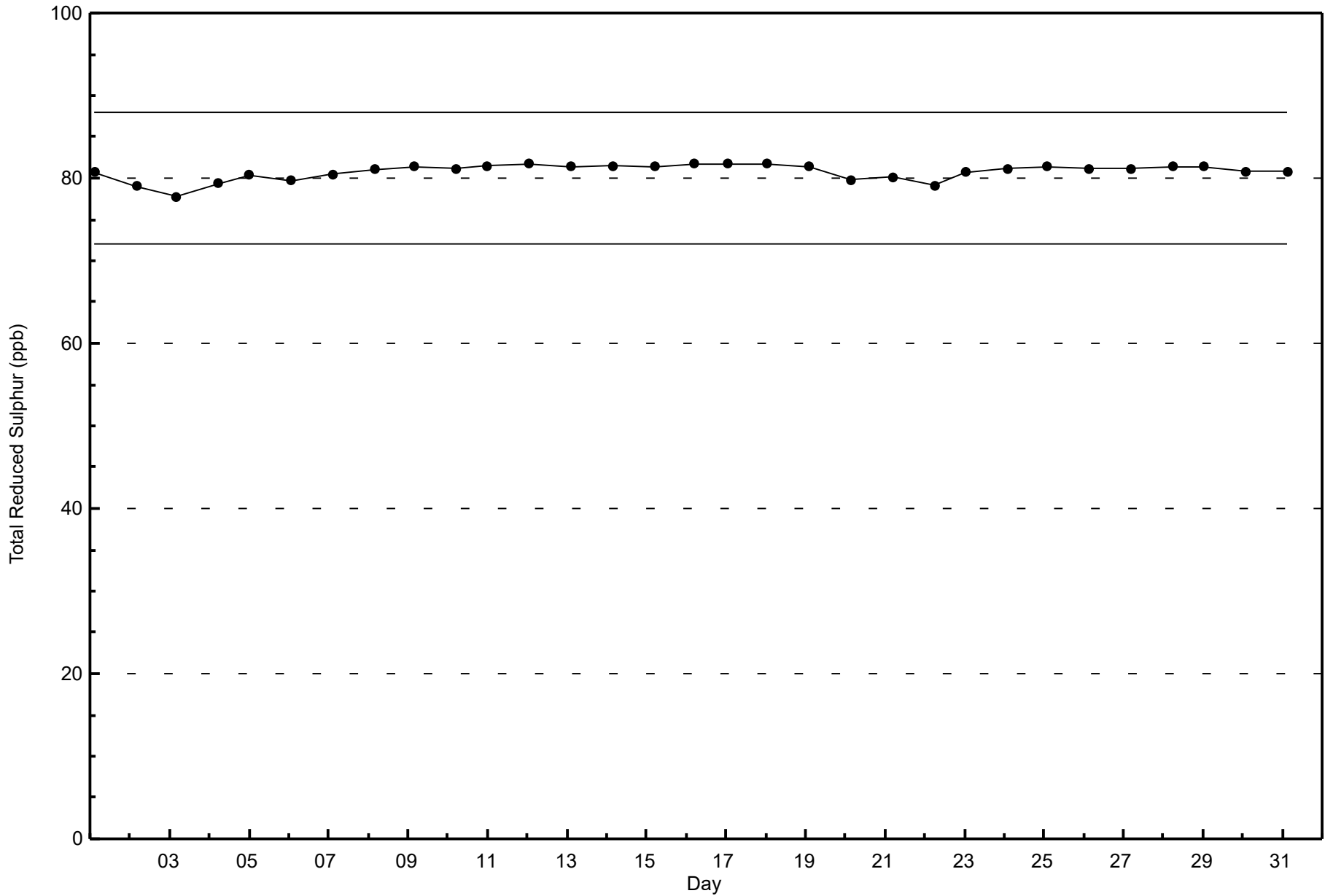
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Fort McKay South



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association
Summary of Hour Averages

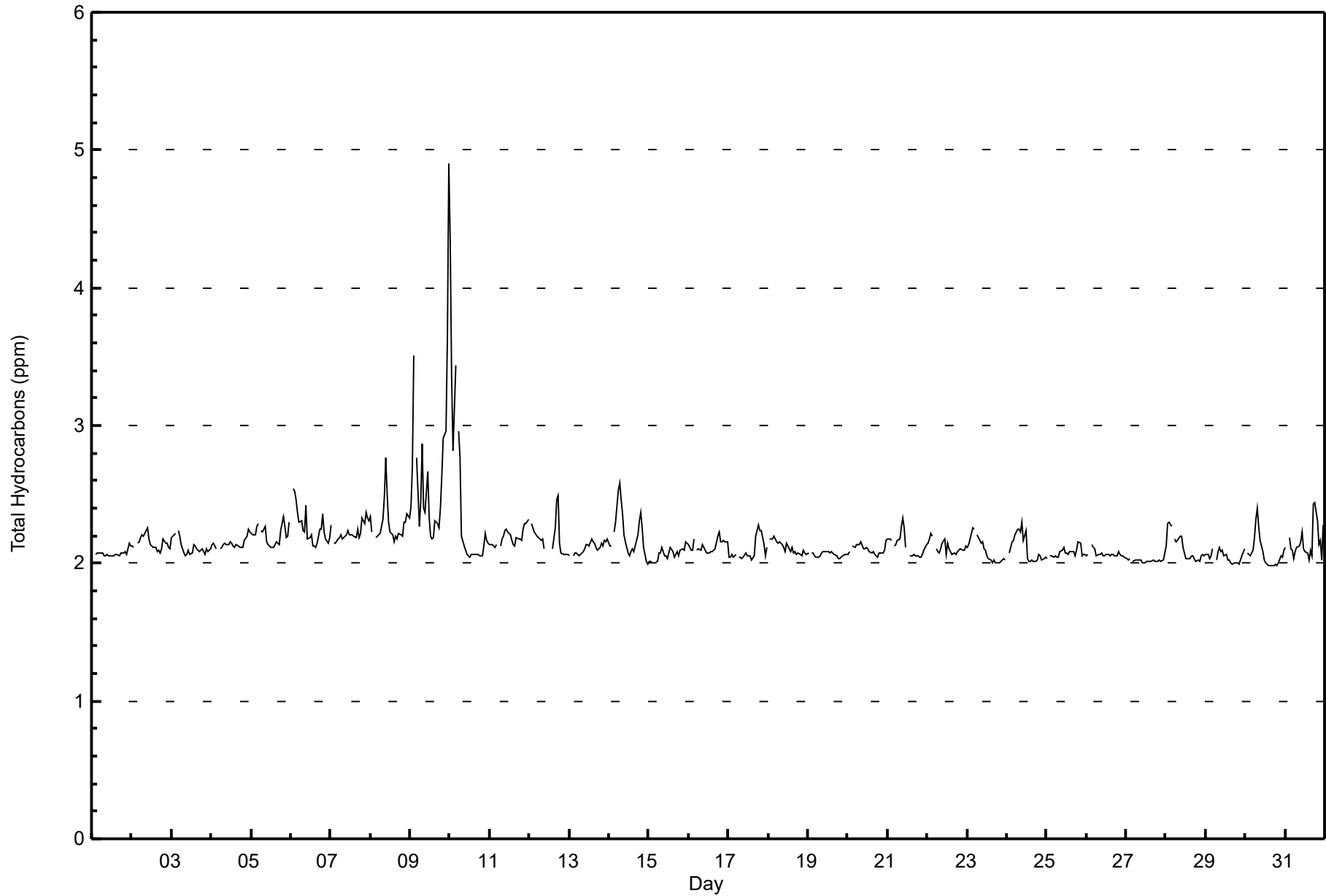
Total Hydrocarbons (THC) - ppm
Fort McKay South - March 2024

Maximum Value: 4.9 ppm on Mar 10 00:00		Maximum Daily Average: 2.7 ppm on Mar 9		Hours in Service: 744																							
Minimum Value: 2.0 ppm on Mar 30 16:00		Minimum Daily Average: 2.0 ppm on Mar 27		Hours of Data: 708																							
Maximum Diurnal Average: 2.2 ppm at hour 24		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Missing Data: 36																							
Monthly Average: 2.15 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 3.0		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-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
2-Mar	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
3-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
4-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
5-Mar	2.2	2.2	2.2	2.3	2.3	Z	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3
6-Mar	Z	2.5	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	2.2	2.1	2.2	2.3	2.5	2.5
7-Mar	2.3	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.2	2.4	2.4
8-Mar	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.5	2.8	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.8
9-Mar	2.4	2.7	3.5	Z	2.8	2.3	2.5	2.9	2.4	2.4	2.7	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.6	2.9	3.0	3.6	4.9	2.7	4.9	4.9
10-Mar	4.3	3.4	2.8	3.4	Z	3.0	2.8	2.2	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.4	4.3	4.3
11-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	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	2.3	2.3	2.3	2.2	2.3	2.3
12-Mar	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	C	C	C	C	2.1	2.3	2.5	2.5	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5
13-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2
14-Mar	2.1	2.1	Z	2.2	2.3	2.5	2.6	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.3	2.1	2.0	2.0	2.2	2.6	2.6
15-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2
16-Mar	2.1	2.1	2.1	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2
17-Mar	2.0	2.0	2.1	2.0	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.3
18-Mar	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
19-Mar	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1
20-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
21-Mar	2.2	2.2	2.2	Z	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.1	M	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.3
22-Mar	2.1	2.2	2.2	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
23-Mar	2.1	2.1	2.2	2.3	2.2	Z	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.3
24-Mar	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.3
25-Mar	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2
26-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
27-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1
28-Mar	2.1	2.3	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.3
29-Mar	2.1	2.1	2.0	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1
30-Mar	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.4	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	2.4
31-Mar	2.1	Z	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.1	2.1	2.4	2.4	2.3	2.1	2.2	2.0	2.3	2.2	2.4	2.4
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance																											



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Fort McKay South - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort McKay South - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	109	15.40	15.40
2.1 - 3.0	593	83.76	99.15
3.1 - 10.0	6	0.85	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



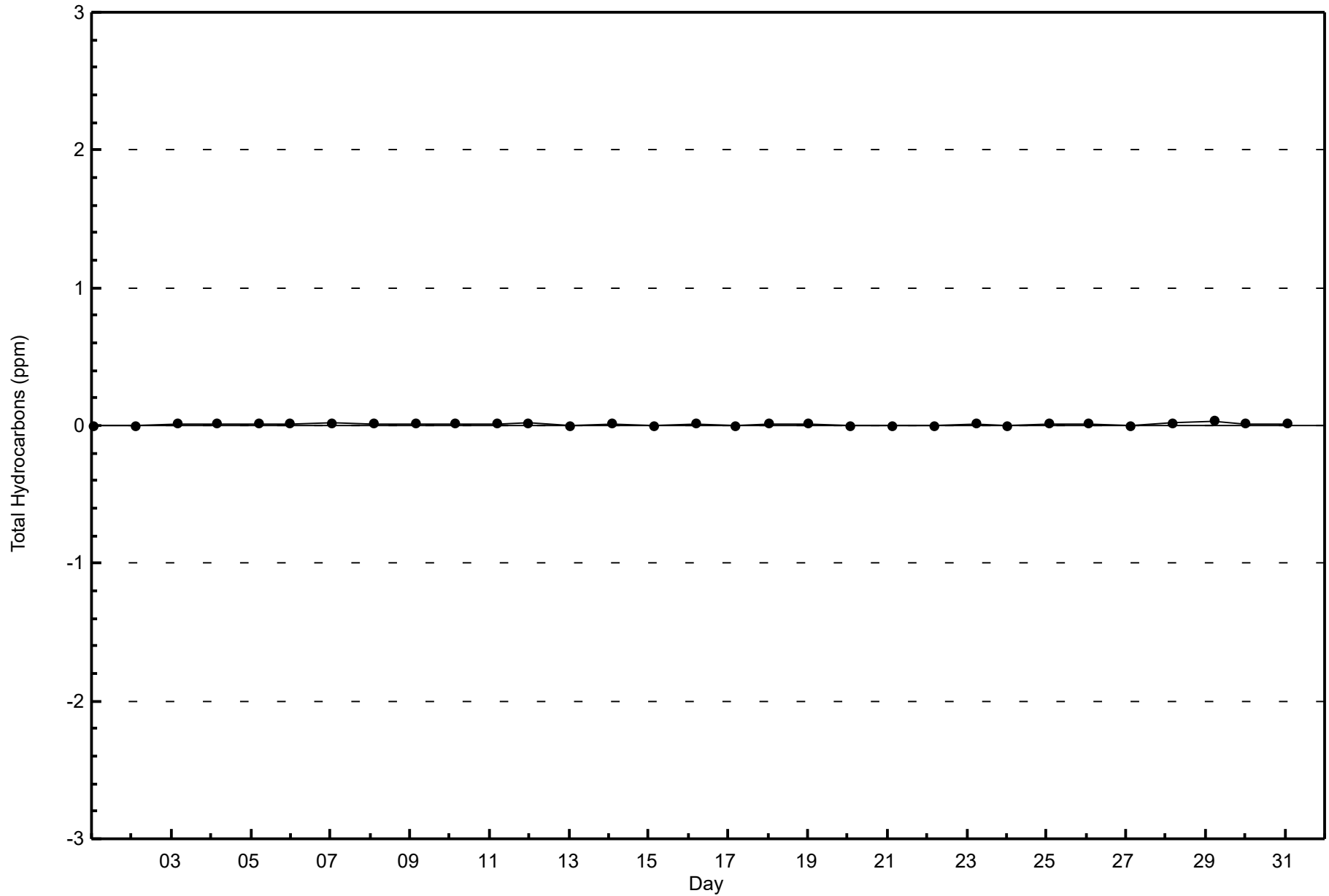
**Wood Buffalo Environmental Association
Frequency Distribution**

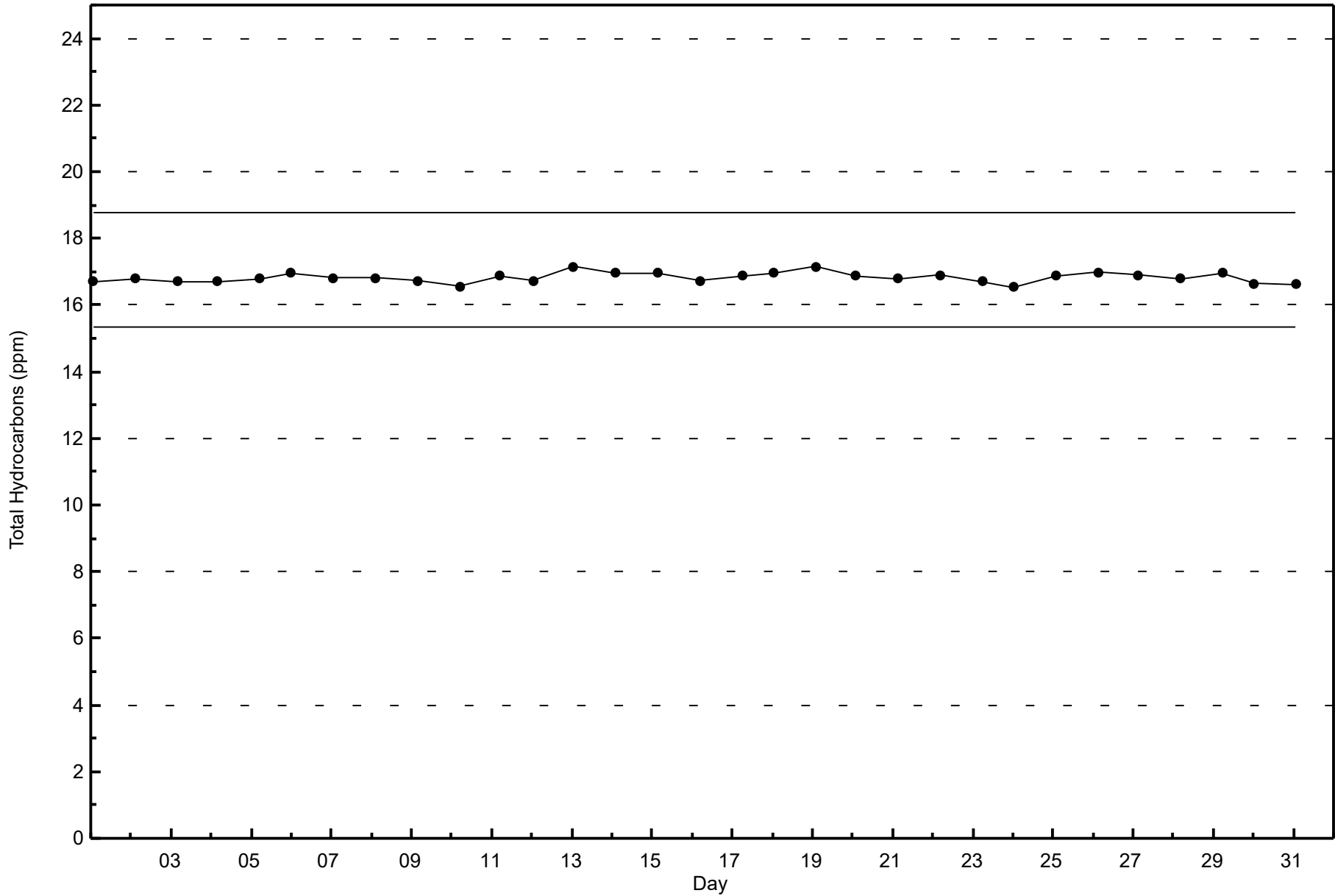
**Total Hydrocarbons (THC) - ppm
Fort McKay South - March 2024**

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	13	10	4	0	1	5	19	33	5	5	1	5	1	2	2	3	109
2.1 - 3.0	148	74	2	1	2	7	28	101	70	31	24	25	16	11	22	29	591
3.1 - 10.0	0	0	0	0	0	0	0	1	3	0	1	0	1	0	0	0	6
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	6	1	3	12	47	135	78	36	26	30	18	13	24	32	706

Total Number of Valid Hours: 706

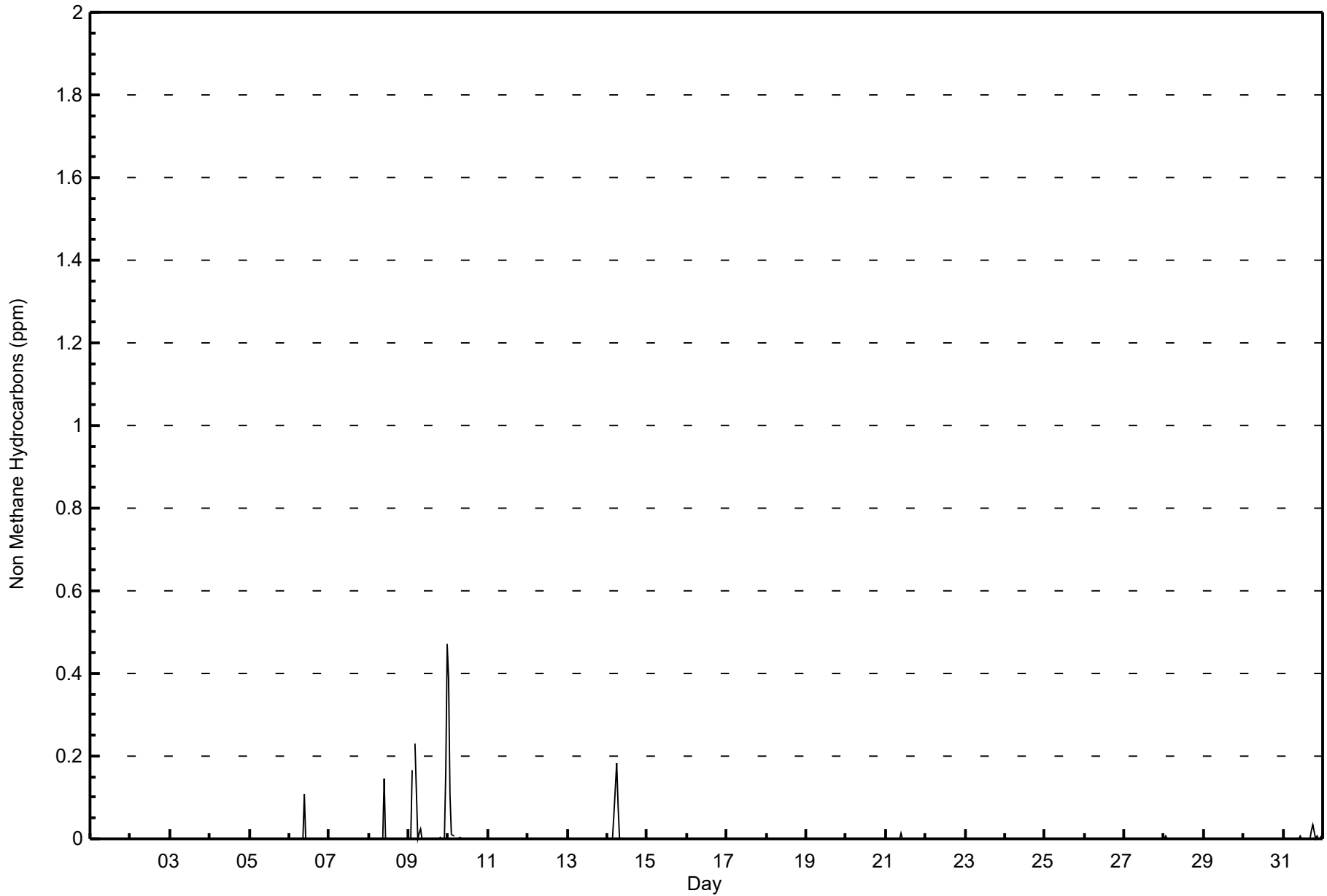
Total Number of Hours: 744







Maximum Value: 0.472 ppm on Mar 10 00:00		Maximum Daily Average: 0.047 ppm on Mar 9		Hours in Service: 744																														
Minimum Value: 0.000 ppm on Mar 1 01:00		Minimum Daily Average: 0.000 ppm on Mar 1		Hours of Data: 708																														
Maximum Diurnal Average: 0.015 ppm at hour 24		Minimum Diurnal Average: 0.000 ppm at hour 12		Hours of Missing Data: 36																														
Monthly Average: 0.003 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.1		Hours of Calibration: 35																														
				Percent Operational Time: 99.9																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24										
1-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
2-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
3-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
4-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
5-Mar	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	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
6-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.108	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.108	
7-Mar	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
8-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.146	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.146	
9-Mar	0.000	0.000	0.165	Z	0.232	0.000	0.015	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.162	0.472	0.047	0.047	0.047	0.047	0.047	0.047	0.472	0.472	
10-Mar	0.387	0.104	0.010	0.005	Z	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.387
11-Mar	0.000	0.000	0.001	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
12-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
13-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
14-Mar	0.000	0.000	Z	0.000	0.058	0.183	0.080	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	
15-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
16-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
17-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
18-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
20-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
21-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.013	
22-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
23-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
24-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
26-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
27-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
28-Mar	0.000	0.007	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	
29-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
30-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
		0.015	0.004	0.007	0.000	0.011	0.007	0.003	0.001	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Diurnal Average	
		0.387	0.104	0.165	0.005	0.232	0.183	0.080	0.024	0.000	0.146	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.022	0.035	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.162	0.472	0.000	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																												





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	688	97.18	97.18
0.006 - 0.05	9	1.27	98.45
0.06 - 0.1	5	0.71	99.15
> 0.1	6	0.85	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South - March 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	159	84	6	1	3	12	46	132	70	34	23	30	17	13	24	32	686
0.006 - 0.05	2	0	0	0	0	0	0	2	5	0	0	0	0	0	0	0	9
0.06 - 0.1	0	0	0	0	0	0	1	1	1	1	1	0	0	0	0	0	5
> 0.1	0	0	0	0	0	0	0	0	2	1	2	0	1	0	0	0	6
Totals	161	84	6	1	3	12	47	135	78	36	26	30	18	13	24	32	706

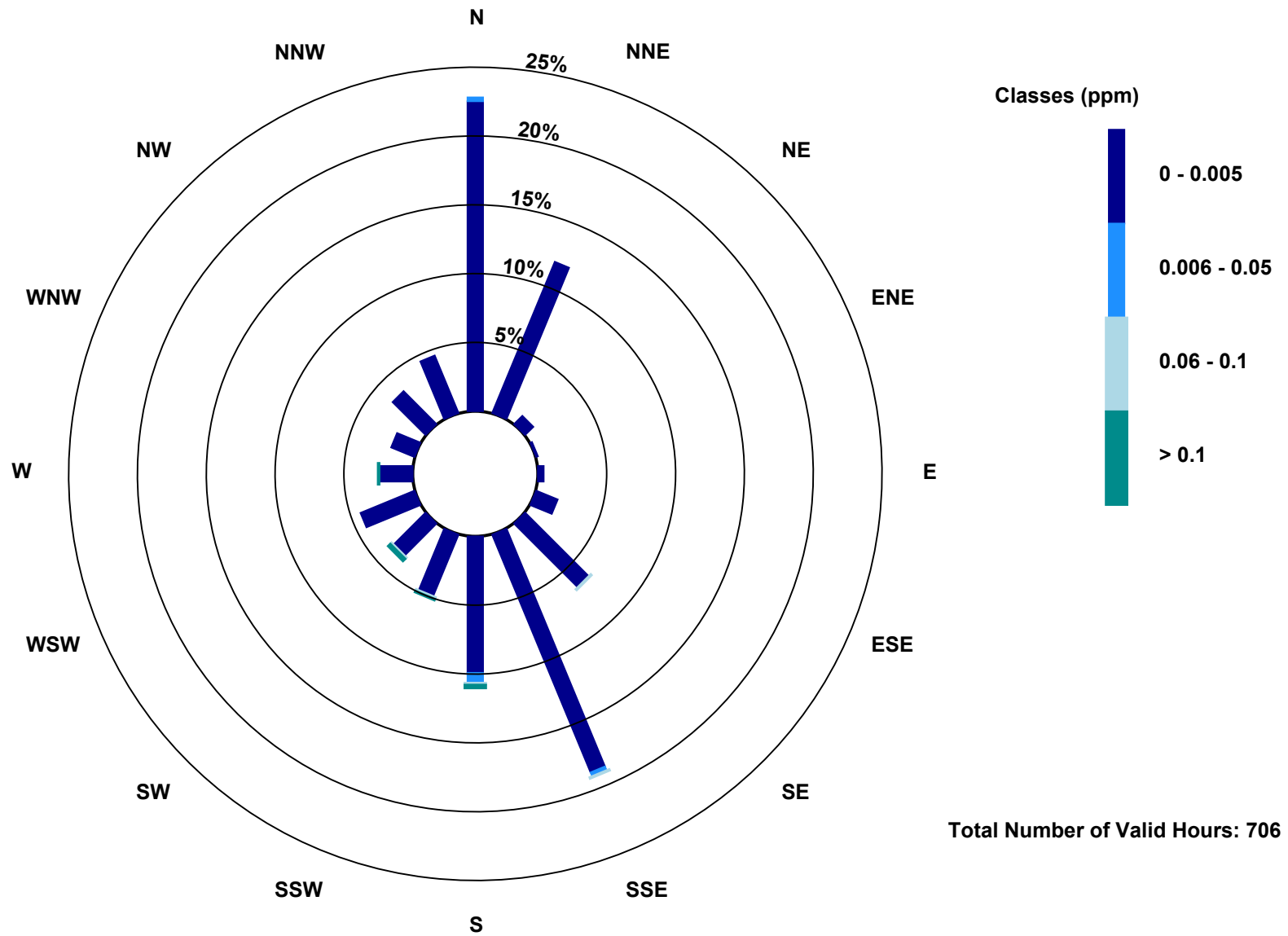
Total Number of Valid Hours: 706

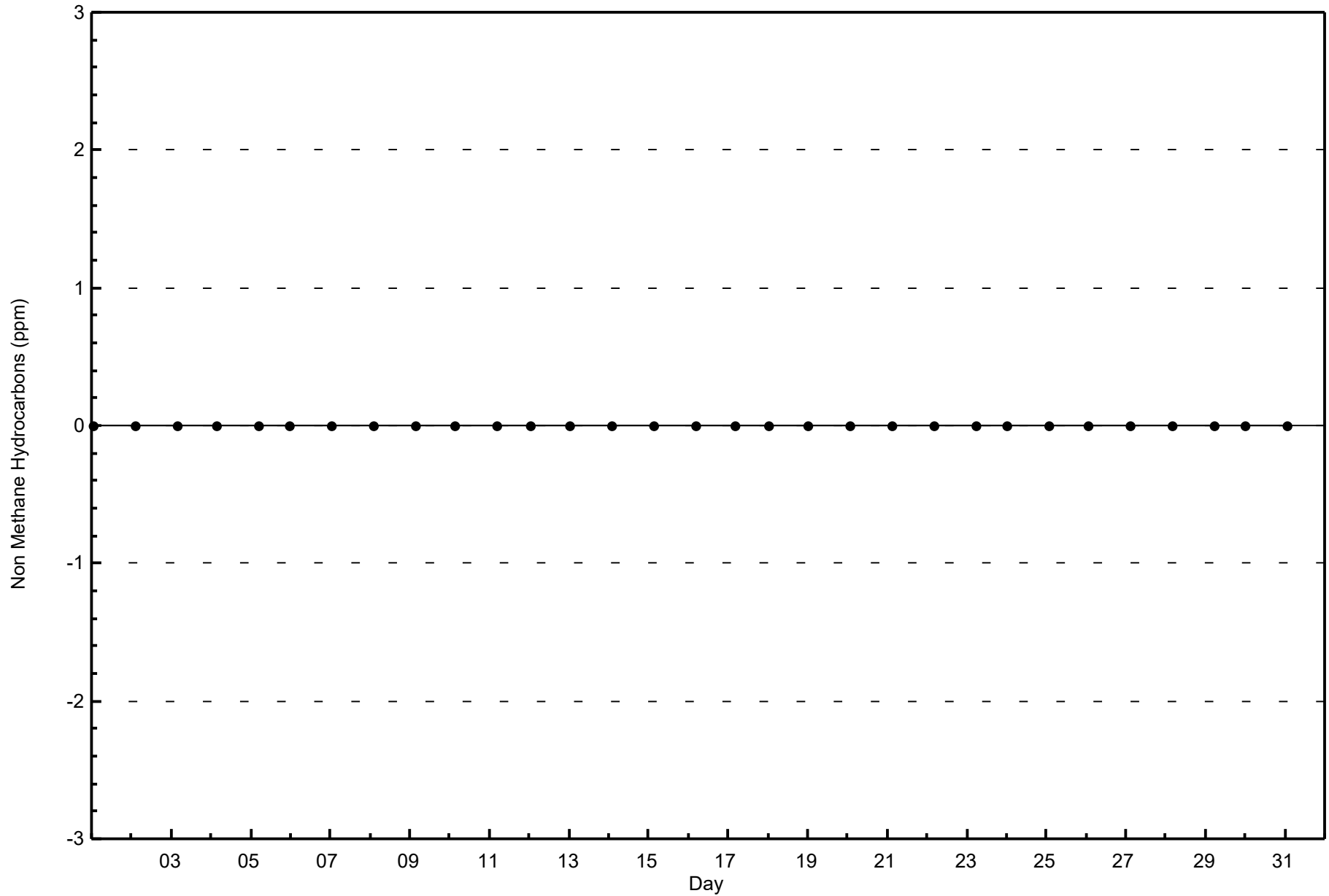
Total Number of Hours: 744

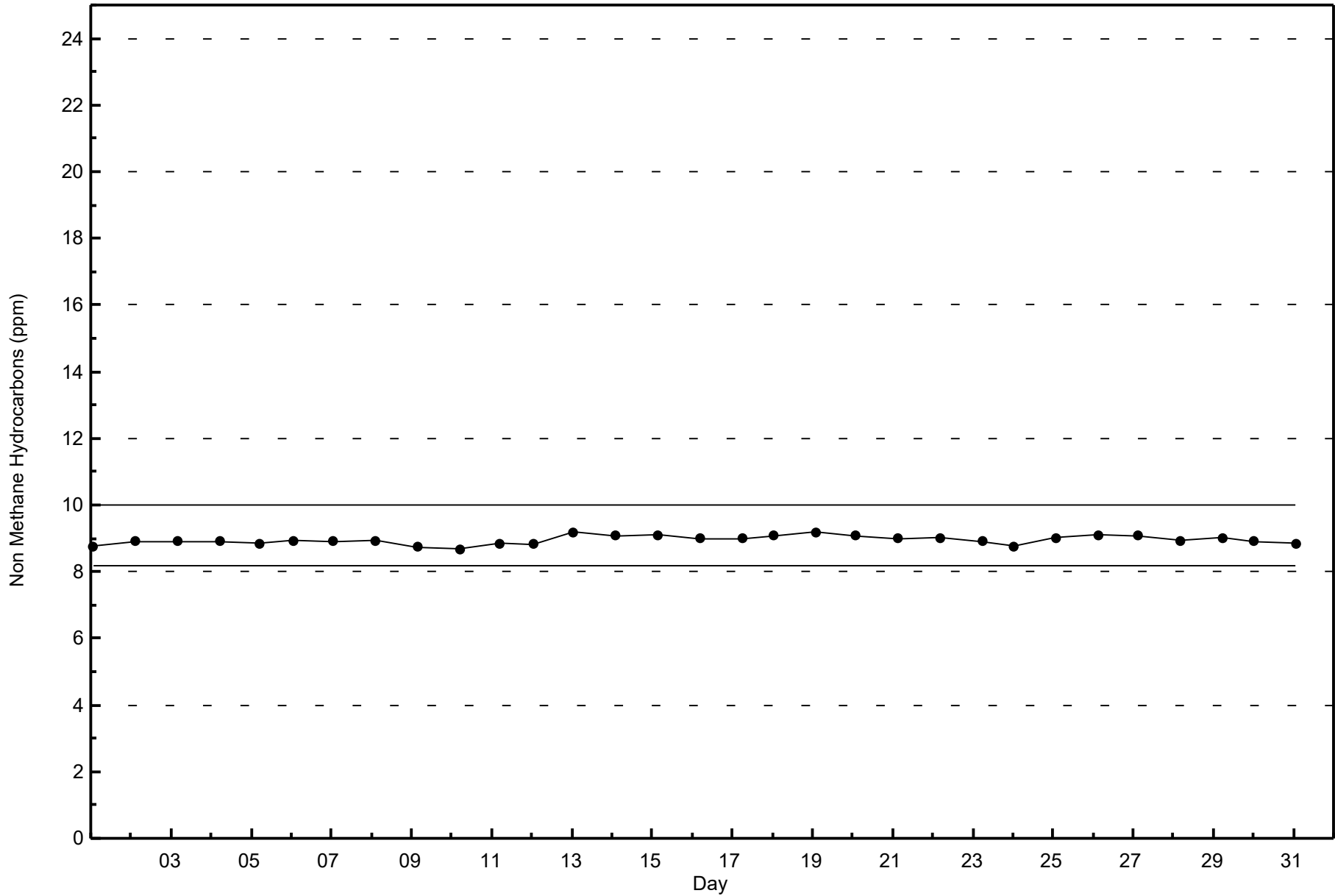


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South



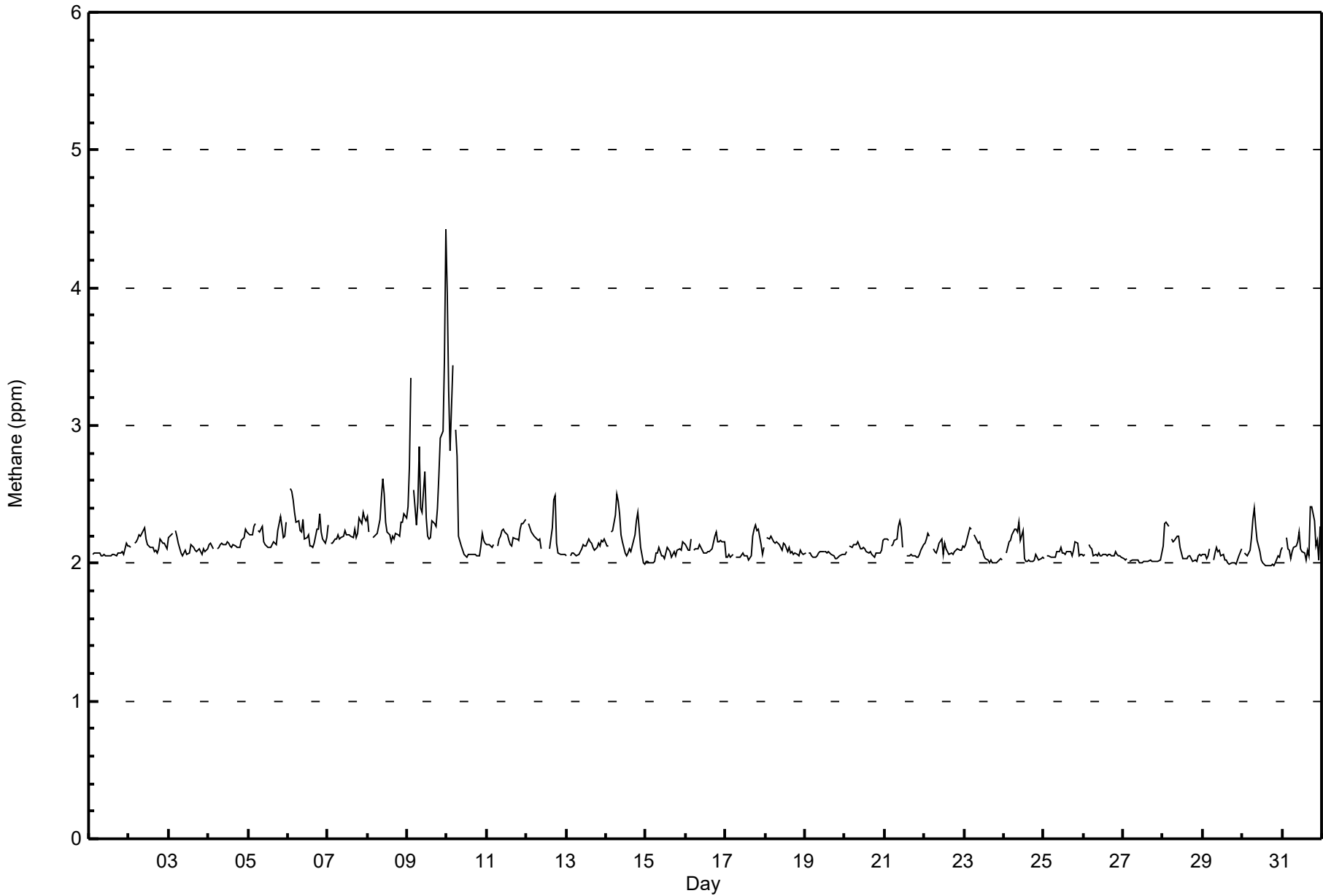






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Fort McKay South - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Fort McKay South - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	109	15.40	15.40
2.1 - 3.0	593	83.76	99.15
3.1 - 10.0	6	0.85	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 (CH₄) - ppm
Fort McKay South - March 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	13	10	4	0	1	5	19	33	5	5	1	5	1	2	2	3	109
2.1 - 3.0	148	74	2	1	2	7	28	101	70	31	24	25	16	11	22	29	591
3.1 - 10.0	0	0	0	0	0	0	0	1	3	0	1	0	1	0	0	0	6
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	6	1	3	12	47	135	78	36	26	30	18	13	24	32	706

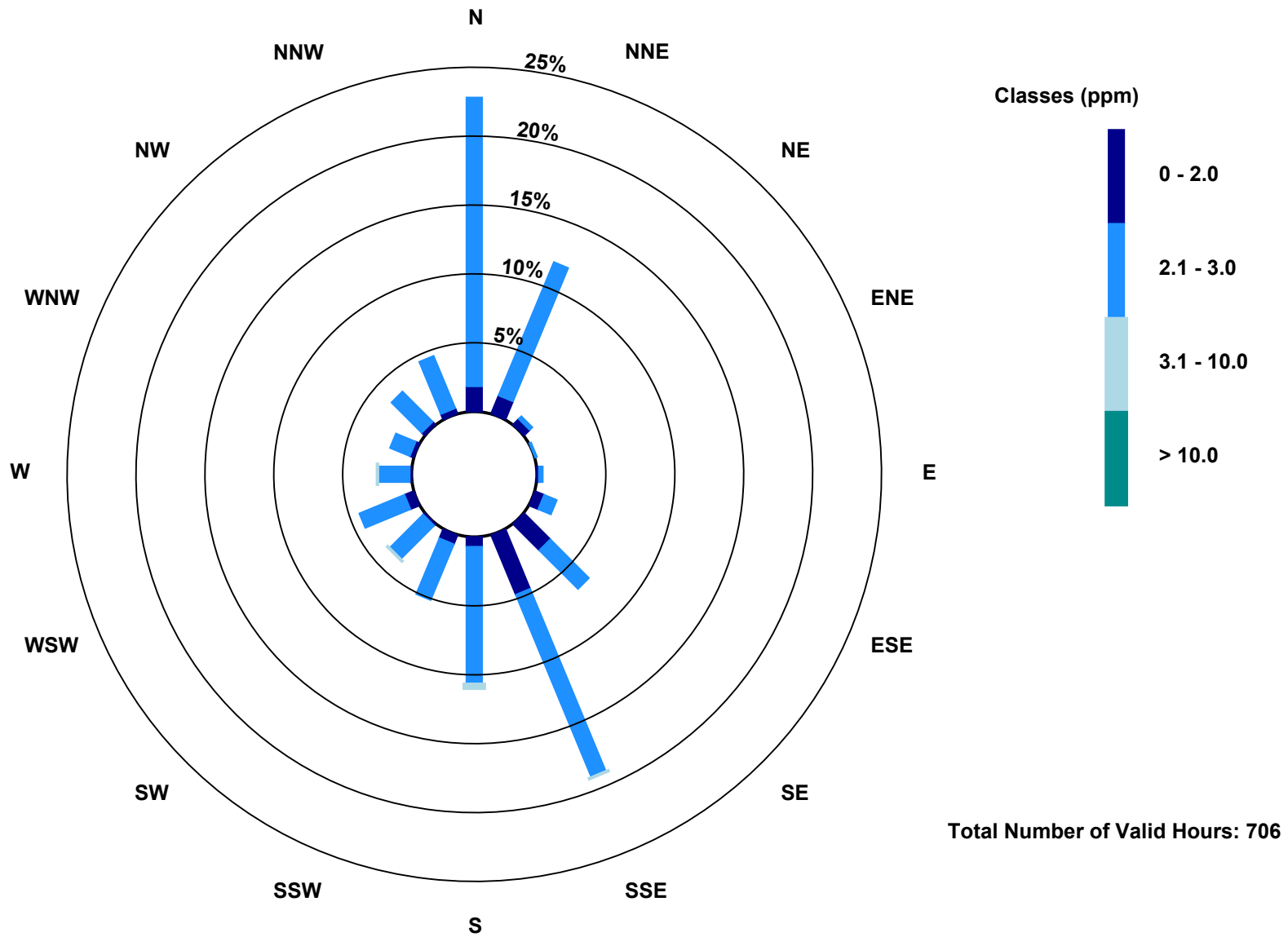
Total Number of Valid Hours: 706

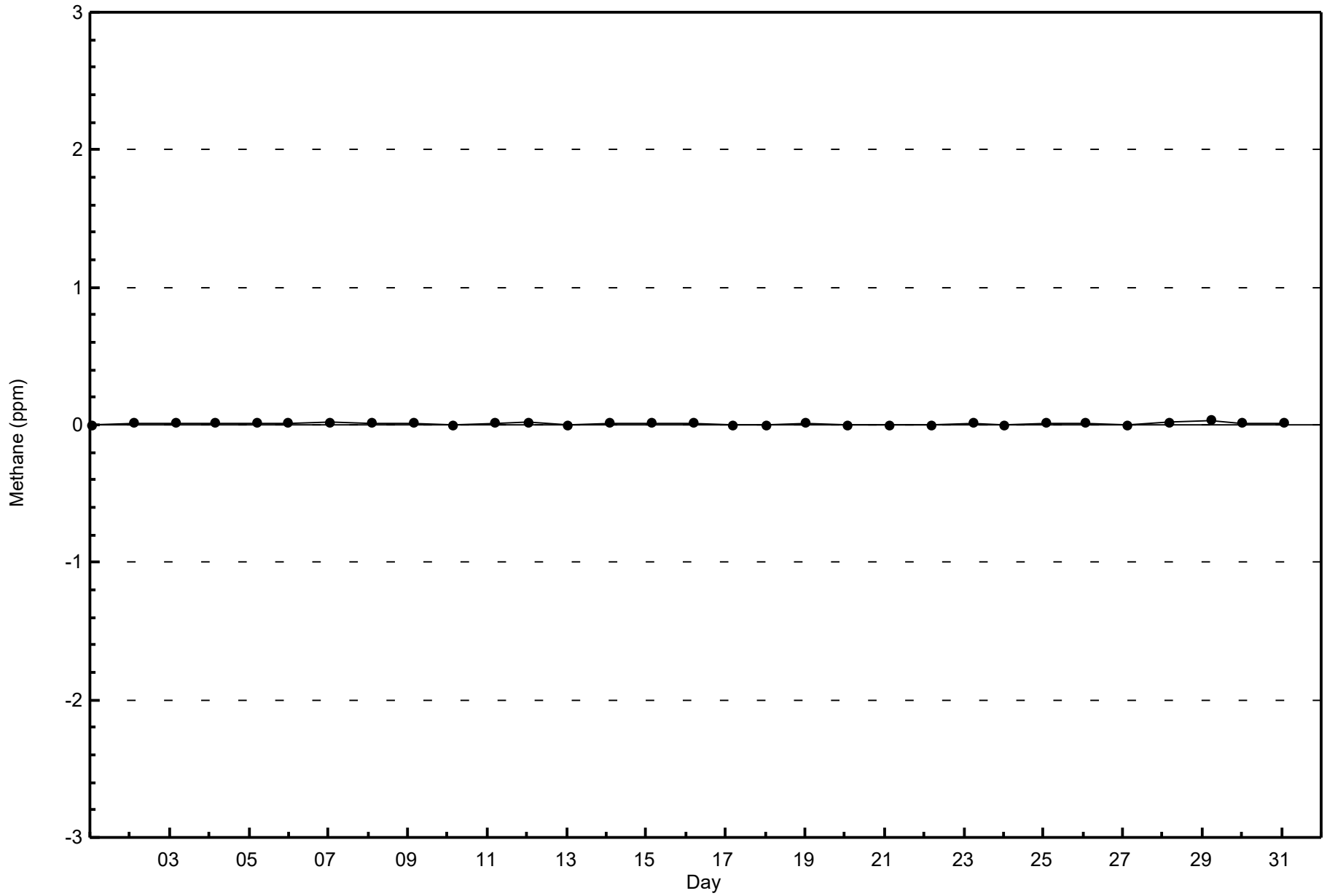
Total Number of Hours: 744

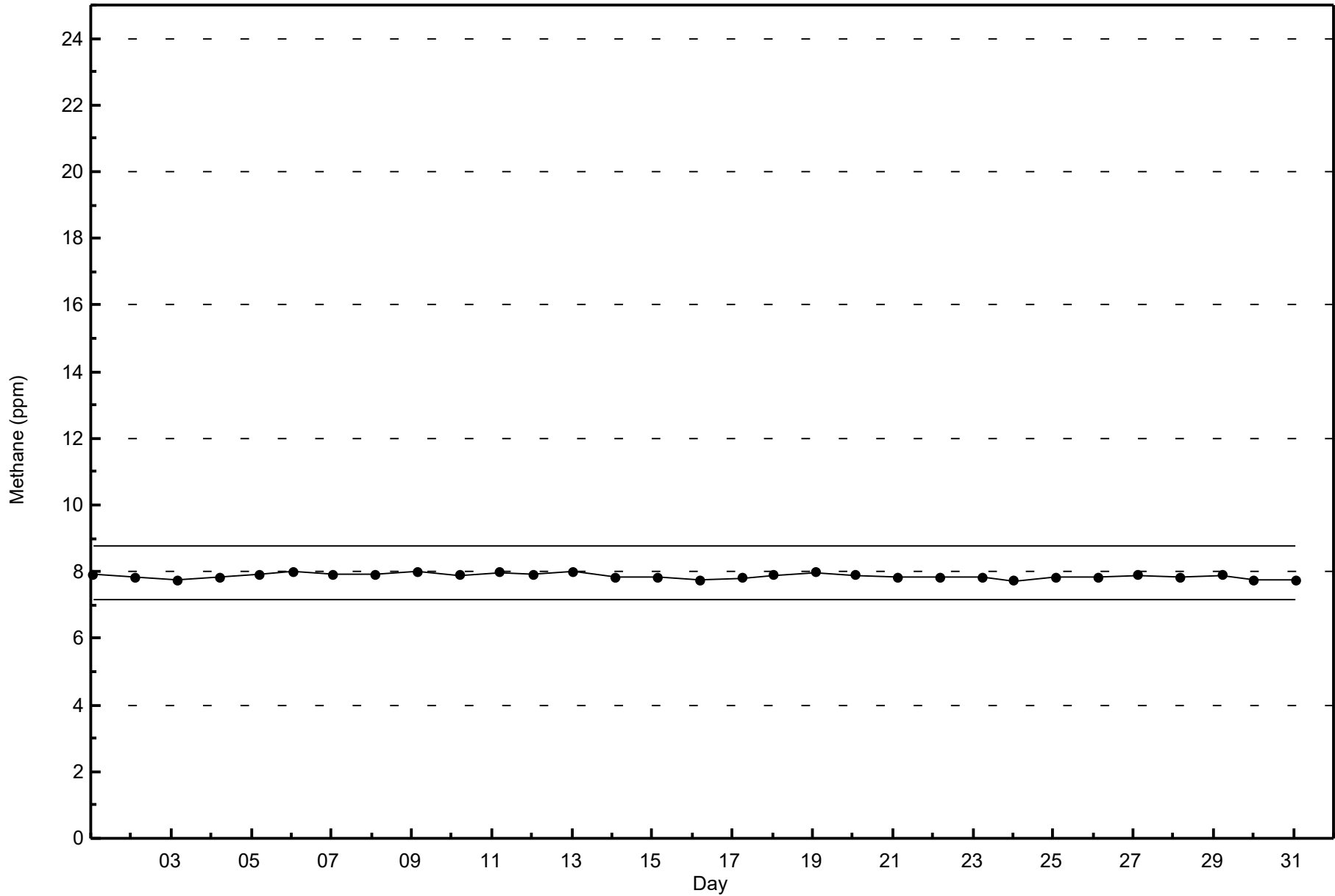


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Fort McKay South - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 43.7 ppb on Mar 31 15:00	Maximum Daily Average: 37.1 ppb on Mar 27		Hours of Data:	708
Minimum Value: 0.7 ppb on Mar 5 20:00	Minimum Daily Average: 17.1 ppb on Mar 5		Hours of Missing Data:	36
Maximum Diurnal Average: 34.6 ppb at hour 15	Minimum Diurnal Average: 18.8 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 26.54 ppb	Percentiles: P ₁ = 3.0 P ₁₀ = 12.4 Q ₁ = 19.8 Median = 27.9 Q ₃ = 34.3 P ₉₀ = 37.9 P ₉₉ = 41.8		Percent Operational Time:	99.9

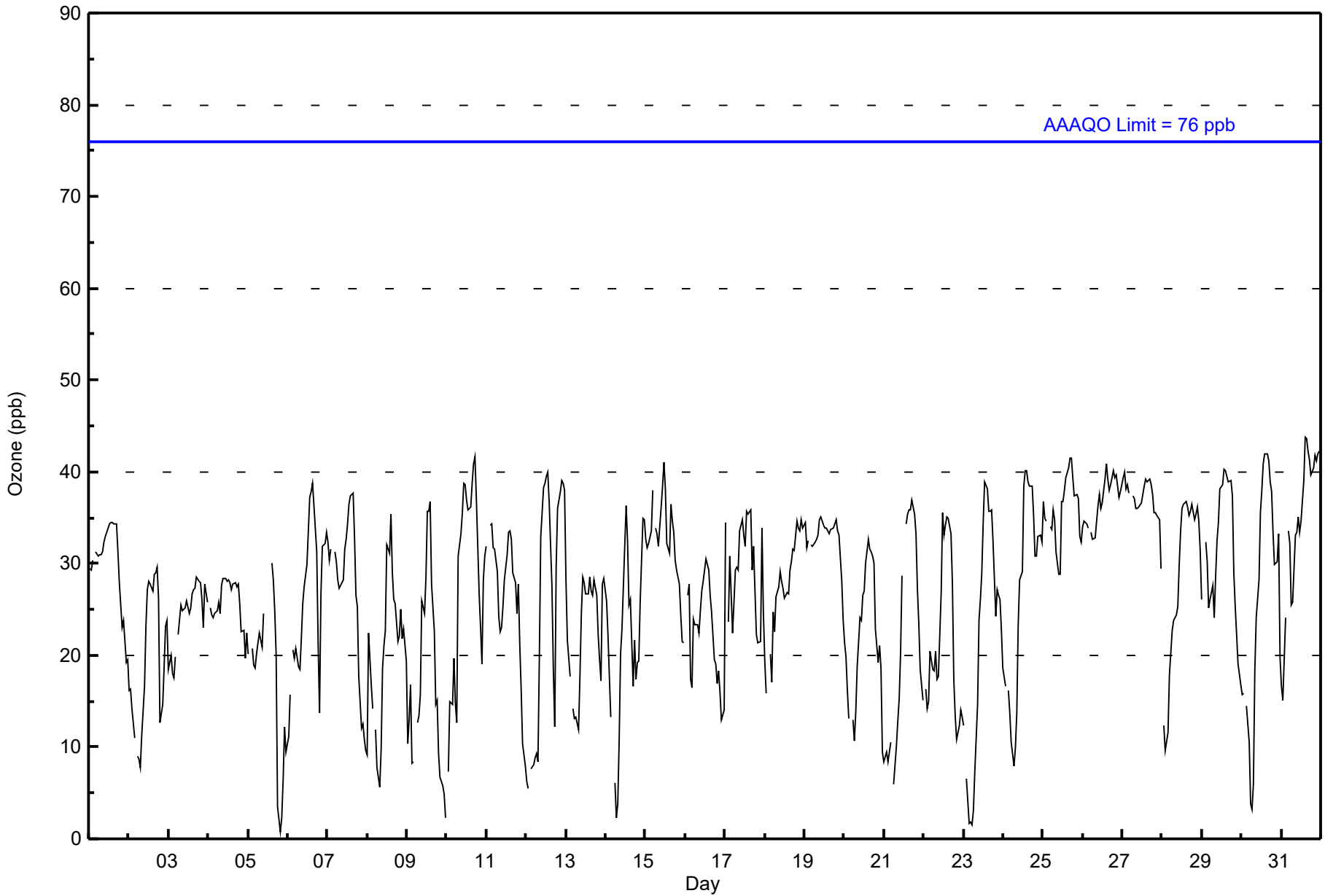
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	29.5	29.2	30.3	Z	31.2	30.8	30.9	31.0	31.2	32.4	33.0	33.9	34.3	34.4	34.4	34.4	34.4	31.3	27.9	25.4	23.1	23.8	19.2	19.5	29.8	34.4
2-Mar	16.1	16.3	14.3	10.9	Z	9.0	8.7	7.7	11.3	16.6	23.3	27.1	28.0	27.8	27.0	28.8	29.0	29.5	26.2	12.7	14.6	18.8	23.1	23.8	19.6	29.5
3-Mar	18.4	20.0	18.0	17.6	19.9	Z	22.3	25.4	24.9	25.0	25.1	25.9	24.6	25.2	26.7	27.1	27.2	28.6	28.0	27.9	26.0	23.0	27.8	25.8	24.4	28.6
4-Mar	Z	25.1	24.5	24.1	24.6	24.8	25.8	24.6	27.6	28.4	28.3	28.1	28.2	27.9	27.1	27.7	27.9	27.5	25.6	22.5	22.8	19.7	22.4	25.8	28.4	
5-Mar	20.1	Z	20.7	19.0	18.6	20.2	21.4	22.5	20.9	24.6	C	C	C	C	30.1	28.2	24.9	20.1	3.5	0.7	2.3	6.4	12.2	9.5	17.1	30.1
6-Mar	11.2	15.7	Z	20.6	19.7	20.8	18.7	18.4	21.9	25.6	27.5	29.8	33.5	37.3	37.9	38.7	36.3	31.2	21.2	13.7	26.7	31.9	32.2	33.4	26.3	38.7
7-Mar	32.3	30.3	31.6	Z	31.2	30.2	28.3	27.3	27.6	28.2	31.6	32.6	34.3	36.4	37.4	37.7	32.8	26.6	25.4	17.7	12.1	12.5	10.9	9.6	27.2	37.7
8-Mar	9.2	22.4	16.7	14.2	Z	11.9	7.8	5.6	9.8	18.6	21.1	22.7	32.0	31.2	35.4	29.0	26.1	25.6	21.5	22.1	25.0	21.9	22.9	19.4	20.5	35.4
9-Mar	10.3	13.0	16.7	8.3	8.4	Z	12.7	13.4	15.8	26.0	24.5	28.5	35.8	35.8	36.8	27.7	22.6	14.6	15.1	9.3	6.7	5.8	4.9	2.4	17.2	36.8
10-Mar	Z	7.4	14.9	14.7	19.7	14.8	12.7	30.8	33.3	35.6	38.8	38.6	36.9	35.9	36.2	38.7	40.9	41.7	37.1	26.8	23.0	19.1	28.3	30.9	28.6	41.7
11-Mar	31.8	Z	34.2	34.4	31.7	31.6	29.2	24.3	22.6	23.0	25.3	28.3	31.0	33.4	33.6	32.6	28.9	27.9	24.6	27.7	21.2	16.3	10.4	7.9	26.6	34.4
12-Mar	6.3	5.5	Z	7.7	8.1	8.8	9.4	8.4	19.8	32.9	38.4	38.8	39.4	40.0	36.7	27.4	18.3	12.3	29.6	36.0	37.8	39.0	38.7	38.0	25.1	40.0
13-Mar	28.2	21.6	17.7	Z	14.2	13.1	13.2	11.9	17.9	24.6	28.5	27.9	26.7	26.6	28.5	27.0	26.5	28.3	26.5	22.3	19.5	17.2	27.7	28.4	22.8	28.5
14-Mar	25.9	22.3	17.6	13.3	Z	6.2	2.2	3.8	10.7	20.1	22.8	32.0	36.4	32.4	25.5	26.1	16.6	21.7	17.5	19.3	19.4	25.8	35.0	34.7	21.2	36.4
15-Mar	32.6	31.7	32.1	33.6	37.9	Z	33.9	33.3	31.9	36.2	38.4	41.1	38.2	32.2	31.2	36.4	34.7	33.4	30.4	29.3	27.7	24.4	21.6	21.4	32.3	41.1
16-Mar	Z	26.6	27.8	17.4	16.4	24.0	23.3	23.3	22.5	24.8	27.0	28.0	30.6	29.9	29.3	26.5	24.8	19.5	19.1	16.9	18.3	16.0	12.9	14.0	22.6	30.6
17-Mar	34.5	Z	23.6	30.9	22.5	25.8	29.3	29.5	29.2	33.5	34.8	33.1	31.9	35.7	35.4	35.8	29.3	31.9	27.0	22.2	21.3	21.5	33.8	24.8	29.5	35.8
18-Mar	19.4	15.8	Z	20.1	17.0	24.8	22.6	26.3	27.4	29.1	28.0	27.3	26.2	26.8	26.6	29.2	30.2	31.6	31.4	34.6	33.9	33.6	34.7	33.8	27.4	34.7
19-Mar	34.4	31.7	32.5	Z	32.1	31.9	32.4	32.6	33.1	34.7	35.1	34.2	33.9	33.9	33.5	33.2	33.8	33.8	34.3	34.8	33.5	33.1	28.1	23.9	32.8	35.1
20-Mar	21.4	19.8	16.2	13.2	Z	12.9	10.7	13.8	18.8	24.0	23.8	26.5	27.0	30.0	32.6	31.6	31.2	30.9	30.0	23.0	19.3	21.1	18.6	9.4	22.0	32.6
21-Mar	8.4	9.5	8.4	9.4	10.5	Z	5.9	10.1	12.8	15.2	20.3	28.7	M	34.3	35.3	35.8	35.8	37.0	35.4	33.3	27.3	23.5	18.5	15.1	21.4	37.0
22-Mar	Z	16.4	14.2	15.0	20.5	18.4	18.2	20.5	17.5	17.7	26.9	35.5	33.1	34.2	35.0	35.0	33.3	27.9	17.4	13.4	10.9	12.4	14.1	13.3	21.8	35.5
23-Mar	12.4	Z	6.6	1.7	1.8	1.6	3.0	7.3	14.6	23.7	26.0	28.9	34.4	38.9	38.1	35.7	35.8	35.8	32.5	24.2	27.1	26.5	26.1	22.8	22.0	38.9
24-Mar	18.6	16.6	Z	16.1	13.7	10.5	7.9	10.0	13.7	23.3	28.2	29.1	38.5	40.1	40.1	38.9	38.4	38.4	35.3	30.7	30.9	33.0	33.1	32.4	26.9	40.1
25-Mar	36.8	34.9	34.6	Z	34.0	33.6	35.9	34.8	31.3	28.8	28.8	36.8	36.7	38.0	39.3	40.4	41.4	41.4	39.3	37.4	37.6	37.1	33.0	32.3	35.8	41.4
26-Mar	34.0	34.6	34.3	33.9	Z	33.4	32.7	32.8	34.6	36.3	37.6	36.1	36.6	39.1	40.9	39.1	37.9	38.5	40.2	39.4	39.6	38.4	37.2	37.8	36.7	40.9
27-Mar	39.3	40.0	38.2	38.6	37.6	Z	37.3	37.0	36.0	36.1	36.2	36.6	37.5	38.5	39.2	38.9	39.2	38.6	37.5	35.5	35.5	35.2	34.9	29.4	37.1	40.0
28-Mar	Z	12.3	9.7	11.6	17.8	20.3	22.8	23.8	24.4	25.3	29.9	33.6	36.0	36.5	36.7	36.2	35.2	35.8	36.4	34.7	35.4	36.2	34.7	31.5	28.6	36.7
29-Mar	26.1	Z	32.4	30.2	25.2	26.0	27.5	24.1	28.5	32.5	34.5	38.1	38.7	40.3	40.2	39.5	38.9	39.0	37.4	28.9	25.3	22.2	19.1	16.8	30.9	40.3
30-Mar	15.7	15.8	Z	14.5	10.6	3.8	3.3	5.9	18.4	24.1	28.3	35.5	37.9	40.9	42.0	41.9	41.1	38.9	37.9	33.4	30.0	30.2	33.3	19.9	26.2	42.0
31-Mar	16.6	15.1	24.1	Z	33.5	32.1	25.4	25.8	33.0	33.4	35.1	33.4	34.6	39.0	43.7	43.7	42.3	41.4	39.7	40.5	41.8	41.2	41.9	42.3	34.8	43.7
22.7 21.1 22.8 18.8 21.5 20.1 19.9 20.8 23.3 27.1 29.6 31.9 33.5 34.4 34.6 33.8 32.1 31.0 28.8 25.8 25.0 24.8 25.4 23.4																								Diurnal Average		
39.3 40.0 38.2 38.6 37.9 33.6 37.3 37.0 36.0 36.3 38.8 41.1 39.4 40.9 43.7 43.7 42.3 41.7 40.2 40.5 41.8 41.2 41.9 42.3																								Diurnal Maximum		

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



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Fort McKay South - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Fort McKay South - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	189	26.69	26.69
21 - 50	519	73.31	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 (O₃) - ppb
Fort McKay South - March 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	39	6	1	0	2	2	5	11	23	24	19	16	7	5	15	13	188
21 - 50	122	75	5	1	1	9	44	125	55	15	4	15	11	7	10	19	518
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
Totals	161	81	6	1	3	11	49	136	78	39	23	31	18	12	25	32	706

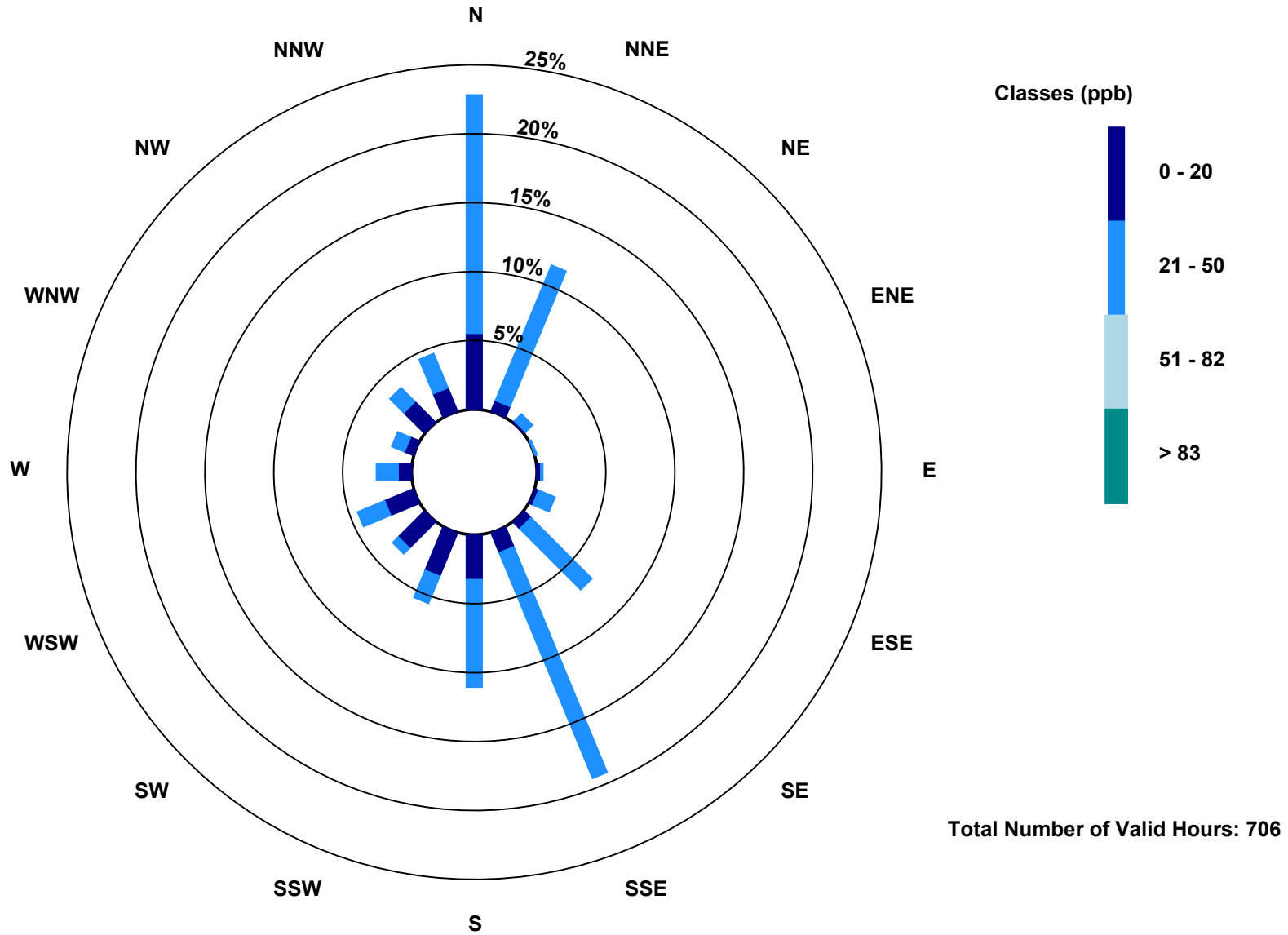
Total Number of Valid Hours: 706

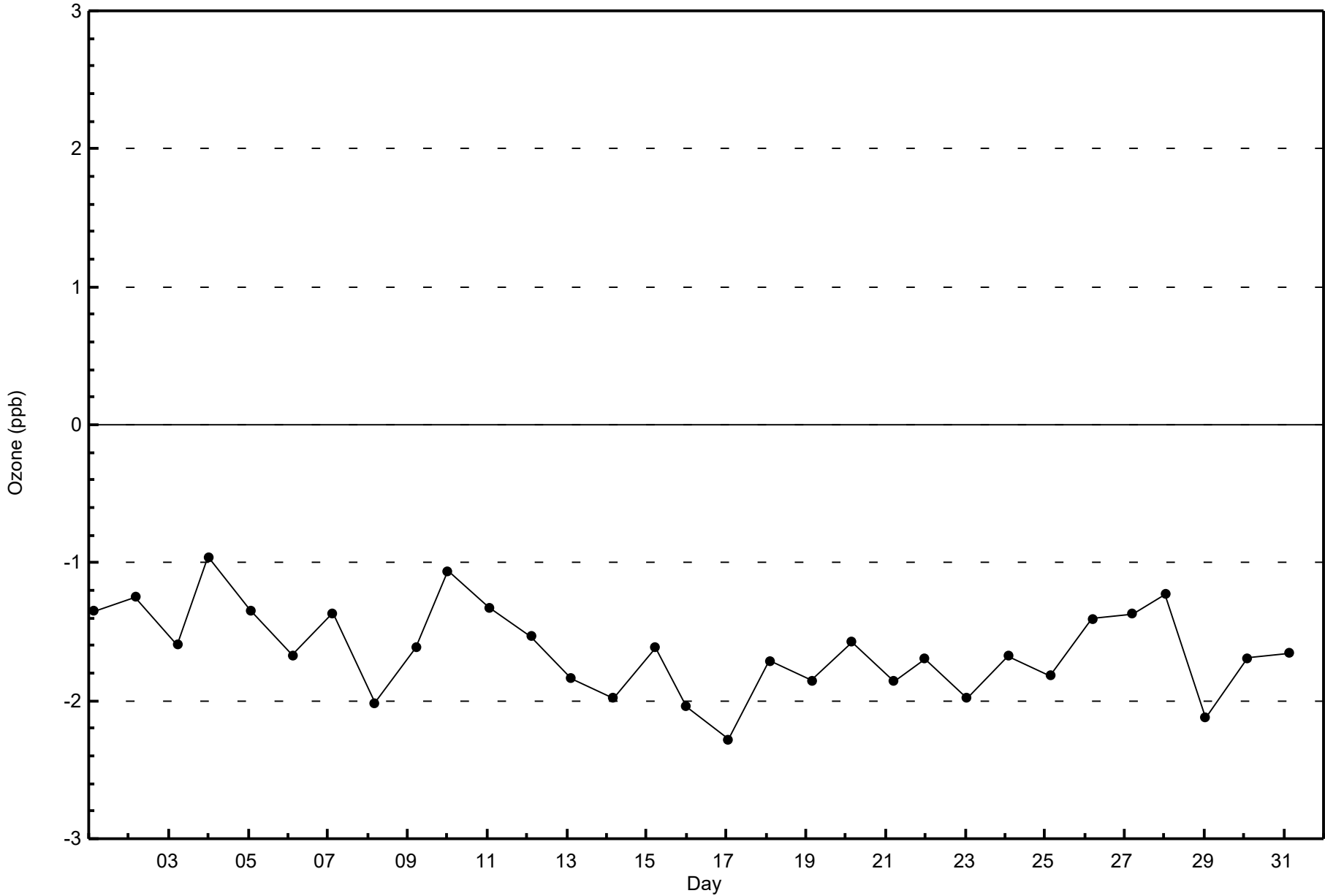
Total Number of Hours: 744

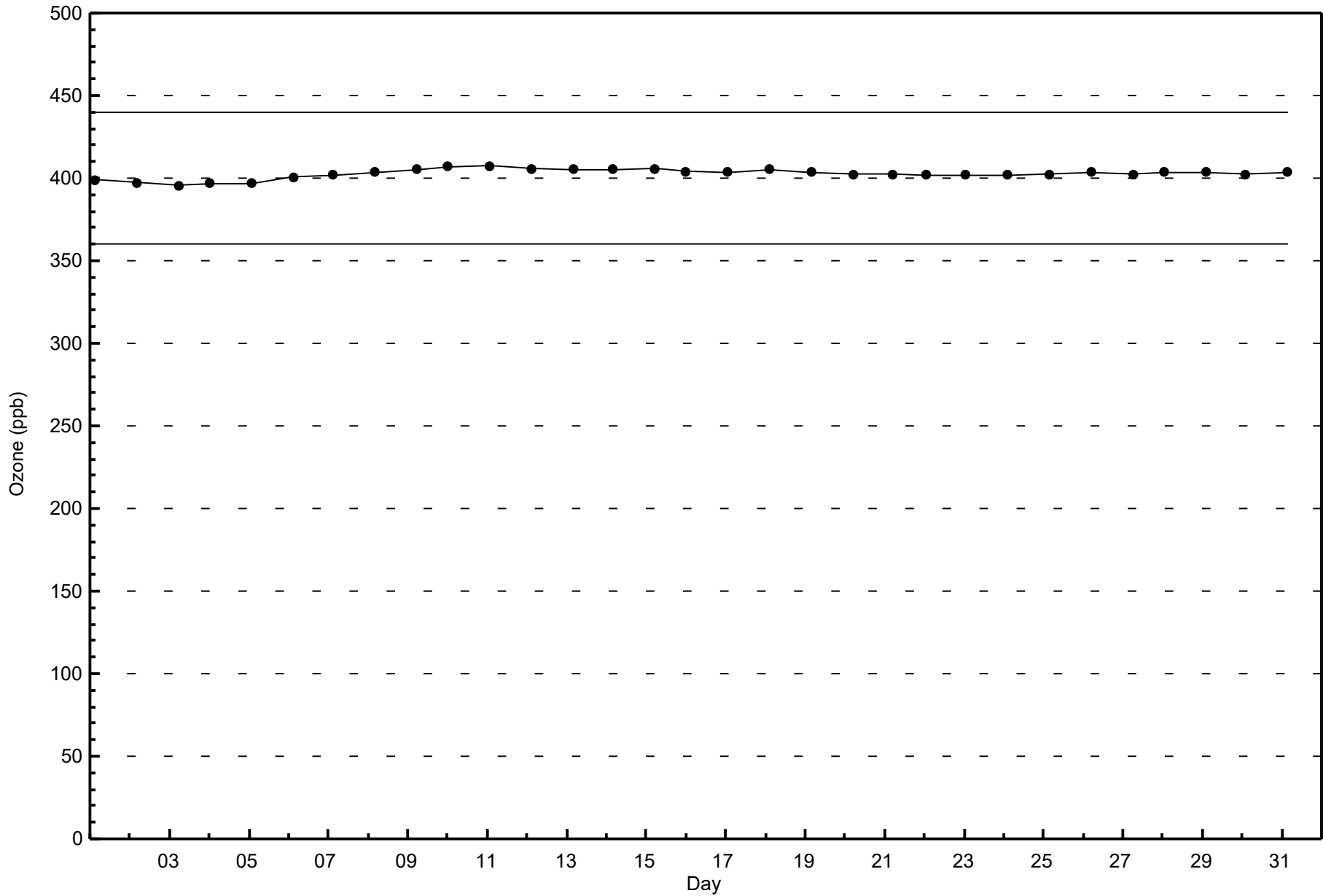


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Fort McKay South



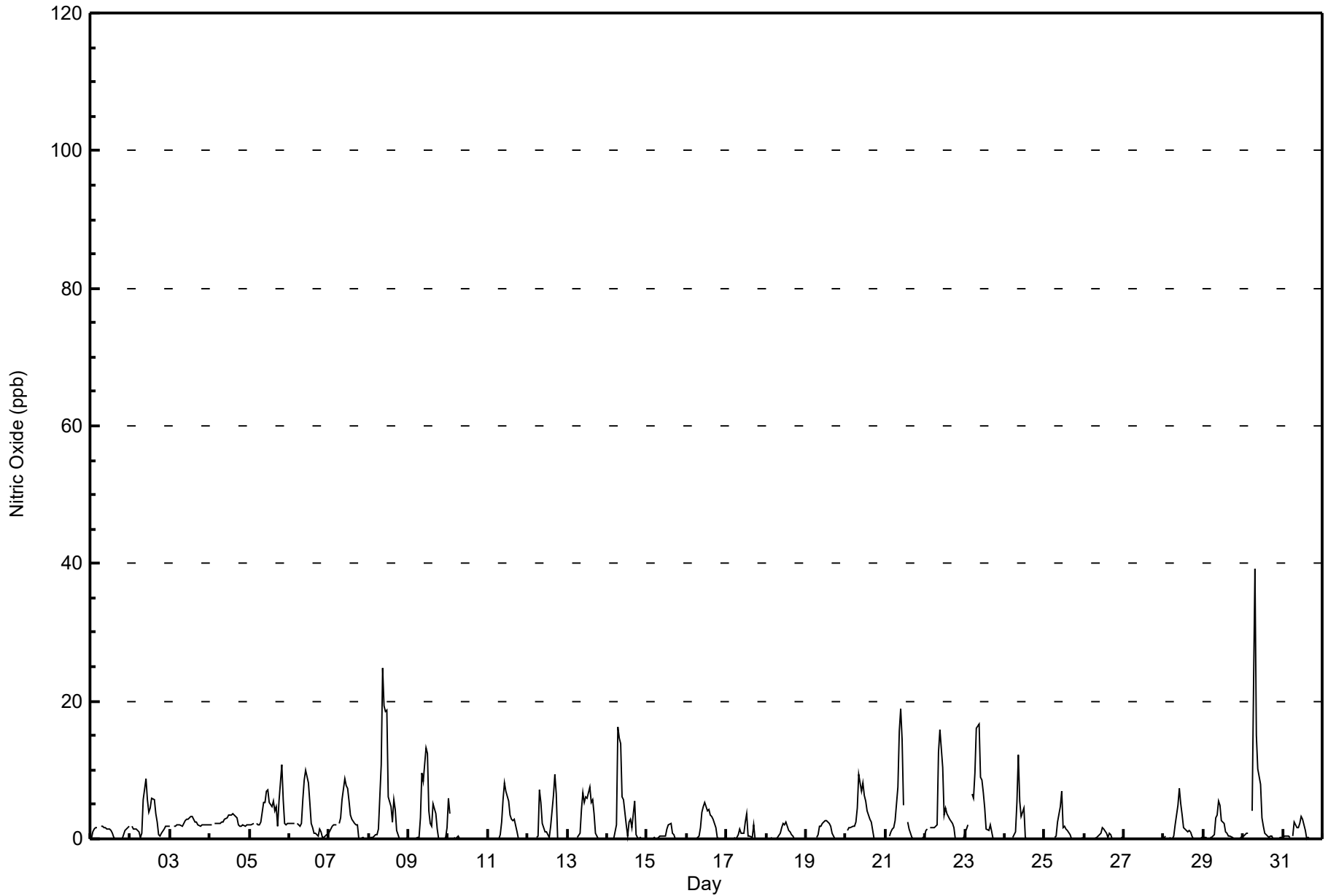






Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort McKay South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.58	99.58
21 - 40	3	0.42	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



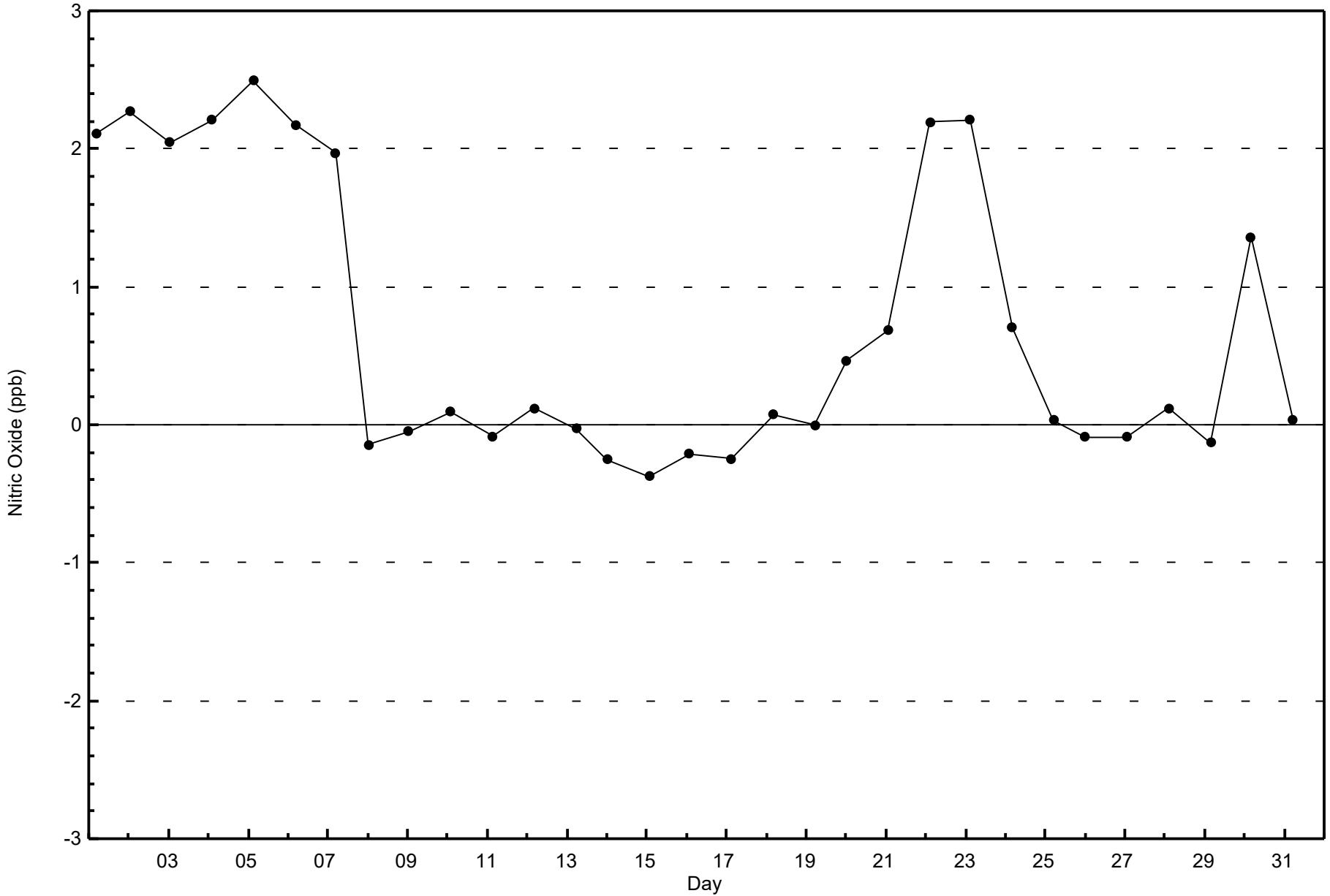
Wood Buffalo Environmental Association
Frequency Distribution

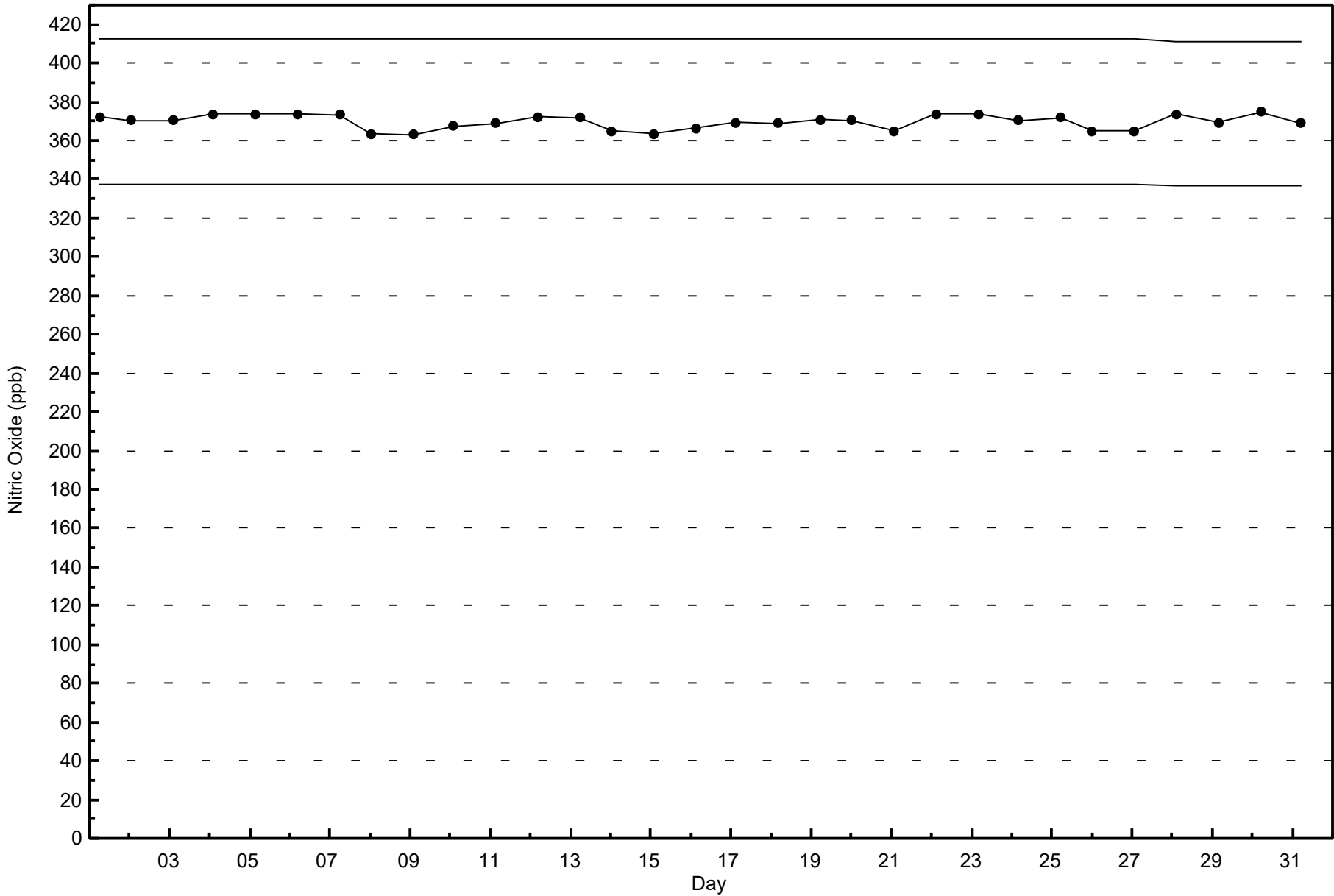
Nitric Oxide (NO) - ppb
Fort McKay South - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	161	84	5	1	3	11	44	137	77	37	22	31	19	13	26	32	703
21 - 40	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	5	1	3	11	44	138	78	37	23	31	19	13	26	32	706

Total Number of Valid Hours: 706

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Fort McKay South - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 33.5 ppb on Mar 5 20:00	Maximum Daily Average: 14.6 ppb on Mar 5		Hours of Data:	707
Minimum Value: 0.0 ppb on Mar 10 15:00	Minimum Daily Average: 1.1 ppb on Mar 27		Hours of Missing Data:	37
Maximum Diurnal Average: 10.5 ppb at hour 9	Minimum Diurnal Average: 4.7 ppb at hour 14		Hours of Calibration:	36
Monthly Average: 7.95 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 1.4 Q ₁ = 3.6 Median = 6.4 Q ₃ = 11.3 P ₉₀ = 16.5 P ₉₉ = 25.9		Percent Operational Time:	99.9

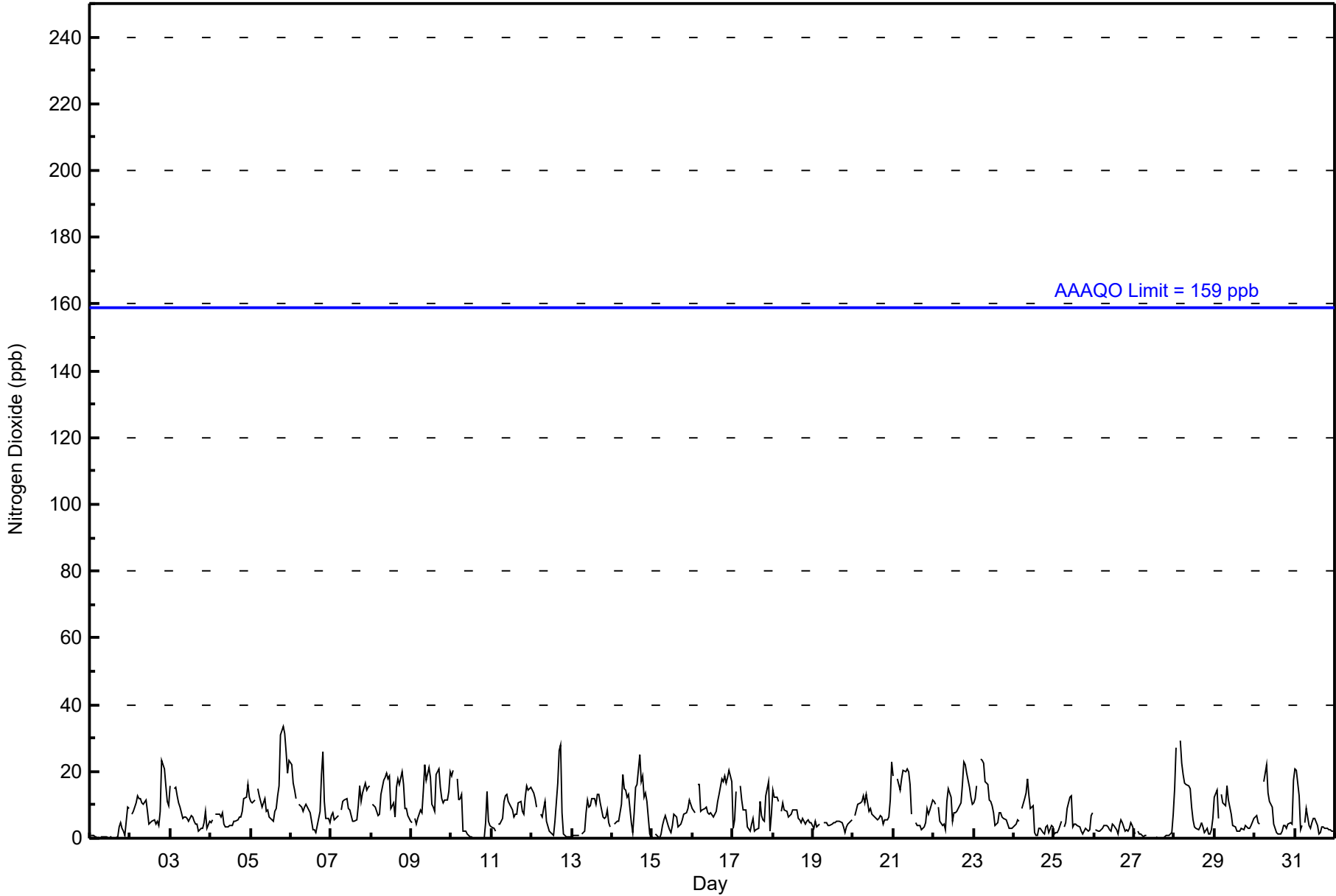
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	1.0	0.9	0.7	0.5	0.5	Z	0.4	0.5	0.5	0.5	0.4	0.2	0.3	0.2	0.2	0.2	0.3	3.4	4.8	3.1	2.2	0.9	9.2	8.9	1.7	9.2
2-Mar	Z	7.2	8.0	10.6	12.5	11.8	11.7	10.6	10.3	11.5	7.9	4.3	4.5	5.2	5.7	4.4	4.9	4.0	7.9	23.2	20.8	15.7	11.1	9.9	9.7	23.2
3-Mar	15.6	Z	14.8	15.2	12.5	10.4	9.3	5.9	6.3	6.0	5.1	6.6	6.3	5.0	4.4	4.4	2.3	2.8	2.9	4.8	8.0	2.8	5.0	7.1	15.6	
4-Mar	4.5	5.6	Z	7.1	7.0	7.0	6.2	7.7	4.4	3.6	3.3	3.8	3.7	4.0	5.2	5.2	5.7	6.2	6.2	8.2	12.0	12.1	16.2	12.2	6.8	16.2
5-Mar	11.2	10.4	11.5	Z	14.7	12.6	10.9	9.5	11.8	8.0	8.5	6.4	5.8	5.2	8.2	8.8	12.7	15.7	30.9	33.5	31.2	25.9	19.7	23.2	14.6	33.5
6-Mar	22.2	16.7	14.2	11.8	Z	10.0	9.3	7.9	9.5	10.0	9.2	7.5	5.2	2.5	2.4	1.8	3.8	8.1	18.9	25.9	10.9	5.8	6.1	4.6	9.8	25.9
7-Mar	6.9	7.7	5.7	6.0	6.8	Z	8.6	11.0	11.4	11.9	8.8	8.4	6.6	5.1	5.2	5.4	9.9	15.8	11.1	13.6	16.7	14.4	15.1	15.5	9.9	16.7
8-Mar	Z	10.2	9.3	8.0	6.8	7.2	13.2	17.5	18.3	19.3	18.0	18.7	9.1	10.7	6.4	15.3	18.0	16.0	19.9	15.9	9.1	9.1	6.6	5.1	12.5	19.9
9-Mar	4.5	Z	6.1	4.2	5.8	8.3	7.8	14.2	21.9	17.5	21.3	18.1	10.1	9.2	8.2	19.2	20.6	15.3	11.8	10.4	11.6	11.3	13.8	19.9	12.7	21.9
10-Mar	18.5	20.4	Z	17.9	11.6	11.8	13.2	2.3	2.2	1.4	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.6	14.1	5.1	3.8	5.6	20.4
11-Mar	3.4	3.0	2.2	Z	4.3	4.2	6.0	11.0	12.9	13.0	10.9	10.0	8.6	6.5	7.1	7.4	10.7	10.9	7.9	7.4	12.1	15.6	14.4	15.1	8.9	15.6
12-Mar	14.6	13.7	11.7	9.2	Z	7.3	6.5	8.7	11.1	4.9	2.1	1.8	1.2	1.0	5.2	16.5	26.3	28.1	7.5	1.1	0.6	0.3	0.4	0.4	7.8	28.1
13-Mar	0.5	0.7	0.8	0.9	1.0	Z	1.3	2.1	7.7	11.6	9.2	9.9	11.7	12.0	10.2	13.0	13.3	10.7	6.2	5.8	6.4	8.4	4.5	3.6	6.6	13.3
14-Mar	Z	4.3	4.8	5.2	5.1	10.2	19.2	14.9	14.6	12.1	13.0	4.7	1.5	7.7	15.4	16.0	24.9	17.0	18.7	12.2	13.6	11.1	1.2	0.6	10.8	24.9
15-Mar	0.4	Z	1.2	0.3	0.2	1.3	4.0	5.4	6.6	4.0	2.5	1.5	3.7	7.2	6.3	3.3	3.7	4.4	5.5	7.0	7.7	9.1	11.3	10.2	4.6	11.3
16-Mar	9.0	7.6	Z	16.2	16.3	8.0	8.4	8.7	9.5	7.8	7.2	7.5	6.4	7.3	7.9	11.2	13.1	17.9	16.8	18.5	16.6	18.2	20.3	17.1	12.1	20.3
17-Mar	2.9	5.4	13.9	Z	15.7	11.4	8.4	8.4	8.3	3.6	2.1	4.4	6.0	2.0	2.6	3.1	11.0	6.8	5.7	5.0	12.6	16.9	2.3	7.0	7.2	16.9
18-Mar	14.4	12.2	12.1	10.9	Z	8.1	10.5	8.4	8.2	6.3	6.8	7.3	8.6	8.4	8.5	6.0	5.4	4.5	5.8	4.3	5.2	5.5	4.5	4.7	7.7	14.4
19-Mar	3.1	5.1	3.6	4.0	4.4	Z	4.5	4.6	4.8	3.8	3.9	4.4	4.6	4.6	5.0	5.2	4.9	4.8	3.6	1.7	3.6	4.1	5.1	5.6	4.3	5.6
20-Mar	Z	6.7	8.3	10.3	10.4	11.0	12.9	10.5	13.1	8.2	8.7	7.0	6.9	6.4	5.4	6.1	6.6	6.3	4.2	5.3	5.6	6.3	11.3	22.9	8.7	22.9
21-Mar	18.6	Z	17.8	16.1	14.2	18.0	20.4	19.8	20.9	20.0	15.9	7.1	M	4.7	3.7	3.9	3.9	2.6	3.2	4.8	9.0	7.1	8.6	11.3	11.4	20.9
22-Mar	11.2	10.0	Z	9.5	5.2	3.9	4.1	2.6	10.9	14.9	12.4	5.2	7.8	7.8	7.9	8.8	10.7	16.2	23.0	22.2	19.6	15.4	12.1	10.2	10.9	23.0
23-Mar	10.6	11.9	15.6	Z	23.9	23.3	22.4	17.0	16.0	11.4	11.1	9.9	7.8	4.0	4.7	7.5	7.5	6.3	5.9	5.3	4.3	3.0	2.8	2.8	10.2	23.9
24-Mar	3.3	4.2	5.3	4.9	Z	8.8	11.7	13.4	18.0	12.6	8.8	9.6	1.9	1.0	1.0	2.8	2.8	1.5	1.4	3.3	3.7	1.7	3.9	3.6	5.6	18.0
25-Mar	1.1	1.9	1.7	2.4	5.0	Z	3.2	4.6	9.1	12.1	12.6	3.4	4.1	4.2	3.9	3.3	2.0	1.2	2.2	3.0	2.2	2.5	6.6	7.6	4.3	12.6
26-Mar	Z	2.6	2.1	2.1	2.4	2.8	3.7	3.8	3.2	2.5	2.1	4.1	3.8	2.5	1.3	3.9	5.4	4.5	2.2	2.4	2.0	2.8	4.5	3.9	3.1	5.4
27-Mar	1.3	Z	2.1	1.3	1.2	0.6	0.7	0.7	C	C	C	C	C	0.3	0.0	0.0	0.1	0.1	0.3	0.7	1.0	0.9	1.9	7.2	1.1	7.2
28-Mar	15.0	27.0	Z	29.2	22.3	19.1	16.6	16.1	15.6	15.0	9.4	5.6	3.2	2.8	2.6	3.6	4.5	3.4	1.9	3.0	1.4	1.1	2.6	6.1	9.9	29.2
29-Mar	12.2	14.6	5.9	Z	13.3	10.8	9.8	15.6	11.6	9.3	7.1	3.8	3.5	2.0	2.1	2.3	2.9	2.7	3.7	3.2	3.0	2.9	3.7	5.9	6.6	15.6
30-Mar	6.3	6.6	4.5	4.3	Z	16.8	19.3	21.9	13.6	11.2	9.4	4.2	2.9	1.5	1.2	1.1	2.1	3.9	3.8	3.1	4.2	4.7	4.2	17.5	7.3	21.9
31-Mar	20.6	20.5	12.9	2.4	3.9	Z	4.5	8.7	3.8	3.1	4.6	5.9	6.0	3.7	1.1	1.7	3.5	3.3	3.0	3.1	2.6	2.5	2.1	2.3	5.5	20.6
9.0 9.1 7.6 8.1 8.7 9.8 9.3 9.5 10.5 9.2 8.1 6.3 5.3 4.7 4.8 6.2 7.9 7.9 8.0 8.4 8.4 8.3 7.5 8.8																								Diurnal Average		
22.2 27.0 17.8 29.2 23.9 23.3 22.4 21.9 21.9 20.0 21.3 18.7 11.7 12.0 15.4 19.2 26.3 28.1 30.9 33.5 31.2 25.9 20.3 23.2																								Diurnal Maximum		

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Fort McKay South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	679	96.04	96.04
21 - 40	28	3.96	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 (NO₂) - ppb
Fort McKay South - March 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	153	84	5	1	3	11	42	134	72	34	21	28	19	13	26	32	678
21 - 40	8	0	0	0	0	0	2	4	6	3	2	3	0	0	0	0	28
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	5	1	3	11	44	138	78	37	23	31	19	13	26	32	706

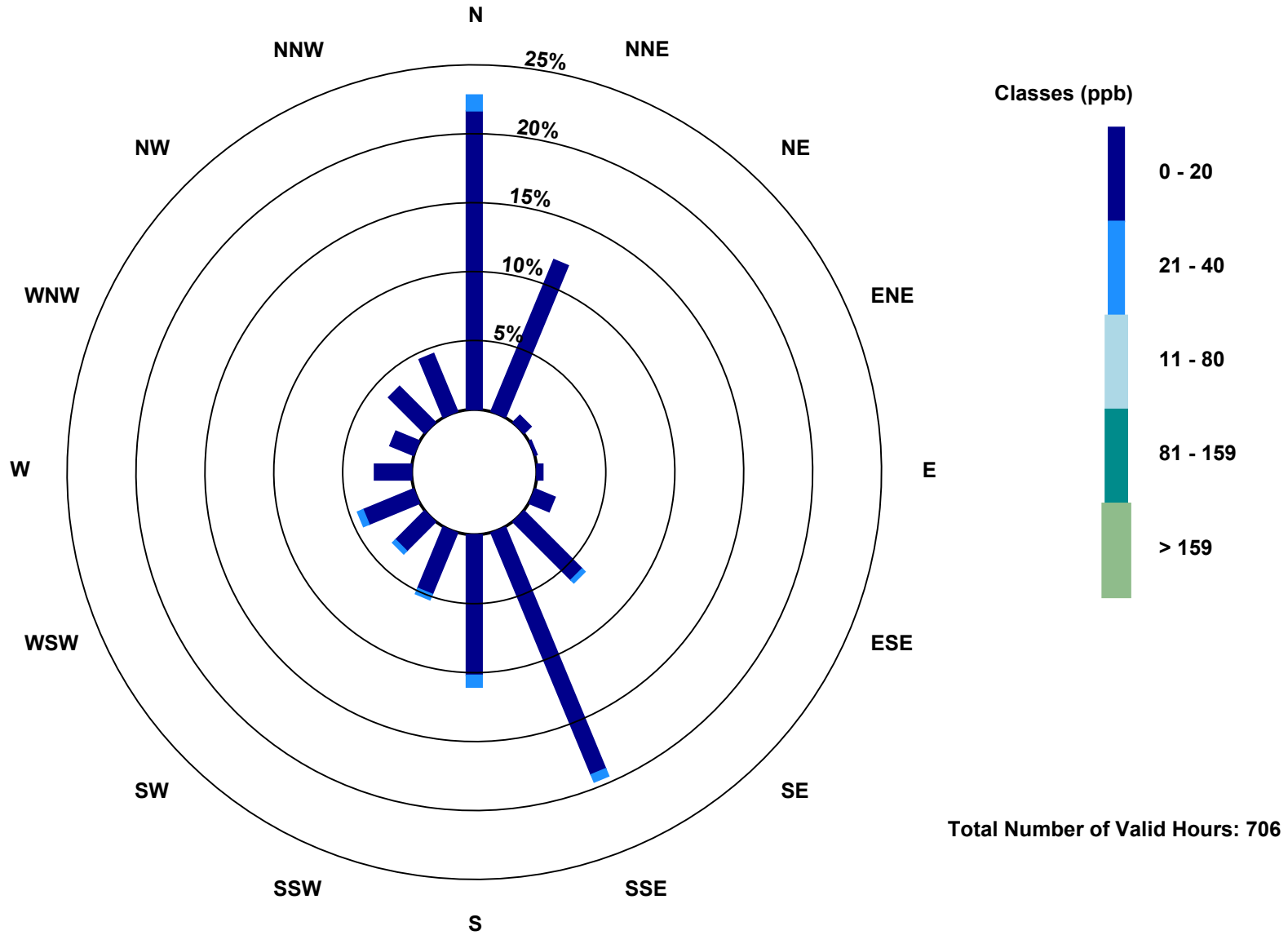
Total Number of Valid Hours: 706

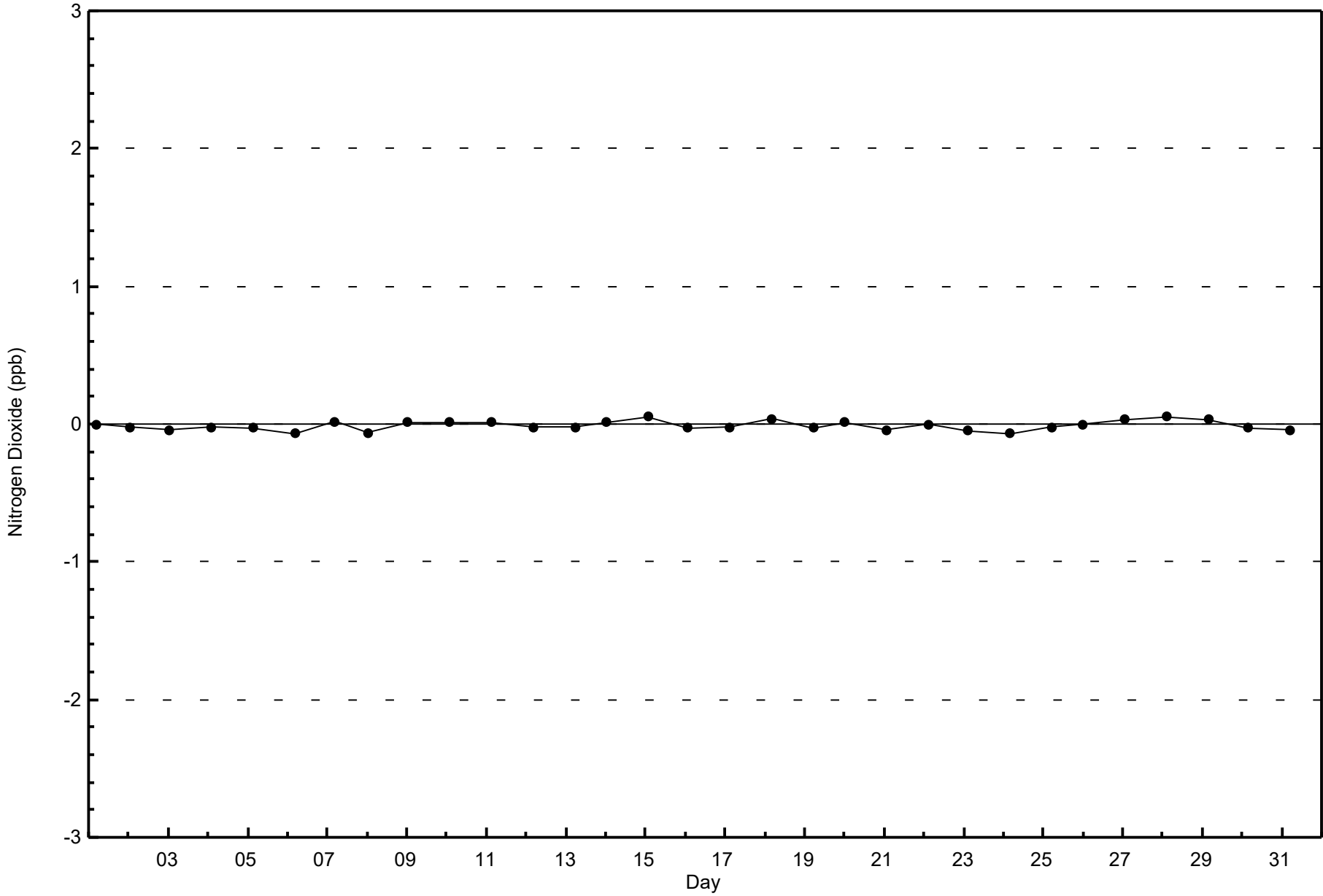
Total Number of Hours: 744

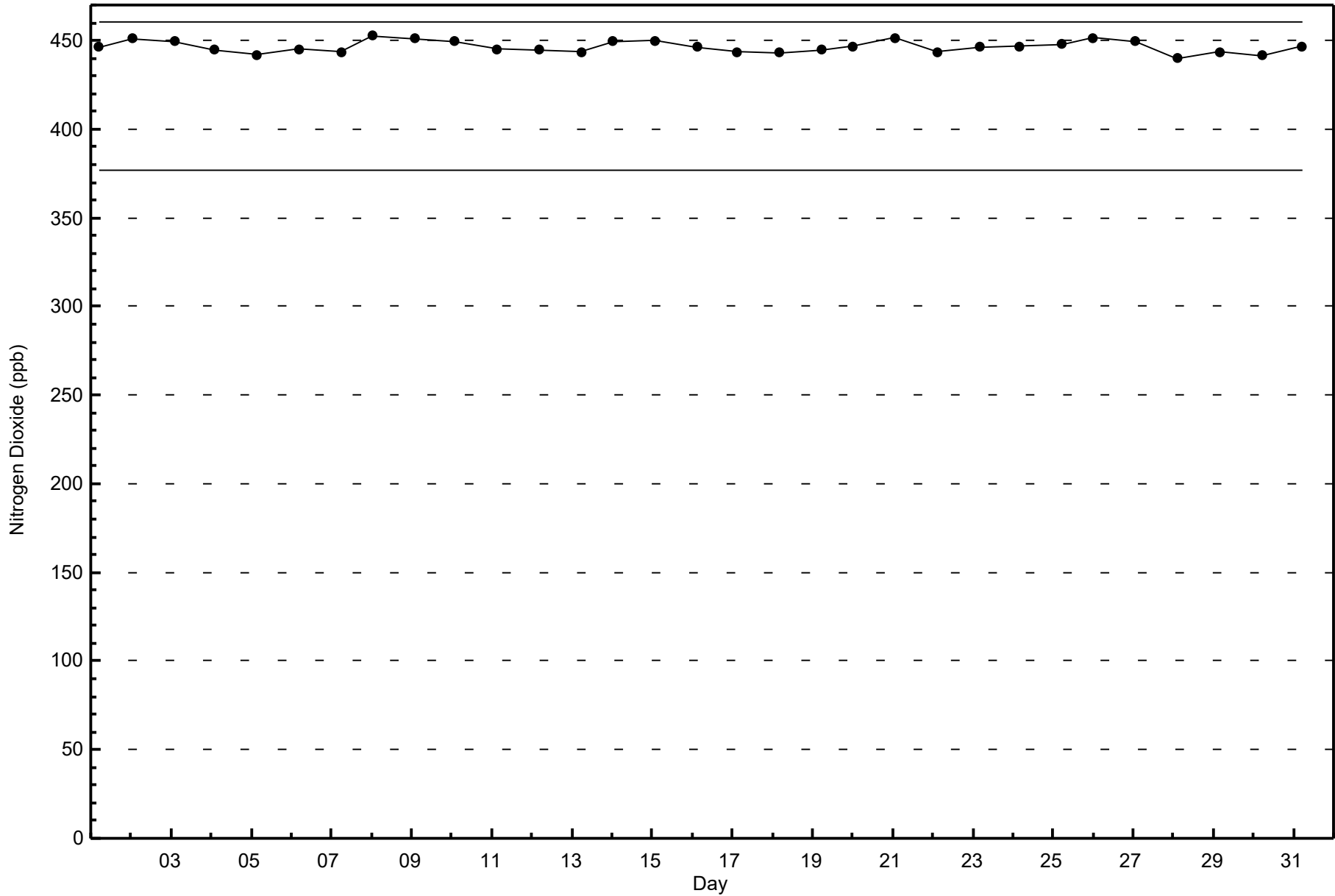


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Fort McKay South









Wood Buffalo Environmental Association
Summary of Hour Averages

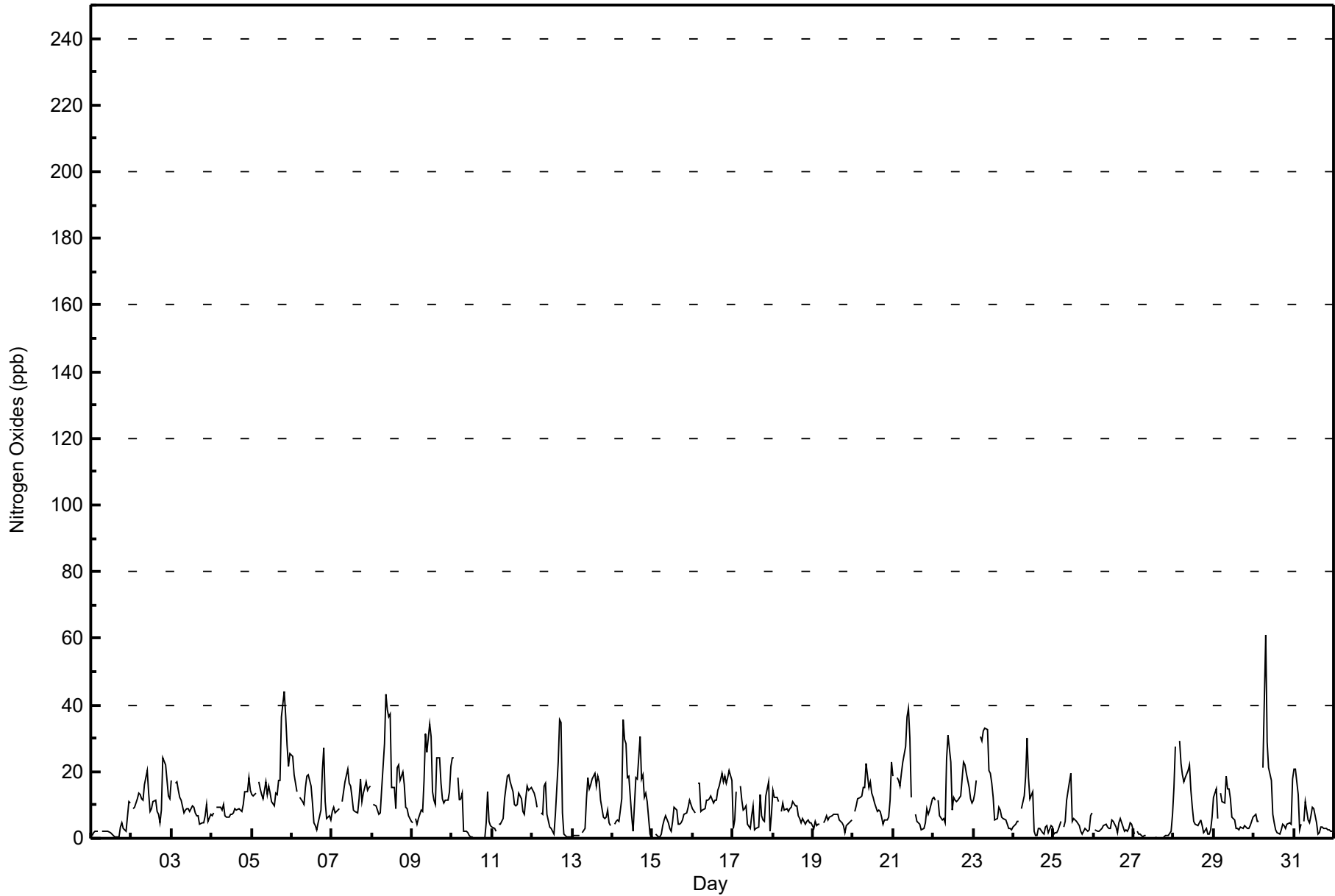
Nitrogen Oxides (NO_x) - ppb
Fort McKay South - March 2024

Maximum Value: 61.2 ppb on Mar 30 08:00		Maximum Daily Average: 18.7 ppb on Mar 5		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Mar 10 15:00		Minimum Daily Average: 1.1 ppb on Mar 27		Hours of Data: 707																																													
Maximum Diurnal Average: 16.8 ppb at hour 9		Minimum Diurnal Average: 6.8 ppb at hour 15		Hours of Missing Data: 37																																													
Monthly Average: 10.02 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 1.9 Q ₁ = 4.1 Median = 8.1 Q ₃ = 14.0 P ₉₀ = 19.6 P ₉₉ = 36.9		Hours of Calibration: 36																																													
				Percent Operational Time: 99.9																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	1.0	1.8	2.2	2.1	2.1	Z	2.2	2.2	2.2	2.2	1.9	1.6	1.4	1.0	0.5	0.2	0.3	3.4	4.8	3.1	2.7	2.1	10.8	10.7	2.7	10.8																							
2-Mar	Z	8.9	9.4	12.0	13.7	12.9	11.8	11.4	15.9	20.2	13.5	8.1	9.0	11.1	11.4	8.0	7.3	4.7	8.3	24.1	22.2	17.5	12.9	11.7	12.4	24.1																							
3-Mar	17.4	Z	16.7	17.0	14.5	12.5	11.4	7.8	8.5	8.9	8.9	7.9	9.9	9.5	7.8	6.9	6.8	4.3	4.7	4.8	6.8	10.0	4.9	7.1	9.3	17.4																							
4-Mar	6.6	7.7	Z	9.3	9.2	9.2	8.4	10.2	6.9	6.4	6.3	7.2	7.3	7.5	8.8	8.6	8.7	8.3	8.0	10.1	13.9	14.0	18.3	14.2	9.4	18.3																							
5-Mar	13.2	12.5	13.6	Z	16.8	14.7	13.0	12.0	17.1	13.3	15.5	13.6	11.1	9.9	13.6	12.9	17.4	17.4	36.3	44.3	36.9	28.1	21.7	25.3	18.7	44.3																							
6-Mar	24.4	19.0	16.5	14.0	Z	12.1	11.1	10.2	15.1	18.5	19.1	15.7	10.5	4.7	3.9	2.5	4.6	8.6	20.2	27.0	11.1	6.1	6.6	5.3	12.5	27.0																							
7-Mar	7.9	9.1	7.5	8.1	8.9	Z	10.8	14.0	17.0	20.7	16.5	15.7	12.1	8.6	8.1	7.6	11.9	17.8	11.1	13.6	16.8	14.5	15.2	15.6	12.6	20.7																							
8-Mar	Z	10.4	9.6	8.5	7.3	7.8	14.6	28.3	43.2	38.6	36.4	37.4	15.2	15.5	8.8	21.0	22.2	17.2	19.9	15.9	9.1	9.1	6.7	5.2	17.7	43.2																							
9-Mar	4.6	Z	6.1	4.2	5.9	8.4	7.9	17.3	31.4	25.8	34.5	30.6	14.2	11.5	10.1	24.3	24.3	16.6	11.8	10.4	11.6	11.3	14.0	21.6	15.6	34.5																							
10-Mar	24.3	24.1	Z	18.1	11.6	11.9	13.6	2.3	2.2	1.5	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	4.6	14.1	5.1	3.8	6.0	24.3																							
11-Mar	3.4	3.1	2.2	Z	4.3	4.2	6.1	11.7	15.3	18.7	19.0	17.0	14.0	10.0	9.9	10.0	13.5	11.9	7.9	7.4	12.1	15.6	14.4	15.1	10.7	19.0																							
12-Mar	14.6	13.7	11.7	9.2	Z	7.5	7.0	15.8	16.5	7.2	3.2	2.9	1.9	1.2	7.0	22.9	35.6	34.7	7.5	1.1	0.6	0.3	0.4	0.4	9.7	35.6																							
13-Mar	0.5	0.7	0.8	0.9	1.0	Z	1.6	2.9	12.0	18.4	14.6	16.0	17.7	19.5	15.6	18.6	16.9	11.5	6.2	5.8	6.4	8.4	4.5	3.7	8.9	19.5																							
14-Mar	Z	4.4	4.9	5.3	5.1	12.1	35.5	29.5	28.4	18.3	18.6	6.7	2.0	10.1	18.3	17.7	30.4	17.6	19.0	12.2	13.7	11.1	1.3	0.6	14.0	35.5																							
15-Mar	0.4	Z	1.3	0.4	0.3	1.4	4.0	5.6	7.0	4.5	2.8	1.9	5.1	9.3	8.6	4.2	4.2	4.5	5.5	7.0	7.7	9.1	11.3	10.2	5.1	11.3																							
16-Mar	9.0	7.6	Z	16.3	16.3	8.0	8.4	9.1	11.2	11.6	11.9	12.8	10.5	11.6	11.3	14.4	15.9	19.6	16.9	18.5	16.6	18.2	20.4	17.2	13.6	20.4																							
17-Mar	2.9	5.5	14.0	Z	15.8	11.5	8.5	8.9	9.6	4.4	2.9	6.7	9.7	2.4	3.0	3.3	13.1	6.8	5.7	5.0	12.6	16.9	2.3	7.0	7.8	16.9																							
18-Mar	14.4	12.2	12.1	11.0	Z	8.1	10.5	8.6	9.0	8.0	9.0	9.4	11.1	9.7	9.5	6.6	5.8	4.5	5.8	4.3	5.2	5.5	4.5	4.7	8.2	14.4																							
19-Mar	3.1	5.1	3.7	4.1	4.4	Z	4.7	5.3	6.6	5.7	6.2	7.0	7.3	7.1	7.2	7.0	5.7	4.8	3.6	1.7	3.6	4.1	5.1	5.6	5.2	7.3																							
20-Mar	Z	7.9	9.9	12.0	12.2	12.8	15.3	15.1	22.5	15.1	16.8	13.4	12.4	10.6	8.2	8.5	7.9	6.4	4.2	5.3	5.6	6.3	11.3	22.9	11.4	22.9																							
21-Mar	18.6	Z	18.3	17.2	15.6	19.6	23.0	27.4	36.6	39.0	30.3	12.1	M	7.1	5.2	4.7	4.1	2.6	3.2	4.8	9.0	7.1	8.6	11.7	14.8	39.0																							
22-Mar	12.3	11.5	Z	11.2	6.9	5.6	5.9	4.7	23.6	30.9	22.7	8.6	12.4	11.5	11.1	11.6	12.9	17.8	23.0	22.2	19.6	15.4	12.1	10.4	14.1	30.9																							
23-Mar	11.5	13.4	17.5	Z	30.4	29.3	32.0	33.1	32.6	20.3	19.7	16.6	12.2	5.4	6.0	9.5	8.5	6.3	5.9	5.3	4.3	3.0	2.8	2.8	14.3	33.1																							
24-Mar	3.3	4.2	5.3	4.9	Z	9.0	12.8	18.8	30.1	18.1	12.0	14.1	2.1	1.0	1.0	2.8	2.8	1.5	1.4	3.3	3.7	1.7	3.9	3.6	7.0	30.1																							
25-Mar	1.1	1.9	1.7	2.4	5.0	Z	3.5	5.1	11.5	16.8	19.5	5.0	5.9	5.7	5.2	4.0	2.0	1.2	2.2	3.0	2.2	2.5	6.7	7.8	5.3	19.5																							
26-Mar	Z	2.6	2.1	2.1	2.4	2.8	3.7	4.0	3.6	3.1	2.9	5.6	5.2	3.3	1.5	4.7	6.0	4.6	2.2	2.4	2.0	2.8	4.6	4.0	3.4	6.0																							
27-Mar	1.3	Z	2.1	1.3	1.2	0.6	0.7	0.7	C	C	C	C	C	0.3	0.0	0.0	0.1	0.1	0.3	0.7	1.0	0.9	2.0	7.3	1.1	7.3																							
28-Mar	15.1	27.4	Z	29.3	22.3	19.1	17.0	18.2	20.5	22.2	14.5	9.1	4.9	4.1	3.7	4.7	5.6	3.8	1.9	3.0	1.4	1.1	2.7	6.3	11.2	29.3																							
29-Mar	12.4	14.8	6.0	Z	13.4	10.9	10.4	18.6	15.0	14.7	11.9	6.4	5.7	3.0	2.9	2.7	3.3	2.8	3.7	3.2	3.0	2.9	3.8	6.2	7.7	18.6																							
30-Mar	6.7	7.3	5.2	5.1	Z	21.0	41.5	61.2	28.7	21.3	17.4	7.2	4.8	2.4	1.7	1.4	2.4	4.2	3.8	3.1	4.2	4.7	4.3	17.8	12.1	61.2																							
31-Mar	20.8	20.9	13.3	2.7	4.1	Z	4.9	11.1	5.4	4.6	6.8	9.1	8.8	4.9	1.1	1.8	3.5	3.3	3.0	3.1	2.6	2.5	2.1	2.3	6.2	20.9																							
																								9.6	9.9	8.2	8.8	9.6	10.9	11.7	13.9	16.8	15.3	13.9	10.9	8.4	7.1	6.8	8.2	9.8	8.7	8.3	8.9	8.8	8.6	7.9	9.3	Diurnal Average	
																								24.4	27.4	18.3	29.3	30.4	29.3	41.5	61.2	43.2	39.0	36.4	37.4	17.7	19.5	18.3	24.3	35.6	34.7	36.3	44.3	36.9	28.1	21.7	25.3	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort McKay South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	644	91.09	91.09
21 - 40	59	8.35	99.43
41 - 80	4	0.57	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Fort McKay South - March 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	149	83	5	1	1	10	36	126	68	29	19	28	19	13	26	30	643
21 - 40	12	1	0	0	2	1	8	11	9	7	3	3	0	0	0	2	59
11 - 80	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	4
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	161	84	5	1	3	11	44	138	78	37	23	31	19	13	26	32	706

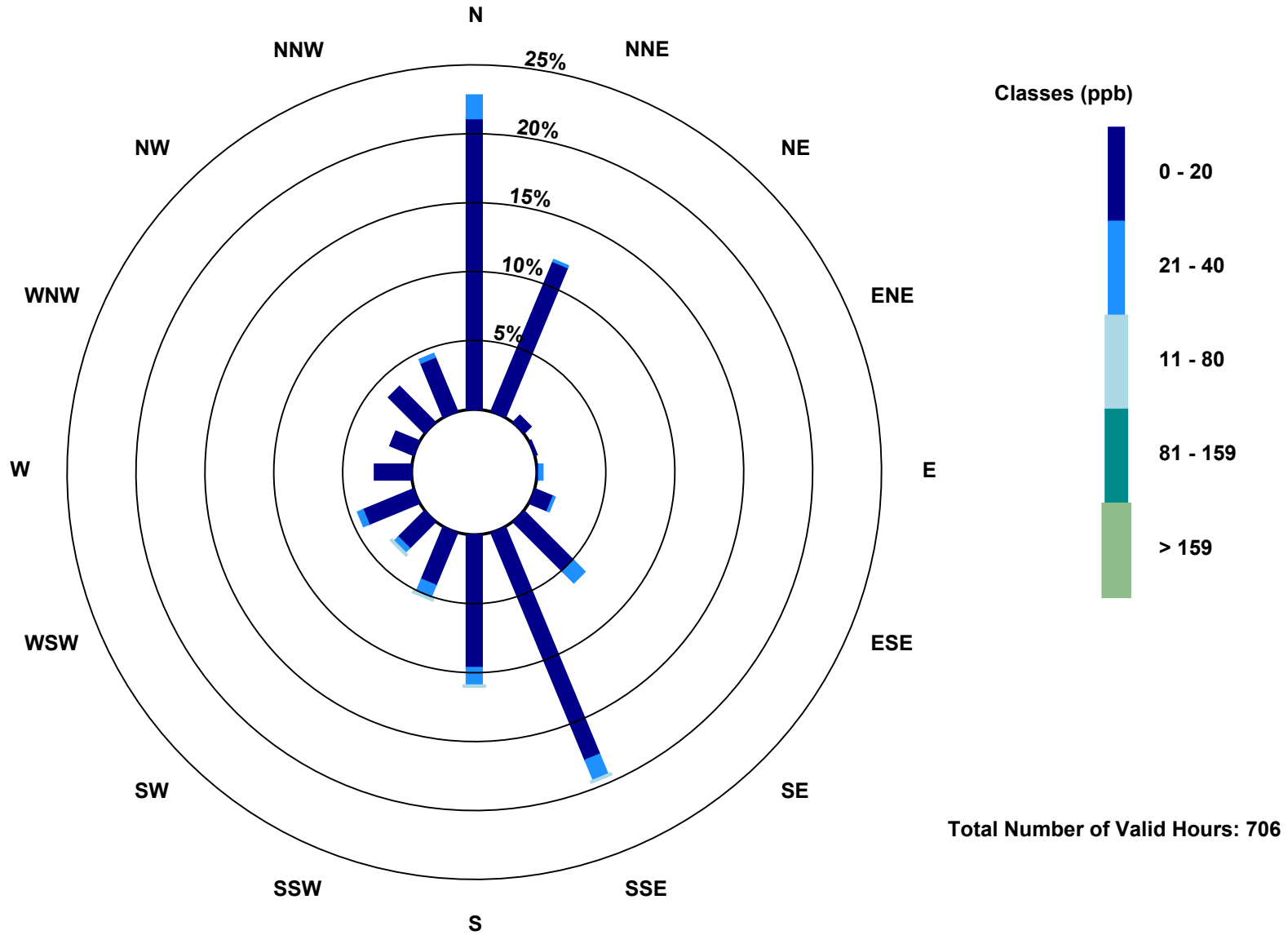
Total Number of Valid Hours: 706

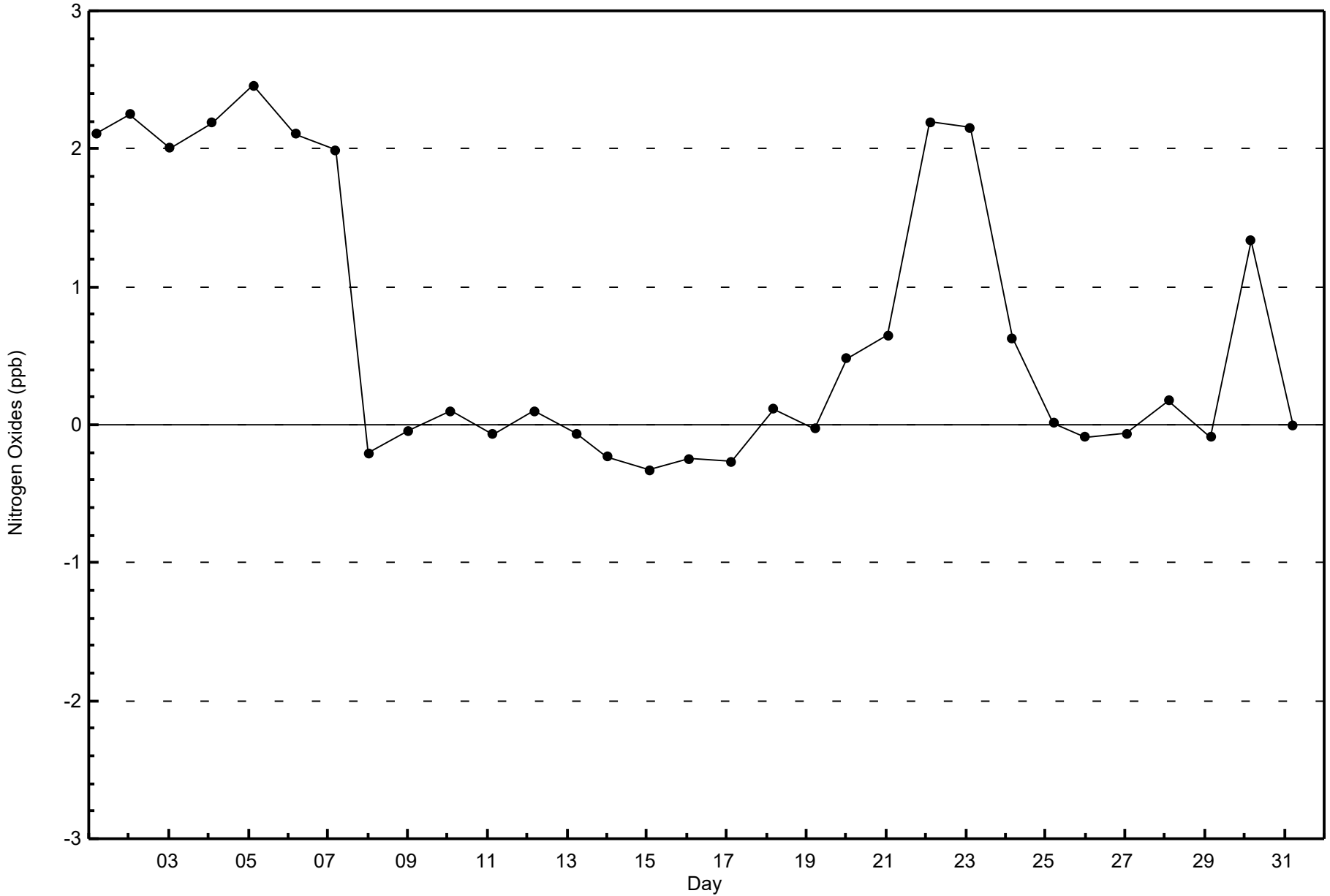
Total Number of Hours: 744

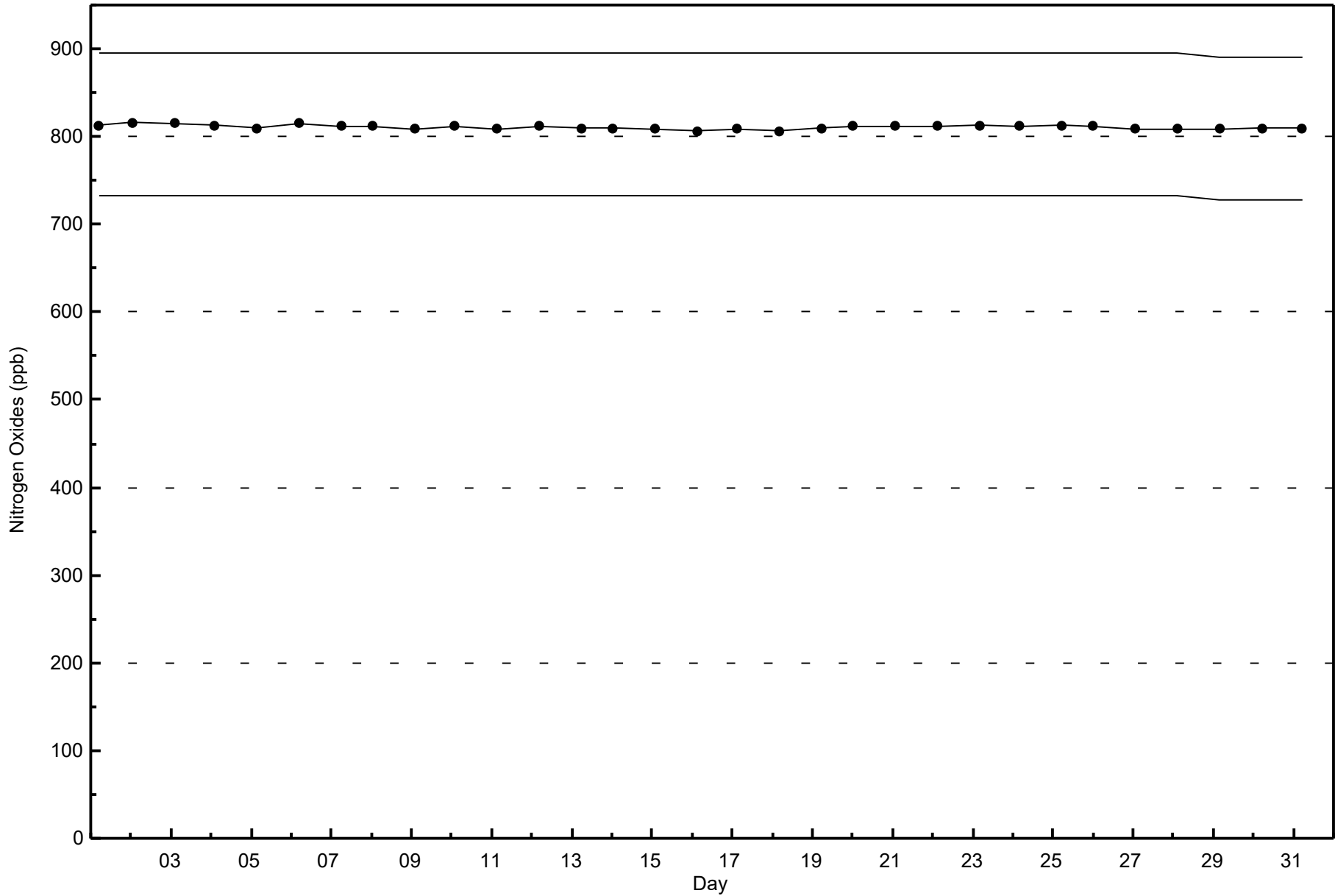


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Fort McKay South





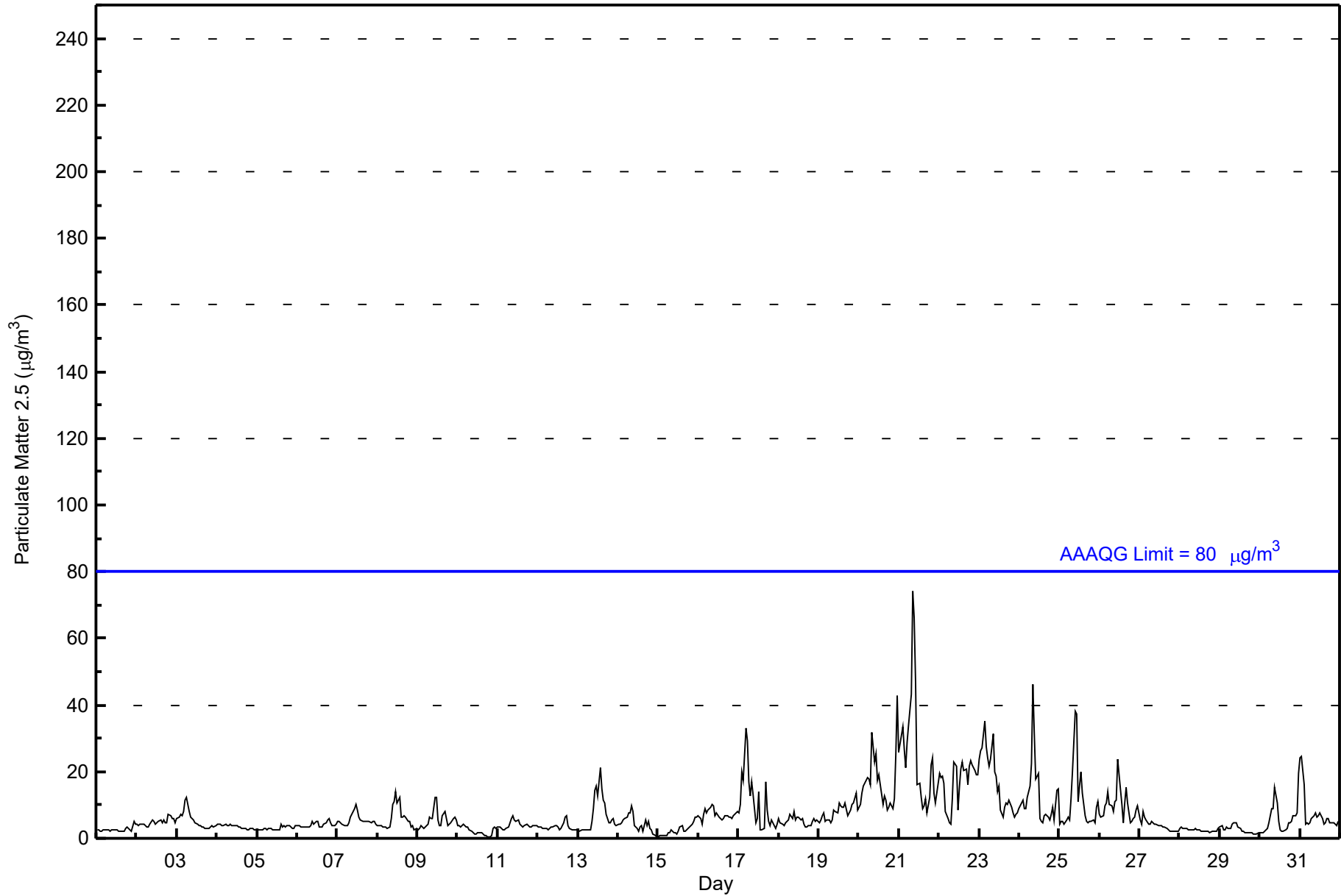




Summary of Hour Averages

Fort McKay South - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 74.3 µg/m ³ on Mar 21 09:00		Maximum Daily Average: 25.5 µg/m ³ on Mar 21				Hours of Data:		744																																								
Minimum Value: 0.5 µg/m ³ on Mar 10 20:00		Minimum Daily Average: 2.3 µg/m ³ on Mar 10				Hours of Missing Data:		0																																								
Maximum Diurnal Average: 11.8 µg/m ³ at hour 10		Minimum Diurnal Average: 5.3 µg/m ³ at hour 19				Hours of Calibration:		0																																								
Monthly Average: 7.32 µg/m ³		Percentiles: P ₁ = 0.7 P ₁₀ = 2.4 Q ₁ = 3.3 Median = 4.8 Q ₃ = 8.1 P ₉₀ = 16.3 P ₉₉ = 36.3				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-Mar	2.5	2.5	2.2	2.2	2.4	2.5	2.5	2.4	2.3	2.3	2.5	2.6	2.4	2.3	2.2	2.3	3.1	3.5	3.0	2.4	2.0	4.9	4.4	2.7	4.9																							
2-Mar	4.3	3.8	4.1	4.3	4.2	3.8	3.5	3.2	4.2	5.5	5.2	4.3	4.5	4.9	5.6	4.5	5.4	4.5	4.7	7.1	6.6	6.1	5.8	4.8	7.1																							
3-Mar	5.9	6.5	7.3	6.7	8.1	11.3	12.2	7.9	6.6	6.0	5.5	4.7	4.3	3.9	3.8	3.6	3.5	3.1	3.1	3.0	3.4	3.9	3.4	3.9	5.5	12.2																						
4-Mar	4.3	4.1	4.2	3.9	4.0	4.0	3.9	3.9	4.0	3.9	3.9	3.6	3.6	3.5	3.4	3.2	2.9	2.8	2.7	2.9	2.8	2.7	2.6	3.5	4.3																							
5-Mar	2.7	2.5	2.6	2.7	2.8	2.8	2.7	2.8	2.9	2.7	2.7	2.7	2.5	2.8	4.4	3.4	3.7	3.5	3.7	3.6	3.3	2.9	3.0	3.7	3.0	4.4																						
6-Mar	3.9	3.7	3.6	3.5	3.3	3.3	3.3	3.3	3.7	5.2	4.3	5.0	5.3	3.5	3.3	3.4	4.0	4.6	5.6	5.8	4.5	3.8	3.9	4.0	4.1	5.8																						
7-Mar	4.9	5.0	4.8	4.1	3.8	3.9	4.0	4.9	6.3	8.0	9.0	10.3	8.6	6.3	5.5	5.0	5.2	5.0	5.0	4.9	4.8	5.1	4.9	4.4	5.6	10.3																						
8-Mar	3.7	3.7	3.7	3.4	3.4	3.3	3.2	3.5	5.8	10.1	11.1	14.0	10.6	12.3	6.6	6.2	6.8	6.3	4.9	5.1	3.4	3.7	2.7	3.0	5.8	14.0																						
9-Mar	2.6	3.1	3.9	3.4	3.1	3.6	4.2	6.3	5.9	6.0	12.1	12.4	5.6	3.8	4.0	7.0	8.0	5.8	3.6	4.1	4.7	5.9	6.4	5.7	5.5	12.4																						
10-Mar	3.8	3.8	3.6	4.0	3.7	3.5	3.4	2.7	2.2	1.6	1.3	1.4	1.7	1.8	1.6	1.1	0.8	0.7	0.6	0.5	0.7	2.9	3.6	3.1	2.3	4.0																						
11-Mar	3.3	3.4	2.9	2.4	2.6	2.9	3.3	4.8	5.8	6.6	5.5	5.2	5.7	4.1	3.7	3.6	4.0	4.1	3.9	3.5	3.5	4.0	3.7	3.7	4.0	6.6																						
12-Mar	3.5	3.4	3.2	3.0	2.9	2.8	2.7	2.8	3.6	3.6	3.9	3.7	3.4	2.6	3.1	4.7	6.3	7.0	3.6	2.9	2.7	2.6	2.5	2.5	3.5	7.0																						
13-Mar	2.5	2.3	2.4	2.5	2.5	2.5	2.6	2.7	5.0	8.9	14.3	15.6	12.8	21.2	15.0	11.3	10.5	7.4	4.5	4.6	5.5	6.1	4.3	3.7	7.1	21.2																						
14-Mar	4.0	4.3	4.8	5.7	6.0	6.1	7.6	7.4	9.9	8.2	3.8	3.0	2.0	3.3	3.9	2.1	5.7	3.8	5.1	3.0	2.6	1.5	0.7	0.6	4.4	9.9																						
15-Mar	0.6	0.7	0.7	0.7	0.8	1.0	1.9	1.7	2.5	1.7	1.5	1.3	2.1	3.5	3.7	2.3	2.1	2.4	2.9	3.3	4.3	4.9	6.3	6.4	2.5	6.4																						
16-Mar	6.8	5.8	4.0	7.2	9.1	7.7	8.4	9.2	10.1	9.8	6.9	7.7	6.2	5.9	5.5	5.8	6.6	6.8	6.3	6.6	6.1	6.6	7.2	8.0	7.1	10.1																						
17-Mar	7.8	10.1	19.8	17.3	33.1	29.0	17.1	12.9	17.1	13.2	4.8	6.1	14.0	2.5	2.7	3.1	16.8	8.3	5.0	3.8	5.6	3.9	2.8	4.3	10.9	33.1																						
18-Mar	5.8	4.5	4.4	3.9	4.7	5.2	5.4	7.0	6.1	8.0	5.5	6.2	6.2	5.4	5.9	4.4	3.2	3.5	3.8	3.8	5.1	5.9	5.2	5.3	5.2	8.0																						
19-Mar	4.8	5.5	6.8	7.8	5.3	5.4	5.5	4.8	5.7	8.3	8.0	7.8	10.6	9.5	9.5	9.2	10.7	7.0	7.8	8.6	10.3	10.4	13.7	8.4	8.0	13.7																						
20-Mar	9.1	10.3	13.4	15.8	17.3	18.2	17.8	16.3	32.0	22.9	25.3	17.5	19.0	15.9	10.2	12.6	11.2	8.4	9.2	10.5	8.7	11.7	24.8	42.8	16.7	42.8																						
21-Mar	25.8	31.0	33.5	26.9	21.4	29.0	33.8	43.3	74.3	65.9	46.4	16.2	16.5	12.1	8.8	9.9	12.0	7.7	12.1	22.1	24.0	13.4	10.4	16.5	25.5	74.3																						
22-Mar	19.6	18.3	18.6	16.6	8.1	6.1	4.7	4.1	12.0	23.0	21.4	8.5	15.5	20.8	22.7	20.2	20.6	16.1	21.8	23.2	22.1	20.3	19.2	18.9	16.8	23.2																						
23-Mar	23.6	26.1	27.3	35.0	27.6	24.2	21.5	23.9	31.4	20.0	18.5	14.0	15.7	8.5	6.4	9.3	10.7	10.2	11.3	9.4	7.8	6.6	7.0	7.7	16.8	35.0																						
24-Mar	9.1	10.8	11.3	9.0	9.1	12.1	15.5	22.6	46.1	31.4	17.8	19.4	6.1	5.0	4.6	6.8	7.1	6.2	5.7	7.4	9.4	5.6	14.3	14.8	12.8	46.1																						
25-Mar	4.3	5.2	5.1	4.3	5.4	6.2	5.7	11.7	19.9	38.2	37.3	11.2	15.8	19.8	13.5	6.8	5.1	4.8	5.2	5.0	5.6	4.7	9.1	11.2	10.9	38.2																						
26-Mar	7.3	6.2	6.9	9.6	10.8	13.8	10.1	9.8	8.1	11.1	11.6	23.7	19.1	10.3	4.6	10.8	15.1	10.8	4.7	5.1	6.0	6.5	8.5	9.8	10.0	23.7																						
27-Mar	5.4	4.0	7.9	6.4	5.6	4.2	4.0	4.9	4.8	4.2	4.1	3.8	3.6	3.9	3.4	3.3	2.9	2.5	2.3	1.9	2.0	1.9	2.0	2.3	3.8	7.9																						
28-Mar	2.8	3.3	3.2	3.0	2.8	2.7	2.5	2.4	2.6	2.8	2.6	2.4	2.4	2.2	2.0	2.0	2.0	2.1	1.9	2.0	2.0	1.9	2.2	2.8	2.4	3.3																						
29-Mar	3.4	3.6	2.6	2.7	3.5	3.1	2.9	4.1	4.6	4.6	4.5	3.5	2.9	2.2	1.9	1.8	1.8	1.7	1.7	1.5	1.5	1.4	1.4	1.6	2.7	4.6																						
30-Mar	1.6	1.7	1.7	2.1	2.8	4.9	6.8	9.0	8.8	15.3	10.5	5.0	2.6	2.2	2.3	2.6	3.0	4.6	4.8	5.2	6.8	6.9	7.6	19.3	5.8	19.3																						
31-Mar	24.2	24.4	16.2	4.2	4.6	4.2	4.6	6.1	6.9	7.5	6.3	6.8	7.5	6.0	4.2	4.5	5.9	5.9	4.7	4.7	4.5	4.1	3.7	5.0	7.4	24.4																						
																								6.9	7.2	7.6	7.2	7.2	7.5	7.3	8.1	11.7	11.8	10.3	8.0	7.7	6.8	5.7	5.7	6.6	5.5	5.3	5.7	5.9	5.5	6.4	7.6	Diurnal Average
																								25.8	31.0	33.5	35.0	33.1	29.0	33.8	43.3	74.3	65.9	46.4	23.7	19.1	21.2	22.7	20.2	20.6	16.1	21.8	23.2	24.0	20.3	24.8	42.8	Diurnal Maximum
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay South - March 2024**

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	433	58.20	58.20
6 - 15	228	30.65	88.84
16 - 25	60	8.06	96.91
26 - 80	23	3.09	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay South - March 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	113	46	4	1	1	7	22	52	54	29	14	21	13	8	20	28	433
6 - 15	44	36	2	0	1	2	22	72	17	9	7	5	5	2	2	1	227
16 - 25	8	2	0	0	1	2	4	14	8	2	4	5	2	3	4	0	59
26 - 80	4	1	0	0	0	1	1	3	2	0	1	3	0	0	1	6	23
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	169	85	6	1	3	12	49	141	81	40	26	34	20	13	27	35	742

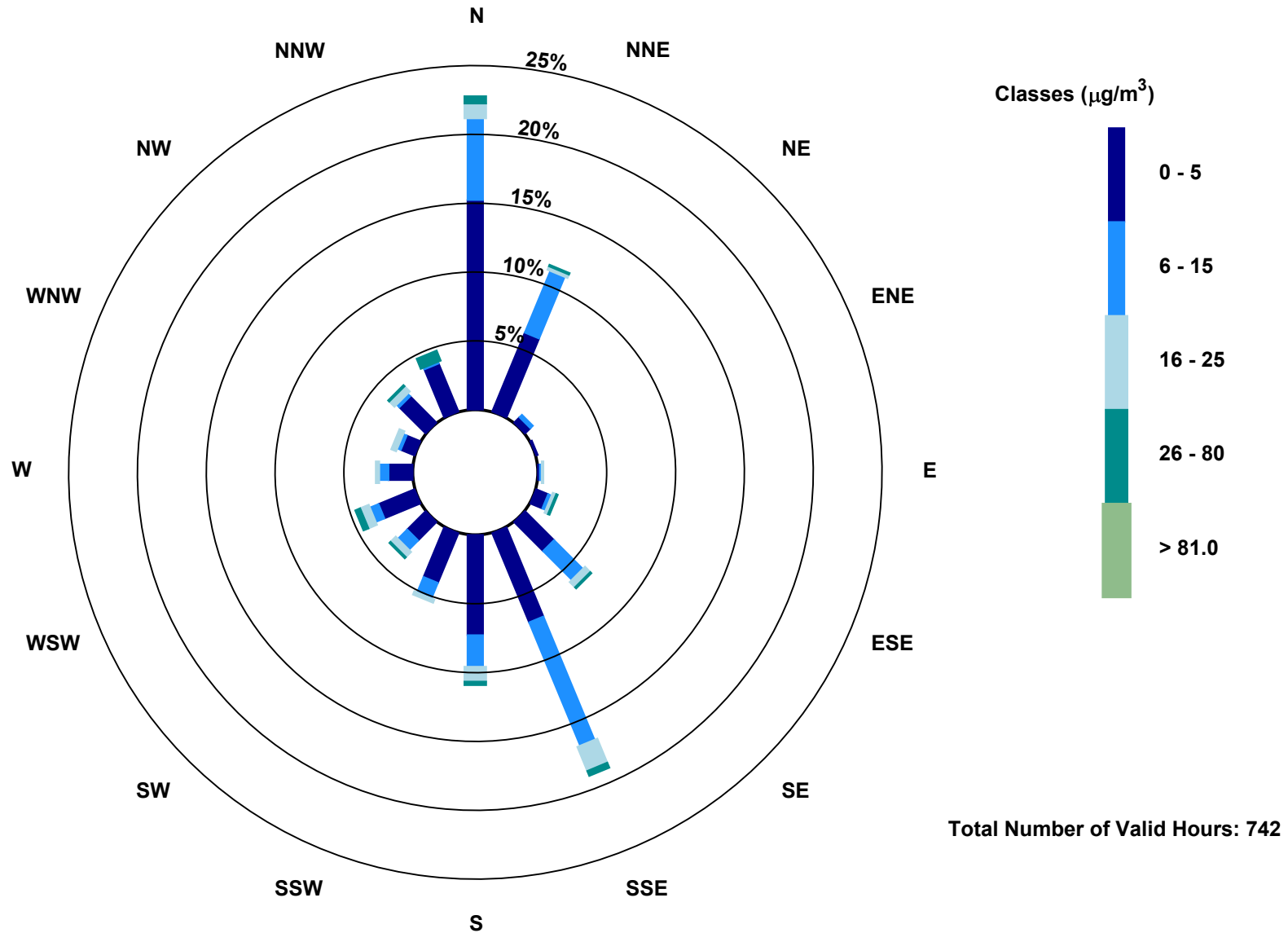
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay South





Wood Buffalo Environmental Association
Summary of Hour Averages

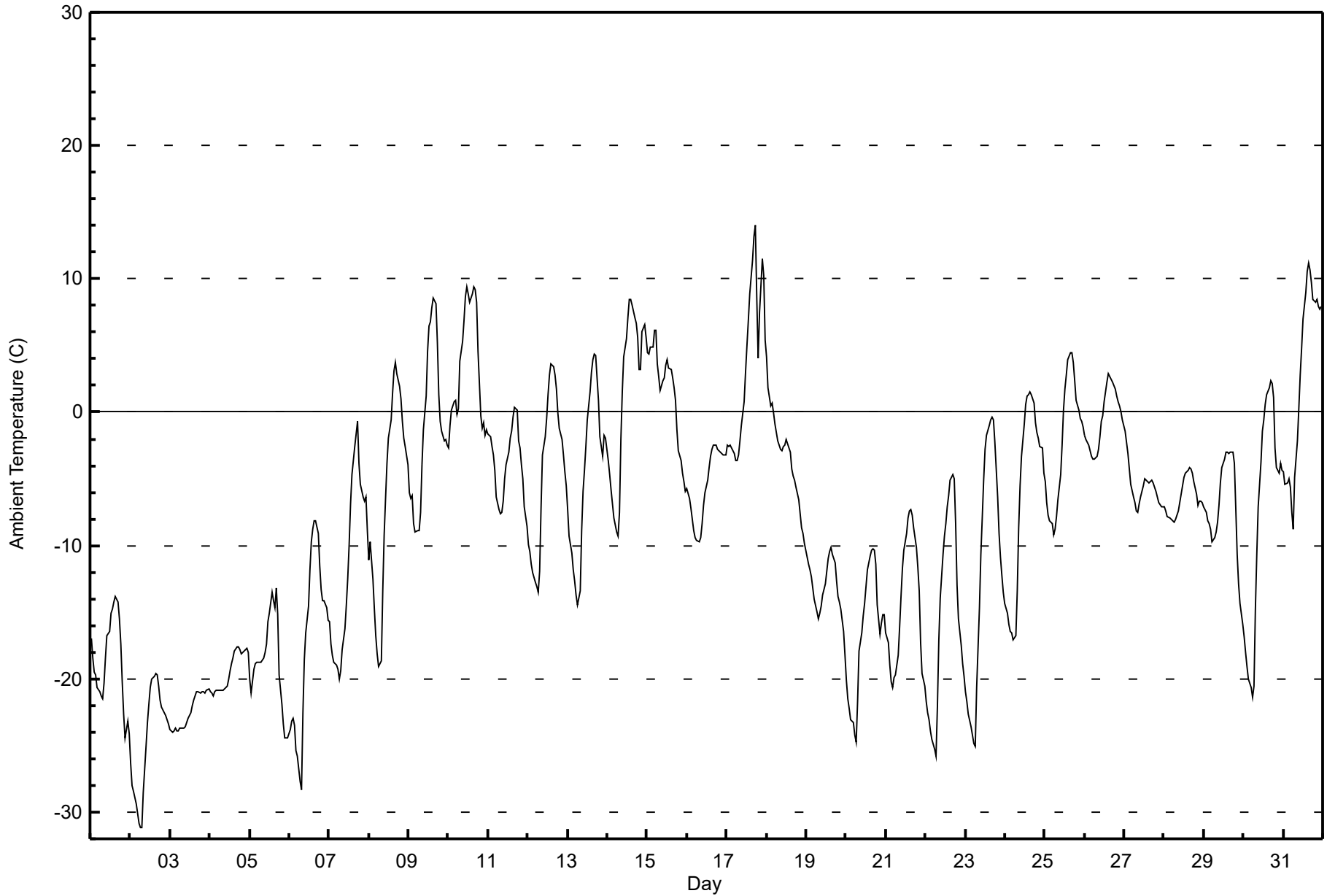
Ambient Temperature (AT) - C
Fort McKay South - March 2024

Maximum Value: 14.0 C on Mar 17 18:00		Maximum Daily Average: 3.5 C on Mar 10		Hours in Service: 744																						
Minimum Value: -31.2 C on Mar 2 07:00		Minimum Daily Average: -24.6 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -2.5 C at hour 17		Minimum Diurnal Average: -14.2 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -8.27 C		Percentiles: P ₁ = -28.2 P ₁₀ = -21.3 Q ₁ = -16.1 Median = -7.1 Q ₃ = -1.7 P ₉₀ = 3.5 P ₉₉ = 10.0		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-17.0	-18.4	-19.5	-19.7	-20.6	-20.9	-21.3	-21.5	-20.3	-18.4	-16.7	-16.5	-15.1	-14.8	-14.3	-13.8	-14.2	-15.5	-17.4	-20.3	-22.7	-24.5	-23.2	-24.1	-18.8	-13.8
2-Mar	-26.3	-28.0	-28.5	-29.3	-30.2	-30.9	-31.2	-31.1	-28.6	-25.1	-23.3	-21.9	-20.7	-20.0	-19.8	-19.6	-19.7	-20.5	-21.6	-22.1	-22.6	-22.7	-23.0	-23.4	-24.6	-19.6
3-Mar	-23.8	-24.1	-23.9	-23.7	-23.9	-23.9	-23.8	-23.7	-23.7	-23.6	-23.3	-22.9	-22.6	-22.0	-21.6	-21.3	-21.0	-21.0	-21.0	-21.0	-20.9	-21.0	-20.8	-20.8	-22.5	-20.8
4-Mar	-21.0	-21.1	-21.3	-21.0	-20.9	-20.8	-20.9	-20.8	-20.8	-20.7	-20.5	-20.2	-19.4	-18.9	-18.4	-17.9	-17.6	-17.8	-18.1	-18.0	-17.8	-17.8	-17.7	-18.0	-19.5	-17.6
5-Mar	-20.0	-21.1	-19.3	-18.8	-18.7	-18.7	-18.8	-18.8	-18.4	-18.1	-17.4	-15.7	-15.1	-13.5	-14.1	-14.7	-13.2	-15.2	-19.7	-21.9	-23.4	-24.4	-24.4	-24.5	-18.7	-13.2
6-Mar	-23.8	-23.2	-22.9	-23.5	-25.4	-25.8	-27.6	-28.4	-22.6	-18.6	-16.6	-14.6	-11.8	-9.8	-8.8	-8.1	-8.1	-9.1	-11.5	-13.3	-14.1	-14.1	-14.7	-15.6	-17.2	-8.1
7-Mar	-15.7	-17.4	-18.2	-18.8	-18.9	-19.3	-20.0	-19.3	-17.8	-16.2	-14.5	-12.4	-10.0	-6.9	-4.7	-2.6	-1.6	-0.7	-3.9	-5.4	-6.4	-6.7	-6.4	-8.9	-11.4	-0.7
8-Mar	-11.1	-9.7	-12.5	-14.8	-16.8	-18.1	-19.1	-18.6	-13.4	-9.2	-6.5	-3.9	-1.9	-0.6	1.4	3.2	3.7	2.8	1.9	1.0	-0.6	-2.0	-2.5	-3.9	-6.3	3.7
9-Mar	-6.1	-6.5	-6.3	-8.3	-9.0	-8.9	-8.8	-7.5	-3.9	-1.3	1.3	4.6	6.5	6.8	7.9	8.6	8.2	5.2	1.4	-0.7	-1.4	-2.1	-2.0	-2.5	-1.0	8.6
10-Mar	-2.7	-1.0	0.2	0.7	0.9	-0.2	0.2	3.8	5.3	6.9	8.6	9.4	8.9	8.3	8.9	9.4	9.2	8.3	4.6	-0.3	-1.2	-0.7	-1.7	-1.4	3.5	9.4
11-Mar	-1.6	-1.8	-2.6	-3.3	-4.3	-6.3	-7.3	-7.6	-7.5	-6.6	-5.0	-3.9	-3.0	-2.0	-1.5	-0.4	0.4	0.1	-2.1	-2.7	-3.9	-5.0	-7.1	-8.6	-3.9	0.4
12-Mar	-9.9	-10.5	-11.5	-12.0	-12.7	-13.1	-13.5	-11.9	-7.2	-3.2	-1.8	-0.5	1.3	2.8	3.7	3.4	2.8	1.7	0.0	-1.2	-2.1	-3.2	-4.5	-5.5	-4.5	3.7
13-Mar	-7.3	-9.3	-10.6	-11.8	-12.7	-13.7	-14.5	-13.4	-8.9	-5.9	-4.3	-2.6	-0.6	1.5	3.0	4.0	4.4	4.2	0.9	-1.8	-2.6	-3.3	-1.7	-2.0	-4.5	4.4
14-Mar	-3.6	-4.7	-5.8	-6.8	-7.9	-9.0	-9.3	-7.5	-2.0	1.5	4.2	5.6	7.1	8.5	8.5	8.0	7.1	6.6	5.6	3.3	3.2	6.0	6.6	5.6	1.3	8.5
15-Mar	4.4	4.4	4.9	4.9	6.1	6.1	3.6	2.6	1.6	2.4	2.5	3.5	3.9	3.3	3.2	2.6	1.9	0.9	-1.3	-2.9	-3.6	-4.6	-5.2	-5.9	1.6	6.1
16-Mar	-5.7	-6.5	-7.2	-8.0	-8.9	-9.4	-9.6	-9.8	-9.5	-8.3	-7.0	-6.0	-5.1	-4.1	-3.3	-2.7	-2.4	-2.5	-2.8	-2.9	-3.0	-3.1	-3.2	-3.2	-5.6	-2.4
17-Mar	-2.4	-2.6	-2.5	-2.7	-3.1	-3.6	-3.6	-3.2	-2.1	-1.0	0.7	3.0	5.0	6.9	8.9	11.4	13.2	14.0	8.7	4.0	7.5	11.5	10.3	5.4	3.5	14.0
18-Mar	4.2	1.8	0.4	0.7	-0.1	-0.9	-1.5	-2.1	-2.8	-2.9	-2.5	-2.5	-2.1	-2.7	-3.0	-4.2	-4.7	-5.1	-5.6	-6.6	-7.6	-8.7	-9.1	-9.8	-3.2	4.2
19-Mar	-10.9	-11.4	-11.9	-12.4	-13.2	-14.0	-14.9	-15.5	-15.1	-14.5	-13.8	-12.9	-11.9	-11.0	-10.5	-10.2	-10.7	-11.3	-12.7	-13.8	-14.3	-14.7	-16.4	-18.3	-13.2	-10.2
20-Mar	-20.2	-21.5	-22.2	-23.1	-23.2	-24.2	-24.8	-21.7	-17.9	-16.6	-15.3	-14.3	-13.1	-11.8	-10.8	-10.3	-10.2	-10.4	-11.4	-14.5	-16.6	-15.8	-15.2	-15.2	-16.7	-10.2
21-Mar	-16.6	-17.3	-19.0	-20.2	-20.7	-19.9	-19.8	-18.3	-16.1	-13.8	-11.7	-10.3	-9.1	-7.9	-7.4	-7.3	-7.7	-8.7	-10.2	-11.6	-13.4	-17.3	-19.6	-20.6	-14.3	-7.3
22-Mar	-21.7	-22.5	-23.1	-23.9	-24.5	-25.2	-25.8	-22.0	-17.1	-13.9	-10.6	-9.3	-8.4	-7.1	-6.3	-5.1	-4.7	-5.0	-8.4	-13.0	-15.6	-17.4	-18.8	-19.8	-15.4	-4.7
23-Mar	-20.9	-21.7	-22.6	-23.6	-24.2	-24.8	-25.1	-20.6	-14.6	-10.7	-7.9	-5.1	-2.8	-1.7	-1.0	-0.6	-0.4	-0.5	-2.2	-6.4	-9.0	-10.9	-12.2	-13.5	-11.8	-0.4
24-Mar	-14.3	-15.1	-15.9	-16.4	-16.6	-17.1	-16.8	-13.4	-8.6	-5.5	-3.3	-0.9	0.5	1.2	1.3	1.5	1.3	0.7	-0.8	-1.5	-1.9	-2.6	-2.7	-4.5	-6.3	1.5
25-Mar	-5.2	-6.8	-7.7	-8.2	-8.4	-9.2	-8.8	-7.8	-6.6	-4.6	-2.5	0.2	1.7	2.8	4.0	4.4	4.5	3.7	2.3	0.9	0.2	-0.5	-0.7	-1.2	-2.2	4.5
26-Mar	-1.7	-2.1	-2.5	-2.9	-3.3	-3.5	-3.6	-3.3	-2.8	-1.8	-0.7	-0.2	0.8	2.2	2.8	2.7	2.4	2.3	1.7	1.2	0.8	0.5	0.0	-0.5	-0.5	2.8
27-Mar	-1.5	-2.3	-3.1	-4.2	-5.4	-6.4	-6.8	-7.4	-7.5	-6.8	-6.4	-5.6	-5.0	-5.1	-5.2	-5.3	-5.1	-5.3	-5.7	-5.9	-6.3	-6.7	-7.1	-7.1	-5.6	-1.5
28-Mar	-7.1	-7.4	-7.8	-7.9	-8.1	-8.2	-8.2	-8.0	-7.4	-6.7	-6.2	-5.6	-4.9	-4.6	-4.4	-4.2	-4.3	-4.6	-5.2	-6.1	-6.9	-6.7	-6.7	-6.8	-6.4	-4.2
29-Mar	-7.1	-7.5	-8.1	-8.4	-8.7	-9.7	-9.4	-8.9	-8.2	-7.0	-5.3	-4.1	-3.5	-3.0	-2.9	-3.1	-3.0	-3.0	-3.8	-7.2	-10.6	-12.9	-14.3	-15.9	-7.3	-2.9
30-Mar	-16.8	-18.0	-19.1	-20.0	-20.6	-21.4	-20.5	-14.7	-10.7	-7.1	-3.7	-1.4	-0.5	0.5	1.3	1.9	2.3	2.1	1.1	-2.7	-4.1	-4.6	-3.8	-4.4	-7.7	2.3
31-Mar	-4.5	-5.4	-5.3	-5.0	-5.7	-7.5	-8.8	-4.9	-2.2	0.3	2.8	4.8	7.0	9.0	10.5	11.2	10.7	9.7	8.5	8.3	8.4	7.9	7.7	7.9	2.7	11.2
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Fort McKay South - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	113	15.19	15.19
-20 - 0	487	65.46	80.65
0 - 10	136	18.28	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

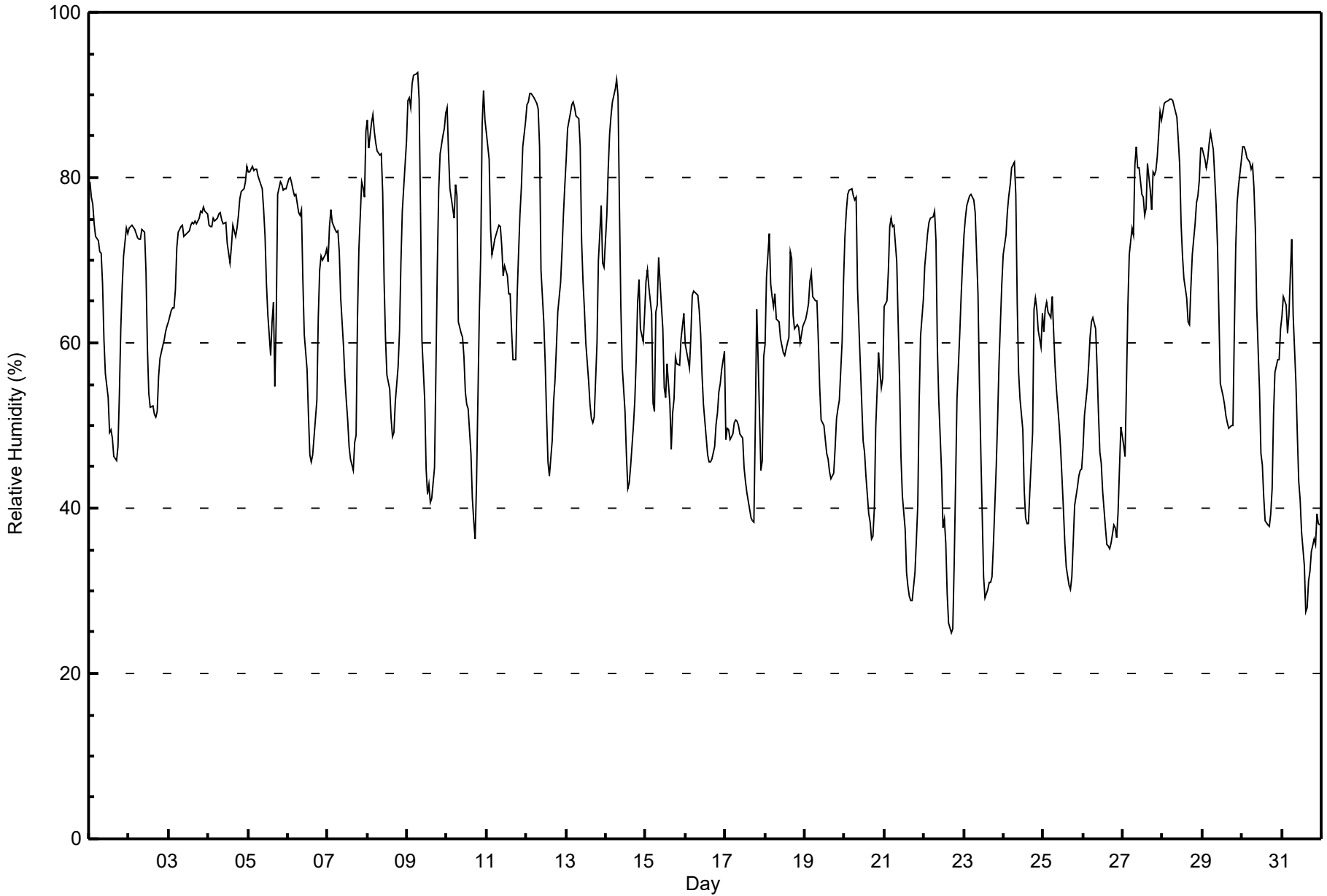
Relative Humidity (RH) - %
Fort McKay South - March 2024

Maximum Value: 92.7 % on Mar 9 07:00 Maximum Daily Average: 79.1 % on Mar 28 Minimum Value: 24.9 % on Mar 22 17:00 Minimum Daily Average: 46.7 % on Mar 31 Maximum Diurnal Average: 75.5 % at hour 7 Minimum Diurnal Average: 47.6 % at hour 16 Monthly Average: 63.13 % Percentiles: P ₁ = 29.2 P ₁₀ = 41.2 Q ₁ = 51.0 Median = 64.0 Q ₃ = 75.4 P ₉₀ = 82.7 P ₉₉ = 90.2																						Hours in Service:	744																								
																						Hours of Data:	744																								
																						Hours of Missing Data:	0																								
																						Hours of Calibration:	0																								
																						Percent Operational Time:	100.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Mar	79.5	77.7	76.7	74.4	72.9	72.5	71.1	70.8	67.1	60.4	56.3	53.5	49.1	49.6	48.5	46.3	45.7	47.5	53.7	61.7	66.8	70.5	73.8	73.3	63.3	79.5																					
2-Mar	73.8	74.1	74.3	73.7	73.2	72.7	72.5	72.5	73.7	73.3	68.7	59.5	53.9	52.2	52.4	51.4	51.1	51.8	55.9	58.1	59.7	60.3	61.3	62.1	63.8	74.3																					
3-Mar	62.5	63.9	64.2	64.2	66.4	71.5	73.5	74.1	74.2	72.9	73.0	73.2	73.5	74.2	74.6	74.4	74.8	74.5	75.1	75.9	75.8	76.4	75.9	75.6	72.3	76.4																					
4-Mar	74.2	74.0	74.1	75.1	74.7	75.1	75.6	75.8	74.9	74.3	74.6	72.1	70.9	69.7	71.8	74.2	72.9	73.8	75.4	77.5	78.3	78.6	79.5	81.4	74.9	81.4																					
5-Mar	80.6	80.7	81.3	80.9	81.1	81.0	80.2	79.6	78.7	76.0	72.9	67.1	63.3	58.4	62.5	64.9	54.8	63.3	77.9	79.5	79.1	78.4	78.7	78.6	74.2	81.3																					
6-Mar	79.8	80.0	79.4	78.5	77.9	78.0	75.7	75.4	76.0	67.6	61.1	56.8	51.1	46.4	45.5	46.5	48.6	53.1	63.0	68.8	70.6	70.0	70.7	71.4	66.3	80.0																					
7-Mar	69.7	74.1	76.1	74.6	73.8	73.3	73.5	71.0	65.4	59.7	55.8	53.0	50.6	47.5	45.9	44.6	47.9	48.7	63.0	71.4	79.5	78.8	77.7	85.7	65.0	85.7																					
8-Mar	87.0	83.5	86.6	87.7	85.6	84.3	83.2	82.7	83.0	78.2	67.4	60.5	56.2	54.5	50.9	48.7	49.1	52.9	57.2	61.4	69.6	76.0	78.9	84.4	71.2	87.7																					
9-Mar	89.3	89.6	88.5	91.3	92.3	92.5	92.7	89.5	75.9	60.4	53.1	44.7	41.7	42.9	40.7	41.3	44.9	56.7	69.3	78.6	82.9	85.2	85.9	87.8	71.6	92.7																					
10-Mar	88.5	82.9	78.7	76.2	75.1	79.1	77.8	62.5	61.2	60.6	58.4	54.1	52.5	52.0	46.6	41.2	38.4	36.3	43.2	63.8	70.7	86.5	90.5	86.9	65.2	90.5																					
11-Mar	85.4	82.3	73.7	70.7	71.5	72.5	73.8	74.3	74.0	71.6	68.1	69.3	68.1	66.0	65.9	61.5	58.0	57.9	65.8	70.8	75.6	78.7	83.8	86.8	71.9	86.8																					
12-Mar	88.8	89.2	90.2	90.2	89.6	89.4	89.0	88.4	83.7	68.8	62.6	57.6	51.1	45.6	44.0	48.2	52.8	55.4	59.5	63.7	67.3	71.0	75.4	78.9	70.9	90.2																					
13-Mar	82.2	85.9	87.8	88.8	89.2	88.5	87.4	87.1	83.7	72.4	67.5	64.0	60.0	55.4	52.5	50.8	50.3	51.0	60.0	70.0	73.3	76.5	69.6	69.1	71.8	89.2																					
14-Mar	75.4	81.0	85.2	87.4	89.2	90.6	91.9	89.9	76.8	64.5	57.1	51.7	46.5	42.4	43.1	45.0	49.9	53.1	58.1	64.9	67.5	61.7	60.2	63.5	66.5	91.9																					
15-Mar	67.5	68.7	66.8	63.5	52.8	51.7	63.7	64.6	70.3	64.3	61.6	54.5	53.4	57.5	52.6	47.0	51.6	53.2	58.2	57.4	57.3	60.5	62.0	63.6	59.4	70.3																					
16-Mar	59.8	58.0	56.9	60.8	65.8	66.2	65.7	63.8	61.0	56.1	52.6	48.5	46.4	45.5	45.6	46.0	47.5	50.1	51.5	54.1	55.1	56.7	59.0	55.8	66.2																						
17-Mar	48.3	49.7	49.6	48.3	48.9	50.3	50.6	50.4	49.9	49.1	48.5	45.0	43.2	41.8	40.8	38.8	38.4	38.3	50.0	64.1	58.1	44.6	45.8	58.3	48.0	64.1																					
18-Mar	59.8	67.9	73.2	67.1	65.5	64.4	65.9	62.8	62.5	60.6	59.6	58.9	58.4	60.0	60.7	71.0	70.2	63.3	61.7	62.1	61.8	60.1	61.1	62.0	63.4	73.2																					
19-Mar	62.9	63.7	64.7	67.5	68.4	65.6	65.1	65.1	60.3	54.6	50.7	50.0	48.4	46.7	45.9	44.4	43.5	44.3	47.3	50.9	52.1	53.0	60.1	67.4	55.9	68.4																					
20-Mar	72.8	76.0	78.0	78.5	78.6	77.8	77.4	77.6	66.6	57.3	52.7	48.2	46.9	44.0	39.3	38.4	36.4	36.5	39.9	49.9	58.8	56.4	54.6	55.7	58.3	78.6																					
21-Mar	64.4	65.0	68.7	74.1	75.2	74.0	74.3	69.8	62.5	55.5	46.3	41.6	37.5	32.1	30.5	29.3	28.8	28.8	32.2	36.2	40.3	52.7	60.8	65.3	51.9	75.2																					
22-Mar	69.3	71.2	73.2	74.6	75.1	75.2	75.9	72.5	59.5	53.1	44.4	37.6	38.7	35.8	29.7	26.1	24.9	25.4	33.2	43.1	53.1	61.2	65.7	69.7	53.7	75.9																					
23-Mar	73.1	75.1	76.6	77.7	77.9	77.6	77.4	75.7	65.9	55.3	46.9	39.3	31.6	29.2	30.2	31.0	31.0	31.8	35.6	45.0	50.8	57.5	62.3	67.1	55.1	77.9																					
24-Mar	70.6	73.1	76.0	77.8	79.2	81.2	81.8	77.9	65.0	56.4	53.2	49.5	42.3	38.9	38.1	38.1	42.1	49.1	64.1	65.4	64.0	61.5	59.4	63.6	61.2	81.8																					
25-Mar	61.4	64.0	64.9	63.7	63.1	65.6	61.3	57.3	54.5	50.0	47.1	43.5	39.8	35.8	32.8	30.7	30.2	31.7	36.0	40.3	42.5	43.9	44.6	44.8	47.9	65.6																					
26-Mar	47.3	51.2	54.6	57.3	60.7	62.6	63.1	61.6	57.2	51.6	46.8	45.4	42.0	37.6	35.7	35.4	35.2	35.8	37.9	37.7	36.5	39.5	44.7	49.9	47.0	63.1																					
27-Mar	47.6	46.3	55.1	64.3	70.7	73.9	73.0	81.5	83.7	81.2	81.2	77.9	77.6	75.5	76.3	81.6	78.5	76.2	80.7	80.4	80.8	82.6	88.0	87.0	75.1	88.0																					
28-Mar	88.0	88.9	89.2	89.3	89.5	89.5	89.3	88.7	87.3	84.6	81.5	74.5	70.6	67.8	65.4	62.5	62.3	66.8	70.7	74.4	76.9	77.8	79.6	83.5	79.1	89.5																					
29-Mar	83.5	82.3	81.3	82.2	84.1	85.4	83.5	80.2	76.6	71.7	63.5	55.0	53.5	52.6	51.1	50.4	49.7	50.0	50.0	61.1	71.5	76.9	78.9	82.1	69.0	85.4																					
30-Mar	83.7	83.8	83.2	82.4	81.9	81.1	81.5	78.8	73.9	64.3	54.2	46.6	45.3	41.4	38.5	37.9	37.8	39.2	42.4	51.3	56.5	58.0	58.0	61.7	61.0	83.8																					
31-Mar	63.2	65.6	64.6	61.1	63.4	68.4	72.6	63.3	55.1	48.9	43.2	41.0	37.2	33.0	27.5	28.0	31.2	32.4	34.8	36.2	35.7	39.3	38.1	37.9	46.7	72.6																					
																						72.3	73.2	74.0	74.3	74.6	75.2	75.5	73.8	69.8	63.9	59.2	54.8	51.7	49.4	47.9	47.6	47.6	49.2	54.9	60.4	63.5	65.5	67.2	69.8	Diurnal Average	
																						89.3	89.6	90.2	91.3	92.3	92.5	92.7	89.9	87.3	84.6	81.5	77.9	77.6	75.5	76.3	81.6	78.5	76.2	80.7	80.4	82.9	86.5	90.5	87.8	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Fort McKay South - March 2024





Maximum Speed: 27 km/h on Mar 26 11:00	Maximum Daily Speed Average: 20.8 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 23 08:00	Minimum Daily Speed Average: 1.8 km/h on Mar 5	Hours of Data: 742
Maximum Diurnal Speed Average: 3.1 km/h at hour 14	Minimum Diurnal Speed Average: 0.4 km/h at hour 4	Hours of Missing Data: 2
Monthly Average Velocity: 1.3 km/h 71.5 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 5 Median = 9 Q ₃ = 14 P ₉₀ = 18 P ₉₉ = 23	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-Mar	W7	WSW7	W8	WSW11	W9	WSW8	WSW11	WSW12	WSW8	WSW9	W11	WNW14	NW12	WNW12	NW12	NW11	NNW10	NNW10	NNW7	NNW6	NW3	NNW3	NNE6	N4	WNW7.2	WNW14
2-Mar	NNW3	W3	NW3	NW1	WSW1	WSW2	W1	NW2	NNW3	N6	N10	NNE10	N7	N12	NNE12	NNE13	N13	NNE11	NNE9	N11	N13	NNE12	NNE11	N14	N7.0	N14
3-Mar	N14	N13	N15	N16	N18	N18	N18	N19	N19	N19	N17	N19	N18	N16	N17	N18	N17	N18	N16	N16	N16	N17	N18	N20	N17.1	N20
4-Mar	N22	N23	N22	N20	N19	N19	N21	N20	N23	N23	N22	N21	N20	N19	N16	N14	N13	N11	N9	N8	N6	N6	N5	N5	N16.6	N23
5-Mar	NNW3	NNW5	NNW7	N7	N7	N7	N8	N8	N8	N10	N8	NNE5	NNE3	SSW7	SSW8	SSE6	SSW5	SW5	SW4	SSW3	S3	S3	SSW3	S1	NNW1.8	N10
6-Mar	SSW2	S2	S2	SSW5	SSW5	SSW5	SSW5	S3	S5	SSE8	SE11	SE13	SSE15	S15	S16	S16	S14	S9	SSW8	S8	S9	S10	S10	S10	S8.2	S16
7-Mar	SSE13	S8	S8	S9	S5	S9	S10	SSE13	SSE15	SSE15	SSE16	SSE15	SSE16	SSE18	SSE18	SSE15	S8	S9	S7	S4	SSE1	S5	S3	NW1	SSE9.7	SSE18
8-Mar	SW2	W7	NNW3	SSW3	SW1	S3	SSW2	SSW2	S6	SE7	SE7	SSE10	SSE12	SSE10	SSE10	SSE12	SSE15	S10	SSE10	S10	S6	SSE8	S4	SW4	SSE5.9	SSE15
9-Mar	SSW5	SSW4	SW3	SSW4	SSW5	SSE6	SSE4	S6	S7	SSE10	SSE7	SSE8	SSE14	SSE10	SSE9	SSE8	SE3	SSE2	SW1	SSW3	SSW3	SSW1	W1	S2	SSE4.8	SSE14
10-Mar	S4	S6	S6	SSE8	SSE6	SSE3	SSW4	WSW10	WSW9	SW7	WSW12	WSW15	W15	W14	W12	W14	WNW11	WNW8	NW5	NW5	NNW7	N11	NNE11	NNE11	W4.8	WSW15
11-Mar	NNE9	NNE8	NNE9	NE8	NNE10	NNE10	NNE8	NNE8	NNE8	NNE8	N9	N10	N10	N12	N13	N12	N10	N10	NNW7	NNW7	N5	N4	N4	NW1	N8.0	N13
12-Mar	NW2	NW3	WNW2	NNW2	NNW4	NNW3	NNW3	N5	N4	SSE6	SSE12	SSE12	SSE8	SE7	ENE4	N10	N8	SE1	SE7	SE7	SE9	SE12	SE8	ESE5	SE2.4	SSE12
13-Mar	SE1	NNW1	NW1	NW2	WNW1	WSW1	WSW1	NW1	ESE2	SSE10	SSE12	SSE10	SSE10	SSE11	SE11	SE12	SSE13	SSE10	S5	SSE4	SSE3	S2	S8	S6	SSE5.0	SSE13
14-Mar	S6	S6	SSW4	SW3	SW2	SW2	SSW3	SSW1	SSE1	SE3	S7	S15	S16	SSW12	SSW8	SSW9	S8	S7	S8	S8	S8	SW8	WSW9	WNW5	SSW6.0	S16
15-Mar	WNW3	WSW8	WSW13	W11	NW12	NNW16	NNW22	N16	N16	NNW15	NNW18	NNW17	N15	NNE13	NNE15	NNE21	NNE15	NNE14	NNE11	NNE9	NNE10	NNE6	NNE5	NNE6	N10.5	NNW22
16-Mar	NNE9	NNE12	N11	N11	N12	NNE9	NNE10	NNE9	NNE10	NNE11	NNE11	N10	N11	N9	N8	N10	N10	N10	N7	N5	N4	NNE4	NE2	N0	N8.4	NNE12
17-Mar	SE11	SSE11	SSE11	SSE11	SSE9	S10	S12	S12	SSE13	SSE20	SSE18	SSE19	SSE20	SSE19	SSE17	SSE13	SSE11	S11	S9	SSE7	SSW8	SW9	W9	NNE9	SSE10.9	SSE20
18-Mar	N9	NNE2	N6	NNE9	N14	N19	N14	N17	N19	N17	N14	N12	NNE12	NNE12	NNE14	NNE18	N17	NNE18	NNE16	NNE16	N17	N20	NNE17	N17	N14.4	N20
19-Mar	N19	N18	N18	N18	NNE16	NNE14	NNE16	NNE16	NNE18	NNE15	NNE14	NNE13	NNE12	NNE14	NNE14	NNE14	NNE13	NNE11	NNE10	NNE6	NE8	NNE8	NW4	WNW5	NNE12.6	N19
20-Mar	UO	WSW2	W3	WNW3	NW3	WNW3	SW2	NW0	NNE4	NNE7	N9	N10	N10	N11	N11	N12	N11	N10	N7	NNW5	N4	N5	N6	N6	N5.6	N12
21-Mar	NNW4	NNW6	NNW4	NW4	NW4	NNW6	NNW5	NNW4	N8	N9	N13	N15	N16	NNE15	N16	NNE15	NNE15	NNE15	NNE11	NNE10	N7	NW3	WNW3	WNW4	N8.2	N16
22-Mar	W3	WSW3	NW1	SW2	WSW3	WSW1	SSW2	NW1	E3	E5	SE5	SE6	ESE6	SE6	SSE6	S5	S6	S7	SSW4	SW2	UO	WSW2	SW2	W1	S2.2	S7
23-Mar	WSW2	WSW1	WSW1	SW3	WSW3	WSW3	WSW3	SSW0	SE5	SE8	ESE6	ESE7	SSE7	SSE10	S10	SE8	SE9	SE8	SE5	SSW2	SSW3	SSW2	SSW2	SW1	SSE3.6	SSE10
24-Mar	WSW1	W3	W1	SW1	W1	WSW1	SW2	S1	ESE3	S7	SE6	SE8	SSE14	SSE15	SSE15	SSE15	SSE15	SSE16	SSE8	SSE5	SE5	SSE7	SSE8	SSE6	SSE6.2	SSE16
25-Mar	SSE8	SSE6	SE6	SSE10	SSE10	SSE8	SSE10	SSE12	SSE14	SSE14	SSE14	SSE18	SSE19	SSE20	SSE22	S20	S19	S18	SSE14	SSE14	SSE17	SSE19	SSE20	SSE20	SSE14.6	SSE22
26-Mar	SSE19	SSE19	SSE18	SSE20	SSE21	SSE22	SSE21	SSE21	SSE23	SSE25	SSE27	SSE23	SSE23	SSE23	SSE22	SE21	SE19	SSE20	SSE16	SSE17	SSE18	SSE18	SSE22	SSE22	SSE20.8	SSE27
27-Mar	SE14	SE20	SSE20	SE20	SE14	ESE10	SE10	ESE9	SE10	ESE11	SE12	SE13	SE14	SE17	SE15	ESE11	SE14	ESE11	E6	NE6	NE6	N7	N8	N6	SE9.9	SSE20
28-Mar	N7	N9	N10	N9	N9	N9	N9	N10	N11	N13	N14	N15	N17	NNE16	N17	N17	N16	N14	N12	N11	NNW8	NNW10	NNW9	N12	N11.7	N17
29-Mar	N13	N12	N9	N10	N9	NNW7	N8	N11	N11	N11	NNE12	NNE16	NNE15	NNE17	N15	N13	NNE11	NNE11	NE5	NW1	W4	WSW4	NW1	WSW2	N8.7	NNE17
30-Mar	SSW1	SSW3	SW2	SW2	SW2	SW2	SW2	SSE2	SE8	SE9	SE9	SE14	SSE18	SSE18	SSE18	SSE17	SSE16	SE15	SSE10	SSE4	S5	SSE7	SSE9	S6	SSE7.8	SSE18
31-Mar	SSE7	S3	S9	SSE11	SSE10	S7	S5	SSE8	S14	S13	SSE13	SE14	SSE16	SSE17	S17	S15	S15	S11	S12	SSE13	S17	SSE14	SSE18	S15	S12.0	SSE18

NNE1.0	NNW0.7	NNW0.9	N0.4	N1.4	N1.6	N1.5	NNE1.8	NE2.0	E2.7	E2.7	E2.8	ESE3.1	ESE3.1	ESE2.5	E2.3	E2.4	E1.9	ENE1.2	ENE0.8	E0.8	ESE0.6	ESE0.5	NNNE0.8	Diurnal Average	
N22	N23	N22	N20	SSE21	SSE22	NNW22	SSE21	N23	SSE25	SSE27	SSE23	SSE23	SSE23	SSE23	SSE22	NNE21	SE19	SSE20	N16	SSE17	SSE18	N20	SSE22	SSE22	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

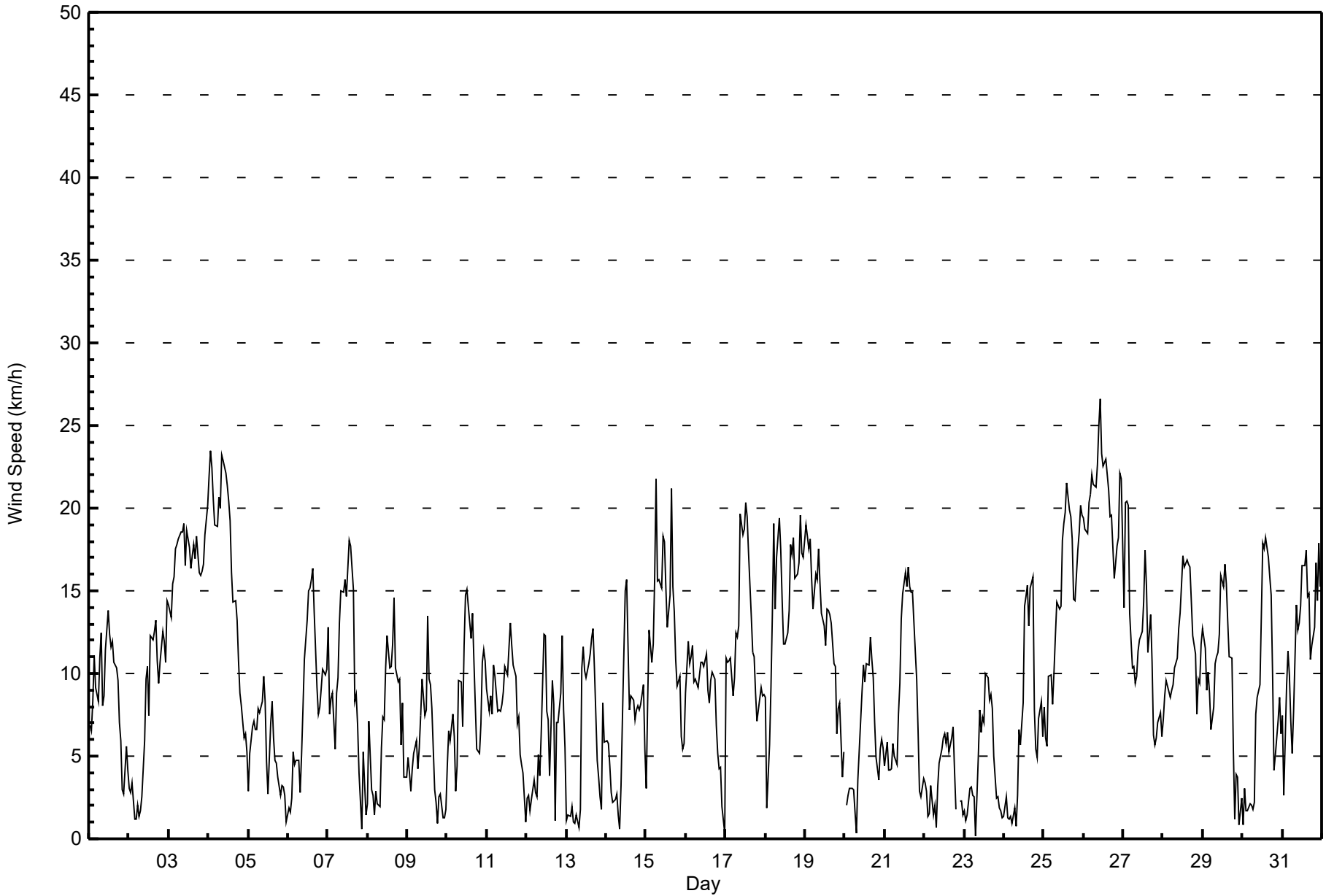
Wind Speed (WS) - km/h
Fort McKay South - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Mar 27 00:00														Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7											
Minimum Value: 0 km/h on Mar 5 20:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 4 P ₉₀ = 4 P 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-Mar	2	2	2	3	3	3	3	3	3	3	4	5	5	4	4	3	4	3	2	1	2	2	2	2	5
2-Mar	1	1	1	2	1	1	1	1	1	2	3	2	3	2	3	4	4	3	2	2	2	4	4	4	4
3-Mar	3	3	3	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	5	5
4-Mar	5	6	5	5	5	5	5	5	6	5	5	5	4	4	4	3	4	3	2	2	2	1	1	1	6
5-Mar	1	1	2	2	1	1	2	1	2	2	2	2	3	2	2	1	2	1	1	0	1	1	1	1	3
6-Mar	1	1	2	1	1	1	1	1	1	2	2	2	3	4	4	4	3	2	1	1	1	1	2	2	4
7-Mar	2	3	1	1	1	2	2	2	3	3	3	3	3	4	3	3	2	1	2	2	1	2	2	2	4
8-Mar	1	3	2	1	2	1	1	1	2	1	1	2	2	2	2	3	2	1	2	1	1	3	1	1	3
9-Mar	2	3	2	1	1	1	1	2	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	2	3
10-Mar	2	1	1	1	1	1	2	4	4	2	4	5	6	5	5	5	4	3	1	2	3	2	3	3	6
11-Mar	3	2	2	2	3	2	2	2	2	2	2	3	2	2	2	2	2	2	1	1	3	2	1	2	3
12-Mar	1	1	1	1	1	1	1	0	1	3	3	3	2	2	3	2	2	2	2	2	3	3	2	1	3
13-Mar	1	1	1	1	1	1	1	1	2	4	2	2	2	2	3	2	2	2	2	3	2	1	2	1	4
14-Mar	1	1	1	1	1	1	1	1	1	4	2	4	3	3	2	2	2	2	2	2	1	3	3	3	4
15-Mar	2	3	4	4	4	5	5	4	4	4	5	4	4	3	4	5	4	4	4	2	3	2	2	1	5
16-Mar	3	3	3	3	3	3	3	3	3	3	3	3	2	3	2	3	2	2	1	1	2	1	2	2	3
17-Mar	3	3	2	2	2	2	2	4	4	4	4	4	5	4	4	3	2	4	2	1	4	3	3	4	5
18-Mar	2	2	2	3	5	5	4	4	4	4	3	3	3	3	3	4	4	5	4	4	5	5	4	4	5
19-Mar	5	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3	3	4	2	2	2	1	1	5
20-Mar	UO	1	1	1	1	1	1	1	1	2	3	3	3	3	3	3	2	2	2	1	1	1	1	2	3
21-Mar	1	2	1	1	1	1	1	1	2	3	4	3	3	4	4	4	4	4	3	2	2	1	1	1	4
22-Mar	1	1	1	1	1	1	0	1	1	1	2	2	2	2	2	3	2	2	2	1	UO	1	1	1	3
23-Mar	1	1	2	1	1	1	1	1	1	2	2	2	3	4	4	3	2	2	2	1	1	1	1	1	4
24-Mar	1	1	1	1	1	1	1	1	1	2	2	3	4	4	4	3	4	4	3	2	1	3	2	2	4
25-Mar	2	1	2	2	2	2	2	3	4	3	3	4	5	5	5	5	4	5	3	3	3	4	4	4	5
26-Mar	4	3	3	4	4	5	4	4	5	5	5	5	5	6	5	5	5	4	4	4	4	4	5	6	6
27-Mar	4	5	5	4	5	3	3	3	3	3	4	4	4	5	5	4	5	4	2	1	2	1	1	1	5
28-Mar	1	2	2	2	2	2	2	2	2	2	3	3	4	4	4	3	4	3	3	2	2	2	2	3	4
29-Mar	2	3	2	2	2	2	2	3	3	3	3	4	4	4	4	3	3	3	3	1	1	1	1	1	4
30-Mar	1	1	1	1	1	1	1	2	2	2	2	5	4	4	4	4	4	3	3	1	1	1	2	2	5
31-Mar	1	2	2	3	2	1	1	2	3	3	3	3	3	3	4	3	3	2	3	3	3	3	4	4	4
														Diurnal Maximum											
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Fort McKay South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Fort McKay South - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	197	26.55	26.55
6 - 11	281	37.87	64.42
12 - 19	223	30.05	94.47
20 - 28	41	5.53	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
Fort McKay South - March 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	6	2	1	2	3	8	11	21	31	23	19	10	9	23	16	197
6 - 11	70	39	4	0	1	9	23	49	42	7	3	10	7	2	1	14	281
12 - 19	74	39	0	0	0	0	15	59	17	2	0	5	3	2	3	4	223
20 - 28	13	1	0	0	0	0	3	22	1	0	0	0	0	0	0	1	41
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
Totals	169	85	6	1	3	12	49	141	81	40	26	34	20	13	27	35	742

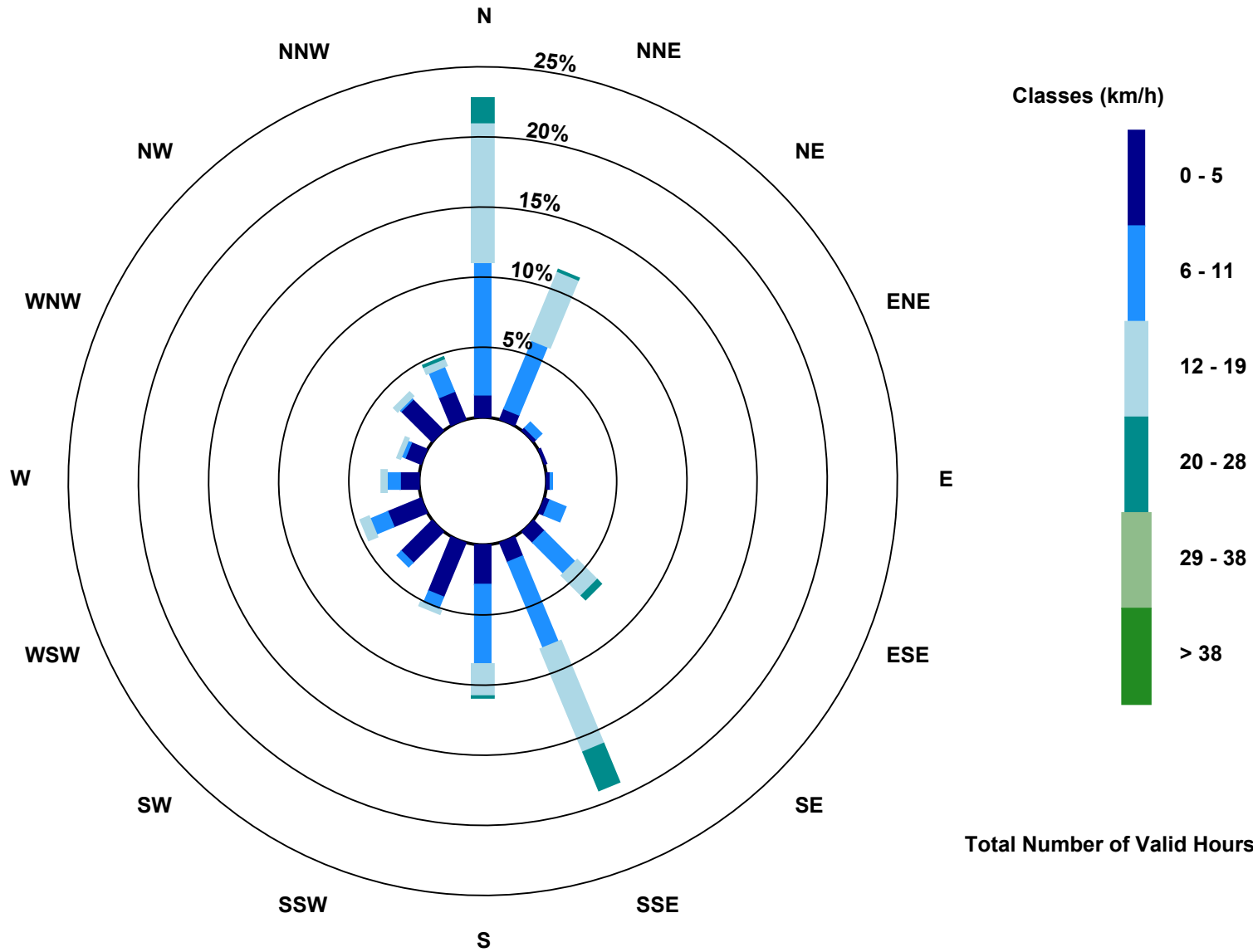
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Fort McKay South



Total Number of Valid Hours: 742



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Fort McKay South - March 2024

Direction of Maximum Speed: 150 deg on Mar 26 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 156.8 deg on Mar 26	Hours of Data: 742
Direction of Minimum Speed: 200 deg on Mar 23 08:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 1.8 deg on Mar 5	Percent Operational Time: 99.7
Monthly Average Direction: 71.5 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-Mar	271	256	260	258	267	258	256	257	250	254	262	297	305	296	310	309	334	342	329	328	314	343	18	11	289.1
2-Mar	347	262	307	305	249	254	277	310	348	10	6	17	8	4	22	19	10	17	12	5	4	14	20	7	6.7
3-Mar	357	353	359	3	3	4	8	8	10	7	11	7	5	2	354	351	356	355	356	358	5	360	357	3	1.6
4-Mar	4	6	1	1	357	358	2	360	1	2	1	357	2	4	1	356	1	358	355	350	352	356	352	351	359.9
5-Mar	335	335	342	359	357	2	354	358	6	1	6	24	12	194	194	159	206	215	234	212	180	169	193	189	341.6
6-Mar	207	183	189	196	196	202	200	184	173	154	141	143	164	191	189	177	187	189	204	190	185	183	189	173	179.6
7-Mar	159	175	183	179	186	186	173	167	161	161	156	159	155	158	158	156	179	191	178	184	166	178	176	315	166.9
8-Mar	217	265	333	194	222	181	211	197	171	139	144	150	158	158	148	151	159	171	168	179	173	165	170	223	167.1
9-Mar	201	198	232	200	193	161	165	181	176	155	147	147	167	151	151	151	129	157	231	206	201	196	273	187	168.7
10-Mar	185	170	174	163	168	165	195	252	253	219	248	256	259	263	264	277	299	300	308	317	344	11	16	24	267.2
11-Mar	27	20	31	38	21	30	24	26	16	16	3	9	5	359	358	358	355	353	339	348	351	1	353	318	8.8
12-Mar	319	320	300	345	331	332	327	354	349	155	154	158	160	138	61	356	8	139	145	138	141	139	136	121	126.5
13-Mar	125	329	306	322	297	258	246	312	121	152	162	147	153	149	143	143	149	154	170	157	162	170	178	191	156.6
14-Mar	188	188	194	215	230	223	204	195	167	130	183	178	180	199	206	203	179	178	177	176	176	220	244	284	193.6
15-Mar	288	255	250	271	315	332	344	2	356	344	345	336	356	25	21	12	17	20	24	18	20	17	33	20	352.8
16-Mar	19	21	11	2	11	26	32	22	22	22	12	2	3	4	5	359	358	3	355	354	4	25	37	352	11.2
17-Mar	144	154	150	147	166	172	172	169	167	167	153	166	162	163	161	165	150	177	177	162	199	235	268	13	165.8
18-Mar	357	27	4	18	8	9	9	5	7	8	10	11	16	14	12	16	10	12	13	13	10	4	12	10	10.1
19-Mar	6	7	7	5	13	17	15	14	14	22	14	23	22	12	18	17	29	32	31	29	35	24	314	302	15.0
20-Mar	UO	248	276	295	312	299	224	312	27	13	4	5	355	0	2	358	359	1	11	347	351	356	5	3	355.8
21-Mar	335	333	329	311	322	333	329	333	360	6	3	358	0	14	11	18	26	27	23	19	8	324	292	298	2.3
22-Mar	277	253	319	235	251	257	204	315	98	100	143	136	102	124	150	184	172	172	196	228	UO	239	229	264	169.7
23-Mar	253	258	252	230	240	244	242	200	134	130	120	123	157	162	174	135	134	142	132	201	193	196	207	219	158.4
24-Mar	252	273	264	229	264	244	222	171	120	170	138	139	148	161	156	159	159	160	167	155	135	147	148	154	157.9
25-Mar	153	155	140	159	152	162	159	154	156	162	148	162	154	149	159	172	174	170	165	165	164	165	167	166	161.0
26-Mar	165	163	160	161	159	159	162	161	160	156	150	148	151	158	160	145	146	156	161	160	162	157	153	154	156.8
27-Mar	138	144	147	143	138	120	128	123	131	122	130	132	132	128	128	121	126	120	86	44	35	7	356	0	124.4
28-Mar	1	0	360	358	351	352	353	358	3	8	6	10	2	15	6	9	6	355	352	354	339	336	337	351	359.4
29-Mar	353	355	358	353	352	341	352	360	3	9	16	13	21	18	10	8	18	17	35	311	259	252	304	239	3.9
30-Mar	206	204	222	228	224	220	234	150	137	136	140	144	150	150	153	150	149	144	147	162	174	167	165	182	154.5
31-Mar	165	171	180	167	164	191	186	161	179	176	167	146	147	159	184	175	177	171	173	167	177	166	164	181	169.8
	24.6	344.4	346.4	2.8	353.9	0.5	2.3	16.6	50.0	83.6	85.0	91.4	110.3	115.4	112.2	81.4	80.2	81.6	73.8	60.6	86.8	101.5	120.0	27.9	
	Diurnal Average																								

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



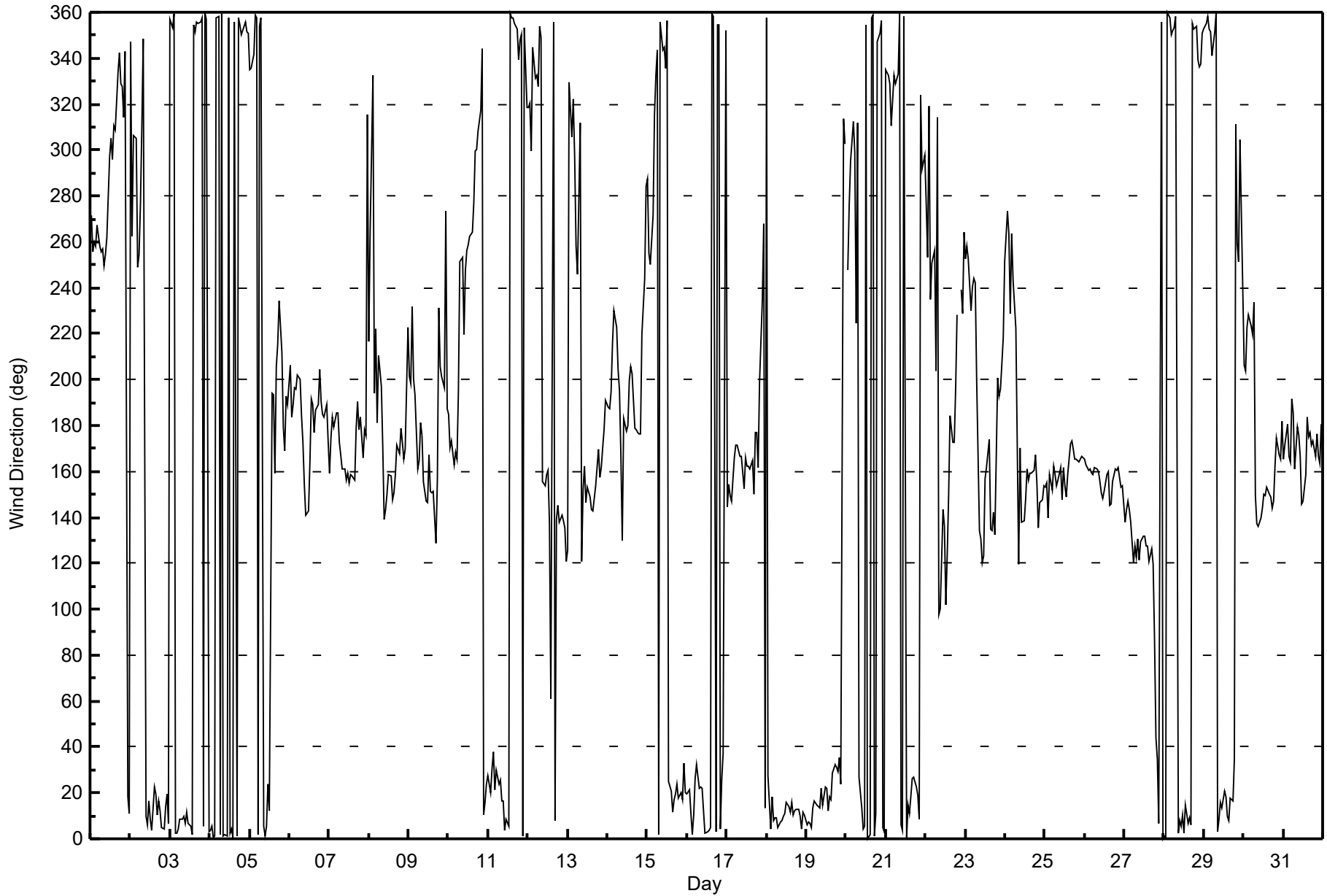
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Fort McKay South - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 95 deg on Mar 23 08:00	Hours of Data: 742
Minimum Value: 5 deg on Mar 9 05:00	Hours of Missing Data: 2
Percentiles: P ₁ = 8 P ₁₀ = 11 Q ₁ = 14 Median = 18 Q ₃ = 24 P ₉₀ = 44 P ₉₉ = 85	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-Mar	21	17	20	20	27	28	22	18	34	33	34	28	36	34	31	31	30	16	16	13	39	26	20	22	39
2-Mar	21	16	29	72	49	25	46	30	24	18	18	23	39	20	24	21	19	17	14	13	15	16	20	14	72
3-Mar	16	15	16	16	16	16	17	16	16	17	17	17	16	16	17	17	16	16	17	17	15	16	17	17	17
4-Mar	17	16	19	17	17	17	17	17	18	17	17	19	17	17	17	18	16	15	15	14	14	15	16	13	19
5-Mar	37	12	11	14	13	13	13	13	14	14	19	53	82	42	32	17	58	15	12	17	15	21	24	67	82
6-Mar	44	32	50	12	14	15	18	28	16	17	11	11	16	19	15	15	13	12	11	10	7	7	9	9	50
7-Mar	10	21	9	8	13	13	12	10	9	11	13	15	11	12	11	11	23	15	6	66	89	21	20	79	89
8-Mar	62	43	50	43	54	32	53	39	14	16	10	16	18	18	13	10	11	10	8	9	11	9	84	38	84
9-Mar	18	56	41	7	5	15	14	12	15	11	20	15	15	11	9	11	47	53	79	21	26	79	49	73	79
10-Mar	23	12	14	9	12	41	46	29	28	32	30	32	29	31	34	32	32	25	14	15	28	12	16	17	46
11-Mar	19	19	20	25	16	19	17	18	22	25	20	24	18	17	17	16	18	14	13	11	33	51	25	73	73
12-Mar	28	26	21	16	12	18	13	8	16	55	12	11	26	31	66	16	14	83	12	16	13	14	16	15	83
13-Mar	76	38	19	18	30	50	36	45	79	17	23	15	20	14	16	16	12	12	14	46	30	70	11	15	79
14-Mar	9	11	18	25	37	18	22	43	92	30	26	15	15	23	22	20	14	18	14	10	11	27	28	52	92
15-Mar	76	23	19	29	21	25	16	21	19	19	21	21	26	19	22	18	20	19	17	16	16	20	30	15	76
16-Mar	20	17	17	15	17	18	18	20	21	18	22	22	21	28	23	18	18	15	15	17	17	18	67	88	88
17-Mar	15	13	14	15	11	11	10	11	12	11	13	15	16	12	13	15	9	14	7	11	21	31	37	27	37
18-Mar	15	86	19	17	17	16	17	18	18	18	20	19	19	20	18	18	18	19	18	18	18	18	18	18	86
19-Mar	16	17	16	16	18	17	17	16	17	19	22	20	28	20	24	22	20	20	19	23	20	18	38	13	38
20-Mar	UO	30	32	13	23	34	48	90	33	33	27	25	26	20	26	21	20	18	15	15	20	17	12	24	90
21-Mar	11	11	13	15	18	10	12	15	16	25	20	19	17	23	21	22	20	18	17	16	16	20	29	19	29
22-Mar	22	25	72	38	19	63	24	86	34	34	40	43	44	51	46	45	28	24	12	14	UO	15	47	40	86
23-Mar	43	36	48	22	10	9	9	95	20	19	33	27	42	50	37	35	27	21	15	28	16	47	22	61	95
24-Mar	58	35	58	51	52	44	54	85	47	30	34	34	24	20	18	20	16	13	14	24	19	18	12	14	85
25-Mar	15	12	17	10	10	14	14	12	13	16	15	17	15	16	15	16	15	14	10	10	10	10	10	11	17
26-Mar	10	11	10	11	10	11	11	11	12	13	13	17	15	17	16	14	14	12	11	11	12	11	11	14	17
27-Mar	17	14	13	13	18	22	20	20	23	22	23	21	19	20	20	24	23	24	38	26	22	13	13	12	38
28-Mar	13	14	15	14	14	15	14	15	15	15	17	17	18	18	19	18	17	18	16	16	12	15	14	16	19
29-Mar	15	15	15	16	14	13	16	17	19	18	19	21	18	22	21	22	21	19	20	56	17	10	49	30	56
30-Mar	65	25	58	49	46	45	62	45	19	16	19	23	16	16	14	16	14	13	12	20	13	9	20	14	65
31-Mar	8	60	11	12	11	9	11	13	15	20	20	17	12	17	17	15	11	11	12	10	14	11	10	17	60
	76	86	72	72	54	63	62	95	92	55	40	53	82	51	66	45	58	83	79	66	89	79	84	88	
	Diurnal Maximum																								

UO - Unstable Operation





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS14
ANZAC
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
MARCH 2024

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

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	708	35	36	99.87	6.3	0	1.3	0
TRS(ppb) Average	709	35	35	100	3.1	0	0.3	0
THC(ppm) Average	708	35	36	99.87	2.6	-	2.1	-
NMHC(ppm) Average	708	35	36	99.87	0.23	-	0.07	-
CH4(ppm) Average	708	35	36	99.87	2.5	-	2.1	-
NO2(ppb) Average	707	37	37	100	28.8	0	5.6	-
NO(ppb) Average	707	37	37	100	27.9	-	1.7	-
NOX(ppb) Average	707	37	37	100	43.1	-	6.9	-
O3(ppb) Average	710	34	34	100	49.5	0	42.9	-
PM2.5(ug/m3) Average	743	1	1	100	250.8	1	18.2	0
AT 2m(C) Average	744	0	0	100	13.3	-	4.1	-
RH(%) Average	744	0	0	100	90.2	-	83.3	-
WS(km/h) Average	740	0	4	99.46	29	-	21	-
WD(deg) Average	740	0	4	99.46	-	-	-	-
Leaf Wetness (% of range) Average	744	0	0	100	1.8	-	0.6	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
MARCH 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	0.6	0.8	-	0	0	0.1	0.4	0.7	1.4	6.3
TRS(ppb) Average	709	0.18	0.1	-	0	0.1	0.1	0.2	0.2	0.2	3.1
THC(ppm) Average	708	1.99	0.1	-	1.9	1.9	1.9	2	2	2.1	2.6
NMHC (ppm) Average	708	0.012	0.029	-	0	0	0	0	0	0	0.23
CH4(ppm) Average	708	1.98	0.1	-	1.9	1.9	1.9	2	2	2	2.5
NO2(ppb) Average	707	2.3	2.3	-	0.2	0.4	0.9	1.6	3.1	4.7	28.8
NO(ppb) Average	707	0.55	1.5	-	0	0	0	0.1	0.6	1.4	27.9
NOX(ppb) Average	707	2.84	3.5	-	0.2	0.4	1	1.9	3.8	6	43.1
O3(ppb) Average	710	35.91	6.2	-	11.2	27	32.1	37.1	40.1	42.5	49.5
PM2.5(ug/m3) Average	743	4.21	9.9	-	0.6	1.8	2.7	3.4	4.4	5.7	250.8
Temperature 2 m (C) Average	744	-8.03	9.3	-	-30	-22.1	-15.4	-7.2	-1.4	4.1	13.3
Relative Humidity (%) Average	744	59.28	16.6	-	20.4	36.7	46.5	59.4	72.8	80.1	90.2
Wind Speed 20 m (km/h) Average	740	12.3	6	-	1	6	8	11	16	20	29
Wind Direction 20 m (deg) Average	740	210.1	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	0.06	0.3	-	0	0	0	0	0	0.1	1.8

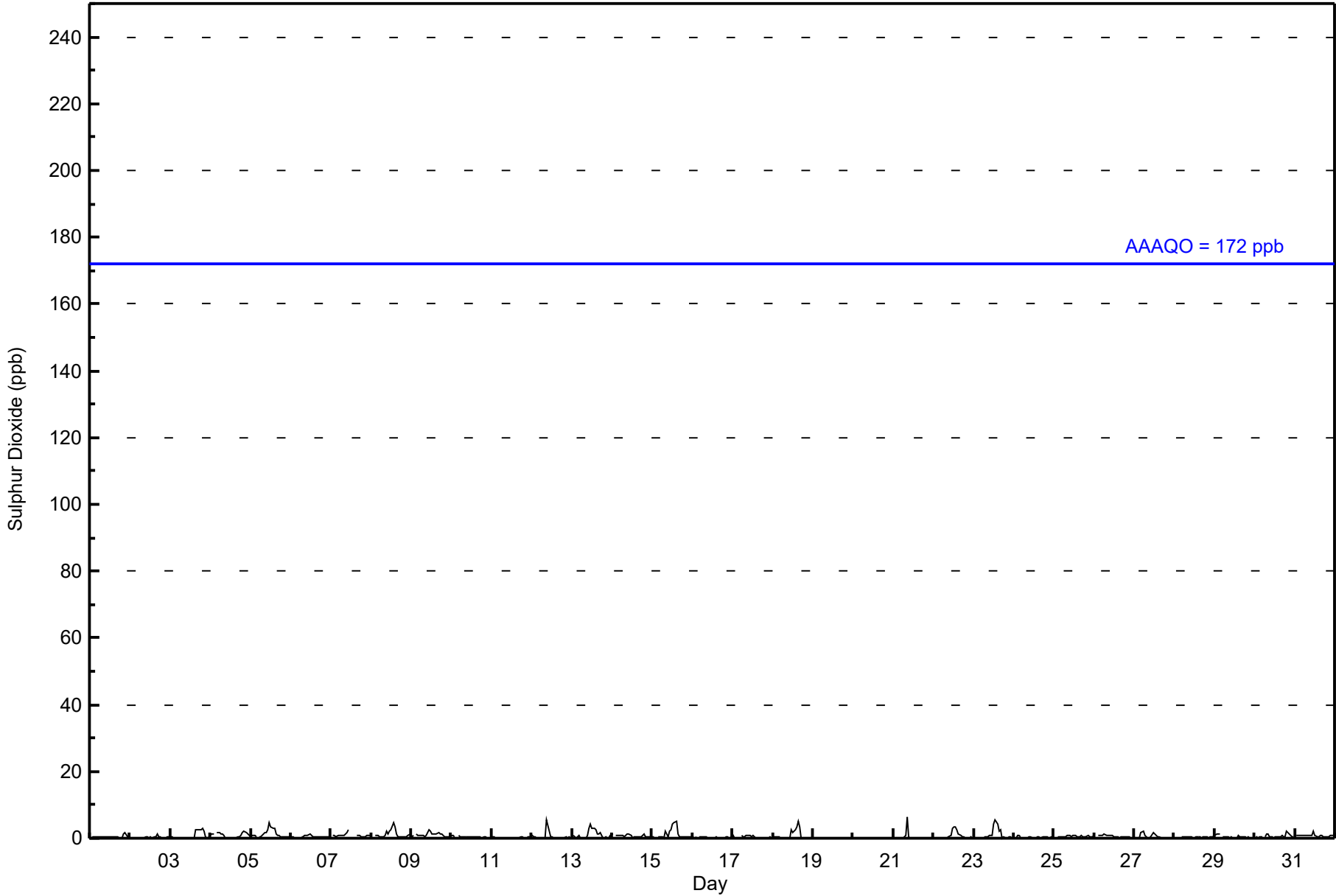
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
MARCH 2024

Parameter	Period	OPERATIONAL NOTES		Duration (Hours)	Notes
	Start	Period End			
SO2, THC/NMHC/CH4	20 Mar 2024 09:00	20 Mar 2024 09:00		1	Maintenance - reinitiated daily QA check
Wind Speed, Wind Direction	11 Mar 2024 11:00	11 Mar 2024 14:00		4	Maintenance - wind sensor realigned



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Anzac - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	55	23	18	15	33	73	110	98	19	15	25	50	56	17	31	66	704
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
Totals	55	23	18	15	33	73	110	98	19	15	25	50	56	17	31	66	704

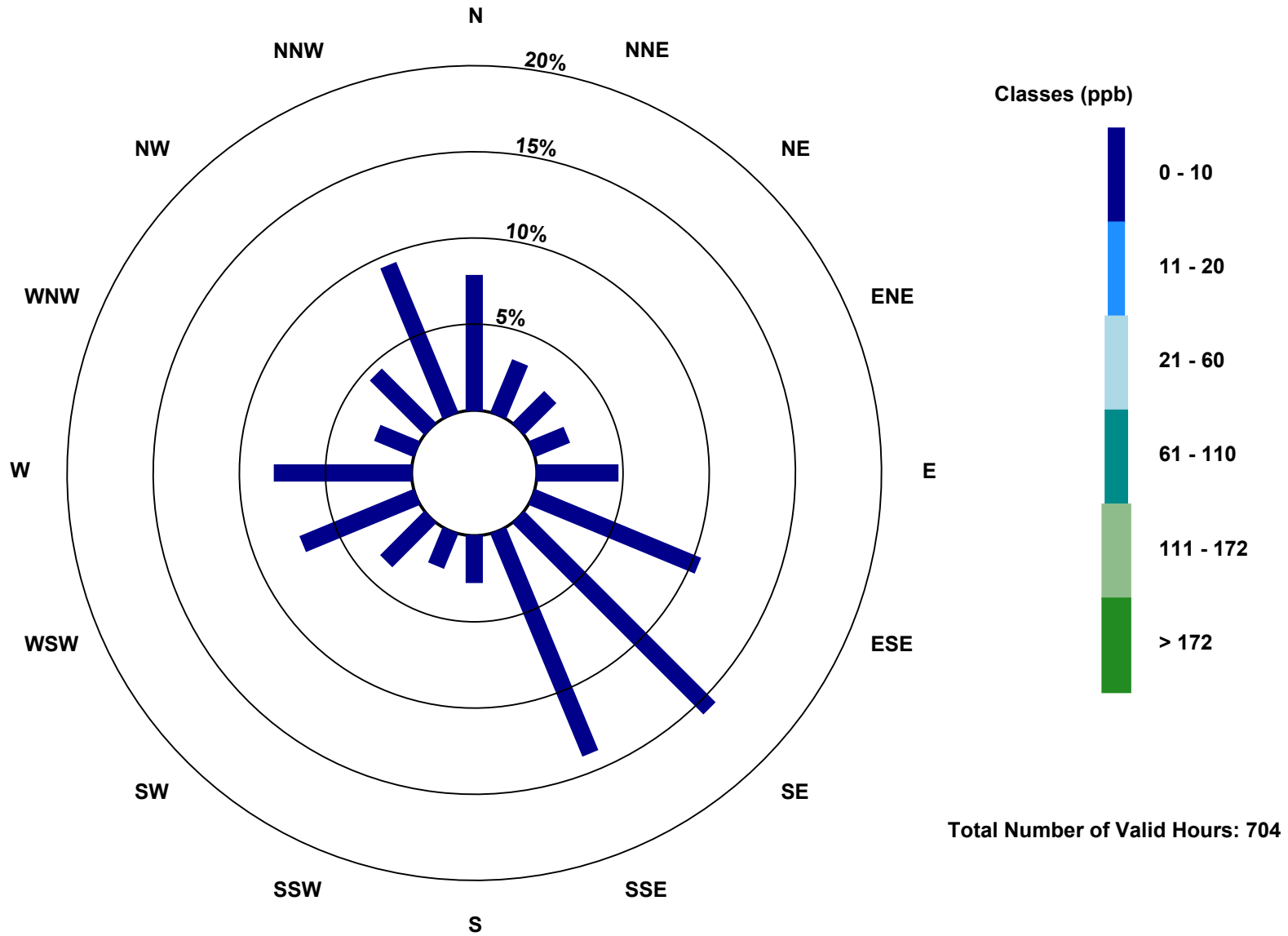
Total Number of Valid Hours: 704

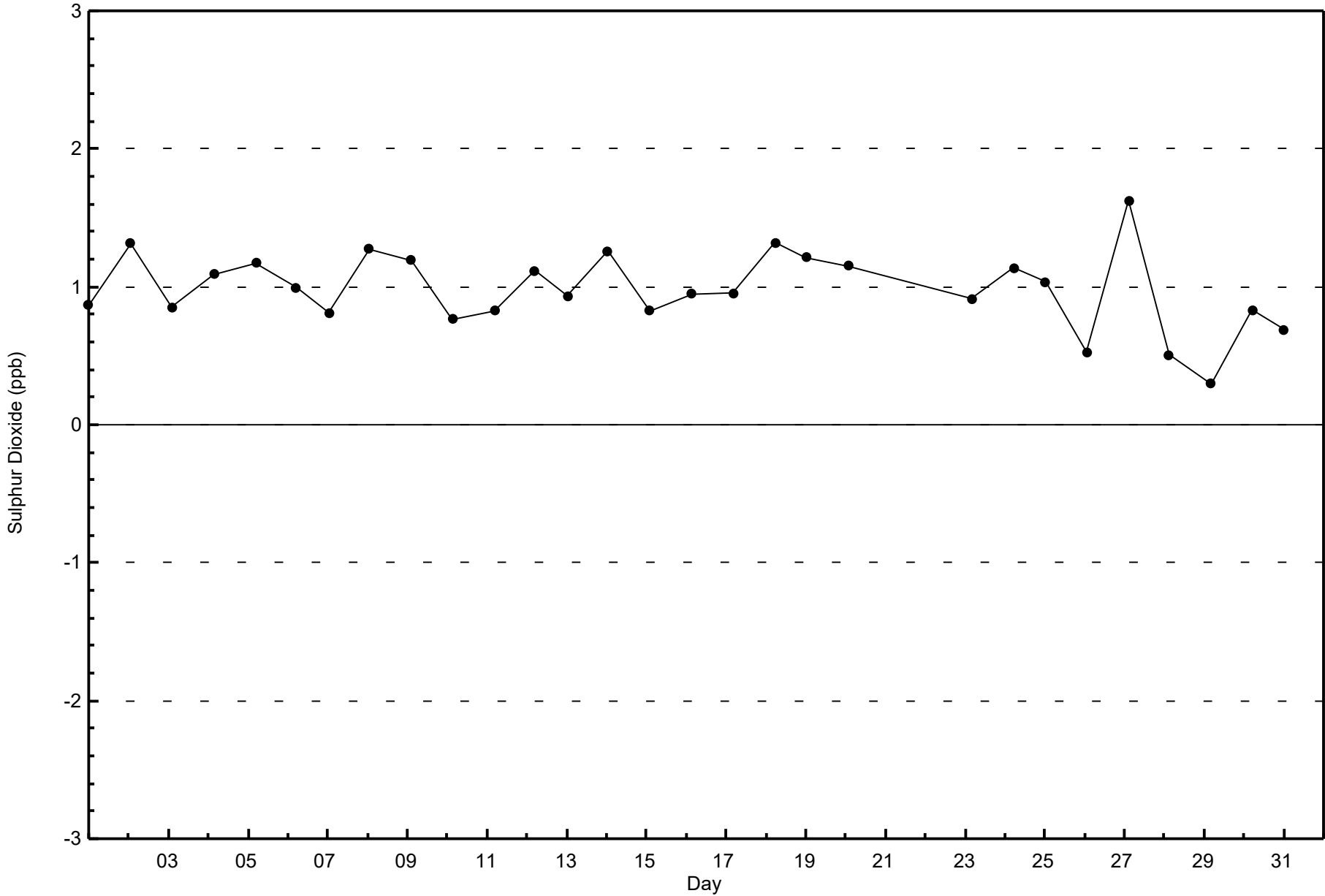
Total Number of Hours: 744

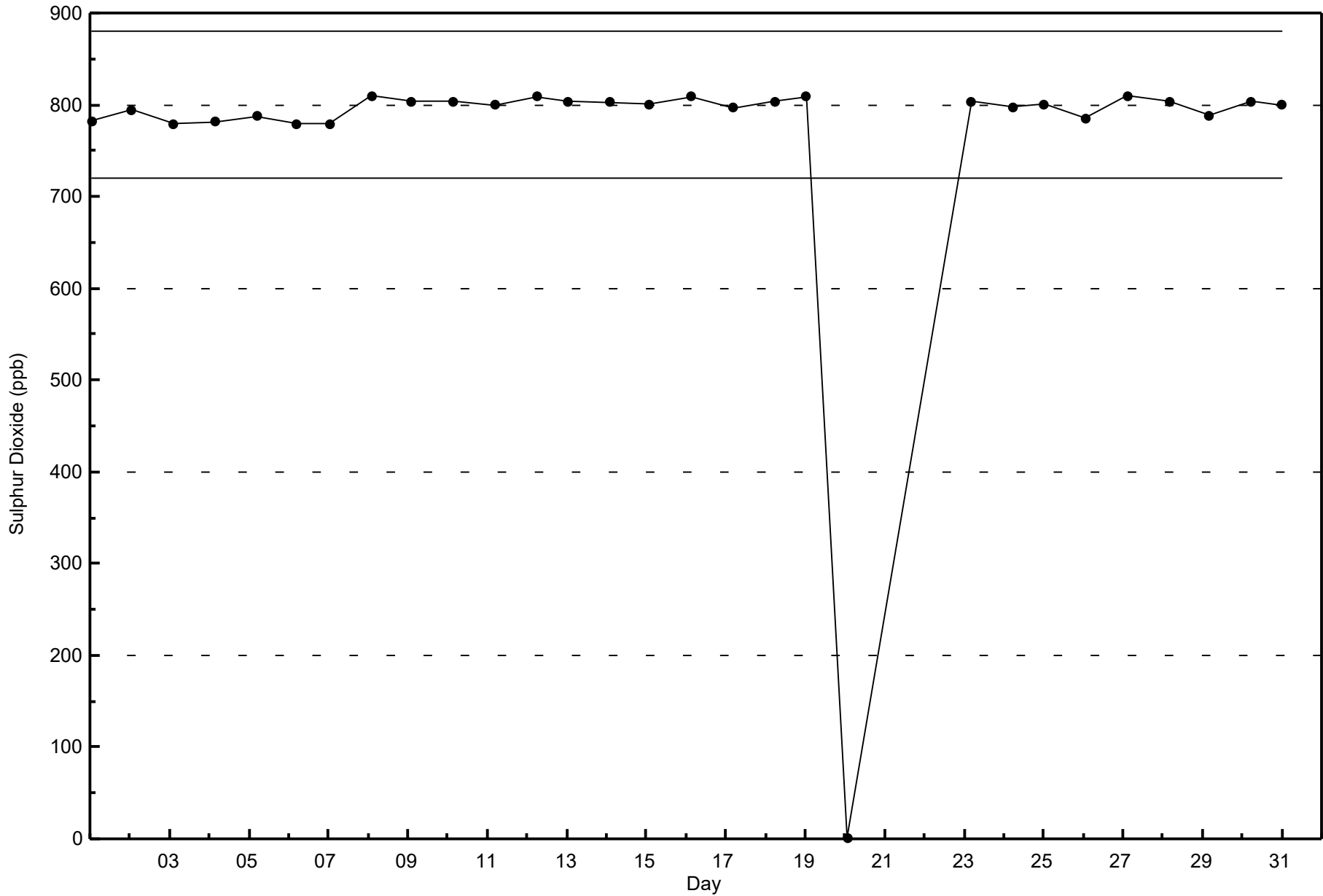


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Anzac

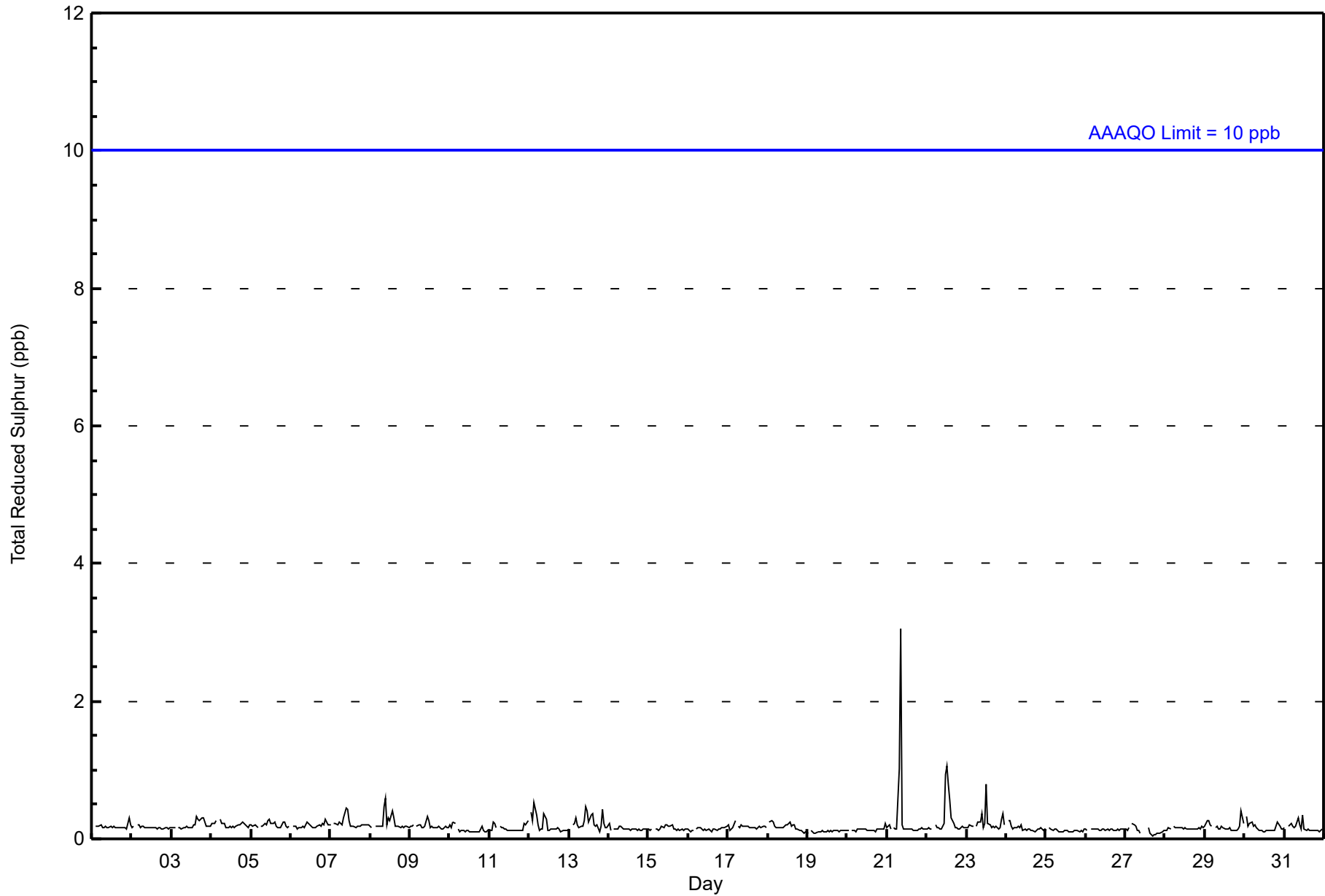








Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.1 ppb on Mar 21 09:00 Maximum Daily Average: 0.3 ppb on Mar 21		Hours in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0																									
Minimum Value: 0.0 ppb on Mar 27 17:00 Maximum Diurnal Average: 0.3 ppb at hour 9 Monthly Average: 0.18 ppb		Minimum Daily Average: 0.1 ppb on Mar 19 Minimum Diurnal Average: 0.1 ppb at hour 18 Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.2 P ₉₉ = 0.6																									
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-Mar	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	0.1	0.3	0.2	0.2	0.3	
2-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
3-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	
4-Mar	0.2	0.2	0.2	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
5-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	
6-Mar	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	
7-Mar	0.2	Z	0.2	0.2	0.2	0.3	0.2	0.2	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	0.2	0.2	0.2	0.2	0.4	
8-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.5	0.6	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	
9-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	
10-Mar	0.2	0.2	0.3	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	
11-Mar	0.1	0.1	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.3	
12-Mar	Z	0.4	0.3	0.5	0.3	0.2	0.1	0.1	0.1	0.4	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	0.1	0.5	
13-Mar	0.1	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.5	
14-Mar	0.2	0.1	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
15-Mar	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
16-Mar	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	
17-Mar	0.2	0.1	0.1	0.2	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	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
18-Mar	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
19-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
20-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	
21-Mar	0.2	0.2	0.1	Z	0.2	0.1	0.1	1.0	3.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	3.1	
22-Mar	0.1	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.9	1.0	0.8	0.6	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	1.0	
23-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.3	0.2	0.4	0.2	0.2	0.8	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.4	0.2	0.2	0.2	0.8	
24-Mar	Z	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.3	
25-Mar	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
26-Mar	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
27-Mar	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	C	C	C	C	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
28-Mar	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	
29-Mar	0.2	0.3	0.3	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.4	
30-Mar	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.3	
31-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2			
																								0.2 0.4 0.3 0.5 0.3 0.3 0.2 1.0 3.1 0.6 0.5 0.9 1.0 0.8 0.6 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.3 0.4 0.3 0.2 0.2 0.2			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	708	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Anzac - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	55	24	17	15	33	73	105	101	20	16	25	47	56	19	31	67	704
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
Totals	55	24	17	15	33	74	105	101	20	16	25	47	56	19	31	67	705

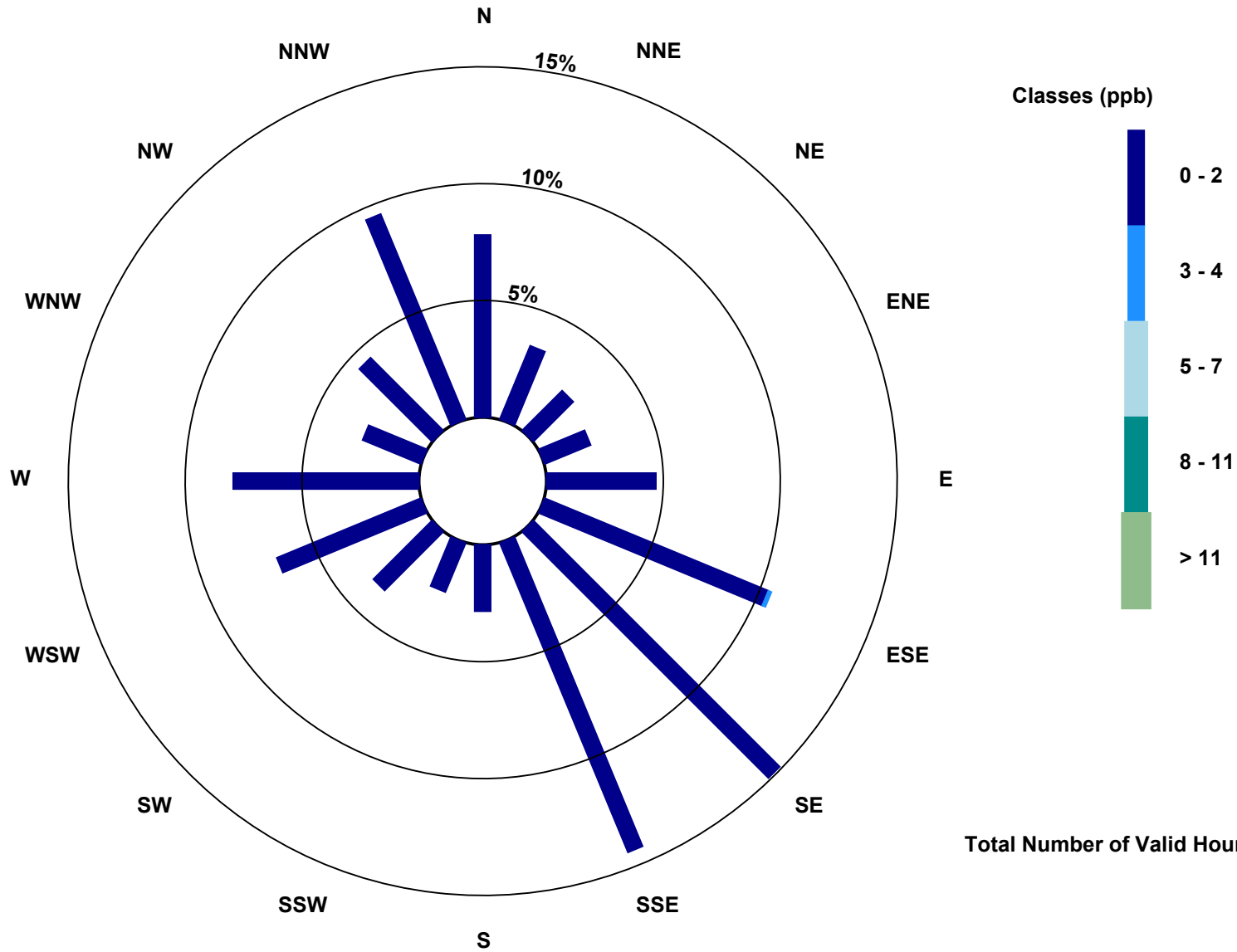
Total Number of Valid Hours: 705

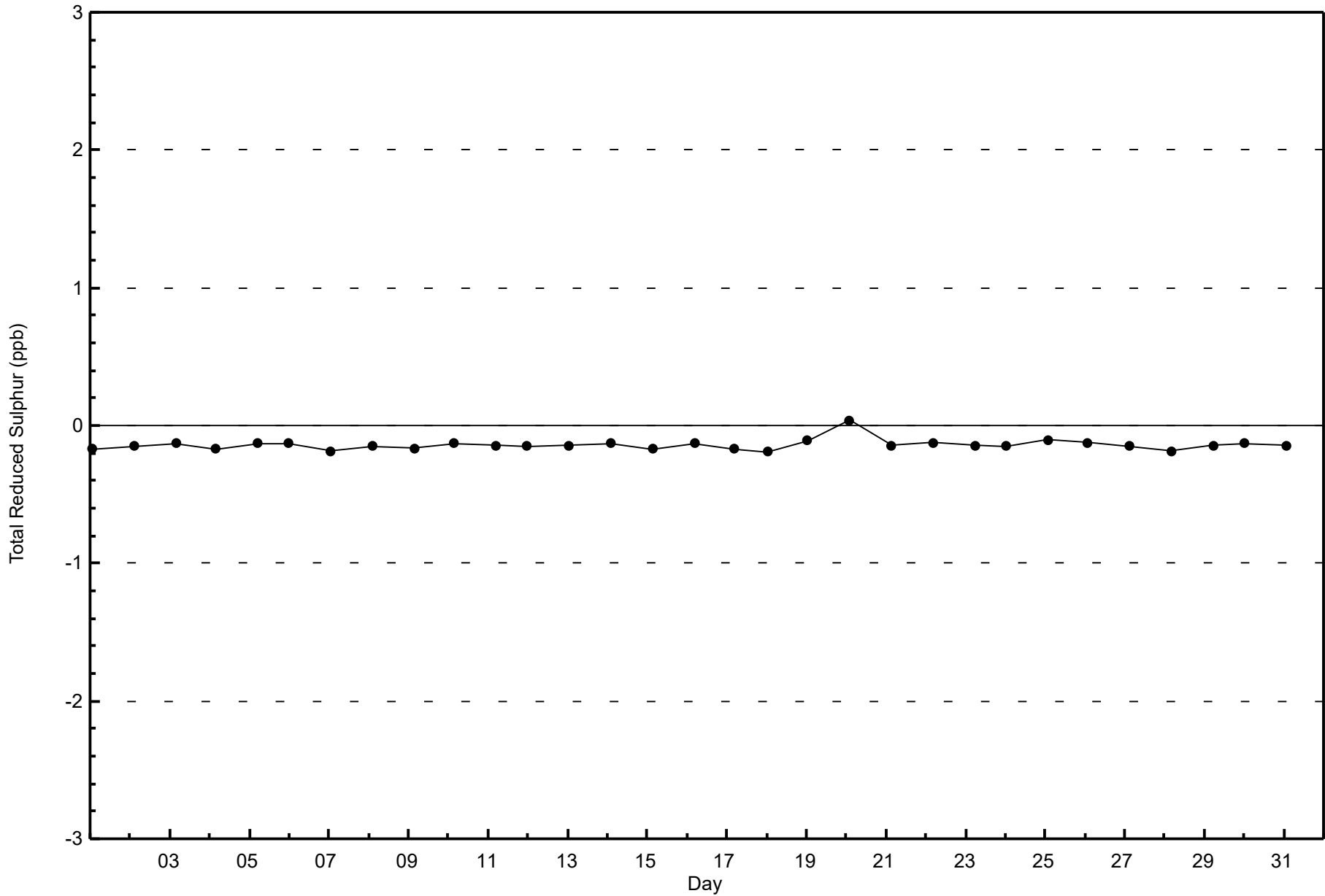
Total Number of Hours: 744

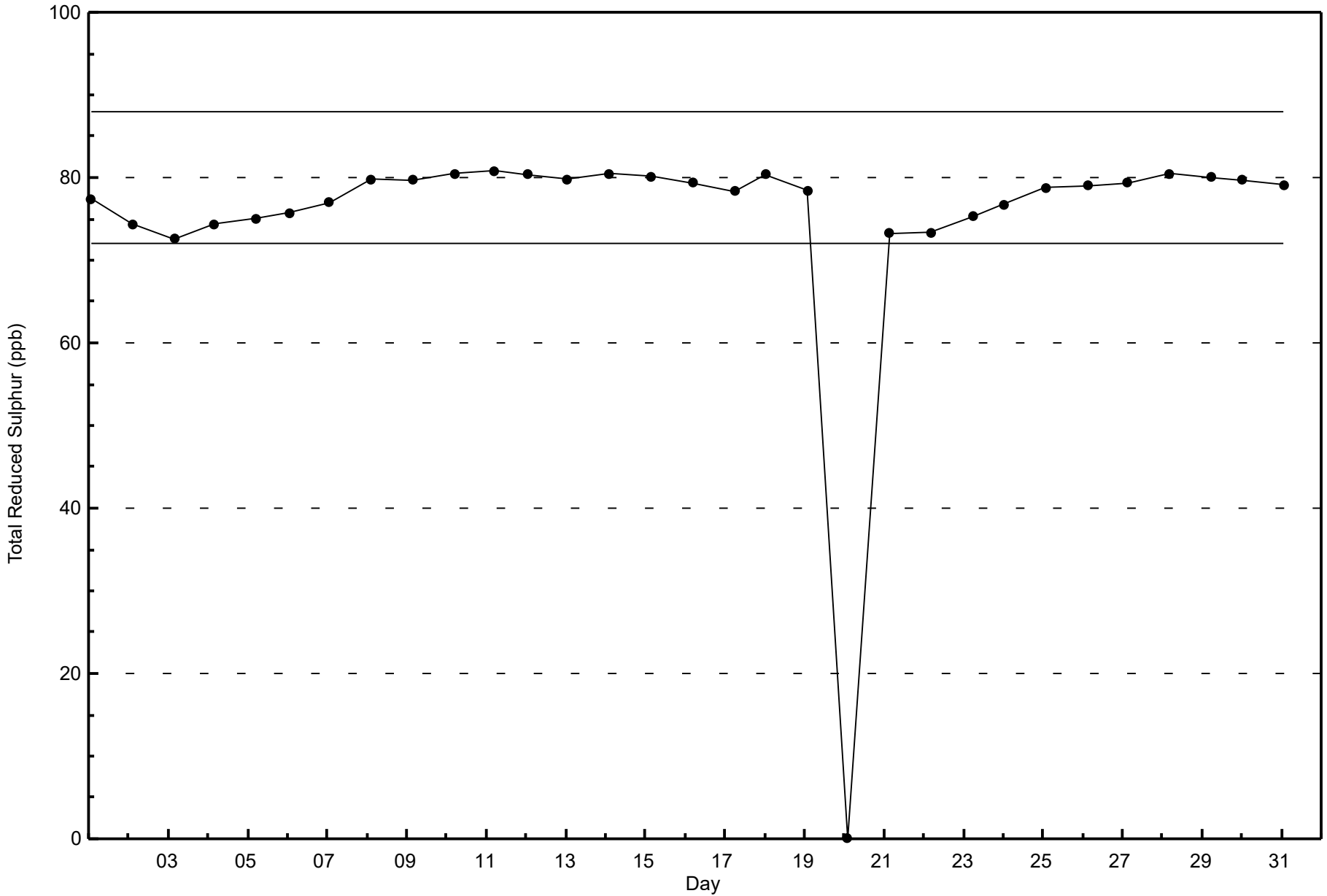


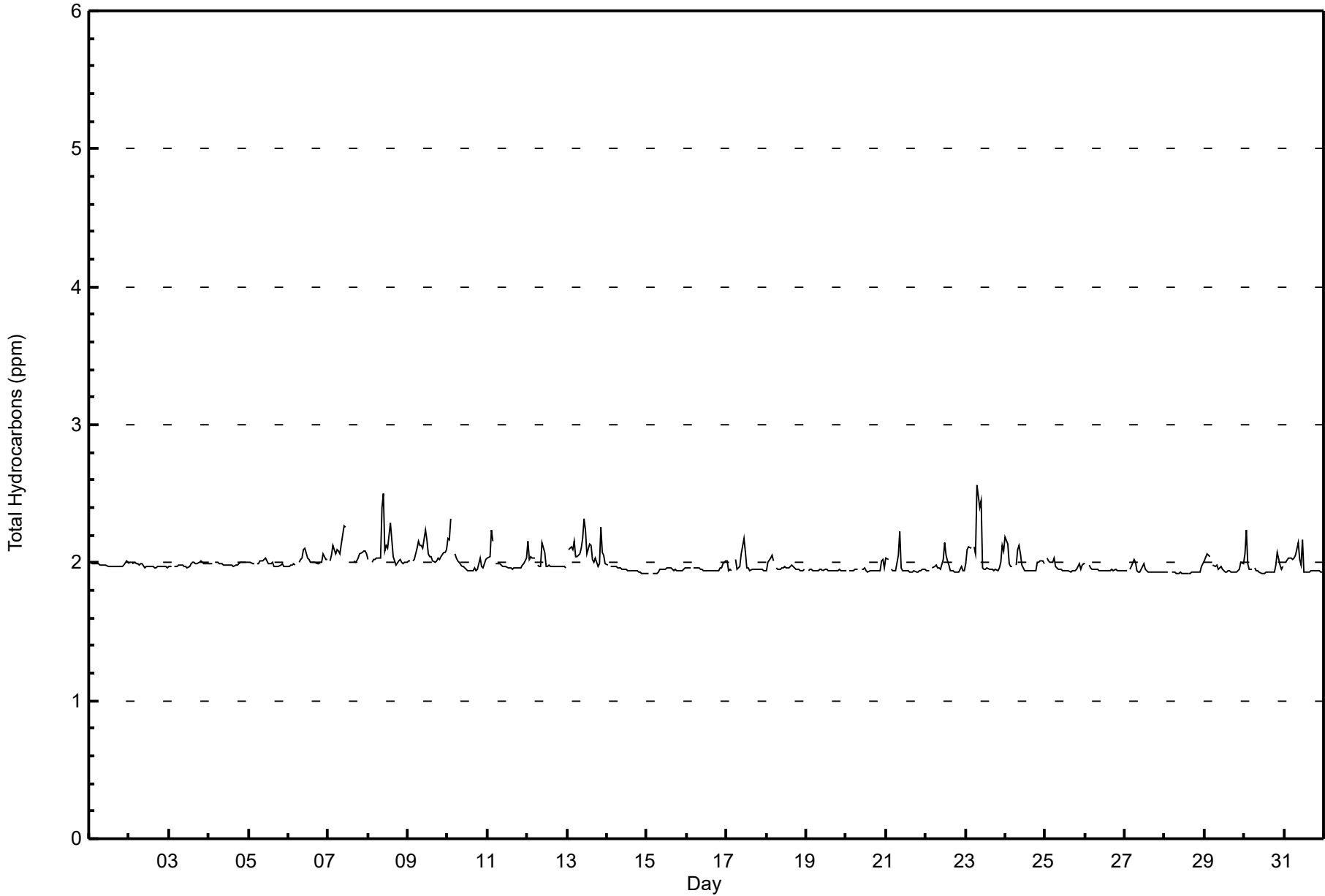
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Anzac











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Anzac - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	618	87.29	87.29
2.1 - 3.0	90	12.71	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
Anzac - March 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	53	22	17	12	26	47	87	86	15	11	25	49	54	15	29	66	614
2.1 - 3.0	2	1	1	3	7	26	23	12	4	4	0	1	2	2	2	0	90
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
Totals	55	23	18	15	33	73	110	98	19	15	25	50	56	17	31	66	704

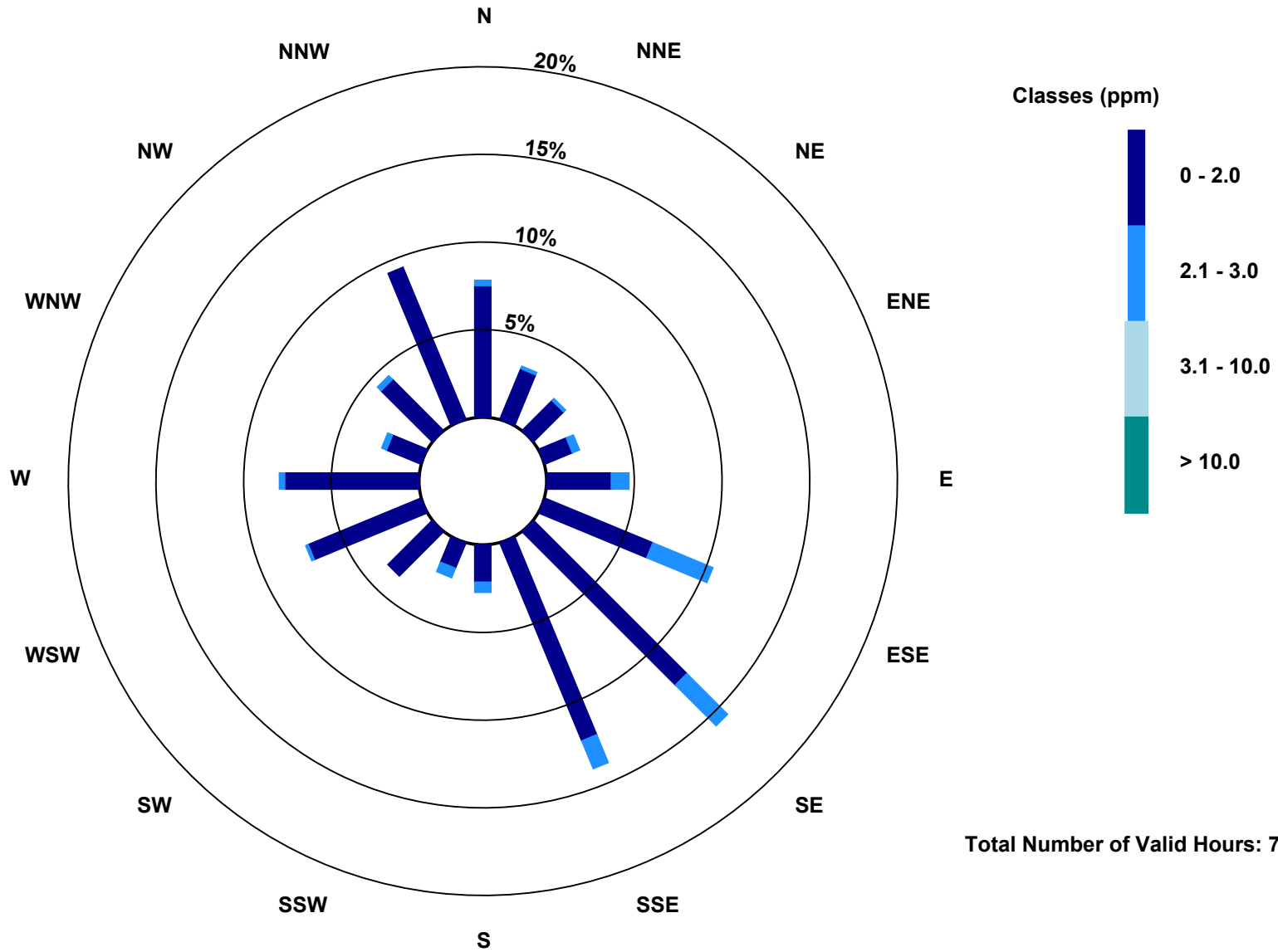
Total Number of Valid Hours: 704

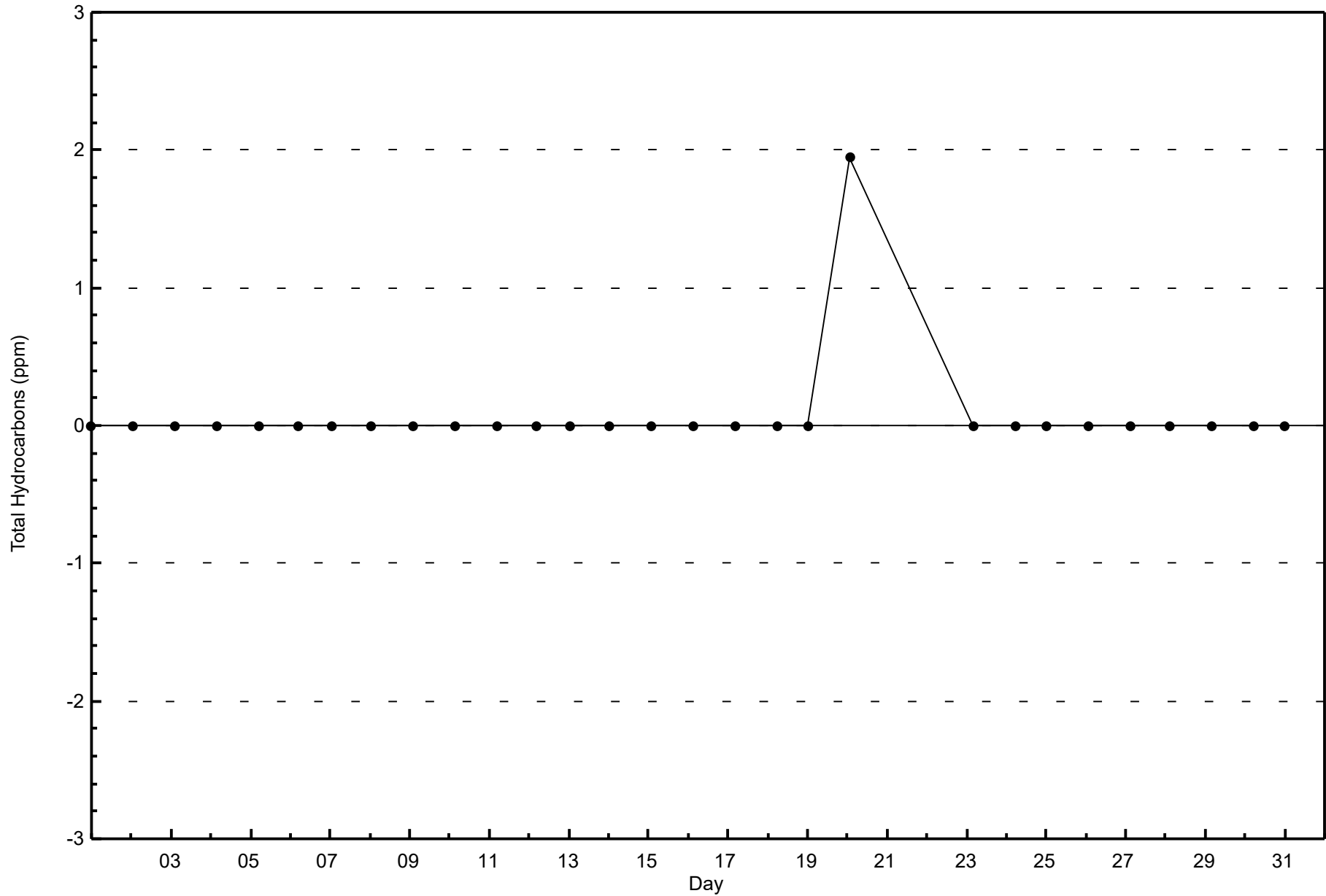
Total Number of Hours: 744

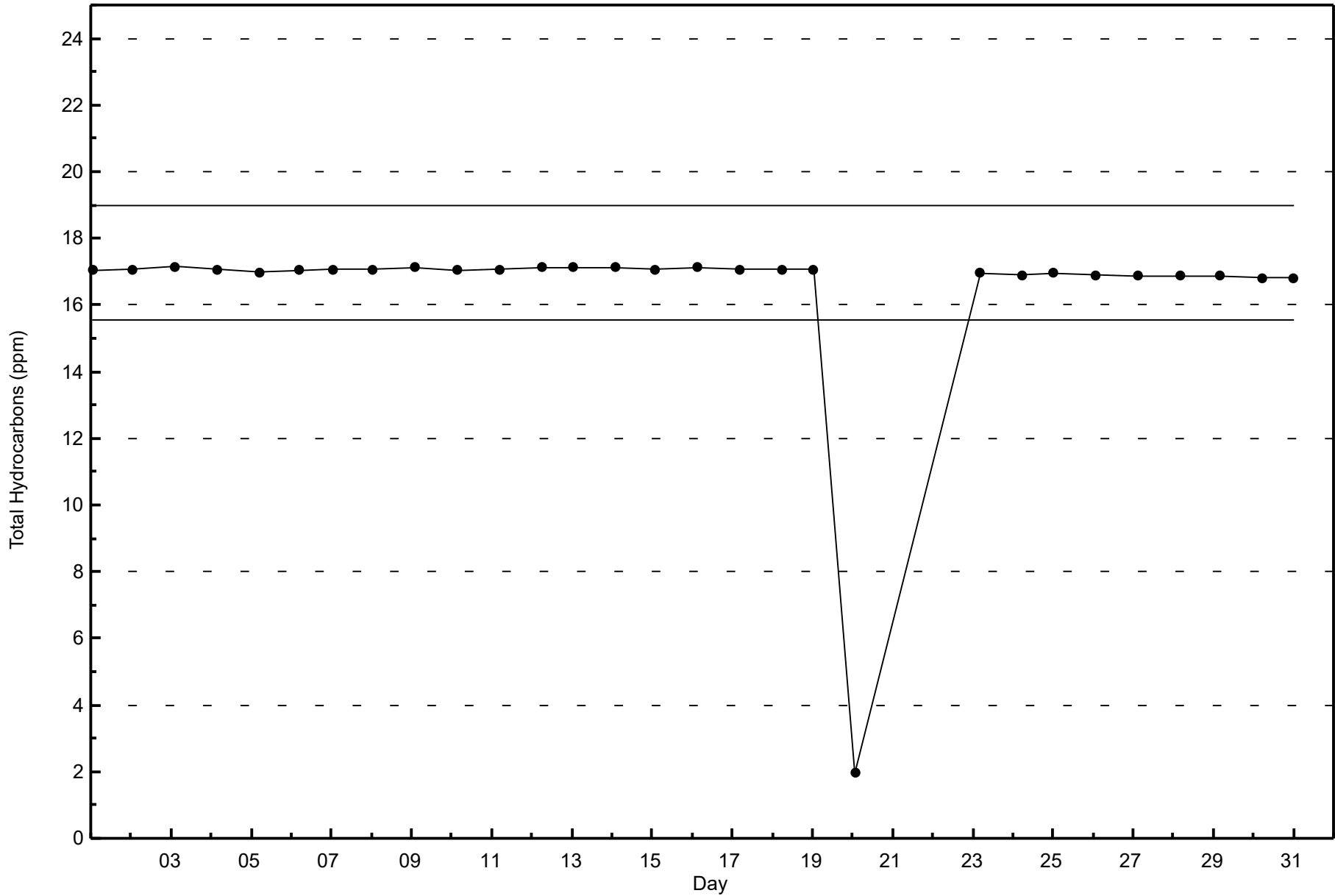


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Anzac





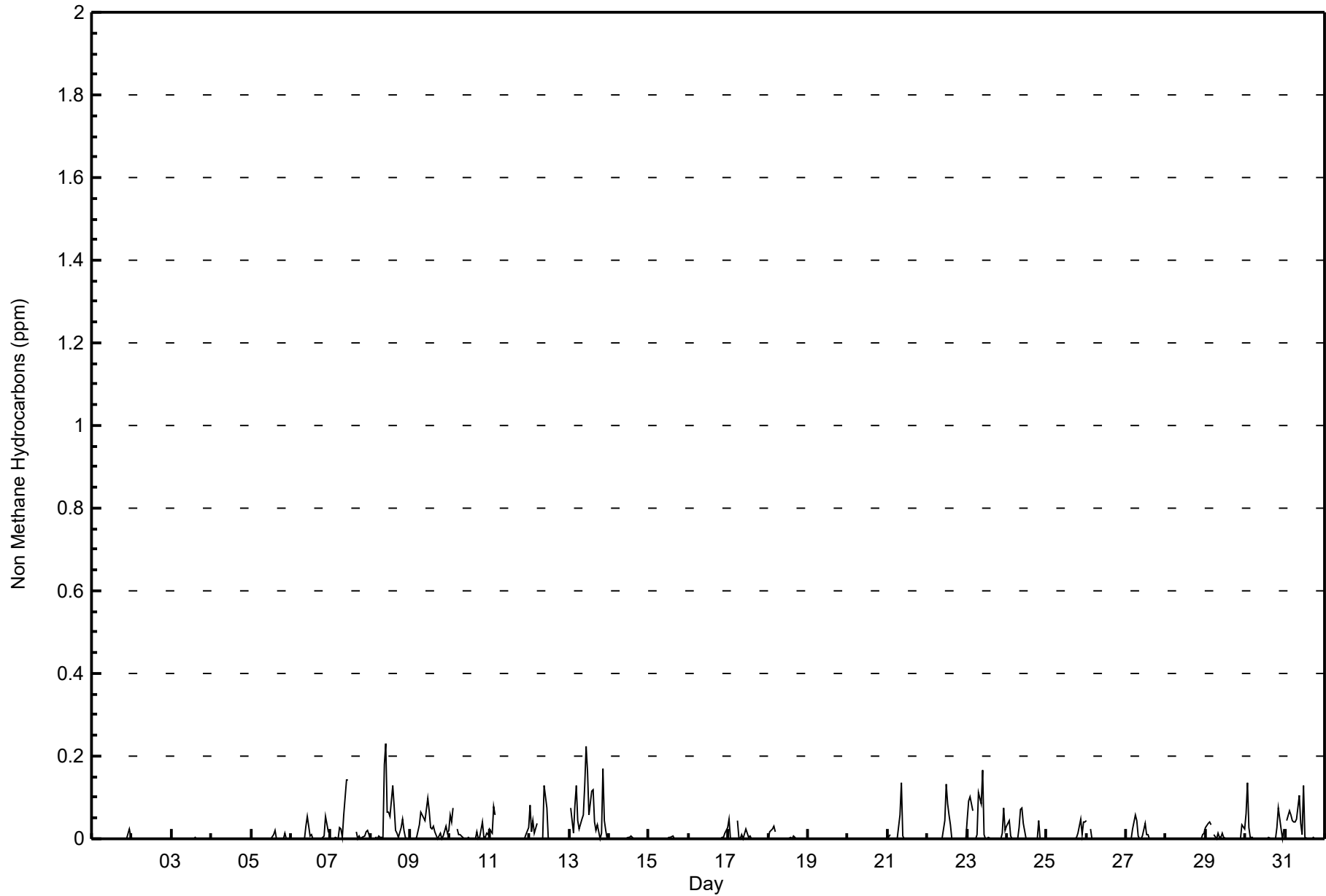




Summary of Hour Averages

Anzac - March 2024

Maximum Value: 0.230 ppm on Mar 8 10:00		Maximum Daily Average: 0.070 ppm on Mar 13		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Mar 1 02:00		Minimum Daily Average: 0.000 ppm on Mar 20		Hours of Data: 708																							
Maximum Diurnal Average: 0.032 ppm at hour 10		Minimum Diurnal Average: 0.002 ppm at hour 19		Hours of Missing Data: 36																							
Monthly Average: 0.012 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.1		Hours of Calibration: 35																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.006	0.001	0.024	
2-Mar	0.000	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
3-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
4-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
5-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.002	0.020	
6-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.031	0.053	0.008	0.010	0.000	0.001	0.000	0.000	0.001	0.000	0.002	0.006	0.054	0.016	0.018	0.009	0.054	
7-Mar	Z	0.001	0.000	0.004	0.001	0.028	0.023	0.003	0.056	0.141	0.142	C	C	C	C	0.016	0.001	0.006	0.001	0.003	0.006	0.016	0.020	0.009	0.025	0.142	
8-Mar	0.000	Z	0.000	0.002	0.002	0.008	0.004	0.003	0.179	0.230	0.066	0.065	0.054	0.130	0.079	0.021	0.015	0.003	0.028	0.047	0.022	0.002	0.000	0.000	0.042	0.230	
9-Mar	0.001	0.001	Z	0.000	0.004	0.034	0.064	0.059	0.052	0.045	0.098	0.067	0.029	0.022	0.029	0.016	0.001	0.006	0.015	0.001	0.006	0.032	0.012	0.019	0.027	0.098	
10-Mar	0.058	0.042	0.076	Z	0.022	0.011	0.009	0.005	0.000	0.001	0.000	0.002	0.000	0.001	0.001	0.000	0.018	0.001	0.003	0.042	0.005	0.002	0.013	0.011	0.014	0.076	
11-Mar	0.024	0.014	0.080	0.057	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010	0.026	0.009	0.080		
12-Mar	0.082	0.016	0.043	0.014	0.037	Z	0.001	0.000	0.000	0.128	0.075	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	0.017	0.128	
13-Mar	Z	0.073	0.012	0.083	0.127	0.044	0.025	0.048	0.058	0.128	0.225	0.163	0.056	0.114	0.118	0.042	0.021	0.034	0.000	0.015	0.168	0.043	0.021	0.000	0.070	0.225	
14-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.005	0.002	0.007	0.002	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.007	
15-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.005	0.003	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.007	
16-Mar	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	0.003	0.002	0.012	0.027	0.002	0.027	
17-Mar	0.046	0.000	0.000	0.000	Z	0.044	0.004	0.001	0.009	0.001	0.024	0.013	0.004	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.046	
18-Mar	0.000	0.017	0.024	0.032	0.017	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.002	0.007	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.032	
19-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	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	0.000	0.000	0.000	0.000	0.000	
21-Mar	0.000	0.009	Z	0.000	0.000	0.000	0.000	0.058	0.135	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.009	0.135	
22-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.131	0.083	0.059	0.036	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015	0.131	
23-Mar	0.047	0.091	0.102	0.066	Z	0.001	0.011	0.111	0.084	0.166	0.009	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.076	0.022	0.035	0.166	
24-Mar	0.030	0.044	0.005	0.000	0.001	Z	0.001	0.029	0.071	0.073	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.001	0.000	0.001	0.015	0.073	
25-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.014	0.049	0.009	0.041	0.007	0.049	
26-Mar	0.043	Z	0.025	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.043	
27-Mar	0.000	0.000	Z	0.000	0.025	0.056	0.043	0.007	0.000	0.000	0.006	0.037	0.009	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.056	
28-Mar	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	0.009	0.013	0.001	0.013	
29-Mar	0.026	0.037	0.041	0.034	Z	0.009	0.000	0.012	0.003	0.003	0.013	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.034	0.025	0.010	0.041	
30-Mar	0.063	0.137	0.027	0.003	0.003	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.076	0.023	0.000	0.017	0.137	
31-Mar	Z	0.045	0.067	0.059	0.044	0.041	0.042	0.048	0.107	0.037	0.011	0.130	0.002	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.130	
		0.017	0.020	0.019	0.014	0.011	0.011	0.007	0.013	0.025	0.032	0.026	0.021	0.009	0.012	0.010	0.003	0.002	0.002	0.002	0.006	0.012	0.006	0.009	0.008	Diurnal Average	
		0.082	0.137	0.102	0.083	0.127	0.056	0.064	0.111	0.179	0.230	0.225	0.163	0.083	0.130	0.118	0.042	0.021	0.034	0.028	0.047	0.168	0.054	0.076	0.042	Diurnal Maximum	
Z - zerospan		C - Calibration			M - Maintenance																						





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Anzac - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	524	74.01	74.01
0.006 - 0.05	131	18.50	92.51
0.06 - 0.1	47	6.64	99.15
> 0.1	6	0.85	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Anzac - March 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	53	21	16	10	24	34	58	68	14	11	24	43	50	11	21	62	520
0.006 - 0.05	0	1	0	2	4	25	37	23	4	4	1	7	4	6	9	4	131
0.06 - 0.1	2	1	2	2	5	11	13	7	1	0	0	0	2	0	1	0	47
> 0.1	0	0	0	1	0	3	2	0	0	0	0	0	0	0	0	0	6
Totals	55	23	18	15	33	73	110	98	19	15	25	50	56	17	31	66	704

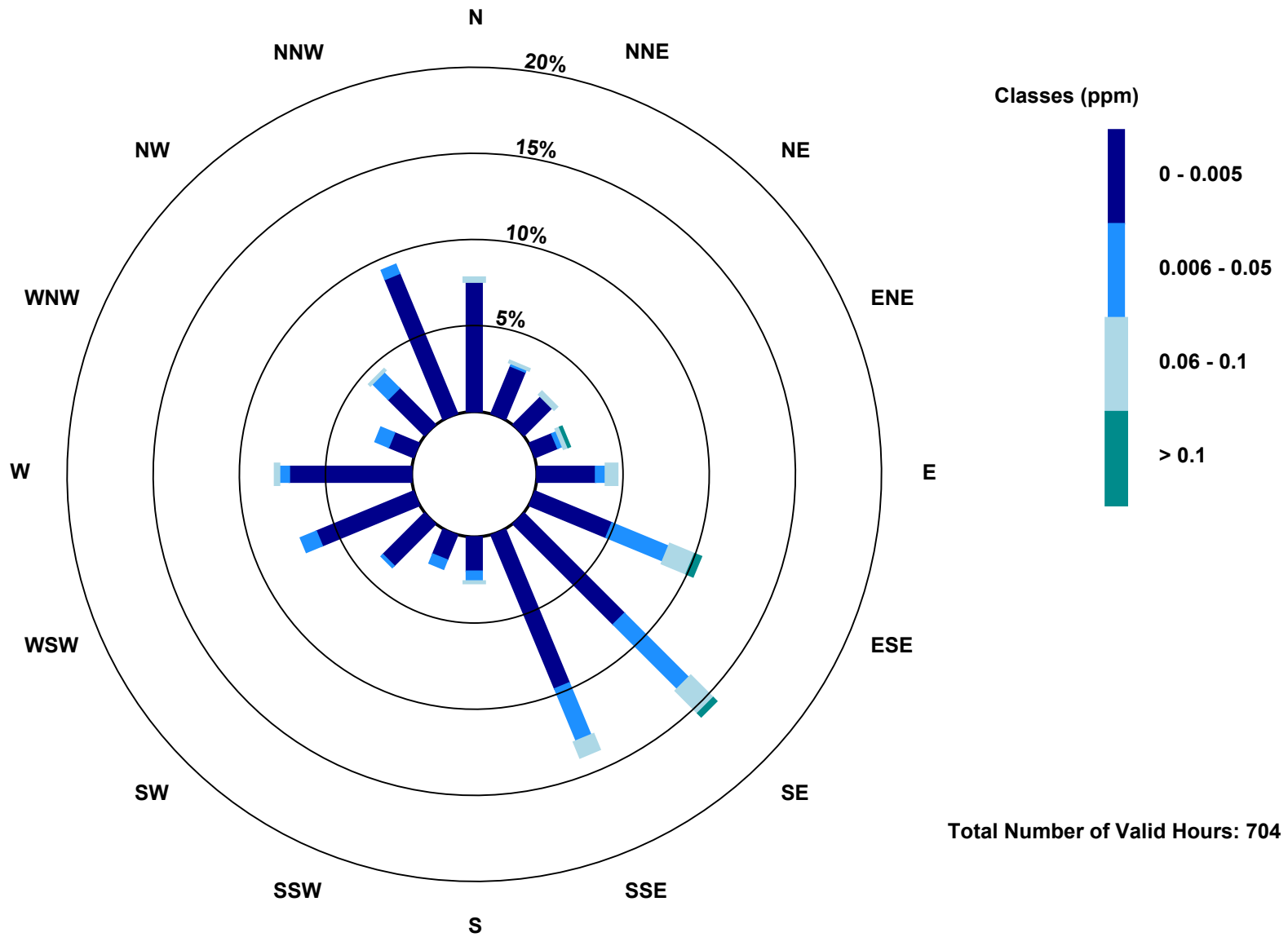
Total Number of Valid Hours: 704

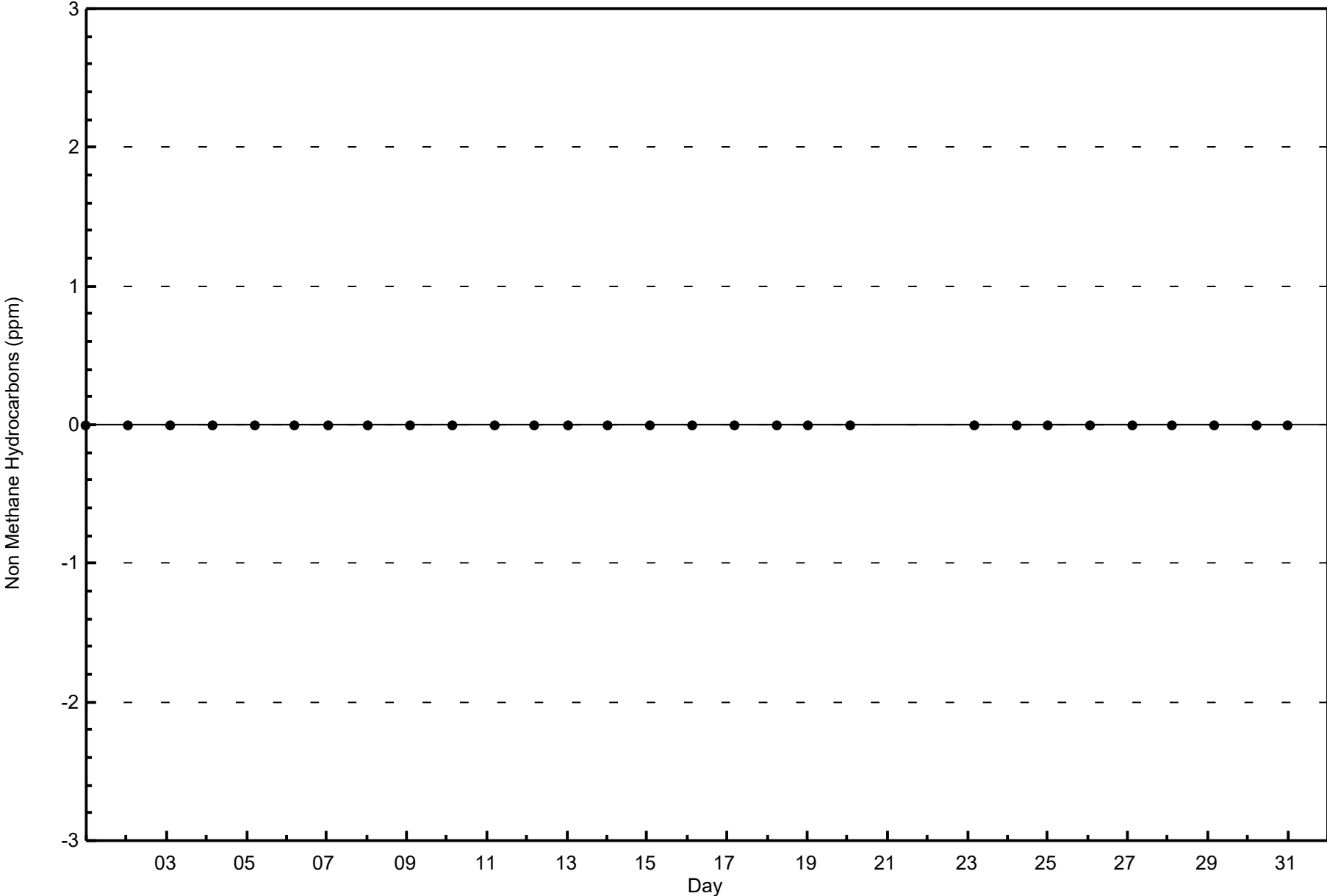
Total Number of Hours: 744

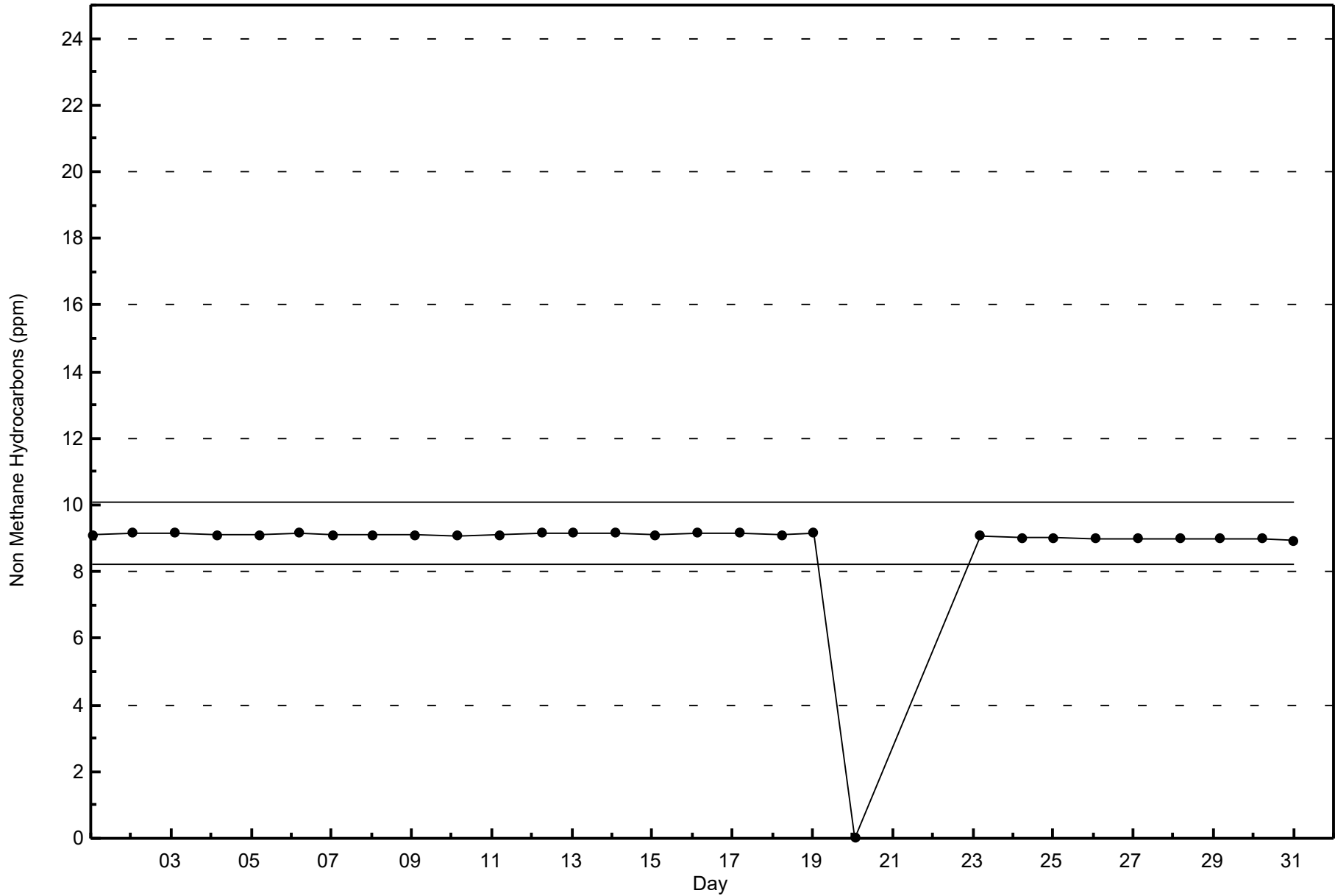


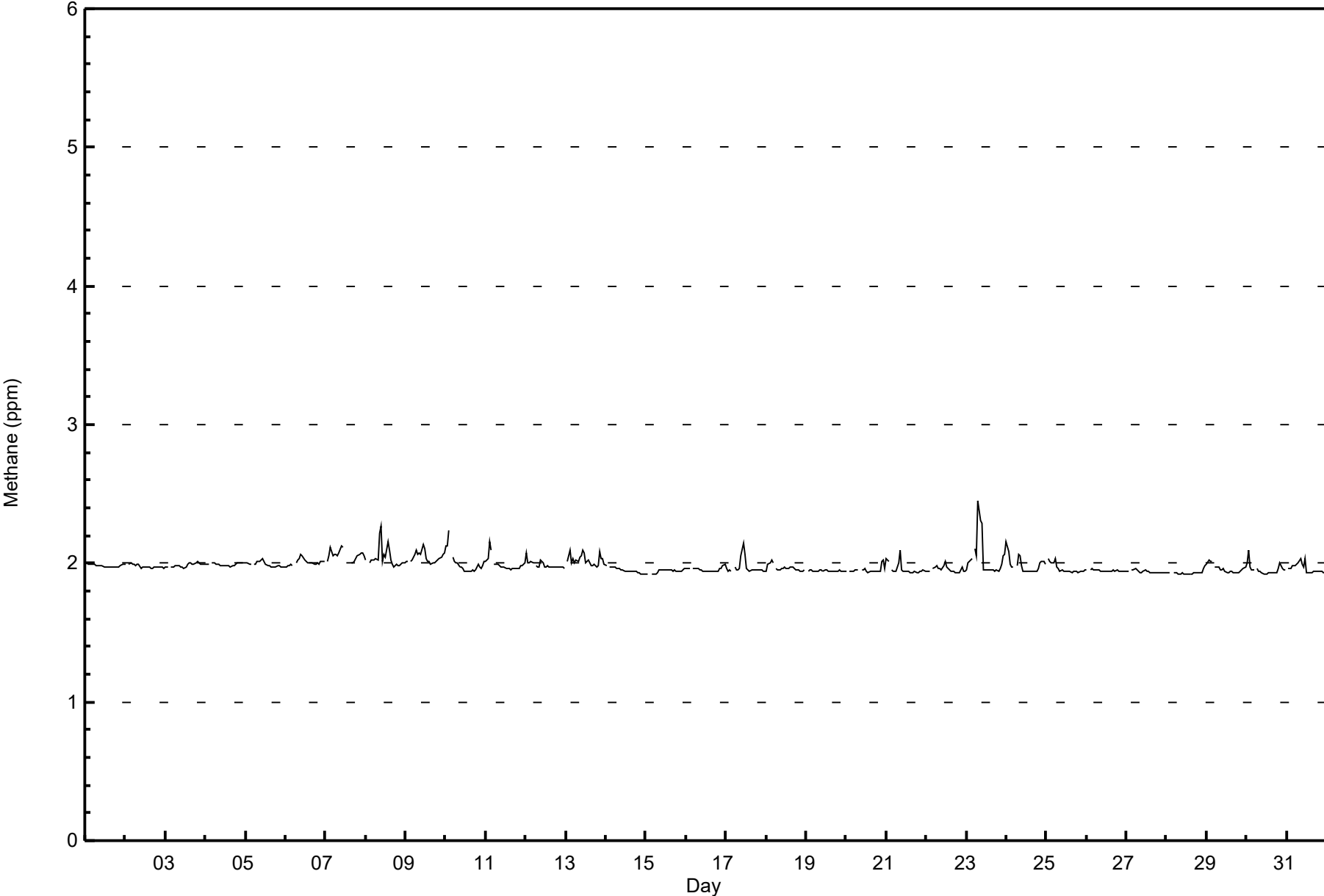
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Anzac











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Anzac - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	652	92.09	92.09
2.1 - 3.0	56	7.91	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 (CH₄) - ppm
Anzac - March 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	53	23	18	12	29	53	98	92	15	12	25	50	55	17	30	66	648
2.1 - 3.0	2	0	0	3	4	20	12	6	4	3	0	0	1	0	1	0	56
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
Totals	55	23	18	15	33	73	110	98	19	15	25	50	56	17	31	66	704

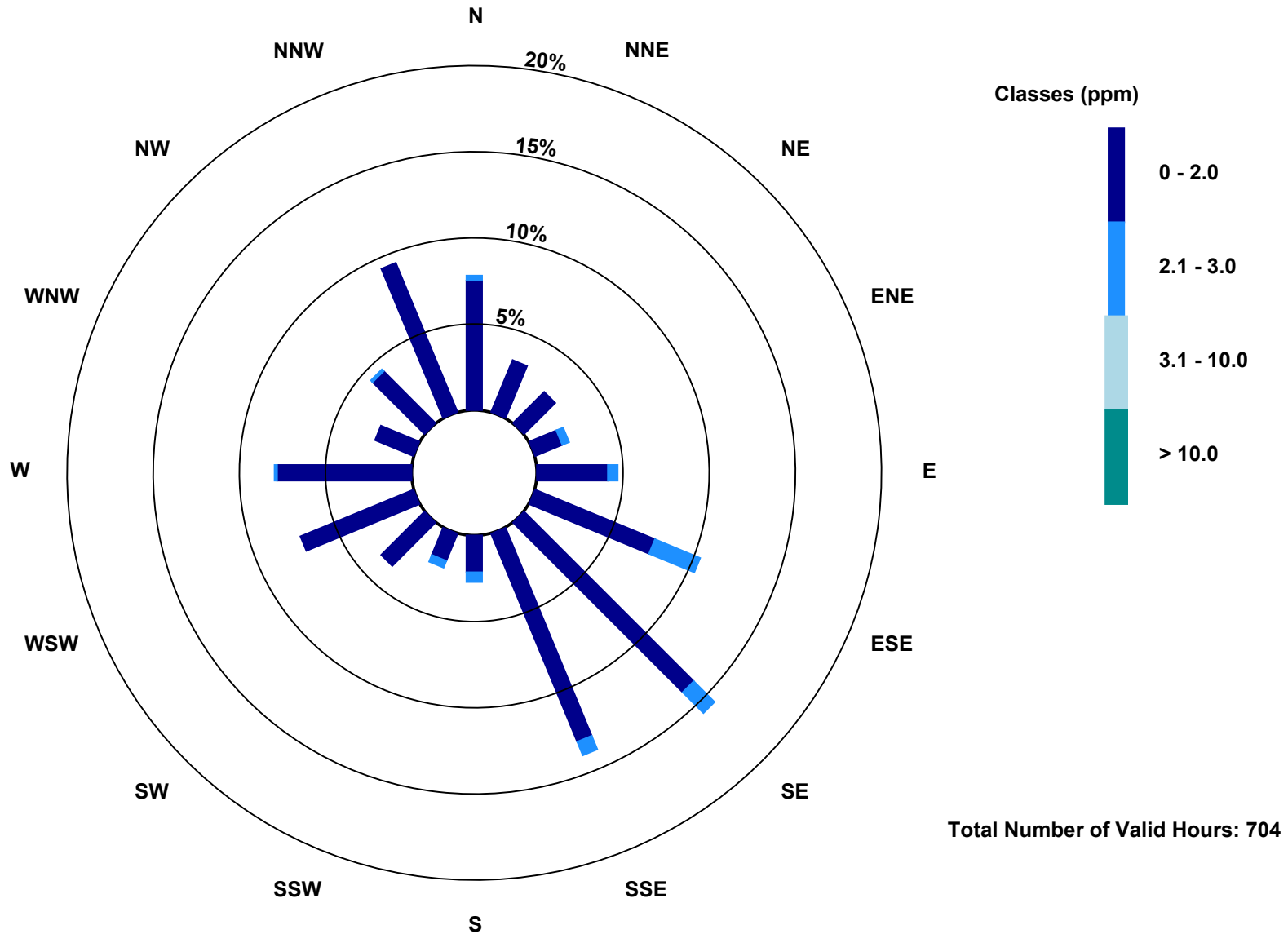
Total Number of Valid Hours: 704

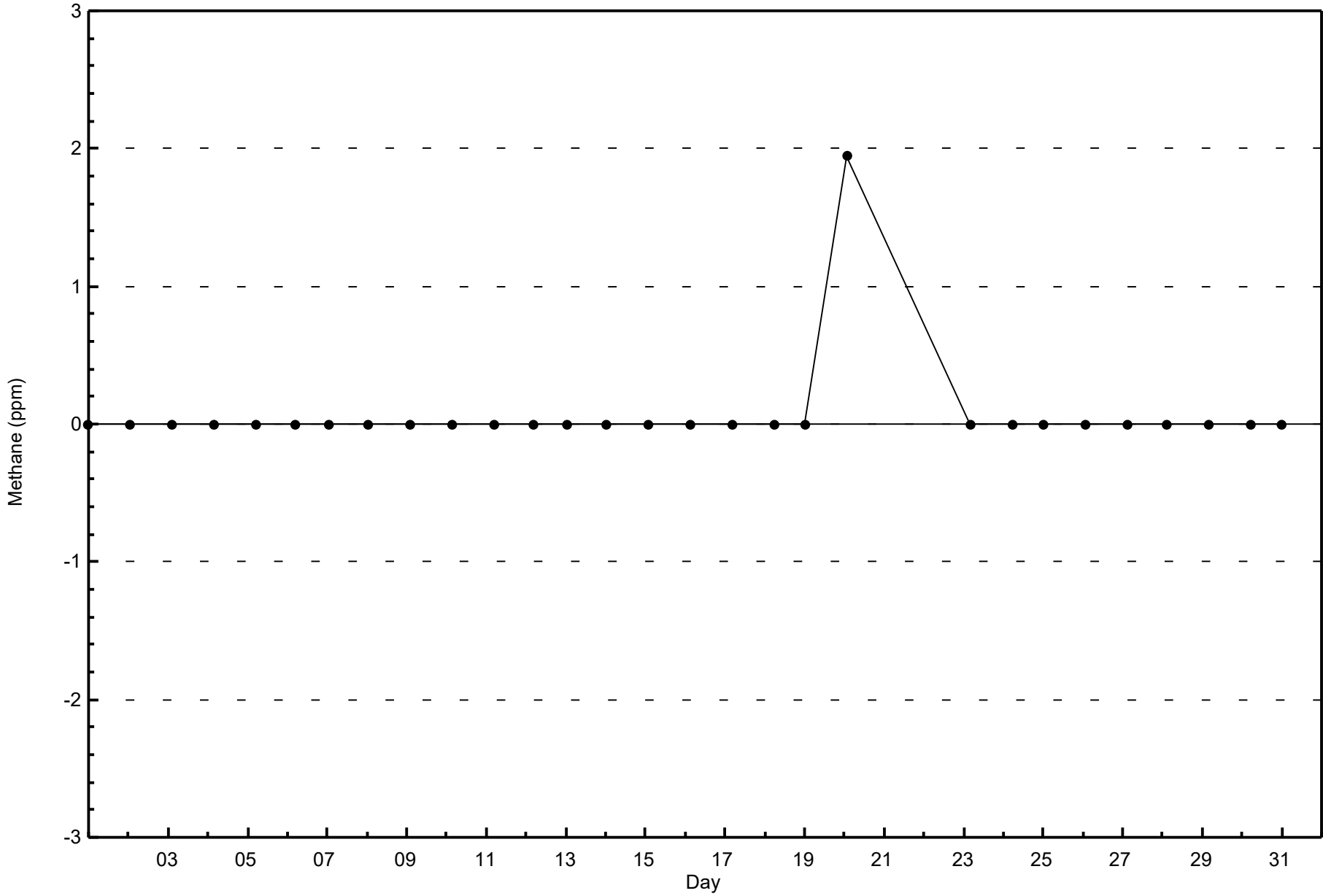
Total Number of Hours: 744

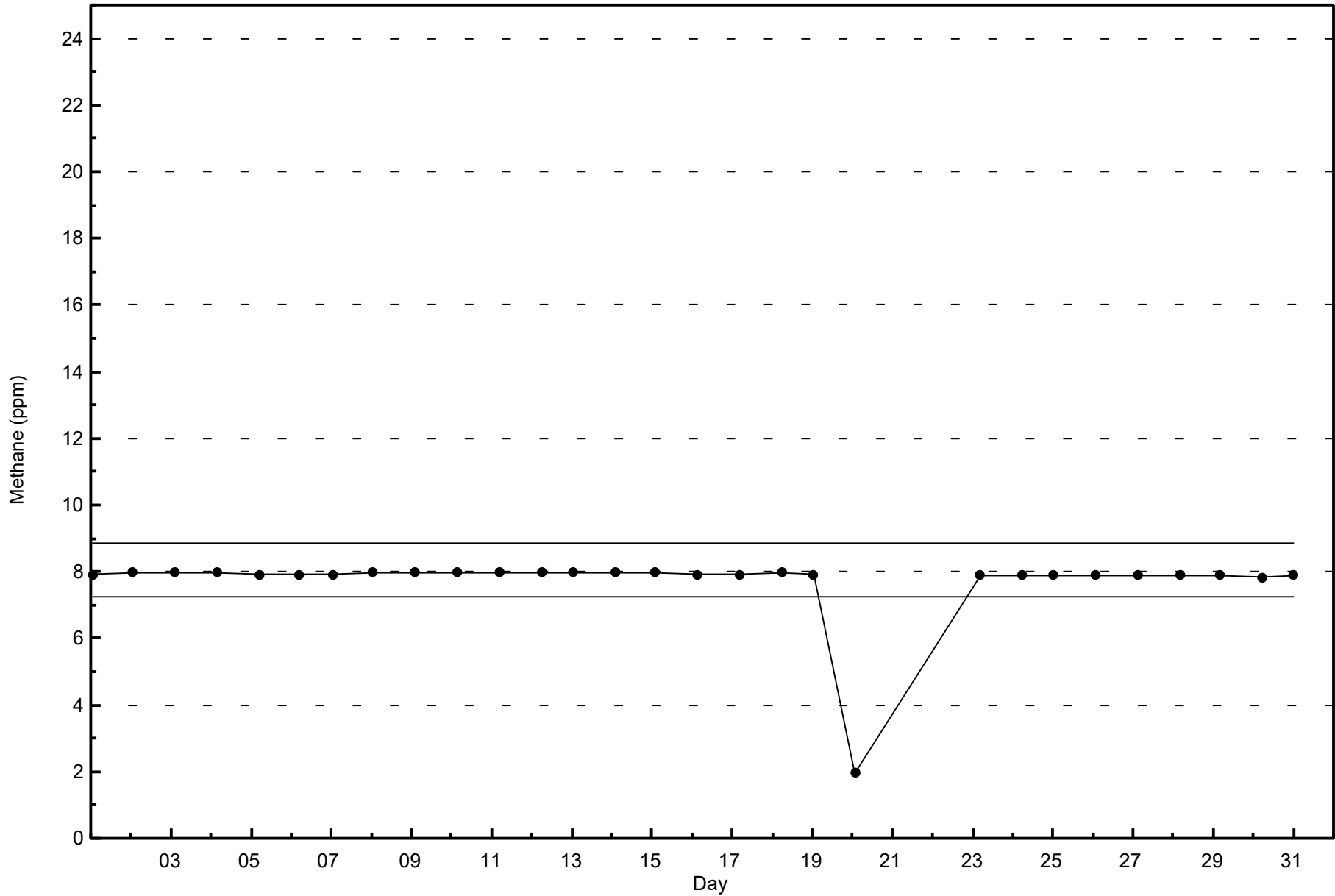


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Anzac







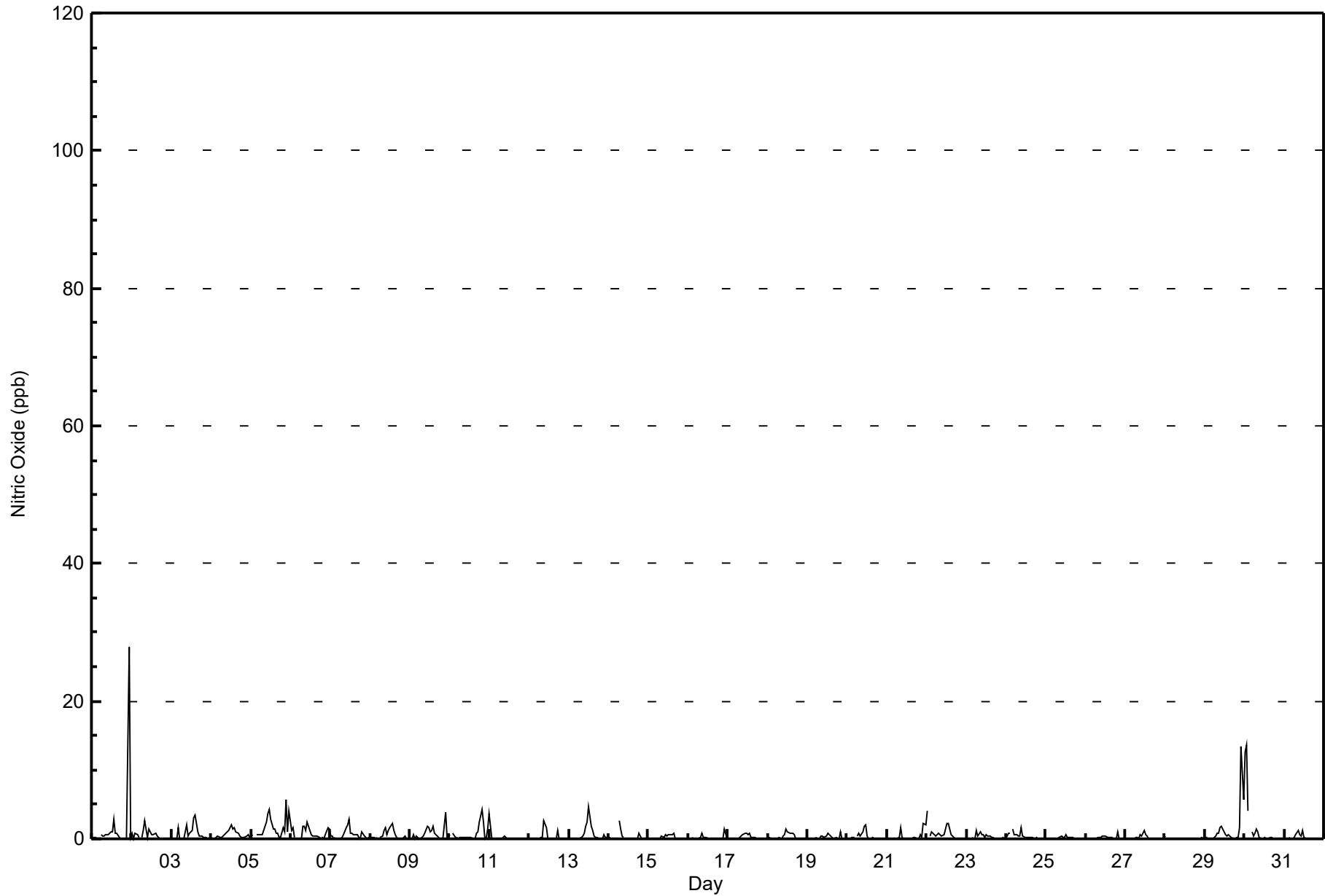


Maximum Value: 27.9 ppb on Mar 1 23:00		Maximum Daily Average: 1.7 ppb on Mar 1		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 1 19:00		Minimum Daily Average: 0.0 ppb on Mar 28		Hours of Data: 707																							
Maximum Diurnal Average: 1.6 ppb at hour 23		Minimum Diurnal Average: 0.1 ppb at hour 6		Hours of Missing Data: 37																							
Monthly Average: 0.55 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.6 P ₉₀ = 1.4 P ₉₉ = 4.4		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-Mar	0.2	0.2	0.1	0.1	Z	0.5	0.5	0.5	0.5	0.6	0.6	1.0	1.0	2.8	0.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0	27.9	0.2	1.7	27.9	
2-Mar	0.9	0.0	0.8	0.5	0.2	Z	0.2	1.3	2.6	0.1	1.5	1.0	0.6	0.5	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.6	
3-Mar	Z	0.0	0.0	0.0	1.7	0.0	0.0	0.0	1.0	2.0	0.3	0.7	1.2	3.0	3.4	2.2	1.1	0.5	0.4	0.3	0.3	0.2	0.0	0.2	0.8	3.4	
4-Mar	0.3	Z	0.1	0.2	0.3	0.2	0.2	0.4	0.7	0.8	1.3	1.6	2.0	1.4	1.5	1.0	0.8	0.4	0.2	0.2	0.2	0.4	0.6	0.2	0.7	2.0	
5-Mar	0.2	0.5	Z	0.7	0.7	0.7	0.7	0.6	1.8	2.4	3.7	4.4	2.8	1.4	1.3	0.8	0.7	0.1	0.2	1.6	1.0	5.6	1.1	4.0	1.6	5.6	
6-Mar	1.2	1.7	0.3	Z	0.0	0.1	0.1	1.9	1.8	1.2	2.5	1.2	0.7	0.4	0.4	0.4	0.5	0.3	0.1	0.3	0.1	0.6	1.6	1.4	0.8	2.5	
7-Mar	0.4	0.4	0.0	0.1	Z	0.0	0.0	0.2	0.6	1.6	2.0	2.9	0.7	0.7	0.7	0.6	0.6	0.3	0.1	1.0	0.4	0.2	0.1	0.1	0.6	2.9	
8-Mar	0.2	0.3	0.2	0.1	0.1	Z	0.2	0.4	1.3	1.7	0.6	1.3	1.5	2.2	1.2	0.6	0.2	0.1	0.1	0.0	0.3	0.3	0.0	0.0	0.6	2.2	
9-Mar	Z	0.0	0.6	0.1	0.4	0.0	0.0	0.1	0.5	0.8	1.8	1.6	1.0	1.2	1.8	0.9	0.3	0.2	0.0	0.0	0.0	3.8	0.2	0.1	0.7	3.8	
10-Mar	0.6	Z	0.9	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.9	0.9	2.3	4.2	2.4	0.1	0.1	1.5	0.7	4.2	
11-Mar	3.6	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.6	
12-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	2.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.6	
13-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.4	0.9	1.9	2.4	4.7	1.8	1.2	0.4	0.3	0.2	0.0	0.0	0.0	0.5	0.2	0.2	0.7	4.7	
14-Mar	0.3	0.0	0.0	0.0	0.0	Z	2.7	1.5	0.3	0.3	C	C	C	C	C	C	0.0	0.0	0.8	0.3	0.0	0.0	0.1	0.1	--	2.7	
15-Mar	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.5	0.3	0.5	0.4	0.6	0.6	0.7	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	
16-Mar	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.8	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	1.4	0.0	0.2	1.4	
17-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.5	0.6	0.8	0.8	0.6	0.8	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.8	
18-Mar	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.2	0.1	0.3	0.7	1.5	1.0	0.8	0.9	0.7	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	
19-Mar	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.1	0.3	0.3	0.3	0.4	0.7	0.7	0.5	0.2	0.0	0.1	0.0	0.0	1.0	0.0	0.0	0.0	0.2	1.0	
20-Mar	0.0	0.0	0.0	0.2	0.3	Z	0.4	0.9	0.3	0.9	1.9	2.0	0.5	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0	
21-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.5	0.3	2.2	1.9	0.3	2.2	
22-Mar	4.0	Z	0.4	1.0	0.8	0.4	0.6	0.8	0.6	0.5	0.6	1.5	2.2	2.2	1.5	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	4.0	
23-Mar	0.0	0.0	Z	0.1	0.1	0.1	1.2	0.4	1.1	0.6	0.6	0.2	0.7	0.4	0.4	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.2	
24-Mar	0.0	0.7	0.8	Z	1.5	0.7	0.5	0.5	0.3	1.7	0.4	0.2	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	1.7	
25-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.4	0.3	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	1.1	0.0	0.0	0.0	0.0	0.2	1.1	
27-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.6	0.4	1.3	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
28-Mar	0.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.4	
29-Mar	0.3	0.2	Z	0.1	0.1	0.1	0.4	0.8	0.8	1.7	1.8	1.4	0.7	0.4	0.6	0.4	0.1	0.1	0.0	0.1	0.2	1.6	13.5	5.6	1.3	13.5	
30-Mar	12.6	13.6	4.0	Z	1.0	0.4	0.7	1.3	0.9	0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.5	13.6	
31-Mar	0.0	0.1	0.0	0.2	Z	0.1	0.1	0.7	1.3	0.6	0.5	1.2	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
		1.0	0.7	0.3	0.1	0.3	0.1	0.3	0.5	0.7	0.8	0.9	1.0	0.9	0.8	0.6	0.4	0.3	0.2	0.1	0.3	0.2	0.5	1.6	0.5	Diurnal Average	
		12.6	13.6	4.0	1.0	1.7	0.7	2.7	1.9	2.6	2.6	3.7	4.4	4.7	3.0	3.4	2.2	1.1	1.1	2.3	4.2	2.4	5.6	27.9	5.6	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Anzac - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Anzac - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	706	99.86	99.86
21 - 40	1	0.14	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Anzac - March 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	23	18	16	32	74	108	101	21	16	24	44	53	18	30	70	702
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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
Totals	54	23	18	16	32	74	108	101	21	16	24	44	53	19	30	70	703

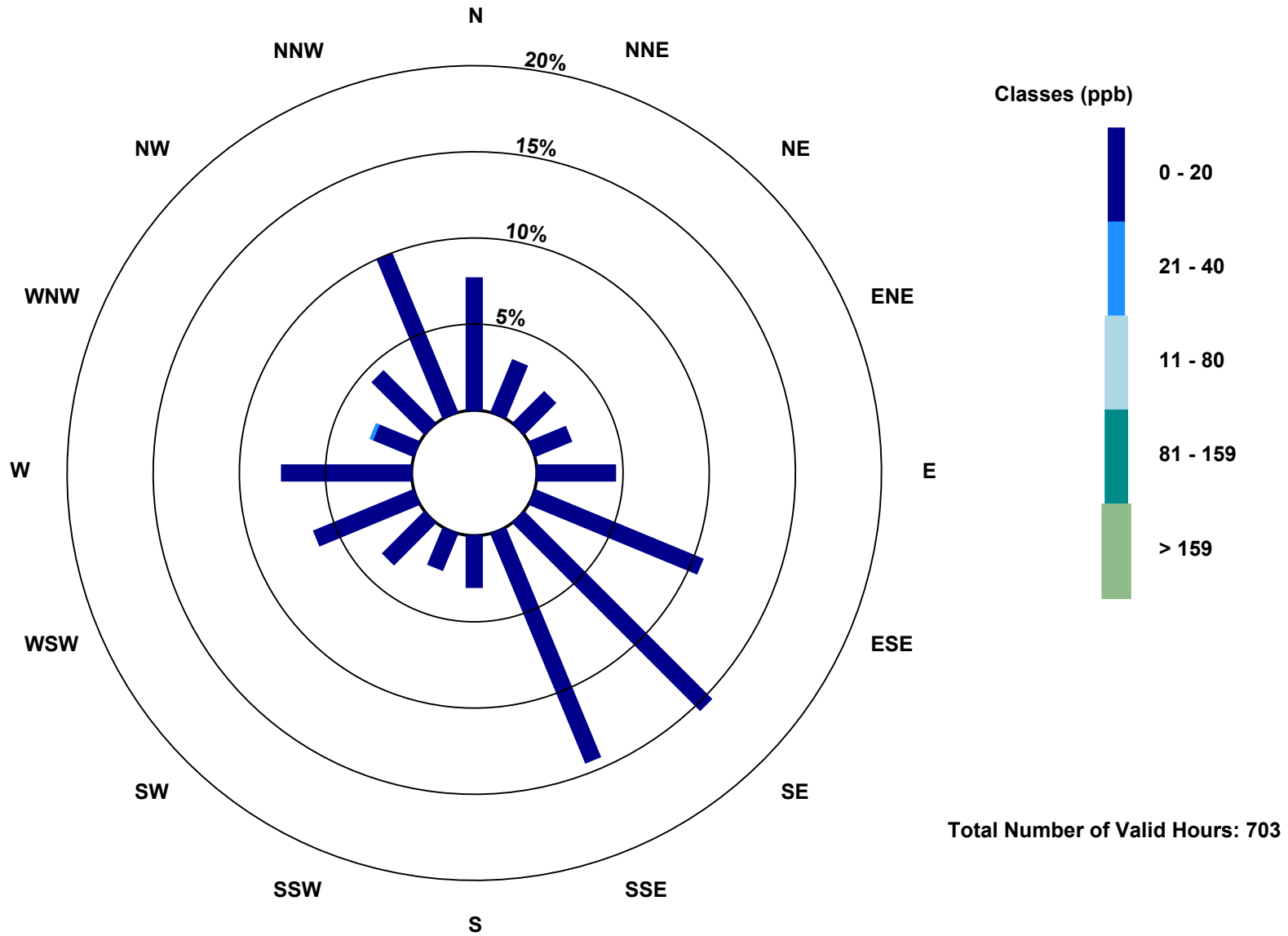
Total Number of Valid Hours: 703

Total Number of Hours: 744

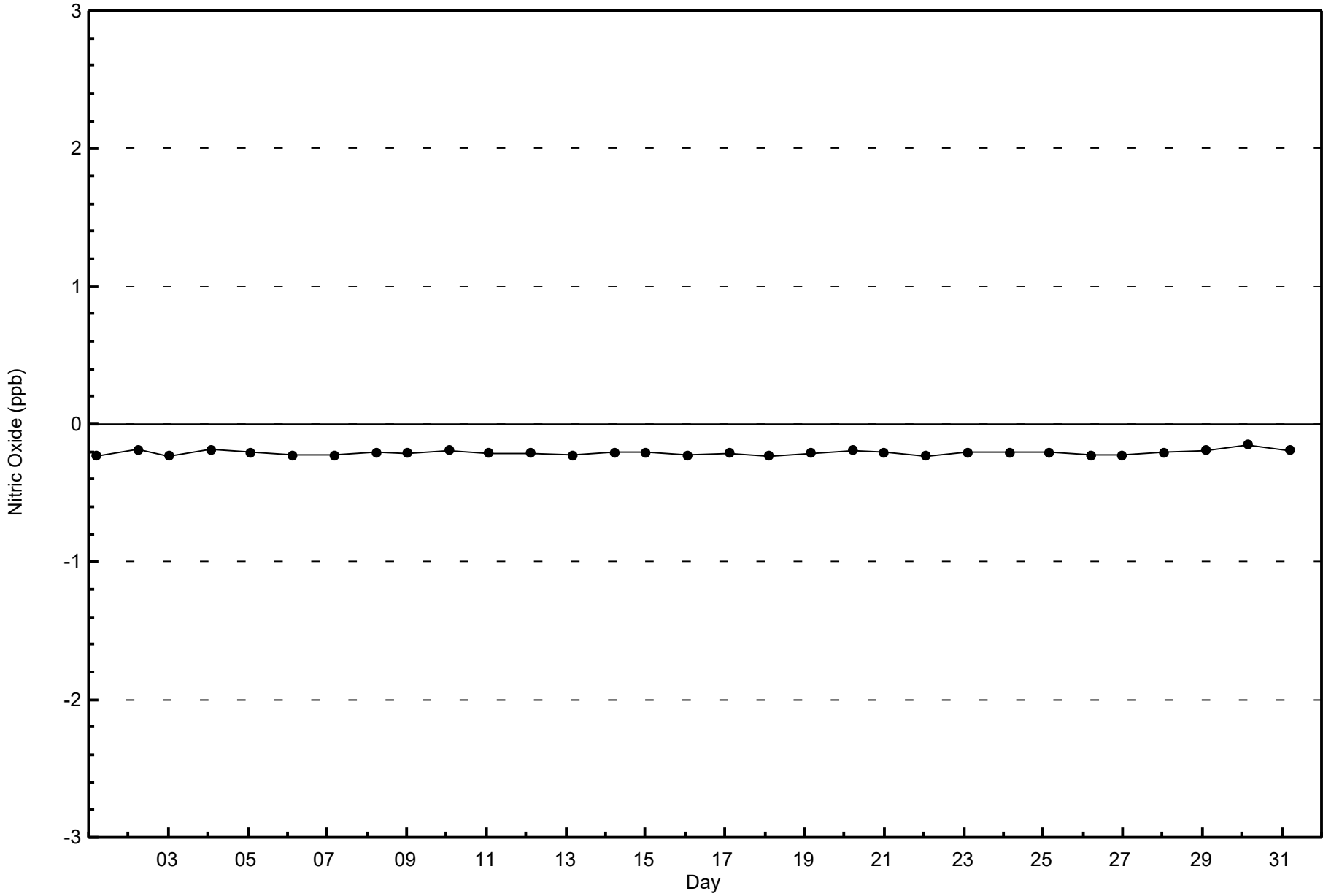


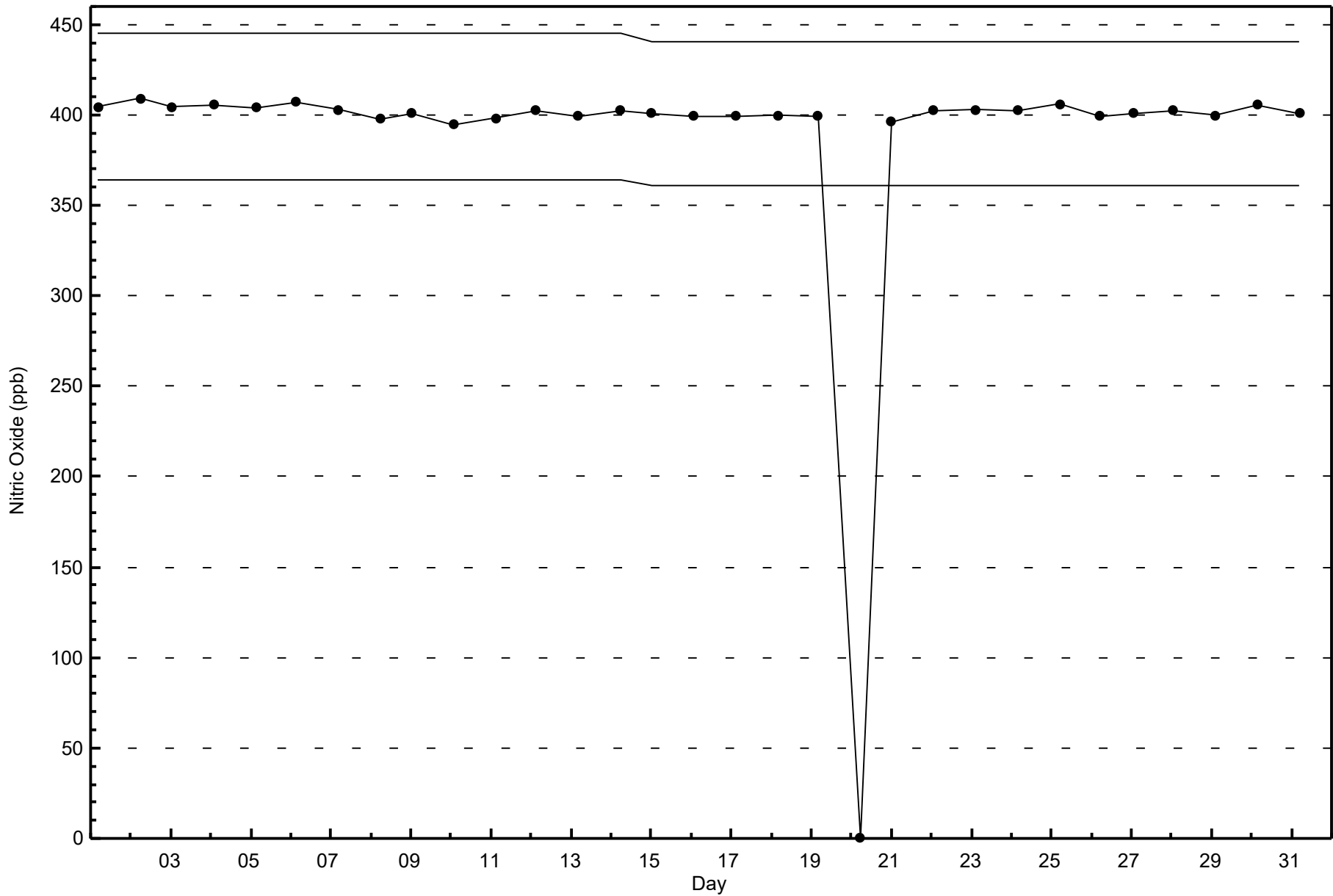
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Anzac



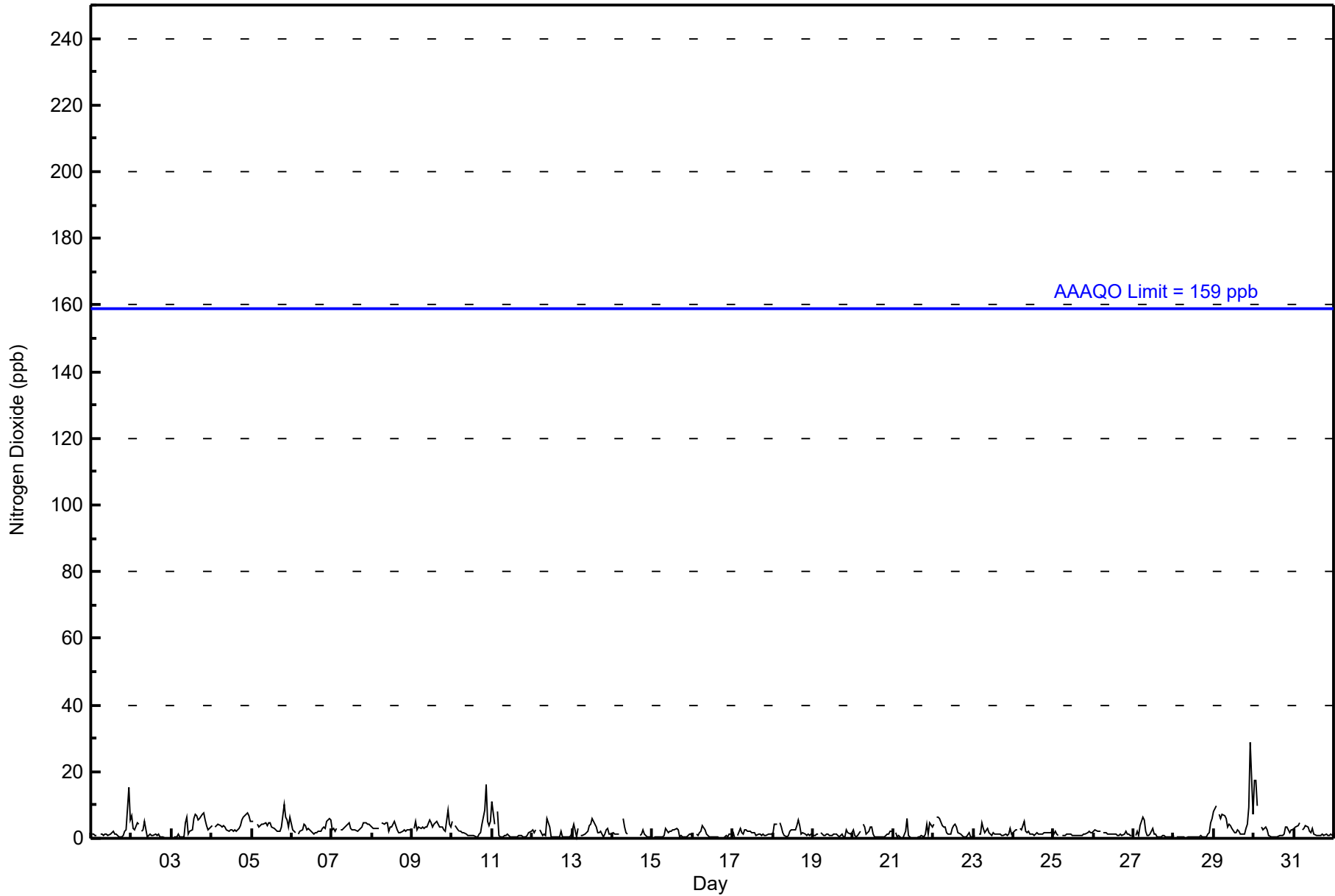
Total Number of Valid Hours: 703







Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 28.8 ppb on Mar 29 23:00		Maximum Daily Average: 5.6 ppb on Mar 29																	Hours of Data:	707																												
Minimum Value: 0.2 ppb on Mar 2 21:00		Minimum Daily Average: 0.9 ppb on Mar 28																	Hours of Missing Data:	37																												
Maximum Diurnal Average: 3.6 ppb at hour 1		Minimum Diurnal Average: 1.4 ppb at hour 17																	Hours of Calibration:	37																												
Monthly Average: 2.30 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.9 Median = 1.6 Q ₃ = 3.1 P ₉₀ = 4.7 P ₉₉ = 9.7																	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-Mar	1.3	1.1	1.0	0.9	Z	1.2	1.1	1.0	1.1	1.1	1.0	1.2	1.5	2.1	1.3	1.2	0.5	0.5	0.6	1.0	2.2	2.6	15.2	5.4	2.0	15.2																						
2-Mar	6.6	2.9	2.6	4.8	4.3	Z	2.1	2.6	5.1	0.6	1.0	1.4	1.0	1.0	1.3	0.8	1.3	0.5	0.3	0.3	0.2	0.2	0.2	0.2	1.8	6.6																						
3-Mar	Z	0.3	0.3	0.3	1.2	0.3	0.3	0.5	4.7	6.3	1.3	2.2	2.7	5.9	7.0	6.7	5.3	5.8	7.4	7.5	5.7	4.0	2.7	3.5	3.6	7.5																						
4-Mar	4.0	Z	3.5	3.7	4.2	3.9	3.6	3.8	3.6	2.7	2.2	2.6	2.7	2.2	2.4	2.3	2.9	3.8	5.4	6.2	6.9	7.5	6.8	5.1	4.0	7.5																						
5-Mar	4.9	5.1	Z	4.1	3.4	3.7	4.1	4.4	4.5	3.8	4.5	4.7	3.5	2.8	2.7	2.1	2.3	2.1	3.2	10.0	6.3	5.3	3.5	6.5	4.2	10.0																						
6-Mar	2.4	2.1	1.9	Z	1.3	2.0	2.7	4.1	3.8	2.6	3.1	2.2	1.8	1.4	1.6	1.5	2.1	2.3	2.8	3.6	2.8	5.0	6.0	5.5	2.8	6.0																						
7-Mar	2.7	3.1	2.3	2.8	Z	2.6	2.5	2.8	3.2	4.4	4.7	3.1	2.5	2.6	2.5	2.2	2.4	2.8	3.4	4.6	4.7	4.4	4.2	3.9	3.2	4.7																						
8-Mar	3.3	3.0	2.8	2.9	3.1	Z	4.5	4.1	4.7	4.8	2.2	3.3	3.5	5.0	4.0	2.6	1.8	1.9	2.1	2.6	2.2	2.7	2.6	2.7	3.1	5.0																						
9-Mar	Z	3.0	5.0	2.5	3.4	2.8	3.5	3.0	3.4	3.6	5.7	4.7	3.3	4.1	4.7	5.0	3.4	3.5	3.4	2.4	2.2	8.3	4.1	3.3	3.8	8.3																						
10-Mar	4.9	Z	3.7	2.7	2.3	2.1	1.9	1.8	1.2	1.0	0.9	1.0	0.8	0.8	0.5	0.5	1.3	1.9	4.2	8.4	16.1	5.2	3.8	5.0	3.1	16.1																						
11-Mar	11.1	4.3	Z	8.0	0.7	0.5	0.5	0.8	0.8	1.2	0.7	0.6	0.6	0.6	0.6	0.6	0.9	0.7	0.4	0.3	0.5	0.9	1.6	2.1	1.7	11.1																						
12-Mar	2.5	1.6	2.7	Z	2.4	1.7	0.7	1.3	1.0	5.8	3.3	0.5	0.5	0.5	0.5	0.4	0.5	2.0	0.6	0.4	0.4	0.4	0.4	0.8	1.3	5.8																						
13-Mar	2.6	4.1	0.4	3.0	Z	0.8	0.9	1.4	1.6	2.1	3.7	4.1	5.9	4.4	3.2	1.6	1.5	2.0	0.5	1.1	2.6	2.8	1.3	1.3	2.3	5.9																						
14-Mar	1.8	1.4	1.1	1.3	1.3	Z	6.0	3.5	1.6	1.2	C	C	C	C	C	C	1.0	1.3	2.7	1.3	0.7	0.5	0.5	0.5	--	6.0																						
15-Mar	Z	0.5	0.4	0.5	0.3	0.3	0.3	0.7	2.9	1.8	2.3	2.3	2.6	2.5	3.0	2.4	0.5	0.7	0.6	0.5	0.6	0.9	1.3	1.3	1.3	3.0																						
16-Mar	0.6	Z	1.1	1.0	1.6	2.0	4.0	2.5	1.4	0.8	0.6	0.6	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.9	0.5	1.1	1.2	1.0	4.0																						
17-Mar	1.6	0.2	Z	0.7	3.1	1.6	1.3	2.4	2.5	2.1	2.1	1.9	1.6	1.8	1.0	1.2	1.1	0.9	1.1	0.8	1.0	1.3	1.2	1.2	1.5	3.1																						
18-Mar	1.2	4.2	4.4	Z	4.6	3.6	1.7	0.9	0.5	1.0	2.2	2.7	2.4	2.7	3.8	5.5	3.9	1.3	1.6	1.2	1.0	1.1	1.0	1.1	2.3	5.5																						
19-Mar	1.0	1.0	1.4	1.4	Z	1.5	0.8	0.8	1.2	1.1	0.8	0.8	1.4	1.4	1.1	0.7	0.4	1.3	0.6	0.6	2.5	1.5	1.1	1.8	1.1	2.5																						
20-Mar	2.4	1.0	0.3	1.0	2.3	Z	4.2	3.6	1.1	2.2	3.3	3.2	1.1	0.4	0.4	0.6	0.5	0.5	0.4	0.3	1.4	1.2	2.0	2.0	1.5	4.2																						
21-Mar	Z	1.7	0.3	0.9	0.3	0.2	0.2	2.1	5.9	0.9	0.3	0.2	0.2	0.2	0.2	0.3	0.5	1.0	0.6	1.1	4.2	1.2	4.7	3.3	1.3	5.9																						
22-Mar	4.3	Z	6.3	6.3	6.0	3.8	3.4	3.4	1.6	1.2	1.4	2.9	3.7	4.2	3.3	1.6	1.2	0.9	0.6	0.3	0.3	1.6	0.5	0.4	2.6	6.3																						
23-Mar	0.4	0.7	Z	1.1	1.3	4.5	3.1	1.8	3.0	1.7	1.3	0.9	1.8	1.4	1.4	1.1	1.3	0.7	1.0	1.1	0.7	1.2	3.1	1.3	1.6	4.5																						
24-Mar	1.5	2.5	2.5	Z	3.1	2.4	5.0	2.3	1.9	2.2	1.4	1.1	0.9	1.2	1.6	1.2	1.3	1.3	1.7	1.8	1.5	1.6	1.9	2.5	1.9	5.0																						
25-Mar	1.2	2.1	1.4	0.9	Z	1.0	0.8	0.8	1.3	1.4	1.1	0.9	1.0	0.9	0.9	0.9	0.9	1.0	1.1	1.2	1.6	2.0	1.8	1.8	1.2	2.1																						
26-Mar	2.1	2.5	2.3	2.3	2.3	Z	1.9	1.8	1.4	1.1	1.3	1.4	1.2	1.1	1.0	1.0	1.2	1.0	1.2	2.3	1.2	1.1	0.9	0.7	1.5	2.5																						
27-Mar	Z	0.8	2.3	0.8	3.9	6.2	5.3	2.2	0.7	0.9	1.2	3.0	1.4	1.2	0.5	0.4	0.4	0.8	0.8	0.4	0.3	0.3	0.3	0.3	1.5	6.2																						
28-Mar	0.8	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8	0.6	0.3	0.6	1.4	1.5	4.5	6.0	0.9	6.0																						
29-Mar	7.9	9.7	Z	7.3	6.0	7.0	6.8	5.8	3.4	4.2	3.8	2.9	1.8	1.5	2.4	2.1	1.2	1.3	1.3	2.8	4.1	9.5	28.8	7.0	5.6	28.8																						
30-Mar	17.4	17.2	9.6	Z	3.5	2.6	3.0	3.5	2.4	0.8	0.5	0.5	0.6	0.5	0.6	0.8	0.9	0.7	1.2	3.4	3.5	1.8	2.4	2.6	3.5	17.4																						
31-Mar	3.1	3.2	3.8	4.5	Z	2.5	2.9	3.7	3.6	2.0	1.7	3.0	1.1	0.8	0.7	0.8	1.0	1.2	1.0	1.2	0.8	1.0	1.3	1.0	2.0	4.5																						
																								3.6	3.1	2.5	2.5	2.6	2.4	2.6	2.4	2.4	2.2	2.0	2.0	1.8	1.9	1.8	1.6	1.4	1.5	1.7	2.2	2.6	2.6	3.6	2.6	Diurnal Average
																								17.4	17.2	9.6	8.0	6.0	7.0	6.8	5.8	5.9	6.3	5.7	4.7	5.9	5.9	7.0	6.7	5.3	5.8	7.4	10.0	16.1	9.5	28.8	7.0	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 (NO₂) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	706	99.86	99.86
21 - 40	1	0.14	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Anzac - March 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	23	18	16	32	74	108	101	21	16	24	44	52	19	30	70	702
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
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
Totals	54	23	18	16	32	74	108	101	21	16	24	44	53	19	30	70	703

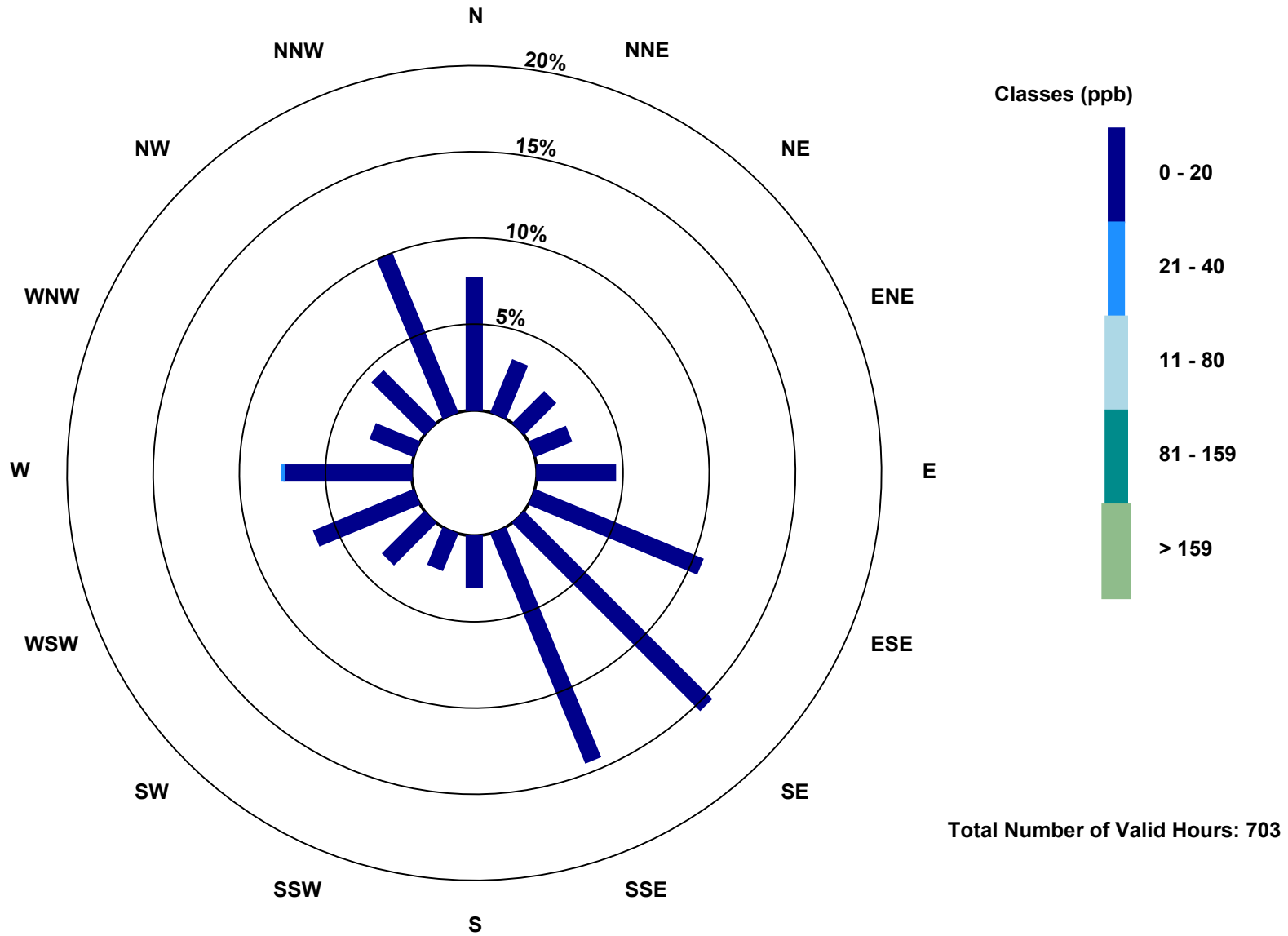
Total Number of Valid Hours: 703

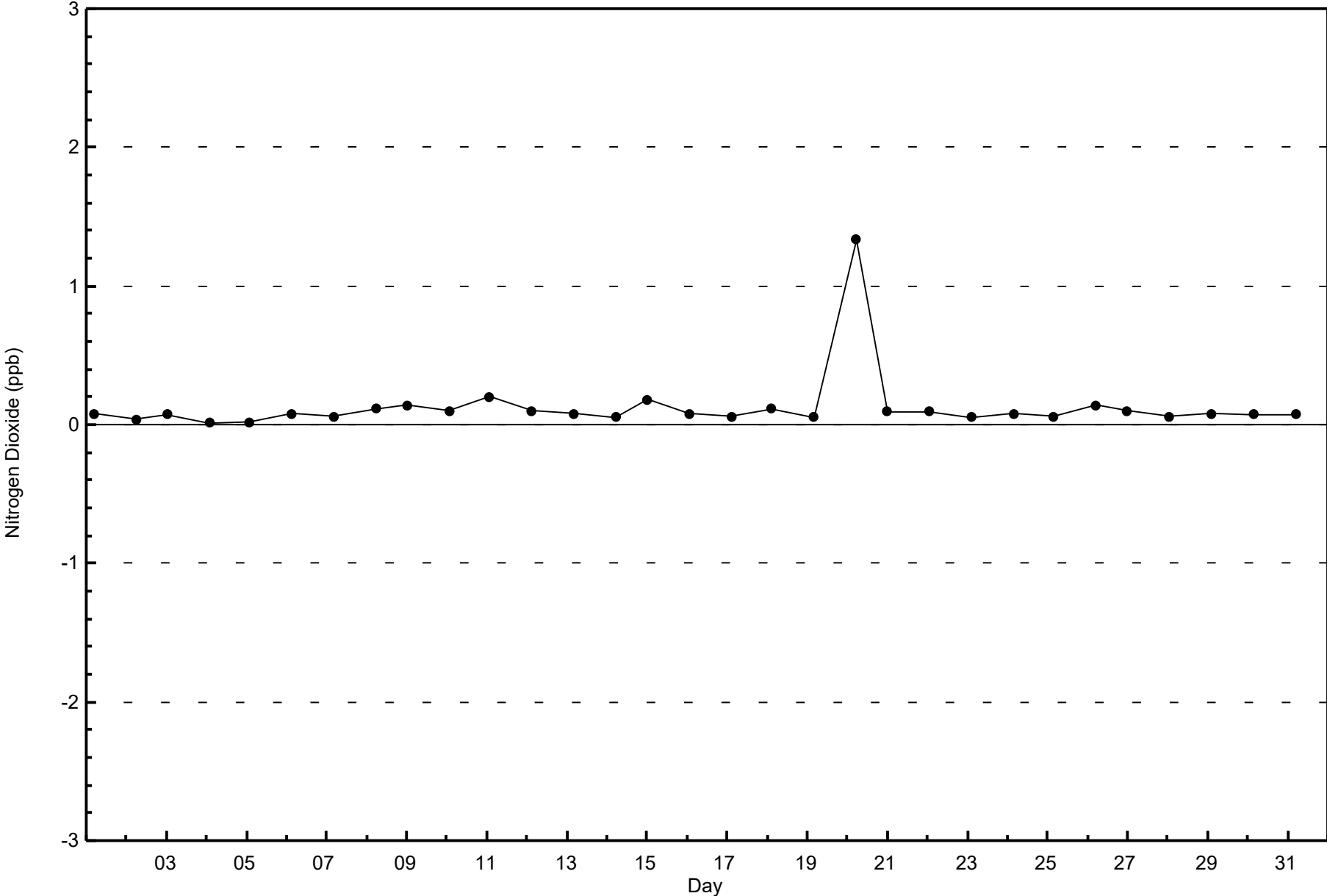
Total Number of Hours: 744

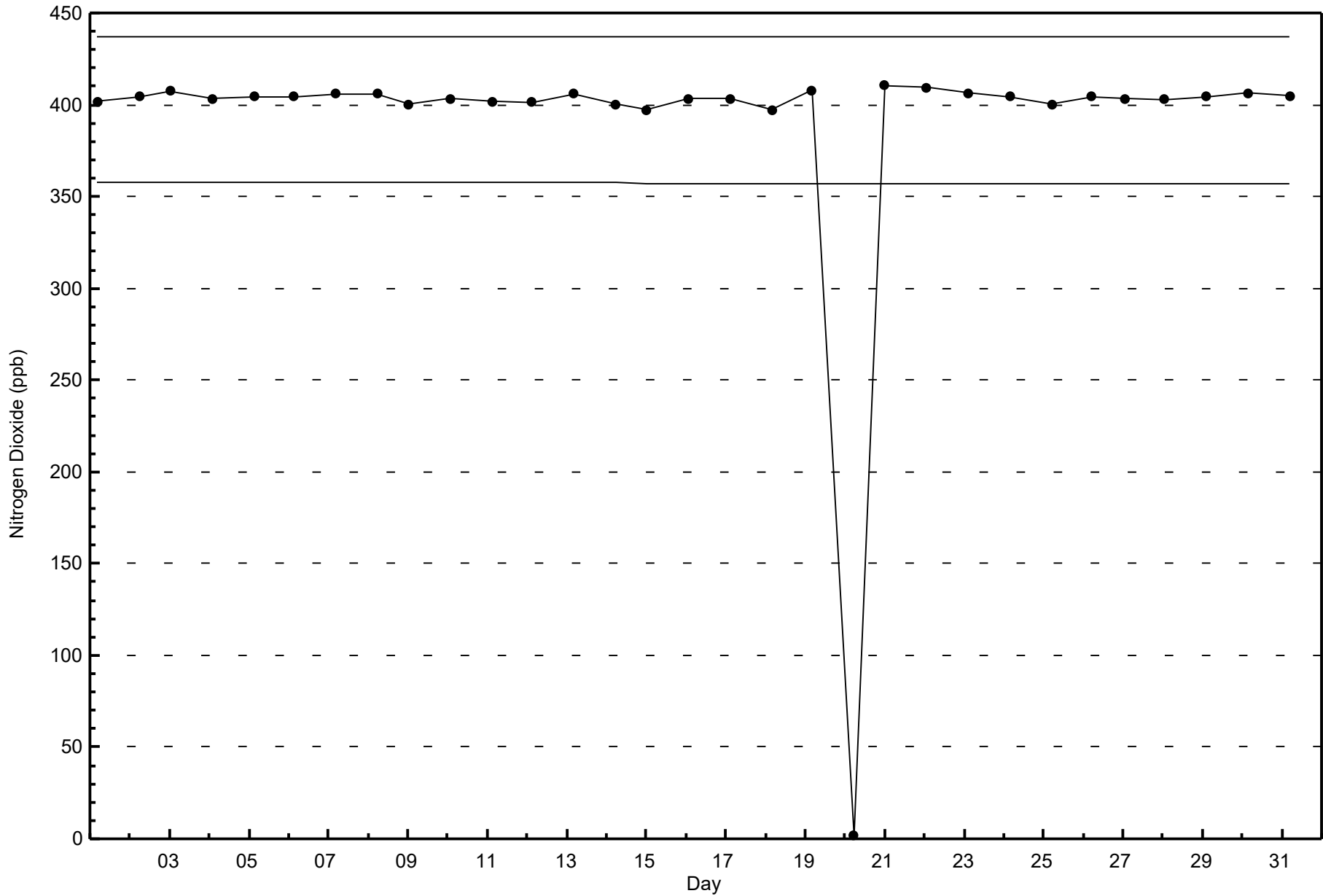


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Anzac









Wood Buffalo Environmental Association
Summary of Hour Averages

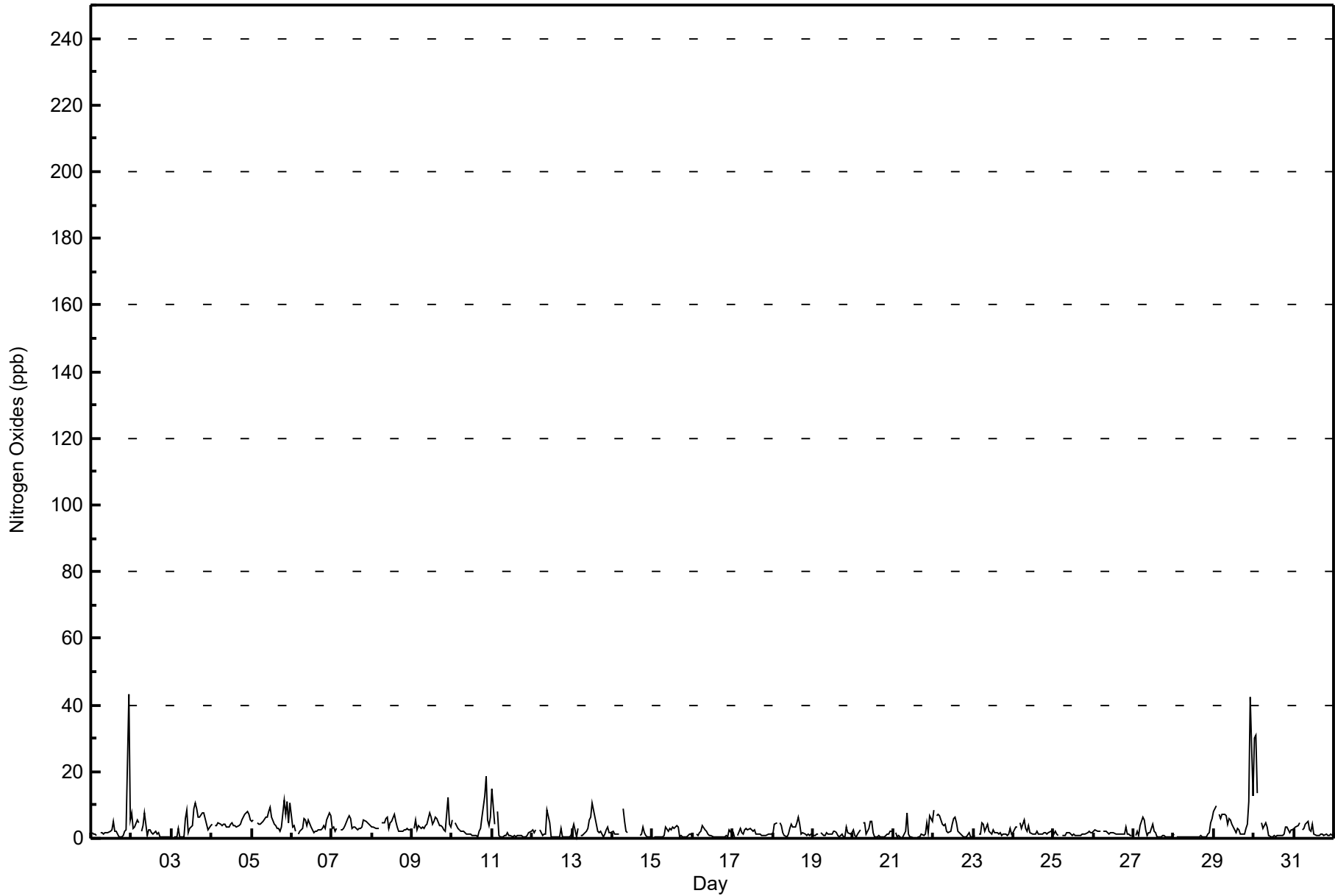
Nitrogen Oxides (NO_x) - ppb
Anzac - March 2024

Maximum Value: 43.1 ppb on Mar 1 23:00		Maximum Daily Average: 6.9 ppb on Mar 29		Hours in Service: 744																																												
Minimum Value: 0.2 ppb on Mar 21 14:00		Minimum Daily Average: 0.9 ppb on Mar 28		Hours of Data: 707																																												
Maximum Diurnal Average: 5.2 ppb at hour 23		Minimum Diurnal Average: 1.7 ppb at hour 18		Hours of Missing Data: 37																																												
Monthly Average: 2.84 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 1.0 Median = 1.9 Q ₃ = 3.8 P ₉₀ = 6.0 P ₉₉ = 12.6		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-Mar	1.5	1.3	1.1	1.0	Z	1.7	1.6	1.5	1.6	1.7	1.6	2.2	2.5	4.9	2.1	1.9	0.6	0.5	0.6	1.0	2.2	2.6	43.1	5.6	3.7	43.1																						
2-Mar	7.5	2.9	3.4	5.3	4.5	Z	2.3	3.9	7.7	0.7	2.5	2.4	1.6	1.5	2.0	1.1	1.6	0.5	0.3	0.3	0.2	0.2	0.2	0.2	2.3	7.7																						
3-Mar	Z	0.3	0.3	0.3	2.9	0.3	0.3	0.5	5.7	8.3	1.6	2.9	3.9	8.9	10.4	8.9	6.4	6.3	7.8	7.8	6.0	4.2	2.7	3.7	4.4	10.4																						
4-Mar	4.3	Z	3.6	3.9	4.5	4.1	3.8	4.2	4.3	3.5	3.5	4.2	4.7	3.6	3.9	3.3	3.7	4.2	5.6	6.4	7.1	7.9	7.4	5.3	4.6	7.9																						
5-Mar	5.1	5.6	Z	4.8	4.1	4.4	4.8	5.0	6.3	6.2	8.2	9.1	6.3	4.2	4.0	2.9	3.0	2.2	3.4	11.6	7.3	10.9	4.6	10.5	5.9	11.6																						
6-Mar	3.6	3.8	2.2	Z	1.3	2.1	2.8	6.0	5.6	3.8	5.6	3.4	2.5	1.8	2.0	1.9	2.6	2.6	2.9	3.9	2.9	5.6	7.6	6.9	3.6	7.6																						
7-Mar	3.1	3.5	2.3	2.9	Z	2.6	2.5	3.0	3.8	6.0	6.7	6.0	3.2	3.3	3.2	2.8	3.0	3.1	3.5	5.6	5.1	4.6	4.3	4.0	3.8	6.7																						
8-Mar	3.5	3.3	3.0	3.0	3.2	Z	4.7	4.5	6.0	6.5	2.8	4.6	5.0	7.2	5.2	3.2	2.0	2.0	2.2	2.6	2.5	3.0	2.6	2.7	3.7	7.2																						
9-Mar	Z	3.0	5.6	2.6	3.8	2.8	3.5	3.1	3.9	4.4	7.5	6.3	4.3	5.3	6.5	5.9	3.7	3.7	3.4	2.4	2.2	12.1	4.3	3.4	4.5	12.1																						
10-Mar	5.5	Z	4.6	2.8	2.4	2.1	2.0	2.0	1.3	1.1	1.1	1.2	0.9	0.9	0.6	0.6	2.2	2.8	6.5	12.6	18.5	5.3	3.9	6.5	3.8	18.5																						
11-Mar	14.7	4.3	Z	8.0	0.7	0.5	0.5	0.8	0.9	1.6	0.8	0.7	0.6	0.7	0.6	0.7	1.0	0.7	0.4	0.3	0.5	0.9	1.6	2.1	1.9	14.7																						
12-Mar	2.5	1.6	2.7	Z	2.4	1.7	0.7	1.4	1.2	8.4	4.8	0.5	0.5	0.5	0.4	0.5	3.1	0.6	0.4	0.4	0.4	0.4	0.4	0.8	1.6	8.4																						
13-Mar	2.6	4.1	0.4	3.0	Z	0.8	0.9	1.5	2.0	3.0	5.6	6.5	10.6	6.2	4.4	2.0	1.8	2.2	0.5	1.1	2.6	3.3	1.5	1.5	3.0	10.6																						
14-Mar	2.1	1.4	1.1	1.3	1.3	Z	8.7	5.0	1.9	1.5	C	C	C	C	C	C	1.0	1.3	3.5	1.6	0.7	0.5	0.6	0.6	--	8.7																						
15-Mar	Z	0.5	0.4	0.5	0.3	0.4	0.4	0.8	3.4	2.1	2.8	2.7	3.2	3.1	3.7	3.2	0.6	0.7	0.6	0.5	0.6	0.9	1.3	1.3	1.5	3.7																						
16-Mar	0.6	Z	1.2	1.0	1.6	2.0	4.0	2.7	2.2	1.1	0.8	0.8	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.9	0.5	2.5	1.2	1.1	4.0																						
17-Mar	1.6	0.2	Z	0.7	3.1	1.6	1.3	2.6	3.0	2.7	2.9	2.7	2.2	2.6	1.2	1.3	1.2	1.0	1.1	0.8	1.0	1.3	1.3	1.2	1.7	3.1																						
18-Mar	1.2	4.3	4.5	Z	4.7	3.7	1.7	1.1	0.6	1.3	2.9	4.2	3.4	3.5	4.7	6.2	4.4	1.4	1.6	1.2	1.0	1.1	1.0	1.1	2.6	6.2																						
19-Mar	1.0	1.0	1.4	1.4	Z	1.7	0.8	0.9	1.5	1.4	1.1	1.2	2.1	2.1	1.6	0.9	0.4	1.4	0.6	0.6	3.5	1.5	1.1	1.8	1.4	3.5																						
20-Mar	2.4	1.0	0.3	1.2	2.6	Z	4.6	4.5	1.4	3.1	5.2	5.2	1.6	0.4	0.5	0.7	0.6	0.5	0.4	0.3	1.4	1.2	2.0	2.0	1.9	5.2																						
21-Mar	Z	1.7	0.3	0.9	0.3	0.2	0.2	2.3	7.4	1.2	0.3	0.2	0.2	0.2	0.2	0.3	0.6	1.2	0.6	1.1	4.7	1.5	6.9	5.2	1.6	7.4																						
22-Mar	8.3	Z	6.7	7.3	6.8	4.2	4.0	4.2	2.2	1.7	2.0	4.4	5.9	6.4	4.8	2.1	1.4	1.0	0.6	0.3	0.3	1.6	0.5	0.4	3.4	8.3																						
23-Mar	0.4	0.7	Z	1.2	1.4	4.6	4.3	2.2	4.1	2.3	1.9	1.1	2.5	1.8	1.8	1.3	1.5	0.7	1.1	1.2	0.7	1.2	3.2	1.3	1.8	4.6																						
24-Mar	1.5	3.2	3.3	Z	4.6	3.1	5.5	2.8	2.2	3.9	1.8	1.3	1.1	1.3	1.9	1.3	1.4	1.4	1.8	1.8	1.5	1.6	1.9	2.5	2.3	5.5																						
25-Mar	1.2	2.1	1.4	0.9	Z	1.0	0.8	0.9	1.6	1.8	1.4	1.0	1.5	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.6	2.0	1.8	1.8	1.3	2.1																						
26-Mar	2.1	2.5	2.3	2.3	2.3	Z	2.0	2.0	1.6	1.4	1.7	1.8	1.6	1.4	1.2	1.2	1.3	1.1	1.3	3.4	1.2	1.1	0.9	0.7	1.7	3.4																						
27-Mar	Z	0.8	2.3	0.8	3.9	6.2	5.4	2.3	0.8	1.5	1.6	4.3	2.0	1.6	0.5	0.4	0.4	0.8	0.8	0.4	0.3	0.3	0.3	0.3	1.7	6.2																						
28-Mar	1.2	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.3	0.9	0.6	0.3	0.6	1.4	1.5	4.7	6.1	0.9	6.1																						
29-Mar	8.2	9.9	Z	7.4	6.1	7.1	7.2	6.6	4.2	5.9	5.6	4.3	2.5	1.9	3.0	2.5	1.3	1.4	1.3	2.9	4.3	11.1	42.3	12.6	6.9	42.3																						
30-Mar	30.0	30.8	13.6	Z	4.5	3.0	3.7	4.8	3.3	1.0	0.5	0.5	0.7	0.6	0.7	1.0	1.1	0.8	1.2	3.4	3.5	1.8	2.4	2.6	5.0	30.8																						
31-Mar	3.1	3.3	3.8	4.7	Z	2.6	3.0	4.4	4.9	2.6	2.2	4.2	1.3	0.9	0.7	0.9	1.1	1.2	1.0	1.2	0.8	1.0	1.3	1.0	2.2	4.9																						
																								4.6	3.7	2.8	2.7	2.9	2.5	2.8	2.8	3.1	3.0	2.9	3.0	2.6	2.6	2.4	2.0	1.7	1.7	1.8	2.5	2.8	3.0	5.2	3.1	Diurnal Average
																								30.0	30.8	13.6	8.0	6.8	7.1	8.7	6.6	7.7	8.4	8.2	9.1	10.6	8.9	10.4	8.9	6.4	6.3	7.8	12.6	18.5	12.1	43.1	12.6	Diurnal Maximum
Z - zerospan C - Calibration																																																



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Anzac - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	99.43	99.43
21 - 40	2	0.28	99.72
41 - 80	2	0.28	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Anzac - March 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	23	18	16	32	74	108	101	21	16	24	44	50	18	30	70	699
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	23	18	16	32	74	108	101	21	16	24	44	53	19	30	70	703

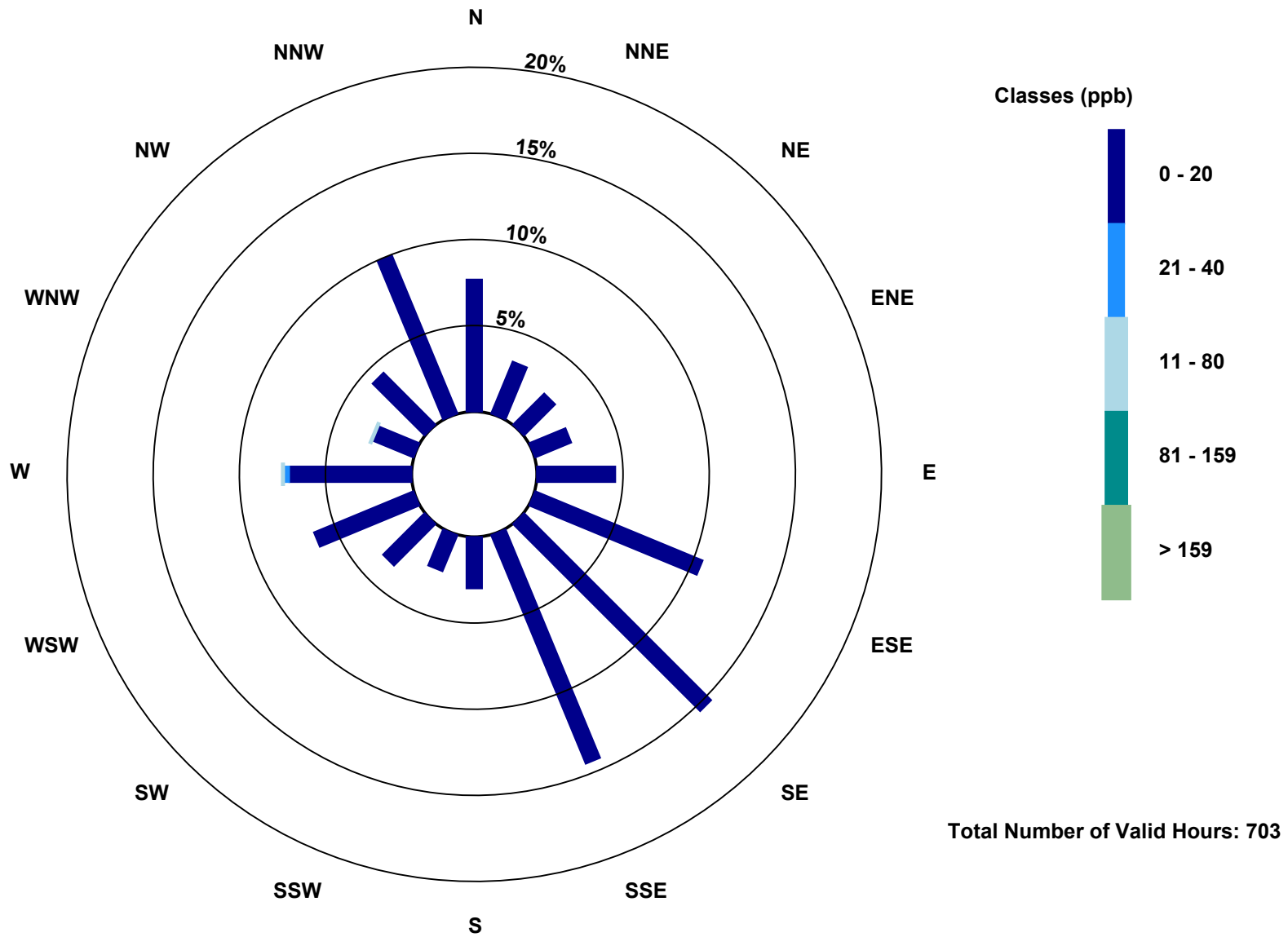
Total Number of Valid Hours: 703

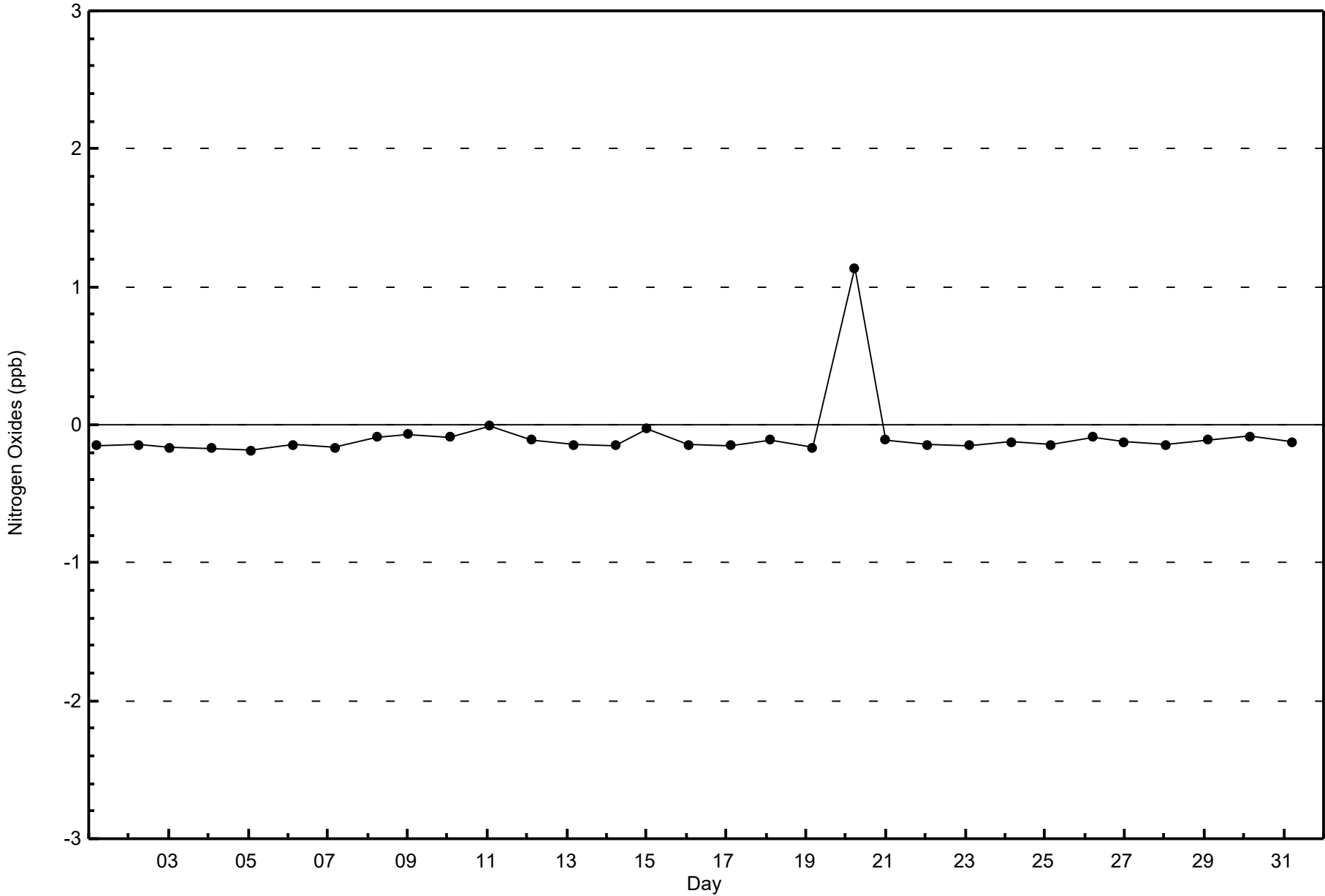
Total Number of Hours: 744

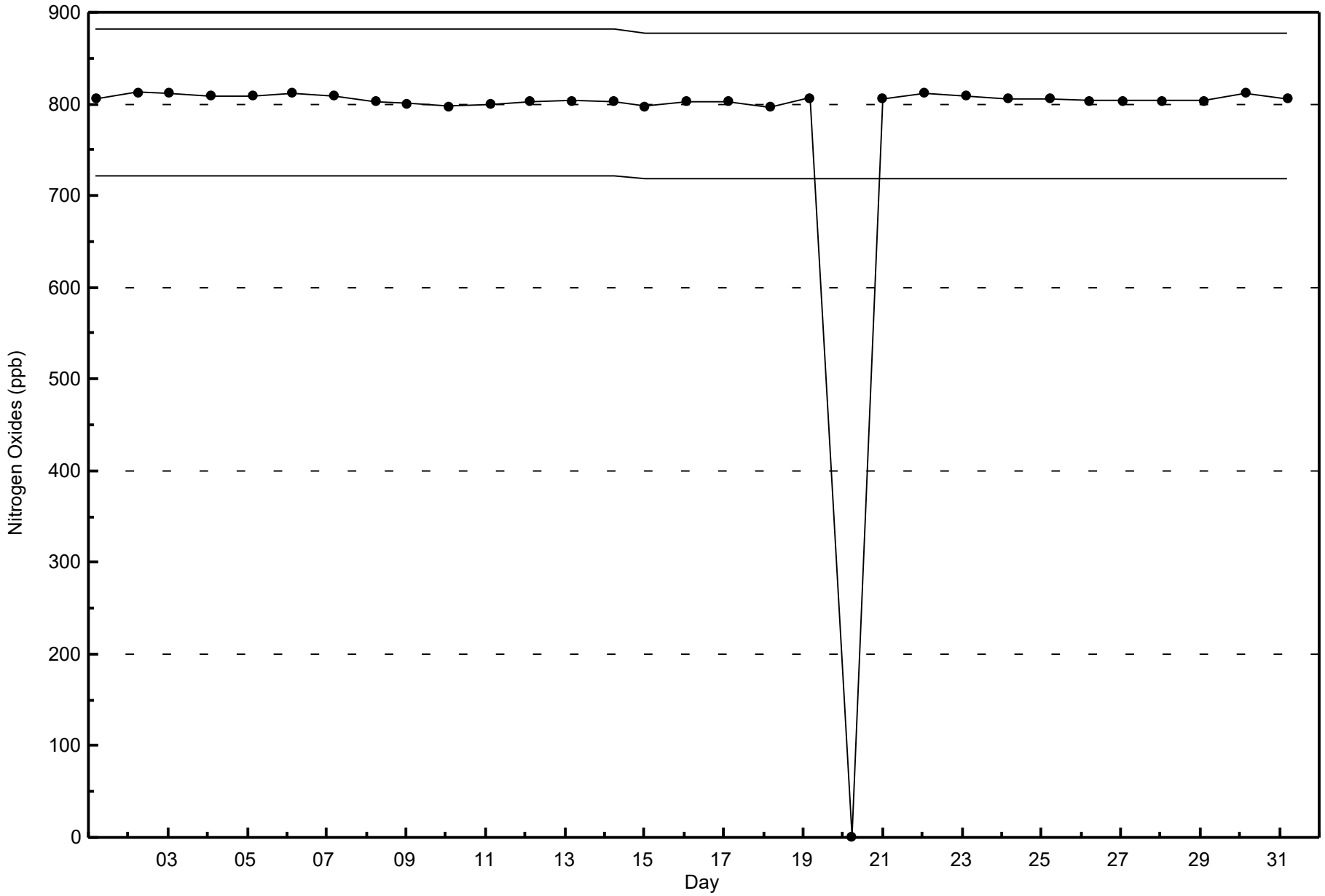


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Anzac









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Anzac - March 2024

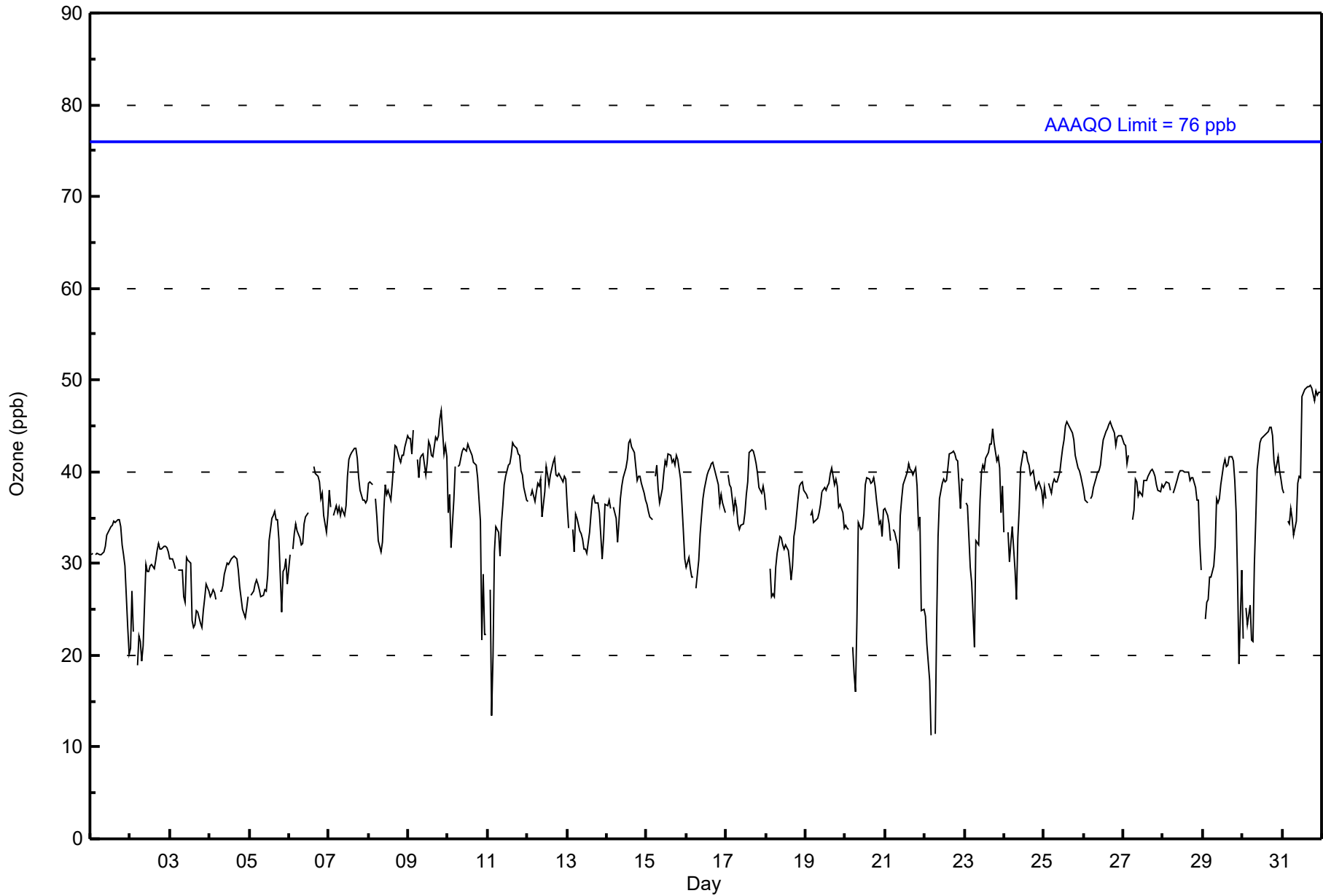
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 710						
Maximum Value: 49.5 ppb on Mar 31 18:00		Maximum Daily Average: 42.9 ppb on Mar 31		Hours of Missing Data: 34																	Hours of Calibration: 34						
Minimum Value: 11.2 ppb on Mar 22 05:00		Minimum Daily Average: 27.1 ppb on Mar 3		Hours of Operational Time: 100.0																							
Maximum Diurnal Average: 39.8 ppb at hour 17		Minimum Diurnal Average: 31.1 ppb at hour 5																									
Monthly Average: 35.91 ppb		Percentiles: P ₁ = 19.0 P ₁₀ = 27.0 Q ₁ = 32.1 Median = 37.1 Q ₃ = 40.1 P ₉₀ = 42.5 P ₉₉ = 48.7																									
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-Mar	31.0	31.1	Z	30.9	31.1	31.0	30.9	31.1	31.3	31.9	33.0	33.7	34.0	34.2	34.6	34.4	34.8	34.8	34.1	32.0	30.9	29.7	23.0	20.1	31.5	34.8	
2-Mar	20.7	27.0	Z	18.9	22.1	21.5	19.4	21.0	29.9	29.1	29.1	29.7	29.9	29.5	30.4	31.5	32.2	31.5	31.5	31.8	31.9	31.8	31.3	27.6	32.2		
3-Mar	30.6	30.5	30.1	29.5	Z	29.2	29.3	29.3	26.4	25.8	30.6	30.4	30.0	23.8	23.0	23.3	24.8	24.7	23.5	23.0	24.8	26.2	27.7	27.1	27.1	30.6	
4-Mar	26.3	26.7	27.2	26.9	26.1	Z	27.0	27.0	27.7	28.9	30.1	29.9	30.1	30.5	30.7	30.9	30.5	29.3	27.4	26.2	25.0	24.2	25.1	26.4	30.9	27.8	
5-Mar	Z	26.5	26.9	27.8	28.2	Z	27.8	27.2	26.4	26.5	27.1	26.9	28.7	32.5	34.9	35.2	35.7	34.8	34.8	32.6	24.7	29.2	29.5	30.6	27.8	35.7	
6-Mar	31.0	Z	31.6	33.2	34.3	33.6	32.8	32.1	32.1	34.3	35.0	35.5	C	C	C	40.5	39.9	39.5	38.9	37.1	37.7	35.2	33.4	35.2	35.2	40.5	
7-Mar	38.0	36.2	Z	35.3	36.3	35.5	36.2	35.3	36.0	35.3	36.4	39.5	41.3	41.8	42.1	42.6	42.5	41.5	39.3	38.0	37.0	36.9	36.7	36.9	38.1	42.6	
8-Mar	38.7	38.9	38.6	Z	37.0	35.2	32.5	31.3	32.4	35.8	38.6	37.6	38.0	36.9	38.8	40.9	42.9	42.8	41.6	41.0	41.8	41.8	42.7	43.9	38.7	43.9	
9-Mar	43.7	43.6	41.9	44.5	Z	41.3	39.3	41.5	41.8	41.9	39.6	41.0	43.4	42.9	41.7	41.7	43.7	43.5	43.9	45.8	46.6	41.9	42.8	41.7	42.6	46.6	
10-Mar	35.5	37.5	31.7	37.0	40.6	Z	40.6	40.7	42.2	42.5	42.4	42.3	43.0	42.6	41.7	41.0	40.8	40.8	39.3	34.6	21.7	28.8	22.3	22.2	37.0	43.0	
11-Mar	Z	27.2	13.4	19.8	31.2	34.1	33.3	30.8	34.3	36.3	38.6	39.5	40.7	40.9	41.7	43.1	42.8	42.5	41.9	41.7	40.1	39.7	38.2	36.8	36.0	43.1	
12-Mar	36.8	Z	37.3	38.0	36.8	37.8	38.7	38.4	39.2	35.1	37.9	40.6	39.6	38.6	39.7	41.1	41.4	39.7	39.5	39.8	39.2	38.9	39.5	39.2	38.8	41.4	
13-Mar	36.3	33.9	Z	33.8	31.2	35.4	34.9	33.6	33.2	32.7	31.6	31.5	31.1	33.4	35.4	37.1	37.3	36.6	36.6	35.5	33.1	30.5	32.8	36.5	34.1	37.3	
14-Mar	36.3	36.9	36.0	Z	36.2	34.9	32.4	34.7	37.0	38.4	39.4	40.4	41.3	43.2	43.4	42.7	42.2	40.6	39.1	39.5	39.6	38.7	37.7	37.0	38.6	43.4	
15-Mar	36.4	35.6	35.1	34.7	Z	39.5	40.7	38.1	36.6	38.2	39.8	41.3	40.7	41.9	41.8	41.0	41.3	40.8	41.7	41.3	39.3	36.5	33.5	30.5	38.5	41.9	
16-Mar	29.6	30.6	29.4	28.5	28.5	Z	27.2	30.4	33.2	35.2	37.1	38.1	39.7	40.0	40.4	40.9	41.1	39.8	39.2	38.7	36.5	37.5	36.6	35.6	35.4	41.1	
17-Mar	Z	39.7	38.6	38.3	35.7	36.9	36.2	34.4	33.8	34.2	34.3	35.5	37.5	38.8	42.1	42.4	42.2	41.7	40.9	39.8	38.4	37.7	38.4	37.5	38.0	42.4	
18-Mar	35.8	Z	29.4	26.3	26.7	26.5	29.6	31.2	32.9	32.8	32.0	31.5	32.0	31.4	30.0	28.2	29.7	32.9	33.9	37.1	38.4	38.7	38.9	38.0	32.3	38.9	
19-Mar	37.6	37.1	Z	35.3	35.6	34.5	34.8	34.9	35.6	36.5	37.9	38.2	38.1	38.4	38.8	39.8	40.4	38.6	39.2	38.4	36.1	36.4	35.5	33.9	37.0	40.4	
20-Mar	34.1	33.8	33.7	Z	20.9	18.1	16.0	23.6	34.5	33.7	33.8	35.5	38.6	39.4	39.2	38.8	38.9	39.3	38.5	36.9	34.4	34.6	32.9	35.9	33.3	39.4	
21-Mar	36.0	35.2	34.3	32.5	Z	33.7	33.4	32.1	29.4	35.3	37.1	38.5	39.5	39.9	40.8	40.3	40.1	39.7	40.4	38.4	34.1	35.2	24.9	25.0	35.5	40.8	
22-Mar	24.2	21.1	19.2	17.3	11.2	Z	11.5	23.6	33.0	37.0	38.8	39.2	39.0	39.0	40.4	42.0	42.1	42.2	41.9	41.4	41.1	36.0	39.2	39.0	33.0	42.2	
23-Mar	Z	36.6	36.3	29.6	27.9	24.5	20.8	32.5	32.0	36.9	40.0	40.7	40.3	41.5	42.0	43.1	43.1	44.7	43.2	41.2	41.7	40.5	35.6	38.5	37.1	44.7	
24-Mar	33.4	Z	33.5	30.2	32.3	34.0	29.2	26.0	32.9	36.1	40.4	42.2	42.1	42.1	41.1	40.7	39.6	40.1	39.0	38.1	38.6	38.9	37.9	36.5	36.7	42.2	
25-Mar	38.2	37.1	Z	38.8	37.7	38.7	39.2	39.0	38.9	39.9	41.4	42.5	43.5	45.0	45.4	44.9	44.6	44.3	43.5	41.7	40.4	40.1	39.4	38.8	41.0	45.4	
26-Mar	38.0	36.9	36.7	Z	37.1	37.4	38.3	39.3	40.0	40.1	40.7	42.3	43.5	44.5	44.7	45.2	45.4	45.0	44.2	42.9	43.8	43.9	44.0	43.9	41.6	45.4	
27-Mar	43.1	42.8	40.8	41.8	Z	34.8	35.9	39.2	38.9	37.4	37.9	37.3	39.0	39.1	39.1	39.5	40.1	40.3	40.0	39.6	38.6	38.0	37.8	38.6	39.1	43.1	
28-Mar	38.3	38.6	39.0	38.7	38.0	Z	37.8	38.1	39.1	39.7	40.1	40.2	40.1	39.9	40.0	40.0	39.1	39.3	39.4	38.2	36.8	36.9	32.3	29.3	38.2	40.2	
29-Mar	Z	24.0	25.8	26.1	28.6	28.5	29.7	31.9	37.1	36.6	37.0	38.6	40.7	41.3	40.6	40.7	41.7	41.6	41.2	39.0	35.5	28.2	19.0	29.3	34.0	41.7	
30-Mar	21.8	Z	25.2	23.4	25.5	21.7	21.4	29.9	34.7	40.3	43.2	43.6	43.8	43.9	44.1	44.4	44.9	44.8	44.0	41.1	40.0	41.7	40.0	39.2	36.6	44.9	
31-Mar	38.1	37.7	Z	34.7	34.4	36.0	34.9	33.1	34.6	38.8	39.5	39.4	48.2	48.9	49.1	49.3	49.3	49.5	49.1	47.7	48.8	48.4	48.7	48.6	42.9	49.5	
		34.2	34.0	31.8	32.0	31.1	32.4	31.4	32.5	34.1	35.6	36.8	37.6	38.7	39.0	39.2	39.6	39.8	39.6	39.0	37.8	36.8	36.2	34.8	34.8	Diurnal Average	
		43.7	43.6	41.9	44.5	40.6	41.3	40.7	41.5	42.2	42.5	43.2	43.6	48.2	48.9	49.1	49.3	49.3	49.5	49.1	47.7	48.8	48.4	48.7	48.6	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Anzac - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Anzac - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	12	1.69	1.69
21 - 50	698	98.31	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



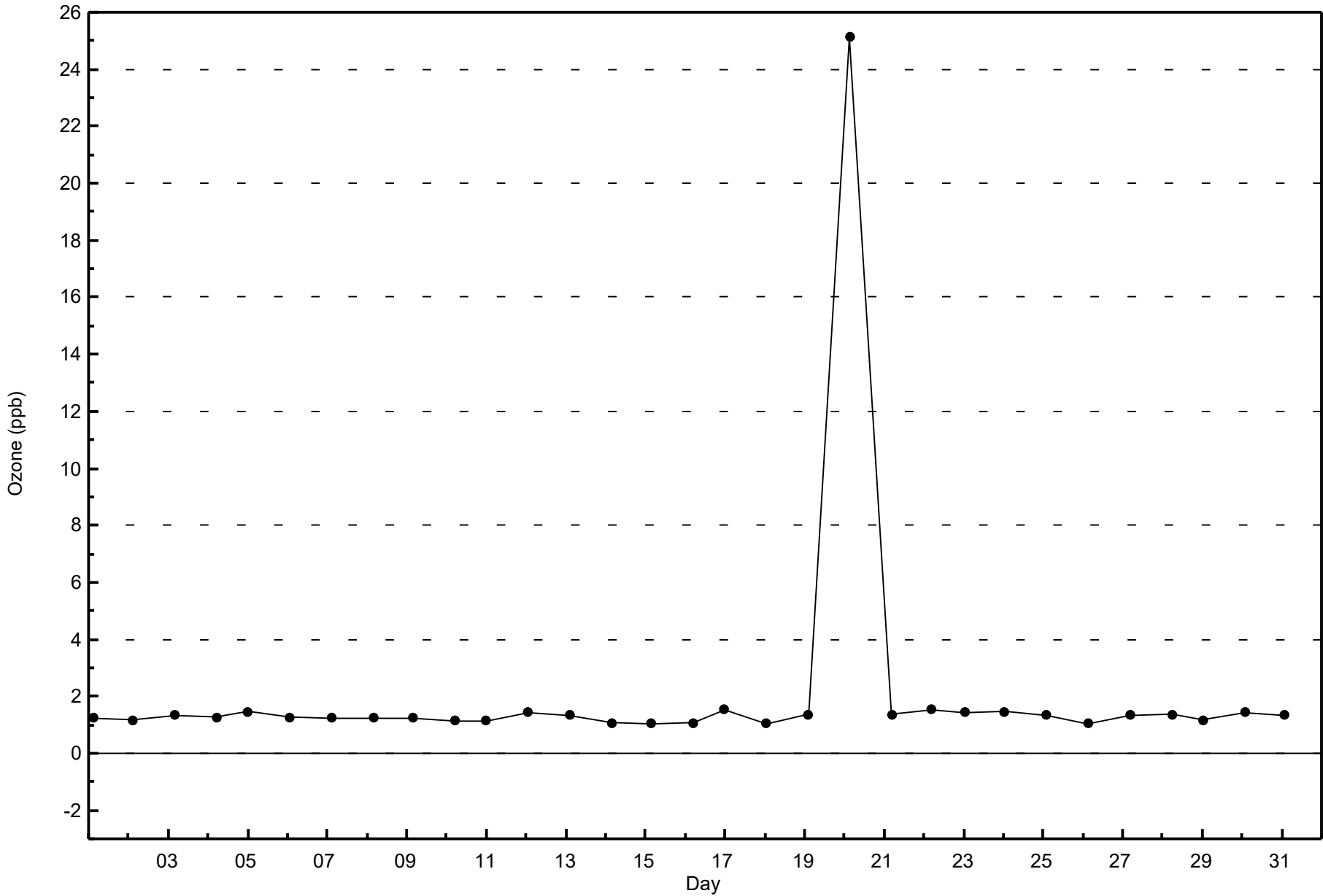
**Wood Buffalo Environmental Association
Frequency Distribution**

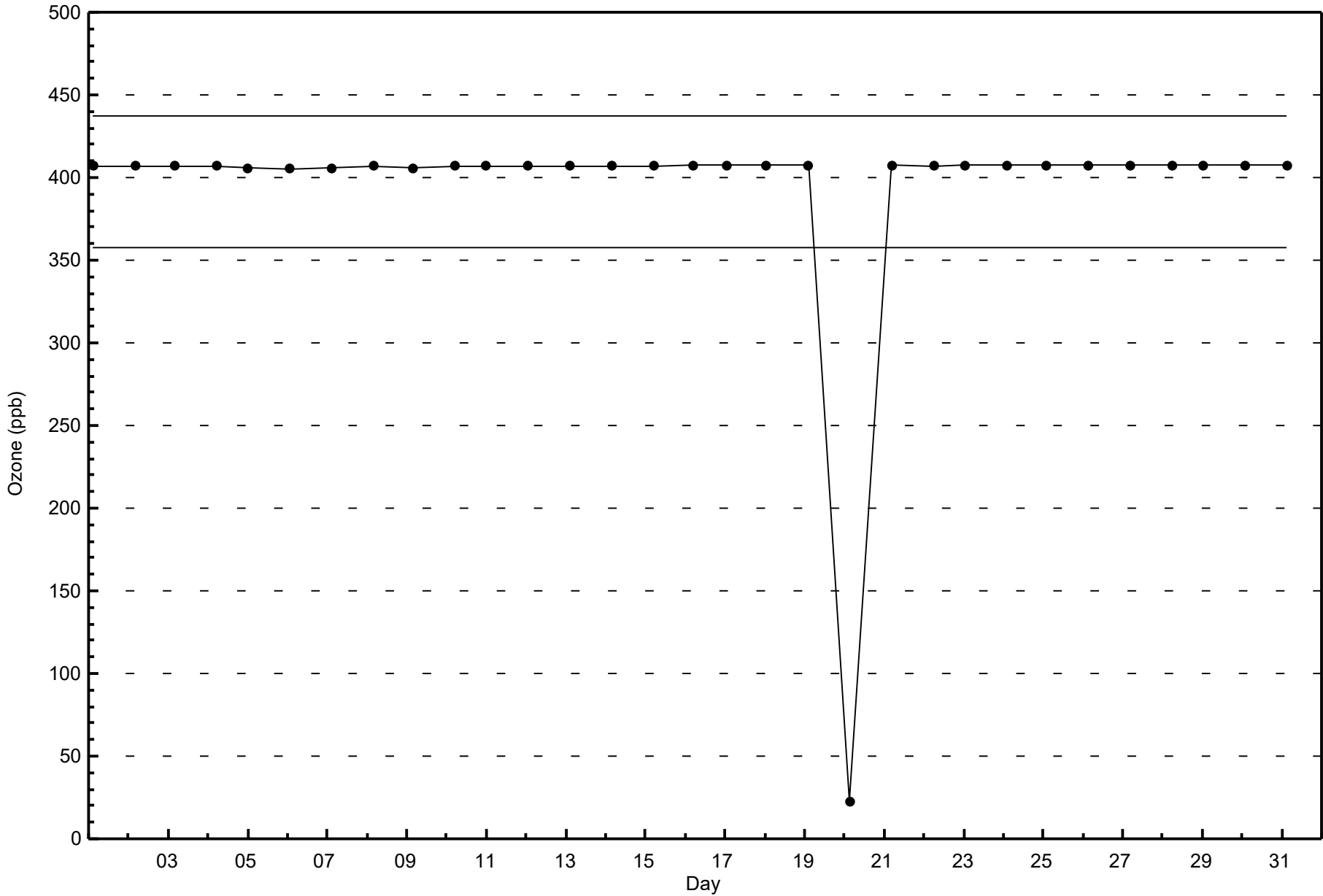
**Ozone (O₃) - ppb
Anzac - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals	
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW		
0 - 20	1	0	0	0	0	0	0	0	0	0	0	1	2	3	1	3	1	12
21 - 50	55	24	17	15	33	74	107	100	21	15	22	46	52	17	28	68	69	694
51 - 82	0	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	0
Totals	56	24	17	15	33	74	107	100	21	15	23	48	55	18	31	69	69	706

Total Number of Valid Hours: 706

Total Number of Hours: 744







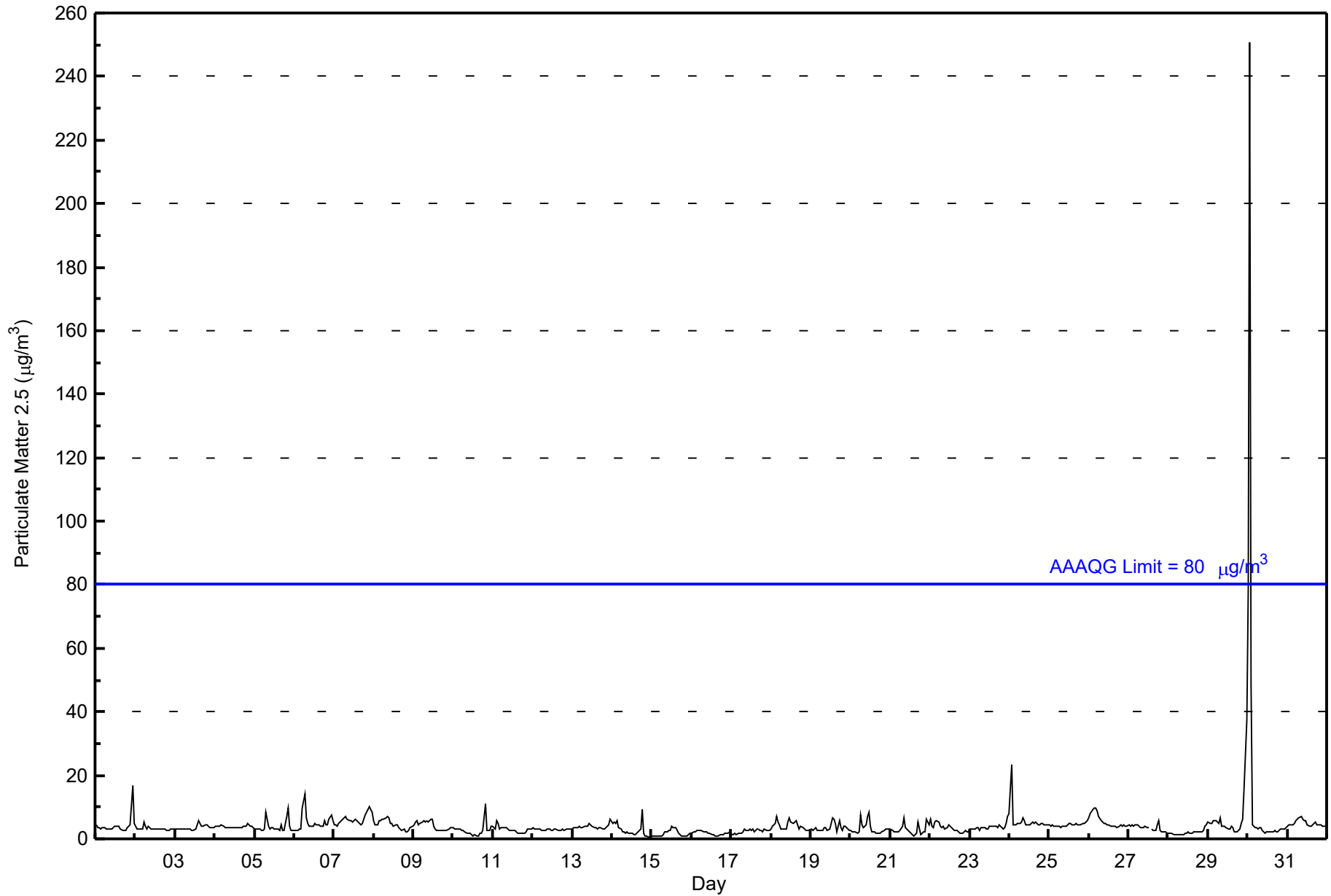
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Anzac - March 2024

Number of Exceedences (AAAQO):		1-hr: 1	24-hr: 0	Hours in Service:																	744																												
Maximum Value: 250.8 µg/m ³ on Mar 30 02:00		Maximum Daily Average: 18.2 µg/m ³ on Mar 30																	Hours of Data:	743																													
Minimum Value: 0.6 µg/m ³ on Mar 14 23:00		Minimum Daily Average: 1.7 µg/m ³ on Mar 15																	Hours of Missing Data:	1																													
Maximum Diurnal Average: 12.1 µg/m ³ at hour 2		Minimum Diurnal Average: 3.0 µg/m ³ at hour 17																	Hours of Calibration:	1																													
Monthly Average: 4.21 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 1.8 Q ₁ = 2.7 Median = 3.4 Q ₃ = 4.4 P ₉₀ = 5.7 P ₉₉ = 12.9																	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-Mar	4.3	3.7	3.4	3.3	3.4	3.3	3.2	3.2	3.1	3.0	3.1	3.8	4.1	4.0	3.8	3.0	2.8	2.8	2.8	3.4	4.0	4.4	16.9	4.7	4.1	16.9																							
2-Mar	4.2	3.2	3.0	2.9	3.1	5.3	4.0	3.3	4.0	3.1	3.2	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	2.9	2.8	2.9	2.9	2.9	3.3	5.3																							
3-Mar	2.9	2.9	3.0	3.0	3.0	2.9	2.9	2.9	3.1	3.1	2.8	2.8	3.3	4.5	5.8	4.9	4.2	4.0	4.6	4.3	4.2	3.7	3.3	3.4	3.6	5.8																							
4-Mar	4.1	3.9	3.8	3.8	4.2	4.0	3.7	3.7	3.7	3.4	3.3	3.4	3.4	3.6	3.5	3.4	3.6	3.8	4.1	4.1	4.8	4.0	4.0	3.7	3.8	4.8																							
5-Mar	3.2	3.1	3.0	2.9	2.8	2.8	3.1	8.3	4.0	3.2	3.7	3.7	3.1	3.0	3.0	2.7	4.5	2.6	2.5	7.2	9.7	3.8	2.7	2.7	3.8	9.7																							
6-Mar	2.8	2.7	2.9	3.0	3.2	9.7	14.3	6.7	4.9	4.0	4.1	4.0	4.8	4.5	4.5	4.2	4.0	3.8	5.7	4.4	4.4	6.2	7.3	5.6	5.1	14.3																							
7-Mar	4.2	4.2	4.0	4.7	5.5	6.3	6.4	6.9	6.2	5.7	5.7	5.4	5.8	6.1	5.6	4.8	4.4	4.9	6.2	7.5	9.3	10.1	9.4	8.5	6.2	10.1																							
8-Mar	5.7	4.5	4.6	5.7	5.9	6.1	6.3	6.4	7.2	6.4	4.7	4.8	4.0	4.6	4.3	3.7	3.0	2.5	3.0	2.1	2.2	2.8	3.4	4.1	4.5	7.2																							
9-Mar	4.5	5.1	5.5	4.6	4.8	5.4	5.9	5.4	5.6	5.4	6.0	6.0	4.0	3.0	2.8	2.4	2.5	2.4	2.5	2.7	2.9	3.2	3.6	3.5	4.1	6.0																							
10-Mar	3.4	3.3	3.1	3.1	3.0	2.6	2.5	2.4	1.8	1.7	1.6	1.4	0.9	1.5	0.9	0.8	1.8	1.8	2.8	11.1	2.7	2.4	2.6	3.9	2.6	11.1																							
11-Mar	4.0	3.1	5.7	4.9	3.1	3.4	3.4	3.5	3.6	3.2	2.8	2.7	2.5	2.5	2.1	1.8	1.8	2.0	1.8	1.8	2.3	2.9	3.0	3.2	3.0	5.7																							
12-Mar	3.3	3.2	3.0	3.2	3.1	2.8	2.5	2.6	2.7	3.2	2.9	2.7	2.7	3.0	2.9	2.7	2.6	2.8	2.9	2.8	2.9	3.1	3.2	3.1	2.9	3.3																							
13-Mar	3.2	3.4	3.5	3.5	3.7	3.6	3.6	3.9	3.8	4.1	4.7	4.3	3.9	3.6	3.4	3.2	3.3	3.7	2.9	3.2	3.6	4.1	4.5	6.2	3.8	6.2																							
14-Mar	4.9	5.1	5.0	5.6	3.7	3.1	2.3	2.0	1.9	2.1	1.7	1.7	1.6	1.4	1.5	1.7	2.7	3.0	9.2	1.8	0.8	0.7	0.6	0.7	2.7	9.2																							
15-Mar	0.8	0.8	0.9	0.9	0.8	0.7	0.7	1.3	2.1	2.3	2.7	2.5	4.1	3.6	3.7	2.8	1.6	1.2	0.9	0.7	0.8	1.1	1.3	1.7	1.7	4.1																							
16-Mar	2.0	2.2	2.4	2.6	2.5	2.5	2.5	2.4	2.3	2.0	1.8	1.7	1.4	1.2	1.1	1.1	1.0	1.2	1.2	1.4	1.6	1.6	1.6	2.0	1.8	2.6																							
17-Mar	1.5	1.2	1.6	1.5	1.6	1.6	1.7	2.3	2.9	2.8	2.8	3.0	2.7	2.9	2.3	3.2	2.9	2.6	2.6	2.4	2.9	2.6	2.7	2.8	2.4	3.2																							
18-Mar	2.9	3.9	4.7	6.8	5.2	4.3	3.3	3.1	2.9	2.9	5.1	6.5	5.3	5.1	5.4	5.5	4.4	3.2	3.9	3.6	3.1	2.8	2.6	2.8	4.1	6.8																							
19-Mar	2.9	2.8	3.2	3.5	2.5	2.6	2.7	2.8	3.5	3.4	2.8	3.2	4.9	6.5	6.2	4.6	2.3	5.5	3.4	2.4	4.2	4.2	3.1	2.8	3.6	6.5																							
20-Mar	2.4	2.2	2.2	2.0	2.0	2.0	7.5	4.5	3.3	4.5	7.1	8.3	4.2	2.2	2.1	2.0	1.9	1.8	1.8	2.0	2.7	3.0	3.1	2.9	3.2	8.3																							
21-Mar	3.1	2.9	2.2	2.4	2.3	2.3	2.5	4.1	6.8	3.4	3.2	2.6	1.9	1.4	1.0	1.2	1.8	5.3	1.4	1.8	2.4	2.1	6.3	4.5	2.9	6.8																							
22-Mar	6.1	3.9	3.6	5.2	5.9	5.5	4.1	3.4	4.2	3.2	3.7	4.5	3.8	3.4	3.0	2.8	2.5	2.2	1.9	1.7	1.8	2.7	2.1	2.3	3.5	6.1																							
23-Mar	3.2	3.2	3.0	3.0	3.4	3.4	2.8	3.4	3.3	3.5	2.9	3.2	3.8	4.0	4.0	3.8	3.8	3.7	4.4	3.5	3.3	3.5	4.9	6.9	3.7	6.9																							
24-Mar	7.8	23.3	4.6	4.3	4.5	4.9	5.0	5.2	6.7	5.9	4.6	4.5	4.4	4.8	5.3	5.0	5.1	4.6	4.5	4.7	5.0	4.5	4.4	4.5	5.8	23.3																							
25-Mar	4.3	3.8	4.2	4.1	4.1	4.0	3.8	3.6	3.9	4.1	4.2	4.4	5.0	4.7	4.4	4.4	4.6	4.6	4.4	4.4	4.6	4.9	5.1	5.8	4.4	5.8																							
26-Mar	6.6	7.8	9.1	9.8	9.9	8.7	7.2	5.9	5.1	5.0	4.9	4.5	4.4	4.0	4.2	4.2	3.8	3.7	4.1	4.2	4.1	4.3	4.1	4.0	5.6	9.9																							
27-Mar	4.2	4.1	4.3	3.9	4.4	4.5	3.9	3.4	3.4	3.6	3.7	3.6	3.5	C	3.0	2.8	2.7	4.6	5.6	2.8	2.3	2.2	2.0	1.9	3.5	5.6																							
28-Mar	1.9	1.8	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.7	2.0	2.1	2.0	1.9	2.0	2.2	2.0	2.0	2.1	2.3	2.7	3.9	4.4	2.0	4.4																							
29-Mar	5.3	4.8	4.8	5.9	5.8	5.8	4.9	6.4	4.0	3.8	4.1	3.3	3.2	2.9	3.9	3.4	2.1	2.4	2.5	3.0	4.8	6.1	15.7	37.6	6.1	37.6																							
30-Mar	78.3	250.8	48.8	4.3	3.6	3.3	3.0	3.7	3.6	2.4	1.8	2.0	2.2	2.2	2.3	2.2	2.5	2.0	2.2	2.7	3.1	3.1	3.3	3.6	18.2	250.8																							
31-Mar	4.0	4.6	4.2	4.2	5.0	5.7	6.0	6.6	7.0	6.3	5.6	5.6	4.3	4.0	4.0	4.2	5.0	5.2	4.5	4.3	4.4	3.9	3.9	3.9	4.8	7.0																							
																								6.2	12.1	5.1	3.9	3.8	4.0	4.1	4.0	3.9	3.6	3.6	3.7	3.5	3.4	3.4	3.2	3.0	3.2	3.4	3.4	3.5	3.5	4.4	4.9	Diurnal Average	
																								78.3	250.8	48.8	9.8	9.9	9.7	14.3	8.3	7.2	6.4	7.1	8.3	5.8	6.5	6.2	5.5	5.1	5.5	9.2	11.1	9.7	10.1	16.9	37.6	Diurnal Maximum	
C - Calibration																																																	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Anzac - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	652	87.75	87.75
6 - 15	84	11.31	99.06
16 - 25	3	0.40	99.46
26 - 80	3	0.40	99.87
> 81.0	1	0.13	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - µg/m³
Anzac - March 2024

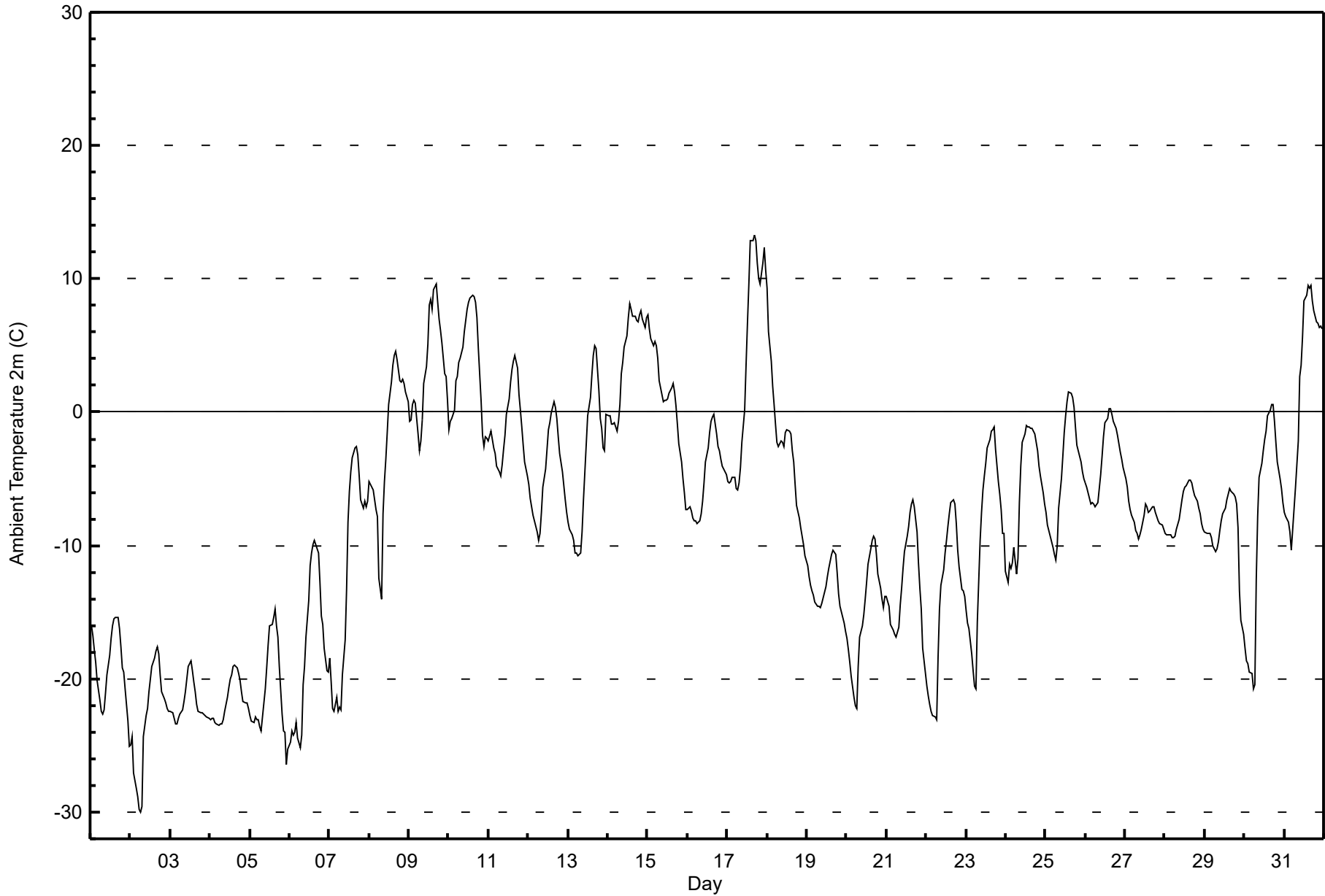
Concentration Ranges (µg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	54	24	18	15	28	64	106	83	15	13	22	48	49	18	26	65	648
6 - 15	3	0	0	1	5	11	10	21	6	2	4	3	5	1	6	6	84
16 - 25	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	3
26 - 80	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	3
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Totals	57	24	18	16	33	75	116	104	21	16	26	52	58	20	32	71	739

Total Number of Valid Hours: 739

Total Number of Hours: 744



Maximum Value: 13.3 C on Mar 17 17:00																								Hours in Service: 744																								
Maximum Daily Average: 4.1 C on Mar 14																								Hours of Data: 744																								
Minimum Value: -30.0 C on Mar 2 07:00																								Hours of Missing Data: 0																								
Minimum Daily Average: -23.0 C on Mar 2																								Hours of Calibration: 0																								
Maximum Diurnal Average: -3.0 C at hour 16																								Percent Operational Time: 100.0																								
Minimum Diurnal Average: -13.0 C at hour 7																																																
Monthly Average: -8.03 C																																																
Percentiles: P ₁ = -25.2 P ₁₀ = -22.1 Q ₁ = -15.4 Median = -7.2 Q ₃ = -1.4 P ₉₀ = 4.1 P ₉₉ = 10.4																																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	-16.1	-16.8	-17.8	-18.7	-20.2	-21.6	-22.4	-22.7	-22.3	-21.1	-19.7	-18.2	-17.0	-16.1	-15.5	-15.4	-15.4	-16.2	-17.6	-19.2	-19.5	-20.8	-23.1	-25.1	-19.1	-15.4																						
2-Mar	-24.9	-24.3	-27.0	-28.2	-28.9	-29.8	-30.0	-29.6	-24.3	-22.7	-22.2	-21.0	-20.1	-19.1	-18.5	-17.9	-17.6	-18.2	-19.7	-21.0	-21.5	-21.8	-22.2	-22.4	-23.0	-17.6																						
3-Mar	-22.5	-22.5	-22.9	-23.4	-23.3	-23.0	-22.7	-22.3	-21.7	-21.0	-20.0	-19.0	-18.6	-19.4	-20.2	-20.9	-21.9	-22.4	-22.5	-22.6	-22.7	-22.8	-22.9	-23.0	-21.8	-18.6																						
4-Mar	-23.1	-23.0	-23.0	-23.2	-23.4	-23.5	-23.4	-23.3	-23.0	-22.4	-21.4	-20.6	-20.0	-19.7	-19.1	-19.0	-19.2	-19.6	-20.2	-21.0	-21.7	-21.8	-21.8	-22.2	-21.6	-19.0																						
5-Mar	-22.8	-23.2	-23.3	-22.8	-23.0	-23.1	-23.5	-23.9	-21.8	-20.7	-19.2	-17.5	-16.1	-16.0	-15.4	-14.8	-16.1	-16.9	-19.1	-22.6	-24.0	-24.1	-26.5	-25.3	-20.9	-14.8																						
6-Mar	-24.8	-23.9	-24.2	-24.0	-23.2	-24.4	-25.2	-24.3	-20.5	-19.1	-16.9	-14.1	-11.5	-10.6	-9.9	-9.7	-9.9	-10.6	-12.8	-15.3	-15.9	-17.7	-19.4	-19.5	-17.8	-9.7																						
7-Mar	-18.5	-20.2	-22.2	-22.4	-21.4	-22.4	-22.1	-22.3	-19.7	-17.0	-13.3	-8.3	-6.0	-4.4	-3.4	-2.7	-2.6	-3.2	-4.8	-6.6	-7.2	-6.7	-7.0	-6.7	-12.1	-2.6																						
8-Mar	-5.2	-5.5	-5.8	-6.5	-7.3	-7.8	-12.5	-14.0	-7.6	-5.2	-3.5	-1.5	0.6	2.3	3.5	4.3	4.6	3.9	2.4	2.3	2.4	2.2	1.5	0.8	-2.2	4.6																						
9-Mar	-0.7	-0.6	0.6	0.9	0.7	-1.6	-2.9	-2.2	-0.5	2.2	3.4	5.1	8.0	8.4	7.8	9.2	9.7	8.3	6.9	6.1	5.2	2.9	2.7	0.8	3.3	9.7																						
10-Mar	-1.3	-0.6	-0.4	0.1	2.4	2.6	3.7	4.1	4.9	6.0	6.8	7.7	8.2	8.5	8.8	8.6	8.2	7.1	4.8	0.8	-1.7	-2.6	-1.9	-2.0	3.5	8.8																						
11-Mar	-2.2	-1.4	-2.0	-2.7	-3.1	-4.0	-4.4	-4.7	-3.9	-2.8	-1.8	-0.2	1.0	2.2	3.2	3.8	4.3	3.3	1.3	0.1	-1.1	-2.5	-3.7	-4.8	-1.1	4.3																						
12-Mar	-5.4	-6.5	-7.1	-7.8	-8.6	-9.0	-9.6	-9.1	-7.5	-5.6	-4.2	-2.8	-1.4	-0.7	-0.1	0.8	0.4	-0.5	-1.8	-3.1	-4.4	-5.5	-6.5	-7.5	-4.7	0.8																						
13-Mar	-8.2	-8.8	-9.2	-9.6	-10.6	-10.5	-10.7	-10.6	-9.0	-6.6	-4.5	-2.4	-0.3	1.1	2.8	4.2	5.0	4.8	1.6	-0.4	-1.2	-2.7	-2.9	-0.2	-3.7	5.0																						
14-Mar	-0.3	-0.3	-0.9	-0.9	-0.8	-1.4	-0.7	0.6	2.9	3.7	4.9	5.8	7.1	8.1	7.7	7.2	7.2	6.8	6.8	7.3	7.7	7.0	6.4	7.1	4.1	8.1																						
15-Mar	7.3	6.3	5.6	5.0	5.3	5.0	4.1	2.4	1.8	0.8	0.9	0.9	1.0	1.4	1.9	2.2	1.5	0.5	-0.9	-2.3	-3.7	-5.0	-6.0	-7.3	1.2	7.3																						
16-Mar	-7.3	-7.1	-7.4	-8.0	-8.1	-8.2	-8.4	-8.1	-7.7	-6.6	-5.3	-3.8	-2.6	-1.6	-0.7	-0.3	-0.1	-1.6	-2.5	-2.9	-3.6	-4.0	-4.3	-4.7	-4.8	-0.1																						
17-Mar	-5.2	-5.3	-5.2	-4.9	-4.9	-5.7	-5.8	-5.3	-4.2	-2.3	0.1	3.5	6.7	9.7	12.9	12.8	13.3	12.9	11.2	10.1	9.6	11.2	12.3	10.6	3.7	13.3																						
18-Mar	9.3	6.0	3.8	1.9	0.6	-0.9	-2.2	-2.5	-2.2	-2.3	-2.6	-1.5	-1.3	-1.4	-1.6	-2.8	-3.7	-5.4	-7.0	-7.9	-8.7	-9.3	-9.9	-10.8	-2.6	9.3																						
19-Mar	-11.5	-12.3	-12.9	-13.4	-13.8	-14.3	-14.6	-14.6	-14.6	-14.3	-13.9	-13.1	-12.3	-11.8	-11.2	-10.6	-10.4	-10.7	-12.0	-13.6	-14.5	-15.0	-15.8	-16.4	-13.2	-10.4																						
20-Mar	-17.0	-17.9	-18.8	-19.8	-21.4	-22.1	-22.3	-19.1	-16.9	-16.1	-15.2	-14.0	-12.8	-11.4	-10.3	-9.7	-9.3	-9.6	-10.7	-12.1	-13.2	-14.0	-14.7	-13.9	-15.1	-9.3																						
21-Mar	-13.8	-14.6	-15.9	-16.1	-16.3	-16.7	-16.9	-16.1	-14.4	-13.1	-11.7	-10.5	-9.3	-8.6	-7.5	-6.9	-6.6	-7.1	-9.0	-11.3	-13.2	-14.7	-17.7	-19.6	-12.8	-6.6																						
22-Mar	-20.6	-21.3	-21.9	-22.5	-22.8	-22.8	-23.1	-18.4	-14.8	-13.0	-11.8	-10.5	-9.6	-8.5	-7.6	-6.8	-6.6	-6.9	-8.3	-10.4	-11.7	-13.2	-13.4	-13.9	-14.2	-6.6																						
23-Mar	-14.9	-15.8	-16.2	-18.1	-19.4	-20.6	-20.8	-15.7	-9.6	-7.5	-5.9	-4.8	-3.9	-2.7	-2.1	-1.4	-1.3	-1.1	-2.8	-5.2	-6.2	-7.3	-9.1	-9.0	-9.2	-1.1																						
24-Mar	-12.0	-12.8	-11.4	-11.7	-11.3	-10.2	-12.1	-11.0	-6.7	-4.0	-2.3	-1.6	-1.1	-1.1	-1.1	-1.2	-1.2	-1.6	-2.2	-2.9	-4.0	-4.8	-6.0	-6.9	-5.9	-1.1																						
25-Mar	-7.5	-8.4	-8.9	-9.3	-10.2	-10.7	-11.1	-10.0	-7.2	-5.0	-3.3	-1.6	-0.2	0.8	1.5	1.4	1.1	0.4	-1.1	-2.5	-3.3	-3.8	-4.5	-5.0	-4.5	1.5																						
26-Mar	-5.3	-5.6	-6.4	-6.9	-6.8	-6.9	-7.1	-6.8	-5.8	-4.7	-3.3	-1.8	-0.8	-0.4	0.2	0.3	-0.2	-0.7	-1.3	-1.7	-2.3	-3.0	-3.5	-4.1	-3.5	0.3																						
27-Mar	-5.0	-5.6	-6.6	-7.3	-7.7	-8.3	-8.9	-9.1	-9.5	-9.2	-8.7	-7.7	-6.9	-7.1	-7.5	-7.4	-7.1	-7.1	-7.5	-7.8	-8.1	-8.4	-8.4	-8.8	-7.7	-5.0																						
28-Mar	-9.1	-9.2	-9.2	-9.2	-9.4	-9.4	-9.3	-8.8	-8.0	-7.3	-6.6	-6.0	-5.6	-5.5	-5.0	-5.1	-5.4	-5.8	-6.3	-6.7	-7.2	-7.6	-8.3	-8.8	-7.5	-5.0																						
29-Mar	-8.9	-9.1	-9.1	-9.1	-9.4	-10.0	-10.5	-10.3	-9.8	-8.9	-8.1	-7.6	-7.2	-6.6	-6.1	-5.8	-5.9	-6.1	-6.3	-6.9	-8.7	-13.4	-15.6	-16.6	-9.0	-5.8																						
30-Mar	-17.7	-18.6	-18.9	-19.5	-19.6	-20.8	-20.5	-12.6	-7.9	-4.9	-3.8	-2.9	-2.1	-1.4	-0.3	0.2	0.6	0.5	-0.7	-2.2	-3.7	-5.0	-5.8	-6.8	-8.1	0.6																						
31-Mar	-7.5	-7.8	-8.3	-9.0	-10.3	-8.8	-7.2	-5.6	-2.1	2.6	3.5	5.6	8.3	8.8	9.5	9.3	9.5	8.3	7.6	6.8	6.7	6.3	6.5	6.2	1.6	9.5																						
																								-10.4	-10.9	-11.4	-11.8	-12.1	-12.6	-13.0	-12.1	-10.1	-8.6	-7.4	-5.9	-4.7	-4.0	-3.3	-3.0	-3.1	-3.7	-5.0	-6.3	-7.1	-8.0	-8.8	-9.2	Diurnal Average
																								9.3	6.3	5.6	5.0	5.3	5.0	4.1	4.1	4.9	6.0	6.8	7.7	8.3	9.7	12.9	12.8	13.3	12.9	11.2	10.1	9.6	11.2	12.3	10.6	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C
Anzac - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	112	15.05	15.05
-20 - 0	490	65.86	80.91
0 - 10	133	17.88	98.79
10 - 20	9	1.21	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



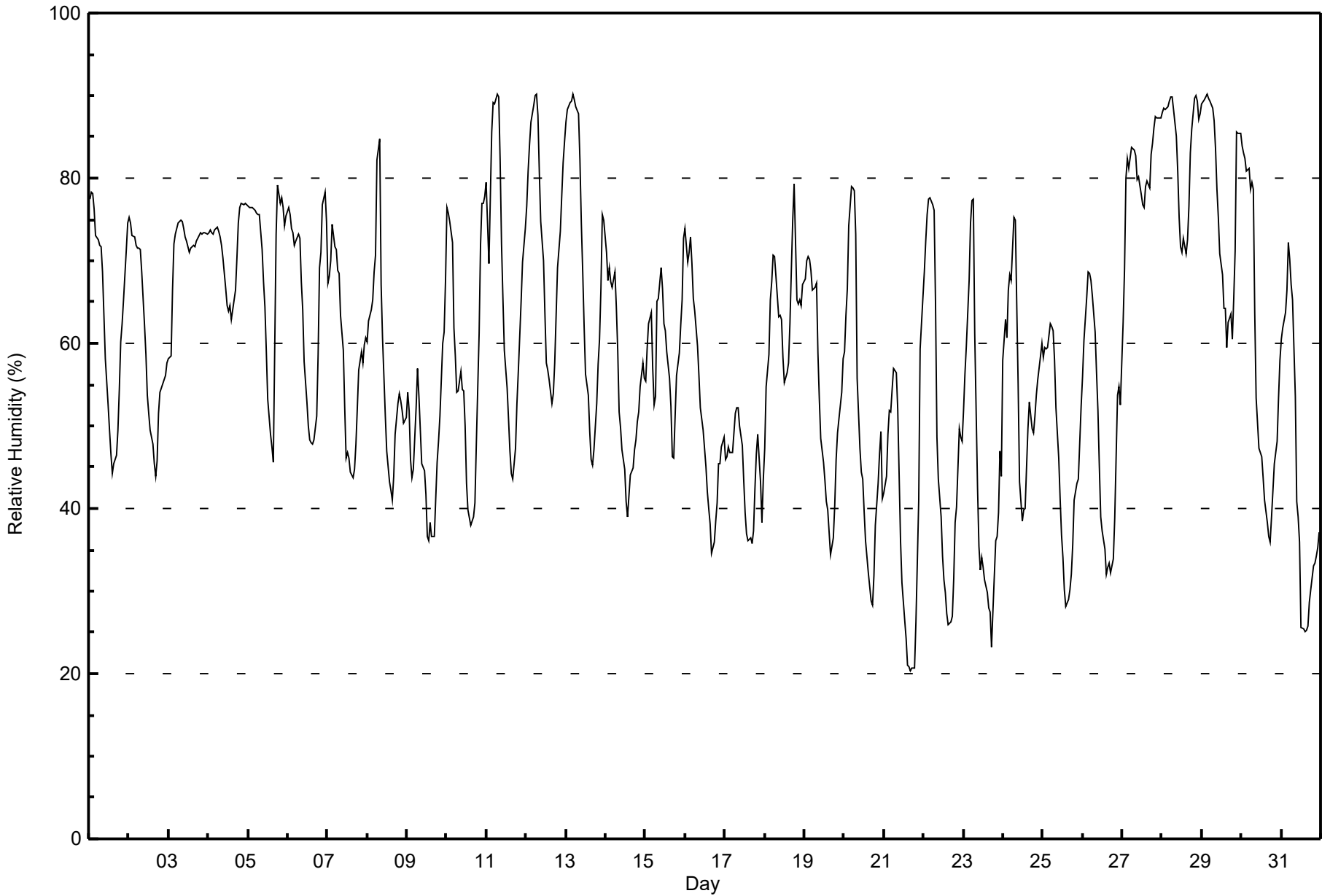
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

Anzac - March 2024

Maximum Value: 90.2 % on Mar 13 05:00		Maximum Daily Average: 83.3 % on Mar 28		Hours in Service: 744																							
Minimum Value: 20.4 % on Mar 21 17:00		Minimum Daily Average: 39.6 % on Mar 21		Hours of Data: 744																							
Maximum Diurnal Average: 72.3 % at hour 7		Minimum Diurnal Average: 44.7 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 59.28 %		Percentiles: P ₁ = 25.1 P ₁₀ = 36.7 Q ₁ = 46.5 Median = 59.4 Q ₃ = 72.8 P ₉₀ = 80.1 P ₉₉ = 89.9		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-Mar	77.5	78.3	78.2	76.2	73.0	72.5	71.8	71.8	68.6	63.3	58.1	52.6	49.4	46.6	44.2	45.4	46.4	49.5	54.4	60.1	62.3	65.2	71.4	74.6	63.0	78.3	
2-Mar	75.2	74.6	73.0	72.9	71.9	71.5	71.5	71.3	68.6	62.1	58.6	53.6	51.5	49.5	47.8	45.4	43.9	45.8	51.5	54.1	55.1	55.5	56.1	57.6	59.9	75.2	
3-Mar	58.1	58.5	66.4	72.0	73.3	73.9	74.5	74.9	74.7	74.0	72.9	72.4	71.0	71.6	71.6	71.8	71.7	72.4	73.0	73.4	73.3	73.3	73.4	73.2	71.5	74.9	
4-Mar	73.3	73.7	73.4	73.2	73.7	74.1	73.6	72.9	71.8	70.3	66.6	64.6	63.9	64.5	62.9	64.0	66.4	70.3	74.6	76.4	76.9	76.8	77.0	76.9	71.3	77.0	
5-Mar	76.7	76.4	76.5	76.2	76.1	75.8	75.5	75.6	71.4	67.4	64.5	58.9	53.2	49.1	47.5	45.6	59.4	73.1	79.1	76.9	77.6	76.5	74.2	75.5	69.1	79.1	
6-Mar	76.5	75.6	73.9	73.3	71.8	72.3	73.3	72.7	67.5	64.0	57.8	52.9	50.1	48.3	48.0	47.8	48.4	51.2	58.7	69.1	71.1	76.9	78.3	74.7	64.8	78.3	
7-Mar	67.2	68.2	69.9	74.5	71.7	71.3	68.7	68.4	63.5	59.2	52.1	46.1	46.8	46.0	44.5	43.8	44.7	47.8	52.3	56.8	58.9	57.7	59.8	60.7	58.4	74.5	
8-Mar	60.1	62.7	64.1	65.2	68.6	70.7	82.2	84.8	67.2	60.7	56.0	51.1	47.0	43.2	42.2	41.1	43.9	48.9	52.6	53.8	53.0	51.9	50.4	51.1	57.2	84.8	
9-Mar	54.1	51.9	45.9	43.8	44.7	52.2	56.9	53.5	49.5	45.4	44.5	41.8	36.6	36.1	38.4	36.6	36.6	41.3	45.5	48.1	51.2	60.0	61.4	67.7	47.6	67.7	
10-Mar	76.4	75.7	74.7	72.1	61.9	58.5	54.1	54.2	56.6	54.4	54.3	50.0	43.1	39.8	38.0	38.6	39.0	40.7	47.8	61.2	71.8	77.0	77.0	77.9	58.1	77.9	
11-Mar	79.5	69.7	77.6	85.6	89.2	88.9	90.2	89.9	82.2	72.1	65.5	59.1	54.6	50.9	47.0	44.2	43.6	47.2	52.7	56.6	60.8	65.1	69.9	73.9	67.3	90.2	
12-Mar	76.6	80.9	84.1	86.8	88.8	90.0	90.2	87.6	80.6	74.8	70.0	63.5	57.6	56.8	55.6	52.7	53.9	57.7	63.4	69.1	73.5	77.8	81.9	84.4	73.3	90.2	
13-Mar	86.7	88.3	89.2	89.2	90.2	89.4	88.6	87.7	82.2	74.6	68.7	62.0	56.3	53.8	49.3	45.9	45.3	47.0	52.7	57.5	60.4	66.6	75.6	74.9	70.1	90.2	
14-Mar	71.0	67.6	69.1	67.5	66.7	68.7	64.5	59.1	51.7	49.8	47.2	44.8	40.8	39.0	41.6	44.1	44.9	47.1	48.4	50.5	51.6	54.7	57.7	55.7	54.3	71.0	
15-Mar	55.4	59.3	62.4	63.8	56.9	52.6	53.5	65.1	65.4	69.2	66.6	62.4	61.6	59.0	55.8	52.4	46.2	46.1	51.2	56.0	58.8	62.1	65.2	72.7	59.2	72.7	
16-Mar	73.8	69.8	71.0	72.9	69.6	65.4	63.8	59.6	56.0	52.2	50.9	49.4	45.0	42.1	40.0	38.1	34.6	36.0	38.4	40.7	45.4	45.5	47.4	48.7	52.4	73.8	
17-Mar	45.9	46.3	47.5	46.8	46.8	49.2	51.5	52.2	52.2	50.0	47.6	43.4	39.4	37.0	36.2	36.4	35.8	37.4	42.4	46.7	48.9	43.2	38.3	43.6	44.4	52.2	
18-Mar	47.2	54.7	58.7	65.2	67.5	70.6	70.5	68.2	63.3	63.4	62.9	58.3	55.3	56.4	57.7	62.4	68.8	74.9	79.3	65.2	64.7	65.3	64.6	67.1	63.8	79.3	
19-Mar	67.7	69.9	70.5	70.1	68.9	66.5	66.8	67.2	58.9	53.3	48.5	45.5	43.3	40.8	39.9	37.1	34.4	36.5	40.4	45.9	49.2	50.8	54.1	58.2	53.5	70.5	
20-Mar	59.0	63.3	66.5	74.3	79.1	78.8	78.5	73.2	55.8	47.3	44.4	43.6	39.6	36.2	32.2	30.6	28.9	28.3	31.9	37.9	43.0	46.6	49.3	41.2	50.4	79.1	
21-Mar	41.9	43.8	49.0	51.9	51.7	54.4	56.9	56.5	52.0	44.0	36.0	30.9	26.4	24.2	21.0	20.8	20.4	20.6	20.7	26.3	33.6	41.1	59.4	65.5	39.6	65.5	
22-Mar	68.6	72.4	75.6	77.5	77.6	76.8	76.1	64.7	48.6	43.5	39.0	34.2	31.4	29.9	27.2	25.9	26.2	27.0	31.5	38.2	40.2	49.7	48.7	48.2	49.1	77.6	
23-Mar	51.8	56.2	59.7	67.7	74.5	77.3	77.5	61.2	42.5	35.4	32.6	34.0	32.9	31.3	29.9	27.9	27.4	23.3	27.7	36.1	36.5	39.5	46.9	44.0	44.7	77.5	
24-Mar	57.9	62.9	60.7	66.4	68.3	67.6	75.2	74.9	64.8	55.2	43.2	38.5	39.8	40.0	44.9	49.6	52.8	49.6	49.2	51.2	53.7	55.7	58.5	60.1	55.9	75.2	
25-Mar	58.3	59.4	59.3	59.5	62.4	62.0	61.5	57.9	52.1	46.1	41.2	36.8	34.0	30.2	28.1	29.0	30.1	32.0	35.5	41.0	43.0	43.5	48.0	52.4	46.0	62.4	
26-Mar	56.0	60.3	65.6	68.6	68.5	67.7	65.7	61.4	56.4	51.9	45.1	39.1	37.3	35.0	32.1	32.8	33.4	32.3	33.9	38.7	46.4	53.7	54.7	52.5	49.5	68.6	
27-Mar	62.5	69.0	80.0	82.5	81.2	83.7	83.5	83.4	82.7	79.9	80.1	77.9	76.8	76.4	79.0	79.6	78.8	82.9	84.3	86.1	87.5	87.2	87.2	87.2	80.8	87.5	
28-Mar	88.0	88.4	88.4	88.6	89.4	89.9	89.8	88.3	85.1	80.8	75.2	71.8	71.0	72.6	70.8	72.5	76.6	83.0	85.9	89.7	90.1	89.2	87.2	87.8	83.3	90.1	
29-Mar	88.9	89.4	89.9	90.2	89.7	89.3	88.6	86.9	83.6	78.6	75.2	70.9	68.2	64.2	64.2	59.5	62.6	63.6	60.5	65.5	71.3	85.5	85.4	85.4	77.4	90.2	
30-Mar	83.9	83.1	82.3	80.8	81.2	78.7	79.5	78.6	63.7	53.4	47.3	46.7	46.4	43.7	41.0	38.2	36.6	35.9	39.0	42.2	45.3	48.2	53.3	58.0	57.8	83.9	
31-Mar	60.6	61.9	63.8	66.4	72.2	70.2	67.1	65.2	53.6	40.8	39.0	36.0	25.6	25.4	25.0	25.2	25.8	28.6	30.1	33.1	33.4	34.3	35.3	37.1	44.0	72.2	
		67.0	68.1	69.9	71.7	71.8	72.0	72.3	70.6	64.3	59.3	55.2	51.4	48.3	46.4	45.3	44.7	45.4	47.7	51.2	55.0	57.7	60.5	62.8	64.1	Diurnal Average	
		88.9	89.4	89.9	90.2	90.2	90.0	90.2	89.9	85.1	80.8	80.1	77.9	76.8	76.4	79.0	79.6	78.8	83.0	85.9	89.7	90.1	89.2	87.2	87.8	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Anzac - March 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	104	13.98	13.98
40 - 60	277	37.23	51.21
60 - 80	287	38.58	89.79
80 - 100	76	10.22	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

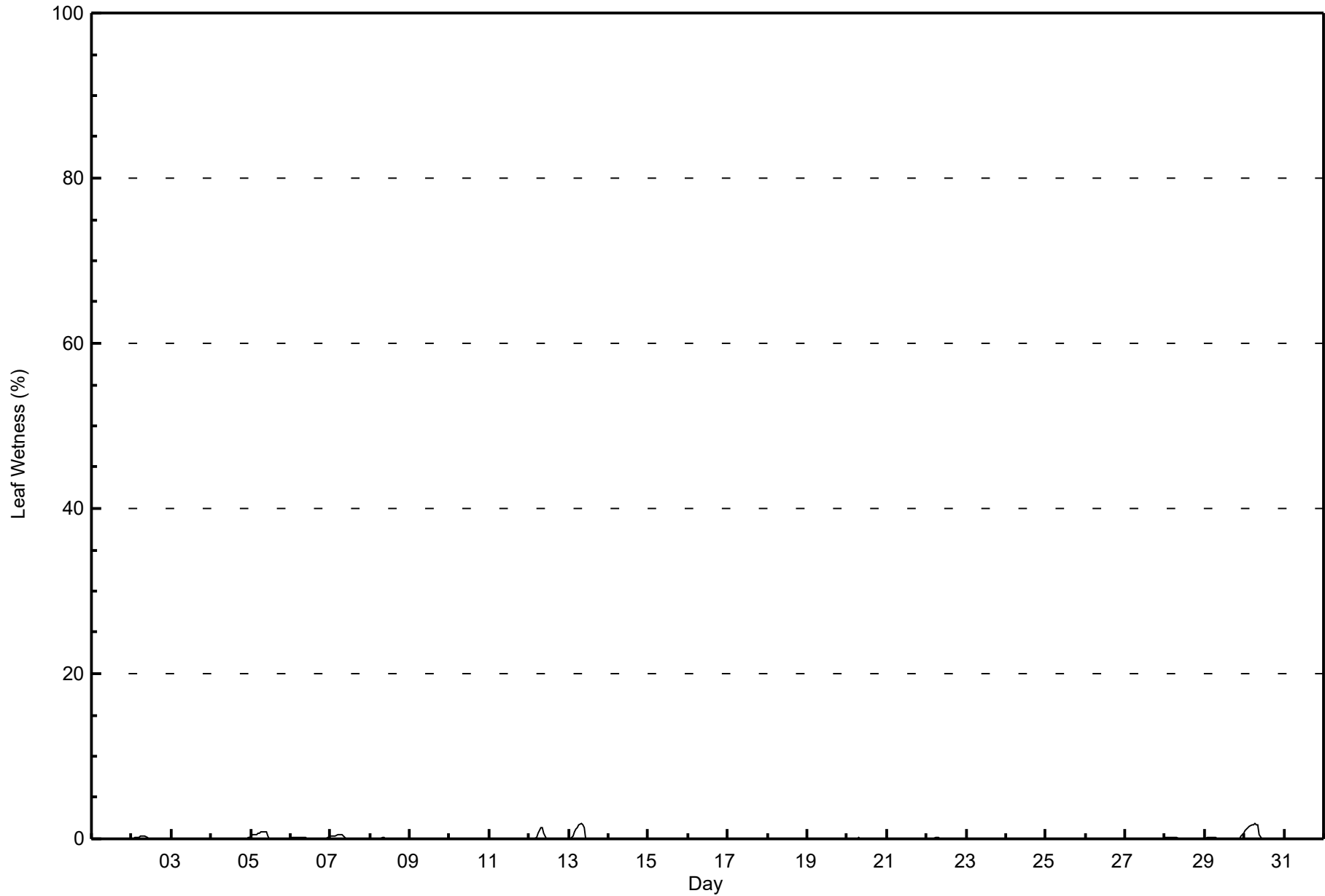
Anzac - March 2024

Maximum Value: 1.8 % on Mar 30 07:00 Maximum Daily Average: 0.6 % on Mar 30																				Hours in Service: 744 Hours of Data: 744																
Minimum Value: 0.0 % on Mar 1 01:00 Minimum Daily Average: 0.0 % on Mar 1 Maximum Diurnal Average: 0.2 % at hour 8 Minimum Diurnal Average: 0.0 % at hour 12 Monthly Average: 0.06 % Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.1 P ₉₉ = 1.6																				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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
3-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2			
5-Mar	0.3	0.4	0.6	0.6	0.6	0.7	0.8	0.9	0.9	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	0.0	0.0	0.1	0.0	0.0	0.3	0.9		
6-Mar	0.1	0.1	0.1	0.1	0.1	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	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.1	0.3		
7-Mar	0.3	0.3	0.3	0.4	0.5	0.5	0.5	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	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	
8-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
9-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.2	0.7	1.1	1.4	1.4	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4
13-Mar	0.0	0.0	0.4	0.8	1.1	1.4	1.7	1.8	1.8	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	0.0	0.0	0.0	0.0	0.4	1.8
14-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
23-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
28-Mar	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
29-Mar	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.1	0.7	0.1	
30-Mar	0.9	1.2	1.3	1.5	1.6	1.7	1.8	1.8	1.6	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.8
31-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average												
																								Diurnal Maximum												



Wood Buffalo Environmental Association
Hourly Averages

Leaf Wetness (LW) - %
Anzac - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Leaf Wetness (LW) - %
Anzac - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	704	94.62	94.62
0.4 - 0.5	10	1.34	95.97
0.6 - 0.7	7	0.94	96.91
0.8 - 1.4	14	1.88	98.79
1.5 - 10	8	1.08	99.87
> 10	0	0.00	99.87

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Anzac - March 2024

Maximum Speed: 29 km/h on Mar 26 13:00	Maximum Daily Speed Average: 21.3 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 8 07:00	Minimum Daily Speed Average: 2.7 km/h on Mar 22	Hours of Data: 740
Maximum Diurnal Speed Average: 3.8 km/h at hour 24	Minimum Diurnal Speed Average: 1.4 km/h at hour 9	Hours of Missing Data: 4
Monthly Average Velocity: 2.4 km/h 163.0 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 8 Median = 11 Q ₃ = 16 P ₉₀ = 20 P ₉₉ = 26	Percent Operational Time: 99.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	W9	WSW11	WSW16	WSW19	WSW18	WSW16	WSW18	WSW19	WSW21	WSW19	WSW20	WSW18	W19	WSW19	W20	W18	W16	WNW14	WNW11	WNW9	NW12	NW10	WNW4	WSW5	W14.3	WSW21	
2-Mar	NW9	NNW7	NNW6	W3	NW2	N3	NNW3	NNW3	N3	NNE5	NNE7	NNE6	NNW9	N11	N9	N8	NNE10	NNE8	NNE8	N9	NNE9	N11	NNE12	NNE11	N6.7	NNE12	
3-Mar	N10	N10	N9	N11	NNW9	NNW7	NNW7	NNW7	NNW8	NW9	NNW8	NNW8	NW3	W10	W11	W13	W16	W17	W17	W17	W17	W18	W19	W18	WNW9.4	W19	
4-Mar	W16	W16	W18	W19	W17	W19	W18	W18	W18	W18	W18	W18	W18	W18	W16	W16	W14	W12	W11	WSW9	WSW12	WSW12	WSW11	WSW11	W15.5	W19	
5-Mar	WSW11	WSW10	WSW11	WSW13	WSW11	WSW9	WSW8	W7	WSW9	WSW8	SW5	SSW4	S4	ESE3	ENE5	SE7	SE8	SE6	ESE3	SSE5	SE7	SE7	SSE7	SSE8	SW4.3	WSW13	
6-Mar	SE9	SSE11	SSE10	SSE11	SSE10	SSE9	SSE9	SE10	SE5	ESE7	ESE9	ESE10	SE13	SE16	SE15	SE15	SSE13	SSE11	SSE9	SE10	SE12	SE10	SSE9	SSE7	SE10.2	SE16	
7-Mar	SE10	SE14	SE11	ESE10	ESE10	ESE9	ESE8	ESE8	E7	ENE8	E8	SE11	SSE16	S15	SSE17	SSE18	SSE18	SSE16	S13	SSE10	S9	SSW16	SSW10	S10	SSE10.0	SSE18	
8-Mar	SW13	WSW14	WSW14	WSW13	W10	WSW9	SE1	E5	ESE6	ESE9	ESE12	ESE12	E12	E13	E12	E14	SE11	SE11	SE12	SE17	SE16	SSE14	SSE11	SSE11	SE6.2	SE17	
9-Mar	SE7	SSE10	SSE12	SE15	SE13	ESE13	ESE16	ESE18	ESE16	ESE17	ESE16	ESE18	ESE18	SE21	SE19	SE15	SE13	SE11	SE11	SE13	ESE11	E3	SE7	ESE6	SE12.8	SE21	
10-Mar	SE5	SE8	N3	WNW9	WSW10	SW12	WSW15	SW17	WSW20	SW21	SW17	WSW19	WSW25	WSW22	WSW20	W20	W18	W14	WNW10	W7	WSW5	NW8	NW7	WNW4	WSW11.3	WSW25	
11-Mar	WSW5	NW10	NW9	N4	N9	N9	NW5	WNW6	NNW8	NNW6	M	M	M	M	NE7	ENE7	ESE8	E10	E9	E11	ESE13	ESE14	SE11	SE12	ENE3.2	ESE14	
12-Mar	SE13	ESE13	ESE14	ESE14	ESE14	ESE14	ESE14	ESE13	ESE14	SE15	ESE16	ESE18	ESE16	E15	ESE14	E14	ESE13	SE12	ESE10	ESE14	ESE15	ESE16	ESE16	ESE15	ESE14.1	ESE18	
13-Mar	ESE14	SE11	SE14	SE11	SE11	SE13	SE15	SE13	SE12	SE12	SE11	ESE12	ESE14	ESE13	ESE15	ESE14	ESE12	ESE10	E12	ESE13	SE11	SSE5	SSW8	SW10	SE11.0	ESE15	
14-Mar	WSW10	SW9	SW9	SW10	SW9	WSW9	WSW11	SW10	WSW7	W8	W10	W11	WSW16	WSW15	WSW17	WSW13	SSW9	SSW8	SW9	WSW16	W23	W26	W25	W23	WSW12.3	W26	
15-Mar	W24	W18	WNW14	WNW13	WNW24	NW24	NW22	NNW25	NNW26	NNW22	NNW26	NNW27	NNW25	NNW23	NNW22	N22	N17	N15	N11	NNW11	N10	NNW8	N10	N9	NW16.7	NNW27	
16-Mar	N7	NNW6	NW6	NNW9	NNW8	N10	N8	NNE5	NNE8	NNE5	N7	NNW6	NNE4	ENE6	E7	NE5	ENE10	E12	E11	SE10	SE12	SE13	SE12	SE14	ENE4.1	SE14	
17-Mar	SE15	SE17	SE18	SSE19	SE15	SE17	SSE22	SE17	SE18	SE18	SE18	SE18	SE18	SE19	SSE17	S20	SSW16	SSW19	S17	SSW14	SSW19	SW24	WSW22	W21	WNW19	S13.6	SW24
18-Mar	NW17	NW12	NW10	NW13	NW12	NNW14	NNW20	NW15	NNW21	NNW20	NW21	NNW22	NNW22	NNW17	NNW20	NNW21	NNW21	N21	NNW18	N20	NNW19	N19	NNW17	N17	NNW17.4	NNW22	
19-Mar	NNW16	NNW13	NNW15	N15	N14	N13	N14	N14	N15	N15	NNW17	NNW14	NNW16	NNW15	NNW16	NNW15	NNW15	NNW14	NNW12	NNW10	NNE10	NNE8	NNW8	NNW9	NNW13.1	NNW17	
20-Mar	NNW9	NNE6	NE6	ENE3	SE2	W3	W3	WNW4	NNW6	N7	N8	N6	NNW6	N5	NE6	NNE6	NNE6	NE6	NE6	E8	SE7	SE8	SE7	SE7	NNE3.0	NNW9	
21-Mar	SE9	ESE8	ESE9	ESE8	ESE10	ESE10	ESE9	SE8	SE8	ESE11	E11	ENE11	ENE12	ENE11	NE11	NNE12	NNE8	N13	N12	N10	N10	N7	NW4	N4	ENE6.5	N13	
22-Mar	N5	NNE4	NW2	W2	WSW3	SW3	SW4	SW2	SSE5	SSW2	ENE3	NE4	NNE6	NE7	NE5	E6	ENE6	ENE7	E9	E9	ESE8	SSE9	SSE10	SSE13	E2.7	SSE13	
23-Mar	SSE13	SSE12	SSE10	SSE7	SSE8	SSE7	SSE7	S6	ENE2	ENE7	E7	NE8	NE7	ESE6	NE6	N4	NNW5	SSE4	SE4	E8	ESE12	ESE11	SE9	SSE8	ESE5.1	SSE13	
24-Mar	S7	SSW7	SW7	SW8	SW7	SSW7	SSE4	SSE7	SSE8	SE11	SSE18	SSE18	SSE18	SSE15	SSE16	SSE13	SSE12	SSE13	SSE10	SE8	SE11	SE9	SE9	SE10	SSE9.7	SSE18	
25-Mar	SE11	SE12	SE14	SE14	SE14	SE16	SE17	SE18	SSE19	SE18	SE20	SE21	SSE22	SSE21	SSE21	SSE20	SSE20	SSE20	SSE20	SSE20	SSE18	SSE17	SSE17	SSE15	SSE16	SSE17.5	SSE22
26-Mar	SSE16	SSE18	SSE15	SSE15	SE13	SE15	SE16	SE17	SE21	SSE24	SSE24	SSE27	SSE29	SSE28	SSE28	SSE26	SSE25	SSE23	SSE22	SSE20	SSE22	SSE23	SSE22	SSE24	SSE21.3	SSE29	
27-Mar	SE23	SSE22	SE20	SE20	SE21	SE19	SE20	ESE19	ESE22	ESE24	SE25	SE23	SE22	ESE22	ESE21	ESE20	ESE20	ESE18	E16	E12	E12	E11	E10	E9	ESE18.0	SE25	
28-Mar	E7	E7	E7	ENE5	ENE6	NE6	NE7	NE7	NE8	NE8	NE8	NNE8	N10	N12	N11	N11	NNW9	N8	N7	N10	N11	NNW10	NW9	WNW8	NNE6.5	N12	
29-Mar	WNW8	WNW9	WNW10	NW10	NW11	NNW12	NW10	NW13	NNW14	NNW15	NNW15	NNW16	NW16	NW13	NW13	NNW11	N11	NNW12	NNW10	NW8	WNW7	WNW6	W8	W7	NW10.4	NW16	
30-Mar	W7	W7	WSW6	SW6	SW7	S7	S6	S6	SSE6	S8	S13	S13	SSE14	SSE15	SSE15	SSE15	SSE14	SSE13	SE10	SE10	SE8	SE10	SE12	SSE11	SSE8.4	SSE15	
31-Mar	SE11	SSE13	SSE11	SSE9	SSE9	S9	SSE8	SSE8	SSE7	SSE9	SE10	E6	SW16	SW22	SW19	SW18	SSW18	SSW17	S17	S17	S21	S18	S24	SSW28	S12.7	SSW28	

SSW2.8	S3.1	S2.7	SSW2.6	SSW2.1	S1.8	S2.1	SSE2.0	SE1.4	ESE2.1	ESE2.5	ESE2.4	SSE2.5	SSE3.2	SSE2.6	SSE2.1	SSE2.8	SE2.8	SE2.7	SE3.2	SSE3.5	S3.0	S3.4	S3.8	Diurnal Average	
W24	SSE22	SE20	SE20	WNW24	NW24	NW22	NNW25	NNW26	SSE24	NNW26	SSE27	SSE29	SSE28	SSE28	SSE26	SSE25	SSE23	SSE22	N20	SW24	W26	W25	SSW28	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

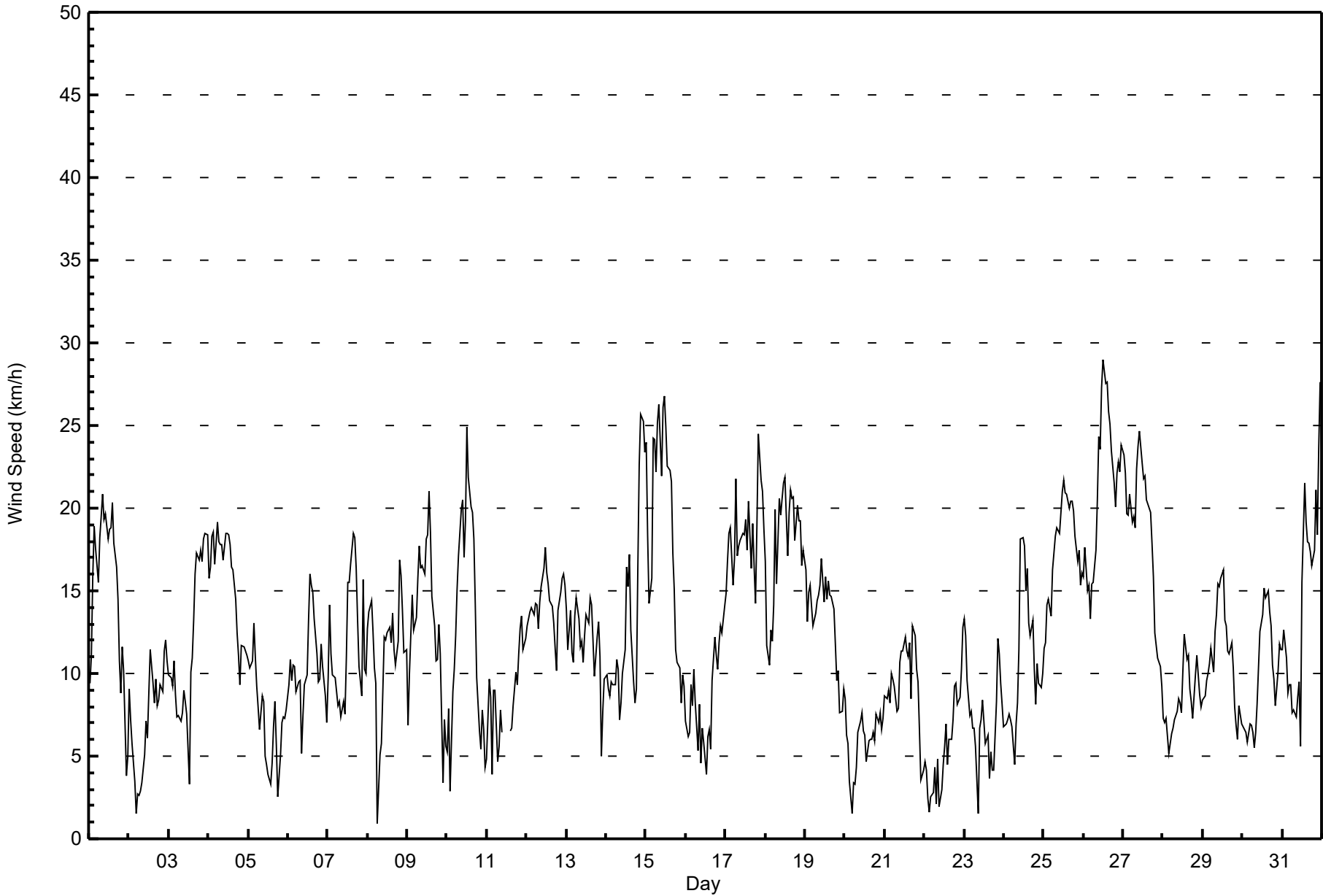
Wind Speed (WS) - km/h
Anzac - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Apr 1 00:00 Minimum Value: 0 km/h on Mar 20 07:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 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-Mar	3	3	4	5	5	5	5	5	5	5	5	5	5	5	5	4	4	2	1	2	2	1	1	5																							
2-Mar	2	2	1	1	1	1	2	1	1	2	2	2	3	3	3	2	2	1	2	2	3	3	2	3																							
3-Mar	3	2	2	3	2	2	2	2	2	2	2	2	2	3	3	4	4	4	4	4	4	4	5	5																							
4-Mar	3	4	4	5	4	4	4	4	4	4	4	4	4	4	4	3	3	3	2	2	2	2	2	5																							
5-Mar	2	2	2	3	2	2	2	1	2	2	1	1	2	2	2	3	2	2	1	1	2	1	1	3																							
6-Mar	2	1	1	2	1	1	1	2	1	2	2	3	4	4	4	3	3	2	2	1	2	2	1	4																							
7-Mar	2	2	4	3	2	2	2	2	1	2	2	4	4	5	5	5	4	4	3	5	4	3	3	5																							
8-Mar	4	3	3	3	2	2	2	1	1	2	3	2	3	3	3	3	2	2	3	3	3	3	3	4																							
9-Mar	3	3	4	3	2	3	3	2	3	3	3	4	4	4	5	4	3	3	2	2	5	2	2	5																							
10-Mar	2	1	2	1	2	3	4	4	5	5	5	6	7	5	5	5	5	4	2	1	1	2	1	7																							
11-Mar	1	2	2	1	3	3	1	1	2	2	M	M	M	M	2	2	2	2	1	2	3	3	3	3																							
12-Mar	2	2	2	3	3	3	3	3	3	4	4	4	4	3	3	3	3	3	2	3	4	4	4	4																							
13-Mar	3	3	3	3	3	3	3	2	2	3	2	3	3	3	3	3	3	2	2	2	2	3	2	3																							
14-Mar	1	1	1	2	2	2	2	2	2	2	4	4	5	5	6	4	2	2	2	5	6	7	6	7																							
15-Mar	6	5	3	4	7	6	5	6	6	6	6	6	5	5	5	5	4	3	3	2	2	1	1	7																							
16-Mar	1	1	2	2	2	2	2	1	2	2	2	3	2	2	2	3	2	3	3	2	3	3	3	3																							
17-Mar	3	3	4	4	3	4	5	4	4	4	4	4	4	4	5	5	6	5	5	7	8	6	6	8																							
18-Mar	4	4	4	2	2	3	5	3	5	5	5	6	5	3	4	4	4	5	4	5	4	4	4	6																							
19-Mar	4	4	4	4	4	3	3	4	3	4	4	4	4	4	4	4	4	3	3	1	2	3	2	4																							
20-Mar	2	1	1	2	1	1	0	1	2	2	2	3	2	3	3	3	3	2	1	2	1	1	1	3																							
21-Mar	2	1	1	1	2	2	3	2	2	2	3	3	4	3	3	3	4	3	3	2	2	2	1	4																							
22-Mar	1	1	0	1	1	1	1	1	2	1	2	2	2	2	2	2	2	2	2	1	1	1	2	2																							
23-Mar	1	2	2	1	1	1	1	2	2	1	2	2	3	3	3	4	3	2	2	2	2	2	2	4																							
24-Mar	1	1	1	1	1	3	1	2	2	3	4	4	5	5	4	4	4	4	2	2	2	2	2	5																							
25-Mar	2	2	2	2	2	3	3	3	4	4	4	5	5	5	5	6	5	5	4	4	3	3	3	6																							
26-Mar	3	4	3	3	3	3	3	4	5	6	6	7	8	7	6	6	6	6	5	4	5	5	6	8																							
27-Mar	5	5	4	4	5	5	5	5	5	6	7	6	6	6	5	5	5	5	4	3	3	3	2	7																							
28-Mar	2	2	2	1	1	1	1	1	2	2	2	2	2	2	2	3	2	2	1	3	2	3	2	3																							
29-Mar	2	2	2	2	2	2	2	3	3	3	3	3	4	3	3	3	3	3	2	2	1	1	1	4																							
30-Mar	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	4	4	3	2	2	2	2	2	4																							
31-Mar	2	2	2	2	1	2	3	2	2	2	2	3	6	6	6	5	5	5	4	4	5	5	7	8																							
Diurnal Maximum																								6	5	4	5	7	6	5	6	6	6	7	7	8	7	6	6	6	6	5	7	8	7	7	8
M - Maintenance																																															



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Anzac - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Anzac - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	61	8.24	8.24
6 - 11	317	42.84	51.08
12 - 19	275	37.16	88.24
20 - 28	86	11.62	99.86
29 - 38	1	0.14	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Anzac - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	8	6	2	5	2	2	5	5	1	2	4	4	3	4	5	3	61
6 - 11	32	16	16	10	20	27	45	37	9	6	12	19	14	11	14	29	317
12 - 19	14	2	0	1	11	41	54	38	8	7	7	22	33	4	10	23	275
20 - 28	3	0	0	0	0	6	12	23	3	1	3	7	8	1	3	16	86
29 - 38	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	57	24	18	16	33	76	116	104	21	16	26	52	58	20	32	71	740

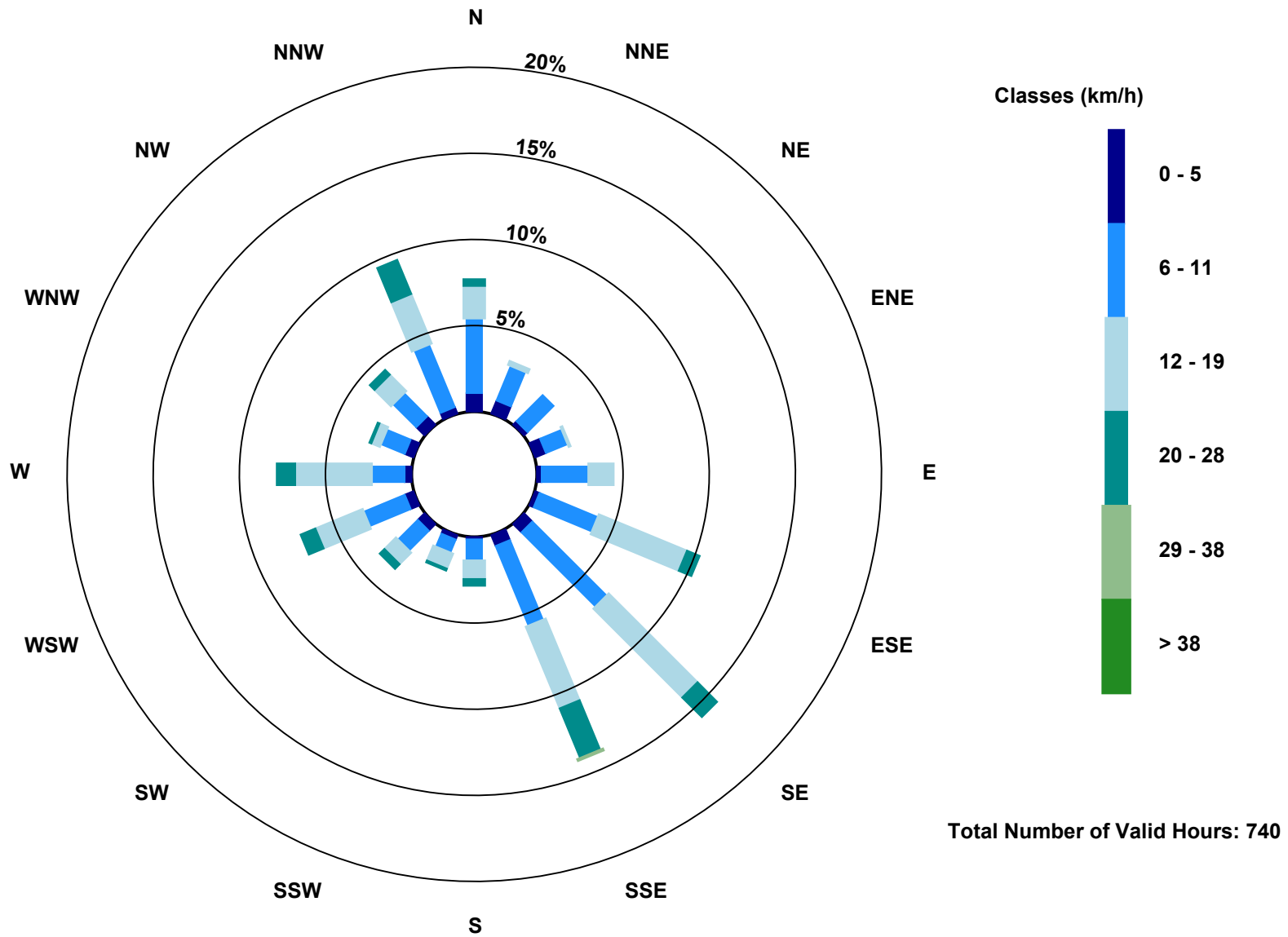
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Anzac





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Anzac - March 2024

Direction of Maximum Speed: 158 deg on Mar 26 13:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 152.2 deg on Mar 26		Hours of Data:	740
Direction of Minimum Speed: 138 deg on Mar 8 07:00		Hours of Missing Data:	4
Direction of Minimum Daily Speed Average: 2.7 deg on Mar 22		Percent Operational Time:	99.5
Monthly Average Direction: 163.0 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-Mar	259	254	249	252	253	253	247	245	245	246	251	258	261	253	263	263	265	285	285	292	304	322	301	253	260.4
2-Mar	320	347	340	271	316	353	346	330	359	20	31	21	344	352	350	8	15	19	19	6	13	11	15	13	1.9
3-Mar	10	10	356	351	346	336	332	330	328	326	343	345	320	272	259	269	270	275	269	269	272	279	279	277	298.2
4-Mar	271	266	268	269	265	268	271	271	270	269	274	270	268	266	270	274	269	264	259	256	245	251	257	256	266.4
5-Mar	252	251	251	253	257	257	252	263	257	249	233	202	189	111	69	137	138	141	123	152	138	149	161	150	214.9
6-Mar	142	147	151	160	163	159	149	135	126	113	117	106	146	146	134	146	149	153	150	137	134	146	151	157	143.0
7-Mar	135	138	129	108	102	105	105	108	93	77	81	143	165	171	152	153	158	157	173	149	177	201	194	190	146.9
8-Mar	230	248	251	258	264	258	138	93	102	111	107	104	98	87	96	100	131	126	124	133	131	151	151	164	141.3
9-Mar	146	158	154	146	142	116	119	123	117	108	102	106	108	131	129	129	136	129	126	126	119	84	132	113	124.7
10-Mar	127	132	349	283	253	234	240	234	240	236	235	238	238	245	248	264	270	279	295	280	258	310	317	290	251.4
11-Mar	238	313	318	357	354	356	321	296	337	346	M	M	M	M	46	58	110	101	98	96	112	123	128	128	66.1
12-Mar	133	120	116	120	118	119	117	120	121	129	117	117	114	94	109	100	118	124	103	103	112	118	120	123	116.0
13-Mar	123	136	138	129	127	133	137	137	138	129	129	115	118	123	122	121	122	111	99	120	142	147	205	228	130.4
14-Mar	238	219	217	224	234	237	237	233	244	276	271	264	239	244	242	237	212	208	215	246	263	275	278	264	247.9
15-Mar	267	277	283	282	294	305	306	334	337	337	330	334	331	333	342	352	2	8	4	345	350	337	353	359	326.1
16-Mar	357	328	314	341	347	355	5	15	16	25	5	332	20	77	81	36	73	100	98	129	129	140	137	130	60.0
17-Mar	134	146	146	149	129	140	150	141	134	135	136	135	145	159	185	197	199	188	195	210	218	242	259	286	170.7
18-Mar	309	320	320	322	323	330	337	326	338	334	325	332	329	338	345	348	346	357	348	350	346	350	344	349	337.3
19-Mar	344	341	344	354	0	6	2	2	359	354	347	338	329	329	331	341	344	336	344	345	12	12	332	332	346.9
20-Mar	338	16	41	78	130	268	277	299	338	5	359	6	337	4	35	28	32	42	51	101	142	146	128	127	32.7
21-Mar	138	117	102	112	110	103	109	127	124	104	90	74	61	64	54	27	21	9	11	5	6	356	313	1	67.0
22-Mar	6	21	323	281	241	221	234	222	157	193	69	50	25	48	34	82	60	63	81	98	113	163	156	155	99.6
23-Mar	156	154	151	148	153	160	167	182	76	64	88	39	41	120	44	10	328	167	132	89	108	115	137	156	123.5
24-Mar	178	203	220	225	225	212	157	150	152	141	159	160	158	153	162	164	168	157	155	130	138	140	133	144	161.7
25-Mar	139	144	138	140	144	141	139	145	147	142	137	140	153	153	157	155	158	157	157	159	162	163	156	161	150.1
26-Mar	158	164	157	156	145	146	144	144	146	147	153	158	158	151	152	153	154	157	155	148	149	151	151	151	152.2
27-Mar	146	147	138	137	135	128	127	123	119	121	125	128	125	123	107	108	106	102	96	90	86	96	100	101	120.3
28-Mar	91	92	89	69	60	54	44	46	53	54	41	28	3	355	359	1	346	6	357	351	349	340	312	298	16.9
29-Mar	289	292	297	315	320	328	325	326	330	336	332	328	324	325	316	341	355	338	328	307	297	287	276	278	320.4
30-Mar	268	263	241	225	225	180	186	182	161	174	174	171	163	154	163	162	162	161	135	131	136	133	146	148	166.9
31-Mar	146	152	151	151	166	179	159	161	159	167	144	87	235	221	221	214	207	193	184	173	183	178	188	201	185.4

191.3 183.6 188.0 196.7 199.7 187.4 174.6 165.9 137.7 120.8 119.7 121.3 168.7 162.2 158.1 146.3 156.0 139.6 128.8 134.9 152.0 173.5 185.6 188.2
 Diurnal Average

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

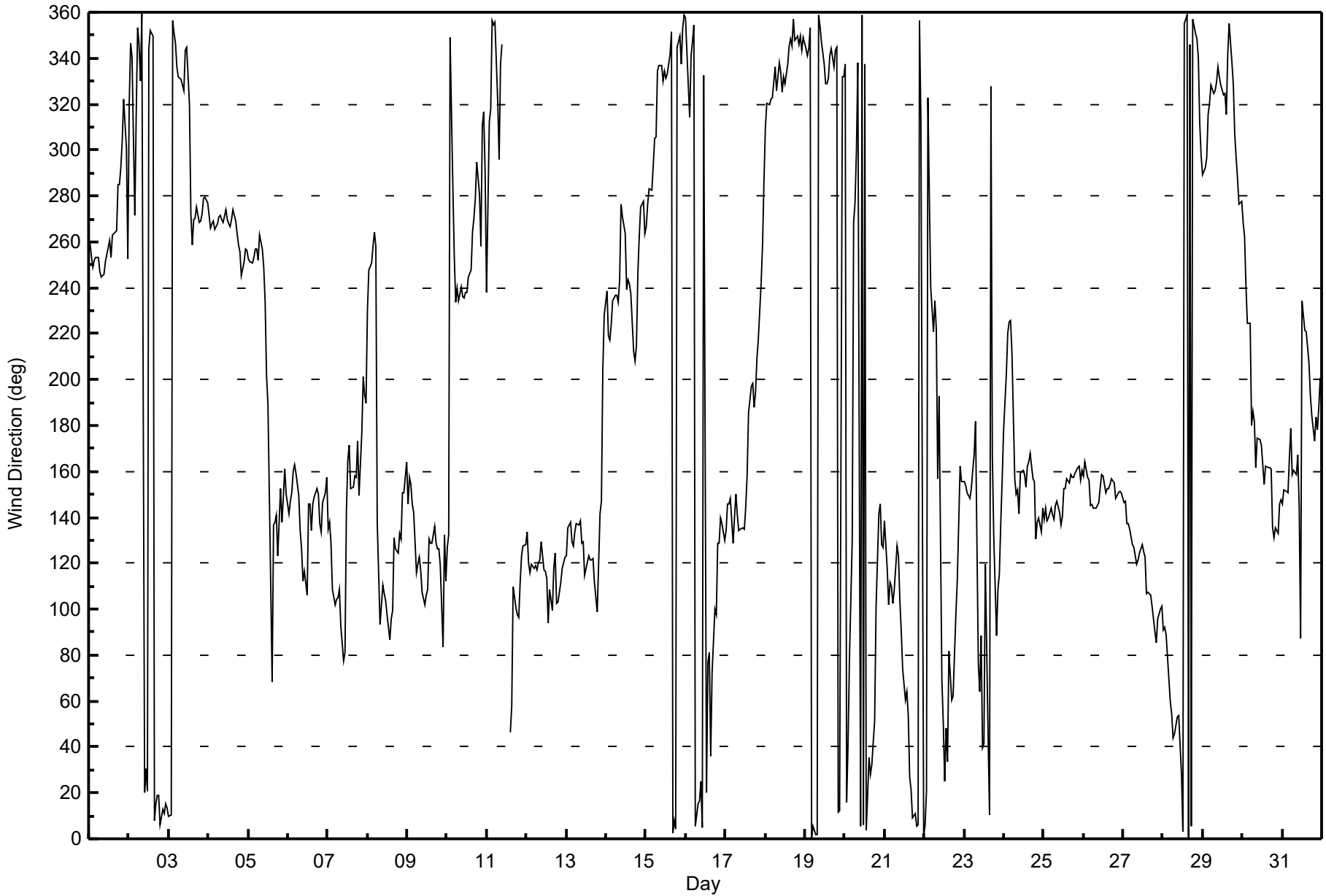
Wind Direction (WD) - deg
Anzac - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 86 deg on Mar 23 09:00																		Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5							
Minimum Value: 5 deg on Mar 30 01:00																									
Percentiles: P ₁ = 6 P ₁₀ = 10 Q ₁ = 12 Median = 15 Q ₃ = 19 P ₉₀ = 27 P ₉₉ = 70																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Mar	15	18	16	16	17	18	16	16	15	16	16	19	19	19	20	20	20	12	9	10	11	6	57	19	57
2-Mar	10	11	10	20	30	8	16	14	33	28	30	49	25	24	27	26	21	12	12	14	14	13	14	14	49
3-Mar	16	17	17	17	16	15	13	14	13	13	18	19	71	19	16	15	15	14	14	13	14	13	13	14	71
4-Mar	14	14	14	14	14	13	13	13	14	14	15	15	17	19	18	18	18	15	14	12	12	12	12	12	19
5-Mar	11	11	11	12	14	12	12	13	14	16	33	38	49	67	51	35	16	10	21	15	11	8	10	9	67
6-Mar	8	6	8	9	11	10	7	7	12	14	19	22	28	21	19	19	18	15	12	9	7	10	11	21	28
7-Mar	10	5	18	15	12	12	13	11	18	13	17	34	17	21	18	17	16	16	17	18	32	17	16	17	34
8-Mar	25	15	15	15	13	10	81	6	16	14	15	14	17	16	16	17	23	13	11	9	11	15	19	14	81
9-Mar	33	20	14	11	14	10	9	7	11	12	15	12	15	11	12	12	13	16	12	13	33	50	26	42	50
10-Mar	27	14	69	14	19	12	17	18	16	15	17	19	17	17	17	17	15	15	10	8	19	9	8	44	69
11-Mar	17	11	10	28	16	15	23	13	15	30	M	M	M	M	32	32	24	16	11	9	13	14	14	14	32
12-Mar	12	11	10	12	12	12	12	13	14	16	15	15	18	17	18	18	15	14	16	13	14	14	14	14	18
13-Mar	12	14	13	12	12	13	12	12	13	16	18	15	17	15	16	17	17	15	11	12	11	22	22	11	22
14-Mar	10	13	11	13	10	9	11	12	18	17	20	23	21	21	17	20	17	14	17	20	17	16	16	17	23
15-Mar	19	18	17	16	16	15	14	18	15	15	13	14	14	14	16	16	18	17	15	11	12	12	11	14	19
16-Mar	14	17	13	11	17	13	15	20	15	42	41	53	66	53	29	47	28	18	16	17	15	14	13	14	66
17-Mar	17	13	12	11	14	14	11	14	13	13	13	15	14	21	18	19	18	17	19	21	19	19	19	20	21
18-Mar	20	22	19	13	14	11	13	15	15	17	15	16	17	19	19	20	16	21	18	20	18	21	18	21	22
19-Mar	18	16	19	22	22	23	21	22	23	23	25	25	23	23	20	25	22	22	19	17	20	27	11	10	27
20-Mar	15	21	14	26	59	10	20	19	32	31	32	44	49	68	49	43	44	27	9	21	14	12	14	11	68
21-Mar	12	12	14	14	11	13	15	16	25	18	24	25	25	24	27	27	47	30	18	20	20	21	43	27	47
22-Mar	19	10	33	30	20	10	10	19	23	80	76	71	53	40	73	38	39	23	14	12	18	9	8	7	80
23-Mar	6	7	10	10	8	6	5	19	86	22	34	39	53	61	61	79	61	44	48	14	8	8	11	18	86
24-Mar	7	7	9	11	9	20	19	10	10	17	16	18	16	21	21	24	25	19	12	13	11	12	14	11	25
25-Mar	11	10	11	12	11	11	12	12	12	14	14	16	14	17	20	18	15	13	12	11	10	10	11	11	20
26-Mar	13	12	12	12	13	13	12	12	14	15	18	17	16	16	14	14	13	13	13	12	13	13	12	12	18
27-Mar	13	12	13	13	14	15	15	15	14	15	15	16	17	16	15	14	15	15	15	15	15	15	14	14	17
28-Mar	15	15	16	14	12	11	10	13	13	16	17	26	19	15	17	17	21	17	12	12	12	17	13	14	26
29-Mar	14	14	13	13	11	12	13	13	13	16	18	15	19	18	19	24	20	17	13	18	10	10	8	9	24
30-Mar	5	7	10	7	9	14	9	9	11	24	24	21	22	17	23	21	20	16	13	12	11	11	10	10	24
31-Mar	11	9	10	10	8	10	20	13	15	19	22	66	30	21	20	21	20	16	14	12	15	14	17	19	66
																		33 22 69 30 59 23 81 22 86 80 76 71 71 68 73 79 61 44 48 21 33 50 57 44							
Diurnal Maximum																									
M - Maintenance																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Anzac - March 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS17
WAPASU
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
MARCH 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	19.8	0	5.3	0
H2S (ppb) Average	707	37	37	100	1.2	0	0.2	0
THC (ppm) Average	709	35	35	100	2.9	-	2.4	-
O3 (ppb) Average	709	35	35	100	49.3	0	46.1	-
NO2 (ppb) Average	709	35	35	100	31.7	0	5.9	-
NO (ppb) Average	709	35	35	100	3.9	-	0.8	-
NOX (ppb) Average	709	35	35	100	32.3	-	6.7	-
PM2.5 (ug/m3) Average	744	0	0	100	18.1	0	7.1	0
Temperature 2 m (C) Average	744	0	0	100	11.9	-	3.6	-
Relative Humidity (%) Average	744	0	0	100	94.4	-	82.3	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	24	-	19	-
Wind Direction 10 m (deg) Average	743	0	1	99.87	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1	-	10.5	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
MARCH 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	0.53	1.7	-	0	0	0	0.1	0.4	1	19.8
H2S (ppb) Average	707	0.08	0.1	-	0	0	0	0.1	0.1	0.2	1.2
THC (ppm) Average	709	2.28	0.1	-	2.2	2.2	2.2	2.3	2.3	2.3	2.9
O3 (ppb) Average	709	38.4	6.2	-	5.9	30.5	34.8	39.9	42.8	45.1	49.3
NO2 (ppb) Average	709	2.1	2.9	-	0.1	0.3	0.5	1.3	2.4	4.7	31.7
NO (ppb) Average	709	0.24	0.5	-	0	0	0	0	0.2	0.7	3.9
NOX (ppb) Average	709	2.34	3.2	-	0.1	0.3	0.5	1.4	2.8	5.5	32.3
PM2.5 (ug/m3) Average	744	3.28	1.8	-	0.7	1.8	2.2	2.9	3.7	5.1	18.1
Temperature 2 m (C) Average	744	-8.72	9.3	-	-34.3	-21.6	-16.6	-7.7	-1.7	2.8	11.9
Relative Humidity (%) Average	744	61.47	17	-	18.2	37.8	47.5	62.7	75.8	81.9	94.4
Wind Speed 10 m (km/h) Average	743	10.6	5	-	1	5	7	10	14	17	24
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	20.7	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	22 Mar 2024 19:00	22 Mar 2024 19:00	1	Flat line in sensor output signal



Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 19.8 ppb on Mar 14 12:00		Maximum Daily Average: 5.3 ppb on Mar 14		Hours of Data: 709																	0.2		1.6				
Minimum Value: 0.0 ppb on Mar 1 02:00		Minimum Daily Average: 0.0 ppb on Mar 29		Hours of Missing Data: 35																	0.2		0.4				
Maximum Diurnal Average: 1.5 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 18		Hours of Calibration: 35																	0.2		0.4				
Monthly Average: 0.53 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 1.0 P ₉₉ = 10.2		Percent Operational Time: 100.0																	0.1		0.6				
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-Mar	0.1	0.0	0.0	0.1	0.1	Z	0.1	0.0	0.1	0.3	0.3	1.6	0.8	0.4	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2	1.6	
2-Mar	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.2	0.4	
3-Mar	0.4	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.4	
4-Mar	0.1	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	
5-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.6	0.6	0.1	0.6	
6-Mar	0.7	0.7	0.7	0.5	Z	0.6	0.5	0.5	0.3	0.4	0.5	C	C	C	C	0.7	0.6	0.6	1.0	1.0	0.8	0.5	0.6	0.9	0.6	1.0	
7-Mar	0.7	0.7	0.6	0.9	0.9	Z	1.4	1.6	1.7	1.5	1.2	1.0	0.9	0.9	1.1	1.0	0.8	1.0	0.7	0.5	0.6	0.6	0.7	1.4	1.0	1.7	
8-Mar	Z	0.9	0.3	0.2	0.3	0.5	0.9	0.9	0.5	6.1	3.7	1.5	1.7	0.9	0.3	0.5	0.9	0.6	0.4	0.4	0.5	0.5	0.7	0.7	1.0	6.1	
9-Mar	0.7	Z	0.8	0.9	1.1	1.6	1.4	1.0	1.1	1.2	0.8	0.8	0.7	0.7	0.6	0.5	0.5	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.7	1.6	
10-Mar	0.5	0.5	Z	1.0	3.9	10.2	11.7	13.6	5.5	2.8	1.4	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	2.2	13.6	
11-Mar	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	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1
12-Mar	0.1	0.1	0.2	0.1	Z	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2
13-Mar	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
14-Mar	Z	1.1	1.2	2.6	2.8	6.5	5.0	4.9	10.4	13.8	14.9	19.8	5.2	3.6	3.9	1.3	1.8	0.1	1.0	5.9	5.9	5.8	3.2	1.0	5.3	19.8	
15-Mar	0.5	Z	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
16-Mar	0.0	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
17-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.3	0.1	0.0	0.1	0.0	5.2	3.6	0.8	0.5	5.2	
18-Mar	0.4	0.2	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	0.4	
19-Mar	0.0	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	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
20-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	
21-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	1.0	
22-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.6	1.5	0.1	0.6	1.1	1.4	0.6	0.3	0.3	0.3	0.3	0.1	0.0	0.0	0.1	0.0	0.3	1.5	
23-Mar	0.0	0.0	0.0	Z	0.5	0.6	0.9	1.2	1.5	0.8	1.3	4.5	5.1	3.4	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.9	5.1	
24-Mar	0.0	0.0	0.4	0.3	Z	0.8	0.5	2.2	13.8	10.2	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	1.3	13.8	
25-Mar	0.0	0.0	0.1	0.0	0.2	Z	0.1	0.1	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	
26-Mar	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
27-Mar	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	0.4	1.2	0.7	0.6	0.7	0.2	1.2	
28-Mar	1.2	0.2	Z	0.5	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	0.0	0.0	0.0	0.0	0.0	0.1	1.2	
29-Mar	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
30-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.6	3.5	2.8	0.4	0.3	0.3	0.5	0.4	0.3	0.2	0.0	0.1	0.3	0.2	0.0	0.1	0.1	0.4	3.5	
31-Mar	0.0	0.1	0.3	0.5	0.5	Z	0.6	0.8	1.0	3.3	0.9	0.6	1.0	0.6	0.6	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.5	3.3	
																								Diurnal Average		Diurnal Maximum	
																								0.2		1.2	
																								0.2		1.1	
																								0.2		1.2	
																								0.3		2.6	
																								0.4		3.9	
																								0.9		10.2	
																								0.8		11.7	
																								0.9		13.6	
																								1.4		13.8	
																								1.5		14.9	
																								0.9		19.8	
																								1.1		5.2	
																								0.6		3.9	
																								0.3		1.3	
																								0.2		1.8	
																								0.2		1.0	
																								0.1		1.0	
																								0.2		5.9	
																								0.3		5.9	
																								0.5		5.8	
																								0.4		3.6	
																								0.3		1.4	

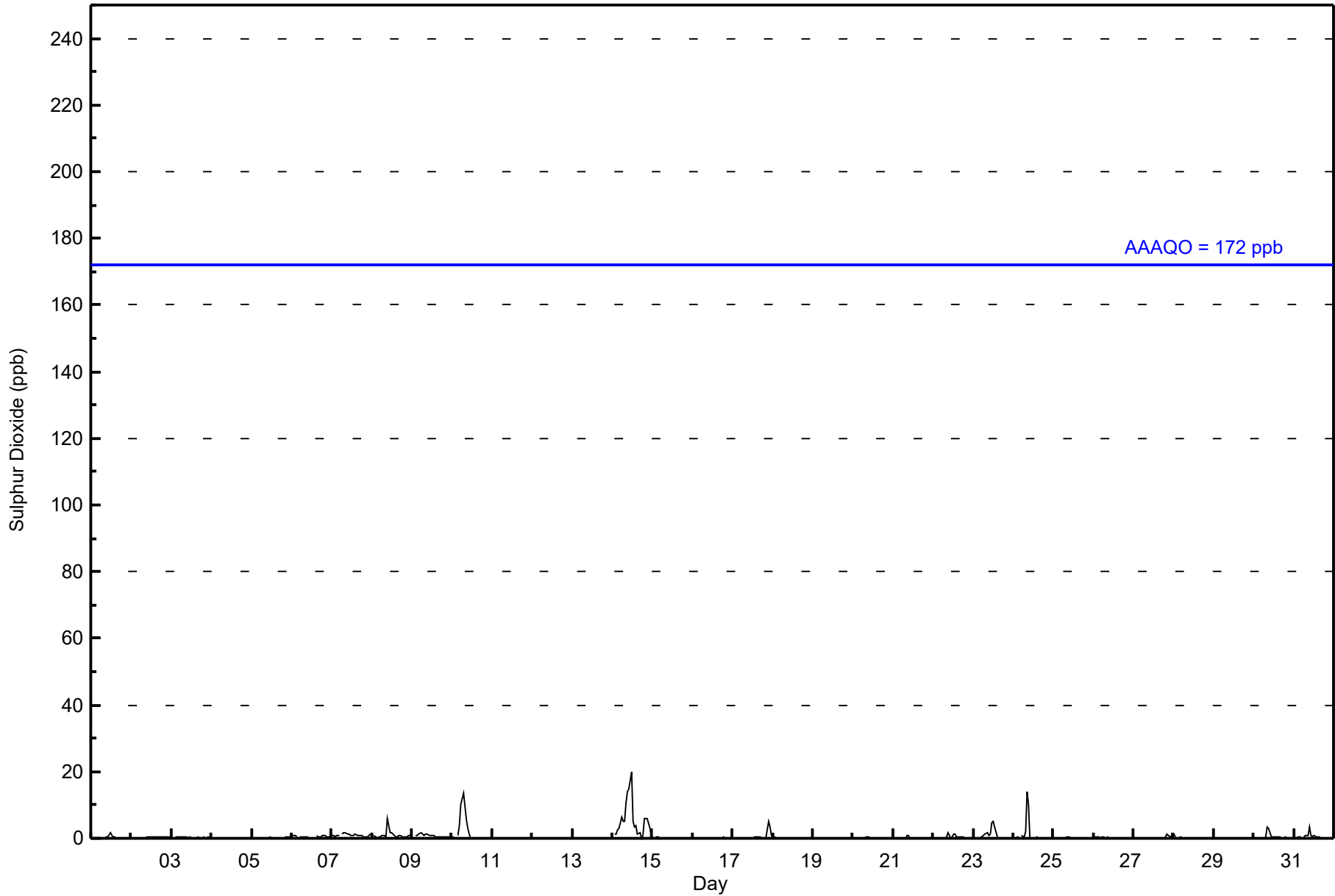
Z - zerospan C - Calibration

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Wapasu - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Wapasu - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	703	99.15	99.15
11 - 20	6	0.85	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Wapasu - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	121	61	26	20	9	32	87	132	94	34	16	9	16	7	4	34	702
11 - 20	0	0	0	0	0	0	0	1	0	5	0	0	0	0	0	0	6
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	121	61	26	20	9	32	87	133	94	39	16	9	16	7	4	34	708

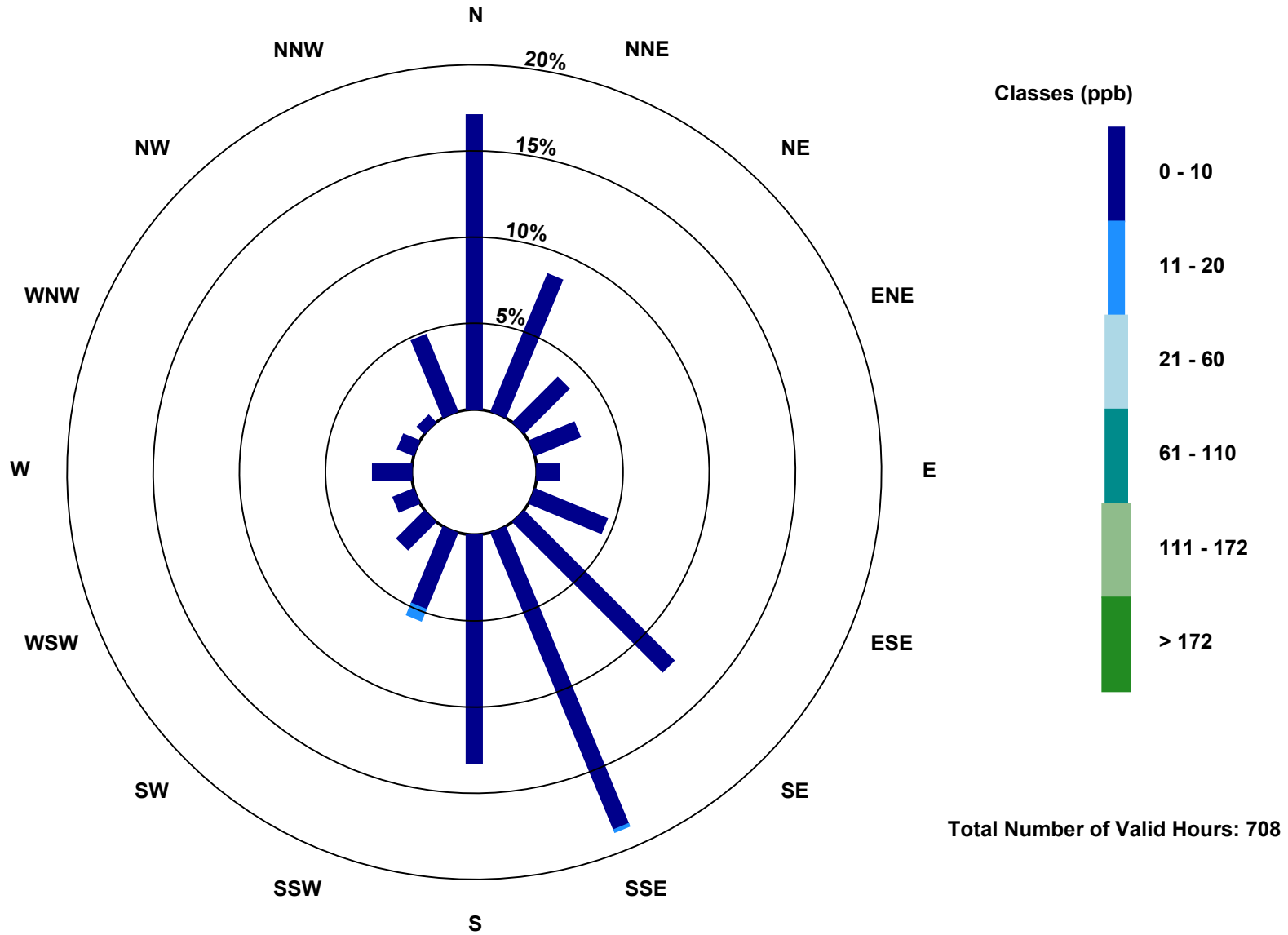
Total Number of Valid Hours: 708

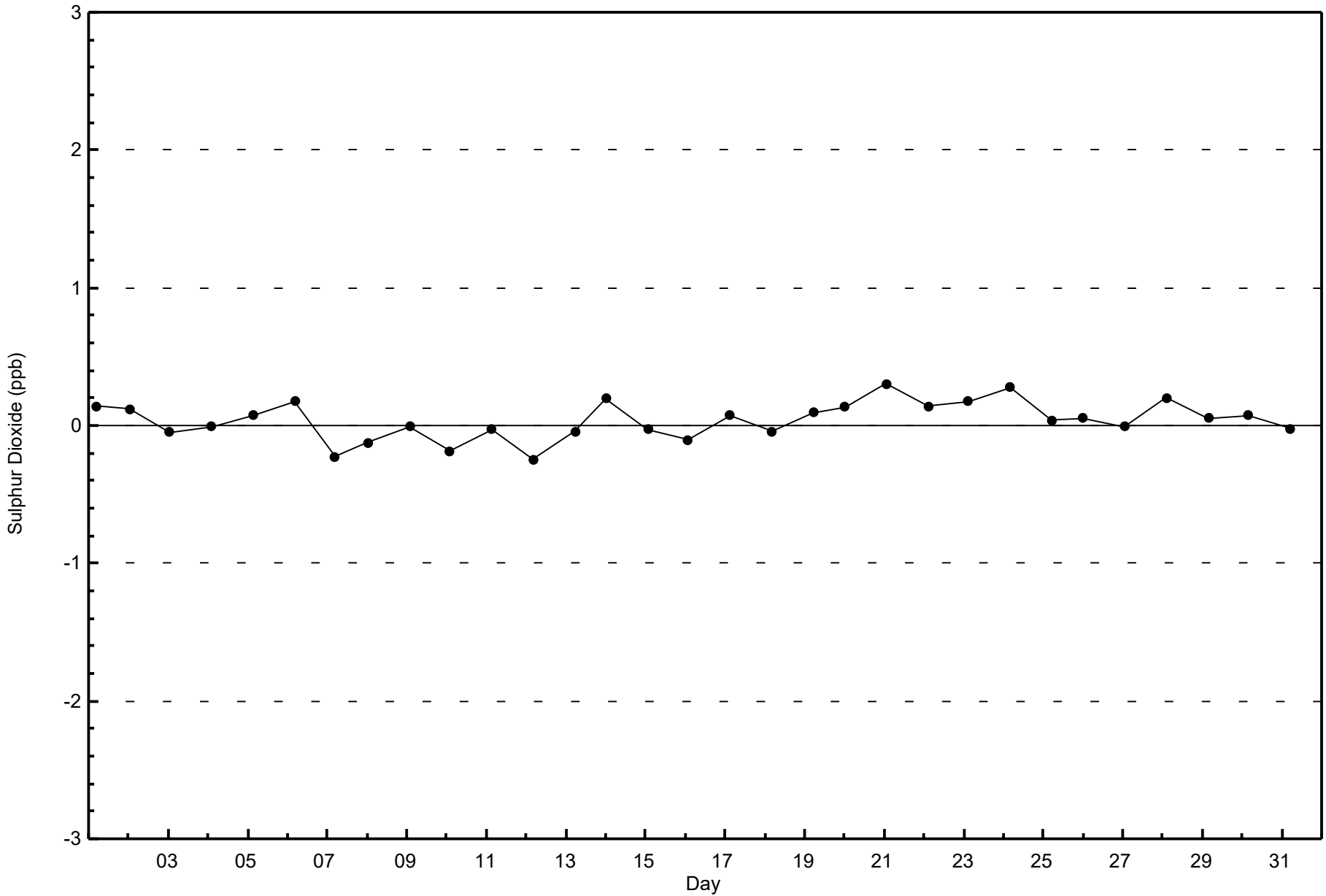
Total Number of Hours: 744

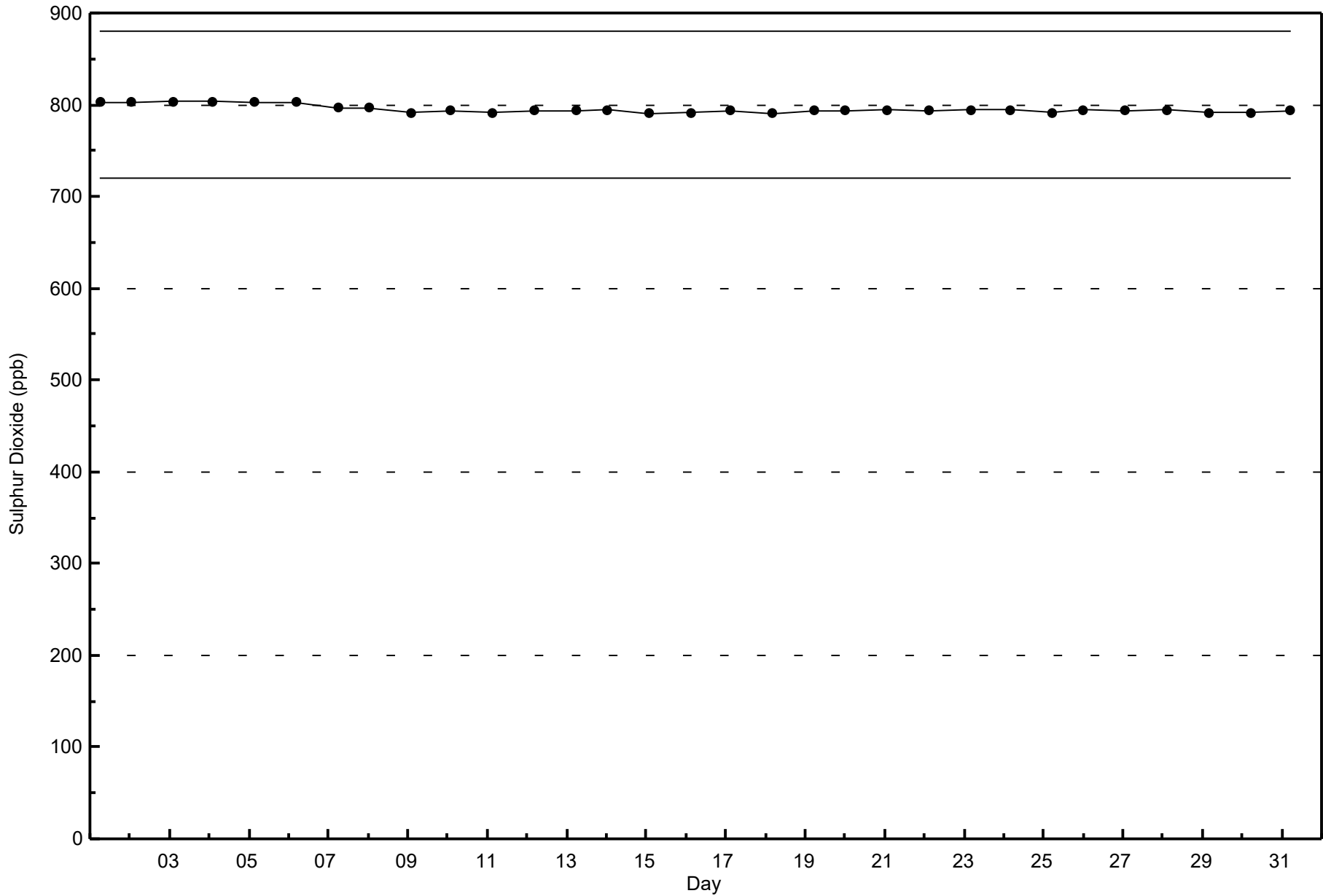


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Wapasu



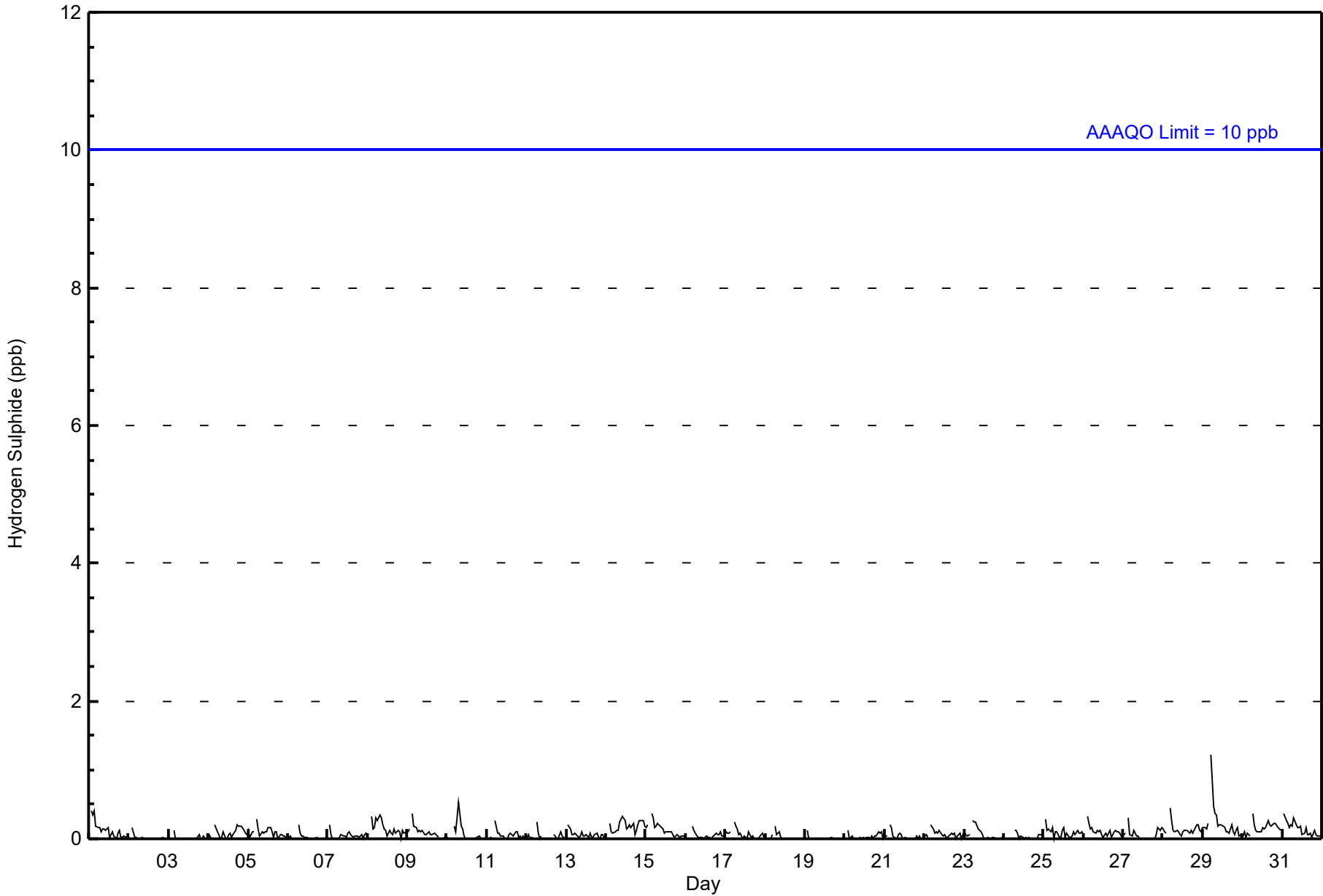






Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																Daily Average		Daily Maximum			
Maximum Value: 1.2 ppb on Mar 29 06:00		Maximum Daily Average: 0.2 ppb on Mar 29		Hours of Data: 707																0.1		0.4					
Minimum Value: 0.0 ppb on Mar 2 07:00		Minimum Daily Average: 0.0 ppb on Mar 19		Hours of Missing Data: 37																0.0		0.2					
Maximum Diurnal Average: 0.2 ppb at hour 6		Minimum Diurnal Average: 0.0 ppb at hour 24		Hours of Calibration: 37																0.0		0.1					
Monthly Average: 0.08 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.1 P ₉₀ = 0.2 P ₉₉ = 0.4		Percent Operational Time: 100.0																0.1		0.3					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	Z	0.4	0.4	0.4	0.2	0.2	0.2	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	0.0	0.1	0.4	
2-Mar	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
4-Mar	0.1	0.0	0.0	Z	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	
5-Mar	0.1	0.0	0.1	0.1	Z	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.3	
6-Mar	0.0	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	0.2	
7-Mar	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.2	
8-Mar	0.0	Z	0.3	0.1	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3	
9-Mar	0.1	0.1	Z	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
10-Mar	0.0	0.0	0.0	Z	0.2	0.1	0.3	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
11-Mar	0.0	0.0	0.0	0.0	Z	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
12-Mar	0.0	0.1	0.0	0.0	0.0	Z	0.3	0.1	0.0	0.0	C	C	C	C	C	C	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3		
13-Mar	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.2		
14-Mar	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.3		
15-Mar	0.2	0.2	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4		
16-Mar	0.0	0.0	0.0	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2		
17-Mar	0.1	0.1	0.1	0.1	Z	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.3		
18-Mar	0.0	0.0	0.0	0.0	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	0.0	0.2		
19-Mar	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
20-Mar	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	0.1	0.1	0.1	0.0	0.1		
21-Mar	0.0	0.0	Z	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2		
22-Mar	0.0	0.1	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.2		
23-Mar	0.1	0.1	0.0	0.1	Z	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3		
24-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1		
25-Mar	Z	0.3	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3		
26-Mar	0.1	Z	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.3		
27-Mar	0.1	0.1	Z	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.3		
28-Mar	0.1	0.1	0.1	Z	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.5		
29-Mar	0.2	0.2	0.1	0.2	Z	1.2	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.0	0.1	1.2		
30-Mar	0.0	0.1	0.0	0.1	0.0	Z	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.4		
31-Mar	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.4		
																								Diurnal Average		Diurnal Maximum	
																								0.1		0.4	
																								0.2		0.4	

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 (H₂S) - ppb
Wapasu - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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



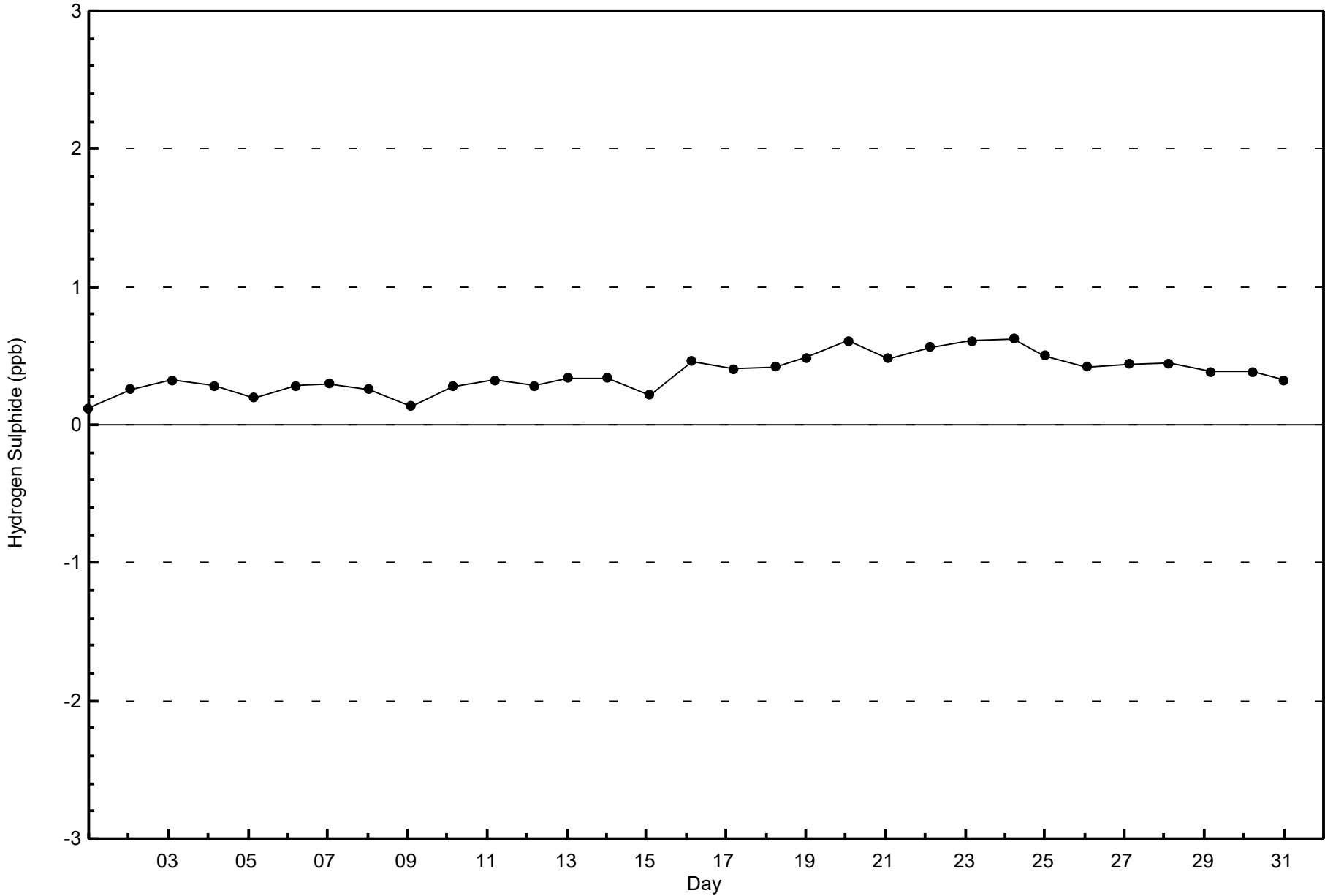
**Wood Buffalo Environmental Association
Frequency Distribution**

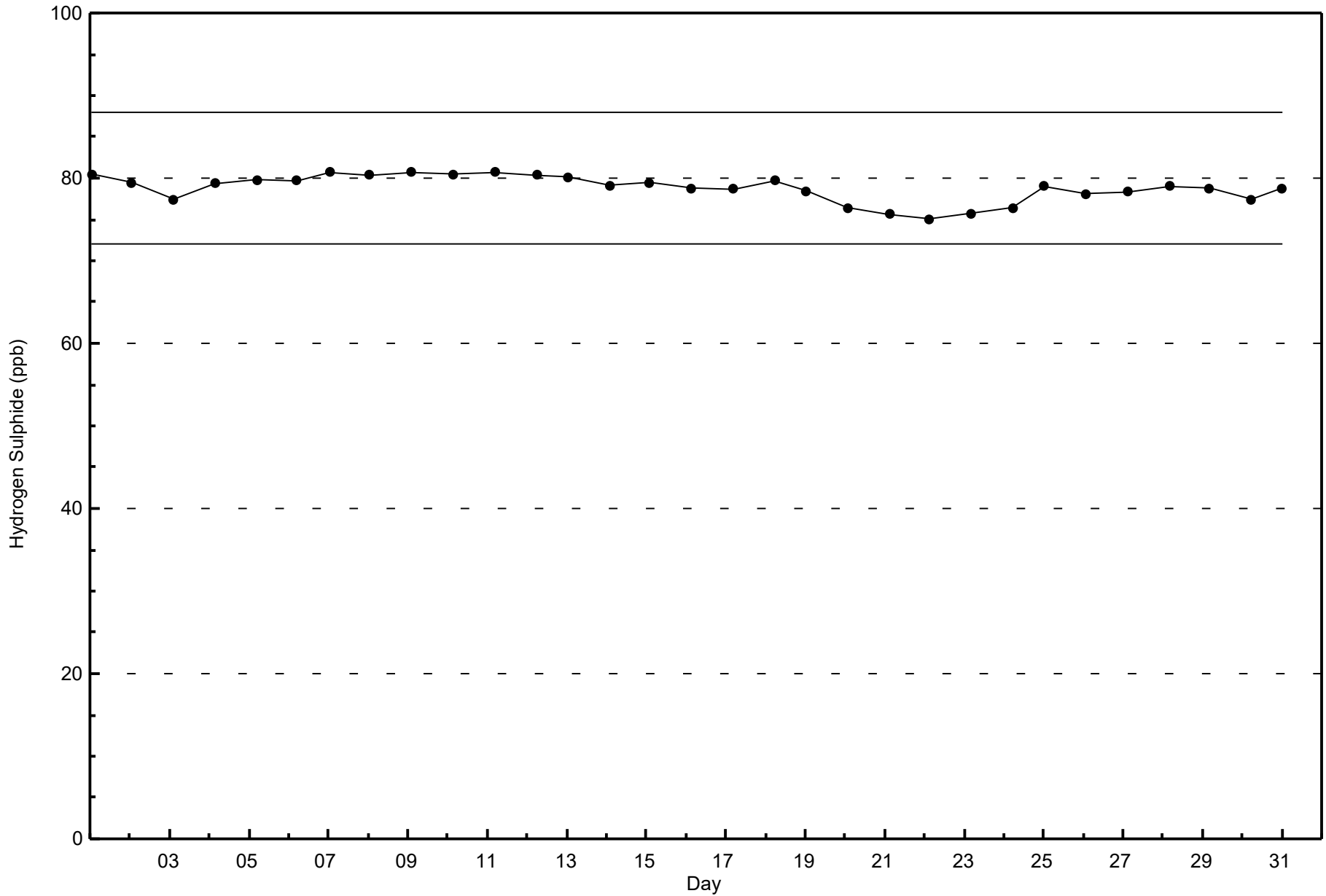
**Hydrogen Sulphide (H₂S) - ppb
Wapasu - March 2024**

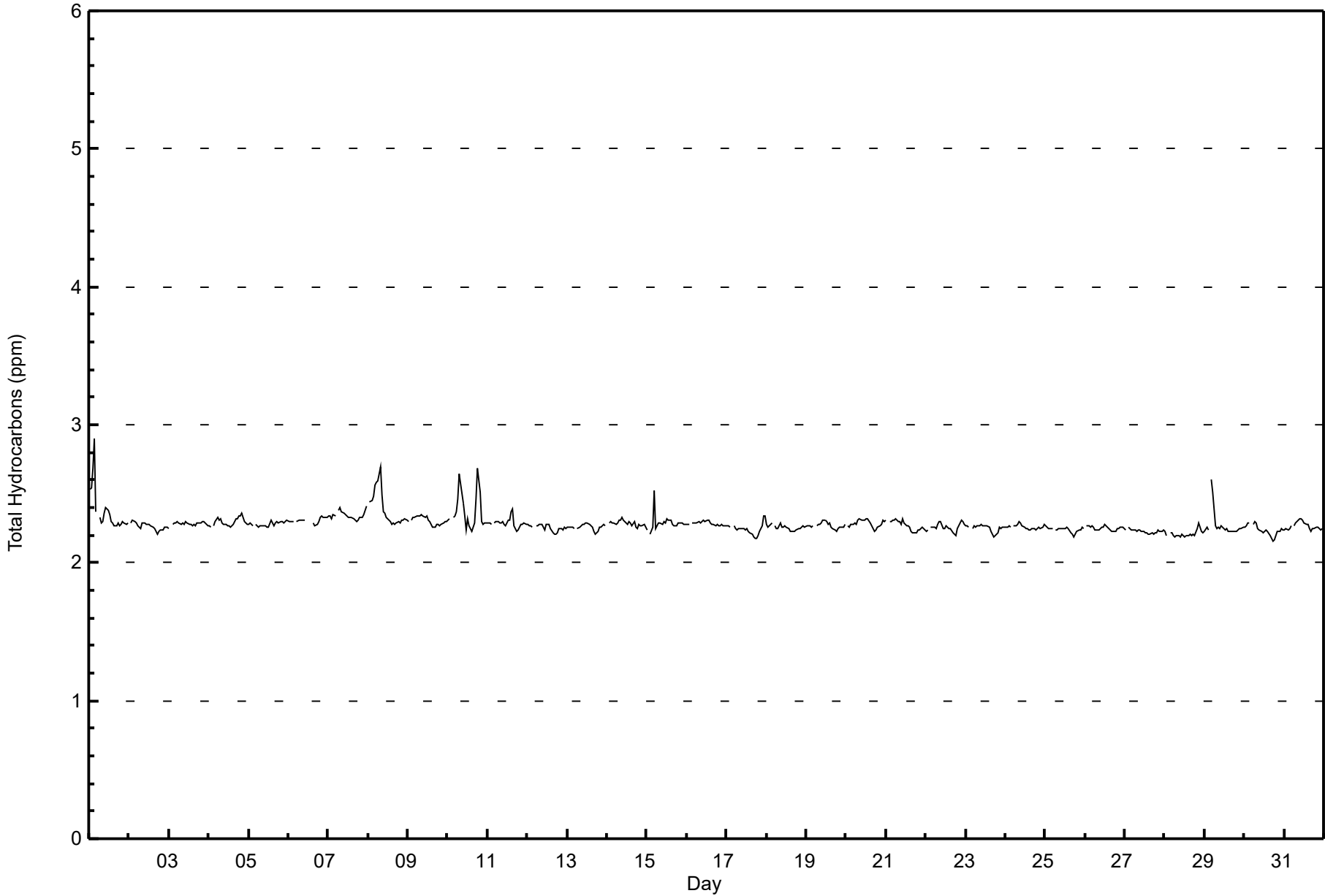
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	120	63	25	21	8	29	86	129	96	43	17	8	16	7	4	34	706
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	120	63	25	21	8	29	86	129	96	43	17	8	16	7	4	34	706

Total Number of Valid Hours: 706

Total Number of Hours: 744









Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Wapasu - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
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



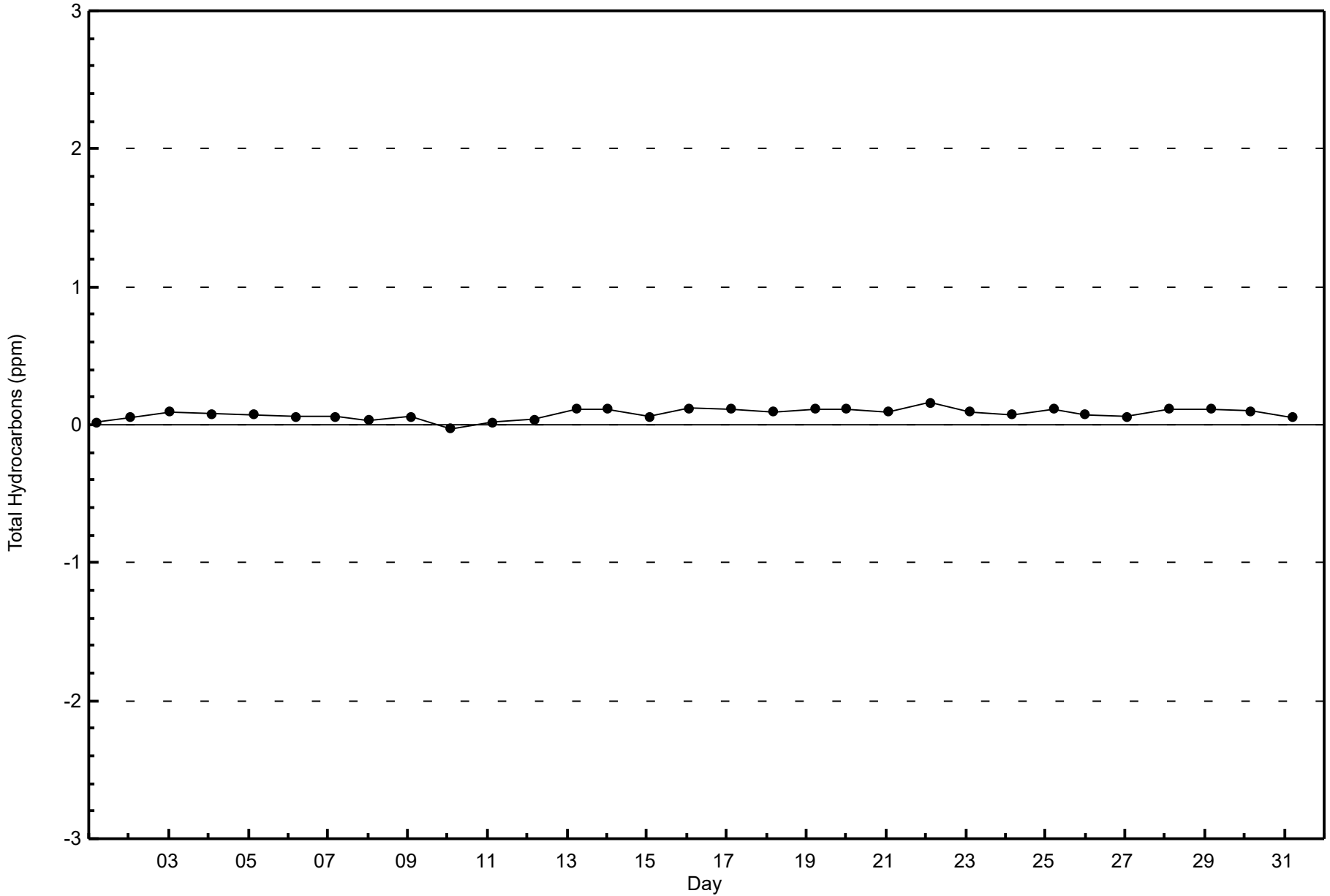
Wood Buffalo Environmental Association
Frequency Distribution

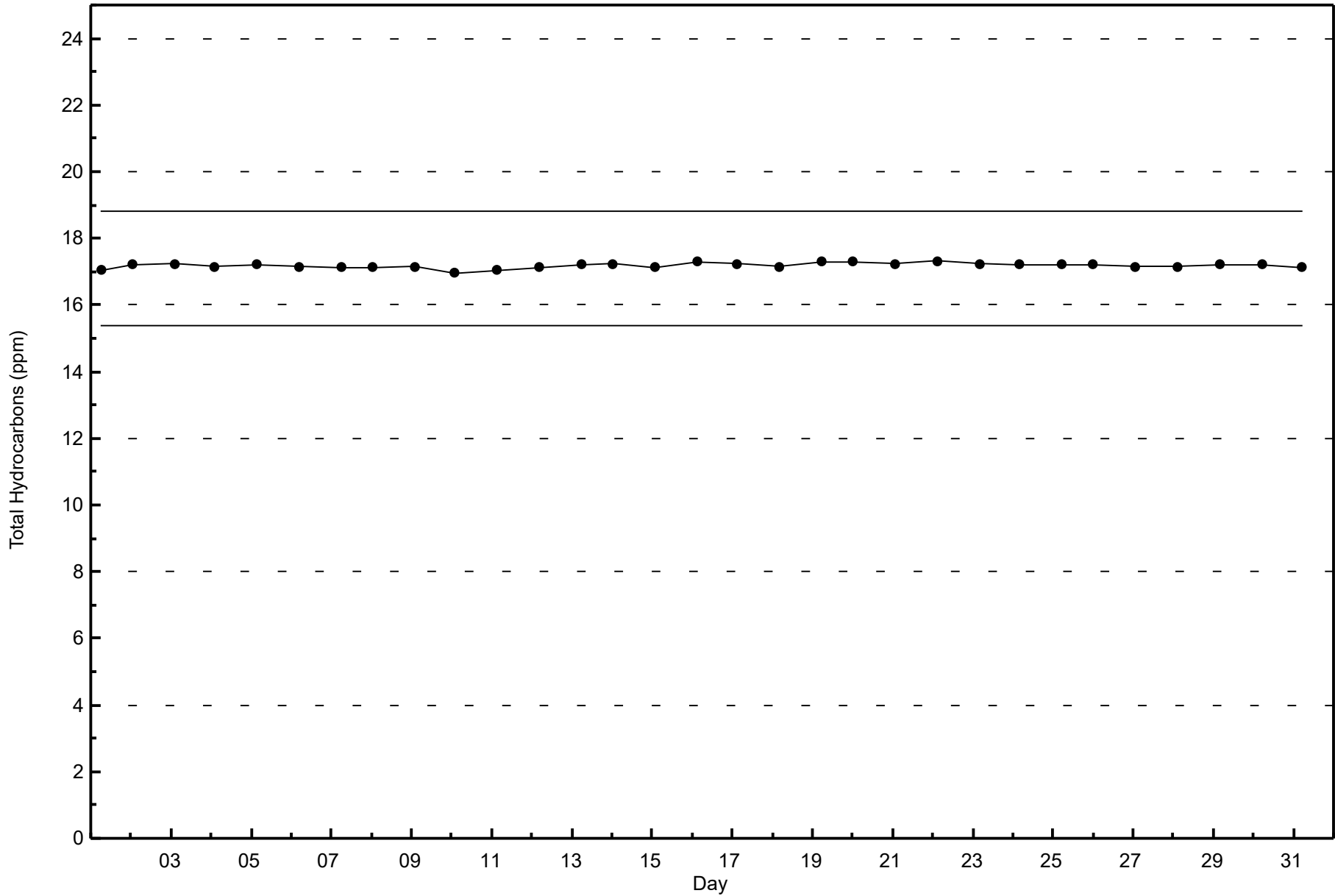
Total Hydrocarbons (THC) - ppm
Wapasu - March 2024

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	121	61	26	20	9	32	87	133	94	39	16	9	16	7	4	34	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
Totals	121	61	26	20	9	32	87	133	94	39	16	9	16	7	4	34	708

Total Number of Valid Hours: 708

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Wapasu - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 49.3 ppb on Mar 9 22:00	Maximum Daily Average: 46.1 ppb on Mar 9		Hours of Data:	709
Minimum Value: 5.9 ppb on Mar 1 04:00	Minimum Daily Average: 28.2 ppb on Mar 1		Hours of Missing Data:	35
Maximum Diurnal Average: 41.2 ppb at hour 17	Minimum Diurnal Average: 34.8 ppb at hour 5		Hours of Calibration:	35
Monthly Average: 38.40 ppb	Percentiles: P ₁ = 19.1 P ₁₀ = 30.5 Q ₁ = 34.8 Median = 39.9 Q ₃ = 42.8 P ₉₀ = 45.1 P ₉₉ = 49.0		Percent Operational Time:	100.0

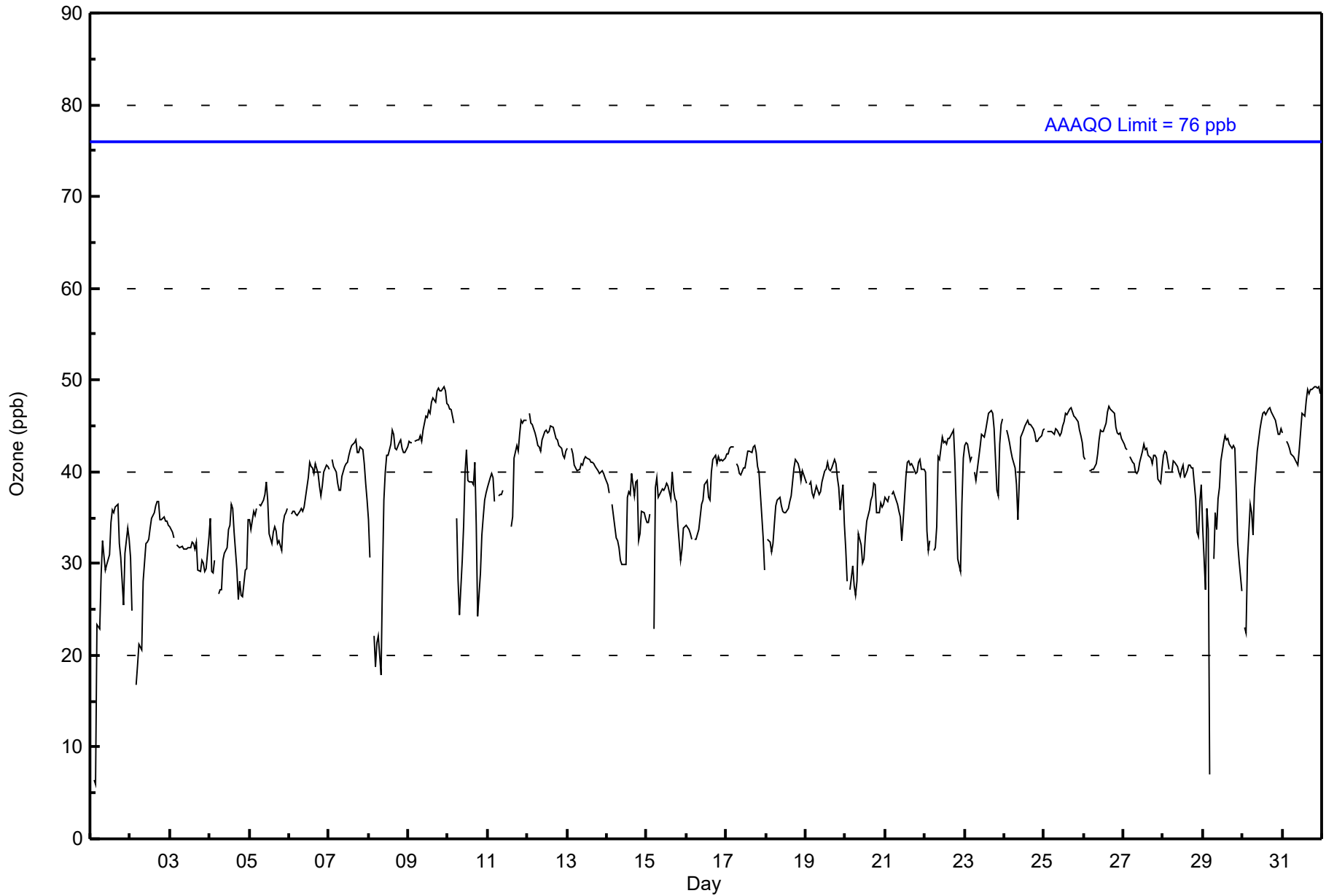
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	14.4	Z	6.4	5.9	23.4	22.9	28.8	32.4	30.9	29.3	29.9	31.0	34.4	35.9	35.6	36.1	36.5	32.2	30.6	28.0	25.4	31.1	33.8	32.7	28.2	36.5																						
2-Mar	30.6	24.9	Z	16.7	19.0	21.2	20.9	20.5	28.0	32.2	32.4	32.6	33.9	34.9	35.5	36.4	36.8	36.8	34.8	34.8	35.1	34.7	34.6	34.2	30.5	36.8																						
3-Mar	34.0	33.4	32.8	Z	32.0	31.8	31.7	31.9	31.6	31.6	31.5	31.8	31.8	32.3	32.2	31.5	32.4	29.3	29.1	30.3	30.1	29.1	29.4	32.8	31.5	34.0																						
4-Mar	34.9	29.2	29.0	30.4	Z	26.7	27.2	27.2	30.4	31.0	31.8	33.6	34.1	36.4	36.0	33.4	29.2	26.1	28.1	26.5	26.4	29.3	29.5	34.8	30.5	36.4																						
5-Mar	34.8	33.7	35.7	35.3	36.0	Z	36.5	36.3	36.9	37.5	38.8	36.9	33.3	32.2	33.4	33.9	33.6	32.1	32.6	31.4	34.3	35.3	35.5	35.9	34.9	38.8																						
6-Mar	Z	35.4	35.6	35.6	35.4	35.2	35.7	36.0	35.8	36.2	37.2	39.4	41.0	40.6	40.4	39.7	40.9	39.9	38.5	37.3	38.4	40.0	40.8	40.5	38.1	41.0																						
7-Mar	40.3	Z	41.4	40.6	39.9	38.7	38.0	38.0	39.5	40.7	40.9	41.0	41.8	42.4	42.9	43.2	43.5	42.2	42.2	42.7	42.3	40.8	38.8	36.8	40.8	43.5																						
8-Mar	34.8	30.7	Z	22.1	18.8	21.3	22.2	17.9	28.5	36.9	40.0	41.8	41.8	43.0	44.6	44.1	42.6	42.4	43.2	43.5	42.5	42.1	42.1	42.8	36.1	44.6																						
9-Mar	43.3	43.2	43.1	Z	43.3	43.4	43.4	43.9	43.3	44.6	46.1	46.0	46.6	46.3	47.6	48.0	47.5	48.8	49.2	48.8	48.8	49.3	48.8	47.5	46.1	49.3																						
10-Mar	47.2	46.9	46.8	45.3	Z	34.9	28.2	24.3	30.4	34.2	39.9	42.4	39.1	38.9	38.9	38.6	41.1	34.2	24.3	28.9	33.0	35.1	36.9	37.7	36.8	47.2																						
11-Mar	38.4	39.4	39.8	39.4	36.8	Z	37.4	37.5	37.5	38.1	C	C	C	C	34.0	35.1	41.5	42.9	42.2	44.0	45.6	45.3	45.6	45.6	40.3	45.6																						
12-Mar	Z	46.3	45.3	45.1	44.3	43.7	42.9	42.8	42.2	43.5	44.4	44.6	44.2	44.4	45.0	44.8	44.3	43.7	43.5	42.8	42.5	41.8	41.5	42.2	43.7	46.3																						
13-Mar	42.5	Z	42.5	42.0	40.8	40.4	40.1	40.2	40.9	40.8	41.4	41.6	41.5	41.3	41.0	41.1	40.8	40.6	40.2	39.8	39.9	40.1	39.8	39.4	40.8	42.5																						
14-Mar	38.6	37.7	Z	36.5	35.2	32.8	32.5	31.8	30.4	29.9	30.0	29.9	37.2	37.9	37.6	39.9	37.4	38.9	39.1	32.5	33.2	35.6	35.5	34.9	35.0	39.9																						
15-Mar	34.5	34.5	35.5	Z	22.9	38.3	39.3	37.2	37.5	38.2	38.0	38.3	38.3	37.2	38.4	37.1	39.9	37.9	37.0	36.8	34.3	30.3	31.6	33.8	34.0	35.8	39.9																					
16-Mar	34.1	33.7	33.2	32.7	Z	32.7	32.7	33.7	35.1	36.5	36.9	38.7	39.0	37.2	36.9	39.9	41.3	41.7	40.8	41.6	41.2	41.3	41.1	41.5	37.5	41.7																						
17-Mar	42.0	42.0	42.5	42.6	42.7	Z	40.9	40.6	39.9	39.7	40.4	40.4	41.3	42.2	42.3	42.1	42.8	42.9	42.1	40.6	39.9	35.2	32.8	29.3	40.3	42.9																						
18-Mar	Z	32.6	32.4	31.3	32.2	34.3	36.3	36.9	37.3	36.4	35.7	35.6	35.5	36.0	36.7	37.3	38.9	40.4	41.4	40.9	40.3	39.1	40.1	39.7	36.8	41.4																						
19-Mar	38.8	Z	38.6	39.0	37.6	37.3	38.5	37.9	37.5	37.9	38.9	40.2	40.2	41.0	40.3	40.1	40.4	41.3	40.9	39.4	38.4	35.9	38.6	34.4	38.8	41.3																						
20-Mar	31.5	28.1	Z	27.1	29.8	27.6	26.6	28.1	33.3	32.1	30.0	30.4	32.9	34.7	35.8	37.0	37.3	38.8	38.6	35.5	35.5	36.7	36.1	36.5	33.0	38.8																						
21-Mar	37.3	36.8	37.3	Z	37.6	37.8	37.4	36.4	35.8	35.0	32.5	34.6	39.5	41.1	41.1	40.8	40.8	40.6	39.8	40.0	41.1	41.3	40.3	40.2	38.5	41.3																						
22-Mar	40.0	33.5	31.5	32.5	Z	31.4	31.7	34.0	41.6	41.4	43.7	43.1	43.3	43.0	43.7	43.7	44.3	44.5	41.0	35.9	30.5	29.1	36.6	41.5	38.3	44.5																						
23-Mar	42.8	43.2	43.0	41.2	41.7	Z	39.9	39.1	41.4	42.7	44.1	44.0	43.8	44.5	46.4	46.6	46.6	46.3	44.6	38.1	37.3	43.0	45.2	45.7	43.1	46.6																						
24-Mar	Z	44.5	44.0	43.2	42.3	41.5	40.4	38.7	34.8	39.0	43.8	44.6	45.0	45.4	45.7	45.2	45.2	44.7	44.2	43.4	43.3	43.7	43.9	44.6	43.1	45.7																						
25-Mar	44.7	Z	44.4	44.3	44.3	44.2	44.1	44.7	44.6	43.9	44.2	44.9	45.4	46.3	46.3	46.8	46.9	46.5	46.1	46.0	45.4	44.5	43.9	43.2	45.0	46.9																						
26-Mar	41.7	41.3	Z	40.1	40.1	40.2	40.3	40.8	41.9	43.4	44.5	44.4	44.3	45.3	46.5	47.1	46.8	46.6	46.4	44.8	44.2	44.0	44.2	43.7	43.6	47.1																						
27-Mar	43.1	42.6	42.4	Z	41.6	41.1	40.8	40.0	39.8	40.1	41.0	42.3	43.0	42.4	42.6	41.8	41.5	40.9	41.8	41.8	41.5	39.2	38.8	40.4	41.3	43.1																						
28-Mar	41.7	42.3	42.1	40.2	Z	40.0	41.3	41.0	40.5	39.9	39.5	40.3	40.8	39.3	40.1	40.8	40.8	40.4	40.5	37.1	33.4	33.0	36.8	38.6	39.6	42.3																						
29-Mar	34.1	27.2	36.0	33.7	7.0	Z	30.6	35.6	33.7	37.0	38.3	41.2	43.1	44.0	43.5	43.6	43.1	42.5	42.9	42.5	37.8	32.3	30.3	26.9	36.0	44.0																						
30-Mar	Z	23.0	22.4	30.4	36.5	35.5	33.1	38.0	40.2	42.3	44.8	45.6	46.3	46.5	46.3	46.9	47.0	46.5	46.2	45.9	45.7	44.0	44.1	44.7	40.9	47.0																						
31-Mar	44.2	Z	43.4	43.0	42.5	41.9	41.8	41.6	41.0	40.8	42.3	44.4	46.4	46.0	47.8	49.0	48.5	49.0	49.0	49.3	49.3	49.1	49.2	48.5	45.6	49.3																						
																								37.9	36.2	37.2	35.2	34.8	35.3	35.5	35.6	36.8	37.8	38.8	39.5	40.3	40.7	40.8	41.1	41.2	40.7	40.0	39.0	38.5	38.5	39.0	39.1	Diurnal Average
																								47.2	46.9	46.8	45.3	44.3	44.2	44.1	44.7	44.6	44.6	46.1	46.0	46.6	46.5	47.8	49.0	48.5	49.0	49.2	49.3	49.3	49.3	49.2	48.5	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Wapasu - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ozone (O₃) - ppb
Wapasu - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	8	1.13	1.13
21 - 50	701	98.87	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Ozone (O₃) - ppb
Wapasu - March 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	1	1	0	1	1	0	0	0	1	2	0	0	1	8
21 - 50	118	60	25	19	7	34	82	134	95	43	16	9	13	7	4	34	700
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
Totals	118	60	25	20	8	34	83	135	95	43	16	10	15	7	4	35	708

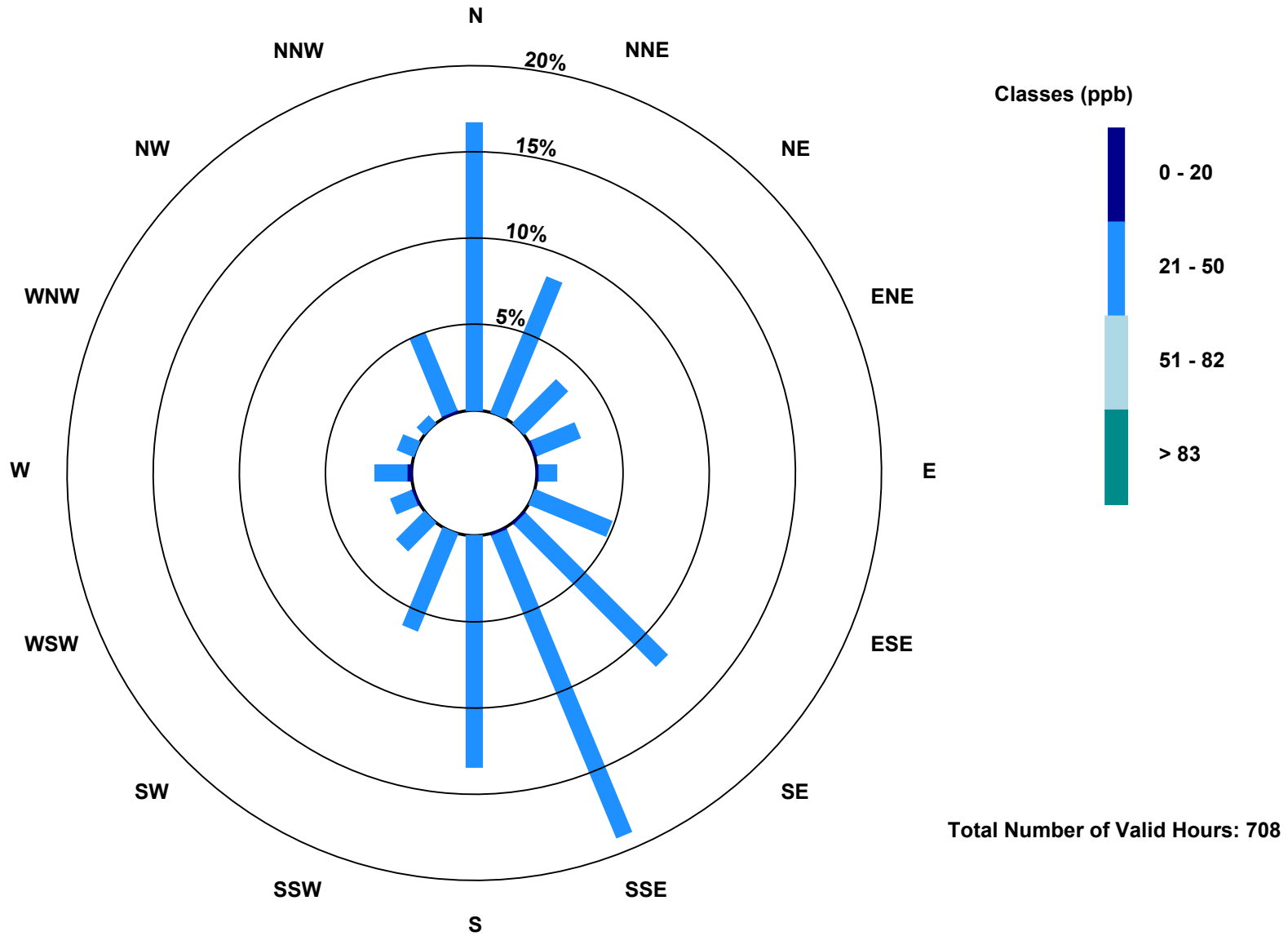
Total Number of Valid Hours: 708

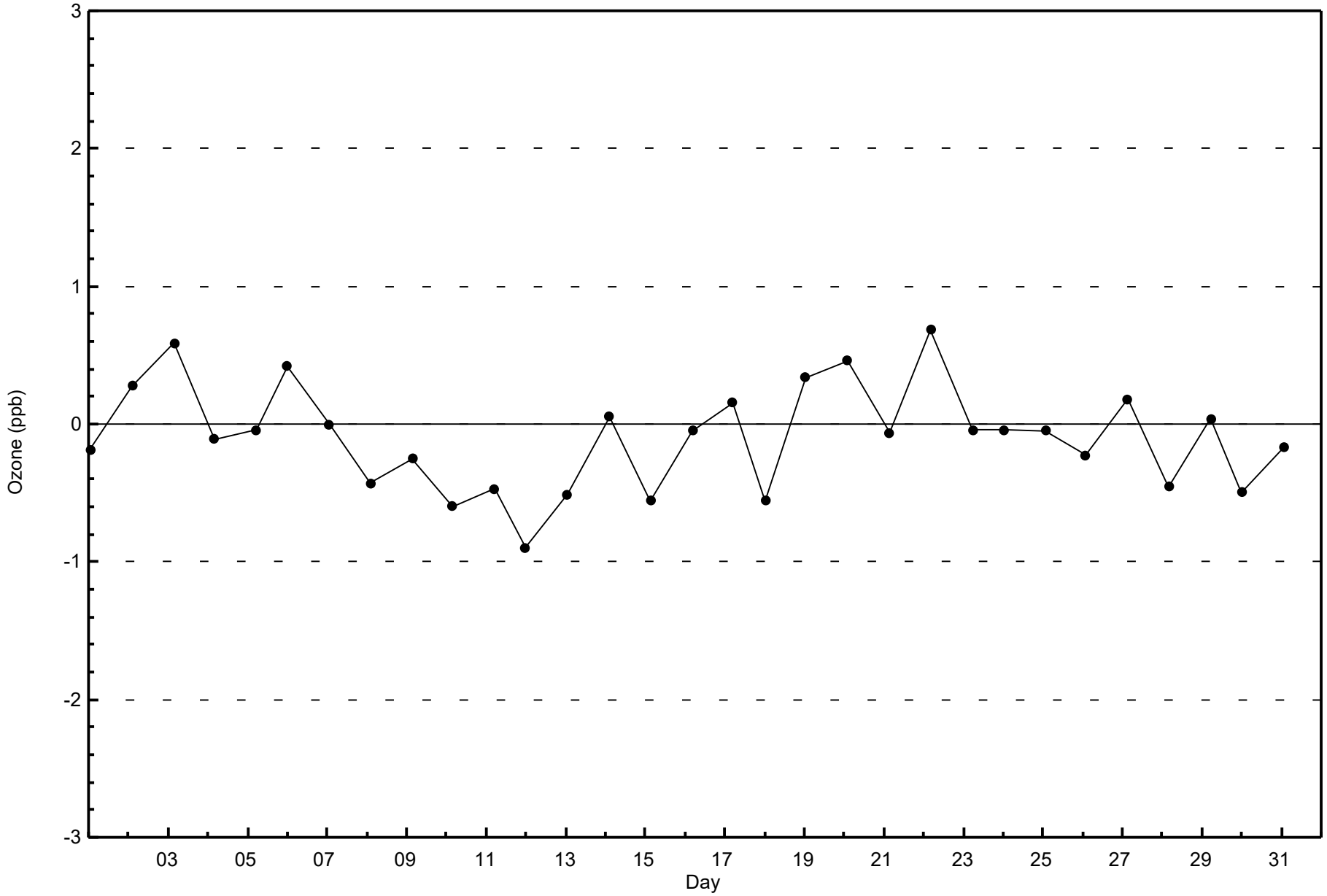
Total Number of Hours: 744

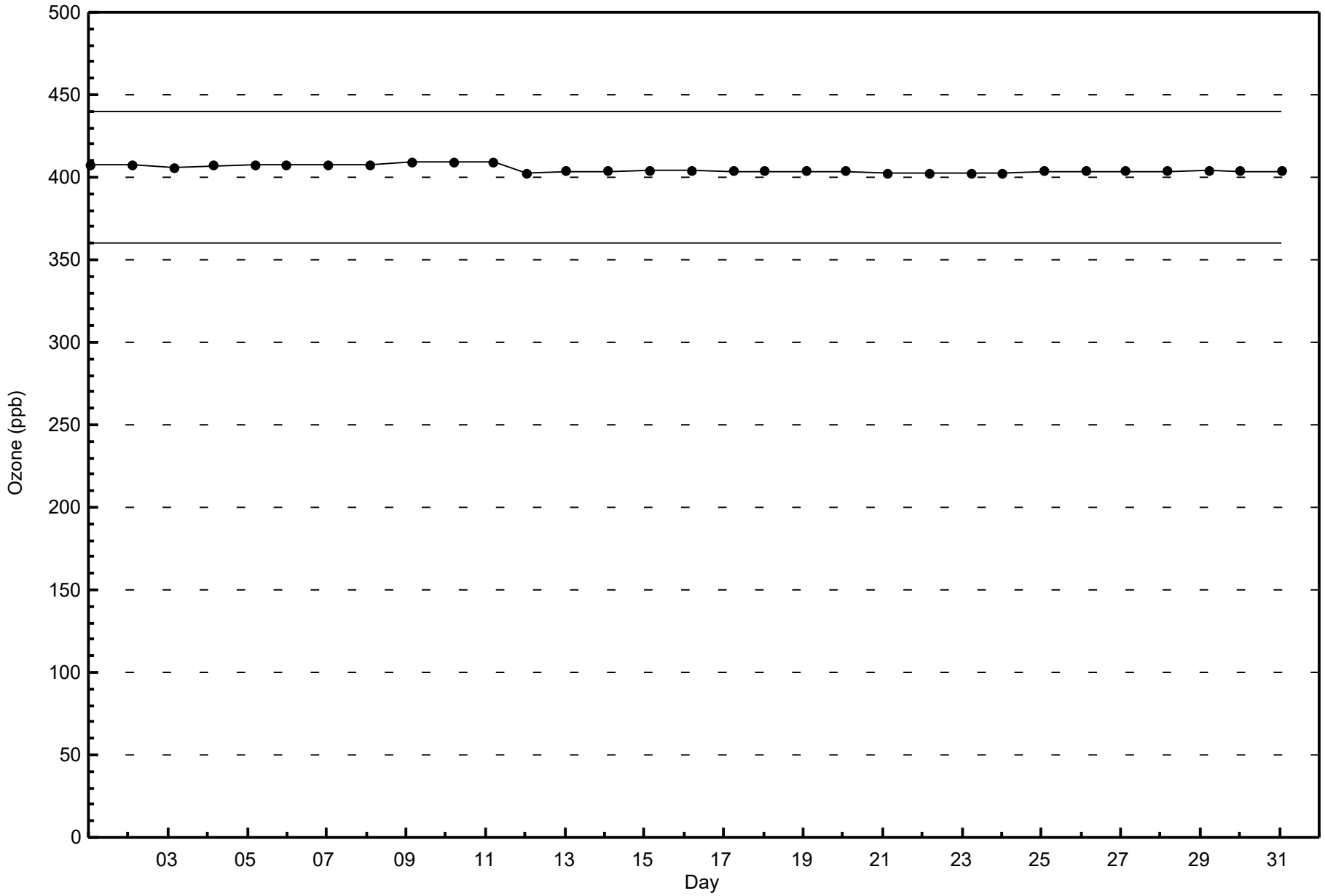


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Wapasu









Wood Buffalo Environmental Association
Summary of Hour Averages

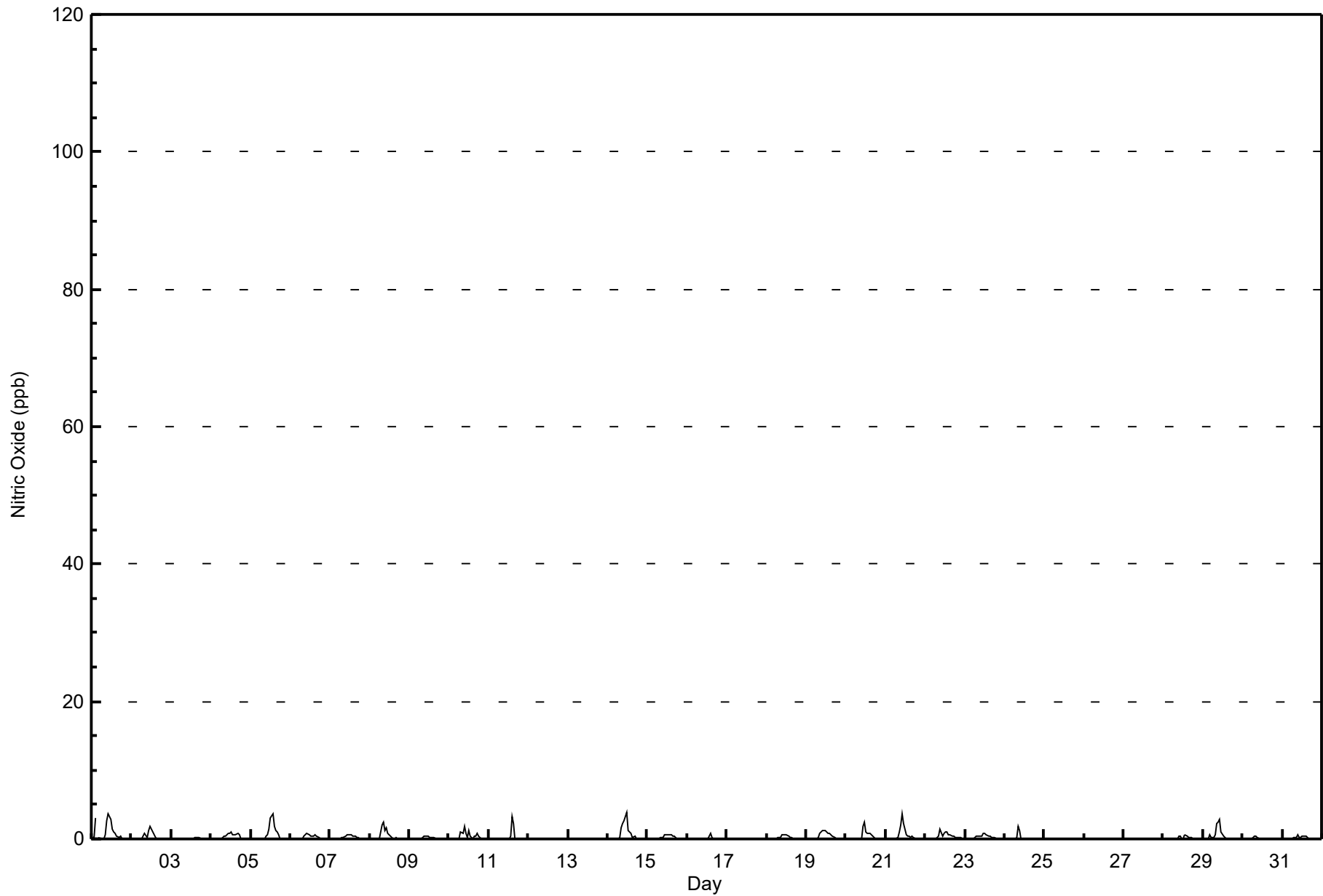
Nitric Oxide (NO) - ppb
Wapasu - March 2024

Maximum Value: 3.9 ppb on Mar 14 12:00		Maximum Daily Average: 0.8 ppb on Mar 1		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 07:00		Minimum Daily Average: 0.0 ppb on Mar 26		Hours of Data: 709																						
Maximum Diurnal Average: 0.8 ppb at hour 11		Minimum Diurnal Average: 0.0 ppb at hour 24		Hours of Missing Data: 35																						
Monthly Average: 0.24 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.7 P ₉₉ = 2.9		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-Mar	0.2	0.1	3.0	Z	0.1	0.0	0.0	0.0	0.7	2.7	3.6	2.9	1.5	1.0	0.8	0.5	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.6
2-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.4	0.8	0.2	1.1	1.9	1.5	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9
3-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3
4-Mar	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.4	0.5	0.8	0.8	1.0	0.6	0.6	0.7	0.8	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.3	1.0
5-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	1.4	3.1	3.6	1.9	1.3	1.0	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.6	3.6
6-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.8	0.5	0.5	0.5	0.5	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.8
7-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.5	0.5	0.7	0.5	0.6	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
8-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	2.1	2.4	1.3	1.6	0.9	0.6	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4
9-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
10-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.8	1.7	0.8	0.1	1.3	0.4	0.1	0.4	0.4	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.4	1.7
11-Mar	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	3.2	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.2
12-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
13-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.1
14-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.3	1.6	2.3	2.6	3.9	1.2	1.0	0.7	0.2	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.6	3.9
15-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.6	0.6	0.7	0.6	0.6	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
16-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
17-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.6	0.6	0.6	0.5	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
19-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.9	1.1	1.1	1.1	1.0	0.7	0.8	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1
20-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	1.8	2.4	1.0	0.8	0.9	0.6	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.4	2.4
21-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	1.1	2.1	3.7	2.2	0.5	0.4	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	3.7
22-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.4	0.4	0.7	1.0	1.1	0.6	0.5	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.3	1.4
23-Mar	0.0	Z	0.0	0.1	0.1	0.1	0.2	0.5	0.3	0.4	0.4	0.8	0.8	0.7	0.3	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.8
24-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	1.9	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	0.1	1.9
25-Mar	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
26-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.0	0.1	0.7	0.5	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
29-Mar	0.0	Z	0.0	0.0	0.6	0.2	0.3	0.7	2.2	2.4	2.8	1.1	0.5	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.8
30-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
31-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.5	0.3	0.2	0.4	0.3	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Wapasu - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Wapasu - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Wapasu - March 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	120	62	25	20	8	31	86	131	94	43	17	10	15	7	4	35	708
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
Totals	120	62	25	20	8	31	86	131	94	43	17	10	15	7	4	35	708

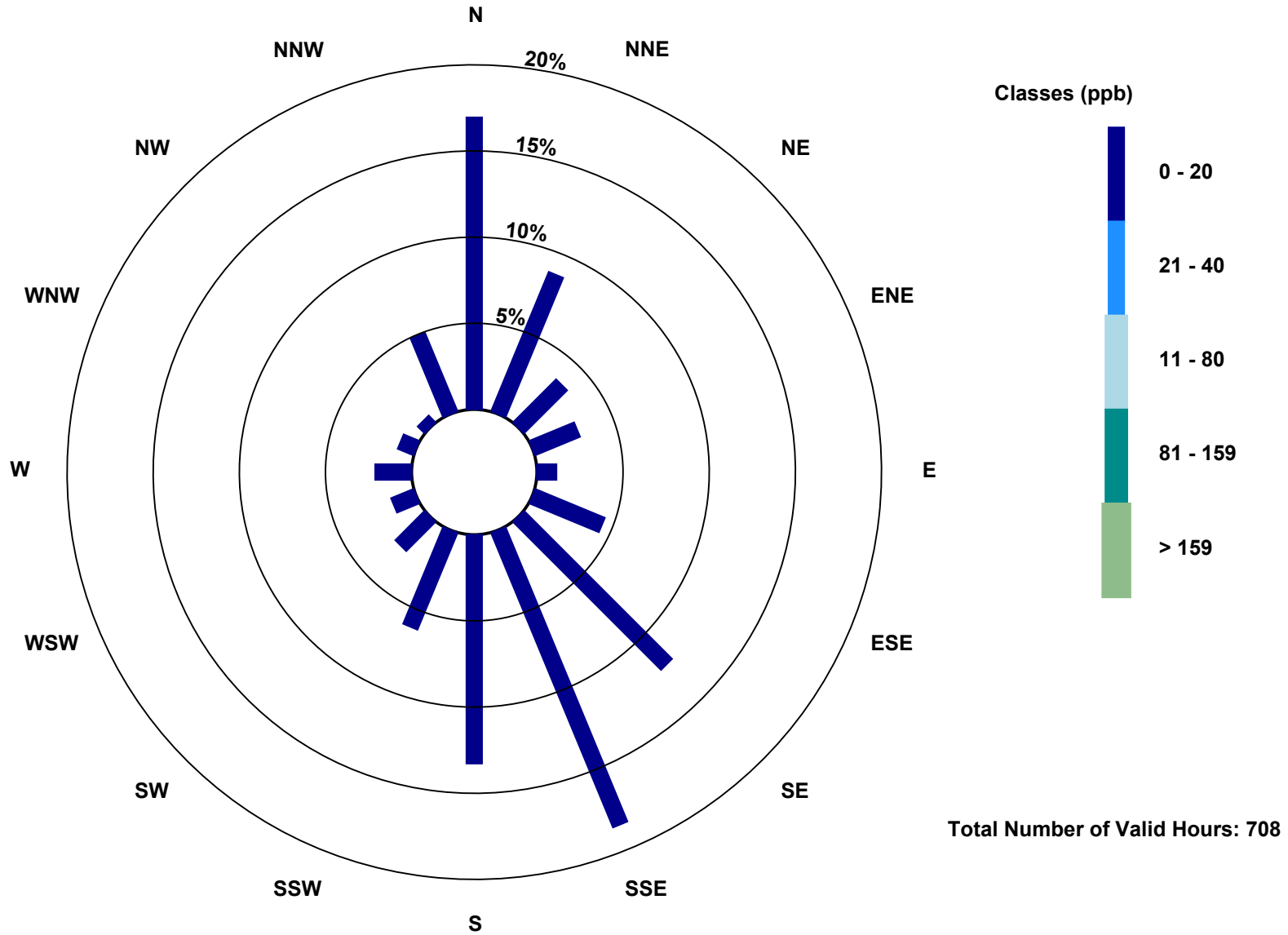
Total Number of Valid Hours: 708

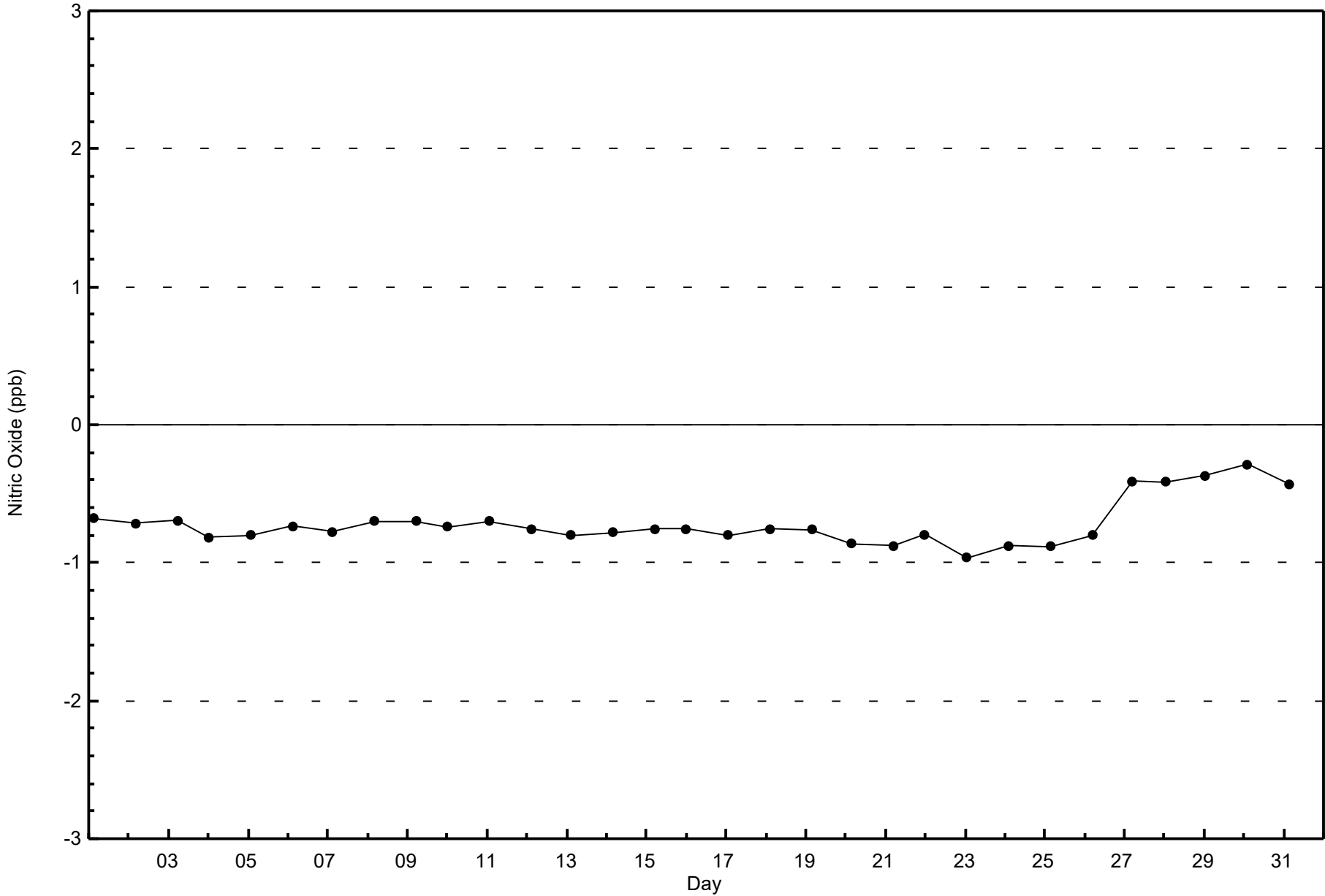
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Wapasu

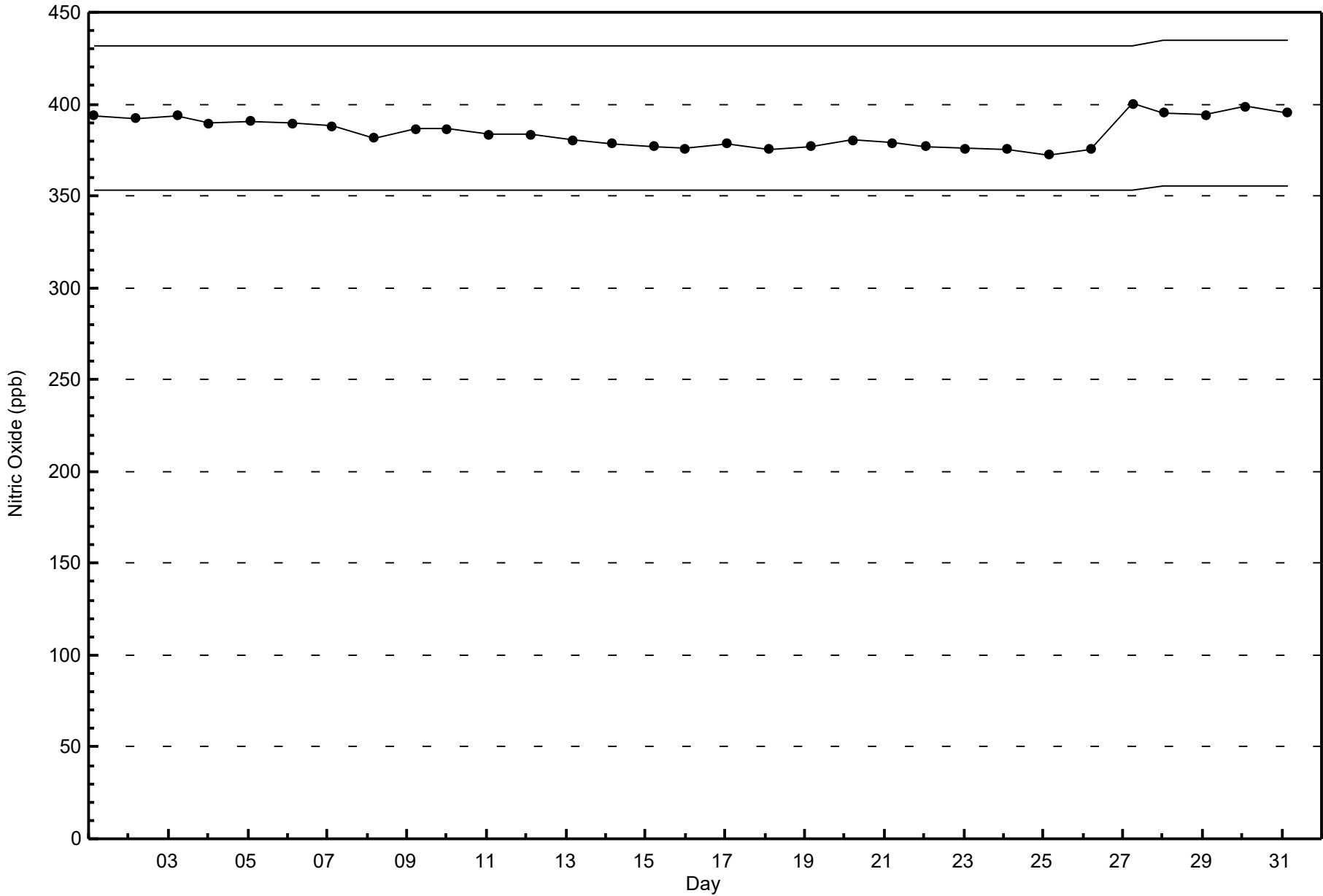






Wood Buffalo Environmental Association
Span Responses

Nitric Oxide (NO) - ppb
Wapasu - March 2024





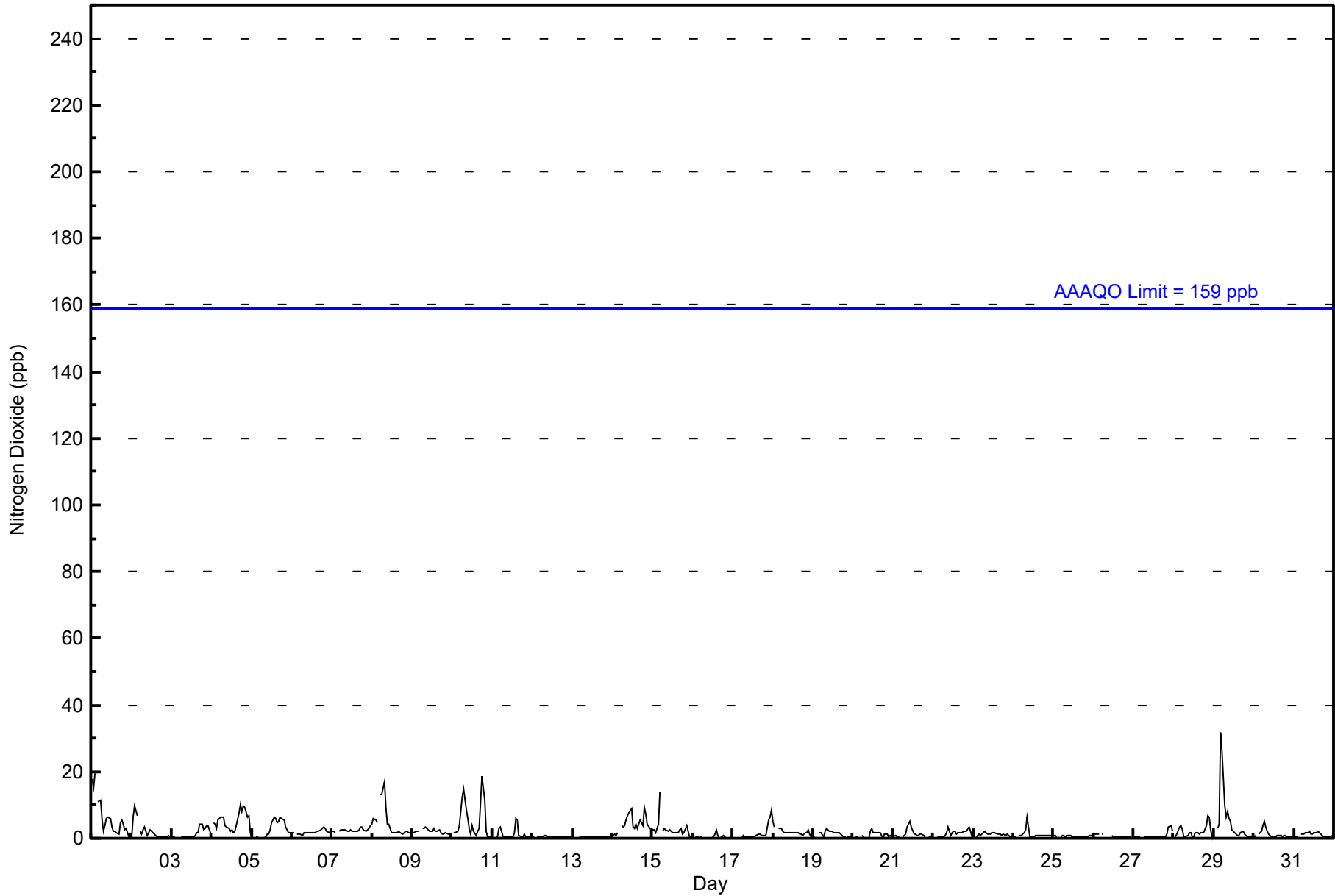
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Wapasu - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 31.7 ppb on Mar 29 05:00		Maximum Daily Average: 5.9 ppb on Mar 1		Hours of Data:														709								
Minimum Value: 0.1 ppb on Mar 16 22:00		Minimum Daily Average: 0.4 ppb on Mar 12		Hours of Missing Data:														35								
Maximum Diurnal Average: 3.7 ppb at hour 6		Minimum Diurnal Average: 1.2 ppb at hour 24		Hours of Calibration:														35								
Monthly Average: 2.10 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 1.3 Q ₃ = 2.4 P ₉₀ = 4.7 P ₉₉ = 14.9		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-Mar	17.7	15.3	19.5	Z	10.9	11.4	5.7	2.1	3.7	5.9	6.5	5.8	3.3	2.2	2.2	1.8	1.3	4.7	5.3	4.1	2.6	2.8	0.3	0.3	5.9	19.5
2-Mar	0.4	6.3	9.8	6.9	Z	2.1	1.1	2.5	3.3	0.9	1.9	2.6	2.1	1.6	0.7	0.4	0.3	0.3	0.4	0.3	0.3	0.5	0.7	0.4	2.0	9.8
3-Mar	0.3	0.3	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.0	1.9	1.6	4.3	4.3	2.4	3.0	3.8	3.9	1.4	1.4	4.3
4-Mar	Z	4.7	4.2	3.0	5.4	6.5	6.3	6.5	3.8	3.4	3.1	2.2	2.6	1.7	2.1	4.0	7.5	10.1	8.2	9.6	9.4	6.5	6.7	1.6	5.2	10.1
5-Mar	0.4	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.5	1.3	1.4	2.7	4.5	6.5	5.9	4.7	5.2	6.5	6.0	5.4	3.4	2.5	1.8	1.5	2.7	6.5
6-Mar	1.5	1.6	Z	1.2	1.2	1.3	1.0	1.6	1.6	1.9	1.9	1.5	1.5	1.5	1.7	2.0	2.2	2.7	2.8	3.2	2.8	2.0	1.7	2.0	1.8	3.2
7-Mar	2.1	2.0	1.7	Z	2.1	2.5	2.7	2.7	2.4	2.2	2.3	2.4	2.2	2.2	2.2	2.3	2.5	3.3	3.3	2.5	2.0	2.4	2.8	3.8	2.5	3.8
8-Mar	4.4	6.0	5.3	4.8	Z	13.0	13.1	16.9	9.3	4.4	4.3	2.9	1.9	1.9	1.5	1.5	2.2	1.9	1.4	1.6	2.0	2.0	1.8	1.8	4.6	16.9
9-Mar	1.7	1.8	2.0	2.2	2.3	Z	2.9	2.9	3.2	2.8	2.3	2.3	2.1	2.8	2.3	2.3	2.5	1.6	1.3	1.4	1.6	1.3	1.3	1.4	2.1	3.2
10-Mar	Z	1.6	1.5	2.1	3.7	8.0	12.1	15.0	8.5	5.9	3.0	1.4	3.9	2.2	0.9	2.3	2.9	10.6	18.8	11.3	2.2	0.6	0.6	0.5	5.2	18.8
11-Mar	0.5	Z	0.5	0.5	3.1	3.3	0.3	0.5	0.5	0.4	0.3	0.5	0.4	1.6	6.1	5.6	1.0	0.6	0.5	1.2	0.6	0.4	0.4	0.3	1.3	6.1
12-Mar	0.4	0.3	Z	0.4	0.6	0.3	0.3	0.7	1.0	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.4	1.0
13-Mar	0.3	0.2	0.2	Z	0.5	0.3	0.5	0.6	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.4	0.6	0.4	0.4	0.6	0.6	0.4	0.6
14-Mar	0.9	1.1	1.0	1.6	Z	3.7	3.2	3.7	5.5	6.7	7.7	8.9	3.3	2.9	4.2	2.9	5.7	4.5	4.0	9.4	7.3	4.2	3.1	2.7	4.3	9.4
15-Mar	2.6	2.5	1.6	4.3	14.1	Z	2.2	3.1	2.5	2.3	2.4	2.0	1.7	1.5	1.6	1.7	2.5	2.8	1.4	1.6	3.8	2.3	0.4	0.3	2.7	14.1
16-Mar	Z	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.3	2.4	0.9	0.2	0.5	0.7	0.3	0.2	0.1	0.2	0.1	0.4	2.4
17-Mar	0.2	Z	0.2	0.2	0.1	0.1	0.7	0.6	0.6	0.6	0.4	0.4	0.5	0.6	0.8	1.1	1.1	0.9	0.8	0.8	1.0	5.6	6.2	8.6	1.4	8.6
18-Mar	5.1	3.2	Z	3.0	3.0	2.9	2.0	1.8	1.6	1.6	1.7	1.8	1.8	1.8	1.7	1.1	1.1	1.0	1.7	1.8	2.4	1.2	0.6	2.0	5.1	
19-Mar	0.4	0.2	0.2	Z	1.7	1.5	0.5	2.0	2.9	2.7	2.3	2.0	1.9	1.6	1.6	1.6	1.6	0.8	0.3	0.3	0.2	0.3	0.3	0.3	1.2	2.9
20-Mar	0.2	0.2	0.6	0.6	Z	0.9	0.4	0.2	0.2	0.2	2.3	2.9	1.5	1.5	1.6	1.5	1.7	0.7	0.2	1.3	1.2	0.5	0.8	0.6	0.9	2.9
21-Mar	0.5	0.7	0.4	0.3	0.4	Z	0.6	1.4	3.3	4.1	5.1	3.4	1.2	1.1	1.0	1.0	1.2	1.3	0.7	0.2	0.2	0.2	0.5	0.2	1.3	5.1
22-Mar	Z	0.1	0.1	0.3	0.4	0.3	0.4	0.8	1.6	3.5	1.0	1.7	2.0	2.2	1.4	1.5	1.7	1.7	2.0	2.0	2.1	3.4	2.2	0.4	1.4	3.5
23-Mar	0.2	Z	0.3	1.3	1.0	1.1	1.8	2.3	1.2	1.4	1.1	1.9	1.9	1.5	1.1	1.2	1.1	0.9	1.1	1.0	1.1	1.0	0.5	0.5	1.2	2.3
24-Mar	0.5	0.5	Z	0.7	0.8	1.0	1.6	2.6	6.4	3.4	0.6	0.6	0.5	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	1.2	6.4
25-Mar	0.8	0.7	0.5	Z	0.5	0.7	0.8	0.6	0.9	0.9	0.8	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.7	0.8	0.8	0.6	0.9
26-Mar	1.1	1.1	1.1	1.1	Z	1.1	1.1	C	C	C	C	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.6	1.1
27-Mar	0.3	0.3	0.3	0.3	0.3	Z	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	0.5	1.1	3.4	4.0	2.2	0.7	4.0
28-Mar	Z	0.5	1.1	3.5	3.8	2.5	0.5	0.6	1.0	1.7	1.7	0.4	0.5	1.9	1.5	1.3	1.7	1.9	1.5	3.9	6.9	6.3	2.5	0.4	2.1	6.9
29-Mar	2.9	Z	2.8	4.1	31.7	26.4	9.8	6.3	7.9	5.8	5.1	2.5	1.5	1.1	0.8	1.0	1.7	2.1	1.4	0.7	0.6	0.4	0.3	0.3	5.1	31.7
30-Mar	0.5	0.7	Z	1.3	2.1	3.7	5.2	3.4	2.2	1.4	0.6	0.3	0.4	0.5	1.0	0.8	0.7	0.5	0.7	0.8	0.6	0.3	0.3	0.3	1.2	5.2
31-Mar	0.4	0.5	0.6	Z	1.2	1.2	1.3	1.5	1.5	2.0	1.4	1.4	1.8	1.6	2.0	1.9	1.2	0.8	0.6	0.6	0.6	0.6	0.6	1.0	1.1	2.0
1.8 2.0 2.2 1.8 3.5 3.7 2.6 2.8 2.6 2.3 2.1 1.8 1.5 1.6 1.7 1.7 1.8 2.3 2.3 2.3 2.0 1.9 1.5 1.2																								Diurnal Average		
17.7 15.3 19.5 6.9 31.7 26.4 13.1 16.9 9.3 6.7 7.7 8.9 4.5 6.5 6.1 5.6 7.5 10.6 18.8 11.3 9.4 6.5 6.7 8.6																								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 (NO₂) - ppb
Wapasu - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	707	99.72	99.72
21 - 40	2	0.28	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Wapasu - March 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	120	62	25	20	8	31	86	131	94	43	17	10	15	7	4	33	706
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	120	62	25	20	8	31	86	131	94	43	17	10	15	7	4	35	708

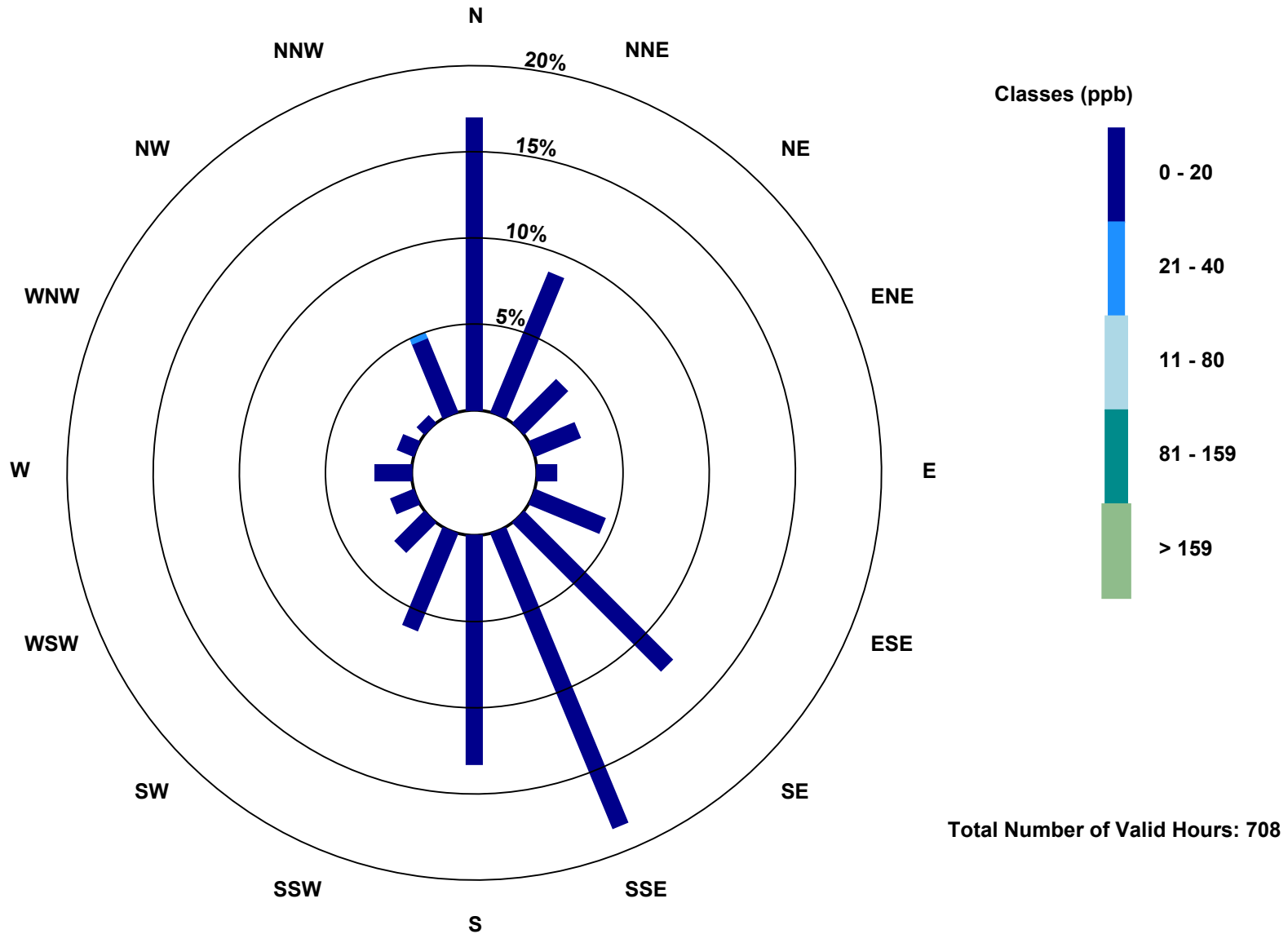
Total Number of Valid Hours: 708

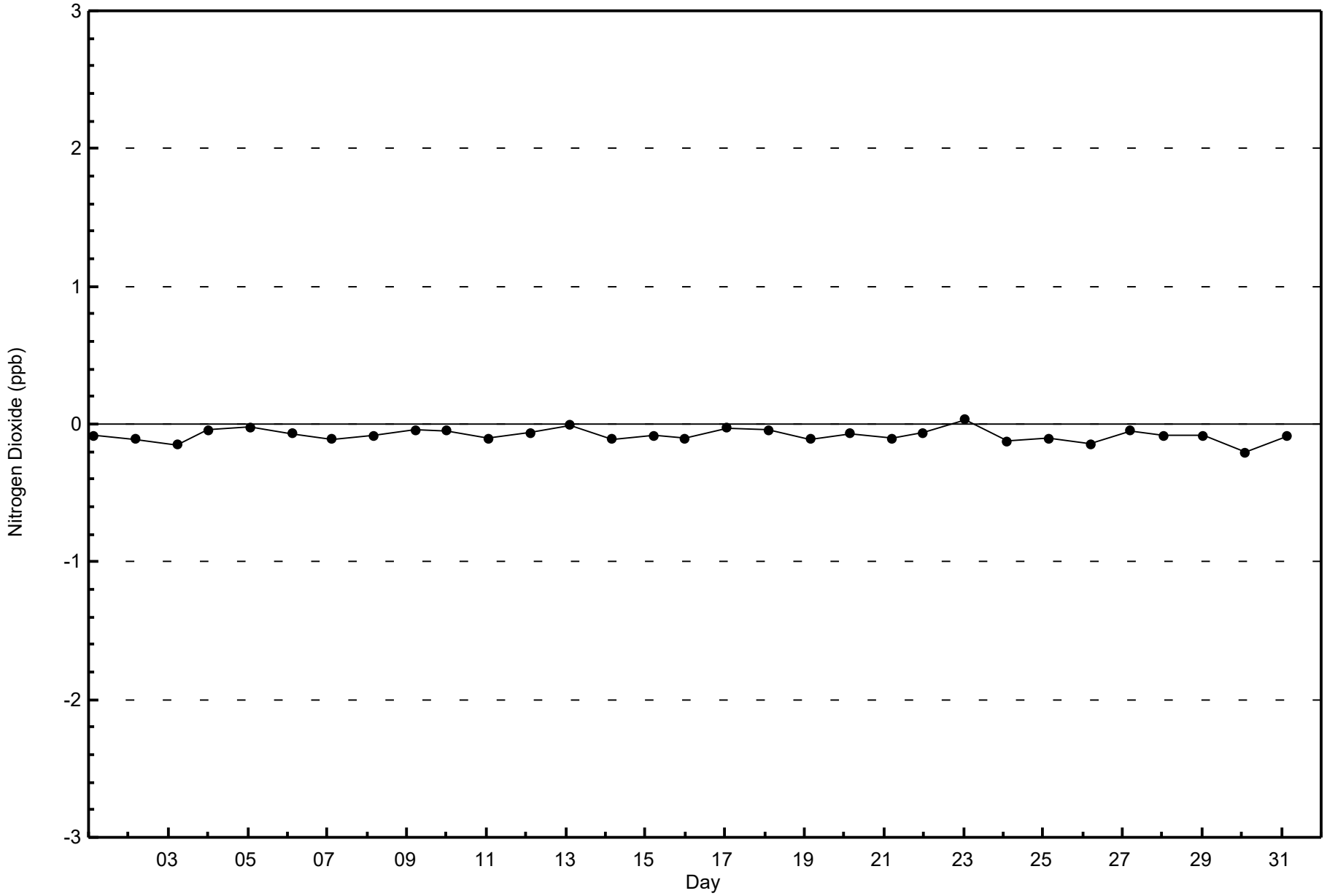
Total Number of Hours: 744

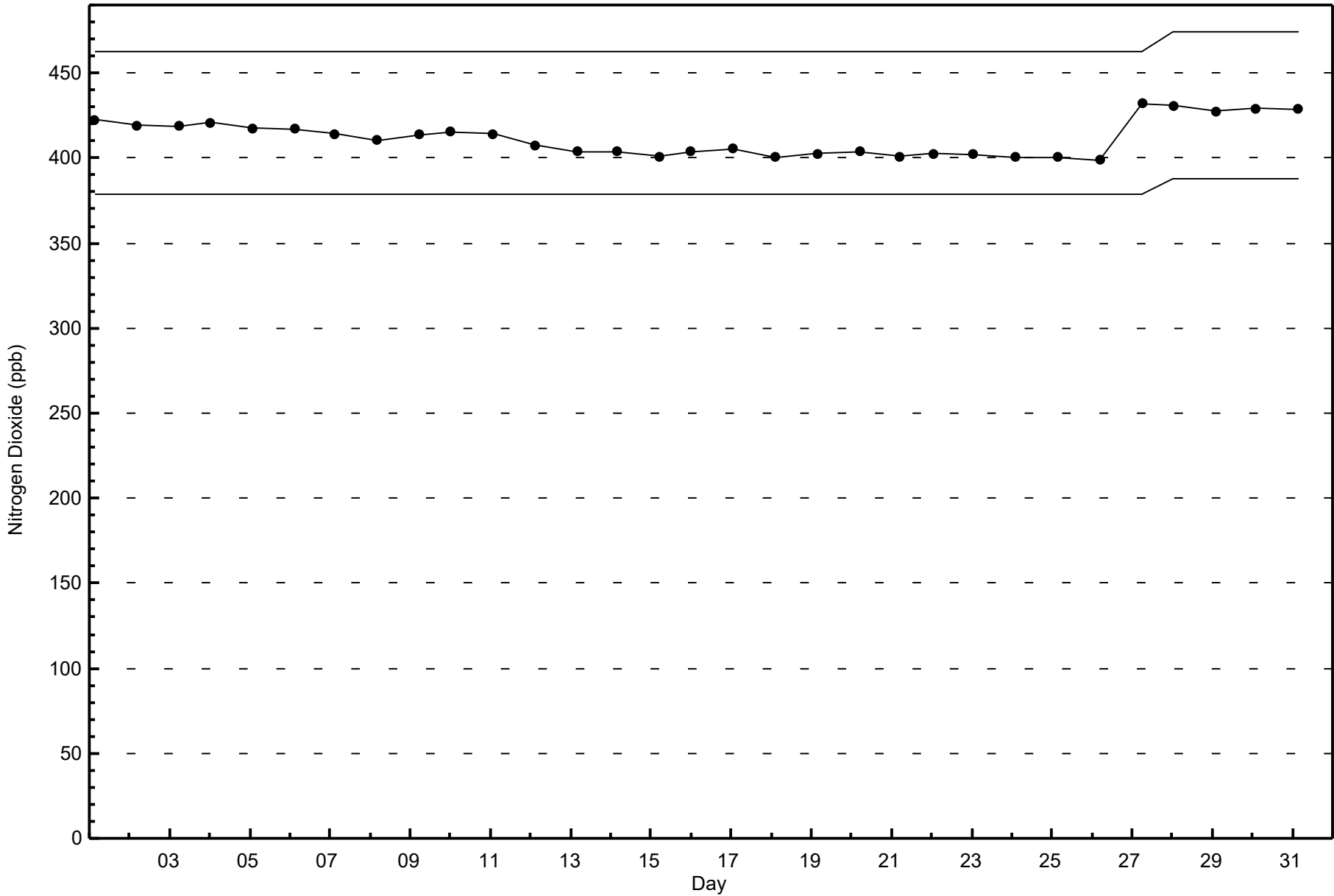


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Wapasu









Wood Buffalo Environmental Association
Summary of Hour Averages

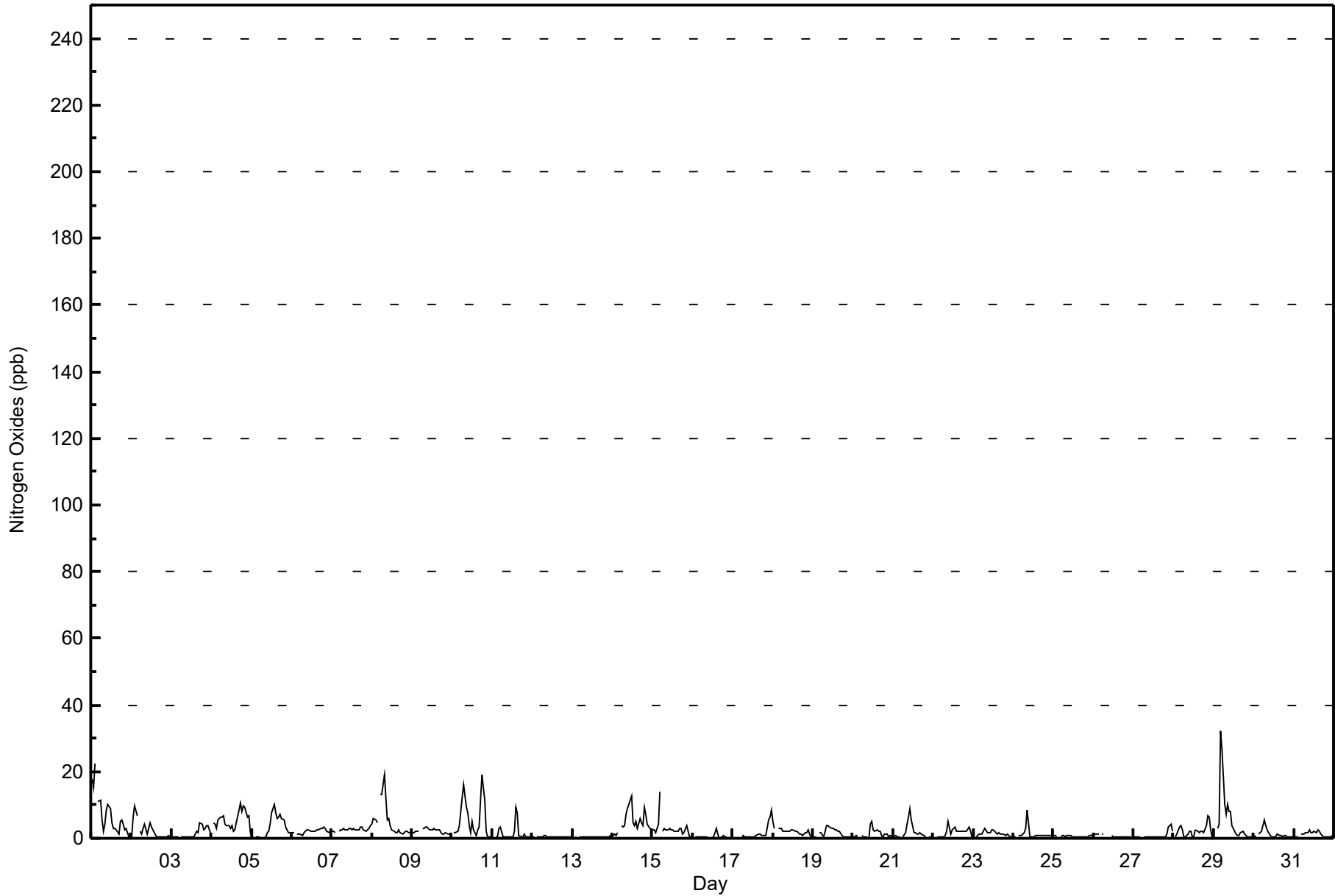
Nitrogen Oxides (NO_x) - ppb
Wapasu - March 2024

Maximum Value: 32.3 ppb on Mar 29 05:00 Maximum Daily Average: 6.7 ppb on Mar 1																				Hours in Service: 744 Hours of Data: 709 Hours of Missing Data: 35 Hours of Calibration: 35 Percent Operational Time: 100.0						
Minimum Value: 0.1 ppb on Mar 17 00:00 Minimum Daily Average: 0.4 ppb on Mar 12 Maximum Diurnal Average: 3.7 ppb at hour 6 Minimum Diurnal Average: 1.2 ppb at hour 24 Monthly Average: 2.34 ppb Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 1.4 Q ₃ = 2.8 P ₉₀ = 5.5 P ₉₉ = 15.3																										
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-Mar	17.9	15.4	22.5	Z	11.0	11.4	5.7	2.1	4.4	8.6	10.1	8.7	4.8	3.2	3.0	2.3	1.4	5.1	5.3	4.1	2.6	2.8	0.3	0.3	6.7	22.5
2-Mar	0.4	6.3	9.8	6.9	Z	2.1	1.1	2.9	4.1	1.1	3.0	4.5	3.6	2.5	0.9	0.5	0.3	0.3	0.4	0.3	0.3	0.5	0.7	0.4	2.3	9.8
3-Mar	0.3	0.3	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	2.2	1.8	4.5	4.3	2.5	3.0	3.8	3.9	1.4	1.4	4.5
4-Mar	Z	4.8	4.2	3.0	5.5	6.5	6.4	6.7	4.2	3.9	3.9	3.0	3.6	2.3	2.7	4.7	8.3	10.7	8.3	9.7	9.5	6.5	6.7	1.6	5.5	10.7
5-Mar	0.5	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.6	1.6	2.0	4.1	7.6	10.1	7.8	6.0	6.2	7.1	6.1	5.5	3.4	2.5	1.8	1.5	3.3	10.1
6-Mar	1.5	1.6	Z	1.2	1.2	1.3	1.0	1.7	1.9	2.5	2.7	2.0	2.0	2.0	2.2	2.6	2.6	2.9	2.9	3.2	2.8	2.0	1.7	2.0	2.1	3.2
7-Mar	2.1	2.0	1.7	Z	2.1	2.5	2.7	2.8	2.7	2.7	2.8	3.1	2.7	2.8	2.7	2.7	2.7	3.4	3.3	2.5	2.0	2.4	2.8	3.8	2.6	3.8
8-Mar	4.4	6.0	5.3	4.8	Z	13.0	13.1	19.0	11.7	5.7	5.9	3.8	2.5	2.2	1.6	1.5	2.4	1.9	1.4	1.6	2.0	2.0	1.8	1.8	5.0	19.0
9-Mar	1.7	1.8	2.0	2.2	2.3	Z	2.9	2.9	3.5	3.2	2.7	2.6	2.4	3.1	2.5	2.4	2.6	1.6	1.3	1.4	1.6	1.3	1.3	1.4	2.2	3.5
10-Mar	Z	1.6	1.5	2.1	3.7	8.0	12.2	16.1	9.3	7.6	3.8	1.5	5.2	2.6	1.0	2.7	3.3	11.4	19.1	11.4	2.2	0.6	0.6	0.5	5.6	19.1
11-Mar	0.5	Z	0.5	0.5	3.1	3.3	0.3	0.5	0.5	0.4	0.3	0.5	0.4	2.1	9.3	7.8	1.0	0.6	0.5	1.2	0.6	0.4	0.4	0.3	1.5	9.3
12-Mar	0.4	0.3	Z	0.4	0.6	0.3	0.3	0.7	1.0	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.6	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.4	1.0
13-Mar	0.3	0.2	0.2	Z	0.5	0.3	0.5	0.6	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.5	0.6	0.4	0.4	0.6	0.6	0.4	0.6
14-Mar	0.9	1.1	1.0	1.6	Z	3.7	3.2	4.0	7.1	9.0	10.3	12.8	4.5	3.9	4.9	3.1	6.0	4.6	4.0	9.5	7.3	4.2	3.1	2.7	4.9	12.8
15-Mar	2.6	2.5	1.6	4.3	14.1	Z	2.2	3.1	2.6	2.6	3.0	2.6	2.4	2.1	2.2	2.1	3.0	3.0	1.4	1.6	3.8	2.3	0.4	0.3	2.9	14.1
16-Mar	Z	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.8	3.1	1.1	0.2	0.5	0.7	0.3	0.2	0.1	0.2	0.1	0.5	3.1
17-Mar	0.2	Z	0.2	0.2	0.1	0.1	0.7	0.6	0.6	0.6	0.4	0.4	0.5	0.6	0.8	1.2	1.1	0.9	0.8	0.8	1.0	5.6	6.2	8.6	1.4	8.6
18-Mar	5.1	3.2	Z	3.0	3.0	2.9	2.0	1.9	1.9	2.2	2.3	2.4	2.4	2.3	2.0	1.9	1.2	1.1	1.0	1.7	1.8	2.4	1.2	0.6	2.1	5.1
19-Mar	0.4	0.2	0.2	Z	1.7	1.5	0.5	2.2	3.8	3.8	3.4	3.1	2.9	2.3	2.4	2.2	2.1	0.9	0.3	0.3	0.2	0.3	0.3	0.3	1.5	3.8
20-Mar	0.2	0.2	0.6	0.6	Z	0.9	0.4	0.2	0.2	0.2	4.1	5.3	2.5	2.3	2.5	2.1	2.2	0.9	0.3	1.3	1.2	0.5	0.8	0.6	1.3	5.3
21-Mar	0.5	0.7	0.4	0.3	0.4	Z	0.6	1.5	4.4	6.2	8.8	5.6	1.7	1.5	1.3	1.3	1.5	1.4	0.8	0.2	0.2	0.2	0.5	0.2	1.8	8.8
22-Mar	Z	0.1	0.1	0.3	0.4	0.3	0.4	0.9	2.0	4.9	1.4	2.4	3.0	3.3	2.0	2.0	2.2	2.1	2.2	2.2	2.2	3.5	2.3	0.5	1.8	4.9
23-Mar	0.2	Z	0.3	1.4	1.1	1.2	2.0	2.8	1.5	1.8	1.5	2.7	2.7	2.2	1.4	1.6	1.4	1.1	1.2	1.0	1.1	1.0	0.5	0.5	1.4	2.8
24-Mar	0.5	0.5	Z	0.7	0.8	1.0	1.6	2.9	8.3	4.6	0.6	0.6	0.5	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	1.3	8.3
25-Mar	0.8	0.7	0.5	Z	0.5	0.7	0.8	0.6	0.9	0.9	0.8	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.7	0.8	0.8	0.7	0.9
26-Mar	1.1	1.1	1.1	1.1	Z	1.1	1.1	C	C	C	C	0.7	0.6	0.5	0.5	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.6	1.1
27-Mar	0.3	0.3	0.3	0.3	0.3	Z	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	0.5	1.1	3.4	4.0	2.2	0.7	4.0
28-Mar	Z	0.5	1.1	3.5	3.8	2.5	0.5	0.6	1.1	2.0	2.1	0.4	0.6	2.6	2.0	1.6	2.0	2.0	1.5	3.9	6.9	6.3	2.5	0.4	2.2	6.9
29-Mar	2.9	Z	2.8	4.1	32.3	26.6	10.1	7.0	10.1	8.2	7.9	3.6	2.0	1.3	0.8	1.0	1.8	2.2	1.4	0.7	0.6	0.4	0.3	0.3	5.6	32.3
30-Mar	0.5	0.7	Z	1.3	2.1	3.7	5.4	3.8	2.6	1.6	0.6	0.3	0.4	0.5	1.1	0.8	0.7	0.5	0.7	0.8	0.6	0.3	0.3	0.3	1.3	5.4
31-Mar	0.4	0.5	0.6	Z	1.2	1.2	1.3	1.6	1.7	2.5	1.7	1.6	2.2	1.9	2.4	2.2	1.3	0.8	0.6	0.6	0.6	0.6	0.6	1.0	1.3	2.5
1.8 2.0 2.3 1.8 3.5 3.7 2.6 3.0 3.1 3.0 2.9 2.6 2.1 2.1 2.1 2.0 2.0 2.4 2.3 2.3 2.0 1.9 1.5 1.2																								Diurnal Average		
17.9 15.4 22.5 6.9 32.3 26.6 13.1 19.0 11.7 9.0 10.3 12.8 7.6 10.1 9.3 7.8 8.3 11.4 19.1 11.4 9.5 6.5 6.7 8.6																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Wapasu - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Wapasu - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	706	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: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Wapasu - March 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	120	62	25	20	8	31	86	131	94	43	17	10	14	7	4	33	705
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	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
Totals	120	62	25	20	8	31	86	131	94	43	17	10	15	7	4	35	708

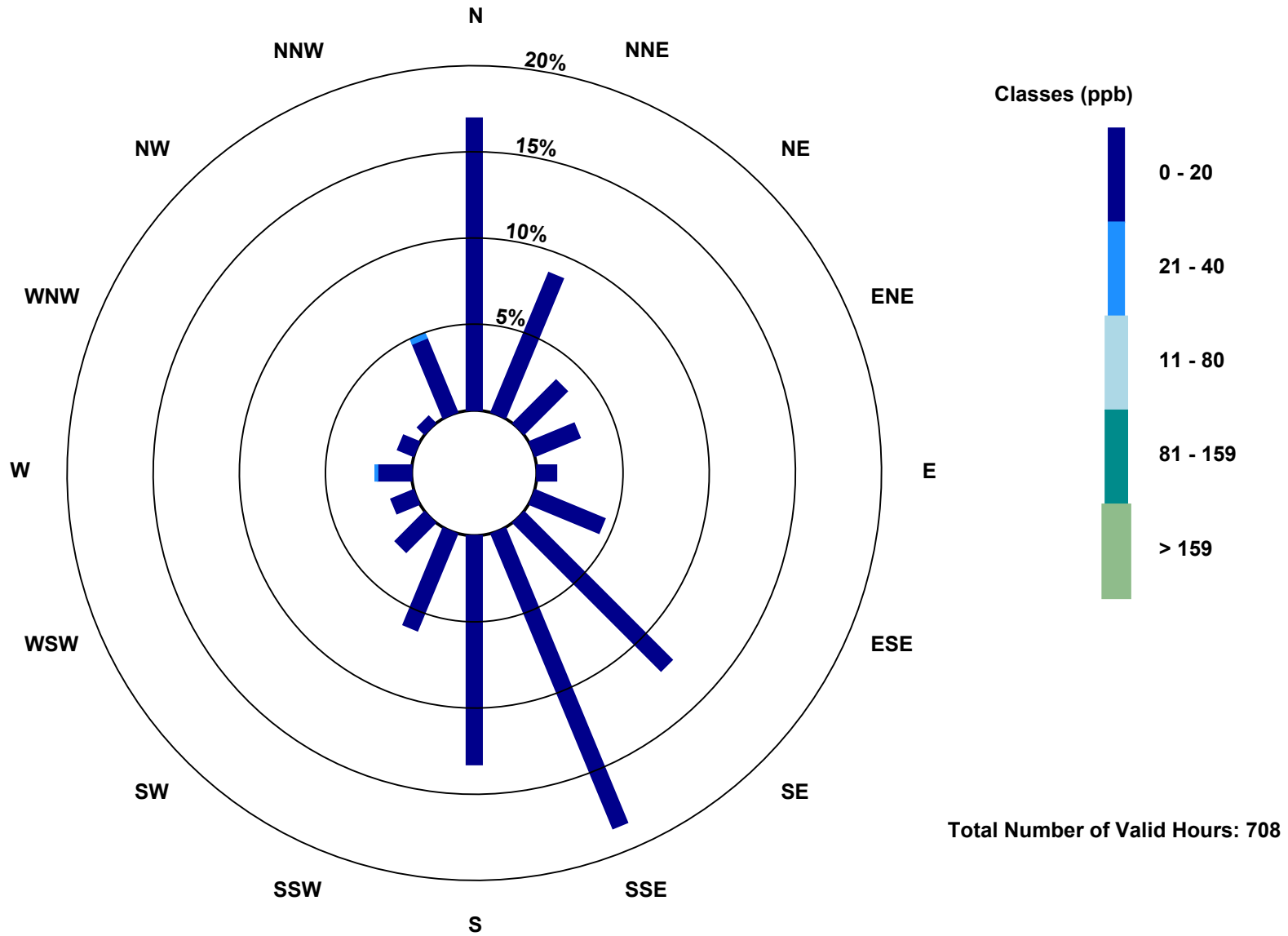
Total Number of Valid Hours: 708

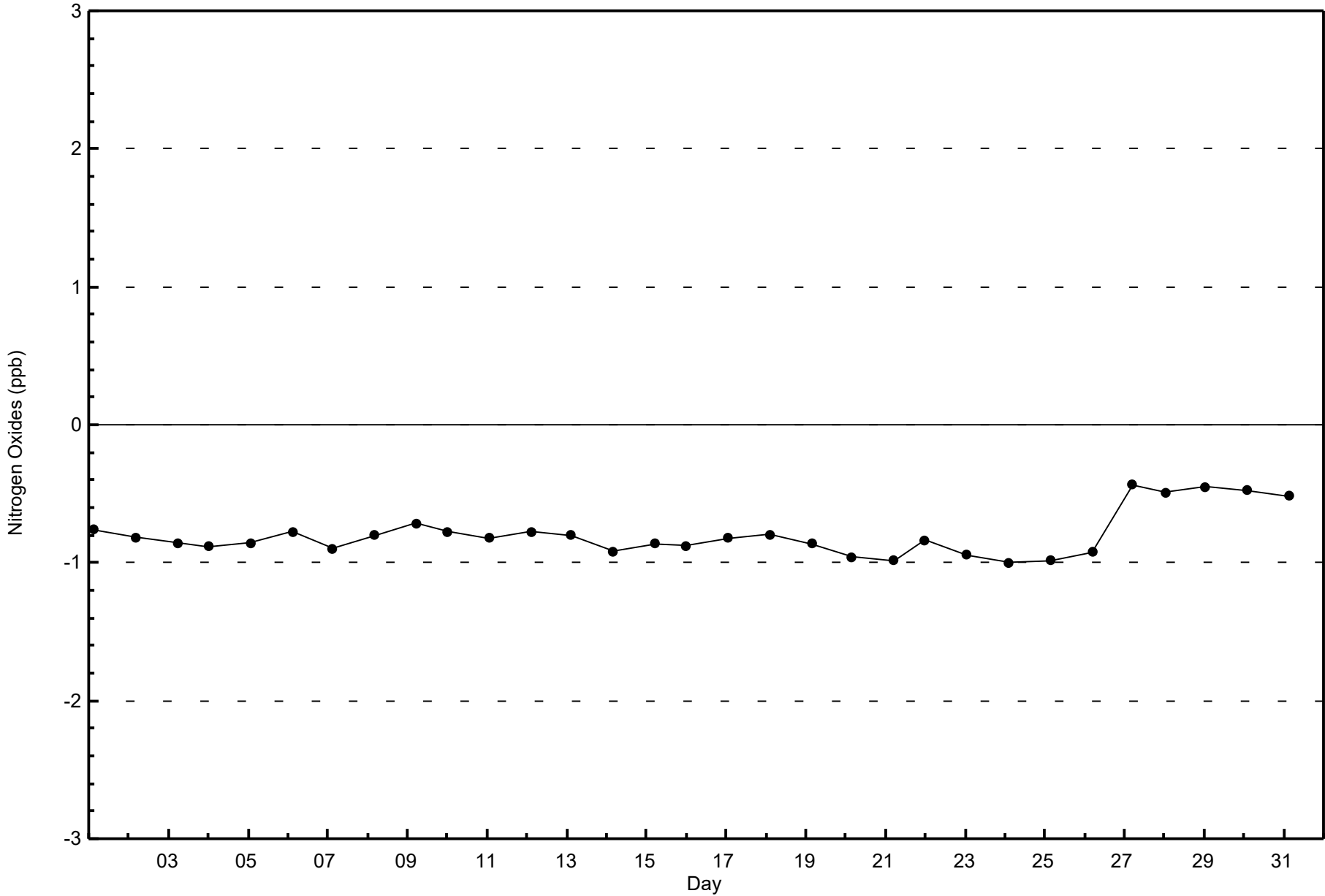
Total Number of Hours: 744

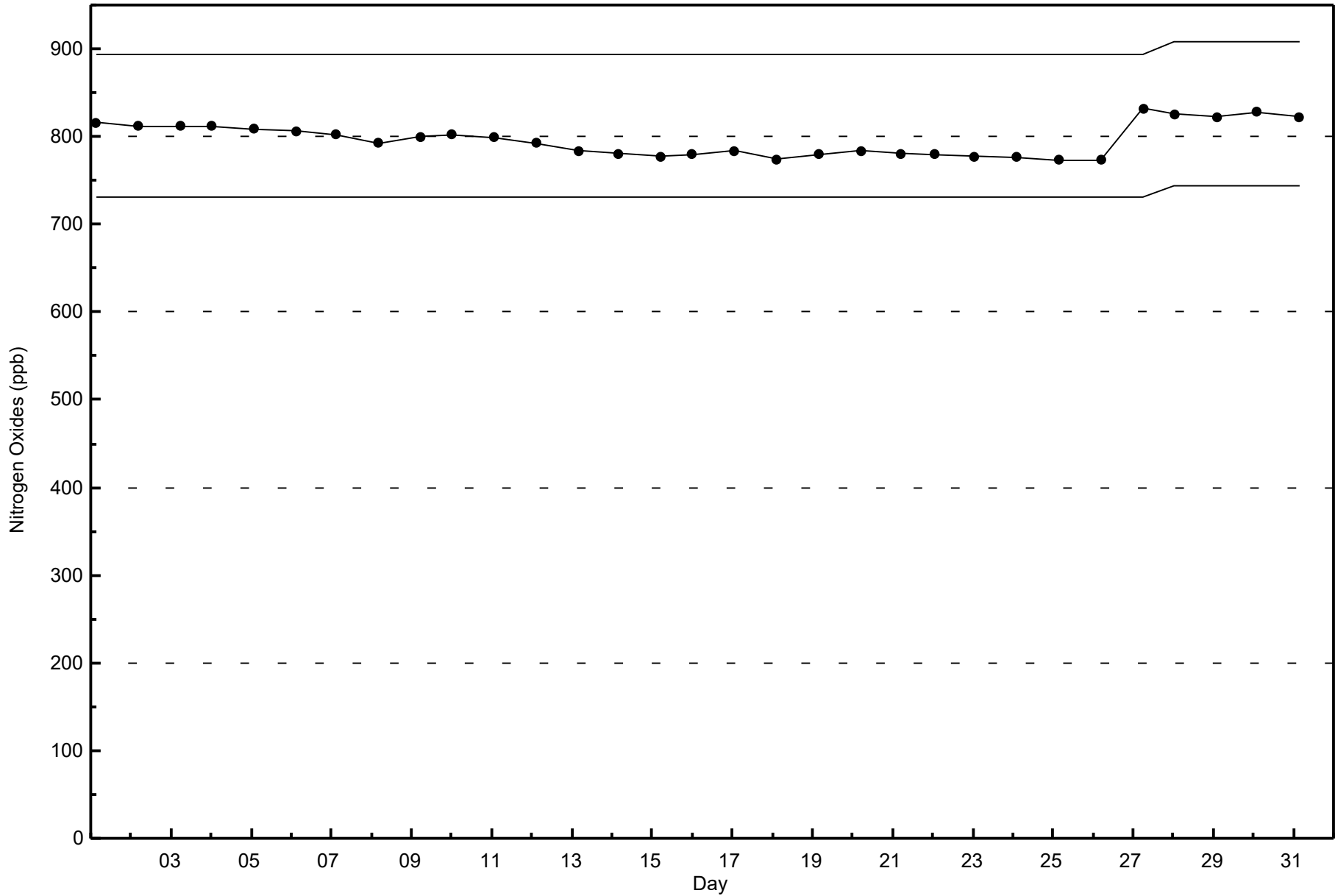


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Wapasu









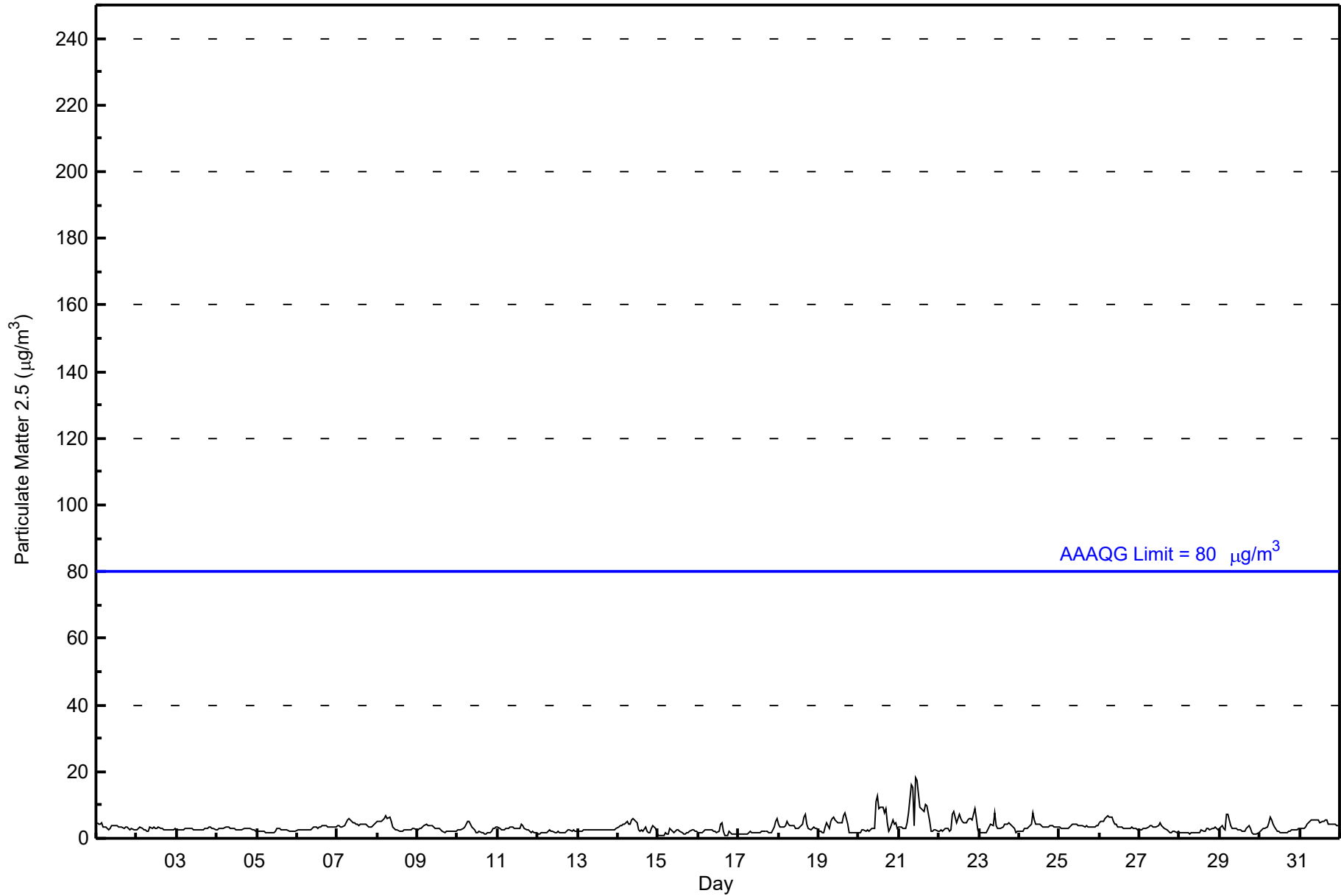
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Wapasu - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:															744																												
Maximum Value: 18.1 µg/m ³ on Mar 21 11:00		Maximum Daily Average: 7.1 µg/m ³ on Mar 21															Hours of Data:		744																														
Minimum Value: 0.7 µg/m ³ on Mar 15 03:00		Minimum Daily Average: 1.8 µg/m ³ on Mar 15															Hours of Missing Data:		0																														
Maximum Diurnal Average: 4.1 µg/m ³ at hour 9		Minimum Diurnal Average: 2.7 µg/m ³ at hour 1															Hours of Calibration:		0																														
Monthly Average: 3.28 µg/m ³		Percentiles: P ₁ = 1.2 P ₁₀ = 1.8 Q ₁ = 2.2 Median = 2.9 Q ₃ = 3.7 P ₉₀ = 5.1 P ₉₉ = 9.6															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-Mar	4.9	4.3	4.3	4.5	3.3	3.4	3.1	2.7	3.0	3.6	3.9	3.8	3.7	3.4	3.4	3.6	3.1	3.2	3.3	3.0	2.6	2.9	2.7	2.7	3.4	4.9																							
2-Mar	2.7	3.1	3.2	2.8	2.4	2.4	2.2	2.3	3.5	3.1	3.2	3.1	3.2	3.2	3.0	2.8	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.8	2.8	3.5																							
3-Mar	2.7	2.7	2.7	2.6	2.7	2.9	2.9	2.9	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.7	2.7	3.0	3.0	3.2	3.3	2.9	2.9	2.7	2.8	3.3																							
4-Mar	2.5	2.8	3.1	3.1	3.1	3.3	3.2	3.2	3.1	3.0	2.9	2.7	2.7	2.5	2.6	2.6	2.8	2.9	2.8	2.8	2.9	2.6	2.5	2.2	2.8	3.3																							
5-Mar	2.0	1.9	2.0	2.0	1.9	1.8	1.8	1.7	1.7	1.8	1.8	2.2	2.8	3.0	2.7	2.4	2.6	2.7	2.5	2.3	2.3	2.2	2.3	2.2	2.2	3.0																							
6-Mar	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.7	2.9	3.4	3.3	3.1	3.5	3.5	3.6	3.7	3.7	3.6	3.4	3.2	3.4	3.4	3.5	3.1	3.7																							
7-Mar	3.8	3.8	3.4	3.6	3.9	4.6	5.4	5.8	5.3	4.8	4.5	4.3	4.1	3.8	4.1	4.2	4.2	4.1	3.7	3.4	3.5	3.9	4.3	4.7	4.2	5.8																							
8-Mar	4.9	5.2	5.0	5.3	6.0	6.6	6.0	6.4	4.9	3.5	3.0	2.7	2.7	2.3	2.2	2.3	2.4	2.6	2.7	2.6	2.6	2.8	2.9	2.7	3.8	6.6																							
9-Mar	2.7	3.0	3.2	3.4	4.0	4.3	3.8	3.6	3.9	3.7	3.1	3.1	3.0	3.1	2.7	2.0	1.8	2.0	2.0	2.1	2.0	2.1	2.1	2.2	2.9	4.3																							
10-Mar	2.4	2.6	2.7	2.9	3.3	4.2	5.1	5.2	3.6	3.1	2.4	1.5	1.9	2.0	1.9	1.8	1.2	1.4	1.8	1.8	2.0	3.0	3.0	3.2	2.7	5.2																							
11-Mar	3.5	3.0	2.5	2.4	2.6	3.1	3.1	3.2	3.3	3.2	3.0	3.0	3.0	3.2	4.2	4.0	2.9	2.6	2.4	2.0	1.8	2.0	1.9	1.9	2.8	4.2																							
12-Mar	1.4	1.3	1.6	1.5	1.6	1.8	2.3	2.5	2.2	2.0	1.8	1.7	2.0	1.8	1.5	1.6	1.9	2.1	2.4	2.4	2.1	2.4	2.3	2.2	1.9	2.5																							
13-Mar	2.1	2.2	2.2	2.5	2.6	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.7	2.7	2.9	2.6	2.9																							
14-Mar	3.2	3.6	3.8	4.2	4.4	4.9	4.3	4.2	5.7	6.0	5.6	4.5	2.4	2.3	2.5	2.3	3.4	2.3	1.6	1.9	2.9	3.8	3.2	1.7	3.5	6.0																							
15-Mar	0.9	1.0	0.7	0.9	1.5	1.3	1.3	2.8	2.6	1.8	2.1	2.5	2.6	2.1	1.8	1.3	1.4	1.6	1.8	2.1	2.7	2.6	2.0	2.0	1.8	2.8																							
16-Mar	1.8	1.9	1.9	2.1	2.4	2.6	2.7	2.7	2.5	2.2	2.0	1.7	2.1	4.0	4.6	2.1	1.0	1.0	2.1	1.6	1.2	1.2	1.1	1.1	2.1	4.6																							
17-Mar	1.2	1.3	1.3	1.3	1.3	1.3	1.6	2.0	1.8	1.9	1.8	1.7	1.7	1.8	2.0	2.0	1.9	2.2	1.6	1.7	1.9	3.2	5.0	5.7	2.0	5.7																							
18-Mar	4.1	3.3	3.5	3.2	3.9	5.1	4.2	3.7	3.8	3.6	2.9	3.1	3.2	3.7	4.2	6.2	7.4	4.4	3.1	2.7	3.0	3.2	3.0	2.8	3.8	7.4																							
19-Mar	2.1	2.1	1.9	1.9	3.5	4.6	2.8	5.2	5.7	6.3	5.4	4.7	4.6	4.5	4.7	6.9	7.8	4.4	1.7	1.7	1.7	1.8	1.8	1.8	3.7	7.8																							
20-Mar	1.6	1.5	2.4	2.4	2.1	2.3	2.1	2.4	2.9	3.0	10.8	12.8	8.8	9.3	9.3	7.6	8.8	4.7	2.1	3.0	5.3	4.0	4.8	3.1	4.9	12.8																							
21-Mar	3.3	3.2	3.0	2.9	3.2	4.5	7.4	16.0	15.3	3.9	18.1	17.4	9.3	8.9	8.4	8.2	10.2	9.9	5.0	2.1	2.2	2.6	2.7	2.3	7.1	18.1																							
22-Mar	2.3	2.5	2.2	2.7	3.1	2.8	2.3	2.7	7.2	7.9	4.5	6.0	7.2	6.0	4.9	4.6	4.6	5.5	6.1	6.1	5.5	8.8	6.0	2.6	4.8	8.8																							
23-Mar	1.6	1.7	1.9	1.7	1.6	2.3	3.3	4.2	3.6	7.6	4.0	3.1	3.0	3.0	3.5	4.2	4.3	4.4	4.7	4.0	3.6	2.9	1.8	2.1	3.3	7.6																							
24-Mar	2.3	2.2	2.2	2.8	2.8	3.0	4.0	4.2	7.7	5.6	4.1	4.4	4.1	4.0	3.6	3.6	3.6	3.5	3.7	3.7	3.7	3.6	3.5	3.6	3.7	7.7																							
25-Mar	3.5	3.1	3.0	2.9	3.0	3.0	3.5	4.0	4.1	4.4	4.3	3.8	3.7	3.7	3.9	3.5	3.6	3.5	3.3	3.2	3.4	3.4	3.8	3.9	3.6	4.4																							
26-Mar	4.6	5.2	5.3	5.8	6.2	6.7	6.3	6.5	4.9	4.3	4.1	3.5	3.5	3.6	2.9	2.8	3.0	2.8	3.0	3.4	3.0	3.0	2.9	2.7	4.2	6.7																							
27-Mar	2.5	2.7	2.9	3.0	2.9	3.2	3.8	3.7	3.4	3.2	3.2	3.7	4.5	3.7	3.4	2.9	2.7	2.2	1.9	1.9	2.0	1.9	1.9	1.9	2.9	4.5																							
28-Mar	1.7	1.6	1.6	1.7	1.6	1.5	1.3	1.5	1.5	1.7	1.8	1.9	1.9	2.3	2.2	2.2	2.9	3.0	2.7	2.9	3.1	3.3	3.0	2.5	2.2	3.3																							
29-Mar	2.8	3.9	3.1	2.6	7.4	7.2	3.9	3.1	3.1	3.0	2.8	2.6	2.7	2.2	1.9	2.0	2.8	3.6	3.1	1.6	1.4	1.3	1.3	1.8	3.0	7.4																							
30-Mar	2.0	2.7	2.8	3.0	3.4	4.7	6.5	5.6	4.3	3.2	2.3	2.0	1.8	1.9	1.9	1.8	1.9	2.1	2.1	2.5	2.7	2.4	2.4	2.8	2.9	6.5																							
31-Mar	2.9	3.0	3.2	3.6	4.1	4.6	5.1	5.5	5.7	5.4	5.5	5.3	4.5	5.0	5.1	5.6	5.3	4.4	4.2	4.3	4.2	4.0	4.0	4.0	4.5	5.7																							
																								2.7	2.7	2.7	2.8	3.2	3.5	3.6	4.0	4.1	3.7	4.0	3.9	3.5	3.5	3.4	3.6	3.3	2.9	2.7	2.8	3.0	2.9	2.7	Diurnal Average		
																								4.9	5.2	5.3	5.8	7.4	7.2	7.4	16.0	15.3	7.9	18.1	17.4	9.3	9.3	9.3	8.2	10.2	9.9	6.1	6.1	5.5	8.8	6.0	5.7	Diurnal Maximum	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Wapasu - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	686	92.20	92.20
6 - 15	55	7.39	99.60
16 - 25	3	0.40	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Wapasu - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	103	64	26	20	8	33	88	129	97	35	15	10	15	7	3	33	686
6 - 15	18	2	0	1	0	1	3	11	3	8	2	0	1	0	1	3	54
16 - 25	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	123	66	26	21	9	34	91	140	100	43	17	10	16	7	4	36	743

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

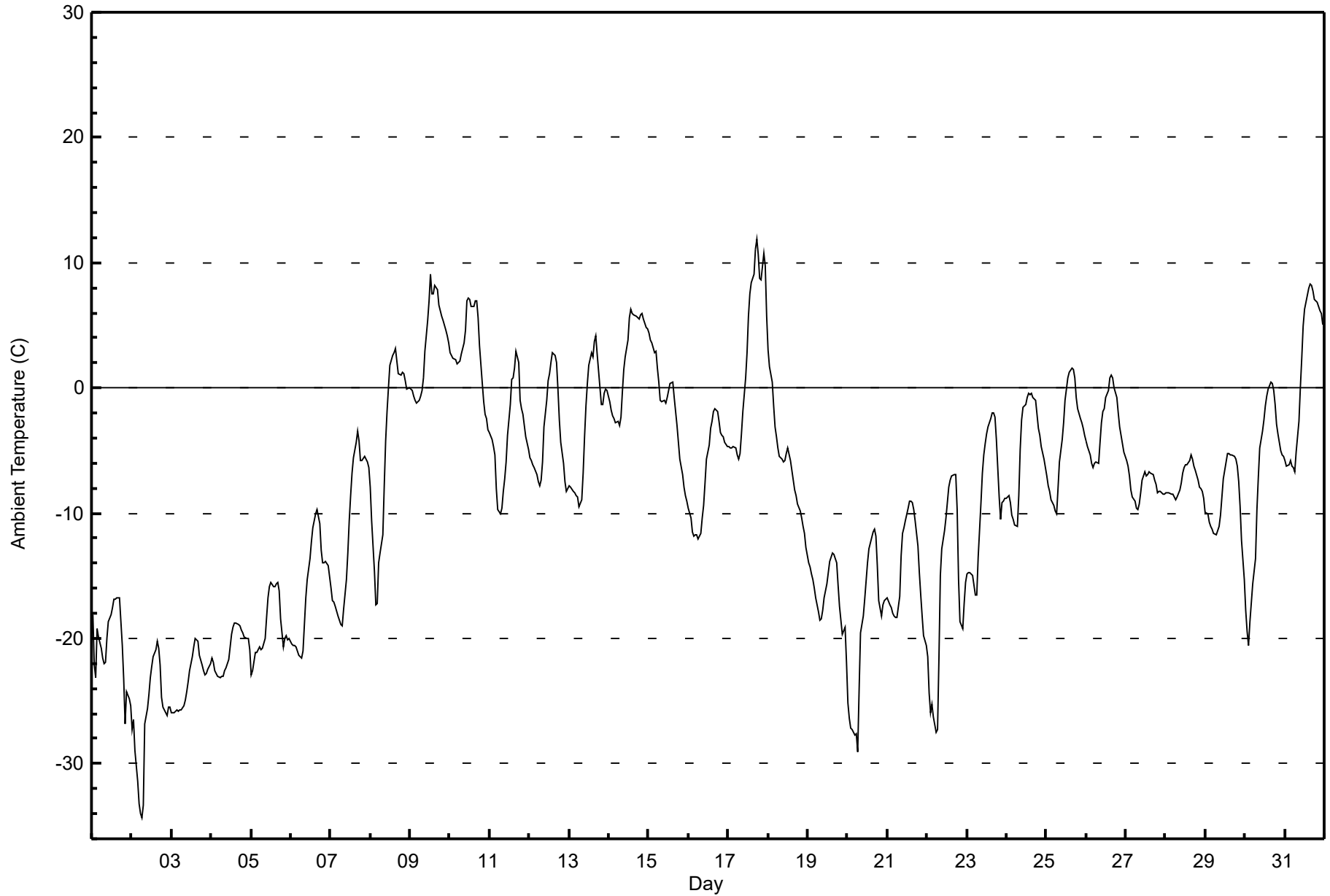
Ambient Temperature (AT) - C
Wapasu - March 2024

Maximum Value: 11.9 C on Mar 17 18:00		Maximum Daily Average: 3.6 C on Mar 9		Hours in Service: 744																						
Minimum Value: -34.3 C on Mar 2 07:00		Minimum Daily Average: -26.2 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -4.0 C at hour 16		Minimum Diurnal Average: -13.4 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -8.72 C		Percentiles: P ₁ = -27.7 P ₁₀ = -21.6 Q ₁ = -16.6 Median = -7.7 Q ₃ = -1.7 P ₉₀ = 2.8 P ₉₉ = 8.7		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-Mar	-18.1	-22.2	-23.1	-19.2	-19.9	-20.8	-21.6	-22.1	-21.9	-20.0	-18.6	-18.1	-17.5	-16.9	-16.9	-16.7	-16.7	-18.7	-20.6	-23.3	-26.9	-24.2	-24.8	-25.3	-20.6	-16.7
2-Mar	-27.3	-26.5	-28.9	-31.5	-33.2	-34.0	-34.3	-33.3	-26.9	-25.5	-24.4	-23.1	-22.2	-21.5	-20.9	-20.3	-20.8	-22.1	-24.7	-25.5	-26.0	-26.1	-25.5	-25.5	-26.2	-20.3
3-Mar	-25.9	-26.0	-25.8	-25.7	-25.8	-25.7	-25.7	-25.4	-24.9	-24.3	-23.4	-22.5	-21.5	-20.6	-20.0	-20.1	-20.3	-21.3	-22.1	-22.6	-22.9	-22.8	-22.4	-22.0	-23.3	-20.0
4-Mar	-21.6	-21.9	-22.6	-22.8	-23.0	-23.1	-23.0	-23.1	-22.6	-22.3	-21.6	-20.7	-19.7	-19.1	-18.7	-18.8	-18.8	-19.0	-19.3	-19.6	-19.9	-20.0	-20.0	-20.8	-20.9	-18.7
5-Mar	-22.9	-22.6	-21.1	-21.1	-20.9	-20.7	-20.9	-20.8	-20.0	-18.3	-16.8	-15.8	-15.5	-15.8	-15.9	-15.6	-15.5	-16.2	-18.5	-20.7	-20.1	-19.8	-20.1	-20.0	-19.0	-15.5
6-Mar	-20.4	-20.6	-20.5	-20.7	-21.0	-21.3	-21.6	-21.0	-18.9	-16.8	-15.3	-13.6	-12.3	-11.2	-10.6	-10.0	-9.7	-10.9	-13.0	-13.9	-13.9	-13.9	-14.1	-15.1	-15.8	-9.7
7-Mar	-15.9	-17.0	-17.1	-17.4	-18.2	-18.5	-18.9	-19.0	-17.7	-15.3	-13.2	-10.6	-8.6	-6.8	-5.6	-4.4	-3.5	-4.2	-5.8	-5.8	-5.5	-5.6	-5.9	-6.3	-11.1	-3.5
8-Mar	-7.9	-10.6	-14.7	-17.3	-17.2	-13.9	-13.2	-11.7	-7.8	-4.3	-1.8	0.0	1.8	2.6	2.8	3.1	2.1	1.1	1.1	1.3	1.1	0.5	-0.1	0.0	-4.3	3.1
9-Mar	-0.1	-0.3	-0.6	-1.0	-1.2	-1.0	-0.6	-0.2	0.8	2.9	5.3	7.0	9.0	7.5	7.5	8.2	7.9	6.6	6.2	5.7	5.4	4.6	4.2	3.6	3.6	9.0
10-Mar	2.8	2.6	2.4	2.2	1.9	2.0	2.2	2.7	3.5	4.6	7.0	7.2	7.0	6.6	6.5	6.9	6.9	5.6	3.4	0.4	-1.1	-2.1	-2.4	-3.3	3.1	7.2
11-Mar	-3.5	-4.1	-4.6	-5.4	-8.1	-9.8	-10.1	-9.7	-8.2	-7.3	-5.9	-3.8	-1.3	0.7	0.8	1.5	2.9	2.1	-1.0	-1.7	-2.1	-2.9	-3.9	-4.9	-3.8	2.9
12-Mar	-5.6	-5.8	-6.1	-6.3	-6.9	-7.5	-7.8	-7.4	-5.9	-3.1	-1.0	0.5	1.1	2.1	2.8	2.6	2.0	-0.1	-2.6	-4.4	-6.0	-7.5	-8.2	-8.0	-3.7	2.8
13-Mar	-7.8	-7.9	-8.2	-8.4	-8.6	-8.7	-9.4	-9.0	-6.8	-3.9	-1.4	0.3	1.8	2.8	2.5	3.7	4.2	2.7	0.1	-1.3	-1.3	-0.5	-0.1	-0.2	-2.7	4.2
14-Mar	-1.1	-1.8	-2.2	-2.4	-2.8	-2.7	-3.0	-2.3	-0.3	1.5	2.5	3.8	5.6	6.3	5.9	5.8	5.7	5.7	5.5	5.8	6.0	5.5	4.8	4.7	2.4	6.3
15-Mar	4.4	3.9	3.6	2.8	3.0	1.6	0.4	-1.0	-1.1	-1.0	-1.2	-0.8	-0.2	0.3	0.5	-0.8	-1.9	-3.0	-4.4	-5.7	-6.9	-8.0	-8.6	-9.1	-1.4	4.4
16-Mar	-9.5	-10.4	-11.6	-11.9	-11.7	-11.8	-12.0	-11.6	-10.3	-9.4	-7.6	-5.7	-4.5	-3.2	-2.7	-1.9	-1.6	-1.8	-2.7	-3.6	-3.8	-3.9	-4.3	-4.7	-6.8	-1.6
17-Mar	-4.7	-4.8	-4.8	-4.7	-4.8	-5.4	-5.7	-5.3	-3.7	-1.9	0.9	2.8	5.8	7.6	8.5	9.0	11.1	11.9	10.6	8.8	8.6	10.8	9.7	5.7	2.8	11.9
18-Mar	3.0	1.6	0.4	-1.4	-3.1	-3.9	-4.7	-5.5	-5.7	-5.9	-5.8	-5.2	-4.8	-5.8	-6.6	-7.4	-8.1	-8.6	-9.2	-9.8	-10.4	-11.0	-11.6	-12.7	-5.9	3.0
19-Mar	-13.9	-14.3	-14.8	-15.3	-16.0	-16.7	-17.9	-18.6	-18.4	-17.8	-16.7	-15.6	-14.8	-13.8	-13.5	-13.2	-13.3	-13.9	-15.8	-17.5	-18.5	-19.7	-19.1	-21.9	-16.3	-13.2
20-Mar	-25.1	-26.4	-27.2	-27.3	-27.7	-27.6	-29.1	-24.2	-19.5	-18.2	-16.9	-15.4	-14.0	-12.8	-12.0	-11.5	-11.3	-11.9	-14.2	-17.0	-18.3	-17.3	-16.9	-16.9	-19.1	-11.3
21-Mar	-16.7	-17.3	-17.6	-18.0	-18.2	-18.3	-18.4	-16.7	-13.4	-11.6	-11.2	-10.6	-9.6	-9.1	-9.0	-9.2	-9.8	-10.6	-12.6	-14.7	-16.5	-18.2	-19.8	-20.5	-14.5	-9.0
22-Mar	-21.5	-24.4	-26.0	-25.3	-26.3	-27.6	-27.3	-21.6	-15.0	-12.8	-11.4	-10.4	-9.1	-8.0	-7.3	-7.1	-6.9	-6.9	-9.7	-15.3	-18.7	-19.2	-17.2	-15.5	-16.3	-6.9
23-Mar	-14.8	-14.7	-14.8	-15.0	-15.8	-16.6	-16.6	-13.5	-9.1	-6.8	-5.3	-4.5	-3.7	-3.1	-2.4	-2.0	-2.0	-2.3	-4.1	-8.8	-10.5	-9.2	-9.1	-8.8	-8.9	-2.0
24-Mar	-8.8	-8.6	-9.2	-10.2	-10.5	-10.9	-11.1	-8.6	-4.9	-2.6	-1.6	-1.3	-0.7	-0.4	-0.5	-0.4	-0.7	-1.0	-2.1	-3.3	-3.8	-4.7	-5.7	-6.3	-4.9	-0.4
25-Mar	-7.0	-7.9	-8.3	-8.9	-9.4	-9.8	-10.1	-8.1	-5.9	-4.1	-2.8	-1.0	-0.1	0.7	1.3	1.6	1.5	0.8	-0.7	-1.7	-2.4	-2.8	-3.3	-3.8	-3.8	1.6
26-Mar	-4.2	-4.6	-5.3	-6.1	-6.4	-6.0	-6.0	-4.4	-2.7	-1.9	-1.6	-0.8	-0.2	0.8	1.0	0.8	0.1	-0.7	-2.0	-3.1	-3.8	-4.4	-5.2	-3.0	1.0	
27-Mar	-5.8	-6.2	-7.0	-8.2	-8.7	-9.0	-9.6	-9.7	-9.3	-8.4	-7.3	-6.7	-7.0	-6.9	-6.6	-6.8	-6.9	-7.3	-7.7	-8.3	-8.3	-8.2	-8.5	-8.5	-7.8	-5.8
28-Mar	-8.3	-8.4	-8.4	-8.5	-8.5	-8.7	-8.9	-8.7	-8.2	-7.6	-6.8	-6.4	-6.2	-6.1	-5.8	-5.4	-5.7	-6.2	-6.6	-7.4	-7.9	-8.0	-8.3	-8.9	-7.5	-5.4
29-Mar	-9.9	-10.0	-10.7	-11.1	-11.3	-11.6	-11.7	-11.3	-11.1	-10.2	-8.7	-7.2	-5.9	-5.2	-5.2	-5.3	-5.3	-5.5	-5.6	-6.2	-7.5	-9.4	-12.2	-15.2	-8.9	-5.2
30-Mar	-17.8	-19.5	-20.5	-18.7	-15.6	-14.7	-13.6	-9.7	-7.1	-4.8	-3.5	-2.5	-1.5	-0.7	0.0	0.5	0.4	-0.2	-1.3	-2.9	-3.6	-5.0	-5.4	-5.4	-7.2	0.5
31-Mar	-5.8	-6.2	-6.1	-5.8	-6.2	-6.3	-6.7	-5.1	-2.7	0.0	2.4	4.9	6.3	7.4	8.0	8.3	8.2	7.8	7.0	6.9	6.5	6.2	6.0	5.1	1.7	8.3
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Wapasu - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Wapasu - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	114	15.32	15.32
-20 - 0	497	66.80	82.12
0 - 10	129	17.34	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

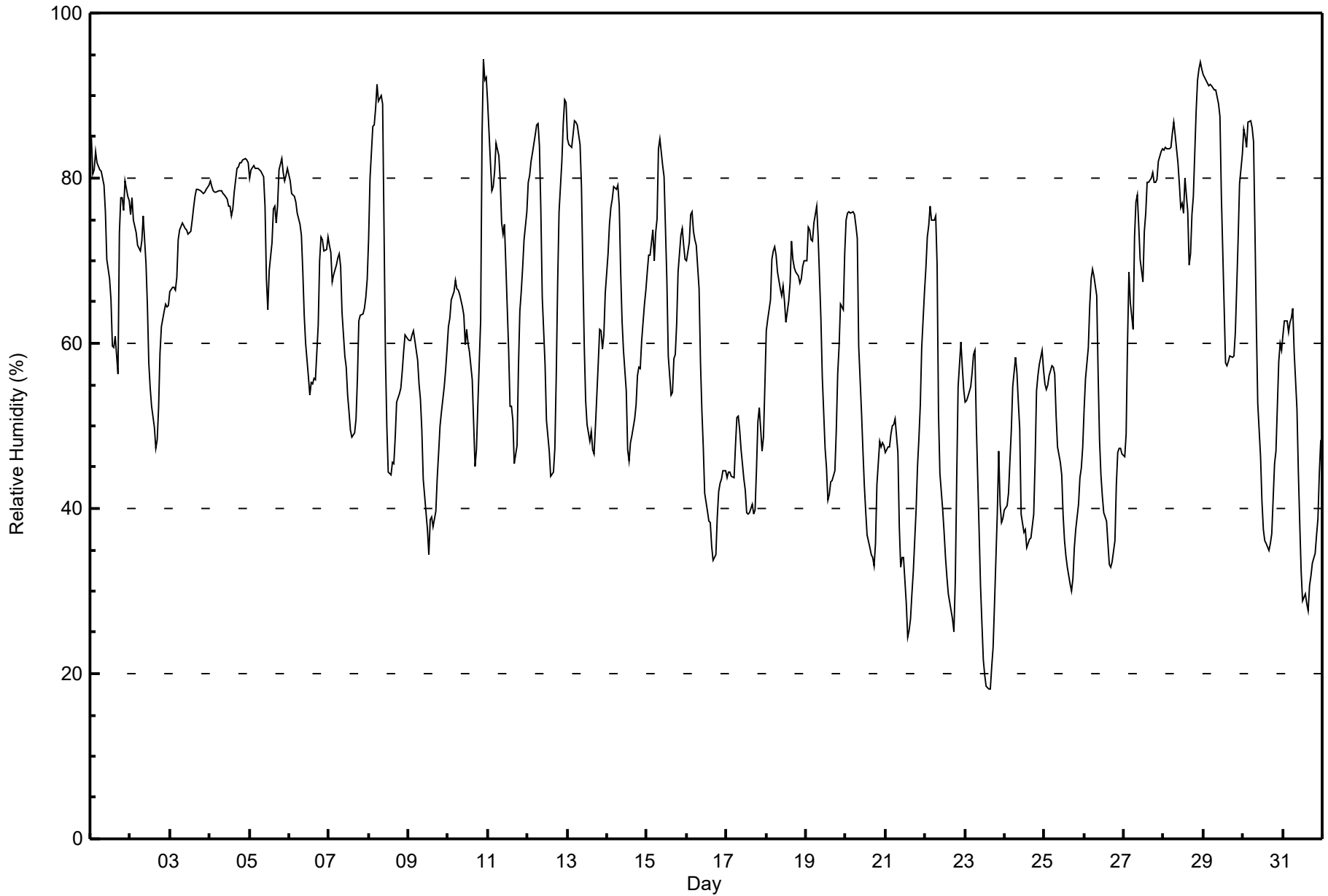
Relative Humidity (RH) - %
Wapasu - March 2024

Maximum Value: 94.4 % on Mar 10 22:00																						Maximum Daily Average: 82.3 % on Mar 28																						Hours in Service: 744			
Minimum Value: 18.2 % on Mar 23 15:00																						Minimum Daily Average: 37.7 % on Mar 23																						Hours of Data: 744			
Maximum Diurnal Average: 73.0 % at hour 7																						Minimum Diurnal Average: 48.2 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 61.47 %																						Percentiles: P ₁ = 24.7 P ₁₀ = 37.8 Q ₁ = 47.5 Median = 62.7 Q ₃ = 75.8 P ₉₀ = 81.9 P ₉₉ = 91.8																						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-Mar	84.9	80.5	81.1	83.2	81.8	81.0	80.8	80.0	79.2	75.9	70.2	67.8	65.3	59.6	59.5	60.9	56.3	73.3	77.6	77.6	76.1	79.7	77.8	77.3	74.5	84.9																					
2-Mar	75.6	77.6	75.0	73.3	71.9	71.5	71.3	72.3	75.5	69.7	64.6	57.6	54.6	52.4	49.8	47.4	48.3	52.2	58.9	62.0	63.8	64.7	64.4	64.6	64.1	77.6																					
3-Mar	66.2	66.7	66.9	66.5	68.0	72.5	73.8	74.6	74.2	73.8	73.7	73.2	73.5	74.9	76.4	77.8	78.7	78.6	78.5	78.3	78.2	78.2	78.7	79.1	74.2	79.1																					
4-Mar	79.7	78.9	78.5	78.3	78.3	78.5	78.6	78.6	78.1	77.9	77.4	76.5	76.6	75.4	76.3	78.4	81.2	81.4	81.8	81.9	82.2	82.3	82.2	81.8	79.2	82.3																					
5-Mar	80.0	81.0	81.6	81.2	81.3	81.1	81.0	80.8	80.1	76.6	67.8	64.1	68.8	72.2	76.2	76.6	74.6	76.9	81.1	82.3	80.7	79.6	80.3	81.2	77.8	82.3																					
6-Mar	79.6	78.2	77.9	77.8	77.1	75.7	74.3	73.1	68.6	63.4	60.1	55.9	53.7	55.3	55.1	55.7	55.5	62.2	70.0	72.8	72.5	71.2	71.4	72.9	67.9	79.6																					
7-Mar	71.8	71.1	67.5	68.3	69.5	70.3	70.9	69.4	63.7	58.5	57.2	53.8	51.7	49.5	48.6	49.1	50.8	55.8	62.6	63.5	63.6	64.3	65.5	67.7	61.9	71.8																					
8-Mar	72.8	80.0	86.2	86.5	88.5	91.4	89.3	89.9	89.1	74.0	58.5	49.9	44.5	44.1	45.5	45.5	48.6	52.8	53.9	54.6	56.5	59.0	61.0	60.5	65.9	91.4																					
9-Mar	60.4	60.3	61.0	61.5	60.4	57.9	55.1	53.3	49.5	43.6	39.4	37.4	34.4	38.6	38.9	37.8	39.7	43.7	46.8	50.0	51.7	54.7	56.7	59.3	49.7	61.5																					
10-Mar	62.0	63.0	65.2	66.3	67.6	66.7	66.4	65.9	64.4	63.4	59.9	61.6	60.0	58.9	55.6	50.3	45.1	47.0	52.6	62.8	85.3	94.4	91.8	92.2	65.4	94.4																					
11-Mar	89.2	81.9	78.4	78.9	80.8	84.3	82.8	79.7	74.6	73.3	74.4	69.5	59.1	52.3	52.4	50.8	45.5	47.6	57.2	63.9	66.2	69.1	72.5	75.9	69.2	89.2																					
12-Mar	79.5	80.4	82.0	83.1	85.3	86.4	86.6	83.9	76.0	65.6	57.4	50.7	48.8	47.0	43.9	44.5	47.3	56.2	67.3	75.9	82.0	86.5	89.6	89.1	70.6	89.6																					
13-Mar	84.7	84.0	83.8	85.2	87.0	86.8	86.5	84.0	79.0	69.0	59.7	53.1	50.1	48.1	49.3	47.2	46.5	50.0	57.6	61.8	61.5	59.2	61.0	66.0	66.7	87.0																					
14-Mar	70.9	74.3	76.5	77.4	79.0	78.6	79.2	76.6	68.7	62.7	59.2	54.3	47.2	45.8	48.0	48.9	50.9	52.6	56.0	57.1	56.9	60.4	64.8	66.5	63.0	79.2																					
15-Mar	68.6	70.7	70.7	73.7	70.0	73.4	75.0	83.6	84.8	81.6	80.2	73.9	67.6	58.5	53.7	54.0	58.2	58.6	62.4	68.6	73.0	74.0	71.9	70.2	69.9	84.8																					
16-Mar	69.9	72.2	75.7	75.9	73.6	72.5	71.9	66.6	57.8	51.9	47.5	41.8	39.7	38.5	38.2	35.4	33.7	34.5	39.0	42.0	43.1	43.5	44.6	44.6	52.3	75.9																					
17-Mar	43.8	44.4	44.5	43.9	43.7	47.7	51.0	51.3	49.6	47.1	43.6	42.2	39.4	39.4	39.4	40.5	39.3	39.8	44.7	50.5	52.2	47.0	48.6	54.9	45.4	54.9																					
18-Mar	61.5	62.9	65.2	70.2	71.1	71.8	70.7	68.7	66.6	65.8	67.0	65.1	62.5	65.0	67.2	72.3	70.2	69.1	68.7	68.2	67.3	67.8	69.4	70.0	67.7	72.3																					
19-Mar	69.9	74.1	73.7	72.6	72.3	74.6	76.7	73.1	68.2	63.1	55.9	47.2	44.9	41.0	41.7	43.2	43.4	44.5	49.5	56.3	59.6	64.7	64.0	70.9	60.2	76.7																					
20-Mar	75.0	75.8	75.9	75.8	75.9	75.6	74.3	72.7	59.6	51.6	47.1	42.9	39.7	36.8	35.2	34.4	34.0	33.0	35.8	42.9	48.1	47.4	47.9	47.7	53.5	75.9																					
21-Mar	46.8	47.4	47.5	49.0	50.0	50.2	50.8	46.7	37.8	32.9	34.1	34.1	28.4	24.3	25.3	26.7	29.7	32.4	39.9	45.2	48.5	52.5	59.6	66.3	41.9	66.3																					
22-Mar	69.2	73.0	74.3	76.6	74.9	75.0	75.4	69.4	51.6	44.3	39.8	37.1	34.1	31.7	29.6	28.6	26.7	25.1	31.3	43.7	54.8	60.2	57.2	54.4	51.6	76.6																					
23-Mar	52.9	53.1	53.6	54.7	56.4	58.7	59.2	50.3	37.3	30.7	26.0	21.6	19.7	18.5	18.2	18.2	20.8	23.2	28.5	39.5	47.0	40.6	38.4	38.7	37.7	59.2																					
24-Mar	39.8	40.3	41.8	45.8	49.5	54.7	58.3	56.4	52.9	49.7	39.4	37.1	37.4	35.3	35.7	36.3	36.4	39.3	45.7	54.3	56.0	57.4	59.2	56.7	46.5	59.2																					
25-Mar	55.0	54.5	54.9	56.0	57.3	57.2	56.4	51.2	47.5	45.6	44.1	39.2	36.2	34.2	33.0	30.9	30.0	31.5	35.3	37.5	40.5	43.8	44.9	47.4	44.3	57.3																					
26-Mar	52.0	55.8	59.5	64.6	67.9	68.9	68.1	65.8	56.3	48.3	44.1	41.6	39.6	38.4	35.7	33.3	32.9	33.6	36.1	42.9	46.8	47.3	47.2	46.6	48.9	68.9																					
27-Mar	46.2	49.0	60.1	68.6	64.9	61.6	72.8	77.1	78.0	74.3	70.1	67.5	73.6	75.7	79.5	79.5	80.0	80.7	79.4	79.5	79.9	82.1	83.2	83.5	72.8	83.5																					
28-Mar	83.5	83.7	83.5	83.6	83.7	85.5	86.8	85.3	81.9	79.3	76.4	77.0	75.7	80.0	76.0	69.6	70.8	75.7	77.9	88.1	91.8	93.2	94.1	93.3	82.3	94.1																					
29-Mar	92.6	91.9	91.5	91.1	91.4	91.2	90.7	90.7	89.8	88.9	87.5	78.0	64.5	57.6	57.2	57.9	58.5	58.2	58.5	61.3	67.0	72.8	79.4	82.9	77.1	92.6																					
30-Mar	85.9	85.1	83.7	86.8	87.0	86.1	84.4	73.8	62.2	52.7	46.3	40.9	37.4	36.1	35.7	34.9	35.7	37.0	41.1	45.4	46.9	57.7	59.9	59.1	58.4	87.0																					
31-Mar	60.9	62.7	62.7	61.4	62.6	63.0	64.3	59.0	52.1	44.4	38.2	32.4	28.8	29.7	28.5	27.6	30.7	31.9	33.3	34.6	36.8	38.8	44.4	48.2	44.9	64.3																					
																						68.7	69.5	70.3	71.5	71.9	72.6	73.0	71.1	66.3	61.3	57.0	53.1	50.2	48.9	48.6	48.2	48.4	50.9	55.1	59.5	62.5	64.3	65.5	66.8	Diurnal Average	
																						92.6	91.9	91.5	91.1	91.4	91.4	90.7	90.7	89.8	88.9	87.5	78.0	76.6	80.0	79.5	79.5	81.2	81.4	81.8	88.1	91.8	94.4	94.1	93.3	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Wapasu - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Wapasu - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	4	0.54	0.54
20 - 40	99	13.31	13.84
40 - 60	238	31.99	45.83
60 - 80	297	39.92	85.75
80 - 100	106	14.25	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



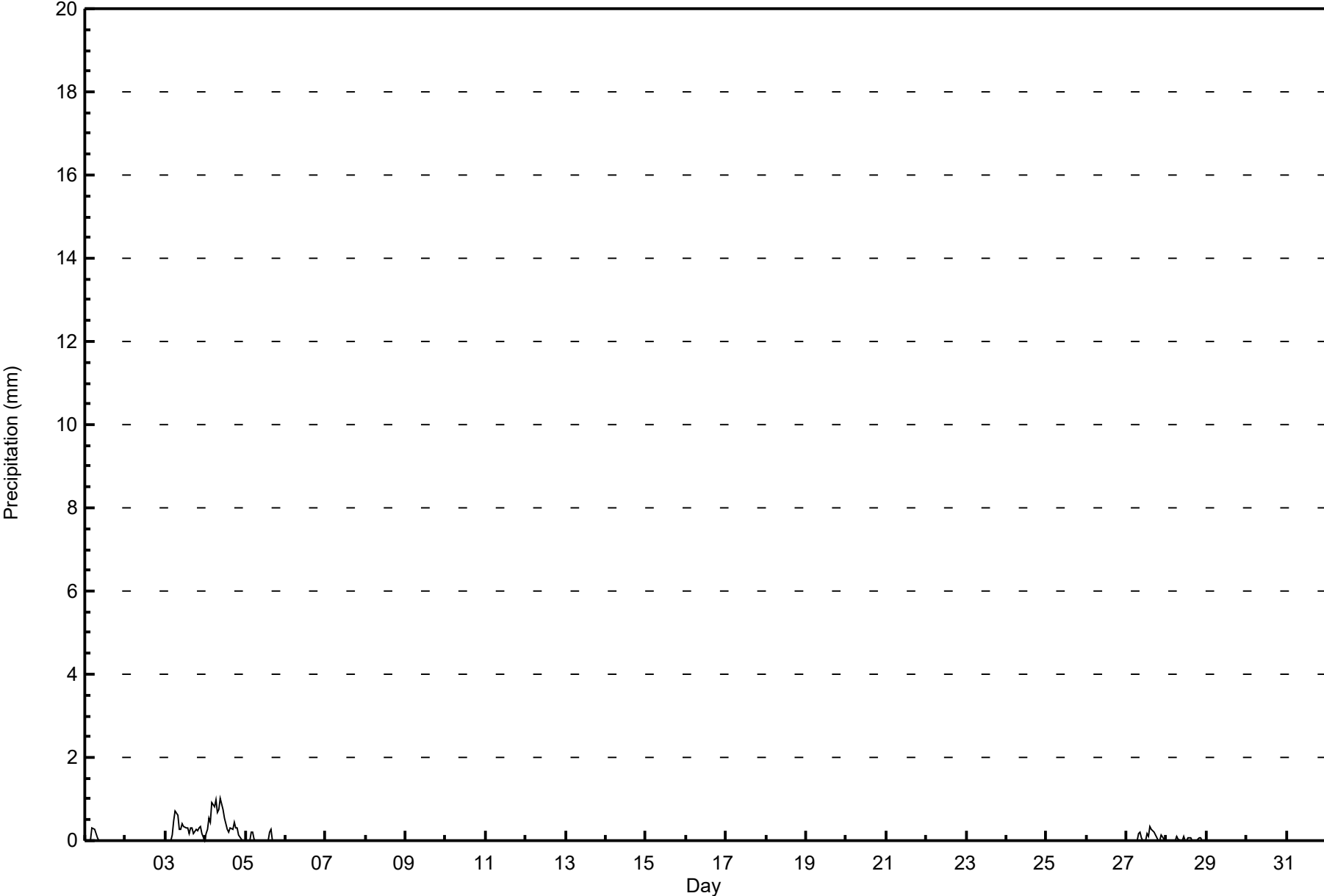
Wood Buffalo Environmental Association

Summary of Hour Averages

Precipitation (PC) - mm

Wapasu - March 2024

Maximum Value: 1.0 mm on Mar 4 10:00 Minimum Value: 0.0 mm on Mar 1 01:00 Maximum Diurnal Total: 1.9 mm at hour 7 Monthly Total: 20.70 mm		Maximum Daily Total: 10.5 mm on Mar 4 Minimum Daily Total: 0.0 mm on Mar 2 Minimum Diurnal Total: 0.0 mm at hour 24 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.6		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.3	
2-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.1	0.5	0.7	0.6	0.3	0.3	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.4	0.2	0.0	6.1	0.7	
4-Mar	0.2	0.3	0.6	0.4	0.9	0.8	1.0	0.7	0.8	1.0	0.8	0.5	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.1	0.1	0.0	0.0	10.5	1.0	
5-Mar	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	
6-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.0	0.2	0.1	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	1.9	0.3	
28-Mar	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	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.5	0.1	
29-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average			
																								Diurnal Maximum			





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Wapasu - March 2024

Maximum Speed: 24 km/h on Mar 27 12:00	Maximum Daily Speed Average: 18.3 km/h on Mar 27	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 20 08:00	Minimum Daily Speed Average: 0.6 km/h on Mar 5	Hours of Data: 743
Maximum Diurnal Speed Average: 5.5 km/h at hour 24	Minimum Diurnal Speed Average: 0.7 km/h at hour 16	Hours of Missing Data: 1
Monthly Average Velocity: 3.0 km/h 143.4 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 7 Median = 10 Q ₃ = 14 P ₉₀ = 17 P ₉₉ = 22	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-Mar	WSW4	SW2	W3	W5	WSW6	WSW6	WSW8	SW8	WSW8	W8WNW10	W12WNW13	WNW13	WNW12	NW11	NNW13	N8	NNE5	NNE3	ENE1	NNE7	NE6	NNE5	WNW5.0	WNW13			
2-Mar	NNE4	NNE5	NNE4	ENE2	E3	ENE4	NE3	NNE4	NNE6	N9	N9	N8	N9	N11	N11	NNE10	NE10	NE7	NNE4	NNE6	NE8	NE9	ENE9	NNE6.2	N11		
3-Mar	NE7	NNE6	NNE6	NE8	NE8	NE9	NNE10	NNE10	NNE11	NNE11	NNE9	NNE10	NNE9	NNE9	N10	N11	N12	N13	N13	N13	N12	N12	N13	NNE9.9	N14		
4-Mar	N14	N15	N16	N15	N14	N14	N14	N14	N14	N14	N14	N14	N15	N14	N16	N13	NNW13	NNW10	NNW11	NNW10	NNW10	NNW10	N8	N5	NNE4	N12.2	N16
5-Mar	NE4	NNE3	NNE3	NNE4	NE4	NNE3	NNE4	NNE4	NE4	ESE3	ESE2	ENE2	N8	NNW7	W4	W6	WSW7	SSW5	SSE4	SSE6	SSE7	S8	S8	S8	SE0.6	SSE8	
6-Mar	S8	S9	S9	S9	S9	S9	S10	S9	S11	SSW12	SSW14	SSW14	SSW15	SSW15	SSW15	SSW13	SSW13	S10	SSE10	SSE11	S11	S11	SSW13	S13	S11.1	SSW15	
7-Mar	S13	S13	S13	S13	S12	S13	S13	S13	S14	S15	S15	S14	S15	S16	S15	S14	S13	S9	SSE9	SSE10	S9	SSE11	S8	S6	S12.3	S16	
8-Mar	S5	SSE3	SE4	SE4	SE7	SSE7	SE6	SSE7	SSE6	S8	S9	SSW10	SSW11	SSW10	S10	SSE11	SSE13	SSE14	SSE16	SSE17	SSE17	SSE17	SSE13	SSE12	SSE9.4	SSE17	
9-Mar	S12	S11	S11	S10	S11	SSE11	SSE11	SSE12	SSE13	SSE14	SSE13	SSE12	SSE13	SSE15	SSE15	SSE15	SSE15	SSE13	SSE14	SSE13	SSE12	SSE11	S9	S9	SSE12.2	SSE15	
10-Mar	S8	S10	S9	S8	S8	SSW8	SSW8	SSW9	SW12	SW10	WSW15	W17	W16	W15	W15	W16	WNW14	W9	W4	NNW4	NE7	NE11	NE10	NE9	WSW5.5	W17	
11-Mar	NE9	NNE8	NNE8	NNE6	N6	NNE5	NNE5	NNE4	NNE5	NNW5	N6	N8	NNE7	N5	N11	N10	NE10	ENE8	E5	ESE11	ESE12	SE13	SE15	SE15	NE4.9	SE15	
12-Mar	SE14	SE15	SE12	SSE9	SSE9	SE15	SE17	SE18	SE13	SSE8	SSE9	SSE8	ESE9	ESE9	ESE9	ESE9	ESE9	ESE10	SE11	SE13	SE14	SE13	SE13	SE15	SE11.4	SE18	
13-Mar	SE15	SE13	SE13	SSE10	SE12	SE13	SE13	SE12	SSE13	SSE12	SSE13	S11	S11	S10	SSE10	SSE10	S9	SSE11	SE12	SE12	SSE13	SSE14	SSE11	S10	SSE11.5	SE15	
14-Mar	S9	SSE10	S10	S9	S10	S10	S9	S8	SSW9	SSW10	SSW11	SSW12	SSW14	SW15	SSW12	SSW10	SSW9	SSW9	SSW9	SW12	SW15	SW13	SW8	SW6	SSW9.7	SW15	
15-Mar	SW7	SW12	WSW12	W9	NNW9	NNW22	NNW24	NNW21	NNW17	NNW21	NNW20	NNW18	NNW19	NNW19	NNW18	N18	N13	N12	N9	N6	N6	NNE6	NNE6	NE6	NNW11.4	NNW24	
16-Mar	NNE4	NNE6	NNE4	NNE5	NNE6	N7	NE8	NNE8	NNE9	N9	NNE8	NNE7	N8	N9	N9	N7	NE6	E5	ESE8	SE9	SE9	SSE11	SSE13	SE14	NE4.1	SE14	
17-Mar	SE14	SSE17	SSE17	SSE17	SSE18	SSE18	SSE19	SSE19	SSE19	SSE17	SSE18	SSE18	S17	S17	S18	S18	S17	S17	S12	SSE11	S10	SW13	WNW9	N15	SSE13.8	SSE19	
18-Mar	N11	N13	N17	N14	NNW19	NNW18	N19	N19	NNW22	NNW22	NNW20	NNW18	NNW18	N18	N17	N17	N17	N19	N17	N15	N16	N15	N15	N13	N16.8	NNW22	
19-Mar	N11	NNE9	NNE8	NNE9	N11	N12	N10	N13	N13	N13	NNW12	N14	N14	N14	N15	N14	N13	N10	NNE5	NNE5	NE4	ENE4	NE6	E1	N9.5	N15	
20-Mar	ENE3	SE4	ENE4	E3	ENE3	ESE2	SE2	NW1	NNE6	N7	N7	NNW7	N6	N7	NNE6	N7	N7	NNE6	NE5	ENE6	E6	ESE6	SE6	ESE5	NE3.4	N7	
21-Mar	ESE5	ESE4	ESE5	SE6	ESE6	ESE6	ESE5	E4	NNE3	N7	N10	N11	N13	N13	N15	N13	N13	N11	N8	NNE6	NNE5	NE6	ENE4	ENE5	NNE5.2	N15	
22-Mar	ESE3	SSE4	SE5	SSE6	SE5	SE5	SE3	SSE5	SSW5	SW2	NNW4	W4	SSW3	SW4	WSW5	WNW6	W5	NW3	UO	ENE3	SE4	SE6	SSE7	SSE8	S2.3	SSE8	
23-Mar	SSE9	SSE9	SSE9	SSE7	SSE7	SSE6	SSE7	SSE7	S6	SSW8	SSW8	SSW6	WSW7	SSW7	SW6	SSW6	SSW6	S5	SSE4	SE4	SE7	SE8	SE9	SE10	S6.0	SE10	
24-Mar	SSE11	SSE10	SSE8	SSE6	SSE6	SSE7	SSE7	SSE5	SSE6	S7	S9	SSW9	S9	S9	SE5	SSE9	SE10	SSE10	SSE9	SE9	SE10	SE12	SE11	SE14	SSE8.3	SE14	
25-Mar	SE13	SE13	SE13	SE14	SE13	SE14	SE16	SE16	SSE19	SSE17	SSE17	SSE18	SSE17	S18	SSE17	SSE18	SSE17	SSE16	SSE15	SSE14	SSE14	SE15	SE16	SE16	SSE15.4	SSE19	
26-Mar	SSE16	SSE14	SSE16	SSE15	SSE16	SSE15	SSE17	SSE18	SSE18	S19	S21	S21	S19	SSE21	SSE19	SSE18	SSE18	SSE19	SSE16	SE16	SE18	SE18	SE18	SE20	SSE17.3	S21	
27-Mar	SE20	SE22	SE22	SE22	SE22	SE21	SE19	SE18	SE19	SE20	SE24	SE24	SE21	SE18	SE16	ESE16	ESE17	ESE16	ESE15	ESE15	ESE16	ESE15	ESE14	ESE13	SE18.3	SE24	
28-Mar	ESE13	ESE10	ESE9	E7	E7	ENE5	ENE6	ENE7	ENE7	ENE7	ENE6	NNE8	N9	N11	N12	N14	N13	N12	N9	NNW12	NNW10	N8	N8	NNE5	NNE6.0	N14	
29-Mar	N5	N5	NNE4	NNW4	NNW6	NNW8	N6	N8	N9	N9	N10	N10	N11	NNW14	N11	N11	N10	N9	N6	NNE3	NNE2	NNE1	SE3	SE3	N6.4	NNW14	
30-Mar	SE4	SE5	SE7	SE7	SSE8	SSE7	SSE7	SSE8	SSE11	S12	SSW13	S12	SSW11	S12	S12	S12	S12	S11	SSE8	SE11	SE13	SE14	SSE14	SSE15	SSE9.7	SSE15	
31-Mar	SSE14	SSE13	SSE14	SSE12	SSE12	S12	S11	S11	S11	SSW11	SSW11	SSW13	SW15	SSW14	SSW16	SSW14	S12	S12	S11	S13	S14	S15	S15	SSE17	S12.3	SSE17	

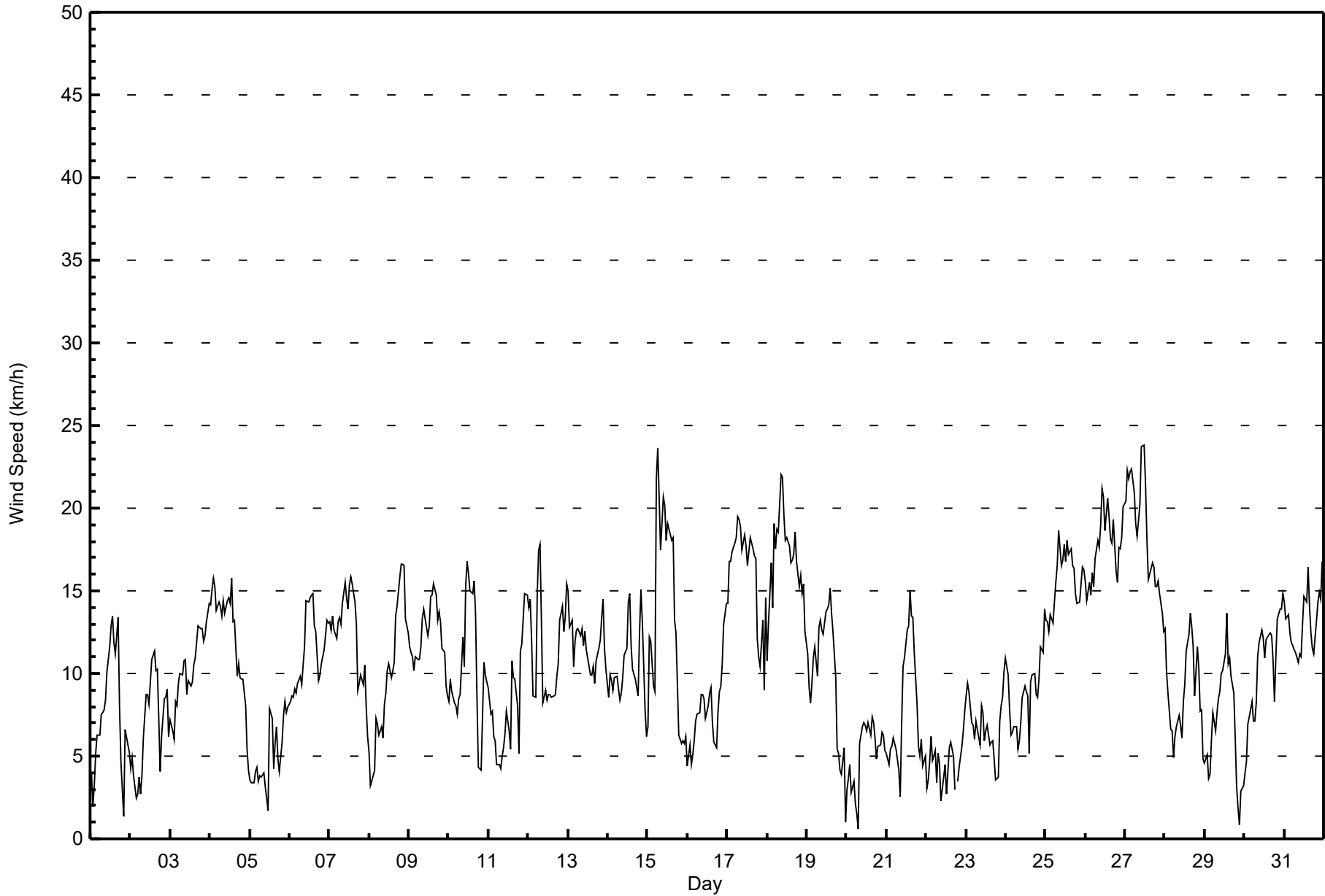
SE4.9	SE4.9	SE4.6	SE4.2	SE3.9	SE3.6	SE3.9	SE3.5	SE2.9	S2.0	SSW2.0	SSW1.9	SW1.6	SW1.6	SW1.1	S0.7	SE1.3	SE2.2	SE3.4	SE4.3	SE5.0	SE5.3	SE5.0	SE5.5	Diurnal Average
SE20	SE22	SE22	SE22	SE22	NNW22	NNW24	NNW21	NNW22	NNW22	SE24	SE24	SE21	SSE21	SSE19	N18	SSE18	SSE19	N17	SSE17	SE18	SE18	SE18	SE20	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Wapasu - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Wapasu - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	111	14.94	14.94
6 - 11	321	43.20	58.14
12 - 19	289	38.90	97.04
20 - 28	22	2.96	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Wapasu - March 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	31	6	12	6	9	15	6	2	3	3	2	6	0	2	4	111
6 - 11	57	35	20	9	3	14	18	56	55	23	6	6	4	3	2	10	321
12 - 19	62	0	0	0	0	11	47	77	41	17	8	2	6	4	0	14	289
20 - 28	0	0	0	0	0	0	11	1	2	0	0	0	0	0	0	8	22
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	123	66	26	21	9	34	91	140	100	43	17	10	16	7	4	36	743

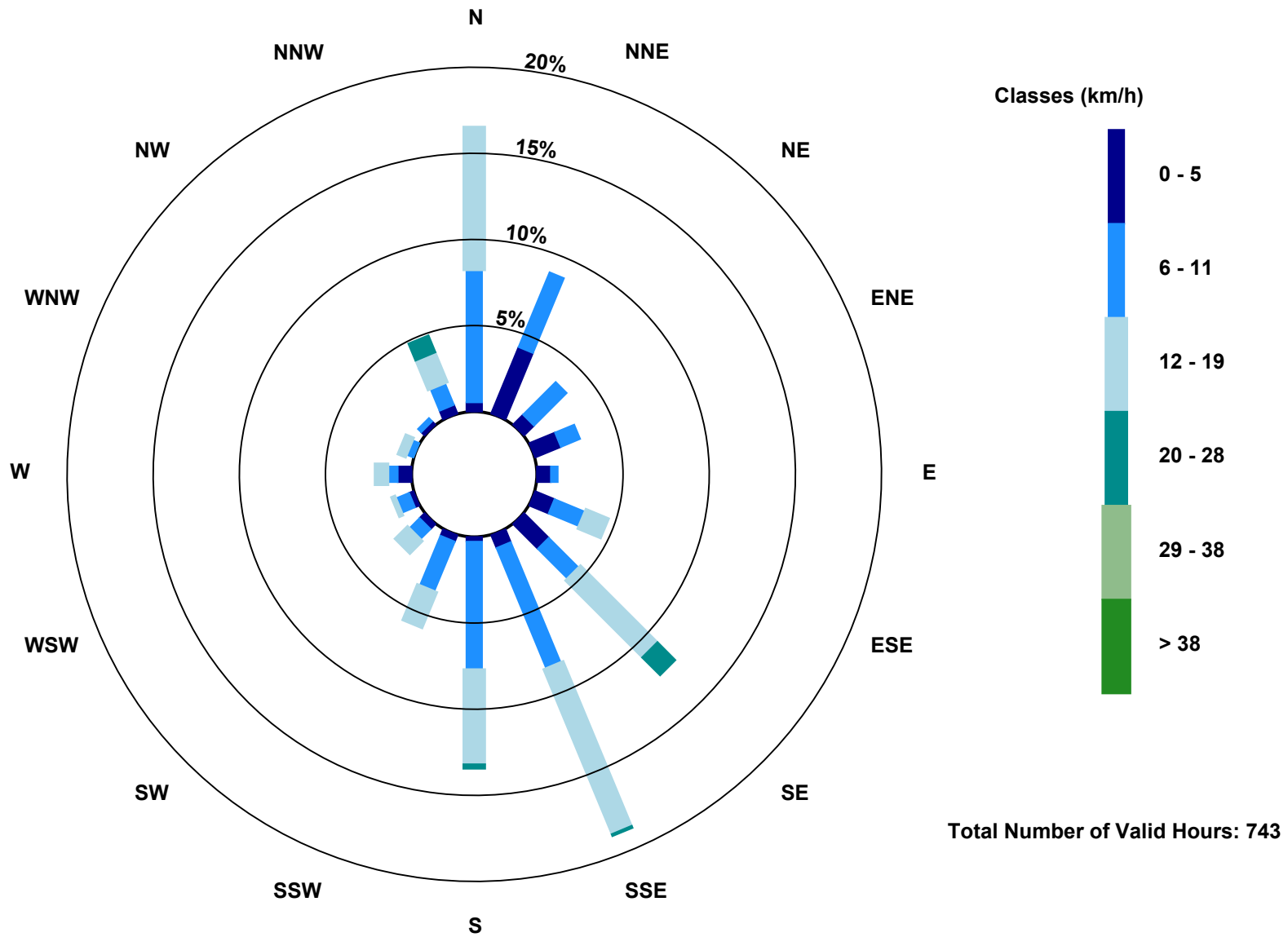
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Wapasu





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Wapasu - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 27 12:00 Minimum Value: 0 km/h on Mar 22 03:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 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-Mar	1	1	1	2	2	1	2	2	2	3	3	4	4	4	4	3	3	3	2	1	1	2	1	1	4	
2-Mar	1	1	1	1	1	1	1	1	2	3	3	2	3	3	3	3	4	3	1	2	3	3	3	2	4	
3-Mar	2	2	2	3	3	3	4	3	4	4	3	3	3	3	3	3	4	3	4	4	4	3	4	5	5	
4-Mar	4	5	4	4	4	4	3	3	4	4	4	4	4	4	4	3	2	2	2	2	2	3	2	1	5	
5-Mar	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	1	1	2	2	2	2	2	
6-Mar	2	3	2	3	3	3	3	3	4	4	5	5	5	5	5	4	4	3	3	3	4	4	4	5	5	
7-Mar	4	4	4	5	4	4	4	4	5	5	5	5	5	5	5	5	5	3	2	3	3	3	3	2	5	
8-Mar	1	2	1	1	1	1	1	1	1	3	3	3	4	3	3	4	4	4	4	5	5	5	4	4	5	
9-Mar	4	3	3	3	3	3	3	3	3	4	4	4	4	4	4	5	5	4	4	3	3	3	3	3	5	
10-Mar	2	3	3	3	2	2	3	3	3	3	5	6	5	6	5	5	5	3	1	1	3	4	3	3	6	
11-Mar	3	3	2	2	2	2	2	2	2	1	2	3	2	3	3	3	3	3	1	3	3	4	4	3	4	
12-Mar	4	3	3	4	3	4	5	5	5	3	3	3	3	3	3	3	3	3	3	4	4	3	3	4	5	
13-Mar	4	3	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3	3	3	4	4	4	3	4	
14-Mar	3	3	3	2	2	3	2	3	3	3	4	4	5	5	4	3	3	3	3	5	4	4	3	2	5	
15-Mar	2	5	3	3	6	7	7	6	4	6	5	5	5	5	5	6	4	4	3	3	2	1	2	2	7	
16-Mar	1	2	1	2	2	2	2	3	3	3	3	3	3	3	2	2	2	2	3	3	2	3	4	4	4	
17-Mar	4	5	5	5	4	5	5	5	6	5	5	5	5	6	6	6	6	6	4	3	3	5	4	6	6	
18-Mar	4	4	4	4	6	5	6	6	6	6	5	5	5	5	5	5	6	5	4	4	5	5	5	4	6	
19-Mar	4	3	3	4	3	4	3	4	4	4	4	4	4	4	4	4	4	4	2	2	1	2	2	1	4	
20-Mar	1	1	1	1	1	1	1	1	2	2	3	3	3	3	2	3	2	2	1	1	1	1	2	1	3	
21-Mar	1	1	1	1	2	1	1	1	2	2	3	3	4	4	5	4	4	3	3	2	1	1	1	1	5	
22-Mar	1	1	0	1	1	1	1	1	1	2	2	3	3	3	3	2	2	2	UO	0	1	2	1	1	3	
23-Mar	2	2	2	2	1	1	1	2	2	3	3	3	3	3	3	3	3	2	1	1	2	1	1	2	3	
24-Mar	2	2	2	1	1	1	1	1	2	2	3	3	4	4	3	3	3	3	3	2	2	3	3	3	4	
25-Mar	3	3	3	3	3	4	4	4	5	5	5	6	6	6	6	6	6	6	5	4	4	4	5	5	6	
26-Mar	5	5	4	5	4	5	5	6	6	6	7	7	7	7	7	6	6	5	4	4	5	5	5	6	7	
27-Mar	6	6	6	6	6	6	6	5	6	7	8	8	7	6	5	5	5	5	4	5	5	4	4	4	8	
28-Mar	4	3	3	3	2	2	2	2	2	2	2	3	3	3	3	4	4	3	3	3	3	2	2	2	4	
29-Mar	1	1	1	2	1	2	2	2	2	2	3	3	4	4	4	4	3	3	2	1	1	1	1	1	4	
30-Mar	1	1	1	1	1	1	1	2	4	4	4	4	4	4	4	4	4	4	2	3	4	3	3	3	4	
31-Mar	4	4	3	3	4	3	4	4	4	3	3	4	5	5	5	5	5	4	4	4	5	5	5	6	6	
																	Diurnal Maximum									
UO - Unstable Operation																										



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Wapasu - March 2024

Direction of Maximum Speed: 130 deg on Mar 27 12:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 128.0 deg on Mar 27		Hours of Data:	743
Direction of Minimum Speed: 313 deg on Mar 20 08:00		Hours of Missing Data:	1
Direction of Minimum Daily Speed Average: 0.6 deg on Mar 5		Percent Operational Time:	99.9
Monthly Average Direction: 143.4 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-Mar	244	235	259	266	258	242	241	233	245	274	287	278	290	284	302	320	338	3	14	18	72	27	37	29	295.2
2-Mar	28	15	12	60	89	72	51	12	16	6	352	1	2	4	355	24	40	43	30	32	38	56	59	37	24.6
3-Mar	36	30	32	36	35	35	31	32	31	29	25	32	29	22	5	3	360	354	357	356	0	357	359	3	15.2
4-Mar	7	357	355	355	351	351	350	353	359	360	356	356	354	358	357	348	340	338	336	339	343	356	3	18	353.2
5-Mar	48	33	26	33	43	28	26	26	46	107	121	64	350	330	266	260	243	212	167	154	163	169	172	175	126.3
6-Mar	173	174	175	174	176	177	176	181	189	198	203	202	202	200	192	196	199	180	167	167	179	190	193	191	187.5
7-Mar	186	186	178	179	184	182	180	180	182	188	186	183	188	179	182	180	183	189	162	164	175	167	176	176	180.5
8-Mar	178	162	137	131	145	158	144	152	161	173	187	204	198	201	185	168	156	151	154	162	163	166	166	168	166.8
9-Mar	172	170	173	177	171	168	166	167	158	165	166	161	161	159	155	159	164	154	156	156	161	166	172	177	164.0
10-Mar	176	183	186	189	183	193	195	208	219	225	250	264	280	272	260	271	282	274	266	335	42	54	37	46	245.0
11-Mar	36	28	33	13	1	29	27	21	17	342	10	1	27	8	351	7	55	67	87	120	121	130	132	137	54.9
12-Mar	134	136	141	150	158	139	139	138	143	150	149	153	120	116	117	119	114	119	126	126	127	138	140	139	135.1
13-Mar	140	140	137	153	146	143	144	146	152	158	164	172	177	187	166	166	170	157	145	144	148	157	165	171	155.0
14-Mar	178	164	169	170	172	174	176	183	195	203	204	203	212	215	210	205	205	200	199	216	228	229	222	228	200.1
15-Mar	236	229	244	261	315	348	345	344	338	341	346	344	346	347	347	352	360	356	357	8	7	30	25	35	341.6
16-Mar	23	33	17	27	19	8	43	33	20	7	15	17	355	350	355	10	50	83	121	134	144	150	147	141	50.9
17-Mar	146	150	150	148	149	154	151	156	158	158	160	160	175	171	171	169	175	185	188	155	174	223	283	358	164.1
18-Mar	0	4	349	349	348	348	355	354	346	343	345	345	341	350	359	2	360	356	351	354	355	352	357	11	352.4
19-Mar	3	12	21	20	355	357	2	358	356	359	338	349	350	352	351	358	4	6	28	30	56	63	43	82	2.5
20-Mar	78	136	75	92	70	113	135	313	23	3	359	341	0	2	13	359	10	17	40	57	89	108	124	112	39.9
21-Mar	112	108	123	125	119	120	110	98	31	357	350	350	356	356	351	352	355	1	1	21	32	48	63	71	21.5
22-Mar	111	151	146	147	143	144	137	150	201	225	327	267	211	220	254	287	278	312	UO	76	131	144	148	154	173.2
23-Mar	156	156	156	155	149	154	156	157	174	209	196	194	244	208	215	200	206	180	166	128	136	138	140	144	169.0
24-Mar	150	156	154	151	153	149	150	160	171	183	192	182	186	143	168	146	161	163	145	138	143	136	138	138	156.3
25-Mar	136	140	141	143	140	138	137	145	150	157	163	166	167	171	165	161	162	154	153	152	154	162	165	166	154.6
26-Mar	166	163	159	152	151	156	156	154	163	170	172	170	169	165	167	165	161	153	148	137	136	135	132	135	156.0
27-Mar	136	141	140	139	136	134	133	137	137	131	129	130	129	124	124	117	122	117	115	116	115	110	110	114	128.0
28-Mar	118	116	109	95	96	59	75	74	77	73	58	16	5	351	360	356	353	358	357	344	345	351	354	28	28.9
29-Mar	353	357	19	335	338	340	359	356	352	359	350	11	353	348	356	356	355	356	4	14	19	31	136	126	357.1
30-Mar	134	142	143	145	147	149	156	168	168	189	203	187	193	184	186	174	179	170	155	142	142	143	148	153	164.9
31-Mar	150	154	156	163	164	169	175	179	180	193	208	211	222	212	208	204	189	180	170	169	169	178	177	164	181.0

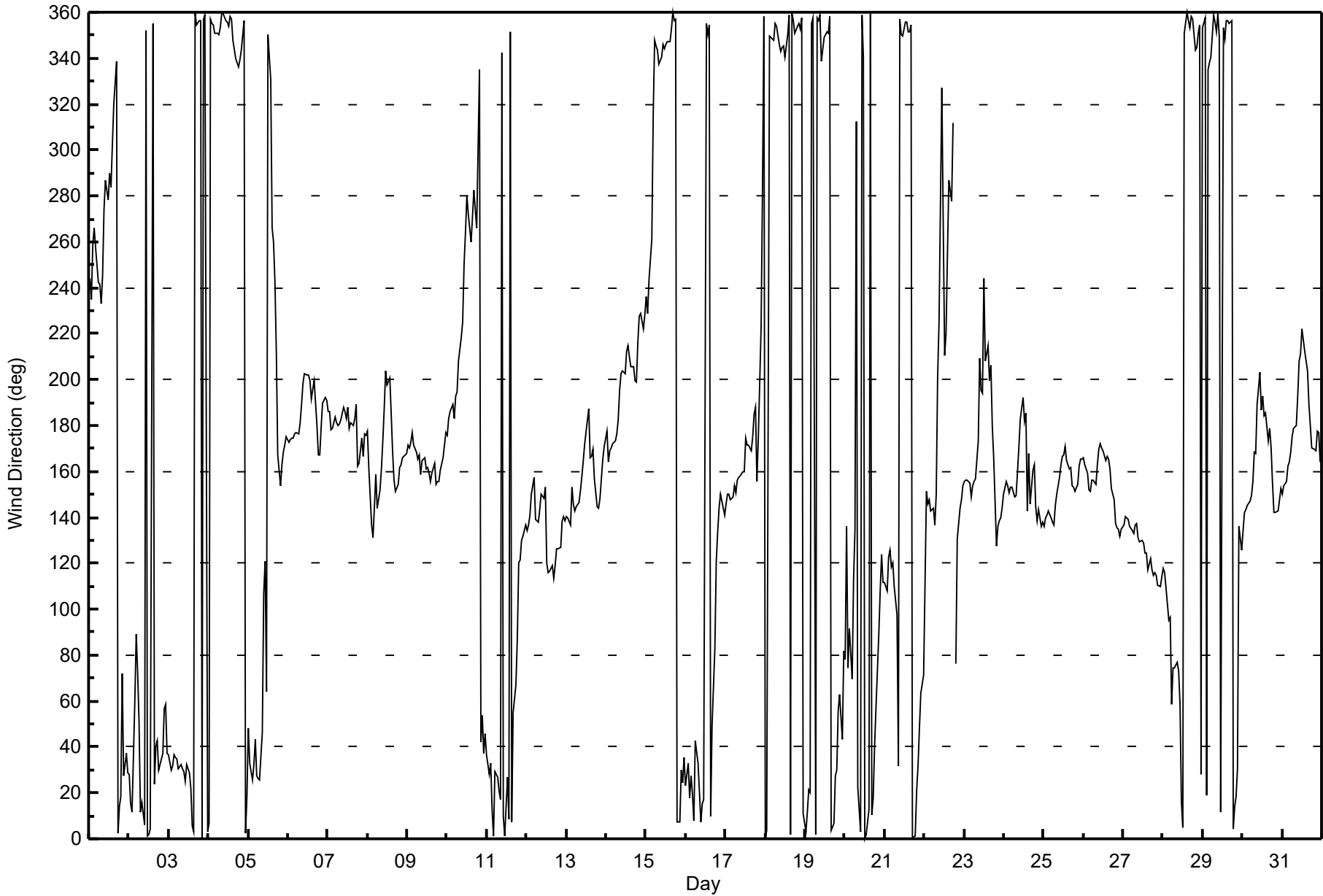
135.9	140.6	140.0	141.5	138.2	133.4	131.2	137.0	145.4	168.8	193.0	201.3	233.1	229.5	223.3	186.6	144.8	127.4	130.8	127.7	133.6	139.3	135.8	133.2
Diurnal Average																							

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Wapasu - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Wapasu - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Mar 22 13:00 Minimum Value: 4 deg on Mar 30 03:00 Percentiles: P ₁ = 7 P ₁₀ = 17 Q ₁ = 20 Median = 24 Q ₃ = 28 P ₉₀ = 32 P ₉₉ = 71																			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-Mar	17	49	30	26	25	20	17	17	26	29	30	31	30	29	27	26	22	26	25	30	63	25	18	22	63
2-Mar	16	19	18	42	36	20	18	20	26	27	30	35	27	30	26	33	28	21	15	21	23	21	24	28	42
3-Mar	25	29	27	25	25	25	28	28	26	28	31	29	28	29	27	26	24	23	23	22	24	23	24	27	31
4-Mar	27	23	22	23	20	19	19	20	25	24	24	23	23	23	25	21	17	15	14	15	16	22	27	24	27
5-Mar	18	28	25	23	21	26	27	24	26	48	65	86	30	31	36	38	35	25	19	11	19	22	22	25	86
6-Mar	22	23	24	25	24	26	25	27	28	26	25	28	27	29	29	30	29	29	21	21	27	29	28	29	30
7-Mar	29	27	28	29	29	27	28	28	28	27	28	29	29	29	30	29	29	27	21	23	27	24	34	23	34
8-Mar	18	51	16	26	8	13	10	9	20	27	31	25	29	28	31	27	21	18	19	22	22	24	24	23	51
9-Mar	25	25	25	27	23	23	22	23	20	24	27	26	25	23	21	22	23	20	18	19	21	22	24	24	27
10-Mar	25	27	27	27	27	26	25	23	18	22	25	27	29	31	27	28	31	27	24	35	25	22	25	26	35
11-Mar	25	31	27	29	23	30	30	32	28	28	38	33	45	60	23	25	25	21	21	18	19	18	18	18	60
12-Mar	17	17	16	27	26	18	19	18	26	31	34	36	31	30	32	25	25	20	18	21	20	19	17	18	36
13-Mar	18	19	18	22	16	19	18	18	20	24	28	29	30	32	27	27	26	20	18	18	17	20	27	28	32
14-Mar	29	22	22	21	22	23	23	27	27	24	24	24	22	24	23	23	26	26	23	15	16	20	28	29	29
15-Mar	28	24	21	28	39	21	22	19	19	19	20	22	21	24	24	24	27	24	23	26	28	18	23	25	39
16-Mar	23	27	25	28	28	26	26	28	28	25	35	40	32	29	25	30	37	27	20	19	19	20	18	18	40
17-Mar	21	20	19	19	19	19	18	21	22	22	23	24	29	27	27	25	26	32	30	20	24	30	42	26	42
18-Mar	27	27	20	19	20	21	24	25	21	20	21	22	20	24	27	29	28	24	22	23	24	24	24	30	30
19-Mar	28	29	29	29	24	26	26	24	24	26	24	25	27	26	24	26	28	29	27	22	20	22	24	53	53
20-Mar	29	13	25	32	10	38	28	86	30	34	41	47	50	46	46	40	34	29	15	14	14	14	18	18	86
21-Mar	19	17	17	16	17	18	18	14	57	33	24	25	28	29	25	25	29	26	27	26	22	12	12	11	57
22-Mar	39	17	7	7	6	6	19	13	34	80	76	74	98	81	71	54	57	59	UO	17	14	8	9	13	98
23-Mar	16	19	17	15	9	9	12	16	27	29	45	59	65	61	68	59	43	38	26	7	7	9	11	14	68
24-Mar	16	18	16	12	9	12	8	12	20	30	30	36	36	39	71	29	25	26	24	17	16	16	17	18	71
25-Mar	16	18	17	17	16	18	18	18	22	24	24	26	28	28	27	26	26	22	19	20	20	23	24	24	28
26-Mar	25	23	21	21	21	21	21	21	25	28	29	30	32	27	29	28	25	21	20	19	19	19	20	20	32
27-Mar	20	19	19	19	19	19	21	21	20	21	21	22	23	23	22	24	21	22	21	20	22	23	21	21	24
28-Mar	22	24	26	33	30	26	22	25	24	28	35	32	28	23	26	25	25	24	25	19	18	20	19	27	35
29-Mar	23	23	29	20	17	16	24	24	22	25	23	31	29	27	28	29	30	25	25	23	33	51	14	28	51
30-Mar	8	7	4	4	5	5	13	23	26	30	31	34	38	34	32	31	31	27	22	16	17	18	18	18	38
31-Mar	18	19	19	21	23	24	26	30	30	30	27	25	24	29	25	27	29	28	24	24	26	28	29	25	30
Diurnal Maximum																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS18 STONY MOUNTAIN APRIL 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
MARCH 2024

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

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	708	36	36	100	5.1	0	2.1	0
TRS(ppb) Average	708	36	36	100	0.4	0	0.3	0
THC(ppm) Average	694	35	50	97.98	2.4	-	2.3	-
NMHC(ppm) Average	694	35	50	97.98	0.113	-	0.028	-
CH4(ppm) Average	694	35	50	97.98	2.3	-	2.2	-
O3 (ppb) Average	709	35	35	100	49.4	0	43	-
NO2 (ppb) Average	707	37	37	100	7.5	0	4.1	-
NO (ppb) Average	707	37	37	100	1.8	-	0.4	-
NOX (ppb) Average	707	37	37	100	7.5	-	4.3	-
PM2.5 (ug/m3) Average	742	2	2	100	17.7	0	6.8	0
CO(ppm) Average	709	35	35	100	0.2	0	0.2	0
CO2(ppm) Average	709	35	35	100	450.2	0	445.5	0
Temperature 2 m (C) Average	744	0	0	100	11.1	-	4.6	-
Relative Humidity (%) Average	744	0	0	100	95.4	-	84.5	-
Wind Speed 10 m (km/h) Average	744	0	0	100	20	-	15	-
Wind Speed 20 m (km/h) Average	744	0	0	100	29	-	21	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	0	-
Wind Direction 20 m (deg) Average	744	0	0	100	-	-	0	-
Precipitation (mm) Total	736	0	8	98.92	1.3	-	12.8	-
Leaf Wetness (% of range) Average	744	0	0	100	13.4	-	3.2	-
Global Solar Radiation (W/m2) Average	744	0	0	100	748.5	-	209.3	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
MARCH 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	0.7	-	0	0	0.1	0.3	0.6	1.3	5.1
TRS (ppb) Average	708	0.23	0	-	0.1	0.2	0.2	0.2	0.3	0.3	0.4
THC (ppm) Average	694	2.08	0.1	-	2	2	2	2.1	2.1	2.2	2.4
NMHC(ppm) Average	694	0.005	0.013	-	0	0	0	0	0	0	0.113
CH4(ppm) Average	694	2.08	0.1	-	2	2	2	2.1	2.1	2.2	2.3
O3 (ppb) Average	709	36.84	4.2	-	23.3	31.1	33.9	37.3	39.8	41.7	49.4
NO2 (ppb) Average	707	1.6	1.2	-	0.3	0.5	0.7	1.3	2	3.2	7.5
NO (ppb) Average	707	0.11	0.2	-	0	0	0	0	0.1	0.4	1.8
NOX (ppb) Average	707	1.71	1.3	-	0.3	0.5	0.8	1.4	2.2	3.4	7.5
PM2.5 (ug/m3) Average	742	3.11	2.2	-	0.2	1.2	1.9	2.8	3.6	4.8	17.7
CO(ppm) Average	709	0.16	0	-	0.1	0.1	0.2	0.2	0.2	0.2	0.2
CO2(ppm) Average	709	439.27	4.8	-	429.5	432.5	434.3	440.3	443.3	445.1	450.2
Temperature 2 m (C) Average	744	-7.47	9	-	-26.1	-21	-14.1	-7.3	-0.9	5.1	11.1
Relative Humidity (%) Average	744	60.82	17.2	-	22.2	37.6	47.2	60.6	75.1	83	95.4
Wind Speed 20 m (km/h) Average	744	8.3	3	-	1	4	6	8	11	13	20
Wind Speed 20 m (km/h) Average	744	12.5	5	-	1	7	9	12	16	19	29
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	736	-	-	26.93	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	744	1.77	1	-	0.5	1.1	1.4	1.6	1.9	2.5	13.4
Global Solar Radiation (W/m2) Average	744	133.77	192.5	-	0	0	0.2	6.2	250.1	467.7	748.5

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
MARCH 2024

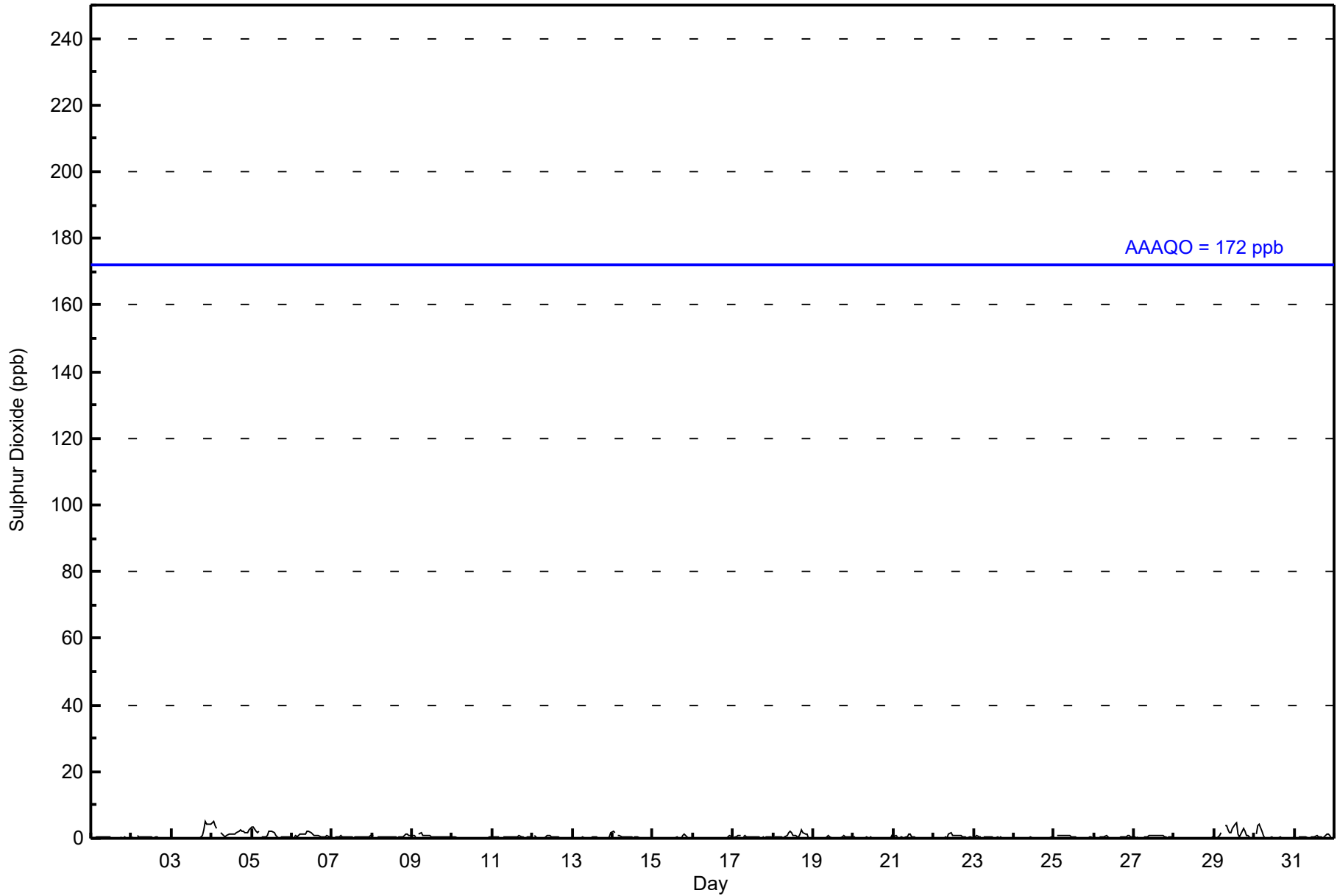
MONTHLY SUMMARY

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	01 Mar 2024 01:00	01 Mar 2024 01:00	1	Unstable Operations - excessive baseline noise
THC/NMHC/CH4	01 Mar 2024 03:00	01 Mar 2024 13:00	11	Unstable Operations - excessive baseline noise
THC/NMHC/CH4	15 Mar 2024 12:00	15 Mar 2024 14:00	3	Maintenance - replaced support gas cylinder
Precipitation Collector	26 Mar 2024 01:00	26 Mar 2024 08:00	8	Data logger program uploaded - data not recorded



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Stony Mountain - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Stony Mountain - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Stony Mountain - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	28	51	60	43	53	15	24	57	74	106	56	10	23	37	42	29	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
Totals	28	51	60	43	53	15	24	57	74	106	56	10	23	37	42	29	708

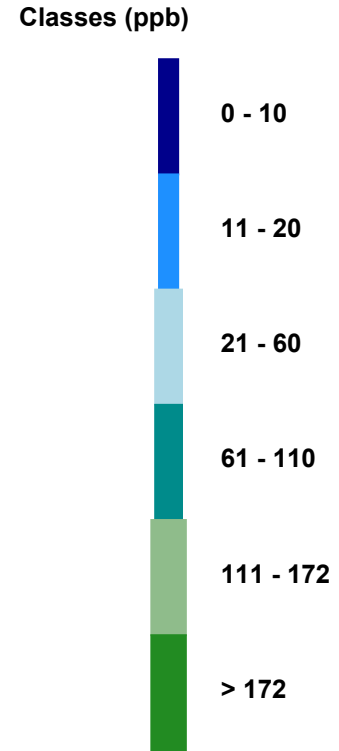
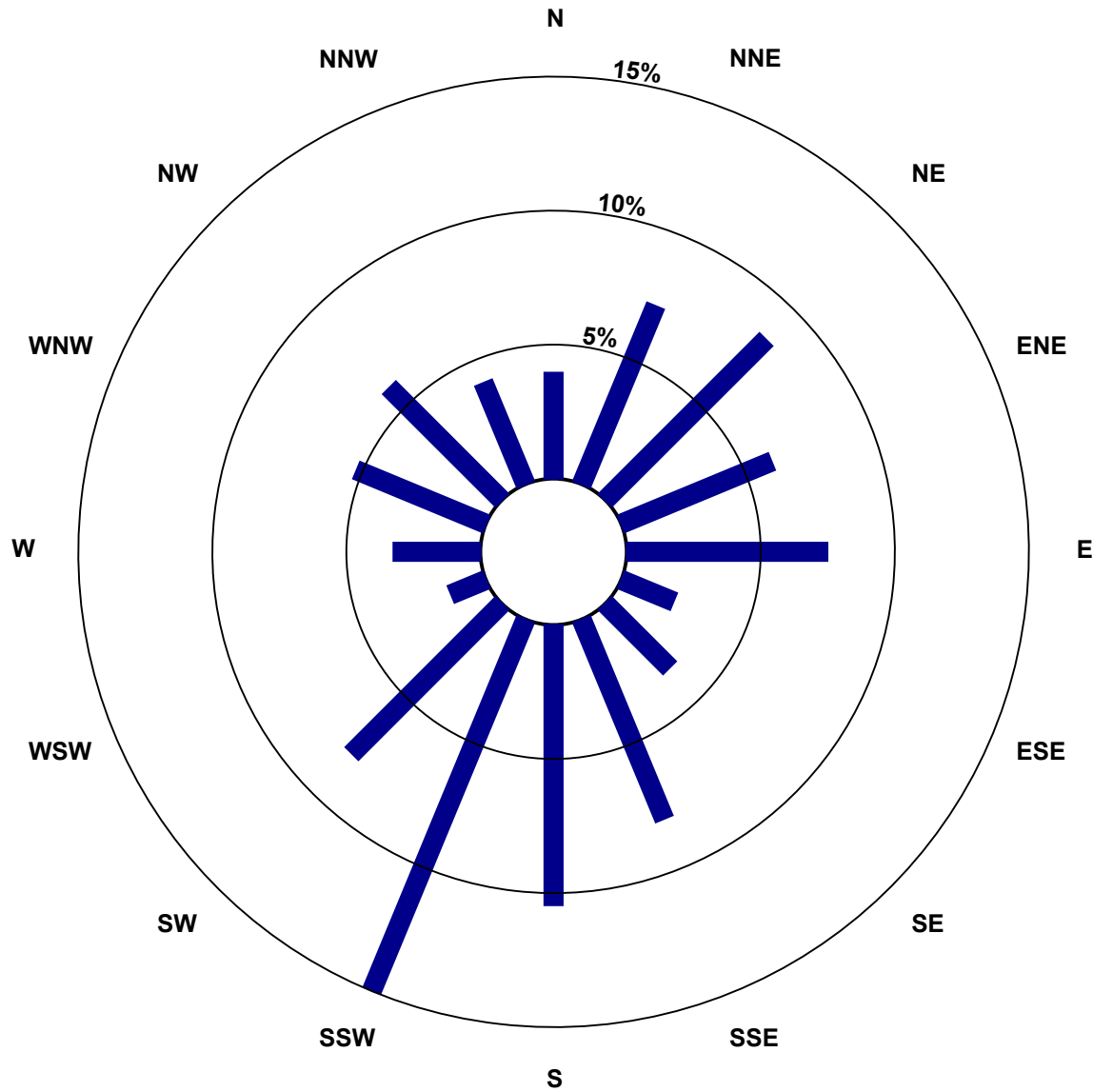
Total Number of Valid Hours: 708

Total Number of Hours: 744

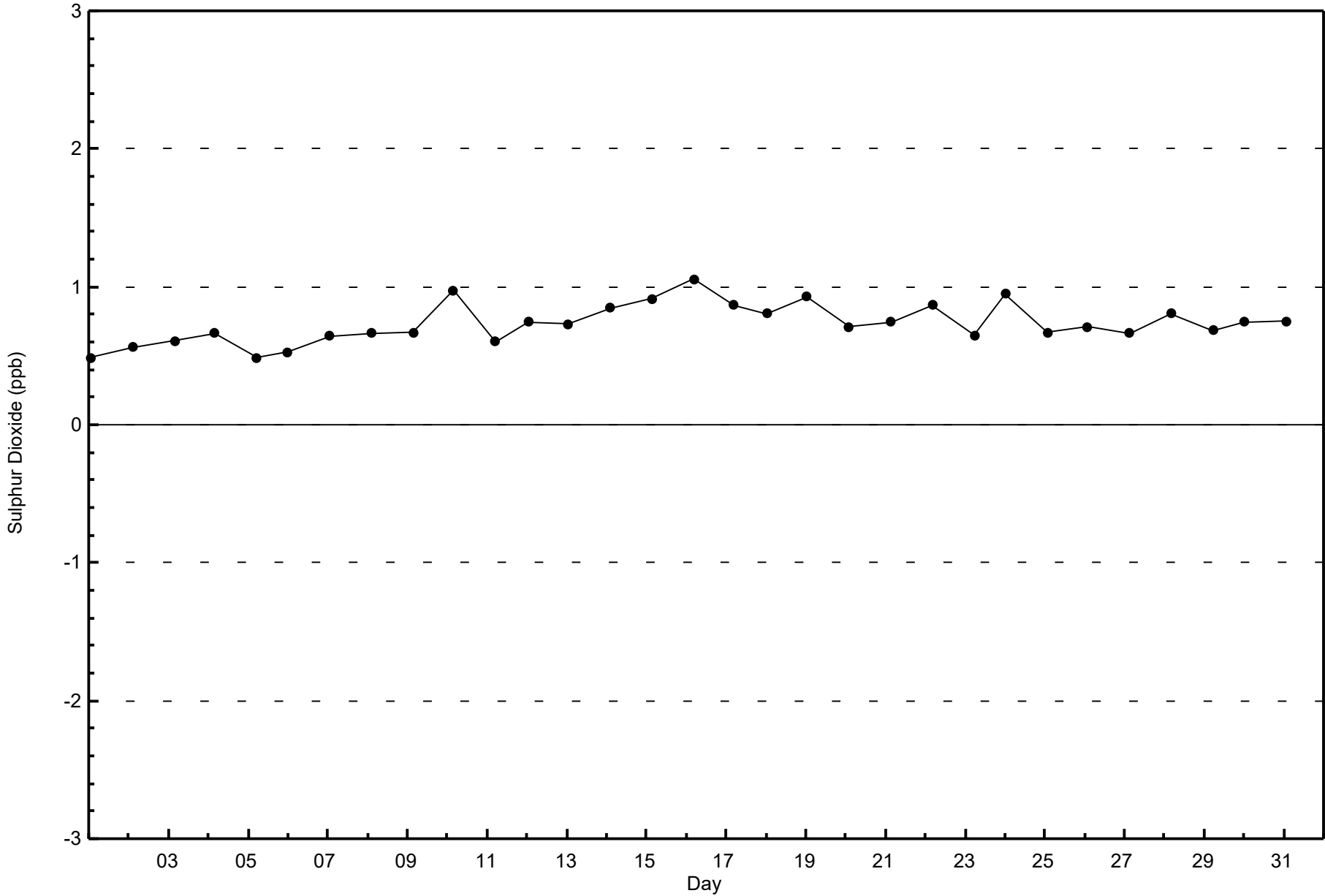


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Stony Mountain



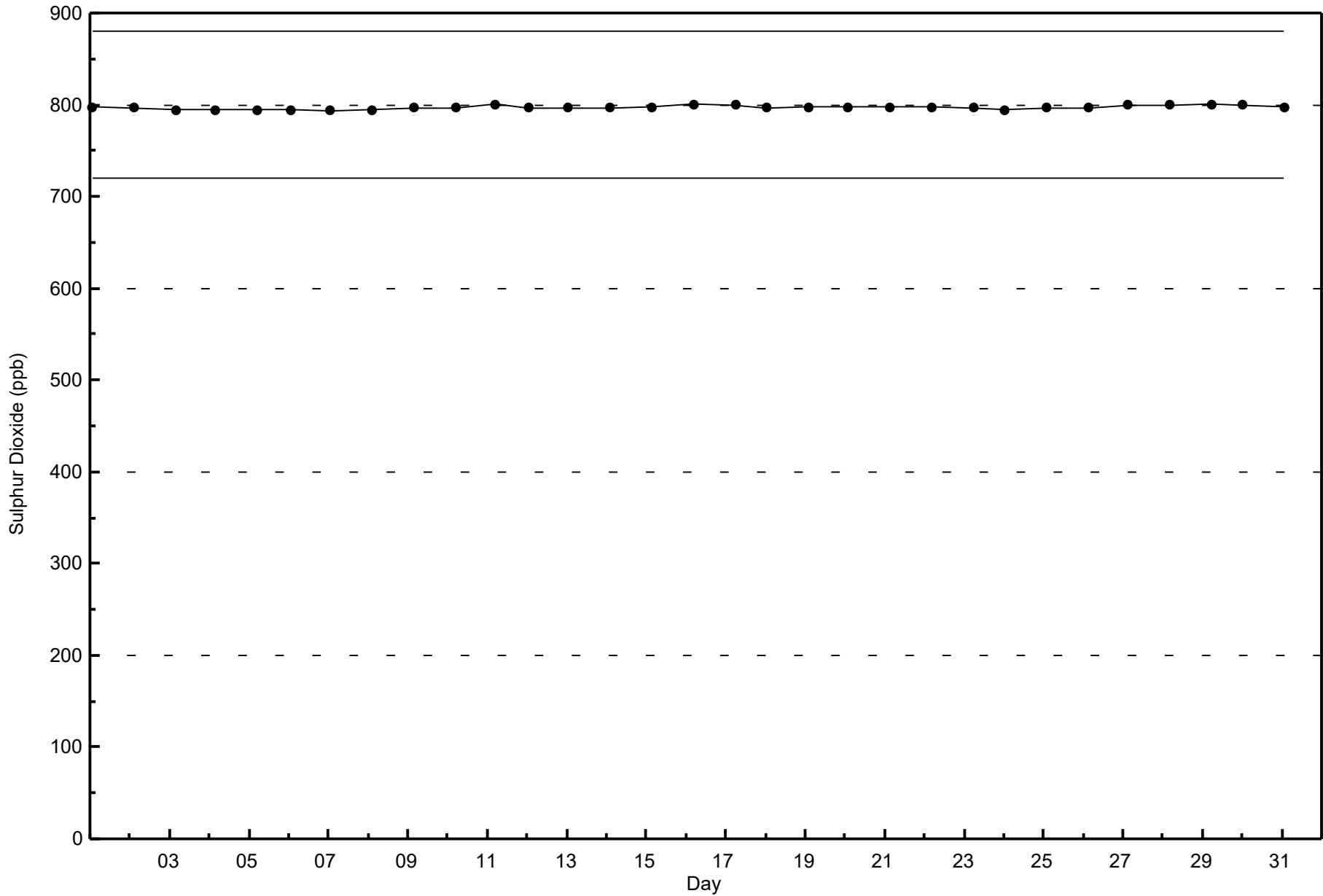
Total Number of Valid Hours: 708





Wood Buffalo Environmental Association
Span Responses

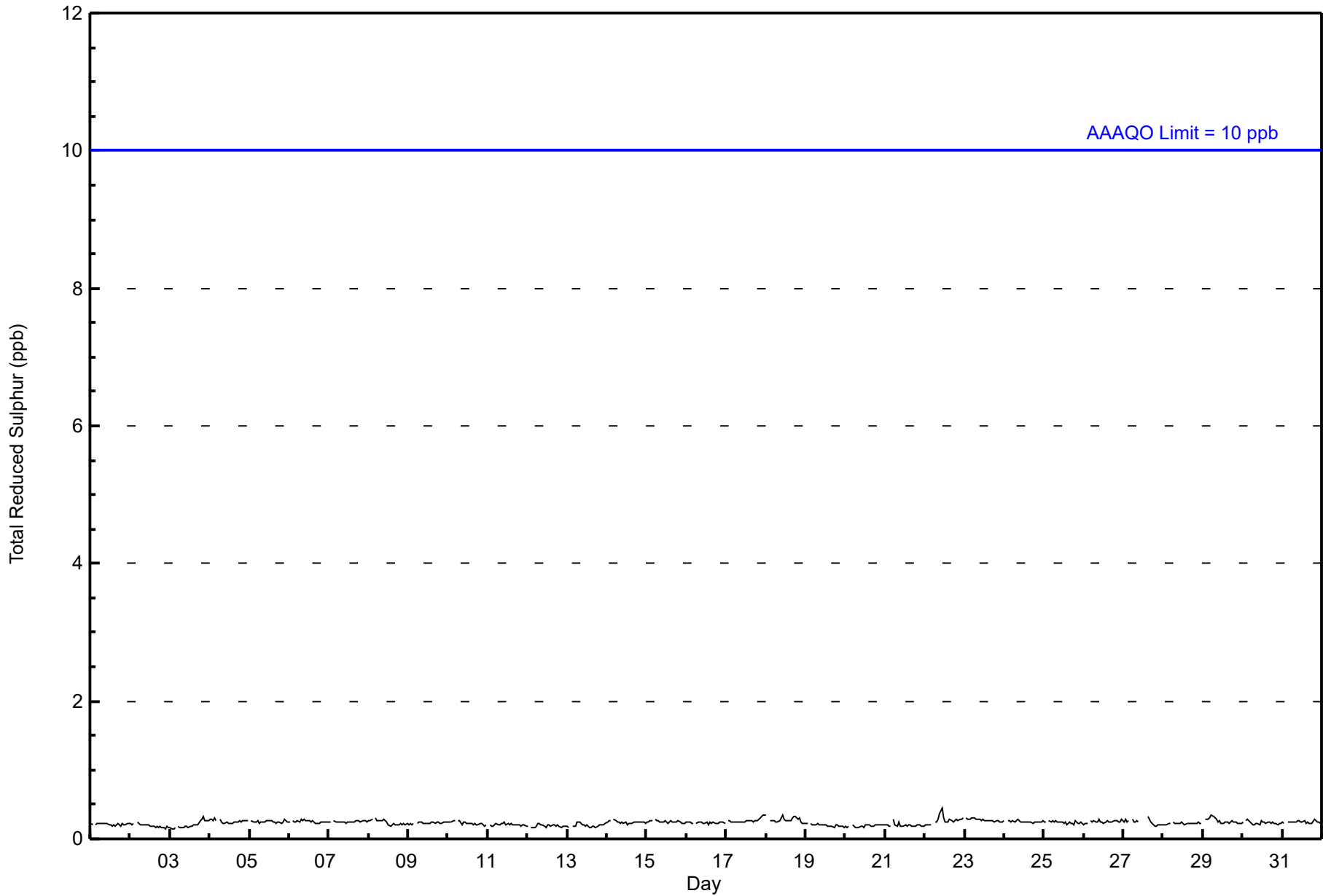
Sulphur Dioxide (SO₂) - ppb
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Stony Mountain - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Stony Mountain - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	708	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Stony Mountain - March 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	28	51	60	46	49	16	19	56	74	106	57	11	23	40	44	28	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
Totals	28	51	60	46	49	16	19	56	74	106	57	11	23	40	44	28	708

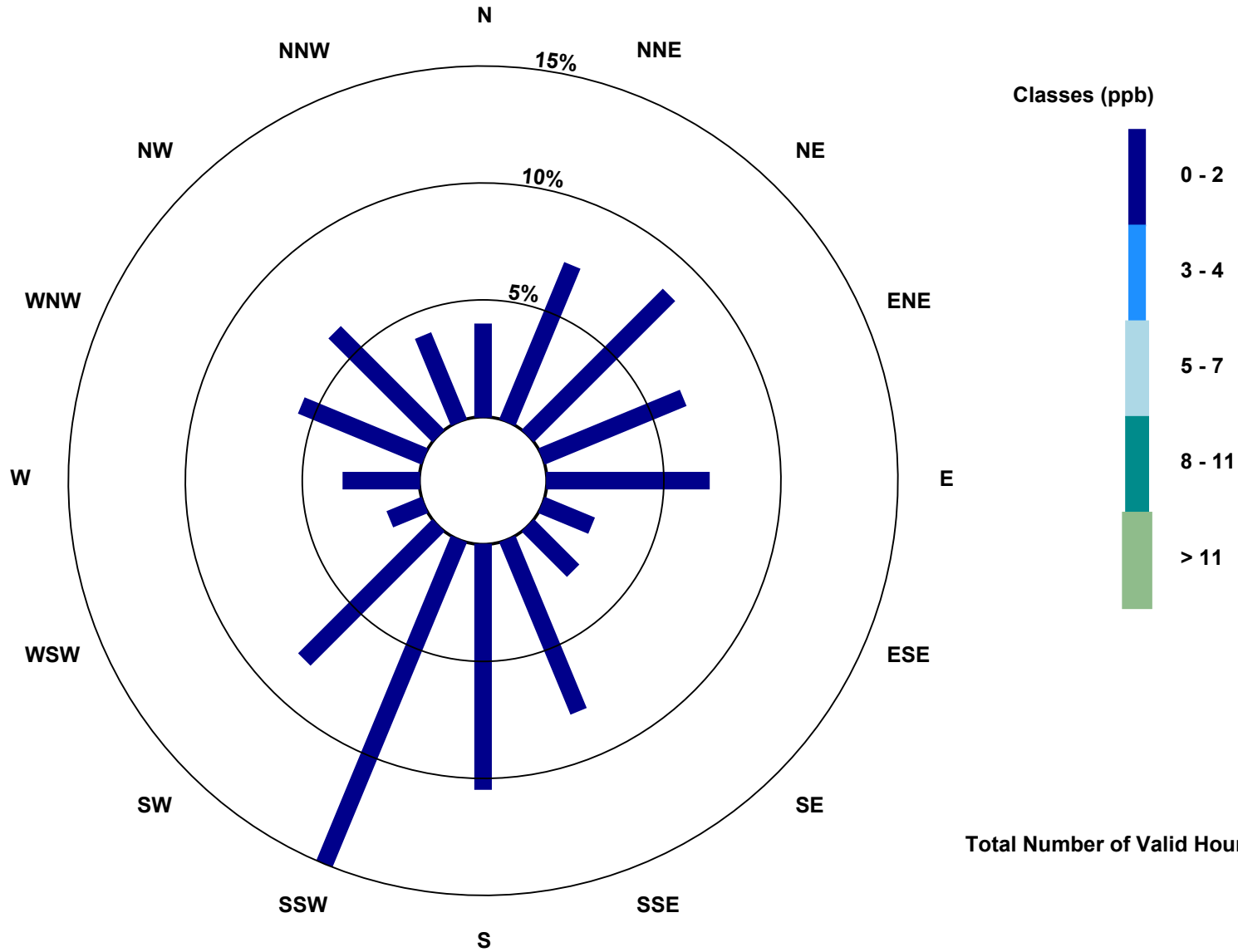
Total Number of Valid Hours: 708

Total Number of Hours: 744

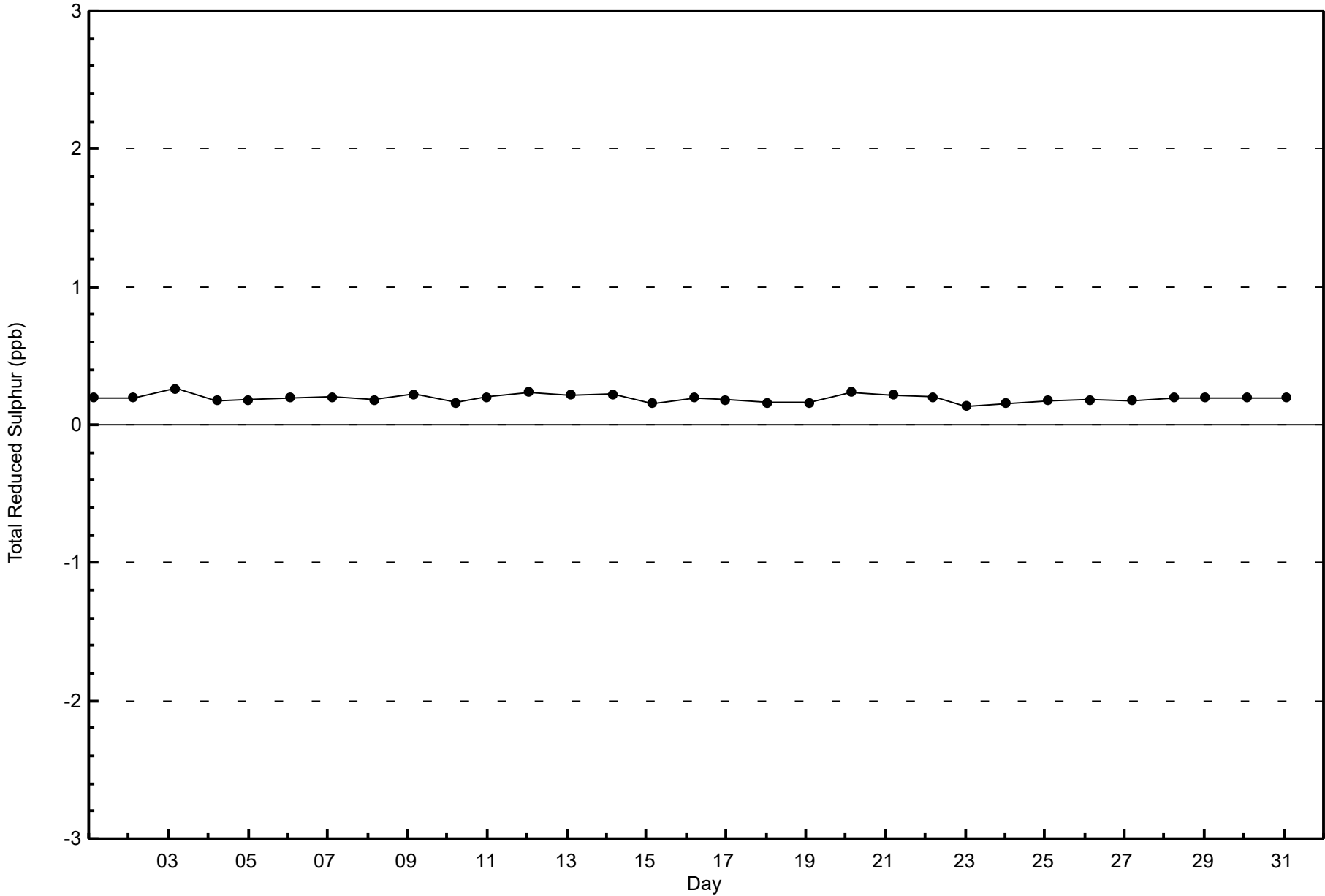


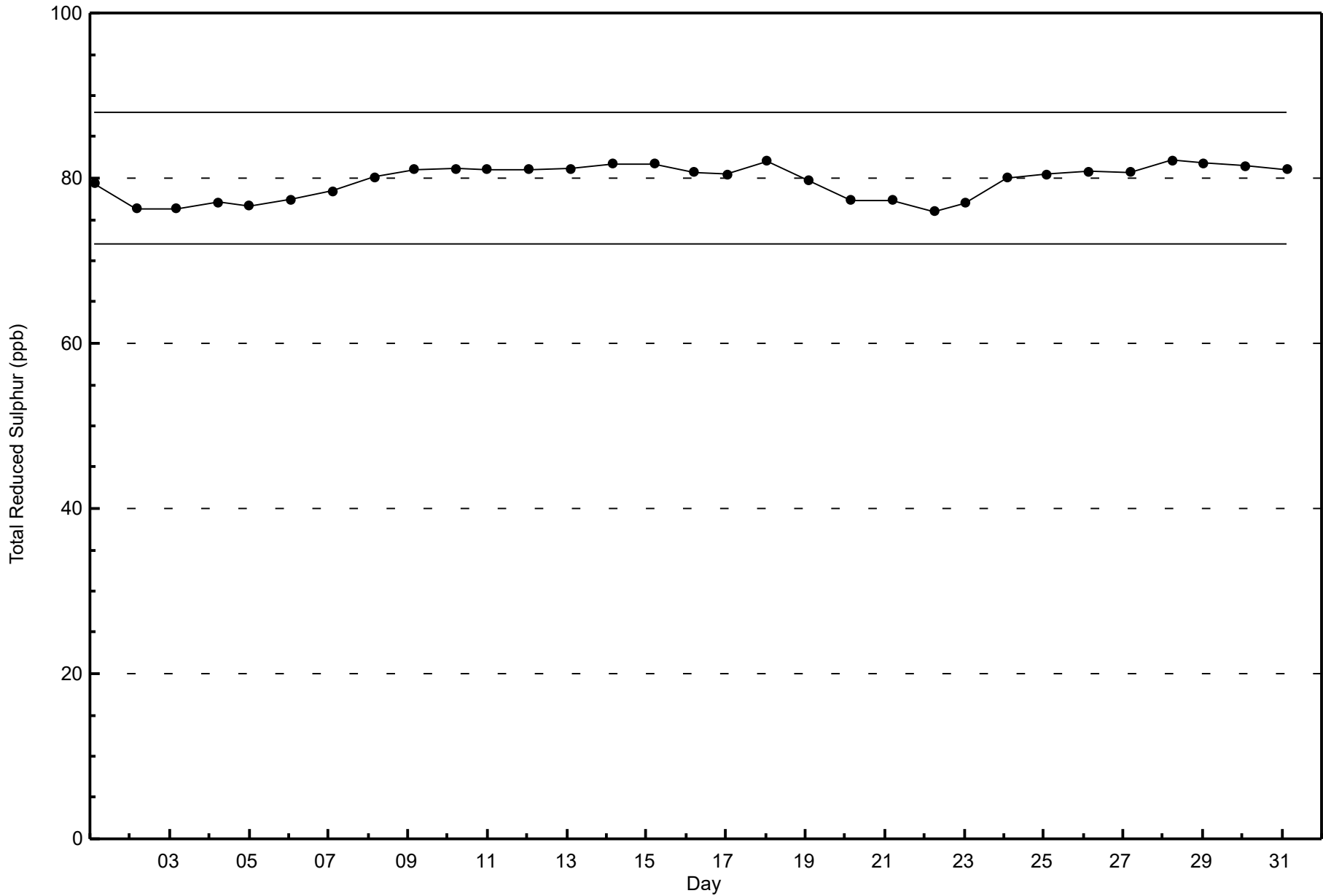
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Stony Mountain



Total Number of Valid Hours: 708





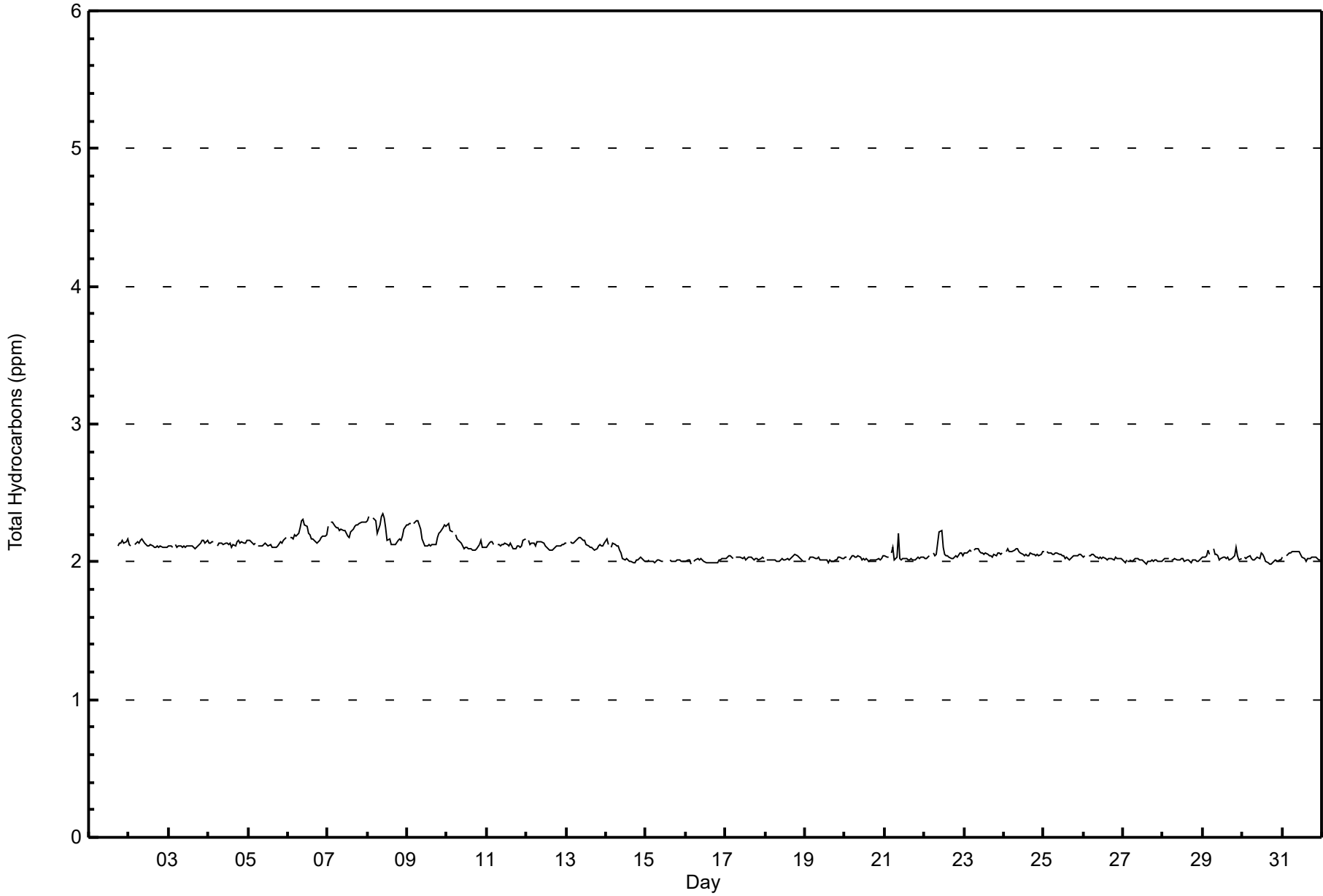


Maximum Value: 2.4 ppm on Mar 8 10:00		Maximum Daily Average: 2.3 ppm on Mar 7		Hours in Service: 744																							
Minimum Value: 2.0 ppm on Mar 30 17:00		Minimum Daily Average: 2.0 ppm on Mar 15		Hours of Data: 694																							
Maximum Diurnal Average: 2.1 ppm at hour 9		Minimum Diurnal Average: 2.1 ppm at hour 17		Hours of Missing Data: 50																							
Monthly Average: 2.08 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.3		Hours of Calibration: 35																							
				Percent Operational Time: 98.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.1	2.1	2.1	2.2	2.1	2.1	2.2	--	2.2	
2-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
3-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.2	
4-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.1	2.2	
5-Mar	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	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	
6-Mar	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
7-Mar	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
8-Mar	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.4	
9-Mar	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	
10-Mar	2.3	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3	
11-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	
12-Mar	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
13-Mar	2.1	Z	2.1	2.1	2.1	2.1	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	2.2	
14-Mar	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
15-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
16-Mar	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-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
18-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
19-Mar	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-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
21-Mar	2.0	2.0	2.0	Z	2.1	2.1	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
22-Mar	2.0	2.0	2.0	2.0	Z	2.1	2.0	2.1	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	2.1	2.1	2.0	2.1	2.2	
23-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	
24-Mar	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	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	
25-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	
26-Mar	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
27-Mar	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-Mar	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-Mar	2.0	2.0	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	
30-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
31-Mar	2.0	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
2.1																								Diurnal Average			
2.3																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																											



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Stony Mountain - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	323	46.54	46.54
2.1 - 3.0	371	53.46	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 694

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Stony Mountain - March 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	23	34	36	21	24	7	14	36	29	29	17	3	6	12	14	18	323
2.1 - 3.0	5	17	24	22	29	8	10	21	45	77	39	7	17	16	26	8	371
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
Totals	28	51	60	43	53	15	24	57	74	106	56	10	23	28	40	26	694

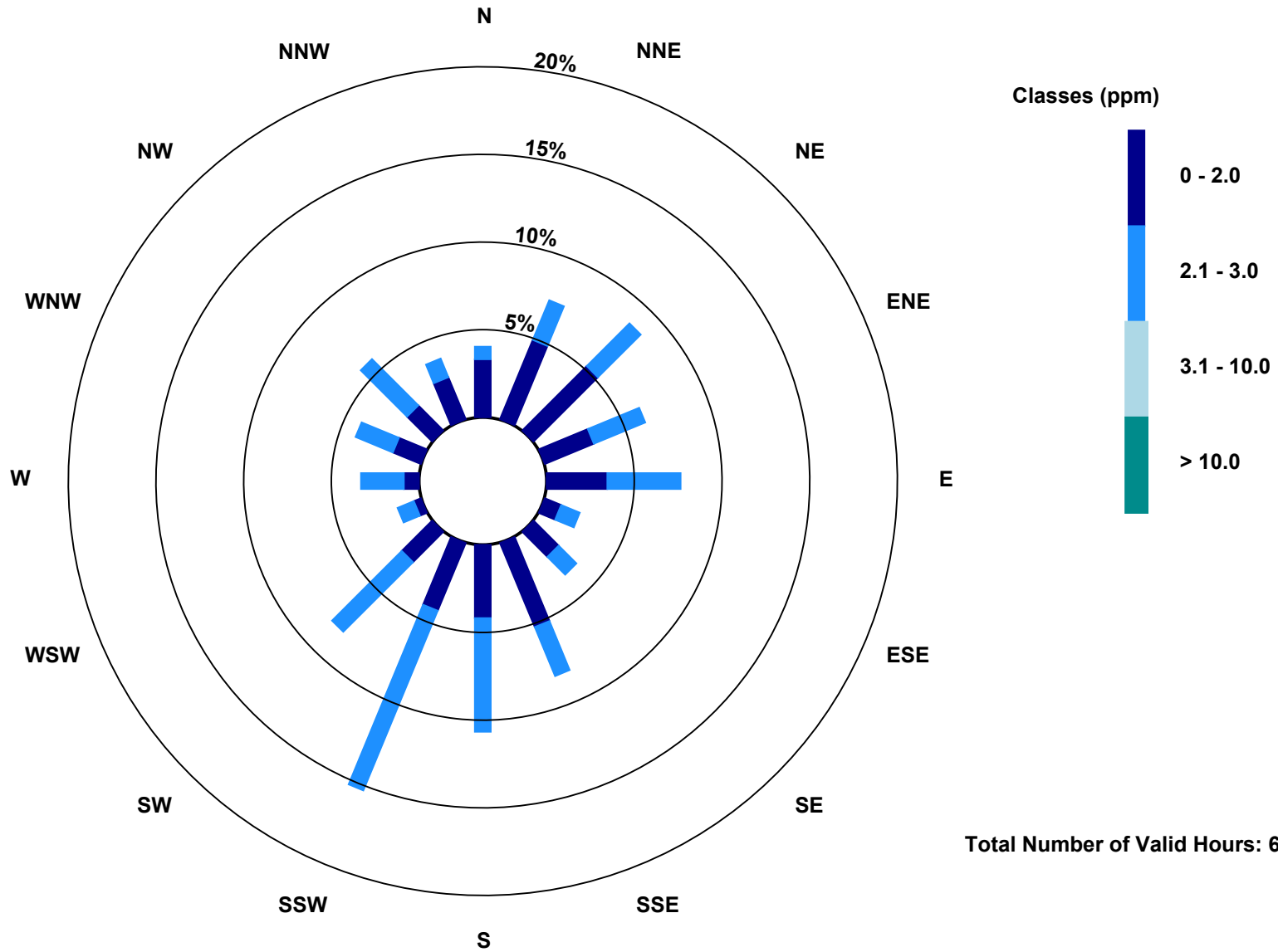
Total Number of Valid Hours: 694

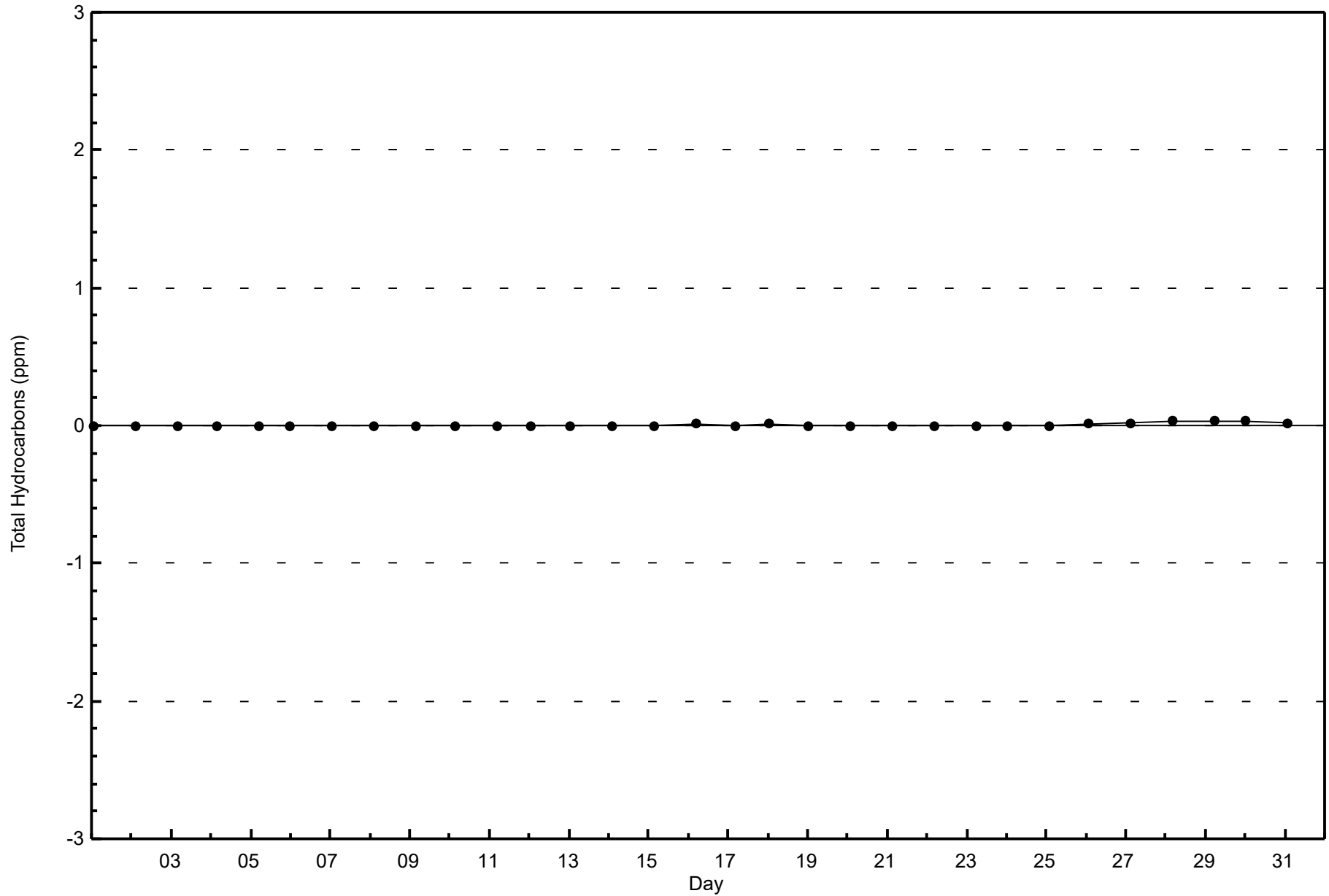
Total Number of Hours: 744

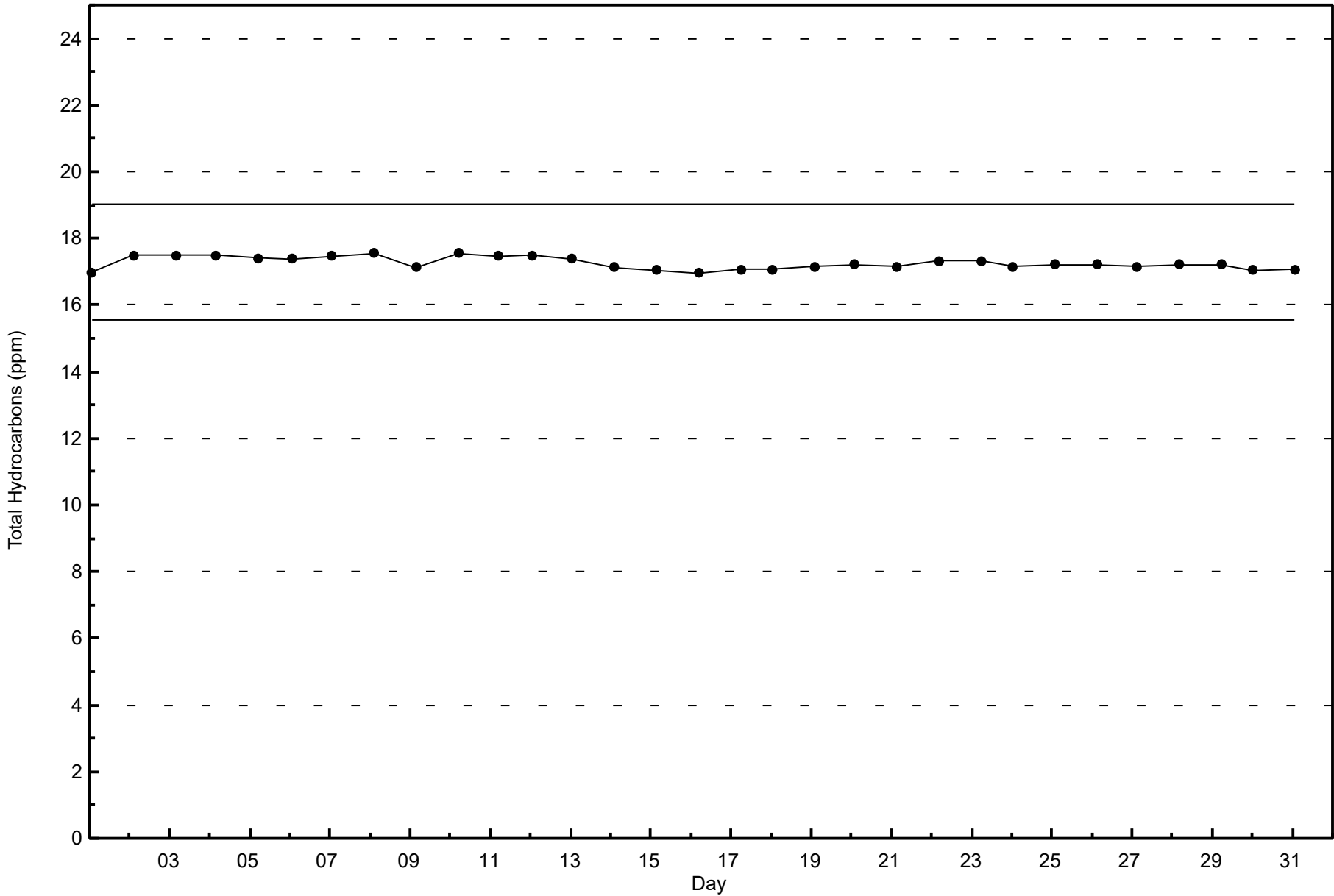


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Stony Mountain







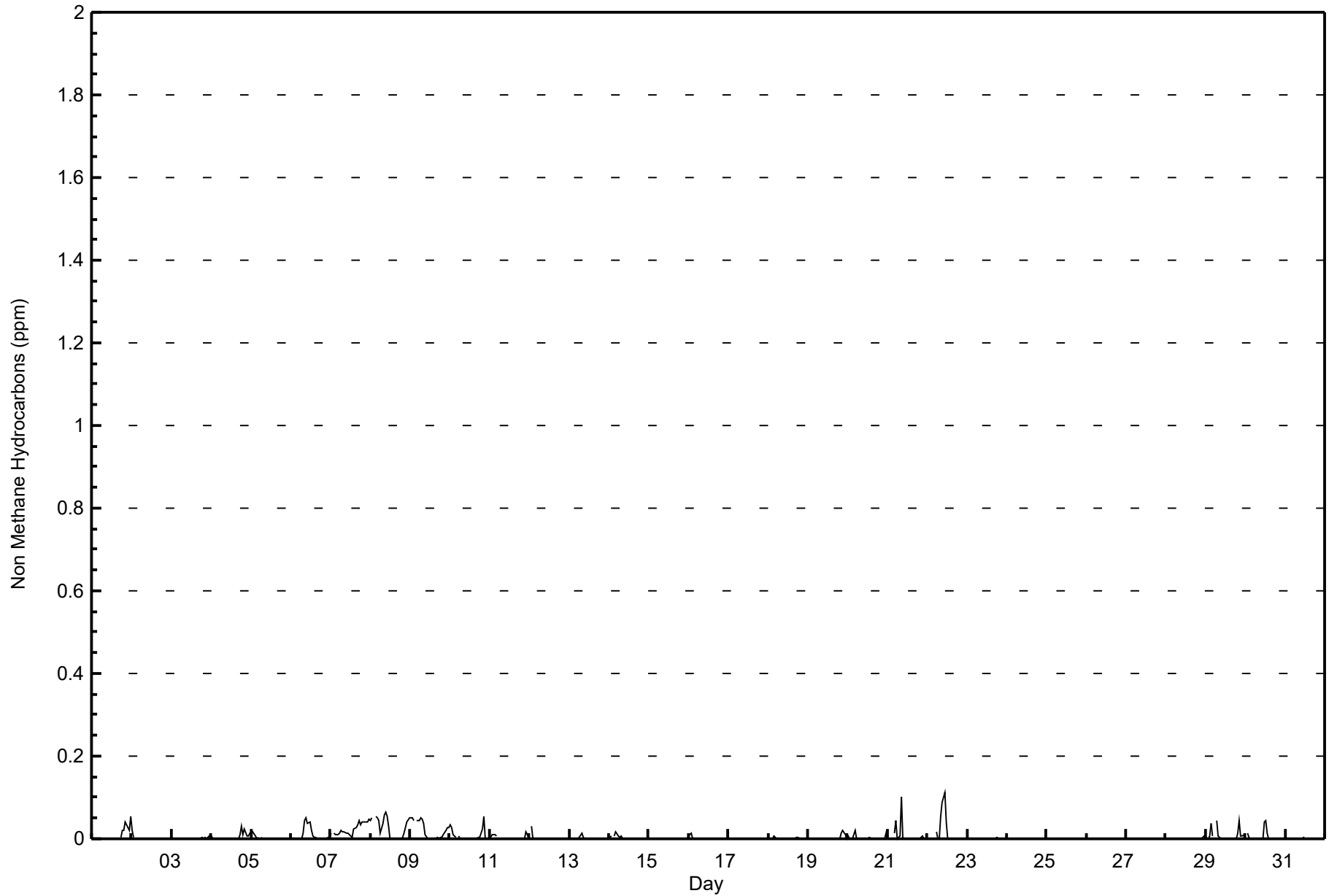


Maximum Value: 0.113 ppm on Mar 22 11:00		Maximum Daily Average: 0.028 ppm on Mar 8		Hours in Service:	744																						
Minimum Value: 0.000 ppm on Mar 2 04:00		Minimum Daily Average: 0.000 ppm on Mar 27		Hours of Data:	694																						
Maximum Diurnal Average: 0.011 ppm at hour 9		Minimum Diurnal Average: 0.001 ppm at hour 15		Hours of Missing Data:	50																						
Monthly Average: 0.005 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.1		Hours of Calibration:	35																						
				Percent Operational Time:	98.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	0.005	0.022	0.019	0.042	0.033	0.019	0.053	--	0.053	
2-Mar	0.020	0.003	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.020	
3-Mar	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	0.001	0.003	0.002	0.002	0.011	0.001	0.011	
4-Mar	0.003	0.000	0.000	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	0.001	0.001	0.012	0.029	0.011	0.024	0.008	0.006	0.015	0.005	0.029	
5-Mar	0.011	0.018	0.006	0.000	0.004	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	0.001	0.000	0.000	0.002	0.018	
6-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.043	0.051	0.038	0.042	0.021	0.007	0.002	0.003	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.002	0.010	0.051	
7-Mar	0.013	Z	0.015	0.011	0.010	0.014	0.019	0.017	0.017	0.013	0.013	0.010	0.005	0.005	0.025	0.026	0.035	0.043	0.033	0.039	0.039	0.039	0.041	0.046	0.023	0.046	
8-Mar	0.044	0.052	Z	0.054	0.049	0.045	0.015	0.037	0.059	0.064	0.054	0.031	0.001	0.001	0.000	0.000	0.000	0.000	0.001	0.005	0.012	0.029	0.040	0.050	0.028	0.064	
9-Mar	0.049	0.051	0.046	Z	0.044	0.045	0.050	0.049	0.038	0.010	0.001	0.000	0.001	0.001	0.001	0.001	0.002	0.001	0.002	0.005	0.010	0.021	0.026	0.029	0.021	0.051	
10-Mar	0.033	0.026	0.010	0.005	Z	0.006	0.001	0.001	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.003	0.024	0.056	0.001	0.001	0.000	0.007	0.056	
11-Mar	0.000	0.009	0.012	0.010	0.005	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.018	0.004	0.003	0.018	
12-Mar	Z	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.031	
13-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.004	0.013	0.003	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.013	
14-Mar	0.005	0.007	Z	0.006	0.016	0.006	0.005	0.007	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.016	
15-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.001	
16-Mar	0.008	0.014	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.014	
17-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
18-Mar	Z	0.000	0.001	0.008	0.004	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.004	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.008	
19-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.019	0.011	0.001	0.002	0.019	
20-Mar	0.006	0.000	Z	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.014	0.002	0.021	
21-Mar	0.000	0.000	0.000	Z	0.014	0.044	0.000	0.008	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.007	0.001	0.000	0.008	0.100	
22-Mar	0.000	0.000	0.000	0.000	Z	0.016	0.000	0.000	0.053	0.087	0.113	0.041	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.113	
23-Mar	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	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.003	
24-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
26-Mar	0.000	0.000	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.001	
27-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
28-Mar	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	0.004	0.008	0.001	0.008	
29-Mar	0.003	0.002	0.008	0.038	0.005	Z	0.045	0.005	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015	0.043	0.007	0.005	0.010	0.008	0.045		
30-Mar	Z	0.014	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.044	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.044	
31-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002	
		0.008	0.009	0.004	0.005	0.007	0.007	0.005	0.005	0.011	0.008	0.007	0.006	0.003	0.001	0.001	0.001	0.001	0.002	0.003	0.004	0.008	0.005	0.006	0.008	Diurnal Average	
		0.049	0.052	0.046	0.054	0.049	0.045	0.050	0.049	0.100	0.087	0.113	0.042	0.044	0.015	0.025	0.026	0.035	0.043	0.033	0.039	0.056	0.039	0.041	0.053	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation																	



Wood Buffalo Environmental Association
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	573	82.56	82.56
0.006 - 0.05	115	16.57	99.14
0.06 - 0.1	6	0.86	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 694

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain - March 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	24	44	59	42	47	12	21	57	59	72	40	9	21	16	30	20	573
0.006 - 0.05	4	7	1	1	5	1	3	0	15	33	15	1	2	12	10	5	115
0.06 - 0.1	0	0	0	0	1	2	0	0	0	1	1	0	0	0	0	1	6
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	28	51	60	43	53	15	24	57	74	106	56	10	23	28	40	26	694

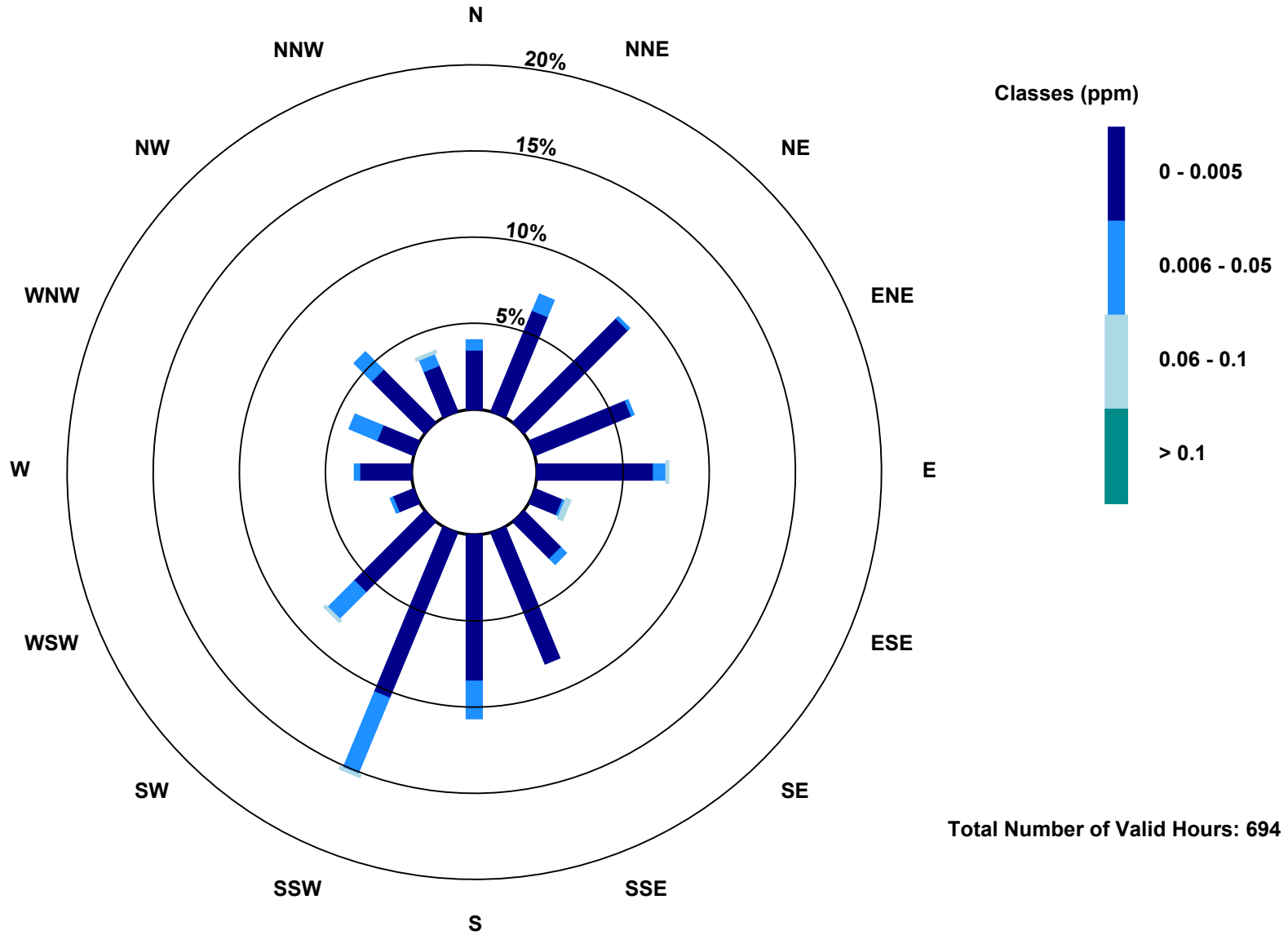
Total Number of Valid Hours: 694

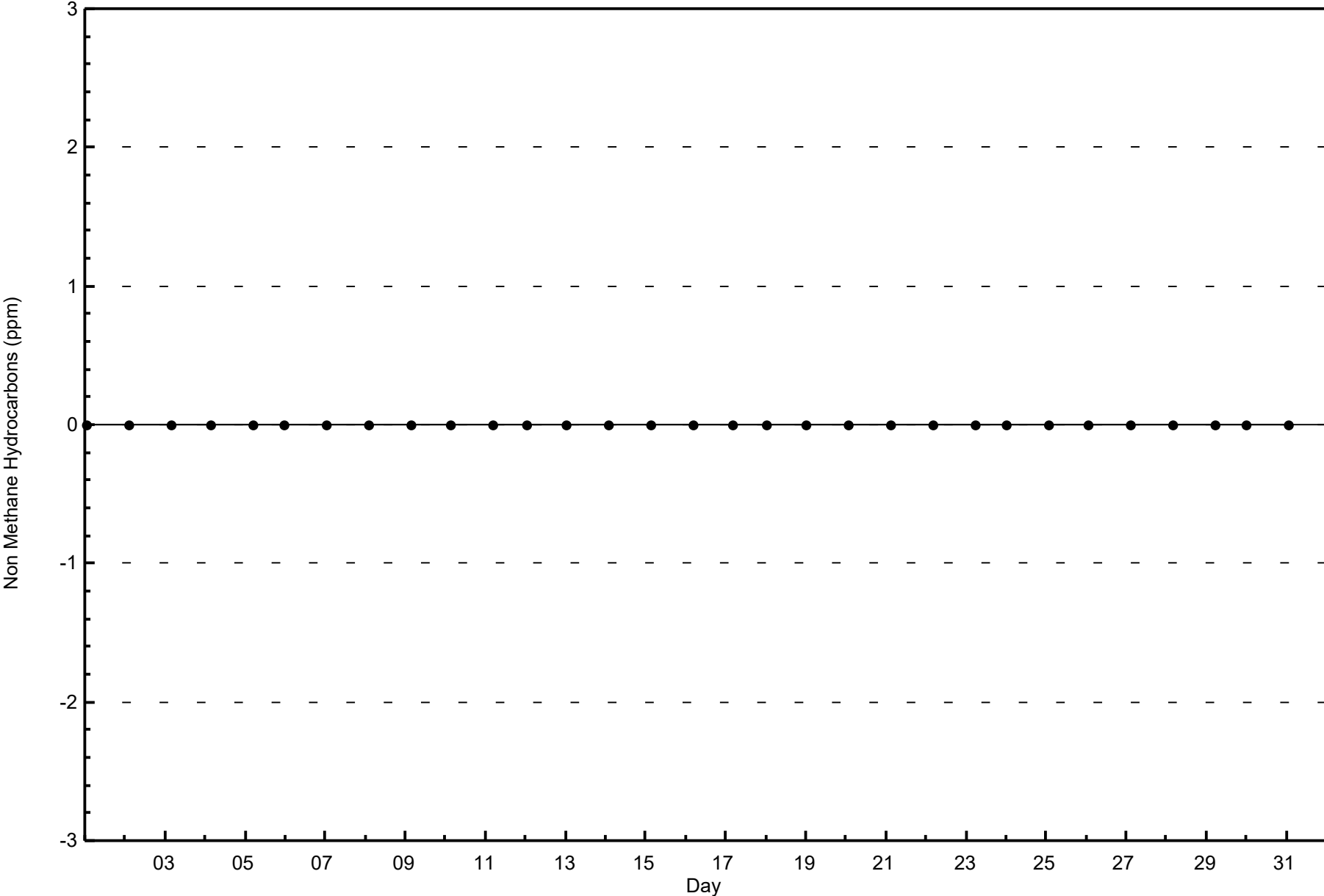
Total Number of Hours: 744

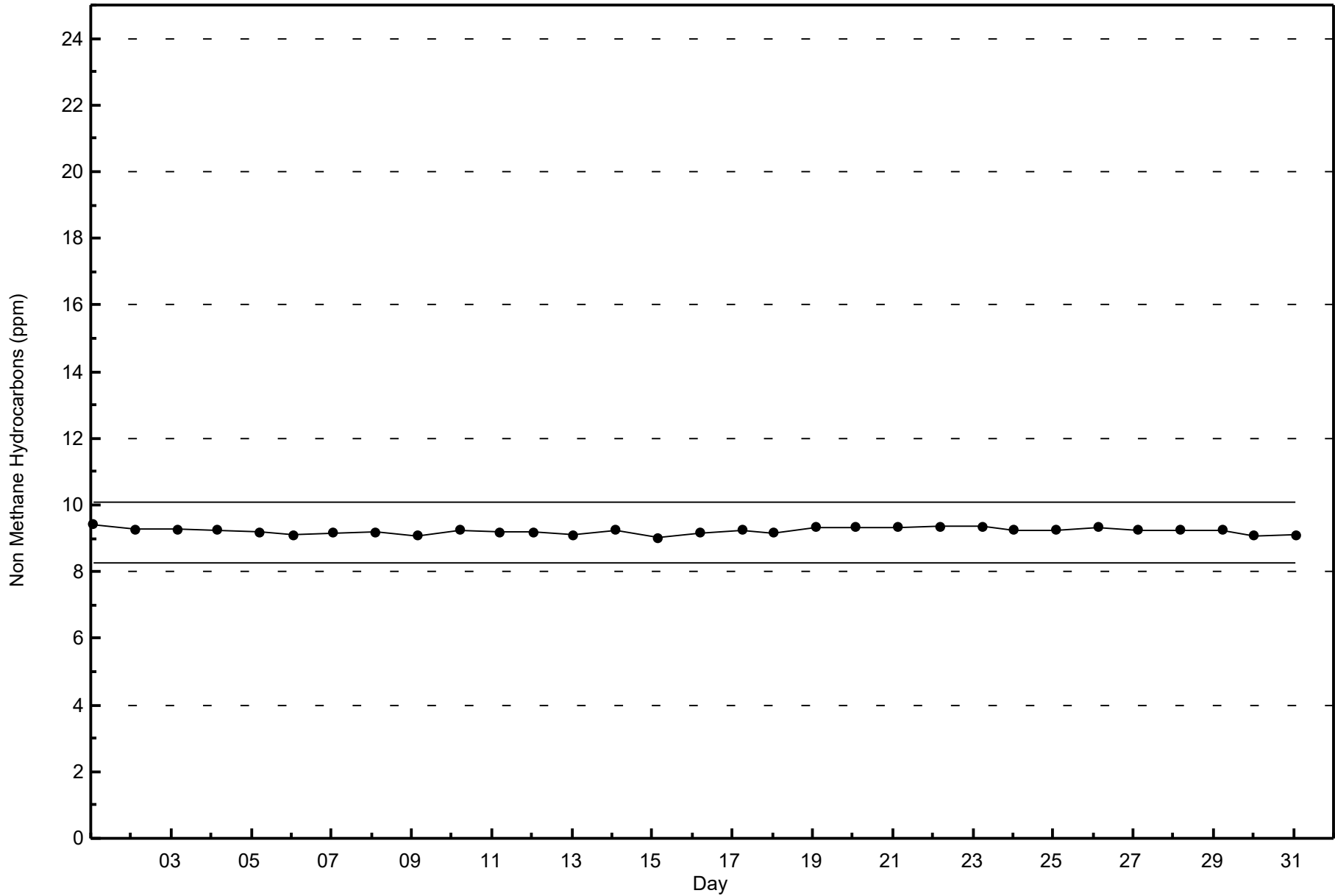


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain







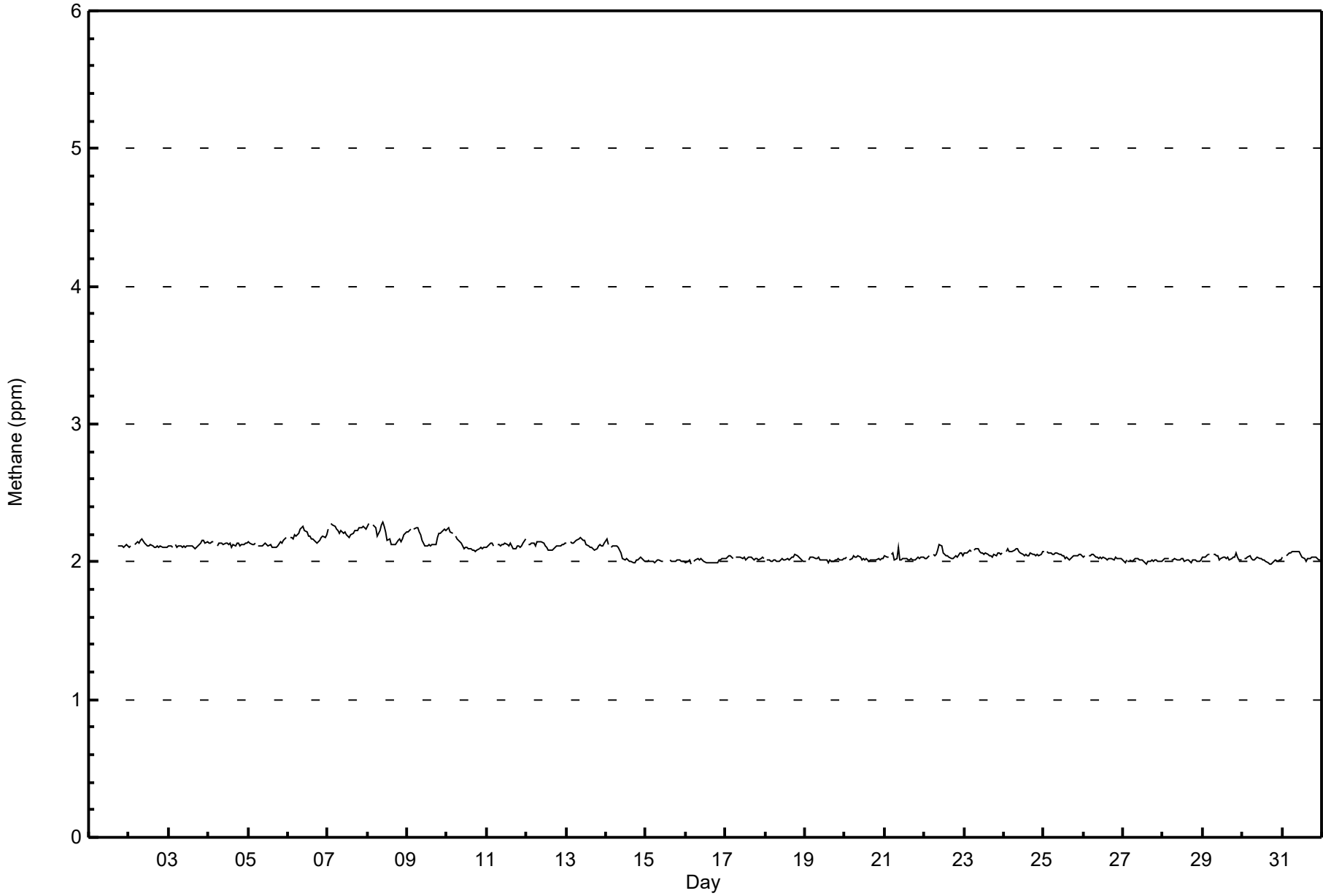


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 2.3 ppm on Mar 8 10:00		Maximum Daily Average: 2.2 ppm on Mar 7																	Hours of Data:	694							
Minimum Value: 2.0 ppm on Mar 30 17:00		Minimum Daily Average: 2.0 ppm on Mar 15																	Hours of Missing Data:	50							
Maximum Diurnal Average: 2.1 ppm at hour 5		Minimum Diurnal Average: 2.1 ppm at hour 17																	Hours of Calibration:	35							
Monthly Average: 2.08 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.3																	Percent Operational Time:	98.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	UO	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	--	2.1
2-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
3-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	
4-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
5-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	
6-Mar	Z	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	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
7-Mar	2.2	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.3	
8-Mar	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	
9-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
10-Mar	2.2	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	
11-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	
12-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
13-Mar	2.1	Z	2.1	2.1	2.1	2.1	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	2.2	
14-Mar	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	
15-Mar	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
16-Mar	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-Mar	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
18-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
19-Mar	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-Mar	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
21-Mar	2.0	2.0	2.0	Z	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
22-Mar	2.0	2.0	2.0	2.0	Z	2.1	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	2.1	2.1	2.0	2.1	2.1	
23-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	
24-Mar	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	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	
25-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	
26-Mar	2.0	2.0	Z	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
27-Mar	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-Mar	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-Mar	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	2.1	2.0	2.0	2.0	2.0	2.1	
30-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	2.0	Z	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
2.1																								Diurnal Average			
2.3																								Diurnal Maximum			
Z - zerospan			C - Calibration				M - Maintenance				UO - Unstable Operation																



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Stony Mountain - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	329	47.41	47.41
2.1 - 3.0	365	52.59	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 694

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Stony Mountain - March 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	23	34	37	21	24	7	14	36	31	30	17	3	6	12	15	19	329
2.1 - 3.0	5	17	23	22	29	8	10	21	43	76	39	7	17	16	25	7	365
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
Totals	28	51	60	43	53	15	24	57	74	106	56	10	23	28	40	26	694

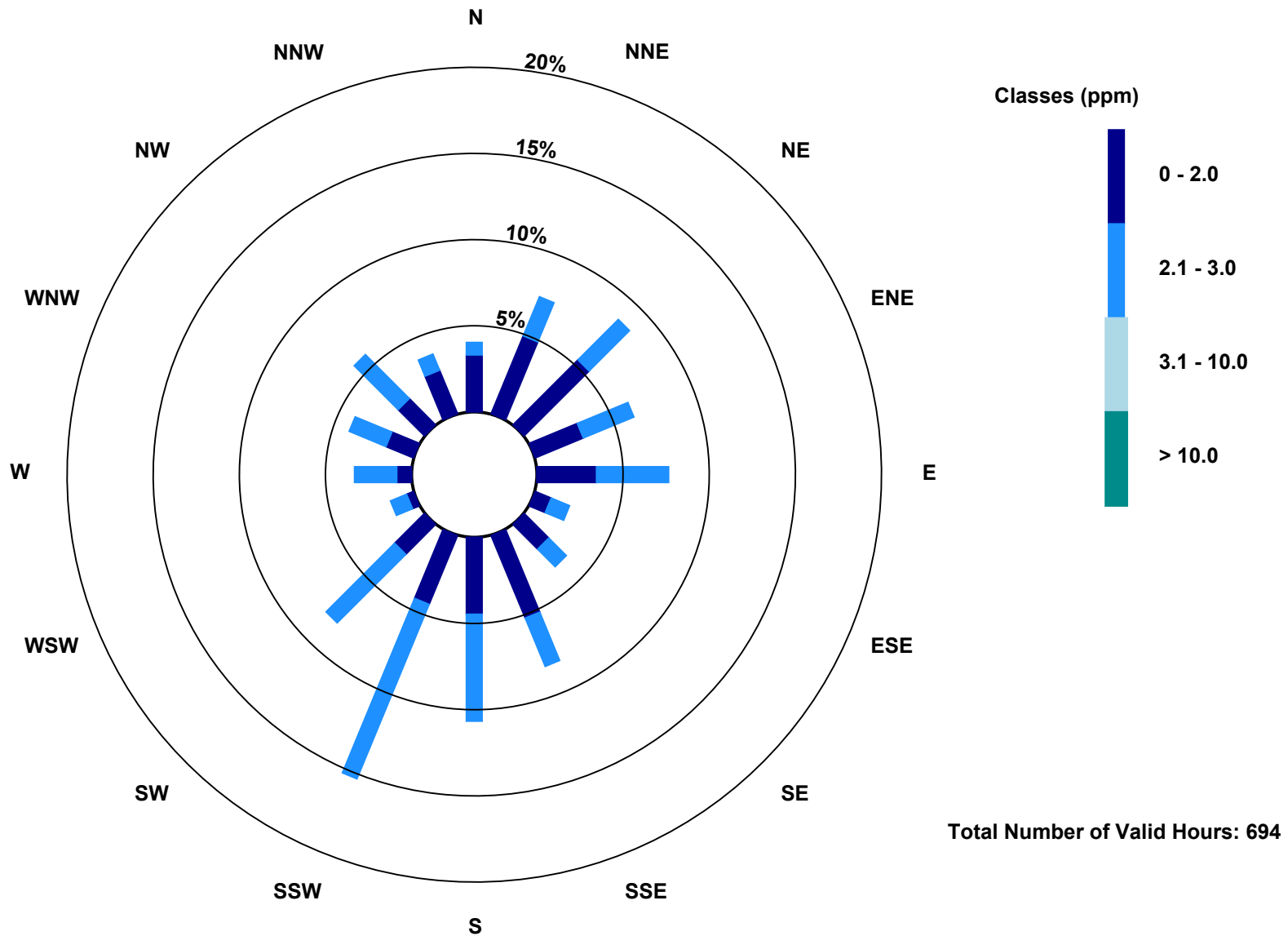
Total Number of Valid Hours: 694

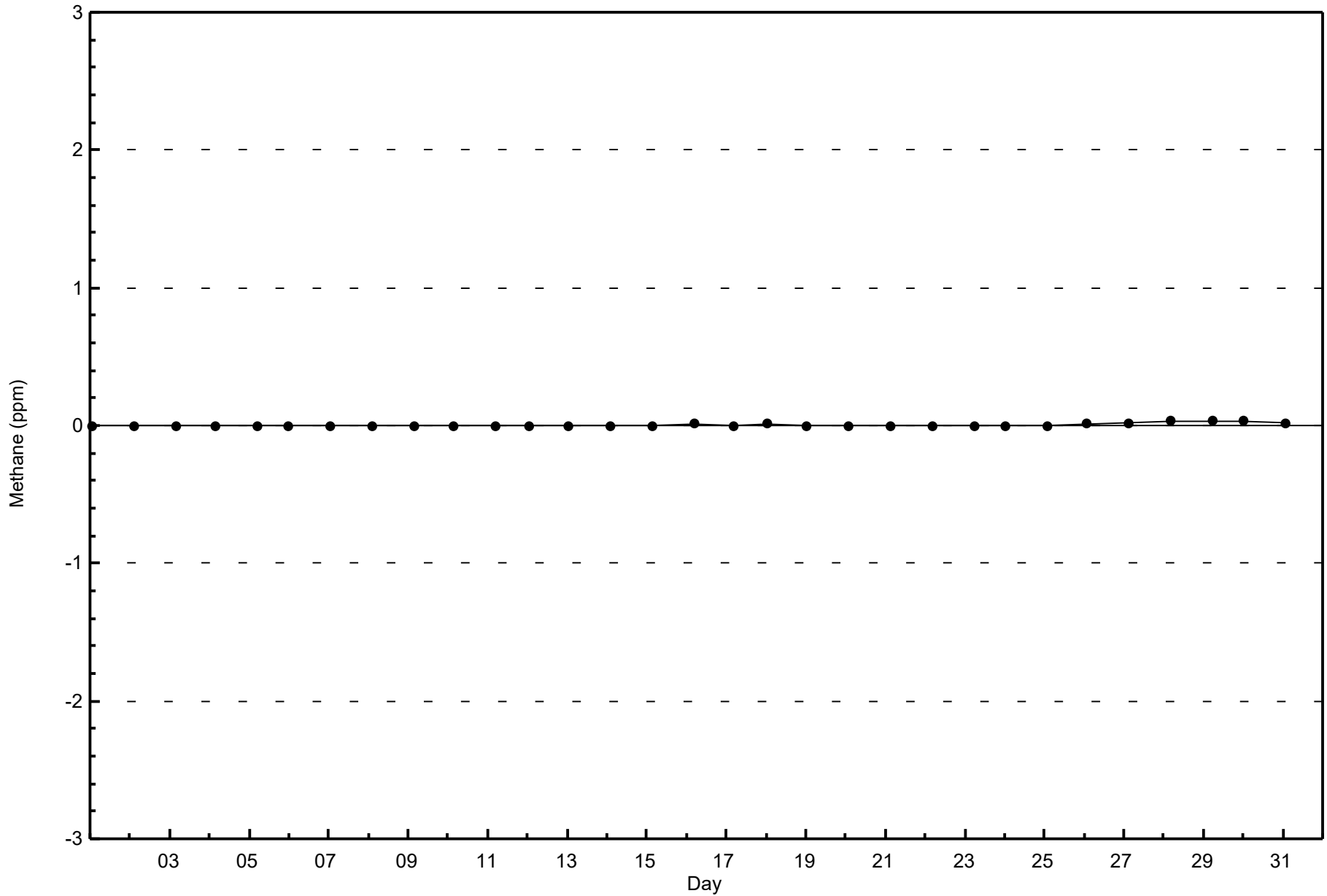
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Stony Mountain

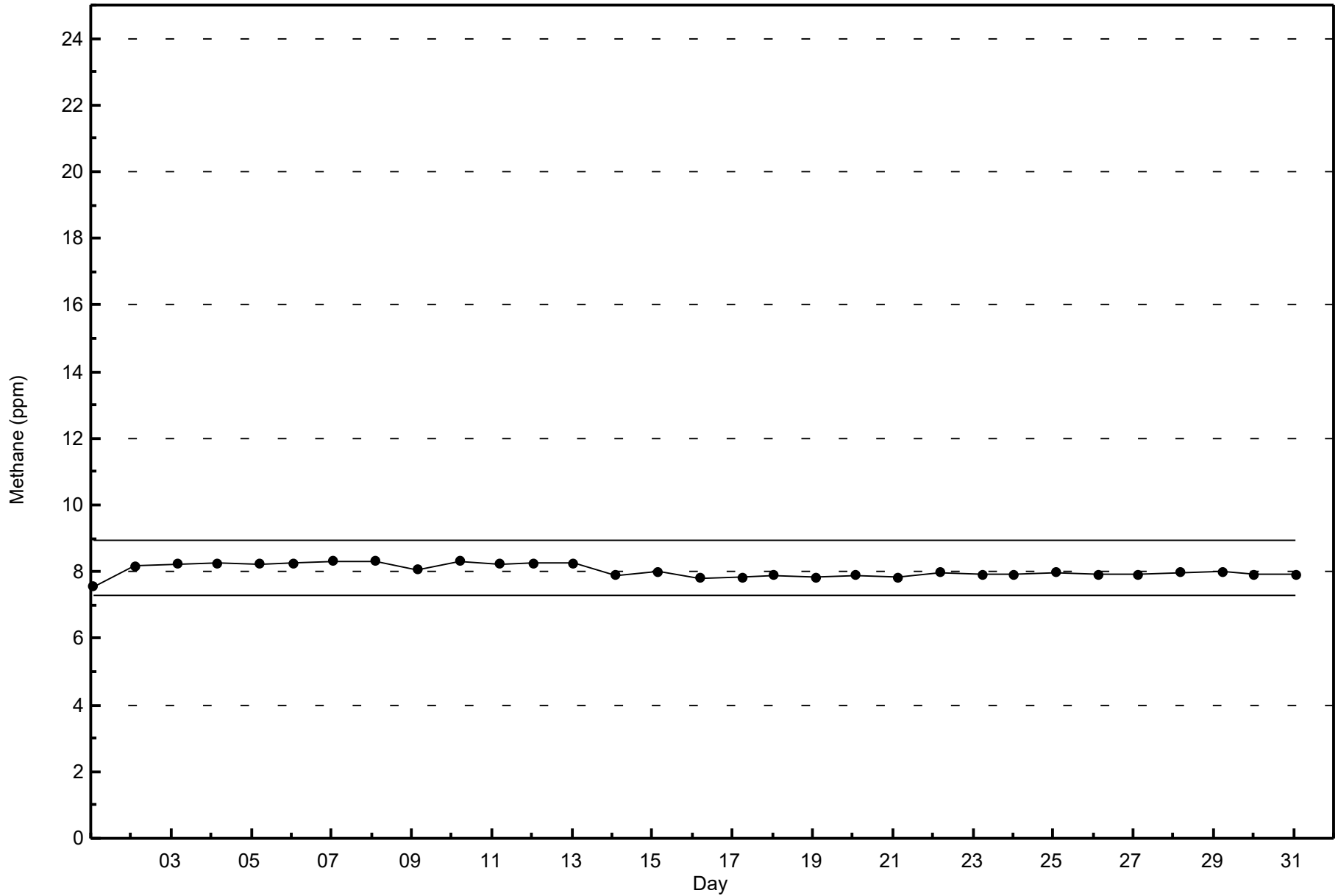






Wood Buffalo Environmental Association
Span Responses

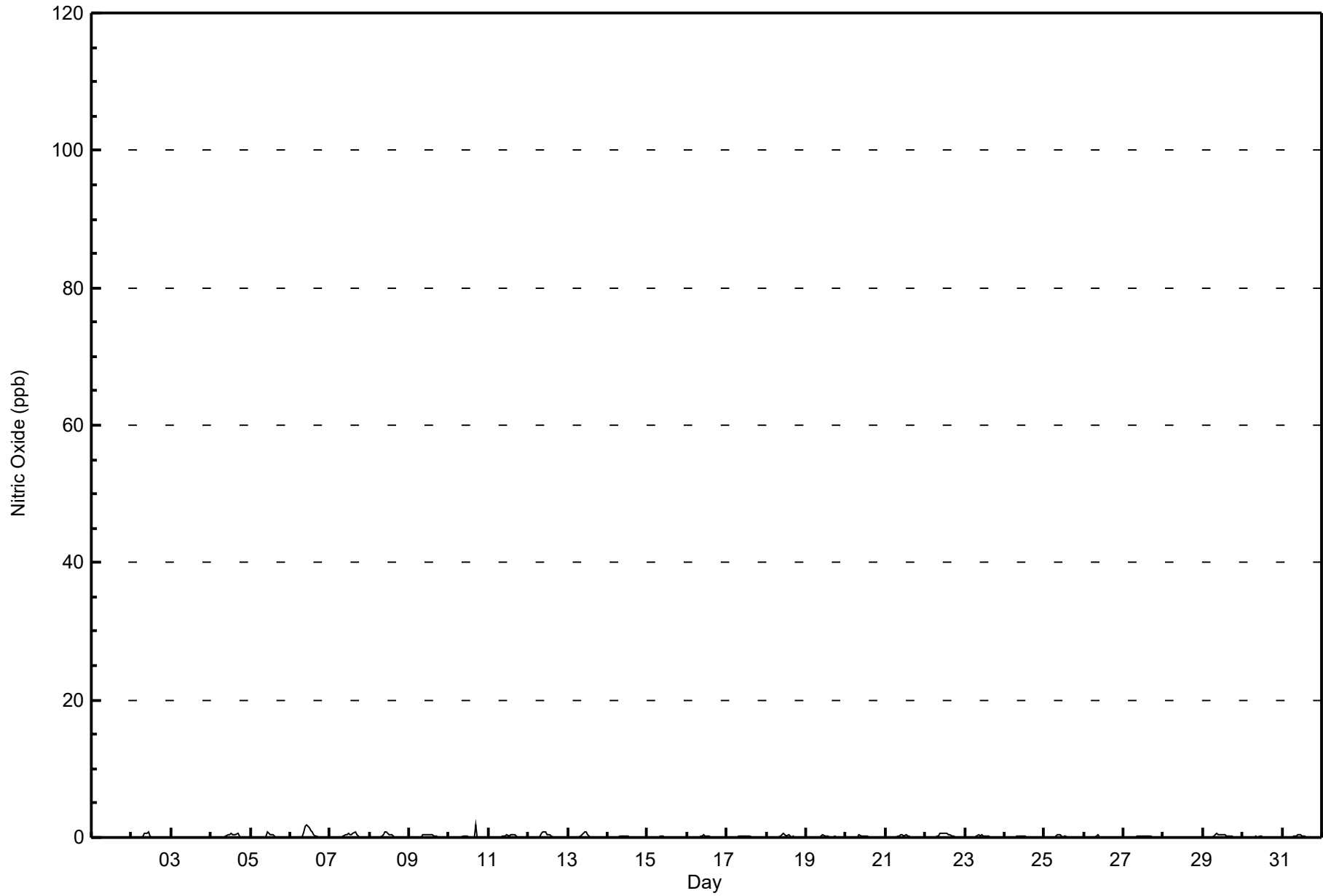
Methane (CH₄) - ppm
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Stony Mountain - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 - March 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	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	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
Totals	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	707

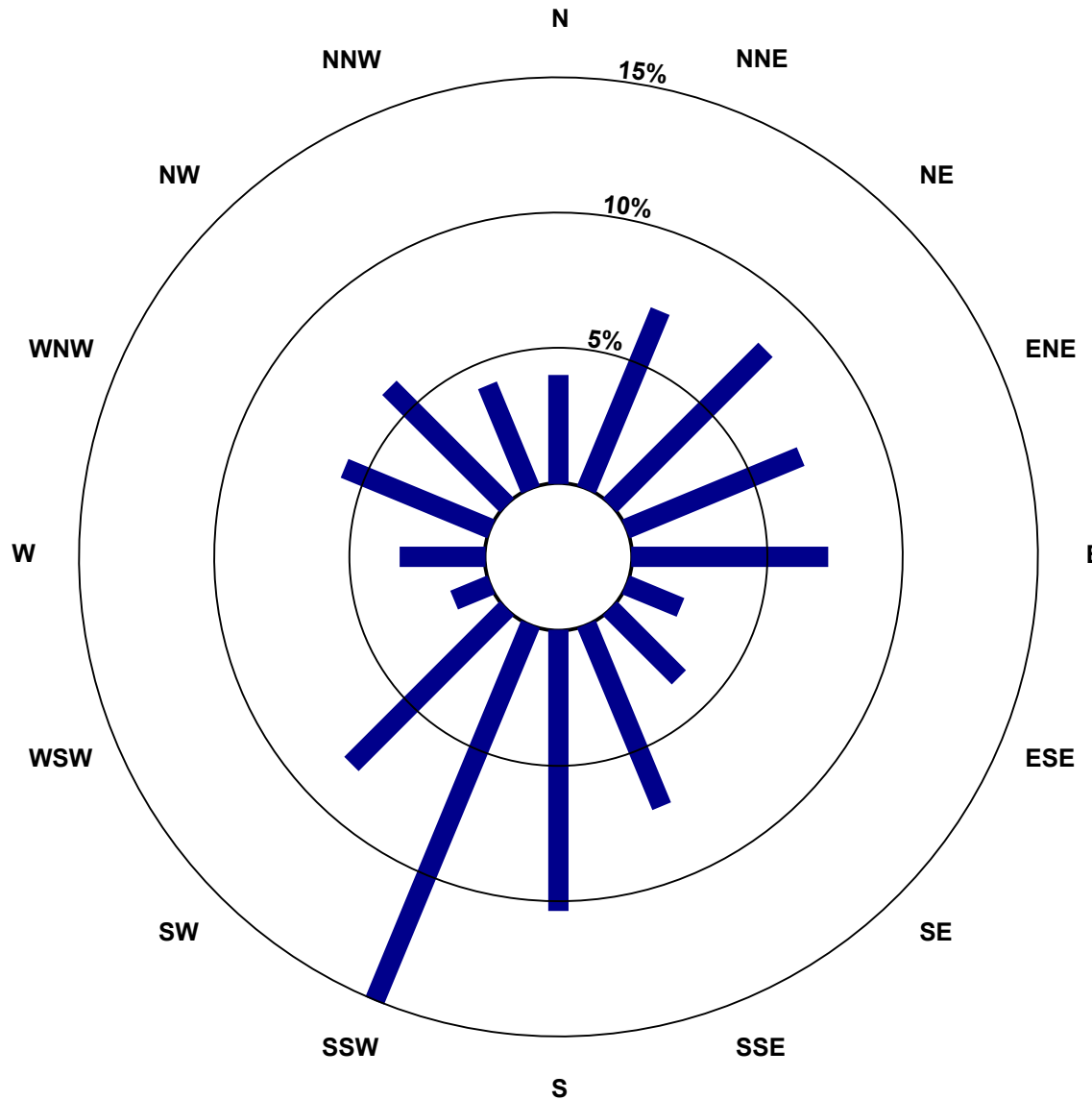
Total Number of Valid Hours: 707

Total Number of Hours: 744

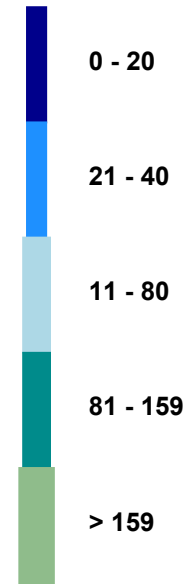


Wood Buffalo Environmental Association
Wind Rose Mar 2024

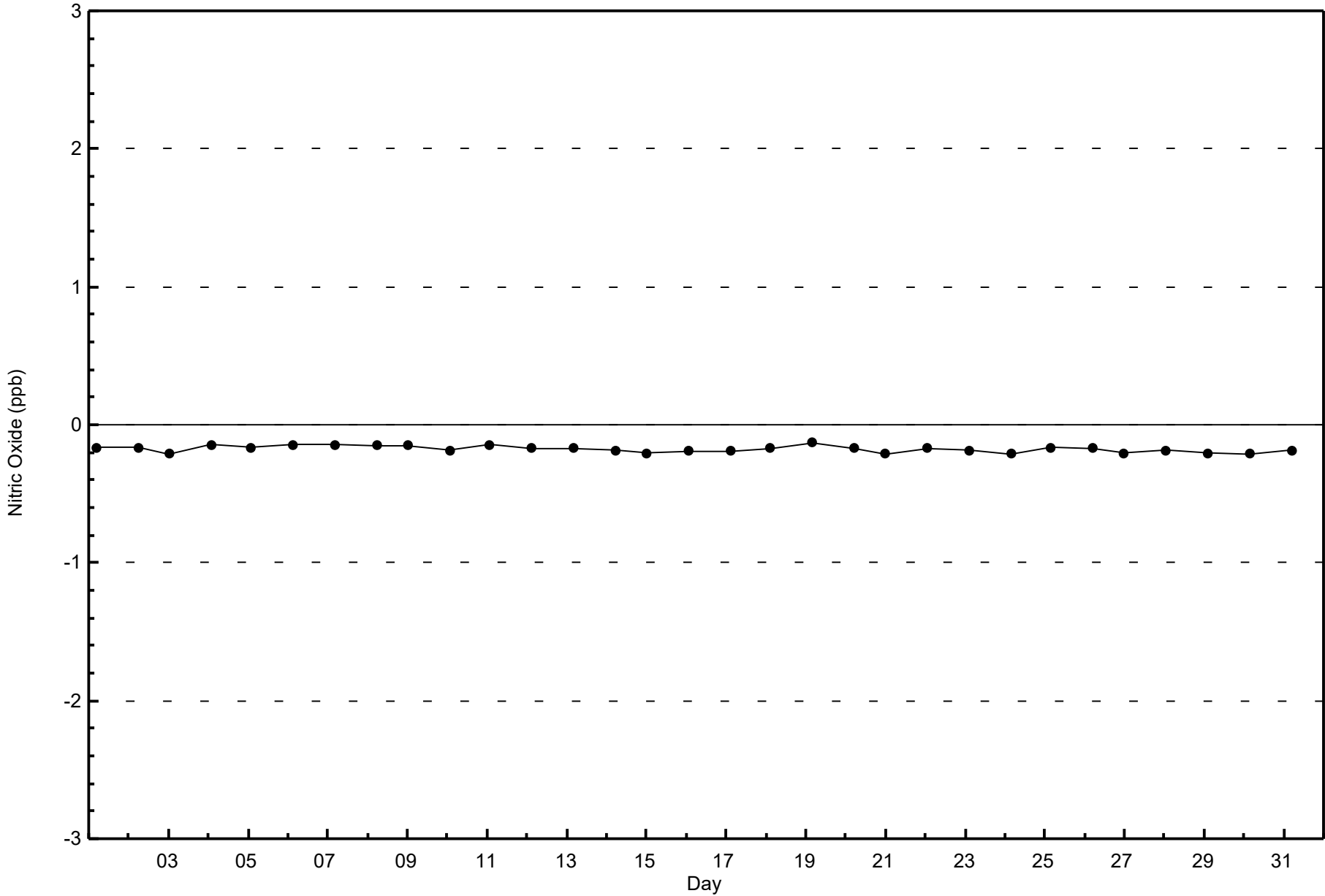
Nitric Oxide (NO) - ppb
Stony Mountain

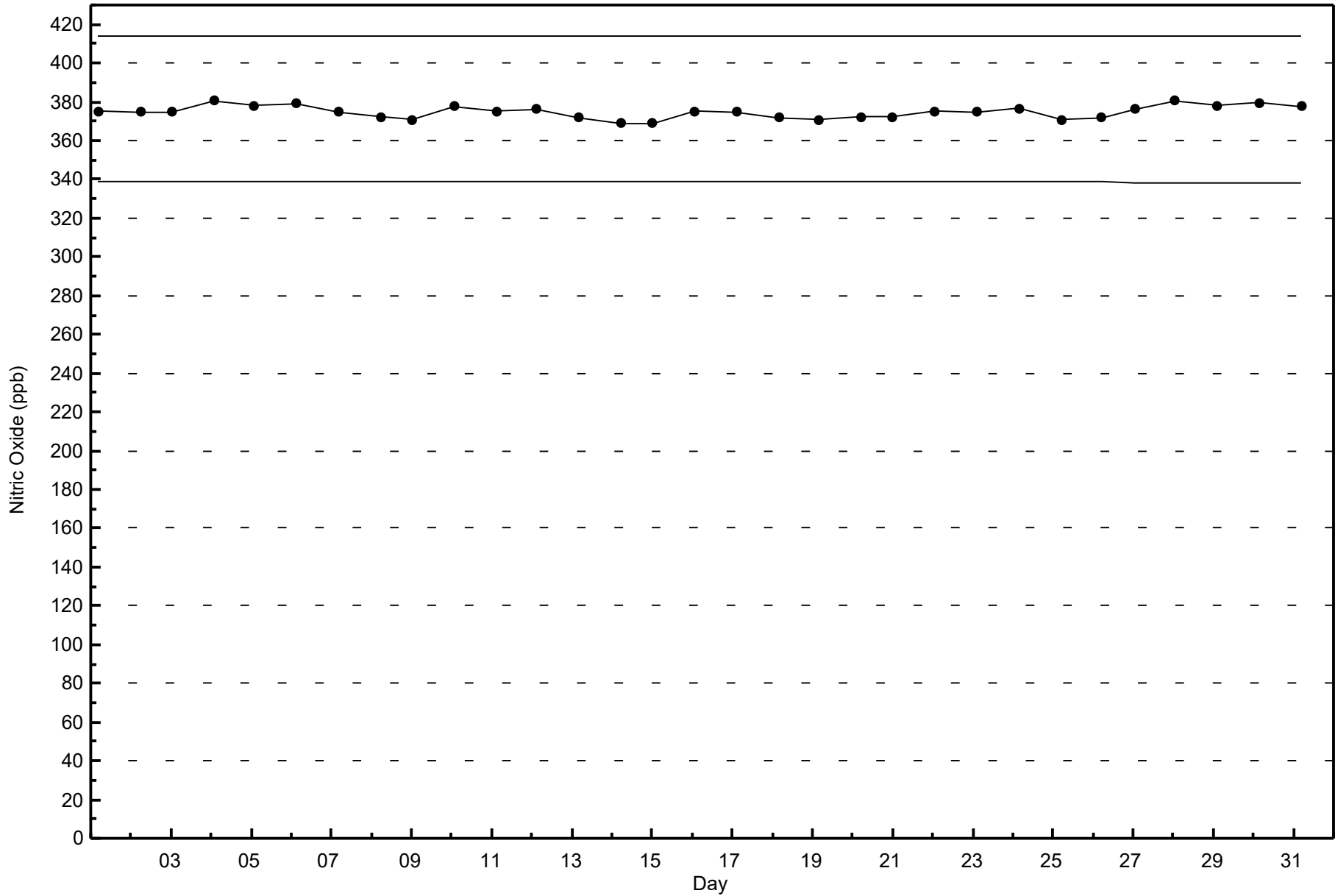


Classes (ppb)



Total Number of Valid Hours: 707







Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Stony Mountain - March 2024

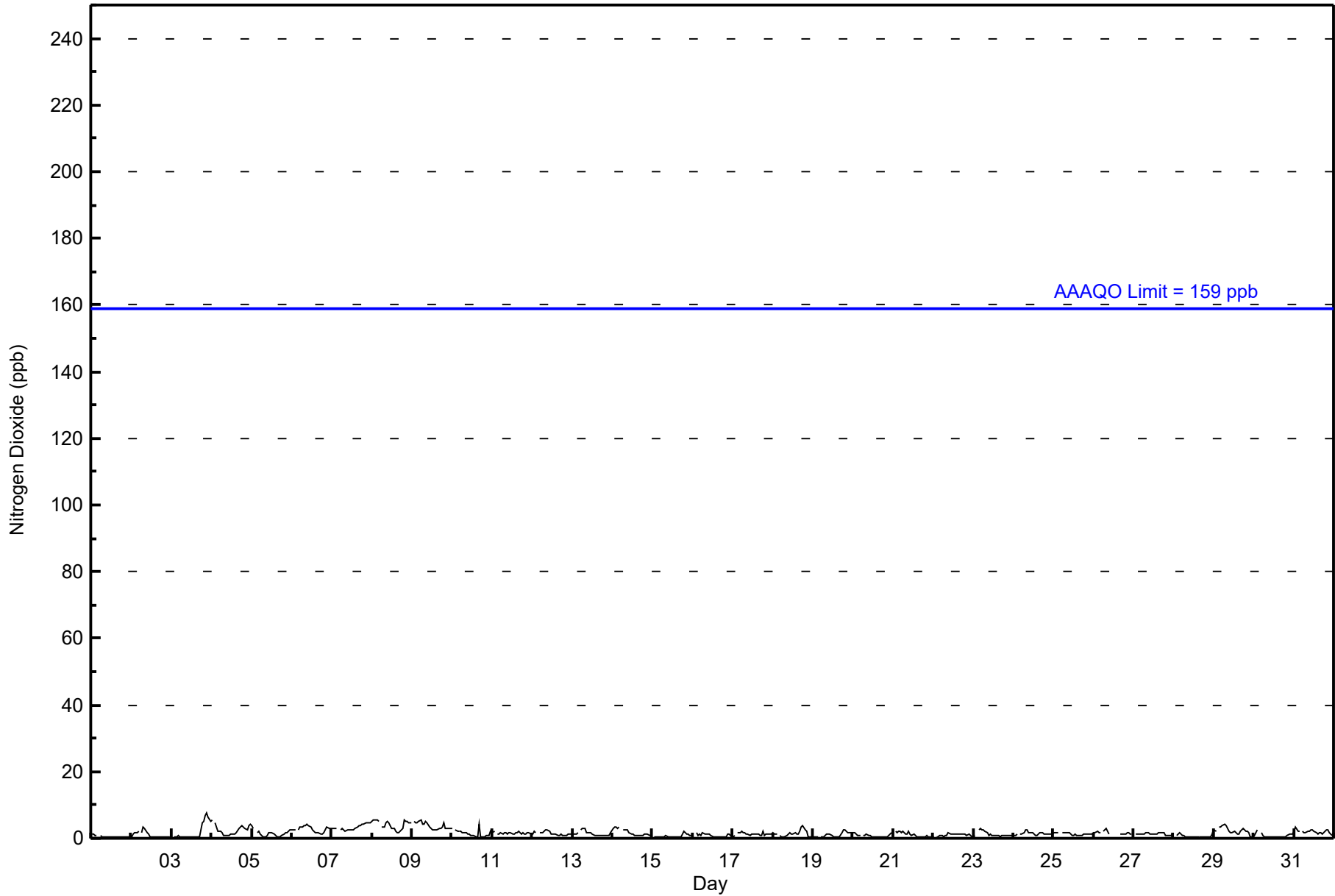
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 7.5 ppb on Mar 3 22:00		Maximum Daily Average: 4.1 ppb on Mar 8		Hours of Data: 707														Hours of Missing Data: 37		Hours of Calibration: 37							
Minimum Value: 0.3 ppb on Mar 3 16:00		Minimum Daily Average: 0.6 ppb on Mar 1		Hours of Calibration: 37														Percent Operational Time: 100.0									
Maximum Diurnal Average: 2.0 ppb at hour 3		Minimum Diurnal Average: 1.1 ppb at hour 15		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.7 Median = 1.3 Q ₃ = 2.0 P ₉₀ = 3.2 P ₉₉ = 5.5																							
Monthly Average: 1.60 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-Mar	1.3	1.1	1.0	0.9	Z	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.5	0.5	0.6	0.6	1.1	1.3
2-Mar	0.6	1.2	1.9	1.9	2.2	Z	1.6	3.3	3.0	1.7	1.4	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	0.6	1.1	3.3	
3-Mar	Z	0.4	0.4	0.6	0.9	0.5	0.6	0.4	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	4.8	4.9	6.9	7.5	6.4	5.2	1.9	7.5	
4-Mar	5.5	Z	4.6	3.2	2.1	2.0	1.7	0.9	0.7	0.9	1.0	1.1	1.1	1.2	1.3	1.8	2.8	3.3	4.0	3.5	2.8	2.4	3.8	4.2	2.4	5.5	
5-Mar	3.9	3.1	Z	1.8	2.1	1.4	0.8	0.5	0.5	0.9	1.8	1.6	1.5	1.1	0.9	0.6	0.4	0.6	0.8	1.3	1.9	1.8	2.1	2.4	1.5	3.9	
6-Mar	2.5	2.5	2.4	Z	2.4	3.4	3.4	3.8	3.9	4.4	3.9	3.2	2.5	2.2	1.9	1.7	1.4	1.3	1.7	2.6	3.3	2.9	3.0	2.7	4.4		
7-Mar	3.0	3.1	3.0	3.0	Z	2.7	2.8	2.5	2.3	2.5	2.5	2.6	2.4	2.4	2.9	3.6	3.7	3.9	4.2	4.3	4.5	4.6	4.5	4.8	3.3	4.8	
8-Mar	4.9	5.4	5.6	5.5	4.9	Z	3.5	3.6	4.7	4.9	4.8	4.0	2.9	2.8	2.0	1.8	1.9	2.3	3.1	5.7	5.2	4.9	4.6	4.7	4.1	5.7	
9-Mar	Z	4.9	4.8	4.8	5.2	5.6	4.4	4.3	5.0	4.5	3.6	3.1	2.6	2.5	2.6	2.7	2.8	2.8	3.6	4.5	2.8	3.0	3.0	2.9	3.7	5.6	
10-Mar	2.9	Z	2.6	2.2	2.1	2.0	1.8	1.7	1.5	1.3	1.2	1.0	0.8	0.7	0.6	0.6	4.2	0.6	0.5	0.5	0.8	0.7	1.0	2.0	1.4	4.2	
11-Mar	1.7	2.1	Z	1.2	1.3	1.6	1.4	1.5	1.9	1.3	1.5	1.8	1.3	1.3	1.5	1.8	2.1	1.3	1.7	1.1	1.1	1.9	1.9	1.1	1.5	2.1	
12-Mar	1.4	2.3	1.9	Z	1.7	1.5	1.7	2.2	2.5	2.7	2.2	1.4	1.3	1.4	1.2	0.8	0.7	1.1	0.7	0.7	1.0	1.1	1.3	1.2	1.5	2.7	
13-Mar	1.2	1.2	1.3	1.5	Z	2.4	2.8	3.1	1.7	1.5	1.8	1.9	1.2	0.7	0.8	0.8	0.8	0.9	0.7	0.9	0.9	0.9	1.0	1.5	1.4	3.1	
14-Mar	2.9	3.4	3.3	3.1	3.2	Z	2.7	2.7	2.6	2.4	1.7	1.4	1.2	0.9	0.9	0.9	0.9	0.9	1.1	1.3	1.3	1.0	0.7	1.8	3.4		
15-Mar	Z	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.7	0.5	0.3	0.4	0.4	0.3	0.5	0.4	0.3	0.4	1.1	2.2	1.4	1.3	0.7	0.9	0.7	2.2	
16-Mar	0.9	Z	1.6	1.0	1.1	0.7	1.6	1.2	1.1	1.3	1.1	0.7	0.5	0.5	0.5	0.3	0.4	0.3	0.3	0.3	0.5	1.1	1.3	0.4	0.8	1.6	
17-Mar	0.4	0.7	Z	1.6	1.9	2.0	1.8	1.9	1.4	1.1	0.9	1.1	1.3	1.2	1.2	1.1	1.0	1.0	2.0	0.9	1.1	1.1	1.1	1.3	1.3	2.0	
18-Mar	1.5	1.3	1.1	Z	0.9	0.6	0.5	0.5	0.8	1.3	1.6	1.4	1.1	1.5	1.4	1.3	2.3	3.6	3.8	2.7	2.3	0.6	0.5	0.3	1.4	3.8	
19-Mar	0.3	0.4	0.5	0.4	Z	0.5	0.5	1.0	1.2	1.4	1.1	0.7	0.5	0.6	0.4	0.4	0.6	1.5	2.5	2.4	2.1	1.6	1.6	1.6	1.0	2.5	
20-Mar	1.7	1.6	1.2	0.7	0.8	Z	0.8	0.7	1.4	0.8	0.7	0.6	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.8	1.1	1.7	0.8	1.7	
21-Mar	Z	2.2	1.6	2.0	2.0	1.9	2.1	1.4	1.4	2.0	1.4	0.9	1.1	0.8	0.6	0.6	0.3	0.3	0.3	0.3	0.8	0.5	0.3	0.4	1.1	2.2	
22-Mar	0.4	Z	0.4	0.5	0.7	0.9	0.6	1.0	0.9	1.6	1.3	1.2	1.4	1.3	1.3	1.2	1.2	1.2	1.1	0.7	1.3	0.9	0.4	1.0	1.6		
23-Mar	0.5	1.0	Z	2.5	2.8	2.7	2.7	2.3	1.5	1.0	1.3	0.8	0.8	0.8	0.9	0.7	0.6	0.7	0.7	0.7	0.8	0.9	0.9	0.8	1.2	2.8	
24-Mar	0.9	1.0	1.1	Z	1.2	1.4	1.5	2.6	2.5	1.6	1.6	1.5	1.4	1.0	1.0	1.1	1.5	1.5	1.3	1.1	1.2	1.3	1.3	1.3	1.4	2.6	
25-Mar	1.5	1.6	1.7	1.7	Z	1.9	1.7	1.8	1.8	1.5	1.3	1.0	1.0	1.1	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.3	1.9	
26-Mar	1.5	1.7	2.0	1.8	1.8	Z	2.3	2.8	2.1	1.1	C	C	C	C	C	C	1.2	1.4	1.3	1.3	1.5	1.5	1.3	1.2	--	2.8	
27-Mar	Z	1.2	1.2	1.1	1.1	1.3	1.3	1.5	1.6	1.5	1.3	1.1	1.1	1.2	1.4	1.6	1.7	1.9	1.5	0.9	0.9	1.0	1.0	1.2	1.3	1.9	
28-Mar	1.2	Z	1.0	1.6	1.4	0.8	0.7	0.6	0.5	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	1.2	0.7	1.6	
29-Mar	2.6	2.3	Z	3.4	3.3	4.0	4.2	3.9	3.1	2.0	1.7	1.7	2.3	1.9	1.1	1.2	2.0	3.0	2.6	2.2	2.1	1.7	0.6	0.5	2.3	4.2	
30-Mar	0.8	1.5	2.6	Z	1.6	0.9	0.4	0.4	0.5	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.9	1.2	1.2	1.1	0.8	2.6	
31-Mar	2.0	3.2	2.1	2.1	Z	2.0	1.9	1.9	2.0	2.3	2.6	2.4	2.0	1.8	1.4	1.6	1.5	1.4	1.5	2.7	2.7	1.9	1.2	0.9	2.0	3.2	
																								Diurnal Average		Diurnal Maximum	
																								1.8		5.5	
																								2.0		5.4	
																								2.0		5.6	
																								1.9		5.5	
																								2.0		5.2	
																								1.8		5.6	
																								1.8		4.4	
																								1.8		4.3	
																								1.8		5.0	
																								1.7		4.9	
																								1.6		4.8	
																								1.4		4.0	
																								1.2		2.9	
																								1.1		2.8	
																								1.1		2.9	
																								1.1		3.6	
																								1.3		4.2	
																								1.3		3.9	
																								1.6		4.8	
																								1.7		5.7	
																								1.7		6.9	
																								1.7		7.5	
																								1.7		6.4	
																								1.7		5.2	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Stony Mountain - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Stony Mountain - March 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	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	707
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
Totals	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	707

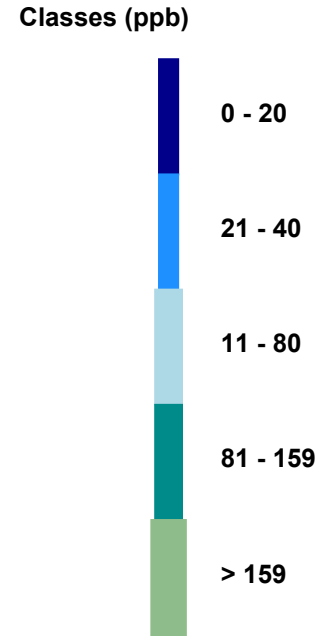
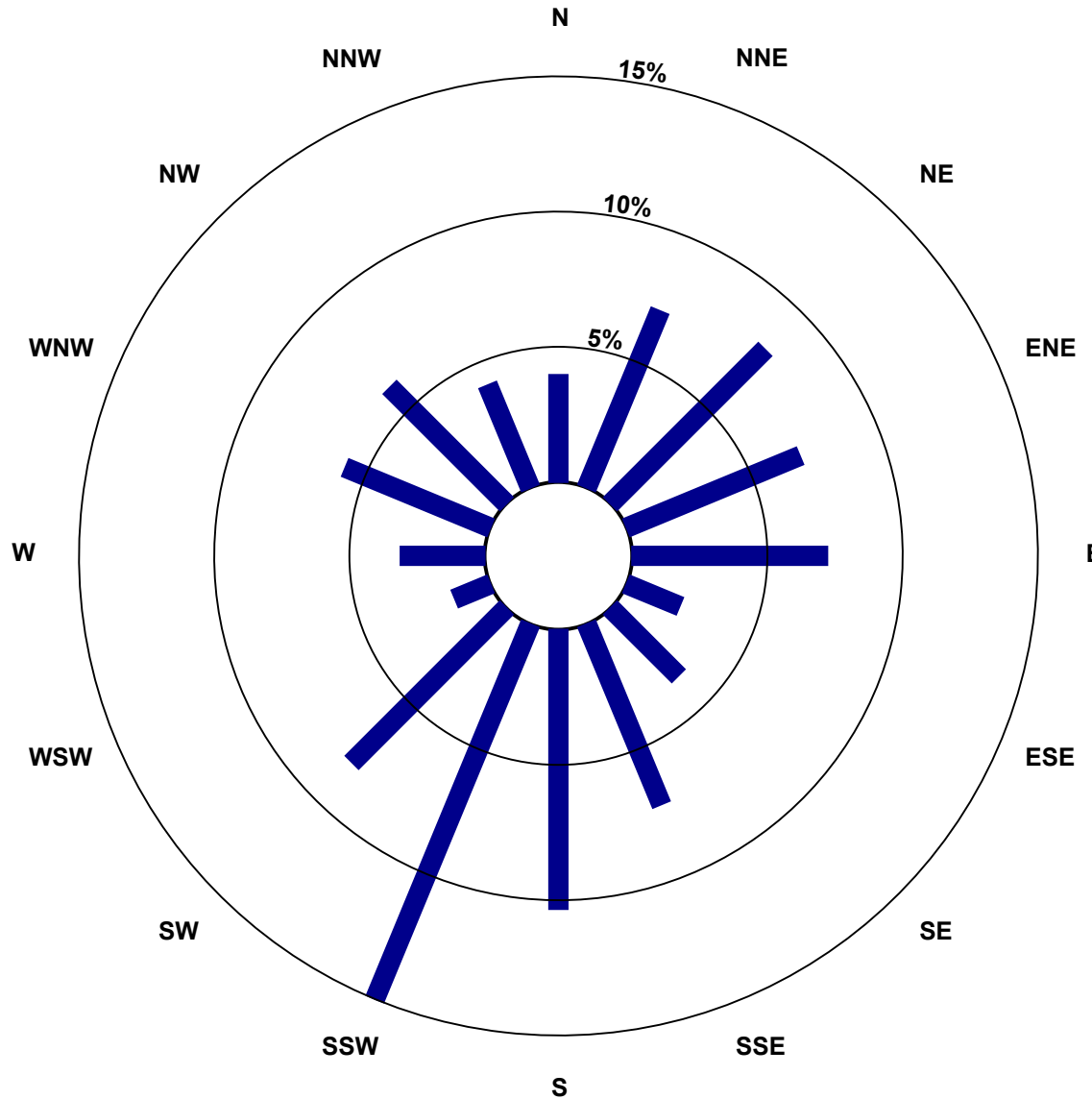
Total Number of Valid Hours: 707

Total Number of Hours: 744

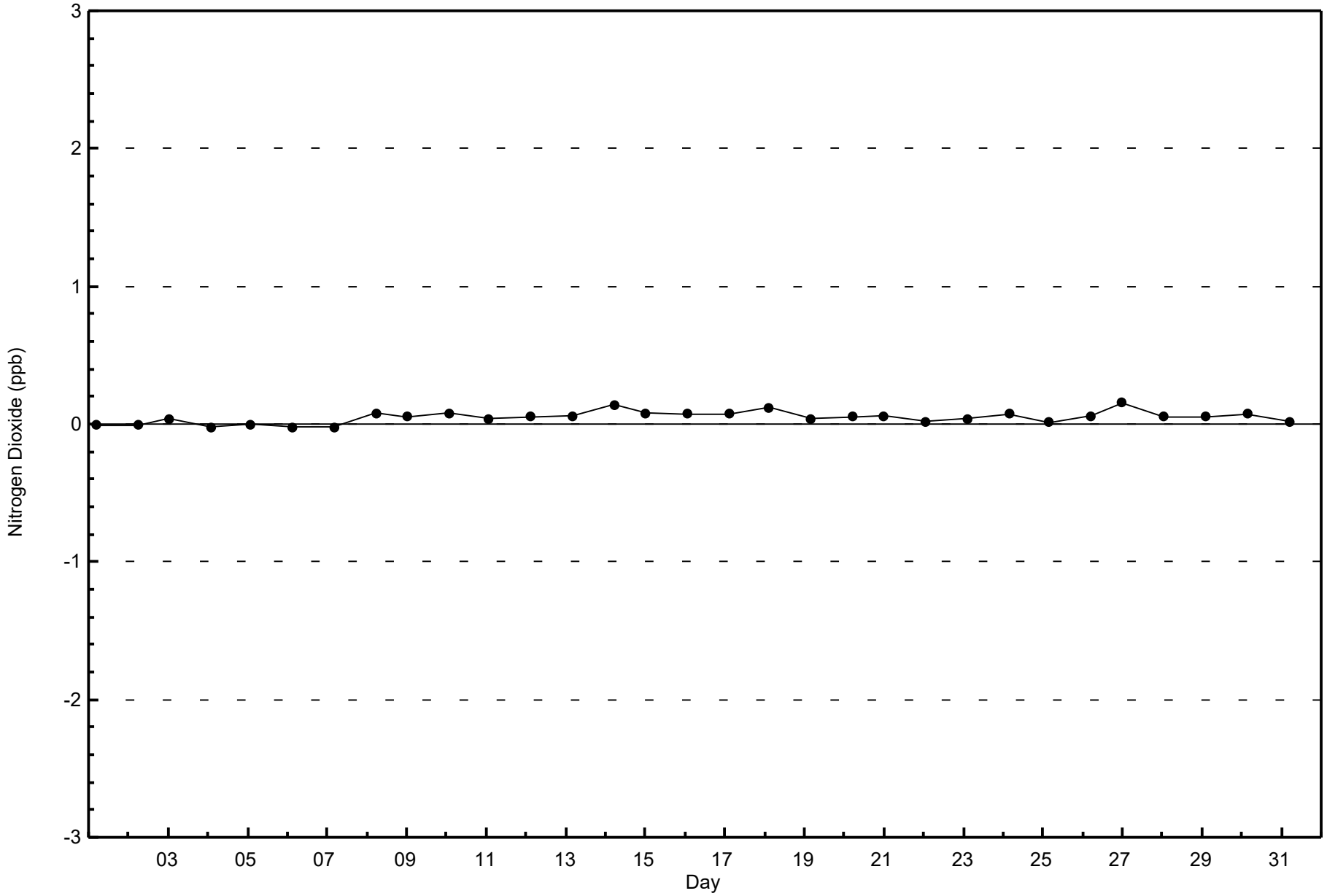


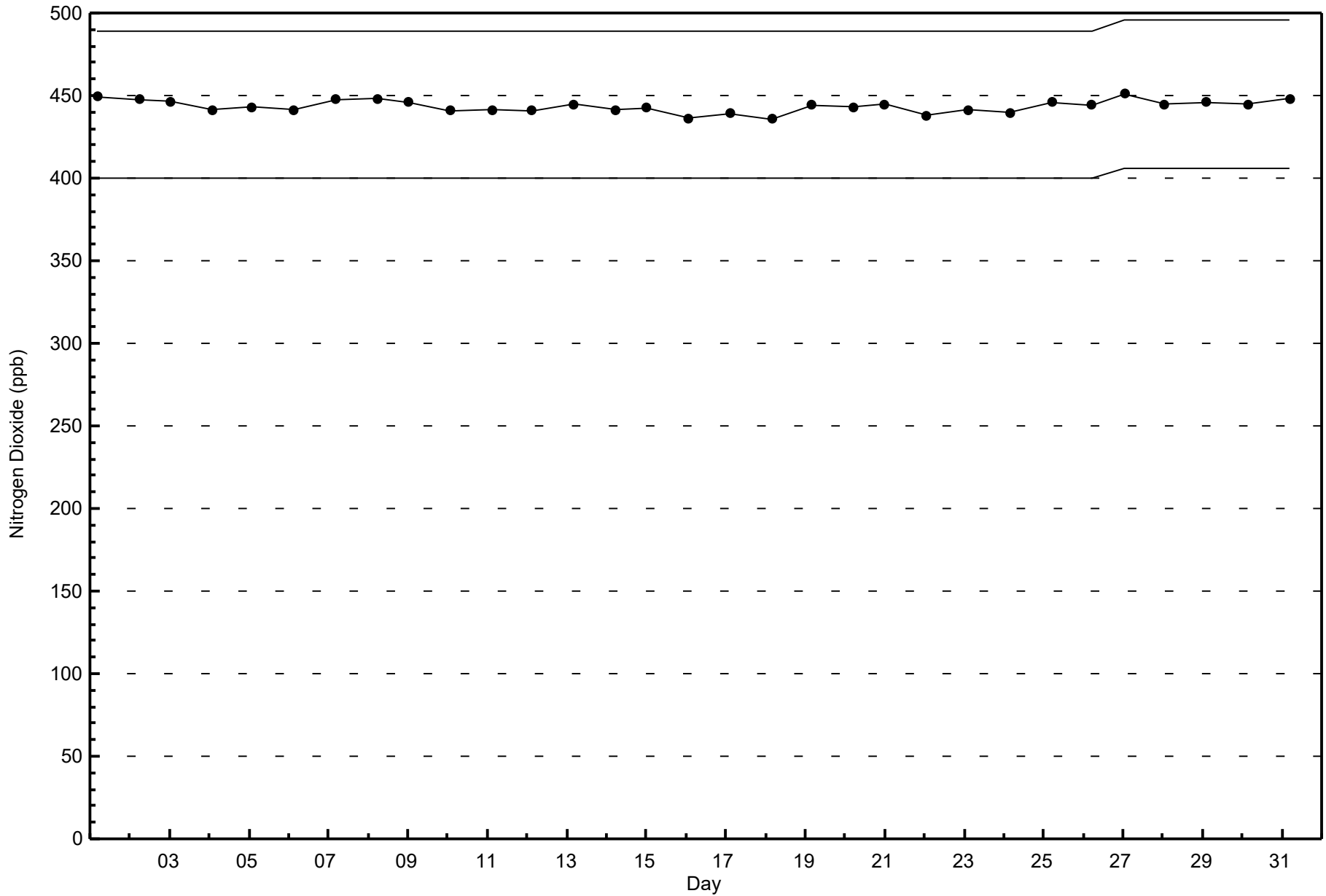
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Stony Mountain



Total Number of Valid Hours: 707







Wood Buffalo Environmental Association
Summary of Hour Averages

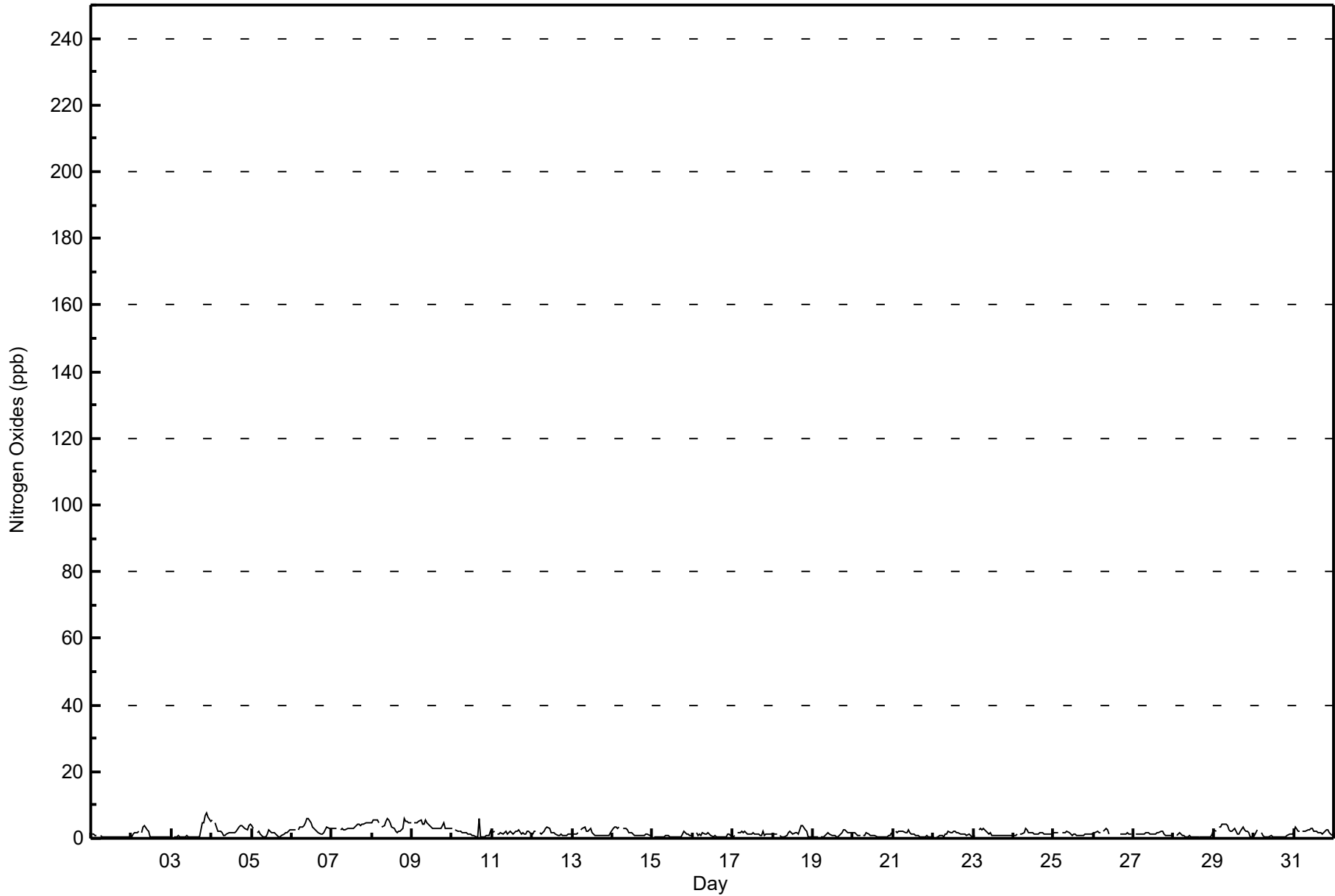
Nitrogen Oxides (NO_x) - ppb
Stony Mountain - March 2024

Maximum Value: 7.5 ppb on Mar 3 22:00		Maximum Daily Average: 4.3 ppb on Mar 8		Hours in Service: 744																							
Minimum Value: 0.3 ppb on Mar 21 18:00		Minimum Daily Average: 0.6 ppb on Mar 1		Hours of Data: 707																							
Maximum Diurnal Average: 2.1 ppb at hour 9		Minimum Diurnal Average: 1.2 ppb at hour 16		Hours of Missing Data: 37																							
Monthly Average: 1.71 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.8 Median = 1.4 Q ₃ = 2.2 P ₉₀ = 3.4 P ₉₉ = 5.7		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	1.3	1.1	1.0	0.9	Z	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.5	0.5	0.6	1.2	1.3
2-Mar	0.6	1.2	1.9	1.9	Z	Z	1.6	3.5	3.6	2.4	2.1	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.6	1.2	3.6	
3-Mar	Z	0.4	0.4	0.6	0.9	0.5	0.6	0.4	0.5	0.7	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.3	4.8	4.9	6.9	7.5	6.4	5.2	1.9	7.5	
4-Mar	5.5	Z	4.6	3.2	2.1	2.0	1.7	0.9	0.8	1.2	1.5	1.6	1.6	1.7	1.7	2.3	3.3	3.6	4.0	3.5	2.8	2.4	3.8	4.2	2.6	5.5	
5-Mar	3.9	3.1	Z	1.8	2.1	1.4	0.8	0.5	0.5	1.1	2.6	2.2	1.9	1.5	1.1	0.7	0.4	0.6	0.8	1.3	1.9	1.8	2.1	2.4	1.6	3.9	
6-Mar	2.5	2.5	2.4	Z	2.4	3.4	3.4	4.0	4.7	6.1	5.7	4.6	3.5	2.9	2.3	2.0	1.8	1.4	1.3	1.7	2.6	3.3	2.9	3.0	3.1	6.1	
7-Mar	3.0	3.1	3.0	3.0	Z	2.7	2.8	2.5	2.5	2.9	2.9	3.1	2.9	2.8	3.5	4.4	4.1	4.0	4.2	4.3	4.5	4.6	4.5	4.8	3.5	4.8	
8-Mar	4.9	5.4	5.6	5.5	4.9	Z	3.5	3.7	5.2	5.8	5.7	4.7	3.2	3.1	2.1	1.9	2.0	2.3	3.1	5.7	5.2	4.9	4.6	4.7	4.3	5.8	
9-Mar	Z	4.9	4.8	4.8	5.2	5.6	4.4	4.4	5.3	4.9	4.0	3.5	3.0	2.9	2.9	3.0	2.9	2.9	3.6	4.5	2.8	3.0	3.0	2.9	3.9	5.6	
10-Mar	2.9	Z	2.6	2.2	2.1	2.0	1.8	1.8	1.6	1.5	1.3	1.1	0.9	0.7	0.6	0.6	6.0	0.6	0.5	0.5	0.8	0.7	1.0	2.0	1.5	6.0	
11-Mar	1.7	2.1	Z	1.2	1.3	1.6	1.4	1.6	2.0	1.4	1.7	2.1	1.5	1.7	2.0	2.2	2.4	1.4	1.7	1.1	1.1	1.9	1.9	1.1	1.7	2.4	
12-Mar	1.4	2.3	1.9	Z	1.7	1.5	1.7	2.3	3.1	3.6	3.1	1.8	1.7	1.8	1.4	0.9	0.8	1.1	0.7	0.7	1.0	1.1	1.3	1.2	1.7	3.6	
13-Mar	1.2	1.2	1.3	1.5	Z	2.4	2.8	3.3	2.0	2.0	2.6	2.8	1.6	0.8	0.9	0.8	0.8	0.9	0.7	0.9	0.9	0.9	1.0	1.5	1.5	3.3	
14-Mar	2.9	3.4	3.3	3.1	3.2	Z	2.8	2.8	2.8	2.6	1.8	1.5	1.3	1.0	1.0	0.9	0.9	0.9	1.1	1.3	1.3	1.0	0.7	1.8	1.8	3.4	
15-Mar	Z	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.9	0.7	0.4	0.4	0.4	0.4	0.6	0.4	0.3	0.4	1.1	2.2	1.4	1.3	0.7	0.9	0.7	2.2	
16-Mar	0.9	Z	1.6	1.0	1.1	0.7	1.6	1.3	1.2	1.6	1.4	0.9	0.6	0.6	0.6	0.4	0.4	0.3	0.3	0.3	0.5	1.1	1.3	0.4	0.9	1.6	
17-Mar	0.4	0.7	Z	1.6	1.9	2.0	1.8	2.1	1.6	1.3	1.1	1.3	1.6	1.4	1.3	1.2	1.0	1.0	2.0	0.9	1.1	1.1	1.1	1.3	1.3	2.1	
18-Mar	1.5	1.3	1.1	Z	0.9	0.6	0.5	0.5	0.9	1.6	2.2	1.8	1.4	1.9	1.7	1.4	2.4	3.7	3.8	2.7	2.3	0.6	0.5	0.3	1.6	3.8	
19-Mar	0.3	0.4	0.5	0.4	Z	0.5	0.5	1.0	1.3	1.6	1.4	0.9	0.7	0.7	0.5	0.4	0.7	1.6	2.5	2.4	2.1	1.6	1.6	1.6	1.1	2.5	
20-Mar	1.7	1.6	1.2	0.7	0.8	Z	0.8	0.8	1.8	1.1	1.0	0.7	0.8	0.7	0.5	0.4	0.5	0.4	0.4	0.5	0.4	0.8	1.1	1.7	0.9	1.8	
21-Mar	Z	2.2	1.6	2.0	2.0	1.9	2.1	1.5	1.6	2.4	1.8	1.2	1.4	1.0	0.7	0.7	0.3	0.3	0.3	0.3	0.8	0.5	0.3	0.4	1.2	2.4	
22-Mar	0.4	Z	0.4	0.5	0.7	0.9	0.6	1.1	1.1	2.2	1.9	1.7	2.1	1.9	1.8	1.5	1.5	1.3	1.2	1.1	0.7	1.3	0.9	0.4	1.2	2.2	
23-Mar	0.5	1.0	Z	2.5	2.8	2.7	2.8	2.6	1.9	1.3	1.7	0.9	0.9	0.9	1.0	0.8	0.7	0.7	0.7	0.7	0.8	0.9	0.9	0.8	1.3	2.8	
24-Mar	0.9	1.0	1.1	Z	1.2	1.4	1.5	2.8	2.7	1.8	1.8	1.7	1.5	1.1	1.1	1.2	1.6	1.6	1.3	1.1	1.2	1.3	1.3	1.3	1.5	2.8	
25-Mar	1.5	1.6	1.7	1.7	Z	1.9	1.7	1.9	2.1	1.8	1.5	1.1	1.1	1.3	1.0	1.0	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.4	2.1	
26-Mar	1.5	1.7	2.0	1.8	1.8	Z	2.3	3.1	2.4	1.3	C	C	C	C	C	C	1.2	1.4	1.3	1.3	1.5	1.5	1.3	1.2	--	3.1	
27-Mar	Z	1.2	1.2	1.1	1.1	1.3	1.3	1.6	1.8	1.7	1.5	1.3	1.3	1.4	1.7	1.9	1.9	2.0	1.5	0.9	0.9	1.0	1.0	1.2	1.4	2.0	
28-Mar	1.2	Z	1.0	1.6	1.4	0.8	0.7	0.6	0.5	0.7	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	1.2	0.7	1.6	
29-Mar	2.6	2.3	Z	3.4	3.3	4.0	4.4	4.4	3.7	2.5	2.0	2.0	2.8	2.3	1.3	1.3	2.2	3.2	2.7	2.2	2.1	1.7	0.6	0.5	2.5	4.4	
30-Mar	0.8	1.5	2.6	Z	1.6	0.9	0.4	0.5	0.6	0.5	0.7	0.6	0.6	0.5	0.4	0.5	0.5	0.5	0.6	0.6	0.9	1.2	1.2	1.1	0.8	2.6	
31-Mar	2.0	3.2	2.1	2.1	Z	2.0	1.9	2.1	2.3	2.6	3.0	2.8	2.2	2.0	1.5	1.7	1.6	1.4	1.5	2.7	2.7	1.9	1.2	0.9	2.1	3.2	
																								Diurnal Average			
																								Diurnal Maximum			
1.8 2.0 2.0 1.9 2.0 1.8 1.8 2.0 2.1 2.0 2.0 1.7 1.5 1.4 1.2 1.2 1.4 1.4 1.6 1.7 1.7 1.7 1.7 1.7 1.7 1.7																											
5.5 5.4 5.6 5.5 5.2 5.6 4.4 4.4 5.3 6.1 5.7 4.7 3.5 3.1 3.5 4.4 6.0 4.0 4.8 5.7 6.9 7.5 6.4 5.2																											
Z - zerospan C - Calibration																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Stony Mountain - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Stony Mountain - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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_x) - ppb
Stony Mountain - March 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	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	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
Totals	28	50	57	49	51	15	25	51	73	106	57	10	22	41	43	29	707

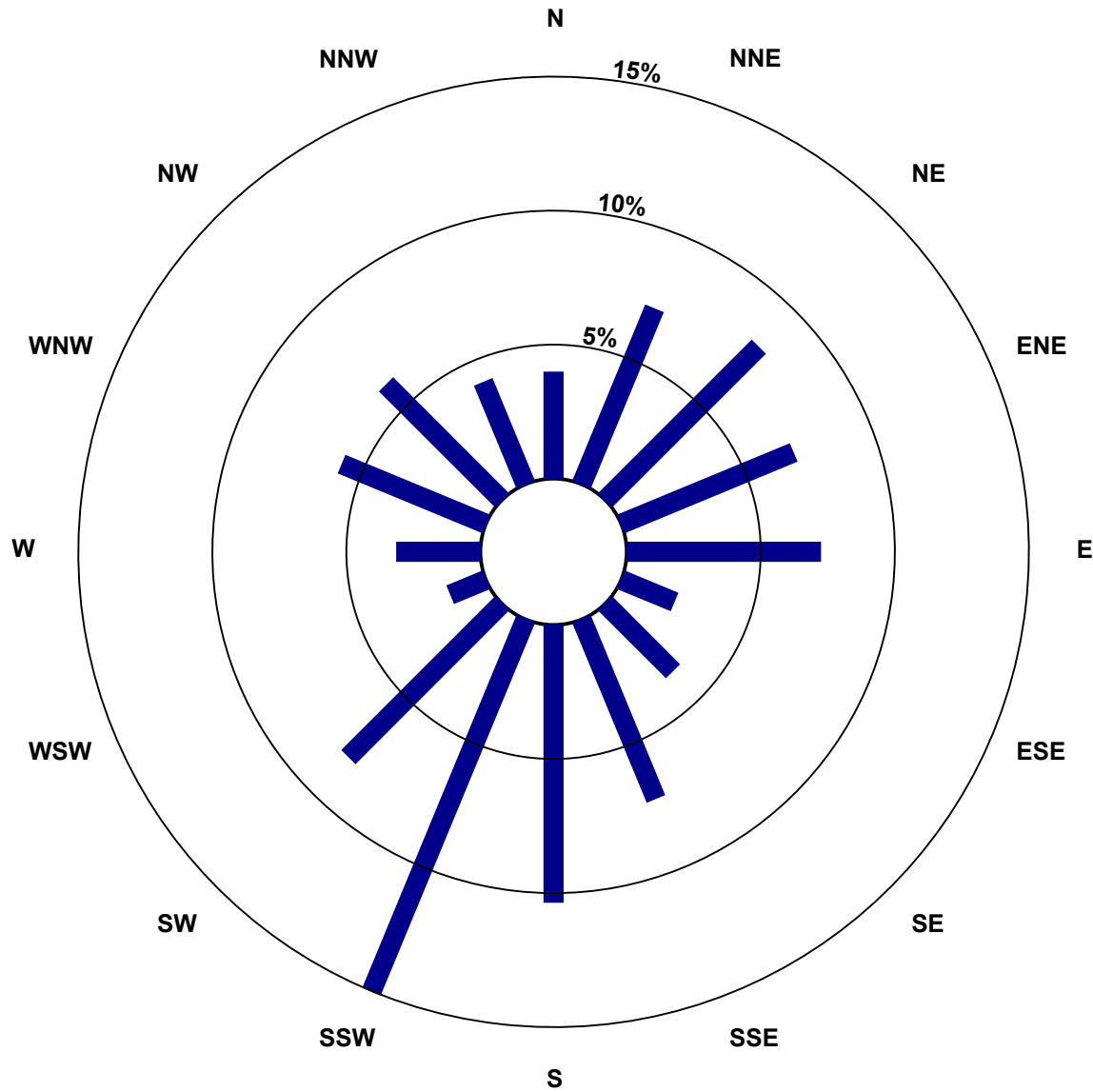
Total Number of Valid Hours: 707

Total Number of Hours: 744

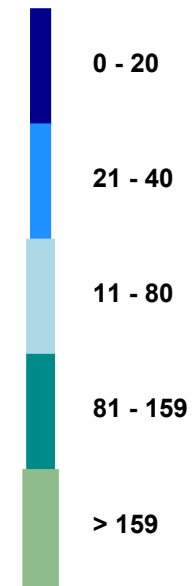


Wood Buffalo Environmental Association
Wind Rose Mar 2024

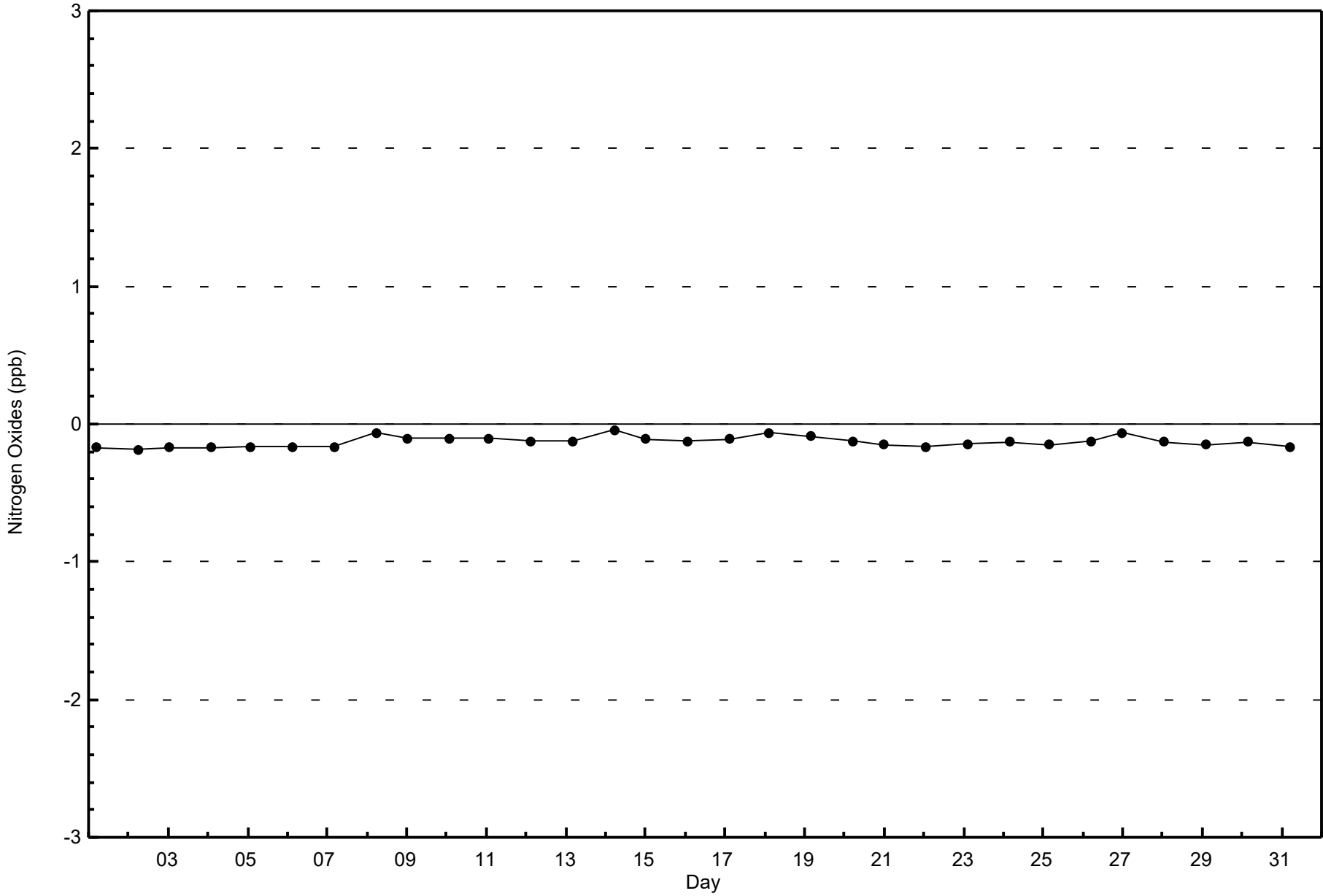
Nitrogen Oxides (NO_x) - ppb
Stony Mountain

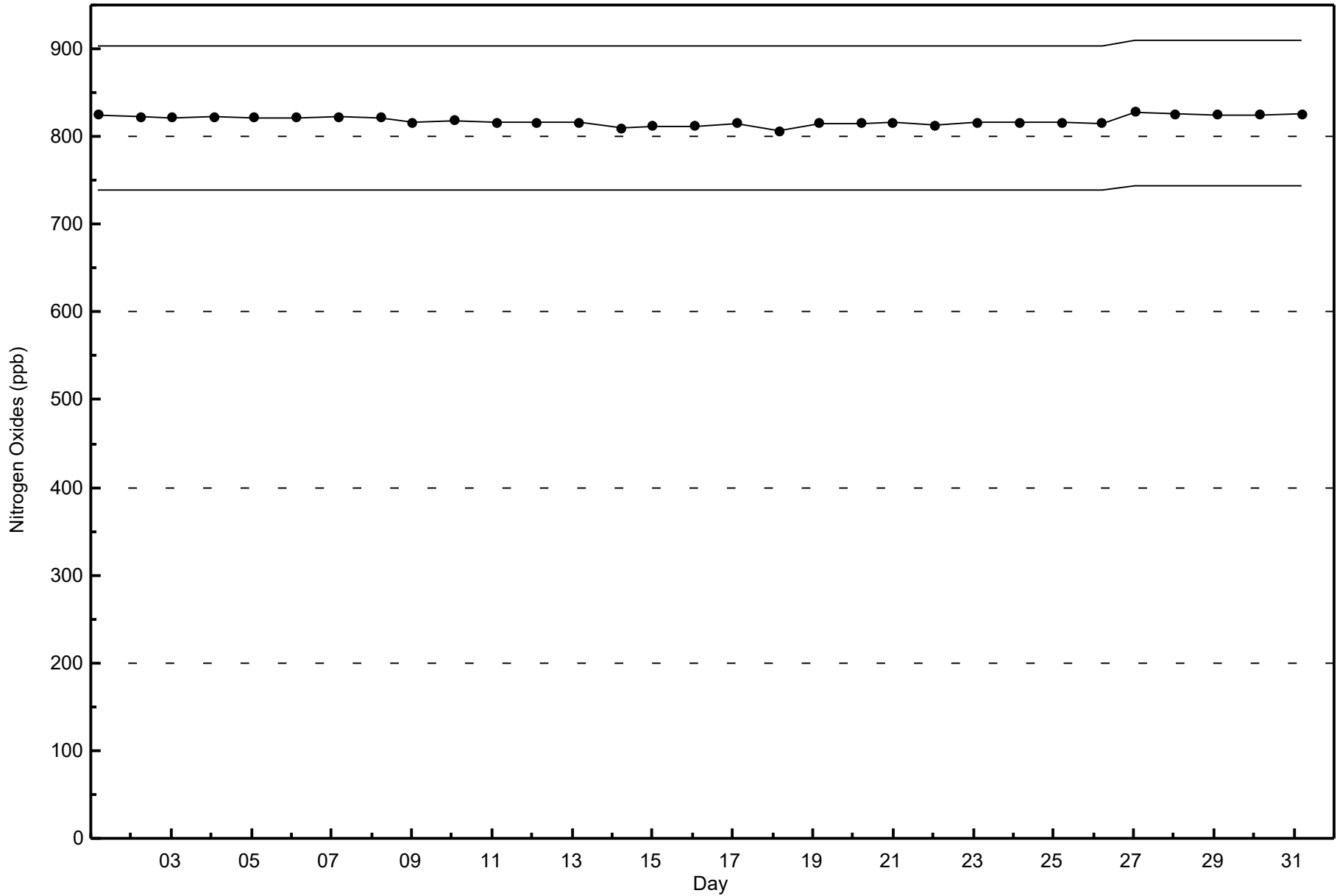


Classes (ppb)



Total Number of Valid Hours: 707







Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Stony Mountain - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 49.4 ppb on Mar 31 17:00	Maximum Daily Average: 43.0 ppb on Mar 31		Hours of Data:	709
Minimum Value: 23.3 ppb on Mar 3 22:00	Minimum Daily Average: 29.9 ppb on Mar 4		Hours of Missing Data:	35
Maximum Diurnal Average: 39.9 ppb at hour 17	Minimum Diurnal Average: 34.1 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 36.84 ppb	Percentiles: P ₁ = 27.4 P ₁₀ = 31.1 Q ₁ = 33.9 Median = 37.3 Q ₃ = 39.8 P ₉₀ = 41.7 P ₉₉ = 46.9		Percent Operational Time:	100.0

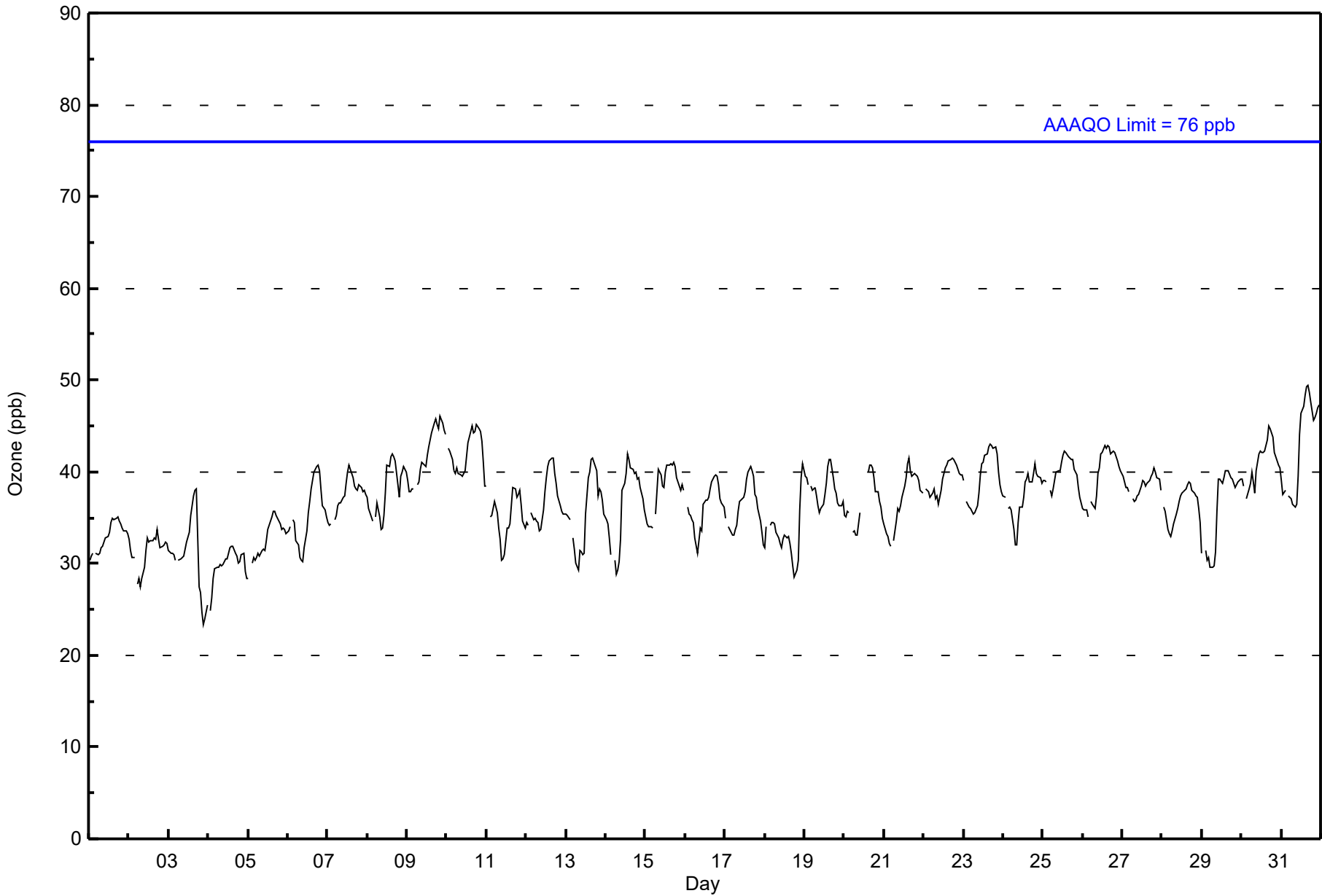
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	30.4	30.9	31.1	Z	31.2	31.0	31.1	31.7	31.8	32.4	32.8	33.0	33.5	34.4	35.0	34.8	35.0	35.0	34.7	34.3	33.9	33.6	33.6	33.3	33.0	35.0																							
2-Mar	32.7	31.4	30.7	30.6	Z	27.8	28.4	27.4	28.3	29.6	31.5	32.8	32.4	32.4	32.5	32.9	32.7	33.7	32.6	31.7	31.8	32.0	32.4	32.2	31.3	33.7																							
3-Mar	31.4	31.1	31.1	30.9	30.4	Z	30.3	30.5	30.7	30.8	31.6	32.3	33.4	35.2	36.4	37.3	37.9	38.2	27.4	26.8	24.7	23.3	24.0	25.5	30.9	38.2																							
4-Mar	Z	24.9	26.3	28.4	29.5	29.6	29.6	29.9	29.8	30.0	30.5	31.0	31.7	31.9	31.8	31.1	30.8	30.1	30.1	30.9	31.2	29.1	28.4	29.9	31.9																								
5-Mar	28.3	Z	30.1	30.6	30.4	30.7	31.1	30.9	31.4	31.6	31.4	32.6	33.7	34.7	35.2	35.7	35.8	35.3	34.9	34.3	33.8	33.8	33.6	33.3	32.7	35.8																							
6-Mar	33.6	34.0	Z	34.8	34.4	32.5	32.0	30.7	30.4	30.2	31.8	33.6	35.6	36.8	38.2	39.1	39.9	40.7	40.8	40.1	38.1	36.4	35.9	35.1	35.4	40.8																							
7-Mar	34.4	34.2	34.4	Z	34.8	35.3	36.3	36.7	36.6	37.2	37.3	38.7	40.0	40.8	40.3	39.4	38.5	38.2	38.0	38.6	38.4	37.8	38.0	37.5	37.4	40.8																							
8-Mar	37.3	36.0	35.1	34.7	Z	35.1	36.5	35.1	33.7	33.9	35.3	37.7	40.7	40.6	41.7	41.9	41.7	41.1	38.6	37.3	39.5	40.0	40.6	39.9	38.0	41.9																							
9-Mar	39.0	37.9	37.8	38.1	38.1	Z	38.5	38.8	40.3	41.1	40.8	40.6	41.8	42.7	43.5	44.3	45.3	45.8	45.2	44.7	46.1	45.2	44.5	44.0	41.9	46.1																							
10-Mar	Z	42.5	42.2	41.4	40.2	39.8	40.5	39.8	39.6	39.5	39.8	40.2	41.7	43.1	44.4	45.0	44.2	44.4	45.2	44.7	44.4	43.2	41.0	38.5	42.0	45.2																							
11-Mar	38.5	Z	35.1	35.2	36.0	36.8	35.6	33.9	32.7	30.4	30.5	30.9	33.9	33.9	34.3	36.4	38.3	38.2	37.2	37.5	38.0	36.5	34.7	33.8	35.1	38.5																							
12-Mar	34.5	34.1	Z	35.5	34.8	34.9	34.6	34.6	33.5	33.8	35.9	37.8	39.4	40.5	41.2	41.5	41.5	39.8	38.7	37.4	36.3	35.8	35.4	35.3	36.8	41.5																							
13-Mar	35.4	35.3	34.8	Z	32.8	31.5	30.0	29.3	31.4	31.3	30.9	31.2	35.4	39.4	39.9	41.3	41.5	41.1	40.0	37.4	38.1	37.9	36.9	35.4	35.6	41.5																							
14-Mar	34.8	34.3	32.7	30.9	Z	30.4	28.8	29.2	30.2	32.6	38.0	38.8	39.8	42.0	41.4	40.4	40.3	39.9	39.9	39.3	39.4	38.2	37.0	35.8	36.3	42.0																							
15-Mar	35.1	34.3	34.0	34.0	33.9	Z	35.4	37.8	40.3	39.7	38.4	38.3	39.9	40.8	40.7	40.9	40.8	41.0	40.7	39.3	38.4	38.0	38.6	38.0	38.2	41.0																							
16-Mar	Z	36.2	35.4	35.3	34.8	34.5	32.8	31.1	32.5	33.8	33.6	36.5	36.8	36.9	37.3	38.2	38.9	39.6	39.7	39.5	38.6	37.0	36.7	36.2	36.2	39.7																							
17-Mar	35.0	Z	34.0	33.8	33.2	33.0	33.8	34.2	35.7	36.8	37.0	37.2	37.9	39.2	39.9	40.6	40.2	39.6	37.5	37.2	35.9	34.6	33.5	32.1	36.2	40.6																							
18-Mar	31.7	34.0	Z	34.2	34.5	34.4	34.2	33.4	32.8	32.2	31.8	32.6	33.0	32.8	32.9	32.3	31.1	29.8	28.6	29.3	30.3	35.9	39.4	40.8	33.1	40.8																							
19-Mar	39.5	39.3	38.6	Z	38.4	38.0	38.2	37.4	36.3	35.5	36.0	36.5	37.5	38.7	40.5	41.4	41.3	39.3	38.2	37.6	36.6	36.3	36.4	36.7	38.0	41.4																							
20-Mar	35.2	35.1	35.7	35.5	Z	33.4	33.5	33.2	33.2	35.5	C	C	C	C	40.0	40.7	40.7	40.5	39.3	37.8	37.8	36.8	36.2	35.0	36.6	40.7																							
21-Mar	34.3	33.3	33.0	32.3	31.8	Z	32.5	34.6	35.9	35.6	36.3	37.3	38.4	39.3	40.8	41.4	40.1	39.5	39.8	39.7	39.5	39.0	38.0	37.7	37.0	41.4																							
22-Mar	Z	38.2	38.0	37.8	37.3	37.8	38.1	37.1	37.4	36.4	38.0	39.2	39.8	40.4	40.8	41.2	41.3	41.4	41.4	41.1	40.8	39.8	39.6	39.7	39.2	41.4																							
23-Mar	39.0	Z	36.8	36.2	35.9	35.7	35.4	35.6	36.4	37.7	39.7	40.9	41.0	41.8	41.9	42.7	43.0	42.8	42.6	42.7	41.9	39.9	38.6	37.9	39.4	43.0																							
24-Mar	37.4	37.2	Z	36.1	36.2	35.9	33.7	32.0	32.0	34.5	36.1	36.1	37.3	38.9	39.2	39.7	38.9	38.9	39.8	41.0	39.9	39.5	39.3	38.8	37.3	41.0																							
25-Mar	39.0	39.1	38.9	Z	37.9	37.3	38.2	39.0	40.0	40.1	40.1	41.0	41.8	42.2	42.0	41.7	41.5	41.3	41.3	40.2	39.7	38.3	37.2	36.6	39.8	42.2																							
26-Mar	36.0	35.9	35.8	35.1	Z	36.7	36.5	36.0	37.4	39.8	40.4	42.0	42.0	42.8	42.6	42.8	42.8	41.9	42.3	42.1	41.7	41.2	40.5	40.1	39.8	42.8																							
27-Mar	39.5	38.9	38.4	38.2	37.8	Z	37.1	36.8	37.0	37.3	37.6	38.4	39.1	38.9	38.5	38.8	39.0	39.5	39.8	40.4	39.9	39.4	39.1	38.0	38.6	40.4																							
28-Mar	Z	36.2	35.7	33.7	33.2	33.0	33.6	34.3	35.4	36.0	36.7	37.4	37.7	37.8	38.2	38.6	38.9	38.7	38.0	37.7	37.4	37.2	36.0	34.4	36.3	38.9																							
29-Mar	31.0	Z	31.4	30.4	30.7	29.6	29.5	29.8	31.2	35.7	39.2	39.2	38.8	39.4	40.1	40.2	40.1	39.4	39.2	38.7	38.3	38.5	38.9	39.1	36.0	40.2																							
30-Mar	39.2	38.5	Z	37.1	38.1	38.7	40.0	38.9	37.6	40.1	41.9	42.2	42.1	42.1	42.2	43.4	44.9	44.6	44.3	43.8	42.1	41.2	40.7	40.4	41.1	44.9																							
31-Mar	39.1	37.5	38.0	Z	37.4	37.2	37.0	36.5	36.2	36.5	39.5	44.1	46.3	47.2	48.4	49.3	49.4	48.7	47.6	45.6	46.0	46.4	47.0	47.3	43.0	49.4																							
																								35.4	35.4	34.8	34.4	34.8	34.3	34.3	34.1	34.4	35.1	36.0	37.0	38.1	38.9	39.4	39.9	39.9	39.6	38.8	38.3	38.0	37.5	37.2	36.7	Diurnal Average	
																								39.5	42.5	42.2	41.4	40.2	39.8	40.5	39.8	40.3	41.1	41.9	44.1	46.3	47.2	48.4	49.3	49.4	48.7	47.6	45.6	46.1	46.4	47.0	47.3	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Stony Mountain - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
21 - 50	709	100.00	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Ozone (O₃) - ppb
Stony Mountain - March 2024**

Concentration Ranges (ppb)	Wind Direction																
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Totals
0 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 50	28	49	55	47	51	16	23	57	75	104	58	11	24	38	45	28	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
Totals	28	49	55	47	51	16	23	57	75	104	58	11	24	38	45	28	709

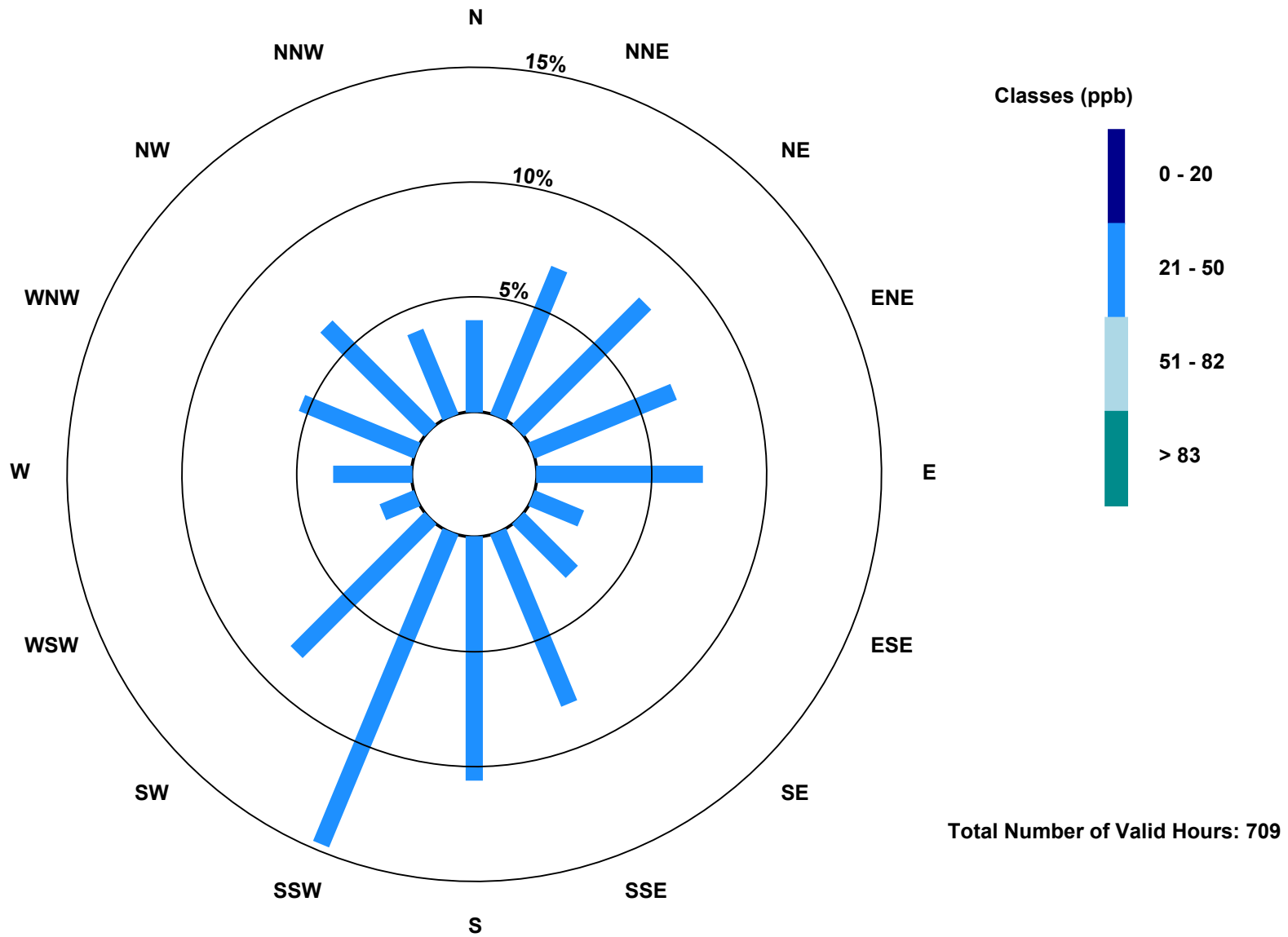
Total Number of Valid Hours: 709

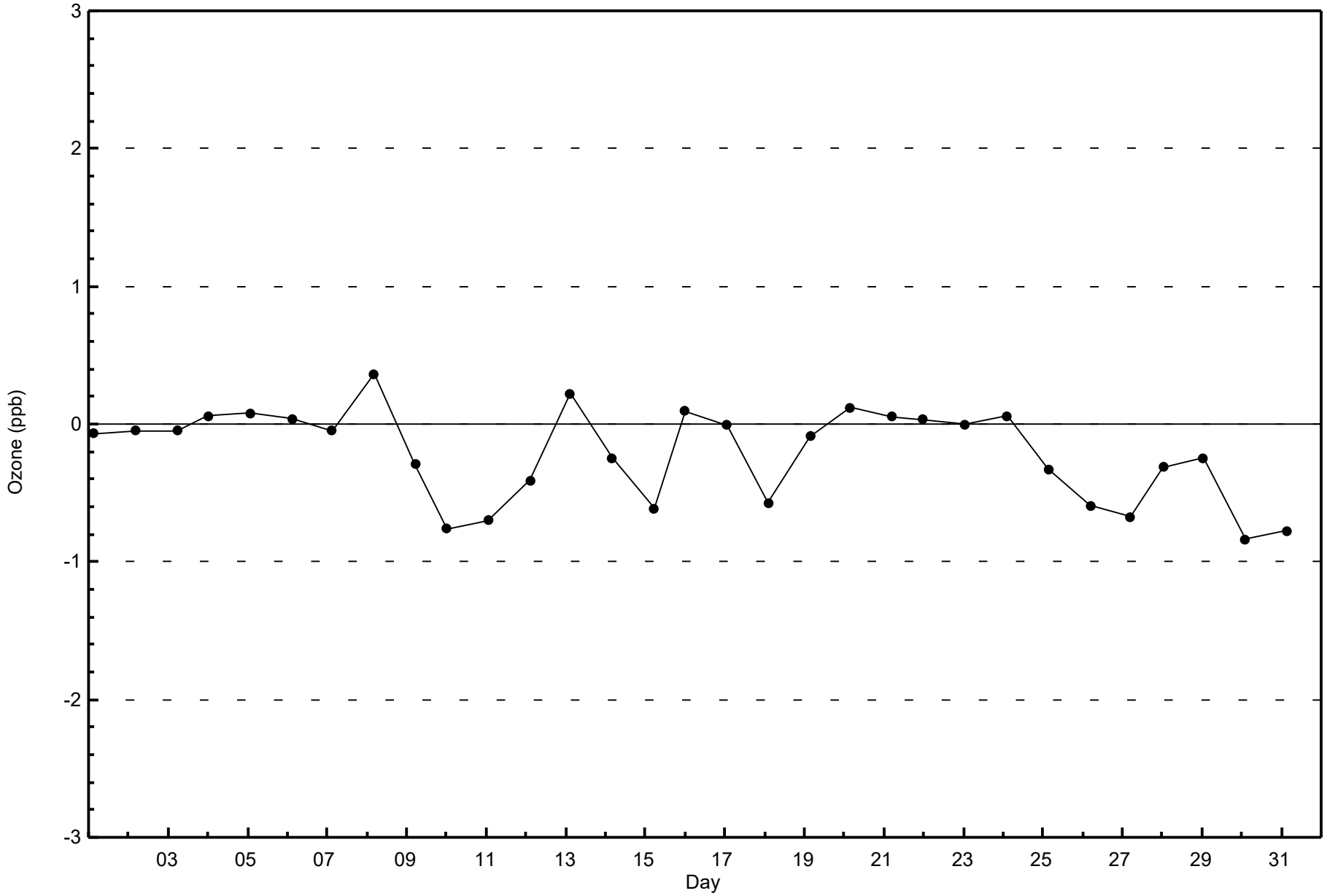
Total Number of Hours: 744

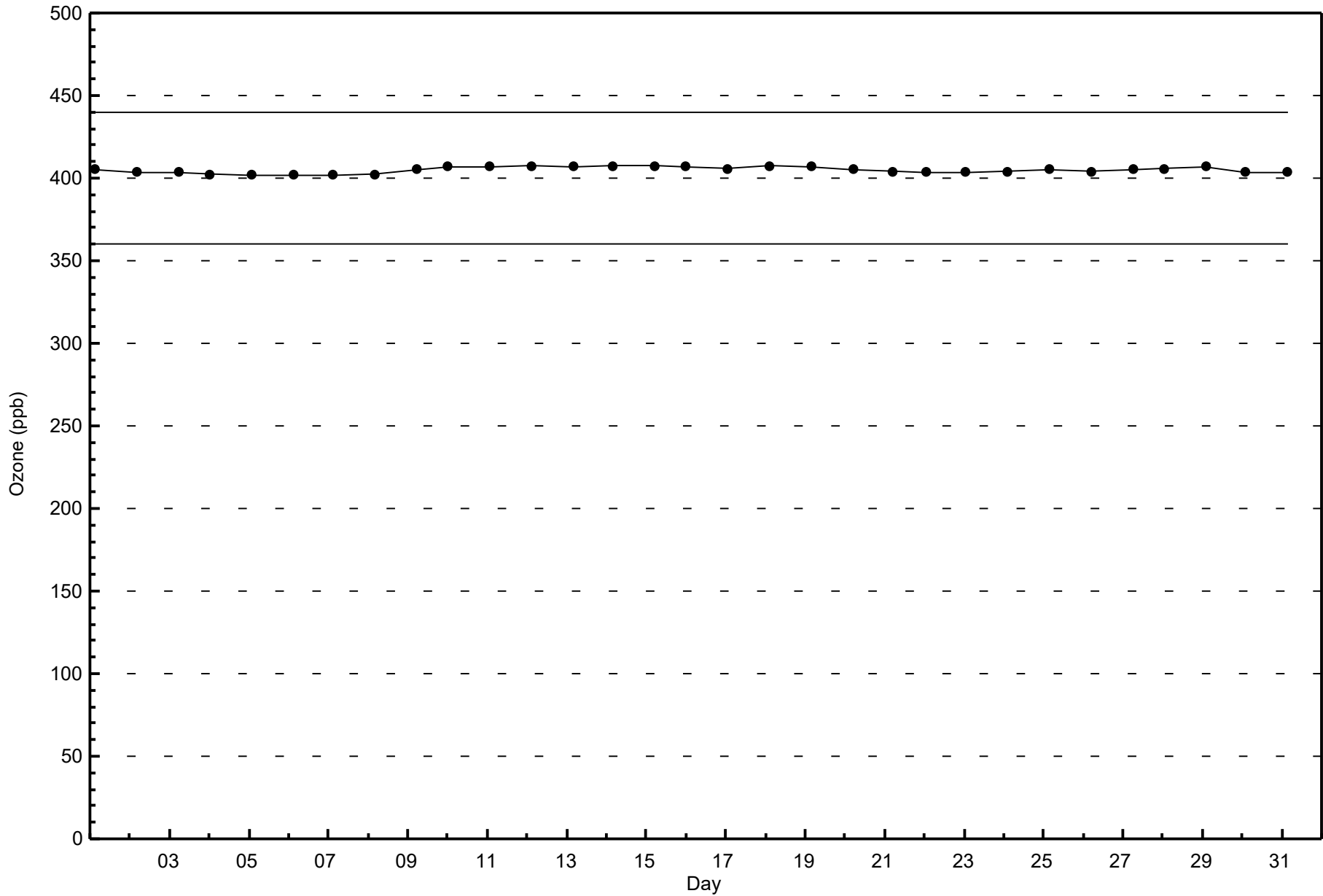


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Stony Mountain





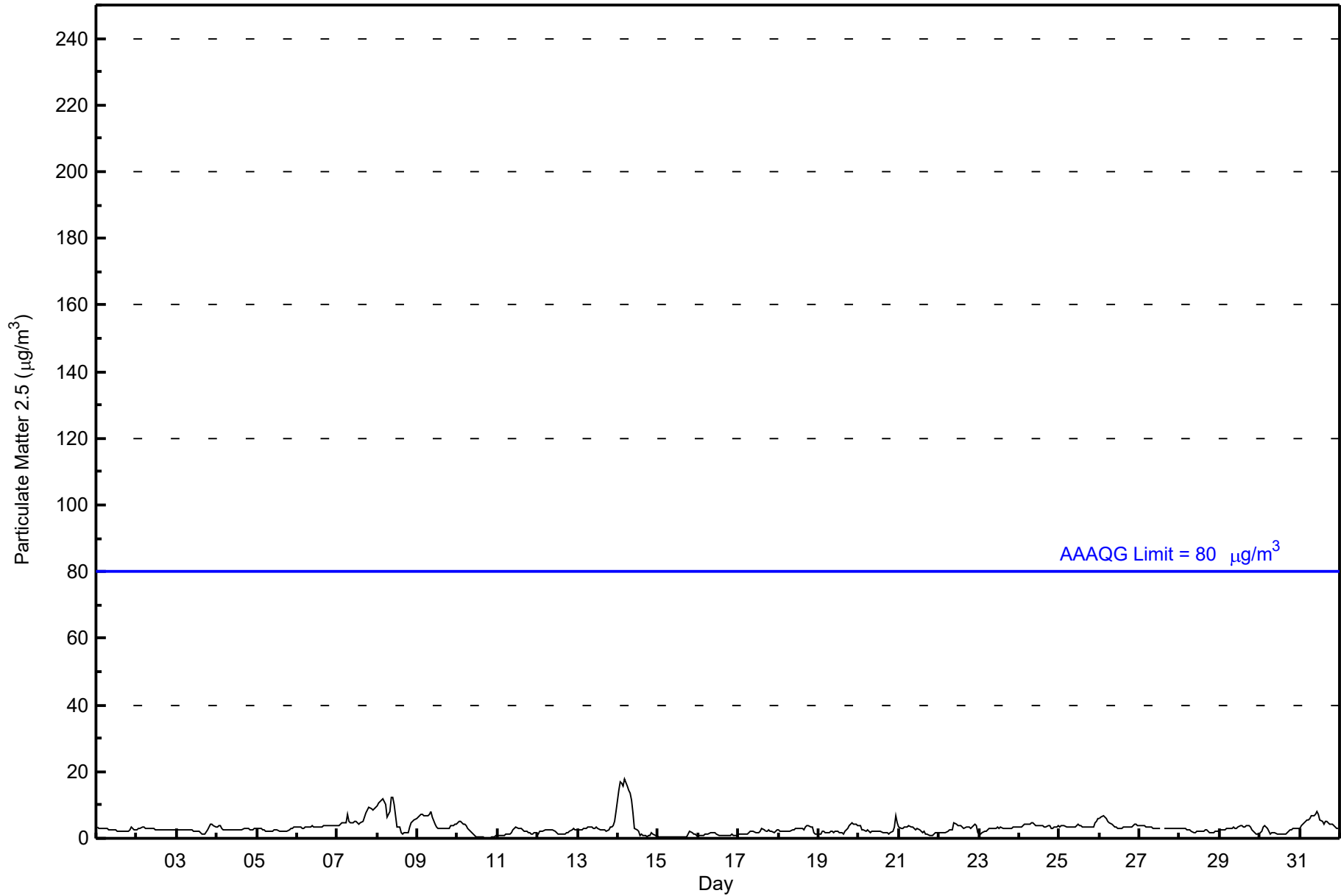




Summary of Hour Averages

Stony Mountain - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	742																											
Maximum Value: 17.7 µg/m ³ on Mar 14 05:00		Maximum Daily Average: 6.8 µg/m ³ on Mar 14																	Hours of Data: 742																													
Minimum Value: 0.2 µg/m ³ on Mar 10 19:00		Minimum Daily Average: 0.7 µg/m ³ on Mar 15																	Hours of Missing Data: 2																													
Maximum Diurnal Average: 3.7 µg/m ³ at hour 3		Minimum Diurnal Average: 2.4 µg/m ³ at hour 16																	Hours of Calibration: 2																													
Monthly Average: 3.11 µg/m ³		Percentiles: P ₁ = 0.3 P ₁₀ = 1.2 Q ₁ = 1.9 Median = 2.8 Q ₃ = 3.6 P ₉₀ = 4.8 P ₉₉ = 13.2																	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-Mar	3.4	3.2	3.0	3.0	3.0	3.0	2.8	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.6	3.4	2.7	2.5	2.6	3.4																						
2-Mar	2.5	2.8	3.0	3.3	3.2	3.1	2.9	2.8	2.9	3.0	3.2	2.7	2.7	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.5	2.5	2.6	2.8	3.3																						
3-Mar	2.7	2.7	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.1	1.9	1.7	1.5	1.4	1.4	2.7	3.3	4.0	4.1	3.9	3.4	2.6	4.1																						
4-Mar	3.4	3.8	3.7	3.0	2.7	2.7	2.5	2.4	2.5	2.5	2.6	2.6	2.6	2.6	2.7	2.9	2.9	2.9	2.9	2.8	2.7	2.5	2.9	3.0	2.8	3.8																						
5-Mar	3.1	3.0	2.8	2.5	2.5	2.2	2.1	2.2	2.1	2.3	2.7	2.6	2.4	2.2	2.2	1.9	1.9	2.0	2.1	2.5	2.8	3.1	3.2	3.2	2.5	3.2																						
6-Mar	3.3	3.3	3.2	3.0	3.0	3.3	3.3	3.5	3.5	3.8	3.5	3.4	3.4	3.2	3.2	3.6	3.7	3.8	3.7	3.7	3.8	3.9	3.9	3.7	3.5	3.9																						
7-Mar	3.7	3.8	4.3	4.5	4.7	4.6	7.0	5.1	4.5	4.7	4.9	5.0	4.6	4.3	4.6	5.1	6.3	7.6	8.4	9.2	8.9	8.7	8.8	9.4	5.9	9.4																						
8-Mar	9.7	10.6	11.5	11.7	11.0	10.3	6.3	8.0	12.2	12.4	10.1	6.8	3.6	3.3	1.7	1.3	1.6	1.7	1.7	3.2	4.8	5.2	5.4	5.9	6.7	12.4																						
9-Mar	6.2	6.7	7.0	7.3	6.9	6.8	6.8	7.4	8.2	6.3	4.3	3.3	2.9	2.8	3.1	3.0	2.8	2.9	2.8	3.0	3.7	3.9	4.1	4.3	4.9	8.2																						
10-Mar	4.5	5.1	4.9	4.0	4.2	3.9	3.1	2.7	1.7	1.2	1.0	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.7	1.7	5.1																						
11-Mar	0.8	0.9	0.8	0.9	1.0	1.2	1.2	1.3	1.6	2.5	2.9	3.2	2.9	3.0	2.9	2.6	2.0	1.9	1.8	1.6	1.3	1.4	1.8	1.6	1.8	3.2																						
12-Mar	1.4	2.0	2.2	2.1	2.5	2.6	2.7	2.7	2.6	2.5	2.3	1.8	1.4	1.2	1.2	1.2	1.2	1.5	1.9	2.3	2.6	2.8	2.8	2.7	2.1	2.8																						
13-Mar	2.7	2.6	2.7	2.9	2.9	3.1	3.3	3.3	3.2	3.0	3.0	3.2	3.0	2.6	2.6	2.6	2.5	2.3	2.6	3.4	3.6	3.8	5.0	8.0	3.2	8.0																						
14-Mar	14.4	17.0	16.5	15.7	17.7	15.6	14.4	13.7	11.5	7.8	3.1	2.5	2.0	1.0	1.1	1.0	0.7	0.6	0.8	0.9	1.5	1.4	1.0	0.6	6.8	17.7																						
15-Mar	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.3	0.3	0.4	1.1	2.2	1.6	1.2	1.1	0.9	0.7	2.2																						
16-Mar	0.8	0.7	0.8	0.9	1.1	1.2	1.4	1.5	1.5	1.5	1.5	1.2	1.0	0.9	1.0	1.0	0.8	0.9	0.9	0.9	1.1	1.0	1.0	1.0	1.1	1.5																						
17-Mar	1.1	1.2	1.2	1.1	1.4	1.4	1.6	1.9	2.0	2.1	1.8	1.8	1.7	2.2	2.8	2.6	2.2	2.3	2.5	2.2	2.0	1.9	2.0	2.5	1.9	2.8																						
18-Mar	2.7	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.6	2.9	3.1	2.8	2.9	2.8	2.5	3.2	3.7	3.8	3.3	3.4	1.8	1.4	1.1	2.6	3.8																						
19-Mar	1.2	1.4	2.0	1.9	1.6	1.9	1.9	2.2	1.9	1.9	2.0	1.9	1.8	1.8	1.6	1.4	1.9	2.9	3.7	4.4	4.5	4.1	4.4	3.9	2.4	4.5																						
20-Mar	3.8	3.7	2.7	2.5	2.3	2.3	2.0	1.8	2.2	2.1	2.2	2.3	2.0	2.1	1.7	1.7	1.6	1.5	1.4	1.6	2.3	3.2	6.9	4.5	2.5	6.9																						
21-Mar	3.6	2.8	2.9	3.3	3.3	3.2	4.0	3.4	3.2	2.8	2.7	3.0	2.6	2.3	1.9	1.9	1.3	1.1	0.9	0.9	0.8	1.3	1.8	1.8	2.4	4.0																						
22-Mar	1.5	1.5	1.5	1.6	1.7	2.0	2.5	2.7	2.6	4.5	4.2	3.8	4.0	3.7	3.6	3.1	3.3	3.5	3.3	3.1	3.5	4.4	4.0	1.6	3.0	4.5																						
23-Mar	1.3	1.3	1.6	1.9	2.1	2.6	3.0	3.0	2.8	2.8	3.2	3.2	3.0	3.2	3.0	2.9	2.9	3.0	3.0	3.1	3.3	3.3	3.5	3.6	2.8	3.6																						
24-Mar	3.5	3.6	3.8	4.3	4.4	4.3	4.3	4.7	4.8	4.1	3.9	3.9	3.8	3.6	3.6	3.4	3.6	3.6	3.9	3.1	3.1	3.2	3.3	3.6	3.8	4.8																						
25-Mar	3.5	3.7	3.7	3.7	3.5	3.6	3.5	3.3	3.4	3.6	3.8	4.3	4.0	3.8	3.6	3.5	3.5	3.3	3.4	3.3	3.6	4.6	5.2	5.8	3.8	5.8																						
26-Mar	6.1	6.3	6.8	6.5	6.0	5.0	4.5	4.2	3.9	3.3	3.3	2.9	3.0	3.2	3.3	3.3	3.2	3.4	3.4	3.5	3.9	4.1	4.3	4.0	4.2	6.8																						
27-Mar	3.9	3.9	3.8	3.7	3.5	3.5	3.5	3.3	3.0	3.0	2.8	2.9	3.0	C	C	2.9	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	3.2	3.9																						
28-Mar	3.0	2.9	3.0	2.8	2.7	2.6	2.4	2.0	1.8	1.9	1.9	2.2	2.3	2.1	2.3	2.3	2.4	2.2	1.9	1.8	1.9	2.0	1.9	2.1	2.3	3.0																						
29-Mar	2.5	2.6	2.6	2.8	2.8	3.0	3.1	3.1	3.2	2.9	3.0	3.5	3.7	3.7	3.4	3.5	3.9	3.9	3.2	2.7	2.1	1.8	1.3	1.2	2.9	3.9																						
30-Mar	1.5	2.3	3.3	3.8	3.1	2.3	1.4	1.7	1.7	1.6	1.3	1.3	1.3	1.2	1.2	1.2	1.8	2.2	2.6	2.6	2.8	3.1	3.1	3.0	2.1	3.8																						
31-Mar	3.1	3.8	4.6	5.1	5.4	5.7	6.1	6.7	6.9	7.2	7.9	7.2	5.5	5.0	4.2	5.1	4.9	4.5	4.3	4.3	3.8	3.5	3.0	3.0	5.0	7.9																						
																								3.4	3.6	3.7	3.7	3.7	3.6	3.5	3.5	3.5	3.4	3.1	2.9	2.6	2.5	2.4	2.4	2.4	2.6	2.7	2.8	3.0	3.0	3.2	3.2	Diurnal Average
																								14.4	17.0	16.5	15.7	17.7	15.6	14.4	13.7	12.2	12.4	10.1	7.2	5.5	5.0	4.6	5.1	6.3	7.6	8.4	9.2	8.9	8.7	8.8	9.4	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Stony Mountain - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	685	92.32	92.32
6 - 15	52	7.01	99.33
16 - 25	5	0.67	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Stony Mountain - March 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	29	52	61	49	54	15	22	54	70	87	42	10	22	43	46	29	685
6 - 15	0	0	0	0	0	1	1	5	5	23	14	1	2	0	0	0	52
16 - 25	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	5
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	29	52	61	49	54	16	23	59	75	110	61	11	24	43	46	29	742

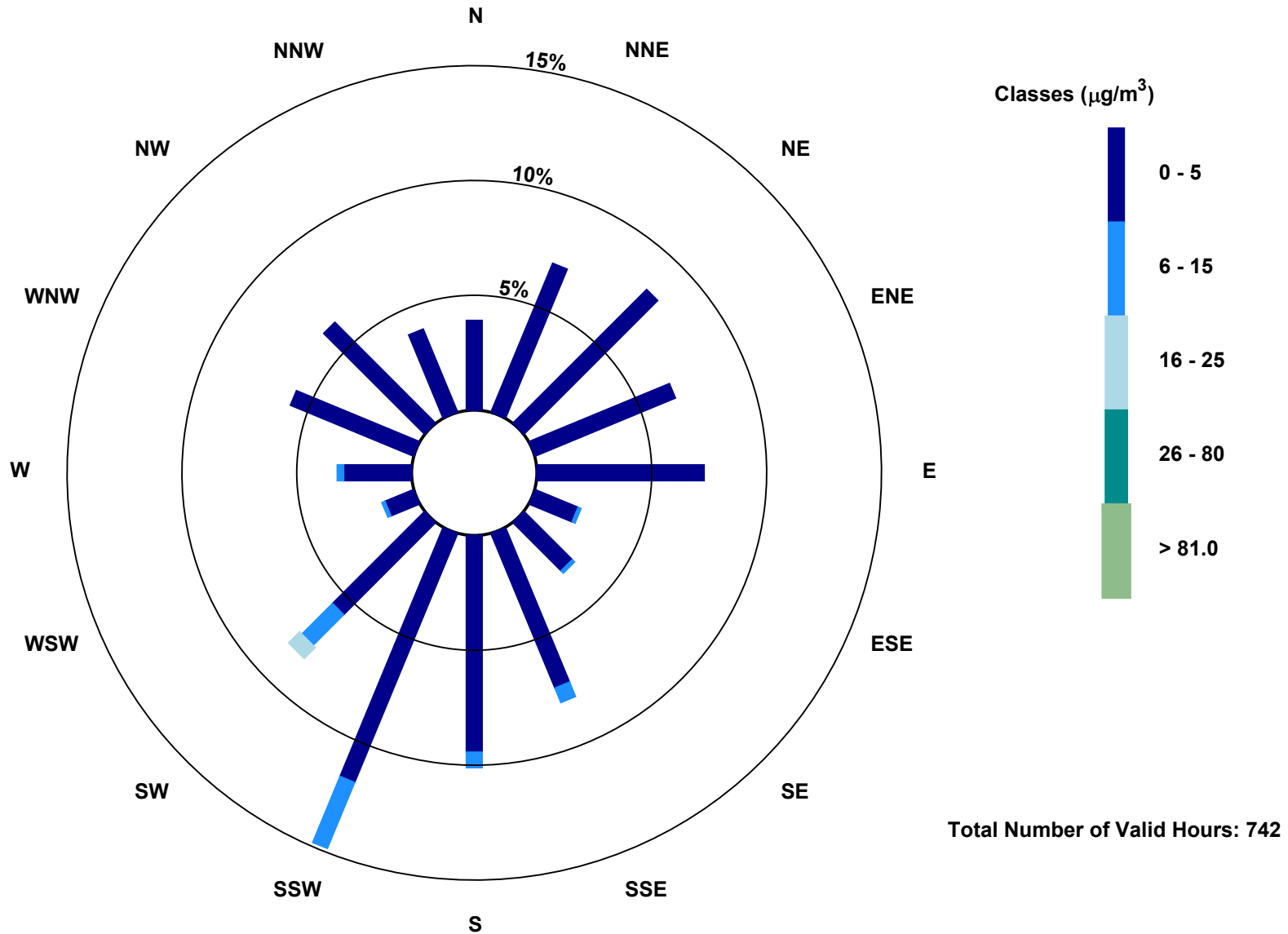
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

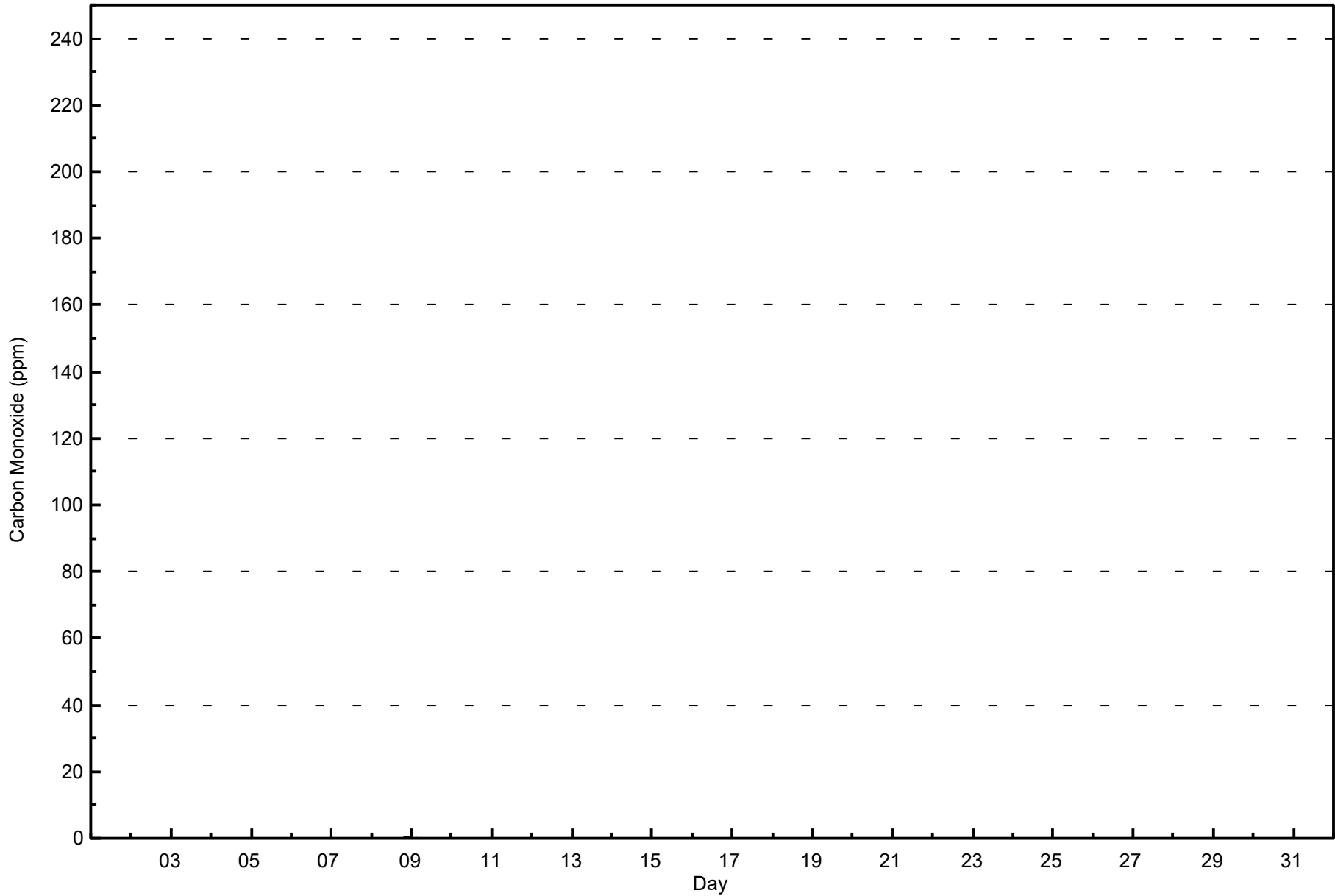
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Stony Mountain





Wood Buffalo Environmental Association
Hourly Averages

Carbon Monoxide (CO) - ppm
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Monoxide (CO) - ppm
Stony Mountain - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	709	100.00	100.00
0.4 - 0.5	0	0.00	100.00
0.6 - 0.7	0	0.00	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Monoxide (CO) - ppm
Stony Mountain - March 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	27	50	59	46	54	14	25	55	75	106	52	10	22	42	43	29	709
0.4 - 0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.6 - 0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.5 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	27	50	59	46	54	14	25	55	75	106	52	10	22	42	43	29	709

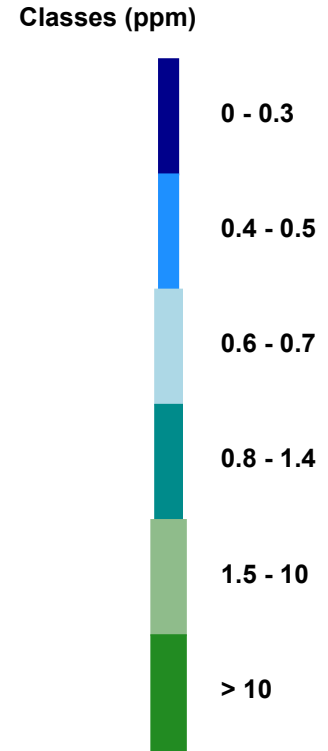
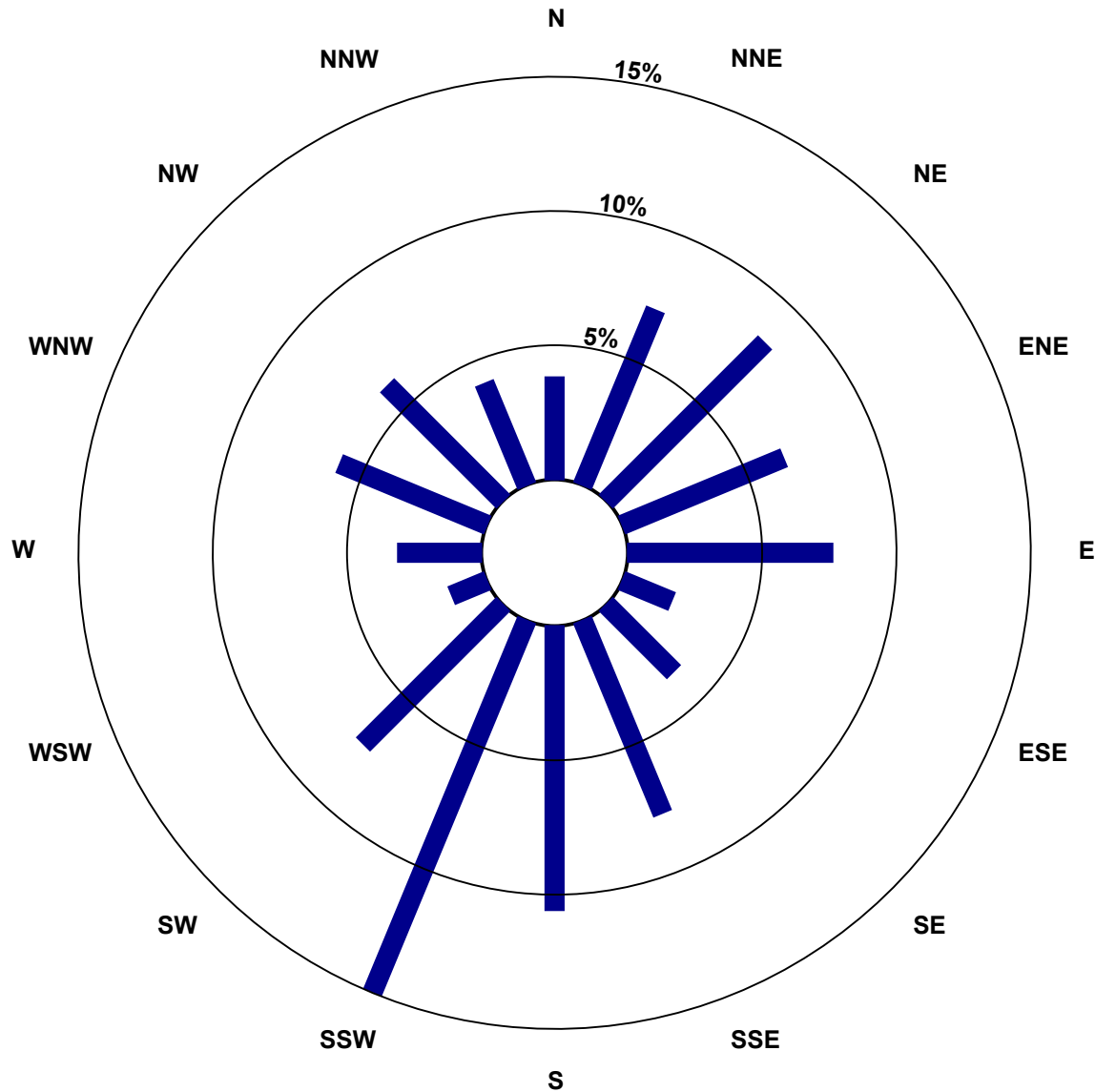
Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Carbon Monoxide (CO) - ppm
Stony Mountain



Total Number of Valid Hours: 709



Wood Buffalo Environmental Association
Summary of Hour Averages

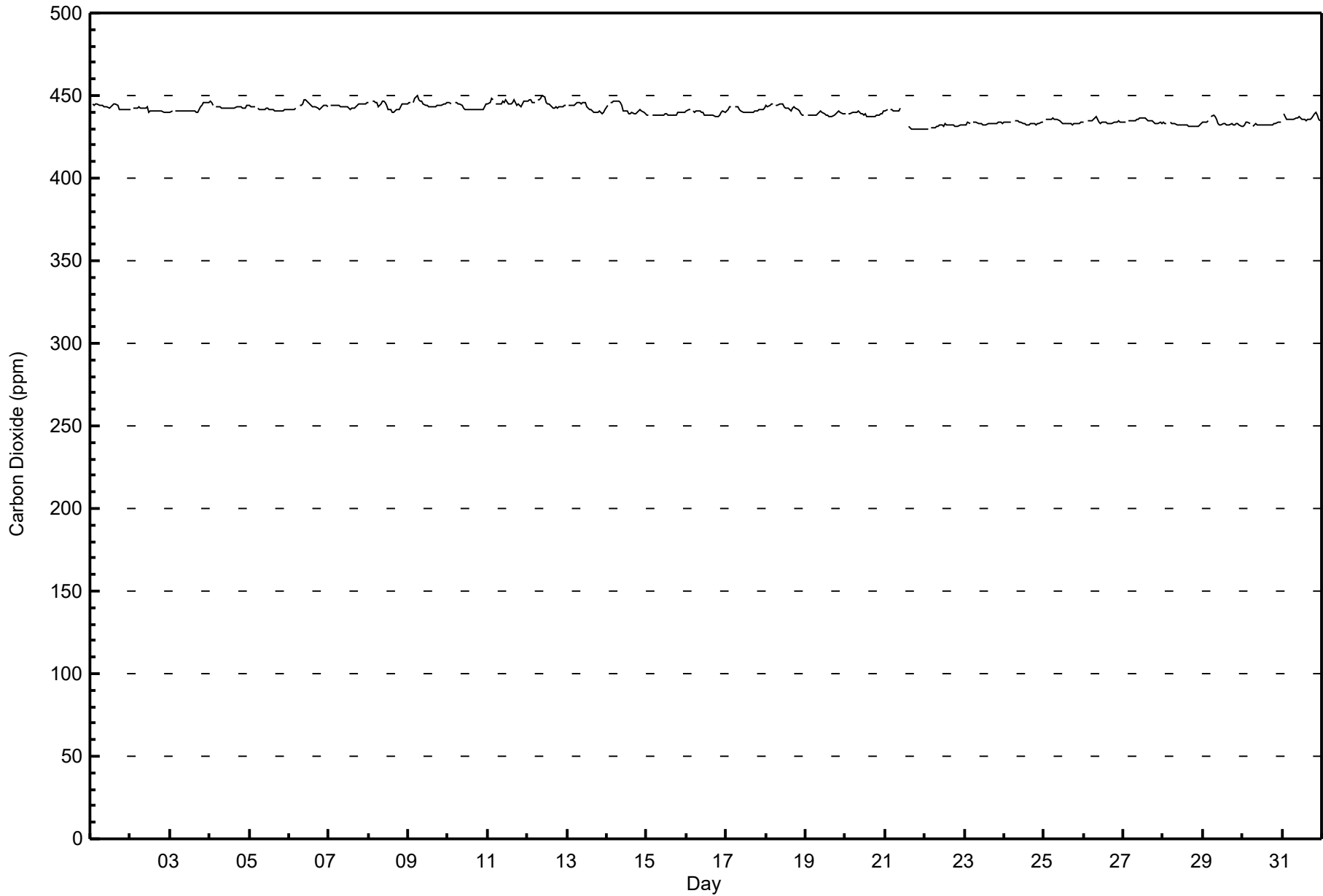
Carbon Dioxide (CO₂) - ppm
Stony Mountain - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 450.2 ppm on Mar 12 10:00		Maximum Daily Average: 445.5 ppm on Mar 11																	Hours of Data:	709							
Minimum Value: 429.5 ppm on Mar 21 18:00		Minimum Daily Average: 431.5 ppm on Mar 22																	Hours of Missing Data:	35							
Maximum Diurnal Average: 440.5 ppm at hour 4		Minimum Diurnal Average: 438.1 ppm at hour 18																	Hours of Calibration:	35							
Monthly Average: 439.27 ppm		Percentiles: P ₁ = 429.7 P ₁₀ = 432.5 Q ₁ = 434.3 Median = 440.3 Q ₃ = 443.3 P ₉₀ = 445.1 P ₉₉ = 447.5																	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-Mar	Z	444.7	444.4	444.6	444.5	444.5	444.2	443.7	443.5	443.1	442.8	442.7	443.4	444.1	445.1	444.8	444.1	441.9	441.9	441.7	441.7	441.5	441.4	441.4	443.3	445.1	
2-Mar	441.6	Z	442.2	442.3	442.3	442.9	442.4	442.2	442.3	442.0	443.1	440.2	440.3	440.5	440.9	440.9	440.6	440.6	440.4	440.3	440.2	440.2	440.2	440.3	441.2	443.1	
3-Mar	440.2	440.4	Z	440.8	440.8	440.9	440.9	441.0	440.9	441.0	440.9	440.9	440.8	440.7	440.5	440.3	440.2	440.2	443.6	444.3	446.1	445.7	445.8	445.5	441.8	446.1	
4-Mar	446.2	445.6	444.3	Z	443.6	443.5	443.3	442.7	442.5	442.6	442.7	442.6	442.5	442.6	442.5	442.6	442.9	442.8	443.0	442.9	442.3	442.6	443.7	444.1	443.2	446.2	
5-Mar	443.9	443.2	443.0	442.9	Z	442.6	441.8	441.8	441.4	441.7	442.3	442.0	441.6	441.5	441.3	441.1	440.5	440.6	440.5	440.8	441.0	441.3	441.5	441.5	441.7	443.9	
6-Mar	441.7	441.7	441.5	441.4	442.0	Z	443.8	444.4	445.2	447.5	447.5	446.1	444.8	443.9	443.3	443.1	442.9	442.1	441.9	442.0	443.3	444.1	443.7	443.4	443.5	447.5	
7-Mar	Z	443.9	444.0	444.0	444.2	444.0	443.7	443.2	443.2	443.0	443.1	442.8	442.2	441.8	442.1	442.6	443.3	443.8	444.6	444.8	444.9	445.0	445.1	445.5	443.7	445.5	
8-Mar	445.8	Z	446.7	446.6	446.1	445.6	443.3	444.9	446.9	447.0	446.0	443.9	441.3	441.4	439.9	439.6	440.4	441.4	441.4	443.3	444.9	445.3	444.8	445.2	444.0	447.0	
9-Mar	445.5	445.9	Z	446.2	448.1	450.2	447.1	446.8	446.5	445.2	444.1	443.7	443.4	443.4	443.3	443.5	443.5	443.8	444.1	444.0	444.0	444.6	444.9	445.4	445.1	450.2	
10-Mar	445.8	445.6	445.3	Z	445.9	445.6	444.7	444.5	443.7	442.1	441.5	441.7	441.6	441.4	441.2	441.2	441.9	441.4	441.2	441.7	441.8	441.9	442.8	444.9	443.0	445.9	
11-Mar	444.5	446.1	447.9	447.8	Z	445.0	444.6	445.0	444.9	446.4	446.1	447.2	445.3	445.0	444.7	445.7	447.4	444.3	444.7	443.7	443.1	444.5	446.6	446.6	445.5	447.9	
12-Mar	446.3	447.4	447.3	446.1	446.1	Z	447.1	447.3	448.2	450.2	449.4	445.8	444.8	444.9	444.0	442.6	442.1	443.1	442.7	443.1	443.3	443.4	444.2	444.0	445.4	450.2	
13-Mar	Z	443.8	443.7	444.2	444.2	444.7	445.4	445.9	445.1	445.4	445.6	445.5	443.5	441.8	441.8	440.9	440.0	439.7	439.5	440.3	439.6	439.4	440.0	441.5	442.7	445.9	
14-Mar	444.2	Z	445.8	446.1	446.8	446.5	446.8	446.7	445.9	444.1	440.6	440.5	440.4	439.1	439.1	439.5	439.1	439.2	439.8	440.6	441.2	440.7	439.9	438.6	442.2	446.8	
15-Mar	437.8	437.8	Z	438.0	438.0	438.1	438.2	438.3	438.1	437.9	438.0	438.9	439.3	438.2	437.9	437.9	437.9	437.9	438.4	439.4	439.6	439.5	439.5	439.9	438.5	439.9	
16-Mar	441.0	441.6	441.4	Z	440.4	439.8	440.3	440.7	440.3	440.0	439.7	438.5	438.2	438.1	438.0	438.0	437.8	437.4	437.4	437.7	438.5	439.8	440.7	440.1	439.4	441.6	
17-Mar	440.5	441.6	443.2	443.2	Z	443.3	443.1	443.5	441.9	440.7	439.9	439.7	439.9	439.5	439.9	440.0	440.2	440.6	440.9	441.0	441.4	441.5	441.7	442.7	441.3	443.5	
18-Mar	443.9	443.4	443.9	444.5	444.8	Z	444.4	444.3	445.0	445.1	444.8	443.3	442.2	442.1	441.4	441.1	442.0	442.8	442.6	441.6	440.9	439.0	438.5	438.1	442.6	445.1	
19-Mar	Z	438.4	438.3	438.2	438.0	438.1	438.0	439.0	439.6	440.4	439.5	438.6	438.2	438.1	437.6	437.3	437.4	438.3	439.0	439.5	440.5	440.1	439.0	438.6	438.7	440.5	
20-Mar	439.2	Z	439.2	439.2	439.7	439.6	439.5	439.7	440.3	439.2	438.8	438.5	438.8	437.6	437.4	437.3	437.3	437.4	437.7	438.3	438.2	438.7	439.1	440.6	438.8	440.6	
21-Mar	440.9	441.5	Z	441.7	441.6	440.9	440.5	440.6	440.3	442.3	C	C	C	C	430.9	430.4	429.7	429.5	429.6	429.7	429.7	429.7	429.9	429.9	435.2	442.3	
22-Mar	429.8	429.6	429.7	Z	430.3	430.1	430.2	431.2	431.2	432.1	432.4	431.7	432.8	432.5	432.3	432.0	432.1	431.8	431.5	431.8	431.6	432.5	432.5	431.8	431.5	432.8	
23-Mar	431.9	432.5	433.9	432.9	Z	433.7	433.8	433.5	433.1	432.7	433.1	432.2	432.4	432.5	433.1	432.9	432.8	433.0	433.0	433.2	433.6	434.0	433.6	433.4	433.1	434.0	
24-Mar	434.1	434.0	434.1	433.9	433.7	Z	435.0	434.9	434.6	433.5	433.6	433.0	432.8	432.3	432.6	432.4	432.7	432.8	432.8	432.5	433.0	433.2	433.8	434.3	433.5	435.0	
25-Mar	Z	435.3	435.7	435.6	435.8	436.4	436.0	435.9	435.6	434.6	433.8	433.0	433.1	433.4	432.9	432.7	432.7	432.5	432.8	433.1	433.4	433.4	433.8	433.6	434.1	436.4	
26-Mar	434.2	Z	435.0	434.8	434.6	434.6	436.0	437.1	435.6	433.8	433.4	433.6	433.7	433.7	433.3	433.3	433.2	433.5	433.5	433.6	434.3	434.5	434.3	434.0	434.2	437.1	
27-Mar	434.0	434.2	Z	434.3	434.4	434.7	434.6	435.1	435.6	436.0	436.0	436.0	436.0	436.1	435.4	434.8	435.0	435.1	434.1	432.8	433.0	433.3	433.5	433.3	434.7	436.1	
28-Mar	433.5	433.3	433.0	Z	434.0	433.4	432.9	432.7	432.6	432.4	432.2	432.1	432.0	431.9	431.8	431.8	431.7	431.6	431.4	431.4	431.3	431.8	432.3	433.0	432.4	434.0	
29-Mar	434.2	433.8	434.2	434.8	Z	437.5	437.9	437.3	435.6	433.4	432.4	432.4	433.2	432.7	431.9	431.9	432.0	432.7	432.4	432.2	432.7	432.8	431.8	431.4	433.5	437.9	
30-Mar	431.6	432.1	433.6	433.6	432.9	Z	431.6	431.9	433.1	432.2	432.3	432.4	432.4	432.1	432.1	432.3	432.2	432.3	432.5	432.7	433.4	433.5	433.7	433.7	432.6	433.7	
31-Mar	Z	438.7	435.6	435.6	435.7	435.7	435.8	435.9	436.3	436.4	436.9	436.1	435.4	435.6	435.1	436.0	435.8	435.9	436.4	438.9	439.4	438.0	435.9	435.0	436.4	439.4	
		439.7	439.9	440.3	440.5	440.3	440.5	440.2	440.4	440.3	440.1	439.8	439.2	438.9	438.6	438.2	438.1	438.1	438.1	438.2	438.5	438.8	438.9	439.0	439.1	Diurnal Average	
		446.3	447.4	447.9	447.8	448.1	450.2	447.1	447.3	448.2	450.2	449.4	447.2	445.3	445.0	445.1	445.7	447.4	444.3	444.7	444.8	446.1	445.7	446.6	446.6	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Carbon Dioxide (CO₂) - ppm
Stony Mountain - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Carbon Dioxide (CO₂) - ppm
Stony Mountain - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	0	0.00	0.00
420 - 440	375	52.89	52.89
440 - 460	334	47.11	100.00
460 - 480	0	0.00	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Stony Mountain - March 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	24	31	40	24	23	6	19	51	37	46	27	2	5	11	10	19	375
440 - 460	4	19	17	20	29	9	6	5	37	59	29	9	18	29	34	10	334
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
Totals	28	50	57	44	52	15	25	56	74	105	56	11	23	40	44	29	709

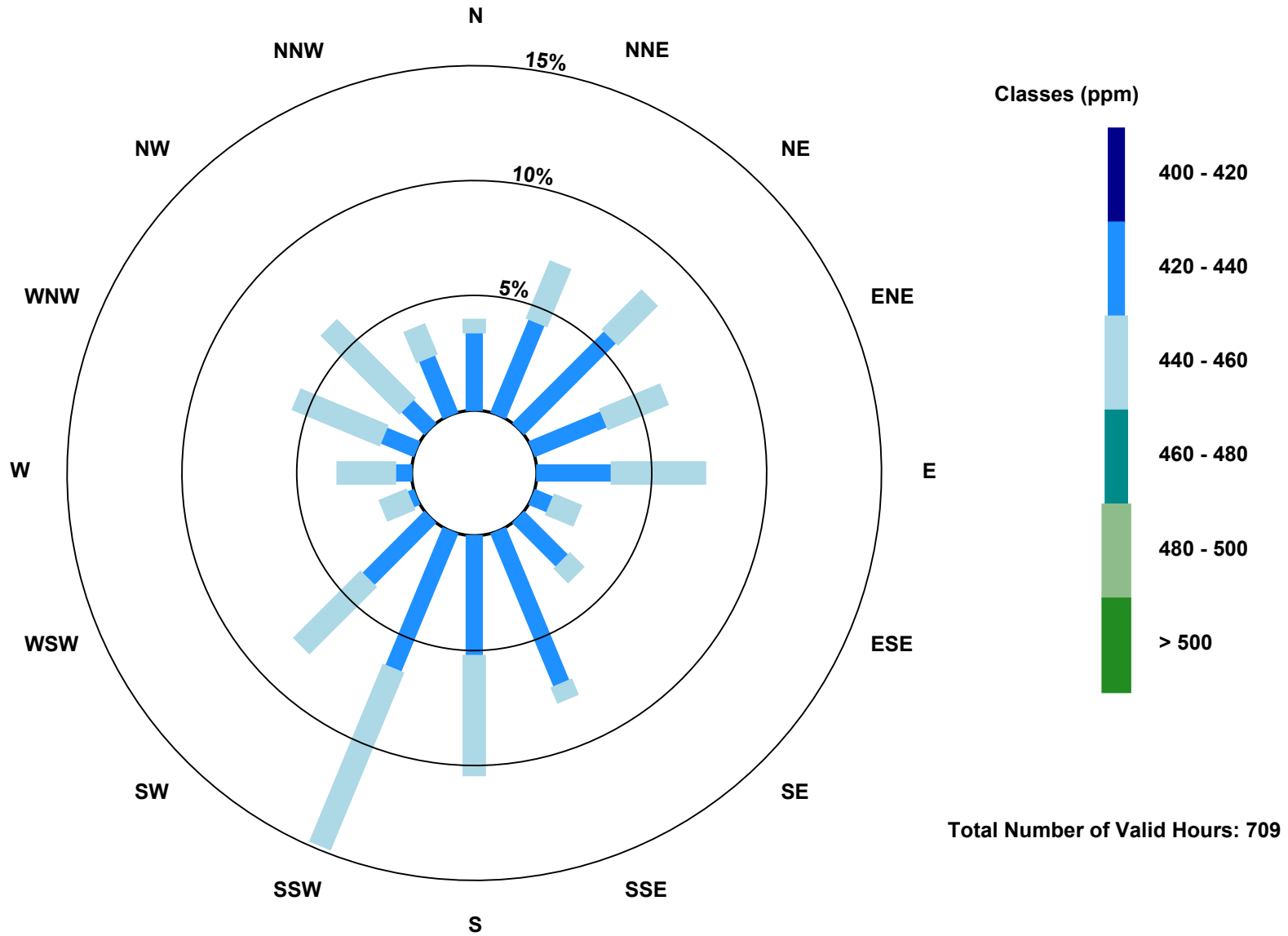
Total Number of Valid Hours: 709

Total Number of Hours: 744



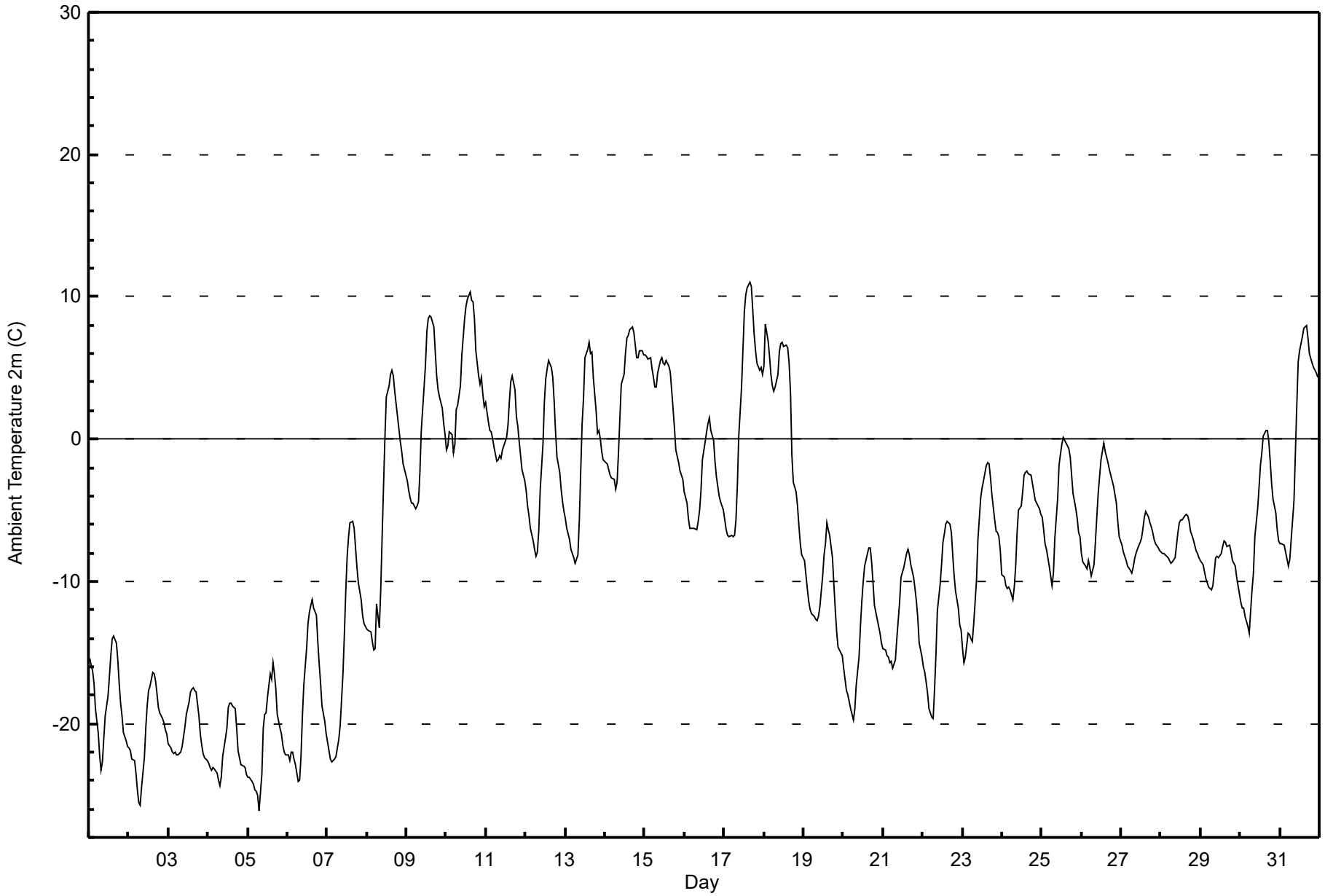
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Carbon Dioxide (CO₂) - ppm
Stony Mountain





Maximum Value: 11.1 C on Mar 17 16:00		Maximum Daily Average: 4.6 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -26.1 C on Mar 5 08:00		Minimum Daily Average: -21.9 C on Mar 4		Hours of Data: 744																																												
Maximum Diurnal Average: -2.4 C at hour 16		Minimum Diurnal Average: -11.9 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: -7.47 C		Percentiles: P ₁ = -24.4 P ₁₀ = -21.0 Q ₁ = -14.1 Median = -7.3 Q ₃ = -0.9 P ₉₀ = 5.1 P ₉₉ = 9.5		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	-15.4	-15.9	-16.3	-17.2	-19.0	-20.7	-22.2	-23.3	-22.7	-21.0	-19.4	-18.0	-16.7	-15.3	-14.0	-13.8	-14.3	-15.6	-17.2	-18.5	-19.5	-20.7	-21.2	-21.7	-18.3	-13.8																						
2-Mar	-21.7	-21.9	-22.5	-22.6	-23.5	-24.7	-25.5	-25.7	-24.4	-22.4	-20.4	-18.8	-17.7	-17.3	-16.4	-16.5	-17.0	-17.9	-18.8	-19.3	-19.7	-20.0	-20.4	-20.8	-20.7	-16.4																						
3-Mar	-21.4	-21.7	-22.0	-22.1	-22.0	-22.2	-22.2	-22.0	-21.6	-20.9	-20.2	-19.3	-18.4	-17.8	-17.6	-17.5	-17.6	-17.8	-19.4	-20.8	-21.5	-22.1	-22.4	-22.6	-20.5	-17.5																						
4-Mar	-22.8	-23.1	-23.2	-23.1	-23.2	-23.5	-23.9	-24.3	-23.8	-22.3	-21.0	-20.4	-18.8	-18.6	-18.6	-18.8	-19.0	-20.3	-21.9	-22.4	-22.8	-23.0	-23.1	-23.6	-21.9	-18.6																						
5-Mar	-23.8	-23.8	-24.1	-24.3	-24.7	-24.8	-25.1	-26.1	-23.6	-20.4	-19.2	-18.2	-16.5	-16.9	-15.7	-16.5	-17.6	-19.4	-20.3	-20.8	-21.5	-22.0	-22.2	-21.1	-15.7																							
6-Mar	-22.2	-22.6	-22.0	-22.0	-22.5	-22.9	-24.1	-23.9	-22.3	-19.5	-17.3	-14.7	-12.9	-12.2	-11.7	-11.3	-11.9	-12.4	-14.2	-15.8	-17.2	-18.8	-19.9	-20.8	-18.1	-11.3																						
7-Mar	-21.3	-21.9	-22.5	-22.7	-22.4	-22.3	-21.7	-21.1	-20.1	-16.5	-13.8	-10.7	-8.2	-6.8	-5.9	-5.8	-6.2	-7.7	-9.1	-10.1	-11.3	-12.3	-12.9	-13.1	-14.4	-5.8																						
8-Mar	-13.4	-13.4	-13.5	-14.2	-14.9	-14.7	-11.6	-13.3	-10.6	-6.8	-3.4	0.1	2.9	3.7	4.5	4.8	4.5	3.3	1.6	0.7	-0.2	-0.9	-1.7	-2.5	-4.5	4.8																						
9-Mar	-2.9	-3.6	-4.1	-4.5	-4.5	-4.9	-4.7	-4.4	-2.4	0.6	3.6	5.3	7.6	8.5	8.7	8.5	7.9	6.1	4.4	3.5	3.0	2.2	1.1	0.3	1.5	8.7																						
10-Mar	-0.8	-0.5	0.5	0.3	-0.9	-0.4	2.1	2.4	3.8	5.9	7.1	8.5	9.3	9.8	10.3	9.8	9.6	8.4	6.2	4.4	3.9	4.3	3.2	2.3	4.6	10.3																						
11-Mar	2.5	1.2	0.6	0.5	0.0	-0.5	-1.6	-1.4	-1.2	-1.4	-0.8	-0.4	0.1	1.0	2.6	4.1	4.4	3.5	1.6	0.9	-0.2	-1.2	-2.1	-2.9	0.4	4.4																						
12-Mar	-3.7	-4.7	-5.4	-6.3	-7.1	-7.8	-8.3	-8.0	-6.4	-3.6	-0.4	2.6	4.3	4.9	5.5	5.1	4.3	2.6	0.5	-1.3	-2.4	-3.5	-4.4	-5.1	-2.0	5.5																						
13-Mar	-5.6	-6.3	-7.0	-7.8	-8.1	-8.4	-8.8	-8.1	-5.7	-2.2	1.1	2.9	5.7	6.3	6.8	6.1	6.1	4.3	2.0	0.4	0.6	0.0	-0.8	-1.5	-1.2	6.8																						
14-Mar	-1.6	-1.7	-2.2	-2.5	-2.7	-2.8	-3.5	-3.0	-1.0	1.5	3.9	4.5	6.0	7.1	7.3	7.7	7.8	7.5	6.6	5.7	5.7	6.3	6.2	5.9	2.9	7.8																						
15-Mar	5.9	5.8	5.6	5.7	5.0	4.3	3.6	3.7	4.7	5.5	5.7	5.4	5.3	5.5	5.2	4.8	3.5	2.2	0.8	-0.8	-1.7	-2.3	-2.6	-2.9	3.2	5.9																						
16-Mar	-3.7	-4.5	-5.6	-6.2	-6.2	-6.3	-6.3	-6.4	-5.8	-5.0	-3.7	-1.5	-0.2	0.5	1.1	1.5	0.6	-0.1	-1.6	-2.6	-3.3	-4.0	-4.4	-5.0	-3.3	1.5																						
17-Mar	-5.7	-6.4	-6.8	-6.9	-6.8	-6.9	-6.7	-5.6	-3.2	0.2	3.7	6.3	9.0	10.2	10.6	11.1	10.8	9.1	7.4	6.2	5.3	4.8	5.0	4.5	2.1	11.1																						
18-Mar	5.2	8.1	6.9	5.8	4.5	3.7	3.3	3.6	4.5	6.1	6.7	6.8	6.6	6.6	6.4	5.3	3.2	-1.2	-3.1	-3.7	-4.7	-6.1	-7.3	-8.2	2.5	8.1																						
19-Mar	-8.5	-9.5	-10.5	-11.3	-12.0	-12.2	-12.5	-12.7	-12.8	-12.5	-11.7	-9.6	-8.1	-7.4	-5.9	-6.3	-6.8	-8.4	-10.2	-12.0	-13.5	-14.7	-15.1	-15.2	-10.8	-5.9																						
20-Mar	-16.1	-16.9	-17.7	-18.0	-19.0	-19.4	-19.7	-19.0	-17.3	-15.3	-13.1	-11.3	-10.0	-8.9	-8.1	-7.7	-7.7	-8.7	-10.1	-11.7	-12.7	-13.2	-13.6	-14.3	-13.7	-7.7																						
21-Mar	-14.7	-14.8	-15.2	-15.3	-15.7	-15.7	-16.1	-15.5	-14.1	-12.8	-11.5	-9.7	-9.0	-8.5	-8.1	-7.7	-8.1	-8.8	-9.7	-10.5	-11.4	-12.6	-14.3	-15.3	-12.3	-7.7																						
22-Mar	-16.0	-16.4	-17.1	-17.8	-19.0	-19.5	-19.7	-17.6	-15.1	-12.0	-10.2	-8.9	-7.3	-6.7	-5.9	-5.8	-5.9	-6.6	-8.1	-9.6	-10.7	-11.9	-13.0	-13.4	-12.3	-5.8																						
23-Mar	-14.8	-15.7	-15.3	-13.6	-13.7	-14.1	-14.2	-13.0	-9.9	-7.1	-5.6	-4.1	-3.4	-2.9	-1.9	-1.7	-1.8	-2.7	-3.9	-5.7	-6.4	-6.5	-6.8	-7.8	-8.0	-1.7																						
24-Mar	-9.5	-9.7	-10.3	-10.5	-10.4	-10.6	-11.3	-10.4	-9.0	-6.6	-5.0	-4.7	-3.8	-2.6	-2.3	-2.2	-2.4	-2.6	-3.1	-3.7	-4.3	-4.5	-4.9	-5.3	-6.2	-2.2																						
25-Mar	-5.5	-6.4	-7.3	-7.7	-8.9	-9.6	-10.3	-9.4	-6.9	-4.2	-1.9	-1.1	-0.3	0.1	-0.1	-0.5	-0.7	-1.3	-2.5	-3.8	-4.9	-5.5	-6.5	-6.9	-4.7	0.1																						
26-Mar	-8.1	-8.7	-9.0	-9.2	-8.5	-9.0	-9.6	-8.8	-7.3	-5.5	-3.8	-2.6	-1.5	-0.3	-0.9	-1.3	-1.6	-2.2	-2.9	-3.4	-3.9	-4.5	-5.8	-6.9	-5.2	-0.3																						
27-Mar	-7.5	-8.0	-8.3	-8.5	-8.9	-9.2	-9.4	-9.0	-8.5	-8.1	-7.8	-7.2	-6.9	-6.3	-5.5	-5.1	-5.5	-5.8	-6.2	-6.6	-7.0	-7.4	-7.6	-7.8	-7.4	-5.1																						
28-Mar	-7.9	-8.0	-8.0	-8.2	-8.3	-8.5	-8.8	-8.7	-8.3	-7.5	-6.5	-5.9	-5.7	-5.6	-5.4	-5.3	-5.4	-5.8	-6.5	-7.1	-7.5	-7.8	-8.1	-8.3	-7.2	-5.3																						
29-Mar	-8.5	-8.8	-9.3	-9.8	-10.1	-10.4	-10.6	-10.4	-9.3	-8.4	-8.2	-8.3	-8.0	-7.5	-7.2	-7.3	-7.5	-7.4	-8.0	-8.5	-8.7	-9.0	-9.7	-10.9	-8.8	-7.2																						
30-Mar	-11.5	-11.8	-11.9	-12.5	-13.1	-13.6	-12.1	-10.6	-9.4	-6.9	-4.9	-3.4	-1.9	-1.0	0.2	0.6	0.6	-0.2	-1.6	-3.1	-4.3	-5.2	-6.4	-7.2	-6.3	0.6																						
31-Mar	-7.4	-7.4	-7.4	-7.9	-8.5	-9.0	-8.4	-7.0	-4.3	-1.0	2.4	5.4	6.2	7.2	7.8	7.9	7.9	7.1	6.0	5.3	5.0	4.9	4.7	4.3	0.6	7.9																						
																								-9.9	-10.3	-10.7	-11.0	-11.5	-11.8	-11.9	-11.6	-10.1	-8.1	-6.3	-4.9	-3.7	-2.9	-2.4	-2.4	-2.7	-3.8	-5.2	-6.3	-7.0	-7.6	-8.3	-8.9	Diurnal Average
																								5.9	8.1	6.9	5.8	5.0	4.3	3.6	3.7	4.7	6.1	7.1	8.5	9.3	10.2	10.6	11.1	10.8	9.1	7.4	6.2	5.7	6.3	6.2	5.9	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT 2m) - C
Stony Mountain - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	90	12.10	12.10
-20 - 0	489	65.73	77.82
0 - 10	160	21.51	99.33
10 - 20	5	0.67	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

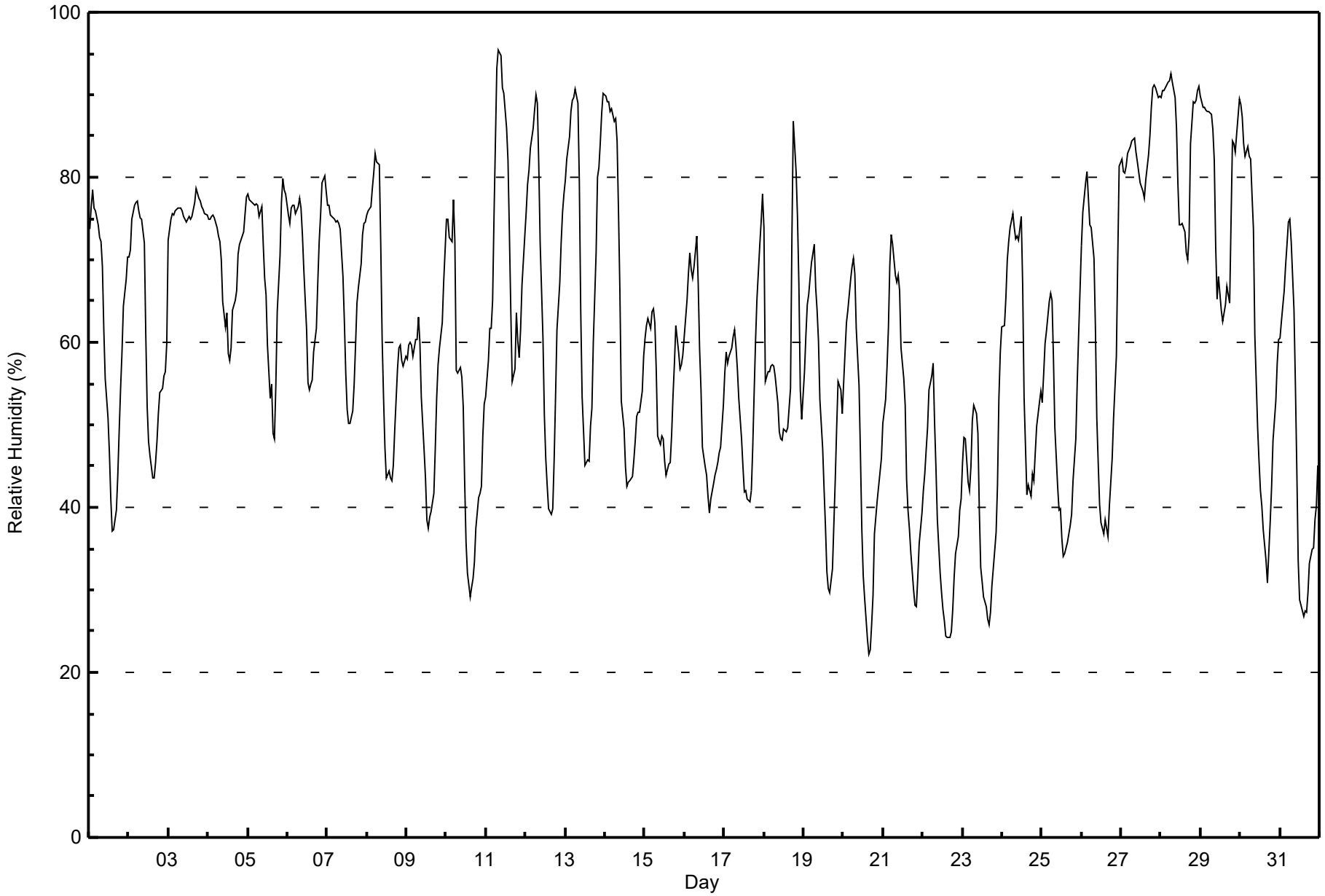
Relative Humidity (RH) - %
Stony Mountain - March 2024

Maximum Value: 95.4 % on Mar 11 08:00		Maximum Daily Average: 84.5 % on Mar 28		Hours in Service: 744																							
Minimum Value: 22.2 % on Mar 20 16:00		Minimum Daily Average: 37.8 % on Mar 22		Hours of Data: 744																							
Maximum Diurnal Average: 74.0 % at hour 7		Minimum Diurnal Average: 45.1 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 60.82 %		Percentiles: P ₁ = 25.7 P ₁₀ = 37.6 Q ₁ = 47.2 Median = 60.6 Q ₃ = 75.1 P ₉₀ = 83.0 P ₉₉ = 91.4		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-Mar	73.7	76.4	78.4	76.3	75.9	74.2	72.8	72.1	69.1	61.5	55.5	50.8	46.6	41.0	37.0	37.3	39.6	43.9	49.3	54.3	58.8	64.3	67.6	70.3	60.3	78.4	
2-Mar	70.3	71.1	74.9	76.6	76.9	77.1	76.0	75.0	74.9	72.1	61.0	52.1	47.9	46.3	43.5	43.5	45.4	48.0	51.4	53.8	54.3	55.9	56.4	59.9	61.0	77.1	
3-Mar	72.3	75.0	75.6	75.4	76.0	76.2	76.2	76.3	76.0	75.3	74.9	74.6	75.3	74.8	75.3	76.1	76.9	78.7	77.5	77.1	76.5	76.1	75.7	75.5	75.8	78.7	
4-Mar	74.8	74.9	75.2	75.5	75.2	73.8	72.9	72.3	69.9	64.9	61.8	63.6	58.6	57.9	59.3	63.9	65.1	66.2	70.7	71.8	72.3	73.3	75.6	77.6	69.5	77.6	
5-Mar	78.0	77.3	76.9	76.9	76.6	76.8	76.7	75.3	76.4	71.9	67.8	65.8	59.7	53.3	54.8	49.0	48.4	54.7	63.7	70.4	77.0	79.8	78.5	77.9	69.3	79.8	
6-Mar	75.4	74.3	76.2	76.6	76.6	75.6	76.4	77.5	76.2	73.1	68.8	61.5	55.1	54.2	54.8	55.4	58.9	61.8	67.3	72.2	75.5	79.3	80.1	78.2	70.0	80.1	
7-Mar	76.6	76.6	75.4	75.3	74.9	74.6	74.8	74.4	73.7	68.0	62.6	56.3	51.8	50.2	50.2	51.6	54.9	59.6	64.7	66.6	69.6	73.0	74.4	74.6	66.8	76.6	
8-Mar	75.5	75.9	76.4	78.7	80.4	82.9	81.8	81.4	72.0	60.5	53.3	47.4	43.6	44.4	43.5	43.2	45.1	49.3	56.8	59.4	59.6	57.7	57.2	58.4	61.8	82.9	
9-Mar	58.0	59.7	59.9	59.7	58.4	60.3	60.4	63.0	60.0	53.4	46.9	43.6	38.4	37.4	38.8	39.5	41.7	47.1	53.2	57.2	59.3	62.5	67.2	71.0	54.0	71.0	
10-Mar	75.0	75.0	72.6	72.2	77.3	72.4	56.5	56.3	56.9	55.8	52.2	43.2	35.8	32.0	29.2	30.4	31.3	33.4	37.5	41.2	41.7	42.5	48.6	52.5	50.9	77.3	
11-Mar	53.5	57.9	61.6	61.7	65.1	75.3	93.2	95.4	95.1	94.7	90.8	90.1	85.9	82.0	73.2	63.9	55.2	56.8	63.6	60.2	58.2	61.5	67.0	72.9	72.3	95.4	
12-Mar	75.8	79.2	80.9	83.6	85.9	88.2	89.9	88.9	81.5	72.1	60.5	51.2	45.9	42.7	39.8	39.1	39.8	45.8	53.5	61.5	67.0	72.0	75.8	78.0	66.6	89.9	
13-Mar	79.7	82.2	85.0	87.9	89.2	89.7	90.7	89.1	79.5	63.9	53.4	49.2	45.0	45.7	45.6	49.8	52.1	60.0	70.8	80.1	81.1	84.2	87.9	90.1	72.2	90.7	
14-Mar	89.9	89.1	89.2	87.9	88.3	86.8	87.1	84.5	75.9	66.2	52.9	49.6	44.9	42.6	43.1	43.2	43.8	45.8	48.1	51.0	51.5	51.6	54.1	58.3	63.6	89.9	
15-Mar	60.5	62.1	62.9	61.7	63.8	64.1	62.4	56.7	48.7	47.7	48.6	48.4	45.6	43.9	45.2	45.4	48.9	53.6	57.5	62.0	58.8	56.8	57.2	58.4	55.0	64.1	
16-Mar	60.6	65.1	68.4	70.8	68.8	67.8	69.1	72.8	67.0	59.1	54.3	47.3	45.0	43.9	41.4	39.4	41.0	42.8	43.9	44.7	45.4	46.6	47.3	52.4	54.4	72.8	
17-Mar	56.4	58.7	57.4	58.3	59.3	60.7	61.5	59.5	56.8	53.2	48.2	44.9	41.9	41.9	41.0	40.8	42.0	47.2	53.9	60.1	65.3	71.7	74.6	78.0	55.6	78.0	
18-Mar	73.8	55.2	56.4	56.4	57.0	57.4	57.1	55.9	52.6	49.1	48.4	48.1	49.6	49.2	49.7	52.1	54.4	72.7	86.8	80.6	75.1	66.9	54.3	50.7	58.7	86.8	
19-Mar	56.4	60.9	64.6	65.7	67.9	69.6	71.9	66.6	63.9	60.1	53.0	47.1	42.1	37.6	32.3	30.2	29.6	32.6	37.9	43.4	49.7	55.2	54.3	51.4	51.8	71.9	
20-Mar	55.1	58.8	62.3	63.8	67.7	69.1	70.2	68.3	61.7	54.7	46.4	37.3	31.6	29.0	24.0	22.2	22.6	25.8	29.4	36.8	40.8	42.5	44.2	45.9	46.3	70.2	
21-Mar	50.2	53.1	56.9	61.6	69.4	73.0	71.9	68.1	67.3	68.1	66.3	59.4	55.6	52.4	43.3	39.6	37.4	34.6	29.9	28.2	28.0	31.6	35.5	39.3	50.9	73.0	
22-Mar	42.1	44.1	46.9	49.6	54.3	56.0	57.4	50.4	44.7	38.4	32.1	29.6	27.6	26.2	24.4	24.2	24.3	24.9	27.6	31.5	34.4	36.4	39.7	41.0	37.8	57.4	
23-Mar	45.4	48.5	48.4	43.1	42.0	44.8	50.4	52.3	51.4	49.0	39.6	32.8	31.0	29.2	28.0	26.4	25.7	27.3	30.5	34.8	37.0	42.6	53.1	58.8	40.5	58.8	
24-Mar	61.9	62.0	65.5	70.0	72.1	73.9	75.5	73.9	72.6	72.9	72.3	75.2	66.9	53.4	47.4	41.5	42.8	41.3	44.1	43.2	46.5	49.7	52.7	54.0	59.6	75.5	
25-Mar	52.7	56.2	59.8	61.4	64.9	65.9	65.1	58.1	49.7	42.5	39.6	39.8	36.3	34.0	34.4	35.7	36.7	37.7	39.2	43.1	48.3	55.0	60.9	66.3	49.3	66.3	
26-Mar	71.7	75.7	79.3	80.7	77.5	74.2	73.9	70.1	61.9	50.8	45.5	40.3	38.2	36.7	38.4	37.5	36.4	40.2	46.0	50.9	54.6	58.4	70.3	81.4	57.9	81.4	
27-Mar	82.1	80.7	80.6	81.3	82.9	83.8	84.3	84.6	84.7	83.0	81.8	79.3	78.8	78.4	77.4	79.6	82.8	85.1	88.6	90.8	91.2	90.9	89.7	89.9	83.8	91.2	
28-Mar	89.6	90.5	90.5	91.3	91.5	91.8	92.6	91.5	89.6	85.9	79.2	74.3	74.2	74.4	73.4	70.8	69.9	72.9	84.0	89.2	89.1	89.3	90.5	91.0	84.5	92.6	
29-Mar	89.9	88.5	88.4	88.2	87.9	88.0	87.6	85.8	82.1	71.7	65.3	67.9	63.8	62.5	63.6	64.5	66.8	64.7	74.8	84.4	84.1	83.1	85.3	89.5	78.3	89.9	
30-Mar	88.8	87.3	84.1	82.6	83.8	82.6	82.2	77.8	73.7	60.8	49.7	45.5	42.1	40.1	37.4	33.5	30.9	34.6	38.3	42.6	48.2	52.9	57.5	60.3	59.0	88.8	
31-Mar	60.5	62.6	66.3	69.3	71.8	74.5	74.9	72.2	63.9	54.9	44.8	33.5	28.7	27.5	26.7	27.5	27.3	29.7	33.2	35.0	35.1	38.5	40.2	45.1	47.7	74.9	
		68.6	69.5	70.9	71.6	72.9	73.6	74.0	72.4	68.7	63.1	57.3	53.2	49.5	47.3	45.7	45.1	45.7	49.0	54.0	57.4	59.2	61.4	63.7	66.1	Diurnal Average	
		89.9	90.5	90.5	91.3	91.5	91.8	93.2	95.4	95.1	94.7	90.8	90.1	85.9	82.0	77.4	79.6	82.8	85.1	88.6	90.8	91.2	90.9	90.5	91.0	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Stony Mountain - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Precipitation (PC) - mm

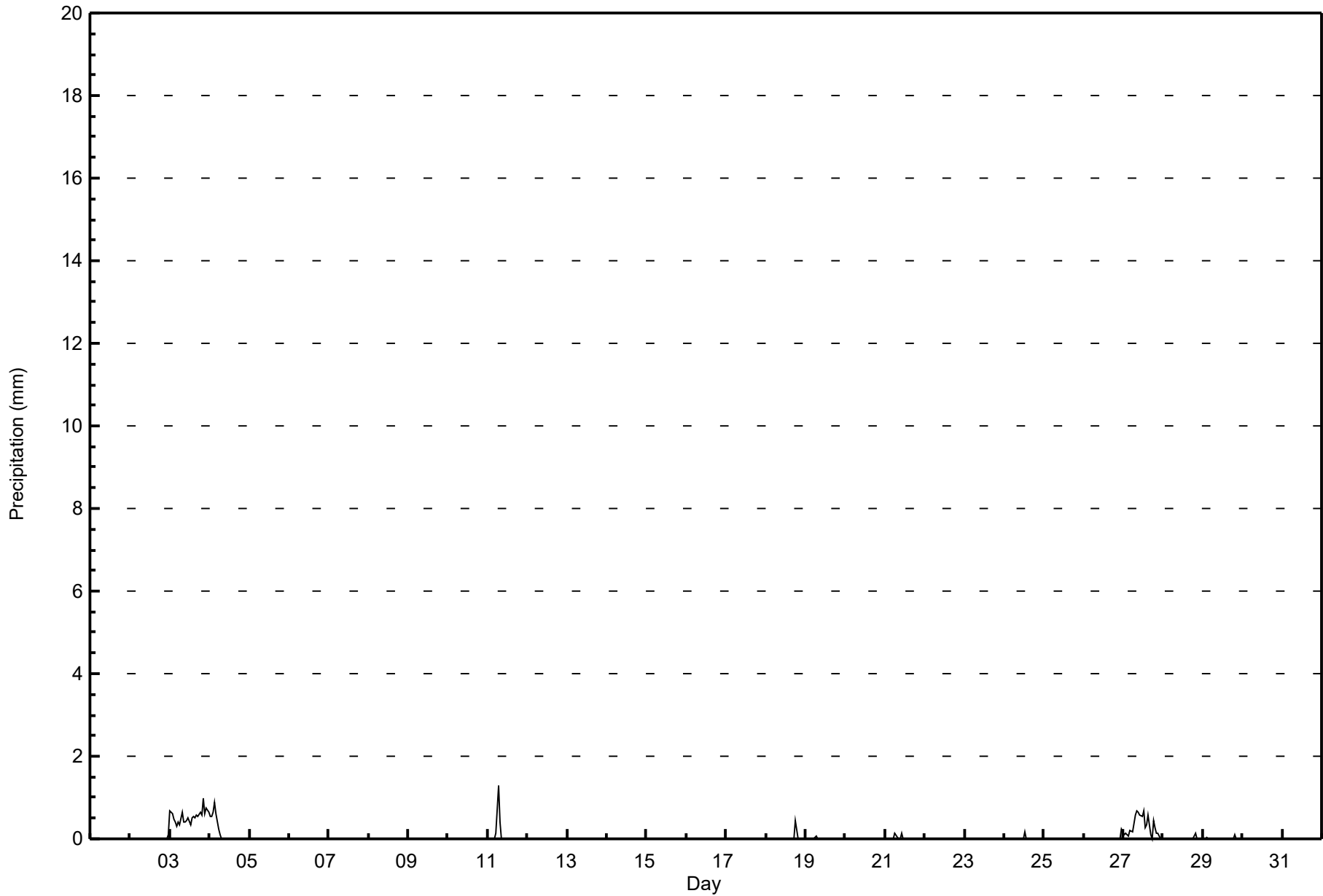
Stony Mountain - March 2024

Maximum Value: 1.3 mm on Mar 11 07:00 Maximum Daily Total: 12.8 mm on Mar 3																				Hours in Service: 744 Hours of Data: 736													
Minimum Value: 0.0 mm on Mar 1 01:00 Minimum Daily Total: 0.0 mm on Mar 1 Maximum Diurnal Total: 2.3 mm at hour 7 Minimum Diurnal Total: 0.6 mm at hour 18 Monthly Total: 26.93 mm Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.7																				Hours of Missing Data: 8 Hours of Calibration: 0 Percent Operational Time: 98.9													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.7	0.6	0.5	0.4	0.3	0.4	0.3	0.6	0.4	0.4	0.5	0.5	0.3	0.5	0.6	0.5	0.6	0.6	0.7	0.6	1.0	0.6	0.8	0.7	12.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
4-Mar	0.6	0.6	0.7	0.9	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.9	0.9	0.9	0.9	0.9	0.9		
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.1	1.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
12-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
19-Mar	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
20-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
22-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	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	0.2	0.2	0.2	0.2	0.2	0.2	
25-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	DF	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	--	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
27-Mar	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.6	0.7	0.6	0.6	0.5	0.7	0.3	0.3	0.6	0.1	0.0	0.4	0.3	0.1	0.1	0.0	0.0	7.1	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
28-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
29-Mar	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
30-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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									
																								DF - DAS Failure									



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Stony Mountain - March 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	698	94.84	94.84
0.4 - 0.5	14	1.90	96.74
0.6 - 0.7	20	2.72	99.46
0.8 - 1.4	4	0.54	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 736

Total Number of Hours: 744

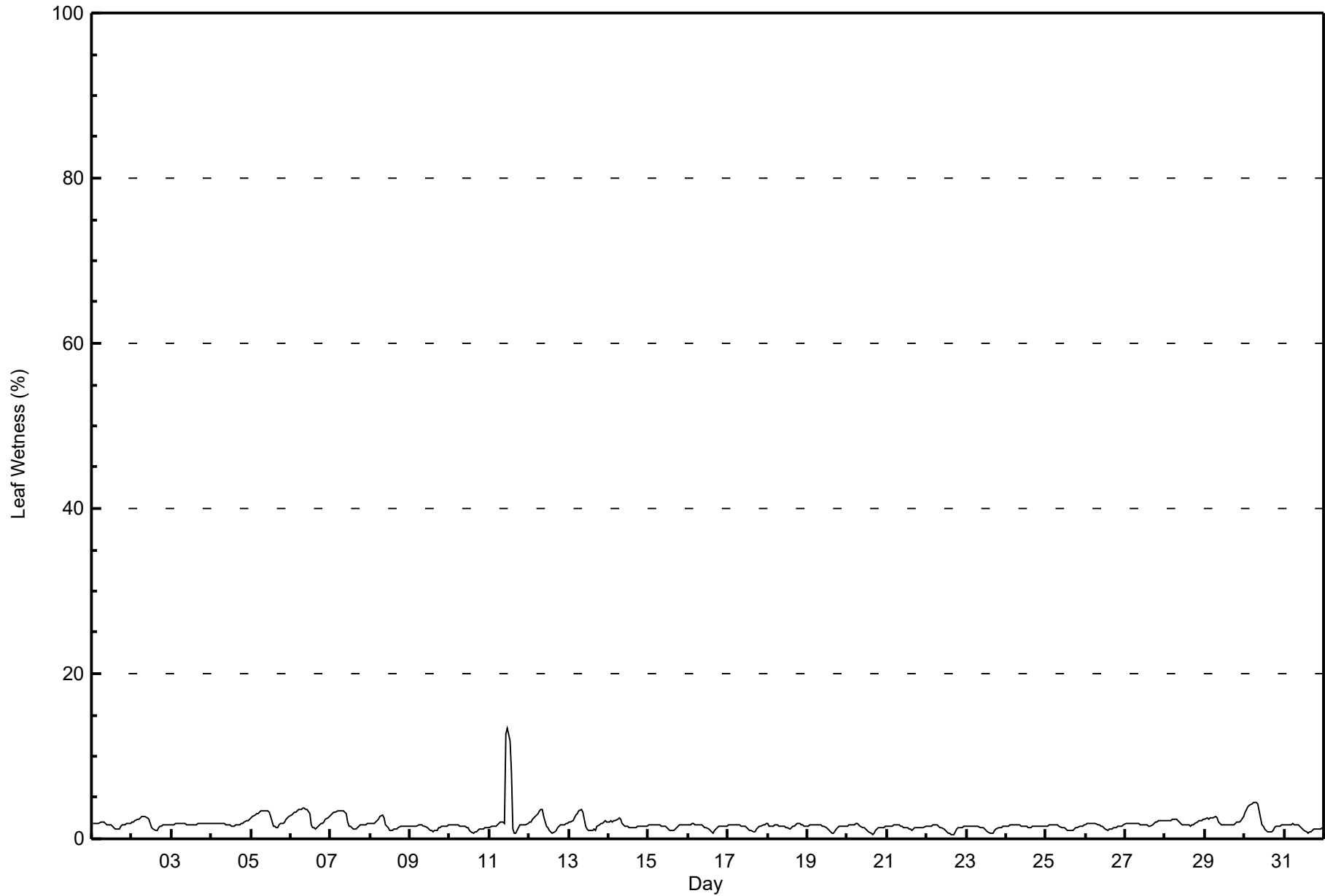


Maximum Value: 13.4 % on Mar 11 12:00 Maximum Daily Average: 3.2 % on Mar 11																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Minimum Value: 0.5 % on Mar 22 17:00 Minimum Daily Average: 1.2 % on Mar 22 Maximum Diurnal Average: 2.2 % at hour 7 Minimum Diurnal Average: 1.1 % at hour 16 Monthly Average: 1.77 % Percentiles: P ₁ = 0.7 P ₁₀ = 1.1 Q ₁ = 1.4 Median = 1.6 Q ₃ = 1.9 P ₉₀ = 2.5 P ₉₉ = 4.2																											
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-Mar	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.2	1.1	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.9	1.7	2.0	
2-Mar	2.0	2.1	2.2	2.3	2.4	2.6	2.7	2.7	2.7	2.6	2.4	1.8	1.3	1.2	1.0	1.0	1.3	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.9	2.7	
3-Mar	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.9	
4-Mar	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.6	1.5	1.6	1.6	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	1.8	2.3		
5-Mar	2.5	2.7	2.9	3.0	3.1	3.2	3.3	3.4	3.4	3.4	3.3	3.2	2.7	1.6	1.6	1.3	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.7	2.5	3.4	
6-Mar	2.9	3.0	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.6	3.5	3.0	1.8	1.4	1.4	1.2	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.8	2.6	3.7	
7-Mar	2.9	3.0	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.0	2.1	1.6	1.4	1.3	1.2	1.2	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.8	2.3	3.4	
8-Mar	1.8	1.9	1.9	2.0	2.1	2.4	2.6	2.8	2.6	1.7	1.5	1.3	1.1	1.1	1.1	1.1	1.1	1.3	1.5	1.5	1.5	1.5	1.5	1.6	1.7	2.8	
9-Mar	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.9	1.1	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.4	1.6
10-Mar	1.7	1.7	1.6	1.7	1.7	1.7	1.6	1.5	1.4	1.5	1.4	1.3	1.1	0.9	0.8	0.8	0.8	1.0	1.2	1.3	1.3	1.3	1.3	1.4	1.3	1.7	
11-Mar	1.4	1.4	1.5	1.5	1.5	1.6	2.0	2.0	2.0	1.9	12.8	13.4	11.8	8.0	1.2	0.7	0.7	1.3	1.7	1.7	1.7	1.7	1.7	1.8	3.2	13.4	
12-Mar	2.0	2.1	2.3	2.5	2.8	3.1	3.4	3.6	3.5	2.8	1.6	1.3	1.1	0.8	0.7	0.9	1.1	1.3	1.5	1.6	1.7	1.8	1.9	1.9	2.0	3.6	
13-Mar	2.0	2.1	2.3	2.5	2.8	3.1	3.3	3.5	3.3	2.3	1.5	1.3	1.0	1.1	1.1	1.2	1.0	1.5	1.7	1.9	1.9	2.0	2.1	2.0	2.0	3.5	
14-Mar	2.0	2.1	2.0	2.1	2.2	2.3	2.5	2.4	1.9	1.8	1.6	1.5	1.4	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.7	2.5	
15-Mar	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.4	1.4	1.4	1.2	1.1	0.9	0.9	1.2	1.4	1.6	1.7	1.7	1.7	1.6	1.6	1.5	1.7	
16-Mar	1.6	1.7	1.8	1.9	1.8	1.7	1.7	1.7	1.6	1.5	1.4	1.3	1.1	1.0	0.8	0.7	1.1	1.3	1.4	1.5	1.5	1.5	1.5	1.6	1.4	1.9	
17-Mar	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.3	1.2	1.0	1.0	0.9	0.9	1.2	1.4	1.5	1.6	1.7	1.7	1.8	1.4	1.8	
18-Mar	1.8	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.4	1.5	1.4	1.3	1.2	1.3	1.5	1.5	1.7	1.9	1.8	1.8	1.7	1.6	1.6	1.6	1.9	
19-Mar	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.4	1.3	1.2	1.0	0.8	0.7	0.7	1.1	1.4	1.4	1.5	1.6	1.6	1.6	1.4	1.7	
20-Mar	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.5	1.4	1.4	1.2	1.0	0.9	0.7	0.6	0.7	1.0	1.2	1.4	1.4	1.4	1.4	1.4	1.3	1.8	
21-Mar	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1	1.1	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.4	1.7	
22-Mar	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.6	1.3	1.3	1.3	1.1	0.9	0.7	0.7	0.5	0.5	0.9	1.2	1.3	1.3	1.4	1.4	1.5	1.2	1.7	
23-Mar	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.3	1.4	1.3	1.1	1.0	0.8	0.7	0.6	0.6	1.0	1.2	1.3	1.3	1.4	1.4	1.5	1.3	1.5	
24-Mar	1.6	1.6	1.6	1.7	1.7	1.8	1.8	1.7	1.6	1.6	1.5	1.6	1.5	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.8	
25-Mar	1.6	1.6	1.6	1.7	1.7	1.8	1.7	1.7	1.4	1.4	1.4	1.3	1.2	1.1	1.1	1.0	0.9	1.2	1.4	1.4	1.5	1.5	1.6	1.7	1.4	1.8	
26-Mar	1.7	1.8	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.6	1.5	1.3	1.2	1.0	1.2	1.2	1.3	1.3	1.4	1.5	1.5	1.5	1.6	1.7	1.5	1.9	
27-Mar	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.6	1.6	1.7	1.9	2.0	2.1	2.2	2.2	2.2	2.2	1.9	2.2	
28-Mar	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.1	1.8	1.7	1.6	1.6	1.7	1.6	1.6	1.6	1.7	1.9	2.1	2.1	2.2	2.2	2.4	2.0	2.4	
29-Mar	2.5	2.5	2.4	2.5	2.5	2.6	2.6	2.5	2.1	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.9	2.0	2.1	2.1	2.2	2.7	2.1	2.7	
30-Mar	3.2	3.6	3.9	4.1	4.2	4.4	4.4	4.5	4.2	3.4	1.7	1.4	1.2	1.1	0.9	0.8	0.8	1.1	1.3	1.5	1.5	1.6	1.6	1.7	2.4	4.5	
31-Mar	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.6	1.6	1.4	1.2	1.1	0.9	0.8	0.8	0.8	1.0	1.2	1.2	1.2	1.2	1.3	1.4	1.4	1.8	
																								Diurnal Average			
																								Diurnal Maximum			



Wood Buffalo Environmental Association
Hourly Averages

Leaf Wetness (LW) - %
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Leaf Wetness (LW) - %
Stony Mountain - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	2	0.27	0.27
0.6 - 0.7	14	1.88	2.15
0.8 - 1.4	208	27.96	30.11
1.5 - 10	478	64.25	94.35
> 10	3	0.40	94.76

Total Number of Valid Hours: 744

Total Number of Hours: 744



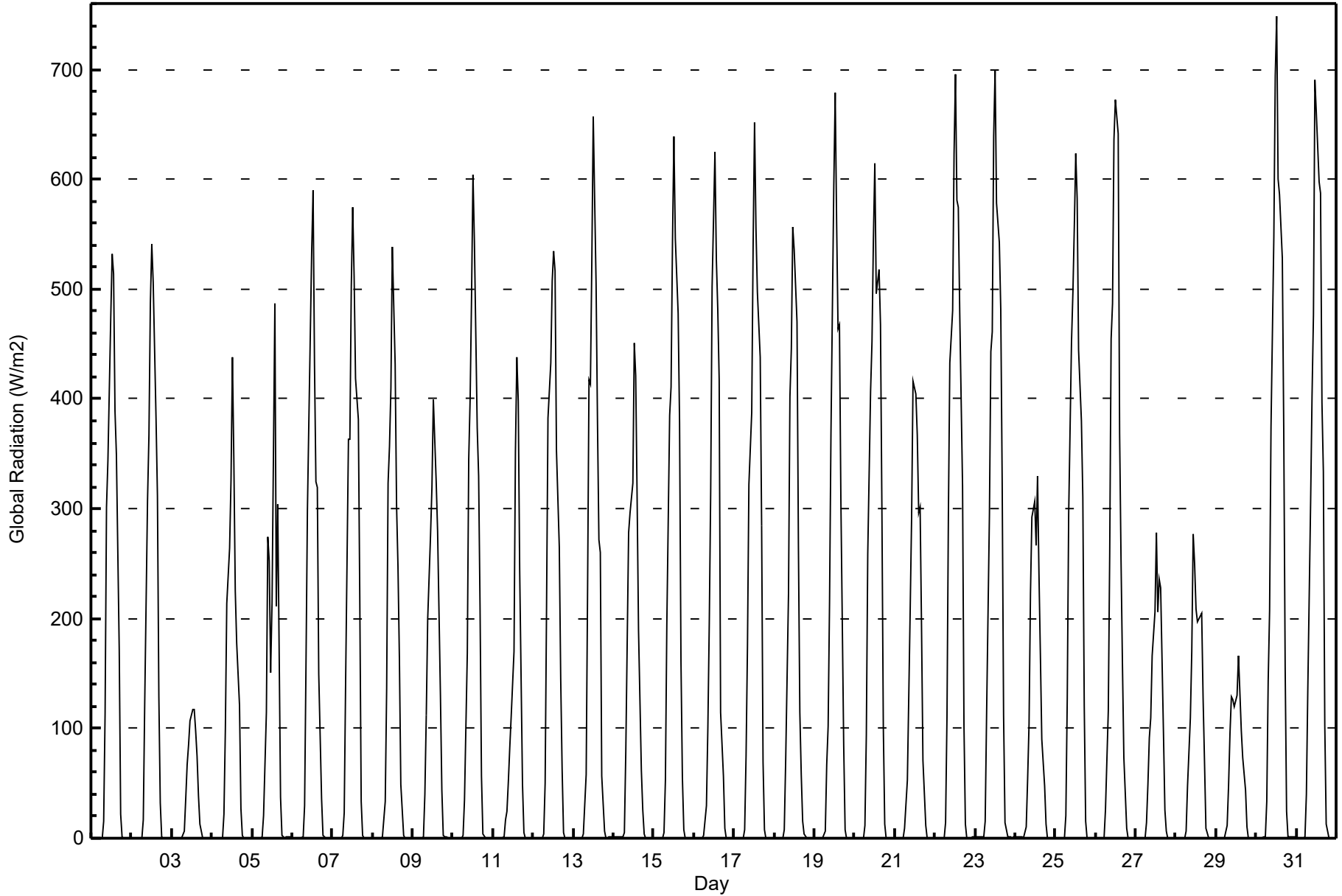
Wood Buffalo Environmental Association

Summary of Hour Averages

Global Radiation (GR) - W/m2

Stony Mountain - March 2024

Maximum Value: 748.5 W/m2 on Mar 30 13:00 Maximum Daily Average: 209.3 W/m2 on Mar 30																						Hours in Service:	744			
Minimum Value: 0.0 W/m2 on Mar 2 01:00 Minimum Daily Average: 31.6 W/m2 on Mar 3																						Hours of Data:	744			
Maximum Diurnal Average: 499.9 W/m2 at hour 13 Minimum Diurnal Average: 0.2 W/m2 at hour 2																						Hours of Missing Data:	0			
Monthly Average: 133.77 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 6.2 Q ₃ = 250.1 P ₉₀ = 467.7 P ₉₉ = 659.7																						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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.2	15.6	113.6	301.7	344.5	474.3	532.1	514.0	388.4	349.0	170.7	21.9	1.1	0.4	0.3	0.3	0.2	0.1	134.5	532.1
2-Mar	0.0	0.0	0.0	0.1	0.0	0.0	0.3	17.0	122.2	307.4	366.9	486.4	540.4	506.0	382.3	312.2	129.2	32.0	0.8	0.0	0.1	0.0	0.0	0.0	133.5	540.4
3-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.8	35.6	67.0	84.7	106.8	117.6	116.6	97.4	74.1	38.4	13.3	0.5	0.0	0.0	0.0	0.0	0.0	31.6	117.6
4-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.4	22.2	98.7	213.5	263.6	326.3	438.3	344.3	224.9	177.2	121.2	26.8	2.1	0.1	0.0	0.0	0.0	0.0	94.2	438.3
5-Mar	0.0	0.0	0.1	0.1	0.0	0.0	0.8	21.0	114.1	274.6	252.2	150.8	215.1	487.6	211.0	303.4	172.6	37.1	2.6	0.6	0.7	0.7	0.7	0.7	93.6	487.6
6-Mar	0.6	0.6	0.6	0.5	0.5	0.6	1.4	29.0	160.3	299.1	378.5	533.8	589.9	431.3	324.1	319.3	149.2	35.8	2.9	0.7	0.6	0.5	0.4	0.5	135.9	589.9
7-Mar	0.2	0.1	0.1	0.1	0.1	0.0	2.0	23.8	142.6	363.4	363.8	502.0	574.6	511.6	418.7	380.7	218.6	33.5	2.4	0.1	0.1	0.1	0.1	0.2	147.4	574.6
8-Mar	0.2	0.2	0.2	0.4	0.4	0.3	1.8	33.1	136.4	323.7	357.4	409.8	538.5	431.2	302.3	246.8	164.1	48.6	2.6	0.2	0.2	0.2	0.5	0.4	125.0	538.5
9-Mar	0.4	0.2	0.1	0.1	0.2	0.1	1.4	39.6	111.9	199.3	276.3	319.4	399.5	362.1	325.0	280.0	129.5	44.4	3.2	0.8	0.7	0.6	0.4	0.6	104.0	399.5
10-Mar	0.5	0.2	0.4	0.4	0.3	0.6	2.1	35.1	169.2	345.6	400.5	492.8	604.8	543.0	374.0	330.0	209.7	56.2	3.8	0.4	0.2	0.0	0.1	0.3	148.7	604.8
11-Mar	0.1	0.1	0.0	0.0	0.0	0.0	0.9	17.1	25.0	51.4	82.4	111.3	169.9	351.6	438.4	397.9	244.8	48.4	4.9	0.5	0.6	0.4	0.4	0.3	81.1	438.4
12-Mar	0.2	0.1	0.2	0.1	0.0	0.0	3.3	49.8	210.9	382.0	433.4	507.5	534.3	516.7	352.9	265.4	146.1	62.5	5.7	0.2	0.2	0.2	0.2	0.1	144.7	534.3
13-Mar	0.0	0.0	0.0	0.0	0.1	0.1	3.6	57.4	226.8	416.9	413.3	525.2	657.4	504.4	378.6	271.5	260.0	56.9	5.9	0.5	0.4	0.7	0.7	0.8	157.6	657.4
14-Mar	0.8	0.8	0.8	0.8	0.8	0.8	4.6	78.2	179.2	278.7	296.7	323.0	450.9	421.0	310.3	189.6	62.0	25.2	3.5	0.3	0.2	0.2	0.1	0.1	109.5	450.9
15-Mar	0.0	0.0	0.0	0.0	0.0	0.1	4.7	53.2	194.8	384.9	410.4	542.4	639.5	546.8	477.3	378.8	160.6	55.7	7.7	0.0	0.0	0.0	0.0	0.0	160.7	639.5
16-Mar	0.0	0.0	0.1	0.0	0.0	0.1	2.6	29.1	100.9	195.3	316.1	502.9	625.3	527.0	481.6	417.6	114.2	56.5	8.5	0.3	0.3	0.2	0.2	0.4	140.8	625.3
17-Mar	0.3	0.2	0.2	0.2	0.3	0.3	7.3	75.3	175.1	321.4	387.4	541.6	652.0	555.7	497.7	437.3	284.4	69.7	8.3	0.5	0.5	0.6	0.5	0.5	167.4	652.0
18-Mar	0.5	0.2	0.1	0.1	0.1	0.1	8.1	71.0	222.3	401.5	445.7	556.8	535.5	469.6	266.7	114.1	57.4	15.1	4.2	0.2	0.1	0.0	0.0	0.0	132.1	556.8
19-Mar	0.0	0.0	0.0	0.0	0.0	0.0	6.9	67.1	101.8	215.2	368.6	593.8	678.7	560.7	464.3	467.0	309.0	84.6	8.2	0.0	0.0	0.1	0.1	0.0	163.6	678.7
20-Mar	0.0	0.0	0.1	0.3	0.0	0.0	11.5	94.4	259.0	406.8	451.8	545.8	614.9	496.0	518.3	468.1	300.1	101.8	13.0	0.4	0.3	0.2	0.2	0.3	178.5	614.9
21-Mar	0.2	0.1	0.1	0.0	0.1	0.1	8.5	52.7	130.4	208.1	292.2	415.9	404.5	366.8	296.2	301.5	192.6	70.7	11.7	0.0	0.0	0.0	0.0	0.0	114.7	415.9
22-Mar	0.0	0.0	0.0	0.0	0.0	0.2	14.5	110.3	295.3	432.9	479.9	623.7	696.0	580.4	574.7	479.0	320.2	103.4	13.0	0.4	0.5	0.5	0.7	0.7	196.9	696.0
23-Mar	0.7	0.7	0.7	0.7	0.7	0.7	15.5	113.9	294.4	442.7	460.7	638.3	699.7	577.9	542.7	482.1	326.1	112.0	14.7	0.9	0.7	0.7	0.6	0.7	197.0	699.7
24-Mar	0.7	0.7	0.8	0.7	0.7	0.6	10.9	54.5	105.0	223.4	291.9	306.9	267.0	329.4	240.6	167.2	90.2	47.9	12.7	0.4	0.2	0.2	0.1	0.1	89.7	329.4
25-Mar	0.0	0.0	0.1	0.1	0.0	0.3	20.0	127.4	294.9	452.3	497.1	557.3	622.9	582.3	444.4	380.5	311.1	120.8	15.9	0.5	0.4	0.4	0.4	0.3	184.6	622.9
26-Mar	0.2	0.3	0.2	0.2	0.2	0.5	25.2	115.6	258.6	454.2	487.2	636.7	672.0	642.0	368.3	253.9	158.8	73.8	9.3	0.3	0.1	0.1	0.0	0.0	173.2	672.0
27-Mar	0.0	0.0	0.0	0.0	0.0	0.2	14.0	48.5	91.5	109.6	166.2	206.4	278.0	205.5	235.5	227.8	95.7	26.4	6.5	0.3	0.1	0.1	0.1	0.1	71.4	278.0
28-Mar	0.1	0.1	0.0	0.0	0.0	0.2	7.0	47.6	109.3	170.6	276.5	249.4	209.3	196.8	201.7	205.4	127.2	69.7	8.8	0.3	0.1	0.1	0.1	0.1	78.4	276.5
29-Mar	0.0	0.0	0.0	0.0	0.0	0.3	12.2	47.9	94.8	129.0	125.8	119.3	129.5	166.4	132.9	97.4	72.8	43.6	9.8	0.4	0.2	0.3	0.4	0.5	49.3	166.4
30-Mar	0.2	0.2	0.2	0.5	0.8	1.4	33.3	143.1	207.7	374.3	547.9	694.2	748.5	600.3	585.5	528.5	372.4	155.6	25.0	1.6	0.7	0.7	0.7	0.7	209.3	748.5
31-Mar	0.7	0.5	0.6	0.4	0.4	1.7	39.9	135.3	307.1	403.7	476.3	690.8	661.4	597.9	587.1	396.7	333.6	102.7	13.0	0.4	0.1	0.1	0.2	0.1	198.0	690.8
																						Diurnal Average				
																						Diurnal Maximum				





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Global Radiation (GR) - W/m2
Stony Mountain - March 2024

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	405	54.44	54.44
21 - 100	66	8.87	63.31
101 - 300	113	15.19	78.49
301 - 600	141	18.95	97.45
601 - 900	19	2.55	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

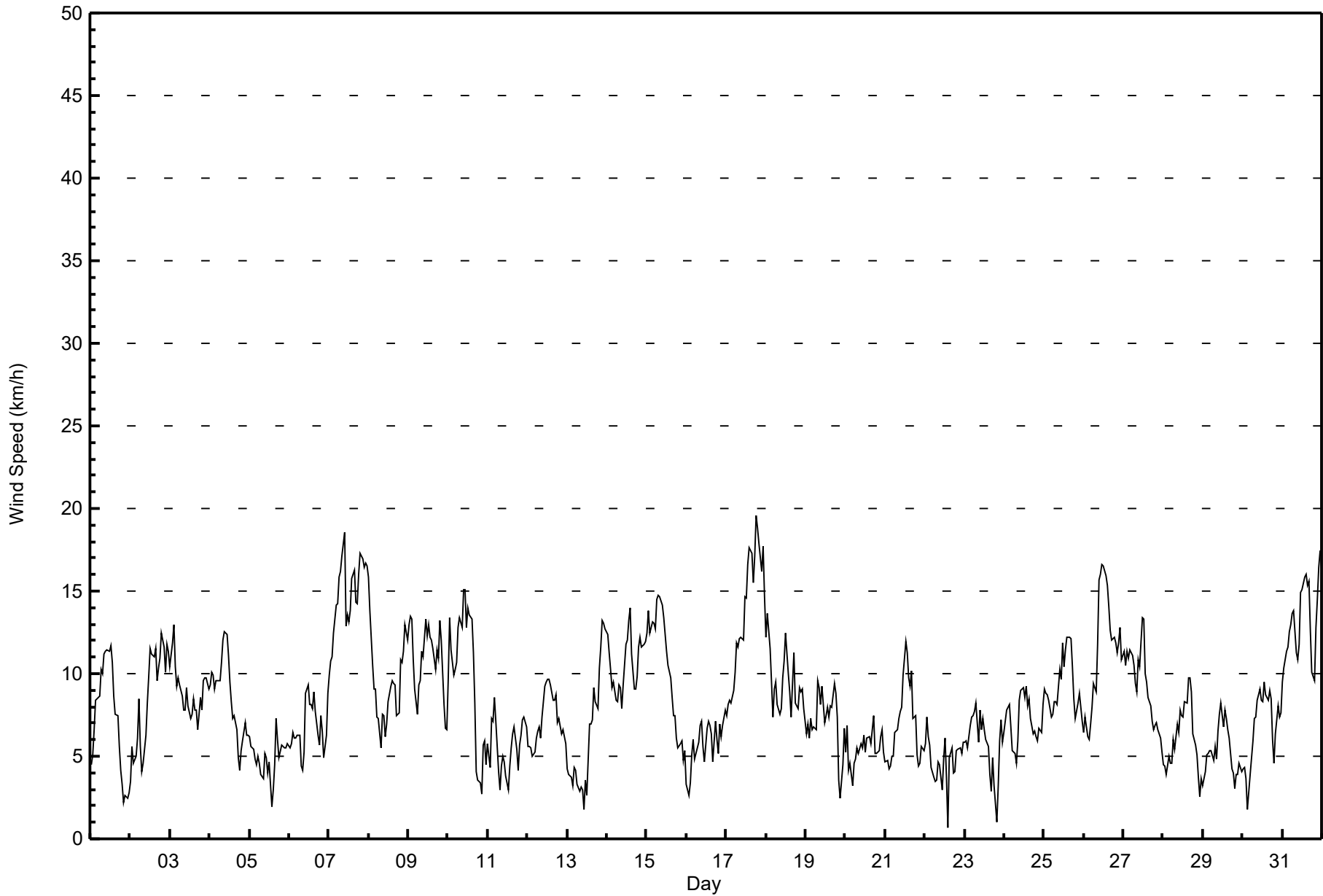
Stony Mountain - March 2024

Maximum Speed: 20 km/h on Mar 17 19:00	Maximum Daily Speed Average: 14.7 km/h on Mar 7	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 22 15:00	Minimum Daily Speed Average: 3.3 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.1 km/h at hour 24	Minimum Diurnal Speed Average: 1.3 km/h at hour 11	Hours of Missing Data: 0
Monthly Average Velocity: 2.0 km/h 180.6 deg	Percentiles: P ₁ = 3 P ₁₀ = 4 Q ₁ = 6 Median = 8 Q ₃ = 11 P ₉₀ = 13 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-Mar	NW4	NW5	WNW7	WNW8	WNW8	WNW9	WNW10	WNW10	WNW11	WNW11	WNW11	W11	WNW12	WNW11	WNW9	WNW8	WNW7	WNW6	WNW4	WNW3	NW2	NW3	NW2	NNW3	WNW7.2	WNW12	
2-Mar	N3	NNE6	ENE5	ENE5	NE6	NE8	NE6	NE4	ENE5	ENE6	ENE8	NE10	NE12	NE11	NE11	NE12	NE10	NE10	NE11	NE12	ENE12	ENE10	NE12	NE11	NE8.4	NE12	
3-Mar	NE10	NE12	NE13	NE10	NE9	NE10	NE9	NE9	NNE8	NNE8	NNE9	NNE8	NNE7	NNE8	N8	N8	N8	N7	NW9	NW8	NW10	NW10	NW10	NW9	NNE7.4	NE13	
4-Mar	NW9	NW10	NW10	NW9	NW10	NW10	WNW10	WNW11	WNW12	NW13	NW12	NW11	WNW9	NW8	NW7	NW7	NW7	NW5	WNW4	WNW5	WNW6	WNW7	WNW6	WNW6	NW8.5	NW13	
5-Mar	W6	WNW6	W5	W5	W4	W5	W5	WSW4	WSW4	W5	W5	SW4	SW5	W2	SSW3	SSW5	SSW7	SSW6	SSW5	SSW6	SSW6	SSW5	SSW6	SSW6	SW4.0	SSW7	
6-Mar	SSW5	SSW6	SSW6	SSW6	SSW6	SSW6	S6	SSW4	S4	SSW5	S9	S9	S8	S8	S8	S9	S8	S6	S6	S7	S6	S5	S6	S9	S6.6	S9	
7-Mar	S10	SSW11	S11	SSW12	SSW14	SSW14	SSW16	SSW16	SSW17	SSW19	SSW13	SSW14	S13	S14	S16	S16	S14	S14	SSW16	SSW17	SSW17	SSW16	SSW17	SSW17	SSW14.7	SSW19	
8-Mar	SSW16	SSW14	SSW11	SSW9	SSW9	SW7	W7	WSW6	SSW8	S7	S6	S7	S8	S9	SSW10	SSW9	S9	S7	S8	S11	S11	S11	SSW13	S12	SSW8.9	SSW16	
9-Mar	SSW13	SSW13	SSW13	SSW11	S9	S8	S9	S10	S11	S11	S13	S12	SSE13	SSE12	SSE12	SSE12	S10	S11	S11	S13	S12	SSW8	S7	S7	S10.7	SSW13	
10-Mar	S10	SSW13	SW11	SW10	SSW10	SW11	WSW13	WSW13	W13	W15	W15	W13	WSW14	WSW14	W13	W11	W8	WNW4	WNW4	NW3	NNW3	NE6	E6	ESE4	WSW7.6	W15	
11-Mar	E6	NNE4	NNE7	NNE7	NNE9	NNE7	NNE4	NNE3	NE4	NE5	ENE5	E4	ENE3	NNE4	NNE6	ENE6	E7	ESE5	E4	E6	E6	ESE7	ESE7	ESE7	ENE4.5	NNE9	
12-Mar	ESE6	E6	E6	E5	ENE5	ENE6	ENE7	ENE7	ENE6	ENE7	E9	E9	E10	E10	ENE9	E8	ENE8	ENE9	ENE7	ENE7	E6	E7	E6	ENE6	E7.0	E10	
13-Mar	ENE4	ENE4	ENE4	E3	E4	ESE4	ESE3	SE3	SE3	SSE3	NNE2	NE4	SSE3	SSW7	SSW7	SSW9	SSW8	SSW8	SSW10	SSW12	SSW13	SSW13	SSW13	S4.1	SSW13		
14-Mar	SSW12	SSW11	SSW10	SSW9	SSW9	SW8	SSW8	SSW9	SSW9	SSW9	SW8	SW9	SW12	SW12	SW13	SW14	SW11	SW9	SSW9	SSW10	SSW12	SW12	SW12	WSW12	W12	SW10.2	SW14
15-Mar	W12	W14	W12	WNW13	WNW13	W13	WNW15	NW15	NW15	NW14	NNW13	NNW12	NNW11	NNW11	N10	NNW9	N7	NNE7	NE6	NE6	NNE6	NNE6	NNE5	NNE5	NW8.1	NW15	
16-Mar	NNE3	NNE3	ENE3	NE5	ENE6	ENE5	NE5	NE6	ENE7	NE7	NE6	NE5	NE7	NE7	NE7	NE6	ENE5	E7	E6	E5	ESE7	ESE6	SE7	SSE8	ENE4.9	SSE8	
17-Mar	SSE7	SE8	SSE8	SSE8	SSE9	SSE10	S12	S12	S12	S12	S12	SSW15	S15	S17	S18	S17	S16	S17	SSW20	SSW19	SSW18	SSW16	SSW18	SSW15	S13.2	SSW20	
18-Mar	SW12	W14	WNW12	WNW9	WNW7	WNW9	WNW10	NW8	NW8	NW8	NW10	NW11	NW12	NW10	NW9	NNW7	NNE9	NE11	N8	N8	N9	N9	N9	N8	NW7.3	W14	
19-Mar	N6	N7	N6	N7	N7	N7	N7	NNE10	NNE9	N8	NNE9	N7	NNE7	NNE8	N7	N8	NNE8	NE9	NE9	NNE7	N4	NNW2	N5	NNE7	NNE6.9	NNE10	
20-Mar	NNE5	NE7	ENE4	E5	NE3	NNE5	NNE5	NE5	NE5	NE6	NE6	NNE6	NE5	NE6	ENE6	NNE6	NE7	ENE7	ENE5	E5	E5	E6	ESE7	ESE5	ENE5.0	ENE7	
21-Mar	E5	E5	E4	E4	E5	E5	E6	E7	E7	ENE8	ENE8	ENE10	ENE12	ENE11	ENE10	ENE9	NE10	NE7	NNE7	NNE5	NE4	N5	N6	N5	ENE6.1	ENE12	
22-Mar	N6	NE7	NNE6	NE6	NE4	ENE4	E4	ESE4	SE5	ESE5	E3	NE5	NE6	ENE4	SE1	NNE5	NE5	NE4	ENE4	E5	ESE5	SE6	SSE5	S6	ENE3.3	NE7	
23-Mar	S6	S6	SSW6	SSW7	SSW7	SSW7	SSW8	SSW8	SSW6	SSW8	SSW7	SE7	SSE7	SE6	SE6	WSW4	SW3	S5	SW3	S1	S3	SW6	SW7	SW6	SSW5.1	SSW8	
24-Mar	SSW6	SSW8	SSW8	SSW8	SSW7	SSW5	S5	S5	S6	S8	S9	S9	S9	S9	S8	S7	SSE6	SE7	SSE6	SE6	SSE7	SE6	SE8	SE8	S6.7	S9	
25-Mar	SE9	SE9	SE9	SE8	SE7	SE8	SSE8	SE8	SE8	SE10	SE10	S12	SSE10	SSE11	S12	SSE12	SE12	SSE10	SE8	SE7	SSE9	SE8	SSE7	SSE7	SSE9.1	SSE12	
26-Mar	SE6	SSE7	SSE6	SE6	SE7	SE8	SE9	SE9	SSE12	SSE16	SSE16	SSE17	SSE17	SSE16	SSE15	SSE14	SSE13	SSE12	SE12	SE12	SE11	SE12	SE13	SE11	SSE11.3	SSE17	
27-Mar	SE11	SE11	SE11	SE11	SE11	SE11	SE10	SE9	ESE9	ESE11	ESE10	ESE13	SE13	ESE10	ESE9	E9	E8	E7	ENE7	E7	E7	E7	E6	ENE5	ESE8.7	ESE13	
28-Mar	ENE5	ENE4	ENE4	NE5	NE5	NNE5	NNE6	NNE5	NNE7	NNE6	NNE8	NNE7	NNE7	NNE8	NNE8	NNE10	NNE10	NNE9	NE6	NNE6	NNE5	NNE4	NNW3	NW4	NNE5.8	NNE10	
29-Mar	NW3	NNW4	NW5	NW5	WNW5	NW5	NW5	NW6	NW5	NNW7	NNW8	NW8	NNW7	NW8	NW7	NNW7	NNW6	NNW4	NW4	WNW3	WNW4	WNW4	WNW5	WNW4	NW5.2	NW8	
30-Mar	WNW4	WNW4	WNW4	WSW2	SSW4	SSW5	SW6	SSW7	SSW7	SSW8	S9	SSE8	SSE8	SSE10	SSE9	S8	SSW9	SSW8	SSW6	S5	S6	S8	S7	S8	S5.8	SSE10	
31-Mar	S9	S10	SSW11	SSW12	SSW13	SSW13	SSW14	SSW14	SSW11	SSW11	SSW12	SSW15	SSW15	SSW16	SSW16	SSW15	SSW16	SSW13	S10	S10	S13	S15	S16	S17	SSW13.0	S17	

SSW2.4	SSW1.9	SSW1.8	SSW1.5	SSW1.7	SSW1.7	SSW1.9	SSW1.9	SSW1.7	SSW1.6	S1.3	S1.9	S2.0	S2.0	S2.1	S1.9	SSE1.9	SE2.4	SSE2.1	SSE2.5	SSE2.9	S2.9	S3.0	S3.1	Diurnal Average
SSW16	SSW14	SSW13	WNW13	SSW14	SSW14	SSW16	SSW16	SSW17	SSW19	SSE16	SSE17	SSE17	S17	S18	S17	SSW16	S17	SSW20	SSW19	SSW18	SSW16	SSW18	S17	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 - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	165	22.18	22.18
6 - 11	436	58.60	80.78
12 - 19	142	19.09	99.87
20 - 28	1	0.13	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Stony Mountain - March 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	19	17	22	18	8	4	3	8	10	4	4	8	15	15	6	165
6 - 11	23	43	39	27	27	12	37	25	60	61	13	1	4	28	27	9	436
12 - 19	0	0	6	2	0	1	6	15	28	47	7	5	11	6	6	2	142
20 - 28	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	27	62	62	51	45	21	47	43	96	119	24	10	23	49	48	17	744

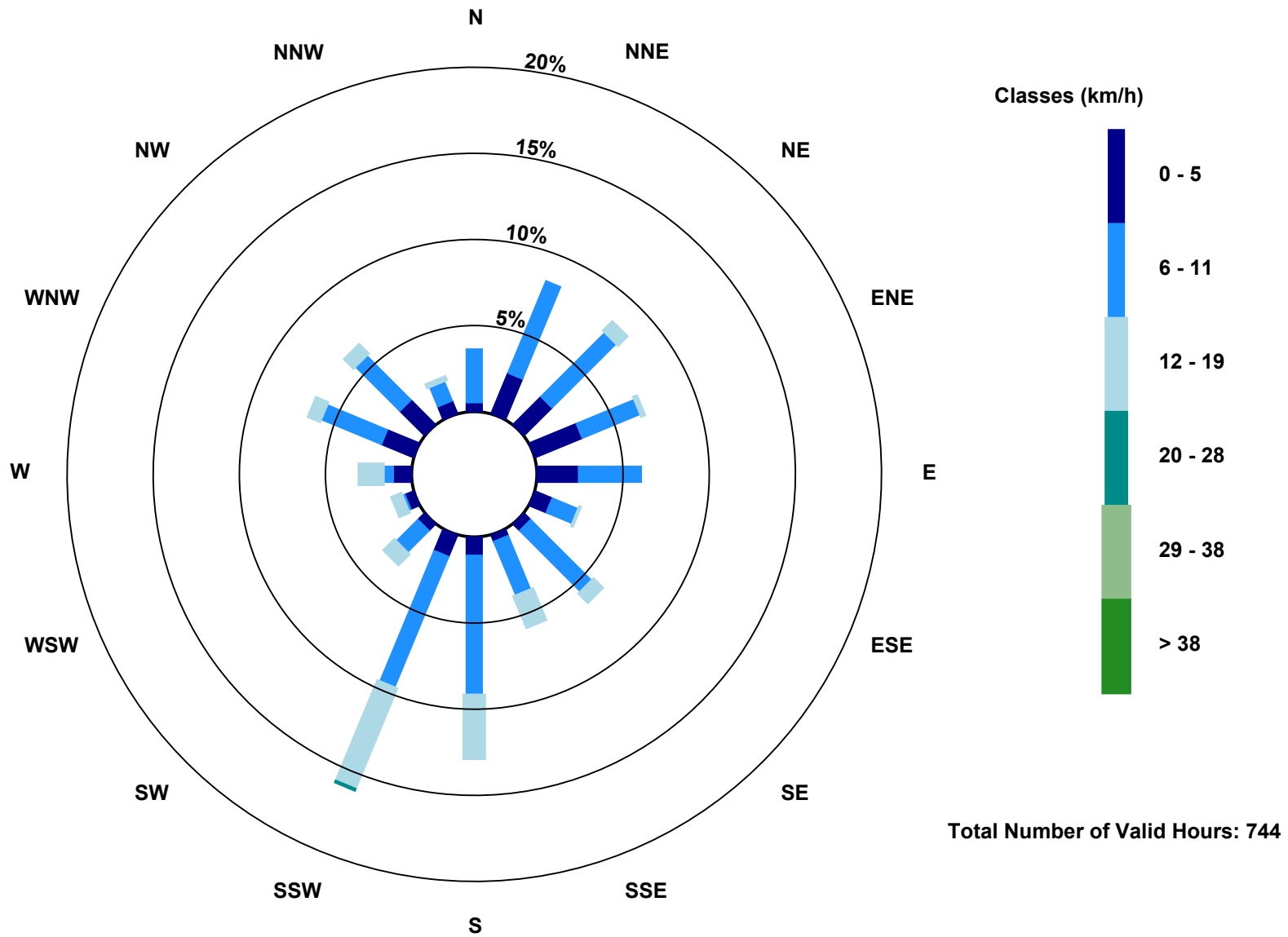
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Stony Mountain





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Stony Mountain - March 2024

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



Wood Buffalo Environmental Association
Summary of Hour Averages

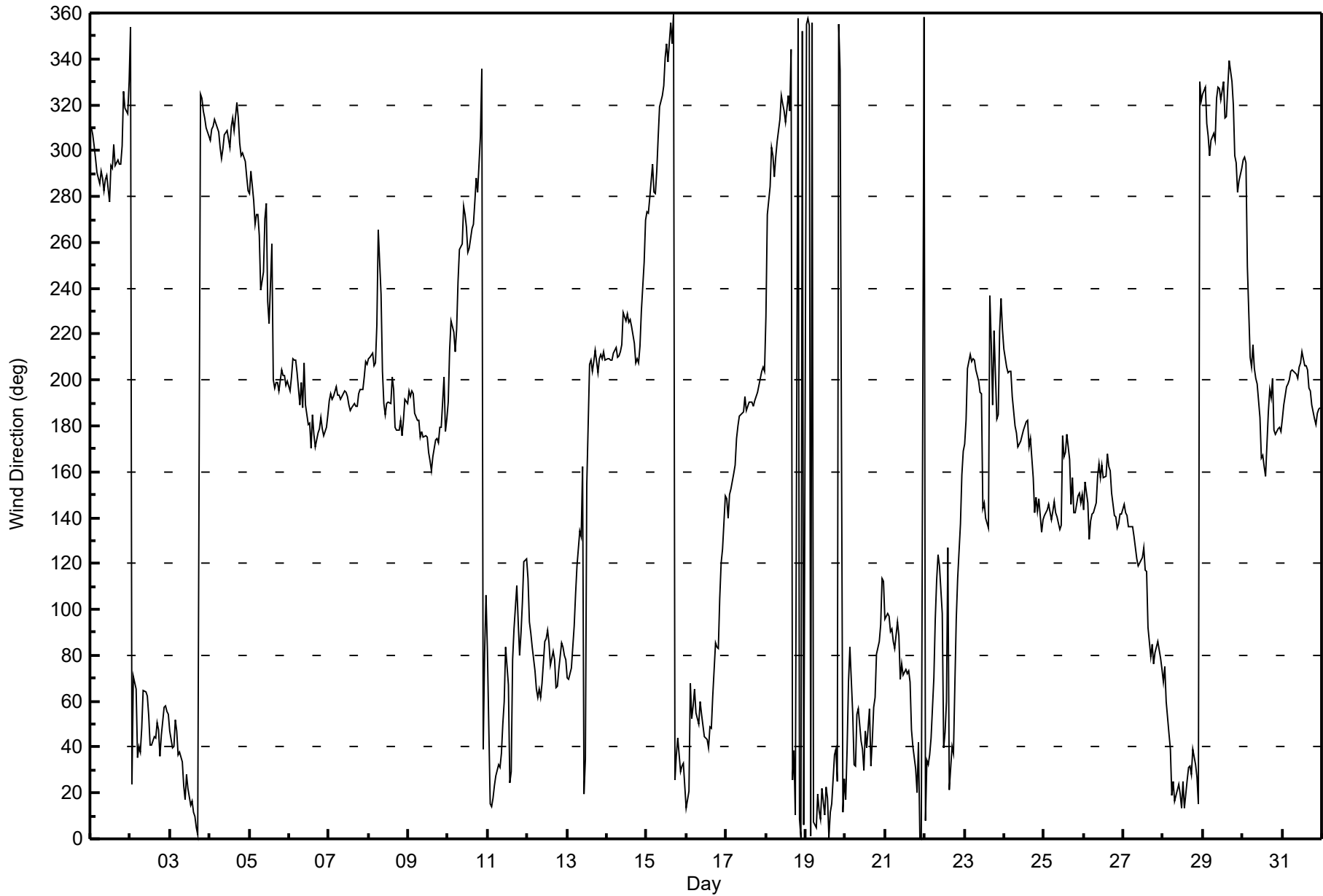
Wind Direction (WD) - deg
Stony Mountain - March 2024

Direction of Maximum Speed: 193 deg on Mar 17 19:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 194.2 deg on Mar 7	Hours of Data: 744
Direction of Minimum Speed: 127 deg on Mar 22 15:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 3.3 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 180.6 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-Mar	310	307	302	296	290	286	291	288	283	287	289	277	294	292	303	293	296	294	294	302	326	318	316	330	293.7
2-Mar	354	24	71	65	36	40	38	48	65	64	62	53	41	41	45	44	50	48	36	45	58	58	55	55	48.0
3-Mar	47	39	40	52	47	37	38	34	23	17	28	22	15	16	11	10	5	2	324	323	317	314	310	307	12.1
4-Mar	305	309	310	314	312	308	301	297	301	307	309	305	301	310	314	309	321	314	303	297	299	296	289	282	305.2
5-Mar	281	291	278	268	272	272	263	239	247	270	277	234	225	259	200	196	199	199	195	204	202	202	198	199	234.7
6-Mar	195	201	209	209	209	203	189	199	188	207	189	180	181	170	185	176	171	177	179	183	179	176	179	185	187.2
7-Mar	191	194	191	193	197	194	194	192	193	196	195	193	189	187	188	190	189	189	194	196	196	201	208	207	194.2
8-Mar	210	210	212	206	207	224	266	238	204	190	185	190	190	190	201	196	180	178	178	183	176	182	192	189	197.6
9-Mar	195	193	195	194	186	183	182	175	178	175	176	175	168	165	160	167	174	174	172	179	179	201	178	183	179.2
10-Mar	190	213	225	221	212	222	243	257	259	276	272	267	256	257	266	268	277	288	282	306	335	39	81	106	251.2
11-Mar	82	15	14	18	23	27	32	31	38	50	60	84	67	24	30	78	92	111	94	80	90	103	121	122	62.8
12-Mar	114	94	90	83	73	66	62	66	62	68	86	87	91	85	76	82	78	66	67	74	85	84	80	78	78.9
13-Mar	70	70	74	83	93	107	119	134	132	162	19	35	154	207	209	204	208	213	203	209	211	209	212	209	190.0
14-Mar	210	210	209	209	212	214	210	211	212	215	230	226	229	225	227	223	216	208	210	207	215	230	251	270	220.5
15-Mar	273	273	279	294	282	281	291	306	319	324	328	341	346	339	356	346	360	26	37	44	29	32	33	23	322.5
16-Mar	13	21	68	53	58	65	55	50	60	54	50	44	44	40	49	48	62	85	84	83	105	120	127	150	68.0
17-Mar	148	140	150	153	159	163	175	180	184	185	186	193	187	189	191	190	189	191	193	195	197	204	206	204	186.0
18-Mar	227	272	284	301	297	289	297	304	314	324	320	317	312	324	318	344	26	38	11	358	8	1	352	6	323.0
19-Mar	355	358	354	1	356	7	5	20	12	8	22	11	22	18	0	11	16	37	39	25	355	335	11	26	12.7
20-Mar	17	39	69	84	55	32	32	54	56	43	39	30	47	40	57	32	43	58	62	80	86	93	113	112	56.5
21-Mar	96	98	97	90	91	86	83	95	88	70	76	71	74	72	73	68	48	40	31	20	42	1	0	358	65.0
22-Mar	8	34	33	37	44	70	96	113	124	119	98	39	46	60	127	21	40	37	67	96	113	137	159	169	71.9
23-Mar	172	182	205	211	208	209	209	205	199	195	194	144	147	140	136	237	216	189	222	183	185	221	236	222	194.8
24-Mar	213	206	203	204	204	193	180	177	171	172	173	178	180	182	183	171	175	157	142	149	143	148	134	139	174.9
25-Mar	141	142	144	146	139	143	147	142	140	135	137	176	167	168	176	166	146	158	142	142	149	151	146	150	151.0
26-Mar	144	156	147	131	138	142	142	146	158	163	158	163	158	158	168	162	161	151	141	140	135	137	141	141	151.2
27-Mar	146	142	141	136	136	136	132	127	122	119	120	123	127	117	116	92	79	85	76	81	83	86	79	74	116.9
28-Mar	68	75	60	46	39	19	25	16	21	24	19	13	25	14	25	31	32	28	39	32	27	15	330	322	27.1
29-Mar	324	328	312	306	298	304	308	304	323	328	327	322	330	314	315	328	339	330	320	298	295	282	287	292	314.9
30-Mar	296	297	295	249	210	206	216	205	201	199	184	166	167	163	158	186	196	192	201	178	176	178	179	178	190.5
31-Mar	183	189	197	198	200	204	204	204	203	201	206	207	212	206	206	204	196	195	189	183	181	186	187	188	197.6

192.9 204.4 205.6 198.4 198.3 202.5 210.9 206.2 196.2 194.4 187.0 182.9 173.2 176.3 180.4 173.5 150.2 141.2 148.8 157.4 160.6 173.7 179.8 181.3
 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 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Mar 22 15:00 Minimum Value: 11 deg on Mar 30 03:00 Percentiles: P ₁ = 14 P ₁₀ = 18 Q ₁ = 20 Median = 24 Q ₃ = 30 P ₉₀ = 36 P ₉₉ = 75																			Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	23	21	22	25	28	28	25	24	28	30	30	31	29	34	36	36	32	24	22	15	47	15	14	13	47
2-Mar	19	21	19	20	20	18	22	16	23	27	32	30	28	26	28	22	21	20	21	19	20	20	19	19	32
3-Mar	19	19	18	17	19	19	20	20	22	22	22	24	25	25	23	26	26	26	23	20	17	17	18	21	26
4-Mar	20	19	21	20	21	21	21	20	21	22	23	26	31	31	31	28	30	21	16	18	17	20	20	17	31
5-Mar	18	19	21	19	16	19	25	23	30	40	40	43	40	90	77	61	30	26	16	18	16	15	19	16	90
6-Mar	17	17	17	18	18	17	21	41	46	39	26	30	39	38	39	36	31	31	25	23	22	24	26	22	46
7-Mar	25	24	24	22	22	22	20	20	22	22	28	28	30	29	27	24	25	22	21	21	20	21	21	19	30
8-Mar	19	20	19	18	16	22	17	34	14	19	24	30	33	31	28	29	29	25	25	23	23	21	21	21	34
9-Mar	20	20	20	19	18	17	18	19	22	23	25	25	27	28	29	29	28	25	22	21	27	32	29	24	32
10-Mar	24	23	28	23	20	21	28	32	32	29	29	30	32	34	32	33	34	34	29	16	20	23	22	21	34
11-Mar	18	43	24	22	22	22	20	28	28	31	35	48	64	53	37	30	27	21	14	16	17	18	18	17	64
12-Mar	19	16	18	16	17	15	14	18	24	26	24	24	31	30	26	25	20	20	18	17	20	18	18	18	31
13-Mar	19	20	17	18	16	18	22	34	38	67	98	60	99	42	42	36	30	28	20	20	23	21	21	19	99
14-Mar	19	19	18	18	19	19	20	20	28	35	28	29	33	30	29	26	21	22	22	24	27	30	28	28	35
15-Mar	28	27	26	26	27	27	25	27	27	30	32	35	35	35	37	35	35	23	22	17	20	19	19	22	37
16-Mar	36	32	18	16	18	20	20	21	23	21	40	66	46	38	40	37	35	24	19	20	25	23	26	21	66
17-Mar	20	19	19	22	22	24	25	25	25	24	26	26	31	30	28	27	27	24	22	23	21	21	21	22	31
18-Mar	33	27	23	23	22	21	22	24	28	36	35	34	26	30	34	35	29	22	30	30	27	29	29	26	36
19-Mar	30	28	28	27	29	29	29	22	28	31	30	52	44	46	45	34	34	22	20	23	27	30	21	19	52
20-Mar	21	22	17	16	23	14	15	21	28	39	42	49	72	52	50	53	42	23	20	16	16	19	19	18	72
21-Mar	16	18	18	18	21	22	18	21	22	27	27	26	24	25	27	31	27	25	20	17	21	28	21	19	31
22-Mar	19	16	15	14	15	17	14	21	29	39	79	72	52	81	99	61	43	63	21	17	19	18	22	20	99
23-Mar	16	15	18	19	18	18	18	19	30	33	50	51	57	56	55	71	81	36	23	57	33	20	24	21	81
24-Mar	16	17	18	18	18	18	17	24	24	28	32	31	35	38	36	31	33	40	31	26	25	26	22	23	40
25-Mar	23	21	21	21	17	17	19	20	29	32	36	37	36	37	33	32	32	34	27	24	29	27	27	29	37
26-Mar	21	27	26	24	29	25	24	29	31	30	34	32	33	33	33	33	31	31	26	28	26	27	27	24	34
27-Mar	26	25	25	22	22	23	24	23	28	23	24	24	24	25	28	23	22	23	20	20	21	20	20	21	28
28-Mar	19	18	21	19	20	20	21	23	24	32	32	29	29	27	27	26	26	23	23	25	22	23	17	19	32
29-Mar	28	28	20	19	20	19	18	21	32	32	30	32	36	30	30	33	33	33	29	24	21	21	20	19	36
30-Mar	14	12	11	52	17	25	17	18	23	32	38	42	44	40	45	42	34	28	22	24	23	20	18	18	52
31-Mar	20	18	20	20	19	20	20	20	22	23	26	25	30	29	31	29	27	26	26	27	27	28	26	25	31
Diurnal Maximum																									



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 20 m (WS20m) - km/h

Stony Mountain - March 2024

Maximum Speed: 29 km/h on Mar 17 19:00		Maximum Daily Speed Average: 21.2 km/h on Mar 7		Hours in Service: 744																						
Minimum Speed Value: 1 km/h on Mar 22 15:00		Minimum Daily Speed Average: 5.0 km/h on Mar 22		Hours of Data: 744																						
Maximum Diurnal Speed Average: 4.6 km/h at hour 24		Minimum Diurnal Speed Average: 1.9 km/h at hour 11		Hours of Missing Data: 0																						
Monthly Average Velocity: 2.9 km/h 195.5 deg		Percentiles: P ₁ = 4 P ₁₀ = 7 Q ₁ = 9 Median = 12 Q ₃ = 16 P ₉₀ = 19 P ₉₉ = 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-Mar	NW8	NW9	NW11	WNW13	WNW13	WNW13	WNW13	WNW15	WNW15	WNW16	WNW16	WNW16	WNW16	WNW15	WNW16	WNW15	WNW16	WNW9	WNW8	NW8	NNW7	NNW7	NNW6	NNW7	WNW11.3	WNW16
2-Mar	N8	NNE9	ENE8	ENE9	NE9	NE12	NE8	ENE7	ENE6	ENE8	ENE10	ENE13	NE15	NE14	NE14	NE14	NE13	NE14	NE14	NE16	ENE16	ENE14	ENE16	ENE15	NE11.5	NE16
3-Mar	NE14	NE15	NE16	ENE14	NE12	NE12	NE12	NE11	NNE10	NNE11	NNE12	NNE10	NNE11	NNE12	N11	N13	N11	NNW15	NNW14	NW16	NW16	NW16	NW15	N10.7	NE16	
4-Mar	NW15	NW16	NW16	NW15	NW16	NW16	NW15	WNW16	NW18	NW20	NW19	NW17	NW14	NW13	NW12	NW12	NW11	NW8	NW8	WNW10	WNW10	WNW11	WNW10	WNW10	NW13.6	NW20
5-Mar	WNW10	WNW9	WNW9	W8	W8	W8	W8	WSW7	WSW6	W6	W6	WSW5	WSW6	W2	SSW4	SSW6	SSW10	SSW9	SSW9	SSW10	SSW10	SSW10	SSW10	SSW11	WSW6.4	SSW11
6-Mar	SSW10	SSW11	SW11	SW10	SW11	SSW11	SSW12	SSW9	S6	SW7	SSW12	S13	S11	S11	S11	S12	S11	S10	S11	S13	S11	S10	S12	SSW14	SSW10.5	SSW14
7-Mar	SSW15	SSW16	SSW17	SSW19	SSW21	SSW21	SSW24	SSW24	SSW26	SSW26	SSW18	SSW19	SSW18	S20	S22	SSW22	SSW21	SSW21	SSW23	SSW25	SSW24	SSW23	SW24	SW23	SSW21.2	SSW26
8-Mar	SW22	SW20	SW17	SW15	SW14	WSW13	W13	W10	SW11	SSW10	S8	S9	SSW11	SSW12	SSW12	SSW13	S14	S12	S13	S17	S17	S17	SSW19	SSW18	SSW12.9	SW22
9-Mar	SSW19	SSW20	SSW20	SSW17	SSW15	SSW13	SSW15	S17	S19	S18	S21	S18	S19	S19	SSE19	S18	S16	S19	S19	S21	S19	SSW12	S11	S11	S16.9	S21
10-Mar	SSW15	SW19	SW17	SW15	SW15	SW17	WSW19	W20	W19	W21	W21	W17	W19	W19	W18	W16	WNW12	WNW7	WNW7	NW8	NNW7	NE9	E10	ESE8	W11.1	W21
11-Mar	E10	NNE7	NNE11	NNE10	NNE12	NNE10	NE5	NNE4	NE6	NE6	ENE6	E5	E4	NNE5	NNE7	E8	E9	ESE8	E8	E10	E11	ESE12	SE12	SE11	ENE6.4	NNE12
12-Mar	ESE10	E9	E9	E8	E9	ENE10	ENE10	ENE10	ENE8	ENE10	E13	E13	E14	E14	E13	E12	E13	ENE13	ENE11	ENE12	E10	E10	E10	E9	E10.6	E14
13-Mar	E7	ENE6	ENE6	E6	E7	ESE7	ESE7	SE5	SE4	S4	NNE2	NNE4	SSE4	SSW9	SW9	SSW10	SSW12	SW11	SSW11	SW15	SW16	SW19	SW18	SW18	SSW5.6	SW19
14-Mar	SW17	SW16	SW15	SW14	SW15	SW13	SW13	SW14	SW12	SW10	WSW13	SW16	SW16	SW18	SW19	SW15	SW13	SW13	SW14	SW16	SW17	WSW17	W17	W17	SW14.6	SW19
15-Mar	W18	W20	WNW18	WNW20	WNW20	WNW19	WNW22	NW24	NW26	NNW26	NNW25	NNW23	NNW20	NNW18	N16	NNW15	N12	NNE10	NE8	NE8	NNE8	NE8	NE6	NNE7	NNW13.5	NNW26
16-Mar	NNE5	NNE4	ENE5	ENE7	ENE8	ENE7	ENE7	NE8	ENE9	ENE9	NE7	ENE5	NE8	NE9	NE9	NE8	ENE6	E11	E9	E8	ESE10	SE9	SE11	SSE13	ENE6.7	SSE13
17-Mar	SSE12	SE14	SSE15	SSE15	S16	S18	S20	S18	SSW17	S18	S17	SSW21	S21	SSW23	SSW26	SSW25	SSW23	SSW25	SSW29	SSW28	SSW26	SSW24	SW25	SSW21	SSW19.8	SSW29
18-Mar	WSW18	W21	WNW18	NW16	NW12	WNW14	WNW16	NW13	NW12	NNW14	NW16	NW18	NW19	NNW17	NW15	NNW13	NNE13	NE14	N12	N13	N14	N15	N16	N12	NW12.4	W21
19-Mar	N11	N11	N11	N12	N11	N10	N10	NNE13	N13	N12	NNE12	N10	NNE10	NNE10	N10	N11	NNE11	NE12	NE11	NNE10	N7	N6	NNE8	NNE10	N10.3	N13
20-Mar	NNE9	NE10	ENE7	E8	ENE6	NE7	NE7	NE7	NE6	NE7	NE7	NE8	NE7	NE8	ENE7	NE7	NE8	ENE10	ENE8	E9	E9	E10	ESE10	ESE9	ENE7.2	ESE10
21-Mar	ESE8	ESE7	ESE7	E7	E8	E7	E9	E10	E10	ENE10	E11	ENE14	E17	ENE16	ENE14	ENE13	NE13	NE9	NNE10	NNE8	NE8	N8	N11	N10	ENE9.0	E17
22-Mar	NNE10	NE11	NE9	NE9	ENE8	E8	E7	ESE5	SE6	ESE6	ESE4	NE6	NE7	ENE4	E1	NNE6	NE7	NE6	ENE6	E9	ESE9	SE10	SSE11	S11	E5.0	S11
23-Mar	S11	SSW11	SW11	SW12	SW12	SW12	SW13	SSW12	SSW8	SSW10	SSW9	SSE10	SSE9	SSE8	SE8	WSW4	SW4	SSW6	SW5	SSW3	S6	SW10	WSW12	SW9	SSW7.9	SW13
24-Mar	SW11	SW12	SSW13	SSW13	SSW12	SSW10	SSW10	S8	S9	S12	S13	S13	S12	S13	S11	S12	S11	SSE10	SSE10	SSE10	SSE10	SSE11	SE10	SSE13	S10.4	SSW13
25-Mar	SSE14	SSE14	SSE15	SSE14	SSE12	SSE13	SSE14	SSE12	SSE12	SE14	SE13	S17	S15	S17	S17	S18	SSE18	SSE16	SSE13	SSE12	SSE13	SSE14	SSE13	SSE12	SSE14.1	S18
26-Mar	SSE11	SSE13	SSE11	SE10	SSE12	SSE13	SSE15	SSE14	SSE19	S25	SSE25	S25	SSE25	SSE24	S24	SSE22	SSE20	SSE19	SSE18	SSE18	SE17	SE18	SSE19	SSE16	SSE17.7	S25
27-Mar	SSE17	SSE16	SSE17	SE16	SE18	SE16	SE16	SE14	SE13	SE15	SE15	SE19	SE19	SE14	SE13	E13	E12	E11	E10	E10	E11	E10	E9	E8	SE12.5	SE19
28-Mar	ENE7	E7	ENE6	NE7	NE6	NNE6	NNE7	NNE7	NNE9	NNE8	NNE10	NNE11	NNE10	NNE12	NNE10	NNE12	NNE12	NNE11	NE8	NE7	NNE6	NNE5	NNW5	NNW7	NNE7.7	NNE12
29-Mar	NNW6	NNW7	NW8	NW8	WNW8	NW8	NW8	NW8	NNW8	NNW12	NNW13	NNW14	NNW12	NW12	NW12	NNW12	NNW11	NNW8	NNW7	NW5	WNW7	WNW7	WNW8	WNW8	NW8.7	NNW14
30-Mar	WNW8	WNW8	WNW8	W4	SW6	SW9	SW10	SW10	SSW10	SSW11	S12	S11	S12	S13	SSE12	S11	SSW12	SSW12	SSW9	S9	S12	S14	S13	S14	SSW8.6	S14
31-Mar	SSW16	SSW17	SSW18	SSW18	SSW19	SSW19	SSW20	SSW19	SSW15	SSW14	SSW15	SSW20	SW20	SSW22	SSW22	SSW21	SSW22	SSW19	SSW15	S15	S20	S22	S25	SSW26	SSW18.9	SSW26
SSW3.6 SW3.2 SW3.1 SW2.6SSW3.0 SW3.0 SW3.5 SW3.2 SW2.7 SW2.3SSW1.9SSW2.5 S2.7SSW2.7SSW2.9 S2.6 SSE2.5 SSE3.4 SSE3.1 S3.5 S4.1 S4.2 S4.5SSW4.6																								Diurnal Average		
SW22 W21 SSW20WNW20 SSW21 SSW21 SSW24 SSW24 NW26NNW26 SSE25 S25 SSE25 SSE24 SSW26 SSW25 SSW23 SSW25 SSW29 SSW28 SSW26 SSW24 SW25 SSW26																								Diurnal Maximum		
All monthly, daily, and diurnal averages have been calculated using vector methods																										



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

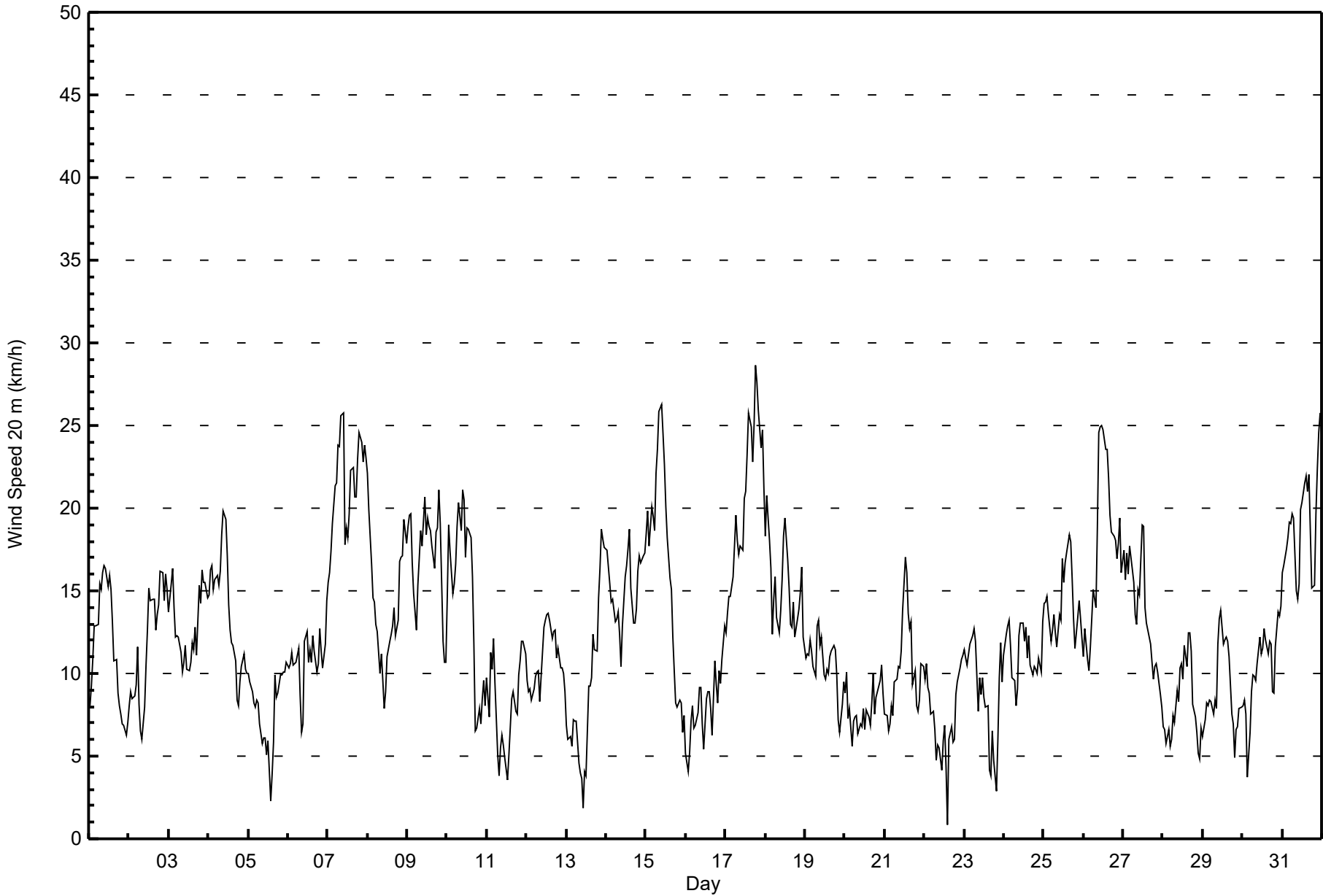
Wind Speed 20 m (WS20m) - km/h
Stony Mountain - March 2024

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 20 m (WS20m) - km/h
Stony Mountain - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 20 m (WS20m) - km/h
Stony Mountain - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	30	4.03	4.03
6 - 11	326	43.82	47.85
12 - 19	317	42.61	90.46
20 - 28	70	9.41	99.87
29 - 38	1	0.13	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
Stony Mountain - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0	7	1	3	3	2	2	2	0	2	2	2	2	0	1	1	30
6 - 11	17	36	42	34	41	13	8	11	20	31	16	3	7	22	13	12	326
12 - 19	12	9	18	12	10	1	15	41	45	42	37	6	10	18	29	12	317
20 - 28	0	0	0	0	0	0	0	5	10	34	6	0	5	3	3	4	70
29 - 38	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	29	52	61	49	54	16	25	59	75	110	61	11	24	43	46	29	744

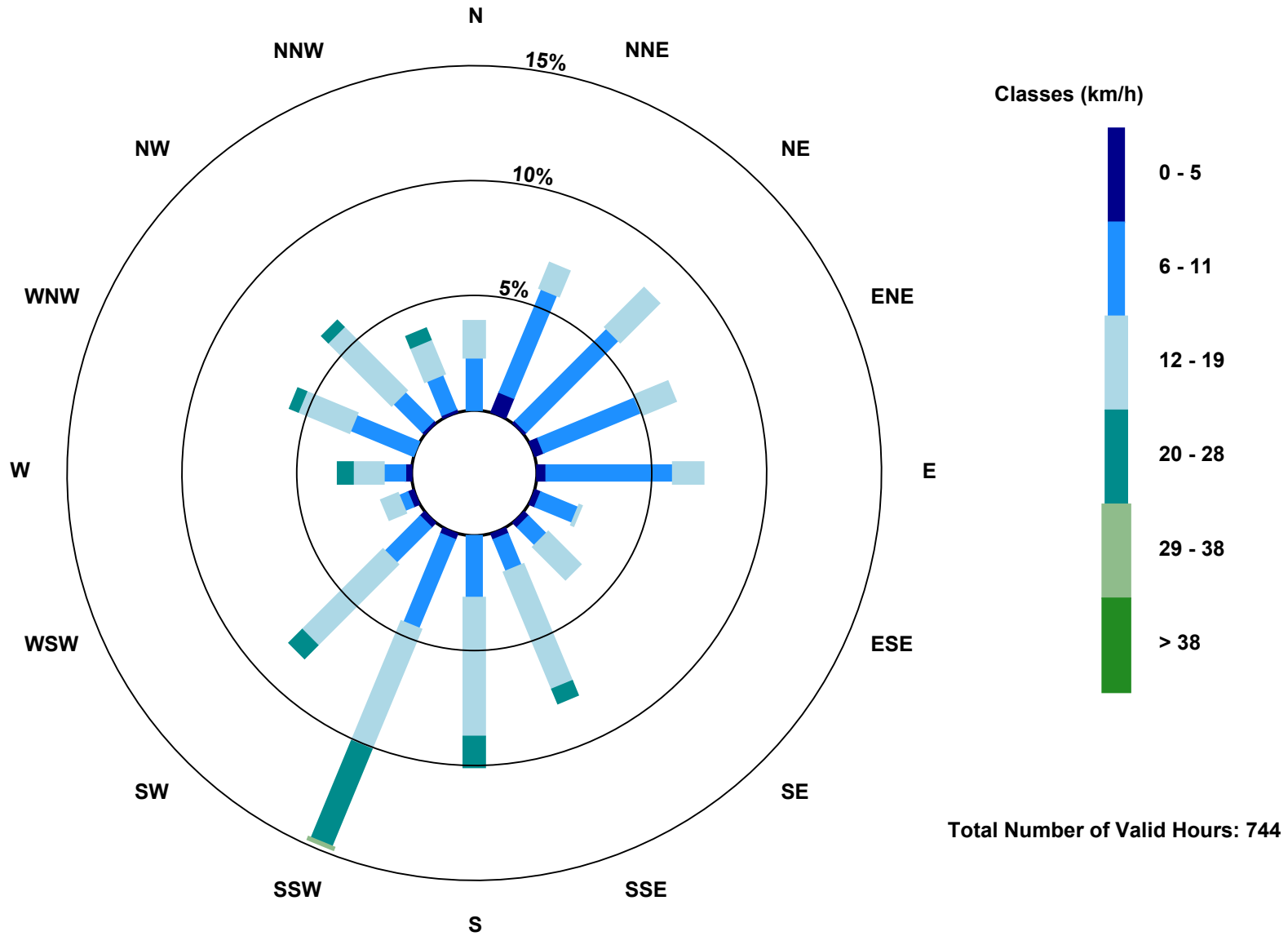
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 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 - March 2024

Direction of Maximum Speed: 198 deg on Mar 17 19:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 200.5 deg on Mar 7		Hours of Data:	744
Direction of Minimum Speed: 85 deg on Mar 22 15:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 5.0 deg on Mar 22		Percent Operational Time:	100.0
Monthly Average Direction: 195.5 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-Mar	318	312	309	303	297	294	297	296	289	293	296	285	298	299	311	301	303	301	302	311	330	332	331	343	302.5
2-Mar	5	33	75	72	45	45	46	58	68	72	70	59	44	43	48	48	54	50	39	48	62	63	60	59	52.5
3-Mar	51	44	44	57	51	41	40	36	25	19	30	22	16	17	14	11	6	1	331	329	322	319	315	312	11.1
4-Mar	311	316	317	320	318	314	308	300	306	312	315	311	310	317	319	317	326	325	309	301	300	297	293	285	310.8
5-Mar	286	292	284	272	274	274	267	252	258	273	280	248	239	266	197	196	205	205	209	210	212	208	204	205	240.0
6-Mar	201	208	217	215	219	211	198	203	191	214	192	185	186	174	190	180	178	179	184	190	187	185	189	194	194.0
7-Mar	197	201	198	200	203	201	201	200	199	202	198	196	193	191	191	198	192	194	200	203	203	208	217	218	200.5
8-Mar	220	222	224	224	222	251	271	260	220	201	188	191	192	192	208	201	185	184	184	191	184	190	200	198	207.8
9-Mar	203	200	203	203	196	196	195	187	188	184	182	183	176	174	168	175	181	181	181	187	185	203	185	191	187.3
10-Mar	199	220	235	232	226	235	251	264	264	280	276	273	262	264	272	272	283	298	289	313	344	46	83	112	259.0
11-Mar	84	20	20	23	25	27	36	33	38	52	66	95	81	24	33	84	100	116	100	84	93	108	125	127	69.7
12-Mar	119	98	93	85	79	71	68	72	68	74	92	96	97	93	82	87	83	72	72	78	91	89	85	83	84.7
13-Mar	79	76	78	86	98	109	120	134	140	169	22	28	168	213	219	206	212	219	211	217	219	217	219	218	194.5
14-Mar	221	223	222	223	225	229	225	225	223	241	231	234	235	232	232	226	214	218	217	226	239	260	277	277	230.5
15-Mar	278	277	284	298	288	289	299	313	326	331	334	342	346	341	353	348	358	23	41	47	33	38	39	26	327.1
16-Mar	16	25	72	59	63	67	59	56	66	57	51	57	50	43	52	52	62	92	90	87	109	127	132	156	75.0
17-Mar	157	146	158	163	170	173	184	189	193	190	189	196	191	193	195	195	196	196	198	202	205	212	216	213	191.7
18-Mar	239	278	290	310	304	294	301	307	322	330	326	324	318	327	324	343	23	39	7	357	5	1	354	6	326.0
19-Mar	353	357	355	359	355	2	3	20	11	3	19	11	18	14	357	9	12	37	42	27	4	358	16	32	10.9
20-Mar	25	45	73	89	67	43	42	56	56	46	41	34	55	41	58	36	44	63	69	84	90	98	117	116	63.0
21-Mar	102	105	103	94	95	91	89	100	95	76	82	78	79	77	78	75	50	45	33	31	49	10	10	8	69.5
22-Mar	21	43	41	46	58	79	99	121	132	123	112	46	54	63	85	21	41	38	70	100	115	139	166	176	82.2
23-Mar	179	193	215	219	216	217	216	211	209	197	197	149	150	152	144	240	218	195	231	203	191	229	245	233	203.2
24-Mar	221	214	210	212	213	204	192	186	184	180	177	183	185	186	185	175	179	164	153	161	155	160	144	150	182.8
25-Mar	152	152	153	158	148	150	155	150	150	144	146	178	172	175	179	170	157	166	155	151	160	162	158	163	159.5
26-Mar	154	163	161	142	150	153	152	157	166	171	167	170	167	164	174	167	166	158	153	149	146	146	152	152	159.9
27-Mar	155	153	150	146	146	144	141	139	132	131	131	135	137	129	126	100	87	91	82	88	91	92	86	80	126.4
28-Mar	72	80	65	50	46	25	26	16	20	24	18	15	23	13	22	30	33	31	43	34	29	14	338	330	27.8
29-Mar	333	337	318	312	303	311	313	310	329	333	333	330	337	322	323	334	344	336	327	310	302	290	294	297	322.0
30-Mar	300	303	295	274	233	228	232	217	209	205	188	176	172	171	165	191	201	195	207	187	183	189	190	190	201.5
31-Mar	193	199	206	208	209	211	213	212	212	210	210	211	219	212	212	209	202	198	192	186	187	190	191	194	203.5

204.0 216.9 218.4 216.3 213.6 219.3 222.5 222.4 218.0 217.5 205.5 196.2 186.8 191.9 192.9 185.5 165.5 153.3 164.9 169.9 170.8 182.2 189.4 192.1
Diurnal Average

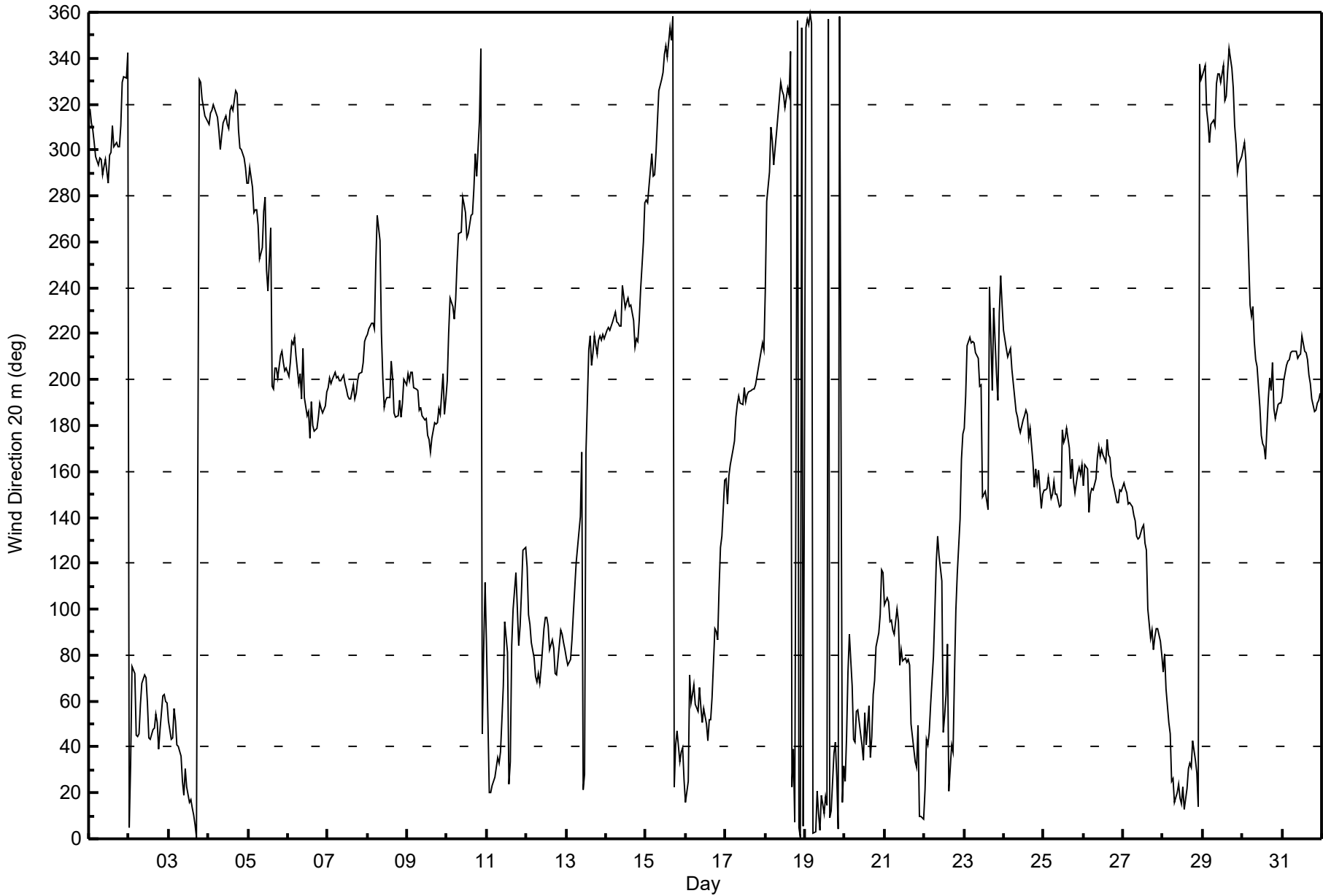
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 20 m (WD20m) - deg
Stony Mountain - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 107 deg on Mar 22 15:00 Minimum Value: 8 deg on Mar 30 03:00 Percentiles: P ₁ = 10 P ₁₀ = 13 Q ₁ = 16 Median = 19 Q ₃ = 23 P ₉₀ = 29 P ₉₉ = 71																			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-Mar	16	16	17	20	22	21	19	19	21	22	24	23	23	24	29	28	25	18	16	12	14	11	11	14	29
2-Mar	15	17	15	16	16	17	18	11	17	23	29	26	23	24	25	21	19	18	18	18	16	18	17	17	29
3-Mar	18	18	18	16	18	17	17	19	21	20	20	21	23	20	21	20	19	17	16	14	15	15	16	23	
4-Mar	17	16	16	16	16	17	17	16	17	17	18	20	24	24	23	22	24	18	14	14	15	15	12	24	
5-Mar	14	15	15	13	12	14	16	16	21	30	33	30	33	89	72	56	22	22	11	13	12	10	13	11	89
6-Mar	12	11	12	14	13	12	14	26	28	31	21	24	32	29	33	29	23	22	15	16	15	14	16	17	33
7-Mar	19	19	19	18	17	18	17	17	18	18	23	24	24	24	22	20	20	17	17	18	17	18	17	15	24
8-Mar	15	15	14	12	11	18	13	22	10	16	22	23	26	27	24	24	22	18	16	16	17	16	17	17	27
9-Mar	17	17	16	15	12	12	13	12	16	16	19	17	21	20	20	21	19	17	15	16	19	27	20	19	27
10-Mar	19	18	20	17	15	17	21	21	23	22	23	25	25	28	25	26	29	23	20	13	17	20	19	18	29
11-Mar	14	42	20	19	19	19	19	24	25	32	33	44	56	50	31	25	24	16	11	13	14	14	13	13	56
12-Mar	15	14	15	13	14	13	13	16	21	23	20	20	25	24	21	22	18	17	15	15	16	15	15	16	25
13-Mar	17	16	15	14	13	13	9	31	31	64	98	53	99	38	39	31	24	23	16	16	18	17	17	15	99
14-Mar	15	15	14	13	14	14	13	14	18	24	25	22	24	26	24	24	22	17	17	19	21	23	21	26	
15-Mar	21	19	20	21	21	21	19	20	19	21	22	24	25	25	27	23	26	21	21	17	17	16	16	19	27
16-Mar	27	26	15	14	16	18	19	18	19	18	35	71	42	33	34	32	29	20	16	16	21	19	22	14	71
17-Mar	14	13	12	13	14	15	16	18	20	19	21	22	23	24	22	21	20	19	17	18	17	17	17	17	24
18-Mar	24	20	18	19	17	17	18	20	20	24	26	24	22	22	21	26	28	20	26	21	23	22	21	22	28
19-Mar	23	20	19	22	22	22	23	19	22	26	27	39	41	34	35	28	29	21	18	21	16	15	18	16	41
20-Mar	17	19	13	13	19	11	12	16	22	29	38	42	61	42	45	47	39	18	16	14	13	18	14	13	61
21-Mar	12	14	15	14	17	20	16	17	17	22	22	22	20	20	23	27	26	23	18	15	17	25	16	15	27
22-Mar	15	14	12	11	11	11	10	16	28	32	69	71	48	82	107	53	39	42	21	13	13	14	12	14	107
23-Mar	11	10	10	13	12	12	13	15	25	28	42	42	52	50	46	75	79	28	22	28	29	15	16	17	79
24-Mar	11	13	13	14	13	12	11	16	17	21	24	25	28	30	30	25	26	29	21	17	17	17	18	16	30
25-Mar	15	14	13	15	12	12	13	15	22	24	28	29	27	29	27	23	23	24	18	17	19	18	18	19	29
26-Mar	14	16	17	17	17	16	16	21	22	22	23	24	23	24	25	24	22	22	19	19	19	18	19	18	25
27-Mar	18	18	18	17	15	17	17	18	20	18	19	18	19	21	20	17	17	18	16	16	16	17	17	17	21
28-Mar	18	16	18	17	18	18	19	22	21	28	26	25	25	21	28	23	23	22	21	22	20	21	14	14	28
29-Mar	18	18	16	16	16	16	15	17	23	20	21	22	24	24	23	23	22	22	21	17	15	15	15	13	24
30-Mar	11	10	8	48	18	22	12	16	19	30	31	36	33	31	37	36	29	25	19	15	15	13	12	12	48
31-Mar	14	14	15	15	15	15	17	16	19	19	23	23	24	24	25	24	22	21	20	20	20	21	20	20	25
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS19 FIREBAG MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
MARCH 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	699	34	45	98.52	13.4	0	3.4	0
H2S (ppb) Average	697	37	47	98.66	1.5	0	0.2	0
THC (ppm) Average	697	34	47	98.25	2.8	-	2.4	-
NO2 (ppb) Average	697	36	47	98.52	48.6	0	13.8	-
NO (ppb) Average	697	36	47	98.52	58.8	-	10.8	-
NOX (ppb) Average	697	36	47	98.52	107.4	-	24.6	-
Temperature 2 m (C) Average	736	0	8	98.92	10.3	-	2.6	-
Relative Humidity (%) Average	736	0	8	98.92	95.8	-	81.7	-
Wind Speed 10 m (km/h) Average	736	0	8	98.92	36	-	27	-
Wind Direction 10 m (deg) Average	736	0	8	98.92	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
MARCH 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	699	0.51	1.3	-	0	0	0.1	0.2	0.4	0.9	13.4
H2S (ppb) Average	697	0.08	0.1	-	0	0	0	0	0.1	0.2	1.5
THC (ppm) Average	697	2.27	0.1	-	2.1	2.2	2.2	2.3	2.3	2.3	2.8
NO2 (ppb) Average	697	3.34	5.8	-	0	0.3	0.4	1.6	3.5	7.1	48.6
NO (ppb) Average	697	1.36	4.9	-	0	0	0	0.2	0.7	2.4	58.8
NOX (ppb) Average	697	4.69	10.3	-	0	0.3	0.4	2.1	4.2	9.4	107.4
Temperature 2 m (C) Average	736	-9.3	8.7	-	-30.4	-21.3	-16.5	-8.4	-2.8	1.9	10.3
Relative Humidity (%) Average	736	62.05	15.7	-	18.5	41	50.5	63.3	74.4	82.1	95.8
Wind Speed 10 m (km/h) Average	736	15.4	7	-	1	6	10	15	20	25	36
Wind Direction 10 m (deg) Average	736	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	18 Mar 2024 13:00	18 Mar 2024 14:00	3	Maintenance - WBEA internal audit
ALL PARAMETERS	29 Mar 2024 00:00	29 Mar 2024 08:00	9	DAS Failure - data not recorded



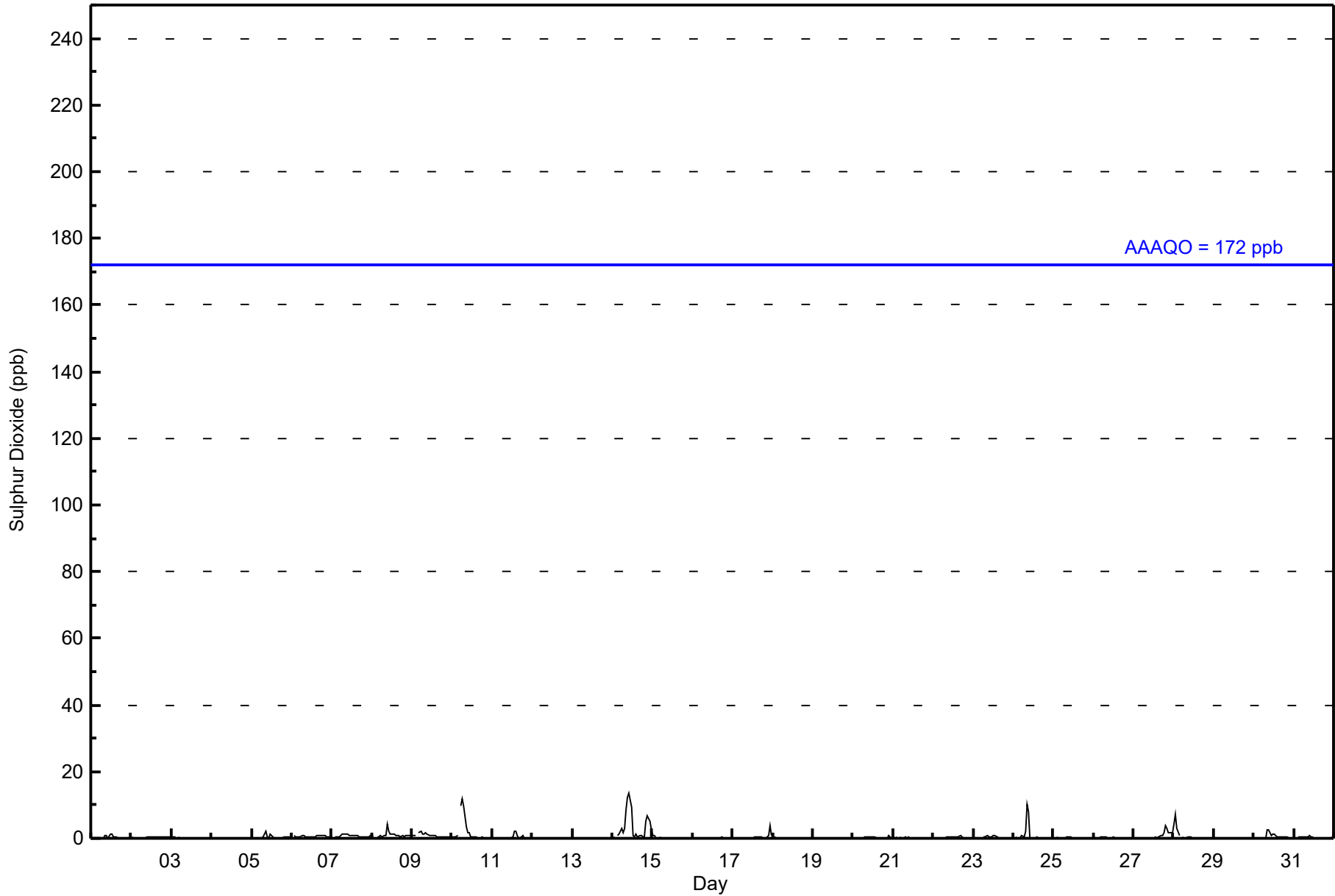
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 13.4 ppb on Mar 14 11:00		Maximum Daily Average: 3.4 ppb on Mar 14		Hours of Data: 699																	0.3		1.2				
Minimum Value: 0.0 ppb on Mar 1 07:00		Minimum Daily Average: 0.0 ppb on Mar 12		Hours of Missing Data: 45																	0.2		0.4				
Maximum Diurnal Average: 1.2 ppb at hour 10		Minimum Diurnal Average: 0.2 ppb at hour 18		Hours of Calibration: 34																	0.1		0.3				
Monthly Average: 0.51 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.9 P ₉₉ = 8.7		Percent Operational Time: 98.5																	0.1		0.2				
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-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.7	0.6	0.2	1.2	1.2	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	
2-Mar	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.4
3-Mar	0.3	0.3	0.2	Z	0.3	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	0.3
4-Mar	0.2	0.1	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2
5-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.2	2.0	0.2	0.2	1.2	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.3	0.3	0.4	0.3	2.0	
6-Mar	Z	0.9	0.6	0.6	0.6	0.6	0.7	0.8	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.8	0.7	0.8	0.9	0.9	0.7	0.4	0.4	0.4	0.6	0.9	
7-Mar	0.4	Z	0.3	0.6	0.5	0.8	1.1	1.4	1.3	1.2	0.9	0.8	0.7	0.8	0.9	0.7	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.8	0.7	1.4	
8-Mar	0.5	0.7	Z	0.4	0.6	0.7	0.3	0.7	0.9	4.0	2.3	1.1	1.1	1.4	0.7	1.1	0.8	0.6	0.6	0.6	0.7	0.7	0.8	0.8	1.0	4.0	
9-Mar	0.8	0.9	0.9	Z	1.5	2.0	1.4	1.1	1.5	1.3	0.9	0.9	0.8	0.8	0.6	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.8	2.0	
10-Mar	0.5	0.5	0.6	0.7	Z	9.6	11.9	9.8	3.3	1.7	1.7	0.5	0.3	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	1.9	11.9	
11-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.2	2.3	2.0	0.7	0.1	0.2	0.9	0.2	0.1	0.1	0.1	0.0	0.3	2.3	
12-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
13-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
14-Mar	0.1	0.4	Z	1.0	1.3	2.9	1.5	3.0	8.7	12.3	13.4	9.5	1.0	0.5	1.1	0.3	1.0	0.7	0.3	0.5	5.0	6.7	5.2	2.5	3.4	13.4	
15-Mar	1.0	0.8	0.5	Z	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.2	1.0	
16-Mar	0.0	0.0	0.1	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.4	
17-Mar	0.1	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.4	0.4	0.3	0.1	0.2	0.2	1.0	3.7	0.9	0.4	3.7	
18-Mar	Z	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	M	M	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.3	
19-Mar	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	
20-Mar	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.3	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.8	0.3	0.2	0.8	
21-Mar	0.3	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	
22-Mar	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.1	0.5	0.6	0.3	0.3	0.5	0.4	0.4	0.5	0.7	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.7	
23-Mar	0.1	0.0	0.0	0.0	0.0	Z	0.3	0.6	0.9	0.5	0.5	0.6	0.7	0.9	0.4	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.3	0.9	
24-Mar	Z	0.2	0.1	0.2	0.1	0.9	0.5	2.2	10.3	8.2	0.2	0.1	0.0	0.1	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	1.1	10.3	
25-Mar	0.2	Z	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	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
26-Mar	0.2	0.2	Z	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
27-Mar	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.5	1.0	0.8	1.6	3.8	3.1	1.6	1.8	1.9	0.8	3.8	
28-Mar	4.4	7.1	3.1	0.9	Z	0.3	0.2	0.1	0.3	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	DF	0.8	7.1	
29-Mar	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	--	0.1	
30-Mar	Z	0.1	0.1	0.1	0.2	0.2	0.0	0.2	2.5	2.5	1.0	1.1	1.1	0.8	0.4	0.3	0.2	0.2	0.5	0.4	0.2	0.1	0.1	0.2	0.5	2.5	
31-Mar	0.1	Z	0.2	0.4	0.5	0.6	0.5	0.6	0.6	0.7	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.0	0.2	0.3	0.7	
																								Diurnal Average		Diurnal Maximum	
																								0.4		4.4	
																								0.6		7.1	
																								0.3		3.1	
																								0.2		1.0	
																								0.3		1.5	
																								0.8		9.6	
																								0.7		11.9	
																								0.8		9.8	
																								1.2		10.3	
																								1.2		12.3	
																								0.8		9.5	
																								0.4		1.2	
																								0.4		2.3	
																								0.3		2.0	
																								0.3		1.1	
																								0.3		1.0	
																								0.2		0.8	
																								0.3		1.6	
																								0.3		3.8	
																								0.4		5.0	
																								0.5		6.7	
																								0.4		5.2	
																								0.4		2.5	
																								0.3		0.4	

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 (SO₂) - ppb
Firebag - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Firebag - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	696	99.57	99.57
11 - 20	3	0.43	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: 699

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Firebag - March 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	112	50	42	8	14	41	55	85	117	66	28	9	12	15	1	41	696
11 - 20	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	112	50	42	8	14	41	55	85	117	66	31	9	12	15	1	41	699

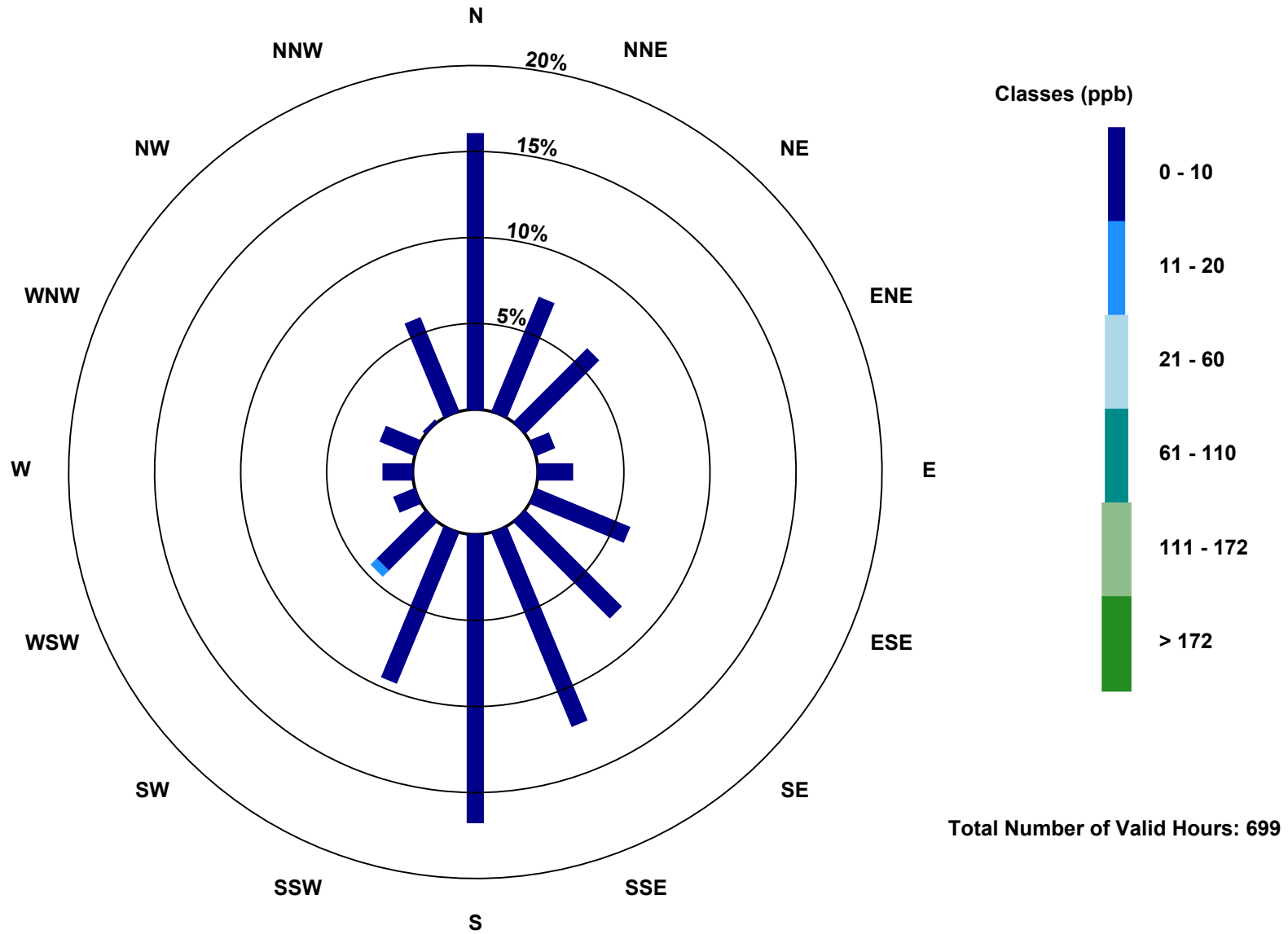
Total Number of Valid Hours: 699

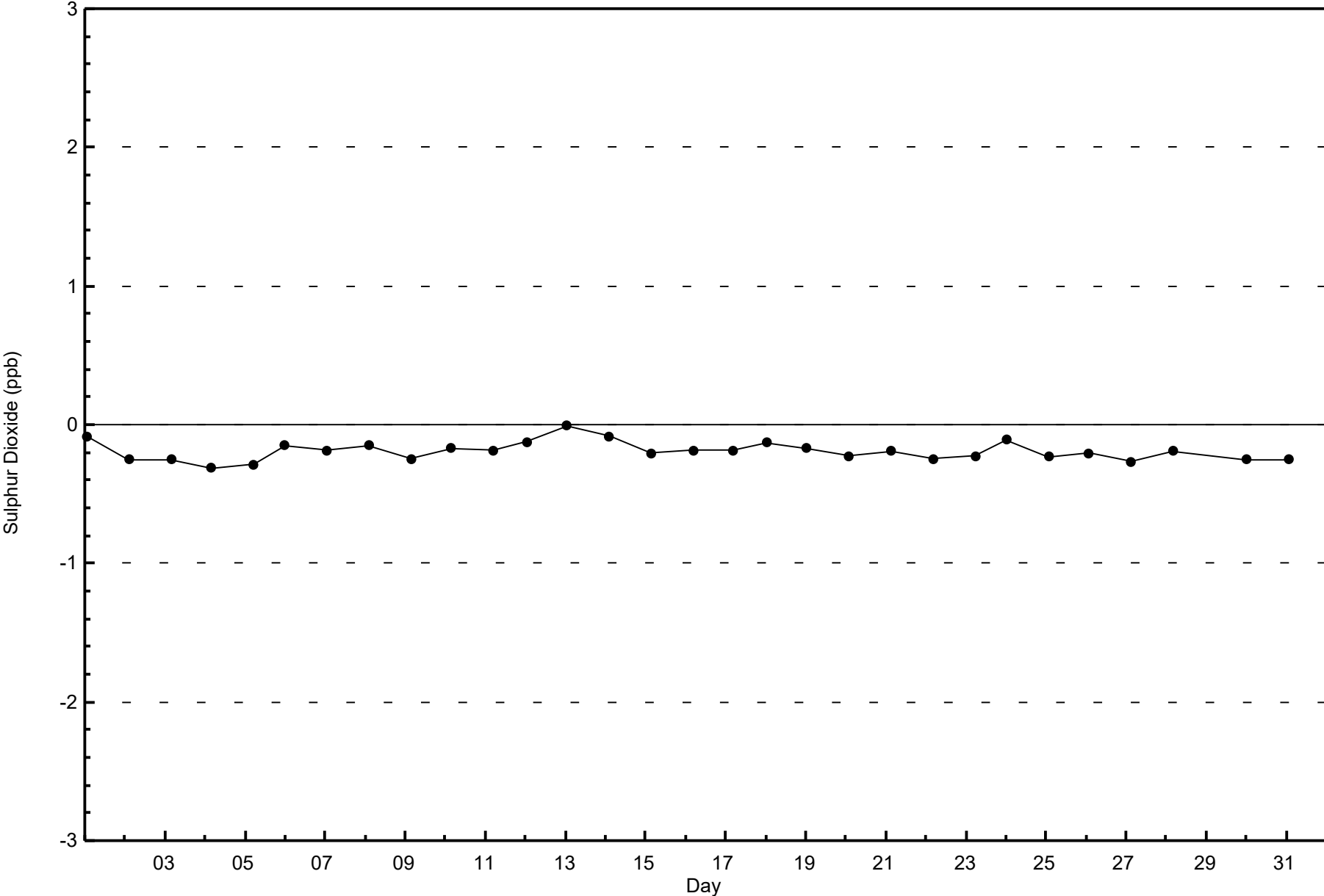
Total Number of Hours: 744

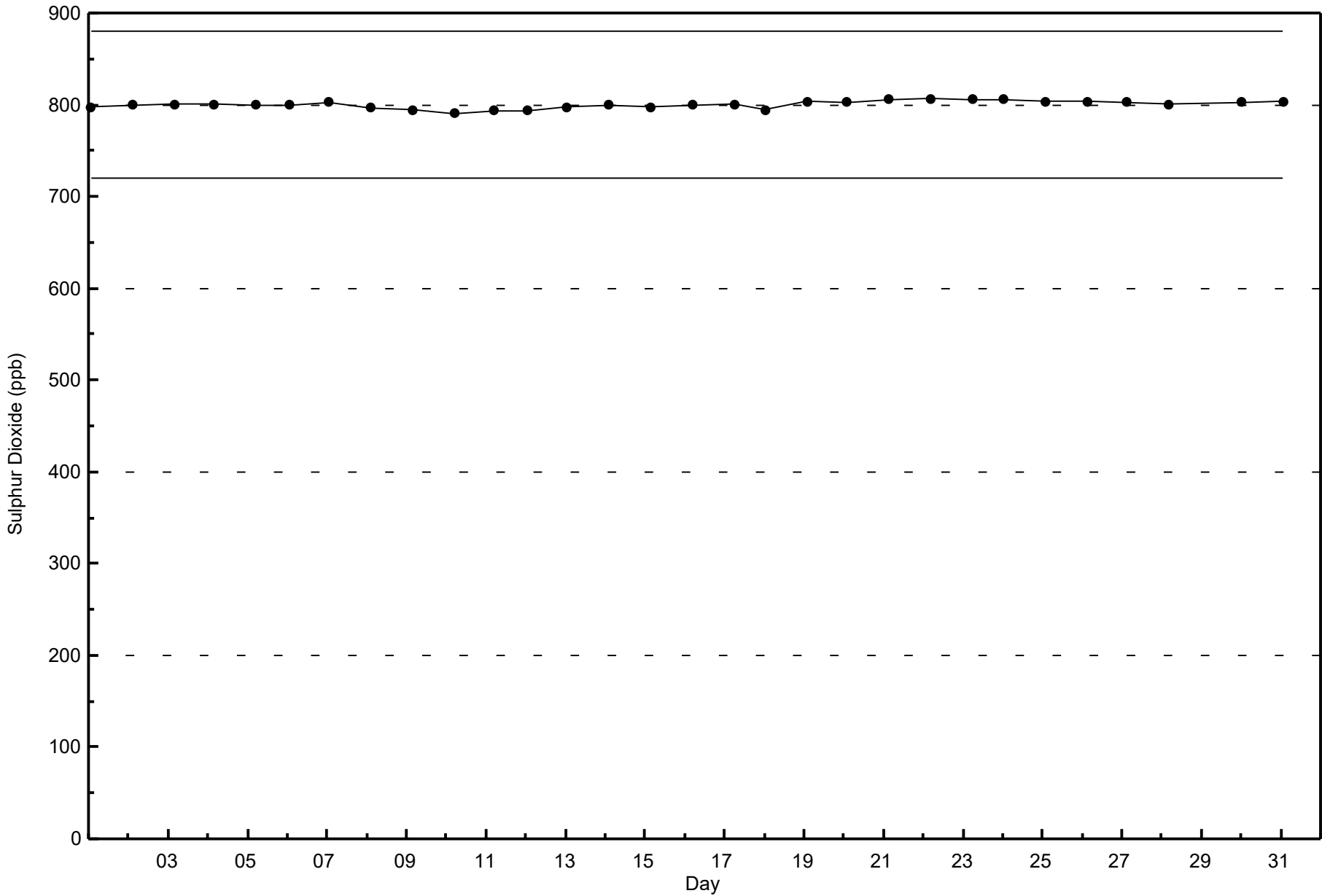


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Firebag









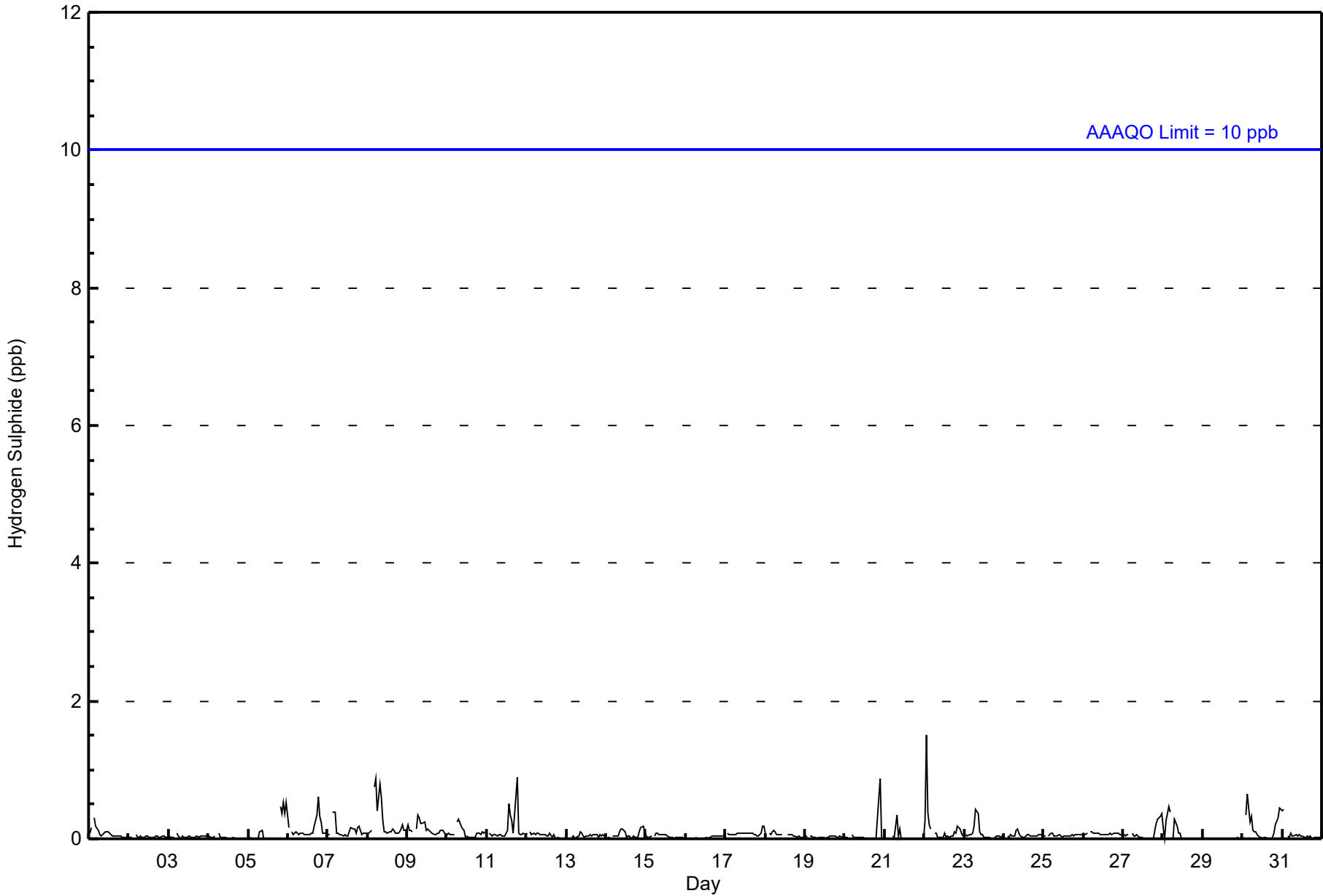
Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H₂S) - ppb

Firebag - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 1.5 ppb on Mar 22 02:00		Maximum Daily Average: 0.2 ppb on Mar 8																	Hours of Data: 697		Hours of Missing Data: 47						
Minimum Value: 0.0 ppb on Mar 4 18:00		Minimum Daily Average: 0.0 ppb on Mar 4																	Hours of Calibration: 37		Percent Operational Time: 98.7						
Maximum Diurnal Average: 0.1 ppb at hour 5		Minimum Diurnal Average: 0.0 ppb at hour 13																									
Monthly Average: 0.08 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.2 P ₉₉ = 0.6																									
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-Mar	0.1	0.2	Z	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
2-Mar	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
3-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
4-Mar	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	
5-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	C	C	C	C	C	C	C	0.5	0.4	0.5	0.4	0.5	--	0.5	
6-Mar	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.6	
7-Mar	0.1	0.1	Z	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	
8-Mar	0.1	0.1	0.1	Z	0.7	0.9	0.4	0.8	0.6	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.9	
9-Mar	0.2	0.1	0.1	0.1	Z	0.1	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
10-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	
11-Mar	Z	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.5	0.3	0.3	0.1	0.6	0.9	0.1	0.1	0.1	0.1	0.1	0.2	0.9	
12-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
13-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	
14-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.2	
15-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	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-Mar	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-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.2	
18-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	M	M	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	
19-Mar	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	
20-Mar	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	0.6	0.9	0.0	0.0	0.1	0.9	
21-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
22-Mar	0.3	1.5	0.4	0.2	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	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0	1.5	
23-Mar	Z	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
24-Mar	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	
25-Mar	0.0	0.0	Z	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	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
26-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
27-Mar	0.1	0.0	0.1	0.1	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.1	0.4	
28-Mar	0.2	0.0	0.3	0.5	0.4	Z	0.0	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	
29-Mar	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
30-Mar	0.0	Z	0.4	0.7	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.4	0.2	0.7	
31-Mar	0.4	0.4	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
																								Diurnal Average		Diurnal Maximum	
																								0.1		0.4	
																								0.4		1.5	
																								0.4		0.7	
																								0.7		0.9	
																								0.4		0.8	
																								0.6		0.3	
																								0.2		0.1	
																								0.1		0.5	
																								0.3		0.3	
																								0.2		0.6	
																								0.9		0.5	
																								0.6		0.9	
																								0.4		0.5	
																								0.1		0.4	
																								0.2		0.7	
																								0.1		0.4	
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Firebag - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	697	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: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Firebag - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	115	48	42	8	14	41	57	85	114	64	30	10	13	14	0	42	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
Totals	115	48	42	8	14	41	57	85	114	64	30	10	13	14	0	42	697

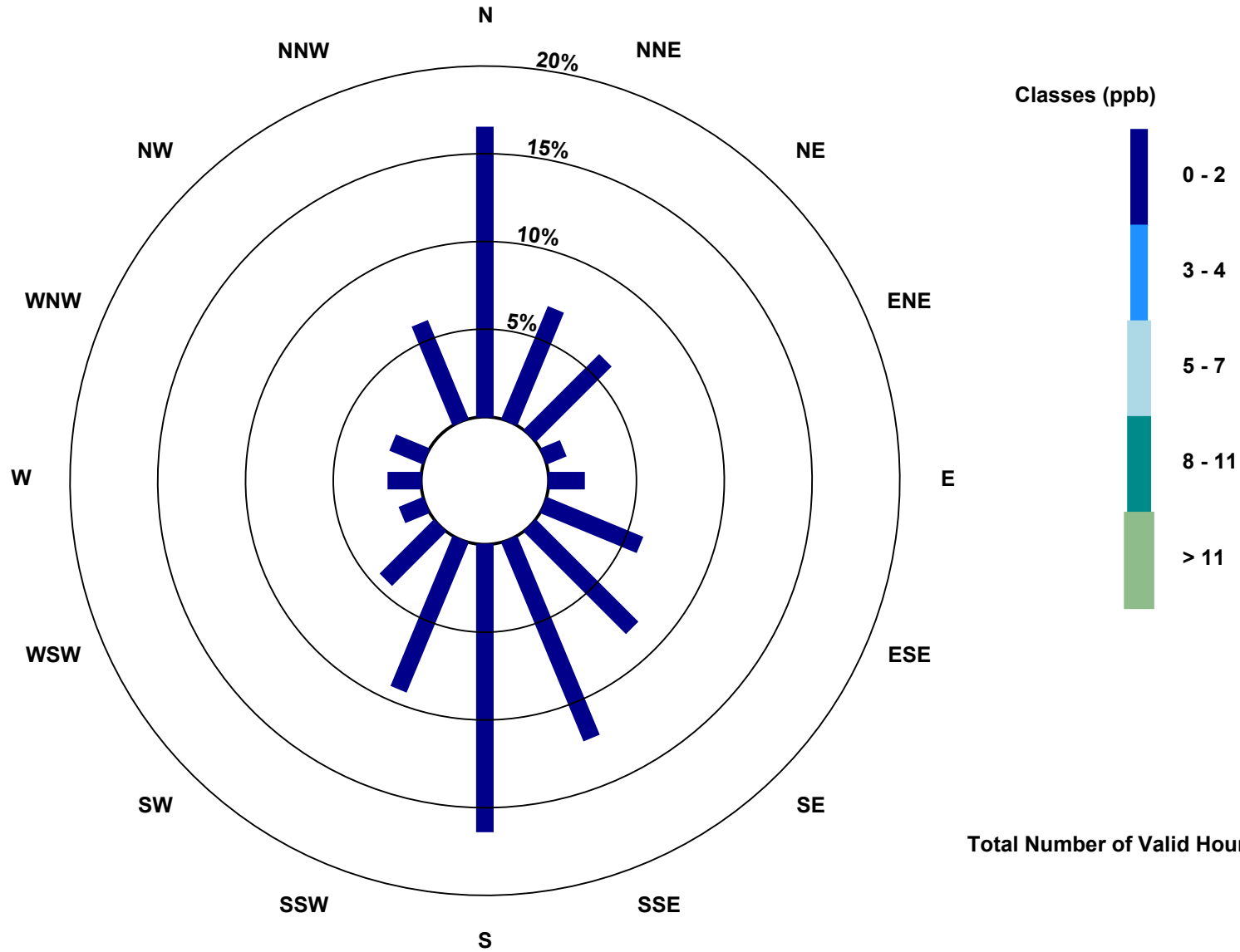
Total Number of Valid Hours: 697

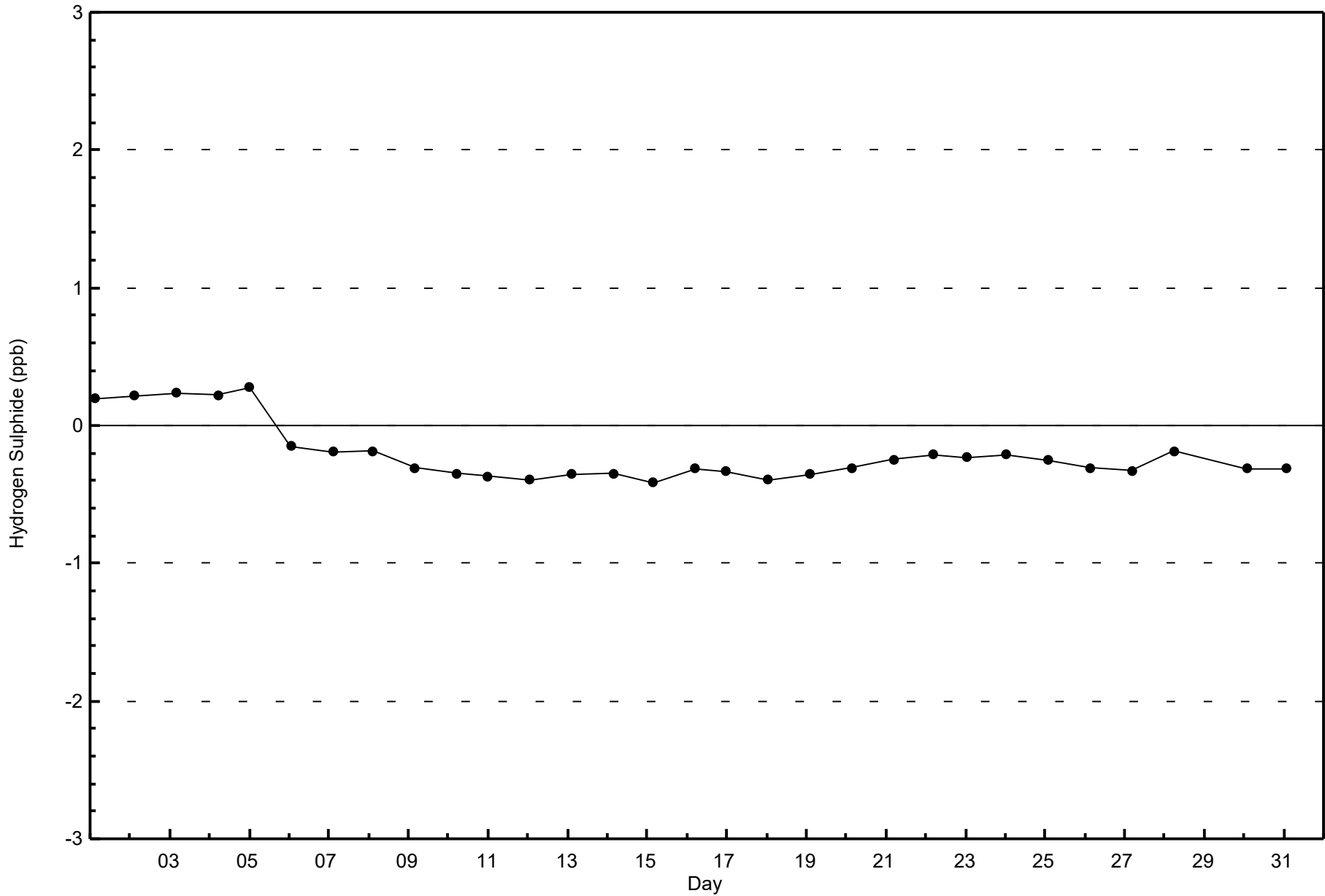
Total Number of Hours: 744

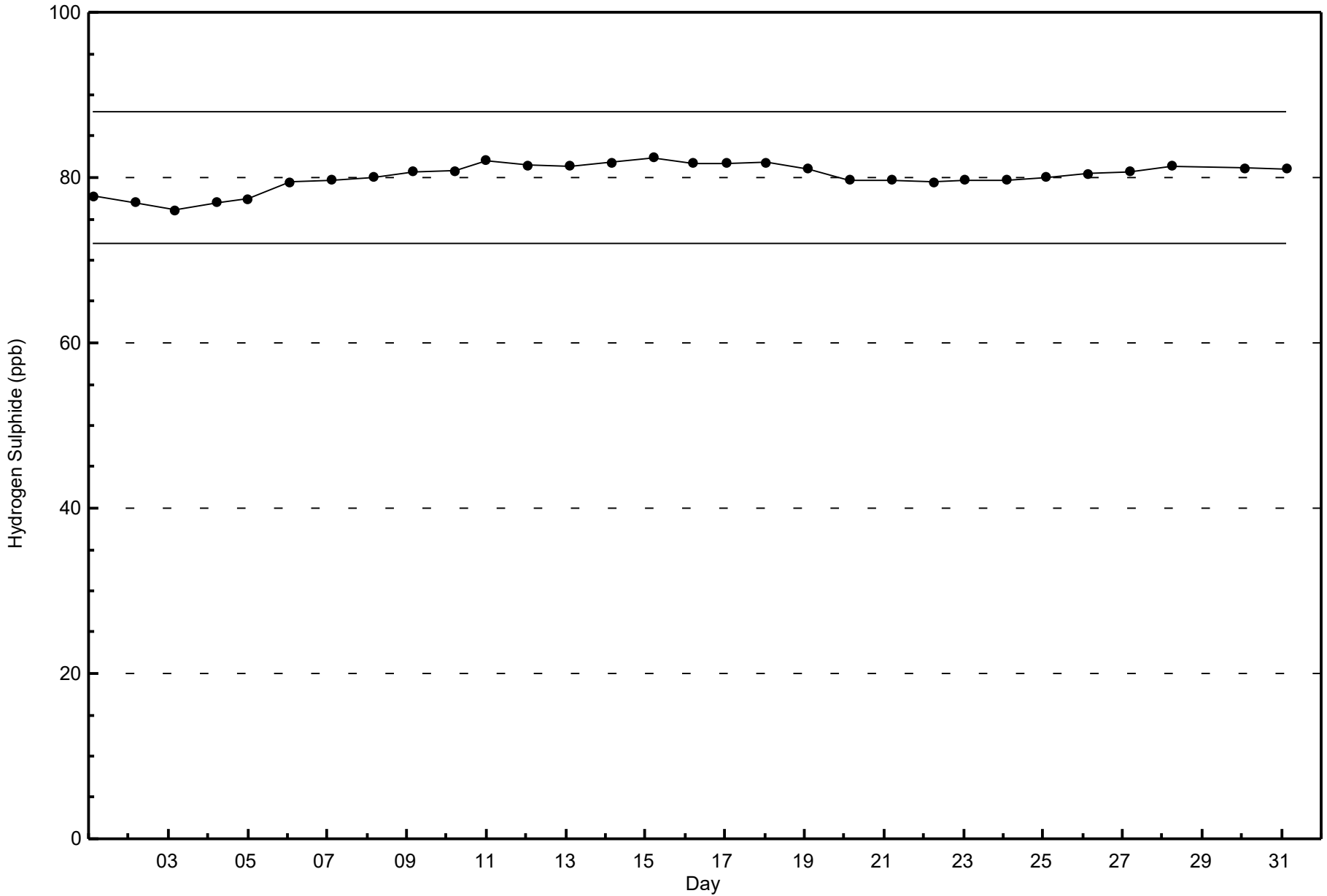


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Firebag

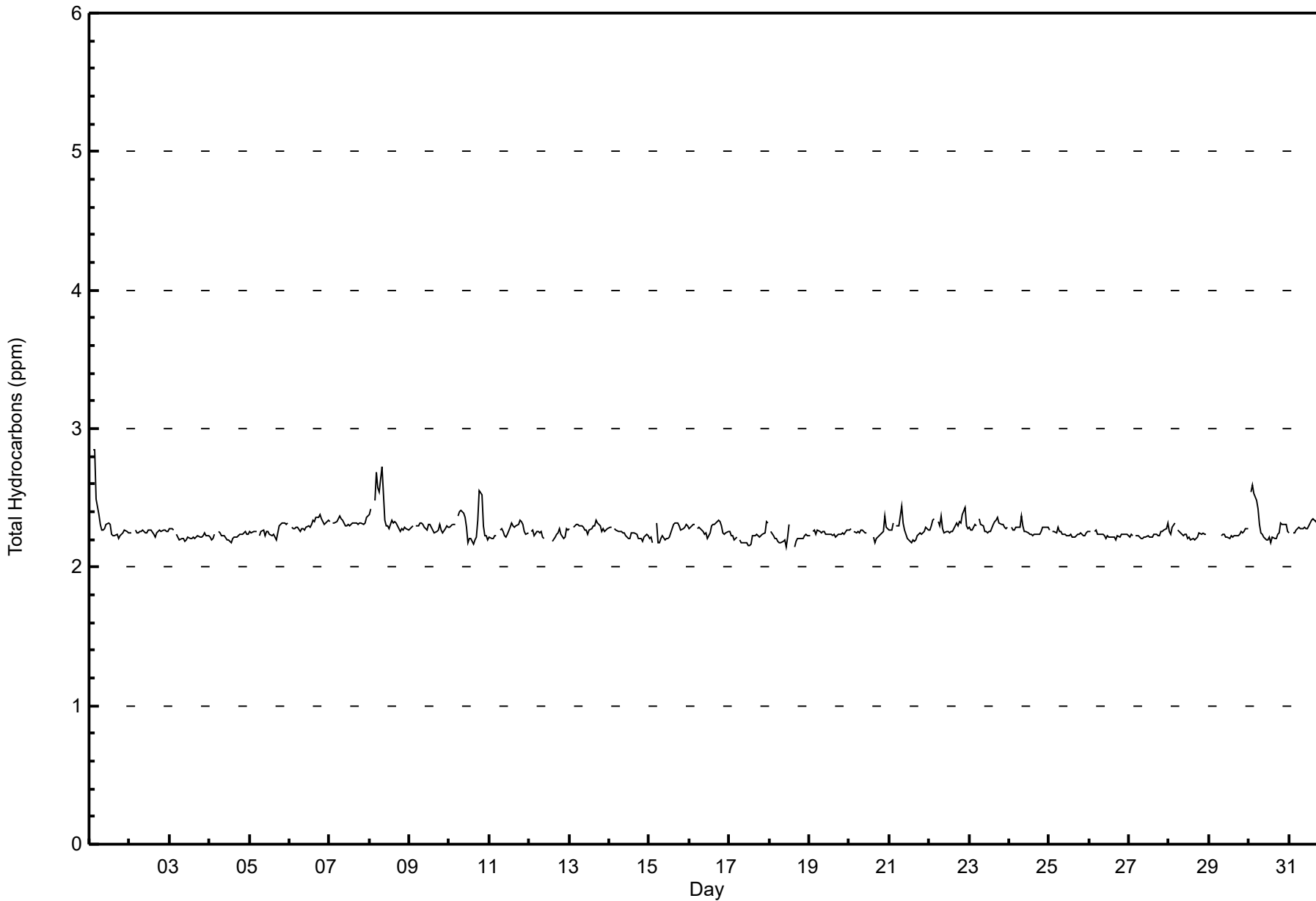








Maximum Value: 2.8 ppm on Mar 1 04:00																				Maximum Daily Average: 2.4 ppm on Mar 8					Hours in Service: 744								
Minimum Value: 2.1 ppm on Mar 18 11:00																				Minimum Daily Average: 2.2 ppm on Mar 18					Hours of Data: 697								
Maximum Diurnal Average: 2.3 ppm at hour 4																				Minimum Diurnal Average: 2.2 ppm at hour 12					Hours of Missing Data: 47								
Monthly Average: 2.27 ppm																				Percentiles: P ₁ = 2.2 P ₁₀ = 2.2 Q ₁ = 2.2 Median = 2.3 Q ₃ = 2.3 P ₉₀ = 2.3 P ₉₉ = 2.5					Hours of Calibration: 34								
																				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-Mar	2.4	Z	2.8	2.8	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.8							
2-Mar	2.2	2.3	Z	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3							
3-Mar	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3							
4-Mar	2.2	2.2	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3							
5-Mar	2.3	2.2	2.3	2.3	2.3	Z	2.2	2.3	2.3	2.2	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	2.3	2.3							
6-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4							
7-Mar	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	2.4	2.3	2.4							
8-Mar	2.4	2.4	Z	2.5	2.7	2.6	2.5	2.7	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.7							
9-Mar	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	2.2	2.3	2.3	2.3	2.3	2.3							
10-Mar	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.5	2.5	2.3	2.2	2.2	2.2	2.3	2.5							
11-Mar	2.2	2.2	2.2	2.2	2.2	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3							
12-Mar	Z	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.2	2.2	C	C	C	C	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.3							
13-Mar	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3							
14-Mar	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3							
15-Mar	2.2	2.2	2.2	Z	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	2.3	2.3	2.3	2.3							
16-Mar	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3							
17-Mar	2.3	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	2.3	2.2	2.3							
18-Mar	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	M	M	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3							
19-Mar	2.2	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.2	2.3							
20-Mar	2.3	2.3	Z	2.3	2.2	2.3	2.2	2.3	2.3	2.3	2.3	M	M	M	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.4							
21-Mar	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4							
22-Mar	2.3	2.3	2.3	2.4	Z	2.3	2.3	2.4	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4							
23-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4							
24-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4							
25-Mar	2.3	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3							
26-Mar	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	2.2	2.2	2.2	2.2	2.3							
27-Mar	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	2.3	2.3	2.3	2.2	2.3							
28-Mar	2.3	2.2	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	2.2	2.2	2.3							
29-Mar	DF	DF	DF	DF	DF	DF	DF	DF	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	--	2.3							
30-Mar	Z	2.5	2.6	2.5	2.5	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.6							
31-Mar	2.3	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.4							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Firebag - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	697	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: 697

Total Number of Hours: 744



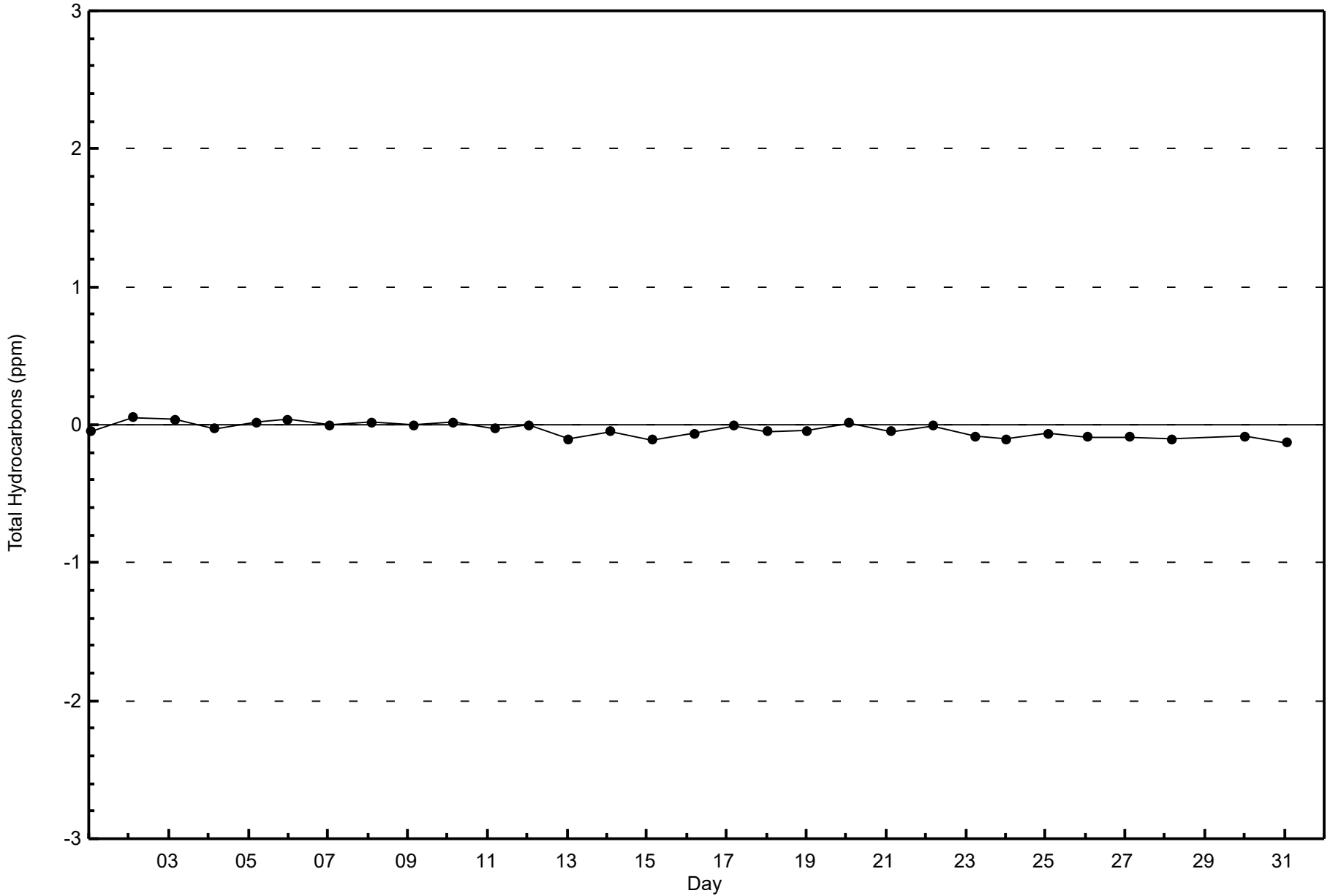
Wood Buffalo Environmental Association
Frequency Distribution

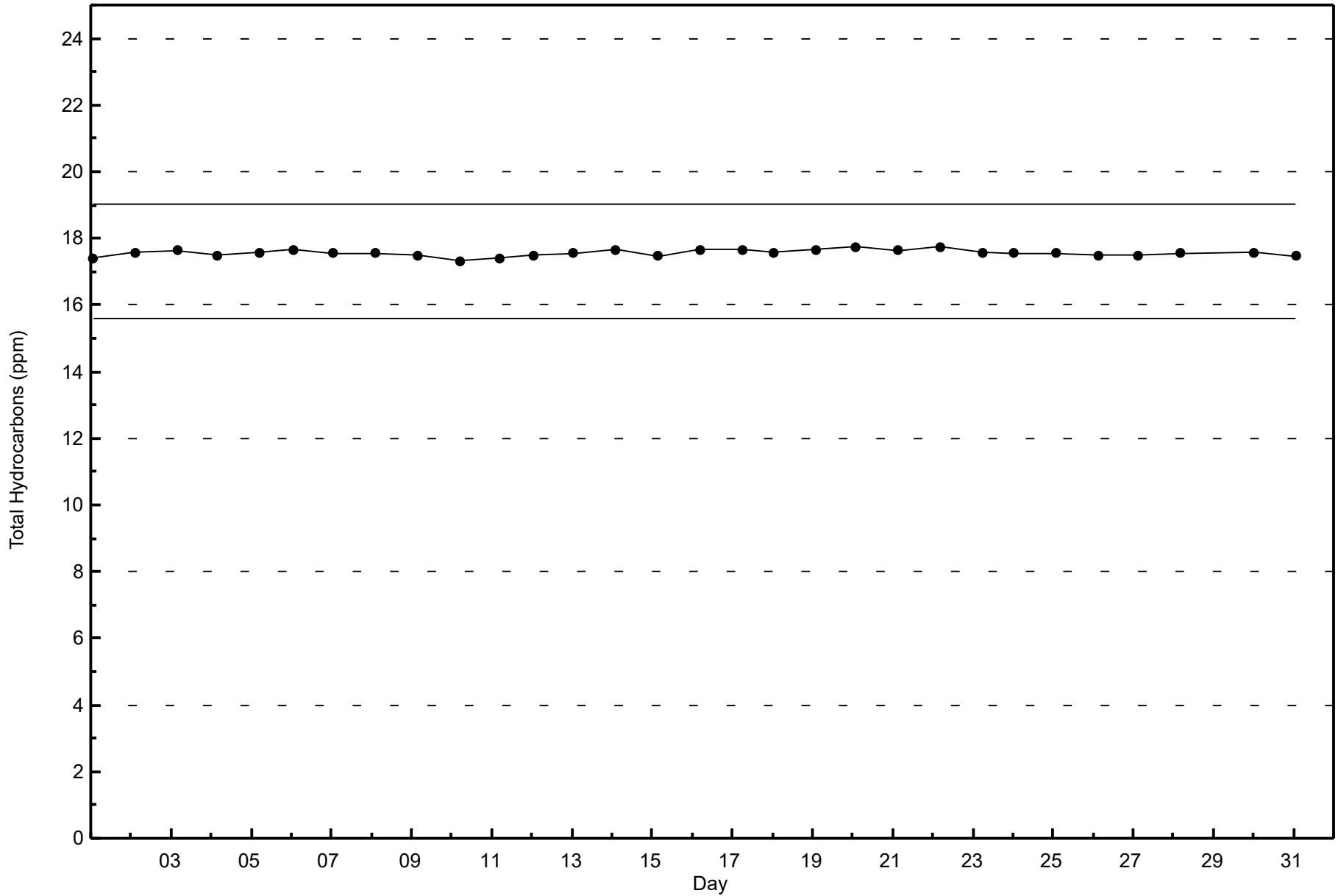
Total Hydrocarbons (THC) - ppm
Firebag - March 2024

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	110	49	42	8	14	41	55	85	117	66	31	9	12	15	1	42	697
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
Totals	110	49	42	8	14	41	55	85	117	66	31	9	12	15	1	42	697

Total Number of Valid Hours: 697

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

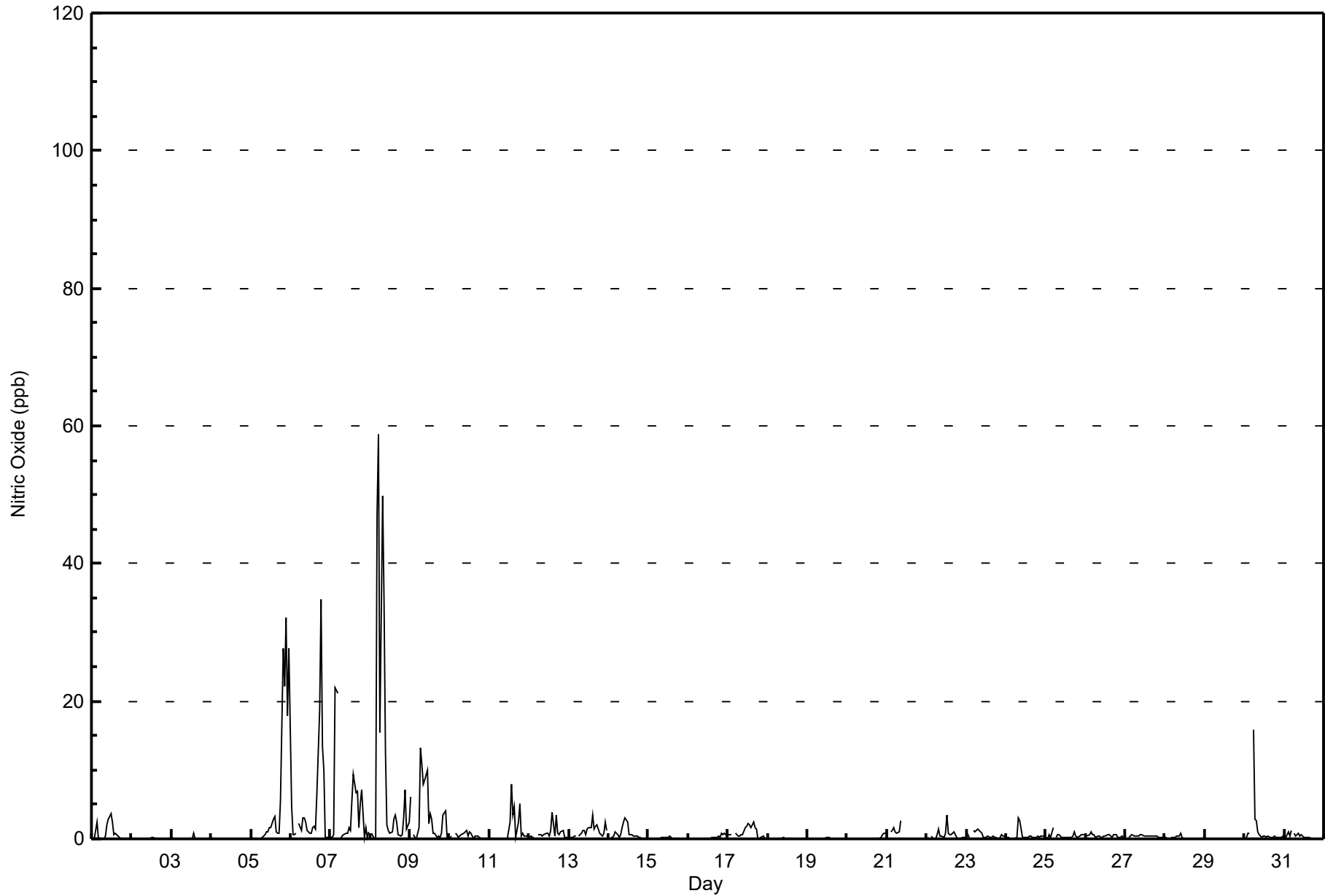
Nitric Oxide (NO) - ppb
Firebag - March 2024

Maximum Value: 58.8 ppb on Mar 8 06:00		Maximum Daily Average: 10.8 ppb on Mar 8		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 4		Hours of Data: 697																							
Maximum Diurnal Average: 3.5 ppb at hour 6		Minimum Diurnal Average: 0.2 ppb at hour 2		Hours of Missing Data: 47																							
Monthly Average: 1.36 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.7 P ₉₀ = 2.4 P ₉₉ = 27.6		Hours of Calibration: 36																							
				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-Mar	0.0	0.0	1.3	2.5	0.0	Z	0.0	0.1	0.5	1.9	2.8	3.7	2.5	0.7	0.9	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.7	
2-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
3-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8
4-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-Mar	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.2	0.7	1.0	1.1	1.6	1.7	2.8	3.3	1.0	0.8	0.9	5.5	27.6	22.1	32.1	17.9	27.7	6.4	32.1	
6-Mar	4.6	0.7	0.6	0.9	Z	2.3	1.2	3.0	3.1	2.4	1.2	0.9	0.8	1.6	1.9	1.4	6.6	18.6	34.9	13.5	9.9	0.3	0.3	0.4	4.8	34.9	
7-Mar	0.3	0.2	0.6	21.9	21.2	Z	0.1	0.3	0.6	0.9	0.9	1.6	1.3	5.4	9.3	6.8	6.9	1.6	5.0	7.2	0.3	1.6	0.2	1.0	4.1	21.9	
8-Mar	Z	0.7	0.1	0.2	47.2	58.8	15.4	49.9	34.2	12.7	2.0	1.3	0.9	1.0	2.9	3.4	2.4	0.7	0.4	0.7	3.1	7.1	1.3	2.4	10.8	58.8	
9-Mar	6.1	Z	0.5	0.1	0.1	1.5	13.3	10.9	8.0	8.6	10.0	2.2	3.7	2.9	0.8	0.8	0.3	0.4	0.3	0.9	3.4	4.1	0.2	0.0	3.4	13.3	
10-Mar	0.1	0.4	Z	0.8	0.7	0.1	0.4	0.7	0.9	1.1	1.2	0.3	0.9	0.8	0.1	0.3	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.4	1.2	
11-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	7.9	3.5	4.6	0.2	2.4	5.2	0.4	0.8	0.4	0.3	0.3	1.2	7.9	
12-Mar	0.2	0.4	0.2	0.2	Z	0.6	0.6	0.6	0.5	0.6	0.8	0.7	0.4	1.3	3.8	0.4	3.4	0.8	0.6	1.0	1.1	0.3	0.2	0.2	0.8	3.8	
13-Mar	0.3	0.2	0.2	0.5	0.4	Z	0.4	0.8	1.1	1.3	0.7	1.5	1.6	1.6	3.5	1.3	1.8	2.1	0.8	0.7	0.4	0.8	2.5	1.3	1.1	3.5	
14-Mar	Z	0.2	0.1	0.4	1.0	0.6	0.2	0.6	1.7	2.5	3.0	2.4	0.7	0.7	0.6	0.4	0.4	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.7	3.0	
15-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.2	0.4	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
16-Mar	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	0.2	0.3	0.4	0.3	0.8	0.7	0.8	0.3	0.2	0.8	
17-Mar	0.6	0.7	0.7	Z	0.8	0.6	0.4	0.5	0.5	0.6	1.6	1.7	2.1	2.0	1.6	2.4	1.6	1.4	0.1	0.1	0.1	0.4	0.0	0.0	0.9	2.4	
18-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.1	M	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
19-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
20-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.8	0.9	0.1	0.9	
21-Mar	0.6	Z	0.9	1.3	1.6	0.9	0.8	1.0	2.6	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	2.6	
22-Mar	0.0	0.2	Z	0.3	0.0	0.0	0.5	1.5	0.4	0.4	0.3	0.8	3.6	0.9	0.7	0.6	1.0	0.6	0.2	0.0	0.1	0.2	0.1	0.3	0.5	3.6	
23-Mar	0.3	0.5	0.1	Z	1.2	1.1	1.2	1.4	1.1	0.7	0.3	0.2	0.2	0.3	0.1	0.3	0.4	0.1	0.2	0.0	0.2	0.6	0.3	0.4	0.5	1.4	
24-Mar	0.1	0.2	0.1	0.0	Z	0.0	0.2	3.1	2.7	1.4	0.2	0.2	0.1	0.2	0.5	0.4	0.2	0.2	0.3	0.3	0.2	0.5	0.5	0.2	0.5	3.1	
25-Mar	0.2	0.1	0.6	0.3	1.5	Z	0.2	0.7	0.6	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.4	1.0	0.3	0.2	0.4	0.6	0.6	0.6	0.4	1.5	
26-Mar	Z	0.4	0.7	1.0	0.6	0.6	0.2	0.4	0.4	0.2	0.2	0.3	0.4	0.6	0.5	0.4	0.1	0.6	0.6	0.2	0.2	0.2	0.4	0.3	0.4	1.0	
27-Mar	0.4	Z	0.3	0.3	0.5	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.4	0.6	
28-Mar	0.2	0.2	Z	0.1	0.2	0.2	0.3	0.5	0.4	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	DF	0.2	0.9	
29-Mar	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0	
30-Mar	0.0	0.2	0.7	0.8	Z	15.8	2.8	2.6	1.1	0.6	0.3	0.4	0.4	0.3	0.4	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.3	1.2	15.8	
31-Mar	0.3	0.3	1.0	0.3	1.2	Z	0.9	0.4	0.8	0.5	0.6	0.5	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.2	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Firebag - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Firebag - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	686	98.42	98.42
21 - 40	8	1.15	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: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Firebag - March 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	113	46	41	8	14	41	57	88	103	66	31	9	12	16	1	40	686
21 - 40	0	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8
41 - 80	0	0	0	0	0	0	1	0	2	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
Totals	113	46	41	8	14	41	58	88	113	66	31	9	12	16	1	40	697

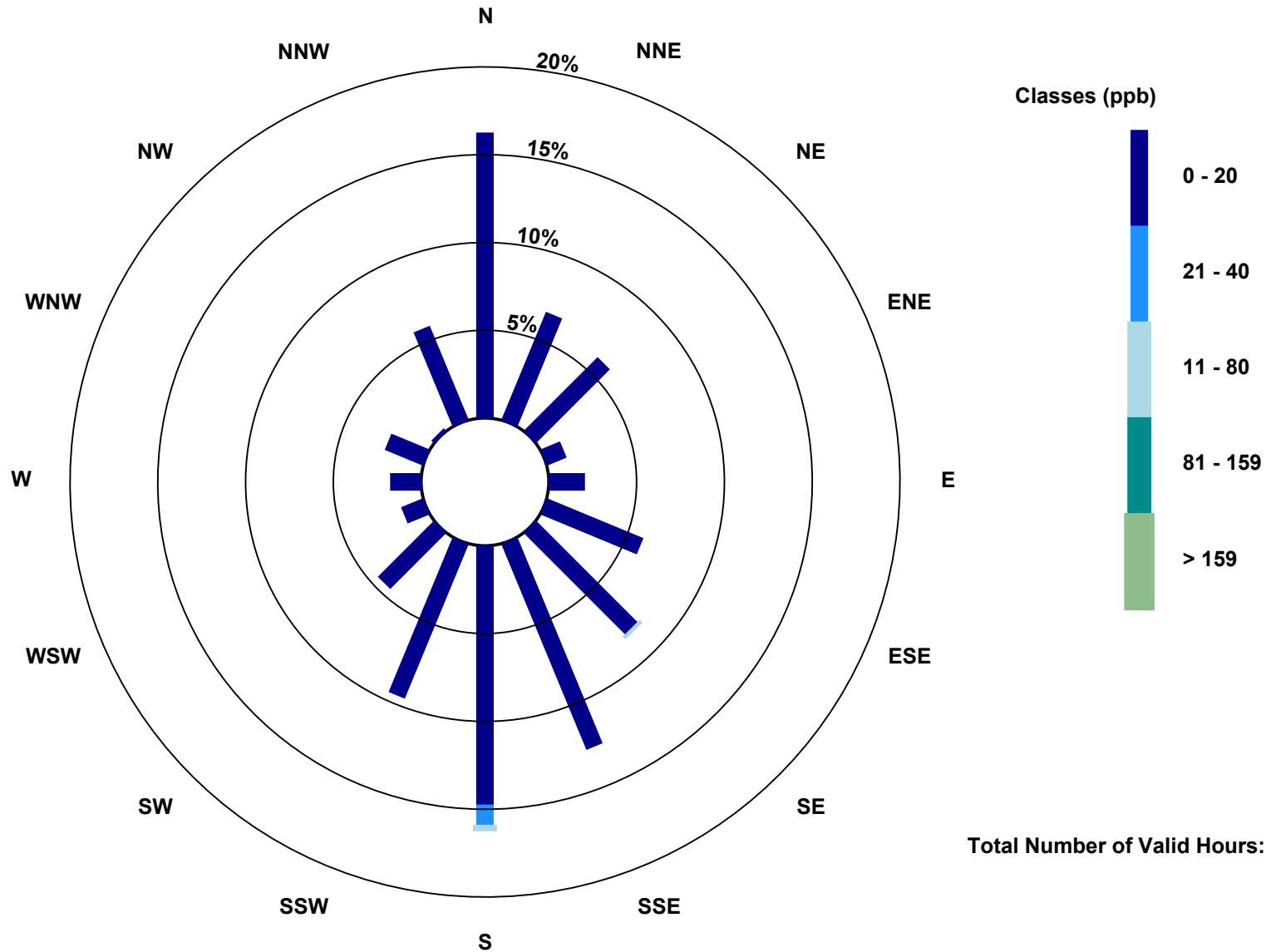
Total Number of Valid Hours: 697

Total Number of Hours: 744

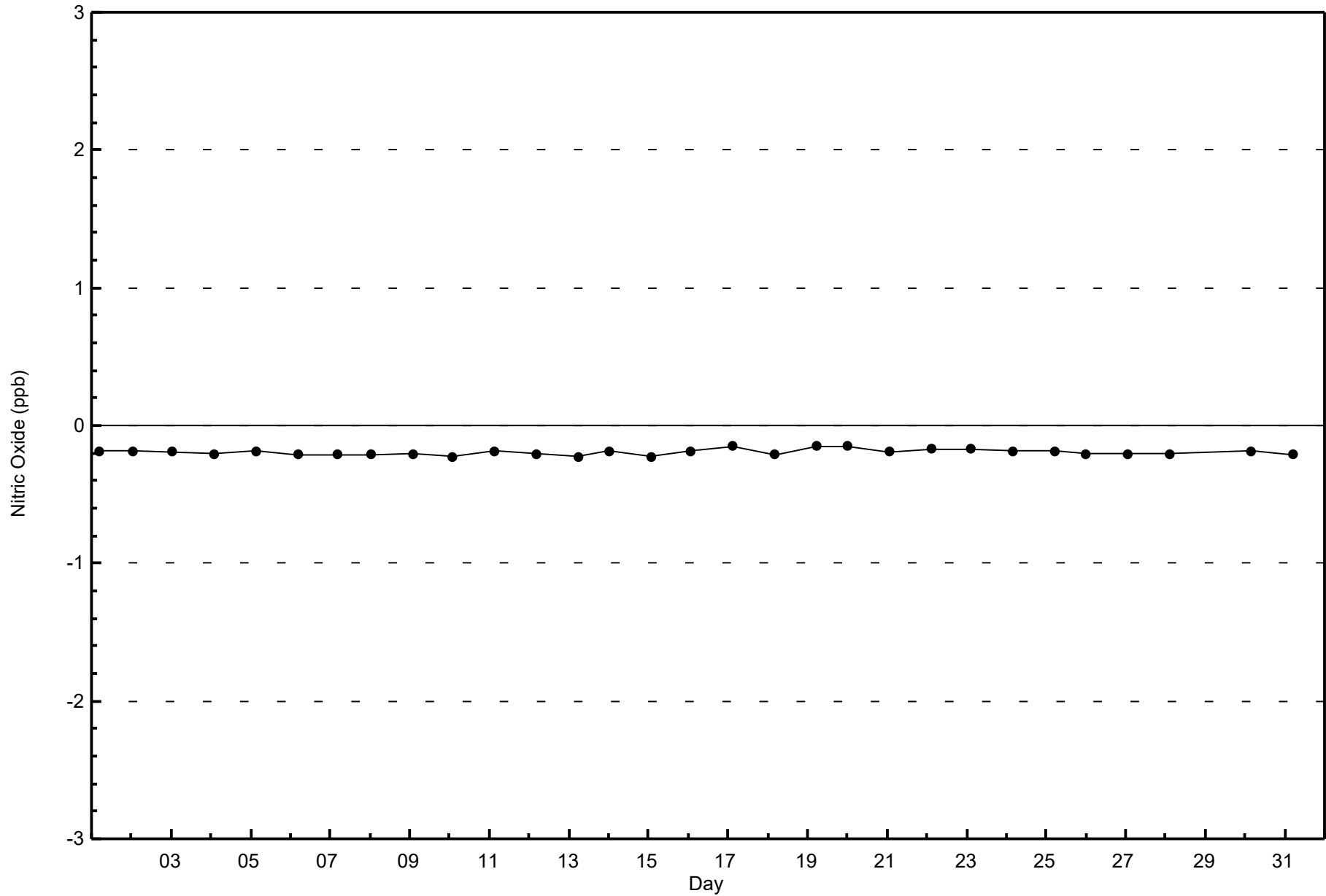


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Firebag



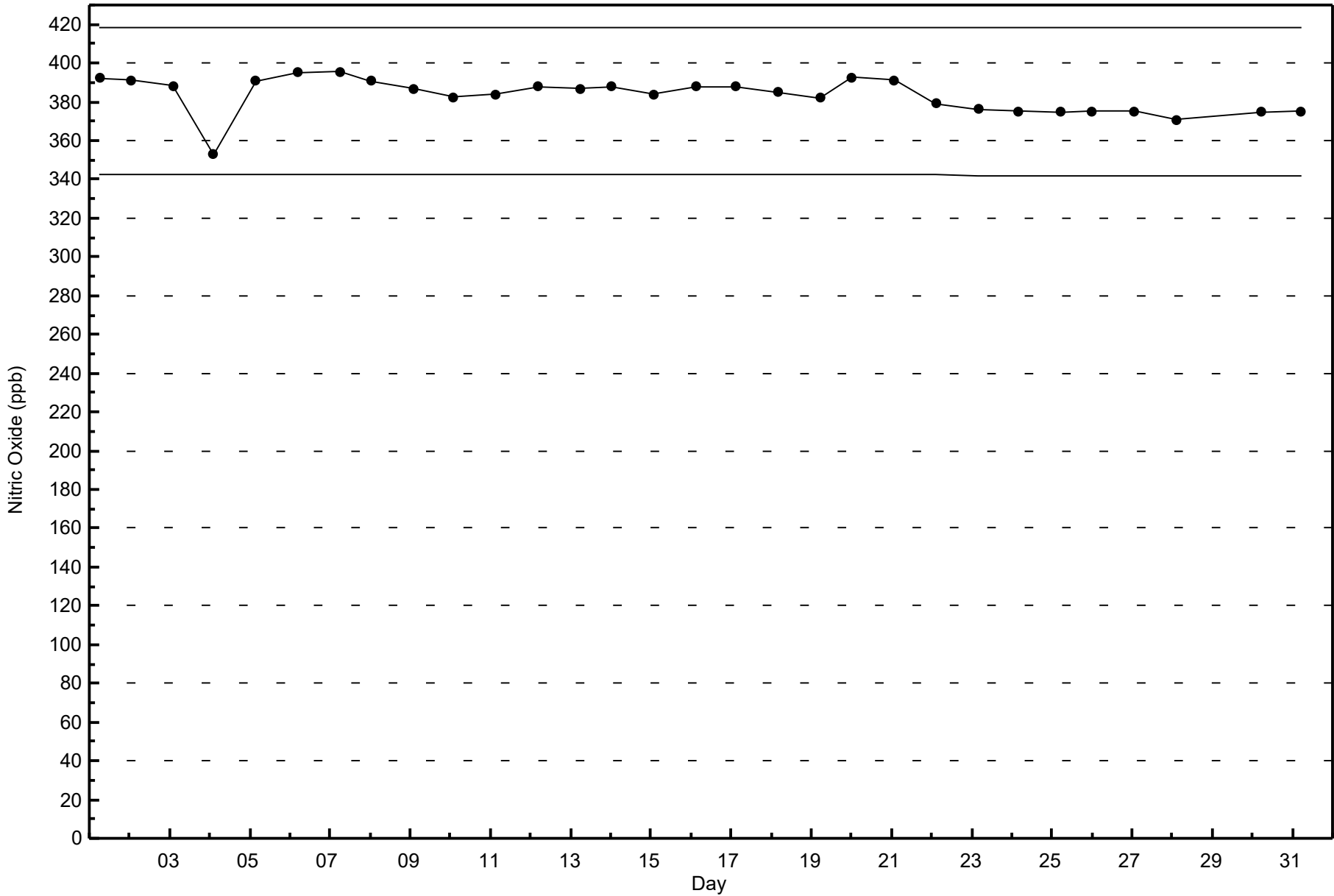
Total Number of Valid Hours: 697





Wood Buffalo Environmental Association
Span Responses

Nitric Oxide (NO) - ppb
Firebag - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

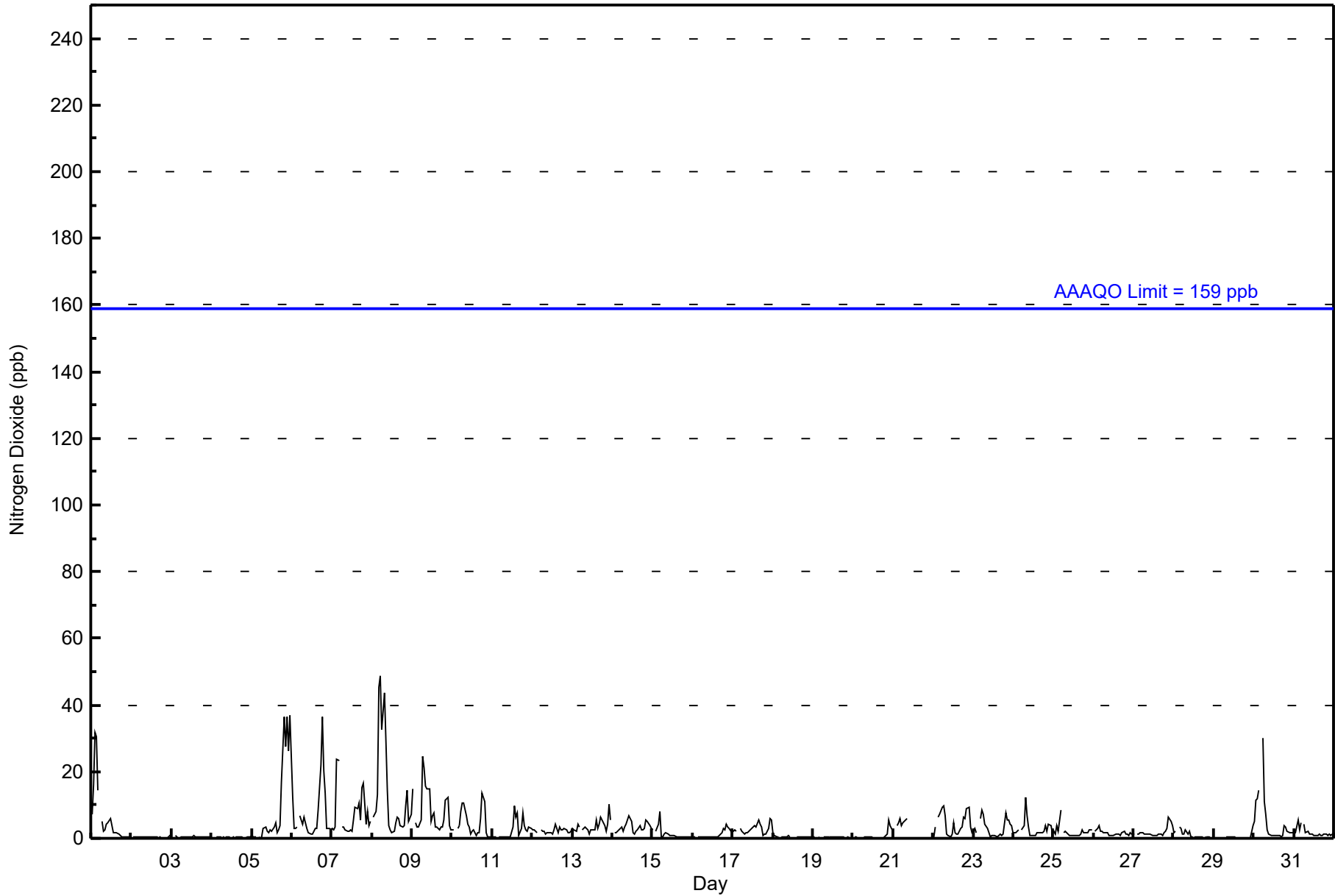
Firebag - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 48.6 ppb on Mar 8 06:00		Maximum Daily Average: 13.8 ppb on Mar 8				Hours of Data:		697																																									
Minimum Value: 0.0 ppb on Mar 21 16:00		Minimum Daily Average: 0.3 ppb on Mar 4				Hours of Missing Data:		47																																									
Maximum Diurnal Average: 6.0 ppb at hour 5		Minimum Diurnal Average: 1.5 ppb at hour 12				Hours of Calibration:		36																																									
Monthly Average: 3.34 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.3 Q ₁ = 0.4 Median = 1.6 Q ₃ = 3.5 P ₉₀ = 7.1 P ₉₉ = 32.7				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-Mar	7.1	15.9	31.8	30.5	14.5	Z	5.0	2.0	2.5	4.2	4.7	5.9	4.0	1.7	1.9	1.7	1.4	0.7	0.5	0.3	0.5	0.3	0.3	0.3	6.0	31.8																							
2-Mar	Z	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.5	0.7	0.3	0.7																							
3-Mar	0.6	Z	0.8	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.8																							
4-Mar	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.4	0.3	0.3	0.5																							
5-Mar	0.9	0.6	0.3	Z	0.4	0.2	0.4	2.8	3.3	2.3	1.7	2.4	2.1	3.5	4.7	1.8	2.4	3.9	17.1	36.4	27.6	36.6	26.3	36.9	9.3	36.9																							
6-Mar	12.1	2.8	3.0	3.3	Z	6.8	4.1	6.5	4.6	3.0	1.6	1.4	1.4	2.2	2.8	2.8	8.5	21.9	36.4	20.2	13.5	3.0	3.0	2.6	7.3	36.4																							
7-Mar	3.0	2.7	3.5	23.9	23.2	Z	3.3	3.5	2.7	2.2	2.2	2.6	2.3	5.7	9.3	9.1	10.8	5.7	15.1	16.7	4.1	8.1	3.7	4.9	7.3	23.9																							
8-Mar	Z	6.5	8.1	13.3	45.4	48.6	32.5	43.5	29.1	14.2	3.7	2.5	1.7	2.1	4.8	6.5	5.9	3.9	3.5	4.0	9.8	14.6	5.1	7.2	13.8	48.6																							
9-Mar	14.8	Z	4.8	3.2	3.5	5.5	24.6	21.0	15.8	14.8	14.7	5.0	6.7	7.6	3.4	3.6	2.4	3.3	3.5	5.3	11.6	12.1	3.8	2.4	8.4	24.6																							
10-Mar	2.4	2.5	Z	3.0	3.8	8.1	10.5	10.6	6.7	4.4	3.2	1.4	2.3	2.5	0.8	1.6	1.9	5.8	13.5	11.0	1.6	0.6	0.6	0.6	4.3	13.5																							
11-Mar	0.6	0.5	0.4	Z	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	3.6	9.7	6.4	7.6	0.9	2.9	7.5	3.7	2.5	2.3	3.6	2.8	2.6	9.7																							
12-Mar	2.5	2.7	2.0	1.8	Z	2.7	2.3	2.2	1.4	1.5	1.6	1.5	1.1	2.4	4.2	1.6	3.4	2.5	2.6	2.9	2.4	1.9	1.8	2.2	2.2	4.2																							
13-Mar	2.8	2.5	2.0	4.3	3.4	Z	2.6	3.2	3.1	2.6	1.4	2.4	2.4	2.7	5.6	2.8	4.3	6.2	4.6	3.9	2.1	4.3	10.2	5.6	3.7	10.2																							
14-Mar	Z	1.7	1.9	2.0	2.4	3.5	2.2	3.2	4.4	5.7	6.6	5.0	1.5	1.4	2.0	2.4	3.9	2.5	2.5	3.1	5.7	5.1	3.7	2.9	3.3	6.6																							
15-Mar	2.4	Z	2.3	4.4	8.2	0.4	0.4	1.1	1.7	1.1	1.0	0.9	0.8	0.9	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	8.2																							
16-Mar	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.9	1.8	3.1	2.5	4.3	3.3	3.1	1.9	1.1	4.3																							
17-Mar	2.3	2.4	2.1	Z	2.8	2.3	1.5	1.4	1.6	1.6	2.4	3.0	3.2	3.7	3.3	5.7	4.4	3.3	1.0	1.3	1.2	2.9	5.8	5.4	2.8	5.8																							
18-Mar	1.5	0.9	0.6	0.6	Z	0.5	0.5	0.4	0.3	0.8	0.5	M	M	M	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	1.5																							
19-Mar	0.3	0.2	0.2	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.6																							
20-Mar	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.1	5.5	3.9	3.1	0.8	5.5																							
21-Mar	2.3	Z	4.0	4.8	6.0	4.0	4.5	5.5	5.8	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	--	6.0																							
22-Mar	0.3	3.4	Z	6.3	7.2	9.3	9.8	6.6	1.1	0.9	0.5	1.3	4.7	1.6	1.4	1.3	3.1	3.6	6.2	6.1	8.7	9.5	3.5	1.8	4.3	9.8																							
23-Mar	2.0	2.8	1.5	Z	6.1	8.4	7.3	4.4	2.8	1.7	0.6	0.7	0.7	0.8	0.5	1.0	1.3	0.7	1.2	7.7	5.5	5.3	4.1	3.7	3.1	8.4																							
24-Mar	1.5	1.9	2.0	2.7	Z	2.6	4.0	12.2	6.9	3.2	1.0	0.8	0.8	0.9	1.5	1.8	1.7	1.9	2.3	3.7	2.1	4.4	3.7	1.4	2.8	12.2																							
25-Mar	2.3	1.4	3.9	2.1	8.4	Z	1.8	2.3	1.6	1.0	0.7	0.8	0.8	0.9	0.9	0.9	1.3	2.6	1.6	1.6	1.9	2.5	2.4	2.6	2.0	8.4																							
26-Mar	Z	2.3	2.8	4.0	2.2	2.3	1.6	1.7	1.6	1.0	0.9	1.0	1.0	1.3	1.2	1.1	0.8	1.8	2.1	1.2	1.2	1.0	1.5	1.1	1.6	4.0																							
27-Mar	1.4	Z	1.1	1.3	1.8	1.5	1.1	1.1	1.1	1.1	1.1	1.1	1.0	0.8	0.9	0.9	1.1	1.1	1.0	1.5	2.2	3.0	6.3	4.9	1.8	6.3																							
28-Mar	1.8	2.0	Z	3.6	2.9	1.4	1.4	2.6	1.4	2.3	0.6	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.2	DF	1.1	3.6																						
29-Mar	DF	DF	DF	DF	DF	DF	DF	DF	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	3.8	--	3.8																						
30-Mar	4.9	11.6	11.7	14.5	Z	30.0	11.0	7.1	2.6	1.3	0.7	0.9	0.7	0.7	0.9	0.7	0.6	0.7	3.7	3.4	2.2	1.9	1.9	1.9	5.0	30.0																							
31-Mar	1.6	1.6	5.5	2.7	4.5	Z	4.3	1.9	2.0	1.3	1.3	1.1	0.8	0.8	0.9	1.2	0.9	0.8	1.1	1.1	1.0	1.1	1.0	1.4	1.7	5.5																							
																								2.9	2.8	3.9	5.2	6.0	5.8	4.6	4.8	3.4	2.5	1.8	1.5	1.6	2.0	2.0	1.9	2.1	2.6	4.3	4.5	3.7	4.4	3.2	3.4	Diurnal Average	
																								14.8	15.9	31.8	30.5	45.4	48.6	32.5	43.5	29.1	14.8	14.7	5.9	6.7	9.7	9.3	9.1	10.8	21.9	36.4	36.4	27.6	36.6	26.3	36.9	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 (NO₂) - ppb
Firebag - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Firebag - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	678	97.27	97.27
21 - 40	16	2.30	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: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Firebag - March 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	113	46	41	8	14	41	57	87	98	66	31	9	12	14	1	40	678
21 - 40	0	0	0	0	0	0	0	1	13	0	0	0	0	2	0	0	16
41 - 80	0	0	0	0	0	0	1	0	2	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
Totals	113	46	41	8	14	41	58	88	113	66	31	9	12	16	1	40	697

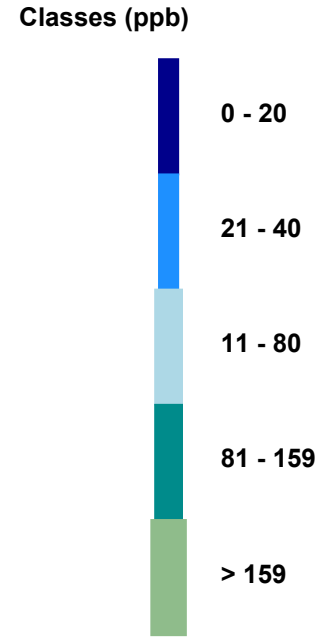
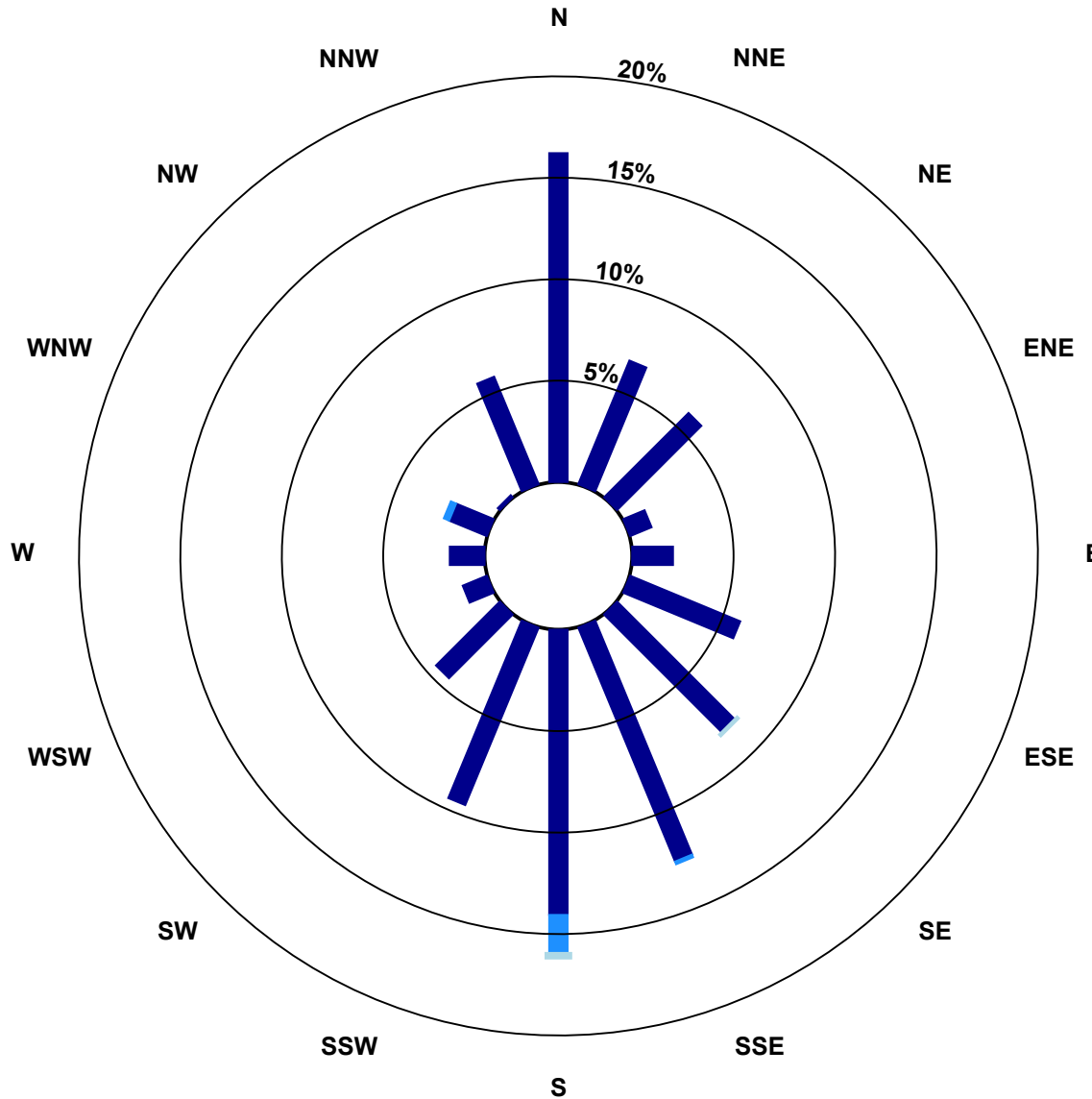
Total Number of Valid Hours: 697

Total Number of Hours: 744

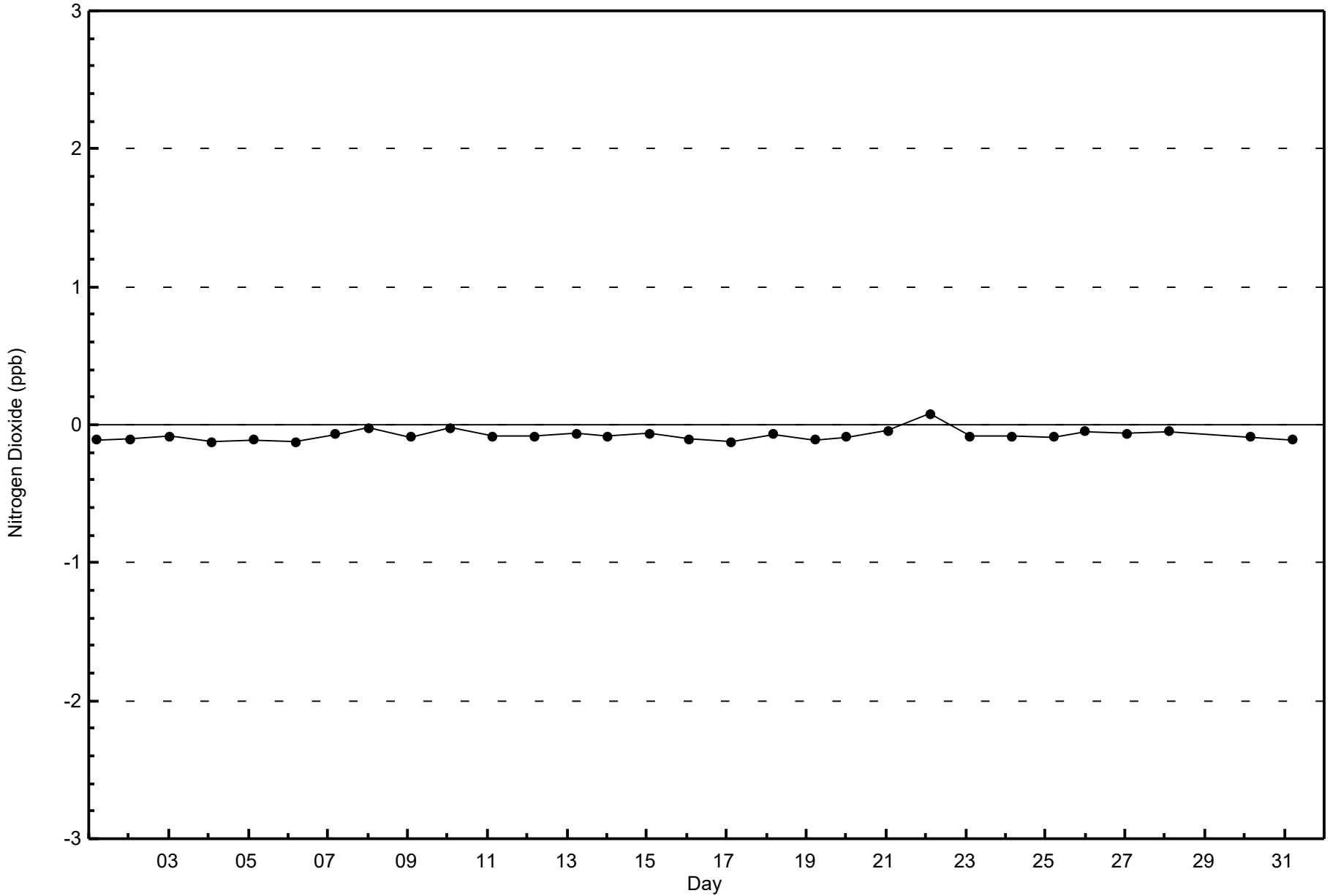


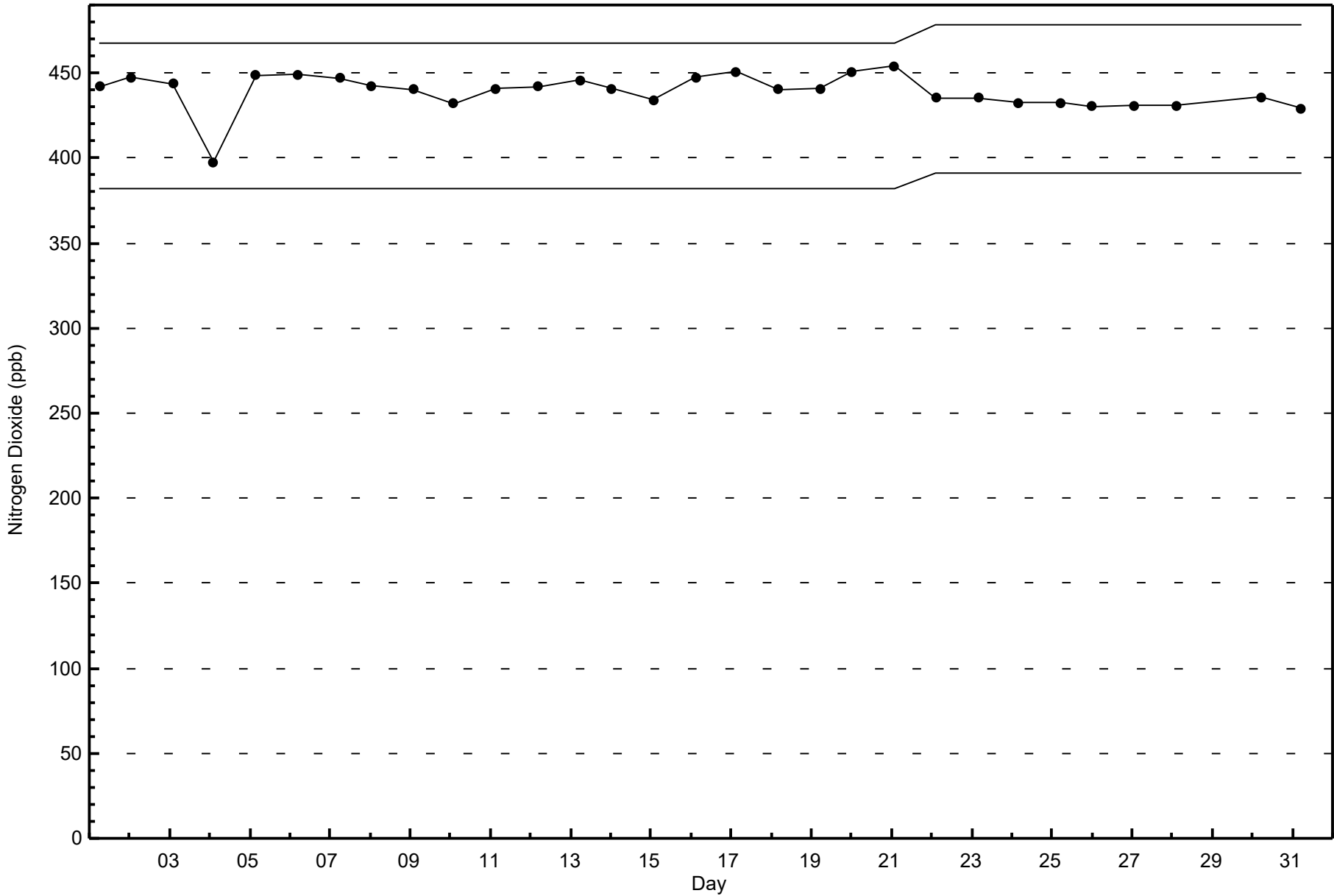
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Firebag



Total Number of Valid Hours: 697







Wood Buffalo Environmental Association
Summary of Hour Averages

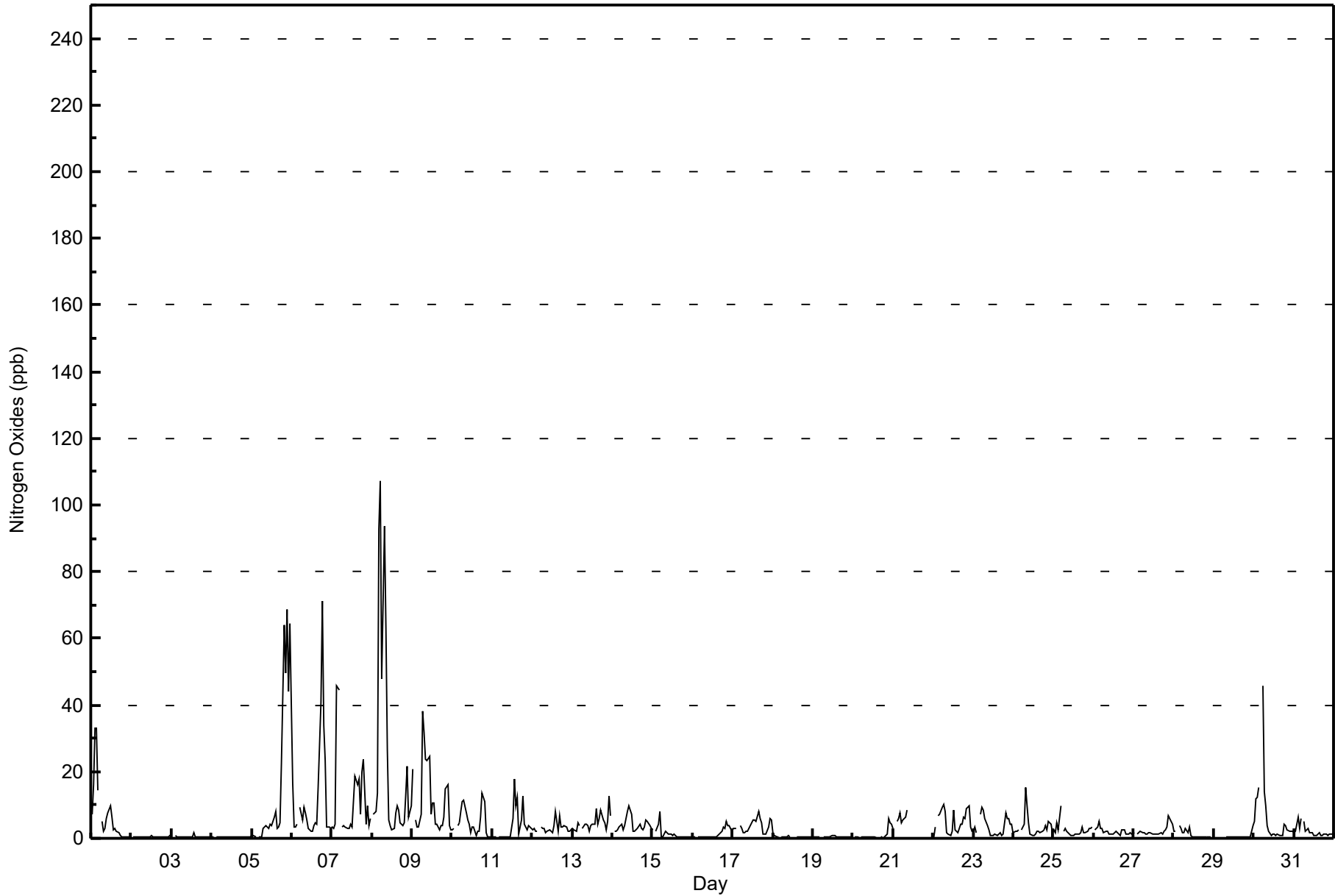
Nitrogen Oxides (NO_x) - ppb
Firebag - March 2024

Maximum Value: 107.4 ppb on Mar 8 06:00																						Maximum Daily Average: 24.6 ppb on Mar 8																						Hours in Service: 744					
Minimum Value: 0.0 ppb on Mar 21 17:00																						Minimum Daily Average: 0.3 ppb on Mar 4																						Hours of Data: 697					
Maximum Diurnal Average: 9.3 ppb at hour 6																						Minimum Diurnal Average: 2.3 ppb at hour 12																						Hours of Missing Data: 47					
Monthly Average: 4.69 ppb																						Percentiles: P ₁ = 0.1 P ₁₀ = 0.3 Q ₁ = 0.4 Median = 2.1 Q ₃ = 4.2 P ₉₀ = 9.4 P ₉₉ = 63.3																						Hours of Calibration: 36					
																																												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-Mar	7.1	15.9	33.1	33.0	14.5	Z	5.0	2.1	3.0	6.1	7.5	9.6	6.5	2.4	2.8	2.3	1.6	0.7	0.5	0.3	0.5	0.3	0.3	0.3	6.8	33.1																							
2-Mar	Z	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.6	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.5	0.7	0.3	0.7																							
3-Mar	0.6	Z	0.8	0.4	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.5																							
4-Mar	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.4	0.3	0.3	0.5																							
5-Mar	0.9	0.7	0.3	Z	0.4	0.2	0.4	3.0	4.0	3.3	2.8	4.0	3.8	6.3	8.0	2.8	3.2	4.8	22.6	64.0	49.7	68.7	44.2	64.6	15.8	68.7																							
6-Mar	16.7	3.5	3.6	4.2	Z	9.1	5.3	9.5	7.7	5.4	2.8	2.3	2.2	3.8	4.7	4.2	15.1	40.5	71.3	33.7	23.4	3.3	3.3	3.0	12.1	71.3																							
7-Mar	3.3	2.9	4.1	45.8	44.4	Z	3.4	3.8	3.3	3.1	3.1	4.2	3.6	11.1	18.6	15.9	17.7	7.3	20.1	33.9	4.4	9.7	3.9	5.9	11.5	45.8																							
8-Mar	Z	7.2	8.2	13.5	92.6	107.4	47.9	93.4	63.3	26.9	5.7	3.8	2.6	3.1	7.7	9.9	8.3	4.6	3.9	4.7	12.9	21.7	6.4	9.6	24.6	107.4																							
9-Mar	20.9	Z	5.3	3.3	3.6	7.0	37.9	31.9	23.8	23.4	24.7	7.2	10.4	10.5	4.2	4.4	2.7	3.7	3.8	6.2	15.0	16.2	4.0	2.4	11.8	37.9																							
10-Mar	2.5	2.9	Z	3.8	4.5	8.2	10.9	11.3	7.6	5.5	4.4	1.7	3.2	3.3	0.9	1.9	2.3	6.2	13.6	11.0	1.6	0.6	0.6	0.6	4.7	13.6																							
11-Mar	0.6	0.5	0.4	Z	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	6.0	17.6	9.9	12.2	1.1	5.3	12.7	4.1	3.3	2.7	3.9	3.1	3.8	17.6																							
12-Mar	2.7	3.1	2.2	2.0	Z	3.3	2.9	2.8	1.9	2.1	2.4	2.2	1.5	3.7	8.0	2.0	6.8	3.3	3.2	3.9	3.5	2.2	2.0	2.4	3.0	8.0																							
13-Mar	3.1	2.7	2.2	4.8	3.8	Z	3.0	4.0	4.2	3.9	2.1	3.9	4.0	4.3	9.1	4.1	6.1	8.3	5.4	4.6	2.5	5.1	12.7	6.9	4.8	12.7																							
14-Mar	Z	1.9	2.0	2.4	3.4	4.1	2.4	3.8	6.1	8.2	9.6	7.4	2.2	2.1	2.6	2.8	4.3	3.0	2.7	3.2	5.7	5.1	3.7	2.9	4.0	9.6																							
15-Mar	2.5	Z	2.3	4.4	8.2	0.4	0.4	1.1	1.9	1.3	1.3	1.1	1.0	1.3	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.3	8.2																							
16-Mar	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.7	1.1	2.1	3.5	2.8	5.1	4.0	3.9	2.2	1.3	5.1																							
17-Mar	2.9	3.1	2.8	Z	3.6	2.9	1.9	1.9	2.1	2.2	4.0	4.7	5.3	5.7	4.9	8.1	6.0	4.7	1.1	1.4	1.3	3.3	5.8	5.4	3.7	8.1																							
18-Mar	1.5	0.9	0.6	0.6	Z	0.5	0.5	0.4	0.4	1.0	0.6	M	M	M	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	1.5																							
19-Mar	0.3	0.2	0.2	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.7	0.9	0.7	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.9																							
20-Mar	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.2	6.1	4.7	0.9	6.1																							
21-Mar	2.9	Z	4.9	6.1	7.6	4.9	5.3	6.5	8.4	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	--	8.4																							
22-Mar	0.3	3.6	Z	6.6	7.2	9.3	10.3	8.1	1.5	1.3	0.8	2.1	8.3	2.5	2.1	1.9	4.1	4.2	6.4	6.1	8.8	9.7	3.6	2.1	4.8	10.3																							
23-Mar	2.3	3.3	1.6	Z	7.3	9.5	8.5	5.8	3.9	2.4	0.9	0.9	0.9	1.1	0.6	1.3	1.7	0.8	1.4	7.7	5.7	5.9	4.4	4.1	3.6	9.5																							
24-Mar	1.6	2.1	2.1	2.7	Z	2.6	4.2	15.3	9.6	4.6	1.2	1.0	0.9	1.1	2.0	2.2	1.9	2.1	2.6	4.0	2.3	4.9	4.2	1.6	3.3	15.3																							
25-Mar	2.5	1.5	4.5	2.4	9.9	Z	2.0	3.0	2.2	1.2	0.8	1.0	1.0	1.2	1.2	1.1	1.7	3.6	1.9	1.8	2.3	3.1	3.0	3.2	2.4	9.9																							
26-Mar	Z	2.7	3.5	5.0	2.8	2.9	1.8	2.1	2.0	1.2	1.1	1.3	1.4	1.9	1.7	1.5	0.9	2.4	2.7	1.4	1.4	1.2	1.9	1.4	2.0	5.0																							
27-Mar	1.8	Z	1.4	1.6	2.3	1.9	1.5	1.5	1.5	1.7	1.6	1.5	1.2	1.3	1.3	1.5	1.5	1.4	1.9	2.5	3.3	6.6	5.1	4.1	2.2	6.6																							
28-Mar	2.0	2.2	Z	3.7	3.1	1.6	1.7	3.1	1.8	3.2	0.8	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.2	DF	1.2	3.7																						
29-Mar	DF	DF	DF	DF	DF	DF	DF	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	3.8	--	3.8																						
30-Mar	4.9	11.8	12.4	15.3	Z	45.8	13.8	9.7	3.7	1.9	1.0	1.3	1.1	1.0	1.3	0.8	0.7	0.9	4.1	3.6	2.4	2.1	2.1	2.2	6.3	45.8																							
31-Mar	1.9	1.9	6.5	3.0	5.7	Z	5.2	2.3	2.8	1.8	1.9	1.6	1.0	0.9	1.1	1.5	1.0	0.9	1.2	1.2	1.0	1.1	1.1	1.4	2.1	6.5																							
																								3.4	3.0	4.2	6.4	9.1	9.3	5.9	7.4	5.5	3.8	2.8	2.3	2.5	3.1	3.2	2.8	3.0	3.7	6.1	6.3	5.2	6.0	4.1	4.6	Diurnal Average	
																								20.9	15.9	33.1	45.8	92.6	107.4	47.9	93.4	63.3	26.9	24.7	9.6	10.4	17.6	18.6	15.9	17.7	40.5	71.3	64.0	49.7	68.7	44.2	64.6	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				DF - DAS Failure																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Firebag - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Firebag - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	668	95.84	95.84
21 - 40	15	2.15	97.99
41 - 80	11	1.58	99.57
81 - 159	3	0.43	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Firebag - March 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	113	46	41	8	14	41	57	87	89	65	31	9	12	14	1	40	668
21 - 40	0	0	0	0	0	0	0	0	12	1	0	0	0	2	0	0	15
41 - 80	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	0	11
81 - 159	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	113	46	41	8	14	41	58	88	113	66	31	9	12	16	1	40	697

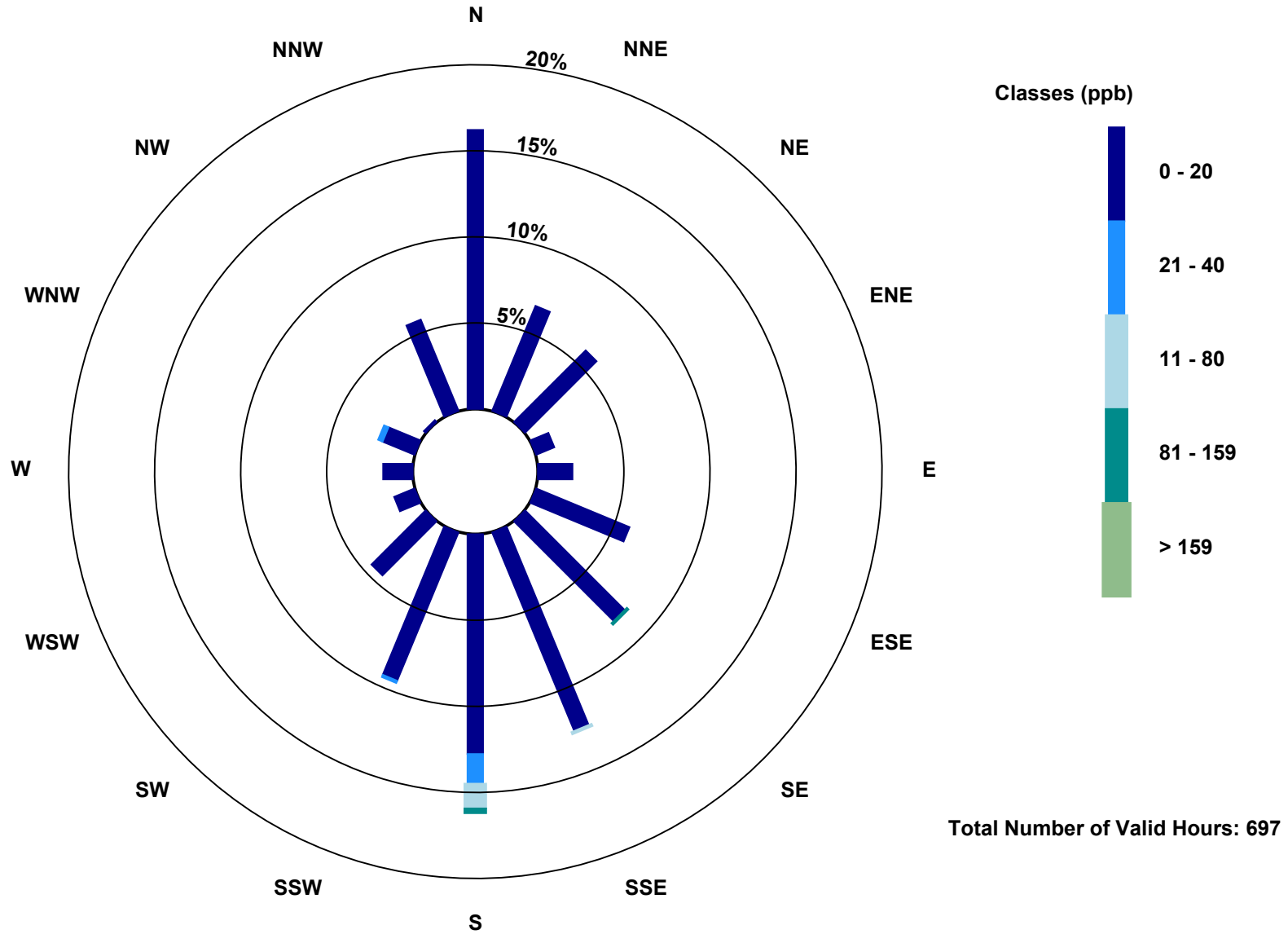
Total Number of Valid Hours: 697

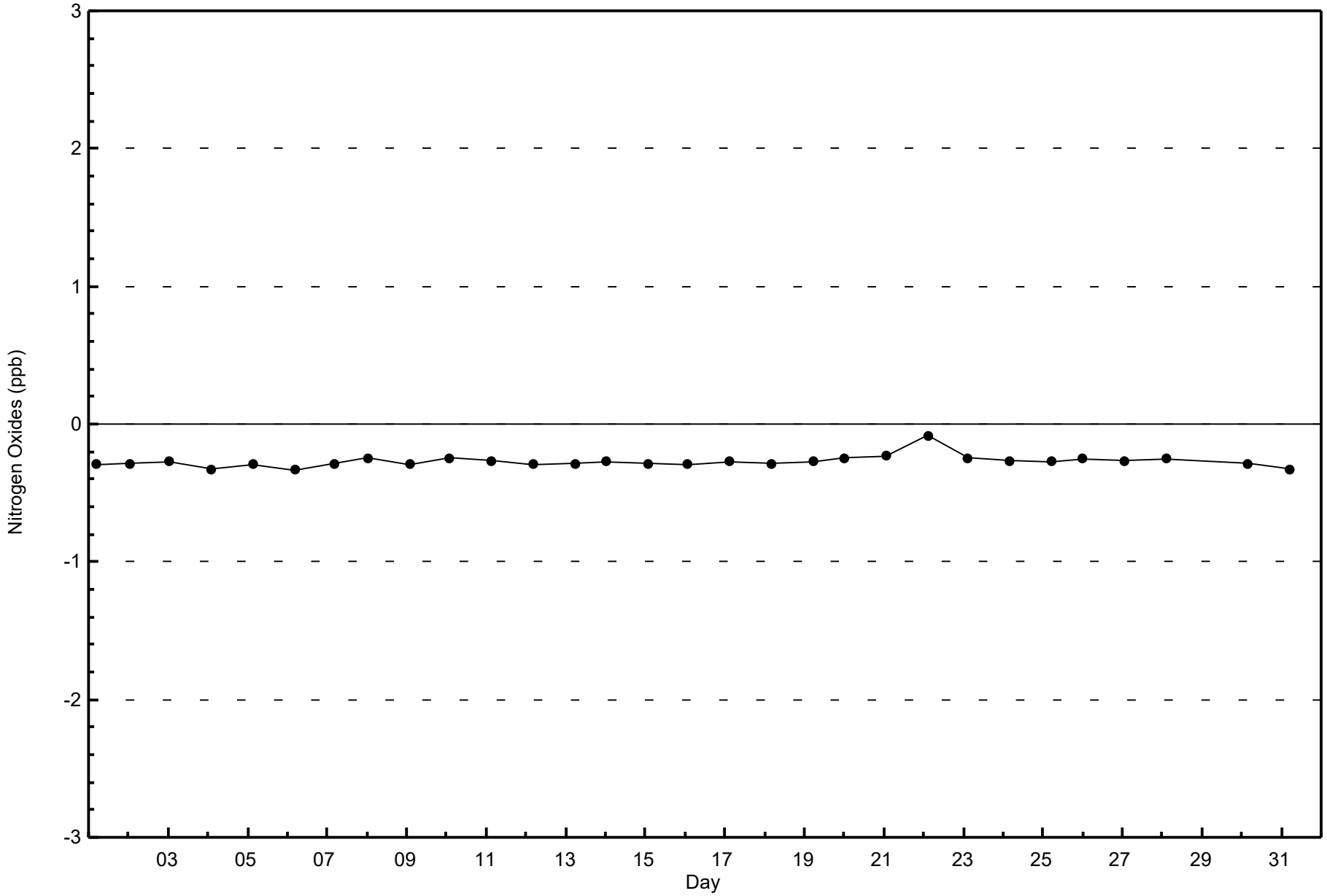
Total Number of Hours: 744

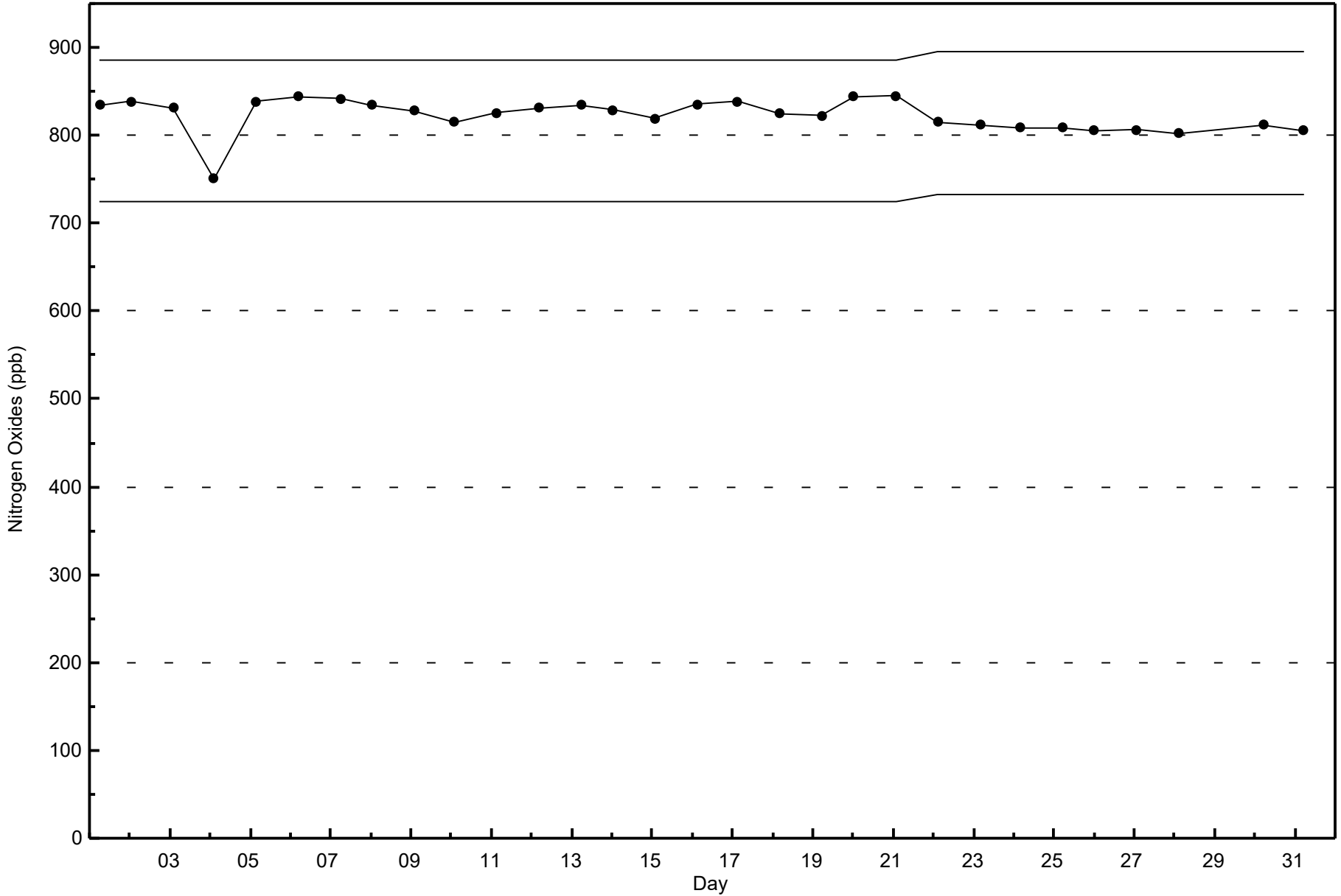


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Firebag









Wood Buffalo Environmental Association
Summary of Hour Averages

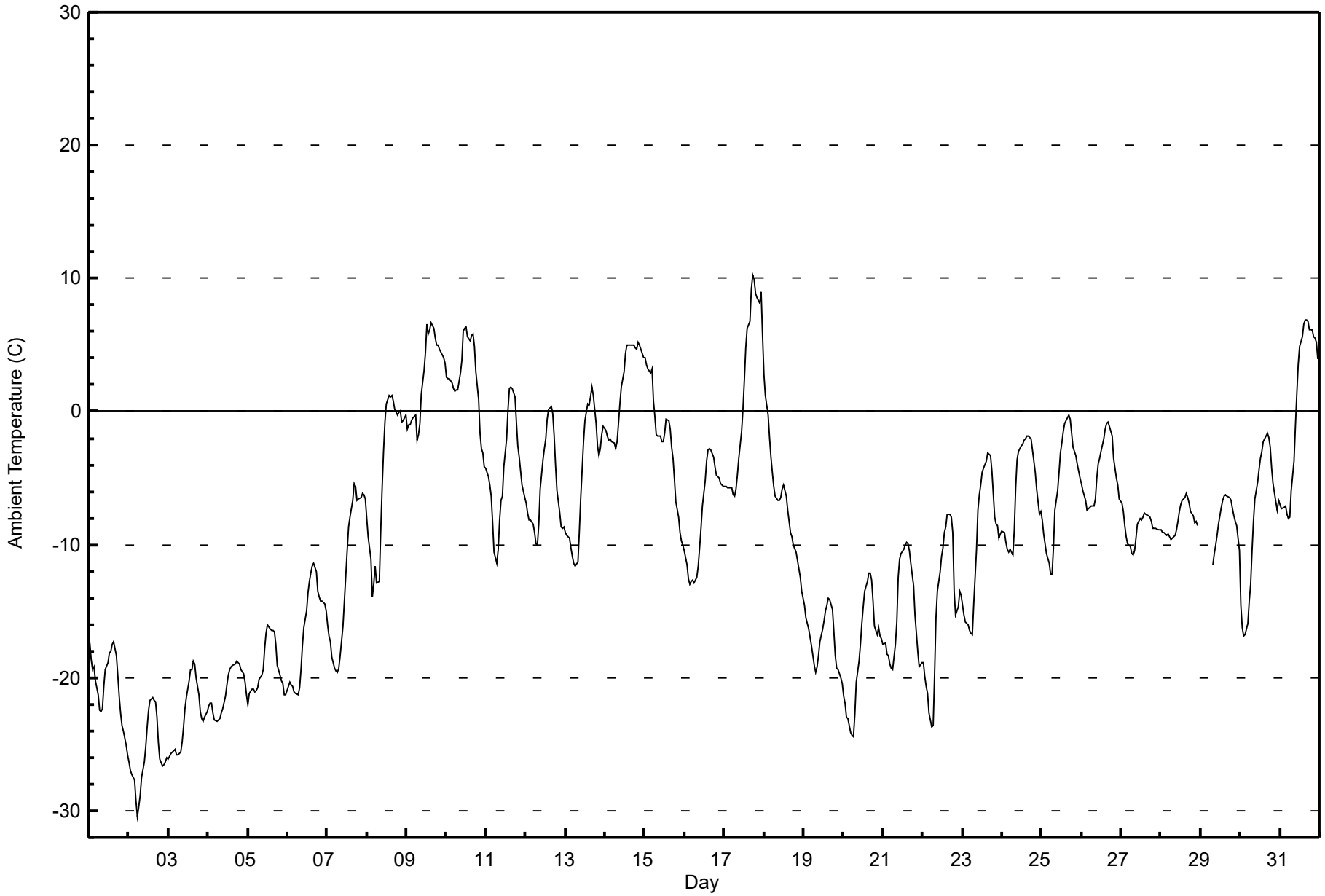
Ambient Temperature (AT) - C
Firebag - March 2024

Maximum Value: 10.3 C on Mar 17 18:00		Maximum Daily Average: 2.6 C on Mar 9		Hours in Service: 744																							
Minimum Value: -30.4 C on Mar 2 06:00		Minimum Daily Average: -25.7 C on Mar 2		Hours of Data: 736																							
Maximum Diurnal Average: -5.2 C at hour 16		Minimum Diurnal Average: -13.7 C at hour 7		Hours of Missing Data: 8																							
Monthly Average: -9.30 C		Percentiles: P ₁ = -26.9 P ₁₀ = -21.3 Q ₁ = -16.5 Median = -8.4 Q ₃ = -2.8 P ₉₀ = 1.9 P ₉₉ = 6.9		Hours of Calibration: 0																							
				Percent Operational Time: 98.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	-17.4	-18.7	-19.4	-19.2	-20.2	-21.2	-22.4	-22.5	-22.4	-20.7	-19.4	-18.9	-18.2	-18.0	-17.5	-17.3	-18.3	-19.8	-21.4	-22.7	-23.5	-24.1	-25.0	-25.8	-20.6	-17.3	
2-Mar	-26.3	-27.0	-27.3	-27.7	-29.2	-30.4	-29.7	-28.8	-27.5	-26.3	-25.2	-23.7	-22.4	-21.7	-21.5	-21.7	-21.8	-22.9	-24.9	-26.1	-26.6	-26.5	-26.3	-26.0	-25.7	-21.5	
3-Mar	-26.1	-25.7	-25.6	-25.5	-25.4	-25.8	-25.8	-25.6	-24.8	-23.7	-22.4	-21.5	-20.2	-19.4	-19.4	-18.8	-19.0	-20.1	-21.3	-22.5	-23.0	-23.2	-22.9	-22.5	-22.9	-18.8	
4-Mar	-22.1	-21.9	-22.0	-22.2	-23.1	-23.3	-23.1	-23.0	-22.6	-22.3	-21.4	-20.6	-19.9	-19.4	-19.2	-19.1	-19.0	-18.8	-18.8	-18.9	-19.4	-19.7	-20.4	-21.3	-20.9	-18.8	
5-Mar	-22.0	-21.2	-20.9	-20.9	-21.1	-21.0	-20.7	-20.1	-19.8	-19.4	-17.8	-16.7	-16.0	-16.4	-16.5	-16.4	-16.5	-17.5	-19.1	-19.9	-20.3	-20.5	-21.2	-21.3	-19.3	-16.0	
6-Mar	-20.6	-20.3	-20.6	-20.7	-21.0	-21.1	-21.3	-20.7	-19.4	-17.6	-16.3	-14.9	-13.6	-12.8	-12.2	-11.6	-11.4	-12.1	-13.5	-13.9	-14.2	-14.2	-14.5	-15.0	-16.4	-11.4	
7-Mar	-16.0	-16.9	-17.3	-18.4	-19.3	-19.5	-19.6	-19.3	-18.4	-16.1	-14.2	-12.3	-10.5	-8.7	-7.9	-6.7	-5.5	-5.6	-6.6	-6.6	-6.5	-6.1	-6.3	-6.5	-12.1	-5.5	
8-Mar	-8.0	-9.4	-11.0	-13.9	-13.0	-11.6	-12.8	-12.7	-9.0	-5.8	-3.0	-0.8	0.5	1.2	1.1	1.2	0.8	0.1	-0.3	-0.1	0.1	-0.8	-0.7	-0.2	-4.5	1.2	
9-Mar	-1.3	-1.0	-1.0	-0.7	-0.5	-0.2	-2.2	-1.8	-0.9	1.3	3.1	4.5	6.6	5.8	6.1	6.7	6.2	5.5	5.0	5.0	4.6	4.3	4.0	3.6	2.6	6.7	
10-Mar	2.6	2.4	2.5	2.2	1.7	1.5	1.6	1.6	2.9	3.9	6.0	6.3	6.4	5.7	5.3	5.7	5.8	4.9	3.0	0.9	-1.7	-2.8	-3.1	-4.1	2.6	6.4	
11-Mar	-4.3	-4.9	-5.5	-6.3	-8.4	-10.6	-11.4	-10.4	-8.2	-6.7	-6.3	-4.2	-2.1	0.2	1.7	1.9	1.7	1.1	-0.8	-2.5	-3.4	-4.4	-5.6	-6.5	-4.4	1.9	
12-Mar	-6.9	-7.6	-8.2	-8.1	-8.5	-9.1	-9.9	-10.0	-8.4	-5.9	-3.7	-2.8	-2.0	-0.6	0.2	0.4	-0.2	-1.8	-4.1	-6.0	-7.6	-8.7	-8.8	-8.6	-5.7	0.4	
13-Mar	-9.1	-9.3	-9.6	-10.2	-10.9	-11.4	-11.6	-11.3	-9.0	-6.5	-4.3	-2.2	-0.6	0.6	0.4	1.1	1.8	1.2	-0.9	-2.6	-3.4	-2.8	-1.7	-1.1	-4.7	1.8	
14-Mar	-1.4	-1.8	-2.1	-2.1	-2.3	-2.4	-2.8	-2.2	-0.9	0.6	1.9	3.0	4.4	5.0	5.0	5.0	5.0	4.8	4.7	5.2	5.0	4.4	4.0	1.9	5.2	4.0	
15-Mar	4.0	3.5	3.2	2.9	3.2	0.8	-0.4	-1.7	-1.8	-1.9	-2.3	-2.2	-1.6	-0.6	-0.7	-1.3	-2.7	-3.5	-5.1	-6.8	-8.0	-9.1	-9.8	-10.0	-2.2	4.0	
16-Mar	-10.4	-11.5	-12.6	-13.0	-12.7	-12.7	-12.9	-12.4	-11.6	-10.3	-8.8	-7.1	-5.2	-3.8	-2.9	-2.8	-2.8	-3.4	-4.2	-4.7	-4.9	-5.0	-5.4	-5.7	-7.8	-2.8	
17-Mar	-5.6	-5.6	-5.7	-5.7	-5.8	-6.3	-6.3	-5.9	-4.7	-3.6	-1.6	0.2	2.4	4.8	6.2	6.8	9.1	10.3	9.9	8.9	8.6	8.2	9.0	5.7	1.4	10.3	
18-Mar	2.8	1.2	-0.3	-2.0	-3.4	-4.6	-5.6	-6.4	-6.7	-6.7	-6.5	-5.8	-5.6	-6.4	-7.4	-8.3	-9.1	-9.4	-10.1	-10.6	-11.2	-11.8	-12.4	-13.5	-6.7	2.8	
19-Mar	-14.6	-15.5	-15.9	-16.4	-17.0	-17.6	-19.1	-19.6	-19.2	-18.3	-17.3	-16.4	-15.7	-14.9	-14.5	-14.1	-14.1	-14.9	-16.6	-18.3	-19.3	-19.4	-20.0	-20.5	-17.0	-14.1	
20-Mar	-21.4	-21.9	-23.0	-23.0	-24.1	-24.3	-24.4	-22.8	-20.3	-18.8	-17.5	-15.9	-14.6	-13.5	-12.7	-12.1	-12.1	-12.7	-14.2	-16.2	-16.8	-16.2	-16.9	-17.1	-18.0	-12.1	
21-Mar	-17.5	-17.4	-18.2	-18.3	-18.9	-19.3	-19.4	-17.5	-15.9	-12.5	-11.0	-10.7	-10.4	-10.1	-9.9	-10.0	-10.4	-11.4	-13.1	-15.3	-16.7	-18.1	-19.2	-18.9	-15.0	-9.9	
22-Mar	-18.8	-19.9	-20.6	-21.2	-22.7	-23.7	-23.6	-19.8	-15.5	-13.5	-12.0	-10.9	-10.2	-9.1	-8.7	-7.7	-7.7	-8.0	-9.1	-13.5	-15.3	-14.7	-13.5	-13.8	-14.7	-7.7	
23-Mar	-14.5	-15.3	-15.8	-16.1	-16.4	-16.6	-16.7	-14.5	-10.4	-7.4	-6.3	-5.5	-4.5	-4.2	-3.7	-3.1	-3.2	-3.3	-4.4	-7.9	-8.5	-8.5	-9.5	-9.2	-9.4	-3.1	
24-Mar	-9.0	-9.1	-9.9	-10.4	-10.6	-10.4	-10.8	-8.9	-5.7	-3.7	-2.9	-2.6	-2.5	-2.1	-2.0	-1.9	-1.9	-2.0	-2.9	-3.7	-4.6	-5.8	-7.7	-7.5	-5.8	-1.9	
25-Mar	-8.2	-9.2	-9.9	-10.7	-11.4	-12.3	-12.3	-10.2	-7.4	-6.0	-4.6	-3.2	-2.4	-1.5	-0.9	-0.5	-0.3	-0.6	-1.6	-2.7	-3.3	-3.9	-4.5	-5.0	-5.5	-0.3	
26-Mar	-5.4	-5.9	-6.6	-7.4	-7.3	-7.2	-7.1	-7.1	-6.5	-5.0	-3.9	-3.5	-3.0	-2.1	-1.3	-0.9	-0.8	-1.1	-1.8	-3.5	-4.3	-5.0	-5.6	-6.6	-4.5	-0.8	
27-Mar	-6.9	-7.6	-8.6	-9.4	-9.9	-10.1	-10.7	-10.8	-10.5	-9.6	-8.5	-8.1	-8.2	-7.9	-7.7	-7.8	-7.8	-8.0	-8.3	-8.8	-8.8	-8.8	-8.9	-8.9	-8.8	-6.9	
28-Mar	-8.8	-9.0	-9.1	-9.3	-9.2	-9.4	-9.6	-9.5	-9.3	-8.9	-8.3	-7.5	-7.0	-6.6	-6.4	-6.2	-6.5	-6.9	-7.5	-7.9	-8.4	-8.3	-8.6	DF	-8.2	-6.2	
29-Mar	DF	DF	DF	DF	DF	DF	DF	DF	-11.5	-10.7	-10.0	-9.3	-8.5	-7.2	-6.6	-6.4	-6.3	-6.3	-6.4	-6.7	-7.3	-7.8	-8.2	-8.6	-10.4	--	-6.3
30-Mar	-14.6	-16.2	-16.9	-16.8	-15.9	-14.3	-13.0	-10.5	-8.3	-6.5	-5.3	-4.3	-3.5	-3.0	-2.3	-1.8	-1.6	-1.9	-2.7	-4.2	-5.4	-6.8	-7.4	-6.7	-7.9	-1.6	
31-Mar	-7.0	-7.3	-7.2	-7.0	-7.7	-8.0	-7.9	-5.9	-3.8	-1.1	1.3	3.5	4.9	5.7	6.6	6.9	6.9	6.8	6.1	6.2	5.7	5.6	5.2	4.0	0.5	6.9	
																								Diurnal Average			
																								Diurnal Maximum			
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Firebag - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Firebag - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	106	14.40	14.40
-20 - 0	526	71.47	85.87
0 - 10	103	13.99	99.86
10 - 20	1	0.14	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 736

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

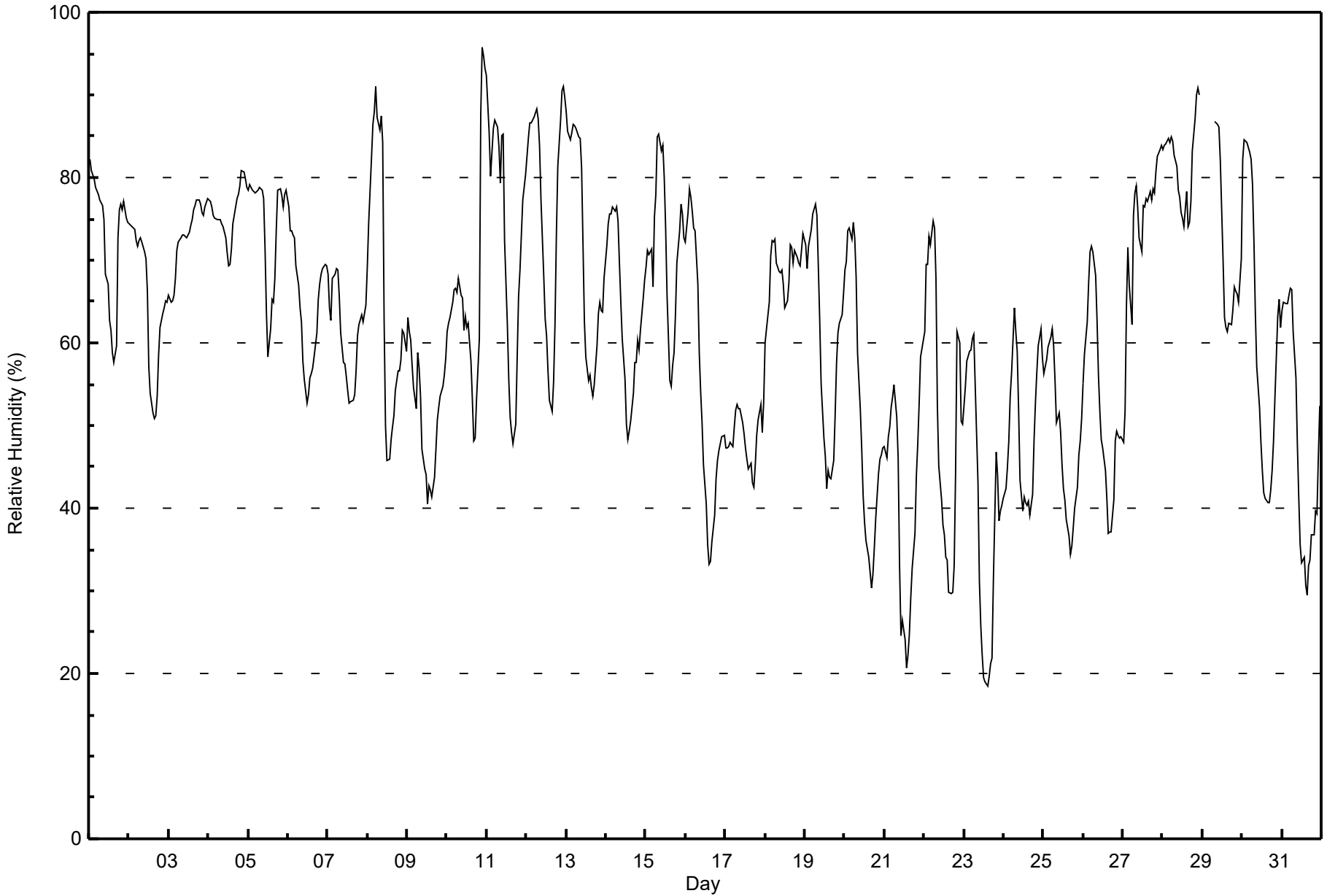
Relative Humidity (RH) - %
Firebag - March 2024

Maximum Value: 95.8 % on Mar 10 22:00		Maximum Daily Average: 81.7 % on Mar 28		Hours in Service: 744																							
Minimum Value: 18.5 % on Mar 23 15:00		Minimum Daily Average: 39.2 % on Mar 23		Hours of Data: 736																							
Maximum Diurnal Average: 72.5 % at hour 7		Minimum Diurnal Average: 49.6 % at hour 16		Hours of Missing Data: 8																							
Monthly Average: 62.05 %		Percentiles: P ₁ = 22.2 P ₁₀ = 41.0 Q ₁ = 50.5 Median = 63.3 Q ₃ = 74.4 P ₉₀ = 82.1 P ₉₉ = 90.3		Hours of Calibration: 0																							
				Percent Operational Time: 98.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	82.2	80.9	80.4	79.9	78.9	77.9	77.3	77.0	76.6	74.9	68.3	67.1	62.8	61.5	58.7	57.7	59.7	72.6	76.1	76.8	76.0	77.1	75.1	74.6	72.9	82.2	
2-Mar	74.4	74.3	74.0	73.7	72.4	71.6	72.3	72.6	72.3	71.0	70.2	66.3	57.2	53.9	51.5	50.8	51.2	53.5	58.5	61.9	63.6	64.2	65.1	64.9	65.1	74.4	
3-Mar	65.7	64.9	65.1	65.8	67.7	71.2	72.1	72.7	73.0	73.1	72.9	72.7	73.3	74.2	75.0	76.1	76.6	77.3	77.2	76.8	75.8	75.5	76.4	77.5	72.9	77.5	
4-Mar	77.3	77.2	76.4	75.5	75.1	74.9	74.9	74.9	74.4	74.0	72.7	70.8	69.3	69.6	71.3	74.4	76.5	77.5	77.9	79.0	80.8	80.7	79.8	78.8	75.6	80.8	
5-Mar	78.4	79.2	78.5	78.4	78.2	78.3	78.5	78.8	78.6	77.5	71.4	63.5	58.3	61.7	65.2	64.8	67.8	73.5	78.4	78.6	77.7	76.4	78.0	78.5	74.1	79.2	
6-Mar	76.4	73.6	73.6	73.1	72.7	69.3	67.0	64.2	62.5	57.9	55.6	52.7	53.8	55.8	56.2	57.0	58.4	61.2	65.3	67.1	68.4	69.0	69.5	69.3	64.6	76.4	
7-Mar	68.3	64.3	62.8	67.8	68.3	69.0	68.8	65.7	61.2	57.7	57.4	56.0	54.3	52.8	52.9	53.1	53.7	56.6	60.8	62.2	63.4	62.5	63.6	64.6	61.2	69.0	
8-Mar	69.1	74.5	82.3	86.4	88.0	91.0	87.3	85.7	87.4	84.2	62.9	50.0	45.7	46.0	48.3	49.8	51.2	54.3	56.6	56.5	58.0	61.6	61.2	59.0	66.5	91.0	
9-Mar	63.0	61.3	60.3	57.3	54.6	52.1	58.8	56.9	53.5	47.1	44.8	44.0	40.5	42.7	42.2	41.3	43.7	47.2	50.7	52.3	53.5	54.8	56.1	58.1	51.5	63.0	
10-Mar	61.3	62.4	63.1	64.9	66.4	66.6	66.2	67.7	65.7	65.4	61.5	63.2	61.8	62.3	57.8	53.3	48.1	48.5	53.2	60.5	87.6	95.8	94.7	93.2	66.3	95.8	
11-Mar	92.5	85.5	80.2	83.0	86.0	86.9	86.1	83.8	79.3	85.0	85.2	72.4	62.2	55.6	51.0	49.1	47.8	50.1	58.1	65.6	68.9	73.1	77.2	80.4	72.7	92.5	
12-Mar	82.5	84.7	86.6	86.6	87.3	87.9	88.3	87.0	83.8	77.4	68.0	62.9	60.8	56.7	53.0	51.7	55.2	62.2	73.1	81.4	86.9	90.5	91.0	89.7	76.5	91.0	
13-Mar	87.9	85.6	84.6	85.4	86.4	86.3	85.9	85.0	84.7	81.2	71.8	62.6	58.3	55.4	56.1	54.5	53.6	54.9	59.7	63.5	64.8	63.9	63.8	67.8	71.0	87.9	
14-Mar	71.7	74.3	75.5	75.6	76.4	75.9	76.4	74.7	69.7	64.8	60.4	55.5	50.2	48.3	49.3	50.5	53.9	57.6	57.7	60.3	59.1	61.4	65.4	67.6	63.9	76.4	
15-Mar	69.1	71.3	70.8	71.4	66.8	75.2	78.0	84.8	85.2	83.3	83.8	79.9	73.9	65.8	55.4	54.8	57.2	58.8	63.5	69.6	73.6	76.8	75.5	72.7	71.5	85.2	
16-Mar	72.2	75.8	78.6	77.6	75.9	73.9	73.6	67.1	58.8	54.2	50.4	45.2	40.6	35.5	33.3	33.6	36.0	39.1	43.6	45.7	46.9	47.8	48.6	48.7	54.3	78.6	
17-Mar	47.4	47.2	47.4	47.9	47.5	49.9	51.8	52.6	52.1	52.1	50.4	49.1	47.3	45.9	44.8	45.4	43.1	42.6	45.2	48.8	50.6	52.6	49.2	52.9	48.5	52.9	
18-Mar	60.0	61.6	64.9	70.5	72.4	72.1	72.5	69.7	68.7	68.4	68.8	67.1	64.2	65.1	67.2	71.8	71.6	69.6	71.1	70.4	69.7	69.2	71.1	73.3	68.8	73.3	
19-Mar	71.8	69.1	71.7	72.7	73.7	75.5	76.9	75.4	69.4	62.8	55.1	48.4	46.3	42.4	44.7	43.7	43.6	45.8	51.1	57.4	61.2	62.3	63.4	66.0	60.4	76.9	
20-Mar	68.8	69.9	73.5	73.9	72.5	74.6	72.6	68.0	58.8	51.9	47.2	41.6	38.3	36.0	34.0	32.3	30.4	32.1	35.2	38.8	44.2	46.0	46.4	47.3	51.4	74.6	
21-Mar	47.5	46.2	48.6	49.8	52.1	53.4	54.9	51.1	46.1	33.1	24.5	26.4	24.0	20.7	22.3	24.7	29.2	32.7	37.0	43.9	47.9	52.7	58.3	60.4	41.1	60.4	
22-Mar	61.3	69.4	69.6	72.9	71.8	74.8	73.9	67.8	52.3	45.1	41.0	37.9	36.8	34.1	33.7	29.8	29.6	29.8	33.1	44.3	61.4	59.9	50.5	50.1	51.3	74.8	
23-Mar	52.3	54.8	57.8	58.9	59.1	60.6	61.0	55.0	43.1	31.2	25.7	22.2	19.4	19.0	18.5	19.7	21.2	21.9	31.3	46.8	43.9	38.4	39.7	40.3	39.2	61.0	
24-Mar	41.2	42.3	45.0	48.1	53.5	56.4	64.2	61.3	59.0	51.9	43.4	39.6	41.4	40.6	40.3	40.8	39.2	41.6	48.2	52.7	56.5	59.7	61.8	58.1	49.4	64.2	
25-Mar	56.3	57.1	57.9	59.4	60.8	61.7	59.6	55.3	50.3	51.5	49.2	45.2	42.3	41.0	38.7	36.5	34.4	35.4	37.7	39.9	42.6	46.5	48.1	50.9	48.3	61.7	
26-Mar	55.1	58.6	62.5	67.3	71.0	71.8	71.1	68.1	62.7	56.1	51.7	48.2	47.2	44.7	41.3	36.9	37.1	37.2	41.1	48.1	49.3	48.8	48.5	48.6	53.0	71.8	
27-Mar	47.9	51.8	64.6	71.4	66.9	62.2	75.4	78.2	78.9	76.5	72.8	71.1	76.7	76.5	77.4	77.0	78.3	77.4	78.7	78.1	80.7	82.5	83.3	83.9	73.7	83.9	
28-Mar	83.3	83.9	84.0	84.7	84.2	84.9	84.3	82.7	81.4	78.5	77.7	75.7	75.1	74.0	78.3	74.1	74.6	77.2	83.3	87.2	90.0	90.8	90.0	DF	81.7	90.8	
29-Mar	DF	DF	DF	DF	DF	DF	DF	86.8	86.7	86.4	86.0	82.1	69.8	63.1	61.9	61.4	62.4	62.2	64.1	66.9	66.3	65.8	65.0	70.2	--	86.8	
30-Mar	82.1	84.6	84.5	84.2	83.1	82.2	79.2	72.5	63.7	57.2	52.3	48.0	44.6	41.9	41.2	40.7	40.6	42.1	44.7	48.1	53.4	63.3	65.2	61.9	60.9	84.6	
31-Mar	64.0	65.0	64.7	64.8	65.7	66.6	66.4	61.3	55.7	47.7	41.3	35.6	33.4	34.0	30.7	29.5	33.0	33.7	36.7	36.8	39.7	39.4	46.2	52.5	47.7	66.6	
		67.7	68.4	69.6	71.0	71.2	71.8	72.5	71.1	67.6	63.8	59.5	55.6	52.6	50.9	50.1	49.6	50.3	52.5	56.4	60.2	63.3	64.8	65.4	65.4	Diurnal Average	
		92.5	85.6	86.6	86.6	88.0	91.0	88.3	87.0	87.4	86.4	86.0	82.1	76.7	76.5	78.3	77.0	78.3	77.5	83.3	87.2	90.0	95.8	94.7	93.2	Diurnal Maximum	
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Firebag - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Firebag - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	4	0.54	0.54
20 - 40	61	8.29	8.83
40 - 60	247	33.56	42.39
60 - 80	339	46.06	88.45
80 - 100	85	11.55	100.00

Total Number of Valid Hours: 736

Total Number of Hours: 744



Maximum Speed: 36 km/h on Mar 26 11:00	Maximum Daily Speed Average: 26.6 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 5 12:00	Minimum Daily Speed Average: 2.4 km/h on Mar 22	Hours of Data: 736
Maximum Diurnal Speed Average: 5.4 km/h at hour 22	Minimum Diurnal Speed Average: 3.2 km/h at hour 15	Hours of Missing Data: 8
Monthly Average Velocity: 4.0 km/h 156.5 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 10 Median = 15 Q ₃ = 20 P ₉₀ = 25 P ₉₉ = 32	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-Mar	WSW6	WNW6	WNW7	WNW9	W8	W8	W11	W11	W12	WNW14	WNW15	WNW17	WNW18	WNW19	WNW18	WNW19	NNW16	N11	N9	NNW6	NNW7	N13	N10	N8	WNW9.8	WNW19
2-Mar	NNW4	N8	N6	N5	NNE5	N7	N6	N7	N9	N10	NNW11	N9	NNW10	N10	NNE14	NNE16	NNE15	NE11	NE7	NNE10	NNE14	NE13	NE15	NE10	NNE9.0	NNE16
3-Mar	NE12	NE13	NE15	NE15	NE15	NE15	NE16	NE16	NE16	NE19	NE17	NE15	NE17	NNE16	NNE15	NNE16	NNE16	NNE17	N17	N18	N18	N18	N20	N22	NNE15.5	N22
4-Mar	N24	N24	N23	N21	NNW20	N22	N21	N20	N21	N18	N21	N22	N21	N18	N16	N13	N9	NNE9	N9	N10	N10	N9	N8	N16.9	N24	
5-Mar	NE5	ENE5	NE5	NNE3	NE5	NE5	NE4	E5	E7	ESE7	S4	SE1	SE5	SSE9	SSE11	SSW11	SSW10	SW8	S8	S10	S13	S11	S11	S10	SSE4.3	S13
6-Mar	S14	S17	SSW16	SSW18	SSW16	SSW17	SSW20	SSW21	SSW20	SSW22	SSW22	SSW25	SSW24	SSW26	SSW25	SSW25	S22	S19	S17	S19	S19	SSW21	SSW22	SSW24	SSW20.3	SSW26
7-Mar	SSW24	SSW26	S22	S19	S20	S23	SSW24	SSW24	SSW24	SSW27	SSW27	SSW25	SSW26	S25	S26	S25	S23	S17	S16	S17	SSW15	S16	SSW14	SSW13	S21.4	SSW27
8-Mar	SW11	SW7	WSW5	WNW2	SE2	S6	SSE5	S6	S7	SSW10	SSW12	SSW15	SSW16	SSW16	S16	SSE18	SSE18	SSE20	SSE21	SSE25	S23	S23	S21	S21	S12.5	SSE25
9-Mar	S18	S19	S18	SSW20	SSW20	SSW18	S14	S16	S17	S20	S20	SSE19	SSE22	SSE22	SSE24	SSE25	SSE22	SSE21	SSE17	SSE19	S18	S18	SSW16	SSW15	S18.5	SSE25
10-Mar	SSW15	SSW16	SSW18	SW17	SW17	SW13	SW15	SW16	SW17	WSW15	W20	W23	WNW24	WNW21	W22	W22	W20	WNW14	WNW9	NNW6	NNE13	NE14	NNE14	NNE14	W10.5	WNW24
11-Mar	NNE15	NNE12	NNE16	N9	N7	N6	NNE6	N7	N8	NNE8	N7	NE7	NE7	ESE3	S2	ENE6	NE13	ENE12	E12	ESE12	ESE16	ESE15	ESE10	SE12	ENE6.5	ESE16
12-Mar	SE11	SE13	SE15	SE17	SE17	ESE18	SE16	SE14	SE18	SE18	SSE17	SE13	SE13	SE12	ESE12	SE13	ESE14	ESE14	ESE15	ESE16	ESE19	SE13	SE14	SE11	SE14.5	ESE19
13-Mar	SE10	SE11	SE15	SE12	SE11	SE12	SE12	SE13	SSE14	SSE16	SSE18	SSE18	SSE17	S15	S16	SSE15	SSE15	SSE15	SSE14	SSE15	SSE16	SSE17	S16	SSW15	SSE14.0	SSE18
14-Mar	SSW16	SSW15	SSW15	SSW14	SSW16	SSW17	SSW17	SW18	SW17	SW17	SW19	SW20	SW21	SW18	SW17	SW20	SSW17	SW17	SW17	WSW19	WSW20	WSW13	WSW10	SW16.4	SW21	
15-Mar	W9	WSW15	WSW16	W15	NW18	NNW30	NNW32	NNW32	NNW29	NNW31	NNW27	NNW25	NNW22	NNW21	NNW25	N23	N18	N14	N13	N10	N10	N8	NNE11	NNE11	NNW17.0	NNW32
16-Mar	NNE9	NNE9	NNE7	N9	N8	N10	NNE10	NNE13	NNE13	NE12	NE11	NE9	NE8	NNE6	NE6	NE9	ENE8	ESE9	ESE10	SE10	SSE13	SSE15	SSE17	SE16	ENE6.2	SSE17
17-Mar	SSE19	SSE21	SSE22	SSE22	SSE23	SSE21	SSE24	SSE26	SSE28	SSE26	SSE25	SSE28	S29	S28	S28	S27	S30	S27	SSW23	S19	SSW20	SW18	WNW15	N24	S20.0	S30
18-Mar	N18	N21	NNW22	NNW20	NNW22	NNW25	NNW26	NNW26	NNW28	NNW26	NNW27	NNW23	NNW25	NNW25	N26	N25	N24	N23	N21	N19	N20	N24	N21	N19	N23.0	NNW28
19-Mar	N18	N18	NNE14	N16	N17	N16	N15	N14	NNW18	N14	NNW15	NNW17	NNW17	NNW18	NNW20	N15	N14	N14	N9	N7	NNE7	NE5	NE10	N6	N13.6	NNW20
20-Mar	N7	N6	NNE7	NNE7	NNE7	NNE5	NNE6	NE6	NNE10	N9	N8	N8	N8	NNE7	N8	N8	NNE8	NNE9	NNE6	NE7	ENE9	E9	SE10	ESE12	NNE6.1	ESE12
21-Mar	ESE11	ESE11	ESE11	ESE10	ESE11	ESE11	ESE6	E5	SE3	NE6	NE10	NNE13	NNE15	NNE16	N17	N18	N16	N17	N14	N12	NNE12	NNE9	NE7	NE8	NE8.1	N18
22-Mar	ENE9	ESE3	SSE5	S5	S4	SSE3	S3	SSW5	SW4	S1	SW2	S3	ESE4	E3	ESE3	SW5	NNW6	NNW6	NE3	NE3	SE3	S6	S11	S14	SSE2.4	S14
23-Mar	S13	S12	S10	S9	SSE10	SSE8	SSE9	S9	S8	S7	SW8	SW7	SW6	S5	W4	SW6	SSW7	SW7	SSW6	SSE4	SE9	SSE12	SSE11	SSE12	S7.5	S13
24-Mar	S14	S14	S10	S10	S8	SSW9	S6	S4	S7	SSW9	SSE13	S14	S12	S13	SSE10	SSE13	SSE11	SSE12	SSE13	SSE13	SE13	SE12	SE12	SE15	SSE10.5	SE15
25-Mar	SE15	SE15	SE14	SE15	SE13	SE14	SE15	SE18	SSE23	S27	S26	S27	S29	SSE27	S29	SSE27	SSE27	SSE26	SSE22	SSE20	SSE23	S26	S25	S24	SSE21.2	S29
26-Mar	S22	SSE20	SSE21	SSE20	SSE23	SSE25	SSE26	SSE28	SSE28	S33	S36	S36	S35	S36	SSE34	SSE33	SSE30	SSE26	SE23	SE23	SE23	SE26	SE23	SE25	SSE26.6	S36
27-Mar	SE25	SE27	SE27	SE26	SE24	SE25	SE26	SE27	SE28	SE30	ESE32	ESE33	ESE31	ESE28	ESE26	ESE25	ESE23	ESE24	ESE21	ESE22	ESE21	E19	E18	E16	ESE24.7	ESE33
28-Mar	ESE19	ESE17	E15	E13	E13	E13	E14	ENE12	E13	E12	ENE9	NE10	NE12	NE12	N13	N15	N15	N14	N12	NNW13	NNW12	N10	NNE10	DF	NE9.4	ESE19
29-Mar	DF	DF	DF	DF	DF	DF	DF	N8	N9	N12	N15	N16	N14	N14	N15	N14	N14	N12	N10	N7	N6	NNW6	NNW6	NNW1	---	N16
30-Mar	NNW2	S4	S5	S6	S7	S8	S10	S12	S18	S18	SSW18	S15	S17	S18	S19	SSE20	S21	SSE18	SSE13	SE12	SE15	SE15	SSE15	SSE18	S12.8	S21
31-Mar	SSE18	SSE19	S17	S16	S17	S18	S15	SSW19	SSW20	SSW18	SSW16	SW19	SW20	SW21	SW22	SSW24	SSW22	S21	S19	S23	S25	S30	S29	S29	S19.8	S30

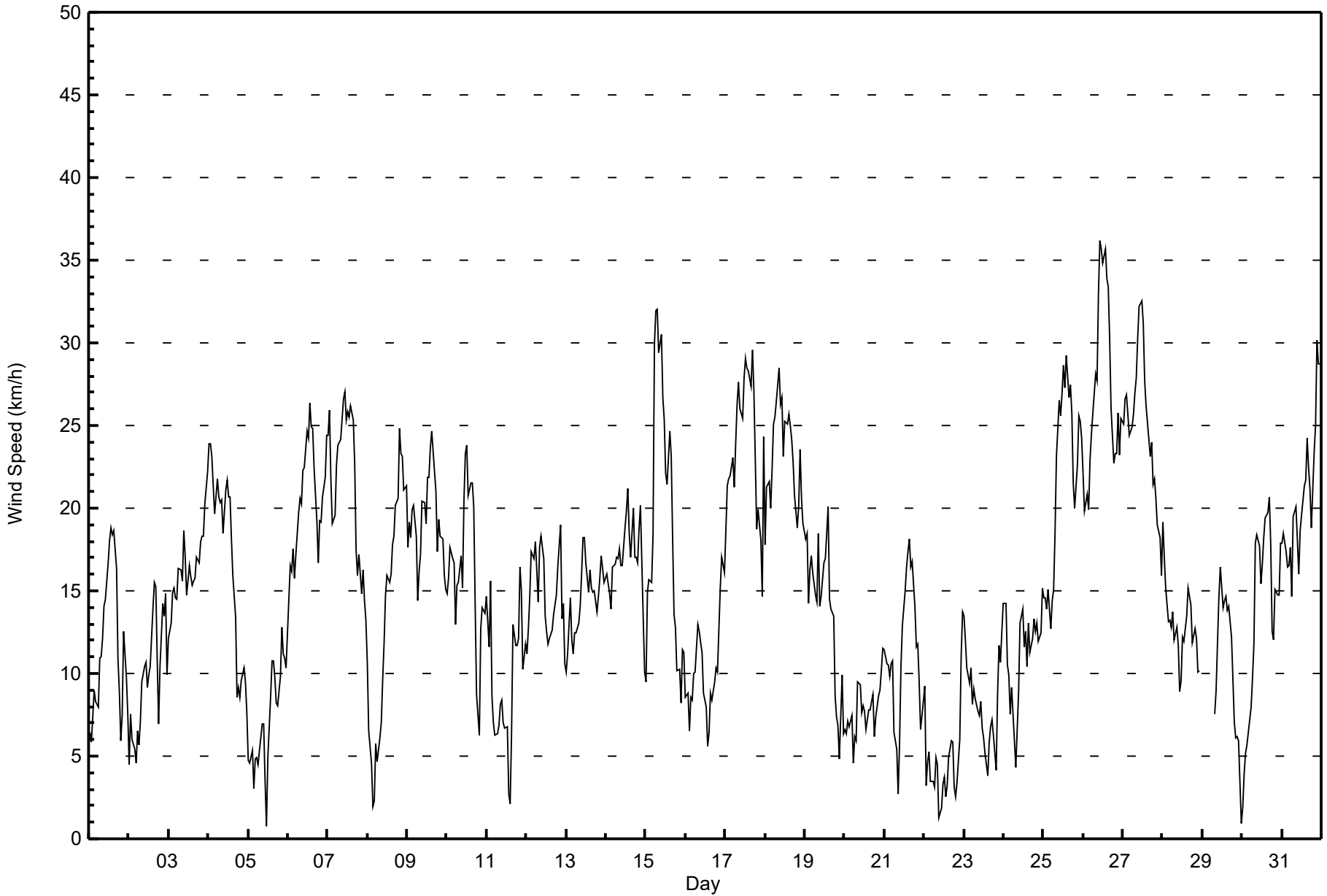
SE4.8 SSE5.1 SSE4.7 SSE4.2 SSE3.8 SSE3.3 SE3.4 SSE3.3 SSE3.6 S3.8 S3.8 S3.6 S3.6 S3.7 S3.2 S3.5 SSE3.4 SE3.9 SE4.3 SE5.0 SE5.4 SSE5.4 SSE4.9 SSE5.3	Diurnal Average
SE25 SE27 SE27 SE26 SE24 NNW30 NNW32 NNW32 NNW29 S33 S36 S36 S35 S36 SSE34 SSE33 SSE30 S27 SSW23 SSE25 S25 S30 S29 S29	Diurnal Maximum

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
Firebag - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Firebag - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	50	6.79	6.79
6 - 11	182	24.73	31.52
12 - 19	303	41.17	72.69
20 - 28	177	24.05	96.74
29 - 38	24	3.26	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
Firebag - March 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	4	7	1	3	4	5	4	11	1	3	1	1	1	0	3	50
6 - 11	48	23	18	5	2	12	6	9	24	7	8	2	5	4	0	9	182
12 - 19	45	24	19	2	10	15	35	36	44	32	15	6	2	9	1	8	303
20 - 28	24	0	0	0	0	8	15	38	29	29	6	1	5	2	0	20	177
29 - 38	0	0	0	0	0	3	1	3	12	0	0	0	0	0	0	5	24
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	118	51	44	8	15	42	62	90	120	69	32	10	13	16	1	45	736

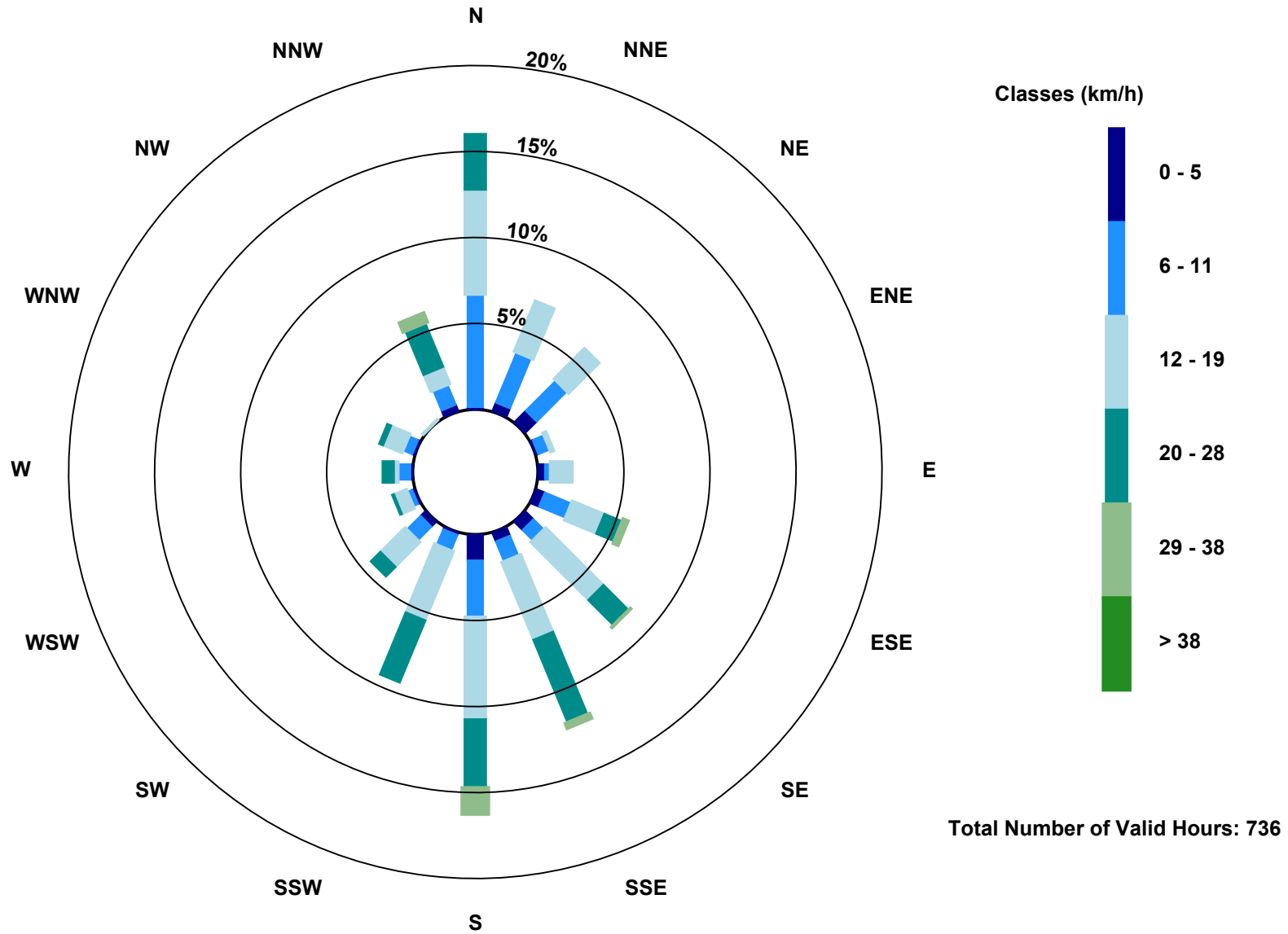
Total Number of Valid Hours: 736

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Firebag





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Firebag - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 15 07:00 Minimum Value: 0 km/h on Mar 30 03:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P ₉₉ = 7																	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-Mar	1	1	1	2	2	2	3	2	3	4	4	4	5	5	5	5	4	3	2	2	2	2	3	2	5
2-Mar	2	1	2	2	1	1	2	1	3	2	3	3	3	5	3	3	3	3	1	2	2	2	3	2	5
3-Mar	2	3	2	3	2	3	3	3	3	3	4	3	3	3	3	3	3	4	3	4	4	4	4	5	5
4-Mar	5	5	5	4	3	4	4	4	4	4	5	4	4	4	4	3	3	2	2	2	2	2	2	1	5
5-Mar	1	1	1	1	2	1	1	1	1	2	2	2	3	2	2	3	4	1	2	2	2	2	1	2	4
6-Mar	2	2	2	2	2	3	3	3	3	4	4	4	3	5	3	4	4	3	2	2	2	3	3	4	5
7-Mar	3	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	3	2	2	3	2	2	2	4
8-Mar	2	2	1	1	2	1	1	1	1	2	2	3	4	3	3	2	3	3	3	3	3	4	3	3	4
9-Mar	2	2	2	2	2	3	2	2	3	3	3	3	4	4	4	4	4	3	3	3	3	2	3	2	4
10-Mar	2	2	3	3	2	2	2	2	3	3	5	6	6	6	6	6	6	4	2	2	4	3	3	3	6
11-Mar	3	3	4	3	1	1	1	1	2	2	2	2	2	2	1	3	3	2	2	2	3	3	2	2	4
12-Mar	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	3	3	3	4	3	3	3	4
13-Mar	3	2	2	3	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	3
14-Mar	3	2	1	2	2	2	2	2	3	3	3	3	3	4	4	3	5	4	4	3	3	4	4	3	5
15-Mar	4	3	3	4	7	7	8	7	7	7	5	5	5	5	5	5	4	3	3	1	2	2	1	2	8
16-Mar	2	1	1	2	2	2	2	3	2	2	3	2	3	2	3	2	2	2	2	2	2	3	3	3	3
17-Mar	4	3	3	4	4	4	4	4	4	4	4	4	5	5	5	5	5	5	4	2	2	3	6	6	6
18-Mar	6	5	4	4	5	6	7	6	6	6	5	5	5	6	6	5	5	5	4	4	5	5	5	4	7
19-Mar	4	4	3	3	3	3	3	4	3	4	4	4	4	4	5	4	4	3	2	1	1	2	1	1	5
20-Mar	1	2	3	2	1	3	3	1	3	3	2	3	3	3	3	3	3	2	1	2	2	2	2	2	3
21-Mar	2	2	2	2	2	2	2	2	1	3	2	4	4	4	4	4	4	4	3	2	2	1	1	1	4
22-Mar	1	2	1	1	1	0	1	1	1	1	2	2	1	2	2	2	2	1	2	1	1	1	3	2	3
23-Mar	2	2	1	1	1	2	1	1	1	2	3	3	4	3	3	3	3	2	1	1	2	1	1	2	4
24-Mar	2	2	1	2	1	1	1	1	1	3	4	4	3	4	4	4	3	3	2	2	2	2	2	2	4
25-Mar	2	2	2	2	2	2	2	4	4	4	4	4	4	5	4	5	5	4	4	3	3	4	4	4	5
26-Mar	3	3	3	3	4	4	4	4	5	5	6	6	5	6	7	6	5	5	5	4	5	5	5	5	7
27-Mar	5	5	5	5	5	5	5	6	6	6	7	7	6	6	5	5	4	4	4	4	4	4	4	3	7
28-Mar	3	3	4	3	3	3	2	3	3	2	2	2	2	2	3	3	4	3	2	3	2	2	2	DF	4
29-Mar	DF	DF	DF	DF	DF	DF	DF	2	2	3	3	4	3	4	3	4	3	3	3	1	1	1	2	1	4
30-Mar	1	1	0	1	1	0	1	2	3	2	3	3	4	3	3	4	4	4	2	2	3	2	2	2	4
31-Mar	2	2	3	2	2	2	2	3	3	2	2	3	4	5	5	5	4	4	3	4	4	5	6	6	6
Diurnal Maximum																									
DF - DAS Failure																									



Wood Buffalo Environmental Association
Summary of Hour Averages

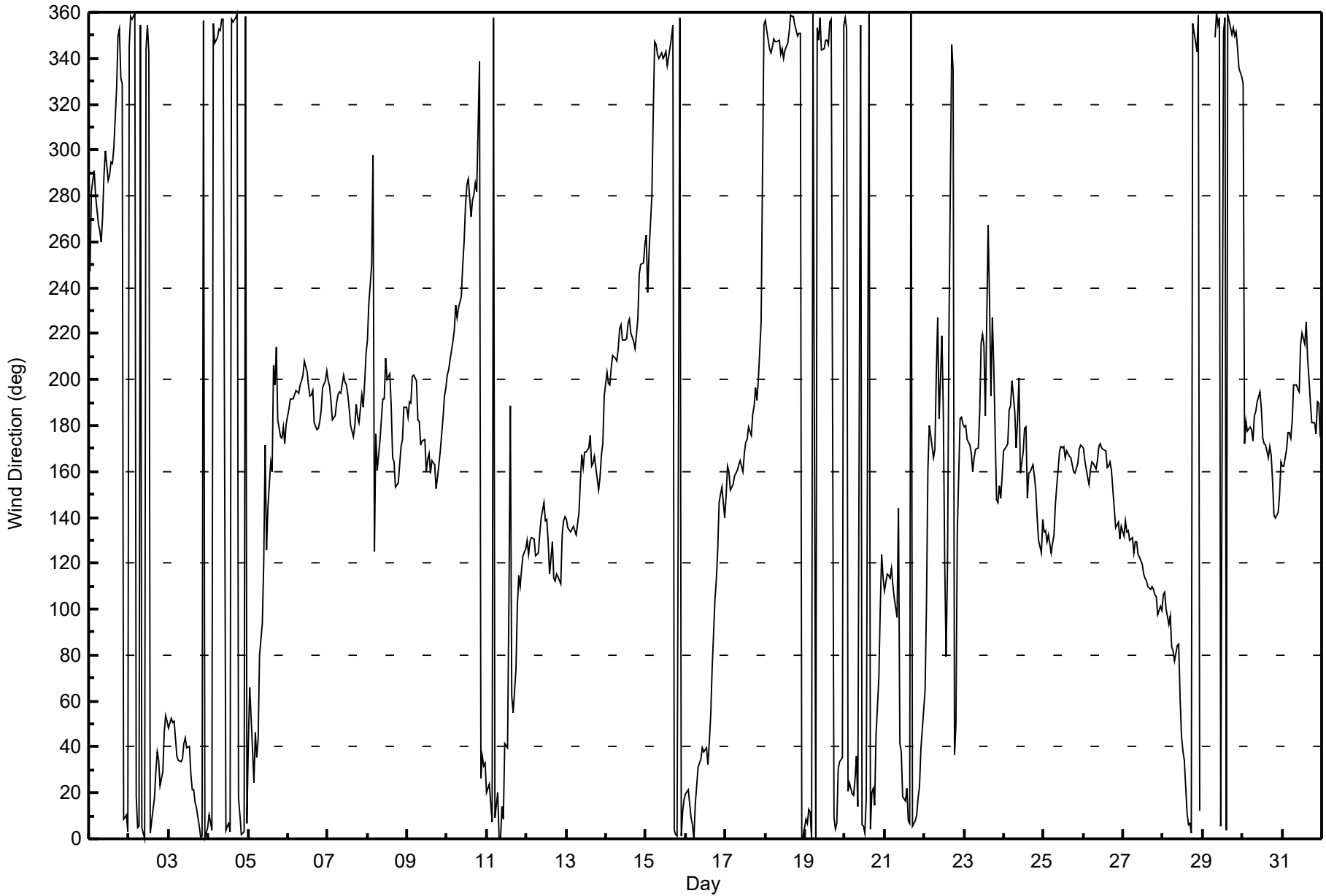
Wind Direction (WD) - deg
Firebag - March 2024

Direction of Maximum Speed: 172 deg on Mar 26 11:00																				Hours in Service: 744							
Direction of Maximum Daily Speed Average: 159.0 deg on Mar 26																				Hours of Data: 736							
Direction of Minimum Speed: 126 deg on Mar 5 12:00										Direction of Minimum Daily Speed Average: 2.4 deg on Mar 22										Hours of Missing Data: 8							
Monthly Average Direction: 156.5 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-Mar	247	282	286	291	280	268	265	260	271	289	300	287	289	295	294	301	327	350	352	331	329	9	10	3	301.8		
2-Mar	345	358	357	360	18	5	5	354	5	0	344	354	342	2	13	17	29	38	34	23	30	47	53	51	16.3		
3-Mar	48	53	51	51	44	36	34	34	35	41	44	40	40	28	21	21	16	13	5	1	1	356	1	5	25.9		
4-Mar	10	7	4	355	347	349	353	352	357	357	4	6	6	3	357	355	358	359	18	10	2	3	358	7	0.1		
5-Mar	41	66	39	24	46	36	43	80	94	120	171	126	144	164	160	206	197	214	182	175	175	180	172	180	156.9		
6-Mar	187	191	192	192	193	195	194	197	200	202	208	203	197	193	193	195	181	178	179	182	187	196	200	204	193.9		
7-Mar	199	197	190	183	184	190	193	195	194	202	199	197	194	187	180	175	180	189	184	181	194	188	198	211	191.0		
8-Mar	217	233	250	298	125	177	160	174	183	192	192	209	200	203	188	166	164	153	155	163	171	174	188	188	180.7		
9-Mar	184	190	190	201	202	199	183	182	171	173	174	160	166	168	159	165	163	153	157	163	169	184	193	197	175.8		
10-Mar	202	205	209	216	221	233	227	231	236	250	260	276	285	287	271	278	281	286	282	339	26	36	31	33	261.6		
11-Mar	20	24	15	7	358	9	20	0	0	14	9	41	40	104	189	62	55	74	101	114	110	117	123	127	56.4		
12-Mar	130	124	129	131	131	123	124	124	133	140	147	138	139	129	115	129	114	112	115	114	111	132	138	140	127.5		
13-Mar	139	135	134	135	136	134	133	142	157	167	161	168	168	171	176	162	164	166	157	152	158	167	172	193	158.0		
14-Mar	203	198	198	205	211	210	208	214	222	224	217	217	218	225	226	220	217	213	220	226	246	250	251	258	220.4		
15-Mar	263	238	256	280	316	347	346	342	340	342	340	341	343	337	345	349	354	4	2	1	358	1	12	17	339.0		
16-Mar	20	22	15	9	6	0	15	31	33	35	40	38	40	32	42	54	74	104	113	126	147	150	153	140	63.6		
17-Mar	149	162	160	152	154	158	159	161	163	165	160	168	173	174	179	176	185	188	197	191	200	225	292	355	173.4		
18-Mar	356	352	344	342	345	348	347	347	348	342	344	340	343	347	351	359	358	358	355	350	351	351	0	1	349.7		
19-Mar	9	6	13	11	0	359	0	354	348	358	344	344	348	348	346	355	357	9	4	7	30	34	35	355	359.4		
20-Mar	358	352	21	24	20	19	26	36	14	355	6	5	2	18	360	4	20	22	15	45	70	100	124	114	28.2		
21-Mar	108	115	115	114	118	111	105	96	144	41	38	18	16	22	8	7	359	5	8	10	18	23	39	56	40.1		
22-Mar	64	103	160	180	176	166	170	203	227	183	219	187	121	79	119	218	346	335	37	50	134	183	183	181	165.2		
23-Mar	180	180	174	171	168	160	166	170	170	186	216	220	215	184	267	233	193	227	206	147	146	154	148	158	178.9		
24-Mar	169	171	172	187	189	199	186	170	182	200	159	169	179	179	148	159	160	163	158	152	140	130	124	139	163.5		
25-Mar	133	134	129	133	124	129	132	146	154	169	171	170	171	166	169	167	166	163	160	160	164	170	172	171	159.3		
26-Mar	170	164	158	154	160	164	164	161	165	171	172	170	169	169	162	163	164	160	144	135	137	138	130	136	159.0		
27-Mar	132	139	134	134	130	131	125	130	129	124	123	120	115	113	112	110	109	110	109	106	105	98	101	100	119.4		
28-Mar	106	108	100	94	97	84	82	77	84	85	61	45	39	34	11	6	7	2	355	347	343	359	12	DF	51.0		
29-Mar	DF	DF	DF	DF	DF	DF	DF	349	360	355	358	6	352	358	4	359	357	350	353	350	351	344	336	332	--		
30-Mar	329	172	182	178	180	178	173	184	186	190	195	187	175	172	172	166	171	167	156	141	140	142	150	164	170.4		
31-Mar	162	162	170	177	177	174	182	197	198	196	195	215	221	215	225	209	200	190	181	181	177	191	190	175	190.4		
145.4	152.9	150.2	154.4	154.7	148.6	145.2	159.1	166.5	175.1	179.6	186.3	183.8	181.8	179.9	169.4	155.0	143.9	139.9	139.1	138.5	150.2	146.4	148.0				
Diurnal Average																											
DF - DAS Failure																											
All monthly, daily, and diurnal averages have been calculated using vector methods																											



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Firebag - March 2024





Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction (WD) - deg

Firebag - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 104 deg on Mar 5 12:00	Hours of Data: 736
Minimum Value: 3 deg on Mar 30 03:00	Hours of Missing Data: 8
Percentiles: P ₁ = 5 P ₁₀ = 8 Q ₁ = 9 Median = 12 Q ₃ = 15 P ₉₀ = 20 P ₉₉ = 66	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-Mar	8	9	12	16	17	17	12	14	15	18	17	20	18	19	18	17	15	12	10	7	13	14	11	13	20
2-Mar	17	9	13	12	9	8	12	9	14	15	17	21	19	21	17	18	13	13	6	9	9	10	11	13	21
3-Mar	11	10	9	9	8	8	10	10	10	11	10	9	9	11	11	10	14	11	14	15	14	15	16	15	16
4-Mar	15	16	15	15	12	11	15	14	15	15	15	15	15	17	13	15	14	14	14	10	11	14	12	12	17
5-Mar	26	26	16	23	14	12	20	20	11	23	45	104	65	16	11	22	19	12	14	7	8	8	7	8	104
6-Mar	6	7	7	7	8	8	7	7	7	9	10	10	11	10	11	10	12	9	8	7	9	7	7	9	12
7-Mar	8	7	7	8	8	7	7	7	8	9	8	9	9	12	9	10	10	8	9	10	9	7	8	7	12
8-Mar	7	26	13	55	60	9	14	11	6	14	10	15	11	14	14	9	9	8	9	9	8	9	8	9	60
9-Mar	7	7	7	7	7	9	7	7	9	7	8	9	10	9	9	9	9	9	9	9	8	7	9	7	10
10-Mar	6	8	8	8	8	11	10	10	11	14	16	18	18	17	16	19	18	16	12	34	12	12	12	11	34
11-Mar	11	14	12	13	10	13	14	12	13	18	20	21	20	77	61	37	14	10	16	11	10	12	13	15	77
12-Mar	15	13	12	11	12	11	11	12	13	12	12	16	17	19	17	14	13	11	12	11	11	12	12	12	19
13-Mar	13	13	10	12	12	11	12	11	10	9	9	10	13	14	11	11	10	9	9	9	8	9	8	12	14
14-Mar	9	8	7	8	7	8	7	9	9	10	10	11	11	13	13	11	12	11	11	13	11	11	12	20	20
15-Mar	27	19	13	19	25	14	14	13	12	14	13	14	15	17	15	15	15	17	14	12	10	11	8	9	27
16-Mar	10	11	12	12	13	16	12	10	11	12	16	20	33	36	34	14	21	13	12	14	13	12	11	11	36
17-Mar	12	9	9	10	9	10	9	9	8	9	9	9	9	9	9	9	9	10	9	8	8	18	30	16	30
18-Mar	15	15	12	12	14	16	14	14	14	15	14	14	16	16	15	17	16	15	15	14	15	15	17	16	17
19-Mar	15	15	13	13	16	15	16	14	15	18	18	18	19	17	16	18	17	18	12	10	10	12	10	16	19
20-Mar	10	9	10	6	6	48	8	8	15	22	32	32	30	37	30	27	22	15	8	15	13	16	12	10	48
21-Mar	8	10	11	11	11	9	19	19	42	28	22	20	20	19	17	17	18	15	12	12	9	10	10	4	42
22-Mar	7	40	25	14	9	12	7	22	42	87	88	53	54	85	67	57	37	24	45	19	28	14	7	7	88
23-Mar	7	8	6	6	6	10	8	6	5	26	37	42	45	60	75	47	33	25	15	18	8	7	9	9	75
24-Mar	8	7	10	4	4	5	10	14	8	19	24	22	19	23	26	17	18	22	14	11	10	14	14	11	26
25-Mar	11	10	11	10	11	11	10	12	10	9	10	13	11	12	13	12	11	11	9	9	8	8	8	8	13
26-Mar	8	9	9	10	9	9	9	10	10	9	11	11	12	12	13	11	11	10	14	12	12	12	14	12	14
27-Mar	12	12	12	12	11	12	12	12	12	12	13	13	13	12	12	11	11	11	11	10	10	10	11	10	13
28-Mar	9	10	11	10	11	10	10	12	15	13	20	15	13	17	16	17	15	13	14	13	11	13	11	DF	20
29-Mar	DF	DF	DF	DF	DF	DF	DF	13	15	15	16	15	18	17	18	16	16	13	13	11	7	10	47	67	67
30-Mar	27	27	3	7	6	4	5	7	9	13	16	20	18	15	14	12	13	11	10	9	11	10	12	8	27
31-Mar	8	8	7	7	7	8	7	8	7	7	11	13	14	15	16	14	10	9	9	10	8	10	12	12	16
	27	40	25	55	60	48	20	22	42	87	88	104	65	85	75	57	37	25	45	34	28	18	47	67	

Diurnal Maximum

DF - DAS Failure



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS20 MACKAY RIVER MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)

MARCH 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	40.8	0	9.5	0
H2S (ppb) Average	708	36	36	100	1.9	0	0.3	0
THC (ppm) Average	709	35	35	100	3	-	2.6	-
NO2 (ppb) Average	708	36	36	100	30.9	0	9.9	-
NO (ppb) Average	708	36	36	100	11.5	-	3.1	-
NOX (ppb) Average	708	36	36	100	37.4	-	13	-
Temperature 2 m (C) Average	744	0	0	100	14.8	-	5	-
Relative Humidity (%) Average	744	0	0	100	95.9	-	82.6	-
Wind Speed 10 m (km/h) Average	739	0	5	99.33	17	-	12	-
Wind Direction 10 m (deg) Average	739	0	5	99.33	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.2	-	10.1	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)
MARCH 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	1.6	3.9	-	0	0	0.1	0.2	0.8	4.9	40.8
H2S (ppb) Average	708	0.1	0.2	-	0	0	0	0.1	0.1	0.2	1.9
THC (ppm) Average	709	2.33	0.1	-	2.1	2.2	2.3	2.3	2.4	2.4	3
NO2 (ppb) Average	708	2.84	3.6	-	0.2	0.5	0.8	1.5	3.4	7.2	30.9
NO (ppb) Average	708	0.43	1.2	-	0	0	0	0	0.2	1.2	11.5
NOX (ppb) Average	708	3.26	4.3	-	0.2	0.5	0.8	1.6	4	8.2	37.4
Temperature 2 m (C) Average	744	-8.04	9.8	-	-32.1	-22.5	-15.9	-6.7	-1.1	3.9	14.8
Relative Humidity (%) Average	744	62.58	16.4	-	23.1	38.1	51.1	64.6	75.1	81.2	95.9
Wind Speed 10 m (km/h) Average	739	8	4	-	0	3	5	8	11	13	17
Wind Direction 10 m (deg) Average	739	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	21.7	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)
MARCH 2024

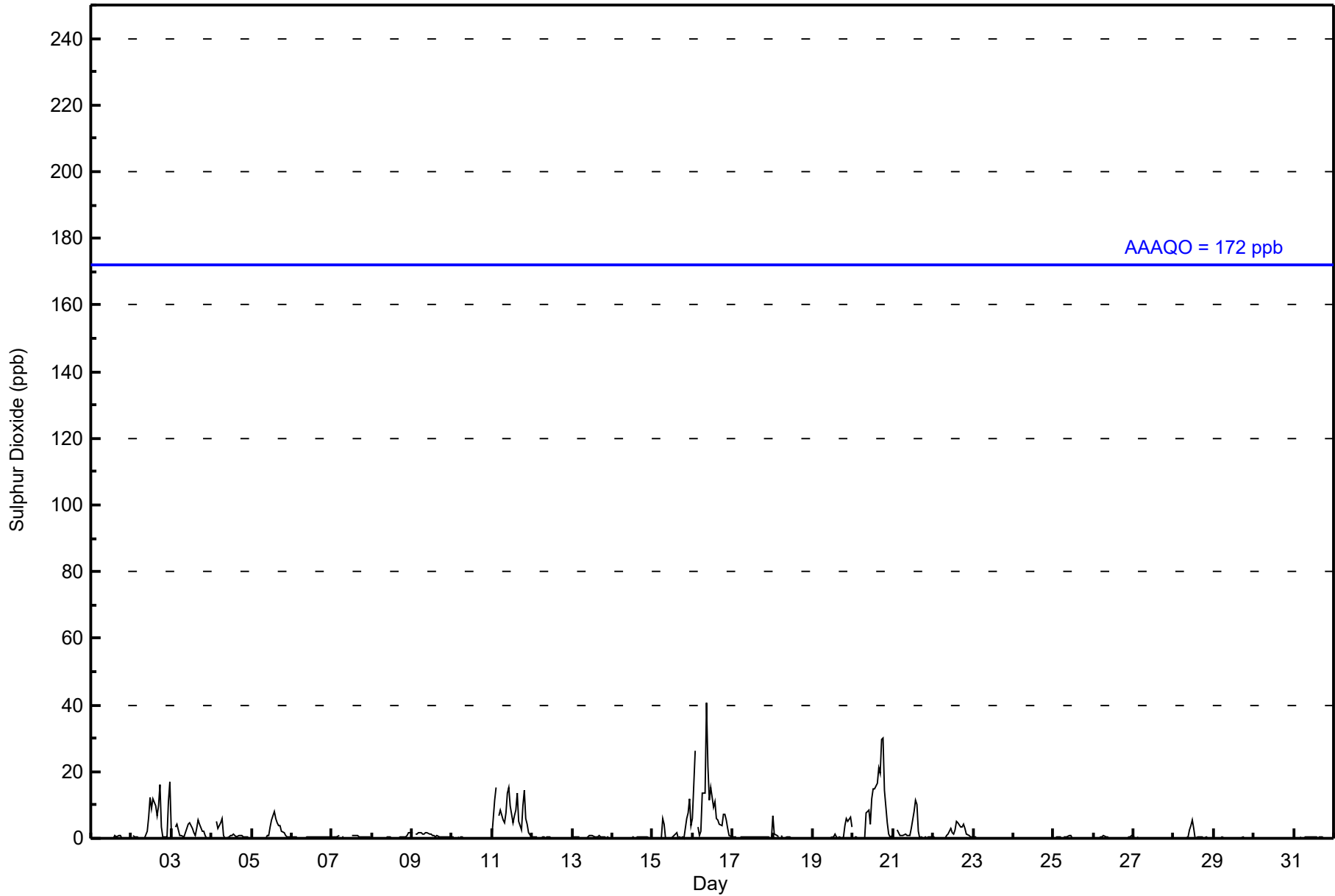
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	02 Mar 2024 07:00	02 Mar 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Mar 2024 03:00	20 Mar 2024 03:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Mar 2024 05:00	20 Mar 2024 07:00	3	Flat line in sensor output signal



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Mackay River - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Mackay River - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	679	95.77	95.77
11 - 20	24	3.39	99.15
21 - 60	6	0.85	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



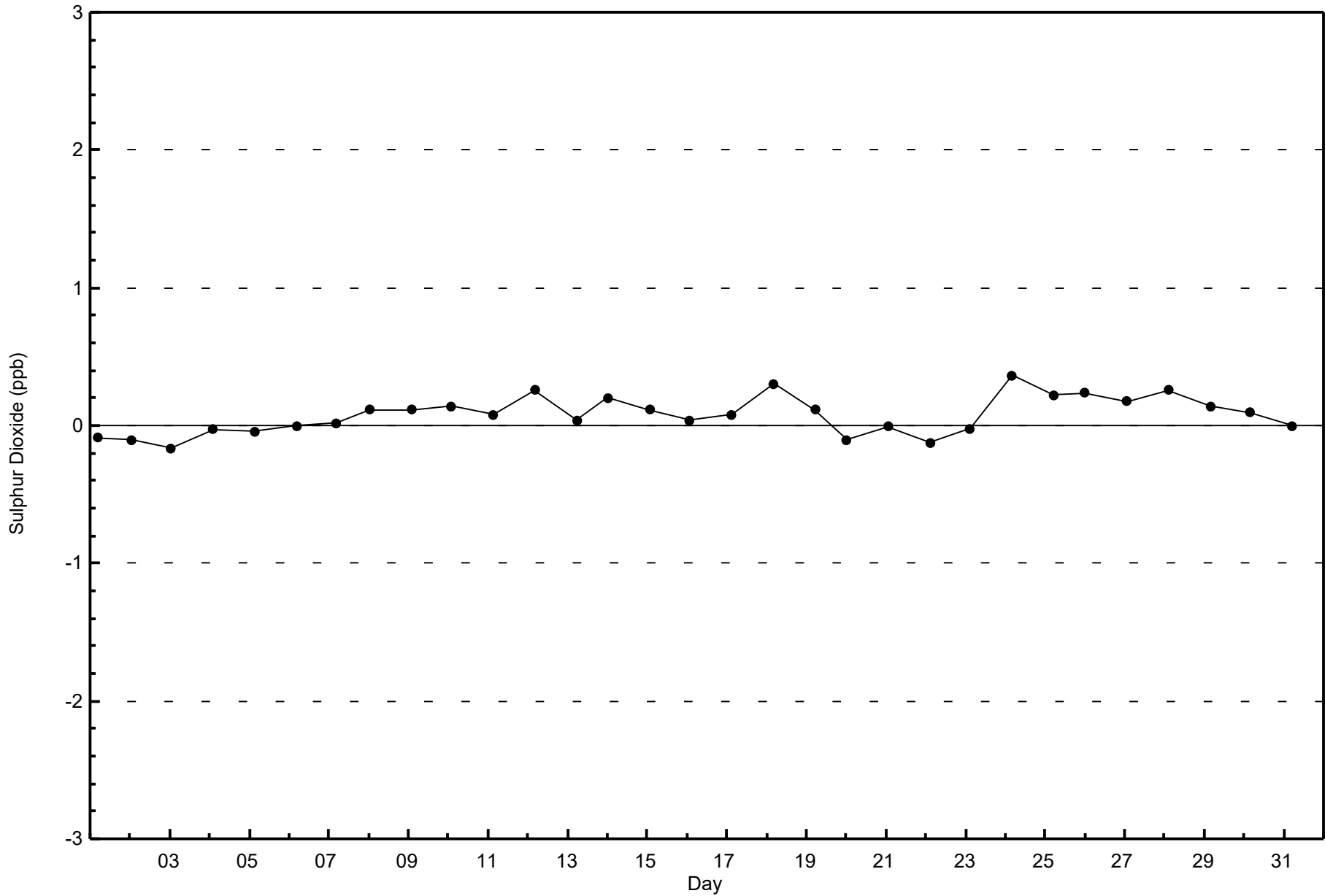
Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Mackay River - March 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	74	43	15	26	69	66	71	119	21	17	21	19	22	27	23	674
11 - 20	0	8	11	4	0	1	0	0	0	0	0	0	0	0	0	0	24
21 - 60	0	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	6
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
Totals	41	84	57	20	26	70	66	71	119	21	17	21	19	22	27	23	704

Total Number of Valid Hours: 704

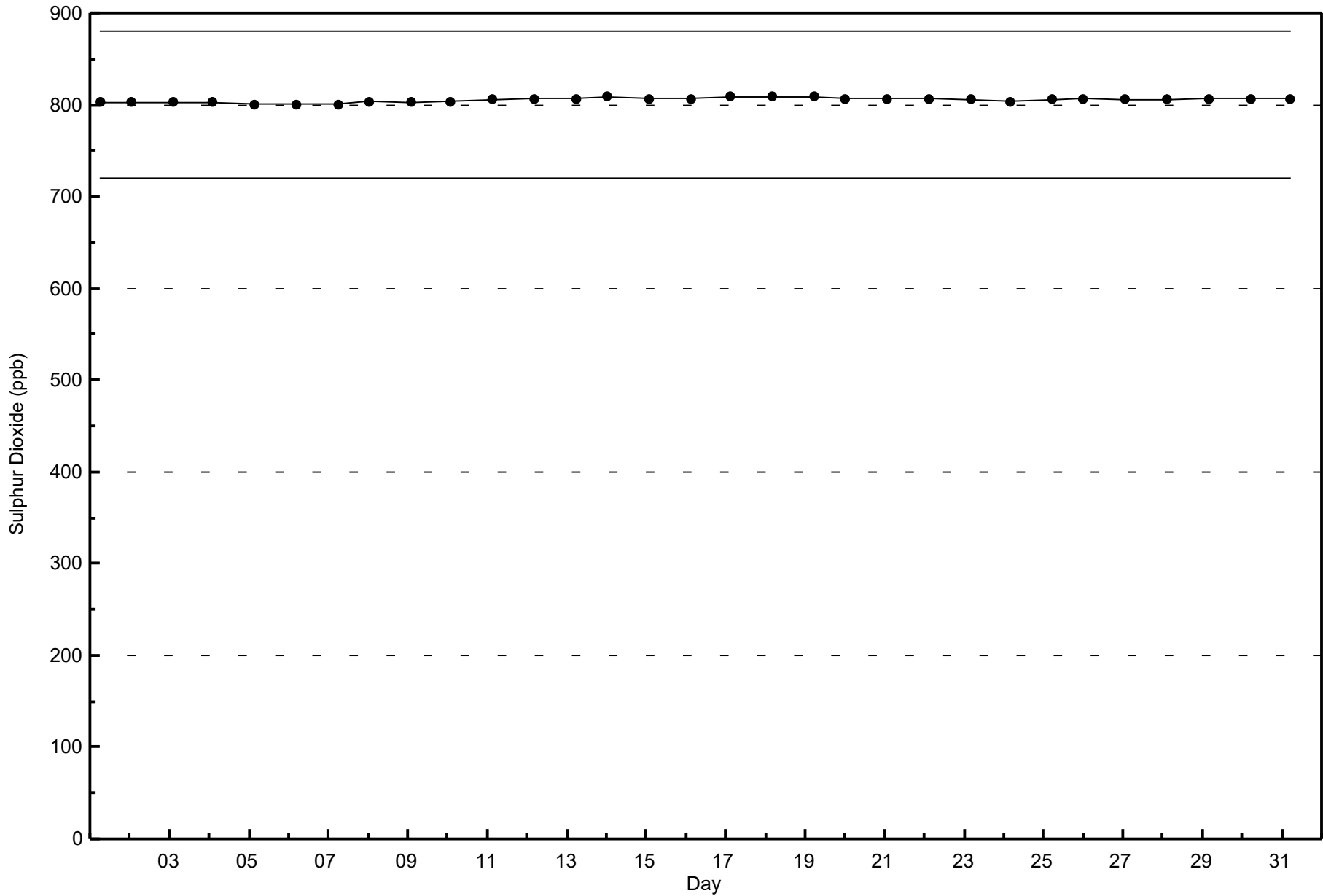
Total Number of Hours: 744





Wood Buffalo Environmental Association
Span Responses

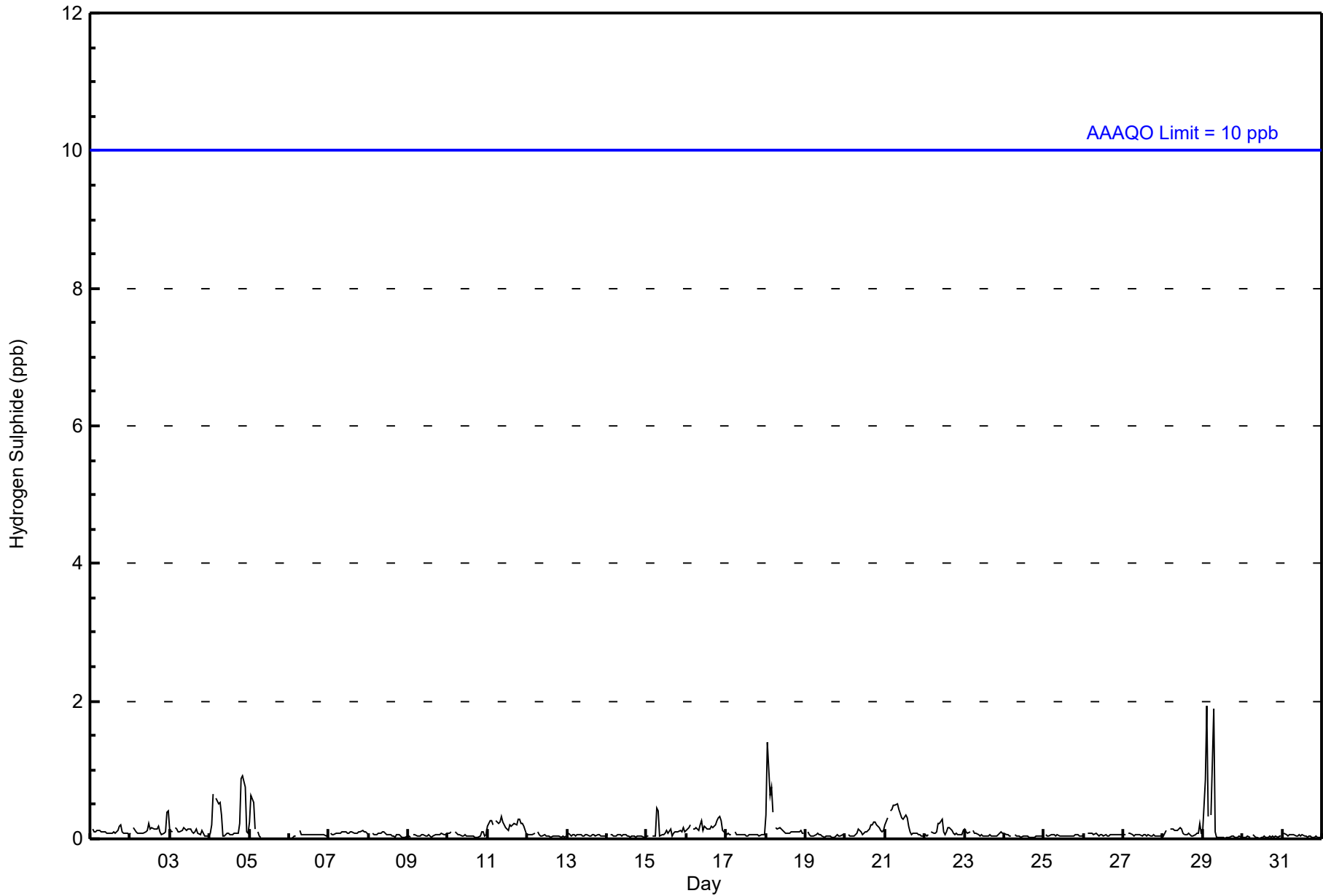
Sulphur Dioxide (SO₂) - ppb
Mackay River - March 2024





Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Mackay River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Mackay River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Mackay River - March 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	41	82	59	21	25	68	68	71	122	21	17	21	18	22	26	21	703
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	41	82	59	21	25	68	68	71	122	21	17	21	18	22	26	21	703

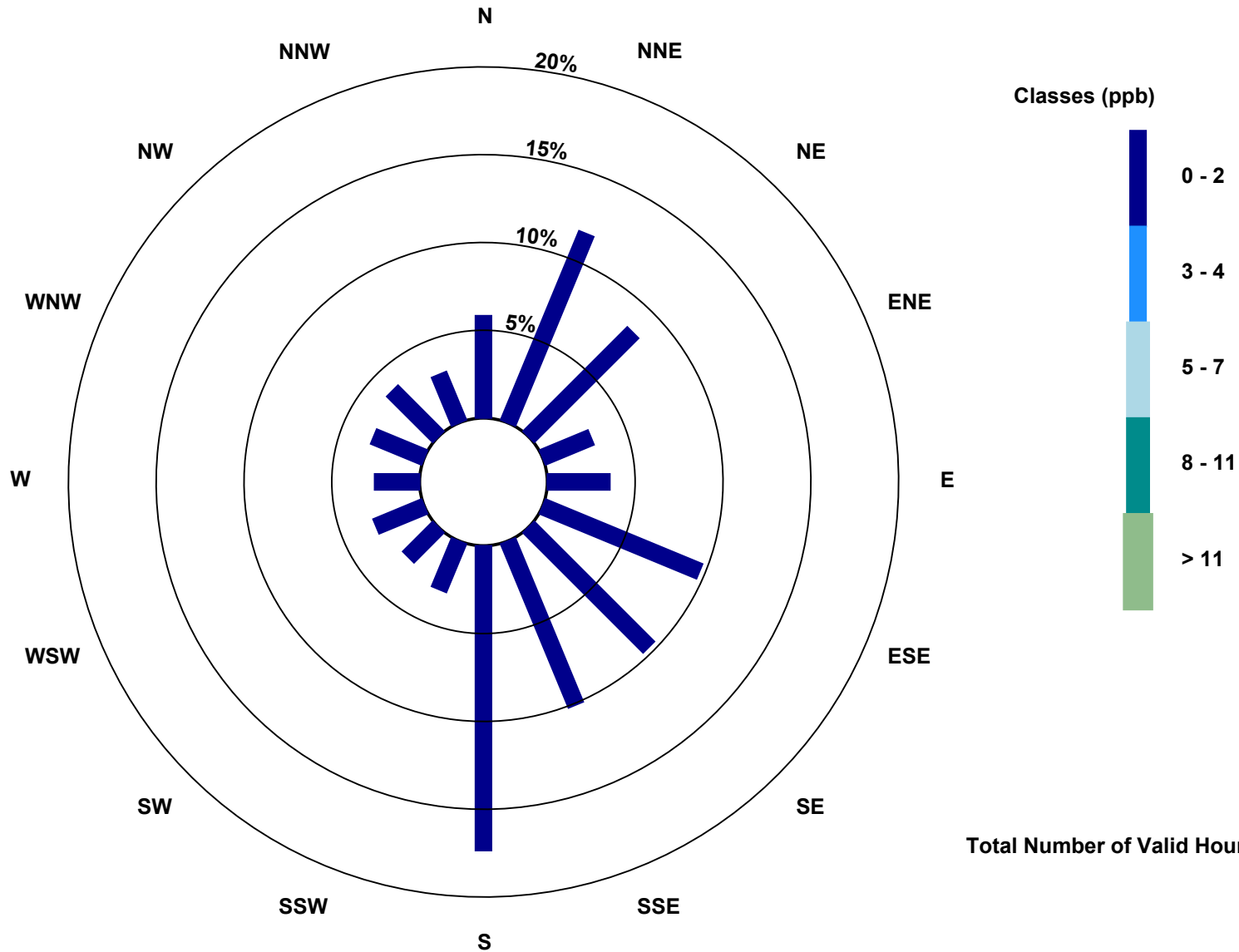
Total Number of Valid Hours: 703

Total Number of Hours: 744

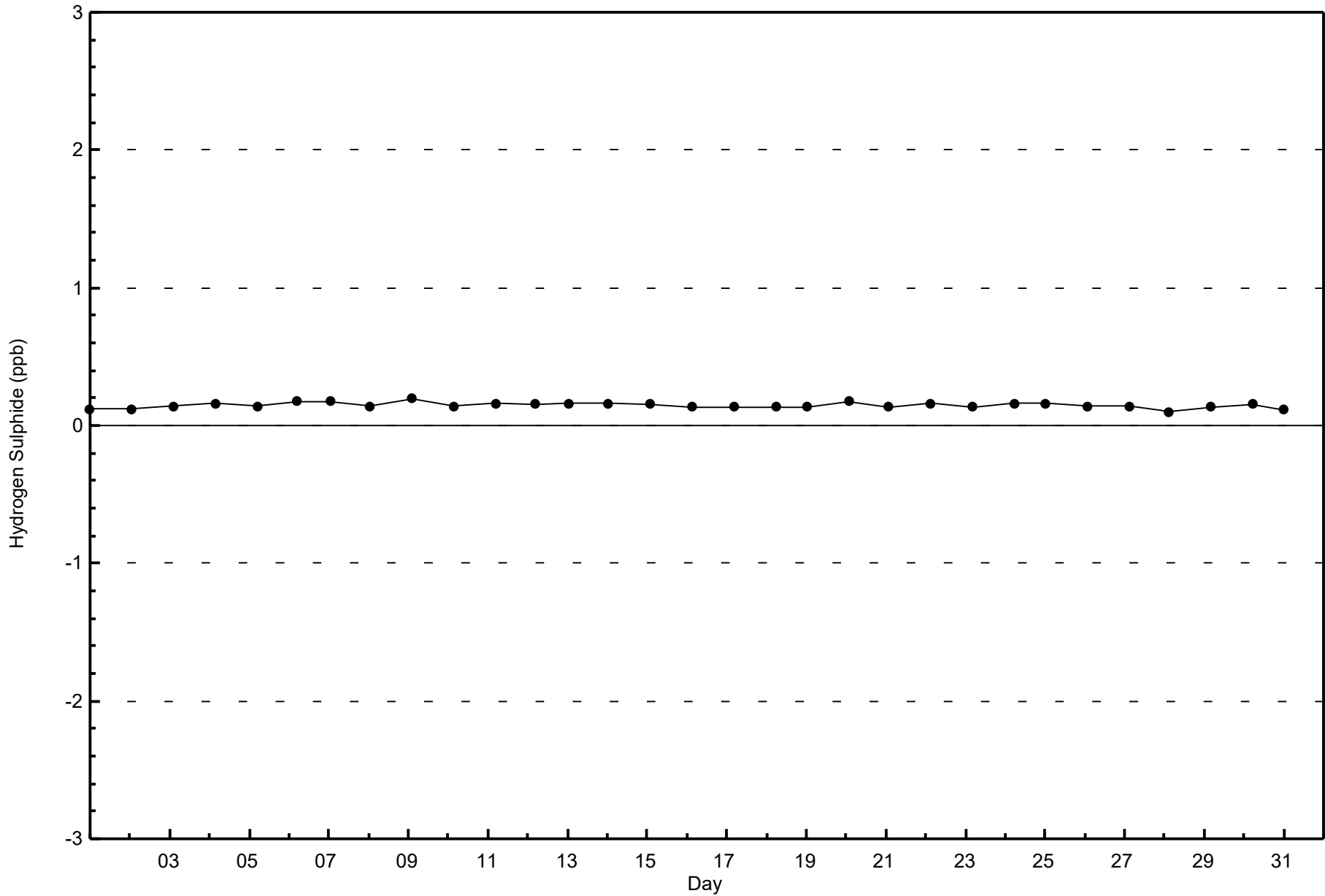


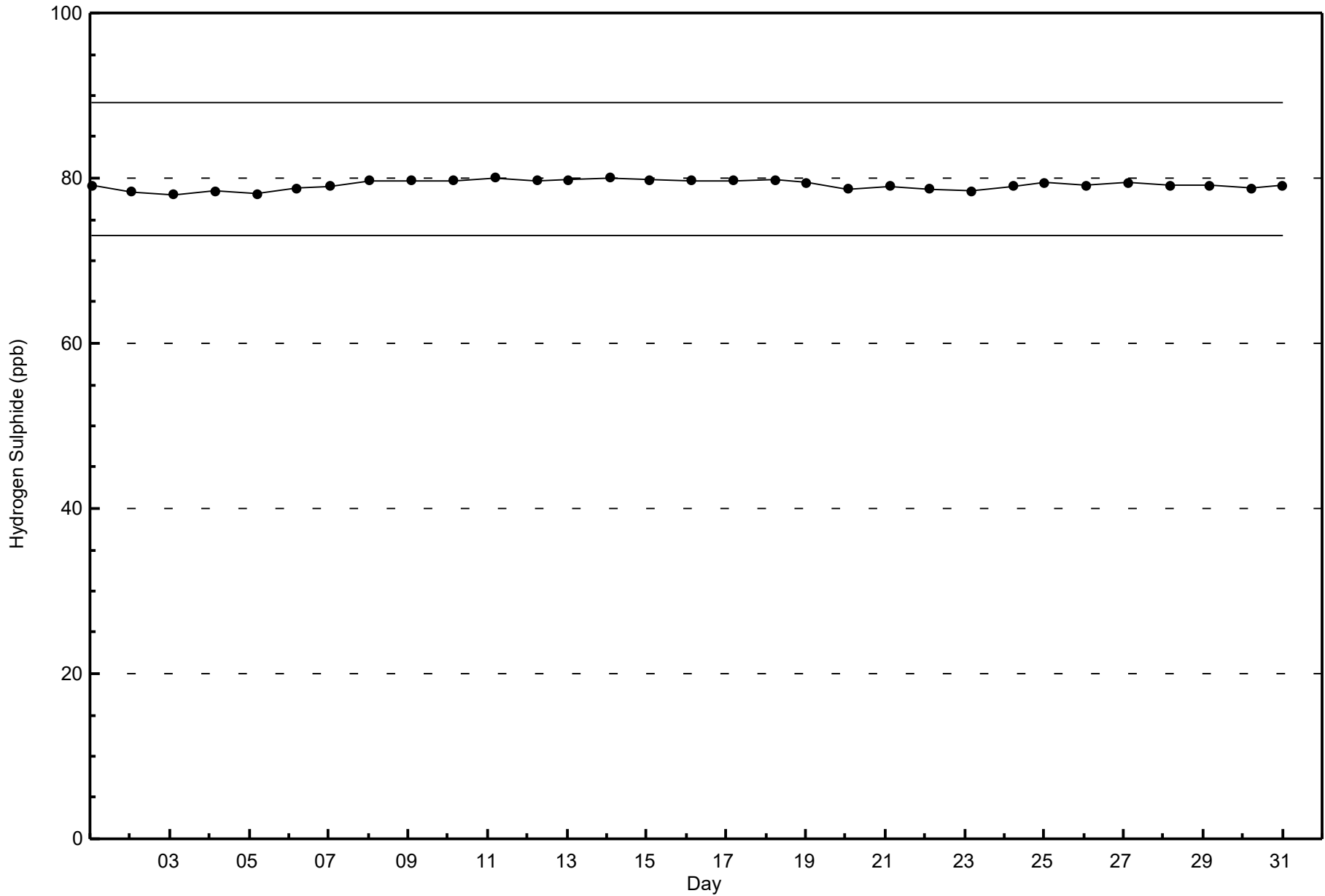
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Mackay River



Total Number of Valid Hours: 703







Wood Buffalo Environmental Association
Summary of Hour Averages

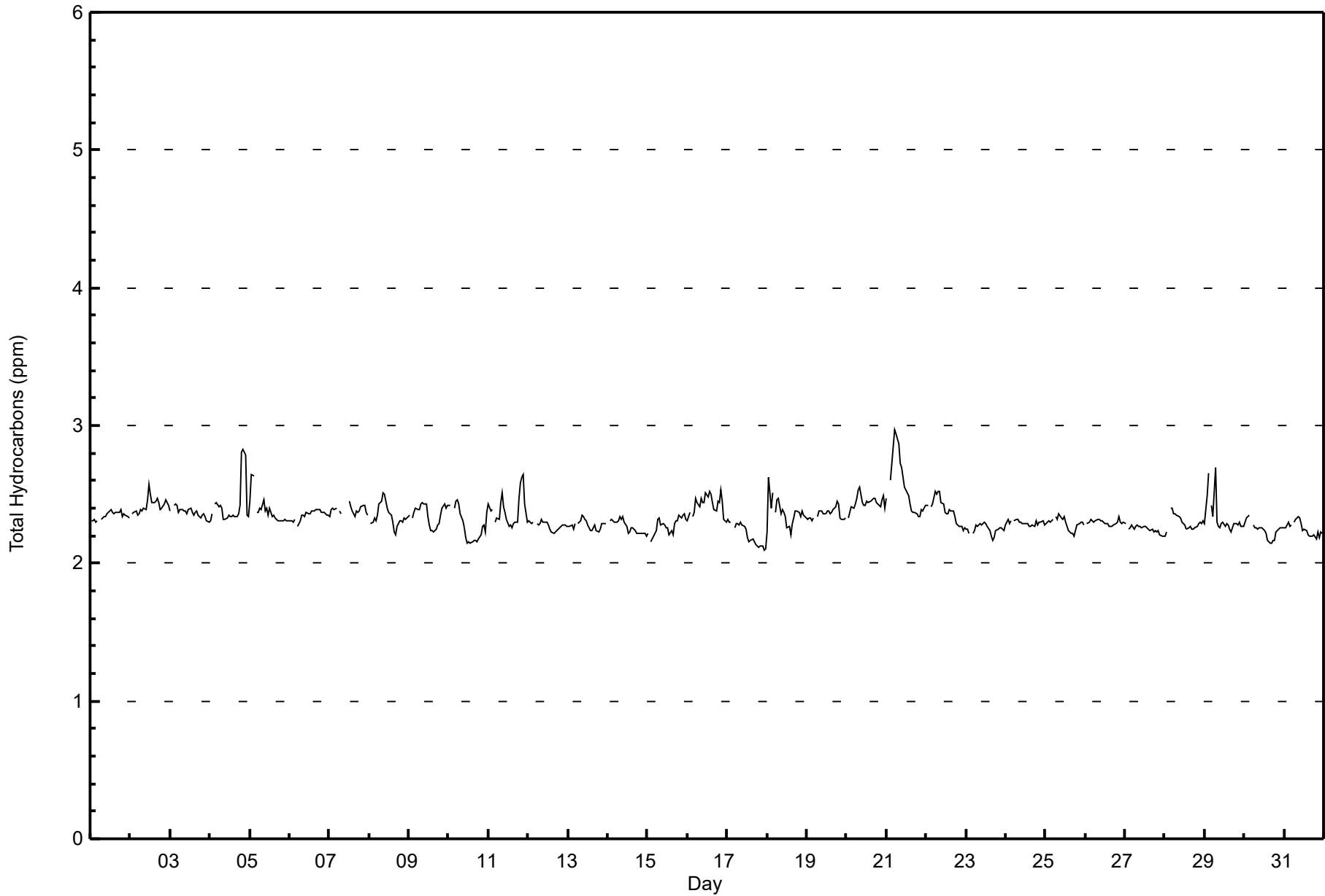
Total Hydrocarbons (THC) - ppm
Mackay River - March 2024

Maximum Value: 3.0 ppm on Mar 21 06:00		Maximum Daily Average: 2.6 ppm on Mar 21		Hours in Service: 744																								
Minimum Value: 2.1 ppm on Mar 17 23:00		Minimum Daily Average: 2.2 ppm on Mar 17		Hours of Data: 709																								
Maximum Diurnal Average: 2.4 ppm at hour 7		Minimum Diurnal Average: 2.3 ppm at hour 16		Hours of Missing Data: 35																								
Monthly Average: 2.33 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.2 Q ₁ = 2.3 Median = 2.3 Q ₃ = 2.4 P ₉₀ = 2.4 P ₉₉ = 2.7		Hours of Calibration: 35																								
				Percent Operational Time: 100.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24				
1-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	
2-Mar	Z	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.5	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4
3-Mar	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.4	
4-Mar	2.3	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.8	2.8	2.8	2.3	2.3	2.3	2.4	2.8	
5-Mar	2.5	2.6	2.6	Z	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	
6-Mar	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	
7-Mar	2.3	2.4	2.4	2.4	2.4	Z	2.4	2.4	C	C	C	C	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
8-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	
9-Mar	2.4	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
10-Mar	2.4	2.4	Z	2.4	2.4	2.5	2.4	2.4	2.3	2.3	2.2	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.4	2.3	2.3	2.5	
11-Mar	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.4	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.6	2.6	2.6	2.4	2.3	2.4	2.6		
12-Mar	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	2.2	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	
13-Mar	2.3	2.3	2.3	2.2	2.3	Z	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
14-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
15-Mar	2.2	Z	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	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.4	
16-Mar	2.3	2.4	Z	2.3	2.4	2.5	2.4	2.4	2.5	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.3	2.4	2.5	2.5	
17-Mar	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	
18-Mar	2.2	2.6	2.4	2.5	Z	2.4	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.6		
19-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	
20-Mar	Z	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.4	2.4	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.6	2.6	
21-Mar	2.5	Z	2.6	2.7	2.8	3.0	2.9	2.9	2.7	2.7	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.6	3.0	
22-Mar	2.4	2.4	Z	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.5	
23-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	
24-Mar	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	2.3	
25-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
26-Mar	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	2.3	
27-Mar	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
28-Mar	2.2	2.2	Z	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
29-Mar	2.3	2.5	2.7	Z	2.4	2.3	2.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.7	
30-Mar	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	
31-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	Diurnal Average	
	2.5	2.6	2.7	2.7	2.8	3.0	2.9	2.9	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8	2.8	2.8	2.5	2.4	Diurnal Maximum		
Z - zerospan		C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Mackay River - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mackay River - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
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
Mackay River - March 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	41	84	57	20	26	70	66	71	119	21	17	21	19	22	27	23	704
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
Totals	41	84	57	20	26	70	66	71	119	21	17	21	19	22	27	23	704

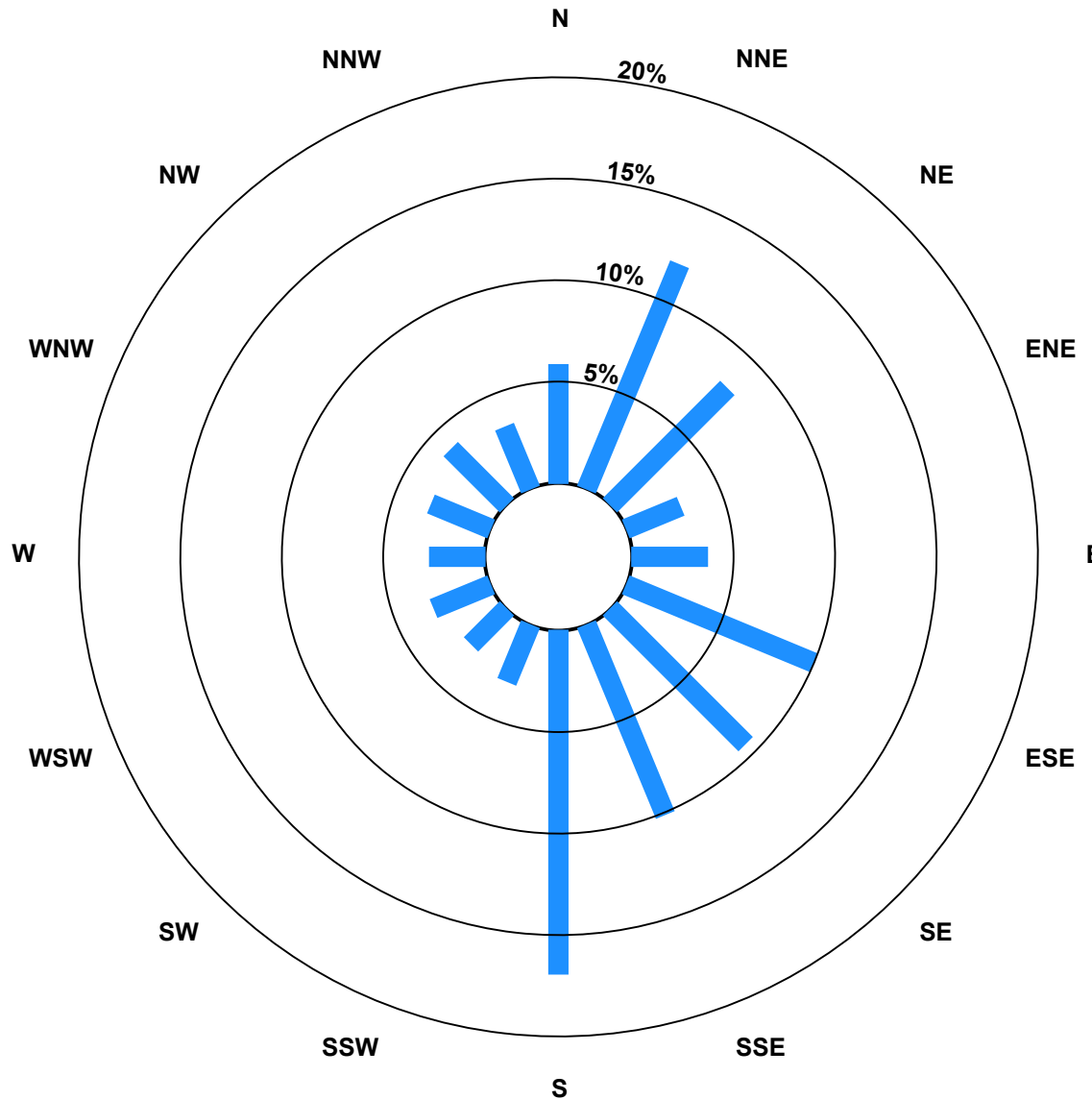
Total Number of Valid Hours: 704

Total Number of Hours: 744

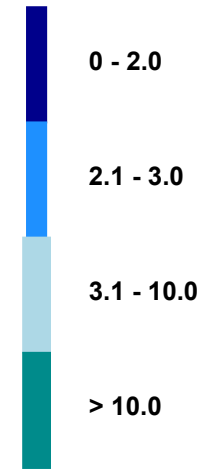


Wood Buffalo Environmental Association
Wind Rose Mar 2024

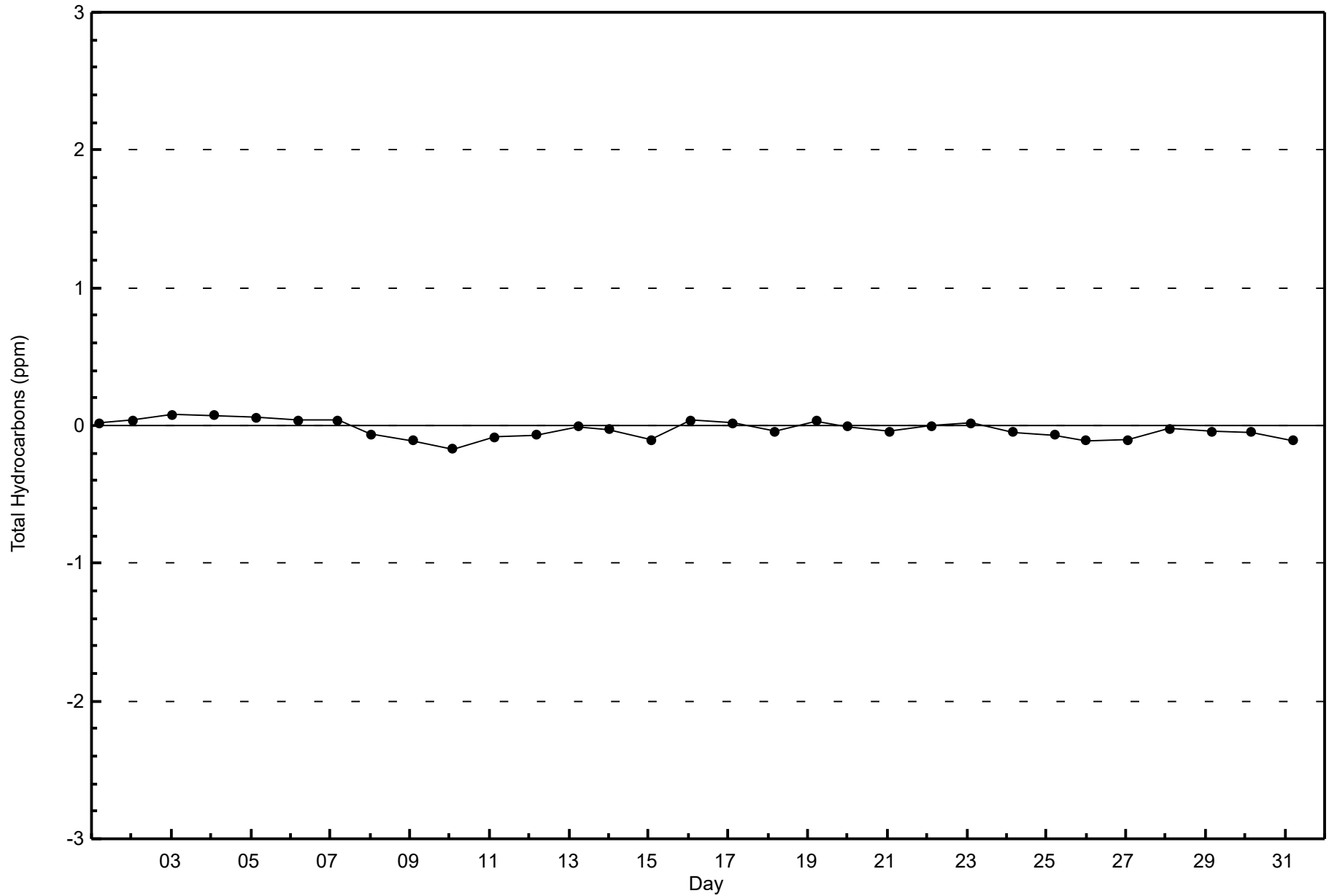
Total Hydrocarbons (THC) - ppm
Mackay River

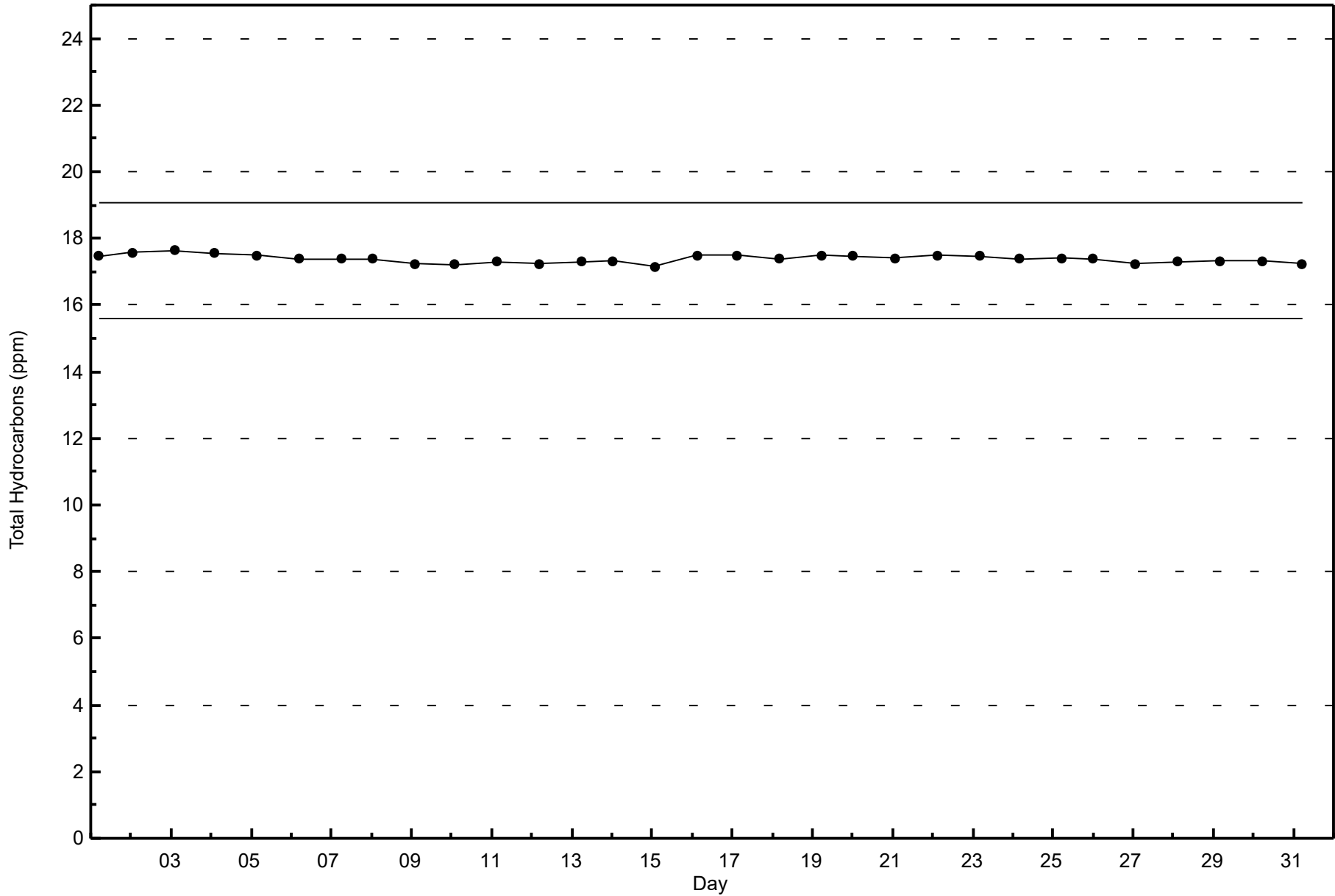


Classes (ppm)



Total Number of Valid Hours: 704

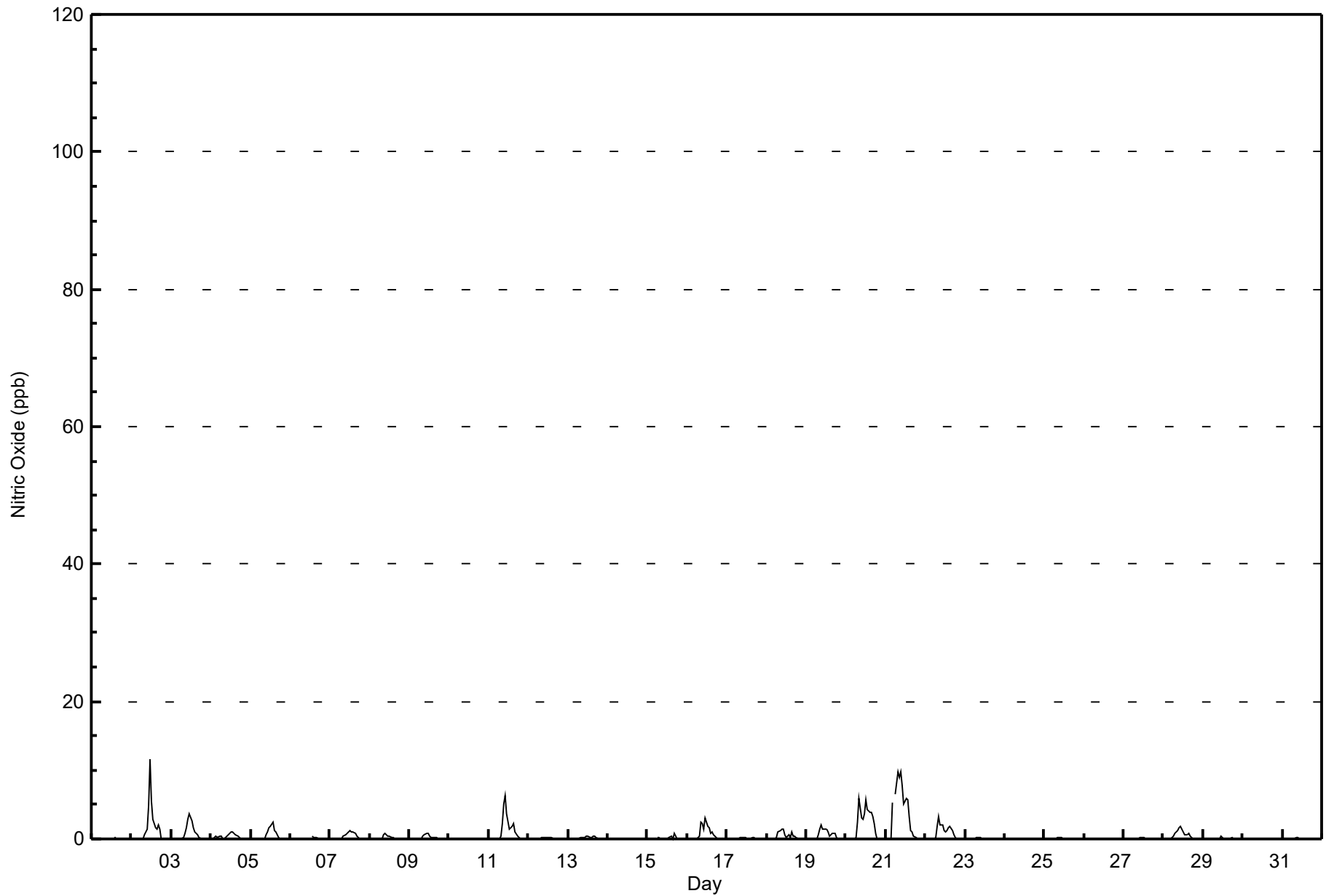






Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Mackay River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Mackay River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 - March 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	41	83	60	20	26	69	68	69	121	18	17	25	18	21	25	23	704
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
Totals	41	83	60	20	26	69	68	69	121	18	17	25	18	21	25	23	704

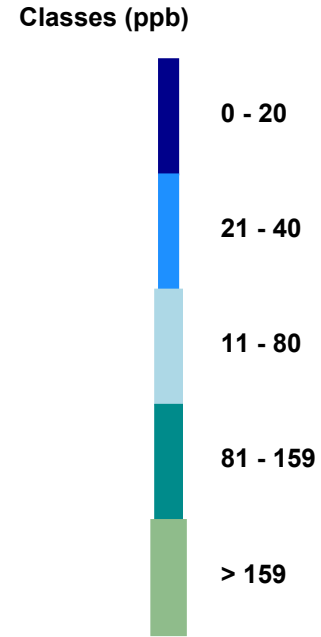
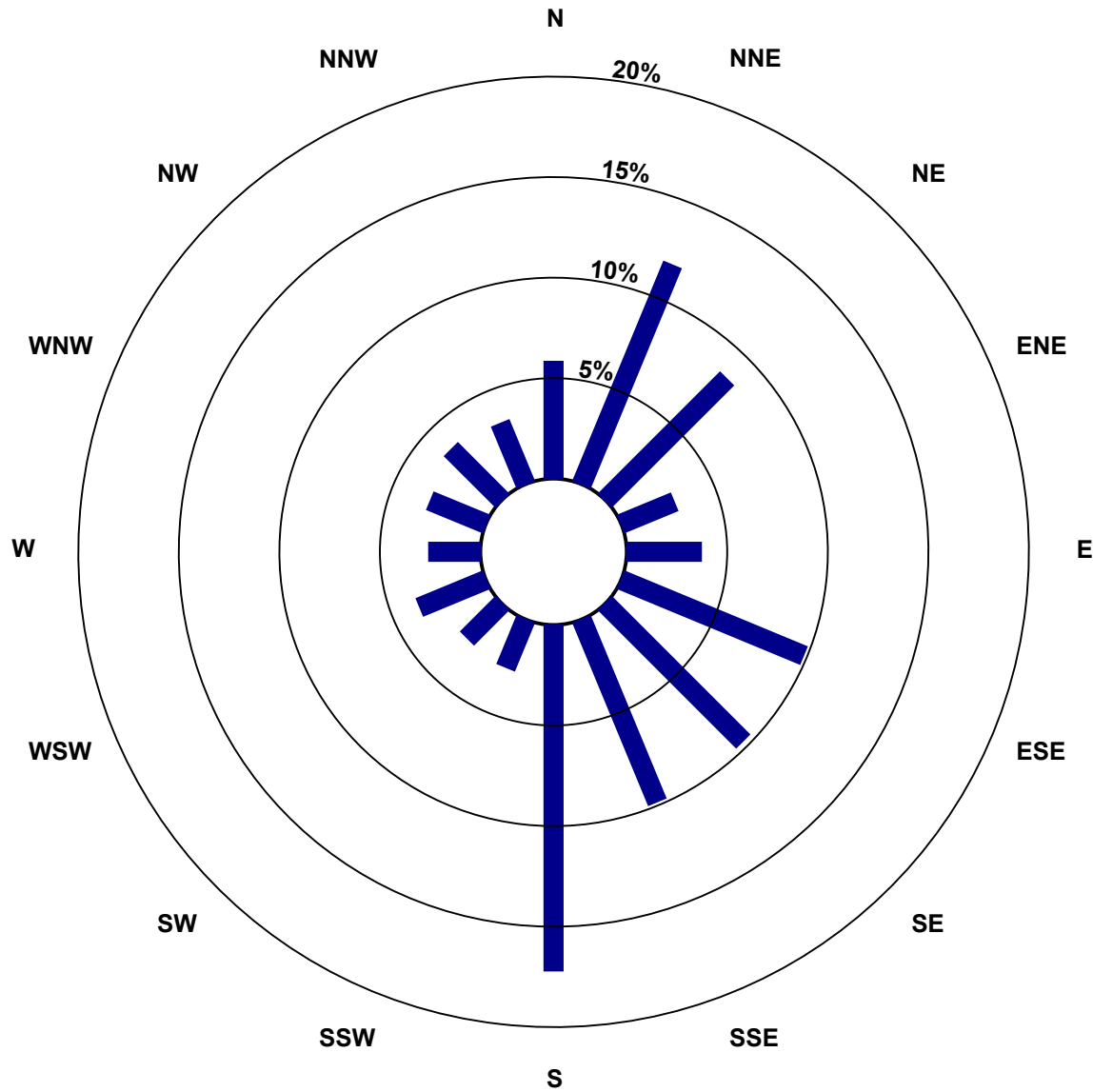
Total Number of Valid Hours: 704

Total Number of Hours: 744

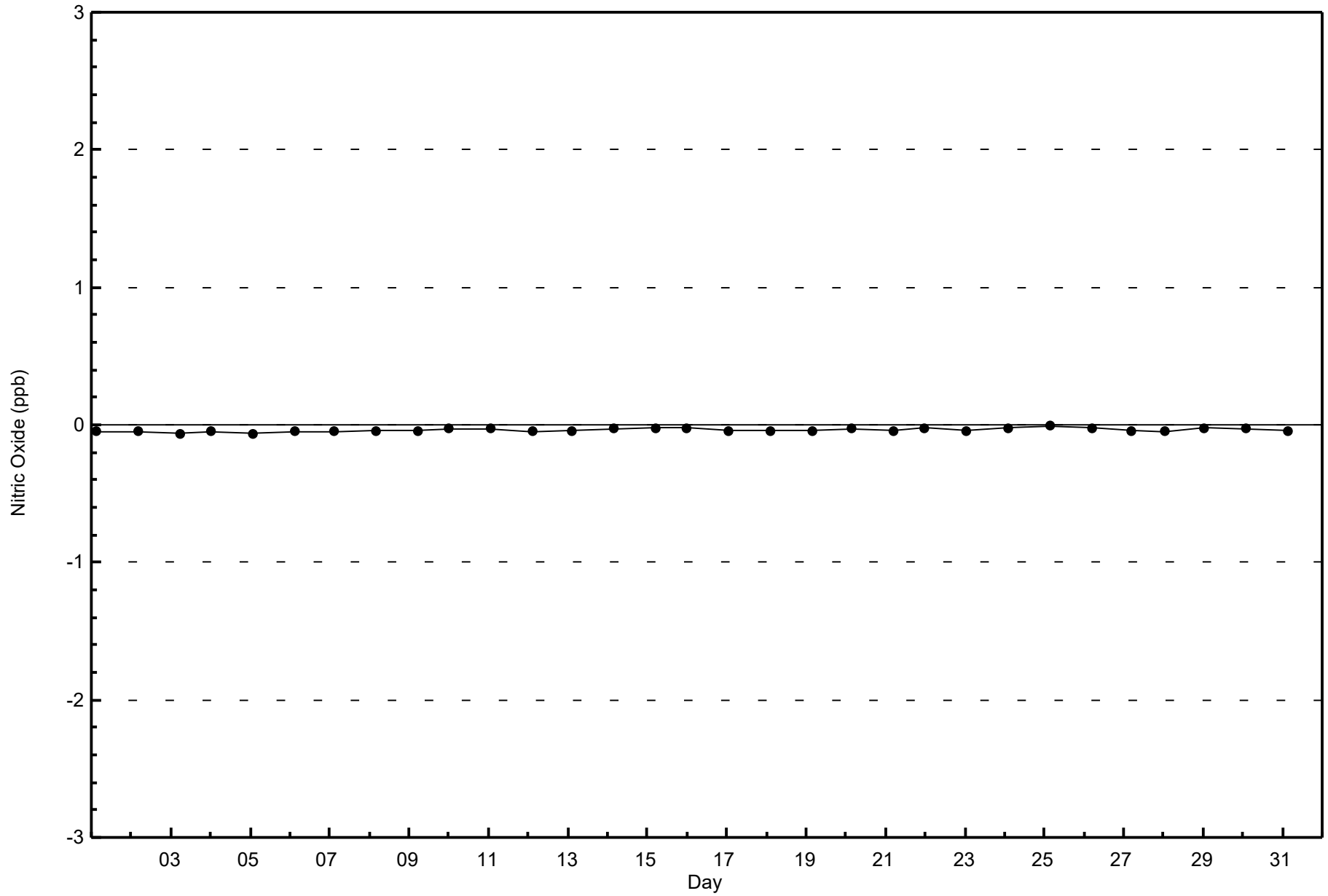


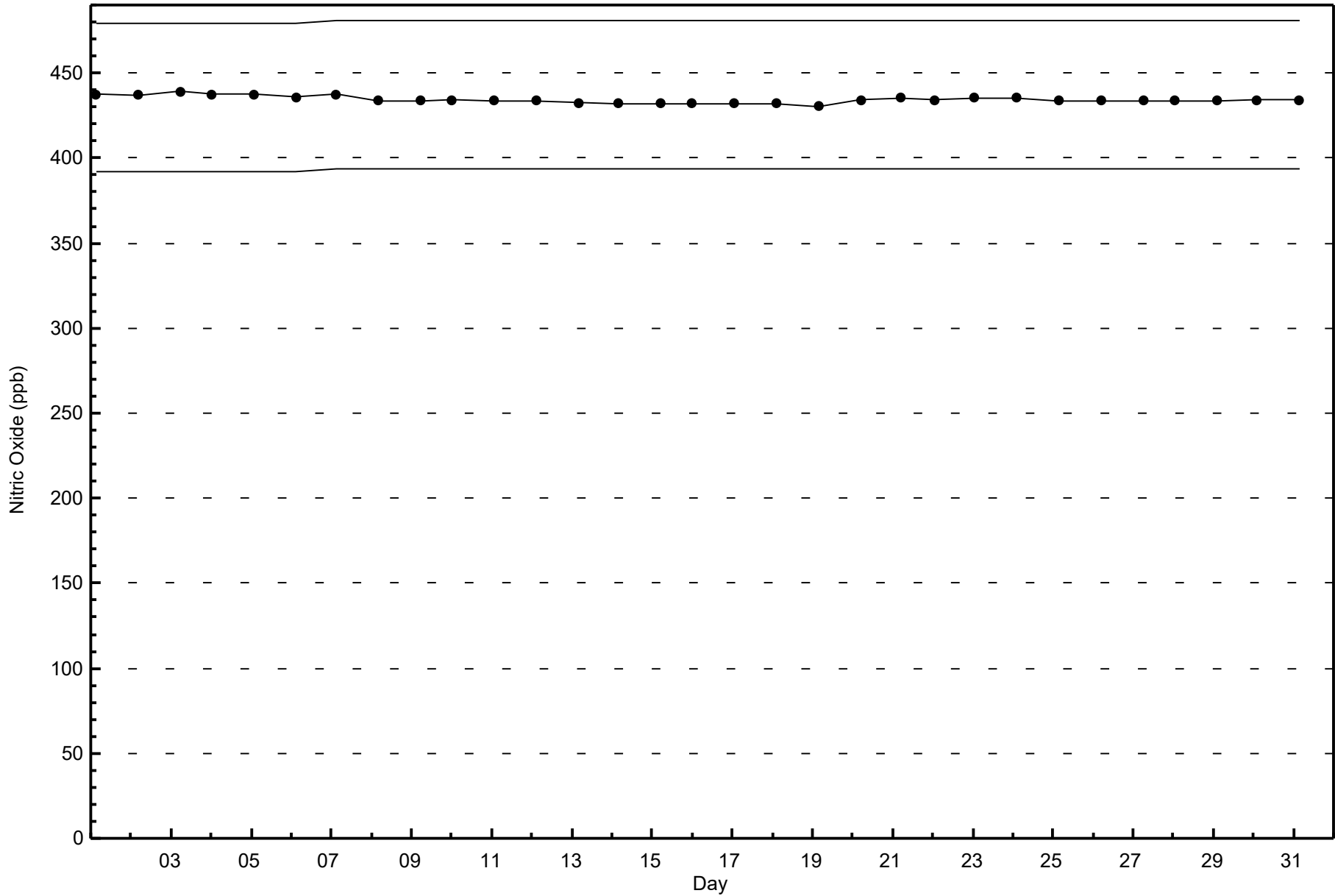
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Mackay River



Total Number of Valid Hours: 704







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Mackay River - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 30.9 ppb on Mar 21 07:00	Maximum Daily Average: 9.9 ppb on Mar 21		Hours of Data:	708
Minimum Value: 0.2 ppb on Mar 1 23:00	Minimum Daily Average: 0.4 ppb on Mar 1		Hours of Missing Data:	36
Maximum Diurnal Average: 4.2 ppb at hour 7	Minimum Diurnal Average: 1.9 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 2.84 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.8 Median = 1.5 Q ₃ = 3.4 P ₉₀ = 7.2 P ₉₉ = 15.6		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-Mar	0.6	0.6	0.6	Z	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.4	0.6	0.7	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.7	
2-Mar	0.2	1.5	2.2	2.1	Z	1.5	1.3	1.1	1.5	2.6	5.7	9.7	5.4	3.6	2.5	3.2	6.2	10.4	7.6	7.9	7.5	12.6	14.5	8.1	5.2	14.5	
3-Mar	8.2	10.0	9.9	12.5	9.4	Z	9.9	10.7	9.5	8.8	8.8	8.9	6.7	4.8	3.9	3.7	4.6	2.9	1.9	3.4	3.0	1.4	0.4	0.3	6.2	12.5	
4-Mar	Z	0.6	2.0	2.8	1.9	2.6	3.2	0.9	0.6	1.0	2.1	2.0	2.3	2.1	2.2	2.3	2.4	3.0	3.3	3.1	2.4	1.9	0.9	0.6	2.0	3.3	
5-Mar	0.9	Z	1.2	0.9	0.9	0.6	0.3	0.3	0.3	1.3	1.8	2.3	3.3	3.4	3.1	2.9	2.9	3.2	3.7	3.8	3.2	2.2	1.2	0.7	1.9	3.8	
6-Mar	0.6	0.6	Z	1.0	1.2	1.2	1.2	1.2	C	C	C	C	C	1.3	1.4	1.5	1.7	1.9	1.8	1.5	1.6	1.7	1.9	1.8	1.4	1.9	
7-Mar	1.7	1.9	2.0	Z	3.1	3.6	3.1	3.0	3.1	3.1	3.0	3.1	3.3	3.3	3.3	3.0	2.8	3.1	3.6	3.7	3.7	3.4	3.2	2.5	3.0	3.7	
8-Mar	1.4	1.0	0.8	0.7	Z	1.0	1.3	1.5	2.6	2.9	2.4	2.0	1.7	1.7	1.4	1.0	1.1	1.9	2.4	1.5	1.5	2.2	3.0	3.7	1.8	3.7	
9-Mar	3.7	3.5	3.7	4.1	4.3	Z	3.4	2.9	3.6	3.5	3.5	3.2	2.6	2.2	2.0	1.8	2.2	2.4	2.3	2.0	2.3	2.5	2.4	2.1	2.9	4.3	
10-Mar	Z	1.8	1.6	1.5	1.4	1.7	1.6	1.5	1.1	0.9	0.8	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	5.4	1.1	5.4	
11-Mar	9.0	Z	8.6	8.0	7.1	9.2	7.1	5.6	7.2	8.9	9.4	5.8	3.0	3.8	4.0	5.8	4.7	4.4	12.5	20.1	21.2	19.4	8.3	1.5	8.5	21.2	
12-Mar	1.0	1.0	Z	1.1	1.3	1.1	1.4	1.5	1.2	1.1	1.0	0.9	0.9	0.9	0.8	0.8	0.8	0.8	1.0	1.0	0.7	0.7	0.8	0.7	1.0	1.5	
13-Mar	0.8	0.9	1.0	Z	1.2	1.5	1.2	1.9	1.3	1.0	1.0	1.1	1.1	1.0	1.0	1.6	1.7	1.7	1.6	1.5	1.0	1.1	1.2	1.0	1.2	1.9	
14-Mar	0.9	0.8	0.7	0.6	Z	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.6	0.9	
15-Mar	0.5	0.4	0.4	0.3	0.3	Z	3.1	2.2	0.3	0.3	0.2	0.3	0.4	0.6	0.9	0.2	3.4	3.2	3.0	3.4	2.4	2.3	3.2	1.7	1.4	3.4	
16-Mar	Z	11.6	7.7	4.0	7.3	13.8	8.5	5.3	12.4	6.6	3.5	5.3	3.6	4.3	3.2	3.6	3.1	3.2	6.5	7.9	8.6	7.5	2.4	0.5	6.1	13.8	
17-Mar	0.5	Z	0.7	0.7	0.7	0.7	0.8	1.0	0.9	0.9	0.9	0.8	0.9	1.0	1.1	1.5	1.6	1.4	1.5	1.6	1.7	1.2	0.7	0.6	1.0	1.7	
18-Mar	4.1	1.8	Z	1.3	2.4	4.2	9.5	7.4	3.9	4.0	3.3	1.7	1.1	2.6	1.5	5.5	4.1	7.6	7.3	6.6	4.1	6.9	6.6	5.5	4.5	9.5	
19-Mar	5.5	5.5	4.6	Z	2.6	2.0	6.8	6.6	4.9	4.4	2.6	2.3	2.2	1.9	1.1	1.7	3.1	4.9	6.3	4.2	3.3	3.9	5.4	3.4	3.9	6.8	
20-Mar	3.0	3.9	4.9	5.2	Z	6.9	7.2	8.7	10.7	5.1	4.2	5.4	7.5	6.2	6.0	7.3	8.4	12.8	15.1	9.2	7.2	10.0	10.8	6.3	7.5	15.1	
21-Mar	5.8	6.5	8.7	15.6	30.5	Z	30.9	26.1	19.1	15.5	10.7	8.2	8.5	8.8	6.1	3.2	3.4	3.7	5.0	3.5	2.5	2.0	1.8	1.7	9.9	30.9	
22-Mar	Z	2.4	3.5	6.2	6.0	7.0	6.6	6.0	6.7	4.0	3.5	2.5	2.0	2.5	3.5	4.3	4.0	3.8	4.2	3.6	2.5	1.9	1.6	1.3	3.9	7.0	
23-Mar	1.0	Z	0.8	0.8	0.7	0.7	0.6	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.9	1.3	1.0	0.7	1.3	
24-Mar	0.8	0.7	Z	0.6	0.6	0.7	0.8	0.8	1.0	0.9	1.0	1.0	1.0	0.8	0.9	1.0	1.0	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.8	1.0
25-Mar	1.0	1.4	1.7	Z	1.5	1.4	1.5	1.6	1.5	1.3	1.2	0.9	0.9	0.9	0.8	0.7	0.7	0.8	0.9	0.8	0.7	0.8	0.9	1.0	1.1	1.7	
26-Mar	1.1	1.1	1.1	1.2	Z	1.4	1.6	1.6	1.5	1.3	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.2	1.2	1.4	1.2	1.6	
27-Mar	1.2	1.2	1.2	1.1	1.0	Z	0.9	1.1	1.1	0.9	0.8	0.7	0.8	0.6	0.5	0.5	0.6	0.5	0.5	0.7	0.5	0.3	0.3	1.0	0.8	1.2	
28-Mar	Z	4.1	13.5	13.6	14.3	13.4	11.6	7.4	5.7	5.7	5.2	4.6	3.2	1.9	2.3	2.4	1.7	1.7	2.1	2.6	2.4	1.6	0.9	0.5	5.3	14.3	
29-Mar	0.4	Z	1.8	1.5	1.7	2.0	1.6	0.9	0.3	0.4	0.5	1.2	0.6	0.6	0.5	0.4	0.7	1.4	1.8	1.8	1.7	1.6	1.6	1.5	1.2	2.0	
30-Mar	1.4	1.3	Z	1.2	1.0	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.6	1.4
31-Mar	0.5	0.6	0.6	Z	0.7	0.7	0.7	0.8	1.0	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	1.0	

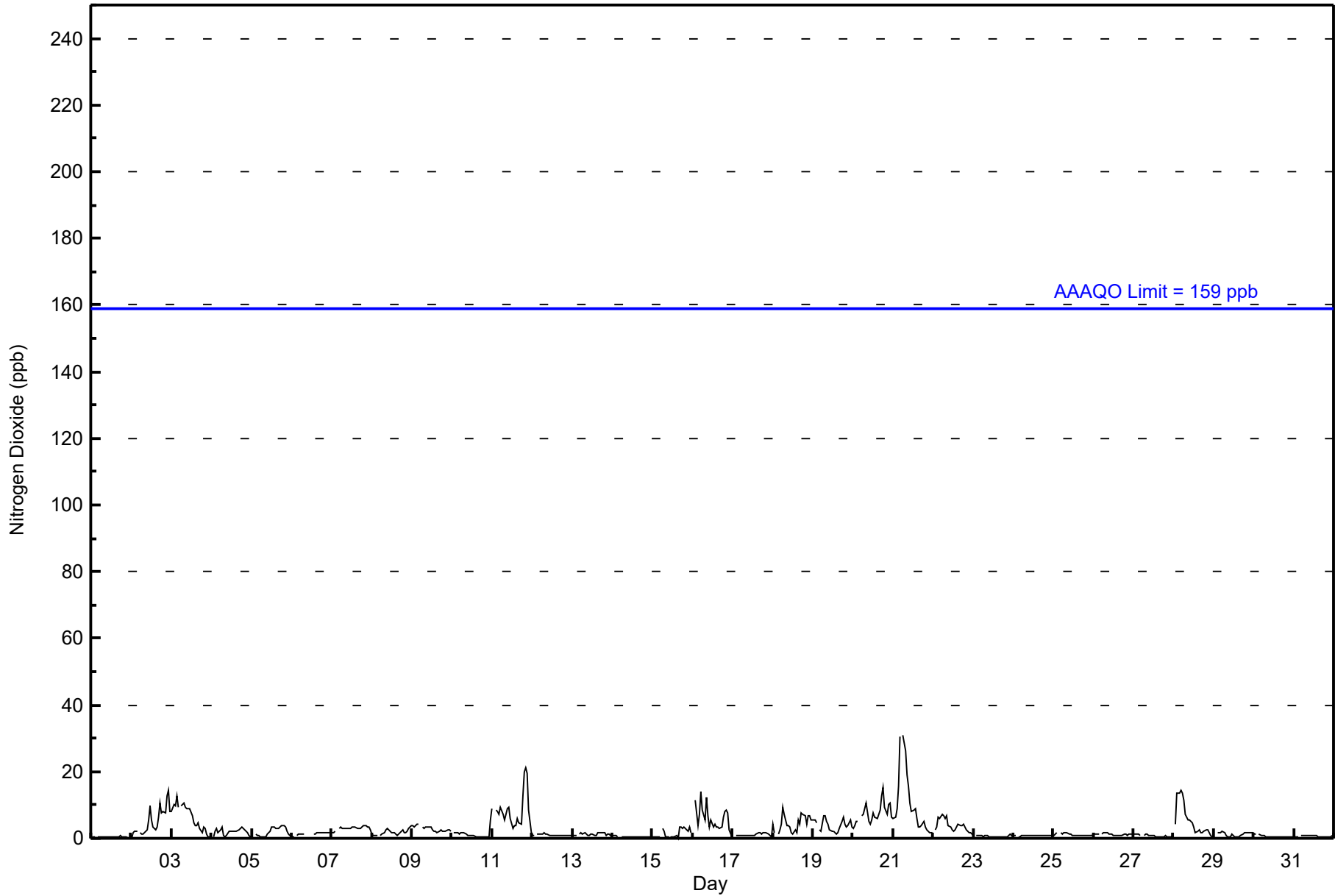
2.1	2.6	3.3	3.5	4.0	3.1	4.2	3.6	3.5	3.0	2.7	2.6	2.2	2.1	1.9	2.1	2.3	2.8	3.2	3.2	2.9	3.0	2.6	1.9	Diurnal Average	
9.0	11.6	13.5	15.6	30.5	13.8	30.9	26.1	19.1	15.5	10.7	9.7	8.5	8.8	6.1	7.3	8.4	12.8	15.1	20.1	21.2	19.4	14.5	8.1	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Mackay River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Mackay River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.44	99.44
21 - 40	4	0.56	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Mackay River - March 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	41	82	57	20	26	69	68	69	121	18	17	25	18	21	25	23	700
21 - 40	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	41	83	60	20	26	69	68	69	121	18	17	25	18	21	25	23	704

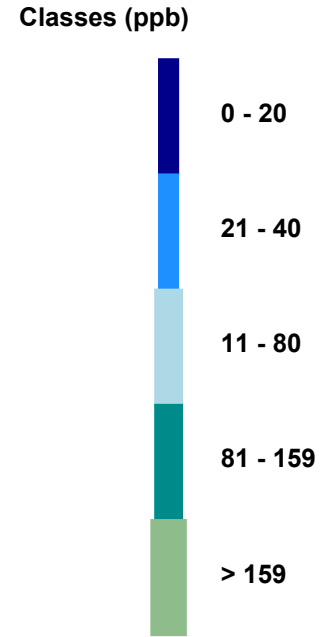
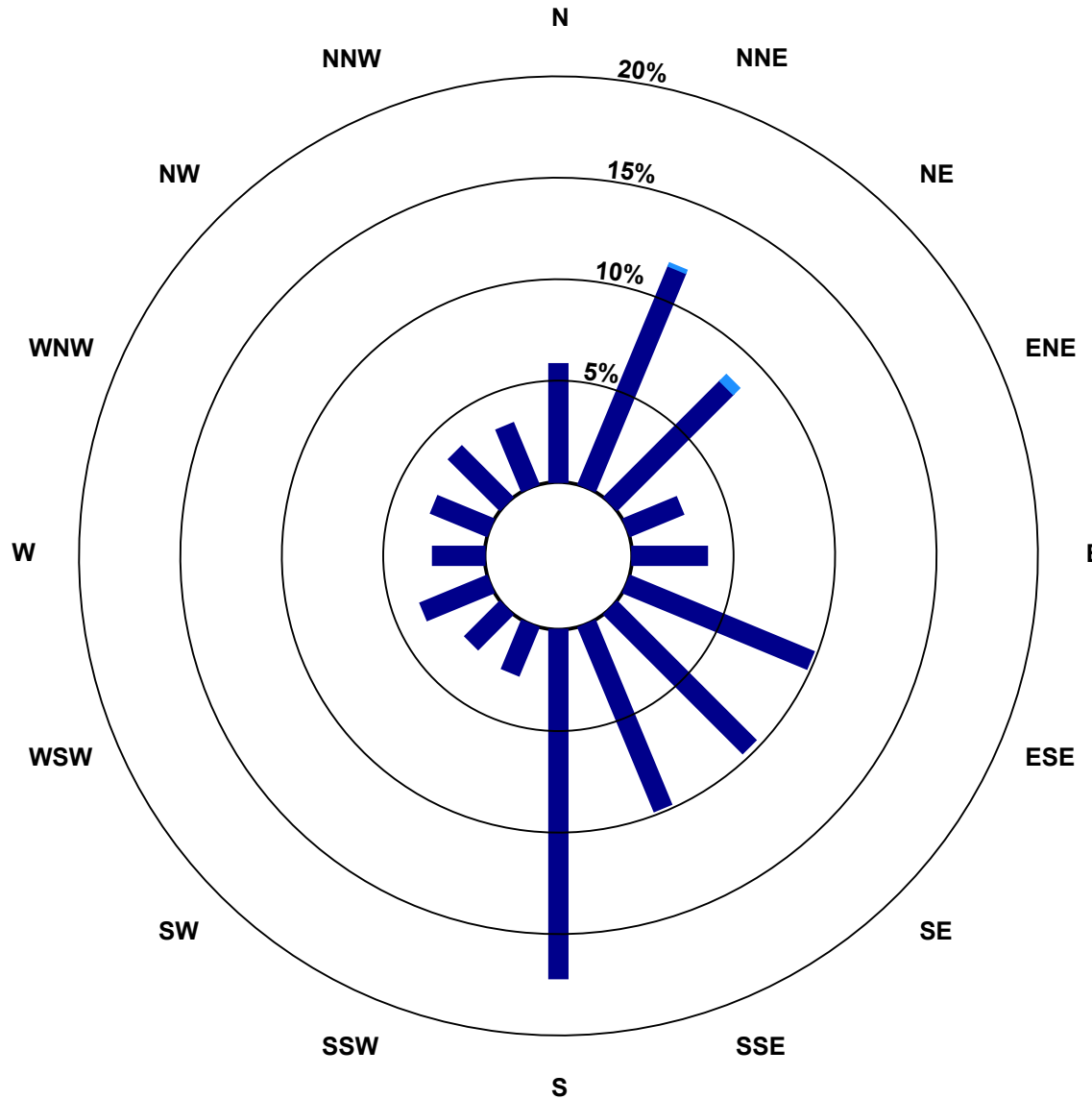
Total Number of Valid Hours: 704

Total Number of Hours: 744

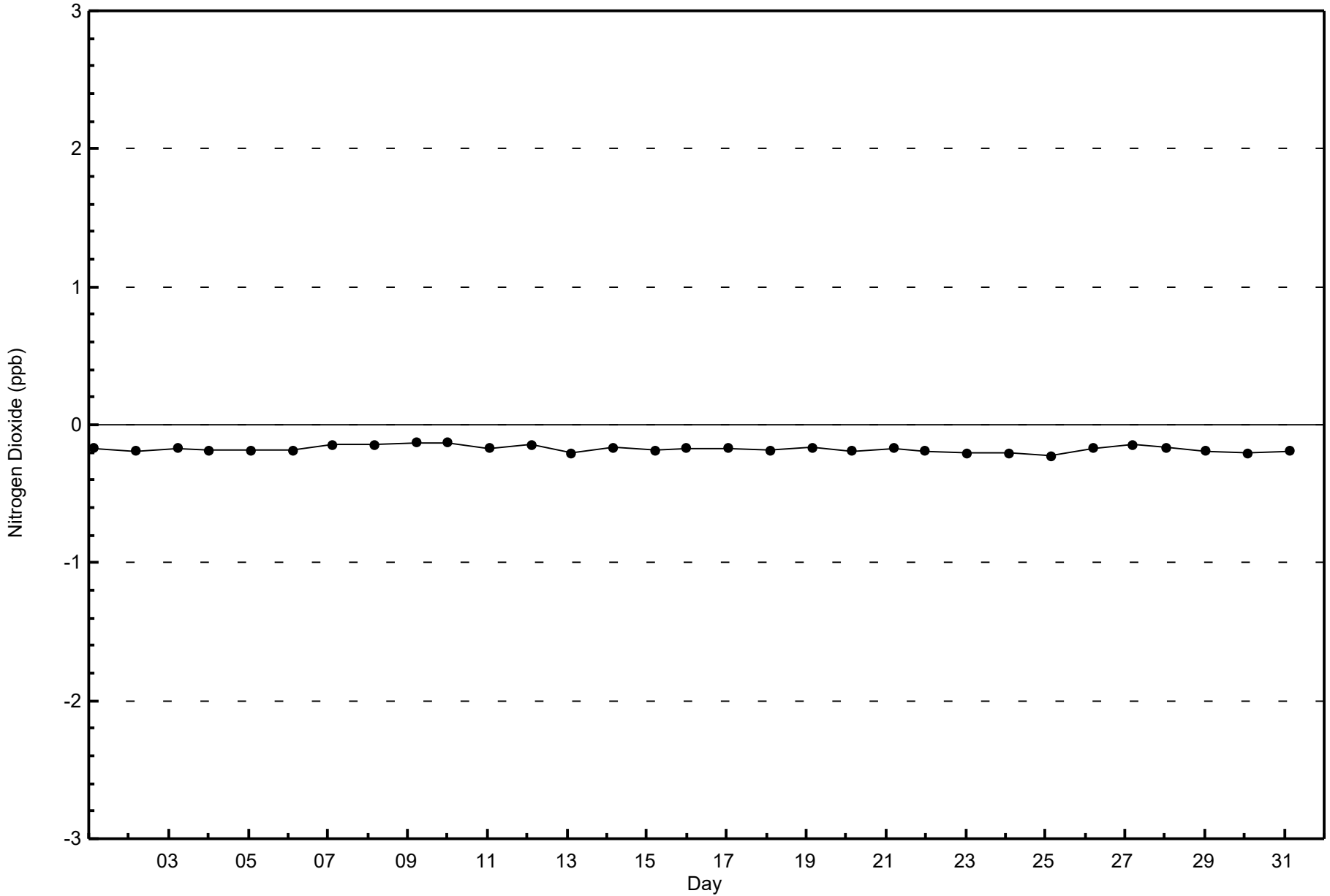


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Mackay River



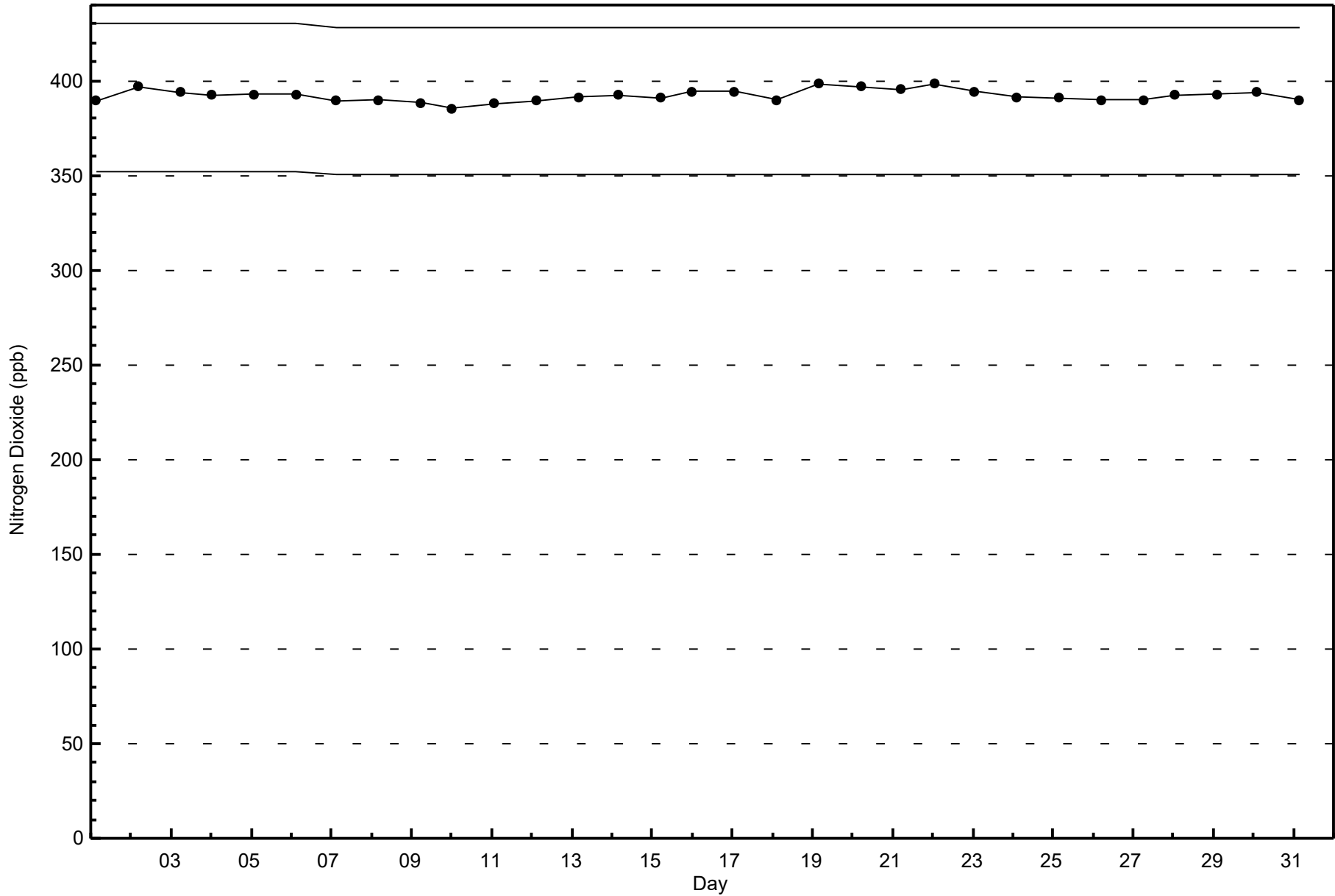
Total Number of Valid Hours: 704





Wood Buffalo Environmental Association
Span Responses

Nitrogen Dioxide (NO₂) - ppb
Mackay River - March 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

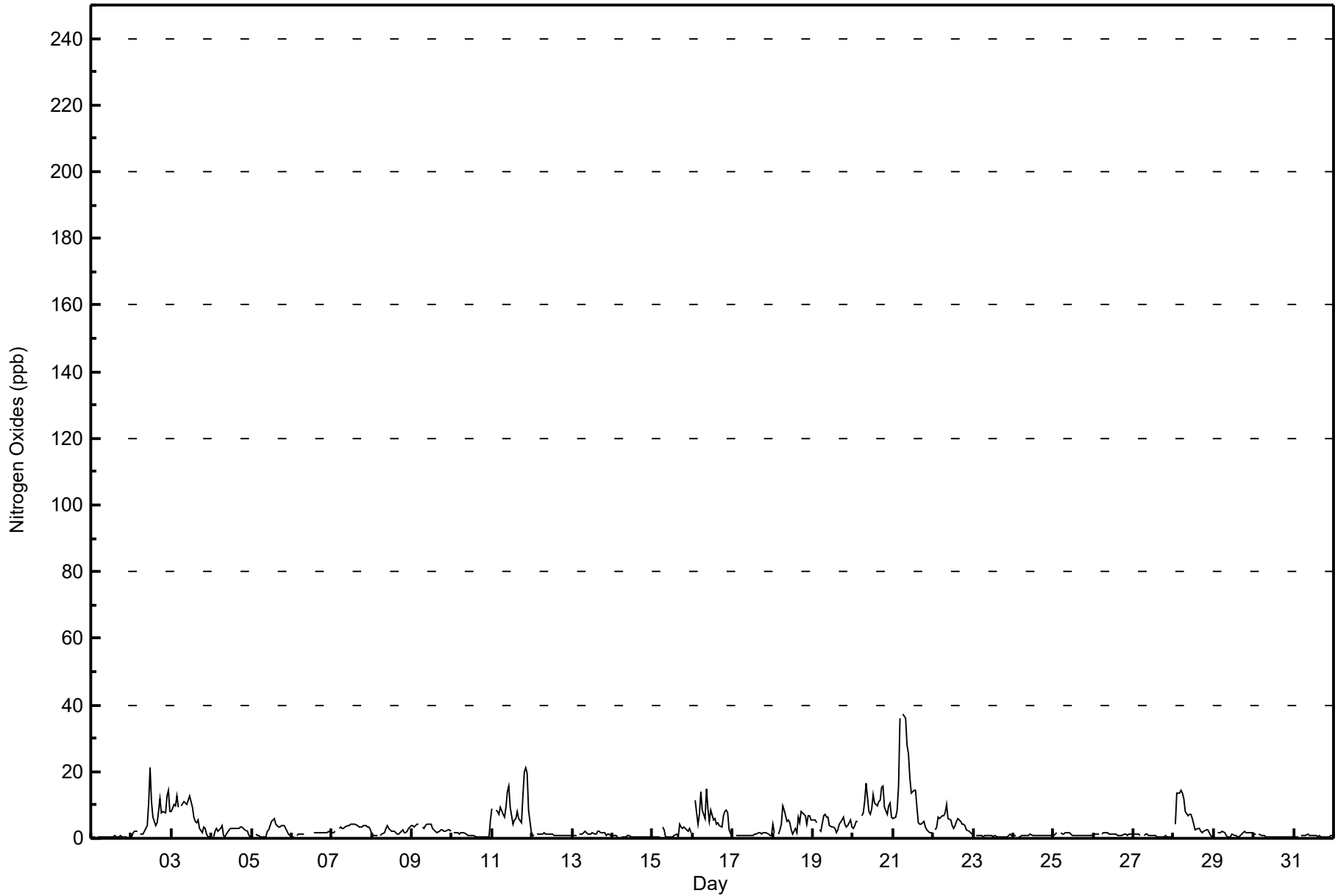
Nitrogen Oxides (NO_x) - ppb
Mackay River - March 2024

Maximum Value: 37.4 ppb on Mar 21 07:00																						Maximum Daily Average: 13.0 ppb on Mar 21																						Hours in Service: 744					
Minimum Value: 0.2 ppb on Mar 2 00:00																						Minimum Daily Average: 0.4 ppb on Mar 1																						Hours of Data: 708					
Maximum Diurnal Average: 4.5 ppb at hour 9																						Minimum Diurnal Average: 1.9 ppb at hour 24																						Hours of Missing Data: 36					
Monthly Average: 3.26 ppb																						Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.8 Median = 1.6 Q ₃ = 4.0 P ₉₀ = 8.2 P ₉₉ = 20.1																						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-Mar	0.6	0.6	0.6	Z	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.7	0.4	0.6	0.8	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.8																								
2-Mar	0.2	1.5	2.2	2.1	Z	1.5	1.3	1.2	2.1	4.0	10.7	21.2	10.9	6.5	4.0	4.7	8.2	11.8	7.6	7.9	7.5	12.6	14.5	8.1	6.6	21.2																							
3-Mar	8.2	10.0	9.9	12.5	9.4	Z	9.9	10.9	10.4	10.4	11.6	12.6	9.3	6.4	5.0	4.6	5.3	3.1	1.9	3.4	3.0	1.4	0.4	0.3	6.9	12.6																							
4-Mar	Z	0.6	2.2	3.1	2.1	3.0	3.7	1.0	0.6	1.2	2.7	2.8	3.2	3.0	3.0	2.9	2.9	3.3	3.1	2.4	1.9	0.9	0.6	0.6	2.3	3.7																							
5-Mar	0.9	Z	1.2	0.9	0.9	0.6	0.3	0.3	0.3	2.0	2.7	3.8	5.1	5.8	4.4	3.8	3.4	3.5	3.7	3.8	3.2	2.2	1.2	0.7	2.4	5.8																							
6-Mar	0.6	0.6	Z	1.0	1.2	1.2	1.2	1.2	C	C	C	C	C	1.7	1.7	1.7	1.8	1.9	1.8	1.5	1.6	1.7	1.9	1.8	1.5	1.9																							
7-Mar	1.7	1.9	2.0	Z	3.1	3.6	3.1	3.1	3.5	3.8	3.9	4.1	4.4	4.4	4.3	3.7	3.2	3.3	3.6	3.7	3.7	3.4	3.2	2.5	3.4	4.4																							
8-Mar	1.4	1.0	0.8	0.7	Z	1.0	1.3	1.6	3.1	3.6	3.0	2.5	2.0	2.0	1.6	1.1	1.1	1.9	2.4	1.5	1.5	2.2	3.0	3.7	1.9	3.7																							
9-Mar	3.7	3.5	3.7	4.1	4.3	Z	3.4	3.0	3.9	4.1	4.2	4.0	3.1	2.5	2.2	1.9	2.3	2.5	2.3	2.0	2.3	2.5	2.4	2.1	3.0	4.3																							
10-Mar	Z	1.8	1.6	1.5	1.4	1.7	1.6	1.5	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	5.4	1.1	5.4																							
11-Mar	9.0	Z	8.6	8.0	7.1	9.2	7.1	6.1	9.4	14.0	15.6	9.4	4.4	5.4	5.9	8.1	5.8	4.8	12.6	20.1	21.2	19.4	8.3	1.5	9.6	21.2																							
12-Mar	1.0	1.0	Z	1.1	1.3	1.1	1.4	1.6	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.9	0.8	0.8	1.0	1.0	0.7	0.7	0.8	0.7	1.0	1.6																							
13-Mar	0.8	0.9	1.0	Z	1.2	1.5	1.2	2.0	1.6	1.3	1.3	1.4	1.5	1.3	1.2	2.0	2.0	1.8	1.6	1.5	1.0	1.1	1.2	1.0	1.4	2.0																							
14-Mar	0.9	0.8	0.7	0.6	Z	0.5	0.5	0.5	0.6	0.7	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.6	0.9																							
15-Mar	0.5	0.4	0.4	0.3	0.3	Z	3.3	2.4	0.3	0.3	0.2	0.3	0.5	0.7	1.2	0.2	4.2	3.5	3.0	3.4	2.4	2.3	3.2	1.7	1.5	4.2																							
16-Mar	Z	11.6	7.7	4.0	7.3	13.8	8.5	5.7	14.8	8.9	5.0	8.3	5.4	6.0	4.1	4.6	3.8	3.4	6.6	7.9	8.6	7.5	2.4	0.5	6.8	14.8																							
17-Mar	0.5	Z	0.7	0.7	0.7	0.7	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.7	1.8	1.5	1.5	1.6	1.7	1.2	0.7	0.6	1.1	1.8																							
18-Mar	4.2	1.8	Z	1.3	2.4	4.2	9.7	8.4	5.1	5.5	4.7	2.3	1.4	3.2	1.7	6.5	4.5	8.1	7.4	6.6	4.1	6.9	6.6	5.5	4.9	9.7																							
19-Mar	5.5	5.5	4.6	Z	2.6	2.0	6.9	7.2	6.3	6.3	4.0	3.6	3.5	2.9	1.5	2.4	4.0	5.6	6.5	4.2	3.3	3.9	5.4	3.4	4.4	7.2																							
20-Mar	3.0	3.9	4.9	5.2	Z	6.9	7.5	11.1	16.6	8.1	7.0	9.1	13.2	10.4	9.9	11.1	11.6	15.1	15.9	9.2	7.2	10.0	10.8	6.3	9.3	16.6																							
21-Mar	5.8	6.5	8.7	15.6	35.9	Z	37.4	35.8	28.0	25.3	18.4	13.4	14.4	14.5	9.4	4.5	4.4	4.2	5.1	3.5	2.5	2.0	1.8	1.7	13.0	37.4																							
22-Mar	Z	2.4	3.5	6.2	6.0	7.0	6.9	7.7	10.0	6.0	5.5	3.7	3.0	3.7	5.1	6.0	5.2	4.3	4.3	3.6	2.5	1.9	1.6	1.3	4.7	10.0																							
23-Mar	1.0	Z	0.8	0.8	0.7	0.7	0.6	0.9	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.9	1.3	1.0	0.7	1.3																							
24-Mar	0.8	0.7	Z	0.6	0.6	0.7	0.8	0.8	1.0	1.0	1.1	1.0	1.0	0.8	0.9	1.0	1.0	0.8	0.9	0.8	0.8	0.8	0.9	0.9	0.9	0.9	1.1																						
25-Mar	1.0	1.4	1.7	Z	1.5	1.4	1.5	1.7	1.7	1.6	1.4	1.0	0.9	0.9	0.8	0.7	0.7	0.8	0.9	0.8	0.7	0.8	0.9	1.0	1.1	1.7																							
26-Mar	1.1	1.1	1.1	1.2	Z	1.4	1.6	1.6	1.6	1.4	1.2	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.0	1.2	1.2	1.4	1.2	1.6																							
27-Mar	1.2	1.2	1.2	1.1	1.0	Z	0.9	1.1	1.2	1.0	0.9	0.9	0.9	0.7	0.6	0.6	0.6	0.5	0.5	0.7	0.5	0.3	0.3	1.0	0.8	1.2																							
28-Mar	Z	4.1	13.5	13.6	14.3	13.5	11.9	8.1	6.8	7.3	7.0	6.1	4.2	2.5	2.8	3.1	2.1	1.9	2.2	2.6	2.4	1.6	0.9	0.5	5.8	14.3																							
29-Mar	0.4	Z	1.8	1.5	1.7	2.0	1.6	1.0	0.3	0.4	0.5	1.5	0.7	0.7	0.5	0.4	0.7	1.5	1.9	1.8	1.7	1.6	1.6	1.5	1.2	2.0																							
30-Mar	1.4	1.3	Z	1.2	1.0	0.8	0.7	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.5	0.5	0.6	1.4																						
31-Mar	0.5	0.6	0.6	Z	0.7	0.7	0.7	0.9	1.1	1.0	0.9	0.8	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	1.1																							
																								2.2	2.6	3.3	3.6	4.2	3.1	4.4	4.2	4.5	4.1	4.0	4.0	3.3	3.0	2.5	2.7	2.8	3.0	3.3	3.2	2.9	3.0	2.6	1.9	Diurnal Average	
																								9.0	11.6	13.5	15.6	35.9	13.8	37.4	35.8	28.0	25.3	18.4	21.2	14.4	14.5	9.9	11.1	11.6	15.1	15.9	20.1	21.2	19.4	14.5	8.1	Diurnal Maximum	
Z - zerospan C - Calibration																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Mackay River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Mackay River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	701	99.01	99.01
21 - 40	7	0.99	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



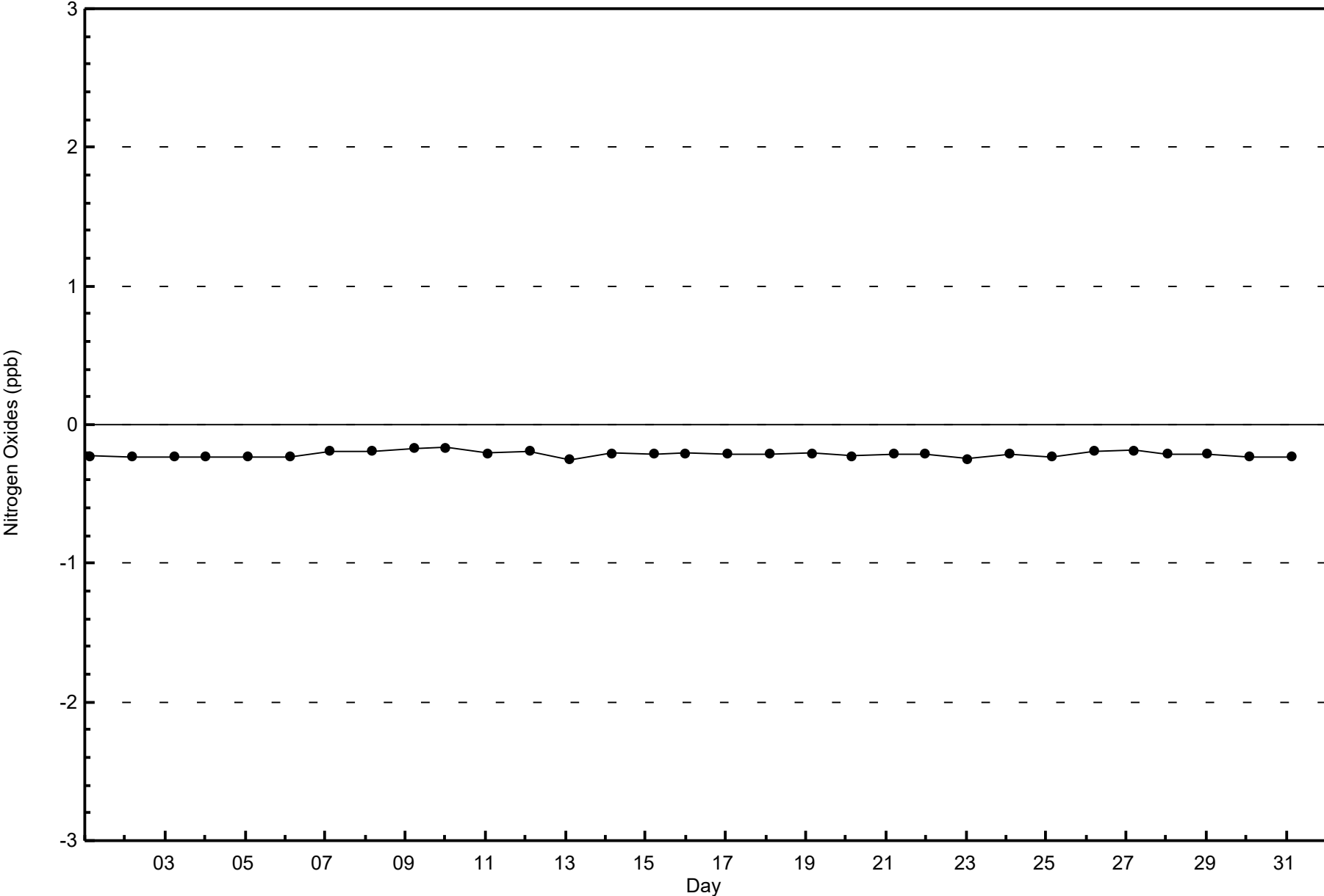
**Wood Buffalo Environmental Association
Frequency Distribution**

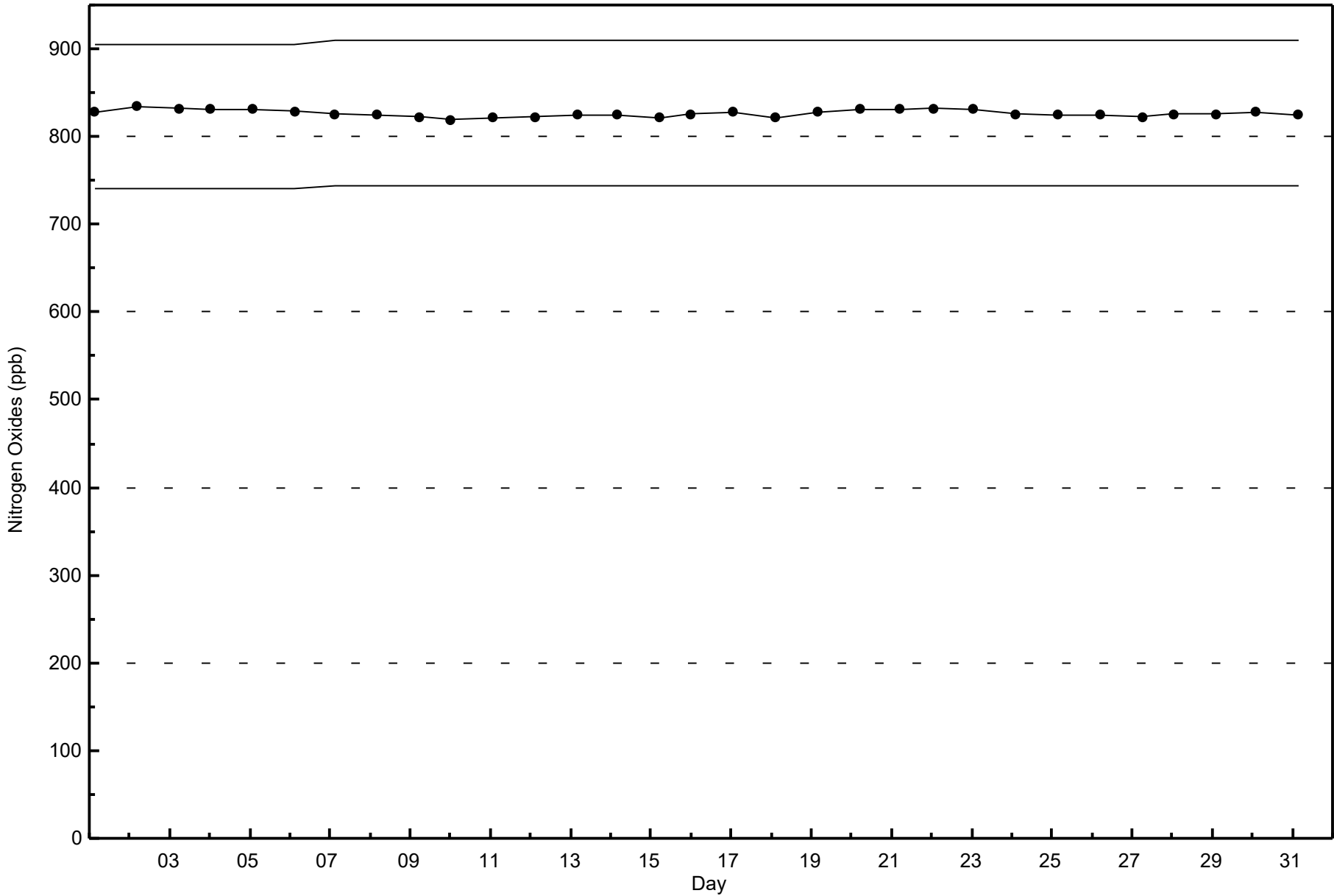
**Nitrogen Oxides (NO_x) - ppb
Mackay River - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	41	80	56	20	26	69	68	69	121	18	17	25	18	21	25	23	697
21 - 40	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	7
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	41	83	60	20	26	69	68	69	121	18	17	25	18	21	25	23	704

Total Number of Valid Hours: 704

Total Number of Hours: 744



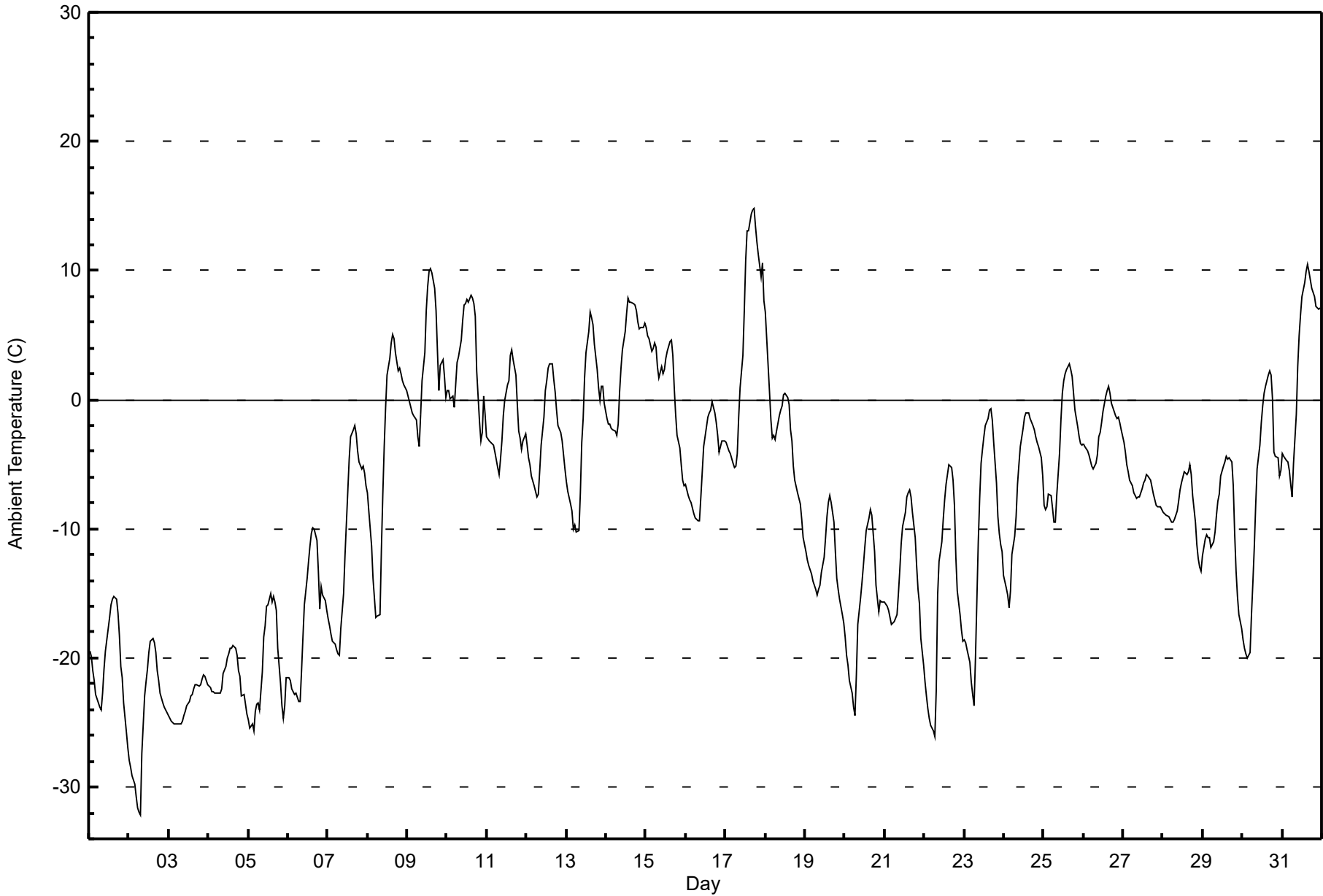




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature (AT) - C
Mackay River - March 2024

Maximum Value: 14.8 C on Mar 17 18:00		Maximum Daily Average: 5.0 C on Mar 17		Hours in Service: 744																						
Minimum Value: -32.1 C on Mar 2 08:00		Minimum Daily Average: -24.6 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -2.4 C at hour 16		Minimum Diurnal Average: -13.1 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -8.04 C		Percentiles: P ₁ = -27.7 P ₁₀ = -22.5 Q ₁ = -15.9 Median = -6.7 Q ₃ = -1.1 P ₉₀ = 3.9 P ₉₉ = 11.0		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-Mar	-19.4	-19.9	-20.9	-21.7	-22.8	-23.4	-23.8	-24.1	-22.7	-20.8	-19.4	-17.7	-16.8	-15.9	-15.5	-15.2	-15.5	-16.5	-18.3	-20.6	-21.5	-23.5	-25.8	-26.9	-20.4	-15.2
2-Mar	-28.0	-28.4	-29.1	-29.7	-30.8	-31.6	-31.9	-32.1	-27.4	-23.0	-21.9	-20.9	-19.6	-18.7	-18.5	-18.8	-19.6	-20.9	-21.8	-22.7	-23.5	-23.8	-24.0	-24.3	-24.6	-18.5
3-Mar	-24.5	-24.9	-25.0	-25.1	-25.2	-25.2	-25.2	-25.1	-24.9	-24.5	-24.1	-23.7	-23.4	-23.0	-22.9	-22.4	-22.1	-22.1	-22.2	-22.1	-21.6	-21.4	-21.5	-22.0	-23.5	-21.4
4-Mar	-22.2	-22.3	-22.6	-22.6	-22.7	-22.7	-22.7	-22.4	-22.4	-21.2	-20.6	-20.0	-19.7	-19.3	-19.2	-19.0	-19.2	-19.8	-21.0	-21.4	-22.9	-22.8	-23.5	-24.3	-21.5	-19.0
5-Mar	-24.8	-25.4	-25.1	-25.7	-24.1	-23.6	-23.5	-24.0	-21.1	-18.4	-17.5	-16.0	-15.8	-15.0	-15.6	-15.2	-15.6	-16.3	-19.3	-22.0	-23.7	-24.7	-23.7	-21.5	-20.7	-15.0
6-Mar	-21.5	-21.8	-22.3	-22.6	-22.8	-22.7	-23.4	-23.4	-21.0	-18.4	-15.9	-13.9	-12.5	-11.3	-10.4	-9.9	-10.1	-10.9	-13.3	-16.2	-14.5	-15.1	-15.6	-16.4	-16.9	-9.9
7-Mar	-16.9	-17.5	-18.2	-18.7	-18.9	-19.3	-19.7	-19.8	-17.8	-15.0	-12.0	-9.6	-7.1	-4.6	-2.9	-2.3	-2.0	-2.7	-4.0	-4.8	-5.3	-5.2	-5.7	-6.7	-10.7	-2.0
8-Mar	-7.2	-8.6	-11.3	-13.8	-15.4	-16.8	-16.8	-16.6	-11.6	-7.3	-3.7	-0.6	2.0	3.2	4.4	5.0	4.7	3.6	2.2	2.4	2.0	1.5	1.2	0.7	-4.0	5.0
9-Mar	0.3	-0.2	-0.6	-1.0	-1.3	-1.6	-2.9	-3.7	-1.1	1.4	3.6	6.9	8.7	9.9	10.1	9.8	8.6	6.9	3.7	0.7	2.7	3.1	1.8	0.1	2.8	10.1
10-Mar	0.8	0.7	0.1	0.3	-0.6	1.2	2.9	3.3	4.6	6.2	7.3	7.4	7.8	7.5	8.1	7.9	7.5	6.5	2.2	-1.7	-3.2	-2.6	0.3	-1.2	3.0	8.1
11-Mar	-2.9	-3.2	-3.3	-3.4	-3.5	-4.1	-5.3	-5.7	-4.6	-3.2	-1.2	-0.1	1.1	1.5	3.5	3.8	3.1	1.9	-0.4	-2.5	-3.0	-3.8	-3.2	-2.7	-1.7	3.8
12-Mar	-3.6	-4.5	-5.0	-5.9	-6.7	-7.1	-7.5	-7.3	-5.5	-3.5	-1.4	0.7	1.4	2.4	2.8	2.7	1.6	0.6	-0.8	-2.0	-2.6	-3.2	-4.3	-5.4	-2.7	2.8
13-Mar	-6.3	-7.1	-8.1	-8.6	-10.0	-9.7	-10.3	-10.1	-7.2	-3.3	-1.4	1.7	3.6	5.2	6.8	6.3	5.8	4.3	2.4	0.9	0.0	1.1	1.1	-0.2	-1.8	6.8
14-Mar	-1.5	-1.9	-1.9	-2.3	-2.3	-2.4	-2.8	-1.9	0.6	2.5	3.8	5.2	6.7	7.8	7.5	7.5	7.5	7.3	6.9	6.0	5.5	5.6	5.6	5.9	3.1	7.8
15-Mar	5.6	5.0	4.7	3.8	3.9	4.4	4.1	2.6	1.7	2.6	2.1	2.3	3.2	3.8	4.5	4.6	3.4	0.9	-1.2	-2.8	-3.8	-5.0	-6.3	-6.7	1.6	5.6
16-Mar	-6.6	-7.5	-7.7	-8.0	-8.4	-8.9	-9.2	-9.4	-9.3	-7.5	-5.6	-3.6	-2.1	-1.4	-1.0	-0.8	-0.2	-1.0	-1.8	-2.8	-4.0	-3.7	-3.2	-3.2	-4.9	-0.2
17-Mar	-3.3	-3.7	-3.9	-4.2	-4.9	-5.2	-5.2	-4.1	-1.4	1.0	3.4	6.9	10.8	13.0	13.0	14.4	14.7	14.8	13.4	12.2	11.2	9.5	10.5	7.6	5.0	14.8
18-Mar	6.8	4.8	0.6	-1.5	-3.0	-2.8	-3.1	-2.4	-1.2	-0.8	-0.5	0.4	0.5	0.2	-0.4	-2.4	-3.2	-5.1	-6.2	-7.2	-7.7	-8.0	-9.2	-10.7	-2.6	6.8
19-Mar	-11.7	-12.4	-12.8	-13.2	-13.5	-14.0	-14.7	-15.2	-14.7	-14.4	-13.3	-12.1	-10.6	-9.0	-7.9	-7.4	-7.9	-9.5	-11.8	-13.8	-14.7	-15.5	-16.6	-17.2	-12.7	-7.4
20-Mar	-18.4	-19.8	-20.6	-21.7	-22.7	-23.8	-24.4	-21.3	-17.4	-15.4	-14.2	-12.9	-11.5	-10.2	-9.2	-8.5	-9.0	-10.3	-11.8	-14.3	-16.4	-15.5	-15.6	-15.6	-15.8	-8.5
21-Mar	-15.7	-16.0	-16.3	-16.9	-17.4	-17.3	-17.2	-16.6	-15.0	-13.2	-11.1	-9.8	-8.7	-7.6	-7.3	-7.0	-7.6	-8.8	-10.7	-12.8	-14.7	-15.8	-18.5	-20.6	-13.4	-7.0
22-Mar	-21.8	-22.9	-23.9	-24.6	-25.2	-25.7	-26.1	-22.5	-15.1	-12.5	-11.0	-9.2	-7.7	-6.6	-5.8	-5.1	-5.3	-6.2	-8.1	-12.2	-14.8	-16.7	-17.9	-18.7	-15.2	-5.1
23-Mar	-18.6	-18.8	-19.4	-20.3	-21.8	-22.8	-23.7	-20.0	-11.1	-7.7	-5.0	-3.9	-2.9	-2.0	-1.4	-0.8	-0.7	-1.6	-3.3	-6.5	-9.1	-10.4	-11.2	-11.8	-10.6	-0.7
24-Mar	-13.6	-14.6	-15.1	-16.1	-14.8	-12.0	-10.5	-9.1	-6.6	-5.0	-3.6	-2.2	-1.3	-1.0	-1.0	-1.0	-1.4	-2.0	-2.4	-2.9	-3.3	-3.7	-4.4	-5.9	-6.4	-1.0
25-Mar	-8.2	-8.5	-8.3	-7.3	-7.4	-8.4	-9.5	-9.5	-7.4	-4.2	-1.6	0.5	1.5	2.0	2.3	2.7	2.3	1.7	0.5	-0.8	-2.1	-2.9	-3.4	-3.5	-3.3	2.7
26-Mar	-3.4	-3.6	-3.9	-4.2	-4.8	-5.1	-5.3	-4.9	-4.3	-2.9	-2.5	-1.8	-0.9	0.3	0.8	1.0	0.5	-0.3	-0.9	-1.3	-1.5	-1.4	-1.8	-2.4	-2.3	1.0
27-Mar	-3.3	-4.0	-5.1	-5.6	-6.2	-6.7	-7.2	-7.4	-7.6	-7.6	-7.5	-6.8	-6.5	-6.3	-5.8	-5.9	-6.3	-6.8	-7.3	-7.7	-8.2	-8.3	-8.3	-8.5	-6.7	-3.3
28-Mar	-8.8	-8.9	-9.0	-9.0	-9.3	-9.5	-9.5	-9.3	-8.6	-7.8	-7.0	-6.4	-6.0	-5.5	-5.8	-5.5	-5.1	-5.8	-7.4	-9.5	-11.3	-12.3	-13.0	-13.2	-8.5	-5.1
29-Mar	-12.0	-10.7	-10.5	-10.7	-10.7	-11.4	-11.1	-10.2	-9.0	-7.9	-7.4	-5.9	-5.2	-4.8	-4.4	-4.7	-4.5	-4.9	-6.7	-10.4	-13.3	-15.3	-16.7	-17.7	-9.4	-4.4
30-Mar	-18.6	-19.3	-19.7	-20.1	-19.6	-16.6	-14.2	-11.4	-8.2	-5.4	-3.5	-1.8	-0.5	0.5	1.1	1.9	2.2	1.9	0.1	-4.1	-4.4	-4.5	-5.9	-5.5	-7.3	2.2
31-Mar	-4.2	-4.4	-4.7	-4.9	-5.4	-6.6	-7.5	-4.9	-1.1	2.6	5.0	6.6	7.9	9.1	9.9	10.5	10.0	9.3	8.6	7.9	7.2	7.1	7.1	7.1	3.0	10.5
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Mackay River - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	116	15.59	15.59
-20 - 0	469	63.04	78.63
0 - 10	147	19.76	98.39
10 - 20	12	1.61	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

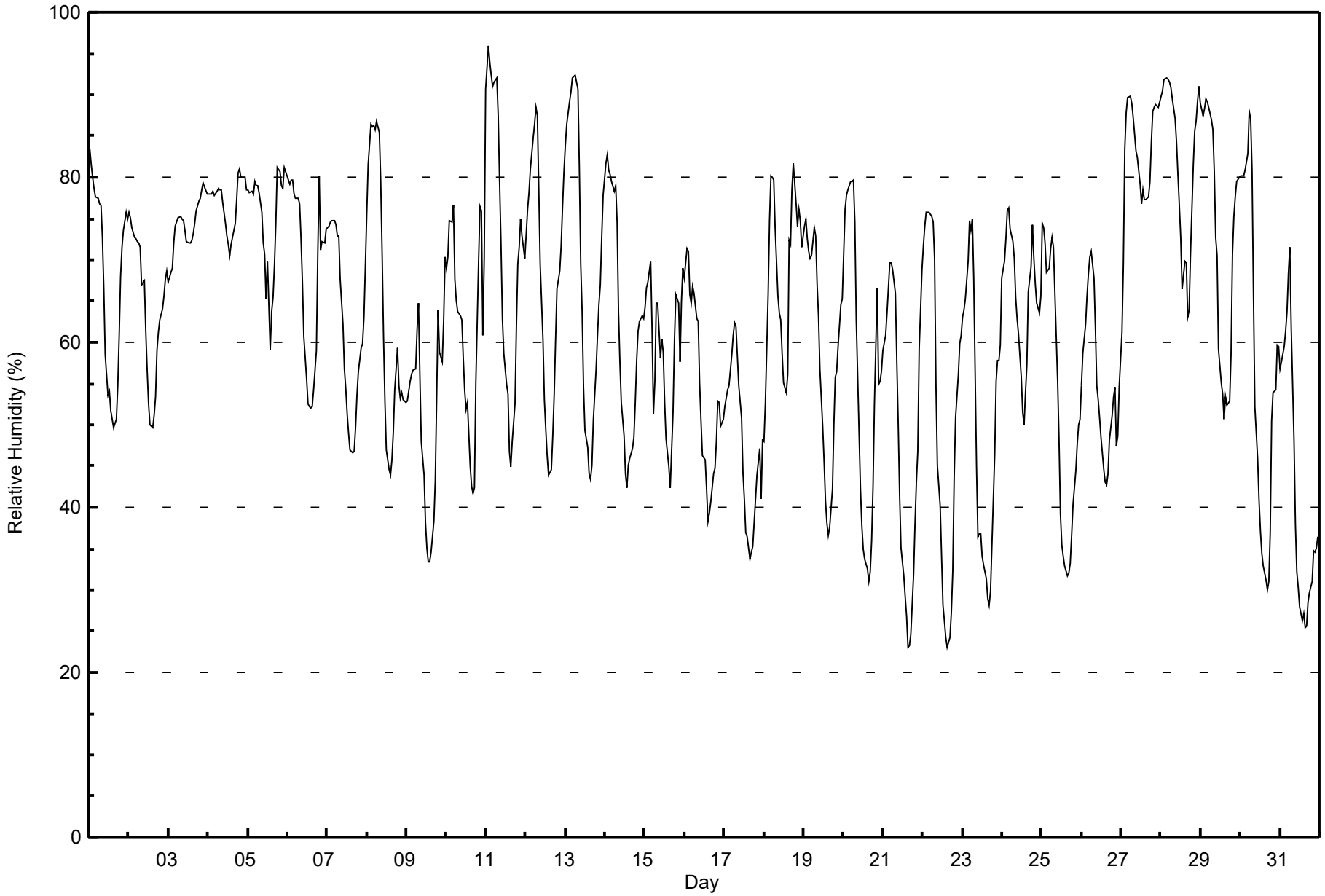
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity (RH) - %
Mackay River - March 2024

Maximum Value: 95.9 % on Mar 11 02:00																						Maximum Daily Average: 82.6 % on Mar 27																						Hours in Service: 744	
Minimum Value: 23.1 % on Mar 22 16:00																						Minimum Daily Average: 42.2 % on Mar 31																						Hours of Data: 744	
Maximum Diurnal Average: 76.6 % at hour 7																						Minimum Diurnal Average: 46.0 % at hour 15																						Hours of Missing Data: 0	
Monthly Average: 62.58 %																						Percentiles: P ₁ = 25.8 P ₁₀ = 38.1 Q ₁ = 51.1 Median = 64.6 Q ₃ = 75.1 P ₉₀ = 81.2 P ₉₉ = 92.0																						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-Mar	83.5	81.6	80.0	78.6	77.7	77.4	76.8	76.5	72.7	66.4	58.4	53.5	54.1	51.8	50.7	49.7	50.6	54.7	60.8	67.9	71.5	73.6	75.8	74.9	67.5	83.5																			
2-Mar	75.7	75.0	73.8	72.7	72.5	72.1	72.0	71.6	67.0	67.4	61.4	56.6	52.6	50.0	49.7	51.2	53.4	58.9	61.2	62.7	64.1	65.5	67.7	68.6	64.3	75.7																			
3-Mar	67.3	68.4	68.9	72.1	74.0	74.6	75.1	75.3	74.9	74.7	73.5	72.3	72.0	72.4	73.3	74.5	75.9	77.1	77.4	78.5	79.4	78.8	78.0	74.2	79.4																				
4-Mar	77.9	78.0	78.0	78.3	77.8	78.3	78.6	78.4	78.4	76.9	74.5	73.0	71.9	70.5	71.8	72.6	74.5	77.2	80.6	81.0	80.0	80.0	80.0	78.4	76.9	81.0																			
5-Mar	78.5	78.1	78.3	78.0	79.5	79.0	78.9	78.1	75.8	72.0	70.6	65.2	69.7	59.1	63.7	65.5	69.3	74.4	81.2	80.7	79.0	78.6	81.2	80.7	74.8	81.2																			
6-Mar	79.6	79.2	79.7	79.6	78.0	77.4	77.4	76.7	72.5	67.3	60.6	55.6	52.6	52.2	52.0	52.3	54.2	58.9	70.8	80.1	71.2	72.2	72.1	73.8	68.6	80.1																			
7-Mar	73.8	74.0	74.5	74.7	74.7	74.2	72.9	72.8	67.6	62.3	56.7	54.4	51.3	49.0	47.0	46.6	46.8	49.7	53.6	56.5	59.3	59.8	63.1	69.1	61.9	74.7																			
8-Mar	75.6	81.6	86.5	86.1	86.3	85.8	86.8	85.4	79.4	70.6	60.6	52.9	46.9	44.7	44.0	45.8	49.1	54.2	59.3	54.7	53.2	53.9	53.1	52.8	64.6	86.8																			
9-Mar	52.9	54.0	55.2	56.2	56.6	56.9	61.5	64.8	55.9	48.0	43.9	38.1	35.0	33.5	33.5	34.5	38.2	43.3	53.1	64.0	58.8	57.6	62.7	70.3	51.2	70.3																			
10-Mar	68.9	70.4	74.8	74.6	76.6	67.6	65.1	63.7	63.2	62.8	58.1	54.2	51.8	52.8	45.0	42.5	41.7	42.4	55.0	70.0	76.5	75.9	60.8	70.1	61.9	76.6																			
11-Mar	90.7	95.9	93.9	92.4	91.1	91.5	92.1	87.5	79.2	71.9	62.9	58.7	54.9	53.6	46.9	45.0	47.9	52.5	61.9	69.6	71.5	75.0	72.8	70.1	72.1	95.9																			
12-Mar	73.1	76.0	78.1	81.1	84.7	86.5	88.5	87.4	78.7	69.5	60.4	53.1	49.6	46.3	43.8	44.5	48.7	53.5	60.2	66.5	68.7	71.8	76.4	80.6	67.8	88.5																			
13-Mar	83.9	86.4	89.1	90.3	92.1	92.2	92.4	90.8	81.3	69.5	63.7	54.5	49.3	47.3	44.0	43.4	45.1	50.6	56.7	60.9	64.6	66.9	72.7	77.8	69.4	92.4																			
14-Mar	81.7	82.7	80.8	80.4	79.5	78.3	79.0	74.5	63.8	57.7	52.7	48.6	44.0	42.4	45.1	46.0	47.1	48.4	52.6	57.8	61.4	62.6	63.3	62.8	62.2	82.7																			
15-Mar	64.2	66.7	67.3	69.9	61.6	51.3	55.3	64.8	64.7	58.2	60.4	58.8	52.7	48.3	44.9	42.5	47.0	51.5	60.2	65.8	64.7	57.7	65.0	68.9	58.9	69.9																			
16-Mar	67.9	71.4	71.0	65.7	64.7	66.8	65.9	62.8	62.6	55.1	50.5	46.2	45.8	42.2	38.3	39.3	40.6	44.1	44.7	48.0	52.9	52.7	49.7	50.6	54.2	71.4																			
17-Mar	52.2	53.3	54.2	54.7	58.5	60.9	62.3	61.9	58.3	54.8	50.9	44.3	41.0	37.0	36.5	33.8	34.5	35.3	38.2	41.0	43.9	47.1	41.1	48.1	47.7	62.3																			
18-Mar	48.0	52.6	65.8	74.7	80.2	80.0	79.6	74.0	65.6	63.6	62.8	58.7	55.0	53.8	56.1	72.4	71.8	78.5	81.7	76.8	74.1	76.1	74.8	71.5	68.7	81.7																			
19-Mar	74.1	74.8	72.6	71.0	70.1	70.6	73.8	72.9	67.1	63.2	56.8	49.8	45.5	40.9	38.2	36.6	37.6	42.2	50.0	55.7	56.5	59.5	64.5	65.3	58.7	74.8																			
20-Mar	70.6	76.2	77.7	78.4	79.5	79.5	79.6	74.5	62.7	49.2	42.4	37.8	34.9	33.7	32.6	31.1	32.3	35.9	42.5	52.5	66.5	54.8	55.2	56.4	55.7	79.6																			
21-Mar	59.0	60.9	63.6	66.6	69.7	69.6	68.8	66.0	57.6	50.1	41.5	35.0	31.6	29.1	26.8	23.1	23.2	24.6	31.9	38.0	43.1	46.8	59.1	68.7	48.1	69.7																			
22-Mar	71.7	74.1	75.8	75.8	75.8	75.3	74.6	70.1	54.8	45.1	40.1	34.0	28.2	26.2	24.3	23.1	24.3	27.3	32.2	43.5	50.9	56.1	59.8	60.8	51.0	75.8																			
23-Mar	63.0	63.9	65.2	69.7	74.8	73.6	74.9	67.8	45.0	36.4	36.7	36.8	34.0	33.1	31.4	29.0	28.2	29.8	35.4	46.4	55.3	57.8	57.8	59.7	50.2	74.9																			
24-Mar	67.8	69.9	72.5	75.9	76.3	73.8	72.2	70.1	65.4	62.8	61.0	55.8	51.5	50.0	53.8	57.3	66.1	69.1	74.2	70.2	67.2	64.8	63.5	65.6	65.7	76.3																			
25-Mar	74.5	74.0	72.0	68.4	69.0	71.4	72.7	71.5	66.1	55.2	48.2	39.1	35.4	34.1	32.8	31.7	32.1	33.3	36.6	40.3	44.5	47.7	50.0	50.6	52.1	74.5																			
26-Mar	54.7	58.7	62.2	65.7	68.3	70.3	70.9	67.8	61.6	54.7	53.0	50.9	48.5	44.6	43.1	42.8	44.0	48.2	51.3	53.5	54.6	47.4	48.6	54.6	55.0	70.9																			
27-Mar	61.1	69.5	83.4	87.8	89.7	89.9	89.0	87.3	85.3	83.2	82.5	79.1	76.8	78.5	77.2	77.2	77.7	79.4	84.3	88.0	88.5	88.9	88.4	89.1	82.6	89.9																			
28-Mar	89.9	90.6	91.9	92.0	91.8	91.5	90.9	89.5	87.1	84.2	80.3	76.5	72.8	66.5	69.8	69.6	63.1	63.8	70.7	81.6	85.5	86.8	89.2	91.1	81.9	92.0																			
29-Mar	89.0	87.5	88.4	89.4	89.2	88.6	87.0	85.7	80.7	72.7	70.5	59.2	55.1	53.8	50.6	53.3	52.3	52.9	58.6	70.7	75.3	77.6	79.4	79.9	72.8	89.4																			
30-Mar	80.2	80.2	80.2	80.8	82.9	88.0	87.2	80.8	65.9	52.2	45.9	40.9	37.2	34.5	32.9	31.2	29.9	31.1	37.0	50.5	53.9	54.3	59.6	59.5	57.4	88.0																			
31-Mar	56.8	57.7	59.5	61.3	63.8	68.3	71.5	61.9	48.1	38.0	32.2	30.3	28.0	26.3	27.1	25.4	25.5	28.4	29.7	31.0	34.7	34.7	35.2	36.5	42.2	71.5																			
	71.2	73.0	74.7	75.6	76.3	76.2	76.6	74.6	68.0	61.8	57.2	52.4	49.4	47.0	46.0	46.2	47.5	50.7	56.2	61.4	63.6	64.0	65.2	67.3		Diurnal Average																			
	90.7	95.9	93.9	92.4	92.1	92.2	92.4	90.8	87.1	84.2	82.5	79.1	76.8	78.5	77.2	77.2	77.7	79.4	84.3	88.0	88.5	88.9	89.2	91.1		Diurnal Maximum																			





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Mackay River - March 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	81	10.89	10.89
40 - 60	233	31.32	42.20
60 - 80	335	45.03	87.23
80 - 100	95	12.77	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Precipitation (PC) - mm

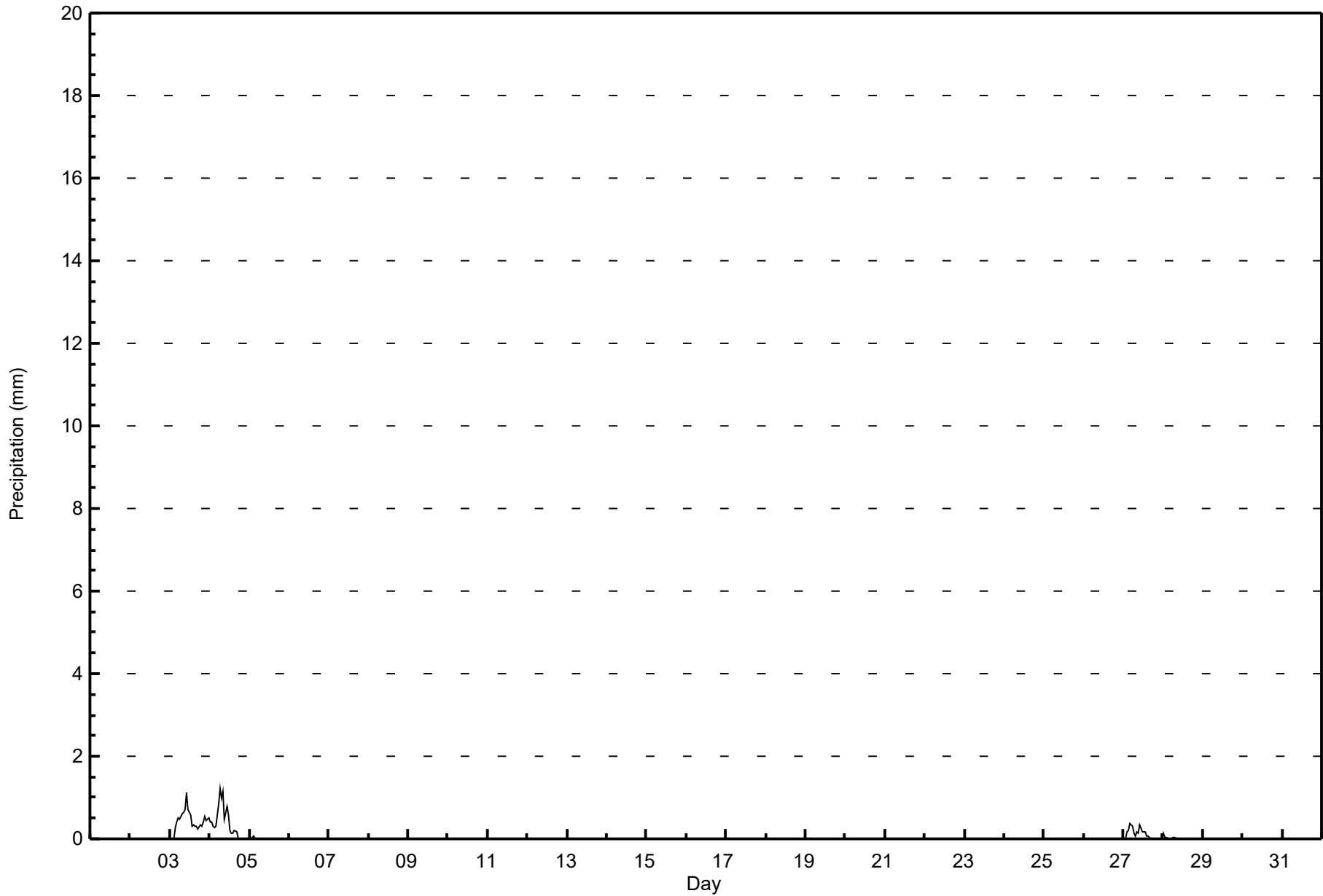
Mackay River - March 2024

Maximum Value: 1.2 mm on Mar 4 07:00		Maximum Daily Total: 10.1 mm on Mar 3		Hours in Service: 744																																													
Minimum Value: 0.0 mm on Mar 1 01:00		Minimum Daily Total: 0.0 mm on Mar 1		Hours of Data: 744																																													
Maximum Diurnal Total: 2.3 mm at hour 11		Minimum Diurnal Total: 0.2 mm at hour 18		Hours of Missing Data: 0																																													
Monthly Total: 21.70 mm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.7		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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.3	0.4	0.5	0.5	0.6	0.7	0.7	1.1	0.7	0.6	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.5	0.5	0.5	10.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
4-Mar	0.4	0.4	0.3	0.3	0.3	0.9	1.2	1.0	1.2	0.5	0.8	0.6	0.2	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.6	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
5-Mar	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
6-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.2	0.2	0.4	0.3	0.1	0.1	0.2	0.1	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	2.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
28-Mar	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
29-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0															
																								0.6	0.5	0.6	0.7	1.1	1.7	1.9	1.7	2.0	1.3	2.3	1.4	1.0	0.6	0.6	0.6	0.5	0.2	0.3	0.3	0.4	0.5	0.5	0.5	Diurnal Average	
																								0.4	0.4	0.3	0.3	0.4	0.9	1.2	1.0	1.2	0.7	1.1	0.7	0.6	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.4	0.5	0.5	0.5	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Mackay River - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Mackay River - March 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	721	96.91	96.91
0.4 - 0.5	11	1.48	98.39
0.6 - 0.7	6	0.81	99.19
0.8 - 1.4	6	0.81	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Mackay River - March 2024

Maximum Speed: 17 km/h on Mar 25 12:00	Maximum Daily Speed Average: 11.3 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 2 00:00	Minimum Daily Speed Average: 1.3 km/h on Mar 22	Hours of Data: 739
Maximum Diurnal Speed Average: 2.7 km/h at hour 18	Minimum Diurnal Speed Average: 1.1 km/h at hour 15	Hours of Missing Data: 5
Monthly Average Velocity: 1.8 km/h 124.8 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 8 Q ₃ = 11 P ₉₀ = 13 P ₉₉ = 16	Percent Operational Time: 99.3

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	WSW5	W6	W7	W7	W7	WSW8	WSW8	W8	W9	W12WNW13WNW12WNW12	W12WNW12WNW11WNW10	WNW8	NW5	NW5	NNW5	NNW2	NW1	NE0							W7.2	WNW13
2-Mar	NE2	S1	SE1	SE2	SE2	ESE2	UO	SE1	NE2	NE8	NE7	NE5	NNE8	NNE11	NE10	NE9	NE10	NNE8	NNE10	NNE11	NNE10	NNE11	NE10	NNE10	NE6.0	NNE11
3-Mar	NNE12	NNE13	NNE12	NNE12	NNE14	NNE13	NNE12	NNE13	NNE12	NNE10	NNE11	NNE12	NNE11	N11	N12	N11	N11	N10	N10	N10	N10	NNW9	NNW11	NW11	N10.8	NNE14
4-Mar	NW11	NW10	NW12	NW11	NW12	NW11	NW12	NW11	NW10	N12	N14	N13	N13	N12	N10	N10	N8	NNW5	WNW3	NW4	NW5	WNW4	W4	WNW3	NNW8.4	N14
5-Mar	NW3	NW4	WNW3	WSW3	W3	WSW3	WSW3	WSW3	WSW3	NW3	NW2	E2	NNW2	SSE6	S4	W1	ESE2	ESE2	SSE4	SSE3	SSE3	S5	S6	S7	SSW1.4	S7
6-Mar	S7	S7	S7	S7	S8	S9	S8	S8	S11	S11	S12	S12	S13	S13	S13	S13	S12	S10	S8	S11	S11	S11	S9	SSW7	S10.2	S13
7-Mar	S11	S10	SSE10	S9	S9	SSE8	S7	S8	S11	S11	S11	S12	S13	S13	S13	S13	S12	S10	S8	S11	S11	S11	S9	SSW7	S10.2	S13
8-Mar	WSW5	WSW4	WSW2	SSE3	SSE3	SSE5	SSE4	SSE5	SE5	SSE6	S7	S8	S10	S10	S10	S11	SSE8	SE6	SE7	SSE8	SSE8	SSE9	S12	S13	S6.4	S13
9-Mar	S13	S13	S13	S12	S10	S8	SSE3	SE3	SSE10	SSE11	S11	S12	S10	S10	SSE9	S10	S9	SSE6	SE3	SSE3	S7	S8	SSW5	SSW3	S8.3	S13
10-Mar	SSW4	S4	S3	S3	SW4	WSW5	WSW7	WSW9	WSW10	WSW11	WSW14	WSW14	W13	WNW15	WNW14	W13	W8	W7	SW2	ESE2	N3	N4	N6	NNE5	W5.6	WNW15
11-Mar	NNE9	NE7	ENE7	ENE6	NE7	NE5	NE4	NNE4	ENE6	ENE5	ENE6	ESE6	SE6	ESE6	ENE6	ESE7	E7	E7	NE8	NE7	NE5	ENE5	ESE9	ESE12	ENE5.7	ESE12
12-Mar	ESE13	ESE11	ESE10	ESE9	ESE10	ESE9	E11	ESE12	ESE10	ESE10	ESE11	ESE10	E11	E10	E10	E10	E11	E9	E6	E7	ESE11	ESE12	ESE11	ESE9	E10.0	ESE13
13-Mar	E7	ESE6	E4	E5	ESE4	ESE6	ESE6	ESE6	ESE7	SE7	SE6	SE6	SE8	SSE9	S9	ESE10	ESE10	ESE8	ESE8	SE8	SE7	SSE7	S8	S7	SE6.3	ESE10
14-Mar	S7	S7	S8	S7	SSW7	S7	S7	SW7	SW7	SW7	SW9	SW9	SW12	SW12	SW9	SW8	SSW6	SSW8	SSW9	SSW9	SW8	WSW9	WSW10	WSW10	SSW7.7	SW12
15-Mar	W9	WSW8	W10	W9	W12WNW15WNW16	NNW13	NNW12	NNW17	NNW16	NW14	NW15	NNW14	NNW15	NNW13	NNE10	NE11	NE7	NE6	NE8	NE8	NE4	ENE4			NNW8.1	NNW17
16-Mar	ENE5	NNE3	NE5	NE7	NNE8	NE9	NE7	NE8	NE9	NE8	NNE7	NE6	ENE7	ENE6	ENE5	E7	ENE7	ENE6	ENE6	E6	E4	ESE6	ESE9	ESE8	ENE5.9	NE9
17-Mar	ESE9	ESE9	SE9	SE8	SE7	SE8	SE8	SE8	SSE9	SSE10	SSE10	S11	S14	S16	S14	S16	S16	S12	S10	S12	SSW10	SSW7	WSW7	W5	S8.7	S16
18-Mar	WNW8	NW6	WNW1	SE1	E1	NNE5	NNE5	NNE4	N8	NNE9	NNW8	NNW11	NNW8	N9	N12	N11	N13	NNE10	NE8	NNE7	NNE7	NNE7	NNE9	NE7	N6.4	N13
19-Mar	NNE6	NNE7	NNE10	NNE10	NNE8	NNE8	NNE10	NNE9	NNE8	NNE9	NNE8	NNW5	NW4	WNW5	N5	N7	NNE9	NNE9	NE7	NE7	NE6	ENE3	NE3	NE4	NNE6.5	NNE10
20-Mar	NE2	E0	UO	SE0	UO	UO	UO	NE3	NNE4	NNE5	NNE6	NNE7	NNE7	NNE7	NNE7	NNE8	NE9	ENE7	NE5	NE4	NE3	NE5	NE6	NE6	NNE5.0	NE9
21-Mar	NNE4	NE4	NE5	NE6	NE7	NNE6	NNE7	NE7	NNE8	NNE8	NE9	NE11	NE10	NE12	NNE13	NNE12	NNE12	NNE11	NE7	NNE7	NE5	NNE6	ENE2	NNE2	NE7.6	NNE13
22-Mar	SSW1	SE1	SE1	SSE1	ESE1	SSE1	SE2	WSW1	NE1	SW2	WNW2	NNW5	NW3	SSW1	SW1	NE4	ENE5	E5	E5	ESE4	ESE4	SE4	ESE4	SE4	ESE1.3	ENE5
23-Mar	SSE5	SSE4	SE5	SE5	ESE1	SE3	SE2	SE3	SSE2	S6	SSE6	S6	S6	S6	SSW5	S6	S6	SSW4	SE4	SE4	SE5	SE5	SSE6	SSE4.2	SSE6	
24-Mar	SSE5	SSE5	SE4	SE4	SSE5	SSE6	SE6	SSE5	SSE6	S7	SSE8	SSE11	SSE12	SE9	SSE8	SE9	SE9	ESE10	ESE3	ESE5	ESE5	ESE5	ESE6	ESE6	SE6.3	SSE12
25-Mar	ESE6	ESE6	ESE7	ESE8	ESE9	ESE8	ESE9	ESE8	SE8	SE11	SSE12	S17	S15	S16	SSE16	SSE15	SSE13	SSE13	SSE10	SSE9	SSE7	SE7	SE8	SSE11	SSE9.7	S17
26-Mar	SSE11	SE11	SE11	SE12	SE11	SE14	SE14	SE16	SSE15	SSE14	SSE14	SSE14	SSE15	S15	S13	S13	S12	SSW10	S8	SSE4	ESE6	SE9	SE11	SE12	SSE11.3	SE16
27-Mar	SE13	SE13	ESE13	ESE12	ESE11	ESE11	ESE12	ESE13	ESE16	ESE16	ESE16	E16	E16	ESE15	ESE15	E14	E12	E11	E8	NE6	NE6	NE6	NE6	NNE6	E11.1	E16
28-Mar	NNE7	NNE6	NNE8	NNE8	NNE9	NNE8	N8	N9	NNE9	NNE10	N10	N10	N11	NNE11	N11	N11	NNE11	NNE11	N8	N5	NNE2	WNW2	NW5	NW5	N7.8	N11
29-Mar	NNW4	NW5	NW5	WNW4	WNW4	WNW4	NW5	NW6	NNW7	N10	N9	N8	N11	NNW9	N10	N9	NNE8	NE6	ENE2	SE2	SE3	SE3	SE4	SE3	NNW4.1	N11
30-Mar	SE4	SE4	SSE4	SSE4	S6	S7	S7	SSE7	S8	S10	S13	S12	SSE11	SSE12	SSE11	SSE10	S9	S8	SSE4	ESE5	SE6	SE5	SE5	SE6	SSE7.0	S13
31-Mar	SSE7	SSE7	SSE7	SSE8	S9	S7	S5	S6	SW5	SW5	S5	S9	SSW11	SSW11	SW12	SSW14	SSW13	S11	S9	S10	S8	S13	S15	SSW14	S8.8	S15

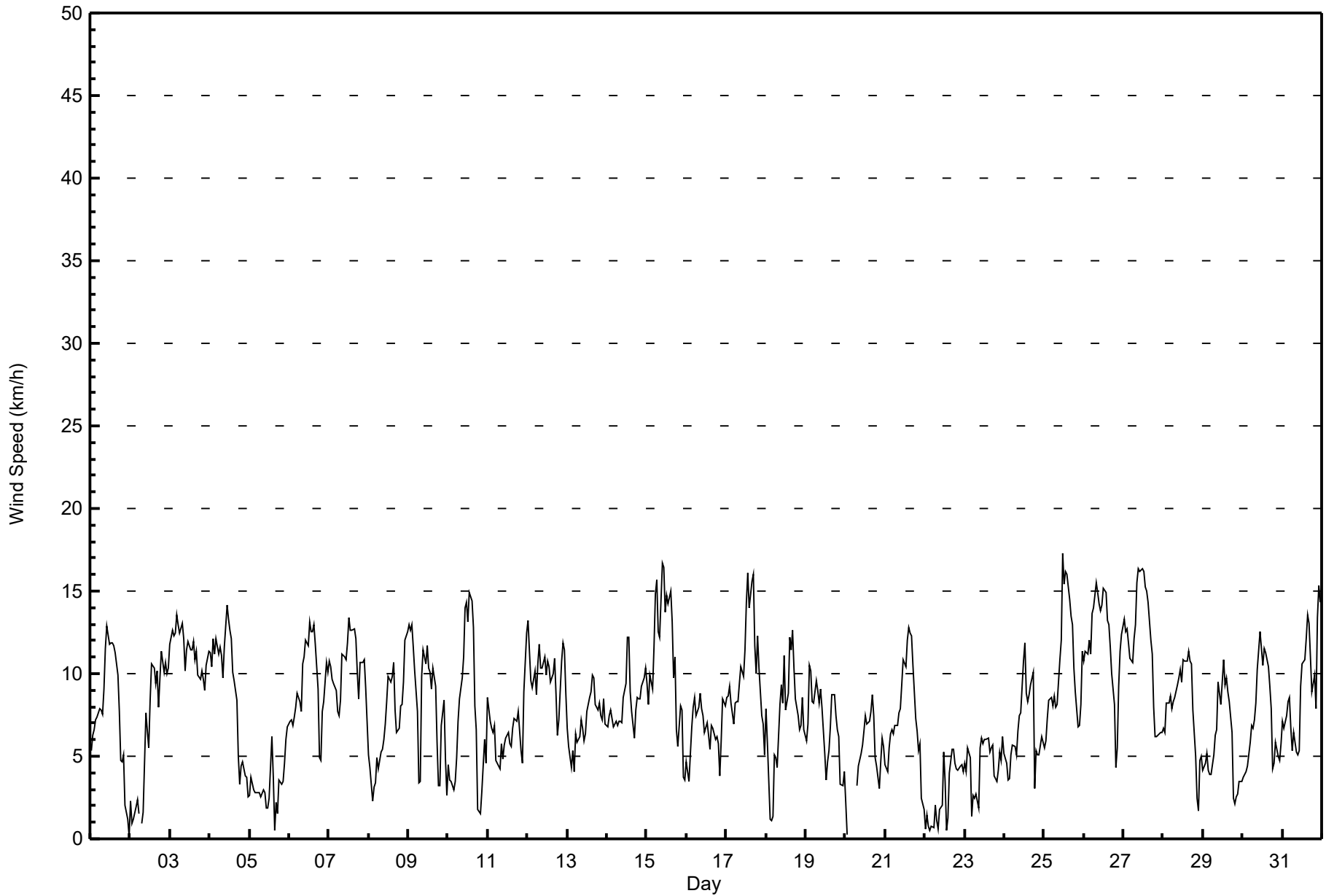
SE1.9	SE1.9	SE2.1	SE2.3	SE1.7	ESE1.6	ESE1.5	ESE1.6	ESE1.7	ESE1.5	ESE1.3	SSE1.7	SSE1.7	SSE1.7	SSE1.1	SE1.4	ESE2.3	ESE2.7	ESE2.3	ESE2.4	ESE2.3	SE2.5	SE2.6	SE2.5		Diurnal Average
SE13	NNE13	S13	NNE12	NNE14	WNW15	WNW16	SE16	ESE16	NNW17	NNW16	S17	E16	S16	SSE16	S16	S16	SSE13	SSE10	S12	ESE11	S13	S15	SSW14		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 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed (WS) - km/h
Mackay River - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	198	26.79	26.79
6 - 11	412	55.75	82.54
12 - 19	129	17.46	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: 739

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Mackay River - March 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	14	19	9	8	15	33	24	10	7	6	12	3	11	15	8	198
6 - 11	29	60	41	12	15	45	30	38	81	11	8	11	11	4	9	7	412
12 - 19	8	13	1	0	4	13	7	12	38	3	3	2	5	8	4	8	129
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
Totals	41	87	61	21	27	73	70	74	129	21	17	25	19	23	28	23	739

Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Mackay River - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6 km/h on Mar 25 12:00	Hours of Data: 739
Minimum Value: 0 km/h on Mar 29 20:00	Hours of Missing Data: 5
Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5	Hours of Calibration: 0
	Percent Operational Time: 99.3

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

UO - Unstable Operation



Wood Buffalo Environmental Association
Summary of Hour Averages

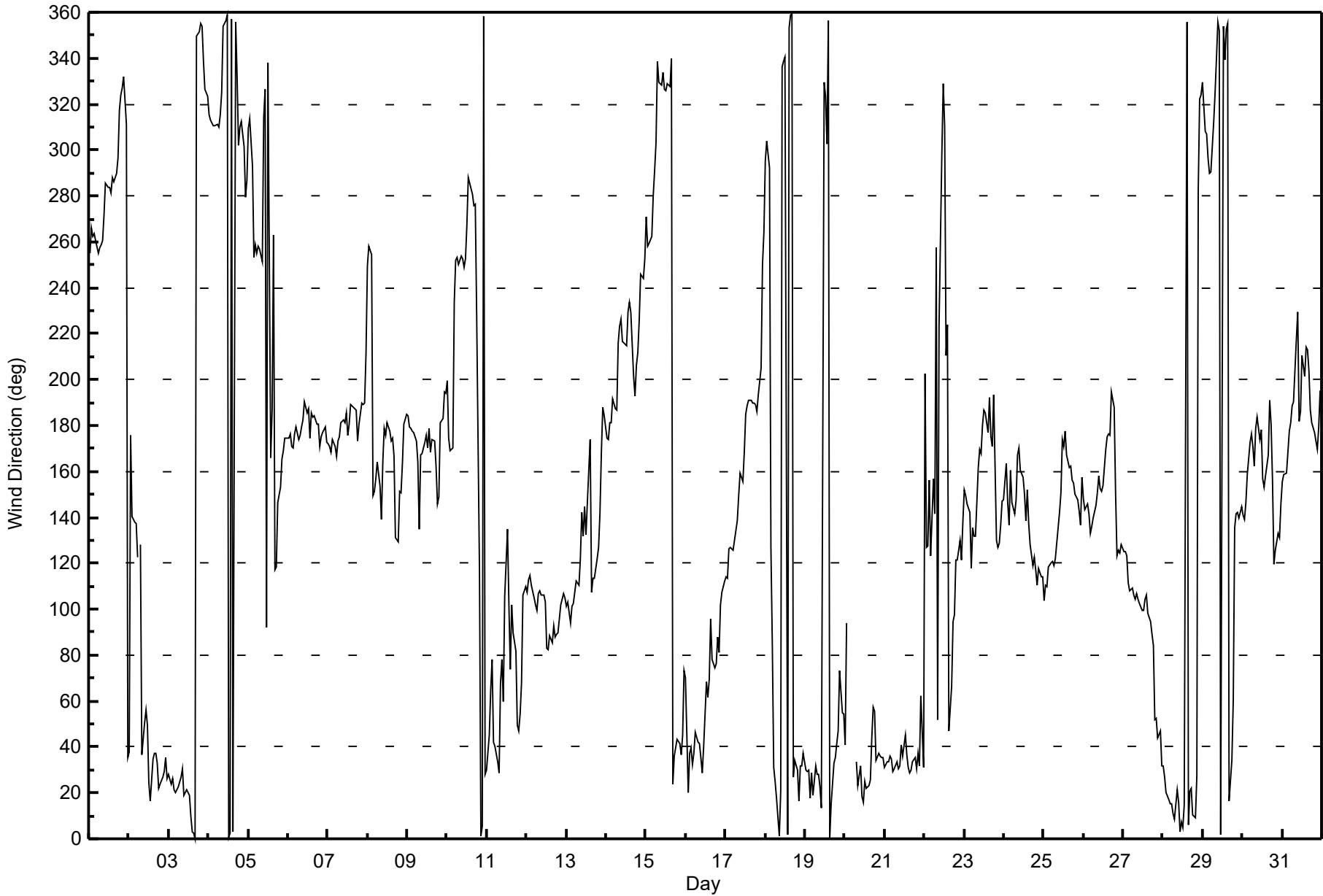
Wind Direction (WD) - deg
Mackay River - March 2024

Direction of Maximum Speed: 174 deg on Mar 25 12:00																				Hours in Service: 744					
Direction of Maximum Daily Speed Average: 151.6 deg on Mar 26																				Hours of Data: 739					
Direction of Minimum Speed: 35 deg on Mar 2 00:00										Direction of Minimum Daily Speed Average: 1.3 deg on Mar 22										Hours of Missing Data: 5					
Monthly Average Direction: 124.8 deg																				Percent Operational Time: 99.3					
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	255	266	262	264	260	255	257	259	261	272	286	284	284	281	288	286	290	297	317	324	327	332	311	35	279.4
2-Mar	38	176	140	138	137	122	UO	128	37	51	56	49	24	16	35	37	37	33	22	24	27	29	36	26	35.6
3-Mar	28	24	26	21	20	21	22	27	31	19	20	21	19	10	3	3	0	350	352	355	354	339	327	323	9.8
4-Mar	315	313	312	310	311	311	310	316	325	354	356	359	1	3	357	3	356	332	302	310	313	302	280	287	331.2
5-Mar	310	313	293	253	259	255	258	257	251	314	326	92	338	166	187	263	117	118	147	153	165	169	174	175	206.4
6-Mar	175	176	171	170	176	180	174	176	180	182	190	186	187	175	185	184	185	180	180	171	175	177	179	173	179.6
7-Mar	172	171	168	174	171	166	173	175	181	182	181	185	176	180	189	188	188	187	173	181	190	189	190	211	181.1
8-Mar	250	258	255	149	151	157	164	154	139	164	179	176	181	178	173	174	166	131	129	152	151	163	180	185	169.8
9-Mar	184	179	179	178	177	173	164	135	167	168	173	176	170	179	168	174	173	162	146	149	181	183	195	194	174.1
10-Mar	200	174	169	170	234	252	253	250	254	253	249	253	267	288	283	280	276	276	227	117	1	5	358	28	265.3
11-Mar	30	45	64	78	42	40	34	29	68	78	60	105	135	102	74	102	90	82	50	47	55	68	106	110	72.8
12-Mar	108	113	115	111	105	102	100	107	108	106	106	103	83	82	88	85	93	88	89	89	102	104	107	105	100.5
13-Mar	101	103	94	101	103	107	112	111	122	142	132	145	132	160	174	107	113	114	122	127	142	168	188	184	130.9
14-Mar	174	174	181	181	192	188	187	216	223	226	217	215	215	229	234	230	202	193	206	212	225	246	244	253	213.4
15-Mar	271	258	260	263	280	291	303	339	329	328	334	326	326	329	328	340	24	36	39	44	42	37	45	73	328.3
16-Mar	70	20	37	40	32	37	47	42	41	35	29	40	68	61	70	96	78	74	77	88	81	102	108	112	61.2
17-Mar	114	113	126	127	126	130	134	138	150	159	156	169	185	188	191	191	190	189	189	186	194	205	250	264	170.5
18-Mar	295	304	292	127	85	31	25	18	1	21	336	338	340	2	353	359	360	27	34	30	17	32	32	37	5.3
19-Mar	30	29	30	18	29	19	32	28	28	23	14	330	324	303	356	1	15	33	36	42	47	73	55	54	22.8
20-Mar	41	94	UO	130	UO	UO	UO	34	23	32	18	16	25	22	23	26	44	58	55	34	37	36	35	36	33.0
21-Mar	31	34	34	36	35	29	31	34	31	32	41	36	45	37	31	29	30	33	35	30	37	32	62	31	34.2
22-Mar	203	127	127	156	123	157	141	258	52	224	298	329	310	210	224	47	67	95	97	121	122	130	121	138	106.3
23-Mar	152	149	146	142	118	136	132	132	162	169	168	180	187	185	177	192	175	171	194	130	127	129	137	147	159.8
24-Mar	148	164	146	137	160	147	141	148	167	170	160	158	150	139	152	137	128	119	123	117	111	118	114	114	141.4
25-Mar	104	111	110	118	120	121	119	122	129	142	151	174	171	177	167	162	162	156	155	150	148	143	137	158	148.5
26-Mar	149	144	146	142	133	136	140	145	150	158	153	151	154	170	175	176	175	195	188	151	123	126	124	128	151.6
27-Mar	125	125	123	111	108	109	106	104	107	105	103	100	99	104	106	98	95	89	84	52	52	44	47	31	99.7
28-Mar	32	27	20	17	15	15	11	9	21	16	3	7	5	15	356	6	21	22	11	9	28	283	322	324	10.7
29-Mar	329	308	307	297	290	291	312	324	340	356	352	2	354	339	353	355	16	34	61	136	142	142	140	144	347.4
30-Mar	141	139	147	159	172	176	171	162	179	184	174	178	157	153	158	167	191	181	156	120	126	133	131	146	162.9
31-Mar	155	159	159	168	177	181	188	190	217	229	182	186	210	201	214	213	204	187	181	177	173	169	179	195	188.2
127.6 133.0 128.3 127.3 123.8 122.7 110.0 102.4 117.4 118.2 121.3 151.0 151.6 159.2 165.5 130.0 110.2 104.9 102.6 105.4 111.9 126.5 135.9 141.1																									
Diurnal Average																									
UO - Unstable Operation																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Mackay River - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Mackay River - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 107 deg on Mar 22 14:00 Minimum Value: 7 deg on Mar 24 01:00 Percentiles: P ₁ = 8 P ₁₀ = 16 Q ₁ = 20 Median = 25 Q ₃ = 31 P ₉₀ = 44 P ₉₉ = 88																			Hours in Service: 744 Hours of Data: 739 Hours of Missing Data: 5 Hours of Calibration: 0 Percent Operational Time: 99.3						
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-Mar	35	36	38	39	38	38	41	37	44	38	31	32	32	43	33	32	31	25	31	13	16	44	58	92	92
2-Mar	31	52	44	28	17	25	UO	52	43	28	40	55	37	28	28	27	24	22	22	22	24	22	26	24	55
3-Mar	24	24	24	24	25	23	24	24	24	26	25	25	25	25	25	25	25	23	23	24	24	20	19	18	26
4-Mar	18	18	17	17	18	20	19	18	20	26	26	26	25	27	27	26	24	22	13	11	11	22	16	20	27
5-Mar	14	10	23	11	15	30	25	19	39	61	86	76	74	52	71	99	58	69	11	7	11	11	12	14	99
6-Mar	16	17	19	19	18	19	18	19	21	24	26	26	26	29	28	28	26	21	16	18	20	21	20	22	29
7-Mar	23	22	23	23	24	24	22	22	22	24	27	25	26	27	28	23	24	23	23	20	19	18	18	25	28
8-Mar	35	27	33	25	26	14	18	17	17	25	23	25	27	24	26	26	26	22	18	26	26	24	20	20	35
9-Mar	20	20	19	19	21	23	25	26	24	23	24	25	27	28	25	24	25	24	30	25	19	20	25	36	36
10-Mar	26	19	18	38	28	35	41	44	46	46	41	44	40	27	32	31	35	33	62	35	23	15	22	45	62
11-Mar	24	31	31	31	29	25	21	26	36	45	51	45	43	38	48	34	30	32	22	22	30	29	18	17	51
12-Mar	16	17	19	16	16	18	20	17	19	21	22	30	29	31	32	31	27	29	28	27	21	18	18	18	32
13-Mar	19	21	22	18	16	16	15	16	17	25	26	46	40	35	36	21	19	17	15	17	27	23	17	16	46
14-Mar	14	15	15	14	18	15	14	23	30	33	36	34	35	36	38	34	33	24	22	21	28	42	46	42	46
15-Mar	33	45	37	39	26	23	21	32	22	21	22	23	23	25	27	27	44	23	21	22	19	24	20	32	45
16-Mar	30	26	20	23	23	22	24	25	25	28	34	49	47	46	46	32	34	31	29	27	30	30	18	20	49
17-Mar	19	20	22	20	20	19	22	22	27	27	27	25	26	28	24	24	22	22	20	18	20	26	39	30	39
18-Mar	21	29	66	60	65	38	22	30	27	28	32	26	43	28	29	27	34	24	25	22	23	22	23	24	66
19-Mar	24	24	24	23	27	26	24	25	32	28	41	61	88	80	69	62	31	25	24	26	30	32	29	34	88
20-Mar	34	70	UO	54	UO	UO	UO	24	34	49	57	54	43	47	44	45	35	26	21	14	16	17	19	20	70
21-Mar	22	19	23	20	21	22	22	25	24	29	30	31	33	33	30	28	29	26	20	21	18	17	25	47	47
22-Mar	84	37	51	79	24	87	39	45	90	81	101	59	84	107	95	74	57	36	25	14	14	8	9	15	107
23-Mar	18	11	8	8	46	13	15	15	95	31	48	62	67	64	71	62	51	38	19	27	9	9	17	8	95
24-Mar	7	9	10	8	16	12	11	23	23	25	31	32	29	35	41	30	28	25	45	18	15	16	16	15	45
25-Mar	9	11	13	17	17	16	16	18	20	26	30	27	29	27	29	29	28	26	26	26	22	23	21	26	30
26-Mar	26	22	25	23	22	22	24	27	26	27	28	28	28	32	28	30	27	25	23	29	19	22	22	22	32
27-Mar	22	21	21	18	19	19	18	20	20	18	21	23	24	22	20	26	26	29	32	24	24	24	22	21	32
28-Mar	23	24	22	21	22	23	23	24	24	25	26	27	26	30	29	26	28	27	23	19	50	33	9	14	50
29-Mar	15	14	15	23	24	29	20	20	26	27	29	35	27	29	27	31	30	30	40	17	8	9	7	8	40
30-Mar	8	8	13	12	11	12	14	19	27	29	27	34	41	36	33	35	35	25	25	8	13	19	17	22	41
31-Mar	22	23	22	23	18	19	21	24	42	53	57	33	42	41	37	36	28	22	25	26	23	25	24	27	57
84 70 66 79 65 87 41 52 95 81 101 76 88 107 95 99 58 69 62 35 50 44 58 92																									
Diurnal Maximum																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS21
CONKLIN
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)
MARCH 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	707	35	37	99.73	5.2	0	1.8	0
TRS(ppb) Average	704	38	40	99.73	0.6	0	0.5	0
THC(ppm) Average	650	44	94	93.28	2.5	-	2.2	-
NMHC(ppm) Average	650	44	94	93.28	0.07	-	0.02	-
CH4(ppm) Average	650	44	94	93.28	2.4	-	2.2	-
O3 (ppb) Average	707	35	37	99.73	51.6	0	41.5	-
NO2 (ppb) Average	706	36	38	99.73	18.6	0	5.4	-
NO (ppb) Average	706	36	38	99.73	18.2	-	3.9	-
NOX (ppb) Average	706	36	38	99.73	36.8	-	9.3	-
PM2.5 (ug/m3) Average	742	2	2	100	45.1	0	8	0
Temperature 2 m (C) Average	744	0	0	100	12.5	-	3.4	-
Relative Humidity (%) Average	744	0	0	100	96.3	-	83.5	-
Wind Speed 10 m (km/h) Average	742	0	2	99.73	23	-	15	-
Wind Direction 10 m (deg) Average	742	0	2	99.73	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)
MARCH 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	0.5	0.7	-	0	0	0.1	0.3	0.6	1.3	5.2
TRS (ppb) Average	704	0.41	0	-	0.2	0.4	0.4	0.4	0.4	0.5	0.6
THC (ppm) Average	650	2.08	0.1	-	1.9	1.9	2	2.1	2.1	2.2	2.5
NMHC(ppm) Average	650	0.002	0.008	-	0	0	0	0	0	0	0.07
CH4(ppm) Average	650	2.08	0.1	-	1.9	1.9	2	2.1	2.1	2.2	2.4
O3 (ppb) Average	707	34.79	8.5	-	2.8	22.4	30.8	36.7	41.1	43.5	51.6
NO2 (ppb) Average	706	2.42	2	-	0.2	0.5	1	1.8	3.2	5.3	18.6
NO (ppb) Average	706	0.57	1.3	-	0	0	0	0.1	0.5	1.4	18.2
NOX (ppb) Average	706	2.98	3	-	0.2	0.5	1.2	2	3.9	6.3	36.8
PM2.5 (ug/m3) Average	742	4.2	3.8	-	0.2	1.6	2.3	3.2	4.5	7.7	45.1
Temperature 2 m (C) Average	744	-8.1	10.1	-	-35.2	-21.8	-15.6	-7.1	-0.8	5.6	12.5
Relative Humidity (%) Average	744	63.24	17.6	-	23	37.1	49.3	66.7	77.5	84.1	96.3
Wind Speed 10 m (km/h) Average	742	7.7	5	-	0	2	4	7	11	14	23
Wind Direction 10 m (deg) Average	742	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, O3, SO2, TRS	19 Mar 2024 12:00	19 Mar 2024 13:00	2	Maintenance - sample manifold cleaned
THC/NMHC/CH4	06 Mar 2024 15:00	07 Mar 2024 00:00	10	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	08 Mar 2024 11:00	09 Mar 2024 02:00	16	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	09 Mar 2024 04:00	09 Mar 2024 13:00	10	Unstable Operation - excessive baseline noise
THC/NMHC/CH4	09 Mar 2024 14:00	09 Mar 2024 14:00	1	Maintenance - analyzer replaced
THC/NMHC/CH4	15 Mar 2024 09:00	15 Mar 2024 11:00	3	Maintenance - replaced support gas cylinder
THC/NMHC/CH4	18 Mar 2024 09:00	18 Mar 2024 12:00	4	Maintenance - retention timing adjusted
THC/NMHC/CH4	19 Mar 2024 10:00	19 Mar 2024 13:00	4	Maintenance - zero-air generator replaced
THC/NMHC/CH4	20 Mar 2024 10:00	20 Mar 2024 11:00	2	Maintenance - analyzer replaced
Wind Speed, Wind Direction	06 Mar 2024 23:00	06 Mar 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Mar 2024 20:00	11 Mar 2024 20:00	1	Flat line in sensor output signal

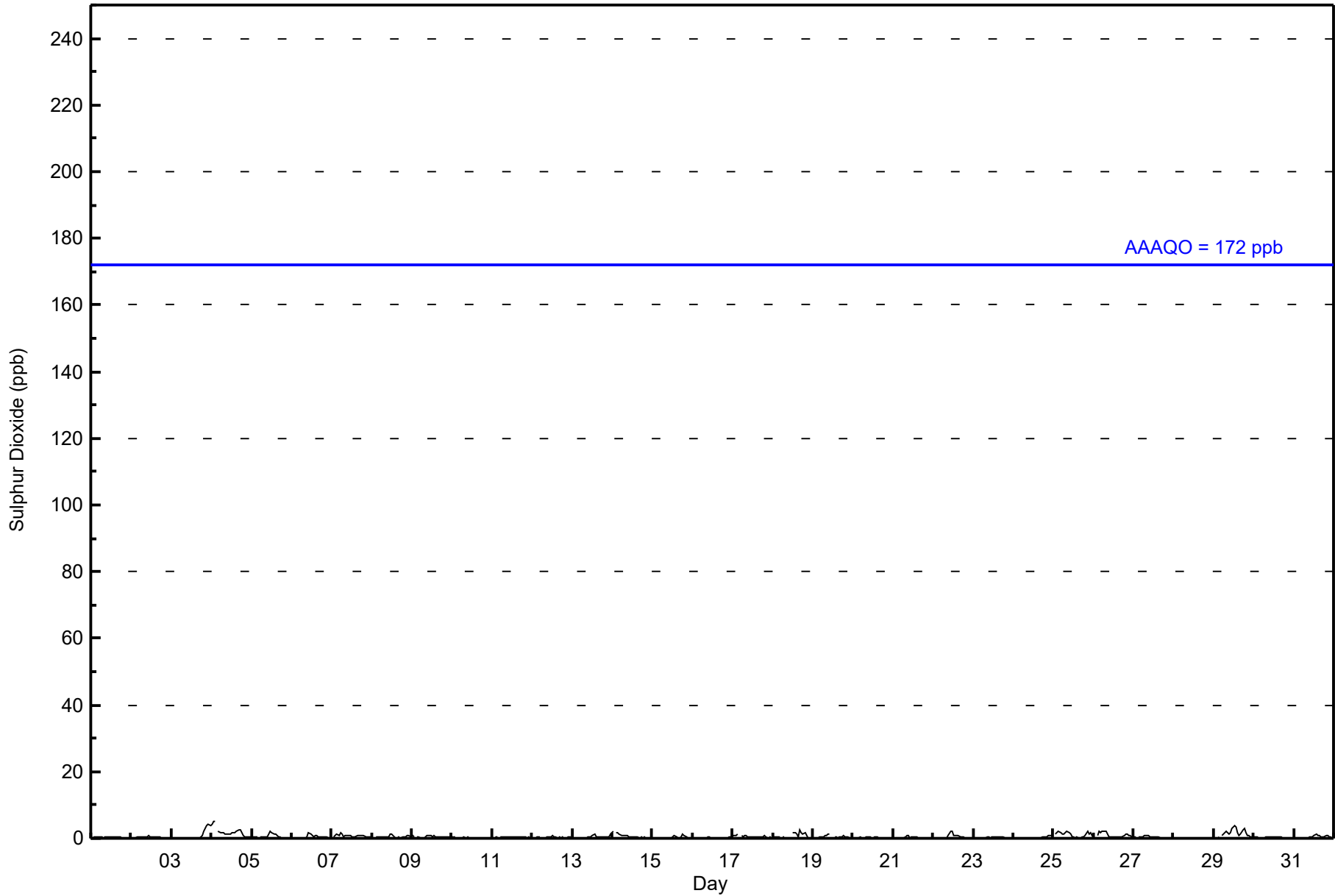


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																															
Maximum Value: 5.2 ppb on Mar 4 02:00		Maximum Daily Average: 1.8 ppb on Mar 4														Hours of Data:		707																																	
Minimum Value: 0.0 ppb on Mar 5 21:00		Minimum Daily Average: 0.0 ppb on Mar 28														Hours of Missing Data:		37																																	
Maximum Diurnal Average: 0.6 ppb at hour 12		Minimum Diurnal Average: 0.4 ppb at hour 16														Hours of Calibration:		35																																	
Monthly Average: 0.50 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 1.3 P ₉₉ = 3.2														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-Mar	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.4																									
2-Mar	0.1	Z	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.8	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.3	0.8																									
3-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.8	2.2	3.0	3.9	4.3	4.0	0.9	4.3																									
4-Mar	4.4	5.2	4.9	Z	2.2	1.6	1.5	1.5	1.1	1.2	1.4	1.5	1.5	1.6	1.6	2.1	2.4	2.7	1.7	0.7	0.3	0.3	0.3	0.3	1.8	5.2																									
5-Mar	0.3	0.3	0.3	0.2	Z	0.3	0.2	0.3	0.3	0.6	1.3	2.1	1.7	1.5	1.2	0.6	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.5	2.1																									
6-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.6	1.9	1.4	0.7	0.6	0.7	0.6	0.5	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.4	1.9																									
7-Mar	Z	0.6	0.7	1.2	0.9	1.8	1.1	0.4	1.0	1.0	0.8	0.9	0.6	0.4	0.6	0.7	0.7	0.7	0.9	0.7	0.5	0.6	0.6	0.5	0.8	1.8																									
8-Mar	0.4	Z	0.4	0.4	0.4	0.3	0.3	0.4	0.6	0.5	0.5	1.5	1.3	0.5	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.8	0.8	0.6	0.5	1.5																									
9-Mar	0.7	0.6	Z	0.4	0.3	0.2	0.2	0.2	0.5	0.8	0.8	0.7	0.6	0.7	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.8																									
10-Mar	0.3	0.3	0.3	Z	0.2	0.1	0.2	0.3	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	0.1	0.3																									
11-Mar	0.0	0.0	0.3	0.3	Z	0.4	0.3	0.2	0.3	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.4	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.6																									
12-Mar	0.2	0.2	0.1	0.2	0.2	Z	0.1	0.1	0.2	0.3	0.3	0.5	0.8	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.8																									
13-Mar	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.5	0.4	0.7	1.2	0.5	0.4	0.3	0.3	0.3	0.2	0.2	0.4	0.6	1.3	0.4	1.3																									
14-Mar	2.0	Z	1.9	1.5	1.4	1.0	0.7	0.8	0.7	0.7	0.6	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.6	2.0																									
15-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.8	0.3	0.1	0.1	0.5	1.4	0.6	0.3	0.1	0.1	0.1	0.2	1.4																									
16-Mar	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.5	0.1	0.5																									
17-Mar	0.6	0.8	0.7	1.1	Z	0.9	0.6	0.6	0.8	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.9	0.3	0.2	0.2	0.2	0.5	1.1																									
18-Mar	0.2	0.3	0.2	0.3	0.3	Z	0.3	0.4	C	C	C	C	1.6	1.6	1.1	0.4	2.4	1.8	1.4	1.5	0.7	0.2	0.1	0.1	0.8	2.4																									
19-Mar	Z	0.1	0.1	0.1	0.3	0.6	0.2	0.8	0.8	1.4	1.2	M	M	0.3	0.2	0.2	0.3	0.6	0.8	0.4	0.4	0.2	0.2	0.2	0.4	1.4																									
20-Mar	0.2	Z	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.5	0.4	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.5																									
21-Mar	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.5	1.0	0.7	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	1.0																									
22-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	1.0	1.9	2.0	0.9	0.8	0.7	0.7	0.4	0.4	0.3	0.2	0.1	0.2	0.1	0.2	0.4	2.0																									
23-Mar	0.2	0.1	0.2	0.2	Z	0.1	0.1	0.2	0.3	0.5	0.2	0.3	0.3	0.3	0.4	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.5																									
24-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.6	0.5	0.3	0.7	0.7	1.0	0.2	1.0																									
25-Mar	Z	1.4	1.8	2.2	1.6	1.2	1.2	1.6	2.0	1.7	1.3	0.5	0.4	0.2	0.3	0.2	0.1	0.3	0.2	0.6	2.3	1.2	1.7	1.0	1.1	2.3																									
26-Mar	1.2	Z	0.9	2.2	1.6	2.1	2.0	2.0	1.1	0.6	0.4	0.3	0.3	0.3	0.2	0.4	0.5	0.5	1.0	1.5	1.1	1.0	0.8	0.6	1.0	2.2																									
27-Mar	0.5	0.6	Z	0.5	0.6	0.5	0.7	0.8	0.8	0.8	0.3	0.4	0.6	0.5	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.8																									
28-Mar	0.0	0.0	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1																									
29-Mar	0.0	0.0	0.1	0.2	Z	0.9	1.7	2.2	1.8	1.4	1.5	2.9	3.6	3.3	1.9	1.0	1.4	2.4	2.9	1.8	0.9	0.8	0.5	0.3	1.5	3.6																									
30-Mar	0.3	0.3	0.3	0.2	0.2	Z	0.1	0.3	0.4	0.5	0.6	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.6																									
31-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.4	0.7	1.1	0.6	0.8	0.6	0.5	0.4	1.0	0.8	0.5	0.3	0.1	0.4	1.1																									
																								Diurnal Average		0.5		0.4		0.5		0.4		0.5		0.4		0.4		0.5		0.5		0.4		0.4		0.4		0.4	
																								Diurnal Maximum		4.4		5.2		4.9		2.2		2.2		2.1		2.0		2.2		2.0		1.7		1.9		2.9		3.6	
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 (SO₂) - ppb
Conklin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Conklin - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Conklin - March 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	41	29	32	27	25	68	64	100	75	38	11	13	28	55	58	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
Totals	41	41	29	32	27	25	68	64	100	75	38	11	13	28	55	58	705

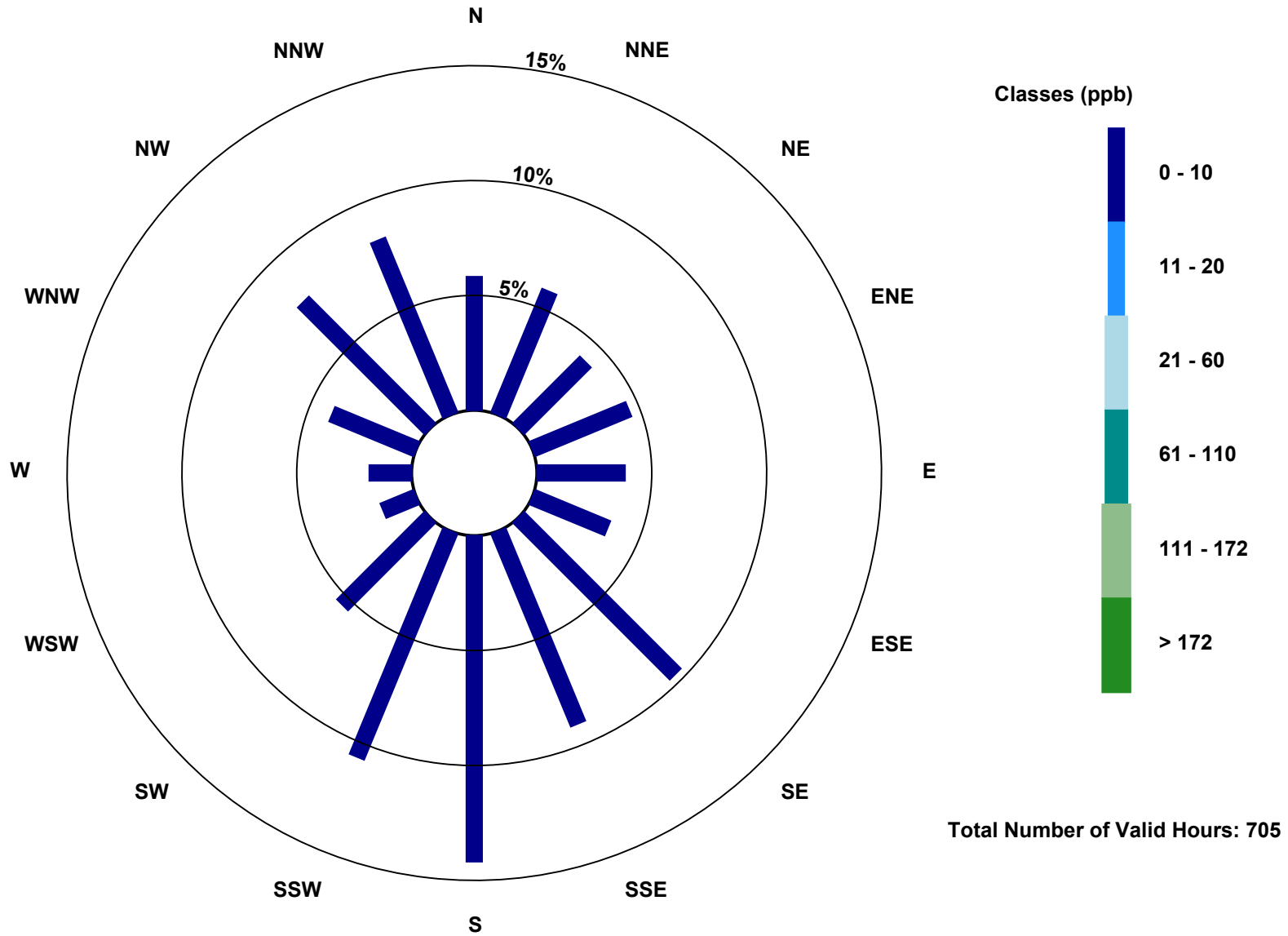
Total Number of Valid Hours: 705

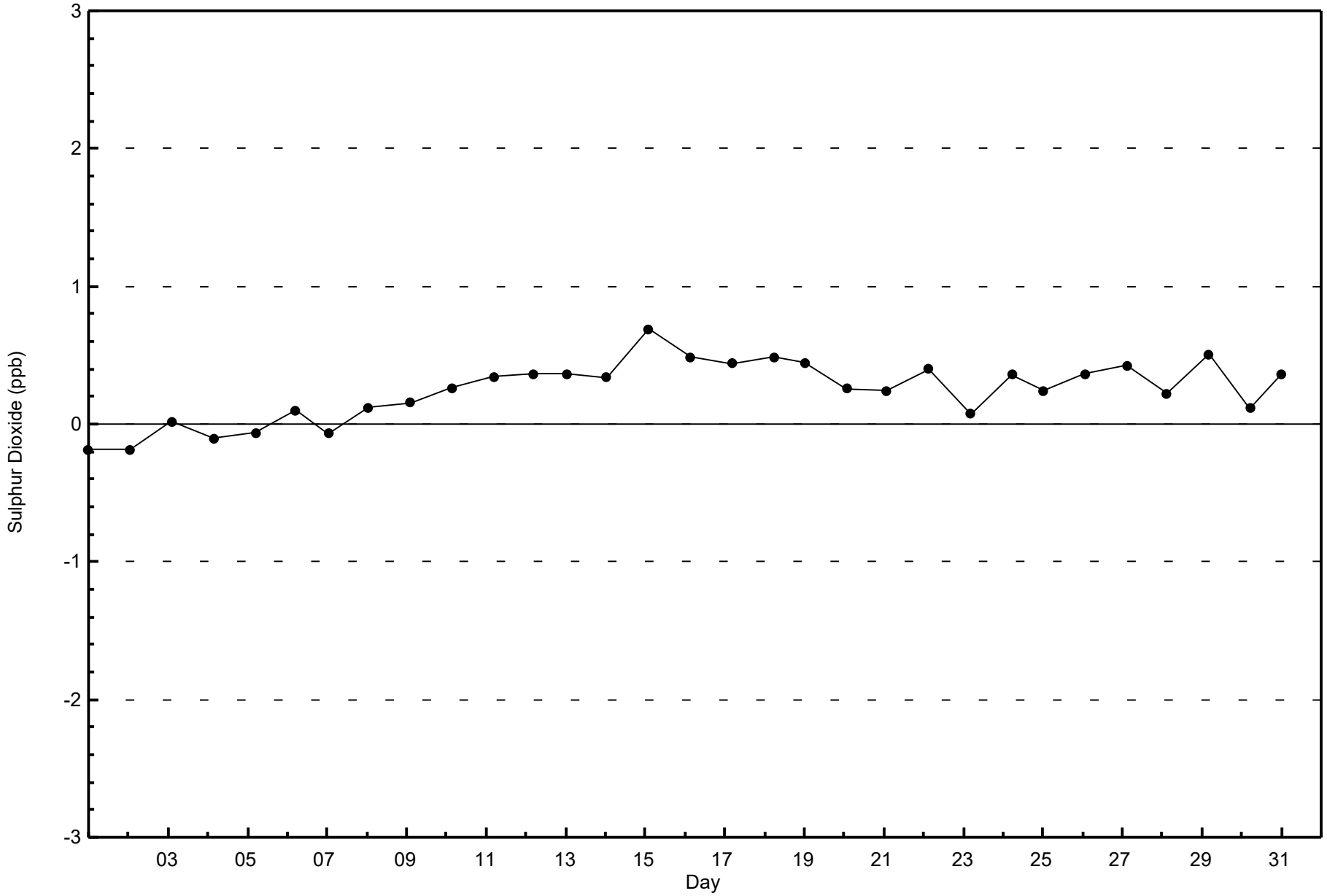
Total Number of Hours: 744

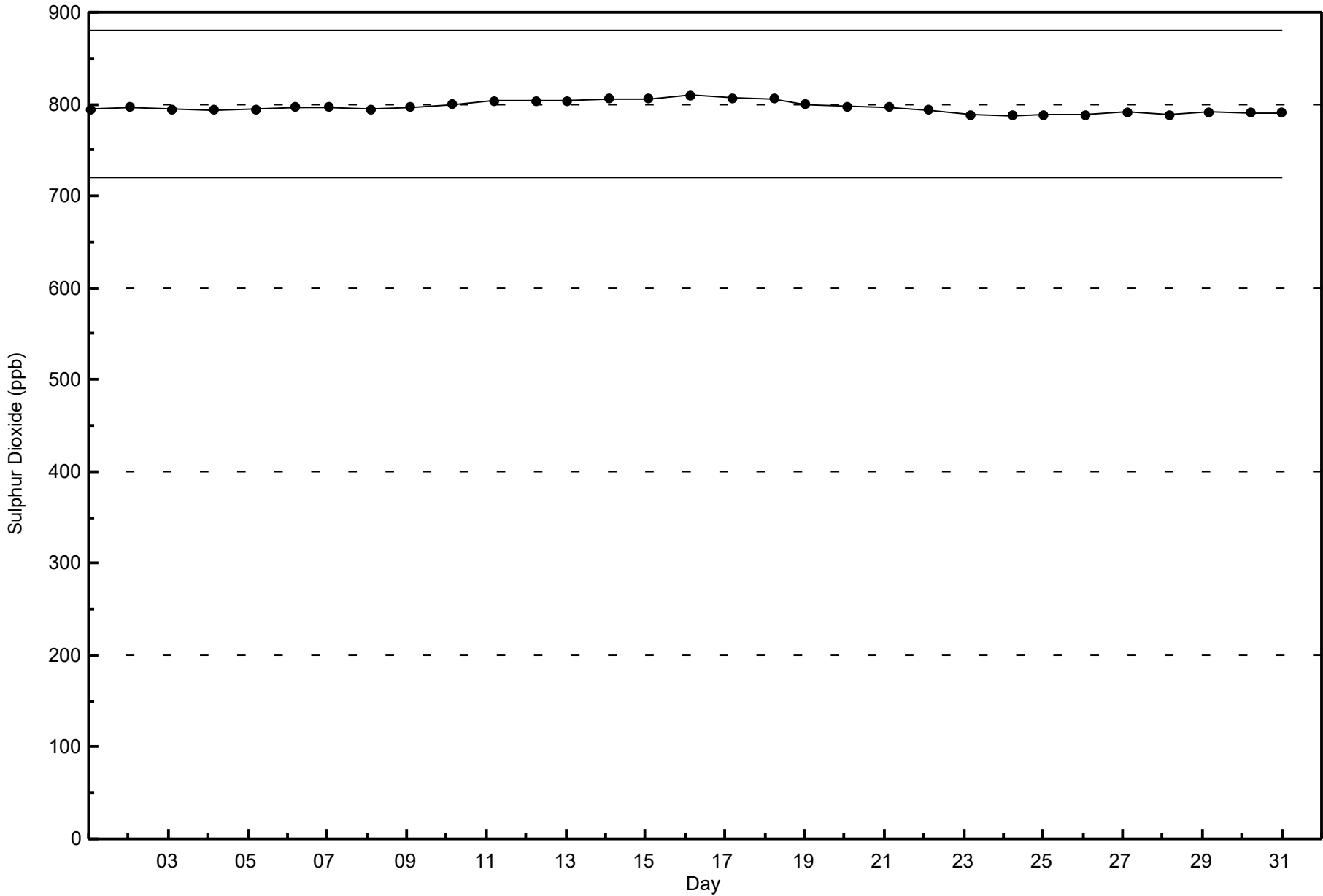


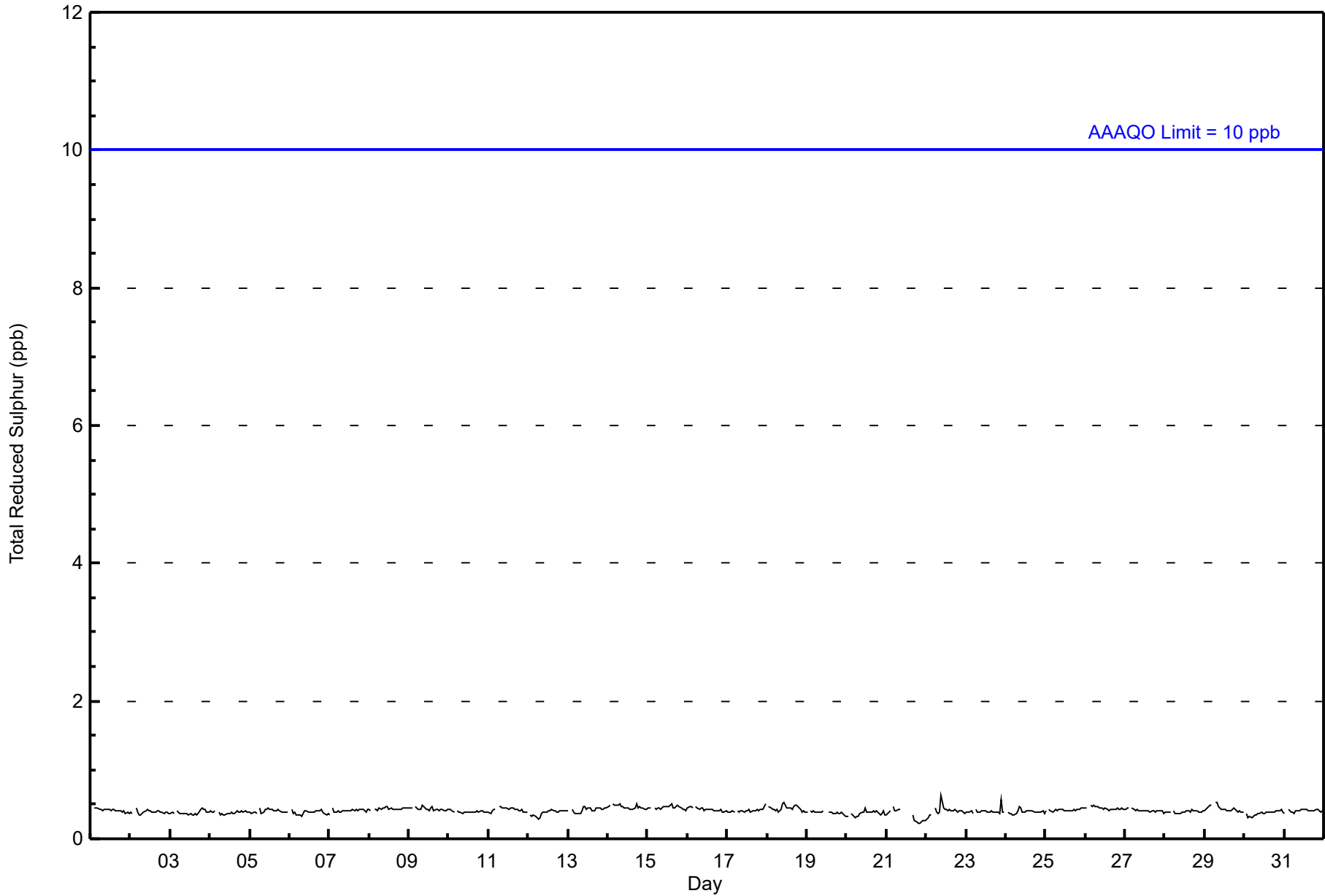
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Conklin











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Conklin - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	704	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Conklin - March 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	42	40	29	30	23	25	66	68	99	74	37	11	14	26	56	62	702
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	42	40	29	30	23	25	66	68	99	74	37	11	14	26	56	62	702

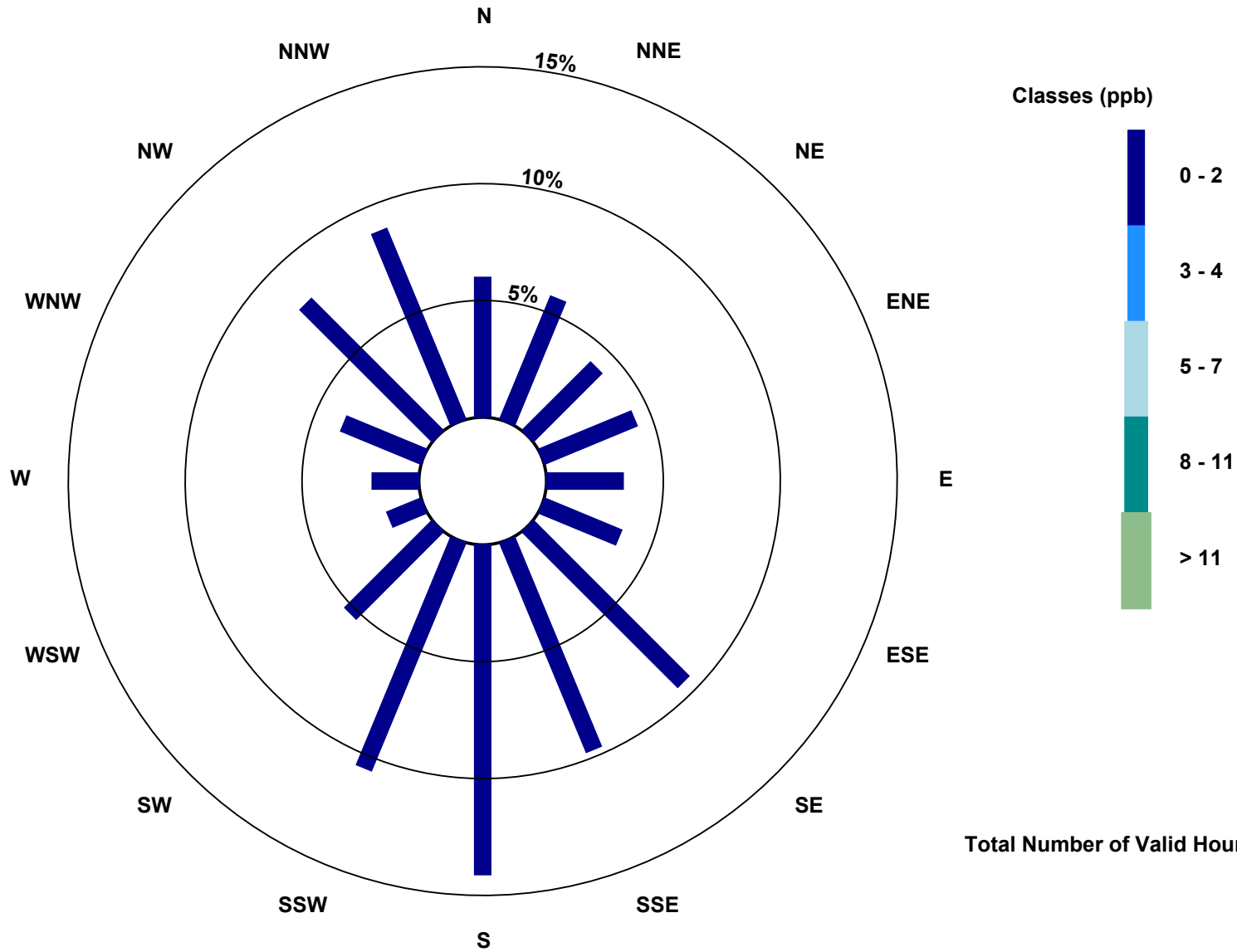
Total Number of Valid Hours: 702

Total Number of Hours: 744

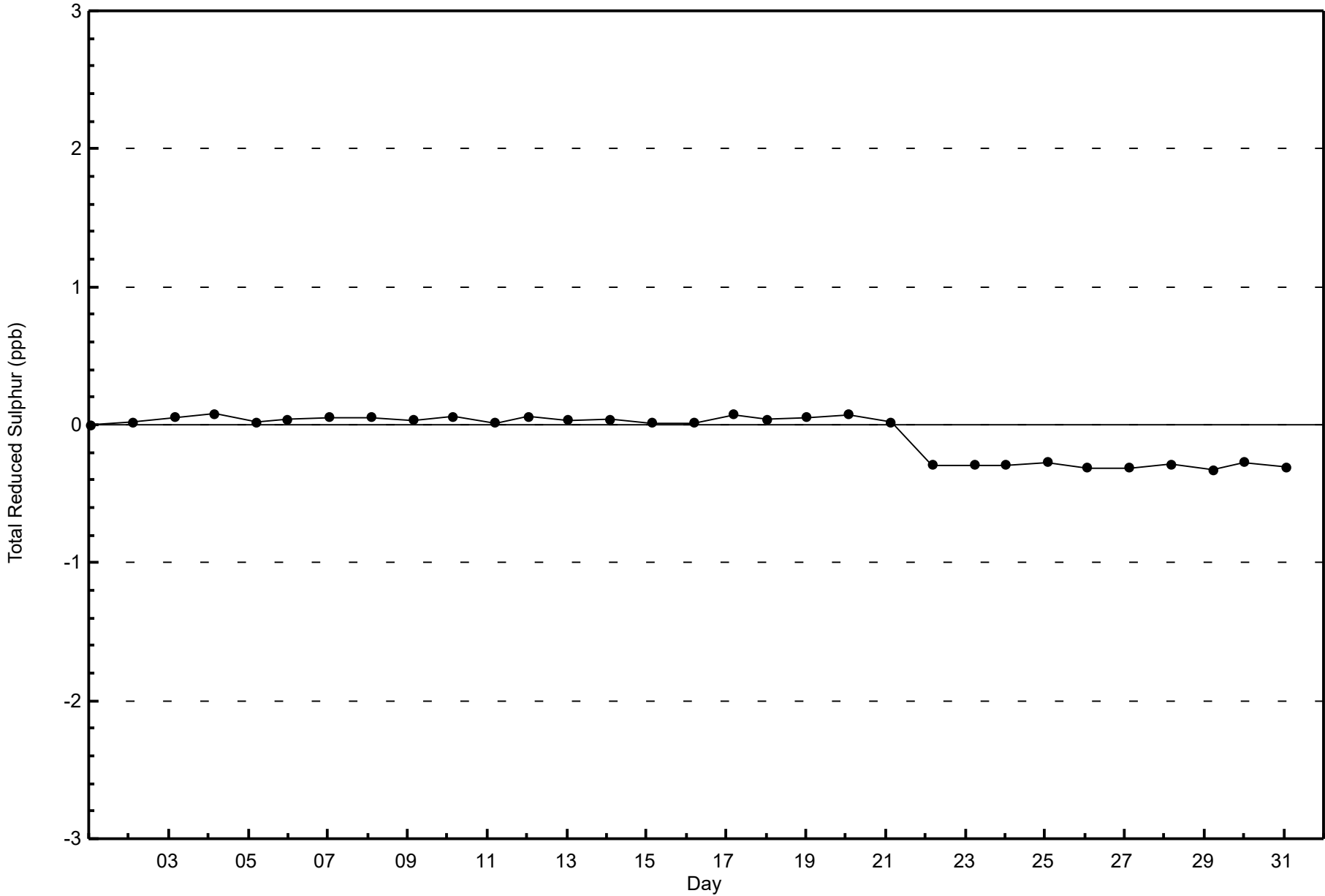


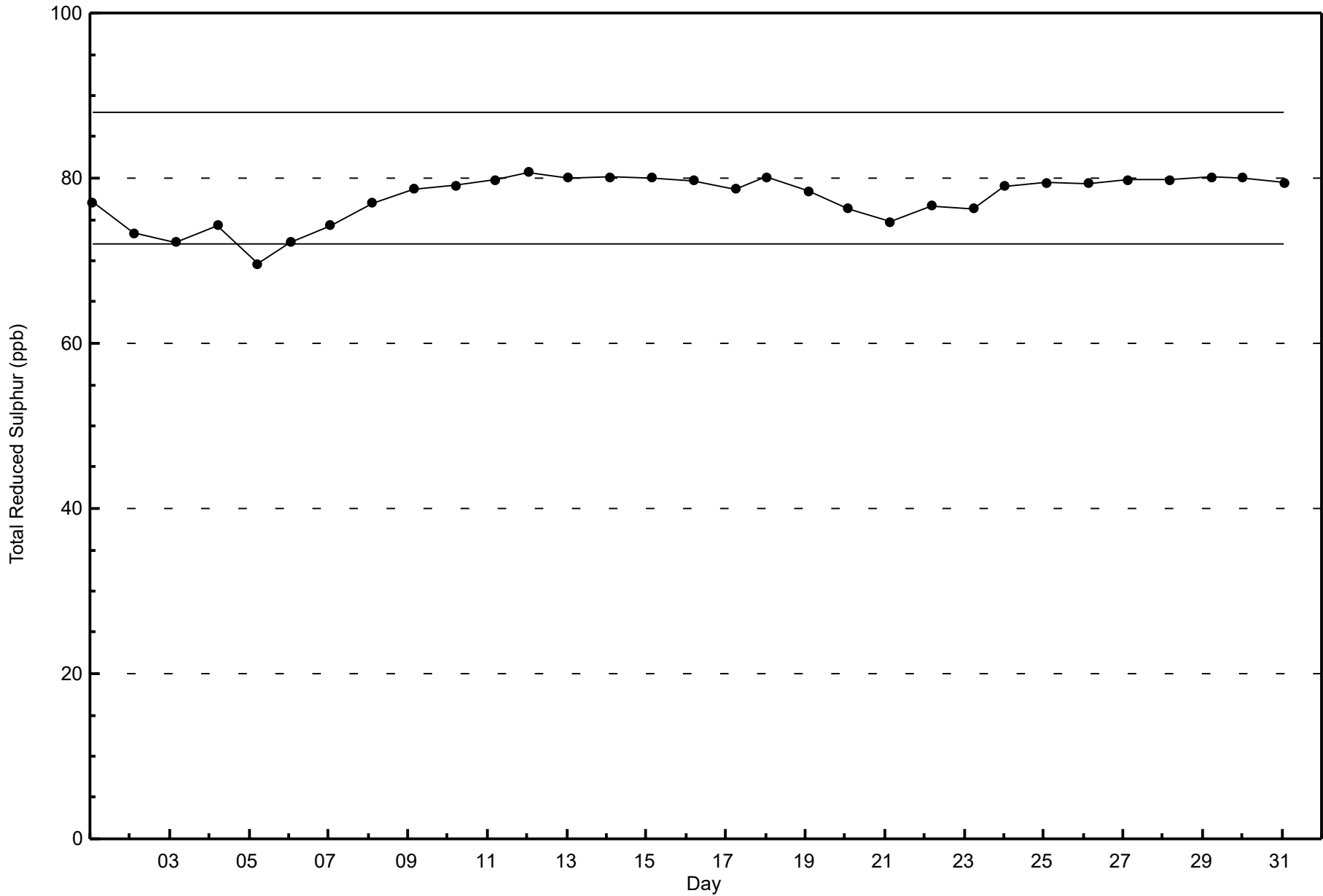
Wood Buffalo Environmental Association
Wind Rose Mar 2024

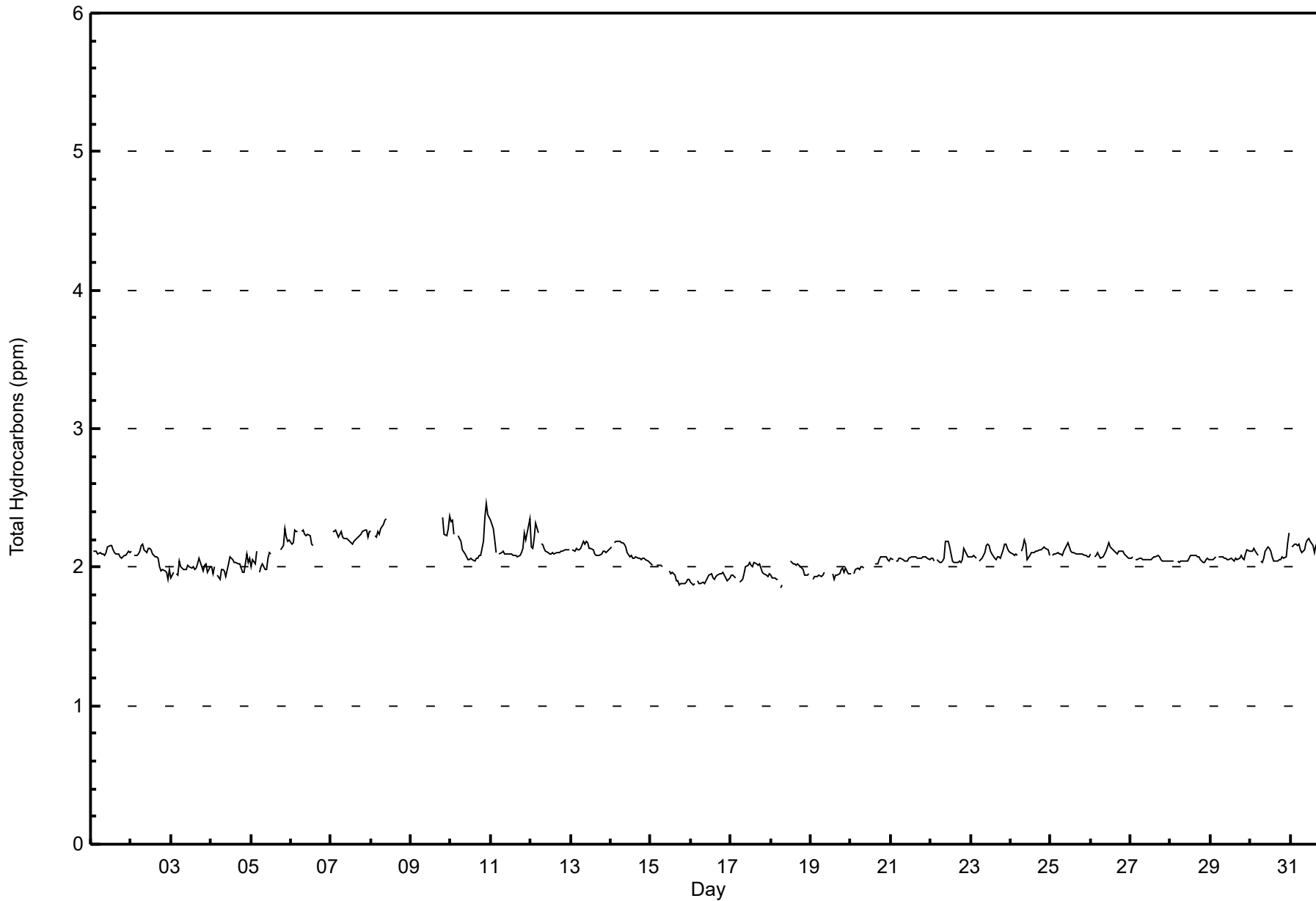
Total Reduced Sulphur (TRS) - ppb
Conklin



Total Number of Valid Hours: 702









Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Conklin - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	214	32.92	32.92
2.1 - 3.0	436	67.08	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Conklin - March 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	29	31	14	12	12	6	5	8	17	9	5	2	4	7	27	26	214
2.1 - 3.0	11	9	13	16	15	18	61	50	56	59	32	8	9	21	27	30	435
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
Totals	40	40	27	28	27	24	66	58	73	68	37	10	13	28	54	56	649

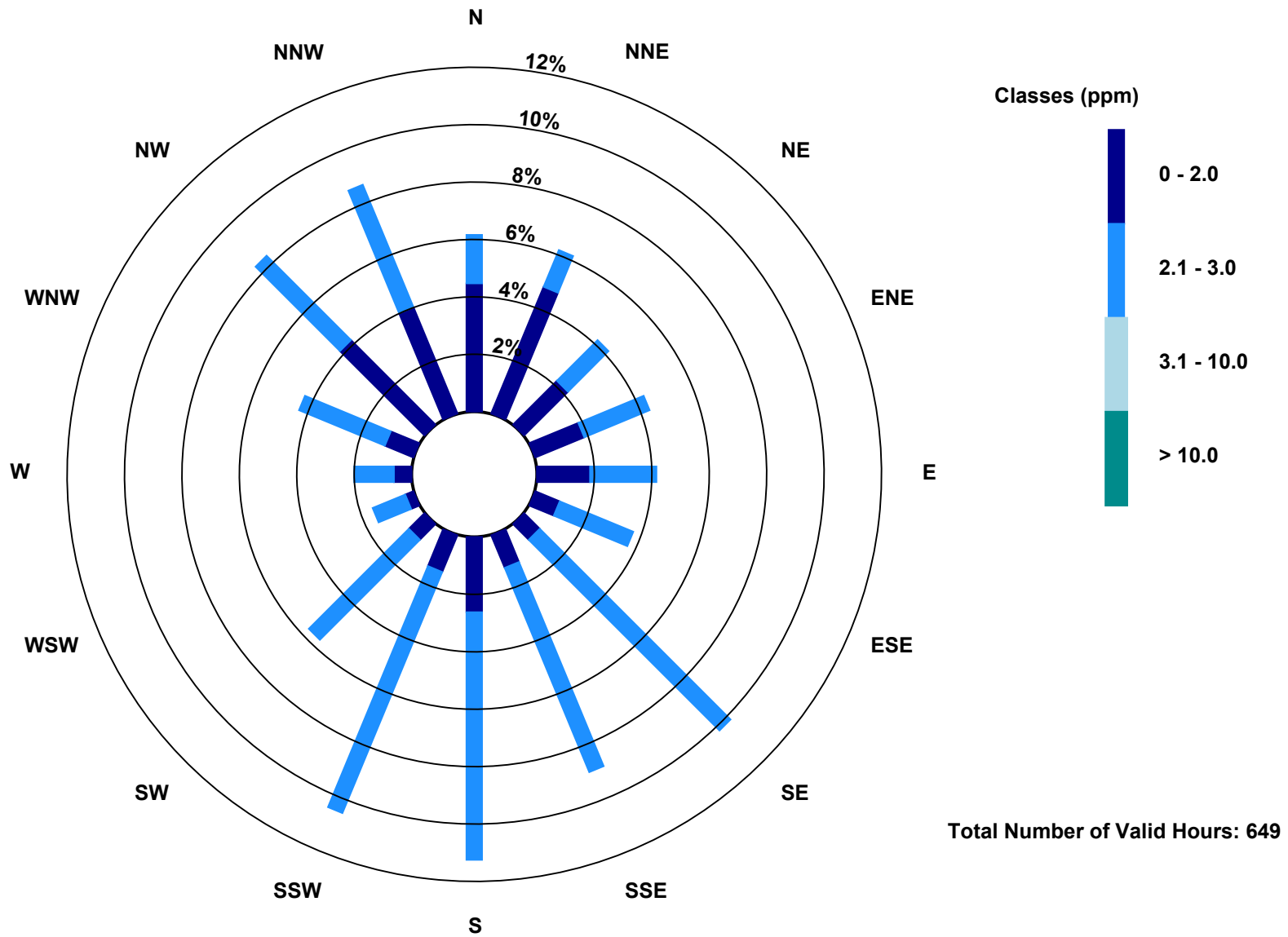
Total Number of Valid Hours: 649

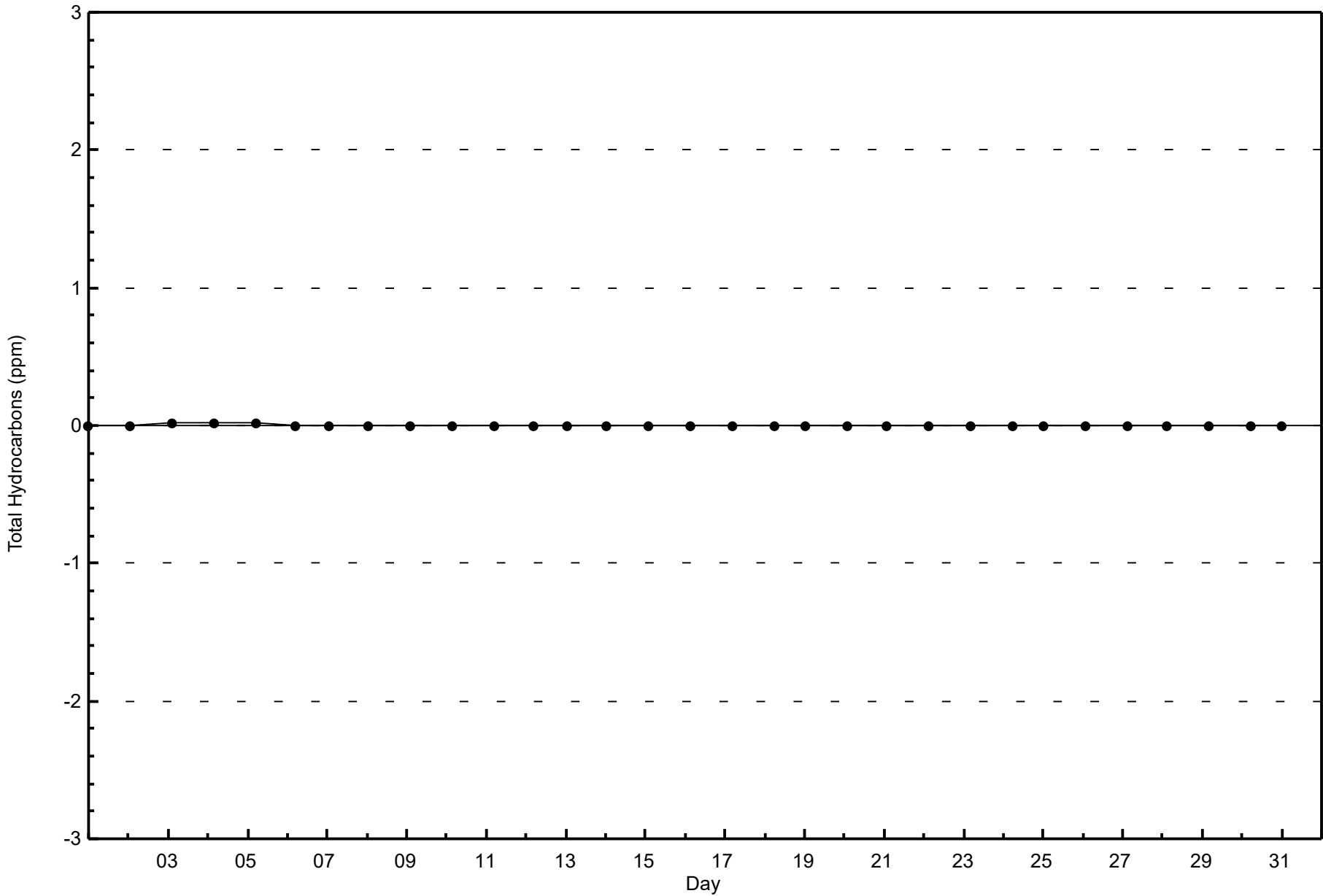
Total Number of Hours: 744

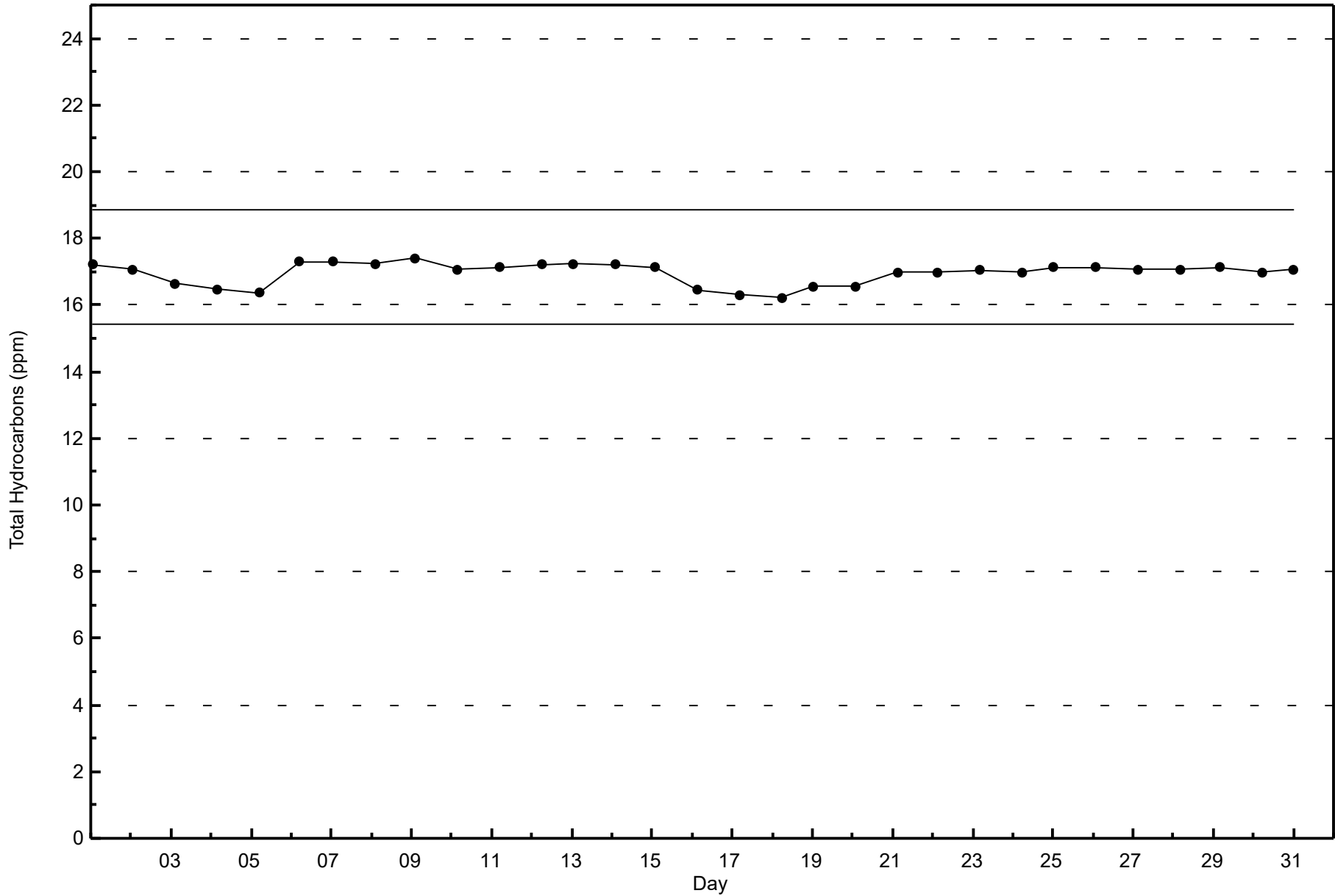


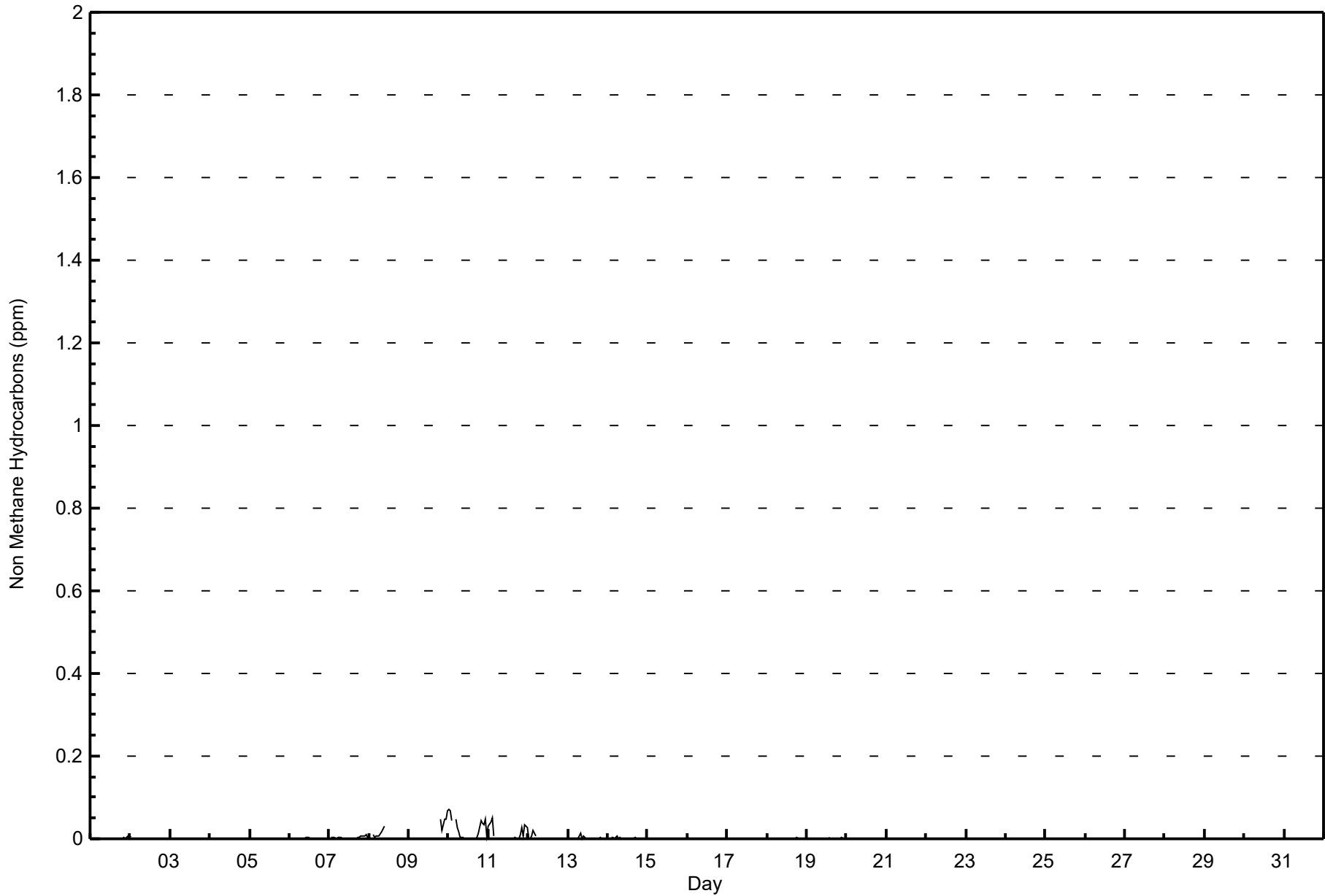
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Conklin











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Conklin - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	609	93.69	93.69
0.006 - 0.05	38	5.85	99.54
0.06 - 0.1	3	0.46	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Conklin - March 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	40	39	27	28	27	24	63	51	68	57	31	9	13	28	51	53	609
0.006 - 0.05	0	1	0	0	0	0	2	6	5	10	6	1	0	0	3	3	37
0.06 - 0.1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	3
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	40	40	27	28	27	24	66	58	73	68	37	10	13	28	54	56	649

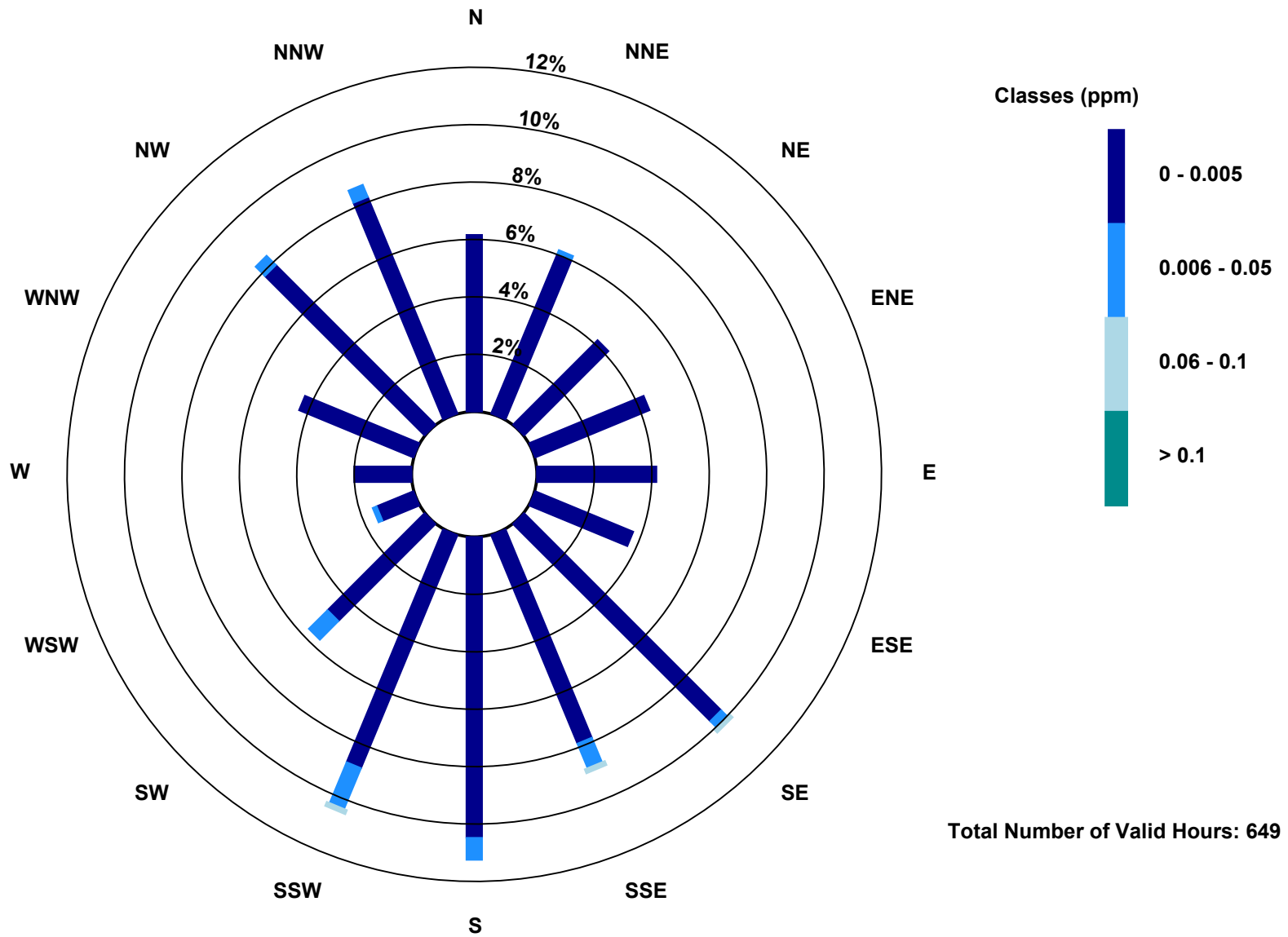
Total Number of Valid Hours: 649

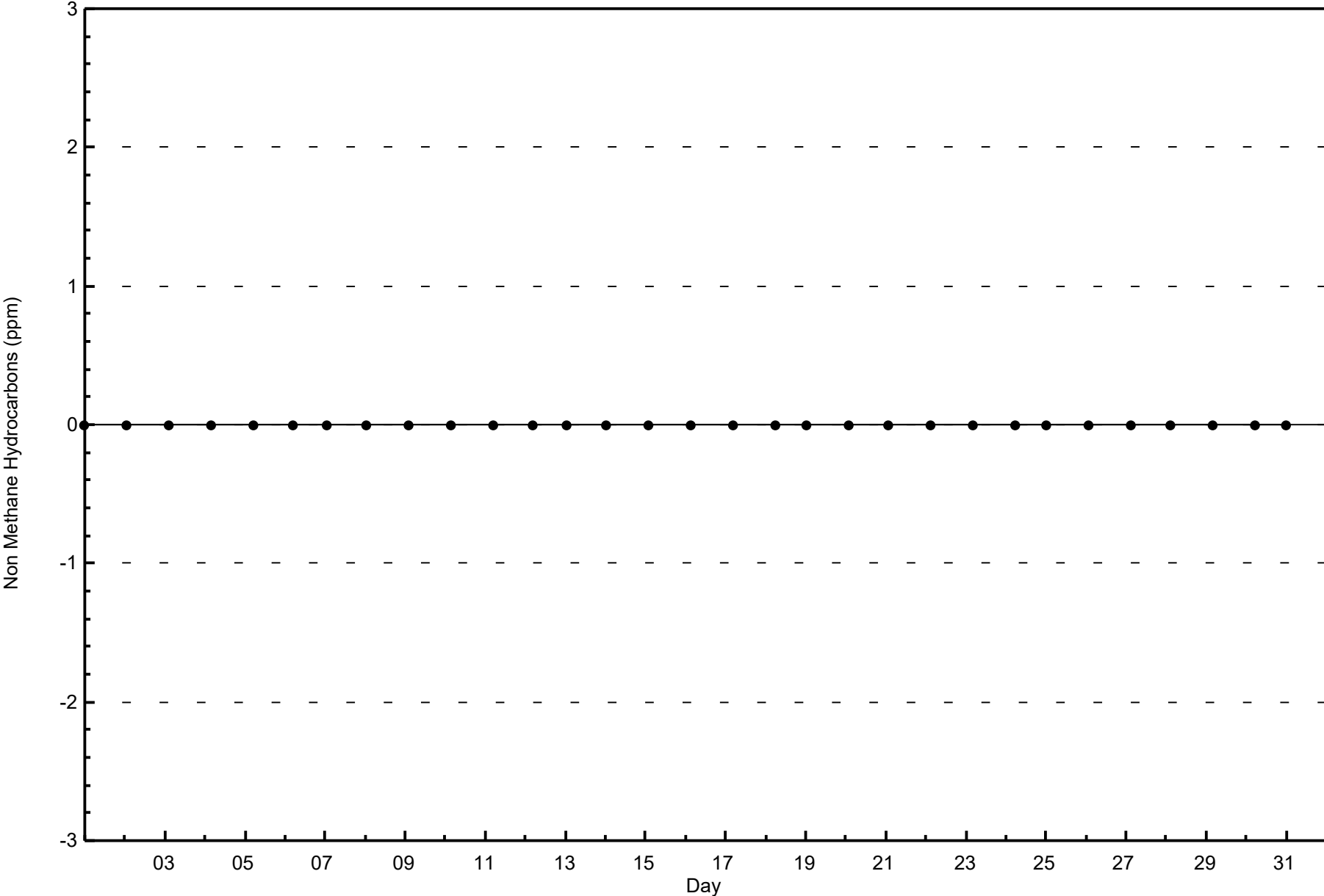
Total Number of Hours: 744

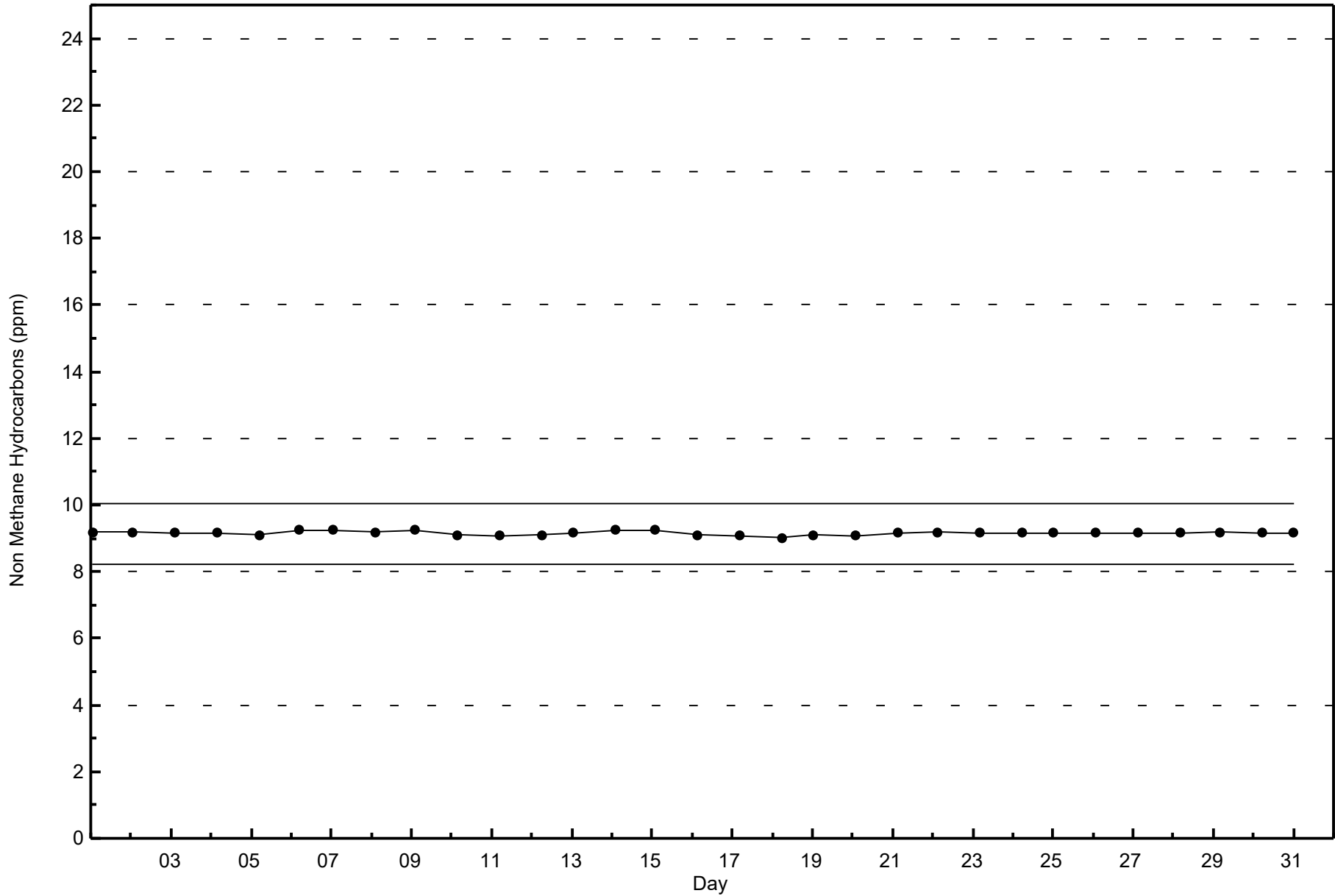


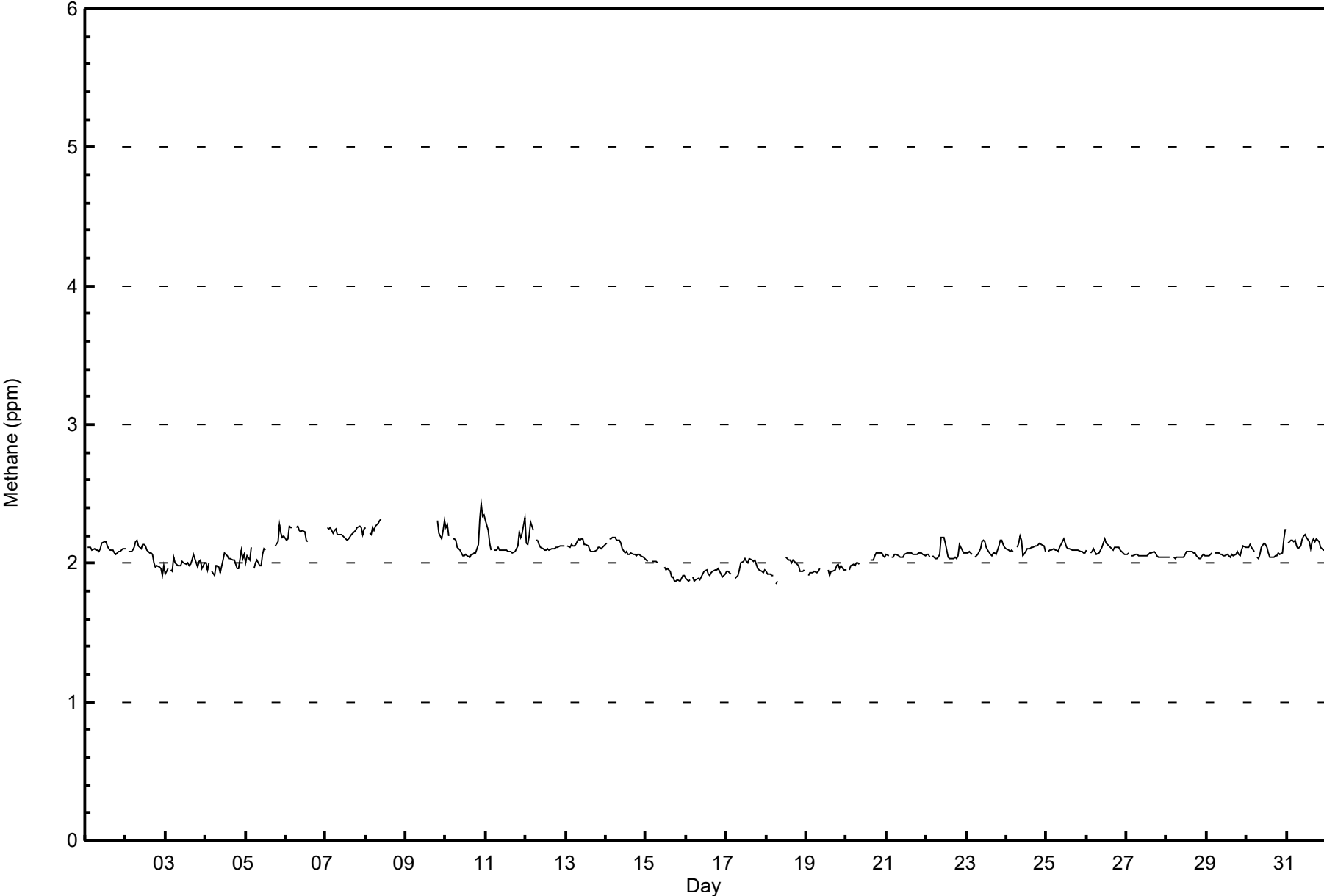
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Conklin











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Methane (CH₄) - ppm
Conklin - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	214	32.92	32.92
2.1 - 3.0	436	67.08	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Conklin - March 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	29	31	14	12	12	6	5	8	17	9	5	2	4	7	27	26	214
2.1 - 3.0	11	9	13	16	15	18	61	50	56	59	32	8	9	21	27	30	435
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
Totals	40	40	27	28	27	24	66	58	73	68	37	10	13	28	54	56	649

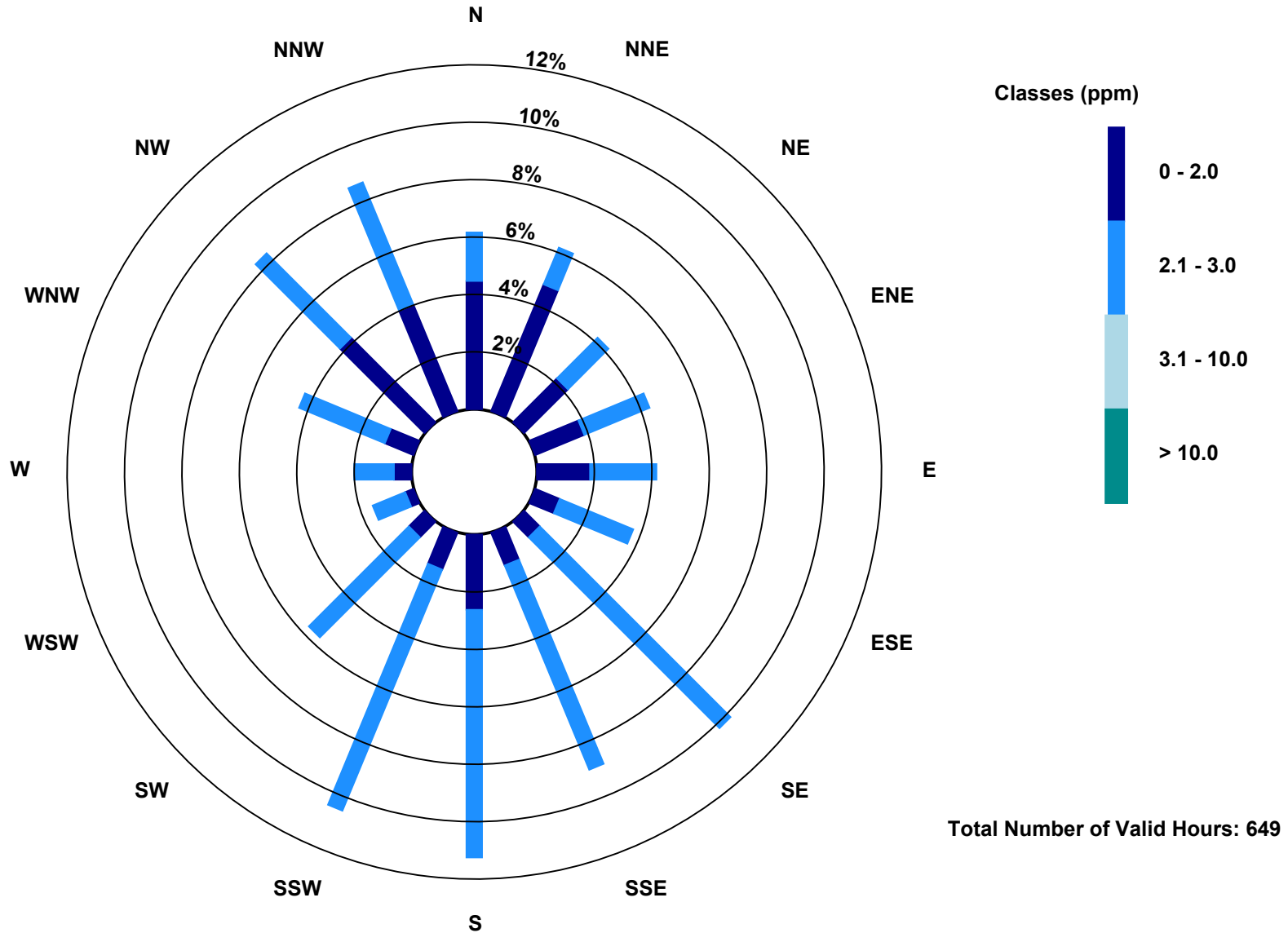
Total Number of Valid Hours: 649

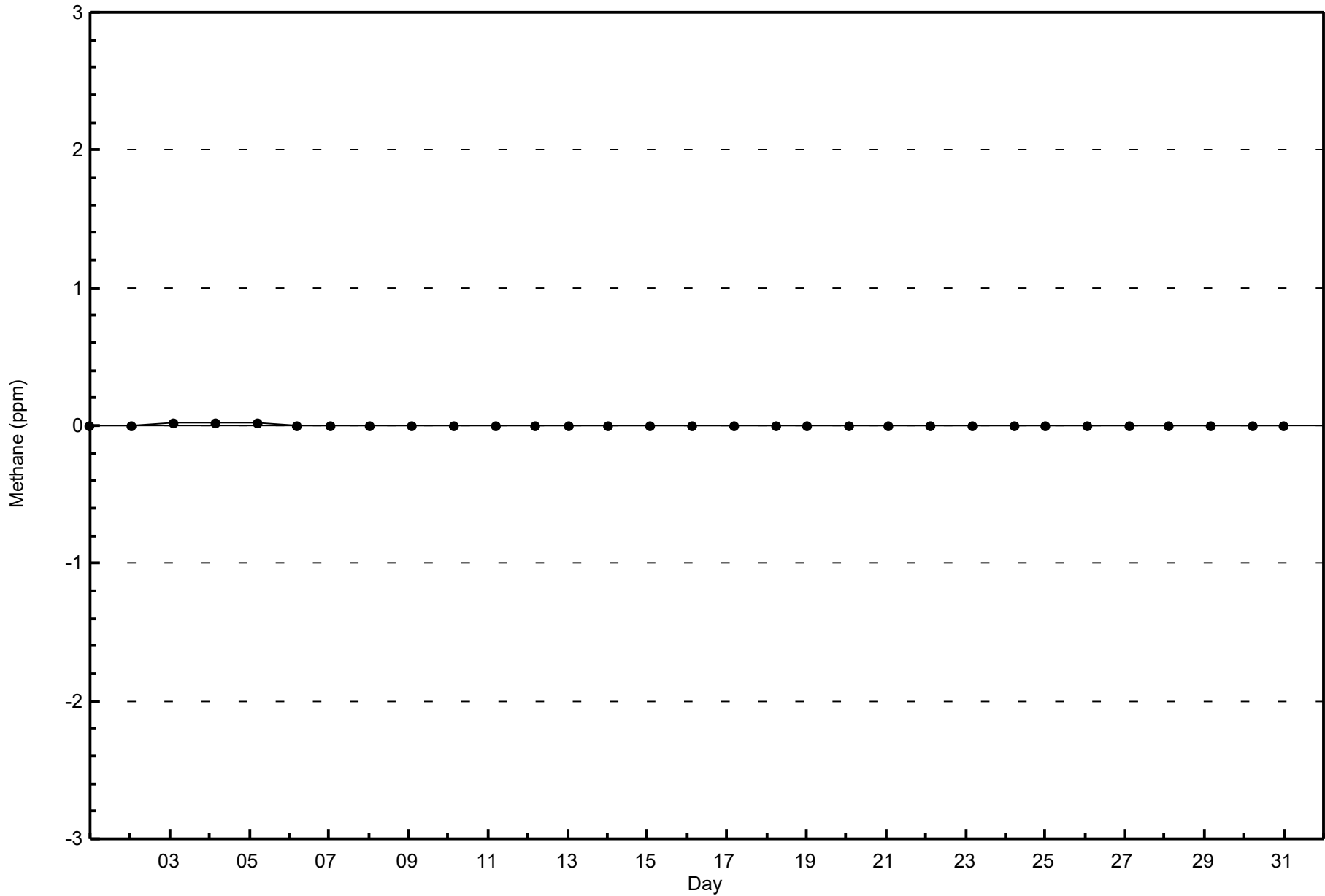
Total Number of Hours: 744

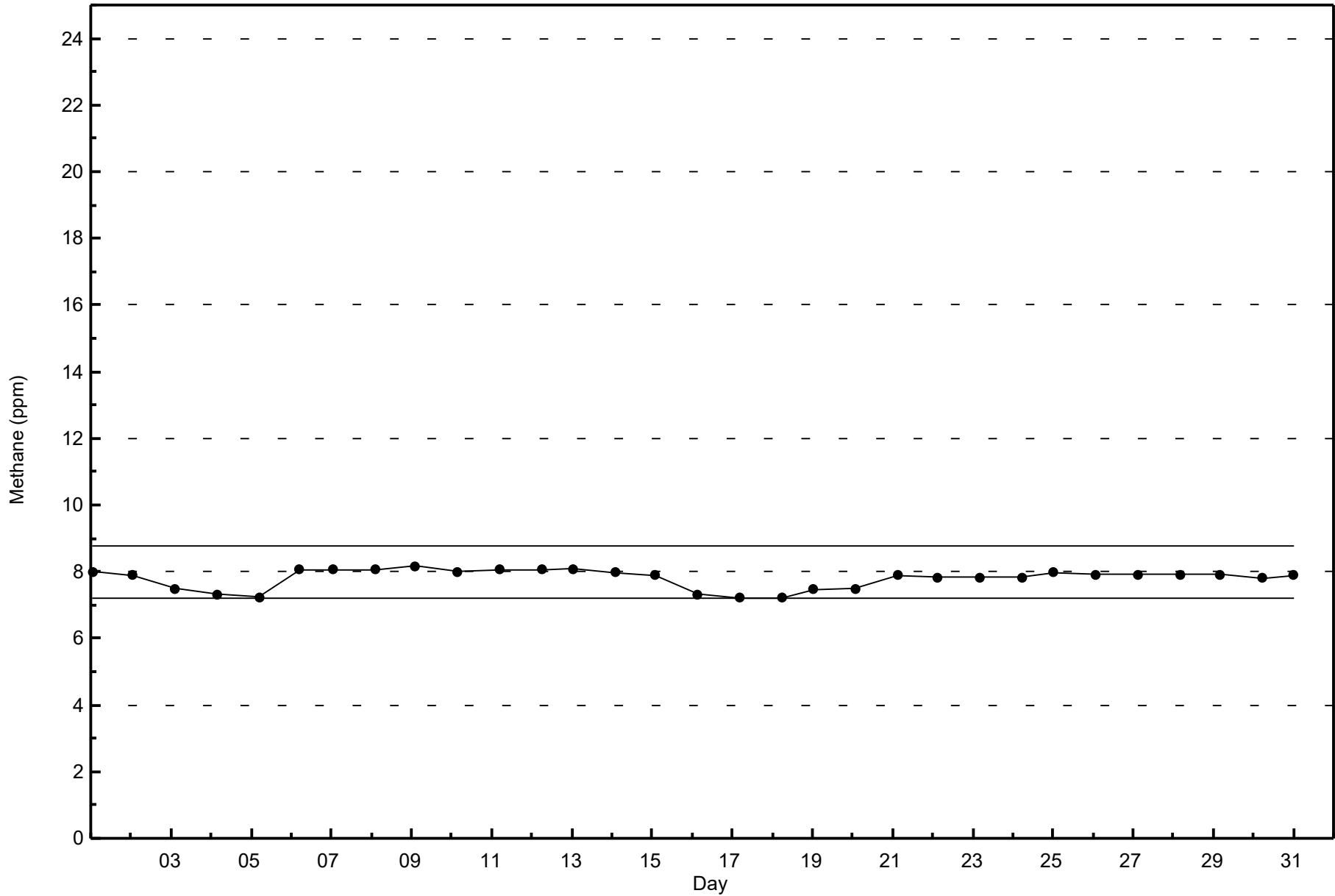


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Conklin









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitric Oxide (NO) - ppb
Conklin - March 2024

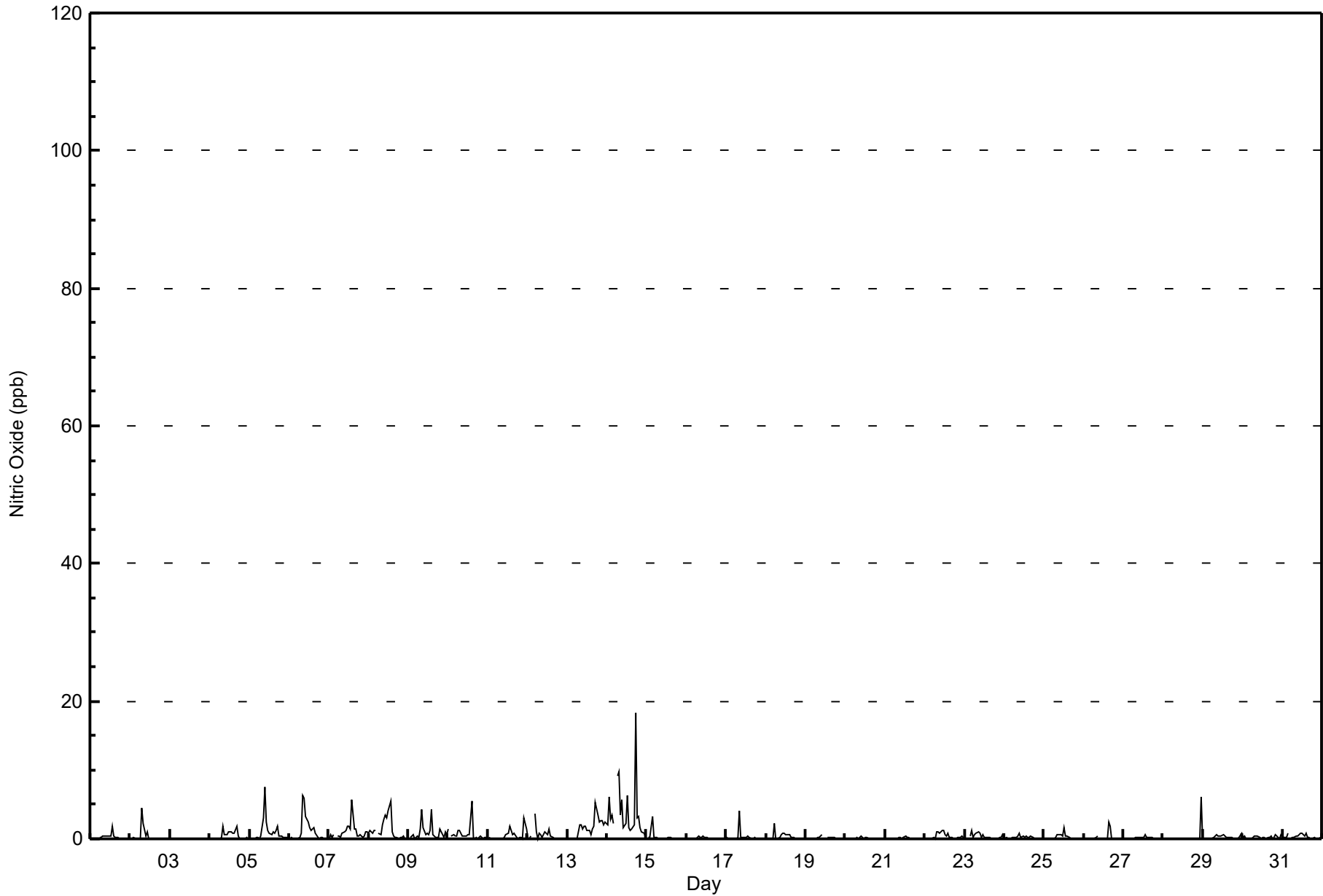
Maximum Value: 18.2 ppb on Mar 14 18:00		Maximum Daily Average: 3.9 ppb on Mar 14		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 3		Hours of Data: 706																						
Maximum Diurnal Average: 1.2 ppb at hour 9		Minimum Diurnal Average: 0.2 ppb at hour 22		Hours of Missing Data: 38																						
Monthly Average: 0.57 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.5 P ₉₀ = 1.4 P ₉₉ = 6.1		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-Mar	0.0	0.1	0.0	0.1	Z	0.2	0.2	0.3	0.4	0.4	0.3	0.4	0.3	1.8	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.8
2-Mar	0.0	0.1	0.2	0.0	0.1	Z	0.0	4.4	2.3	0.4	1.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.4
3-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
4-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.1	1.9	0.5	0.7	1.0	1.0	1.0	0.9	0.9	1.8	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.5	1.9
5-Mar	0.0	0.0	Z	0.0	0.2	0.2	0.0	0.4	3.1	7.5	2.4	1.3	0.8	0.6	1.1	0.8	1.3	1.8	0.3	0.3	0.2	0.1	0.2	0.1	1.0	7.5
6-Mar	0.0	0.1	0.0	Z	0.0	0.0	0.2	0.8	6.3	5.8	3.2	2.5	1.7	1.3	1.4	1.7	0.8	0.2	0.1	0.2	0.1	0.0	0.0	0.0	1.2	6.3
7-Mar	0.1	0.7	0.2	0.6	Z	0.5	0.3	0.3	0.9	1.0	1.3	1.8	1.9	1.4	5.7	1.4	1.4	0.5	0.3	0.5	0.2	0.4	1.1	1.1	1.0	5.7
8-Mar	0.7	1.3	0.9	1.3	1.1	Z	0.8	0.6	1.9	2.8	3.4	3.0	4.0	5.5	1.0	0.4	0.3	0.2	0.1	0.2	0.2	0.5	0.1	0.1	1.3	5.5
9-Mar	Z	0.3	0.4	0.5	0.0	0.3	0.2	1.4	4.3	1.7	0.7	0.7	0.6	1.2	4.2	0.6	0.3	0.1	0.3	1.4	0.9	0.2	1.0	0.6	1.0	4.3
10-Mar	1.3	Z	0.4	0.6	0.5	0.3	1.2	1.2	0.5	0.4	0.4	0.4	0.5	0.7	5.5	0.1	0.1	0.2	0.0	0.4	0.2	0.1	0.3	0.1	0.7	5.5
11-Mar	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	0.9	1.9	1.3	0.7	0.9	0.3	0.0	0.2	0.3	0.1	3.1	1.4	0.5	3.1
12-Mar	0.1	0.0	0.3	Z	3.7	1.1	0.1	0.9	0.5	0.3	1.0	0.9	0.7	1.4	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	3.7
13-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.9	2.0	1.5	1.8	1.8	1.3	1.2	0.5	1.5	1.8	5.3	3.4	2.5	2.6	2.7	2.0	2.4	1.6	5.3
14-Mar	2.1	6.1	2.9	3.5	2.3	Z	9.2	9.8	3.4	5.7	1.6	2.3	6.3	1.6	1.1	1.4	2.1	18.2	3.0	3.2	1.7	1.1	0.8	0.3	3.9	18.2
15-Mar	Z	0.1	0.1	3.2	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.2
16-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	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	0.4
17-Mar	0.2	0.0	Z	0.0	0.0	0.0	0.0	0.2	4.0	0.2	0.2	0.3	0.3	0.4	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.0
18-Mar	0.0	0.1	0.0	Z	0.0	2.2	0.0	0.0	0.2	0.6	0.9	0.8	0.5	0.6	0.5	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.3	2.2
19-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.2	0.4	0.6	M	M	0.2	0.2	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
20-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.4	0.1	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
21-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
22-Mar	0.0	Z	0.0	0.0	0.0	0.2	0.1	1.0	0.9	0.9	1.2	1.3	0.6	0.4	0.9	0.3	0.2	0.1	0.0	0.0	0.1	0.3	0.4	0.1	0.4	1.3
23-Mar	0.0	0.0	Z	0.4	1.2	0.2	0.6	0.9	1.0	0.9	0.2	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.6	0.4	1.2
24-Mar	0.1	0.1	0.0	Z	0.0	0.2	0.3	0.2	0.5	0.8	0.2	0.4	0.2	0.4	0.1	0.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.8
25-Mar	0.0	0.0	0.0	0.1	Z	0.0	0.1	0.3	0.5	0.7	0.5	0.3	1.5	0.4	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.5
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.3	0.4	C	C	C	C	C	0.1	2.4	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.4
27-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
28-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.3	6.1
29-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.2	0.8	0.2	0.8
30-Mar	0.3	0.3	0.0	Z	0.1	0.1	0.2	0.4	0.4	0.4	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.3	0.1	0.2	0.6	0.2	0.1	0.7	0.2	0.7
31-Mar	0.5	0.1	0.1	0.7	Z	0.1	0.2	0.3	0.4	0.4	0.6	0.8	0.8	0.4	0.9	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.3	0.9
																								Diurnal Average		
																								Diurnal Maximum		
																								0.2 2.1		
																								0.4 6.1		
																								0.2 2.9		
																								0.4 3.5		
																								0.4 3.7		
																								0.2 2.2		
																								0.5 9.2		
																								0.9 9.8		
																								1.2 6.3		
																								1.2 7.5		
																								0.8 3.4		
																								0.8 3.0		
																								0.9 6.3		
																								0.8 5.5		
																								0.9 5.7		
																								0.5 2.4		
																								0.5 2.1		
																								0.9 18.2		
																								0.3 3.4		
																								0.3 3.2		
																								0.2 2.6		
																								0.2 2.7		
																								0.3 3.1		
																								0.5 6.1		

Z - zerospan C - Calibration M - Maintenance



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Conklin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Conklin - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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



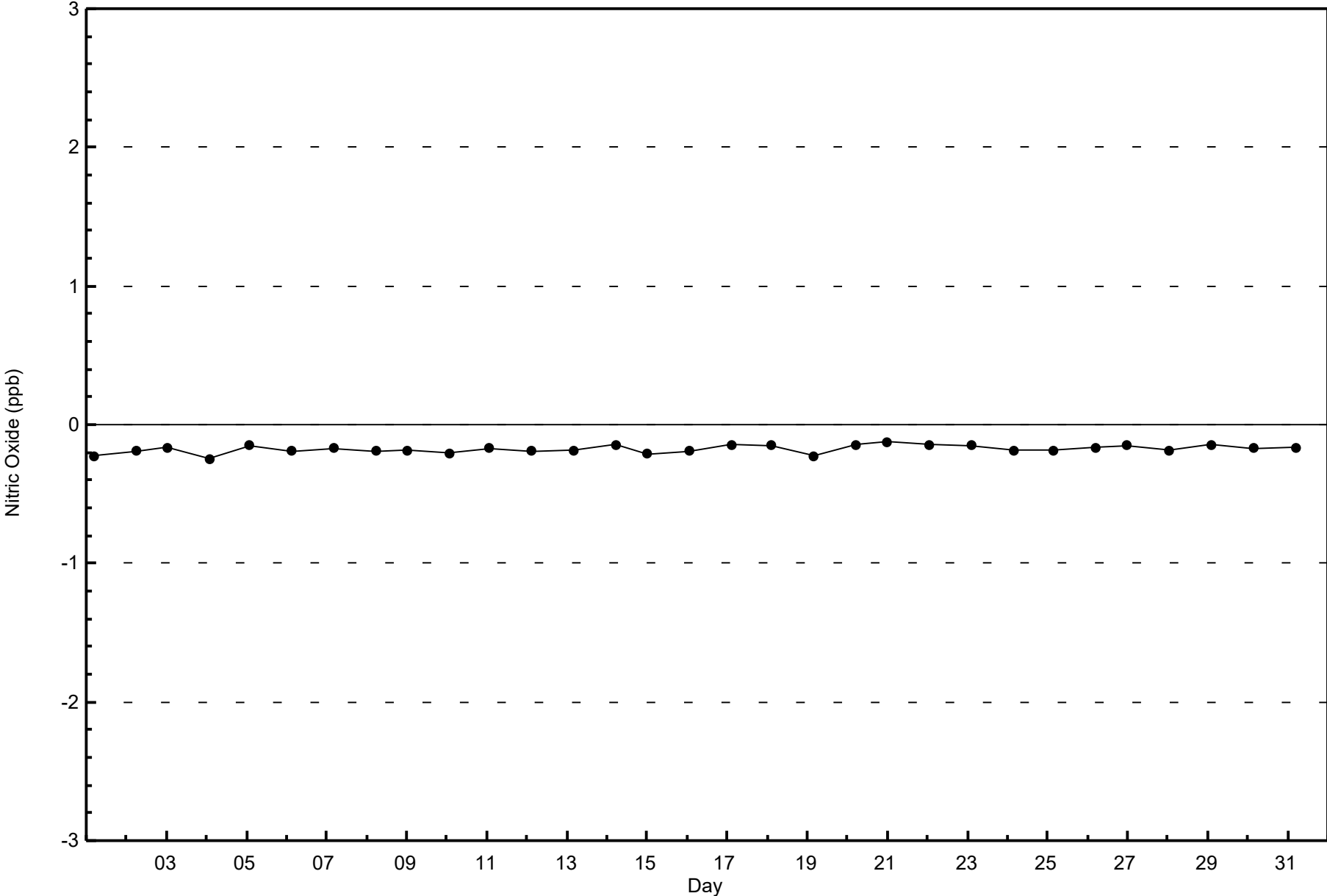
**Wood Buffalo Environmental Association
Frequency Distribution**

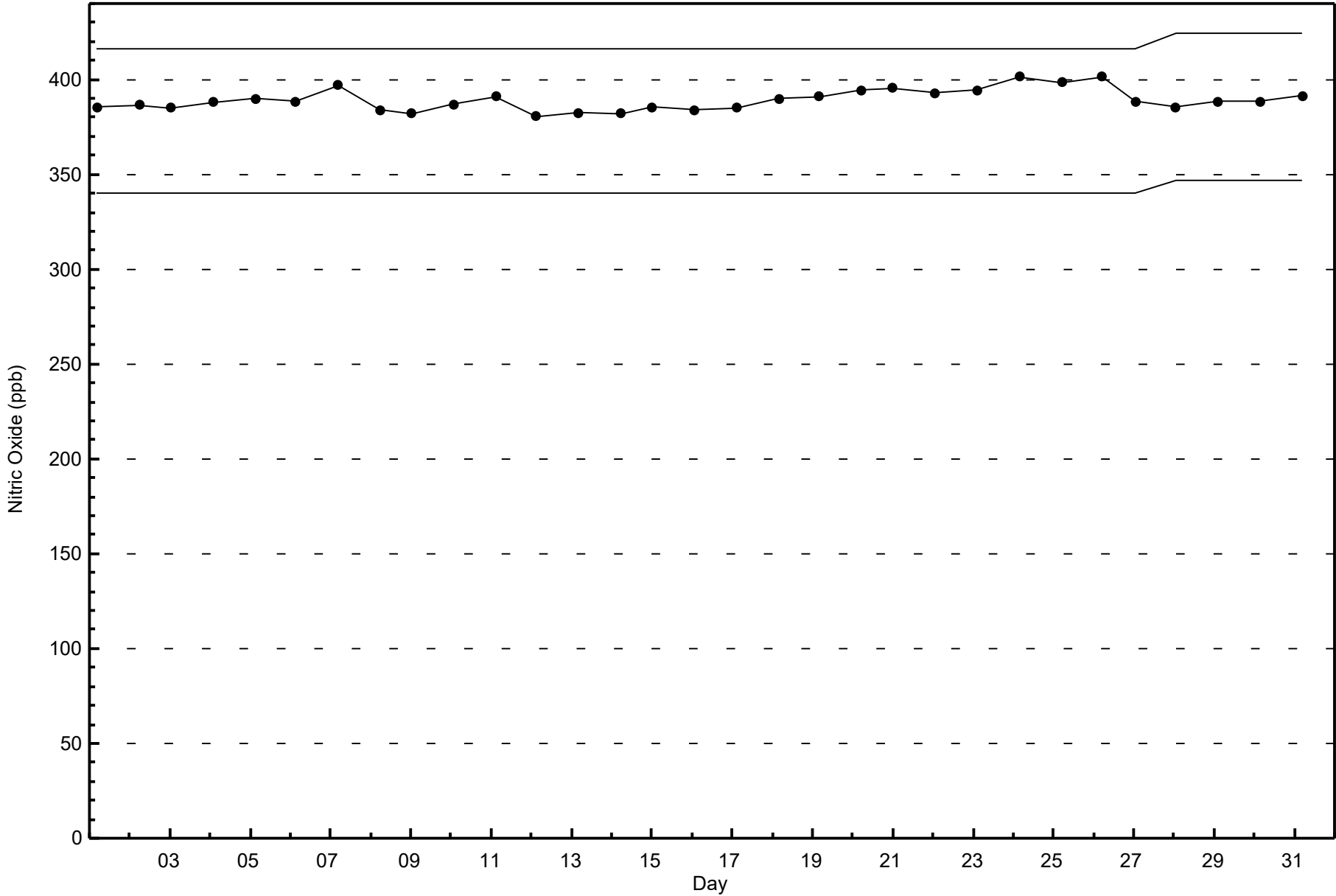
**Nitric Oxide (NO) - ppb
Conklin - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	42	42	29	32	27	24	67	61	99	75	39	12	13	28	55	59	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
Totals	42	42	29	32	27	24	67	61	99	75	39	12	13	28	55	59	704

Total Number of Valid Hours: 704

Total Number of Hours: 744





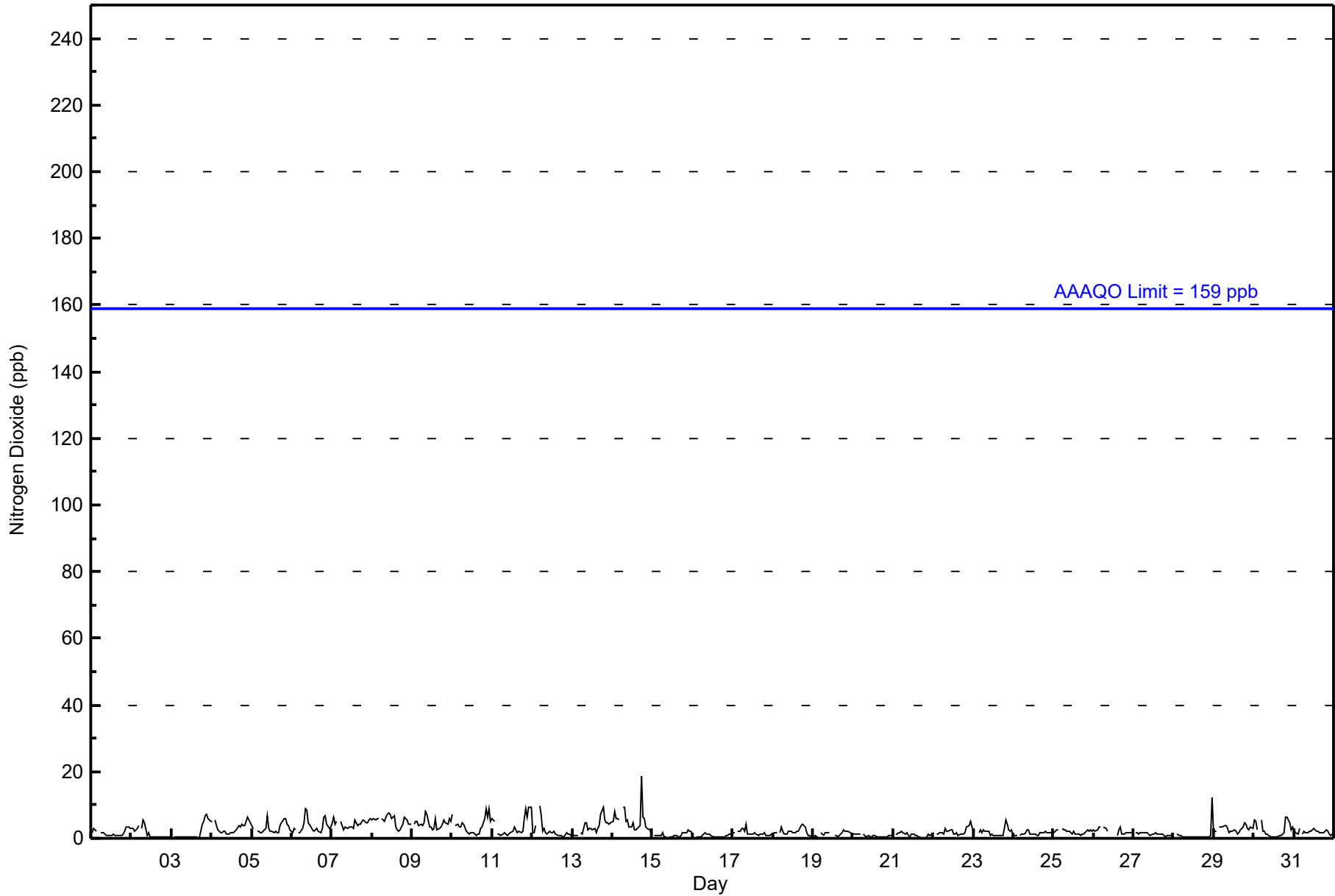


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 18.6 ppb on Mar 14 18:00		Maximum Daily Average: 5.4 ppb on Mar 14		Hours of Data:														706								
Minimum Value: 0.2 ppb on Mar 3 17:00		Minimum Daily Average: 0.7 ppb on Mar 16		Hours of Missing Data:														38								
Maximum Diurnal Average: 3.4 ppb at hour 21		Minimum Diurnal Average: 1.4 ppb at hour 16		Hours of Calibration:														36								
Monthly Average: 2.42 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 1.0 Median = 1.8 Q ₃ = 3.2 P ₉₀ = 5.3 P ₉₉ = 9.2		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-Mar	1.8	2.9	2.6	2.2	Z	1.8	1.9	1.8	1.3	0.9	0.8	0.8	0.8	1.1	0.8	0.7	0.8	0.8	1.0	1.4	2.2	3.5	3.2	2.9	1.7	3.5
2-Mar	3.0	3.0	2.2	3.0	3.8	Z	3.0	5.7	4.6	1.0	1.8	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.3	1.6	5.7
3-Mar	Z	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.4	4.2	5.2	6.6	7.3	6.0	5.0	1.8	7.3
4-Mar	5.1	Z	5.3	3.7	2.4	1.7	1.8	2.3	2.3	1.2	1.2	1.7	1.5	1.7	2.1	2.4	3.7	3.5	4.2	4.0	3.9	6.5	5.6	4.8	3.2	6.5
5-Mar	3.9	3.0	Z	2.1	2.2	1.6	1.8	2.1	2.9	6.6	2.8	2.2	2.0	1.5	2.1	1.5	1.5	3.8	4.6	6.0	6.1	4.1	4.0	2.4	3.1	6.6
6-Mar	1.7	2.8	2.4	Z	1.8	1.6	2.9	4.5	8.7	8.4	4.6	3.6	2.6	2.3	2.5	2.9	2.3	1.9	2.8	6.4	6.7	4.4	3.1	3.6	3.7	8.7
7-Mar	4.6	6.2	4.2	5.2	Z	5.1	4.0	2.7	3.4	2.9	3.2	3.2	3.6	2.9	5.4	4.0	4.4	4.2	5.1	5.5	4.8	4.8	5.7	6.0	4.4	6.2
8-Mar	5.6	5.9	5.7	5.9	6.0	Z	5.8	5.0	6.3	7.1	7.7	7.2	6.1	6.8	3.3	2.5	2.2	2.5	4.1	6.5	6.0	5.7	4.1	4.1	5.3	7.7
9-Mar	Z	4.3	5.0	5.0	4.0	4.2	3.7	4.7	8.0	7.1	3.4	3.3	2.5	3.1	5.8	2.7	2.9	3.2	4.3	5.5	4.8	4.4	6.0	5.0	4.5	8.0
10-Mar	7.1	Z	3.9	4.1	3.5	3.3	4.6	4.1	2.1	1.8	1.4	1.5	1.5	1.6	1.0	1.1	1.2	3.0	3.2	6.0	9.0	6.3	9.0	5.2	3.7	9.0
11-Mar	5.8	5.1	Z	1.1	1.1	1.0	1.4	1.6	1.2	1.0	1.1	1.7	2.1	3.2	2.4	1.8	2.1	1.6	2.0	5.9	8.9	6.3	9.5	9.4	3.4	9.5
12-Mar	1.9	1.7	3.7	Z	9.9	6.8	2.2	3.0	1.8	1.2	2.2	1.7	1.8	2.0	1.4	1.0	0.8	0.7	0.5	0.6	1.5	1.3	1.2	1.0	2.2	9.9
13-Mar	1.2	0.7	0.9	0.7	Z	1.7	1.1	4.8	4.8	2.7	3.0	2.9	2.6	3.1	1.6	2.8	3.8	7.0	9.4	5.7	4.8	4.8	4.1	4.6	3.4	9.4
14-Mar	5.0	8.0	6.1	6.0	5.5	Z	9.4	9.2	4.9	5.5	3.4	3.5	4.7	2.7	2.4	2.8	3.9	18.6	6.3	5.8	3.5	3.0	2.5	1.4	5.4	18.6
15-Mar	Z	1.0	1.0	0.9	1.0	1.0	1.5	0.6	0.3	0.2	0.5	0.4	0.4	0.8	0.9	0.5	0.3	0.8	1.8	1.7	1.8	2.4	2.0	2.0	1.0	2.4
16-Mar	0.9	Z	0.6	0.5	0.4	0.6	0.7	1.6	1.1	1.2	1.2	0.8	0.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.8	0.9	1.3	1.1	0.7	1.6
17-Mar	1.5	1.6	Z	2.0	2.0	2.8	2.8	2.2	4.4	1.3	1.1	1.1	1.2	1.5	1.2	1.0	1.1	1.3	1.1	1.8	0.9	0.9	1.0	1.2	1.6	4.4
18-Mar	1.3	1.6	1.8	Z	1.6	3.3	2.3	1.1	1.1	2.1	2.2	2.0	1.8	1.8	2.3	2.1	2.9	3.7	4.2	3.5	1.7	1.0	0.8	0.6	2.0	4.2
19-Mar	0.5	0.7	0.3	0.6	Z	1.9	0.9	1.9	1.7	1.6	1.5	M	M	0.8	0.7	0.6	0.8	1.6	2.4	2.1	2.2	2.1	1.8	1.4	1.3	2.4
20-Mar	1.2	1.4	1.4	1.4	1.1	Z	1.2	0.9	0.5	1.0	0.6	0.5	0.7	0.7	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0	0.9	0.8	1.4
21-Mar	Z	1.1	1.4	1.5	1.8	2.2	1.5	1.4	1.8	1.0	0.6	1.2	1.2	0.9	0.8	0.5	0.3	0.2	0.2	0.2	0.5	1.1	1.0	1.3	1.0	2.2
22-Mar	1.6	Z	1.3	1.3	1.5	1.6	1.4	3.0	2.3	2.1	2.5	2.6	1.4	1.3	1.5	1.0	1.1	1.1	1.2	1.9	3.6	3.9	5.0	3.2	2.1	5.0
23-Mar	2.3	2.3	Z	1.9	2.4	1.5	2.6	2.3	2.2	2.0	0.8	1.1	0.9	0.8	0.8	1.0	0.8	0.8	1.0	5.4	4.4	2.5	2.0	2.5	1.9	5.4
24-Mar	1.0	0.8	0.7	Z	0.8	1.2	1.4	1.5	2.5	2.6	1.1	1.2	1.1	1.2	1.0	1.0	1.6	1.6	1.5	2.1	1.6	1.9	1.9	1.8	1.4	2.6
25-Mar	1.9	2.0	2.5	2.5	Z	2.8	2.6	2.4	2.2	2.0	1.6	1.4	2.1	1.3	1.2	1.2	0.9	1.1	1.3	1.7	2.7	2.0	2.4	2.0	1.9	2.8
26-Mar	2.5	2.3	2.4	3.4	3.5	Z	3.5	2.9	2.1	C	C	C	C	C	0.9	2.5	3.2	1.3	1.2	1.8	1.8	1.7	1.9	1.6	2.3	3.5
27-Mar	Z	1.8	1.5	1.4	1.5	1.5	1.8	1.6	1.6	1.4	0.8	1.2	1.2	1.5	1.1	1.2	1.1	1.2	0.7	0.6	0.7	0.7	1.0	1.3	1.2	1.8
28-Mar	1.1	Z	1.4	1.0	0.8	0.6	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.6	0.9	12.1	1.1	12.1
29-Mar	2.0	2.3	Z	3.4	3.5	3.6	4.0	3.9	2.8	1.9	2.0	2.0	2.6	2.1	1.4	1.9	2.5	3.4	4.6	4.4	2.9	2.6	3.3	3.1	2.9	4.6
30-Mar	5.4	5.0	2.5	Z	5.3	2.2	2.0	1.2	1.1	0.8	0.6	0.5	0.5	0.5	0.4	0.7	0.7	1.2	1.6	6.5	6.5	4.6	2.7	3.6	2.4	6.5
31-Mar	2.5	1.8	1.4	2.8	Z	1.4	2.1	1.9	1.8	2.0	2.3	2.7	2.8	2.2	2.1	1.7	1.7	1.5	1.6	2.6	2.0	1.4	1.0	1.1	1.9	2.8
																								Diurnal Average		
																								Diurnal Maximum		
																								7.1 8.0 6.1 6.0 9.9 6.8 9.4 9.2 8.7 8.4 7.7 7.2 6.1 6.8 5.8 4.0 4.4 18.6 9.4 6.5 9.0 7.3 9.5 12.1		
Z - zerospan C - Calibration M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Conklin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Conklin - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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



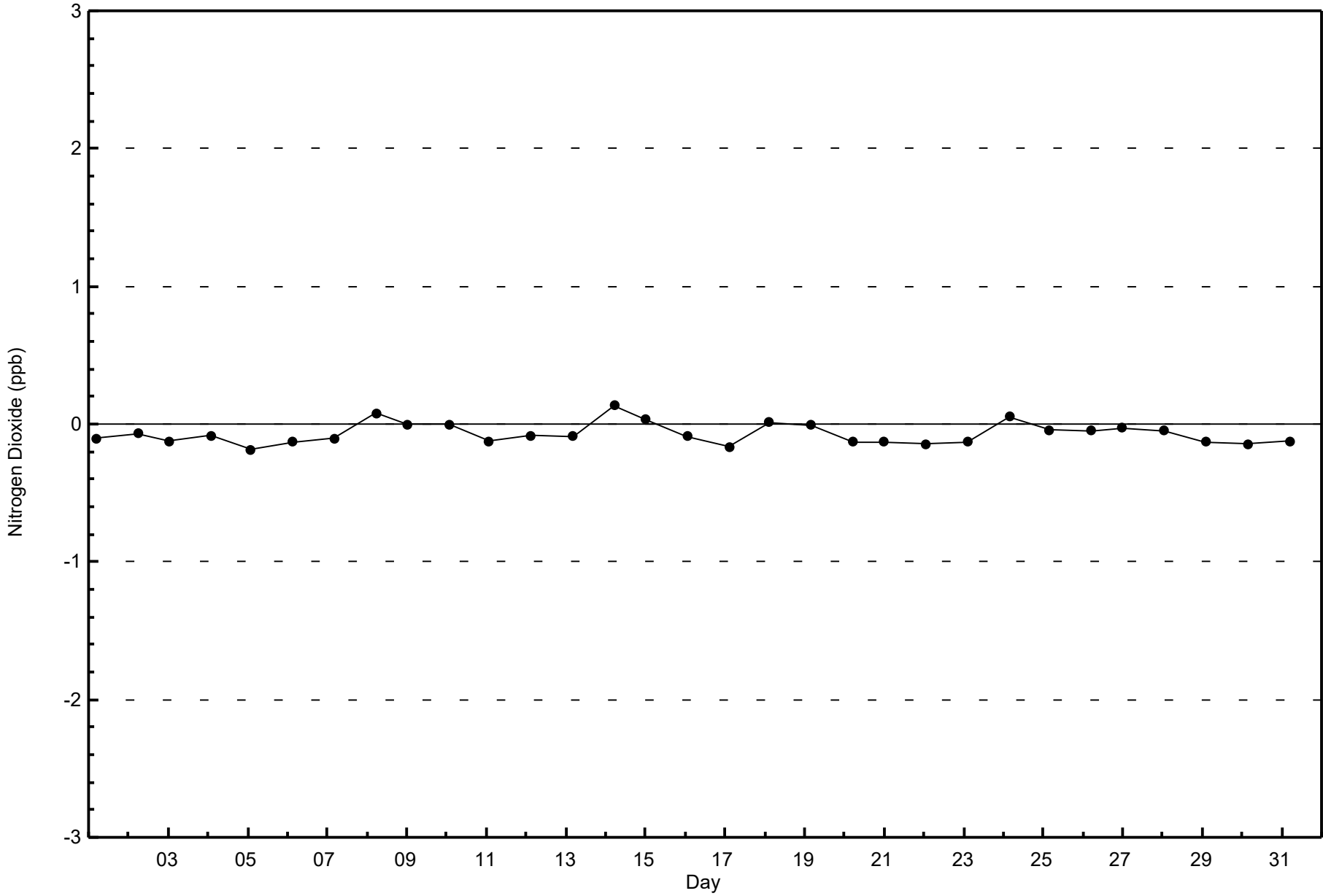
**Wood Buffalo Environmental Association
Frequency Distribution**

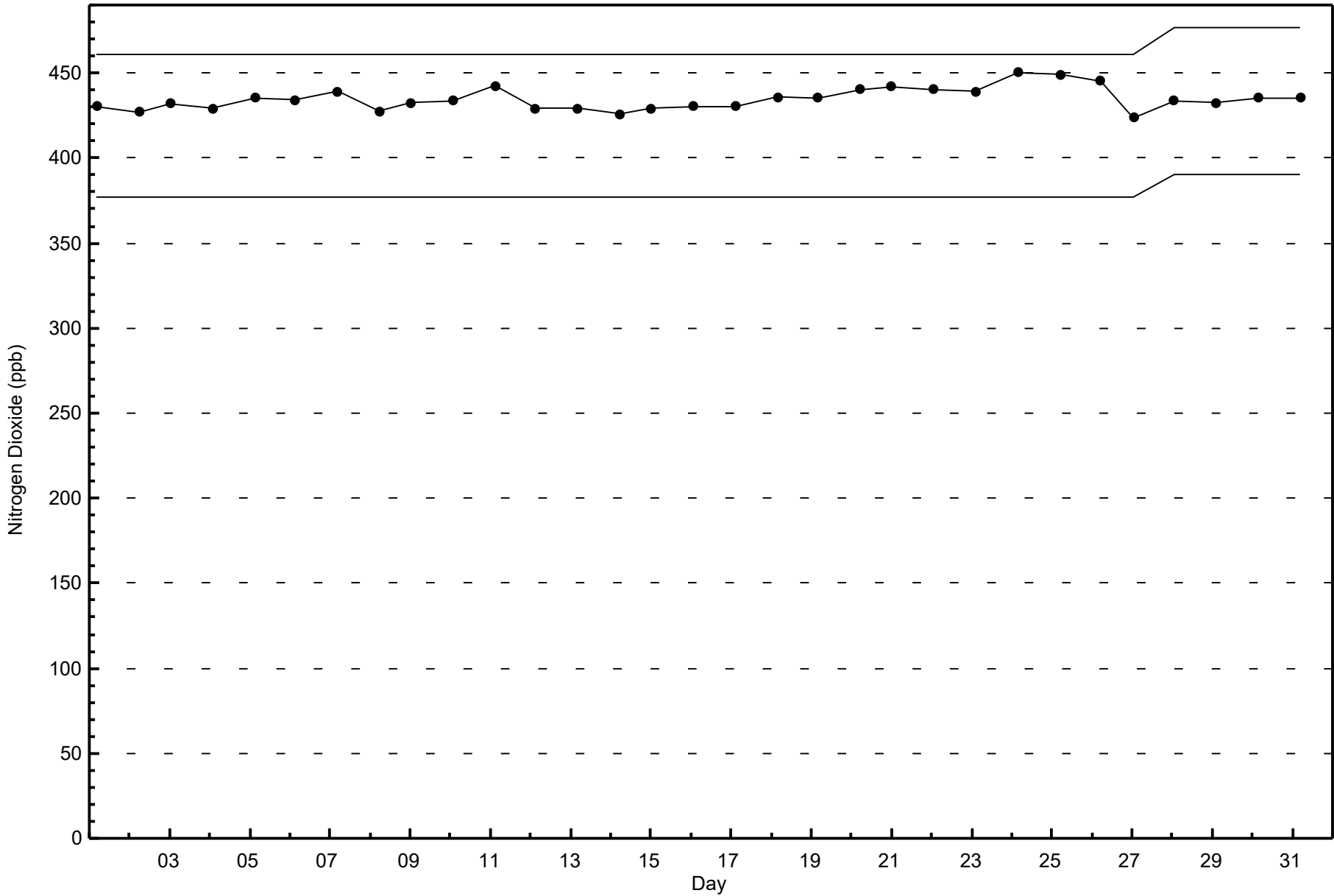
**Nitrogen Dioxide (NO₂) - ppb
Conklin - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	42	42	29	32	27	24	67	61	99	75	39	12	13	28	55	59	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
Totals	42	42	29	32	27	24	67	61	99	75	39	12	13	28	55	59	704

Total Number of Valid Hours: 704

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Conklin - March 2024

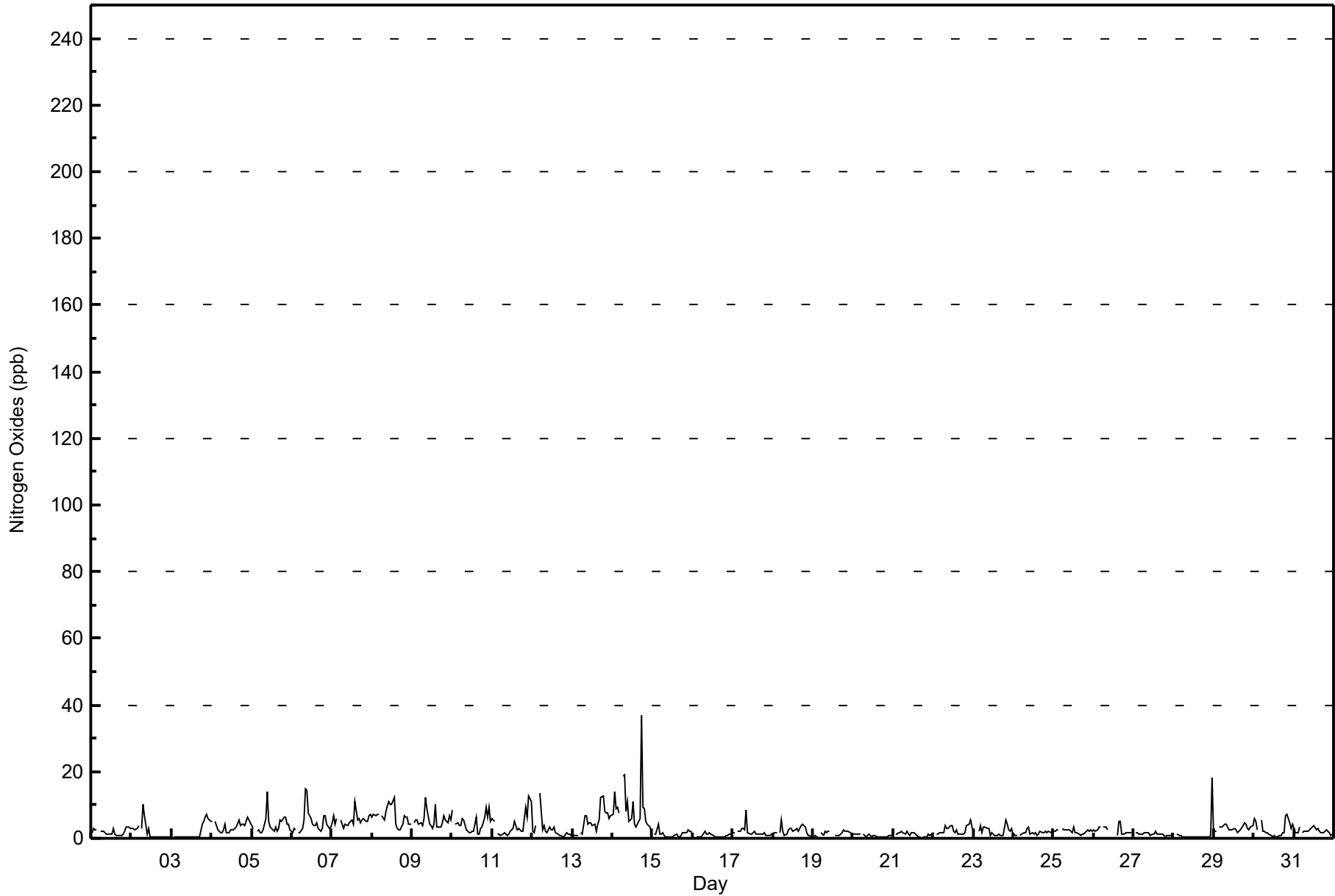
Maximum Value: 36.8 ppb on Mar 14 18:00																						Maximum Daily Average: 9.3 ppb on Mar 14				Hours in Service: 744	
Minimum Value: 0.2 ppb on Mar 21 18:00																						Minimum Daily Average: 0.8 ppb on Mar 20				Hours of Data: 706	
Maximum Diurnal Average: 3.9 ppb at hour 9																						Minimum Diurnal Average: 1.9 ppb at hour 16				Hours of Missing Data: 38	
Monthly Average: 2.98 ppb																						Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 1.2 Median = 2.0 Q ₃ = 3.9 P ₉₀ = 6.3 P ₉₉ = 14.1				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-Mar	1.8	3.0	2.6	2.3	Z	2.0	2.1	2.1	1.7	1.3	1.1	1.2	1.1	2.9	1.2	0.9	0.9	0.9	1.0	1.4	2.2	3.5	3.3	2.9	1.9	3.5	
2-Mar	3.0	3.1	2.4	3.0	3.9	Z	3.0	10.1	6.9	1.4	2.8	0.4	0.4	0.3	0.4	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.3	1.9	10.1	
3-Mar	Z	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.5	0.4	0.5	0.4	0.5	0.3	0.3	0.3	0.2	0.4	4.2	5.2	6.6	7.4	6.0	5.0	1.8	7.4	
4-Mar	5.2	Z	5.3	3.7	2.4	1.7	1.8	2.4	4.2	1.7	1.9	2.7	2.5	2.7	3.0	3.3	5.5	3.8	4.2	4.0	3.9	6.5	5.7	4.8	3.6	6.5	
5-Mar	3.9	3.0	Z	2.1	2.4	1.8	1.8	2.5	6.0	14.1	5.2	3.5	2.8	2.1	3.2	2.3	2.8	5.6	4.9	6.3	6.3	4.2	4.2	2.5	4.1	14.1	
6-Mar	1.7	2.9	2.4	Z	1.8	1.6	3.1	5.3	15.0	14.2	7.8	6.1	4.3	3.6	3.9	4.6	3.1	2.1	2.9	6.6	6.8	4.4	3.1	3.6	4.8	15.0	
7-Mar	4.7	6.9	4.4	5.8	Z	5.6	4.3	3.0	4.3	3.9	4.5	5.0	5.5	4.3	11.1	5.4	5.8	4.7	5.4	6.0	5.0	5.2	6.8	7.1	5.4	11.1	
8-Mar	6.3	7.2	6.6	7.2	7.1	Z	6.6	5.6	8.2	9.9	11.1	10.2	10.1	12.3	4.3	2.9	2.5	2.7	4.2	6.7	6.2	6.2	4.2	4.2	6.6	12.3	
9-Mar	Z	4.6	5.4	5.5	4.0	4.5	3.9	6.1	12.3	8.8	4.1	4.0	3.1	4.3	10.0	3.3	3.2	3.3	4.6	6.9	5.7	4.6	7.0	5.6	5.4	12.3	
10-Mar	8.4	Z	4.3	4.7	4.0	3.6	5.8	5.3	2.6	2.2	1.8	1.9	2.0	2.3	6.5	1.2	1.3	3.2	3.2	6.4	9.2	6.4	9.3	5.3	4.4	9.3	
11-Mar	5.9	5.2	Z	1.1	1.1	1.0	1.4	1.6	1.3	1.1	1.3	2.2	3.0	5.1	3.7	2.5	3.0	1.9	2.0	6.1	9.2	6.4	12.6	10.8	3.9	12.6	
12-Mar	2.0	1.7	4.0	Z	13.6	7.9	2.3	3.9	2.3	1.5	3.2	2.6	2.5	3.4	1.8	1.3	0.9	0.7	0.5	0.6	1.6	1.3	1.2	1.0	2.7	13.6	
13-Mar	1.2	0.7	0.9	0.7	Z	1.7	1.1	6.7	6.8	4.2	4.8	4.7	3.9	4.3	2.1	4.3	5.6	12.3	12.8	8.2	7.4	7.5	6.1	7.0	5.0	12.8	
14-Mar	7.1	14.1	9.0	9.5	7.8	Z	18.6	19.0	8.3	11.2	5.0	5.8	11.0	4.3	3.5	4.2	6.0	36.8	9.3	9.0	5.2	4.1	3.3	1.7	9.3	36.8	
15-Mar	Z	1.1	1.1	4.1	1.2	1.1	1.7	0.6	0.3	0.2	0.6	0.5	0.5	1.0	1.1	0.6	0.3	0.8	1.8	1.7	1.8	2.4	2.0	2.0	1.2	4.1	
16-Mar	0.9	Z	0.6	0.5	0.4	0.6	0.8	1.9	1.3	1.4	1.6	1.1	0.8	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.8	0.9	1.3	1.1	0.8	1.9	
17-Mar	1.7	1.6	Z	2.0	2.0	2.8	2.8	2.4	8.4	1.5	1.3	1.4	1.5	1.9	1.3	1.1	1.2	1.5	1.1	1.8	0.9	0.9	1.0	1.2	1.9	8.4	
18-Mar	1.3	1.7	1.8	Z	1.6	5.5	2.3	1.1	1.3	2.7	3.1	2.8	2.3	2.4	2.8	2.3	3.1	3.8	4.3	3.5	1.7	1.0	0.8	0.6	2.3	5.5	
19-Mar	0.5	0.7	0.3	0.6	Z	1.9	1.0	2.1	1.9	2.0	2.1	M	M	1.0	0.9	0.7	1.0	1.8	2.4	2.1	2.2	2.1	1.8	1.4	1.4	2.4	
20-Mar	1.2	1.4	1.4	1.4	1.1	Z	1.2	1.0	0.6	1.4	0.7	0.5	0.9	1.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0	0.9	0.8	1.4
21-Mar	Z	1.1	1.4	1.5	1.8	2.2	1.5	1.5	2.0	1.2	0.7	1.5	1.5	1.1	0.9	0.5	0.3	0.2	0.2	0.2	0.5	1.1	1.0	1.3	1.1	2.2	
22-Mar	1.6	Z	1.3	1.3	1.5	1.8	1.5	4.0	3.2	3.0	3.7	3.9	2.0	1.7	2.4	1.3	1.3	1.2	1.2	1.9	3.7	4.2	5.4	3.3	2.5	5.4	
23-Mar	2.3	2.3	Z	2.3	3.6	1.7	3.2	3.2	3.2	2.9	1.0	1.7	1.2	1.0	1.0	1.2	0.9	0.9	1.0	5.5	4.4	2.6	2.2	3.1	2.3	5.5	
24-Mar	1.1	0.9	0.7	Z	0.8	1.4	1.7	1.7	3.0	3.4	1.3	1.6	1.3	1.6	1.1	1.2	2.0	1.7	1.6	2.1	1.6	1.9	1.9	1.8	1.6	3.4	
25-Mar	1.9	2.0	2.5	2.6	Z	2.8	2.7	2.7	2.7	2.7	2.1	1.7	3.6	1.7	1.6	1.4	1.0	1.2	1.3	1.7	2.7	2.0	2.4	2.0	2.1	3.6	
26-Mar	2.5	2.3	2.4	3.4	3.5	Z	3.5	3.2	2.5	C	C	C	C	C	1.0	4.9	5.1	1.4	1.2	1.8	1.8	1.7	1.9	1.6	2.5	5.1	
27-Mar	Z	1.8	1.5	1.4	1.5	1.5	1.8	1.7	1.8	1.6	1.0	1.4	1.5	2.0	1.3	1.4	1.3	1.4	0.7	0.6	0.7	0.7	1.0	1.3	1.3	2.0	
28-Mar	1.1	Z	1.4	1.0	0.8	0.6	0.4	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.6	0.9	18.2	1.3	18.2	
29-Mar	2.0	2.3	Z	3.4	3.5	3.6	4.1	4.4	3.3	2.4	2.4	2.4	3.1	2.5	1.6	2.1	2.7	3.6	4.7	4.4	2.9	2.6	3.5	3.9	3.1	4.7	
30-Mar	5.7	5.3	2.5	Z	5.4	2.3	2.2	1.6	1.5	1.2	0.8	0.6	0.7	0.6	0.4	0.8	0.8	1.5	1.7	6.7	7.1	4.8	2.8	4.3	2.7	7.1	
31-Mar	3.0	1.9	1.5	3.5	Z	1.5	2.3	2.2	2.2	2.4	2.9	3.5	3.6	2.6	3.0	1.9	1.8	1.6	1.6	2.7	2.0	1.5	1.0	1.2	2.2	3.6	
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			
																								Diurnal Average			
																								Diurnal Maximum			

Z - zerospan C - Calibration M - Maintenance



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Conklin - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Conklin - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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



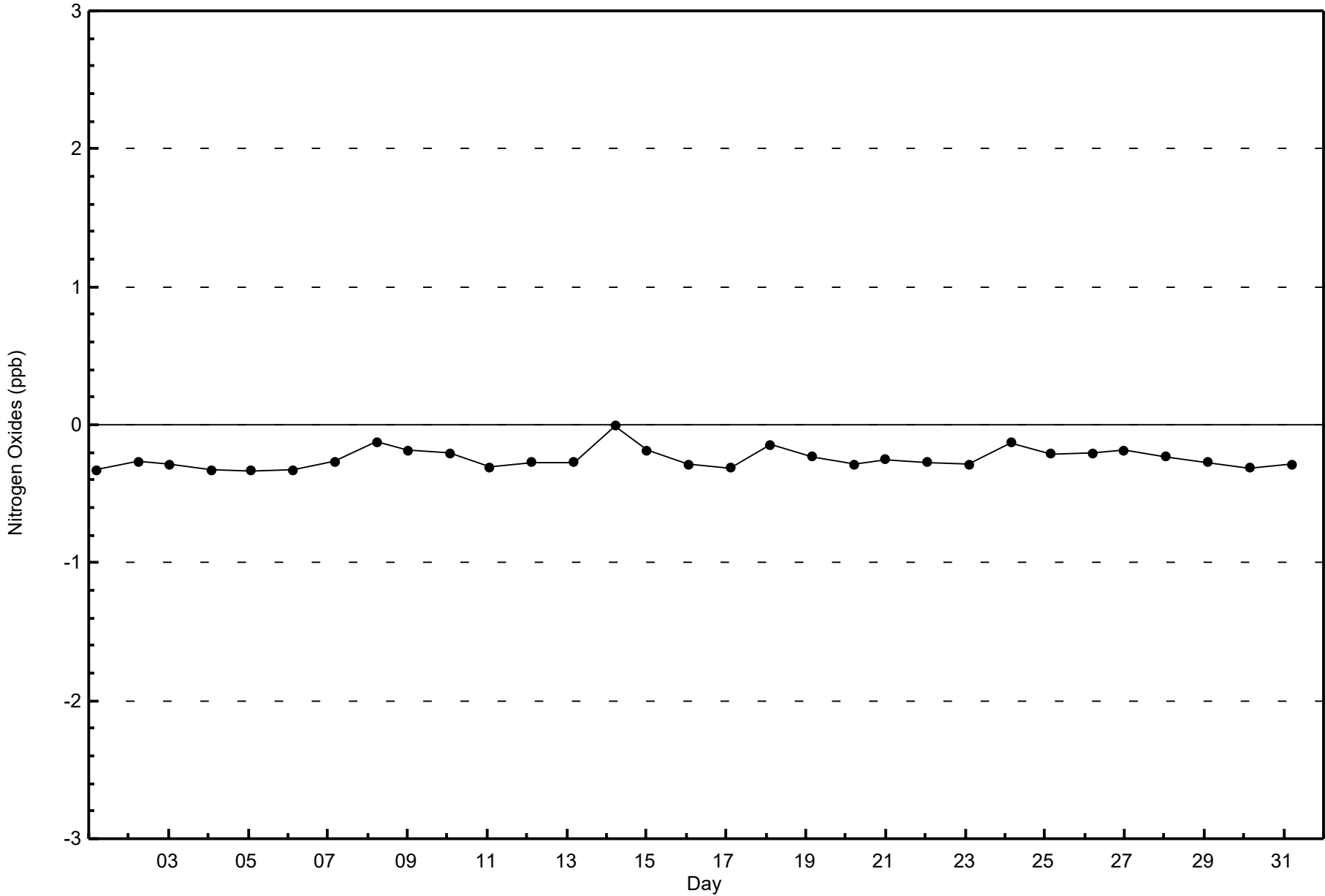
**Wood Buffalo Environmental Association
Frequency Distribution**

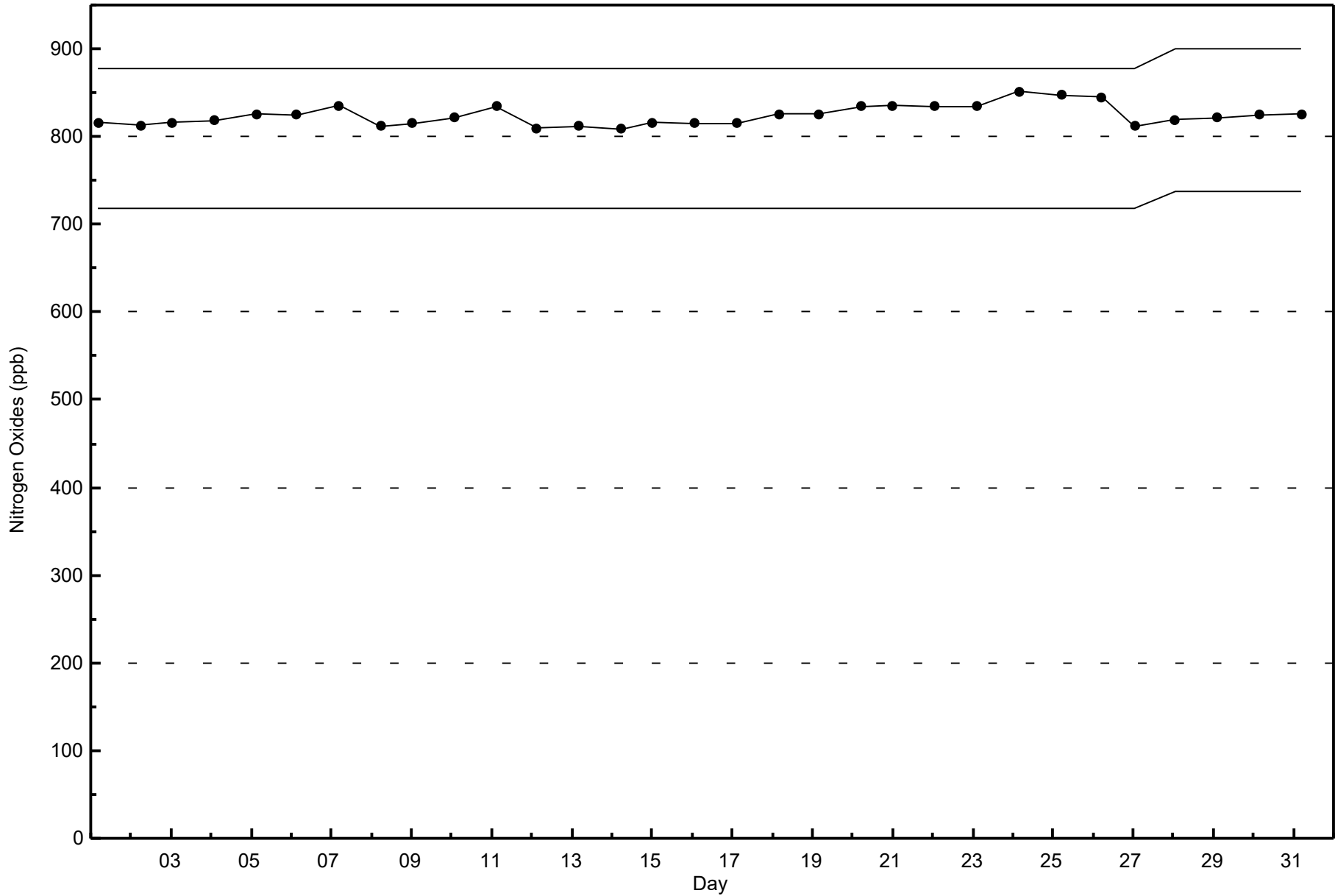
**Nitrogen Oxides (NO_x) - ppb
Conklin - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	42	42	29	32	27	24	67	61	99	74	39	12	13	28	55	59	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
Totals	42	42	29	32	27	24	67	61	99	75	39	12	13	28	55	59	704

Total Number of Valid Hours: 704

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

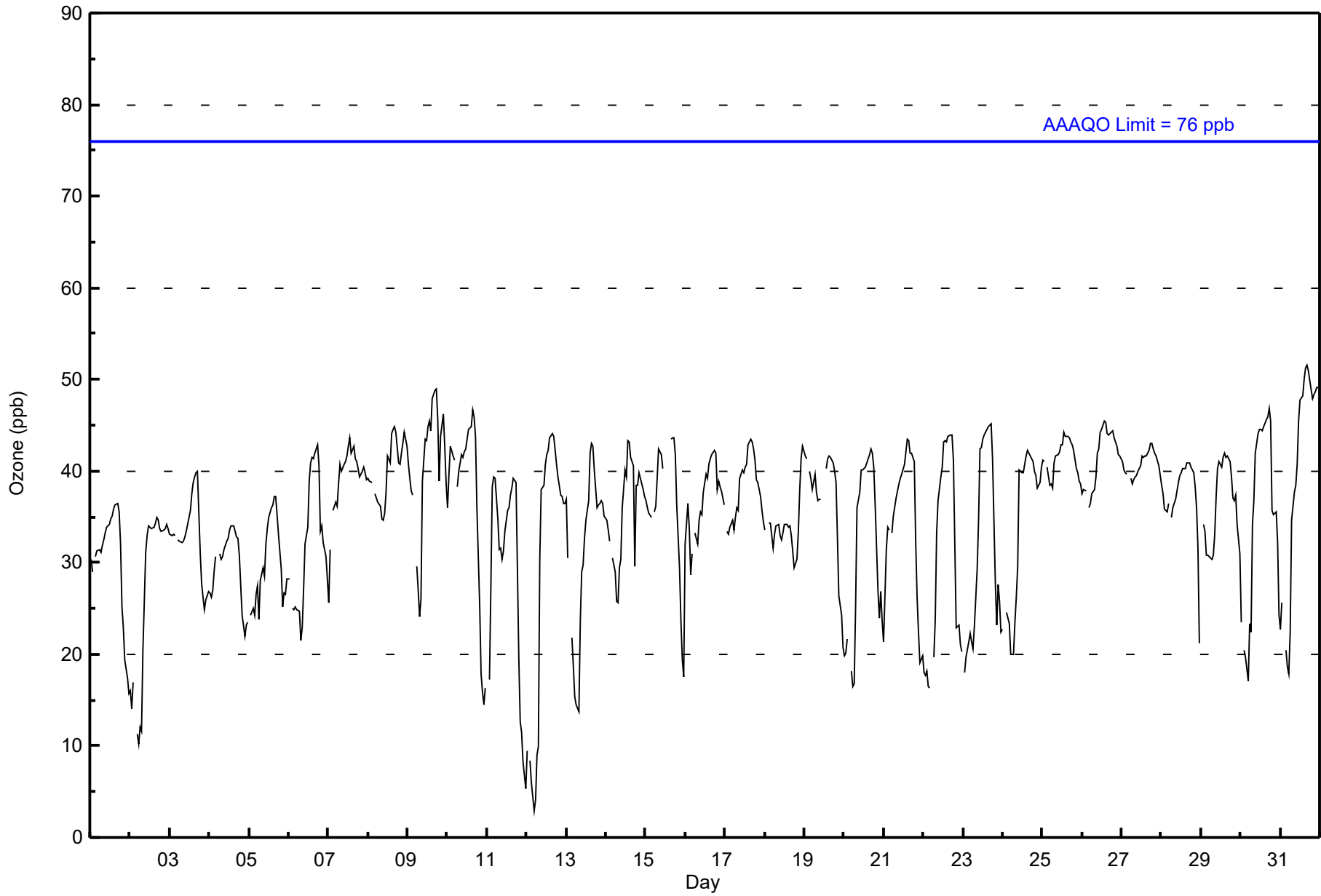
Ozone (O₃) - ppb
Conklin - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 51.6 ppb on Mar 31 17:00		Maximum Daily Average: 41.5 ppb on Mar 26																	707								
Minimum Value: 2.8 ppb on Mar 12 05:00		Minimum Daily Average: 26.9 ppb on Mar 2																	37								
Maximum Diurnal Average: 41.9 ppb at hour 16		Minimum Diurnal Average: 28.0 ppb at hour 5																	35								
Monthly Average: 34.79 ppb		Percentiles: P ₁ = 9.5 P ₁₀ = 22.4 Q ₁ = 30.8 Median = 36.7 Q ₃ = 41.1 P ₉₀ = 43.5 P ₉₉ = 48.9																	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-Mar	30.3	29.0	Z	30.6	31.3	31.4	31.2	31.8	32.5	33.3	33.9	34.2	34.8	35.1	35.8	36.2	36.4	35.5	32.1	25.2	22.9	19.3	17.5	15.7	30.3	36.4	
2-Mar	16.0	14.0	16.9	Z	11.3	10.2	12.0	11.6	20.4	31.1	33.0	34.0	33.9	33.8	33.9	34.3	35.0	34.6	33.8	33.5	33.6	33.7	34.2	33.7	26.9	35.0	
3-Mar	33.1	33.0	33.0	32.9	Z	32.4	32.3	32.2	32.3	32.8	33.4	34.1	35.6	37.6	38.7	39.3	39.7	39.9	31.2	27.8	26.2	24.8	25.9	26.9	32.8	39.9	
4-Mar	26.7	26.2	27.0	29.2	30.6	Z	31.0	30.4	30.7	31.5	32.3	32.7	33.5	34.0	34.1	34.1	32.9	32.7	30.8	27.5	24.3	22.0	23.1	23.5	29.6	34.1	
5-Mar	Z	24.2	25.1	24.2	26.6	Z	27.5	23.8	28.0	29.5	28.6	32.0	33.8	35.0	36.0	36.3	37.2	37.2	35.2	33.0	29.3	25.2	26.7	26.5	28.2	30.0	37.2
6-Mar	28.2	Z	25.1	24.9	25.1	24.8	24.7	21.6	22.8	27.1	32.0	33.9	38.9	40.8	41.4	41.4	42.0	42.9	40.5	33.4	34.0	32.1	30.6	28.3	32.0	42.9	
7-Mar	25.7	31.5	Z	35.6	36.6	36.1	38.6	40.7	40.0	40.7	41.1	41.6	42.7	43.6	41.9	42.7	41.3	41.0	40.3	39.4	40.0	40.4	39.8	39.1	39.1	43.6	
8-Mar	39.2	38.9	38.7	Z	37.5	37.1	36.6	36.1	34.8	34.6	35.3	37.6	41.7	40.9	44.1	44.5	44.9	44.3	40.8	40.7	42.0	43.0	44.2	42.7	40.0	44.9	
9-Mar	40.8	39.2	37.8	37.3	Z	29.5	27.0	24.2	26.0	38.8	43.5	43.3	44.8	45.5	44.4	47.9	48.9	48.9	45.6	38.8	43.8	46.2	42.8	38.6	40.2	48.9	
10-Mar	36.0	39.6	42.7	41.6	41.2	Z	38.2	40.0	41.7	41.4	42.1	42.4	43.5	44.6	44.8	46.6	46.0	43.7	36.0	25.3	17.8	15.9	14.5	16.3	36.6	46.6	
11-Mar	Z	17.2	27.3	38.3	39.4	39.3	34.8	31.5	31.6	30.4	31.2	33.4	35.8	35.9	37.4	38.2	39.1	38.8	29.3	19.5	12.7	11.5	8.3	5.3	29.0	39.4	
12-Mar	9.5	Z	8.4	6.0	2.8	4.1	8.9	9.8	30.3	38.0	38.4	40.7	41.8	42.2	43.6	44.1	43.7	42.2	40.8	39.4	37.4	37.2	36.4	36.4	29.7	44.1	
13-Mar	36.8	30.6	Z	21.8	18.7	15.4	14.5	13.7	23.6	28.9	29.8	32.7	34.6	36.8	42.0	43.0	42.7	40.2	36.0	36.3	36.5	36.8	36.4	35.0	31.4	43.0	
14-Mar	34.7	33.6	32.3	Z	30.5	28.9	25.9	25.6	29.5	30.3	35.9	40.1	39.3	43.3	43.1	41.5	40.6	29.6	38.4	38.4	39.8	39.2	37.9	37.2	35.5	43.3	
15-Mar	36.7	36.0	35.3	34.9	Z	35.6	36.2	39.2	42.5	41.8	40.3	C	C	C	C	43.4	43.7	43.6	41.8	36.3	29.4	23.7	19.4	17.6	35.7	43.7	
16-Mar	32.0	36.5	33.7	28.7	31.0	Z	33.3	32.0	34.7	35.6	35.3	37.7	39.7	39.3	40.7	41.3	41.8	42.3	41.9	38.0	38.8	38.3	37.9	36.2	36.8	42.3	
17-Mar	Z	33.4	33.1	33.8	34.7	33.5	34.9	36.0	35.7	39.1	40.1	39.8	40.4	40.7	42.9	43.5	43.2	42.5	41.2	39.0	38.7	37.3	35.7	34.4	38.0	43.5	
18-Mar	33.5	Z	34.4	34.4	33.0	31.6	33.1	34.0	34.2	32.9	32.5	33.3	34.2	34.1	33.8	34.0	32.9	31.3	29.5	30.4	33.3	37.9	41.3	42.6	34.0	42.6	
19-Mar	41.7	41.3	Z	40.0	39.1	37.9	39.6	37.7	36.8	37.0	37.0	M	M	40.3	41.3	41.6	41.5	40.9	39.9	38.7	32.9	26.4	24.3	20.7	37.0	41.7	
20-Mar	19.8	20.2	21.6	Z	18.2	16.5	16.7	25.1	36.0	37.7	40.1	40.1	40.2	40.5	41.3	41.7	42.4	41.9	40.4	36.3	27.0	24.0	26.8	23.7	31.2	42.4	
21-Mar	21.3	31.4	33.9	33.6	Z	33.2	35.1	37.0	37.8	38.5	39.2	39.6	40.8	42.1	43.5	43.4	42.0	42.0	41.0	32.3	26.3	22.5	19.1	19.8	34.6	43.5	
22-Mar	18.1	17.7	18.2	16.4	16.3	Z	19.7	23.7	33.2	36.7	39.4	40.5	43.1	43.3	43.2	43.8	43.9	43.9	41.2	32.1	22.8	23.3	21.1	20.3	30.5	43.9	
23-Mar	Z	18.0	19.7	21.3	22.3	21.4	20.7	23.1	29.3	34.7	42.5	42.5	43.5	44.0	44.6	44.8	45.0	45.1	41.3	27.8	23.1	27.6	25.8	22.5	31.8	45.1	
24-Mar	22.8	Z	24.6	23.9	23.4	20.0	20.0	23.6	26.3	29.5	40.2	39.8	39.9	40.7	41.7	42.2	41.9	41.3	41.1	39.9	39.5	38.1	38.7	40.5	33.9	42.2	
25-Mar	41.2	41.1	Z	40.4	38.5	38.6	38.1	40.8	41.6	41.8	42.1	42.9	42.9	44.2	43.9	43.7	43.6	43.2	42.9	42.2	40.2	39.8	38.9	38.6	41.4	44.2	
26-Mar	37.5	38.1	37.8	Z	35.9	36.5	37.5	38.0	39.3	42.0	42.4	44.2	44.5	45.5	45.2	44.2	43.9	44.2	44.4	43.7	43.2	42.7	41.8	41.6	41.5	45.5	
27-Mar	41.1	40.2	39.8	39.7	Z	39.2	38.6	39.1	39.3	39.5	40.0	40.5	41.6	41.5	41.7	41.6	42.3	42.9	43.0	42.4	41.9	41.6	40.6	39.5	40.8	43.0	
28-Mar	38.4	37.6	35.9	35.5	36.5	Z	34.9	35.9	36.9	37.8	38.7	39.6	39.9	40.2	40.3	40.9	40.9	40.8	40.5	39.8	38.3	36.0	31.6	21.1	37.3	40.9	
29-Mar	Z	34.1	33.4	30.8	30.8	30.6	30.3	30.9	33.1	37.2	40.2	41.0	40.4	41.4	41.9	41.5	41.6	41.1	39.3	37.1	36.8	37.3	34.2	30.9	36.3	41.9	
30-Mar	23.5	Z	20.4	19.7	17.1	23.4	22.4	34.2	36.8	41.9	44.1	44.5	44.5	44.4	44.8	45.6	46.0	46.9	45.4	35.8	35.2	35.5	32.3	24.2	35.1	46.9	
31-Mar	22.7	25.6	Z	20.5	18.6	17.8	22.4	34.7	37.7	38.4	40.7	45.4	47.7	48.2	50.0	51.3	51.6	50.9	49.9	47.8	48.4	48.7	49.1	49.1	39.9	51.6	
		30.3	31.1	29.4	29.8	28.0	28.2	28.8	30.4	33.5	35.8	37.7	38.8	40.0	40.7	41.4	41.9	41.9	41.1	39.1	35.3	33.3	32.6	31.5	30.0	Diurnal Average	
		41.7	41.3	42.7	41.6	41.2	39.3	39.6	40.8	42.5	42.0	44.1	45.4	47.7	48.2	50.0	51.3	51.6	50.9	49.9	47.8	48.4	48.7	49.1	49.1	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 (O₃) - ppb
Conklin - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ozone (O₃) - ppb
Conklin - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	58	8.20	8.20
21 - 50	646	91.37	99.58
51 - 82	3	0.42	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ozone (O₃) - ppb
Conklin - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	2	0	0	0	0	1	2	7	10	8	1	1	0	2	6	17	57
21 - 50	40	42	29	32	27	24	64	60	88	66	36	11	13	24	48	41	645
51 - 82	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	42	42	29	32	27	25	66	67	98	77	37	12	13	26	54	58	705

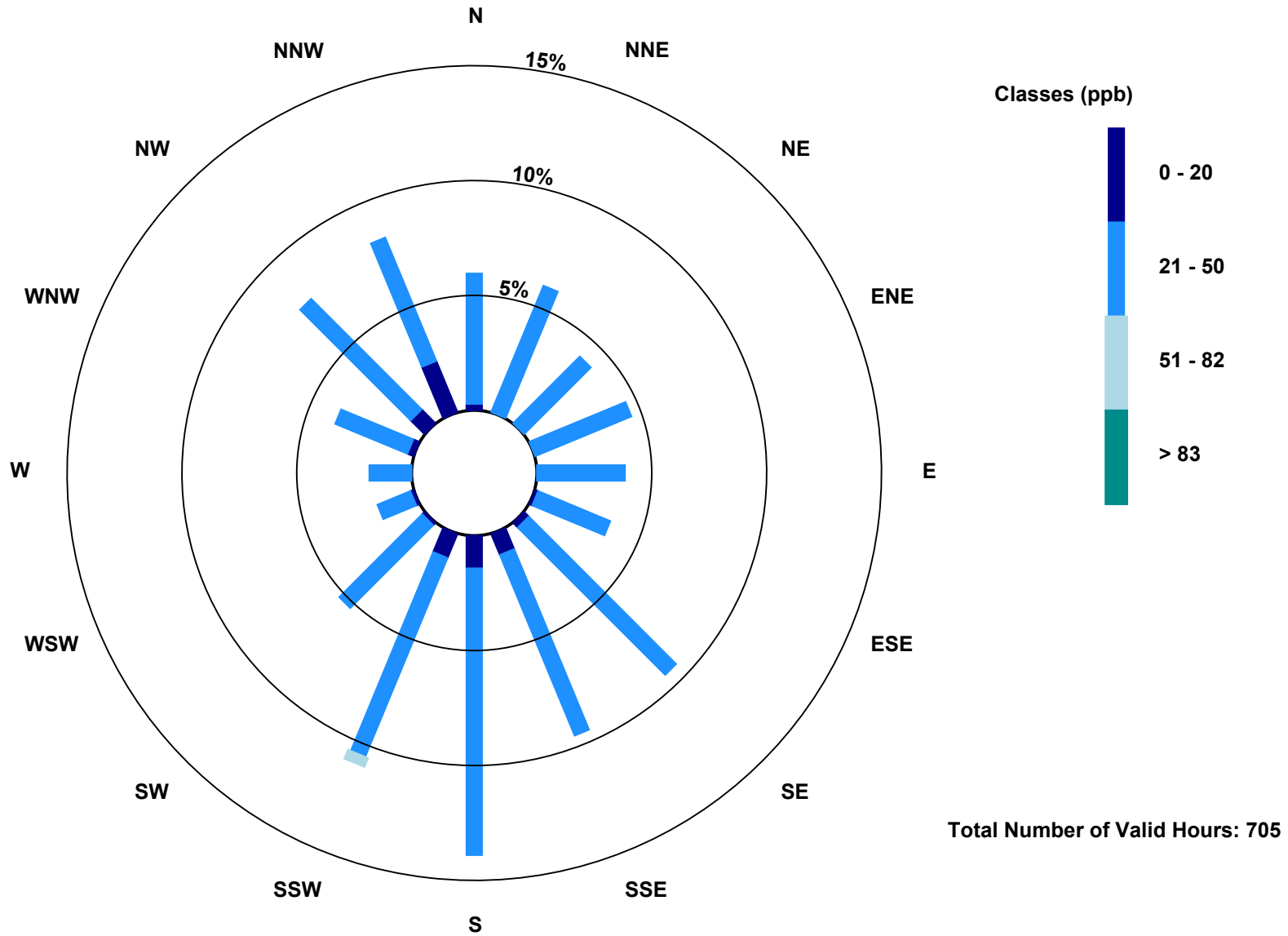
Total Number of Valid Hours: 705

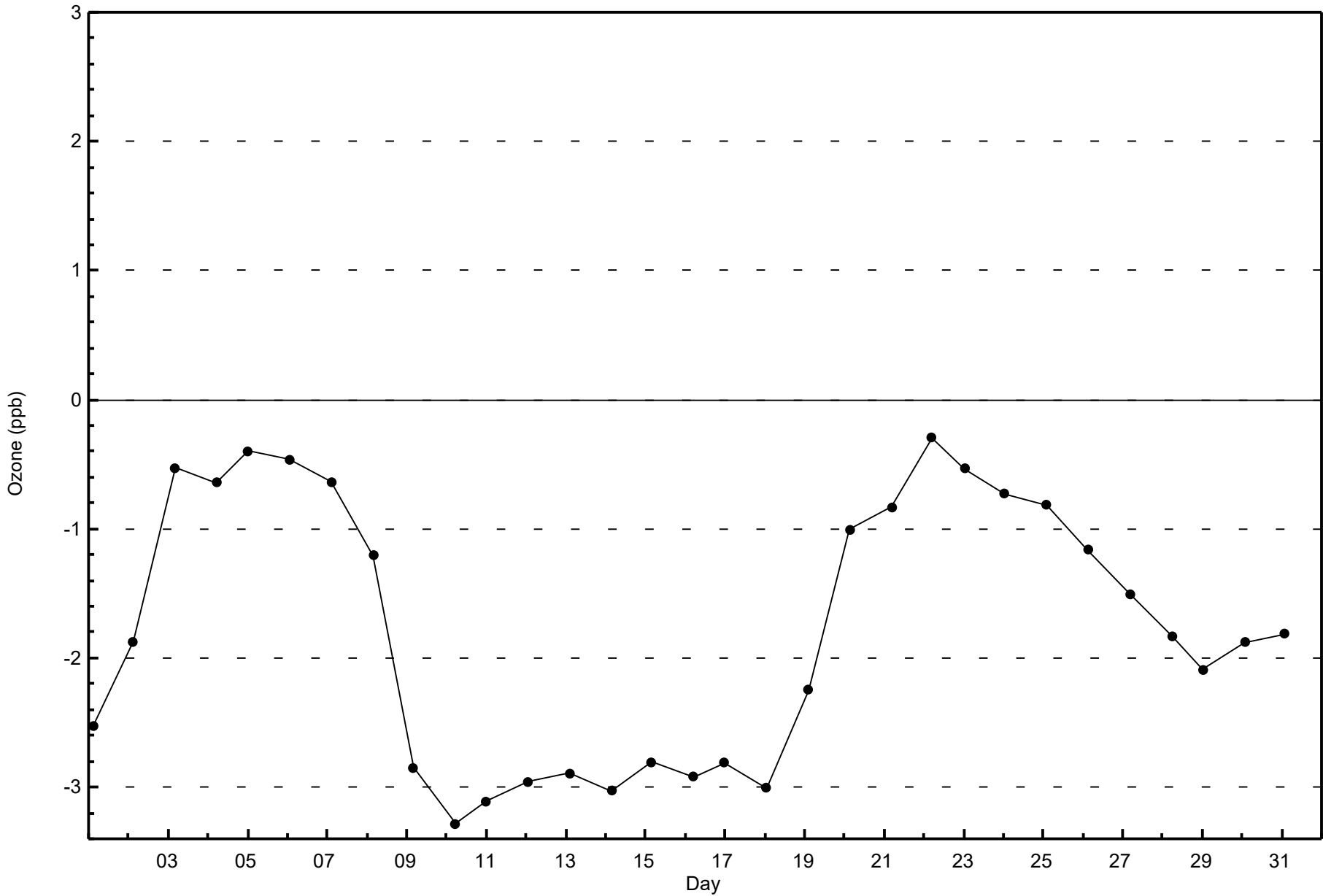
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Conklin

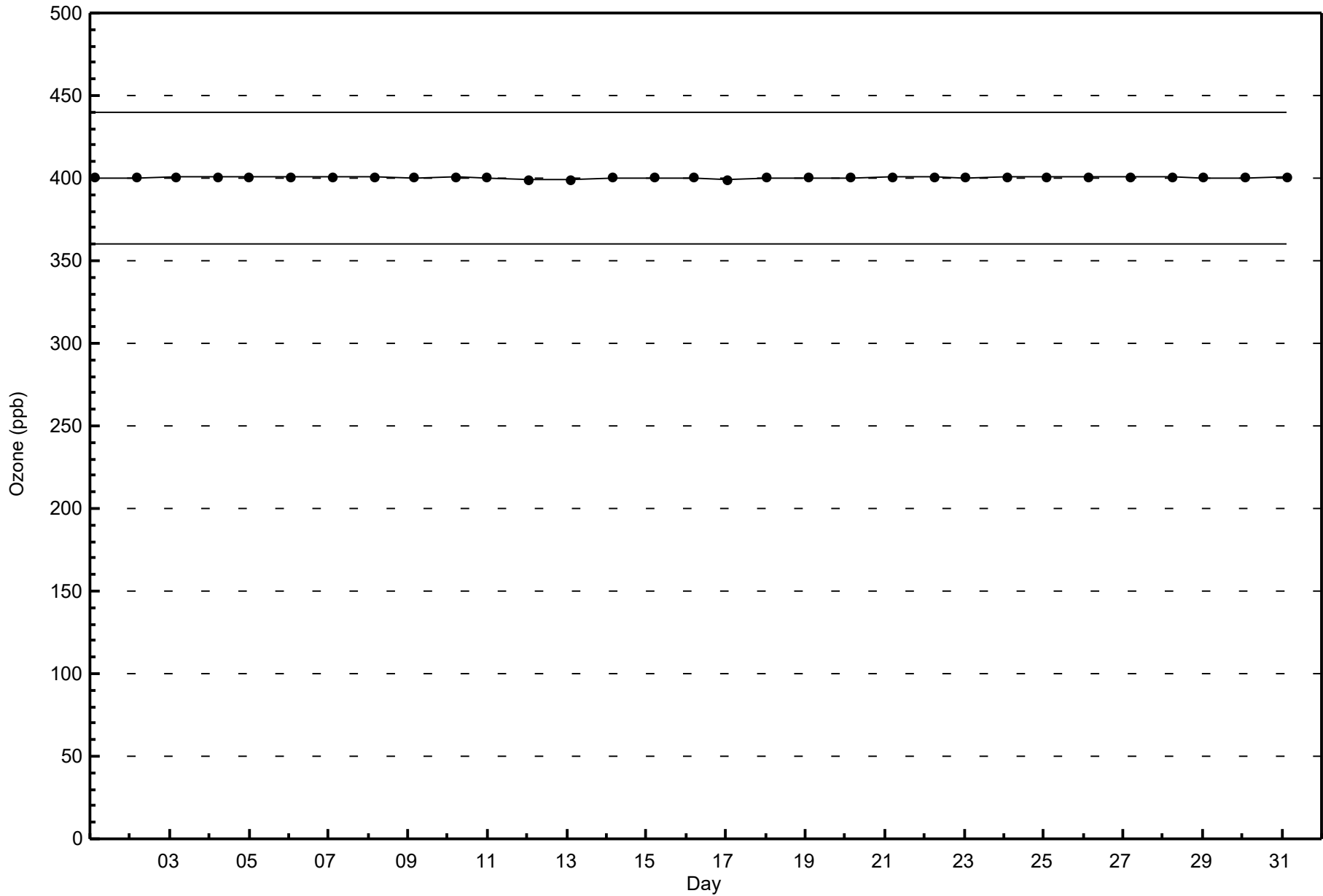






Wood Buffalo Environmental Association
Span Responses

Ozone (O₃) - ppb
Conklin - March 2024





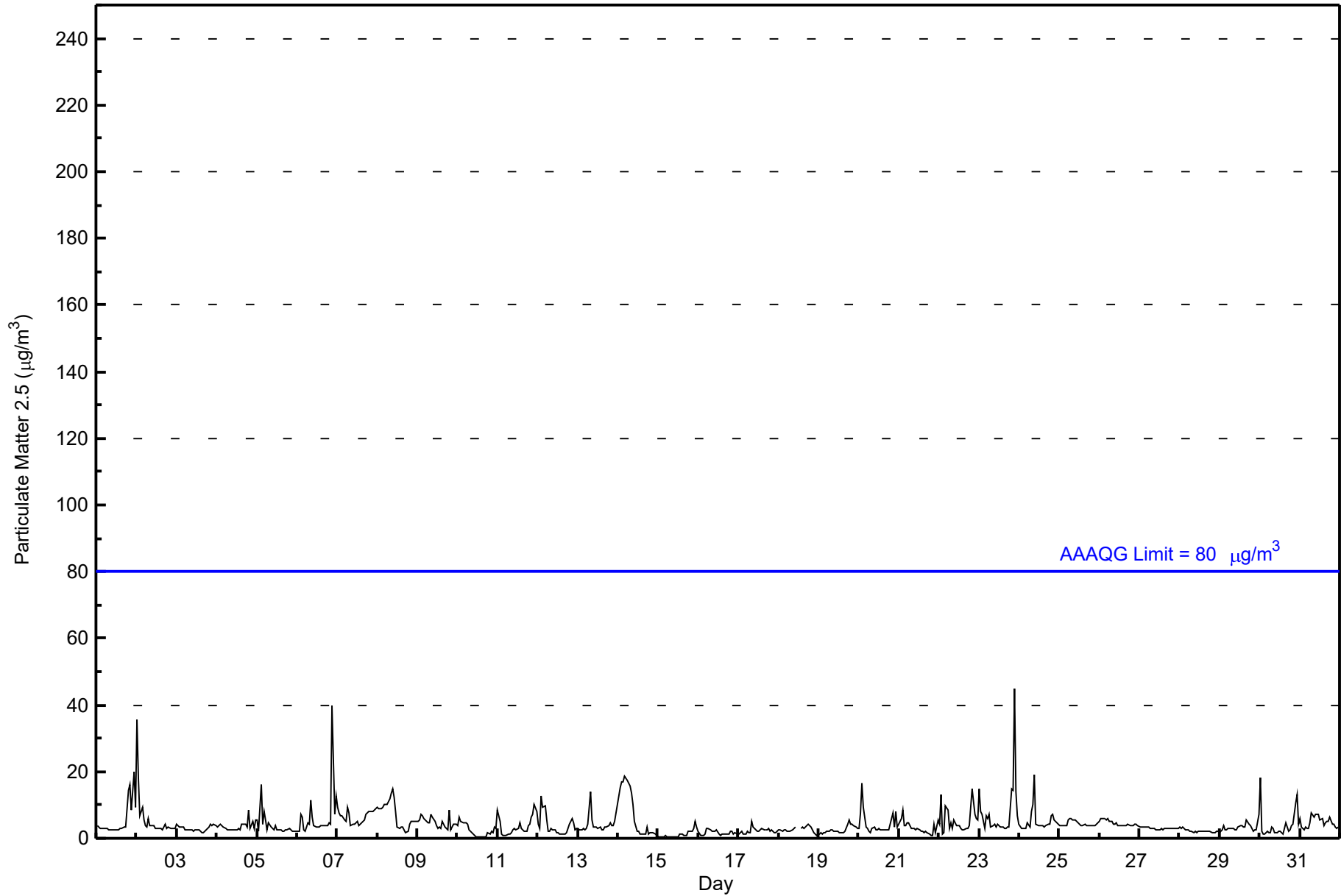
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Conklin - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 45.1 µg/m ³ on Mar 23 22:00		Maximum Daily Average: 8.0 µg/m ³ on Mar 23		Hours of Data:		742		Hours of Missing Data:		2																																						
Minimum Value: 0.2 µg/m ³ on Mar 10 16:00		Minimum Daily Average: 1.3 µg/m ³ on Mar 15		Hours of Calibration:		2		Percent Operational Time:		100.0																																						
Maximum Diurnal Average: 6.6 µg/m ³ at hour 22		Minimum Diurnal Average: 2.6 µg/m ³ at hour 15		Percentiles: P ₁ = 0.5 P ₁₀ = 1.6 Q ₁ = 2.3 Median = 3.2 Q ₃ = 4.5 P ₉₀ = 7.7 P ₉₉ = 17.8																																												
Monthly Average: 4.20 µg/m 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-Mar	3.9	3.4	3.1	3.1	3.0	3.0	2.8	2.7	2.6	2.6	2.6	2.5	2.5	2.6	3.0	3.2	3.3	3.3	8.9	14.3	16.1	8.7	19.7	9.3	5.4	19.7																						
2-Mar	35.7	18.1	6.6	9.2	5.4	3.6	3.3	5.7	3.9	3.6	3.8	3.0	2.8	2.8	2.8	2.7	3.4	4.2	3.0	3.4	2.9	2.8	2.9	3.1	5.8	35.7																						
3-Mar	4.1	3.3	3.3	3.3	3.4	2.5	2.4	2.5	2.3	2.5	2.3	2.5	2.4	2.5	2.2	1.7	1.8	2.2	3.0	3.4	4.1	3.8	4.4	3.6	2.9	4.4																						
4-Mar	3.5	3.9	4.4	3.7	3.4	2.8	2.5	2.5	2.4	2.5	2.5	2.6	2.7	3.0	2.7	4.2	4.2	4.2	3.6	8.6	2.9	5.1	3.2	5.3	3.6	8.6																						
5-Mar	5.6	2.1	16.2	4.3	7.9	5.6	2.6	4.7	3.6	2.8	2.6	3.8	2.7	2.6	2.4	2.1	2.0	2.4	2.7	3.1	2.6	2.3	2.3	2.1	3.8	16.2																						
6-Mar	2.1	2.2	7.2	6.2	2.5	2.3	4.5	4.4	11.3	6.3	3.6	3.3	3.3	3.2	4.0	3.9	3.7	3.9	3.9	4.8	4.3	40.0	7.0	12.7	6.3	40.0																						
7-Mar	9.5	7.5	6.6	6.8	5.6	5.1	9.1	7.8	3.7	4.2	4.4	4.7	5.0	3.8	4.1	5.0	5.5	7.3	7.6	8.1	8.2	7.8	8.4	9.0	6.5	9.5																						
8-Mar	9.1	8.7	8.8	9.2	10.0	10.2	10.2	11.9	13.5	14.7	12.3	8.1	3.5	3.1	3.2	3.3	2.7	1.6	1.9	4.0	4.9	5.2	5.0	5.1	7.1	14.7																						
9-Mar	5.1	5.6	7.0	6.6	6.1	5.2	4.6	4.9	7.0	6.3	4.9	3.6	2.8	3.4	3.0	5.2	3.3	3.1	2.6	8.3	2.7	4.2	4.3	4.3	4.8	8.3																						
10-Mar	3.7	6.3	5.0	4.6	4.7	4.8	4.4	2.7	1.6	1.2	1.0	0.6	0.4	0.4	0.5	0.2	0.3	0.6	1.7	1.2	2.1	1.9	3.6	2.9	2.3	6.3																						
11-Mar	8.6	5.2	1.3	1.0	1.0	1.0	1.2	1.2	1.6	2.4	2.9	2.7	3.0	4.5	2.9	2.5	2.1	2.1	3.8	4.2	6.3	7.1	10.3	8.3	3.6	10.3																						
12-Mar	4.3	2.8	12.8	9.2	9.6	5.5	2.1	2.2	2.9	2.8	2.3	1.8	1.6	1.3	1.3	1.3	1.7	3.0	4.1	5.8	4.5	2.7	2.8	3.7	12.8																							
13-Mar	2.8	2.6	2.5	3.0	2.4	3.0	4.2	13.9	5.5	3.6	3.6	3.3	3.2	3.2	2.7	2.6	3.5	3.4	3.7	4.8	3.6	3.9	5.1	7.7	4.1	13.9																						
14-Mar	12.7	15.4	16.8	16.9	18.7	17.5	16.4	15.7	13.4	10.4	5.2	2.3	2.2	1.3	1.2	1.1	3.3	1.5	1.5	1.7	1.6	1.3	0.8	0.8	7.5	18.7																						
15-Mar	0.5	0.5	0.5	0.5	0.7	0.4	0.6	0.4	0.5	0.5	0.5	0.6	0.6	1.1	1.5	0.8	0.8	0.8	2.2	2.3	2.1	3.2	4.9	3.6	1.3	4.9																						
16-Mar	2.1	0.7	0.8	0.8	1.4	2.8	2.9	2.4	2.0	2.1	2.1	2.5	1.1	0.9	1.1	1.2	1.4	1.5	1.3	2.0	2.3	1.2	1.8	1.4	1.7	2.9																						
17-Mar	1.3	1.8	2.0	1.2	1.5	2.1	1.6	1.7	5.3	3.4	2.6	2.1	2.1	2.4	2.8	2.6	2.4	2.6	2.9	2.3	2.4	1.8	1.8	2.3	2.3	5.3																						
18-Mar	2.7	2.4	2.2	2.3	2.5	2.3	2.3	2.1	2.4	3.1	3.2	C	C	3.2	3.2	2.8	3.4	3.6	4.1	3.5	2.8	1.8	1.3	1.0	2.6	4.1																						
19-Mar	1.2	1.6	1.3	1.6	1.7	2.1	2.0	2.5	2.5	2.3	2.3	2.2	1.8	1.8	1.9	1.8	2.2	4.4	5.7	4.4	4.3	3.7	3.4	3.1	2.6	5.7																						
20-Mar	2.8	7.6	16.5	9.4	3.4	2.8	2.0	1.8	3.2	3.6	2.7	2.7	2.9	2.8	2.4	2.4	2.3	2.5	2.6	4.4	7.5	3.4	8.1	3.3	4.3	16.5																						
21-Mar	4.2	6.0	8.3	3.7	3.7	4.9	4.6	3.1	3.1	2.8	2.7	3.0	2.6	2.1	2.0	1.8	2.0	1.6	1.1	0.8	1.0	4.2	1.7	5.6	3.2	8.3																						
22-Mar	4.4	13.3	1.2	1.9	9.6	8.5	3.0	4.8	3.0	5.6	4.0	4.0	3.8	3.1	2.7	2.7	2.9	2.9	4.0	9.5	15.0	7.4	5.9	5.5	5.4	15.0																						
23-Mar	14.9	8.2	7.3	3.1	6.9	5.9	7.2	3.4	3.9	4.2	3.5	4.1	3.9	3.6	3.5	3.1	3.0	3.3	3.2	14.7	14.6	45.1	13.9	6.9	8.0	45.1																						
24-Mar	4.4	2.8	2.8	2.8	3.1	4.6	3.6	7.9	10.3	18.9	4.1	3.8	3.7	3.7	3.8	3.6	4.0	4.1	4.4	6.8	7.3	5.3	4.6	4.0	5.2	18.9																						
25-Mar	3.9	3.9	3.8	3.7	4.0	5.5	6.0	5.8	5.3	5.6	5.2	4.5	4.2	3.9	3.9	4.2	3.7	3.6	3.9	4.0	3.7	4.0	4.3	4.7	4.4	6.0																						
26-Mar	5.3	6.1	6.1	5.8	5.5	5.9	5.0	5.0	4.2	4.0	4.5	4.0	3.6	4.0	3.7	3.7	4.0	4.2	3.8	4.0	4.0	4.2	4.1	3.8	4.5	6.1																						
27-Mar	3.6	3.6	3.5	3.3	3.2	3.2	3.2	3.0	2.8	2.8	2.7	2.7	2.7	2.8	2.7	2.9	3.0	3.0	2.9	3.0	3.0	3.0	2.9	3.0	3.0	3.6																						
28-Mar	3.4	3.2	3.2	2.4	2.4	2.4	2.0	1.9	1.6	2.0	1.8	2.0	2.2	2.0	2.0	2.2	2.1	2.0	1.9	1.7	1.7	1.8	2.0	2.2	2.2	3.4																						
29-Mar	1.8	2.5	3.7	2.5	2.6	2.8	3.1	3.0	2.9	2.7	2.7	3.4	3.9	3.7	3.3	3.4	5.3	4.3	3.8	3.1	2.3	2.5	2.4	7.4	3.3	7.4																						
30-Mar	18.4	2.2	1.4	1.4	2.1	1.8	1.9	3.6	3.0	1.6	1.5	2.1	2.0	1.6	1.3	4.6	3.5	2.1	2.4	3.9	4.1	10.7	13.0	4.2	3.9	18.4																						
31-Mar	5.9	3.4	2.7	3.3	2.9	3.1	4.7	7.6	6.5	7.2	7.3	7.3	5.7	5.8	3.9	4.7	5.0	5.0	6.5	4.4	4.1	3.6	3.1	3.2	4.9	7.6																						
																								6.2	5.1	5.5	4.4	4.5	4.3	4.1	4.6	4.5	4.5	3.5	3.2	2.8	2.8	2.6	2.8	2.9	3.0	3.5	4.8	4.9	6.6	5.1	4.6	Diurnal Average
																								35.7	18.1	16.8	16.9	18.7	17.5	16.4	15.7	13.5	18.9	12.3	8.1	5.7	5.8	4.1	5.2	5.5	7.3	8.9	14.7	16.1	45.1	19.7	12.7	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Conklin - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	608	81.94	81.94
6 - 15	118	15.90	97.84
16 - 25	13	1.75	99.60
26 - 80	3	0.40	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Conklin - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	45	40	28	32	26	21	58	54	74	47	24	11	14	27	52	54	607
6 - 15	1	3	2	1	1	4	13	15	28	24	10	1	0	0	7	7	117
16 - 25	0	0	0	0	0	0	0	1	1	3	6	0	0	1	0	1	13
26 - 80	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	46	43	30	33	27	25	71	70	103	77	40	12	14	28	59	62	740

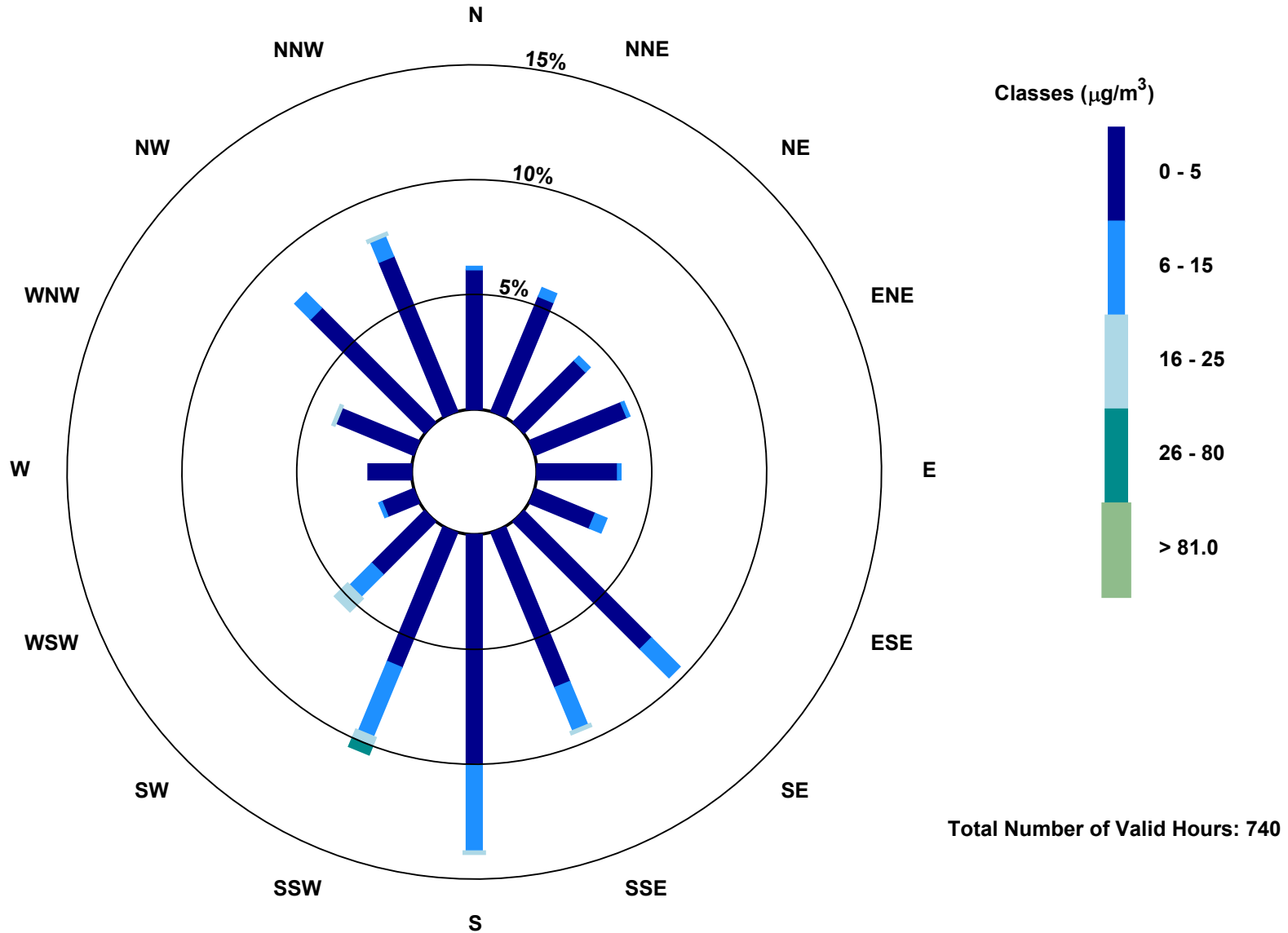
Total Number of Valid Hours: 740

Total Number of Hours: 744



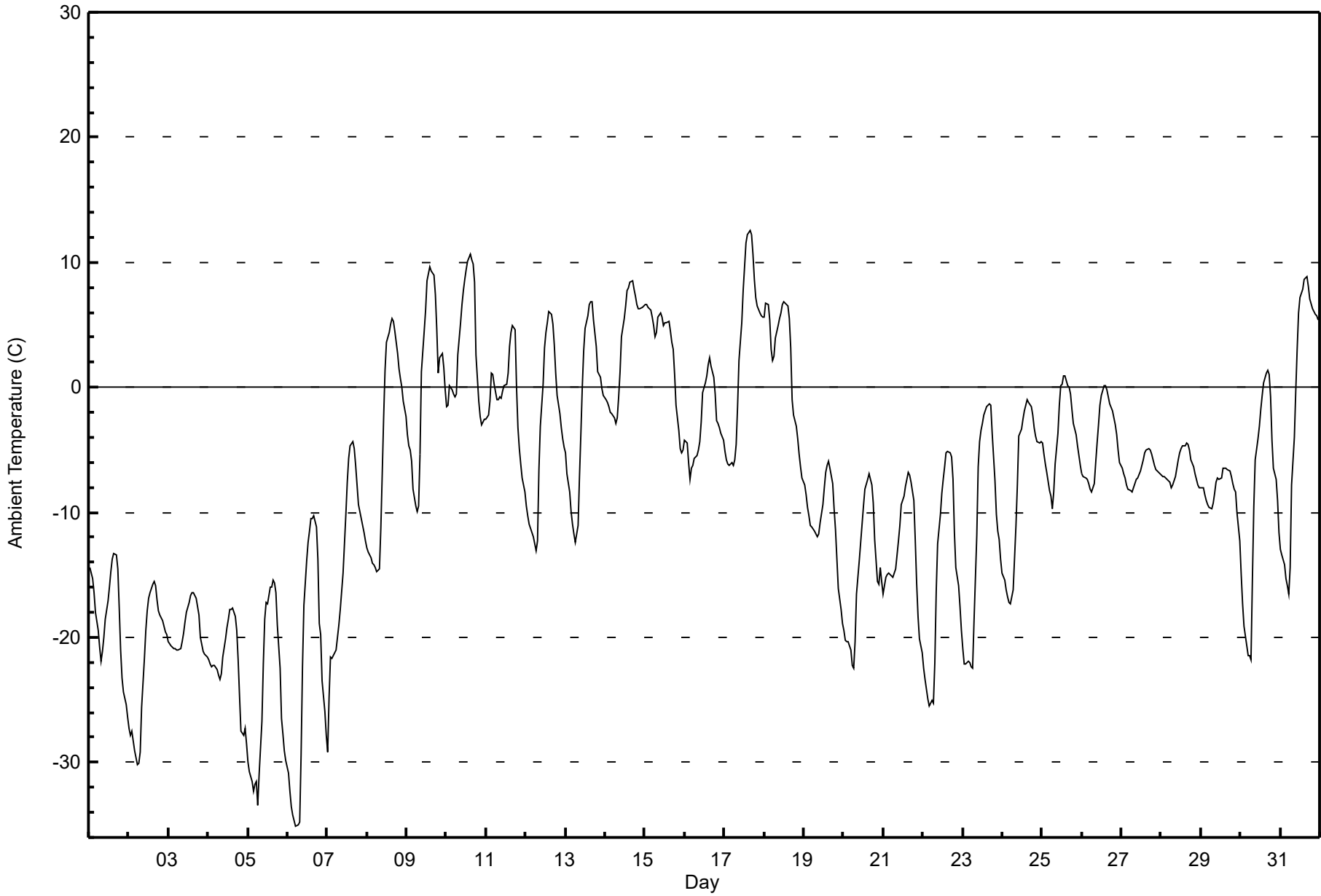
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Conklin





Maximum Value: 12.5 C on Mar 17 16:00		Maximum Daily Average: 3.4 C on Mar 14		Hours in Service: 744																						
Minimum Value: -35.2 C on Mar 6 06:00		Minimum Daily Average: -24.5 C on Mar 5		Hours of Data: 744																						
Maximum Diurnal Average: -1.6 C at hour 16		Minimum Diurnal Average: -14.1 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -8.10 C		Percentiles: P ₁ = -32.3 P ₁₀ = -21.8 Q ₁ = -15.6 Median = -7.1 Q ₃ = -0.8 P ₉₀ = 5.6 P ₉₉ = 10.0		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-14.4	-14.9	-15.4	-16.4	-18.0	-19.5	-20.8	-21.9	-21.1	-20.0	-18.5	-17.1	-15.9	-14.7	-13.7	-13.3	-13.4	-14.5	-17.6	-21.0	-23.3	-24.3	-25.4	-26.4	-18.4	-13.3
2-Mar	-27.3	-27.8	-27.5	-29.1	-29.6	-30.2	-30.1	-29.2	-25.6	-21.7	-19.4	-17.9	-16.9	-16.5	-15.7	-15.5	-15.9	-17.0	-17.8	-18.2	-18.6	-19.1	-19.6	-19.8	-21.9	-15.5
3-Mar	-20.4	-20.6	-20.7	-20.9	-20.9	-21.0	-21.0	-20.9	-20.4	-19.7	-18.8	-18.0	-17.2	-16.7	-16.4	-16.5	-16.7	-16.9	-18.2	-20.0	-20.5	-21.1	-21.4	-21.5	-19.4	-16.4
4-Mar	-21.8	-22.1	-22.3	-22.2	-22.2	-22.5	-23.0	-23.4	-22.9	-21.6	-20.1	-19.2	-18.5	-17.8	-17.7	-17.6	-18.3	-19.4	-21.8	-24.7	-27.5	-27.9	-27.2	-28.5	-22.1	-17.6
5-Mar	-29.9	-30.8	-31.5	-32.3	-31.8	-31.5	-33.4	-31.0	-26.7	-22.1	-18.5	-17.2	-17.3	-16.0	-15.9	-15.4	-15.7	-16.4	-18.9	-22.5	-26.5	-27.7	-29.1	-29.9	-22.5	-15.4
6-Mar	-30.9	-32.3	-33.5	-34.2	-34.7	-35.2	-35.0	-34.8	-29.4	-22.3	-17.4	-13.8	-12.4	-11.5	-10.5	-10.5	-10.3	-11.2	-13.7	-18.9	-19.7	-23.5	-25.9	-27.8	-22.9	-10.3
7-Mar	-29.2	-24.8	-21.6	-21.7	-21.3	-21.0	-20.0	-18.9	-17.7	-14.8	-12.5	-10.1	-7.5	-5.7	-4.7	-4.4	-4.9	-6.2	-7.8	-9.4	-10.5	-11.0	-11.6	-12.3	-13.7	-4.4
8-Mar	-12.8	-13.2	-13.6	-14.1	-14.2	-14.4	-14.8	-14.6	-11.3	-6.9	-2.5	1.4	3.6	4.4	5.1	5.5	5.3	4.5	2.7	1.5	0.7	0.0	-1.1	-2.4	-4.2	5.5
9-Mar	-3.8	-4.7	-5.0	-5.9	-8.1	-9.5	-9.9	-9.5	-5.3	1.3	4.5	6.2	8.5	9.1	9.6	9.3	9.0	7.4	4.6	1.1	2.4	2.7	1.6	-0.3	0.6	9.6
10-Mar	-1.5	-1.5	0.1	-0.2	-0.6	-0.8	-0.5	2.6	5.1	6.7	7.7	8.7	9.4	10.1	10.6	10.2	9.8	8.4	2.6	-1.1	-2.4	-3.0	-2.7	-2.6	3.1	10.6
11-Mar	-2.6	-2.2	-1.1	1.2	1.0	0.2	-1.0	-1.0	-0.7	-0.9	-0.3	0.1	0.3	1.1	3.2	4.4	5.0	4.6	0.0	-3.2	-4.8	-6.2	-7.3	-8.4	-0.8	5.0
12-Mar	-9.5	-10.2	-11.0	-11.3	-11.9	-12.5	-13.1	-12.3	-6.6	-3.2	0.3	3.1	4.3	5.2	6.0	5.8	5.1	3.3	1.2	-0.7	-2.1	-3.2	-4.1	-4.8	-3.4	6.0
13-Mar	-5.2	-6.9	-8.3	-9.9	-11.0	-11.7	-12.4	-11.1	-7.2	-3.7	0.0	2.9	4.7	5.8	6.7	6.9	6.9	5.4	3.2	1.2	1.1	0.8	0.0	-0.7	-1.8	6.9
14-Mar	-1.0	-1.2	-1.5	-2.0	-2.1	-2.5	-2.9	-2.4	-0.8	1.3	4.0	5.5	6.5	7.7	8.0	8.4	8.6	7.9	7.3	6.6	6.2	6.3	6.4	6.5	3.4	8.6
15-Mar	6.6	6.6	6.3	6.1	5.6	4.9	4.1	4.4	5.7	5.9	5.6	5.0	5.2	5.1	5.3	4.5	3.6	3.0	1.0	-1.5	-3.5	-4.9	-5.3	-5.0	3.1	6.6
16-Mar	-4.2	-4.4	-6.0	-7.3	-6.5	-6.2	-5.7	-5.4	-5.0	-4.3	-2.8	-0.5	0.4	0.9	1.8	2.3	1.7	0.8	-0.6	-2.6	-2.9	-3.3	-3.7	-4.3	-2.8	2.3
17-Mar	-5.2	-5.8	-6.2	-6.3	-6.1	-6.2	-5.8	-4.5	-1.6	2.2	5.2	7.7	9.7	11.5	12.2	12.5	12.2	10.7	8.6	7.2	6.6	5.9	5.7	5.7	3.2	12.5
18-Mar	5.7	6.7	6.7	5.4	3.0	2.1	2.5	3.9	4.9	5.5	5.9	6.7	6.8	6.6	6.5	5.6	3.2	-0.9	-2.3	-3.1	-4.1	-5.3	-6.4	-7.2	2.4	6.8
19-Mar	-7.8	-8.6	-9.6	-10.3	-11.0	-11.2	-11.5	-11.7	-12.0	-11.8	-10.9	-9.4	-8.0	-6.8	-6.2	-5.9	-6.5	-7.7	-9.7	-11.4	-13.8	-16.1	-17.8	-18.9	-10.6	-5.9
20-Mar	-19.5	-20.2	-20.4	-20.3	-21.0	-22.2	-22.4	-20.3	-16.5	-13.9	-12.4	-10.9	-9.5	-8.1	-7.4	-6.9	-7.3	-7.8	-9.3	-12.2	-15.6	-15.7	-14.4	-15.5	-14.6	-6.9
21-Mar	-16.6	-15.2	-15.0	-14.8	-15.0	-15.1	-15.2	-14.5	-13.4	-12.3	-11.0	-9.4	-8.8	-7.9	-7.4	-6.8	-7.0	-7.6	-9.0	-12.1	-15.6	-18.3	-20.1	-21.2	-12.9	-6.8
22-Mar	-22.5	-23.4	-24.2	-24.9	-25.5	-25.0	-25.3	-22.1	-16.3	-12.5	-10.2	-8.5	-7.4	-6.4	-5.2	-5.1	-5.2	-5.6	-7.4	-11.6	-14.5	-15.9	-17.5	-19.5	-15.1	-5.1
23-Mar	-20.9	-22.1	-22.1	-21.9	-22.0	-22.4	-22.4	-18.8	-11.8	-6.3	-4.4	-3.4	-2.9	-2.2	-1.6	-1.4	-1.3	-1.4	-3.6	-7.4	-10.1	-11.5	-12.2	-13.7	-11.2	-1.3
24-Mar	-14.9	-15.4	-16.2	-16.8	-17.3	-17.4	-16.2	-13.7	-11.1	-7.8	-3.9	-3.4	-2.6	-1.8	-1.5	-1.0	-1.2	-1.6	-2.2	-3.2	-3.9	-4.3	-4.5	-4.3	-7.8	-1.0
25-Mar	-4.5	-5.4	-6.2	-6.8	-8.3	-8.7	-9.7	-8.4	-6.1	-3.6	-1.4	0.1	0.2	0.9	0.9	0.2	0.0	-0.5	-1.8	-2.9	-3.8	-4.7	-5.4	-6.2	-3.8	0.9
26-Mar	-6.9	-7.1	-7.3	-7.4	-7.7	-8.2	-8.3	-7.7	-6.0	-4.5	-3.0	-1.4	-0.6	0.2	0.2	-0.1	-0.7	-1.3	-1.9	-2.5	-3.0	-3.8	-5.0	-6.0	-4.2	0.2
27-Mar	-6.5	-6.9	-7.3	-7.8	-8.1	-8.3	-8.4	-8.0	-7.7	-7.4	-7.3	-6.7	-6.2	-5.8	-5.2	-5.0	-4.9	-5.0	-5.4	-5.8	-6.3	-6.6	-6.8	-6.9	-6.7	-4.9
28-Mar	-7.0	-7.1	-7.2	-7.4	-7.5	-7.6	-8.0	-7.8	-7.2	-6.4	-5.8	-5.2	-4.9	-4.6	-4.7	-4.4	-4.6	-5.0	-5.8	-6.4	-7.0	-7.3	-7.8	-8.1	-6.5	-4.4
29-Mar	-8.0	-8.1	-8.6	-9.0	-9.3	-9.6	-9.7	-9.3	-8.5	-7.6	-7.2	-7.4	-7.3	-6.5	-6.5	-6.5	-6.6	-6.7	-7.2	-7.7	-8.2	-8.4	-10.1	-12.3	-8.2	-6.5
30-Mar	-15.0	-17.3	-19.2	-19.9	-21.5	-21.4	-21.8	-15.4	-9.6	-5.8	-4.1	-3.1	-1.8	-0.7	0.4	1.1	1.4	1.0	-0.8	-4.2	-6.4	-7.3	-9.1	-11.6	-8.8	1.4
31-Mar	-12.9	-13.4	-14.1	-15.4	-15.9	-16.5	-14.4	-7.9	-4.0	-0.4	3.1	5.9	7.2	7.8	8.6	8.7	8.8	8.0	7.1	6.3	6.0	5.9	5.7	5.4	-0.8	8.8
																								Diurnal Average		
																								Diurnal Maximum		





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature (AT) - C
Conklin - March 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	111	14.92	14.92
-20 - 0	467	62.77	77.69
0 - 10	158	21.24	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity (RH) - %

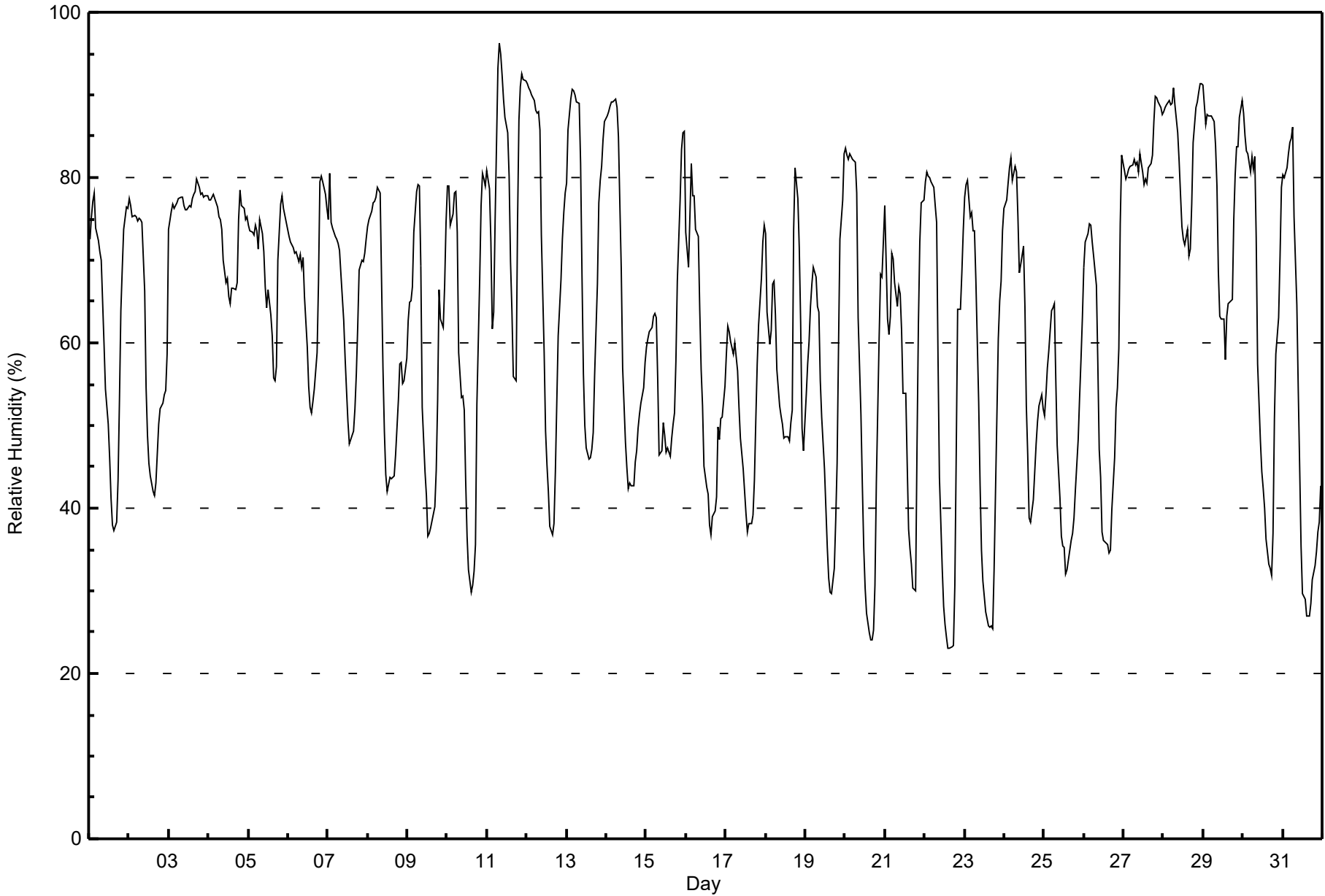
Conklin - March 2024

Maximum Value: 96.3 % on Mar 11 08:00 Maximum Daily Average: 83.5 % on Mar 28																						Hours in Service: 744																										
Minimum Value: 23.0 % on Mar 22 16:00 Minimum Daily Average: 47.6 % on Mar 25																						Hours of Data: 744																										
Maximum Diurnal Average: 76.7 % at hour 6 Minimum Diurnal Average: 44.6 % at hour 16																						Hours of Missing Data: 0																										
Monthly Average: 63.24 % Percentiles: P₁ = 25.1 P₁₀ = 37.1 Q₁ = 49.3 Median = 66.7 Q₃ = 77.5 P₉₀ = 84.1 P₉₉ = 91.4																						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-Mar	72.5	75.3	77.0	78.1	73.8	72.4	71.0	70.0	64.9	59.8	54.4	50.2	46.2	41.2	37.9	37.3	38.3	43.3	53.0	63.9	68.9	73.7	76.5	76.3	61.5	78.1																						
2-Mar	77.5	76.6	75.3	75.4	75.2	74.8	75.0	74.9	74.5	66.3	54.7	48.9	45.4	43.9	42.0	41.6	43.0	46.6	50.2	52.1	52.7	53.7	54.3	58.7	59.7	77.5																						
3-Mar	73.6	75.9	76.7	76.3	76.6	77.0	77.5	77.7	77.7	76.6	76.2	76.2	76.6	76.5	77.4	77.9	78.3	79.9	78.8	78.0	78.1	77.7	77.9	77.8	77.2	79.9																						
4-Mar	77.2	77.3	77.5	77.9	77.5	76.4	75.3	74.9	73.7	70.0	67.3	67.7	65.5	64.7	66.7	66.6	66.4	67.4	75.0	78.5	76.7	76.2	74.9	75.3	72.8	78.5																						
5-Mar	74.3	73.6	73.4	73.0	74.3	73.5	71.4	74.9	73.2	71.0	66.7	64.3	66.4	63.4	60.8	55.8	55.4	57.2	70.0	76.8	77.8	76.3	75.4	74.6	69.7	77.8																						
6-Mar	72.9	72.3	71.9	71.5	70.8	71.0	69.9	70.6	69.2	70.3	65.6	59.6	54.7	52.3	51.4	52.9	54.3	58.8	67.3	79.6	80.2	79.5	78.0	76.3	67.5	80.2																						
7-Mar	74.9	80.5	74.5	73.9	72.8	72.5	72.0	71.2	68.3	62.7	58.1	54.2	50.4	47.8	48.3	49.3	52.0	56.2	62.1	68.7	69.9	69.9	70.8	72.5	64.7	80.5																						
8-Mar	74.0	75.0	75.9	76.9	77.1	77.6	78.8	78.2	67.5	57.0	49.3	44.0	42.1	43.8	43.6	43.7	43.9	46.4	53.1	57.5	57.6	55.0	55.3	58.1	59.6	78.8																						
9-Mar	62.8	64.9	65.1	66.7	73.4	78.2	79.2	79.0	69.4	52.3	44.4	41.6	36.6	37.0	37.7	38.5	40.1	44.6	53.1	66.5	62.9	61.8	66.9	74.6	58.2	79.2																						
10-Mar	79.1	79.1	74.2	75.7	78.1	78.2	73.4	58.8	53.4	53.6	51.9	43.3	36.6	32.5	29.9	30.7	32.3	35.5	52.5	67.6	76.6	80.6	79.8	78.9	59.7	80.6																						
11-Mar	80.9	78.6	72.2	61.7	63.7	74.8	93.3	96.3	94.8	92.3	89.5	87.3	85.4	80.1	69.8	63.9	55.9	55.4	74.4	86.9	91.0	92.6	91.8	91.7	80.2	96.3																						
12-Mar	91.4	90.8	90.5	90.0	89.3	88.1	87.8	88.0	85.7	73.1	58.8	49.3	45.3	42.1	37.7	36.8	38.1	44.5	52.7	60.9	67.7	72.5	75.8	78.2	68.1	91.4																						
13-Mar	79.4	85.8	89.4	90.6	90.5	90.0	89.2	89.0	81.6	68.1	56.3	50.1	47.4	46.0	46.2	47.1	49.2	56.1	67.1	77.0	79.6	81.4	84.7	86.7	72.0	90.6																						
14-Mar	87.5	88.0	88.6	89.1	89.1	89.5	88.4	84.8	76.7	69.0	57.0	48.0	45.0	42.4	43.0	42.6	42.7	45.6	46.9	49.6	51.4	52.8	54.6	57.7	63.8	89.5																						
15-Mar	59.4	60.6	61.4	61.9	63.3	63.5	63.0	55.7	46.4	47.0	50.3	48.8	46.7	47.3	46.3	48.5	50.2	51.5	57.9	67.5	77.2	83.3	85.4	85.6	59.5	85.6																						
16-Mar	73.3	69.1	75.4	81.8	77.7	77.8	73.8	72.8	64.0	56.9	52.4	45.2	42.6	41.7	38.0	36.9	39.0	39.7	41.4	49.9	48.3	50.9	51.1	54.8	56.4	81.8																						
17-Mar	58.6	62.0	61.3	60.1	58.7	60.1	58.4	56.7	52.3	48.5	44.7	42.1	39.3	37.0	38.1	38.1	39.2	43.3	50.7	57.5	62.2	67.9	72.2	74.2	53.5	74.2																						
18-Mar	73.2	63.8	59.9	61.5	67.1	67.4	63.4	56.8	52.4	51.1	50.1	48.5	48.6	48.7	48.2	50.3	51.9	73.8	81.2	77.5	71.5	62.5	49.7	46.9	59.4	81.2																						
19-Mar	53.8	57.5	60.2	64.4	67.1	69.1	68.0	64.4	63.8	55.4	51.1	44.8	39.9	35.3	31.5	29.9	29.6	32.6	38.5	45.4	59.4	72.6	77.2	82.9	53.9	82.9																						
20-Mar	83.6	82.6	82.2	82.9	82.2	82.0	81.8	78.2	63.1	51.4	42.8	35.2	30.4	27.2	25.0	24.1	24.1	25.3	30.8	43.1	60.7	68.4	68.0	72.3	56.1	83.6																						
21-Mar	76.6	62.9	60.9	63.2	70.8	70.2	67.3	64.5	66.7	66.0	61.5	53.9	53.9	45.5	37.5	35.2	33.2	30.3	30.1	47.4	62.3	72.2	76.9	77.3	57.8	77.3																						
22-Mar	79.5	80.7	80.2	80.0	79.5	78.8	76.5	74.6	58.2	43.7	32.7	28.1	25.9	24.4	23.1	23.0	23.3	23.3	30.7	46.8	64.1	64.0	68.4	73.5	53.5	80.7																						
23-Mar	77.6	79.2	79.7	75.3	75.7	73.6	73.5	67.6	53.0	42.9	34.8	31.2	29.3	27.5	25.8	25.5	25.7	25.4	32.6	51.1	60.5	65.0	67.5	73.5	53.1	79.7																						
24-Mar	76.4	77.3	79.3	81.1	82.4	79.7	81.3	80.8	75.3	68.5	69.5	71.8	64.3	52.3	46.4	38.9	38.4	41.1	44.5	47.8	50.5	52.4	53.8	52.0	62.7	82.4																						
25-Mar	51.2	53.8	56.9	58.9	64.0	64.3	64.7	55.7	47.7	41.1	36.6	35.4	35.3	32.1	32.6	34.8	36.1	36.9	38.8	42.3	48.3	53.5	58.0	63.0	47.6	64.7																						
26-Mar	69.1	72.1	73.3	74.3	74.3	72.2	70.5	66.9	57.6	47.1	43.8	37.1	36.0	35.7	35.5	34.5	34.9	39.9	46.0	52.3	54.6	59.4	74.3	82.7	56.0	82.7																						
27-Mar	80.9	79.8	80.3	81.0	81.3	81.6	82.2	81.6	81.9	80.7	82.9	80.7	79.1	79.9	79.3	81.2	81.7	82.7	86.8	89.8	89.6	89.2	88.4	87.6	82.9	89.8																						
28-Mar	87.9	88.4	88.9	89.3	88.8	88.9	90.8	88.9	85.4	82.1	78.0	74.0	72.6	71.8	73.8	70.5	71.4	76.8	84.2	88.6	89.1	90.3	91.3	91.4	83.5	91.4																						
29-Mar	91.1	86.5	87.6	87.5	87.4	87.5	86.8	83.9	79.1	68.6	63.3	62.9	62.9	57.9	63.2	64.8	64.9	65.3	74.9	80.3	83.8	83.7	87.4	89.3	77.1	91.1																						
30-Mar	87.8	85.1	83.3	82.8	80.7	82.6	81.1	82.5	72.6	57.5	48.2	44.4	42.3	40.0	36.2	33.3	32.7	31.9	37.0	50.9	58.6	63.1	70.4	78.9	61.0	87.8																						
31-Mar	80.3	79.9	81.2	82.8	84.2	84.7	86.2	75.2	64.6	54.3	45.1	35.5	29.7	29.1	26.9	27.0	26.9	28.5	31.3	33.0	34.7	37.0	38.3	42.7	51.6	86.2																						
																								75.4	75.3	75.3	75.7	76.4	76.7	76.5	74.0	68.2	61.4	56.1	51.8	49.1	46.7	45.2	44.6	44.9	47.9	54.6	62.4	66.7	69.0	70.8	73.1	Diurnal Average
																								91.4	90.8	90.5	90.6	90.5	90.0	93.3	96.3	94.8	92.3	89.5	87.3	85.4	80.1	79.3	81.2	81.7	82.7	86.8	89.8	91.0	92.6	91.8	91.7	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Conklin - March 2024





Maximum Speed: 23 km/h on Mar 15 12:00	Maximum Daily Speed Average: 15.0 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 22 04:00	Minimum Daily Speed Average: 1.4 km/h on Mar 11	Hours of Data: 742
Maximum Diurnal Speed Average: 3.0 km/h at hour 21	Minimum Diurnal Speed Average: 0.1 km/h at hour 9	Hours of Missing Data: 2
Monthly Average Velocity: 1.7 km/h 183.1 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 4 Median = 7 Q ₃ = 11 P ₉₀ = 14 P ₉₉ = 20	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-Mar	NW4	NW4	NW5	NW6	NW8	WNW7	WNW8	WNW8	WNW8	WNW10	WNW9	WNW9	WNW10	WNW10	WNW9	WNW8	WNW7	NW5	NW2	SSW1	WNW1	S1	SSW1	SSW1	WNW5.6	WNW10
2-Mar	SSW0	SSW1	SSW2	NW1	NNW1	NNW2	WNW0	NNW1	N3	ENE6	E7	ENE8	NE11	NE11	NNE11	NE12	ENE9	NNE10	NNE9	NE8	ENE9	ENE10	NE12	ENE9	NE5.7	NE12
3-Mar	NE9	NNE11	NNE9	NE8	NE9	NNE7	NNE6	NNE6	N6	N7	NNE7	N8	NNE8	N9	NNE9	N10	N10	N10	NNW12	NNW12	NW11	NW10	NW9	NW9	N7.9	NNW12
4-Mar	NW10	NW12	NW11	NW11	NW10	NW10	NW9	NW8	NW9	NW12	NW11	WNW9	NW9	NW8	NW9	NW10	NW8	NW6	NW3	NW2	NNE1	SE3	S3	SSW3	NW7.1	NW12
5-Mar	SSE2	S3	S3	S3	S4	S4	S3	S4	S5	SW5	WSW4	W2	ENE1	NE1	WSW2	S5	S7	SSW7	SSW4	SSW5	SSW6	S4	SSE4	SSE5	S3.3	SSW7
6-Mar	SE6	SSE3	SSE2	SSE2	SSE3	SE4	SE2	SE2	N1	NW4	SSW4	SE6	S12	SSW12	SSW12	SSW10	S10	S9	SSE5	S4	S5	SSW1	UO	ENE0	S4.5	SSW12
7-Mar	SE3	S6	S8	S8	S10	S10	S11	S8	S13	S14	SSW17	SSW17	SSW15	SSW16	SSW17	SSW17	SSW16	SSW16	SSW14	S16	SSW18	SSW20	SSW17	SSW12	SSW13.2	SSW20
8-Mar	SSW12	SSW13	SW8	SW10	SSW8	SSW7	SSW5	S6	S6	SSW5	SW4	S4	SSW9	SSW10	SSW11	S10	S11	S9	S8	S10	S12	S11	S8	S7	SSW8.2	SSW13
9-Mar	SSE7	S8	S8	S9	S7	SSE6	SE4	S3	SE3	SSE4	S14	S13	S15	S16	S14	S15	S11	S9	SSE7	SSE7	SSE8	SSW4	SE5	SSE3	S8.2	S16
10-Mar	SE4	SSW2	WSW10	SW11	SW12	SW11	SW11	W13	W11	WNW11	W12	W14	W14	W15	W14	WNW9	WNW7	W4	NW3	SW1	SSE1	SSE2	S1	SSW1	WSW7.0	W15
11-Mar	NW1	NNW5	NNW5	NNE7	N7	N5	NW3	NNW3	N5	NE5	NE4	E4	W2	S3	SSE5	SE6	SE5	SE5	NE1	UO	S1	NNW1	SSW1	SW1	NE1.4	NNE7
12-Mar	NNW3	NNW3	NW1	SSE1	SSE0	NNW2	NNW2	NNW2	NNE2	NE7	E8	ESE11	E10	ESE11	E9	E9	E9	ENE8	ENE6	ENE5	E3	ENE4	NE3	ENE3	ENE4.0	ESE11
13-Mar	ENE3	WNW1	W0	NNW2	NNW2	NNW1	N1	S1	NNE3	SE4	SE4	S3	SE3	E3	SW7	SW9	SW9	SW7	SSW7	SSW10	SSW8	SSW8	SW11	SSW3.4	SW11	
14-Mar	SW12	SW13	SW13	SW12	SW12	SW11	SW11	SW11	SW12	SW11	WSW10	WSW13	SW14	SW16	WSW16	WSW13	SW9	SSW7	SW8	SSW10	SW13	SW11	WSW9	W9	SW11.3	SW16
15-Mar	W11	WNW11	W10	WNW9	WNW10	WNW10	WNW9	NW12	NW19	NNW21	NNW22	NNW23	NNW20	NNW17	NNW16	N13	N10	NNE8	NE4	N4	NW1	NNW1	WNW1	NNW3	NNW9.6	NNW23
16-Mar	N4	NNE3	N2	N4	NNE2	NNE2	E2	NE4	ENE6	NE6	NE4	ESE3	ENE7	NNE7	NE7	ENE6	E6	E8	E5	ENE2	ESE6	ESE5	SE6	SE6	ENE3.8	E8
17-Mar	SSE6	SE6	SSE6	SSE7	SSE7	SSE8	SSE8	SSE7	S7	S7	S13	SSW15	S17	S15	SSW20	SSW18	SSW17	SSW17	S17	SSW18	SSW20	SW20	SW19	SW17	SSW12.0	SSW20
18-Mar	WSW15	W7	WNW7	NW7	NW3	NW4	NW6	NW7	NNW9	NNW12	NNW15	NNW15	NNW15	NNW14	NNW12	N13	NNE12	NNE11	N9	NNE11	NNE13	N13	N13	N12	NNW8.9	WSW15
19-Mar	N11	N10	N10	N8	N9	N8	N9	NNE11	NNE11	NNE9	N8	N10	N9	N9	N9	NNE9	NNE11	NE10	NE9	NNE6	NNW4	NNW3	NNW2	NNW3	N7.9	NNE11
20-Mar	NW3	NNW2	NNW2	NNW1	NNW3	NNW3	NNW3	NNW3	NE5	ENE4	ENE6	NE6	ENE6	ESE5	ESE6	ESE7	E6	ENE5	ENE4	ENE2	NE2	E1	ESE2	NNE2	NE2.5	ESE7
21-Mar	N3	NNE3	NE3	NNE3	ENE3	NE3	ENE4	ESE7	E7	E7	E9	E10	ENE11	ENE11	E11	ENE9	NE9	NNE9	N6	NNW5	NW2	NNW3	NW3	NW1	ENE4.8	ENE11
22-Mar	NW2	NNW1	NW1	WSW0	S1	S2	S2	SSE1	ESE2	ESE5	ESE6	SE5	S4	SW3	ESE1	SE7	ENE4	NE5	E3	SE2	SSE2	SSE2	SSE2	SSW1	SE1.6	SE7
23-Mar	S2	S1	S2	S3	S3	SSW4	S3	SSE3	SE3	ESE3	S8	SSW8	SSW9	S6	SSE6	S5	SSW3	S3	WSW1	ESE1	SSW2	SSW5	S5	SE3	S3.5	SSW9
24-Mar	SE3	SE5	SE5	SE5	SE4	SSE3	SSE3	SE3	SE4	SSE6	S12	S13	SSE12	S11	S8	SSE9	S10	SSE10	SE8	SE7	SE6	SE6	SE6	SE10	SSE6.6	S13
25-Mar	SE10	SE9	SE8	SE8	ESE6	ESE6	SE5	SE9	SE11	SE12	SE12	S13	S14	S15	SSE16	S14	SSE16	SSE15	SSE14	SSE14	SSE13	SSE12	SSE11	SSE9	SSE10.8	SSE16
26-Mar	SE8	SSE10	SSE10	SE11	SE10	SE11	SE12	SE13	SSE15	SSE20	S22	SSE20	SSE22	SSE22	SSE19	SSE19	SSE18	SSE17	SSE16	SSE15	SE16	SE16	SE14	SE12	SSE15.0	SSE22
27-Mar	SE13	SE14	SE11	SE11	SE12	SE12	SE12	SE13	SE14	SE15	ESE13	SE15	SE16	ESE13	ESE11	ESE11	ESE10	E8	E7	E6	E6	E5	ENE4	ENE4	ESE10.2	SE16
28-Mar	NE4	ENE3	NNE3	NNE4	NNE4	N4	N6	N6	NNE8	N8	N9	N10	N9	NNE10	N10	NNE10	NNE9	NE8	NE6	N6	NNW4	NNW3	NW3	NNW3	NNE6.0	NNE10
29-Mar	NW4	NNW6	NW6	NW5	NW4	NW5	NW4	NW5	NNW8	NNW10	NNW12	NNW13	NNW11	NW9	NNW10	NNW11	NNW10	NNW7	NNW4	WNW2	NW2	NW3	NW3	NNW2	NNW6.4	NNW13
30-Mar	SSW1	S2	S2	SSE3	S3	SSE4	SE3	S6	S5	SSW7	SSW9	S10	S9	S10	S9	S11	SSW9	SW9	SW6	SSE4	SSW4	SSW4	S5	SSE3	S5.4	S11
31-Mar	SSE4	SE6	SE5	SE4	SE3	ESE3	E3	SSE3	WSW4	SSW10	SSW12	SW16	SSW16	SSW19	SW17	SSW18	SSW17	SSW16	S11	S12	S15	S16	S18	SSW19	SSW10.1	SSW19

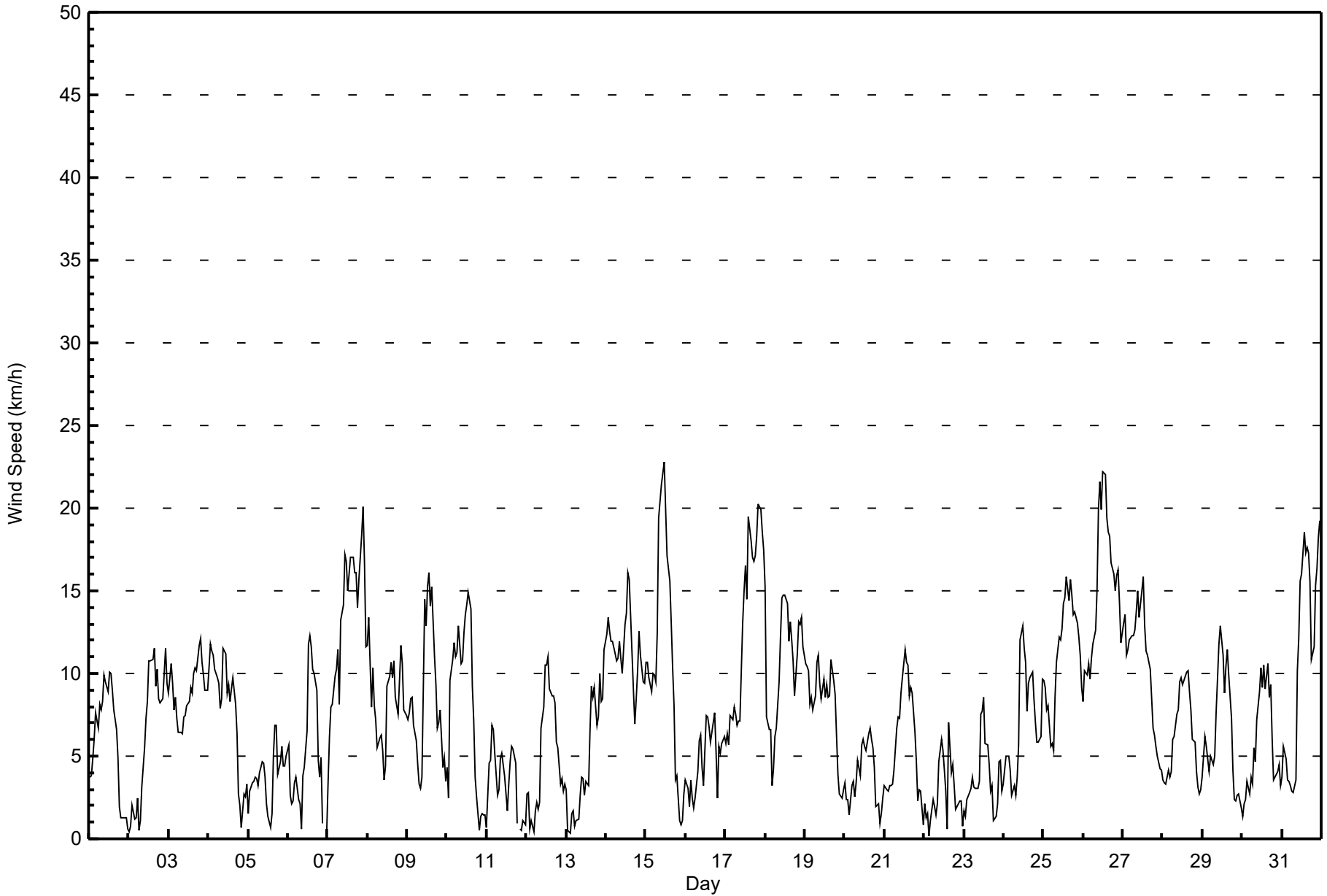
SSW1.2SSW1.0 SW1.2SSW1.1SSW1.0SSW1.1SSW1.0SSW0.8WSW0.1 SW0.1 S1.5 S2.1 S2.5 S2.6SSW2.7 S2.6 SSE2.4 SSE2.3 SSE1.9 SSE2.3 S3.0 S2.9 S2.7 S2.2	Diurnal Average
WSW15 SE14 SW13 SW12 SE12 SE12 SE12 W13 NW19NNW21 NNW22 NNW23 SSE22 SSE22 SSW20 SSE19 SSE18 SSW17 S17 SSW18 SSW20 SSW20 SW19 SSW19	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Conklin - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Conklin - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	282	38.01	38.01
6 - 11	310	41.78	79.78
12 - 19	137	18.46	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
Conklin - March 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	11	12	14	17	9	10	30	28	39	25	5	5	3	6	30	38	282
6 - 11	30	29	14	16	18	12	25	22	39	20	20	3	5	22	25	10	310
12 - 19	5	2	2	0	0	3	16	16	24	29	14	4	6	0	4	12	137
20 - 28	0	0	0	0	0	0	0	4	1	3	1	0	0	0	0	4	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
Totals	46	43	30	33	27	25	71	70	103	77	40	12	14	28	59	64	742

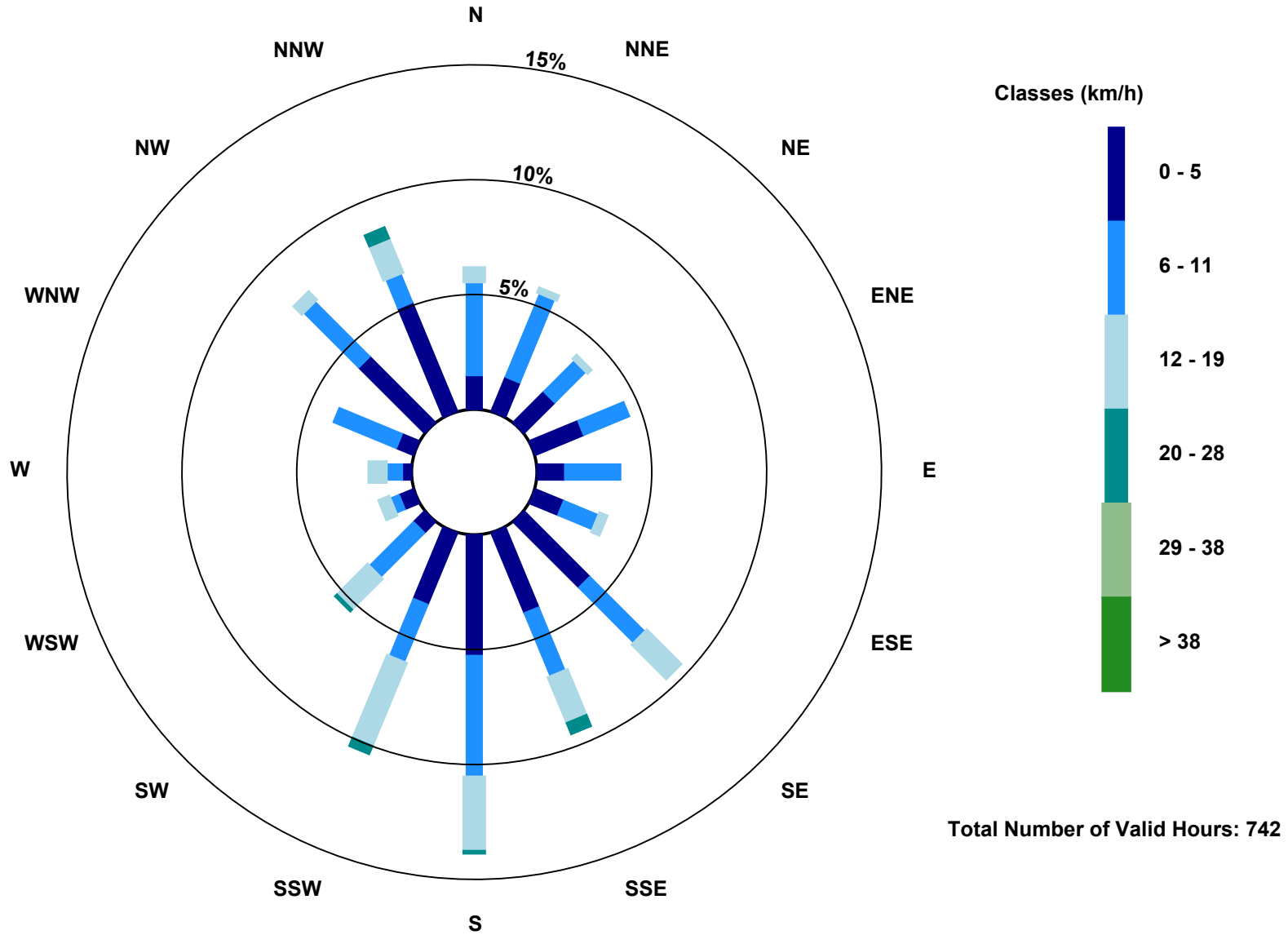
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Conklin





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Conklin - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 12:00																	Hours in Service: 744 Hours of Data: 742 Hours of Missing Data: 2 Hours of Calibration: 0 Percent Operational Time: 99.7								
Minimum Value: 0 km/h on Mar 4 20:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P 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-Mar	1	2	2	3	3	3	4	3	4	4	3	4	4	4	3	3	3	2	1	1	1	1	1	1	4
2-Mar	1	1	1	1	1	1	1	1	1	2	2	3	4	4	4	4	3	3	3	3	4	4	4	4	4
3-Mar	3	3	3	3	2	2	2	2	2	2	2	3	2	3	3	3	3	3	4	4	3	3	3	3	4
4-Mar	4	3	4	3	3	3	3	3	3	5	4	4	4	4	4	4	4	3	1	0	1	1	1	1	5
5-Mar	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	3	2	2	1	1	1	1	1	1	3
6-Mar	1	2	1	2	1	2	2	1	1	2	2	3	3	4	4	3	3	3	2	1	1	1	UO	1	4
7-Mar	2	2	3	3	3	3	3	3	5	4	5	5	4	5	6	5	4	5	4	4	5	5	5	4	6
8-Mar	4	4	3	3	3	2	1	1	2	2	1	2	3	3	3	3	3	3	2	2	3	2	2	2	4
9-Mar	2	1	1	1	1	1	1	1	2	3	5	5	5	5	4	5	3	3	1	1	2	2	1	2	5
10-Mar	2	2	3	3	3	3	3	5	5	5	5	7	6	6	6	4	4	1	1	1	1	1	1	1	7
11-Mar	1	2	2	3	3	2	1	1	1	2	2	2	2	2	2	2	1	2	1	UO	1	1	1	1	3
12-Mar	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	3	3	2	2	1	1	1	1	3
13-Mar	1	1	1	2	1	1	1	1	1	2	2	1	2	2	4	3	3	3	2	2	3	3	3	3	4
14-Mar	3	4	3	3	3	3	2	3	3	3	3	4	4	5	5	5	3	2	3	3	4	3	3	4	5
15-Mar	4	5	4	4	4	4	4	5	7	7	7	7	6	5	5	4	3	3	2	1	1	1	1	1	7
16-Mar	1	2	2	1	1	1	1	2	2	2	2	3	3	3	3	3	3	2	2	1	2	1	2	1	3
17-Mar	1	1	1	1	1	2	2	2	2	3	4	5	5	4	5	6	6	6	5	5	5	7	5	5	7
18-Mar	4	3	3	2	2	1	2	3	3	4	4	5	5	4	4	4	4	4	4	3	4	4	4	4	5
19-Mar	4	3	3	3	3	2	2	3	3	3	3	3	4	4	4	3	3	3	3	2	1	1	1	1	4
20-Mar	1	1	1	1	1	1	0	1	2	2	2	3	3	3	3	2	3	2	1	1	1	1	1	1	3
21-Mar	0	1	1	1	1	1	2	2	2	2	3	3	4	4	4	4	3	3	2	1	1	1	1	1	4
22-Mar	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	3	3	2	1	1	1	1	1	1	3
23-Mar	1	1	1	1	1	1	1	1	1	2	3	4	4	4	3	3	3	2	2	1	2	2	1	1	4
24-Mar	1	1	1	1	1	1	1	1	1	3	4	4	3	3	3	3	3	3	2	1	1	1	1	2	4
25-Mar	2	2	2	2	1	1	1	3	3	3	3	4	4	5	5	5	4	4	4	4	3	3	3	2	5
26-Mar	2	2	3	3	2	3	3	3	5	5	6	6	6	6	6	6	5	5	4	4	4	4	4	3	6
27-Mar	4	3	3	3	3	3	3	3	3	4	3	4	4	3	3	3	3	3	2	2	2	2	2	2	4
28-Mar	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	2	1	1	1	1	1	3
29-Mar	1	2	1	2	1	1	1	2	3	4	4	4	4	3	3	3	3	2	2	1	1	1	1	1	4
30-Mar	1	1	1	1	1	1	1	1	1	3	3	3	3	4	4	3	3	3	4	1	1	1	1	1	4
31-Mar	1	1	1	1	1	1	1	3	2	3	3	5	5	5	6	6	6	5	3	3	5	4	5	6	6
																	Diurnal Maximum								
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

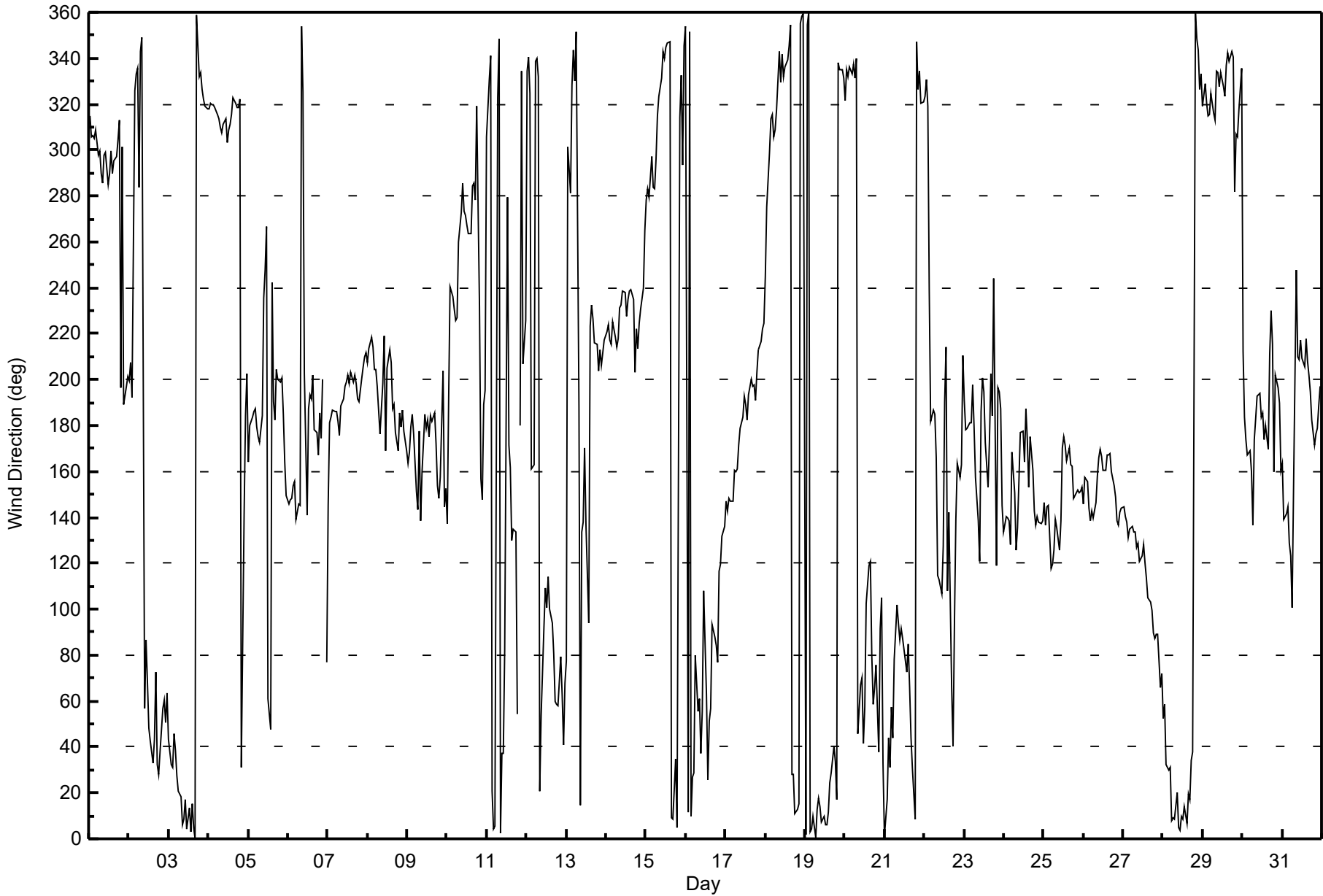
Wind Direction (WD) - deg
Conklin - March 2024

Direction of Maximum Speed: 340 deg on Mar 15 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 155.3 deg on Mar 26	Hours of Data: 742
Direction of Minimum Speed: 239 deg on Mar 22 04:00	Hours of Missing Data: 2
Direction of Minimum Daily Speed Average: 1.4 deg on Mar 11	Percent Operational Time: 99.7
Monthly Average Direction: 183.1 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-Mar	315	306	307	305	309	298	299	290	286	298	299	285	290	300	290	295	297	304	313	197	301	189	197	202	295.4
2-Mar	200	208	192	326	333	336	284	343	349	57	86	68	48	43	33	43	73	32	28	38	57	60	51	64	47.8
3-Mar	43	32	31	45	39	27	21	18	6	9	17	4	13	3	15	5	0	359	332	334	326	322	319	318	3.1
4-Mar	318	321	320	320	319	316	314	310	307	311	314	303	309	311	315	322	320	318	318	322	31	141	184	203	313.7
5-Mar	164	180	183	186	187	180	175	173	184	236	248	267	61	47	242	191	182	204	200	199	201	185	164	150	190.7
6-Mar	146	148	148	154	156	139	146	145	354	325	203	141	187	193	192	202	178	177	167	186	175	200	UO	77	177.4
7-Mar	145	182	184	187	186	186	182	176	188	191	197	199	202	198	203	199	202	198	192	190	201	205	210	212	195.7
8-Mar	207	213	219	214	204	204	197	176	187	199	219	169	205	213	208	187	189	177	169	185	179	187	178	169	195.0
9-Mar	164	169	179	185	176	151	144	178	139	160	185	178	182	175	184	182	185	172	154	149	157	204	145	152	173.2
10-Mar	137	192	241	236	230	226	227	260	273	286	274	272	267	263	264	284	286	278	319	232	157	148	189	195	256.2
11-Mar	306	330	341	21	4	5	322	348	2	37	37	82	279	171	162	130	135	134	54	UO	180	334	207	226	34.3
12-Mar	334	340	324	161	163	338	340	332	21	54	92	109	101	114	100	94	81	60	59	58	79	63	41	68	77.9
13-Mar	78	301	281	328	344	330	351	188	15	134	138	170	137	94	223	232	226	216	215	204	213	206	212	217	208.4
14-Mar	221	224	217	215	225	218	214	218	231	233	238	238	228	235	239	239	235	203	222	213	225	231	240	265	228.2
15-Mar	278	283	279	297	284	283	296	315	323	331	343	340	345	347	347	9	8	21	35	5	314	333	294	345	329.1
16-Mar	354	12	352	10	27	29	80	56	61	37	55	108	63	26	51	57	93	88	84	77	116	120	132	136	68.5
17-Mar	147	143	148	147	147	161	160	161	171	178	184	193	189	182	193	200	197	198	191	203	213	217	222	225	191.9
18-Mar	245	275	299	314	316	306	309	317	343	330	342	332	336	339	345	354	28	28	11	13	15	355	358	360	342.0
19-Mar	2	355	360	3	5	10	1	13	18	14	7	10	6	6	11	24	29	40	34	17	338	335	335	331	9.9
20-Mar	322	335	332	336	333	337	331	340	45	67	70	42	58	103	119	121	80	59	66	76	38	92	105	33	53.8
21-Mar	1	17	44	31	57	44	78	102	94	87	91	87	78	73	85	66	44	30	8	347	326	334	320	321	59.9
22-Mar	323	331	319	239	182	187	185	166	115	113	107	127	191	214	108	142	66	40	94	139	163	158	163	210	132.9
23-Mar	191	178	179	181	181	198	179	158	139	121	186	201	195	173	153	174	203	184	244	119	196	195	187	145	179.4
24-Mar	134	141	140	139	128	168	151	125	135	155	177	177	164	187	174	153	175	161	143	136	140	138	137	139	155.9
25-Mar	146	137	145	145	118	120	126	139	135	126	138	170	175	171	165	170	163	162	148	149	152	151	151	153	151.8
26-Mar	146	157	156	144	138	143	140	146	158	166	170	167	160	161	167	167	168	160	154	149	138	137	142	144	155.3
27-Mar	145	141	138	131	135	136	133	134	127	129	121	124	128	120	114	105	103	99	90	87	89	89	66	72	121.6
28-Mar	52	59	32	30	31	8	9	9	20	5	4	10	9	14	7	20	17	34	38	360	348	343	326	333	13.7
29-Mar	319	329	320	315	316	324	316	313	334	334	328	334	327	323	337	342	338	343	341	282	307	306	317	336	328.6
30-Mar	212	184	174	167	169	160	137	174	183	193	194	183	186	174	180	170	211	230	215	160	202	196	190	161	186.1
31-Mar	164	139	142	145	129	123	101	151	248	210	209	217	210	206	218	208	202	195	182	172	176	179	189	197	193.2

195.1 204.2 214.4 198.5 195.8 198.6 192.8 192.7 256.6 217.2 187.3 191.2 189.3 189.9 195.8 176.1 166.9 153.5 147.0 161.8 178.1 183.2 185.9 185.7
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Conklin - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Mar 5 14:00 Minimum Value: 6 deg on Mar 5 21:00 Percentiles: P ₁ = 9 P ₁₀ = 16 Q ₁ = 19 Median = 24 Q ₃ = 34 P ₉₀ = 54 P ₉₉ = 83																			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-Mar	20	32	25	26	25	30	31	32	34	32	32	36	33	33	34	34	37	25	30	25	63	36	73	61	73
2-Mar	82	82	43	71	56	32	74	72	46	39	42	44	34	36	29	28	35	22	25	26	32	29	29	32	82
3-Mar	26	23	22	28	23	22	23	21	22	22	24	24	26	21	26	22	21	21	22	18	18	18	19	20	28
4-Mar	20	18	19	17	18	20	20	23	27	27	26	32	32	36	33	32	33	18	22	16	64	35	27	15	64
5-Mar	20	16	16	16	18	11	20	16	20	24	49	80	81	103	86	68	39	28	13	9	6	17	17	13	103
6-Mar	7	46	58	75	19	16	83	29	101	28	55	40	27	23	28	29	25	18	14	15	18	83	UO	71	101
7-Mar	49	24	21	17	19	17	19	21	19	22	20	20	21	22	21	21	20	17	17	15	15	15	18	26	49
8-Mar	26	23	38	20	25	26	20	15	20	26	32	49	27	32	23	22	20	17	14	16	14	14	17	13	49
9-Mar	12	17	9	9	8	19	15	19	54	51	21	20	19	20	19	20	20	18	13	14	21	43	24	41	54
10-Mar	27	76	24	20	20	20	20	29	33	36	33	35	30	32	30	34	33	26	53	70	31	21	62	57	76
11-Mar	73	40	37	30	20	26	19	17	21	25	41	57	86	50	44	41	30	23	29	UO	77	57	54	68	86
12-Mar	26	20	73	58	80	33	29	45	78	34	40	28	28	28	30	32	34	32	31	28	44	31	36	33	80
13-Mar	34	30	54	54	36	77	45	75	41	44	49	61	68	75	43	25	27	19	21	22	20	23	26	21	77
14-Mar	22	21	19	19	19	19	18	19	19	19	21	20	23	23	23	21	21	19	21	19	21	20	21	27	27
15-Mar	29	31	29	33	31	30	31	25	21	22	23	22	22	25	24	24	24	25	23	23	64	83	67	22	83
16-Mar	30	28	22	20	34	29	41	38	39	37	51	78	47	53	54	60	44	29	32	44	29	29	25	16	78
17-Mar	16	17	11	11	11	13	16	27	21	26	24	21	24	23	20	22	21	19	18	18	19	21	21	22	27
18-Mar	21	41	29	25	36	22	23	23	23	23	23	26	25	24	21	22	23	24	29	23	23	22	21	24	41
19-Mar	24	22	20	23	22	24	22	25	28	30	40	39	47	38	59	38	29	28	21	24	19	33	32	29	59
20-Mar	15	53	38	30	17	9	16	21	42	66	52	49	60	67	62	44	50	35	31	43	43	66	51	35	67
21-Mar	15	22	32	27	29	29	32	26	28	34	32	37	34	35	35	43	39	24	20	14	27	20	16	56	56
22-Mar	52	73	77	86	53	17	28	64	73	45	45	54	72	77	102	44	77	37	29	28	13	15	20	80	102
23-Mar	38	44	25	20	17	17	14	24	38	51	47	54	45	71	61	70	73	76	60	84	52	21	22	16	84
24-Mar	12	8	8	9	12	17	20	33	20	25	22	25	25	24	31	27	22	23	14	12	9	11	13	15	33
25-Mar	15	15	18	15	20	16	20	19	18	19	23	32	27	25	22	20	21	20	15	14	14	13	15	14	32
26-Mar	17	16	17	15	14	13	14	17	20	19	22	21	20	22	21	21	21	19	18	17	15	16	17	16	22
27-Mar	17	16	18	15	15	15	15	16	16	17	18	19	18	19	19	24	24	28	30	29	29	34	36	34	36
28-Mar	29	29	29	25	27	21	22	26	24	27	29	27	26	29	24	26	23	26	24	18	14	15	17	16	29
29-Mar	15	17	17	19	19	16	18	24	25	25	23	21	24	30	25	23	21	23	29	30	30	24	23	65	65
30-Mar	47	24	15	18	22	18	14	19	21	36	36	30	36	37	35	27	36	22	21	17	17	16	21	23	47
31-Mar	25	15	15	16	22	22	72	75	60	22	21	25	28	20	26	24	21	20	18	17	17	17	20	19	75
82 82 77 86 80 77 83 75 101 66 55 80 86 103 102 70 77 76 60 84 77 83 73 80																								Diurnal Maximum	
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS22
JANVIER
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)
MARCH 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	673	35	71	95.16	2.8	0	1.2	0
TRS(ppb) Average	707	36	37	99.87	0.9	0	0.3	0
THC(ppm) Average	701	36	43	99.06	2.3	-	2.2	-
NMHC(ppm) Average	701	36	43	99.06	0.053	-	0.003	-
CH4(ppm) Average	701	36	43	99.06	2.3	-	2.2	-
O3 (ppb) Average	709	33	35	99.73	55.7	0	46.9	-
NO2 (ppb) Average	708	36	36	100	6.8	0	3.9	-
NO (ppb) Average	708	36	36	100	4.4	-	1	-
NOX (ppb) Average	708	36	36	100	10.7	-	4.5	-
PM2.5 (ug/m3) Average	742	2	2	100	178.8	4	25.4	0
Temperature 2 m (C) Average	744	0	0	100	12.7	-	4.6	-
Relative Humidity (%) Average	744	0	0	100	92.2	-	83.9	-
Wind Speed 10 m (km/h) Average	744	0	0	100	19	-	14	-
Wind Speed 20 m (km/h) Average	744	0	0	100	23	-	17	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
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 - JANVIER (AMS22)
MARCH 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	673	0.41	0.6	-	0	0	0	0.2	0.6	1.2	2.8
TRS (ppb) Average	707	0.24	0.1	-	0.1	0.2	0.2	0.2	0.3	0.3	0.9
THC (ppm) Average	701	2.06	0	-	2	2	2	2.1	2.1	2.1	2.3
NMHC(ppm) Average	701	0	0.002	-	0	0	0	0	0	0	0.053
CH4(ppm) Average	701	2.06	0	-	2	2	2	2.1	2.1	2.1	2.3
O3 (ppb) Average	709	40.45	6.3	-	17.3	31.5	35.9	41.6	45	47.5	55.7
NO2 (ppb) Average	708	1.45	1.4	-	0	0.2	0.4	1	2	3.4	6.8
NO (ppb) Average	708	0.23	0.4	-	0	0	0	0.1	0.3	0.6	4.4
NOX (ppb) Average	708	1.67	1.5	-	0	0.3	0.5	1.2	2.3	3.9	10.7
PM2.5 (ug/m3) Average	742	3.89	10.6	-	0.2	1.3	2	2.6	3.5	5.4	178.8
Temperature 2 m (C) Average	744	-7.26	9.2	-	-30.8	-20.2	-14.4	-6.7	-0.5	5.4	12.7
Relative Humidity (%) Average	744	60.92	17.7	-	21.2	35.8	47.2	62.4	75.9	84	92.2
Wind Speed 10 m (km/h) Average	744	7.3	4	-	0	2	4	7	10	13	19
Wind Speed 20 m (km/h) Average	744	9.7	5	-	0	4	6	9	12	16	23
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	10 Mar 2024 04:00	11 Mar 2024 11:00	32	Analyzer Failure - sample pump failure
SO2	11 Mar 2024 12:00	11 Mar 2024 14:00	3	Maintenance - replaced sample pump
All Gaseous Analyzers (Except NO2)	27 Mar 2024 14:00	27 Mar 2024 14:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	22 Mar 2024 12:00	22 Mar 2024 13:00	2	Maintenance - replaced support gas cylinder
THC/NMHC/CH4	25 Mar 2024 11:00	25 Mar 2024 14:00	4	Maintenance - retention timing adjusted
O3	11 Mar 2024 09:00	11 Mar 2024 09:00	1	Maintenance - reinitiated daily QA check



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.8 ppb on Mar 19 12:00	Maximum Daily Average: 1.2 ppb on Mar 9		Hours of Data:	673
Minimum Value: 0.0 ppb on Mar 2 06:00	Minimum Daily Average: 0.0 ppb on Mar 12		Hours of Missing Data:	71
Maximum Diurnal Average: 0.6 ppb at hour 11	Minimum Diurnal Average: 0.3 ppb at hour 20		Hours of Calibration:	35
Monthly Average: 0.41 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.6 P ₉₀ = 1.2 P ₉₉ = 2.5		Percent Operational Time:	95.2

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

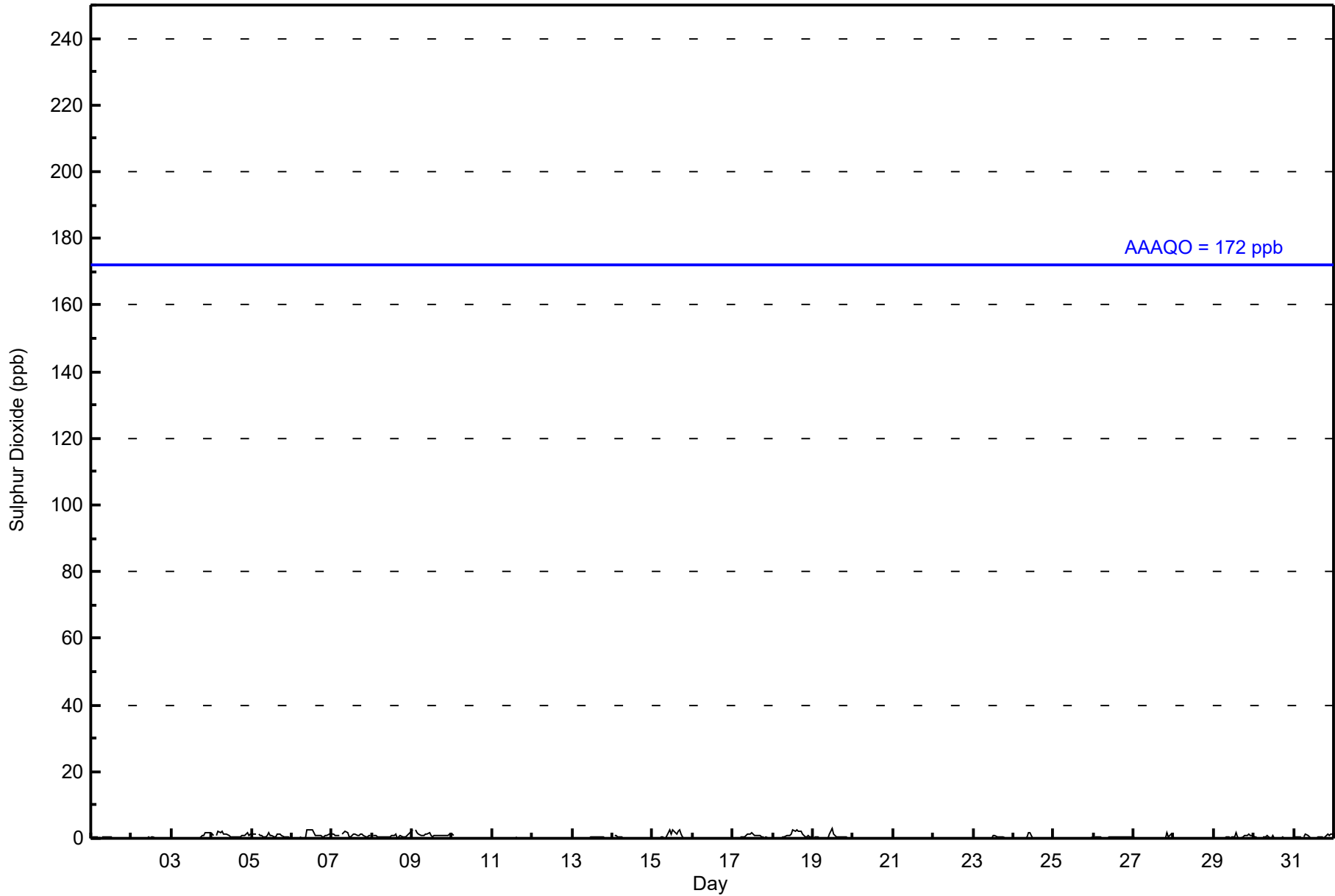
0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.6	0.6	0.5	0.6	0.6	0.5	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	Diurnal Average
2.5	1.3	2.5	1.6	2.0	1.8	1.9	1.8	2.1	2.5	2.5	2.8	2.6	2.1	2.5	2.1	2.7	2.3	1.3	1.0	1.7	1.7	1.6	2.2	2.2	2.2	2.2	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Janvier - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Janvier - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	673	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: 673

Total Number of Hours: 744



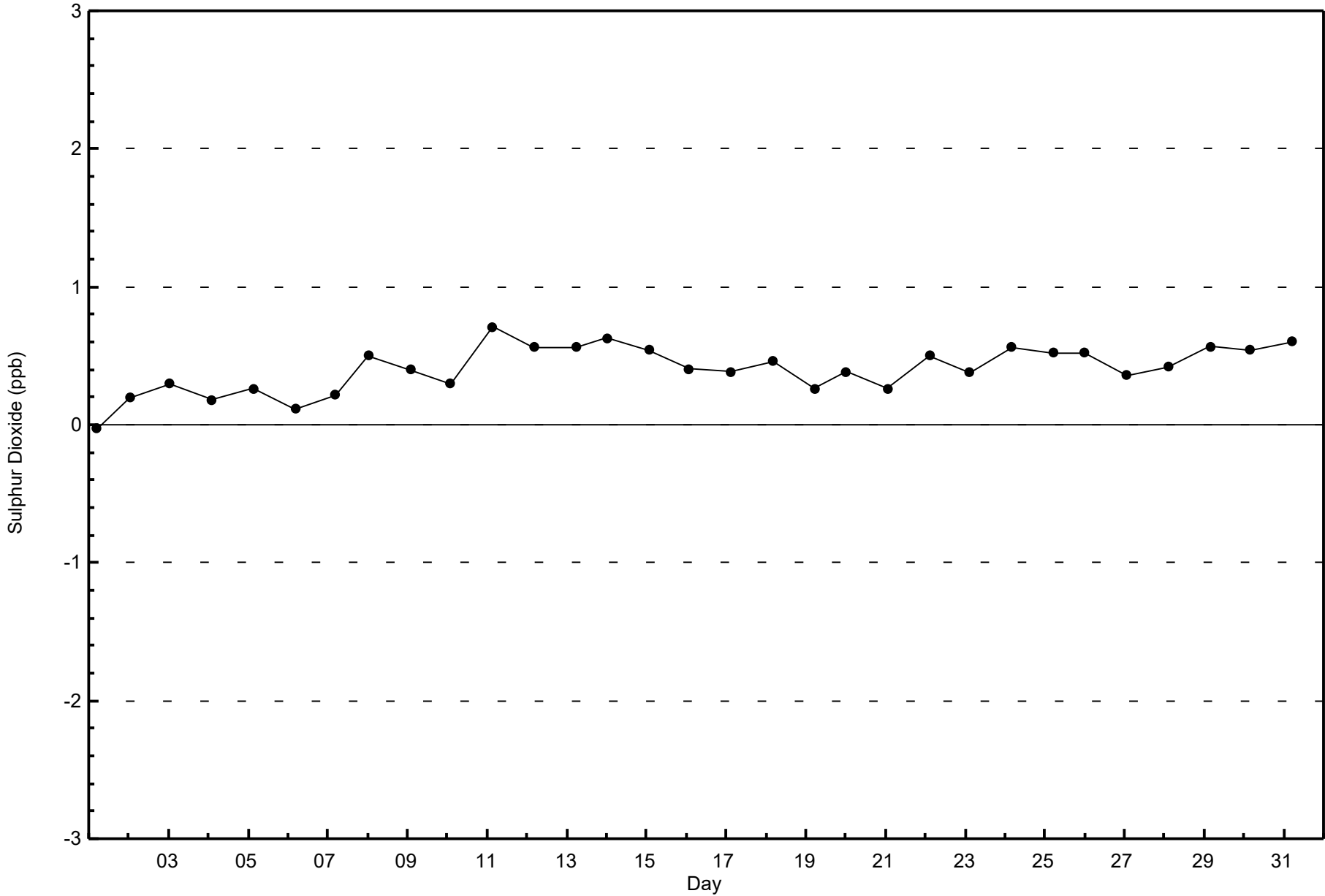
**Wood Buffalo Environmental Association
Frequency Distribution**

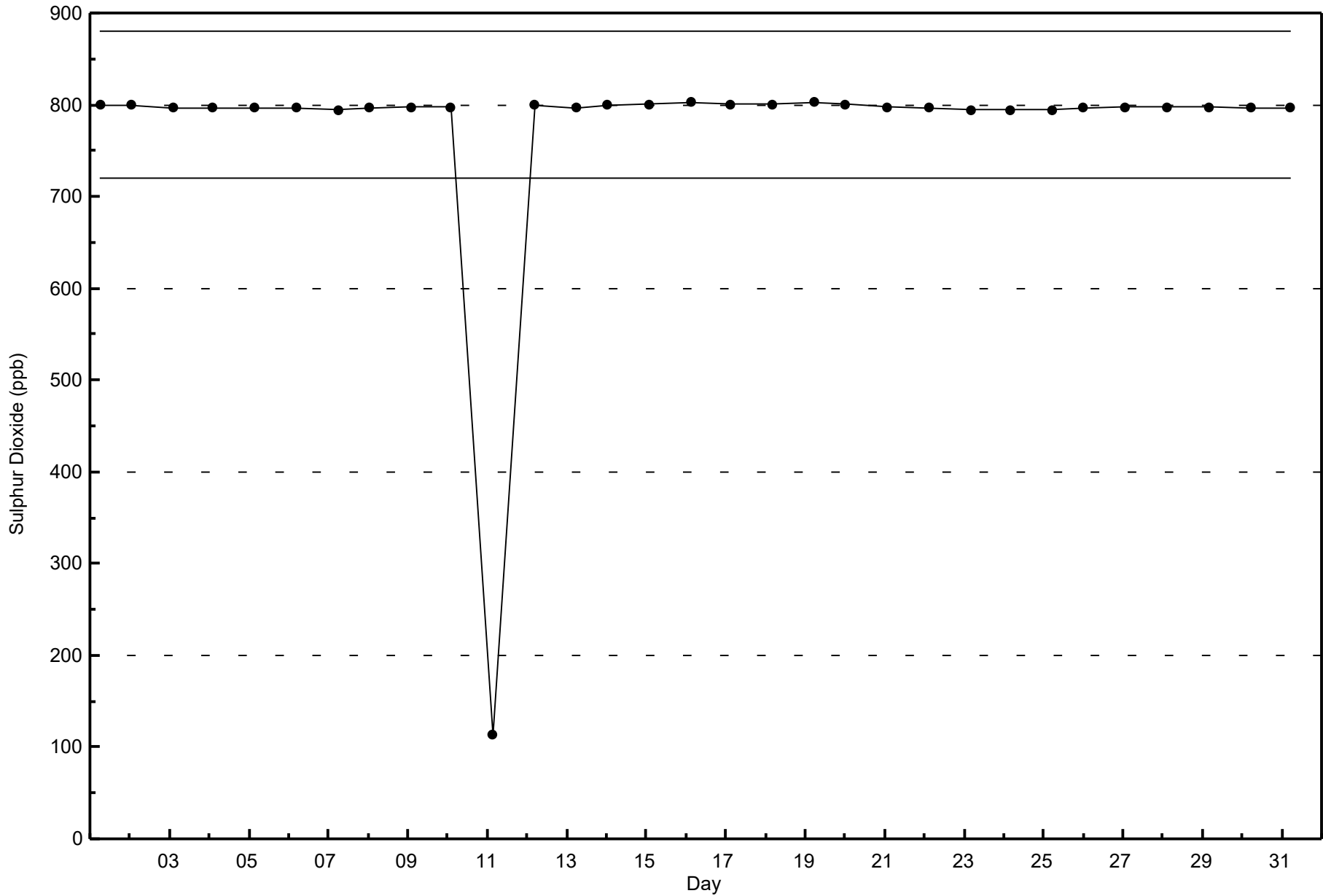
**Sulphur Dioxide (SO₂) - ppb
Janvier - March 2024**

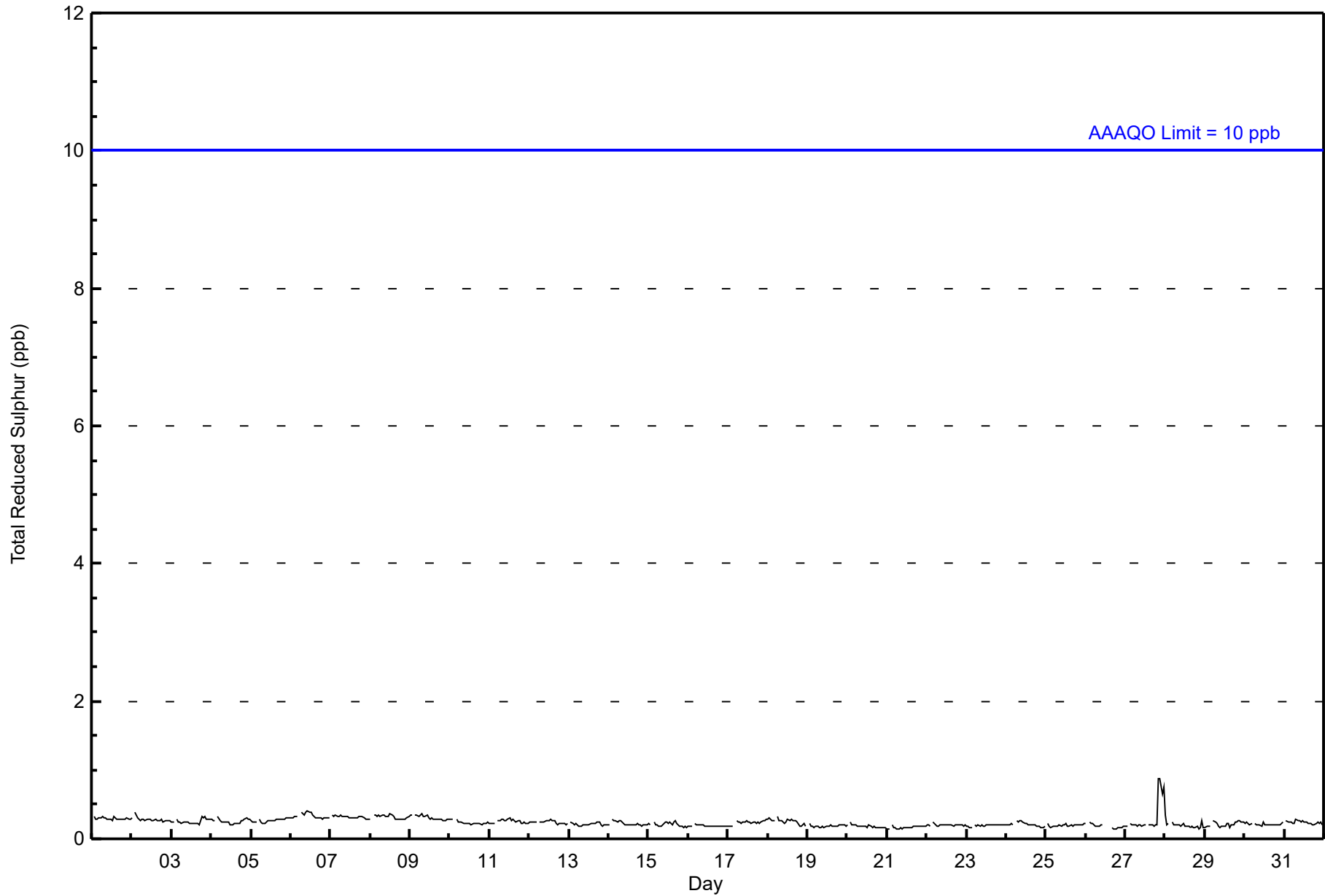
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	62	111	41	40	25	13	21	50	71	105	53	14	5	20	21	21	673
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
Totals	62	111	41	40	25	13	21	50	71	105	53	14	5	20	21	21	673

Total Number of Valid Hours: 673

Total Number of Hours: 744









Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Janvier - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 - March 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	64	119	44	41	25	13	20	46	69	109	57	16	11	30	20	23	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
Totals	64	119	44	41	25	13	20	46	69	109	57	16	11	30	20	23	707

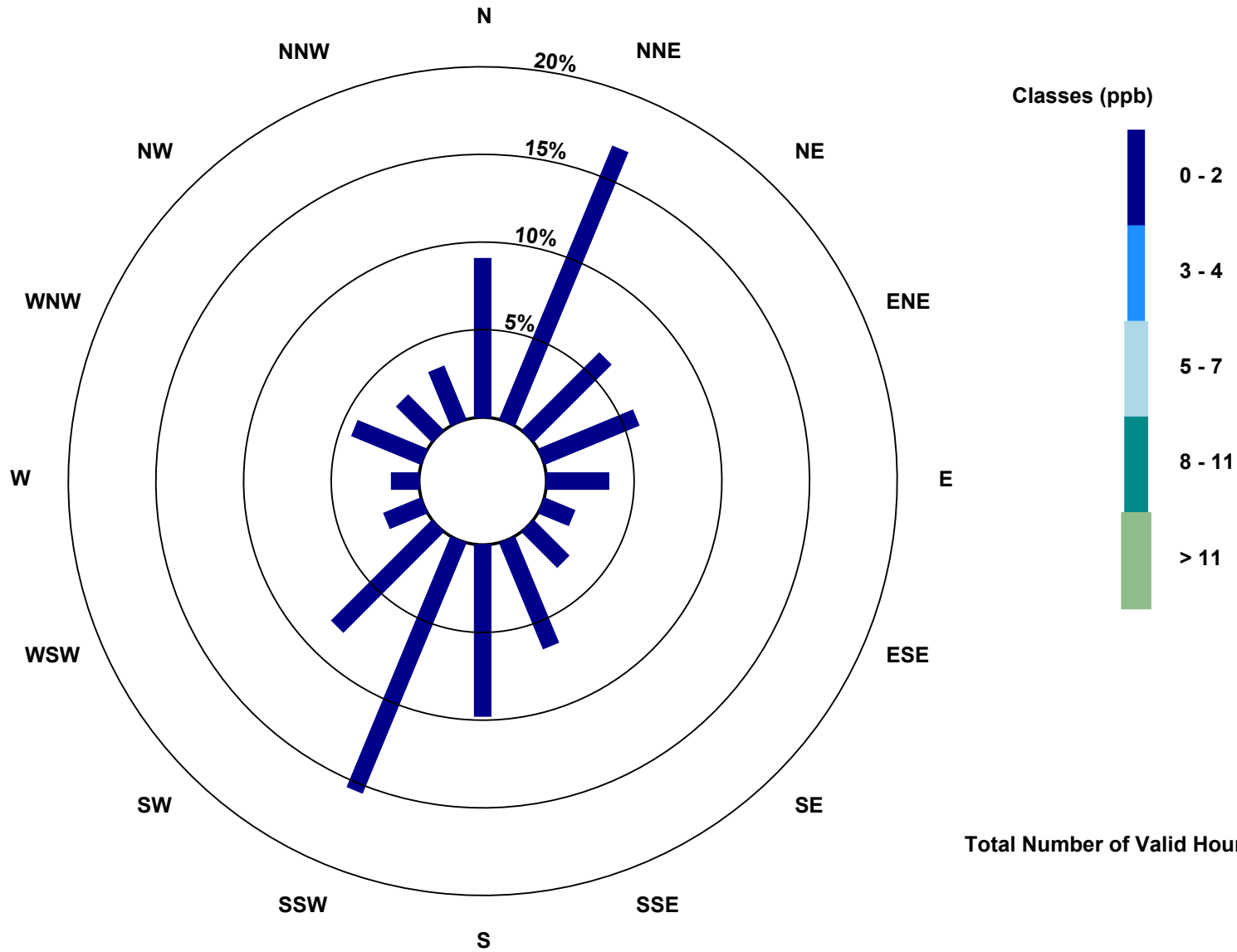
Total Number of Valid Hours: 707

Total Number of Hours: 744

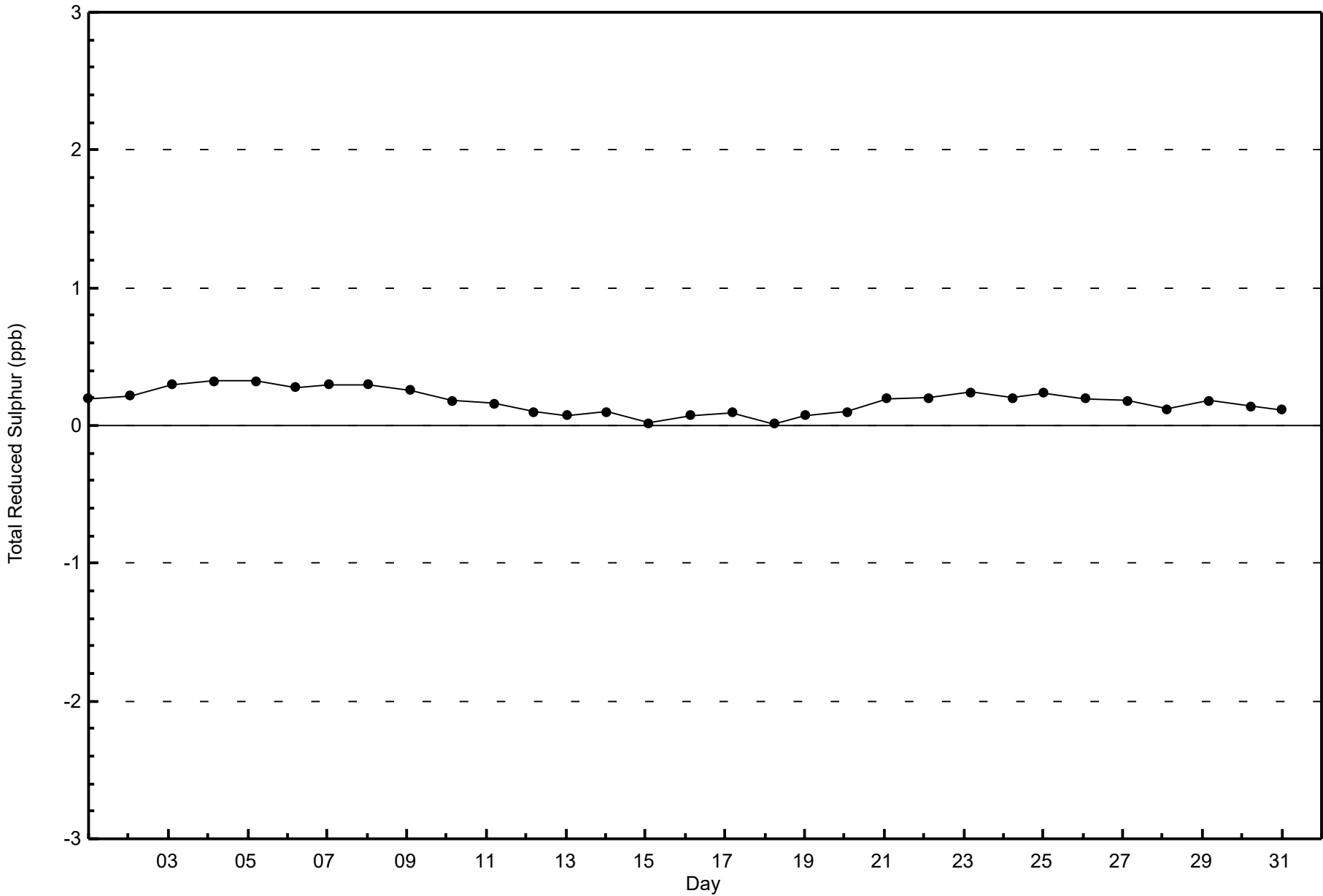


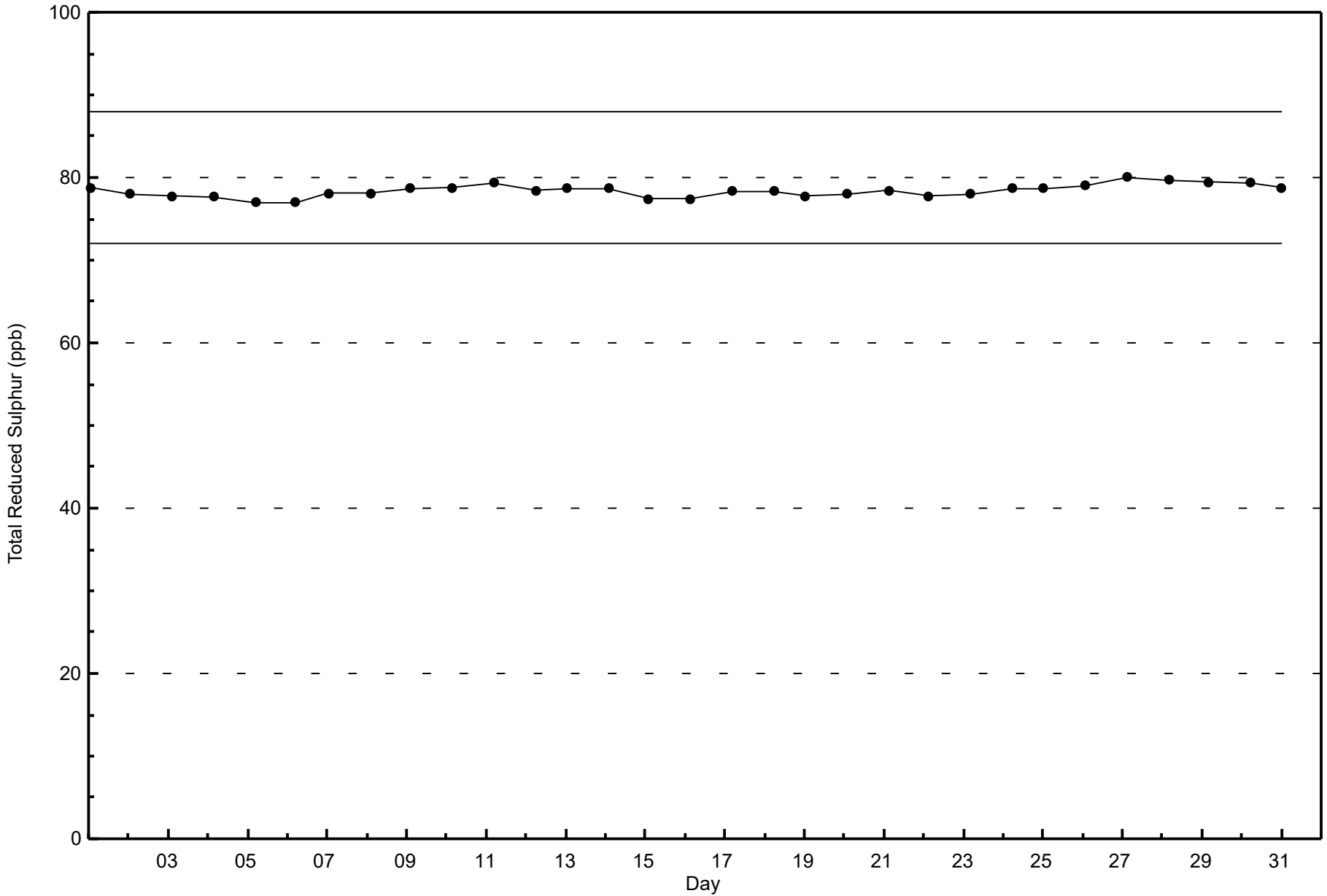
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Janvier



Total Number of Valid Hours: 707



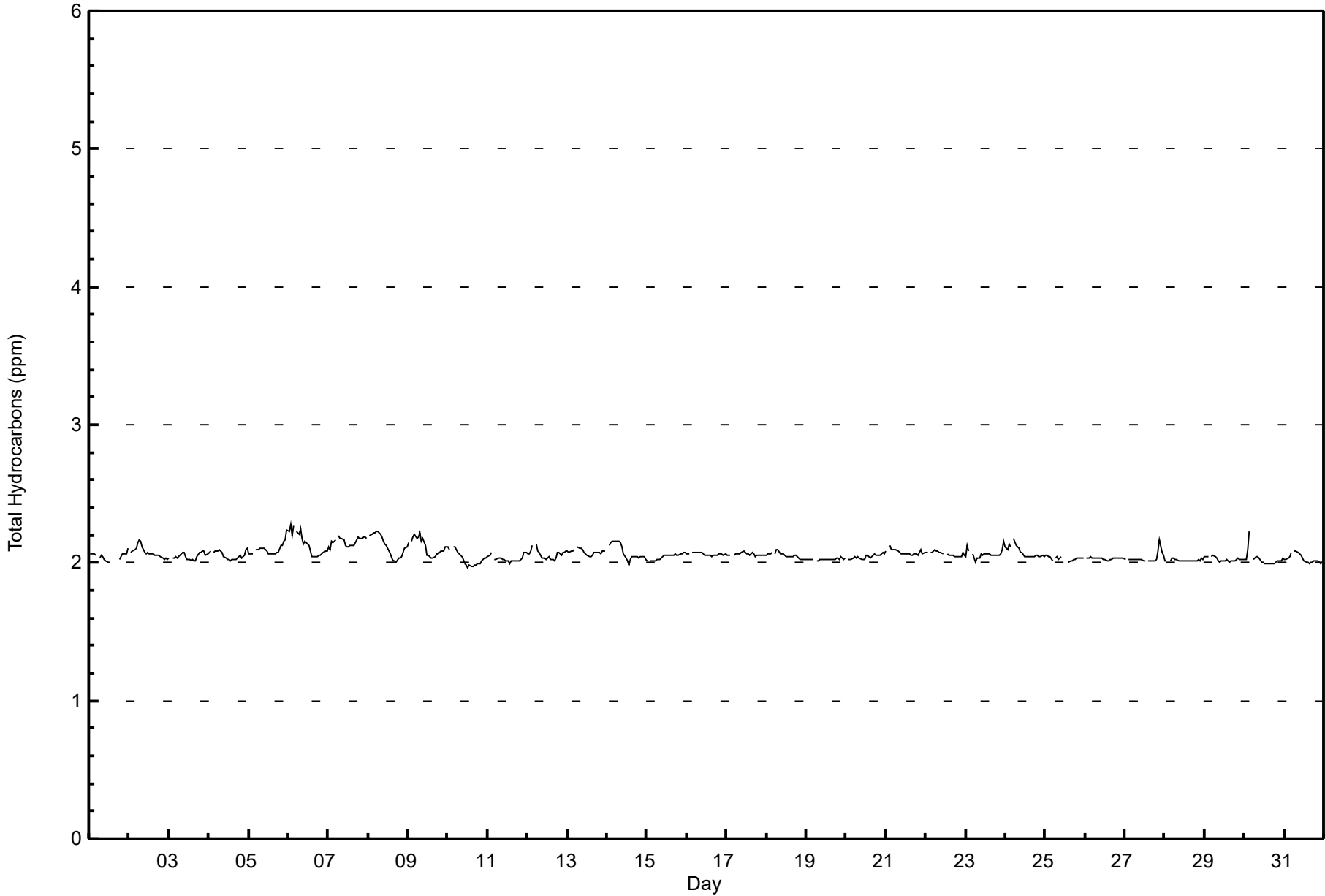




Wood Buffalo Environmental Association
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm
Janvier - March 2024

Maximum Value: 2.3 ppm on Mar 6 02:00		Maximum Daily Average: 2.2 ppm on Mar 7		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on Mar 10 13:00		Minimum Daily Average: 2.0 ppm on Mar 28		Hours of Data: 701																																													
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 15		Hours of Missing Data: 43																																													
Monthly Average: 2.06 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.2		Hours of Calibration: 36																																													
				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-Mar	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	C	C	C	C	C	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1																							
2-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2																						
3-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1																							
4-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1																						
5-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2																							
6-Mar	2.2	2.3	2.2	2.3	Z	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																						
7-Mar	2.1	2.1	2.2	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
8-Mar	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2																						
9-Mar	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
10-Mar	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	2.0	2.1																						
11-Mar	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1																						
12-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
13-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
14-Mar	Z	2.1	2.1	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	2.0	2.0	2.0	2.0	2.2																						
15-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
16-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
17-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
18-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
19-Mar	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																						
20-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
21-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
22-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	M	M	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																						
23-Mar	2.0	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2																						
24-Mar	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.2																						
25-Mar	2.1	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	M	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
26-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	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	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.0	2.2																						
28-Mar	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																						
29-Mar	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
30-Mar	2.0	2.0	2.1	2.2	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
31-Mar	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
																								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	Diurnal Average		
																								2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Janvier - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	336	47.93	47.93
2.1 - 3.0	365	52.07	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
Janvier - March 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	44	50	19	16	16	7	13	39	32	20	17	10	8	19	10	16	336
2.1 - 3.0	21	70	24	23	9	6	8	9	37	87	40	6	3	4	12	6	365
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
Totals	65	120	43	39	25	13	21	48	69	107	57	16	11	23	22	22	701

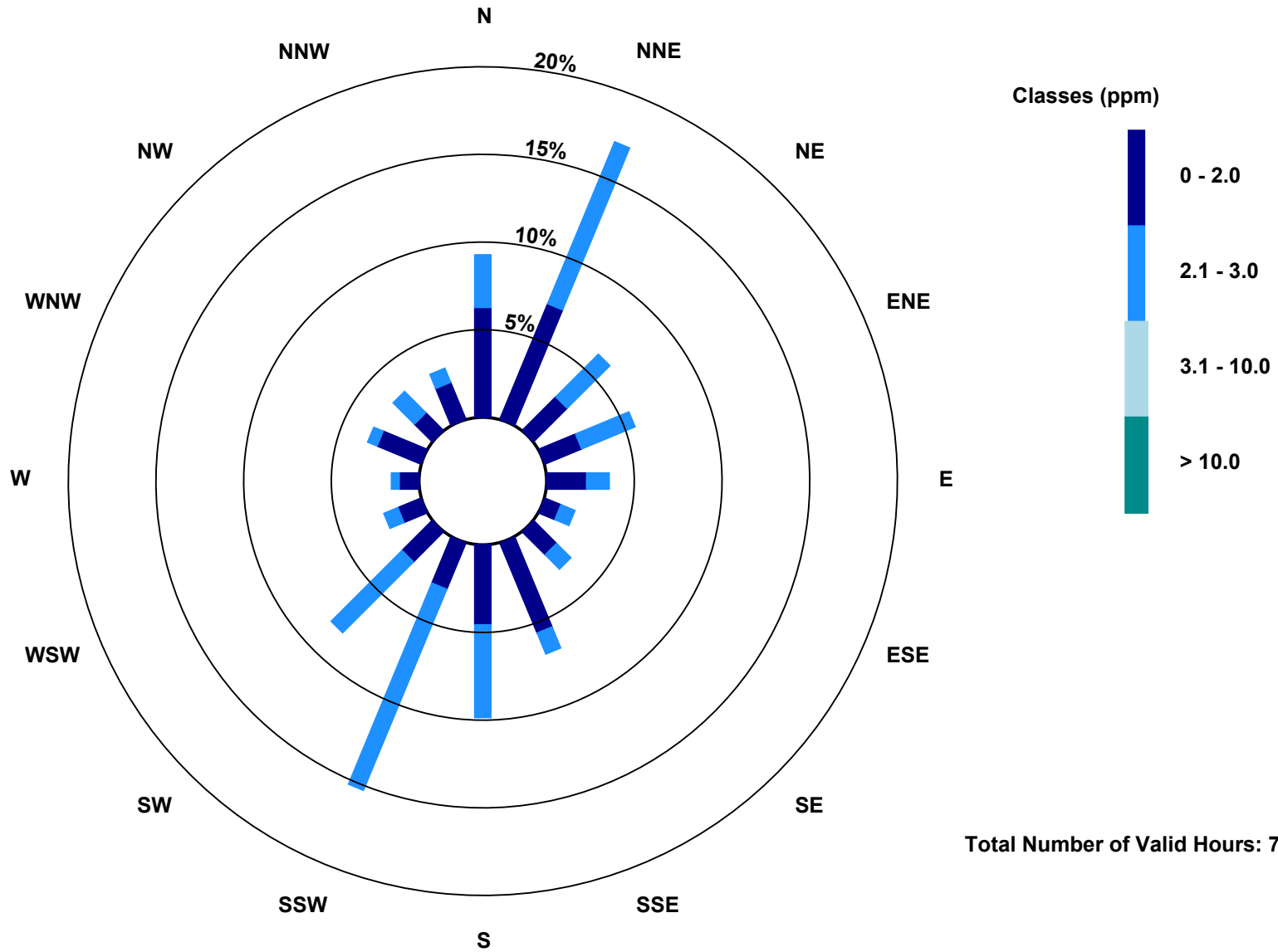
Total Number of Valid Hours: 701

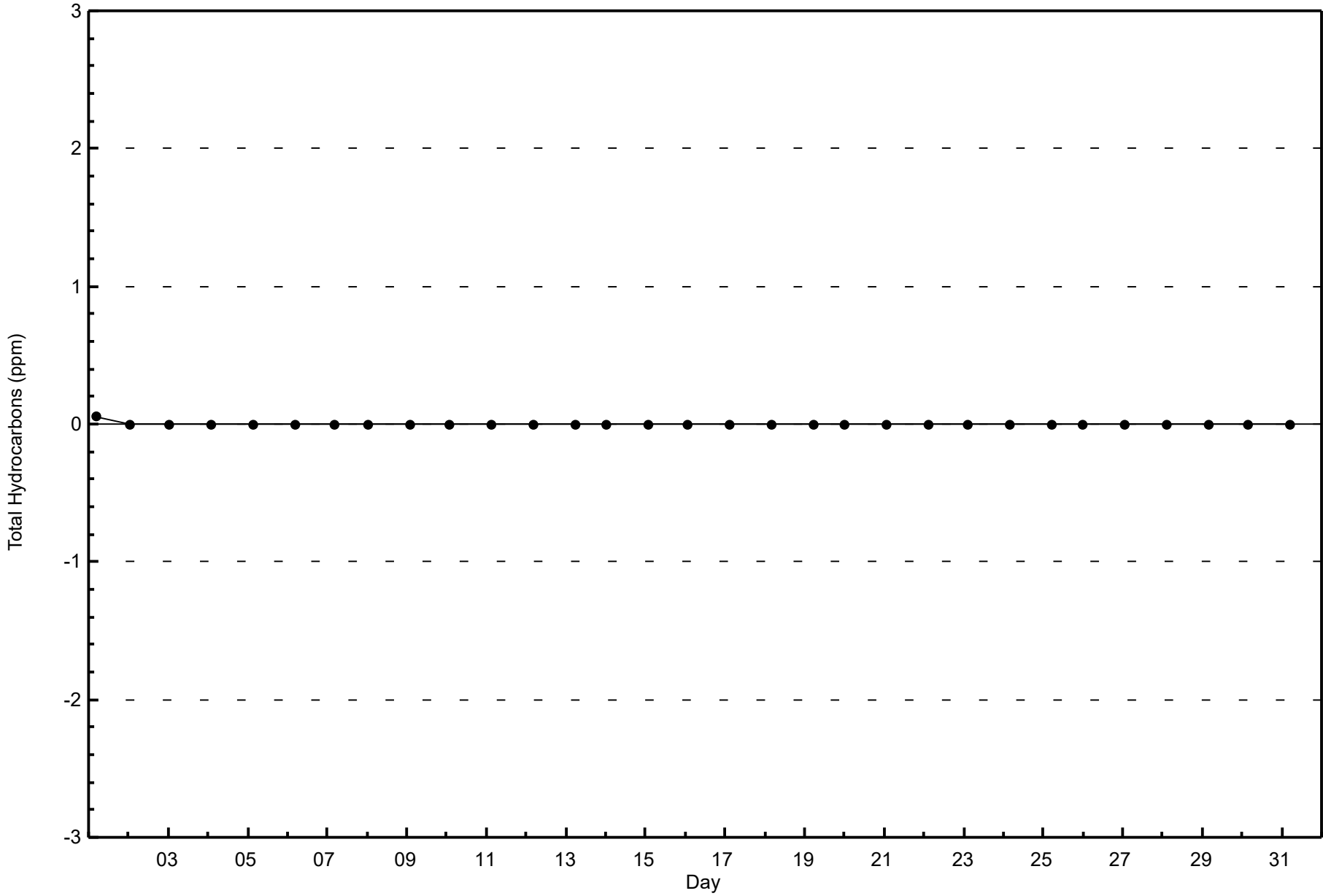
Total Number of Hours: 744

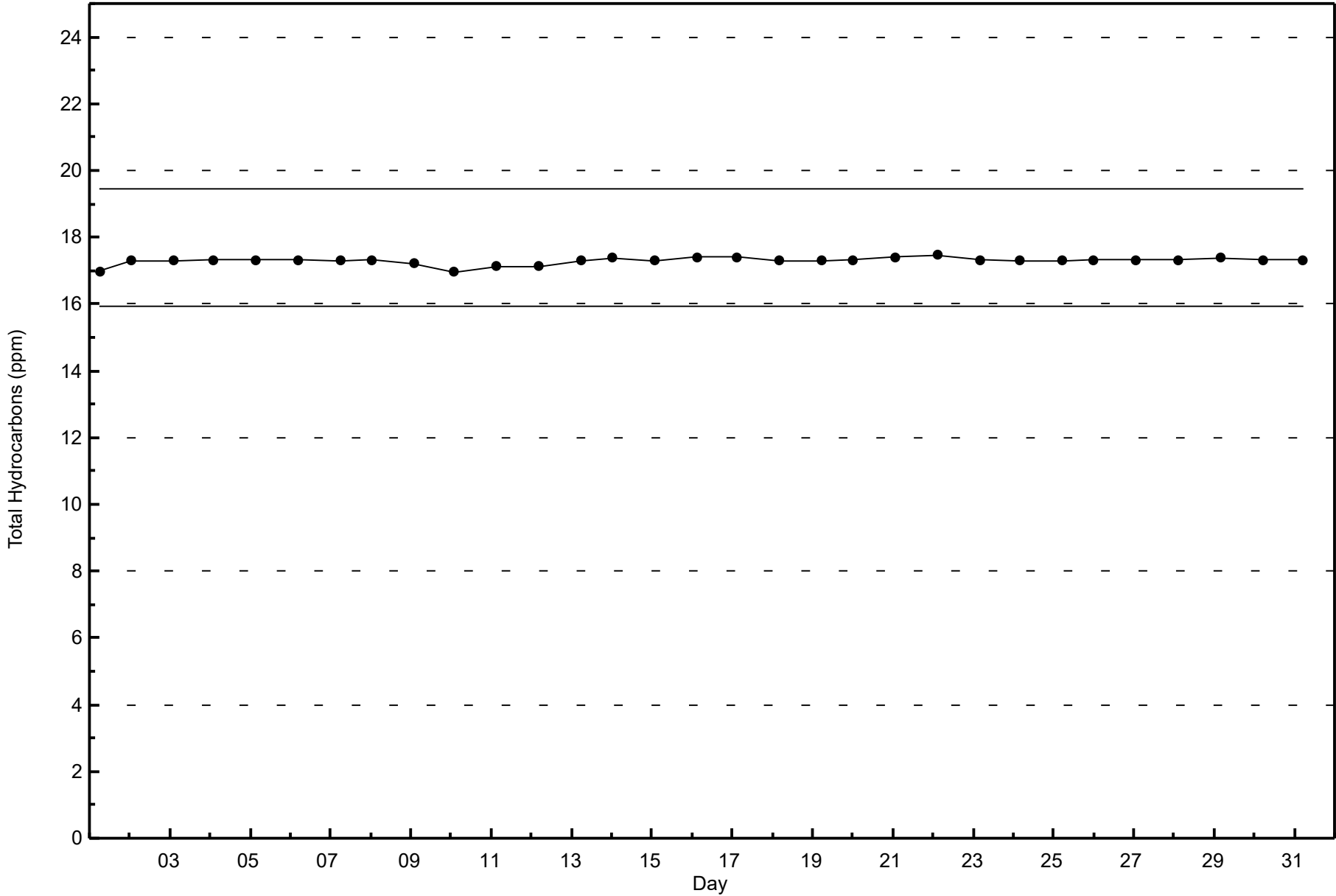


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Janvier





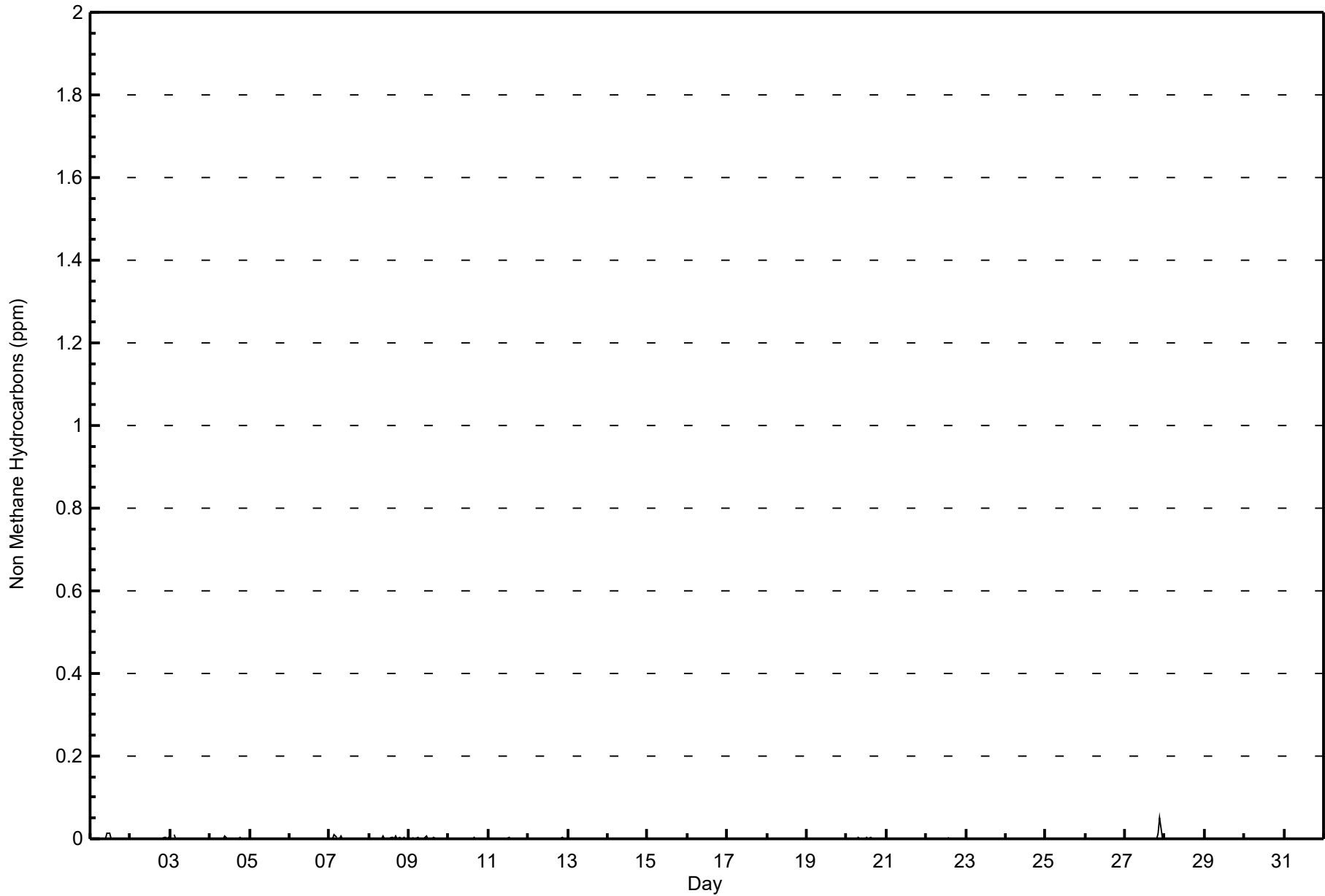




Summary of Hour Averages

Janvier - March 2024

Maximum Value: 0.053 ppm on Mar 27 22:00		Maximum Daily Average: 0.003 ppm on Mar 27		Hours in Service: 744																						
Minimum Value: 0.000 ppm on Mar 1 01:00		Minimum Daily Average: 0.000 ppm on Mar 5		Hours of Data: 701																						
Maximum Diurnal Average: 0.002 ppm at hour 22		Minimum Diurnal Average: 0.000 ppm at hour 20		Hours of Missing Data: 43																						
Monthly Average: 0.000 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.0		Hours of Calibration: 36																						
				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-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.015	0.015	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015
2-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.000	0.003	0.000	0.003
3-Mar	0.000	Z	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009
4-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.006
5-Mar	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
6-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.002
7-Mar	0.000	0.001	0.001	0.010	0.003	Z	0.000	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010
8-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.002	0.003	0.000	0.006	0.000	0.003	0.000	0.002	0.003	0.000	0.000	0.001	0.006
9-Mar	0.004	Z	0.004	0.000	0.000	0.003	0.000	0.000	0.001	0.002	0.007	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.004	0.001	0.007
10-Mar	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	0.001	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
11-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.004
12-Mar	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	0.002	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.002
13-Mar	0.000	0.001	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
14-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
15-Mar	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
16-Mar	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
17-Mar	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
18-Mar	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	0.002
19-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20-Mar	Z	0.000	0.000	0.000	0.000	0.001	0.001	0.003	0.000	0.000	0.000	0.000	0.004	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.005
21-Mar	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	0.000	0.000	0.000	0.000	0.002
22-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	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
23-Mar	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
24-Mar	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
25-Mar	0.000	0.000	0.000	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
26-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	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	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.053	0.002	0.053
28-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
29-Mar	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
30-Mar	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
31-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Janvier - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	690	98.43	98.43
0.006 - 0.05	11	1.57	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 701

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Janvier - March 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	65	119	43	37	25	13	21	48	68	104	56	16	11	21	21	22	690
0.006 - 0.05	0	1	0	2	0	0	0	0	1	3	1	0	0	2	1	0	11
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	65	120	43	39	25	13	21	48	69	107	57	16	11	23	22	22	701

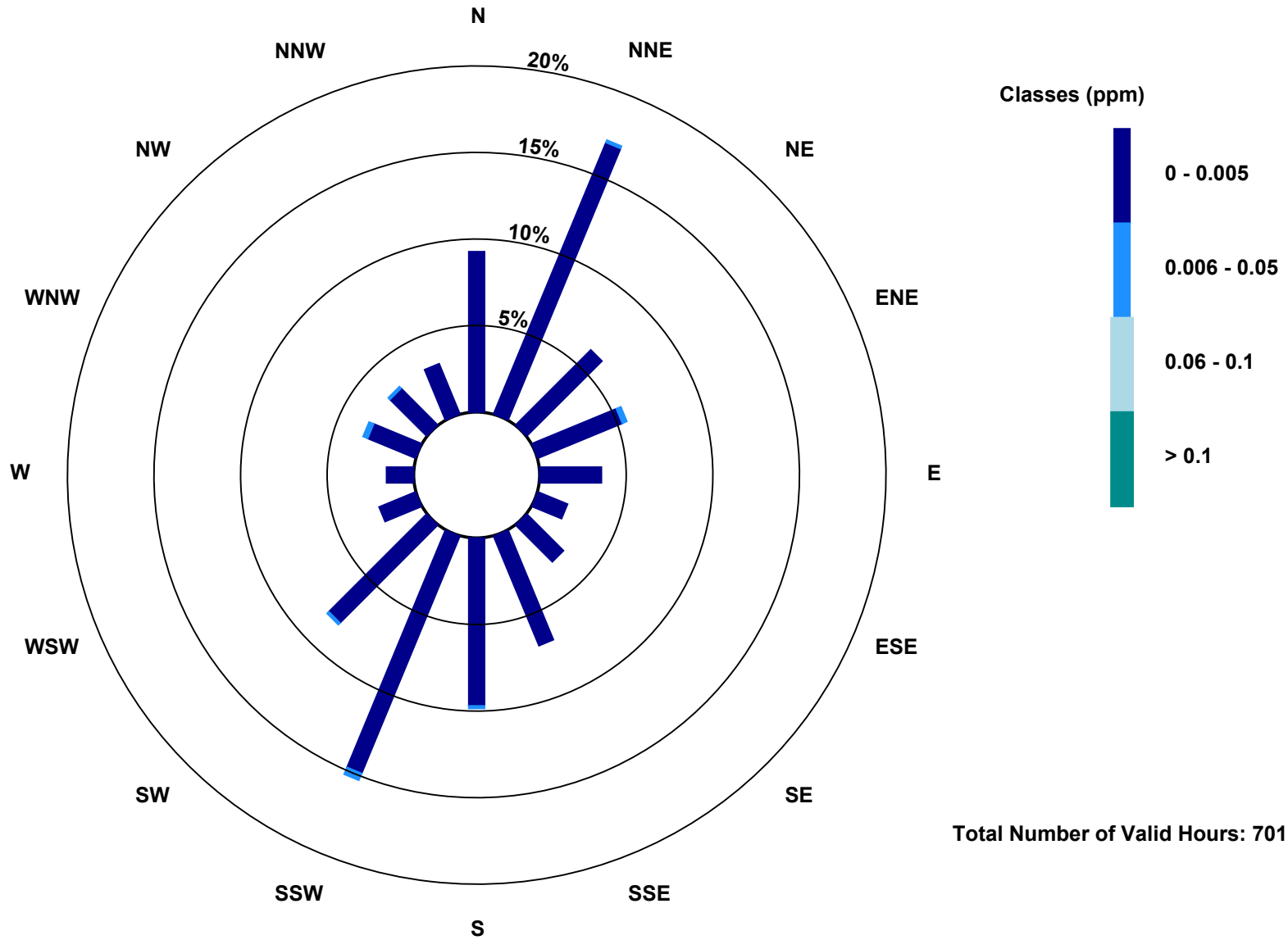
Total Number of Valid Hours: 701

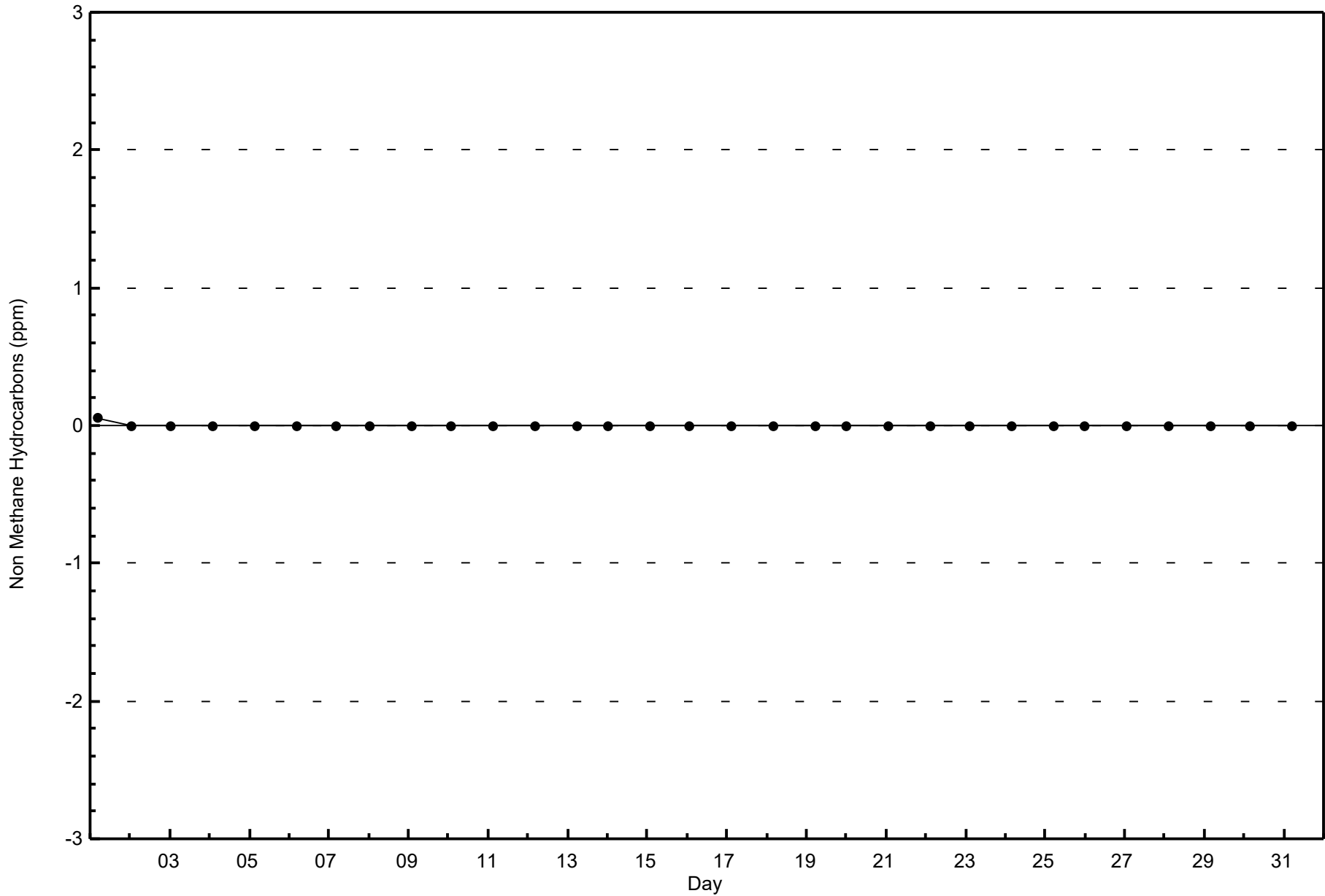
Total Number of Hours: 744

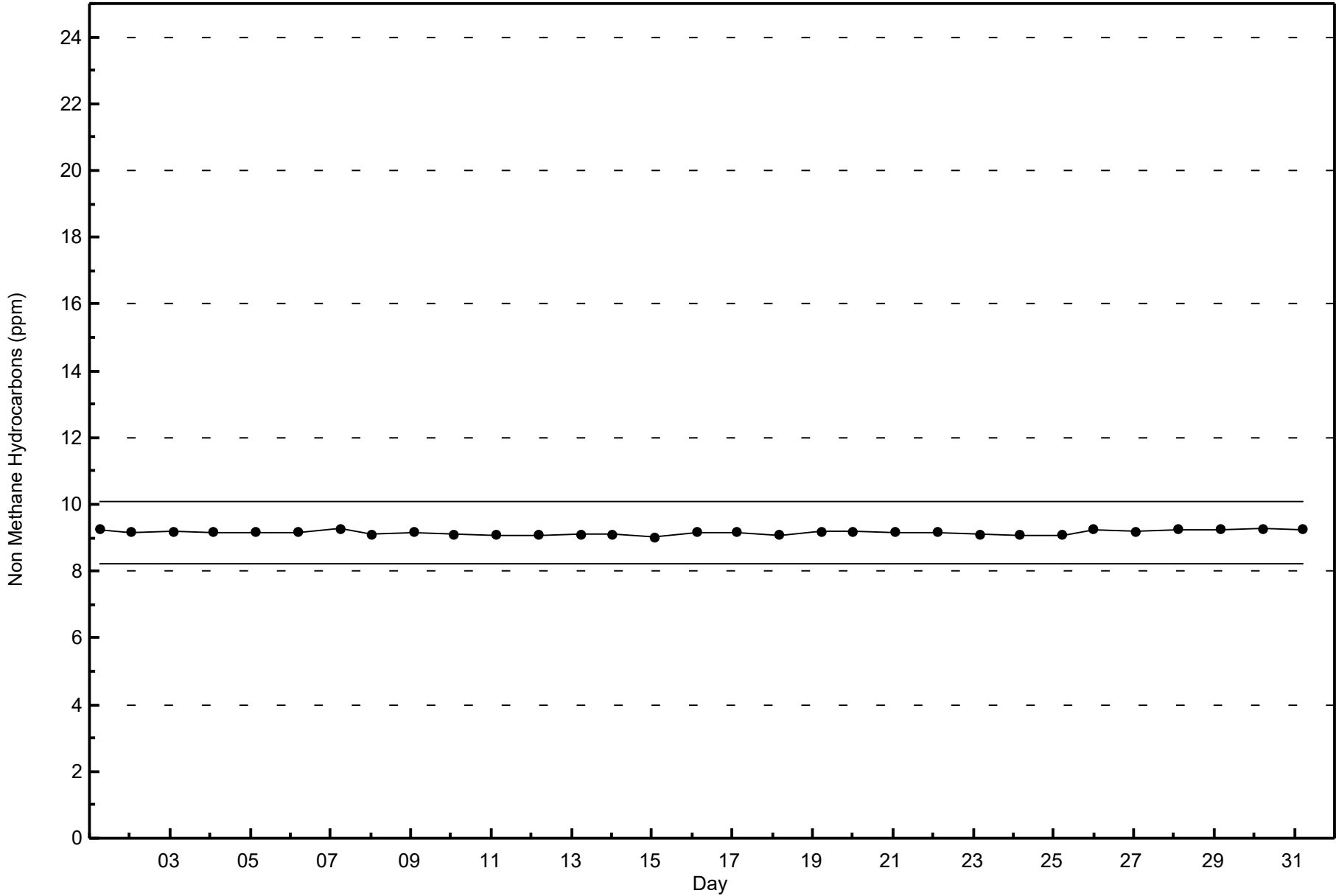


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Janvier









Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

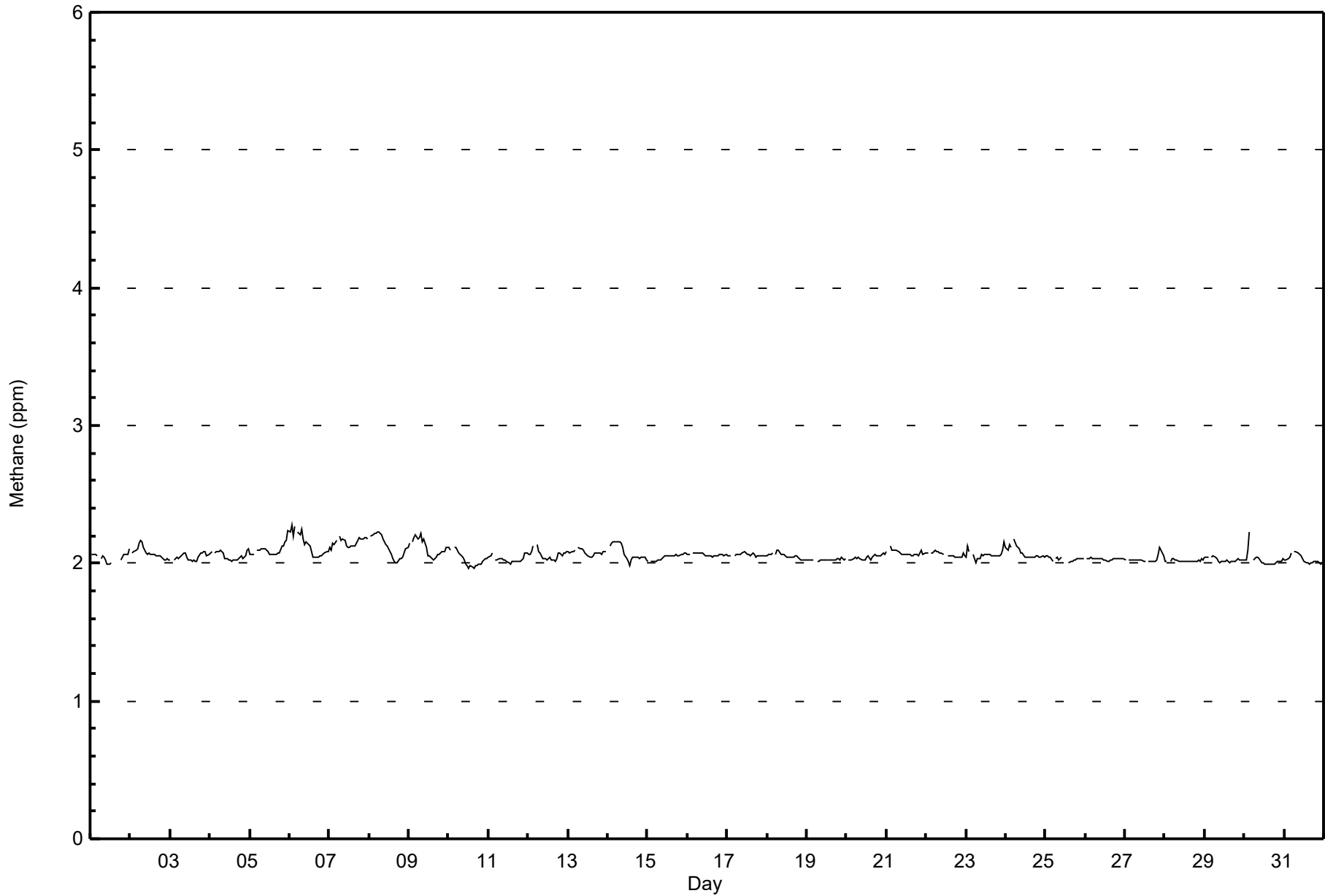
Janvier - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 701																												
Maximum Value: 2.3 ppm on Mar 6 02:00		Maximum Daily Average: 2.2 ppm on Mar 7		Hours of Missing Data: 43																	Hours of Calibration: 36																												
Minimum Value: 2.0 ppm on Mar 10 16:00		Minimum Daily Average: 2.0 ppm on Mar 28		Hours of Calibration: 36																	Percent Operational Time: 99.1																												
Maximum Diurnal Average: 2.1 ppm at hour 4		Minimum Diurnal Average: 2.0 ppm at hour 15		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.2																																													
Monthly Average: 2.06 ppm																																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	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	C	C	C	C	C	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1																							
2-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2																						
3-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1																						
4-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1																						
5-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2																						
6-Mar	2.2	2.3	2.2	2.3	Z	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																						
7-Mar	2.1	2.1	2.2	2.1	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																						
8-Mar	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2																						
9-Mar	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																						
10-Mar	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	2.0	2.1																						
11-Mar	2.0	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1																						
12-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
13-Mar	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
14-Mar	Z	2.1	2.1	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	2.0	2.0	2.0	2.0	2.2																						
15-Mar	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
16-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
17-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
18-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
19-Mar	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																						
20-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
21-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
22-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	M	M	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																						
23-Mar	2.0	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2																						
24-Mar	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.2																						
25-Mar	2.1	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	M	M	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
26-Mar	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Mar	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	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1																						
28-Mar	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																						
29-Mar	2.0	2.0	2.0	Z	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
30-Mar	2.0	2.0	2.1	2.2	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
31-Mar	2.0	2.0	2.0	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
																								2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	Diurnal Average		
																								2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Janvier - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Janvier - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	338	48.22	48.22
2.1 - 3.0	363	51.78	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 (CH₄) - ppm
Janvier - March 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	44	51	19	16	16	8	13	39	32	20	17	10	8	19	10	16	338
2.1 - 3.0	21	69	24	23	9	5	8	9	37	87	40	6	3	4	12	6	363
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
Totals	65	120	43	39	25	13	21	48	69	107	57	16	11	23	22	22	701

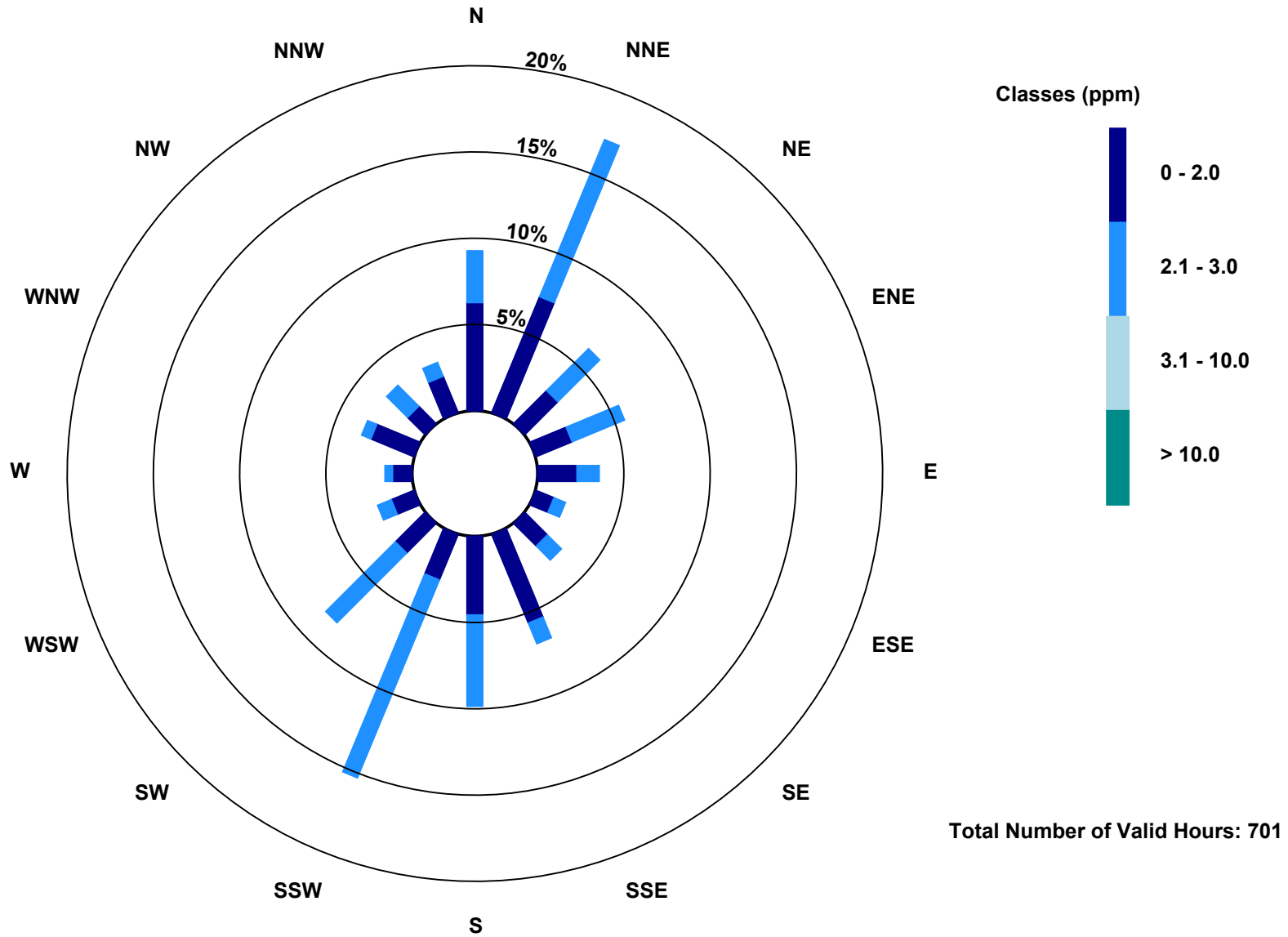
Total Number of Valid Hours: 701

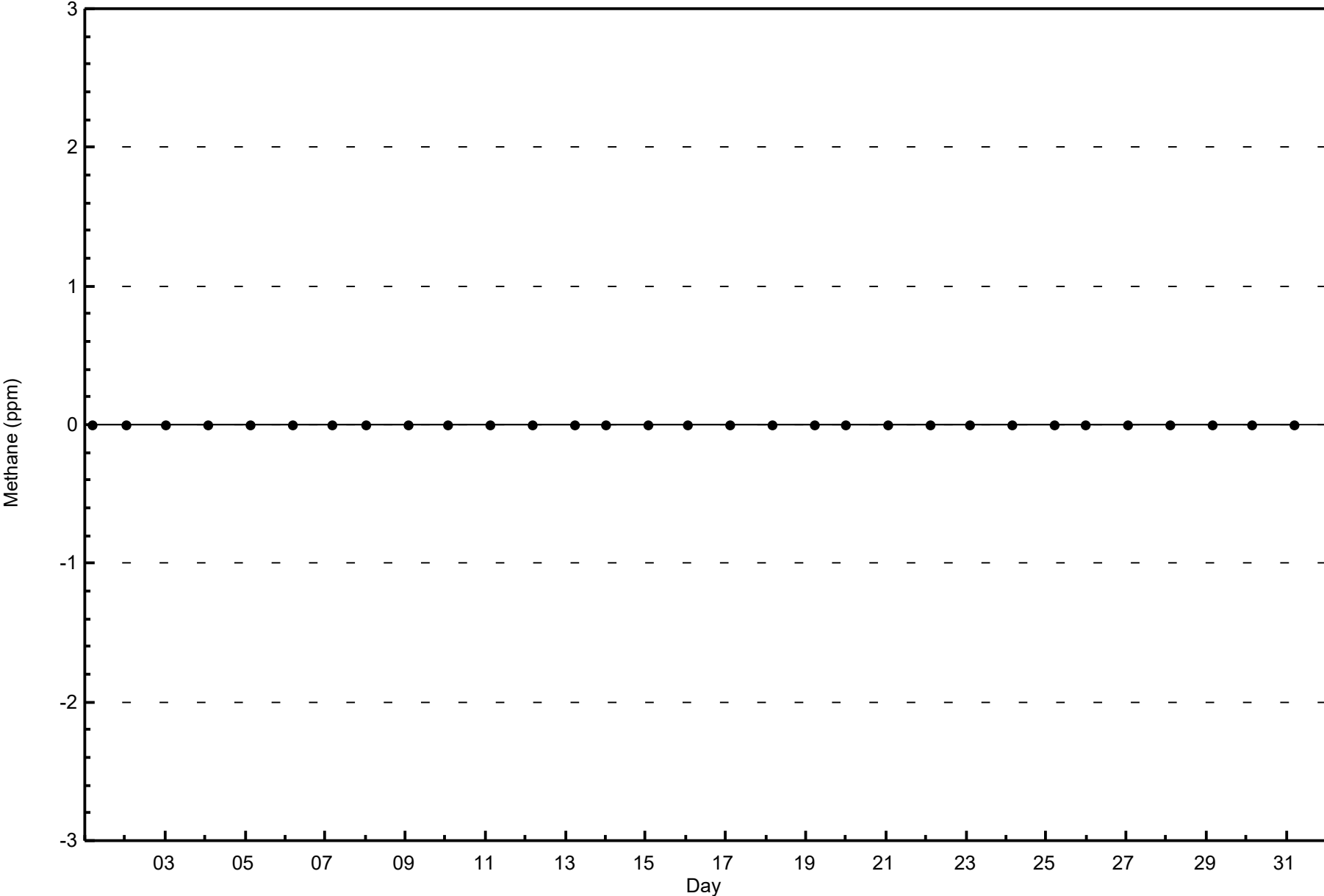
Total Number of Hours: 744

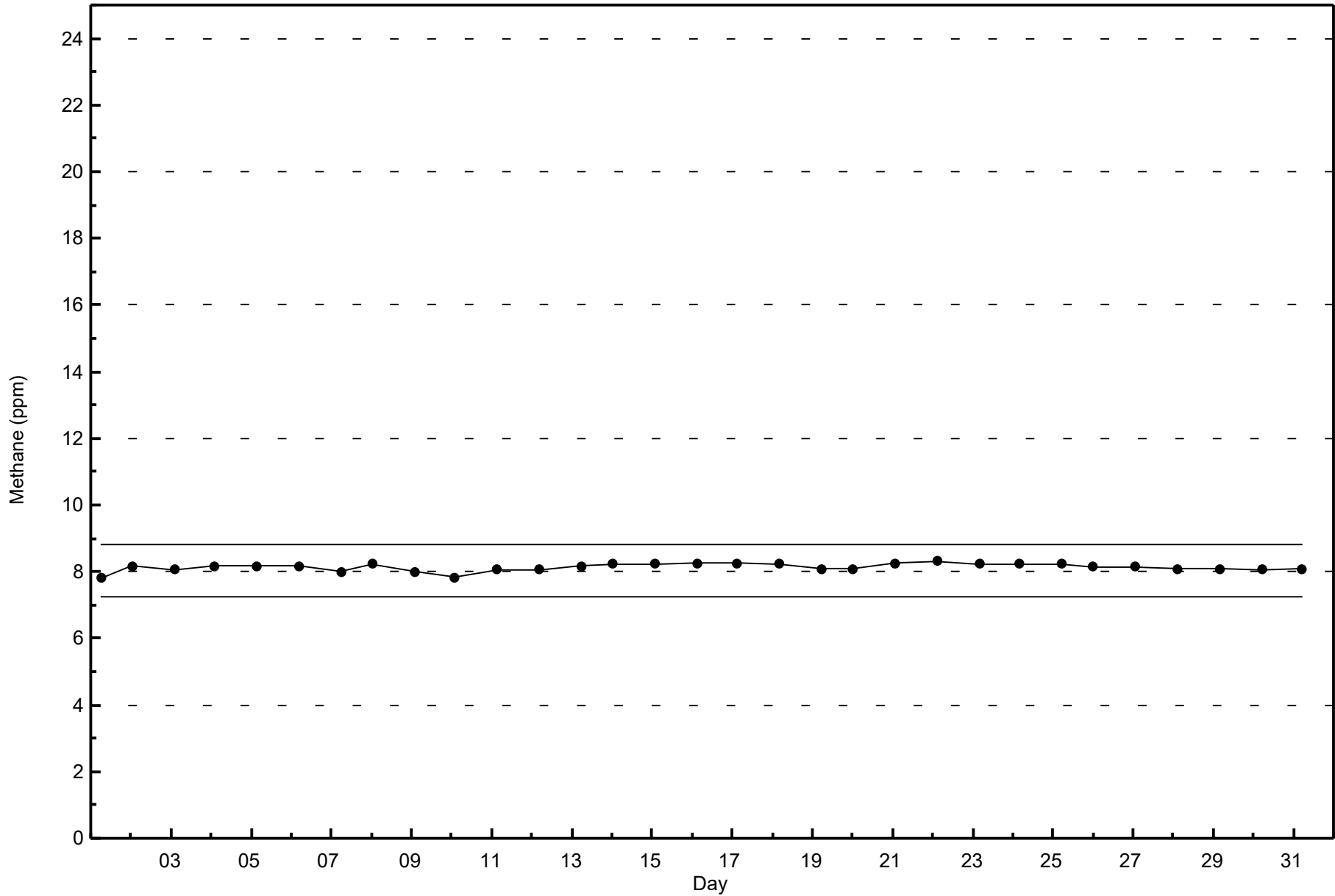


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Janvier







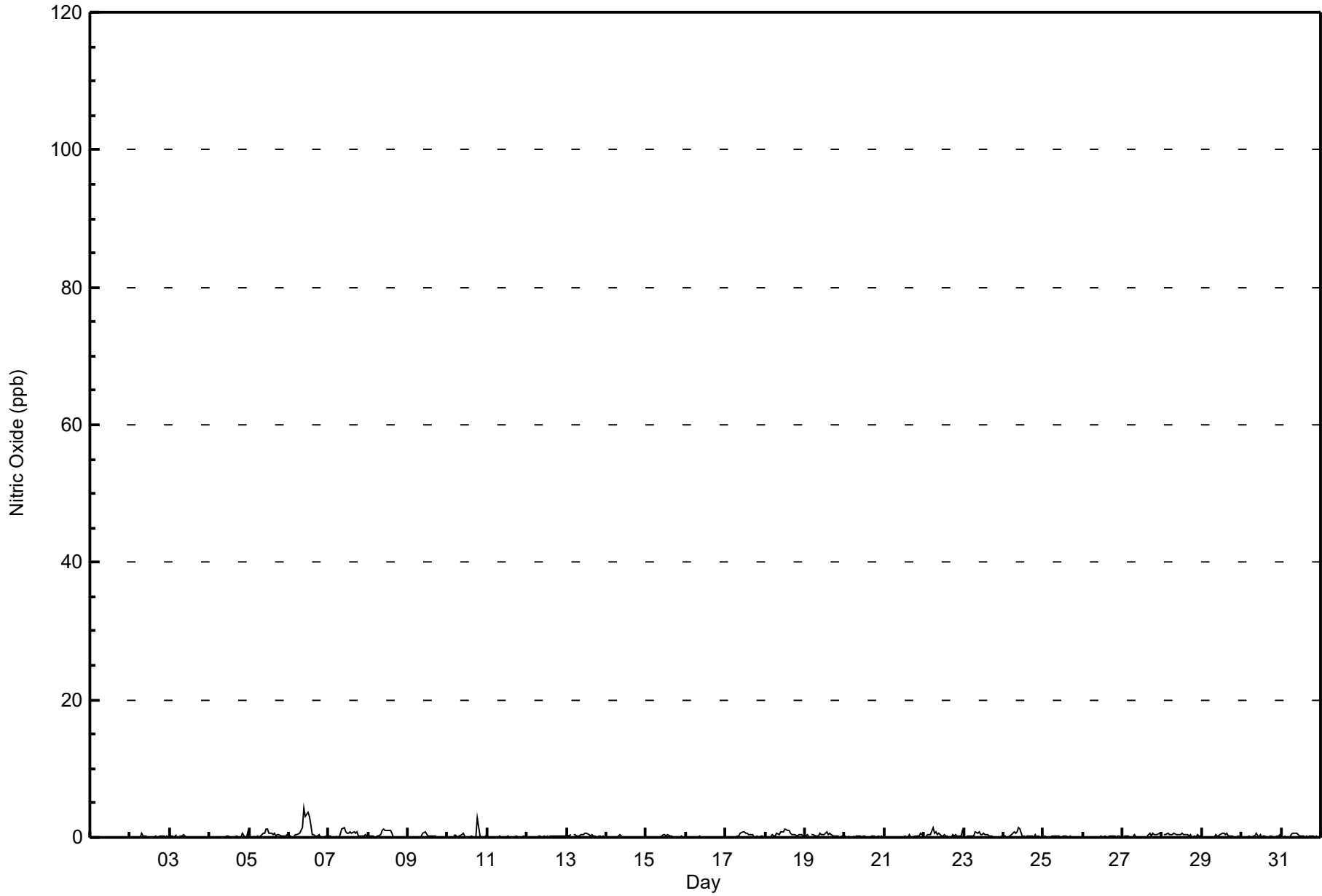


Maximum Value: 4.4 ppb on Mar 6 10:00		Maximum Daily Average: 1.0 ppb on Mar 6		Hours in Service: 744																																																		
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 1		Hours of Data: 708																																																		
Maximum Diurnal Average: 0.5 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Missing Data: 36																																																		
Monthly Average: 0.23 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 1.5		Hours of Calibration: 36																																																		
				Percent Operational Time: 100.0																																																		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																														
1-Mar	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.6	0.2	0.2	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.1	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	0.6																					
3-Mar	0.2	0.2	0.0	0.2	0.5	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																					
4-Mar	Z	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	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.8																					
5-Mar	0.0	Z	0.2	0.0	0.1	0.2	0.0	0.3	0.5	0.6	1.2	1.2	0.6	0.6	0.4	0.5	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.2																					
6-Mar	0.1	0.2	Z	0.2	0.3	0.4	0.5	1.0	1.5	4.4	3.0	3.6	3.0	1.9	0.5	0.5	0.3	0.1	0.3	0.0	0.0	0.1	0.1	0.2	1.0	0.0	0.0	0.0	0.0	0.0	0.1	4.4																						
7-Mar	0.1	0.1	0.0	Z	0.2	0.1	0.0	0.3	1.3	1.4	0.8	0.6	0.7	0.8	0.6	0.7	0.7	0.8	0.2	0.1	0.2	0.2	0.4	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4																					
8-Mar	0.3	0.2	0.3	0.3	Z	0.2	0.1	0.4	0.9	1.2	1.0	0.9	1.1	1.0	0.6	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	1.2																						
9-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.5	0.8	0.5	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	0.0	0.0	0.0	0.0	0.0	0.0	0.8																						
10-Mar	Z	0.0	0.0	0.0	0.4	0.1	0.0	0.2	0.4	0.5	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	2.9	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.2	2.9																						
11-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.2	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	0.2																					
12-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.0	0.2	0.0	0.1	0.1	0.2	0.3	0.1	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3																					
13-Mar	0.5	0.3	0.4	Z	0.4	0.3	0.2	0.1	0.5	0.4	0.4	0.6	0.6	0.3	0.3	0.4	0.3	0.2	0.1	0.2	0.1	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
14-Mar	0.0	0.0	0.0	0.0	Z	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	0.0	0.0	0.0	0.0	0.0	0.4	0.4																					
15-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.3	0.1	0.3	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4																				
16-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	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	0.3	0.3																					
17-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.6	0.8	0.9	0.7	0.6	0.4	0.5	0.3	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9																					
18-Mar	0.0	0.1	Z	0.2	0.3	0.3	0.2	0.5	0.5	0.8	0.8	0.9	1.3	0.9	1.1	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3																					
19-Mar	0.2	0.4	0.2	Z	0.4	0.3	0.3	0.1	0.1	0.5	0.4	0.5	0.7	0.7	0.5	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7																					
20-Mar	0.3	0.1	0.0	0.1	Z	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3																					
21-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.1	0.1	0.2	0.2	0.3	0.3	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
22-Mar	Z	0.2	0.4	0.4	0.3	1.5	0.6	0.8	0.5	0.5	0.2	0.3	0.4	0.3	0.3	0.1	0.1	0.4	0.3	0.5	0.2	0.3	0.2	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.5	1.5																					
23-Mar	0.4	Z	0.2	0.2	0.3	0.1	0.2	0.8	0.6	0.7	0.5	0.4	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8																					
24-Mar	0.2	0.1	Z	0.3	0.2	0.3	0.8	0.6	0.8	1.4	1.3	0.0	0.1	0.0	0.2	0.2	0.2	0.1	0.0	0.3	0.0	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4																					
25-Mar	0.1	0.1	0.0	Z	0.0	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2																					
26-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.2	0.1	0.0	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3																					
27-Mar	0.0	0.3	0.2	0.2	0.3	Z	0.2	0.3	0.1	0.0	C	C	C	C	C	0.1	0.6	0.2	0.5	0.4	0.4	0.5	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
28-Mar	Z	0.5	0.4	0.5	0.4	0.4	0.3	0.6	0.5	0.3	0.3	0.5	0.6	0.5	0.5	0.3	0.3	0.3	0.0	0.3	0.0	0.3	0.2	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
29-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.4	0.6	0.6	0.4	0.5	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
30-Mar	0.0	0.0	Z	0.0	0.2	0.0	0.0	0.1	0.2	0.6	0.0	0.5	0.0	0.3	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6																					
31-Mar	0.0	0.0	0.1	Z	0.0	0.1	0.3	0.5	0.7	0.6	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7																					
																												0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.4	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	Diurnal Average	
																												0.5	0.5	0.4	0.5	0.5	1.5	0.8	1.0	1.5	4.4	3.0	3.6	3.0	1.9	1.1	0.7	0.7	0.8	2.9	0.5	0.6	0.5	0.6	0.9	Diurnal Maximum		
Z - zerospan C - Calibration																																																						



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Janvier - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Janvier - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Janvier - March 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	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708
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
Totals	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708

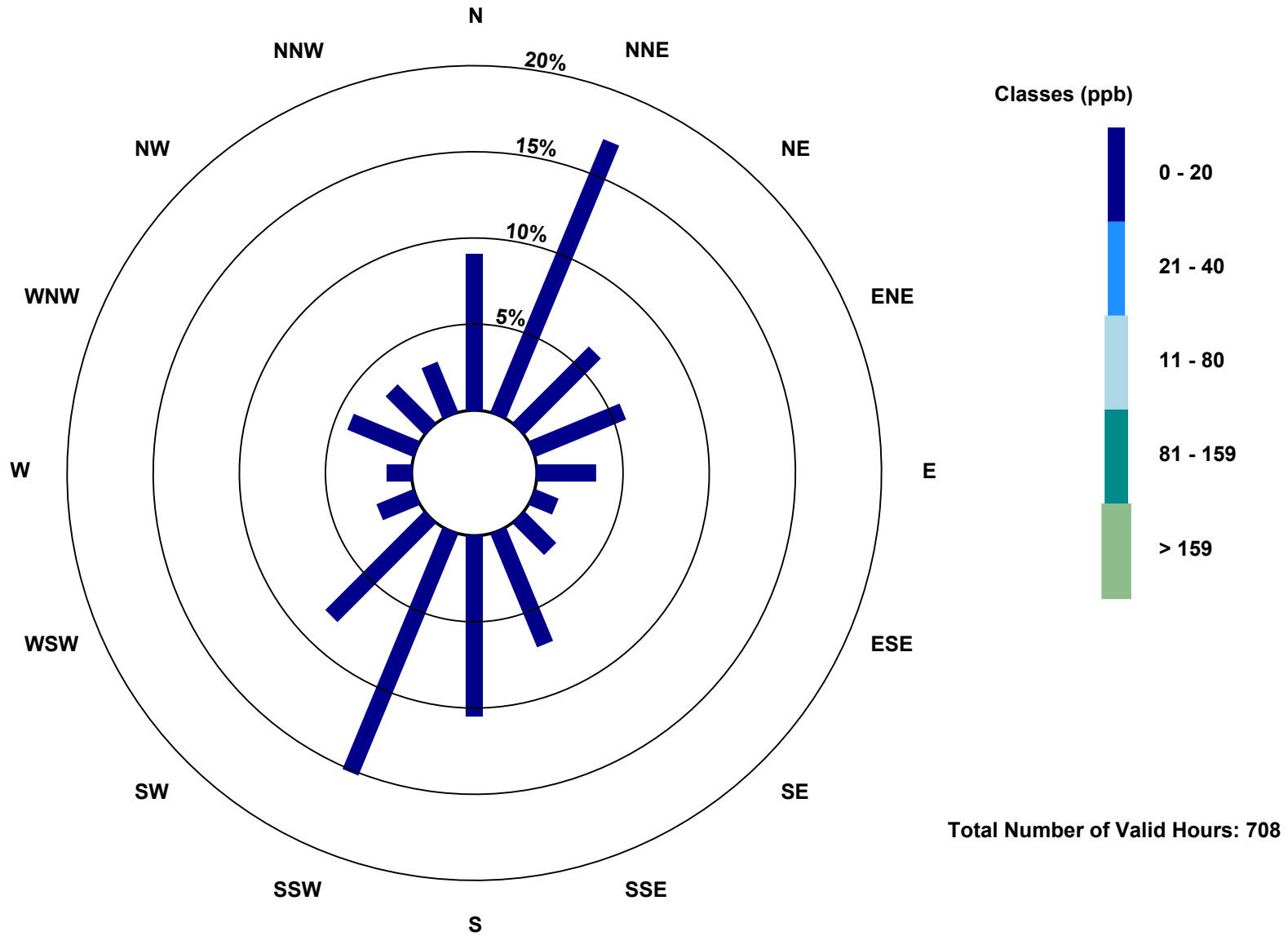
Total Number of Valid Hours: 708

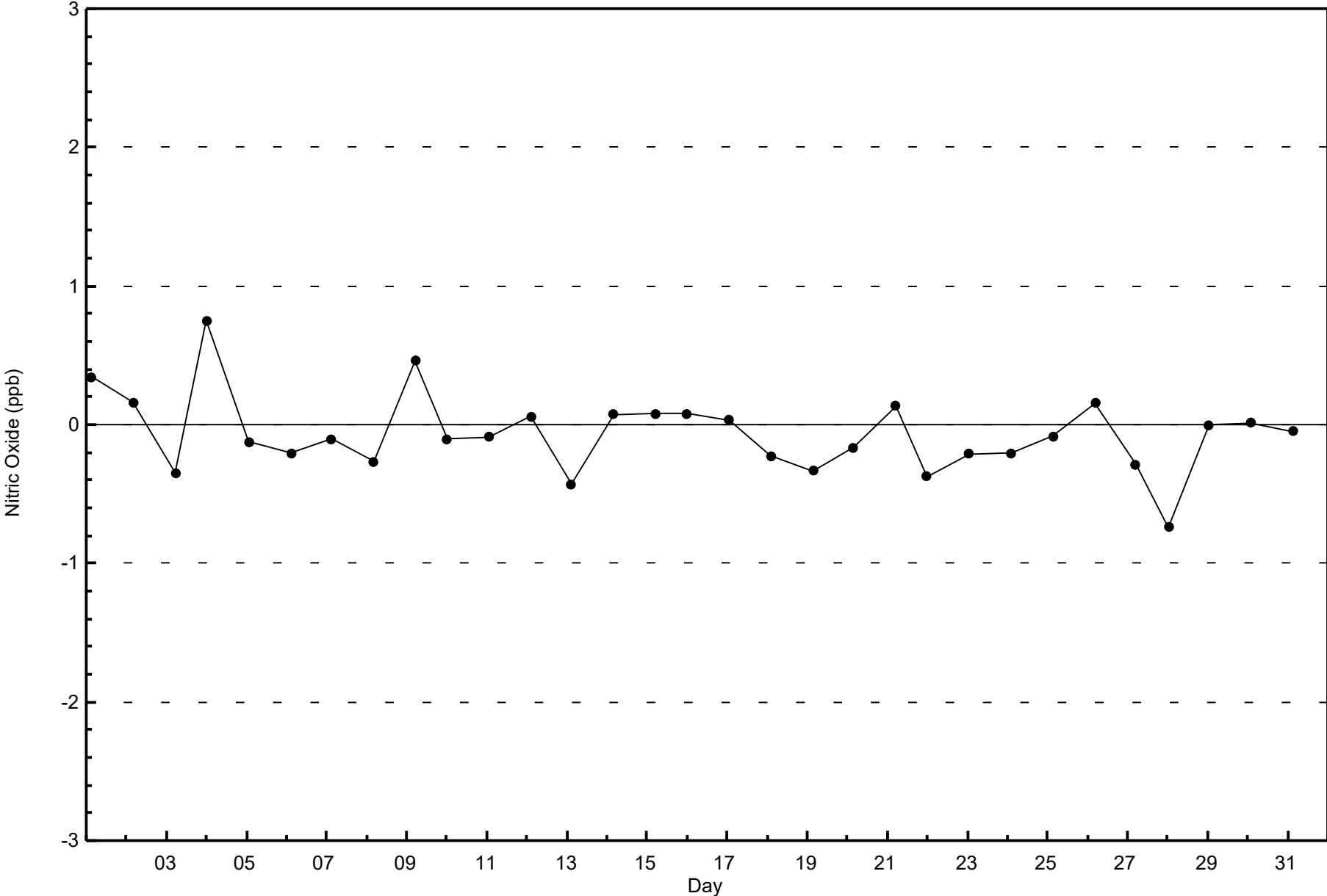
Total Number of Hours: 744

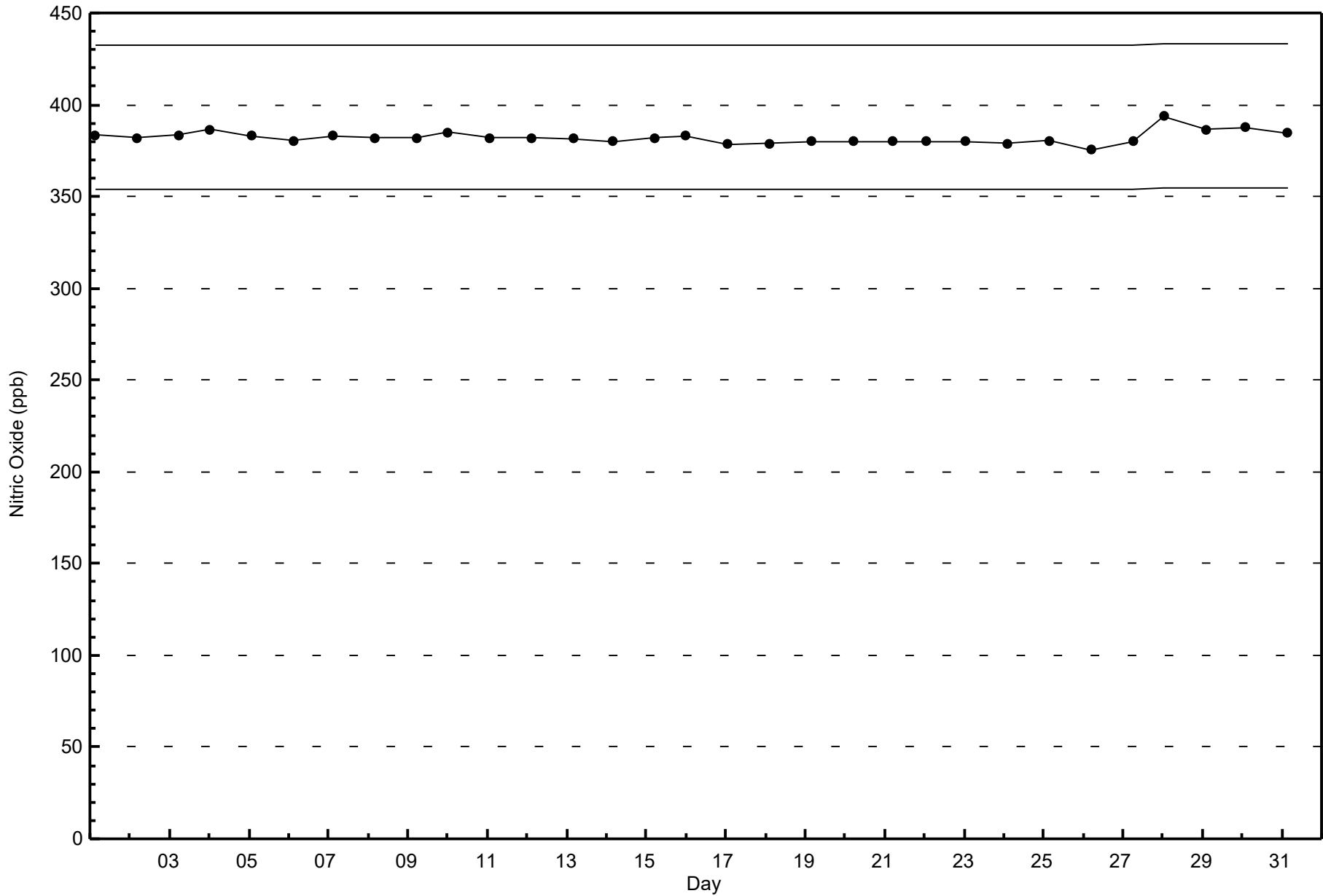


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Janvier









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

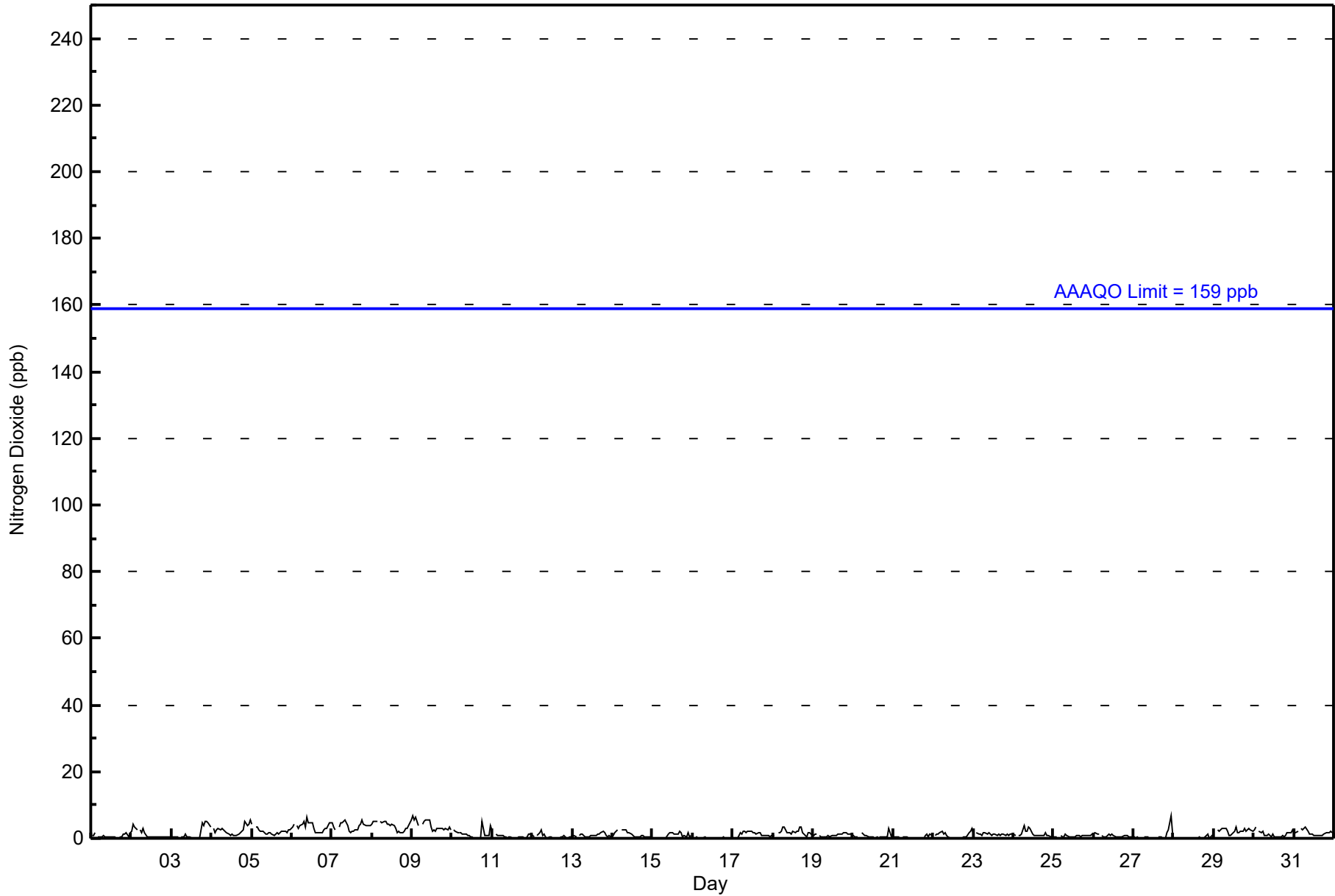
Janvier - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 6.8 ppb on Mar 9 01:00		Maximum Daily Average: 3.9 ppb on Mar 9														Hours of Data:		708								
Minimum Value: 0.0 ppb on Mar 3 13:00		Minimum Daily Average: 0.1 ppb on Mar 16														Hours of Missing Data:		36								
Maximum Diurnal Average: 1.9 ppb at hour 6		Minimum Diurnal Average: 0.9 ppb at hour 15														Hours of Calibration:		36								
Monthly Average: 1.45 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.2 Q ₁ = 0.4 Median = 1.0 Q ₃ = 2.0 P ₉₀ = 3.4 P ₉₉ = 5.5														Percent Operational Time:		100.0								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	1.0	0.9	1.6	Z	0.5	0.5	0.4	0.9	0.6	0.6	0.4	0.3	0.4	0.3	0.2	0.1	0.3	0.6	1.1	1.4	1.6	0.6	1.6	0.7	1.6	
2-Mar	2.3	4.1	3.2	2.4	Z	2.4	1.5	2.8	1.6	0.6	0.4	0.4	0.3	0.5	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.3	0.4	0.3	1.2	4.1
3-Mar	0.3	0.4	0.5	0.5	0.3	Z	0.6	0.4	1.3	0.4	0.4	0.3	0.0	0.1	0.0	0.2	0.0	0.2	4.6	3.9	5.0	5.1	4.6	3.6	1.4	5.1
4-Mar	Z	2.8	1.9	2.6	3.1	2.4	2.8	2.7	2.2	1.9	1.4	1.0	1.1	1.0	0.9	1.0	1.1	1.5	2.0	2.6	5.0	3.8	4.2	5.3	2.4	5.3
5-Mar	4.1	Z	3.5	3.2	2.7	2.2	2.2	2.0	1.4	1.3	1.6	1.7	1.1	1.0	1.1	1.6	1.4	1.9	2.2	2.0	2.1	1.7	2.4	2.7	2.0	4.1
6-Mar	3.5	4.1	Z	4.0	2.9	3.7	4.2	5.2	3.3	6.3	4.8	4.5	4.5	3.1	1.5	1.7	1.8	1.8	1.9	2.4	3.1	3.1	4.7	4.5	3.5	6.3
7-Mar	4.8	3.3	2.6	Z	3.4	4.6	4.7	5.2	5.5	3.9	2.0	1.8	2.0	2.1	2.4	2.7	3.9	4.4	5.6	4.3	3.8	4.0	4.0	3.8	3.7	5.6
8-Mar	4.3	5.0	5.0	5.2	Z	5.2	4.8	4.9	5.1	4.4	4.3	4.0	4.1	3.9	3.1	1.6	2.1	1.9	1.8	2.2	2.8	3.0	4.0	5.4	3.8	5.4
9-Mar	6.8	5.7	6.3	5.2	4.0	Z	4.3	4.9	5.5	5.3	5.3	3.3	2.3	2.6	2.3	2.8	3.0	2.9	3.0	2.7	2.9	2.6	3.3	2.6	3.9	6.8
10-Mar	Z	2.7	2.2	1.9	1.8	1.5	1.3	1.3	1.4	1.0	0.7	0.4	0.4	0.2	0.1	0.1	0.0	0.0	5.1	1.0	0.9	0.9	0.9	3.9	1.3	5.1
11-Mar	2.5	Z	1.3	1.0	0.9	0.8	0.8	0.4	0.4	0.2	0.5	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.1	0.0	0.3	1.4	1.4	0.6	2.5
12-Mar	0.8	0.6	Z	1.0	1.9	2.5	0.8	1.2	0.4	0.2	0.3	0.4	0.2	0.2	0.2	0.1	0.2	0.4	0.3	0.8	0.2	0.2	0.3	0.6	0.6	2.5
13-Mar	0.9	0.9	0.6	Z	1.0	1.3	1.2	0.5	0.3	0.3	0.5	0.8	0.8	0.7	0.8	1.1	1.4	1.9	2.1	1.5	0.9	0.4	0.7	0.5	0.9	2.1
14-Mar	0.9	1.6	2.2	2.5	Z	2.5	2.4	2.7	2.5	1.9	1.6	1.3	0.8	0.4	0.4	0.5	0.9	0.8	0.5	0.4	0.5	0.5	0.1	1.2	2.7	2.7
15-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	1.4	1.6	1.6	1.6	1.4	1.2	1.4	2.0	1.8	0.5	0.8	0.4	1.5	0.6	0.7	0.8	2.0
16-Mar	Z	0.2	0.3	0.1	0.0	0.1	0.2	0.5	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.5	0.0	0.0	0.1	0.1	0.1	0.1	0.5
17-Mar	0.3	Z	0.1	0.2	1.6	1.4	2.1	2.1	1.7	2.0	2.2	2.2	1.9	1.6	1.4	1.5	1.7	1.0	0.9	0.8	0.7	0.7	0.6	0.7	1.3	2.2
18-Mar	0.8	0.9	Z	1.5	1.8	2.3	3.4	3.2	1.8	1.6	1.5	1.2	2.0	1.7	2.1	2.2	3.3	3.5	1.9	0.8	0.6	1.7	1.7	1.1	1.9	3.5
19-Mar	0.9	1.2	1.3	Z	1.0	0.6	0.4	0.5	0.5	0.7	0.6	0.8	0.9	1.0	1.0	1.2	1.4	1.3	1.5	1.5	1.6	1.1	1.1	1.2	1.0	1.6
20-Mar	1.0	0.4	0.4	0.4	Z	1.8	1.2	0.7	0.7	0.6	0.4	0.4	0.3	0.2	0.3	0.2	0.4	0.3	0.3	0.6	0.5	2.8	1.8	0.3	0.7	2.8
21-Mar	0.5	0.6	0.6	0.5	0.2	Z	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.2	0.8	1.1	0.5	1.3	0.9	0.4	1.3
22-Mar	Z	1.0	1.1	1.1	1.5	2.3	1.3	1.5	0.8	0.4	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.4	1.8	2.0	3.0	0.9	3.0
23-Mar	1.3	Z	1.5	1.2	1.1	1.0	1.8	1.9	1.4	1.5	1.2	0.9	1.2	1.2	1.0	1.1	1.0	1.1	1.3	0.9	1.1	0.9	1.4	1.2	1.2	1.9
24-Mar	1.1	0.9	Z	1.0	0.8	1.3	4.0	2.1	2.2	3.6	3.1	1.1	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.5	1.0	0.7	0.5	0.4	1.4	4.0
25-Mar	0.6	0.6	0.3	Z	0.9	0.5	0.4	1.1	0.8	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.6	1.0	0.8	0.8	0.9	0.7	0.9	1.1	0.7	1.1
26-Mar	1.3	1.6	1.4	1.2	Z	0.9	0.4	0.6	0.8	1.2	0.8	1.2	0.7	0.5	0.5	0.3	0.5	0.6	0.9	0.7	0.7	0.4	0.4	0.4	0.8	1.6
27-Mar	0.3	0.2	0.3	0.0	0.1	Z	0.5	0.5	0.3	0.5	C	C	C	C	C	0.4	0.4	0.1	0.1	0.0	1.9	2.6	6.7	1.7	0.9	6.7
28-Mar	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.3	0.2	0.0	0.0	0.8	1.1	0.0	0.3	1.0	0.2	1.1
29-Mar	1.1	Z	2.7	2.3	2.4	3.1	3.0	2.9	2.0	1.0	1.0	1.1	2.1	3.6	1.8	1.6	2.1	2.1	2.8	2.3	2.6	2.8	2.7	2.1	2.2	3.6
30-Mar	2.5	3.2	Z	2.3	1.7	2.0	0.9	0.7	1.0	1.2	0.4	1.2	0.6	0.5	0.3	0.5	0.5	0.7	0.6	1.0	1.5	1.6	1.5	2.5	1.3	3.2
31-Mar	1.7	1.9	2.2	Z	3.1	2.6	2.9	3.4	2.3	1.3	1.2	1.1	1.0	0.9	0.7	0.8	0.9	0.8	1.2	1.6	1.9	1.6	2.0	1.7	1.7	3.4
1.8 1.7 1.7 1.7 1.5 1.9 1.8 1.8 1.6 1.5 1.3 1.1 1.1 1.0 0.9 0.9 1.0 1.1 1.5 1.3 1.5 1.6 1.9 1.8																								Diurnal Average		
6.8 5.7 6.3 5.2 4.0 5.2 4.8 5.2 5.5 6.3 5.3 4.5 4.5 3.9 3.1 2.8 3.9 4.4 5.6 4.3 5.0 5.1 6.7 5.4																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Janvier - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Janvier - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Janvier - March 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	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708
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
Totals	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708

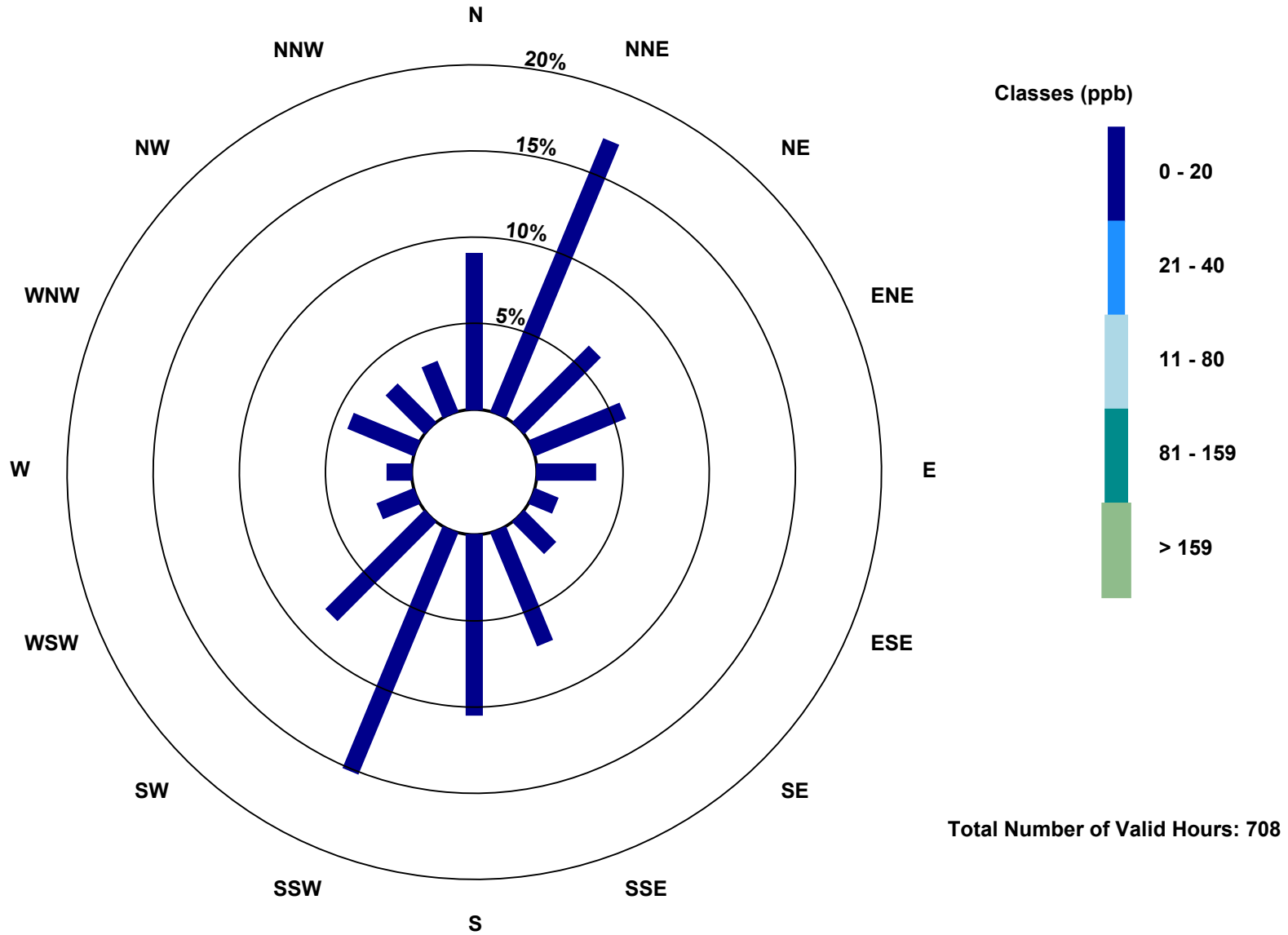
Total Number of Valid Hours: 708

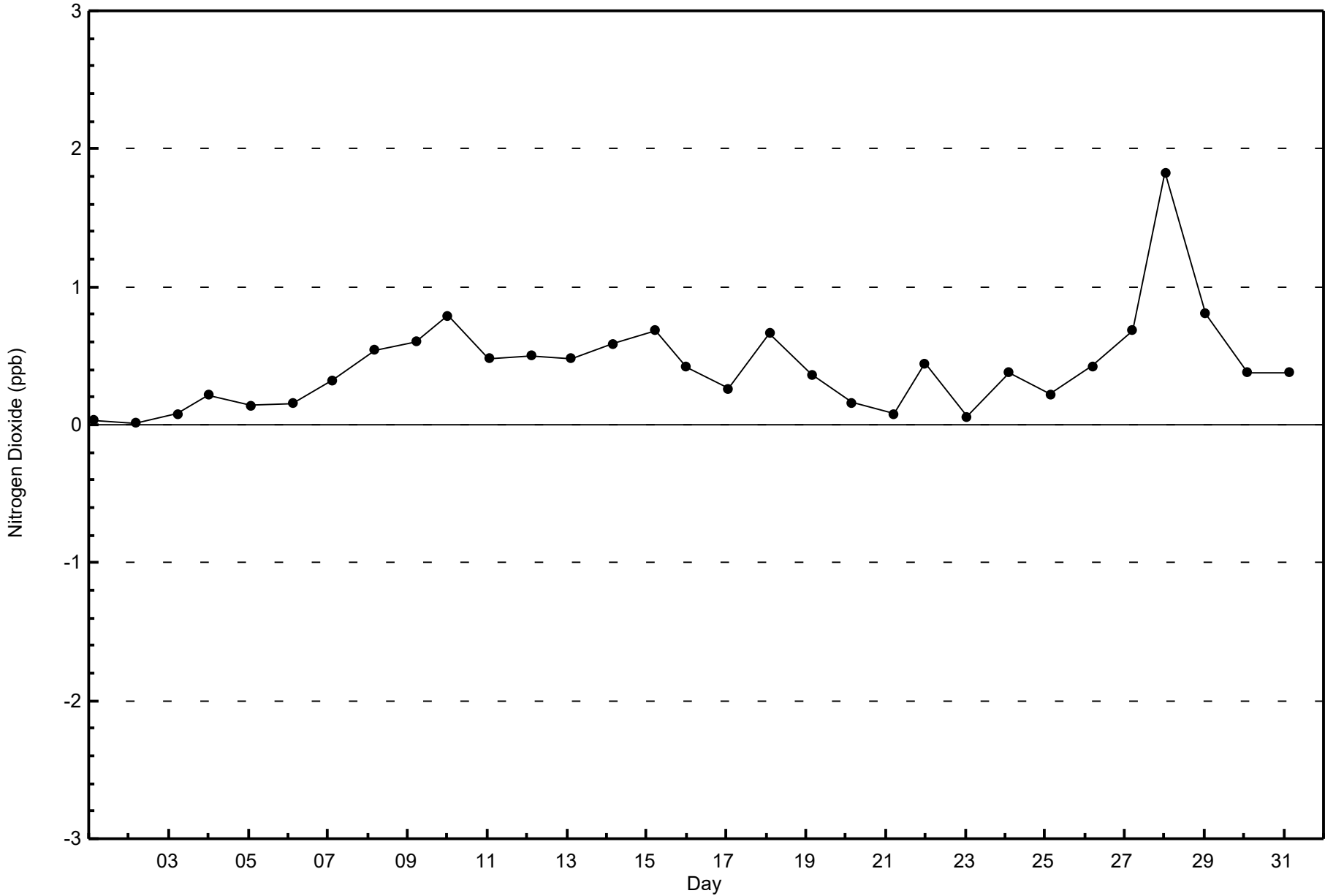
Total Number of Hours: 744

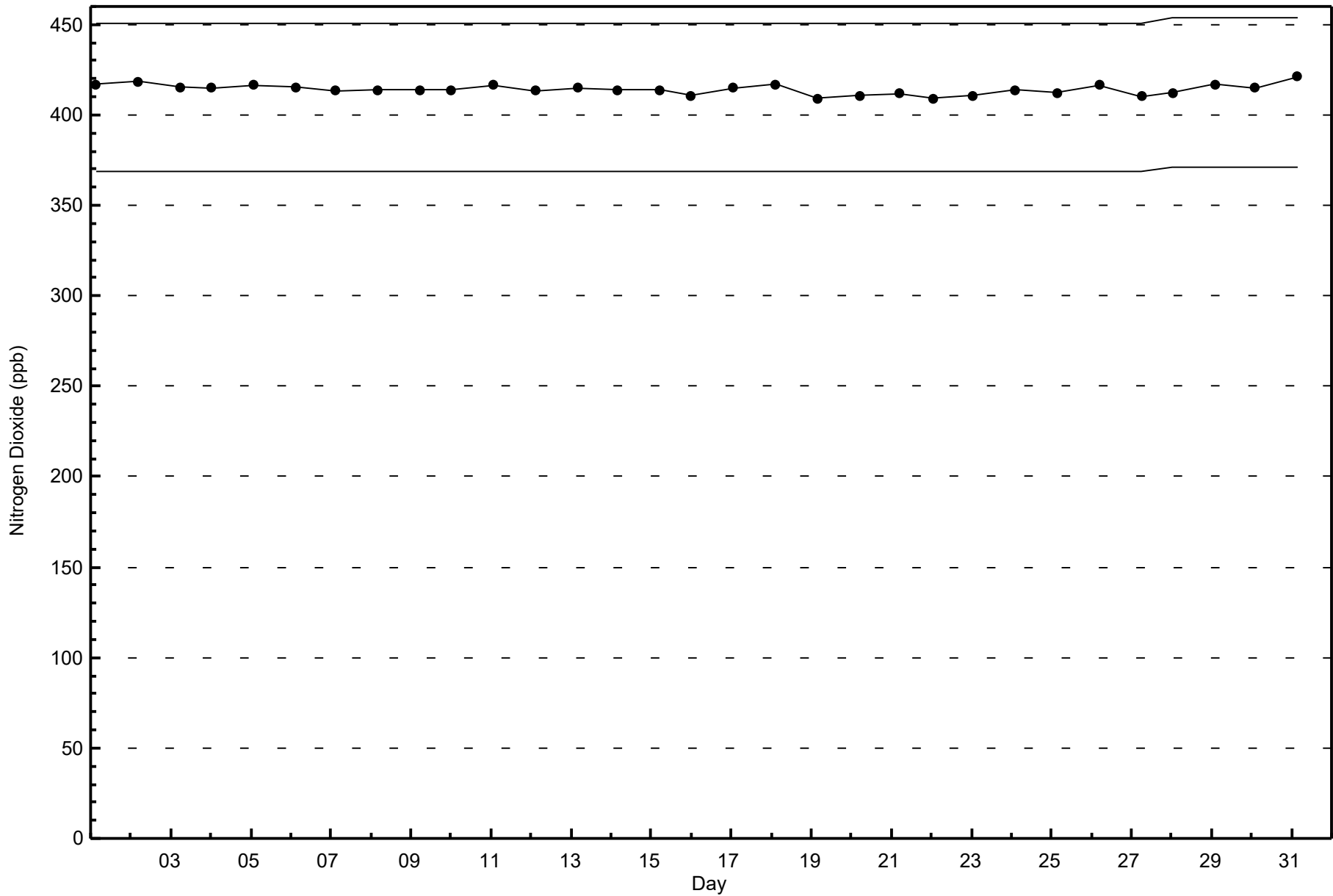


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Janvier







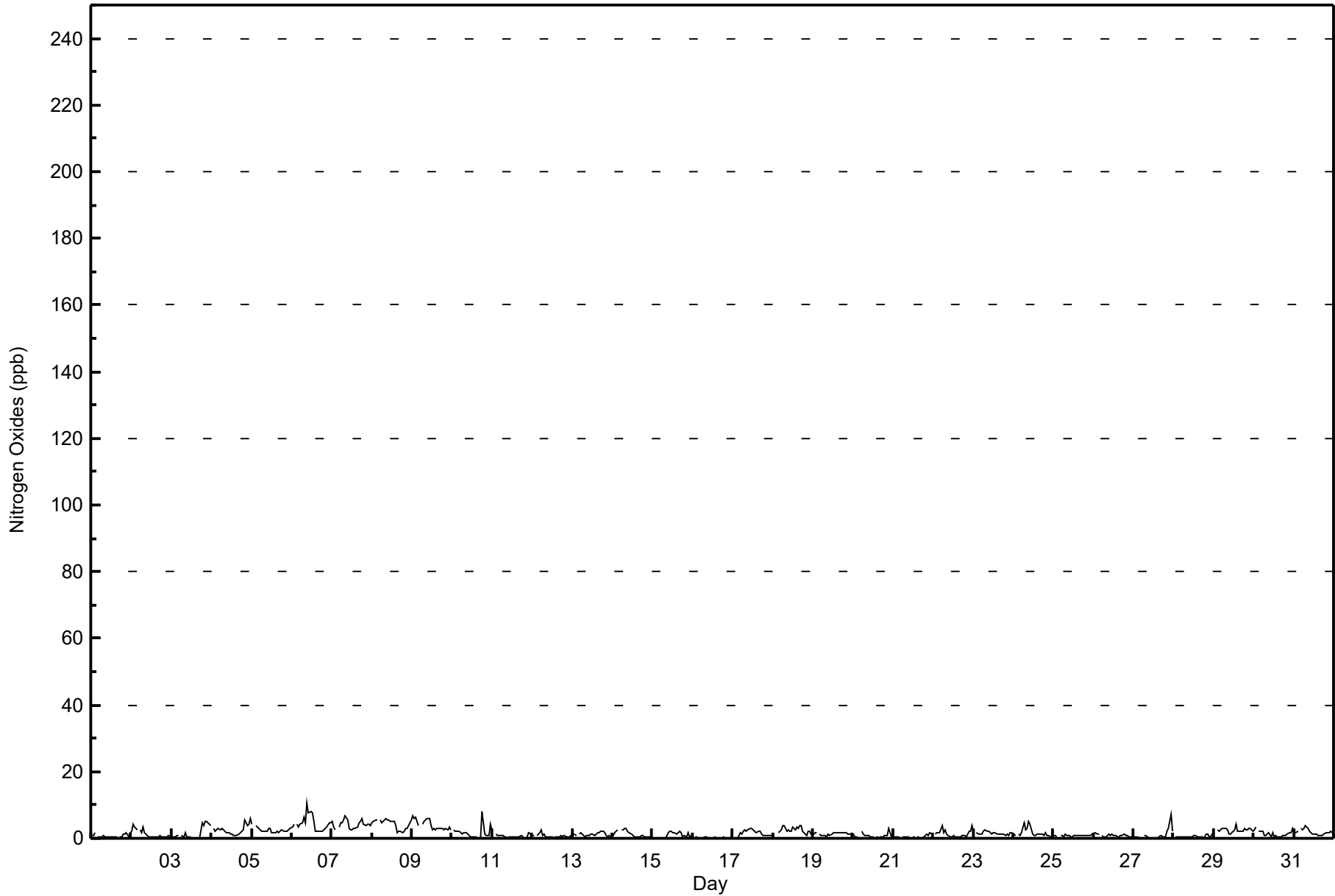


Maximum Value: 10.7 ppb on Mar 6 10:00		Maximum Daily Average: 4.5 ppb on Mar 6		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Mar 3 13:00		Minimum Daily Average: 0.2 ppb on Mar 16		Hours of Data: 708																																													
Maximum Diurnal Average: 2.1 ppb at hour 8		Minimum Diurnal Average: 1.1 ppb at hour 16		Hours of Missing Data: 36																																													
Monthly Average: 1.67 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 1.2 Q ₃ = 2.3 P ₉₀ = 3.9 P ₉₉ = 6.7		Hours of Calibration: 36																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	1.0	0.9	1.7	Z	0.5	0.5	0.4	0.9	0.6	0.6	0.4	0.3	0.4	0.3	0.2	0.1	0.3	0.6	1.1	1.4	1.6	0.6	1.6	0.7	1.7																								
2-Mar	2.3	4.1	3.3	2.4	Z	2.4	1.5	3.4	1.8	0.8	0.4	0.5	0.3	0.5	0.5	0.6	0.4	0.7	0.5	0.5	0.5	0.4	0.7	0.4	1.3	4.1																							
3-Mar	0.5	0.6	0.5	0.7	0.8	Z	0.7	0.6	1.7	0.5	0.4	0.3	0.0	0.1	0.0	0.2	0.0	0.2	4.6	3.9	5.0	5.1	4.6	3.6	1.5	5.1																							
4-Mar	Z	2.8	1.9	2.6	3.1	2.4	2.8	2.7	2.2	1.9	1.5	1.2	1.1	1.0	0.9	1.0	1.2	1.5	2.0	2.6	5.6	3.8	4.2	6.1	2.4	6.1																							
5-Mar	4.1	Z	3.7	3.2	2.8	2.4	2.2	2.3	1.9	1.9	2.8	2.9	1.7	1.6	1.5	2.1	1.7	2.3	2.5	2.2	2.3	1.9	2.7	3.0	2.4	4.1																							
6-Mar	3.6	4.3	Z	4.2	3.2	4.1	4.7	6.2	4.8	10.7	7.8	8.1	7.5	5.0	2.0	2.2	2.1	1.9	2.2	2.4	3.1	3.2	4.8	4.7	4.5	10.7																							
7-Mar	4.9	3.4	2.6	Z	3.6	4.7	4.7	5.5	6.8	5.3	2.8	2.4	2.7	2.9	3.0	3.4	4.6	5.2	5.8	4.4	4.0	4.2	4.4	3.9	4.1	6.8																							
8-Mar	4.6	5.2	5.3	5.5	Z	5.4	4.9	5.3	6.0	5.6	5.3	4.9	5.2	4.9	3.7	1.6	2.1	1.9	1.8	2.2	2.8	3.0	4.0	5.4	4.2	6.0																							
9-Mar	6.8	5.7	6.3	5.2	4.0	Z	4.3	4.9	5.7	5.8	6.1	3.8	2.5	2.9	2.5	2.9	3.1	2.9	3.0	2.7	2.9	2.6	3.4	2.7	4.0	6.8																							
10-Mar	Z	2.7	2.2	1.9	2.2	1.6	1.3	1.5	1.8	1.5	0.8	0.4	0.4	0.2	0.3	0.1	0.0	0.1	8.0	1.1	1.0	0.9	0.9	4.1	1.5	8.0																							
11-Mar	2.5	Z	1.3	1.0	0.9	0.8	0.9	0.6	0.4	0.2	0.5	0.3	0.4	0.2	0.2	0.2	0.4	0.7	0.6	0.1	0.0	0.3	1.6	1.4	0.7	2.5																							
12-Mar	0.8	0.6	Z	1.0	1.9	2.5	0.8	1.3	0.5	0.3	0.5	0.4	0.4	0.2	0.3	0.2	0.4	0.7	0.4	1.0	0.4	0.5	0.5	0.9	0.7	2.5																							
13-Mar	1.4	1.2	1.0	Z	1.4	1.6	1.4	0.6	0.8	0.7	0.9	1.4	1.4	1.0	1.1	1.5	1.7	2.1	2.2	1.7	1.0	0.4	0.8	0.5	1.2	2.2																							
14-Mar	0.9	1.6	2.2	2.5	Z	2.5	2.4	2.8	2.9	2.1	1.6	1.3	0.8	0.4	0.4	0.5	0.9	0.8	0.5	0.4	0.5	0.5	0.1	0.1	1.3	2.9																							
15-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	1.6	2.0	1.9	1.7	1.7	1.3	1.6	2.1	1.8	0.5	0.8	0.4	1.7	0.6	0.7	0.9	2.1																							
16-Mar	Z	0.2	0.3	0.1	0.0	0.1	0.2	0.5	0.4	0.1	0.1	0.0	0.0	0.2	0.1	0.2	0.1	0.2	0.5	0.0	0.0	0.1	0.1	0.2	0.2	0.5																							
17-Mar	0.4	Z	0.1	0.2	1.6	1.4	2.1	2.3	2.0	2.6	3.0	3.1	2.6	2.2	1.8	2.0	2.0	1.1	0.9	0.9	0.7	0.8	0.7	0.8	1.5	3.1																							
18-Mar	0.8	1.0	Z	1.7	2.1	2.6	3.6	3.7	2.3	2.4	2.3	2.1	3.3	2.6	3.2	2.8	3.7	3.9	2.2	1.1	1.0	2.1	2.1	1.4	2.3	3.9																							
19-Mar	1.1	1.6	1.5	Z	1.4	0.9	0.7	0.6	0.6	1.2	1.0	1.3	1.6	1.7	1.5	1.8	1.8	1.6	1.7	1.7	1.8	1.1	1.3	1.3	1.3	1.8																							
20-Mar	1.3	0.5	0.4	0.5	Z	2.1	1.2	0.8	0.8	0.7	0.5	0.5	0.5	0.2	0.4	0.2	0.5	0.5	0.4	0.7	0.6	2.8	1.9	0.3	0.8	2.8																							
21-Mar	0.5	0.6	0.6	0.5	0.2	Z	0.5	0.4	0.5	0.2	0.2	0.2	0.4	0.1	0.1	0.3	0.1	0.1	0.4	1.0	1.4	0.8	1.9	1.1	0.5	1.9																							
22-Mar	Z	1.2	1.5	1.5	1.8	3.8	1.9	2.3	1.3	0.9	0.4	0.5	0.6	0.5	0.4	0.3	0.3	0.6	0.7	0.8	0.6	2.1	2.2	3.9	1.3	3.9																							
23-Mar	1.7	Z	1.7	1.4	1.4	1.1	2.0	2.7	2.0	2.2	1.7	1.3	1.8	1.7	1.4	1.4	1.2	1.3	1.4	1.0	1.2	0.9	1.5	1.5	1.5	2.7																							
24-Mar	1.3	1.0	Z	1.3	1.0	1.6	4.8	2.7	3.0	5.0	4.4	1.1	0.9	0.8	1.1	1.1	1.1	1.1	1.0	1.8	1.0	0.8	0.5	0.4	1.7	5.0																							
25-Mar	0.7	0.7	0.3	Z	0.9	0.7	0.5	1.3	1.0	0.6	0.5	0.5	0.7	0.7	0.9	0.9	0.8	1.0	0.8	0.8	0.9	0.7	0.9	1.1	0.8	1.3																							
26-Mar	1.3	1.6	1.4	1.2	Z	0.9	0.4	0.6	0.8	1.3	0.9	1.4	0.7	0.7	0.6	0.3	0.8	0.8	1.1	0.8	0.8	0.5	0.6	0.4	0.9	1.6																							
27-Mar	0.3	0.5	0.5	0.2	0.4	Z	0.7	0.8	0.4	0.5	C	C	C	C	C	0.5	1.0	0.3	0.6	0.4	2.3	3.1	7.3	2.2	1.2	7.3																							
28-Mar	Z	0.6	0.4	0.5	0.4	0.4	0.3	0.6	0.5	0.3	0.3	0.5	0.8	0.7	0.5	0.6	0.5	0.3	0.0	1.1	1.1	0.3	0.5	1.1	0.5	1.1																							
29-Mar	1.1	Z	2.7	2.3	2.4	3.1	3.0	3.0	2.3	1.2	1.2	1.5	2.7	4.2	2.2	2.1	2.3	2.2	3.0	2.3	2.6	2.9	2.8	2.1	2.4	4.2																							
30-Mar	2.5	3.2	Z	2.3	1.9	2.0	0.9	0.8	1.2	1.8	0.4	1.7	0.6	0.8	0.4	0.5	0.5	0.8	0.7	1.0	1.5	1.7	1.7	2.8	1.4	3.2																							
31-Mar	1.7	1.9	2.3	Z	3.1	2.7	3.2	3.9	3.0	1.9	1.5	1.3	1.2	1.1	0.8	1.0	1.0	1.0	1.4	1.8	1.9	1.7	2.1	1.7	1.9	3.9																							
																								1.9	1.8	1.8	1.8	1.7	2.1	1.9	2.1	1.9	2.0	1.7	1.6	1.5	1.4	1.1	1.1	1.2	1.3	1.7	1.4	1.6	1.7	2.0	2.0	Diurnal Average	
																								6.8	5.7	6.3	5.5	4.0	5.4	4.9	6.2	6.8	10.7	7.8	8.1	7.5	5.0	3.7	3.4	4.6	5.2	8.0	4.4	5.6	5.1	7.3	6.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Janvier - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Janvier - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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_x) - ppb
Janvier - March 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	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708
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
Totals	64	121	44	40	24	10	18	50	74	107	57	16	10	29	22	22	708

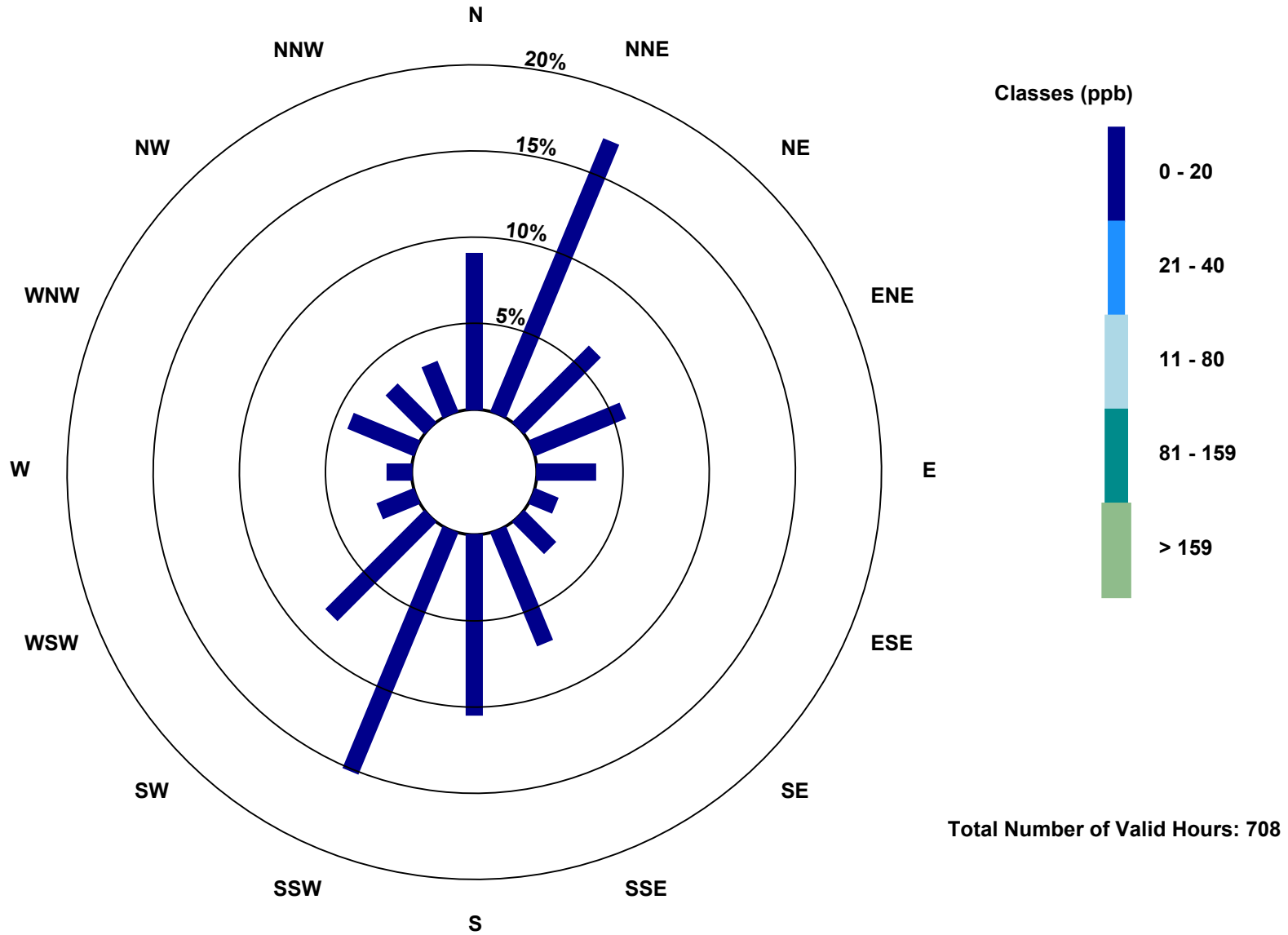
Total Number of Valid Hours: 708

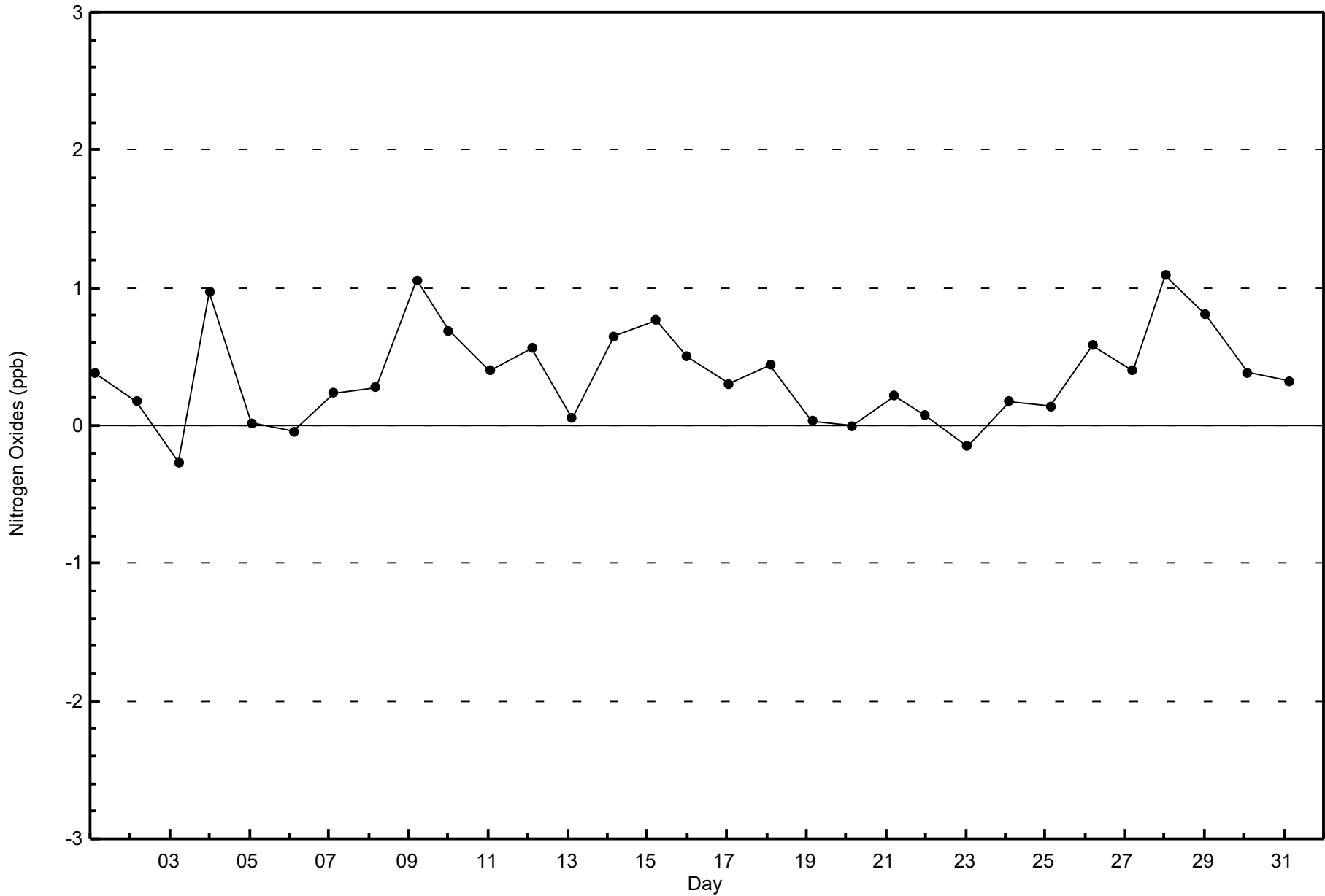
Total Number of Hours: 744

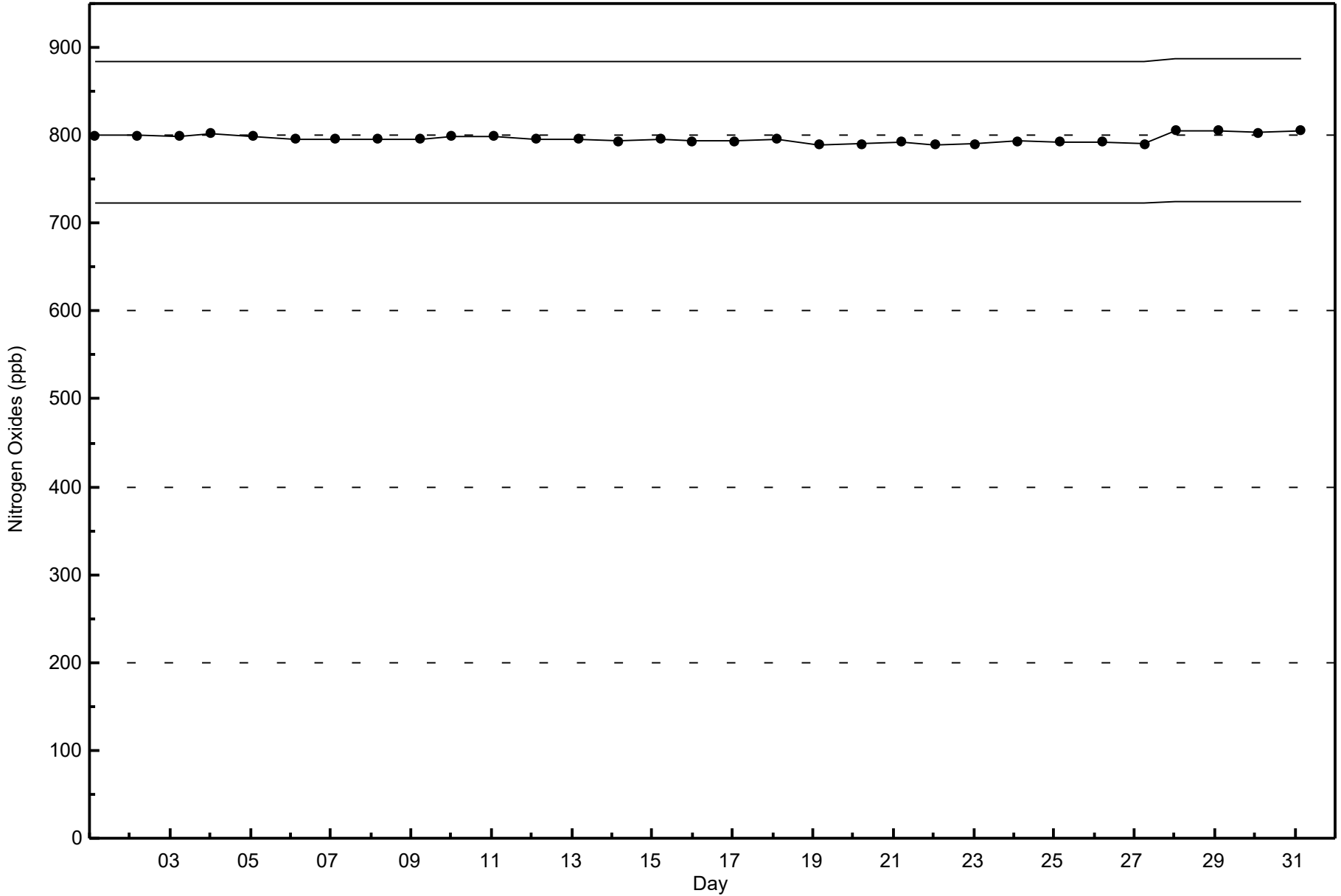


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Janvier









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Janvier - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 55.7 ppb on Mar 31 17:00	Maximum Daily Average: 46.9 ppb on Mar 31		Hours of Data:	709
Minimum Value: 17.3 ppb on Mar 2 06:00	Minimum Daily Average: 30.8 ppb on Mar 2		Hours of Missing Data:	35
Maximum Diurnal Average: 45.3 ppb at hour 16	Minimum Diurnal Average: 35.0 ppb at hour 7		Hours of Calibration:	33
Monthly Average: 40.45 ppb	Percentiles: P ₁ = 25.3 P ₁₀ = 31.5 Q ₁ = 35.9 Median = 41.6 Q ₃ = 45.0 P ₉₀ = 47.5 P ₉₉ = 52.4		Percent Operational Time:	99.7

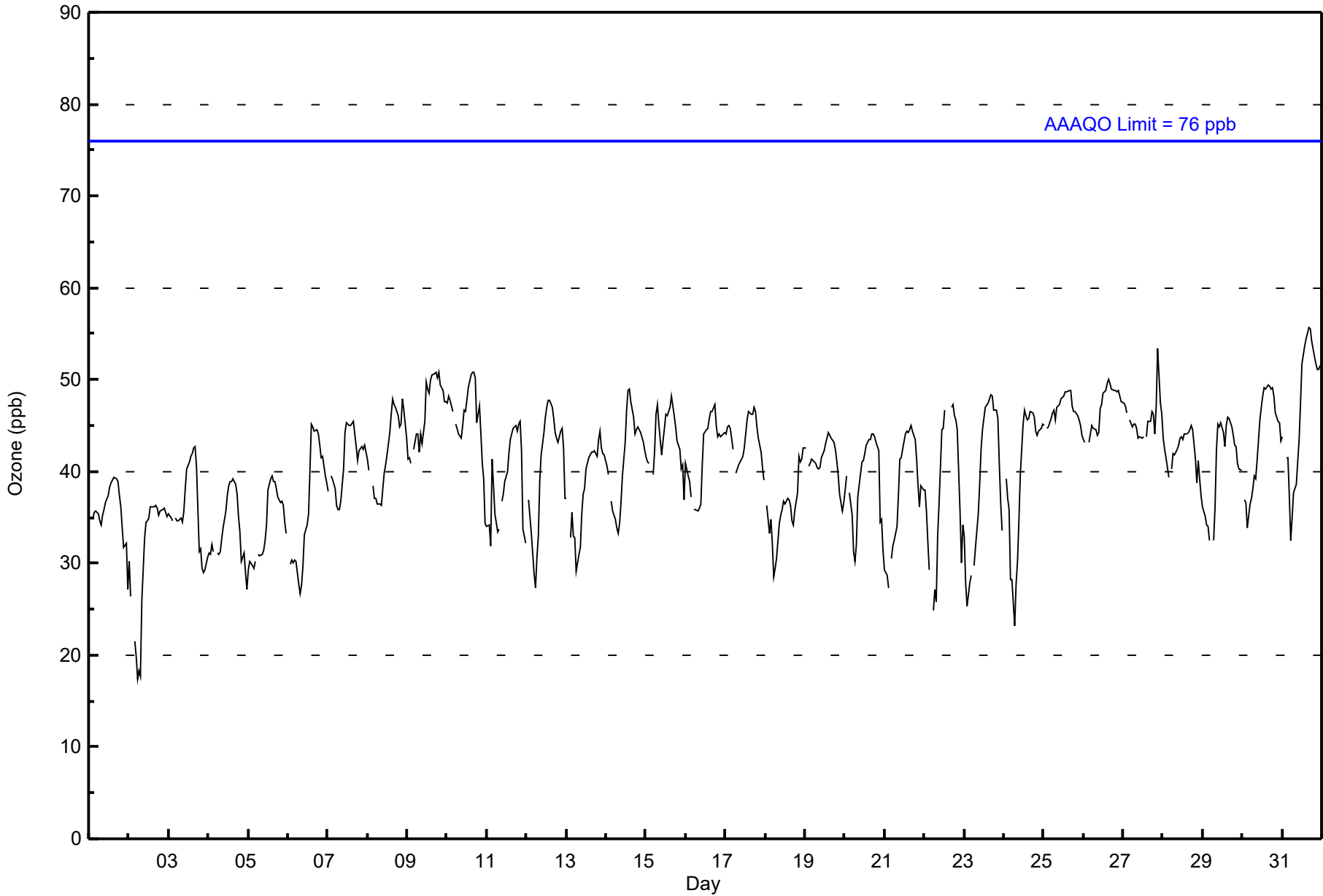
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	34.9	Z	34.8	35.5	35.7	35.4	34.7	34.2	35.3	35.9	36.6	37.3	38.2	38.8	39.0	39.3	39.2	39.0	37.4	36.1	33.9	31.8	32.2	27.1	35.7	39.3
2-Mar	30.3	26.3	Z	21.5	19.9	17.3	18.3	17.8	26.0	32.8	34.4	34.7	35.0	36.1	36.1	36.1	36.3	36.1	35.2	35.6	35.8	36.0	35.6	35.0	30.8	36.3
3-Mar	35.4	35.0	34.6	Z	34.9	34.7	34.6	34.9	34.5	35.6	38.2	40.2	41.0	41.6	41.9	42.5	42.7	40.6	31.2	31.6	29.4	29.0	29.2	30.6	35.8	42.7
4-Mar	31.1	31.0	32.1	31.2	Z	31.1	31.0	31.2	32.7	33.8	35.7	37.4	38.5	38.9	38.9	39.3	38.6	37.6	35.2	33.5	30.3	31.2	29.0	27.2	33.8	39.3
5-Mar	29.2	30.2	29.7	29.5	30.1	Z	30.9	30.8	31.0	31.4	32.4	34.2	37.9	39.2	39.5	38.9	38.8	38.1	37.2	36.6	36.8	36.3	34.5	33.2	34.2	39.5
6-Mar	Z	29.9	30.4	30.1	30.3	30.2	27.8	26.8	27.7	29.7	33.1	34.1	35.4	40.1	45.2	44.8	44.3	44.6	44.1	42.9	41.5	41.6	39.5	38.7	36.2	45.2
7-Mar	37.9	Z	39.5	39.2	38.2	36.3	35.9	35.9	36.8	40.3	44.3	45.4	45.2	44.9	45.1	45.4	44.1	42.7	41.2	42.2	42.6	42.5	42.8	42.1	41.3	45.4
8-Mar	41.3	40.1	Z	38.4	37.0	37.0	36.5	36.4	36.3	38.2	39.7	40.8	41.9	44.2	46.2	47.9	47.3	47.0	46.1	44.9	45.2	48.0	46.7	43.7	42.2	48.0
9-Mar	41.3	41.4	40.9	Z	42.4	44.1	44.0	42.1	44.1	43.0	45.4	49.7	48.9	48.5	49.8	50.5	50.7	50.7	50.2	50.8	49.4	48.9	47.6	47.5	46.6	50.8
10-Mar	47.4	48.1	47.7	46.5	Z	45.1	44.8	44.2	43.6	45.0	46.6	46.5	47.8	49.1	50.4	50.8	50.8	50.2	45.3	47.2	44.1	40.9	39.3	34.4	45.9	50.8
11-Mar	34.0	34.2	32.0	41.3	38.4	35.4	33.5	33.6	M	36.7	37.6	39.0	40.0	41.9	43.4	44.1	44.6	45.0	44.4	45.1	45.4	42.3	33.8	32.2	39.0	45.4
12-Mar	Z	36.9	35.0	33.3	28.9	27.3	30.7	33.0	39.0	41.8	44.3	46.0	47.0	47.7	47.8	46.9	45.8	44.2	43.6	43.2	44.3	44.7	42.5	37.1	40.5	47.8
13-Mar	37.1	Z	32.8	35.5	33.0	32.8	29.2	31.0	31.7	35.5	37.5	38.2	40.3	41.6	41.8	42.1	42.1	42.3	41.6	43.5	44.4	42.6	41.9	41.8	38.3	44.4
14-Mar	40.5	39.7	Z	36.8	35.7	34.8	33.9	33.2	34.3	36.6	39.6	43.2	46.7	48.9	49.0	47.6	45.9	44.0	44.5	44.8	44.5	44.3	43.2	42.2	41.5	49.0
15-Mar	41.6	41.0	40.8	Z	39.7	42.3	46.2	47.2	45.2	41.9	43.3	44.7	46.2	46.1	47.0	48.3	47.2	46.0	44.8	43.3	42.4	40.3	40.7	37.0	43.6	48.3
16-Mar	40.9	39.5	38.9	37.2	Z	35.8	35.8	35.7	36.0	36.4	40.7	44.0	44.5	44.8	45.7	46.5	46.5	47.2	45.0	43.7	44.1	43.8	43.9	44.3	41.8	47.2
17-Mar	44.1	44.9	45.0	44.7	42.4	Z	39.8	40.3	40.7	41.0	41.6	42.6	44.1	45.6	46.5	46.3	46.3	47.1	46.5	44.9	43.6	42.1	40.4	39.1	43.5	47.1
18-Mar	Z	36.3	33.3	34.8	32.2	28.5	29.5	30.6	34.3	35.3	35.9	36.8	36.4	37.0	36.9	36.3	34.6	34.2	35.7	37.7	41.7	41.1	41.3	42.6	35.8	42.6
19-Mar	42.5	Z	40.6	40.9	41.3	41.1	40.9	40.5	40.3	40.5	41.5	42.3	43.1	43.6	44.3	43.9	43.6	43.2	42.5	41.2	39.7	37.5	35.7	36.6	41.2	44.3
20-Mar	38.0	39.4	Z	37.7	35.3	31.3	30.2	32.1	37.2	39.8	41.0	41.1	42.0	42.8	43.4	43.5	44.2	44.1	43.8	43.2	42.2	34.5	34.8	31.5	38.8	44.2
21-Mar	29.2	28.6	27.3	Z	30.5	31.9	32.4	34.0	37.3	41.4	41.4	42.4	44.1	44.3	44.2	44.5	45.0	44.4	43.5	41.4	38.4	36.1	38.5	38.0	38.2	45.0
22-Mar	38.0	35.6	32.3	29.4	Z	24.9	27.1	25.7	32.9	36.5	44.5	44.7	46.7	Z	Z	Z	47.0	47.3	46.1	45.6	44.5	35.5	30.0	34.1	37.4	47.3
23-Mar	33.0	27.7	25.3	27.9	28.7	Z	29.8	31.8	35.3	38.6	42.4	44.5	45.8	47.0	47.4	47.8	48.3	48.3	46.7	46.6	45.8	40.9	36.6	33.5	39.1	48.3
24-Mar	Z	39.3	37.1	35.8	28.3	28.3	23.2	27.7	30.1	34.7	39.6	45.2	46.7	46.1	45.6	45.7	46.6	46.4	45.9	44.3	43.9	44.3	44.7	45.1	39.8	46.7
25-Mar	45.0	Z	44.7	44.8	45.8	46.4	46.6	45.6	46.9	47.4	48.0	48.1	48.2	48.6	48.7	48.8	48.8	47.1	46.6	46.6	46.0	45.5	44.9	43.9	46.7	48.8
26-Mar	43.4	43.2	Z	43.2	44.1	45.0	44.7	44.5	43.9	44.3	46.8	47.3	48.5	48.8	49.6	50.0	49.6	49.0	48.8	48.7	48.7	48.8	48.2	47.5	46.8	50.0
27-Mar	47.4	47.2	46.4	Z	45.6	44.9	45.2	45.2	44.6	43.7	43.7	43.7	43.8	M	43.8	45.4	45.4	46.6	46.2	44.1	47.2	53.4	47.4	46.2	45.8	53.4
28-Mar	43.6	42.4	41.5	39.3	Z	40.3	42.0	41.9	42.4	42.9	43.6	43.8	43.5	44.0	44.1	44.3	44.5	45.1	44.6	41.4	38.7	41.1	39.2	37.4	42.2	45.1
29-Mar	36.1	35.1	34.2	34.0	32.5	Z	32.6	36.1	42.4	45.2	44.9	45.3	44.3	42.7	45.0	46.0	45.7	44.8	43.9	42.9	42.7	40.9	40.3	40.1	40.8	46.0
30-Mar	Z	37.0	36.7	33.9	36.5	37.0	38.1	39.5	39.2	41.3	45.6	46.9	48.3	49.1	49.0	49.4	49.2	49.0	49.1	48.2	46.3	45.4	45.3	43.3	43.6	49.4
31-Mar	43.9	Z	41.5	41.5	37.4	32.5	34.9	37.6	38.6	41.0	43.5	47.4	51.8	53.7	54.4	55.0	55.7	55.5	54.2	52.5	51.7	51.2	51.2	51.6	46.9	55.7
38.7 37.2 36.7 36.3 35.6 35.3 35.0 35.5 37.3 39.0 41.1 42.5 43.6 44.3 45.0 45.3 45.1 44.7 43.6 43.0 42.4 41.4 40.0 38.9																								Diurnal Average		
47.4 48.1 47.7 46.5 45.8 46.4 46.6 47.2 46.9 47.4 48.0 49.7 51.8 53.7 54.4 55.0 55.7 55.5 54.2 52.5 51.7 53.4 51.2 51.6																								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 (O₃) - ppb
Janvier - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ozone (O₃) - ppb
Janvier - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	4	0.56	0.56
21 - 50	686	96.76	97.32
51 - 82	19	2.68	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 (O₃) - ppb
Janvier - March 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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
21 - 50	65	116	43	39	24	12	21	49	67	101	53	14	11	28	21	22	686
51 - 82	0	0	0	1	0	0	0	1	5	6	3	1	0	2	0	0	19
> 83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	65	120	43	40	24	12	21	50	72	107	56	15	11	30	21	22	709

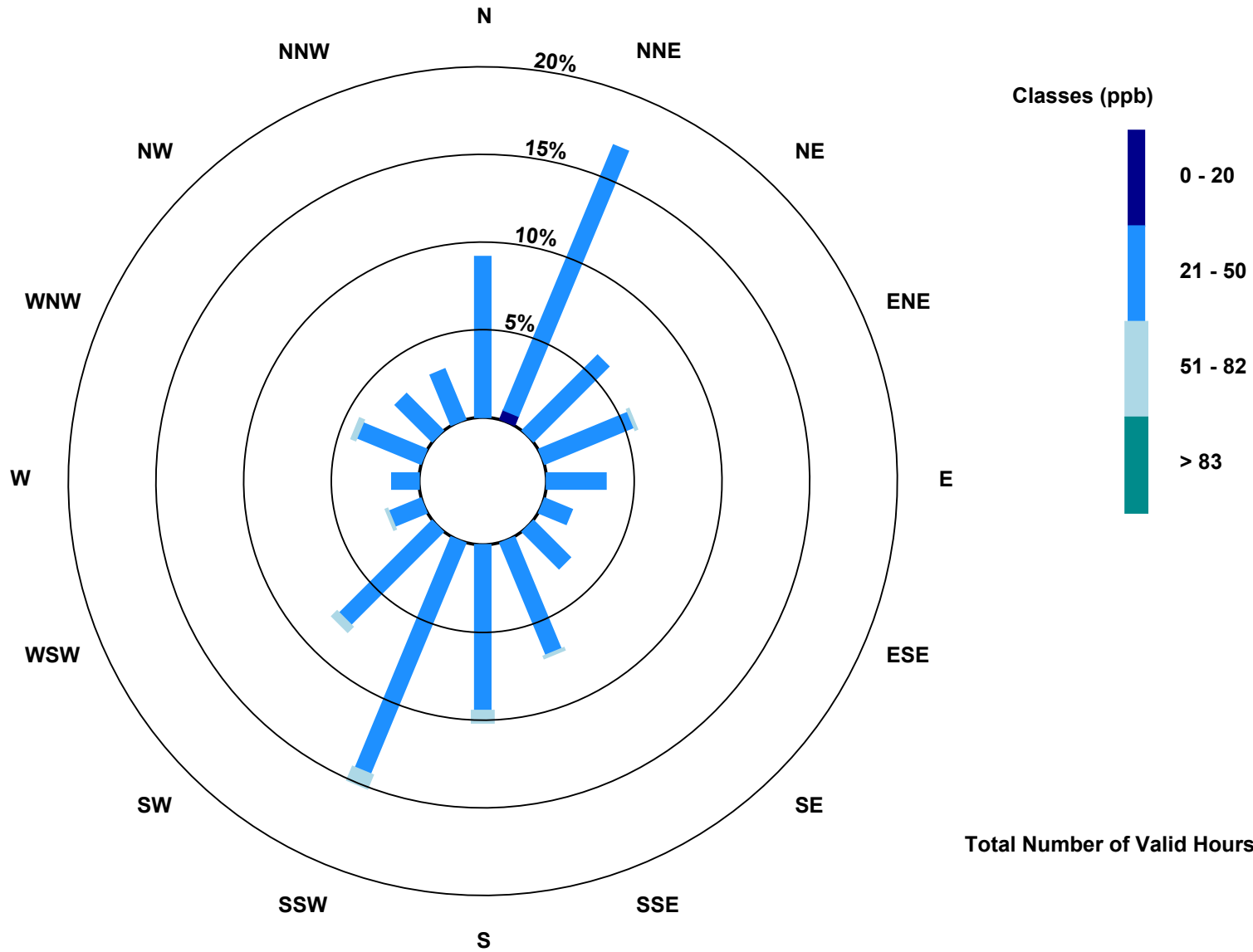
Total Number of Valid Hours: 709

Total Number of Hours: 744

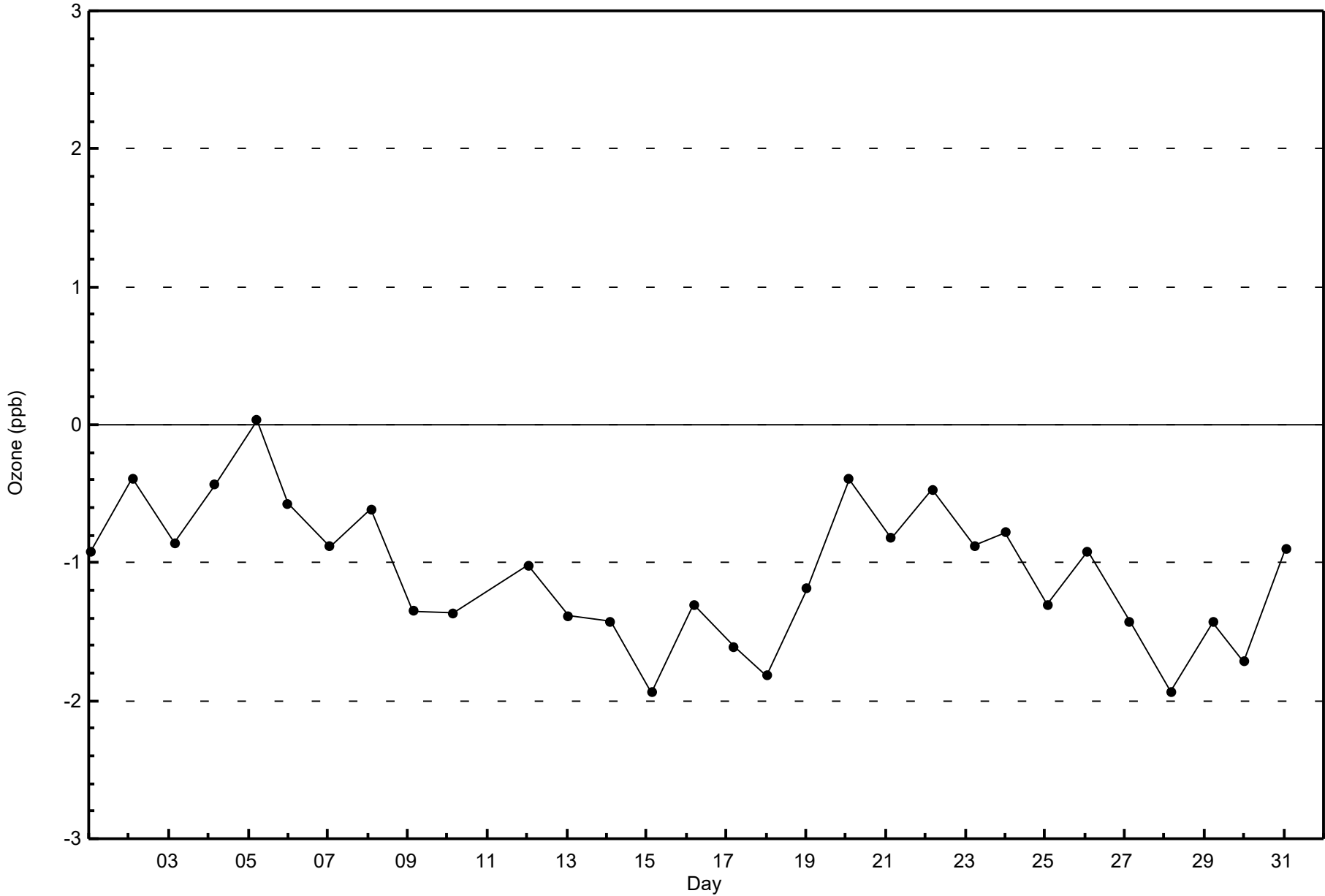


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Ozone (O₃) - ppb
Janvier



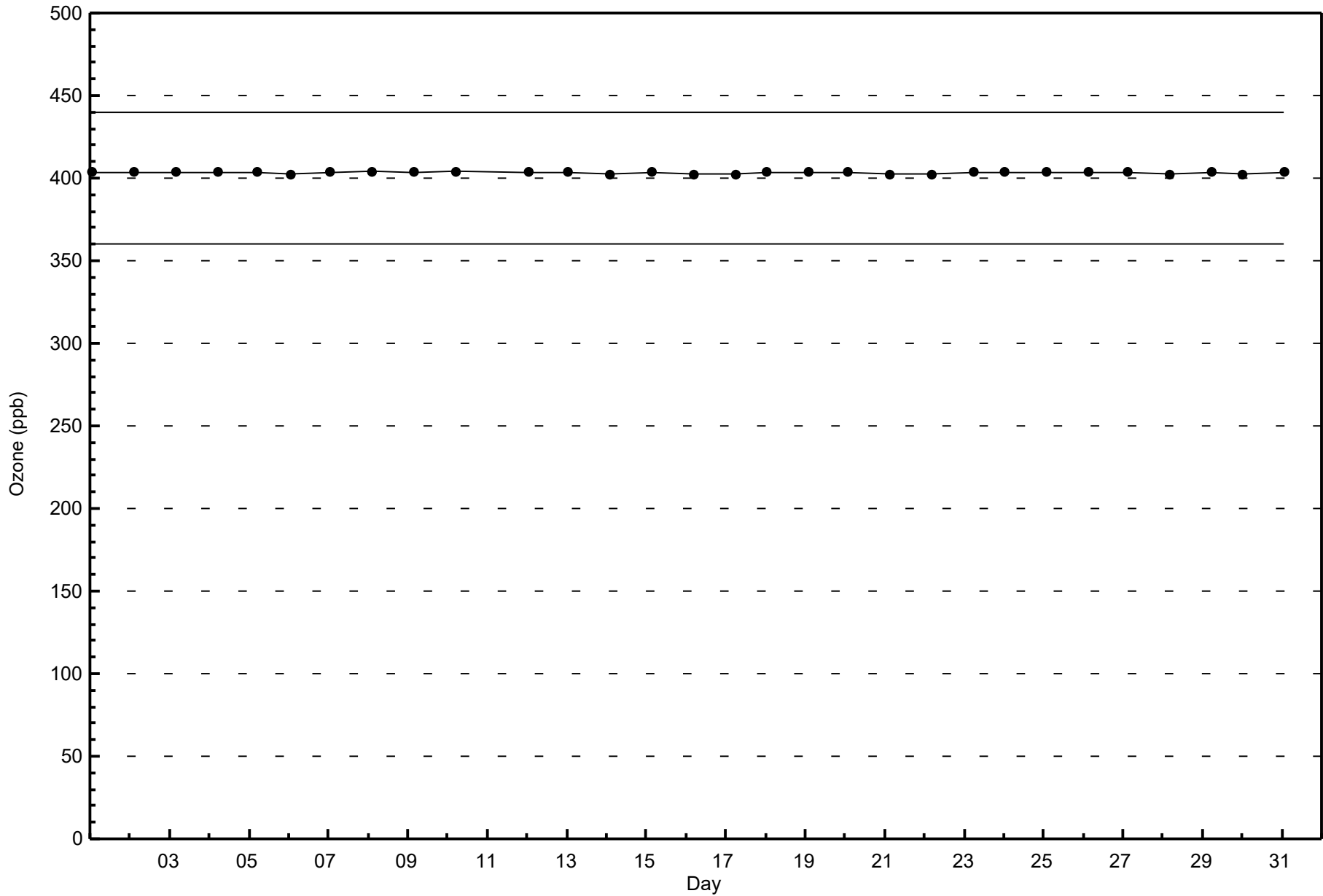
Total Number of Valid Hours: 709





Wood Buffalo Environmental Association
Span Responses

Ozone (O₃) - ppb
Janvier - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

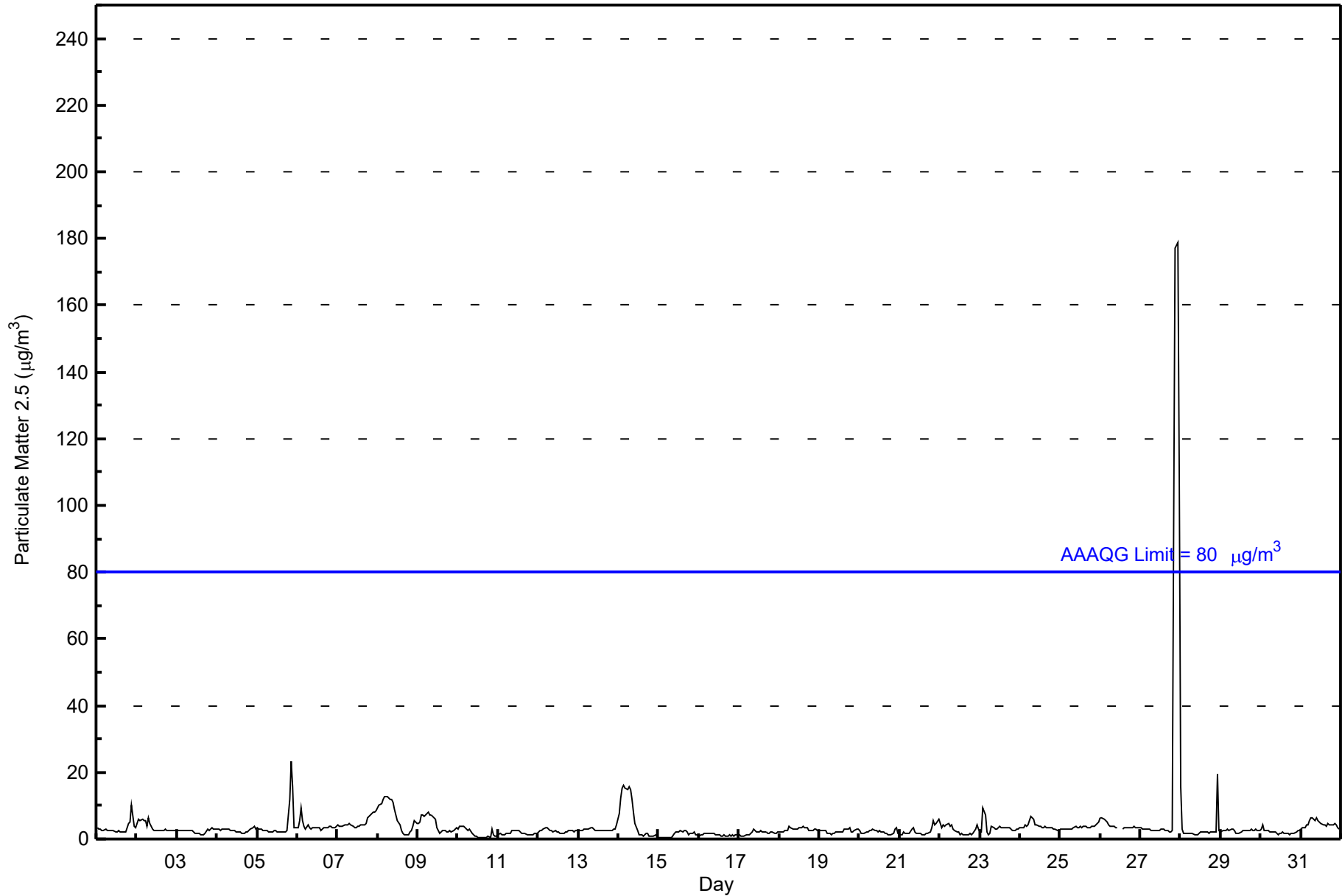
Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Janvier - March 2024

Number of Exceedences (AAAQO):	1-hr: 4	24-hr: 0	Hours in Service:	744
Maximum Value: 178.8 µg/m ³ on Mar 27 23:00	Maximum Daily Average: 25.4 µg/m ³ on Mar 27		Hours of Data:	742
Minimum Value: 0.2 µg/m ³ on Mar 10 17:00	Minimum Daily Average: 1.2 µg/m ³ on Mar 16		Hours of Missing Data:	2
Maximum Diurnal Average: 9.3 µg/m ³ at hour 23	Minimum Diurnal Average: 2.3 µg/m ³ at hour 18		Hours of Calibration:	2
Monthly Average: 3.89 µg/m ³	Percentiles: P ₁ = 0.4 P ₁₀ = 1.3 Q ₁ = 2.0 Median = 2.6 Q ₃ = 3.5 P ₉₀ = 5.4 P ₉₉ = 15.7		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-Mar	3.3	3.0	2.9	2.7	2.7	2.8	2.7	2.6	2.5	2.4	2.3	2.3	2.3	2.4	2.3	2.2	2.1	2.1	3.4	4.5	4.9	10.0	4.0	3.3	3.2	10.0																							
2-Mar	4.5	5.9	5.4	6.0	5.4	5.5	3.9	6.4	4.7	2.8	2.5	2.8	2.6	2.7	2.7	2.6	2.8	2.6	2.6	2.5	2.6	2.7	2.6	3.6	6.4																								
3-Mar	2.6	2.6	2.7	2.6	2.5	2.5	2.4	2.4	2.4	2.3	2.1	1.8	1.7	1.6	1.4	1.4	1.3	1.5	2.8	2.7	3.0	3.2	3.1	2.9	2.3	3.2																							
4-Mar	2.8	2.8	2.7	2.9	3.2	3.0	3.1	3.0	2.7	2.6	2.4	2.1	2.0	2.0	2.0	1.9	1.9	2.0	2.3	2.5	3.1	3.5	3.9	3.0	2.6	3.9																							
5-Mar	3.3	2.8	2.8	2.7	2.6	2.5	2.6	2.2	2.2	2.2	2.4	2.5	2.0	2.0	2.0	2.3	2.2	2.2	2.4	11.9	23.3	15.6	3.5	3.4	4.3	23.3																							
6-Mar	3.4	5.4	9.3	5.5	3.8	3.1	4.1	3.2	3.2	3.3	3.5	3.5	3.5	3.2	2.6	3.1	3.2	3.3	3.5	3.7	3.9	3.5	3.6	4.0	3.9	9.3																							
7-Mar	4.0	3.7	3.6	3.8	4.1	4.2	4.3	4.7	4.4	3.9	3.5	3.6	3.9	3.9	4.0	4.1	4.4	4.8	6.2	6.8	7.8	8.0	8.2	8.3	4.9	8.3																							
8-Mar	9.2	10.2	10.7	11.8	12.6	12.7	12.5	12.0	12.1	10.9	8.8	7.2	5.7	4.1	2.7	1.8	1.4	1.2	1.4	2.2	2.6	3.6	5.4	4.7	7.0	12.7																							
9-Mar	4.5	5.1	7.3	7.2	6.6	7.5	7.8	7.2	7.1	6.6	5.8	3.3	2.5	1.8	1.9	2.7	2.5	2.0	2.2	2.4	2.3	2.4	3.1	3.3	4.4	7.8																							
10-Mar	3.1	3.7	4.0	3.8	3.6	3.0	2.5	2.9	1.9	1.2	1.1	0.8	0.4	0.3	0.2	0.2	0.2	0.2	0.8	0.6	3.0	1.2	0.7	1.0	1.7	4.0																							
11-Mar	1.2	1.7	1.4	1.2	1.4	1.6	1.6	1.9	2.3	2.7	2.6	2.5	2.4	2.1	1.9	1.7	1.6	1.4	1.4	1.1	1.2	1.4	1.6	1.8	1.7	2.7																							
12-Mar	2.2	2.5	2.6	2.8	3.4	3.3	2.9	2.6	2.4	2.3	2.4	2.1	1.9	1.6	1.5	1.7	2.3	2.3	2.6	2.5	2.4	2.3	2.4	2.5	2.4	3.4																							
13-Mar	2.5	2.6	2.7	2.8	3.0	3.0	3.0	3.2	3.2	2.9	2.6	2.6	2.5	2.6	2.5	2.5	2.6	2.6	2.6	2.3	2.4	3.1	3.1	4.2	2.8	4.2																							
14-Mar	7.6	12.5	15.1	16.1	15.4	14.8	15.6	14.9	11.8	8.0	4.6	2.4	1.4	1.1	1.1	0.9	1.7	1.5	0.9	0.7	0.8	1.0	1.1	0.5	6.3	16.1																							
15-Mar	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	1.6	2.1	2.1	2.1	2.4	2.1	2.4	2.7	2.3	1.4	1.8	1.6	2.2	1.3	1.1	1.4	2.7																							
16-Mar	1.0	1.2	1.4	1.5	1.5	1.5	1.6	1.7	1.6	1.6	1.4	1.1	1.2	0.9	0.8	1.3	1.0	0.9	1.1	1.0	1.1	1.0	1.1	1.1	1.2	1.7																							
17-Mar	1.2	0.9	0.8	0.8	1.2	1.2	1.3	1.7	2.2	2.8	2.3	2.1	2.1	2.5	2.0	2.0	2.0	1.8	1.9	2.0	1.9	1.8	1.8	2.1	1.8	2.8																							
18-Mar	2.1	2.1	2.3	2.4	2.4	2.4	3.7	3.3	2.8	3.0	3.0	2.9	3.3	3.6	3.7	3.5	3.6	3.2	2.7	2.6	2.7	2.8	3.0	2.6	2.9	3.7																							
19-Mar	2.4	2.5	2.8	2.5	2.4	1.9	1.7	1.4	1.5	1.7	1.9	2.2	2.2	2.2	1.9	2.8	3.2	3.1	3.4	2.2	2.2	2.5	2.9	2.8	2.4	3.4																							
20-Mar	2.4	1.9	1.5	1.6	2.0	2.1	2.4	2.4	3.0	2.7	2.5	2.3	2.5	2.3	2.3	1.5	1.8	1.3	1.2	1.3	1.9	3.1	3.3	1.8	2.1	3.3																							
21-Mar	1.4	1.3	2.1	1.6	1.8	1.7	1.8	2.9	3.2	2.1	1.8	1.8	1.6	1.3	1.2	1.2	1.6	1.6	2.2	3.3	5.5	4.1	4.6	5.9	2.4	5.9																							
22-Mar	4.6	3.5	4.4	3.6	4.1	4.5	3.8	4.3	2.8	2.7	2.1	2.1	1.5	1.7	1.3	1.3	1.4	1.2	1.6	1.3	1.7	3.2	4.3	3.0	2.7	4.6																							
23-Mar	2.1	2.2	9.4	7.4	2.3	1.3	1.6	3.7	3.3	2.8	2.8	3.4	3.7	3.3	3.3	3.3	3.3	3.3	3.3	2.7	2.7	2.6	2.8	3.2	3.3	9.4																							
24-Mar	3.4	3.5	3.6	4.1	3.8	4.1	6.6	6.2	6.0	4.4	4.1	4.0	3.9	3.5	3.5	3.6	3.4	3.4	3.2	3.5	2.9	3.0	2.7	2.7	3.9	6.6																							
25-Mar	2.8	2.9	2.9	3.1	3.0	3.1	3.0	3.1	3.4	3.6	3.3	3.5	3.7	3.5	3.7	3.7	3.5	3.5	3.5	3.6	3.7	4.4	4.5	5.1	3.5	5.1																							
26-Mar	6.4	6.3	5.8	5.7	5.0	4.2	3.9	3.8	3.7	3.5	3.4	C	C	3.1	3.5	3.5	3.4	3.3	3.6	3.6	3.9	3.5	3.3	3.4	4.1	6.4																							
27-Mar	3.2	3.1	3.1	3.0	2.9	2.8	2.7	2.5	2.6	2.6	2.6	2.7	2.9	2.9	2.8	2.6	2.4	2.1	2.1	2.7	93.4	177.3	178.8	106.3	25.4	178.8																							
28-Mar	15.8	2.8	1.8	1.6	1.9	1.6	1.7	1.6	1.3	1.3	1.3	1.6	2.0	2.3	2.1	2.0	2.0	1.8	2.2	2.3	2.3	19.7	2.5	3.2	19.7	19.7																							
29-Mar	2.1	2.6	2.7	2.7	2.8	2.7	3.2	3.1	2.4	1.8	1.9	1.7	2.3	2.6	2.6	2.6	2.4	2.4	2.8	2.7	2.7	2.9	2.7	2.7	2.5	3.2																							
30-Mar	3.0	4.4	2.6	2.6	2.4	2.3	2.0	2.0	2.1	2.0	1.5	1.6	1.8	2.0	1.8	1.7	1.5	1.3	1.6	1.7	1.9	2.0	2.4	2.7	2.1	4.4																							
31-Mar	3.1	3.2	3.6	4.2	4.2	5.5	6.6	6.2	5.7	6.2	5.6	5.0	4.5	4.3	4.1	3.9	4.6	4.4	4.2	4.4	4.5	4.1	3.3	2.9	4.5	6.6																							
																								3.6	3.5	4.0	3.9	3.7	3.6	3.8	3.8	3.6	3.2	2.9	2.7	2.5	2.4	2.3	2.4	2.3	2.5	2.9	6.4	9.2	9.3	6.4	Diurnal Average		
																								15.8	12.5	15.1	16.1	15.4	14.8	15.6	14.9	12.1	10.9	8.8	7.2	5.7	4.3	4.1	4.1	4.6	4.8	6.2	11.9	93.4	177.3	178.8	106.3	Diurnal Maximum	

C - Calibration
 Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m³ 24-hr 29 µg/m³





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Janvier - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	673	90.70	90.70
6 - 15	59	7.95	98.65
16 - 25	6	0.81	99.46
26 - 80	0	0.00	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_{2.5}) - $\mu\text{g}/\text{m}^3$
Janvier - March 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	66	123	45	37	25	13	22	46	66	88	41	15	11	31	21	23	673
6 - 15	0	4	1	0	0	0	0	4	7	25	16	1	0	0	1	0	59
16 - 25	1	0	0	1	0	0	0	0	1	2	1	0	0	0	0	0	6
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
Totals	67	127	46	41	26	13	22	50	74	115	58	16	11	31	22	23	742

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

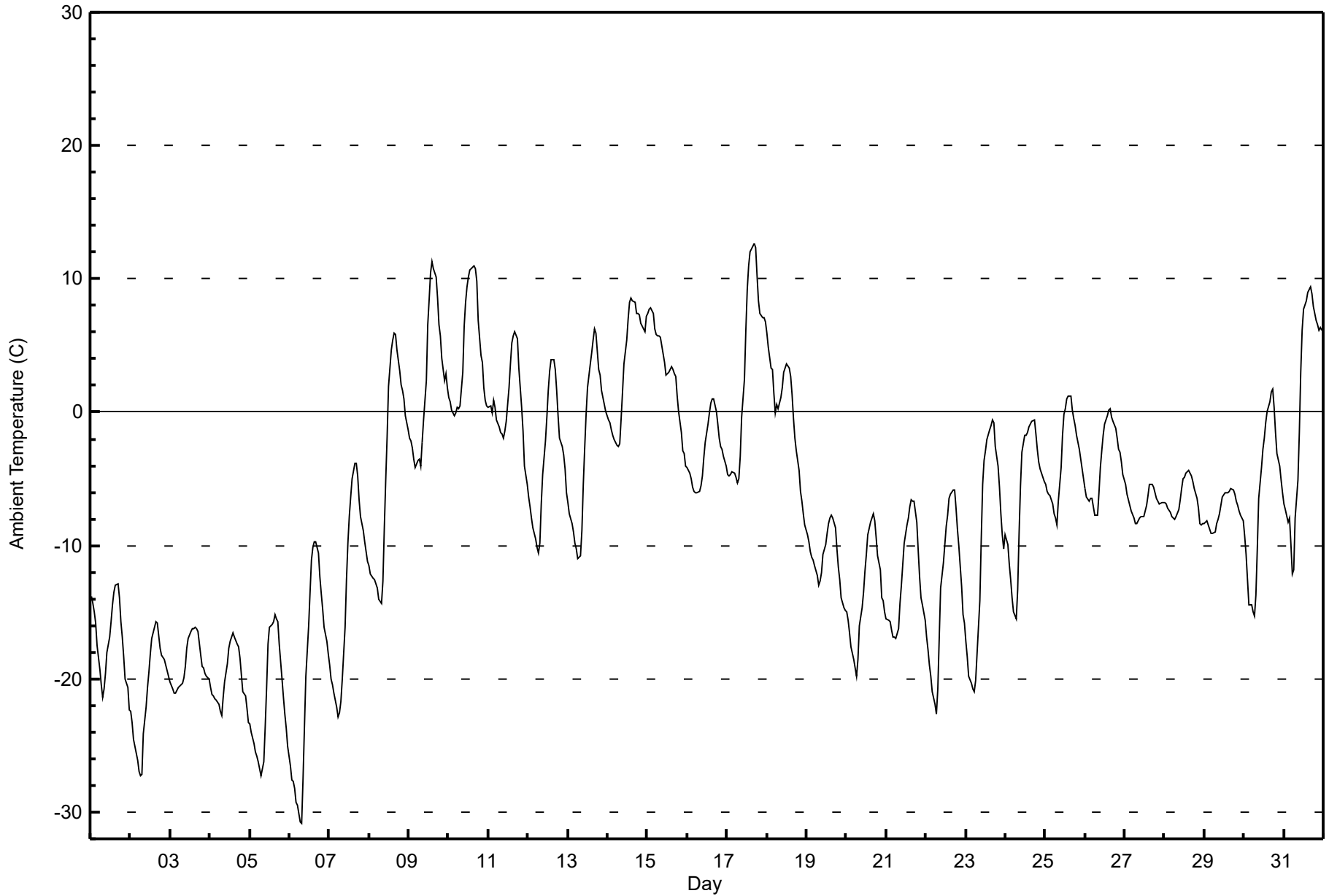
Ambient Temperature (AT) - C
Janvier - March 2024

Maximum Value: 12.7 C on Mar 17 17:00		Maximum Daily Average: 4.6 C on Mar 10		Hours in Service: 744																						
Minimum Value: -30.8 C on Mar 6 08:00		Minimum Daily Average: -21.5 C on Mar 5		Hours of Data: 744																						
Maximum Diurnal Average: -1.8 C at hour 16		Minimum Diurnal Average: -12.7 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.26 C		Percentiles: P ₁ = -27.4 P ₁₀ = -20.2 Q ₁ = -14.4 Median = -6.7 Q ₃ = -0.5 P ₉₀ = 5.4 P ₉₉ = 10.9		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-Mar	-13.8	-14.4	-15.0	-15.8	-17.5	-19.2	-20.5	-21.4	-20.8	-19.6	-18.0	-16.9	-15.7	-14.4	-13.5	-13.0	-12.9	-13.9	-15.7	-16.9	-18.4	-20.0	-20.7	-22.3	-17.1	-12.9
2-Mar	-22.4	-23.3	-24.5	-25.5	-26.1	-27.0	-27.2	-27.2	-24.1	-22.1	-20.7	-19.5	-18.1	-16.9	-16.2	-15.8	-15.8	-16.8	-17.7	-18.3	-18.6	-19.0	-19.4	-19.8	-20.9	-15.8
3-Mar	-20.2	-20.8	-21.1	-21.1	-20.8	-20.7	-20.5	-20.3	-19.9	-19.0	-17.7	-17.0	-16.5	-16.2	-16.2	-16.1	-16.2	-16.4	-18.3	-19.1	-19.2	-19.6	-19.8	-20.0	-18.9	-16.1
4-Mar	-20.6	-21.1	-21.3	-21.5	-21.6	-21.9	-22.5	-22.7	-21.4	-20.3	-18.8	-17.7	-17.2	-16.9	-16.6	-16.8	-17.4	-17.6	-18.5	-19.7	-21.0	-21.3	-22.2	-23.3	-20.0	-16.6
5-Mar	-23.4	-24.0	-24.8	-25.5	-25.8	-26.2	-26.8	-27.3	-26.2	-23.5	-20.6	-17.4	-16.1	-16.0	-15.7	-15.2	-15.5	-15.7	-17.4	-20.0	-21.4	-22.6	-23.7	-25.0	-21.5	-15.2
6-Mar	-26.5	-27.6	-27.7	-28.2	-29.3	-29.4	-30.7	-30.8	-27.4	-23.6	-19.8	-16.0	-13.5	-11.1	-10.1	-9.7	-9.7	-10.5	-12.4	-13.6	-14.8	-16.1	-17.2	-18.2	-19.8	-9.7
7-Mar	-19.0	-20.0	-20.4	-21.1	-22.1	-22.8	-22.5	-21.7	-20.1	-16.2	-12.5	-9.8	-7.8	-6.3	-5.0	-3.9	-3.8	-4.8	-6.6	-7.9	-8.9	-9.7	-10.5	-11.2	-13.1	-3.8
8-Mar	-11.5	-12.1	-12.4	-12.6	-12.8	-13.1	-14.0	-14.4	-12.6	-8.7	-5.1	-1.8	1.9	4.7	5.4	5.9	5.8	4.6	3.1	2.1	1.7	1.0	-0.2	-1.3	-4.0	5.9
9-Mar	-1.9	-2.2	-2.7	-3.6	-4.2	-3.6	-3.5	-4.1	-2.2	-0.5	2.4	6.5	8.4	10.5	11.3	10.7	10.1	8.6	6.6	5.7	4.0	2.4	2.9	1.9	2.6	11.3
10-Mar	1.1	0.8	0.1	-0.3	0.0	0.4	0.3	0.4	3.0	6.4	8.2	9.4	10.2	10.7	10.9	11.0	10.8	9.9	6.9	4.2	3.7	1.8	0.9	0.5	4.6	11.0
11-Mar	0.4	0.5	0.0	0.9	0.3	-0.6	-1.2	-1.5	-1.6	-1.9	-1.4	-0.7	1.8	3.7	5.2	5.7	6.1	5.5	3.3	1.8	0.4	-1.4	-4.0	-5.5	0.7	6.1
12-Mar	-6.3	-7.1	-7.9	-8.7	-9.5	-10.1	-10.5	-9.9	-6.9	-4.7	-2.2	-0.4	1.6	3.1	4.0	4.0	3.2	1.7	-0.3	-2.0	-2.5	-3.2	-4.2	-6.0	-3.5	4.0
13-Mar	-6.8	-7.7	-8.4	-9.0	-9.8	-10.3	-11.0	-10.7	-8.9	-5.4	-2.7	-0.2	1.8	3.7	4.5	5.4	6.3	6.0	3.2	2.8	1.6	1.1	0.6	0.0	-2.2	6.3
14-Mar	-0.5	-0.8	-1.3	-1.7	-2.0	-2.4	-2.6	-2.4	-0.5	1.6	3.7	5.4	7.0	8.2	8.6	8.4	8.3	7.4	7.4	7.3	6.7	6.4	6.1	7.2	3.6	8.6
15-Mar	7.4	7.7	7.9	7.4	6.3	5.8	5.7	5.7	5.6	4.3	3.7	2.8	2.9	3.0	3.4	3.2	2.9	2.7	1.2	0.0	-1.6	-2.9	-3.2	-4.1	3.2	7.9
16-Mar	-4.2	-4.6	-5.0	-5.6	-5.9	-6.0	-6.0	-5.9	-5.6	-4.8	-3.4	-2.3	-0.9	-0.1	0.6	1.0	0.9	0.0	-0.9	-2.0	-2.6	-2.8	-3.3	-4.0	-3.1	1.0
17-Mar	-4.6	-4.8	-4.6	-4.4	-4.5	-4.9	-5.3	-5.0	-3.3	-0.4	2.5	6.1	9.2	11.0	12.0	12.5	12.7	12.3	10.3	8.3	7.4	7.1	7.1	6.8	3.5	12.7
18-Mar	6.0	4.9	3.3	3.2	1.4	0.0	0.6	0.3	1.1	1.8	3.0	3.4	3.6	3.3	2.6	1.3	-0.5	-1.9	-2.9	-4.4	-5.9	-6.7	-7.7	-8.4	0.1	6.0
19-Mar	-9.2	-9.7	-10.5	-10.9	-11.1	-11.5	-12.2	-13.0	-12.6	-12.0	-10.6	-9.9	-9.1	-8.4	-7.9	-7.7	-7.9	-8.7	-10.3	-11.6	-12.6	-13.9	-14.7	-14.8	-10.9	-7.7
20-Mar	-15.0	-15.6	-16.5	-17.6	-18.6	-19.2	-19.8	-18.5	-16.0	-14.7	-13.6	-11.9	-10.7	-9.2	-8.2	-7.9	-7.6	-8.1	-9.4	-10.8	-11.8	-13.9	-14.1	-15.0	-13.5	-7.6
21-Mar	-15.5	-15.6	-15.8	-16.3	-16.9	-16.9	-16.9	-16.3	-14.4	-12.9	-11.4	-9.8	-8.5	-8.0	-7.1	-6.5	-6.7	-6.7	-8.3	-10.3	-12.4	-14.0	-14.4	-15.6	-12.4	-6.5
22-Mar	-16.8	-17.9	-19.0	-19.8	-21.0	-21.9	-22.6	-20.7	-17.0	-13.2	-11.3	-10.0	-8.6	-7.7	-6.5	-6.1	-5.8	-5.8	-7.2	-8.7	-10.1	-13.1	-15.2	-15.8	-13.4	-5.8
23-Mar	-17.2	-18.3	-19.8	-20.3	-20.8	-21.0	-20.1	-18.1	-14.2	-9.5	-5.4	-3.7	-2.9	-2.1	-1.3	-1.0	-0.6	-0.8	-2.5	-4.0	-5.6	-7.6	-9.2	-10.2	-9.9	-0.6
24-Mar	-9.2	-9.9	-11.4	-12.5	-14.0	-14.9	-15.5	-13.3	-9.1	-5.5	-3.0	-1.7	-1.7	-1.5	-1.1	-0.9	-0.6	-0.6	-1.7	-2.8	-3.8	-4.3	-4.9	-5.2	-6.2	-0.6
25-Mar	-5.4	-5.9	-6.1	-6.2	-6.8	-7.6	-7.9	-8.4	-6.6	-4.2	-1.7	-0.1	0.3	1.0	1.2	1.2	0.1	-0.5	-1.0	-1.7	-2.8	-3.5	-4.3	-5.0	-3.4	1.2
26-Mar	-5.7	-6.3	-6.6	-6.4	-6.5	-7.1	-7.8	-7.8	-6.1	-4.1	-2.8	-1.7	-0.9	-0.3	0.1	0.3	-0.3	-0.7	-1.3	-2.0	-2.7	-3.0	-3.7	-4.6	-3.7	0.3
27-Mar	-5.4	-6.1	-6.6	-7.0	-7.4	-7.9	-8.3	-8.4	-8.1	-7.9	-7.8	-7.8	-7.4	-7.0	-6.2	-5.4	-5.5	-5.6	-6.1	-6.5	-6.7	-6.9	-6.8	-6.8	-6.9	-5.4
28-Mar	-6.8	-6.9	-7.2	-7.5	-7.8	-8.0	-8.1	-7.8	-7.3	-6.5	-5.8	-5.0	-4.8	-4.5	-4.4	-4.6	-4.8	-5.2	-5.8	-6.4	-7.3	-8.3	-8.5	-8.4	-6.6	-4.4
29-Mar	-8.3	-8.2	-8.5	-8.8	-9.1	-9.1	-9.0	-8.4	-8.1	-7.6	-6.9	-6.4	-6.1	-6.0	-6.1	-5.9	-5.7	-5.8	-6.1	-6.7	-7.0	-7.5	-7.8	-8.1	-7.4	-5.7
30-Mar	-9.3	-10.7	-12.5	-14.4	-14.4	-15.0	-15.3	-13.7	-10.2	-6.4	-4.1	-2.8	-1.9	-0.7	0.1	0.8	1.5	1.7	0.4	-1.5	-3.1	-4.1	-5.1	-6.1	-6.1	1.7
31-Mar	-6.9	-7.3	-8.2	-7.9	-9.9	-12.1	-11.8	-8.0	-5.1	-1.5	2.9	6.1	7.7	8.4	9.0	9.2	9.4	8.8	8.0	6.9	6.6	6.2	6.3	6.2	1.0	9.4
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Janvier - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Janvier - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	80	10.75	10.75
-20 - 0	493	66.26	77.02
0 - 10	156	20.97	97.98
10 - 20	15	2.02	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

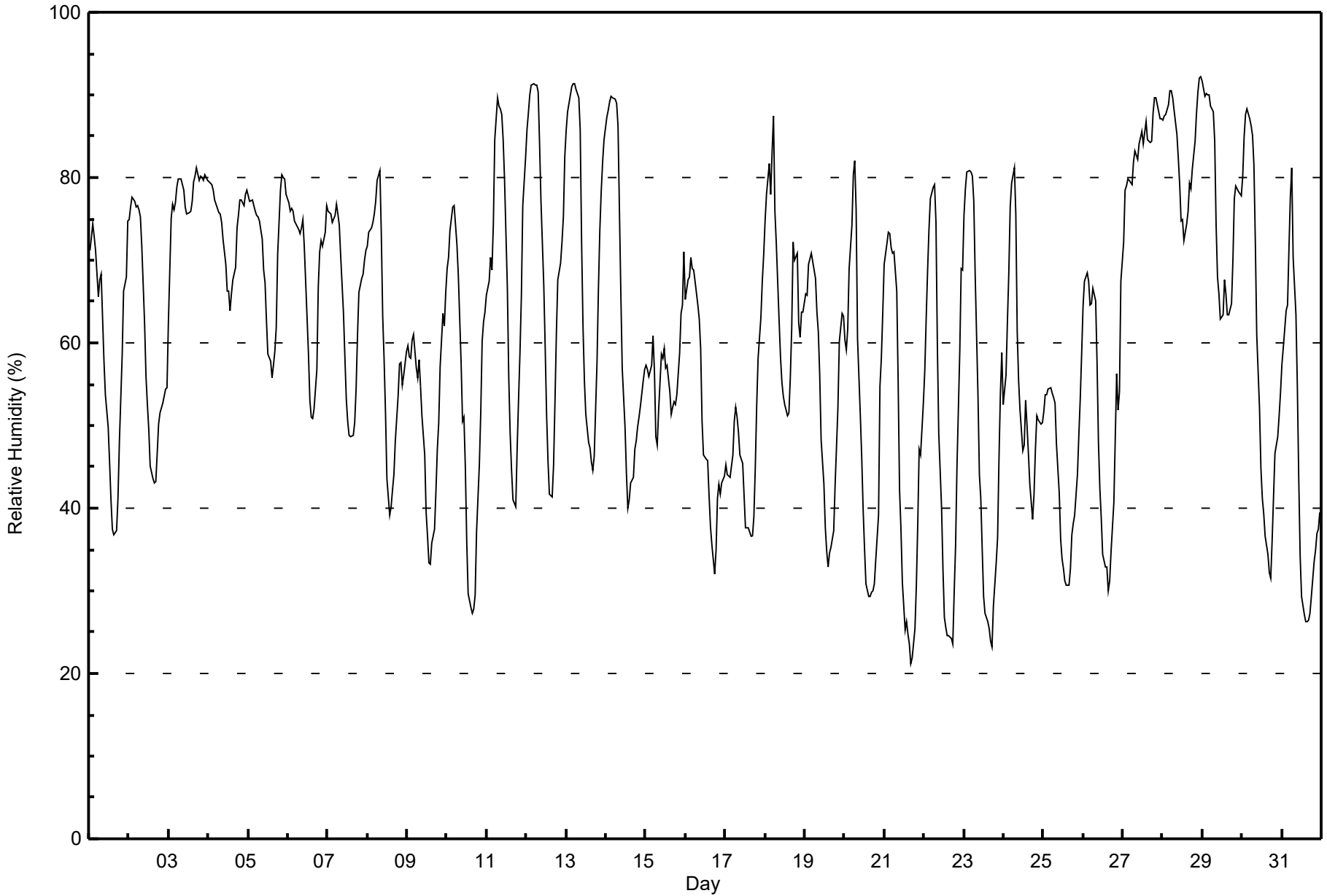
Relative Humidity (RH) - %
Janvier - March 2024

Maximum Value: 92.2 % on Mar 29 00:00 Maximum Daily Average: 83.9 % on Mar 28																						Hours in Service: 744																									
Minimum Value: 21.2 % on Mar 21 17:00 Minimum Daily Average: 44.4 % on Mar 25																						Hours of Data: 744																									
Maximum Diurnal Average: 75.9 % at hour 6 Minimum Diurnal Average: 44.3 % at hour 16																						Hours of Missing Data: 0																									
Monthly Average: 60.92 % Percentiles: P₁ = 24.6 P₁₀ = 35.8 Q₁ = 47.2 Median = 62.4 Q₃ = 75.9 P₉₀ = 84.0 P₉₉ = 91.1																						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-Mar	71.2	72.8	74.4	72.9	71.2	65.7	67.7	68.3	63.0	57.9	53.7	49.8	45.6	41.0	37.5	36.7	37.3	41.2	48.1	53.2	58.5	66.2	68.0	74.7	58.2	74.7																					
2-Mar	75.0	76.4	77.6	77.1	76.4	76.6	76.0	75.3	71.7	62.3	56.0	52.6	49.4	45.1	43.5	43.0	43.2	46.6	50.2	51.5	52.8	53.6	54.3	54.6	60.0	77.6																					
3-Mar	62.6	75.1	76.7	76.2	77.0	78.8	79.8	79.9	79.1	78.5	76.4	75.6	75.8	75.9	77.1	79.5	80.2	81.2	79.6	80.1	80.0	79.6	80.3	79.6	77.7	81.2																					
4-Mar	79.4	79.3	79.2	78.4	77.3	76.3	75.8	75.5	74.6	72.5	69.4	66.4	66.3	63.9	65.9	67.7	69.2	73.8	75.5	77.4	77.3	76.7	78.0	78.5	73.9	79.4																					
5-Mar	77.7	77.2	77.2	76.7	76.0	75.5	75.2	74.7	72.5	68.9	67.3	62.7	58.6	57.7	55.7	57.2	59.0	61.9	70.7	78.4	80.4	79.9	79.9	78.0	70.8	80.4																					
6-Mar	76.9	75.9	76.3	75.9	74.8	74.4	73.7	73.3	73.9	74.9	71.6	63.1	58.7	53.0	51.0	50.9	52.1	56.9	66.7	71.0	72.4	71.8	73.4	76.7	68.3	76.9																					
7-Mar	76.0	75.8	75.6	74.5	75.4	76.8	75.5	74.2	70.6	63.5	58.3	53.2	50.4	48.8	48.7	48.9	50.3	54.4	60.8	66.1	67.7	68.4	70.0	71.2	64.8	76.8																					
8-Mar	71.7	73.4	74.0	74.5	75.6	77.1	79.7	80.9	73.3	63.3	58.0	51.4	43.6	39.2	40.2	42.2	44.1	48.1	53.6	57.5	57.6	54.9	56.1	59.0	60.4	80.9																					
9-Mar	59.6	58.4	58.2	60.3	61.0	56.9	55.7	58.0	54.7	51.3	46.4	39.5	36.7	33.4	33.2	35.8	37.4	42.1	47.1	50.3	57.1	63.5	62.1	66.2	51.0	66.2																					
10-Mar	69.0	70.4	73.5	76.4	76.6	74.3	71.9	68.1	57.4	50.5	51.1	45.0	36.0	29.7	28.0	27.2	27.8	29.5	37.2	45.3	51.5	60.1	62.5	63.8	53.4	76.6																					
11-Mar	65.8	67.4	70.4	68.8	74.4	84.5	89.6	88.7	88.3	87.6	84.6	79.7	66.6	55.7	48.9	44.5	41.1	40.1	47.3	53.3	58.7	65.6	76.6	82.5	68.0	89.6																					
12-Mar	85.8	87.9	89.9	91.1	91.4	91.3	91.1	90.4	84.0	77.1	67.0	59.6	51.4	45.7	41.6	41.4	45.3	52.8	61.3	67.7	69.7	72.2	75.3	82.5	71.4	91.4																					
13-Mar	85.7	88.0	90.0	91.0	91.4	90.6	89.7	85.7	72.2	62.0	55.4	51.3	48.0	47.3	45.6	44.6	46.3	57.7	66.5	73.5	78.3	81.9	84.6	71.6	91.4																						
14-Mar	87.3	88.1	89.2	89.9	89.6	89.5	89.0	86.2	76.1	66.1	56.9	49.9	44.2	40.1	41.0	43.1	43.8	47.1	48.2	49.8	51.0	52.4	55.4	56.8	63.8	89.9																					
15-Mar	57.2	56.7	55.9	57.4	60.8	56.6	48.7	47.6	51.8	58.6	58.1	59.4	56.9	57.2	54.1	51.3	52.3	52.9	52.5	53.7	58.8	63.6	64.6	71.0	56.6	71.0																					
16-Mar	65.3	67.6	68.0	70.3	69.0	68.8	67.4	64.6	62.8	59.3	50.6	46.4	45.9	45.7	41.5	37.7	35.6	32.0	35.0	41.2	42.9	41.7	43.0	43.8	51.9	70.3																					
17-Mar	45.3	44.1	44.0	43.8	46.4	50.5	52.2	51.1	49.2	46.5	45.5	41.5	37.6	37.6	37.6	36.6	36.6	39.0	44.9	52.4	58.1	63.1	67.5	70.6	47.6	70.6																					
18-Mar	74.7	78.0	81.7	77.9	83.1	87.5	76.0	72.1	62.7	58.3	55.2	53.6	52.6	51.1	51.5	55.7	61.8	72.2	70.0	70.9	62.3	60.7	63.8	63.7	66.5	87.5																					
19-Mar	65.9	65.8	69.6	70.2	70.8	69.8	67.8	63.7	61.4	56.2	48.3	42.9	37.6	34.8	32.9	34.7	35.2	37.3	42.8	47.4	52.2	60.1	63.5	63.2	53.9	70.8																					
20-Mar	60.3	59.1	61.6	69.0	74.3	80.4	82.1	76.1	60.4	51.1	46.2	39.9	35.1	30.9	29.4	29.3	29.8	30.0	30.9	33.7	39.2	54.8	58.1	63.6	51.1	82.1																					
21-Mar	69.5	72.0	73.3	73.2	71.5	70.8	71.1	66.2	55.3	42.2	37.5	31.0	25.2	26.4	24.7	23.6	21.2	21.9	25.4	30.6	38.1	47.2	46.4	52.7	46.5	73.3																					
22-Mar	56.5	62.9	68.7	73.7	77.4	78.8	79.2	74.6	59.6	48.9	40.1	32.5	26.8	25.6	24.6	24.6	24.3	23.6	29.8	35.4	45.1	59.0	68.9	68.8	50.4	79.2																					
23-Mar	75.4	78.6	80.6	80.9	80.8	80.1	77.1	68.2	53.5	44.1	41.1	35.2	29.3	27.3	26.2	25.4	23.8	23.3	28.1	33.5	36.5	46.2	53.9	58.9	50.3	80.9																					
24-Mar	52.6	56.1	62.5	68.5	76.4	79.4	81.2	75.6	61.4	55.5	51.9	47.0	47.7	53.0	50.0	46.7	42.8	38.6	41.7	47.2	51.2	50.6	50.2	50.3	55.8	81.2																					
25-Mar	51.7	53.8	53.8	54.4	54.5	54.0	53.5	52.8	47.8	41.9	36.2	33.9	32.7	31.2	30.7	30.8	32.7	36.8	38.1	39.1	44.1	48.9	53.3	58.6	44.4	58.6																					
26-Mar	64.5	67.4	68.5	67.4	64.6	64.8	66.6	65.0	57.6	48.0	42.4	38.8	34.4	32.9	32.8	29.9	31.1	34.7	40.7	48.5	56.2	51.8	54.0	67.4	51.3	68.5																					
27-Mar	72.2	78.4	79.1	79.9	79.6	79.1	81.8	83.3	82.7	82.2	84.0	85.7	84.1	85.4	86.8	84.6	84.3	84.4	87.8	89.6	89.7	88.8	87.2	87.2	83.7	89.7																					
28-Mar	86.9	87.5	87.6	88.8	90.6	90.6	89.7	88.1	85.2	82.4	79.1	74.8	74.9	72.3	74.4	76.0	79.4	78.7	81.1	84.3	87.8	90.4	92.1	92.2	83.9	92.2																					
29-Mar	91.6	89.8	90.1	90.0	90.1	88.7	88.0	84.3	74.2	68.0	65.9	62.9	63.3	67.7	65.9	63.3	63.4	64.7	69.9	77.5	78.9	78.6	78.3	77.8	76.4	91.6																					
30-Mar	80.1	84.9	87.6	88.4	87.1	86.3	85.1	81.5	72.2	61.0	52.1	44.7	41.2	39.2	36.6	34.4	32.2	31.5	36.1	41.4	46.7	48.6	51.1	54.0	58.5	88.4																					
31-Mar	57.4	59.5	64.0	64.6	71.4	77.7	81.2	70.3	63.4	54.7	43.6	34.2	29.3	27.1	26.3	26.2	26.4	27.3	29.3	33.6	35.0	36.9	37.4	39.5	46.5	81.2																					
																						70.0	71.9	73.5	74.3	75.4	75.9	75.5	73.2	67.3	61.5	56.7	51.9	48.0	45.9	44.7	44.3	44.8	46.8	51.2	55.7	59.1	62.4	64.7	67.5	Diurnal Average	
																						91.6	89.8	90.1	91.1	91.4	91.4	91.1	90.4	88.3	87.6	84.6	85.7	84.1	85.4	86.8	84.6	84.3	84.4	87.8	89.6	89.7	90.4	92.1	92.2	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Janvier - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Janvier - March 2024

Maximum Speed: 19 km/h on Mar 17 16:00	Maximum Daily Speed Average: 13.5 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 1 21:00	Minimum Daily Speed Average: 0.8 km/h on Mar 13	Hours of Data: 744
Maximum Diurnal Speed Average: 2.6 km/h at hour 23	Minimum Diurnal Speed Average: 0.4 km/h at hour 11	Hours of Missing Data: 0
Monthly Average Velocity: 1.2 km/h 177.7 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 4 Median = 7 Q ₃ = 10 P ₉₀ = 13 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-Mar	WNW4	WNW3	WNW5	WNW9	WNW11	WNW10	W10	W10	W11	W13	W11	W13	WNW13	WNW12	WNW11	WNW10	WNW8	WNW6	NW2	NNE3	SW0	W1	ENE0	NE1	WNW7.1	W13
2-Mar	NNE2	NE1	S2	NNE3	NNE2	NNE2	NNE1	SSE0	NE2	ENE4	ENE5	NE8	NE11	NE12	NNE11	NE12	NE9	NE10	NE11	NE10	NE10	NE10	NE10	NE13	NE6.6	NE13
3-Mar	NNE12	NNE12	NNE14	NE14	NE10	NNE9	NNE7	NNE8	NNE8	NNE7	NNE9	NNE10	NNE11	NNE12	NNE12	NNE11	NNE10	NNE9	N9	NNE7	N6	N5	N4	N5	NNE9.0	NNE14
4-Mar	NNW5	NW6	NW6	NW6	NW6	NW5	WNW4	WNW4	NW5	WNW6	NNW6	NNW7	N6	N6	NNW5	NNW5	WNW4	NW3	WNW3	W3	W4	W4	SW3	SSW5	NW4.0	NNW7
5-Mar	SSW6	SSW7	SSW7	SSW8	SSW9	SSW8	SSW7	SSW8	SSW8	SSW6	SSW7	SSW4	SW3	SSW6	SSW8	S7	SSW7	SSE6	SSE5	S3	S3	S2	S3	SSW3	SSW5.7	SSW9
6-Mar	SSW2	S2	S3	S4	SSW4	S4	S2	SSE2	SSW3	SSW5	SSW6	SSW5	W1	S5	S9	SSW11	S12	SSW9	SSE5	SSE7	S8	S8	SSW8	SSW8	S5.4	SSW12
7-Mar	S8	SSW8	SSW9	SSW8	SSW6	S6	S7	S6	SSW8	SSW9	SW11	SSW14	SSW15	SSW15	SSW17	SSW16	SSW16	SSW13	SSW13	SSW12	SSW13	SSW13	SSW11	SSW11	SSW10.9	SSW17
8-Mar	SSW12	SSW12	SSW12	SSW12	SSW10	SSW9	SSW8	SSW7	SW5	SSW6	SSW8	SSW6	S5	SSW4	SSW8	SW9	SSW7	S7	SSE7	S7	S10	SSW10	SSW8	S7	SSW8.0	SSW12
9-Mar	SSW8	SSW8	S8	S5	S5	SSW9	SSW8	S5	SSW7	W3	SSW4	SSW9	SSW13	SSW10	SSW14	S13	S9	SSE7	S8	SSW8	S6	S4	S9	SSW7	SSW7.6	SSW14
10-Mar	SSW8	SSW9	SSW8	SSW9	SSW11	SSW10	SW11	SW9	SW8	W12	W14	W15	W16	W16	W17	WNW15	WNW13	WNW8	N1	ENE3	ENE4	ESE1	SSW1	NNE1	WSW7.0	W17
11-Mar	NE3	NNE5	NNE5	NNE7	NNE7	NNE3	NNE6	NNE8	NNE7	NNE6	NNE5	NNW2	SSW1	ENE3	ENE2	N3	ENE3	E4	E4	E6	ENE6	ENE4	N2	N2	NE3.8	NNE8
12-Mar	N2	NNE2	N2	NNE3	NNE2	N3	N3	NNE3	NNE4	NNE7	NE9	ENE10	ENE10	ENE11	ENE10	ENE8	ENE8	NE9	NE7	NE6	ENE7	NE6	NE5	NNE3	NE5.4	ENE11
13-Mar	NNE2	N2	NNE2	NNE3	N2	NNE3	N2	NNE2	NNW2	NNE3	NE3	NNE4	ENE6	E5	NE5	E5	E5	ESE5	SSE5	SSW7	SSW9	SW9	SSW8	SSW10	ESE0.8	SSW10
14-Mar	SW9	SW9	SSW9	SSW9	SSW10	SSW10	SSW10	SSW9	SW9	SW8	SW10	SW11	SW13	SW13	WSW13	WSW13	SW9	SSW8	SSW9	SSW10	SW9	SW10	SW9	W10	SW9.6	WSW13
15-Mar	W10	WNW16	WNW15	WNW14	WNW12	WNW13	WNW12	NW14	NNW12	N12	NNE13	N12	NNE10	NNE14	NNE12	NNE12	NNE10	NNE10	NNE7	NNE4	NNE4	NNE3	NNE4	N3	NNW7.7	WNW16
16-Mar	NNE7	NNE7	NNE6	NNE5	NNE6	NNE5	NNE7	NE7	NNE6	NNE5	NNE8	NNE9	NNE8	NE9	NNE9	NE8	NE7	ENE6	E8	E7	SE7	SE6	SE5	NE5.8	NE9	
17-Mar	ESE5	SE5	S6	S6	SSW8	S7	SSE5	S7	S7	S6	S9	S11	S12	SSW15	SSW17	SSW19	SSW16	SSW16	SSW18	SSW16	SSW16	SSW16	SSW16	SSW16	SSW10.6	SSW19
18-Mar	SSW12	SW6	SW2	WNW1	SSW1	NE1	NNE6	NNE7	N8	N7	NNE10	NNE12	NNE12	NNE14	NNE14	NNE15	NNE14	NNE12	NNE11	NNE11	N11	N10	N8	NNE9	NNE7.1	NNE15
19-Mar	N8	NNE9	NNE7	N7	N7	N9	NNE8	NNE9	NNE9	NNE10	NNE9	NNE11	NNE9	NNE11	NNE12	N10	NNE9	NNE9	NNE6	NNE4	NNE4	NW2	NE2	NNE4	NNE7.6	NNE12
20-Mar	NNE4	NE6	NE7	NNE3	ENE2	NNE0	NE1	NNE4	NE4	NNE4	NNE7	NNE6	NNE6	NNE4	NNE6	NE5	E3	ENE7	ENE6	NE6	NE4	NNE2	E3	NE2	NE4.0	NE7
21-Mar	N2	NNE1	NNE3	NNE4	N3	N3	N4	NNE5	NNE6	NE9	NE7	E9	ENE10	ENE9	ENE9	NE9	NNE10	NNE9	NNE7	NE3	NNE4	N3	NNE4	NNE3	NE5.2	ENE10
22-Mar	NNE2	NNE1	NE2	ESE1	SE1	S1	SSE1	WSW1	W2	NNE2	ESE5	E3	ENE5	NE4	NNE2	E4	E6	E5	E5	E4	NE3	NNE2	ENE2	ENE2.2	E6	
23-Mar	ESE1	S1	SSW2	S2	S3	S3	S5	SSW8	SSW7	SSW5	SW5	S4	S5	SW6	WSW3	SE2	SSE3	SSE3	E4	ESE4	SE3	SE2	SSE2	SSW4	S3.0	SSW8
24-Mar	SSW7	SSW7	SSW6	SSE3	SSE3	S3	SSW3	SSW2	WSW3	WSW4	SSW8	S10	S10	SSW11	S9	SSE9	S8	S7	SSE6	SE4	ESE5	SE6	SSE6	SSE6	S5.4	SSW11
25-Mar	SE6	ESE5	ESE6	SE6	SE6	S6	SSE5	SSE5	SSE7	SSE8	SSE9	S12	S13	SSW13	SSE13	SSE13	SSE12	S11	S10	S11	S12	S13	S12	S13	SSE9.1	S13
26-Mar	S11	SSE11	SSE12	SSE12	SSE13	SSE13	SSE12	SSE11	S13	SSE14	S17	S18	SSE17	SSE17	SSE18	SSE17	SSE16	SSE15	SSE13	SSE12	SSE13	SSE10	SSE12	SSE10	SSE13.5	SSE18
27-Mar	SE9	SE8	SE7	SE7	SE9	SE9	SE9	ESE10	ESE10	ESE11	ESE11	ESE11	ESE11	E10	E8	E9	E9	E7	ENE7	ENE6	ENE6	ENE6	E6	ENE6	ESE7.6	ESE11
28-Mar	NE5	NE5	NE5	NNE4	NNE4	NNE4	NNE5	NNE6	NNE7	NNE7	N7	NNE8	NNE9	NNE9	NNE9	NNE10	NNE9	NE10	NE7	NNE3	NNW2	NNE1	N1	NNE2	NNE5.6	NE10
29-Mar	N2	N4	N3	N3	NNW1	NNE1	N2	NNE6	NNE8	N7	NNW6	NNW7	N7	NNW6	N7	N7	WNW6	NW4	WNW4	W5	W4	WNW1	WSW2	SW3	NNW3.5	NNE8
30-Mar	SW3	SW3	SSW4	SSW5	SSW8	SSW9	SSW8	SSW8	SW4	WSW4	SW6	S10	S11	SSW10	S9	S11	S9	S8	SE7	SSE6	SSE5	SSE4	SSE4	S4	S6.2	S11
31-Mar	S3	S5	S4	S6	S4	SW2	SSW4	SSW8	SW9	SW11	SW9	SW13	SW15	SW17	SW14	SW15	SSW17	SSW16	SSW14	S12	S16	S17	SSW18	SSW18	SSW10.7	SSW18

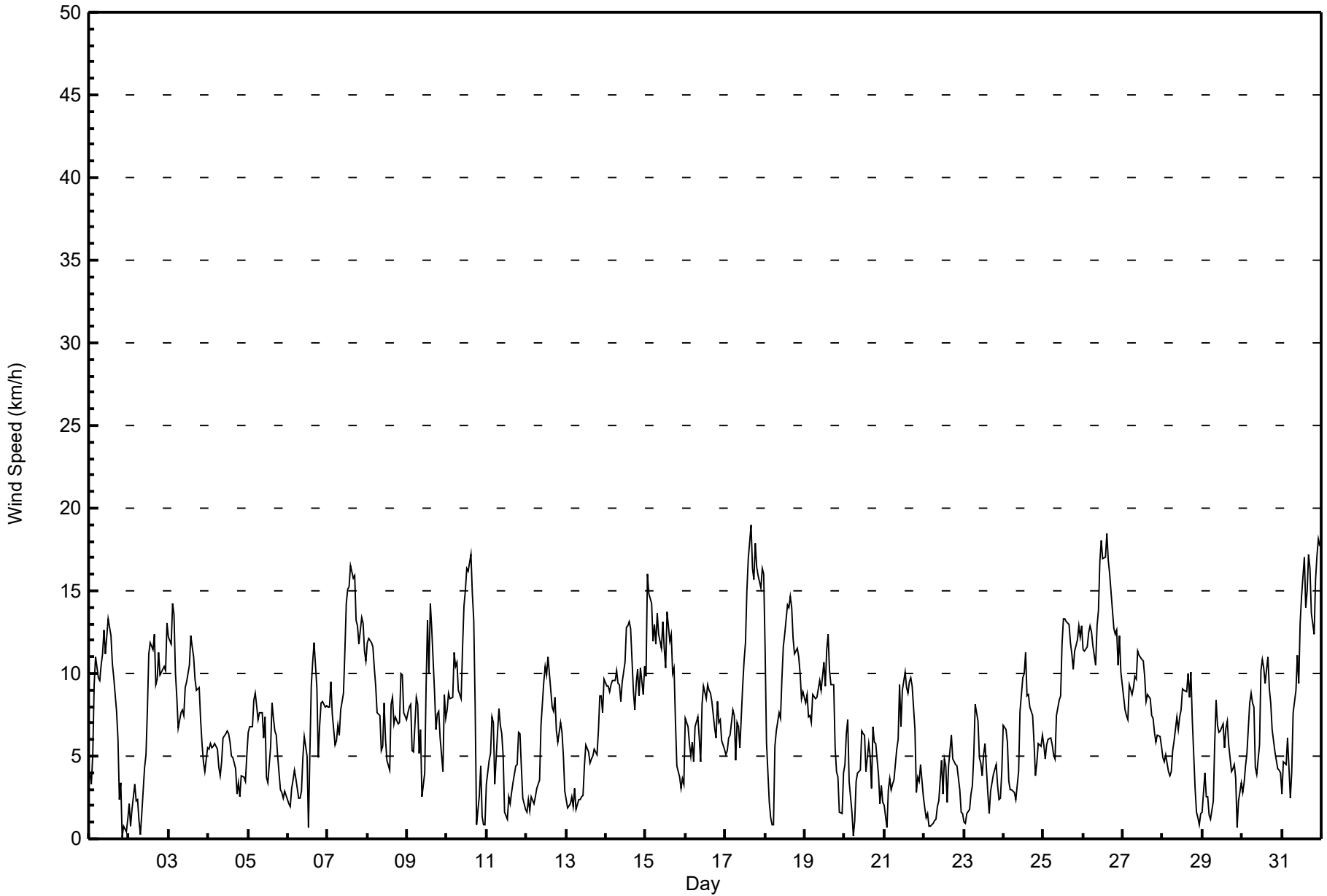
S1.4 SSW1.2 SSW1.3 SSW1.2 SSW1.6 SSW1.8 SSW1.2 SW0.8 WSW0.9 WNW0.8 SW0.4	S1.0 SSE1.0 SSE0.8 S0.9 SSE1.3 SSE1.7 SE1.8 SE2.1 SE2.1 SSE2.4 S2.3 S2.6 S2.3	Diurnal Average
NNE12 WNW16 WNW15 WNW14 SSE13 WNW13 WNW12 NW14 S13 SSE14 S17	S18 SSE17 SW17 SSE18 SSW19 SSW17 SSW16 SSW18 SSW16 SW16 S17 SSW18 SSW18	Diurnal 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 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Janvier - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	267	35.89	35.89
6 - 11	356	47.85	83.74
12 - 19	121	16.26	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 - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	25	62	21	12	14	9	7	18	28	23	10	6	9	11	6	6	267
6 - 11	18	74	26	21	11	7	14	16	41	81	22	0	6	10	4	5	356
12 - 19	2	17	4	0	0	0	0	20	14	31	11	2	7	11	1	1	121
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
Totals	45	153	51	33	25	16	21	54	83	135	43	8	22	32	11	12	744

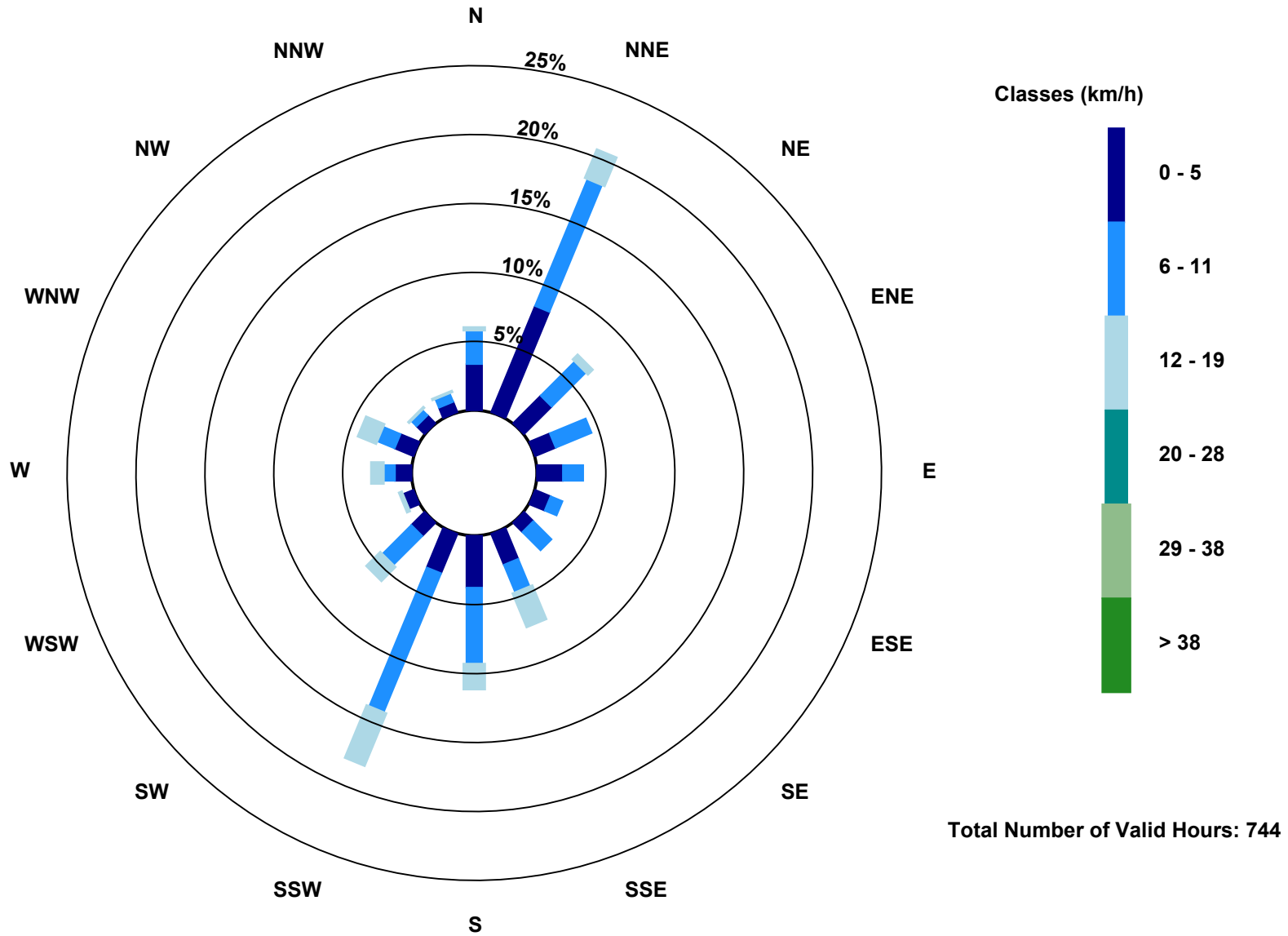
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Janvier





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Janvier - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Mar 15 08:00 Minimum Value: 0 km/h on Mar 5 22:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0									
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	2	1	2	3	4	4	3	3	4	5	4	5	5	4	4	4	3	2	1	1	1	1	1	1	5	
2-Mar	1	1	1	2	1	1	1	1	1	2	2	3	3	4	4	3	3	3	3	3	3	3	3	3	4	4
3-Mar	3	3	4	4	2	3	2	2	2	2	3	2	3	3	3	3	3	3	3	2	3	2	2	2	4	
4-Mar	3	3	3	3	3	3	2	2	2	2	3	3	3	3	2	2	2	2	2	1	1	1	1	1	3	
5-Mar	1	1	1	1	1	1	2	2	2	2	2	2	3	2	3	2	2	2	2	1	1	0	1	1	3	
6-Mar	1	1	1	1	1	1	2	1	2	2	2	2	2	4	4	4	3	3	1	2	2	2	2	2	4	
7-Mar	2	2	2	2	2	2	2	2	2	3	4	4	4	4	5	5	4	4	3	3	4	4	3	3	5	
8-Mar	3	3	3	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	2	2	3	3	2	2	3	
9-Mar	2	2	2	1	2	2	2	2	3	1	3	3	4	4	5	4	4	2	2	3	2	2	2	2	5	
10-Mar	2	2	2	2	3	3	3	3	2	5	5	6	6	6	6	6	5	4	1	2	1	1	1	1	6	
11-Mar	2	1	2	2	2	1	2	2	2	2	2	1	2	1	1	1	2	1	2	2	2	2	1	1	2	
12-Mar	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	1	3	
13-Mar	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	2	2	2	3	3	
14-Mar	3	3	2	2	2	2	2	2	3	3	3	4	5	5	5	4	3	2	2	3	2	3	3	3	5	
15-Mar	4	5	5	5	4	4	5	6	6	6	5	5	4	5	4	4	4	3	2	2	1	1	2	2	6	
16-Mar	2	2	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	2	3	3	2	3	2	2	3	
17-Mar	2	2	2	2	2	3	1	2	2	2	3	3	4	5	5	5	5	5	5	5	5	5	5	5	5	5
18-Mar	4	2	2	1	1	1	2	3	3	3	3	4	4	4	4	5	5	5	4	4	4	4	3	4	5	
19-Mar	3	3	3	3	3	3	3	3	4	3	4	4	4	4	4	4	3	3	2	1	1	1	1	1	4	
20-Mar	1	1	2	2	1	1	1	1	2	2	3	3	3	2	3	3	2	2	2	1	1	1	1	1	3	
21-Mar	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	4	3	3	1	2	1	1	2	4	
22-Mar	1	1	1	1	1	1	1	1	1	1	2	2	3	2	2	3	3	2	1	1	1	1	1	1	3	
23-Mar	1	1	1	1	1	1	2	2	2	2	2	3	3	3	2	2	2	2	1	1	1	1	1	2	3	
24-Mar	1	1	1	1	1	1	1	1	2	1	4	3	3	4	3	3	3	3	2	1	1	2	2	2	4	
25-Mar	2	1	1	2	2	2	2	2	3	3	3	4	5	5	5	4	4	4	4	4	4	4	4	4	5	
26-Mar	4	4	4	4	4	4	4	3	5	5	6	6	6	6	6	6	6	5	4	4	5	4	4	3	6	
27-Mar	4	3	3	3	3	3	3	3	3	4	4	4	4	4	3	4	3	3	2	2	2	2	2	2	4	
28-Mar	2	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	3	3	2	1	1	1	1	1	3	
29-Mar	1	1	1	1	1	1	1	4	3	3	3	3	3	3	3	3	3	2	2	1	1	2	1	1	4	
30-Mar	1	1	1	1	1	1	1	2	2	1	3	3	4	4	4	4	3	3	2	2	1	1	1	1	4	
31-Mar	2	1	1	2	2	1	2	3	3	4	3	4	5	6	5	6	6	5	4	4	4	5	5	5	6	
Diurnal Maximum																										



Wood Buffalo Environmental Association
Summary of Hour Averages

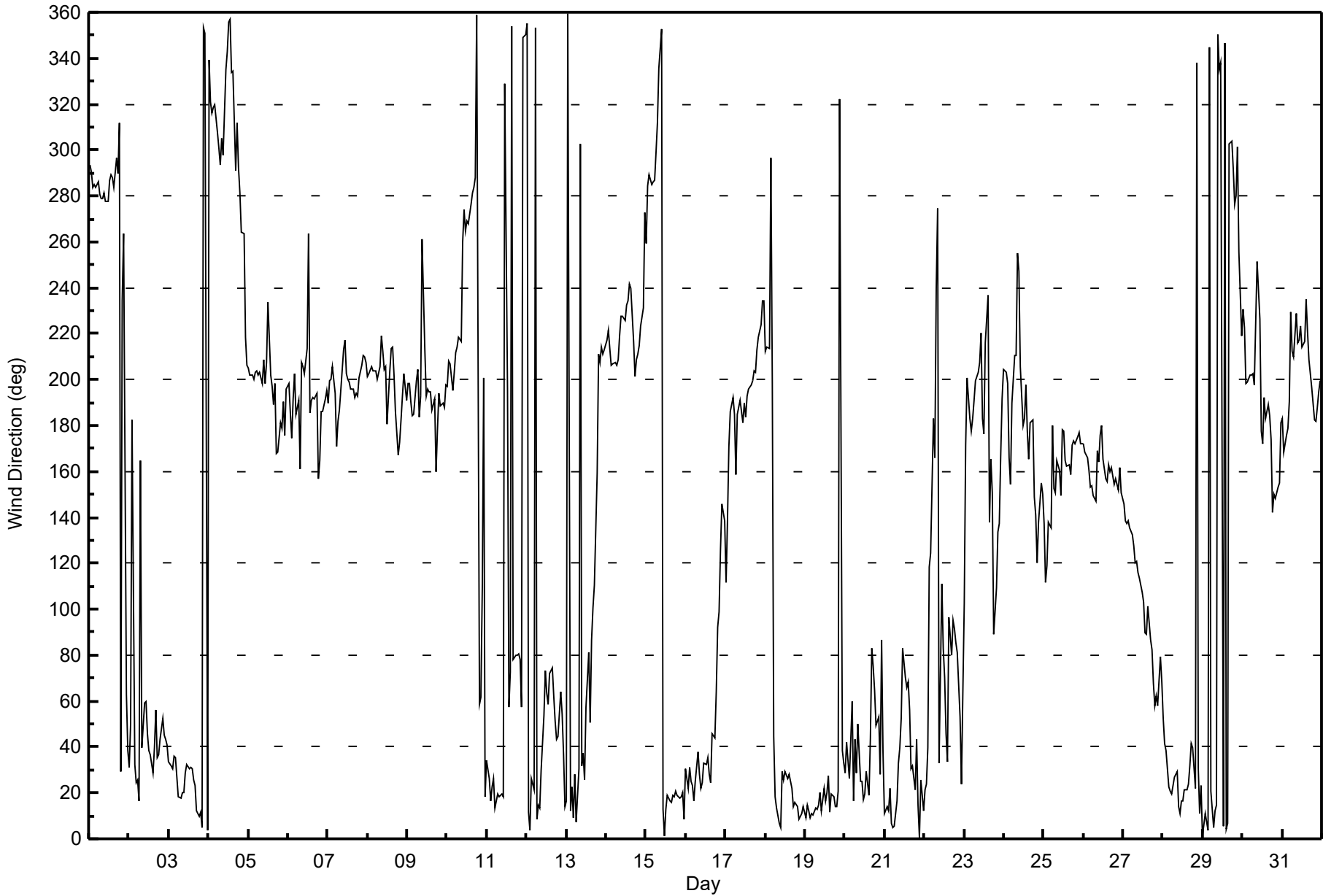
Wind Direction (WD) - deg
Janvier - March 2024

Direction of Maximum Speed: 197 deg on Mar 17 16:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 161.2 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 234 deg on Mar 1 21:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 0.8 deg on Mar 13		Percent Operational Time:	100.0
Monthly Average Direction: 177.7 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-Mar	293	290	284	285	283	286	281	279	279	281	278	278	287	289	288	283	297	290	312	30	234	264	63	38	285.9
2-Mar	31	50	182	32	25	26	16	165	40	59	60	46	38	37	29	39	56	35	36	43	53	45	43	41	41.9
3-Mar	33	31	31	36	36	27	18	18	20	20	29	33	30	31	30	25	23	12	10	12	5	354	351	4	24.1
4-Mar	340	321	316	318	319	307	301	294	305	298	335	343	356	357	334	334	291	312	292	281	264	264	218	206	312.5
5-Mar	205	202	202	200	203	204	202	203	198	209	198	207	233	202	197	189	199	168	168	182	179	190	176	196	197.5
6-Mar	199	186	175	191	203	185	191	161	208	206	203	213	264	186	191	192	191	194	157	165	186	186	192	195	190.2
7-Mar	190	199	200	206	194	171	182	187	195	213	217	203	200	199	196	196	192	194	193	201	206	210	210	208	199.4
8-Mar	201	202	206	204	204	204	200	206	219	212	205	206	181	204	213	214	202	186	167	173	182	193	203	191	199.5
9-Mar	198	198	191	184	185	200	204	184	193	261	213	193	196	194	194	187	191	160	178	194	189	190	188	198	192.5
10-Mar	197	208	207	195	203	212	214	218	217	260	274	265	269	268	276	282	284	288	359	59	62	109	200	18	248.5
11-Mar	34	26	17	23	26	13	20	18	19	19	18	329	196	58	72	354	78	80	80	81	78	57	349	350	35.2
12-Mar	355	12	3	26	21	353	8	15	13	30	54	73	63	59	72	74	62	52	43	44	64	54	36	14	49.5
13-Mar	16	359	12	22	9	28	7	31	303	32	37	25	57	81	51	87	101	111	160	211	207	214	211	213	118.1
14-Mar	217	221	213	206	207	208	206	208	219	228	228	226	232	235	241	240	216	201	209	211	215	223	231	273	222.4
15-Mar	259	284	290	285	286	287	299	312	335	353	13	1	13	19	17	16	19	18	21	19	18	18	20	8	336.7
16-Mar	31	22	31	25	23	16	25	38	28	22	24	33	32	35	28	25	46	44	64	92	99	126	146	139	44.8
17-Mar	111	138	171	186	192	185	159	185	188	191	181	190	184	193	196	197	200	204	203	213	219	224	234	234	199.6
18-Mar	212	214	214	297	198	45	18	13	7	5	29	26	29	26	28	25	22	14	16	14	9	10	11	14	16.9
19-Mar	9	15	12	9	11	11	13	13	15	20	12	22	17	20	28	11	20	18	14	14	21	322	39	33	16.0
20-Mar	29	42	34	26	60	16	43	29	50	25	25	17	19	29	19	44	83	75	65	50	53	28	87	38	40.3
21-Mar	11	14	12	22	7	5	5	16	33	40	53	83	70	66	69	56	30	32	21	44	14	1	25	12	40.1
22-Mar	21	24	40	118	125	183	166	240	275	33	111	83	70	46	33	97	80	95	92	85	81	53	24	64	75.8
23-Mar	103	171	201	183	178	183	191	199	203	208	220	183	176	216	237	138	165	150	89	109	133	137	166	192	181.3
24-Mar	204	203	198	166	155	190	210	210	255	247	206	180	183	198	177	165	182	182	149	141	120	138	155	150	180.8
25-Mar	137	112	119	138	135	180	152	151	165	161	149	178	178	165	163	163	159	171	173	172	175	177	172	172	163.7
26-Mar	172	168	166	160	153	154	150	147	169	164	176	180	165	157	156	163	160	162	154	157	154	152	162	151	161.2
27-Mar	146	139	137	139	136	132	127	120	121	116	114	107	103	90	89	101	87	82	68	58	62	58	79	68	106.5
28-Mar	53	42	39	23	21	20	23	27	29	14	11	16	17	21	21	24	32	41	40	22	338	31	11	23	25.8
29-Mar	1	11	7	4	345	21	5	12	15	350	335	338	6	346	4	7	303	304	292	276	280	302	256	219	341.9
30-Mar	231	223	198	199	202	202	202	198	224	251	226	177	172	192	183	189	184	174	142	150	148	153	155	181	187.4
31-Mar	183	169	175	179	190	229	212	210	229	216	217	223	214	216	235	221	209	203	197	183	182	188	195	199	204.6

189.8 202.2 197.2 198.0 198.0 209.8 208.6 214.2 246.9 290.1 225.7 185.4 147.6 150.4 169.6 160.8 156.3 134.9 128.0 141.5 156.5 175.0 184.2 191.1
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Janvier - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 101 deg on Mar 29 22:00																			Hours of Data: 744						
Minimum Value: 7 deg on Mar 30 04:00																			Hours of Missing Data: 0						
Percentiles: P ₁ = 9 P ₁₀ = 15 Q ₁ = 19 Median = 25 Q ₃ = 34 P ₉₀ = 53 P ₉₉ = 92																			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-Mar	35	35	18	20	22	23	19	19	19	21	25	24	29	27	34	29	35	23	59	34	91	73	77	36	91
2-Mar	20	75	48	33	79	31	53	92	76	59	41	38	23	22	22	19	26	16	14	16	18	15	17	15	92
3-Mar	15	14	15	14	14	16	20	20	21	20	20	16	16	16	18	17	20	28	27	26	44	42	41	39	44
4-Mar	51	48	41	52	52	47	38	29	47	29	51	53	47	48	53	58	29	77	32	48	17	13	19	9	77
5-Mar	10	10	9	8	10	10	11	11	10	29	20	53	61	41	29	30	20	27	19	27	28	21	14	21	61
6-Mar	34	36	28	13	22	24	45	58	44	25	20	41	98	68	31	25	20	17	19	20	16	15	13	12	98
7-Mar	15	12	12	15	16	18	17	16	14	24	25	19	19	20	17	19	16	16	14	15	17	17	16	15	25
8-Mar	14	14	13	12	12	13	11	11	18	29	20	24	40	58	28	25	19	20	19	19	19	16	13	17	58
9-Mar	16	17	12	16	17	15	17	21	19	47	63	19	20	22	20	20	23	27	19	21	21	56	16	14	63
10-Mar	15	15	17	14	14	16	17	17	20	27	22	23	24	25	22	22	22	34	89	70	25	67	80	83	89
11-Mar	45	26	28	17	16	29	19	22	24	25	46	85	93	77	72	72	52	27	14	15	18	36	39	36	93
12-Mar	34	29	50	16	18	27	23	22	41	22	21	26	26	24	26	26	22	16	15	18	24	21	18	16	50
13-Mar	16	26	29	28	28	16	43	44	25	53	72	47	39	39	31	29	22	18	39	15	13	16	17	16	72
14-Mar	17	19	16	14	13	14	13	16	19	25	23	25	26	28	26	25	21	12	14	17	17	19	22	20	28
15-Mar	26	20	22	19	18	22	31	43	50	55	36	43	38	23	26	25	25	23	17	20	15	13	30	34	55
16-Mar	14	18	14	15	18	20	17	18	23	39	29	30	28	25	24	22	33	20	26	24	25	25	33	29	39
17-Mar	28	26	32	21	16	30	24	19	21	33	24	22	26	22	20	18	18	18	16	19	20	22	21	21	33
18-Mar	22	30	84	68	95	93	20	36	40	46	28	24	20	19	19	18	22	28	27	30	36	33	36	32	95
19-Mar	31	29	25	30	27	29	30	28	30	33	40	33	38	32	28	35	26	24	29	19	28	42	76	15	76
20-Mar	20	12	13	17	53	90	20	33	39	66	52	52	61	76	59	66	81	29	18	12	24	56	26	52	90
21-Mar	32	68	36	14	16	25	20	21	22	18	34	33	28	35	37	35	24	25	18	25	18	25	17	29	68
22-Mar	32	67	35	60	58	51	66	46	65	79	48	87	76	58	97	80	36	35	24	15	22	26	55	44	97
23-Mar	53	54	41	40	20	11	13	11	24	35	52	79	71	61	84	98	77	57	20	14	15	52	45	19	98
24-Mar	9	8	10	21	15	15	18	20	31	38	35	31	27	28	34	31	27	34	24	21	17	19	18	21	38
25-Mar	22	21	15	19	29	32	32	31	30	29	37	32	31	34	30	30	27	25	21	23	22	22	23	22	37
26-Mar	22	24	25	22	23	22	22	26	26	26	28	27	29	28	28	29	27	26	27	28	29	28	29	27	29
27-Mar	27	31	29	30	21	25	23	23	23	24	22	27	26	27	26	27	28	28	24	23	30	26	29	28	31
28-Mar	22	22	17	17	17	16	15	18	17	31	30	27	23	26	23	22	20	16	20	23	27	45	46	27	46
29-Mar	48	23	26	26	70	83	32	29	33	42	48	49	47	56	45	43	39	39	31	20	37	101	41	19	101
30-Mar	25	13	8	7	8	9	10	11	38	45	51	35	32	33	40	27	35	28	18	19	23	24	20	22	51
31-Mar	77	24	20	19	25	37	26	22	24	23	28	25	26	25	26	26	23	20	16	20	18	18	17	16	77
Diurnal Maximum																									



Maximum Speed: 23 km/h on Mar 17 23:00	Maximum Daily Speed Average: 16.5 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 22 08:00	Minimum Daily Speed Average: 0.8 km/h on Mar 13	Hours of Data: 744
Maximum Diurnal Speed Average: 3.1 km/h at hour 23	Minimum Diurnal Speed Average: 0.7 km/h at hour 11	Hours of Missing Data: 0
Monthly Average Velocity: 1.3 km/h 191.0 deg	Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 6 Median = 9 Q ₃ = 12 P ₉₀ = 16 P ₉₉ = 22	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	NW7	NW6	WNW8	WNW14	WNW16	WNW15	WNW14	WNW14	WNW15	WNW17	WNW15	WNW18	WNW18	WNW14	WNW13	WNW12	WNW10	NW6	N6	NW3	NW4	NNW3	N4	WNW10.8	WNW18		
2-Mar	NNE5	NE4	SSW1	NNE5	NNE6	NNE6	NNE5	NNE3	N2	ENE5	ENE6	NE9	NE13	NE14	NNE14	NE15	ENE11	NE12	NE14	NE12	ENE12	NE12	NE12	NE15	NE8.6	NE15	
3-Mar	NE15	NE14	NNE18	NE16	NE12	NNE11	NNE9	NNE10	NNE10	NNE10	NNE11	NNE11	NNE12	NNE15	NNE14	NNE13	NNE12	N12	N12	N10	N8	NNW7	NNW6	N8	NNE11.2	NNE18	
4-Mar	NNW9	NW9	NNW9	NW9	NNW9	NW8	NW7	NW7	NW7	NW9	NNW9	NNW10	NNW9	NNW8	NNW7	NNW7	WNW6	NW5	NW6	NW5	WNW6	W6	SW5	SW7	NW6.6	NNW10	
5-Mar	SW8	SSW8	SSW9	SSW11	SSW11	SSW11	SSW9	SSW10	SSW8	SW6	SSW8	SSW5	WSW4	SSW6	SSW9	S9	SSW8	S8	S7	SW6	SSW6	S5	S5	S4	SSW7.4	SSW11	
6-Mar	SSW4	SSW5	SSW6	SSW7	SSW6	S7	SSW6	S5	SSW6	SSW6	SSW7	SW6	W1	S6	S11	S13	S14	SSW11	SSE7	SSE10	S12	S12	S11	SSW11	SSW7.7	S14	
7-Mar	SSW11	SSW11	SSW13	SSW11	SSW9	S9	S10	S9	SSW10	SW10	SW14	SSW17	SSW17	SSW18	SSW19	SSW19	SSW19	SSW16	SSW15	SSW15	SSW17	SSW17	SW14	SSW14	SSW13.8	SSW19	
8-Mar	SSW15	SSW15	SSW16	SSW15	SSW13	SSW12	SSW10	SSW10	SW8	SW6	SSW9	SSW7	S6	SSW5	SW9	SW10	SSW9	S10	S10	S11	S13	SSW12	SSW10	SSW10	SSW10.2	SSW16	
9-Mar	SSW11	SSW11	S11	S8	S8	SSW11	SSW11	S8	SSW9	WSW4	SSW7	S11	SSW16	SSW12	SSW17	S16	S11	SSE9	S11	SSW11	S10	SSW7	S12	SSW10	SSW10.3	SSW17	
10-Mar	SSW11	SSW11	SSW11	SSW11	SSW15	SW14	SW14	SW13	SW11	W15	W19	W19	W22	W22	W23	WNW20	WNW18	WNW12	NW4	NNE5	NE7	ENE4	WSW3	N2	WSW9.5	W23	
11-Mar	NNE6	NNE8	NNE9	NNE11	NNE9	NNE5	NNE9	NNE10	NNE9	N7	N6	NNW2	WSW1	NE3	ENE3	NNW3	ENE4	E6	E7	E10	E9	ENE7	NE4	NNE4	NE5.4	NNE11	
12-Mar	NNE4	NNE4	NNE4	NNE5	NNE5	NNE6	NNE6	NNE6	NNE5	NNE8	ENE11	ENE12	ENE12	ENE13	ENE12	ENE10	ENE10	NE10	NE8	NE8	ENE9	ENE8	NE7	NE5	NE7.3	ENE13	
13-Mar	NNE5	NNE4	NNE4	NE4	NNE4	NNE5	N3	NNE3	NW2	NE2	NE3	NNE5	ENE6	E6	ENE5	E6	E6	ESE7	SSE6	SW9	SW11	SW12	SW10	SW13	ESE0.8	SW13	
14-Mar	SW13	SW13	SW12	SSW12	SW12	SW12	SW13	SW12	SW12	SW11	SW12	SW14	SW16	SW16	WSW17	WSW17	SW11	SSW10	SW12	SW13	SW12	SW15	WSW13	W14	SW12.7	WSW17	
15-Mar	W13	WNW23	WNW22	WNW21	WNW18	WNW19	NW18	NW21	NNW20	NNW18	N18	N16	N14	NNE17	N16	N16	NNE13	NNE13	NNE10	NNE7	NNE7	NNE6	NNE6	N6	NNW12.0	WNW23	
16-Mar	NNE9	NNE8	NNE7	NNE7	NNE6	NNE8	NE8	NNE7	NNE5	NNE9	NNE10	NNE10	NE11	NNE10	NNE10	NE10	NE8	ENE8	E11	E9	ESE8	SE7	SE7	NE6.8	NE11		
17-Mar	ESE7	SE7	S7	S8	S10	S9	SSE7	S8	S8	S6	S11	S12	S14	SSW17	SSW21	SSW23	SSW20	SSW19	SSW22	SW21	SW21	SW20	SW23	WSW22	SSW13.1	WSW23	
18-Mar	SW15	SW9	W4	NNW5	WNW2	N4	NNE9	N9	N11	N9	NNE11	NNE13	NNE14	NNE17	NNE17	NNE18	NNE18	N16	N15	N15	N15	N13	N11	N12	N9.4	NNE18	
19-Mar	N11	N12	N10	N10	N9	N11	N11	N11	N11	NNE11	N11	NNE13	N11	NNE13	NNE14	N13	N11	N11	N8	NNE7	NNE6	NNW4	N4	NNE6	N9.9	NNE14	
20-Mar	NE7	NE8	NE9	NNE5	NE4	NNE1	NNE3	NNE4	NE5	NNE5	NNE8	N8	NNE8	NE5	NNE7	NE6	ENE3	ENE8	ENE8	ENE8	ENE8	ENE6	ENE5	E6	ENE4	NE5.3	NE9
21-Mar	NNE4	NNE2	NNE4	NNE6	NNE5	N4	N5	NNE6	NE7	NE10	NE8	E11	ENE12	ENE11	ENE11	ENE11	NNE12	NNE11	NNE9	NE6	NNE8	NNE8	NNE8	NNE6	NE7.2	ENE12	
22-Mar	NNE5	NNE5	NNE4	NNE2	NNE3	NNE1	SW3	N0	WNW1	NE3	ESE6	ENE3	ENE6	ENE5	NE3	E5	E7	E6	E6	E7	E7	E5	ENE3	NNE3	ENE3.4	E7	
23-Mar	E2	SE1	SW5	SSW4	SSW5	SSW6	SSW9	SSW10	SSW8	SW6	SW5	S5	S6	SSW7	WSW4	SE2	SSE3	SSE4	E5	ESE7	SE6	SE5	S5	SSW7	S4.1	SSW10	
24-Mar	SSW9	SSW9	SSW8	SSW6	S5	S6	SSW5	S4	SW4	WSW5	SSW9	S11	S12	SSW13	S10	SSE10	S10	S9	SSE8	SE6	SE7	SE8	SSE8	SSE9	S7.1	SSW13	
25-Mar	SE8	ESE7	ESE8	SE8	SE8	S7	SSE6	SSE6	SSE4	SSE9	SSE10	SSE11	S14	S16	SSE16	SSE16	SSE15	SSE15	SSE12	SSE14	S15	S16	SSE15	SSE16	SSE11.4	S16	
26-Mar	SSE14	SSE14	SSE14	SSE16	SSE16	SSE15	SSE14	SE13	SSE15	SSE17	S20	S22	SSE20	SSE21	SSE22	SSE20	SSE19	SSE18	SSE15	SSE16	SSE15	SSE13	SSE15	SSE13	SSE16.5	SSE22	
27-Mar	SE10	SE9	SE9	SE9	SE11	SE11	SE11	ESE12	ESE12	ESE14	ESE13	ESE13	ESE13	E12	E10	E10	E10	E9	ENE9	ENE8	ENE7	ENE8	E8	ENE7	ESE9.6	ESE14	
28-Mar	ENE6	NE6	NE6	NE6	NNE5	NNE6	NNE7	NNE7	NNE8	N8	N9	NNE9	NNE11	NNE11	NNE11	NNE12	NE10	NE12	NE9	NNE5	N3	N4	N3	N4	NNE7.1	NNE12	
29-Mar	N4	N6	N5	N5	N4	N3	N4	N7	N10	NNW10	NNW9	NNW9	N9	NNW8	N10	N9	NW8	NW6	NW6	WNW7	WNW6	NW4	WNW4	WSW4	NNW5.9	N10	
30-Mar	WSW4	WSW5	SSW7	SSW8	SSW10	SSW12	SSW10	SSW9	SW5	WSW5	SW7	S12	S13	SSW12	S11	S13	S11	S10	SE9	SSE9	SSE7	SSE7	SSE6	S6	S7.8	S13	
31-Mar	S6	S7	S8	S9	S8	SSW6	SSW7	SSW10	SW12	SW14	SW11	SW16	SW18	SW21	WSW18	SW19	SSW21	SSW21	SSW17	S16	S19	S22	SSW22	SSW22	SSW13.8	SSW22	

SSW1.5 SW1.2 SW1.4 SW1.3 SW1.8 SW2.0 SW1.5	SSW1.1 W1.5	NNW1.6 W0.7	SSW1.0 SSE0.8 S0.8 S0.9	SSE1.3 SSE1.7 SE2.0 SE2.3 SE2.6	SSE2.8 S2.7 S3.1	SSW2.5	Diurnal Average																	
SSW15	WNW23	WNW22	WNW21	WNW18	WNW19	NW18	NW21	NNW20	NNW18	S20	S22	W22	W22	W23	SSW23	SSW21	SSW21	SSW22	SW21	SW21	S22	WSW23	WSW22	Diurnal Maximum

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



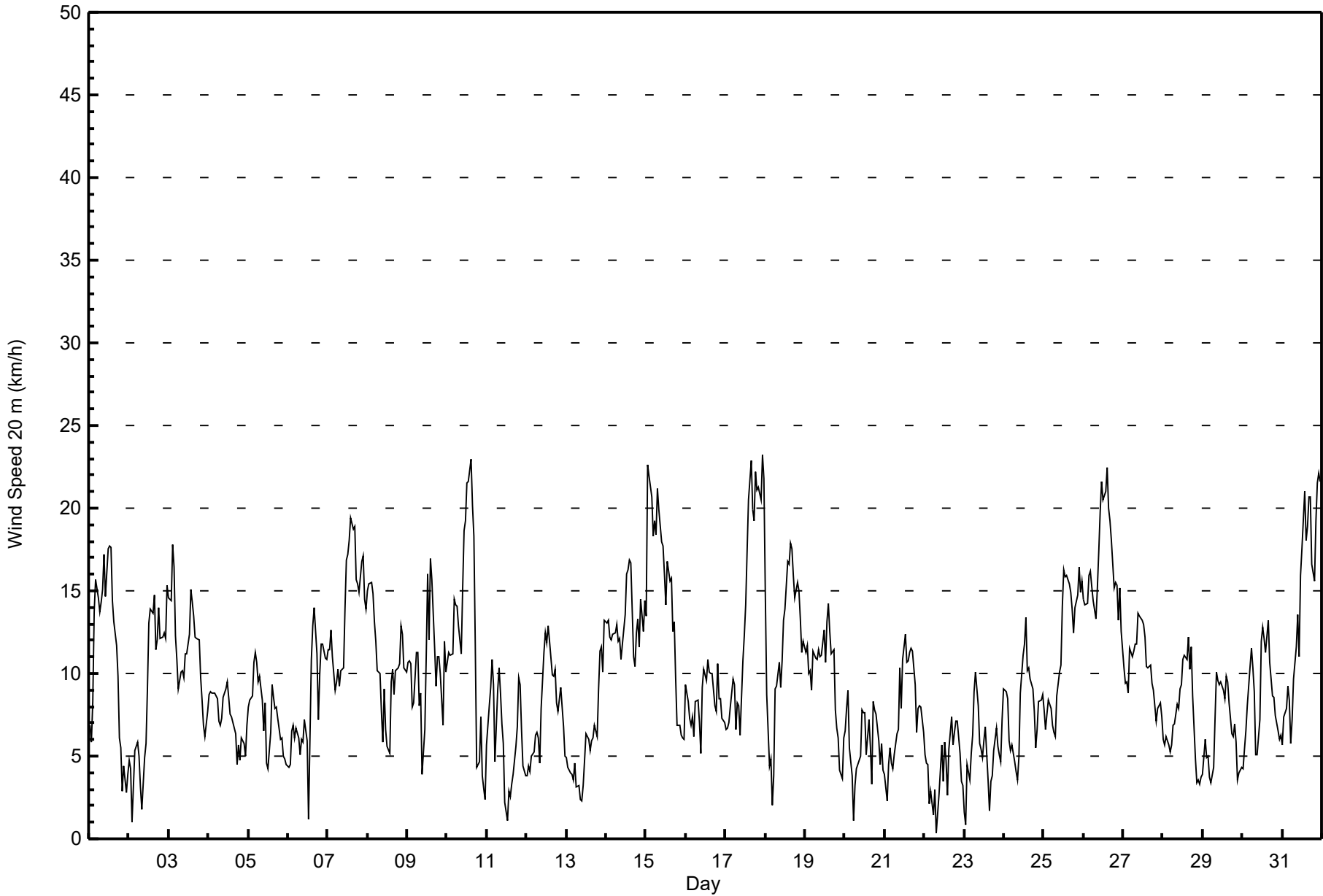
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed 20 m (WS20m) - km/h

Janvier - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Mar 15 08:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0										
Minimum Value: 1 km/h on Mar 28 23:00																											
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 5 P 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-Mar	2	2	2	4	5	5	4	4	4	5	4	5	5	5	5	4	4	3	2	2	1	1	1	1	5		
2-Mar	1	1	1	3	2	1	1	2	1	3	2	3	4	4	4	3	3	3	3	3	3	3	3	3	4	4	
3-Mar	3	3	4	4	3	3	2	3	3	2	3	3	3	3	4	4	4	4	4	3	4	3	2	3	4	4	
4-Mar	3	3	4	4	4	3	2	2	3	3	3	4	3	3	3	3	2	2	1	1	1	1	1	1	4	4	
5-Mar	1	1	1	1	1	1	2	2	2	2	2	2	3	2	3	2	2	2	2	1	1	1	1	1	3	3	
6-Mar	1	1	1	1	2	2	2	2	2	2	2	2	2	5	4	4	3	3	1	2	2	2	2	2	5	5	
7-Mar	2	2	2	2	2	2	2	2	2	3	4	4	5	5	5	5	5	4	3	3	4	4	4	4	3	5	5
8-Mar	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	3	3	2	2	2	3	3
9-Mar	2	2	2	1	2	2	3	2	3	2	4	3	5	4	5	5	4	3	2	3	2	3	2	2	2	5	5
10-Mar	2	3	3	2	3	3	3	3	3	6	6	6	7	7	7	6	6	4	1	3	1	1	1	1	7	7	
11-Mar	2	1	2	2	2	1	3	3	3	2	2	2	2	2	1	2	2	1	2	2	2	2	2	1	3	3	3
12-Mar	1	2	2	1	1	1	1	1	2	2	3	3	3	3	3	3	3	2	2	2	3	2	2	1	3	3	3
13-Mar	1	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	1	2	2	2	2	3	2	3	2	3	3
14-Mar	3	3	3	2	2	2	2	2	3	3	3	4	5	6	6	5	3	2	3	3	3	4	4	4	4	6	6
15-Mar	4	6	6	5	4	5	7	8	8	7	6	6	5	5	5	5	4	4	3	2	1	1	2	2	8	8	
16-Mar	2	2	2	1	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3	3	3
17-Mar	2	2	3	2	2	3	2	2	3	2	3	4	4	6	5	6	5	5	6	6	6	6	6	6	6	6	6
18-Mar	4	3	2	1	1	3	2	4	4	4	3	4	3	4	5	5	5	6	5	5	5	5	4	4	6	6	
19-Mar	4	4	3	4	3	4	4	4	4	3	4	4	4	4	5	4	4	4	3	2	2	1	1	1	5	5	
20-Mar	1	2	2	2	2	1	1	1	1	2	3	3	3	3	3	3	2	2	2	1	1	2	1	1	3	3	
21-Mar	1	2	2	1	1	1	1	2	2	2	2	3	3	3	3	4	4	3	3	1	3	2	1	2	4	4	
22-Mar	1	1	1	1	1	1	2	1	1	2	2	2	3	3	3	3	2	2	2	1	2	1	2	1	3	3	
23-Mar	1	1	1	1	1	1	1	2	2	2	2	3	4	3	2	2	2	2	1	1	1	1	1	2	4	4	
24-Mar	1	1	1	1	1	1	1	1	2	2	5	3	4	4	4	3	3	3	2	1	2	2	2	2	5	5	
25-Mar	2	1	2	2	3	3	2	2	3	3	4	5	5	5	5	5	5	5	4	4	5	4	5	5	5	5	
26-Mar	4	4	4	5	5	4	4	4	5	5	7	7	7	7	7	6	6	6	5	5	6	5	5	4	7	7	
27-Mar	4	3	3	3	3	3	3	3	4	4	4	4	4	5	3	4	3	3	2	2	2	2	3	2	5	5	
28-Mar	2	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	2	2	2	1	1	1	1	1	3	3	
29-Mar	1	2	1	1	1	1	1	4	4	4	3	4	4	3	4	4	3	3	2	1	2	1	1	1	4	4	
30-Mar	1	1	1	1	1	1	2	2	2	2	3	3	4	5	4	4	4	3	2	2	1	2	1	1	5	5	
31-Mar	3	2	2	2	2	2	2	3	3	4	4	5	5	6	6	7	7	6	4	4	5	6	6	5	7	7	
Diurnal Maximum																											
4 6 6 5 5 5 7 8 8 7 7 7 7 7 7 7 7 6 6 6 6 6 6 6 6																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 20 m (WS20m) - km/h
Janvier - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	139	18.68	18.68
6 - 11	377	50.67	69.35
12 - 19	198	26.61	95.97
20 - 28	30	4.03	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 20 m (WS20m) - km/h
Janvier - March 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	19	40	11	11	4	0	3	2	8	8	6	10	2	3	6	6	139
6 - 11	33	66	21	24	21	7	18	19	45	68	19	0	1	6	14	15	377
12 - 19	15	21	14	6	1	6	1	26	19	31	29	4	5	18	1	1	198
20 - 28	0	0	0	0	0	0	0	4	3	8	4	2	3	4	1	1	30
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
Totals	67	127	46	41	26	13	22	51	75	115	58	16	11	31	22	23	744

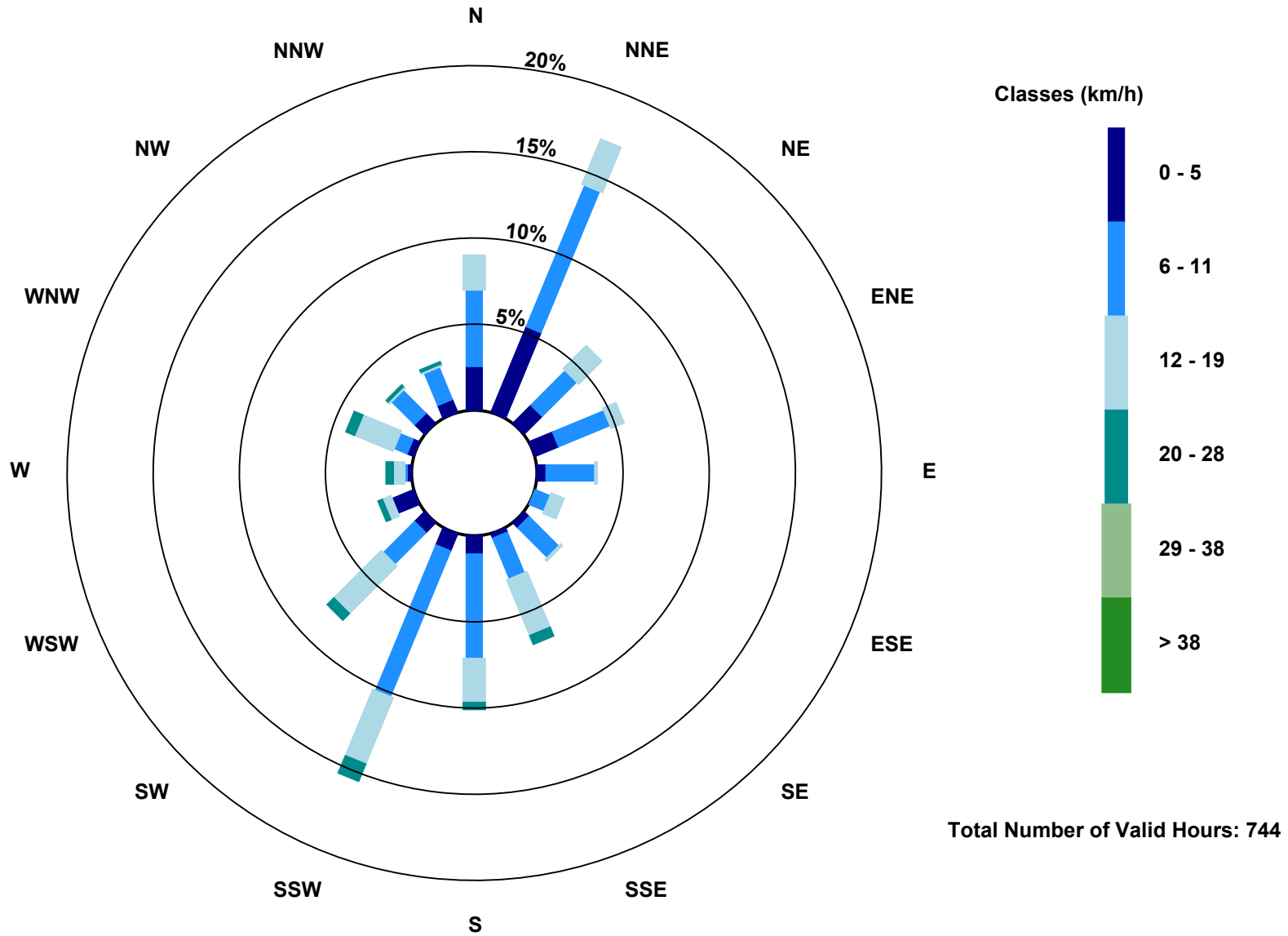
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20 m (WD20m) - deg

Janvier - March 2024

Direction of Maximum Speed: 236 deg on Mar 17 23:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 158.4 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 358 deg on Mar 22 08:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 0.8 deg on Mar 13		Percent Operational Time:	100.0
Monthly Average Direction: 191.0 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-Mar	309	308	295	295	289	296	287	283	285	289	285	283	293	296	294	289	302	298	314	351	313	307	345	2	295.0
2-Mar	25	38	194	18	28	22	25	30	357	62	61	43	36	37	29	43	60	39	39	48	59	50	47	43	41.5
3-Mar	37	34	33	37	37	27	17	17	19	19	31	33	31	32	32	25	22	10	1	7	355	348	345	353	22.7
4-Mar	338	325	331	325	328	321	312	309	317	311	333	340	343	347	331	329	303	325	305	310	288	278	235	221	318.3
5-Mar	216	211	213	207	209	210	208	208	207	215	202	209	240	203	197	187	198	169	169	179	197	189	183	175	201.0
6-Mar	197	194	199	198	205	185	208	185	208	212	208	221	266	189	190	191	188	193	164	168	186	187	188	195	192.5
7-Mar	192	199	200	203	193	178	184	187	197	216	217	204	203	200	195	194	192	193	192	203	209	213	216	212	200.2
8-Mar	204	205	209	207	209	210	204	210	222	219	208	206	180	207	216	216	203	186	171	172	181	192	204	195	201.5
9-Mar	200	199	191	186	186	197	202	188	193	237	193	191	194	195	193	185	190	162	180	194	191	203	191	200	192.3
10-Mar	200	212	213	201	208	218	221	225	225	263	277	268	269	271	278	285	289	293	325	26	50	74	242	1	255.5
11-Mar	26	27	20	24	23	15	17	16	12	10	6	338	239	48	63	346	78	80	83	83	84	75	42	28	36.0
12-Mar	17	16	17	18	21	17	17	20	13	31	58	74	69	63	73	76	67	56	48	53	72	63	49	37	51.2
13-Mar	22	19	14	37	13	26	4	22	313	39	42	25	66	82	59	86	98	104	159	222	215	223	216	217	107.5
14-Mar	225	227	220	212	214	216	214	215	222	230	230	228	235	236	241	240	221	204	215	214	221	228	239	275	226.8
15-Mar	262	290	296	291	291	294	309	318	333	343	1	352	2	13	9	11	14	16	20	16	18	18	23	11	334.5
16-Mar	30	21	31	29	23	17	26	36	27	15	20	28	31	36	26	23	46	47	66	93	100	122	143	139	44.6
17-Mar	116	137	169	183	190	185	156	181	187	189	178	189	183	193	196	197	200	205	204	215	223	230	236	238	201.1
18-Mar	219	225	262	327	298	0	17	6	354	0	22	19	25	20	26	26	16	10	10	5	358	359	356	4	6.2
19-Mar	0	6	4	1	3	4	5	4	8	15	7	18	10	13	22	7	10	10	0	12	17	337	9	31	8.7
20-Mar	35	46	40	33	44	27	19	19	40	19	24	11	16	37	14	43	73	78	67	57	64	57	93	77	42.8
21-Mar	21	26	18	26	13	6	7	13	34	46	54	81	71	69	69	58	32	28	24	43	21	14	22	22	39.3
22-Mar	27	26	22	22	21	30	226	358	283	34	108	75	68	61	39	94	85	93	92	89	90	79	61	31	68.1
23-Mar	95	126	229	201	200	197	199	208	213	215	224	184	176	209	238	136	158	150	92	111	130	140	178	199	185.7
24-Mar	213	209	207	197	180	185	206	187	232	247	205	180	183	197	178	164	179	181	147	139	125	137	157	152	181.3
25-Mar	137	121	123	140	139	175	149	149	159	158	147	176	177	164	159	162	155	167	167	166	171	172	167	168	160.7
26-Mar	167	163	162	158	152	154	149	144	167	163	174	178	162	153	153	158	156	159	153	154	151	151	158	149	158.4
27-Mar	145	139	139	139	137	132	127	121	119	114	113	108	104	95	94	101	92	86	76	69	71	69	84	78	108.4
28-Mar	64	56	48	34	25	22	23	24	27	6	5	13	14	19	13	22	34	45	44	32	2	355	1	3	24.7
29-Mar	349	6	3	7	351	352	359	0	2	344	334	335	357	340	353	357	312	318	306	290	295	326	293	247	338.3
30-Mar	247	237	208	204	211	209	210	207	223	246	229	178	171	192	182	187	185	174	146	153	157	162	155	180	190.4
31-Mar	182	178	184	180	187	197	213	209	229	221	220	226	219	219	238	223	213	204	197	182	181	188	196	199	205.3

200.3 219.2 223.1 218.3 214.8 224.0 233.4 247.3 266.7 294.2 267.3 212.6 167.2 170.3 190.7 166.7 157.6 133.5 127.3 138.8 156.6 176.8 187.7 195.3
Diurnal Average

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



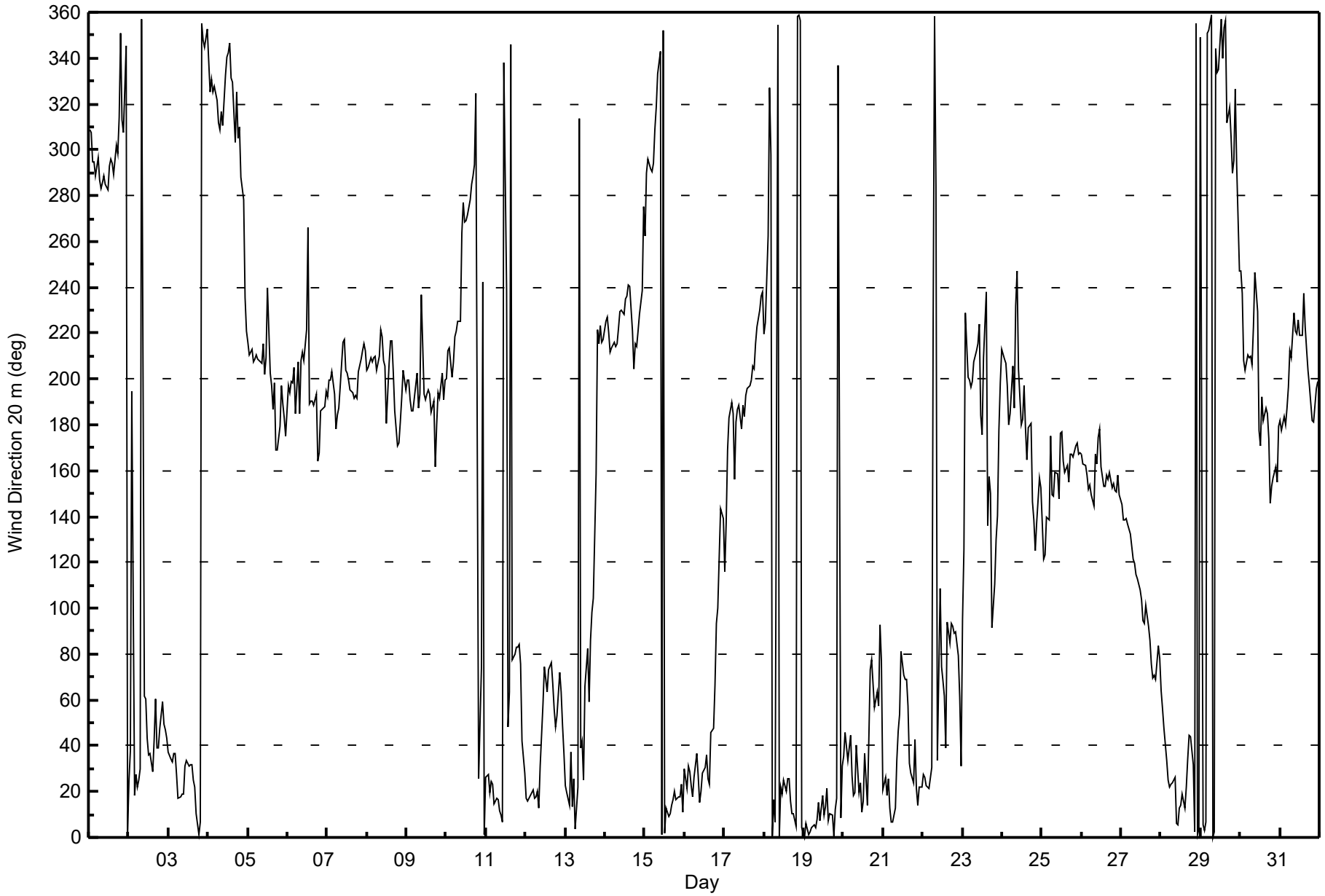
Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Direction 20 m (WD20m) - deg

Janvier - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Mar 11 13:00 Minimum Value: 6 deg on Mar 12 04:00 Percentiles: P ₁ = 8 P ₁₀ = 12 Q ₁ = 15 Median = 20 Q ₃ = 27 P ₉₀ = 36 P ₉₉ = 78																			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-Mar	21	21	13	16	17	17	16	17	16	17	21	20	21	20	26	24	27	18	29	29	50	27	29	15	50
2-Mar	9	9	84	51	12	8	15	15	55	52	38	33	23	21	18	17	23	15	12	14	15	13	15	13	84
3-Mar	12	11	11	12	12	14	17	15	17	18	17	13	16	13	15	15	18	22	26	23	35	32	27	31	35
4-Mar	32	31	31	35	36	31	24	19	30	23	38	39	37	42	38	41	23	39	21	28	12	11	20	9	42
5-Mar	11	10	9	8	9	10	10	10	12	26	21	50	62	36	27	27	20	24	16	17	15	15	22	17	62
6-Mar	27	16	17	8	18	12	23	15	18	25	21	37	91	65	29	23	18	17	16	16	13	13	12	10	91
7-Mar	12	10	11	11	11	14	13	12	13	22	22	20	19	17	18	16	16	14	14	15	14	15	14	14	22
8-Mar	13	12	12	11	11	12	10	9	15	26	17	27	36	53	26	24	16	17	15	15	17	15	12	13	53
9-Mar	13	16	11	12	13	13	14	14	17	44	44	19	18	24	19	19	21	22	15	16	13	20	13	12	44
10-Mar	14	14	17	12	13	14	15	15	17	23	20	22	22	21	19	19	18	23	28	36	15	49	37	40	49
11-Mar	20	16	18	14	14	20	16	19	21	26	39	82	100	69	64	65	43	20	12	12	14	24	24	15	100
12-Mar	18	11	10	6	7	10	10	10	32	21	18	21	22	21	23	22	18	15	13	15	19	17	15	14	32
13-Mar	9	11	9	20	12	10	17	31	37	66	60	44	34	31	28	23	19	16	45	14	13	15	14	14	66
14-Mar	15	16	14	12	12	13	12	14	17	20	18	20	23	24	22	20	19	10	13	15	15	17	17	18	24
15-Mar	22	17	17	15	14	18	22	29	35	36	29	33	30	23	24	23	23	22	15	15	11	10	14	21	36
16-Mar	13	17	13	12	15	16	14	16	21	39	26	26	23	19	24	21	28	19	19	21	22	24	29	24	39
17-Mar	25	22	27	18	14	29	20	20	20	32	22	21	23	21	19	16	16	18	15	17	17	18	16	16	32
18-Mar	18	22	58	25	62	34	15	23	31	36	28	24	18	18	16	15	21	24	25	26	28	27	28	27	62
19-Mar	24	26	22	24	26	23	25	26	26	28	33	28	33	30	26	28	27	24	22	17	18	29	30	14	33
20-Mar	13	11	10	12	23	31	11	27	36	53	39	40	46	68	49	62	78	25	15	11	17	19	17	33	78
21-Mar	10	17	25	10	11	18	16	17	23	15	29	24	23	28	31	31	21	22	15	10	10	13	13	10	31
22-Mar	12	10	8	20	12	61	28	44	70	72	35	77	51	54	90	66	27	27	18	12	15	18	21	16	90
23-Mar	27	69	11	18	7	7	9	10	20	33	47	69	66	55	84	100	70	60	15	13	10	18	24	14	100
24-Mar	10	7	8	14	9	10	14	22	36	33	41	30	26	24	32	28	25	33	20	16	13	16	16	20	41
25-Mar	16	20	13	15	28	29	28	26	28	27	32	30	28	31	28	26	23	22	21	21	20	20	21	21	32
26-Mar	22	22	21	21	21	21	21	22	24	24	28	25	26	26	25	26	23	24	23	24	27	24	27	24	28
27-Mar	26	27	28	29	19	22	18	22	20	21	20	23	23	22	21	23	24	23	19	19	26	22	25	23	29
28-Mar	20	20	14	13	12	13	14	18	16	26	26	24	22	24	22	19	18	14	19	13	21	20	14	16	26
29-Mar	26	17	17	16	27	29	22	28	29	32	34	36	40	37	31	34	28	30	24	15	29	31	27	22	40
30-Mar	23	13	10	8	8	9	10	13	30	36	47	31	29	33	35	26	31	25	17	16	19	18	17	16	47
31-Mar	26	17	13	13	11	25	18	20	19	22	26	22	23	22	22	24	22	18	15	17	17	16	16	15	26
																			32 69 84 51 62 61 28 44 70 72 60 82 100 69 90 100 78 60 45 36 50 49 37 40						
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS23
FORT HILLS
MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)
MARCH 2024

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

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	710	34	34	100	39.7	0	9.9	0
TRS(ppb) Average	708	36	36	100	2.3	0	1	0
THC(ppm) Average	710	34	34	100	7.1	-	3.6	-
NMHC(ppm) Average	710	34	34	100	1.081	-	0.457	-
CH4(ppm) Average	710	34	34	100	6.1	-	3.1	-
NO2 (ppb) Average	708	36	36	100	53.5	0	29.4	-
NO (ppb) Average	708	36	36	100	188.6	-	31.5	-
NOX (ppb) Average	708	36	36	100	237.6	-	60.9	-
PM2.5 (ug/m3) Average	743	1	1	100	168	10	52.9	3
Temperature 2 m (C) Average	744	0	0	100	12	-	3.5	-
Relative Humidity (%) Average	744	0	0	100	93.2	-	79.6	-
Wind Speed 10 m (km/h) Average	744	0	0	100	35	-	27	-
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 - FORT HILLS (AMS23)
MARCH 2024

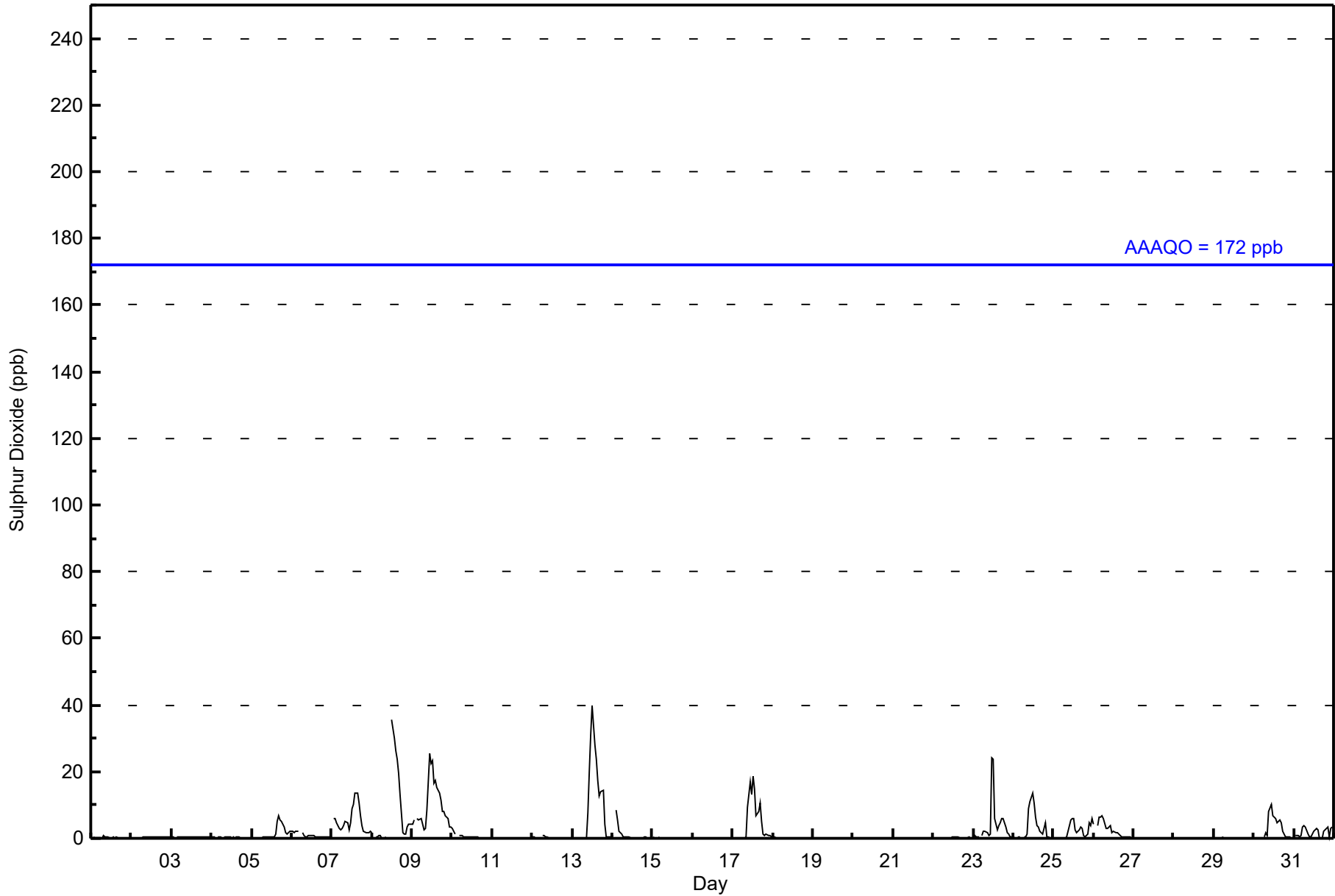
MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	710	1.91	4.7	-	0	0	0.1	0.2	1.2	5.6	39.7
TRS (ppb) Average	708	0.29	0.3	-	0	0.1	0.1	0.2	0.3	0.6	2.3
THC (ppm) Average	710	2.33	0.6	-	2	2	2.1	2.2	2.4	2.7	7.1
NMHC(ppm) Average	710	0.091	0.144	-	0	0	0	0	0.1	0.2	1.081
CH4(ppm) Average	710	2.24	0.4	-	2	2	2.1	2.1	2.2	2.5	6.1
NO2 (ppb) Average	708	13.17	10.7	-	0.3	3.1	4.9	10	18.7	30.1	53.5
NO (ppb) Average	708	6.27	16.9	-	0	0	0.4	1.3	5.3	13	188.6
NOX (ppb) Average	708	19.44	24.9	-	0.3	3.8	6.1	11.9	24.2	40.9	237.6
PM2.5 (ug/m3) Average	743	11.48	17.3	-	0.6	2.2	3.4	5.9	11.4	24.2	168
Temperature 2 m (C) Average	744	-7.72	8.6	-	-29	-19.7	-14.9	-6.6	-1.6	2.6	12
Relative Humidity (%) Average	744	61.94	14.7	-	20.9	42.3	51.1	62.1	73.4	81.8	93.2
Wind Speed 10 m (km/h) Average	744	13.9	7	-	0	5	9	13	18	24	35
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
<hr/>				
No operational issues to report				





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort Hills - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	675	95.07	95.07
11 - 20	22	3.10	98.17
21 - 60	13	1.83	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 (SO₂) - ppb
Fort Hills - March 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	122	128	42	12	4	20	52	112	86	28	10	3	12	10	11	23	675
11 - 20	0	3	0	0	0	0	4	4	6	3	0	0	2	0	0	0	22
21 - 60	0	0	0	0	0	0	4	5	2	2	0	0	0	0	0	0	13
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
Totals	122	131	42	12	4	20	60	121	94	33	10	3	14	10	11	23	710

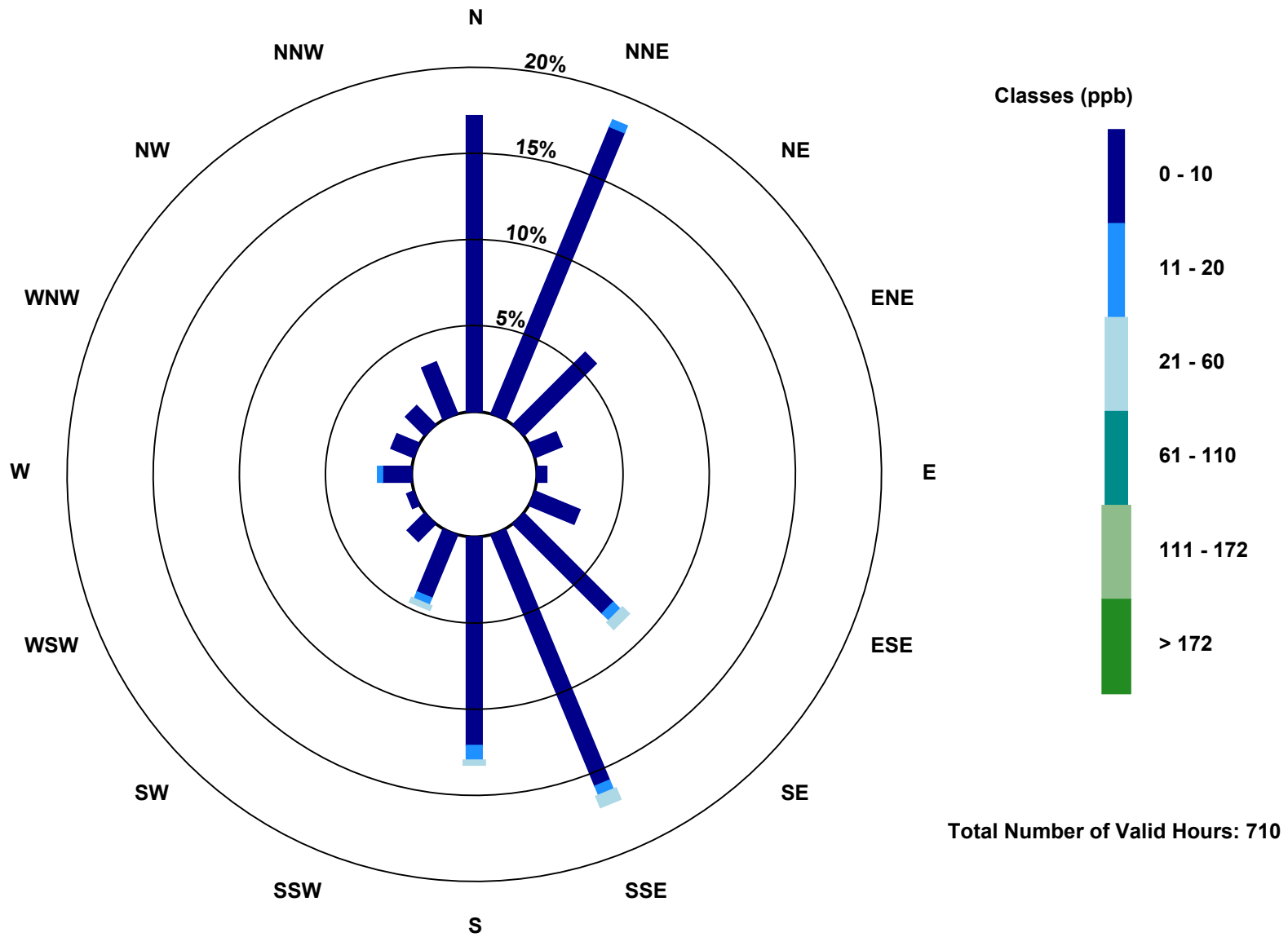
Total Number of Valid Hours: 710

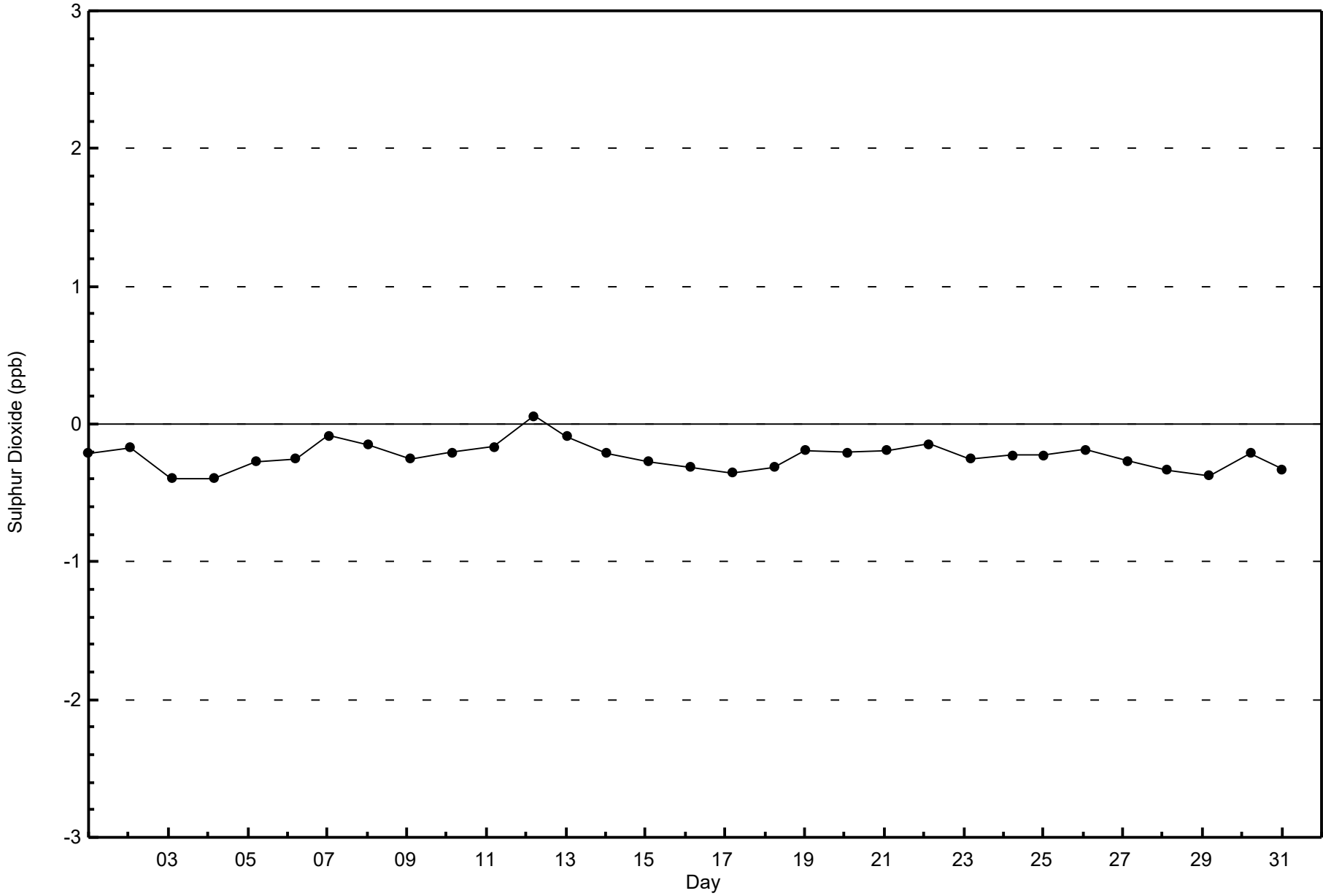
Total Number of Hours: 744

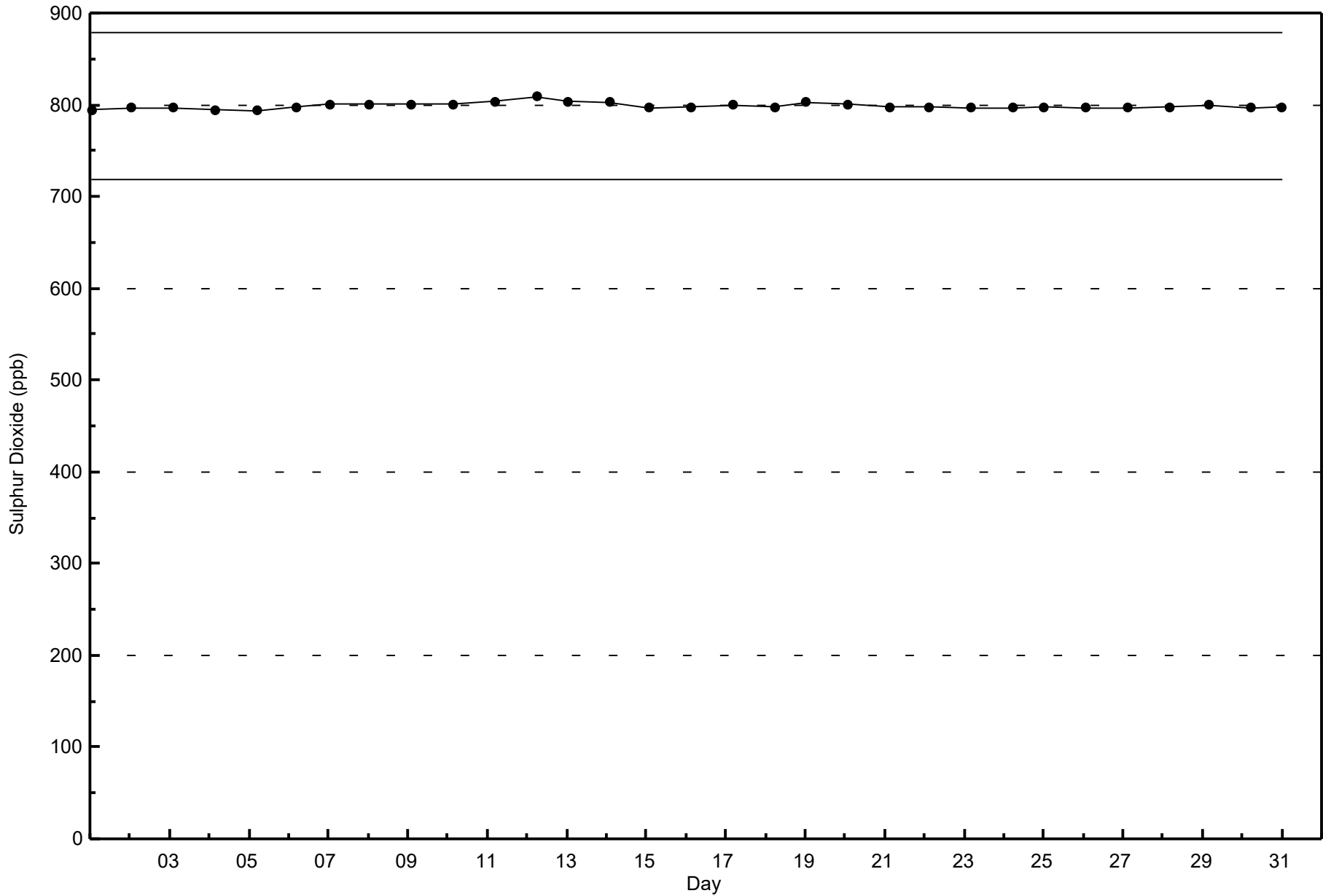


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Fort Hills









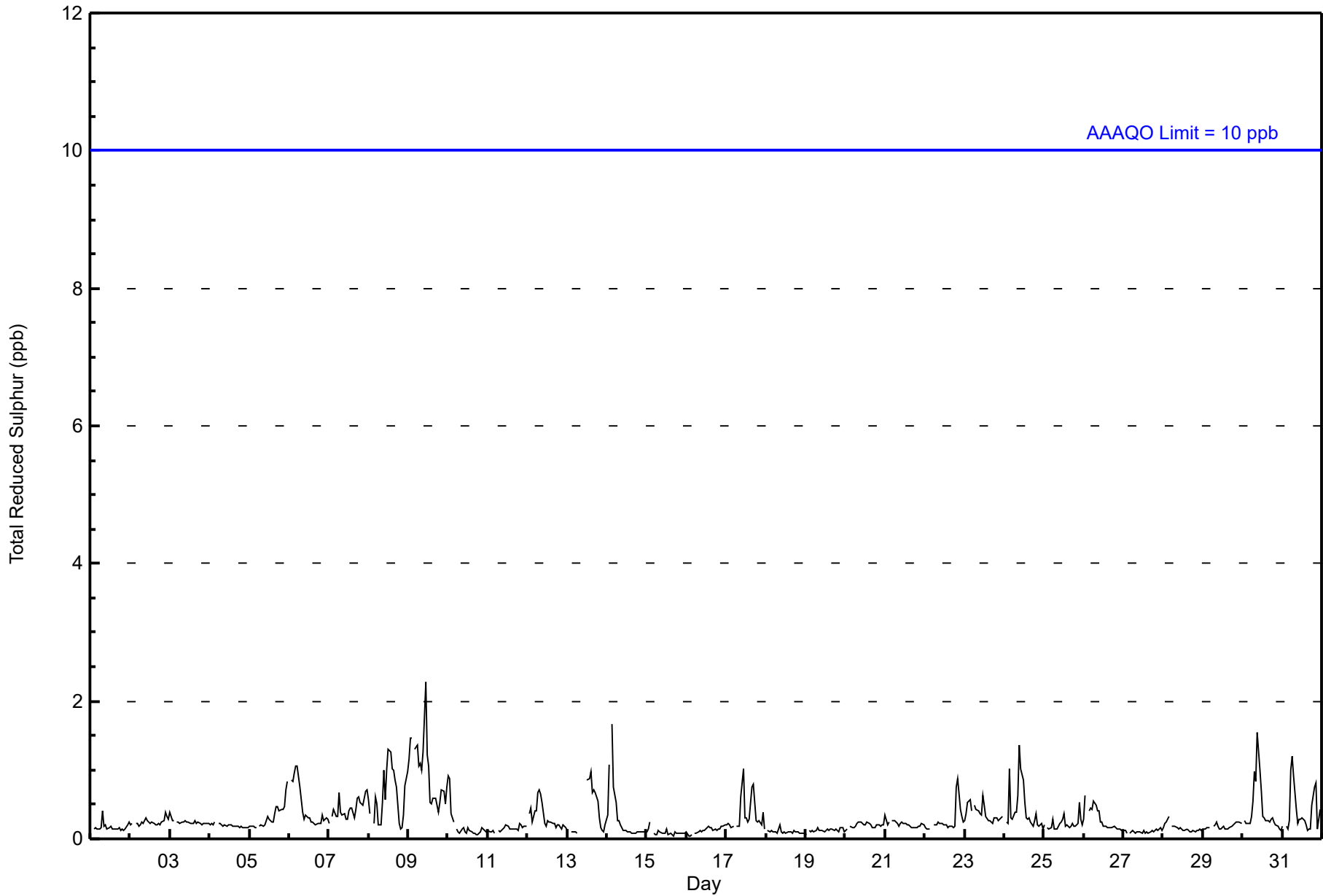
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Fort Hills - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 2.3 ppb on Mar 9 11:00		Maximum Daily Average: 1.0 ppb on Mar 9				Hours of Data:		708																		
Minimum Value: 0.0 ppb on Mar 16 03:00		Minimum Daily Average: 0.1 ppb on Mar 15				Hours of Missing Data:		36																		
Maximum Diurnal Average: 0.4 ppb at hour 10		Minimum Diurnal Average: 0.2 ppb at hour 19				Hours of Calibration:		36																		
Monthly Average: 0.29 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.6 P ₉₉ = 1.3				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-Mar	0.2	Z	0.1	0.2	0.1	0.2	0.2	0.4	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.4
2-Mar	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	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	0.4	0.3	0.3	0.2	0.4
3-Mar	0.4	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
4-Mar	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
5-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.7	0.8	0.3	0.8
6-Mar	Z	0.9	0.8	1.0	1.0	1.1	0.8	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.5	1.1
7-Mar	0.2	Z	0.3	0.4	0.3	0.3	0.7	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.6	0.6	0.5	0.5	0.6	0.7	0.7	0.4	0.7
8-Mar	0.6	0.4	Z	0.2	0.6	0.5	0.2	0.2	0.5	1.0	0.6	1.0	1.3	1.3	1.0	1.0	0.9	0.8	0.2	0.1	0.2	0.3	0.8	1.0	0.6	1.3
9-Mar	1.2	1.5	1.5	Z	1.3	1.4	1.0	1.1	1.0	1.3	2.3	1.2	1.1	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.7	0.7	0.5	0.7	1.0	2.3
10-Mar	0.9	0.9	0.4	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.9
11-Mar	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2
12-Mar	Z	0.4	0.4	0.2	0.4	0.4	0.7	0.7	0.6	0.5	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.7
13-Mar	0.1	Z	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	0.9	0.9	1.0	0.7	0.7	0.5	0.3	0.2	0.1	0.1	0.2	0.1	0.1	1.0
14-Mar	0.3	1.1	Z	1.7	0.7	0.5	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.7
15-Mar	0.1	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
16-Mar	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2
17-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.6	1.0	0.3	0.3	0.3	0.3	0.8	0.8	0.5	0.3	0.2	0.3	0.2	0.4	0.1	0.3	1.0
18-Mar	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
19-Mar	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2
20-Mar	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
21-Mar	0.3	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
22-Mar	0.2	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.9	0.4	0.3	0.2	0.9
23-Mar	0.3	0.4	0.5	0.6	0.4	Z	0.5	0.4	0.4	0.4	0.3	0.6	0.5	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6
24-Mar	Z	0.2	0.2	1.0	0.3	0.3	0.4	0.4	0.6	1.4	1.0	0.9	0.5	0.3	0.3	0.3	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.4	1.4
25-Mar	0.2	Z	0.2	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.2	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	0.2	0.2	0.5
26-Mar	0.3	0.6	Z	0.4	0.5	0.4	0.6	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.6
27-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2
28-Mar	0.2	0.2	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
29-Mar	0.1	0.1	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
30-Mar	Z	0.3	0.2	0.2	0.2	0.3	0.5	1.0	0.8	1.5	1.0	0.7	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.4	1.5
31-Mar	0.2	Z	0.2	0.1	0.3	1.0	1.2	0.9	0.4	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.5	0.8	0.8	0.1	0.3	0.4	0.4	1.2
																								Diurnal Average		
																								Diurnal Maximum		
																								0.3 0.4 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.4 0.4 0.3 0.3 0.3 0.3 0.3 0.3 0.2 0.2 0.3 0.3 0.2 0.3 0.3		
																								1.2 1.5 1.5 1.7 1.3 1.4 1.2 1.1 1.0 1.5 2.3 1.2 1.3 1.3 1.0 1.0 0.9 0.8 0.6 0.8 0.9 0.7 0.8 1.0		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Fort Hills - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	708	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort Hills - March 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	121	130	43	12	4	19	59	123	94	33	9	2	15	9	10	25	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
Totals	121	130	43	12	4	19	59	123	94	33	9	2	15	9	10	25	708

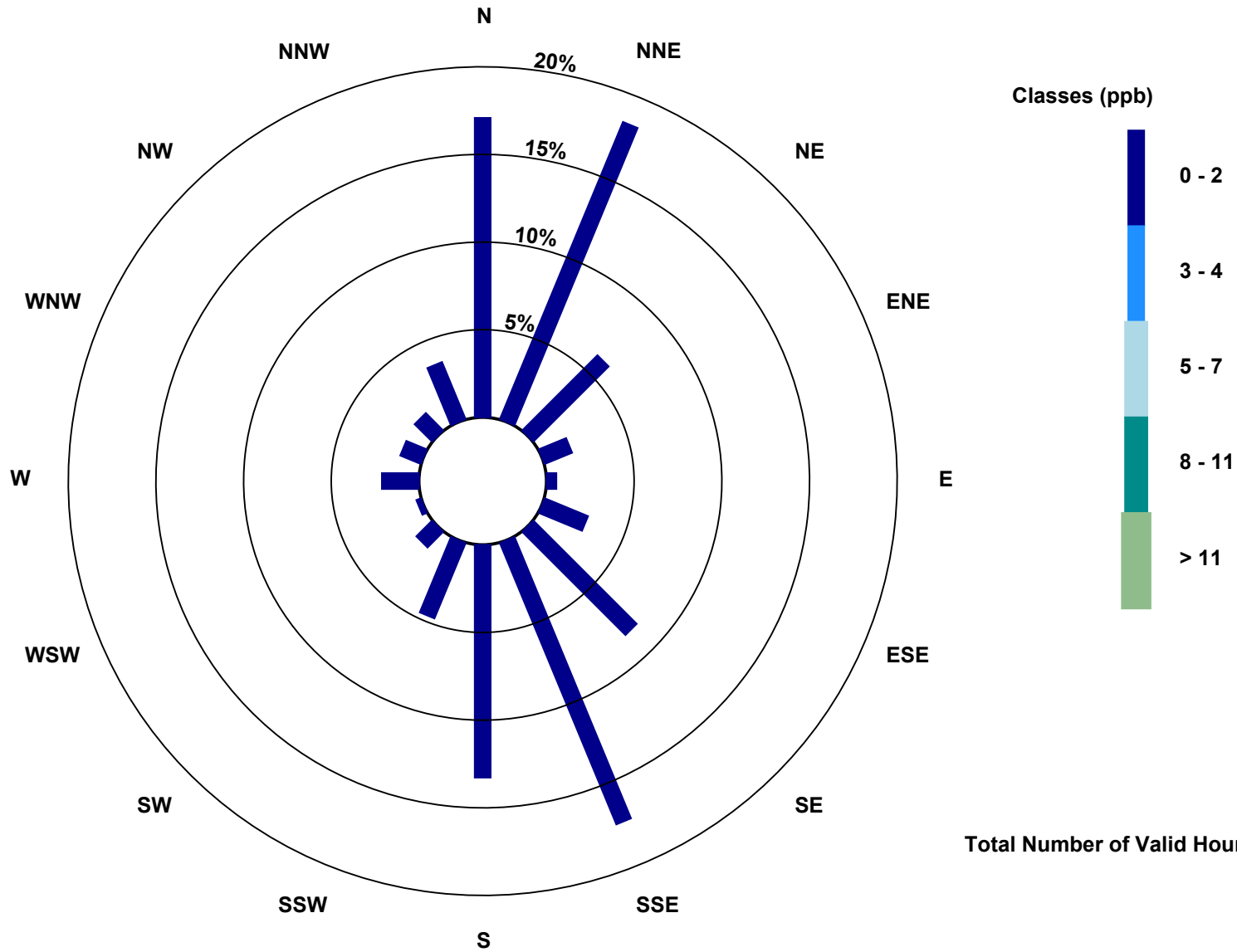
Total Number of Valid Hours: 708

Total Number of Hours: 744

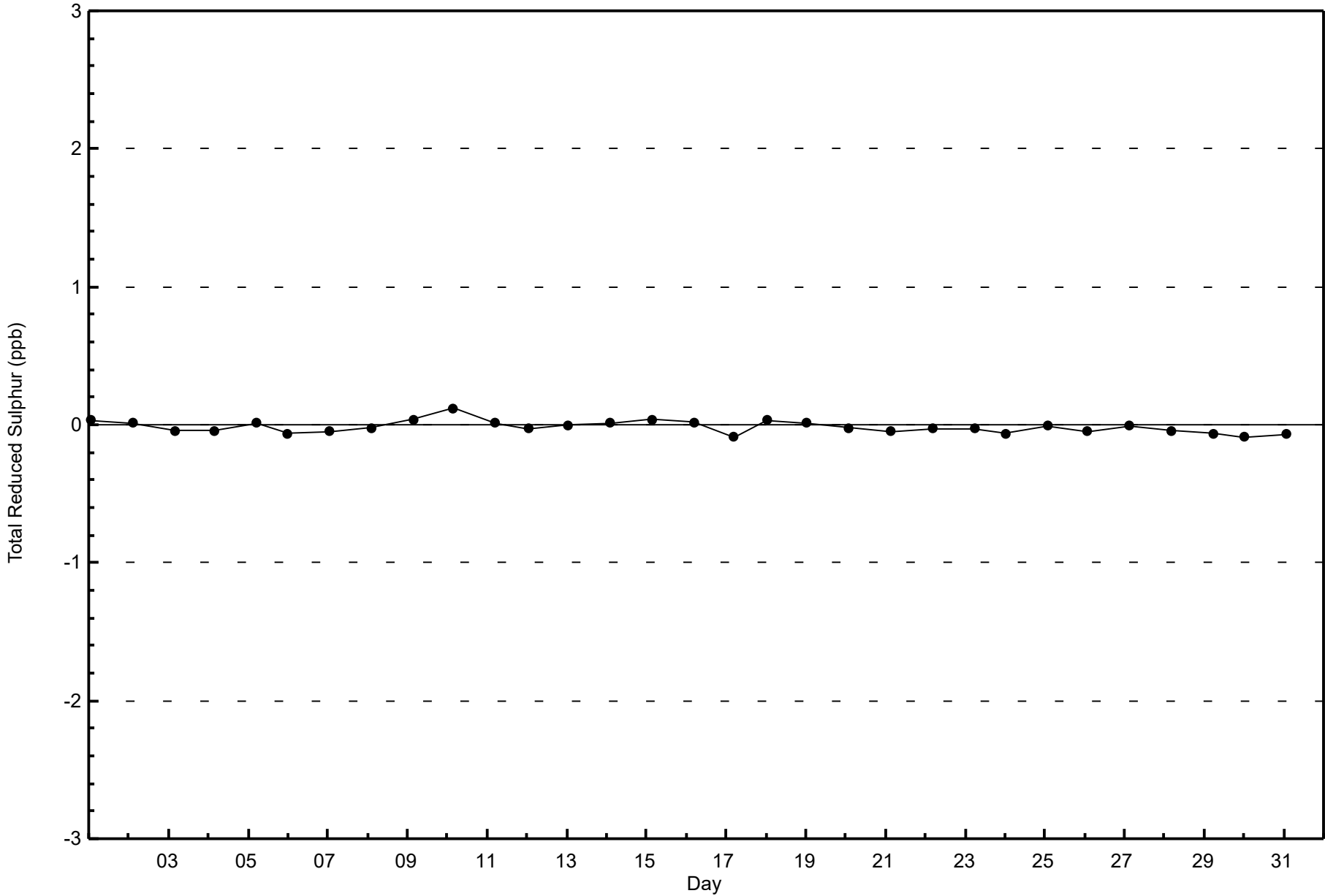


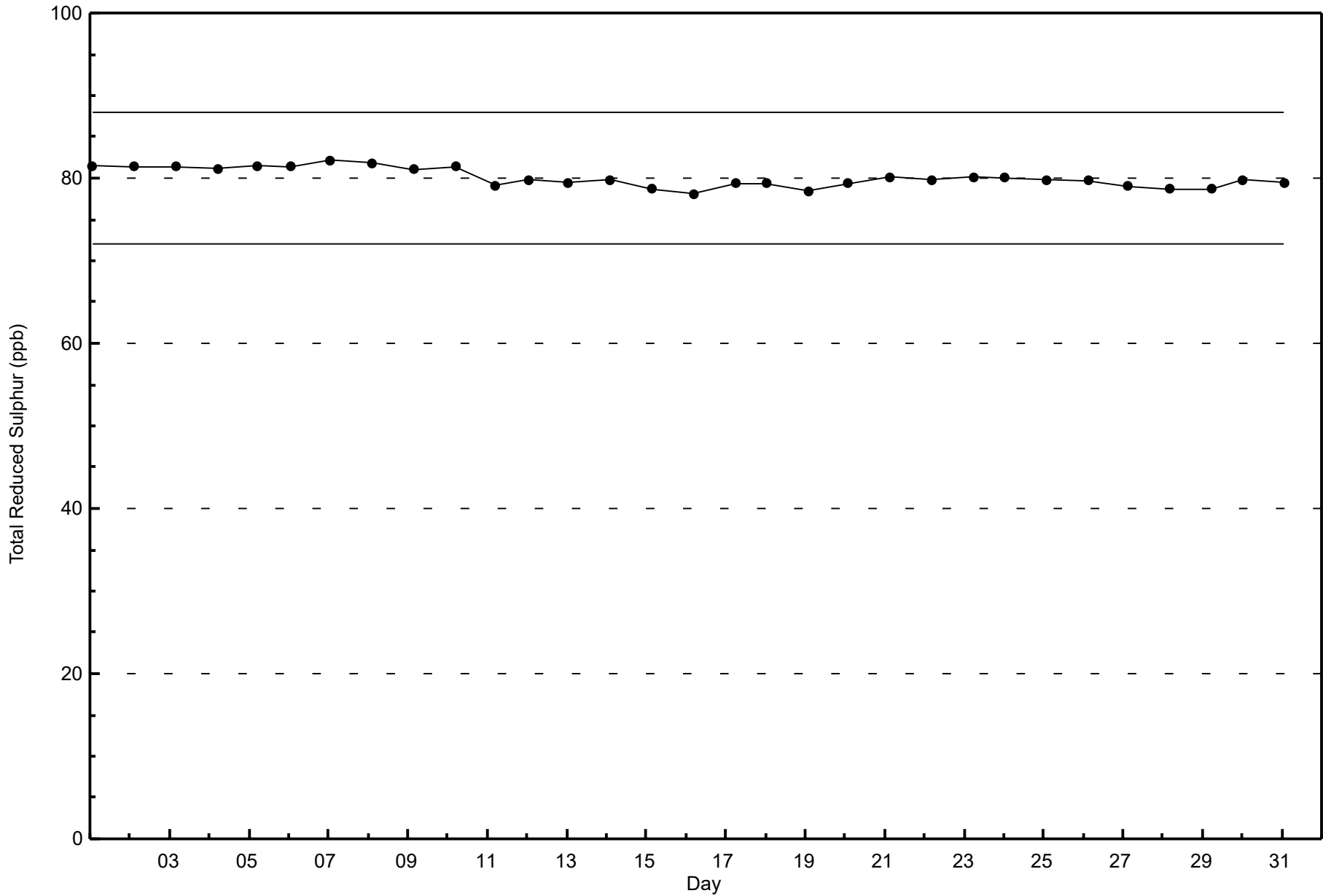
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Reduced Sulphur (TRS) - ppb
Fort Hills



Total Number of Valid Hours: 708







Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

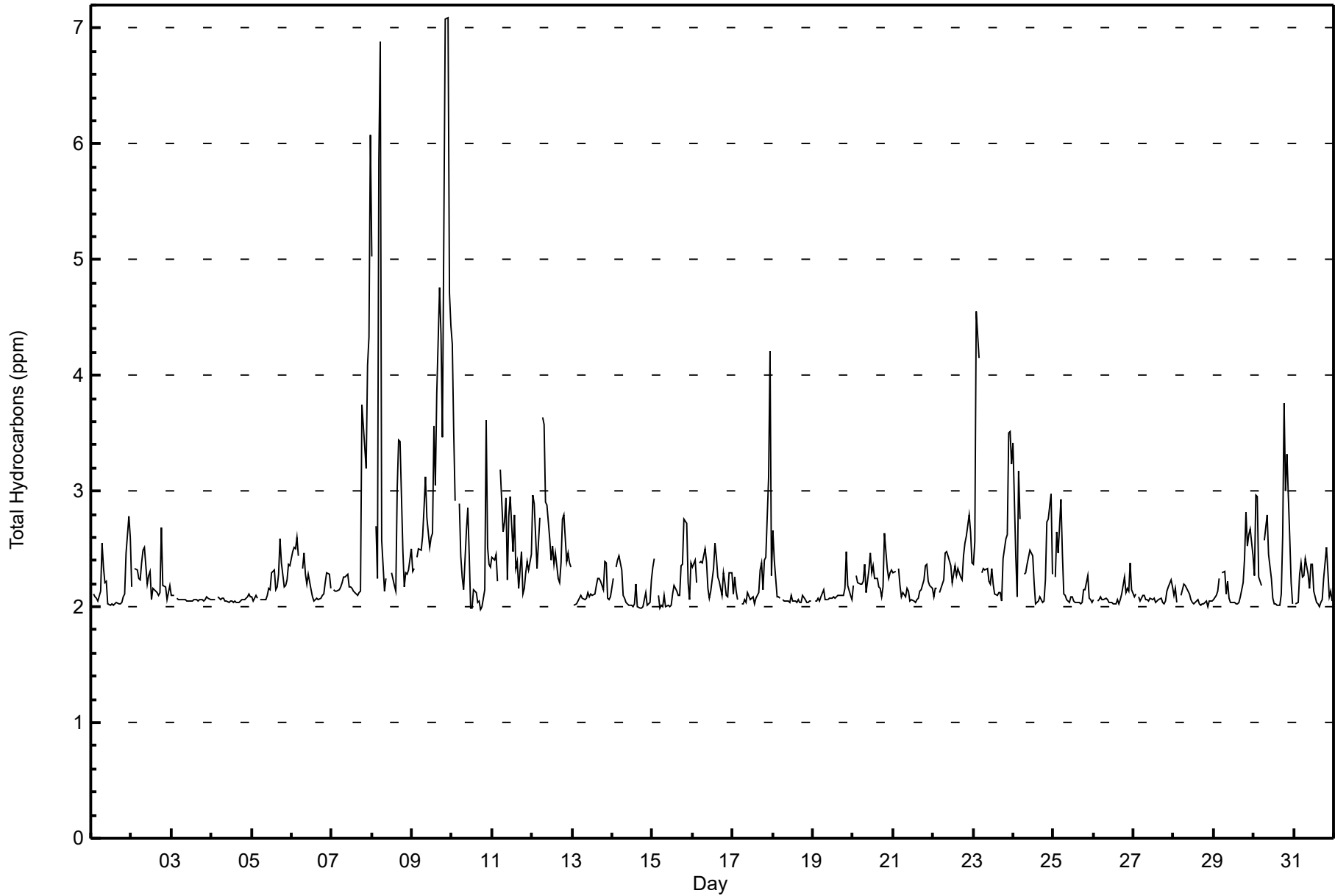
Fort Hills - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 7.1 ppm on Mar 9 22:00		Maximum Daily Average: 3.6 ppm on Mar 9		Hours of Data:														710								
Minimum Value: 2.0 ppm on Mar 10 18:00		Minimum Daily Average: 2.1 ppm on Mar 4		Hours of Missing Data:														34								
Maximum Diurnal Average: 2.6 ppm at hour 21		Minimum Diurnal Average: 2.2 ppm at hour 15		Hours of Calibration:														34								
Monthly Average: 2.33 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.4 P ₉₀ = 2.7 P ₉₉ = 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-Mar	Z	2.1	2.1	2.1	2.0	2.1	2.6	2.3	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.5	2.8	2.6	2.2	2.8
2-Mar	2.2	Z	2.3	2.3	2.2	2.2	2.4	2.5	2.5	2.2	2.3	2.3	2.1	2.2	2.1	2.1	2.1	2.1	2.7	2.2	2.2	2.1	2.1	2.2	2.2	2.7
3-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
4-Mar	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Mar	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.1	2.2	2.3	2.6	2.4	2.2	2.2	2.2	2.4	2.4	2.2	2.6
6-Mar	2.5	2.5	2.5	2.6	2.4	Z	2.3	2.5	2.3	2.2	2.3	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.3	2.6
7-Mar	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	3.8	3.6	3.2	4.1	4.3	6.1	2.7	6.1
8-Mar	5.0	Z	2.7	2.2	5.9	6.9	2.6	2.1	2.2	C	C	C	2.3	2.2	2.1	3.0	3.4	3.4	2.5	2.2	2.3	2.3	2.3	2.5	3.0	6.9
9-Mar	2.3	2.3	Z	2.4	2.5	2.5	2.6	2.9	3.1	2.8	2.5	2.6	2.6	3.6	3.1	3.8	4.8	4.4	3.5	5.2	7.1	7.1	4.7	4.4	3.6	7.1
10-Mar	4.3	3.5	2.9	Z	2.9	2.4	2.3	2.2	2.7	2.9	2.4	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	3.6	2.5	2.4	2.3	2.5	4.3
11-Mar	2.4	2.4	2.5	2.2	Z	3.2	2.6	2.7	2.9	2.2	2.8	3.0	2.5	2.8	2.3	2.4	2.2	2.5	2.1	2.2	2.3	2.4	2.3	2.5	2.5	3.2
12-Mar	3.0	2.9	2.6	2.3	2.8	Z	3.6	3.6	2.9	2.9	2.6	2.4	2.5	2.4	2.5	2.2	2.2	2.4	2.8	2.8	2.4	2.5	2.4	2.3	2.6	3.6
13-Mar	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.1	2.1	2.1	2.1	2.4
14-Mar	2.2	Z	2.3	2.4	2.4	2.3	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.2	2.1	2.4
15-Mar	2.3	2.4	Z	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.4	2.4	2.8	2.7	2.2	2.1	2.4	2.2	2.8
16-Mar	2.3	2.4	2.2	Z	2.4	2.4	2.4	2.5	2.4	2.2	2.1	2.1	2.3	2.6	2.4	2.3	2.2	2.1	2.3	2.2	2.1	2.1	2.3	2.3	2.3	2.6
17-Mar	2.1	2.3	2.1	2.1	Z	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.3	2.4	2.2	2.4	2.4	3.1	4.2	2.3	2.3	4.2
18-Mar	2.7	2.4	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.7
19-Mar	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	2.2	2.5	2.2	2.1	2.1	2.1	2.5
20-Mar	2.2	Z	2.3	2.2	2.2	2.2	2.2	2.4	2.1	2.3	2.5	2.3	2.4	2.2	2.2	2.2	2.2	2.1	2.2	2.6	2.3	2.2	2.3	2.3	2.3	2.6
21-Mar	2.3	2.3	Z	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.2	2.2	2.2	2.2	2.4
22-Mar	2.1	2.2	2.2	Z	2.1	2.2	2.2	2.5	2.5	2.4	2.4	2.2	2.3	2.4	2.3	2.3	2.3	2.2	2.4	2.5	2.6	2.8	2.7	2.4	2.4	2.8
23-Mar	2.4	2.6	4.6	4.1	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.4	2.6	2.6	3.5	3.5	3.2	2.6	4.6
24-Mar	3.4	2.4	2.1	3.2	2.8	Z	2.3	2.3	2.4	2.5	2.4	2.2	2.0	2.0	2.1	2.1	2.0	2.0	2.2	2.7	2.8	3.0	2.3	2.4	3.4	2.4
25-Mar	Z	2.3	2.6	2.5	2.9	2.5	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.1	2.3	2.1	2.1	2.0	2.2	2.9
26-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.3	2.1	2.2	2.1	2.4	2.1	2.1	2.4
27-Mar	2.1	2.1	Z	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.1	2.2
28-Mar	2.1	2.2	2.0	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.2
29-Mar	2.1	2.1	2.1	2.3	Z	2.3	2.3	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.8	2.5	2.6	2.7	2.4	2.2	2.8
30-Mar	2.3	3.0	3.0	2.3	2.2	Z	2.6	2.7	2.8	2.5	2.2	2.1	2.0	2.0	2.0	2.0	2.1	2.6	3.8	3.0	3.3	2.6	2.2	2.0	2.5	3.8
31-Mar	Z	2.0	2.0	2.3	2.4	2.3	2.3	2.4	2.3	2.2	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.5	2.3	2.1	2.1	2.0	2.2	2.5
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Fort Hills - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort Hills - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	116	16.34	16.34
2.1 - 3.0	554	78.03	94.37
3.1 - 10.0	40	5.63	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort Hills - March 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	20	22	0	1	1	1	2	25	15	8	2	0	4	5	5	5	116
2.1 - 3.0	100	104	42	8	2	16	50	93	76	20	6	3	8	4	6	16	554
3.1 - 10.0	2	5	0	3	1	3	8	3	3	5	2	0	2	1	0	2	40
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	122	131	42	12	4	20	60	121	94	33	10	3	14	10	11	23	710

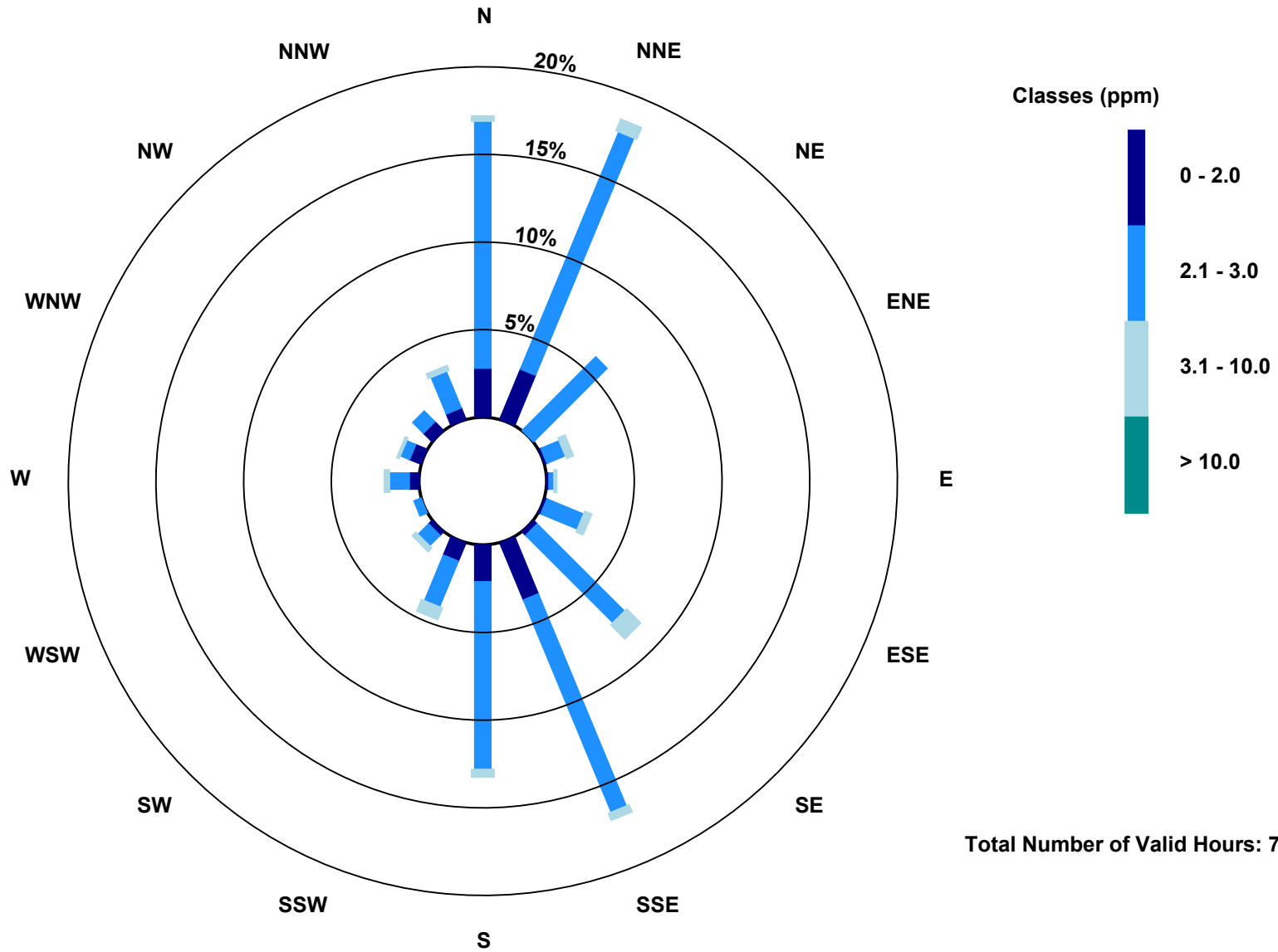
Total Number of Valid Hours: 710

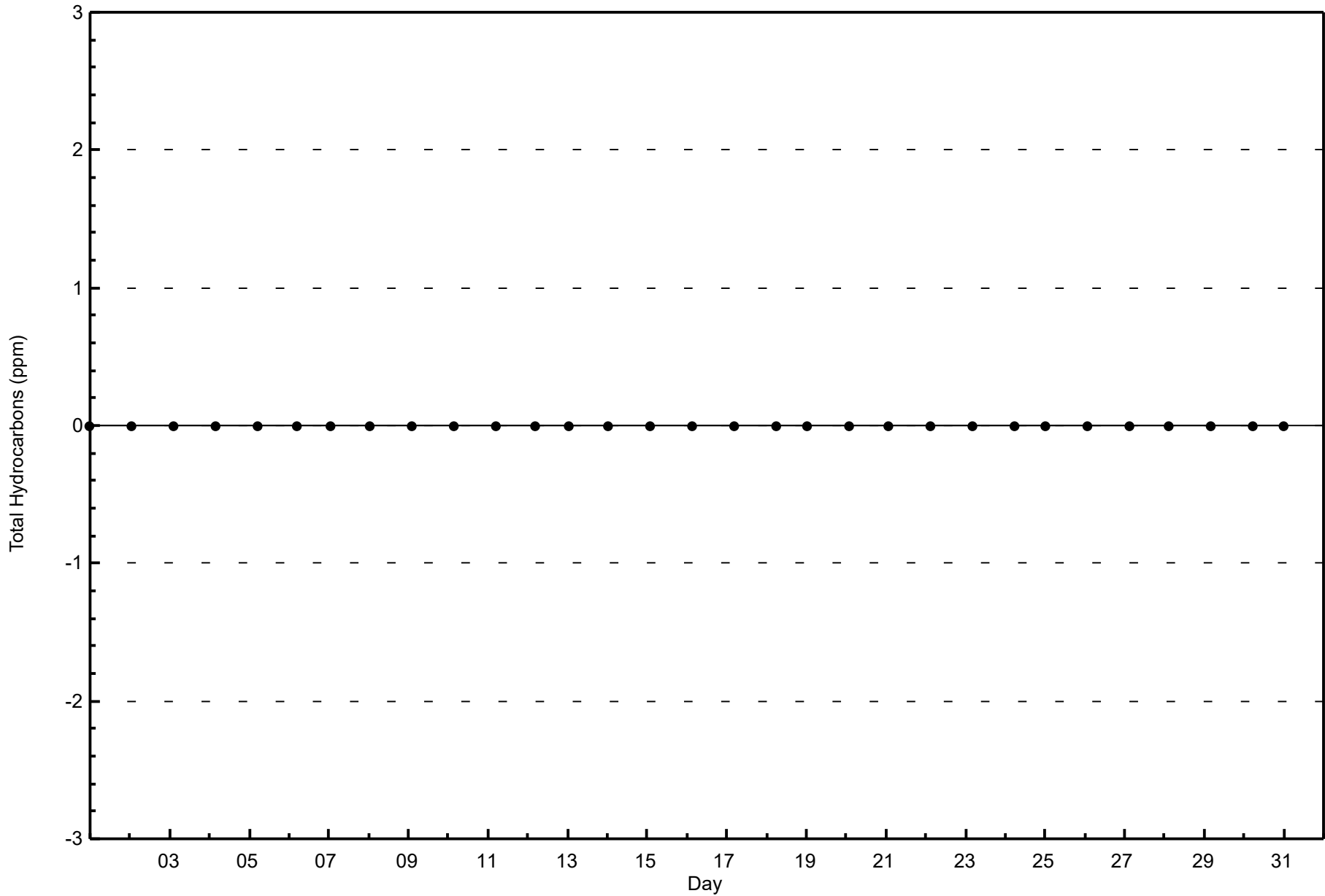
Total Number of Hours: 744

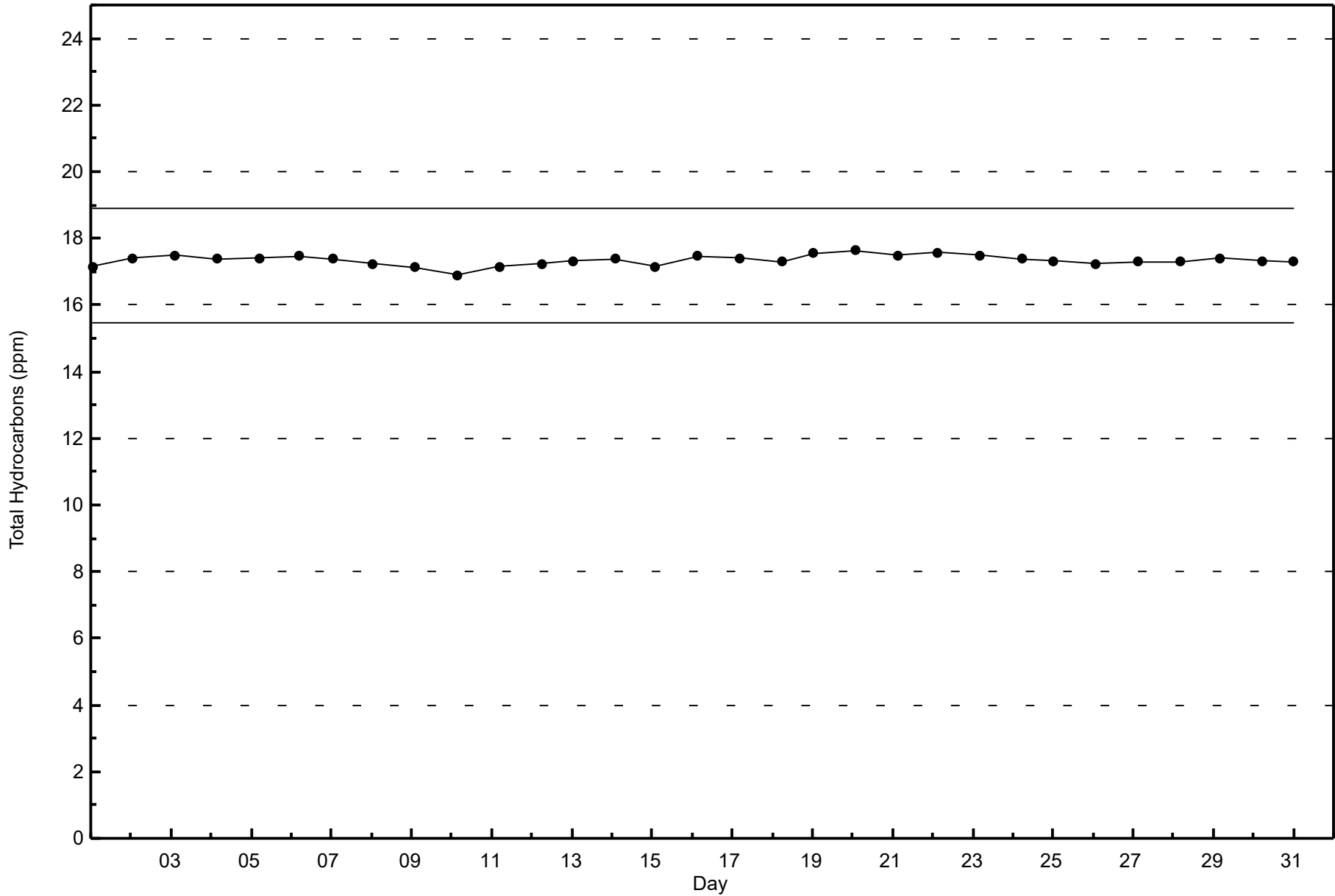


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Fort Hills





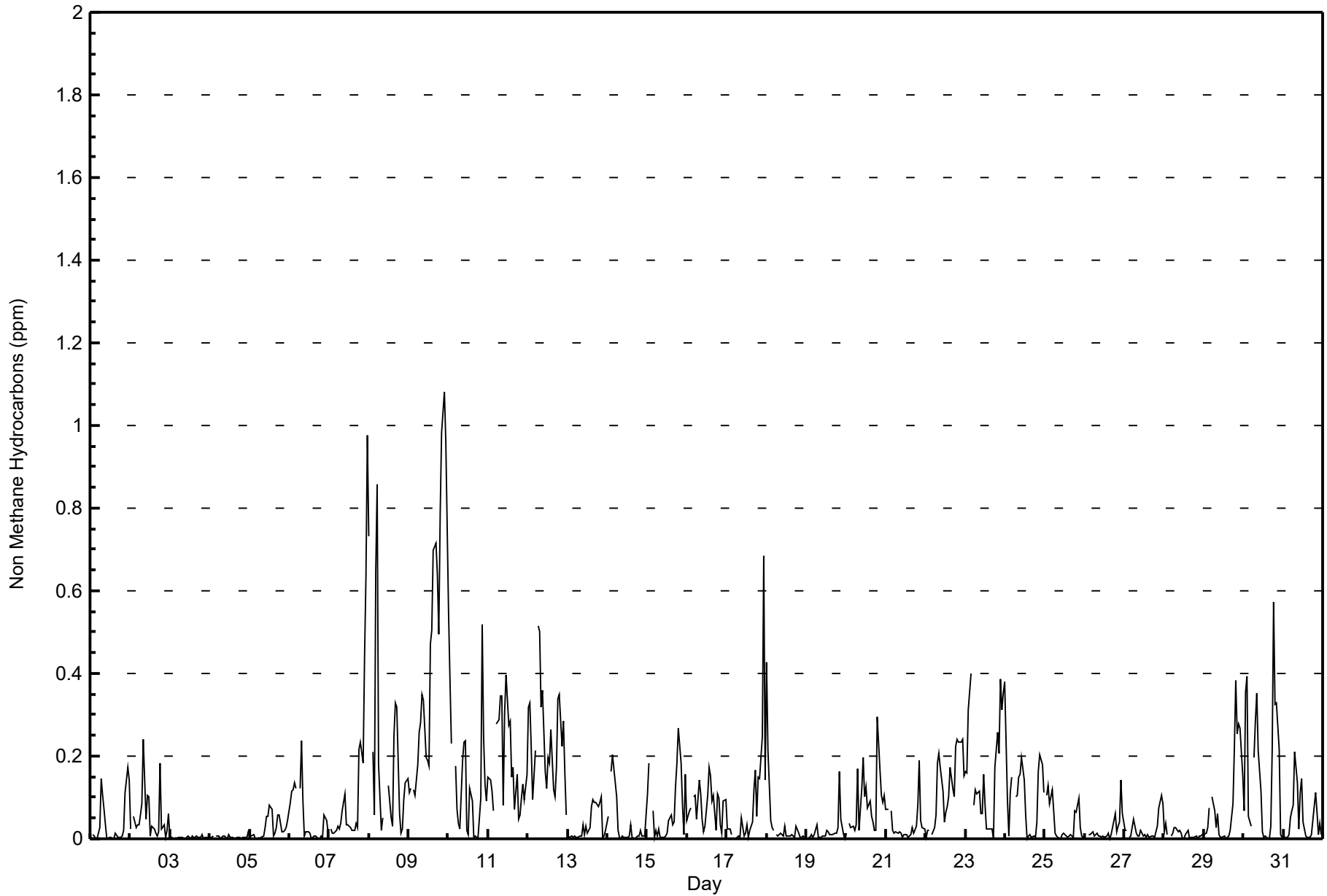




Summary of Hour Averages

Fort Hills - March 2024

Maximum Value: 1.081 ppm on Mar 9 22:00		Maximum Daily Average: 0.457 ppm on Mar 9		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Mar 4 16:00		Minimum Daily Average: 0.003 ppm on Mar 3		Hours of Data: 710																							
Maximum Diurnal Average: 0.149 ppm at hour 23		Minimum Diurnal Average: 0.049 ppm at hour 13		Hours of Missing Data: 34																							
Monthly Average: 0.091 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.2 P ₉₉ = 0.7		Hours of Calibration: 34																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	Z	0.012	0.007	0.000	0.001	0.029	0.146	0.104	0.071	0.035	0.001	0.002	0.002	0.001	0.001	0.012	0.002	0.003	0.004	0.006	0.019	0.112	0.173	0.141	0.038	0.173	
2-Mar	0.025	Z	0.053	0.028	0.035	0.035	0.059	0.084	0.241	0.048	0.105	0.102	0.008	0.029	0.022	0.012	0.006	0.015	0.183	0.025	0.034	0.004	0.020	0.061	0.054	0.241	
3-Mar	0.003	0.002	Z	0.002	0.002	0.005	0.003	0.005	0.002	0.001	0.002	0.008	0.001	0.005	0.004	0.003	0.007	0.004	0.003	0.009	0.001	0.002	0.003	0.002	0.003	0.009	
4-Mar	0.003	0.003	0.006	Z	0.007	0.006	0.000	0.003	0.005	0.006	0.001	0.010	0.003	0.003	0.005	0.000	0.003	0.002	0.003	0.001	0.003	0.004	0.002	0.016	0.004	0.016	
5-Mar	0.008	0.007	0.009	0.000	Z	0.002	0.001	0.005	0.005	0.027	0.054	0.054	0.080	0.072	0.006	0.014	0.029	0.059	0.057	0.017	0.017	0.022	0.026	0.044	0.027	0.080	
6-Mar	0.087	0.114	0.118	0.137	0.123	Z	0.123	0.236	0.092	0.006	0.017	0.019	0.013	0.001	0.004	0.008	0.007	0.001	0.002	0.005	0.004	0.057	0.045	0.015	0.054	0.236	
7-Mar	Z	0.024	0.012	0.014	0.020	0.032	0.023	0.038	0.068	0.110	0.035	0.033	0.029	0.026	0.021	0.020	0.036	0.028	0.216	0.232	0.184	0.440	0.633	0.978	0.141	0.978	
8-Mar	0.732	Z	0.212	0.057	0.648	0.859	0.179	0.020	0.050	C	C	C	0.129	0.050	0.031	0.250	0.329	0.320	0.061	0.013	0.023	0.094	0.137	0.144	0.217	0.859	
9-Mar	0.112	0.123	Z	0.120	0.104	0.180	0.259	0.282	0.349	0.334	0.198	0.190	0.175	0.470	0.506	0.699	0.714	0.636	0.494	0.786	0.984	1.081	0.962	0.753	0.457	1.081	
10-Mar	0.543	0.383	0.231	Z	0.175	0.070	0.037	0.024	0.191	0.235	0.237	0.020	0.009	0.122	0.091	0.004	0.007	0.003	0.003	0.097	0.517	0.244	0.131	0.092	0.151	0.543	
11-Mar	0.149	0.143	0.116	0.068	Z	0.278	0.288	0.344	0.345	0.083	0.305	0.395	0.274	0.285	0.149	0.174	0.072	0.157	0.048	0.056	0.097	0.132	0.095	0.157	0.183	0.395	
12-Mar	0.318	0.328	0.221	0.096	0.215	Z	0.514	0.503	0.320	0.360	0.162	0.123	0.196	0.183	0.264	0.118	0.100	0.174	0.338	0.350	0.224	0.284	0.158	0.057	0.244	0.514	
13-Mar	Z	0.004	0.005	0.003	0.005	0.003	0.002	0.007	0.006	0.032	0.009	0.030	0.014	0.026	0.080	0.095	0.089	0.090	0.078	0.089	0.102	0.004	0.006	0.019	0.035	0.102	
14-Mar	0.055	Z	0.164	0.204	0.170	0.102	0.020	0.005	0.002	0.007	0.003	0.004	0.004	0.007	0.033	0.002	0.000	0.003	0.006	0.007	0.021	0.006	0.005	0.059	0.039	0.204	
15-Mar	0.107	0.184	Z	0.068	0.003	0.021	0.005	0.024	0.002	0.005	0.004	0.005	0.015	0.044	0.058	0.033	0.042	0.125	0.182	0.267	0.184	0.083	0.009	0.154	0.071	0.267	
16-Mar	0.045	0.066	0.076	Z	0.102	0.104	0.048	0.142	0.109	0.047	0.017	0.030	0.104	0.172	0.152	0.091	0.106	0.022	0.110	0.099	0.033	0.014	0.092	0.095	0.082	0.172	
17-Mar	0.022	0.025	0.023	0.009	Z	0.002	0.003	0.006	0.003	0.052	0.007	0.015	0.033	0.003	0.020	0.039	0.119	0.167	0.053	0.151	0.144	0.249	0.684	0.143	0.086	0.684	
18-Mar	0.428	0.213	0.044	0.028	0.020	Z	0.011	0.008	0.013	0.009	0.007	0.029	0.006	0.008	0.006	0.010	0.007	0.003	0.032	0.014	0.005	0.002	0.008	0.002	0.040	0.428	
19-Mar	Z	0.004	0.003	0.011	0.003	0.012	0.036	0.004	0.003	0.005	0.006	0.005	0.019	0.017	0.009	0.009	0.011	0.014	0.014	0.027	0.163	0.048	0.011	0.001	0.019	0.163	
20-Mar	0.012	Z	0.039	0.029	0.032	0.019	0.034	0.171	0.020	0.123	0.196	0.101	0.125	0.076	0.093	0.056	0.040	0.020	0.021	0.295	0.168	0.104	0.088	0.106	0.085	0.295	
21-Mar	0.072	0.071	Z	0.068	0.020	0.013	0.015	0.014	0.017	0.014	0.003	0.011	0.009	0.002	0.006	0.010	0.028	0.015	0.030	0.082	0.189	0.045	0.026	0.023	0.034	0.189	
22-Mar	0.004	0.021	0.022	Z	0.010	0.028	0.056	0.184	0.205	0.174	0.116	0.041	0.063	0.078	0.103	0.173	0.123	0.101	0.225	0.240	0.233	0.233	0.240	0.152	0.123	0.240	
23-Mar	0.162	0.159	0.312	0.398	Z	0.081	0.119	0.109	0.115	0.062	0.060	0.157	0.081	0.025	0.024	0.024	0.024	0.001	0.172	0.259	0.206	0.388	0.313	0.354	0.157	0.398	
24-Mar	0.379	0.092	0.007	0.110	0.151	Z	0.101	0.106	0.149	0.156	0.196	0.141	0.057	0.001	0.007	0.010	0.003	0.007	0.003	0.042	0.164	0.204	0.179	0.111	0.103	0.379	
25-Mar	Z	0.106	0.130	0.084	0.119	0.068	0.013	0.006	0.003	0.001	0.010	0.014	0.009	0.008	0.003	0.009	0.007	0.005	0.068	0.064	0.197	0.026	0.007	0.004	0.037	0.130	
26-Mar	0.006	Z	0.009	0.010	0.015	0.016	0.007	0.014	0.006	0.005	0.005	0.006	0.004	0.005	0.014	0.001	0.011	0.028	0.061	0.015	0.030	0.042	0.141	0.060	0.022	0.141	
27-Mar	0.021	0.019	Z	0.005	0.006	0.046	0.032	0.013	0.008	0.006	0.020	0.008	0.011	0.005	0.011	0.003	0.005	0.005	0.003	0.019	0.032	0.075	0.106	0.085	0.024	0.106	
28-Mar	0.017	0.037	0.011	Z	0.007	0.013	0.028	0.026	0.016	0.019	0.012	0.001	0.001	0.010	0.022	0.001	0.004	0.002	0.004	0.008	0.002	0.005	0.007	0.009	0.011	0.037	
29-Mar	0.011	0.014	0.028	0.073	Z	0.101	0.069	0.026	0.060	0.010	0.004	0.002	0.006	0.001	0.005	0.008	0.022	0.084	0.222	0.383	0.253	0.277	0.268	0.154	0.090	0.383	
30-Mar	0.069	0.356	0.394	0.054	0.031	Z	0.198	0.286	0.352	0.213	0.114	0.019	0.005	0.005	0.002	0.000	0.031	0.214	0.572	0.326	0.328	0.218	0.009	0.005	0.165	0.572	
31-Mar	Z	0.003	0.002	0.010	0.051	0.068	0.080	0.210	0.136	0.023	0.113	0.146	0.041	0.007	0.004	0.003	0.004	0.009	0.043	0.112	0.066	0.011	0.038	0.009	0.052	0.210	
		0.136	0.097	0.087	0.065	0.080	0.084	0.081	0.097	0.096	0.074	0.067	0.057	0.049	0.056	0.057	0.061	0.064	0.075	0.107	0.132	0.146	0.145	0.149	0.129	Diurnal Average	
		0.732	0.383	0.394	0.398	0.648	0.859	0.514	0.503	0.352	0.360	0.305	0.395	0.274	0.470	0.506	0.699	0.714	0.636	0.572	0.786	0.984	1.081	0.962	0.978	Diurnal Maximum	
Z - zerospan		C - Calibration																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills - March 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	148	20.85	20.85
0.006 - 0.05	269	37.89	58.73
0.06 - 0.1	150	21.13	79.86
> 0.1	143	20.14	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills - March 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	46	26	0	1	1	3	2	24	17	9	1	0	1	6	5	6	148
0.006 - 0.05	45	60	15	2	0	9	11	52	43	10	3	0	7	1	3	8	269
0.06 - 0.1	22	22	15	3	1	3	19	29	21	4	2	2	4	1	0	2	150
> 0.1	9	23	12	6	2	5	28	16	13	10	4	1	2	2	3	7	143
Totals	122	131	42	12	4	20	60	121	94	33	10	3	14	10	11	23	710

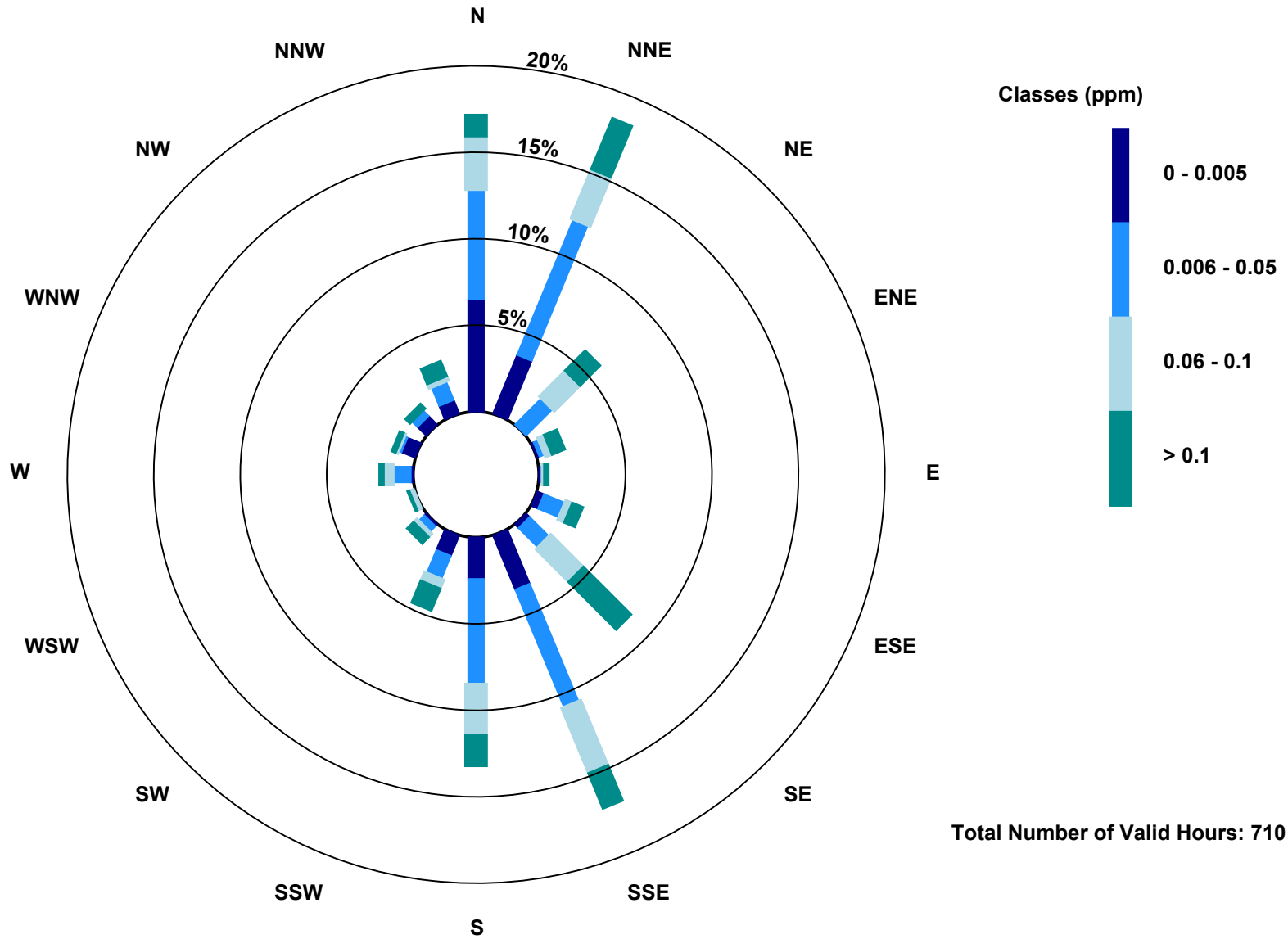
Total Number of Valid Hours: 710

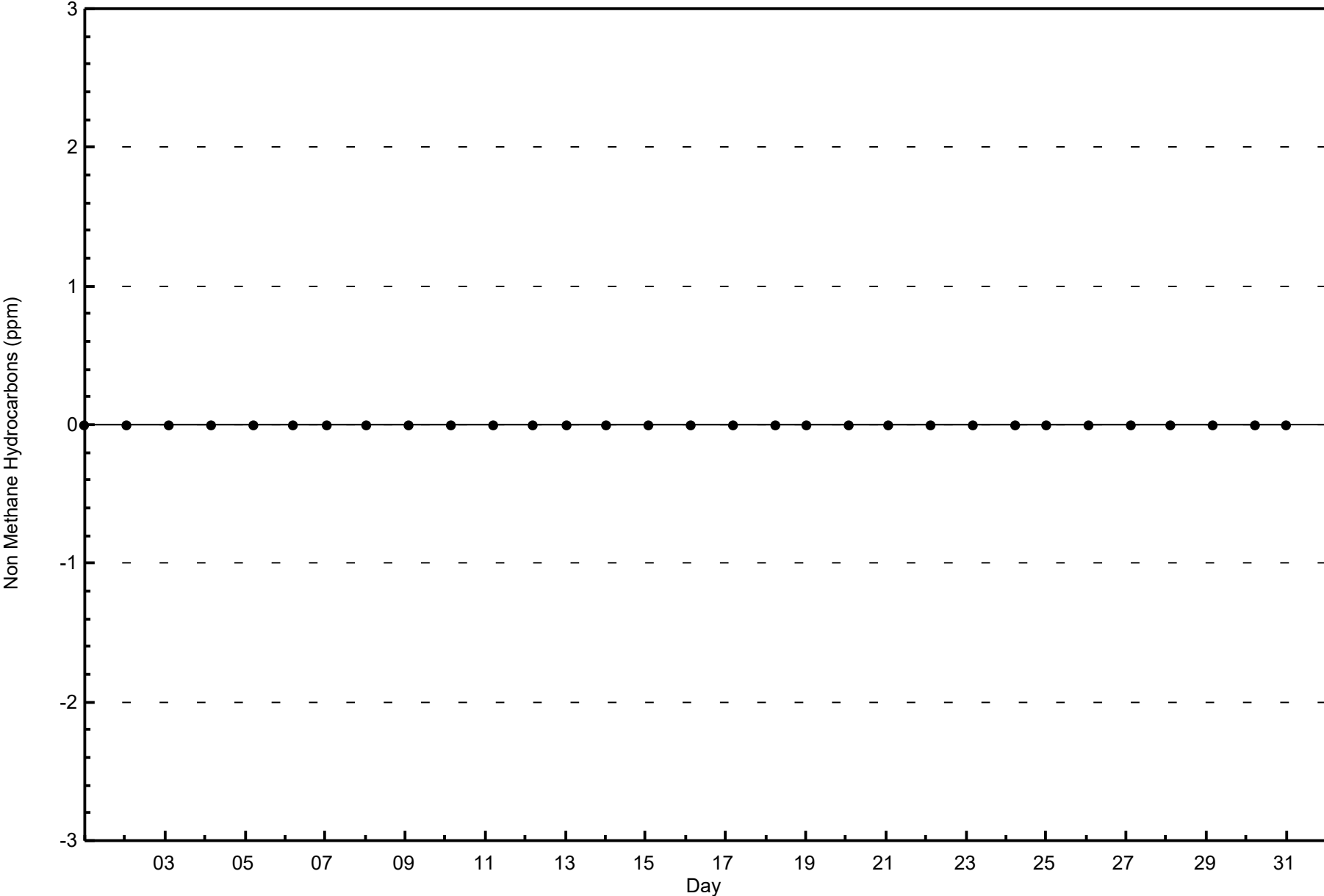
Total Number of Hours: 744

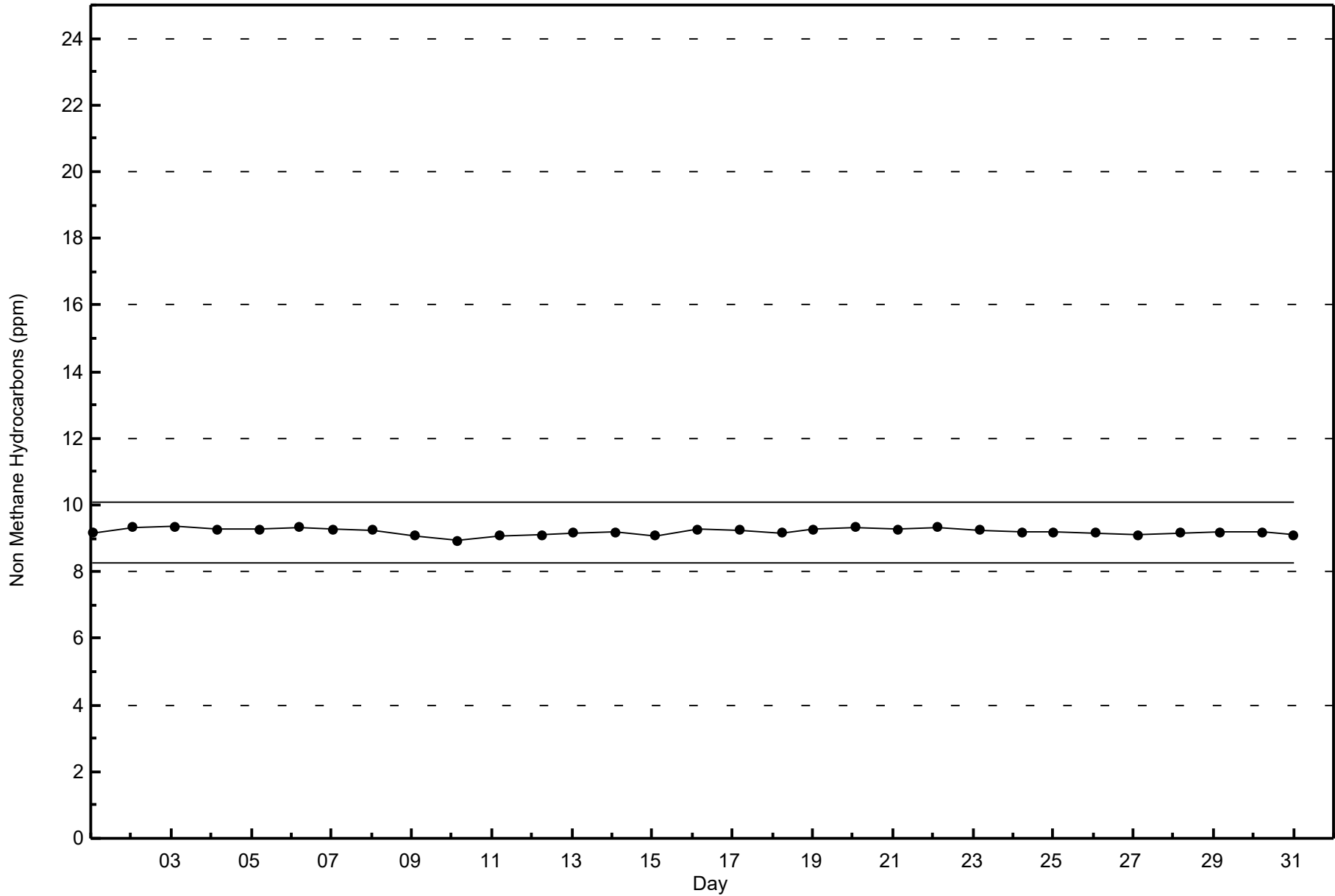


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills







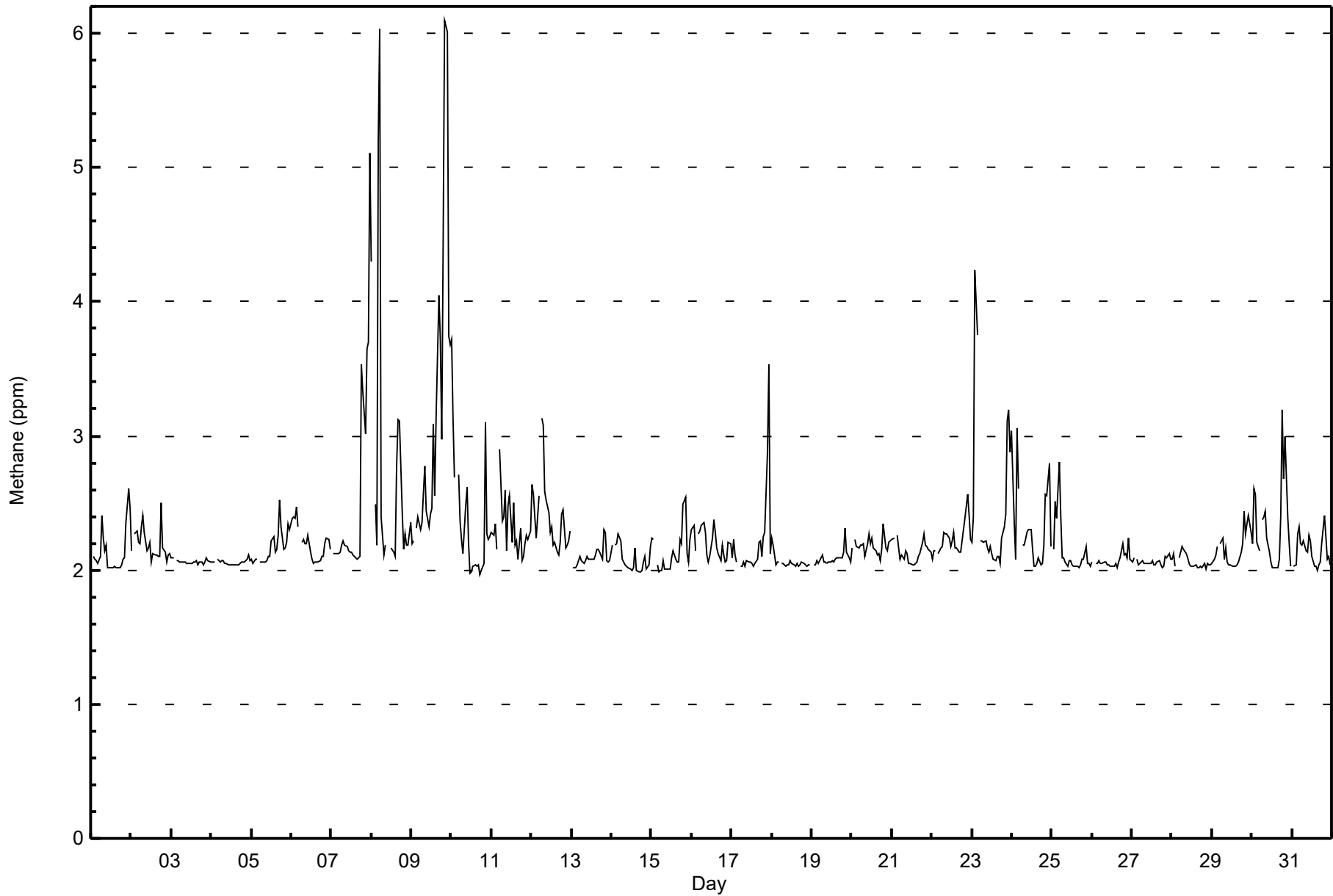


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 6.1 ppm on Mar 9 21:00		Maximum Daily Average: 3.1 ppm on Mar 9		Hours of Data:														710								
Minimum Value: 2.0 ppm on Mar 10 18:00		Minimum Daily Average: 2.1 ppm on Mar 4		Hours of Missing Data:														34								
Maximum Diurnal Average: 2.4 ppm at hour 21		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Calibration:														34								
Monthly Average: 2.24 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.5 P ₉₉ = 4.2		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-Mar	Z	2.1	2.1	2.1	2.0	2.1	2.4	2.2	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.4	2.6	2.5	2.1	2.6	
2-Mar	2.1	Z	2.3	2.3	2.2	2.2	2.3	2.4	2.3	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.5	2.2	2.1	2.1	2.1	2.1	2.2	2.5
3-Mar	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1
4-Mar	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Mar	2.1	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.3	2.5	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.5
6-Mar	2.4	2.4	2.4	2.5	2.3	Z	2.2	2.2	2.2	2.2	2.3	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.5
7-Mar	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.5	3.3	3.0	3.6	3.7	5.1	2.5	5.1
8-Mar	4.3	Z	2.5	2.2	5.2	6.0	2.4	2.1	2.2	C	C	C	2.2	2.1	2.1	2.8	3.1	3.1	2.4	2.2	2.3	2.2	2.2	2.4	2.8	6.0
9-Mar	2.2	2.2	Z	2.3	2.4	2.3	2.4	2.6	2.8	2.4	2.3	2.4	2.5	3.1	2.5	3.1	4.0	3.7	3.0	4.4	6.1	6.0	3.7	3.7	3.1	6.1
10-Mar	3.7	3.1	2.7	Z	2.7	2.4	2.2	2.1	2.5	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.1	2.3	2.2	2.2	2.4	3.7
11-Mar	2.3	2.3	2.3	2.2	Z	2.9	2.4	2.4	2.6	2.1	2.5	2.6	2.2	2.5	2.2	2.2	2.1	2.3	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.9
12-Mar	2.6	2.6	2.4	2.2	2.6	Z	3.1	3.1	2.6	2.5	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.4	2.4	2.2	2.2	2.2	2.3	2.4	3.1
13-Mar	Z	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.3
14-Mar	2.2	Z	2.2	2.2	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.2	2.1	2.3
15-Mar	2.2	2.2	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.5	2.1	2.1	2.2	2.1	2.5
16-Mar	2.3	2.3	2.1	Z	2.3	2.3	2.3	2.4	2.3	2.1	2.1	2.1	2.2	2.4	2.3	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.4
17-Mar	2.1	2.2	2.1	2.1	Z	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.2	2.1	2.3	2.3	2.9	3.5	2.1	2.2	3.5
18-Mar	2.2	2.2	2.0	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2
19-Mar	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	2.3	2.1	2.1	2.1	2.1	2.3
20-Mar	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.3
21-Mar	2.2	2.2	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.3
22-Mar	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.2	2.3	2.4	2.6	2.4	2.2	2.2	2.6
23-Mar	2.2	2.4	4.2	3.8	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.2	2.3	2.4	3.1	3.2	2.9	2.5	4.2	
24-Mar	3.0	2.4	2.1	3.1	2.6	Z	2.2	2.2	2.2	2.3	2.3	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.2	2.6	2.6	2.8	2.2	2.3	3.1	
25-Mar	Z	2.1	2.5	2.4	2.8	2.4	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.0	2.0	2.0	2.1	2.8
26-Mar	2.1	Z	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.2
27-Mar	2.1	2.1	Z	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1
28-Mar	2.1	2.1	2.0	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2
29-Mar	2.0	2.1	2.1	2.2	Z	2.2	2.2	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.4	2.3	2.3	2.4	2.3	2.2	2.4
30-Mar	2.2	2.6	2.6	2.2	2.1	Z	2.4	2.4	2.4	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.4	3.2	2.7	3.0	2.4	2.2	2.0	2.3	3.2
31-Mar	Z	2.0	2.0	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.2	2.1	2.1	2.0	2.1	2.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Fort Hills - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Fort Hills - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	152	21.41	21.41
2.1 - 3.0	527	74.23	95.63
3.1 - 10.0	31	4.37	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Fort Hills - March 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	30	32	0	2	1	6	2	31	16	8	2	0	6	6	5	5	152
2.1 - 3.0	90	95	42	8	3	13	51	87	75	21	7	3	7	3	6	16	527
3.1 - 10.0	2	4	0	2	0	1	7	3	3	4	1	0	1	1	0	2	31
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	122	131	42	12	4	20	60	121	94	33	10	3	14	10	11	23	710

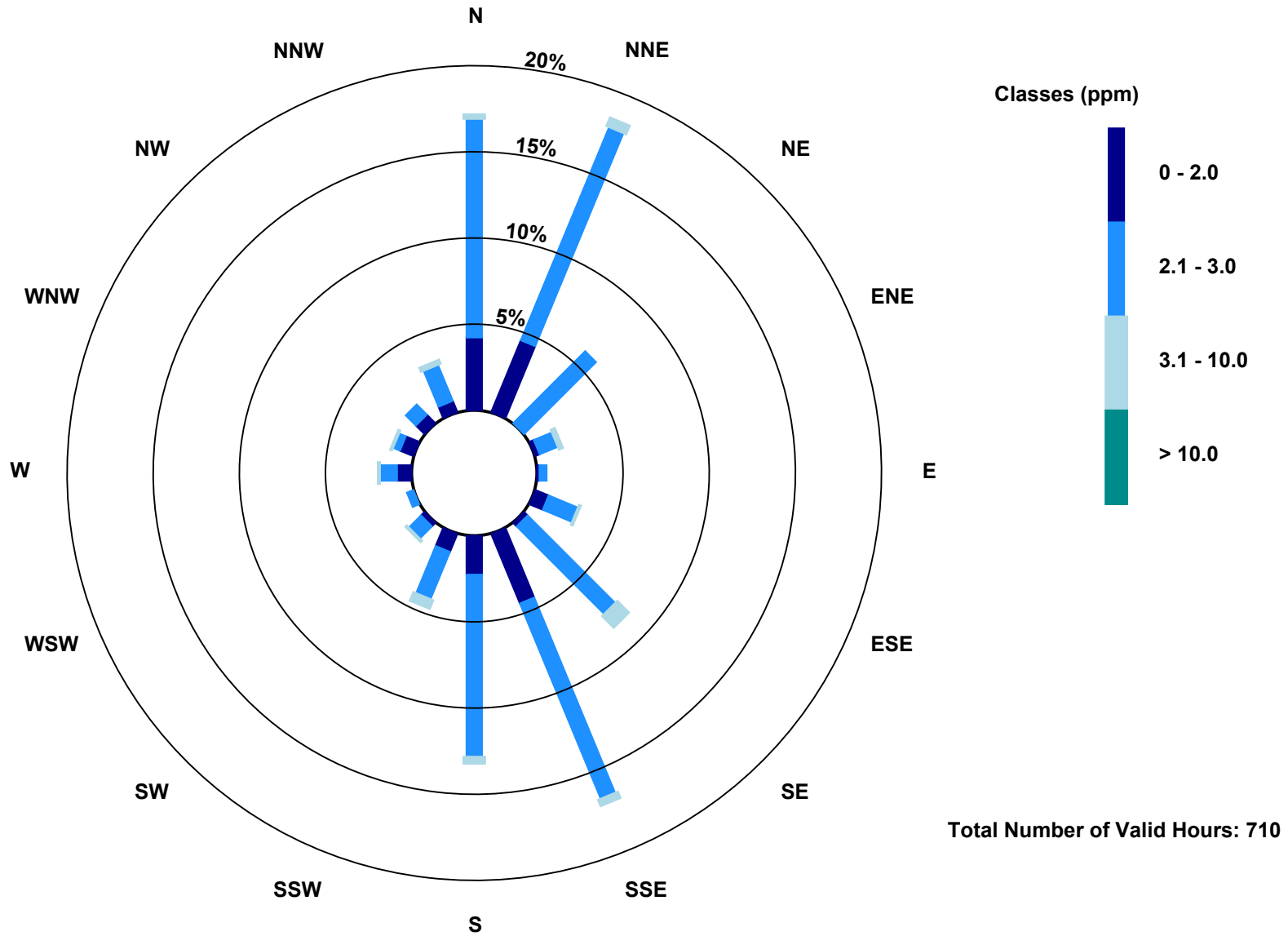
Total Number of Valid Hours: 710

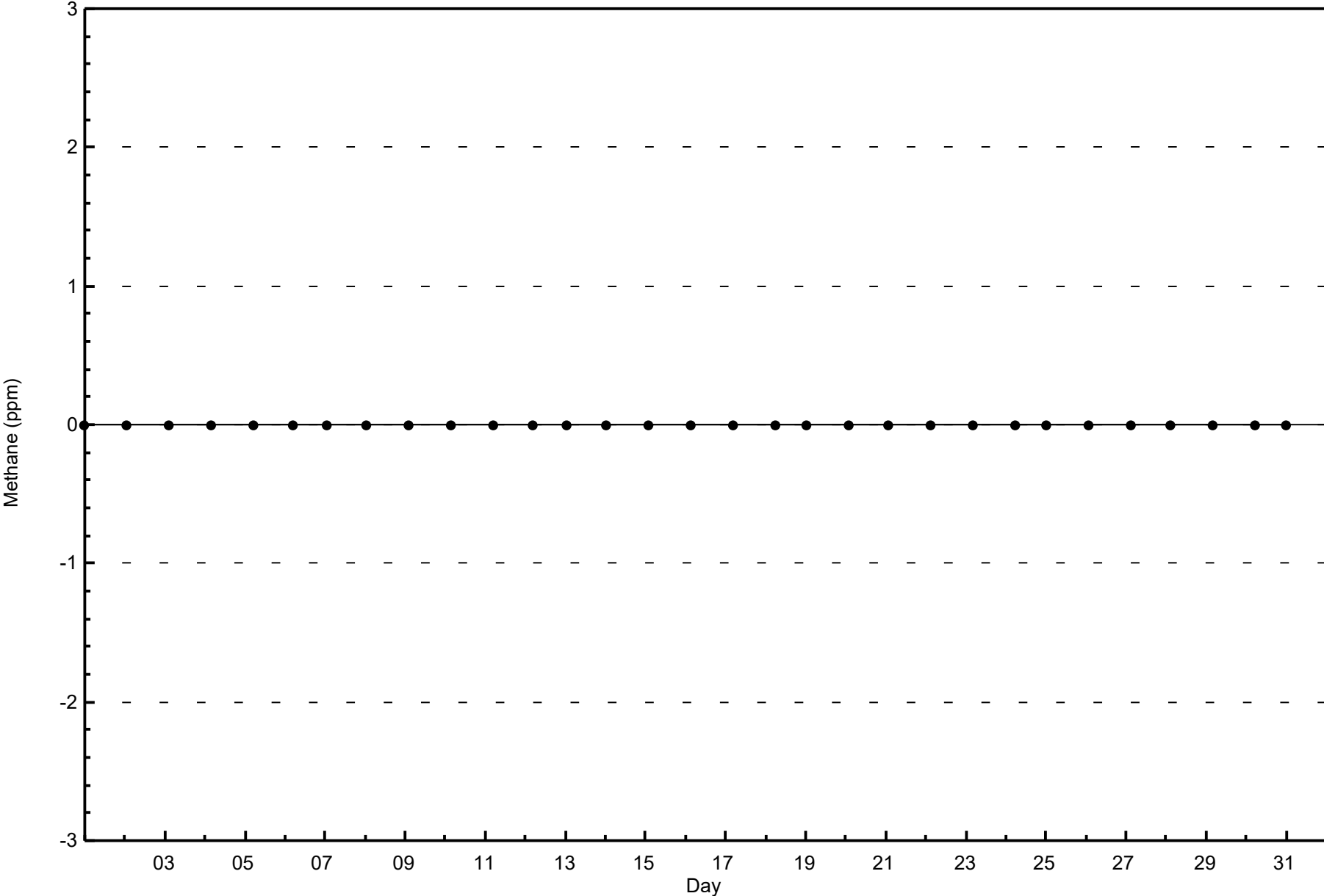
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Fort Hills

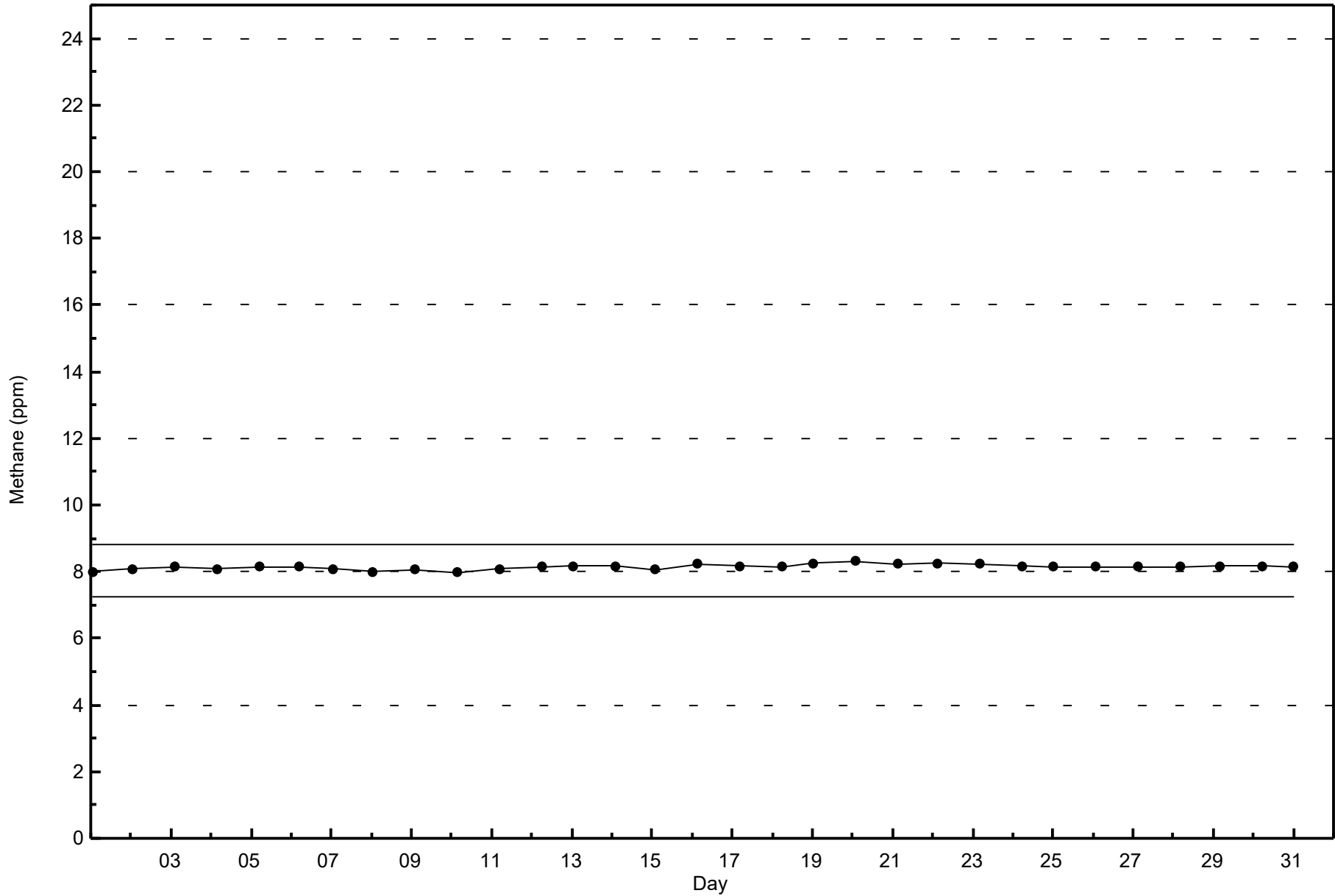






Wood Buffalo Environmental Association
Span Responses

Methane (CH₄) - ppm
Fort Hills - March 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

Nitric Oxide (NO) - ppb
Fort Hills - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 188.6 ppb on Mar 8 00:00	Maximum Daily Average: 31.5 ppb on Mar 9		Hours of Data:	708
Minimum Value: 0.0 ppb on Mar 6 05:00	Minimum Daily Average: 0.1 ppb on Mar 14		Hours of Missing Data:	36
Maximum Diurnal Average: 11.6 ppb at hour 24	Minimum Diurnal Average: 1.9 ppb at hour 19		Hours of Calibration:	36
Monthly Average: 6.27 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.4 Median = 1.3 Q ₃ = 5.3 P ₉₀ = 13.0 P ₉₉ = 98.2		Percent Operational Time:	100.0

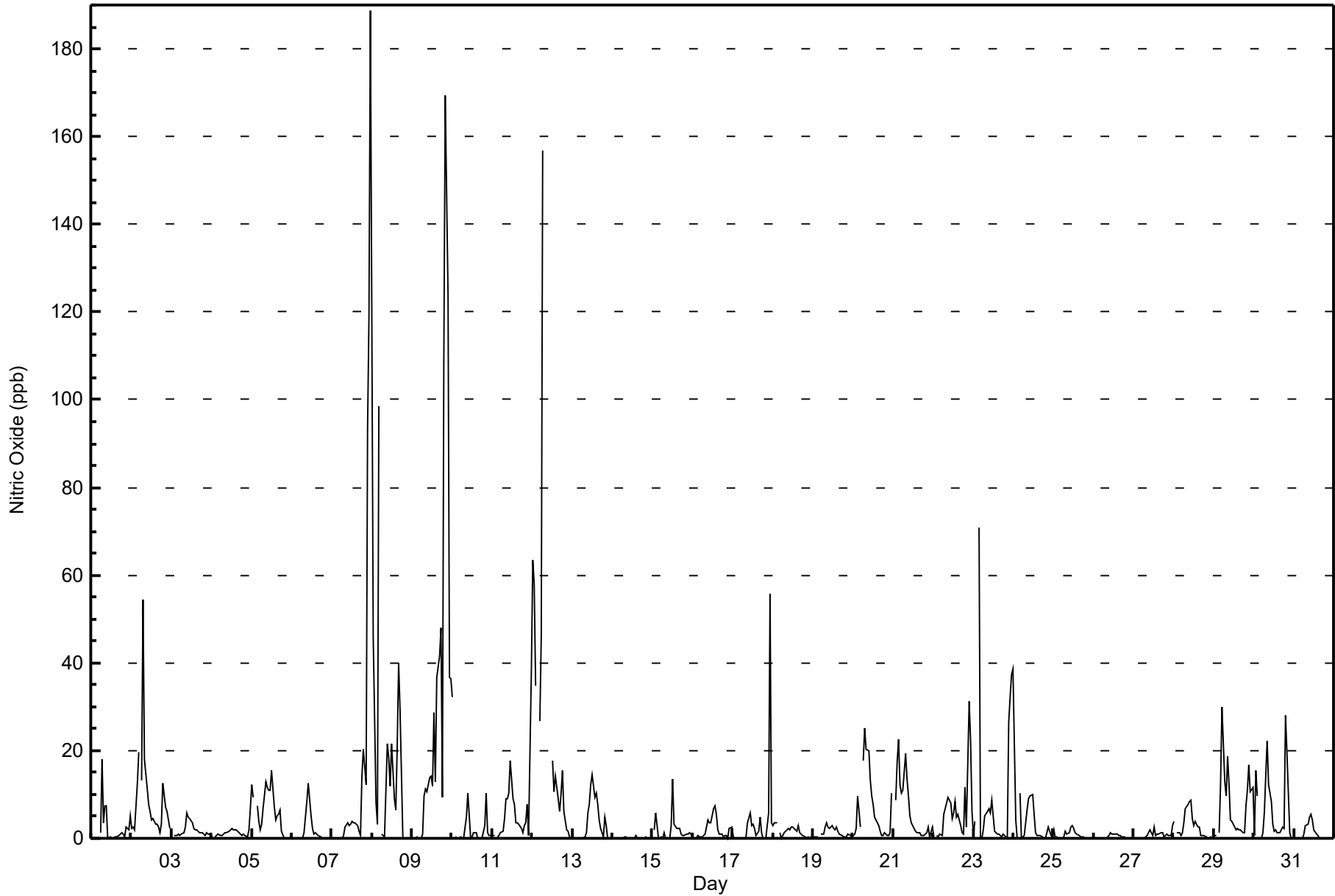
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	0.0	0.1	0.0	0.1	Z	1.3	17.9	3.5	7.3	7.3	0.1	0.2	0.1	0.1	0.3	0.3	0.6	1.1	1.3	1.0	0.3	2.5	2.0	5.3	2.3	17.9																							
2-Mar	2.2	2.5	2.1	12.5	19.7	Z	13.2	54.5	18.1	11.3	7.6	6.1	4.2	4.6	3.4	3.1	2.6	1.3	3.4	12.5	7.1	6.2	4.2	2.2	8.9	54.5																							
3-Mar	Z	0.6	0.7	0.7	0.9	0.6	1.0	1.4	2.6	5.7	4.9	4.4	3.4	2.1	2.1	2.1	1.6	1.3	1.3	0.8	0.7	1.2	0.8	0.8	1.8	5.7																							
4-Mar	0.4	Z	0.5	0.5	1.0	0.7	0.8	1.1	1.4	1.2	1.5	2.0	2.1	2.0	1.9	2.0	1.2	1.0	0.6	0.9	0.5	0.4	1.8	6.9	1.4	6.9																							
5-Mar	12.1	9.2	Z	7.4	4.0	2.1	3.2	6.8	13.0	11.6	10.8	10.8	15.4	7.2	4.1	5.1	5.5	6.3	1.7	0.0	0.0	0.0	0.1	0.0	5.9	15.4																							
6-Mar	0.1	0.1	0.1	Z	0.0	0.0	0.0	1.3	4.7	8.2	12.6	5.0	2.4	1.0	1.2	1.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.7	12.6																							
7-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.6	2.5	3.4	2.9	3.1	3.8	3.5	3.6	2.9	1.5	0.7	14.3	20.2	12.4	93.2	119.0	188.6	20.7	188.6																							
8-Mar	120.1	46.0	8.2	3.2	98.6	Z	0.9	0.5	10.9	21.7	18.3	11.9	21.5	9.0	6.3	20.9	40.1	29.4	0.1	0.0	0.0	0.0	0.0	0.0	20.3	120.1																							
9-Mar	Z	0.0	0.0	0.2	0.0	0.0	1.1	9.7	11.4	10.6	13.8	14.0	11.8	28.6	12.7	36.7	41.5	48.1	9.3	109.0	169.3	123.7	36.6	36.5	31.5	169.3																							
10-Mar	32.1	Z	0.2	0.1	0.0	0.4	0.0	0.0	4.9	10.3	5.3	0.1	0.4	1.3	1.1	0.1	0.0	0.0	0.1	2.8	10.2	1.4	0.6	0.8	3.1	32.1																							
11-Mar	0.7	0.5	Z	0.4	0.5	1.3	1.6	4.6	9.0	9.0	10.4	17.8	9.1	7.7	3.5	3.7	3.2	2.2	1.4	2.9	3.7	7.7	0.5	38.4	6.1	38.4																							
12-Mar	63.3	57.9	34.9	Z	26.6	46.0	156.7	C	C	C	C	C	17.6	10.6	14.3	9.0	6.2	10.1	15.4	6.2	2.0	1.6	0.4	0.0	26.6	156.7																							
13-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.3	1.4	6.0	7.7	12.3	14.5	9.2	10.4	7.7	4.2	2.2	0.4	4.8	2.9	0.0	0.0	0.0	3.6	14.5																							
14-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.1	0.5																							
15-Mar	Z	1.9	5.8	0.0	0.0	0.2	0.0	1.3	0.0	0.1	0.0	3.0	13.4	3.2	2.2	2.1	2.1	0.9	0.6	0.8	0.8	1.0	1.2	1.0	1.8	13.4																							
16-Mar	0.4	Z	0.5	0.7	0.4	0.5	0.4	1.0	2.7	4.1	3.6	3.4	6.8	7.3	5.5	2.1	1.0	1.1	0.4	0.6	0.6	0.1	2.3	2.7	2.1	7.3																							
17-Mar	0.3	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	3.4	5.9	2.8	3.3	2.1	0.8	1.5	4.7	1.2	0.1	0.0	0.0	5.7	55.7	3.5	4.0	55.7																							
18-Mar	2.9	3.4	3.6	Z	1.3	0.1	0.6	1.1	2.1	2.1	1.9	2.6	2.5	2.0	1.5	3.0	1.3	0.8	0.6	0.2	0.1	0.4	0.2	0.3	1.5	3.6																							
19-Mar	0.3	0.4	0.4	0.5	Z	0.9	1.1	2.5	3.5	2.7	2.3	2.9	2.2	1.9	2.6	1.5	0.9	0.7	0.3	0.4	0.4	0.9	0.5	0.2	1.3	3.5																							
20-Mar	0.5	0.9	2.4	9.8	2.6	Z	17.6	25.1	20.2	20.0	13.4	9.5	7.9	4.8	3.4	2.9	1.7	0.7	0.6	1.2	0.6	0.8	1.2	10.4	6.9	25.1																							
21-Mar	Z	8.7	17.4	22.5	12.2	10.5	10.8	19.3	13.6	9.7	5.0	3.7	2.4	1.6	1.4	1.4	1.3	0.7	0.6	0.9	1.3	2.7	0.4	2.7	6.5	22.5																							
22-Mar	0.4	Z	0.7	0.2	0.9	0.7	5.4	6.6	8.2	9.3	8.0	4.4	5.8	8.3	5.0	5.4	2.9	1.2	1.1	11.5	2.4	31.4	22.2	6.0	6.4	31.4																							
23-Mar	0.6	3.8	Z	70.7	0.4	0.0	1.9	5.2	6.1	6.8	5.7	8.7	5.3	1.6	0.9	1.1	0.8	0.4	1.0	0.4	0.1	26.4	32.1	37.5	9.5	70.7																							
24-Mar	38.7	4.2	0.2	Z	10.3	0.0	0.5	3.7	6.5	8.9	9.6	9.8	5.6	1.3	0.7	0.6	0.6	0.2	0.0	0.0	1.3	2.5	0.5	0.2	4.6	38.7																							
25-Mar	1.9	0.1	0.3	0.1	Z	0.0	0.2	1.7	1.0	1.2	2.7	3.1	2.2	1.2	0.9	0.7	0.4	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.8	3.1																							
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.5	1.2	0.9	0.9	0.9	1.1	0.7	0.7	0.4	0.4	0.0	0.0	0.0	0.1	0.1	0.4	1.2																							
27-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.7	1.1	1.8	0.6	2.5	0.7	1.0	0.9	1.2	1.2	0.4	0.6	1.1	0.6	0.7	2.9	0.8	0.8	2.9																							
28-Mar	4.0	Z	1.4	1.3	0.5	1.4	3.7	6.8	7.8	8.2	8.6	4.5	2.8	3.8	2.7	2.6	0.8	0.6	0.5	0.4	0.1	0.1	0.2	0.1	2.7	8.6																							
29-Mar	0.7	0.8	Z	1.3	12.1	30.0	13.0	9.7	18.8	12.2	4.3	3.8	2.5	1.9	2.3	1.8	1.8	1.3	1.2	7.5	11.0	16.7	10.7	11.5	7.7	30.0																							
30-Mar	0.5	15.3	9.8	Z	0.0	1.3	5.7	14.2	22.2	12.1	8.4	3.3	1.5	1.8	1.2	1.2	2.0	2.7	2.4	28.0	19.6	1.2	0.0	0.0	6.7	28.0																							
31-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.9	3.0	3.3	4.8	5.6	4.3	1.8	0.9	0.7	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1.1	5.6																							
																								10.9	6.0	3.4	5.1	7.7	3.8	8.3	6.2	6.8	7.1	6.1	5.3	5.7	4.3	3.2	4.0	4.3	3.8	1.9	6.9	8.0	10.6	9.5	11.6	Diurnal Average	
																								120.1	57.9	34.9	70.7	98.6	46.0	156.7	54.5	22.2	21.7	18.3	17.8	21.5	28.6	14.3	36.7	41.5	48.1	15.4	109.0	169.3	123.7	119.0	188.6	Diurnal Maximum	

Z - zerospan C - Calibration



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Fort Hills - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort Hills - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	666	94.07	94.07
21 - 40	24	3.39	97.46
41 - 80	9	1.27	98.73
81 - 159	7	0.99	99.72
> 159	2	0.28	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort Hills - March 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	113	127	41	10	2	18	51	115	96	30	9	3	15	8	9	19	666
21 - 40	3	2	0	0	2	1	6	4	0	3	0	0	1	0	1	1	24
11 - 80	4	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	9
81 - 159	1	0	0	2	0	1	0	0	1	0	1	0	0	1	0	0	7
> 159	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2
Totals	121	132	41	12	4	20	57	121	97	33	10	3	16	9	10	22	708

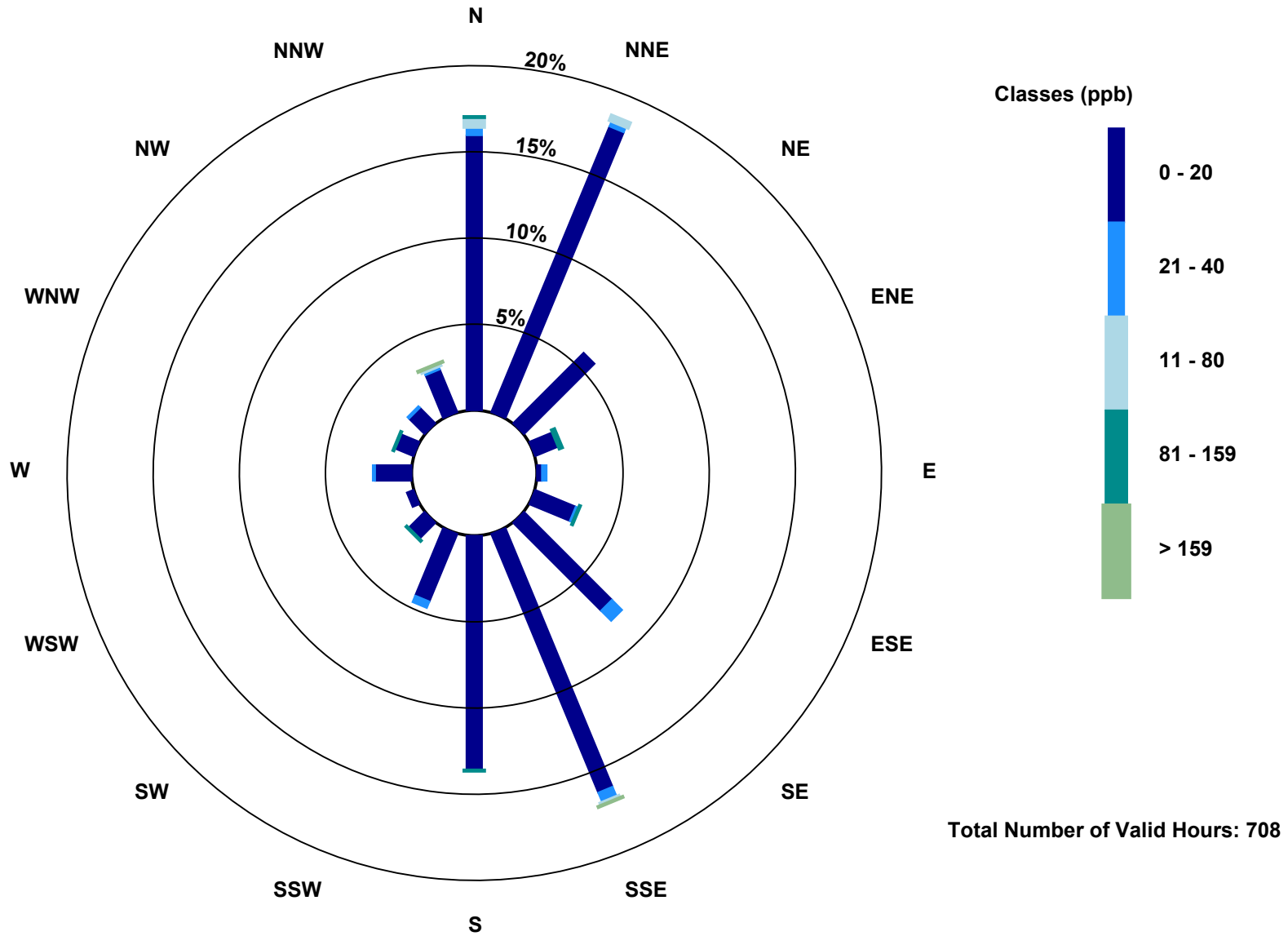
Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

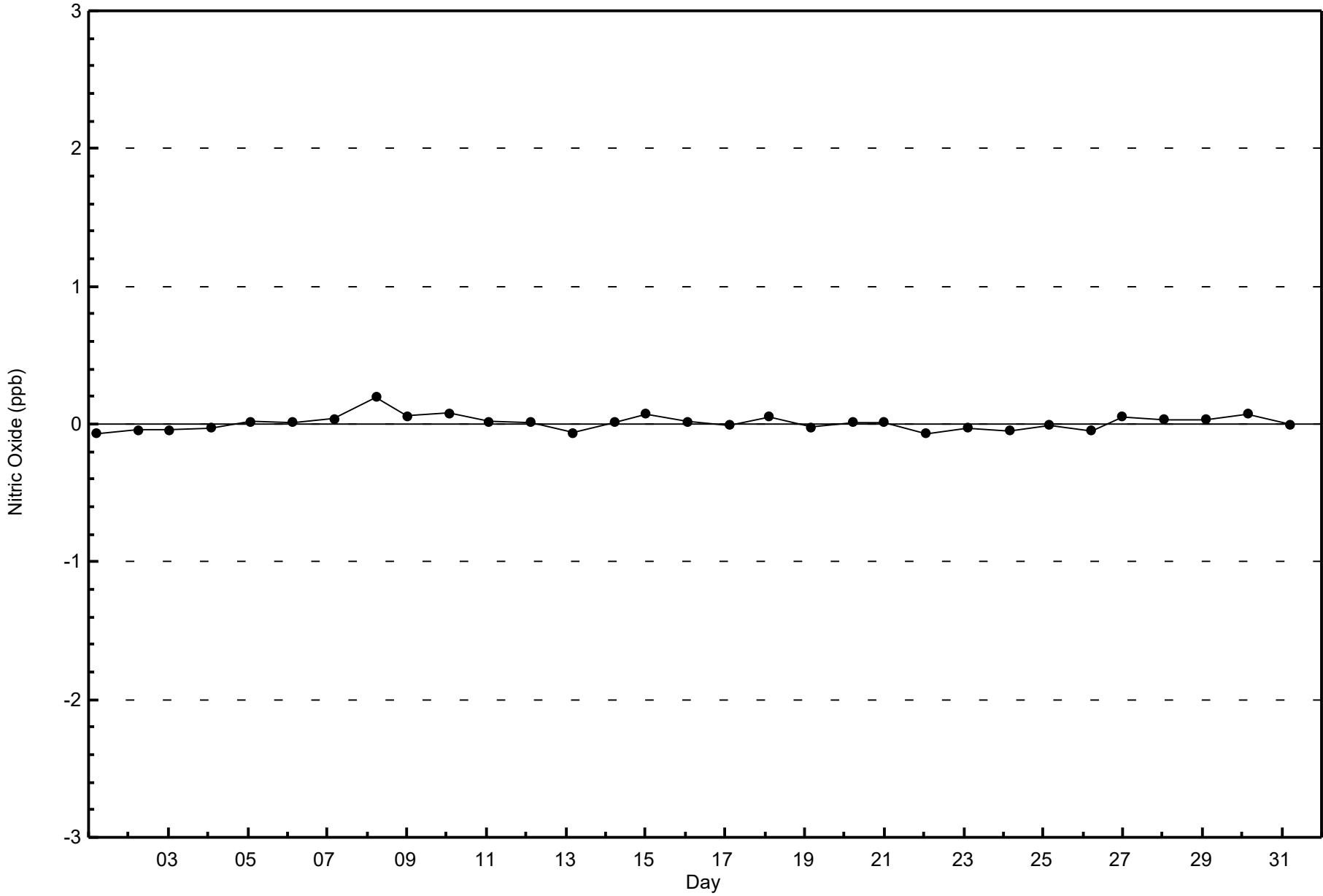
Nitric Oxide (NO) - ppb
Fort Hills





Wood Buffalo Environmental Association
Zero Responses

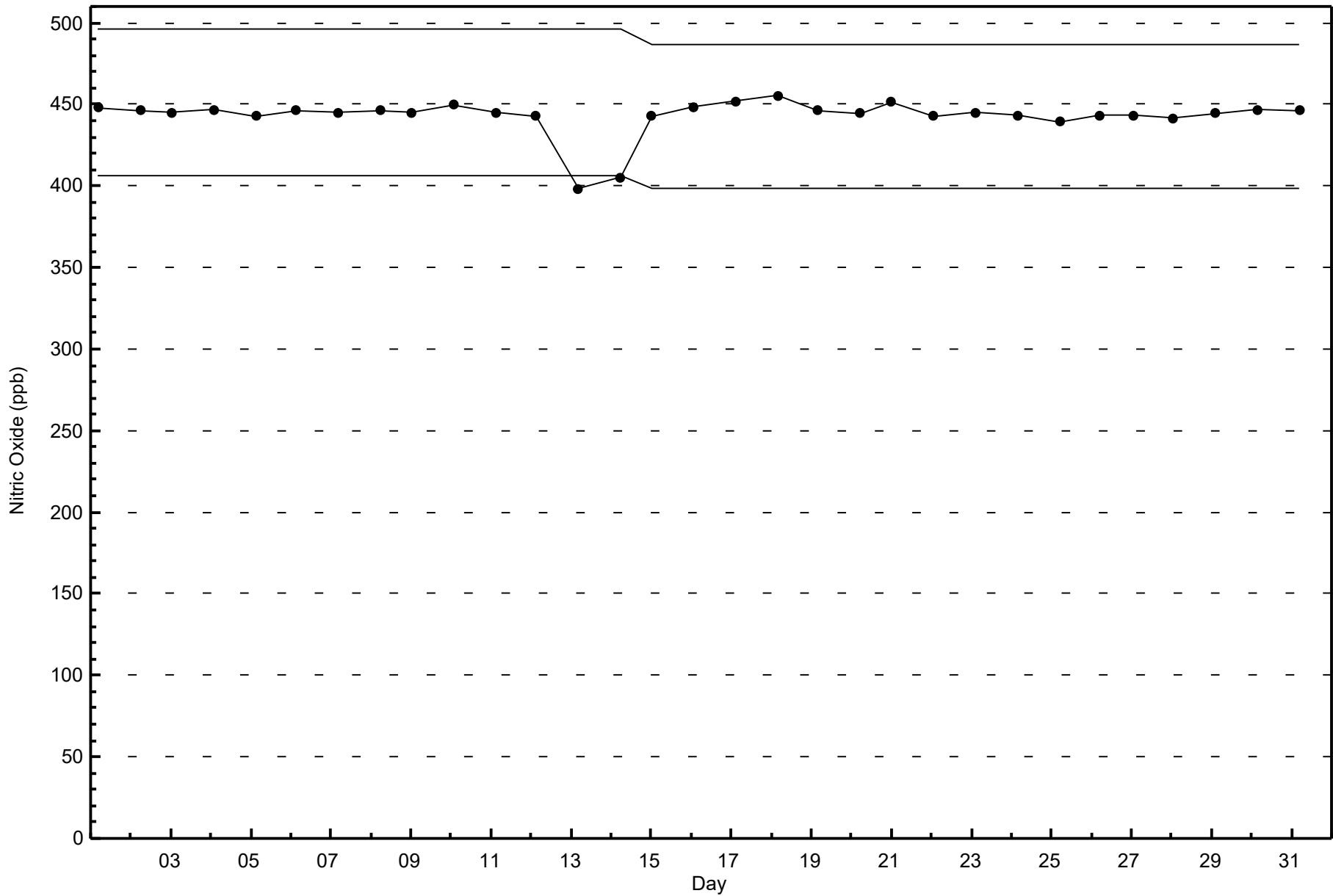
Nitric Oxide (NO) - ppb
Fort Hills - March 2024





Wood Buffalo Environmental Association
Span Responses

Nitric Oxide (NO) - ppb
Fort Hills - March 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

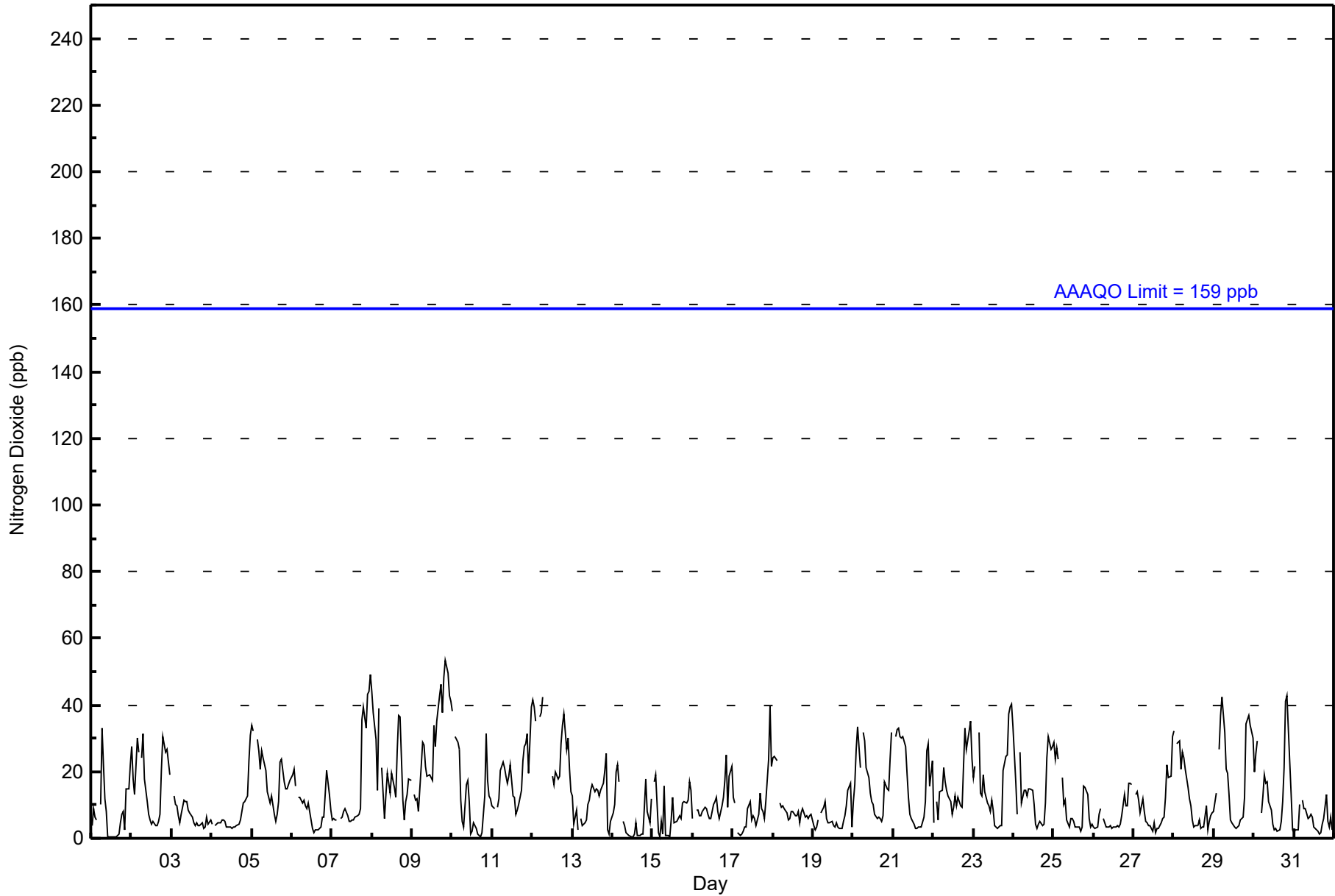
Nitrogen Dioxide (NO₂) - ppb
Fort Hills - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 53.5 ppb on Mar 9 21:00		Maximum Daily Average: 29.4 ppb on Mar 9																	Hours of Data:	708																													
Minimum Value: 0.3 ppb on Mar 15 05:00		Minimum Daily Average: 5.4 ppb on Mar 31																	Hours of Missing Data:	36																													
Maximum Diurnal Average: 19.7 ppb at hour 22		Minimum Diurnal Average: 6.3 ppb at hour 15																	Hours of Calibration:	36																													
Monthly Average: 13.17 ppb		Percentiles: P ₁ = 0.6 P ₁₀ = 3.1 Q ₁ = 4.9 Median = 10.0 Q ₃ = 18.7 P ₉₀ = 30.1 P ₉₉ = 43.2																	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-Mar	4.0	8.8	6.2	5.7	Z	10.2	33.2	22.0	11.9	8.1	0.4	0.5	0.5	0.6	0.6	0.5	1.3	4.7	7.2	8.2	2.5	15.0	14.8	21.9	8.2	33.2																							
2-Mar	27.4	17.9	13.2	30.2	25.8	Z	24.1	31.5	17.6	11.0	7.1	5.5	4.2	4.9	3.8	4.0	5.2	7.3	20.5	30.4	25.8	26.6	22.7	18.9	16.8	31.5																							
3-Mar	Z	12.7	10.2	9.7	6.9	4.6	7.4	11.4	11.1	11.0	8.6	7.6	6.3	4.7	4.0	4.7	3.7	4.0	4.6	3.1	3.6	6.3	4.1	5.6	6.8	12.7																							
4-Mar	4.2	Z	3.9	4.1	4.7	4.8	5.3	5.5	5.2	3.6	3.6	3.4	3.1	3.4	3.5	3.9	4.3	5.6	8.2	10.8	11.0	12.9	23.1	30.9	7.3	30.9																							
5-Mar	33.8	32.3	Z	29.7	26.2	20.7	26.4	24.2	20.3	14.0	12.2	10.8	12.5	7.0	5.0	7.4	11.2	22.7	23.8	17.0	14.8	14.8	15.9	17.5	18.3	33.8																							
6-Mar	19.0	20.8	15.8	Z	12.1	12.1	10.5	11.5	9.8	9.1	10.4	5.3	3.1	1.7	2.4	2.7	2.4	3.5	6.2	6.5	13.3	20.5	13.1	8.4	9.6	20.8																							
7-Mar	5.6	5.8	5.5	5.7	Z	6.0	6.5	8.0	8.8	6.7	4.9	5.0	5.5	5.6	6.5	6.7	7.3	8.8	35.7	39.6	33.1	43.2	43.9	49.0	15.4	49.0																							
8-Mar	44.2	37.9	29.5	14.3	38.8	Z	21.0	6.1	13.2	19.6	16.6	13.5	19.6	15.3	12.1	26.4	36.9	36.5	11.6	5.6	11.2	13.2	17.9	17.5	20.8	44.2																							
9-Mar	Z	13.0	11.4	11.7	7.9	21.8	29.0	27.8	21.6	18.5	19.2	18.2	17.5	34.0	27.7	35.1	42.7	46.1	37.9	48.1	53.5	49.7	42.6	40.9	29.4	53.5																							
10-Mar	38.1	Z	30.7	28.9	26.8	11.5	4.9	3.5	15.9	17.4	10.9	1.3	2.0	4.5	3.1	1.2	0.9	0.5	1.5	12.5	31.2	17.3	12.6	11.8	12.6	38.1																							
11-Mar	9.8	8.9	Z	9.3	12.0	20.5	22.8	21.0	18.6	16.6	18.5	21.9	12.7	12.1	7.0	8.4	10.0	14.4	23.1	27.4	28.2	31.4	19.7	39.4	18.0	39.4																							
12-Mar	41.4	39.3	35.1	Z	36.4	37.8	42.4	C	C	C	C	C	18.8	16.2	20.0	17.8	18.5	28.6	33.9	37.4	26.6	30.2	20.6	14.0	28.6	42.4																							
13-Mar	12.8	4.1	8.4	2.4	Z	5.9	4.0	4.7	5.7	10.3	11.4	14.3	16.2	13.9	15.0	14.3	12.8	14.6	16.7	20.4	25.4	2.7	1.4	5.0	10.5	25.4																							
14-Mar	7.5	10.1	20.0	21.9	16.8	Z	4.9	3.7	1.7	1.1	0.8	0.6	0.6	1.1	4.6	0.7	0.9	1.3	1.2	9.3	17.8	8.2	4.7	12.0	6.6	21.9																							
15-Mar	Z	16.9	19.0	1.6	0.3	4.9	1.4	15.5	0.8	1.0	0.5	5.6	12.1	4.8	4.9	6.1	6.6	6.0	10.4	11.2	10.5	11.4	16.8	14.6	8.0	19.0																							
16-Mar	6.1	Z	8.3	8.5	6.8	6.9	8.2	9.4	8.8	7.4	6.1	5.9	10.0	11.2	12.1	7.9	5.9	9.8	12.4	17.5	24.8	9.5	18.6	21.4	10.6	24.8																							
17-Mar	12.2	10.4	Z	1.9	1.0	1.2	2.2	3.2	3.2	9.0	11.2	5.6	6.6	5.9	3.7	7.4	13.6	8.8	8.2	6.0	11.1	23.6	39.7	21.7	9.5	39.7																							
18-Mar	24.2	24.4	23.2	Z	10.7	9.3	9.9	8.7	7.8	5.5	5.9	8.2	8.0	6.8	6.6	7.9	4.8	7.6	8.8	6.4	6.6	6.0	6.7	7.2	9.6	24.4																							
19-Mar	3.8	2.4	3.5	5.6	Z	7.7	9.3	11.2	6.1	4.7	4.5	5.0	4.0	3.5	4.7	3.2	2.8	3.1	5.2	6.6	9.6	14.5	16.5	3.5	6.1	16.5																							
20-Mar	10.9	16.0	26.8	33.3	21.2	Z	31.8	29.3	21.2	18.3	13.7	11.0	10.2	7.2	5.9	6.2	6.1	5.2	6.9	17.0	14.7	14.6	23.7	31.6	16.6	33.3																							
21-Mar	Z	30.4	32.7	32.9	30.6	30.1	30.4	27.6	19.4	12.3	7.4	6.0	4.4	2.8	2.9	3.3	3.6	3.6	6.2	11.1	26.1	28.4	15.7	23.5	17.0	32.9																							
22-Mar	4.5	Z	11.2	5.6	14.0	14.5	21.0	17.1	14.3	12.9	11.1	7.3	9.2	12.7	9.8	12.3	9.6	9.4	21.5	33.2	26.8	32.2	35.1	23.8	16.0	35.1																							
23-Mar	18.1	21.7	Z	31.6	13.6	12.6	19.2	14.0	10.8	9.7	8.2	11.5	8.6	3.7	2.9	3.6	3.7	3.7	20.4	24.7	25.2	37.5	39.3	40.3	16.7	40.3																							
24-Mar	33.3	17.1	7.0	Z	25.7	10.7	14.4	14.3	12.8	14.8	15.0	14.3	10.0	4.1	3.1	4.4	5.1	3.8	4.4	10.4	24.3	30.3	26.6	27.5	14.5	33.3																							
25-Mar	28.7	23.7	27.3	23.6	Z	18.4	10.3	11.4	5.7	3.5	5.9	6.1	4.9	3.5	3.2	3.4	2.3	3.4	15.6	15.1	13.1	6.0	3.3	4.4	10.6	28.7																							
26-Mar	3.4	2.9	3.6	7.3	8.8	Z	5.9	3.6	3.3	3.6	3.8	3.0	3.5	3.4	4.0	3.3	4.3	6.7	13.3	9.6	9.9	16.7	16.5	16.3	6.8	16.7																							
27-Mar	Z	13.2	13.9	11.3	7.8	12.0	8.0	5.2	4.5	3.9	3.9	2.0	4.8	1.9	2.9	2.9	4.5	5.8	6.3	12.4	21.9	18.4	18.8	30.4	9.4	30.4																							
28-Mar	32.3	Z	28.3	29.2	20.7	25.9	24.1	20.8	15.2	11.8	9.9	5.7	3.3	4.0	4.0	5.6	2.8	3.3	3.4	9.9	2.5	5.0	6.7	7.8	12.3	32.3																							
29-Mar	8.2	13.6	Z	26.7	36.9	42.2	31.6	20.9	19.5	13.2	5.5	4.8	3.2	2.8	3.6	4.0	5.5	6.3	12.4	34.2	35.6	36.8	33.7	29.9	18.7	42.2																							
30-Mar	19.8	25.5	29.4	Z	7.5	12.9	19.1	16.6	16.9	11.2	8.6	4.2	2.4	3.0	2.3	2.7	5.1	11.0	21.2	41.3	42.6	22.9	13.3	2.4	14.9	42.6																							
31-Mar	1.9	2.4	2.5	10.0	Z	11.6	9.0	9.0	6.1	6.4	7.0	6.2	3.6	2.4	2.2	1.1	1.9	4.2	6.1	13.3	5.0	3.4	6.4	2.7	5.4	13.3																							
																								17.5	16.6	16.4	15.5	16.8	14.5	16.1	14.0	11.3	9.9	8.4	7.3	7.5	6.7	6.3	7.1	7.9	9.7	13.4	17.9	19.6	19.7	19.2	19.4	Diurnal Average	
																								44.2	39.3	35.1	33.3	38.8	42.2	42.4	31.5	21.6	19.6	19.2	21.9	19.6	34.0	27.7	35.1	42.7	46.1	37.9	48.1	53.5	49.7	43.9	49.0	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Fort Hills - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Fort Hills - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	550	77.68	77.68
21 - 40	142	20.06	97.74
41 - 80	16	2.26	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 (NO₂) - ppb
Fort Hills - March 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	86	96	38	5	2	16	33	107	88	29	6	2	14	6	7	15	550
21 - 40	32	34	3	5	2	3	22	13	8	2	4	1	2	2	3	6	142
11 - 80	3	2	0	2	0	1	2	1	1	2	0	0	0	1	0	1	16
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	121	132	41	12	4	20	57	121	97	33	10	3	16	9	10	22	708

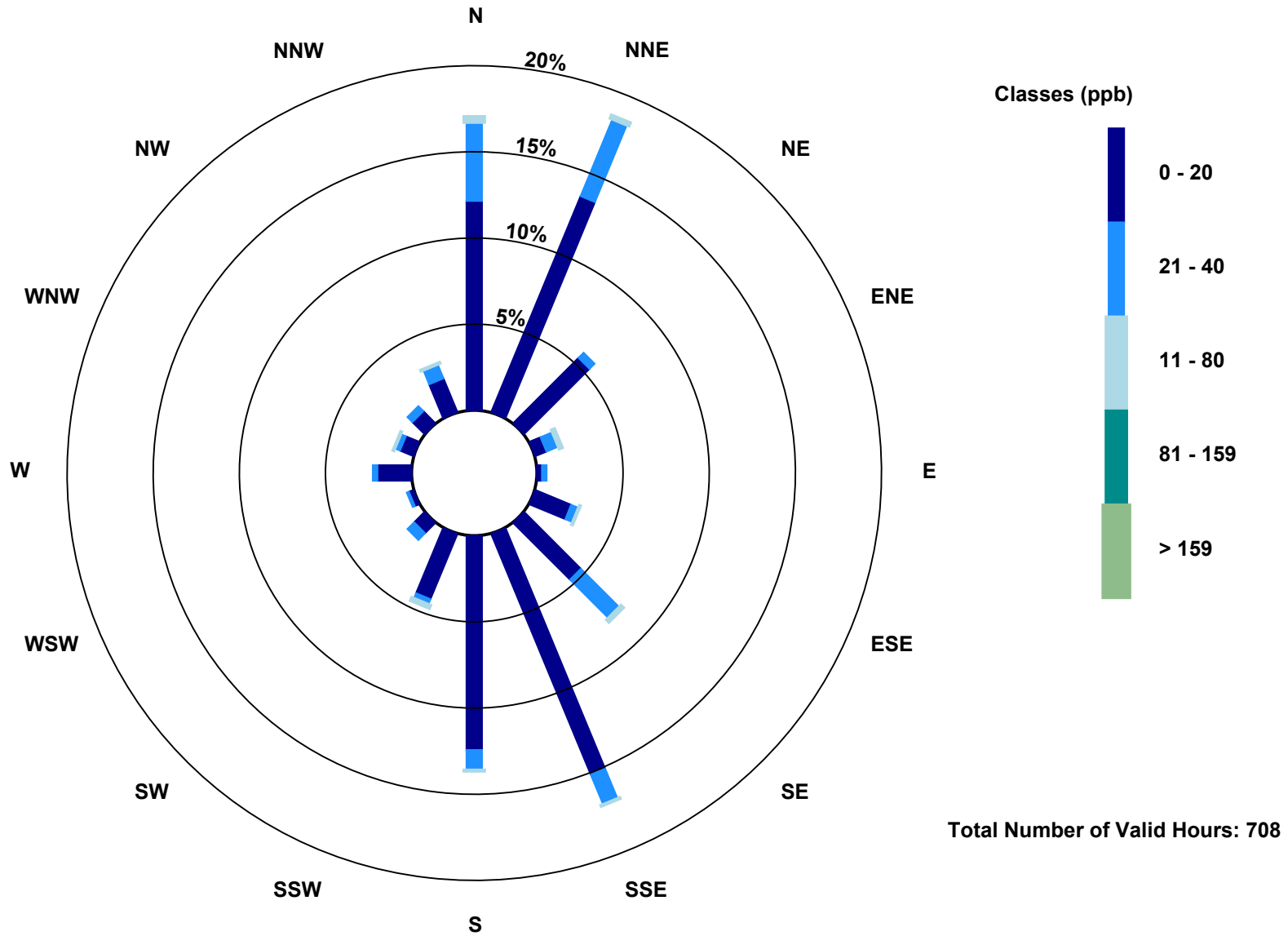
Total Number of Valid Hours: 708

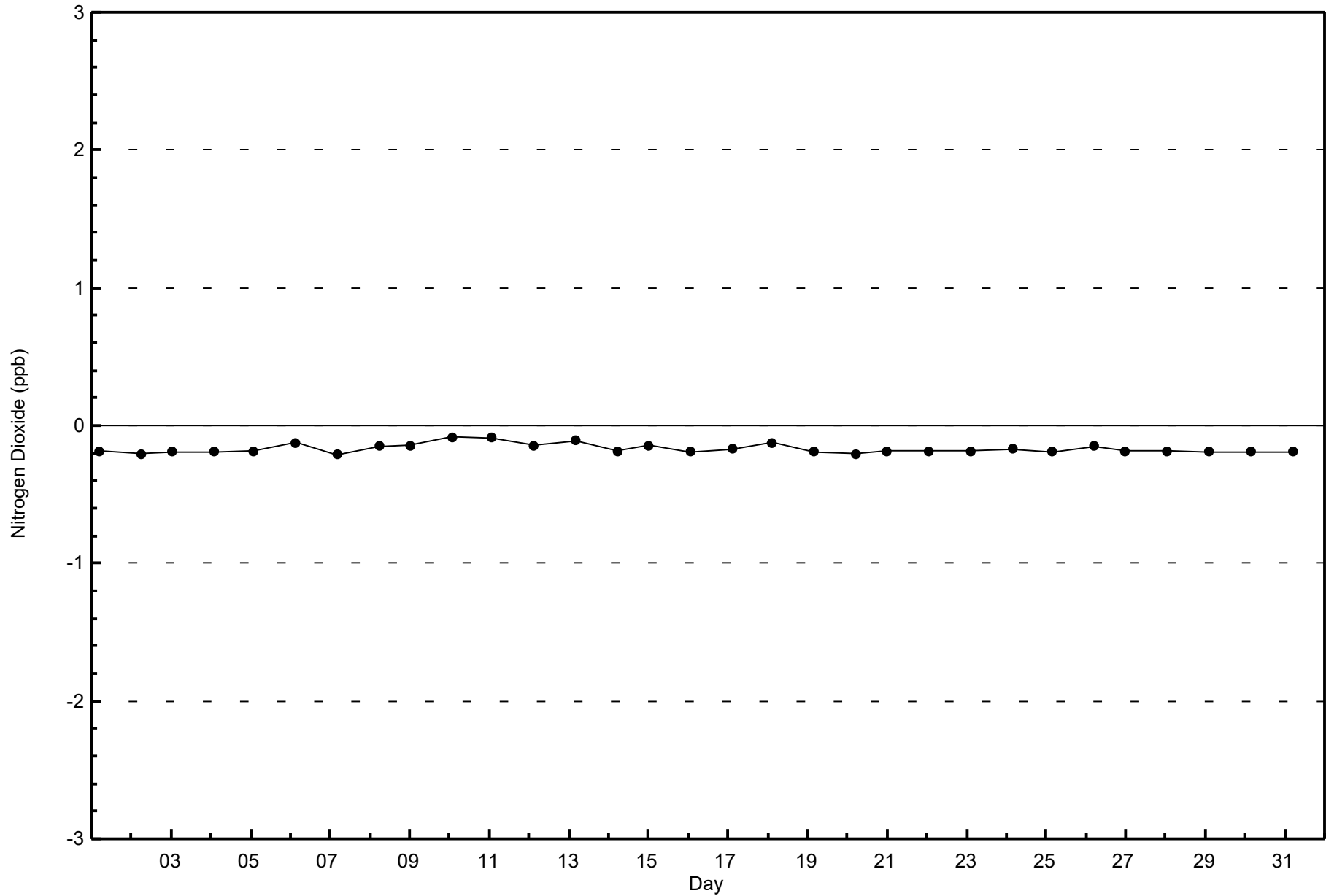
Total Number of Hours: 744

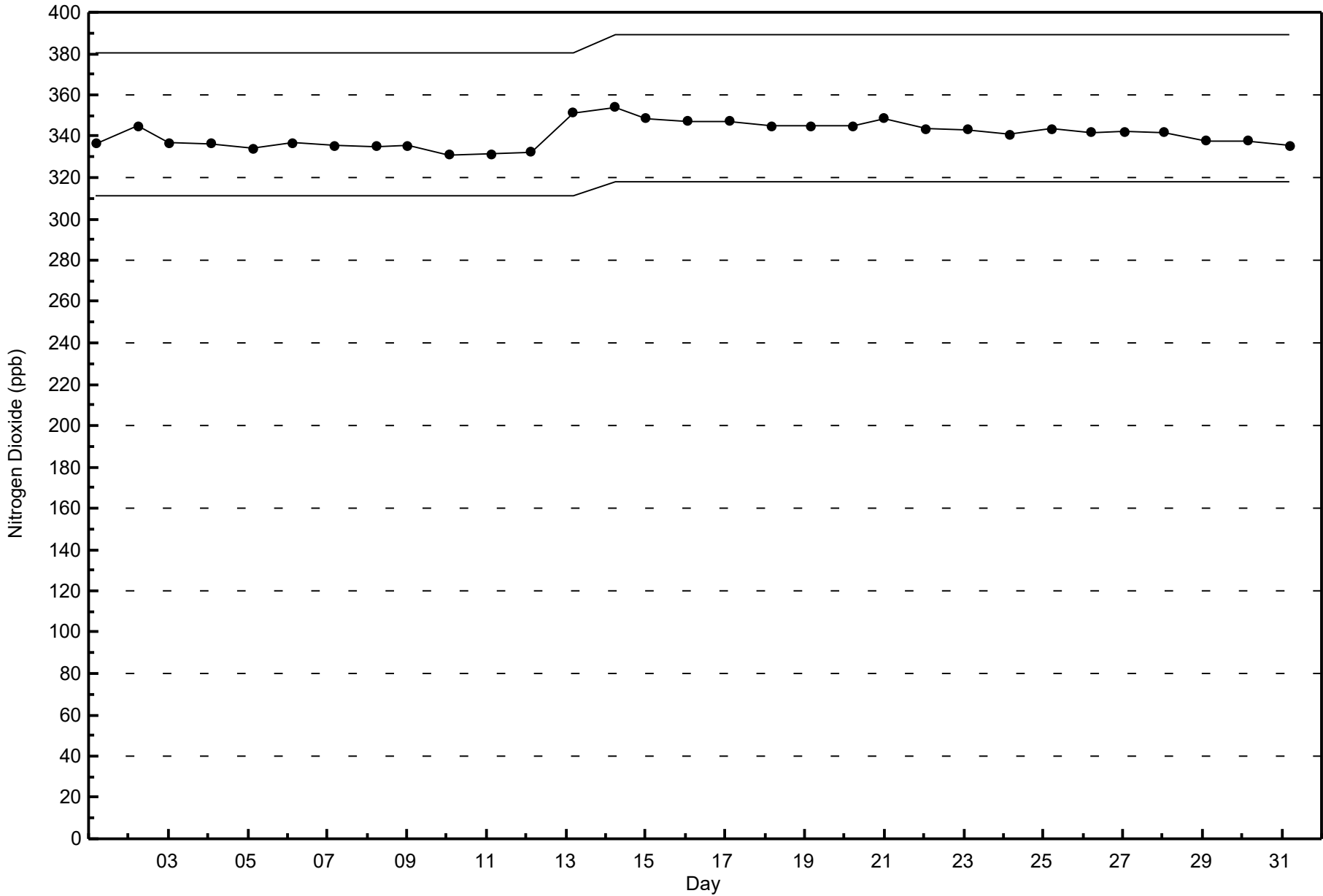


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Fort Hills









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

Fort Hills - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 237.6 ppb on Mar 8 00:00	Maximum Daily Average: 60.9 ppb on Mar 9		Hours of Data:	708
Minimum Value: 0.3 ppb on Mar 15 05:00	Minimum Daily Average: 6.5 ppb on Mar 31		Hours of Missing Data:	36
Maximum Diurnal Average: 31.0 ppb at hour 24	Minimum Diurnal Average: 9.5 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 19.44 ppb	Percentiles: P ₁ = 0.7 P ₁₀ = 3.8 Q ₁ = 6.1 Median = 11.9 Q ₃ = 24.2 P ₉₀ = 40.9 P ₉₉ = 137.3		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-Mar	4.0	8.9	6.2	5.8	Z	11.5	51.1	25.5	19.2	15.4	0.5	0.7	0.6	0.7	0.9	0.8	1.9	5.8	8.5	9.2	2.8	17.5	16.8	27.2	10.5	51.1
2-Mar	29.6	20.4	15.3	42.7	45.5	Z	37.3	86.0	35.7	22.3	14.7	11.6	8.4	9.5	7.2	7.1	7.8	8.6	23.9	42.9	32.9	32.8	26.9	21.1	25.7	86.0
3-Mar	Z	13.3	10.9	10.4	7.8	5.2	8.4	12.8	13.7	16.7	13.5	12.0	9.7	6.8	6.1	6.8	5.3	5.3	5.9	3.9	4.3	7.5	4.9	6.4	8.6	16.7
4-Mar	4.6	Z	4.4	4.6	5.7	5.5	6.1	6.6	6.6	4.8	5.1	5.4	5.2	5.4	5.9	5.5	6.6	8.8	11.7	11.5	13.3	24.9	37.8	8.8	37.8	
5-Mar	45.9	41.5	Z	37.1	30.2	22.8	29.6	31.0	33.3	25.6	23.0	21.6	27.9	14.2	9.1	12.5	16.7	29.0	25.5	17.0	14.8	14.8	16.0	17.5	24.2	45.9
6-Mar	19.1	20.9	15.9	Z	12.1	12.1	10.5	12.8	14.5	17.3	23.0	10.3	5.5	2.7	3.6	3.7	2.9	3.8	6.2	6.5	13.3	20.5	13.1	8.4	11.3	23.0
7-Mar	5.6	5.8	5.5	5.7	Z	6.0	6.5	8.6	11.3	10.1	7.8	8.1	9.3	9.1	10.1	9.6	8.8	9.5	50.0	59.8	45.5	136.4	162.9	237.6	36.1	237.6
8-Mar	164.3	83.9	37.7	17.5	137.4	Z	21.9	6.6	24.1	41.3	34.9	25.4	41.1	24.3	18.4	47.3	77.0	65.9	11.7	5.6	11.2	13.2	17.9	17.5	41.1	164.3
9-Mar	Z	13.0	11.4	11.9	7.9	21.8	30.1	37.5	33.0	29.1	33.0	32.2	29.3	62.6	40.4	71.8	84.2	94.2	47.2	157.1	222.8	173.4	79.2	77.4	60.9	222.8
10-Mar	70.2	Z	30.9	29.0	26.8	11.9	4.9	3.5	20.8	27.7	16.2	1.4	2.4	5.8	4.2	1.3	0.9	0.5	1.6	15.3	41.4	18.7	13.2	12.6	15.7	70.2
11-Mar	10.5	9.4	Z	9.7	12.5	21.8	24.4	25.6	27.6	25.6	28.9	39.7	21.8	19.8	10.5	12.1	13.2	16.6	24.5	30.3	31.9	39.1	20.2	77.8	24.1	77.8
12-Mar	104.7	97.2	70.0	Z	63.0	83.8	199.1	C	C	C	C	C	36.4	26.8	34.3	26.8	24.7	38.7	49.3	43.6	28.6	31.8	21.0	14.0	55.2	199.1
13-Mar	12.8	4.1	8.4	2.4	Z	5.9	4.0	5.0	7.1	16.3	19.1	26.6	30.7	23.1	25.4	22.0	17.0	16.8	17.1	25.2	28.3	2.7	1.4	5.0	14.2	30.7
14-Mar	7.5	10.1	20.0	21.9	16.8	Z	4.9	3.9	1.9	1.2	0.8	0.6	0.6	1.2	5.1	0.7	0.9	1.3	1.2	9.3	18.0	8.2	4.7	12.0	6.6	21.9
15-Mar	Z	18.8	24.8	1.6	0.3	5.1	1.4	16.8	0.8	1.1	0.5	8.6	25.5	8.0	7.1	8.2	8.7	6.9	11.0	12.0	11.3	12.4	18.0	15.6	9.8	25.5
16-Mar	6.5	Z	8.8	9.2	7.2	7.4	8.6	10.4	11.5	11.5	9.7	9.3	16.8	18.5	17.6	10.0	6.9	10.9	12.8	18.1	25.4	9.6	20.9	24.1	12.7	25.4
17-Mar	12.5	10.4	Z	1.9	1.0	1.2	2.2	3.3	3.6	12.4	17.1	8.4	9.9	8.0	4.5	8.9	18.3	10.0	8.3	6.0	11.1	29.3	95.4	25.2	13.4	95.4
18-Mar	27.1	27.8	26.8	Z	12.0	9.4	10.5	9.8	9.9	7.6	7.8	10.8	10.5	8.8	8.1	10.9	6.1	8.4	9.4	6.6	6.7	6.4	6.9	7.5	11.1	27.8
19-Mar	4.1	2.8	3.9	6.1	Z	8.6	10.4	13.7	9.6	7.4	6.8	7.9	6.2	5.4	7.3	4.7	3.7	3.8	5.5	7.0	10.0	15.4	17.0	3.7	7.4	17.0
20-Mar	11.4	16.9	29.2	43.1	23.8	Z	49.4	54.4	41.4	38.3	27.1	20.5	18.1	12.0	9.3	9.1	7.8	5.9	7.5	18.2	15.3	15.4	24.9	42.0	23.5	54.4
21-Mar	Z	39.1	50.1	55.4	42.8	40.6	41.2	46.9	33.0	22.0	12.4	9.7	6.8	4.4	4.3	4.7	4.9	4.3	6.8	12.0	27.4	31.1	16.1	26.2	23.6	55.4
22-Mar	4.9	Z	11.9	5.8	14.9	15.2	26.4	23.7	22.5	22.2	19.1	11.7	15.0	21.0	14.8	17.7	12.5	10.6	22.6	44.7	29.2	63.6	57.3	29.8	22.5	63.6
23-Mar	18.7	25.5	Z	102.3	14.0	12.6	21.1	19.2	16.9	16.5	13.9	20.2	13.9	5.3	3.8	4.7	4.5	4.1	21.4	25.1	25.3	63.9	71.4	77.8	26.2	102.3
24-Mar	72.0	21.3	7.2	Z	36.0	10.7	14.9	18.0	19.3	23.7	24.6	24.1	15.6	5.4	3.8	5.0	5.7	4.0	4.4	10.4	25.6	32.8	27.1	27.7	19.1	72.0
25-Mar	30.6	23.8	27.6	23.7	Z	18.4	10.5	13.1	6.7	4.7	8.6	9.2	7.1	4.7	4.1	4.1	2.7	3.6	16.1	15.1	13.1	6.0	3.3	4.4	11.4	30.6
26-Mar	3.4	2.9	3.6	7.3	8.8	Z	5.9	3.7	3.5	4.1	5.0	3.9	4.4	4.3	5.1	4.0	5.0	7.1	13.7	9.6	9.9	16.7	16.6	16.4	7.2	16.7
27-Mar	Z	13.2	13.9	11.3	7.8	12.0	8.0	5.5	5.2	5.0	5.7	2.6	7.3	2.6	3.9	3.8	5.7	7.0	6.7	13.0	23.0	19.0	19.5	33.3	10.2	33.3
28-Mar	36.3	Z	29.7	30.5	21.2	27.3	27.8	27.6	23.0	20.0	18.5	10.2	6.1	7.8	6.7	8.2	3.6	3.9	3.9	10.3	2.6	5.1	6.9	7.9	15.0	36.3
29-Mar	8.9	14.4	Z	28.0	49.0	72.2	44.6	30.6	38.3	25.4	9.8	8.6	5.7	4.7	5.9	5.8	7.3	7.6	13.6	41.7	46.6	53.5	44.4	41.4	26.4	72.2
30-Mar	20.3	40.8	39.2	Z	7.5	14.2	24.8	30.8	39.1	23.3	17.0	7.5	3.9	4.8	3.5	3.9	7.1	13.7	23.6	69.3	62.2	24.1	13.3	2.4	21.6	69.3
31-Mar	1.9	2.4	2.5	10.0	Z	11.6	9.9	12.0	9.4	11.2	12.6	10.5	5.4	3.3	2.9	1.1	1.9	4.2	6.2	13.4	5.0	3.4	6.4	2.7	6.5	13.4

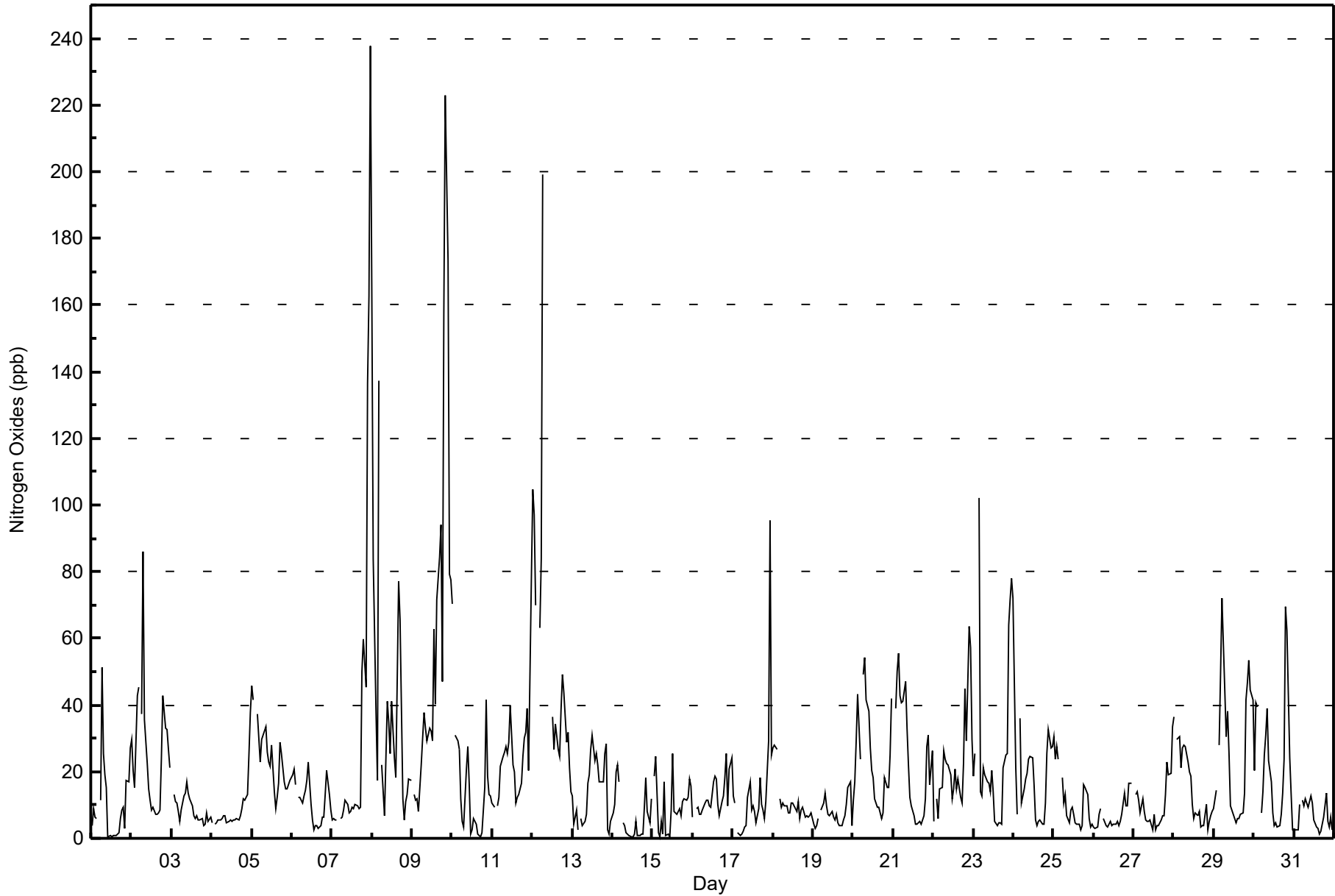
28.4	22.6	19.8	20.6	24.5	18.3	24.4	20.2	18.1	17.0	14.6	12.6	13.1	11.0	9.5	11.1	12.2	13.5	15.3	24.8	27.6	30.2	28.7	31.0	Diurnal Average	
164.3	97.2	70.0	102.3	137.4	83.8	199.1	86.0	41.4	41.3	34.9	39.7	41.1	62.6	40.4	71.8	84.2	94.2	50.0	157.1	222.8	173.4	162.9	237.6	Diurnal Maximum	

Z - zerospan C - Calibration



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Fort Hills - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort Hills - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	489	69.07	69.07
21 - 40	146	20.62	89.69
41 - 80	55	7.77	97.46
81 - 159	12	1.69	99.15
> 159	6	0.85	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort Hills - March 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	73	85	36	5	2	15	26	95	82	23	5	2	13	6	7	14	489
21 - 40	29	36	4	1	0	1	24	20	12	7	3	1	2	1	2	3	146
11 - 80	14	8	1	4	2	3	7	4	2	3	1	0	1	1	1	3	55
81 - 159	4	3	0	1	0	1	0	1	0	0	1	0	0	0	0	1	12
> 159	1	0	0	1	0	0	0	1	1	0	0	0	0	1	0	1	6
Totals	121	132	41	12	4	20	57	121	97	33	10	3	16	9	10	22	708

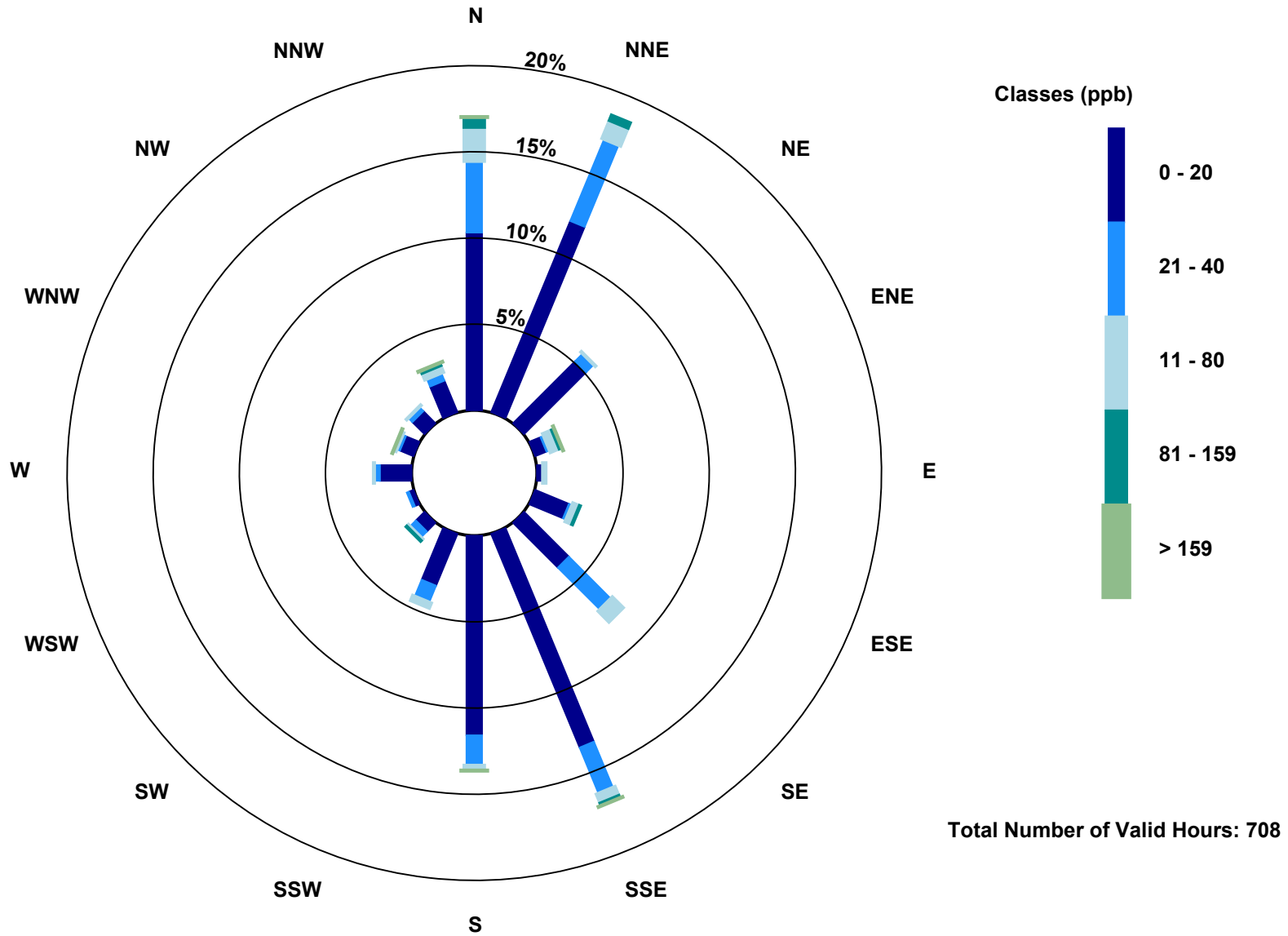
Total Number of Valid Hours: 708

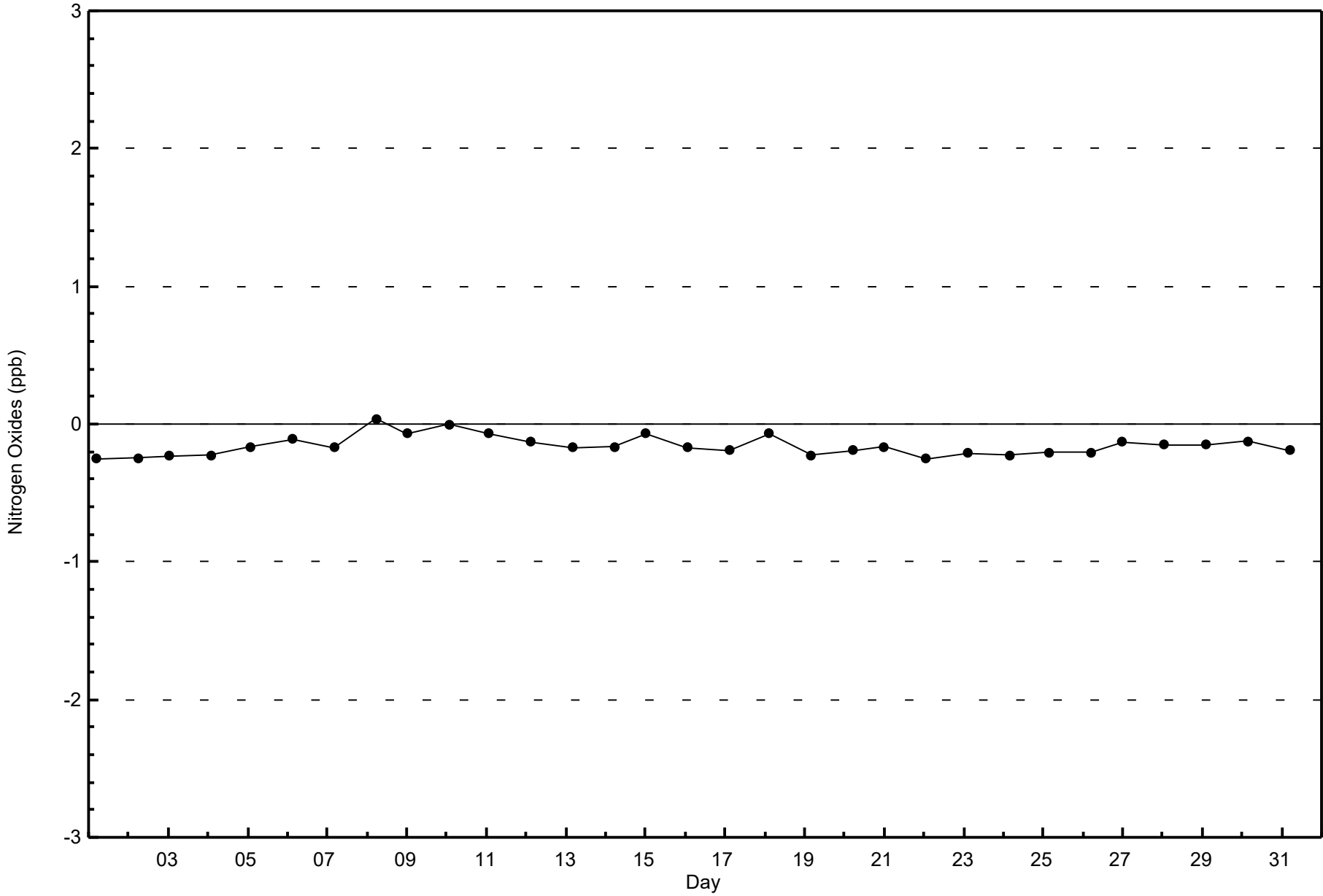
Total Number of Hours: 744

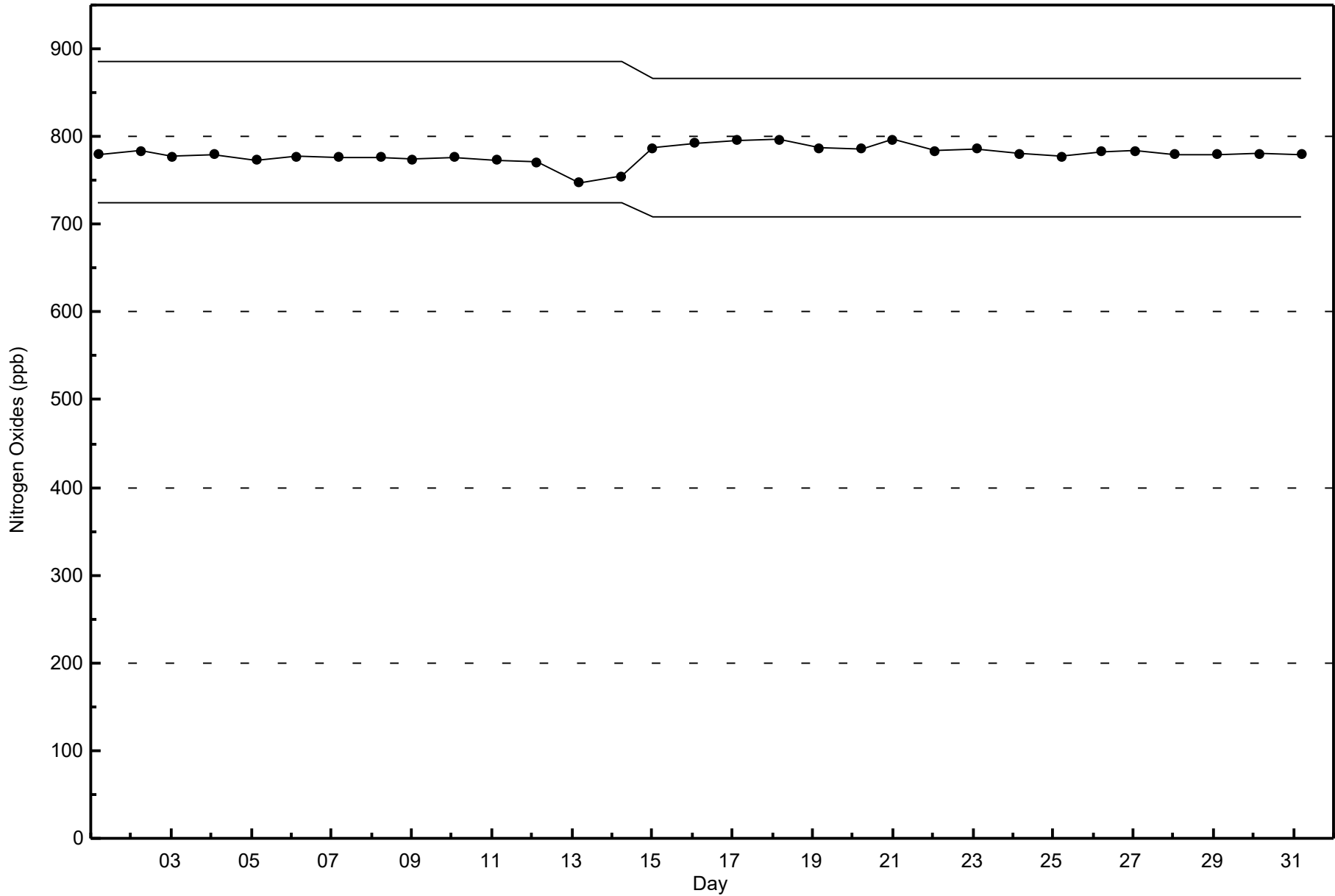


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Fort Hills





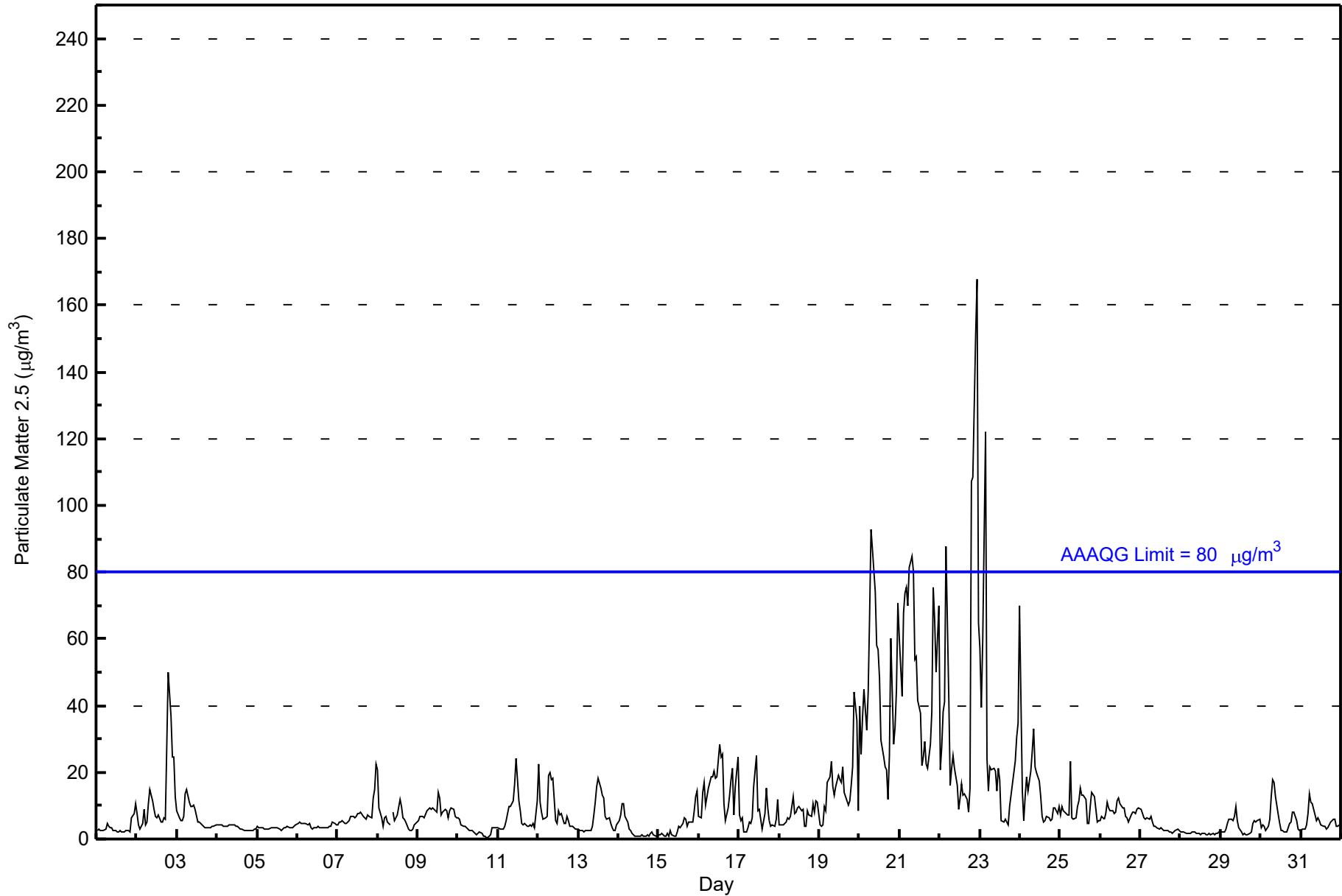




Summary of Hour Averages

Fort Hills - March 2024

Number of Exceedences (AAAQO):		1-hr: 10		24-hr: 3		Hours in Service:		744																																								
Maximum Value: 168.0 µg/m ³ on Mar 22 23:00		Maximum Daily Average: 52.9 µg/m ³ on Mar 21				Hours of Data:		743																																								
Minimum Value: 0.6 µg/m ³ on Mar 10 18:00		Minimum Daily Average: 1.8 µg/m ³ on Mar 28				Hours of Missing Data:		1																																								
Maximum Diurnal Average: 16.1 µg/m ³ at hour 23		Minimum Diurnal Average: 5.7 µg/m ³ at hour 18				Hours of Calibration:		1																																								
Monthly Average: 11.48 µg/m ³		Percentiles: P ₁ = 0.9 P ₁₀ = 2.2 Q ₁ = 3.4 Median = 5.9 Q ₃ = 11.4 P ₉₀ = 24.2 P ₉₉ = 86.0				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-Mar	2.7	2.8	2.6	2.6	2.6	3.0	4.6	3.8	3.4	3.2	2.3	2.4	2.2	2.1	2.4	2.3	2.1	2.3	2.4	2.5	2.2	6.5	7.6	10.7	3.4	10.7																						
2-Mar	7.6	4.3	3.1	4.7	9.1	4.1	5.2	10.5	14.8	11.3	8.9	6.7	6.5	7.1	4.9	5.2	6.2	6.1	27.3	50.1	36.8	24.8	24.6	12.7	12.6	50.1																						
3-Mar	8.5	6.2	5.6	5.3	6.8	13.6	14.8	10.9	9.7	9.9	10.4	8.9	5.3	5.0	4.5	4.4	3.6	3.4	3.3	3.4	3.6	3.9	3.7	4.4	6.6	14.8																						
4-Mar	4.1	4.4	4.1	4.2	4.0	3.9	4.0	4.4	4.0	4.2	4.1	4.0	3.7	3.4	3.2	2.9	2.7	2.5	2.5	2.5	2.5	2.4	2.9	3.2	3.5	4.4																						
5-Mar	3.7	3.3	3.5	3.4	3.1	2.9	3.0	3.1	3.5	3.4	3.3	3.4	2.8	2.5	3.0	3.3	3.6	3.6	3.5	3.4	3.3	3.9	4.4	3.3	3.3	4.4																						
6-Mar	4.5	5.1	4.6	4.6	4.5	4.5	4.1	4.6	3.3	2.9	3.2	3.4	3.9	3.4	3.5	3.4	3.4	3.4	3.4	3.6	3.9	4.9	4.8	4.2	4.0	5.1																						
7-Mar	4.1	5.1	5.1	5.5	4.5	4.5	5.0	5.6	6.7	6.9	6.3	6.7	7.8	7.5	8.0	6.7	6.5	6.1	7.3	6.6	6.3	12.2	14.8	22.5	7.4	22.5																						
8-Mar	20.6	9.4	6.4	3.8	6.5	6.9	5.3	4.1	C	8.1	5.6	6.3	7.0	11.7	9.6	6.2	5.9	5.2	2.8	2.5	2.6	3.1	4.3	4.9	6.5	20.6																						
9-Mar	5.5	6.6	7.0	6.9	6.3	8.3	8.7	9.2	9.0	9.1	8.6	7.8	14.2	12.3	7.3	8.3	8.8	8.6	6.6	8.5	9.5	8.9	6.8	6.4	8.3	14.2																						
10-Mar	6.3	6.1	4.3	3.8	3.6	3.3	2.9	2.4	2.5	2.1	1.7	1.3	1.8	2.2	1.8	1.0	0.8	0.6	0.6	1.4	3.4	3.5	3.5	3.5	2.7	6.3																						
11-Mar	3.5	2.8	3.1	2.9	3.7	5.5	9.7	9.9	10.6	11.5	16.5	24.2	11.4	8.4	4.7	4.3	4.7	4.0	3.7	4.4	4.0	4.7	3.3	11.6	7.2	24.2																						
12-Mar	22.5	11.1	7.9	5.8	6.5	6.7	19.1	19.8	18.0	18.3	5.4	4.5	8.4	7.3	7.5	4.9	4.8	6.9	5.6	3.8	3.8	3.2	3.1	2.9	8.7	22.5																						
13-Mar	2.9	2.4	2.4	2.3	2.5	2.4	2.5	2.7	3.8	7.1	11.2	15.5	18.2	15.4	13.0	12.1	6.8	6.0	6.2	4.8	3.4	2.5	2.5	4.1	6.4	18.2																						
14-Mar	5.7	7.2	10.4	10.5	6.9	5.2	2.9	2.5	1.6	1.2	0.9	0.9	0.9	0.9	1.3	0.9	0.9	1.2	1.0	1.7	2.2	1.1	0.8	0.9	2.9	10.5																						
15-Mar	1.3	1.2	1.6	0.7	0.8	1.7	0.9	2.3	1.2	1.0	0.7	2.0	3.8	3.3	4.5	6.2	5.8	3.7	5.2	5.0	5.2	8.4	12.6	14.5	3.9	14.5																						
16-Mar	6.7	6.2	14.0	17.2	10.3	12.8	15.1	18.7	18.8	20.3	18.1	18.5	28.4	24.7	25.5	10.7	5.5	9.5	12.9	18.0	21.2	7.0	15.9	24.6	15.9	28.4																						
17-Mar	7.1	5.4	6.5	2.1	1.9	3.3	5.0	4.8	6.4	15.7	24.8	8.3	8.8	5.7	3.2	7.8	15.2	9.4	5.7	3.7	4.3	3.7	5.9	11.9	7.4	24.8																						
18-Mar	4.4	4.2	4.1	4.8	5.2	6.5	5.8	6.7	12.8	7.8	7.9	9.4	9.9	8.4	8.7	3.9	3.9	8.5	7.3	7.0	10.6	7.9	11.3	10.9	7.4	12.8																						
19-Mar	4.4	3.7	4.1	9.7	8.3	17.0	18.5	23.4	15.5	13.3	15.6	19.0	17.7	17.2	21.5	14.2	12.9	10.2	11.5	15.9	21.5	43.9	35.7	8.4	16.0	43.9																						
20-Mar	39.6	25.5	36.6	44.8	32.7	44.0	66.8	92.8	86.9	74.1	58.0	56.9	48.2	29.5	24.5	21.8	20.7	12.1	24.8	60.1	28.4	33.3	44.9	70.9	44.9	92.8																						
21-Mar	60.2	42.9	67.7	73.5	75.3	69.9	81.5	84.7	80.0	53.7	54.8	41.5	37.6	22.1	24.7	29.2	22.4	21.0	28.2	38.2	75.4	65.8	49.8	69.8	52.9	84.7																						
22-Mar	20.6	27.6	38.0	41.3	87.6	42.5	16.3	21.4	24.9	21.1	16.0	8.7	12.3	16.5	13.2	13.5	11.9	8.0	15.2	107.4	108.3	151.4	168.0	64.8	44.0	168.0																						
23-Mar	57.2	39.6	59.6	122.0	24.0	14.3	21.7	20.6	21.4	20.5	14.3	21.0	17.7	5.6	5.1	5.9	5.2	4.4	9.6	16.7	20.0	23.3	30.5	34.9	25.6	122.0																						
24-Mar	69.8	14.6	5.4	12.6	18.5	14.4	20.4	26.3	33.0	21.6	20.0	17.5	12.8	6.7	5.2	5.4	6.8	6.5	5.5	5.9	9.3	9.2	7.4	9.6	15.2	69.8																						
25-Mar	7.3	9.8	8.5	8.1	7.3	7.2	23.2	6.4	5.8	6.2	9.9	11.3	15.4	12.9	13.0	12.0	4.7	4.7	9.6	13.8	12.7	8.8	5.2	5.7	9.6	23.2																						
26-Mar	5.3	6.6	6.1	7.6	10.9	9.5	8.5	8.5	7.7	7.9	11.6	12.1	10.6	9.2	9.3	6.8	6.3	5.3	7.3	8.0	8.2	7.7	9.0	9.5	8.3	12.1																						
27-Mar	8.8	7.6	6.5	6.0	6.4	6.0	6.6	4.9	4.0	3.7	3.4	3.0	3.2	3.1	2.7	2.6	2.4	2.1	1.9	1.9	2.3	2.6	2.9	2.6	4.1	8.8																						
28-Mar	2.3	2.3	2.2	1.8	1.5	1.8	1.8	1.9	2.0	1.8	1.7	1.6	1.5	1.6	1.5	1.5	1.5	1.4	1.7	1.4	1.8	1.8	2.1	2.1	1.8	2.3																						
29-Mar	2.2	2.3	2.1	3.0	4.6	5.7	5.9	5.6	6.8	9.5	5.6	3.5	2.0	1.2	1.7	1.4	1.4	1.6	2.0	4.6	5.7	5.3	5.4	6.0	4.0	9.5																						
30-Mar	3.4	4.3	3.8	2.3	3.9	6.1	12.6	17.9	16.9	12.6	7.0	4.5	2.6	2.7	2.2	2.2	3.5	4.8	5.2	8.1	8.0	5.7	3.2	2.5	6.1	17.9																						
31-Mar	2.6	2.8	2.9	4.1	7.6	13.5	11.1	10.8	7.4	5.4	6.4	5.7	4.2	3.9	4.0	3.1	3.5	4.2	4.9	6.1	5.9	4.0	4.0	4.1	5.5	13.5																						
																								13.1	9.1	11.0	13.8	12.2	11.3	13.3	14.6	14.7	12.8	11.8	11.0	10.7	8.5	7.9	6.9	6.3	5.7	7.6	13.6	14.1	15.3	16.1	14.5	Diurnal Average
																								69.8	42.9	67.7	122.0	87.6	69.9	81.5	92.8	86.9	74.1	58.0	56.9	48.2	29.5	25.5	29.2	22.4	21.0	28.2	107.4	108.3	151.4	168.0	70.9	Diurnal Maximum
C - Calibration																																																
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Hills - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	347	46.70	46.70
6 - 15	263	35.40	82.10
16 - 25	69	9.29	91.39
26 - 80	54	7.27	98.65
> 81.0	10	1.35	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Fort Hills - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	76	50	14	4	2	11	11	54	55	22	8	3	14	8	5	10	347
6 - 15	24	51	17	4	0	7	39	65	36	10	1	0	2	1	1	5	263
16 - 25	8	20	7	1	0	1	9	5	9	2	1	0	0	1	1	4	69
26 - 80	19	12	5	2	1	1	3	0	2	0	0	0	0	0	3	6	54
> 81.0	3	2	0	1	1	0	0	2	0	0	0	0	0	0	1	0	10
Totals	130	135	43	12	4	20	62	126	102	34	10	3	16	10	11	25	743

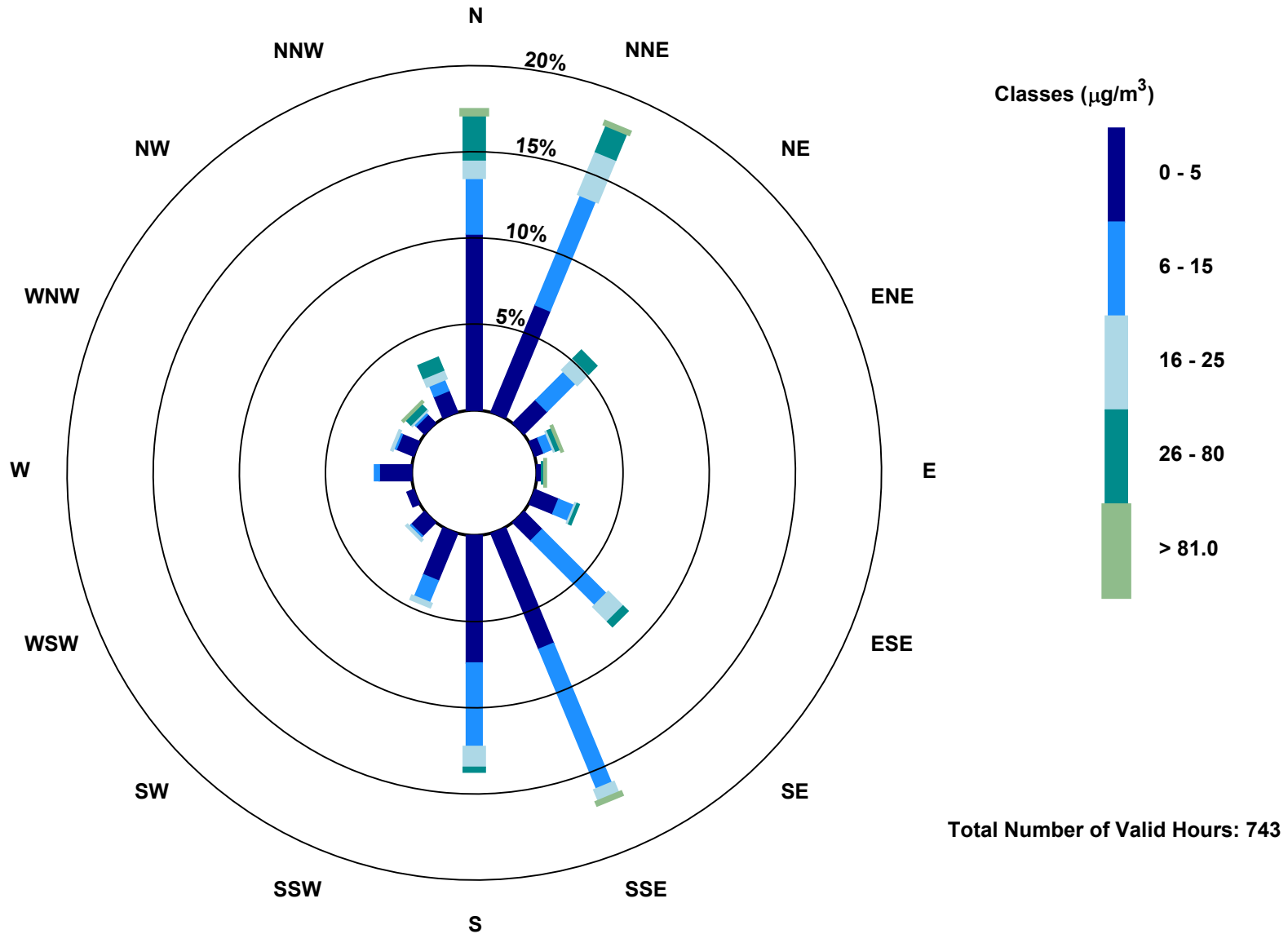
Total Number of Valid Hours: 743

Total Number of Hours: 744



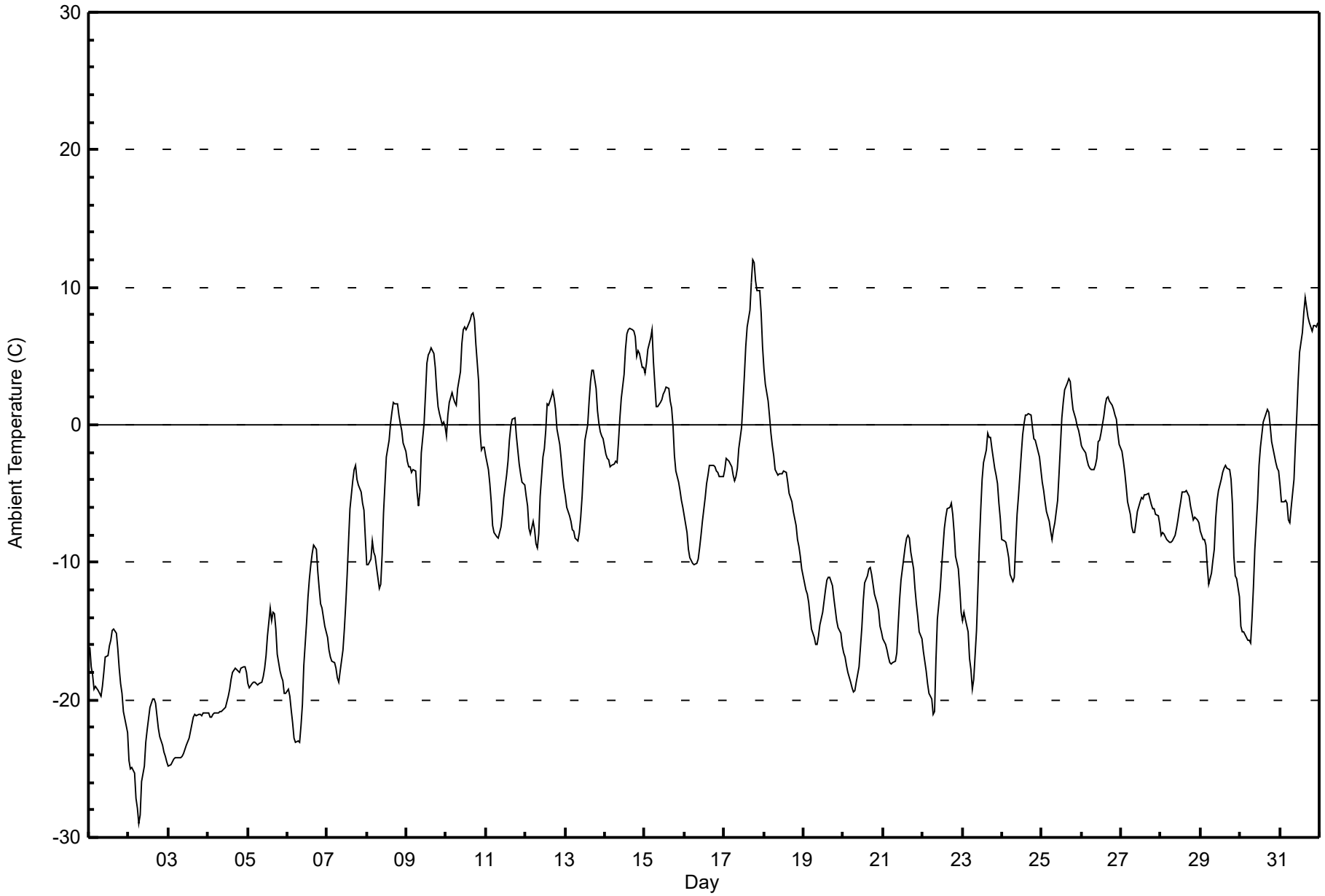
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Hills





Maximum Value: 12.0 C on Mar 17 18:00		Maximum Daily Average: 3.5 C on Mar 10		Hours in Service: 744																							
Minimum Value: -29.0 C on Mar 2 07:00		Minimum Daily Average: -23.8 C on Mar 2		Hours of Data: 744																							
Maximum Diurnal Average: -3.3 C at hour 17		Minimum Diurnal Average: -12.1 C at hour 7		Hours of Missing Data: 0																							
Monthly Average: -7.72 C		Percentiles: P ₁ = -24.9 P ₁₀ = -19.7 Q ₁ = -14.9 Median = -6.6 Q ₃ = -1.6 P ₉₀ = 2.6 P ₉₉ = 8.5		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-Mar	-16.1	-17.6	-18.2	-19.2	-19.0	-19.3	-19.5	-19.7	-19.0	-18.0	-16.9	-16.7	-16.1	-15.7	-15.0	-14.9	-15.2	-16.3	-17.7	-18.8	-19.5	-20.9	-21.9	-22.4	-18.1	-14.9	
2-Mar	-24.4	-25.0	-25.0	-25.3	-27.1	-27.8	-29.0	-28.3	-25.9	-24.9	-23.1	-22.2	-21.4	-20.5	-20.0	-19.9	-20.2	-21.1	-22.1	-22.7	-23.3	-23.8	-24.1	-24.6	-23.8	-19.9	
3-Mar	-24.8	-24.7	-24.5	-24.3	-24.2	-24.2	-24.2	-24.2	-24.1	-23.9	-23.6	-23.2	-22.7	-22.3	-21.8	-21.3	-21.1	-21.1	-21.1	-21.0	-21.1	-21.0	-20.9	-20.9	-22.8	-20.9	
4-Mar	-21.0	-21.3	-21.2	-21.0	-21.0	-20.9	-20.9	-20.9	-20.9	-20.7	-20.6	-20.2	-19.7	-19.2	-18.5	-18.0	-17.7	-17.8	-17.9	-18.0	-17.7	-17.5	-17.6	-18.0	-19.5	-17.5	
5-Mar	-18.8	-19.1	-18.8	-18.7	-18.7	-18.8	-18.9	-18.8	-18.7	-18.3	-17.7	-16.7	-15.3	-13.3	-14.2	-13.6	-13.7	-14.8	-16.6	-17.9	-18.3	-18.6	-19.5	-19.5	-17.4	-13.3	
6-Mar	-19.3	-19.7	-20.8	-21.6	-22.7	-23.0	-23.0	-23.1	-21.8	-20.3	-17.5	-14.4	-12.5	-11.2	-10.1	-9.3	-8.8	-9.1	-10.7	-11.9	-13.0	-13.4	-14.6	-15.1	-16.1	-8.8	
7-Mar	-15.4	-16.4	-16.9	-17.1	-17.3	-17.7	-18.4	-18.7	-17.9	-16.4	-14.8	-13.0	-10.9	-8.5	-6.1	-4.1	-3.3	-2.9	-4.0	-4.3	-4.9	-5.7	-6.2	-8.3	-11.2	-2.9	
8-Mar	-10.2	-10.2	-9.8	-8.5	-9.3	-9.6	-10.4	-11.9	-11.6	-9.5	-6.5	-4.4	-2.3	-1.1	0.1	1.0	1.7	1.5	1.5	0.7	0.1	-0.4	-1.3	-1.9	-4.7	1.7	
9-Mar	-2.6	-3.1	-3.1	-3.5	-3.2	-3.3	-4.8	-5.9	-4.9	-2.0	0.1	2.3	4.5	5.0	5.3	5.6	5.2	4.2	2.6	1.4	0.8	0.0	0.2	-0.1	0.0	5.6	
10-Mar	-0.8	0.7	1.6	2.4	1.9	1.6	1.4	2.6	3.9	5.9	6.9	7.1	6.9	7.1	7.6	8.0	8.1	7.6	5.9	3.1	-0.5	-1.8	-1.6	-1.7	3.5	8.1	
11-Mar	-2.3	-3.2	-4.2	-5.6	-7.3	-7.8	-8.1	-8.3	-7.9	-7.4	-6.5	-5.3	-3.7	-2.6	-1.1	-0.1	0.4	0.5	-0.8	-1.8	-2.9	-3.6	-4.1	-4.4	-4.1	0.5	
12-Mar	-5.2	-5.9	-7.5	-7.9	-7.1	-7.6	-8.6	-9.0	-8.0	-5.2	-2.3	-1.7	-0.4	1.5	1.4	2.0	2.5	1.9	1.1	-0.3	-1.5	-2.5	-3.7	-4.5	-3.3	2.5	
13-Mar	-5.2	-6.0	-6.6	-7.0	-7.6	-7.7	-8.2	-8.4	-7.9	-6.7	-5.1	-3.0	-1.1	0.0	1.7	3.2	4.0	4.0	2.6	1.0	0.1	-0.5	-0.8	-1.0	-2.8	4.0	
14-Mar	-2.1	-2.4	-2.5	-3.1	-3.0	-2.9	-2.6	-2.8	-1.2	0.5	2.0	3.7	5.5	6.6	6.9	7.0	6.9	6.8	6.4	5.0	5.4	5.2	4.2	4.2	2.2	7.0	
15-Mar	3.8	4.5	5.5	6.3	6.9	4.6	3.0	1.3	1.3	1.6	1.8	2.2	2.5	2.7	2.7	1.7	1.3	-0.1	-2.2	-3.4	-4.2	-4.8	-5.4	-6.0	1.1	6.9	
16-Mar	-6.6	-7.8	-9.0	-9.6	-9.9	-10.0	-10.2	-10.1	-9.7	-9.0	-8.0	-7.0	-5.3	-4.2	-3.7	-2.9	-3.0	-3.0	-3.1	-3.4	-3.5	-3.7	-3.7	-3.8	-6.3	-2.9	
17-Mar	-3.3	-2.4	-2.5	-2.7	-3.0	-3.7	-4.1	-3.8	-3.1	-1.7	-0.2	1.6	3.6	5.7	7.1	8.4	10.4	12.0	11.8	10.5	9.7	9.8	8.2	5.7	3.1	12.0	
18-Mar	4.1	3.0	1.7	0.6	-0.6	-1.6	-2.2	-3.2	-3.6	-3.5	-3.6	-3.5	-3.4	-3.5	-4.2	-5.0	-5.3	-5.6	-6.3	-7.3	-8.4	-8.9	-9.6	-10.4	-3.8	4.1	
19-Mar	-11.5	-12.0	-12.3	-13.0	-14.0	-14.8	-15.5	-16.0	-15.9	-15.3	-14.5	-13.6	-12.8	-12.0	-11.3	-11.0	-11.1	-11.7	-12.6	-13.4	-14.2	-14.7	-15.1	-16.1	-13.5	-11.0	
20-Mar	-16.6	-16.9	-17.4	-18.0	-18.7	-19.2	-19.4	-19.3	-18.7	-17.6	-16.1	-14.8	-12.9	-11.5	-11.0	-10.4	-10.4	-10.9	-11.6	-12.3	-13.1	-13.5	-14.7	-15.0	-15.0	-10.4	
21-Mar	-15.5	-15.9	-16.3	-16.9	-17.2	-17.3	-17.3	-17.2	-16.6	-14.5	-12.7	-11.3	-9.7	-8.9	-8.2	-8.0	-8.2	-9.2	-10.5	-11.9	-13.1	-13.9	-15.0	-15.6	-13.4	-8.0	
22-Mar	-16.5	-17.2	-17.9	-18.8	-19.5	-19.9	-21.1	-20.8	-17.1	-14.1	-12.0	-10.3	-8.9	-7.5	-6.7	-6.1	-6.0	-5.7	-6.5	-7.8	-9.5	-10.5	-11.9	-13.6	-12.8	-5.7	
23-Mar	-14.2	-13.7	-14.1	-15.0	-17.0	-17.8	-19.3	-18.5	-15.0	-11.9	-8.7	-6.2	-4.0	-2.8	-1.8	-0.6	-0.9	-1.0	-1.7	-3.1	-3.6	-4.3	-5.7	-6.8	-8.7	-0.6	
24-Mar	-8.3	-8.4	-8.5	-9.0	-9.7	-10.9	-11.3	-11.1	-8.7	-6.5	-5.2	-2.2	-0.7	0.1	0.7	0.7	0.8	0.8	-0.2	-1.0	-1.1	-1.5	-2.4	-3.2	-4.5	0.8	
25-Mar	-4.1	-4.8	-5.6	-6.3	-7.0	-7.7	-8.3	-7.7	-7.1	-5.5	-3.6	-1.6	0.5	1.7	2.5	3.0	3.4	3.1	2.0	1.1	0.4	-0.1	-0.4	-0.9	-2.2	3.4	
26-Mar	-1.5	-1.8	-2.1	-2.6	-3.0	-3.2	-3.3	-3.3	-3.0	-2.4	-1.2	-1.1	-0.6	0.6	1.4	1.9	2.1	1.7	1.5	1.1	0.7	0.4	-0.6	-1.4	-0.8	2.1	
27-Mar	-1.9	-2.6	-3.5	-4.4	-5.6	-6.5	-7.5	-7.8	-7.8	-7.1	-6.3	-5.6	-5.3	-5.4	-5.1	-5.1	-5.0	-5.4	-5.8	-6.1	-6.1	-6.5	-6.7	-7.2	-5.7	-1.9	
28-Mar	-8.0	-7.9	-8.0	-8.3	-8.4	-8.5	-8.6	-8.4	-8.0	-7.5	-7.0	-6.2	-5.6	-4.9	-4.8	-4.8	-5.0	-5.2	-5.9	-6.9	-6.7	-6.8	-6.9	-7.2	-6.9	-4.8	
29-Mar	-7.7	-8.3	-8.3	-8.8	-10.3	-11.6	-10.8	-9.9	-9.0	-6.8	-5.5	-4.7	-3.9	-3.4	-3.2	-3.0	-3.1	-3.3	-4.0	-5.8	-9.5	-11.0	-11.2	-12.5	-7.3	-3.0	
30-Mar	-14.6	-15.0	-15.1	-15.3	-15.6	-15.7	-15.9	-14.1	-11.8	-9.0	-5.5	-2.9	-1.6	-0.8	0.2	0.8	1.1	0.9	-0.1	-1.2	-1.8	-2.8	-3.2	-3.3	-6.8	1.1	
31-Mar	-4.4	-5.6	-5.6	-5.5	-5.7	-6.9	-7.1	-6.0	-4.0	-1.4	0.7	3.2	5.3	6.8	8.1	9.3	8.6	7.8	7.4	6.8	7.2	7.3	7.1	7.4	1.7	9.3	
		-9.5	-9.9	-10.2	-10.6	-11.1	-11.6	-12.1	-12.0	-11.1	-9.7	-8.2	-6.8	-5.5	-4.6	-3.9	-3.4	-3.3	-3.6	-4.5	-5.5	-6.2	-6.8	-7.4	-8.0	Diurnal Average	
		4.1	4.5	5.5	6.3	6.9	4.6	3.0	2.6	3.9	5.9	6.9	7.1	6.9	7.1	8.1	9.3	10.4	12.0	11.8	10.5	9.7	9.8	8.2	7.4	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Fort Hills - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	71	9.54	9.54
-20 - 0	528	70.97	80.51
0 - 10	141	18.95	99.46
10 - 20	4	0.54	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

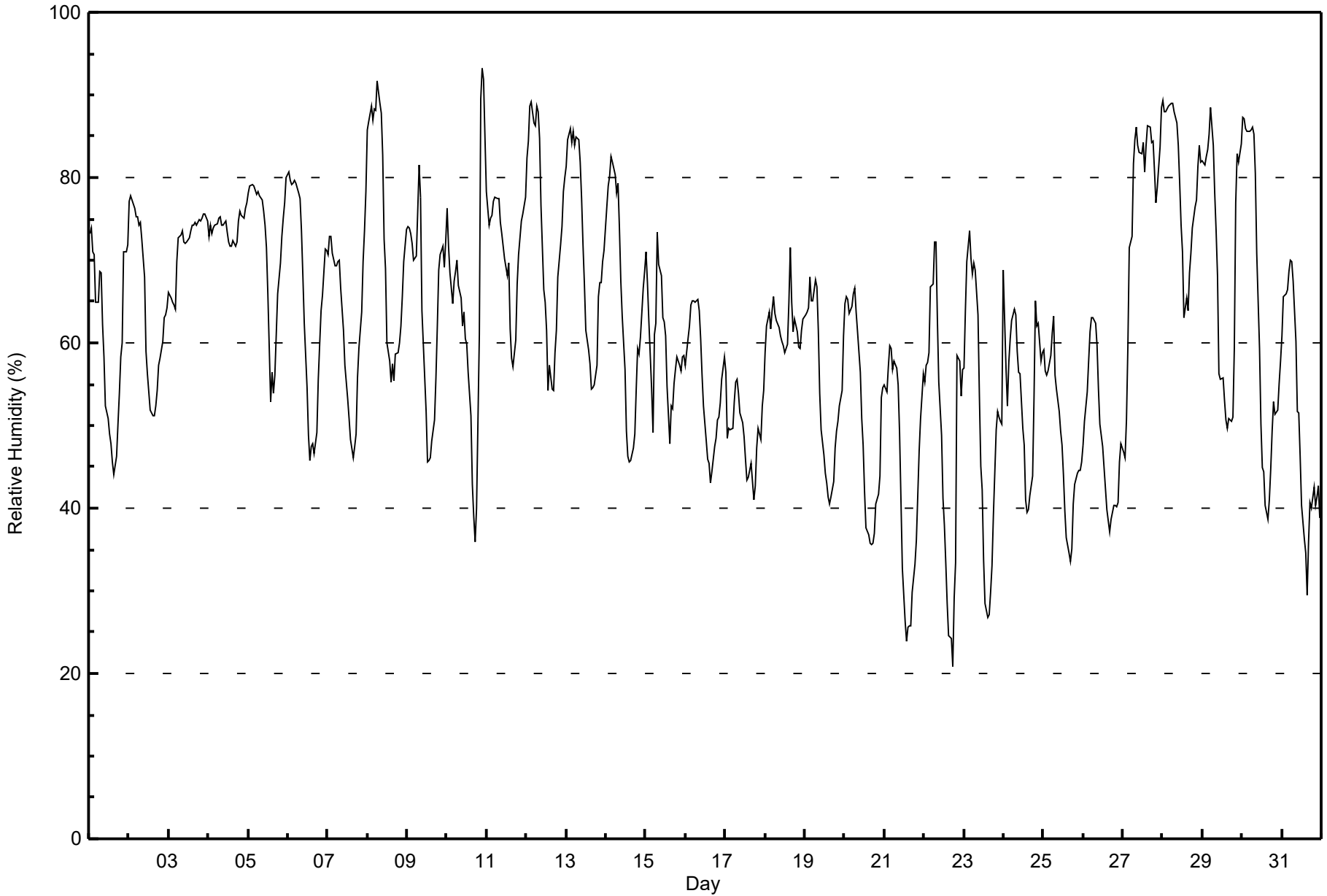
Relative Humidity (RH) - %
Fort Hills - March 2024

Maximum Value: 93.2 % on Mar 10 22:00		Maximum Daily Average: 79.6 % on Mar 28		Hours in Service: 744																							
Minimum Value: 20.9 % on Mar 22 18:00		Minimum Daily Average: 44.0 % on Mar 21		Hours of Data: 744																							
Maximum Diurnal Average: 73.0 % at hour 7		Minimum Diurnal Average: 48.3 % at hour 16		Hours of Missing Data: 0																							
Monthly Average: 61.94 %		Percentiles: P ₁ = 26.5 P ₁₀ = 42.3 Q ₁ = 51.1 Median = 62.1 Q ₃ = 73.4 P ₉₀ = 81.8 P ₉₉ = 88.9		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-Mar	73.3	73.9	71.1	70.7	64.9	64.9	68.6	68.5	62.2	58.3	52.4	50.9	49.0	47.7	45.5	44.1	46.3	50.2	53.8	58.3	59.9	71.0	71.0	71.8	60.4	73.9	
2-Mar	77.2	77.7	77.3	76.3	75.3	75.3	74.2	74.6	72.5	67.9	59.0	56.3	54.0	51.9	51.1	51.1	52.3	54.3	57.3	58.1	60.3	63.0	63.5	64.3	64.4	77.7	
3-Mar	66.1	65.4	64.9	64.6	64.1	69.8	72.7	73.1	73.5	72.3	72.0	72.2	72.7	73.6	74.2	74.2	74.5	74.3	75.0	74.8	75.1	75.6	75.5	74.7	71.9	75.6	
4-Mar	72.9	74.2	73.2	73.9	74.3	74.4	75.0	75.2	74.2	74.3	74.7	73.5	72.2	71.7	71.6	72.4	71.7	72.2	74.8	76.0	75.5	75.0	76.2	76.9	74.0	76.9	
5-Mar	78.2	79.0	79.2	79.0	78.4	78.0	78.3	77.8	77.3	75.9	74.3	71.6	65.9	52.9	56.5	53.9	56.0	61.0	65.9	69.7	72.9	75.0	76.9	80.1	71.4	80.1	
6-Mar	80.7	79.7	79.1	79.2	79.7	79.3	78.2	77.4	73.6	68.2	62.4	54.6	48.8	45.7	47.4	47.9	46.6	49.2	55.7	59.8	63.9	65.7	71.4	71.1	65.2	80.7	
7-Mar	70.7	72.9	72.8	70.9	69.4	69.4	69.8	70.0	66.6	61.6	57.4	55.2	53.2	50.8	48.4	46.0	47.5	48.9	55.7	59.3	63.7	69.9	73.6	78.3	62.6	78.3	
8-Mar	85.8	86.7	88.6	86.9	88.2	88.2	91.6	89.0	87.8	82.7	72.5	68.9	60.0	57.9	55.2	57.5	55.4	58.6	58.8	59.9	62.0	65.6	69.9	73.8	73.0	91.6	
9-Mar	74.1	73.9	73.2	72.1	70.1	70.4	76.0	81.5	77.6	63.8	55.7	51.6	45.6	45.7	46.1	48.2	50.7	55.7	62.1	68.9	70.7	71.7	69.2	72.4	64.5	81.5	
10-Mar	76.3	71.7	68.5	64.8	67.4	68.6	70.0	67.0	65.4	62.1	63.6	60.5	59.9	56.5	51.2	42.9	39.1	36.0	40.1	61.0	89.6	93.2	91.8	84.8	64.7	93.2	
11-Mar	78.3	74.3	75.1	75.4	77.2	77.7	77.5	77.4	74.6	73.2	71.7	70.1	68.2	69.6	61.7	58.2	57.1	60.4	67.2	70.6	72.8	74.8	75.6	77.6	71.5	78.3	
12-Mar	82.4	84.4	88.7	89.2	86.6	86.2	88.7	87.9	84.7	76.6	66.5	64.9	61.5	54.2	57.3	54.3	54.2	58.8	61.5	68.0	71.9	74.1	78.3	80.0	73.4	89.2	
13-Mar	81.4	84.5	85.9	84.2	85.5	83.8	85.0	84.5	81.9	77.5	71.8	67.0	61.6	59.2	57.5	54.4	54.6	54.9	57.2	65.7	67.3	67.2	69.8	71.1	71.4	85.9	
14-Mar	76.4	79.0	80.1	82.5	81.8	80.4	78.1	79.3	73.9	67.5	63.2	56.8	49.4	46.3	45.6	45.8	47.2	49.0	54.4	59.3	58.7	60.7	66.6	68.7	64.6	82.5	
15-Mar	71.0	67.2	62.6	54.5	49.1	61.0	62.4	73.4	69.5	68.2	63.0	62.5	60.9	54.7	47.8	52.3	52.0	55.1	56.8	58.3	57.4	56.6	58.3	58.5	59.7	73.4	
16-Mar	57.4	60.6	62.0	64.7	65.0	65.2	65.0	65.3	63.9	60.6	56.1	52.4	48.1	45.9	45.4	43.0	44.5	47.5	48.4	50.7	51.0	52.6	55.6	58.3	55.4	65.3	
17-Mar	56.5	48.4	49.6	49.5	49.7	52.9	55.2	55.6	53.8	51.5	50.4	48.6	45.9	43.4	43.8	45.4	43.2	41.1	42.7	47.3	49.6	48.2	52.3	54.2	49.1	56.5	
18-Mar	58.7	62.1	63.6	61.8	63.9	65.6	63.6	62.7	61.9	60.8	60.1	59.7	58.8	59.8	65.0	71.5	64.8	61.3	62.9	61.4	59.4	59.3	61.5	63.0	62.2	71.5	
19-Mar	63.5	63.7	64.2	67.9	65.1	65.1	67.5	66.7	61.6	53.9	49.5	46.5	44.3	43.0	41.4	40.5	41.3	43.1	47.3	49.3	50.5	52.4	54.3	60.9	54.3	67.9	
20-Mar	64.7	65.5	65.3	63.5	64.4	65.9	66.5	63.7	61.3	56.4	50.9	47.7	42.0	37.5	36.8	35.7	35.5	35.8	37.0	40.6	41.7	43.9	53.4	54.5	51.3	66.5	
21-Mar	55.0	54.1	57.2	59.7	59.3	56.9	57.7	56.9	54.8	49.2	41.0	32.6	26.3	23.9	25.6	25.8	25.8	29.8	33.2	36.1	41.5	46.9	50.9	56.3	44.0	59.7	
22-Mar	55.3	57.3	57.6	58.9	66.7	67.2	72.3	72.2	62.9	55.2	48.9	41.2	37.9	33.5	28.5	24.6	24.2	20.9	29.1	33.3	58.5	57.8	53.5	56.7	48.9	72.3	
23-Mar	57.0	64.0	69.9	73.6	70.1	68.2	69.7	68.9	63.4	53.6	45.1	42.2	33.8	28.5	26.8	27.1	29.9	33.0	39.1	49.5	51.8	50.9	50.5	50.2	50.7	73.6	
24-Mar	68.8	57.0	52.4	57.6	60.4	62.7	64.1	63.5	59.0	56.4	56.2	49.7	47.6	41.1	39.5	39.8	41.5	43.9	53.4	65.2	62.0	62.4	57.8	58.9	55.0	68.8	
25-Mar	59.2	56.7	56.1	56.6	58.5	61.2	63.3	56.2	54.4	51.7	49.3	47.7	44.1	39.6	36.4	34.6	33.6	35.1	40.5	42.8	44.3	44.6	44.6	45.5	48.2	63.3	
26-Mar	47.6	50.6	54.0	57.8	61.4	63.1	63.0	62.4	59.7	54.3	50.2	48.8	47.5	42.4	39.9	38.5	37.2	38.7	40.3	40.4	40.2	40.7	45.6	47.8	48.8	63.1	
27-Mar	46.8	46.2	50.6	59.4	71.6	72.9	81.7	84.6	86.1	84.0	83.0	82.9	84.3	80.7	83.9	86.3	86.2	84.2	84.4	80.9	76.9	78.8	83.7	88.5	77.0	88.5	
28-Mar	89.3	88.0	87.9	88.6	88.8	89.1	88.9	88.0	86.5	83.9	79.4	74.2	71.0	63.0	65.5	63.9	68.5	70.9	74.0	76.4	77.2	81.4	83.9	81.9	79.6	89.3	
29-Mar	82.0	81.5	82.6	83.5	85.3	88.4	83.9	78.2	73.6	68.2	56.3	55.6	55.8	53.0	50.7	49.7	50.9	50.5	51.1	59.2	76.9	82.8	81.8	84.1	69.4	88.4	
30-Mar	87.2	87.1	86.0	85.6	85.5	85.8	86.1	85.3	80.5	70.9	59.4	50.2	44.8	44.5	40.3	38.7	41.0	44.7	49.3	53.0	51.3	51.8	55.0	57.7	63.4	87.2	
31-Mar	60.9	65.6	66.0	66.5	68.7	69.9	69.8	67.5	60.2	51.6	51.6	46.3	40.3	36.3	34.5	29.6	36.0	40.7	40.0	42.6	40.3	41.3	42.6	38.8	50.3	69.9	
		69.5	69.4	69.9	70.3	70.8	71.8	73.0	72.7	69.6	64.9	60.2	56.9	53.4	50.1	49.1	48.3	48.7	50.3	53.8	57.9	61.1	63.1	65.0	66.5	Diurnal Average	
		89.3	88.0	88.7	89.2	88.8	89.1	91.6	89.0	87.8	84.0	83.0	82.9	84.3	80.7	83.9	86.3	86.2	84.2	84.4	80.9	89.6	93.2	91.8	88.5	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Fort Hills - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Fort Hills - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	50	6.72	6.72
40 - 60	288	38.71	45.43
60 - 80	319	42.88	88.31
80 - 100	87	11.69	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 35 km/h on Mar 3 07:00	Maximum Daily Speed Average: 26.7 km/h on Mar 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 30 01:00	Minimum Daily Speed Average: 2.4 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 4.6 km/h at hour 20	Minimum Diurnal Speed Average: 1.3 km/h at hour 11	Hours of Missing Data: 0
Monthly Average Velocity: 3.0 km/h 73.6 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 9 Median = 13 Q ₃ = 18 P ₉₀ = 24 P ₉₉ = 32	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	W9	W10	W10	WNW8	WNW11	W9	SW12	WSW12	W11	W12	WNW14	WNW16	WNW14	NW14	NW17	NW17	NNW14	N12	N10	NNW7	NNW8	NNE12	NE13	NNE10	NW8.9	NW17
2-Mar	WNW5	NNW7	N7	NNE5	NNW2	NNW5	N4	NNE8	NNE19	N17	NNE15	NNE12	N10	NNE9	NNE11	NE15	NE15	NE12	NNE11	NNE15	NNE17	NNE14	NNE16	NNE17	NNE10.6	NNE19
3-Mar	N18	N22	N22	N22	N23	N30	N35	N32	N29	NNE28	NNE27	NNE29	N25	N26	N25	N26	N23	N24	N23	N28	N27	N23	N20	N27	N25.4	N35
4-Mar	N30	N29	N33	N34	N31	N31	N32	N32	N31	N32	N32	N33	N32	N30	N26	N26	N24	N22	N20	N20	NNE18	N17	NNE16	NNE14	N26.7	N34
5-Mar	NNE14	N14	N15	N16	NNE17	NNE17	N15	NNE15	NNE17	NNE13	N8	N7	NNE5	E4	SE7	SW6	SSE3	SE6	SSE9	S8	S9	S8	S7	S9	NNE4.7	NNE17
6-Mar	S12	S9	S11	S8	S8	S9	S14	S15	SSW13	SSW14	SSW14	S17	S24	SSW23	S23	S23	SSW23	SSW18	S12	SSW12	S14	S14	SSW9	SSW12	S14.4	S24
7-Mar	SSW16	S18	S16	S17	S16	S19	S19	S18	S19	S18	SSW21	S20	S17	S19	S19	S18	S11	SSE8	SE8	S1	ESE3	ENE1	ENE3	NNW4	S12.8	SSW21
8-Mar	WNW3	N6	NW6	W2	SW5	SSW4	S7	SSE9	SSE10	SSE11	S9	SSE11	SSE13	SSE14	SSE13	SE8	SE5	SSE5	SSE13	SSE10	SSE6	SSE8	SSE7	SSW7	SSE6.3	SSE14
9-Mar	S11	SSE10	S8	SSE13	SSE14	SSE14	SSE9	S5	SSW6	S13	SSW13	S11	SSW12	W9	W7	NNE4	NNE3	NNE4	ENE2	ESE5	SSE5	S7	SSW8	SSW7	S6.3	SSE14
10-Mar	SSW6	S11	SSE11	S11	S11	S9	S8	SSW13	SSW9	SW12	WSW18	W22	W22	W17	W21	W24	W18	WNW12	NW9	N13	NNE12	NNE13	NE12	NE14	WSW6.2	W24
11-Mar	NNE16	NNE14	NE12	NE11	NE11	NNE10	NNE8	NE7	N7	N9	NNE6	NE5	NE5	NNE7	NE9	NE8	N9	NNE9	NNE12	NNE12	N13	N12	N10	N8	NNE9.3	NNE16
12-Mar	N6	N3	NNW5	N3	SSE5	N3	N6	N6	NNW4	NNW4	SE5	N3	NNE4	NE5	NNE9	N13	N12	N11	NE8	ESE9	SE9	SE12	SE10	SSE9	NE3.1	N13
13-Mar	S8	SW4	S7	S8	S9	SSE12	SSE11	SSE11	S8	S11	SSW11	SSE13	SSE11	S11	SE10	SE10	SE11	SSE7	SSW7	SSE10	SSE9	SSE7	SSE8	SSE10	SSE8.8	SSE13
14-Mar	SSE9	SSE10	SE11	SE12	SE12	SSE12	S10	S10	S10	S12	S14	S17	SSW19	SW17	SW14	SSW12	SSW13	SSW14	SSW11	S9	SSW16	SSW14	SSE8	SSE5	S11.0	SSW19
15-Mar	SSE7	SW15	W15	WNW16	NW20	N24	NNW23	N20	NNW19	NNW14	NNW21	N16	NNE13	NNE18	NNE24	NNE25	NNE26	NE22	NE23	NNE22	NE21	NNE21	NNE14	NE13	N14.4	NNE26
16-Mar	NE15	NE17	NNE17	NNE15	NNE14	NE14	NE13	NNE12	NNE11	N12	N12	N9	NE5	NNE4	N5	NE10	NNE10	NNE11	NNE10	NNE9	N6	NNW8	N5	NNW5	NNE10.0	NNE17
17-Mar	S5	SSE13	SSE15	SSE14	S13	S10	S10	SSE14	SSE18	S20	S25	S24	S24	S26	S19	SSE14	SSE19	S14	S16	S18	SSW13	SW13	NNW8	NNE25	S13.1	S26
18-Mar	NNE14	NNE14	NNE18	NNE19	NNE24	NNE21	N24	NNE23	NNE27	NNE21	NNE20	NNE15	NNE16	NNE19	NNE20	NNE24	NNE26	NNE26	NNE20	NNE23	NNE27	NNE25	NNE26	NNE25	NNE21.4	NNE27
19-Mar	N24	N21	N21	NNE21	NNE22	NNE21	NNE20	NNE22	NNE21	NNE18	NNE15	NNE13	NNE14	NNE13	NNE13	NE15	NE14	NE14	NE14	NE14	NE13	NNE16	N9	NNW7	NNE16.1	N24
20-Mar	NNW5	N8	N11	N12	N12	N10	NNE9	NNE11	N9	N7	NNW4	N5	ENE5	ENE7	ENE8	NE9	NE10	NE11	NNE12	NNE12	NE12	NE13	NNW8	N10	NNE8.4	NE13
21-Mar	N13	N15	N12	N12	N12	N16	N16	NNE18	N13	N16	NNE20	NNE18	NNE19	NNE18	NNE19	NNE20	NE20	NE20	NE19	NE16	NNE11	N9	NNW6	N6	NNE14.8	NE20
22-Mar	NW4	NW4	NNW4	NNW4	N3	NW3	SW4	SSW4	SSE6	SE8	SE10	SE10	SE8	ESE7	ESE7	ESE5	SE7	ESE6	SE5	ENE6	SSE3	E2	NW3	NW3	ESE2.4	SE10
23-Mar	NNE1	SE5	SE6	SSE7	S8	S6	S6	S8	S11	S10	SSE7	SE10	SE10	SE10	SE8	ESE7	SE9	SE10	SE10	SE7	SE9	SE10	SE6	E3	SSE7.0	S11
24-Mar	ESE1	SSE8	SE11	SE10	SSE10	SSE9	S7	S8	S7	S5	SSW8	SE8	SSE14	SSE17	SSE16	SSE13	SSE15	SSE16	S15	SSE10	SE16	SE14	SE16	SE16	SSE10.8	SSE17
25-Mar	SE15	SE16	SE17	SE15	SE12	SSE12	SSE6	SSE12	SSE13	S13	SE14	SSE16	S23	SSE26	SSE29	SSE28	SSE25	SSE24	SSE21	SSE22	SSE24	SSE27	S27	S26	SSE18.8	SSE29
26-Mar	S26	S29	SSE29	SSE27	SSE27	SSE28	S30	S30	S28	SSE30	SSE34	SSE33	SSE29	SSE29	SSE27	SSE27	SSE27	SSE24	SSE23	SSE23	SSE21	SSE23	SE23	SE25	SSE26.6	SSE34
27-Mar	SE26	SE26	SE23	SE20	SE20	SE19	ESE18	ESE15	ESE15	ESE15	ESE13	ESE9	ESE15	ESE19	ESE12	ESE12	ESE8	E11	ENE11	ENE10	ENE10	NE14	NE13	NNE11	ESE13.3	SE26
28-Mar	NNE15	NNE16	NNE16	NNE15	NNE17	NNE16	N17	N16	N19	N18	N16	NNE20	N20	NNE19	NNE18	NNE17	N18	N17	N14	N12	N14	N15	N18	N19	N16.6	NNE20
29-Mar	N18	N15	N12	N11	N8	N9	N9	N12	N8	NNE10	NNE17	NNE15	NNE17	NNE16	NNE15	NNE14	NNE13	NE11	NNE9	ENE6	ENE3	WNW4	NNW4	N3	NNE10.3	N18
30-Mar	WSW0	S4	SSE6	SSE7	SSE5	SSE7	SSE6	SSE11	SE10	SE9	SSE11	SSE16	SSE20	SSE21	SSE21	SSE21	SSE19	SE16	SE15	SE14	SE15	SSE17	SSE14	SSE11	SSE12.1	SSE21
31-Mar	SSE9	S7	SSE10	SSE13	SSE13	SSE14	SSE15	SSE15	S14	S12	SE14	SE16	SSE19	SSE22	SSE20	SSW15	SSE16	SSE15	SSE18	SSE19	S21	SSE18	SSE25	S19	SSE15.4	SSE25

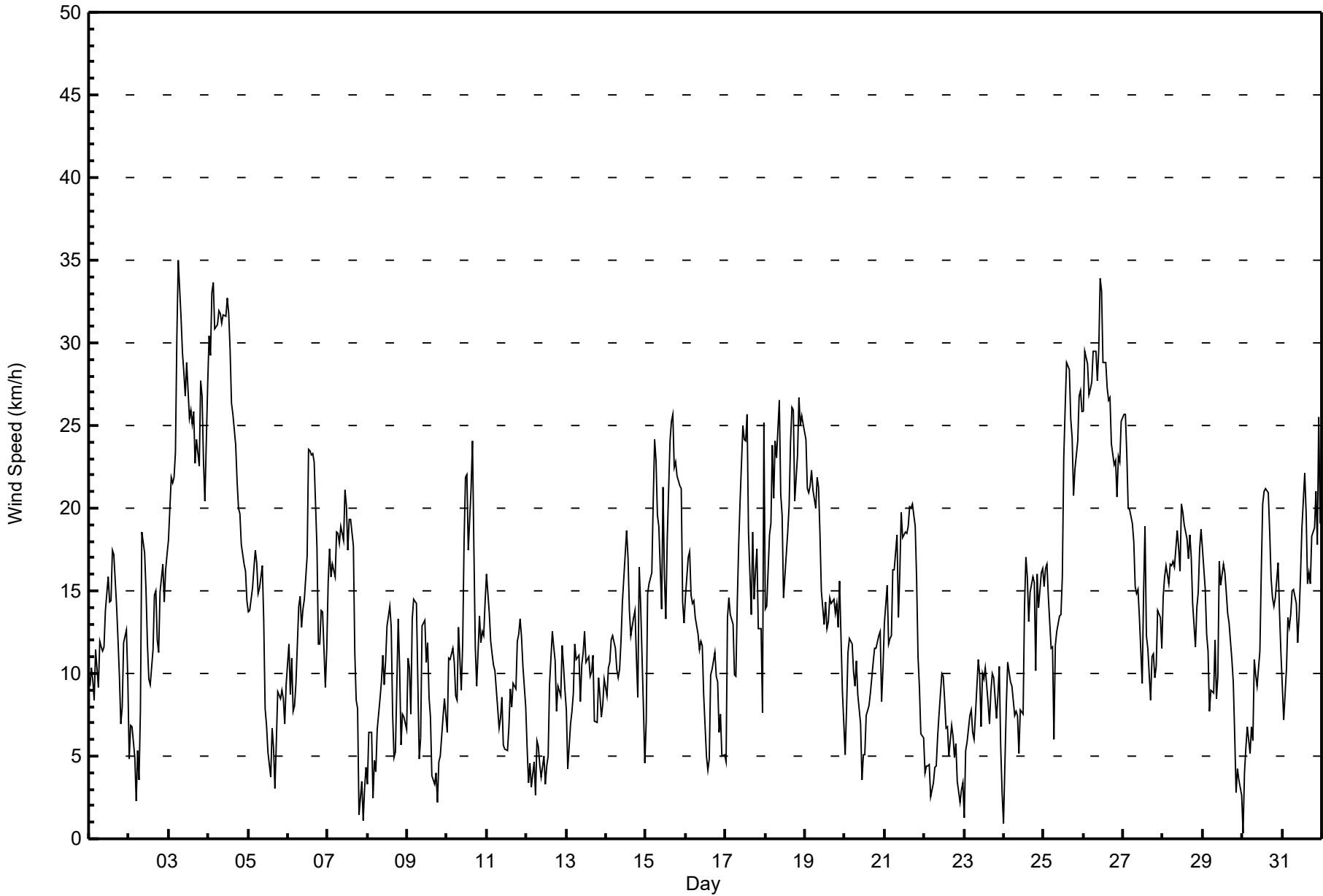
NE2.5	ENE2.3	ENE3.0	ENE3.3	ENE3.0	NE3.1	NE2.6	ENE2.9	NE2.4	ENE1.5	E1.3	E2.9	ESE3.0	ESE3.4	E3.3	E3.6	ENE4.0	ENE4.5	E4.6	ENE4.6	ENE3.7	ENE3.3	ENE3.4	NE3.5	Diurnal Average
N30	S29	N33	N34	N31	N31	N35	N32	N31	N32	SSE34	SSE33	N32	N30	SSE29	SSE28	SSE27	NNE26	NE23	N28	N27	SSE27	S27	N27	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Fort Hills - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Fort Hills - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	77	10.35	10.35
6 - 11	231	31.05	41.40
12 - 19	282	37.90	79.30
20 - 28	125	16.80	96.10
29 - 38	29	3.90	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
Fort Hills - March 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	4	5	3	4	4	7	5	2	3	1	1	3	5	12	77
6 - 11	31	22	11	7	1	7	31	45	45	11	1	0	7	2	2	8	231
12 - 19	42	71	23	0	0	9	20	42	34	18	6	2	4	5	3	3	282
20 - 28	29	33	5	0	0	0	7	26	15	3	0	0	4	0	1	2	125
29 - 38	18	1	0	0	0	0	0	7	3	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
Totals	130	135	43	12	4	20	62	127	102	34	10	3	16	10	11	25	744

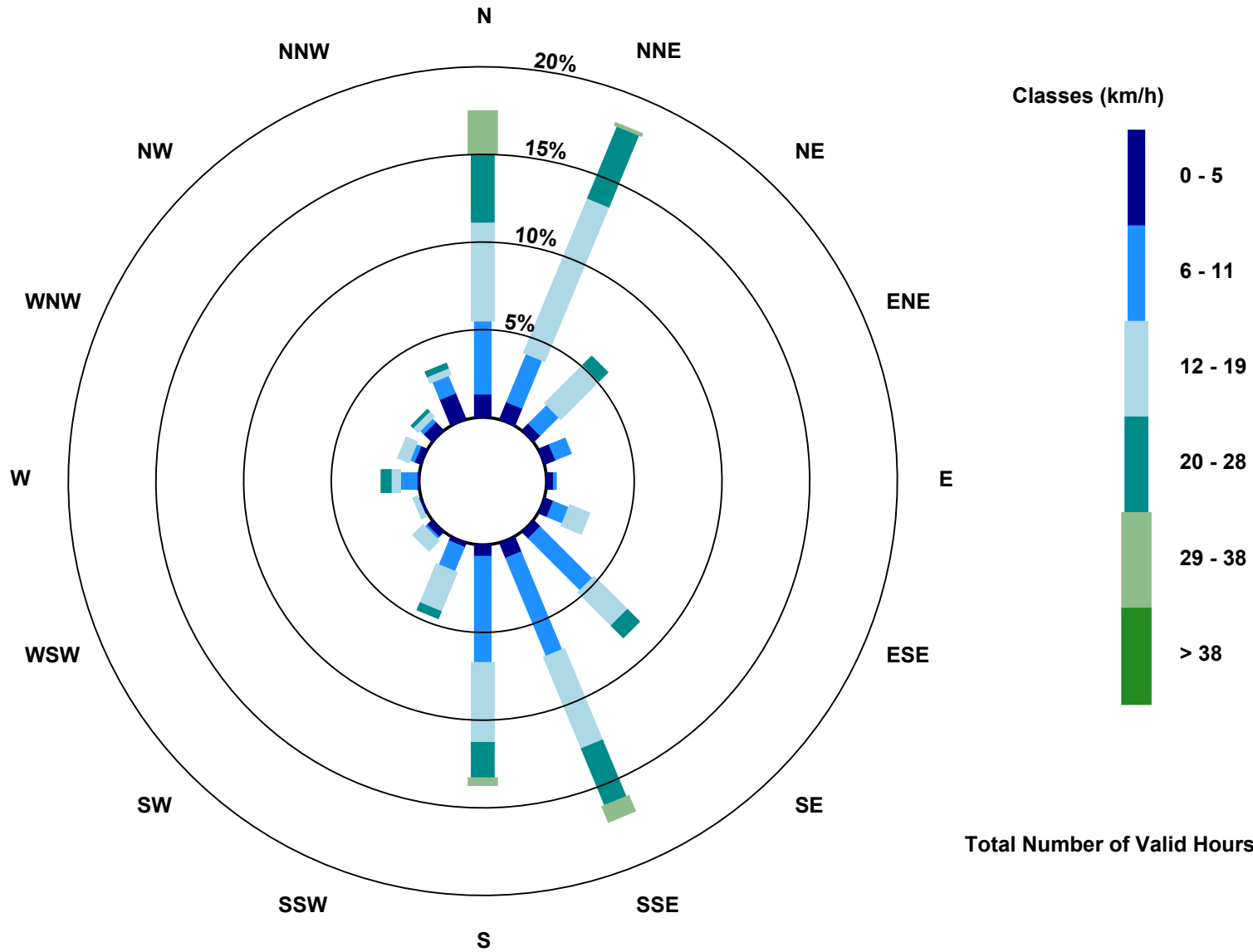
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Fort Hills



Total Number of Valid Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Fort Hills - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 09:00 Minimum Value: 1 km/h on Mar 22 03:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 4 P ₉₀ = 4 P ₉₉ = 6														Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0											
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	1	2	2	3	3	2	3	4	2	2	4	3	4	3	5	4	3	3	2	1	2	4	3	3	5
2-Mar	1	1	1	2	2	1	1	2	4	3	3	2	2	2	3	3	3	2	2	3	3	3	3	3	4
3-Mar	3	3	4	3	4	7	6	5	5	6	6	4	5	4	5	5	5	5	5	5	5	5	5	6	7
4-Mar	5	5	6	5	6	5	5	5	5	6	5	5	5	5	5	4	4	4	3	3	2	2	3	3	6
5-Mar	2	2	2	3	2	3	2	3	2	3	1	1	2	2	2	2	2	1	1	1	1	1	1	2	3
6-Mar	2	2	2	3	2	3	2	2	2	2	3	3	5	4	4	4	4	5	1	1	2	1	2	2	5
7-Mar	1	1	2	1	2	2	2	2	3	3	3	3	3	3	3	3	3	1	1	2	3	1	1	1	3
8-Mar	2	2	3	2	1	2	1	1	1	1	2	2	2	1	2	3	1	4	2	2	1	1	1	1	4
9-Mar	2	1	1	3	2	1	2	2	2	3	3	3	4	2	2	1	1	1	2	1	1	3	2	1	4
10-Mar	1	2	1	2	3	2	1	2	2	3	5	5	5	4	5	5	5	4	3	4	4	4	2	3	5
11-Mar	3	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	1	1	3
12-Mar	1	3	1	2	4	2	1	1	1	1	2	2	2	2	3	2	2	2	2	2	2	2	1	3	4
13-Mar	3	1	2	2	2	1	1	1	1	4	3	2	4	3	2	1	1	2	1	1	1	1	1	1	4
14-Mar	1	2	2	1	1	2	2	1	1	2	2	3	3	3	2	3	3	2	1	2	2	3	1	2	3
15-Mar	3	5	3	4	5	7	6	4	7	5	5	3	3	4	5	4	5	4	4	4	4	4	4	3	7
16-Mar	3	3	4	3	2	3	3	2	2	2	3	2	2	2	3	2	2	2	1	2	2	2	2	1	4
17-Mar	4	2	2	2	2	1	1	3	2	3	4	4	4	4	4	4	3	3	2	1	1	4	6	7	7
18-Mar	3	4	6	4	5	6	6	5	5	3	4	3	3	3	3	5	4	4	4	5	5	4	4	4	6
19-Mar	4	4	4	4	4	4	4	4	4	3	4	4	4	3	3	3	2	3	3	3	3	3	3	1	4
20-Mar	1	3	2	2	2	2	2	2	2	2	2	3	2	3	3	3	3	2	2	2	2	3	2	2	3
21-Mar	2	2	4	3	3	3	2	3	3	4	3	3	4	3	4	4	4	4	3	3	2	2	1	2	4
22-Mar	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
23-Mar	1	2	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	2	1	1	1	2	3	2	3
24-Mar	1	3	1	1	1	1	1	1	1	2	2	3	4	4	3	3	3	4	2	2	3	2	2	2	4
25-Mar	2	2	2	3	2	1	4	3	3	3	3	3	5	5	4	4	4	4	3	2	3	4	4	4	5
26-Mar	3	4	4	3	3	4	5	4	4	4	4	5	4	4	5	4	4	3	3	3	2	3	4	4	5
27-Mar	4	4	4	4	3	4	4	4	4	4	4	3	5	5	4	3	2	4	4	2	2	2	2	2	5
28-Mar	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3	3
29-Mar	3	3	2	2	1	2	2	3	1	3	3	3	3	3	3	3	3	2	2	2	1	2	1	1	3
30-Mar	1	1	1	2	1	2	2	1	1	1	2	5	4	3	3	3	3	2	2	1	2	2	2	2	5
31-Mar	2	2	2	1	2	2	2	2	2	2	2	2	3	3	4	3	2	2	4	2	3	4	4	5	5
														Diurnal Maximum											



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Fort Hills - March 2024

Direction of Maximum Speed: 11 deg on Mar 3 07:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 8.3 deg on Mar 4	Hours of Data: 744
Direction of Minimum Speed: 239 deg on Mar 30 01:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 2.4 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 73.6 deg	

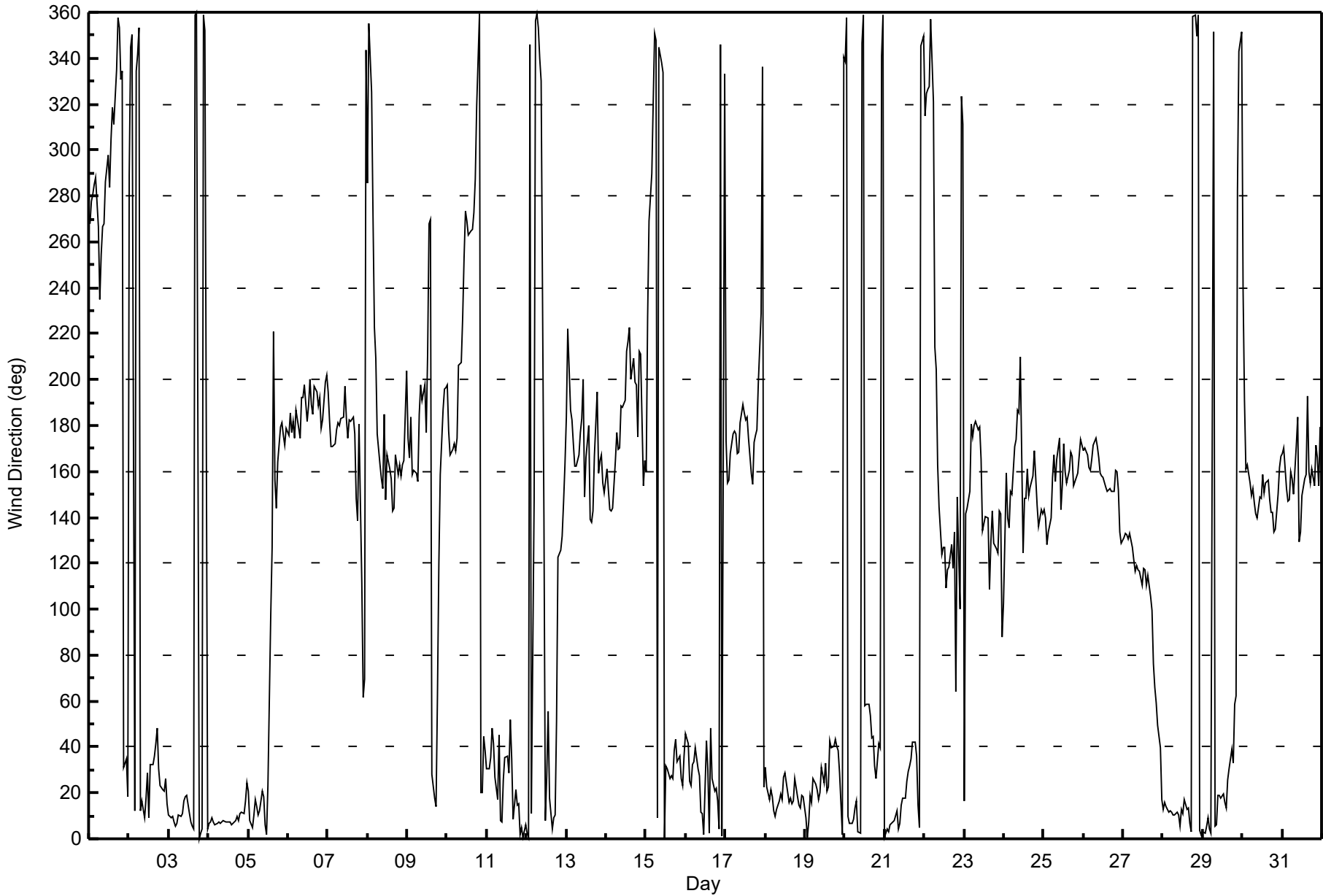
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	268	278	281	285	288	267	235	255	266	268	286	298	284	305	319	311	335	357	353	331	334	31	35	18	304.6
2-Mar	289	345	350	12	335	342	353	12	17	9	18	29	9	32	32	36	41	48	30	23	21	21	26	15	19.6
3-Mar	10	9	10	8	6	7	11	10	11	16	18	19	11	7	5	4	359	360	0	2	4	359	352	4	7.1
4-Mar	6	7	9	8	6	7	8	7	7	8	7	7	7	7	6	8	10	8	11	12	11	16	25	8.3	
5-Mar	21	8	5	10	17	14	10	12	21	18	6	2	23	97	127	221	157	144	164	180	181	176	172	179	27.9
6-Mar	176	186	177	182	174	187	179	174	192	192	198	182	188	200	189	185	197	195	188	192	179	182	199	202	188.2
7-Mar	195	182	171	171	172	178	181	180	183	183	197	183	175	182	182	184	176	148	138	180	112	61	69	344	178.4
8-Mar	286	355	326	272	223	209	176	163	157	153	185	148	167	161	157	143	144	167	159	163	158	163	165	204	166.9
9-Mar	174	166	184	159	160	160	155	185	198	191	198	177	212	268	270	28	18	14	62	120	159	187	196	197	181.0
10-Mar	198	178	167	170	172	169	175	206	207	227	253	273	269	263	265	265	273	287	319	360	20	20	45	39	255.8
11-Mar	31	30	35	48	42	27	17	45	8	7	26	35	36	29	52	35	8	21	15	15	2	5	0	6	23.3
12-Mar	2	0	346	11	148	356	360	353	340	330	139	8	27	55	18	4	9	10	51	122	126	132	146	163	44.9
13-Mar	184	222	187	183	172	162	163	167	177	183	200	149	166	180	139	138	143	167	195	159	165	167	155	151	167.3
14-Mar	161	152	144	143	144	165	177	169	170	188	188	191	213	217	223	200	210	199	198	175	212	211	154	165	186.7
15-Mar	160	227	269	290	321	351	348	9	345	338	334	0	32	30	26	27	26	38	43	33	36	26	23	36	8.2
16-Mar	46	41	25	23	32	34	40	30	28	11	11	2	43	30	2	48	26	21	22	17	4	346	1	333	24.5
17-Mar	173	155	156	168	176	178	177	168	168	181	189	186	183	183	175	159	155	173	176	178	198	229	336	22	175.4
18-Mar	31	23	17	22	18	12	10	13	17	20	17	27	28	20	16	18	15	17	26	19	15	13	19	18	18.1
19-Mar	9	1	7	19	16	26	24	22	17	20	31	24	33	21	23	43	40	40	43	40	38	29	2	340	22.6
20-Mar	339	357	10	7	7	9	13	16	3	2	347	359	58	59	59	54	44	45	32	26	42	39	341	359	20.9
21-Mar	0	4	3	6	7	7	8	12	4	7	15	18	18	25	29	32	35	42	42	36	14	5	346	350	17.6
22-Mar	315	324	327	328	357	321	214	204	163	144	124	127	127	109	117	118	128	118	134	64	149	100	323	311	123.1
23-Mar	16	141	144	151	181	175	180	182	178	180	166	134	137	141	140	109	129	143	129	126	125	143	142	88	147.1
24-Mar	103	159	140	135	151	150	171	174	187	185	210	125	148	148	161	149	153	158	169	157	145	136	144	141	153.5
25-Mar	144	140	128	134	140	157	167	156	165	175	144	154	172	160	155	161	168	167	154	156	159	167	174	172	158.6
26-Mar	169	171	167	162	161	166	171	174	171	166	159	158	157	153	152	152	153	151	151	161	160	152	134	129	158.9
27-Mar	131	133	132	131	133	127	121	117	119	117	116	111	118	117	111	115	106	100	76	66	59	50	40	17	111.0
28-Mar	13	16	14	12	12	12	10	10	11	10	5	13	11	17	13	14	7	3	358	359	350	359	3	2	8.5
29-Mar	3	2	5	9	5	3	352	5	6	19	19	18	20	16	13	25	31	39	33	58	62	282	343	352	14.1
30-Mar	239	191	161	163	155	149	153	147	141	140	149	148	159	151	155	156	148	142	142	134	135	150	162	167	150.6
31-Mar	168	170	152	147	148	160	157	150	172	184	129	134	149	157	159	193	160	155	161	154	171	166	154	179	159.3
52.7 61.4 56.3 66.0 64.4 55.3 53.3 62.1 53.1 69.4 83.1 89.8 122.7 116.4 97.5 79.0 73.7 74.8 79.9 73.4 77.9 75.2 69.6 49.9																									
Diurnal Average																									

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Fort Hills - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Fort Hills - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 87 deg on Mar 30 01:00 Minimum Value: 5 deg on Mar 9 05:00 Percentiles: P ₁ = 6 P ₁₀ = 8 Q ₁ = 10 Median = 12 Q ₃ = 16 P ₉₀ = 26 P ₉₉ = 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-Mar	10	9	8	29	12	12	7	15	23	15	20	23	17	17	14	18	16	13	12	16	9	21	10	20	29
2-Mar	26	9	13	9	44	14	34	11	9	11	15	17	19	22	16	12	13	13	11	8	11	12	10	11	44
3-Mar	10	10	11	12	12	12	10	10	11	10	14	10	12	13	14	14	15	15	16	13	14	16	15	15	16
4-Mar	14	12	11	12	13	14	13	14	13	11	13	13	12	12	14	14	11	9	11	8	8	9	10	10	14
5-Mar	8	11	12	11	8	8	9	9	9	10	15	18	32	56	23	46	63	14	18	9	6	11	9	7	63
6-Mar	7	9	9	10	6	7	8	5	13	8	11	19	17	14	13	11	12	8	5	6	6	6	12	11	19
7-Mar	8	6	7	6	7	7	7	7	8	10	11	11	15	10	10	10	10	12	7	73	53	74	48	32	74
8-Mar	32	15	40	64	16	26	19	15	17	12	23	21	13	15	10	19	20	32	6	11	9	12	19	12	64
9-Mar	9	7	8	7	5	6	5	22	10	8	12	24	29	14	14	38	28	16	66	19	26	9	12	8	66
10-Mar	11	12	12	9	36	21	23	10	14	12	16	13	11	12	13	12	14	15	16	22	12	10	10	10	36
11-Mar	12	12	14	12	12	12	13	14	15	15	29	34	49	33	18	20	16	14	13	12	13	12	13	8	49
12-Mar	10	28	12	36	52	73	12	11	16	24	40	75	54	30	22	11	10	6	39	9	11	8	10	14	75
13-Mar	28	21	17	11	11	7	6	8	12	16	19	14	28	17	20	13	8	14	7	14	7	9	8	8	28
14-Mar	7	9	11	7	8	19	18	15	15	10	12	12	10	11	11	7	9	10	8	19	8	9	27	73	73
15-Mar	37	22	12	13	12	19	15	14	13	13	13	25	14	13	12	11	11	11	9	10	10	9	13	11	37
16-Mar	11	11	12	11	12	11	12	13	16	19	15	23	48	62	35	19	21	10	10	13	18	14	22	13	62
17-Mar	73	10	8	8	8	7	6	8	8	12	10	10	11	10	13	16	10	13	6	10	7	11	47	10	73
18-Mar	11	11	10	9	10	12	12	13	11	12	13	14	16	12	12	11	11	11	11	12	11	12	11	12	16
19-Mar	13	14	15	12	14	11	11	10	12	14	17	22	17	21	21	17	15	12	12	11	13	10	38	14	38
20-Mar	12	23	11	10	10	9	10	10	14	20	75	56	66	35	39	29	19	13	11	9	9	9	14	12	75
21-Mar	12	11	15	11	12	10	8	10	14	13	12	15	14	16	15	14	12	10	10	11	14	10	13	43	43
22-Mar	36	33	12	16	15	30	22	14	16	21	13	18	23	37	31	44	28	23	18	16	29	55	22	13	55
23-Mar	58	14	14	9	12	11	12	8	11	18	30	19	23	26	34	42	17	16	8	7	8	9	37	25	58
24-Mar	78	17	7	6	6	11	11	16	17	49	23	22	18	11	17	13	18	9	10	15	10	8	7	7	78
25-Mar	8	7	7	12	7	8	17	9	13	21	16	15	14	14	12	16	13	12	7	6	7	7	8	8	21
26-Mar	7	8	8	7	8	9	9	10	10	9	12	12	11	10	12	11	10	8	9	8	8	8	12	10	12
27-Mar	9	10	9	11	11	11	15	20	17	19	20	23	20	20	23	21	25	23	19	17	12	10	11	13	25
28-Mar	8	8	7	9	8	9	8	10	11	10	10	12	11	13	14	12	12	14	13	13	11	12	12	13	14
29-Mar	13	11	11	10	10	8	12	12	11	10	10	15	16	14	14	15	14	13	10	14	63	16	15	30	63
30-Mar	87	21	13	14	18	11	13	8	8	15	12	15	16	15	11	11	10	7	7	6	7	9	6	9	87
31-Mar	8	10	5	6	6	8	6	7	14	18	11	10	13	8	14	19	11	6	10	6	18	15	11	19	19
																	Diurnal Maximum								



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS25 WASKŌW OHCI PIMÂTISIWIN MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMÂTISIWIN (AMS25)
MARCH 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	35.8	0	7.5	0
H2S(ppb) Average	706	37	38	99.87	2.7	0	1.1	0
Temperature 2 m (C) Average	744	0	0	100	12.2	0	3.8	0
Relative Humidity (%) Average	744	0	0	100	92	-	78.6	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	16	0	13	0
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 - WASKŌW OHCI PIMĀTISIWIN (AMS25)
MARCH 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	708	1.92	4.4	-	0	0	0	0.1	1.4	5.5	35.8
H2S (ppb) Average	706	0.26	0.4	-	0	0	0.1	0.1	0.2	0.7	2.7
Temperature 2 m (C) Average	744	-7.8	9	-	-30.2	-20.9	-15.2	-6.5	-1.4	3.4	12.2
Relative Humidity (%) Average	744	62.17	15	-	24.8	42	50.7	62.4	73.8	81.5	92
Wind Speed 10 m (km/h) Average	743	6.5	4	-	0	2	4	6	9	12	16
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMÂTISIWIN (AMS25)

MARCH 2024

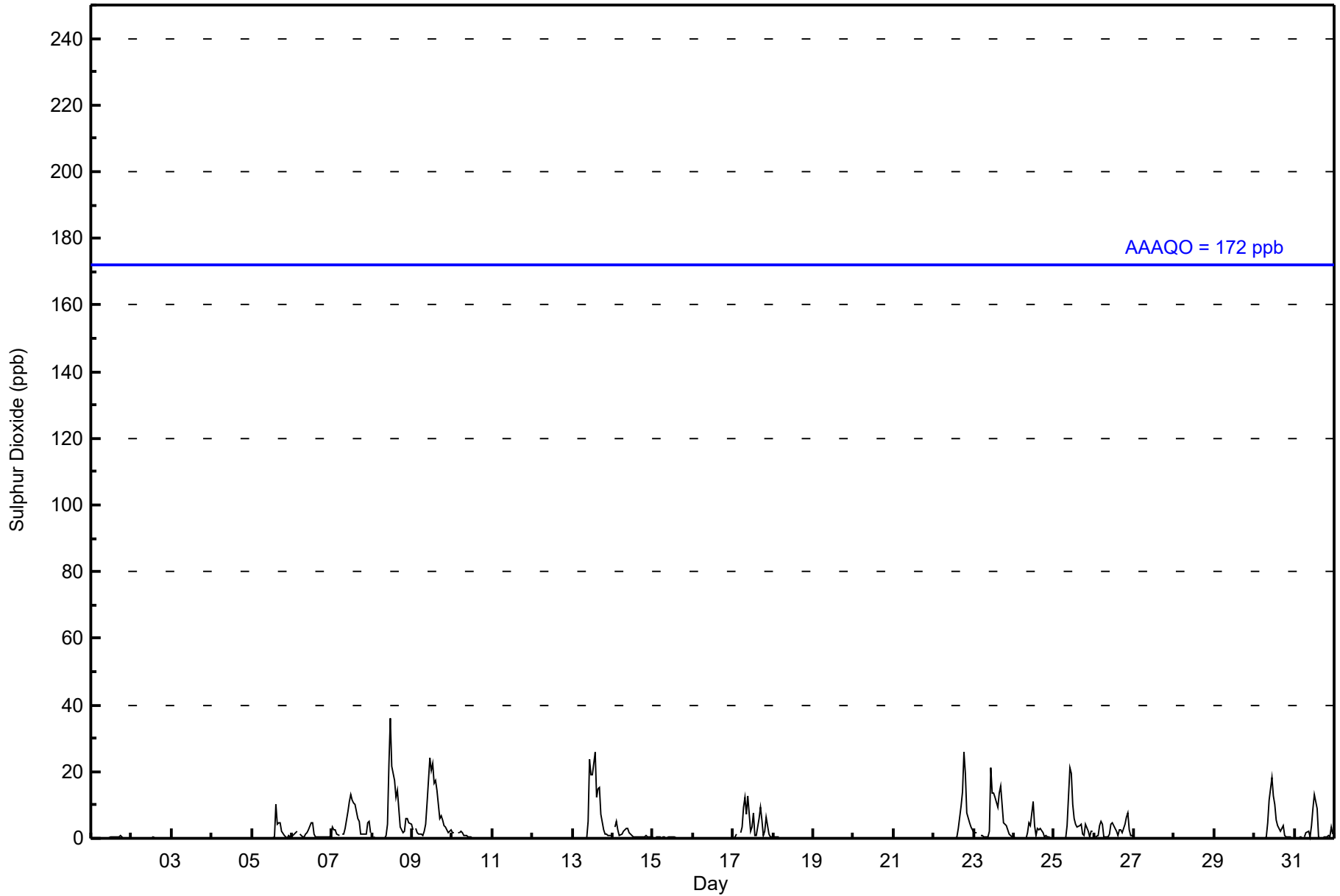
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	22 Mar 2024 09:00	22 Mar 2024 09:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	24 Mar 2024 06:00	24 Mar 2024 06:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	667	94.21	94.21
11 - 20	31	4.38	98.59
21 - 60	10	1.41	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 (SO₂) - ppb
Waskow ohci Pimatisiwin - March 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	98	78	32	5	5	24	114	103	23	8	8	28	32	18	26	64	666
11 - 20	0	0	0	0	0	1	16	13	0	0	1	0	0	0	0	0	31
21 - 60	0	0	0	0	0	0	7	3	0	0	0	0	0	0	0	0	10
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	98	78	32	5	5	25	137	119	23	8	9	28	32	18	26	64	707

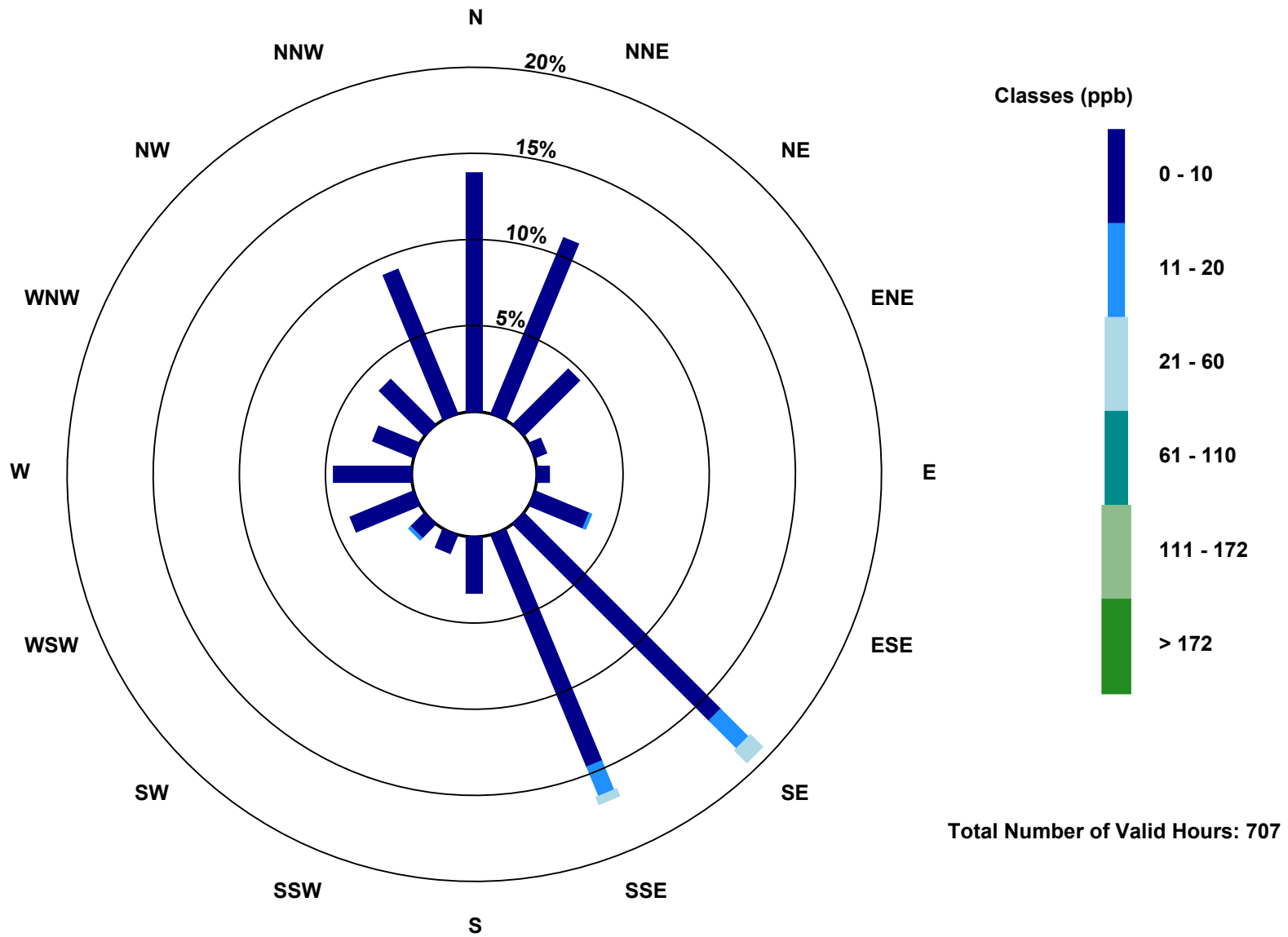
Total Number of Valid Hours: 707

Total Number of Hours: 744

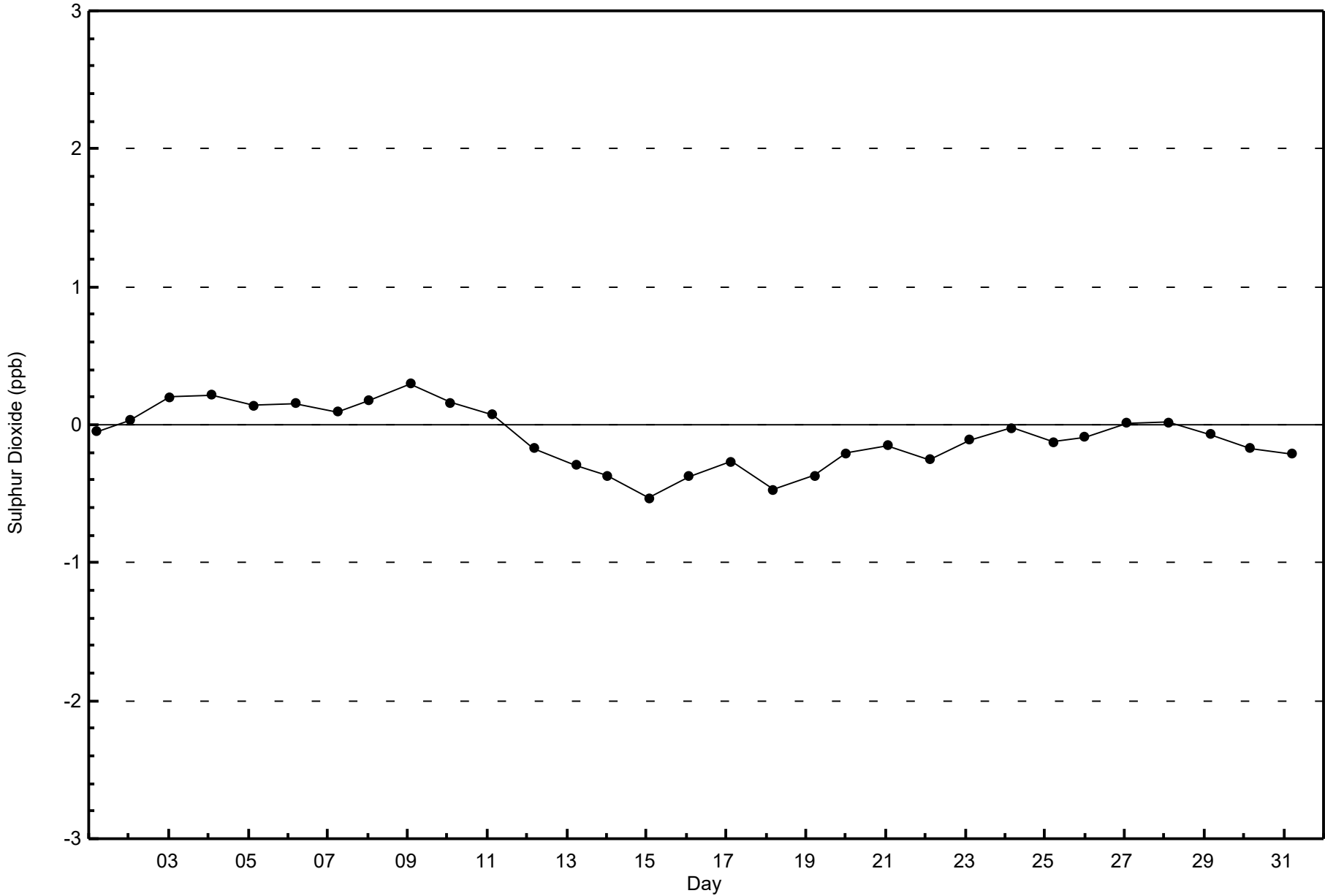


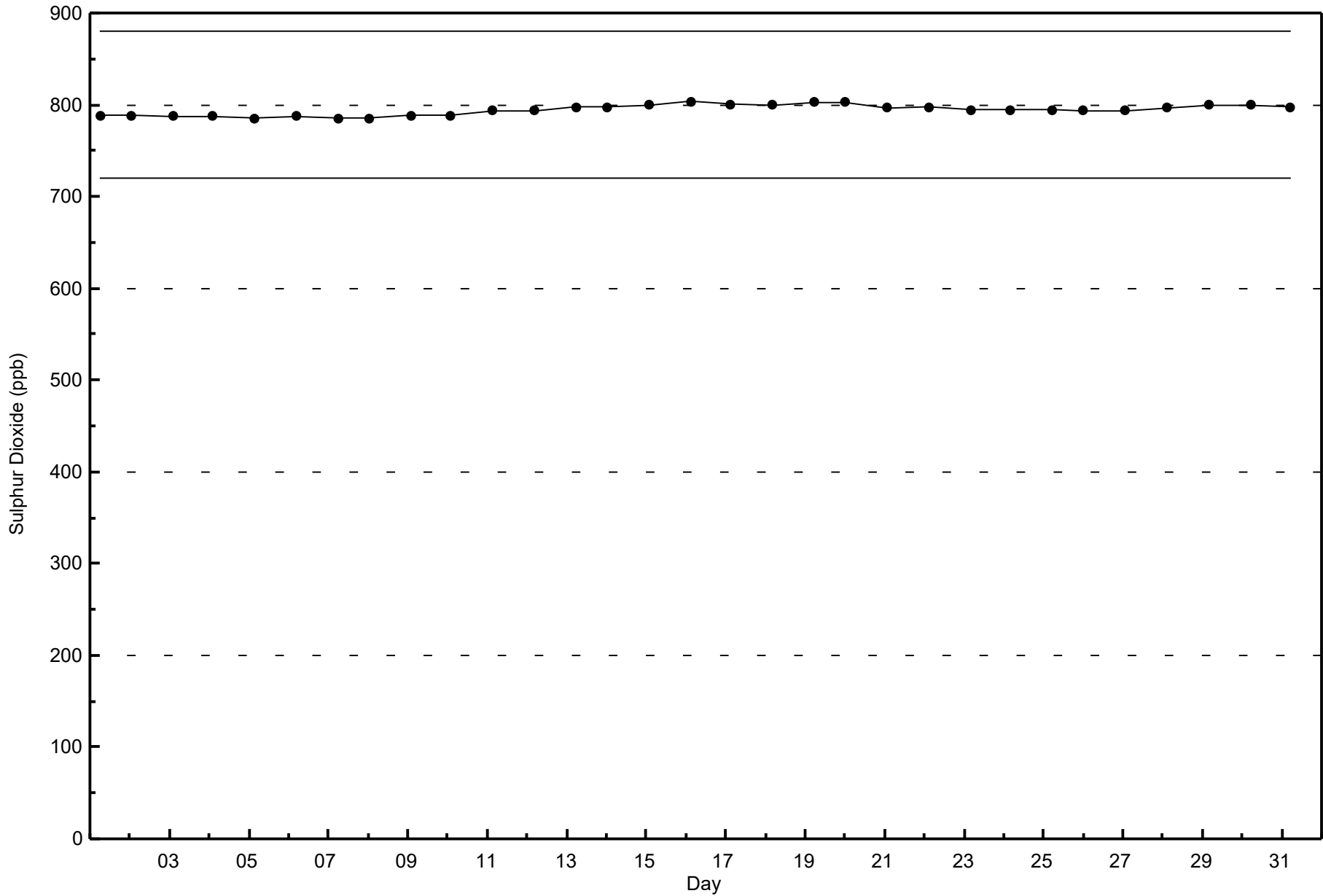
Wood Buffalo Environmental Association
Wind Rose Mar 2024

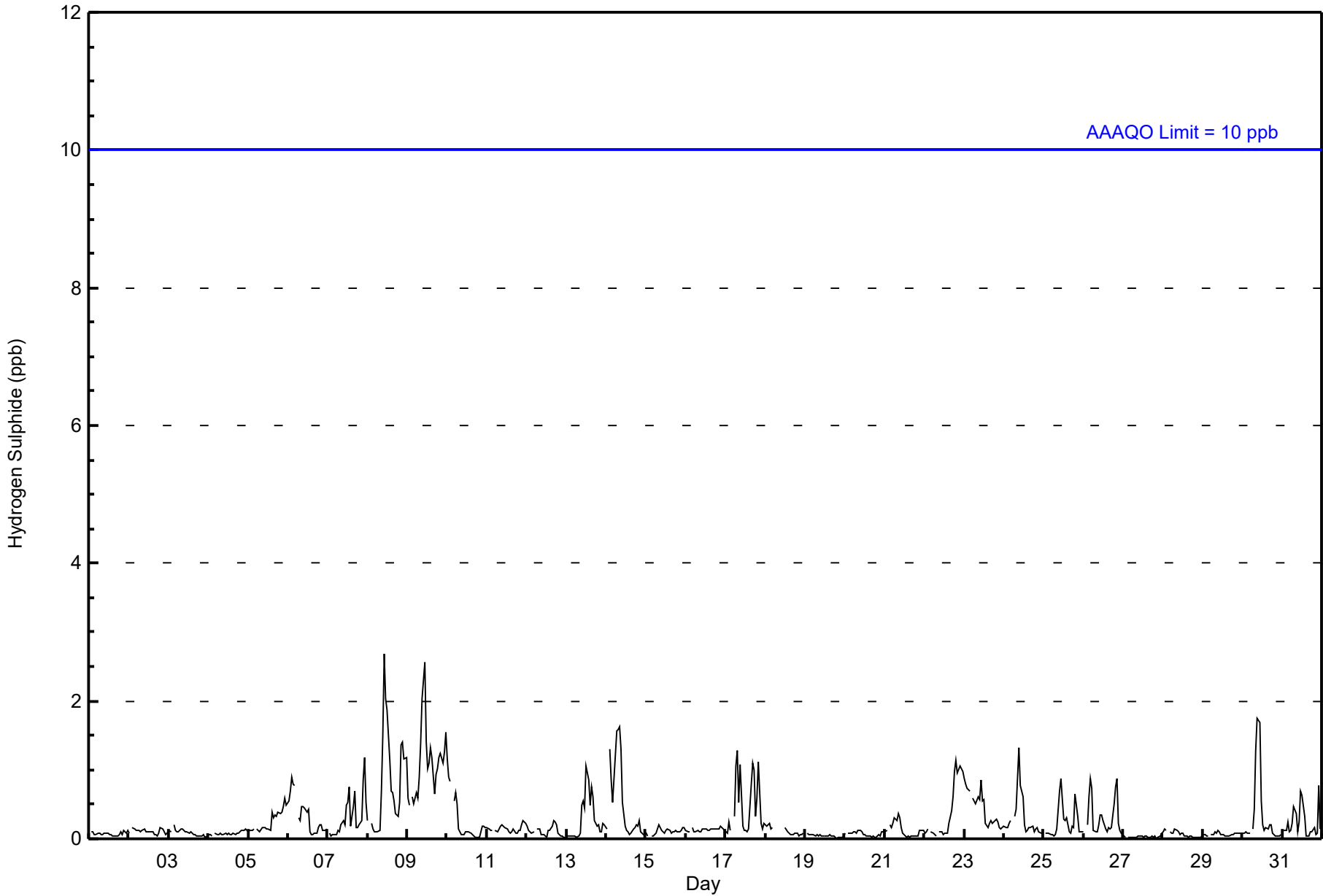
Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin



Total Number of Valid Hours: 707









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Waskow ohci Pimatisiwin - March 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	94	75	33	7	5	24	135	119	23	8	9	30	29	20	27	66	704
3 - 4	0	0	0	0	0	0	1	1	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
Totals	94	75	33	7	5	24	136	120	23	8	9	30	29	20	27	66	706

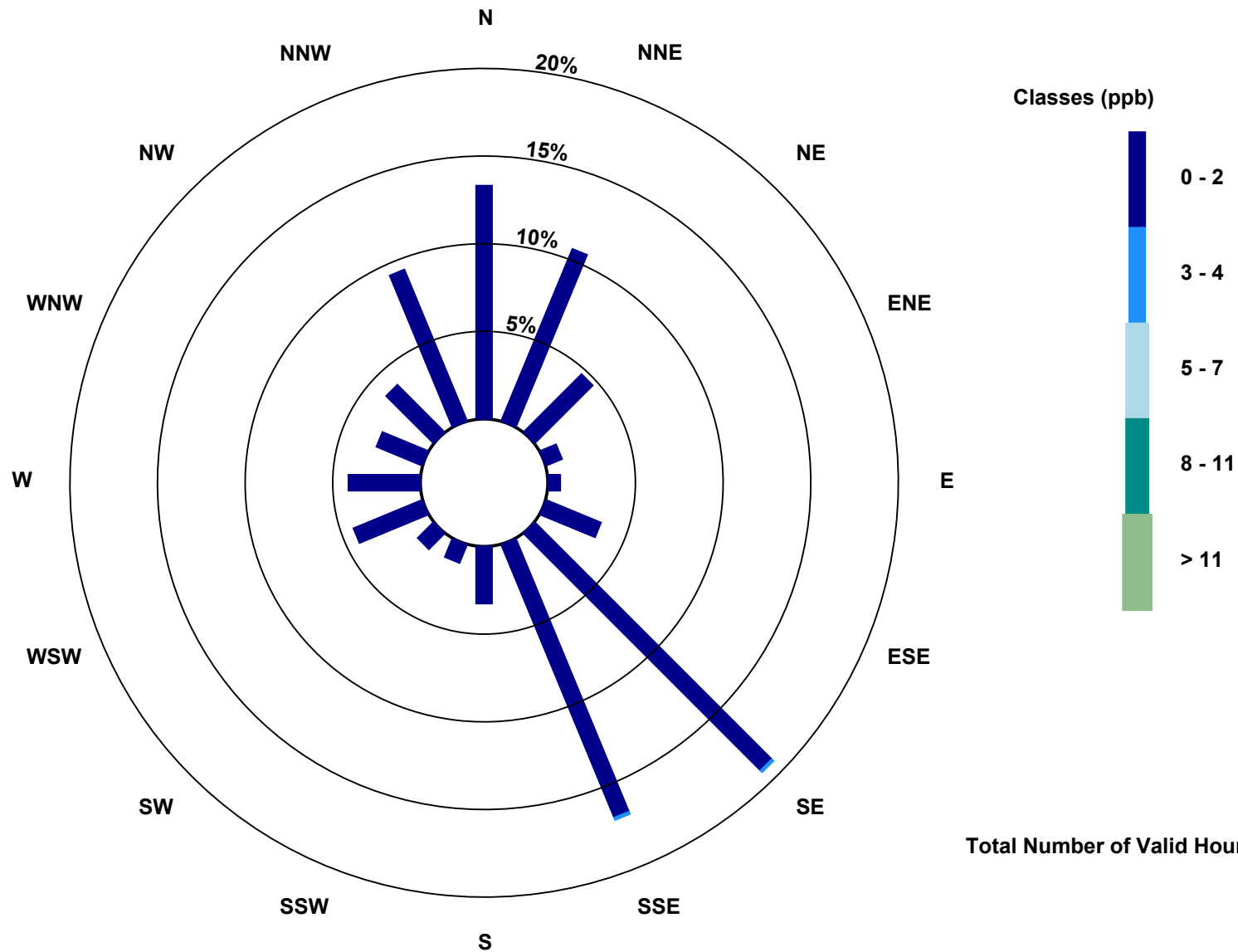
Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

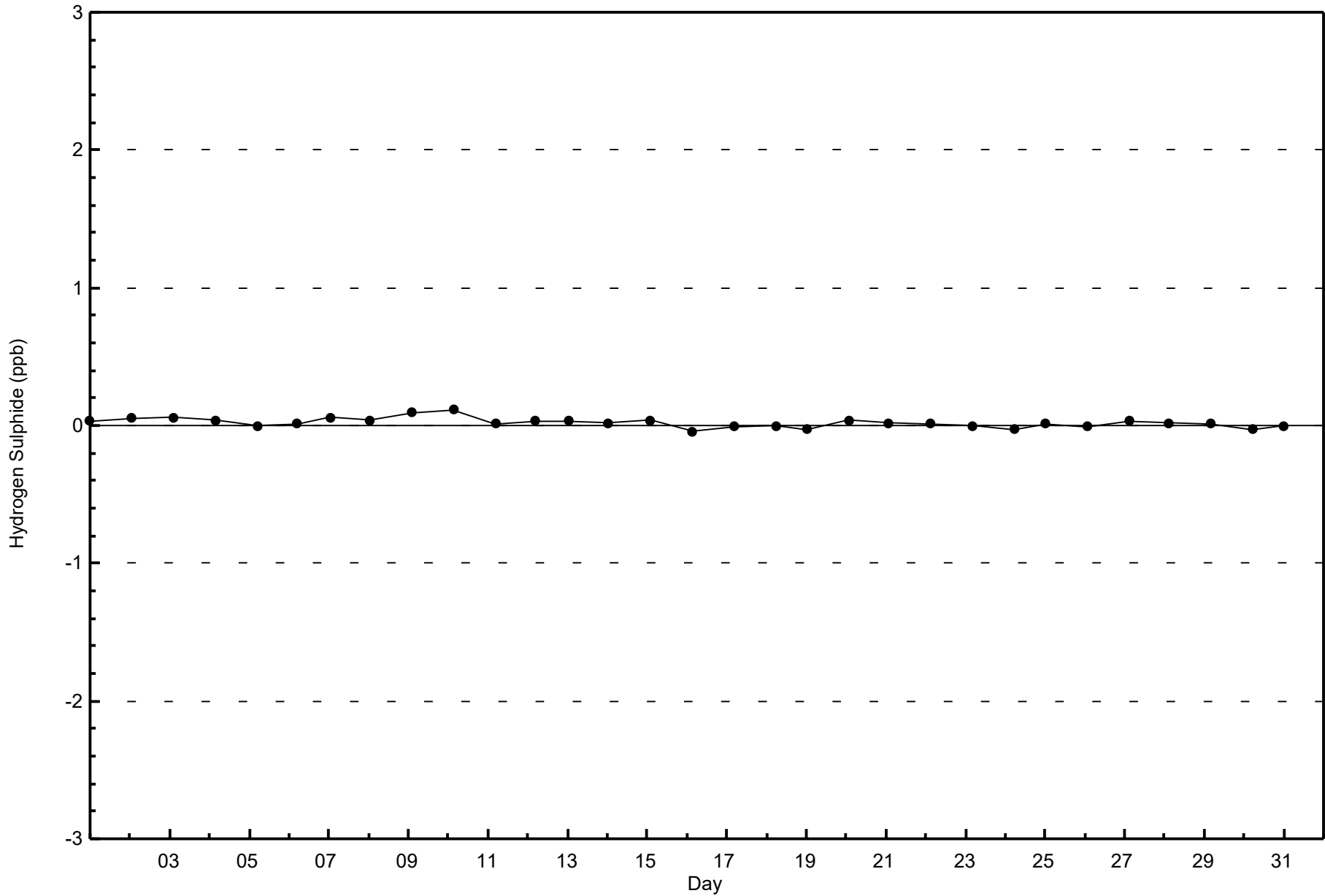
Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin

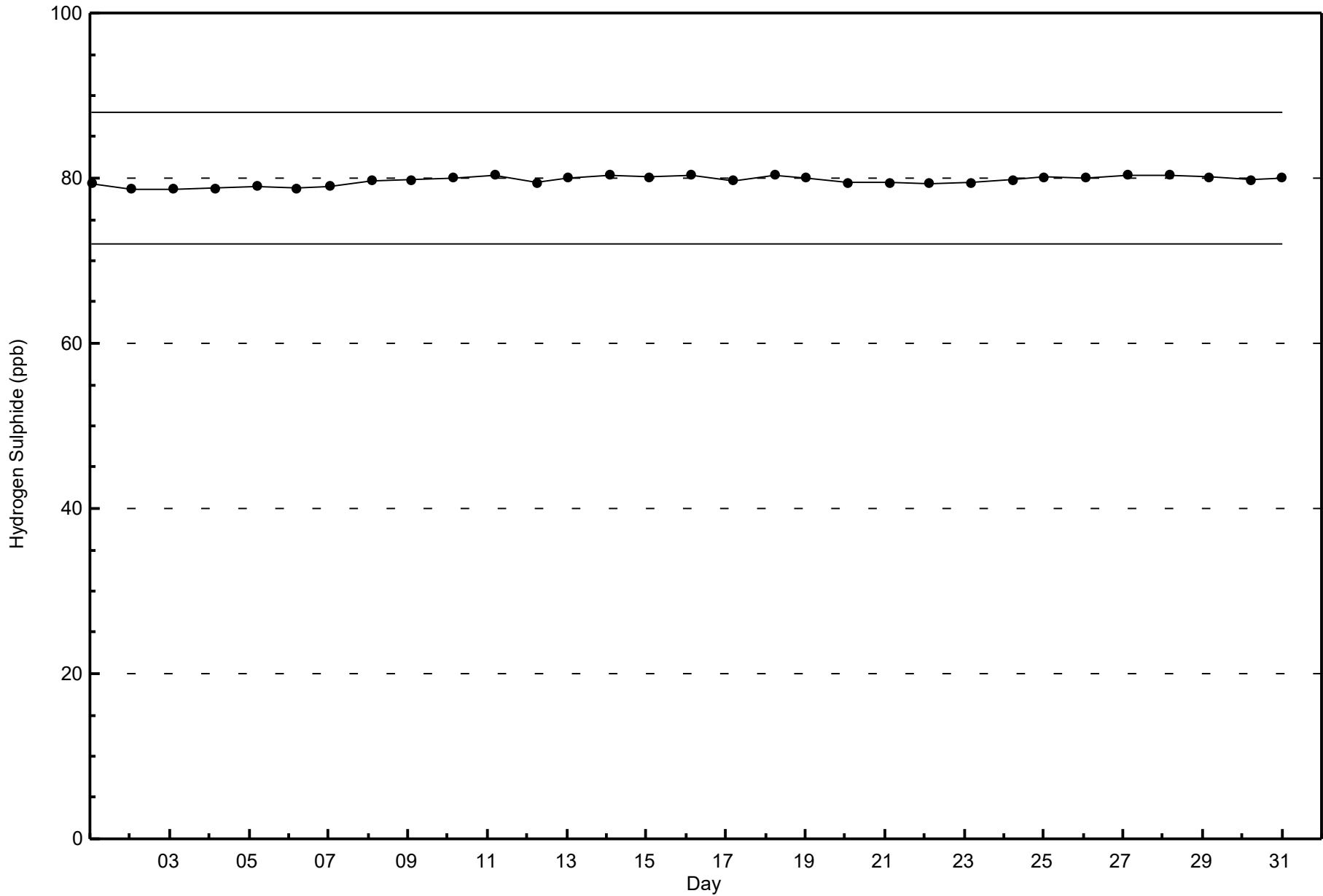




Wood Buffalo Environmental Association
Zero Responses

Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin - March 2024







Wood Buffalo Environmental Association
Summary of Hour Averages

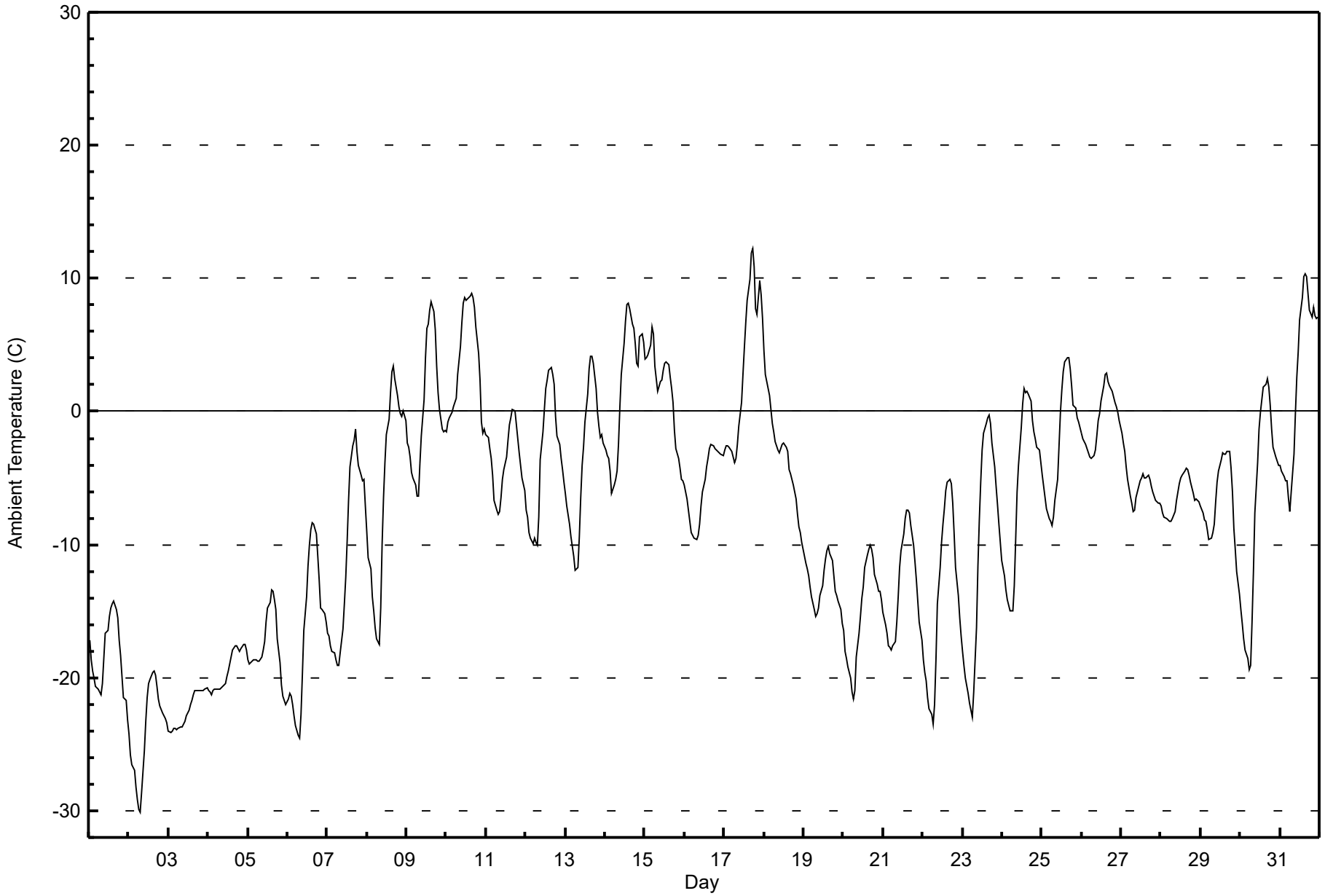
Ambient Temperature (AT) - C
Waskow ohci Pimatisiwin - March 2024

Maximum Value: 12.2 C on Mar 17 18:00 Maximum Daily Average: 3.8 C on Mar 10																						Hours in Service:	744			
Minimum Value: -30.2 C on Mar 2 08:00 Minimum Daily Average: -24.0 C on Mar 2																						Hours of Data:	744			
Maximum Diurnal Average: -2.7 C at hour 16 Minimum Diurnal Average: -13.1 C at hour 7																						Hours of Missing Data:	0			
Monthly Average: -7.80 C Percentiles: P ₁ = -25.6 P ₁₀ = -20.9 Q ₁ = -15.2 Median = -6.5 Q ₃ = -1.4 P ₉₀ = 3.4 P ₉₉ = 9.4																						Hours of Calibration:	0			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-17.2	-18.7	-19.5	-20.0	-20.7	-20.9	-21.1	-21.3	-20.5	-18.5	-16.6	-16.4	-15.4	-14.8	-14.4	-14.3	-14.9	-15.5	-17.2	-18.3	-19.9	-21.5	-21.7	-23.2	-18.4	-14.3
2-Mar	-24.3	-25.8	-26.5	-27.0	-28.2	-29.1	-29.9	-30.2	-28.7	-25.5	-23.3	-21.5	-20.5	-20.1	-19.6	-19.5	-19.8	-20.6	-21.6	-22.1	-22.6	-22.9	-23.1	-23.4	-24.0	-19.5
3-Mar	-24.0	-24.1	-24.0	-23.8	-23.8	-23.9	-23.8	-23.7	-23.7	-23.5	-23.2	-22.9	-22.5	-22.1	-21.7	-21.3	-21.0	-21.0	-21.0	-20.9	-20.9	-21.0	-20.8	-20.8	-22.5	-20.8
4-Mar	-20.9	-21.1	-21.2	-21.0	-20.9	-20.8	-20.8	-20.8	-20.8	-20.7	-20.5	-19.9	-19.5	-18.9	-18.4	-17.9	-17.6	-17.8	-18.0	-17.9	-17.5	-17.5	-17.9	-17.9	-19.4	-17.5
5-Mar	-18.6	-18.9	-18.8	-18.7	-18.6	-18.7	-18.7	-18.8	-18.5	-18.0	-17.3	-15.8	-14.3	-13.4	-13.5	-14.1	-14.9	-17.1	-18.9	-20.6	-21.4	-21.7	-22.0	-17.8	-13.4	
6-Mar	-21.6	-21.2	-21.4	-22.0	-22.9	-23.5	-24.3	-24.6	-22.8	-19.7	-16.4	-14.0	-11.6	-10.0	-8.9	-8.3	-8.5	-9.2	-10.8	-12.7	-14.8	-14.9	-15.2	-15.8	-16.5	-8.3
7-Mar	-16.7	-16.9	-17.6	-18.0	-18.1	-18.6	-19.0	-19.1	-18.1	-16.3	-14.5	-12.4	-9.8	-6.7	-4.2	-2.6	-2.1	-1.4	-3.0	-4.1	-4.8	-5.2	-5.1	-7.1	-10.9	-1.4
8-Mar	-9.0	-11.0	-11.8	-13.9	-14.9	-16.2	-17.0	-17.5	-14.8	-10.0	-6.5	-3.9	-1.7	-0.6	1.5	3.0	3.4	2.5	1.2	0.4	-0.2	-0.4	0.0	-0.6	-5.8	3.4
9-Mar	-2.4	-2.7	-3.4	-4.5	-5.0	-5.5	-6.4	-6.3	-4.0	-1.9	0.9	4.1	6.3	6.6	7.6	8.2	7.5	6.2	3.4	1.4	0.2	-1.3	-1.5	-1.4	0.3	8.2
10-Mar	-1.5	-0.8	-0.5	0.0	0.4	0.6	1.0	2.8	4.9	6.7	8.2	8.6	8.4	8.4	8.7	8.9	8.5	7.8	6.3	4.4	2.3	-0.8	-1.6	-1.4	3.8	8.9
11-Mar	-1.7	-1.9	-2.8	-3.5	-4.7	-6.6	-7.5	-7.7	-7.5	-6.4	-5.1	-4.3	-3.4	-2.1	-1.0	-0.5	0.2	0.0	-1.0	-2.0	-3.1	-4.1	-5.0	-5.9	-3.7	0.2
12-Mar	-7.4	-7.9	-9.1	-9.5	-9.9	-9.5	-9.9	-10.0	-8.0	-3.6	-1.5	0.1	1.7	2.3	3.1	3.3	2.8	2.1	-0.3	-1.8	-2.4	-3.5	-4.4	-5.3	-3.7	3.3
13-Mar	-6.2	-7.1	-8.5	-9.4	-10.2	-10.8	-11.9	-11.7	-9.4	-6.4	-4.0	-2.7	-0.8	1.3	3.2	4.2	4.2	3.6	1.8	-0.1	-1.1	-1.9	-1.7	-2.3	-3.7	4.2
14-Mar	-2.9	-3.3	-3.5	-4.5	-6.1	-5.5	-5.1	-4.5	-2.5	0.4	2.7	5.1	6.7	8.0	8.1	7.8	6.6	6.2	5.1	3.6	3.4	5.6	5.8	5.2	1.8	8.1
15-Mar	4.0	4.1	4.3	5.0	6.4	5.8	3.5	2.4	1.5	2.3	2.4	3.1	3.6	3.7	3.5	2.6	1.8	0.7	-1.4	-2.7	-3.5	-4.3	-5.1	-5.3	1.6	6.4
16-Mar	-5.6	-6.6	-7.4	-8.3	-9.0	-9.3	-9.5	-9.6	-9.3	-8.4	-7.1	-6.1	-5.1	-4.2	-3.5	-2.8	-2.4	-2.5	-2.8	-2.9	-3.0	-3.1	-3.3	-3.3	-5.6	-2.4
17-Mar	-2.9	-2.5	-2.6	-2.6	-3.0	-3.4	-3.8	-3.6	-2.5	-1.1	0.7	2.7	4.7	6.7	8.3	9.9	11.9	12.2	10.9	7.7	7.3	9.9	8.8	7.0	3.4	12.2
18-Mar	4.6	2.8	1.8	1.2	0.2	-0.9	-1.5	-2.3	-2.9	-3.1	-2.8	-2.5	-2.4	-2.7	-3.0	-4.4	-4.7	-5.1	-5.5	-6.6	-7.7	-8.6	-9.0	-9.8	-3.1	4.6
19-Mar	-10.9	-11.4	-11.9	-12.3	-13.2	-14.0	-14.9	-15.4	-15.2	-14.8	-13.9	-13.1	-11.9	-11.1	-10.4	-10.2	-10.6	-11.2	-12.4	-13.5	-13.8	-14.2	-14.8	-15.9	-13.0	-10.2
20-Mar	-16.5	-18.0	-18.5	-19.2	-20.1	-21.1	-21.6	-21.0	-18.4	-16.6	-15.4	-14.1	-13.2	-11.7	-10.8	-10.3	-10.1	-10.3	-11.0	-12.2	-13.0	-13.5	-13.5	-14.1	-15.2	-10.1
21-Mar	-15.1	-16.0	-16.7	-17.6	-17.7	-17.9	-17.6	-17.3	-15.9	-13.9	-11.7	-10.4	-9.1	-8.0	-7.4	-7.4	-7.6	-8.6	-10.0	-11.3	-12.6	-14.3	-15.8	-17.2	-13.2	-7.4
22-Mar	-18.7	-19.6	-20.2	-21.5	-22.4	-22.7	-23.5	-22.0	-18.6	-14.5	-11.8	-9.8	-8.4	-7.3	-5.9	-5.3	-5.1	-5.4	-6.9	-9.2	-11.7	-13.8	-15.6	-16.8	-14.0	-5.1
23-Mar	-18.0	-19.0	-20.0	-21.2	-21.9	-22.4	-23.0	-21.1	-16.2	-11.6	-8.2	-5.3	-2.9	-1.6	-0.9	-0.5	-0.3	-0.9	-2.4	-4.1	-5.6	-6.9	-8.4	-9.8	-10.5	-0.3
24-Mar	-11.2	-12.3	-13.4	-14.2	-14.6	-15.0	-14.9	-13.1	-9.7	-6.1	-4.0	-1.2	0.6	1.7	1.4	1.5	1.3	0.8	-0.7	-1.6	-2.0	-2.7	-2.9	-3.9	-5.7	1.7
25-Mar	-4.8	-5.6	-6.4	-7.4	-8.0	-8.3	-8.5	-7.9	-6.7	-5.1	-2.6	-0.1	1.6	3.0	3.7	4.1	4.1	3.2	1.9	0.5	0.2	-0.4	-0.8	-1.2	-2.1	4.1
26-Mar	-1.6	-2.1	-2.4	-2.7	-3.1	-3.4	-3.5	-3.3	-2.9	-1.9	-0.7	-0.1	0.8	1.9	2.8	2.9	2.3	2.0	1.5	1.1	0.7	0.4	-0.1	-0.7	-0.5	2.9
27-Mar	-1.6	-2.4	-3.0	-4.1	-5.1	-6.3	-6.9	-7.5	-7.4	-6.5	-6.0	-5.2	-4.9	-4.7	-5.0	-5.0	-4.8	-5.0	-5.6	-6.0	-6.4	-6.7	-6.9	-6.9	-5.4	-1.6
28-Mar	-7.1	-7.6	-7.9	-8.0	-8.1	-8.2	-8.3	-8.1	-7.5	-6.7	-6.1	-5.5	-5.0	-4.8	-4.5	-4.3	-4.4	-4.8	-5.3	-6.2	-6.7	-6.5	-6.7	-6.8	-6.5	-4.3
29-Mar	-7.1	-7.6	-8.1	-8.3	-8.9	-9.7	-9.5	-9.1	-8.4	-6.7	-5.3	-4.5	-3.7	-3.1	-3.2	-3.2	-3.0	-3.0	-4.2	-6.0	-8.7	-10.4	-12.1	-13.7	-7.0	-3.0
30-Mar	-14.9	-16.0	-17.1	-17.9	-18.5	-19.3	-19.1	-15.9	-12.0	-7.6	-3.8	-1.3	-0.1	0.9	1.9	2.1	2.4	1.8	0.5	-1.3	-2.7	-3.4	-3.8	-4.1	-7.0	2.4
31-Mar	-4.1	-4.5	-4.9	-5.3	-5.2	-6.5	-7.5	-6.0	-3.2	-0.1	2.6	4.5	6.9	8.5	10.2	10.3	10.1	8.8	7.6	7.1	7.8	7.2	7.0	7.1	2.4	10.3
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Waskow ohci Pimatisiwin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature (AT) - C
Waskow ohci Pimatisiwin - March 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	93	12.50	12.50
-20 - 0	504	67.74	80.24
0 - 10	141	18.95	99.19
10 - 20	6	0.81	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

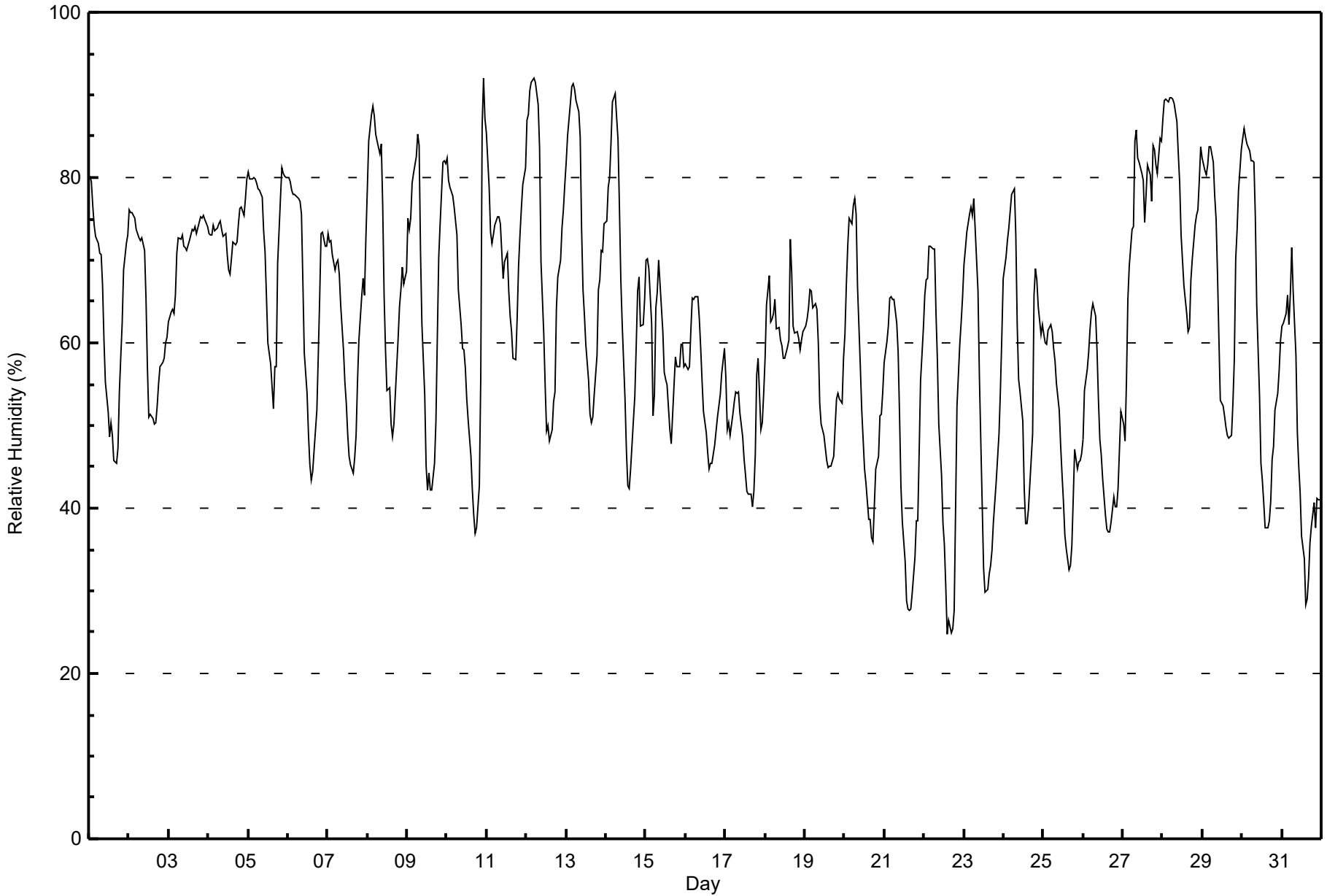
Relative Humidity (RH) - %
Waskow ohci Pimatisiwin - March 2024

Maximum Value: 92.0 % on Mar 12 05:00		Maximum Daily Average: 78.6 % on Mar 28		Hours in Service: 744																							
Minimum Value: 24.8 % on Mar 22 15:00		Minimum Daily Average: 47.7 % on Mar 21		Hours of Data: 744																							
Maximum Diurnal Average: 74.5 % at hour 7		Minimum Diurnal Average: 47.1 % at hour 15		Hours of Missing Data: 0																							
Monthly Average: 62.17 %		Percentiles: P ₁ = 28.0 P ₁₀ = 42.0 Q ₁ = 50.7 Median = 62.4 Q ₃ = 73.8 P ₉₀ = 81.5 P ₉₉ = 90.4		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-Mar	80.1	79.5	76.7	74.3	72.9	72.0	70.9	70.6	66.9	60.3	55.3	51.7	48.6	50.3	48.7	45.7	45.4	47.2	54.1	58.3	62.3	68.8	72.0	73.0	62.7	80.1	
2-Mar	76.2	75.8	75.7	75.0	73.7	73.2	72.7	72.4	72.8	71.3	65.4	57.1	51.0	51.4	50.9	50.1	50.3	52.4	55.1	57.2	57.7	58.2	60.0	60.7	63.2	76.2	
3-Mar	62.5	63.7	64.0	63.5	65.7	70.8	72.8	72.5	73.1	71.7	71.5	71.2	72.3	73.0	73.6	73.6	74.1	73.2	74.6	75.3	75.0	75.4	74.9	74.0	71.3	75.4	
4-Mar	73.2	73.1	73.0	74.3	73.5	74.0	74.5	74.8	73.7	73.0	73.2	70.6	68.9	68.4	70.2	72.3	71.8	72.2	74.5	76.3	76.4	75.4	77.5	79.9	73.5	79.9	
5-Mar	80.6	79.8	79.8	80.0	79.9	79.4	78.7	78.5	77.7	73.6	71.0	65.6	60.0	57.4	54.7	52.1	57.2	57.1	69.6	77.4	81.1	80.5	80.2	80.0	72.2	81.1	
6-Mar	80.1	79.5	78.5	78.0	77.9	77.8	77.4	77.2	75.6	67.5	58.9	53.9	49.0	45.3	43.4	44.4	47.0	51.8	58.5	65.4	73.3	73.4	71.6	71.7	65.7	80.1	
7-Mar	73.2	72.2	72.5	70.7	68.9	69.6	70.0	68.4	64.6	59.2	55.2	52.7	48.9	46.3	45.2	44.2	46.0	48.8	55.2	60.3	65.6	67.8	65.8	72.7	61.0	73.2	
8-Mar	78.5	84.3	87.7	88.6	87.4	85.2	84.5	82.8	84.2	76.6	65.8	59.1	54.2	54.6	50.2	48.7	50.2	53.8	60.5	64.3	66.5	69.2	67.2	68.7	69.7	88.6	
9-Mar	75.0	73.7	75.1	79.3	80.5	82.6	85.3	83.9	71.0	62.3	53.6	45.1	42.2	44.3	42.2	42.2	45.5	50.6	60.7	70.4	74.4	81.9	82.0	81.8	66.1	85.3	
10-Mar	82.4	79.6	78.9	77.9	76.4	74.7	73.0	66.4	62.3	59.3	59.1	56.9	53.2	50.7	46.2	42.2	39.1	36.9	37.6	42.7	55.8	86.3	92.0	87.1	63.2	92.0	
11-Mar	85.4	78.8	73.4	72.1	73.1	74.2	75.2	75.3	74.4	71.0	67.8	69.9	70.9	66.3	63.3	61.3	58.2	58.0	63.1	69.4	73.0	76.3	79.2	81.2	71.3	85.4	
12-Mar	87.0	87.7	90.5	91.5	92.0	91.5	90.3	88.9	83.5	69.8	61.1	54.8	49.3	50.0	48.1	49.5	53.0	54.0	64.1	68.0	70.0	73.9	76.2	79.2	71.8	92.0	
13-Mar	81.9	85.2	89.0	90.9	91.3	90.7	89.4	87.9	84.9	73.8	66.5	63.3	59.8	55.4	51.4	50.4	51.0	53.7	58.5	66.4	67.7	71.2	71.1	74.3	71.9	91.3	
14-Mar	74.7	78.7	80.1	84.2	89.1	90.2	87.3	84.7	76.4	67.7	62.1	53.3	47.0	42.7	42.4	44.7	50.7	53.5	59.6	66.3	68.0	62.0	62.3	65.2	66.4	90.2	
15-Mar	70.0	70.2	69.0	62.4	51.2	53.8	64.2	66.1	70.1	64.2	61.3	56.4	55.6	54.9	49.5	47.9	51.4	55.0	58.3	57.1	57.0	59.8	59.9	57.2	59.3	70.2	
16-Mar	57.4	56.9	57.1	61.5	65.4	65.2	65.6	65.6	63.0	59.5	55.5	51.8	49.2	46.8	44.7	45.4	45.4	47.6	49.4	51.0	52.3	53.7	56.3	59.3	55.2	65.6	
17-Mar	55.8	49.5	50.3	48.8	51.4	52.9	54.0	54.0	54.1	51.6	48.6	45.9	44.0	42.1	41.7	41.7	40.1	42.0	46.4	56.2	58.2	49.5	50.4	53.9	49.3	58.2	
18-Mar	58.1	64.5	68.1	62.5	62.8	63.5	65.2	61.8	61.9	60.3	59.7	58.2	58.2	59.5	60.3	72.6	68.4	62.0	61.1	61.4	60.5	59.2	60.3	61.4	62.1	72.6	
19-Mar	62.0	62.9	64.3	66.4	66.2	64.3	64.8	64.1	60.1	52.7	50.1	48.8	47.3	45.8	44.9	45.0	45.1	46.3	49.8	53.3	53.9	53.1	52.7	58.1	55.1	66.4	
20-Mar	61.0	67.0	71.7	75.1	74.4	76.7	77.4	75.5	66.8	57.1	51.8	48.3	44.7	43.1	38.6	38.6	36.4	36.0	40.3	44.8	46.2	51.1	51.4	54.0	55.3	77.4	
21-Mar	57.6	60.2	62.1	65.5	65.6	65.3	65.2	62.3	58.7	51.2	42.5	38.4	33.6	28.8	27.7	27.7	27.8	29.7	34.1	38.6	38.4	46.7	55.5	61.6	47.7	65.6	
22-Mar	65.8	67.7	67.8	71.7	71.7	71.4	71.3	63.7	58.0	50.1	43.9	38.2	35.6	30.6	24.8	26.5	24.9	25.4	27.7	39.9	52.3	59.8	62.5	65.6	50.7	71.7	
23-Mar	69.5	71.3	73.3	75.6	76.4	75.5	77.5	73.7	66.3	55.9	48.1	40.4	32.7	29.8	30.1	32.1	33.1	34.9	38.3	43.2	46.1	49.0	54.3	60.7	53.7	77.5	
24-Mar	67.8	70.3	72.3	73.9	76.0	78.0	78.6	73.0	62.2	55.6	54.1	50.6	42.4	38.1	38.1	39.9	43.0	49.0	65.8	68.9	67.6	64.4	61.0	62.2	60.5	78.6	
25-Mar	61.1	60.0	59.8	61.5	62.2	61.4	59.3	57.8	55.1	51.9	47.6	44.1	40.8	36.8	35.1	32.6	33.0	35.5	41.2	47.1	44.7	45.6	45.8	46.6	48.6	62.2	
26-Mar	48.3	54.3	56.8	58.8	61.7	63.8	64.8	63.3	58.9	53.0	48.3	46.4	43.6	39.2	37.5	37.1	37.1	38.3	41.3	40.1	40.1	42.4	47.1	51.7	48.9	64.8	
27-Mar	50.1	48.2	55.4	65.3	69.3	73.7	74.0	84.4	85.7	82.4	81.9	80.4	79.6	74.5	78.0	81.5	80.4	77.1	83.9	83.4	81.5	80.6	84.7	84.4	75.9	85.7	
28-Mar	87.1	89.4	89.5	89.2	89.7	89.6	89.6	88.9	86.8	82.8	79.4	73.0	70.0	66.9	63.6	61.4	61.8	67.7	70.1	74.2	75.4	76.1	79.6	83.8	78.6	89.7	
29-Mar	82.4	80.8	80.3	81.5	83.7	83.8	81.8	77.8	74.9	68.3	60.5	53.0	52.3	51.2	49.8	48.8	48.6	48.8	52.8	58.0	70.1	73.7	78.4	83.4	67.7	83.8	
30-Mar	84.7	85.9	84.9	84.0	83.1	82.0	82.1	81.9	75.3	64.5	53.6	45.3	43.4	40.7	37.6	37.6	38.4	40.8	45.9	47.4	51.8	53.8	56.6	60.4	60.9	85.9	
31-Mar	62.0	62.4	63.5	65.8	62.3	65.9	71.6	66.2	58.4	49.2	45.1	41.8	36.6	33.9	28.3	28.9	31.5	35.7	37.9	40.7	37.7	41.3	41.1	41.0	47.9	71.6	
		70.7	71.4	72.3	73.2	73.4	74.0	74.5	73.0	69.6	63.5	58.7	54.4	51.1	49.0	47.1	47.3	47.9	49.5	54.5	58.8	61.3	63.9	65.5	67.6	Diurnal Average	
		87.1	89.4	90.5	91.5	92.0	91.5	90.3	88.9	86.8	82.8	81.9	80.4	79.6	74.5	78.0	81.5	80.4	77.1	83.9	83.4	81.5	86.3	92.0	87.1	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Waskow ohci Pimatisiwin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Waskow ohci Pimatisiwin - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	57	7.66	7.66
40 - 60	267	35.89	43.55
60 - 80	327	43.95	87.50
80 - 100	93	12.50	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 16 km/h on Mar 4 13:00	Maximum Daily Speed Average: 12.6 km/h on Mar 4	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 7 20:00	Minimum Daily Speed Average: 0.8 km/h on Mar 22	Hours of Data: 743
Maximum Diurnal Speed Average: 2.5 km/h at hour 14	Minimum Diurnal Speed Average: 1.0 km/h at hour 2	Hours of Missing Data: 1
Monthly Average Velocity: 1.4 km/h 51.8 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 4 Median = 6 Q ₃ = 9 P ₉₀ = 12 P ₉₉ = 16	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-Mar	W4	W1	WSW4	WSW8	WSW7	WSW5	WSW7	WSW9	WSW5	WSW6	W8WNW11	WNW11	WNW10	WNW10	NW10	NW11	NNW7	NW5	NW6	WNW3	N3	NNE5	WSW0	WNW5.5	NW11		
2-Mar	NNW1	W3	NW3	WNW2	WSW1	W3	W3	WNW3	NNW1	N5	NNE6	NE5	NE5	NE6	NE6	NNE7	NNE7	NE5	N6	N7	N9	N9	NNE7	N9	N4.0	N9	
3-Mar	N9	NNW10	N11	N11	N11	N12	N12	NNE14	N12	NNE12	NNE12	N12	N11	N13	NNW14	NNW14	NNW13	NNW14	NNW12	NNW10	N10	N13	NNW15	N15	N12.0	NNW15	
4-Mar	N14	N16	N16	N13	N16	N16	NNW16	NNW14	N15	N16	N16	N15	N15	N16	NNW16	NNW14	NNW12	NNW11	NNW10	NNW9	NNW7	NNW8	N7	N6	NNW5	N12.6	N16
5-Mar	N6	N5	NNW6	NNW6	NNW6	NNW6	NNW6	NNW6	N5	NNE6	N5	NE4	NE2	ESE2	S7	S6	SE4	S4	S2	SSE2	SSE2	S2	SSE3	S3	N1.3	S7	
6-Mar	SSE4	SE6	SSE6	SSE6	SSE5	SSE5	S3	SSE4	SSE5	SE6	SE6	SE9	SE8	SSE10	SSE10	SSE10	S9	S6	S5	SSE4	SE2	SSE5	SSE6	SSE6	SSE5.9	SSE10	
7-Mar	SSE7	SSE7	SSE7	SSE6	SSE7	SSE7	SSE8	SSE9	SSE8	SSE10	SE10	SE10	SE10	SE9	SE9	SSE9	SSE5	S5	SSE3	NNW0	SSE1	SSE3	SSE3	W1	SSE6.3	SE10	
8-Mar	NNE1	N0	NW3	SSW1	SW2	SSW1	S1	SSE2	SSE5	SE6	SE6	SE6	SE6	SE6	SSE7	SSE8	SE8	SE6	SE6	SE5	SSE5	SSE6	SSE6	S3	SSE4.0	SSE8	
9-Mar	SSE3	SSE4	SSE2	SE4	SE3	SSE3	S2	SSE4	SSE5	SSE6	SSE6	SSE7	SSE8	SSE6	SE6	SE6	SE5	NE1	W1	S1	SSE1	SW1	SSW1	SSE2	SSE3.5	SSE8	
10-Mar	SSE3	SE3	SE3	SSE4	SSE5	SSE4	SSE3	WSW4	WSW7	SSW5	W10	W12	W13	WSW11	W11	W11	W11	WNW8	WNW6	NW7	NNW4	NNE5	NNE7	NNE7	W3.7	W13	
11-Mar	NE6	NNE6	NE5	ENE4	NE6	NE5	NE4	NE4	NE3	NNE4	ENE4	NNE5	N7	NNE6	NNE7	NNW8	NNW9	NNW7	NNW5	NNW5	NNW4	N3	NW3	NW3	NNE4.4	NNW9	
12-Mar	NW1	NW2	WNW3	NNW3	NW3	NNW3	NNW3	N3	NE2	SE3	SE7	SE6	SE6	NNE5	NNE7	N7	N5	WNW1	SE3	ESE3	ESE4	ESE5	ESE6	ESE6	ENE1.4	NNE7	
13-Mar	ESE3	SE1	WNW2	NW1	NNW1	NNW1	W2	WNW2	SE2	SE6	SE6	SSE7	SSE6	SE6	SSE8	SSE8	SSE8	SSE8	SSE6	SSE4	SE3	SE3	SSE1	S1	SSE4	SSE3.2	SSE8
14-Mar	SSE4	SSE5	SSE5	S3	SW1	SSE5	SSE5	SSE5	SSE4	SSE5	SSE5	SSE8	SSE9	S8	S5	S6	SSE4	SSE4	SE2	SSE3	SSE3	SSW6	WSW5	WNW4	S4.1	SSE9	
15-Mar	WNW1	WSW6	WSW8	W10	WNW12	NW14	NNW16	N10	NNW11	NNW12	NNW15	NW13	N10	NNE9	NNE9	NNE11	NNE10	NE8	NNE8	N7	NNE7	NNE6	NNE4	NNE6	NNW7.3	NNW16	
16-Mar	NNE8	NNE8	NNW8	N8	N7	N7	NNE7	NNE6	NNE7	N7	NNE6	NE6	NE5	NNE5	N5	N5	N7	N7	N5	N4	N4	N3	NE1	NW1	N5.5	NNE8	
17-Mar	ESE3	SE6	SE6	SE6	SE8	SE6	SE4	SE3	SE7	SSE9	SSE11	SE12	SE12	SSE12	SSE9	SE7	SSE7	SSE7	SSE6	SSE3	SSE3	WSW5	W6	N7	SSE5.7	SE12	
18-Mar	N4	NNE1	NNE4	NNE6	N11	N12	NNE9	N11	N13	NNE12	NNE9	NNE7	NNE7	NNE8	NNE10	NNE12	NNE11	N13	NNE10	NNE11	N13	N13	N12	N11	NNE9.5	NNE13	
19-Mar	N13	N12	N12	N12	N11	NNE10	NNE10	NNE10	NNE11	N11	NNE9	NNE8	NNE7	NNE8	NNE9	NE7	NE7	NE6	NE6	ENE4	NE5	NNE7	NNW5	NW6	NNE8.1	N13	
20-Mar	NNW4	NNE2	NNE2	NW3	W3	WSW3	WSW2	WSW1	NNE2	NE4	NNE5	NE6	NE6	ENE6	NE5	NE6	NNE5	NNE6	N5	NNW5	N4	NNE3	NNE3	NNW4	NNE2.9	NE6	
21-Mar	NNW4	NW4	NW3	NW2	NW4	NNW4	NW4	NNW4	N5	N6	N8	N9	N10	NNE10	NNE11	NNE11	N11	NNE9	NNE7	NNE6	NNW5	NW3	NW2	WNW3	N5.5	N11	
22-Mar	W3	W3	WNW3	W2	SW3	W3	SW2	W2	ENE2	ESE3	SE4	ENE3	ENE4	E3	E2	SSE4	SE2	SSE3	SSE3	SW1	W2	W1	WSW2	W2	S0.8	SE4	
23-Mar	W2	W3	W3	WSW2	WSW2	WSW2	WSW2	WSW2	SE5	SE6	SE5	ESE5	SE6	SE7	SE6	SE6	SE5	ESE3	ESE3	SSE1	SSE1	SE2	SE1	S1	SSE2.3	SE7	
24-Mar	WNW2	W2	W1	WSW2	WSW2	UO	SW2	SSW1	SSE4	S5	SE4	SE6	SE9	SE10	SSE8	SE7	SE9	SE9	SSE6	SE2	SE3	SSE4	SE6	SE5	SSE4.0	SSE10	
25-Mar	SE5	SE6	SE5	SE6	SE6	SE7	SE7	SE6	SE9	SE11	SE9	SE10	SE10	SE11	SE11	SSE12	SE11	SSE11	SE8	SE7	SSE11	SSE12	SSE12	SSE12	SE8.9	SSE12	
26-Mar	SSE12	SE11	SE11	SE11	SE12	SE12	SE12	SE12	SE13	SE14	SE13	SE13	SE12	SE13	SE12	SE11	SE10	SE10	SE9	SE10	SE9	SE9	SE11	SE11	SE11.3	SE14	
27-Mar	ESE8	SE9	SE10	ESE8	ESE7	ESE6	E6	E5	ESE5	ESE6	ESE7	ESE6	ESE8	ESE9	ESE8	ESE7	ESE6	E6	ENE4	NE4	NE4	NNE4	N5	N6	E5.4	SE10	
28-Mar	N5	N7	N7	NNW8	NNW8	NNW8	NNW8	NNW8	N8	N9	N9	N10	N12	N12	N12	N11	N11	NNW12	NNW12	NNW9	NNW7	NW9	NW8	NNW9	N8.9	N12	
29-Mar	NNW9	NNW9	NNW9	NNW9	NNW7	NNW7	NNW6	N7	N7	NNE6	N9	N12	N11	NNE11	N11	N10	NNE6	NE6	NE3	NW1	WSW3	WSW3	W2	WSW2	N6.2	N12	
30-Mar	W2	SSW1	SW1	SW2	SSW1	SSW1	S1	SSE3	SE5	SE6	SE6	SE9	SE11	SE10	SE9	SE9	SE9	SE7	SE5	SE3	SE4	SE5	SE5	SE5	SE4.7	SE11	
31-Mar	SE6	SE5	SE3	SE5	SSE7	SSE5	SE4	SE7	SE6	SSE7	SE7	SE8	SE9	SE10	SSE10	SSE8	SSE8	SSE7	SSE7	SE8	SSE9	SSE9	SE11	SSE9	SSE7.2	SSE11	

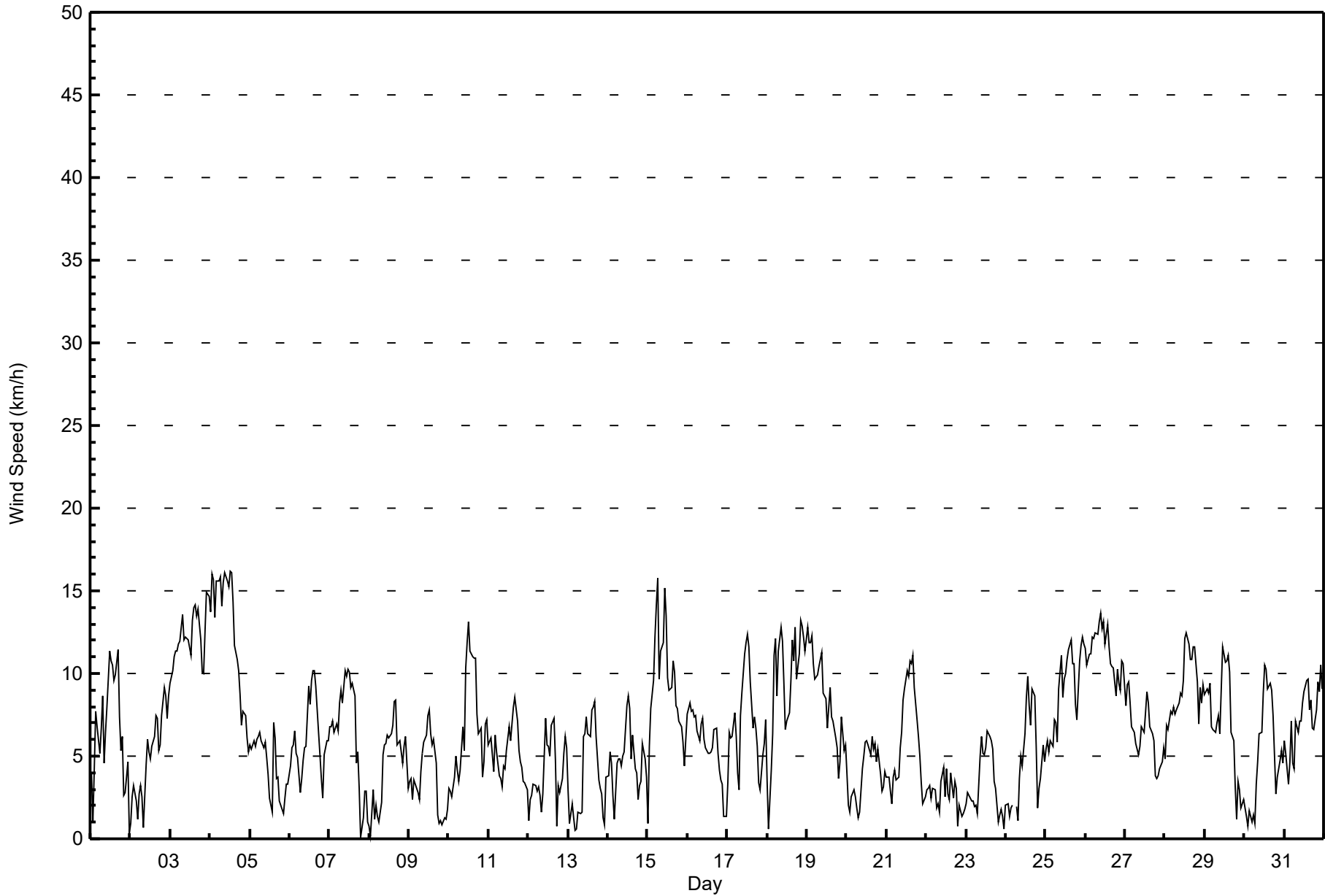
NNE1.3	NNE1.0	N1.2	N1.1	N1.2	N1.4	N1.4	NNE1.4	NE1.8	ENE2.2	ENE2.4	E2.3	E2.5	E2.5	ENE2.1	ENE2.0	ENE2.0	ENE1.8	NE1.4	NNE1.5	NE1.3	NE1.1	NE1.0	NNE1.2	Diurnal Average
N14	N16	N16	N13	N16	N16	NNW16	NNW14	N15	N16	N16	N15	N16	NNW16	NNW14	NNW14	NNW13	NNW14	NNW12	NNE11	NNE13	N13	NNW15	N15	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Waskow ohci Pimatisiwin - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed (WS) - km/h
Waskow ohci Pimatisiwin - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	311	41.86	41.86
6 - 11	355	47.78	89.64
12 - 19	77	10.36	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
Waskow ohci Pimatisiwin - March 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	21	18	20	7	3	11	41	58	17	8	9	23	23	13	19	20	311
6 - 11	49	57	14	1	2	14	88	60	6	1	0	9	7	6	7	34	355
12 - 19	31	6	0	0	0	0	12	7	0	0	0	0	2	1	2	16	77
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
Totals	101	81	34	8	5	25	141	125	23	9	9	32	32	20	28	70	743

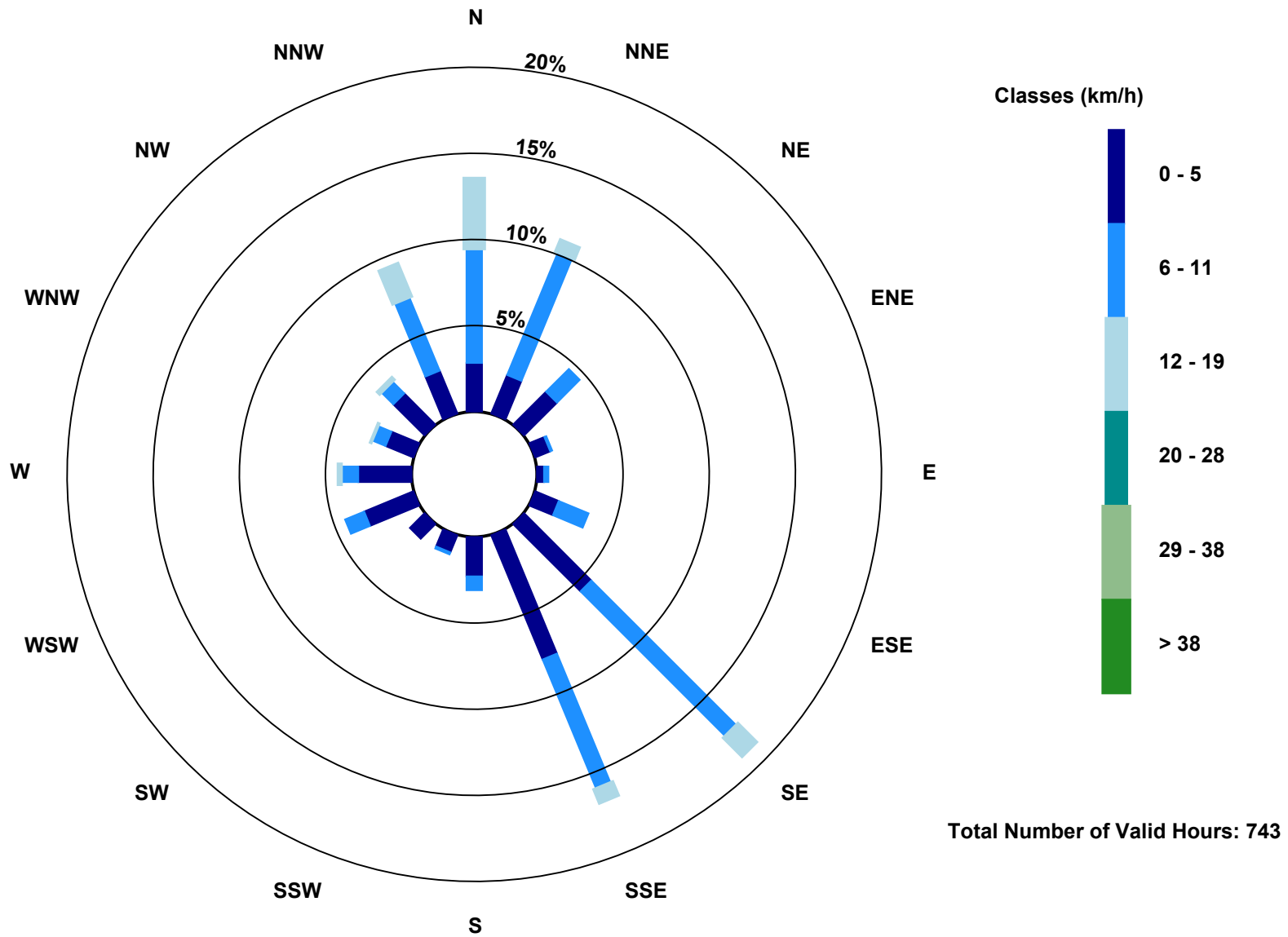
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 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 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Mar 10 13:00 Minimum Value: 0 km/h on Mar 23 04:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5																		Hours in Service: 744 Hours of Data: 743 Hours of Missing Data: 1 Hours of Calibration: 0 Percent Operational Time: 99.9							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	1	1	2	3	3	2	3	3	2	2	4	4	4	4	4	3	3	2	1	1	2	2	2	1	4
2-Mar	1	1	1	1	1	1	1	1	1	3	2	2	2	2	2	3	3	2	2	2	3	3	3	3	3
3-Mar	3	3	3	4	4	4	4	5	4	5	4	4	4	4	4	4	4	4	3	3	3	5	5	5	5
4-Mar	5	6	5	4	5	4	5	5	5	6	5	5	5	4	4	3	4	3	2	2	2	2	2	1	6
5-Mar	1	2	1	2	2	1	2	2	1	2	2	1	1	2	3	2	1	1	1	1	1	1	1	1	3
6-Mar	1	2	2	2	2	2	1	1	1	2	2	3	3	4	4	4	3	2	2	2	1	2	2	2	4
7-Mar	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	1	1	1	1	1	1	3
8-Mar	1	1	2	1	1	1	1	1	2	2	2	2	2	2	3	3	2	1	1	1	1	2	2	1	3
9-Mar	1	1	1	1	1	1	1	2	2	2	2	3	2	2	2	2	2	1	1	1	1	1	1	1	3
10-Mar	1	1	1	1	2	1	1	3	3	2	5	5	6	5	5	5	5	3	2	1	2	2	3	3	6
11-Mar	3	2	2	1	2	2	1	1	1	2	1	2	2	2	2	2	2	2	1	1	2	2	2	2	3
12-Mar	1	1	1	1	0	0	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2
13-Mar	1	1	1	1	1	1	1	1	2	2	2	3	2	2	2	3	3	2	1	1	1	1	1	1	3
14-Mar	1	1	2	1	1	1	1	1	1	1	1	3	3	3	2	3	1	1	1	2	1	3	2	2	3
15-Mar	1	2	3	4	4	4	5	4	4	4	5	4	4	3	3	4	4	3	3	3	3	2	2	2	5
16-Mar	3	3	2	2	2	3	2	2	2	3	2	2	2	2	2	2	2	2	2	1	1	1	1	1	3
17-Mar	2	2	2	2	3	2	2	1	3	3	4	4	4	4	3	3	2	3	2	2	2	2	2	3	4
18-Mar	2	1	2	3	4	4	3	4	4	4	3	2	3	3	4	4	4	5	4	4	4	4	4	4	5
19-Mar	4	4	4	4	3	4	4	4	4	4	3	3	3	3	3	3	3	2	2	1	2	3	2	1	4
20-Mar	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2
21-Mar	1	2	1	1	1	1	1	1	2	2	3	3	4	3	4	4	4	4	3	2	1	1	1	1	4
22-Mar	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	2	2	1	1	1	1	1	2
23-Mar	1	1	1	0	0	0	1	1	2	2	2	2	2	2	3	2	2	1	1	1	1	1	1	1	3
24-Mar	1	1	1	1	0	UO	1	1	1	2	2	3	3	3	3	3	3	3	3	1	1	2	2	2	3
25-Mar	2	2	2	2	2	2	2	2	3	3	3	3	4	4	4	5	4	3	3	3	3	4	4	4	5
26-Mar	4	4	4	4	4	4	4	4	5	5	4	5	4	5	4	4	4	3	3	4	4	3	4	4	5
27-Mar	3	3	4	3	2	2	2	2	2	2	2	2	3	3	3	2	3	3	1	1	1	1	1	1	4
28-Mar	1	2	1	2	2	2	2	2	2	3	3	3	4	4	4	4	4	4	3	3	2	2	2	2	4
29-Mar	3	2	2	3	2	1	2	2	2	2	3	4	4	4	4	3	3	2	1	1	1	1	1	1	4
30-Mar	1	1	1	1	1	1	1	2	2	2	2	3	4	4	4	3	3	3	2	1	1	2	2	1	4
31-Mar	2	1	1	2	2	2	1	2	2	2	2	2	3	3	4	3	3	2	2	3	3	3	3	3	4
																		Diurnal Maximum							
UO - Unstable Operation																									



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction (WD) - deg

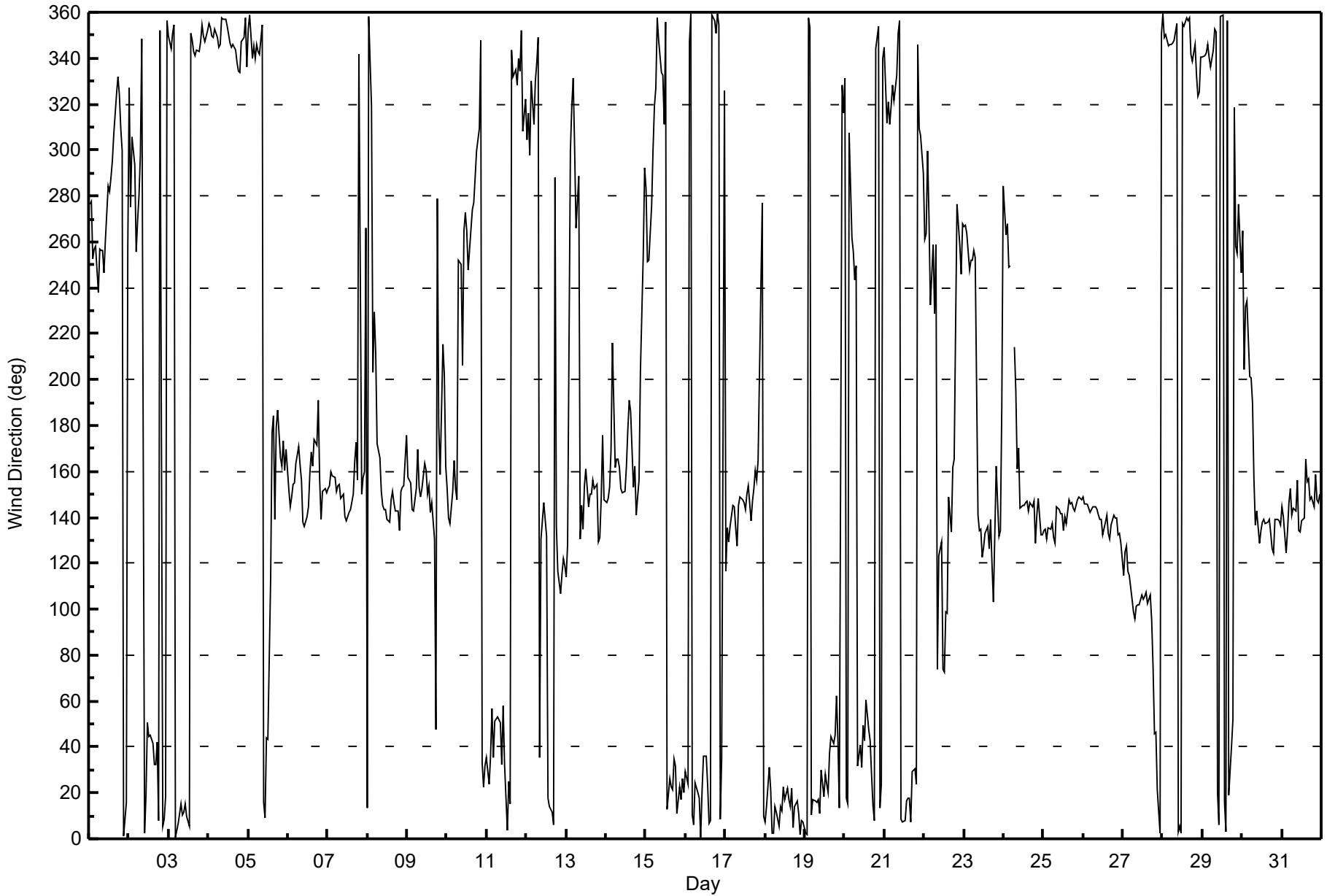
Waskow ohci Pimatisiwin - March 2024

Direction of Maximum Speed: 350 deg on Mar 4 13:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 349.1 deg on Mar 4	Hours of Data: 743
Direction of Minimum Speed: 342 deg on Mar 7 20:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 0.8 deg on Mar 22	Percent Operational Time: 99.9
Monthly Average Direction: 51.8 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-Mar	277	278	253	257	258	238	257	256	256	247	261	284	282	288	296	307	324	332	324	309	300	1	16	257	285.6
2-Mar	327	275	306	294	256	269	280	298	348	2	19	51	44	45	42	32	32	42	8	352	5	9	18	356	9.4
3-Mar	349	344	351	355	1	4	7	15	10	12	15	10	5	351	348	343	341	344	343	347	355	350	347	352	355.6
4-Mar	355	354	350	349	353	349	345	346	358	357	357	354	350	346	345	346	344	338	334	334	347	349	358	337	349.1
5-Mar	353	359	340	345	340	346	343	342	355	16	9	44	43	114	177	184	139	179	187	166	162	173	160	170	2.2
6-Mar	152	145	149	154	155	164	171	163	156	138	136	141	145	159	168	162	174	171	191	156	139	151	153	150	156.4
7-Mar	153	154	160	158	158	152	154	154	149	150	140	139	140	142	143	150	164	172	156	342	150	158	160	266	150.9
8-Mar	13	358	319	203	229	212	172	166	151	145	143	143	139	138	148	152	146	143	143	134	151	153	154	176	149.8
9-Mar	157	156	155	143	143	153	169	153	149	152	163	160	150	154	142	146	130	48	279	180	159	216	202	162	153.2
10-Mar	153	140	137	151	165	153	148	252	250	206	265	273	265	248	266	274	277	288	300	310	348	33	23	32	267.0
11-Mar	35	24	36	57	35	51	53	52	51	33	58	33	4	25	15	344	332	335	328	340	334	352	308	322	11.7
12-Mar	304	316	298	330	311	330	338	349	35	131	146	139	132	18	14	11	6	288	136	116	106	115	122	119	67.0
13-Mar	114	128	300	319	331	301	266	289	131	145	135	154	161	145	150	150	156	153	155	129	131	148	176	148	150.0
14-Mar	147	148	153	169	216	161	165	165	161	152	151	152	162	178	191	186	153	162	141	149	156	204	254	292	168.8
15-Mar	283	252	252	276	300	319	327	358	348	333	332	311	355	13	26	22	22	35	32	11	23	17	26	20	344.9
16-Mar	29	24	347	359	10	6	24	20	18	1	21	36	36	23	7	8	359	356	351	360	354	9	35	326	10.7
17-Mar	116	136	129	136	145	144	136	127	145	149	148	146	144	150	154	138	147	153	160	156	165	240	277	10	146.9
18-Mar	7	14	31	22	3	2	14	11	5	14	12	23	17	22	17	14	22	5	14	16	11	2	8	7	11.8
19-Mar	3	2	358	353	10	17	17	16	17	11	30	18	28	24	20	37	44	41	45	63	43	13	328	316	15.0
20-Mar	332	18	15	308	262	255	244	250	32	41	31	49	43	61	48	43	28	14	8	344	354	13	24	340	16.4
21-Mar	345	312	321	311	319	328	322	332	351	356	8	7	8	16	18	18	7	29	30	24	346	309	306	290	360.0
22-Mar	261	263	300	271	233	259	229	259	74	123	130	74	73	99	98	149	133	161	165	222	276	259	246	268	186.5
23-Mar	267	267	263	248	252	252	256	253	141	134	135	123	127	133	136	126	139	120	103	162	147	132	135	189	146.9
24-Mar	285	263	268	249	250	UO	214	195	161	170	144	145	145	146	147	143	146	145	147	129	141	148	132	132	152.4
25-Mar	134	135	131	136	135	137	131	129	144	144	141	142	134	140	137	147	146	147	144	143	147	149	148	147	141.6
26-Mar	149	146	146	144	142	143	145	145	143	141	139	139	132	138	141	133	131	137	141	140	140	133	133	129	139.7
27-Mar	115	125	128	116	115	104	99	96	102	102	102	106	104	105	107	102	106	95	74	46	46	22	2	351	98.6
28-Mar	359	349	350	345	346	346	347	348	355	3	5	2	355	354	358	356	358	342	339	346	333	323	325	341	348.9
29-Mar	340	341	342	346	340	336	344	353	352	20	6	358	359	16	3	356	19	40	52	318	258	255	276	246	353.5
30-Mar	265	204	232	234	201	201	190	157	137	143	129	134	138	139	137	138	139	133	126	124	139	139	138	137	141.0
31-Mar	145	141	125	134	147	153	141	144	143	156	134	134	138	140	165	156	157	148	149	144	159	148	146	150	146.7

29.5 29.1 358.4 355.1 356.6 5.6 5.6 21.0 55.7 77.5 73.7 82.5 82.8 85.6 77.4 69.4 64.0 59.1 47.7 30.0 43.2 41.8 51.1 27.0
Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Waskow ohci Pimatisiwin - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 102 deg on Mar 1 02:00 Minimum Value: 6 deg on Mar 29 21:00 Percentiles: P ₁ = 14 P ₁₀ = 19 Q ₁ = 22 Median = 25 Q ₃ = 32 P ₉₀ = 47 P ₉₉ = 87																			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-Mar	37	102	32	22	27	44	37	22	76	47	42	31	30	33	34	27	20	19	21	16	81	42	23	79	102
2-Mar	77	23	19	56	65	35	16	19	71	26	28	37	40	30	32	28	27	23	22	18	21	20	28	23	77
3-Mar	22	17	20	21	23	22	22	24	22	27	22	23	23	21	20	20	19	19	19	22	24	20	20	23	27
4-Mar	24	23	22	22	21	19	19	21	23	24	22	23	22	20	21	20	21	19	20	21	19	19	22	14	24
5-Mar	17	21	18	20	20	17	16	18	21	24	31	45	72	82	35	36	34	24	34	28	37	25	22	28	82
6-Mar	21	19	21	20	19	20	27	19	25	23	23	21	26	31	31	30	30	26	25	31	27	21	19	20	31
7-Mar	17	20	19	19	19	19	19	19	23	24	21	22	23	26	24	25	30	31	24	80	80	68	28	88	88
8-Mar	91	101	36	74	34	70	84	68	24	24	27	26	29	24	24	23	20	25	17	19	20	20	23	31	101
9-Mar	22	28	17	24	19	23	23	21	25	27	26	26	22	24	22	23	33	46	60	66	70	54	56	43	70
10-Mar	22	24	26	20	24	20	40	72	44	46	42	37	37	41	40	37	34	27	16	15	50	22	23	26	72
11-Mar	27	27	24	20	23	21	22	21	33	34	34	34	39	34	31	23	21	17	18	55	32	36	66	32	66
12-Mar	88	58	28	19	11	19	19	29	31	68	28	37	34	41	22	19	30	77	22	30	22	22	23	22	88
13-Mar	35	57	37	41	82	76	41	53	69	32	31	27	28	26	24	23	20	22	27	22	25	58	89	26	89
14-Mar	24	21	28	28	78	21	17	20	18	20	23	27	30	36	46	32	23	26	71	57	29	43	56	52	78
15-Mar	93	35	32	28	21	29	21	29	26	21	20	21	34	31	28	27	26	25	25	25	27	20	26	25	93
16-Mar	24	26	21	22	24	25	25	30	26	32	37	38	39	45	39	36	29	24	22	30	27	29	76	80	80
17-Mar	47	25	25	22	20	23	33	39	23	20	24	24	23	21	24	24	21	34	23	35	70	44	38	31	70
18-Mar	48	86	28	29	24	22	23	24	24	25	29	31	31	30	27	24	25	25	27	23	23	22	24	25	86
19-Mar	23	23	23	23	25	25	26	26	26	27	28	28	38	33	29	30	26	26	24	22	23	24	29	13	38
20-Mar	22	43	43	44	29	40	53	65	93	44	44	35	33	34	39	30	33	26	22	15	25	29	45	23	93
21-Mar	29	36	37	44	24	14	21	21	26	28	31	29	32	28	27	27	27	28	23	23	21	25	71	42	71
22-Mar	45	27	14	28	12	18	40	48	83	35	46	74	56	79	83	49	83	48	24	61	24	47	46	16	83
23-Mar	28	10	9	16	20	44	12	31	27	27	34	34	34	29	42	28	27	32	24	46	38	32	35	76	76
24-Mar	37	42	57	33	31	UO	35	71	33	35	45	34	31	26	28	32	25	23	22	32	36	30	20	22	71
25-Mar	23	20	20	19	20	20	22	26	23	22	27	26	25	23	25	27	27	24	20	20	21	22	22	22	27
26-Mar	21	22	22	23	24	22	24	24	22	24	23	24	26	26	28	28	25	23	22	22	23	24	23	25	28
27-Mar	24	26	26	26	27	24	26	22	27	25	28	26	26	26	28	26	29	29	19	18	27	19	20	17	29
28-Mar	19	18	19	16	18	18	17	18	22	26	26	25	25	24	25	24	25	20	18	18	18	16	16	18	26
29-Mar	18	17	16	19	18	17	20	22	24	31	29	27	27	31	32	27	36	28	20	50	6	13	34	18	50
30-Mar	40	44	69	37	54	32	50	23	25	29	27	27	25	25	28	26	24	24	24	33	26	20	19	17	69
31-Mar	17	21	35	32	21	23	24	20	22	29	25	24	23	25	34	31	25	23	21	19	27	22	20	31	35
93 102 69 74 82 76 84 72 93 68 46 74 72 82 83 49 83 77 71 80 81 68 89 88																								Diurnal Maximum	
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS26 CHRISTINA LAKE MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)
MARCH 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	19.5	0	4.4	0
H2S (ppb) Average	707	36	37	99.87	0.7	0	0.4	0
NO2 (ppb) Average	707	36	37	99.87	30.2	0	8.2	-
NO (ppb) Average	707	36	37	99.87	15.9	-	3.9	-
NOX (ppb) Average	707	36	37	99.87	46.1	-	11.4	-
Temperature 2 m (C) Average	744	0	0	100	11.4	-	4.5	-
Relative Humidity (%) Average	744	0	0	100	97.1	-	81.9	-
Wind Speed 10 m (km/h) Average	744	0	0	100	31	-	19	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)
MARCH 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	1.04	1.8	-	0	0	0.1	0.4	1.1	2.8	19.5
H2S (ppb) Average	707	0.15	0.1	-	0	0	0	0.1	0.2	0.3	0.7
NO2 (ppb) Average	707	3.67	3.6	-	0.3	0.9	1.4	2.4	4.7	7.7	30.2
NO (ppb) Average	707	1.16	2	-	0	0	0.1	0.4	1.2	3.3	15.9
NOX (ppb) Average	707	4.83	5	-	0.3	1.1	1.7	3.1	6.1	10.6	46.1
Temperature 2 m (C) Average	744	-7.16	9.3	-	-32.1	-20.2	-14.1	-6.8	-0.2	5.6	11.4
Relative Humidity (%) Average	744	60.23	16.5	-	24.1	36.9	47.8	59.7	74	80.8	97.1
Wind Speed 10 m (km/h) Average	744	12.1	6	-	0	5	7	12	17	20	31
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CHRISTINA LAKE (AMS26)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, NO2	22 Mar 2024 11:00	22 Mar 2024 11:00	1	Maintenance - sample manifold cleaned



Wood Buffalo Environmental Association
Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 19.5 ppb on Mar 15 08:00	Maximum Daily Average: 4.4 ppb on Mar 4		Hours of Data:	709
Minimum Value: 0.0 ppb on Mar 2 03:00	Minimum Daily Average: 0.0 ppb on Mar 27		Hours of Missing Data:	35
Maximum Diurnal Average: 1.7 ppb at hour 10	Minimum Diurnal Average: 0.6 ppb at hour 19		Hours of Calibration:	35
Monthly Average: 1.04 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.4 Q ₃ = 1.1 P ₉₀ = 2.8 P ₉₉ = 7.7		Percent Operational Time:	100.0

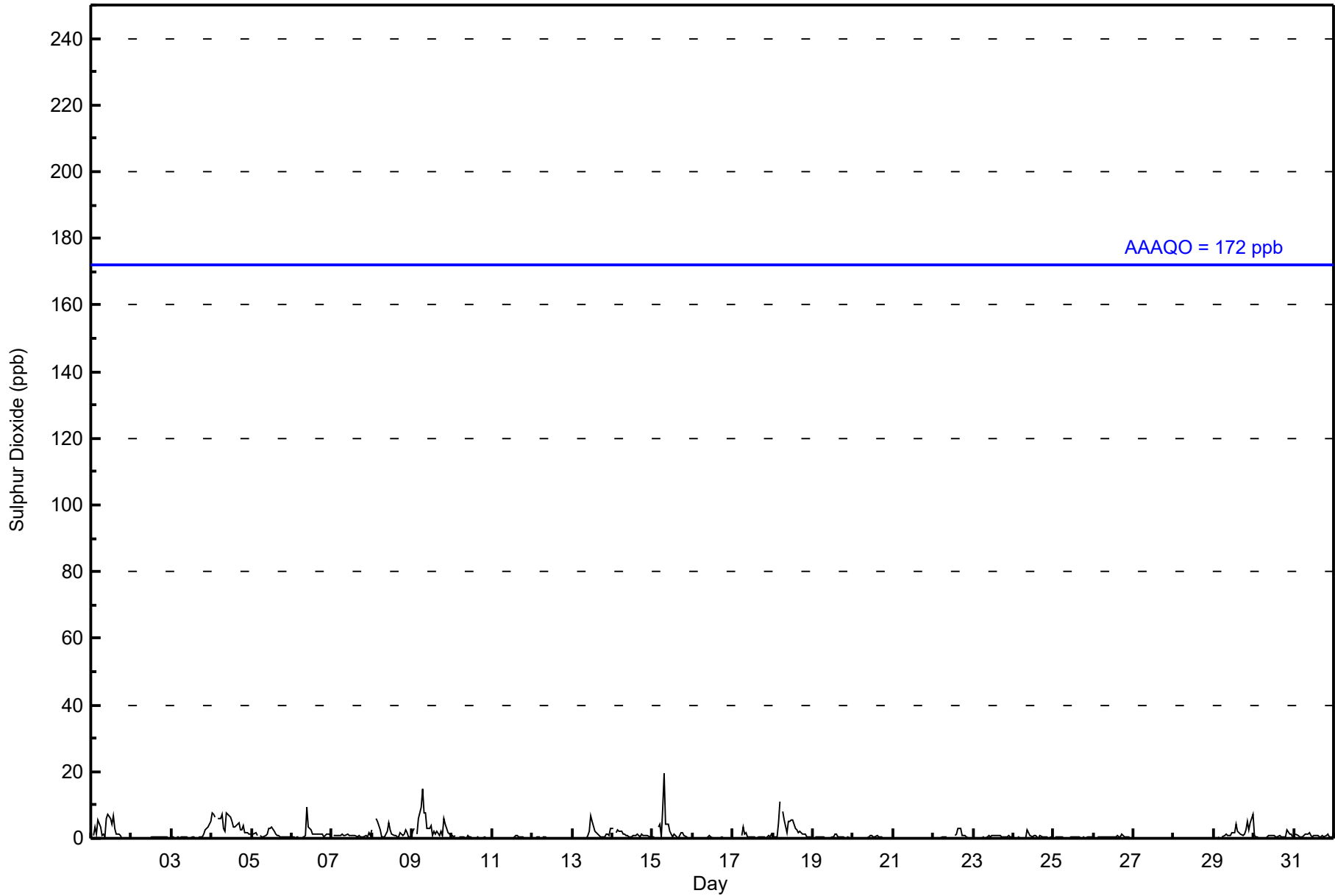
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	Z	1.0	3.4	1.4	5.4	3.6	0.7	1.4	0.3	6.1	7.4	6.1	4.2	6.7	3.1	1.2	1.3	0.8	0.2	0.1	0.1	0.1	0.2	0.0	2.4	7.4																							
2-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.5																						
3-Mar	0.2	0.3	Z	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.1	0.3	0.3	1.1	2.7	2.8	3.5	4.9	0.8	4.9																							
4-Mar	7.7	7.3	6.2	Z	5.9	5.9	7.3	2.8	2.1	7.6	6.8	6.4	5.2	3.5	3.4	3.7	4.5	2.7	2.6	3.7	1.9	1.5	1.4	1.1	4.4	7.7																							
5-Mar	1.2	1.3	1.5	0.9	Z	0.7	0.6	0.5	0.7	1.4	2.9	3.2	3.2	2.3	1.2	1.0	0.8	0.6	0.4	0.4	0.4	0.2	0.3	0.4	1.1	3.2																							
6-Mar	0.5	0.2	0.2	0.3	0.2	Z	0.4	0.3	1.0	9.2	3.5	2.4	1.5	1.4	1.3	1.3	1.1	1.1	0.6	0.8	1.2	1.1	0.4	1.4	9.2																								
7-Mar	Z	0.7	0.8	0.7	0.6	0.8	1.1	0.9	0.7	1.2	1.0	0.8	1.0	0.9	0.8	0.6	0.7	0.5	0.4	0.5	0.7	0.6	1.6	0.9	0.8	1.6																							
8-Mar	2.7	Z	6.1	5.3	3.8	2.7	0.4	0.3	1.1	2.2	4.6	2.3	1.4	1.0	0.9	0.6	0.5	1.5	0.7	1.1	2.5	1.5	0.6	0.4	1.9	6.1																							
9-Mar	2.1	2.9	Z	1.2	5.8	9.2	15.0	7.6	7.5	2.9	2.8	4.0	0.9	2.2	1.2	2.2	0.9	2.1	1.0	6.1	4.0	1.8	1.5	1.1	3.7	15.0																							
10-Mar	0.6	0.6	0.8	Z	0.6	0.6	0.3	0.3	0.2	0.8	0.6	0.3	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.4	0.0	0.0	0.0	0.0	0.3	0.8																							
11-Mar	0.0	0.0	0.0	0.0	Z	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.3	1.0	0.8	0.6	0.5	0.3	0.2	0.2	0.1	0.1	0.2	0.2	1.0																							
12-Mar	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3																							
13-Mar	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	1.0	2.1	6.9	5.2	2.3	1.9	1.2	0.8	0.5	0.5	0.5	1.5	1.3	0.6	2.8	1.3	6.9																							
14-Mar	3.1	Z	1.8	2.4	2.0	1.9	1.2	1.3	1.0	0.8	0.5	0.5	0.7	1.0	1.0	1.2	0.4	1.3	0.8	0.8	0.9	0.8	0.3	0.3	1.1	3.1																							
15-Mar	0.4	0.5	Z	3.6	4.4	0.5	8.9	19.5	4.4	4.1	2.0	1.4	0.5	1.1	0.3	0.1	0.7	1.6	1.7	0.9	0.3	0.1	0.2	0.1	2.5	19.5																							
16-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.3	0.7	0.4	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.7																							
17-Mar	0.0	0.0	0.0	0.1	Z	1.1	3.2	1.3	1.8	0.6	0.4	0.3	0.4	0.3	0.2	0.3	0.2	0.3	0.4	0.3	0.0	0.9	0.2	1.2	0.6	3.2																							
18-Mar	0.5	0.2	0.6	4.8	10.9	Z	8.0	5.7	1.7	4.9	5.1	5.6	5.4	3.0	2.6	1.8	2.2	1.5	1.4	1.1	0.6	0.5	0.4	0.5	3.0	10.9																							
19-Mar	Z	0.5	0.6	0.4	0.3	0.2	0.3	0.1	0.2	0.1	0.1	0.3	0.5	1.4	1.1	0.4	0.4	0.3	0.4	0.2	0.2	0.3	0.0	0.0	0.4	1.4																							
20-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.8	0.7	0.6	0.6	0.7	0.5	0.5	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.8																							
21-Mar	0.1	0.1	Z	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2																							
22-Mar	0.0	0.0	0.0	Z	0.1	0.3	0.5	0.6	0.4	C	C	C	C	0.9	1.2	2.9	3.0	1.0	0.7	0.7	0.2	0.0	0.0	0.1	0.7	3.0																							
23-Mar	0.0	0.1	0.0	0.1	Z	0.1	0.2	0.2	0.5	0.9	0.5	0.9	0.8	0.8	0.9	0.8	0.7	0.6	0.6	0.4	0.4	0.7	0.2	0.3	0.5	0.9																							
24-Mar	0.2	0.1	0.1	0.2	0.1	Z	0.1	0.0	2.7	1.7	0.7	0.6	0.9	0.7	0.5	0.2	0.7	0.5	0.4	0.3	0.3	0.2	0.3	0.3	0.5	2.7																							
25-Mar	Z	0.4	0.5	0.5	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.5																							
26-Mar	0.2	Z	0.2	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.7	0.6	0.5	1.2	0.6	0.5	0.5	0.3	0.2	0.1	0.4	1.2																							
27-Mar	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
28-Mar	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	0.1	0.1	0.0	0.0	0.1																							
29-Mar	0.0	0.0	0.1	0.2	Z	0.6	0.7	1.3	1.0	0.7	0.7	1.5	1.6	4.3	2.1	1.5	1.1	1.0	1.3	2.5	5.1	2.4	4.8	7.3	1.8	7.3																							
30-Mar	0.8	0.3	0.3	0.1	0.0	Z	0.0	0.0	0.6	1.0	1.0	1.0	0.9	0.6	0.3	0.8	0.5	0.3	0.3	0.5	2.5	1.1	1.4	0.4	0.6	2.5																							
31-Mar	Z	1.3	0.7	0.5	0.4	0.5	0.8	1.1	1.1	1.6	0.9	0.6	0.7	0.8	0.8	0.6	0.6	0.7	0.5	0.9	1.4	0.5	0.4	0.4	0.8	1.6																							
																								0.8	0.7	0.9	0.9	1.6	1.1	1.6	1.5	1.0	1.7	1.5	1.6	1.2	1.2	0.9	0.8	0.8	0.7	0.6	0.8	0.9	0.7	0.6	0.8	Diurnal Average	
																								7.7	7.3	6.2	5.3	10.9	9.2	15.0	19.5	7.5	9.2	7.4	6.9	5.4	6.7	3.4	3.7	4.5	2.7	2.6	6.1	5.1	2.8	4.8	7.3	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	706	99.58	99.58
11 - 20	3	0.42	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 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	51	84	35	43	38	33	62	94	91	44	34	11	23	38	19	706
11 - 20	0	0	0	0	0	0	0	0	1	0	0	0	0	0	2	0	3
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	51	84	35	43	38	33	62	95	91	44	34	11	23	40	19	709

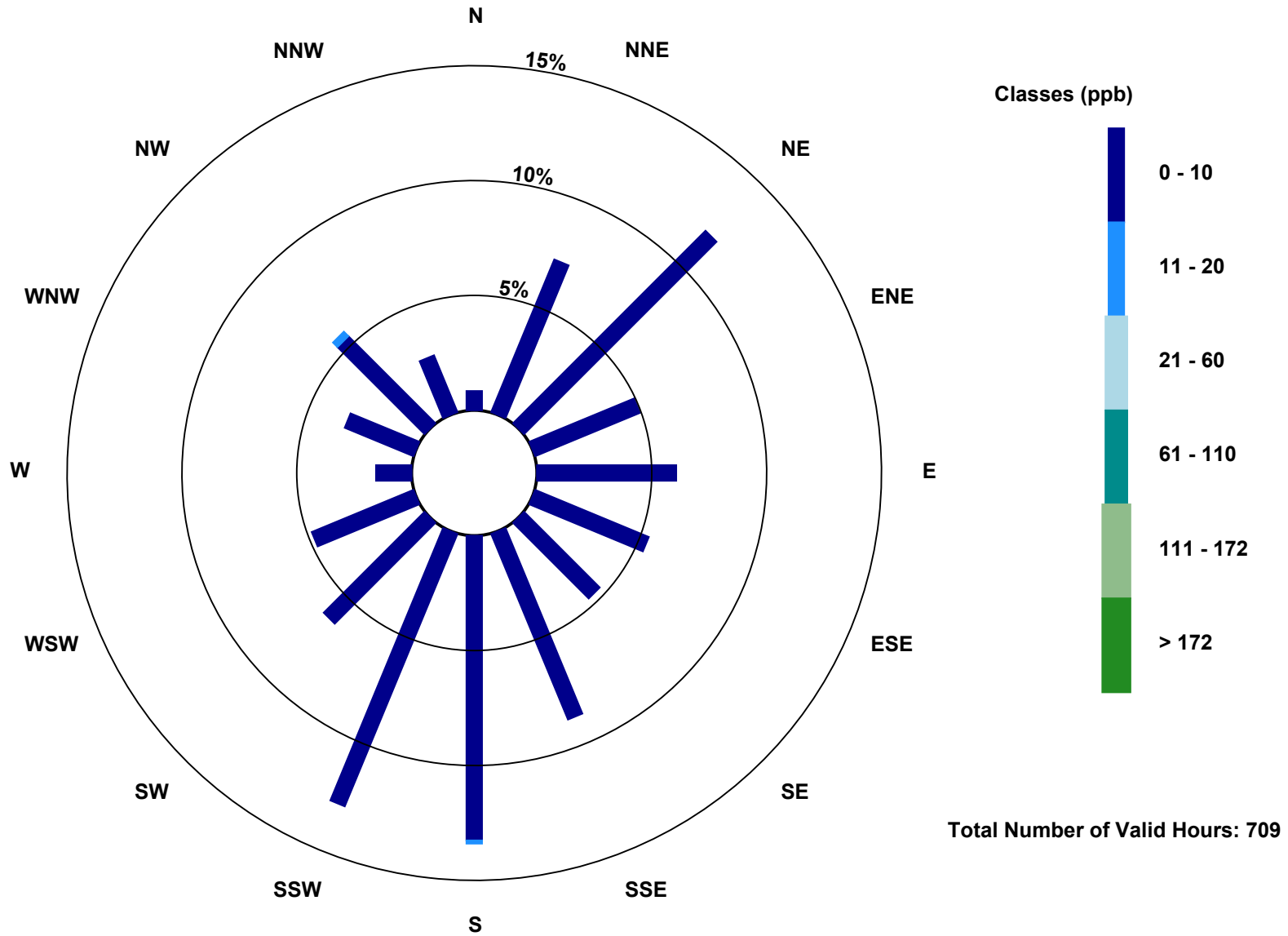
Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

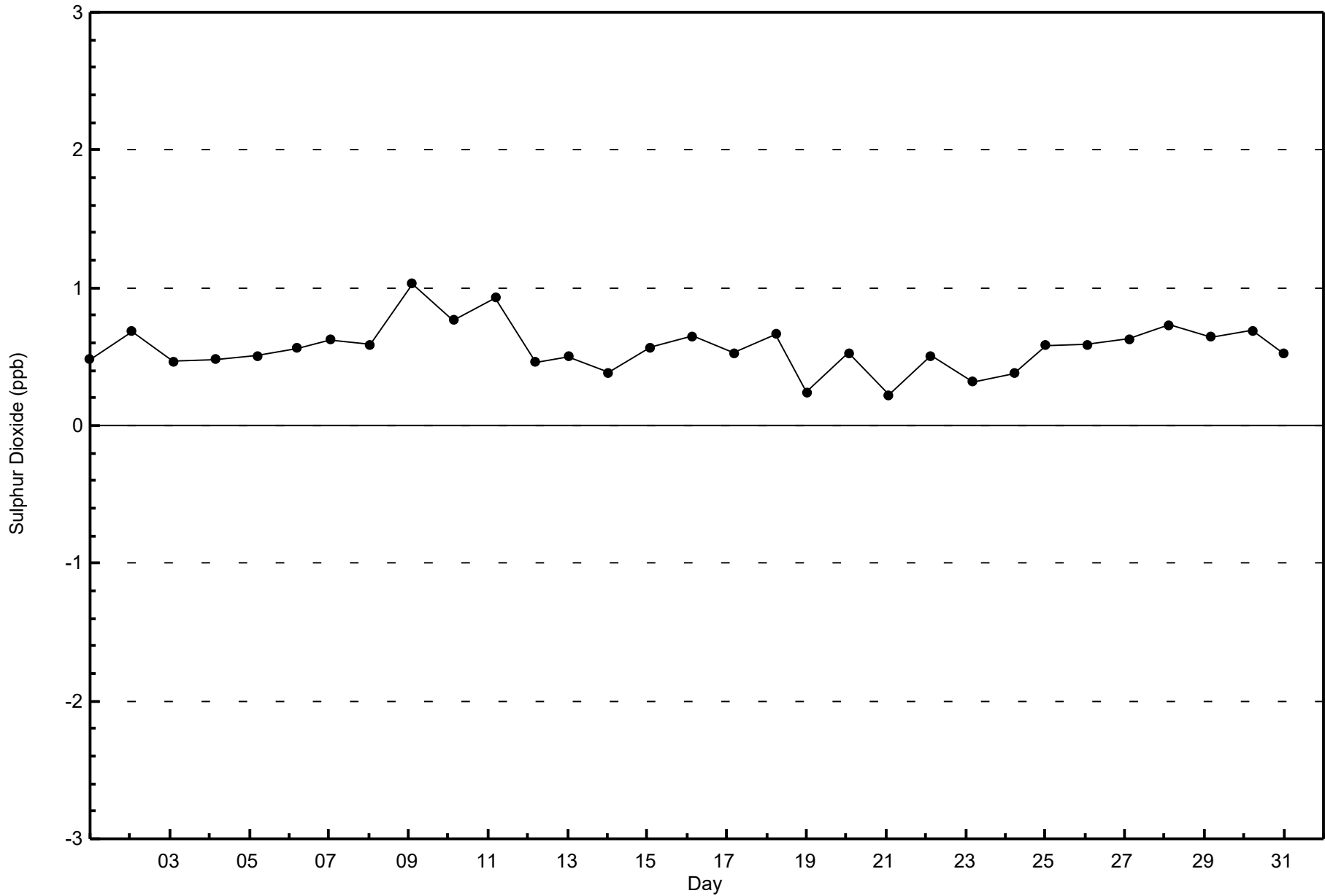
Sulphur Dioxide (SO₂) - ppb
Christina Lake





Wood Buffalo Environmental Association
Zero Responses

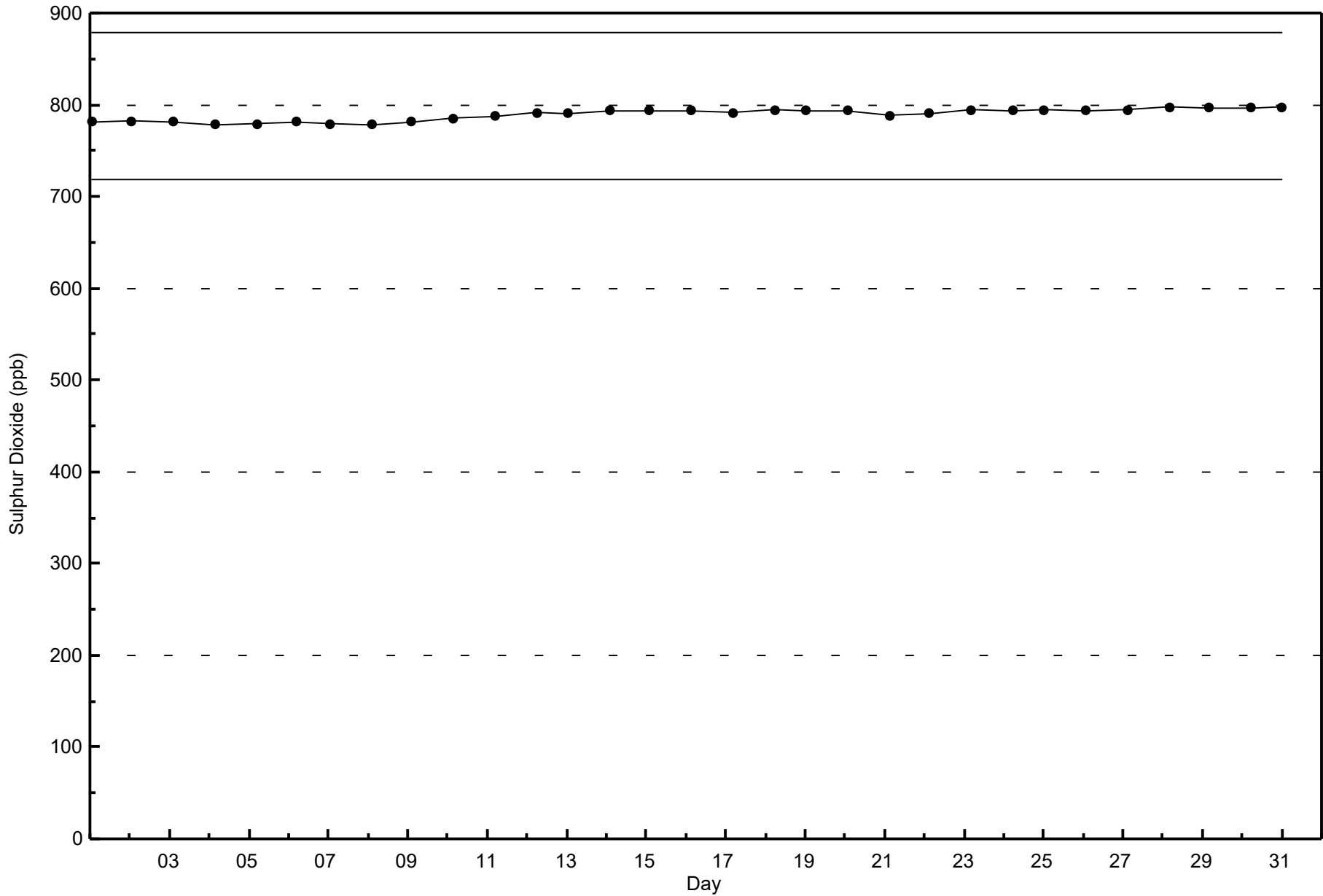
Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 2024





Wood Buffalo Environmental Association
Span Responses

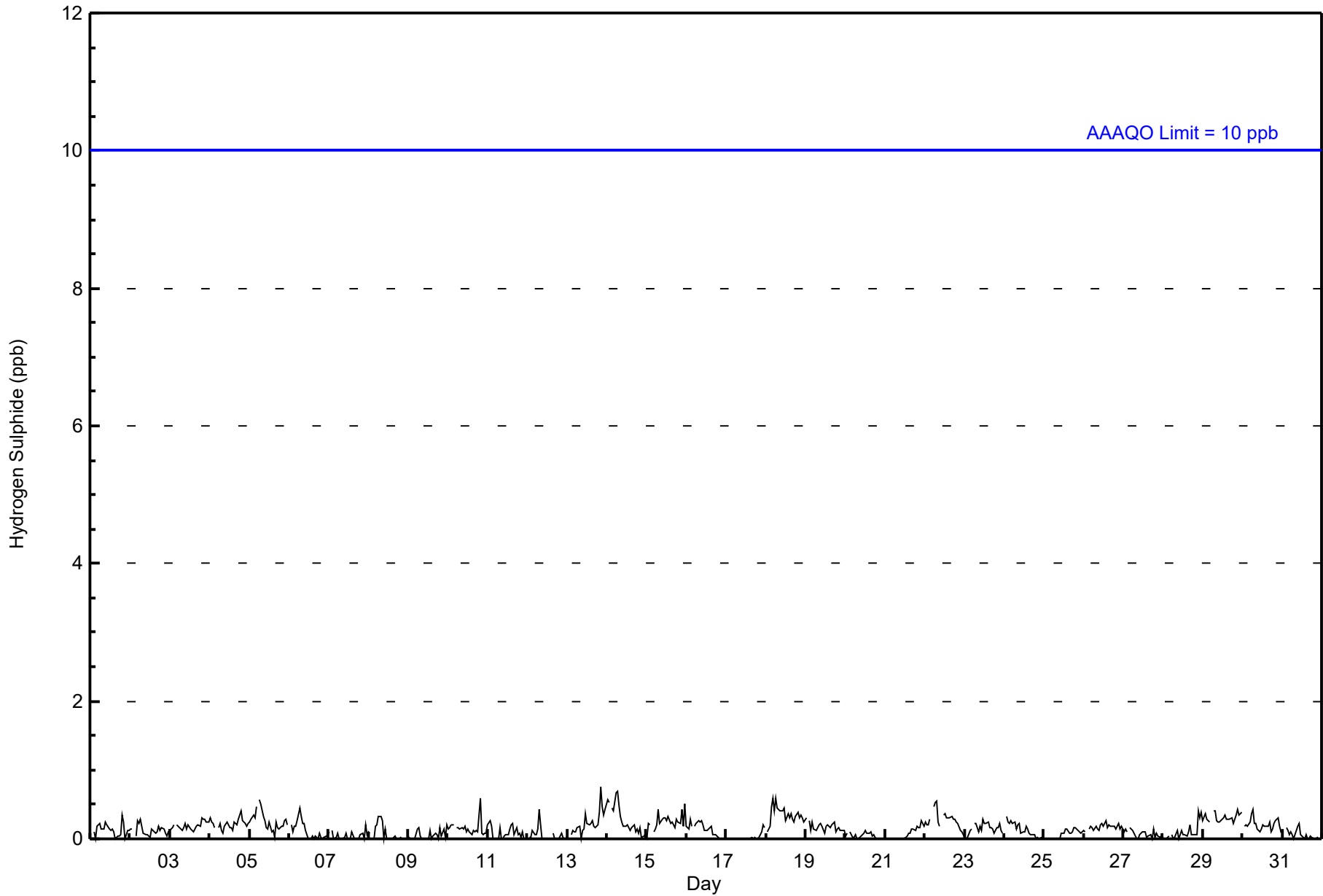
Sulphur Dioxide (SO₂) - ppb
Christina Lake - March 2024





Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Christina Lake - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Christina Lake - March 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	6	51	84	41	39	36	33	65	92	89	45	33	12	23	39	19	707
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	51	84	41	39	36	33	65	92	89	45	33	12	23	39	19	707

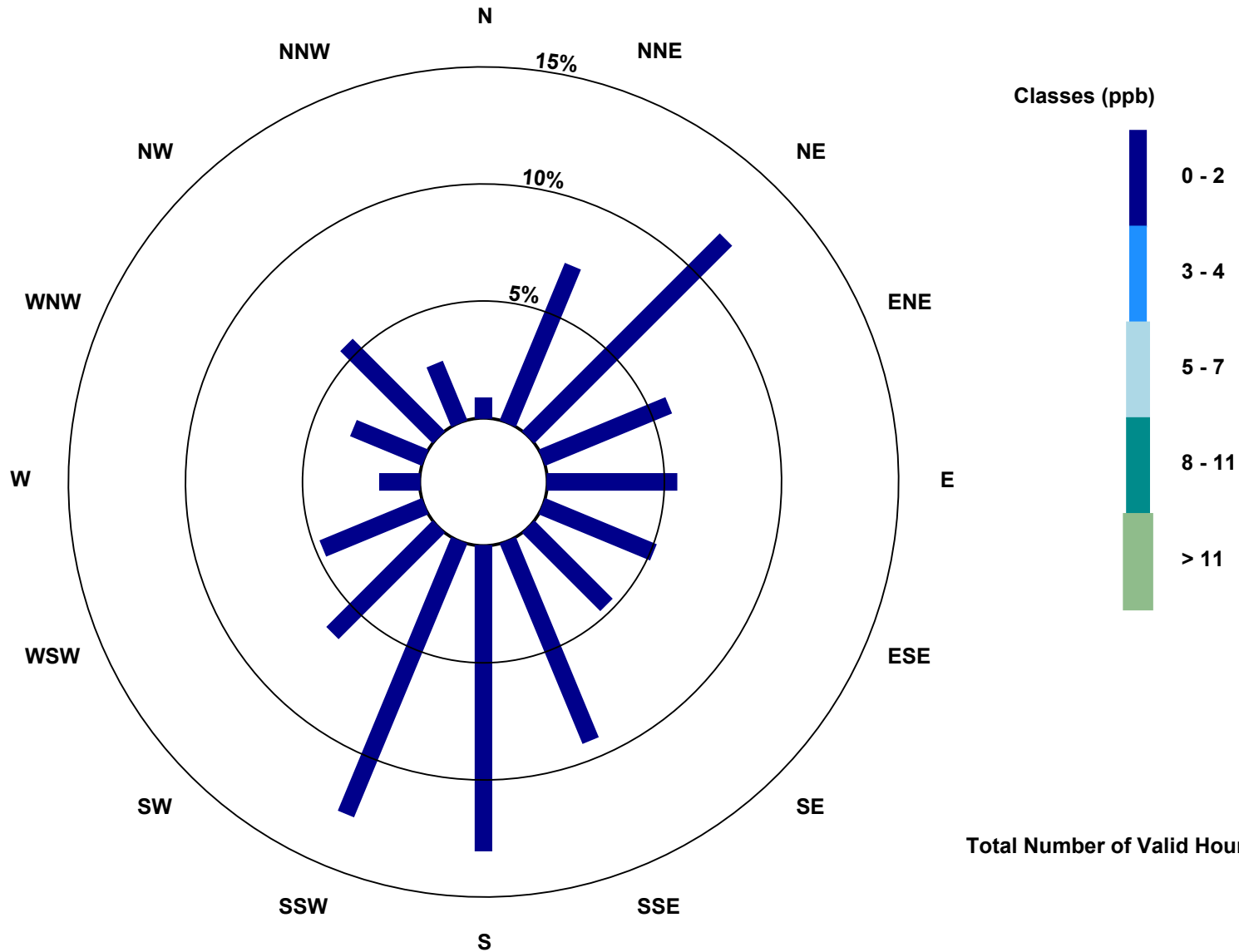
Total Number of Valid Hours: 707

Total Number of Hours: 744

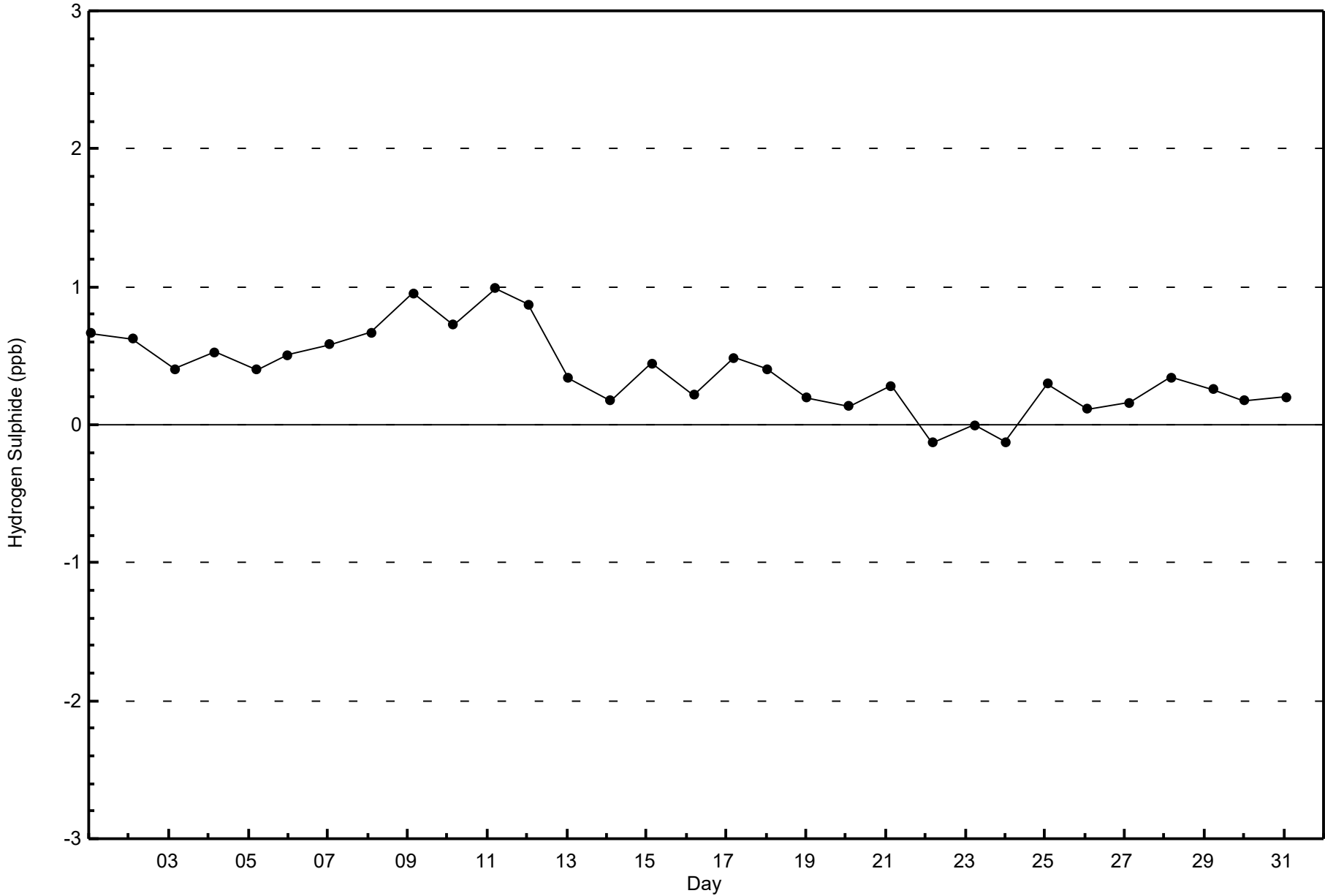


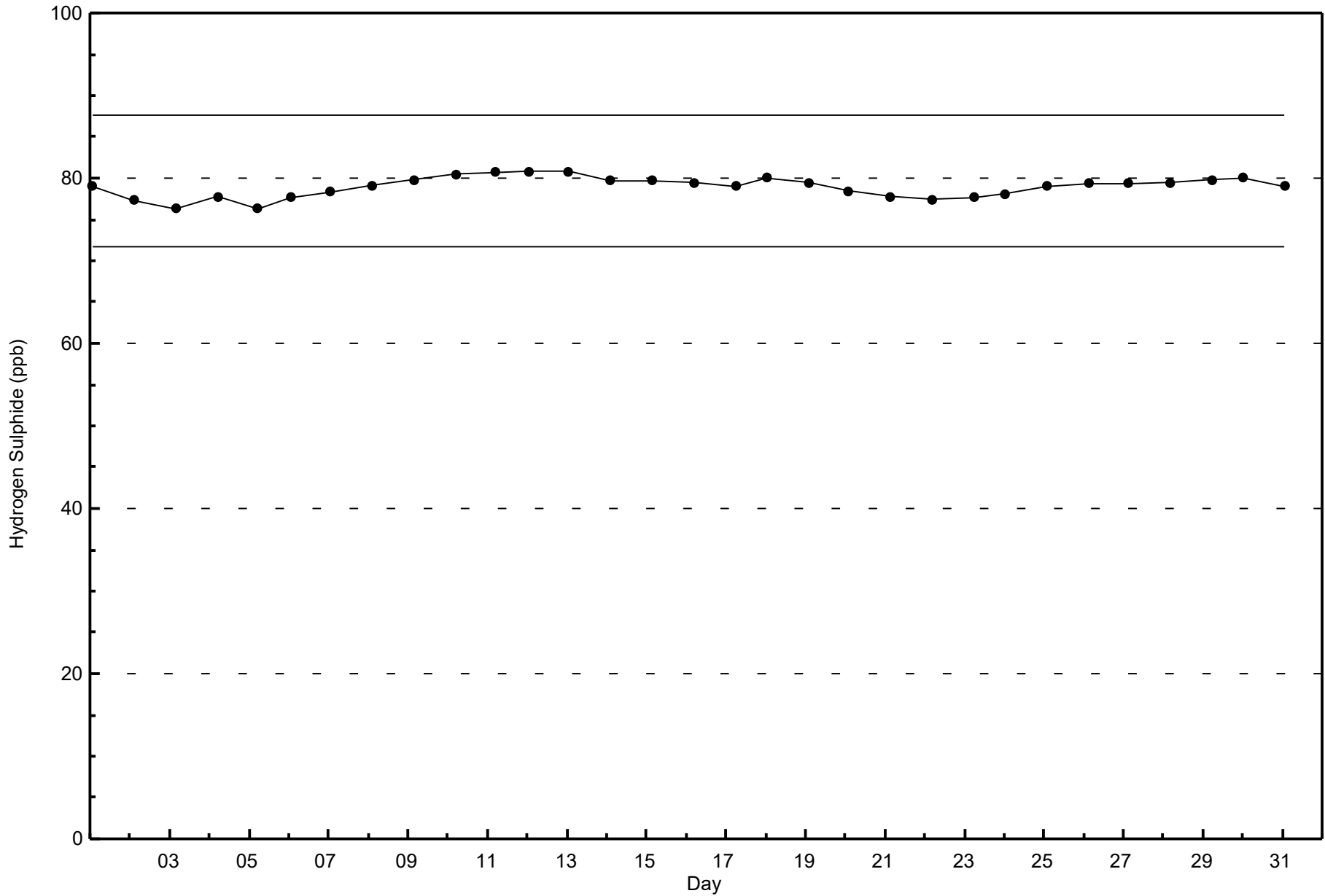
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Christina Lake



Total Number of Valid Hours: 707





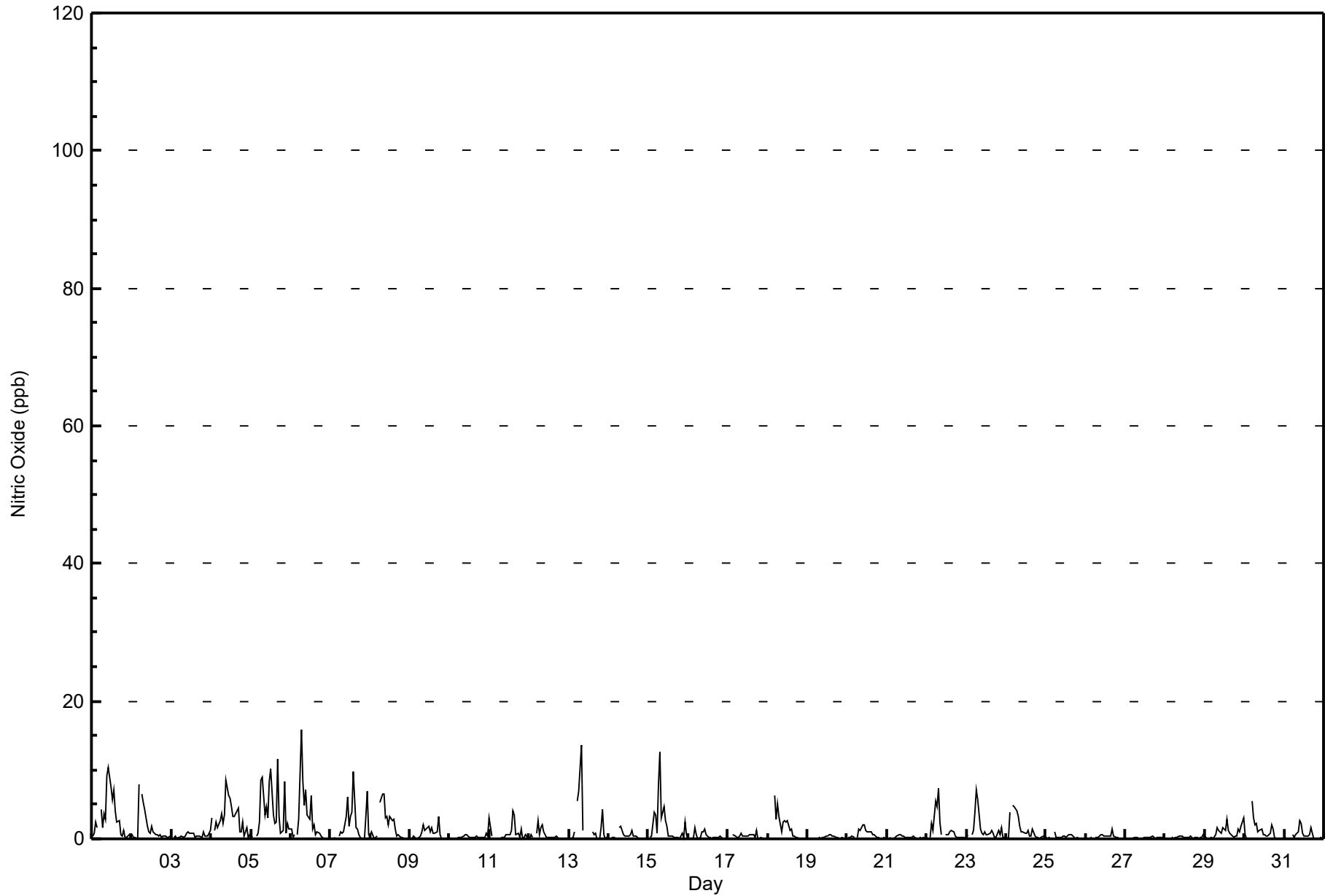


Maximum Value: 15.9 ppb on Mar 6 07:00		Maximum Daily Average: 3.9 ppb on Mar 5		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 27 02:00		Minimum Daily Average: 0.2 ppb on Mar 27		Hours of Data: 707																						
Maximum Diurnal Average: 3.1 ppb at hour 8		Minimum Diurnal Average: 0.2 ppb at hour 2		Hours of Missing Data: 37																						
Monthly Average: 1.16 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.4 Q ₃ = 1.2 P ₉₀ = 3.3 P ₉₉ = 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-Mar	0.4	0.8	2.5	1.6	Z	4.4	1.6	3.6	2.8	9.1	10.3	7.6	5.7	7.1	4.1	2.4	2.7	0.7	0.4	1.1	0.3	0.2	0.6	0.6	3.1	10.3
2-Mar	0.5	0.3	0.3	0.1	7.9	Z	6.5	5.2	4.2	1.9	1.0	0.9	1.8	1.0	0.6	0.7	0.4	0.7	0.2	0.4	0.5	0.2	0.3	0.3	1.6	7.9
3-Mar	Z	0.2	0.4	0.0	0.2	0.3	0.3	0.3	0.5	0.8	1.0	0.7	0.7	0.9	0.2	0.5	0.4	0.4	0.3	0.9	0.3	0.5	0.4	1.3	0.5	1.3
4-Mar	3.1	Z	1.3	2.5	1.7	2.6	3.7	2.2	3.4	8.5	6.4	5.9	4.7	3.2	3.2	3.6	4.5	1.0	1.0	2.4	0.5	1.6	0.1	0.7	2.9	8.5
5-Mar	0.2	0.4	Z	0.5	0.8	2.4	8.5	8.9	3.4	4.6	3.1	8.4	10.3	3.4	2.1	2.4	11.7	3.3	0.9	1.3	8.4	0.9	2.2	1.4	3.9	11.7
6-Mar	1.3	0.2	0.7	Z	0.5	2.8	15.9	8.3	4.8	7.2	3.5	2.8	6.3	1.3	2.0	0.7	1.1	0.8	0.5	0.2	0.1	0.0	0.0	0.1	2.7	15.9
7-Mar	0.0	0.0	0.1	0.2	Z	0.4	1.1	0.7	1.0	3.3	6.2	1.8	3.3	3.9	9.7	1.6	1.5	0.6	0.2	0.1	0.1	3.3	6.9	0.7	2.0	9.7
8-Mar	0.4	1.0	0.0	0.1	0.5	Z	5.3	6.6	6.5	3.0	3.3	2.0	3.2	2.6	2.8	1.5	0.3	0.6	0.2	0.2	0.1	0.0	0.0	0.1	1.8	6.6
9-Mar	Z	0.1	0.4	0.1	0.0	0.1	0.4	1.0	2.0	1.2	1.6	1.9	1.0	1.6	0.8	0.8	1.1	3.2	0.6	0.1	0.1	0.1	0.0	0.0	0.8	3.2
10-Mar	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.2	0.4	0.6	0.7	0.4	0.2	0.3	0.2	0.3	0.3	0.1	0.3	0.2	0.1	0.1	0.9	0.4	0.3	0.9
11-Mar	3.0	0.5	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.6	0.7	1.2	4.1	3.5	0.7	0.9	0.1	1.3	0.0	0.2	0.5	0.0	0.8	4.1
12-Mar	0.1	0.6	0.1	Z	0.7	2.7	0.6	1.6	2.0	1.0	0.2	0.2	0.2	0.2	0.3	0.1	0.3	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.5	2.7
13-Mar	0.0	0.0	0.2	1.1	Z	5.5	6.9	13.6	1.3	C	C	C	C	C	1.0	0.6	0.8	0.1	0.0	1.6	4.3	0.6	0.1	0.1	2.1	13.6
14-Mar	0.1	0.0	0.1	0.1	0.1	Z	1.7	1.8	1.2	0.6	0.4	0.5	0.4	0.6	1.3	0.4	0.4	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.4	1.8
15-Mar	Z	0.2	0.5	3.8	3.5	0.9	7.8	12.5	3.1	4.7	2.6	1.8	0.3	0.5	0.3	0.2	0.3	0.3	0.1	0.0	0.7	0.2	2.5	0.6	2.1	12.5
16-Mar	0.0	Z	0.1	0.1	1.5	0.7	0.0	0.2	0.9	1.1	1.5	0.6	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.4	0.1	0.1	0.0	0.1	0.4	1.5
17-Mar	0.1	0.0	Z	0.6	0.4	0.3	0.3	0.5	0.7	0.4	0.4	0.4	0.5	0.6	0.7	0.5	0.2	1.3	0.1	0.0	0.2	0.1	0.0	0.0	0.4	1.3
18-Mar	0.0	0.0	0.0	Z	6.3	2.9	5.1	3.3	0.9	2.5	2.6	2.5	2.7	1.3	1.4	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.0	1.4	6.3
19-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.2	0.5	0.4	0.5	0.5	0.4	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.5
20-Mar	0.0	0.2	0.2	0.5	0.3	Z	0.2	1.5	1.2	2.1	2.1	1.3	1.0	1.0	1.1	0.7	0.6	0.3	0.1	0.2	0.0	0.1	0.1	0.0	0.7	2.1
21-Mar	Z	0.1	0.0	0.0	0.1	0.2	0.4	0.7	0.6	0.4	0.4	0.3	0.3	0.2	0.1	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7
22-Mar	0.1	Z	0.3	2.2	1.2	5.6	4.8	7.4	2.5	0.6	M	0.7	0.6	0.7	0.9	1.3	1.0	0.3	0.3	0.2	0.2	0.2	0.1	0.0	1.4	7.4
23-Mar	0.7	0.3	Z	0.5	1.1	3.9	7.2	5.7	1.5	0.8	0.7	0.9	0.6	0.7	0.8	1.2	0.9	0.2	0.2	1.1	0.6	1.6	0.3	0.2	1.4	7.2
24-Mar	0.1	0.2	4.0	Z	5.0	4.7	4.1	3.2	1.7	1.0	1.0	0.7	0.7	1.2	0.4	0.4	1.3	0.3	0.3	0.1	0.1	0.1	0.3	0.1	1.4	5.0
25-Mar	0.3	0.0	0.1	0.0	Z	1.0	0.2	0.2	0.3	0.3	0.5	0.4	0.3	0.4	0.7	0.6	0.5	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.3	1.0
26-Mar	0.1	0.0	0.0	0.2	0.1	Z	0.2	0.3	0.5	0.6	0.6	0.5	0.4	0.4	0.5	0.3	1.5	0.4	0.1	0.2	0.0	0.0	0.0	0.1	0.3	1.5
27-Mar	Z	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.2	0.2	0.3	0.5	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.5
28-Mar	0.0	Z	0.0	0.0	0.3	0.1	0.2	0.2	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.3	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.7	0.2	0.7
29-Mar	0.3	0.1	Z	0.2	0.1	0.1	0.5	1.6	1.1	1.1	0.8	1.7	1.2	2.8	1.1	0.7	0.5	0.3	0.4	0.3	1.5	1.0	1.8	3.1	1.0	3.1
30-Mar	0.6	0.0	0.1	Z	5.4	3.1	2.0	2.3	1.0	1.2	1.5	0.5	0.6	0.4	0.4	0.8	2.0	1.5	0.2	0.1	0.1	0.0	0.0	0.1	1.0	5.4
31-Mar	0.0	0.0	0.0	0.0	Z	0.6	0.2	0.7	1.0	2.6	2.3	0.7	0.5	0.4	0.3	0.5	1.5	0.9	0.0	0.0	0.0	0.0	0.1	0.0	0.5	2.6
																								Diurnal Average		
																								Diurnal Maximum		
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Christina Lake - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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



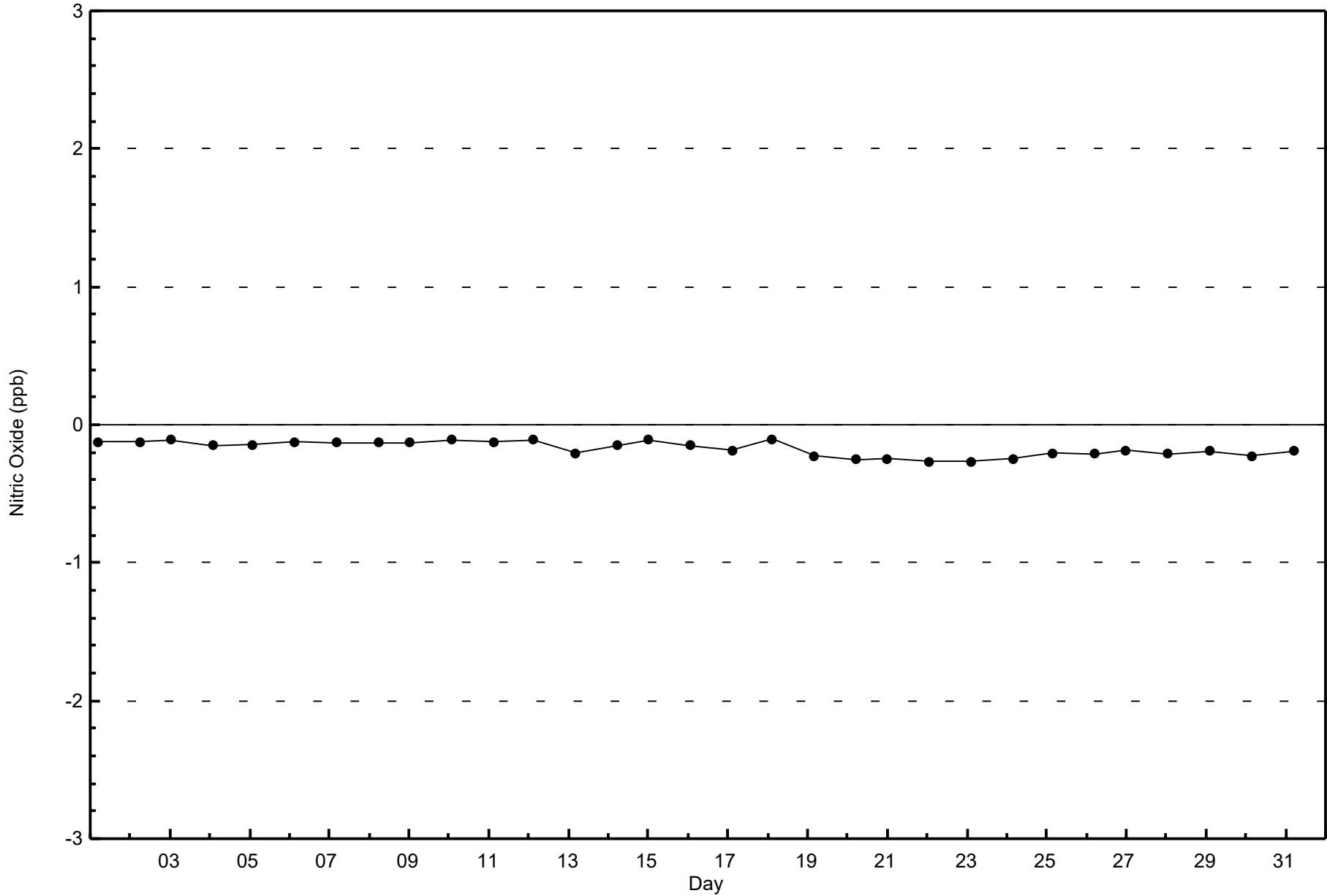
**Wood Buffalo Environmental Association
Frequency Distribution**

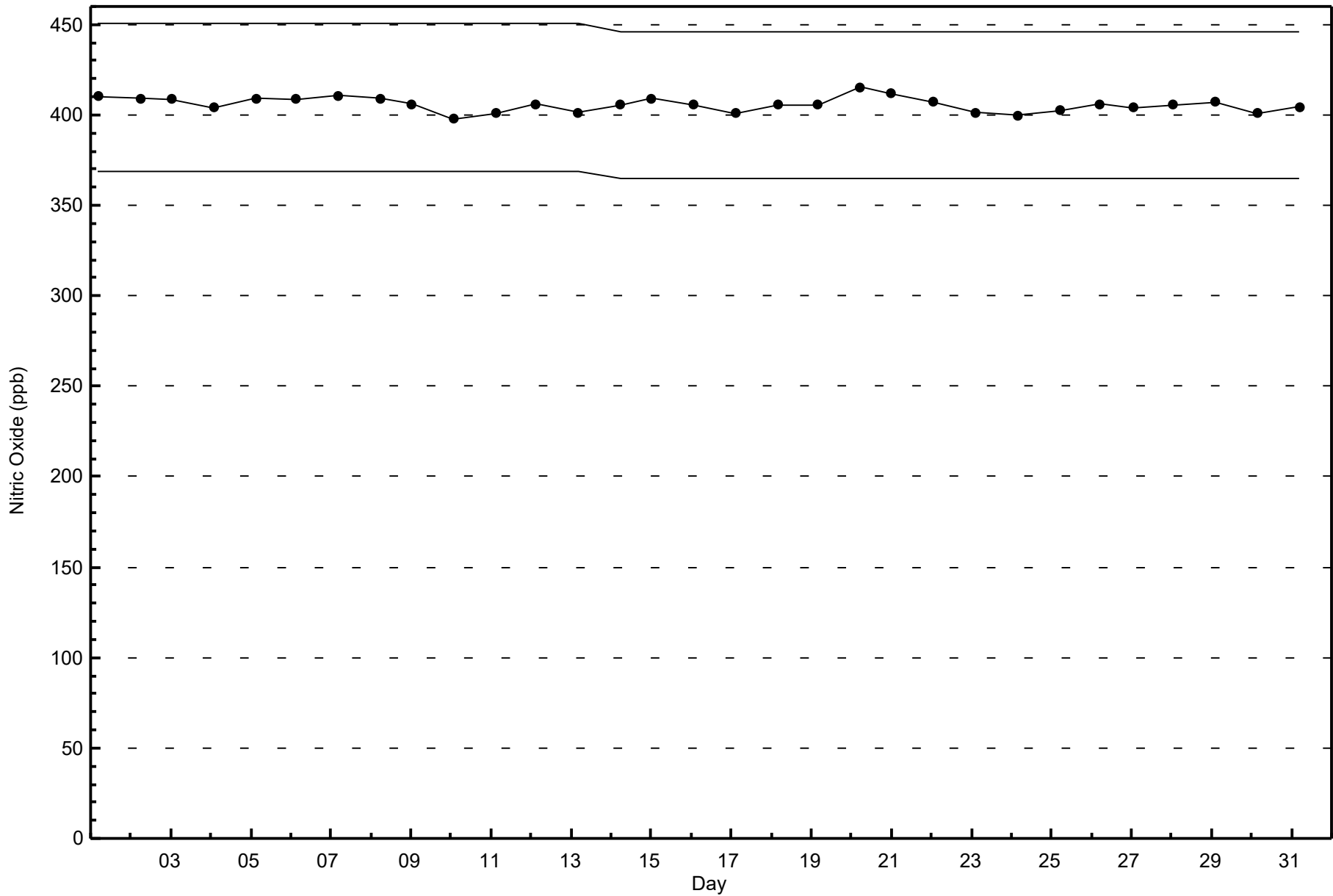
**Nitric Oxide (NO) - ppb
Christina Lake - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	6	48	83	42	38	39	30	64	97	88	44	35	11	23	41	18	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
Totals	6	48	83	42	38	39	30	64	97	88	44	35	11	23	41	18	707

Total Number of Valid Hours: 707

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

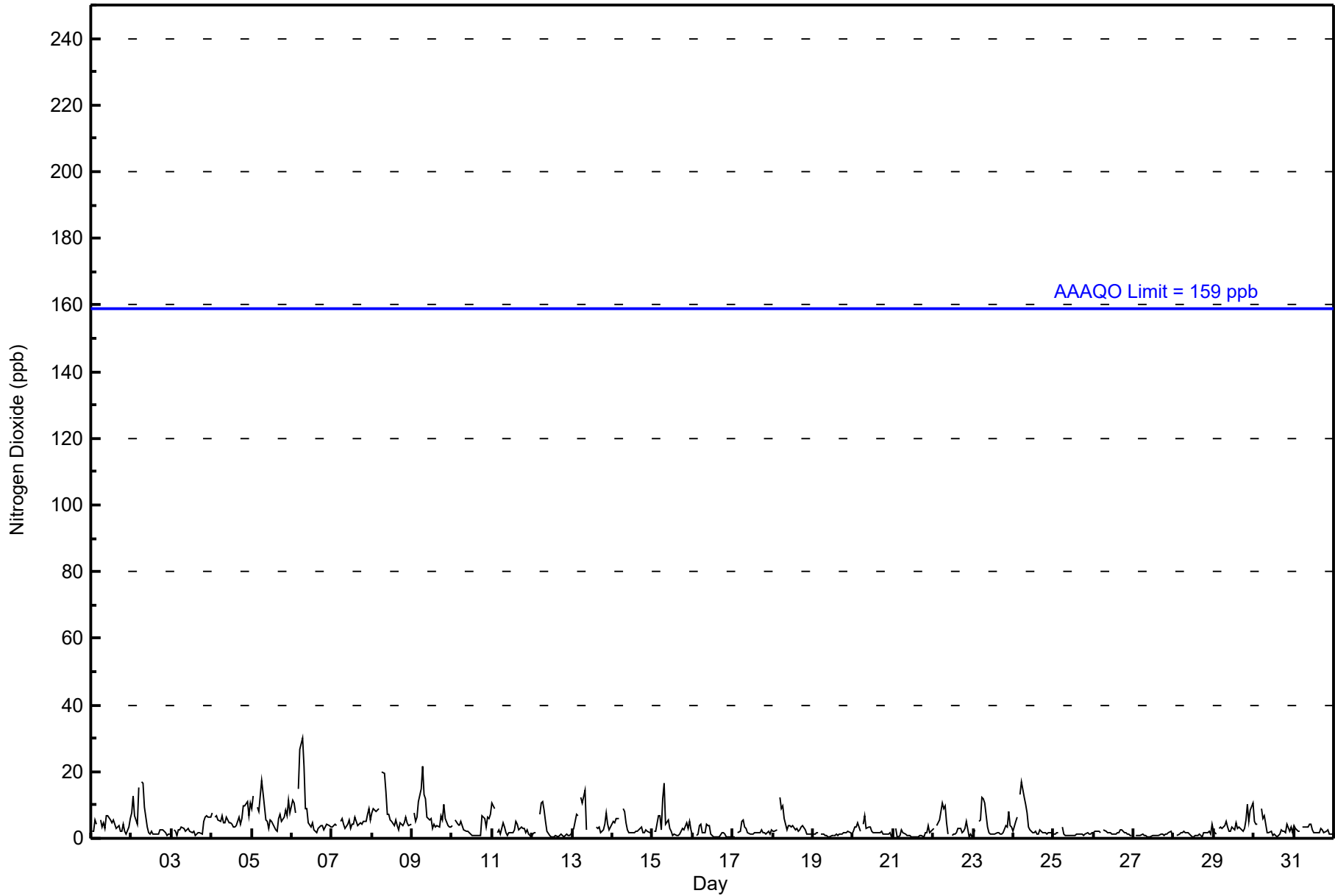
Christina Lake - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 30.2 ppb on Mar 6 07:00		Maximum Daily Average: 8.2 ppb on Mar 6														Hours of Data:		707									
Minimum Value: 0.3 ppb on Mar 21 03:00		Minimum Daily Average: 1.0 ppb on Mar 27														Hours of Missing Data:		37									
Maximum Diurnal Average: 8.2 ppb at hour 7		Minimum Diurnal Average: 2.0 ppb at hour 16														Hours of Calibration:		36									
Monthly Average: 3.67 ppb		Percentiles: P ₁ = 0.5 P ₁₀ = 0.9 Q ₁ = 1.4 Median = 2.4 Q ₃ = 4.7 P ₉₀ = 7.7 P ₉₉ = 16.9														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-Mar	2.2	2.3	5.5	4.2	Z	5.5	3.4	4.7	3.1	6.7	6.9	5.6	4.5	5.5	4.2	3.0	3.8	2.1	2.0	4.3	2.1	1.4	3.5	5.8	4.0	6.9	
2-Mar	7.7	12.5	6.7	4.4	15.2	Z	16.9	16.6	9.3	3.2	1.5	1.2	2.1	1.3	1.1	1.3	1.3	2.7	2.4	2.4	1.5	0.9	1.2	1.3	5.0	16.9	
3-Mar	Z	2.5	2.0	0.8	2.5	2.7	3.6	3.1	2.3	2.7	3.0	2.0	1.8	2.0	0.9	1.3	1.8	1.7	1.3	5.1	6.4	6.8	6.5	6.4	3.0	6.8	
4-Mar	7.6	Z	6.5	6.8	5.3	5.2	6.9	4.7	4.7	6.3	4.7	4.5	4.1	3.2	3.2	3.7	6.2	4.2	6.1	9.8	9.6	10.9	6.7	10.5	6.1	10.9	
5-Mar	8.8	12.9	Z	9.4	8.0	12.6	17.3	13.4	5.6	5.2	2.9	5.3	5.0	3.4	2.7	2.3	5.8	7.1	5.2	6.3	8.4	6.7	11.3	7.5	7.5	17.3	
6-Mar	11.6	10.8	7.8	Z	14.8	26.5	30.2	21.4	8.9	8.8	4.5	3.4	4.5	2.4	2.3	1.9	3.1	3.8	4.0	2.6	3.4	4.3	3.8	3.4	8.2	30.2	
7-Mar	3.3	3.9	4.3	3.9	Z	4.9	6.0	4.3	2.8	4.3	5.4	2.9	4.4	4.1	6.2	3.9	4.4	4.7	4.3	5.1	5.0	7.0	8.9	5.5	4.8	8.9	
8-Mar	7.7	8.7	8.0	8.3	8.9	Z	20.0	19.4	13.9	7.2	7.3	5.4	5.1	3.9	5.6	3.7	2.4	4.6	3.7	4.7	6.4	4.6	4.0	4.2	7.3	20.0	
9-Mar	Z	7.7	5.2	6.3	11.2	14.7	21.6	13.0	11.8	6.2	5.6	5.8	3.1	4.2	3.2	3.7	3.6	6.7	5.3	10.1	6.0	3.8	3.6	3.5	7.2	21.6	
10-Mar	3.7	Z	5.3	4.2	3.8	5.1	3.9	2.5	2.2	2.0	1.8	1.1	1.0	0.9	0.9	1.0	1.0	1.0	6.7	5.9	3.4	6.5	6.1	7.2	3.4	7.2	
11-Mar	10.5	8.8	Z	1.7	2.4	1.4	4.7	3.2	1.5	1.0	1.6	1.5	1.6	2.5	5.2	4.2	2.4	3.6	3.1	3.0	1.9	2.5	1.3	0.6	3.1	10.5	
12-Mar	1.2	1.8	1.6	Z	7.1	10.5	11.2	8.3	5.0	2.2	0.7	0.5	0.5	0.5	0.7	0.6	0.8	1.3	0.9	0.5	1.1	0.9	0.9	1.4	2.6	11.2	
13-Mar	2.0	3.1	7.3	6.8	Z	12.1	10.6	14.3	2.6	C	C	C	C	C	3.4	2.9	3.5	1.6	2.5	4.1	7.6	4.1	2.5	3.4	5.2	14.3	
14-Mar	4.9	4.8	6.0	6.0	6.1	Z	9.0	8.1	4.6	2.6	1.8	1.8	1.5	1.6	2.3	2.0	3.0	3.3	1.9	1.8	2.4	2.3	1.5	1.6	3.5	9.0	
15-Mar	Z	2.0	2.2	6.7	6.6	2.6	11.8	16.4	4.3	5.5	3.1	2.3	1.0	1.3	1.0	0.8	1.4	2.3	3.0	2.6	4.5	3.1	4.9	2.4	4.0	16.4	
16-Mar	1.0	Z	0.9	1.3	4.0	4.2	1.9	1.9	4.2	3.8	3.8	1.4	0.5	0.6	0.4	0.5	0.5	1.6	1.6	1.3	0.6	0.5	0.6	0.6	1.6	4.2	
17-Mar	0.6	0.5	Z	1.8	2.0	5.1	5.3	3.2	3.1	1.6	1.2	1.1	1.4	1.5	1.6	1.7	1.5	2.4	1.9	1.6	1.4	2.3	1.1	2.4	2.0	5.3	
18-Mar	2.2	2.0	2.5	Z	12.3	9.0	9.7	6.1	2.4	3.9	3.7	3.6	3.9	2.4	3.0	2.3	2.7	3.3	3.8	2.6	1.4	1.2	1.1	1.2	3.8	12.3	
19-Mar	1.3	1.4	1.6	1.6	Z	1.2	1.3	1.0	0.7	0.6	0.5	0.9	0.7	1.0	1.1	1.0	1.1	1.4	1.8	1.8	1.8	2.2	1.8	1.4	1.3	2.2	
20-Mar	2.0	3.5	3.3	4.8	2.3	Z	4.4	6.8	3.0	3.6	3.3	2.2	1.8	1.8	1.9	1.5	1.8	2.0	1.1	1.2	1.3	1.1	1.6	0.5	2.5	6.8	
21-Mar	Z	2.8	0.3	0.4	0.9	2.7	1.9	1.2	1.0	0.7	0.7	0.6	0.6	0.5	0.4	0.6	0.9	0.8	0.4	1.7	1.6	3.9	1.8	2.5	1.3	3.9	
22-Mar	3.0	Z	3.7	4.7	5.6	10.6	9.1	9.8	4.5	1.3	M	1.0	1.1	1.2	1.8	2.9	3.0	1.5	2.2	2.9	5.0	0.6	1.3	0.5	3.5	10.6	
23-Mar	1.2	2.7	Z	5.1	5.5	12.1	12.0	10.6	3.3	1.9	1.3	1.4	1.3	1.2	1.6	1.7	1.4	1.3	1.6	4.0	3.6	8.1	3.7	3.5	3.9	12.1	
24-Mar	2.0	5.1	6.4	Z	13.0	16.8	12.1	10.3	7.6	3.3	2.4	1.8	1.8	2.1	1.4	1.2	2.6	1.5	1.9	1.8	1.4	1.5	1.6	1.1	4.4	16.8	
25-Mar	1.4	1.2	1.8	1.9	Z	3.4	1.2	1.0	0.9	0.9	0.9	1.0	0.9	0.9	1.2	1.4	1.3	1.1	1.0	1.4	1.5	1.4	1.4	1.6	1.3	3.4	
26-Mar	1.8	2.0	2.1	2.3	1.9	Z	2.5	2.0	1.8	1.8	1.5	1.2	1.2	1.2	1.6	1.6	2.4	2.7	1.7	1.5	1.2	1.1	0.9	0.9	1.7	2.7	
27-Mar	Z	0.9	0.8	0.9	0.7	1.1	1.0	0.7	0.6	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.4	1.2	0.7	1.2	1.4	1.5	2.0	1.0	1.0	2.0	
28-Mar	0.9	Z	1.0	1.1	1.8	1.9	2.1	1.7	1.7	1.3	1.0	0.6	0.6	0.8	0.7	1.1	0.7	0.5	1.5	1.9	1.7	2.1	1.4	4.1	1.4	4.1	
29-Mar	2.1	1.2	Z	3.1	3.3	3.1	3.9	5.1	3.4	2.2	2.3	3.5	2.7	4.6	3.0	3.3	3.1	2.1	3.1	5.5	10.0	5.2	8.4	10.4	4.1	10.4	
30-Mar	4.9	4.1	4.2	Z	8.7	5.9	6.6	4.4	1.7	1.8	2.0	1.0	1.1	0.7	0.6	1.2	2.6	2.1	2.0	1.6	4.2	2.3	3.2	1.8	3.0	8.7	
31-Mar	3.7	2.8	2.3	2.1	Z	3.3	3.2	3.2	3.4	4.3	4.4	2.6	1.8	1.8	1.6	1.8	3.1	2.7	1.6	2.0	2.5	1.3	1.2	1.1	2.5	4.4	
																								Diurnal Average		3.8 4.3 3.8 3.9 6.2 7.1 8.2 7.2 4.1 3.3 2.8 2.3 2.1 2.0 2.1 2.0 2.4 2.5 2.6 3.3 3.6 3.3 3.2 3.2	
																								Diurnal Maximum		11.6 12.9 8.0 9.4 15.2 26.5 30.2 21.4 13.9 8.8 7.3 5.8 5.1 5.5 6.2 4.2 6.2 7.1 6.7 10.1 10.0 10.9 11.3 10.5	
Z - zerospan C - Calibration M - Maintenance																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Christina Lake - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	99.43	99.43
21 - 40	4	0.57	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Christina Lake - March 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	6	48	83	42	38	39	29	62	96	88	44	35	11	23	41	18	703
21 - 40	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	48	83	42	38	39	30	64	97	88	44	35	11	23	41	18	707

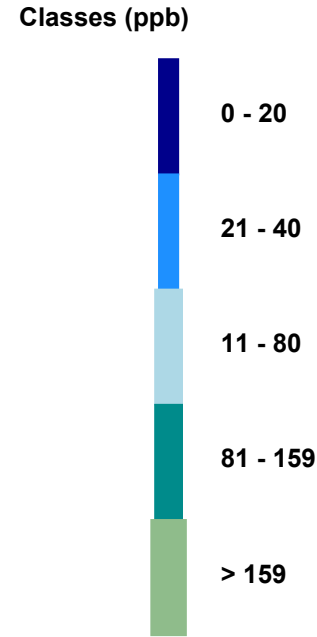
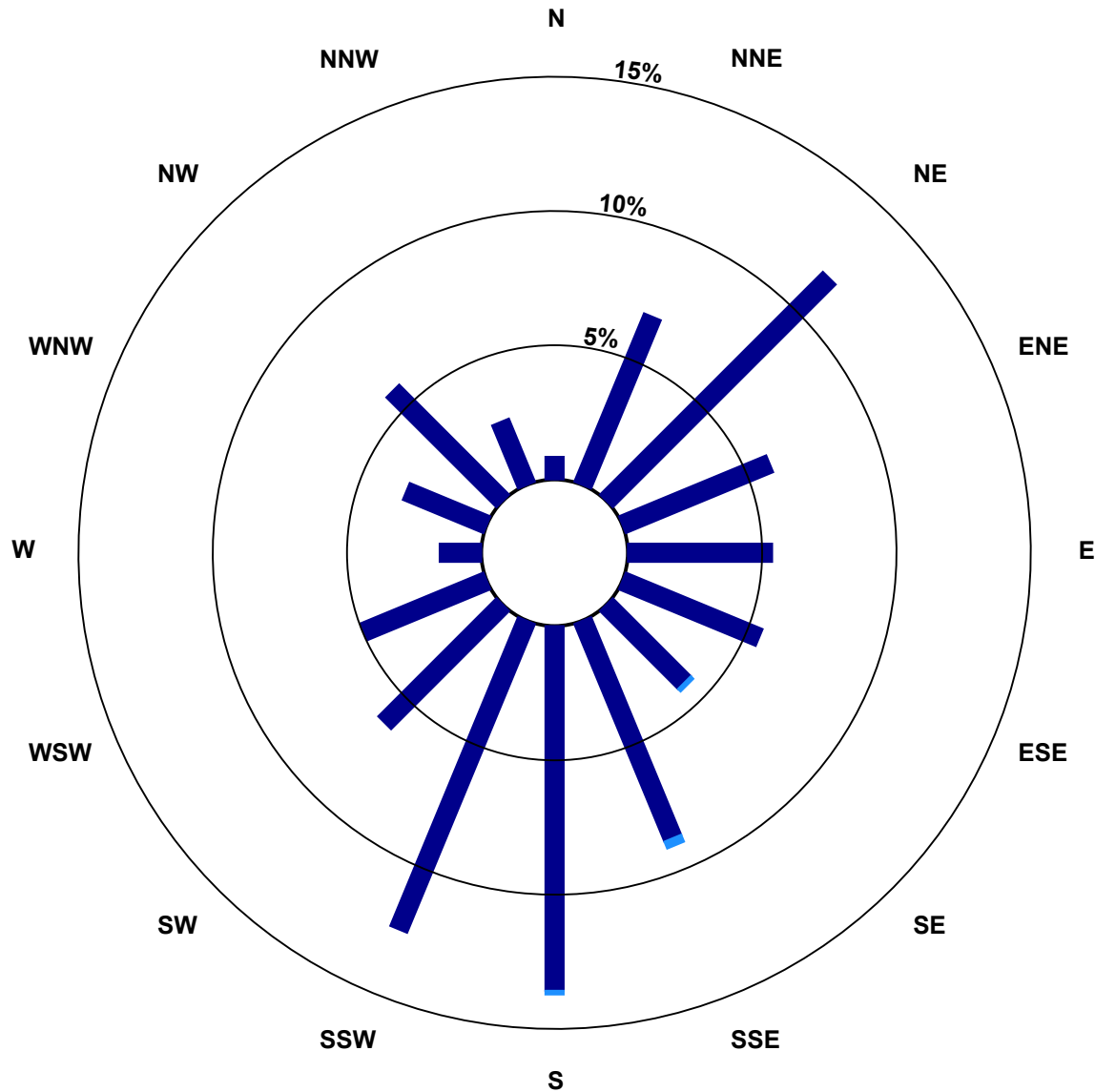
Total Number of Valid Hours: 707

Total Number of Hours: 744

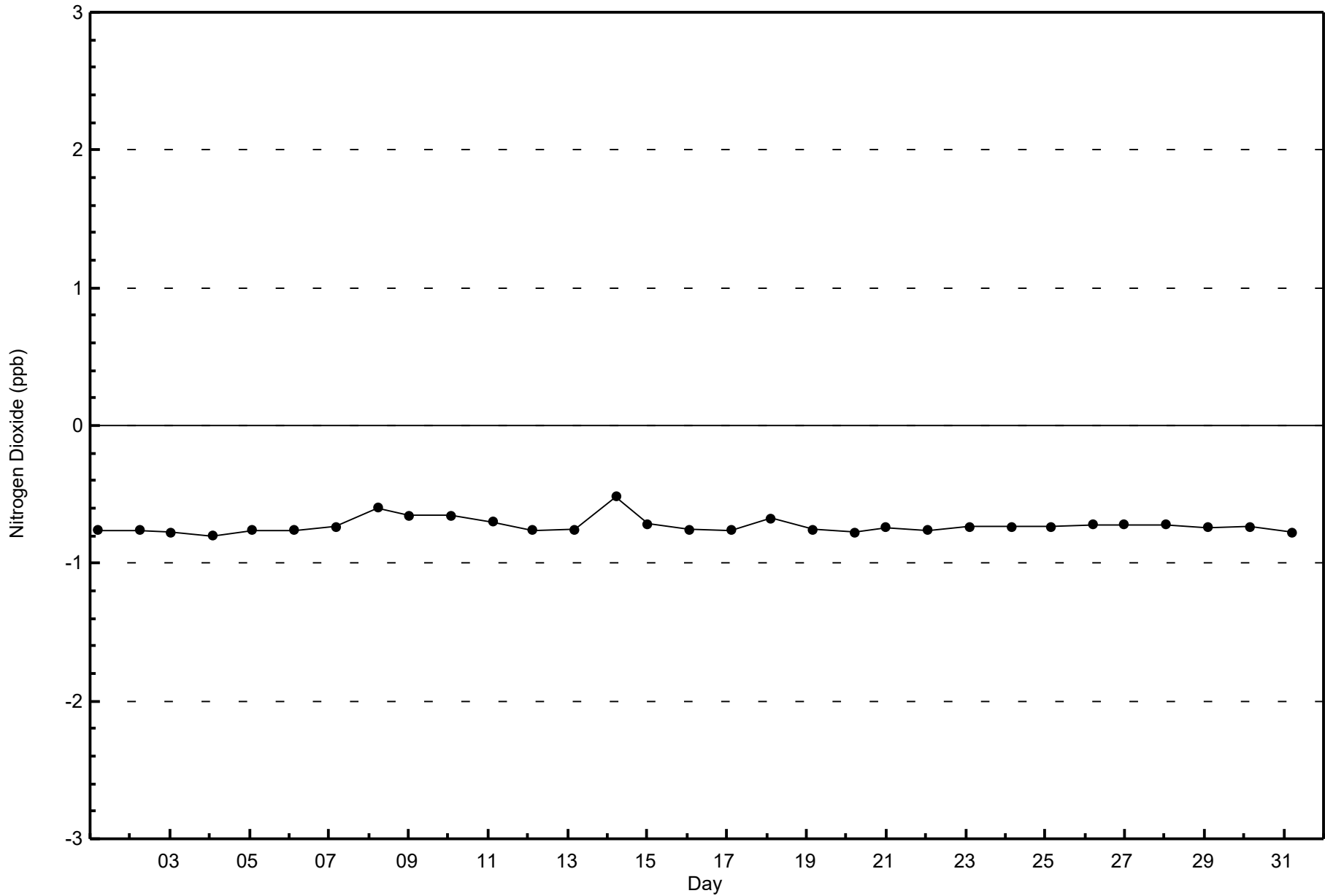


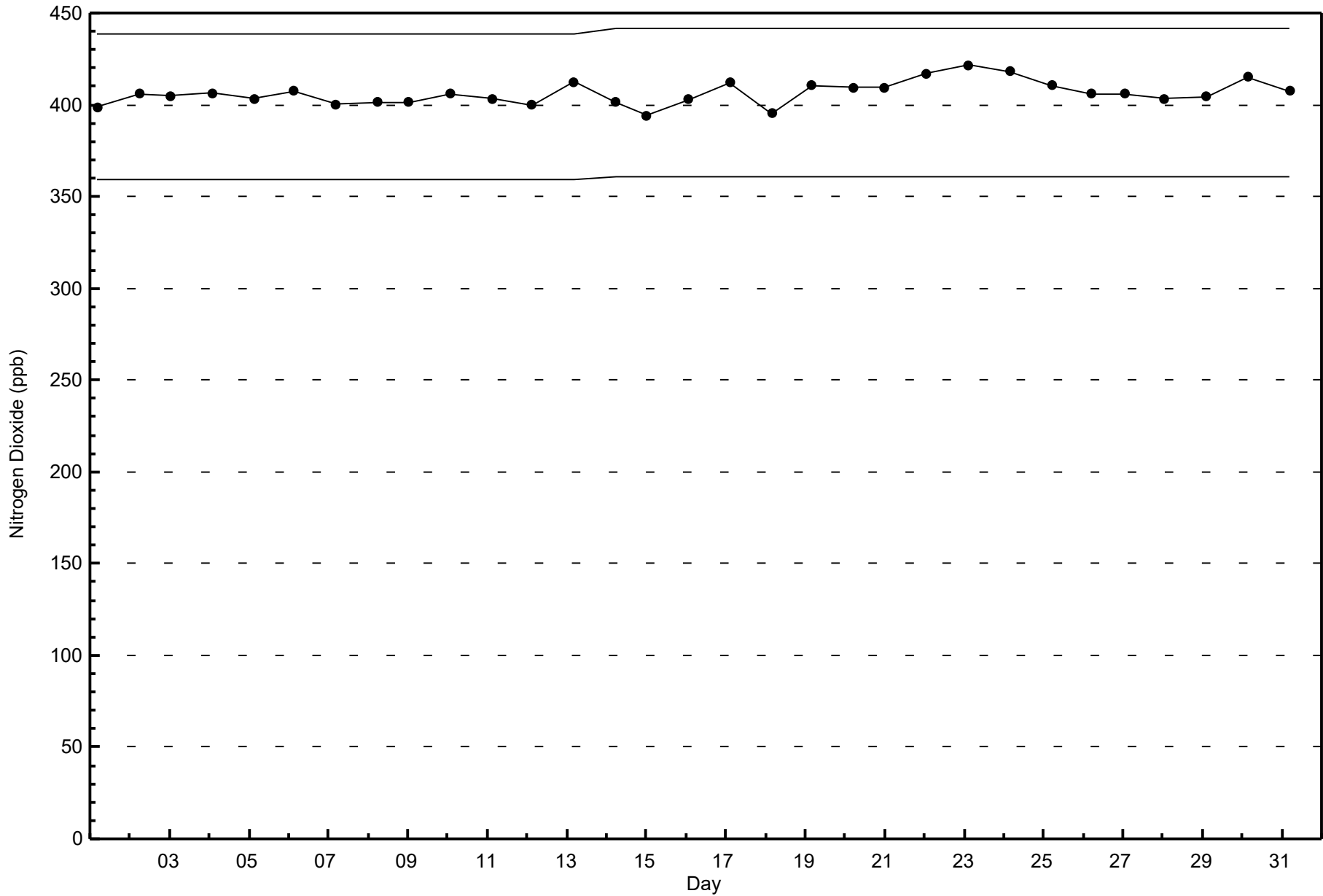
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Christina Lake



Total Number of Valid Hours: 707







Wood Buffalo Environmental Association
Summary of Hour Averages

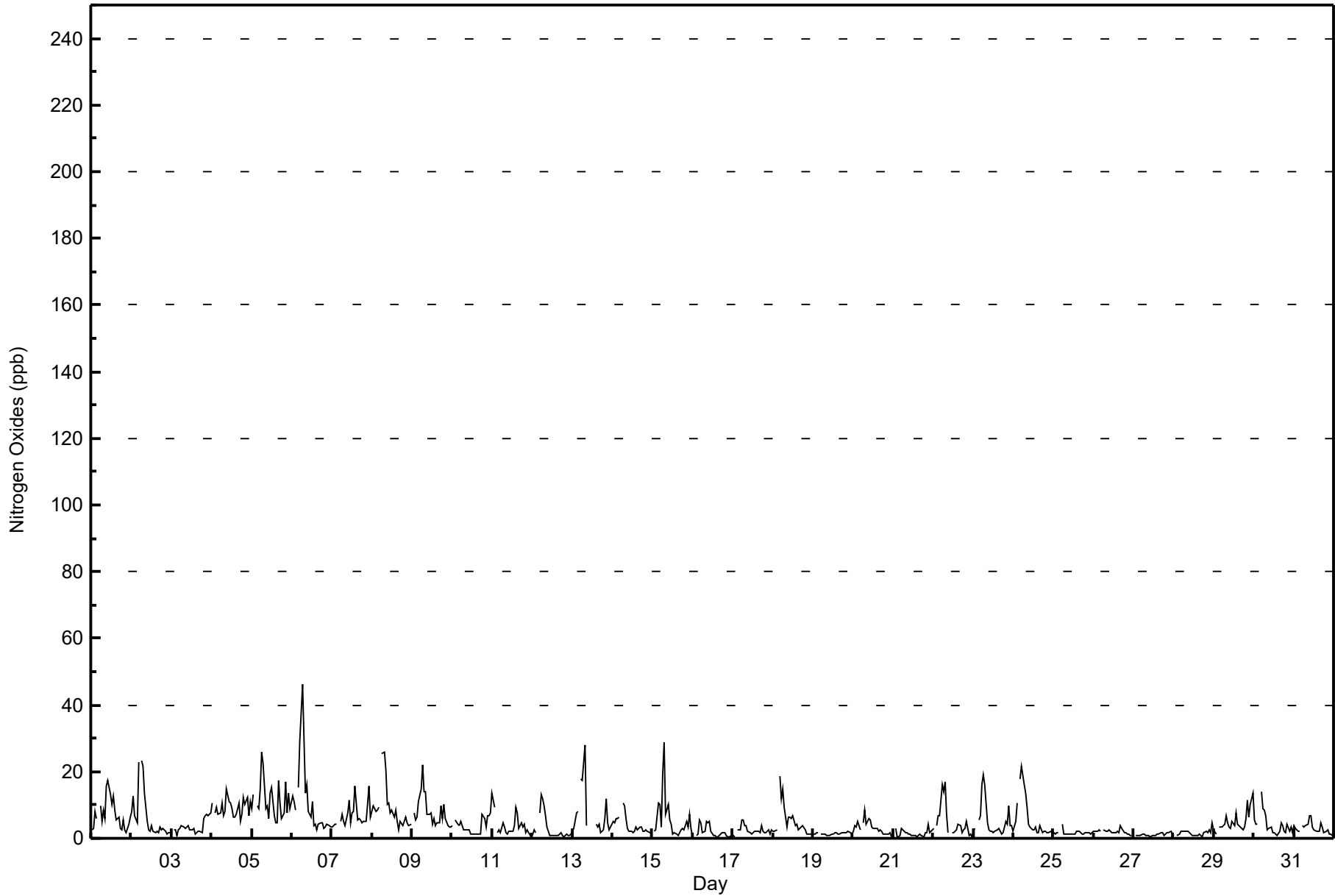
Nitrogen Oxides (NO_x) - ppb
Christina Lake - March 2024

Maximum Value: 46.1 ppb on Mar 6 07:00 Maximum Daily Average: 11.4 ppb on Mar 5																				Hours in Service: 744 Hours of Data: 707						
Minimum Value: 0.3 ppb on Mar 21 03:00 Minimum Daily Average: 1.1 ppb on Mar 27 Maximum Diurnal Average: 11.0 ppb at hour 7 Minimum Diurnal Average: 2.8 ppb at hour 19 Monthly Average: 4.83 ppb Percentiles: P ₁ = 0.5 P ₁₀ = 1.1 Q ₁ = 1.7 Median = 3.1 Q ₃ = 6.1 P ₉₀ = 10.6 P ₉₉ = 25.2																				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-Mar	2.6	3.1	8.0	5.8	Z	9.9	5.0	8.3	5.9	15.8	17.2	13.2	10.2	12.6	8.3	5.4	6.5	2.8	2.4	5.4	2.4	1.6	4.1	6.4	7.1	17.2
2-Mar	8.2	12.8	7.0	4.5	23.1	Z	23.4	21.8	13.5	5.1	2.5	2.1	3.9	2.3	1.7	2.0	1.7	3.4	2.6	2.8	2.0	1.1	1.5	1.6	6.6	23.4
3-Mar	Z	2.7	2.4	0.8	2.7	3.0	3.9	3.4	2.8	3.5	4.0	2.7	2.5	2.9	1.1	1.8	2.2	2.1	1.6	6.0	6.7	7.3	6.9	7.7	3.5	7.7
4-Mar	10.7	Z	7.8	9.3	7.0	7.8	10.6	6.9	8.1	14.8	11.1	10.4	8.8	6.4	6.4	7.3	10.7	5.2	7.1	12.2	10.1	12.5	6.8	11.2	9.1	14.8
5-Mar	9.0	13.3	Z	9.9	8.8	15.0	25.8	22.3	9.0	9.8	6.0	13.7	15.3	6.8	4.8	4.7	17.5	10.4	6.1	7.6	16.8	7.6	13.5	8.9	11.4	25.8
6-Mar	12.9	11.0	8.5	Z	15.3	29.3	46.1	29.7	13.7	16.0	8.0	6.2	10.8	3.7	4.3	2.6	4.2	4.6	4.5	2.8	3.5	4.3	3.8	3.5	10.8	46.1
7-Mar	3.3	3.9	4.4	4.1	Z	5.3	7.1	5.0	3.8	7.6	11.6	4.7	7.7	8.0	15.9	5.5	5.9	5.3	4.5	5.2	5.1	10.3	15.8	6.2	6.8	15.9
8-Mar	8.1	9.7	8.0	8.4	9.4	Z	25.3	26.0	20.4	10.2	10.6	7.4	8.3	6.5	8.4	5.2	2.7	5.2	3.9	4.9	6.5	4.6	4.0	4.3	9.0	26.0
9-Mar	Z	7.8	5.6	6.4	11.2	14.8	22.0	14.0	13.8	7.4	7.2	7.7	4.1	5.8	4.0	4.5	4.7	9.9	5.9	10.2	6.1	3.9	3.6	3.5	8.0	22.0
10-Mar	3.8	Z	5.4	4.2	3.8	5.2	4.0	2.7	2.6	2.6	2.5	1.5	1.2	1.2	1.1	1.3	1.3	1.1	7.0	6.1	3.5	6.6	7.0	7.6	3.6	7.6
11-Mar	13.5	9.3	Z	1.8	2.5	1.5	4.8	3.3	1.7	1.2	2.1	2.1	2.3	3.7	9.3	7.7	3.1	4.5	3.2	4.3	1.9	2.7	1.8	0.6	3.9	13.5
12-Mar	1.3	2.4	1.7	Z	7.8	13.2	11.8	9.9	7.0	3.2	0.9	0.7	0.7	0.7	1.0	0.7	1.1	1.5	0.9	0.6	1.1	1.0	0.9	1.4	3.1	13.2
13-Mar	2.0	3.1	7.5	7.9	Z	17.6	17.5	27.9	3.9	C	C	C	C	C	4.4	3.5	4.3	1.7	2.5	5.7	11.9	4.7	2.6	3.5	7.4	27.9
14-Mar	5.0	4.8	6.1	6.1	6.2	Z	10.7	9.9	5.8	3.2	2.2	2.3	1.9	2.2	3.6	2.4	3.4	3.6	1.9	1.9	2.5	2.3	1.5	1.6	4.0	10.7
15-Mar	Z	2.2	2.7	10.5	10.1	3.5	19.6	28.9	7.4	10.2	5.7	4.1	1.3	1.8	1.3	1.0	1.7	2.6	3.1	2.6	5.2	3.3	7.4	3.0	6.1	28.9
16-Mar	1.0	Z	1.0	1.4	5.5	4.9	1.9	2.1	5.1	4.9	5.3	2.0	0.7	0.8	0.5	0.6	0.6	1.8	1.9	1.7	0.7	0.6	0.6	0.7	2.0	5.5
17-Mar	0.7	0.5	Z	2.4	2.4	5.4	5.6	3.7	3.8	2.0	1.6	1.5	1.9	2.1	2.3	2.2	1.7	3.7	2.0	1.6	1.6	2.4	1.1	2.4	2.4	5.6
18-Mar	2.2	2.0	2.5	Z	18.6	11.9	14.8	9.4	3.3	6.4	6.3	6.1	6.6	3.7	4.4	2.8	3.0	3.5	3.9	2.7	1.5	1.3	1.1	1.2	5.2	18.6
19-Mar	1.3	1.4	1.6	1.6	Z	1.2	1.3	1.1	0.8	0.7	0.7	1.4	1.1	1.5	1.6	1.4	1.4	1.6	1.9	1.9	1.8	2.3	1.9	1.4	1.4	2.3
20-Mar	2.0	3.7	3.5	5.3	2.6	Z	4.6	8.3	4.2	5.7	5.4	3.5	2.8	2.8	3.0	2.2	2.4	2.3	1.2	1.4	1.3	1.2	1.7	0.5	3.1	8.3
21-Mar	Z	2.9	0.3	0.4	1.0	2.9	2.3	1.9	1.6	1.1	1.1	0.9	0.9	0.7	0.5	0.9	1.2	1.0	0.5	1.8	1.7	4.0	1.9	2.6	1.5	4.0
22-Mar	3.1	Z	4.0	6.9	6.8	16.2	13.9	17.2	7.0	1.9	M	1.7	1.7	1.9	2.7	4.2	4.0	1.8	2.5	3.1	5.2	0.8	1.4	0.5	4.9	17.2
23-Mar	1.9	3.0	Z	5.6	6.6	16.0	19.2	16.3	4.8	2.7	2.0	2.3	1.9	1.9	2.4	2.9	2.3	1.5	1.8	5.1	4.2	9.7	4.0	3.7	5.3	19.2
24-Mar	2.1	5.3	10.4	Z	18.0	21.5	16.2	13.5	9.3	4.3	3.4	2.5	2.5	3.3	1.8	1.6	3.9	1.8	2.2	1.9	1.5	1.6	1.9	1.2	5.7	21.5
25-Mar	1.7	1.2	1.9	1.9	Z	4.4	1.4	1.2	1.2	1.2	1.4	1.4	1.2	1.3	1.9	2.0	1.8	1.2	1.1	1.6	1.6	1.5	1.4	1.7	1.6	4.4
26-Mar	1.9	2.0	2.1	2.5	2.0	Z	2.7	2.3	2.3	2.4	2.1	1.7	1.6	1.6	2.1	1.9	3.9	3.1	1.8	1.7	1.2	1.1	0.9	1.0	2.0	3.9
27-Mar	Z	0.9	0.8	0.9	0.8	1.3	1.2	0.8	0.7	0.7	0.6	0.8	1.0	1.0	1.1	1.3	1.9	1.5	0.8	1.4	1.6	1.6	2.1	1.1	1.1	2.1
28-Mar	0.9	Z	1.0	1.1	2.1	2.0	2.3	1.9	2.1	1.8	1.4	0.8	0.8	1.0	0.9	1.4	0.9	0.5	1.6	2.0	1.7	2.3	1.5	4.8	1.6	4.8
29-Mar	2.4	1.3	Z	3.3	3.4	3.2	4.4	6.7	4.5	3.3	3.1	5.2	3.9	7.4	4.1	4.0	3.6	2.4	3.5	5.8	11.5	6.2	10.2	13.5	5.1	13.5
30-Mar	5.5	4.1	4.3	Z	14.1	9.0	8.6	6.7	2.7	3.0	3.5	1.5	1.7	1.1	1.0	2.0	4.6	3.6	2.2	1.7	4.3	2.3	3.2	1.9	4.0	14.1
31-Mar	3.7	2.8	2.3	2.1	Z	3.9	3.4	3.9	4.4	6.9	6.7	3.3	2.3	2.2	1.9	2.3	4.6	3.6	1.6	2.0	2.5	1.3	1.3	1.1	3.1	6.9
4.3 4.5 4.3 4.4 7.7 8.8 11.0 10.2 5.7 5.3 4.7 3.8 3.7 3.3 3.5 2.9 3.6 3.2 2.8 3.7 4.2 3.7 3.8 3.6																								Diurnal Average		
13.5 13.3 10.4 10.5 23.1 29.3 46.1 29.7 20.4 16.0 17.2 13.7 15.3 12.6 15.9 7.7 17.5 10.4 7.1 12.2 16.8 12.5 15.8 13.5																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Christina Lake - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	693	98.02	98.02
21 - 40	13	1.84	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Christina Lake - March 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	6	48	83	40	37	39	28	61	94	87	43	35	11	23	40	18	693
21 - 40	0	0	0	2	1	0	1	3	3	1	1	0	0	0	1	0	13
11 - 80	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	48	83	42	38	39	30	64	97	88	44	35	11	23	41	18	707

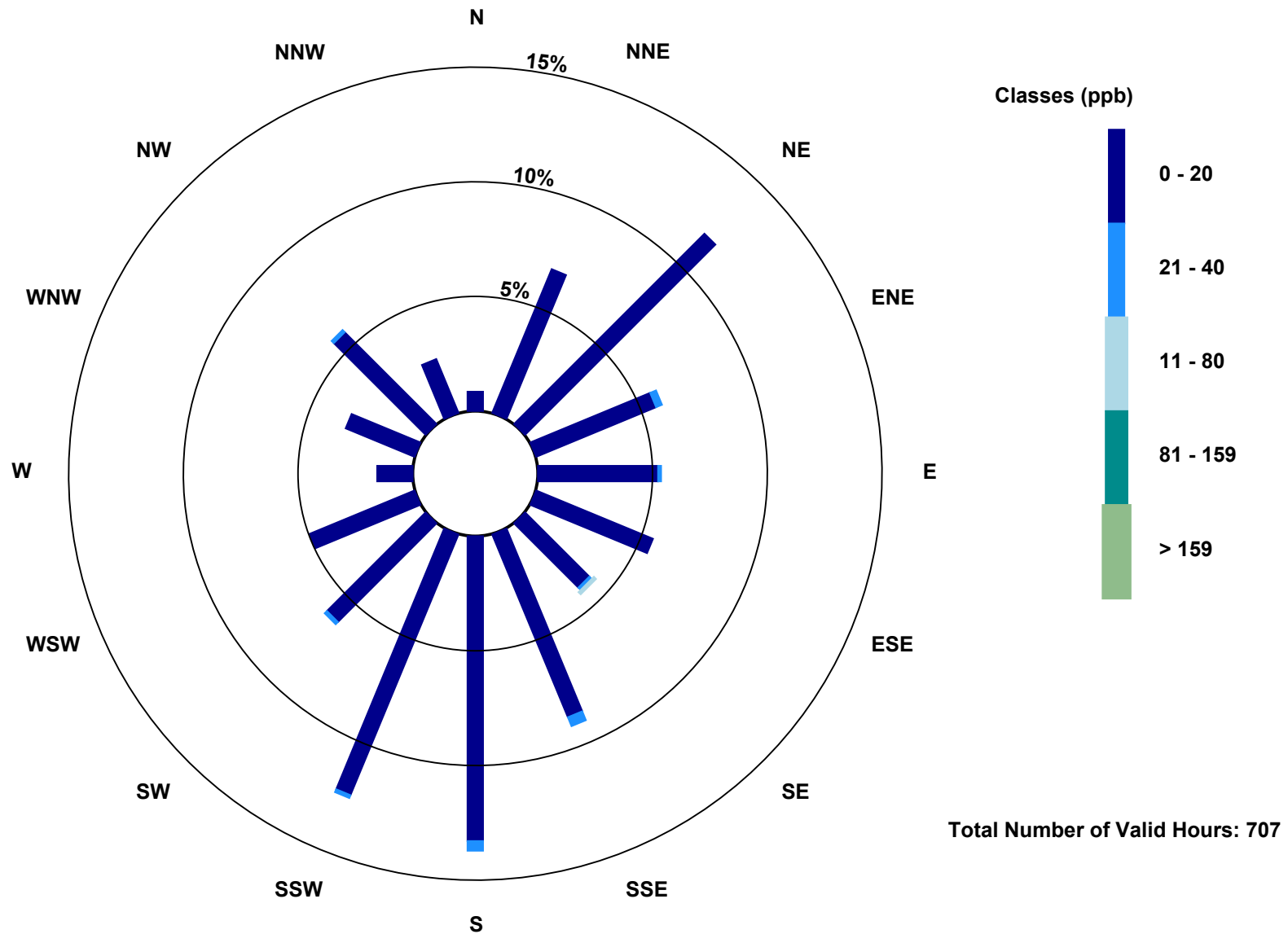
Total Number of Valid Hours: 707

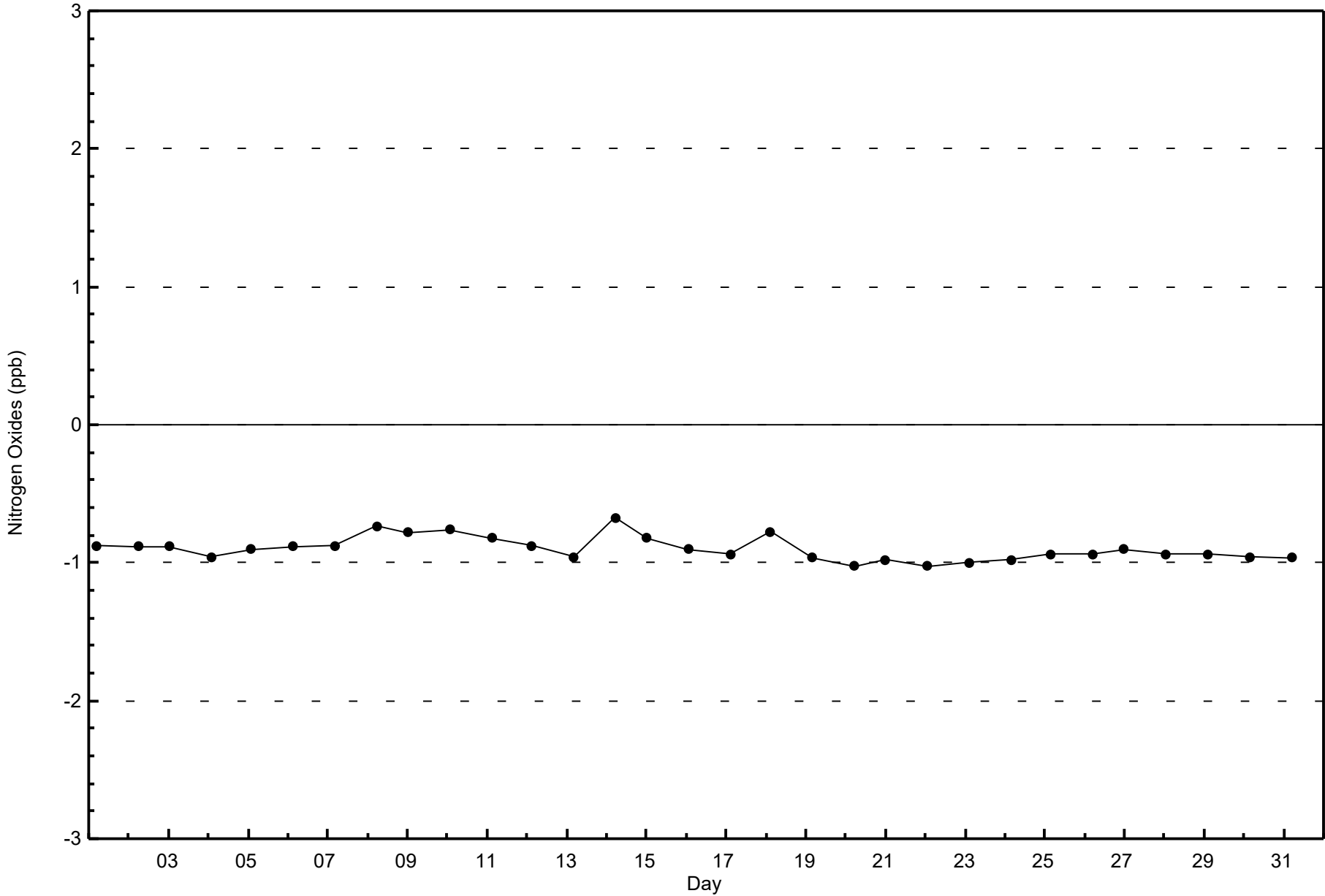
Total Number of Hours: 744

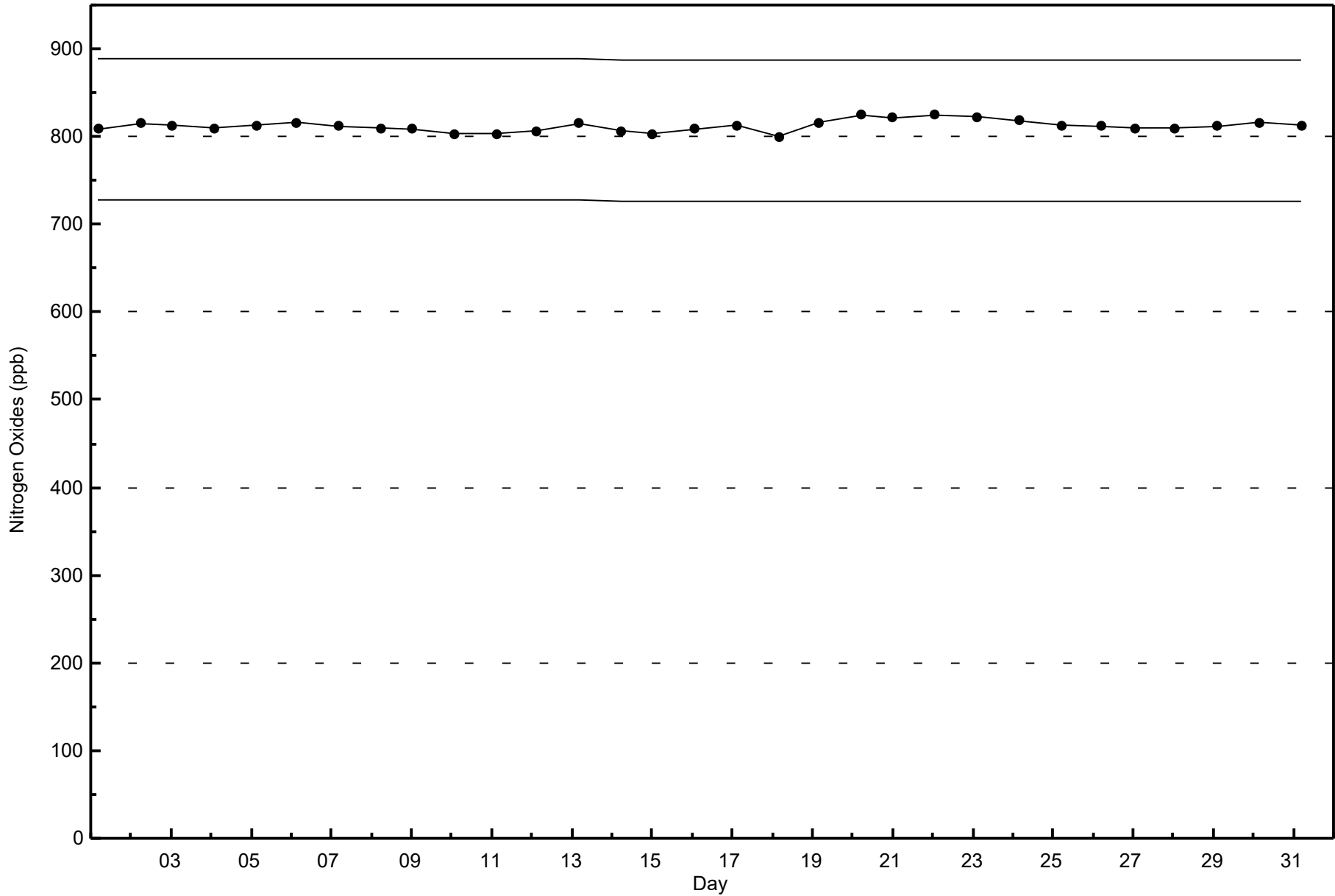


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Christina Lake









Wood Buffalo Environmental Association
Summary of Hour Averages

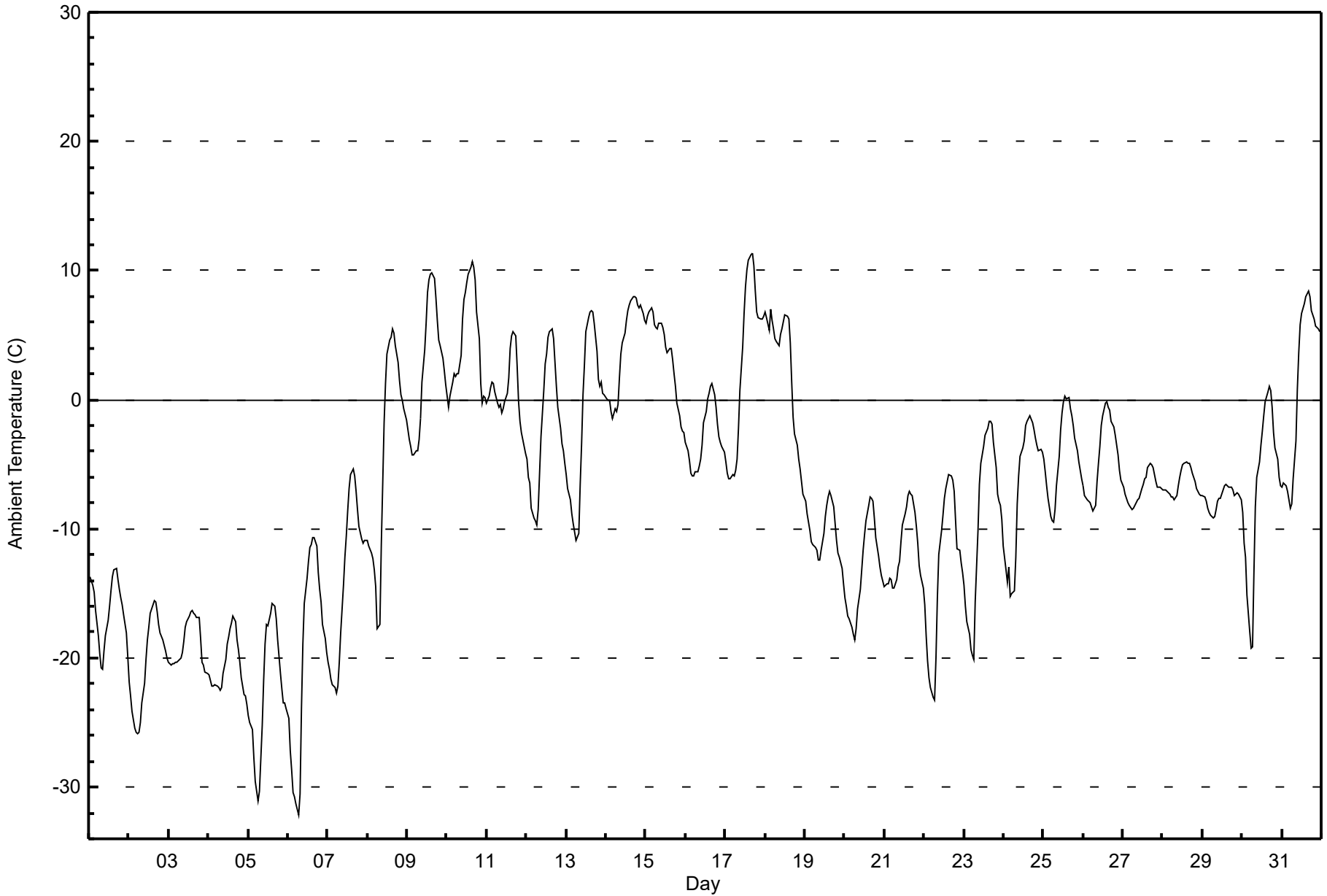
Ambient Temperature (AT) - C
Christina Lake - March 2024

Maximum Value: 11.4 C on Mar 17 17:00		Maximum Daily Average: 4.5 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -32.1 C on Mar 6 07:00		Minimum Daily Average: -22.5 C on Mar 5		Hours of Data: 744																																												
Maximum Diurnal Average: -2.0 C at hour 16		Minimum Diurnal Average: -12.5 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: -7.16 C		Percentiles: P ₁ = -30.0 P ₁₀ = -20.2 Q ₁ = -14.1 Median = -6.8 Q ₃ = -0.2 P ₉₀ = 5.6 P ₉₉ = 10.0		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	-13.7	-14.1	-14.4	-14.9	-16.4	-18.3	-19.6	-20.8	-20.9	-19.5	-18.3	-17.1	-16.0	-14.8	-13.8	-13.2	-13.1	-13.9	-14.7	-15.4	-15.9	-16.7	-18.1	-19.9	-16.4	-13.1																						
2-Mar	-21.9	-22.9	-24.1	-25.4	-25.8	-25.9	-25.8	-25.0	-23.5	-21.9	-20.1	-18.6	-17.6	-16.5	-15.8	-15.6	-15.7	-16.4	-17.4	-18.0	-18.6	-19.1	-19.5	-20.0	-20.5	-15.6																						
3-Mar	-20.4	-20.5	-20.5	-20.4	-20.3	-20.3	-20.2	-20.0	-19.5	-18.7	-17.6	-17.1	-16.7	-16.4	-16.4	-16.5	-16.6	-16.8	-16.9	-18.5	-20.3	-20.6	-21.0	-21.2	-18.9	-16.4																						
4-Mar	-21.3	-21.8	-22.1	-22.2	-22.1	-22.1	-22.3	-22.5	-22.3	-21.2	-20.1	-18.9	-18.4	-17.8	-17.3	-16.8	-17.2	-18.6	-19.3	-20.4	-21.5	-22.8	-22.9	-23.6	-20.6	-16.8																						
5-Mar	-24.4	-25.0	-25.5	-27.7	-29.5	-30.3	-31.1	-30.3	-25.2	-21.7	-18.9	-17.4	-17.5	-16.5	-15.8	-15.9	-15.9	-17.0	-18.6	-21.1	-22.4	-23.5	-23.5	-24.0	-22.5	-15.8																						
6-Mar	-24.7	-27.1	-28.7	-30.4	-30.8	-31.3	-32.1	-30.5	-23.9	-18.9	-15.8	-13.9	-12.5	-11.4	-11.2	-10.6	-10.6	-11.3	-13.3	-14.7	-15.7	-17.4	-18.4	-19.6	-19.8	-10.6																						
7-Mar	-20.3	-20.8	-21.6	-22.0	-22.3	-22.8	-22.2	-20.4	-18.1	-14.4	-12.2	-10.6	-8.7	-6.8	-5.8	-5.4	-5.9	-7.1	-8.5	-9.8	-10.7	-11.2	-10.9	-10.9	-13.7	-5.4																						
8-Mar	-10.9	-11.4	-11.9	-12.3	-13.2	-14.5	-17.7	-17.4	-11.2	-6.5	-1.7	1.2	3.5	4.6	4.8	5.4	5.1	4.2	2.9	1.4	0.3	0.0	-0.7	-1.6	-4.1	5.4																						
9-Mar	-2.3	-3.0	-3.6	-4.2	-4.3	-3.9	-4.0	-3.1	-1.4	1.3	3.9	6.0	8.3	9.3	9.8	9.8	9.4	7.9	6.1	4.6	4.1	3.2	2.2	1.2	2.4	9.8																						
10-Mar	0.2	-0.5	0.3	1.3	2.0	1.8	2.0	2.0	3.4	6.2	7.8	8.3	9.1	9.8	10.3	10.6	10.2	9.3	6.8	4.7	1.3	-0.2	0.2	0.2	4.5	10.6																						
11-Mar	-0.2	0.3	1.0	1.4	1.2	0.6	-0.2	-0.6	-0.4	-1.1	-0.7	-0.2	0.5	1.7	4.0	5.0	5.2	4.9	2.5	-0.1	-1.7	-2.6	-3.1	-4.2	0.6	5.2																						
12-Mar	-4.6	-6.0	-6.4	-8.4	-9.2	-9.4	-9.7	-8.5	-5.7	-2.9	0.7	2.8	3.5	4.9	5.3	5.5	4.7	2.9	1.0	-0.5	-2.3	-3.4	-3.9	-4.9	-2.3	5.5																						
13-Mar	-5.8	-6.9	-7.7	-8.8	-9.6	-10.2	-10.9	-10.3	-6.6	-3.4	0.4	2.7	5.3	6.3	6.8	6.9	6.8	5.9	3.7	1.6	1.0	1.3	0.4	0.4	-1.3	6.9																						
14-Mar	0.1	0.0	-0.1	-0.9	-1.4	-0.8	-0.9	-0.4	1.7	3.6	4.4	5.2	6.1	6.9	7.4	7.7	8.0	7.9	7.8	7.3	7.1	7.3	6.7	6.1	4.0	8.0																						
15-Mar	5.9	6.5	6.8	7.1	6.8	5.9	5.6	5.4	5.9	5.9	5.6	5.1	4.1	3.7	4.0	3.9	3.1	2.0	1.0	-0.3	-1.2	-2.1	-2.4	-2.5	3.6	7.1																						
16-Mar	-3.3	-3.9	-4.7	-5.6	-5.9	-5.9	-5.6	-5.6	-5.2	-4.6	-3.5	-1.8	-0.9	0.0	0.5	1.0	1.2	0.4	-0.6	-1.9	-2.8	-3.3	-3.6	-4.1	-2.9	1.2																						
17-Mar	-4.8	-5.6	-6.1	-6.1	-5.8	-5.9	-5.5	-4.6	-2.2	0.7	4.0	6.7	8.7	10.1	10.8	11.3	11.4	10.4	8.4	6.8	6.3	6.3	6.2	6.5	2.8	11.4																						
18-Mar	6.8	6.4	5.4	7.0	6.1	5.5	4.7	4.5	4.2	5.0	5.4	6.0	6.6	6.5	6.3	4.4	1.4	-1.4	-2.6	-3.5	-4.6	-5.4	-6.4	-7.3	2.5	7.0																						
19-Mar	-7.9	-8.8	-9.4	-10.1	-11.0	-11.3	-11.4	-11.7	-12.4	-12.4	-11.7	-10.4	-9.1	-8.1	-7.5	-7.1	-7.4	-8.3	-9.6	-10.9	-11.9	-12.2	-13.1	-14.2	-10.3	-7.1																						
20-Mar	-15.3	-16.0	-16.7	-17.0	-17.6	-18.2	-18.6	-17.7	-16.3	-14.7	-13.2	-11.7	-10.5	-9.4	-8.1	-7.5	-7.7	-7.9	-9.1	-10.7	-12.1	-13.0	-13.6	-14.1	-13.2	-7.5																						
21-Mar	-14.5	-14.3	-14.3	-13.9	-13.9	-14.6	-14.6	-13.9	-13.0	-12.5	-11.1	-9.8	-8.9	-8.2	-7.5	-7.1	-7.4	-7.5	-8.7	-9.8	-11.1	-12.9	-13.6	-14.6	-11.6	-7.1																						
22-Mar	-15.8	-18.3	-20.2	-21.5	-22.3	-23.1	-23.2	-20.0	-15.4	-12.0	-10.2	-8.9	-7.7	-6.9	-6.3	-5.8	-5.9	-6.2	-7.1	-9.4	-11.6	-11.6	-12.7	-13.4	-13.1	-5.8																						
23-Mar	-14.3	-16.0	-17.2	-18.1	-19.4	-19.8	-20.1	-15.6	-10.1	-6.6	-5.0	-4.3	-3.6	-2.8	-2.2	-1.7	-1.7	-1.9	-3.3	-5.2	-7.3	-7.9	-8.2	-9.2	-9.2	-1.7																						
24-Mar	-11.4	-13.2	-14.1	-13.0	-15.2	-15.0	-14.8	-12.2	-8.0	-5.9	-4.4	-3.7	-3.1	-2.0	-1.6	-1.4	-1.2	-1.7	-2.3	-3.0	-3.5	-3.9	-3.9	-4.0	-6.8	-1.2																						
25-Mar	-4.6	-5.6	-6.6	-7.6	-9.1	-9.4	-9.5	-8.5	-6.7	-4.4	-2.4	-1.0	-0.1	0.3	0.1	0.2	-0.7	-1.2	-2.0	-3.0	-3.9	-4.8	-5.5	-6.1	-4.3	0.3																						
26-Mar	-6.7	-7.4	-7.8	-7.8	-8.0	-8.3	-8.6	-8.2	-6.3	-5.0	-3.7	-2.0	-1.2	-0.3	-0.2	-0.6	-0.8	-1.6	-2.1	-2.8	-3.5	-4.3	-5.5	-6.3	-4.5	-0.2																						
27-Mar	-6.8	-7.3	-7.7	-8.0	-8.2	-8.5	-8.5	-8.2	-8.0	-7.8	-7.7	-6.9	-6.5	-6.2	-6.0	-5.3	-4.9	-5.0	-5.3	-5.8	-6.4	-6.8	-6.8	-6.9	-6.9	-4.9																						
28-Mar	-7.0	-7.0	-7.0	-7.2	-7.3	-7.6	-7.6	-7.7	-7.5	-6.7	-6.0	-5.5	-5.1	-4.9	-4.8	-4.9	-4.9	-5.3	-5.7	-6.3	-6.9	-7.1	-7.3	-7.5	-6.4	-4.8																						
29-Mar	-7.4	-7.6	-7.9	-8.4	-8.7	-9.0	-9.2	-9.1	-8.5	-7.8	-7.6	-7.6	-7.0	-6.7	-6.5	-6.7	-6.7	-6.8	-7.0	-7.4	-7.3	-7.2	-7.3	-7.8	-7.6	-6.5																						
30-Mar	-8.8	-11.1	-12.2	-15.1	-17.9	-19.3	-19.2	-13.4	-8.3	-6.0	-4.8	-3.5	-2.4	-1.2	-0.2	0.6	1.0	0.7	-0.6	-2.6	-3.7	-4.6	-6.0	-6.6	-6.9	1.0																						
31-Mar	-6.8	-6.5	-6.7	-7.1	-7.8	-8.4	-8.0	-6.1	-3.2	0.8	3.6	5.8	6.7	7.5	8.0	8.3	8.4	8.0	6.9	6.2	5.7	5.6	5.5	5.3	1.3	8.4																						
																								-9.4	-10.2	-10.7	-11.2	-11.8	-12.3	-12.5	-11.6	-9.5	-7.5	-5.8	-4.6	-3.6	-2.8	-2.2	-2.0	-2.2	-3.0	-4.1	-5.4	-6.5	-7.1	-7.6	-8.2	Diurnal Average
																								6.8	6.5	6.8	7.1	6.8	5.9	5.6	5.4	5.9	6.2	7.8	8.3	9.1	10.1	10.8	11.3	11.4	10.4	8.4	7.3	7.1	7.3	6.7	6.5	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Christina Lake - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	79	10.62	10.62
-20 - 0	488	65.59	76.21
0 - 10	169	22.72	98.92
10 - 20	8	1.08	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

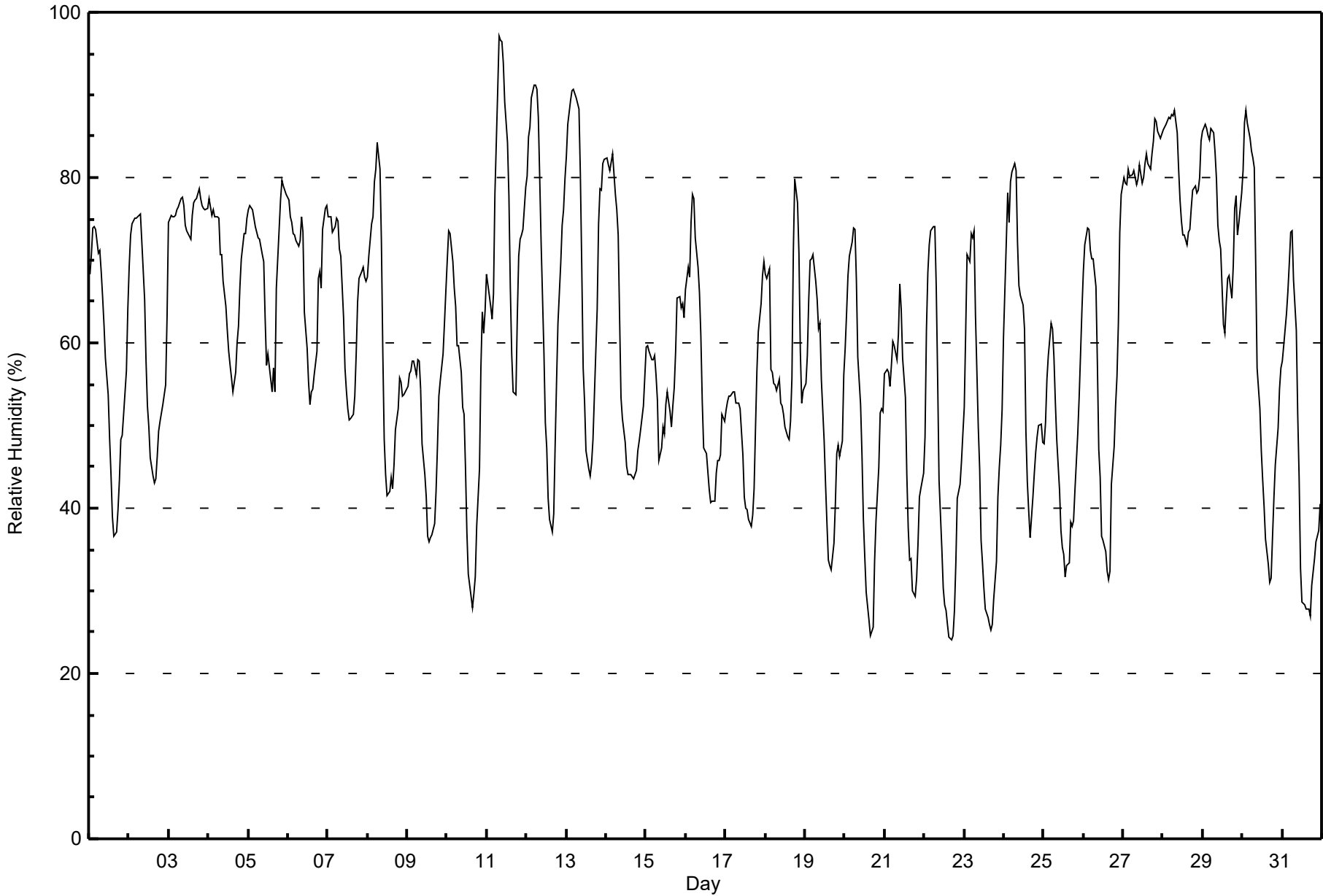
Relative Humidity (RH) - %
Christina Lake - March 2024

Maximum Value: 97.1 % on Mar 11 08:00																						Maximum Daily Average: 81.9 % on Mar 27																						Hours in Service: 744	
Minimum Value: 24.1 % on Mar 22 17:00																						Minimum Daily Average: 45.8 % on Mar 22																						Hours of Data: 744	
Maximum Diurnal Average: 73.4 % at hour 6																						Minimum Diurnal Average: 44.3 % at hour 16																						Hours of Missing Data: 0	
Monthly Average: 60.23 %																						Percentiles: P ₁ = 25.9 P ₁₀ = 36.9 Q ₁ = 47.8 Median = 59.7 Q ₃ = 74.0 P ₉₀ = 80.8 P ₉₉ = 90.6																						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-Mar	68.4	70.7	74.0	74.1	73.7	70.8	71.2	68.6	65.6	62.2	58.1	53.7	48.5	44.1	38.9	36.7	37.1	39.9	43.3	48.3	48.9	51.3	56.6	64.0	57.0	74.1																			
2-Mar	69.3	73.0	74.3	75.0	75.1	75.2	75.5	75.5	72.2	65.3	57.7	52.4	49.8	46.0	43.9	43.1	43.6	46.3	49.4	50.6	52.6	53.8	54.9	63.0	59.9	75.5																			
3-Mar	74.5	75.5	75.3	75.3	75.4	76.1	76.5	77.5	77.6	76.7	74.3	73.6	72.9	72.6	75.5	76.9	77.3	77.4	78.6	77.5	76.6	76.3	76.1	76.3	75.9	78.6																			
4-Mar	77.5	76.4	75.4	76.0	75.3	75.3	75.1	70.7	70.6	67.5	64.5	61.5	58.9	57.3	55.7	54.1	56.4	60.1	62.0	66.7	70.2	73.2	73.2	75.0	67.9	77.5																			
5-Mar	76.1	76.6	76.2	75.2	74.0	73.5	72.7	72.5	70.6	69.8	63.1	57.2	58.6	55.5	54.1	56.9	54.0	66.7	70.1	77.2	79.6	79.0	78.5	77.9	69.4	79.6																			
6-Mar	77.3	75.2	74.6	73.3	73.1	72.5	71.7	72.3	75.2	73.4	63.8	59.3	55.3	52.6	54.0	54.4	56.1	59.0	67.8	68.7	66.6	73.7	76.3	76.6	67.6	77.3																			
7-Mar	75.3	75.2	75.3	73.4	74.0	75.1	74.7	71.3	70.4	63.1	57.0	54.3	52.0	50.6	50.8	51.3	53.6	58.7	64.9	67.8	68.6	69.2	68.0	67.5	65.1	75.3																			
8-Mar	67.9	70.6	74.4	75.2	79.5	81.0	84.2	81.0	72.2	58.9	48.3	44.0	41.6	42.0	43.8	42.3	45.2	49.5	52.1	55.8	55.3	53.6	53.7	54.4	59.4	84.2																			
9-Mar	54.7	56.3	56.5	57.8	57.8	56.0	58.0	57.8	54.3	47.8	44.0	41.4	36.6	36.0	36.5	36.8	38.2	42.1	47.4	53.6	55.4	58.6	62.4	66.3	50.5	66.3																			
10-Mar	70.0	73.5	73.2	69.8	66.6	64.4	59.7	59.6	56.4	52.1	51.3	45.0	37.1	32.1	29.3	28.0	29.7	31.8	37.8	44.7	56.9	63.8	61.2	63.8	52.4	73.5																			
11-Mar	68.3	65.8	64.5	62.9	65.9	77.9	90.5	97.1	96.7	96.4	93.9	89.1	84.2	77.9	66.7	58.7	54.1	53.6	63.3	70.5	72.6	73.1	73.8	78.7	74.8	97.1																			
12-Mar	80.2	84.9	86.1	89.7	91.1	91.2	90.7	87.2	79.8	72.0	58.8	50.4	47.3	41.2	38.6	37.1	39.4	47.7	55.2	62.4	69.6	74.2	76.1	79.8	67.9	91.2																			
13-Mar	82.5	86.4	89.4	90.5	90.7	90.2	89.6	88.3	80.3	69.1	56.9	52.8	47.0	44.7	43.9	45.4	48.3	53.5	64.0	74.3	78.7	78.5	81.8	82.2	71.2	90.7																			
14-Mar	82.5	81.5	80.9	81.9	83.0	78.0	76.2	73.0	63.0	53.4	50.8	47.9	45.1	44.1	44.1	43.6	44.0	44.6	46.9	48.2	49.5	52.4	56.0	56.0	58.9	83.0																			
15-Mar	59.4	59.6	59.0	58.0	57.9	58.5	56.1	53.1	45.8	47.3	49.9	49.0	52.6	54.0	51.6	49.8	52.4	54.6	59.0	65.4	65.6	64.3	64.7	63.0	56.3	65.6																			
16-Mar	66.5	69.2	68.0	74.6	77.9	77.4	72.7	69.2	66.2	60.8	53.0	47.3	46.7	44.5	42.2	40.7	40.8	40.8	44.3	45.8	45.8	46.4	51.3	50.5	55.9	77.9																			
17-Mar	51.9	52.9	53.5	53.5	54.1	54.0	52.7	52.7	52.7	52.0	46.4	41.4	40.0	39.8	38.6	37.8	39.1	42.4	49.6	56.6	61.4	64.8	68.1	69.8	51.1	69.8																			
18-Mar	68.3	67.8	69.0	56.7	56.4	55.1	54.9	54.3	55.7	52.7	52.4	51.4	49.9	48.6	48.4	50.5	55.8	71.0	79.8	76.9	70.8	59.0	52.7	54.2	58.8	79.8																			
19-Mar	55.1	58.5	65.3	70.0	70.2	70.6	67.4	65.2	61.7	62.4	55.5	48.2	42.9	38.2	33.7	33.0	32.6	35.8	40.5	46.6	47.6	46.2	48.1	56.1	52.1	70.6																			
20-Mar	59.3	63.5	68.2	70.5	72.3	73.9	73.7	67.7	58.3	52.5	46.5	38.6	34.1	29.8	26.5	24.6	25.0	25.6	33.5	38.4	45.0	51.6	52.1	51.6	49.3	73.9																			
21-Mar	56.3	56.7	56.4	54.8	57.2	60.1	59.7	58.0	60.9	67.2	64.1	58.2	53.3	44.1	37.6	33.7	33.8	29.9	29.3	31.6	35.8	41.3	42.3	44.2	48.6	67.2																			
22-Mar	48.7	61.4	68.5	71.8	73.5	74.1	74.1	66.8	55.7	43.3	35.2	30.3	28.3	27.7	25.9	24.4	24.1	24.6	27.7	33.5	41.1	42.8	45.7	49.1	45.8	74.1																			
23-Mar	52.2	61.2	70.6	69.9	73.3	72.8	73.5	63.4	49.8	44.7	36.1	33.3	30.4	27.9	26.8	25.9	25.3	26.0	29.0	33.6	41.4	44.9	47.6	51.8	46.3	73.5																			
24-Mar	60.6	72.2	78.1	74.5	79.5	80.7	81.8	80.8	72.1	66.9	65.7	64.5	61.6	49.3	43.2	39.7	36.5	41.4	44.2	46.9	48.6	50.0	50.2	48.0	59.9	81.8																			
25-Mar	47.8	50.4	55.5	58.5	62.5	61.7	58.2	53.0	48.3	42.3	37.3	35.3	34.5	31.7	33.0	33.4	38.3	37.8	38.5	42.2	49.0	53.4	58.7	64.1	46.9	64.1																			
26-Mar	68.6	71.9	73.8	73.7	71.2	70.3	70.1	66.8	57.7	47.2	43.8	36.6	36.0	34.7	32.4	31.4	32.3	42.8	47.5	52.3	55.9	62.4	73.4	78.0	55.5	78.0																			
27-Mar	80.1	79.3	79.2	81.0	80.2	80.3	80.8	79.9	79.2	79.9	81.5	79.3	79.9	81.7	82.9	81.7	81.0	82.9	84.4	87.1	86.8	85.7	84.8	85.3	81.9	87.1																			
28-Mar	85.7	86.0	86.5	87.3	87.2	87.6	87.5	88.1	85.4	81.0	77.3	74.8	73.1	73.0	71.9	73.3	73.7	76.2	78.4	79.0	78.2	78.4	80.1	84.4	80.6	88.1																			
29-Mar	85.6	86.5	85.9	85.1	84.6	85.9	85.5	83.0	79.8	74.2	72.3	71.3	62.2	61.3	64.9	67.7	68.2	65.5	69.3	76.3	77.8	73.1	74.5	78.2	75.8	86.5																			
30-Mar	80.8	86.6	88.1	86.7	84.7	83.1	82.3	81.2	69.6	57.0	52.0	47.0	43.4	40.2	36.4	33.2	31.0	31.5	36.4	41.2	45.2	49.7	54.4	56.9	58.3	88.1																			
31-Mar	57.8	59.6	63.5	66.2	69.7	73.4	73.6	67.6	61.6	51.4	43.7	32.7	28.6	28.3	27.7	27.9	27.8	27.0	30.7	33.9	35.9	36.5	37.3	40.4	46.0	73.6																			
	68.0	70.5	72.2	72.4	73.1	73.4	73.3	71.1	66.6	61.6	56.6	52.3	49.4	46.8	45.1	44.3	45.0	47.9	52.3	56.5	59.1	60.6	62.3	64.8		Diurnal Average																			
	85.7	86.6	89.4	90.5	91.1	91.2	90.7	97.1	96.7	96.4	93.9	89.1	84.2	81.7	82.9	81.7	81.0	82.9	84.4	87.1	86.8	85.7	84.8	85.3		Diurnal Maximum																			



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Christina Lake - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Christina Lake - March 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	98	13.17	13.17
40 - 60	275	36.96	50.13
60 - 80	289	38.84	88.98
80 - 100	82	11.02	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 - March 2024

Maximum Speed: 31 km/h on Mar 15 09:00	Maximum Daily Speed Average: 18.9 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 5 15:00	Minimum Daily Speed Average: 3.2 km/h on Mar 13	Hours of Data: 744
Maximum Diurnal Speed Average: 3.8 km/h at hour 21	Minimum Diurnal Speed Average: 0.4 km/h at hour 5	Hours of Missing Data: 0
Monthly Average Velocity: 1.7 km/h 180.4 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 7 Median = 12 Q ₃ = 17 P ₉₀ = 20 P ₉₉ = 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-Mar	NW15	NW17	NW15WNW17	WNW18	WNW19	W16WNW20	W18WNW21	WNW19	NW20WNW19	WNW19	WNW17	W13WNW13	WNW13	NW12	NW12	NNW12	NNE11	NNE6	NNE2	WNW14.2	WNW21						
2-Mar	NE7	E3	S3	ESE3	ENE4	E4	SE4	E3	NE7	ENE11	ENE12	ENE14	NE18	ENE16	NE18	NE19	ENE17	NE17	NE17	ENE20	ENE17	ENE20	ENE20	ENE20	ENE11.7	ENE20	
3-Mar	NE16	NE18	NE19	ENE15	NE14	NE13	NE12	NE11	NNE10	NE11	NE13	NE15	NE16	NE17	NE16	NNE16	NNE16	NNE17	N15	NW21	NW18	NW20	NW20	NW22	NNE12.6	NW22	
4-Mar	NW20	NW23	NW24	NW23	NW22	NW20	NW16WNW19	WNW18	WNW20	NW18	WNW17	NW15	NW16	NW15	NW14	NW14	WNW11	NW9	WNW5	SE2	WSW5	SW10	SSW8	SSW8	NW14.7	NW24	
5-Mar	WSW9	WSW8	SW8	SW9	SW7	SSW7	SW8	SSW5	S3	SW7	WSW9	SW7	SSW5	ESE3	ESE0	SSW7	SW10	SSW6	SSW7	SSW8	SSW8	S8	SSW6	S6	SSW6.4	SW10	
6-Mar	S5	S4	SSE4	E3	ESE2	SSE3	SE5	SSE5	SSW7	S10	SSW10	SSW12	SSW12	S15	S14	S12	S13	S11	S8	SSW12	SSW10	S7	S7	SSW7	S7.9	S15	
7-Mar	S11	S12	S11	S9	S10	S8	S8	S10	SSW13	SSW16	SSW22	SW20	SSW19	SSW20	SSW21	SSW21	SSW21	SSW21	SSW21	SSW14	SSW13	SSW12	SW16	SW13	SSW14.4	SSW22	
8-Mar	SW11	SSW8	SSW7	SW8	SSW6	S5	S5	S4	SSW6	SW6	SSW3	S5	SSW9	WSW12	SW11	SW13	S13	S13	SSW14	S16	S19	SSW19	SSW14	S8	SSW9.4	S19	
9-Mar	S9	S9	S9	S8	S10	S12	S12	S17	S16	S18	S18	S18	S20	S23	S23	S21	S19	S17	SSE7	S10	S15	SW9	S7	S7	S13.7	S23	
10-Mar	SSW9	SSW6	SW6	WSW8	WSW14	WSW18	WSW18	WSW17	WSW14	W17	W20	WSW19	W20	WSW21	WSW22	W20	WSW19	WSW12	WSW6	WNNW5	S5	ESE4	SE5	SSE5	WSW11.5	WSW22	
11-Mar	NE5	NE2	NNE10	NE10	NE13	NE14	ENE6	NE4	NE7	NE10	NE8	E5	SE5	S3	SW2	ESE4	E6	SSE4	E6	ESE7	ESE7	SE7	ESE7	ESE6	ENE5.0	NE14	
12-Mar	E6	E5	E6	E5	E4	ENE4	NE5	NE5	NE4	ENE7	E13	ESE16	ESE14	E13	E13	E15	E13	ENE13	E11	E12	E9	E8	ENE9	ENE7	E8.7	ESE16	
13-Mar	ENE7	NE5	ENE3	ESE4	SE3	SSE3	SSE2	SSE3	SE4	SE5	ESE2	E3	NNE2	NNE2	SSW3	WSW6	W9	WSW11	WSW12	WSW12	SW11	SW14	SW9	SW14	SW3.2	SW14	
14-Mar	SW14	SW12	SW12	SSW6	SSW8	SW11	SW10	SW10	SW14	WSW12	WSW16	WSW17	WSW20	WSW22	WSW20	WSW18	SW15	SW15	SW18	SW20	SW19	WSW19	WSW15	WSW14	SW14.6	WSW22	
15-Mar	W13	W15	W16	WNW18	WNW20	W20	WNW22	NW22	NW31	NNW31	NNW30	NNW29	NNE23	NNE20	NNE20	NNE20	NNE16	NE14	NE10	NE7	NE5	NE4	ENE4	NNE9	NNW12.4	NW31	
16-Mar	NE8	NE7	NE8	ENE6	E4	ESE4	ENE7	NE9	ENE10	ENE9	ENE8	NNE8	NNE11	NNE11	NNE12	NNE12	NE12	NE12	ENE9	E10	ESE8	ESE8	SE10	SE9	ENE7.4	NE12	
17-Mar	SE9	SE7	SE6	SSE8	SSE10	S11	S14	S11	S13	SSW15	SSW15	SSW19	SSW20	SSW22	SSW23	SSW21	SSW22	SSW20	SSW20	SSW20	SSW22	SW24	SW19	SW20	SW23	SSW15.1	SW24
18-Mar	WSW19	W12	WSW13	NW18	NW17	WNW15	NW17	NNW20	NNW15	NNW19	NW26	NNW25	NNW23	NNW20	NNW18	NNE19	NE21	NE21	NNE19	NNE20	NNE20	N20	NNE19	NNE18	NNW14.3	NW26	
19-Mar	NNE17	NNE18	NNE15	NNE14	NNE17	NNE15	NNE17	NNE17	NNE18	NE15	NNE14	NE12	NE14	NE14	NNE15	NE14	NE17	NE17	NE15	NE12	NNE11	NNE11	NNE12	NNE11	NNE14.4	NNE18	
20-Mar	NE11	ENE7	ESE5	ESE5	ESE5	ENE7	NE6	ENE7	ENE10	NE9	NE8	NE9	NE7	NE9	ENE8	NE8	NE10	ENE10	NE12	E9	ESE7	ESE6	ESE6	ESE6	ENE7.1	NE12	
21-Mar	E7	ESE7	ESE7	ESE7	E7	E8	E8	ESE12	ESE13	ESE12	E12	E15	ENE15	ENE18	E14	ENE13	NE15	NE13	NE12	NE9	NE7	NE6	NE9	NE6	ENE9.4	ENE18	
22-Mar	NE6	NE4	SSE2	S3	SSW4	SSW4	SSW4	S3	E4	ESE5	ENE5	ENE6	ENE5	E5	NE9	NNE6	ENE8	ENE8	E6	ESE6	SE8	SE10	SSE6	SSE7	E3.6	SE10	
23-Mar	SSE6	ESE4	SSW3	S4	S2	S2	S2	SSE2	SW2	SW6	SW6	SSW9	SSW8	SSW7	SSE8	ESE4	SSE6	S6	SE8	E6	S8	SSW6	SSW9	SSW6	S4.6	SSW9	
24-Mar	S3	SSE4	S4	SSW4	SE3	ENE3	ESE5	E3	S8	S14	SSW15	S17	S16	SSW14	S12	SSE10	S11	S14	SE12	SE9	SE9	SSE9	SSE11	SSE13	SSE8.4	SSW17	
25-Mar	SE11	SE11	SE10	SE7	SE8	SSE11	SSE11	SSE14	SSE16	SSE14	SSE16	SSE17	SSE18	S20	SSE19	S19	S20	SSE17	SSE16	SSE17	SSE17	SSE16	SSE15	SSE16	SSE14.6	SSE20	
26-Mar	SSE16	SSE14	SSE12	SSE13	SSE12	SSE12	SSE12	SSE14	S18	S25	S26	SSE25	SSE29	S28	S23	S23	S20	SSW22	S20	SSE18	SSE21	SSE19	SSE20	SSE20	SSE18.9	SSE29	
27-Mar	SSE18	SSE18	SSE17	SSE14	SSE15	SSE15	SE15	SE16	SE16	SE18	SE18	SE20	SE18	SE18	ESE15	ESE16	ESE17	ESE14	ESE12	E11	E10	E9	E8	ESE9	SE14.0	SE20	
28-Mar	E7	E8	E7	ENE8	ENE7	NE8	NE9	NE11	NE11	NE11	NE13	NNE13	NNE14	NNE14	NNE15	NNE16	NNE15	NE14	NE12	NE11	NE9	NNE10	NNE11	NNE11	NE10.2	NNE16	
29-Mar	N10	N11	NNW14	NW16	NW17	NW14	NW13	NW15	NNW13	NNW15	NNW17	NNW19	NNW17	NW16	NNW16	NNW18	N15	N12	NW13	WNW7	WNW8	NW14	NW11	NW13	NNW13.4	NNW19	
30-Mar	NW8	SSW5	SSW6	SSW6	SSW5	S4	SSW6	SSW6	SSW7	SSW8	SSW11	S12	S11	S12	S11	S13	SSW12	SSW13	SSW12	S10	S9	S10	SE6	SSE7	SSW8.1	SSW13	
31-Mar	SSE8	S12	S11	S9	S7	S9	S9	SSW8	SSW9	SW12	SW15	SW19	SW21	SSW21	SW23	SSW23	SSW22	SW21	SSW16	S19	S19	SSW23	SSW23	SSW28	SSW15.6	SSW28	

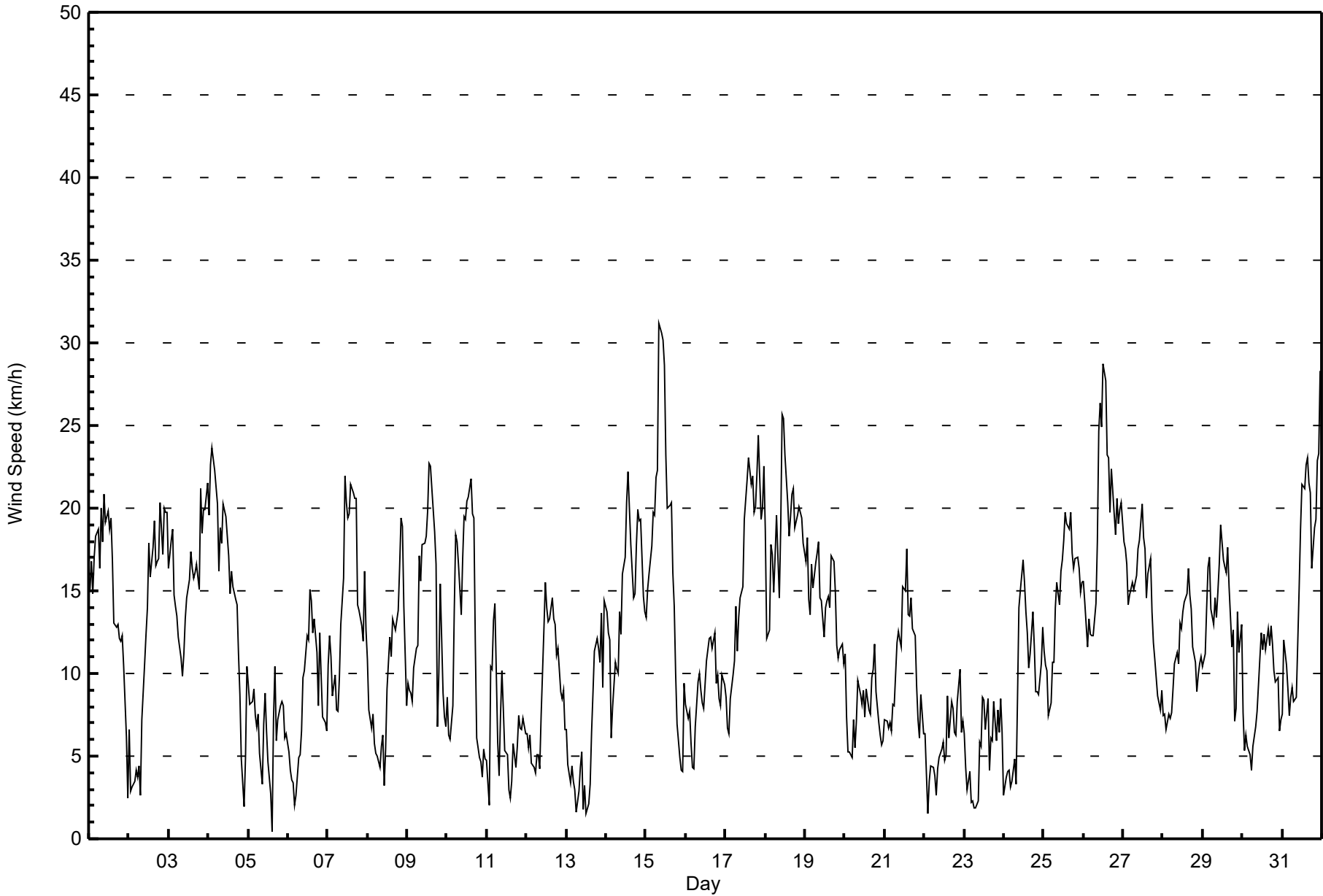
SSE1.2	SSE1.1	S1.1	SSW0.7	SSW0.4	SSW1.0	SSW1.4	SW1.1	SSW1.2	SW1.6	WSW1.7	SSW1.7	SSW2.4	S2.5	S2.2	S1.7	SSE2.6	SSE2.1	SE2.2	SSE2.8	SSE3.8	S3.0	S2.8	S2.9	Diurnal Average	
NW20	NW23	NW24	NW23	NW22	NW20	WNW22	NW22	NW31	NNW31	NNW30	NNW29	SSE29	S28	S23	S23	SSW22	SSW22	SSW20	SSW22	SW24	SSW23	SSW23	SSW28	Diurnal 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 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed (WS) - km/h
Christina Lake - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	104	13.98	13.98
6 - 11	255	34.27	48.25
12 - 19	288	38.71	86.96
20 - 28	92	12.37	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 - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0	3	10	7	13	15	9	13	18	11	2	1	0	2	0	0	104
6 - 11	2	15	37	23	22	15	16	16	39	35	21	8	0	3	3	0	255
12 - 19	3	28	37	10	9	10	8	32	31	24	16	21	8	14	25	12	288
20 - 28	1	6	2	4	0	0	1	5	12	22	7	5	4	5	14	4	92
29 - 38	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	52	86	44	44	40	34	67	100	92	46	35	12	24	43	19	744

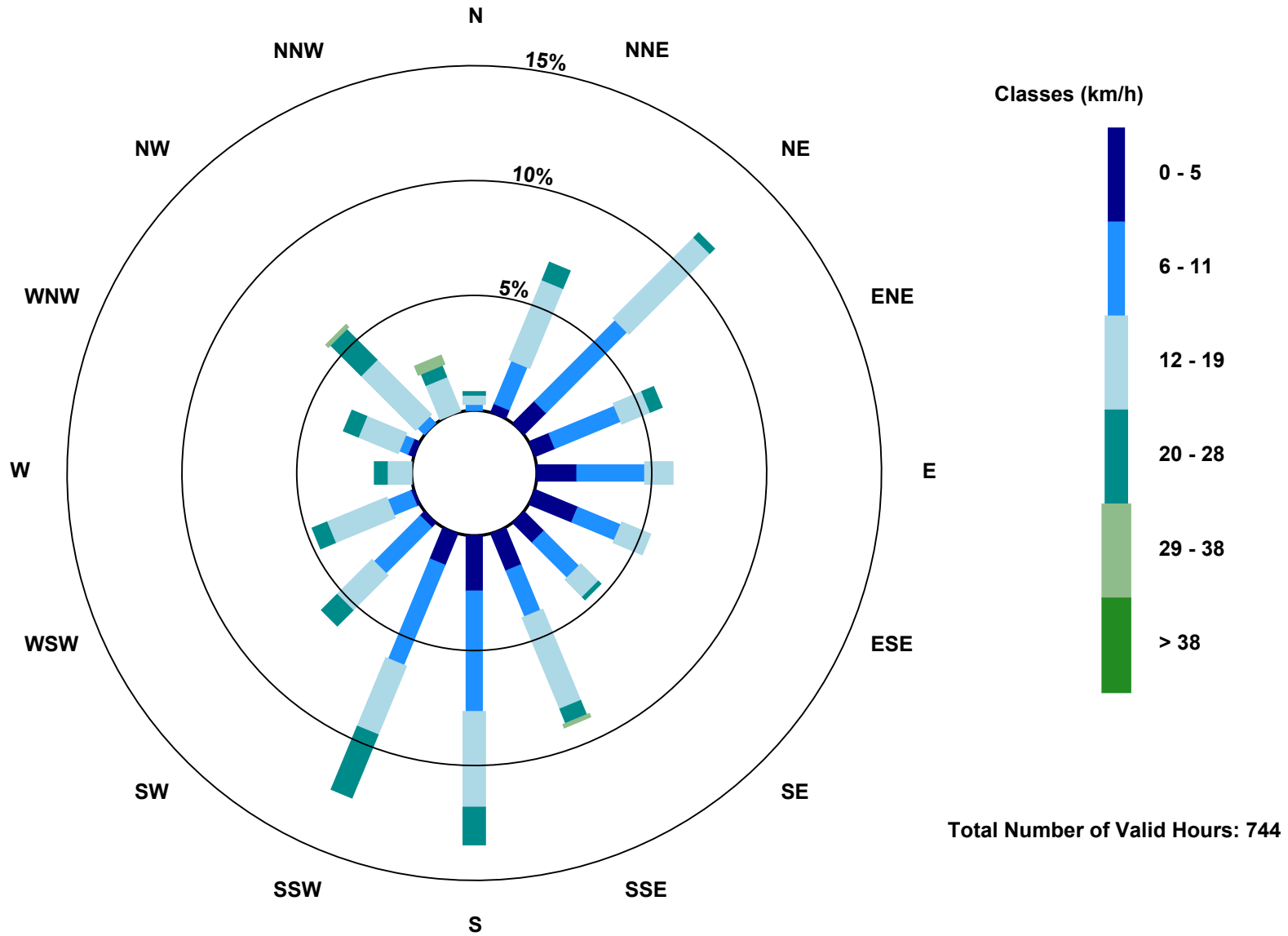
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Christina Lake





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Christina Lake - March 2024

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



Wood Buffalo Environmental Association
Summary of Hour Averages

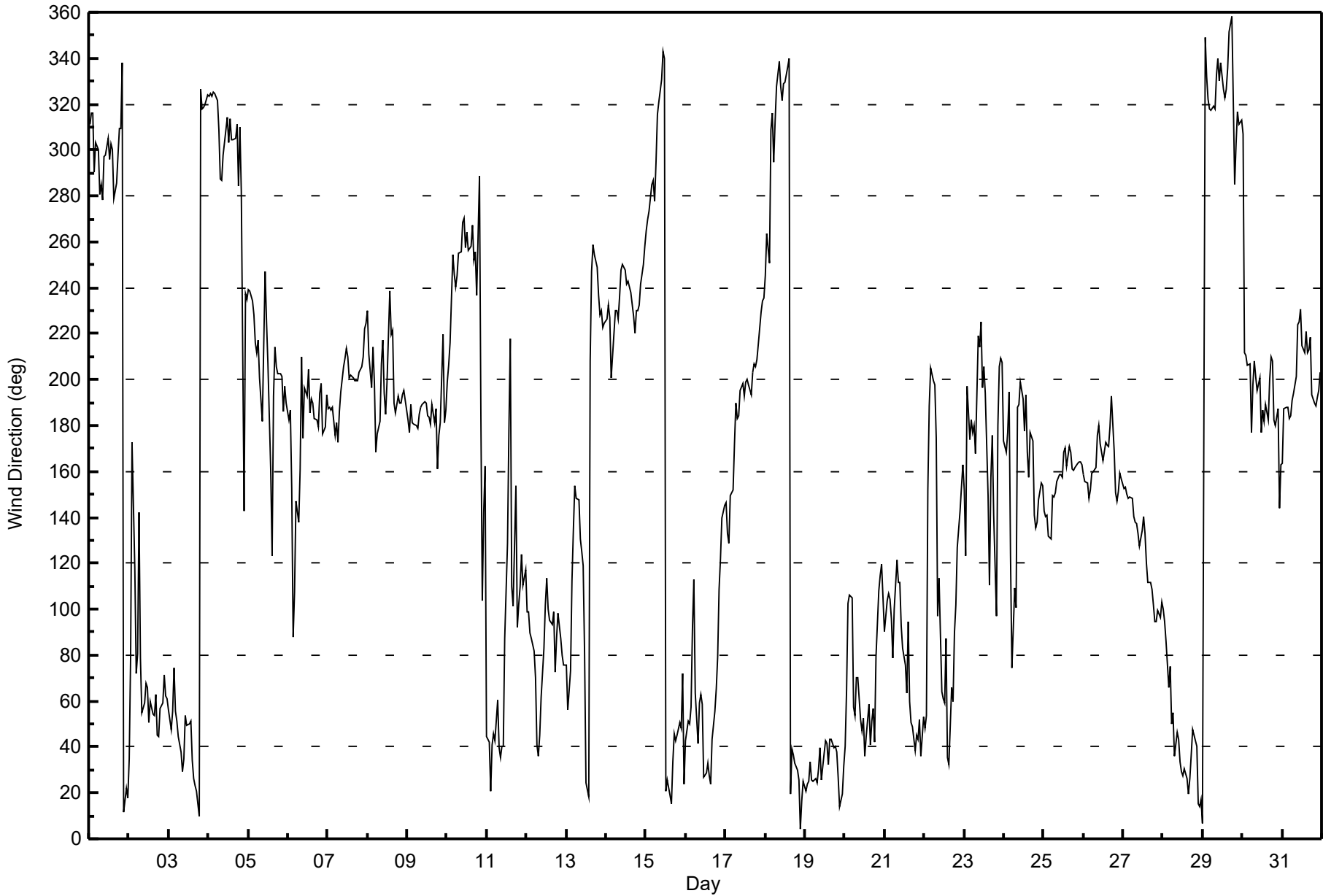
Wind Direction (WD) - deg
Christina Lake - March 2024

Direction of Maximum Speed: 321 deg on Mar 15 09:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 165.4 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 123 deg on Mar 5 15:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 3.2 deg on Mar 13		Percent Operational Time:	100.0
Monthly Average Direction: 180.4 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-Mar	311	316	316	291	303	300	281	285	278	297	298	305	296	303	300	279	286	298	309	309	338	12	22	18	302.4
2-Mar	35	80	173	118	72	81	142	79	55	59	68	66	51	59	55	54	63	45	45	57	59	71	63	61	60.6
3-Mar	56	47	55	74	55	51	45	38	29	35	53	49	50	52	34	27	23	20	10	326	318	319	319	324	23.4
4-Mar	323	324	324	325	325	322	309	287	287	298	309	314	303	314	305	304	305	311	284	310	282	143	238	235	307.7
5-Mar	239	239	234	228	216	212	217	201	182	215	247	225	207	161	123	193	214	206	203	202	201	186	197	190	212.6
6-Mar	182	187	152	88	107	147	138	161	210	174	197	193	205	186	191	190	183	183	179	194	198	176	179	194	184.6
7-Mar	187	188	187	188	176	182	173	186	195	205	210	214	210	201	202	200	200	199	200	203	205	210	222	224	201.1
8-Mar	230	211	196	214	198	169	177	182	207	217	194	185	199	238	220	222	190	186	193	190	190	194	195	186	200.1
9-Mar	182	177	189	181	181	180	179	185	188	189	190	190	184	184	181	189	181	187	161	176	181	220	181	187	184.7
10-Mar	199	206	216	254	246	240	245	255	256	269	270	257	264	256	258	267	252	256	237	289	183	104	142	162	250.3
11-Mar	45	42	21	41	46	43	60	39	35	40	40	87	128	178	218	110	101	154	92	102	110	124	110	117	70.2
12-Mar	99	99	90	87	82	70	41	36	45	62	83	102	114	100	95	94	99	72	87	98	87	80	76	76	87.3
13-Mar	76	56	73	112	134	154	149	148	130	125	119	81	25	18	208	247	259	254	249	237	228	230	222	225	216.3
14-Mar	227	232	227	200	211	230	230	226	236	248	250	247	242	243	240	238	228	220	230	230	232	242	250	258	236.1
15-Mar	265	269	273	285	287	277	295	316	321	331	343	340	21	26	19	15	33	46	43	45	50	48	72	24	337.2
16-Mar	43	51	50	58	92	113	64	42	59	63	59	27	29	33	27	24	43	55	65	79	109	122	140	145	60.5
17-Mar	146	133	129	150	152	172	190	183	184	195	198	193	199	200	197	193	203	207	205	208	215	229	234	236	199.0
18-Mar	245	263	251	309	316	295	313	328	338	327	321	329	330	336	340	19	39	37	33	30	26	4	16	25	343.3
19-Mar	21	24	25	33	26	25	26	25	30	40	26	37	43	41	32	44	43	40	40	38	27	14	19	32	31.3
20-Mar	40	65	103	106	105	57	54	70	70	52	47	52	36	44	58	41	51	57	42	80	108	115	119	105	64.7
21-Mar	91	104	106	104	96	79	100	121	111	112	93	83	76	63	94	60	51	49	39	45	44	52	36	53	76.9
22-Mar	48	54	152	189	205	200	198	175	97	114	64	61	59	87	35	33	66	60	90	102	127	143	153	163	99.7
23-Mar	152	123	197	174	183	177	180	168	219	214	225	196	206	194	150	111	158	176	141	97	180	206	209	207	178.7
24-Mar	173	168	177	195	124	75	109	101	188	189	199	191	177	193	169	157	177	173	141	135	138	147	155	154	167.6
25-Mar	143	141	141	132	131	150	149	151	155	159	158	157	168	170	162	171	169	161	161	162	163	164	164	163	158.7
26-Mar	158	155	155	148	152	159	160	162	176	180	172	168	165	172	171	171	179	193	169	151	147	151	159	157	165.4
27-Mar	152	153	150	149	149	148	140	138	137	133	128	134	140	133	120	112	111	109	102	95	95	100	96	103	129.6
28-Mar	100	95	86	66	75	50	55	36	46	43	34	29	27	31	27	20	26	36	48	43	40	15	14	17	39.0
29-Mar	7	349	332	322	318	317	319	318	333	340	330	338	327	323	327	336	352	358	322	285	303	317	311	313	328.2
30-Mar	307	212	211	206	207	177	198	208	201	195	200	177	187	182	189	183	200	210	208	182	180	187	144	163	193.3
31-Mar	164	187	188	188	183	185	191	194	201	224	225	231	215	212	221	212	213	219	193	190	189	192	195	203	203.7

158.3 162.9 182.5 195.4 211.0 212.7 212.0 228.3 213.3 223.1 241.6 204.3 192.9 186.4 188.0 171.9 156.1 154.7 138.6 151.3 166.7 173.7 171.7 180.8
 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 (WD) - deg
Christina Lake - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Mar 13 13:00 Minimum Value: 4 deg on Mar 5 07:00 Percentiles: P ₁ = 7 P ₁₀ = 10 Q ₁ = 12 Median = 15 Q ₃ = 20 P ₉₀ = 30 P ₉₉ = 69																			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-Mar	10	10	15	18	17	21	16	15	16	17	17	22	20	20	21	25	24	20	11	9	21	15	76	95	
2-Mar	24	26	23	30	16	25	23	54	20	14	24	21	15	21	16	13	15	12	11	11	10	12	12	10	54
3-Mar	10	9	10	12	10	10	9	9	11	14	13	11	12	14	13	14	12	12	18	14	10	9	10	9	18
4-Mar	12	10	10	9	10	13	17	13	14	16	19	18	21	24	25	24	26	18	21	34	53	54	59	8	59
5-Mar	8	8	7	7	7	5	4	12	25	19	22	52	45	58	91	31	27	18	7	6	7	8	15	12	91
6-Mar	24	32	47	20	47	47	9	46	35	20	21	18	16	18	17	23	18	13	6	9	12	11	11	13	47
7-Mar	10	9	9	9	10	14	16	15	14	17	14	15	15	14	13	16	13	12	13	13	14	16	12	14	17
8-Mar	12	24	12	7	16	14	26	21	10	15	34	29	29	16	16	16	16	10	10	11	11	10	13	17	34
9-Mar	14	14	16	15	17	19	15	13	13	12	13	14	13	14	13	14	14	17	24	13	15	35	14	18	35
10-Mar	14	20	21	18	15	10	12	16	17	18	18	19	18	18	19	19	17	16	22	67	31	62	25	11	67
11-Mar	35	92	13	10	10	10	13	12	11	9	16	40	35	61	68	62	29	17	13	11	8	13	8	14	92
12-Mar	9	8	15	14	26	19	10	12	16	17	17	15	19	18	20	14	14	11	11	9	8	8	7	7	26
13-Mar	7	8	12	12	9	22	33	35	24	29	65	59	98	70	68	28	19	17	13	12	11	11	13	12	98
14-Mar	10	12	11	23	12	11	11	13	10	16	16	16	15	13	14	13	11	11	11	11	11	12	13	17	23
15-Mar	17	17	16	19	16	15	17	13	13	17	20	22	17	14	20	20	21	11	8	12	17	23	20	8	23
16-Mar	10	10	8	14	20	26	15	10	14	21	27	27	26	21	21	17	22	13	15	19	18	24	25	15	27
17-Mar	14	11	13	14	14	13	15	16	13	16	17	14	14	15	15	14	14	14	14	12	12	19	13	12	19
18-Mar	15	17	14	22	12	18	20	15	15	17	17	19	19	20	17	27	10	11	10	12	12	22	13	13	27
19-Mar	15	11	12	12	12	12	11	12	12	15	22	26	20	21	24	22	14	12	9	11	10	18	10	10	26
20-Mar	9	21	17	14	17	17	21	16	16	23	26	33	55	39	47	54	24	18	10	16	9	9	14	15	55
21-Mar	9	14	11	13	16	10	17	12	15	16	19	16	24	23	20	33	20	19	8	8	17	12	12	17	33
22-Mar	10	22	49	14	12	12	14	36	26	41	54	37	75	70	42	63	30	24	24	13	10	11	14	12	75
23-Mar	12	14	35	14	30	32	28	27	42	39	55	46	61	46	43	68	54	47	13	23	9	10	9	13	68
24-Mar	30	20	11	11	35	32	17	31	17	13	16	17	20	25	18	18	25	15	12	9	9	15	11	12	35
25-Mar	12	12	13	12	12	9	10	13	14	17	16	21	22	21	21	17	14	14	12	12	11	10	11	11	22
26-Mar	11	11	12	10	11	12	12	14	16	14	16	16	15	18	18	18	22	17	13	14	13	15	12	12	22
27-Mar	13	12	14	14	14	13	13	14	14	13	13	13	14	14	15	13	12	12	11	11	10	10	12	10	15
28-Mar	12	11	13	12	12	10	12	9	12	17	15	14	14	13	15	13	13	11	13	9	10	11	9	11	17
29-Mar	19	20	13	10	8	9	11	10	17	15	16	17	17	16	16	15	21	22	17	36	29	9	21	13	36
30-Mar	41	32	16	18	13	16	14	12	18	30	21	27	29	26	28	29	21	15	11	10	10	9	30	15	41
31-Mar	17	12	14	14	13	14	15	18	18	18	15	15	15	18	15	15	16	14	12	11	11	12	12	12	18
																			41 92 49 30 47 47 33 54 42 41 65 59 98 70 91 68 54 47 24 67 53 62 76 95						
Diurnal Maximum																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS27
JACKFISH 2/3
MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)
MARCH 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	12.1	0	2.5	0
H2S (ppb) Average	706	36	38	99.73	1.2	0	0.3	0
NO2 (ppb) Average	706	38	38	100	9.5	0	3.9	-
NO (ppb) Average	706	38	38	100	5.1	-	0.8	-
NOX (ppb) Average	706	38	38	100	13.3	-	4.3	-
Temperature 2 m (C) Average	744	0	0	100	10.8	-	3.9	-
Relative Humidity (%) Average	744	0	0	100	94.9	-	85	-
Wind Speed 10 m (km/h) Average	744	0	0	100	18	-	12	-
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 - JACKFISH 2/3 (AMS27)
MARCH 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	0.76	1.2	-	0	0.1	0.2	0.3	0.8	1.9	12.1
H2S (ppb) Average	706	0.18	0.1	-	0	0	0.1	0.2	0.3	0.3	1.2
NO2 (ppb) Average	706	1.42	1.4	-	0	0.1	0.4	1	2	3.3	9.5
NO (ppb) Average	706	0.27	0.5	-	0	0	0	0.1	0.3	0.7	5.1
NOX (ppb) Average	706	1.69	1.7	-	0	0.1	0.5	1.2	2.4	3.8	13.3
Temperature 2 m (C) Average	744	-7.77	9.1	-	-27.8	-20.9	-14.3	-7.6	-0.9	4.9	10.8
Relative Humidity (%) Average	744	61.38	17.3	-	22.2	37.3	47.7	62.3	75.7	84.1	94.9
Wind Speed 10 m (km/h) Average	744	7.8	3	-	0	4	5	7	10	12	18
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S	13 Mar 2024 20:00	13 Mar 2024 20:00	1	Unstable Operation - excessive baseline drift
H2S	16 Mar 2024 02:00	16 Mar 2024 02:00	1	Unstable Operation - excessive baseline drift



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Jackfish 2/3 - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 12.1 ppb on Mar 15 05:00	Maximum Daily Average: 2.5 ppb on Mar 4		Hours of Data:	710
Minimum Value: 0.0 ppb on Mar 8 16:00	Minimum Daily Average: 0.1 ppb on Mar 27		Hours of Missing Data:	34
Maximum Diurnal Average: 1.3 ppb at hour 11	Minimum Diurnal Average: 0.5 ppb at hour 22		Hours of Calibration:	34
Monthly Average: 0.76 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.8 P ₉₀ = 1.9 P ₉₉ = 4.7		Percent Operational Time:	100.0

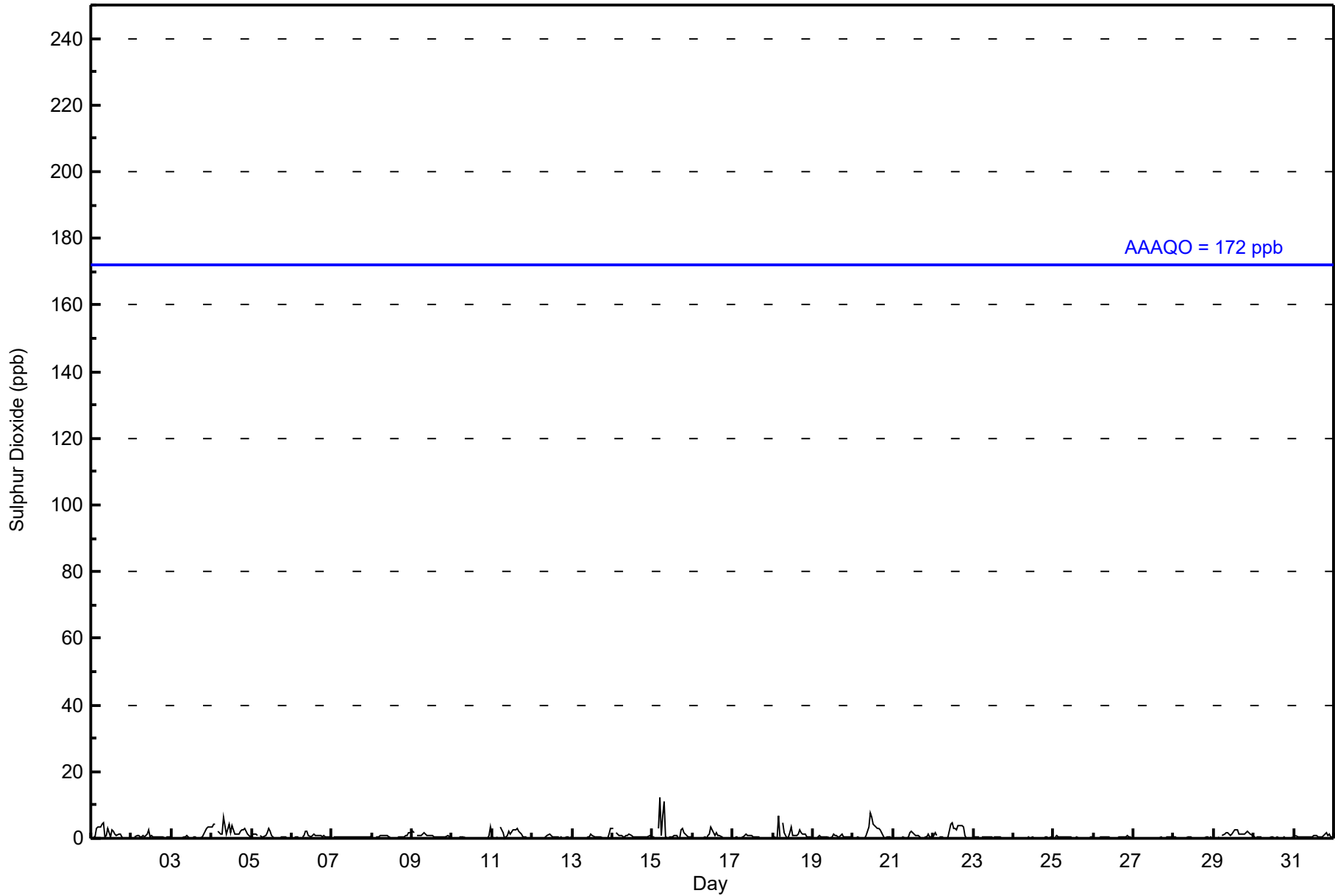
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	Z	0.4	0.4	3.0	3.4	3.3	4.2	4.6	0.3	0.7	3.0	0.5	2.4	1.9	1.2	0.7	1.4	1.3	0.3	0.2	0.2	0.1	0.2	0.2	1.5	4.6
2-Mar	0.3	Z	0.4	0.8	0.7	0.3	0.5	0.7	0.3	1.1	2.4	0.4	1.0	0.4	0.3	0.3	0.2	0.3	0.5	0.2	0.2	0.2	0.3	0.3	0.5	2.4
3-Mar	0.2	0.2	Z	0.2	0.1	0.2	0.1	0.2	0.5	0.8	0.3	0.1	0.1	0.3	0.3	0.1	0.1	0.2	0.6	1.2	2.2	2.8	3.5	3.4	0.8	3.5
4-Mar	3.5	4.2	4.3	Z	2.1	1.4	1.4	6.2	3.8	1.2	4.3	1.7	3.8	2.6	1.2	1.5	1.5	2.1	2.4	2.5	2.9	1.2	0.8	0.6	2.5	6.2
5-Mar	0.7	1.1	1.1	1.0	Z	0.7	0.4	0.3	0.7	1.7	2.8	2.2	1.0	0.2	0.2	0.0	0.0	0.1	0.2	0.3	0.3	0.2	0.1	0.2	0.7	2.8
6-Mar	0.2	0.2	0.2	0.3	0.4	Z	0.6	0.8	1.9	1.9	0.8	0.5	1.0	1.2	0.7	0.8	0.8	0.7	0.4	1.0	0.4	0.4	0.5	0.4	0.7	1.9
7-Mar	Z	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	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.6	0.4	0.6
8-Mar	0.6	Z	0.6	0.6	0.6	0.7	0.9	0.9	0.7	0.7	0.6	0.5	C	C	C	0.0	0.4	0.3	0.2	0.3	0.9	0.9	1.6	1.6	0.7	1.6
9-Mar	2.1	1.9	Z	0.9	0.7	0.9	1.3	1.6	1.2	1.0	0.9	0.7	0.7	0.6	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.7	0.3	0.2	0.8	2.1
10-Mar	0.2	0.2	0.2	Z	0.2	0.6	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	1.0	3.4	0.3	3.4
11-Mar	0.6	0.2	0.2	0.4	Z	3.4	1.6	0.2	0.3	0.7	2.3	1.3	2.5	2.6	2.7	2.9	2.0	1.3	0.5	0.5	0.2	0.0	0.0	0.0	1.1	3.4
12-Mar	0.0	0.0	0.1	0.1	0.1	Z	0.2	0.1	0.3	1.0	1.4	1.0	0.3	0.4	0.6	0.4	0.2	0.4	0.1	0.2	0.3	0.2	0.1	0.3	0.3	1.4
13-Mar	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.5	1.1	0.9	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.1	0.2	1.1	2.9	0.4	2.9
14-Mar	2.8	Z	1.7	1.2	0.9	0.7	0.6	0.6	0.8	1.0	1.1	0.8	0.5	0.3	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.8	0.3	0.7	2.8
15-Mar	0.3	0.3	Z	2.9	12.1	0.8	6.7	10.9	0.3	0.2	0.3	0.2	0.3	0.9	0.8	0.2	0.2	2.5	2.8	1.8	0.7	0.3	0.4	0.3	2.0	12.1
16-Mar	0.1	0.1	0.1	Z	0.2	0.0	0.0	0.2	0.2	0.8	1.5	3.6	1.8	0.9	1.6	0.7	1.0	0.6	0.1	0.0	0.1	0.0	0.0	0.0	0.6	3.6
17-Mar	0.1	0.2	0.6	0.5	Z	0.5	0.4	0.9	1.4	0.9	1.0	0.8	0.6	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	1.4
18-Mar	0.1	0.3	0.1	6.7	0.4	Z	4.8	1.6	0.2	0.6	1.8	3.4	1.0	0.8	0.7	1.1	2.5	1.8	1.2	1.3	0.6	0.3	0.2	0.5	1.4	6.7
19-Mar	Z	0.1	0.1	0.2	0.8	0.6	0.5	0.4	0.2	0.3	0.2	0.5	1.1	1.0	0.7	0.5	0.6	1.4	0.6	0.5	0.4	0.4	0.5	0.3	0.5	1.4
20-Mar	0.2	Z	0.1	0.3	0.1	0.1	0.1	0.1	0.8	3.2	7.6	6.5	4.3	3.9	3.1	3.0	2.7	1.8	0.7	0.2	0.4	0.4	0.4	0.0	1.7	7.6
21-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.1	0.1	0.5	1.7	1.9	1.3	1.1	0.8	0.7	0.3	0.2	0.2	0.4	0.4	1.2	0.4	0.3	0.5	1.9
22-Mar	0.9	1.5	0.7	Z	0.3	0.3	0.1	0.1	0.2	0.2	4.2	4.7	3.1	3.0	2.6	4.0	3.8	3.7	3.5	0.9	0.2	0.1	0.2	0.1	1.7	4.7
23-Mar	0.1	0.3	0.5	0.5	Z	0.3	0.3	0.2	0.3	0.3	0.4	0.2	0.1	0.3	0.3	0.4	0.3	0.2	0.0	0.1	0.0	0.1	0.1	0.0	0.2	0.5
24-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.5	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.1	0.5
25-Mar	Z	0.5	0.7	0.6	0.6	0.5	0.3	0.3	0.4	0.2	0.3	0.2	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.3	0.3	0.3	0.7
26-Mar	0.2	Z	0.2	0.2	0.3	0.6	0.4	0.5	0.5	0.2	0.2	0.0	0.2	0.0	0.1	0.2	0.3	0.3	0.3	0.6	0.7	0.6	0.3	0.1	0.3	0.7
27-Mar	0.1	0.1	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.1	0.4
28-Mar	0.6	0.3	0.2	Z	0.1	0.1	0.1	0.1	0.4	0.5	0.4	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.6
29-Mar	0.2	0.2	0.2	0.3	Z	0.8	1.4	1.7	1.6	1.1	0.8	1.5	2.6	2.6	2.5	1.3	1.1	1.2	1.3	1.7	2.1	1.7	1.1	0.8	1.3	2.6
30-Mar	0.3	0.1	0.2	0.5	0.2	Z	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.2	0.3	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.3	0.1	0.5
31-Mar	Z	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.8	0.8	0.6	0.4	0.4	0.2	1.0	1.8	0.9	1.1	0.3	0.3	0.6	1.8
																								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 (SO₂) - ppb
Jackfish 2/3 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Jackfish 2/3 - March 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	51	84	38	43	39	33	62	95	90	43	33	11	22	39	19	708
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	6	51	84	38	43	39	33	62	95	90	43	33	11	23	40	19	710

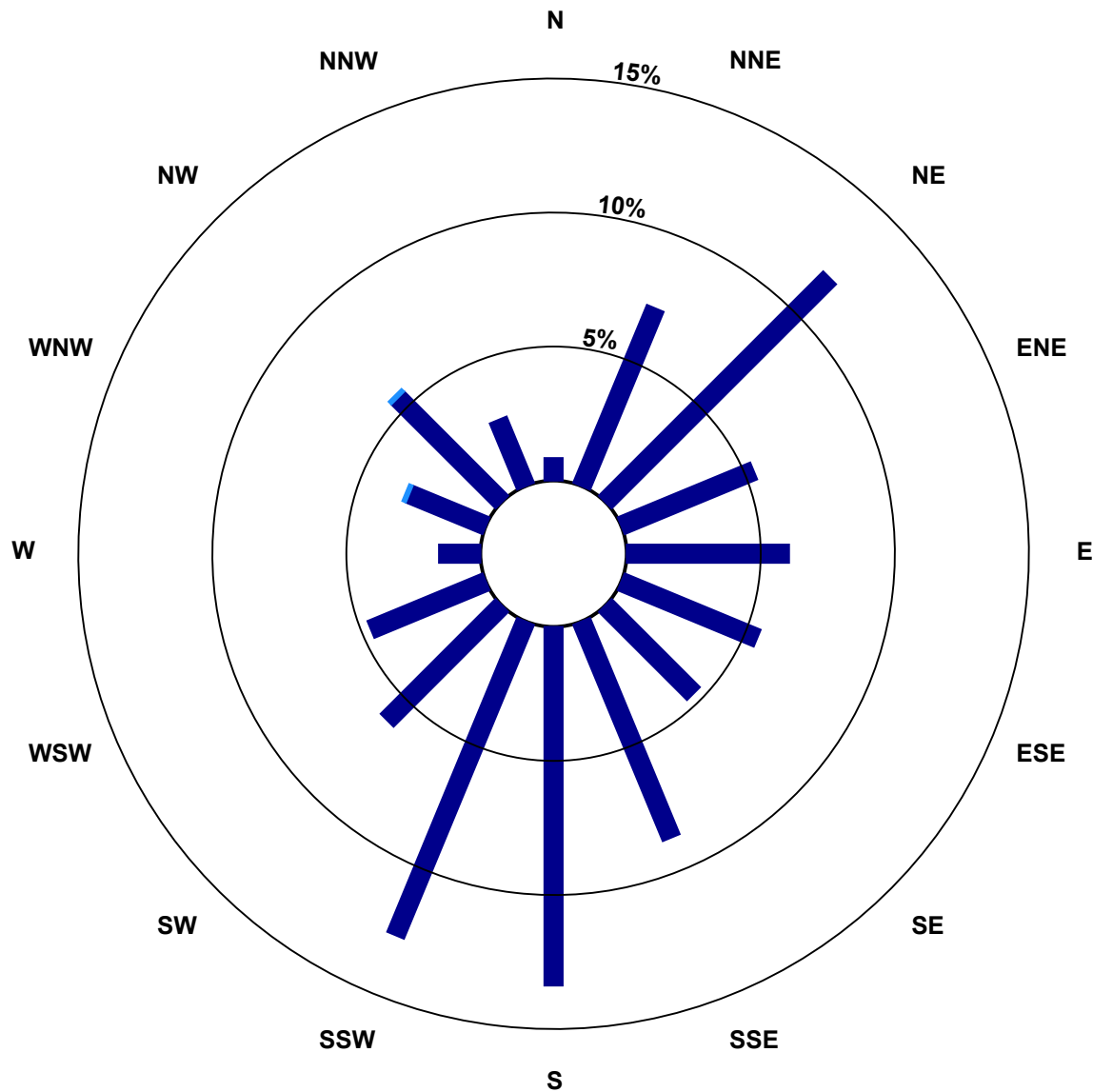
Total Number of Valid Hours: 710

Total Number of Hours: 744

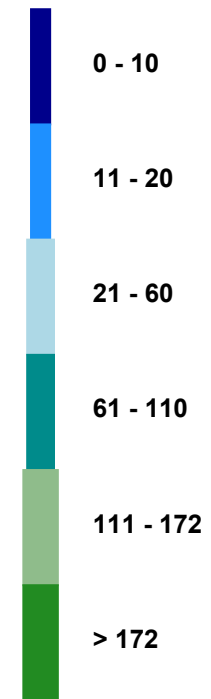


Wood Buffalo Environmental Association
Wind Rose Mar 2024

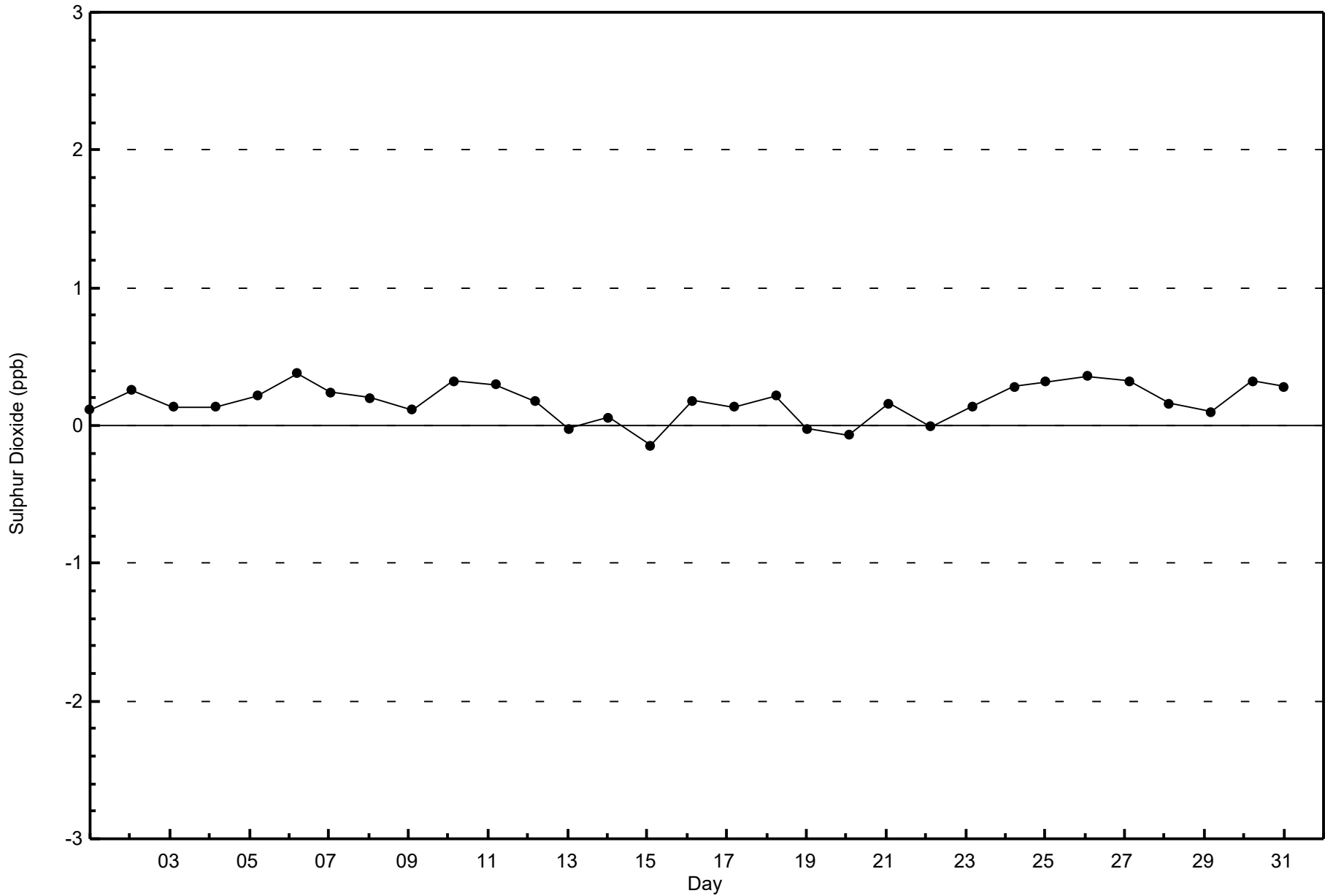
Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3

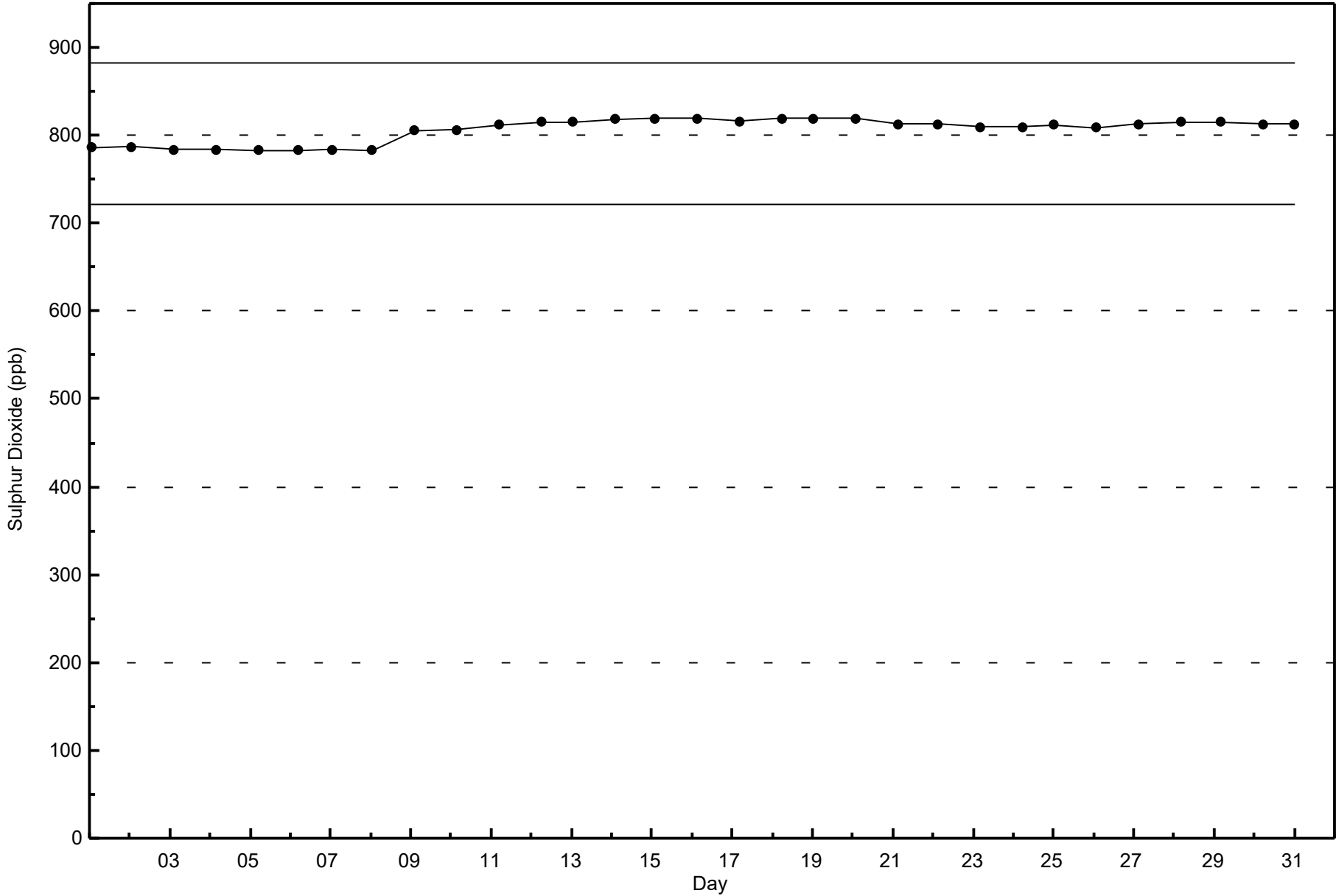


Classes (ppb)



Total Number of Valid Hours: 710





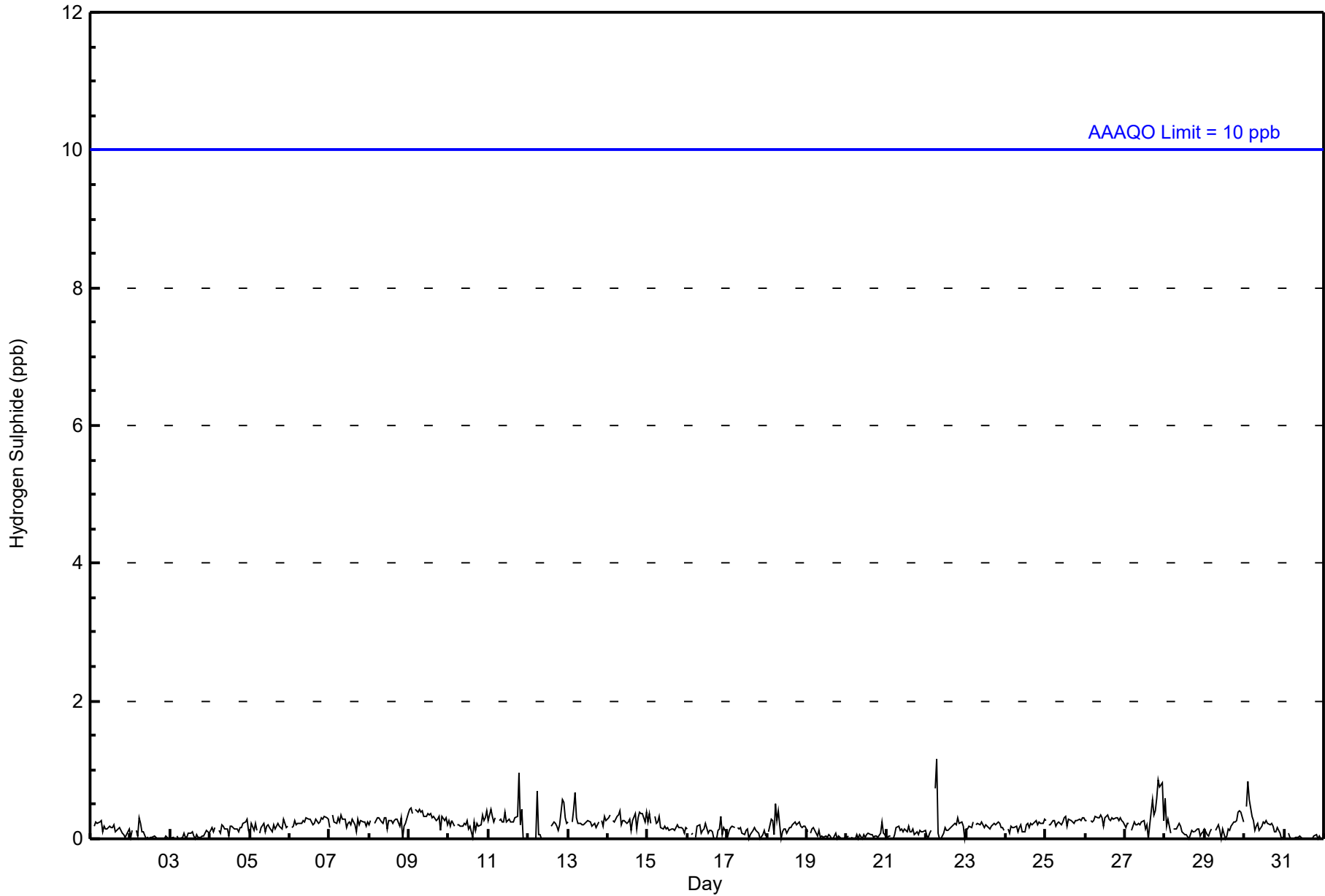


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																												
Maximum Value: 1.2 ppb on Mar 22 07:00		Maximum Daily Average: 0.3 ppb on Mar 9																	Hours of Data:	706																														
Minimum Value: 0.0 ppb on Mar 2 12:00		Minimum Daily Average: 0.0 ppb on Mar 31																	Hours of Missing Data:	38																														
Maximum Diurnal Average: 0.2 ppb at hour 6		Minimum Diurnal Average: 0.1 ppb at hour 15																	Hours of Calibration:	36																														
Monthly Average: 0.18 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.3 P ₉₉ = 0.7																	Percent Operational Time:	99.7																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Mar	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.3																								
2-Mar	0.0	0.1	Z	0.1	0.0	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
3-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1																							
4-Mar	0.1	0.2	0.1	0.2	Z	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.2	0.3																							
5-Mar	0.1	0.2	0.1	0.2	0.1	Z	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3																							
6-Mar	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																							
7-Mar	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.3																							
8-Mar	0.2	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.1	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.0	0.2	0.2	0.4	0.2	0.4																							
9-Mar	0.4	0.5	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.3	0.3	0.3	0.2	0.3	0.5																							
10-Mar	0.3	0.2	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.0	0.2	0.1	0.2	0.2	0.2	0.4	0.3	0.3	0.4	0.2	0.4	0.4																							
11-Mar	0.3	0.4	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.3	1.0	0.2	0.4	0.0	0.0	0.0	0.3	1.0																								
12-Mar	Z	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.0	C	C	C	C	C	0.2	0.3	0.2	0.2	0.1	0.2	0.6	0.5	0.3	0.2	0.2	0.7																								
13-Mar	0.2	Z	0.2	0.4	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	UO	0.3	0.2	0.3	0.3	0.3	0.7																							
14-Mar	0.3	0.3	Z	0.3	0.2	0.3	0.4	0.4	0.2	0.3	0.3	0.2	0.2	0.3	0.1	0.3	0.4	0.1	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.4																							
15-Mar	0.2	0.4	0.2	Z	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.4	0.4																							
16-Mar	0.1	UO	0.1	0.1	Z	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.3	0.1	0.2	0.1	0.1	0.3	0.3																							
17-Mar	0.0	0.1	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.2																							
18-Mar	Z	0.1	0.3	0.3	0.1	0.5	0.3	0.4	0.0	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5																							
19-Mar	0.1	Z	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																							
20-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.2																							
21-Mar	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
22-Mar	0.0	0.0	0.1	0.1	Z	0.7	1.2	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.0	0.2	1.2																							
23-Mar	0.1	0.1	0.2	0.2	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3																							
24-Mar	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3																							
25-Mar	0.3	Z	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3																							
26-Mar	0.3	0.3	Z	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.4																							
27-Mar	0.2	0.2	0.2	Z	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.2	0.0	0.2	0.6	0.4	0.4	0.6	0.9	0.8	0.8	0.3	0.3	0.9																								
28-Mar	0.6	0.2	0.3	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.6																								
29-Mar	0.1	0.1	0.0	0.1	0.1	Z	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.2	0.2	0.4																								
30-Mar	Z	0.5	0.8	0.6	0.3	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.8																							
31-Mar	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1																							
																								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	Diurnal Average
																								0.6	0.5	0.8	0.6	0.7	0.7	1.2	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.6	0.4	1.0	0.6	0.9	0.8	0.8	0.4	0.4	0.4	Diurnal Maximum
Z - zerospan C - Calibration UO - Unstable Operation																																																		
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																		



Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Jackfish 2/3 - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	16	45	80	53	33	13	17	54	88	96	69	36	23	27	34	22	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
Totals	16	45	80	53	33	13	17	54	88	96	69	36	23	27	34	22	706

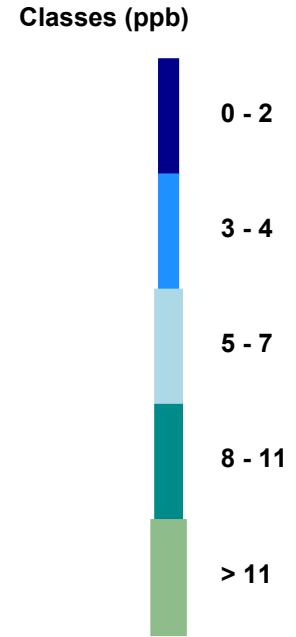
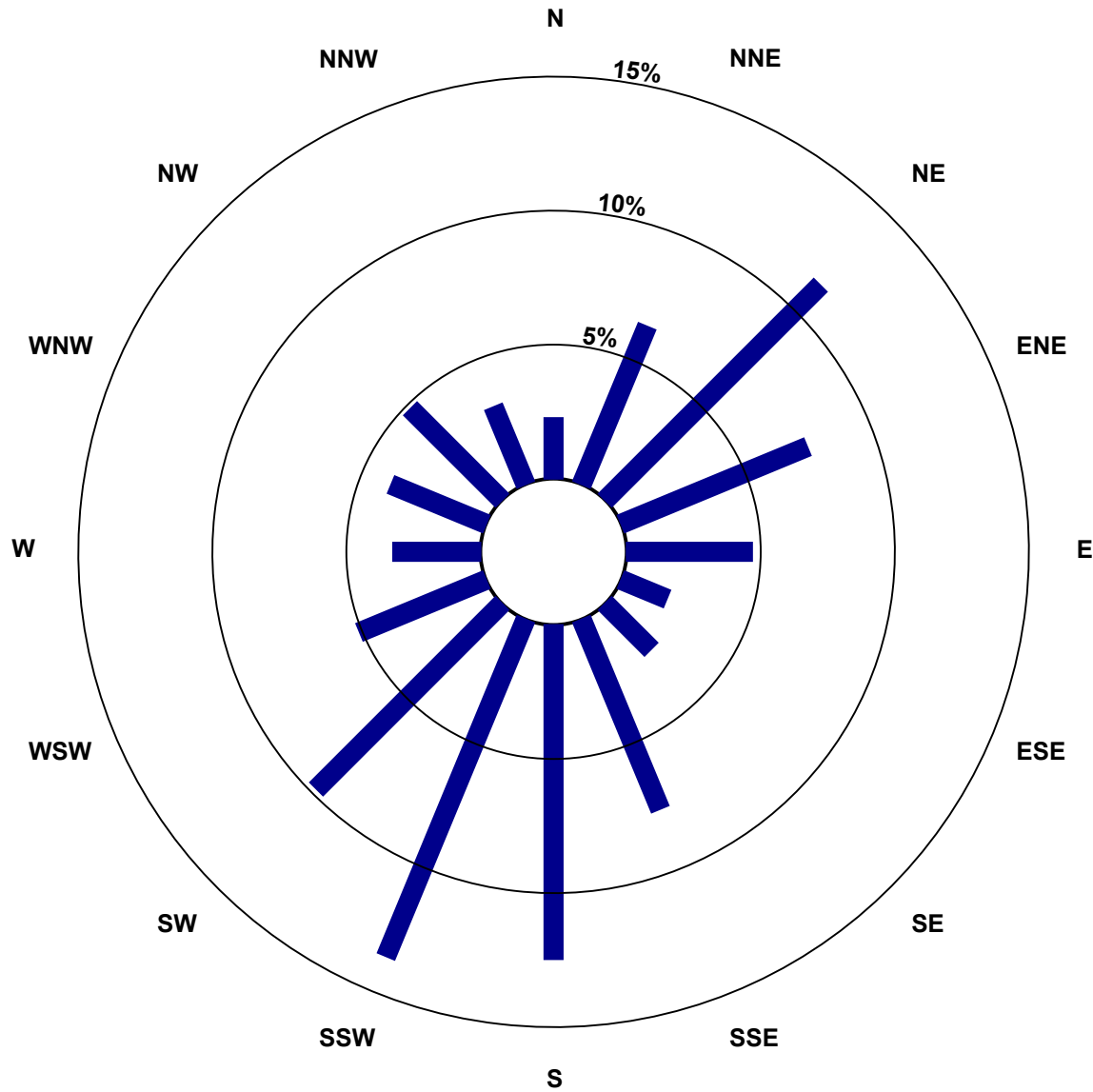
Total Number of Valid Hours: 706

Total Number of Hours: 744

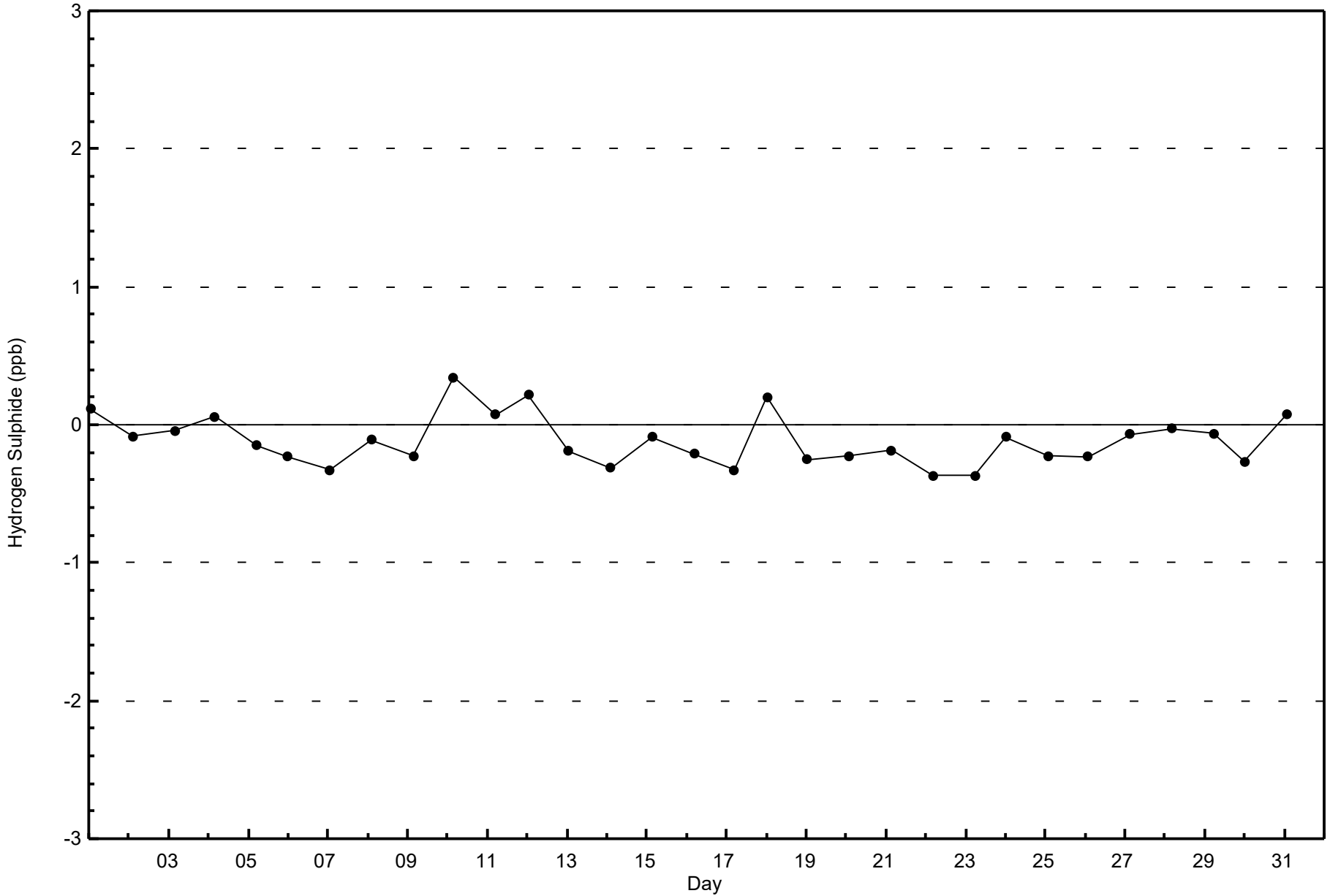


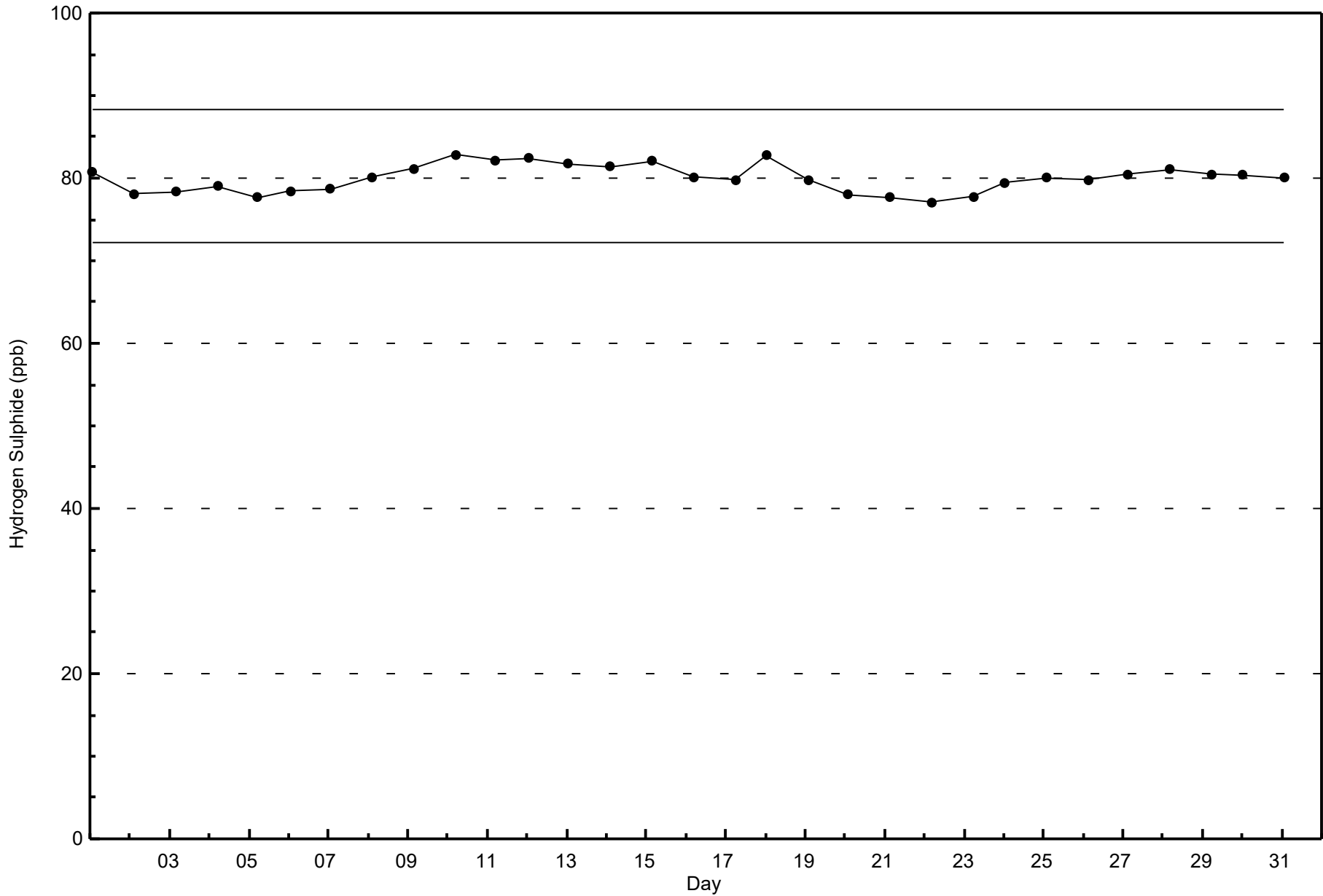
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association
Summary of Hour Averages

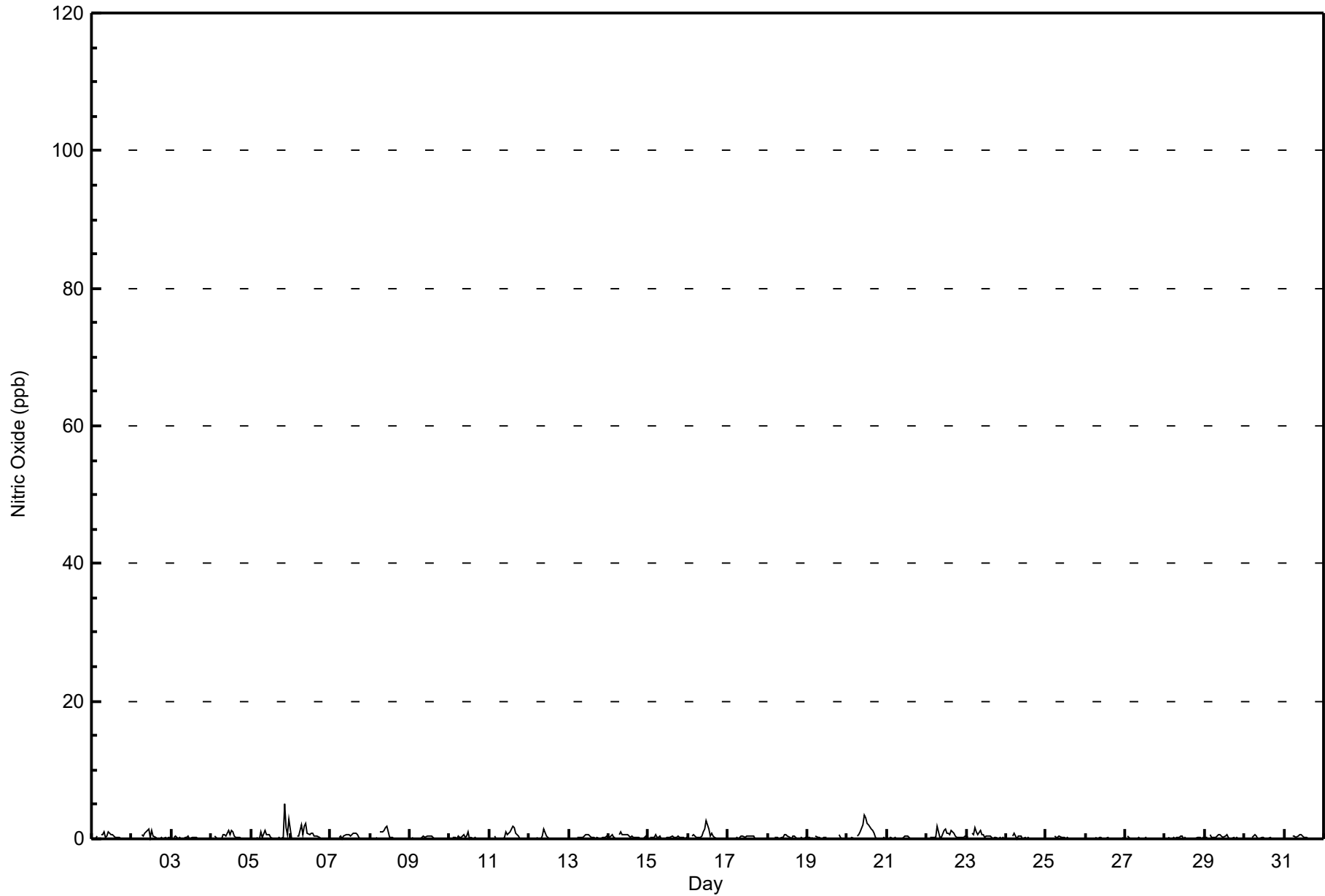
Nitric Oxide (NO) - ppb
Jackfish 2/3 - March 2024

Maximum Value: 5.1 ppb on Mar 5 21:00		Maximum Daily Average: 0.8 ppb on Mar 20		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.1 ppb on Mar 26		Hours of Data: 706																						
Maximum Diurnal Average: 0.7 ppb at hour 11		Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Missing Data: 38																						
Monthly Average: 0.27 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.7 P ₉₉ = 2.1		Hours of Calibration: 38																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	0.0	0.0	0.4	Z	0.6	0.6	0.9	0.2	0.3	1.0	0.6	0.7	0.5	0.3	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	1.0
2-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.4	0.8	1.3	1.4	0.3	1.2	0.5	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.3	1.4
3-Mar	Z	0.2	0.3	0.2	0.1	0.2	0.0	0.0	0.1	0.3	0.3	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.3
4-Mar	0.0	Z	0.4	0.2	0.1	0.0	0.0	0.7	0.6	0.5	1.3	0.6	1.2	1.0	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.3
5-Mar	0.0	0.0	Z	0.1	0.0	0.0	1.0	0.1	1.3	0.6	0.7	0.6	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.2	5.1	1.6	0.6	2.8	0.7	5.1
6-Mar	0.0	0.1	0.0	Z	0.4	0.3	2.0	0.6	1.9	2.2	0.9	0.5	0.9	0.7	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.5	2.2
7-Mar	0.0	0.0	0.1	0.0	Z	0.3	0.4	0.0	0.4	0.6	0.6	0.6	0.3	0.5	0.9	0.8	0.6	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.3	0.9
8-Mar	0.0	0.0	0.0	0.1	0.2	Z	1.0	1.0	1.3	1.6	1.9	1.0	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9
9-Mar	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.2	0.4	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
10-Mar	0.0	Z	0.3	0.2	0.0	0.3	0.1	0.1	0.6	0.2	0.3	1.0	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.0
11-Mar	0.0	0.0	Z	0.3	0.0	0.0	0.0	0.0	0.0	0.2	1.0	0.6	1.1	1.5	1.8	1.5	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.8
12-Mar	0.0	0.0	0.0	Z	0.2	0.1	0.0	0.1	0.4	1.3	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	0.1	1.3
13-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.2	0.3	0.3	0.6	0.7	0.6	0.1	0.2	0.3	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.5	0.2	0.7
14-Mar	0.2	0.4	0.6	0.3	0.1	Z	0.6	1.0	0.7	0.7	0.6	0.6	0.4	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.0	0.4	1.0
15-Mar	Z	0.2	0.2	0.1	0.7	0.2	0.3	0.4	0.1	0.0	0.0	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.7
16-Mar	0.2	Z	0.5	0.5	0.4	0.3	0.2	0.3	0.4	0.9	1.4	2.6	1.3	0.4	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.6
17-Mar	0.0	0.0	Z	0.1	0.0	0.2	0.1	0.2	0.3	0.4	0.3	0.4	0.3	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
18-Mar	0.0	0.0	0.0	Z	0.3	0.1	0.2	0.1	0.2	0.3	0.6	0.7	0.5	0.3	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.7
19-Mar	0.1	0.2	0.1	0.2	Z	0.5	0.2	0.2	0.1	0.1	0.1	0.3	C	C	C	C	C	C	C	0.6	0.3	0.0	0.0	0.0	--	0.6
20-Mar	0.0	0.0	0.1	0.1	0.0	Z	0.5	0.6	1.0	2.1	3.6	3.0	2.2	2.0	1.4	1.2	0.8	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.8	3.6
21-Mar	Z	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.2	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4
22-Mar	0.0	Z	0.2	0.2	0.2	0.2	1.8	1.0	0.2	0.2	1.2	1.5	0.9	0.9	0.6	1.2	0.8	0.5	0.3	0.3	0.3	0.2	0.3	0.3	0.6	1.8
23-Mar	0.3	0.3	Z	0.7	0.5	1.7	1.0	0.7	1.2	0.5	0.5	0.3	0.3	0.4	0.3	0.2	0.0	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.4	1.7
24-Mar	0.0	0.0	0.1	Z	0.5	0.7	0.1	0.3	0.3	0.4	0.1	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
25-Mar	0.0	0.0	0.0	0.0	Z	0.5	0.2	0.2	0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.3	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3
27-Mar	Z	0.4	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4
28-Mar	0.0	Z	0.3	0.1	0.0	0.2	0.1	0.2	0.2	0.4	0.5	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.5
29-Mar	0.2	0.1	Z	0.6	0.3	0.2	0.2	0.4	0.5	0.6	0.4	0.3	0.4	0.5	0.3	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.6
30-Mar	0.0	0.0	0.0	Z	0.1	0.4	0.6	0.4	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
31-Mar	0.0	0.0	0.0	0.0	Z	0.3	0.5	0.2	0.4	0.6	0.7	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
																								Diurnal Average		
																								Diurnal Maximum		
																								0.3 0.4 0.6 0.7 0.7 1.7 2.0 1.0 1.9 2.2 3.6 3.0 2.2 2.0 1.8 1.5 0.9 0.5 0.3 0.6 5.1 1.6 0.6 2.8		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Jackfish 2/3 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Jackfish 2/3 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Jackfish 2/3 - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	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
Totals	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	22	706

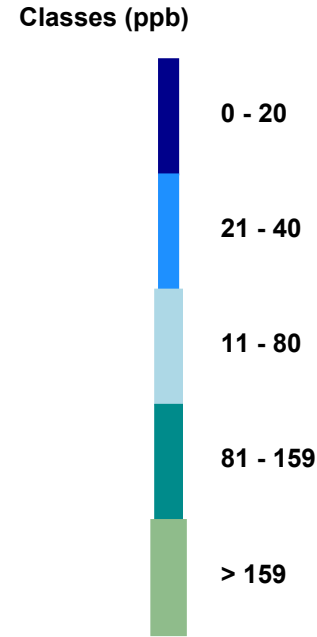
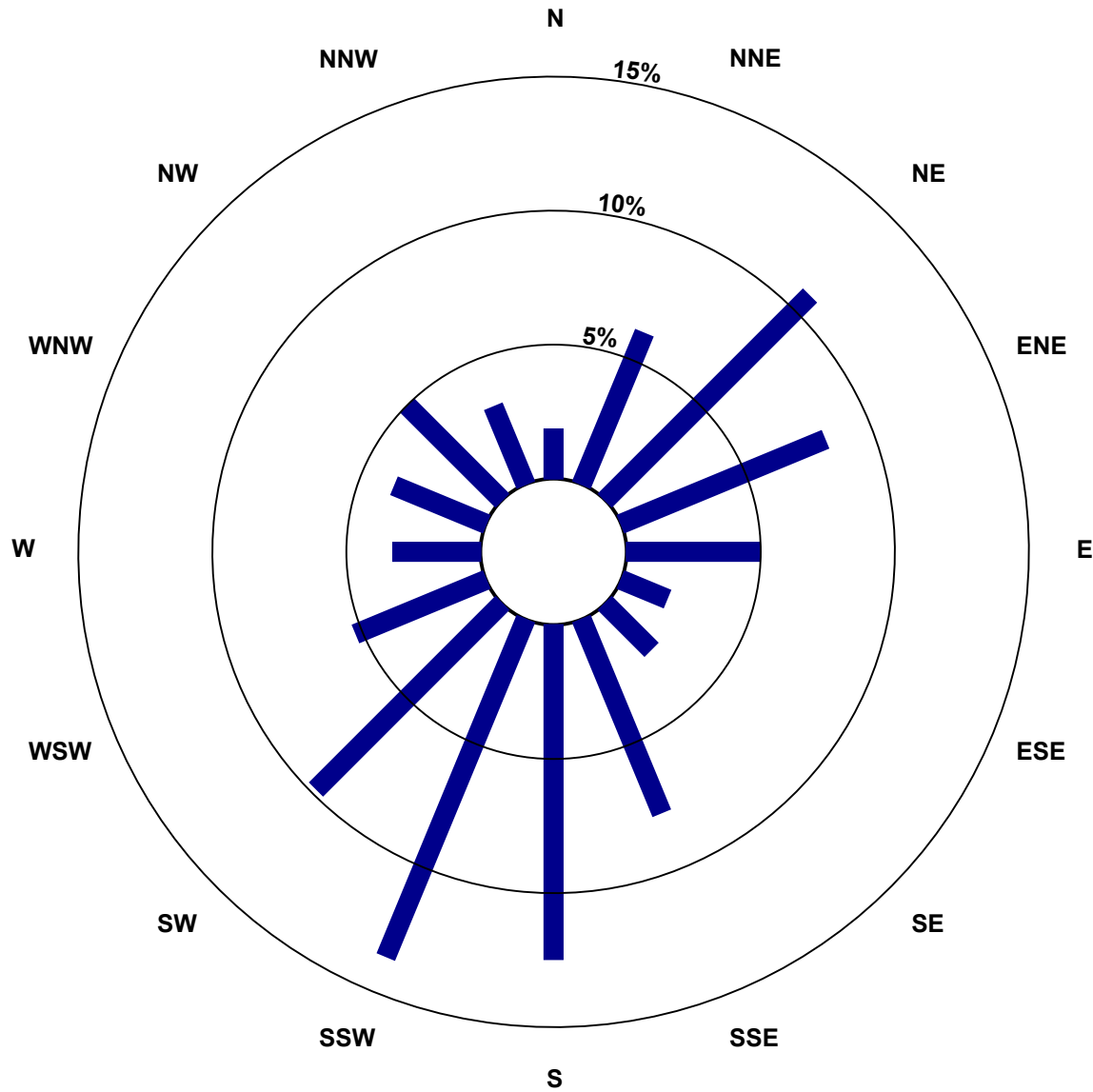
Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Jackfish 2/3

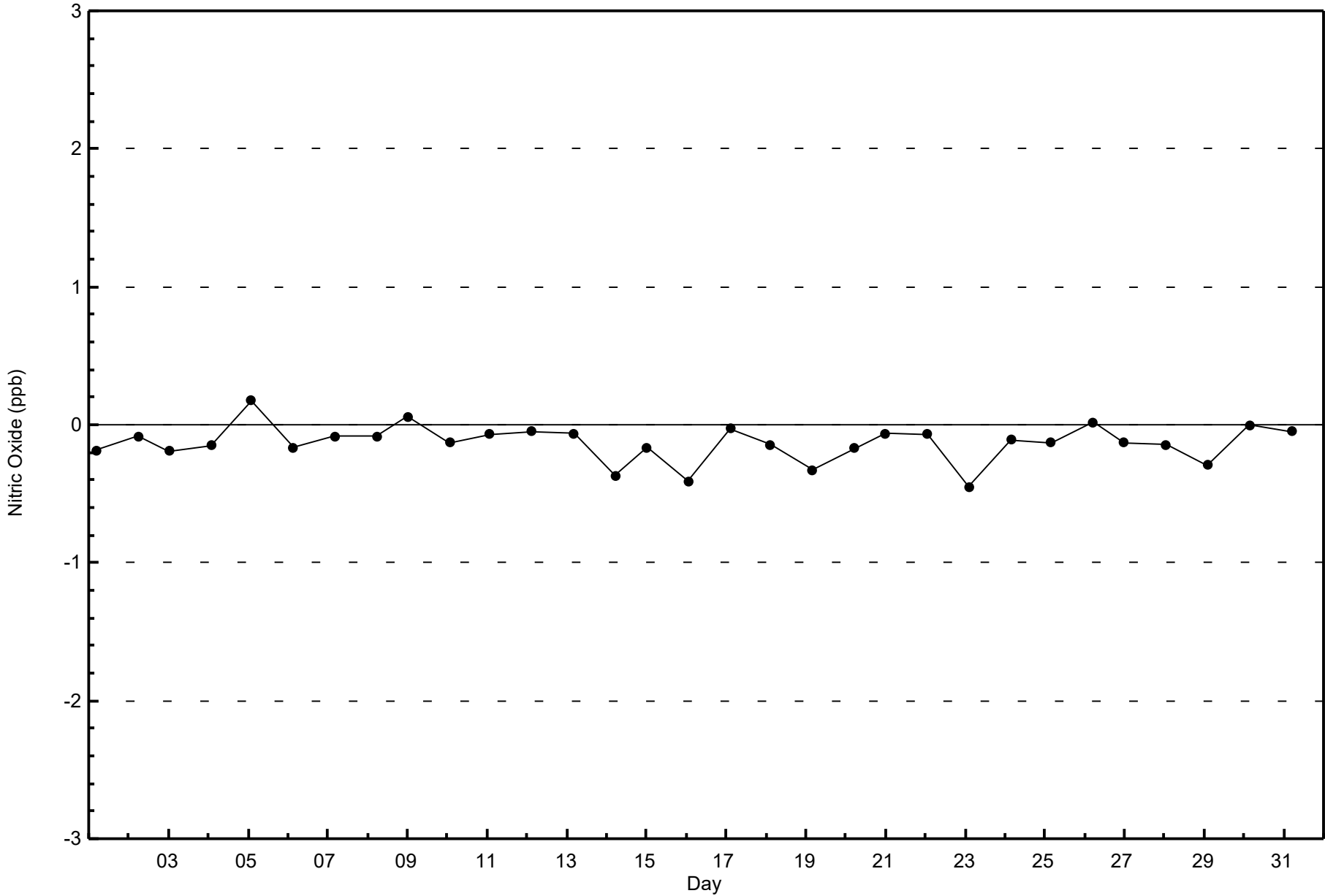


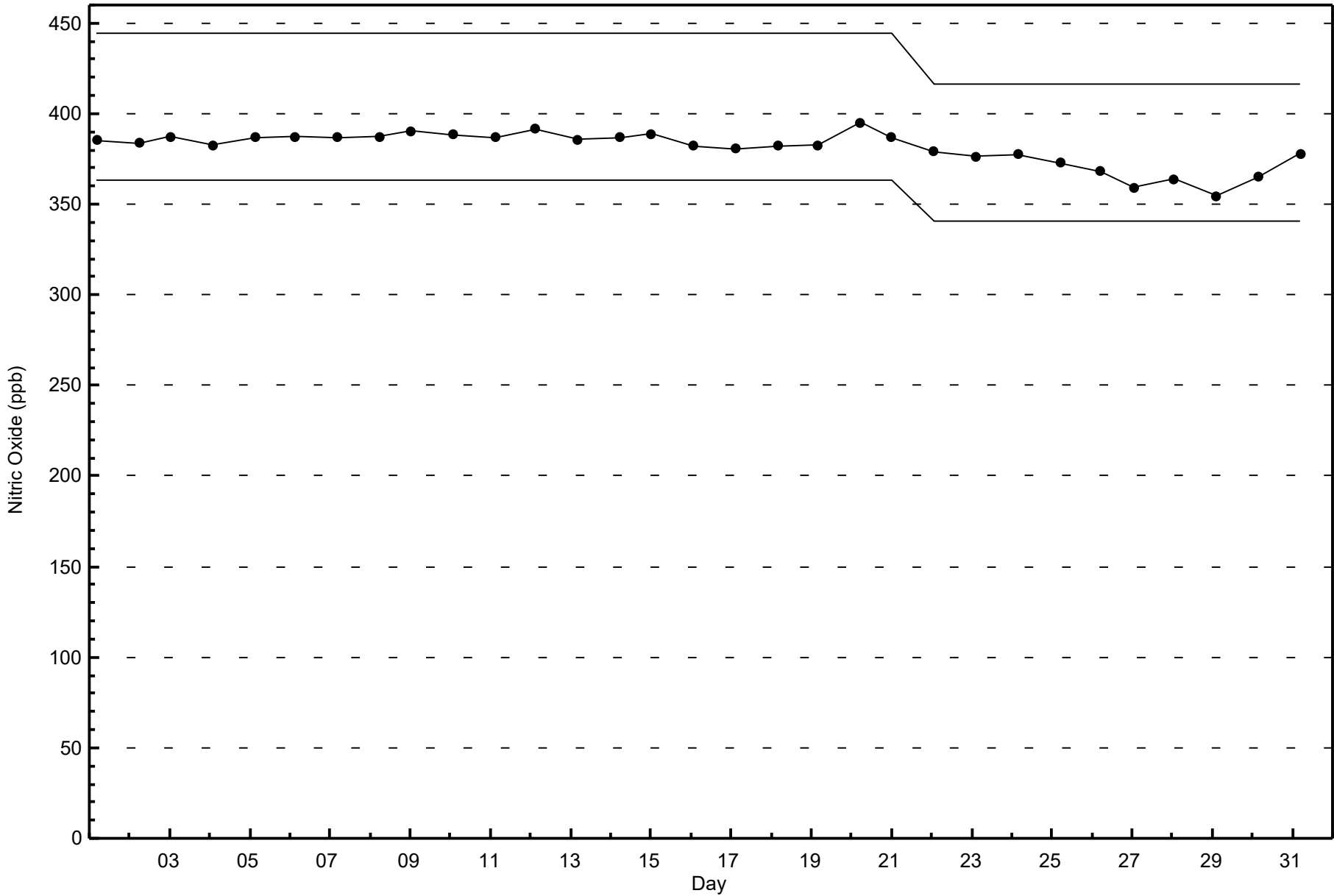
Total Number of Valid Hours: 706



Wood Buffalo Environmental Association
Zero Responses

Nitric Oxide (NO) - ppb
Jackfish 2/3 - March 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

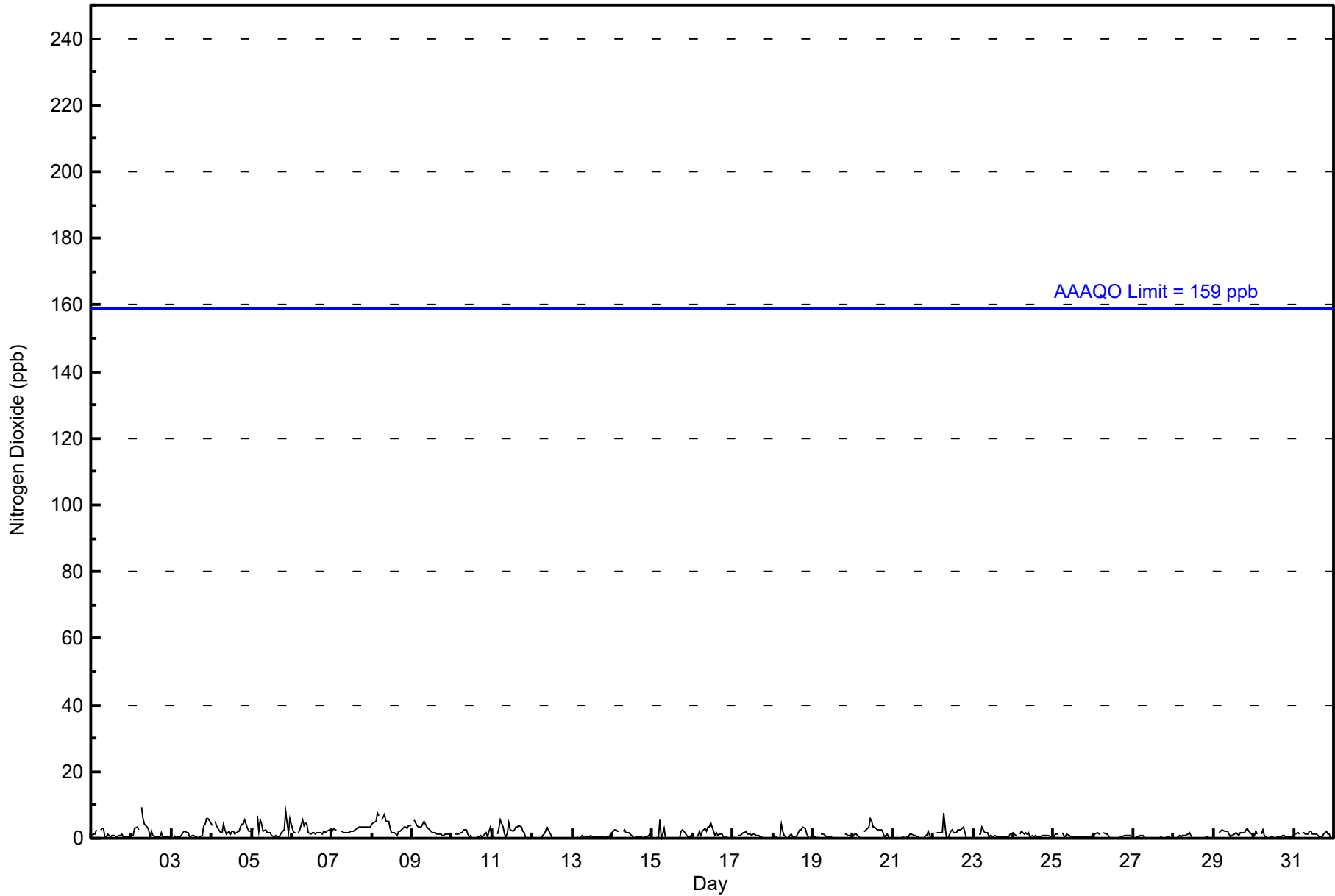
Jackfish 2/3 - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 9.5 ppb on Mar 2 07:00		Maximum Daily Average: 3.9 ppb on Mar 8		Hours of Data: 706														Hours of Missing Data: 38		Hours of Calibration: 38							
Minimum Value: 0.0 ppb on Mar 10 13:00		Minimum Daily Average: 0.2 ppb on Mar 27		Hours of Calibration: 38														Percent Operational Time: 100.0									
Maximum Diurnal Average: 2.5 ppb at hour 7		Minimum Diurnal Average: 0.9 ppb at hour 15		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.4 Median = 1.0 Q ₃ = 2.0 P ₉₀ = 3.3 P ₉₉ = 6.1																							
Monthly Average: 1.42 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-Mar	0.9	1.1	1.1	2.4	Z	2.4	2.8	3.0	0.4	0.5	1.3	0.5	1.0	0.9	0.7	0.4	1.0	1.0	1.2	0.5	0.5	0.5	0.6	0.5	1.1	3.0	
2-Mar	0.9	0.9	3.0	3.4	2.5	Z	9.5	5.8	4.2	3.3	2.7	0.6	2.1	0.7	0.5	0.5	0.3	0.4	1.7	0.5	0.3	0.5	0.4	0.4	2.0	9.5	
3-Mar	Z	0.7	0.6	0.3	0.3	0.5	1.0	2.1	2.3	1.8	1.6	0.6	0.8	1.0	0.5	0.3	0.1	0.3	0.7	3.9	4.4	5.9	6.1	4.8	1.8	6.1	
4-Mar	4.0	Z	4.9	3.9	3.0	1.9	1.7	4.1	2.7	1.2	2.2	1.4	2.2	2.0	1.3	1.6	2.2	3.2	4.3	4.4	5.7	2.9	2.2	2.2	2.8	5.7	
5-Mar	2.1	3.1	Z	6.9	2.2	5.4	4.2	2.2	2.4	1.9	1.7	1.6	1.0	0.5	0.7	0.4	0.6	1.0	1.9	2.6	8.2	4.5	1.7	6.0	2.7	8.2	
6-Mar	2.4	1.5	1.8	Z	1.9	2.6	5.6	3.8	4.8	4.2	1.9	1.4	1.7	1.9	1.4	1.7	1.7	1.5	1.2	2.2	1.8	2.1	2.7	1.9	2.3	5.6	
7-Mar	2.1	2.9	2.6	2.6	Z	2.1	2.0	1.7	1.8	1.9	1.8	2.0	2.0	2.1	2.7	3.1	3.4	3.6	3.2	3.5	3.4	3.2	3.2	3.3	2.6	3.6	
8-Mar	4.4	4.6	5.0	7.5	6.7	Z	5.6	7.3	5.2	4.9	5.0	3.1	1.8	1.7	1.3	1.0	2.0	2.3	2.9	3.6	3.5	3.0	3.7	3.7	3.9	7.5	
9-Mar	Z	5.7	4.6	3.9	3.2	3.2	4.3	5.2	4.1	3.3	2.5	2.2	1.6	1.6	1.5	1.1	1.3	1.2	1.0	1.0	1.1	1.4	1.2	1.3	2.5	5.7	
10-Mar	1.3	Z	1.2	1.2	1.3	1.7	1.8	2.6	2.4	1.1	0.5	1.0	0.0	0.1	0.0	0.5	0.3	0.7	0.4	1.3	1.9	0.5	2.0	3.3	1.2	3.3	
11-Mar	0.5	0.3	Z	1.1	3.1	5.5	3.4	1.2	0.6	1.8	4.6	2.4	2.3	2.4	3.4	3.6	3.9	3.5	2.3	1.6	0.0	0.0	0.0	0.0	2.1	5.5	
12-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.9	1.3	2.0	3.2	1.6	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	0.4	3.2	
13-Mar	0.0	0.0	0.0	0.3	Z	0.5	0.8	0.2	0.4	0.5	0.6	1.0	0.6	0.3	0.3	0.4	0.4	0.5	0.4	0.2	0.3	0.5	0.5	1.4	0.4	1.4	
14-Mar	2.2	2.4	2.7	2.3	2.1	Z	2.1	2.4	1.6	1.6	1.5	0.9	0.4	0.2	0.4	0.5	0.4	0.3	0.2	0.3	0.4	0.4	1.3	0.0	1.2	2.7	
15-Mar	Z	0.0	0.0	0.5	5.6	0.2	1.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	2.2	2.6	2.1	0.9	0.3	0.6	0.7	0.9	5.6
16-Mar	0.3	Z	0.3	0.8	2.2	0.8	2.1	3.1	2.1	3.6	3.6	4.6	2.0	0.7	1.7	0.7	1.4	1.3	0.6	0.1	0.5	0.0	0.0	0.0	1.4	4.6	
17-Mar	0.0	0.3	Z	1.0	0.8	1.4	1.6	1.8	2.2	1.3	1.3	1.0	1.1	1.1	0.9	0.9	0.5	0.3	0.2	0.1	0.2	0.0	0.1	0.2	0.8	2.2	
18-Mar	0.6	0.7	0.2	Z	0.3	4.3	2.0	1.0	0.1	0.2	0.9	1.2	0.5	0.5	0.9	1.7	2.5	2.5	3.4	3.0	1.1	0.4	0.2	0.4	1.2	4.3	
19-Mar	0.4	0.3	0.2	0.3	Z	1.4	1.1	0.9	0.5	0.3	0.3	0.4	C	C	C	C	C	C	C	1.1	1.2	0.9	1.0	0.9	--	1.4	
20-Mar	0.8	1.2	1.1	1.0	0.0	Z	2.1	2.1	2.6	3.2	5.9	5.1	3.6	3.2	2.7	2.7	2.5	2.7	1.6	0.5	1.1	0.3	0.2	0.0	2.0	5.9	
21-Mar	Z	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.4	0.4	1.4	1.4	0.9	0.8	0.6	0.3	0.2	0.0	0.1	0.7	0.9	2.1	1.0	0.2	0.5	2.1	
22-Mar	0.7	Z	1.5	1.7	1.5	1.6	7.7	3.2	0.1	0.0	2.2	2.5	1.6	1.6	1.5	2.6	2.6	2.9	3.4	1.5	0.1	0.1	0.1	0.1	1.8	7.7	
23-Mar	0.0	1.1	Z	1.2	1.3	3.2	2.4	1.8	1.6	0.6	0.9	0.5	0.5	0.7	0.6	0.5	0.5	0.6	0.4	0.3	0.6	0.5	1.1	1.1	1.0	3.2	
24-Mar	1.7	1.0	0.9	Z	1.2	2.0	1.3	1.5	1.4	1.7	0.5	0.7	0.6	1.0	0.4	0.3	0.4	0.7	0.9	0.8	1.0	0.9	0.6	0.6	1.0	2.0	
25-Mar	0.6	1.1	1.3	1.3	Z	1.7	0.8	0.6	1.1	0.8	0.6	0.4	0.4	0.6	0.5	0.6	0.4	0.3	0.5	0.6	0.5	0.4	0.4	0.8	0.7	1.7	
26-Mar	0.9	1.2	1.6	1.3	1.7	Z	1.5	1.4	1.1	0.6	0.2	0.2	0.2	0.1	0.2	0.1	0.5	0.4	0.7	0.7	0.8	0.8	0.7	0.5	0.8	1.7	
27-Mar	Z	0.4	0.4	0.5	0.7	0.7	0.5	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.1	0.0	0.1	0.3	0.3	0.1	0.1	0.2	0.7	
28-Mar	0.5	Z	0.0	0.8	0.3	0.7	0.7	0.8	1.3	1.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.1	0.4	1.7	
29-Mar	0.0	0.1	Z	1.6	2.0	2.4	2.3	2.3	2.1	1.2	0.6	1.0	1.1	1.6	1.1	0.7	1.5	1.6	1.8	2.6	2.9	2.3	1.9	0.9	1.5	2.9	
30-Mar	0.9	2.3	1.2	Z	1.1	2.6	1.0	0.6	0.0	0.1	0.5	0.3	0.1	0.2	0.3	0.3	0.5	0.8	0.7	0.5	0.5	0.5	0.3	0.6	0.7	2.6	
31-Mar	1.2	1.4	1.5	1.4	Z	1.8	1.8	1.4	1.3	2.0	2.0	1.4	1.3	1.1	0.7	0.6	0.4	0.5	1.2	2.3	1.1	1.4	0.1	0.1	1.2	2.3	
																								Diurnal Average		Diurnal Maximum	
																								1.1 1.3 1.5 1.9 1.8 2.0 2.5 2.2 1.7 1.6 1.7 1.3 1.1 1.0 0.9 0.9 1.1 1.2 1.3 1.4 1.5 1.2 1.1 1.2		4.4 5.7 5.0 7.5 6.7 5.5 9.5 7.3 5.2 4.9 5.9 5.1 3.6 3.2 3.4 3.6 3.9 3.6 4.3 4.4 8.2 5.9 6.1 6.0	
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3 - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Jackfish 2/3 - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	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
Totals	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	22	706

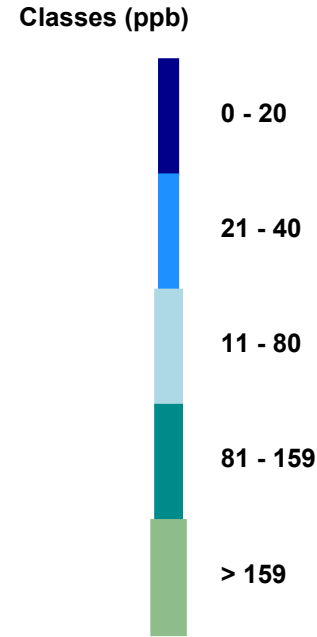
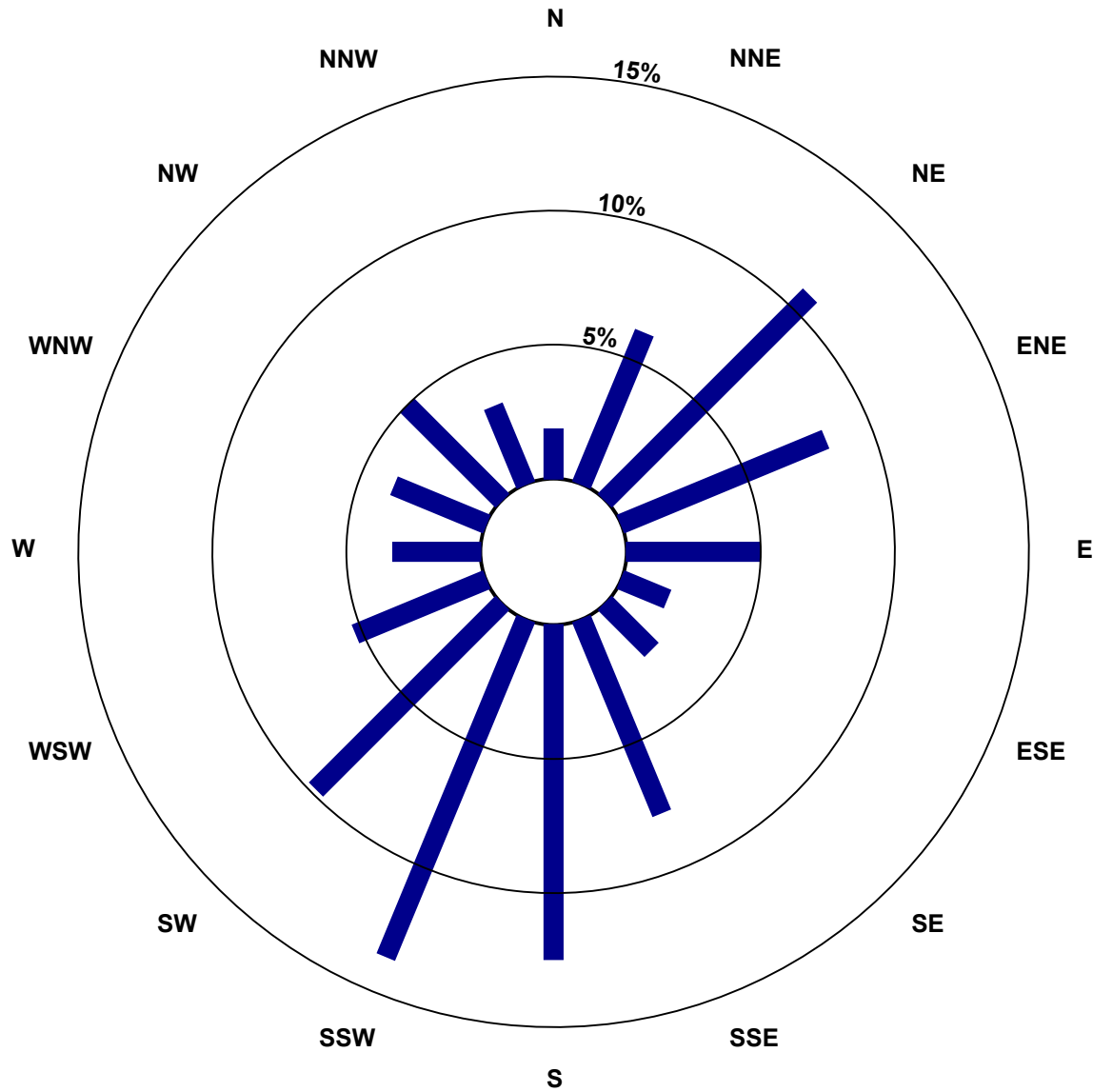
Total Number of Valid Hours: 706

Total Number of Hours: 744

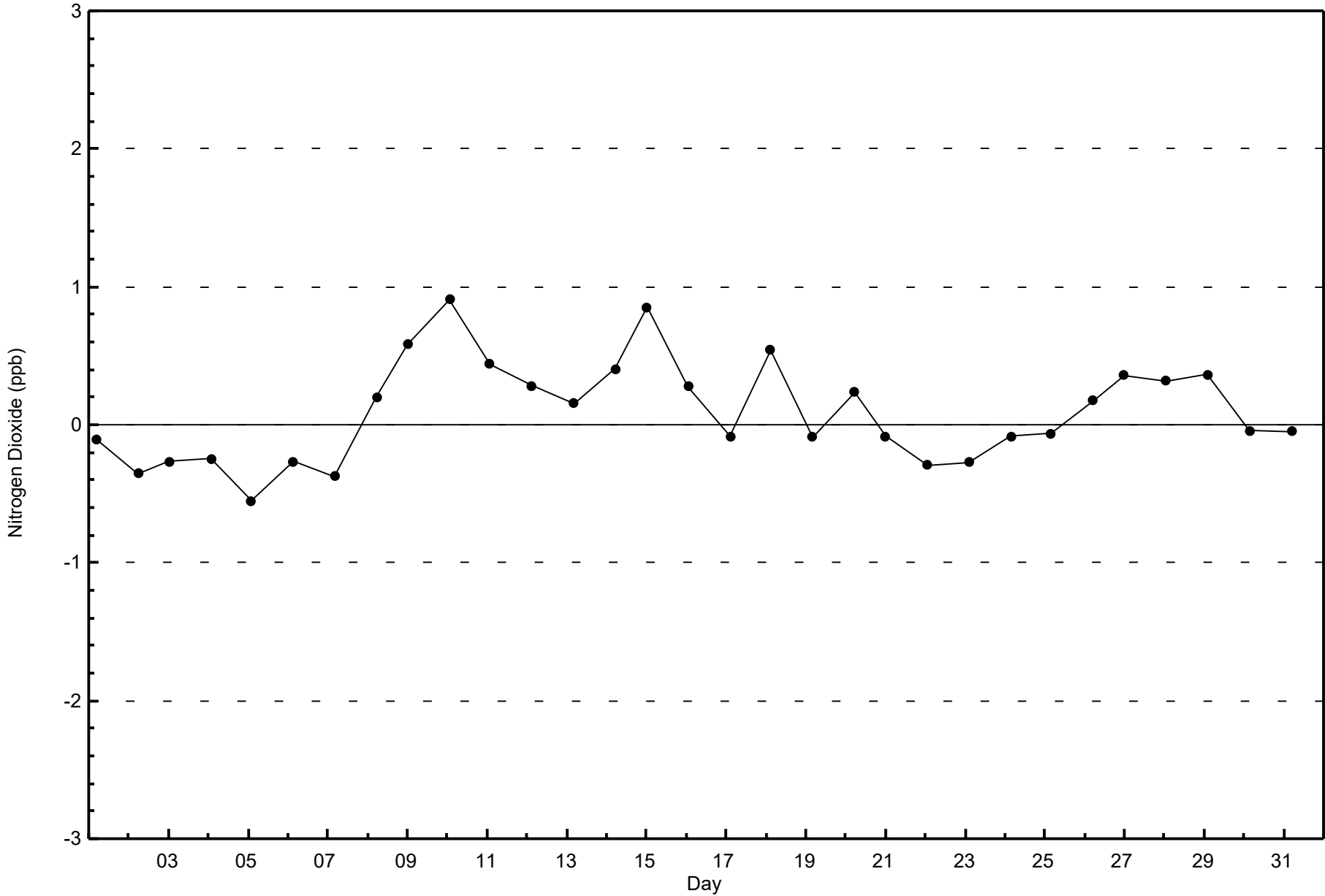


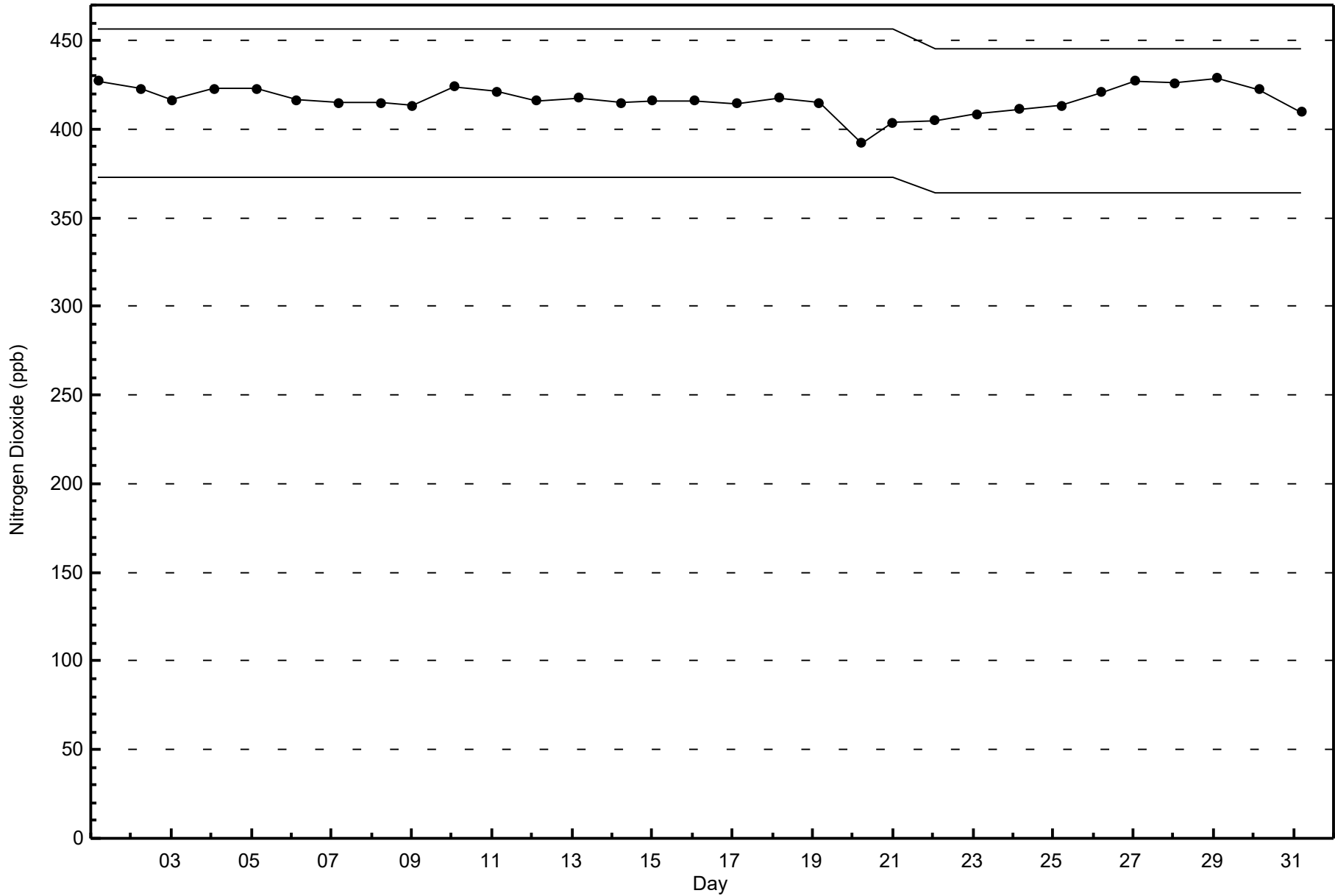
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association
Summary of Hour Averages

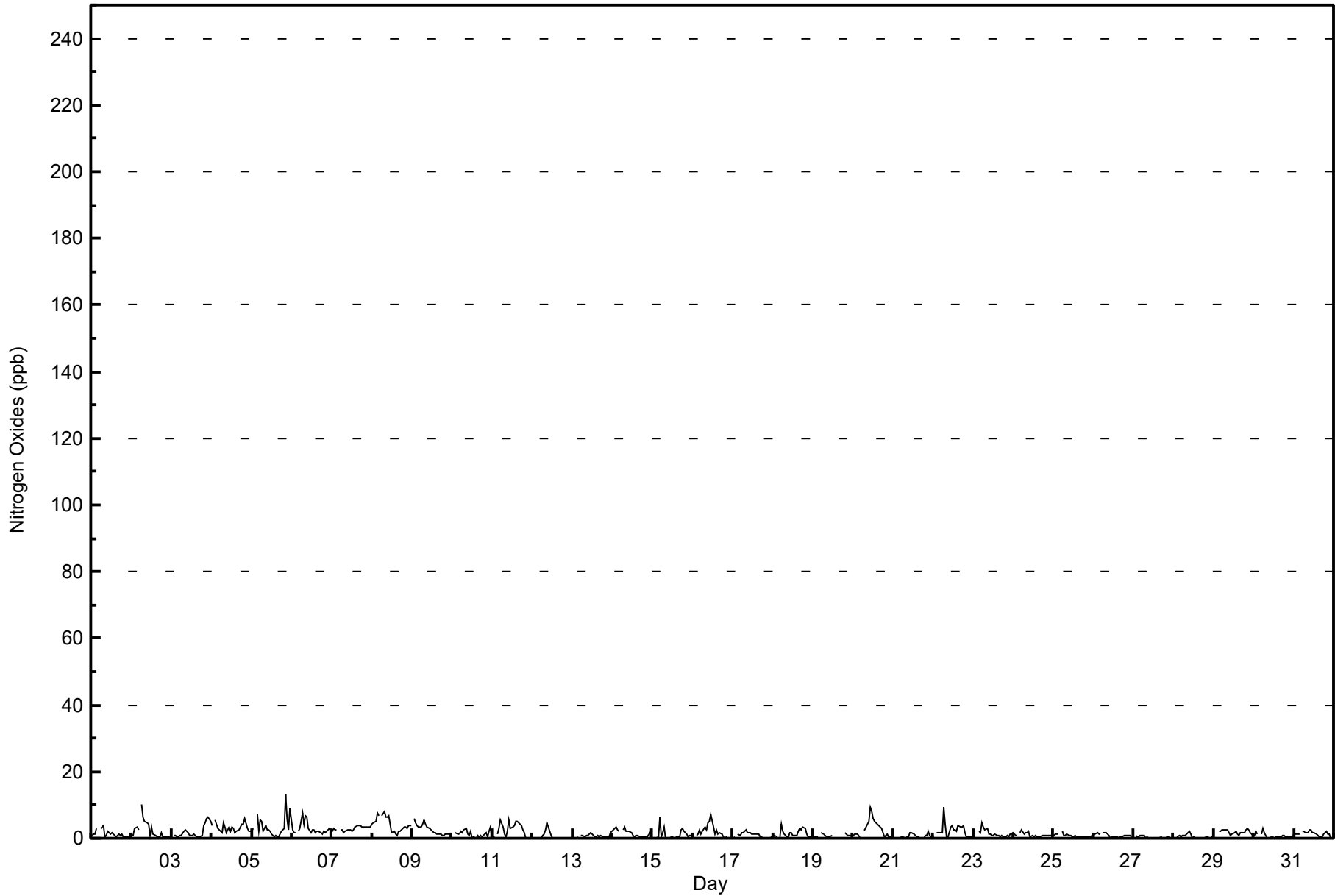
Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - March 2024

Maximum Value: 13.3 ppb on Mar 5 21:00		Maximum Daily Average: 4.3 ppb on Mar 8		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 11 22:00		Minimum Daily Average: 0.3 ppb on Mar 27		Hours of Data: 706																							
Maximum Diurnal Average: 2.9 ppb at hour 7		Minimum Diurnal Average: 1.2 ppb at hour 23		Hours of Missing Data: 38																							
Monthly Average: 1.69 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.5 Median = 1.2 Q ₃ = 2.4 P ₉₀ = 3.8 P ₉₉ = 7.6		Hours of Calibration: 38																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	0.9	1.1	1.1	2.8	Z	3.0	3.4	3.9	0.6	0.8	2.3	1.1	1.7	1.4	1.0	0.6	1.3	1.0	1.3	0.5	0.5	0.5	0.6	0.5	1.4	3.9	
2-Mar	0.9	0.9	3.0	3.4	2.5	Z	10.0	6.2	5.0	4.6	4.1	0.9	3.3	1.2	0.7	0.6	0.3	0.4	1.8	0.5	0.4	0.5	0.5	0.5	2.3	10.0	
3-Mar	Z	0.9	0.9	0.5	0.4	0.7	1.0	2.1	2.4	2.1	1.9	0.7	0.9	1.1	0.7	0.4	0.2	0.3	0.7	3.9	4.5	5.9	6.1	4.9	1.9	6.1	
4-Mar	4.0	Z	5.3	4.1	3.1	1.9	1.7	4.8	3.3	1.7	3.5	2.0	3.4	3.0	1.7	1.9	2.5	3.3	4.3	4.4	5.7	2.9	2.2	2.2	3.2	5.7	
5-Mar	2.1	3.1	Z	7.0	2.2	5.4	5.2	2.3	3.7	2.5	2.4	2.2	1.3	0.5	0.7	0.4	0.6	1.1	1.9	2.8	13.3	6.1	2.3	8.8	3.4	13.3	
6-Mar	2.4	1.6	1.8	Z	2.3	2.9	7.6	4.4	6.7	6.4	2.8	1.9	2.6	2.6	1.8	2.1	2.0	1.7	1.2	2.2	1.8	2.1	2.8	2.0	2.9	7.6	
7-Mar	2.1	2.9	2.7	2.6	Z	2.4	2.4	1.7	2.2	2.5	2.4	2.6	2.3	2.6	3.6	3.9	4.0	3.7	3.3	3.5	3.4	3.2	3.3	3.3	2.9	4.0	
8-Mar	4.4	4.6	5.0	7.6	6.9	Z	6.6	8.3	6.5	6.5	6.9	4.1	1.9	2.0	1.4	1.0	2.0	2.3	2.9	3.6	3.5	3.0	3.7	3.7	4.3	8.3	
9-Mar	Z	5.8	4.6	3.9	3.2	3.2	4.4	5.4	4.4	3.5	2.9	2.6	2.0	1.9	1.7	1.2	1.3	1.2	1.0	1.0	1.1	1.4	1.2	1.3	2.6	5.8	
10-Mar	1.3	Z	1.5	1.4	1.3	2.0	1.9	2.7	3.0	1.3	0.8	2.0	0.1	0.3	0.0	0.7	0.3	0.7	0.4	1.3	1.9	0.5	2.0	3.3	1.3	3.3	
11-Mar	0.5	0.3	Z	1.4	3.1	5.5	3.4	1.2	0.6	2.0	5.6	3.0	3.4	3.9	5.2	5.1	4.8	3.9	2.3	1.6	0.0	0.0	0.0	0.0	2.5	5.6	
12-Mar	0.0	0.0	0.0	Z	0.2	0.1	0.9	1.4	2.4	4.5	1.9	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	4.5	
13-Mar	0.0	0.0	0.0	0.3	Z	0.6	0.9	0.4	0.7	0.8	1.2	1.7	1.2	0.4	0.5	0.7	0.5	0.7	0.5	0.3	0.6	0.6	0.6	1.9	0.7	1.9	
14-Mar	2.4	2.8	3.3	2.6	2.2	Z	2.7	3.4	2.3	2.3	2.1	1.5	0.8	0.5	0.8	0.7	0.6	0.4	0.3	0.4	0.5	1.6	0.0	0.0	1.5	3.4	
15-Mar	Z	0.2	0.2	0.6	6.3	0.4	1.7	3.2	0.1	0.0	0.0	0.2	0.2	0.2	0.4	0.2	0.3	2.4	2.9	2.3	1.1	0.5	0.7	0.9	1.1	6.3	
16-Mar	0.5	Z	0.8	1.3	2.6	1.1	2.3	3.4	2.5	4.5	5.0	7.2	3.3	1.1	2.4	1.1	1.7	1.4	0.6	0.1	0.5	0.0	0.0	0.0	1.9	7.2	
17-Mar	0.0	0.3	Z	1.1	0.8	1.6	1.7	2.0	2.5	1.7	1.6	1.4	1.4	1.4	1.3	1.3	0.5	0.3	0.2	0.1	0.2	0.0	0.1	0.2	0.9	2.5	
18-Mar	0.6	0.7	0.2	Z	0.6	4.4	2.2	1.1	0.3	0.5	1.5	1.9	1.0	0.8	1.0	2.0	2.8	2.6	3.5	3.1	1.2	0.4	0.2	0.6	1.4	4.4	
19-Mar	0.5	0.5	0.3	0.5	Z	1.9	1.3	1.1	0.6	0.4	0.4	0.7	C	C	C	C	C	C	C	1.7	1.5	0.9	1.0	0.9	--	1.9	
20-Mar	0.8	1.2	1.2	1.1	0.0	Z	2.6	2.7	3.6	5.3	9.5	8.1	5.8	5.2	4.1	3.9	3.3	2.9	1.6	0.5	1.2	0.3	0.3	0.0	2.8	9.5	
21-Mar	Z	0.2	0.1	0.0	0.0	0.3	0.5	0.1	0.4	0.5	1.6	1.8	1.3	1.0	0.6	0.3	0.2	0.0	0.2	0.7	0.9	2.1	1.0	0.2	0.6	2.1	
22-Mar	0.7	Z	1.7	1.9	1.7	1.8	9.5	4.2	0.3	0.2	3.4	4.0	2.5	2.5	2.1	3.8	3.4	3.4	3.7	1.8	0.4	0.3	0.4	0.4	2.4	9.5	
23-Mar	0.3	1.4	Z	1.9	1.8	4.9	3.4	2.5	2.8	1.1	1.4	0.8	0.8	1.1	0.9	0.7	0.5	0.7	0.6	0.3	0.7	0.5	1.2	1.1	1.4	4.9	
24-Mar	1.7	1.0	1.0	Z	1.7	2.7	1.4	1.8	1.7	2.1	0.6	1.0	0.6	1.1	0.4	0.3	0.4	0.7	0.9	0.8	1.0	0.9	0.6	0.6	1.1	2.7	
25-Mar	0.6	1.1	1.3	1.3	Z	2.2	1.0	0.8	1.4	1.0	0.8	0.5	0.4	0.7	0.5	0.6	0.4	0.3	0.5	0.6	0.5	0.4	0.4	0.8	0.8	2.2	
26-Mar	0.9	1.2	1.6	1.3	1.7	Z	1.7	1.5	1.4	0.8	0.2	0.2	0.2	0.3	0.2	0.1	0.5	0.4	0.7	0.7	0.8	0.8	0.7	0.6	0.8	1.7	
27-Mar	Z	0.8	0.6	0.5	0.7	0.8	0.6	0.1	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.1	0.1	0.1	0.1	0.3	0.3	0.1	0.1	0.3	0.8
28-Mar	0.5	Z	0.3	0.9	0.3	0.9	0.8	1.0	1.5	2.1	1.4	0.1	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4	0.1	0.0	0.3	0.5	2.1	
29-Mar	0.2	0.2	Z	2.2	2.3	2.6	2.5	2.7	2.6	1.8	1.0	1.3	1.5	2.1	1.4	0.8	1.6	1.8	1.8	2.7	2.9	2.3	1.9	0.9	1.8	2.9	
30-Mar	0.9	2.3	1.2	Z	1.2	3.0	1.6	1.0	0.1	0.1	0.6	0.4	0.1	0.3	0.4	0.4	0.5	0.8	0.7	0.5	0.5	0.5	0.3	0.6	0.8	3.0	
31-Mar	1.2	1.4	1.5	1.4	Z	2.1	2.3	1.6	1.7	2.6	2.7	1.7	1.6	1.2	0.8	0.6	0.4	0.5	1.2	2.3	1.1	1.4	0.1	0.1	1.4	2.7	
																								Diurnal Average			
																								Diurnal Maximum			
																								4.4 5.8 5.3 7.6 6.9 5.5 10.0 8.3 6.7 6.5 9.5 8.1 5.8 5.2 5.2 5.1 4.8 3.9 4.3 4.4 13.3 6.1 6.1 8.8			
Z - zerospan C - Calibration																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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_x) - ppb
Jackfish 2/3 - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	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
Totals	13	43	76	58	35	13	17	55	88	96	69	37	23	26	35	22	706

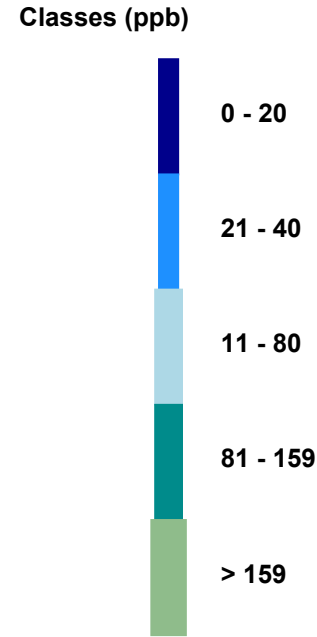
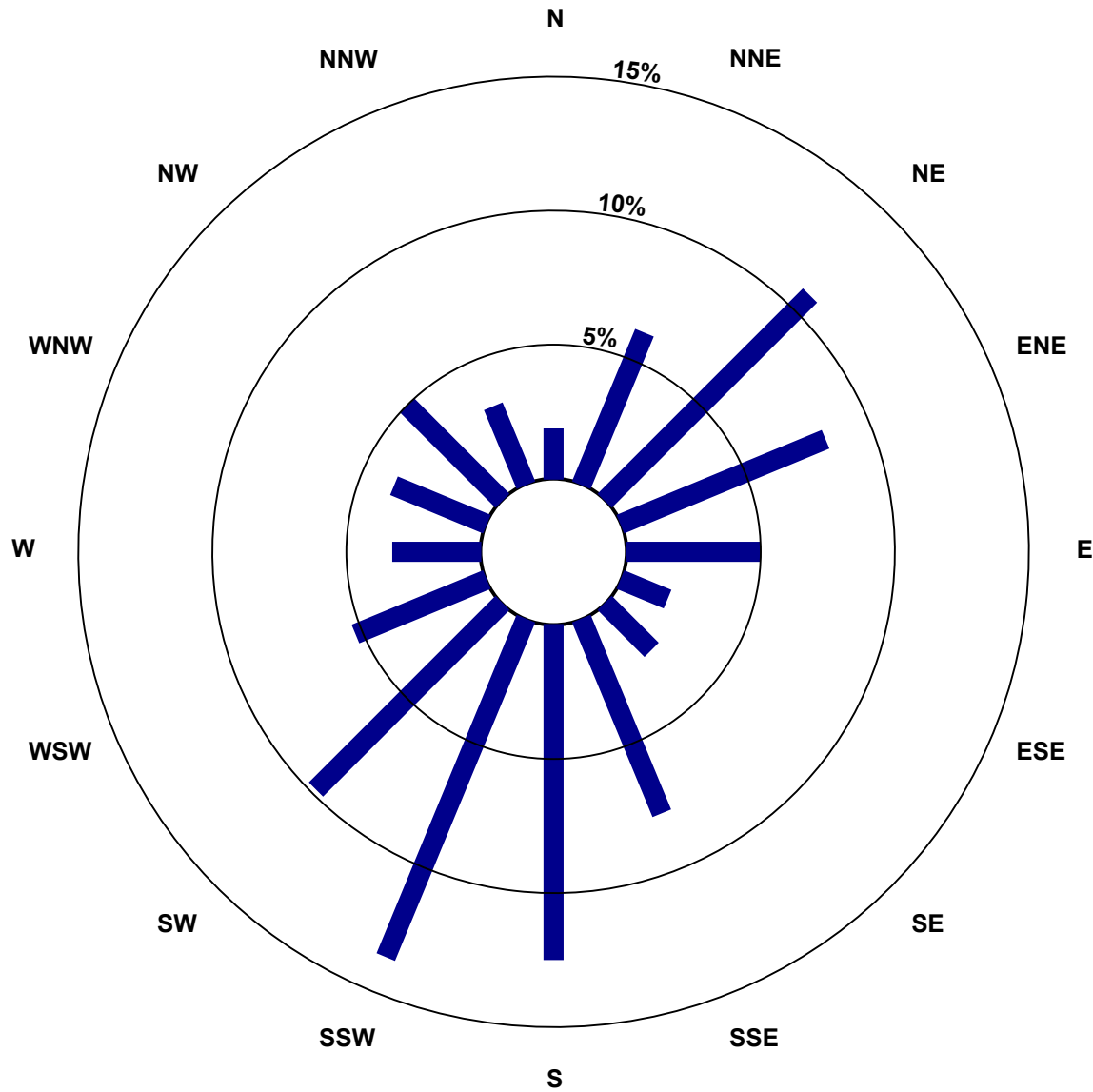
Total Number of Valid Hours: 706

Total Number of Hours: 744

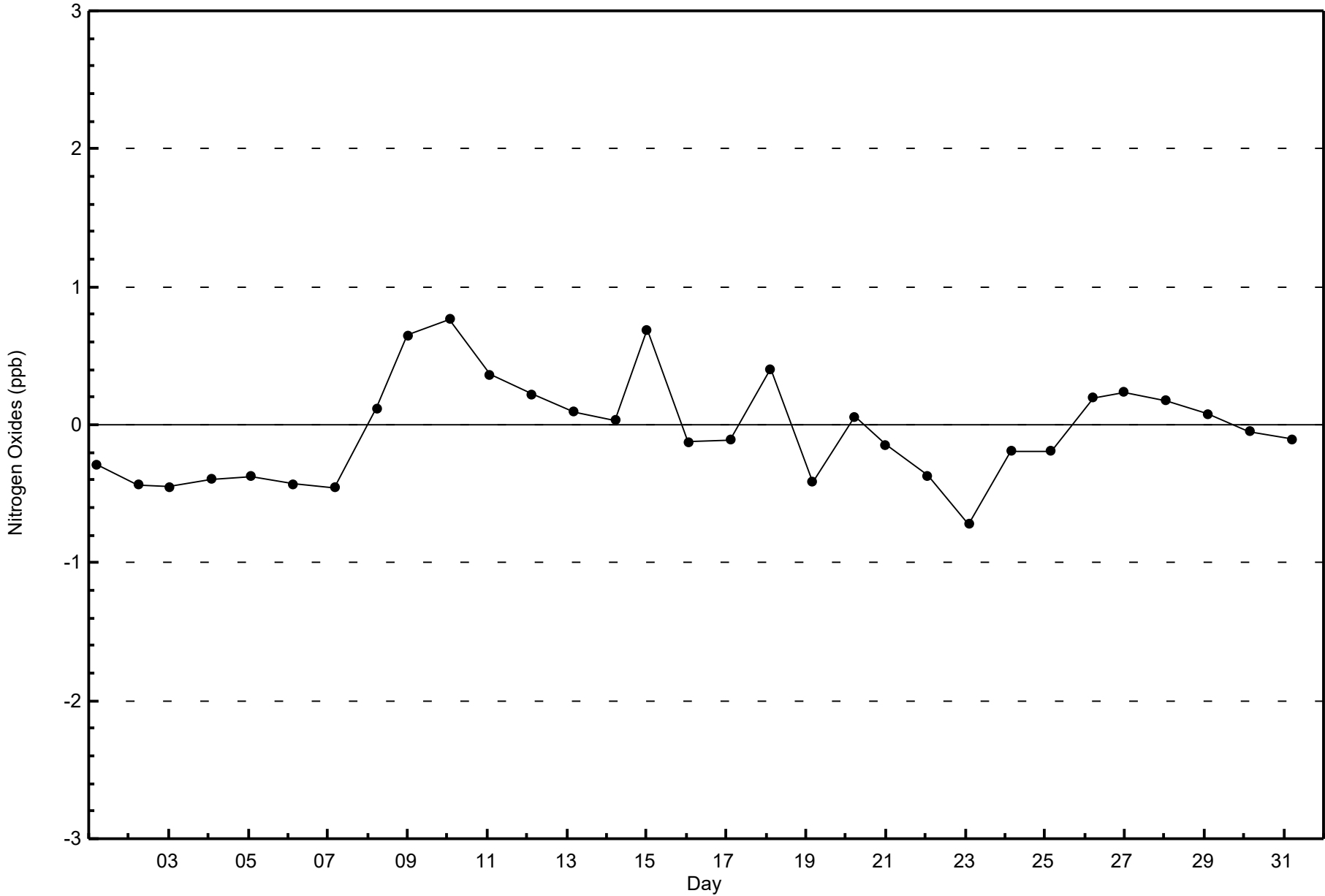


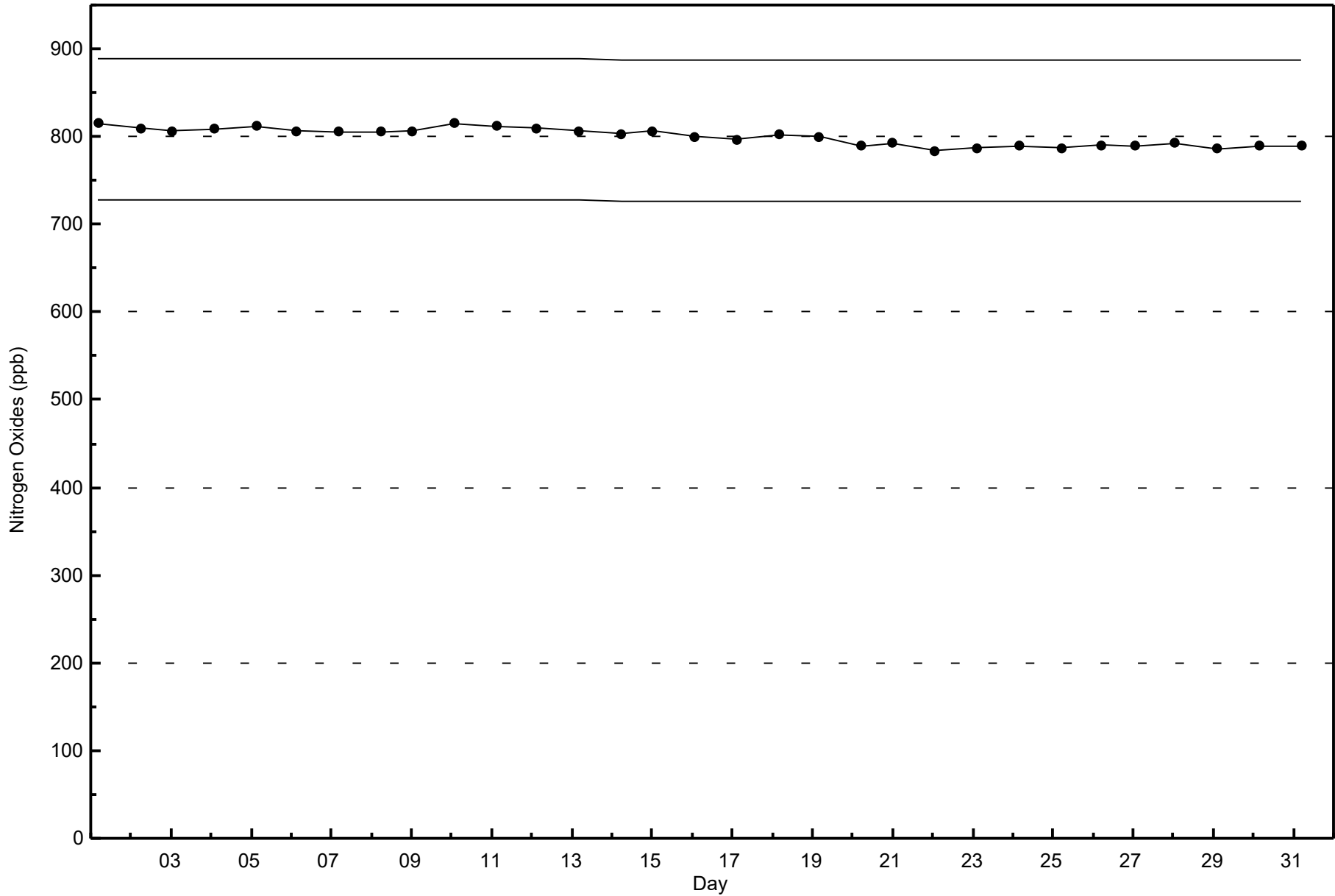
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3



Total Number of Valid Hours: 706



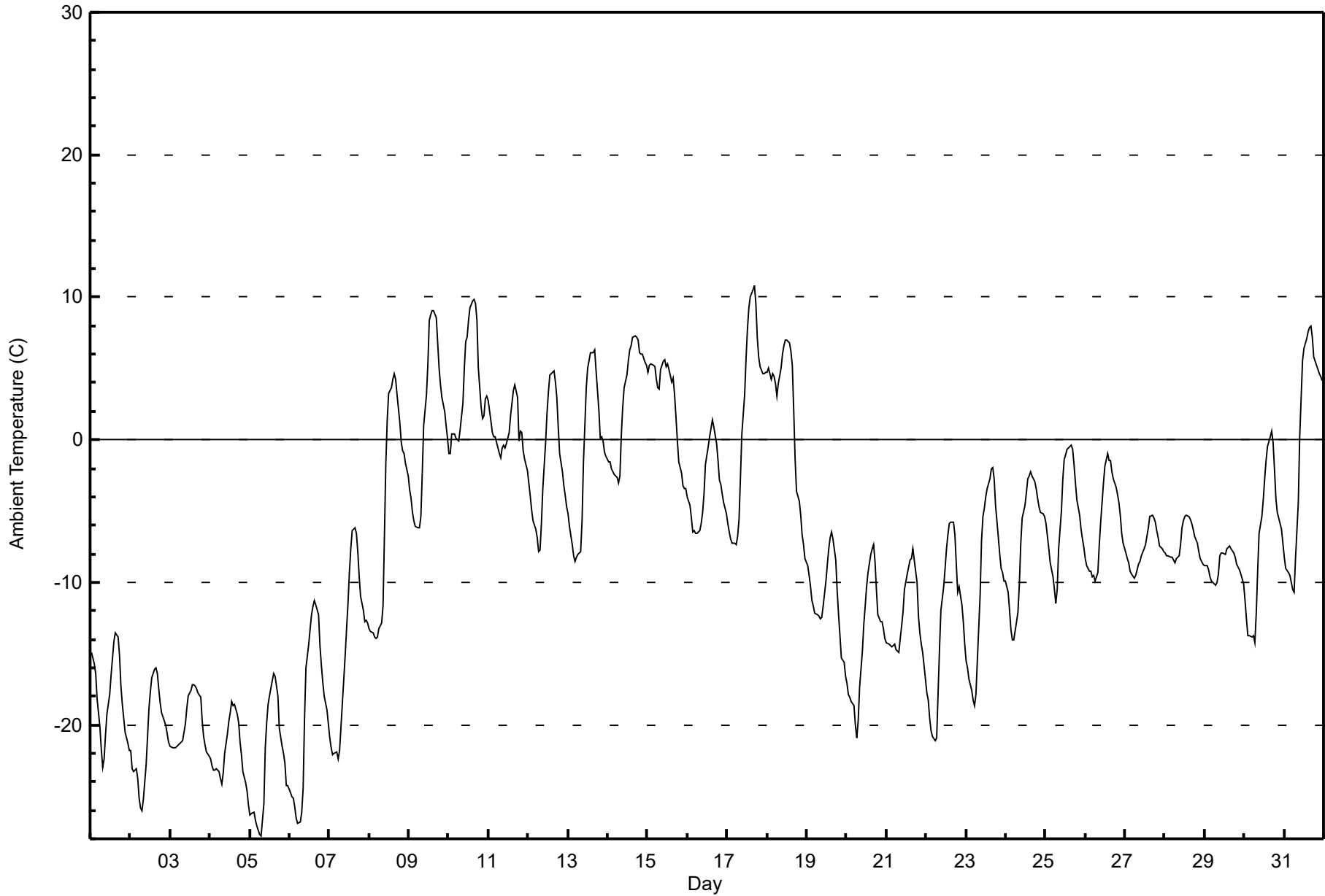




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature (AT) - C
Jackfish 2/3 - March 2024

Maximum Value: 10.8 C on Mar 17 17:00		Maximum Daily Average: 3.9 C on Mar 10		Hours in Service: 744																						
Minimum Value: -27.8 C on Mar 5 08:00		Minimum Daily Average: -22.5 C on Mar 5		Hours of Data: 744																						
Maximum Diurnal Average: -2.5 C at hour 16		Minimum Diurnal Average: -12.5 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.77 C		Percentiles: P ₁ = -26.4 P ₁₀ = -20.9 Q ₁ = -14.3 Median = -7.6 Q ₃ = -0.9 P ₉₀ = 4.9 P ₉₉ = 9.3		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-14.9	-15.3	-15.7	-16.4	-18.2	-20.1	-21.7	-22.9	-22.4	-20.8	-19.2	-17.9	-16.5	-15.3	-14.1	-13.6	-13.8	-15.1	-17.3	-18.6	-19.6	-20.6	-21.3	-21.8	-18.0	-13.6
2-Mar	-21.8	-23.1	-23.3	-23.1	-23.8	-25.1	-25.8	-26.0	-25.2	-22.8	-20.8	-18.8	-17.7	-16.7	-16.1	-16.0	-16.4	-17.5	-18.5	-19.1	-19.7	-20.1	-20.7	-21.2	-20.8	-16.0
3-Mar	-21.5	-21.6	-21.7	-21.6	-21.5	-21.4	-21.4	-21.1	-20.5	-19.9	-18.8	-18.0	-17.6	-17.2	-17.2	-17.3	-17.5	-17.8	-18.0	-19.7	-20.9	-21.4	-21.9	-22.2	-19.9	-17.2
4-Mar	-22.4	-22.9	-23.2	-23.2	-23.1	-23.3	-23.7	-24.2	-23.4	-22.0	-19.8	-19.1	-18.4	-18.7	-18.6	-19.2	-19.9	-21.2	-22.1	-23.3	-24.1	-24.7	-25.7	-21.9	-18.4	
5-Mar	-26.3	-26.2	-26.1	-26.7	-27.1	-27.4	-27.7	-27.8	-25.6	-21.6	-20.9	-18.6	-17.9	-16.9	-16.4	-16.6	-17.3	-18.0	-20.2	-21.5	-22.0	-22.7	-24.3	-24.3	-22.5	-16.4
6-Mar	-24.8	-25.1	-25.2	-25.7	-26.5	-26.9	-26.8	-26.1	-24.4	-19.5	-16.0	-14.4	-13.2	-12.3	-11.7	-11.3	-11.6	-12.3	-14.5	-15.8	-17.0	-18.0	-19.0	-19.9	-19.1	-11.3
7-Mar	-20.9	-21.6	-22.1	-22.0	-21.9	-22.4	-21.8	-20.2	-18.5	-15.1	-13.3	-11.5	-9.4	-7.6	-6.4	-6.1	-6.6	-7.8	-9.6	-11.0	-12.0	-12.7	-12.7	-12.9	-14.4	-6.1
8-Mar	-13.3	-13.5	-13.5	-13.8	-14.0	-13.8	-13.3	-12.9	-11.7	-6.7	-1.7	1.4	3.2	3.7	4.2	4.6	4.3	3.2	1.2	-0.1	-0.8	-1.0	-1.7	-2.5	-4.5	4.6
9-Mar	-3.5	-4.1	-5.1	-5.7	-6.1	-6.2	-6.1	-5.4	-2.4	1.0	3.2	5.3	8.3	8.7	9.1	9.1	8.6	6.8	5.0	3.9	2.9	1.9	1.0	0.1	1.3	9.1
10-Mar	-1.0	-0.9	0.4	0.4	0.1	0.0	0.0	0.7	2.5	5.1	6.9	7.2	8.3	9.3	9.8	9.9	9.6	8.3	5.0	2.3	1.5	1.7	2.8	3.0	3.9	9.9
11-Mar	2.8	1.3	0.5	0.2	0.2	-0.1	-0.9	-1.3	-0.6	-0.4	-0.6	-0.3	0.5	1.7	2.6	3.5	3.8	2.9	-0.1	0.6	0.5	-0.8	-1.4	-2.1	0.5	3.8
12-Mar	-3.0	-3.9	-4.9	-5.7	-6.2	-6.9	-7.8	-7.7	-5.9	-3.5	-0.2	1.9	3.3	4.6	4.6	4.9	4.1	2.9	0.9	-1.0	-2.3	-3.2	-3.9	-4.7	-1.8	4.9
13-Mar	-5.2	-6.1	-7.3	-8.1	-8.5	-8.2	-8.0	-7.8	-5.7	-1.5	1.0	3.6	5.0	6.1	6.1	6.1	6.3	4.9	2.1	0.1	0.2	0.0	-0.9	-1.1	-1.1	6.3
14-Mar	-1.5	-1.6	-2.0	-2.2	-2.4	-2.6	-3.0	-2.5	0.3	2.3	3.6	4.6	5.6	6.3	6.6	7.2	7.3	7.1	6.9	6.2	6.0	6.0	5.5	5.2	2.9	7.3
15-Mar	4.8	5.3	5.4	5.2	5.1	4.3	3.6	3.6	4.9	5.6	5.7	5.1	5.3	5.0	4.1	4.3	3.1	1.6	-0.1	-1.5	-2.3	-3.2	-3.4	-3.5	2.8	5.7
16-Mar	-4.0	-4.6	-5.5	-6.4	-6.4	-6.5	-6.5	-6.4	-5.9	-5.1	-3.8	-1.7	-0.5	0.2	0.8	1.4	0.9	-0.3	-1.5	-2.8	-3.2	-3.8	-4.4	-5.2	-3.4	1.4
17-Mar	-5.9	-6.5	-7.0	-7.3	-7.3	-7.3	-6.8	-5.6	-2.7	0.4	3.2	5.7	7.8	9.2	10.1	10.5	10.8	9.6	7.2	5.8	5.1	4.7	4.7	4.7	1.8	10.8
18-Mar	4.7	5.1	4.2	4.7	4.4	3.9	3.1	3.9	5.0	6.0	6.6	7.0	7.0	6.8	6.2	5.2	2.1	-1.3	-3.6	-4.3	-5.3	-6.7	-7.4	-8.3	2.0	7.0
19-Mar	-8.8	-9.5	-10.3	-11.3	-11.7	-12.1	-12.3	-12.4	-12.6	-12.5	-11.6	-9.9	-8.7	-7.7	-6.8	-6.5	-7.0	-8.4	-10.6	-12.2	-13.7	-15.4	-15.6	-16.6	-11.0	-6.5
20-Mar	-17.1	-17.9	-18.1	-18.3	-18.7	-20.0	-20.9	-19.7	-17.4	-14.9	-13.0	-11.7	-10.3	-9.3	-8.1	-7.7	-7.3	-8.6	-10.5	-12.3	-12.8	-12.8	-13.3	-13.9	-13.9	-7.3
21-Mar	-14.3	-14.3	-14.5	-14.5	-14.4	-14.4	-14.8	-14.9	-13.9	-13.0	-12.1	-10.5	-9.4	-8.9	-8.5	-8.3	-7.7	-8.4	-10.0	-12.4	-13.6	-14.4	-14.9	-16.8	-12.4	-7.7
22-Mar	-17.8	-18.2	-19.6	-20.5	-20.8	-21.1	-20.9	-17.8	-14.8	-12.0	-10.3	-9.0	-7.6	-6.6	-5.9	-5.7	-5.8	-6.6	-8.7	-10.7	-10.3	-11.6	-12.7	-14.3	-12.9	-5.7
23-Mar	-15.5	-16.0	-16.8	-17.6	-18.3	-18.7	-17.9	-15.5	-10.9	-7.1	-5.4	-4.8	-4.0	-3.4	-2.7	-2.1	-2.0	-2.7	-4.6	-6.8	-8.1	-9.0	-9.3	-9.9	-9.6	-2.0
24-Mar	-10.0	-10.7	-12.0	-13.4	-14.0	-14.1	-12.7	-12.0	-10.1	-7.3	-5.5	-4.6	-3.7	-2.7	-2.6	-2.3	-2.5	-2.9	-3.4	-4.1	-4.7	-5.0	-5.2	-5.4	-7.1	-2.3
25-Mar	-5.9	-6.7	-7.6	-8.7	-9.6	-10.5	-11.5	-10.5	-7.6	-5.0	-2.8	-1.4	-1.1	-0.7	-0.6	-0.4	-0.7	-1.8	-3.1	-4.2	-5.3	-6.3	-7.0	-7.6	-5.3	-0.4
26-Mar	-8.3	-8.9	-9.2	-9.3	-9.6	-9.5	-9.9	-9.4	-7.3	-5.8	-4.4	-3.0	-1.8	-0.9	-1.4	-1.5	-2.3	-2.8	-3.3	-3.8	-4.4	-5.3	-6.5	-7.3	-5.7	-0.9
27-Mar	-7.9	-8.4	-8.7	-9.2	-9.4	-9.7	-9.6	-9.2	-8.8	-8.6	-8.1	-7.7	-7.3	-6.8	-6.2	-5.4	-5.3	-5.5	-5.8	-6.4	-6.9	-7.4	-7.7	-7.8	-7.6	-5.3
28-Mar	-8.0	-8.1	-8.2	-8.2	-8.2	-8.4	-8.6	-8.4	-8.2	-7.4	-6.2	-5.7	-5.4	-5.3	-5.4	-5.6	-5.9	-6.3	-6.7	-7.2	-7.9	-8.4	-8.6	-8.7	-7.3	-5.3
29-Mar	-8.8	-8.8	-9.2	-9.6	-9.9	-10.1	-10.2	-10.0	-9.4	-8.2	-8.0	-8.0	-8.0	-7.6	-7.5	-7.4	-7.7	-7.9	-8.3	-8.7	-8.9	-9.1	-9.4	-10.1	-8.8	-7.4
30-Mar	-11.2	-12.5	-13.8	-13.8	-13.9	-13.7	-14.2	-12.1	-9.2	-6.6	-5.3	-4.2	-2.7	-1.5	-0.5	0.2	0.6	-0.2	-2.0	-4.1	-5.1	-5.9	-6.3	-7.3	-6.9	0.6
31-Mar	-8.2	-9.0	-9.3	-9.6	-10.0	-10.5	-10.7	-8.3	-4.4	0.2	2.9	5.5	6.4	7.1	7.6	7.9	8.0	7.2	5.9	5.2	4.9	4.6	4.4	4.1	0.1	8.0
	-10.3	-10.8	-11.3	-11.7	-12.0	-12.4	-12.5	-11.9	-10.2	-8.0	-6.3	-5.0	-3.9	-3.1	-2.7	-2.5	-2.8	-3.8	-5.4	-6.7	-7.4	-8.1	-8.6	-9.2		Diurnal Average
	4.8	5.3	5.4	5.2	5.1	4.3	3.6	3.9	5.0	6.0	6.9	7.2	8.3	9.3	10.1	10.5	10.8	9.6	7.2	6.2	6.0	6.0	5.5	5.2		Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Jackfish 2/3 - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	91	12.23	12.23
-20 - 0	490	65.86	78.09
0 - 10	160	21.51	99.60
10 - 20	3	0.40	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

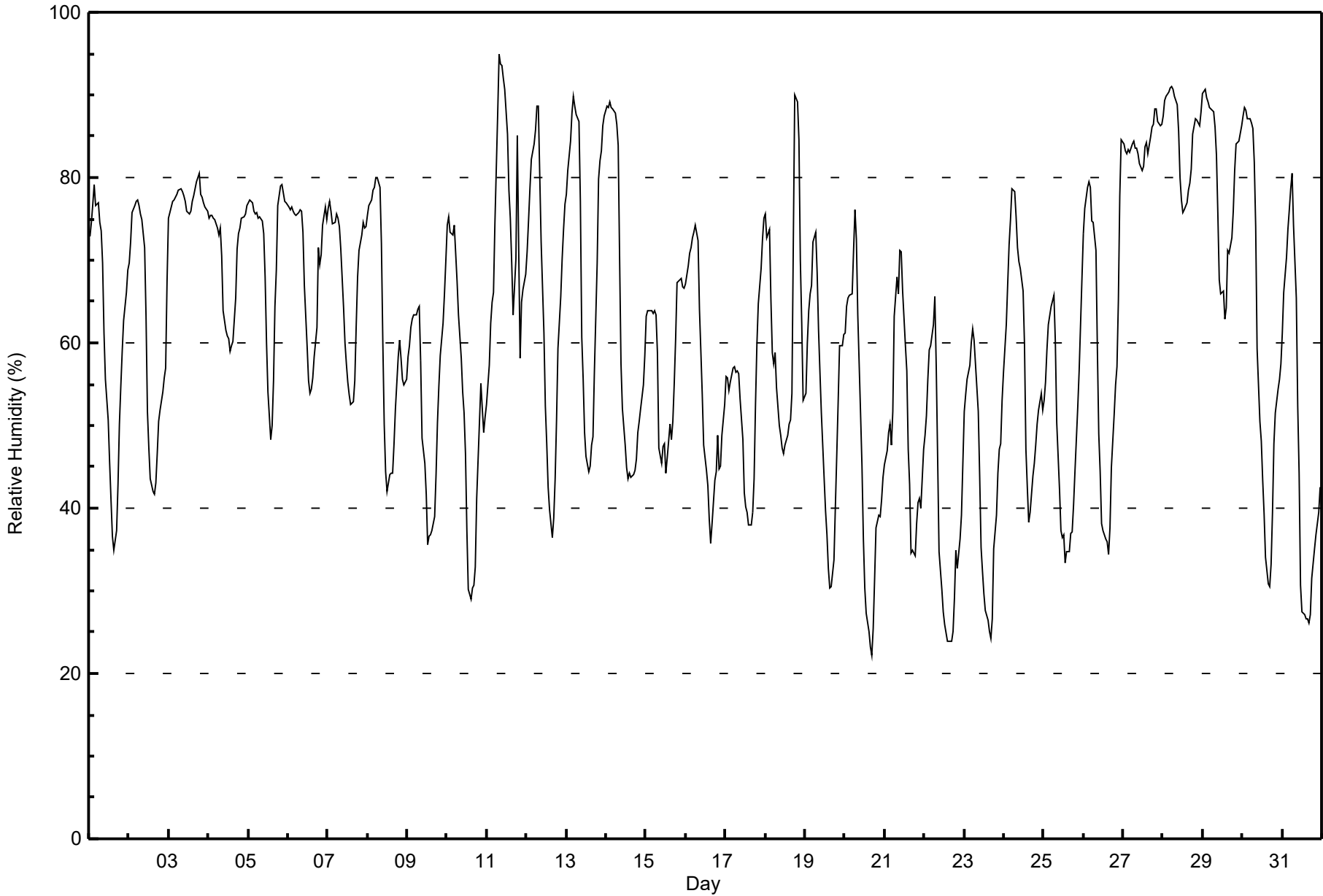
Relative Humidity (RH) - %
Jackfish 2/3 - March 2024

Maximum Value: 94.9 % on Mar 11 08:00																						Maximum Daily Average: 85.0 % on Mar 28																						Hours in Service: 744			
Minimum Value: 22.2 % on Mar 20 17:00																						Minimum Daily Average: 40.1 % on Mar 22																						Hours of Data: 744			
Maximum Diurnal Average: 75.2 % at hour 7																						Minimum Diurnal Average: 45.3 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 61.38 %																						Percentiles: P ₁ = 25.1 P ₁₀ = 37.3 Q ₁ = 47.7 Median = 62.3 Q ₃ = 75.7 P ₉₀ = 84.1 P ₉₉ = 90.6																						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-Mar	72.9	74.6	76.8	79.1	76.6	76.9	74.6	73.5	69.6	61.2	55.5	50.6	45.6	41.0	36.6	34.9	37.3	42.8	50.2	54.8	59.0	62.7	66.1	68.7	60.1	79.1																					
2-Mar	69.6	72.2	75.7	76.6	77.1	77.3	76.7	75.6	74.9	71.5	63.2	51.7	47.3	43.6	42.0	41.7	43.0	46.6	50.5	51.9	54.1	55.8	56.9	67.4	61.0	77.3																					
3-Mar	75.2	76.5	77.1	77.2	77.6	77.9	78.4	78.6	78.3	77.9	77.1	75.9	75.7	75.9	77.1	77.7	78.7	79.5	80.4	78.0	77.6	77.0	76.4	76.0	77.4	80.4																					
4-Mar	75.1	75.4	75.3	75.1	74.9	73.9	73.0	73.9	70.6	63.9	61.5	60.8	60.6	58.9	59.6	60.2	65.4	71.4	73.2	73.8	75.1	75.3	75.6	76.6	70.0	76.6																					
5-Mar	76.9	77.3	77.0	75.9	75.7	75.7	75.1	75.2	74.8	73.3	68.0	60.1	54.0	48.3	50.1	55.3	64.3	68.9	76.7	78.9	79.2	78.1	77.2	77.0	70.5	79.2																					
6-Mar	76.4	76.1	76.5	75.9	75.6	75.5	75.8	76.2	75.9	73.4	66.9	59.4	55.5	53.8	54.4	55.7	58.4	61.8	71.5	69.6	70.7	74.2	76.5	74.9	69.2	76.5																					
7-Mar	76.3	77.2	76.0	74.4	74.5	75.6	75.1	74.0	71.4	64.2	60.0	57.5	55.2	53.7	52.6	52.8	55.4	62.0	68.0	71.1	73.1	74.5	73.9	74.1	67.6	77.2																					
8-Mar	75.5	76.6	77.2	78.5	78.8	80.1	79.9	78.9	72.1	60.1	50.1	44.3	42.1	44.1	44.3	44.2	47.7	52.0	58.3	60.3	58.1	55.6	54.9	55.6	61.2	80.1																					
9-Mar	58.3	59.6	61.9	62.8	63.3	63.3	64.1	64.4	57.8	48.5	45.4	41.7	35.7	36.5	36.8	37.2	39.1	44.0	50.4	54.8	58.4	62.4	66.0	70.0	53.4	70.0																					
10-Mar	74.2	75.2	73.3	73.1	74.3	70.8	67.5	63.3	58.1	54.0	51.5	46.6	37.3	30.1	29.0	30.3	30.6	32.8	41.3	50.5	55.0	52.1	49.2	51.0	53.0	75.2																					
11-Mar	52.5	57.3	62.4	64.9	66.2	74.4	87.9	94.9	93.8	93.5	92.0	90.6	85.3	78.4	75.1	69.7	63.4	70.1	85.1	71.3	58.1	64.9	66.4	68.3	74.4	94.9																					
12-Mar	71.0	74.7	78.6	82.2	84.1	85.8	88.6	88.7	80.3	72.2	61.1	52.3	47.7	42.6	39.8	36.5	38.8	43.6	50.7	59.2	65.6	70.2	73.7	76.7	65.2	88.7																					
13-Mar	78.0	80.9	84.4	87.8	89.8	88.7	87.6	86.7	77.1	60.7	55.6	49.2	46.2	44.5	45.1	47.6	48.7	56.4	69.6	79.9	82.0	83.2	86.3	87.4	71.0	89.8																					
14-Mar	88.7	88.4	89.1	88.5	88.2	87.8	86.5	83.9	70.4	57.5	52.0	47.6	44.9	43.6	44.2	43.7	44.0	44.6	45.9	49.2	50.6	52.1	55.0	58.5	62.7	89.1																					
15-Mar	63.2	63.9	63.9	63.9	63.5	63.9	63.4	58.8	47.2	45.4	47.4	47.9	44.3	46.2	50.2	48.3	50.5	55.1	60.5	67.3	67.6	67.8	66.8	66.6	57.7	67.8																					
16-Mar	67.1	69.4	70.8	71.5	72.7	73.5	74.3	72.3	64.0	58.9	53.7	47.7	44.6	42.7	38.7	35.8	38.1	43.3	44.4	48.9	44.8	45.0	48.8	52.5	55.1	74.3																					
17-Mar	55.9	55.8	54.2	55.2	57.0	57.1	56.5	56.6	56.3	53.3	48.2	41.8	40.1	39.5	38.0	38.0	39.5	43.5	52.5	59.8	64.8	69.1	72.6	75.1	53.3	75.1																					
18-Mar	75.7	72.7	73.7	65.3	58.7	57.4	58.7	54.5	50.1	48.8	47.4	46.6	47.6	48.8	50.1	50.6	53.9	72.4	90.1	89.1	84.5	70.1	62.4	53.0	61.8	90.1																					
19-Mar	53.9	60.0	63.9	65.9	66.9	72.2	73.5	68.4	61.6	56.5	51.6	43.5	39.7	36.8	32.6	30.3	30.5	33.7	40.2	46.5	52.8	59.7	59.7	61.0	52.6	73.5																					
20-Mar	61.2	64.4	65.4	65.8	65.9	71.1	76.2	72.5	63.5	51.4	45.1	36.2	30.3	27.2	25.1	23.2	22.2	25.5	31.3	37.6	39.1	38.9	41.0	43.8	46.8	76.2																					
21-Mar	45.3	46.9	49.1	50.1	47.6	51.8	63.1	68.0	66.0	71.2	71.1	66.3	59.6	56.6	47.1	42.9	34.5	35.0	34.2	38.1	40.8	41.2	40.0	47.0	50.6	71.2																					
22-Mar	48.8	51.3	55.6	59.2	59.7	62.2	65.7	57.1	46.1	34.7	30.2	27.5	25.8	24.9	23.9	23.9	23.8	25.1	29.2	34.9	32.8	36.3	39.2	45.5	40.1	65.7																					
23-Mar	51.7	53.8	55.6	57.2	59.9	61.8	60.4	57.4	51.6	43.8	35.3	32.4	29.7	27.7	26.5	25.0	24.3	26.6	35.2	39.2	44.2	47.1	47.8	53.1	43.6	61.8																					
24-Mar	56.4	62.3	67.1	71.9	74.9	78.7	78.4	75.3	71.6	69.8	69.1	66.2	59.7	47.2	42.6	38.3	39.5	43.9	45.5	47.6	50.2	51.9	53.9	51.9	58.9	78.7																					
25-Mar	53.1	55.2	59.1	62.2	64.5	65.1	65.7	60.1	50.3	42.3	37.3	36.4	36.7	33.3	34.7	34.7	37.0	37.2	40.3	44.4	52.2	56.6	62.2	67.8	49.5	67.8																					
26-Mar	73.2	76.3	78.7	79.5	78.9	74.8	74.5	71.2	59.2	49.0	44.4	38.1	37.3	36.2	35.9	34.5	37.7	44.9	51.4	54.9	57.2	65.1	77.8	84.5	59.0	84.5																					
27-Mar	84.0	83.2	82.9	83.4	83.1	84.1	84.3	83.6	83.6	82.9	81.7	80.9	81.3	83.7	84.2	82.9	85.0	86.1	86.5	88.3	88.3	86.7	86.3	86.4	84.3	88.3																					
28-Mar	87.5	89.3	89.9	90.4	90.9	91.0	90.7	89.9	88.9	85.6	79.9	77.3	75.7	76.0	77.0	78.5	79.4	81.1	85.2	87.1	87.0	86.6	86.3	88.0	85.0	91.0																					
29-Mar	90.2	90.6	89.7	89.2	88.6	88.3	87.9	86.0	82.8	75.6	67.7	66.0	66.2	62.9	64.2	71.2	70.8	72.7	75.9	80.9	84.1	84.3	84.5	86.2	79.4	90.6																					
30-Mar	87.5	88.5	88.1	87.1	87.2	86.5	85.9	81.9	74.0	59.3	50.4	48.2	43.3	39.3	34.0	30.9	30.5	33.3	39.5	47.8	51.6	54.5	55.6	57.5	60.1	88.5																					
31-Mar	61.3	66.1	70.3	73.8	76.1	78.7	80.6	74.2	65.5	52.4	44.2	30.6	27.4	27.1	26.6	26.7	26.0	27.0	31.6	35.1	36.8	38.2	39.6	42.6	48.3	80.6																					
																						68.9	70.7	72.2	73.0	73.3	74.2	75.2	73.4	68.0	61.7	56.9	52.3	49.1	46.8	45.8	45.3	46.4	50.4	56.3	59.7	61.1	62.5	63.8	66.0	Diurnal Average	
																						90.2	90.6	89.9	90.4	90.9	91.0	90.7	94.9	93.8	93.5	92.0	90.6	85.3	83.7	84.2	82.9	85.0	86.1	90.1	89.1	88.3	86.7	86.3	88.0	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Jackfish 2/3 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Jackfish 2/3 - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	104	13.98	13.98
40 - 60	243	32.66	46.64
60 - 80	294	39.52	86.16
80 - 100	103	13.84	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 - March 2024

Maximum Speed: 18 km/h on Mar 14 15:00	Maximum Daily Speed Average: 12.0 km/h on Mar 14	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 22 14:00	Minimum Daily Speed Average: 2.5 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.1 km/h at hour 23	Minimum Diurnal Speed Average: 1.2 km/h at hour 17	Hours of Missing Data: 0
Monthly Average Velocity: 2.1 km/h 198.2 deg	Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 5 Median = 7 Q ₃ = 10 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-Mar	NW4	NW5	NW6	WNW8	WNW9	WNW8	WNW10	WNW10	WNW10	WNW11	WNW11	W10	WNW11	WNW11	NW8	NW7	WNW7	WNW5	W3	W4	SW1	ENE2	ENE1	NE2	WNW6.3	WNW11	
2-Mar	NNE3	NE2	ENE4	ENE6	ENE5	ENE4	ENE4	ENE4	NE4	ENE6	ENE9	NE11	NE12	ENE11	ENE12	ENE12	ENE11	NE10	NE11	NE13	ENE12	ENE12	ENE13	ENE12	ENE8.3	NE13	
3-Mar	NE12	NE13	NE13	ENE11	ENE11	NE10	NE9	NE9	NE7	NE8	NE9	NE9	NE10	NE9	NE8	NNE8	NNE7	N7	N7	NW7	NNW6	NW7	NW7	NW7	NNE7.3	NE13	
4-Mar	NW9	NW8	NW8	NW8	NW8	NW8	NW8	WNW7	NW8	NW9	NW9	NW9	WNW8	NW9	NW8	NW7	NW5	NW4	WNW3	W5	W5	W5	W5	W4	NW6.7	NW9	
5-Mar	W4	WSW5	WSW5	WSW4	SW7	WSW7	SW6	SW8	SW7	WSW7	WSW7	WSW5	WSW3	SW7	SSW6	SSW7	SW6	SW6	SW4	SSW4	SSW4	S4	S4	S4	SW5.1	SW8	
6-Mar	S4	SSW4	S5	S5	S5	SSW6	SSW5	S6	S5	SSW5	S8	S9	SSW10	SSW10	SSW10	SSW8	SSW8	S6	SSW4	SSW8	SSW7	SSW6	SSW7	SSW9	SSW6.6	SSW10	
7-Mar	SW10	SSW10	SW10	SSW10	SSW10	SSW10	SSW10	SSW11	SSW13	SSW15	SW15	SSW14	SSW12	SSW12	SSW12	SSW13	SSW12	SSW10	SSW13	SSW12	SSW11	SSW12	SW14	SW13	SSW11.8	SW15	
8-Mar	SW12	SW12	SW11	SW11	SW10	SW10	SW9	SSW8	S6	SSW7	SSW5	SW7	SW9	SW9	SW9	SW8	S7	S6	S6	SSW8	S8	SSW9	SSW9	S9	SSW8.1	SW12	
9-Mar	S8	S9	S9	S10	S9	S9	S10	S9	S9	S10	S11	S12	S11	S11	S12	S11	S11	S10	S9	SSW9	S11	SSW10	SSW8	SSW7	S9.7	S12	
10-Mar	SSW9	SW12	WSW14	WSW14	WSW13	WSW13	WSW13	WSW13	WSW14	WSW14	W13	W14	WSW17	W18	W16	W16	W11	W13	W8	SW5	WSW3	S2	ENE3	E6	E7	WSW9.5	W18
11-Mar	ENE7	NE5	NNE5	NE6	NE8	NE8	NE6	NE4	ENE4	NE4	NE5	NE4	ENE4	NE6	ENE6	ENE7	ENE7	E3	ESE4	E7	E8	ESE7	SE7	SE6	ENE4.8	E8	
12-Mar	SSE6	SSE5	SSE4	ESE4	E4	ENE5	ENE5	ENE5	ENE7	ENE7	ENE10	ESE10	E9	E10	E10	E9	E8	E8	E8	E9	E8	E6	E6	ENE6	E6.5	E10	
13-Mar	ENE5	ENE3	NE2	NE2	E2	ESE3	SSE2	SSE3	S4	SW2	WSW3	WNW2	SW2	WSW8	WSW8	WSW9	WSW9	WSW10	WSW9	WSW10	WSW10	SW11	SW10	SW11	SW4.2	SW11	
14-Mar	SW10	SW11	SW8	SW9	SW8	SW8	SW8	SW9	WSW10	WSW12	WSW14	WSW15	WSW16	SW16	WSW18	WSW15	SW11	SW10	SW14	SW13	SW14	WSW15	WSW13	W12	WSW12.0	WSW18	
15-Mar	W10	W11	W11	WNW11	WNW12	WNW12	WNW13	WNW12	NW12	NW12	NW13	NNW12	NNW12	NNW11	N9	NNE11	NNE10	NNE8	NE8	NE5	NE4	NE5	NE4	NE3	NNE3	NNW6.5	NNW13
16-Mar	NNE3	NE4	NE5	NE6	ENE6	ENE5	NE6	ENE7	ENE7	ENE9	NE6	NE6	NE7	NE8	NE8	NNE7	NE7	ENE6	ENE5	ENE4	E7	SE6	SE6	S8	ENE5.2	ENE9	
17-Mar	SSE7	SSE6	S7	S9	S10	S11	S12	SSW12	SSW12	SSW11	SSW12	SSW12	SSW12	SSW14	SSW13	SSW14	SSW12	SW14	SSW15	SSW17	SW17	SW16	SW17	SW15	SSW11.8	SW17	
18-Mar	SW15	WSW13	W8	WNW7	NW5	WNW7	WNW9	NW8	NW8	NW9	NNW9	NNW9	NW11	NW9	NW9	N8	NE10	NE11	NNE9	NNE9	NNE9	N9	N8	N9	NNW6.3	SW15	
19-Mar	NNE8	NNE7	N6	NNE7	N7	NNE7	NNE6	NNE9	NNE10	NNE8	NNE9	NNE8	N7	NNE8	N7	NNE7	NE8	NE9	NE7	NNE6	NNE3	NNE2	NNE3	NE4	NNE6.6	NNE10	
20-Mar	NE5	NE4	ENE4	E5	E4	NE2	ENE2	NE4	ENE5	NE6	NE6	NE7	NE6	NE6	NE5	NNE5	N5	NE6	NE4	ENE5	E6	E7	ESE7	SSE5	ENE4.4	E7	
21-Mar	SSE6	SSE6	SSE6	SSE8	SE6	SE6	E7	ESE8	ESE7	E7	ENE9	E11	ENE12	E10	E10	ENE9	NE10	NE8	NE6	ENE2	NE2	NE2	NNE4	NNE4	E5.6	ENE12	
22-Mar	NE4	NE5	NE4	ENE2	E2	ENE2	SSE2	S5	SSE5	SE4	ENE3	ENE3	NNE4	NNE0	NNE6	NE6	NNE6	NE5	ENE4	ESE4	ESE7	SSE6	S7	S9	E2.5	S9	
23-Mar	S9	S9	S7	S7	S7	S7	SSW7	SSW7	SW7	SW7	SW7	SSW7	SSW6	SSW6	SSW3	SSW4	SW4	SW2	SSE3	SSW4	S5	SSW6	SSW6	SSW5.6	S9	SSW5.6	S9
24-Mar	SSW7	SSW7	SSW7	S6	S7	S7	S7	S6	S7	S7	S7	S7	SSW9	S8	SSW8	S7	S7	SSE7	SSE7	SE5	SE4	SSE4	SSE4	SE5	SSE6	S6.0	SSW9
25-Mar	SSE7	SSE7	SSE8	S7	SSE7	SSE8	SSE7	SSE8	SSE8	SSE7	SSE9	S9	S10	SSE10	SSE11	SSE11	SSE11	SSE9	SSE8	SSE7	SSE7	S6	S8	SSE7	SSE8.2	SSE11	SSE11
26-Mar	SSE7	S7	SSE6	SSE6	SSE6	SSE7	SSE7	S9	S11	S14	S15	S14	S14	S14	S13	S12	SSW13	S11	SSE9	SSE9	SSE10	SSE10	SSE9	SSE9	S9.9	S15	
27-Mar	SSE9	SSE10	SSE9	SSE9	SSE9	SSE9	SSE10	SE9	SE9	SE11	SE11	SE11	SE9	SE8	ESE7	ESE7	E8	ESE7	E7	E7	E8	E9	E8	ESE7	SE7.9	SE11	
28-Mar	E6	ENE5	ENE4	ENE4	NE4	NE4	NE5	NE5	NNE7	NE6	NNE7	NNE8	NNE8	NNE7	N7	NNE7	NNE7	NNE7	NNE5	NE5	NNE3	N3	N3	N3	NNE5.1	NNE8	
29-Mar	NNW3	NNW4	NNW4	NNW4	NW4	NNW4	NNW4	NNW5	NNW5	NNW6	NNW6	NNW7	NNW7	NW7	NW6	NNW5	NNW6	NNW4	NNW3	WNW4	WNW5	WNW5	W4	W4	NW4.5	NNW7	
30-Mar	W4	WSW4	SW3	SW4	SW5	SW6	S6	SSW6	SSW6	SSW6	SSW8	SW9	SSW7	SSW7	SW8	SSW8	SSW7	S8	SSW5	S4	S5	S6	S7	S8	SSW5.8	SW9	
31-Mar	S8	S8	S9	S9	SSW9	SSW10	S10	SSW10	SW10	SW11	SW12	SW14	SW14	SW15	SW15	SW15	SW14	SW13	SSW8	SSW10	SSW11	SSW13	SSW14	SSW14	SSW11.1	SW15	

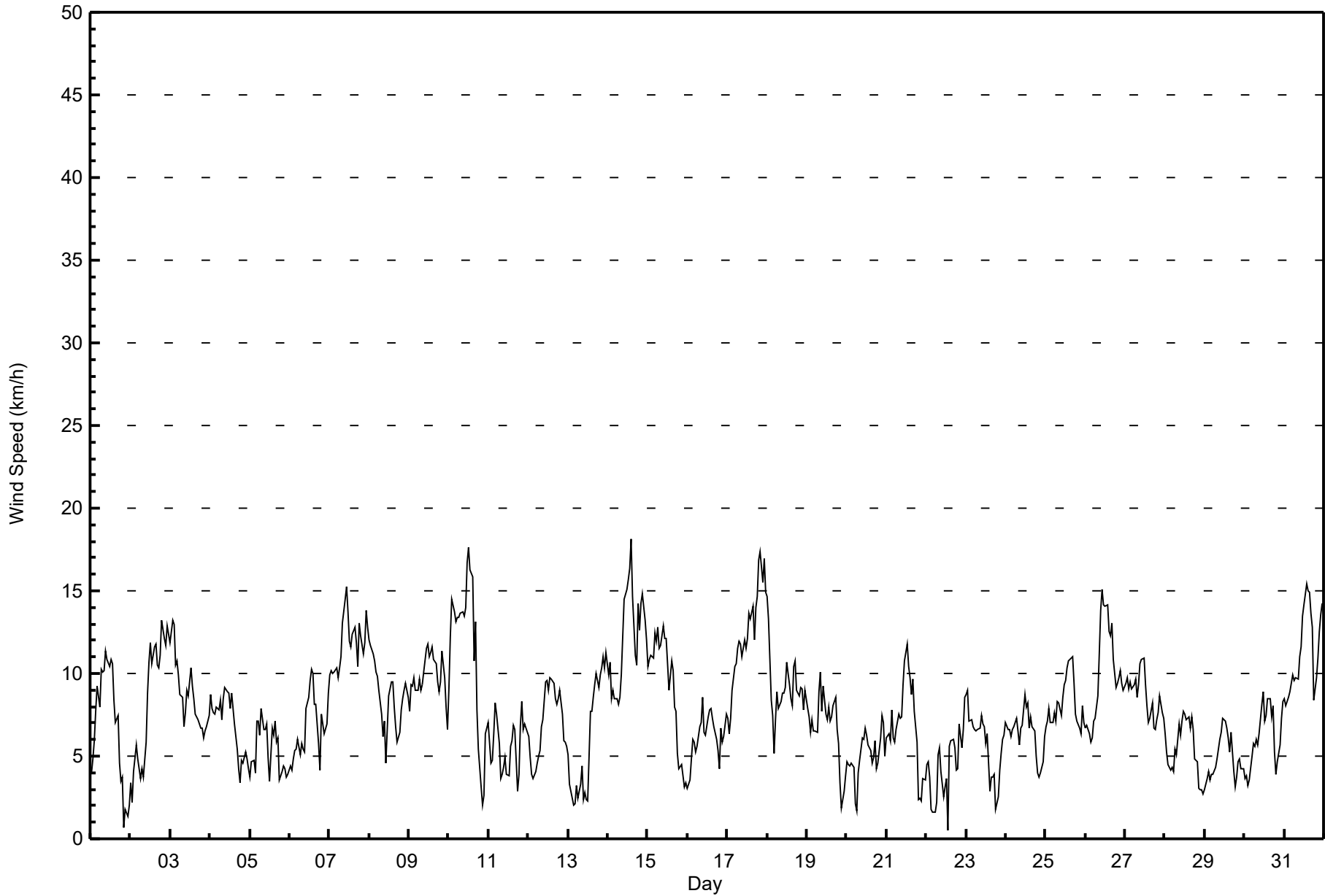
S2.4 SSW2.4 SSW2.2 SSW2.1 SSW2.1 SSW2.3 SSW2.3 SSW2.3 SSW2.1 SW1.9 SW1.7 SW2.1 SW1.9 SW2.4 SSW1.7 SSW1.5 S1.2 SSE1.4 SSE1.6 S2.1 S2.5 S2.8 S3.1 S3.1	Diurnal Average
SW15 WSW13 WSW14 WSW14 WSW13 WSW13 WSW13 WSW14 WSW14 SSW15 SW15 WSW17 W18 SW16 WSW18 SW15 SW14 SSW14 SSW15 SSW17 SW17 SW16 SW17 SW15	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Jackfish 2/3 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Jackfish 2/3 - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	186	25.00	25.00
6 - 11	454	61.02	86.02
12 - 19	104	13.98	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
Jackfish 2/3 - March 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	14	35	31	6	4	4	10	14	11	11	8	10	7	6	11	186
6 - 11	12	32	43	22	30	10	13	49	69	60	38	14	7	18	28	9	454
12 - 19	0	0	5	7	0	0	0	0	10	27	23	17	7	3	2	3	104
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
Totals	16	46	83	60	36	14	17	59	93	98	72	39	24	28	36	23	744

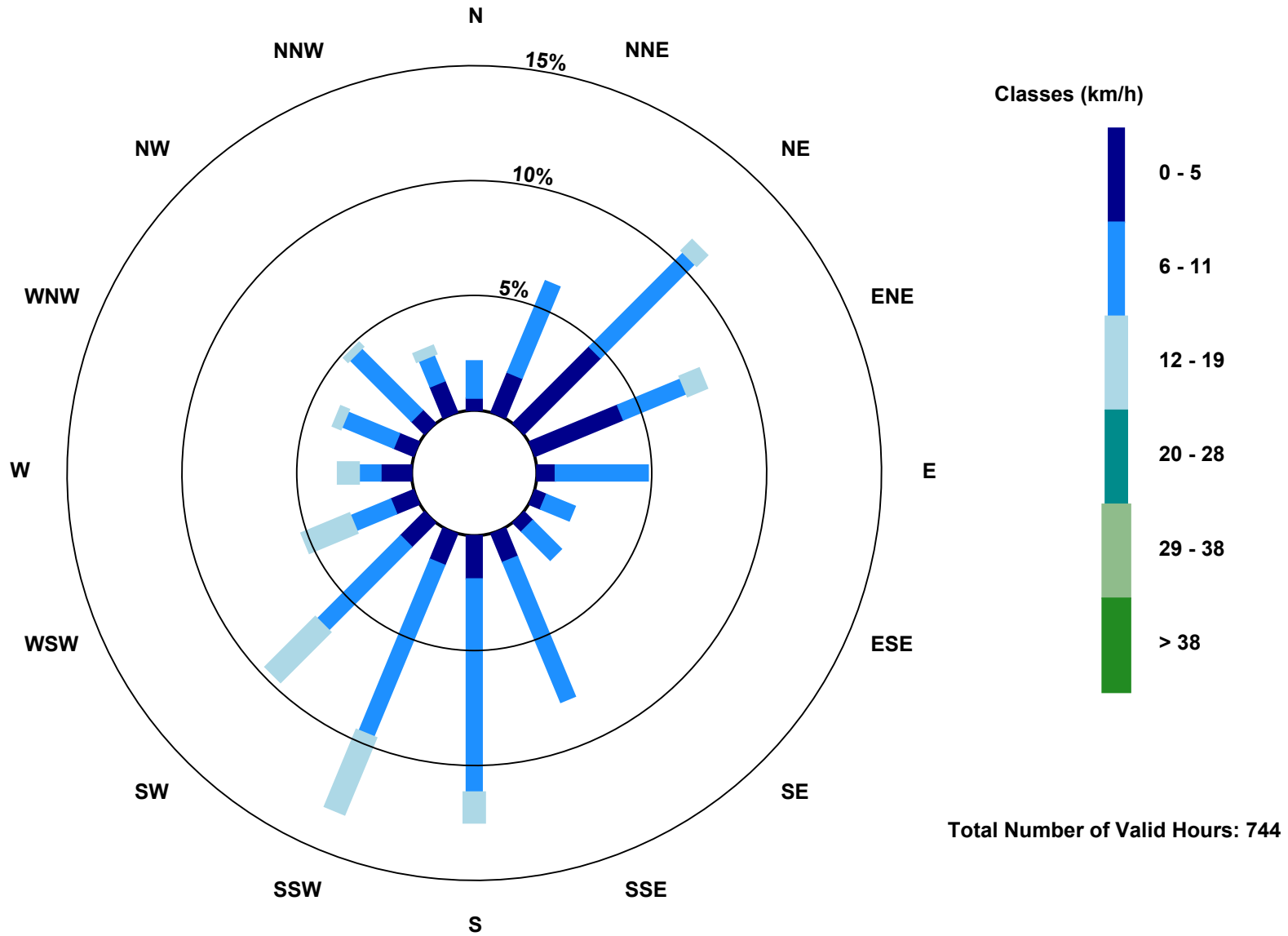
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Jackfish 2/3





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Jackfish 2/3 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 10:00 Minimum Value: 1 km/h on Mar 22 05:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	2	2	2	4	4	3	4	4	4	5	4	4	4	4	3	3	3	2	1	1	1	1	1	1	1	5
2-Mar	1	1	1	2	1	1	1	1	1	2	3	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
3-Mar	4	4	4	3	3	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
4-Mar	3	3	3	3	3	4	3	3	4	4	4	3	3	3	3	3	3	2	1	1	1	1	1	1	1	4
5-Mar	1	1	1	2	1	1	1	2	1	2	2	2	2	3	3	4	3	2	1	1	1	1	1	1	1	4
6-Mar	1	1	1	1	1	1	1	1	1	2	3	3	3	4	4	4	3	2	2	3	2	2	2	3	4	
7-Mar	3	3	3	3	3	3	3	3	4	4	5	5	5	4	4	4	4	4	4	3	3	3	4	3	5	
8-Mar	3	2	2	2	2	2	2	2	1	2	1	2	3	3	3	3	2	2	2	3	3	3	3	3	3	
9-Mar	2	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	3	3	4	4	3	2	4	
10-Mar	3	3	3	3	3	3	3	4	4	5	5	5	6	6	5	4	4	3	1	1	1	2	2	2	6	
11-Mar	2	1	1	2	3	2	2	1	1	1	2	1	1	2	2	2	2	1	1	2	2	2	3	3	3	
12-Mar	2	2	2	1	1	1	1	1	2	2	3	3	3	3	3	3	3	2	3	3	2	2	2	2	3	
13-Mar	1	1	1	1	1	1	1	1	2	1	1	2	3	3	3	3	3	3	2	2	3	3	3	3	3	
14-Mar	2	2	2	2	2	2	2	2	3	3	4	4	4	5	5	5	4	3	5	3	4	4	3	3	5	
15-Mar	3	4	4	4	5	5	5	5	5	7	5	5	5	4	4	4	3	2	1	1	1	1	1	1	7	
16-Mar	2	1	1	2	1	1	1	2	2	2	3	3	3	3	3	3	2	2	2	1	2	2	3	3	3	
17-Mar	2	2	3	3	3	3	4	3	4	4	4	4	5	5	5	5	4	5	5	5	5	4	4	4	5	
18-Mar	3	3	3	3	2	3	3	3	3	3	4	4	4	4	4	3	4	4	3	3	4	4	3	4	4	
19-Mar	3	3	3	3	3	3	3	3	4	3	4	3	3	3	3	3	3	3	2	2	1	1	1	1	4	
20-Mar	1	1	1	2	1	1	1	1	2	2	2	2	3	3	3	2	2	2	1	1	2	2	3	2	3	
21-Mar	2	2	2	3	2	2	2	3	2	3	3	3	4	3	3	3	3	3	2	1	1	1	1	1	4	
22-Mar	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	3	2	2	1	1	2	2	2	3	3	
23-Mar	2	2	1	1	1	1	1	1	2	3	3	3	3	3	3	3	3	2	1	1	1	1	1	1	3	
24-Mar	1	2	1	1	1	1	2	2	1	3	3	3	3	4	3	3	2	3	2	1	2	2	2	2	4	
25-Mar	3	3	3	2	3	3	2	3	3	3	4	4	4	4	5	4	5	4	3	3	2	3	3	3	5	
26-Mar	3	3	3	2	2	3	3	3	5	5	6	6	6	6	5	5	5	5	4	4	4	4	4	4	6	
27-Mar	4	4	4	4	4	4	4	4	4	4	5	5	5	3	3	3	2	3	2	3	2	2	2	2	5	
28-Mar	2	1	1	1	1	1	1	2	2	2	3	3	2	3	3	3	3	2	2	2	1	1	1	1	3	
29-Mar	1	1	2	1	1	2	1	2	2	2	3	3	3	3	3	2	3	2	1	1	1	1	1	1	3	
30-Mar	1	1	1	1	2	1	1	1	2	2	3	3	3	3	3	4	3	3	2	2	2	2	2	3	4	
31-Mar	2	2	2	2	2	2	2	2	2	3	4	5	5	5	5	5	5	5	3	4	4	4	4	5	5	
Diurnal Maximum																										



Wood Buffalo Environmental Association
Summary of Hour Averages

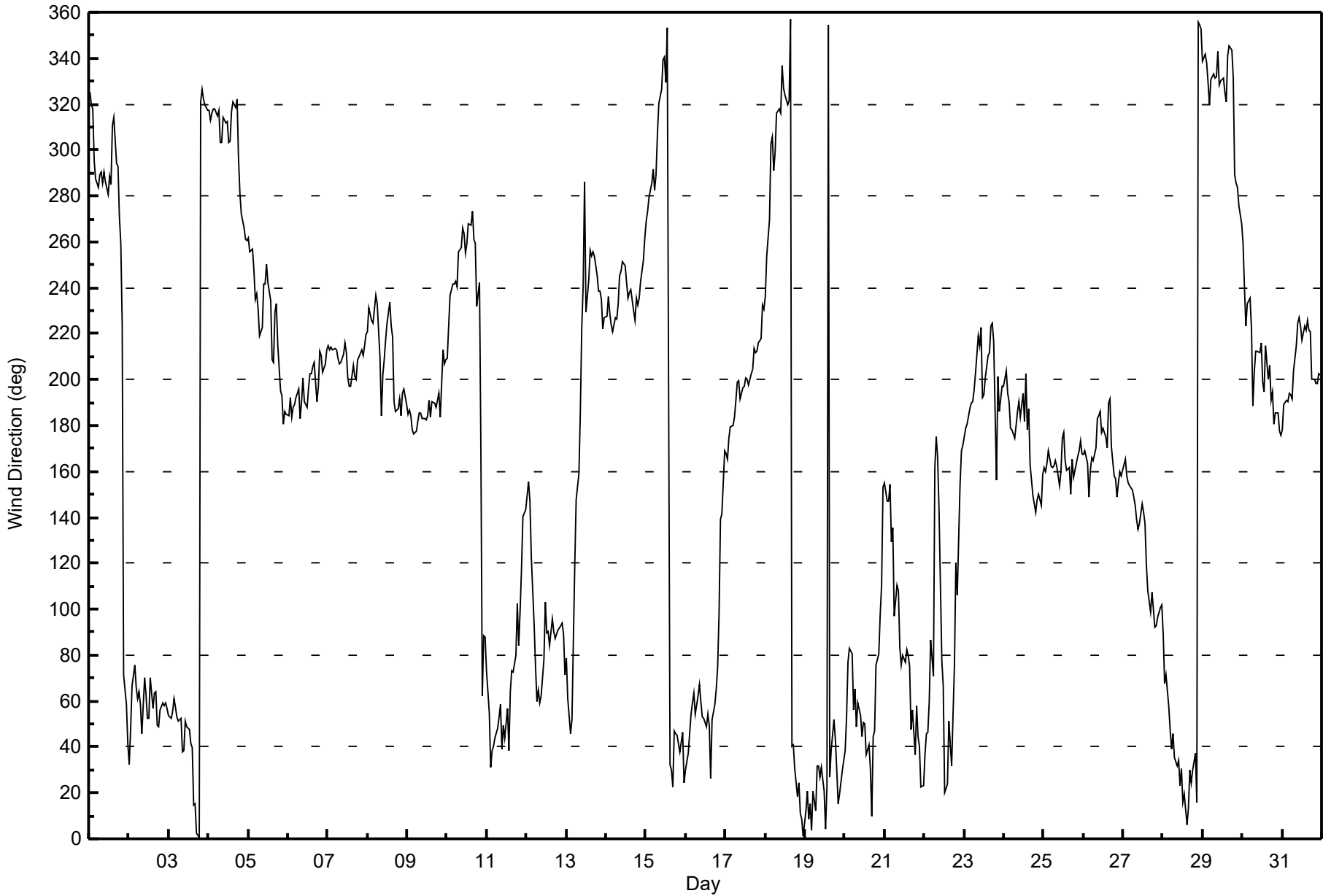
Wind Direction (WD) - deg
Jackfish 2/3 - March 2024

Direction of Maximum Speed: 238 deg on Mar 14 15:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 238.2 deg on Mar 14																						Hours of Data: 744			
Direction of Minimum Speed: 22 deg on Mar 22 14:00											Direction of Minimum Daily Speed Average: 2.5 deg on Mar 22											Hours of Missing Data: 0			
Monthly Average Direction: 198.2 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-Mar	325	320	318	295	288	284	289	290	285	290	286	281	289	285	311	315	294	293	271	259	224	71	58	42	293.6
2-Mar	32	47	66	76	66	61	64	59	46	70	63	52	53	70	57	63	64	49	49	56	59	58	59	57	58.4
3-Mar	53	52	55	61	57	53	51	53	38	38	51	49	47	42	40	15	15	3	1	321	327	322	319	317	32.8
4-Mar	317	313	316	318	318	315	317	303	304	314	312	312	303	304	317	321	318	322	297	281	272	266	261	260	307.0
5-Mar	262	256	257	248	235	237	231	219	223	242	242	250	242	234	209	207	230	233	216	195	193	180	186	185	226.7
6-Mar	184	192	184	188	189	192	196	183	190	201	190	188	196	202	203	206	207	190	197	213	210	203	207	213	198.2
7-Mar	215	213	214	213	213	213	209	207	207	211	216	212	201	197	197	206	201	200	209	210	213	211	215	219	209.2
8-Mar	221	231	226	225	231	236	233	209	184	202	208	217	225	234	223	218	190	186	187	192	184	194	196	189	212.6
9-Mar	185	186	184	178	176	178	182	186	186	183	183	183	184	191	184	190	190	188	191	194	184	213	207	209	187.6
10-Mar	209	224	237	242	242	243	240	256	257	266	264	255	259	268	267	274	261	260	232	242	170	62	89	88	250.5
11-Mar	73	55	31	38	40	44	48	53	58	39	49	44	57	38	64	73	73	80	103	84	99	118	140	143	69.1
12-Mar	150	155	147	123	93	75	60	65	59	62	78	103	90	90	84	96	91	87	89	91	93	94	89	71	90.5
13-Mar	78	61	46	52	86	119	148	159	186	223	241	286	230	244	256	254	255	254	245	239	238	235	222	227	234.3
14-Mar	227	236	229	224	221	227	227	233	245	247	251	250	242	235	238	239	230	226	235	232	235	243	252	262	238.2
15-Mar	269	273	279	286	292	283	289	307	320	326	339	340	329	353	32	30	22	47	46	45	38	42	47	24	328.5
16-Mar	30	37	46	54	59	63	55	62	67	60	53	53	49	54	49	26	52	58	65	75	98	139	142	169	64.9
17-Mar	168	165	175	180	180	183	191	199	199	192	196	197	201	200	198	203	204	214	212	213	216	218	232	231	202.4
18-Mar	236	254	270	302	306	291	299	316	318	316	337	327	324	320	322	357	40	41	31	18	24	11	8	1	330.8
19-Mar	12	21	9	15	3	21	12	32	32	27	31	21	5	23	355	27	38	52	43	30	16	20	30	34	23.4
20-Mar	39	53	77	83	80	56	65	49	59	53	44	50	50	37	41	30	10	44	47	76	81	98	110	153	61.5
21-Mar	155	147	147	154	129	136	97	111	108	84	76	80	77	82	80	75	47	56	37	58	44	41	22	23	88.5
22-Mar	37	46	46	60	87	71	162	175	166	143	78	67	20	22	24	51	32	54	75	120	106	155	169	172	94.7
23-Mar	175	178	181	187	190	190	195	203	219	215	223	192	194	201	210	212	223	225	216	156	201	186	192	197	196.8
24-Mar	197	204	194	191	179	178	175	180	186	191	184	194	182	203	178	187	163	150	146	142	148	150	145	159	178.2
25-Mar	162	160	163	169	162	162	162	165	163	154	160	175	177	165	161	162	150	165	157	161	167	169	173	168	163.6
26-Mar	167	169	163	149	161	166	165	170	183	184	186	177	179	175	170	190	192	171	158	157	149	155	160	158	171.2
27-Mar	163	165	158	155	153	152	149	145	139	135	137	146	142	137	119	108	99	108	100	92	92	96	100	102	131.8
28-Mar	89	67	72	57	47	39	46	36	32	34	23	31	16	19	6	14	30	24	30	37	16	356	354	353	31.5
29-Mar	338	341	338	329	319	331	333	331	332	343	328	330	331	325	321	341	345	343	332	289	286	284	276	268	324.0
30-Mar	259	240	223	233	235	222	189	203	213	212	212	216	199	194	215	200	206	191	194	181	186	185	177	176	204.1
31-Mar	178	189	191	190	194	194	191	204	215	225	227	223	217	223	222	226	221	221	200	200	199	198	203	202	208.5
191.1 204.1 202.7 198.8 202.1 204.6 206.8 203.2 210.7 220.6 219.0 214.5 217.9 217.2 212.5 204.4 186.2 166.0 168.3 176.3 172.0 183.4 185.4 191.0																									
Diurnal Average																									
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 - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Jackfish 2/3 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 111 deg on Mar 22 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: 8 deg on Mar 23 05:00																									
Percentiles: P ₁ = 10 P ₁₀ = 17 Q ₁ = 23 Median = 31 Q ₃ = 41 P ₉₀ = 47 P ₉₉ = 79																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	42	37	42	35	32	34	33	34	35	39	37	37	40	40	46	51	41	46	34	24	101	65	64	51	101
2-Mar	35	40	41	19	18	17	22	15	26	31	30	35	34	36	31	31	31	28	26	24	27	27	26	25	41
3-Mar	25	25	26	26	24	23	22	24	31	28	27	29	27	33	34	47	44	42	42	38	43	46	41	40	47
4-Mar	36	39	43	43	39	43	40	33	38	36	41	41	45	37	42	43	50	49	39	17	15	15	13	12	50
5-Mar	19	21	13	23	16	15	16	15	16	25	34	54	66	43	48	47	29	24	20	17	16	14	13	15	66
6-Mar	15	16	12	10	10	8	13	16	24	30	35	38	36	36	34	41	28	37	37	30	28	29	29	24	41
7-Mar	23	23	21	21	21	21	20	21	21	23	25	30	31	30	31	29	30	30	21	22	21	17	19	18	31
8-Mar	15	14	14	14	13	12	14	23	15	19	27	32	35	30	29	32	34	32	33	28	28	26	24	25	35
9-Mar	23	24	24	23	24	25	23	26	29	30	31	31	37	32	31	31	31	28	28	25	26	29	27	27	37
10-Mar	20	18	16	15	16	16	18	19	21	30	30	23	25	32	30	35	26	27	18	30	32	50	23	20	50
11-Mar	25	26	35	28	26	24	27	24	32	34	34	41	57	49	40	32	27	34	20	19	22	35	35	42	57
12-Mar	37	39	39	38	21	28	20	19	19	24	32	35	39	34	32	33	29	25	26	26	25	21	23	23	39
13-Mar	22	20	21	19	31	25	69	43	31	56	67	80	89	43	38	28	24	18	16	16	17	19	17	17	89
14-Mar	17	16	17	18	18	18	17	18	17	20	21	21	21	23	21	22	23	23	21	22	21	18	17	22	23
15-Mar	28	34	32	36	34	30	35	40	43	52	48	50	54	53	41	40	45	26	26	22	23	17	24	33	54
16-Mar	40	31	22	20	19	23	21	22	28	27	42	55	49	44	37	43	33	30	28	23	32	37	45	31	55
17-Mar	34	39	33	28	24	24	24	21	27	28	31	32	35	35	32	29	30	26	24	23	22	25	20	18	39
18-Mar	16	19	25	45	41	32	33	38	43	42	46	50	46	46	45	43	29	32	34	41	42	44	45	44	50
19-Mar	45	40	44	45	45	44	44	36	39	42	45	51	56	51	52	50	40	33	26	36	44	51	63	21	63
20-Mar	23	23	19	21	19	30	39	26	33	41	54	47	56	64	67	68	59	29	21	22	19	21	33	44	68
21-Mar	41	36	36	32	37	42	27	32	33	35	30	31	31	31	34	34	34	32	27	26	40	26	31	28	42
22-Mar	13	14	30	30	19	24	24	25	32	57	94	88	78	111	65	48	46	36	25	19	28	36	29	26	111
23-Mar	20	17	13	9	8	8	10	14	22	35	55	49	57	69	89	71	84	44	48	35	18	13	15	18	89
24-Mar	17	20	16	12	10	10	17	21	26	32	39	37	43	45	43	39	42	41	39	37	48	46	52	41	52
25-Mar	42	38	37	34	39	36	34	34	37	46	43	46	46	42	45	42	41	39	45	44	45	52	43	40	52
26-Mar	44	42	51	46	46	46	43	41	40	37	40	43	40	40	44	40	35	44	43	43	42	40	40	41	51
27-Mar	40	41	40	38	48	40	42	49	40	38	39	43	47	42	41	37	26	36	31	31	26	26	24	30	49
28-Mar	32	24	24	27	17	23	23	31	34	37	42	41	41	40	50	45	39	39	38	32	39	44	38	41	50
29-Mar	37	36	45	47	45	41	39	44	48	48	49	46	49	44	44	53	53	48	50	26	25	20	25	21	53
30-Mar	16	16	11	13	16	19	11	15	24	35	32	33	54	46	39	43	43	35	32	35	31	26	23	28	54
31-Mar	22	18	16	17	15	13	13	16	18	21	24	29	28	27	29	29	29	29	34	30	34	32	32	31	34
45 42 51 47 48 46 69 49 48 57 94 88 89 111 89 71 84 49 50 44 101 65 64 51																									
Diurnal Maximum																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS29
SURMONT 2
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)
MARCH 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	704	35	40	99.33	12	0	1.5	0
H2S (ppb) Average	702	37	42	99.33	0.4	0	0.1	0
THC(ppm) Average	704	35	40	99.33	2.7	-	2.4	-
NO2 (ppb) Average	703	37	41	99.46	13	0	4.5	-
NO (ppb) Average	703	37	41	99.46	9.1	-	1.5	-
NOX (ppb) Average	703	37	41	99.46	16.9	-	5.7	-
PM2.5 (ug/m3) Average	739	1	5	99.46	80	0	15.1	0
Temperature 2 m (C) Average	744	0	0	100	13.2	-	4.4	-
Relative Humidity (%) Average	744	0	0	100	95.1	-	85.7	-
Wind Speed 10 m (km/h) Average	708	0	36	95.16	19	-	12	-
Wind Direction 10 m (deg) Average	708	0	36	95.16	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)
MARCH 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	704	0.41	0.8	-	0	0	0.1	0.2	0.4	1	12
H2S (ppb) Average	702	0.06	0	-	0	0	0	0.1	0.1	0.1	0.4
THC (ppm) Average	704	2.3	0.1	-	2.1	2.2	2.3	2.3	2.3	2.4	2.7
NO2 (ppb) Average	703	1.93	1.6	-	0.2	0.5	0.8	1.5	2.6	4.1	13
NO (ppb) Average	703	0.5	0.7	-	0	0	0.1	0.2	0.8	1.2	9.1
NOX (ppb) Average	703	2.43	1.9	-	0.3	0.5	1	2	3.3	4.8	16.9
PM2.5 (ug/m3) Average	739	3.95	6.5	-	0.3	1.3	1.9	2.7	3.5	5.5	80
Temperature 2 m (C) Average	744	-7.96	9.4	-	-30.4	-21.5	-15.6	-7.3	-1.2	4.5	13.2
Relative Humidity (%) Average	744	62.42	17	-	20.6	38	49.4	65	76	83.7	95.1
Wind Speed 10 m (km/h) Average	708	6.5	4	-	0	2	3	6	9	12	19
Wind Direction 10 m (deg) Average	708	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
AIR QUALITY ANALYZERS	05 Mar 2024 09:00	05 Mar 2024 12:00	4	Station power failure
H2S, SO2, THC	06 Mar 2024 13:00	06 Mar 2024 13:00	1	Maintenance - sample manifold cleaned
Wind Speed, Wind Direction	02 Mar 2024 06:00	02 Mar 2024 08:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	05 Mar 2024 15:00	05 Mar 2024 16:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	06 Mar 2024 12:00	07 Mar 2024 12:00	25	Analyzer Failure - communication failure
Wind Speed, Wind Direction	07 Mar 2024 13:00	07 Mar 2024 16:00	4	Maintenance - wind speed sensor replaced
Wind Speed, Wind Direction	22 Mar 2024 04:00	22 Mar 2024 04:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	26 Mar 2024 02:00	26 Mar 2024 02:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Surmont 2 - March 2024

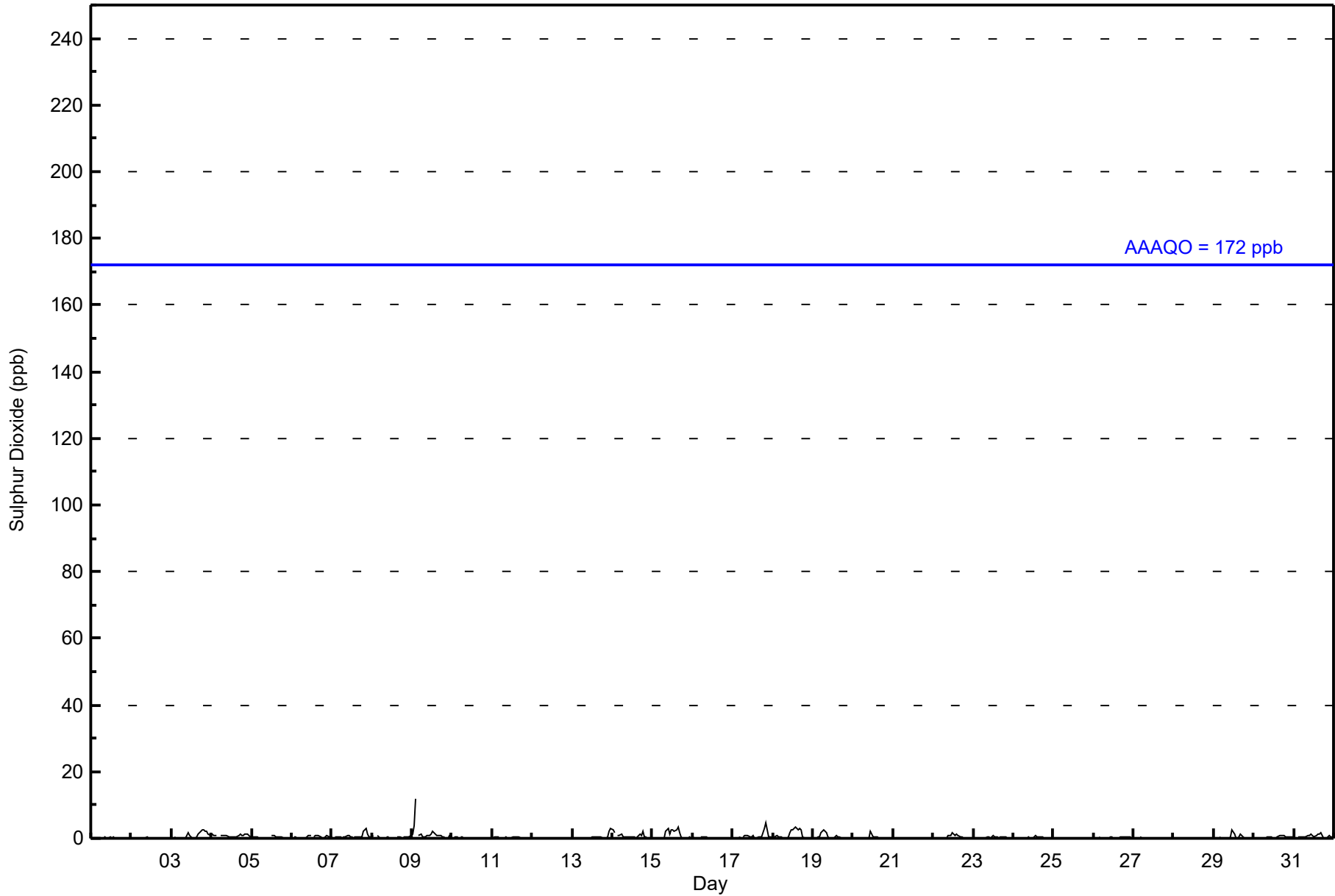
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 12.0 ppb on Mar 9 03:00		Maximum Daily Average: 1.5 ppb on Mar 9		Hours of Data: 704														Hours of Missing Data: 40		Hours of Calibration: 35		Percent Operational Time: 99.3					
Minimum Value: 0.0 ppb on Mar 1 04:00		Minimum Daily Average: 0.0 ppb on Mar 25		Hours of Calibration: 35														Hours of Calibration: 35		Percent Operational Time: 99.3							
Maximum Diurnal Average: 0.7 ppb at hour 3		Minimum Diurnal Average: 0.2 ppb at hour 8		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 1.0 P ₉₉ = 3.1														Percent Operational Time: 99.3									
Monthly Average: 0.41 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-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
2-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	
3-Mar	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.2	0.2	0.7	1.6	0.7	0.1	0.1	0.3	1.3	1.8	2.6	2.5	2.3	2.0	1.4	0.7	0.8	2.6		
4-Mar	1.3	0.9	0.8	1.0	Z	1.0	0.8	0.8	0.9	0.7	0.5	0.3	0.3	0.3	0.5	1.0	1.2	0.9	0.9	1.3	1.4	1.0	0.6	0.8	1.4		
5-Mar	0.4	0.3	0.2	0.2	0.2	Z	0.2	0.2	PF	PF	PF	PF	0.9	0.9	0.5	0.4	0.4	0.5	0.2	0.1	0.1	0.0	0.1	0.3	0.9		
6-Mar	Z	0.3	0.4	0.1	0.2	0.1	0.1	0.1	0.1	0.6	0.8	0.7	M	0.6	0.8	0.8	0.8	0.5	0.2	0.2	0.3	0.7	0.4	0.4	0.4	0.8	
7-Mar	0.3	Z	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.7	0.9	0.6	0.3	0.2	0.2	0.2	0.3	0.3	0.4	2.0	3.0	1.1	0.6	0.5	0.6	3.0	
8-Mar	0.6	1.0	Z	0.9	0.5	0.1	0.0	0.1	0.2	0.6	0.6	C	C	C	C	0.5	0.4	0.3	0.1	0.2	0.2	0.3	0.3	0.7	0.4	1.0	
9-Mar	1.2	3.9	12.0	Z	0.8	1.2	0.5	0.4	0.6	1.1	1.0	1.1	2.0	1.6	1.1	0.9	1.0	0.7	0.5	0.4	0.1	0.1	0.8	0.4	1.5	12.0	
10-Mar	0.0	0.0	0.3	0.3	Z	0.3	0.2	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.3	
11-Mar	0.1	0.2	0.3	0.3	0.3	Z	0.2	0.1	0.3	0.1	0.2	0.2	0.4	0.4	0.5	0.3	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.5	0.5
12-Mar	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	0.1	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
13-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.4	0.5	0.4	0.4	0.1	0.1	0.0	0.4	2.1	3.1	0.4	3.1	3.1	
14-Mar	2.7	1.6	Z	0.7	0.7	1.1	0.4	0.3	0.3	0.3	0.4	0.3	0.5	0.3	0.2	0.3	1.2	1.0	2.0	0.3	0.3	0.2	0.1	0.2	0.7	2.7	
15-Mar	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.0	2.0	3.1	1.3	2.6	2.7	2.3	2.8	3.6	1.6	0.4	0.1	0.2	0.2	0.2	0.3	0.2	1.1	3.6	
16-Mar	0.2	0.1	0.2	0.2	Z	0.3	0.6	0.5	0.2	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	0.1	0.6	
17-Mar	0.0	0.0	0.0	0.1	0.4	Z	0.5	0.8	0.8	0.7	0.5	0.6	0.7	0.2	0.2	0.5	0.5	0.5	1.6	3.1	4.7	0.3	0.2	0.4	0.7	4.7	
18-Mar	Z	0.6	1.0	0.6	0.4	0.3	0.2	0.0	0.0	0.4	1.8	2.5	2.6	3.5	2.8	2.6	2.9	2.5	0.5	0.1	0.0	0.0	0.1	0.2	1.1	3.5	
19-Mar	0.1	Z	0.1	0.3	0.6	1.6	2.5	2.2	1.5	0.4	0.2	0.1	0.0	0.5	1.0	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	2.5	
20-Mar	0.1	0.1	Z	0.0	0.1	0.0	0.0	0.0	0.1	0.1	1.9	1.1	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.2	1.9	
21-Mar	0.0	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	0.0	0.0	0.0	0.0	0.1	0.1	
22-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.8	0.9	1.5	1.1	0.8	1.4	0.8	0.6	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.4	1.5	
23-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.3	0.3	0.2	0.6	0.8	0.6	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.0	0.0	0.0	0.2	0.8	
24-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.1	0.2	0.5	0.8	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.8	
25-Mar	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
26-Mar	0.1	0.2	Z	0.5	0.1	0.2	0.1	0.0	0.0	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.4	0.3	0.4	0.3	0.2	0.2	0.6	
27-Mar	0.1	0.1	0.0	Z	0.4	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.4	
28-Mar	0.2	0.2	0.1	0.1	Z	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	
29-Mar	0.1	0.1	0.2	0.2	0.2	Z	0.1	0.0	0.1	0.1	0.4	2.4	1.3	0.1	0.1	0.3	1.1	0.4	0.1	0.0	0.0	0.2	0.1	0.0	0.3	2.4	
30-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.0	0.0	0.2	0.5	0.7	0.7	0.8	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.8	
31-Mar	0.3	Z	0.5	0.4	0.3	0.3	0.2	0.4	1.0	0.8	1.1	1.0	0.5	0.8	1.3	1.4	1.6	0.8	0.1	0.1	0.4	1.0	0.6	0.3	0.7	1.6	
																								Diurnal Average		Diurnal Maximum	
																								0.3		2.7	
																								0.4		3.9	
																								0.7		12.0	
																								0.3		1.0	
																								0.2		0.8	
																								0.3		1.6	
																								0.2		2.5	
																								0.2		2.2	
																								0.3		2.0	
																								0.4		3.1	
																								0.5		1.9	
																								0.6		2.6	
																								0.6		2.7	
																								0.5		3.5	
																								0.5		2.8	
																								0.5		3.6	
																								0.6		2.9	
																								0.5		2.5	
																								0.4		2.6	
																								0.4		3.1	
																								0.5		4.7	
																								0.3		2.0	
																								0.3		2.1	
																								0.3		3.1	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Surmont 2 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Surmont 2 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	703	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: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Surmont 2 - March 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	31	18	19	39	100	79	27	20	23	54	59	35	19	39	63	669
11 - 20	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	44	31	18	19	39	100	79	28	20	23	54	59	35	19	39	63	670

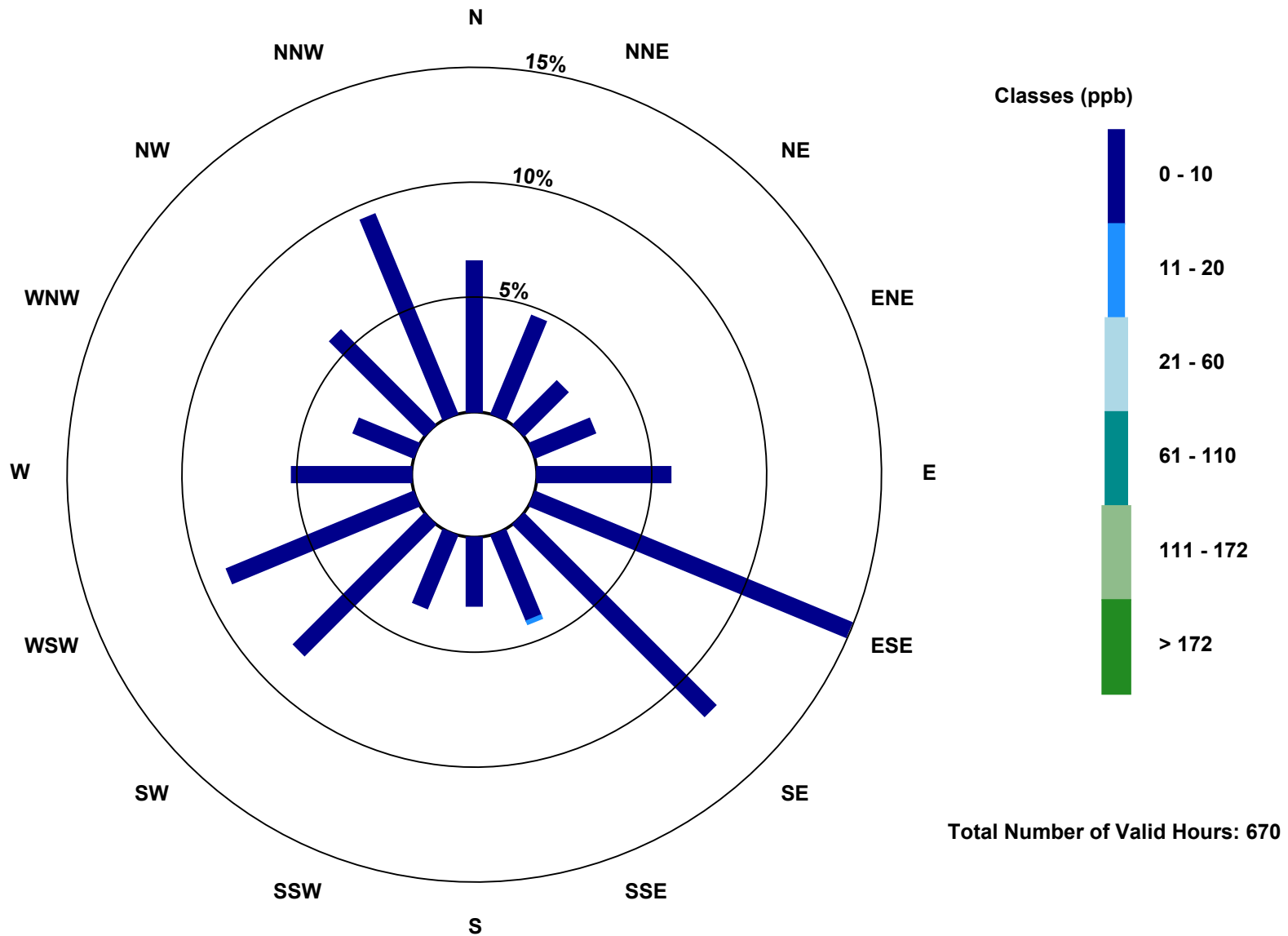
Total Number of Valid Hours: 670

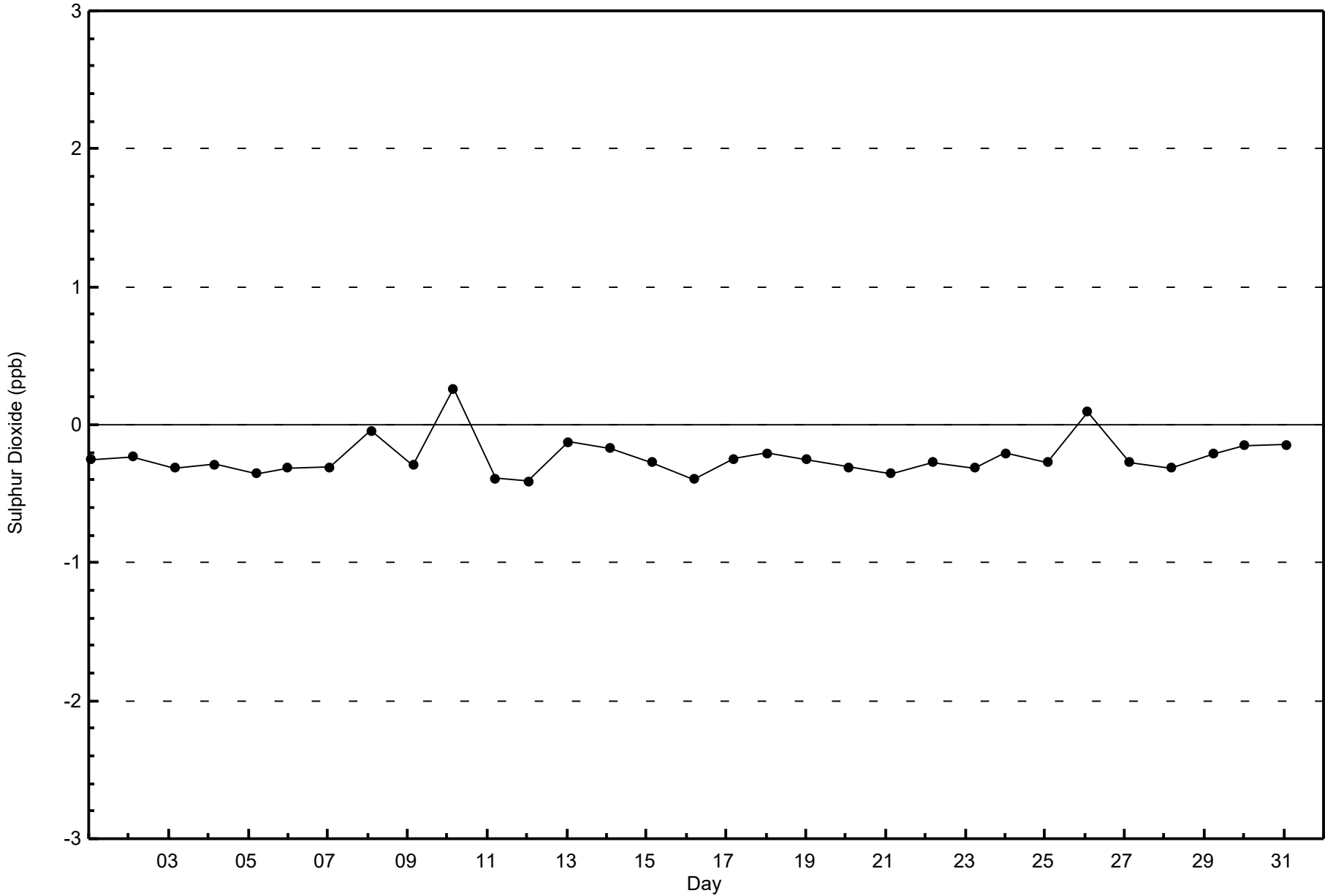
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Surmont 2

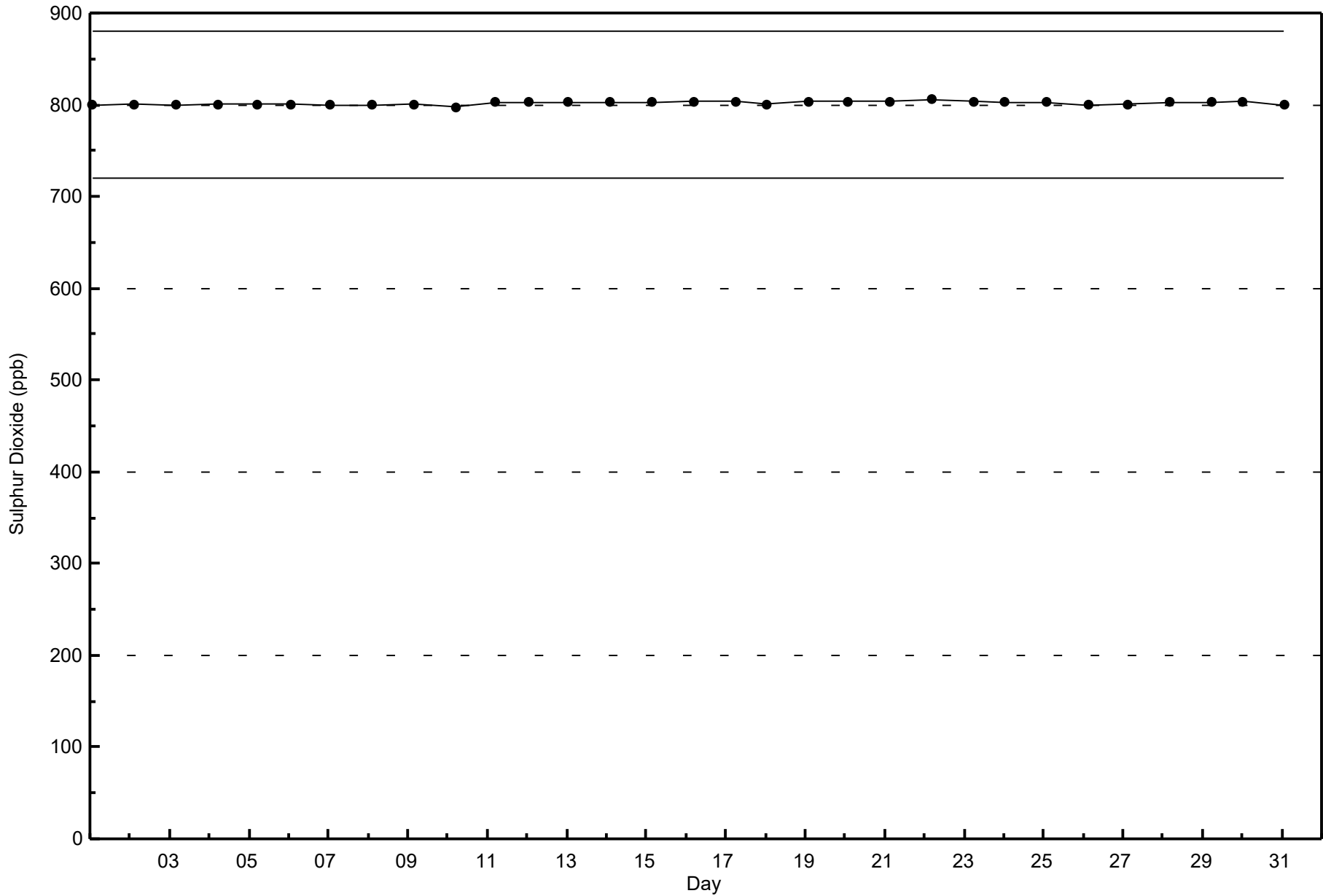






Wood Buffalo Environmental Association
Span Responses

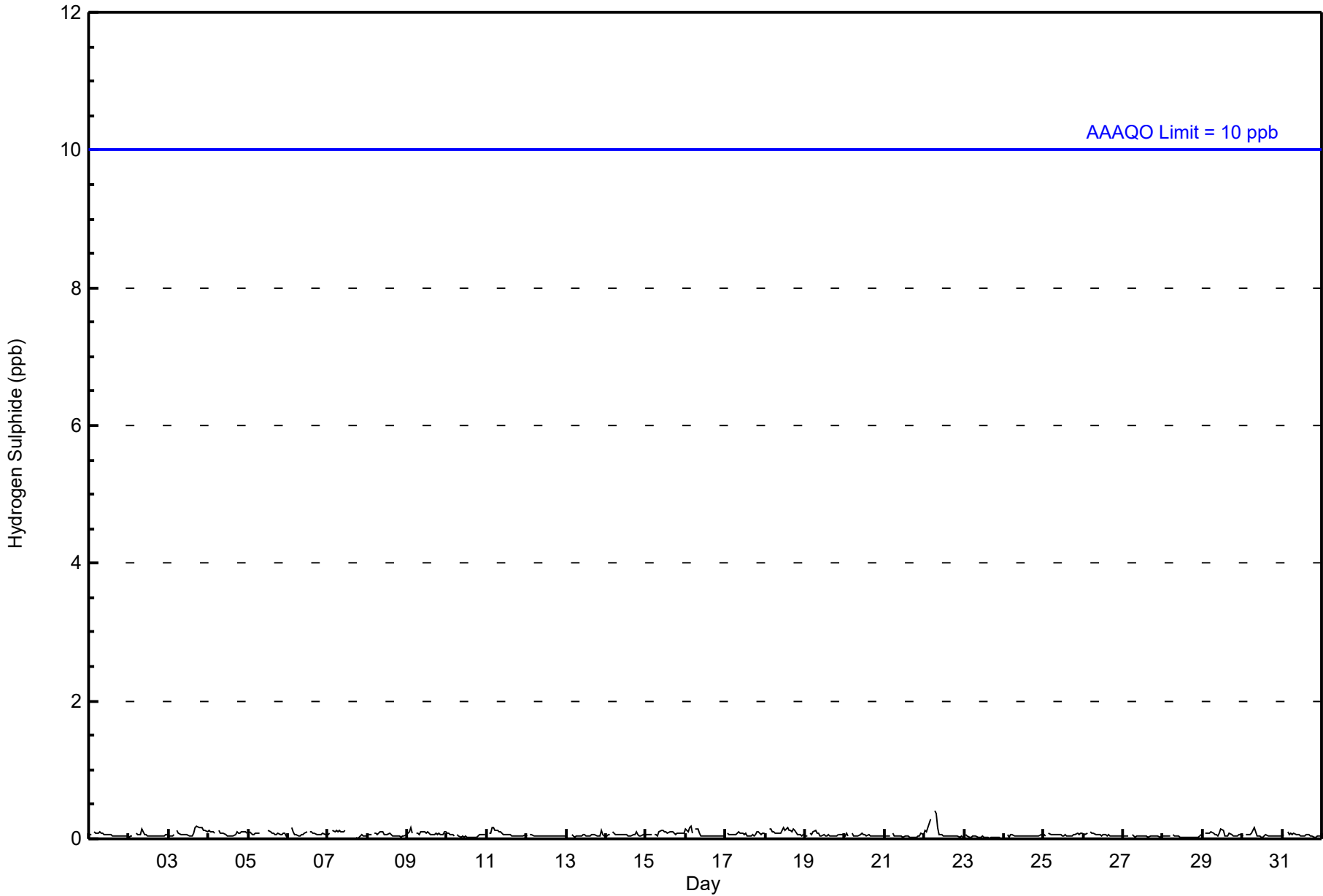
Sulphur Dioxide (SO₂) - ppb
Surmont 2 - March 2024





Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Surmont 2 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Surmont 2 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	702	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 702

Total Number of Hours: 744



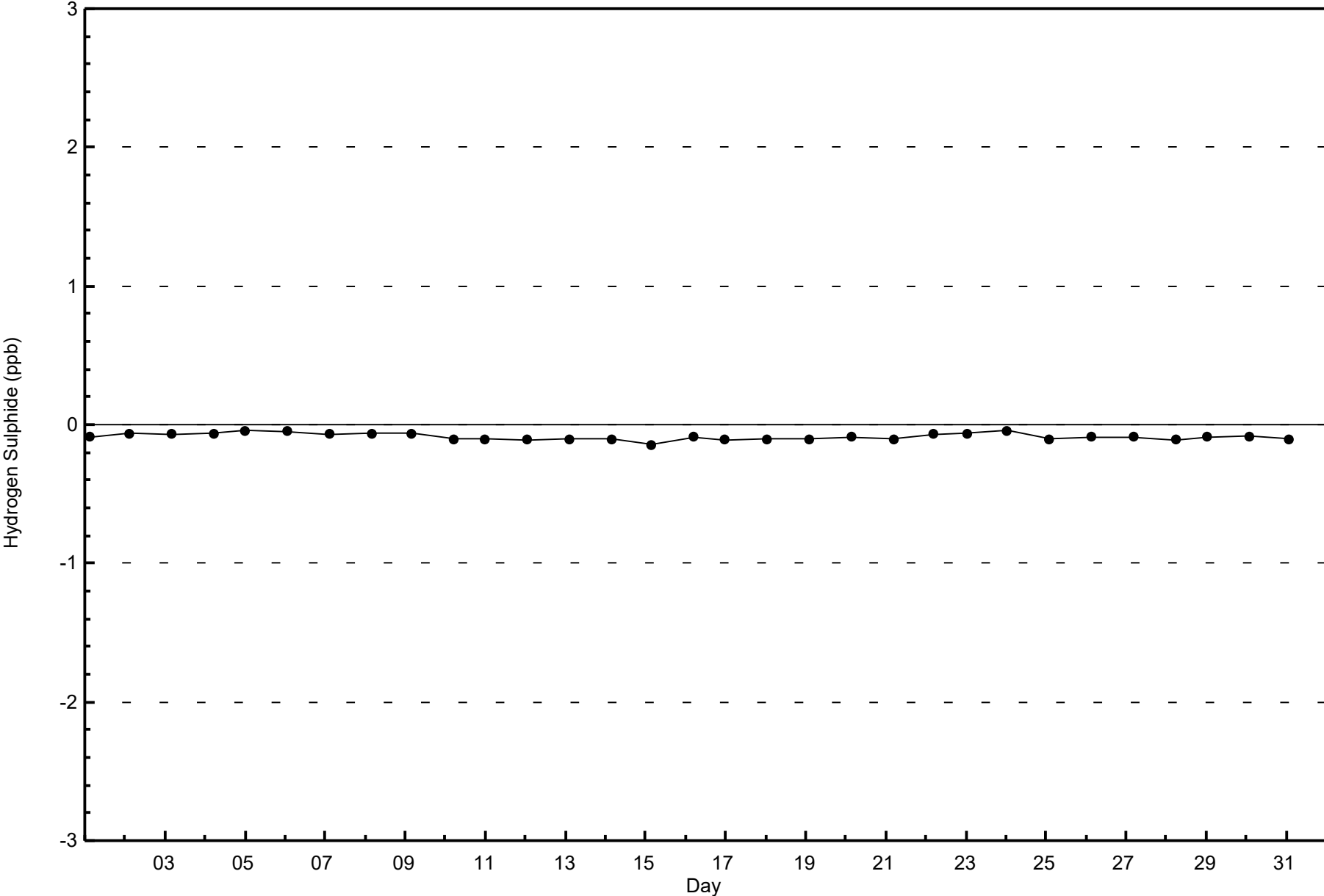
**Wood Buffalo Environmental Association
Frequency Distribution**

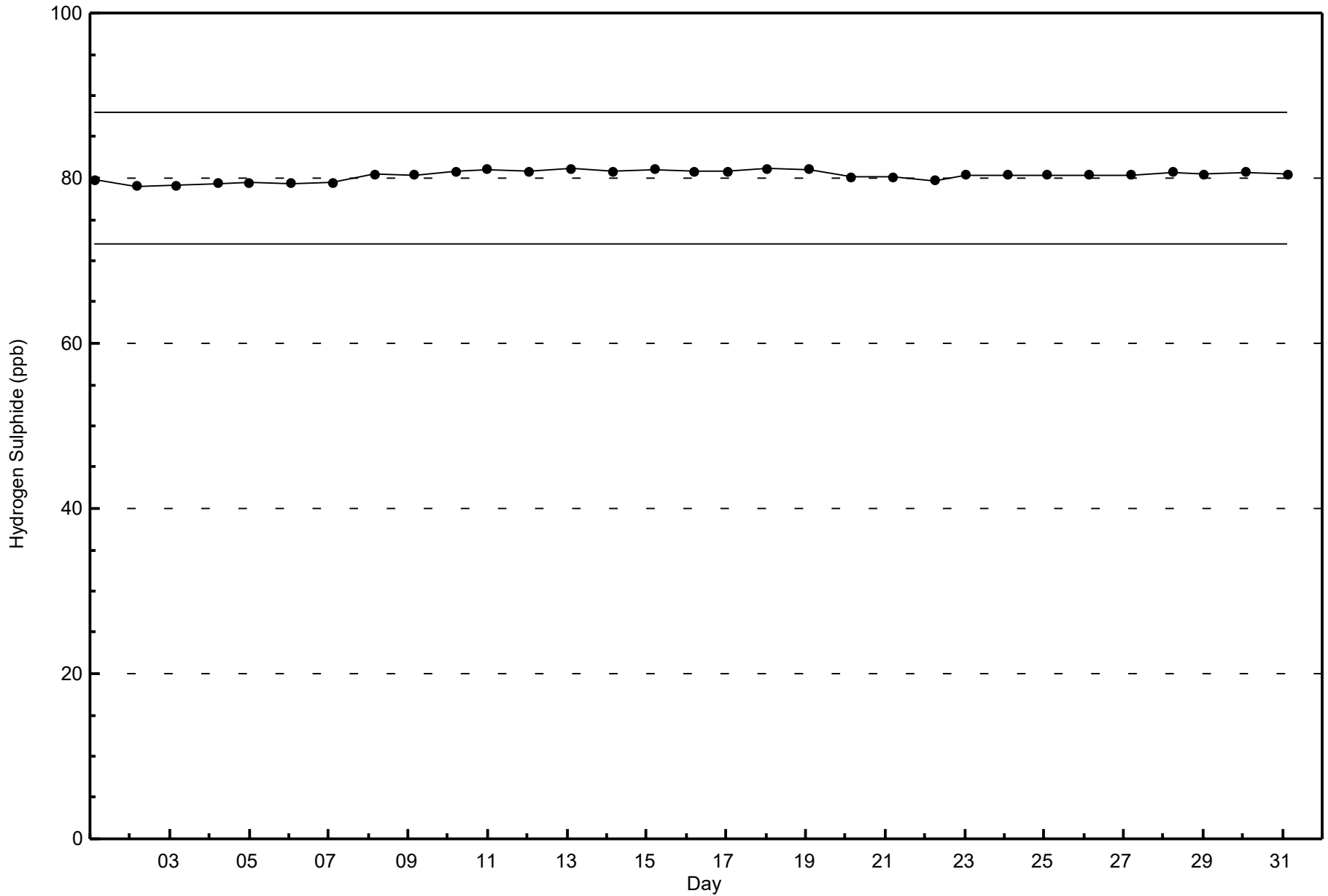
**Hydrogen Sulphide (H₂S) - ppb
Surmont 2 - March 2024**

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	33	18	19	39	100	83	27	20	24	54	56	39	16	39	63	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
Totals	43	33	18	19	39	100	83	27	20	24	54	56	39	16	39	63	673

Total Number of Valid Hours: 673

Total Number of Hours: 744







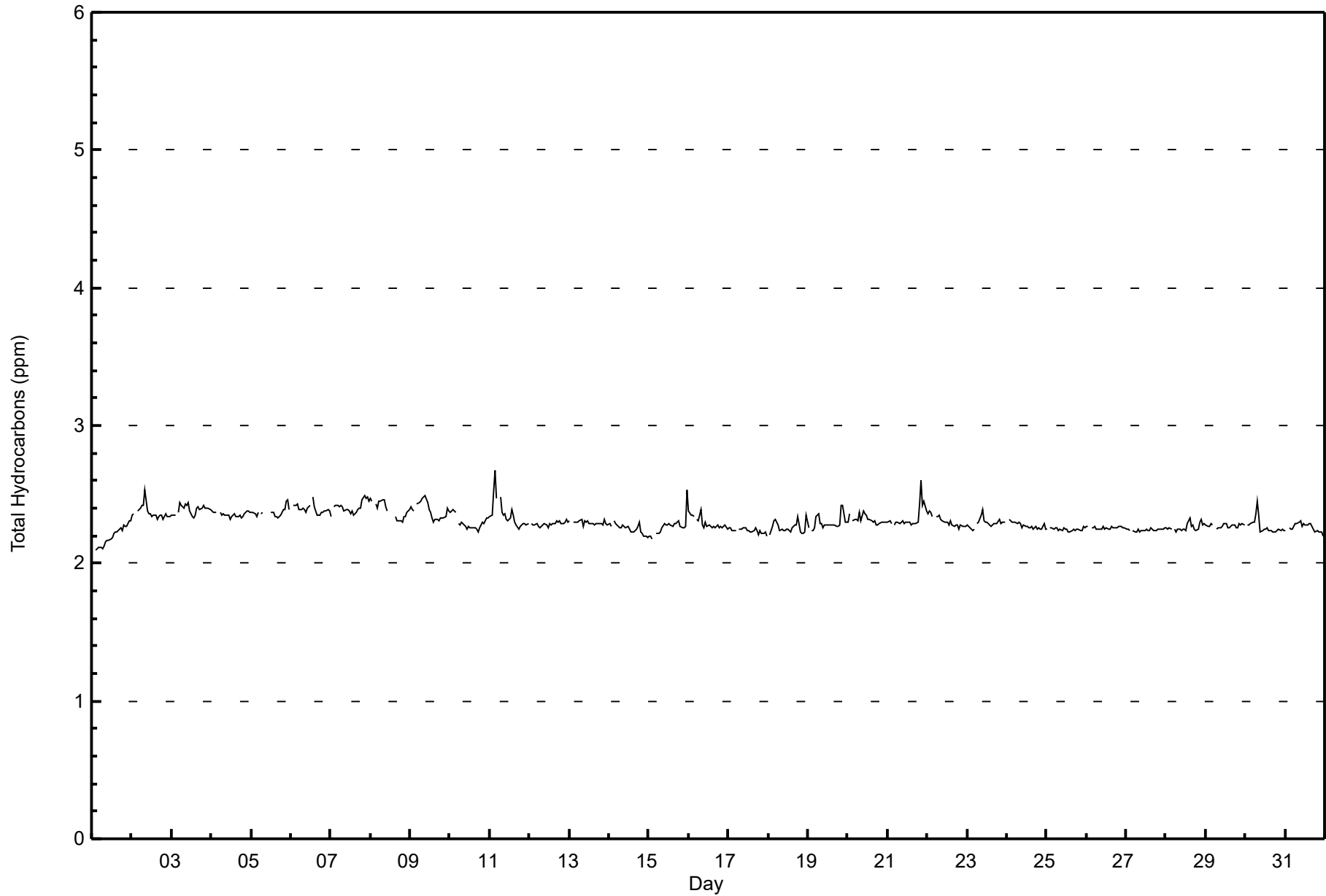
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Surmont 2 - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744																														
Maximum Value: 2.7 ppm on Mar 11 04:00		Maximum Daily Average: 2.4 ppm on Mar 7		Hours of Data: 704														704																																
Minimum Value: 2.1 ppm on Mar 1 01:00		Minimum Daily Average: 2.2 ppm on Mar 1		Hours of Missing Data: 40														40																																
Maximum Diurnal Average: 2.3 ppm at hour 8		Minimum Diurnal Average: 2.3 ppm at hour 18		Hours of Calibration: 35														35																																
Monthly Average: 2.30 ppm		Percentiles: P ₁ = 2.2 P ₁₀ = 2.2 Q ₁ = 2.3 Median = 2.3 Q ₃ = 2.3 P ₉₀ = 2.4 P ₉₉ = 2.5		Percent Operational Time: 99.3														99.3																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Mar	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.3																								
2-Mar	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.3																								
3-Mar	2.3	2.4	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4																								
4-Mar	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4																								
5-Mar	2.4	2.4	2.4	2.3	2.4	Z	2.4	2.4	PF	PF	PF	PF	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.5																								
6-Mar	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	M	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4																								
7-Mar	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4																								
8-Mar	2.5	2.5	Z	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	C	C	C	C	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4																								
9-Mar	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4																								
10-Mar	2.4	2.4	2.4	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	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
11-Mar	2.3	2.3	2.5	2.7	2.5	Z	2.5	2.4	2.3	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
12-Mar	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																								
13-Mar	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
14-Mar	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
15-Mar	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.3																								
16-Mar	2.4	2.4	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	2.3	2.3	2.2	2.3	2.4																								
17-Mar	2.3	2.3	2.2	2.2	2.2	Z	2.2	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
18-Mar	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3																								
19-Mar	2.3	Z	2.2	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4																								
20-Mar	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
21-Mar	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	2.4	2.6	2.4	2.4	2.4	2.4	2.3																								
22-Mar	2.4	2.4	2.4	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	2.2	2.3	2.3	2.3	2.3	2.3	2.3																								
23-Mar	2.3	2.3	2.3	2.2	2.2	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
24-Mar	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	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3																								
25-Mar	2.3	Z	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2																								
26-Mar	2.3	2.3	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
27-Mar	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.2																								
28-Mar	2.3	2.2	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3																								
29-Mar	2.3	2.3	2.3	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	2.3																								
30-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.3	2.2	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	2.3																								
31-Mar	2.2	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	2.2	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	Diurnal Average	
																								2.5	2.5	2.5	2.7	2.5	2.4	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.5	Diurnal Maximum
Z - zerospan			C - Calibration			M - Maintenance			PF - Power Failure																																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Surmont 2 - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	704	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: 704

Total Number of Hours: 744



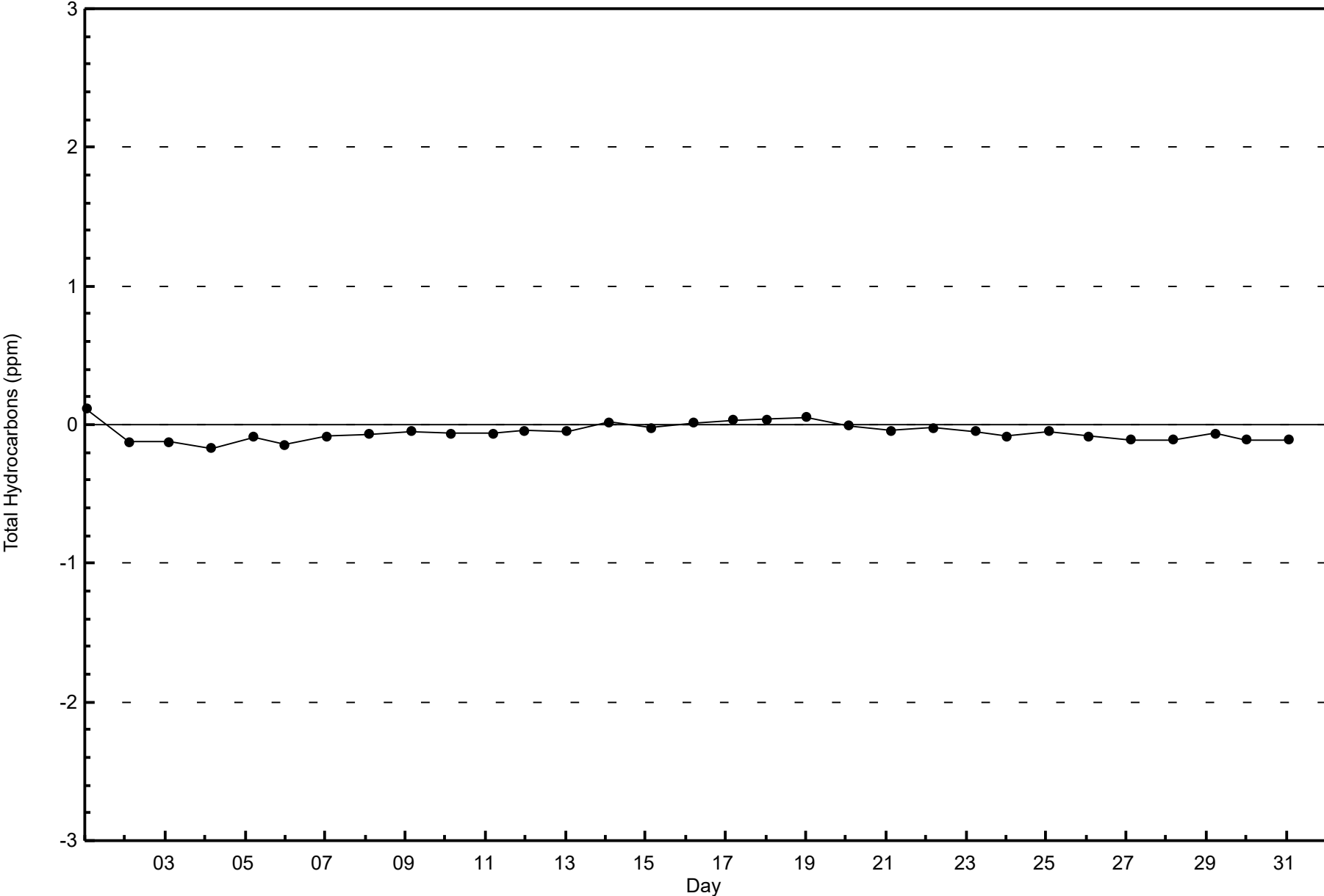
Wood Buffalo Environmental Association
Frequency Distribution

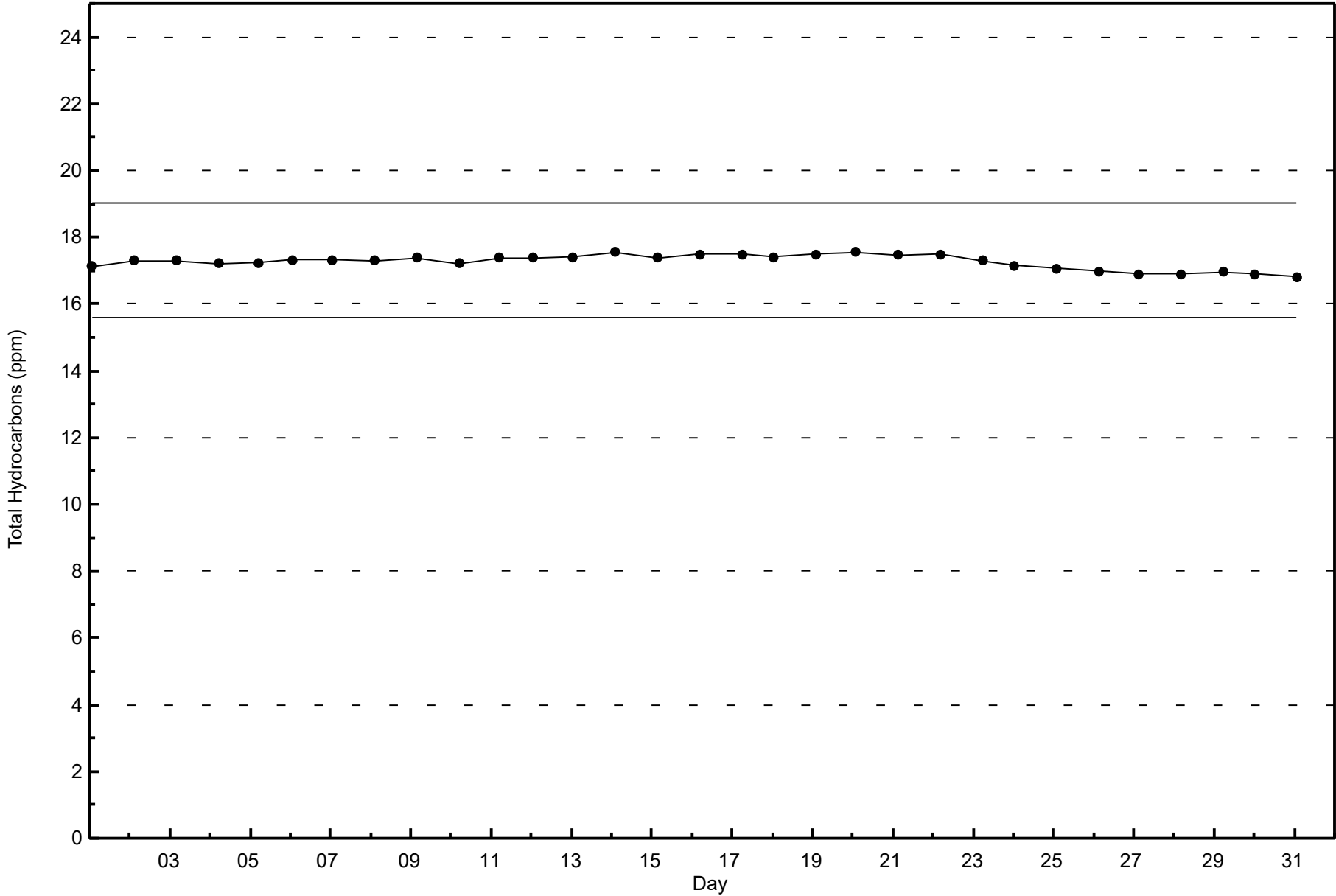
Total Hydrocarbons (THC) - ppm
Surmont 2 - March 2024

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	44	31	18	19	39	100	79	28	20	23	54	59	35	19	39	63	670
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
Totals	44	31	18	19	39	100	79	28	20	23	54	59	35	19	39	63	670

Total Number of Valid Hours: 670

Total Number of Hours: 744

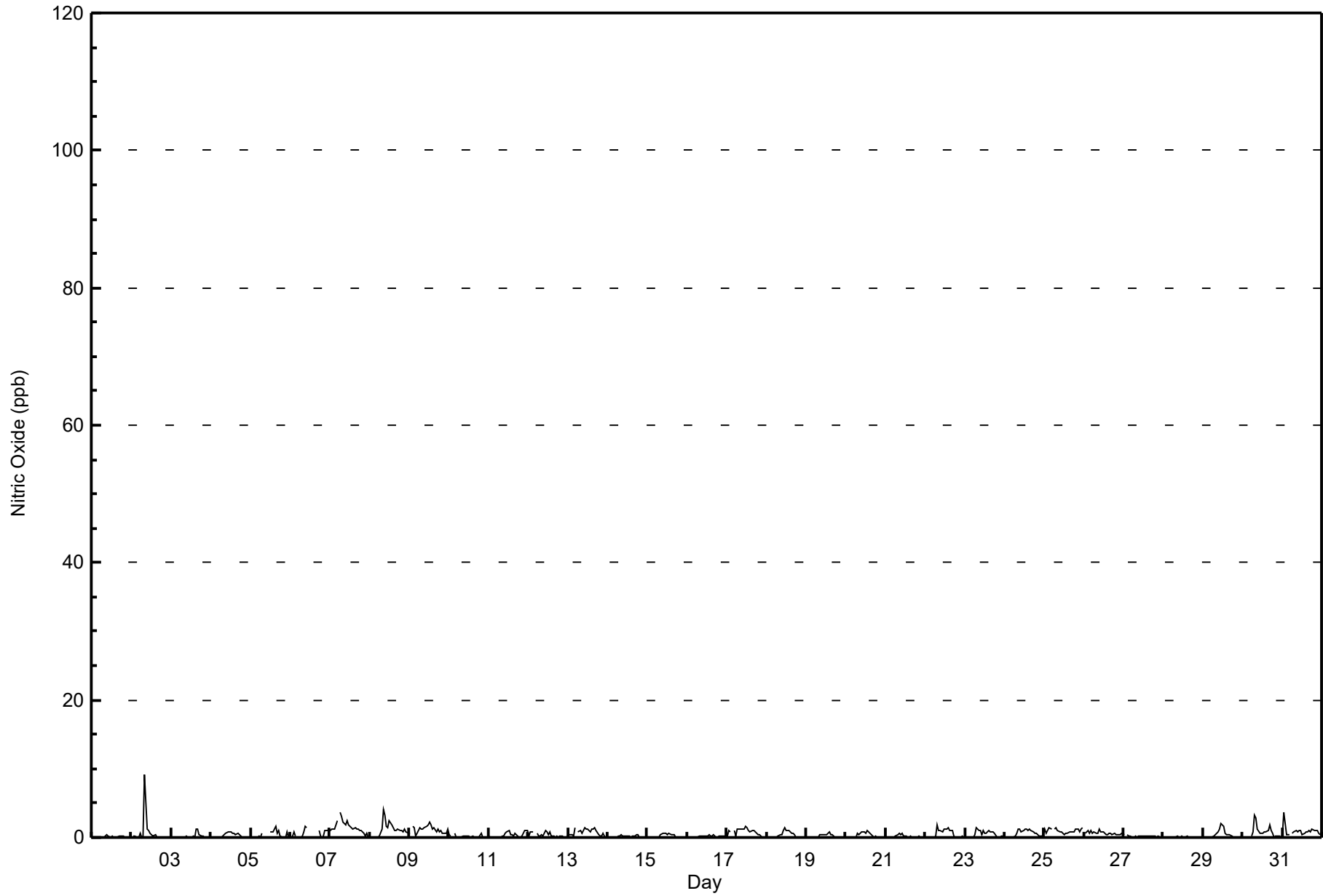






Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Surmont 2 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Surmont 2 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Surmont 2 - March 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	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674
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
Totals	45	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674

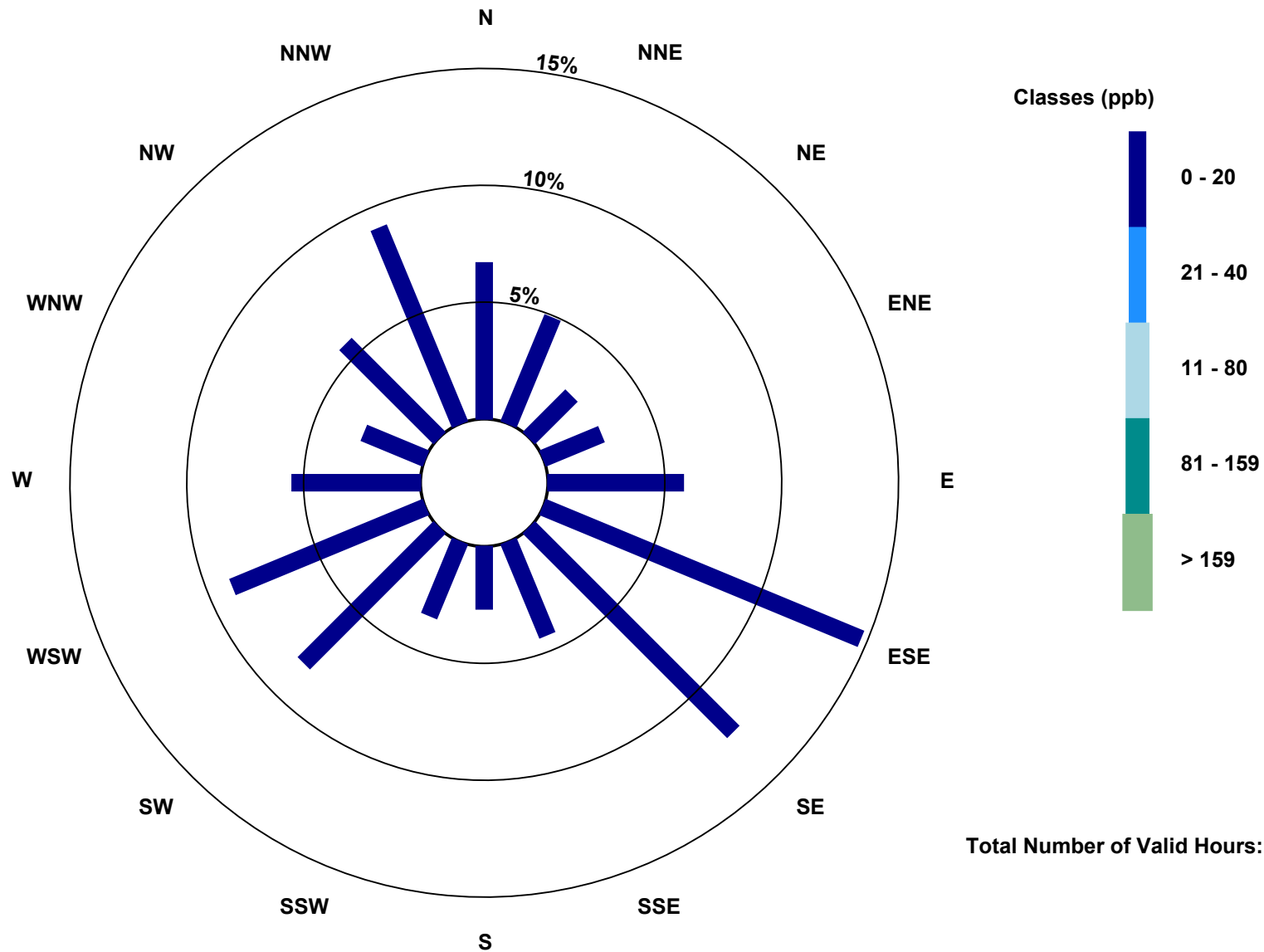
Total Number of Valid Hours: 674

Total Number of Hours: 744

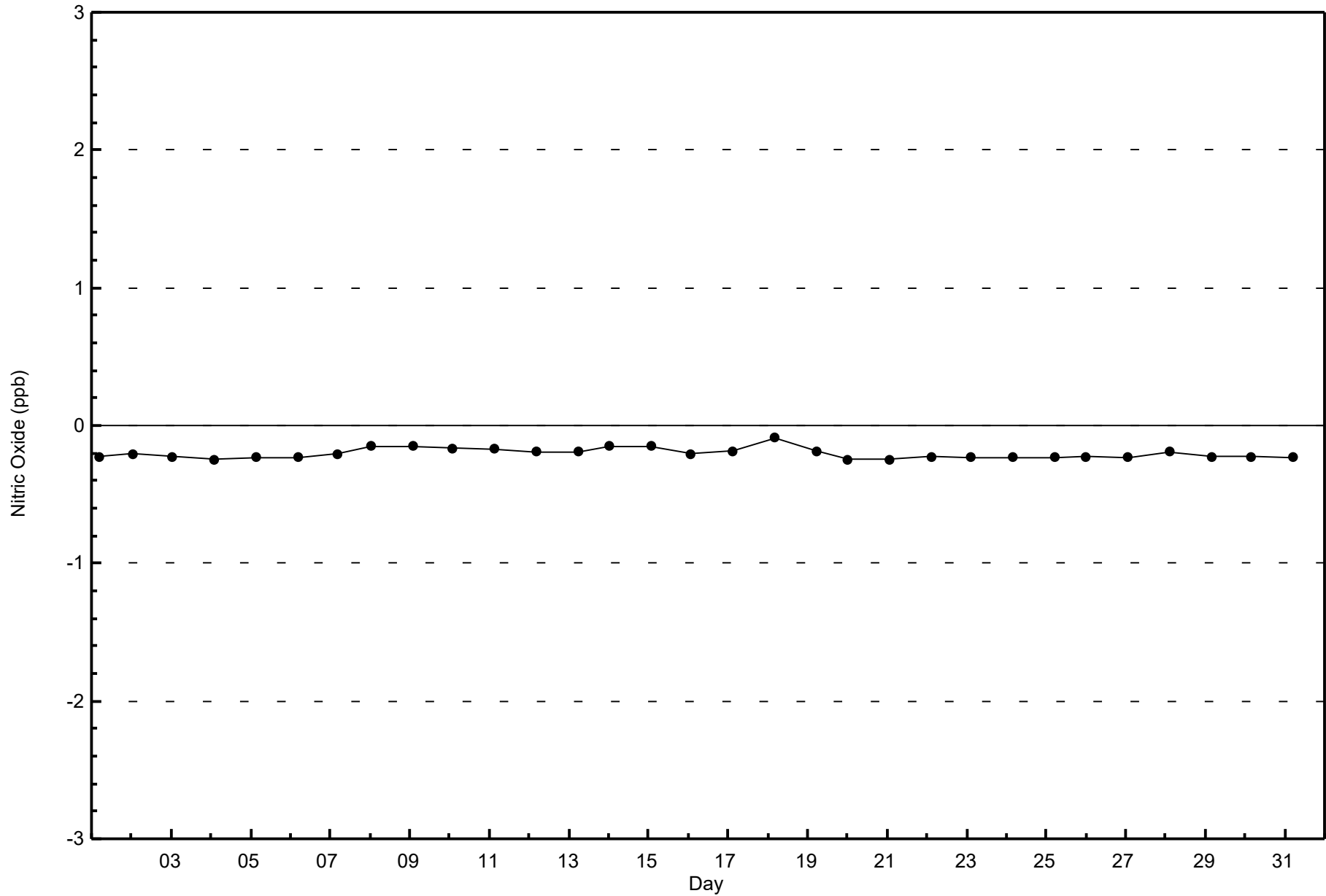


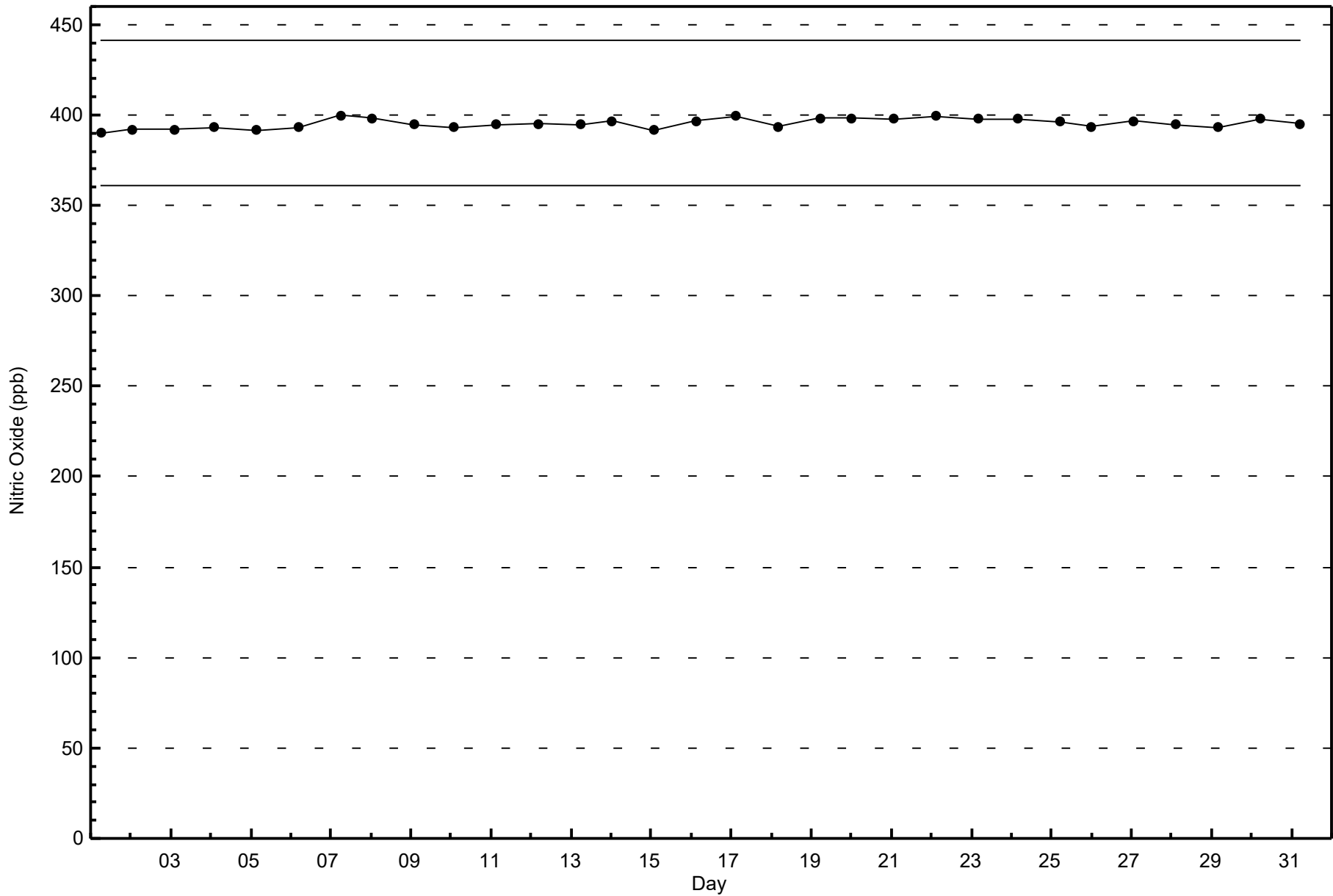
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Surmont 2



Total Number of Valid Hours: 674







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

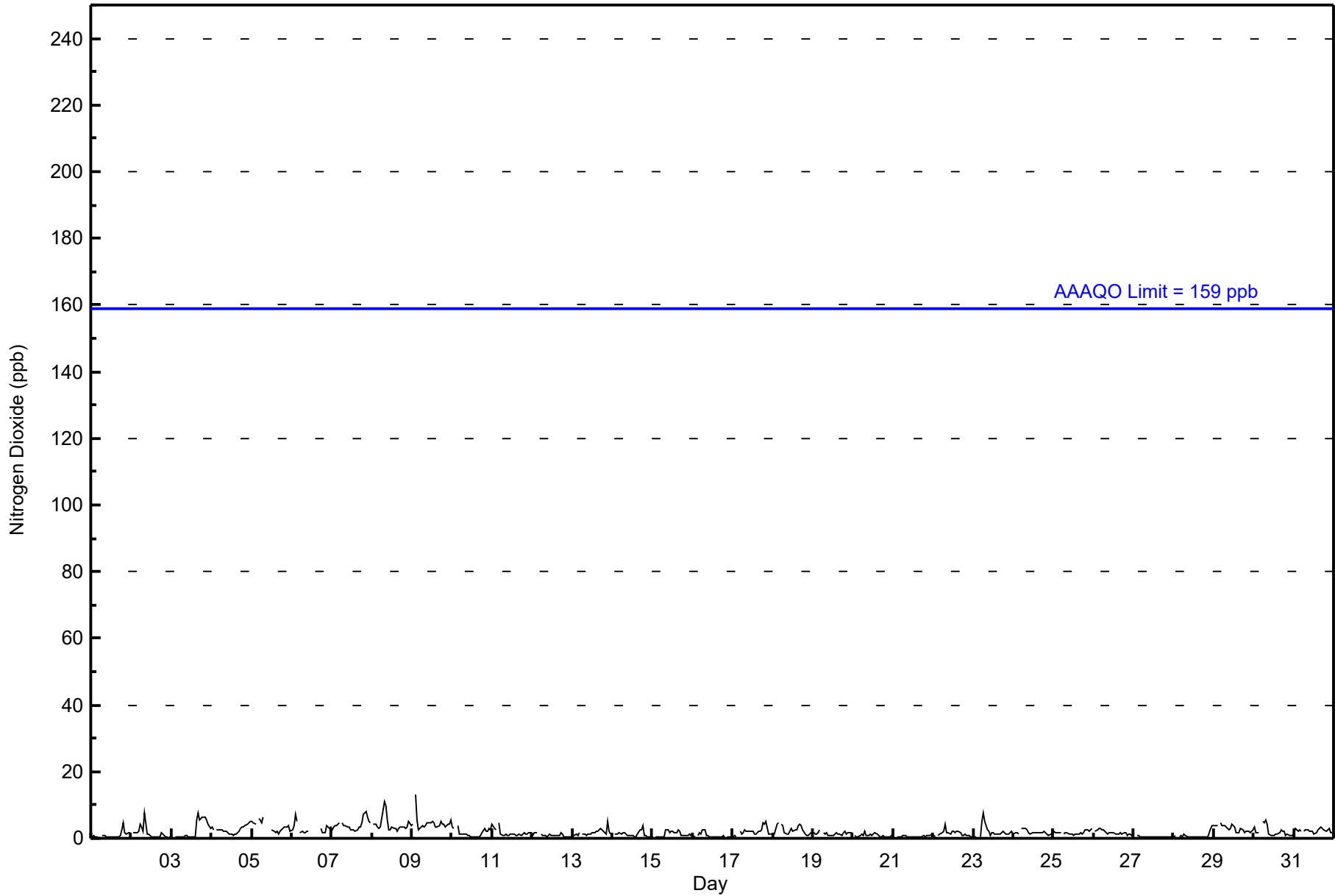
Surmont 2 - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 13.0 ppb on Mar 9 03:00		Maximum Daily Average: 4.5 ppb on Mar 9				Hours of Data:		703																																									
Minimum Value: 0.2 ppb on Mar 2 23:00		Minimum Daily Average: 0.5 ppb on Mar 27				Hours of Missing Data:		41																																									
Maximum Diurnal Average: 2.5 ppb at hour 8		Minimum Diurnal Average: 1.4 ppb at hour 14				Hours of Calibration:		37																																									
Monthly Average: 1.93 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 0.8 Median = 1.5 Q ₃ = 2.6 P ₉₀ = 4.1 P ₉₉ = 7.2				Percent Operational Time:		99.5																																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	0.6	0.8	0.5	0.5	0.5	Z	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.3	0.4	0.4	0.5	0.8	2.7	4.8	1.6	1.4	1.5	1.7	1.0	4.8																							
2-Mar	Z	1.7	1.9	1.9	2.2	4.1	3.2	2.2	7.8	1.4	1.3	0.7	0.6	0.5	0.5	0.4	0.5	0.6	1.6	1.2	0.6	0.3	0.2	0.4	1.6	7.8																							
3-Mar	0.3	Z	0.3	0.3	0.4	0.5	0.5	0.6	0.8	0.9	0.5	0.5	0.5	0.4	0.3	5.3	7.6	5.4	6.4	6.4	6.2	5.7	4.1	3.1	2.5	7.6																							
4-Mar	3.5	2.6	Z	2.6	2.7	2.7	2.4	2.2	2.2	2.2	1.4	1.2	1.3	1.0	1.1	1.3	2.0	2.9	3.4	3.4	3.7	4.4	4.8	5.1	2.6	5.1																							
5-Mar	5.0	4.7	4.1	Z	5.9	5.3	4.7	6.5	PF	PF	PF	PF	2.5	2.3	1.7	2.0	1.3	2.2	2.4	3.6	3.2	3.6	3.8	2.1	3.5	6.5																							
6-Mar	2.5	3.7	7.0	5.0	Z	1.9	2.0	1.8	1.7	2.2	2.0	C	C	C	C	C	C	2.8	1.9	1.5	1.8	4.0	3.0	3.4	--	7.0																							
7-Mar	2.5	3.3	3.8	3.7	4.7	Z	4.5	3.8	3.7	3.2	3.6	2.7	2.4	2.5	2.3	2.6	3.3	3.5	4.5	7.2	8.0	6.3	5.2	4.7	4.0	8.0																							
8-Mar	Z	4.2	4.1	3.6	3.0	3.6	5.9	10.9	9.8	5.3	2.6	2.7	3.3	2.9	2.8	2.3	2.9	3.5	3.4	3.2	2.8	3.2	4.9	3.8	4.1	10.9																							
9-Mar	4.4	Z	13.0	5.4	2.7	3.3	3.7	3.3	3.9	4.5	4.5	4.6	5.0	4.6	3.5	3.4	3.9	5.0	4.4	4.1	3.3	4.1	4.4	5.3	4.5	13.0																							
10-Mar	3.4	3.0	Z	3.8	1.3	1.4	1.2	1.1	1.1	1.0	0.8	0.6	0.6	0.5	0.5	0.3	0.5	0.8	1.8	2.8	2.3	2.1	2.9	2.6	1.6	3.8																							
11-Mar	4.2	2.8	2.4	Z	4.5	1.4	0.7	0.7	1.4	0.7	0.8	1.3	1.4	1.2	1.0	0.9	1.3	1.0	1.2	1.5	1.3	1.3	1.7	1.5	1.6	4.5																							
12-Mar	0.7	1.7	1.5	1.9	Z	1.3	0.8	0.8	0.7	0.5	1.2	0.7	0.8	0.7	0.7	0.8	0.7	1.5	1.2	0.4	0.4	0.5	0.5	0.4	0.9	1.9																							
13-Mar	0.7	0.7	1.1	0.7	1.5	Z	1.4	1.2	0.8	1.1	1.3	1.2	1.7	1.5	2.0	2.2	2.6	2.8	2.1	1.7	1.2	5.0	2.0	1.1	1.6	5.0																							
14-Mar	Z	1.1	1.2	1.4	1.5	1.4	1.7	1.7	1.4	1.0	0.9	1.0	0.9	0.6	0.6	1.1	2.4	2.7	4.0	0.8	0.7	0.5	0.5	0.4	1.3	4.0																							
15-Mar	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	2.4	2.6	1.9	2.2	2.1	1.8	1.9	2.5	2.3	1.0	0.9	0.9	0.7	1.0	1.1	0.7	1.2	2.6																							
16-Mar	0.8	0.6	Z	1.0	1.5	1.3	2.4	2.4	1.0	0.8	0.3	0.3	0.4	0.5	0.3	0.4	0.6	0.4	0.7	0.2	0.2	0.4	0.5	0.4	0.8	2.4																							
17-Mar	0.4	0.8	0.6	Z	2.0	1.4	1.9	2.7	2.2	2.1	2.0	2.0	2.0	1.4	1.4	2.0	2.1	2.4	4.8	4.4	5.2	1.1	1.2	1.4	2.1	5.2																							
18-Mar	1.4	1.4	4.4	4.8	Z	4.2	4.0	1.8	1.3	1.4	2.2	2.8	2.1	2.6	2.7	3.8	4.4	3.9	2.5	1.2	1.0	0.9	1.2	1.9	2.5	4.8																							
19-Mar	1.5	1.1	1.2	1.5	2.5	Z	1.8	1.4	1.5	0.9	0.9	0.8	0.8	1.3	1.9	1.4	1.4	0.9	1.8	2.3	1.4	1.7	1.6	1.6	1.4	2.5																							
20-Mar	Z	1.0	0.5	0.4	1.0	1.2	0.8	2.1	0.8	0.8	1.2	1.0	1.2	1.5	1.2	0.7	0.5	0.4	0.7	0.6	0.5	0.5	0.5	0.8	0.9	2.1																							
21-Mar	0.5	Z	0.6	0.3	0.4	0.5	0.8	1.0	0.6	0.5	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.5	0.7	0.5	1.0	0.7	1.0	1.3	0.6	1.3																							
22-Mar	0.7	0.6	Z	1.0	1.1	1.7	2.3	4.3	1.7	1.7	1.4	2.2	2.0	1.5	2.3	2.1	1.7	0.8	0.8	1.2	0.8	0.9	0.5	0.5	1.5	4.3																							
23-Mar	0.4	0.4	0.5	Z	0.5	5.0	7.5	5.2	2.4	2.3	1.0	1.8	1.5	1.4	1.2	1.4	1.9	2.0	1.2	1.1	1.1	1.7	2.1	1.9	1.9	7.5																							
24-Mar	1.3	1.8	1.8	1.3	Z	3.0	3.1	3.0	2.5	1.8	1.4	1.5	1.8	1.9	1.7	1.7	1.8	1.7	2.0	1.8	1.3	1.0	1.1	0.9	1.8	3.1																							
25-Mar	2.0	1.5	1.9	1.8	1.8	Z	1.4	1.9	1.6	1.2	1.3	1.1	1.0	1.1	1.2	1.3	1.8	1.4	1.6	2.4	2.6	2.0	2.4	2.9	1.7	2.9																							
26-Mar	Z	2.3	2.5	2.8	2.9	2.4	2.4	1.5	1.1	1.5	1.5	1.5	1.5	1.3	1.1	1.2	1.5	1.2	1.5	1.7	1.0	1.2	1.1	1.0	1.6	2.9																							
27-Mar	1.1	Z	0.9	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.6	0.5	0.5	0.4	0.5	0.4	0.4	0.6	0.4	0.4	0.4	0.5	0.5	1.1																							
28-Mar	0.6	0.7	Z	0.6	0.7	0.6	1.1	0.8	0.6	0.3	0.4	0.4	0.5	0.3	0.6	0.4	0.4	0.4	0.4	0.5	0.6	1.7	2.8	4.0	0.8	4.0																							
29-Mar	4.0	4.0	4.0	Z	4.5	4.0	3.8	3.2	3.0	2.6	3.1	4.3	3.2	1.6	1.5	1.9	2.8	2.5	1.8	2.0	2.1	2.0	1.8	2.6	2.9	4.5																							
30-Mar	3.6	1.8	1.9	1.9	Z	5.2	4.7	5.5	4.2	1.4	1.0	0.8	0.9	1.3	1.3	1.5	2.6	2.0	2.1	1.0	1.4	1.0	0.9	0.8	2.1	5.5																							
31-Mar	1.7	3.1	2.2	2.6	2.1	Z	2.1	2.4	2.5	2.1	2.2	2.0	1.1	1.6	2.7	2.8	3.6	3.0	2.4	2.1	2.4	2.8	1.8	1.5	2.3	3.6																							
																								1.9	2.0	2.5	2.0	2.0	2.3	2.4	2.5	2.2	1.6	1.5	1.5	1.5	1.4	1.4	1.6	2.0	1.9	2.2	2.2	2.0	2.0	2.0	2.0	Diurnal Average	
																								5.0	4.7	13.0	5.4	5.9	5.3	7.5	10.9	9.8	5.3	4.5	4.6	5.0	4.6	3.5	5.3	7.6	5.4	6.4	7.2	8.0	6.3	5.2	5.3	Diurnal Maximum	
Z - zerospan C - Calibration PF - Power Failure																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - March 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	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674
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
Totals	45	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674

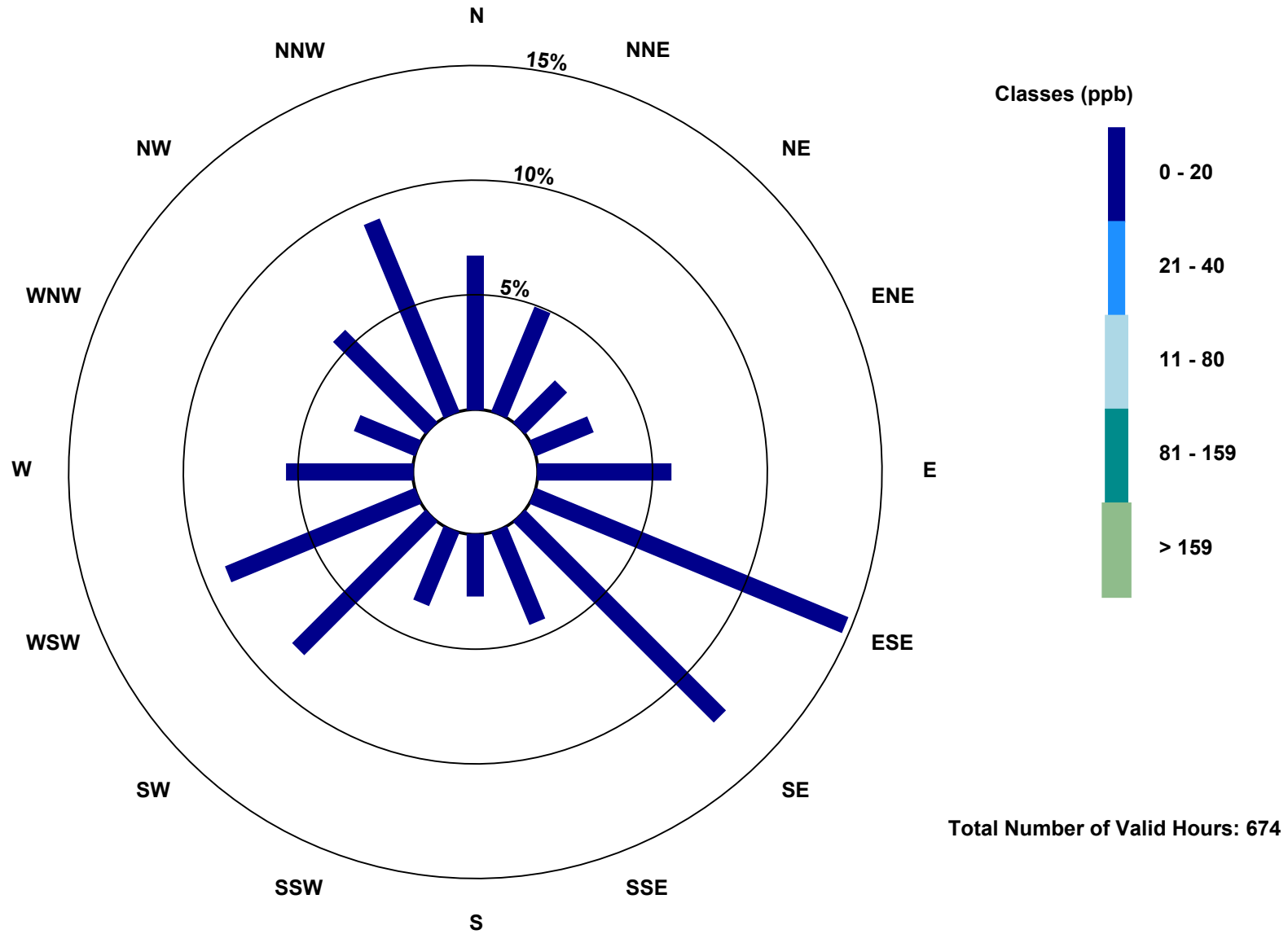
Total Number of Valid Hours: 674

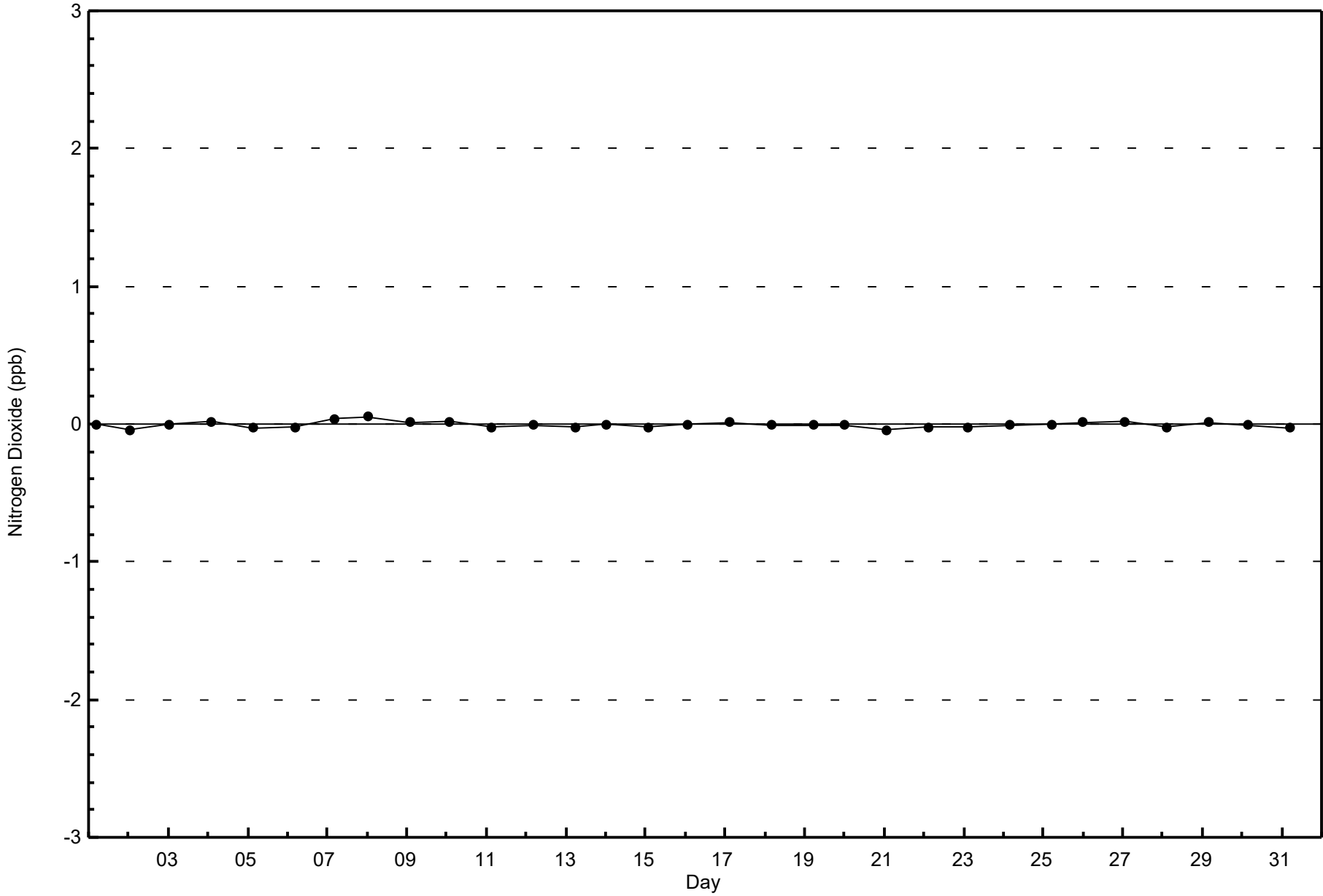
Total Number of Hours: 744

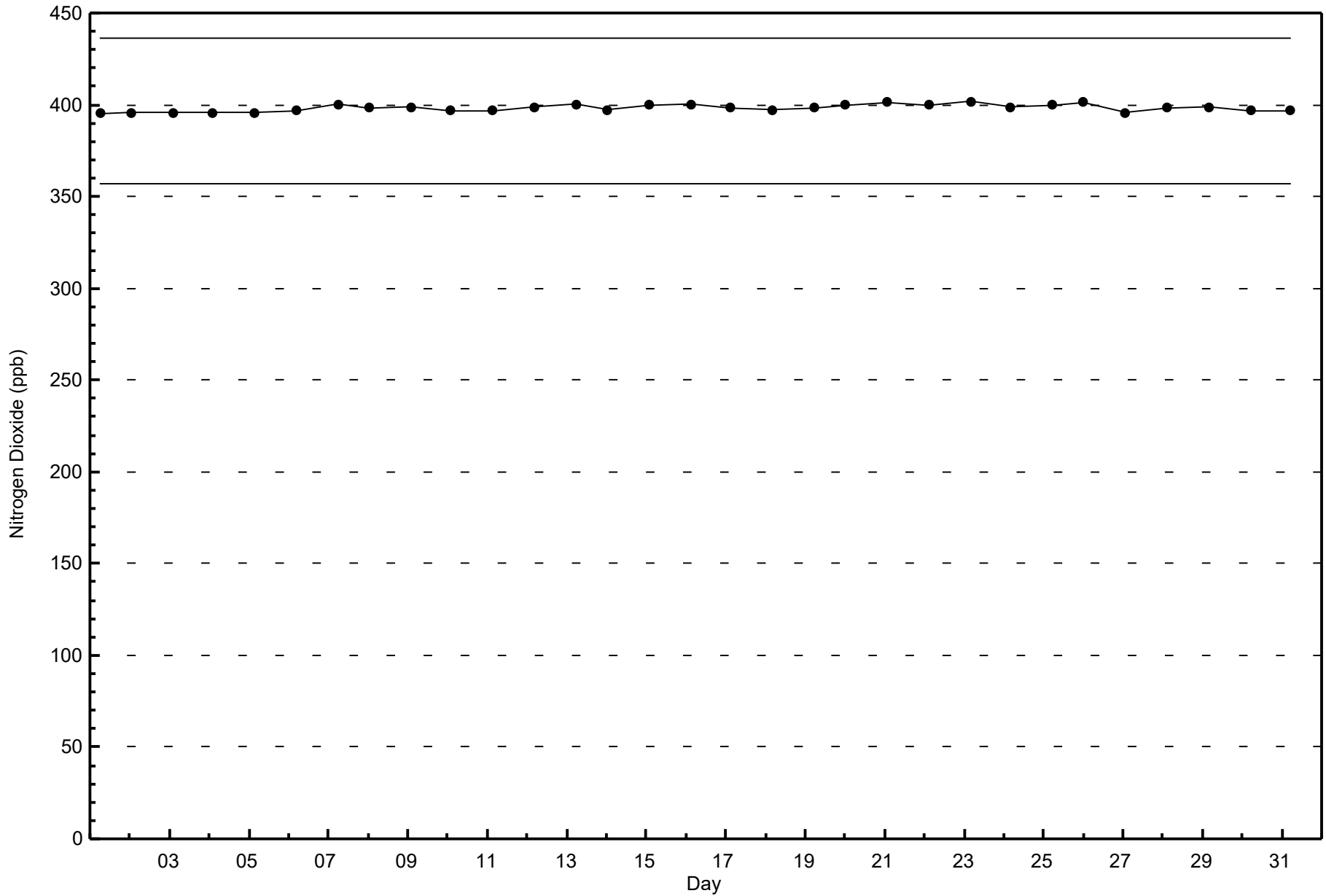


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Surmont 2









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

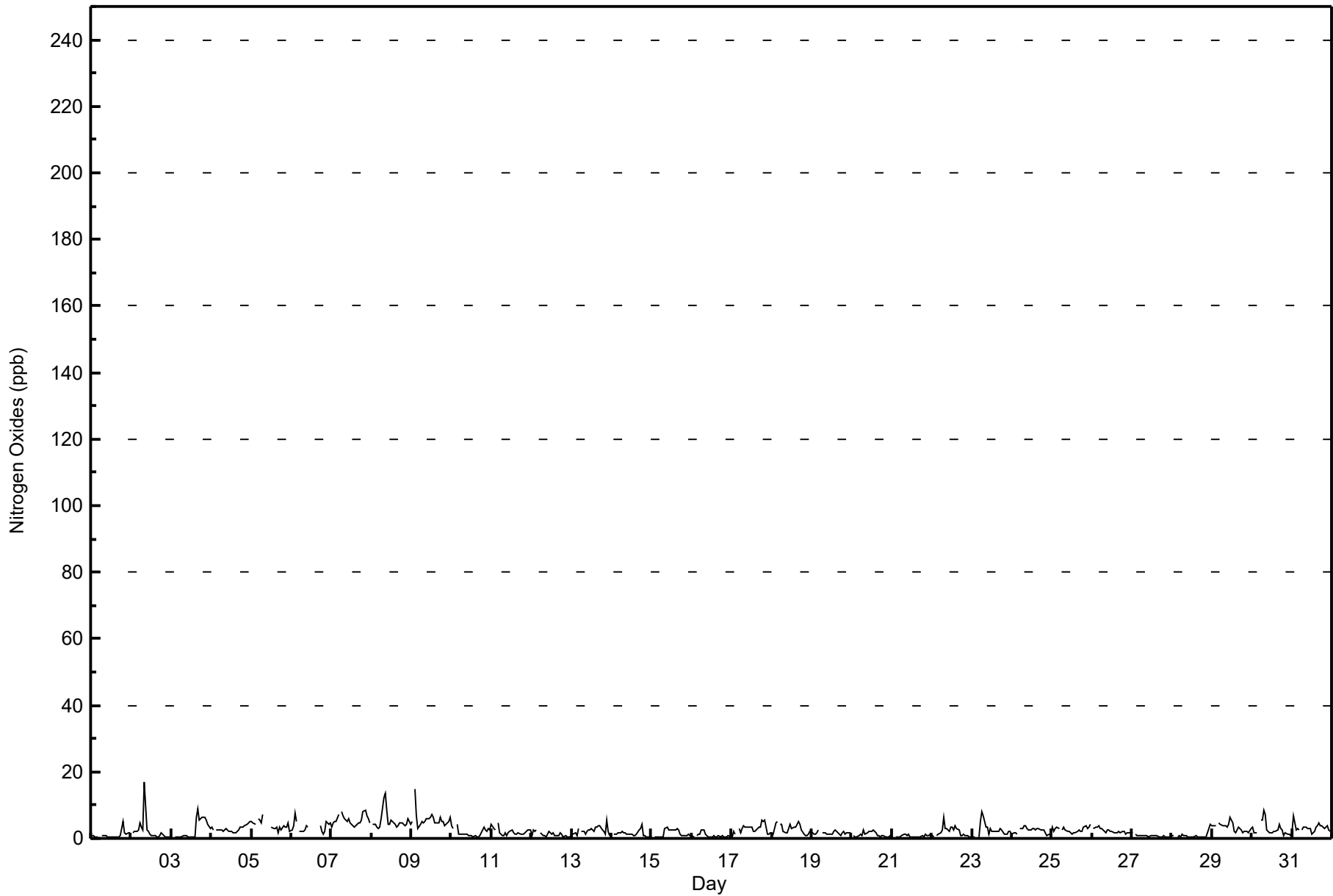
Surmont 2 - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																				
Maximum Value: 16.9 ppb on Mar 2 09:00		Maximum Daily Average: 5.7 ppb on Mar 9														Hours of Data: 703										
Minimum Value: 0.3 ppb on Mar 15 07:00		Minimum Daily Average: 0.7 ppb on Mar 21														Hours of Missing Data: 41										
Maximum Diurnal Average: 3.3 ppb at hour 9		Minimum Diurnal Average: 2.0 ppb at hour 15														Hours of Calibration: 37										
Monthly Average: 2.43 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.5 Q ₁ = 1.0 Median = 2.0 Q ₃ = 3.3 P ₉₀ = 4.8 P ₉₉ = 8.5														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-Mar	0.6	0.8	0.5	0.5	0.5	Z	0.7	0.7	0.8	0.9	0.6	0.5	0.6	0.4	0.5	0.5	0.6	1.0	2.8	4.9	1.7	1.4	1.5	1.7	1.1	4.9
2-Mar	Z	1.8	2.0	1.9	2.3	4.7	3.2	2.4	16.9	2.7	2.2	1.3	0.9	0.7	0.9	0.5	0.5	0.7	1.6	1.2	0.6	0.3	0.3	0.5	2.2	16.9
3-Mar	0.3	Z	0.3	0.3	0.4	0.5	0.5	0.7	0.9	1.0	0.6	0.6	0.6	0.5	0.4	6.4	8.7	5.7	6.5	6.5	6.2	5.7	4.1	3.1	2.6	8.7
4-Mar	3.5	2.6	Z	2.7	2.7	2.7	2.4	2.3	2.5	2.9	2.2	2.0	2.2	1.6	1.7	1.8	2.6	3.3	3.5	3.4	3.7	4.4	4.8	5.1	2.9	5.1
5-Mar	5.0	4.7	4.1	Z	6.0	5.4	4.7	7.1	PF	PF	PF	PF	3.4	3.1	2.9	3.6	1.8	3.2	2.5	3.7	3.2	3.6	4.6	2.1	3.9	7.1
6-Mar	2.6	4.0	7.8	5.2	Z	1.9	2.1	1.9	2.5	3.8	3.4	C	C	C	C	C	C	3.9	2.1	1.5	2.0	5.1	4.1	4.6	--	7.8
7-Mar	3.5	4.6	5.0	4.9	7.1	Z	8.2	6.9	6.0	5.1	6.1	4.6	4.0	3.8	3.6	4.0	4.5	4.8	5.6	8.2	8.5	6.6	5.8	4.7	5.5	8.5
8-Mar	Z	4.2	4.1	3.6	3.0	3.6	6.0	12.1	13.8	8.5	4.3	4.1	5.7	4.8	4.2	3.3	4.0	4.8	4.5	4.3	3.7	4.4	5.8	4.3	5.3	13.8
9-Mar	5.1	Z	14.7	6.8	2.8	4.2	5.1	4.6	5.1	5.9	6.0	6.4	7.2	6.3	4.8	4.8	4.8	6.2	5.2	5.1	4.0	4.7	5.0	6.5	5.7	14.7
10-Mar	3.7	3.1	Z	4.4	1.4	1.5	1.2	1.2	1.3	1.2	1.0	0.8	0.7	0.6	0.6	0.4	0.6	0.9	1.8	3.4	2.4	2.2	3.0	2.7	1.8	4.4
11-Mar	4.4	2.9	2.5	Z	4.6	1.5	0.8	0.8	1.5	1.0	1.5	2.2	2.4	1.6	1.3	1.1	1.9	1.1	1.3	1.5	1.6	1.9	2.7	2.5	1.9	4.6
12-Mar	1.0	2.5	2.2	2.7	Z	1.8	1.1	1.0	1.0	0.6	2.2	1.5	1.1	1.5	1.0	0.9	0.8	1.6	1.2	0.5	0.7	0.6	0.5	0.5	1.2	2.7
13-Mar	1.1	1.1	1.6	1.0	3.0	Z	2.2	2.2	1.5	2.1	2.7	2.4	2.8	2.3	3.2	3.4	4.0	3.9	2.6	2.0	1.3	5.7	2.1	1.1	2.4	5.7
14-Mar	Z	1.2	1.3	1.5	1.6	1.5	1.9	1.9	1.8	1.3	1.1	1.2	1.2	0.8	0.7	1.3	2.7	3.1	4.4	0.8	0.7	0.5	0.5	0.4	1.4	4.4
15-Mar	0.4	Z	0.5	0.5	0.3	0.4	0.3	0.3	2.8	3.3	2.4	2.7	2.5	2.4	2.4	3.0	2.6	1.1	0.9	0.9	0.7	1.0	1.1	0.7	1.4	3.3
16-Mar	0.8	0.6	Z	1.0	1.5	1.3	2.5	2.6	1.2	1.0	0.5	0.5	0.6	0.9	0.4	0.6	1.0	0.5	0.8	0.4	0.4	0.5	0.7	0.6	0.9	2.6
17-Mar	0.6	1.9	1.4	Z	3.1	1.7	3.1	4.0	3.4	3.3	3.2	3.5	3.4	2.3	2.2	3.0	3.2	3.3	5.5	4.9	5.5	1.2	1.3	1.5	2.9	5.5
18-Mar	1.5	1.5	4.5	4.9	Z	4.3	4.1	2.0	1.7	1.9	3.2	4.3	3.1	3.6	3.4	4.3	5.0	4.3	2.6	1.2	1.0	0.9	1.2	1.9	2.9	5.0
19-Mar	1.5	1.1	1.2	1.5	2.5	Z	1.8	1.5	1.8	1.3	1.3	1.2	1.1	1.9	2.7	1.9	1.8	1.0	1.8	2.3	1.4	1.7	1.6	1.6	1.6	2.7
20-Mar	Z	1.0	0.5	0.4	1.0	1.2	0.8	2.6	1.2	1.7	2.0	1.9	1.9	2.6	1.9	1.0	0.7	0.4	0.9	0.7	0.5	0.5	0.5	0.9	1.2	2.6
21-Mar	0.6	Z	0.6	0.3	0.4	0.5	1.0	1.4	1.2	0.9	1.1	0.5	0.6	0.3	0.4	0.5	0.3	0.6	0.7	0.5	1.1	0.7	1.0	1.3	0.7	1.4
22-Mar	0.7	0.6	Z	1.0	1.1	1.8	2.4	6.2	2.8	2.8	2.3	3.4	3.3	2.7	3.6	3.0	2.6	1.1	0.9	1.2	0.8	1.0	0.6	0.5	2.0	6.2
23-Mar	0.4	0.4	0.5	Z	0.5	5.0	7.9	6.6	3.3	3.3	1.4	2.8	2.1	1.9	2.2	2.0	2.1	2.8	2.5	1.2	1.1	1.1	1.9	2.2	2.4	7.9
24-Mar	1.3	1.8	1.8	1.3	Z	3.0	3.2	3.7	3.8	2.9	2.3	2.5	3.0	3.1	2.6	2.9	2.9	2.5	2.5	2.5	1.7	1.1	1.3	1.3	2.4	3.8
25-Mar	3.2	2.2	2.9	3.2	3.1	Z	2.7	3.4	2.7	2.1	2.2	1.8	1.5	1.8	1.8	2.1	2.5	2.1	2.3	3.6	3.8	2.9	3.5	4.2	2.7	4.2
26-Mar	Z	3.0	3.5	3.3	4.0	3.0	3.1	2.2	1.8	2.7	2.4	2.3	2.2	1.8	1.5	1.7	2.2	1.6	2.2	2.1	1.4	1.7	1.5	1.6	2.3	4.0
27-Mar	1.5	Z	1.3	0.9	0.8	0.7	0.6	0.7	0.6	0.7	0.6	0.7	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.8	0.5	0.5	0.4	0.5	0.7	1.5
28-Mar	0.7	0.7	Z	0.6	0.7	0.6	1.1	0.9	0.7	0.4	0.4	0.6	0.6	0.4	0.7	0.5	0.5	0.4	0.4	0.5	0.6	1.7	2.8	4.1	0.9	4.1
29-Mar	4.0	4.0	4.0	Z	4.5	4.1	4.0	3.7	3.7	3.5	4.2	6.2	4.8	2.2	1.9	2.3	3.2	2.7	1.9	2.0	2.1	2.0	1.8	2.8	3.3	6.2
30-Mar	3.6	1.8	1.9	1.9	Z	5.4	5.6	8.7	7.0	2.6	1.7	1.5	1.6	2.0	2.0	2.5	4.4	3.1	2.7	1.0	1.6	1.3	1.1	0.9	2.9	8.7
31-Mar	2.2	6.8	2.6	2.9	2.5	Z	2.7	3.3	3.4	3.0	3.1	3.0	1.4	2.1	3.5	3.6	4.7	3.8	3.7	3.0	3.4	3.7	2.4	2.0	3.2	6.8
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan		C - Calibration				PF - Power Failure																				



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Surmont 2 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Surmont 2 - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	100.00	100.00
21 - 40	0	0.00	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Surmont 2 - March 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	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674
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
Totals	45	33	17	18	39	99	83	29	18	23	55	60	37	19	38	61	674

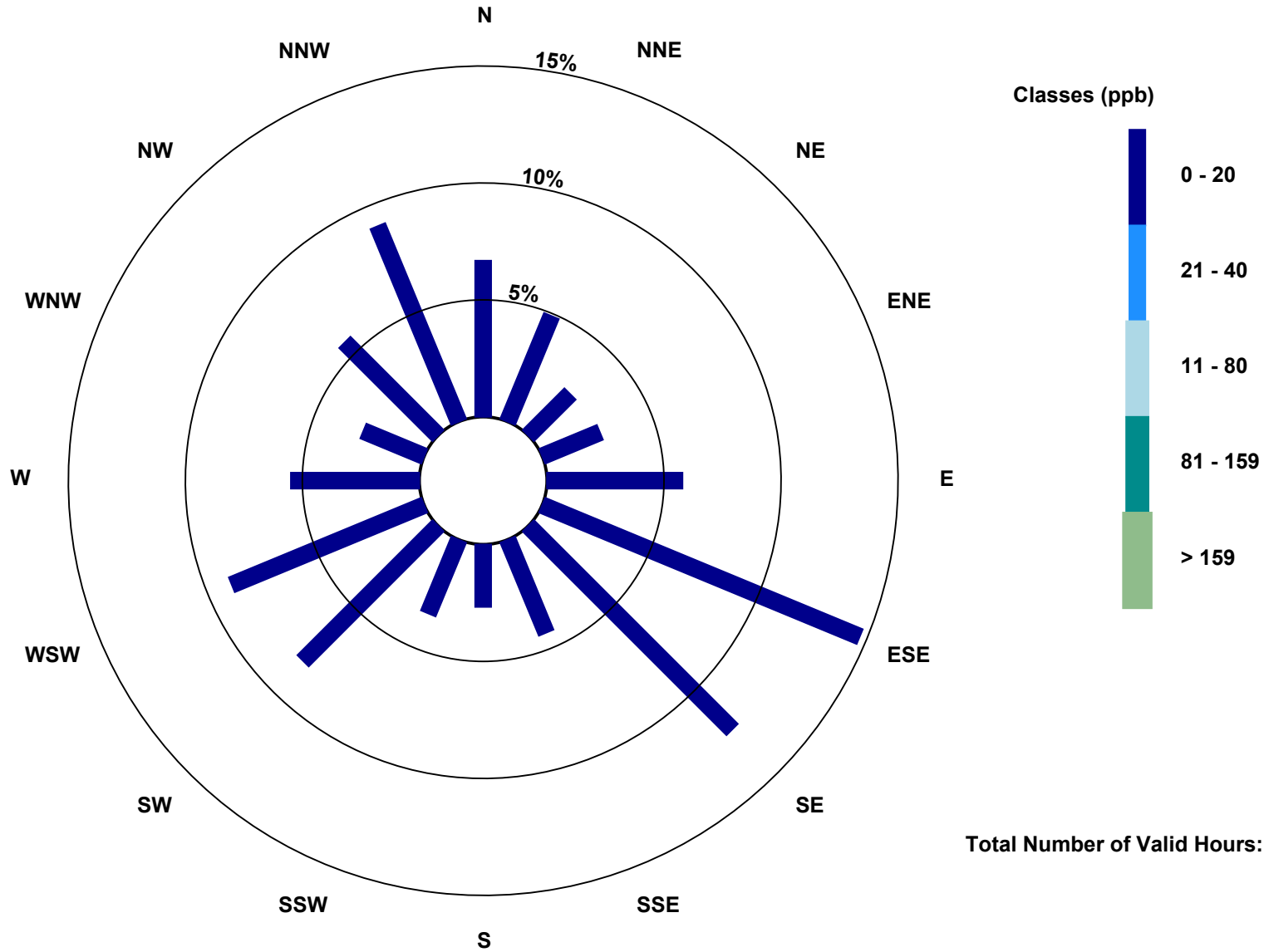
Total Number of Valid Hours: 674

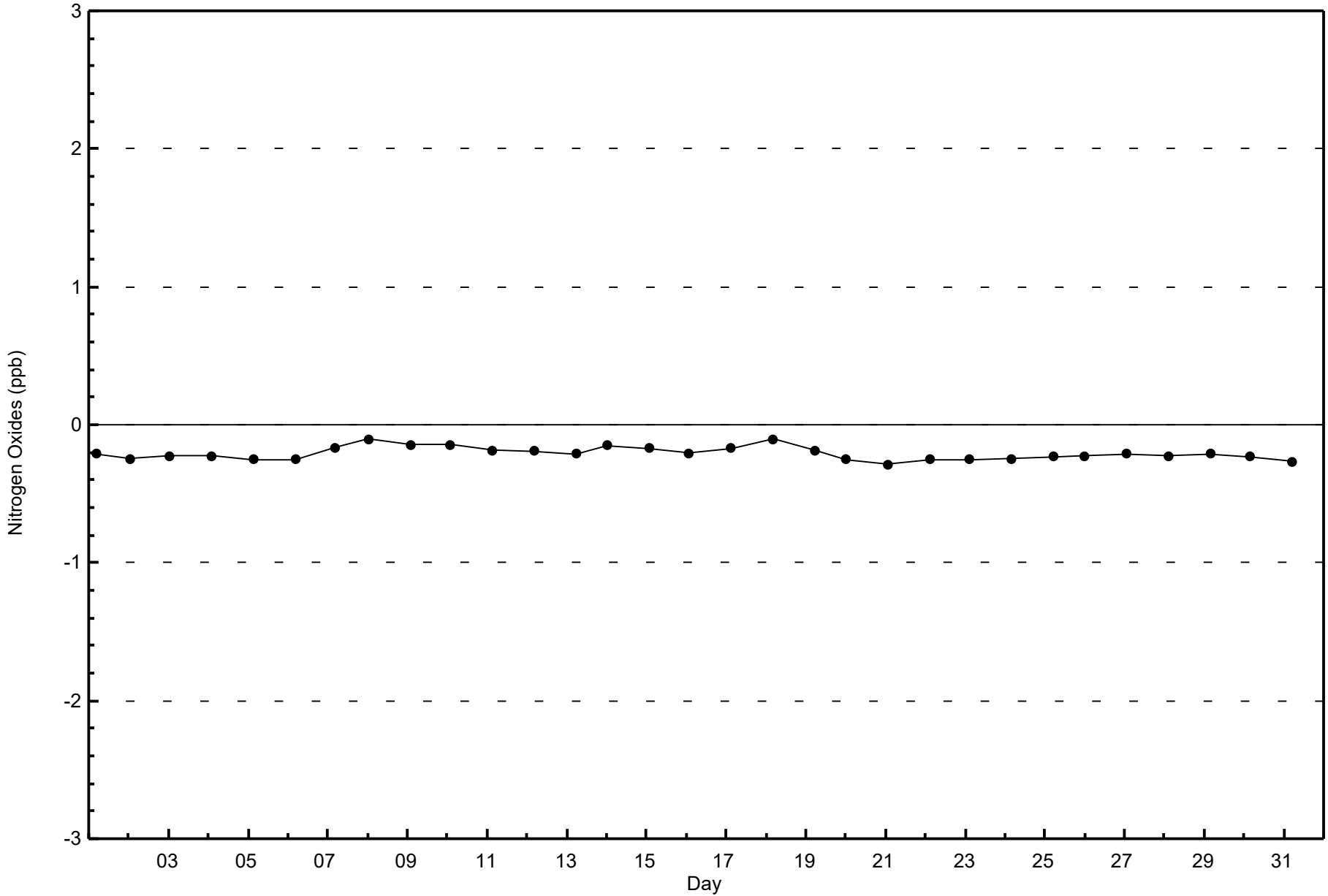
Total Number of Hours: 744

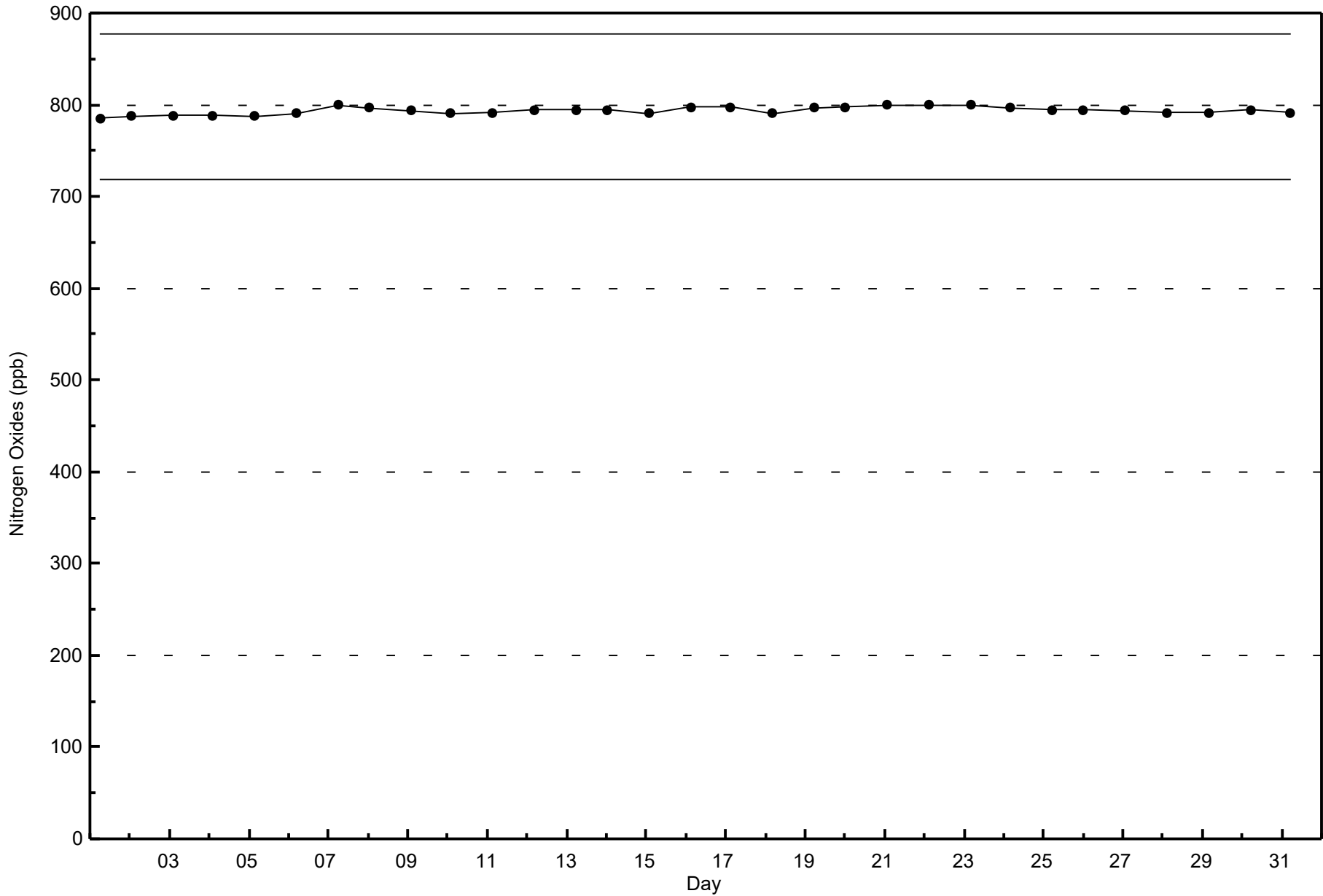


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Surmont 2









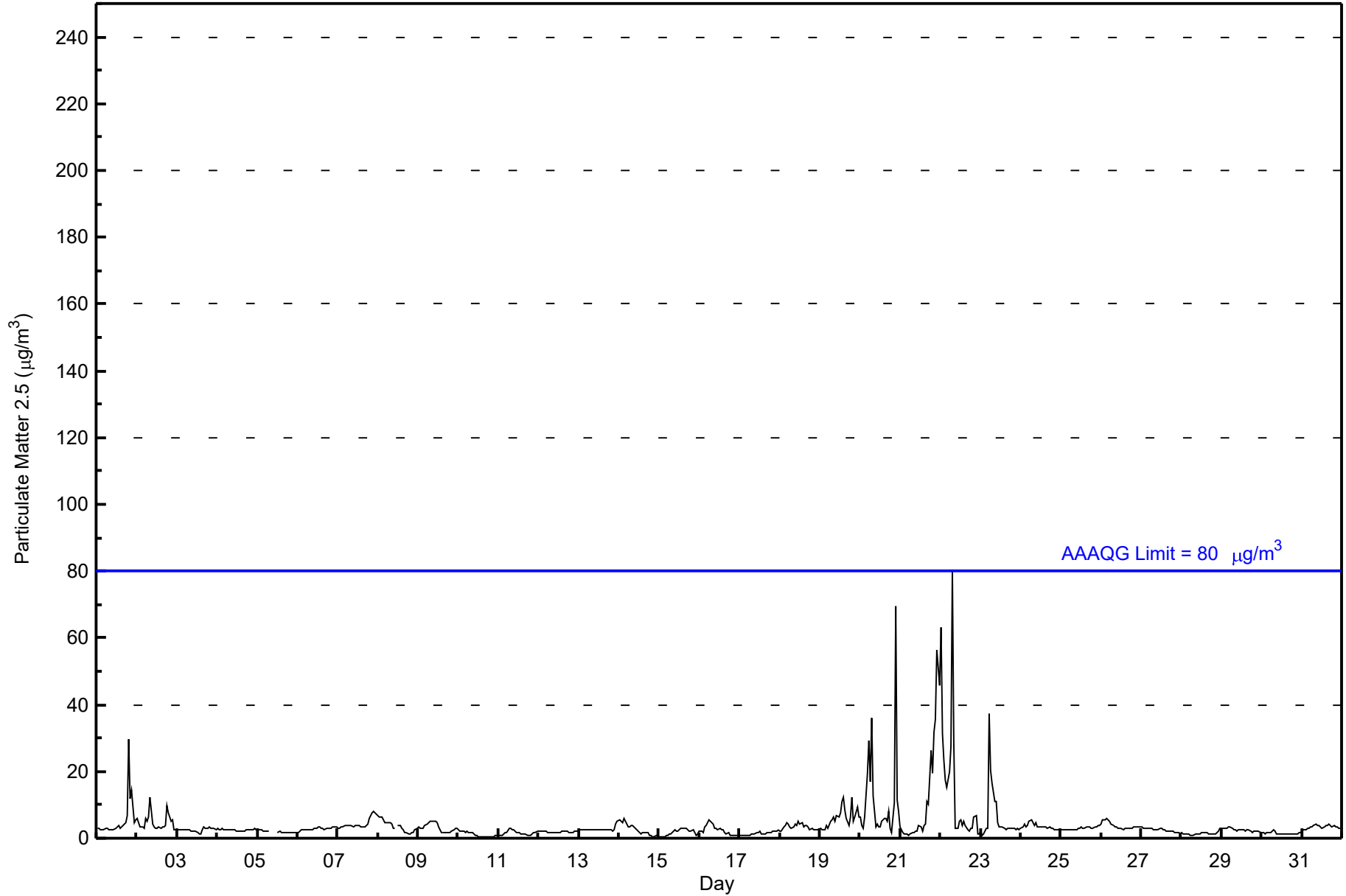
Wood Buffalo Environmental Association

Summary of Hour Averages

Particulate Matter 2.5 (PM_{2.5}) - µg/m³

Surmont 2 - March 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 739																												
Maximum Value: 80.0 µg/m ³ on Mar 22 08:00		Maximum Daily Average: 15.1 µg/m ³ on Mar 22																	Hours of Missing Data: 5																														
Minimum Value: 0.3 µg/m ³ on Mar 10 15:00		Minimum Daily Average: 1.1 µg/m ³ on Mar 10																	Hours of Calibration: 1																														
Maximum Diurnal Average: 7.1 µg/m ³ at hour 8		Minimum Diurnal Average: 2.8 µg/m ³ at hour 16																	Percent Operational Time: 99.5																														
Monthly Average: 3.95 µg/m ³		Percentiles: P ₁ = 0.5 P ₁₀ = 1.3 Q ₁ = 1.9 Median = 2.7 Q ₃ = 3.5 P ₉₀ = 5.5 P ₉₉ = 34.1																																															
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-Mar	2.9	2.8	2.6	2.6	2.6	2.8	3.0	2.7	2.7	2.7	2.7	2.8	3.5	3.7	3.1	3.4	4.4	4.6	6.8	29.5	12.0	14.3	4.6	5.5	5.4	29.5																							
2-Mar	6.0	4.7	3.6	3.3	3.1	5.8	5.3	6.5	12.3	4.2	3.2	3.0	3.1	3.3	3.0	3.4	3.4	3.7	9.7	7.5	5.0	5.3	2.7	2.6	4.7	12.3																							
3-Mar	2.7	2.4	2.4	2.5	2.4	2.3	2.4	2.4	2.3	2.2	2.0	1.5	1.3	1.3	2.5	3.2	2.9	3.1	3.3	3.2	3.1	2.9	2.7	2.5	3.3	2.5	3.3																						
4-Mar	2.8	2.7	2.6	2.8	2.7	2.7	2.6	2.6	2.5	2.6	2.5	2.3	2.3	2.1	2.1	2.3	2.4	2.5	2.4	2.6	2.7	2.8	2.7	2.5	2.8	2.5	2.8																						
5-Mar	2.6	2.6	2.5	2.2	2.1	2.1	1.9	2.0	PF	PF	PF	PF	1.8	1.9	1.7	1.7	1.7	1.8	1.8	1.8	1.7	1.9	1.7	1.7	2.0	2.6	2.0	2.6																					
6-Mar	1.6	2.1	2.6	2.4	2.6	2.6	2.5	2.5	2.5	2.6	2.8	3.1	3.4	3.5	3.0	2.8	2.7	2.8	2.9	3.0	3.1	3.4	3.2	3.3	2.8	3.5	2.8	3.5																					
7-Mar	2.9	3.0	3.3	3.5	3.7	3.8	3.9	3.8	3.7	3.6	3.6	3.7	3.8	3.8	3.5	3.2	3.5	3.8	4.4	6.1	7.7	8.2	7.7	7.3	4.4	8.2	4.4	8.2																					
8-Mar	6.8	6.6	6.2	5.5	4.6	4.8	4.6	4.5	4.0	3.1	3.1	C	3.8	3.6	3.0	2.5	1.8	1.5	1.2	1.1	1.5	1.6	2.5	2.9	3.5	6.8	3.5	6.8																					
9-Mar	3.3	3.1	2.8	3.1	3.8	4.2	4.5	4.9	5.0	5.2	5.3	4.7	3.5	2.5	1.8	1.7	1.7	1.6	1.6	1.8	2.1	2.7	3.1	2.8	3.2	5.3	3.2	5.3																					
10-Mar	2.3	2.3	2.2	2.1	1.8	1.9	1.7	1.6	1.6	1.3	1.0	0.8	0.5	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.6	0.6	0.8	0.9	1.1	2.3	1.1	2.3																					
11-Mar	0.8	0.8	1.0	1.4	1.9	1.8	2.8	3.1	2.7	2.4	2.0	1.7	1.7	1.5	1.4	1.3	1.2	1.0	0.9	1.0	1.2	1.5	1.8	1.9	1.6	3.1	1.6	3.1																					
12-Mar	2.1	2.2	2.2	2.2	1.9	1.8	1.9	1.7	1.7	1.7	1.7	1.6	1.6	1.7	2.0	2.0	2.0	1.9	1.8	1.8	1.8	2.0	2.2	2.3	1.9	2.3	1.9	2.3																					
13-Mar	2.3	2.3	2.4	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.5	2.5	2.6	2.5	2.2	2.4	4.4	5.0	2.6	5.0	2.6	5.0																					
14-Mar	5.3	5.2	4.9	5.8	5.0	3.5	3.5	4.0	3.6	3.6	3.2	2.0	1.8	1.3	1.7	1.5	1.7	1.0	0.9	0.6	0.5	0.6	0.6	0.6	2.6	5.8	2.6	5.8																					
15-Mar	0.6	0.5	0.6	0.5	0.7	1.0	1.2	1.3	1.7	2.5	2.2	2.2	2.7	2.9	3.1	3.0	2.9	2.5	2.0	2.2	2.6	1.9	1.0	1.3	1.8	3.1	1.8	3.1																					
16-Mar	2.1	2.0	1.8	3.5	3.9	4.6	5.3	4.7	4.1	2.8	3.0	2.6	3.1	2.6	2.6	1.8	1.1	1.5	1.0	0.8	0.9	0.9	0.9	1.0	2.4	5.3	2.4	5.3																					
17-Mar	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.2	1.3	1.5	1.5	1.6	1.9	1.4	1.3	1.3	1.6	1.5	1.5	1.9	2.3	2.2	2.1	2.4	1.4	2.4	1.4	2.4																					
18-Mar	2.1	2.1	3.2	3.9	4.5	4.2	3.5	3.0	3.4	4.3	3.8	4.9	4.2	4.5	3.5	3.9	3.9	3.2	2.7	3.0	2.6	2.5	2.6	2.7	3.4	4.9	3.4	4.9																					
19-Mar	2.9	2.6	2.6	2.7	3.8	3.2	5.1	5.3	6.2	5.2	6.8	6.4	7.6	11.2	12.2	8.5	6.1	3.9	6.3	12.3	5.1	6.3	9.2	6.2	6.1	12.3	6.1	12.3																					
20-Mar	6.3	4.0	2.8	6.5	19.6	29.4	17.0	35.9	12.7	3.3	4.4	3.5	3.5	4.9	6.0	6.1	5.1	8.1	2.8	1.6	10.6	69.5	11.6	7.9	11.8	69.5	11.8	69.5																					
21-Mar	3.2	1.9	1.1	1.1	1.3	1.0	1.3	1.8	1.8	1.9	2.1	3.8	3.3	2.2	3.7	4.2	11.0	10.3	26.5	19.6	31.9	35.4	56.3	46.0	11.4	56.3	11.4	56.3																					
22-Mar	63.3	31.2	23.4	17.4	15.2	19.8	27.5	80.0	28.9	2.9	3.0	4.9	5.5	3.8	5.3	3.7	2.7	2.1	2.9	2.9	6.4	6.6	1.2	1.3	15.1	80.0	15.1	80.0																					
23-Mar	2.1	1.0	1.1	3.0	2.8	37.2	20.3	16.6	10.8	11.0	4.6	3.3	3.4	3.6	2.8	2.6	2.9	3.0	3.1	3.2	3.0	2.8	2.9	2.7	6.2	37.2	6.2	37.2																					
24-Mar	2.8	3.4	4.2	3.5	3.7	4.9	5.4	4.8	3.7	4.7	3.6	3.4	3.5	3.5	3.4	3.3	3.1	3.2	3.0	2.9	2.7	2.7	2.5	2.6	3.5	5.4	3.5	5.4																					
25-Mar	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.9	3.0	3.2	3.2	3.1	3.3	3.4	3.2	3.1	3.1	3.2	3.4	3.7	3.9	3.0	3.9	3.0	3.9																					
26-Mar	4.4	5.4	5.6	5.8	5.6	5.1	4.2	3.8	3.5	3.3	3.1	3.0	3.0	2.7	2.9	2.8	2.8	2.9	3.1	3.4	3.2	3.5	3.3	3.3	3.7	5.8	3.7	5.8																					
27-Mar	3.2	3.2	3.1	3.0	2.9	2.8	2.8	2.5	2.4	2.7	2.7	2.8	2.8	2.5	2.3	2.2	2.0	1.9	2.0	2.0	1.8	1.6	1.5	1.4	2.4	3.2	2.4	3.2																					
28-Mar	1.5	1.4	1.4	1.2	1.1	1.0	1.0	1.1	1.1	1.1	1.3	1.5	1.7	1.7	1.7	1.6	1.4	1.4	1.4	1.4	1.4	1.4	1.6	2.0	1.4	2.9	1.4	2.9																					
29-Mar	2.8	2.9	2.8	3.1	3.4	3.3	3.0	2.6	2.6	1.9	2.5	2.4	2.7	2.4	2.1	2.4	2.5	2.3	1.7	2.1	2.2	2.1	2.1	1.9	2.5	3.4	2.5	3.4																					
30-Mar	1.8	1.6	1.5	1.6	1.6	1.8	2.0	2.5	2.0	1.3	1.3	1.3	1.4	1.4	1.4	1.3	1.2	1.2	1.2	1.4	1.4	1.5	1.7	1.8	1.6	2.5	1.6	2.5																					
31-Mar	2.0	2.5	2.6	2.9	3.0	3.3	3.5	3.9	4.2	3.9	3.6	3.3	3.0	3.4	4.0	3.9	4.4	3.9	3.4	3.6	3.4	3.6	3.1	2.9	3.4	4.4	3.4	4.4																					
																								4.8	3.6	3.3	3.4	3.8	5.4	4.8	7.1	4.7	3.2	2.9	2.9	2.9	3.0	2.8	2.9	2.9	3.5	4.2	4.2	6.4	4.8	4.3	Diurnal Average		
																								63.3	31.2	23.4	17.4	19.6	37.2	27.5	80.0	28.9	11.0	6.8	6.4	7.6	11.2	12.2	8.5	11.0	10.3	26.5	29.5	31.9	69.5	56.3	46.0	Diurnal Maximum	
C - Calibration																								PF - Power Failure																									
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Surmont 2 - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	666	90.12	90.12
6 - 15	50	6.77	96.89
16 - 25	8	1.08	97.97
26 - 80	15	2.03	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Surmont 2 - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	38	28	17	18	37	99	84	28	19	24	45	51	33	19	36	57	633
6 - 15	9	4	1	0	2	3	0	1	0	1	6	7	4	1	4	5	48
16 - 25	0	0	0	1	0	0	0	0	1	0	1	3	0	0	0	1	7
26 - 80	0	1	0	0	1	2	0	0	0	0	6	2	2	0	0	1	15
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	47	33	18	19	40	104	84	29	20	25	58	63	39	20	40	64	703

Total Number of Valid Hours: 703

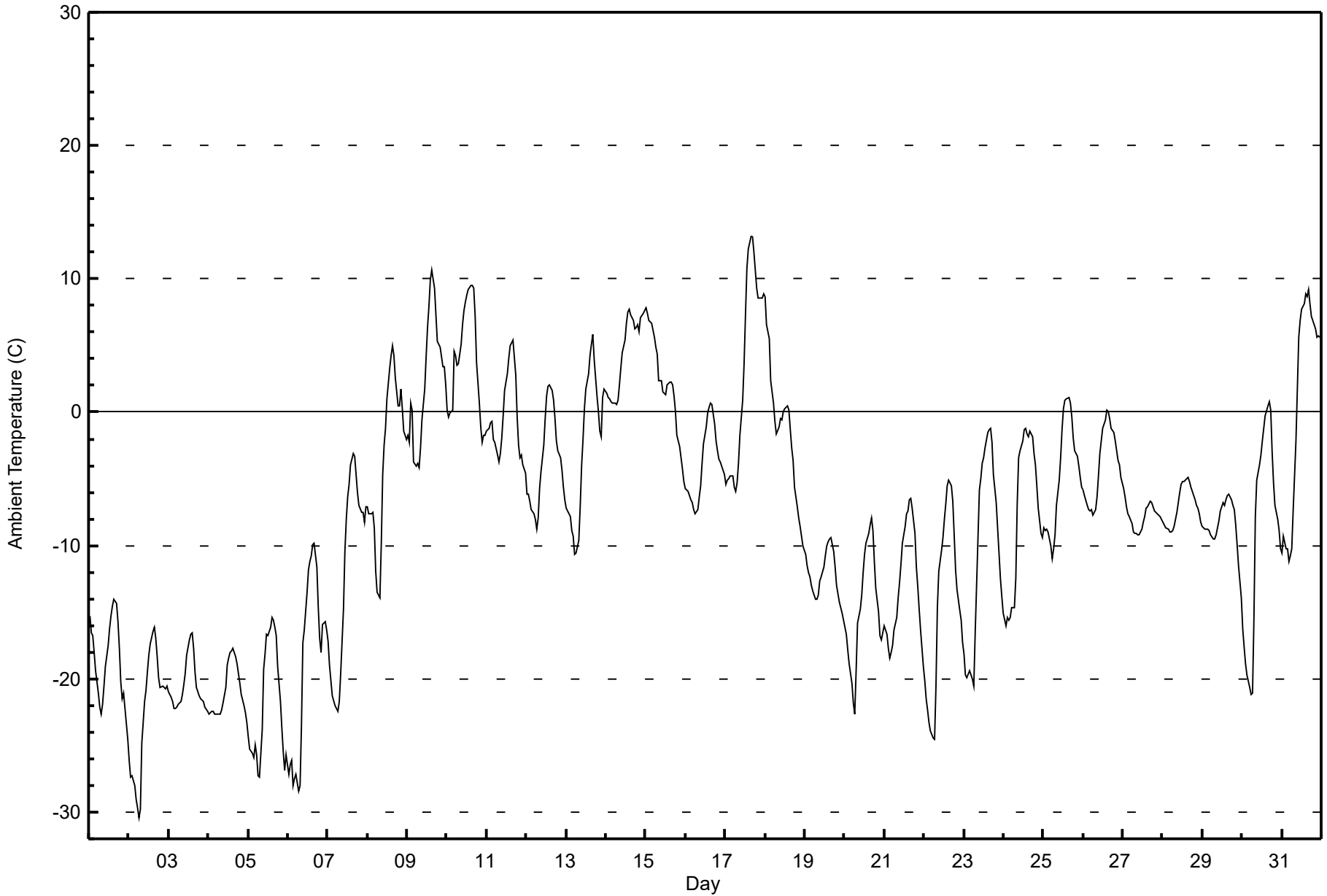
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature (AT) - C
Surmont 2 - March 2024

Maximum Value: 13.2 C on Mar 17 17:00		Maximum Daily Average: 4.4 C on Mar 14		Hours in Service: 744																						
Minimum Value: -30.4 C on Mar 2 07:00		Minimum Daily Average: -22.6 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -2.4 C at hour 16		Minimum Diurnal Average: -13.2 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -7.96 C		Percentiles: P ₁ = -27.8 P ₁₀ = -21.5 Q ₁ = -15.6 Median = -7.3 Q ₃ = -1.2 P ₉₀ = 4.5 P ₉₉ = 9.7		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-Mar	-15.3	-16.6	-16.8	-18.0	-19.4	-21.1	-22.2	-22.6	-21.9	-20.6	-19.1	-17.5	-16.3	-15.3	-14.6	-14.0	-14.4	-15.7	-17.7	-20.2	-21.5	-21.1	-23.4	-24.5	-18.7	-14.0
2-Mar	-26.1	-27.4	-27.2	-28.0	-29.0	-29.7	-30.4	-29.8	-24.9	-21.7	-20.9	-19.5	-18.3	-17.4	-16.4	-16.2	-16.9	-18.4	-19.9	-20.6	-20.5	-20.6	-20.8	-20.6	-22.6	-16.2
3-Mar	-21.0	-21.4	-21.7	-22.2	-22.3	-22.1	-22.0	-21.7	-21.2	-20.4	-19.6	-18.2	-17.1	-16.6	-16.5	-17.7	-19.5	-20.6	-21.3	-21.5	-21.5	-21.7	-22.1	-22.5	-20.5	-16.5
4-Mar	-22.7	-22.5	-22.4	-22.4	-22.6	-22.7	-22.7	-22.6	-22.3	-21.8	-20.7	-19.0	-18.4	-18.0	-17.9	-17.7	-18.3	-18.8	-19.6	-20.3	-21.1	-22.0	-22.6	-23.3	-20.9	-17.7
5-Mar	-24.3	-25.2	-25.6	-25.9	-24.9	-25.7	-27.2	-27.3	-23.8	-19.8	-18.2	-16.7	-16.8	-16.1	-15.4	-15.6	-16.2	-16.8	-19.1	-21.7	-23.7	-25.5	-26.8	-25.7	-21.8	-15.4
6-Mar	-27.2	-26.4	-26.1	-28.0	-27.4	-27.2	-28.4	-28.0	-23.5	-17.3	-16.4	-13.5	-11.9	-11.2	-10.8	-9.9	-9.8	-11.7	-14.7	-16.9	-18.0	-15.9	-15.7	-16.4	-18.8	-9.8
7-Mar	-17.2	-19.0	-20.1	-21.3	-22.0	-22.2	-22.4	-21.7	-19.6	-14.8	-10.4	-8.0	-6.4	-5.4	-4.0	-3.1	-3.3	-4.7	-6.0	-7.0	-7.5	-7.6	-8.2	-7.1	-12.0	-3.1
8-Mar	-7.1	-7.6	-7.6	-7.5	-8.6	-11.9	-13.6	-13.9	-9.8	-4.7	-2.5	-1.2	1.0	3.3	4.3	5.0	4.2	2.6	0.5	0.5	1.7	0.2	-1.4	-2.1	-3.2	5.0
9-Mar	-1.7	-2.3	0.7	0.1	-3.8	-4.1	-3.8	-4.1	-2.7	-0.6	1.7	4.2	6.3	7.9	9.9	10.7	9.3	7.3	5.3	5.1	4.8	3.4	3.4	2.1	2.5	10.7
10-Mar	0.1	-0.3	0.0	0.2	4.6	4.3	3.5	3.6	5.1	6.6	7.6	8.3	8.8	9.2	9.5	9.6	9.3	7.2	3.7	0.7	-1.1	-2.3	-1.8	-1.7	3.9	9.6
11-Mar	-1.4	-1.2	-0.8	-0.7	-2.0	-2.3	-3.2	-3.7	-3.1	-1.9	-0.3	1.6	2.9	4.0	4.9	5.2	5.4	2.8	-0.4	-2.5	-3.5	-3.3	-4.0	-4.6	-0.5	5.4
12-Mar	-6.1	-6.1	-6.7	-7.3	-7.6	-8.1	-8.8	-8.0	-5.8	-4.4	-2.5	-0.5	1.2	1.9	2.1	1.7	0.9	-0.5	-2.2	-2.9	-3.4	-4.4	-5.6	-6.5	-3.7	2.1
13-Mar	-7.1	-7.4	-7.9	-8.9	-9.3	-10.6	-10.6	-9.6	-7.1	-4.0	-2.1	0.2	1.7	2.9	4.3	5.1	5.8	3.9	1.2	0.0	-1.5	-1.8	1.1	1.7	-2.5	5.8
14-Mar	1.4	1.1	1.0	0.8	0.7	0.6	0.5	0.9	2.1	3.3	4.4	5.4	6.7	7.5	7.7	7.3	6.9	6.3	6.6	6.0	7.1	7.4	7.6	4.4	7.7	
15-Mar	7.8	7.4	6.9	6.6	6.1	5.6	4.9	4.3	2.4	2.3	1.5	1.5	1.3	2.1	2.2	2.2	2.1	1.2	0.0	-1.7	-2.6	-3.5	-4.3	-5.2	2.1	7.8
16-Mar	-5.8	-5.9	-6.3	-6.6	-6.8	-7.3	-7.6	-7.3	-6.3	-5.5	-3.9	-2.4	-1.1	-0.1	0.4	0.6	0.6	-0.9	-2.1	-2.9	-3.6	-3.7	-4.1	-4.7	-3.9	0.6
17-Mar	-5.4	-5.1	-5.0	-4.8	-4.8	-5.6	-5.9	-5.3	-3.9	-1.7	0.9	3.7	7.3	10.8	12.2	13.2	13.2	12.0	10.7	9.3	8.5	8.6	8.6	8.9	3.3	13.2
18-Mar	8.7	6.6	5.5	2.3	1.5	0.7	-0.7	-1.6	-1.1	-0.5	-0.6	0.1	0.3	0.5	0.2	-1.4	-2.7	-3.7	-5.6	-7.1	-8.0	-8.6	-9.3	-10.0	-1.4	8.7
19-Mar	-10.7	-11.6	-12.0	-12.4	-13.0	-13.4	-14.1	-14.1	-13.7	-12.7	-12.3	-11.6	-10.8	-10.0	-9.7	-9.5	-9.4	-10.5	-11.6	-13.0	-13.6	-14.2	-15.1	-15.6	-12.3	-9.4
20-Mar	-16.2	-16.7	-17.8	-18.9	-20.4	-21.8	-22.6	-19.4	-15.8	-14.7	-13.8	-12.0	-10.7	-9.8	-9.1	-8.5	-7.9	-8.9	-11.2	-13.2	-14.9	-16.8	-17.1	-16.5	-14.8	-7.9
21-Mar	-16.0	-16.7	-17.7	-18.4	-18.0	-17.5	-16.4	-15.4	-13.9	-12.7	-11.4	-9.8	-8.5	-7.6	-7.4	-6.6	-6.5	-7.2	-9.1	-11.6	-13.1	-14.8	-16.3	-19.1	-13.0	-6.5
22-Mar	-20.1	-21.5	-22.4	-23.3	-23.9	-24.5	-24.6	-20.5	-14.7	-11.9	-10.3	-9.5	-8.1	-6.9	-5.5	-5.1	-5.5	-6.7	-9.2	-11.8	-13.3	-14.9	-15.6	-17.2	-14.5	-5.1
23-Mar	-18.2	-19.7	-19.9	-19.4	-19.7	-20.0	-20.6	-16.6	-9.4	-5.8	-5.0	-3.8	-3.4	-2.6	-1.5	-1.3	-1.3	-2.2	-4.6	-6.7	-8.6	-10.6	-12.4	-13.8	-10.3	-1.3
24-Mar	-15.1	-16.1	-15.4	-15.6	-15.4	-14.6	-14.7	-12.5	-6.9	-3.5	-2.9	-2.2	-1.4	-1.2	-1.6	-1.8	-1.5	-1.9	-3.1	-3.9	-5.5	-7.2	-9.1	-9.5	-7.6	-1.2
25-Mar	-8.7	-8.9	-8.7	-8.9	-10.0	-11.0	-10.2	-9.2	-7.0	-5.1	-3.4	-1.3	0.3	0.9	1.0	1.1	0.7	-0.4	-2.0	-2.9	-3.3	-4.1	-4.9	-5.7	-4.6	1.1
26-Mar	-5.9	-6.3	-7.0	-7.3	-7.4	-7.3	-7.7	-7.3	-6.3	-4.8	-3.1	-2.2	-1.3	-0.6	0.2	0.0	-0.4	-1.2	-1.6	-2.2	-2.9	-3.6	-4.0	-4.9	-4.0	0.2
27-Mar	-5.7	-6.4	-7.0	-7.6	-7.8	-8.3	-9.0	-9.1	-9.0	-9.2	-9.2	-8.8	-8.2	-7.8	-7.2	-7.1	-6.7	-6.8	-7.1	-7.4	-7.5	-7.6	-7.8	-8.1	-7.8	-5.7
28-Mar	-8.3	-8.4	-8.7	-8.8	-9.0	-9.0	-8.9	-8.5	-7.6	-6.7	-6.0	-5.4	-5.2	-5.2	-5.0	-4.9	-5.2	-5.7	-6.0	-6.5	-7.0	-7.2	-7.6	-8.2	-7.0	-4.9
29-Mar	-8.6	-8.8	-8.8	-8.8	-8.9	-9.2	-9.5	-9.5	-9.2	-8.6	-8.1	-7.4	-6.8	-6.9	-6.5	-6.2	-6.2	-6.6	-7.0	-7.3	-8.4	-9.9	-11.5	-14.0	-8.5	-6.2
30-Mar	-16.2	-17.6	-18.8	-19.7	-20.7	-21.1	-21.1	-15.4	-7.8	-5.1	-4.0	-3.2	-2.1	-1.2	-0.3	0.5	0.8	0.2	-3.0	-5.3	-7.0	-8.0	-8.9	-10.3	-9.0	0.8
31-Mar	-10.6	-9.3	-10.2	-10.2	-11.2	-10.8	-10.2	-7.5	-2.1	1.7	5.7	6.9	7.7	8.1	8.8	8.7	9.2	8.1	7.2	6.6	6.2	5.7	5.7	5.6	0.8	9.2
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Surmont 2 - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	103	13.84	13.84
-20 - 0	479	64.38	78.23
0 - 10	155	20.83	99.06
10 - 20	7	0.94	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

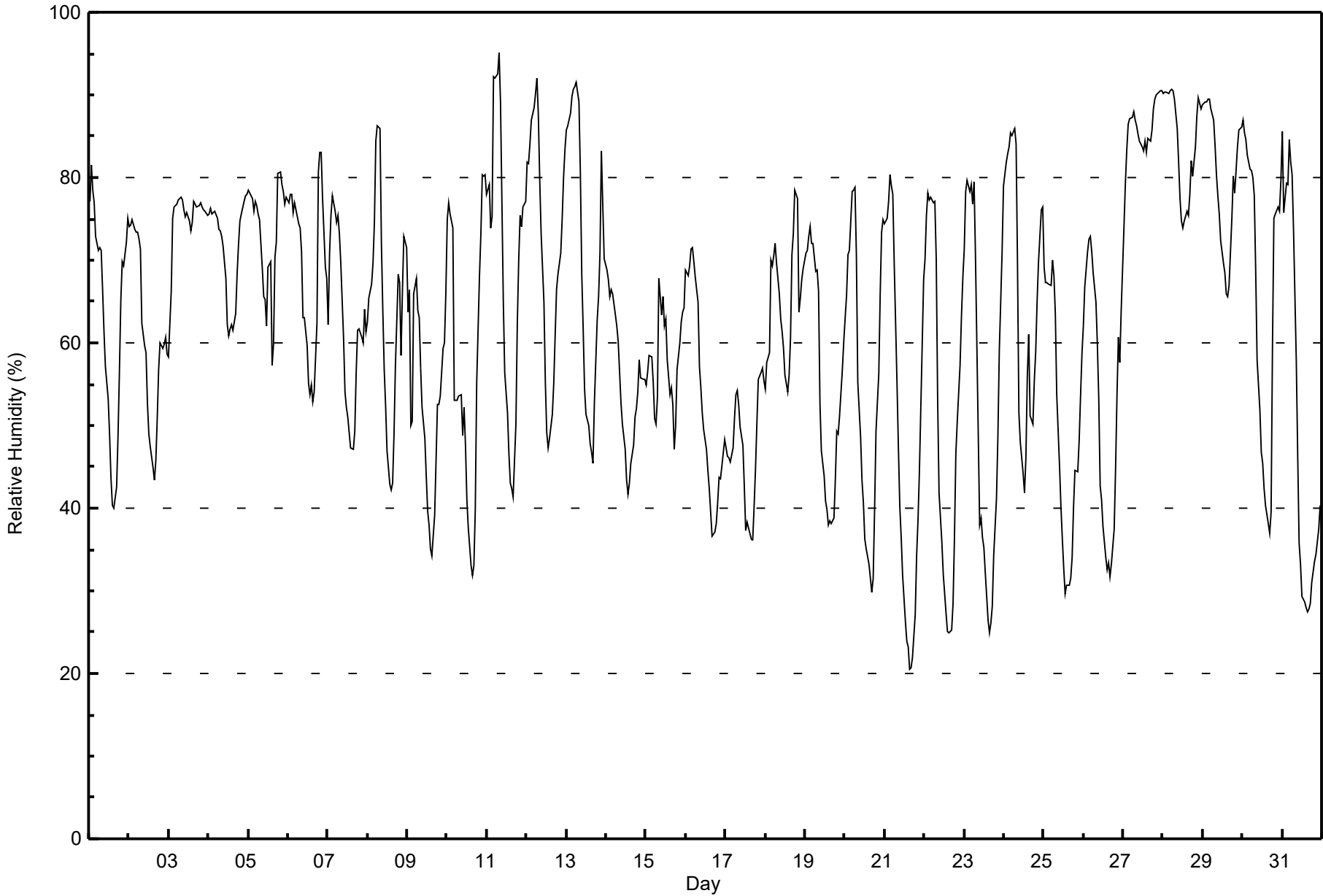
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity (RH) - %
Surmont 2 - March 2024

Maximum Value: 95.1 % on Mar 11 08:00		Maximum Daily Average: 85.7 % on Mar 27		Hours in Service: 744																							
Minimum Value: 20.6 % on Mar 21 16:00		Minimum Daily Average: 47.1 % on Mar 17		Hours of Data: 744																							
Maximum Diurnal Average: 75.7 % at hour 5		Minimum Diurnal Average: 45.9 % at hour 15		Hours of Missing Data: 0																							
Monthly Average: 62.42 %		Percentiles: P ₁ = 25.2 P ₁₀ = 38.0 Q ₁ = 49.4 Median = 65.0 Q ₃ = 76.0 P ₉₀ = 83.7 P ₉₉ = 90.7		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-Mar	77.2	81.5	78.5	76.9	72.9	71.2	71.6	71.2	66.5	61.4	57.2	53.2	48.9	43.6	40.4	40.0	42.5	48.6	56.4	65.1	69.8	69.3	72.2	75.1	63.0	81.5	
2-Mar	74.1	74.2	74.9	73.7	73.3	73.3	72.5	71.4	62.4	59.7	58.7	52.6	49.0	47.4	44.8	43.4	45.7	50.9	56.9	60.0	59.4	59.9	60.6	58.6	60.7	74.9	
3-Mar	58.3	66.3	75.1	76.5	76.6	76.7	77.3	77.6	77.2	76.1	75.2	75.7	74.7	73.5	74.5	77.0	76.7	76.4	76.6	76.9	76.5	76.1	75.9	75.4	74.9	77.6	
4-Mar	75.6	76.2	75.7	75.7	75.9	75.1	73.8	73.5	72.9	71.6	67.9	62.2	60.8	61.7	62.1	61.5	63.6	68.4	71.9	74.8	75.7	77.1	77.8	78.0	71.2	78.0	
5-Mar	78.5	78.2	77.4	76.0	77.1	76.6	75.6	75.0	69.0	65.6	65.2	62.0	69.2	69.8	57.3	59.9	70.3	72.3	80.5	80.7	79.1	78.4	76.8	77.6	72.8	80.7	
6-Mar	77.0	78.0	78.0	75.7	77.0	76.1	74.4	73.9	71.0	63.0	63.0	59.6	55.0	53.7	55.0	52.9	54.1	62.4	80.7	83.1	83.1	77.5	69.2	67.8	69.2	83.1	
7-Mar	62.2	70.8	75.4	77.8	75.9	74.6	75.4	73.3	69.7	60.5	54.0	52.1	50.9	49.2	47.4	47.2	49.4	56.4	61.4	61.7	60.7	60.0	64.1	61.4	62.1	77.8	
8-Mar	62.6	65.5	67.2	69.6	74.6	84.5	86.2	86.0	72.1	63.9	56.8	52.4	47.0	42.9	42.2	43.0	49.0	57.3	68.3	67.3	58.5	66.2	72.9	71.6	63.6	86.2	
9-Mar	63.7	66.4	50.0	50.5	65.9	67.9	63.9	63.1	57.0	52.2	48.5	43.9	39.6	37.9	35.1	34.2	39.2	45.7	52.5	52.5	53.6	59.3	60.1	66.0	52.9	67.9	
10-Mar	74.8	76.9	75.5	73.9	53.0	53.0	53.0	53.5	53.8	48.8	52.3	47.7	41.0	37.7	33.1	31.9	33.0	39.8	55.0	68.1	73.2	80.4	80.2	80.3	57.1	80.4	
11-Mar	77.9	79.2	73.9	75.3	92.1	92.1	92.5	95.1	89.2	77.1	65.1	56.4	51.6	46.5	43.0	42.4	41.3	50.2	62.4	70.0	75.4	74.0	76.4	77.1	69.8	95.1	
12-Mar	81.8	81.7	84.1	86.9	88.5	90.2	92.0	87.6	79.6	73.2	64.9	55.2	49.1	47.3	48.4	51.3	55.1	60.8	66.4	68.3	70.9	74.9	80.1	83.4	71.7	92.0	
13-Mar	85.8	86.3	87.8	89.9	90.7	91.0	91.6	89.1	80.6	68.4	61.7	54.5	51.3	49.9	47.8	46.8	45.4	52.7	62.7	65.5	70.8	83.2	76.5	70.1	70.8	91.6	
14-Mar	68.9	67.6	65.6	66.4	66.0	63.4	62.0	60.2	56.4	52.7	50.1	47.1	43.4	41.7	43.0	45.4	47.6	51.0	52.1	54.0	58.0	55.8	55.6	55.5	55.4	68.9	
15-Mar	55.0	56.4	58.5	58.3	55.2	50.8	50.2	53.4	67.8	63.4	65.6	62.1	62.9	58.1	53.8	54.6	52.5	47.2	50.0	56.7	60.0	62.6	63.7	64.2	57.6	67.8	
16-Mar	68.8	68.2	69.3	71.4	71.5	69.8	67.9	64.9	57.2	54.5	51.5	49.5	47.1	44.6	42.3	39.5	36.6	37.1	38.2	40.7	43.7	43.6	45.1	48.2	53.0	71.5	
17-Mar	47.4	46.3	46.1	45.6	47.4	50.8	53.7	54.2	52.5	49.9	47.6	42.7	37.2	38.3	37.7	36.2	36.2	40.2	44.8	50.4	55.6	56.4	57.0	55.4	47.1	57.0	
18-Mar	54.5	57.7	58.8	70.0	69.4	70.5	72.1	69.6	66.0	62.9	61.3	59.3	56.0	54.1	56.1	60.6	70.7	73.3	78.4	77.4	63.7	65.4	67.6	69.1	65.2	78.4	
19-Mar	70.9	71.2	72.9	74.0	72.1	72.1	68.7	68.9	66.2	52.8	47.0	43.9	40.9	39.9	38.0	38.5	38.2	38.8	43.6	49.3	49.1	51.2	56.8	60.2	55.2	74.0	
20-Mar	63.0	65.7	70.7	71.2	78.3	78.5	78.8	70.8	55.3	48.6	43.4	40.6	36.3	35.1	33.3	31.6	29.8	31.5	39.9	49.4	56.2	65.9	73.4	74.9	55.1	78.8	
21-Mar	74.5	75.2	77.1	80.3	78.9	77.9	69.7	55.2	47.2	40.2	36.5	31.9	26.3	23.9	23.2	20.6	20.7	21.9	27.1	34.3	38.7	44.6	52.2	67.7	47.7	80.3	
22-Mar	70.2	75.4	78.1	77.3	77.7	77.0	77.1	70.2	53.2	41.8	36.0	32.0	29.6	27.3	25.1	24.9	25.3	28.5	36.4	46.6	50.4	57.3	63.3	68.0	52.0	78.1	
23-Mar	71.4	78.3	79.7	78.4	79.1	76.8	79.5	70.4	48.8	38.0	38.8	36.5	35.3	32.2	26.4	24.9	26.1	28.2	34.2	41.1	48.6	59.1	64.9	71.0	52.8	79.7	
24-Mar	78.9	81.8	82.8	83.7	85.5	85.1	86.0	84.0	69.6	51.6	48.0	44.3	41.8	46.2	56.0	60.9	51.2	50.2	55.4	58.9	65.1	69.8	76.0	76.4	66.2	86.0	
25-Mar	69.2	67.2	67.3	67.2	66.9	69.9	68.1	63.6	53.8	45.0	40.2	36.2	32.7	29.6	30.7	30.6	31.5	34.1	40.2	44.6	44.3	48.2	53.6	58.7	49.7	69.9	
26-Mar	62.0	66.7	71.1	72.5	72.9	71.0	68.5	64.9	59.9	53.2	42.6	41.0	37.8	34.1	32.5	33.3	31.7	33.2	37.4	44.8	53.6	60.6	57.7	63.8	52.8	72.9	
27-Mar	74.1	79.4	83.4	86.4	87.1	87.2	87.9	86.9	86.3	85.3	84.4	83.7	83.1	84.4	83.1	84.7	84.4	85.8	88.3	89.4	90.0	90.2	90.5	90.5	85.7	90.5	
28-Mar	90.2	90.4	90.3	90.2	90.5	90.7	90.6	89.5	85.9	81.9	77.5	74.8	74.0	74.8	75.9	75.4	78.0	82.0	80.3	83.7	87.5	89.7	89.0	88.3	84.2	90.7	
29-Mar	88.9	89.1	89.2	89.6	89.4	88.4	87.0	84.0	80.4	77.8	75.6	72.4	69.7	68.5	65.9	65.6	66.9	75.1	80.2	78.1	80.8	83.7	85.7	86.2	79.9	89.6	
30-Mar	87.0	85.5	84.6	82.8	81.1	80.9	80.0	77.8	68.7	58.0	51.8	46.8	45.4	42.4	40.4	38.2	36.9	39.4	59.9	75.0	75.5	76.5	76.0	79.6	65.4	87.0	
31-Mar	85.6	75.7	79.4	79.2	84.5	81.9	80.3	73.7	57.7	46.3	35.8	33.2	29.3	28.6	28.0	27.5	27.8	28.5	30.9	33.5	34.4	36.0	37.4	40.3	49.8	85.6	
		71.9	73.5	74.1	74.9	75.7	75.6	75.1	72.6	66.2	59.5	55.6	51.8	48.9	47.3	45.9	46.0	47.0	50.6	57.1	61.4	63.3	66.2	68.0	69.7	Diurnal Average	
		90.2	90.4	90.3	90.2	92.1	92.1	92.5	95.1	89.2	85.3	84.4	83.7	83.1	84.4	83.1	84.7	84.4	85.8	88.3	89.4	90.0	90.2	90.5	90.5	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Surmont 2 - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	91	12.23	12.23
40 - 60	225	30.24	42.47
60 - 80	320	43.01	85.48
80 - 100	108	14.52	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 - March 2024

Maximum Speed: 19 km/h on Mar 10 13:00	Maximum Daily Speed Average: 12.1 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 23 08:00	Minimum Daily Speed Average: 0.5 km/h on Mar 5	Hours of Data: 708
Maximum Diurnal Speed Average: 2.5 km/h at hour 18	Minimum Diurnal Speed Average: 0.5 km/h at hour 8	Hours of Missing Data: 36
Monthly Average Velocity: 0.5 km/h 105.9 deg	Percentiles: P ₁ = 0 P ₁₀ = 2 Q ₁ = 3 Median = 6 Q ₃ = 9 P ₉₀ = 12 P ₉₉ = 16	Percent Operational Time: 95.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	WNW3	WSW3	WNW5	WNW7	W10	W10	W10	WNW8	W12	W12	W11	W12	W12	W13	W12WNW10	WNW9	WNW6	W3	WSW3	W2	W4	WSW2	WSW2	W7.4	W13		
2-Mar	SW1	SW1	W3	WSW2	SW1	UO	UO	UO	E1	ENE4	NNE4	NNE5	NNE7	NNE9	ENE7	ENE8	ENE8	ENE5	NNW3	NNW2	N2	NNE3	NE4	NE6	NE3.1	NNE9	
3-Mar	NE7	NE6	NNE7	NNE6	N6	NNW5	NNW5	NNW5	NNW4	N6	N6	NNE6	NE8	NE9	NE9	N6	NNW7	NNW8	NNW7	NNW6	NNW7	NNW7	NW8	NW8	N5.7	NE9	
4-Mar	NW8	WNW8	WNW8	NW9WNW10	WNW9	NW9	NW9	NW9	NW9	NW8	NW10	NNW10	NW10	NW9	NW9	NW8	NW5	NW4	W4	WSW4	WSW4	WSW3	WSW2	NW6.9	NNW10		
5-Mar	SW1	SW0	WSW2	SSW1	SW1	SW1	SW1	SW2	SSE1	ESE2	E1	NNE5	NNE5	NNE5	UO	UO	ESE6	SSE4	SSW3	SSW2	SW2	SW2	SW2	SSE0.5	ESE6		
6-Mar	SSW2	SW2	S1	S1	S2	SW2	SSW2	SW2	ESE1	ESE7	ESE8	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	ESE8	
7-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	SSE8	SSE8	SSE5	SSE6	SW7	WSW4	SW4WSW14	---	WSW14		
8-Mar	WSW14	WSW8WSW10	WSW9	W5	SW2	SW3	WSW5	S1	SE4	SE8	SE8	SSE8	SE8	SE8	SSE6	SE5	SE4	SE3	SE4	ESE7	ESE6	ESE4	E4	S3.2	WSW14		
9-Mar	ESE5	ESE5	SSE5	SE5	E6	ESE6	SE7	ESE8	ESE9	ESE9	SE9	SE11	SE11	SE10	SE10	SE9	SE8	SE5	ESE5	SE6	SE6	S4	S4	SE3	SE6.6	SE11	
10-Mar	SE2	NNE1	NNW1	SE1WSW11	WSW9WSW11	WSW12	W9	W15	W14	W15	W19	W17WSW16	W15	W12	WNW5	W3	WSW2	WSW4	SSW1	SW1	WSW1	WSW1	WSW1	W7.8	W19		
11-Mar	WSW1	NW1	N2	NNW4	NNW3	N5	N6	N5	NNE4	NE3	E3	E2	W1	NNW3	NNE3	ENE5	ENE5	ENE4	SSW1	WSW3	SSW2	SSE3	SE4	ESE4	NE1.5	N6	
12-Mar	E5	ESE4	ESE4	ESE3	ESE4	ESE4	E4	E4	ESE8	ESE10	ESE9	ESE10	E8	E8	E9	E9	E7	E5	E5	ESE8	ESE9	E6	ESE6	ESE5	E6.4	ESE10	
13-Mar	ESE5	ESE5	SE3	E4	SE4	E2	SE3	ESE4	ESE6	ESE6	ESE8	SE8	SE8	ESE8	SE9	SE8	SE7	SE4	S3	SSW4	SSW2	SSE2	WSW8WSW12	SE4.1	WSW12		
14-Mar	WSW12WSW12WSW10WSW10WSW11WSW10WSW10WSW10	WSW9WSW11	WSW9WSW12WSW13WSW12	SW8	SW5	SW5	SW5	SW4	WSW8	WSW8	W9	W13	W17	WSW12	WSW13WSW12	SW8	SW5	SW5	SW5	SW4	WSW8	WSW8	W9	W13	W17	WSW9.7	W17
15-Mar	W16	W14	W13	W14WNW13WNW15WNW15	NW13	NNW15	NNW15	NNW15	NNW15	NNW15	NNW14	NNW13	NNW14	N11	NNW9	NNE8	N5	WNW4	WNW4	NW3	NW3	NW3	NW3	NNW9.5	W16		
16-Mar	NNW3	NNW5	N4	NNW4	N4	N6	N5	N5	NNE5	NNE5	N5	N6	NNE5	NNE7	N5	NNE4	E8	E8	E6	ESE8	ESE8	ESE8	ESE6	ESE7	NE3.8	ESE8	
17-Mar	ESE8	SE7	SE8	SE9	SE7	ESE6	SE7	SE7	SE8	SE9	SE10	SE11	SE11	SSE10	SSE12	S11	S10	SSE9	SSW8	SW10	SW13WSW17WSW16WSW16	SW16WSW16	SW16WSW16	SSE6.7	WSW17		
18-Mar	W10	WNW6	NW5	NW2	NW3	NNW6	NNW8	NNW9	NNW10	NNW11	N13	NNW11	NNW13	N11	N11	N11	NNW10	N10	N11	NNW11	NNW12	NNW11	NNW10	N8	NNW8.8	N13	
19-Mar	NNW8	NNW9	NNW8	N9	NNW9	N8	N8	N7	N8	N10	N11	N10	N11	N10	N10	NNW10	NNW8	NNW8	NW5	NW4	N4	NW4	WNW3	NW4	NNW7.4	N11	
20-Mar	NNW2	NNE2	NNE2	N2	WSW2	SW0	ENE1	ESE1	N2	ENE4	NNE3	ENE6	NE4	NNE4	N5	NNE5	NNE5	NE5	E4	S1	SW2	SW2	SW1	SW2	NNE1.7	ENE6	
21-Mar	SW1	S0	SW1	SW1	SSW0	ESE1	E2	ESE5	ESE6	E7	E8	ENE8	ENE9	E9	ENE8	NE7	NNE7	NNE5	NNE3	NNW2	NNW2	W2	W3	SW2	ENE2.7	ENE9	
22-Mar	WSW3	SW1	WSW1	UO	W0	WSW0	SW0	E1	ESE4	ESE3	E5	ESE1	NNW3	NE4	ENE1	ENE5	ESE6	E6	E3	SSE1	WSW3	SSW3	S2	WSW2	ESE1.2	ESE6	
23-Mar	WSW3	WSW2	WSW2	SW2	SW2	SW3	SW2	S0	E2	NNE5	NW1	ESE5	NW1	SW1	SE5	SE7	SSE4	SE6	ESE3	S2	SSW2	SW3	SW2	SW2	S1.4	SE7	
24-Mar	SSW1	SW0	SW2	WSW1	SW1	SW2	SW1	SSW0	ESE3	SE7	SE7	SE10	SSE9	SE10	SE9	SSE8	SSE6	ESE4	ESE5	ESE4	S2	SSE2	SSE2	SSE2	SE3.8	SE10	
25-Mar	SSE4	SE4	SSE4	SE4	SE5	ESE5	SE6	SE5	SE9	ESE9	SE11	ESE12	SE12	SE11	SSE9	SE11	ESE13	ESE11	ESE9	ESE7	SE8	SE8	ESE7	ESE6	SE7.8	ESE13	
26-Mar	ESE7	UO	ESE8	ESE8	ESE7	ESE7	ESE8	ESE10	SE13	SE14	SE14	SE14	SE16	ESE17	ESE17	ESE16	ESE15	ESE14	ESE13	ESE12	ESE13	ESE12	ESE11	ESE12	ESE12.1	ESE17	
27-Mar	ESE11	ESE11	ESE11	ESE12	ESE12	ESE12	ESE13	ESE13	ESE16	ESE16	ESE16	ESE17	ESE15	ESE16	ESE15	E13	E13	E10	E8	E7	E6	E6	E4	E4	ESE11.8	ESE17	
28-Mar	E4	ENE3	ENE3	NNE2	N2	N2	N2	N3	NE3	NE5	NNE6	NE6	NNE7	N7	N8	N7	NNE6	NE6	NE4	N2	NNW2	NW4	NW6	NW5	NNE3.7	N8	
29-Mar	NW5	NW3	NW4	NW5	NW5	NW5	NNW6	NNW6	NNW8	NNW8	NNW9	NNW9	NNW10	NNW11	NNW8	NW7	NNW7	NW6	WNW6	W6	W3	WSW5	WSW6	WSW4	NW5.5	NNW11	
30-Mar	SW1	SW1	SW1	SW2	SSW2	SW2	SW2	E1	SE3	SE8	SSE6	S7	SE10	SE9	SE10	SE9	SE7	SE6	SE2	S1	SSW2	SSW3	SSW3	SSW1	SSE3.4	SE10	
31-Mar	SE3	SE4	SE2	SE2	SE3	SE5	SE4	ESE3	ESE4	ESE5	SSW7	SSW8WSW12	SW13	SW10	SSW9	SSW8	SSE8	SSE7	SSE8	SSE8	SSE10	S12	S12	S12	S5.4	SW13	

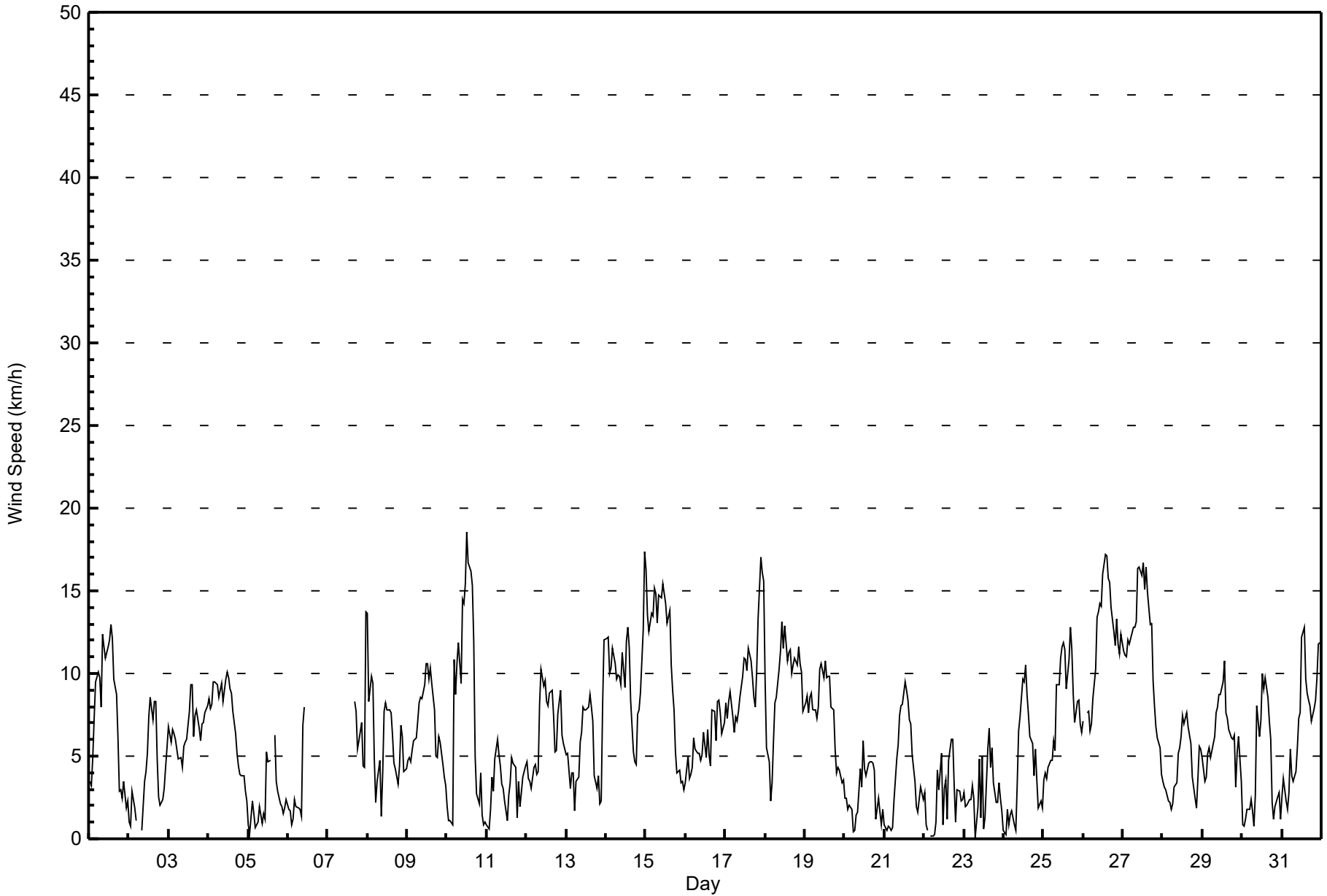
WSW0.9WSW0.6WSW0.7	W0.7	W1.2	WNW0.9WNW0.7NNW0.5	ENE1.2	ENE2.1	E1.6	E1.9	ENE1.5	ENE1.7	E1.7	E1.8	E2.2	E2.5	ESE1.4	SSE1.2	S1.2	SSW1.2	SW1.4	SW1.7	Diurnal Average				
W16	W14	W13	W14WNW13WNW15WNW15	NW13	NNW15	ESE16	ESE16	ESE16	W19	ESE17	ESE17	ESE16	ESE15	ESE14	ESE13	ESE12	ESE13	WSW17	WSW16	W17	Diurnal Maximum			

M - Maintenance 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
Surmont 2 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Surmont 2 - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	331	46.75	46.75
6 - 11	291	41.10	87.85
12 - 19	86	12.15	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Surmont 2 - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	20	23	8	12	20	34	27	12	15	20	52	29	12	6	22	19	331
6 - 11	26	11	10	7	19	46	52	17	3	5	4	19	8	11	17	36	291
12 - 19	1	0	0	0	2	25	6	1	2	0	2	15	19	3	1	9	86
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
Totals	47	34	18	19	41	105	85	30	20	25	58	63	39	20	40	64	708

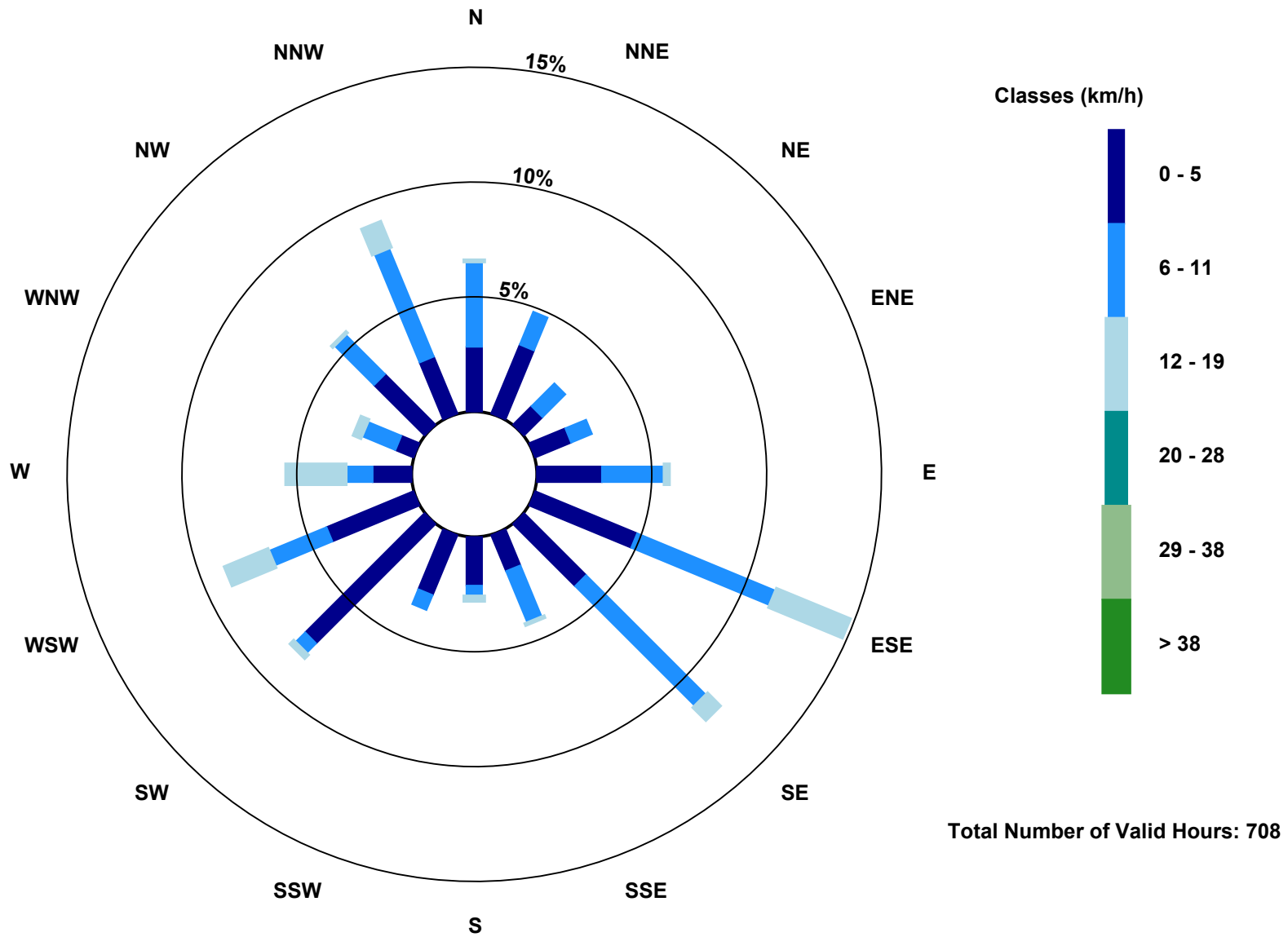
Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Surmont 2





Wood Buffalo Environmental Association

Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
 Surmont 2 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 7 km/h on Mar 15 11:00	Hours of Data: 708
Minimum Value: 0 km/h on Mar 22 05:00	Hours of Missing Data: 36
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6	Hours of Calibration: 0
	Percent Operational Time: 95.2

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	1	2	3	3	3	4	4	4	4	4	4	4	4	4	4	4	2	1	1	1	1	1	2	4
2-Mar	1	1	1	1	1	UO	UO	UO	1	1	2	2	3	3	3	3	3	2	1	1	2	1	2	2	3
3-Mar	3	2	2	3	2	2	2	2	2	2	2	3	3	3	2	3	3	2	2	2	3	3	3	3	3
4-Mar	3	3	3	4	4	3	4	4	4	3	4	4	3	4	3	3	3	2	2	1	1	1	1	1	4
5-Mar	1	1	1	1	1	1	1	1	1	1	2	2	2	1	UO	UO	2	2	1	1	1	1	1	1	2
6-Mar	1	1	1	1	1	2	1	1	2	2	2	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	2
7-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	4	4	2	3	4	3	4	4	4
8-Mar	4	3	2	3	3	2	2	1	2	3	2	2	2	3	3	3	2	2	1	2	2	2	1	2	4
9-Mar	2	2	2	2	1	1	2	2	2	2	3	3	4	3	4	4	3	2	2	3	3	2	3	2	4
10-Mar	1	1	3	2	4	3	4	3	3	5	5	5	6	6	5	5	4	3	1	1	2	1	1	1	6
11-Mar	1	1	1	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	1	1	2	1	2
12-Mar	2	2	2	1	2	1	1	1	2	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	3
13-Mar	1	2	2	1	1	1	2	1	2	2	3	3	3	3	3	3	2	1	2	1	1	4	3	4	
14-Mar	3	3	3	3	3	3	3	3	3	4	4	4	4	5	5	4	2	2	3	3	4	4	6	6	
15-Mar	6	5	4	5	5	6	6	5	6	6	7	6	6	5	5	4	4	3	3	1	1	2	2	7	
16-Mar	1	1	1	2	1	2	2	2	2	2	3	3	2	3	3	2	3	3	2	2	2	2	2	3	
17-Mar	2	2	3	3	3	2	3	3	3	3	3	4	4	5	5	5	5	4	4	5	6	6	5	6	
18-Mar	4	2	2	2	2	2	3	3	4	5	5	4	5	4	4	5	4	4	4	4	5	4	4	5	
19-Mar	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3	2	1	2	2	1	4	
20-Mar	1	1	1	1	1	1	1	1	2	2	3	3	3	2	3	2	2	2	2	1	1	1	1	3	
21-Mar	1	1	1	1	1	1	1	1	2	2	3	3	3	4	3	3	3	2	2	1	1	1	1	4	
22-Mar	1	1	1	UO	0	0	1	1	2	2	2	2	2	3	2	3	2	2	1	1	1	1	1	3	
23-Mar	1	1	1	1	1	2	1	1	1	1	2	4	2	2	3	3	3	2	2	1	1	1	1	4	
24-Mar	1	1	1	1	1	1	1	1	2	2	3	4	3	4	4	3	3	2	1	2	2	1	1	4	
25-Mar	1	2	2	2	2	2	2	3	3	3	4	4	5	5	4	4	4	4	3	2	3	3	2	5	
26-Mar	3	UO	2	2	2	2	3	3	4	4	6	5	6	6	6	5	5	5	4	4	5	4	4	6	
27-Mar	4	3	3	3	3	3	3	4	3	4	5	4	5	5	5	5	4	5	3	3	2	2	1	5	
28-Mar	1	1	1	1	1	1	1	1	1	2	2	3	3	2	3	3	3	2	1	1	1	2	2	3	
29-Mar	2	1	1	2	2	2	2	3	3	3	3	4	4	4	3	3	2	2	2	2	1	1	1	4	
30-Mar	1	1	1	1	1	1	2	1	1	3	3	4	4	3	4	4	3	2	1	1	1	1	1	4	
31-Mar	1	2	1	1	1	2	2	2	2	2	3	4	5	5	4	4	4	4	3	3	4	4	5	5	
	6	5	4	5	5	6	6	5	6	6	7	6	6	6	6	5	5	5	4	5	6	6	5	6	

Diurnal Maximum

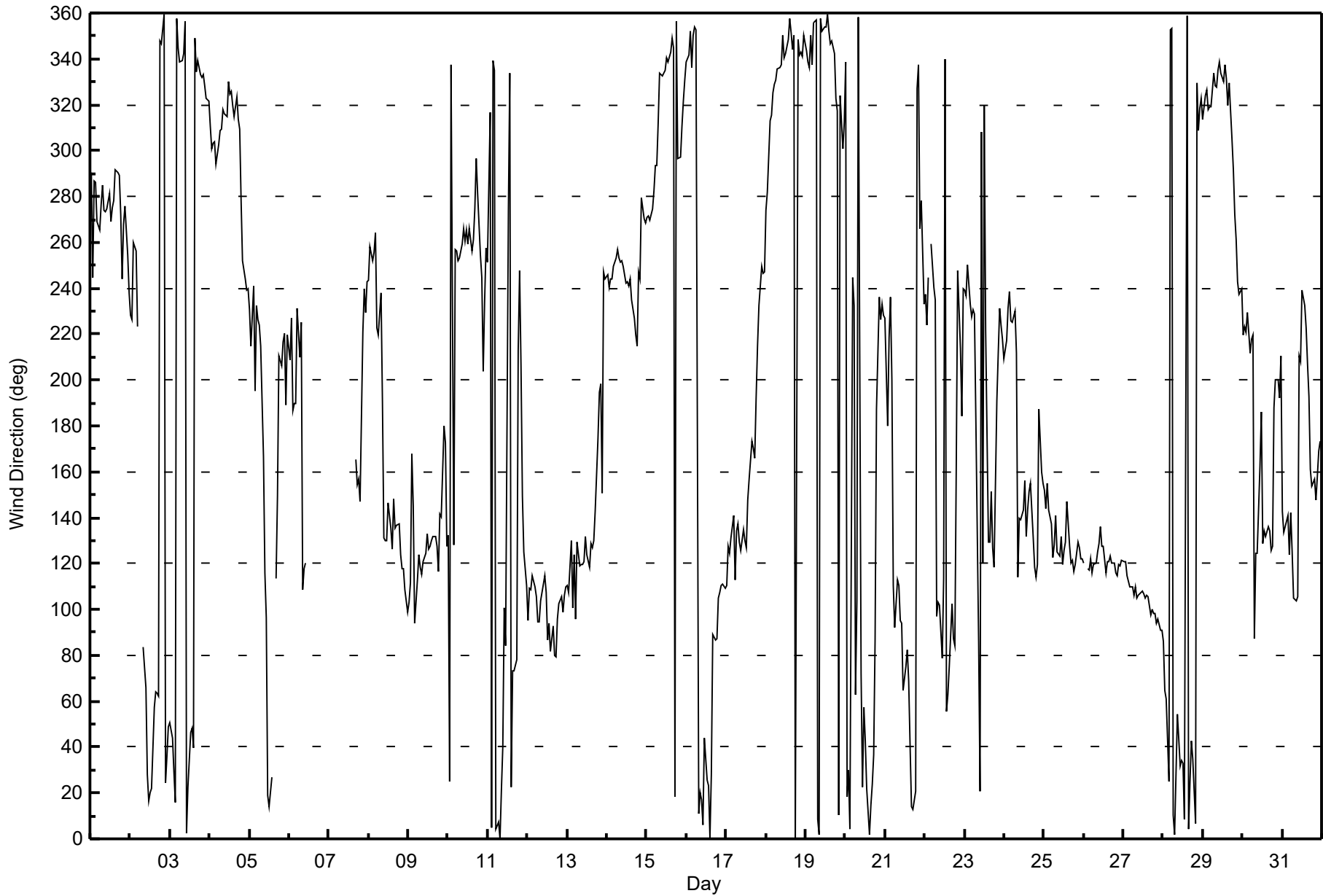
M - Maintenance AF - Analyzer Failure UO - Unstable Operation



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Surmont 2 - March 2024

Direction of Maximum Speed: 259 deg on Mar 10 13:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 121.7 deg on Mar 26																						Hours of Data: 708			
Direction of Minimum Speed: 183 deg on Mar 23 08:00											Direction of Minimum Daily Speed Average: 0.5 deg on Mar 5											Hours of Missing Data: 36			
Monthly Average Direction: 105.9 deg																						Percent Operational Time: 95.2			
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	290	245	287	286	269	265	276	285	274	274	275	281	269	275	278	291	290	289	272	244	268	276	255	238	276.1
2-Mar	228	226	260	256	223	UO	UO	UO	84	66	28	17	20	22	57	64	64	62	348	347	359	24	36	49	36.3
3-Mar	51	44	29	16	357	345	339	339	342	356	2	23	46	48	40	349	335	339	333	332	333	329	323	322	359.6
4-Mar	311	301	303	304	294	302	309	310	318	316	315	330	325	326	320	315	323	314	310	278	252	244	239	240	308.1
5-Mar	231	215	241	195	232	226	224	215	167	116	97	19	14	27	UO	UO	114	149	211	206	217	220	189	220	166.2
6-Mar	209	227	187	190	190	231	210	225	109	118	120	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--
7-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	165	155	157	147	221	240	229	243	--
8-Mar	243	258	252	255	264	223	220	238	190	131	130	130	147	135	126	148	135	137	137	124	118	118	109	99	169.3
9-Mar	103	112	168	145	94	113	124	118	116	121	125	133	127	127	130	132	132	127	117	141	141	180	173	127	128.3
10-Mar	132	25	337	128	257	256	252	253	259	266	261	266	259	266	256	261	275	297	281	255	244	204	234	258	261.1
11-Mar	251	317	5	339	335	4	7	0	21	40	100	84	274	334	23	73	73	78	213	248	207	149	125	111	37.9
12-Mar	95	109	108	115	110	106	95	94	104	107	115	108	86	94	82	93	80	79	96	103	105	99	106	110	99.5
13-Mar	110	107	130	100	124	96	129	119	120	120	121	132	124	119	129	127	130	143	175	195	199	151	247	244	137.8
14-Mar	246	241	244	244	250	253	257	253	252	249	242	243	241	244	235	227	220	215	247	244	279	270	268	268	248.9
15-Mar	271	272	270	275	282	293	293	312	334	333	334	335	340	339	343	349	345	18	356	297	297	311	321	331	314.7
16-Mar	338	342	352	336	350	354	353	11	20	17	6	44	26	23	1	28	89	87	87	105	107	110	111	109	46.3
17-Mar	111	127	125	131	141	113	134	138	129	126	135	130	127	148	157	173	170	166	192	214	233	249	246	247	167.0
18-Mar	274	282	313	315	325	329	330	335	336	338	350	341	342	349	358	352	344	350	0	348	342	343	341	350	339.7
19-Mar	343	339	336	350	337	356	357	8	2	358	352	354	354	360	352	347	348	342	323	317	10	324	301	312	347.8
20-Mar	338	18	30	5	244	233	63	104	358	72	23	57	43	22	2	14	24	37	87	188	236	226	233	228	30.1
21-Mar	227	180	219	236	200	110	92	113	110	95	94	65	75	82	69	41	14	13	21	327	337	266	278	233	67.3
22-Mar	237	224	245	UO	259	240	235	97	103	102	79	114	340	55	63	75	103	87	84	162	248	213	185	240	101.9
23-Mar	239	237	250	233	227	230	229	183	85	21	308	120	320	222	130	129	151	127	118	191	211	231	224	218	173.7
24-Mar	209	217	231	239	226	225	230	212	114	140	139	143	156	132	144	151	155	131	118	114	120	187	160	155	145.2
25-Mar	152	144	155	144	137	123	128	141	125	123	132	119	125	129	147	128	120	121	116	120	129	127	122	122	128.1
26-Mar	120	UO	118	117	122	116	120	120	125	129	136	128	127	116	121	121	123	120	120	116	114	120	119	121	121.7
27-Mar	121	121	114	112	110	110	106	110	105	106	107	108	107	105	106	106	97	100	99	98	94	96	91	91	106.2
28-Mar	86	65	61	25	353	353	10	2	54	43	32	34	33	9	358	4	25	42	35	7	330	309	318	323	17.0
29-Mar	314	324	326	318	319	319	334	328	327	335	339	334	330	337	331	320	329	305	292	272	261	243	237	240	316.1
30-Mar	220	223	221	230	212	218	220	87	124	124	162	186	129	134	132	136	134	126	128	188	200	200	192	211	150.5
31-Mar	143	134	138	141	124	142	125	105	104	105	211	208	239	232	223	207	193	161	154	157	147	158	169	173	176.2
244.3 258.0 258.2 271.4 267.4 292.2 302.4 346.1 62.3 76.4 89.4 81.2 70.3 67.9 84.6 89.6 95.4 92.2 102.3 158.6 174.2 206.2 218.1 225.2																								Diurnal Average	
M - Maintenance AF - Analyzer Failure UO - Unstable Operation																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Surmont 2 - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 109 deg on Mar 11 13:00	Hours of Data: 708
Minimum Value: 8 deg on Mar 29 23:00	Hours of Missing Data: 36
Percentiles: P ₁ = 14 P ₁₀ = 23 Q ₁ = 31 Median = 39 Q ₃ = 49 P ₉₀ = 66 P ₉₉ = 96	Hours of Calibration: 0
	Percent Operational Time: 95.2

Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	37	18	32	34	27	27	33	41	27	31	31	33	36	32	35	44	36	33	27	16	33	26	17	48	48	
2-Mar	52	59	28	40	22	UO	UO	UO	93	60	76	66	48	48	55	38	32	38	55	81	66	48	50	37	93	
3-Mar	37	38	32	44	38	42	41	36	38	34	35	46	31	32	35	40	34	34	38	45	41	43	49	43	49	
4-Mar	45	43	39	40	33	33	41	41	38	43	41	41	41	40	42	40	43	49	43	28	20	18	14	15	49	
5-Mar	54	44	14	48	66	52	53	16	59	73	96	50	35	39	UO	UO	30	52	34	24	21	53	31	25	96	
6-Mar	25	31	75	24	29	56	44	28	78	26	33	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	78	
7-Mar	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	M	M	55	48	60	69	73	94	93	20	94	
8-Mar	19	26	21	20	81	72	39	14	69	59	31	32	37	41	33	48	46	50	53	45	35	35	29	40	81	
9-Mar	43	56	77	58	15	22	32	29	27	33	34	39	37	40	41	42	50	51	45	53	64	47	82	55	82	
10-Mar	76	82	95	100	26	26	23	25	26	28	30	30	29	30	29	29	33	38	29	26	19	44	67	73	100	
11-Mar	85	67	45	37	45	37	34	38	45	55	71	84	109	79	70	53	48	31	51	16	52	45	43	29	109	
12-Mar	26	41	44	43	33	25	27	23	22	21	31	28	36	34	30	24	27	24	18	17	16	18	15	15	44	
13-Mar	23	25	60	28	28	68	66	44	36	35	31	37	37	37	38	36	42	50	50	50	58	68	62	18	68	
14-Mar	18	14	19	20	21	23	25	25	26	35	31	38	32	35	34	36	46	55	68	35	25	39	30	27	68	
15-Mar	30	32	28	29	30	36	33	44	36	40	39	39	39	39	36	39	44	44	38	51	32	33	43	43	58	58
16-Mar	36	26	31	37	35	34	34	43	41	66	62	48	59	58	65	66	31	31	25	16	19	25	22	23	66	
17-Mar	24	39	33	43	52	30	45	51	42	40	38	35	36	54	51	51	56	62	67	67	49	30	23	21	67	
18-Mar	33	30	47	63	49	39	40	42	37	38	34	39	40	37	33	37	40	36	37	34	38	36	33	41	63	
19-Mar	38	37	39	39	36	34	42	42	38	36	39	41	39	43	41	39	40	38	36	34	49	39	31	30	49	
20-Mar	64	45	40	44	35	99	53	31	93	70	86	52	81	84	75	68	64	39	29	62	36	56	62	33	99	
21-Mar	63	84	59	58	55	70	33	24	32	24	31	39	34	39	40	46	44	49	43	63	69	41	33	54	84	
22-Mar	23	61	70	UO	54	59	71	26	29	81	61	104	84	79	98	65	42	35	28	64	20	34	49	29	104	
23-Mar	23	26	26	23	31	20	10	72	35	34	101	71	103	96	76	45	71	38	35	33	33	19	53	49	103	
24-Mar	66	89	13	19	27	22	61	47	33	41	52	47	47	46	49	45	51	41	28	23	44	41	45	63	89	
25-Mar	57	51	60	45	47	37	40	41	34	35	38	36	42	49	52	43	32	32	35	34	41	42	37	34	60	
26-Mar	38	UO	31	30	42	32	30	33	34	36	44	42	40	31	34	34	33	32	33	31	26	30	31	31	44	
27-Mar	31	30	26	19	19	19	16	19	17	18	18	19	19	18	20	18	20	20	21	18	23	25	25	24	31	
28-Mar	24	25	28	29	32	33	31	31	39	37	35	45	35	39	39	48	43	34	33	42	44	41	42	42	48	
29-Mar	39	38	47	44	44	40	40	42	40	40	40	39	40	37	40	41	38	36	31	27	25	11	8	50	50	
30-Mar	82	73	66	22	43	34	66	38	61	40	64	63	42	47	43	44	48	41	42	71	46	49	54	69	82	
31-Mar	48	60	67	85	41	24	47	42	42	61	56	61	39	41	50	59	63	56	51	53	52	49	53	49	85	
	85	89	95	100	81	99	71	72	93	81	101	104	109	96	98	68	71	62	68	81	73	94	93	73		

Diurnal Maximum

M - Maintenance AF - Analyzer Failure UO - Unstable Operation



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS30
ELLS RIVER
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
MARCH 2024

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

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	708	35	36	99.87	31.3	0	10.1	0
TRS (ppb) Average	708	36	36	100	1.7	0	0.8	0
THC (ppm) Average	685	35	59	96.77	4.2	-	2.7	-
NMHC (ppm) Average	685	35	59	96.77	0.559	-	0.071	-
CH4 (ppm) Average	685	35	59	96.77	4.2	-	2.7	-
NO2 (ppb) Average	707	36	37	99.87	46.6	0	26.8	-
NO (ppb) Average	707	36	37	99.87	85.3	-	19.3	-
NOX (ppb) Average	707	36	37	99.87	131.9	-	46	-
PM2.5 (ug/m3) Average	744	0	0	100	43.8	0	21.3	0
Temperature 2 m (C) Average	744	0	0	100	14.3	-	3.9	-
Relative Humidity (%) Average	744	0	0	100	91.3	-	77	-
Wind Speed 10 m (km/h) Average	735	0	9	98.79	28	-	23	-
Wind Direction 10 m (deg) Average	735	0	9	98.79	-	-	-	-
Global Solar Radiation (W/m2) Average	744	0	0	100	629.8	-	205	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
MARCH 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	708	1.82	4.6	-	0	0	0	0.2	0.9	5.6	31.3
TRS (ppb) Average	708	0.52	0.2	-	0.4	0.4	0.4	0.5	0.6	0.7	1.7
THC (ppm) Average	685	2.16	0.2	-	2	2	2.1	2.1	2.2	2.3	4.2
NMHC(ppm) Average	685	0.006	0.038	-	0	0	0	0	0	0	0.559
CH4(ppm) Average	685	2.16	0.2	-	2	2	2.1	2.1	2.2	2.3	4.2
NO2 (ppb) Average	707	8.11	8.4	-	0.3	1	2.4	5.4	10.4	18.1	46.6
NO (ppb) Average	707	2.3	6.8	-	0	0	0	0.2	1.7	5.6	85.3
NOX (ppb) Average	707	10.41	13.6	-	0.3	1.1	2.9	6.2	12.7	22.8	131.9
PM2.5 (ug/m3) Average	744	7.98	6.5	-	0.7	2.9	4.1	5.8	9.1	16.1	43.8
Temperature 2 m (C) Average	744	-8.11	9.1	-	-31.9	-20.7	-15.5	-6.7	-1.8	2.9	14.3
Relative Humidity (%) Average	744	59.46	14.5	-	19.8	39.4	49	61	70.1	78.3	91.3
Wind Speed 10 m (km/h) Average	735	12.3	6	-	0	4	8	11	17	21	28
Wind Direction 10 m (deg) Average	735	83.3	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	744	120.38	167.6	-	0	0	0	5.6	215.8	405.9	629.8

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, THC/NMHC/CH4, NO2	11 Mar 2024 14:00	11 Mar 2024 14:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	23 Mar 2024 12:00	23 Mar 2024 15:00	4	Maintenance - recalibration
THC/NMHC/CH4	25 Mar 2024 11:00	25 Mar 2024 17:00	7	Maintenance - replaced analyzer
THC/NMHC/CH4	28 Mar 2024 05:00	28 Mar 2024 08:00	4	Analyzer within non-compliance of AMD
THC/NMHC/CH4	28 Mar 2024 09:00	28 Mar 2024 16:00	8	Maintenance - replaced analyzer
Wind Speed, Wind Direction	02 Mar 2024 00:00	02 Mar 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	09 Mar 2024 21:00	09 Mar 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Mar 2024 19:00	12 Mar 2024 19:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Mar 2024 20:00	22 Mar 2024 22:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	23 Mar 2024 02:00	23 Mar 2024 03:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	24 Mar 2024 02:00	24 Mar 2024 02:00	1	Flat line in sensor output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Ells River - March 2024

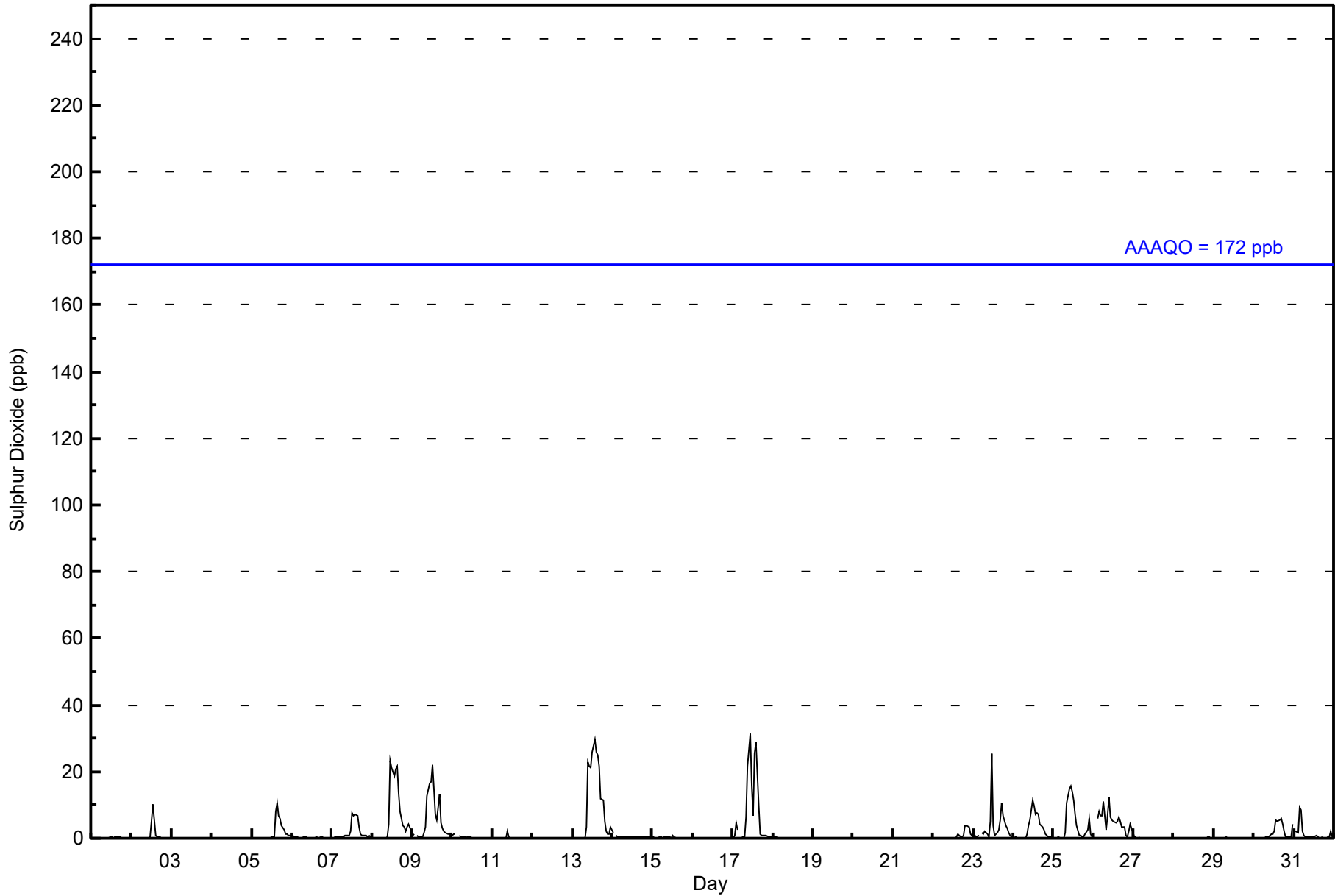
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 31.3 ppb on Mar 17 11:00		Maximum Daily Average: 10.1 ppb on Mar 13		Hours of Data: 708																	0.2		0.3				
Minimum Value: 0.0 ppb on Mar 8 05:00		Minimum Daily Average: 0.0 ppb on Mar 12		Hours of Missing Data: 36																	0.8		10.3				
Maximum Diurnal Average: 4.7 ppb at hour 12		Minimum Diurnal Average: 0.4 ppb at hour 2		Hours of Calibration: 35																	0.1		0.2				
Monthly Average: 1.82 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.9 P ₉₀ = 5.6 P ₉₉ = 24.7		Percent Operational Time: 99.9																	0.1		0.1				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	Z	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3	
2-Mar	0.0	Z	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.1	0.5	5.1	10.3	0.7	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.8	10.3
3-Mar	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
4-Mar	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1
5-Mar	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	8.2	10.6	6.6	5.9	3.9	2.4	1.2	1.1	1.0	1.0	1.9	10.6	
6-Mar	0.9	0.6	0.5	0.4	0.4	Z	0.3	0.3	0.4	0.5	C	C	C	C	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.4	0.9	
7-Mar	Z	0.2	0.4	0.4	0.3	0.3	0.3	0.5	0.7	0.8	0.9	1.9	7.7	6.8	7.3	6.6	3.4	1.3	1.0	0.8	0.8	0.6	0.7	0.5	1.9	7.7	
8-Mar	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.4	23.4	21.1	18.5	20.9	21.5	13.6	8.2	4.0	3.4	2.2	3.5	4.2	2.3	6.6	23.4	
9-Mar	1.0	1.1	Z	0.7	0.6	0.5	0.5	1.6	3.4	12.6	16.5	17.1	22.1	14.7	7.2	5.4	13.0	4.7	3.0	2.1	1.8	1.3	1.3	1.1	5.8	22.1	
10-Mar	0.9	1.2	1.1	Z	0.7	0.5	0.5	0.5	0.4	0.5	0.4	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.2
11-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	2.3	0.5	0.1	0.1	M	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.3	
12-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
13-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	23.0	21.5	21.1	25.8	29.5	25.7	24.8	21.6	11.7	11.3	5.2	2.0	1.5	1.2	3.6	10.1	29.5
14-Mar	1.9	Z	0.8	0.5	0.4	0.3	0.3	0.3	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.3	0.3	0.3	0.5	1.9
15-Mar	0.3	0.3	Z	0.3	0.2	0.3	0.2	0.4	0.6	0.4	0.4	0.2	1.0	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.3	1.0
16-Mar	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
17-Mar	0.0	0.9	4.5	2.3	Z	0.6	0.4	0.4	6.2	21.5	31.3	16.3	6.7	25.6	28.9	9.8	1.3	0.9	0.9	0.9	0.8	0.6	0.5	0.5	7.0	31.3	
18-Mar	0.5	0.5	0.3	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	0.1	0.5	
19-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	
20-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	
21-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	
22-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.4	1.3	0.3	0.2	0.7	3.6	3.9	3.2	1.4	0.9	0.7	3.9	
23-Mar	2.1	0.9	0.5	0.8	Z	1.6	1.4	2.3	1.1	0.6	5.0	25.3	3.7	0.7	1.7	2.8	5.6	10.5	6.8	4.0	3.0	1.6	0.8	0.4	3.6	25.3	
24-Mar	0.2	0.2	0.1	0.1	0.1	Z	0.2	0.1	1.1	3.6	5.7	11.3	9.8	7.3	7.5	7.2	4.4	3.2	2.6	1.3	0.9	0.4	0.3	0.2	2.9	11.3	
25-Mar	Z	0.2	0.2	0.2	0.2	0.1	0.1	1.6	10.5	15.0	15.5	14.2	11.3	7.2	4.0	1.0	1.0	0.3	0.6	1.1	2.6	5.8	1.2	0.5	4.1	15.5	
26-Mar	0.5	Z	5.9	8.2	7.0	6.9	11.2	2.5	6.8	12.1	6.4	5.6	4.9	4.6	5.3	6.4	4.9	3.3	3.4	1.0	0.6	2.0	4.4	2.9	5.1	12.1	
27-Mar	0.6	0.3	Z	0.5	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
28-Mar	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	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.6	0.2	0.0	0.1	0.6	
29-Mar	0.1	0.1	0.0	0.0	Z	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
30-Mar	0.1	0.0	0.0	0.1	0.0	Z	0.1	0.3	0.3	0.3	1.1	1.1	2.0	5.3	5.2	5.6	6.0	4.3	2.3	0.6	0.5	0.4	0.5	4.1	1.8	6.0	
31-Mar	Z	2.3	1.8	9.1	8.4	2.3	0.6	0.5	0.5	0.3	0.3	0.4	0.6	1.0	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	1.9	0.3	1.4	9.1
																								Diurnal Average		Diurnal Maximum	
																								0.4		0.6	
																								2.1		9.1	
																								0.7		8.4	
																								0.5		6.9	
																								0.5		11.2	
																								0.4		2.5	
																								1.2		10.5	
																								3.1		23.0	
																								3.7		31.3	
																								4.7		25.3	
																								4.1		25.8	
																								4.6		29.5	
																								4.0		28.9	
																								3.4		24.8	
																								2.7		21.6	
																								1.8		11.7	
																								1.4		11.3	
																								0.9		5.2	
																								0.7		3.9	
																								0.8		5.8	
																								0.7		4.4	
																								0.6		4.1	

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 (SO₂) - ppb
Ells River - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Ells River - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	671	94.77	94.77
11 - 20	19	2.68	97.46
21 - 60	18	2.54	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 (SO₂) - ppb
Ells River - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	116	122	33	3	13	20	54	98	80	24	11	14	22	12	19	21	662
11 - 20	0	0	0	0	0	1	4	13	1	0	0	0	0	0	0	0	19
21 - 60	0	0	0	0	0	0	8	8	2	0	0	0	0	0	0	0	18
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
Totals	116	122	33	3	13	21	66	119	83	24	11	14	22	12	19	21	699

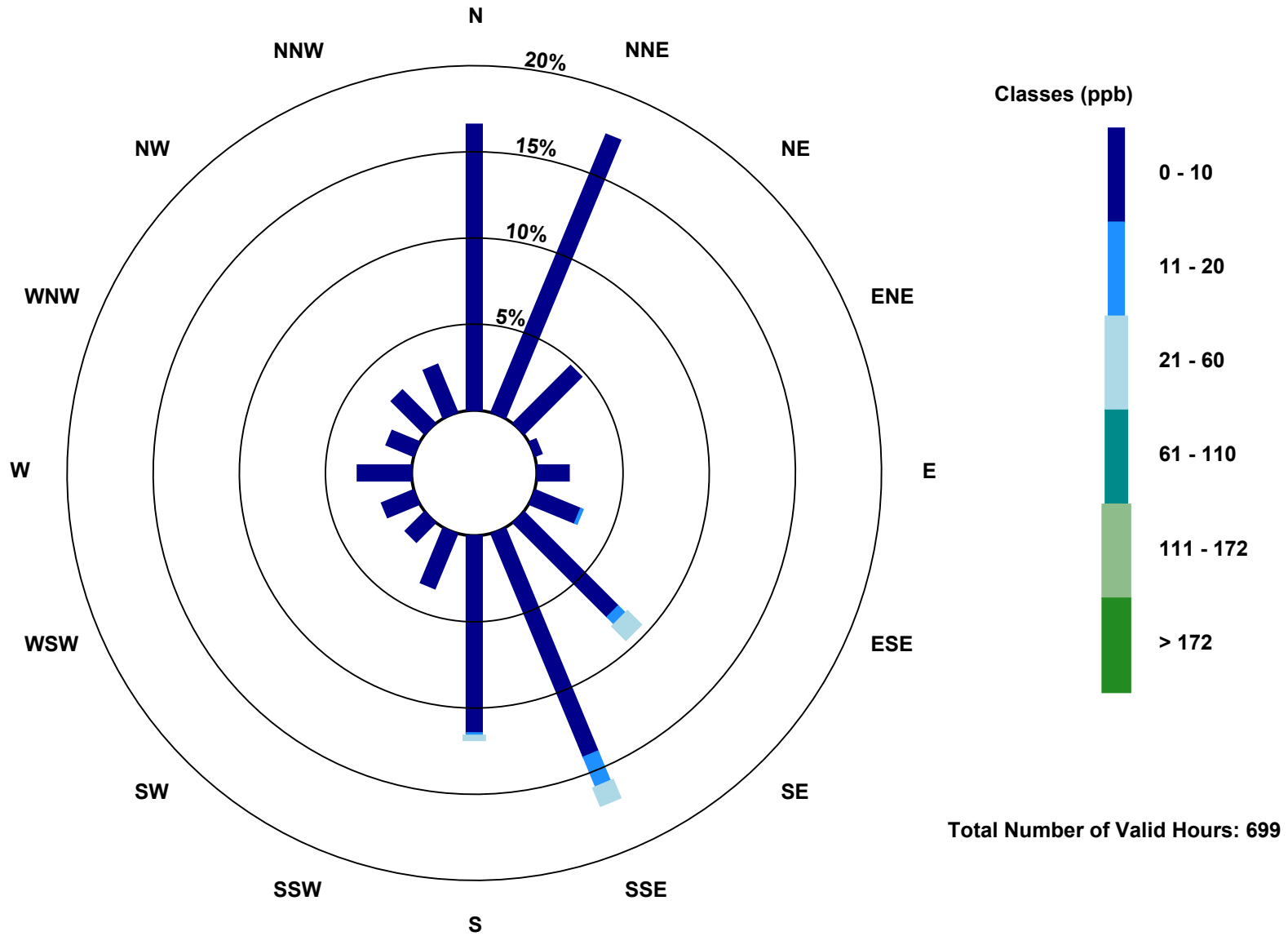
Total Number of Valid Hours: 699

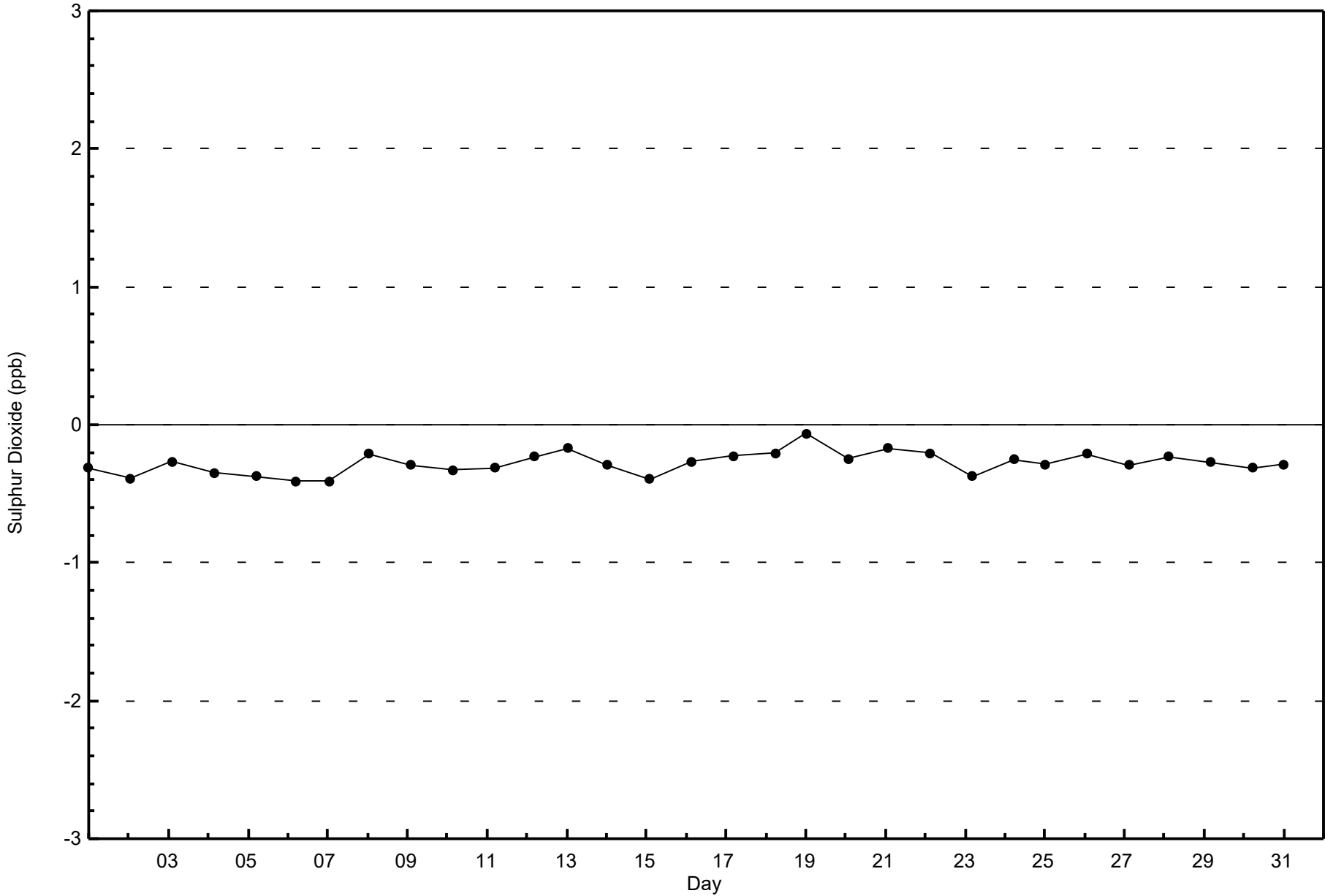
Total Number of Hours: 744

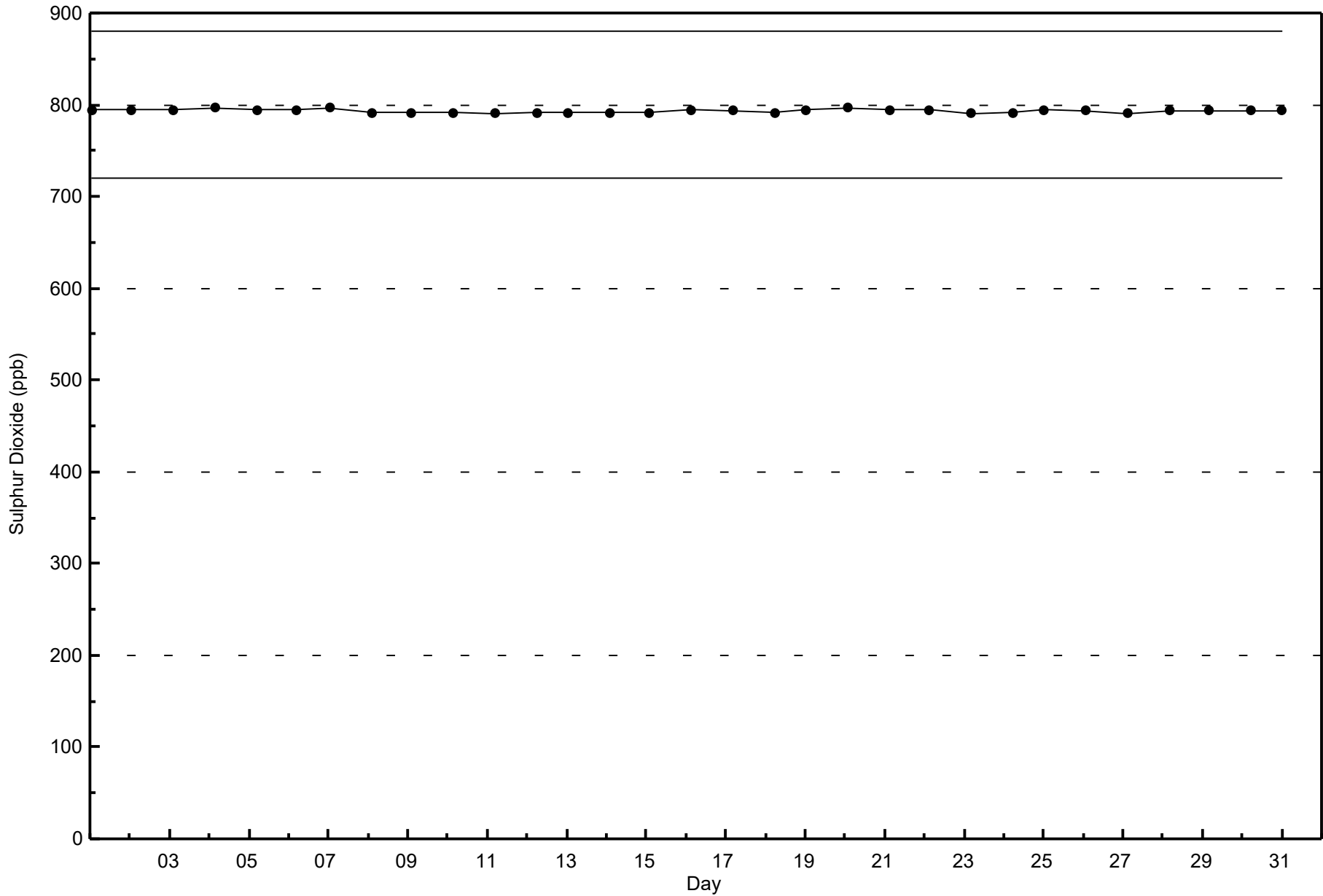


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Ells River

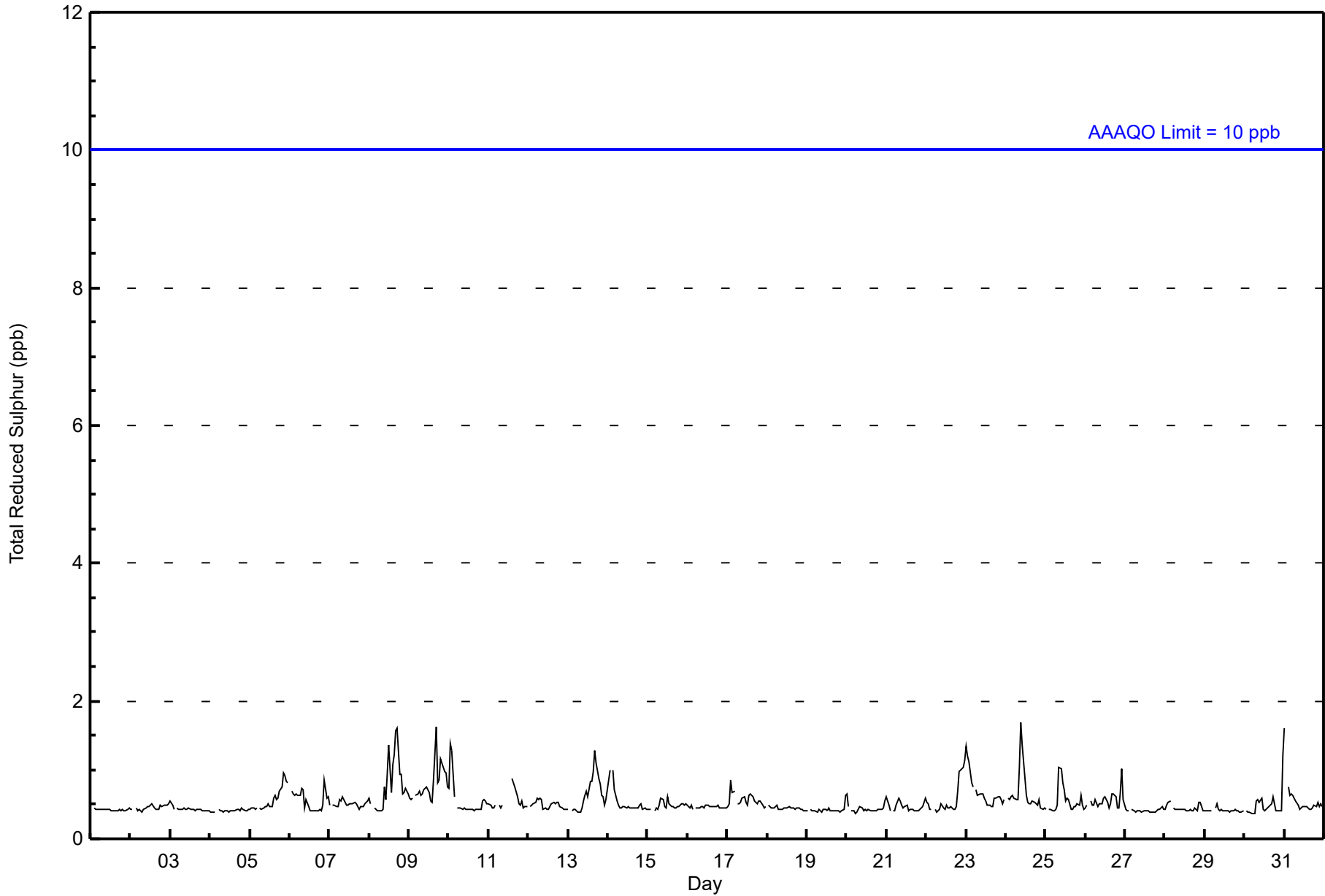








Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 1.7 ppb on Mar 24 10:00		Maximum Daily Average: 0.8 ppb on Mar 9																	Hours of Data: 708								
Minimum Value: 0.4 ppb on Mar 30 07:00		Minimum Daily Average: 0.4 ppb on Mar 4																	Hours of Missing Data: 36								
Maximum Diurnal Average: 0.6 ppb at hour 1		Minimum Diurnal Average: 0.5 ppb at hour 6																	Hours of Calibration: 36								
Monthly Average: 0.52 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 0.4 Q ₁ = 0.4 Median = 0.5 Q ₃ = 0.6 P ₉₀ = 0.7 P ₉₉ = 1.4																	Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	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	0.5	0.4	0.5	
2-Mar	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5
3-Mar	0.5	0.5	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	0.4	0.4	0.4	0.4	0.4	0.4	0.5
4-Mar	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
5-Mar	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	1.0	0.9	0.8	0.8	0.6	0.6	1.0
6-Mar	Z	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.4	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.9	0.6	0.6	0.5	0.5	0.9	0.9
7-Mar	0.5	Z	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.6	0.6
8-Mar	0.6	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.6	0.9	1.4	0.7	1.1	1.2	1.6	1.6	0.9	0.9	0.6	0.7	0.7	0.6	0.8	0.8	1.6
9-Mar	0.6	0.6	0.6	Z	0.6	0.6	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.9	1.6	0.8	0.8	1.2	1.1	1.0	1.0	0.8	0.8	1.6	1.6
10-Mar	0.7	1.4	1.3	0.6	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.5	0.5	0.5	0.5	1.4	1.4
11-Mar	0.5	0.5	0.5	0.5	0.5	Z	0.5	0.5	0.5	C	C	C	C	C	0.9	0.8	0.8	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.9	0.9
12-Mar	Z	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.6
13-Mar	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.7	0.6	0.8	0.8	1.0	1.3	1.1	0.9	0.8	0.6	0.6	0.5	0.6	0.6	1.3	1.3
14-Mar	0.9	1.0	Z	1.0	0.7	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	1.0	1.0
15-Mar	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6
16-Mar	0.5	0.5	0.5	0.4	Z	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5
17-Mar	0.5	0.5	0.9	0.7	0.7	Z	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.6	0.7	0.6	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.6	0.9	0.9
18-Mar	Z	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5
19-Mar	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	0.6	0.6	0.6
20-Mar	0.7	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.7	0.7
21-Mar	0.6	0.5	0.4	Z	0.4	0.4	0.5	0.6	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	0.5	0.6	0.5	0.6	0.6
22-Mar	0.5	0.5	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.5	0.7	1.0	1.0	1.0	1.1	0.6	1.1	1.1
23-Mar	1.3	1.2	1.1	0.8	0.8	Z	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.7	1.3	1.3
24-Mar	Z	0.6	0.6	0.6	0.6	0.6	0.6	1.0	1.7	1.4	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.4	0.4	0.4	0.7	1.7	1.7
25-Mar	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.5	1.0	1.0	0.8	0.7	0.5	0.6	0.6	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.4	0.5	1.0	1.0
26-Mar	0.4	0.5	Z	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.7	0.7	0.6	0.5	0.5	0.7	1.0	0.6	0.6	1.0	1.0
27-Mar	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.5
28-Mar	0.4	0.5	0.5	0.6	Z	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.6	0.6
29-Mar	0.4	0.4	0.4	0.4	0.4	Z	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	0.5	0.5
30-Mar	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.5	0.6	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.4	1.2	0.5	1.2	1.2
31-Mar	1.6	Z	0.8	0.6	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	1.6	1.6
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Ells River - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	708	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Ells River - March 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	116	118	33	3	13	20	67	120	88	24	10	15	21	11	19	21	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
Totals	116	118	33	3	13	20	67	120	88	24	10	15	21	11	19	21	699

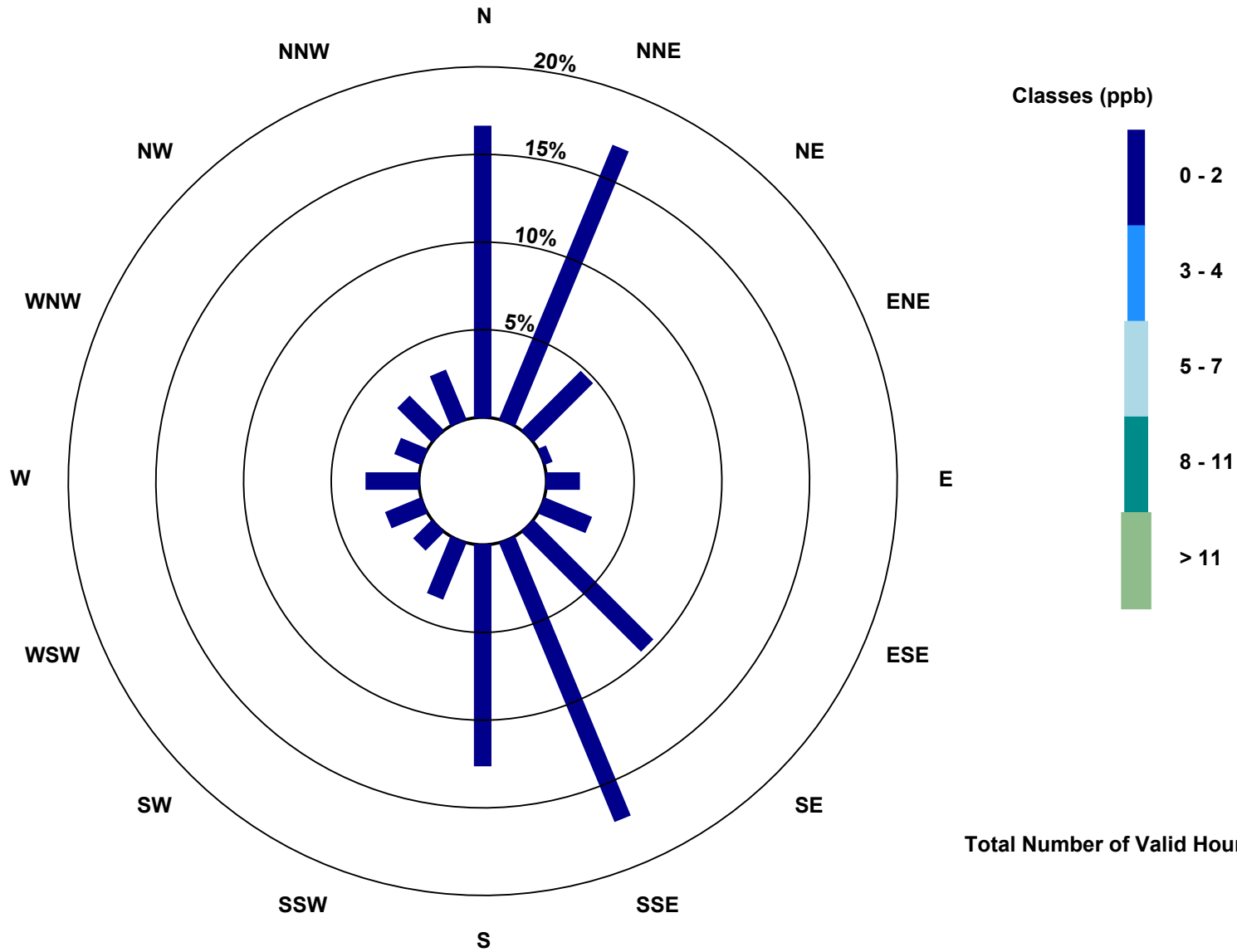
Total Number of Valid Hours: 699

Total Number of Hours: 744

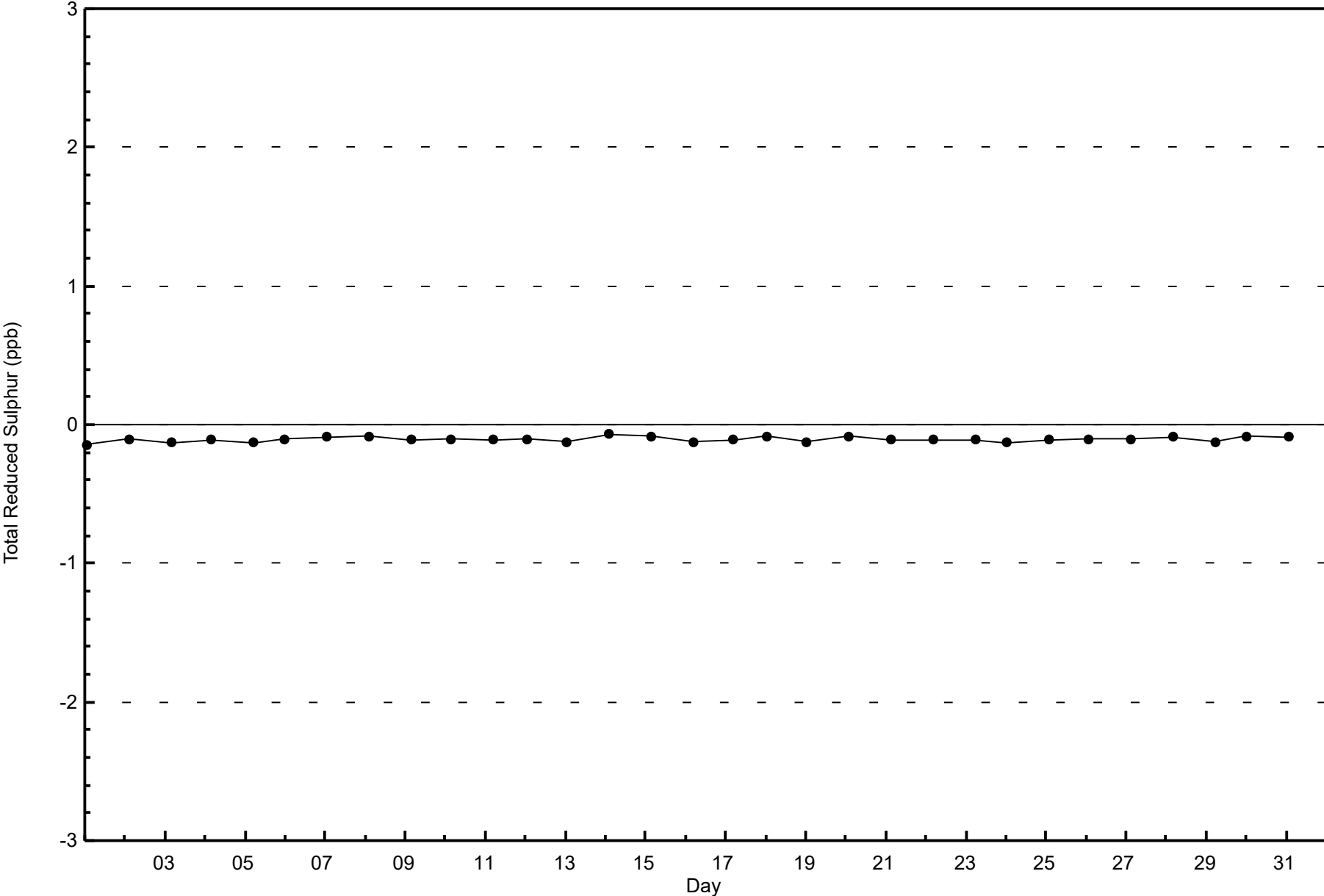


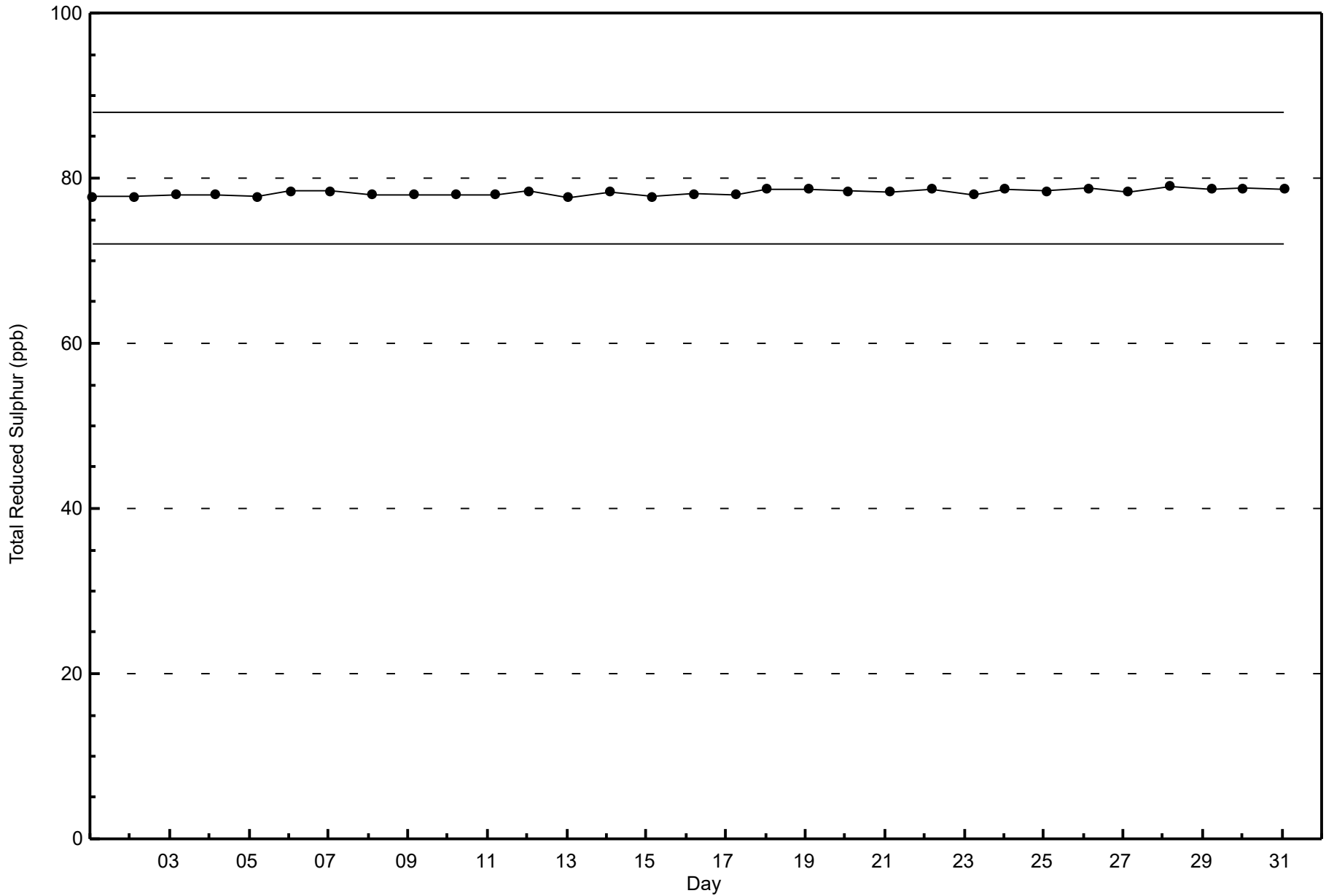
Wood Buffalo Environmental Association
Wind Rose Mar 2024

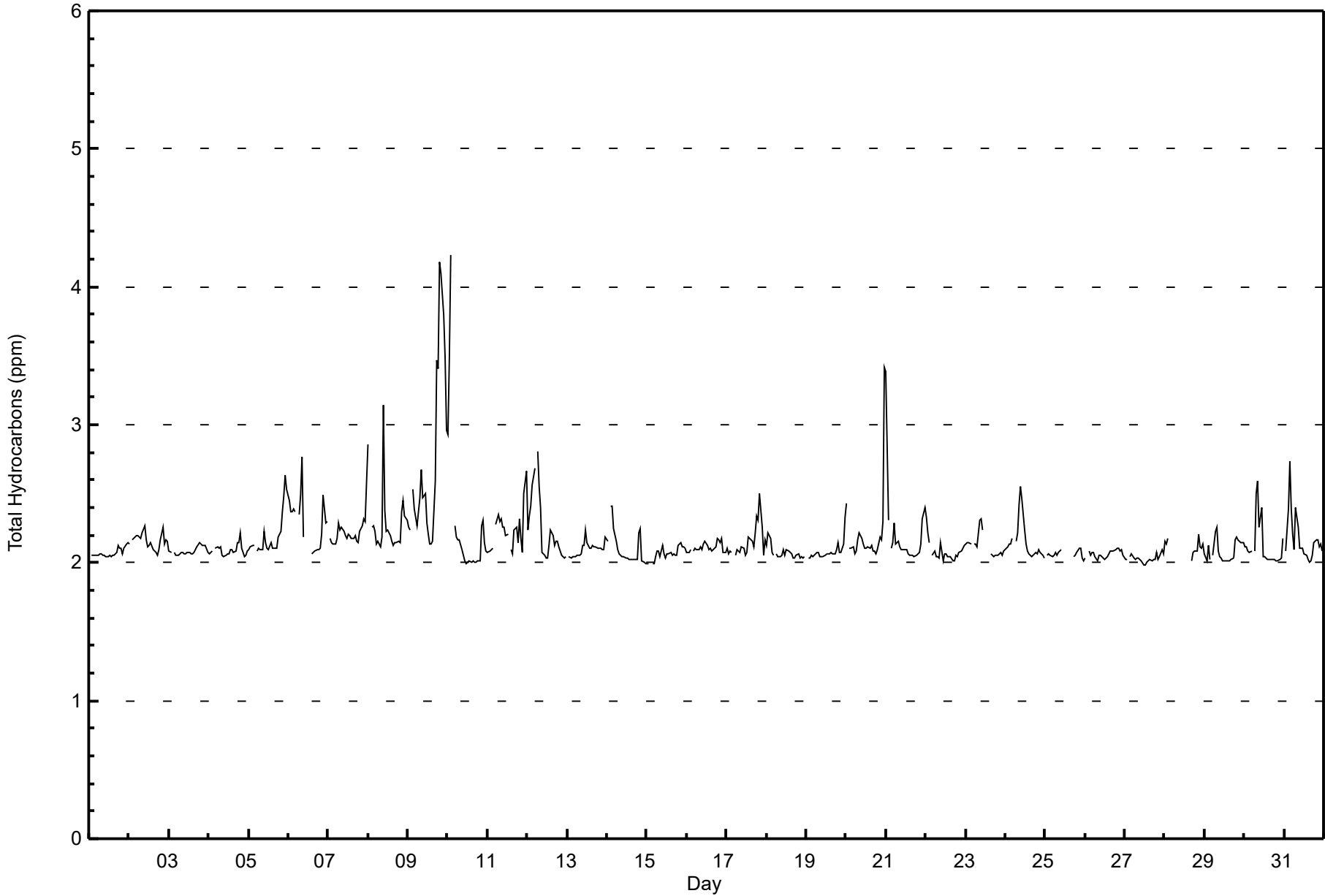
Total Reduced Sulphur (TRS) - ppb
Ells River



Total Number of Valid Hours: 699









Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Ells River - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	134	19.56	19.56
2.1 - 3.0	540	78.83	98.39
3.1 - 10.0	11	1.61	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
Ells River - March 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	7	23	3	0	9	13	17	19	4	13	2	5	7	4	6	1	133
2.1 - 3.0	99	96	30	3	4	8	45	92	77	9	9	8	14	8	13	18	533
3.1 - 10.0	1	0	0	0	0	0	0	1	2	2	0	1	1	0	0	2	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	107	119	33	3	13	21	62	112	83	24	11	14	22	12	19	21	676

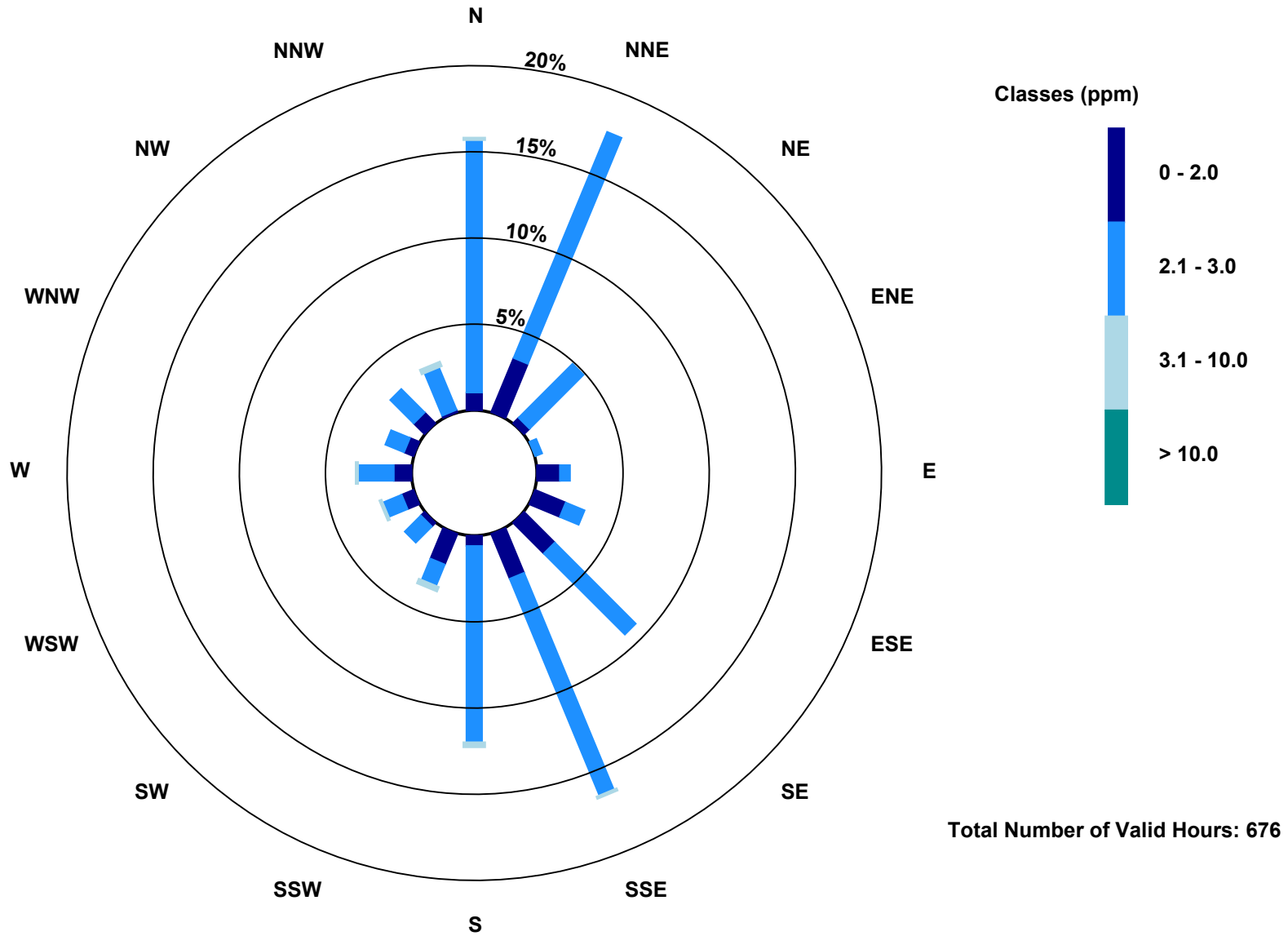
Total Number of Valid Hours: 676

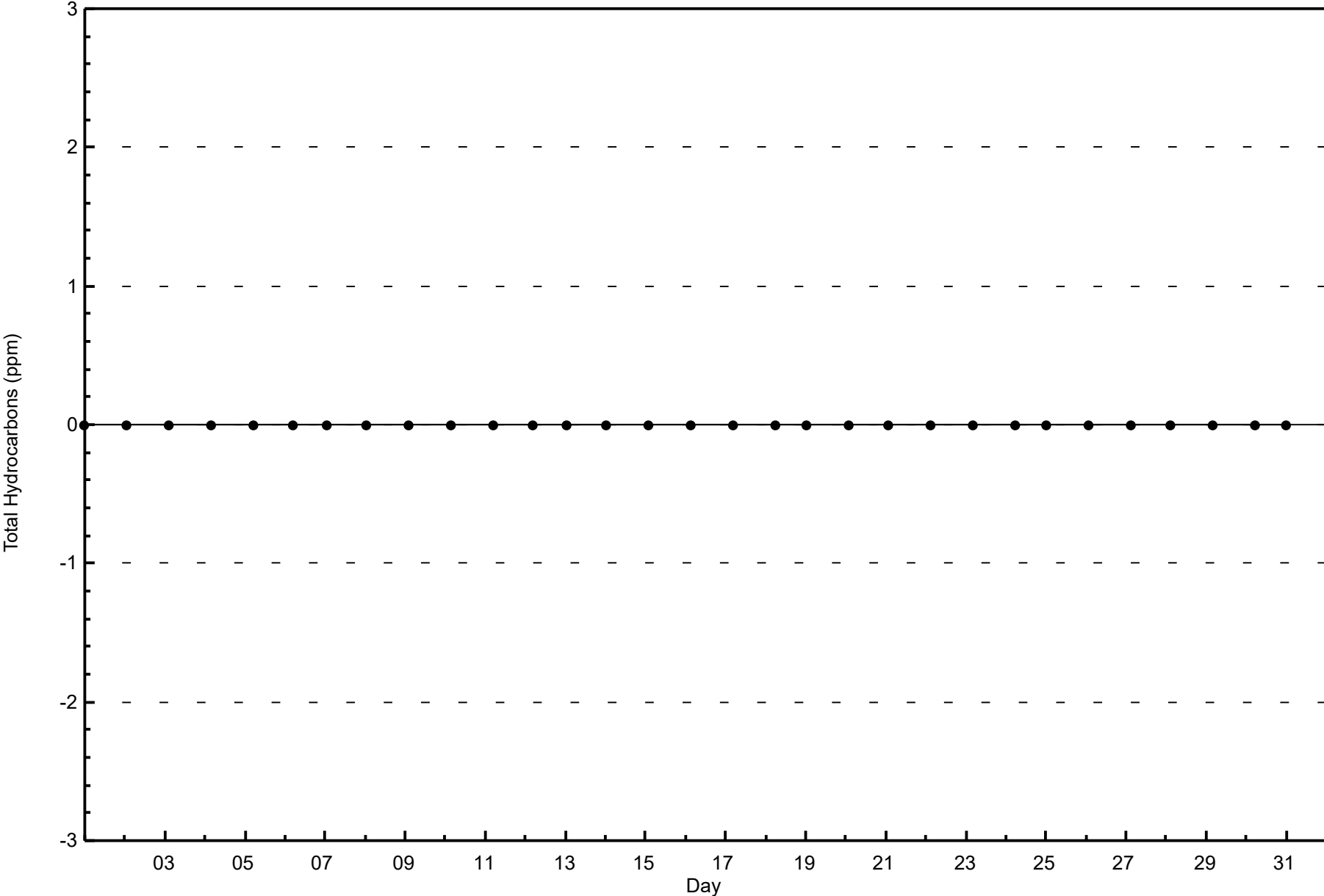
Total Number of Hours: 744

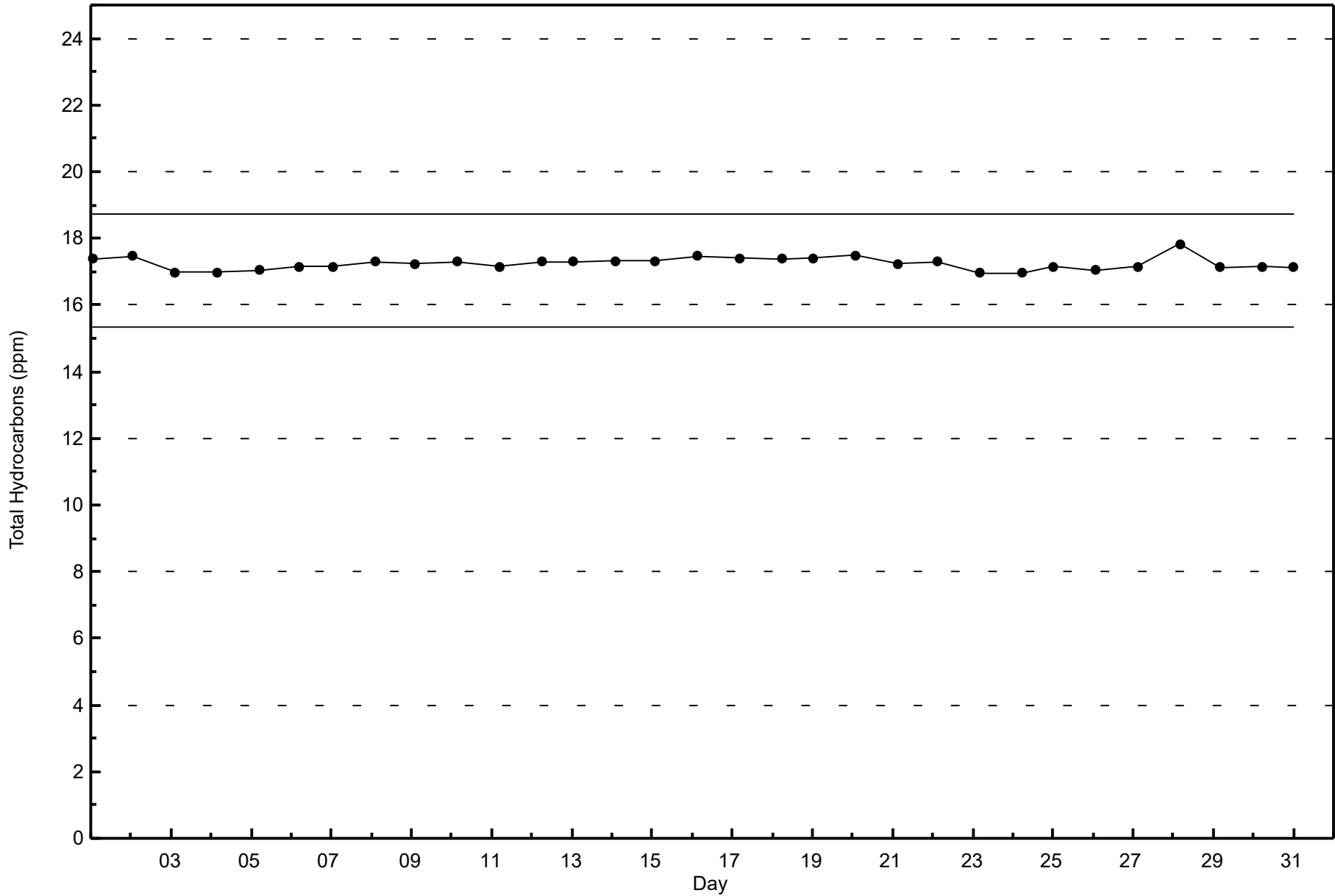


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Ells River

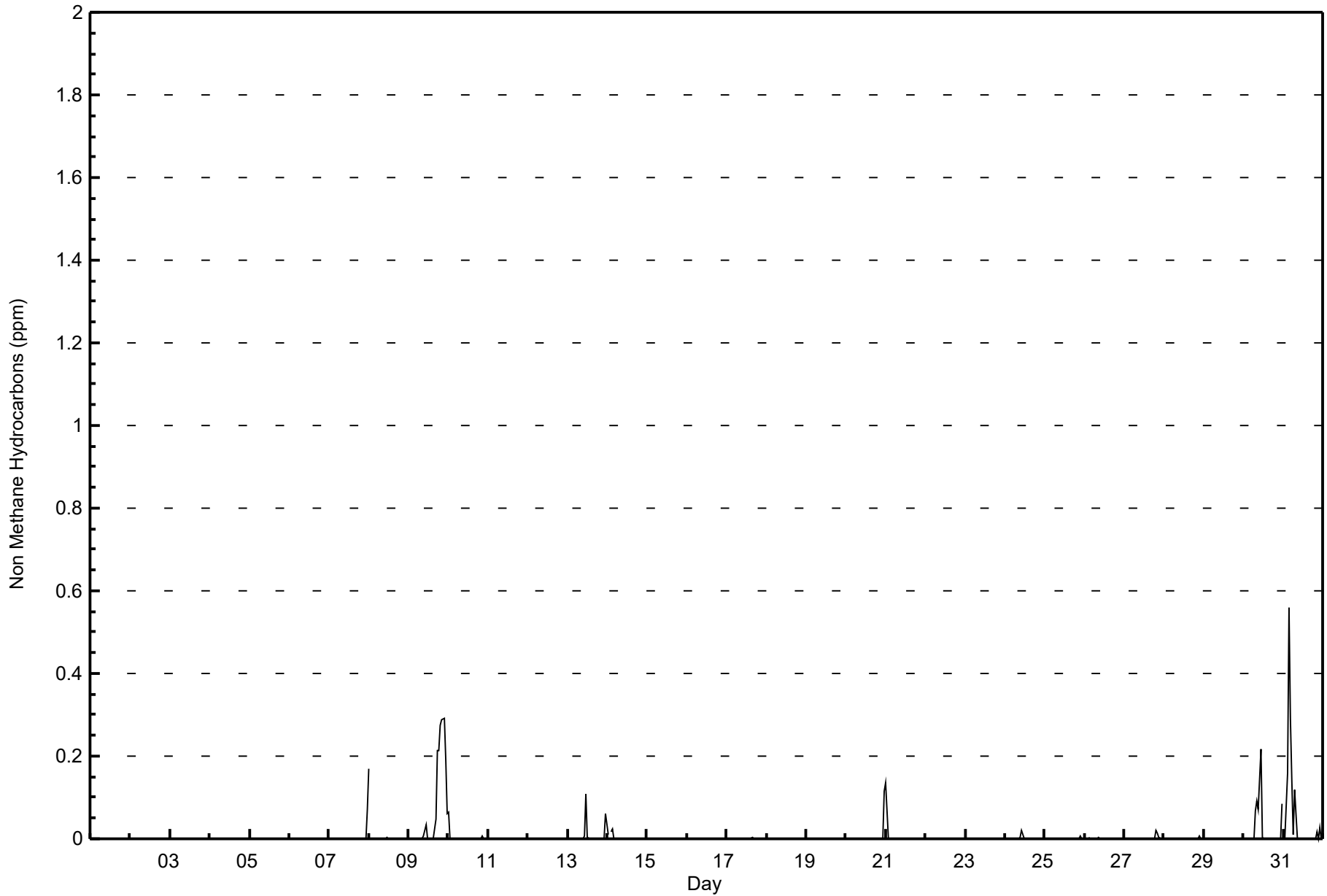








Maximum Value: 0.559 ppm on Mar 31 04:00		Maximum Daily Average: 0.071 ppm on Mar 9		Hours in Service: 744																															
Minimum Value: 0.000 ppm on Mar 1 02:00		Minimum Daily Average: 0.000 ppm on Mar 1		Hours of Data: 685																															
Maximum Diurnal Average: 0.022 ppm at hour 4		Minimum Diurnal Average: 0.000 ppm at hour 2		Hours of Missing Data: 59																															
Monthly Average: 0.006 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.2		Hours of Calibration: 35																															
				Percent Operational Time: 96.8																															
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-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
3-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
7-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.072
8-Mar	0.170	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.170
9-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.034	0.000	0.000	0.000	0.000	0.000	0.048	0.214	0.212	0.274	0.290	0.291	0.191	0.063	0.071	0.291								
10-Mar	0.064	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.064	
11-Mar	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	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
12-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
13-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.109	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.109	
14-Mar	0.009	Z	0.018	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.024	
15-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
16-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
17-Mar	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	0.002	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	0.002	
18-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
19-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Mar	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.115	0.115	
21-Mar	0.136	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.136	
22-Mar	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
23-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
24-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.005	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020	
25-Mar	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	
26-Mar	0.000	Z	0.003	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	
27-Mar	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	
28-Mar	0.000	0.000	0.000	Z	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	
29-Mar	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
30-Mar	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.066	0.091	0.071	0.218	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.084	0.218	
31-Mar	Z	0.000	0.161	0.559	0.293	0.143	0.009	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.559	
		0.015	0.000	0.007	0.022	0.012	0.006	0.000	0.006	0.003	0.003	0.010	0.004	0.000	0.000	0.000	0.002	0.007	0.007	0.010	0.010	0.010	0.007	0.013									Diurnal Average		
		0.170	0.000	0.161	0.559	0.293	0.143	0.009	0.120	0.091	0.071	0.218	0.109	0.002	0.000	0.000	0.002	0.048	0.214	0.212	0.274	0.290	0.291	0.191	0.115							Diurnal Maximum			
Z - zerospan		C - Calibration				M - Maintenance				UO - Unstable Operation																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Ells River - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	645	94.16	94.16
0.006 - 0.05	16	2.34	96.50
0.06 - 0.1	13	1.90	98.39
> 0.1	11	1.61	100.00

Total Number of Valid Hours: 685

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Ells River - March 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	105	119	31	3	13	20	60	96	78	20	11	13	20	11	19	18	637
0.006 - 0.05	1	0	2	0	0	1	1	7	3	0	0	0	0	0	0	1	16
0.06 - 0.1	1	0	0	0	0	0	1	6	1	2	0	0	0	1	0	1	13
> 0.1	0	0	0	0	0	0	0	3	1	2	0	1	2	0	0	1	10
Totals	107	119	33	3	13	21	62	112	83	24	11	14	22	12	19	21	676

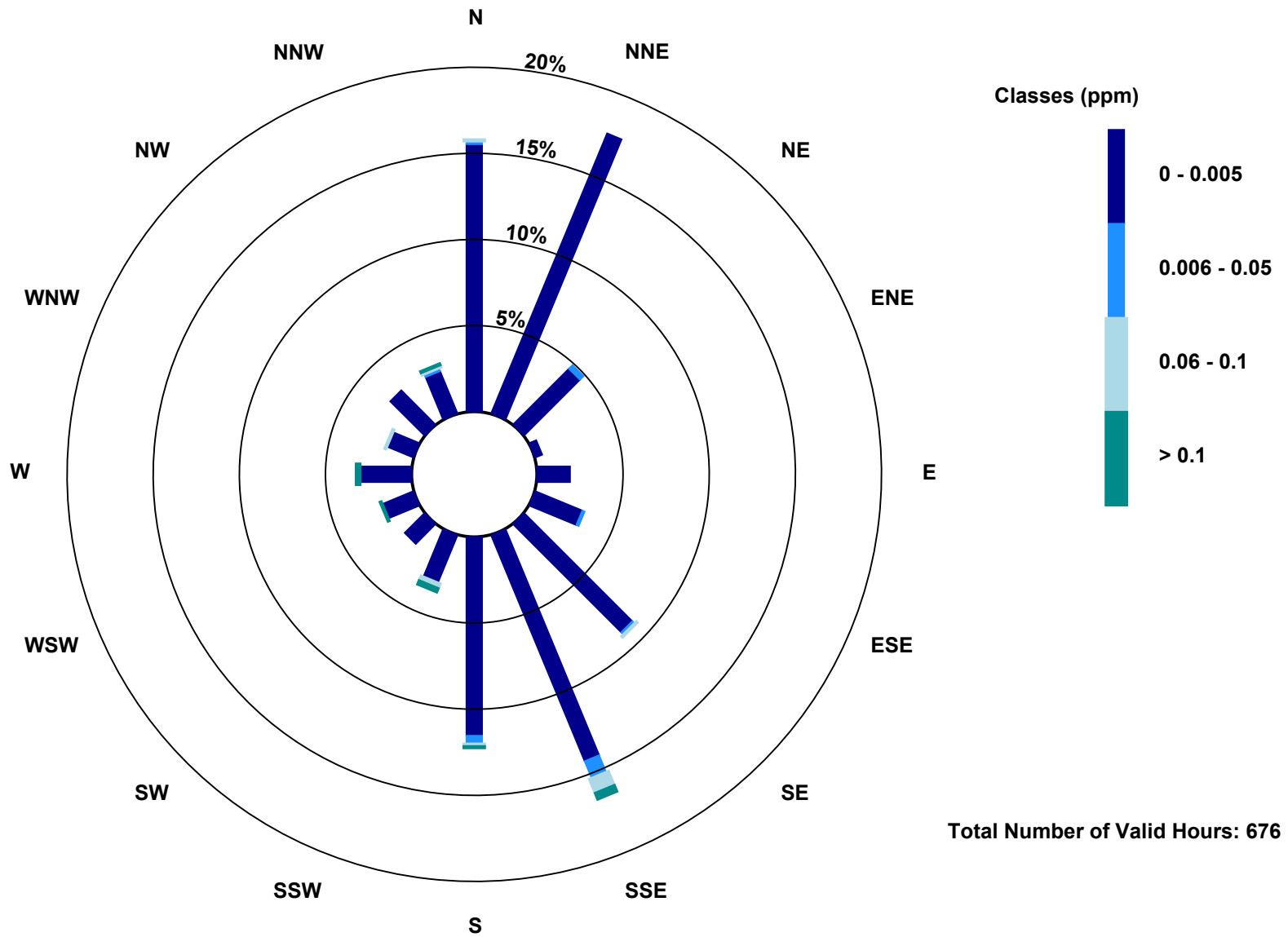
Total Number of Valid Hours: 676

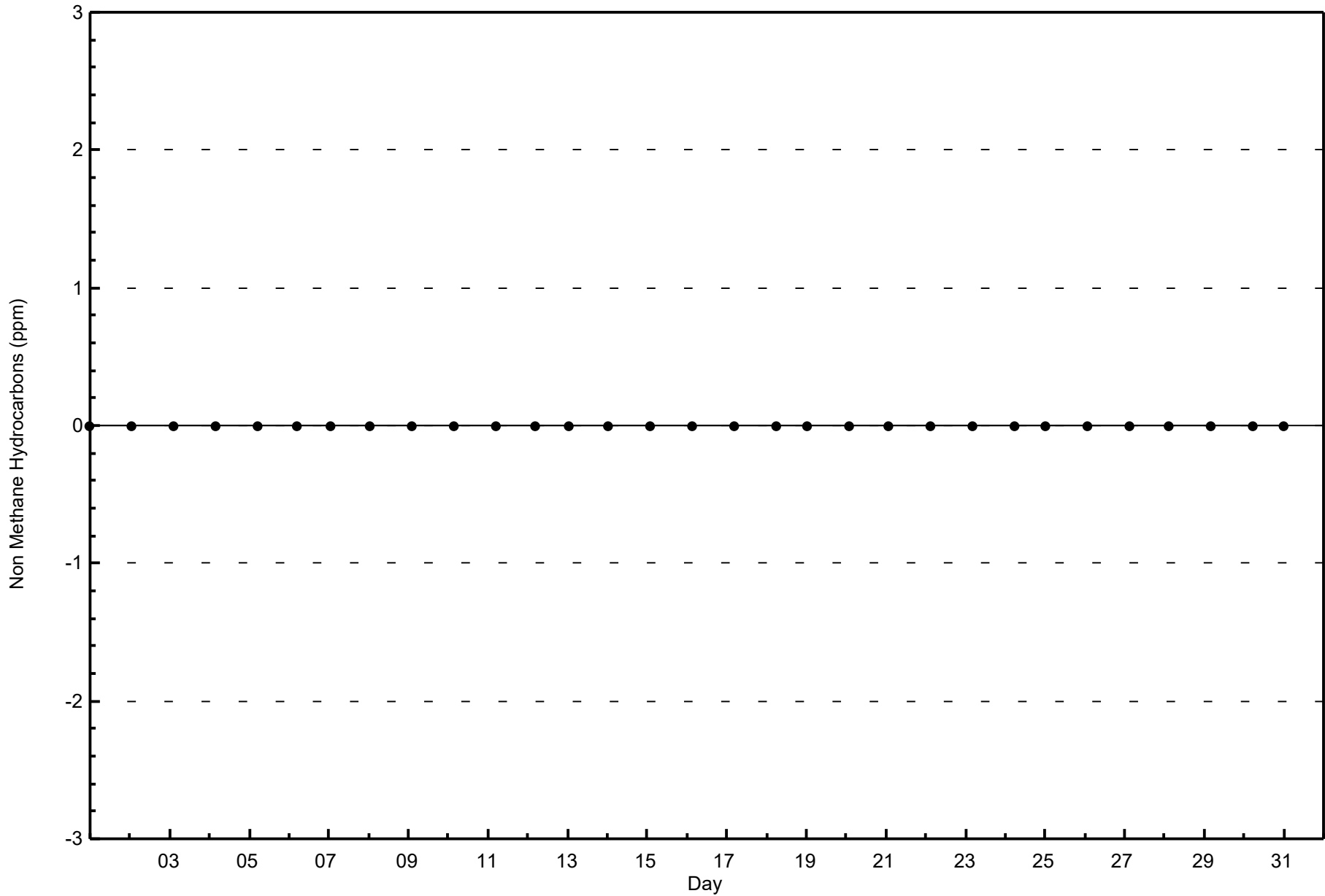
Total Number of Hours: 744

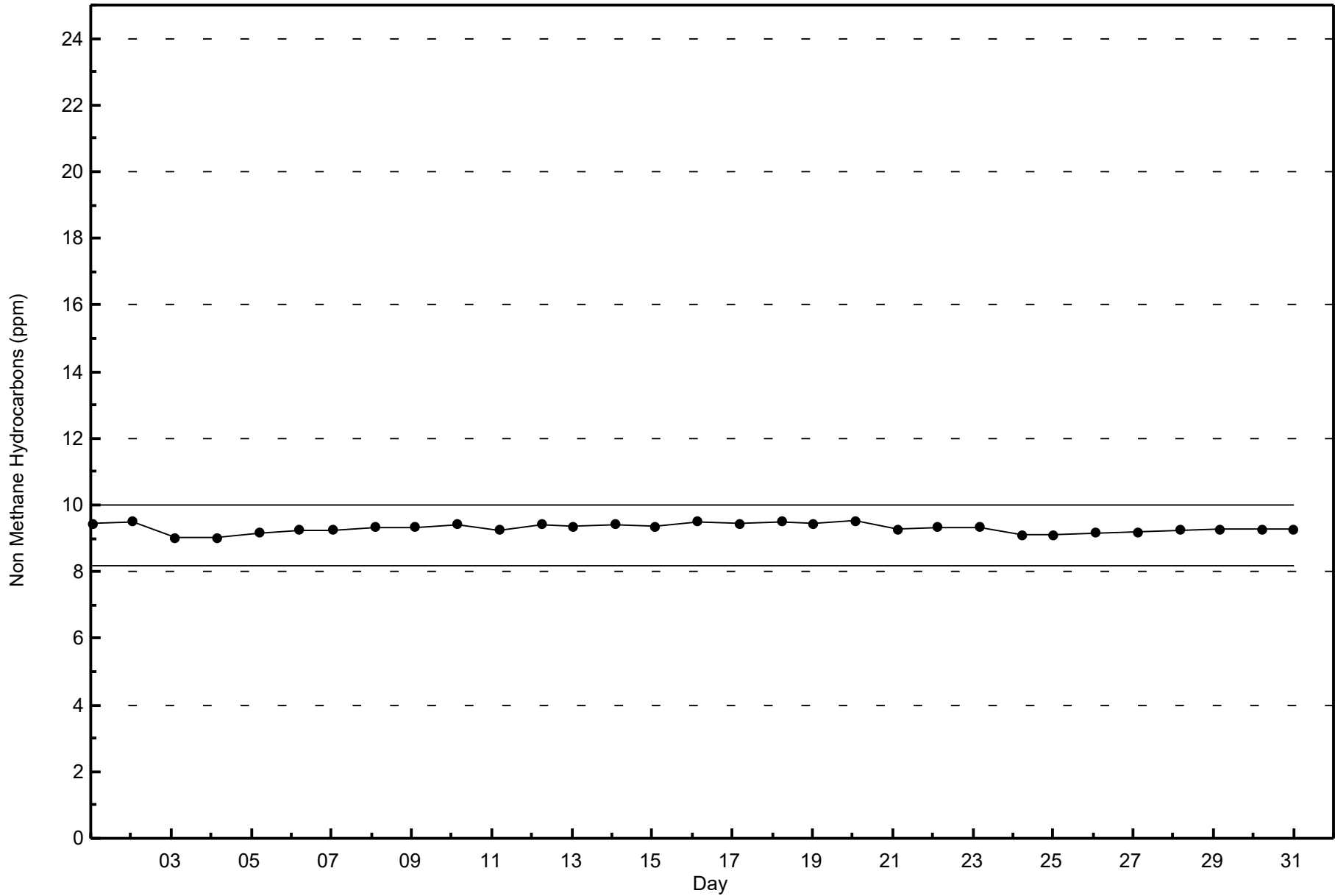


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Non Methane Hydrocarbons (NMHC) - ppm
Ells River



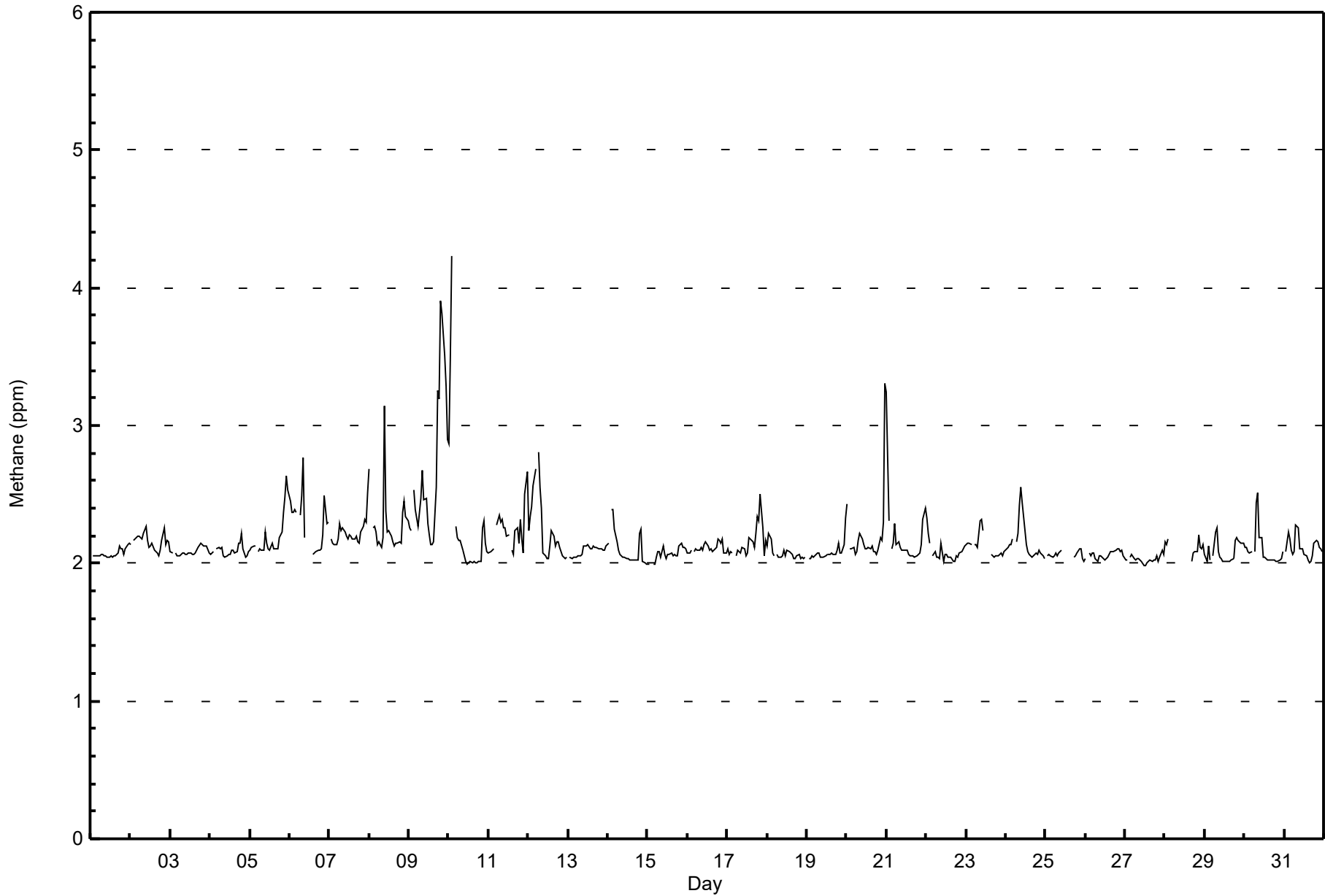






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Ells River - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Ells River - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	134	19.56	19.56
2.1 - 3.0	540	78.83	98.39
3.1 - 10.0	11	1.61	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 (CH₄) - ppm
Ells River - March 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	7	23	3	0	9	13	17	19	4	13	2	5	7	4	6	1	133
2.1 - 3.0	99	96	30	3	4	8	45	92	77	9	9	8	14	8	13	18	533
3.1 - 10.0	1	0	0	0	0	0	0	1	2	2	0	1	1	0	0	2	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	107	119	33	3	13	21	62	112	83	24	11	14	22	12	19	21	676

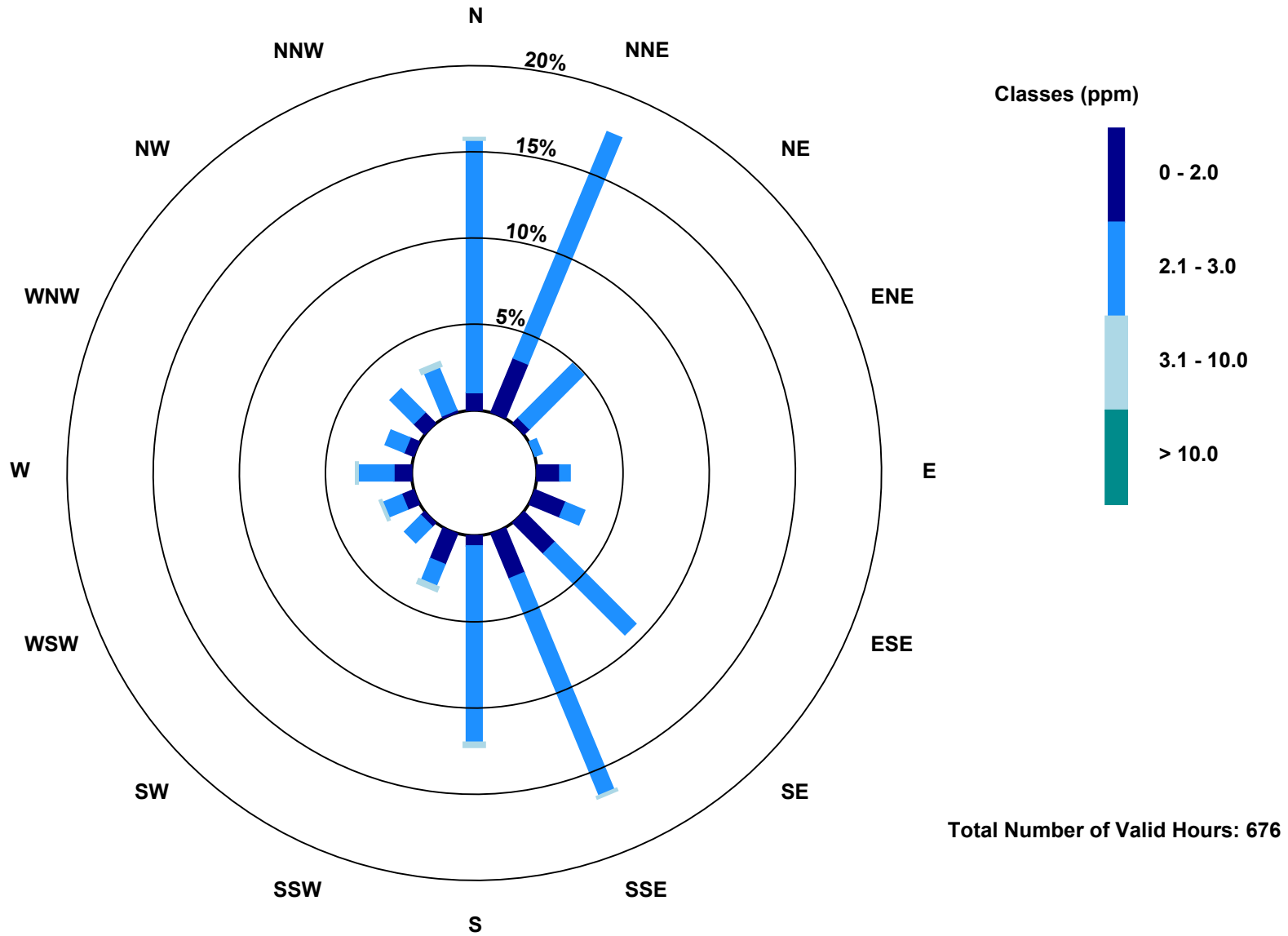
Total Number of Valid Hours: 676

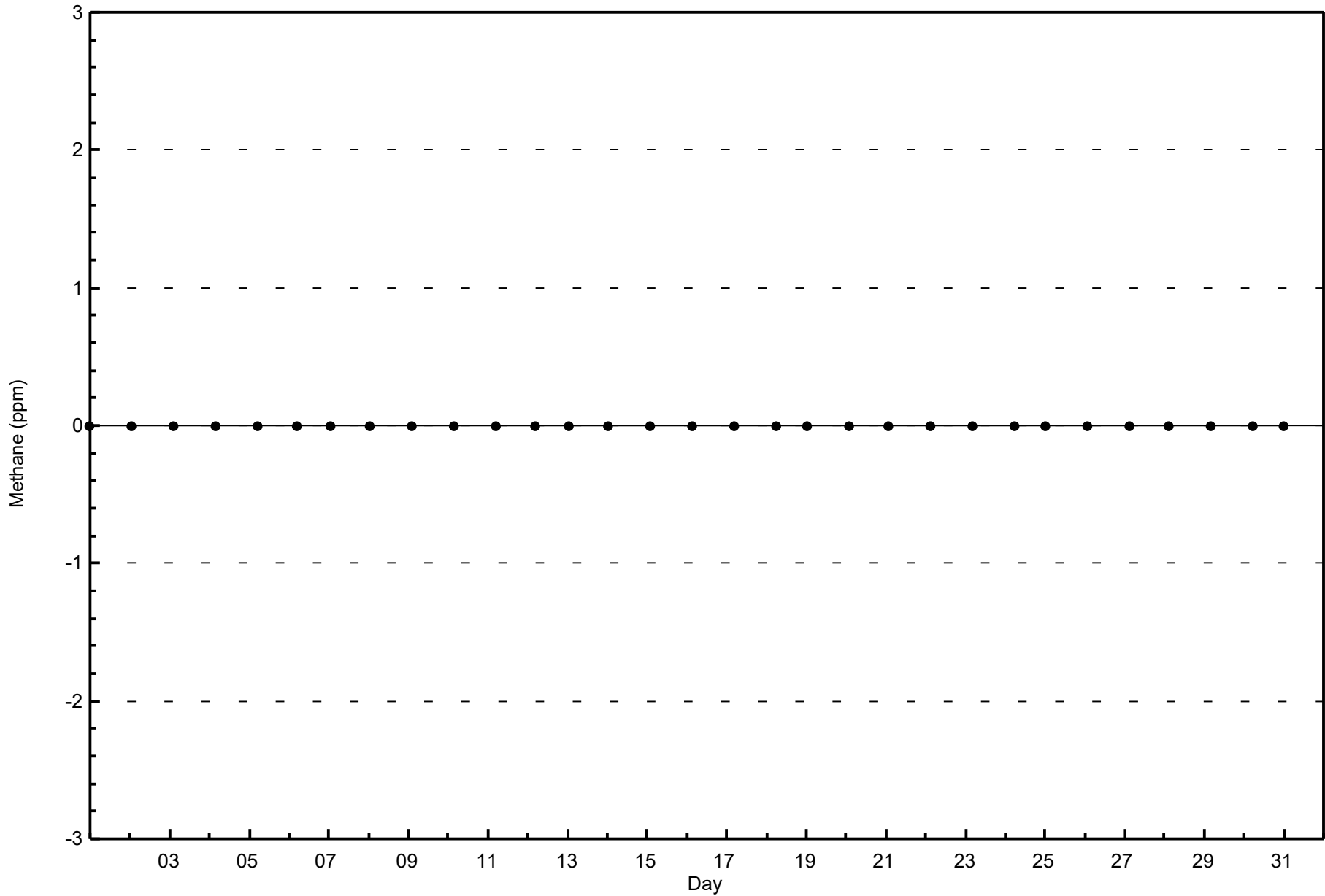
Total Number of Hours: 744

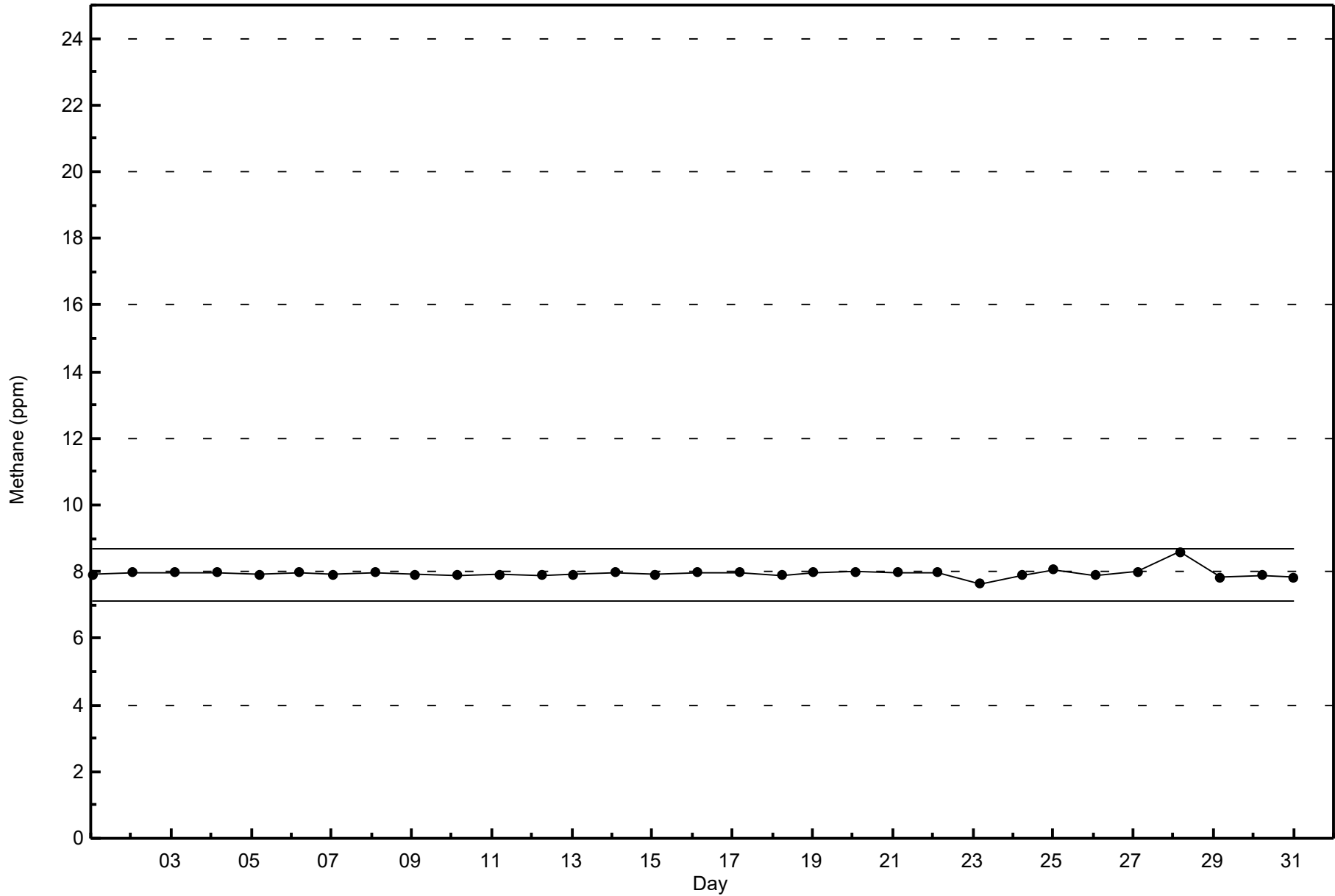


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Methane (CH₄) - ppm
Ells River









Wood Buffalo Environmental Association
Summary of Hour Averages

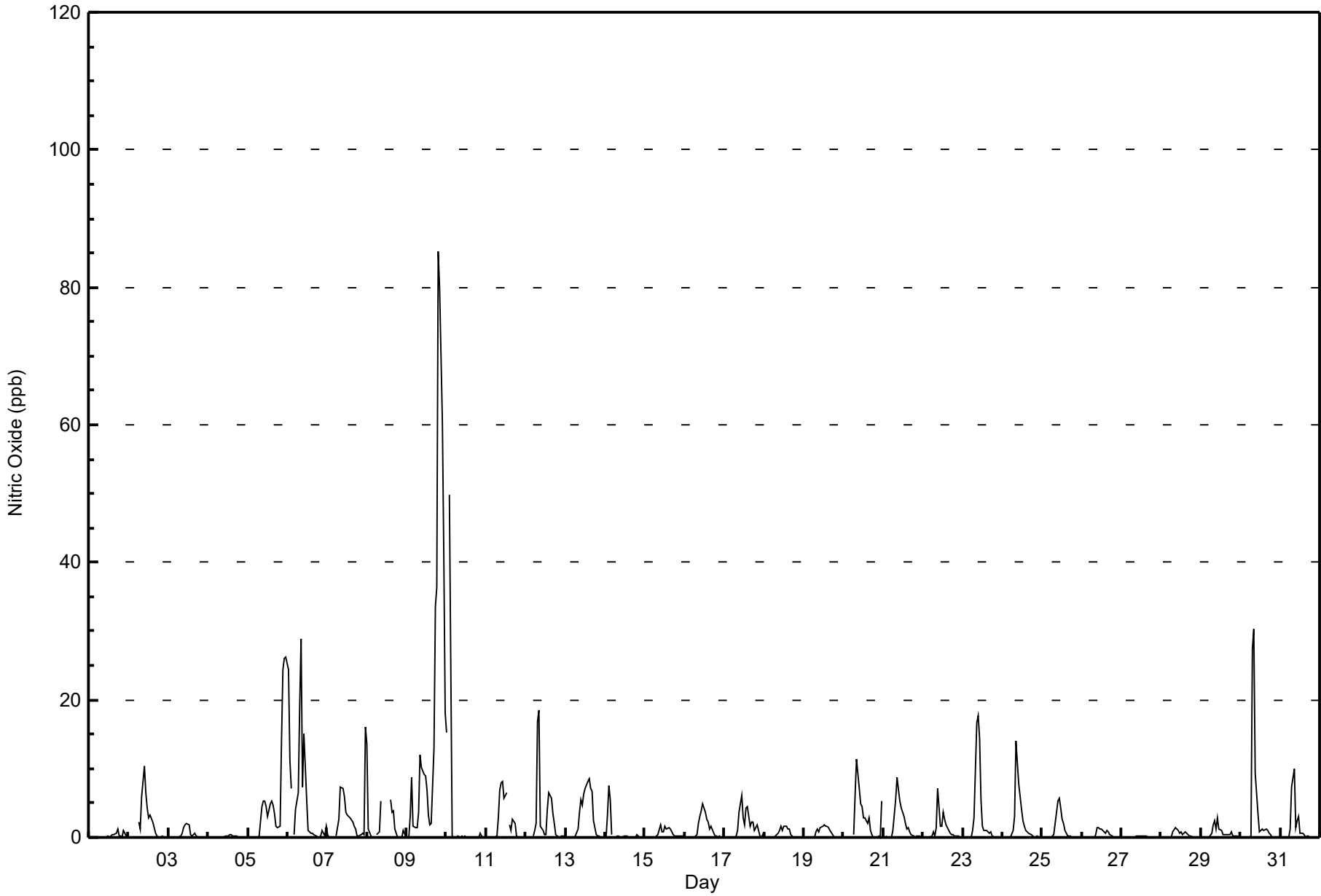
Nitric Oxide (NO) - ppb
Ells River - March 2024

Maximum Value: 85.3 ppb on Mar 9 20:00		Maximum Daily Average: 19.3 ppb on Mar 9		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.1 ppb on Mar 27		Hours of Data: 707																						
Maximum Diurnal Average: 6.4 ppb at hour 9		Minimum Diurnal Average: 0.1 ppb at hour 5		Hours of Missing Data: 37																						
Monthly Average: 2.30 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 1.7 P ₉₀ = 5.6 P ₉₉ = 30.2		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.4	0.7	1.2	0.1	0.1	0.1	1.1	0.1	0.1	0.2	1.2	
2-Mar	0.1	0.0	0.0	0.0	0.1	Z	2.3	1.1	6.0	10.3	6.5	4.2	2.8	3.2	2.3	1.5	0.7	0.2	0.0	0.0	0.2	0.1	0.1	0.1	10.3	
3-Mar	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.6	1.5	1.8	1.9	1.8	0.4	0.3	0.4	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.9	
4-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
5-Mar	0.1	0.1	Z	0.0	0.1	0.1	0.0	0.3	4.5	5.3	5.3	4.5	3.1	4.9	5.3	4.6	3.4	1.7	1.5	1.6	13.9	24.3	26.0	26.3	26.3	
6-Mar	24.3	11.2	7.2	Z	0.4	4.0	6.5	19.2	28.9	7.4	15.0	5.4	1.1	0.7	0.6	0.5	0.3	0.2	0.0	0.0	0.2	0.9	0.3	1.7	28.9	
7-Mar	0.4	0.1	0.0	0.0	Z	0.1	1.5	2.6	7.3	7.2	5.8	3.6	3.3	3.1	2.8	2.2	1.5	1.3	0.2	0.2	0.3	0.5	0.4	16.0	16.0	
8-Mar	13.6	1.2	0.1	0.1	0.0	Z	0.3	0.8	5.4	C	C	C	C	C	5.5	3.7	3.8	1.1	0.1	0.0	0.0	0.0	1.0	0.0	13.6	
9-Mar	Z	0.1	3.1	8.8	1.7	1.5	1.5	3.6	12.0	10.1	9.2	9.0	7.0	3.2	1.8	2.1	13.1	33.5	36.4	85.3	79.9	60.4	41.4	18.1	85.3	
10-Mar	15.2	Z	49.8	0.2	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	49.8	
11-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.3	2.9	7.0	7.9	8.0	5.8	6.6	M	1.8	1.1	2.7	2.0	0.2	0.1	0.0	0.0	0.0	0.0	8.0	
12-Mar	0.0	0.0	0.1	Z	0.2	1.0	1.9	16.9	18.5	1.7	1.1	0.4	0.4	4.0	6.4	5.6	3.5	2.0	0.5	0.3	0.1	0.2	0.2	0.1	18.5	
13-Mar	0.1	0.0	0.1	0.0	Z	0.1	0.1	1.1	3.6	5.6	4.8	6.2	7.1	8.2	8.5	7.2	6.7	2.4	0.3	0.1	0.1	0.1	0.0	0.1	8.5	
14-Mar	0.0	3.4	7.5	5.5	0.5	Z	0.1	0.2	0.3	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	7.5	
15-Mar	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	1.8	0.8	0.7	1.5	1.3	1.5	1.1	0.9	0.5	0.2	0.1	0.1	0.1	0.2	0.2	1.8	
16-Mar	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.4	2.0	3.0	3.8	4.9	3.7	2.6	2.2	1.2	1.6	0.5	0.2	0.1	0.1	0.1	0.1	0.1	4.9	
17-Mar	0.1	0.1	Z	0.1	0.1	0.1	0.0	0.3	1.0	3.6	6.1	2.9	1.9	4.2	4.4	1.6	2.3	2.2	1.0	1.3	1.8	0.2	0.0	0.4	6.1	
18-Mar	0.0	0.1	0.1	Z	0.1	0.0	0.1	0.1	0.6	1.0	1.6	1.0	1.7	1.7	1.1	1.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	
19-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.9	1.2	0.8	1.4	1.7	1.8	1.7	1.6	1.5	1.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	1.8	
20-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.4	6.1	11.4	7.2	4.8	4.4	2.8	2.9	2.1	2.8	1.1	0.5	0.1	0.1	0.1	0.1	0.1	5.4	11.4	
21-Mar	Z	0.1	0.1	0.1	0.1	0.1	1.0	5.4	8.8	6.9	5.3	4.3	3.0	2.0	1.3	1.3	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.1	8.8	
22-Mar	0.1	Z	0.1	0.1	0.0	0.3	0.8	0.3	1.5	7.0	1.7	1.7	3.7	2.7	1.8	1.4	0.6	0.5	0.4	0.2	0.2	0.1	0.1	0.1	7.0	
23-Mar	0.1	0.1	Z	0.0	0.0	0.0	1.0	2.8	16.7	17.8	14.4	5.5	1.7	0.9	0.9	0.7	0.6	0.8	0.2	0.0	0.0	0.1	0.0	0.0	17.8	
24-Mar	0.0	0.0	0.0	Z	0.1	0.0	1.0	3.1	14.1	10.8	7.7	4.0	2.4	1.6	1.0	0.8	0.6	0.5	0.1	0.1	0.1	0.1	0.1	0.1	14.1	
25-Mar	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.3	2.0	5.3	5.6	4.3	2.7	2.0	1.0	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	5.6	
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.3	1.4	1.5	1.3	1.1	0.8	0.7	1.0	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	1.5	
27-Mar	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
28-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.9	1.3	1.3	1.1	0.6	0.9	0.4	0.8	0.6	0.5	0.2	0.3	0.0	0.0	0.0	0.0	0.0	1.3	
29-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.5	1.9	2.4	1.2	2.8	1.2	1.0	0.3	0.4	0.4	0.5	0.4	0.8	0.2	0.2	0.1	0.1	0.1	2.8	
30-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.2	27.5	30.3	9.3	3.5	0.8	0.9	1.3	1.0	1.1	1.0	0.6	0.5	0.0	0.0	0.0	0.0	0.1	30.3	
31-Mar	0.0	0.0	0.0	0.0	Z	0.0	1.2	7.4	9.9	1.4	2.4	3.0	0.7	0.6	0.4	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	9.9	
																								Diurnal Average		
																								Diurnal Maximum		
																								2.1 0.6 2.6 0.6 0.1 0.3 0.7 3.4 6.4 4.6 4.1 2.8 2.2 1.9 1.9 1.5 1.6 1.8 1.4 2.9 3.2 2.9 2.3 2.2		
																								24.3 11.2 49.8 8.8 1.7 4.0 6.5 27.5 30.3 17.8 15.0 9.0 7.1 8.2 8.5 7.2 13.1 33.5 36.4 85.3 79.9 60.4 41.4 26.3		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Ells River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Ells River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	693	98.02	98.02
21 - 40	9	1.27	99.29
41 - 80	4	0.57	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
Ells River - March 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	118	122	32	3	12	21	67	112	82	20	11	13	22	13	19	19	686
21 - 40	0	0	0	0	0	0	0	2	5	0	0	0	1	0	0	1	9
11 - 80	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
81 - 159	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	118	122	32	3	12	21	67	114	88	22	11	14	23	13	19	20	699

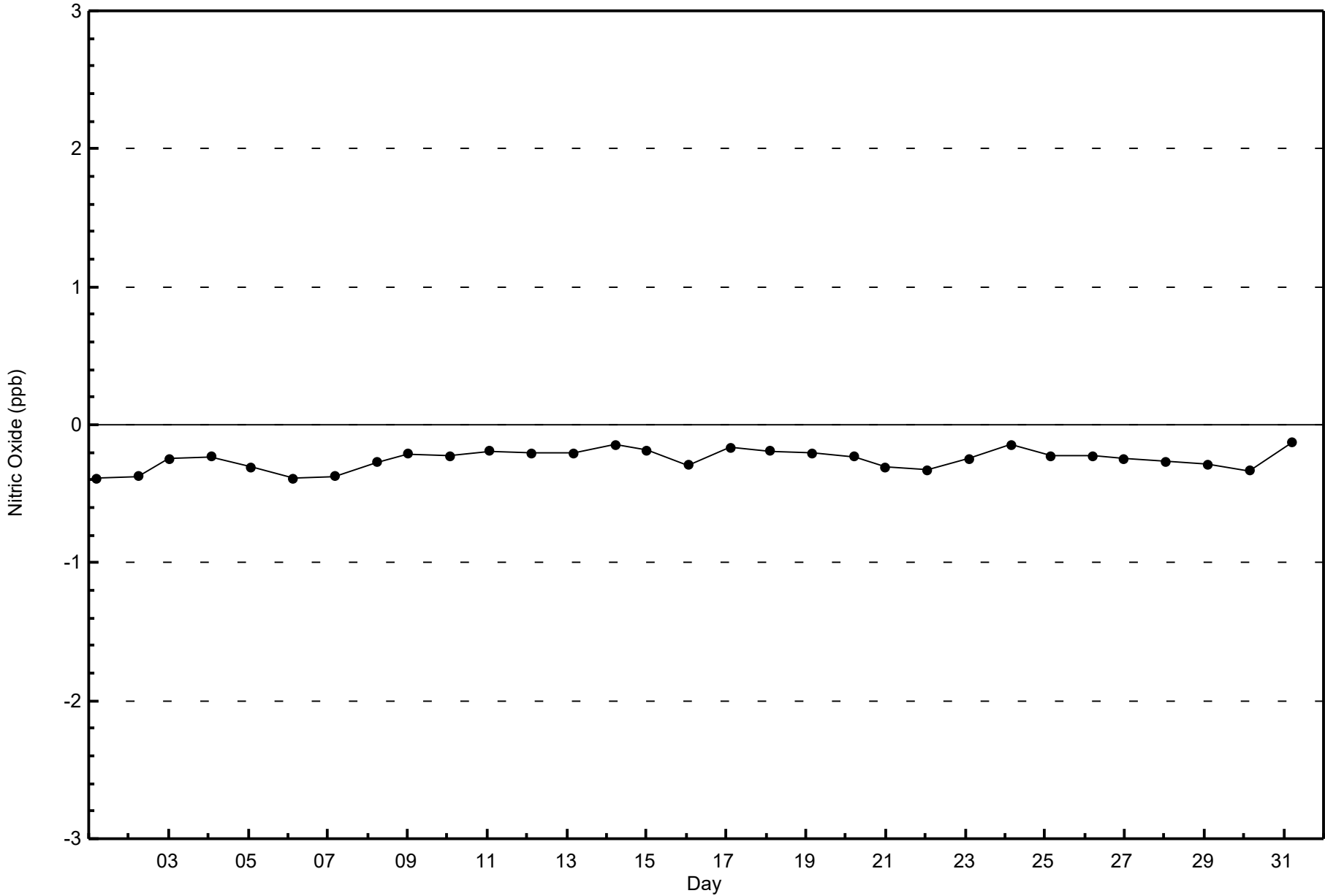
Total Number of Valid Hours: 699

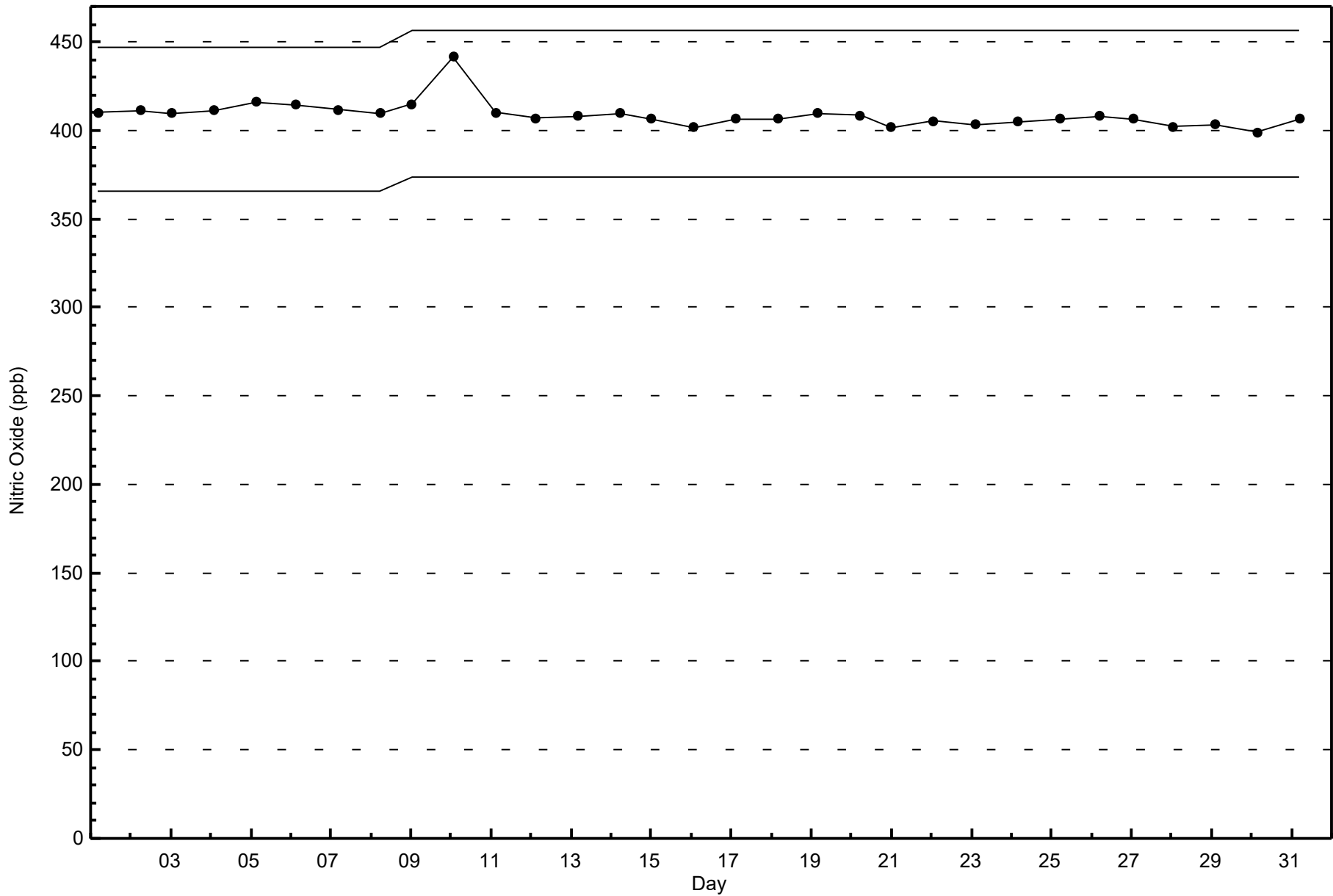
Total Number of Hours: 744



Wood Buffalo Environmental Association
Zero Responses

Nitric Oxide (NO) - ppb
Ells River - March 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Ells River - March 2024

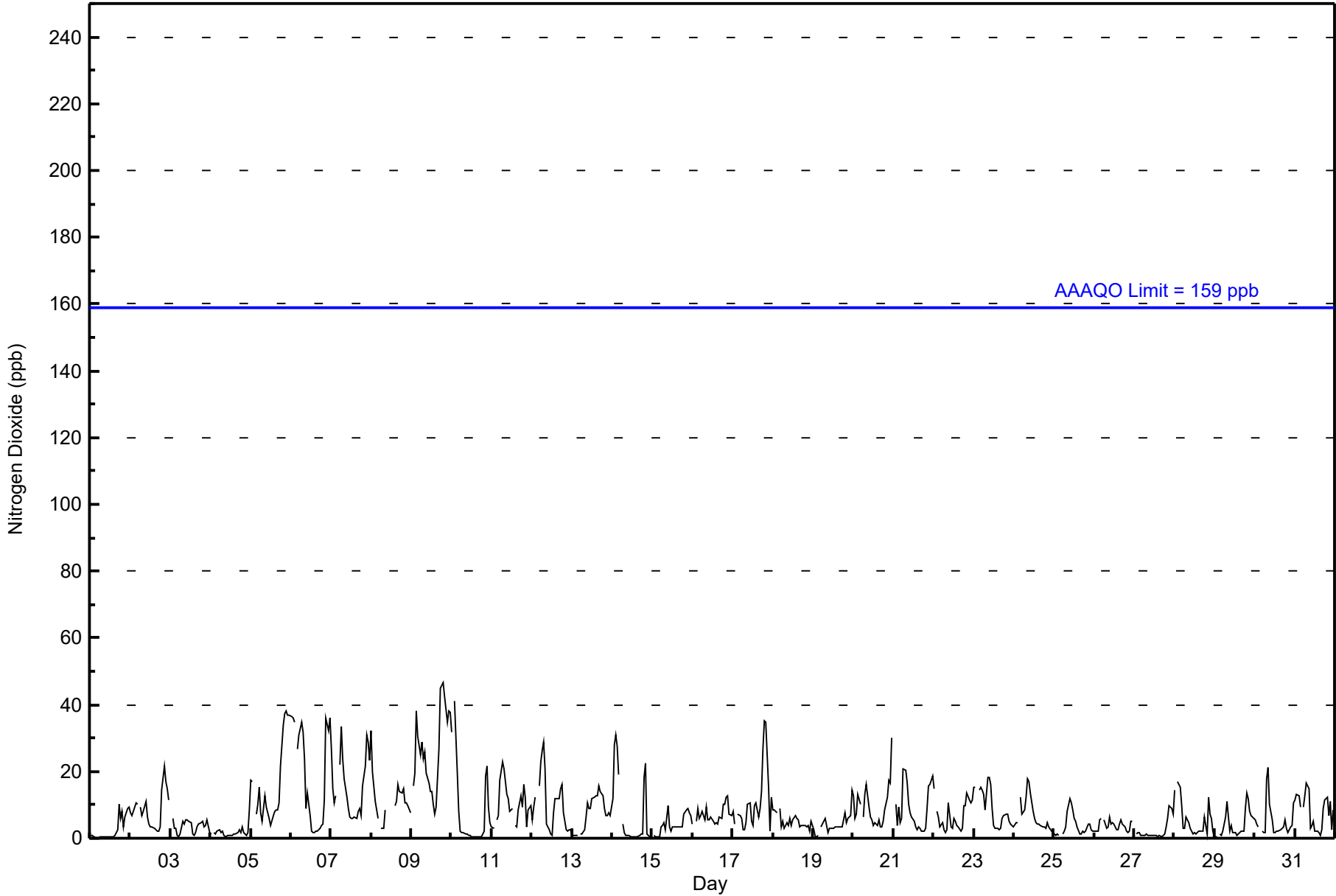
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 46.6 ppb on Mar 9 20:00		Maximum Daily Average: 26.8 ppb on Mar 9		Minimum Value: 0.3 ppb on Mar 10 18:00		Minimum Daily Average: 1.8 ppb on Mar 4		Hours of Data: 707																																									
Maximum Diurnal Average: 11.9 ppb at hour 21		Minimum Diurnal Average: 4.0 ppb at hour 14		Hours of Missing Data: 37		Hours of Calibration: 36		Percent Operational Time: 99.9																																									
Monthly Average: 8.11 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 1.0 Q ₁ = 2.4 Median = 5.4 Q ₃ = 10.4 P ₉₀ = 18.1 P ₉₉ = 38.0																																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	0.9	0.7	0.5	0.5	Z	0.6	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.6	1.0	2.5	10.1	6.1	8.0	3.5	6.3	9.1	9.3	2.7	10.1																							
2-Mar	7.5	6.7	8.0	10.7	10.3	Z	9.3	6.7	8.2	11.2	6.4	4.3	3.4	3.3	2.8	2.5	2.0	2.0	3.2	14.2	21.7	16.9	14.7	11.6	8.2	21.7																							
3-Mar	Z	6.0	2.9	2.8	0.9	0.5	1.4	4.9	4.2	5.4	5.4	5.2	4.6	1.1	0.8	1.8	3.3	4.1	4.5	5.0	3.4	3.8	5.4	1.6	3.4	6.0																							
4-Mar	1.4	Z	1.6	1.4	2.2	2.6	1.8	2.2	0.7	0.5	0.8	0.8	0.7	1.0	1.3	1.2	1.6	2.4	1.9	3.3	1.7	0.7	1.7	8.3	1.8	8.3																							
5-Mar	17.3	16.9	Z	7.0	10.3	15.2	7.8	5.2	12.9	9.4	7.6	5.8	4.0	6.8	8.1	8.5	8.6	10.6	21.5	34.1	37.1	38.1	37.0	36.9	15.9	38.1																							
6-Mar	36.5	36.2	34.7	Z	26.6	30.9	34.7	31.9	23.9	8.8	13.6	6.9	2.0	1.9	1.7	2.0	2.2	3.0	3.9	4.4	11.3	35.9	32.3	36.2	18.3	36.5																							
7-Mar	26.7	14.7	10.4	12.7	Z	22.0	33.4	23.8	18.0	12.3	8.8	6.2	5.9	6.0	6.3	6.1	8.1	8.9	6.9	15.8	21.6	30.8	28.8	23.2	15.5	33.4																							
8-Mar	32.0	20.0	10.9	8.5	5.9	Z	3.0	2.9	8.4	C	C	C	C	C	9.7	11.0	15.9	14.1	13.5	14.8	10.6	10.4	9.9	7.8	11.6	32.0																							
9-Mar	Z	15.5	19.5	38.3	30.3	24.8	28.9	23.8	25.9	19.5	16.6	14.1	14.0	10.3	7.4	9.5	26.5	45.0	45.8	46.6	42.3	34.8	38.0	37.9	26.8	46.6																							
10-Mar	31.6	Z	40.9	19.4	8.0	2.2	1.8	1.8	1.3	1.1	0.8	0.7	0.6	0.6	0.5	0.4	0.5	0.3	0.3	2.1	18.7	21.5	9.5	4.7	7.4	40.9																							
11-Mar	3.2	3.0	Z	5.6	6.8	17.3	22.9	20.9	16.9	13.0	11.9	8.2	8.7	M	4.0	3.5	8.3	12.5	9.2	15.9	12.1	3.4	8.4	9.6	10.2	22.9																							
12-Mar	5.5	9.2	12.1	Z	15.8	23.0	26.1	28.8	20.8	4.3	2.4	1.1	1.0	7.8	12.0	11.7	11.9	14.9	16.1	7.5	2.5	2.0	2.7	2.6	10.5	28.8																							
13-Mar	1.0	0.8	0.7	0.8	Z	1.4	1.3	2.7	6.3	10.5	9.0	9.0	11.9	12.2	12.5	12.8	15.5	14.1	12.6	9.0	6.7	6.7	7.7	6.8	7.5	15.5																							
14-Mar	12.0	28.0	31.0	27.4	19.2	Z	4.2	1.7	0.8	0.7	0.7	0.6	0.6	0.5	0.6	1.0	1.3	1.4	18.3	22.5	1.1	0.6	0.5	0.5	7.6	31.0																							
15-Mar	Z	0.7	0.5	0.5	0.5	3.6	3.8	4.7	2.7	9.9	3.5	2.2	3.3	3.5	3.2	3.3	3.2	3.4	3.4	7.2	8.3	9.1	7.6	6.8	4.1	9.9																							
16-Mar	4.1	Z	5.0	9.0	5.8	6.6	7.9	5.5	9.4	5.5	5.5	6.4	5.0	4.3	4.7	4.3	6.4	5.8	10.1	10.1	12.4	12.9	7.2	6.6	7.0	12.9																							
17-Mar	7.9	4.3	Z	7.4	6.8	6.0	2.7	2.7	4.8	10.0	10.4	5.2	4.0	9.7	10.8	6.4	9.1	14.1	26.9	35.1	34.8	15.4	2.3	12.2	10.8	35.1																							
18-Mar	8.6	8.5	7.7	Z	8.8	3.5	5.1	2.8	4.6	3.8	5.9	3.7	5.7	6.8	5.9	5.7	3.5	3.7	3.9	3.9	3.6	3.8	2.2	5.0	5.1	8.8																							
19-Mar	2.4	0.4	0.4	1.0	Z	3.4	5.2	5.8	4.0	1.9	2.8	3.0	3.1	3.2	3.2	3.5	3.4	3.4	5.6	7.6	4.5	5.8	6.9	14.4	4.1	14.4																							
20-Mar	12.7	5.8	7.0	13.2	10.0	Z	6.2	13.1	15.9	9.3	6.2	5.5	3.9	4.5	3.8	5.3	3.3	3.5	5.1	8.5	12.4	17.2	16.5	30.1	9.5	30.1																							
21-Mar	Z	10.0	4.0	9.4	4.5	5.9	20.8	20.3	16.6	10.1	7.7	6.5	5.0	3.5	2.7	3.2	2.9	2.3	2.2	2.9	8.8	15.5	16.1	18.5	8.7	20.8																							
22-Mar	14.8	Z	7.9	6.2	3.3	4.7	2.7	1.6	2.7	10.7	3.2	3.0	6.1	5.1	3.7	3.6	2.1	3.1	9.7	9.6	13.4	11.6	10.7	11.5	6.6	14.8																							
23-Mar	15.4	15.4	Z	14.4	15.4	14.4	13.0	8.6	18.4	18.3	16.2	8.8	4.0	2.8	2.9	2.7	3.1	6.1	6.7	7.1	7.1	5.2	4.1	3.8	9.3	18.4																							
24-Mar	3.6	4.7	4.8	Z	12.2	7.2	8.5	12.3	17.7	17.0	13.6	8.1	5.9	4.6	4.4	4.3	4.0	3.3	3.3	3.0	4.6	3.4	2.1	1.7	6.7	17.7																							
25-Mar	1.4	0.9	1.1	1.0	Z	1.3	2.3	3.6	8.1	12.0	10.4	8.4	5.9	5.1	3.5	1.3	1.4	2.3	1.6	2.1	4.2	4.1	2.5	2.3	3.8	12.0																							
26-Mar	2.2	2.1	2.3	5.6	5.8	Z	5.4	2.8	3.2	6.4	4.1	4.6	4.2	2.6	2.5	4.1	5.7	4.4	3.3	2.2	1.9	2.3	5.1	5.0	3.8	6.4																							
27-Mar	Z	1.3	1.8	1.6	1.0	0.8	1.0	1.1	1.0	0.9	0.8	0.9	0.8	0.7	0.6	0.7	0.6	0.7	1.4	3.4	6.0	9.6	9.0	7.0	2.3	9.6																							
28-Mar	14.6	Z	16.9	15.3	9.8	3.0	3.0	6.5	4.8	3.0	2.3	1.2	1.7	1.1	2.1	2.1	2.2	2.0	6.2	1.4	12.1	7.0	6.1	2.2	5.5	16.9																							
29-Mar	0.5	0.5	Z	1.2	0.9	2.0	6.4	10.9	6.4	2.3	3.8	1.8	1.7	1.0	1.2	1.5	2.1	2.3	9.1	13.7	11.8	8.1	6.9	6.1	4.4	13.7																							
30-Mar	5.7	4.4	3.3	Z	2.3	1.8	1.7	17.8	21.0	10.1	5.3	1.7	1.9	2.3	2.2	2.6	3.1	3.3	5.5	2.8	1.6	3.3	3.9	10.4	5.1	21.0																							
31-Mar	11.6	13.2	12.5	9.5	Z	9.2	12.9	16.7	14.9	2.9	3.8	4.9	2.0	2.2	1.7	0.7	2.6	8.9	11.4	12.3	6.8	11.1	2.4	8.4	7.9	16.7																							
																								10.8	8.8	9.6	8.9	8.9	8.2	9.2	9.5	9.8	7.7	6.3	4.6	4.1	4.0	4.1	4.1	5.4	7.0	8.5	10.7	11.9	11.5	10.2	11.3	Diurnal Average	
																								36.5	36.2	40.9	38.3	30.3	30.9	34.7	31.9	25.9	19.5	16.6	14.1	14.0	12.2	12.5	12.8	26.5	45.0	45.8	46.6	42.3	38.1	38.0	37.9	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 (NO₂) - ppb
Ells River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Ells River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	647	91.51	91.51
21 - 40	55	7.78	99.29
41 - 80	5	0.71	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Ells River - March 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	115	119	30	3	11	20	65	106	60	17	11	13	21	12	19	18	640
21 - 40	3	3	2	0	1	1	2	8	27	5	0	0	1	1	0	1	55
11 - 80	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	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
Totals	118	122	32	3	12	21	67	114	88	22	11	14	23	13	19	20	699

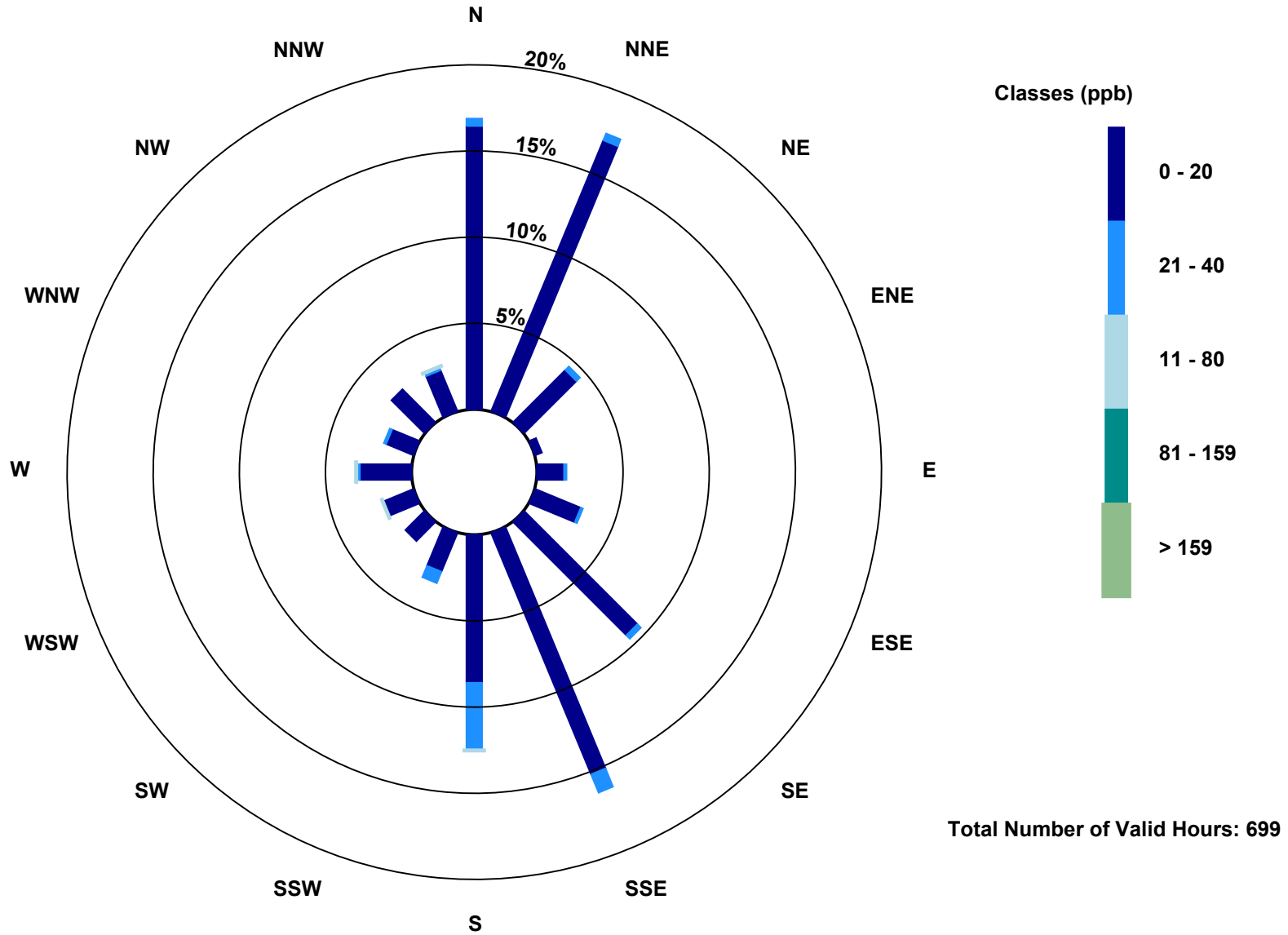
Total Number of Valid Hours: 699

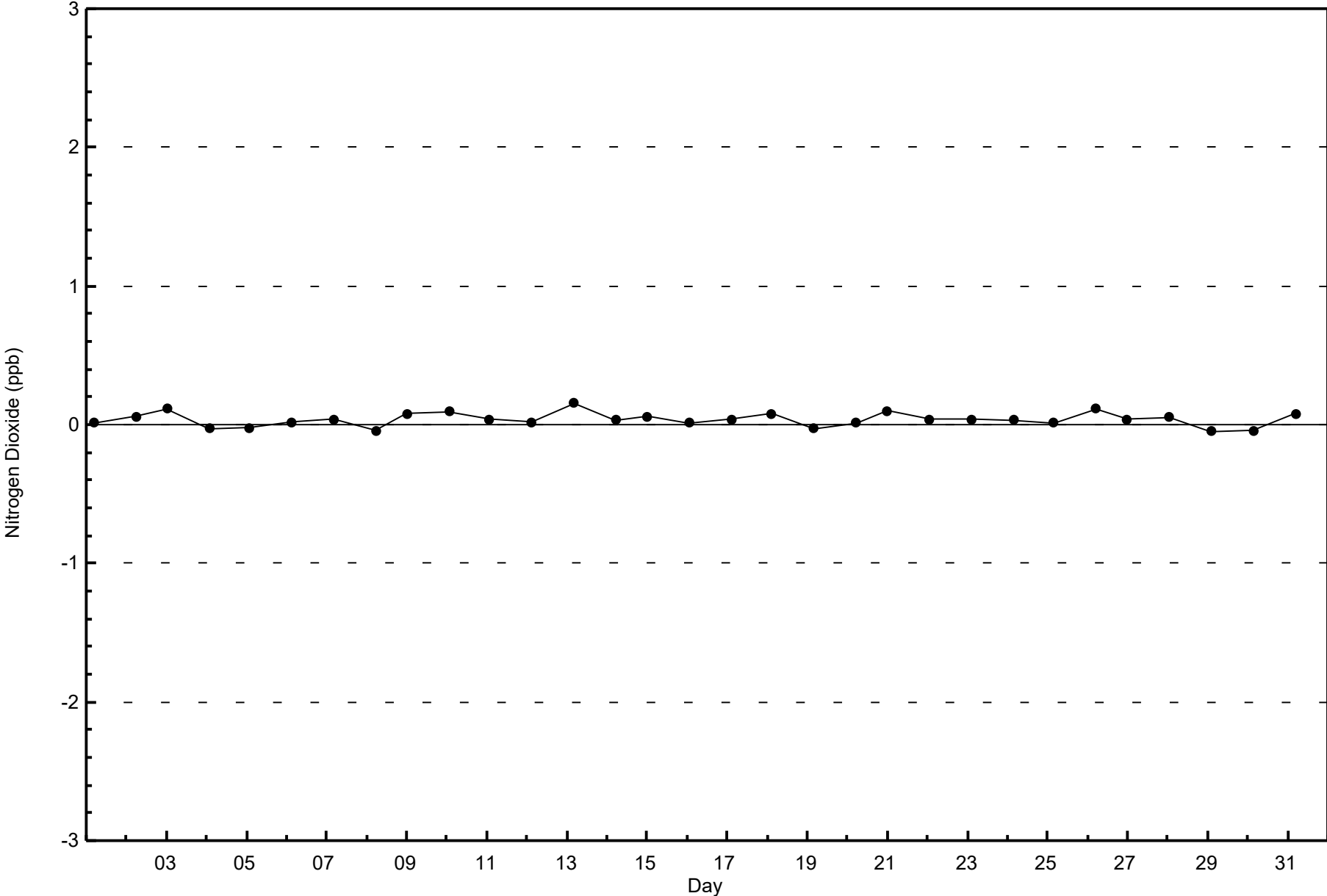
Total Number of Hours: 744

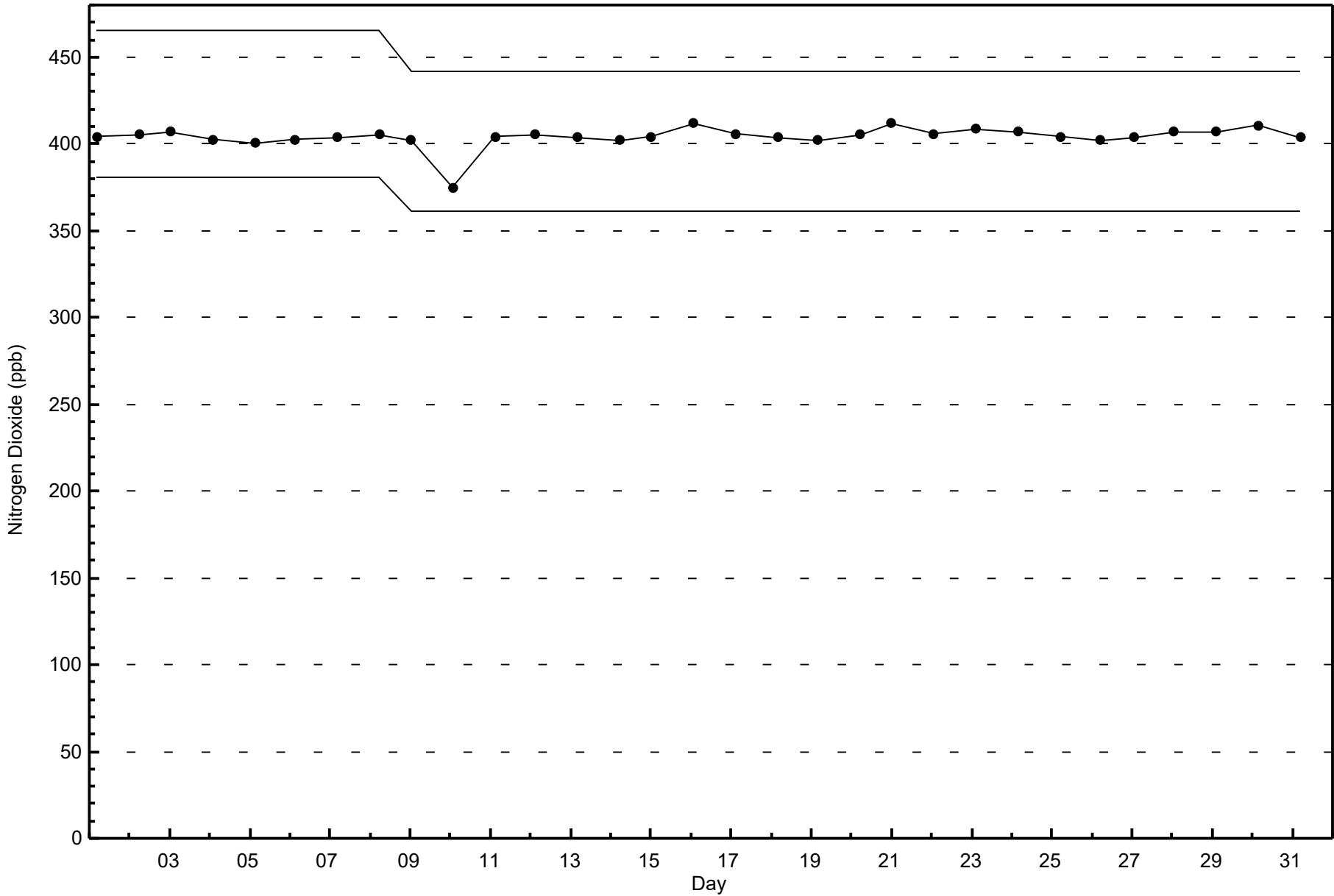


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Ells River





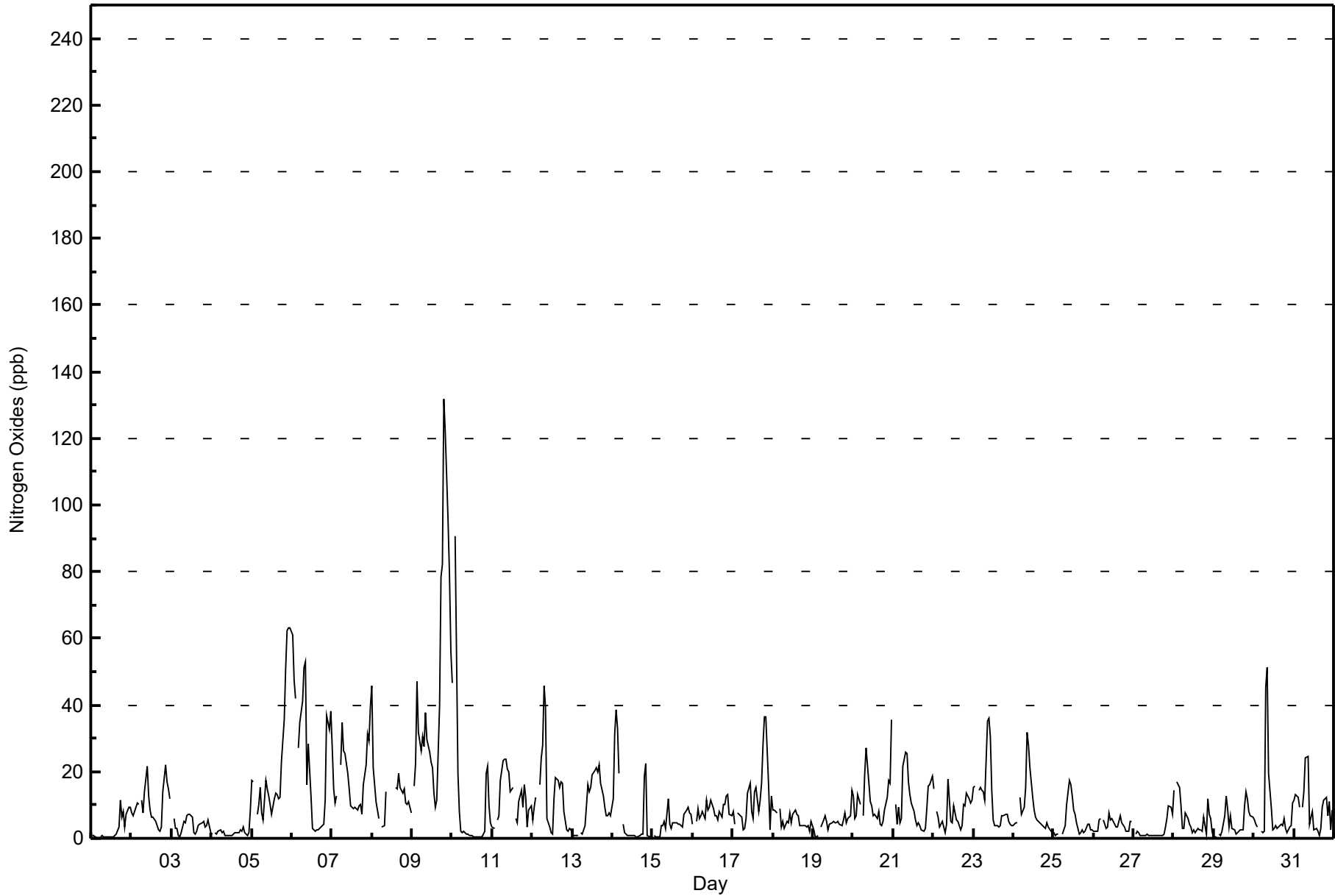




Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Ells River - March 2024

Maximum Value: 131.9 ppb on Mar 9 20:00		Maximum Daily Average: 46.0 ppb on Mar 9		Hours in Service: 744																						
Minimum Value: 0.3 ppb on Mar 10 19:00		Minimum Daily Average: 1.9 ppb on Mar 4		Hours of Data: 707																						
Maximum Diurnal Average: 16.2 ppb at hour 9		Minimum Diurnal Average: 5.6 ppb at hour 16		Hours of Missing Data: 37																						
Monthly Average: 10.41 ppb		Percentiles: P ₁ = 0.4 P ₁₀ = 1.1 Q ₁ = 2.9 Median = 6.2 Q ₃ = 12.7 P ₉₀ = 22.8 P ₉₉ = 63.2		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	0.9	0.7	0.5	0.5	Z	0.6	0.6	0.4	0.4	0.5	0.4	0.5	0.4	0.5	0.9	1.4	3.2	11.3	6.2	8.1	3.6	7.4	9.2	9.4	2.9	11.3
2-Mar	7.6	6.7	8.0	10.7	10.4	Z	11.6	7.8	14.2	21.5	12.9	8.5	6.2	6.5	5.1	4.0	2.7	2.2	3.2	14.2	21.9	17.0	14.8	11.7	10.0	21.9
3-Mar	Z	6.1	2.9	2.9	0.9	0.6	1.5	5.1	4.8	6.9	7.2	7.1	6.4	1.5	1.1	2.2	3.9	4.3	4.5	5.0	3.4	3.8	5.4	1.6	3.9	7.2
4-Mar	1.4	Z	1.6	1.4	2.2	2.6	1.8	2.3	0.8	0.6	0.9	1.0	0.9	1.4	1.7	1.5	1.8	2.5	1.9	3.3	1.7	0.7	1.7	8.3	1.9	8.3
5-Mar	17.4	17.0	Z	7.0	10.4	15.3	7.8	5.5	17.4	14.7	12.9	10.3	7.1	11.7	13.4	13.1	12.0	12.3	23.0	35.7	51.0	62.4	63.0	63.2	21.9	63.2
6-Mar	60.8	47.4	41.9	Z	27.0	34.9	41.2	51.1	52.8	16.2	28.6	12.3	3.1	2.6	2.3	2.5	2.5	3.2	3.9	4.4	11.5	36.8	32.6	37.9	24.2	60.8
7-Mar	27.1	14.8	10.4	12.7	Z	22.1	34.9	26.4	25.3	19.5	14.6	9.8	9.2	9.1	9.1	8.3	9.6	10.2	7.1	16.0	21.9	31.3	29.2	39.2	18.2	39.2
8-Mar	45.6	21.2	11.0	8.6	5.9	Z	3.3	3.7	13.8	C	C	C	C	C	15.2	14.7	19.7	15.2	13.6	14.8	10.6	10.4	10.9	7.8	13.7	45.6
9-Mar	Z	15.6	22.6	47.1	32.0	26.3	30.4	27.4	37.9	29.6	25.8	23.1	21.0	13.5	9.2	11.6	39.6	78.5	82.2	131.9	122.2	95.2	79.4	56.0	46.0	131.9
10-Mar	46.8	Z	90.7	19.6	8.0	2.2	1.8	2.0	1.3	1.2	0.8	0.9	0.7	0.6	0.5	0.4	0.5	0.3	0.3	2.1	19.3	21.6	9.5	4.7	10.2	90.7
11-Mar	3.2	3.0	Z	5.6	6.8	17.3	23.2	23.8	23.9	20.9	19.9	14.0	15.3	M	5.8	4.6	11.0	14.5	9.4	16.0	12.1	3.4	8.4	9.6	12.3	23.9
12-Mar	5.5	9.2	12.2	Z	16.0	24.0	28.0	45.7	39.3	6.0	3.5	1.5	1.4	11.8	18.4	17.3	15.4	16.9	16.6	7.8	2.6	2.2	2.9	2.7	13.3	45.7
13-Mar	1.1	0.8	0.8	0.8	Z	1.5	1.4	3.8	9.9	16.1	13.8	15.2	19.0	20.4	21.0	20.0	22.2	16.5	12.9	9.1	6.8	6.8	7.7	6.9	10.2	22.2
14-Mar	12.0	31.4	38.5	32.9	19.7	Z	4.3	1.9	1.1	0.8	0.8	0.7	0.8	0.7	0.6	0.6	1.0	1.3	1.4	18.6	22.6	1.1	0.6	0.5	8.4	38.5
15-Mar	Z	0.7	0.5	0.5	0.5	3.7	3.9	5.0	3.0	11.7	4.3	2.9	4.8	4.8	4.7	4.4	4.1	3.9	3.6	7.3	8.4	9.2	7.8	7.0	4.6	11.7
16-Mar	4.2	Z	5.0	9.0	5.8	6.6	8.0	5.9	11.4	8.5	9.3	11.3	8.7	6.9	6.9	5.5	8.0	6.3	10.3	10.2	12.5	13.0	7.3	6.7	8.2	13.0
17-Mar	8.0	4.4	Z	7.5	6.9	6.1	2.7	3.0	5.8	13.6	16.5	8.1	5.9	13.9	15.2	8.0	11.4	16.3	27.9	36.4	36.6	15.6	2.3	12.6	12.4	36.6
18-Mar	8.6	8.6	7.8	Z	8.9	3.5	5.2	2.9	5.2	4.8	7.5	4.7	7.4	8.5	7.0	6.9	4.0	3.9	3.9	3.9	3.6	3.8	2.2	5.0	5.6	8.9
19-Mar	2.4	0.4	0.4	1.0	Z	3.4	5.3	6.7	5.2	2.7	4.2	4.7	4.9	4.9	4.8	5.0	4.4	3.9	5.7	7.6	4.5	5.8	6.9	14.4	4.8	14.4
20-Mar	12.7	5.8	7.0	13.2	10.0	Z	6.6	19.2	27.3	16.5	11.0	9.9	6.7	7.4	5.9	8.1	4.4	4.0	5.2	8.6	12.5	17.3	16.6	35.5	11.8	35.5
21-Mar	Z	10.1	4.1	9.5	4.6	6.0	21.8	25.7	25.4	17.0	13.0	10.8	8.0	5.5	4.0	4.5	3.8	2.7	2.3	3.0	8.9	15.6	16.2	18.6	10.5	25.7
22-Mar	14.9	Z	8.0	6.3	3.3	5.0	3.5	1.9	4.2	17.7	4.9	4.7	9.8	7.8	5.5	5.0	2.7	3.6	10.1	9.8	13.6	11.7	10.8	11.6	7.7	17.7
23-Mar	15.5	15.5	Z	14.4	15.4	14.4	14.0	11.4	35.1	36.1	30.6	14.3	5.7	3.7	3.8	3.4	3.7	6.9	6.9	7.1	7.1	5.3	4.1	3.8	12.1	36.1
24-Mar	3.6	4.7	4.8	Z	12.3	7.2	9.5	15.4	31.8	27.8	21.3	12.1	8.3	6.2	5.4	5.1	4.6	3.8	3.4	3.1	4.7	3.5	2.2	1.8	8.8	31.8
25-Mar	1.5	1.0	1.2	1.1	Z	1.4	2.4	3.9	10.1	17.3	16.0	12.7	8.6	7.1	4.5	1.4	1.6	2.5	1.6	2.2	4.2	4.1	2.5	2.3	4.8	17.3
26-Mar	2.2	2.1	2.3	5.6	5.8	Z	5.5	2.9	3.5	7.8	5.6	5.9	5.3	3.4	3.2	5.1	6.6	4.7	3.4	2.2	1.9	2.3	5.1	5.0	4.2	7.8
27-Mar	Z	1.4	1.9	1.7	1.1	0.8	1.0	1.1	1.1	1.0	1.0	1.0	1.0	0.8	0.7	0.8	0.7	0.8	1.5	3.5	6.1	9.7	9.1	7.0	2.4	9.7
28-Mar	14.6	Z	16.9	15.3	9.8	3.0	3.0	7.4	6.1	4.3	3.4	1.8	2.6	1.5	2.9	2.7	2.7	2.2	6.5	1.4	12.1	7.0	6.1	2.2	5.9	16.9
29-Mar	0.5	0.5	Z	1.2	0.9	2.0	6.9	12.8	8.8	3.5	6.6	3.0	2.7	1.3	1.6	1.9	2.6	2.7	9.9	13.9	12.0	8.2	7.0	6.2	5.1	13.9
30-Mar	5.7	4.4	3.3	Z	2.3	1.8	1.9	45.3	51.3	19.4	8.8	2.5	2.8	3.6	3.2	3.7	4.1	3.9	6.0	2.8	1.6	3.3	3.9	10.5	8.5	51.3
31-Mar	11.6	13.2	12.5	9.5	Z	9.2	14.1	24.1	24.8	4.3	6.2	7.9	2.7	2.8	2.1	0.7	2.8	9.2	11.5	12.3	6.8	11.1	2.4	8.4	9.1	24.8
	12.9	9.5	12.2	9.4	9.1	8.5	9.9	12.9	16.2	12.3	10.4	7.4	6.2	5.9	6.0	5.6	7.0	8.7	9.9	13.6	15.1	14.4	12.5	13.5		Diurnal Average
	60.8	47.4	90.7	47.1	32.0	34.9	41.2	51.1	52.8	36.1	30.6	23.1	21.0	20.4	21.0	20.0	39.6	78.5	82.2	131.9	122.2	95.2	79.4	63.2		Diurnal Maximum
Z - zerospan		C - Calibration				M - Maintenance																				





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Ells River - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	622	87.98	87.98
21 - 40	61	8.63	96.61
41 - 80	19	2.69	99.29
81 - 159	5	0.71	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



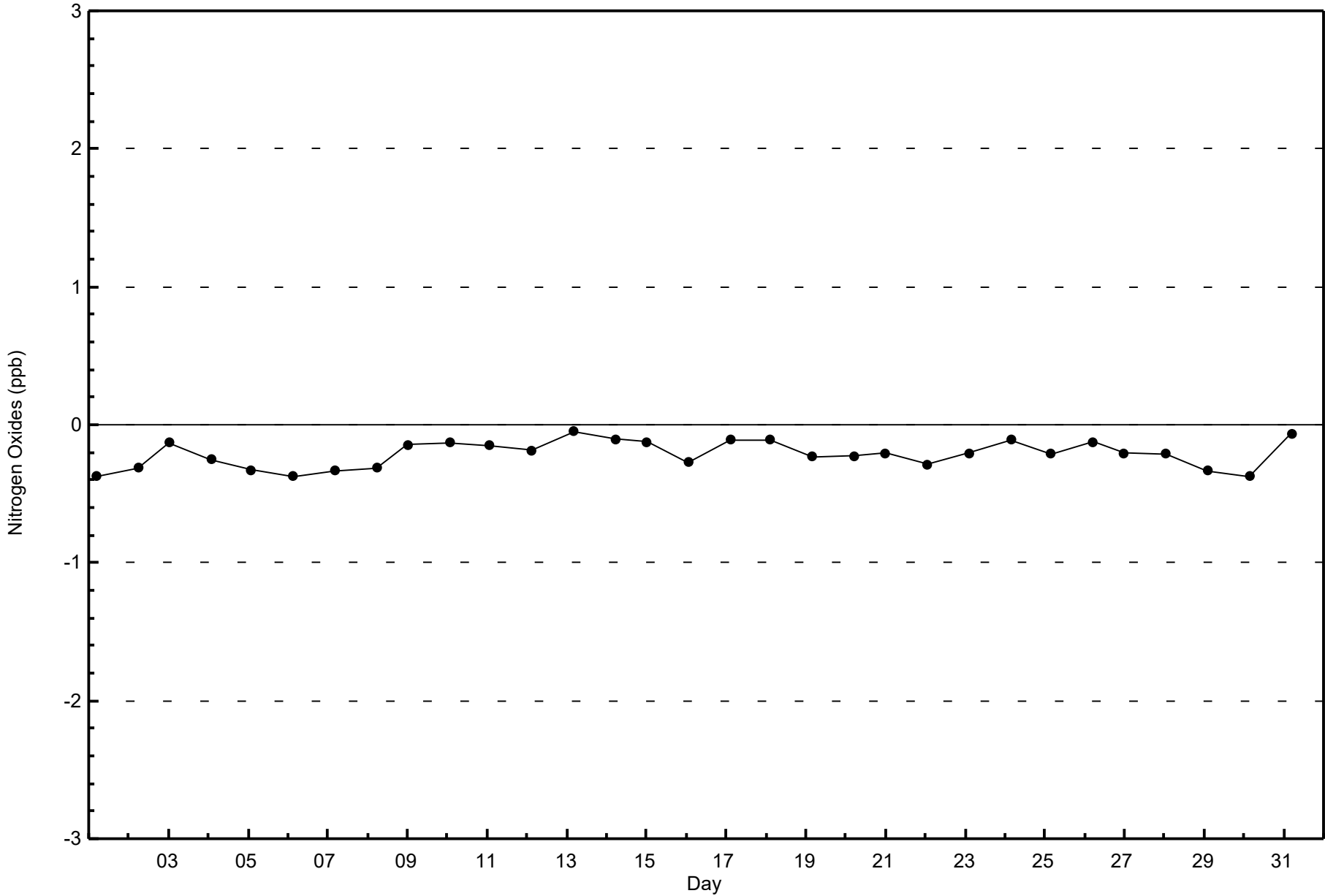
**Wood Buffalo Environmental Association
Frequency Distribution**

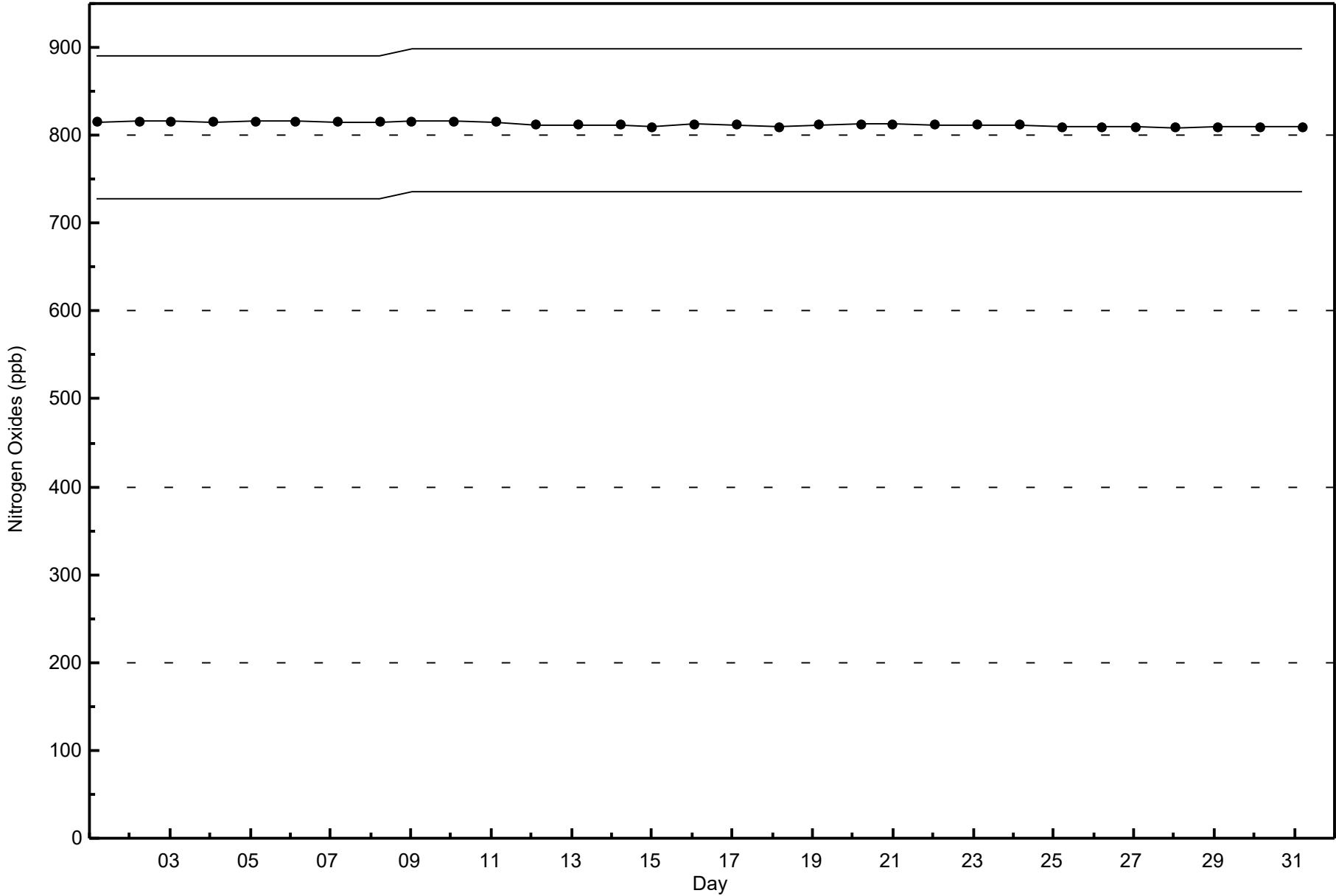
**Nitrogen Oxides (NO_x) - ppb
Ells River - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	109	119	30	3	11	20	60	101	52	17	11	13	21	11	19	18	615
21 - 40	9	2	2	0	1	1	7	11	24	1	0	0	0	2	0	1	61
11 - 80	0	1	0	0	0	0	0	2	11	3	0	0	1	0	0	1	19
81 - 159	0	0	0	0	0	0	0	0	1	1	0	1	1	0	0	0	4
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	118	122	32	3	12	21	67	114	88	22	11	14	23	13	19	20	699

Total Number of Valid Hours: 699

Total Number of Hours: 744



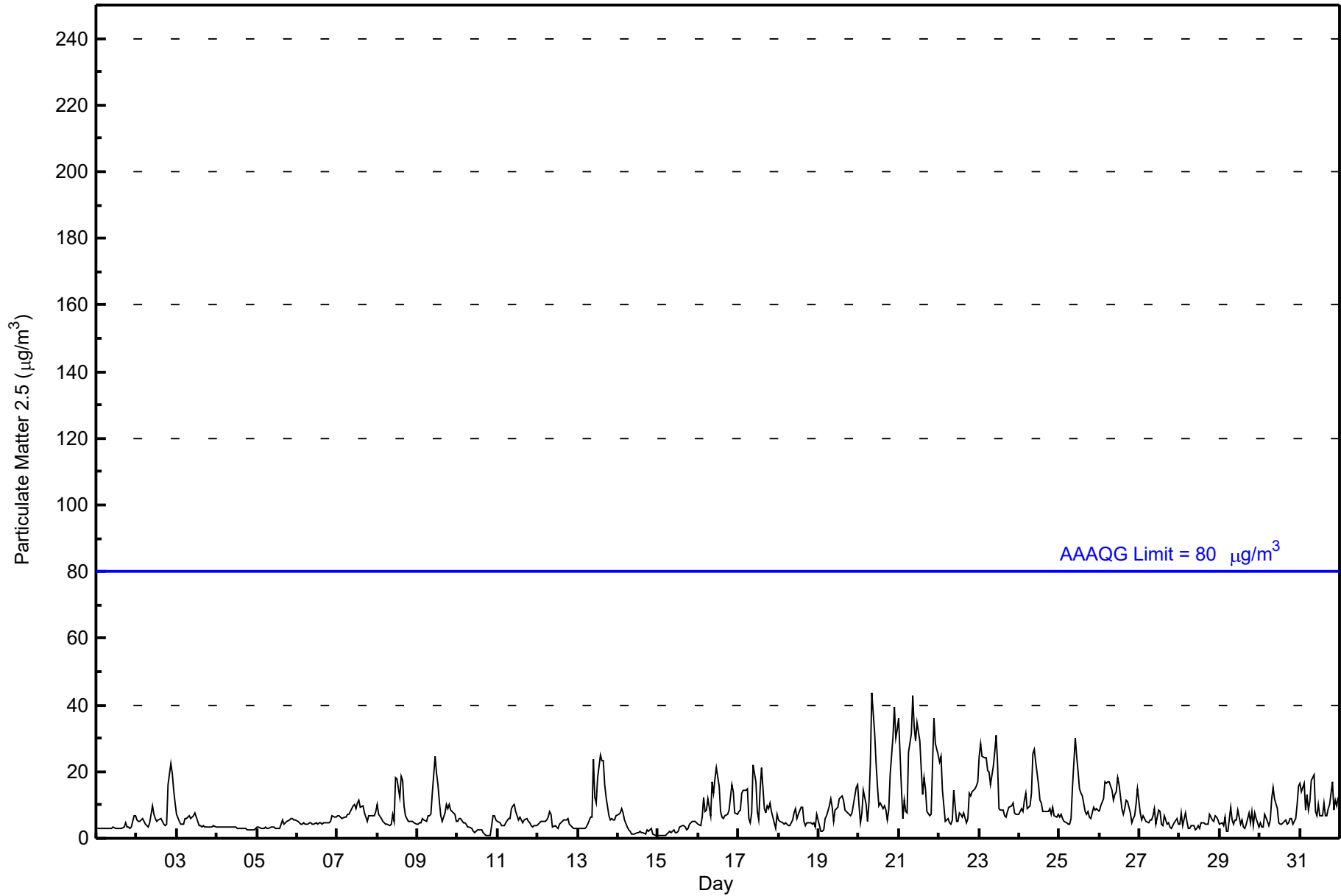




Summary of Hour Averages

Ells River - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																												
Maximum Value: 43.8 µg/m ³ on Mar 20 09:00		Maximum Daily Average: 21.3 µg/m ³ on Mar 21														Hours of Data:		744																														
Minimum Value: 0.7 µg/m ³ on Mar 15 01:00		Minimum Daily Average: 2.6 µg/m ³ on Mar 15														Hours of Missing Data:		0																														
Maximum Diurnal Average: 11.7 µg/m ³ at hour 10		Minimum Diurnal Average: 6.1 µg/m ³ at hour 19														Hours of Calibration:		0																														
Monthly Average: 7.98 µg/m ³		Percentiles: P ₁ = 0.9 P ₁₀ = 2.9 Q ₁ = 4.1 Median = 5.8 Q ₃ = 9.1 P ₉₀ = 16.1 P ₉₉ = 32.1														Percent Operational Time:		100.0																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	3.1	3.0	2.8	2.8	3.1	3.0	3.0	3.0	2.9	2.9	3.2	3.0	2.9	2.8	2.9	3.0	3.2	4.6	3.4	3.4	3.1	3.4	6.9	6.9	3.4	6.9																						
2-Mar	5.6	5.0	5.2	5.7	5.0	4.3	3.9	3.4	4.5	9.6	7.4	5.8	5.2	5.6	5.8	5.0	4.3	3.9	4.3	16.0	22.6	19.5	14.4	10.8	7.6	22.6																						
3-Mar	7.2	5.2	4.2	4.4	4.2	5.8	5.8	6.9	5.9	6.4	6.7	7.5	5.1	3.9	3.7	3.6	3.6	3.5	3.3	3.4	3.5	3.5	3.7	3.4	4.8	7.5																						
4-Mar	3.3	3.3	3.3	3.3	3.3	3.2	3.3	3.3	3.3	3.2	3.2	3.2	3.1	3.1	2.9	2.8	2.8	2.8	2.6	2.6	2.6	2.5	2.6	2.9	3.0	3.3																						
5-Mar	3.3	3.4	3.0	2.9	3.0	3.3	3.1	3.0	3.3	3.6	3.4	3.1	2.9	3.0	4.1	5.7	4.4	4.9	5.2	5.6	5.8	5.8	5.6	5.4	4.0	5.8																						
6-Mar	5.1	4.5	4.1	4.3	4.5	4.4	4.3	4.6	4.6	4.2	4.3	4.5	4.4	4.7	4.8	4.4	4.7	4.6	4.7	4.8	5.2	6.6	6.3	6.4	4.8	6.6																						
7-Mar	6.6	6.8	6.2	6.0	6.2	6.3	7.3	7.2	8.1	9.8	10.0	8.8	10.4	11.3	9.4	9.8	7.7	6.3	5.3	6.7	6.6	6.8	6.9	7.9	7.7	11.3																						
8-Mar	10.3	7.3	5.9	5.2	4.8	4.4	4.2	3.8	4.3	7.4	4.9	18.1	17.7	12.4	18.5	17.3	9.9	6.7	5.1	5.1	5.2	5.2	4.7	4.3	8.0	18.5																						
9-Mar	4.1	4.6	4.6	5.7	5.4	5.1	6.8	6.6	7.1	13.6	24.8	19.6	16.2	11.0	6.7	5.2	7.5	10.1	8.7	10.1	8.6	7.6	7.1	5.3	8.8	24.8																						
10-Mar	4.9	5.7	5.9	4.5	4.5	4.1	3.6	3.3	2.8	2.3	1.8	2.1	2.7	2.7	2.4	1.5	1.2	0.9	0.9	1.0	3.7	6.8	7.0	5.5	3.4	7.0																						
11-Mar	5.1	4.7	3.7	3.8	4.0	4.6	5.8	5.8	8.7	9.6	10.3	8.0	5.7	6.5	5.4	4.8	5.5	5.8	5.1	4.6	4.0	3.6	3.7	3.8	5.5	10.3																						
12-Mar	4.2	4.6	5.3	5.0	5.2	5.7	6.3	8.1	7.4	3.3	3.6	3.3	2.9	4.1	4.8	5.4	5.3	5.7	5.7	4.4	3.4	3.1	2.9	2.9	4.7	8.1																						
13-Mar	2.9	3.1	3.0	3.1	2.8	3.5	4.1	6.3	6.3	23.6	12.4	10.5	18.2	25.1	23.2	23.4	16.0	12.4	7.0	5.7	5.7	5.4	5.7	6.9	9.8	25.1																						
14-Mar	7.2	7.6	8.9	7.8	5.7	3.6	2.5	2.0	1.4	1.3	1.4	1.5	1.6	2.2	1.6	1.7	1.4	2.3	2.2	2.4	3.2	1.1	0.8	0.7	3.0	8.9																						
15-Mar	0.7	0.7	0.8	0.8	0.9	1.3	1.8	2.1	1.8	2.4	1.6	1.6	2.2	3.4	3.7	4.0	3.3	2.6	2.9	4.3	4.9	5.1	5.1	4.8	2.6	5.1																						
16-Mar	4.2	3.9	6.4	12.1	8.1	8.6	11.8	6.7	16.9	13.4	17.9	21.0	15.8	8.1	6.2	6.0	6.6	7.2	8.5	12.4	16.1	13.9	7.8	7.0	10.3	21.0																						
17-Mar	8.2	8.4	13.4	14.4	14.4	14.7	5.9	4.6	7.8	22.0	16.8	7.9	5.6	14.6	21.3	8.8	7.6	9.7	8.7	10.5	8.1	4.8	2.9	7.3	10.4	22.0																						
18-Mar	5.6	5.1	4.7	4.2	4.6	4.3	4.0	3.7	5.6	7.4	8.8	5.8	7.4	9.3	9.1	5.1	3.8	4.6	4.8	4.7	4.2	4.5	3.2	7.3	5.5	9.3																						
19-Mar	3.7	2.3	2.3	2.7	5.9	6.9	9.6	11.9	9.5	5.3	8.6	9.5	11.9	12.1	12.6	11.2	8.3	7.4	7.1	6.7	7.6	10.2	15.4	16.1	8.5	16.1																						
20-Mar	9.7	4.8	7.5	14.5	10.1	5.3	10.5	22.7	43.8	31.6	23.0	15.8	9.6	10.7	8.7	9.7	8.4	5.7	8.7	19.2	30.6	39.6	30.3	32.4	17.2	43.8																						
21-Mar	36.0	14.7	5.9	11.3	7.9	7.7	26.0	31.5	42.8	33.6	29.3	34.6	29.4	20.8	13.3	18.3	15.0	8.3	6.9	7.2	22.3	36.0	28.4	24.9	21.3	42.8																						
22-Mar	22.7	24.5	14.5	9.7	5.1	6.1	4.6	4.3	5.6	14.5	5.2	5.0	7.8	7.3	6.5	7.5	4.8	6.0	13.6	12.7	14.0	14.6	15.6	17.1	10.4	24.5																						
23-Mar	24.6	28.2	24.7	24.0	24.3	20.5	19.8	16.0	21.6	25.7	31.1	22.5	9.0	8.3	8.6	6.6	6.2	8.1	9.4	9.9	10.5	7.8	7.2	7.2	15.9	31.1																						
24-Mar	7.2	8.9	8.2	11.6	13.4	8.8	9.7	13.6	25.5	26.9	22.7	16.2	11.4	10.6	8.0	8.1	8.2	8.1	9.0	7.3	9.4	6.7	6.4	7.1	11.4	26.9																						
25-Mar	6.2	7.3	6.0	5.2	4.8	4.4	4.4	6.1	15.5	29.9	24.8	19.7	14.7	13.6	12.5	8.1	7.1	8.2	6.5	6.0	9.4	8.5	8.9	8.5	10.3	29.9																						
26-Mar	8.2	9.5	11.7	17.0	16.7	17.1	16.8	14.4	11.5	13.3	14.1	18.0	16.1	9.1	7.3	9.1	11.6	11.2	7.4	4.6	5.9	6.7	10.3	14.9	11.8	18.0																						
27-Mar	7.7	5.6	6.6	5.9	4.9	4.8	5.6	5.5	6.8	8.7	4.4	8.3	8.2	4.1	3.9	6.9	4.4	4.7	3.3	2.9	3.9	4.9	5.9	4.4	5.5	8.7																						
28-Mar	4.3	7.5	3.7	7.6	5.1	3.0	3.1	3.7	3.7	2.7	2.8	3.6	3.0	4.8	4.5	4.0	4.0	4.2	7.1	5.3	5.3	6.6	6.4	5.6	4.7	7.6																						
29-Mar	4.0	4.9	3.7	6.2	2.3	2.2	9.3	5.5	4.3	5.6	5.6	8.6	4.2	5.6	3.2	3.0	4.1	7.7	4.6	8.0	3.7	7.8	5.8	3.2	5.1	9.3																						
30-Mar	4.8	3.4	3.5	7.0	5.1	3.9	5.6	11.9	15.3	11.8	9.1	4.7	4.3	4.2	4.6	5.4	4.3	4.7	5.9	5.8	4.4	5.8	10.1	15.5	6.7	15.5																						
31-Mar	16.6	13.8	16.5	8.3	13.0	8.3	10.8	17.5	19.2	8.1	6.8	10.4	6.8	6.7	10.7	6.6	7.0	9.1	10.4	16.9	8.7	11.6	9.6	12.2	11.1	19.2																						
8.0																								7.2	6.7	7.3	6.7	6.1	7.2	8.0	10.6	11.7	10.6	10.1	8.6	8.1	7.8	7.2	6.2	6.2	6.1	7.1	8.1	8.9	8.3	8.7	Diurnal Average	
36.0																								28.2	24.7	24.0	24.3	20.5	26.0	31.5	43.8	33.6	31.1	34.6	29.4	25.1	23.2	23.4	16.0	12.4	13.6	19.2	30.6	39.6	30.3	32.4	Diurnal Maximum	
Alberta Ambient Air Quality Guideline/Objectives: 1-hr 80 µg/m ³ 24-hr 29 µg/m ³																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Ells River - March 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	333	44.76	44.76
6 - 15	327	43.95	88.71
16 - 25	62	8.33	97.04
26 - 80	22	2.96	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Ells River - March 2024

Concentration Ranges (μg/m ³)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	79	53	17	2	7	11	16	17	41	19	11	13	13	9	14	11	333
6 - 15	31	61	17	1	6	10	40	86	41	4	0	2	9	5	1	6	320
16 - 25	5	9	0	0	0	0	11	19	10	1	0	0	2	0	3	1	61
26 - 80	9	3	0	0	0	0	2	2	1	0	0	0	0	0	1	3	21
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	124	126	34	3	13	21	69	124	93	24	11	15	24	14	19	21	735

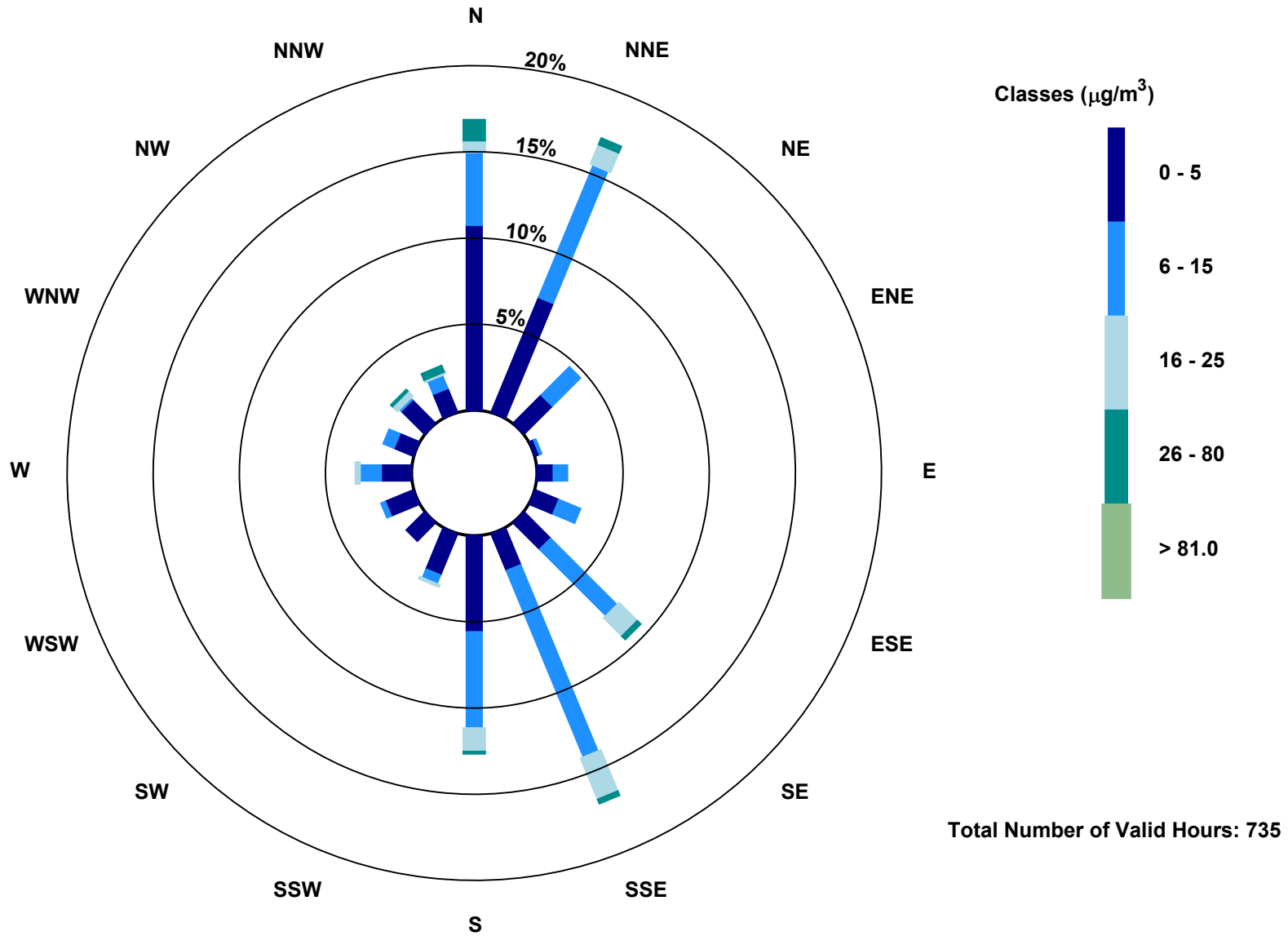
Total Number of Valid Hours: 735

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Ells River



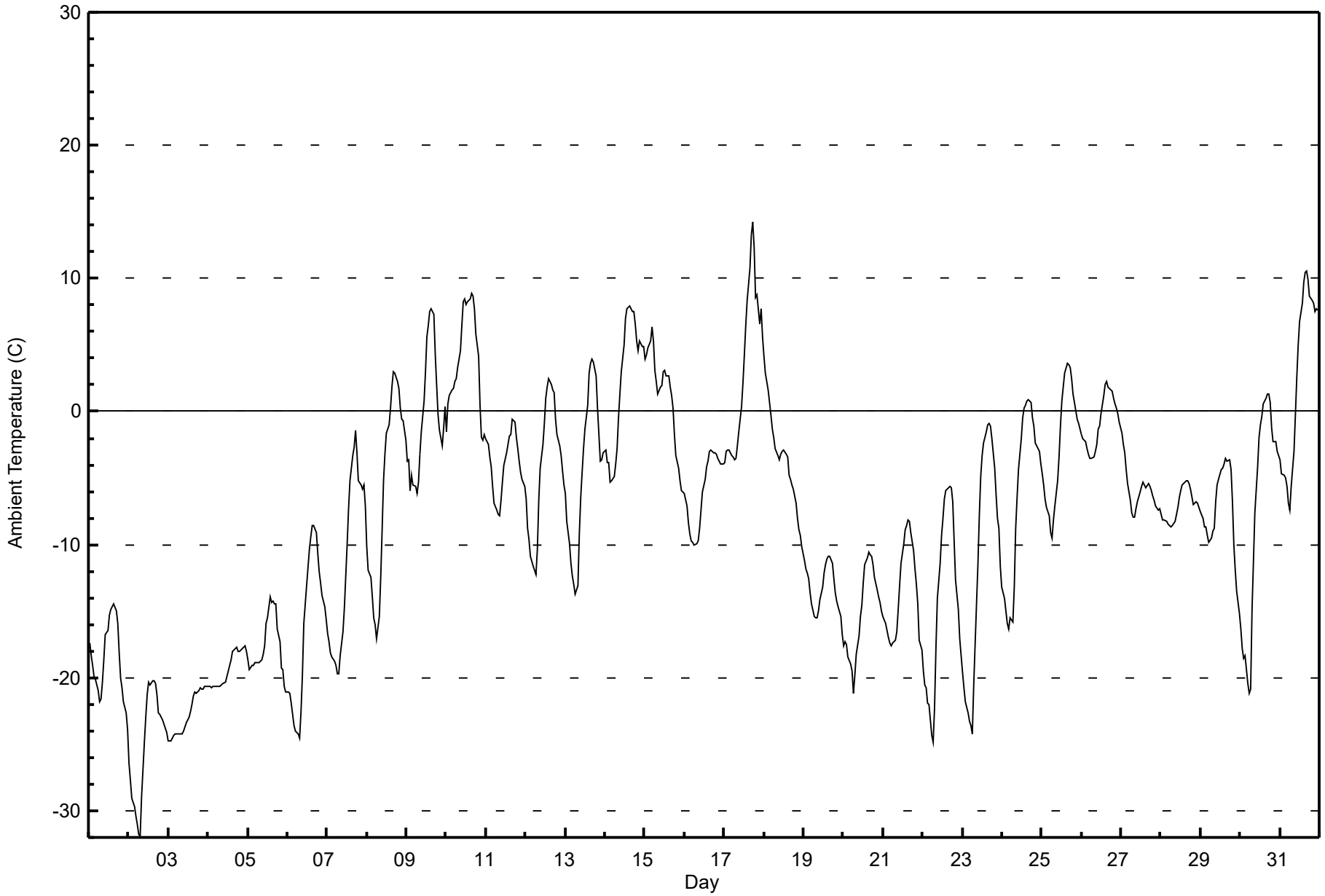


Maximum Value: 14.3 C on Mar 17 18:00		Maximum Daily Average: 3.9 C on Mar 10		Hours in Service: 744																						
Minimum Value: -31.9 C on Mar 2 08:00		Minimum Daily Average: -25.0 C on Mar 2		Hours of Data: 744																						
Maximum Diurnal Average: -3.1 C at hour 17		Minimum Diurnal Average: -13.5 C at hour 7		Hours of Missing Data: 0																						
Monthly Average: -8.11 C		Percentiles: P ₁ = -27.2 P ₁₀ = -20.7 Q ₁ = -15.5 Median = -6.7 Q ₃ = -1.8 P ₉₀ = 2.9 P ₉₉ = 9.3		Hours of Calibration: 0																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	-17.4	-18.3	-19.1	-19.9	-20.1	-20.9	-21.8	-21.6	-20.3	-18.7	-16.7	-16.4	-15.3	-14.8	-14.7	-14.4	-14.9	-16.0	-18.1	-20.0	-20.8	-21.8	-22.6	-23.9	-18.7	-14.4
2-Mar	-26.4	-27.7	-29.0	-29.7	-30.4	-31.1	-31.8	-31.9	-29.0	-24.8	-22.9	-21.3	-20.3	-20.6	-20.3	-20.2	-20.5	-21.3	-22.7	-22.8	-23.2	-23.4	-23.8	-24.2	-25.0	-20.2
3-Mar	-24.7	-24.8	-24.5	-24.3	-24.2	-24.2	-24.2	-24.2	-24.2	-24.0	-23.7	-23.4	-23.0	-22.5	-22.0	-21.4	-21.1	-21.2	-21.0	-20.7	-20.9	-20.9	-20.6	-20.6	-22.8	-20.6
4-Mar	-20.7	-20.7	-20.8	-20.7	-20.7	-20.7	-20.7	-20.7	-20.6	-20.4	-20.3	-19.9	-19.5	-19.1	-18.6	-18.0	-17.8	-17.7	-18.0	-18.1	-18.0	-17.7	-17.6	-18.0	-19.4	-17.6
5-Mar	-18.7	-19.4	-19.1	-19.0	-18.8	-18.8	-18.9	-18.9	-18.7	-18.2	-17.6	-15.9	-15.5	-13.9	-14.4	-14.2	-14.4	-14.5	-16.3	-17.3	-19.3	-19.4	-20.6	-21.1	-17.6	-13.9
6-Mar	-21.1	-21.2	-22.0	-22.7	-23.6	-24.0	-24.2	-24.5	-22.5	-19.8	-15.9	-13.0	-11.7	-10.4	-9.4	-8.6	-8.5	-9.0	-10.6	-12.0	-12.9	-13.8	-14.7	-15.6	-16.3	-8.5
7-Mar	-16.7	-17.3	-18.1	-18.4	-18.7	-19.1	-19.7	-19.7	-18.4	-16.6	-14.7	-12.4	-9.9	-7.3	-5.2	-3.3	-2.6	-1.4	-3.1	-5.2	-5.5	-5.8	-5.6	-7.1	-11.3	-1.4
8-Mar	-10.1	-11.9	-12.4	-13.9	-15.5	-16.0	-17.1	-15.4	-12.4	-8.9	-5.2	-3.2	-1.6	-1.0	0.2	1.9	3.0	2.9	2.2	1.7	0.2	-0.5	-0.7	-2.2	-5.7	3.0
9-Mar	-3.8	-3.7	-5.9	-4.8	-5.5	-5.6	-6.1	-5.3	-3.2	-1.5	0.7	3.0	5.6	6.4	7.5	7.8	7.3	4.3	2.0	-0.3	-1.4	-2.5	-1.2	0.4	-0.2	7.8
10-Mar	-1.5	0.6	1.2	1.7	1.8	2.3	2.5	3.3	4.6	6.5	8.2	8.4	8.0	8.2	8.5	8.9	8.6	7.7	5.8	4.1	0.5	-1.9	-2.2	-1.7	3.9	8.9
11-Mar	-2.1	-2.5	-3.4	-4.1	-5.6	-6.9	-7.4	-7.7	-7.8	-6.7	-5.3	-4.0	-3.1	-2.5	-1.9	-1.7	-0.6	-0.8	-2.0	-2.8	-3.7	-4.6	-5.1	-5.6	-4.1	-0.6
12-Mar	-6.6	-8.8	-9.7	-10.8	-11.6	-12.0	-12.3	-10.4	-6.7	-4.3	-2.4	-0.9	1.0	1.9	2.4	2.1	1.7	1.4	-0.6	-1.7	-2.5	-3.3	-4.5	-5.5	-4.3	2.4
13-Mar	-6.1	-8.2	-9.9	-11.4	-12.4	-13.0	-13.7	-13.1	-9.2	-6.5	-4.6	-2.8	-1.3	0.5	2.8	3.6	3.9	3.7	2.7	0.2	-1.8	-3.7	-3.6	-3.1	-4.5	3.9
14-Mar	-2.9	-3.9	-3.9	-5.3	-5.2	-4.9	-3.9	-2.7	-0.4	1.3	2.9	5.0	6.9	7.7	7.9	7.9	7.5	7.5	6.5	5.3	4.6	5.3	4.9	4.9	2.2	7.9
15-Mar	4.0	4.3	4.8	5.4	6.3	5.3	3.1	2.3	1.4	1.9	1.9	3.0	3.1	2.7	2.7	1.8	1.2	0.2	-1.8	-3.3	-4.2	-5.2	-5.9	-6.0	1.2	6.3
16-Mar	-6.2	-7.1	-8.3	-9.2	-9.7	-9.9	-10.0	-9.9	-9.7	-8.8	-7.4	-6.0	-5.1	-4.2	-3.7	-3.0	-2.9	-3.1	-3.2	-3.2	-3.5	-3.7	-3.9	-4.0	-6.1	-2.9
17-Mar	-3.8	-3.0	-2.9	-2.9	-3.3	-3.4	-3.7	-3.5	-2.6	-1.5	0.4	2.2	4.3	6.5	8.3	10.8	13.3	14.3	12.4	8.6	8.7	6.6	7.8	5.6	3.3	14.3
18-Mar	4.1	2.9	1.6	0.6	-0.2	-1.3	-2.0	-2.8	-3.3	-3.6	-3.2	-3.0	-2.9	-3.3	-3.5	-4.7	-5.1	-5.5	-5.9	-6.9	-8.0	-8.9	-9.3	-10.1	-3.5	4.1
19-Mar	-11.2	-11.8	-12.2	-12.6	-13.6	-14.5	-15.3	-15.5	-15.5	-15.0	-14.1	-13.2	-12.2	-11.5	-11.0	-10.8	-10.9	-11.4	-12.5	-13.6	-14.2	-14.7	-15.4	-16.7	-13.3	-10.8
20-Mar	-17.6	-17.3	-17.5	-18.5	-19.0	-19.5	-21.2	-19.8	-18.2	-16.8	-15.4	-14.6	-12.9	-11.6	-11.0	-10.6	-10.8	-10.8	-11.5	-12.4	-13.4	-13.9	-14.3	-15.0	-15.1	-10.6
21-Mar	-15.4	-15.9	-16.5	-17.0	-17.4	-17.6	-17.4	-17.1	-16.5	-14.8	-13.1	-11.4	-10.0	-8.8	-8.5	-8.2	-8.3	-9.1	-10.4	-11.9	-13.0	-14.5	-17.2	-17.9	-13.7	-8.2
22-Mar	-19.5	-20.5	-20.8	-21.9	-22.0	-24.4	-24.9	-22.2	-17.7	-14.0	-11.4	-9.3	-8.0	-6.5	-5.9	-5.8	-5.7	-5.8	-6.8	-9.7	-12.7	-14.9	-17.0	-18.3	-14.4	-5.7
23-Mar	-19.6	-20.7	-21.9	-22.7	-23.2	-23.6	-24.2	-20.5	-14.5	-11.6	-7.8	-4.8	-3.4	-2.4	-1.5	-1.0	-0.9	-1.1	-2.0	-4.3	-6.2	-8.0	-8.8	-11.6	-11.1	-0.9
24-Mar	-13.2	-14.1	-14.9	-16.0	-16.4	-15.5	-15.8	-13.2	-8.8	-6.4	-4.4	-2.1	-0.4	0.3	0.4	0.8	0.9	0.7	-0.5	-1.2	-2.3	-2.6	-3.0	-3.9	-6.3	0.9
25-Mar	-4.7	-5.5	-6.6	-7.2	-7.8	-9.1	-9.5	-8.1	-7.1	-5.2	-3.5	-1.1	0.8	1.9	2.9	3.6	3.6	3.3	2.4	1.3	0.0	-0.6	-0.9	-1.3	-2.4	3.6
26-Mar	-1.8	-2.0	-2.3	-2.8	-3.2	-3.5	-3.5	-3.4	-3.0	-2.4	-1.3	-1.1	-0.2	1.2	2.0	2.2	1.8	1.8	1.5	1.0	0.6	0.3	-0.2	-0.8	-0.8	2.2
27-Mar	-1.6	-2.4	-3.1	-4.3	-5.4	-6.7	-7.6	-8.0	-8.0	-7.3	-6.8	-6.1	-5.6	-5.3	-5.5	-5.7	-5.4	-5.6	-6.0	-6.4	-6.6	-7.1	-7.4	-7.3	-5.9	-1.6
28-Mar	-7.7	-8.2	-8.2	-8.3	-8.5	-8.6	-8.7	-8.6	-8.2	-7.7	-7.2	-6.5	-6.0	-5.5	-5.3	-5.2	-5.2	-5.4	-5.8	-7.0	-6.9	-6.7	-6.9	-7.2	-7.1	-5.2
29-Mar	-7.5	-8.0	-8.7	-8.6	-9.3	-9.8	-9.5	-9.0	-8.7	-6.8	-5.6	-5.1	-4.3	-4.2	-3.9	-3.6	-3.7	-3.6	-4.4	-6.7	-10.1	-11.9	-13.5	-15.2	-7.6	-3.6
30-Mar	-16.4	-17.8	-18.5	-18.3	-20.4	-21.2	-20.9	-14.9	-11.3	-7.6	-4.2	-1.9	-1.0	-0.3	0.6	1.0	1.3	1.3	0.7	-1.2	-2.3	-2.3	-3.0	-3.4	-7.6	1.3
31-Mar	-3.6	-4.7	-4.8	-5.0	-5.7	-6.9	-7.4	-5.6	-3.0	-0.3	2.6	5.0	6.8	8.1	9.7	10.5	10.6	9.9	8.7	8.3	8.2	7.5	7.7	7.6	2.7	10.6
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Ells River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Ells River - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	98	13.17	13.17
-20 - 0	503	67.61	80.78
0 - 10	137	18.41	99.19
10 - 20	6	0.81	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

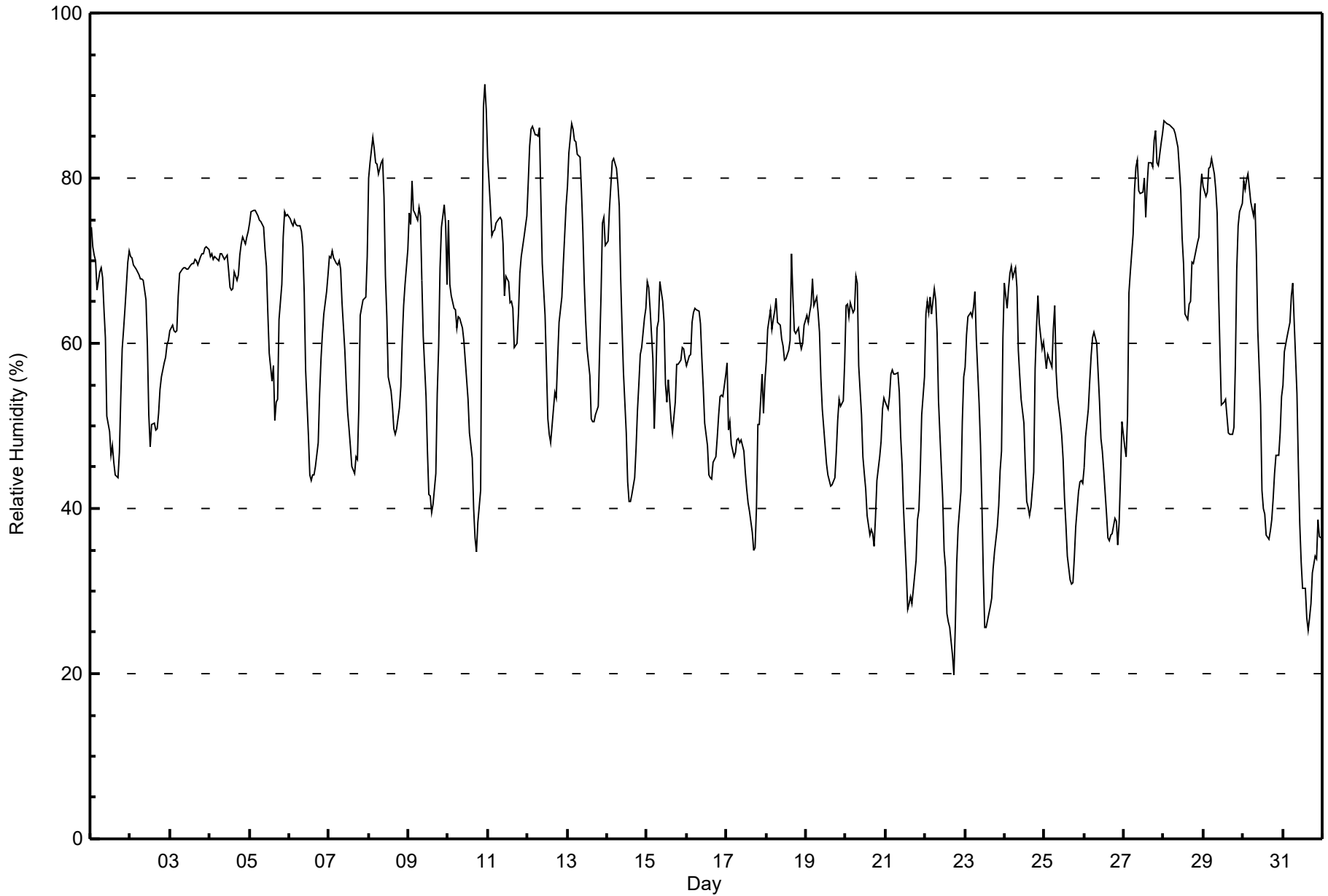
Relative Humidity (RH) - %
Ells River - March 2024

Maximum Value: 91.3 % on Mar 10 23:00		Maximum Daily Average: 77.0 % on Mar 28		Hours in Service: 744																							
Minimum Value: 19.8 % on Mar 22 18:00		Minimum Daily Average: 43.6 % on Mar 31		Hours of Data: 744																							
Maximum Diurnal Average: 70.4 % at hour 7		Minimum Diurnal Average: 46.4 % at hour 17		Hours of Missing Data: 0																							
Monthly Average: 59.46 %		Percentiles: P ₁ = 26.4 P ₁₀ = 39.4 Q ₁ = 49.0 Median = 61.0 Q ₃ = 70.1 P ₉₀ = 78.3 P ₉₉ = 86.4		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-Mar	74.0	71.7	70.7	70.0	66.4	68.6	69.2	68.0	64.1	60.6	51.2	49.3	46.4	47.7	45.5	44.2	43.8	46.8	53.5	59.4	61.7	64.2	69.8	71.1	59.9	74.0	
2-Mar	70.5	70.3	69.5	69.1	68.7	68.3	67.8	67.7	67.6	65.2	59.6	51.3	47.4	50.3	50.3	49.5	49.7	51.5	54.5	55.9	57.6	58.3	59.8	60.4	60.0	70.5	
3-Mar	61.5	62.3	61.6	61.4	61.5	65.7	68.4	68.9	69.2	69.1	69.0	69.0	69.4	69.6	69.7	70.1	70.0	69.6	70.6	70.9	70.9	71.5	71.8	71.3	68.0	71.8	
4-Mar	70.5	70.8	70.1	70.6	70.3	70.0	70.8	70.9	70.5	70.2	70.6	68.8	66.8	66.5	66.6	68.7	67.6	68.3	70.7	72.0	72.9	72.0	72.9	73.6	70.1	73.6	
5-Mar	74.5	76.0	76.0	76.1	75.8	75.4	75.0	74.7	74.1	71.4	69.4	63.8	58.9	55.5	57.3	50.7	52.9	53.2	62.8	67.2	72.9	76.0	75.4	75.6	68.4	76.1	
6-Mar	75.2	74.6	74.2	75.0	74.4	74.2	74.2	73.5	71.7	66.1	56.8	48.8	44.1	43.4	44.0	44.1	45.1	48.0	53.8	58.2	61.1	63.6	66.3	68.3	61.6	75.2	
7-Mar	70.5	70.3	71.3	70.3	69.7	69.6	70.0	69.0	64.9	59.1	55.1	51.7	49.6	47.5	45.1	44.3	46.2	46.0	52.2	63.4	65.3	65.4	65.7	70.5	60.5	71.3	
8-Mar	80.0	81.9	84.9	83.6	81.9	81.7	80.5	81.9	82.2	77.6	68.1	63.3	55.9	54.3	52.4	49.6	49.0	49.7	52.3	54.8	60.4	64.5	67.1	71.3	67.9	84.9	
9-Mar	75.8	74.3	79.6	76.1	75.8	74.9	76.5	75.4	67.5	60.8	53.5	47.0	41.6	41.5	39.5	40.5	44.2	53.9	59.5	69.2	74.0	76.8	74.4	67.1	63.3	79.6	
10-Mar	74.9	67.1	65.8	64.2	64.1	61.8	63.2	63.0	61.9	60.3	58.0	55.6	53.3	49.2	46.1	39.9	36.4	34.8	38.3	42.3	71.5	88.7	91.3	88.4	60.0	91.3	
11-Mar	82.6	76.5	73.0	73.6	73.7	74.5	75.1	75.3	74.9	72.0	65.8	68.2	67.4	65.0	65.1	64.2	59.5	60.0	63.5	68.5	70.4	71.7	72.9	75.4	70.4	82.6	
12-Mar	79.5	83.9	85.9	86.2	85.2	85.2	85.1	86.2	77.5	69.7	63.3	57.0	50.8	49.0	48.0	52.0	54.0	53.3	58.1	62.6	65.5	69.4	73.0	76.6	69.0	86.2	
13-Mar	78.9	83.1	86.6	85.9	84.6	84.5	82.9	82.5	78.5	73.5	67.2	62.7	59.3	56.1	50.9	50.5	50.5	51.4	52.4	59.5	66.0	74.6	75.2	71.9	69.5	86.6	
14-Mar	72.3	76.2	79.2	82.1	82.3	81.2	79.3	76.5	68.0	61.9	56.4	49.1	43.2	40.8	40.8	41.7	43.7	47.3	51.8	55.1	58.6	59.5	63.0	64.3	61.4	82.3	
15-Mar	67.4	66.7	64.3	58.1	49.7	54.9	61.9	62.7	67.4	65.1	62.6	55.1	52.9	55.6	50.7	49.2	50.9	52.8	57.5	57.4	57.9	59.5	59.4	58.2	58.3	67.4	
16-Mar	57.3	58.5	58.7	62.5	63.8	64.2	64.1	63.9	62.4	58.1	54.6	50.4	47.6	44.1	43.7	43.6	45.6	46.3	48.6	51.3	53.6	53.8	53.5	56.2	54.4	64.2	
17-Mar	57.6	49.5	50.5	47.8	46.3	46.8	48.2	48.5	48.0	48.3	46.9	44.4	42.5	40.6	39.6	37.2	34.9	35.2	40.1	50.2	50.2	56.2	51.5	55.5	46.5	57.6	
18-Mar	57.7	61.6	64.1	61.6	62.9	63.9	65.5	62.6	62.2	60.4	59.6	57.9	58.1	59.2	60.3	70.8	65.7	61.5	61.3	61.8	60.2	59.4	60.0	62.1	61.7	70.8	
19-Mar	63.5	62.6	63.8	64.8	67.8	64.6	65.6	63.7	61.4	55.7	52.0	47.6	45.4	44.0	43.4	42.7	42.8	43.7	46.8	50.7	53.2	52.3	53.1	57.9	54.5	67.8	
20-Mar	64.5	64.7	63.2	64.8	63.7	64.1	68.2	67.2	57.2	51.4	46.3	44.3	42.3	39.2	36.8	37.4	36.9	35.4	39.1	43.4	46.3	48.1	52.0	53.3	51.2	68.2	
21-Mar	52.9	52.0	53.5	56.2	56.8	56.3	56.2	56.4	54.1	48.6	45.3	39.9	32.4	27.8	28.4	29.3	28.4	30.2	33.7	38.7	39.8	44.8	51.4	55.9	44.5	56.8	
22-Mar	63.5	65.1	63.7	65.6	63.6	66.6	65.3	61.2	53.0	49.0	41.2	35.0	32.9	27.2	26.3	25.7	22.2	19.8	25.7	33.3	37.5	42.0	50.6	55.9	45.5	66.6	
23-Mar	57.1	61.1	63.2	63.7	63.3	64.4	66.3	60.5	52.7	47.5	40.5	32.1	25.7	25.6	27.4	28.2	29.2	32.7	34.7	37.7	40.3	44.6	47.0	60.7	46.1	66.3	
24-Mar	67.3	64.2	66.6	68.5	69.3	68.0	69.2	66.8	59.2	56.1	53.2	50.4	45.0	40.8	40.2	39.1	40.1	44.4	56.9	62.1	65.7	62.4	59.3	60.2	57.3	69.3	
25-Mar	58.6	57.0	58.6	58.1	57.1	61.6	64.6	56.6	53.6	50.6	48.8	45.9	41.2	38.0	34.3	31.3	30.9	31.0	34.1	37.8	42.0	43.3	43.5	43.1	46.7	64.6	
26-Mar	45.0	48.7	52.1	55.3	58.5	60.7	61.3	59.9	56.4	52.9	48.4	47.0	44.6	39.3	36.5	36.0	36.7	36.9	38.8	38.4	35.6	38.3	43.9	50.5	46.7	61.3	
27-Mar	47.5	46.2	51.2	66.2	68.7	73.2	78.7	81.3	82.2	78.4	78.1	78.4	80.0	75.2	79.2	81.9	81.9	81.3	84.6	85.7	81.9	81.6	84.3	85.4	75.5	85.7	
28-Mar	87.0	86.9	86.6	86.5	86.3	86.1	85.9	85.3	83.7	81.2	78.6	72.7	69.7	63.5	62.8	64.7	65.1	69.9	69.7	71.4	72.3	72.9	78.3	80.5	77.0	87.0	
29-Mar	79.0	77.8	78.3	81.2	81.4	82.3	80.5	78.7	75.7	66.3	59.1	52.5	52.9	53.3	51.1	49.1	49.0	49.0	49.8	57.3	69.0	74.2	75.9	77.0	66.7	82.3	
30-Mar	79.6	78.6	79.9	80.5	77.2	76.3	75.5	76.9	70.9	61.6	52.5	42.2	40.0	39.4	36.7	36.3	37.3	38.6	41.2	44.2	46.5	46.4	49.2	53.6	56.7	80.5	
31-Mar	55.0	58.9	60.9	61.7	62.6	65.7	67.3	62.7	53.8	45.3	38.2	33.5	30.4	30.3	26.8	25.3	26.7	28.6	32.3	34.3	33.9	38.6	36.6	36.4	43.6	67.3	
		67.8	67.7	68.6	69.3	68.8	69.5	70.4	69.3	66.0	61.8	57.1	52.7	49.6	47.7	46.6	46.4	46.4	47.5	51.3	55.3	58.5	61.1	62.8	64.8	Diurnal Average	
		87.0	86.9	86.6	86.5	86.3	86.1	85.9	86.2	83.7	81.2	78.6	78.4	80.0	75.2	79.2	81.9	81.9	81.3	84.6	85.7	81.9	88.7	91.3	88.4	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Ells River - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Ells River - March 2024**

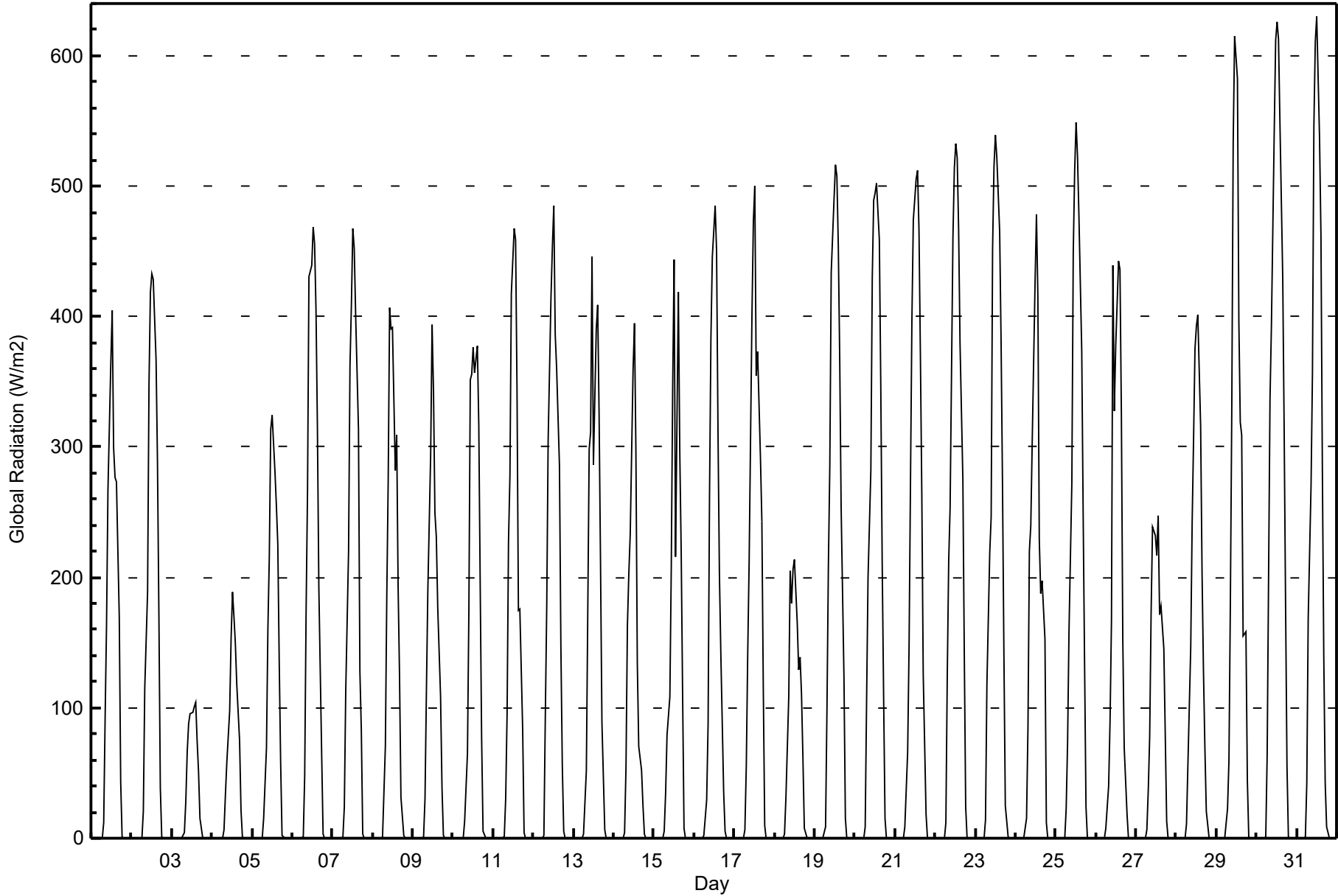
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	1	0.13	0.13
20 - 40	79	10.62	10.75
40 - 60	278	37.37	48.12
60 - 80	330	44.35	92.47
80 - 100	56	7.53	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 629.8 W/m2 on Mar 31 13:00 Maximum Daily Average: 205.0 W/m2 on Mar 30																							Hours in Service:	744		
Minimum Value: 0.0 W/m2 on Mar 1 02:00 Minimum Daily Average: 30.2 W/m2 on Mar 3																							Hours of Data:	744		
Maximum Diurnal Average: 426.2 W/m2 at hour 13 Minimum Diurnal Average: 0.0 W/m2 at hour 5																							Hours of Missing Data:	0		
Monthly Average: 120.38 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 5.6 Q ₃ = 215.8 P ₉₀ = 405.9 P ₉₉ = 549.4																							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-Mar	0.1	0.0	0.1	0.0	0.0	0.0	0.0	11.8	91.7	164.1	267.2	362.9	404.4	299.7	276.3	273.1	169.6	43.8	1.1	0.1	0.1	0.0	0.0	0.1	98.6	404.4
2-Mar	0.2	0.1	0.0	0.1	0.1	0.0	0.3	20.2	115.3	189.0	347.9	419.2	433.2	428.2	366.4	287.4	170.3	38.8	0.8	0.0	0.0	0.0	0.0	0.0	117.4	433.2
3-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	28.7	66.2	87.8	95.9	96.2	101.1	103.7	75.0	51.3	14.7	0.2	0.0	0.0	0.0	0.0	0.0	30.2	103.7
4-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	34.1	58.0	98.0	153.3	189.0	169.9	149.3	118.3	74.6	22.1	0.7	0.0	0.0	0.0	0.0	0.0	44.7	189.0
5-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	69.6	160.3	215.8	313.6	324.5	281.2	255.1	225.8	135.5	58.6	2.7	0.2	0.1	0.1	0.1	0.0	85.8	324.5
6-Mar	0.0	0.0	0.2	0.3	0.2	0.3	0.6	47.8	174.8	266.1	430.5	439.4	468.8	455.9	404.3	313.2	192.2	63.6	2.8	0.2	0.2	0.2	0.1	0.0	135.9	468.8
7-Mar	0.2	0.1	0.1	0.0	0.0	0.0	0.8	23.4	112.9	220.3	362.5	408.8	467.0	452.4	400.9	313.9	127.7	83.8	3.0	0.0	0.0	0.0	0.0	0.0	124.1	467.0
8-Mar	0.2	0.0	0.0	0.2	0.0	0.0	1.3	70.2	185.4	274.3	406.5	390.7	391.1	281.6	308.6	193.4	124.7	31.2	1.7	0.0	0.1	0.2	0.1	0.2	110.9	406.5
9-Mar	0.1	0.2	0.2	0.1	0.0	0.0	0.6	30.4	113.1	189.9	293.8	394.0	342.6	249.1	230.7	177.1	108.0	39.3	2.7	0.0	0.0	0.0	0.0	0.1	90.5	394.0
10-Mar	0.0	0.0	0.0	0.0	0.0	0.0	0.5	13.4	65.3	175.0	351.7	355.3	376.6	357.0	377.3	316.4	194.7	77.6	5.3	0.2	0.0	0.0	0.0	0.0	111.1	377.3
11-Mar	0.0	0.0	0.0	0.0	0.0	0.0	1.3	30.2	96.0	227.4	278.1	417.5	467.3	459.0	344.8	174.2	175.3	84.0	4.6	0.0	0.0	0.0	0.0	0.0	115.0	467.3
12-Mar	0.0	0.0	0.0	0.0	0.0	0.0	2.5	93.1	176.8	304.8	414.7	453.6	485.2	386.7	360.6	285.6	147.4	56.1	5.8	0.0	0.1	0.0	0.0	0.0	132.2	485.2
13-Mar	0.1	0.2	0.0	0.0	0.0	0.0	2.8	51.7	173.3	298.8	310.9	446.1	286.5	390.0	408.6	324.6	211.8	89.1	6.3	0.1	0.2	0.0	0.0	0.0	125.1	446.1
14-Mar	0.1	0.1	0.1	0.1	0.0	0.0	4.4	54.3	162.8	202.5	233.1	358.8	394.8	297.0	134.8	70.6	51.7	25.4	3.7	0.1	0.2	0.2	0.0	0.0	83.1	394.8
15-Mar	0.0	0.0	0.0	0.0	0.0	0.0	5.5	34.3	78.7	102.5	208.2	347.1	443.9	216.1	418.2	296.6	220.7	110.8	7.2	0.0	0.0	0.0	0.0	0.0	104.0	443.9
16-Mar	0.0	0.0	0.0	0.0	0.0	0.0	2.5	28.9	86.5	260.5	382.6	445.5	484.5	450.7	312.7	202.6	141.6	35.7	5.2	0.0	0.0	0.0	0.0	0.0	118.3	484.5
17-Mar	0.0	0.0	0.0	0.0	0.0	0.0	6.2	55.6	141.0	211.6	401.4	472.6	500.3	354.4	373.4	292.2	243.1	116.0	10.0	0.1	0.1	0.0	0.0	0.0	132.4	500.3
18-Mar	0.0	0.0	0.0	0.0	0.0	0.0	3.2	31.1	108.2	204.8	179.6	206.1	214.1	165.3	129.4	138.8	110.6	61.8	7.6	0.0	0.0	0.0	0.0	0.0	65.0	214.1
19-Mar	0.0	0.0	0.0	0.0	0.0	0.0	8.2	99.4	209.0	285.3	433.7	490.8	516.3	507.2	454.2	367.5	254.1	123.7	14.8	0.1	0.0	0.0	0.0	0.2	156.9	516.3
20-Mar	0.3	0.0	0.0	0.0	0.0	0.0	9.1	106.2	200.0	282.2	429.9	488.7	494.7	502.1	459.2	348.2	212.5	110.2	15.5	0.0	0.0	0.0	0.0	0.0	152.4	502.1
21-Mar	0.0	0.0	0.0	0.0	0.0	0.0	8.3	66.1	147.8	273.9	396.6	473.8	505.5	512.5	465.9	371.3	263.9	126.2	18.3	0.2	0.0	0.1	0.2	0.0	151.3	512.5
22-Mar	0.2	0.1	0.1	0.1	0.1	0.3	11.8	126.0	213.0	253.5	460.8	514.1	532.4	521.6	467.7	379.4	275.1	143.3	23.8	0.5	0.2	0.2	0.2	0.2	163.5	532.4
23-Mar	0.2	0.2	0.2	0.2	0.2	0.3	14.2	118.6	219.1	246.4	451.5	514.8	539.5	521.5	465.6	381.4	271.9	142.4	24.8	0.6	0.2	0.1	0.2	0.1	163.1	539.5
24-Mar	0.0	0.2	0.1	0.0	0.0	0.0	15.0	84.2	220.1	239.7	303.5	425.7	478.8	415.6	229.0	188.0	197.1	152.9	12.3	0.2	0.1	0.0	0.0	0.0	123.4	478.8
25-Mar	0.0	0.0	0.0	0.0	0.1	0.4	22.7	74.1	159.0	272.4	448.6	512.5	548.7	522.8	477.3	373.7	248.2	133.9	24.2	0.2	0.0	0.0	0.0	0.0	159.1	548.7
26-Mar	0.0	0.0	0.0	0.0	0.0	0.0	7.4	40.1	90.4	167.2	439.6	328.0	377.3	442.6	436.5	325.2	151.6	69.6	18.4	0.0	0.0	0.0	0.0	0.0	120.6	442.6
27-Mar	0.0	0.0	0.0	0.0	0.0	0.0	7.0	37.0	77.8	173.0	238.8	232.5	217.3	247.6	171.5	178.3	145.5	79.0	13.2	0.1	0.0	0.0	0.0	0.0	75.8	247.6
28-Mar	0.0	0.0	0.0	0.0	0.0	0.0	10.9	56.9	146.3	242.4	305.4	375.7	392.7	401.2	315.3	203.0	128.4	69.9	20.5	0.5	0.0	0.0	0.0	0.0	111.2	401.2
29-Mar	0.0	0.0	0.0	0.0	0.0	0.3	22.7	59.2	180.7	328.4	533.4	614.6	582.2	396.0	319.1	308.6	154.7	158.5	44.3	1.5	0.2	0.2	0.2	0.2	154.4	614.6
30-Mar	0.2	0.2	0.1	0.2	0.1	1.2	63.8	201.2	336.8	392.4	542.1	611.4	626.1	612.6	550.0	429.4	314.0	180.5	55.0	1.6	0.0	0.0	0.0	0.0	205.0	626.1
31-Mar	0.1	0.0	0.0	0.0	0.0	1.1	42.1	169.6	270.2	356.5	546.0	610.8	629.8	537.1	462.0	282.7	138.7	42.0	8.9	0.2	0.0	0.0	0.0	0.0	170.7	629.8
																							Diurnal Average			
																							Diurnal Maximum			





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Speed (WS) - km/h
Ells River - March 2024

Maximum Speed: 28 km/h on Mar 26 11:00	Maximum Daily Speed Average: 22.9 km/h on Mar 3	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 13 05:00	Minimum Daily Speed Average: 1.4 km/h on Mar 22	Hours of Data: 735
Maximum Diurnal Speed Average: 4.7 km/h at hour 17	Minimum Diurnal Speed Average: 1.4 km/h at hour 4	Hours of Missing Data: 9
Monthly Average Velocity: 2.8 km/h 68.1 deg	Percentiles: P ₁ = 1 P ₁₀ = 4 Q ₁ = 8 Median = 11 Q ₃ = 17 P ₉₀ = 21 P ₉₉ = 27	Percent Operational Time: 98.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	W7	W8	WSW8	WSW9	WSW8	SW10	SW12	SW11	WSW10	SW9	W14	WNW16	WNW15	WNW13	NW15	NW16	NW15	NW10	NW9	NNW5	NW9	NW8	NNE11	UO	WNW8.3	WNW16	
2-Mar	W2	WNW3	WNW4	W4	W4	WNW4	W2	WNW3	NNW5	N6	NNE8	NE8	NNE7	NNE11	NE13	NE16	NE17	NE14	NNE12	NNE15	NNE16	NNE18	NNE18	N18	NNE8.0	NNE18	
3-Mar	N18	N20	N21	N21	N23	N28	NNE28	NNE27	NNE26	N27	NNE25	NNE26	N23	N23	N22	N20	N21	N21	N20	N22	N22	N21	N25	N24	N22.9	N28	
4-Mar	N25	N22	N23	N27	N25	N23	N26	N25	N28	N27	N25	N25	N25	N24	N21	N17	N20	N18	N16	N14	N11	N11	NNE11	NNE16	N21.0	N28	
5-Mar	NNE13	NNE10	N10	N9	N11	NNE9	N11	N10	NNE10	NNE11	N7	N5	NNE6	NNW4	ESE3	SSE8	NW2	S7	S8	S8	S7	S8	S7	S7	NNE2.9	NNE13	
6-Mar	S7	S8	S6	S7	S8	S7	S8	S9	SSE8	SSE9	S14	S19	S20	S20	S20	S18	S19	S13	S9	S10	S10	S10	S11	SSE11	S11.6	S20	
7-Mar	SSE11	SSE11	SSE11	SSE12	SSE11	S12	S13	S12	S13	S17	S17	S16	SSE17	SSE17	SSE17	SSE14	SSE9	S8	SSE6	SE2	SE6	SE2	SSW5	WNW7	SSE10.5	SSE17	
8-Mar	W6	WNW4	WNW4	WSW4	S0	SSW5	S5	S7	S8	SSE10	SSE10	SSE13	SSE11	SSE10	SE13	SE12	SE13	SSE12	SSE14	SSE13	S7	SSE8	SSE8	SSW7	SSE7.2	SSE14	
9-Mar	S6	S8	S6	S10	S10	S8	S7	S8	S8	SSE10	SSE10	SSE10	S13	SSE10	SE5	SE9	ESE5	NNW4	W1	WSW2	UO	SSW3	SSW6	SSW8	S6.5	S13	
10-Mar	SSW7	S11	S10	S10	S10	SSW8	SW10	SW10	SW11	WSW12	W15	W17	W18	WSW19	W20	W16	WNW18	WNW12	NW9	NW9	N13	N9	NNE12	NNE13	W7.3	W20	
11-Mar	NNE15	NE14	NE14	NNE11	NE13	NE11	NE8	NE7	N6	N6	N6	NNE9	NNE8	NNE11	NNE12	N8	NNW9	N9	N8	N12	N11	N10	N8	N4	NNE9.1	NNE15	
12-Mar	N4	NNW3	NNE1	NNW3	NNE2	N4	NNE4	NNE6	E5	SE9	SE13	SE11	E9	ENE8	NE7	NNE12	N12	N6	UO	SE9	ESE8	SE12	SE12	SE10	E4.4	SE13	
13-Mar	SE7	ESE1	NW2	NW2	E0	SSW1	SW1	WNW2	SSE3	SSE13	SSE10	SE11	SSE10	SE9	SE9	SE12	SE14	SE11	SSE9	SE8	SE4	NNW2	S2	SSE8	SSE5.5	SE14	
14-Mar	S9	SSE8	S8	SSE8	SSE10	SSE11	S11	SSW12	SSW11	SSW12	SSW16	SSW16	SSW15	SSW11	SSW12	S9	SSW10	SSE7	SSE11	S9	SSW10	WSW7	WSW8	SSW9.8	SSW16		
15-Mar	SSW3	SW8	WSW12	W15	NW18	NNW21	NNW23	N24	N25	NNW14	NNW20	NW19	NNW17	NNE15	NNE19	NE24	NNE21	NNE22	NE17	NNE14	NE9	NE9	NE10	NNE14	N12.6	N25	
16-Mar	NNE15	NE17	NNE14	N14	NNE15	NNE14	NNE14	NE11	NNE13	NNE13	NNE10	N7	NNE8	NNE8	NNE7	NE9	NNE9	NNE11	NNE8	NNE7	N7	NNE8	NNE4	N4	NNE10.2	NE17	
17-Mar	ESE2	SE12	SE12	SE13	SSE12	SSE13	SSE12	SSE13	SSE16	SSE17	SSE20	S21	SSE21	S21	SSE20	SSE18	SSE13	S16	S11	SSE9	S8	SW5	W9	NNE16	SSE11.9	SSE21	
18-Mar	NNE12	NNE6	NE8	NNE11	NNE20	NNE20	NNE16	NNE23	NNE23	NNE22	NE17	NNE11	NNE13	NNE16	NNE19	NNE24	NNE25	NNE26	NNE20	NNE22	NNE24	NNE22	NNE24	NNE23	NNE18.6	NNE26	
19-Mar	NNE24	NNE24	NNE22	N20	NNE22	NNE22	NNE18	NNE20	NNE21	NNE17	NNE15	N10	NNE11	NNE13	NNE15	NNE16	NE15	NE15	NE13	NE10	NE12	NNE12	NNW7	NNW5	NNE15.4	NNE24	
20-Mar	NE3	NNE7	N9	N8	N8	NNE7	NW5	NW5	N7	NNW6	N8	N10	NE8	NE9	NE9	NNE10	NNE11	NNE11	NNE11	N10	NNE10	NNE7	N8	NNW9	NNE7.7	NNE11	
21-Mar	N11	N11	N13	N11	N11	N13	N12	N11	N11	N14	N14	N15	NNE18	NNE18	N21	NNE21	NNE20	NE20	NE16	NNE14	NNE12	NNW6	NW3	NW5	N12.8	NNE21	
22-Mar	NW3	W5	W4	W5	W4	SSW3	SSW4	SW3	W2	SE6	ESE6	E6	E5	ESE3	E4	SSE7	ESE6	E8	E4	UO	UO	UO	SSW1	W1	SE1.4	E8	
23-Mar	S2	UO	UO	S7	S7	S5	S3	S5	S11	S11	SE7	SE7	SSE9	SE8	SSE6	SSE6	SSE6	SE11	ESE7	ESE4	SE5	SSE8	SSE6	NNW2	SSE5.8	S11	
24-Mar	WNW3	UO	WSW1	S4	S5	S8	S6	S4	SE4	SSE6	SE6	SE8	SE15	SE16	SSE13	SSE13	SSE16	SSE16	SSE18	SSE13	SE7	SE7	SE11	SE13	SE12	SSE8.5	SSE18
25-Mar	SE14	SE14	SE14	SE16	SSE13	SE4	ESE2	SE11	SSE13	SSE14	SE15	SSE17	SE22	SE23	SSE26	SSE22	SSE22	SSE22	SSE18	SSE18	SSE17	SSE15	SSE17	SE21	SE19	SSE16.1	SSE26
26-Mar	SSE21	SSE22	SSE22	SSE20	SSE21	SSE20	SSE22	SSE23	SSE24	SSE21	SSE28	SSE26	SE22	SSE25	SSE23	SE25	SE26	SE22	SSE16	SSE16	SSE20	SE20	SE22	SE25	SSE22.1	SSE28	
27-Mar	SE20	SE25	SE21	SE18	ESE17	ESE15	ESE13	E14	ESE12	ESE14	ESE16	E13	ESE15	ESE18	ESE17	ESE16	E15	E12	E10	NE9	NE10	NNE9	N10	NNE11	ESE12.6	SE25	
28-Mar	N13	N15	N15	N16	N17	N17	N17	N18	N20	N20	N18	N22	NNE22	N21	NNE20	NNE20	N20	N16	N15	N14	N14	NNW15	NNW15	N15	N17.0	NNE22	
29-Mar	N16	N14	N12	N14	N11	N3	N9	N12	N10	NNE8	NNE14	NNE19	NNE17	NNE18	N15	NNE14	NNE13	NE12	NE7	ENE2	W3	W3	W3	WSW3	N9.6	NNE19	
30-Mar	SW1	S2	S6	S8	S7	S6	S6	S8	SE9	SSE10	SSE13	SSE18	SSE20	SE21	SSE19	SE20	SE21	SE17	SE13	SE11	SE12	SSE12	SSE13	SSE12	SSE11.4	SE21	
31-Mar	SSE10	SSE6	S6	SSE9	SSE9	SSE11	SSE11	SSE12	S13	S12	SSE12	SSE14	SSE16	SSE18	S17	S16	S13	SSE14	SSE14	SSE15	S16	SSE17	SSE18	S16	SSE13.0	SSE18	

NE2.7	ENE2.3	NE2.0	NE1.4	NE2.4	NE2.4	NNE2.1	NE2.3	NE2.6	E2.7	E2.9	E2.6	ESE3.2	E3.9	E4.0	E4.7	ENE4.7	ENE4.2	ENE3.7	ENE3.6	ENE3.0	ENE2.4	ENE2.2	NE2.6	Diurnal Average
N25	SE25	N23	N27	N25	N28	NNE28	NNE27	N28	N27	SSE28	SSE26	N25	SSE25	SSE26	SE25	SE26	NNE26	NNE20	NNE22	NNE24	NNE22	N25	SE25	Diurnal Maximum

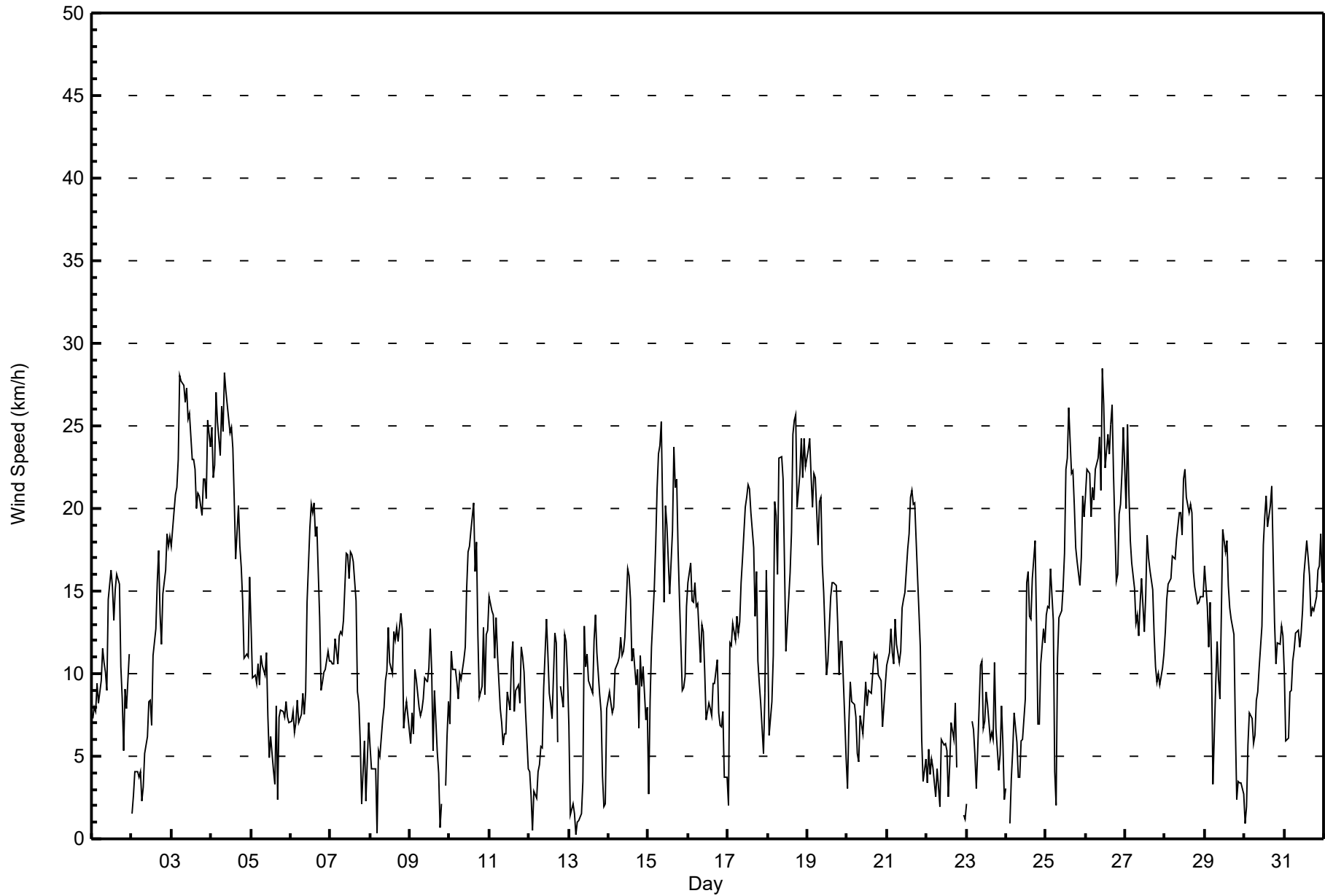
UO - Unstable Operation

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 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Ells River - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	98	13.33	13.33
6 - 11	274	37.28	50.61
12 - 19	237	32.24	82.86
20 - 28	126	17.14	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 735

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Ells River - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6	4	1	1	5	7	7	1	11	8	4	4	14	8	8	9	98
6 - 11	40	40	17	2	4	4	24	47	57	10	6	7	4	1	6	5	274
12 - 19	36	48	14	0	4	10	24	51	20	6	1	4	5	5	5	4	237
20 - 28	42	34	2	0	0	0	14	25	5	0	0	0	1	0	0	3	126
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
Totals	124	126	34	3	13	21	69	124	93	24	11	15	24	14	19	21	735

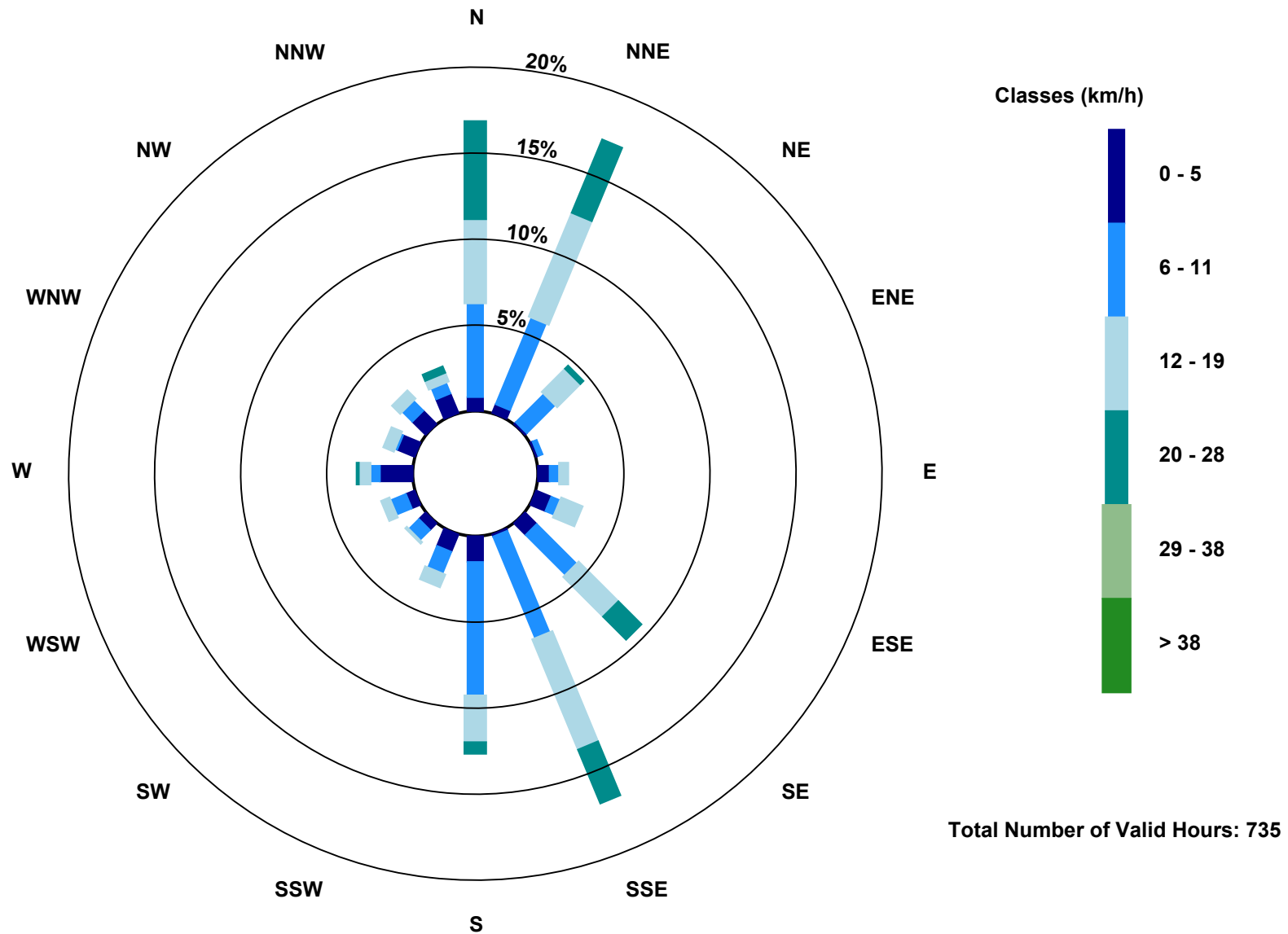
Total Number of Valid Hours: 735

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Ells River





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Ells River - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 09:00 Minimum Value: 1 km/h on Mar 5 22:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 735 Hours of Missing Data: 9 Hours of Calibration: 0 Percent Operational Time: 98.8							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	2	2	3	2	3	3	2	2	3	4	4	4	3	4	3	3	2	2	2	2	3	3	UO	4
2-Mar	1	1	2	1	1	1	2	1	1	4	2	3	3	3	3	3	3	3	1	2	2	2	4	3	4
3-Mar	2	3	3	3	3	4	5	4	4	3	4	4	3	3	3	4	3	4	3	4	4	4	4	4	5
4-Mar	4	4	4	6	5	5	4	4	5	4	5	4	6	4	4	3	3	3	3	2	2	2	2	2	6
5-Mar	3	2	2	1	1	2	2	2	2	2	1	2	2	2	4	2	2	2	1	1	1	1	1	1	4
6-Mar	1	1	1	1	1	1	1	1	1	2	3	4	5	5	5	5	4	4	1	1	1	1	1	1	5
7-Mar	1	1	2	1	1	1	2	2	3	4	3	3	3	3	3	3	2	2	1	1	3	2	4	2	4
8-Mar	1	2	1	2	1	2	2	1	1	2	2	3	2	2	2	2	2	2	2	3	1	1	1	1	3
9-Mar	1	1	2	1	1	1	2	2	1	2	2	2	3	3	2	2	1	2	1	2	UO	2	3	2	3
10-Mar	2	1	1	1	2	3	3	4	3	4	4	5	5	6	6	5	5	4	2	2	4	1	3	2	6
11-Mar	3	2	2	2	2	1	2	1	1	2	2	3	3	3	2	2	2	1	2	1	1	2	2	1	3
12-Mar	1	1	1	1	1	1	1	2	4	2	4	4	4	3	2	2	2	2	UO	1	2	2	3	2	4
13-Mar	2	1	1	1	1	1	1	1	4	3	2	2	2	3	3	2	2	2	2	2	1	3	2	1	4
14-Mar	1	1	2	1	2	1	1	2	3	2	3	4	4	4	3	3	2	3	2	2	1	3	3	4	4
15-Mar	3	2	3	4	4	5	5	7	7	4	4	4	4	4	4	4	4	5	3	3	2	3	2	3	7
16-Mar	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	1	1	1	1	2	1	3
17-Mar	2	3	2	2	3	2	2	3	3	3	4	4	5	4	4	4	2	4	1	1	2	3	2	6	6
18-Mar	2	1	4	2	6	5	4	4	3	3	3	2	3	2	4	4	4	4	3	4	4	4	4	4	6
19-Mar	4	4	3	3	3	3	3	4	3	3	4	4	4	4	4	4	3	2	2	2	2	2	2	1	4
20-Mar	1	2	1	2	2	2	1	1	1	2	2	3	3	3	3	3	3	2	1	1	2	1	1	2	3
21-Mar	1	1	1	1	2	2	1	2	2	2	2	3	3	4	4	3	3	3	3	2	2	1	1	1	4
22-Mar	1	1	2	1	1	1	1	1	1	2	2	2	2	2	3	3	3	2	1	UO	UO	UO	2	1	3
23-Mar	2	UO	UO	1	1	2	3	1	3	2	2	3	4	3	4	3	3	2	1	1	2	1	2	1	4
24-Mar	1	UO	1	3	1	1	1	2	2	2	2	3	4	4	3	4	4	4	3	1	1	2	1	1	4
25-Mar	2	2	2	2	5	2	2	2	3	3	3	4	5	5	5	6	5	4	3	3	2	3	4	4	6
26-Mar	4	4	4	3	4	3	5	5	5	5	5	6	6	5	5	5	4	4	4	3	4	4	4	5	6
27-Mar	4	5	4	4	5	3	3	3	3	3	3	4	4	5	4	5	3	4	2	2	2	1	1	1	5
28-Mar	2	2	2	2	2	2	2	2	2	2	2	2	3	4	3	3	3	3	2	2	2	2	2	2	4
29-Mar	2	2	3	2	3	2	2	2	2	3	5	4	4	4	3	3	3	2	2	2	1	1	1	2	5
30-Mar	1	2	1	1	2	1	1	2	1	2	3	5	5	5	5	4	4	3	2	1	1	1	2	2	5
31-Mar	3	2	1	1	1	1	1	3	3	2	3	3	4	4	5	4	3	2	2	3	4	5	4	5	5
Diurnal Maximum																								4	
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Ells River - March 2024

Direction of Maximum Speed: 149 deg on Mar 26 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 6.6 deg on Mar 3	Hours of Data: 735
Direction of Minimum Speed: 93 deg on Mar 13 05:00	Hours of Missing Data: 9
Direction of Minimum Daily Speed Average: 1.4 deg on Mar 22	Percent Operational Time: 98.8
Monthly Average Direction: 68.1 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-Mar	268	264	242	242	245	219	233	234	237	236	274	296	290	291	314	323	325	322	317	327	308	322	28	UO	285.5
2-Mar	265	283	288	273	274	284	269	282	343	3	32	43	18	15	38	39	44	36	27	12	13	14	16	10	15.4
3-Mar	8	3	8	9	9	10	13	15	15	11	17	14	9	5	2	1	352	358	359	2	2	1	359	3	6.6
4-Mar	2	358	358	4	359	360	3	2	5	7	7	4	4	359	3	7	6	360	3	0	356	1	13	21	3.2
5-Mar	13	20	358	360	11	13	7	9	19	22	9	9	13	334	110	160	322	186	169	178	178	177	173	176	24.6
6-Mar	174	173	182	177	170	189	170	171	168	164	178	177	189	180	189	191	185	188	187	184	176	174	170	165	179.6
7-Mar	159	159	164	168	168	169	172	172	176	174	172	177	162	167	160	158	152	174	154	140	140	146	195	288	167.7
8-Mar	267	287	298	238	187	194	179	184	172	158	165	168	163	151	136	145	144	156	158	160	176	168	161	193	166.6
9-Mar	190	174	186	177	170	169	169	180	175	160	159	147	173	160	141	143	115	339	276	255	UO	201	199	195	169.8
10-Mar	197	185	179	173	186	213	221	232	231	238	259	275	272	250	270	271	283	289	305	318	2	6	21	30	261.9
11-Mar	30	36	37	19	35	43	41	48	360	9	11	32	14	21	27	8	342	356	353	7	1	10	8	10	19.3
12-Mar	11	348	13	344	33	10	20	19	83	128	139	139	96	74	46	18	5	3	UO	132	123	127	130	132	86.8
13-Mar	141	103	312	305	93	192	229	288	158	166	160	135	157	142	134	130	146	160	139	133	342	176	165	147.4	
14-Mar	169	162	176	158	168	168	184	196	209	202	199	197	204	212	210	206	182	195	166	166	181	213	237	256	193.2
15-Mar	200	235	248	276	307	328	339	352	355	328	341	323	348	28	33	37	26	24	34	14	37	35	40	33	357.2
16-Mar	30	35	19	10	21	23	31	34	31	26	12	8	18	19	14	35	15	22	25	12	357	13	30	4	22.0
17-Mar	115	145	138	146	157	162	166	162	163	163	164	170	162	169	157	161	164	172	169	156	183	228	261	18	162.4
18-Mar	22	19	34	25	20	25	27	18	17	24	37	30	30	23	24	27	26	20	19	25	19	18	19	22	23.0
19-Mar	18	17	12	7	17	21	23	25	21	33	27	11	23	28	25	30	41	38	47	45	34	23	337	336	22.8
20-Mar	47	13	4	354	355	14	319	325	356	344	4	11	36	46	39	30	26	32	16	11	18	18	352	347	11.8
21-Mar	353	360	358	355	353	0	1	0	360	5	359	9	22	23	6	23	27	36	34	30	13	340	308	316	10.4
22-Mar	307	264	273	273	270	205	210	222	269	126	117	99	87	103	92	150	115	85	92	UO	UO	UO	201	275	140.6
23-Mar	182	UO	UO	191	185	184	184	174	179	177	137	140	151	140	161	154	158	138	115	113	137	151	153	332	156.8
24-Mar	296	UO	248	181	178	184	185	179	141	152	131	132	142	141	148	150	148	150	155	145	129	134	138	140	148.9
25-Mar	139	145	141	145	152	145	109	141	149	154	146	149	163	144	147	158	164	159	157	152	149	158	164	162	152.3
26-Mar	160	160	160	150	152	152	161	163	161	153	149	149	145	158	157	145	137	141	148	150	150	145	143	141	151.2
27-Mar	128	137	133	129	120	113	104	99	104	107	105	99	106	109	106	106	99	101	79	50	46	21	11	17	103.1
28-Mar	5	6	10	8	8	5	4	7	10	7	2	8	15	11	20	20	11	353	351	5	349	346	346	359	5.4
29-Mar	358	5	4	355	6	10	353	8	9	25	18	15	15	13	9	13	24	37	56	71	262	268	276	256	9.5
30-Mar	221	183	171	179	190	185	179	171	146	157	153	162	152	144	147	139	138	137	131	130	145	155	151	157	151.2
31-Mar	160	165	174	166	158	163	166	164	176	176	165	166	165	156	172	179	174	161	163	154	171	152	155	171	165.1

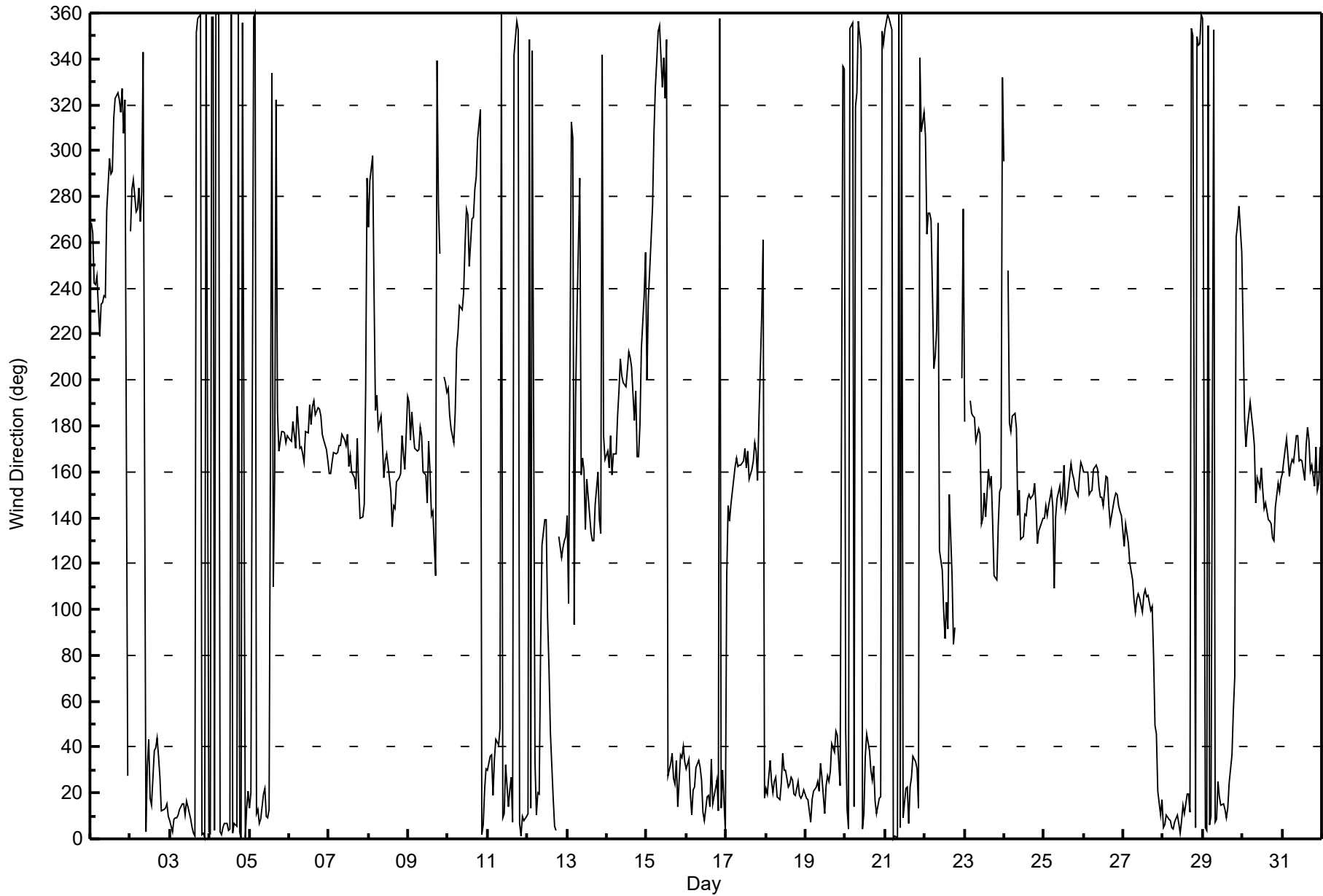
43.5 57.3 41.7 39.8 41.8 42.5 32.8 43.2 49.5 86.2 89.7 95.1 101.8 97.3 84.6 84.8 69.9 73.6 72.1 64.8 56.5 60.5 68.9 51.3
 Diurnal Average

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
Ells River - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Ells River - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Mar 15 01:00 Minimum Value: 3 deg on Mar 5 22:00 Percentiles: P ₁ = 6 P ₁₀ = 8 Q ₁ = 10 Median = 13 Q ₃ = 19 P ₉₀ = 28 P ₉₉ = 77																	Hours in Service: 744 Hours of Data: 735 Hours of Missing Data: 9 Hours of Calibration: 0 Percent Operational Time: 98.8																														
Day	Hourly Period Ending At (MST)																								Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Mar	14	12	15	19	22	14	15	16	18	26	20	21	23	26	18	16	14	14	16	19	8	40	8	UO	40																						
2-Mar	35	26	29	18	15	28	40	32	25	25	21	24	33	19	17	15	11	10	7	8	6	7	7	11	40																						
3-Mar	9	13	8	8	8	7	7	8	8	8	9	7	9	11	12	13	14	14	13	13	13	13	12	13	14																						
4-Mar	13	14	14	14	13	13	12	13	12	12	11	12	14	12	13	12	12	12	11	11	12	11	9	7	14																						
5-Mar	6	14	10	10	9	10	10	9	9	12	13	26	22	29	70	26	80	18	6	8	9	3	8	9	80																						
6-Mar	10	6	14	10	7	13	5	5	11	16	14	18	18	20	17	19	14	12	7	7	8	7	6	7	20																						
7-Mar	6	7	8	8	8	7	8	9	12	13	15	18	11	15	14	14	17	17	14	22	11	75	43	26	75																						
8-Mar	16	51	24	27	89	13	18	8	12	14	18	17	18	17	9	10	9	9	9	8	22	8	7	17	89																						
9-Mar	8	7	8	5	7	6	8	12	11	10	19	18	16	16	22	10	53	43	72	44	UO	39	51	13	72																						
10-Mar	8	9	8	10	21	19	20	30	19	22	22	23	24	23	19	19	19	16	12	12	19	9	8	10	30																						
11-Mar	9	10	10	11	11	10	12	12	14	18	19	23	29	17	13	23	14	13	13	8	9	11	15	18	29																						
12-Mar	15	34	94	26	24	18	18	17	43	15	14	14	35	27	29	11	5	8	UO	6	10	8	8	7	94																						
13-Mar	12	67	30	17	84	69	60	49	53	14	19	13	25	22	19	9	7	12	9	10	56	19	65	6	84																						
14-Mar	6	9	13	14	11	9	11	12	17	16	17	15	19	22	19	17	15	16	13	9	16	20	40	46	46																						
15-Mar	94	26	18	19	16	21	13	18	14	13	19	13	18	28	14	12	12	11	10	12	14	9	8	7	94																						
16-Mar	9	10	17	16	8	9	11	11	11	17	19	24	27	27	24	19	13	11	11	13	13	11	56	30	56																						
17-Mar	68	8	9	9	10	10	10	11	11	13	13	15	14	11	13	12	14	10	8	9	8	48	24	32	68																						
18-Mar	10	16	22	13	9	9	10	9	9	12	11	19	13	14	11	10	8	9	11	8	8	9	9	9	22																						
19-Mar	9	8	10	13	10	9	8	9	11	19	16	21	29	19	23	17	15	12	9	8	6	10	20	18	29																						
20-Mar	12	14	10	16	20	11	17	31	13	21	23	21	30	27	33	26	16	15	6	6	7	9	10	9	33																						
21-Mar	10	9	12	12	10	11	10	12	11	10	11	14	15	20	14	17	12	10	8	7	12	16	13	8	20																						
22-Mar	19	13	22	14	20	38	19	21	71	35	21	28	39	78	56	30	45	14	26	UO	UO	UO	74	28	78																						
23-Mar	45	UO	UO	8	8	8	78	13	14	17	25	30	35	44	62	53	62	12	8	6	10	5	12	28	78																						
24-Mar	18	UO	51	57	18	8	12	27	40	30	21	18	23	20	19	20	23	16	9	14	11	8	7	5	57																						
25-Mar	8	7	6	7	15	38	61	10	11	15	17	18	16	15	14	17	16	12	10	10	8	10	11	11	61																						
26-Mar	10	11	10	9	10	9	12	12	12	13	13	15	17	20	19	16	8	10	9	9	10	9	8	8	20																						
27-Mar	9	10	10	12	15	11	13	12	12	13	14	16	14	13	13	15	14	22	14	13	10	13	6	6	22																						
28-Mar	8	7	6	6	6	9	9	8	7	10	13	10	9	16	13	10	10	13	12	8	10	10	11	12	16																						
29-Mar	12	11	8	12	9	19	20	12	18	13	15	14	19	15	19	16	19	18	11	50	7	13	15	48	50																						
30-Mar	88	37	12	11	11	9	12	11	13	14	17	17	20	15	16	14	10	9	8	7	7	8	6	8	88																						
31-Mar	10	16	12	10	9	6	7	9	16	20	20	19	19	15	21	21	20	11	11	8	15	9	12	21	21																						
Diurnal Maximum																								94	67	94	57	89	69	78	49	71	35	25	30	39	78	70	53	80	43	72	50	56	75	74	48
UO - Unstable Operation																																															



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS501
LEISMER
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LEISMER (AMS501)
MARCH 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	18.5	0	4.4	0
H2S (ppb) Average	708	36	36	100	0.3	0	0.1	0
NO2 (ppb) Average	708	36	36	100	19	0	4.9	-
NO (ppb) Average	708	36	36	100	14.2	-	2.1	-
NOX (ppb) Average	708	36	36	100	28.5	-	6.1	-
Temperature 2 m (C) Average	744	0	0	100	12.3	-	4	-
Relative Humidity (%) Average	744	0	0	100	94.5	-	85.3	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	36	-	20	-
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 - LEISMER (AMS501)
MARCH 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	0.66	1.6	-	0	0	0.1	0.2	0.5	1.6	18.5
H2S (ppb) Average	708	0.07	0	-	0	0	0	0.1	0.1	0.1	0.3
NO2 (ppb) Average	708	1.66	1.8	-	0.1	0.4	0.6	1	2.1	3.6	19
NO (ppb) Average	708	0.49	1.2	-	0	0	0	0.1	0.4	1.2	14.2
NOX (ppb) Average	708	2.15	2.8	-	0.1	0.4	0.7	1.2	2.5	4.9	28.5
Temperature 2 m (C) Average	744	-7.74	9.2	-	-27.6	-21.2	-15	-7.3	-0.9	4.4	12.3
Relative Humidity (%) Average	744	62.1	16.7	-	23.8	39.6	49.2	62.4	75.6	83.8	94.5
Wind Speed 10 m (km/h) Average	743	10.9	6	-	0	4	7	10	14	19	36
Wind Direction 10 m (deg) Average	743	120.2	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LEISMER (AMS501)
MARCH 2024

OPERATIONAL NOTES

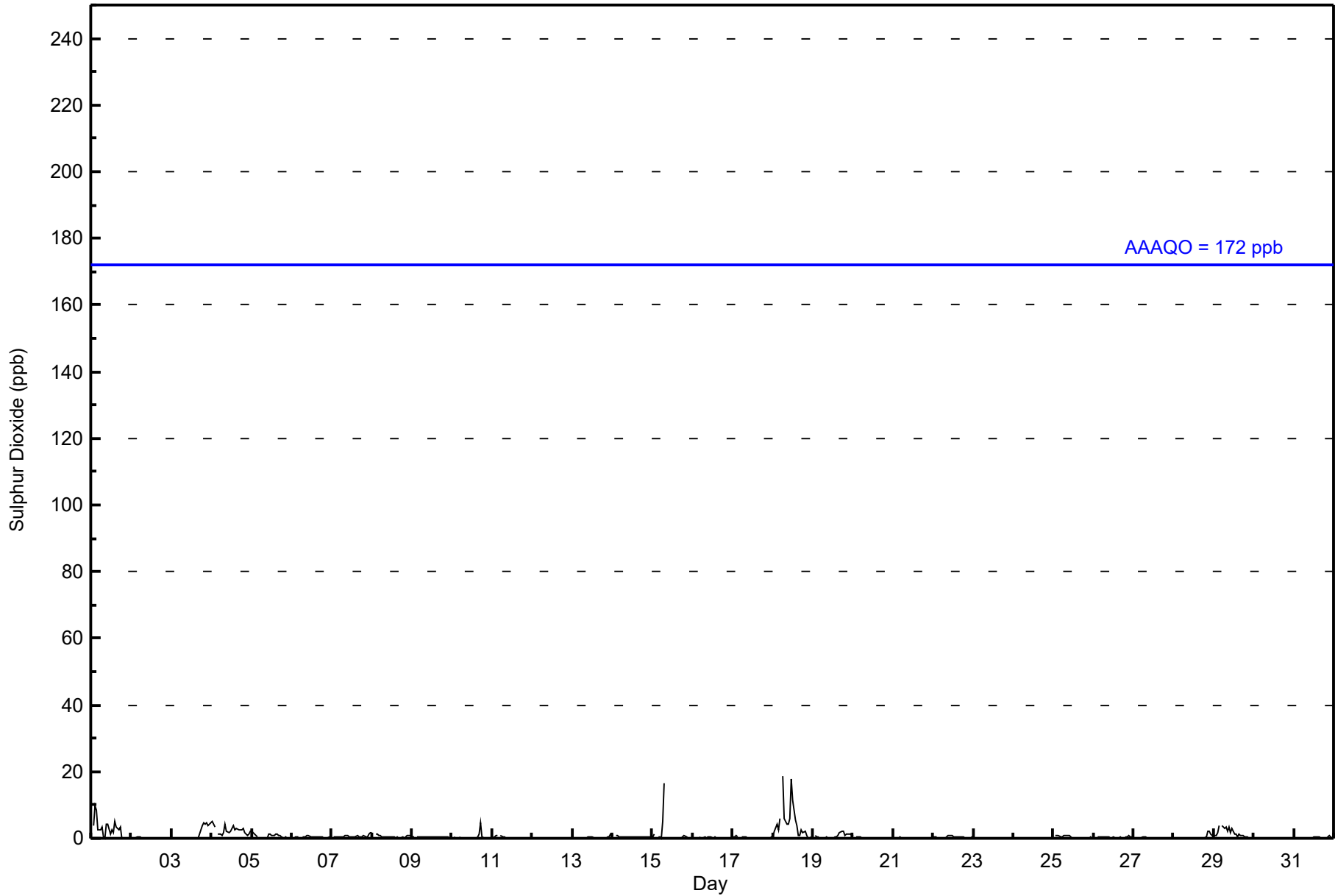
Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	30 Mar 2024 07:00	30 Mar 2024 07:00	1	Flat line in sensor output signal - Sensor frozen



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 18.5 ppb on Mar 18 07:00	Maximum Daily Average: 4.4 ppb on Mar 18		Hours of Data:	709
Minimum Value: 0.0 ppb on Mar 1 22:00	Minimum Daily Average: 0.0 ppb on Mar 24		Hours of Missing Data:	35
Maximum Diurnal Average: 1.2 ppb at hour 7	Minimum Diurnal Average: 0.4 ppb at hour 23		Hours of Calibration:	35
Monthly Average: 0.66 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 1.6 P ₉₉ = 5.9		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-Mar	Z	4.0	9.8	8.3	2.4	2.4	3.2	0.2	0.2	4.3	4.3	1.4	2.3	1.6	5.2	3.5	2.6	3.4	0.1	0.1	0.2	0.0	0.0	0.0	2.6	9.8																							
2-Mar	0.1	Z	0.2	0.3	0.6	0.3	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.6																							
3-Mar	0.1	0.1	Z	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.2	1.4	4.0	4.7	4.0	4.5	3.9	4.8	1.2	4.8																								
4-Mar	5.1	4.2	3.2	Z	1.3	1.2	1.0	1.6	4.4	2.2	1.7	2.3	2.9	3.8	2.6	2.9	2.5	2.7	2.6	2.9	1.7	1.0	1.1	2.3	2.5	5.1																							
5-Mar	2.0	1.6	0.7	0.5	Z	0.1	0.0	0.1	0.0	0.2	1.3	1.2	0.9	0.9	1.1	1.1	0.9	0.8	0.2	0.1	0.3	0.2	0.2	0.2	0.6	2.0																							
6-Mar	0.2	0.2	0.3	0.4	0.3	Z	0.3	0.3	0.6	0.8	0.8	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.4	0.8																							
7-Mar	Z	0.3	0.5	0.4	0.3	0.2	0.3	0.4	0.6	0.8	0.4	0.4	0.4	0.5	0.6	0.7	0.6	0.4	0.6	0.7	0.5	0.5	1.1	1.6	0.6	1.6																							
8-Mar	1.7	Z	1.3	1.2	0.9	0.7	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.4	0.7	0.7	0.7	0.5	1.7																							
9-Mar	0.5	0.4	Z	0.6	0.5	0.4	0.3	0.3	0.4	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.6																							
10-Mar	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.4	1.2	4.8	0.6	0.0	0.1	0.0	0.0	0.1	0.4	4.8																							
11-Mar	0.0	0.2	0.8	0.7	Z	1.0	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.2	1.0																							
12-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
13-Mar	Z	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.6	1.1	0.2	1.1																							
14-Mar	1.0	Z	0.8	0.6	0.5	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.0																							
15-Mar	0.3	1.3	Z	0.2	0.4	0.0	5.3	16.6	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.8	0.3	0.0	0.0	0.0	1.3	16.6																							
16-Mar	0.1	0.1	0.2	Z	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4																							
17-Mar	0.2	0.4	0.7	0.6	Z	0.5	0.5	0.3	0.2	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.7																							
18-Mar	0.3	2.1	4.1	2.7	6.0	Z	18.5	5.9	4.1	4.3	5.8	17.8	11.3	5.4	3.9	1.0	0.7	2.6	1.6	2.2	0.8	0.2	0.2	0.5	4.4	18.5																							
19-Mar	Z	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.9	1.8	2.1	2.1	0.9	1.1	1.3	1.3	1.0	0.7	2.1																							
20-Mar	0.7	Z	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.7																							
21-Mar	0.1	0.1	Z	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.4																							
22-Mar	0.3	0.3	0.2	Z	0.1	0.1	0.0	0.1	0.3	0.9	0.9	0.6	0.5	0.5	0.5	0.6	0.5	0.3	0.2	0.2	0.0	0.1	0.1	0.2	0.3	0.9																							
23-Mar	0.2	0.1	0.0	0.0	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	0.1	0.0	0.0	0.0	0.2																							
24-Mar	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	0.1	0.0	0.2	0.0	0.2	0.0																							
25-Mar	Z	0.6	0.7	0.7	0.6	0.5	0.7	0.8	0.9	0.7	0.4	0.2	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.3	0.9																							
26-Mar	0.1	Z	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.3	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.7	0.5	0.3	0.3	0.7																							
27-Mar	0.1	0.2	Z	0.1	0.1	0.2	0.2	0.2	0.2	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	0.1	0.2																							
28-Mar	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	0.1	0.0	0.1	0.1	0.4	2.2	2.2	1.2	0.9	0.3	2.2																							
29-Mar	1.0	1.0	1.5	3.7	Z	3.6	3.1	3.3	2.2	3.5	1.5	2.9	1.4	1.2	0.3	1.4	1.0	1.0	0.2	0.4	0.5	0.1	0.0	0.0	1.5	3.7																							
30-Mar	0.2	0.2	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	0.2																							
31-Mar	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.5	0.6	0.1	0.1	0.1	0.1	0.5	0.7	0.3	0.2	0.2	0.7																							
																								0.6	0.7	1.0	0.9	0.6	0.5	1.2	1.1	0.6	0.7	0.7	1.0	0.8	0.6	0.6	0.5	0.5	0.7	0.5	0.5	0.5	0.4	0.4	0.5	Diurnal Average	
																								5.1	4.2	9.8	8.3	6.0	3.6	18.5	16.6	4.4	4.3	5.8	17.8	11.3	5.4	5.2	3.5	2.6	4.8	4.0	4.7	4.0	4.5	3.9	4.8	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Leismer - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	705	99.44	99.44
11 - 20	4	0.56	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Leismer - March 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	25	27	36	77	56	50	70	70	82	14	11	29	37	26	50	704
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	44	25	27	36	77	56	50	70	70	82	14	11	29	37	30	50	708

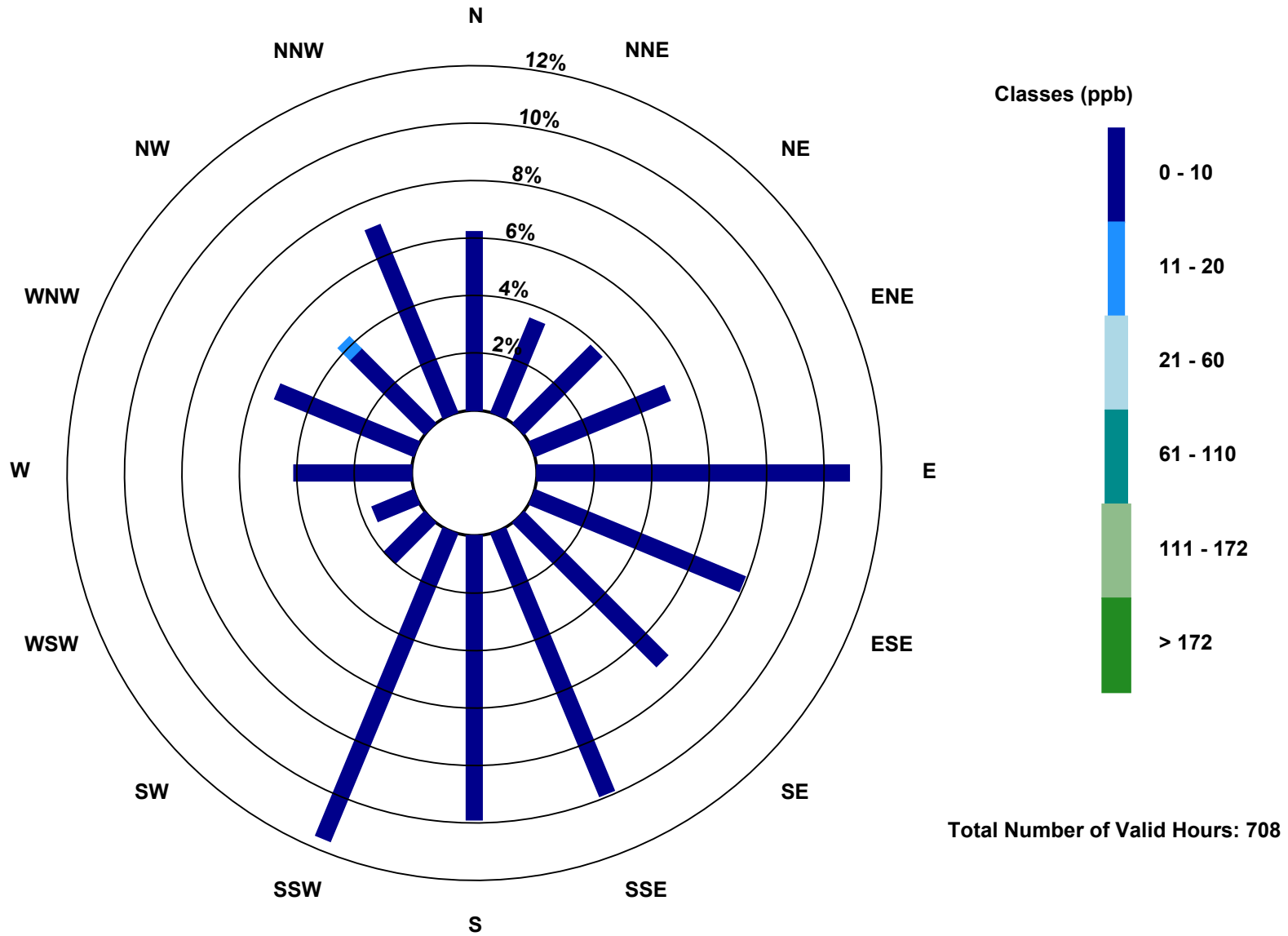
Total Number of Valid Hours: 708

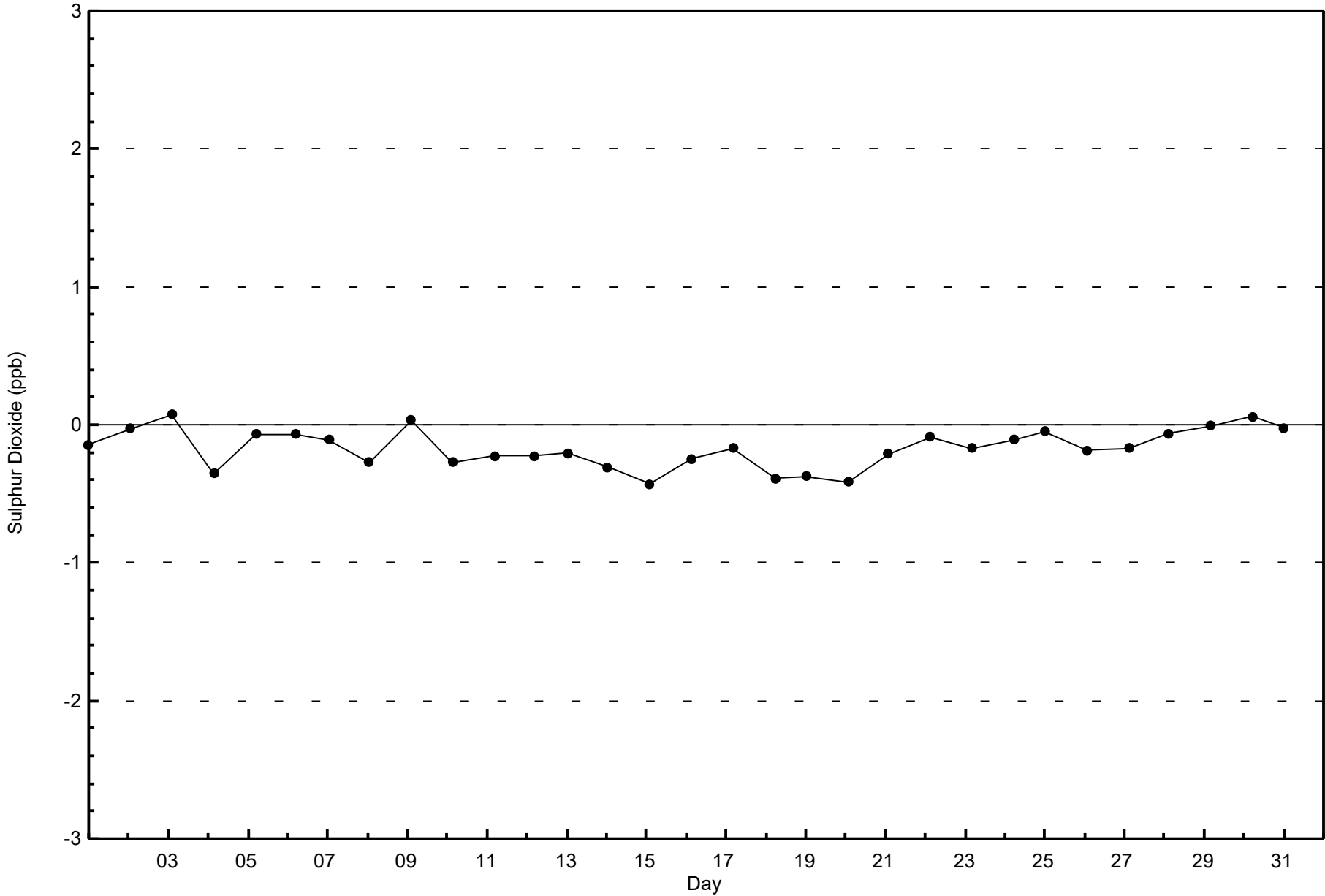
Total Number of Hours: 744

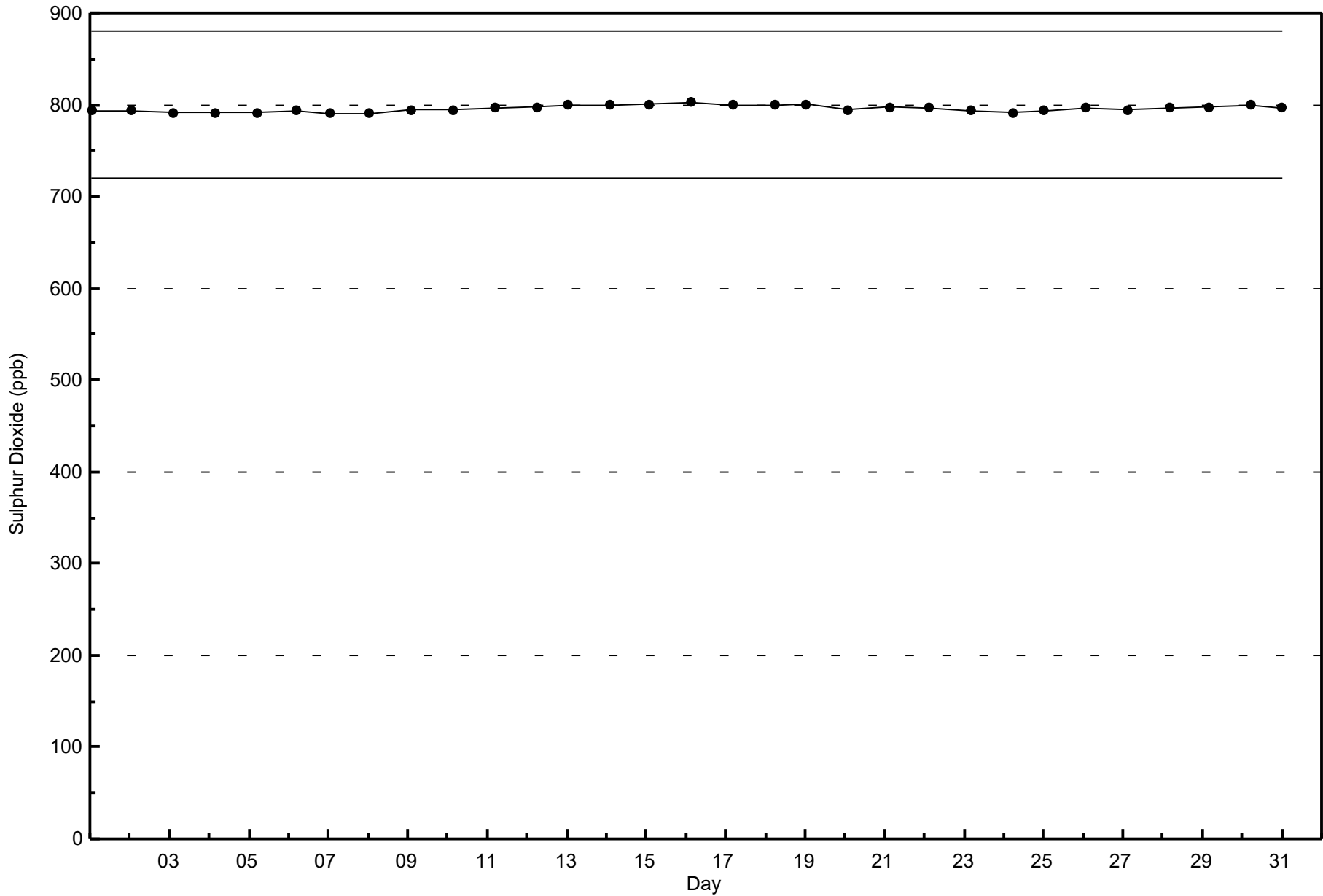


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Leismer



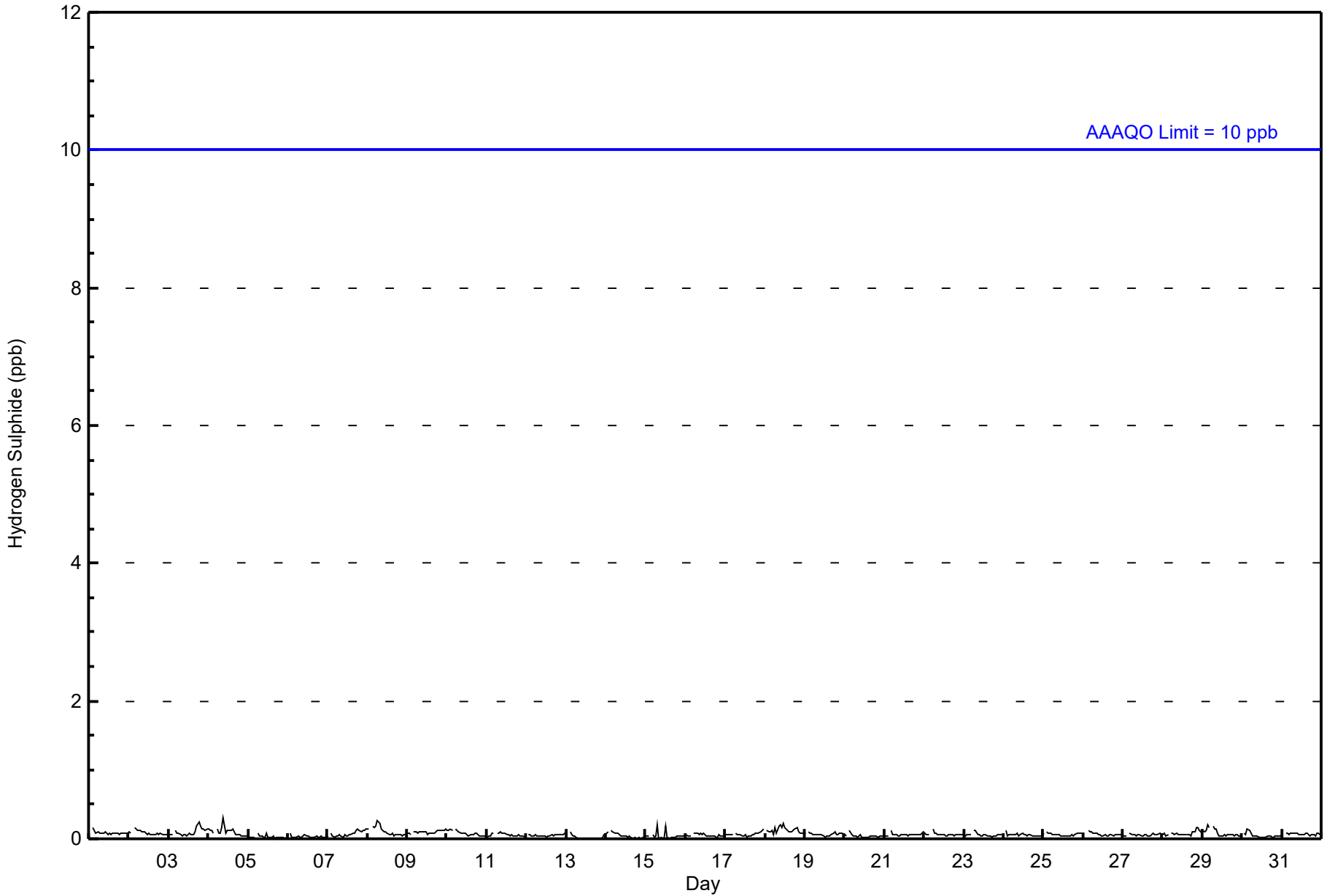






Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Leismer - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Leismer - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Leismer - March 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	26	30	34	75	56	51	69	68	82	14	10	27	38	31	53	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
Totals	43	26	30	34	75	56	51	69	68	82	14	10	27	38	31	53	707

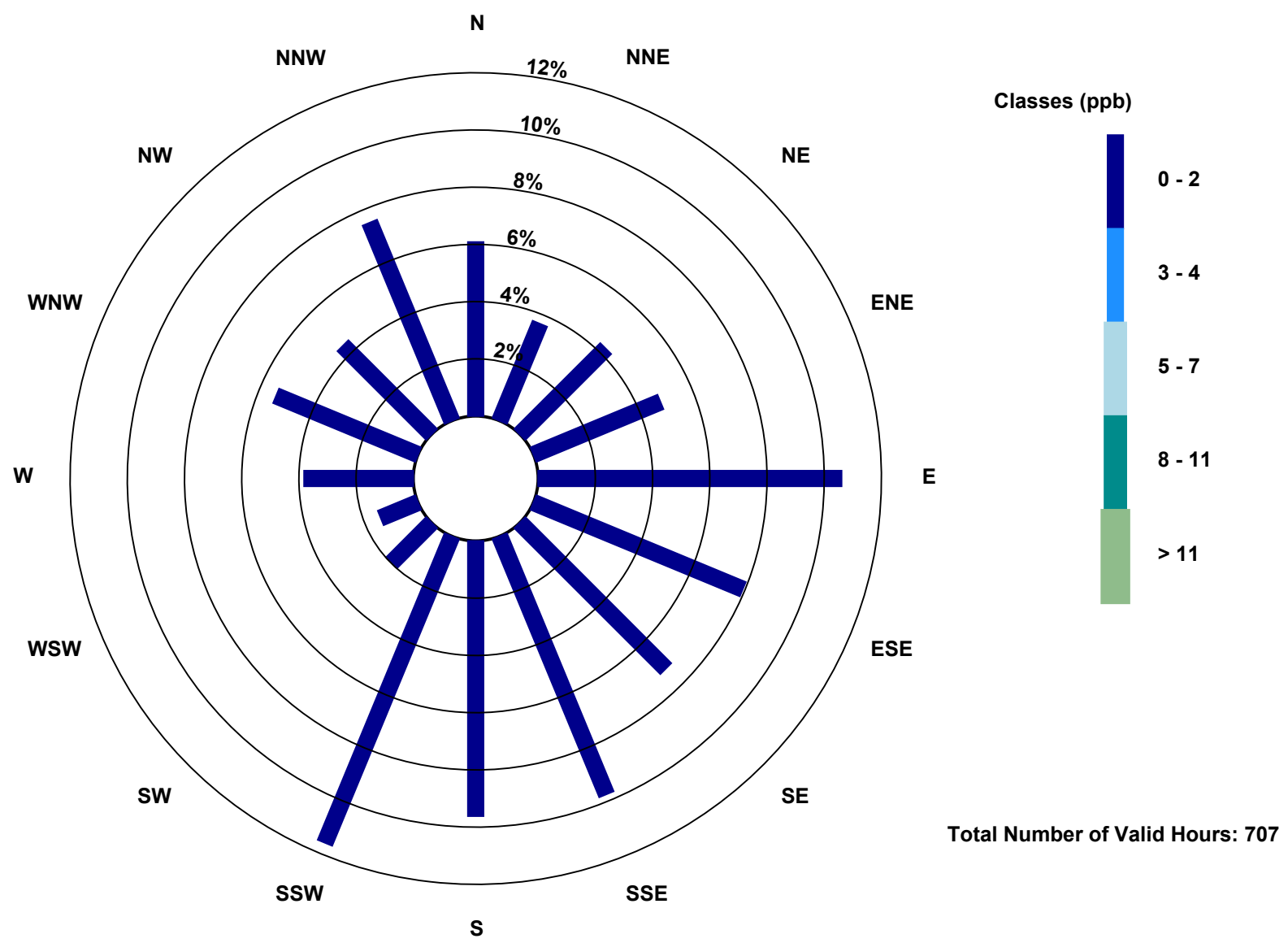
Total Number of Valid Hours: 707

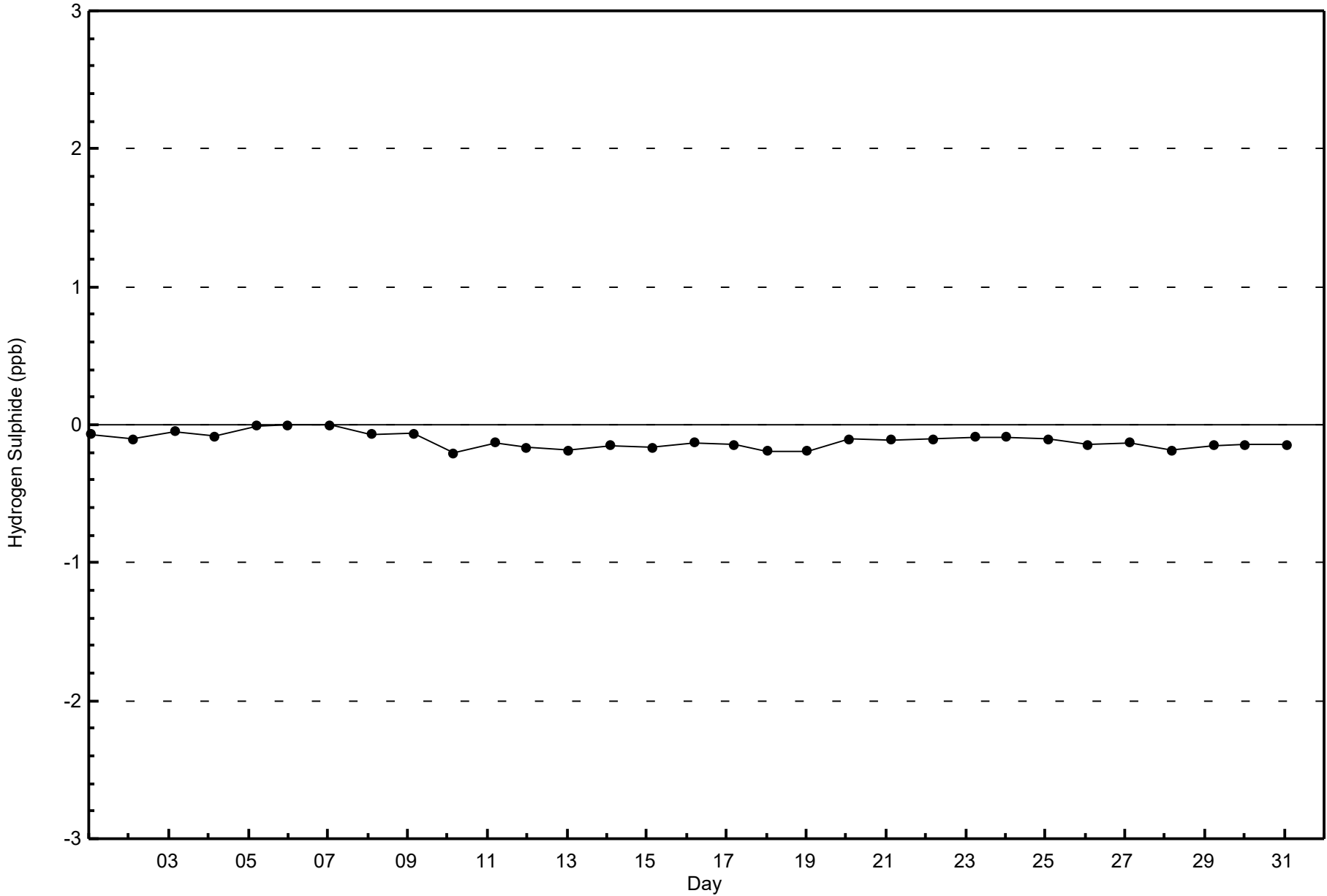
Total Number of Hours: 744

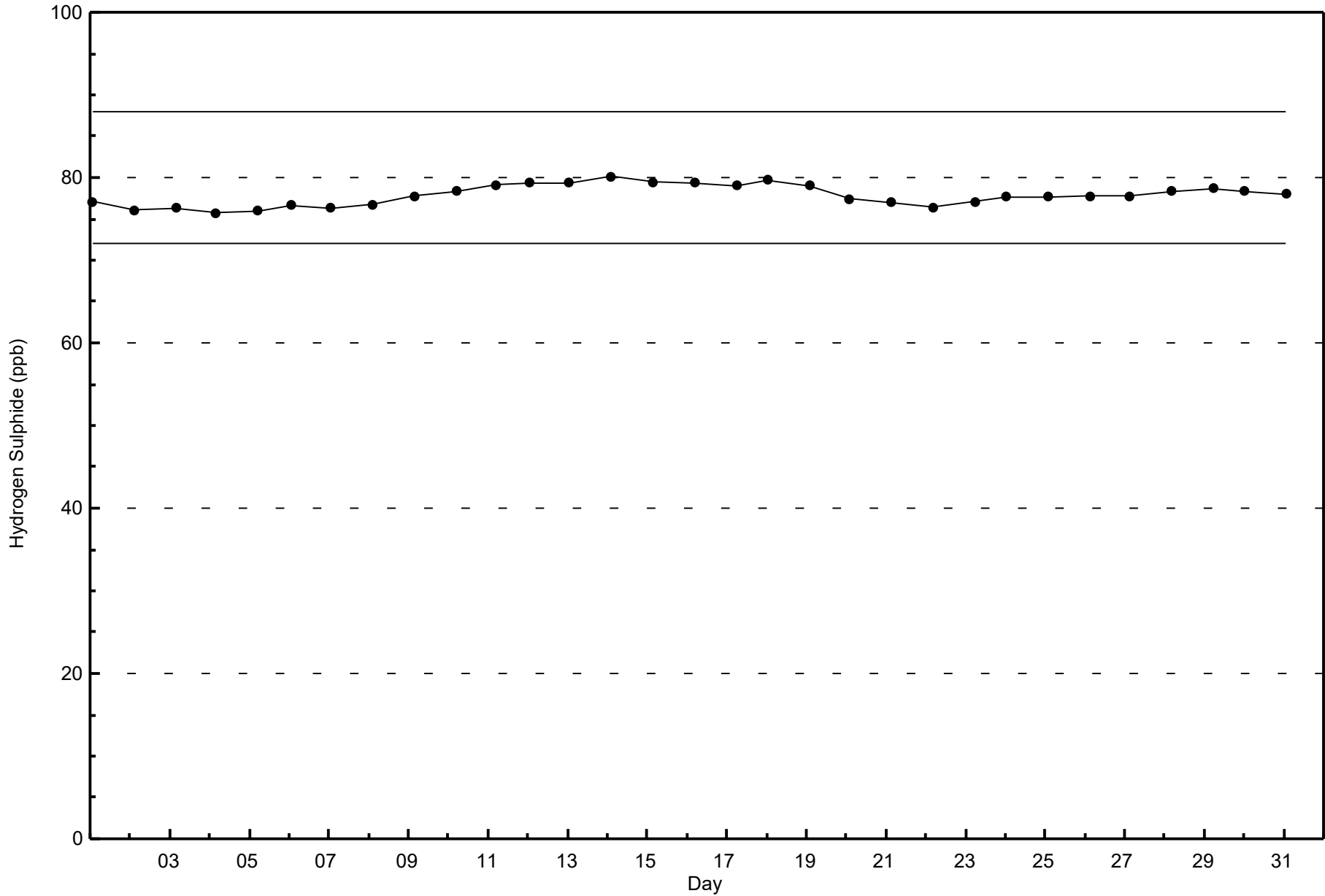


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Leismer









Wood Buffalo Environmental Association
Summary of Hour Averages

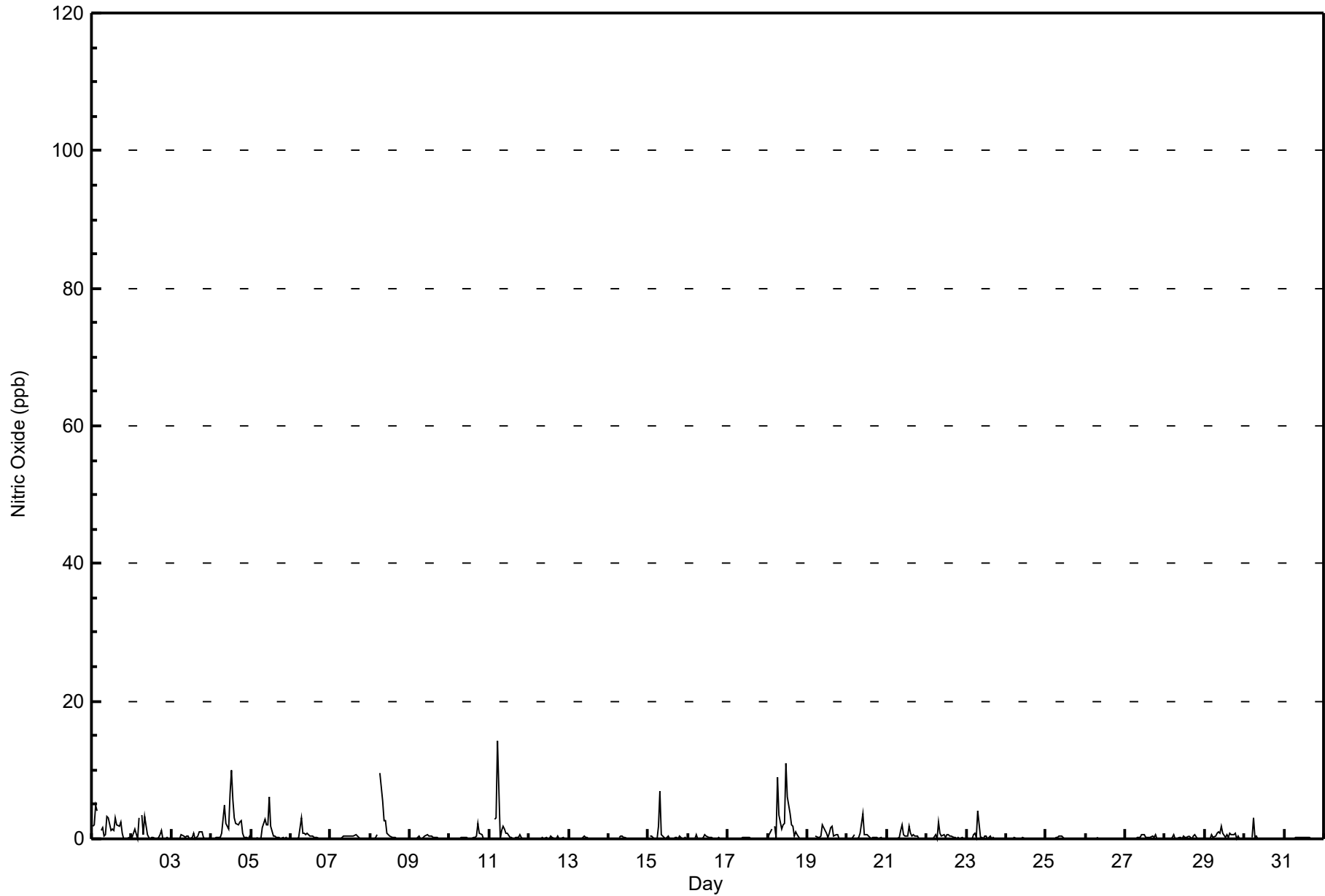
Nitric Oxide (NO) - ppb
Leismer - March 2024

Maximum Value: 14.2 ppb on Mar 11 06:00		Maximum Daily Average: 2.1 ppb on Mar 18		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 1 20:00		Minimum Daily Average: 0.0 ppb on Mar 26		Hours of Data: 708																							
Maximum Diurnal Average: 1.1 ppb at hour 12		Minimum Diurnal Average: 0.0 ppb at hour 23		Hours of Missing Data: 36																							
Monthly Average: 0.49 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 1.2 P ₉₉ = 6.2		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	1.7	2.0	4.9	4.0	Z	1.1	1.6	0.5	0.5	3.3	3.1	1.2	1.5	1.3	3.1	2.0	1.8	2.4	0.8	0.0	0.0	0.0	0.2	0.0	1.6	4.9	
2-Mar	0.3	0.8	1.4	0.1	3.1	Z	3.4	0.7	3.3	0.6	0.1	0.0	0.3	0.1	0.0	0.0	0.3	0.6	1.2	0.0	0.0	0.1	0.0	0.0	0.7	3.4	
3-Mar	Z	0.0	0.0	0.0	0.1	0.1	0.6	0.3	0.2	0.4	0.4	0.1	0.2	0.8	0.1	0.2	0.5	1.1	1.1	0.1	0.0	0.1	0.1	0.2	0.3	1.1	
4-Mar	0.1	Z	0.1	0.2	0.1	0.2	0.7	2.9	4.9	2.2	1.4	6.6	9.9	5.7	3.0	2.2	2.0	2.4	2.7	0.8	0.3	0.2	0.0	0.4	2.1	9.9	
5-Mar	0.1	0.1	Z	0.1	0.0	0.0	0.1	1.6	2.9	1.9	2.1	6.2	1.8	0.4	0.4	0.3	0.2	0.2	0.0	0.1	0.0	0.1	0.1	0.0	0.8	6.2	
6-Mar	0.0	0.0	0.0	Z	0.0	0.2	3.1	0.7	0.8	0.7	0.8	0.5	0.4	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	3.1	
7-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.3	0.5	0.4	0.4	0.4	0.4	0.5	0.6	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6	
8-Mar	0.0	0.0	0.0	0.2	0.6	Z	9.5	5.4	2.7	2.6	0.7	0.6	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	9.5	
9-Mar	Z	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.3	0.5	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	
10-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.4	2.2	0.9	0.7	0.0	0.0	0.0	0.0	0.2	2.2	
11-Mar	0.0	0.0	Z	2.9	3.1	14.2	0.0	1.2	1.9	1.5	0.9	0.7	0.2	0.2	0.1	0.1	0.2	0.2	0.7	0.2	0.0	0.0	0.0	0.0	1.2	14.2	
12-Mar	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.4	0.2	0.1	0.0	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.4	
13-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
14-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.3	0.5	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
15-Mar	Z	0.4	0.3	0.0	0.1	0.0	1.9	6.9	0.6	0.2	0.1	0.3	0.4	0.0	0.0	0.1	0.1	0.2	0.0	0.5	0.0	0.0	0.2	0.0	0.5	6.9	
16-Mar	0.0	Z	0.0	0.0	0.0	0.7	0.0	0.0	0.1	0.2	0.5	0.4	0.2	0.2	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
17-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
18-Mar	0.0	0.6	1.4	Z	1.9	0.2	9.0	3.5	1.5	1.9	2.2	10.9	6.2	3.7	2.0	1.9	0.4	0.9	0.6	0.1	0.0	0.0	0.0	0.0	2.1	10.9	
19-Mar	0.0	0.0	0.0	0.0	Z	0.4	0.3	0.3	0.4	1.9	1.6	0.8	0.3	0.8	1.6	1.8	0.5	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.5	1.9	
20-Mar	0.0	0.0	0.0	0.0	0.5	Z	0.0	0.3	0.9	3.7	0.7	0.6	0.6	0.4	0.1	0.2	0.1	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.4	3.7	
21-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.2	2.1	0.6	0.4	0.5	1.9	0.9	0.4	0.5	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.4	2.1	
22-Mar	0.0	Z	0.0	0.0	0.1	0.7	0.1	2.4	0.8	0.5	0.6	0.2	0.5	0.5	0.4	0.5	0.1	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.4	2.4	
23-Mar	0.1	0.1	Z	0.0	0.6	0.9	0.1	4.0	0.3	0.2	0.1	0.3	0.4	0.0	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.0	
24-Mar	0.0	0.0	0.0	Z	0.0	0.2	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	0.2	0.2
25-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.4	0.4	0.3	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	0.1	0.4	
26-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2
27-Mar	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.7	0.5	0.1	0.3	0.2	0.1	0.3	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.2	0.7	
28-Mar	0.0	Z	0.0	0.0	0.2	0.7	0.0	0.0	0.1	0.2	0.0	0.5	0.2	0.2	0.4	0.3	0.1	0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.7	
29-Mar	0.0	0.0	Z	0.0	0.6	0.2	0.4	0.9	1.1	0.7	1.8	0.7	0.3	0.6	0.2	0.8	0.7	0.6	0.8	0.1	0.3	0.0	0.0	0.0	0.5	1.8	
30-Mar	0.0	0.0	0.0	Z	0.1	3.1	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.1	
31-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Leismer - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Leismer - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Leismer - March 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	24	28	36	77	54	53	70	67	81	13	10	30	37	30	53	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
Totals	44	24	28	36	77	54	53	70	67	81	13	10	30	37	30	53	707

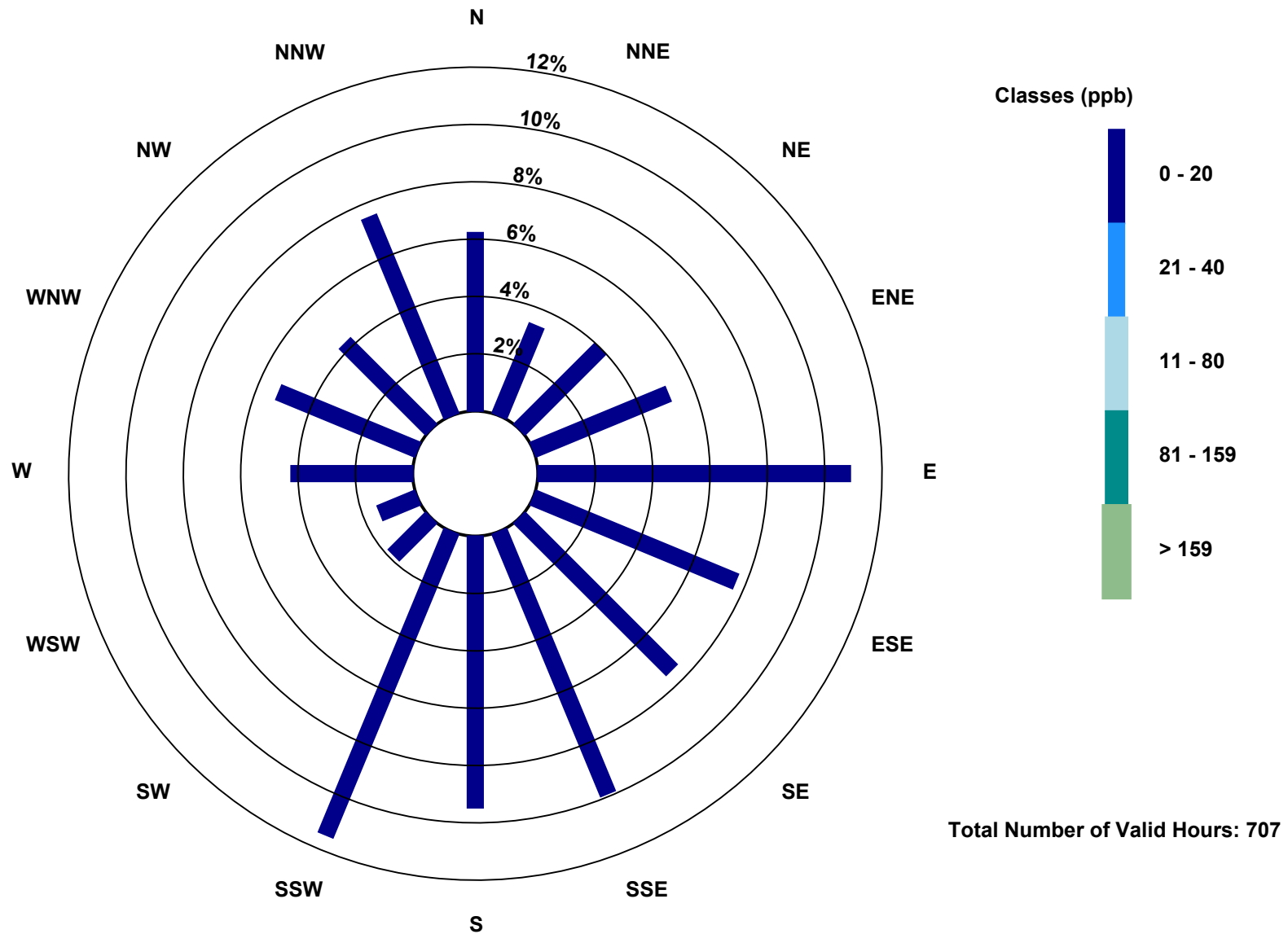
Total Number of Valid Hours: 707

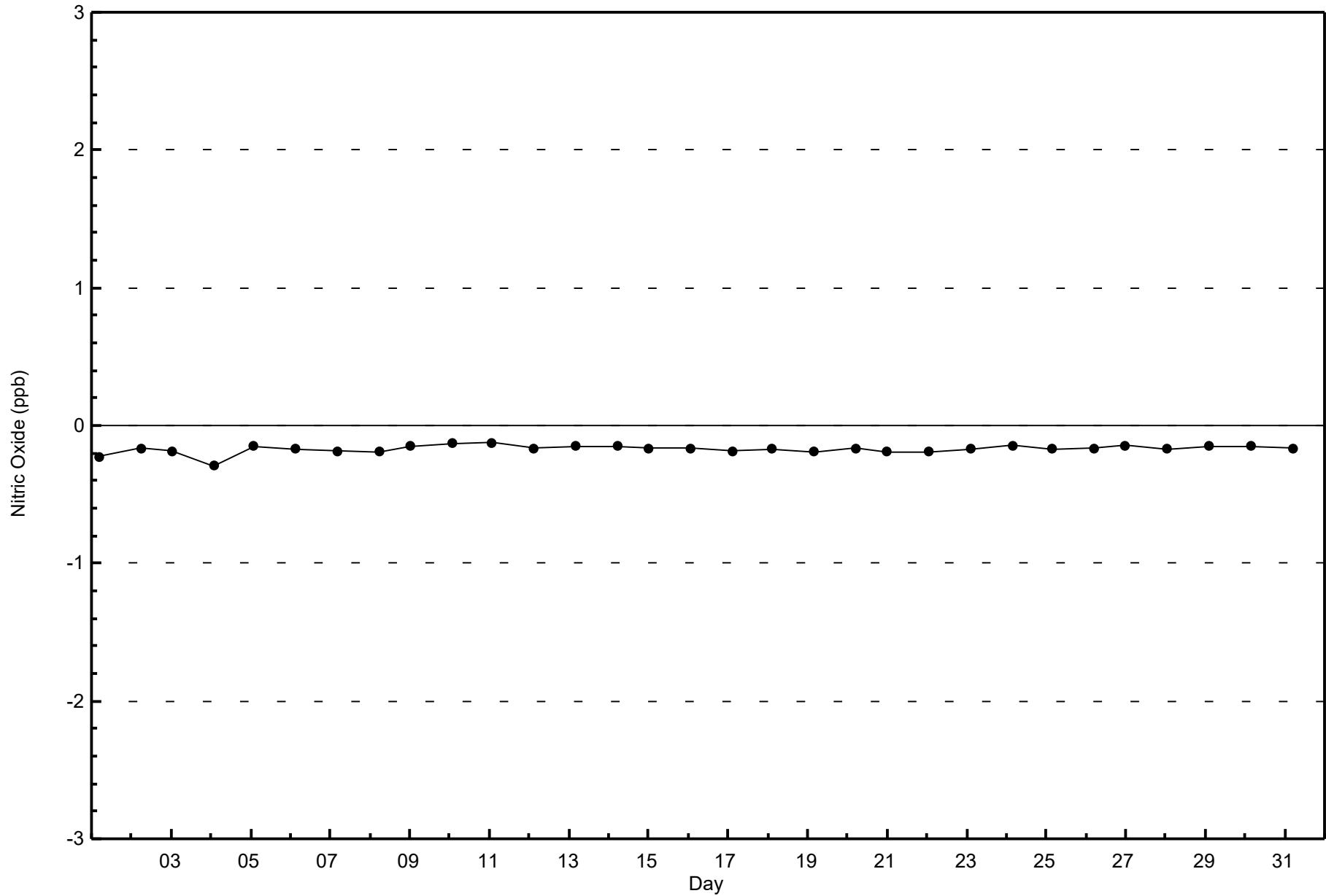
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Leismer

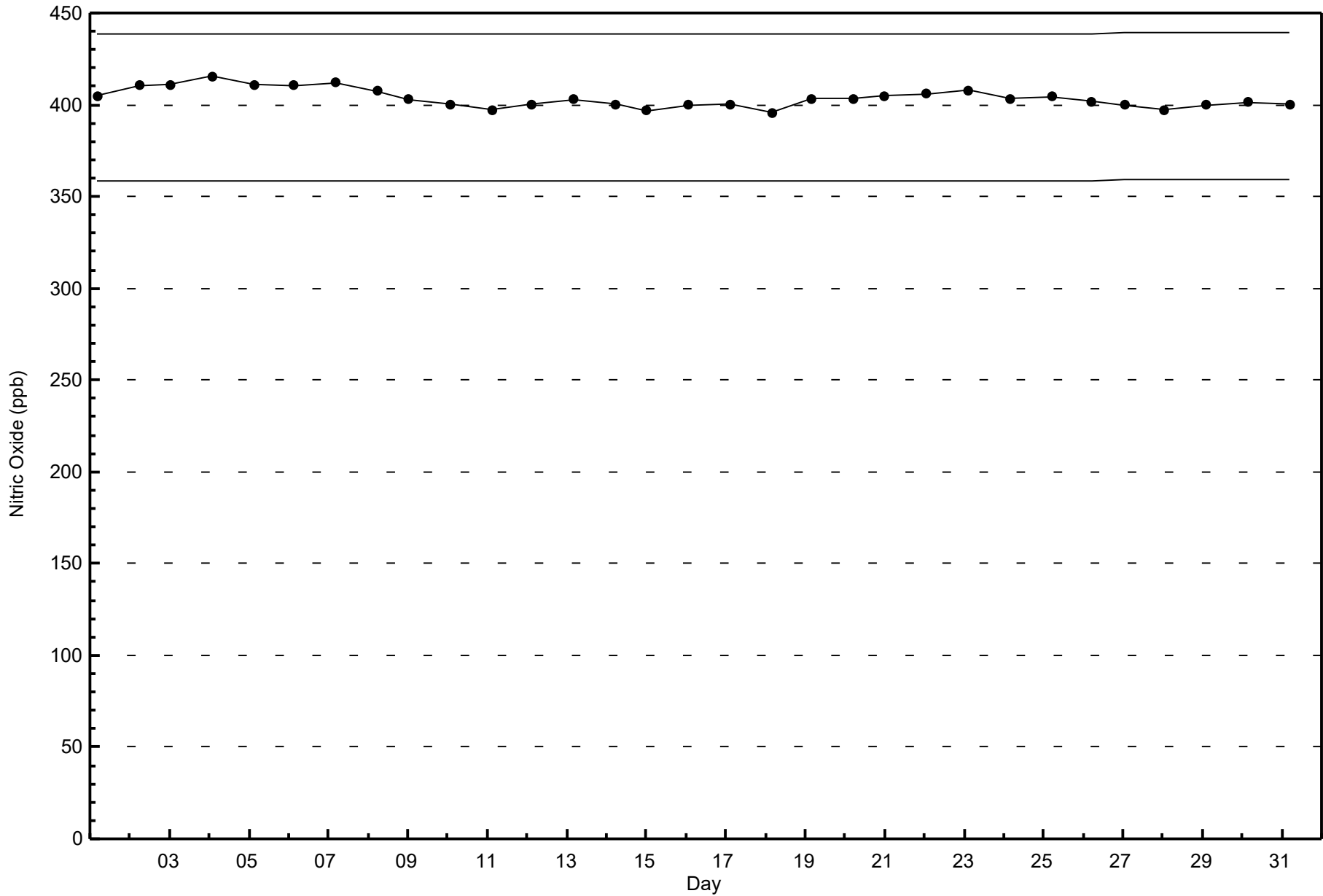






Wood Buffalo Environmental Association
Span Responses

Nitric Oxide (NO) - ppb
Leismer - March 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

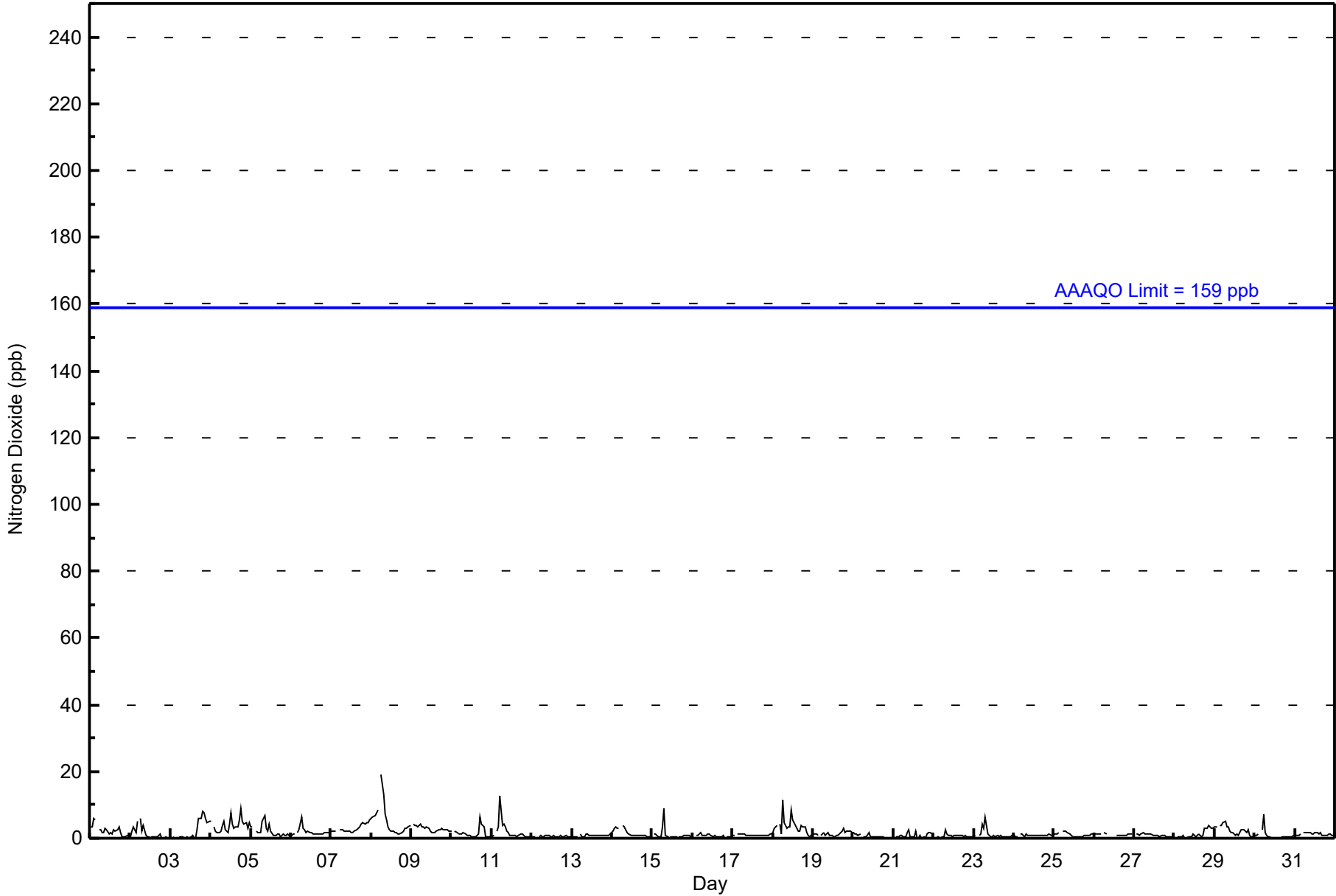
Leismer - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 19.0 ppb on Mar 8 07:00		Maximum Daily Average: 4.9 ppb on Mar 8		Minimum Value: 0.1 ppb on Mar 3 10:00		Minimum Daily Average: 0.6 ppb on Mar 12		Hours of Data: 708																																								
Maximum Diurnal Average: 2.9 ppb at hour 7		Minimum Diurnal Average: 1.0 ppb at hour 16		Hours of Missing Data: 36		Hours of Calibration: 36		Percent Operational Time: 100.0																																								
Monthly Average: 1.66 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.6 Median = 1.0 Q ₃ = 2.1 P ₉₀ = 3.6 P ₉₉ = 8.6																																														
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-Mar	3.6	3.4	6.0	5.4	Z	2.5	2.4	1.9	1.5	2.8	2.5	1.3	1.6	1.3	2.6	2.2	2.4	3.3	1.8	0.4	0.4	0.4	0.7	0.5	2.2	6.0																						
2-Mar	0.3	2.0	3.4	1.7	5.1	Z	6.1	2.1	3.9	0.8	0.4	0.3	0.1	0.5	0.3	0.3	0.4	0.8	1.3	0.2	0.2	0.4	0.2	0.2	1.3	6.1																						
3-Mar	Z	0.3	0.2	0.2	0.2	0.2	0.5	0.5	0.2	0.1	0.4	0.2	0.3	0.9	0.2	0.2	2.5	5.9	5.9	7.9	7.8	5.9	4.6	5.0	2.2	7.9																						
4-Mar	5.2	Z	3.3	2.0	1.7	1.7	2.2	3.9	4.9	2.6	1.8	4.4	7.6	4.4	2.8	3.2	3.5	5.4	8.9	5.1	4.1	4.5	3.1	4.6	4.0	8.9																						
5-Mar	3.5	3.4	Z	2.2	1.8	1.9	1.7	5.1	6.8	3.0	2.3	4.2	2.1	0.8	0.9	0.9	1.3	1.4	0.5	1.1	0.7	1.0	1.1	0.7	2.1	6.8																						
6-Mar	0.9	1.2	1.3	Z	1.6	2.5	6.4	2.8	2.7	1.8	2.0	1.5	1.5	1.3	1.3	1.3	1.1	1.2	1.3	1.4	1.7	1.8	1.8	1.8	1.8	6.4																						
7-Mar	2.1	2.3	2.3	2.3	Z	2.7	2.6	2.5	2.2	2.3	2.1	2.1	1.9	1.8	2.2	2.7	3.1	3.3	4.1	4.6	4.4	4.5	4.8	5.4	3.0	5.4																						
8-Mar	6.1	6.3	6.7	7.5	8.6	Z	19.0	13.1	7.4	5.6	3.4	2.7	2.2	2.0	1.8	1.5	1.4	1.4	1.6	2.1	3.1	2.9	3.4	3.9	4.9	19.0																						
9-Mar	Z	4.1	3.9	3.9	3.6	4.4	3.2	3.3	3.1	3.2	3.0	2.3	1.9	1.8	1.8	2.0	2.4	2.6	2.8	2.6	2.6	2.4	2.2	2.1	2.8	4.4																						
10-Mar	2.0	Z	2.1	1.9	1.4	1.3	1.2	1.5	1.2	1.0	0.8	0.7	0.4	0.4	0.5	0.7	1.4	6.3	4.1	3.2	0.4	0.5	0.4	0.5	1.5	6.3																						
11-Mar	0.6	0.7	Z	2.0	3.5	12.9	3.7	4.4	3.4	2.3	1.5	0.9	0.7	0.7	0.7	0.6	0.9	1.1	1.4	1.0	0.5	0.4	0.5	0.5	2.0	12.9																						
12-Mar	0.5	0.5	0.5	Z	0.6	0.7	0.5	0.5	0.8	0.7	0.7	0.6	0.5	0.9	0.6	0.5	0.4	0.9	0.5	0.5	0.7	0.5	0.4	0.4	0.6	0.9																						
13-Mar	0.4	0.4	0.4	0.4	Z	1.1	0.4	0.5	1.1	1.2	1.0	0.8	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.9	1.4	0.7	1.4																						
14-Mar	2.2	2.8	3.2	3.1	2.9	Z	3.7	3.2	2.6	1.5	1.2	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.6	1.5	3.7																						
15-Mar	Z	1.4	1.2	0.5	0.6	0.4	3.3	8.9	0.7	0.3	0.2	0.5	0.3	0.4	0.3	0.2	0.4	0.5	0.6	1.0	1.0	0.7	0.7	0.5	1.1	8.9																						
16-Mar	0.6	Z	1.0	1.0	1.1	1.6	0.8	1.0	1.0	1.1	1.2	1.0	0.5	0.8	0.6	0.5	0.5	0.4	0.8	0.2	0.2	0.4	0.5	0.5	0.8	1.6																						
17-Mar	0.8	0.9	Z	1.3	1.4	1.4	1.4	1.1	0.7	0.7	0.8	0.8	0.9	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.9	1.0	1.1	1.4	1.0	1.4																						
18-Mar	1.6	2.9	3.7	Z	4.4	1.3	11.5	4.8	3.1	3.2	3.3	8.6	5.3	3.9	3.0	2.0	2.1	4.0	3.6	3.6	1.6	0.8	0.6	0.8	3.5	11.5																						
19-Mar	1.2	1.4	1.1	0.7	Z	0.9	1.6	0.9	1.2	1.9	0.8	0.7	0.6	0.6	1.0	0.8	1.4	2.2	2.8	1.7	2.1	2.3	2.2	1.9	1.4	2.8																						
20-Mar	1.7	1.3	1.3	1.0	1.3	Z	0.5	0.6	0.6	1.6	0.5	0.4	0.5	0.4	0.3	0.5	0.4	0.5	0.5	0.2	0.2	0.1	0.1	0.2	0.6	1.7																						
21-Mar	Z	0.5	0.5	0.5	0.7	0.7	0.5	0.5	1.5	2.4	0.6	0.3	0.4	2.1	0.2	0.2	0.7	0.1	0.3	0.1	1.1	1.8	1.7	1.2	0.8	2.4																						
22-Mar	0.7	Z	0.4	0.3	0.2	0.4	0.3	2.5	1.3	0.9	0.9	0.6	0.8	0.9	0.7	0.8	0.7	0.7	0.6	1.0	0.4	0.4	0.4	0.6	0.7	2.5																						
23-Mar	0.6	0.7	Z	0.7	1.3	4.3	3.1	6.5	1.1	0.7	0.5	0.6	0.9	0.5	0.9	0.5	0.7	0.5	0.5	0.6	0.6	0.6	0.6	0.7	1.2	6.5																						
24-Mar	0.7	0.6	0.6	Z	1.1	1.1	0.5	1.2	1.0	0.9	0.9	0.9	1.0	0.8	0.7	0.7	0.9	1.0	0.8	0.7	0.9	1.2	0.9	1.0	0.9	1.2																						
25-Mar	1.2	1.4	1.4	1.5	Z	2.1	2.3	2.0	1.6	1.4	1.0	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.8	0.8	0.9	1.1	1.2	1.1	2.3																						
26-Mar	1.2	1.2	1.3	1.4	1.4	Z	1.6	1.4	C	C	C	C	C	0.7	0.9	0.9	0.8	0.9	1.0	1.0	1.2	1.3	1.2	1.1	1.1	1.6																						
27-Mar	Z	1.1	1.1	1.0	1.2	1.6	1.3	1.4	1.3	1.2	1.2	1.0	0.7	0.8	0.9	0.6	0.9	0.8	0.8	0.4	0.3	0.3	0.4	0.4	0.9	1.6																						
28-Mar	0.4	Z	0.5	0.4	0.4	0.7	0.2	0.2	0.4	0.3	0.3	1.1	0.7	0.6	1.1	1.0	0.6	0.9	2.8	2.8	3.7	3.3	2.9	2.8	1.2	3.7																						
29-Mar	3.6	3.6	Z	3.8	3.9	4.5	5.1	3.6	3.2	2.3	1.8	1.8	1.0	1.4	0.9	1.7	2.4	2.5	2.2	1.8	2.5	0.9	0.5	0.6	2.4	5.1																						
30-Mar	0.9	0.9	1.2	Z	2.4	7.4	1.6	0.8	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.7	0.9	7.4																						
31-Mar	0.8	0.9	0.9	1.2	Z	1.6	1.7	1.6	1.6	1.5	1.3	1.2	1.5	1.5	1.4	1.5	0.9	0.8	0.8	0.8	1.2	1.3	0.8	0.7	1.2	1.7																						
																								1.7	1.8	1.9	1.8	2.1	2.4	2.9	2.7	2.1	1.7	1.3	1.4	1.3	1.1	1.0	1.0	1.2	1.7	1.8	1.6	1.5	1.4	1.3	1.4	Diurnal Average
																								6.1	6.3	6.7	7.5	8.6	12.9	19.0	13.1	7.4	5.6	3.4	8.6	7.6	4.4	3.0	3.2	3.5	6.3	8.9	7.9	7.8	5.9	4.8	5.4	Diurnal Maximum
Z - zerospan C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Leismer - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Leismer - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Leismer - March 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	24	28	36	77	54	53	70	67	81	13	10	30	37	30	53	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
Totals	44	24	28	36	77	54	53	70	67	81	13	10	30	37	30	53	707

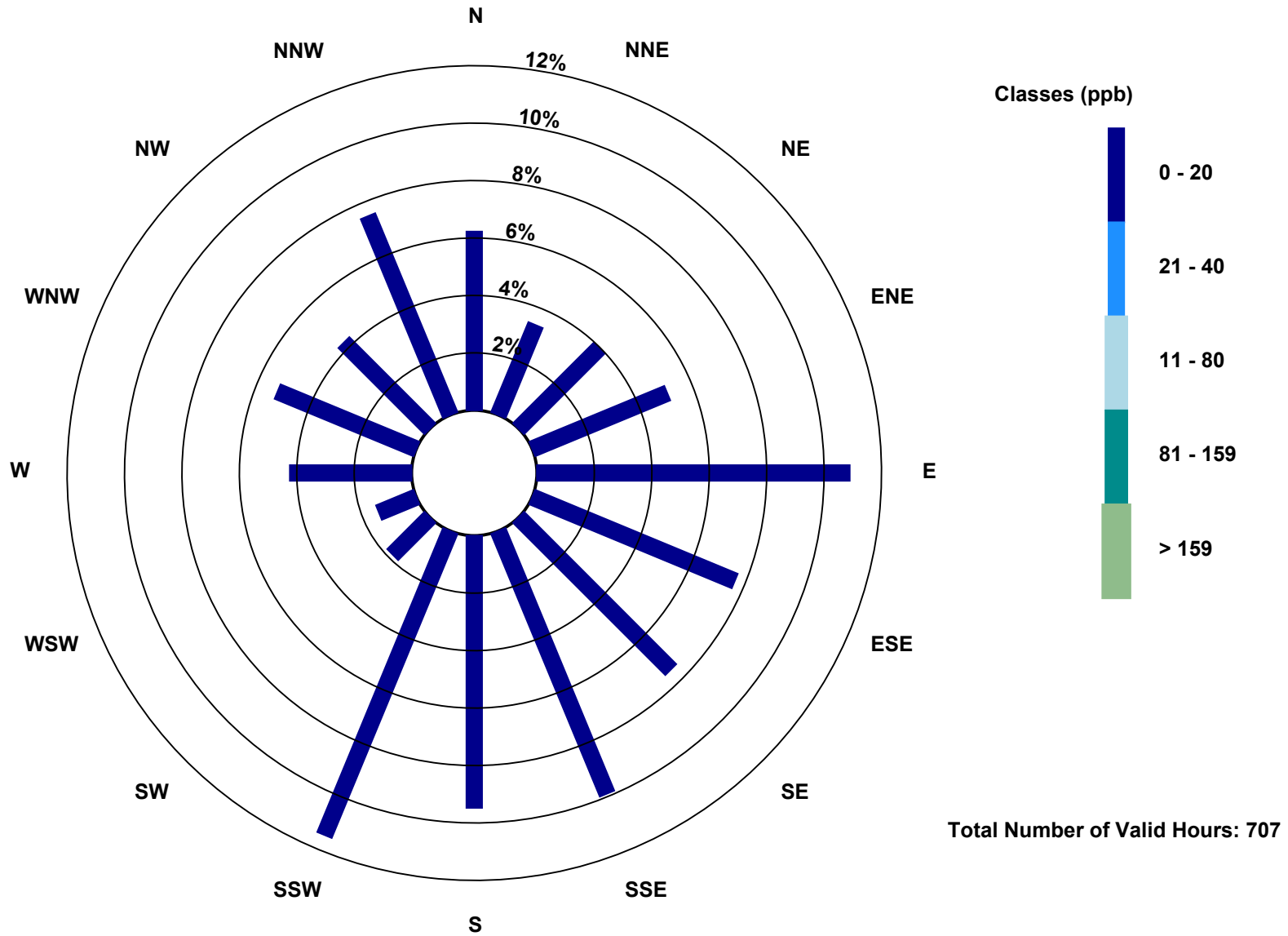
Total Number of Valid Hours: 707

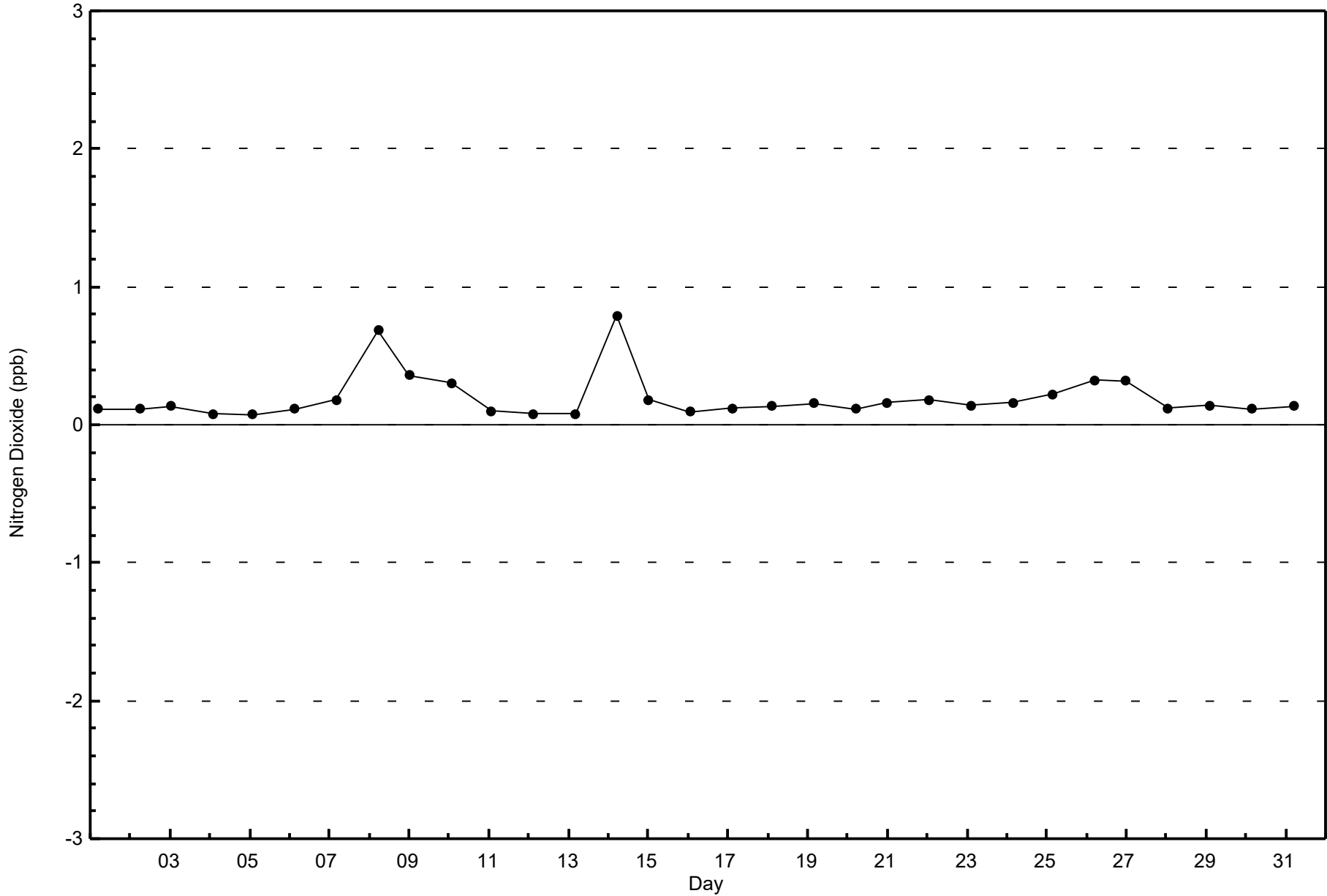
Total Number of Hours: 744

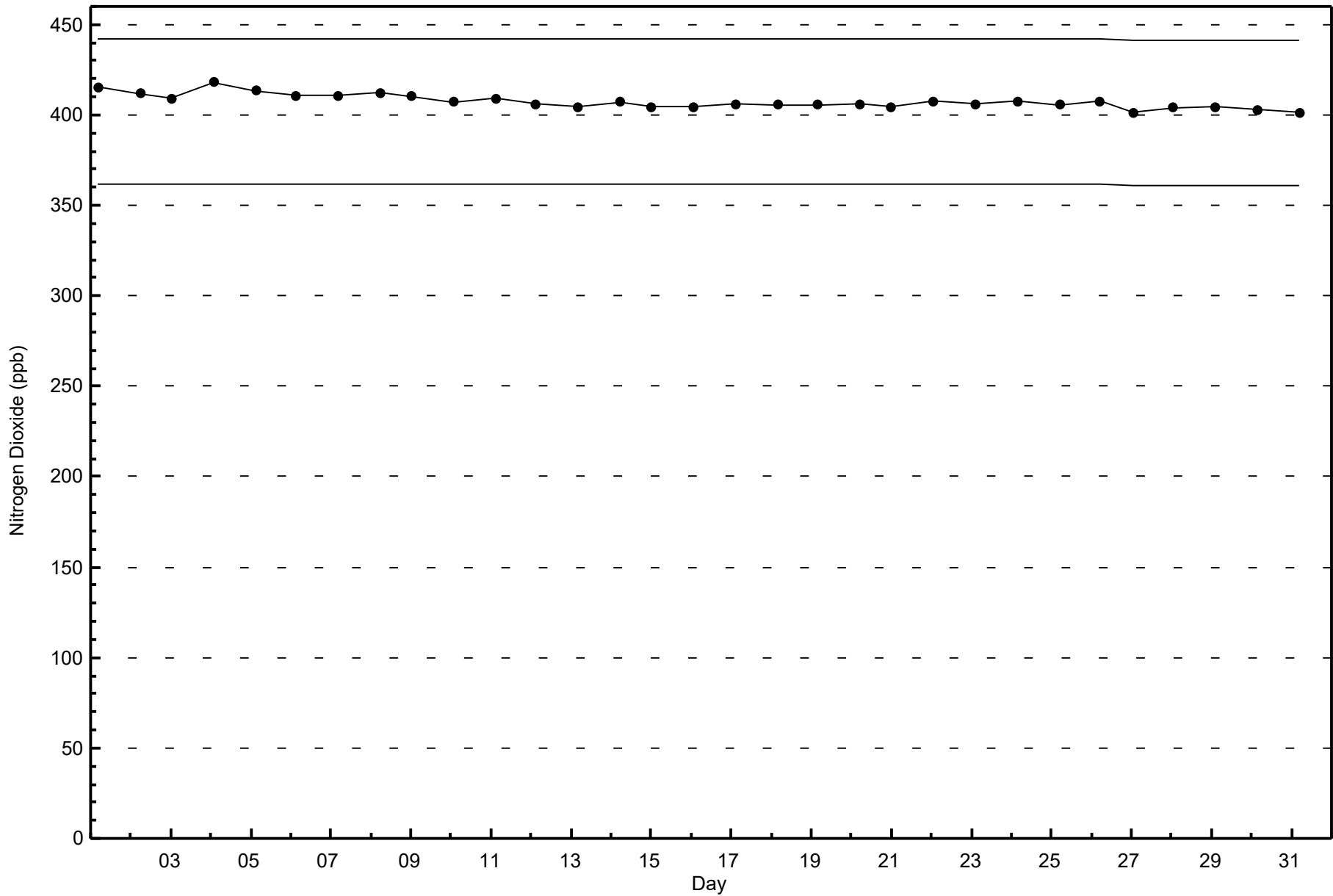


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Leismer









Wood Buffalo Environmental Association
Summary of Hour Averages

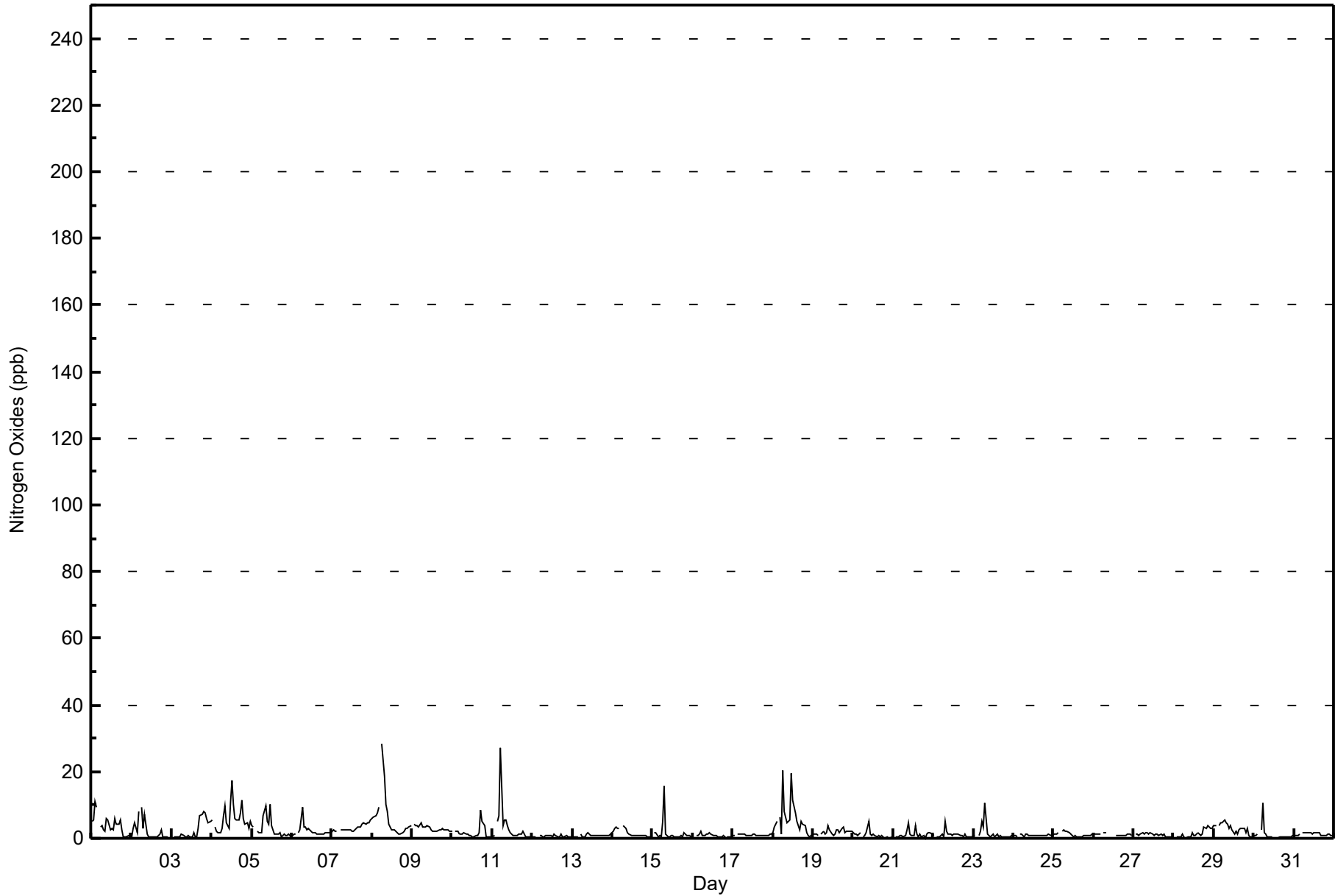
Nitrogen Oxides (NO_x) - ppb
Leismer - March 2024

Maximum Value: 28.5 ppb on Mar 8 07:00		Maximum Daily Average: 6.1 ppb on Mar 4		Hours in Service: 744																							
Minimum Value: 0.1 ppb on Mar 20 22:00		Minimum Daily Average: 0.7 ppb on Mar 12		Hours of Data: 708																							
Maximum Diurnal Average: 4.0 ppb at hour 7		Minimum Diurnal Average: 1.3 ppb at hour 23		Hours of Missing Data: 36																							
Monthly Average: 2.15 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.7 Median = 1.2 Q ₃ = 2.5 P ₉₀ = 4.9 P ₉₉ = 11.6		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	5.3	5.4	10.9	9.4	Z	3.6	4.0	2.4	2.0	6.1	5.6	2.5	3.1	2.6	5.7	4.2	4.2	5.7	2.6	0.4	0.4	0.4	0.9	0.5	3.8	10.9	
2-Mar	0.6	2.8	4.8	1.8	8.2	Z	9.5	2.8	7.2	1.4	0.5	0.3	0.4	0.6	0.3	0.3	0.7	1.4	2.5	0.2	0.2	0.5	0.2	0.2	2.1	9.5	
3-Mar	Z	0.3	0.2	0.2	0.3	0.3	1.1	0.8	0.4	0.5	0.8	0.3	0.5	1.7	0.3	0.4	3.0	7.0	7.0	8.0	7.8	6.0	4.7	5.2	2.5	8.0	
4-Mar	5.3	Z	3.4	2.2	1.8	1.9	2.9	6.8	9.8	4.8	3.2	11.0	17.5	10.1	5.8	5.4	5.5	7.8	11.6	5.9	4.4	4.7	3.1	5.0	6.1	17.5	
5-Mar	3.6	3.5	Z	2.3	1.8	1.9	1.8	6.7	9.7	4.9	4.4	10.4	3.9	1.2	1.3	1.2	1.5	1.6	0.5	1.2	0.7	1.1	1.2	0.7	2.9	10.4	
6-Mar	0.9	1.2	1.3	Z	1.6	2.7	9.5	3.5	3.5	2.5	2.8	2.0	1.9	1.6	1.6	1.5	1.2	1.2	1.3	1.4	1.7	1.8	1.8	1.8	2.2	9.5	
7-Mar	2.1	2.3	2.3	2.3	Z	2.7	2.6	2.6	2.5	2.8	2.5	2.5	2.3	2.2	2.7	3.3	3.5	3.5	4.2	4.6	4.4	4.5	4.8	5.4	3.2	5.4	
8-Mar	6.1	6.3	6.7	7.7	9.2	Z	28.5	18.5	10.1	8.2	4.1	3.3	2.6	2.3	2.0	1.7	1.5	1.4	1.6	2.1	3.1	2.9	3.4	3.9	6.0	28.5	
9-Mar	Z	4.1	3.9	3.9	3.6	4.8	3.2	3.4	3.4	3.7	3.5	2.7	2.2	2.2	2.1	2.2	2.6	2.7	2.8	2.6	2.6	2.4	2.2	2.1	3.0	4.8	
10-Mar	2.0	Z	2.1	1.9	1.4	1.3	1.2	1.6	1.3	1.1	0.9	0.8	0.4	0.4	0.7	0.9	1.8	8.5	5.0	3.9	0.4	0.5	0.4	0.5	1.7	8.5	
11-Mar	0.6	0.7	Z	4.9	6.6	27.1	3.7	5.6	5.3	3.8	2.4	1.6	0.9	0.9	0.8	0.7	1.1	1.3	2.1	1.2	0.5	0.4	0.5	0.5	3.2	27.1	
12-Mar	0.5	0.5	0.5	Z	0.6	0.8	0.5	0.5	1.0	0.8	0.8	0.7	0.6	1.3	0.8	0.6	0.4	1.2	0.6	0.5	0.9	0.5	0.4	0.4	0.7	1.3	
13-Mar	0.4	0.4	0.4	0.4	Z	1.2	0.4	0.5	1.3	1.7	1.3	0.9	0.8	0.8	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.7	0.9	1.4	0.8	1.7	
14-Mar	2.2	2.8	3.2	3.1	2.9	Z	3.8	3.5	3.1	1.7	1.3	1.0	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.6	1.6	3.8	
15-Mar	Z	1.8	1.5	0.5	0.7	0.4	5.2	15.8	1.3	0.5	0.3	0.8	0.7	0.4	0.3	0.3	0.5	0.7	0.6	1.5	1.0	0.7	0.9	0.5	1.6	15.8	
16-Mar	0.6	Z	1.0	1.0	1.1	2.3	0.8	1.0	1.1	1.3	1.7	1.4	0.7	1.0	0.7	0.6	0.5	0.5	1.0	0.2	0.2	0.4	0.5	0.5	0.9	2.3	
17-Mar	0.8	0.9	Z	1.3	1.4	1.4	1.4	1.2	0.8	0.8	0.9	1.0	1.1	1.1	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.0	1.1	1.4	1.0	1.4	
18-Mar	1.6	3.5	5.1	Z	6.3	1.5	20.5	8.3	4.6	5.1	5.5	19.5	11.5	7.6	5.0	3.9	2.5	4.9	4.2	3.7	1.6	0.8	0.6	0.8	5.6	20.5	
19-Mar	1.2	1.4	1.1	0.7	Z	1.3	1.9	1.2	1.6	3.8	2.4	1.5	0.9	1.4	2.6	2.6	1.9	2.8	3.4	1.7	2.1	2.3	2.2	1.9	1.9	3.8	
20-Mar	1.7	1.3	1.3	1.0	1.8	Z	0.5	0.9	1.5	5.3	1.2	1.0	1.1	0.8	0.4	0.7	0.5	0.7	0.6	0.2	0.4	0.1	0.1	0.2	1.0	5.3	
21-Mar	Z	0.5	0.5	0.5	0.7	0.7	0.6	0.7	2.7	4.5	1.2	0.7	0.9	4.0	1.1	0.6	1.2	0.5	0.6	0.1	1.1	1.8	1.7	1.2	1.2	4.5	
22-Mar	0.7	Z	0.4	0.3	0.3	1.1	0.4	4.9	2.1	1.4	1.5	0.8	1.3	1.4	1.1	1.3	0.8	1.0	0.6	1.2	0.4	0.5	0.4	0.6	1.1	4.9	
23-Mar	0.7	0.8	Z	0.7	1.9	5.2	3.2	10.5	1.4	0.9	0.6	0.9	1.3	0.5	1.3	0.5	0.9	0.5	0.5	0.6	0.6	0.6	0.6	0.7	1.5	10.5	
24-Mar	0.7	0.6	0.6	Z	1.1	1.3	0.5	1.3	1.1	1.0	1.0	1.0	1.1	0.8	0.7	0.7	0.9	1.0	0.8	0.7	0.9	1.2	0.9	1.0	0.9	1.3	
25-Mar	1.2	1.4	1.4	1.5	Z	2.1	2.4	2.3	2.0	1.8	1.3	0.7	0.6	0.7	0.5	0.6	0.6	0.6	0.7	0.8	0.8	0.9	1.1	1.2	1.2	2.4	
26-Mar	1.2	1.2	1.3	1.4	1.4	Z	1.6	1.6	C	C	C	C	C	0.8	0.9	0.9	0.8	0.9	1.0	1.0	1.2	1.3	1.2	1.1	1.2	1.6	
27-Mar	Z	1.1	1.1	1.0	1.3	1.6	1.3	1.6	1.5	1.4	1.9	1.5	0.8	1.1	1.1	0.7	1.2	0.9	1.4	0.4	0.3	0.3	0.4	0.4	1.1	1.9	
28-Mar	0.4	Z	0.5	0.4	0.6	1.4	0.2	0.2	0.5	0.5	0.3	1.6	0.9	0.8	1.5	1.3	0.7	1.3	3.3	2.8	3.7	3.3	2.9	2.8	1.4	3.7	
29-Mar	3.6	3.6	Z	3.8	4.5	4.7	5.5	4.5	4.3	3.0	3.6	2.5	1.3	2.0	1.1	2.5	3.1	3.1	3.0	1.9	2.8	0.9	0.5	0.6	2.9	5.5	
30-Mar	0.9	0.9	1.2	Z	2.5	10.5	1.9	1.2	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.7	1.1	10.5	
31-Mar	0.8	0.9	0.9	1.2	Z	1.6	1.8	1.8	1.8	1.7	1.5	1.4	1.7	1.7	1.5	1.6	1.0	0.8	0.8	0.8	1.2	1.3	0.8	0.7	1.3	1.8	
		1.8	1.9	2.2	2.1	2.5	3.3	4.0	3.8	3.0	2.6	2.0	2.5	2.1	1.8	1.5	1.4	1.5	2.1	2.2	1.7	1.6	1.4	1.3	1.4	Diurnal Average	
		6.1	6.3	10.9	9.4	9.2	27.1	28.5	18.5	10.1	8.2	5.6	19.5	17.5	10.1	5.8	5.4	5.5	8.5	11.6	8.0	7.8	6.0	4.8	5.4	Diurnal Maximum	
Z - zerspan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Leismer - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Leismer - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	705	99.58	99.58
21 - 40	3	0.42	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Leismer - March 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	24	28	35	77	54	53	70	67	81	13	10	30	36	29	53	704
21 - 40	0	0	0	1	0	0	0	0	0	0	0	0	0	1	1	0	3
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
Totals	44	24	28	36	77	54	53	70	67	81	13	10	30	37	30	53	707

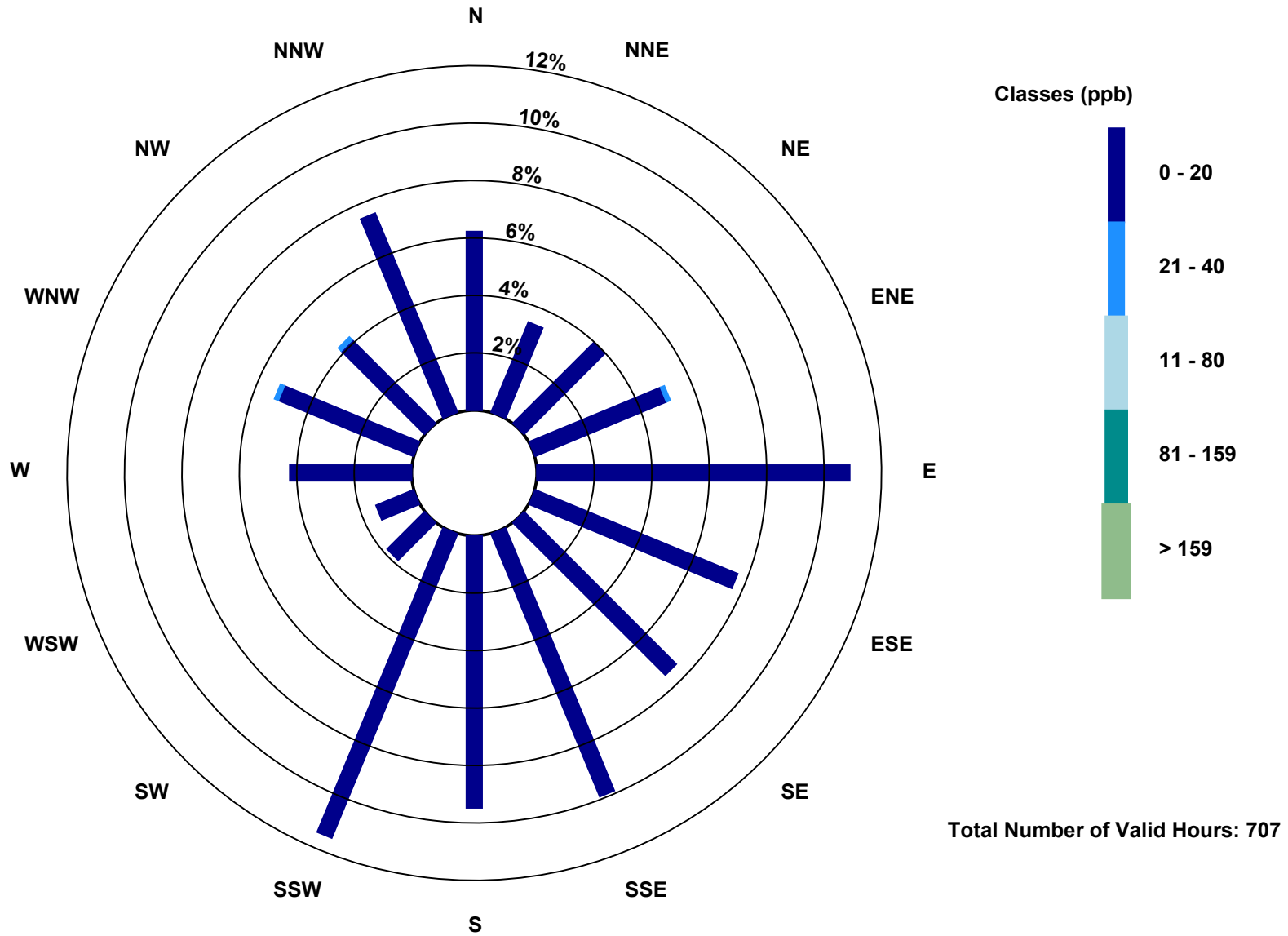
Total Number of Valid Hours: 707

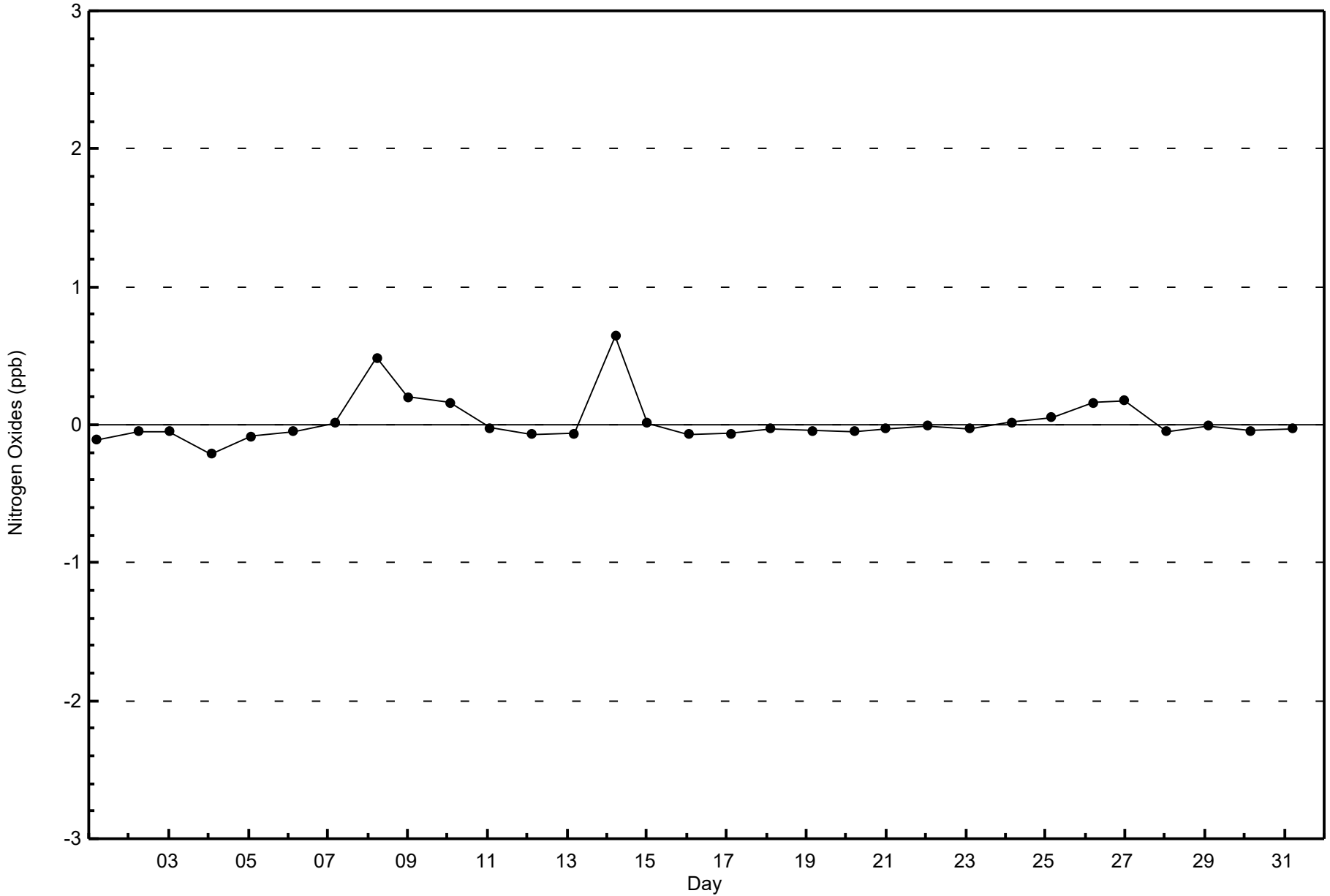
Total Number of Hours: 744

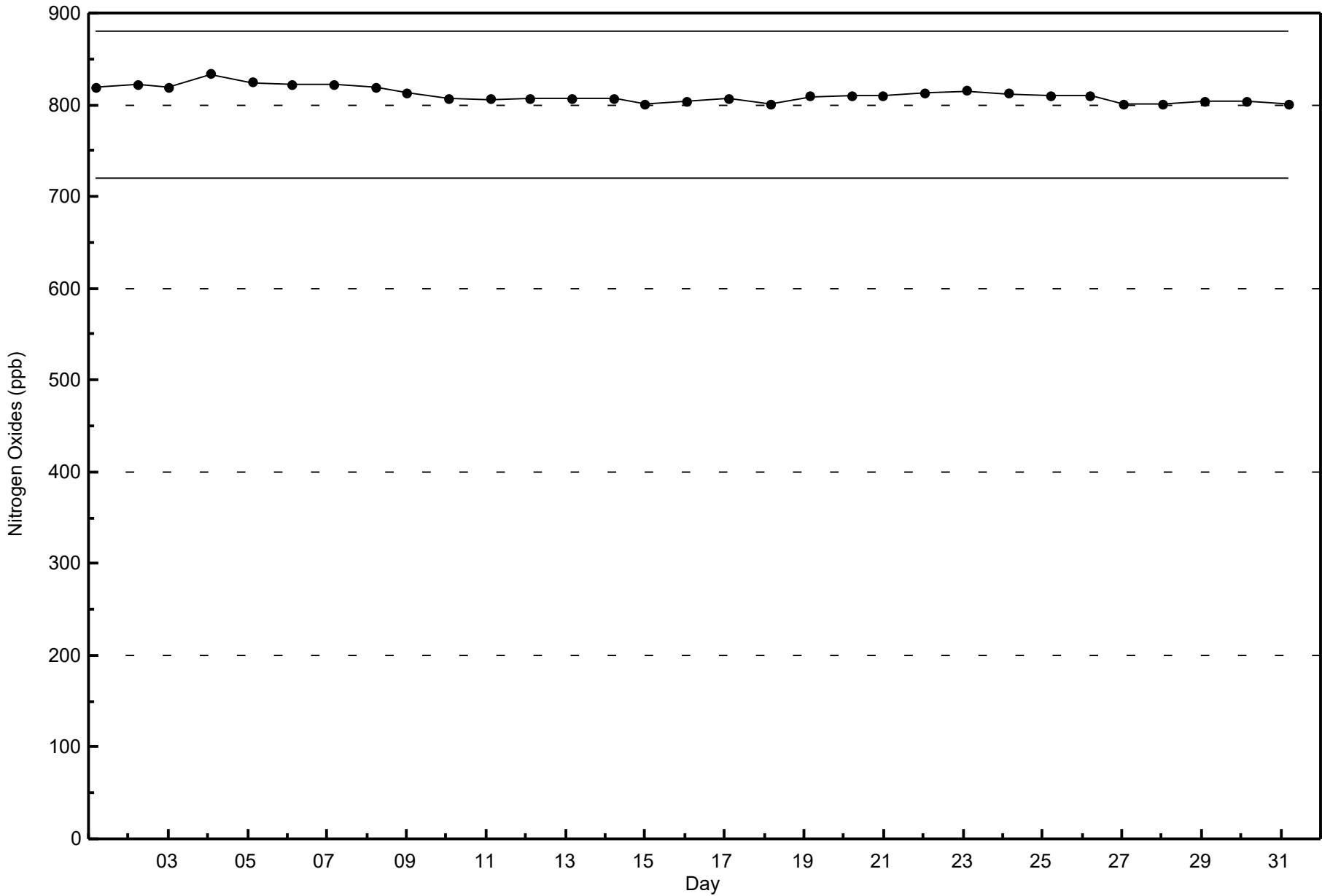


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Leismer





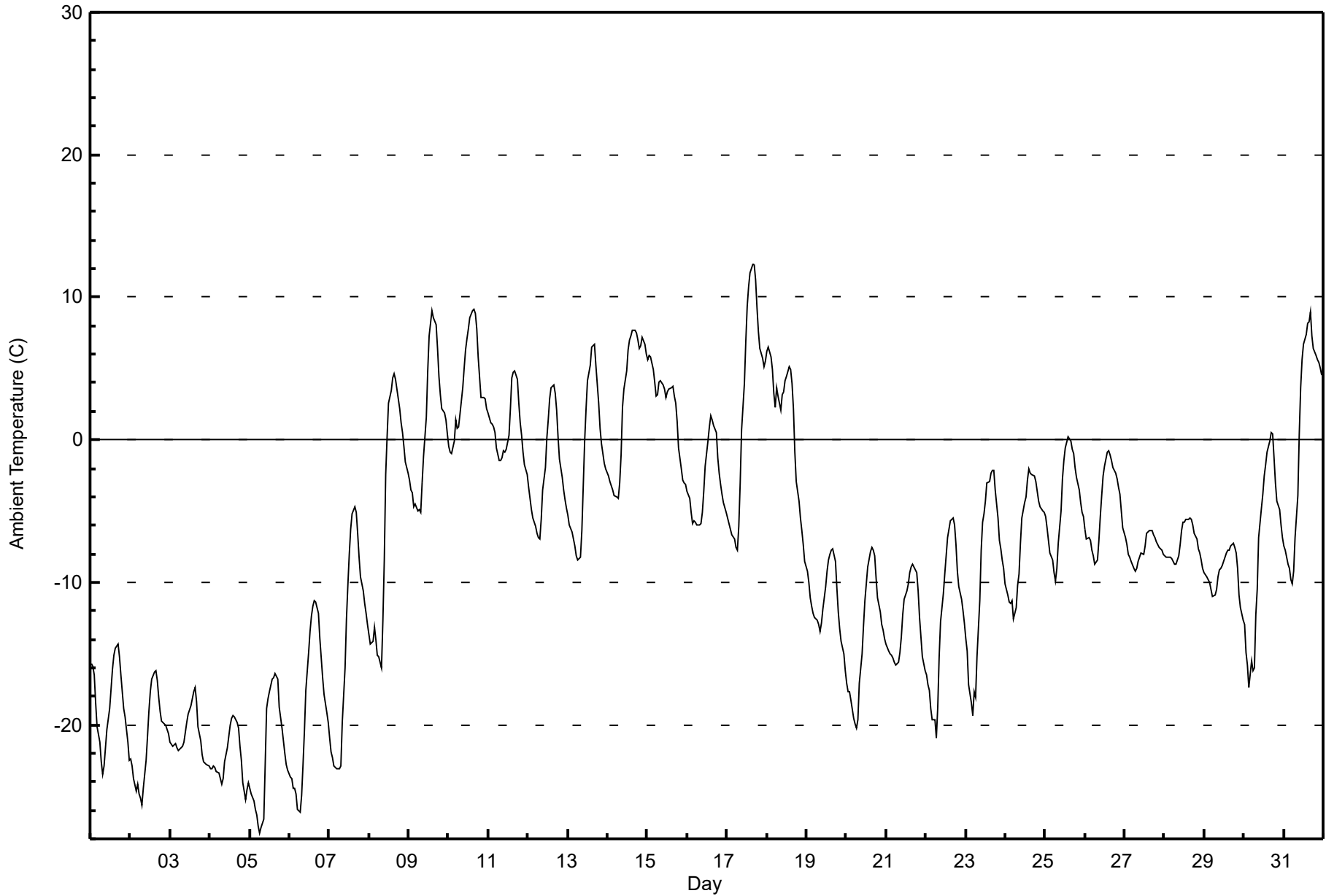




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature (AT) - C
Leismer - March 2024

Maximum Value: 12.3 C on Mar 17 17:00		Maximum Daily Average: 4.0 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -27.6 C on Mar 5 07:00		Minimum Daily Average: -22.3 C on Mar 4		Hours of Data: 744																																												
Maximum Diurnal Average: -2.6 C at hour 16		Minimum Diurnal Average: -12.6 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: -7.74 C		Percentiles: P ₁ = -25.8 P ₁₀ = -21.2 Q ₁ = -15.0 Median = -7.3 Q ₃ = -0.9 P ₉₀ = 4.4 P ₉₉ = 9.1		Hours of Calibration: 0																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Mar	-15.7	-15.9	-16.5	-18.4	-20.1	-21.2	-22.6	-23.5	-22.9	-21.6	-20.3	-18.9	-17.4	-16.1	-15.1	-14.6	-14.4	-15.2	-16.5	-17.7	-18.8	-19.5	-21.2	-22.5	-18.6	-14.4																						
2-Mar	-22.4	-22.9	-23.7	-24.7	-24.2	-24.8	-25.2	-25.6	-24.4	-22.5	-20.9	-19.0	-17.7	-16.8	-16.3	-16.2	-16.9	-18.1	-19.1	-19.7	-19.9	-20.0	-20.3	-20.7	-20.9	-16.2																						
3-Mar	-21.2	-21.5	-21.5	-21.3	-21.6	-21.8	-21.7	-21.6	-21.2	-20.5	-19.8	-19.2	-18.7	-18.1	-17.6	-17.3	-18.4	-20.1	-21.1	-22.1	-22.6	-22.7	-22.8	-22.9	-20.7	-17.3																						
4-Mar	-23.1	-23.1	-22.9	-23.0	-23.3	-23.4	-23.7	-24.2	-23.8	-22.6	-21.6	-20.9	-20.1	-19.5	-19.4	-19.9	-20.3	-21.5	-22.5	-24.0	-25.3	-24.6	-24.1	-22.3	-19.4																							
5-Mar	-24.4	-24.8	-25.4	-25.9	-26.3	-27.1	-27.6	-27.3	-26.6	-22.8	-18.9	-18.2	-17.6	-16.8	-16.7	-16.4	-16.6	-16.8	-18.7	-20.2	-21.1	-22.1	-22.8	-23.1	-21.8	-16.4																						
6-Mar	-23.7	-23.7	-24.4	-24.5	-24.8	-25.9	-26.1	-24.9	-22.8	-20.4	-17.6	-14.9	-13.5	-12.4	-11.7	-11.3	-11.4	-12.1	-13.9	-15.4	-16.7	-17.9	-19.2	-19.9	-18.7	-11.3																						
7-Mar	-20.9	-21.9	-22.3	-22.8	-23.1	-23.1	-23.1	-22.9	-19.9	-16.1	-12.6	-10.2	-8.1	-6.2	-5.2	-4.7	-5.1	-6.6	-8.3	-9.6	-10.6	-11.5	-12.2	-13.0	-14.2	-4.7																						
8-Mar	-13.7	-14.4	-14.1	-13.2	-14.1	-15.1	-15.2	-16.0	-12.6	-8.4	-2.4	0.2	2.6	3.4	4.3	4.6	4.2	3.6	2.1	1.2	0.5	-0.5	-1.6	-2.3	-4.9	4.6																						
9-Mar	-2.9	-3.5	-3.7	-4.7	-4.5	-5.0	-4.9	-5.1	-3.0	-1.1	1.6	4.9	7.3	8.1	9.1	8.6	8.1	6.4	4.4	3.2	2.2	1.9	1.4	0.4	1.2	9.1																						
10-Mar	-0.5	-0.8	-1.0	-0.1	1.4	0.8	0.9	1.8	3.6	5.0	6.3	7.1	7.8	8.6	9.0	9.1	8.8	7.8	5.8	3.0	3.0	2.9	2.9	2.2	4.0	9.1																						
11-Mar	1.9	1.2	1.1	0.9	0.5	-0.6	-1.4	-1.4	-1.2	-0.8	-0.9	-0.7	0.3	2.2	4.4	4.8	4.9	4.3	2.6	1.2	0.3	-0.9	-1.7	-2.5	0.8	4.9																						
12-Mar	-3.3	-4.1	-4.9	-5.5	-6.1	-6.6	-6.9	-7.0	-5.6	-3.5	-2.0	0.1	1.4	2.9	3.6	3.8	3.3	2.0	0.2	-1.4	-2.6	-3.5	-4.3	-4.8	-2.3	3.8																						
13-Mar	-5.3	-5.9	-6.5	-7.0	-7.4	-8.1	-8.5	-8.3	-6.3	-3.3	-0.1	2.2	4.1	5.3	6.5	6.6	6.7	5.2	2.5	0.8	-0.3	-0.9	-1.6	-2.0	-1.3	6.7																						
14-Mar	-2.6	-2.9	-3.2	-3.5	-3.9	-4.0	-4.1	-3.0	-1.1	2.2	3.6	4.9	6.3	7.0	7.3	7.7	7.6	7.5	7.0	6.4	6.6	7.2	6.7	6.0	2.7	7.7																						
15-Mar	5.7	5.9	5.8	5.0	4.0	3.0	3.2	4.0	4.1	3.8	3.5	3.0	3.4	3.5	3.7	3.7	3.0	2.5	1.3	-0.6	-2.0	-2.8	-3.0	-3.1	2.5	5.9																						
16-Mar	-3.6	-4.1	-5.1	-5.8	-5.7	-5.8	-6.0	-6.0	-5.9	-5.1	-3.6	-1.9	-0.1	0.9	1.6	1.4	1.0	0.5	-1.3	-2.4	-3.1	-3.9	-4.4	-5.1	-3.1	1.6																						
17-Mar	-5.5	-5.8	-6.2	-6.7	-7.0	-7.5	-7.7	-6.1	-3.0	0.7	4.0	6.9	9.4	10.7	11.7	12.3	12.3	11.3	9.3	7.6	6.4	5.7	5.1	5.5	2.6	12.3																						
18-Mar	6.2	6.6	5.8	4.9	3.3	2.3	3.7	3.1	2.1	3.1	3.4	4.1	4.4	5.1	5.0	3.9	2.2	-0.8	-3.0	-4.3	-5.5	-6.3	-7.4	-8.6	1.4	6.6																						
19-Mar	-9.2	-10.0	-11.1	-11.7	-12.2	-12.4	-12.7	-12.9	-13.4	-12.9	-11.8	-10.3	-9.3	-8.4	-8.0	-7.7	-7.7	-8.5	-10.4	-12.1	-13.2	-14.2	-15.0	-16.2	-11.3	-7.7																						
20-Mar	-17.1	-17.7	-17.7	-18.3	-19.5	-20.0	-20.3	-19.7	-17.1	-15.0	-13.0	-11.3	-10.1	-9.0	-7.8	-7.5	-7.7	-8.1	-9.7	-11.1	-12.0	-13.0	-13.4	-14.0	-13.8	-7.5																						
21-Mar	-14.3	-14.8	-15.0	-15.1	-15.3	-15.6	-15.8	-15.6	-14.9	-13.8	-12.2	-11.2	-10.6	-10.1	-9.3	-8.9	-8.7	-8.9	-9.3	-10.6	-12.5	-13.9	-15.2	-16.2	-12.8	-8.7																						
22-Mar	-16.5	-17.2	-17.6	-18.8	-19.7	-19.6	-20.9	-18.8	-15.2	-12.8	-10.8	-9.5	-8.1	-6.9	-6.3	-5.7	-5.5	-6.0	-7.4	-9.2	-10.3	-11.1	-11.9	-12.9	-12.4	-5.5																						
23-Mar	-14.0	-14.8	-17.2	-18.5	-19.4	-17.7	-18.0	-15.2	-11.3	-7.7	-5.8	-5.2	-4.3	-3.1	-2.9	-2.3	-2.2	-2.2	-3.6	-5.5	-7.1	-7.6	-8.5	-9.0	-9.3	-2.2																						
24-Mar	-10.2	-10.9	-11.4	-11.5	-11.3	-12.6	-11.8	-10.3	-9.5	-7.3	-5.5	-4.4	-4.0	-2.8	-2.1	-2.4	-2.4	-2.6	-2.9	-3.6	-4.3	-4.7	-5.0	-5.1	-6.6	-2.1																						
25-Mar	-5.4	-6.2	-7.0	-7.9	-8.4	-9.3	-10.0	-9.0	-7.3	-5.0	-2.8	-1.4	-0.6	-0.2	0.2	0.1	-0.7	-1.0	-2.0	-2.6	-3.5	-4.4	-5.1	-5.4	-4.4	0.2																						
26-Mar	-6.3	-7.0	-6.9	-7.0	-7.7	-8.1	-8.7	-8.4	-7.1	-5.4	-4.0	-2.6	-1.8	-0.8	-0.8	-1.1	-1.4	-2.0	-2.3	-2.8	-3.3	-3.9	-5.0	-6.2	-4.6	-0.8																						
27-Mar	-6.8	-7.4	-8.0	-8.3	-8.5	-9.0	-9.2	-9.1	-8.5	-8.2	-8.0	-8.1	-7.5	-6.6	-6.5	-6.4	-6.4	-6.6	-6.9	-7.2	-7.4	-7.6	-7.8	-8.0	-7.7	-6.4																						
28-Mar	-8.1	-8.2	-8.2	-8.3	-8.3	-8.5	-8.8	-8.7	-8.2	-7.3	-6.4	-5.7	-5.8	-5.6	-5.6	-5.5	-5.6	-5.9	-6.6	-7.0	-7.6	-8.0	-8.4	-9.0	-7.3	-5.5																						
29-Mar	-9.3	-9.6	-9.8	-10.0	-10.5	-11.0	-10.9	-10.5	-9.6	-9.1	-9.0	-8.8	-8.2	-7.9	-7.7	-7.7	-7.5	-7.2	-7.5	-8.0	-9.0	-10.9	-11.8	-12.6	-9.3	-7.2																						
30-Mar	-13.0	-14.9	-15.8	-17.3	-15.5	-16.2	-16.0	-12.2	-10.5	-6.9	-4.8	-3.8	-2.5	-1.7	-0.8	-0.1	0.5	0.4	-1.2	-3.0	-4.3	-4.9	-6.0	-6.9	-7.4	0.5																						
31-Mar	-7.4	-7.8	-8.7	-9.0	-9.8	-10.1	-9.2	-6.8	-3.9	0.4	3.6	5.7	6.7	7.4	8.2	8.2	8.9	7.3	6.4	6.0	5.7	5.4	5.0	4.5	0.7	8.9																						
																								-10.1	-10.6	-11.1	-11.6	-11.9	-12.4	-12.6	-12.0	-10.5	-8.5	-6.7	-5.4	-4.3	-3.4	-2.8	-2.6	-2.8	-3.6	-4.9	-6.1	-7.0	-7.7	-8.4	-8.9	Diurnal Average
																								6.2	6.6	5.8	5.0	4.0	3.0	3.7	4.0	4.1	5.0	6.3	7.1	9.4	10.7	11.7	12.3	12.3	11.3	9.3	7.6	6.6	7.2	6.7	6.0	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Leismer - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	95	12.77	12.77
-20 - 0	485	65.19	77.96
0 - 10	159	21.37	99.33
10 - 20	5	0.67	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

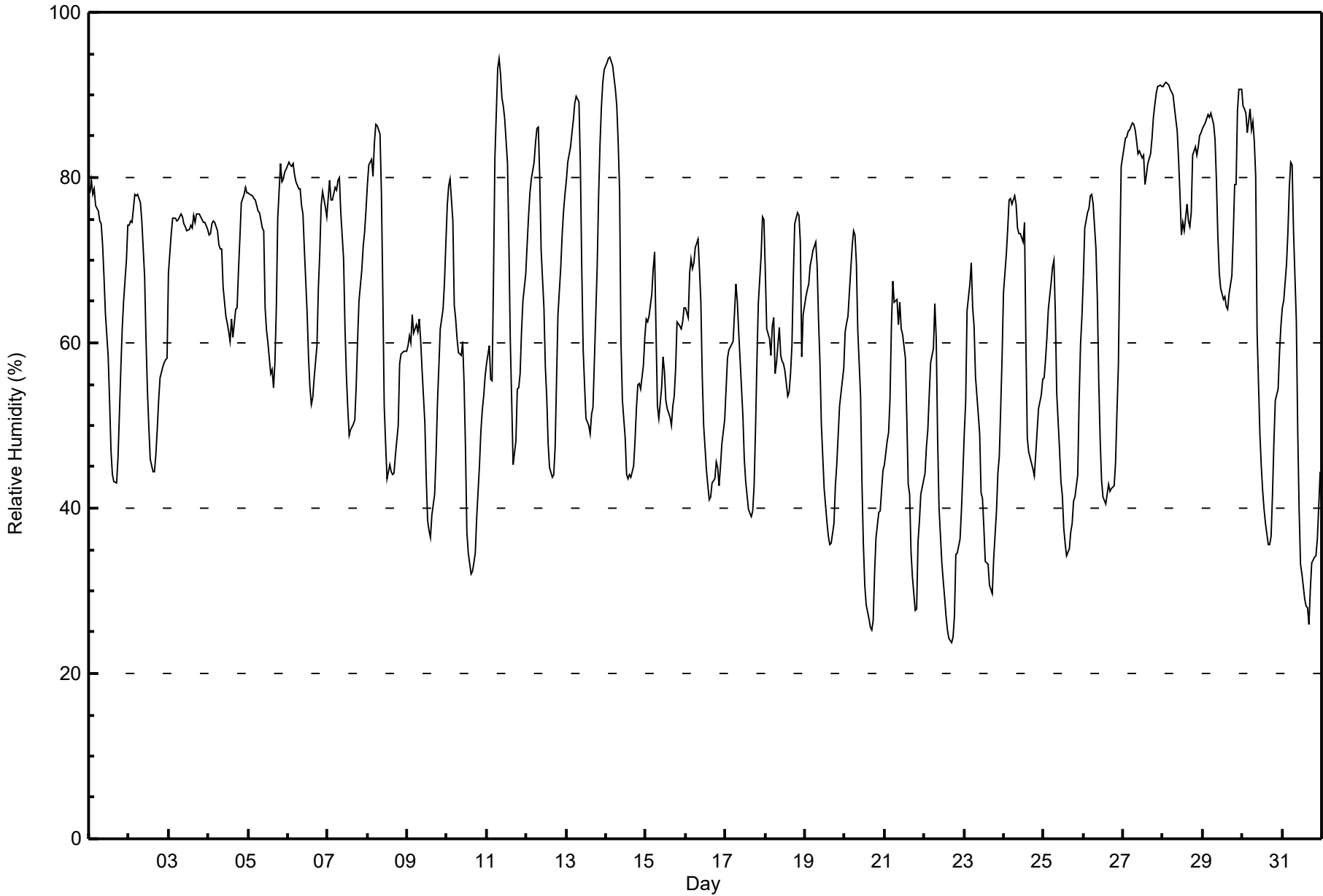
Relative Humidity (RH) - %
Leismer - March 2024

Maximum Value: 94.5 % on Mar 14 03:00		Maximum Daily Average: 85.3 % on Mar 27		Hours in Service: 744																						
Minimum Value: 23.8 % on Mar 22 17:00		Minimum Daily Average: 40.0 % on Mar 22		Hours of Data: 744																						
Maximum Diurnal Average: 75.9 % at hour 6		Minimum Diurnal Average: 46.5 % at hour 16		Hours of Missing Data: 0																						
Monthly Average: 62.10 %		Percentiles: P ₁ = 26.5 P ₁₀ = 39.6 Q ₁ = 49.2 Median = 62.4 Q ₃ = 75.6 P ₉₀ = 83.8 P ₉₉ = 92.8		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-Mar	78.1	79.7	77.9	78.6	76.6	75.9	74.8	74.4	71.8	67.9	63.6	58.2	52.8	46.9	44.0	43.2	43.1	46.2	51.3	56.7	61.6	65.1	70.0	74.2	63.9	79.7
2-Mar	74.2	74.8	74.6	78.0	77.8	78.0	77.4	76.9	74.7	67.9	60.3	54.3	49.9	46.0	44.4	44.4	46.4	49.5	53.1	55.8	57.1	57.7	57.9	58.2	62.1	78.0
3-Mar	68.4	73.3	75.1	75.0	75.0	74.7	74.9	75.6	75.3	74.5	74.1	73.5	73.8	74.3	74.0	75.4	74.6	75.6	75.7	75.2	75.0	74.6	74.5	73.8	74.4	75.7
4-Mar	73.1	73.2	74.3	74.7	74.6	73.5	71.9	71.3	71.3	66.7	63.2	62.5	61.3	60.1	62.9	60.7	64.0	64.3	68.9	72.7	76.9	78.0	78.8	78.2	69.9	78.8
5-Mar	78.1	78.0	77.8	77.4	77.3	76.6	75.9	75.7	74.0	73.6	64.3	61.5	60.1	56.2	56.8	54.7	57.6	64.2	75.1	81.6	79.6	79.8	80.6	81.0	71.6	81.6
6-Mar	81.9	81.5	81.3	81.7	80.4	79.4	78.6	78.7	76.7	75.6	71.3	63.5	58.2	54.6	52.5	53.3	55.8	59.6	66.5	70.8	76.6	78.3	76.5	75.2	71.2	81.9
7-Mar	77.5	79.6	77.4	77.3	78.9	78.5	79.6	80.0	75.7	70.2	61.9	56.1	52.1	48.8	49.4	50.2	50.7	54.7	60.3	65.1	68.7	71.7	73.5	76.1	67.3	80.0
8-Mar	79.1	81.5	82.1	80.2	84.3	86.4	86.4	85.3	78.2	66.1	52.4	47.8	43.6	45.3	44.3	44.0	44.3	46.4	50.0	57.5	58.6	58.7	59.1	59.0	63.4	86.4
9-Mar	59.7	60.8	60.0	63.3	61.2	62.1	61.3	63.0	60.4	56.8	50.4	43.5	38.5	37.3	36.5	39.1	41.7	46.4	52.7	57.1	61.7	64.1	67.3	72.1	54.9	72.1
10-Mar	76.6	79.0	79.9	74.8	64.6	62.9	60.5	58.9	58.4	60.2	55.0	47.2	37.2	34.6	32.1	32.4	33.5	34.6	38.8	45.3	49.3	51.9	53.6	56.0	53.2	79.9
11-Mar	57.4	59.7	55.6	55.4	67.8	82.4	93.2	94.5	92.6	89.6	88.7	87.1	81.8	71.9	60.1	53.0	45.2	48.1	54.3	54.6	56.2	61.3	65.2	68.3	68.5	94.5
12-Mar	71.8	75.2	78.2	79.9	81.9	84.2	85.9	86.1	80.0	71.2	64.2	57.1	53.5	47.8	44.9	43.8	44.0	47.4	55.5	63.3	69.2	73.1	76.0	78.0	67.2	86.1
13-Mar	79.7	81.9	83.8	85.5	87.0	89.0	89.8	89.1	81.5	69.0	59.1	54.9	50.8	49.9	49.0	51.3	52.2	57.7	69.2	77.7	83.9	88.5	91.5	93.0	73.5	93.0
14-Mar	93.9	94.4	94.5	94.0	93.6	90.7	88.6	84.2	78.3	60.0	53.0	48.5	44.0	43.5	44.1	43.8	45.1	48.2	52.1	55.0	55.1	54.4	57.4	60.7	65.7	94.5
15-Mar	62.9	62.5	63.2	66.0	69.0	71.0	61.4	52.4	50.8	54.6	56.5	53.0	52.0	51.1	50.0	52.4	53.5	56.9	62.5	62.0	61.6	62.5	64.2	58.8	71.0	
16-Mar	64.3	63.1	68.5	70.1	69.0	69.6	71.5	72.6	69.0	64.9	56.0	50.0	44.5	42.7	40.9	41.3	43.0	43.5	45.5	45.0	42.7	45.0	47.8	50.7	55.0	72.6
17-Mar	54.3	58.1	59.1	59.5	60.2	63.6	67.0	65.1	61.3	58.0	51.2	45.9	43.2	41.5	39.8	38.9	39.6	42.7	49.4	57.5	64.7	70.6	75.3	74.9	55.9	75.3
18-Mar	68.7	61.6	60.4	58.5	62.1	63.1	56.3	57.6	61.9	58.4	57.8	57.5	56.6	53.6	54.1	56.2	59.7	67.9	74.3	75.7	75.4	72.2	58.4	63.4	62.1	75.7
19-Mar	65.6	66.4	67.1	69.3	70.2	71.2	72.2	69.3	62.7	57.5	50.2	42.4	40.3	38.3	36.6	35.7	35.7	38.2	42.7	45.2	48.7	52.3	55.4	56.9	53.8	72.2
20-Mar	61.3	62.4	63.2	66.2	71.6	73.5	73.0	69.7	61.5	53.5	42.9	35.5	30.7	28.3	26.6	25.6	25.3	26.4	32.2	36.4	39.5	39.6	42.1	44.5	47.2	73.5
21-Mar	45.3	48.1	49.2	53.3	62.0	67.4	65.0	65.3	62.3	64.9	61.7	61.0	58.2	50.9	42.8	41.7	34.8	31.7	27.7	27.9	35.9	38.5	41.7	43.5	49.2	67.4
22-Mar	44.3	47.5	49.5	53.7	57.6	59.3	64.7	60.5	48.2	40.0	33.4	31.1	29.2	26.9	25.3	24.2	23.8	24.3	26.9	34.4	34.5	36.3	39.8	44.3	40.0	64.7
23-Mar	49.0	52.9	64.0	67.2	69.6	64.3	62.0	55.9	51.3	49.0	41.8	41.2	37.7	33.6	33.2	30.7	30.1	29.7	33.9	39.7	44.3	46.2	52.0	58.2	47.4	69.6
24-Mar	66.0	70.7	73.7	77.3	77.5	76.8	77.8	76.7	73.9	73.2	73.3	72.3	74.5	59.9	48.5	46.8	46.0	44.7	43.9	46.4	49.4	52.0	53.7	55.5	62.9	77.8
25-Mar	55.8	58.0	60.7	64.0	67.3	69.2	70.0	63.6	54.0	47.1	43.3	41.5	37.7	35.8	34.2	35.0	37.2	38.2	40.8	41.4	44.1	53.2	59.9	63.2	50.6	70.0
26-Mar	68.0	73.9	75.7	76.2	77.8	78.0	76.8	71.4	65.2	55.3	48.2	43.3	41.4	40.4	41.7	42.8	42.0	42.3	42.7	45.6	51.8	57.2	70.2	81.3	58.7	81.3
27-Mar	83.6	84.7	85.0	85.6	85.7	86.7	86.4	85.7	84.4	82.9	83.2	82.4	82.8	79.2	80.4	81.7	82.8	84.7	87.4	88.9	90.2	90.9	91.1	91.1	85.3	91.1
28-Mar	91.1	91.4	91.5	91.2	90.6	90.4	90.0	88.5	85.5	82.1	77.8	73.0	74.6	73.6	76.9	74.7	74.0	75.8	82.7	83.7	82.7	83.7	85.0	85.4	83.2	91.5
29-Mar	86.0	86.6	87.0	87.6	87.4	87.8	86.4	84.6	79.5	72.9	68.4	66.6	65.3	65.6	64.4	64.1	66.0	68.1	73.2	79.2	79.2	88.2	90.6	90.6	78.1	90.6
30-Mar	88.6	88.3	87.8	85.4	88.4	85.8	86.8	84.4	80.1	61.3	49.0	45.0	42.0	39.9	38.2	35.7	35.6	36.7	41.7	48.0	53.0	54.4	58.9	62.0	61.5	88.6
31-Mar	64.3	65.0	69.5	73.5	78.7	81.9	81.6	73.6	62.8	49.5	39.9	33.2	32.0	29.0	28.1	28.0	25.9	30.2	33.3	34.0	34.3	36.2	40.1	44.4	48.7	81.9
	70.0	71.4	72.5	73.6	75.0	75.9	75.7	73.9	69.8	64.3	58.6	54.6	51.6	48.7	47.0	46.5	46.8	49.1	53.5	57.4	60.1	62.4	64.7	67.0		Diurnal Average
	93.9	94.4	94.5	94.0	93.6	90.7	93.2	94.5	92.6	89.6	88.7	87.1	82.8	79.2	80.4	81.7	82.8	84.7	87.4	88.9	90.2	90.9	91.5	93.0		Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Leismer - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Leismer - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	81	10.89	10.89
40 - 60	249	33.47	44.35
60 - 80	304	40.86	85.22
80 - 100	110	14.78	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

Leismer - March 2024

Maximum Speed: 36 km/h on Mar 15 09:00	Maximum Daily Speed Average: 18.1 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 30 06:00	Minimum Daily Speed Average: 2.6 km/h on Mar 23	Hours of Data: 743
Maximum Diurnal Speed Average: 3.2 km/h at hour 14	Minimum Diurnal Speed Average: 0.2 km/h at hour 9	Hours of Missing Data: 1
Monthly Average Velocity: 0.9 km/h 143.3 deg	Percentiles: P ₁ = 1 P ₁₀ = 4 Q ₁ = 7 Median = 10 Q ₃ = 14 P ₉₀ = 19 P ₉₉ = 28	Percent Operational Time: 99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	NW12	NW16	NW18	NW21	WNW20	WNW19	WNW20	WNW17	WNW21	WNW21	WNW21	WNW22	WNW19	WNW19	WNW18	NW16	WNW14	NW16	NNW10	NNW9	N8	N8	N5	NNE6	NW14.6	WNW22	
2-Mar	NNE8	NE7	ESE2	NE5	ENE7	ENE7	E5	ESE5	E8	ESE10	ESE10	E9	ENE11	E12	ENE11	ENE12	E11	ENE10	NE9	NE10	ENE11	E12	ENE12	ENE14	ENE8.5	ENE14	
3-Mar	ENE12	ENE12	ENE14	ENE12	E13	E12	ENE10	ENE8	ENE8	ENE10	ENE10	ENE9	NE9	NNE10	NE10	NNE9	N16	NNW17	NNW18	NNW20	NNW20	NNW21	NNW21	NNW22	NNE9.7	NNW22	
4-Mar	NNW24	NNW24	NNW24	NNW23	NW21	NW20	NW19	NW20	NW22	NW22	NW20	NW18	NW18	NNW17	NNW18	NNW15	NNW13	NNW8	NW10	WNW5	W4	W6	NW7	NW16.4	NNW24		
5-Mar	WNW7	WNW6	WNW7	WNW7	WNW6	W7	WNW4	NW3	W3	W6	W4	WNW6	W4	S6	SE4	SSW3	W4	SSE2	SSW4	SSW1	SSE4	SSE4	SSE3	SSE4	WSW2.8	WNW7	
6-Mar	S3	WSW1	S2	S2	SSE2	SE1	SE2	SSE2	SSW2	S7	S8	SSW14	S13	S14	S14	S13	S12	S9	S10	S8	S8	S8	S9	S7.0	S14		
7-Mar	SSW9	SSW9	SSW9	SSW8	SSW8	SSW8	SSW6	SSW6	SSW9	SSW12	SSW15	SSW14	SSW16	S15	SSW16	S15	SSW15	SSW15	SSW13	SSW10	SSW12	SSW10	SSW9	SSW7	SSW11.0	SSW16	
8-Mar	SSW7	SSW5	WSW4	SW4	SW2	WSW3	WNW1	NNW1	SSW2	W2	S5	SSE7	S11	SSW10	SSW9	S12	S11	S9	S7	SSE9	S9	S9	SSW10	SSW9	S6.0	S12	
9-Mar	SSW9	S8	S7	SSW6	S6	SSE6	SSE9	SSE10	SSE10	SSE10	SSE12	SSE13	SSE13	SSE17	SSE14	SSE12	S10	SSE9	SSE10	SSE10	S6	SSW7	SSW6	SSW6	S9.1	SSE17	
10-Mar	SSW6	SSW5	W6	W9	W11	W7	W15	W18	W21	W26	W21	W23	W25	W25	W24	WNW21	WNW20	NW15	NW8	N4	NNE7	ENE7	ENE6	E5	WNW11.5	W26	
11-Mar	ENE5	NNE6	NNE12	NNE10	NNE11	ENE3	SE3	NE2	ENE5	ESE6	SE9	SSE7	NW4	NNW2	SSE4	SE7	SE9	SE8	E8	E10	E12	E12	E12	E12	E5.2	E12	
12-Mar	E13	E12	E13	E13	E13	E14	E13	E13	ESE13	ESE13	ESE14	ESE15	ESE14	ESE14	ESE13	E12	E13	E12	E11	E13	E14	E13	E12	E11	E12.8	ESE15	
13-Mar	ESE11	E9	E9	E8	ESE7	E6	ESE6	ESE4	ESE6	SE6	S4	SSE4	SSE5	S9	SSW10	SSW10	SSW10	SSW9	SSW7	S7	SSW7	SSW7	SSW6	SSW6	SSE5.1	ESE11	
14-Mar	SSW5	SSW6	SSW5	SSW4	SSW3	SW1	SW1	S2	SSW4	W10	W12	WSW11	WSW12	WSW12	WSW11	WSW10	SW8	SW8	WSW7	SW7	W11	W23	WNW29	WNW27	WSW8.2	WNW29	
15-Mar	WNW25	WNW29	WNW29	WNW24	WNW19	WNW18	WNW21	NW29	NW36	NNW34	NNW29	NNW34	NNW28	NNW27	N24	N20	NNE13	N11	NNE6	NE6	NE7	NE7	NNE5	NNE5	NW17.3	NW36	
16-Mar	NNE5	NNE4	NE3	NE5	E6	E6	ESE8	ESE7	ESE8	E8	ESE7	E5	ESE5	ESE6	SE8	SE10	SE10	ESE12	ESE9	ESE10	ESE9	ESE9	SE8	SE8	ESE6.6	ESE12	
17-Mar	ESE9	ESE11	ESE11	SE9	SE9	SE9	SSE7	SSE7	S9	S12	S14	S16	SSW17	S18	S18	SSW18	SSW17	SSW16	SSW15	SSW16	SW15	SW12	SW9	W8	S10.6	S18	
18-Mar	W14	WNW18	WNW14	NW13	WNW11	WNW13	NW20	NW17	NNW15	NNW20	NNW19	NW22	NW22	NW18	NW18	NW20	N18	N18	N18	N18	N17	N17	N17	N14	NNW15.4	NW22	
19-Mar	N15	N12	N14	N13	N14	N11	N11	N12	N14	NNE13	N12	NNW13	N14	NNW13	N14	NNW14	N14	N14	N13	N8	NNE6	NNE4	NNE6	NE6	N11.4	N15	
20-Mar	NE5	ENE5	E4	ENE4	NE3	NE6	NE6	ENE7	E5	ENE4	E4	E6	E5	SE6	SE7	SE5	SE9	ESE10	ESE9	E9	E10	E12	ESE10	E9	E6.1	E12	
21-Mar	E11	E10	E9	E10	E11	E11	E12	E12	E12	E13	E14	E15	E14	E15	ENE12	ENE11	E11	ENE7	ENE5	NE4	NNE9	NNE9	NNE9	NE9	E9.6	E15	
22-Mar	NE8	NE8	ENE7	NE6	ENE6	ENE6	ENE5	ESE3	ESE7	SE6	ESE4	SSE5	NE4	SE3	SE6	ENE3	E3	SE4	SE6	ESE7	E9	E10	E9	E9	E5.1	E10	
23-Mar	E7	E7	ESE3	NE2	SE2	SSE1	W1	NW2	SSW5	S7	S8	S7	SSW7	S7	WSW3	SSW4	S6	SSW4	SW4	SSE2	S2	WSW2	W3	WNW4	S2.6	S8	
24-Mar	WNW3	SW1	SSE2	S3	SSE3	ESE4	ESE4	SE6	SSE8	SSE9	SSE11	SSE12	SSE13	SSE13	S14	SSE12	SSE10	SSE9	SSE7	SE7	SE8	SE9	SE9	SSE7.4	S14		
25-Mar	SE11	SE9	SE9	SE7	ESE8	ESE9	ESE9	ESE10	SE12	SE13	SE15	S17	SSE20	S20	S18	S19	S17	SSE19	SSE15	SSE16	S17	SSE18	SSE16	SSE16	SSE13.4	SSE20	
26-Mar	SSE14	SSE14	SSE14	SSE14	SE12	SE12	SE13	SE14	SSE20	S23	S24	SSE25	SSE26	SSE26	SSE23	SSE21	SSE20	SSE21	SSE18	SSE16	SE19	SE18	SE17	SE15	SSE18.1	SSE26	
27-Mar	SE15	SE15	SE14	SE13	SE14	SE13	ESE14	SE13	ESE14	ESE17	ESE17	ESE18	ESE16	ESE17	ESE16	ESE14	ESE13	ESE13	E11	E11	E11	E10	E11	E10	ESE13.2	ESE18	
28-Mar	E9	E9	E8	E6	ENE6	NE7	NE8	NE7	NE7	NE7	NE8	NNE10	N11	NNE10	N13	NNE11	NNE11	N11	N11	N11	N12	N12	N11	N11	NNE8.1	N13	
29-Mar	N10	NNW12	NNW13	NNW14	NNW14	NNW11	NNW10	NNW12	NNW14	NNW15	NNW17	NW16	NNW15	NNW16	NNW16	NNW16	NNW16	NNW12	NNW12	NNW11	NNW6	NW5	NNW6	N5	N5	NNW11.7	NNW17
30-Mar	N3	NNW3	NNW3	NW2	NW2	SSE0	UO	SSW2	S4	SSW10	S12	S12	S14	SSE14	S14	S12	SSW11	SSW10	SSW8	SSE6	SSE7	SSE7	SE7	SE8	S6.1	SSE14	
31-Mar	SSE8	S7	SSE7	S6	SSW5	S6	SSW6	SW7	SW7	SSW8	SSW11	SSW16	SSW17	SSW18	SSW18	SSW16	SSW16	SSW16	S13	S17	S17	S17	SSW19	SSW19	SSW12.0	SSW19	

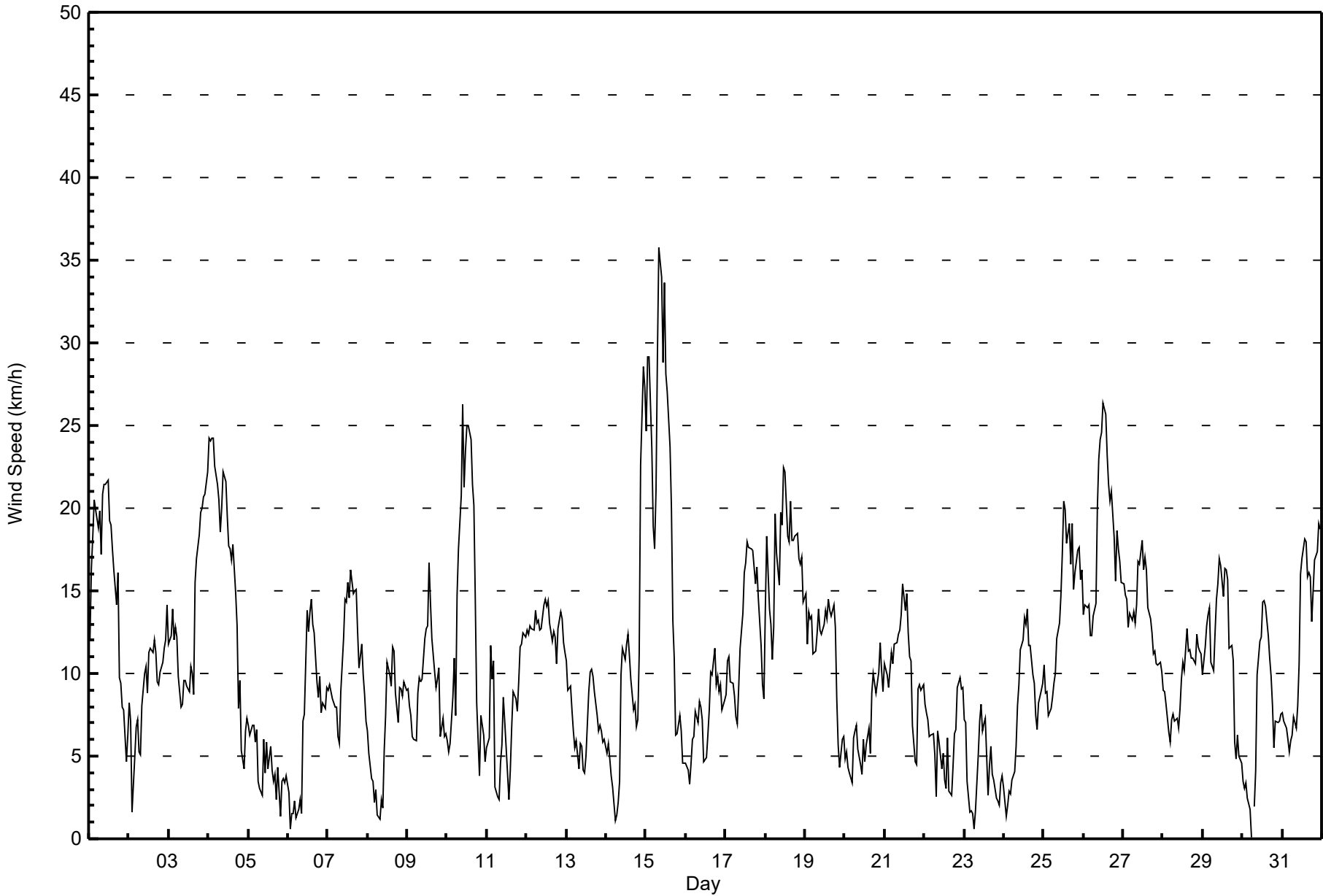
ENE1.4	NE1.1	NNE1.3	N1.4	NE1.1	ENE1.0	NNE1.0	NNE0.9	E0.2	SSW0.8	S1.6	SSW2.4	SSW2.1	S3.2	S2.5	S2.2	S2.3	SSE1.7	SE1.5	SE2.2	ESE2.3	ESE2.0	SE1.5	ESE1.6	Diurnal Average	
WNW25	WNW29	WNW29	NNW24	NNW23	NNW21	WNW21	NW29	NW36	NNW34	NNW29	NNW34	NNW28	NNW27	W24	SSE21	SSE20	SSE21	NNW18	NNW20	NNW20	W23	WNW29	WNW27	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
Leismer - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Leismer - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	129	17.36	17.36
6 - 11	308	41.45	58.82
12 - 19	240	32.30	91.12
20 - 28	58	7.81	98.92
29 - 38	8	1.08	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
Leismer - March 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	5	9	9	8	9	8	16	9	17	6	5	8	6	4	5	129
6 - 11	13	18	21	21	40	30	29	24	31	43	6	4	10	8	2	8	308
12 - 19	25	3	0	8	32	19	18	24	28	25	2	2	4	11	14	25	240
20 - 28	2	0	0	0	0	0	0	9	3	0	0	0	8	12	10	14	58
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	45	26	30	38	80	58	55	73	71	85	14	11	30	40	32	55	743

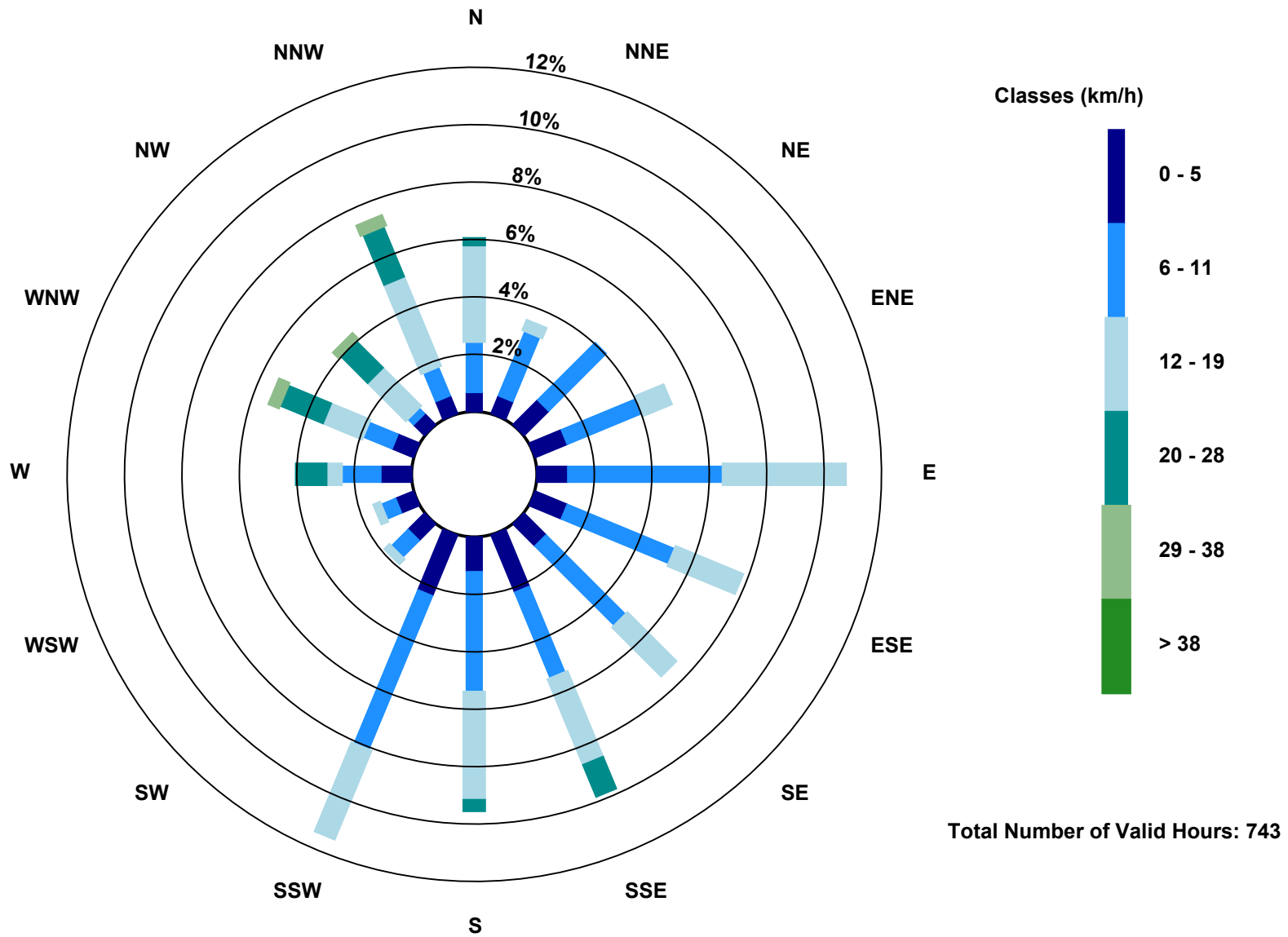
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Leismer





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Leismer - March 2024

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



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction (WD) - deg

Leismer - March 2024

Direction of Maximum Speed: 326 deg on Mar 15 09:00																	Hours in Service:		744
Direction of Maximum Daily Speed Average: 155.8 deg on Mar 26																	Hours of Data:		743
Direction of Minimum Speed: 155 deg on Mar 30 06:00																	Hours of Missing Data:		1
Direction of Minimum Daily Speed Average: 2.6 deg on Mar 23																	Percent Operational Time:		99.9
Monthly Average Direction: 143.3 deg																			

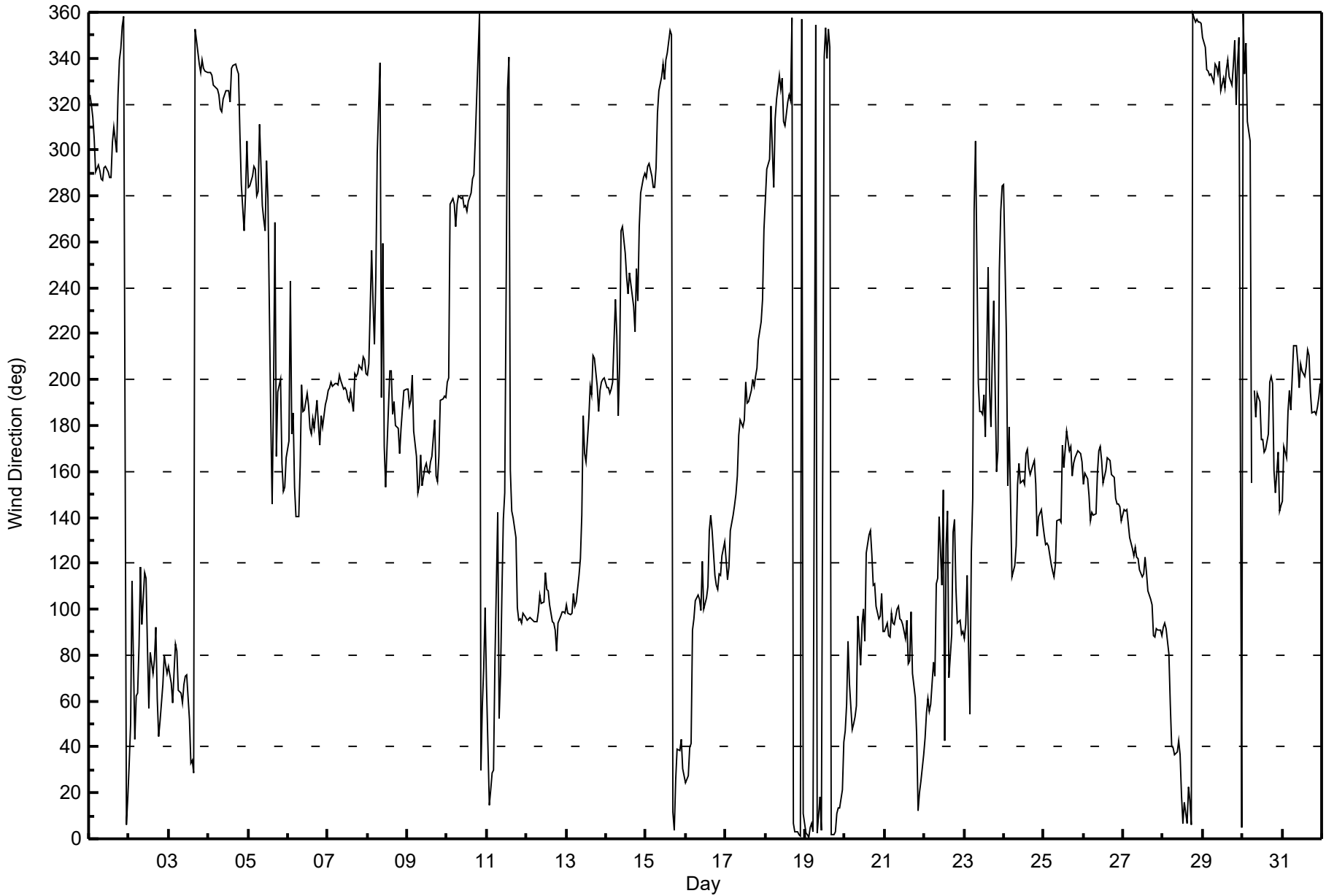
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	324	320	314	305	291	294	291	287	287	293	293	290	288	288	303	310	299	324	339	344	354	358	6	18	304.8
2-Mar	33	50	112	43	62	64	84	118	93	116	113	83	57	81	72	78	92	61	45	51	67	80	76	72	74.2
3-Mar	75	68	59	73	85	82	65	63	59	67	71	71	52	33	34	29	353	348	337	334	339	335	334	334	21.9
4-Mar	334	334	333	328	328	326	324	318	317	322	326	326	326	321	335	337	337	335	333	307	285	265	280	304	325.4
5-Mar	284	284	289	293	291	280	282	311	276	270	265	295	279	184	146	194	269	166	195	200	164	151	153	166	255.6
6-Mar	173	243	176	186	153	140	140	162	198	186	186	194	188	179	176	183	179	191	180	171	184	179	189	191	182.4
7-Mar	195	197	199	197	199	199	198	202	200	196	196	195	192	190	195	186	203	201	202	206	204	210	209	203	198.2
8-Mar	202	207	256	233	215	245	298	338	192	259	171	153	171	204	204	185	190	180	179	168	179	187	195	196	191.2
9-Mar	196	188	191	202	178	167	151	154	167	154	162	164	160	159	164	166	182	158	156	167	191	192	193	192	170.1
10-Mar	199	201	276	279	276	267	276	280	279	279	275	276	273	277	281	287	290	305	323	359	30	58	74	101	282.8
11-Mar	66	15	21	29	30	77	142	53	72	107	139	150	326	341	160	143	140	131	101	95	96	94	98	96	89.8
12-Mar	95	96	96	96	95	95	95	99	106	103	103	116	108	108	102	95	94	91	82	94	97	99	99	98	98.7
13-Mar	102	98	98	98	107	101	103	115	122	141	184	168	164	183	197	194	210	209	197	186	195	199	200	201	160.0
14-Mar	197	197	194	196	199	235	219	184	207	265	267	255	245	238	247	241	232	221	249	234	267	281	288	290	255.5
15-Mar	288	293	294	288	284	284	293	316	326	332	337	331	339	343	352	350	12	4	25	39	39	43	30	27	324.9
16-Mar	24	27	40	41	91	96	104	106	105	100	121	100	105	110	134	141	134	114	110	109	116	114	124	129	108.7
17-Mar	122	113	119	134	141	145	150	158	176	182	179	183	199	190	190	196	200	197	201	205	217	225	235	266	185.0
18-Mar	278	291	296	319	299	284	314	322	332	327	332	312	311	321	324	321	358	7	3	3	2	1	357	11	329.5
19-Mar	2	2	1	5	7	3	354	2	10	18	4	340	353	340	353	345	2	2	3	11	13	14	21	42	1.4
20-Mar	47	59	86	67	48	50	53	58	97	75	93	100	86	124	133	134	124	110	111	101	96	97	107	90	93.6
21-Mar	90	94	88	88	98	94	94	100	101	96	95	93	87	95	76	77	99	72	62	45	12	20	25	37	81.9
22-Mar	44	55	61	56	58	77	71	111	114	140	110	152	43	128	143	70	89	134	139	109	94	95	89	90	92.3
23-Mar	88	94	115	54	124	148	274	304	198	186	186	185	193	175	249	196	180	212	234	160	169	248	273	284	181.9
24-Mar	285	220	154	180	147	114	119	127	154	164	155	156	155	168	169	162	159	163	165	154	132	140	144	137	155.1
25-Mar	132	128	129	128	119	116	114	120	138	139	138	171	162	170	178	169	171	158	163	166	169	168	168	164	155.0
26-Mar	154	160	157	149	138	142	141	142	159	169	171	165	155	160	166	165	165	159	158	148	146	146	145	139	155.8
27-Mar	143	143	143	138	131	126	123	127	123	122	117	114	115	123	116	108	105	102	89	88	91	91	91	89	116.7
28-Mar	92	94	91	80	59	41	39	36	38	43	36	19	7	16	7	22	16	6	360	356	357	356	356	355	23.5
29-Mar	349	345	335	334	332	333	330	337	337	333	339	326	331	327	335	339	332	328	337	348	320	338	349	5	335.3
30-Mar	360	333	347	312	304	155	UO	195	184	194	190	174	174	168	170	176	199	201	198	161	151	168	143	145	178.4
31-Mar	147	171	166	186	195	187	201	215	215	207	196	207	204	201	206	213	210	195	185	186	185	188	192	198	195.8

70.5 41.9 22.4 9.3 39.3 63.0 29.3 17.6 90.7 209.0 176.6 201.7 198.6 189.0 187.9 184.4 177.8 150.1 133.9 124.2 119.6 123.0 124.5 109.7

Diurnal Average

UO - Unstable Operation

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Leismer - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Mar 23 15:00 Minimum Value: 7 deg on Mar 31 00:00 Percentiles: P ₁ = 9 P ₁₀ = 11 Q ₁ = 14 Median = 18 Q ₃ = 24 P ₉₀ = 36 P ₉₉ = 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-Mar	12	10	14	15	11	12	11	10	11	13	15	13	15	18	23	22	20	10	10	11	13	15	25	8	25
2-Mar	10	19	71	22	21	23	31	25	23	19	24	35	35	36	31	29	28	26	23	25	26	25	25	24	71
3-Mar	25	23	23	27	22	23	27	28	25	24	27	27	28	23	21	20	23	14	11	10	11	10	9	11	28
4-Mar	10	11	11	9	10	11	10	10	10	12	13	14	17	17	16	13	11	9	15	15	19	12	19	19	
5-Mar	10	10	17	9	17	10	18	28	66	20	52	22	69	48	66	66	73	93	18	46	13	11	12	14	93
6-Mar	25	68	59	37	32	94	59	34	65	20	28	21	27	24	21	20	19	17	14	11	12	13	13	14	94
7-Mar	13	13	14	14	13	12	11	10	17	19	22	20	19	19	21	19	22	18	17	19	15	18	17	13	22
8-Mar	11	10	36	45	15	20	49	73	53	61	25	20	27	26	24	22	18	15	14	12	15	14	14	13	73
9-Mar	14	13	13	9	13	23	10	10	14	12	15	19	15	14	16	15	21	10	9	12	18	14	19	14	23
10-Mar	14	19	26	12	16	29	13	12	12	13	18	20	18	22	17	13	13	18	16	36	16	20	22	34	36
11-Mar	25	18	16	19	19	41	27	45	35	29	22	34	31	85	70	37	22	18	12	14	15	16	14	14	85
12-Mar	15	14	14	15	16	15	17	15	16	17	21	19	19	23	24	24	23	18	19	18	16	16	17	17	24
13-Mar	15	15	14	15	19	17	18	24	18	27	58	60	62	35	33	25	24	21	13	12	14	14	14	14	62
14-Mar	13	13	14	11	22	74	54	40	44	23	24	31	33	34	36	37	29	24	33	32	26	14	8	9	74
15-Mar	10	10	9	9	11	9	12	12	13	14	18	16	19	18	19	20	22	24	24	16	16	17	21	29	29
16-Mar	20	17	26	15	25	22	17	20	22	26	32	62	68	59	40	21	22	15	15	16	18	15	19	16	68
17-Mar	16	17	15	15	11	9	9	17	16	19	20	20	21	21	20	20	20	17	18	19	24	28	30	29	30
18-Mar	15	9	15	14	17	12	11	13	17	16	20	14	17	19	18	13	19	18	19	18	20	18	17	18	20
19-Mar	19	19	18	18	19	19	19	22	20	24	26	25	25	25	29	29	23	19	16	16	17	21	18	16	29
20-Mar	22	23	29	26	17	15	16	17	30	52	69	55	77	75	55	63	31	19	15	13	15	15	15	18	77
21-Mar	15	15	17	17	15	17	17	16	18	20	21	22	25	26	28	37	30	31	21	16	13	14	11	13	37
22-Mar	17	17	19	15	15	18	24	46	21	39	68	63	84	85	59	83	83	60	13	14	14	13	15	13	85
23-Mar	14	14	26	39	61	35	58	67	30	28	38	63	58	52	100	73	59	71	27	26	19	40	26	10	100
24-Mar	10	20	30	22	24	12	13	17	18	20	15	18	16	20	20	19	22	14	11	14	12	11	13	30	30
25-Mar	15	15	14	13	12	13	14	17	17	18	22	21	19	18	24	21	18	14	14	15	15	15	14	14	24
26-Mar	11	11	12	13	13	12	13	13	15	17	18	17	16	17	17	17	16	13	13	15	14	14	14	15	18
27-Mar	15	14	14	14	16	17	17	18	17	18	17	16	16	18	15	18	17	17	19	19	18	19	19	19	19
28-Mar	19	18	19	22	23	17	16	17	26	30	33	26	20	18	19	22	20	19	14	14	15	15	16	15	33
29-Mar	15	12	9	7	8	10	9	11	12	15	18	13	18	17	15	13	17	15	13	21	45	13	14	14	45
30-Mar	25	16	13	26	25	74	UO	38	29	25	27	27	29	23	22	24	27	27	17	14	15	13	9	7	74
31-Mar	8	10	10	11	13	13	15	25	29	30	26	24	24	24	24	27	26	18	16	17	17	18	17	19	30
Diurnal Maximum																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS505
SAWBONES BAY
MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)
MARCH 2024

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

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	707	35	37	99.73	14.8	0	2.9	0
H2S (ppb) Average	656	34	88	92.74	1	0	0.4	0
NO2 (ppb) Average	706	36	38	99.73	33.3	0	9.9	-
NO (ppb) Average	706	36	38	99.73	12.7	-	2.2	-
NOX (ppb) Average	706	36	38	99.73	39.1	-	11.3	-
Temperature 2 m (C) Average	744	0	0	100	11.7	-	3.9	-
Relative Humidity (%) Average	703	0	41	94.49	96.8	-	82.4	-
Wind Speed 10 m (km/h) Average	744	0	0	100	29	-	18	-
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)
MARCH 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	0.64	1.3	-	0	0	0.1	0.2	0.7	1.6	14.8
H2S (ppb) Average	656	0.1	0.1	-	0	0	0.1	0.1	0.1	0.1	1
NO2 (ppb) Average	706	2.88	4	-	0	0.1	0.3	1.4	3.8	7.3	33.3
NO (ppb) Average	706	0.47	1.2	-	0	0	0	0	0.3	1.4	12.7
NOX (ppb) Average	706	3.35	4.9	-	0	0.1	0.3	1.5	4.3	8.8	39.1
Temperature 2 m (C) Average	744	-7.69	9.2	-	-30	-20.9	-15	-7.3	-1	4.9	11.7
Relative Humidity (%) Average	703	60.54	16.4	-	25.5	37	48.1	62	74.7	80.4	96.8
Wind Speed 10 m (km/h) Average	744	10.9	5	-	1	5	7	10	15	18	29
Wind Direction 10 m (deg) Average	744	92.6	0	-	0	-	-	-	-	-	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SAWBONES BAY (AMS505)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, SO2	19 Mar 2024 10:00	19 Mar 2024 11:00	2	Maintenance - sample manifold cleaned
H2S	16 Mar 2024 07:00	16 Mar 2024 10:00	4	Unstable Operations - H2S converter offline
H2S	16 Mar 2024 11:00	16 Mar 2024 12:00	2	Station power failure
H2S	16 Mar 2024 13:00	18 Mar 2024 10:00	46	Unstable Operations - H2S converter offline
H2S	18 Mar 2024 11:00	18 Mar 2024 12:00	2	Maintenanec - H2S converter reset
Relative Humidity	11 Mar 2024 07:00	11 Mar 2024 10:00	4	Sensor operated out of range
Relative Humidity	13 Mar 2024 22:00	14 Mar 2024 08:00	11	Sensor operated out of range
Relative Humidity	27 Mar 2024 20:00	28 Mar 2024 08:00	13	Sensor operated out of range
Relative Humidity	28 Mar 2024 21:00	29 Mar 2024 09:00	13	Sensor operated out of range



Wood Buffalo Environmental Association
Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb
Sawbones Bay - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.8 ppb on Mar 15 00:00	Maximum Daily Average: 2.9 ppb on Mar 10		Hours of Data:	707
Minimum Value: 0.0 ppb on Mar 3 07:00	Minimum Daily Average: 0.0 ppb on Mar 27		Hours of Missing Data:	37
Maximum Diurnal Average: 1.1 ppb at hour 2	Minimum Diurnal Average: 0.4 ppb at hour 19		Hours of Calibration:	35
Monthly Average: 0.64 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.7 P ₉₀ = 1.6 P ₉₉ = 5.9		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-Mar	0.4	Z	0.3	0.1	0.2	0.1	0.0	0.1	0.3	0.3	0.1	0.4	1.0	0.3	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	1.0	
2-Mar	0.1	0.1	Z	0.1	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.0	0.2	0.2	0.2	0.3	0.9
3-Mar	0.2	0.1	0.1	Z	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.4	2.4	2.5	2.6	0.4	2.6	
4-Mar	2.1	1.7	1.3	2.2	Z	2.3	2.5	2.1	2.1	2.0	1.7	1.3	1.0	0.8	1.0	0.7	0.8	1.1	1.0	1.5	2.3	3.3	2.6	4.6	1.8	4.6	
5-Mar	2.1	5.4	8.9	5.6	2.8	Z	1.5	1.0	1.2	0.6	1.3	4.0	2.8	2.2	1.3	0.9	0.6	0.2	0.1	0.0	0.0	0.1	0.1	1.9	8.9	8.9	
6-Mar	Z	0.4	0.4	0.3	0.3	0.4	0.5	0.8	1.3	1.7	1.2	0.9	0.6	0.4	0.6	0.4	0.4	0.4	0.5	0.4	0.3	0.2	0.1	0.2	0.5	1.7	
7-Mar	0.3	Z	0.4	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.7	0.9	0.3	0.9	
8-Mar	0.7	0.9	Z	1.4	1.2	0.5	0.2	0.3	0.7	2.3	4.5	3.4	2.3	1.0	0.8	0.6	0.3	0.1	0.1	0.2	0.6	0.7	1.0	0.8	1.1	4.5	
9-Mar	0.8	0.6	0.6	Z	0.6	0.8	1.3	1.5	1.2	1.0	0.8	0.7	0.5	0.7	0.6	0.7	0.7	0.8	0.7	1.1	0.4	0.7	0.7	0.7	0.8	1.5	
10-Mar	0.5	0.7	0.7	0.8	Z	1.6	4.8	10.6	8.3	5.0	4.5	5.2	7.5	3.6	3.0	4.9	3.7	0.4	0.3	0.0	0.0	0.0	0.1	0.1	2.9	10.6	
11-Mar	0.0	0.0	0.0	0.1	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
12-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
13-Mar	0.0	Z	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.2	1.3	3.8	1.8	0.8	0.8	1.0	1.2	1.2	1.7	1.8	0.7	0.6	0.6	0.5	0.8	3.8	
14-Mar	1.0	1.5	Z	1.2	1.2	1.2	0.9	1.0	1.0	1.5	1.1	1.1	1.9	1.4	1.6	1.2	1.0	0.6	1.1	2.5	2.7	1.8	4.0	14.8	2.1	14.8	
15-Mar	9.1	7.9	1.4	Z	0.5	1.3	0.1	0.1	0.2	0.3	0.5	1.5	0.9	2.2	1.5	1.2	2.0	2.4	1.2	0.2	0.1	0.0	0.1	0.0	1.5	9.1	
16-Mar	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
17-Mar	0.0	0.0	0.0	0.0	0.4	Z	0.6	0.7	0.6	0.7	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.8	1.8	1.8	0.5	1.8	
18-Mar	Z	5.9	0.5	0.3	0.1	0.3	0.4	0.4	0.6	C	C	C	C	1.1	1.4	1.9	1.4	1.6	1.8	0.0	0.0	0.0	0.1	0.3	1.0	5.9	
19-Mar	0.0	Z	0.6	0.0	0.0	0.0	0.0	0.0	0.0	M	M	0.0	0.8	0.8	0.3	0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.8	
20-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.2	
21-Mar	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	
22-Mar	0.2	0.1	0.0	0.1	Z	0.0	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.5	0.6	0.9	0.6	0.5	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.9	
23-Mar	0.2	0.1	0.2	0.2	0.2	Z	0.1	0.3	1.2	2.6	0.5	0.2	0.2	0.4	0.4	0.5	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.2	0.5	2.6	
24-Mar	Z	0.5	0.5	0.5	0.4	0.4	0.3	0.3	0.4	0.5	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.4	0.3	0.4	0.3	0.1	0.1	0.2	0.3	0.5	
25-Mar	0.2	Z	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.2	0.2	0.4	0.5	0.2	0.5	
26-Mar	0.5	0.3	Z	0.3	0.1	0.1	0.1	0.1	0.2	0.5	0.2	0.2	0.3	0.3	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.0	0.0	0.2	0.5	
27-Mar	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	
28-Mar	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	
29-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.4	0.4	0.4	0.2	0.2	0.2	0.2	0.4	0.9	1.2	0.2	0.2	0.3	1.1	1.9	2.3	1.8	1.9	0.6	2.3	
30-Mar	Z	1.5	1.3	1.8	1.1	0.5	0.6	0.7	1.5	2.4	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.0	0.0	0.0	0.1	0.1	0.4	0.6	2.4	
31-Mar	0.3	Z	0.6	0.7	0.9	1.0	0.9	0.8	1.5	3.0	3.0	1.1	0.8	1.0	1.0	0.6	0.5	0.5	0.4	0.6	0.4	0.3	0.1	0.1	0.9	3.0	

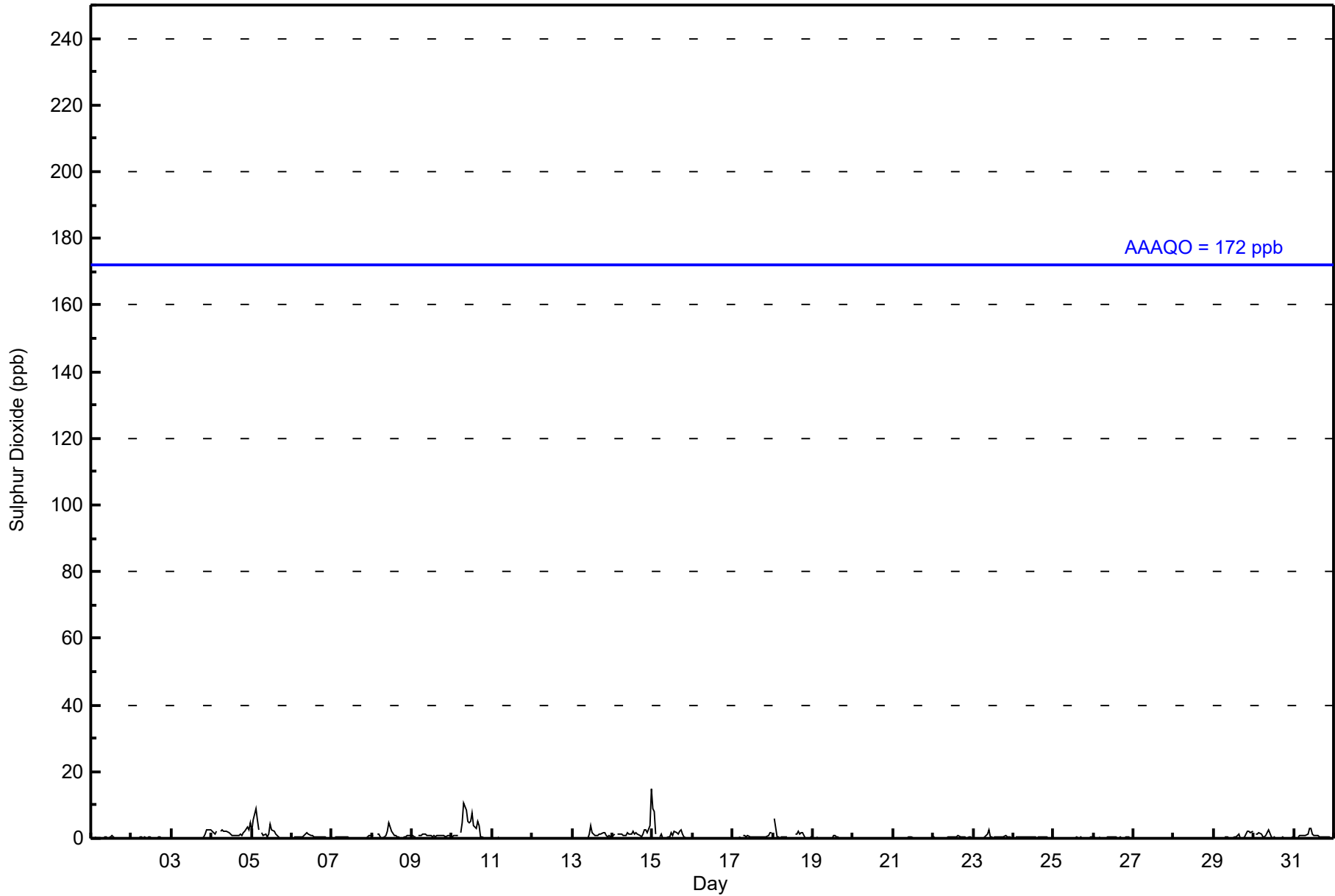
0.7	1.1	0.7	0.6	0.4	0.4	0.5	0.7	0.8	0.9	0.8	0.9	0.8	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	1.0	Diurnal Average	
9.1	7.9	8.9	5.6	2.8	2.3	4.8	10.6	8.3	5.0	4.5	5.2	7.5	3.6	3.0	4.9	3.7	2.4	1.8	2.5	2.7	3.3	4.0	14.8	Diurnal Maximum		

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Sawbones Bay - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Sawbones Bay - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	705	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: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Sawbones Bay - March 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	59	86	27	28	40	26	46	110	95	47	20	6	17	42	29	27	705
11 - 20	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	59	86	27	28	40	26	46	110	95	47	20	8	17	42	29	27	707

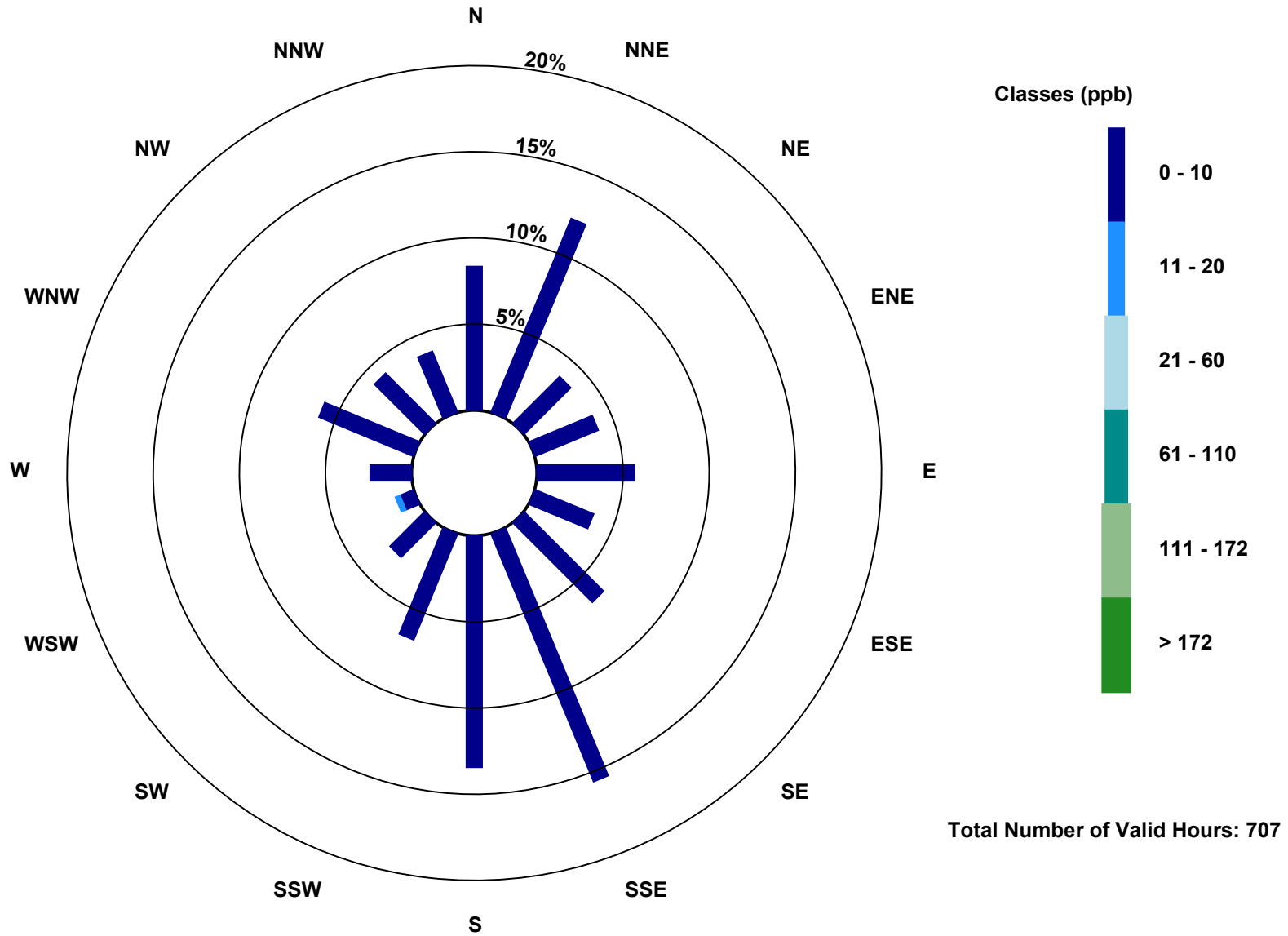
Total Number of Valid Hours: 707

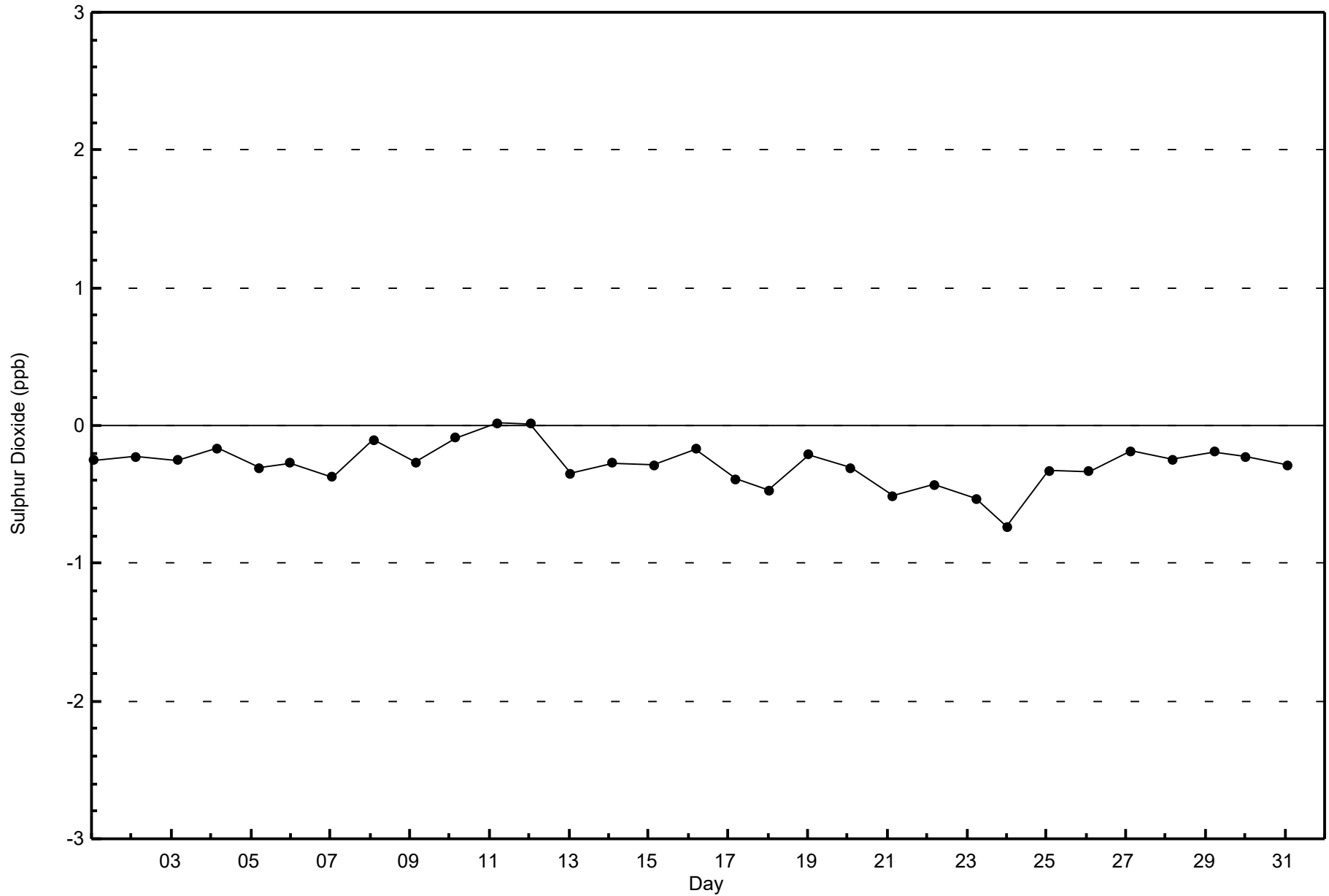
Total Number of Hours: 744

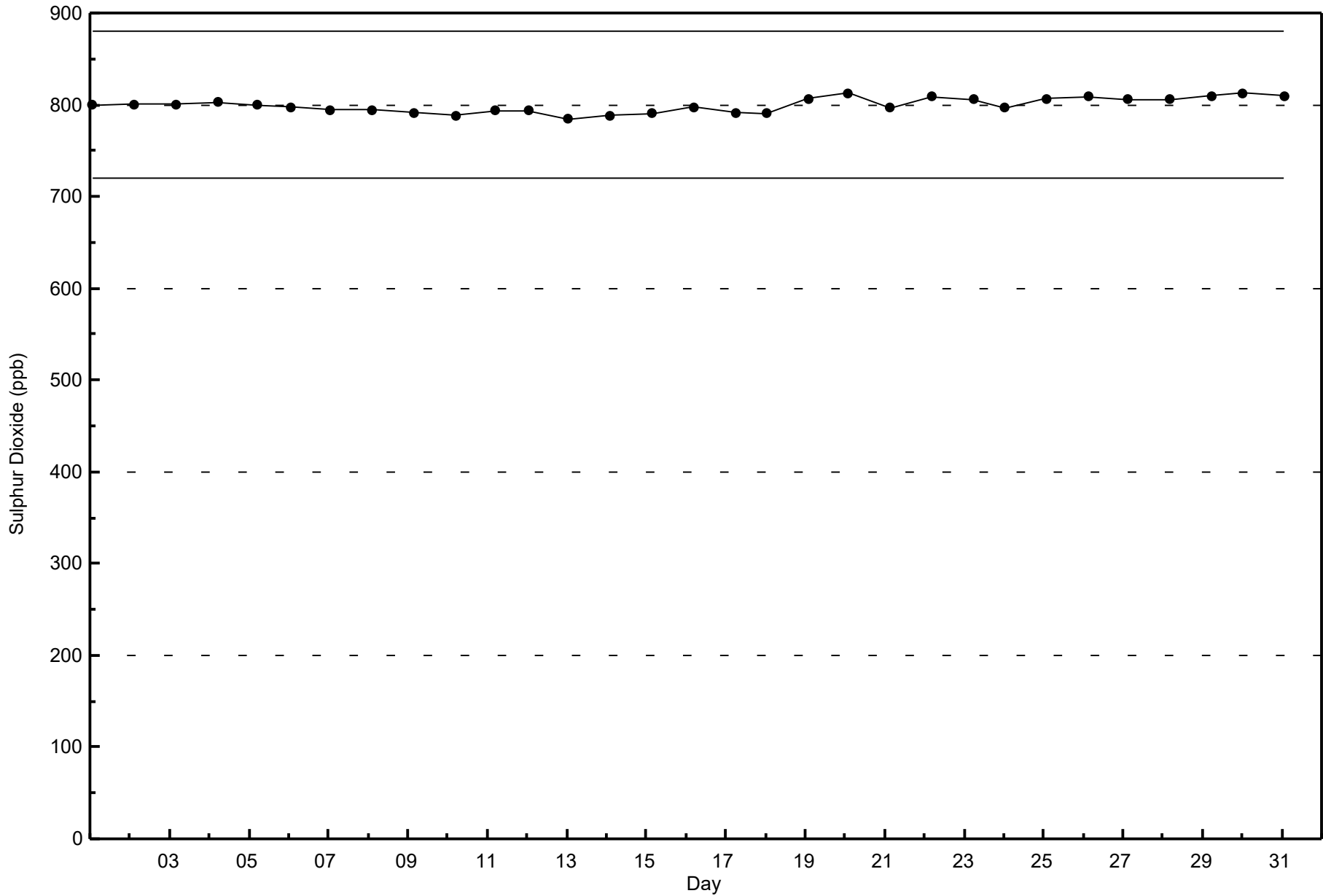


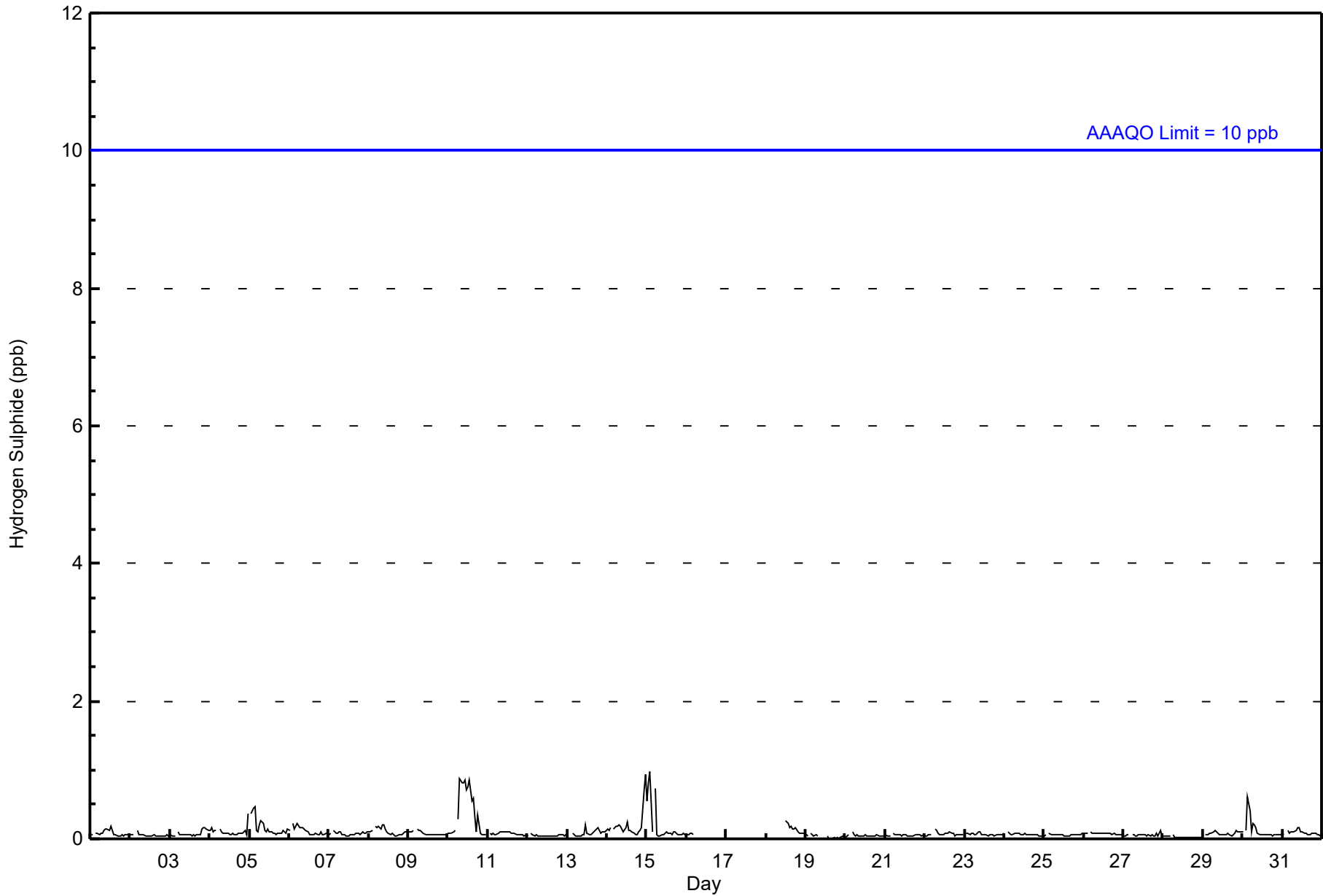
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Sulphur Dioxide (SO₂) - ppb
Sawbones Bay











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Sawbones Bay - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	656	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: 656

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Sawbones Bay - March 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	56	72	27	27	37	26	41	106	85	45	18	8	14	38	30	26	656
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
Totals	56	72	27	27	37	26	41	106	85	45	18	8	14	38	30	26	656

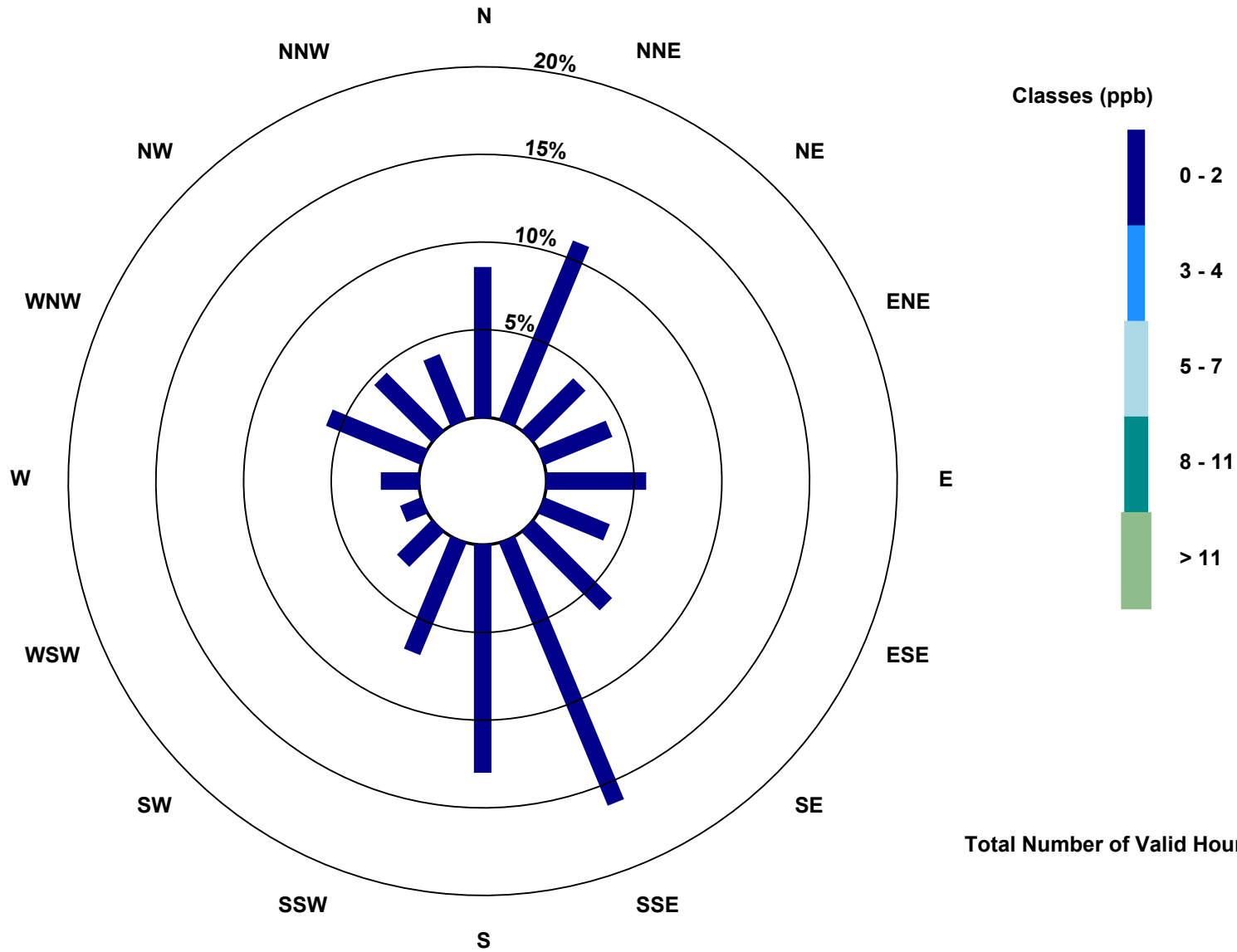
Total Number of Valid Hours: 656

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Sawbones Bay

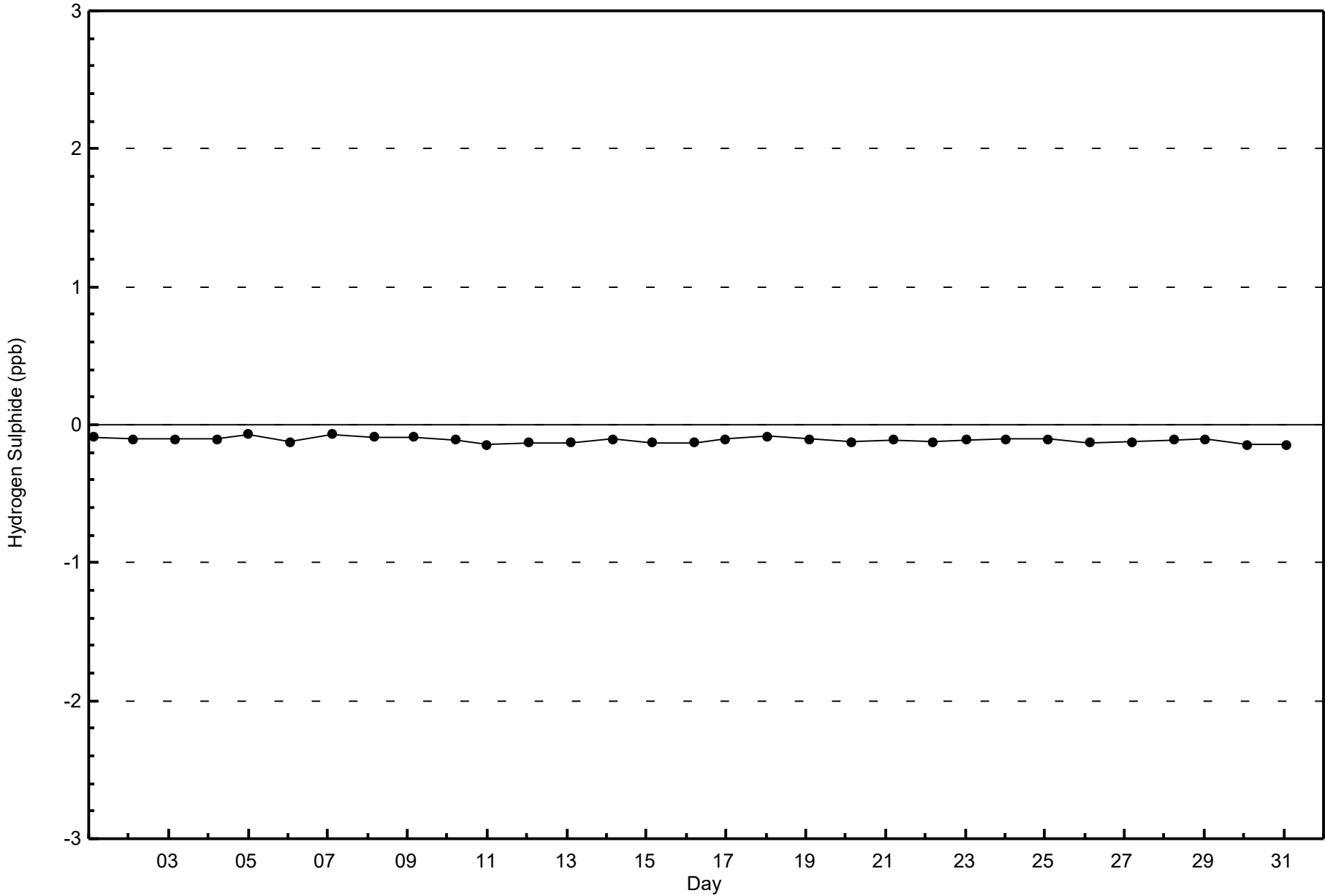


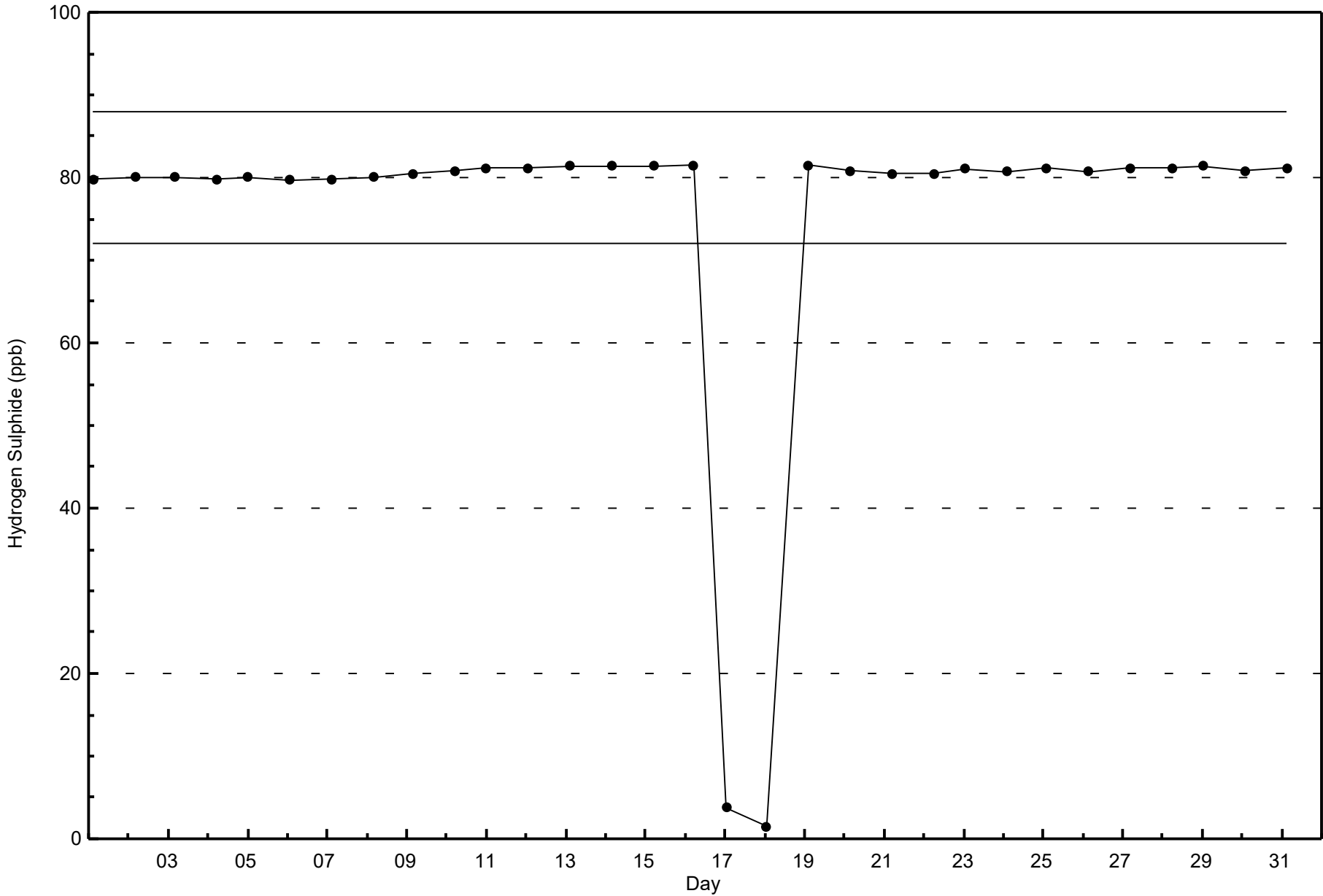
Total Number of Valid Hours: 656



Wood Buffalo Environmental Association
Zero Responses

Hydrogen Sulphide (H₂S) - ppb
Sawbones Bay - March 2024







Wood Buffalo Environmental Association
Summary of Hour Averages

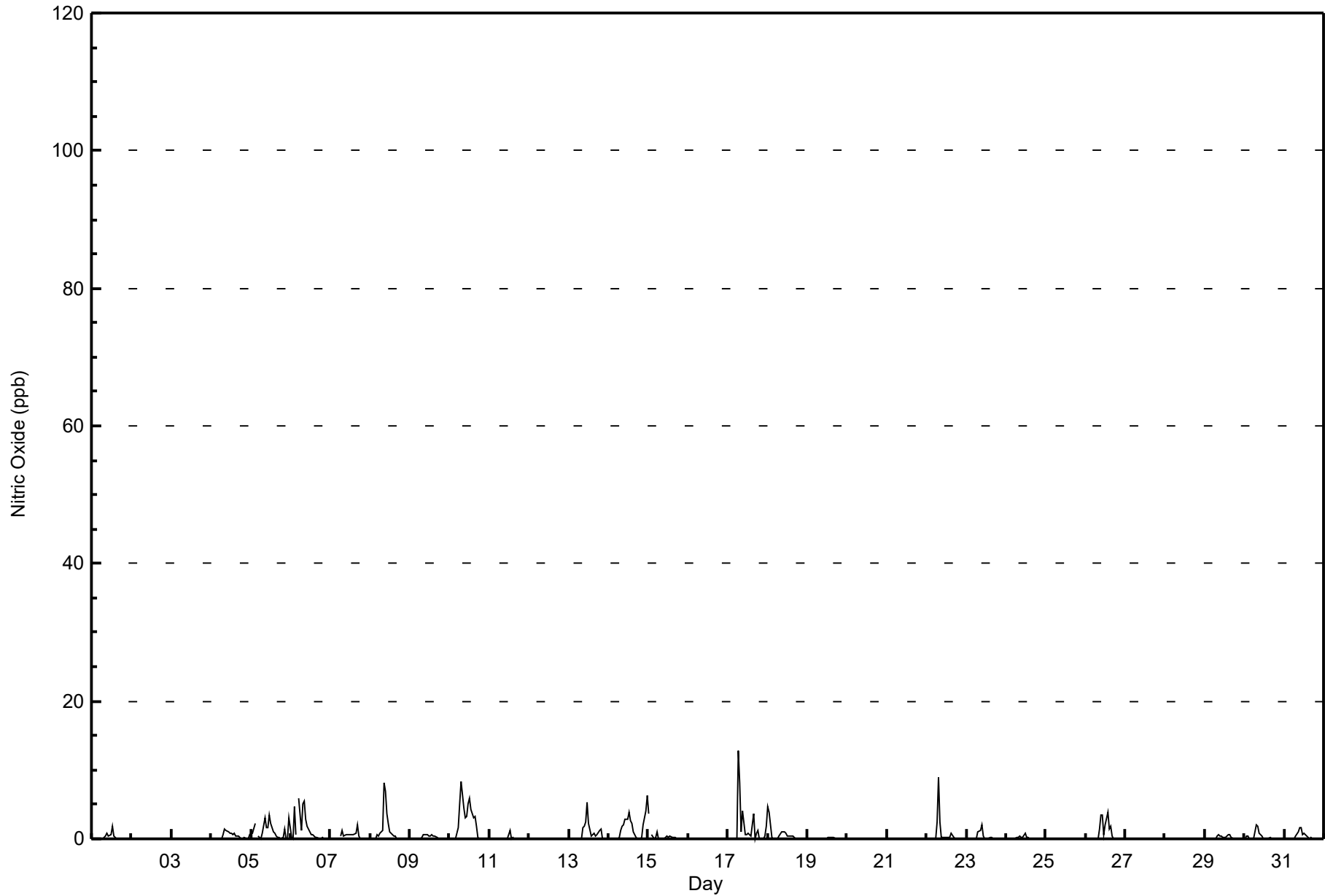
Nitric Oxide (NO) - ppb
Sawbones Bay - March 2024

Maximum Value: 12.7 ppb on Mar 17 07:00		Maximum Daily Average: 2.2 ppb on Mar 10		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 3		Hours of Data: 706																																												
Maximum Diurnal Average: 1.3 ppb at hour 8		Minimum Diurnal Average: 0.0 ppb at hour 4		Hours of Missing Data: 38																																												
Monthly Average: 0.47 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.3 P ₉₀ = 1.4 P ₉₉ = 5.9		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-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.5	0.8	0.4	0.7	1.8	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8																						
2-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																					
4-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.6	1.5	1.2	1.1	0.9	0.8	0.6	0.9	0.3	0.4	0.2	0.0	0.1	0.1	0.0	0.0	0.6	0.4	1.5																						
5-Mar	0.7	0.8	2.1	Z	0.3	0.1	0.1	0.9	3.0	1.7	1.7	3.6	2.3	1.0	0.8	0.4	0.2	0.3	0.0	0.2	1.5	0.0	0.0	3.1	1.1	3.6																						
6-Mar	0.3	0.0	4.8	0.6	Z	5.8	1.3	5.0	5.5	2.8	1.8	1.0	0.5	0.6	0.4	0.3	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	1.4	5.8																						
7-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.3	1.3	0.3	0.6	0.5	0.6	0.6	0.6	0.7	0.8	2.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.1																						
8-Mar	Z	0.0	0.0	0.0	0.7	0.3	0.8	1.2	8.2	7.0	3.6	2.3	1.1	0.6	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	8.2																						
9-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7																						
10-Mar	0.0	0.0	Z	0.0	0.7	1.6	5.1	8.3	4.4	3.1	3.2	5.2	5.9	4.3	3.1	3.2	1.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.2	8.3																						
11-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1																						
12-Mar	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																						
13-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	1.6	1.9	2.4	5.3	2.3	0.4	0.5	0.8	0.4	0.7	1.1	1.5	0.0	0.0	0.0	0.0	0.8	5.3																						
14-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.2	1.1	1.9	2.1	2.8	2.8	3.8	2.7	2.2	0.9	0.3	0.0	0.0	0.1	0.2	2.1	4.1	6.3	1.5	6.3																						
15-Mar	3.7	Z	0.7	0.1	0.1	1.0	0.1	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.7																						
16-Mar	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-Mar	0.0	0.0	0.0	Z	0.0	0.0	12.7	8.1	1.0	4.1	0.5	0.7	0.7	0.5	0.4	3.6	0.1	0.8	1.2	0.0	0.0	0.0	0.5	1.8	1.6	12.7																						
18-Mar	4.6	3.8	0.1	0.0	Z	0.0	0.1	0.3	1.0	1.1	1.0	0.8	0.4	0.4	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	4.6																						
19-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	M	M	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
20-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
21-Mar	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-Mar	0.0	0.0	Z	0.0	0.0	0.0	2.5	8.9	2.4	0.1	0.2	0.1	0.2	0.2	0.1	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	8.9																						
23-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	1.1	1.3	1.9	0.3	0.1	0.1	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9																						
24-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.1	0.3	0.2	0.1	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																						
25-Mar	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																						
26-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.4	3.5	0.6	2.0	3.8	1.4	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	3.8																						
27-Mar	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																						
28-Mar	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																						
29-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.5	0.5	0.3	0.2	0.2	0.4	0.5	0.5	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.5																						
30-Mar	0.0	0.3	0.5	0.0	Z	0.0	1.1	1.9	1.9	0.7	0.5	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	1.9																						
31-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.5	1.0	1.6	1.6	0.7	0.8	0.4	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6																						
																								0.4	0.2	0.3	0.0	0.1	0.4	0.8	1.3	1.3	1.2	0.9	0.9	0.9	0.6	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	Diurnal Average
																								4.6	3.8	4.8	0.6	0.7	5.8	12.7	8.9	8.2	7.0	3.6	5.3	5.9	4.3	3.1	3.6	2.1	0.8	1.2	1.5	1.5	2.1	4.1	6.3	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Sawbones Bay - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Sawbones Bay - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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
Sawbones Bay - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	57	84	28	27	38	27	45	112	94	47	22	7	16	43	30	29	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
Totals	57	84	28	27	38	27	45	112	94	47	22	7	16	43	30	29	706

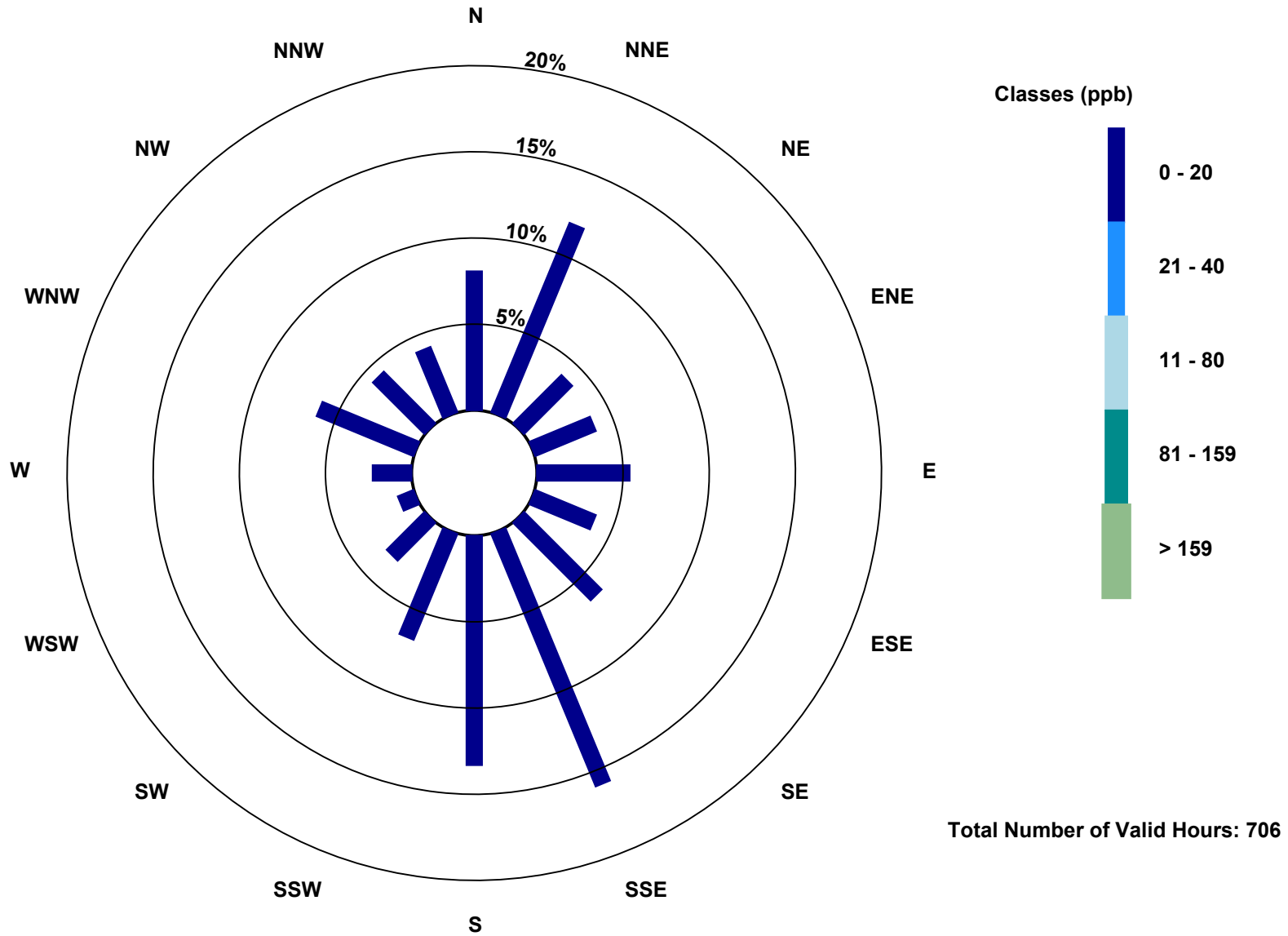
Total Number of Valid Hours: 706

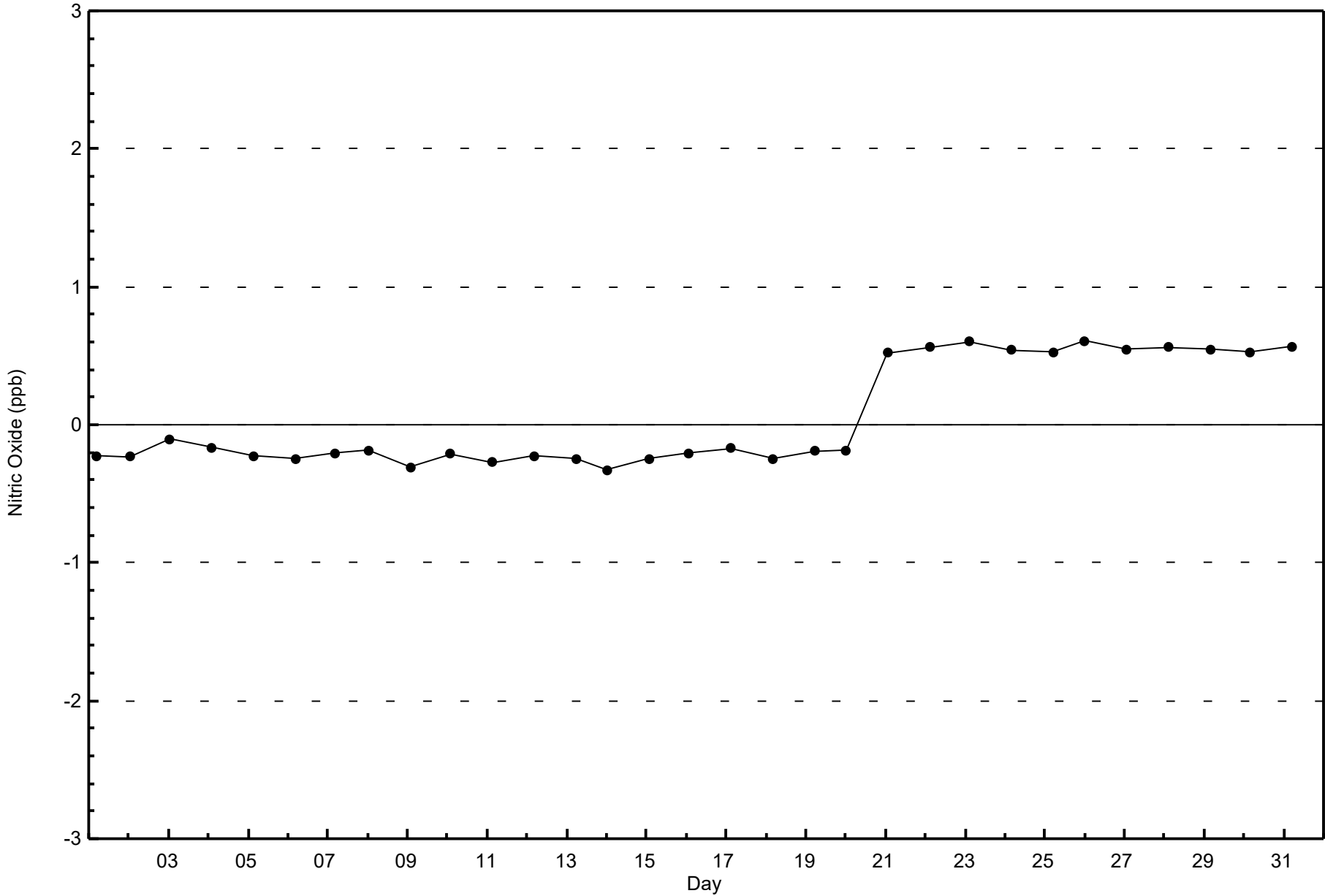
Total Number of Hours: 744

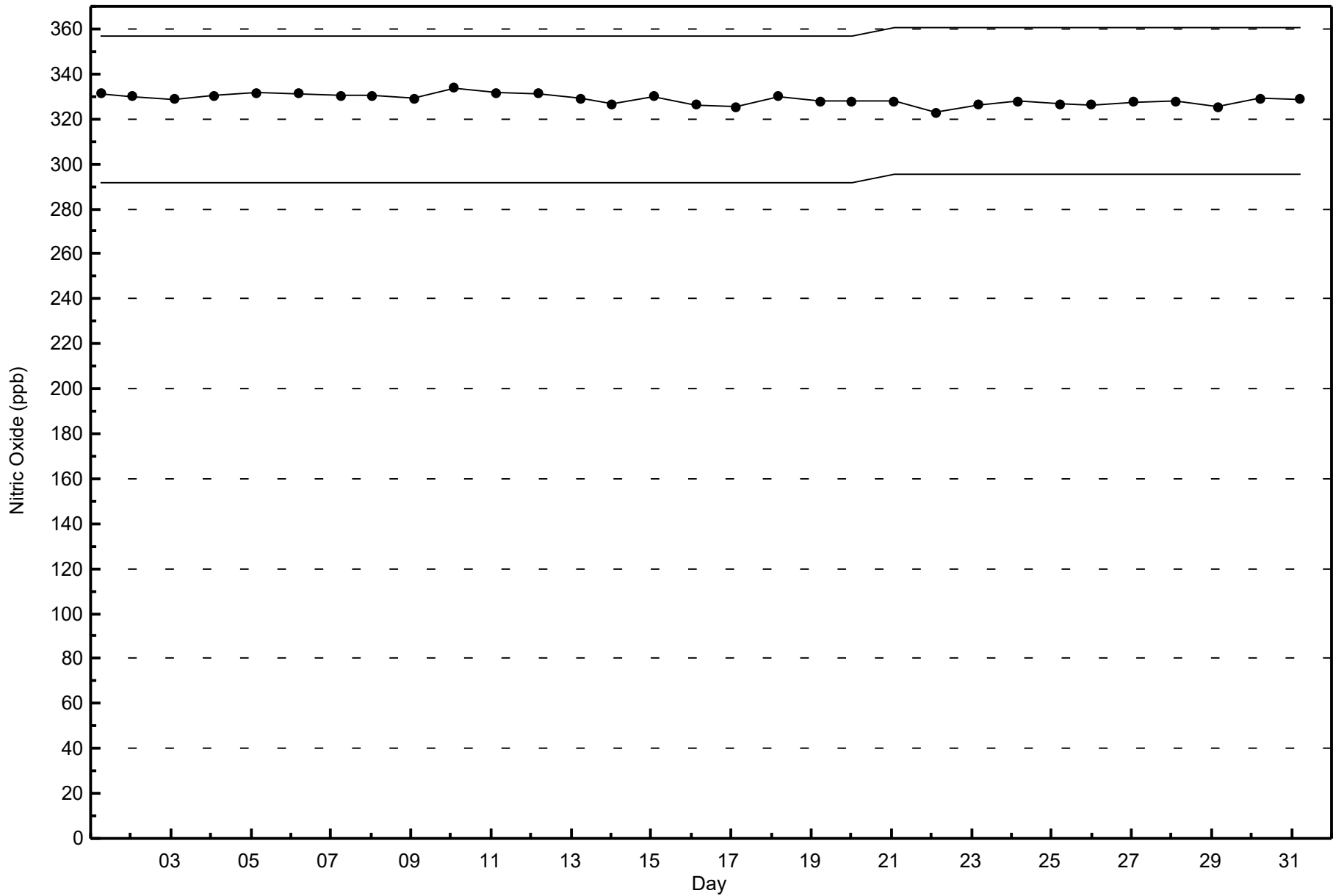


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Sawbones Bay









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Sawbones Bay - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 33.3 ppb on Mar 6 06:00	Maximum Daily Average: 9.9 ppb on Mar 6		Hours of Data:	706
Minimum Value: 0.0 ppb on Mar 2 22:00	Minimum Daily Average: 0.1 ppb on Mar 16		Hours of Missing Data:	38
Maximum Diurnal Average: 5.0 ppb at hour 7	Minimum Diurnal Average: 1.5 ppb at hour 15		Hours of Calibration:	36
Monthly Average: 2.88 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 1.4 Q ₃ = 3.8 P ₉₀ = 7.3 P ₉₉ = 17.7		Percent Operational Time:	99.7

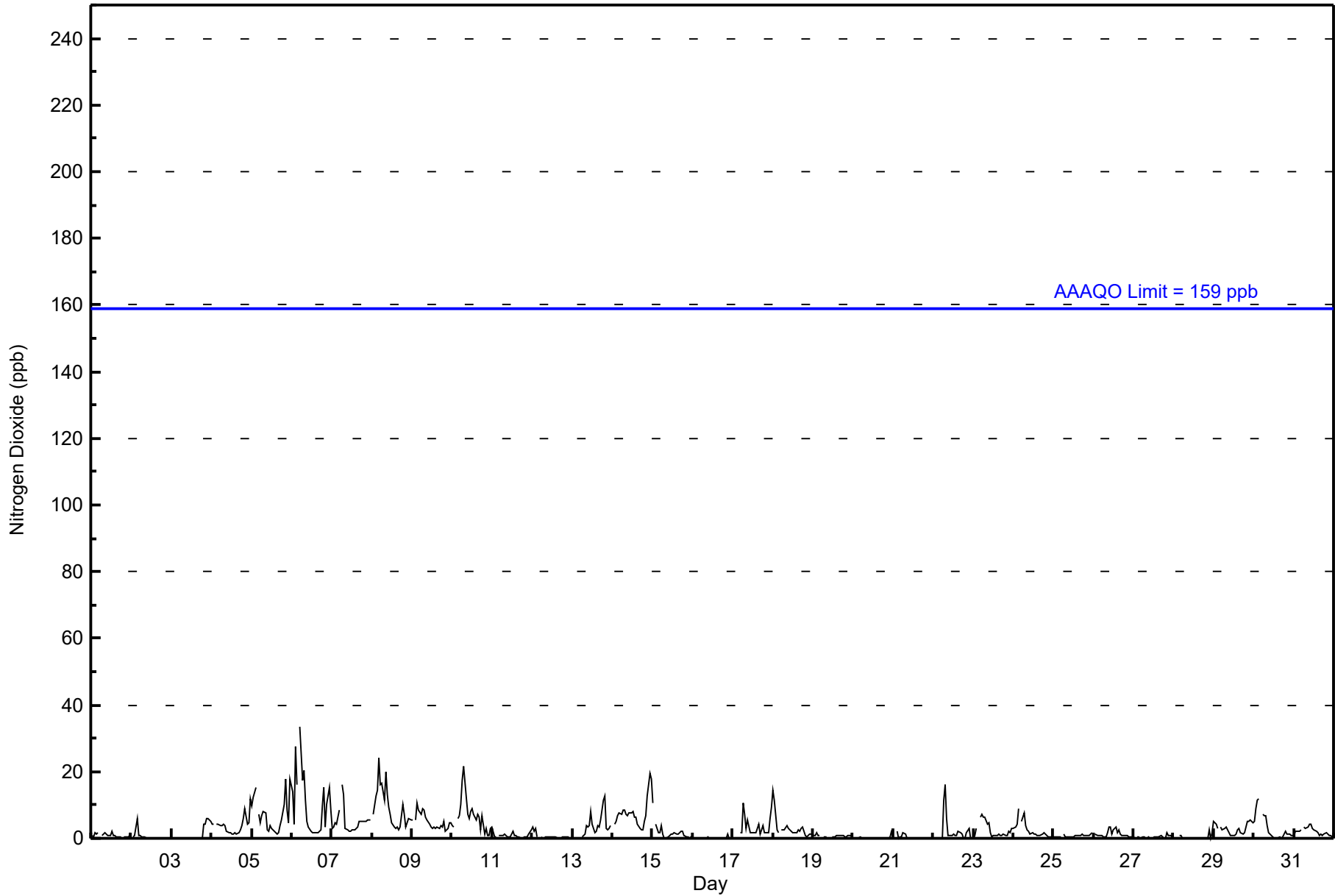
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	0.8	0.6	1.5	1.3	1.6	Z	0.9	1.4	1.5	1.3	0.8	1.0	2.2	0.9	0.7	0.3	0.5	0.5	0.1	0.2	0.5	0.3	0.6	1.6	0.9	2.2																							
2-Mar	Z	0.5	0.8	5.8	1.0	0.7	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.5	5.8																							
3-Mar	0.1	Z	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	0.2	4.2	4.4	6.1	6.0	5.1	1.2	6.1																							
4-Mar	4.4	4.2	Z	4.1	4.2	3.8	4.0	4.4	4.0	2.3	1.7	1.5	1.3	1.2	1.5	1.4	1.7	2.4	3.7	6.1	8.8	4.3	4.8	11.7	3.8	11.7																							
5-Mar	9.8	12.4	15.4	Z	7.1	4.8	6.7	8.1	7.6	2.7	2.2	4.0	3.0	2.1	1.5	1.3	1.5	3.7	5.6	10.2	17.6	8.5	4.6	17.7	6.9	17.7																							
6-Mar	13.9	4.2	27.7	16.2	Z	33.3	17.5	20.2	11.3	5.2	3.5	2.3	1.8	1.7	1.7	1.5	1.8	2.6	9.7	15.2	3.2	10.2	15.3	8.6	9.9	33.3																							
7-Mar	3.0	3.5	4.6	4.2	8.4	Z	15.9	13.1	3.1	2.4	2.3	2.3	2.4	2.5	2.6	3.2	5.0	5.0	5.0	5.0	5.1	5.5	5.6	5.3	5.0	15.9																							
8-Mar	Z	7.3	12.6	14.3	24.1	16.1	16.4	11.4	19.8	13.1	9.4	7.0	4.5	3.5	3.1	3.2	2.6	3.2	10.0	7.2	3.6	4.7	5.8	5.4	9.1	24.1																							
9-Mar	5.5	Z	5.3	10.4	8.3	7.1	8.7	8.4	6.5	5.5	4.2	3.6	3.1	3.3	3.1	3.4	3.1	3.7	3.3	5.0	2.0	2.9	4.5	4.6	5.0	10.4																							
10-Mar	4.0	3.4	Z	5.8	6.7	10.3	17.5	21.8	11.7	7.0	5.9	8.1	8.8	7.3	5.6	7.1	6.4	2.5	6.9	1.4	2.9	0.8	0.8	2.9	6.8	21.8																							
11-Mar	3.6	0.5	0.5	Z	1.0	0.7	0.7	1.4	0.7	0.5	0.5	0.5	2.0	0.7	0.9	0.4	0.3	0.2	0.2	0.3	0.3	0.4	1.4	2.4	0.9	3.6																							
12-Mar	3.2	2.3	2.8	0.4	Z	0.3	0.2	0.2	0.4	0.4	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.6	3.2																							
13-Mar	0.2	0.1	0.2	0.1	0.2	Z	0.6	1.1	3.8	3.2	4.0	8.0	4.2	1.8	2.1	3.8	3.3	5.6	11.6	12.5	3.0	2.5	3.0	3.7	3.4	12.5																							
14-Mar	Z	4.4	5.1	6.9	7.6	7.1	8.3	8.6	7.3	6.6	7.6	7.5	8.1	6.4	6.3	4.3	2.8	2.6	2.4	5.1	6.7	12.9	19.7	17.6	7.5	19.7																							
15-Mar	10.6	Z	4.4	1.5	1.9	4.0	1.3	0.2	0.2	0.5	0.8	1.4	1.1	1.6	1.4	1.2	1.7	2.3	2.2	0.7	0.4	0.3	0.2	0.3	1.7	10.6																							
16-Mar	0.2	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.1	0.0	0.1	0.1	1.1																							
17-Mar	0.0	0.0	0.0	Z	1.8	1.6	10.7	7.0	2.9	5.3	1.8	1.6	1.7	1.7	1.6	4.2	1.4	2.5	3.8	1.7	1.5	1.9	5.8	9.3	3.0	10.7																							
18-Mar	14.4	11.3	2.5	1.6	Z	2.5	2.6	2.6	3.7	2.8	2.4	2.3	1.5	1.5	1.9	2.5	2.3	3.0	3.3	0.7	0.5	0.8	1.1	1.3	3.0	14.4																							
19-Mar	0.7	0.8	1.6	1.0	0.7	Z	0.5	0.3	0.3	M	M	0.4	0.5	0.6	0.7	0.8	0.9	1.0	0.7	0.5	0.6	0.7	0.8	0.6	0.7	1.6																							
20-Mar	Z	0.2	0.0	0.0	0.5	0.0	0.0	0.0	C	C	C	C	C	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.4	2.1	0.2	2.1																							
21-Mar	1.5	Z	2.3	0.2	0.4	0.3	1.6	1.2	0.2	0.2	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	0.4	2.3																							
22-Mar	0.0	0.0	Z	0.0	0.2	0.1	11.3	15.9	5.8	0.8	0.9	0.7	1.1	0.9	0.9	2.0	1.7	1.2	0.1	0.1	1.9	3.1	0.2	0.0	2.1	15.9																							
23-Mar	0.0	0.8	3.1	Z	6.4	7.2	6.2	6.3	4.3	4.8	1.5	0.6	0.7	0.8	1.0	1.1	0.9	1.0	1.1	1.0	1.0	2.3	1.9	2.9	2.5	7.2																							
24-Mar	3.0	3.3	4.2	8.9	Z	5.1	7.5	3.8	2.6	2.0	1.4	1.7	1.1	1.2	0.7	1.0	0.9	1.2	1.5	1.2	0.9	0.4	0.3	0.5	2.4	8.9																							
25-Mar	0.4	0.3	0.4	0.3	0.5	Z	1.1	0.3	0.3	0.4	0.5	0.4	0.5	0.7	0.8	0.7	1.0	1.4	1.0	0.8	0.8	1.0	1.3	1.6	0.7	1.6																							
26-Mar	Z	1.3	1.0	1.0	0.9	0.7	0.6	0.5	1.8	3.2	3.3	1.4	2.4	3.6	1.9	2.6	1.3	0.8	0.8	0.8	0.7	0.6	0.6	0.4	1.4	3.6																							
27-Mar	0.4	Z	0.4	0.3	0.2	0.3	0.3	0.2	0.1	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.7	0.6	0.2	0.2	1.6	0.7	0.8	0.0	0.4	1.6																							
28-Mar	0.1	0.2	Z	0.7	0.9	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	2.5	0.2	1.6	0.3	2.5																							
29-Mar	5.0	4.4	2.8	Z	3.3	2.5	3.1	3.2	2.6	1.5	1.0	0.9	0.9	1.4	2.6	3.0	1.5	1.2	1.9	3.3	4.9	4.9	5.5	4.7	2.9	5.5																							
30-Mar	5.2	8.9	11.4	11.9	Z	7.0	6.9	6.9	3.9	1.7	0.8	0.3	0.1	0.1	0.2	0.5	0.1	0.3	1.4	2.0	1.2	1.2	0.8	0.8	3.2	11.9																							
31-Mar	0.7	2.3	2.2	2.3	2.5	Z	3.6	3.0	3.4	4.3	4.3	2.9	2.7	2.0	1.5	1.0	1.3	1.0	1.3	1.7	1.2	1.0	0.7	0.6	2.1	4.3																							
																								3.5	3.0	4.3	3.8	3.5	4.6	5.0	4.9	3.7	2.7	2.1	2.0	1.9	1.6	1.5	1.7	1.5	1.6	2.5	2.8	2.4	2.6	3.0	3.7	Diurnal Average	
																								14.4	12.4	27.7	16.2	24.1	33.3	17.5	21.8	19.8	13.1	9.4	8.1	8.8	7.3	6.3	7.1	6.4	5.6	11.6	15.2	17.6	12.9	19.7	17.7	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Sawbones Bay - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Sawbones Bay - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	702	99.43	99.43
21 - 40	4	0.57	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Sawbones Bay - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	57	84	28	27	38	27	45	111	92	47	22	6	16	43	30	29	702
21 - 40	0	0	0	0	0	0	0	1	2	0	0	1	0	0	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	57	84	28	27	38	27	45	112	94	47	22	7	16	43	30	29	706

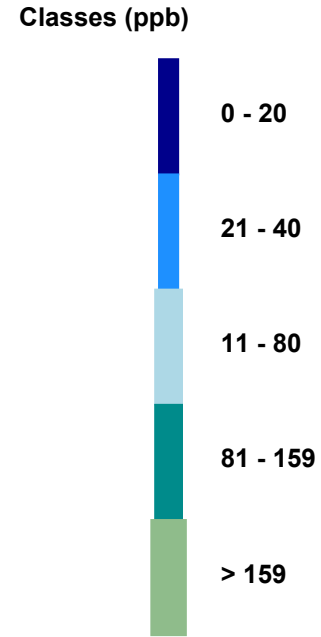
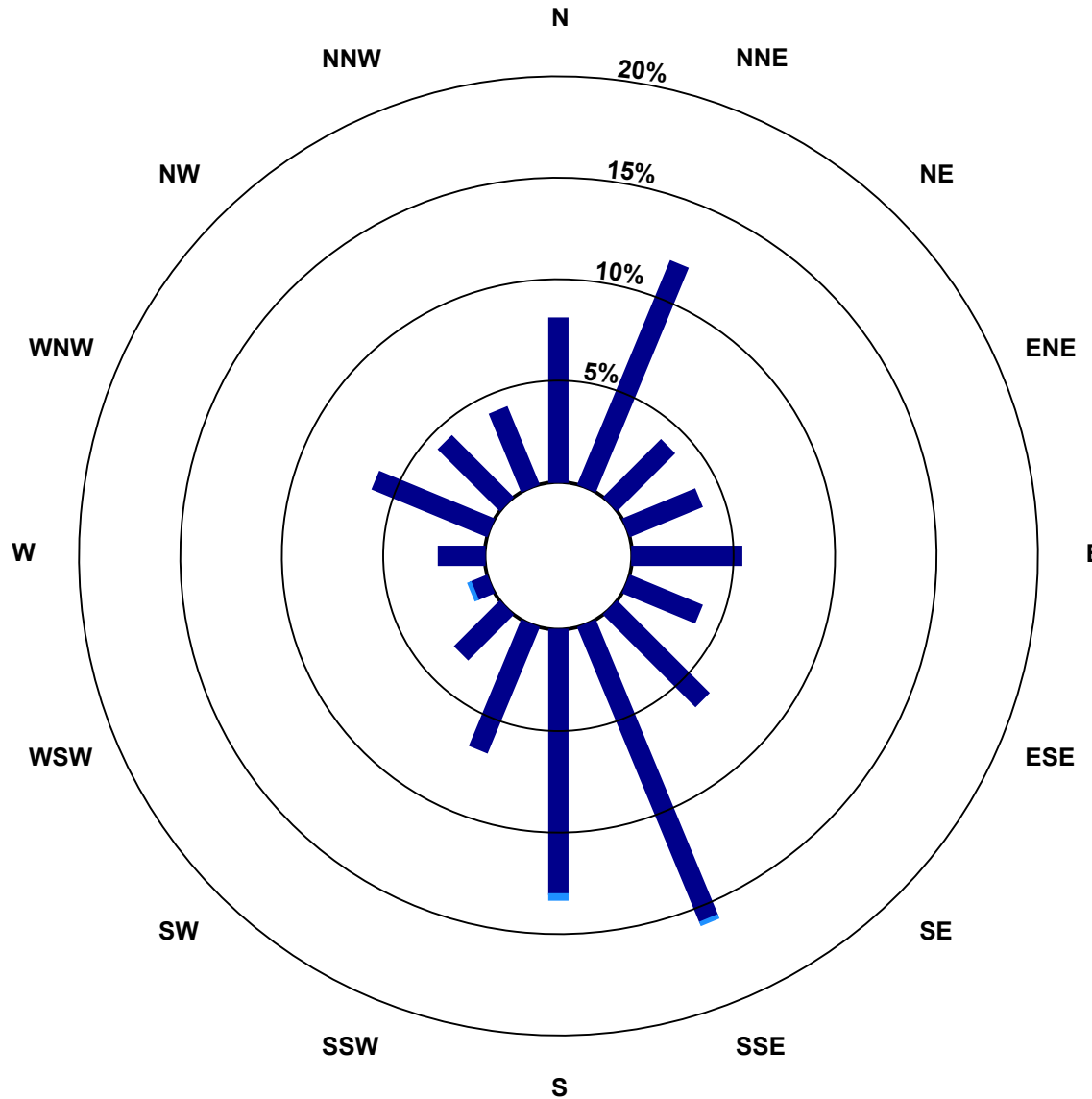
Total Number of Valid Hours: 706

Total Number of Hours: 744

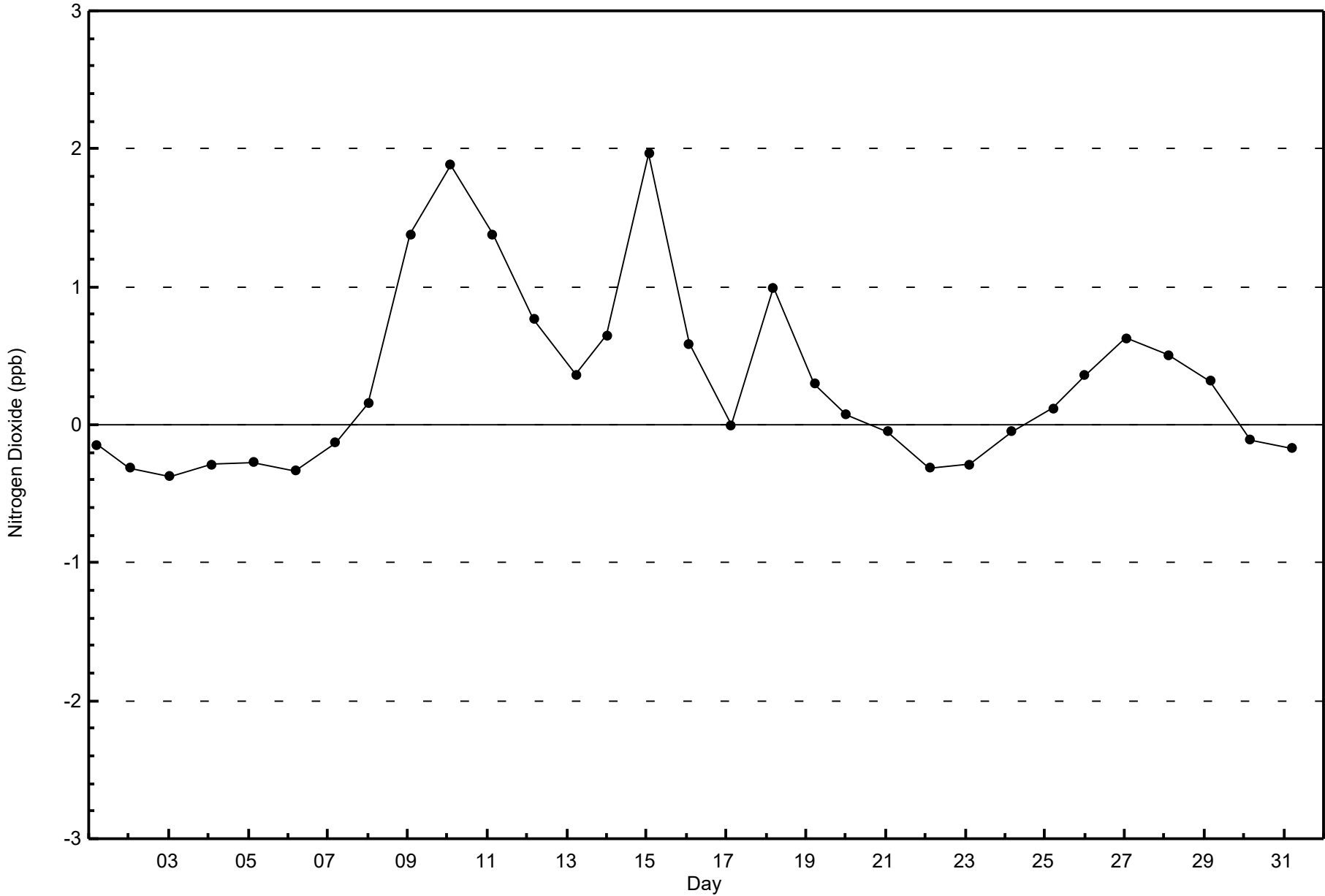


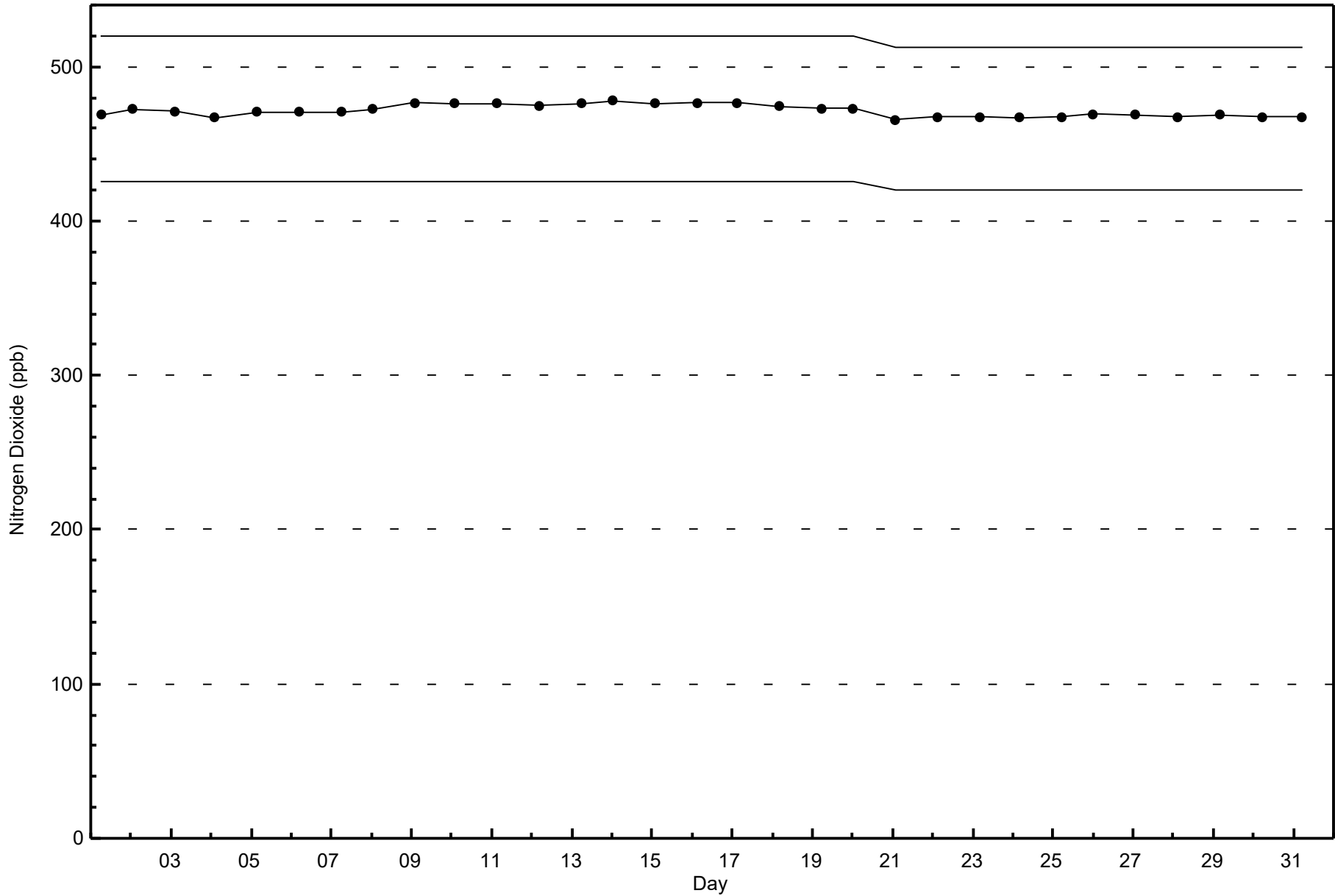
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Sawbones Bay



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Sawbones Bay - March 2024

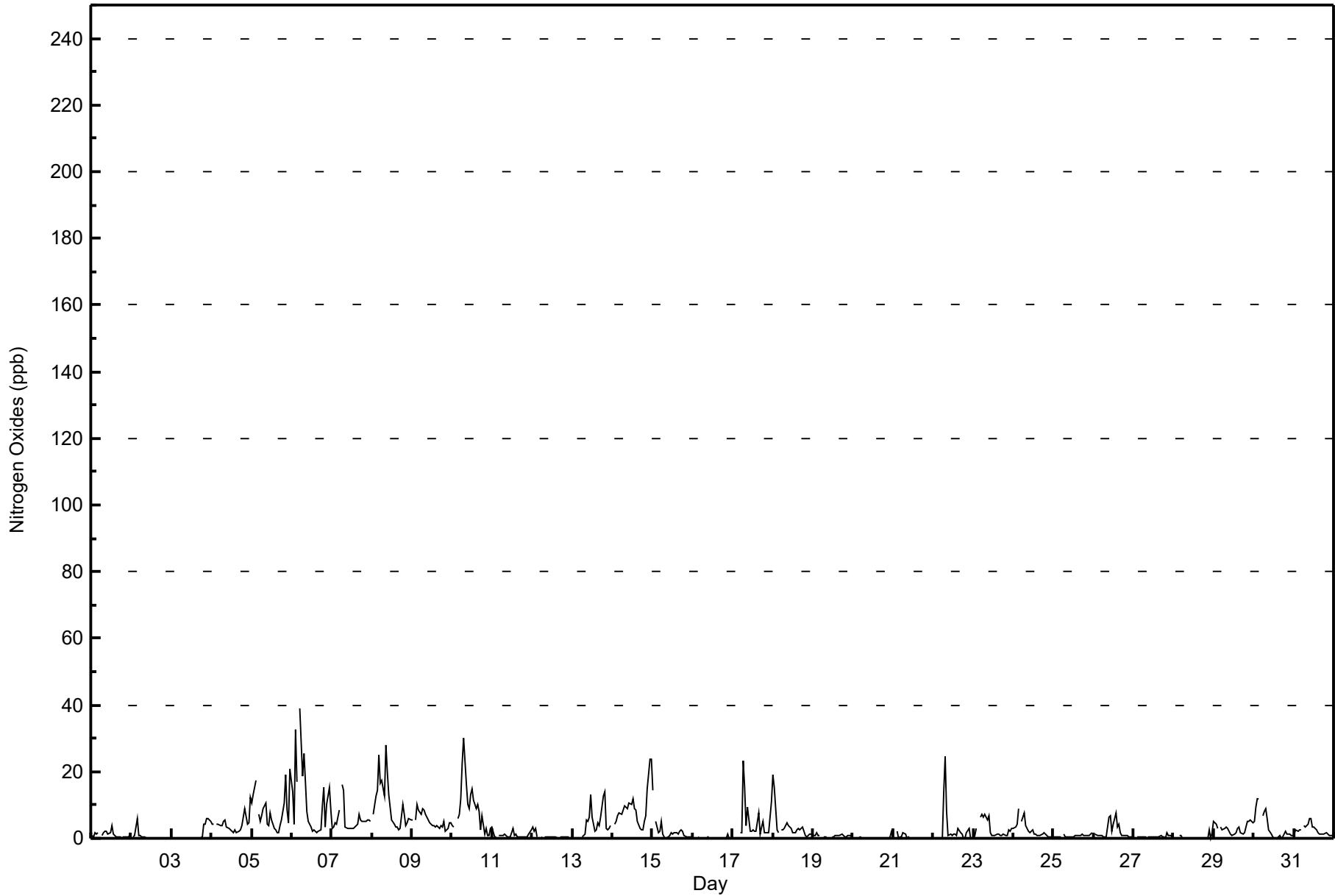
Maximum Value: 39.1 ppb on Mar 6 06:00		Maximum Daily Average: 11.3 ppb on Mar 6		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Mar 3 12:00		Minimum Daily Average: 0.1 ppb on Mar 16		Hours of Data: 706																						
Maximum Diurnal Average: 6.2 ppb at hour 8		Minimum Diurnal Average: 1.7 ppb at hour 17		Hours of Missing Data: 38																						
Monthly Average: 3.35 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 1.5 Q ₃ = 4.3 P ₉₀ = 8.8 P ₉₉ = 23.9		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-Mar	0.8	0.6	1.5	1.3	1.6	Z	0.9	1.6	2.0	2.1	1.2	1.7	4.0	1.3	0.9	0.4	0.5	0.5	0.1	0.2	0.5	0.3	0.6	1.6	1.1	4.0
2-Mar	Z	0.5	0.8	5.8	1.0	0.7	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.5	5.8
3-Mar	0.1	Z	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	0.2	4.2	4.4	6.1	6.0	5.1	1.2	6.1
4-Mar	4.4	4.2	Z	4.1	4.2	3.8	4.0	5.0	5.5	3.5	2.8	2.4	2.1	1.8	2.4	1.7	2.1	2.6	3.7	6.2	8.9	4.3	4.8	12.3	4.2	12.3
5-Mar	10.5	13.2	17.5	Z	7.4	4.9	6.8	9.0	10.6	4.4	3.9	7.6	5.3	3.1	2.3	1.7	4.0	5.6	10.4	19.1	8.5	4.6	20.8	7.9	20.8	
6-Mar	14.2	4.2	32.5	16.8	Z	39.1	18.8	25.2	16.8	8.0	5.3	3.3	2.3	2.3	2.1	1.8	2.0	2.7	9.7	15.4	3.2	10.2	15.3	8.6	11.3	39.1
7-Mar	3.0	3.5	4.6	4.2	8.4	Z	16.2	14.4	3.4	3.0	2.8	2.9	3.0	3.1	3.3	4.0	7.1	5.5	5.0	5.0	5.1	5.5	5.6	5.3	5.4	16.2
8-Mar	Z	7.3	12.6	14.3	24.8	16.4	17.2	12.6	28.0	20.1	13.0	9.3	5.6	4.1	3.5	3.6	2.7	3.2	10.0	7.2	3.6	4.7	5.8	5.4	10.2	28.0
9-Mar	5.5	Z	5.3	10.4	8.3	7.1	8.7	8.6	7.1	6.2	4.8	4.1	3.6	3.8	3.5	3.9	3.2	3.7	3.3	5.0	2.0	2.9	4.5	4.6	5.2	10.4
10-Mar	4.0	3.4	Z	5.8	7.4	11.9	22.6	30.1	16.1	10.1	9.1	13.3	14.7	11.6	8.7	10.3	8.3	2.6	6.9	1.4	2.9	0.8	0.8	2.9	8.9	30.1
11-Mar	3.6	0.5	0.5	Z	1.0	0.7	0.7	1.4	0.7	0.5	0.5	0.5	3.1	0.8	1.2	0.4	0.3	0.2	0.2	0.3	0.3	0.4	1.4	2.4	0.9	3.6
12-Mar	3.2	2.3	2.8	0.4	Z	0.3	0.2	0.2	0.4	0.4	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.6	3.2
13-Mar	0.2	0.1	0.2	0.1	0.2	Z	0.6	1.2	5.4	5.1	6.4	13.3	6.5	2.2	2.6	4.6	3.7	6.3	12.7	14.0	3.0	2.5	3.0	3.7	4.2	14.0
14-Mar	Z	4.4	5.1	6.9	7.6	7.1	8.5	9.7	9.2	8.7	10.4	10.3	11.9	9.1	8.5	5.2	3.1	2.6	2.4	5.2	6.9	15.0	23.8	23.9	8.9	23.9
15-Mar	14.3	Z	5.1	1.6	2.0	5.0	1.4	0.2	0.2	0.5	0.9	1.7	1.4	1.9	1.7	1.4	1.9	2.4	2.2	0.7	0.4	0.3	0.2	0.3	2.1	14.3
16-Mar	0.2	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.2	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.1	0.0	0.1	0.1	1.1
17-Mar	0.0	0.0	0.0	Z	1.8	1.6	23.4	15.1	3.9	9.4	2.3	2.3	2.4	2.2	2.0	7.8	1.5	3.3	5.0	1.7	1.5	1.9	6.3	11.1	4.6	23.4
18-Mar	19.0	15.1	2.6	1.6	Z	2.5	2.7	2.9	4.7	3.9	3.4	3.1	1.9	1.9	2.4	2.8	2.5	3.0	3.3	0.7	0.5	0.8	1.1	1.3	3.6	19.0
19-Mar	0.7	0.8	1.6	1.0	0.7	Z	0.5	0.3	0.3	M	M	0.5	0.6	0.7	0.9	1.0	1.0	1.1	0.7	0.5	0.6	0.7	0.8	0.6	0.7	1.6
20-Mar	Z	0.2	0.0	0.0	0.5	0.0	0.0	0.0	C	C	C	C	C	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.4	2.1	0.2	2.1
21-Mar	1.5	Z	2.3	0.2	0.4	0.3	1.6	1.2	0.2	0.2	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	0.4	2.3
22-Mar	0.0	0.0	Z	0.0	0.2	0.1	13.8	24.8	8.2	0.9	1.1	0.8	1.3	1.1	1.0	2.9	1.9	1.2	0.1	0.1	1.9	3.1	0.2	0.0	2.8	24.8
23-Mar	0.0	0.8	3.1	Z	6.4	7.2	6.2	7.4	5.6	6.7	1.8	0.7	0.8	0.8	1.3	1.3	0.9	1.0	1.1	1.0	1.0	2.3	1.9	2.9	2.7	7.4
24-Mar	3.0	3.3	4.2	8.9	Z	5.1	7.7	3.9	2.9	2.2	1.5	2.5	1.3	1.3	0.7	1.0	0.9	1.2	1.5	1.2	0.9	0.4	0.3	0.5	2.5	8.9
25-Mar	0.4	0.3	0.4	0.3	0.5	Z	1.1	0.3	0.3	0.4	0.5	0.4	0.5	0.7	0.8	0.7	1.0	1.4	1.0	0.8	0.8	1.0	1.3	1.6	0.7	1.6
26-Mar	Z	1.3	1.0	1.0	0.9	0.7	0.6	0.5	3.3	6.6	6.8	2.0	4.4	7.4	3.3	4.4	1.6	0.8	0.8	0.8	0.7	0.6	0.6	0.4	2.2	7.4
27-Mar	0.4	Z	0.4	0.3	0.2	0.3	0.3	0.2	0.1	0.3	0.2	0.2	0.3	0.4	0.3	0.4	0.7	0.6	0.2	0.2	1.6	0.7	0.8	0.0	0.4	1.6
28-Mar	0.1	0.2	Z	0.7	0.9	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	2.5	0.2	1.6	0.3	2.5
29-Mar	5.0	4.4	2.8	Z	3.3	2.5	3.1	3.5	3.1	2.0	1.3	1.1	1.1	1.8	3.1	3.5	1.6	1.3	1.9	3.3	5.0	4.9	5.5	4.7	3.0	5.5
30-Mar	5.2	9.2	11.9	11.9	Z	7.0	8.0	8.8	5.8	2.4	1.3	0.3	0.1	0.1	0.2	0.8	0.1	0.3	1.4	2.0	1.2	1.2	0.8	0.8	3.5	11.9
31-Mar	0.7	2.3	2.2	2.3	2.5	Z	3.7	3.5	4.4	5.9	5.9	3.6	3.5	2.4	1.7	1.1	1.5	1.1	1.3	1.7	1.2	1.0	0.7	0.6	2.4	5.9
																								Diurnal Average		
																								Diurnal Maximum		
																								3.8 19.0		
																								3.2 15.1		
																								4.7 32.5		
																								3.9 16.8		
																								3.5 24.8		
																								5.0 39.1		
																								5.8 23.4		
																								6.2 30.1		
																								5.0 28.0		
																								3.9 20.1		
																								3.0 13.0		
																								2.9 13.3		
																								2.7 14.7		
																								2.1 11.6		
																								1.9 8.7		
																								2.2 10.3		
																								1.7 8.3		
																								1.7 6.3		
																								2.6 12.7		
																								2.9 15.4		
																								2.5 19.1		
																								2.7 15.0		
																								3.1 23.8		
																								4.1 23.9		

Z - zerospan C - Calibration M - Maintenance



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Sawbones Bay - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Sawbones Bay - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	694	98.30	98.30
21 - 40	12	1.70	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



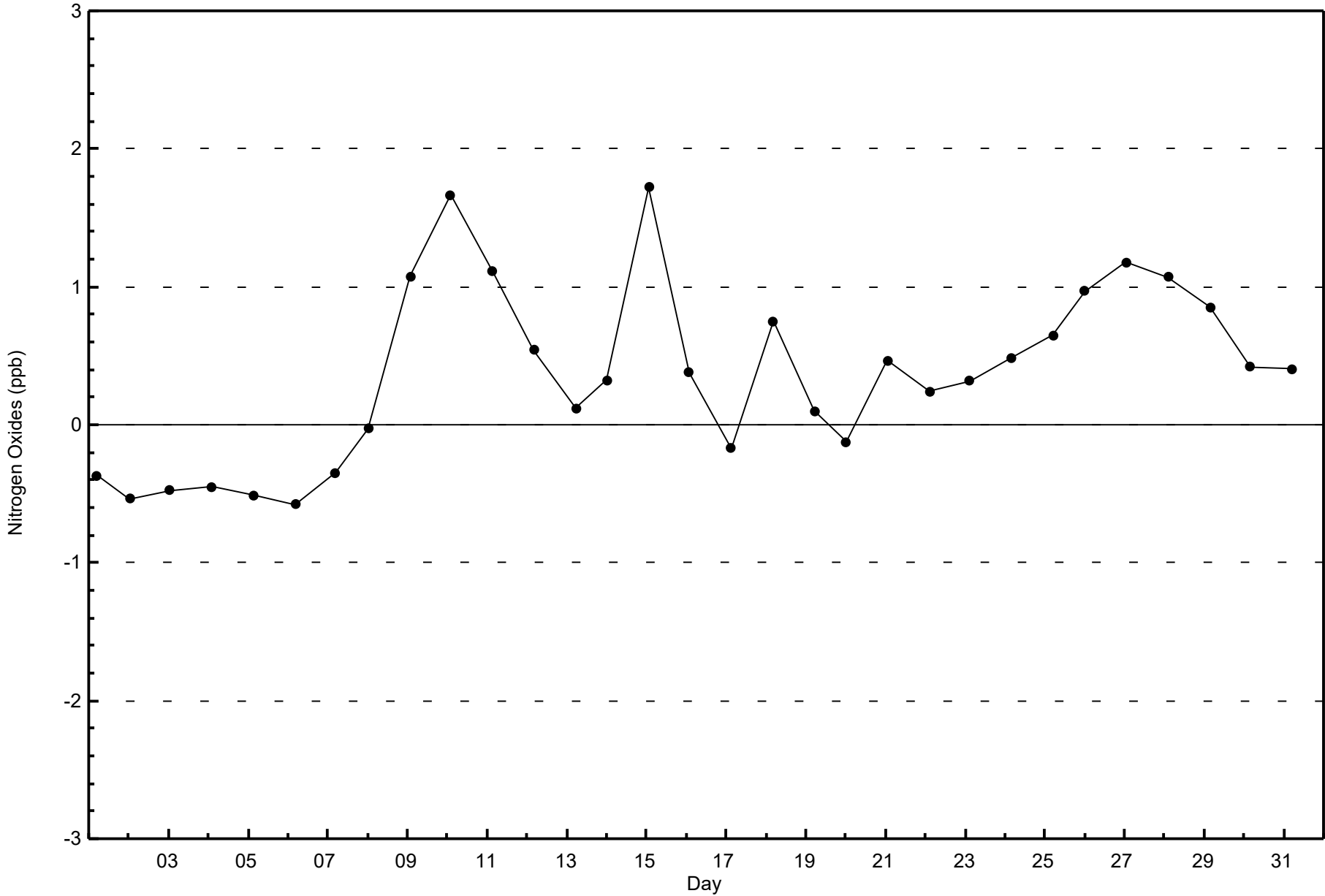
**Wood Buffalo Environmental Association
Frequency Distribution**

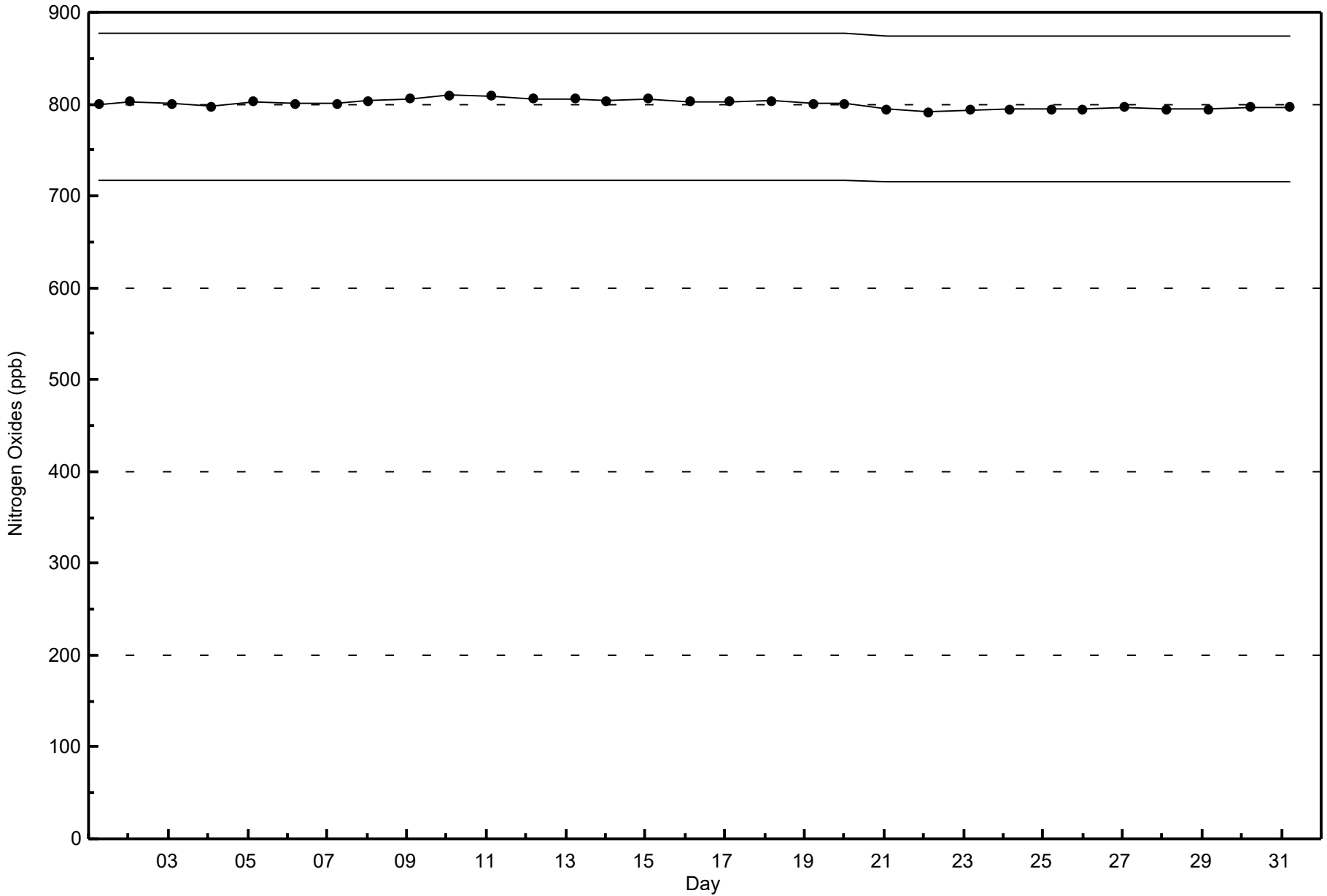
**Nitrogen Oxides (NO_x) - ppb
Sawbones Bay - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	57	84	28	27	38	27	44	107	92	47	21	4	16	43	30	29	694
21 - 40	0	0	0	0	0	0	1	5	2	0	1	3	0	0	0	0	12
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
Totals	57	84	28	27	38	27	45	112	94	47	22	7	16	43	30	29	706

Total Number of Valid Hours: 706

Total Number of Hours: 744







Wood Buffalo Environmental Association
Summary of Hour Averages

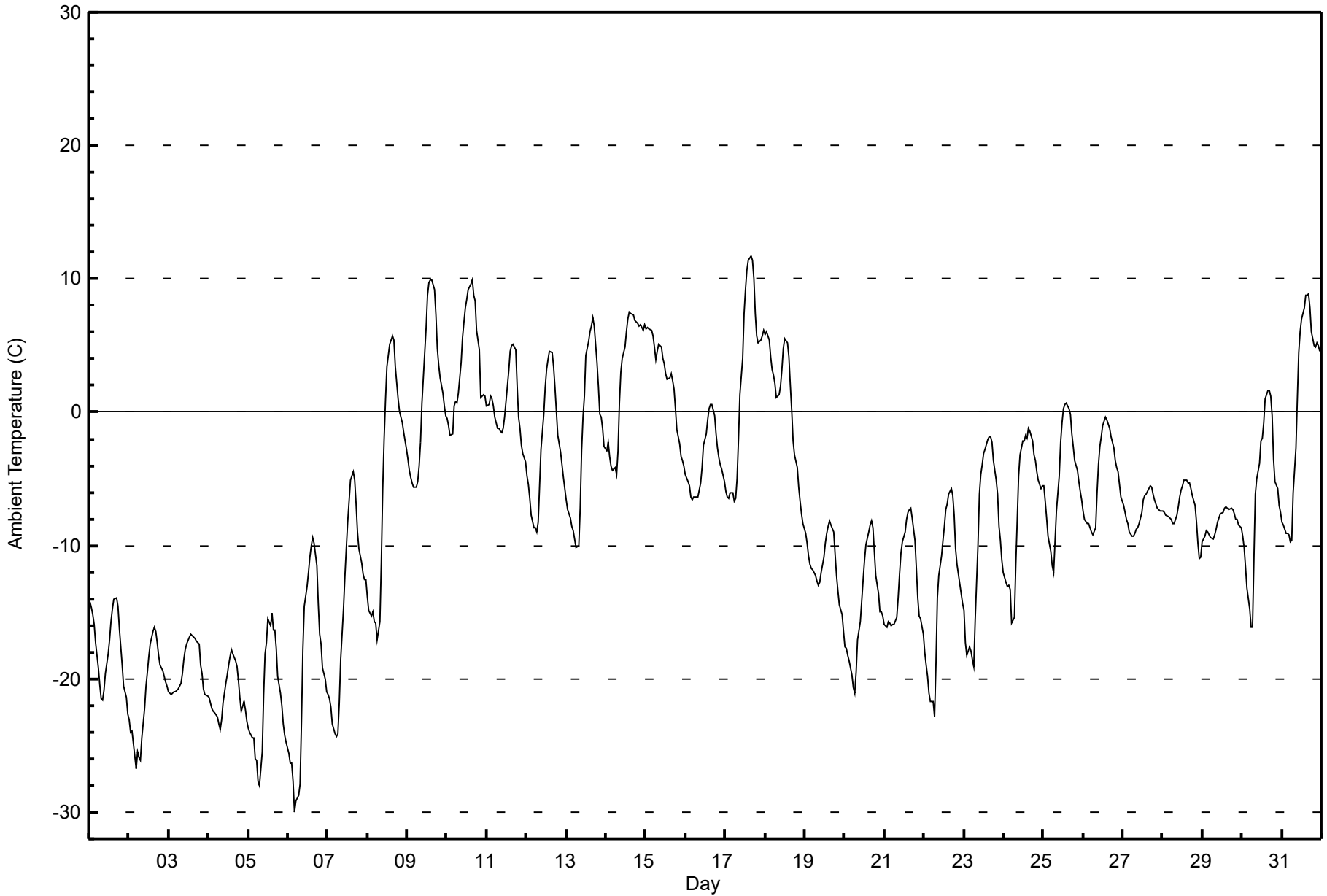
Ambient Temperature (AT) - C
Sawbones Bay - March 2024

Maximum Value: 11.7 C on Mar 17 16:00		Maximum Daily Average: 3.9 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -30.0 C on Mar 6 05:00		Minimum Daily Average: -21.6 C on Mar 5		Hours of Data: 744																																												
Maximum Diurnal Average: -2.3 C at hour 16		Minimum Diurnal Average: -13.1 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: -7.69 C		Percentiles: P ₁ = -26.5 P ₁₀ = -20.9 Q ₁ = -15.0 Median = -7.3 Q ₃ = -1.0 P ₉₀ = 4.9 P ₉₉ = 9.8		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-Mar	-14.2	-14.6	-15.2	-15.9	-17.3	-19.2	-20.4	-21.5	-21.6	-20.9	-19.6	-18.1	-17.1	-15.7	-14.8	-14.0	-13.9	-14.6	-16.2	-17.7	-19.0	-20.5	-21.3	-22.6	-17.7	-13.9																						
2-Mar	-23.0	-24.0	-24.0	-25.8	-26.7	-25.5	-25.9	-26.1	-24.4	-22.3	-20.6	-19.5	-18.3	-17.4	-16.5	-16.2	-16.5	-17.3	-18.3	-19.0	-19.4	-19.8	-20.2	-20.6	-21.1	-16.2																						
3-Mar	-21.0	-21.1	-21.1	-21.0	-20.9	-20.9	-20.7	-20.3	-19.6	-18.6	-17.9	-17.3	-16.9	-16.7	-16.7	-16.9	-17.0	-17.1	-17.4	-18.9	-19.6	-20.7	-21.1	-21.2	-19.2	-16.7																						
4-Mar	-21.4	-21.8	-22.3	-22.5	-22.5	-22.8	-23.4	-23.8	-23.1	-21.8	-20.4	-19.7	-19.0	-18.4	-17.8	-18.1	-18.7	-19.0	-20.1	-21.4	-22.4	-21.7	-22.3	-23.2	-21.1	-17.8																						
5-Mar	-23.7	-24.0	-24.4	-24.5	-26.0	-26.2	-27.7	-28.0	-25.4	-21.2	-18.2	-17.3	-15.5	-16.0	-15.1	-16.3	-16.4	-17.7	-19.8	-21.1	-22.0	-23.4	-24.2	-24.7	-21.6	-15.1																						
6-Mar	-25.6	-26.3	-26.3	-27.7	-30.0	-29.2	-28.7	-27.9	-23.3	-17.9	-14.5	-13.1	-12.1	-10.9	-10.1	-9.4	-9.8	-11.5	-14.4	-16.6	-17.4	-19.2	-20.0	-21.0	-19.3	-9.4																						
7-Mar	-21.2	-21.5	-22.1	-23.3	-24.1	-24.4	-24.2	-21.8	-18.6	-14.8	-12.4	-10.2	-8.3	-6.7	-5.1	-4.5	-5.1	-6.9	-9.0	-10.3	-11.3	-12.1	-12.6	-12.6	-14.3	-4.5																						
8-Mar	-13.8	-14.8	-15.2	-15.0	-15.7	-15.8	-17.1	-15.7	-11.3	-5.9	-2.1	0.9	3.4	5.1	5.5	5.7	5.5	3.4	1.0	0.0	-0.3	-0.8	-1.6	-2.8	-4.9	5.7																						
9-Mar	-3.5	-4.3	-4.9	-5.4	-5.6	-5.6	-5.2	-4.0	-2.2	0.6	4.5	6.4	8.8	9.7	9.9	9.9	9.2	7.3	4.8	3.5	2.6	1.4	0.4	-0.3	1.6	9.9																						
10-Mar	-0.5	-1.0	-1.8	-1.6	0.5	0.8	0.7	1.4	3.8	5.6	6.8	7.8	8.5	9.2	9.6	9.9	8.8	8.3	6.2	4.7	1.1	1.3	1.3	1.2	3.9	9.9																						
11-Mar	0.5	0.5	1.2	1.0	0.5	-0.4	-1.2	-1.2	-1.4	-1.5	-1.2	-0.3	1.9	3.0	4.6	5.0	5.0	4.6	2.0	-0.4	-1.2	-2.4	-3.1	-3.7	0.5	5.0																						
12-Mar	-4.8	-5.4	-6.4	-7.7	-8.6	-8.7	-9.0	-8.3	-5.5	-2.8	-0.2	1.8	3.2	3.9	4.5	4.5	3.4	1.8	0.1	-1.7	-3.0	-3.9	-4.9	-5.8	-2.6	4.5																						
13-Mar	-6.6	-7.3	-7.9	-8.5	-8.9	-9.6	-10.2	-10.0	-7.2	-2.9	-0.4	1.2	4.2	5.3	6.0	6.4	7.1	6.5	3.7	2.0	-0.1	-0.4	-1.2	-2.5	-1.7	7.1																						
14-Mar	-2.9	-2.3	-3.3	-4.0	-4.4	-4.2	-4.7	-2.9	0.7	3.0	4.1	4.9	6.0	7.0	7.5	7.4	7.3	6.9	6.8	6.7	6.4	6.6	6.2	6.5	2.7	7.5																						
15-Mar	6.2	6.4	6.2	6.1	5.7	4.8	4.0	4.6	5.1	4.9	4.0	3.6	2.9	2.5	2.6	2.9	2.3	1.7	0.3	-1.4	-2.3	-3.3	-3.6	-4.0	2.6	6.4																						
16-Mar	-4.7	-5.2	-5.5	-6.4	-6.6	-6.3	-6.4	-6.3	-5.9	-5.3	-4.2	-2.5	-1.6	-0.6	0.3	0.6	0.5	-0.2	-1.6	-2.7	-3.4	-4.0	-4.3	-5.2	-3.6	0.6																						
17-Mar	-6.0	-6.3	-6.5	-6.0	-6.1	-6.7	-6.5	-5.0	-2.1	1.3	4.0	7.4	9.2	10.7	11.4	11.7	11.4	10.1	7.4	5.8	5.2	5.4	5.7	6.2	2.6	11.7																						
18-Mar	5.8	6.0	5.4	4.1	3.2	2.8	2.2	1.1	1.3	1.9	3.2	4.7	5.5	5.2	4.1	2.0	0.2	-2.1	-3.2	-4.2	-5.7	-6.6	-7.6	-8.4	0.9	6.0																						
19-Mar	-9.1	-9.8	-10.7	-11.4	-11.8	-11.8	-12.2	-12.7	-13.0	-12.8	-12.0	-10.9	-9.8	-9.1	-8.5	-8.2	-8.4	-9.0	-10.6	-12.3	-13.4	-14.4	-15.2	-16.4	-11.4	-8.2																						
20-Mar	-17.6	-17.7	-18.2	-18.7	-19.7	-20.7	-21.1	-19.5	-17.1	-15.7	-14.1	-12.6	-11.1	-9.9	-9.0	-8.4	-8.1	-8.6	-10.4	-12.2	-13.6	-15.0	-15.0	-15.2	-14.6	-8.1																						
21-Mar	-15.9	-16.2	-15.7	-15.8	-16.0	-15.9	-15.9	-15.4	-13.9	-12.1	-10.6	-9.7	-9.0	-8.1	-7.6	-7.3	-7.2	-7.9	-9.6	-11.8	-13.9	-15.2	-15.5	-16.6	-12.6	-7.2																						
22-Mar	-18.0	-19.0	-19.9	-21.1	-21.8	-21.7	-22.8	-18.9	-13.9	-12.2	-10.8	-9.6	-8.6	-7.3	-6.9	-6.2	-5.8	-6.2	-7.7	-10.2	-11.4	-12.9	-13.6	-14.3	-13.4	-5.8																						
23-Mar	-14.9	-17.3	-18.2	-17.6	-17.9	-18.5	-19.1	-15.6	-9.9	-6.1	-4.7	-4.0	-3.1	-2.8	-2.0	-1.9	-1.8	-2.3	-3.7	-5.1	-6.1	-8.5	-9.6	-11.1	-9.2	-1.8																						
24-Mar	-12.1	-12.7	-13.1	-13.0	-13.3	-15.9	-15.4	-11.4	-8.1	-4.7	-3.2	-2.1	-2.1	-1.8	-2.0	-1.2	-1.4	-2.1	-3.2	-3.6	-4.4	-5.1	-5.8	-5.5	-6.8	-1.2																						
25-Mar	-5.5	-6.6	-8.0	-9.3	-10.5	-11.5	-12.0	-9.8	-7.4	-4.8	-2.2	-0.8	0.2	0.6	0.6	0.2	-0.2	-1.6	-2.6	-3.7	-4.4	-5.2	-6.0	-6.6	-4.9	0.6																						
26-Mar	-7.4	-8.1	-8.3	-8.3	-8.7	-9.0	-9.2	-8.6	-6.1	-3.9	-2.6	-1.8	-1.0	-0.4	-0.6	-0.9	-1.3	-1.8	-2.7	-3.6	-4.1	-4.5	-5.4	-6.3	-4.8	-0.4																						
27-Mar	-7.0	-7.6	-8.1	-8.3	-9.0	-9.3	-9.3	-9.1	-8.8	-8.6	-8.4	-7.5	-6.6	-6.2	-6.1	-5.9	-5.5	-5.6	-6.1	-6.5	-6.9	-7.3	-7.4	-7.4	-7.4	-5.5																						
28-Mar	-7.4	-7.6	-7.7	-7.8	-7.9	-8.0	-8.4	-8.4	-7.7	-7.0	-6.3	-5.8	-5.5	-5.1	-5.1	-5.3	-5.3	-5.7	-6.3	-7.0	-8.3	-9.8	-10.9	-10.9	-7.3	-5.1																						
29-Mar	-9.8	-9.3	-8.8	-9.0	-9.2	-9.4	-9.5	-9.2	-8.8	-8.2	-7.9	-7.7	-7.5	-7.2	-7.0	-7.2	-7.3	-7.2	-7.3	-7.6	-8.0	-8.1	-8.5	-8.7	-8.3	-7.0																						
30-Mar	-9.3	-10.1	-11.6	-13.2	-14.8	-16.1	-16.1	-11.0	-6.2	-4.9	-3.8	-2.2	-1.9	-0.8	1.0	1.6	1.6	1.2	-0.3	-3.5	-5.2	-5.7	-7.0	-7.5	-6.1	1.6																						
31-Mar	-8.2	-8.5	-9.0	-9.1	-9.2	-9.8	-9.6	-6.1	-2.7	1.0	4.4	6.1	7.0	7.8	8.8	8.8	8.9	7.9	6.0	5.0	4.8	5.2	5.0	4.6	0.8	8.9																						
																								-10.4	-10.9	-11.3	-11.8	-12.4	-12.7	-13.1	-12.0	-9.8	-7.7	-6.0	-4.8	-3.7	-2.9	-2.4	-2.3	-2.5	-3.4	-4.9	-6.3	-7.3	-8.1	-8.7	-9.2	Diurnal Average
																								6.2	6.4	6.2	6.1	5.7	4.8	4.0	4.6	5.1	5.6	6.8	7.8	9.2	10.7	11.4	11.7	11.4	10.1	7.4	6.7	6.4	6.6	6.2	6.5	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Sawbones Bay - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Sawbones Bay - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	88	11.83	11.83
-20 - 0	491	65.99	77.82
0 - 10	160	21.51	99.33
10 - 20	5	0.67	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

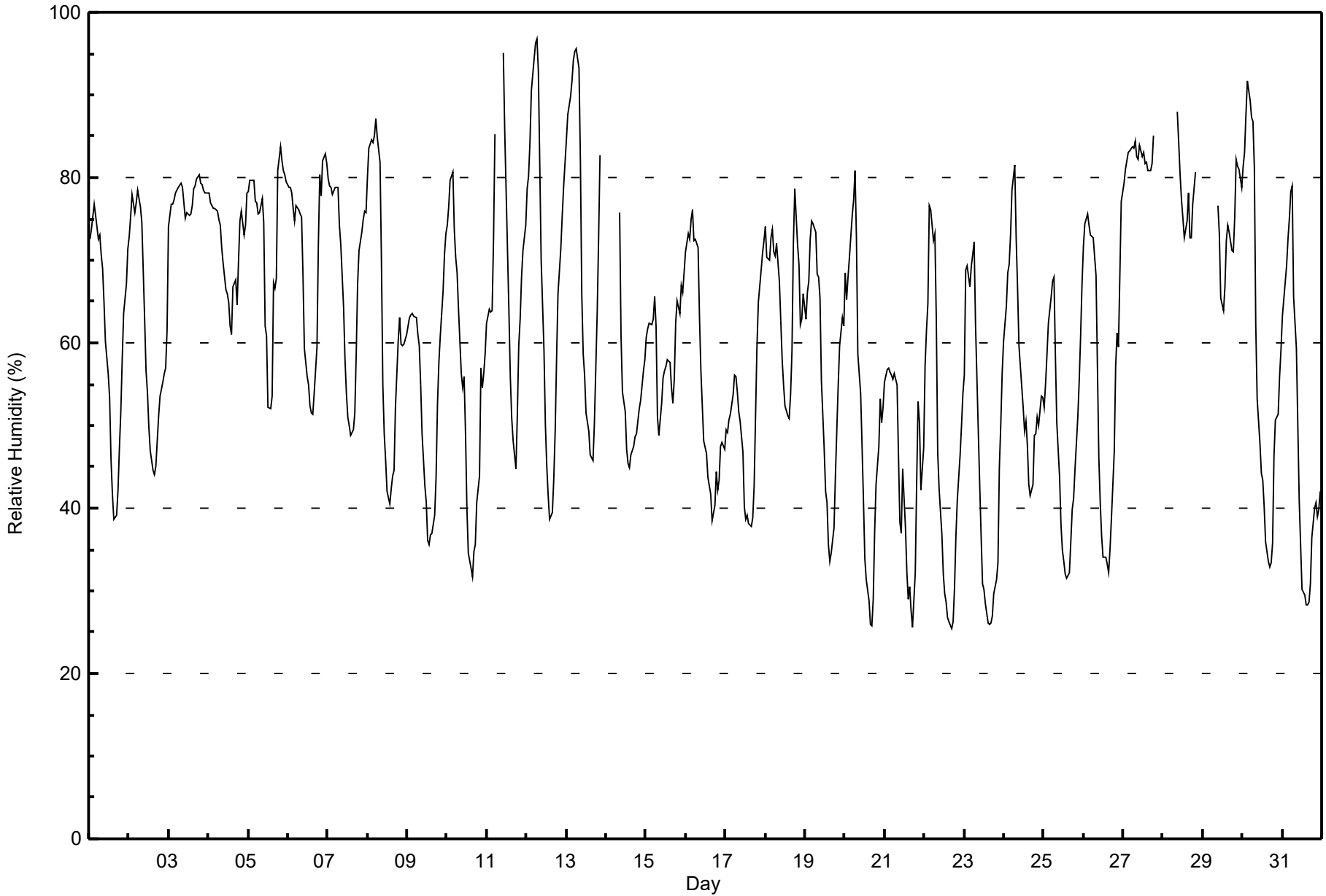
Relative Humidity (RH) - %
Sawbones Bay - March 2024

Maximum Value: 96.8 % on Mar 12 07:00		Maximum Daily Average: 82.4 % on Mar 27		Hours in Service: 744																							
Minimum Value: 25.5 % on Mar 22 17:00		Minimum Daily Average: 44.4 % on Mar 21		Hours of Data: 703																							
Maximum Diurnal Average: 75.7 % at hour 6		Minimum Diurnal Average: 45.7 % at hour 15		Hours of Missing Data: 41																							
Monthly Average: 60.54 %		Percentiles: P ₁ = 26.3 P ₁₀ = 37.0 Q ₁ = 48.1 Median = 62.0 Q ₃ = 74.7 P ₉₀ = 80.4 P ₉₉ = 93.2		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-Mar	72.6	73.7	75.2	76.8	75.5	72.6	73.0	70.6	68.9	64.9	60.3	56.2	53.4	46.0	41.6	38.6	39.1	42.3	47.3	51.7	58.0	63.6	67.1	71.4	60.9	76.8	
2-Mar	72.9	75.3	77.9	75.7	76.9	78.5	77.5	76.4	74.5	62.9	56.7	54.1	49.8	46.9	44.6	44.0	45.2	48.2	51.2	53.5	55.2	56.3	56.9	61.5	61.4	78.5	
3-Mar	74.0	76.8	76.8	77.3	78.1	78.4	78.8	79.4	78.9	77.0	75.0	75.8	75.4	75.5	76.6	78.6	79.0	79.9	80.4	79.3	79.2	78.5	78.1	78.2	77.7	80.4	
4-Mar	78.2	77.0	76.7	76.3	76.3	75.9	74.9	74.2	71.5	69.6	66.5	65.9	65.0	62.0	61.1	66.8	67.6	64.6	69.8	74.7	75.9	73.0	74.3	78.2	71.5	78.2	
5-Mar	78.2	79.6	79.6	79.7	77.0	76.9	75.7	75.7	77.4	74.6	62.1	60.8	65.1	52.0	53.6	67.3	66.7	67.8	80.9	83.7	82.1	80.8	80.3	79.5	72.7	83.7	
6-Mar	78.8	78.8	78.1	76.3	74.7	76.6	76.1	75.5	75.3	68.3	59.4	55.9	54.9	52.3	51.5	51.3	53.9	59.5	72.0	80.4	77.8	82.1	82.9	81.8	69.8	82.9	
7-Mar	79.8	79.0	78.8	78.0	78.8	78.8	78.8	74.2	71.9	64.2	57.9	53.9	51.1	49.9	48.8	49.6	51.6	58.6	67.1	71.3	73.4	74.9	76.0	75.8	67.6	79.8	
8-Mar	79.9	83.6	84.5	84.2	85.2	87.1	85.0	81.9	70.1	54.9	49.0	45.7	42.0	40.5	42.4	43.8	44.6	52.1	60.4	63.0	59.8	59.6	59.9	61.1	63.3	87.1	
9-Mar	62.0	63.1	63.4	63.5	63.3	63.0	61.0	59.6	55.0	48.9	42.7	40.7	36.1	35.6	36.8	36.9	39.1	43.8	52.5	57.7	60.9	66.3	70.6	73.3	54.0	73.3	
10-Mar	74.2	76.4	79.6	80.7	73.7	70.4	68.4	64.1	56.3	54.5	55.9	49.2	40.0	34.6	32.7	31.7	34.7	35.7	40.7	43.8	57.0	54.5	56.3	58.7	55.2	80.7	
11-Mar	62.4	64.1	63.7	63.9	72.5	85.2	OR	OR	OR	OR	95.1	85.6	70.9	63.7	55.7	50.9	48.1	44.8	51.4	59.7	62.8	67.9	71.2	74.3	65.7	95.1	
12-Mar	78.7	80.2	84.2	90.6	94.4	96.3	96.8	92.9	81.5	70.1	59.2	50.2	45.1	41.6	38.7	39.5	43.6	49.3	58.1	66.0	71.4	75.2	78.8	81.7	69.3	96.8	
13-Mar	84.7	87.6	89.8	91.7	94.3	95.3	95.5	93.2	82.1	65.8	58.6	56.1	51.5	49.3	46.4	46.1	45.8	50.3	63.7	72.7	82.7	OR	OR	OR	71.6	95.5	
14-Mar	OR	OR	OR	OR	OR	OR	OR	OR	75.8	60.8	54.1	51.7	47.1	45.4	44.9	46.4	47.4	48.7	49.0	50.5	52.1	53.0	56.6	57.9	--	75.8	
15-Mar	60.7	61.7	62.4	62.1	62.9	65.7	62.0	51.1	48.8	52.7	55.8	56.5	57.2	57.9	57.6	54.5	52.6	55.6	62.4	65.1	63.5	66.9	66.1	68.5	59.6	68.5	
16-Mar	71.0	73.3	72.5	74.9	76.1	72.4	72.5	71.5	63.1	56.6	52.4	48.1	46.5	43.8	42.7	41.6	38.4	40.3	44.4	42.3	43.4	47.4	47.9	47.2	55.4	76.1	
17-Mar	49.5	49.2	50.7	51.3	53.8	56.2	55.9	54.0	51.6	50.5	46.7	40.2	38.7	39.1	38.2	37.9	38.8	42.7	51.2	59.4	64.9	68.8	70.8	72.4	51.4	72.4	
18-Mar	74.1	70.3	70.0	72.6	73.7	71.1	70.5	72.1	67.5	62.8	58.0	54.9	52.3	51.2	50.8	53.7	59.0	72.0	78.7	71.8	69.6	62.2	62.8	66.0	65.3	78.7	
19-Mar	63.0	66.1	67.5	72.5	74.8	74.5	73.4	68.3	68.0	65.5	55.5	47.1	42.0	40.6	35.6	33.5	34.7	37.6	43.9	49.5	55.0	59.6	63.0	62.0	56.4	74.8	
20-Mar	68.5	65.3	67.9	70.3	75.4	77.3	80.8	72.6	58.6	53.8	47.6	41.0	33.9	31.3	28.8	26.0	25.8	29.1	37.1	42.9	47.4	53.2	50.3	52.2	51.5	80.8	
21-Mar	55.3	56.7	56.9	56.5	56.2	55.7	56.3	54.9	46.5	38.3	36.9	44.7	37.7	32.1	28.9	30.6	27.7	25.6	32.3	43.2	52.9	50.4	42.3	47.3	44.4	56.9	
22-Mar	57.2	61.5	64.7	76.7	76.1	72.3	73.2	62.9	46.8	42.3	36.8	32.0	29.7	28.6	26.8	26.3	25.5	26.3	30.4	36.7	41.0	46.5	50.0	53.8	46.8	76.7	
23-Mar	56.1	68.7	69.4	66.8	69.3	70.6	72.2	49.2	42.7	36.6	30.9	30.2	28.5	26.0	25.9	26.0	26.9	29.6	31.3	33.4	44.9	50.1	56.3	46.0	72.2		
24-Mar	60.1	64.5	68.5	69.4	73.0	78.5	81.6	72.7	66.6	59.6	57.1	52.1	49.4	50.5	47.6	42.9	41.5	42.9	48.7	49.0	51.0	50.1	53.5	53.3	57.7	81.6	
25-Mar	52.2	55.0	58.7	62.4	65.6	67.4	68.0	58.5	50.3	43.7	37.9	35.0	33.5	32.1	31.5	32.3	36.0	39.9	41.3	44.8	51.1	55.5	60.8	67.1	49.2	68.0	
26-Mar	71.7	74.4	75.7	74.2	73.0	72.9	72.7	68.2	57.1	46.0	40.7	36.6	34.0	34.0	33.2	32.3	35.1	38.8	46.7	57.0	61.2	59.5	68.1	77.2	55.8	77.2	
27-Mar	79.3	81.0	82.0	83.1	83.2	83.7	83.6	84.4	82.6	82.2	83.9	82.5	83.0	81.6	81.9	80.8	80.8	81.7	85.1	OR	OR	OR	OR	OR	82.4	85.1	
28-Mar	OR	OR	OR	OR	OR	OR	OR	OR	88.0	84.2	80.4	77.2	75.0	72.7	74.8	78.2	72.7	72.8	76.8	80.6	OR	OR	OR	OR	OR	--	88.0
29-Mar	OR	OR	OR	OR	OR	OR	OR	OR	OR	76.6	73.3	65.4	64.0	66.8	72.4	74.3	73.4	71.2	71.1	75.3	82.3	81.4	81.0	78.8	--	82.3	
30-Mar	81.3	83.0	87.7	91.7	89.3	87.4	86.8	81.2	62.2	53.3	47.7	44.3	43.3	40.1	35.9	33.6	32.9	33.4	35.8	46.2	50.7	51.3	55.9	59.1	58.9	91.7	
31-Mar	63.2	65.3	69.3	72.5	75.1	78.4	79.0	65.6	59.4	50.2	41.0	35.6	30.1	29.5	28.4	28.4	28.6	30.9	36.5	39.9	40.6	39.0	39.8	42.1	48.7	79.0	
		69.3	71.1	72.6	74.0	74.9	75.7	75.2	71.0	65.7	59.9	56.1	52.5	48.9	47.0	45.7	45.9	46.3	48.8	54.7	58.1	60.6	61.5	63.3	65.6	Diurnal Average	
		84.7	87.6	89.8	91.7	94.4	96.3	96.8	93.2	88.0	84.2	95.1	85.6	83.0	81.6	81.9	80.8	80.8	81.7	85.1	83.7	82.7	82.1	82.9	81.8	Diurnal Maximum	
OR - Out of Range																											



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Sawbones Bay - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Sawbones Bay - March 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	92	13.09	13.09
40 - 60	244	34.71	47.80
60 - 80	292	41.54	89.33
80 - 100	75	10.67	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Sawbones Bay - March 2024

Maximum Speed: 29 km/h on Mar 15 10:00	Maximum Daily Speed Average: 17.8 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 1 km/h on Mar 22 13:00	Minimum Daily Speed Average: 2.4 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.2 km/h at hour 22	Minimum Diurnal Speed Average: 0.9 km/h at hour 3	Hours of Missing Data: 0
Monthly Average Velocity: 1.7 km/h 169.0 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 7 Median = 10 Q ₃ = 15 P ₉₀ = 18 P ₉₉ = 25	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	NW8	NW9	WNW11	WNW14	WNW17	WNW16	WNW17	WNW22	WNW22	WNW24	WNW21	WNW20	W18	WNW18	WNW17	NW15	WNW14	NW11	NW7	NNW7	NNW5	N5	NNW4	NNW5	WNW13.1	WNW24
2-Mar	N6	NNE5	ESE3	ENE3	NNE4	NNE5	NE4	NNE2	NE6	ENE8	NE8	NNE13	NNE14	NNE13	NNE14	NE13	NE11	NNE12	NNE13	NNE13	NE10	NE9	NE12	NE12	NE8.6	NNE14
3-Mar	NNE11	NNE14	NNE15	NE9	NNE9	NNE9	NNE9	NNE10	NNE10	NE9	NE10	NE9	NNE12	NNE13	NNE14	NNE14	N15	N14	N15	NNW18	NNW14	NW15	NW14	NW13	N10.7	NNW18
4-Mar	NW14	NW17	NW16	NW14	NW13	NW13	WNW13	WNW13	WNW12	WNW15	WNW16	NW16	NW14	WNW14	WNW14	WNW16	NW12	WNW11	WNW8	WNW8	WNW11	WNW13	WNW12	W6	WNW12.8	NW17
5-Mar	W10	WSW5	WSW5	WSW7	SSW5	SSW7	SSW6	S7	SSW7	SW9	SSW9	SW8	S8	SSE5	S7	SE6	SE3	S6	SSE6	SSE7	SSE8	SSE9	SSE7	SSE8	SSW5.7	W10
6-Mar	SSE7	SSE7	SSE8	SE6	SE4	S4	SSE5	SSE6	S4	SSE6	S10	S12	S11	S13	S14	S12	S11	S13	SSE8	S8	S9	SSE8	SSE8	S8	S8.2	S14
7-Mar	S9	S10	S11	S10	SSE11	SSE10	SSE10	SSE8	S11	S18	S20	SSW19	SSW19	S18	SSW20	S19	S19	S17	S17	S16	SSW13	SSW12	SSW10	SSW9	S13.9	S20
8-Mar	S8	S8	S9	SSE9	S6	S5	S6	S7	SSE8	SSE7	S5	SSE8	S9	SSW11	SSW11	SSW10	S11	S10	SSE8	SSE12	S15	S15	S12	S12	S9.1	S15
9-Mar	SSE14	SSE13	S14	SSE15	SSE13	SSE12	SSE13	SSE13	SSE14	SSE12	SSE16	SSE17	SSE20	SSE22	SSE21	SSE19	SSE19	SSE12	SSE8	SSE9	SE10	S9	S7	S9	SSE13.7	SSE22
10-Mar	S11	SSW10	S8	SSW10	SW15	SW15	SW15	WSW16	W18	W21	W25	W23	W25	W25	W24	W23	WNW14	WNW10	WNW4	NNW6	NNE5	E4	ENE4	ESE5	WSW11.0	W25
11-Mar	NE3	NNE6	NNE10	NNE13	NNE13	NNE8	NNE4	NNW6	NNE9	NNE9	NNE7	NE5	SSW2	NW4	NW3	N5	NNE8	NE6	NE3	ENE3	E5	E7	E8	E8	NNE5.3	NNE13
12-Mar	ESE7	E6	E4	ENE3	ENE3	ENE4	NE3	NE4	ENE6	ENE7	ENE9	E11	E13	E10	E10	ENE11	ENE10	ENE8	ENE6	E7	ENE6	ENE4	NE3	NE3	ENE6.5	E13
13-Mar	NE3	NE3	NNE4	ENE4	E5	E6	E6	E7	SE6	SSE5	SSW3	NW1	SSE4	SSW4	S3	SSE4	SSW6	SW10	SW9	SW13	SSW8	SSW9	SSW8	S7	S3.3	SW13
14-Mar	S9	SSW8	S8	S8	S9	S8	S8	S9	SSW9	SW13	SW16	SW16	SW20	SW20	SW19	SW17	SSW12	SSW12	SSW15	SW17	SW18	WSW16	WSW22	SW12.6	WSW22	
15-Mar	WSW23	W21	W18	WNW20	WNW19	W22	WNW20	NNW21	NNW28	NNW29	NNW27	N23	N22	N18	N16	N18	N18	NNE14	NNE9	N8	N7	N5	N5	NNE6	NW13.5	NNW29
16-Mar	NNE7	N5	NNE5	NE4	NNE7	NNE6	NNE9	NNE8	NNE8	NNE10	NNE7	NNE9	NNE10	NNE8	NNE9	NNE10	NNE12	NNE9	NNE6	E8	E9	ESE10	SE10	SE10	NE6.5	NNE12
17-Mar	SE9	SE8	ESE8	SSE12	SSE15	SSE14	SSE12	SSE12	S13	S15	S17	S18	S17	S20	S23	S22	S21	S19	S19	SSW18	SSW18	SSW18	SW19	SW20	S14.9	S23
18-Mar	SW17	W14	W15	WNW12	WNW11	WNW13	WNW12	N11	NNW11	N11	NNW11	NW20	NNW17	NNW16	N17	N18	N19	N20	N21	N21	N21	N17	N17	N15	NNW12.7	N21
19-Mar	N17	N16	N16	N13	N13	N13	N14	N16	N15	N13	N14	N13	NNE14	N14	N15	N15	N15	N12	NNE10	N9	N6	NNW5	NNW6	N6	N12.5	N17
20-Mar	NNE6	NE4	NNE4	ENE3	E2	NE4	NNE4	NNE5	ENE5	N8	NNE8	N8	NNE8	NNE8	N8	N6	NNE6	NNE8	NNE6	ENE4	ENE3	E5	E7	ESE8	NE5.0	NNE8
21-Mar	E6	E6	E5	E6	E6	E7	E7	E7	E8	E9	ENE8	ENE10	E11	ENE10	E11	NE10	NNE10	NNE13	NNE5	N5	N3	N8	N7	NNE6	ENE6.4	NNE13
22-Mar	NNE5	NNE4	NE3	NNE2	NNE3	NE4	ESE3	SE3	SSE5	ESE4	ENE2	SE2	S1	NNW1	N3	NW5	N3	NNE6	NE5	ENE4	ESE9	ESE8	SE8	SE9	E2.4	ESE9
23-Mar	SE8	SE4	SSE3	S5	S8	SSE8	SSE7	SSE6	SSW6	S6	SSW7	S7	SSE8	SE8	SSW5	WSW3	ESE7	ESE8	SE5	ESE6	SE7	SSE9	SSE11	S6	SSE5.9	SSE11
24-Mar	SSE3	SSE7	SSE8	SE6	ESE4	SE5	SSE7	SSE10	S11	S14	S16	S14	S11	SE8	S11	SSE11	SE10	SSE8	SE7	SE8	SE8	SE8	SE7	SSE9	SSE8.0	S16
25-Mar	SE9	SE8	SE8	ESE7	ESE9	ESE10	ESE9	SE13	SSE16	SE14	SE14	SSE16	SSE17	SSE19	SSE19	SSE18	S20	SSE16	SSE14	SSE16	SSE19	SSE19	SSE17	SSE17	SSE13.9	S20
26-Mar	SSE13	SSE13	SSE12	SSE11	SE11	SSE12	SE12	SSE14	SSE18	SSE22	SSE27	SSE28	SSE27	SSE26	SSE23	SSE21	SSE20	SSE20	SE17	SE17	SE16	SE16	SE16	SE16	SSE17.8	SSE28
27-Mar	SSE17	SE15	SE15	SE13	SE15	SE15	SE15	ESE15	ESE16	ESE18	ESE17	ESE18	SE17	SE18	ESE15	ESE17	ESE15	ESE13	E9	E7	E6	E6	E6	E7	ESE13.0	ESE18
28-Mar	E5	E5	E5	ENE5	ENE4	NNE5	NNE6	NNE7	NE7	NNE8	NNE10	NNE12	NNE11	NNE11	N13	N14	NNE13	NNE12	NNE9	NNE7	N6	NNW6	N5	NNW7	NNE7.3	N14
29-Mar	NNW7	NNW7	NNW8	NW7	NW7	NW7	NW7	NNW9	NNW14	NNW13	N15	NNW16	NW15	NW12	NNW14	NNW14	NNW13	NW10	NW7	WNW7	WNW8	WNW8	WNW7	WNW8	NNW9.5	NNW16
30-Mar	WNW7	WNW8	WNW9	W3	SSW2	S5	S4	SSE5	S8	SSW8	SSW10	S12	SE12	SSE10	S10	S11	SSE9	SSE10	S9	S8	S9	SSE9	SE8	SE10	S6.3	S12
31-Mar	SSE10	SSE11	SSE11	SSE14	SSE14	SSE11	SSE10	SSE10	S11	SSW13	SSW17	SSW16	SW18	SSW20	SSW20	SSW21	SSW19	S18	S16	S15	S17	S23	S22	S20	S15.0	S23

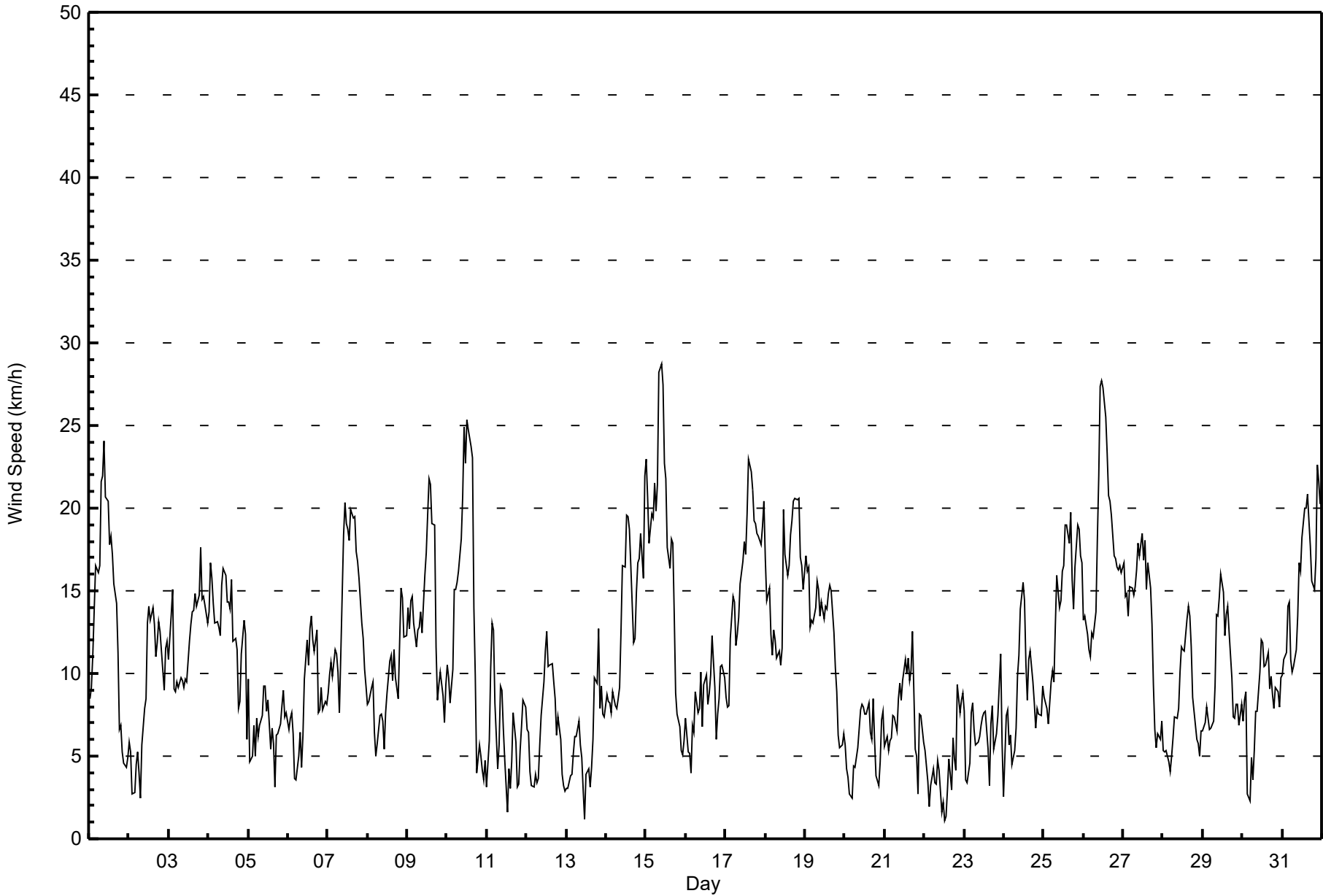
S1.5	S1.2	SSE0.9	SSE1.4	SSE1.5	S1.4	SSE1.1	SSE1.1	S1.1	SSW1.4	SSW2.0	SSW2.1	SSW2.6	S2.7	S1.9	SSE1.0	SE1.4	ESE1.5	SE1.6	SE2.0	SSE2.7	S3.2	SSE2.9	S3.1	Diurnal Average		
WSW23	W21	W18	WNW20	WNW19	W22	WNW20	WNW22	NNW28	NNW29	NNW27	SSE28	SSE27	SSE26	W24	W23	S21	N20	N21	N21	N21	N21	S23	S22	WSW22	Diurnal Maximum	

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 - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed (WS) - km/h
Sawbones Bay - March 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	119	15.99	15.99
6 - 11	324	43.55	59.54
12 - 19	244	32.80	92.34
20 - 28	56	7.53	99.87
29 - 38	1	0.13	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 - March 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	18	15	16	10	5	7	9	9	6	0	3	1	1	4	5	119
6 - 11	15	49	11	13	30	14	25	51	50	22	4	1	2	15	10	12	324
12 - 19	32	23	3	0	1	9	16	45	30	16	15	2	5	22	15	10	244
20 - 28	6	0	0	0	0	0	0	12	9	4	3	2	9	7	3	1	56
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	63	90	29	29	41	28	48	117	98	48	22	8	17	45	32	29	744

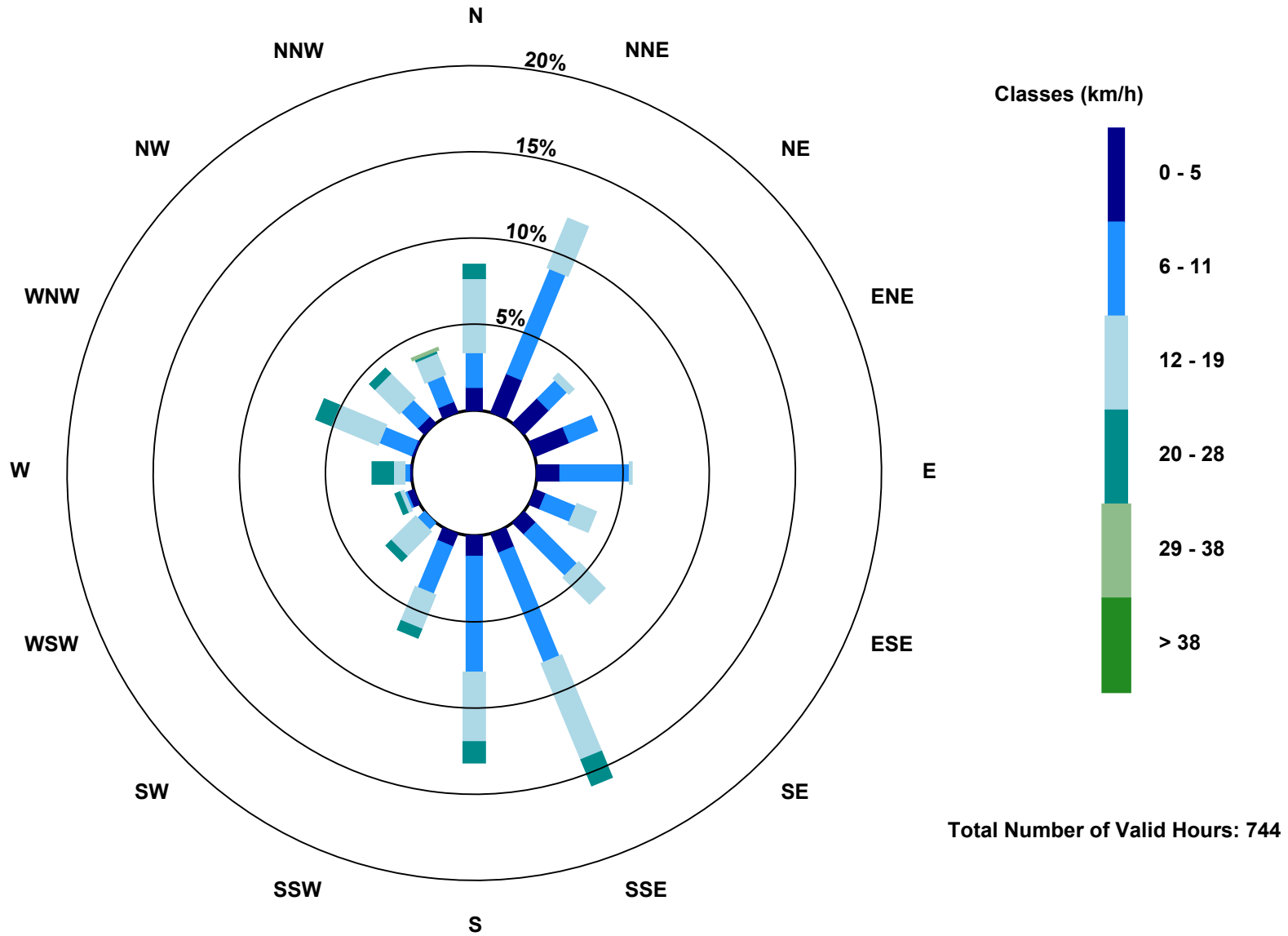
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Sawbones Bay





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Sawbones Bay - March 2024

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



Wood Buffalo Environmental Association
Summary of Hour Averages

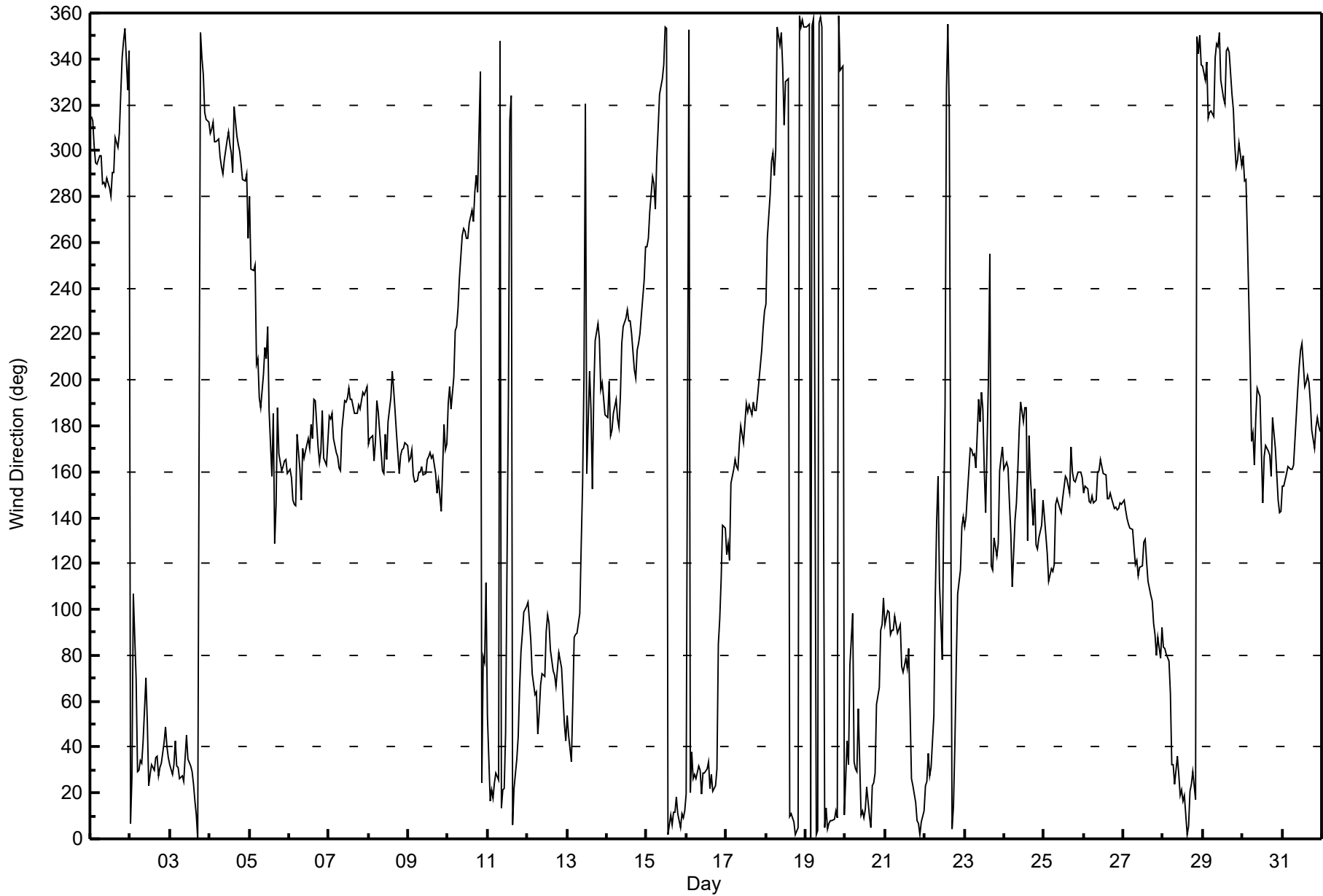
Wind Direction (WD) - deg
Sawbones Bay - March 2024

Direction of Maximum Speed: 331 deg on Mar 15 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 152.3 deg on Mar 26	Hours of Data: 744
Direction of Minimum Speed: 188 deg on Mar 22 13:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 2.4 deg on Mar 22	Percent Operational Time: 100.0
Monthly Average Direction: 169.0 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-Mar	315	313	302	294	294	298	298	285	286	284	288	284	280	291	290	306	301	307	325	341	348	353	327	344	297.2
2-Mar	7	27	107	70	29	30	34	33	43	70	50	23	28	32	30	35	36	27	31	33	42	49	40	35	35.7
3-Mar	32	28	32	43	32	31	26	28	25	35	45	35	32	29	24	16	10	0	351	340	333	317	314	312	10.4
4-Mar	307	309	312	304	304	305	297	293	290	296	304	308	303	299	290	319	306	303	299	294	288	287	290	262	299.9
5-Mar	280	248	248	250	207	209	192	188	203	214	209	223	187	158	185	129	146	188	168	160	162	164	165	159	193.6
6-Mar	161	157	148	146	145	176	161	148	170	166	169	175	170	181	175	191	191	171	164	169	187	166	163	173	170.1
7-Mar	184	183	185	175	168	166	162	161	178	191	190	192	197	191	192	185	186	185	189	187	194	193	196	197	186.2
8-Mar	172	175	176	164	173	191	186	169	160	159	176	165	182	192	204	196	187	177	159	167	170	170	173	171	175.6
9-Mar	165	166	169	159	156	156	160	160	162	159	159	165	167	168	166	167	159	151	156	149	143	181	170	172	162.3
10-Mar	190	197	187	201	221	223	231	245	263	266	265	262	262	269	274	269	282	289	282	334	24	79	77	112	254.3
11-Mar	54	17	21	18	25	29	26	348	14	21	22	46	192	313	324	6	22	35	44	66	82	90	99	101	32.6
12-Mar	103	95	87	72	63	64	46	55	67	72	71	90	97	94	82	73	71	66	74	81	74	62	50	43	77.6
13-Mar	54	45	33	59	88	89	90	98	128	154	202	320	159	204	187	153	195	217	224	218	196	199	192	185	171.6
14-Mar	184	200	176	178	185	191	183	179	193	216	223	227	231	226	226	220	204	201	213	216	220	228	243	258	216.2
15-Mar	258	262	273	288	285	275	297	310	325	331	337	354	354	2	10	6	11	12	18	11	5	11	9	12	326.1
16-Mar	20	353	20	38	26	28	26	31	30	19	29	29	31	33	22	28	21	23	31	85	96	113	137	135	41.8
17-Mar	124	129	121	155	161	166	162	161	172	180	173	181	190	186	189	185	190	187	186	193	200	213	223	230	183.6
18-Mar	233	262	280	295	299	289	300	354	346	352	336	311	330	331	10	11	9	7	2	5	359	354	357	354	337.2
19-Mar	354	354	355	1	354	357	2	4	355	358	354	5	14	4	7	8	8	8	12	9	359	335	337	11	1.0
20-Mar	27	43	33	76	98	34	31	29	57	10	12	9	13	23	10	5	23	25	29	59	66	91	93	105	35.3
21-Mar	93	100	99	89	91	91	97	90	92	93	75	73	79	75	83	56	26	23	16	8	7	2	7	12	64.4
22-Mar	23	25	37	27	31	54	105	139	158	112	78	140	188	327	355	317	4	14	41	76	107	117	136	140	81.1
23-Mar	136	140	151	170	170	167	168	162	192	182	195	187	161	142	201	255	119	117	131	123	129	160	166	171	159.3
24-Mar	161	164	162	146	133	110	139	147	161	179	190	182	188	188	130	176	158	137	152	128	127	131	137	148	158.5
25-Mar	141	132	124	112	118	117	120	146	148	144	142	148	153	158	157	151	171	160	156	156	160	160	160	157	149.6
26-Mar	151	154	153	147	146	149	146	148	160	161	166	162	159	159	148	148	151	148	144	145	143	144	146	146	152.3
27-Mar	148	143	140	137	135	135	127	120	121	114	118	119	130	131	121	112	106	104	94	89	80	88	79	92	121.0
28-Mar	83	83	81	77	64	32	32	24	36	28	19	21	16	19	2	6	21	24	29	17	350	342	350	337	22.3
29-Mar	337	331	338	314	317	317	315	340	347	345	351	330	323	320	344	345	343	325	318	303	293	296	303	294	328.1
30-Mar	298	287	287	263	208	173	177	163	183	197	193	170	146	167	172	169	167	158	184	177	170	147	142	143	176.7
31-Mar	154	154	159	163	162	161	161	163	185	196	205	213	216	197	199	202	199	190	178	170	179	183	180	178	184.2

173.9	181.1	163.0	165.0	163.4	169.9	160.9	147.3	180.3	196.8	206.1	199.7	191.6	190.4	182.0	158.8	127.5	112.9	133.7	141.6	154.1	168.9	167.7	169.2
Diurnal Average																							

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Sawbones Bay - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744								
Maximum Value: 104 deg on Mar 22 13:00																			Hours of Data: 744								
Minimum Value: 4 deg on Mar 5 22:00																			Hours of Missing Data: 0								
Percentiles: P ₁ = 6 P ₁₀ = 10 Q ₁ = 13 Median = 17 Q ₃ = 22 P ₉₀ = 32 P ₉₉ = 83																			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-Mar	11	12	12	11	12	13	13	10	11	12	15	14	19	18	15	20	17	16	10	9	10	10	9	7	20		
2-Mar	11	14	28	32	18	17	22	21	26	33	33	21	20	24	20	23	24	14	17	19	24	29	23	21	33		
3-Mar	18	16	16	27	17	16	14	13	13	22	26	21	19	18	15	14	14	16	17	13	18	11	12	12	27		
4-Mar	11	11	12	12	12	11	10	9	9	13	17	22	17	17	15	16	19	12	8	6	6	6	6	38	38		
5-Mar	10	29	25	25	26	15	15	12	21	18	20	28	33	49	26	34	59	18	6	8	5	4	4	5	59		
6-Mar	10	7	16	11	17	37	23	9	31	19	18	19	22	26	18	24	23	13	9	11	11	7	7	9	37		
7-Mar	12	12	11	10	7	6	8	11	15	16	16	16	17	18	16	17	15	15	14	14	14	13	13	14	18		
8-Mar	14	6	7	6	23	22	13	9	11	12	22	21	24	24	22	25	18	17	10	10	11	11	10	11	25		
9-Mar	10	13	11	9	10	9	9	11	12	12	13	12	14	14	13	15	14	14	16	11	14	27	19	12	27		
10-Mar	15	15	11	18	14	14	15	17	14	16	15	19	15	18	17	17	20	15	54	9	23	27	31	22	54		
11-Mar	40	23	13	13	15	15	18	22	14	15	32	45	84	69	67	55	22	21	27	34	29	23	18	16	84		
12-Mar	17	21	29	33	35	33	30	33	30	31	32	28	24	31	30	34	33	32	31	26	29	32	33	32	35		
13-Mar	30	31	18	21	18	15	15	12	23	27	63	91	71	67	55	48	29	21	21	18	15	14	17	10	91		
14-Mar	7	19	9	9	8	15	10	12	16	19	15	16	17	17	17	16	15	15	15	14	16	15	16	12	19		
15-Mar	11	14	15	11	17	16	12	13	17	18	18	20	21	19	19	16	16	16	11	8	11	8	9	9	21		
16-Mar	12	18	22	23	10	14	13	19	19	16	29	32	33	40	32	24	17	15	20	30	20	13	19	16	40		
17-Mar	15	16	15	15	12	13	18	15	16	17	15	15	18	18	15	16	15	15	14	14	15	15	15	14	18		
18-Mar	16	18	15	10	9	7	9	17	21	23	26	17	22	26	19	16	16	17	16	18	17	16	17	17	26		
19-Mar	17	17	16	15	15	17	16	16	19	20	20	25	23	26	22	21	20	16	11	12	22	14	12	11	26		
20-Mar	13	27	20	28	35	12	10	14	36	30	29	31	42	69	39	57	44	18	14	30	39	23	22	13	69		
21-Mar	30	19	21	21	19	24	16	21	25	29	36	39	35	37	35	38	26	15	8	9	24	10	11	9	39		
22-Mar	11	13	15	21	25	20	14	28	20	61	96	98	104	98	84	69	81	35	25	30	16	11	13	12	104		
23-Mar	13	15	14	7	4	4	5	12	29	33	56	52	52	46	75	86	44	26	25	11	13	11	6	41	86		
24-Mar	45	9	7	14	15	15	27	12	15	18	19	22	23	27	31	32	20	20	18	15	19	17	14	13	45		
25-Mar	16	15	14	13	13	12	14	15	16	21	22	22	22	22	19	21	18	14	13	13	13	13	13	13	22		
26-Mar	14	13	14	14	16	15	15	16	16	16	15	17	17	17	19	18	16	16	18	17	17	17	16	16	19		
27-Mar	15	17	18	18	18	18	18	17	18	16	16	17	20	20	20	16	16	16	20	24	27	23	30	20	30		
28-Mar	26	27	25	30	30	18	17	14	23	28	19	18	17	18	17	16	16	14	15	13	11	7	9	11	30		
29-Mar	16	16	13	10	9	10	11	18	17	18	18	18	18	25	18	15	18	15	12	12	10	13	15	10	25		
30-Mar	8	7	18	48	55	10	21	11	18	28	32	26	29	36	29	24	34	22	14	14	10	16	17	13	55		
31-Mar	10	11	11	9	11	11	12	13	21	18	18	19	22	21	21	20	18	17	14	13	15	15	14	14	22		
	45	31	29	48	55	37	30	33	36	61	96	98	104	98	84	86	81	35	54	34	39	32	33	41			
Diurnal Maximum																											



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS507
KIRBY SOUTH
MARCH 2024

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS 507)
MARCH 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	8.2	0	2	0
H2S (ppb) Average	705	38	39	99.87	0.8	0	0.1	0
THC (ppm) Average	707	36	37	99.87	3.4	-	2.5	-
NO2 (ppb) Average	660	39	84	93.95	18.3	0	3.7	-
NO (ppb) Average	660	39	84	93.95	20.2	-	1.3	-
NOX (ppb) Average	660	39	84	93.95	38.2	-	5	-
Temperature 2 m (C) Average	744	0	0	100	9.8	-	3	-
Relative Humidity (%) Average	744	0	0	100	94.6	-	84.1	-
Wind Speed 10 m (km/h) Average	744	0	0	100	28	-	19	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH(AMS507)
MARCH 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	0.5	0.8	-	0	0	0.1	0.3	0.6	1.1	8.2
H2S (ppb) Average	705	0.07	0.1	-	0	0	0	0.1	0.1	0.1	0.8
THC (ppm) Average	707	2.34	0.1	-	2.1	2.2	2.3	2.3	2.4	2.5	3.4
NO2 (ppb) Average	660	1.61	1.7	-	0.1	0.4	0.7	1.1	2	3.4	18.3
NO (ppb) Average	660	0.21	1.1	-	0	0	0	0	0.1	0.3	20.2
NOX (ppb) Average	660	1.82	2.5	-	0.1	0.4	0.7	1.2	2.1	3.9	38.2
Temperature 2 m (C) Average	744	-7.95	8.9	-	-28.3	-21.2	-14.8	-7.7	-1.8	4.4	9.8
Relative Humidity (%) Average	744	61.84	16.7	-	20.5	39.5	49.3	62.5	75.3	83.2	94.6
Wind Speed 10 m (km/h) Average	744	12.6	5	-	2	6	9	12	16	20	28
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY SOUTH (AMS507)
MARCH 2024

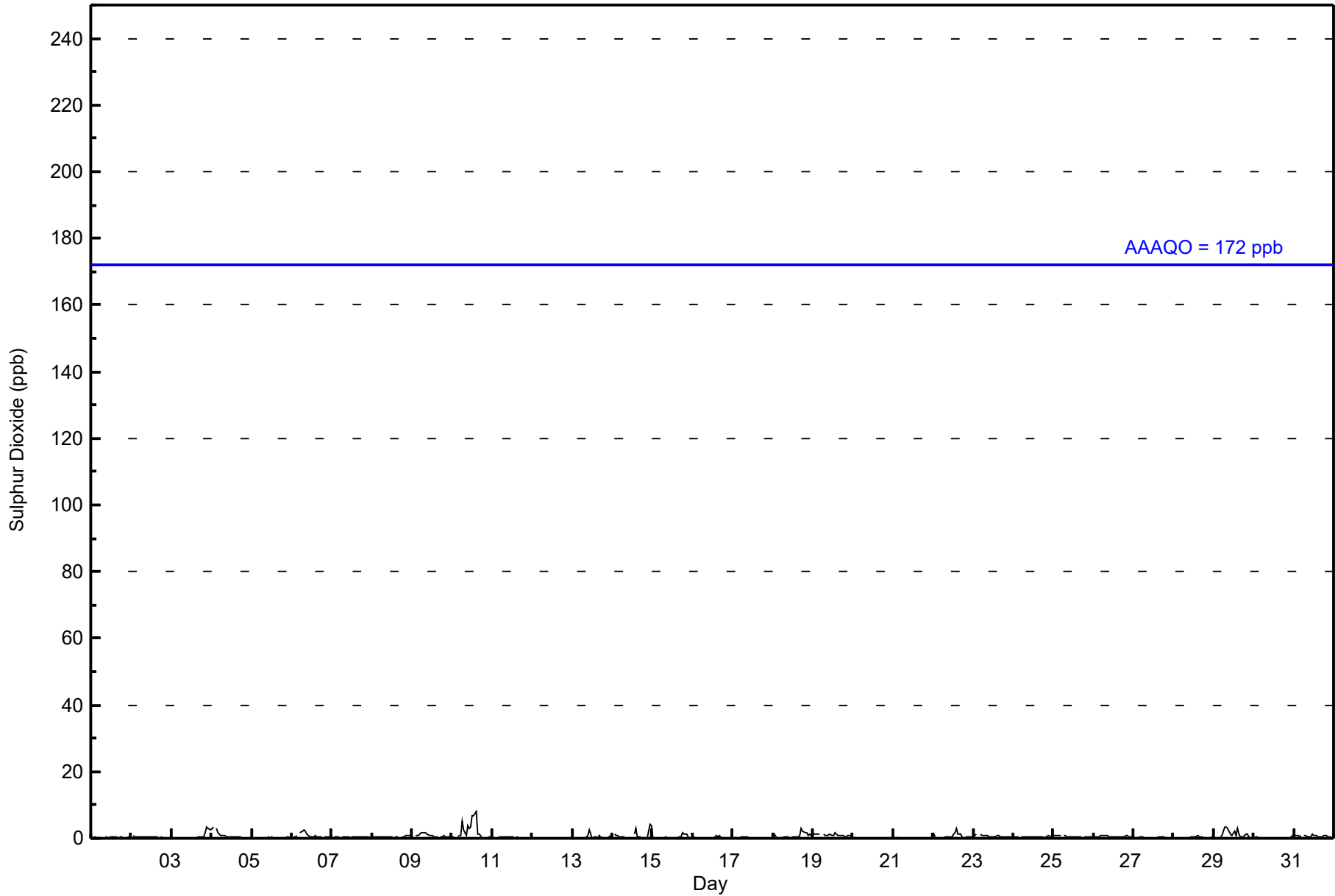
OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
H2S, SO2, THC	15 Mar 2024 15:00	15 Mar 2024 15:00	1	Maintenance - sample manifold cleaned
NO2	09 Mar 2024 11:00	09 Mar 2024 13:00	3	Unstable Operation - excessive baseline noise
NO2	13 Mar 2024 18:00	15 Mar 2024 11:00	42	Maintenance - analyzer replaced and stablization



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Kirby South - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Kirby South - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (SO₂) - ppb
Kirby South - March 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	13	28	52	60	52	41	18	39	47	109	80	49	17	31	36	35	707
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
Totals	13	28	52	60	52	41	18	39	47	109	80	49	17	31	36	35	707

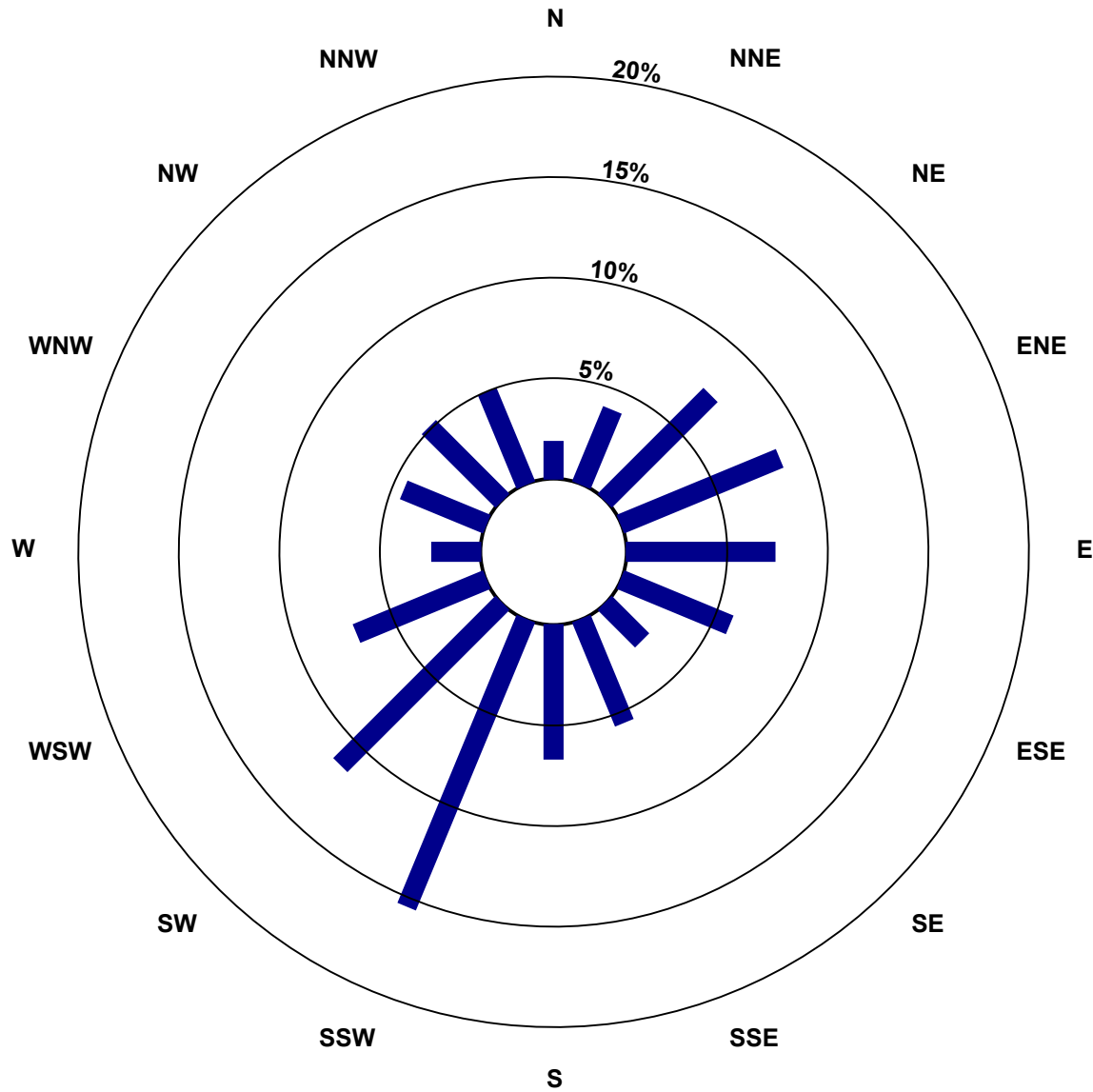
Total Number of Valid Hours: 707

Total Number of Hours: 744

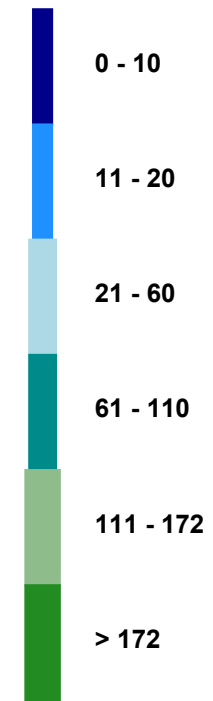


Wood Buffalo Environmental Association
Wind Rose Mar 2024

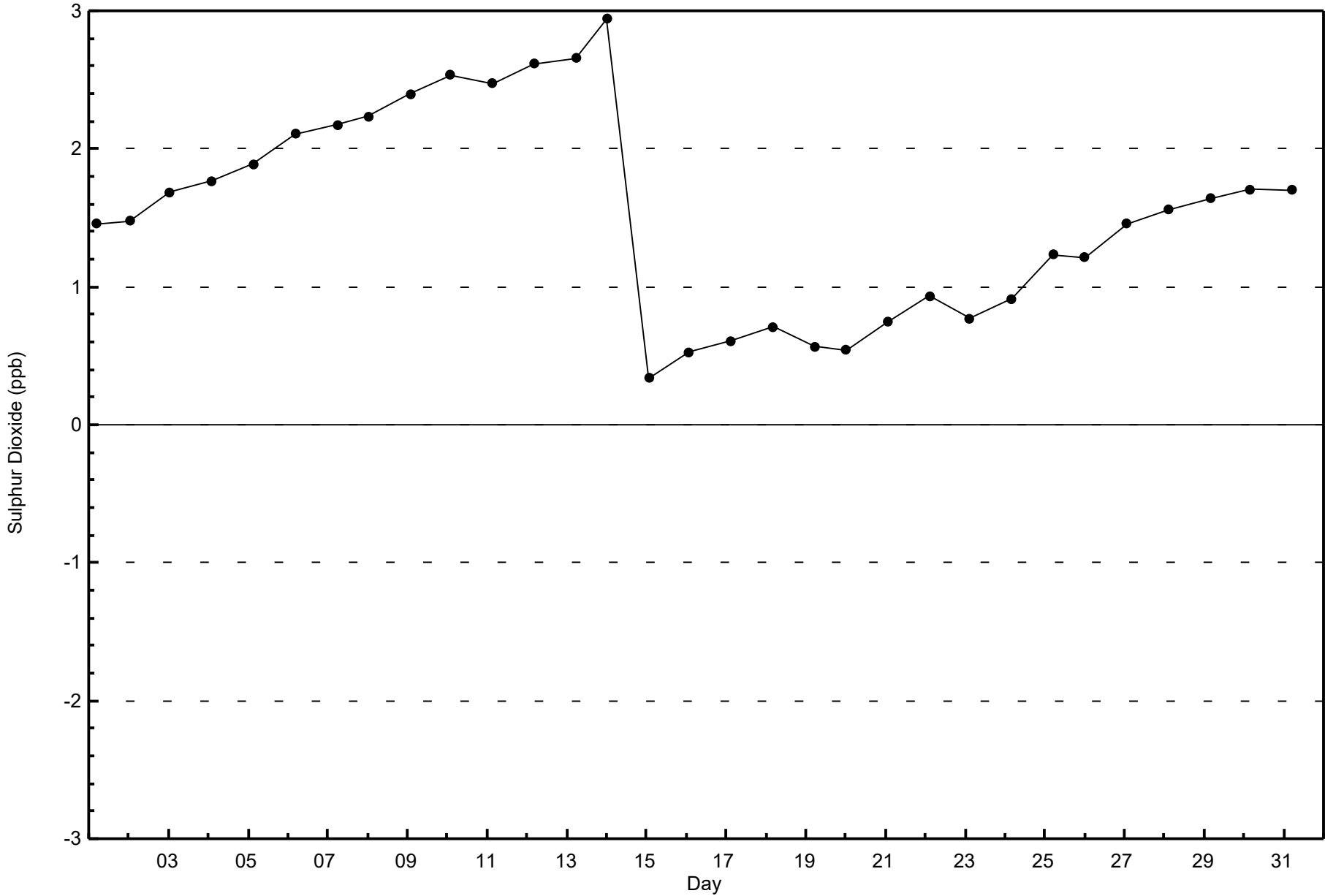
Sulphur Dioxide (SO₂) - ppb
Kirby South

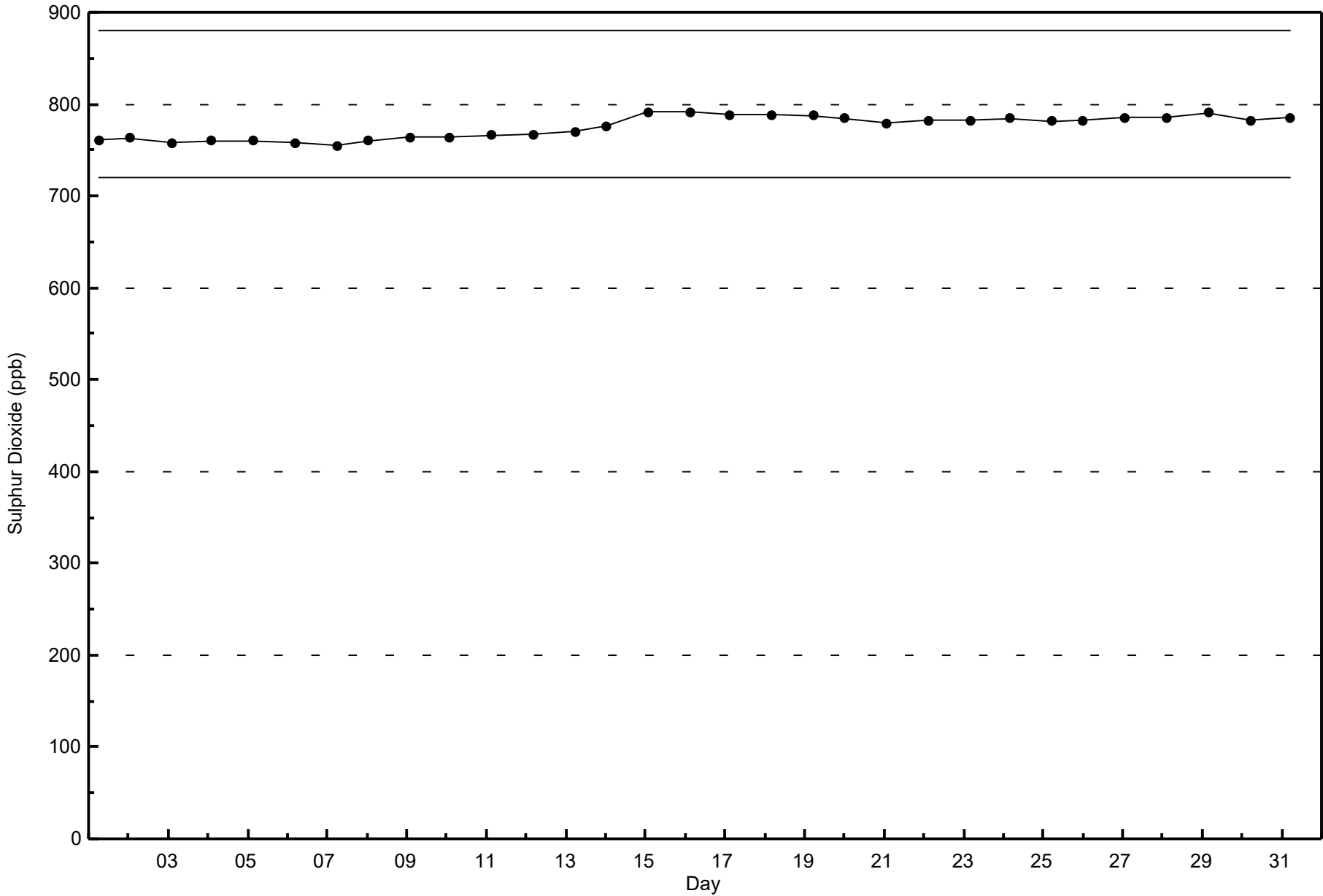


Classes (ppb)



Total Number of Valid Hours: 707

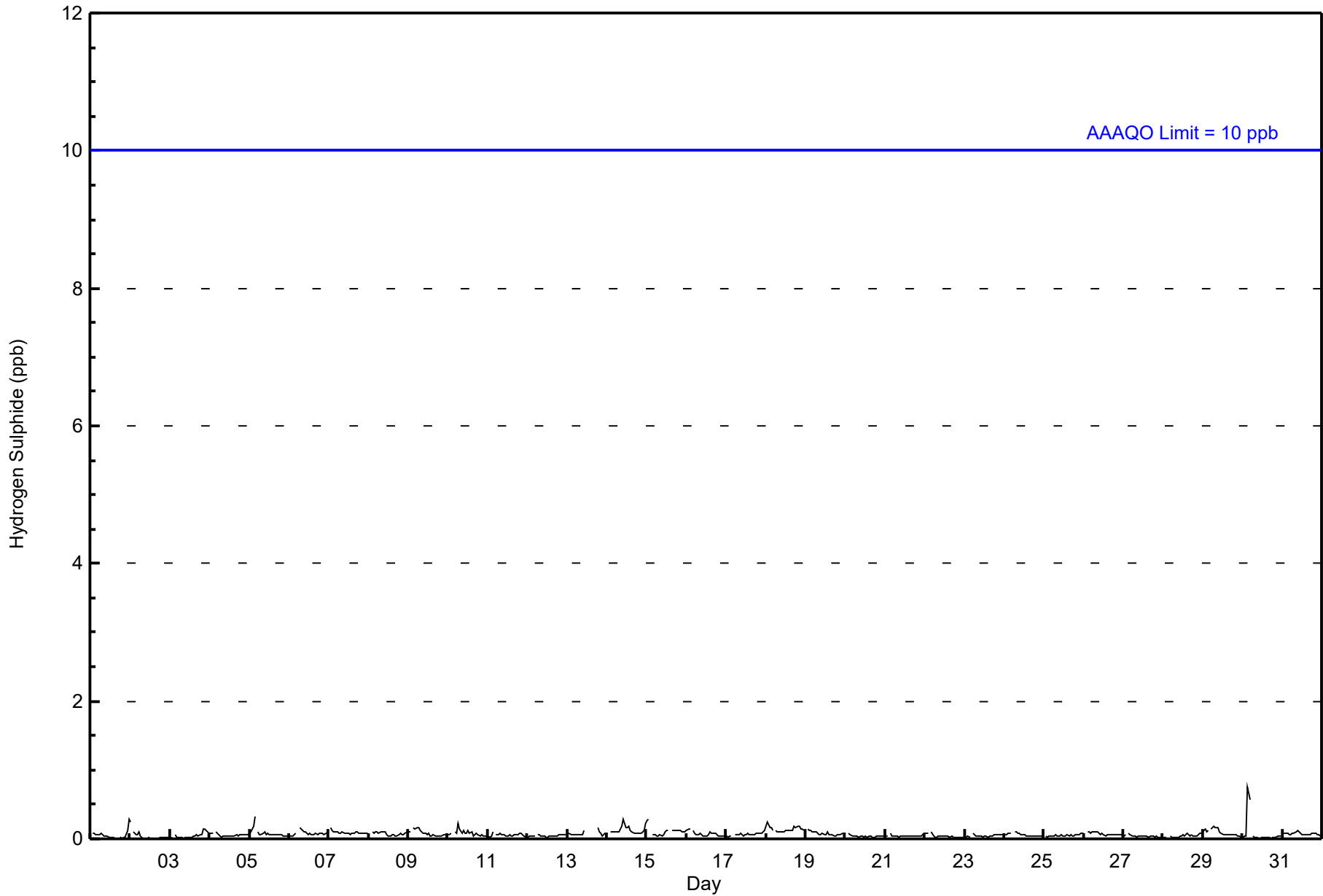






Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (H₂S) - ppb
Kirby South - March 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	14	28	52	59	53	41	18	39	47	108	79	47	20	30	37	33	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
Totals	14	28	52	59	53	41	18	39	47	108	79	47	20	30	37	33	705

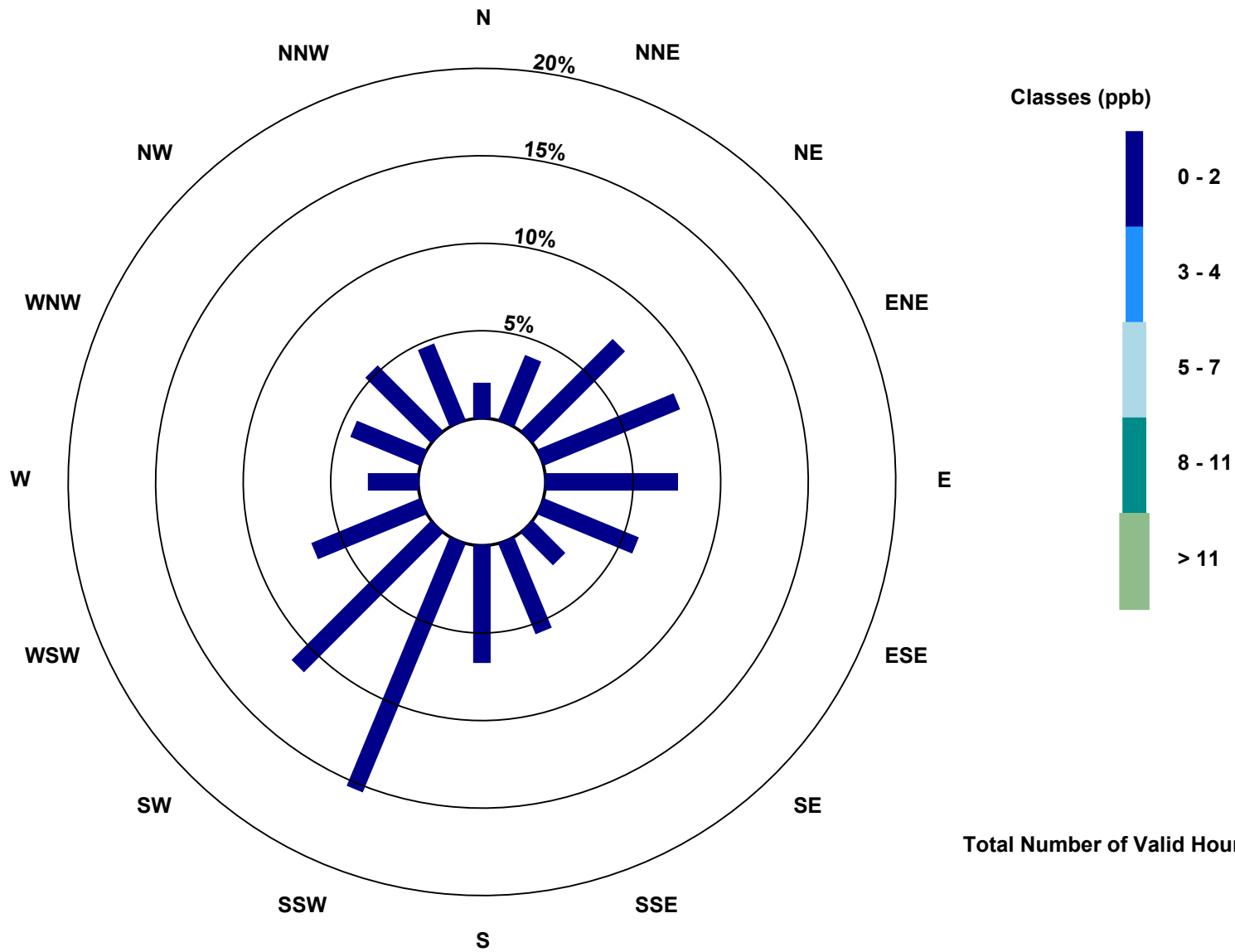
Total Number of Valid Hours: 705

Total Number of Hours: 744

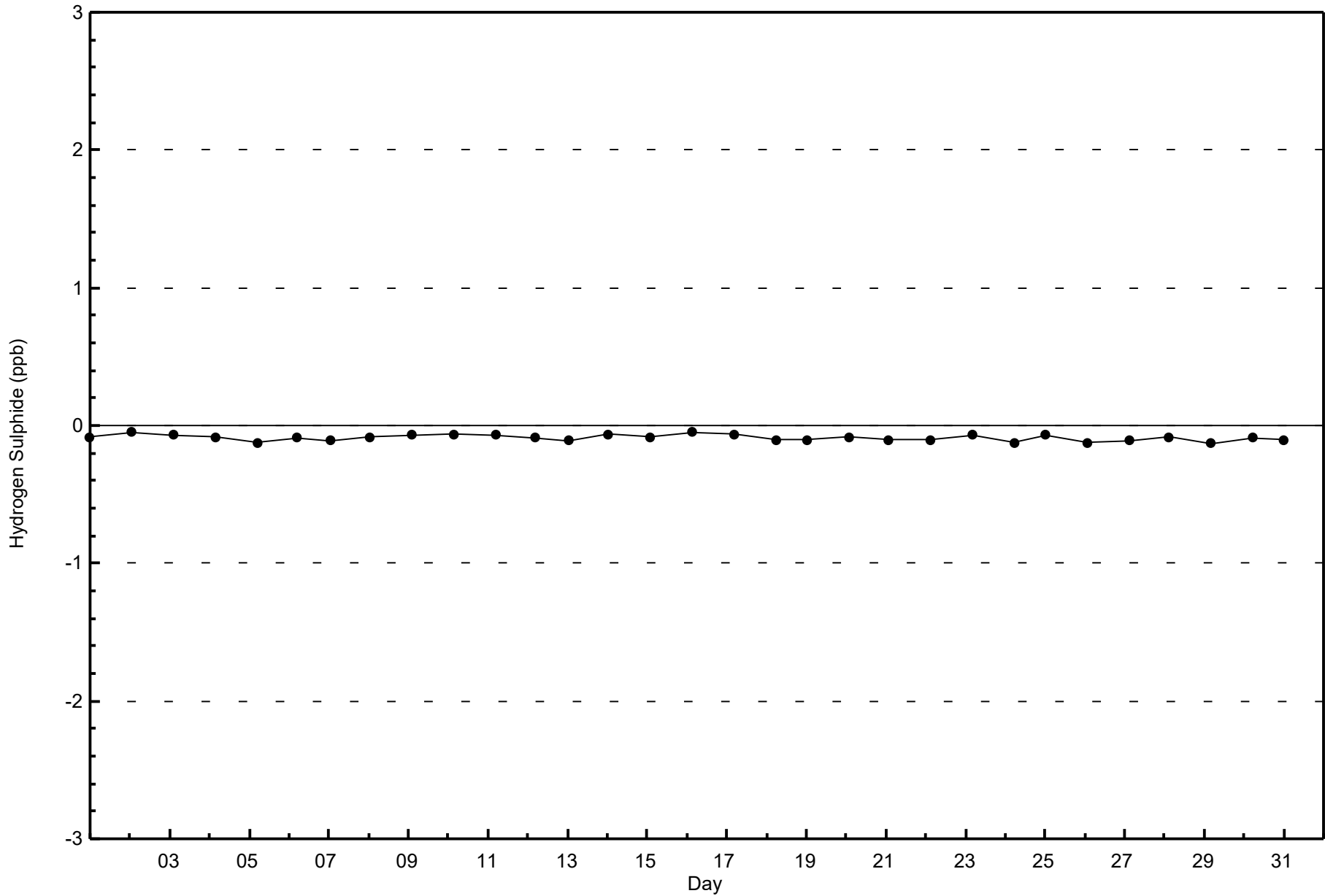


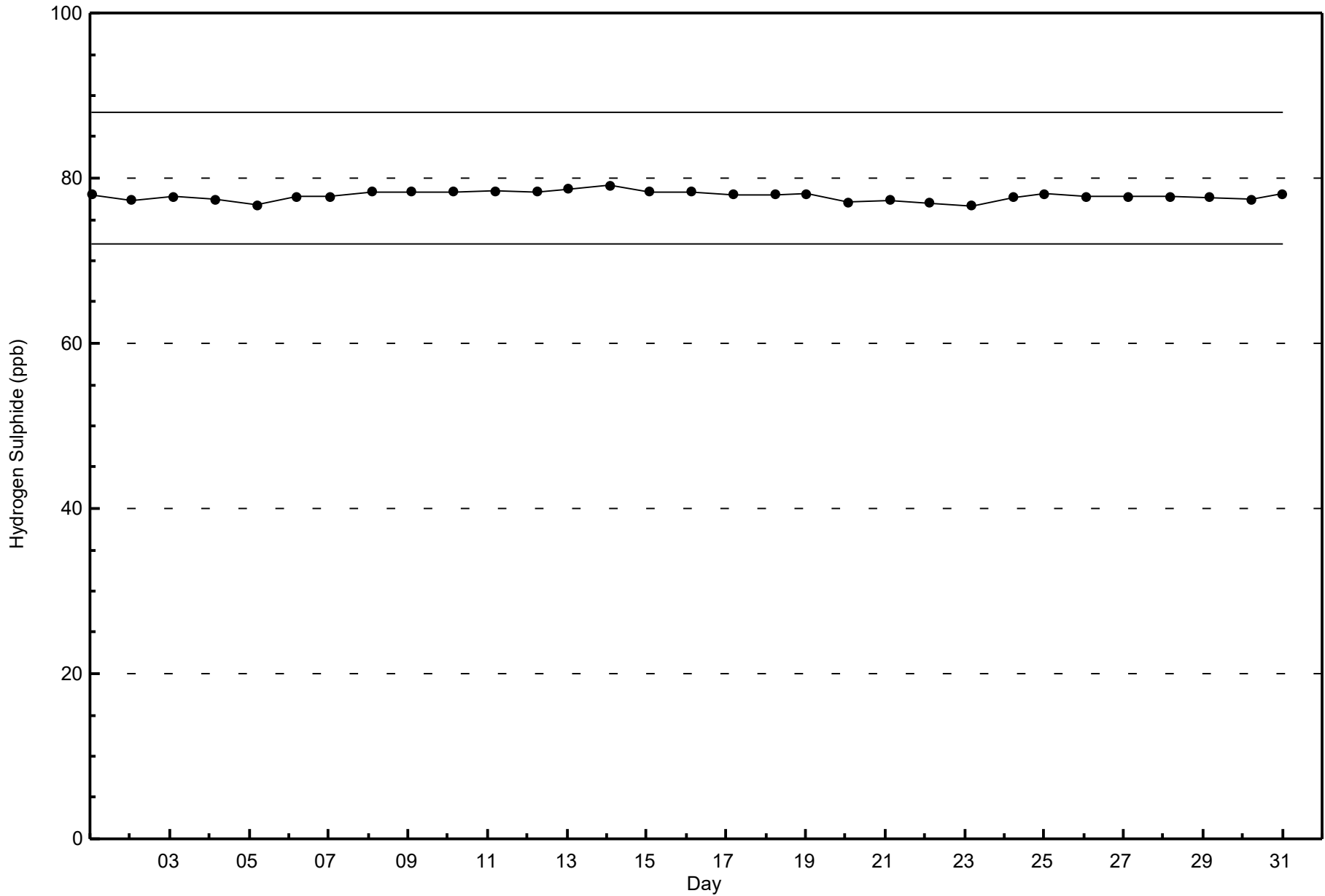
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Hydrogen Sulphide (H₂S) - ppb
Kirby South



Total Number of Valid Hours: 705





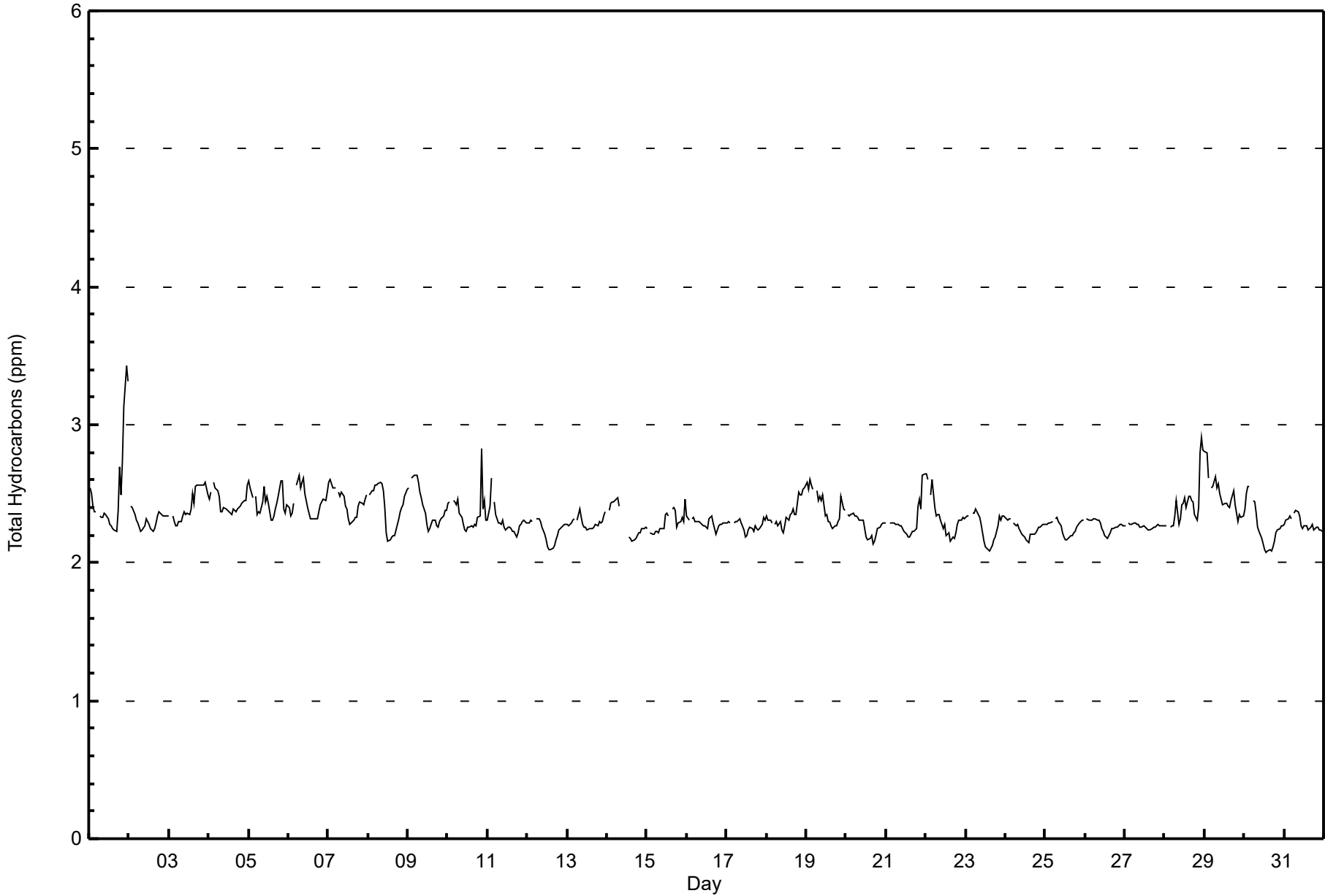


Maximum Value: 3.4 ppm on Mar 1 23:00		Maximum Daily Average: 2.5 ppm on Mar 1		Hours in Service: 744																																														
Minimum Value: 2.1 ppm on Mar 30 14:00		Minimum Daily Average: 2.2 ppm on Mar 12		Hours of Data: 707																																														
Maximum Diurnal Average: 2.4 ppm at hour 24		Minimum Diurnal Average: 2.2 ppm at hour 14		Hours of Missing Data: 37																																														
Monthly Average: 2.34 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.2 Q ₁ = 2.3 Median = 2.3 Q ₃ = 2.4 P ₉₀ = 2.5 P ₉₉ = 2.8		Hours of Calibration: 36																																														
Percentiles: P ₉₀ = 2.5 P ₉₉ = 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-Mar	2.5	2.5	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.4	2.7	2.5	2.7	3.1	3.4	3.3	2.5	3.4																								
2-Mar	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4																							
3-Mar	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.4	2.6																								
4-Mar	2.5	2.5	Z	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.4	2.6																								
5-Mar	2.6	2.5	2.5	Z	2.5	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.4	2.4	2.4	2.4	2.6																								
6-Mar	2.4	2.3	2.4	2.4	Z	2.6	2.6	2.5	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.6																								
7-Mar	2.6	2.6	2.6	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.6																								
8-Mar	Z	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.4	2.5	2.5	2.4	2.6																								
9-Mar	2.5	Z	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.6																								
10-Mar	2.4	2.4	Z	2.5	2.4	2.4	2.5	2.4	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.8	2.4	2.4	2.3	2.4	2.8																								
11-Mar	2.3	2.4	2.6	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.6																								
12-Mar	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3																								
13-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4																								
14-Mar	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.4	C	C	C	C	C	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																								
15-Mar	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.3	M	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5																								
16-Mar	2.3	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	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
17-Mar	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3																								
18-Mar	2.3	2.3	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	2.4	2.4	2.4	2.3	2.5	2.5	2.5	2.5	2.5	2.4	2.5																								
19-Mar	2.6	2.5	2.6	2.6	2.5	Z	2.5	2.5	2.5	2.4	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.5	2.4	2.4	2.4	2.6																								
20-Mar	Z	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.4																								
21-Mar	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.4	2.6	2.6	2.3	2.6																								
22-Mar	2.6	2.6	Z	2.5	2.6	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.6																								
23-Mar	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4																								
24-Mar	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3																								
25-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
26-Mar	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
27-Mar	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	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																								
28-Mar	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	2.5	2.5	2.5	2.4	2.4	2.3	2.4	2.8	2.9	2.8	2.4	2.9																								
29-Mar	2.8	2.8	2.6	Z	2.5	2.6	2.6	2.5	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.3	2.4	2.3	2.3	2.5	2.8																								
30-Mar	2.4	2.5	2.6	2.6	Z	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.6																								
31-Mar	2.3	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.4																								
																								2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	Diurnal Average			
																								2.8	2.8	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.5	2.6	2.7	2.6	2.8	3.1	3.4	3.3	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																						



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Kirby South - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Kirby South - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	704	99.58	99.58
3.1 - 10.0	3	0.42	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
Kirby South - March 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	12	26	52	60	52	41	18	39	47	109	80	49	17	31	36	35	704
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
Totals	13	28	52	60	52	41	18	39	47	109	80	49	17	31	36	35	707

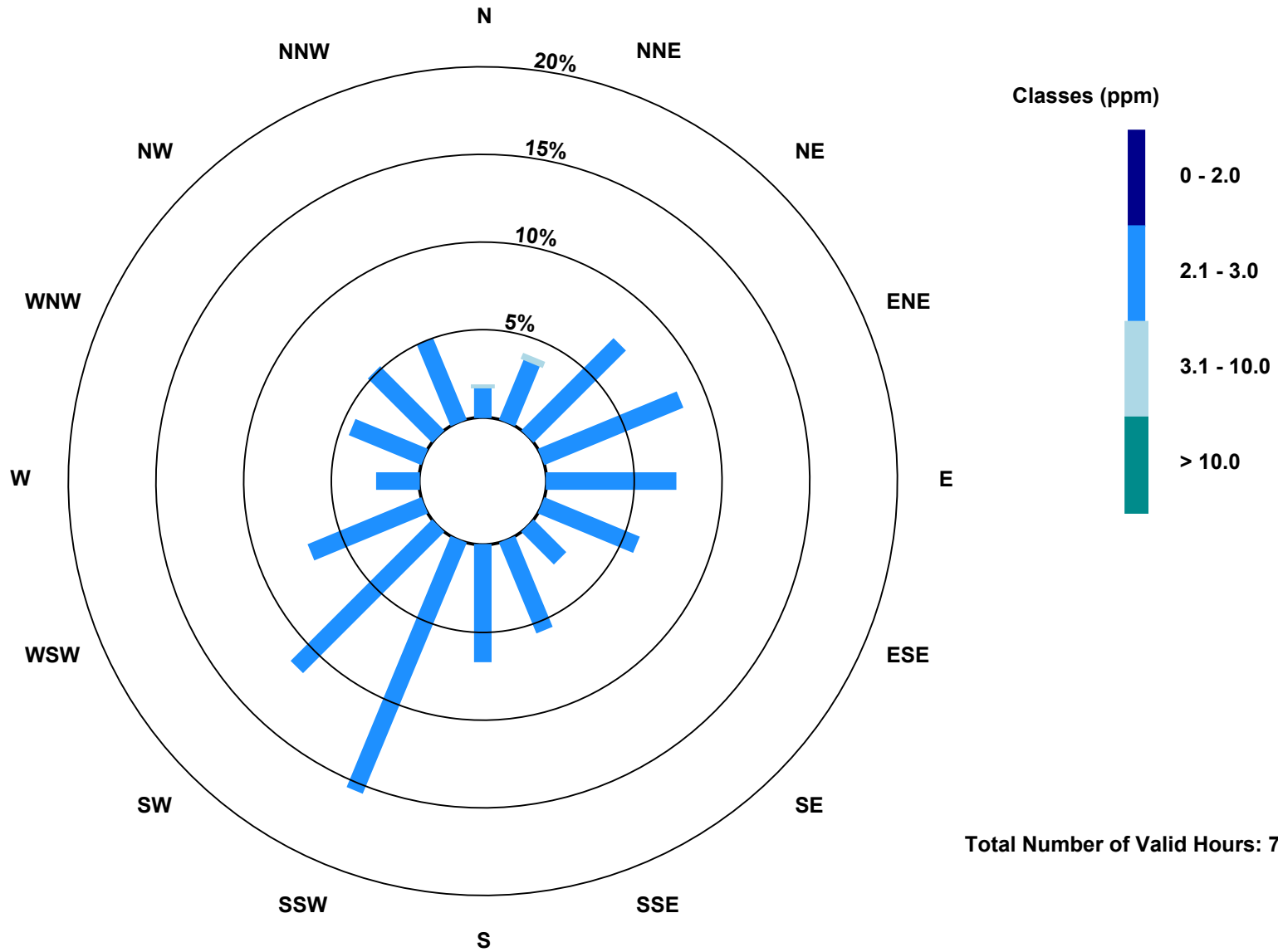
Total Number of Valid Hours: 707

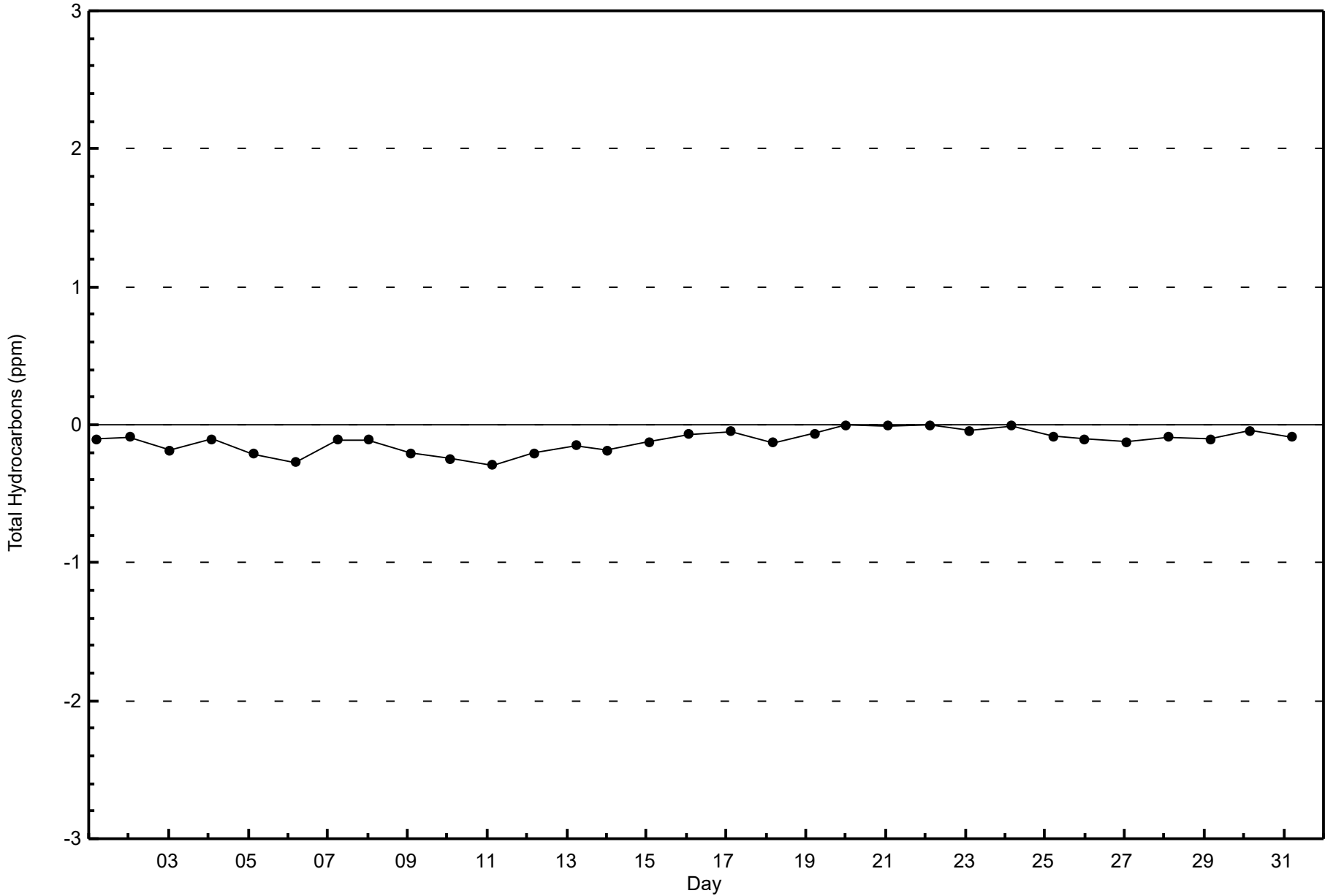
Total Number of Hours: 744

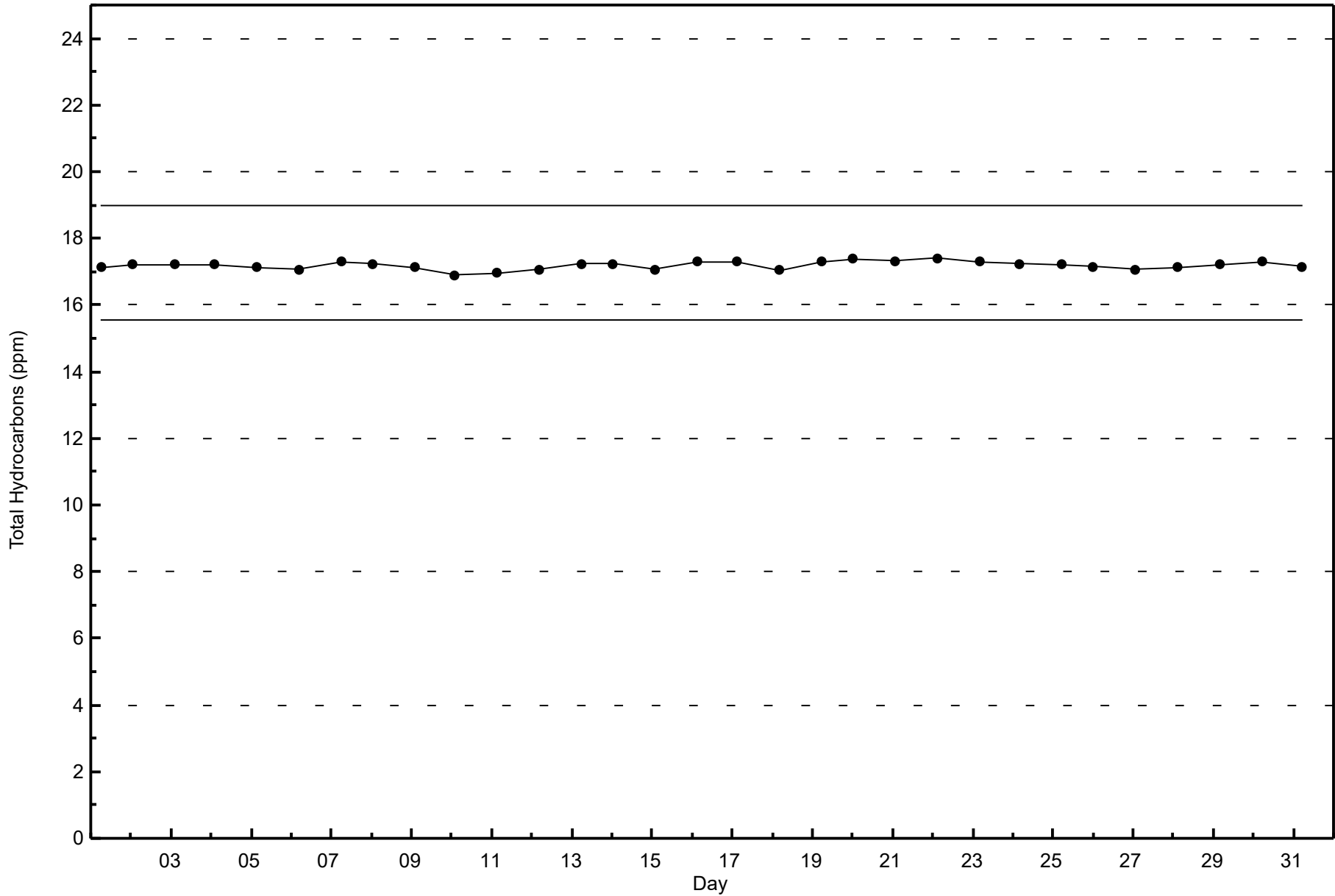


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbons (THC) - ppm
Kirby South







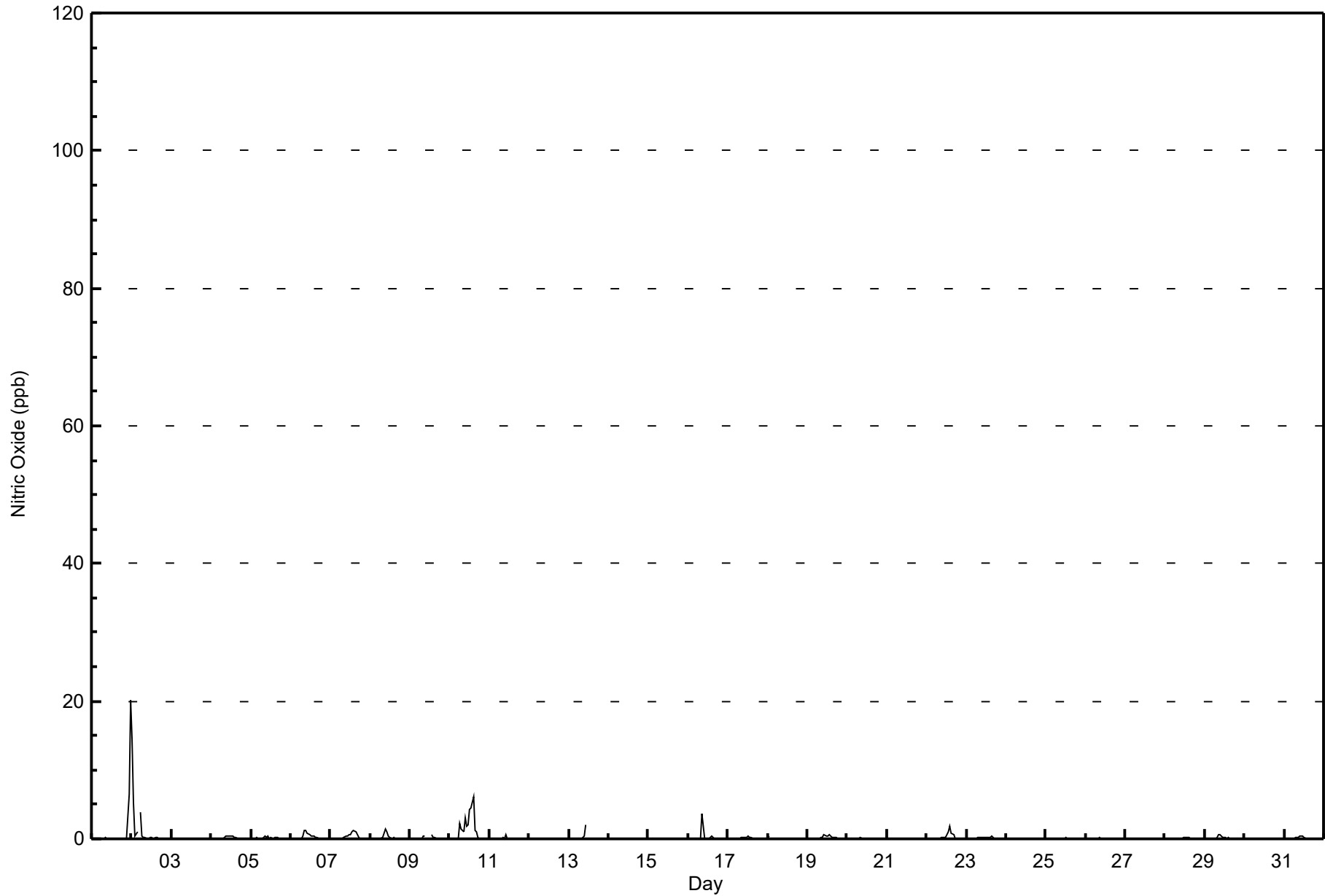


Maximum Value: 20.2 ppb on Mar 2 00:00		Maximum Daily Average: 1.3 ppb on Mar 10		Hours in Service: 744																																														
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.0 ppb on Mar 12		Hours of Data: 660																																														
Maximum Diurnal Average: 0.7 ppb at hour 24		Minimum Diurnal Average: 0.0 ppb at hour 21		Hours of Missing Data: 84																																														
Monthly Average: 0.21 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.3 P ₉₉ = 4.1		Hours of Calibration: 39																																														
				Percent Operational Time: 94.0																																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																										
1-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	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	6.4	20.2	1.2	20.2																								
2-Mar	14.5	5.3	0.5	1.0	Z	3.9	0.4	0.1	0.1	0.0	0.0	0.1	0.3	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	14.5																							
3-Mar	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																							
4-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
5-Mar	0.0	Z	0.1	0.2	0.0	0.0	0.0	0.0	0.4	0.3	0.3	0.0	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																							
6-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.5	1.3	1.2	0.7	0.5	0.4	0.3	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3																							
7-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.6	0.7	1.0	1.2	1.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2																							
8-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.9	1.4	1.1	0.4	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	0.2	1.4																							
9-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.4	0.5	UO	UO	UO	0.7	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7																							
10-Mar	Z	0.0	0.0	0.0	0.0	0.1	2.1	1.5	1.0	3.0	1.8	2.1	4.3	4.5	6.0	1.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	6.0																							
11-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	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	0.0	0.0	0.0	0.0	0.6																							
12-Mar	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																							
13-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.3	2.0	C	C	C	C	C	C	M	M	M	M	M	M	M	M	--	2.0																							
14-Mar	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	--	--																							
15-Mar	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0																							
16-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	1.9	0.0	0.0	0.0	0.3	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.7																							
17-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
18-Mar	0.0	0.4	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4																							
19-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.5	0.4	0.4	0.5	0.4	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
20-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
21-Mar	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																							
22-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.7	1.1	1.9	0.8	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9																							
23-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																							
24-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
25-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	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-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
27-Mar	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																							
28-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																							
29-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.7	0.3	0.2	0.2	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	0.7																							
30-Mar	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
31-Mar	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
																								0.6	0.2	0.0	0.1	0.0	0.2	0.1	0.1	0.4	0.4	0.3	0.2	0.3	0.4	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.7	Diurnal Average		
																								14.5	5.3	0.5	1.0	0.0	3.9	2.1	1.5	3.7	3.0	2.0	2.1	4.3	4.5	6.0	1.3	1.0	0.2	0.0	0.0	0.0	0.0	0.0	6.4	20.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																		



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	660	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: 660

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	10	28	54	59	51	40	19	40	46	105	71	31	15	24	34	33	660
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
Totals	10	28	54	59	51	40	19	40	46	105	71	31	15	24	34	33	660

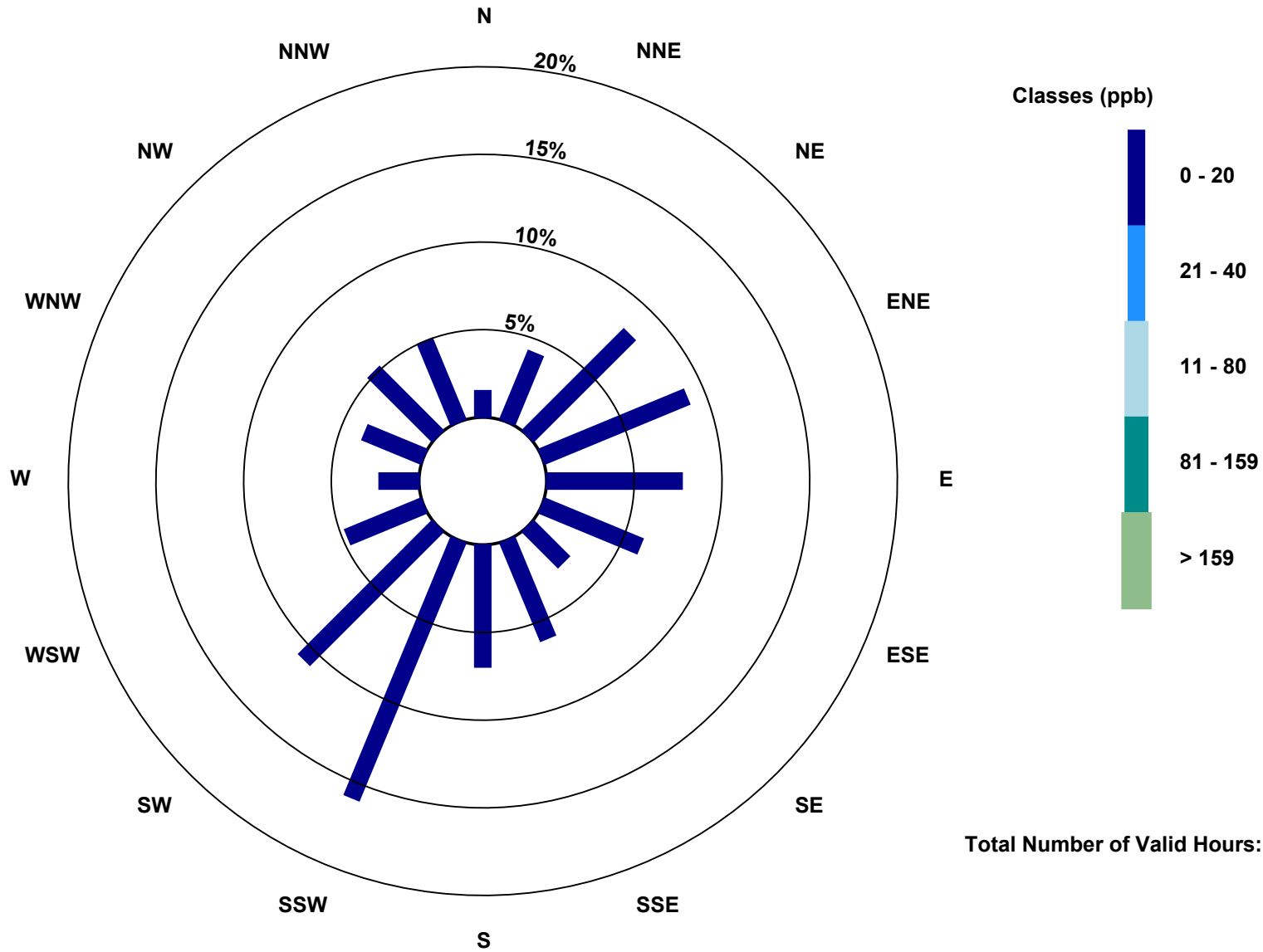
Total Number of Valid Hours: 660

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitric Oxide (NO) - ppb
Kirby South

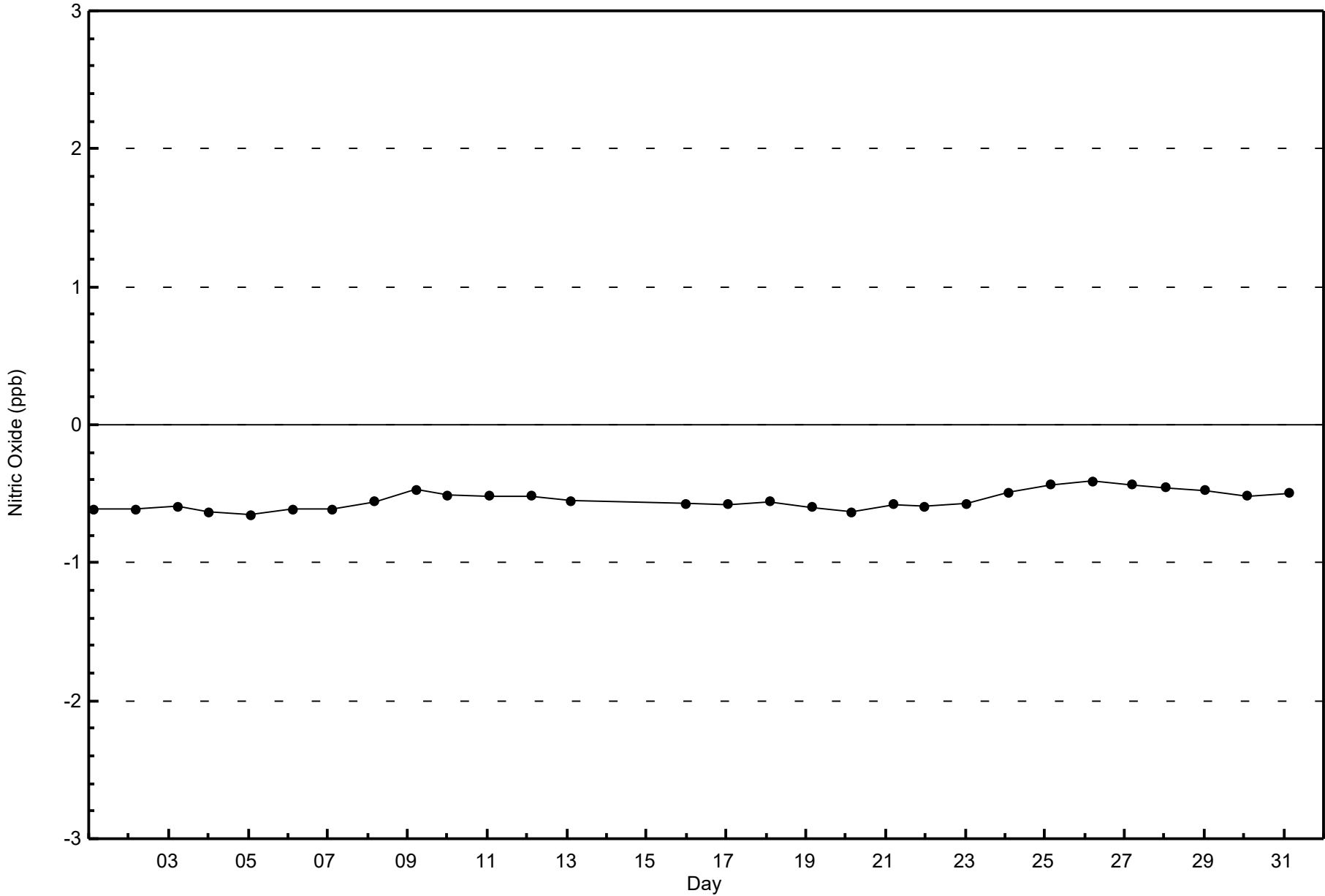


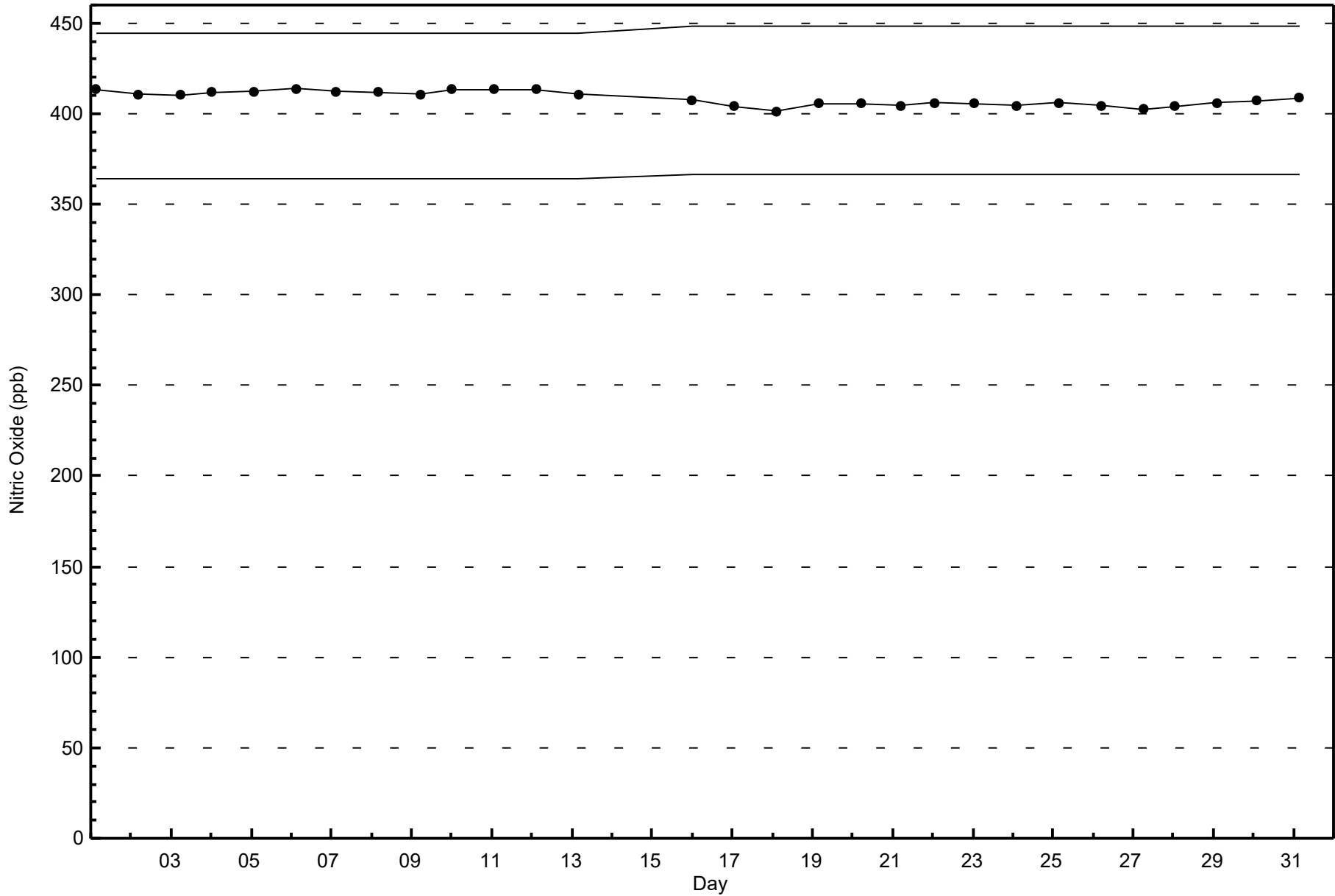
Total Number of Valid Hours: 660



Wood Buffalo Environmental Association
Zero Responses

Nitric Oxide (NO) - ppb
Kirby South - March 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

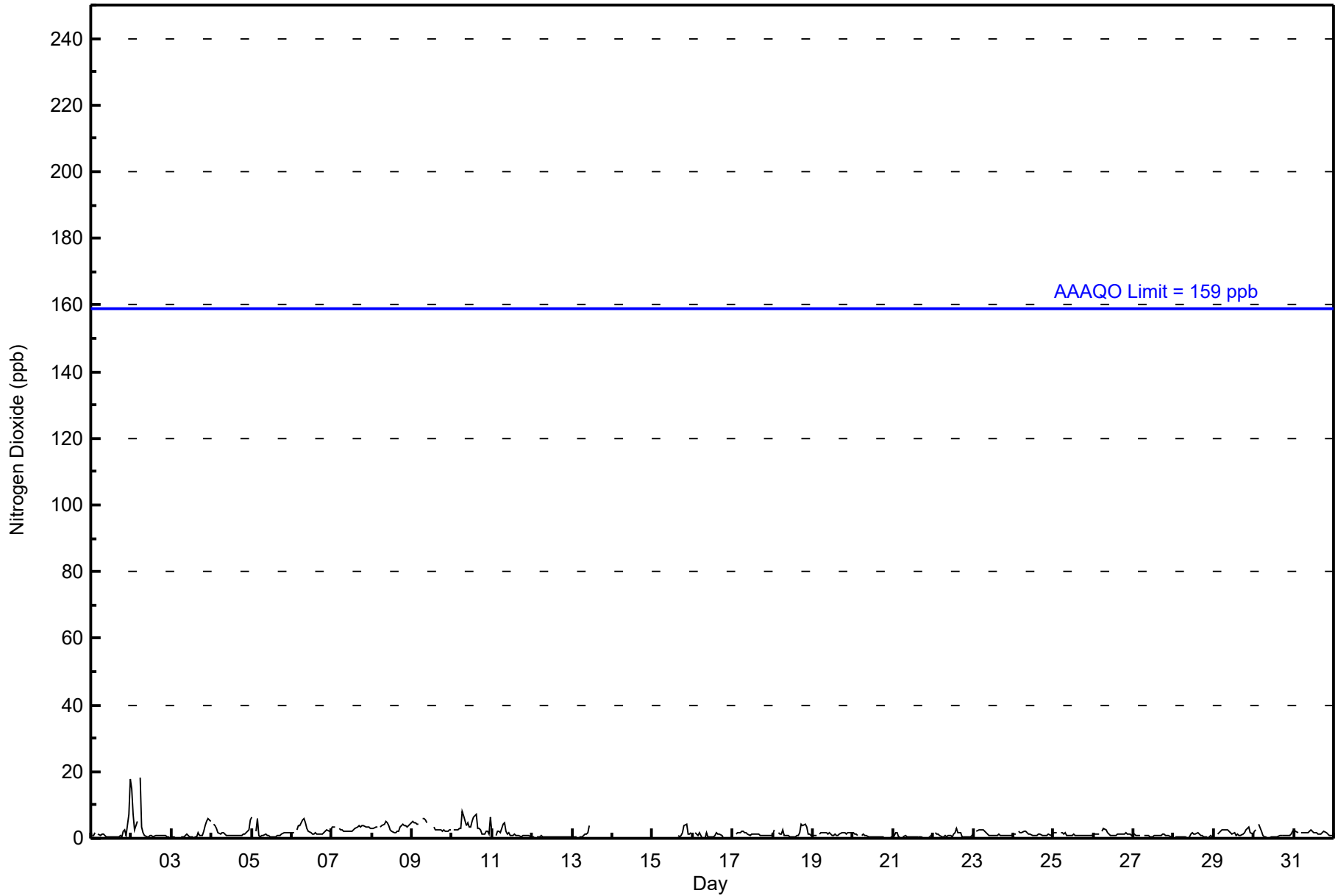
Kirby South - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 18.3 ppb on Mar 2 06:00		Maximum Daily Average: 3.7 ppb on Mar 10		Minimum Value: 0.1 ppb on Mar 16 08:00		Minimum Daily Average: 0.4 ppb on Mar 12		Hours of Data: 660																																									
Maximum Diurnal Average: 2.3 ppb at hour 24		Minimum Diurnal Average: 1.0 ppb at hour 12		Hours of Missing Data: 84		Hours of Calibration: 39		Percent Operational Time: 94.0																																									
Monthly Average: 1.61 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.7 Median = 1.1 Q ₃ = 2.0 P ₉₀ = 3.4 P ₉₉ = 6.9																																															
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-Mar	1.0	0.9	1.9	Z	1.2	1.0	1.1	1.1	1.0	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.6	0.9	0.6	2.1	2.4	0.9	7.2	18.0	2.0	18.0																							
2-Mar	14.7	7.1	2.6	5.2	Z	18.3	3.5	1.9	0.9	0.5	0.5	0.7	0.9	0.4	0.8	0.9	0.7	1.0	0.8	0.9	1.0	0.5	0.3	0.2	2.8	18.3																							
3-Mar	0.6	0.6	0.2	0.2	0.2	Z	0.4	0.3	0.9	1.1	0.7	0.4	0.3	0.2	0.4	0.6	1.5	0.7	0.7	2.1	4.0	5.2	6.1	5.0	1.4	6.1																							
4-Mar	Z	4.2	3.9	3.0	1.8	1.3	1.5	1.5	1.1	0.9	0.9	0.8	0.9	0.7	0.8	0.7	0.7	0.9	0.7	1.1	1.1	2.1	2.4	5.3	1.7	5.3																							
5-Mar	6.4	Z	2.2	5.8	0.8	0.6	0.8	0.9	1.2	0.8	0.7	0.5	0.6	0.5	0.5	0.7	1.0	0.9	1.3	1.5	1.6	1.8	1.7	1.6	1.5	6.4																							
6-Mar	1.6	1.5	Z	2.5	4.0	4.0	5.4	6.0	4.7	2.9	2.0	1.6	1.4	1.3	1.6	1.4	1.3	1.1	1.2	1.7	2.0	2.7	2.3	2.7	2.5	6.0																							
7-Mar	3.3	3.5	3.4	Z	2.9	2.7	2.6	2.3	2.2	2.1	2.1	2.1	2.2	2.7	3.1	3.4	3.8	3.4	3.9	3.8	3.5	3.4	3.2	3.0	3.0	3.9																							
8-Mar	3.1	3.1	3.3	3.3	Z	3.4	3.7	4.2	4.9	4.8	4.0	2.7	2.1	1.8	1.9	2.1	2.1	3.4	4.3	3.9	3.7	3.5	4.0	4.7	3.4	4.9																							
9-Mar	4.9	4.8	4.6	4.4	4.3	Z	5.9	5.9	5.4	4.5	UO	UO	UO	3.2	2.7	2.7	2.6	2.5	2.2	2.6	2.2	2.2	2.4	2.5	3.6	5.9																							
10-Mar	Z	2.5	2.5	2.4	3.1	3.1	8.1	6.8	3.9	4.8	3.4	3.3	5.1	6.3	7.2	3.1	3.0	2.6	1.3	1.2	2.3	2.0	1.1	6.5	3.7	8.1																							
11-Mar	1.6	Z	1.0	2.2	2.1	1.5	4.1	4.5	2.0	1.4	1.8	0.7	0.8	1.1	1.0	0.9	0.7	0.6	0.7	0.8	0.8	0.7	0.7	0.4	1.4	4.5																							
12-Mar	0.3	0.3	Z	0.5	0.4	0.9	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9																						
13-Mar	0.4	0.5	0.5	Z	0.4	0.4	0.4	1.3	1.4	1.5	3.7	C	C	C	C	C	C	C	M	M	M	M	M	M	M	--	3.7																						
14-Mar	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	--	--																						
15-Mar	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.7	0.5	0.8	1.8	4.0	4.1	1.1	1.4	1.5	--	4.1																						
16-Mar	Z	1.6	1.4	1.0	1.6	0.8	0.2	0.1	1.8	0.6	0.3	0.3	0.3	0.9	1.5	1.1	1.4	1.0	0.2	0.1	0.1	0.1	0.2	0.5	0.7	1.8																							
17-Mar	0.3	Z	1.2	1.7	1.9	2.2	2.1	1.9	1.6	1.1	1.0	1.2	1.4	1.4	1.3	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	0.9	1.3	2.2																							
18-Mar	1.1	2.7	Z	1.6	1.1	1.1	2.5	0.8	1.0	0.8	0.6	0.4	0.5	0.6	0.8	0.7	1.5	4.3	3.9	4.3	3.5	1.4	1.1	0.7	1.6	4.3																							
19-Mar	0.9	1.0	1.0	Z	1.2	1.6	1.8	1.7	1.5	1.1	1.7	1.0	1.0	1.3	1.0	0.9	1.2	1.6	1.8	1.7	1.4	1.7	1.9	1.5	1.4	1.9																							
20-Mar	1.8	1.4	1.3	0.9	Z	0.7	1.1	0.8	0.8	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	0.6	1.8																							
21-Mar	0.2	1.7	1.7	0.6	0.3	Z	0.5	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	1.3	0.5	1.7																							
22-Mar	Z	1.7	1.3	1.1	0.8	0.5	0.4	0.8	0.6	0.9	0.7	0.5	1.2	1.9	3.1	1.9	1.6	0.6	0.4	0.4	0.4	0.6	0.6	0.7	1.0	3.1																							
23-Mar	1.6	Z	2.1	2.6	2.5	2.5	2.5	2.1	1.4	1.0	0.8	0.8	0.9	0.7	1.0	1.3	1.0	0.8	0.7	0.9	0.9	0.9	0.8	0.9	1.3	2.6																							
24-Mar	1.1	1.4	Z	2.0	1.9	1.9	2.0	2.0	1.6	1.4	1.2	1.0	0.9	1.0	0.9	1.4	1.2	0.8	0.9	0.9	0.9	1.3	1.0	1.4	1.3	2.0																							
25-Mar	1.7	1.6	1.5	Z	1.9	1.5	1.3	1.5	1.0	1.0	1.0	1.0	1.1	1.0	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.9																							
26-Mar	1.1	1.1	1.2	1.2	Z	2.1	2.8	2.4	1.8	1.2	0.9	0.9	0.9	1.0	1.1	1.2	1.2	1.1	1.2	1.6	1.3	1.3	1.1	1.0	1.3	2.8																							
27-Mar	1.1	1.0	1.0	0.9	1.0	Z	1.0	0.9	0.9	0.8	0.6	0.6	0.8	1.0	1.0	1.0	1.0	1.3	1.4	0.7	0.7	0.7	0.3	0.3	0.9	1.4																							
28-Mar	Z	0.5	0.4	0.4	0.5	0.5	0.3	0.3	0.2	0.3	1.1	1.5	1.4	1.4	1.8	1.3	0.7	0.7	0.6	0.3	0.2	0.3	0.7	0.6	0.7	1.8																							
29-Mar	0.5	Z	1.1	1.6	2.1	2.4	2.7	2.6	2.6	2.1	1.5	1.1	1.5	0.9	1.4	1.0	0.9	1.4	1.6	2.7	2.9	3.2	1.8	1.4	1.8	3.2																							
30-Mar	2.1	2.6	Z	4.3	2.1	0.7	0.3	0.5	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.7	0.8	0.9	0.8	0.9	0.9	0.8	1.1	2.3	1.0	4.3																							
31-Mar	2.4	2.1	1.6	Z	1.5	1.6	1.7	1.9	1.8	2.1	2.5	2.2	1.8	1.6	1.3	1.2	1.4	1.5	2.0	1.7	1.3	0.9	0.8	0.7	1.6	2.5																							
																								2.2	2.1	1.8	2.1	1.7	2.3	2.1	2.0	1.7	1.4	1.3	1.0	1.1	1.2	1.4	1.2	1.2	1.3	1.3	1.5	1.6	1.4	1.6	2.3	Diurnal Average	
																								14.7	7.1	4.6	5.8	4.3	18.3	8.1	6.8	5.4	4.8	4.0	3.3	5.1	6.3	7.2	3.4	3.8	4.3	4.3	4.3	4.1	5.2	7.2	18.0	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	660	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: 660

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	10	28	54	59	51	40	19	40	46	105	71	31	15	24	34	33	660
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
Totals	10	28	54	59	51	40	19	40	46	105	71	31	15	24	34	33	660

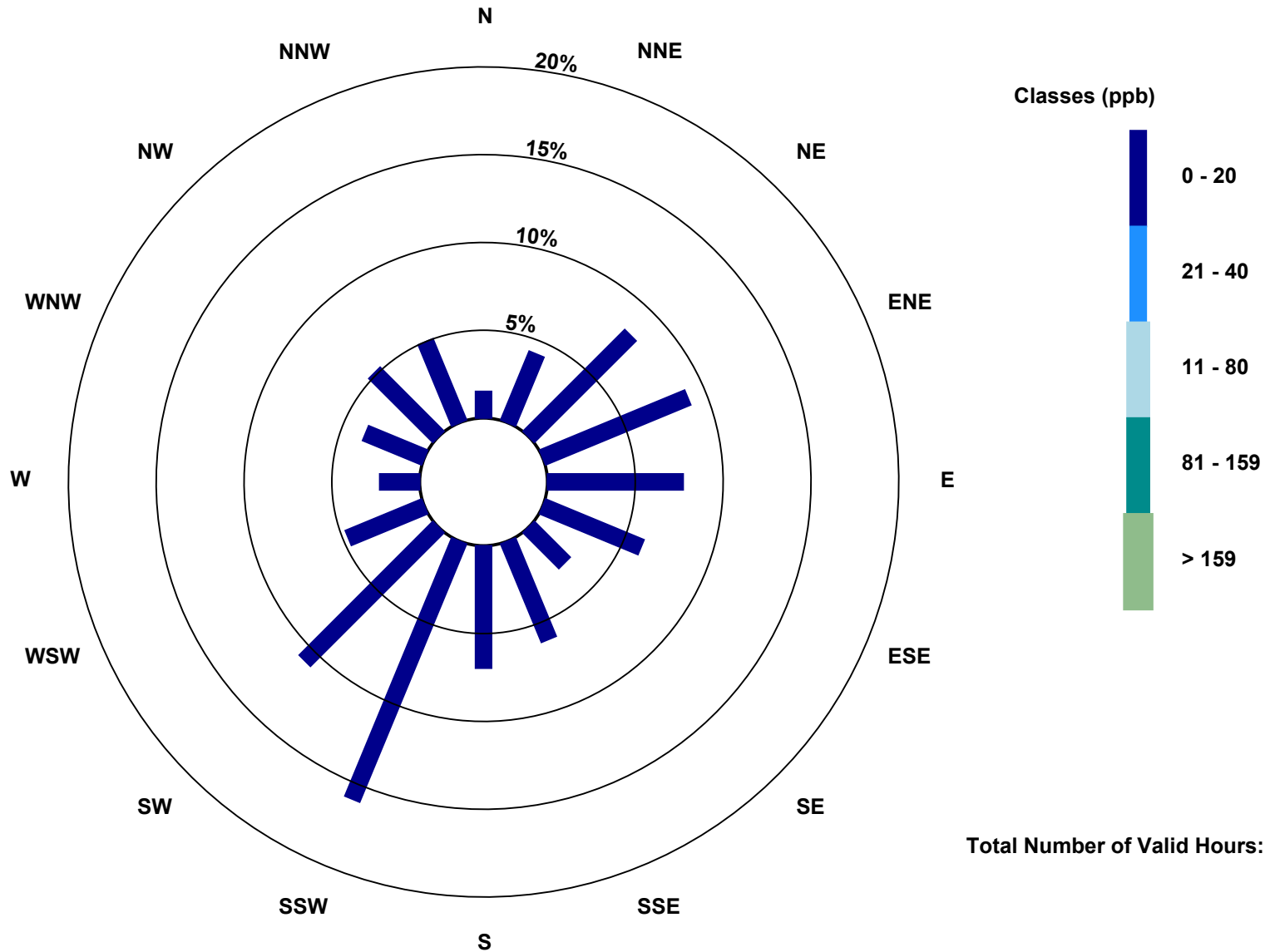
Total Number of Valid Hours: 660

Total Number of Hours: 744

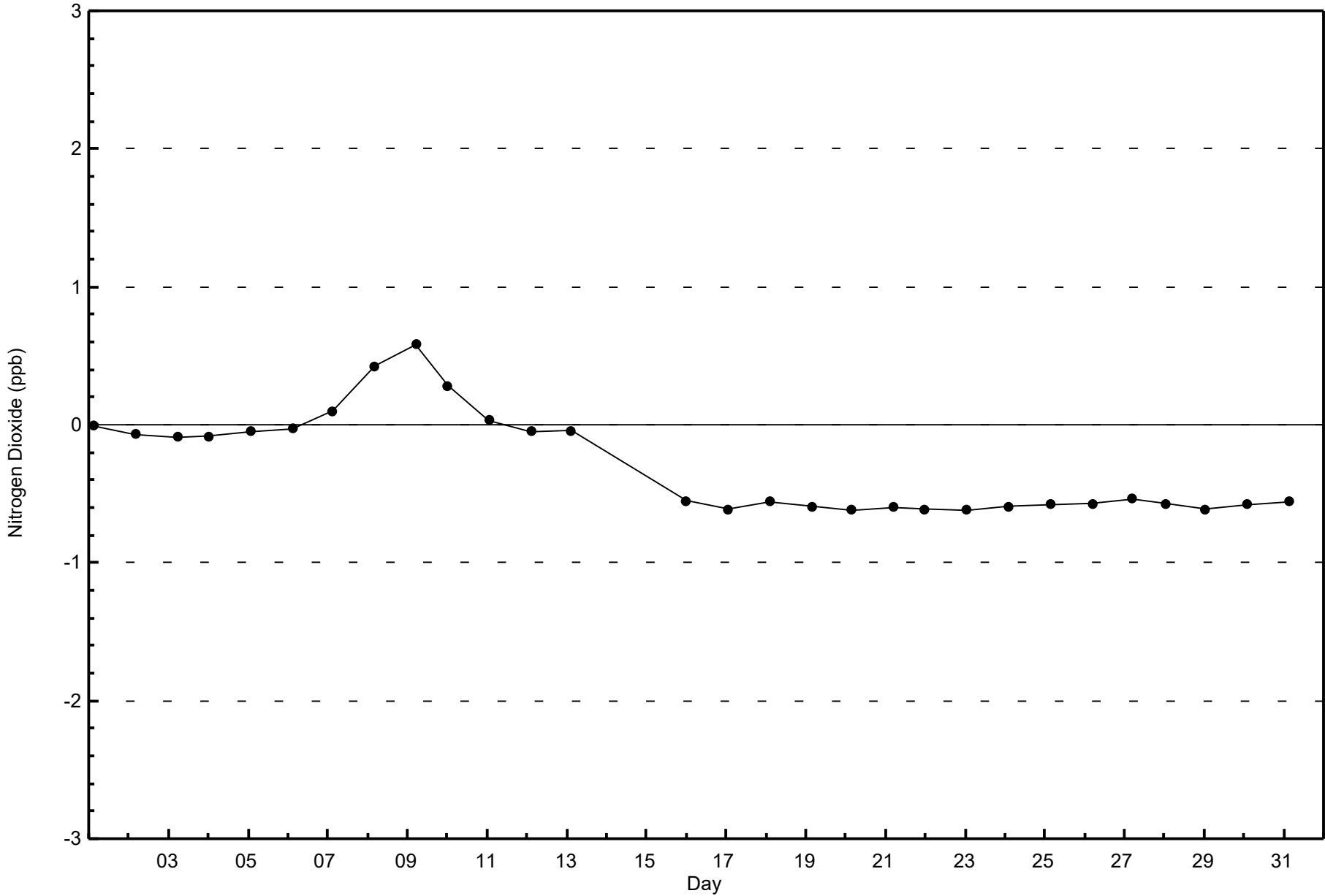


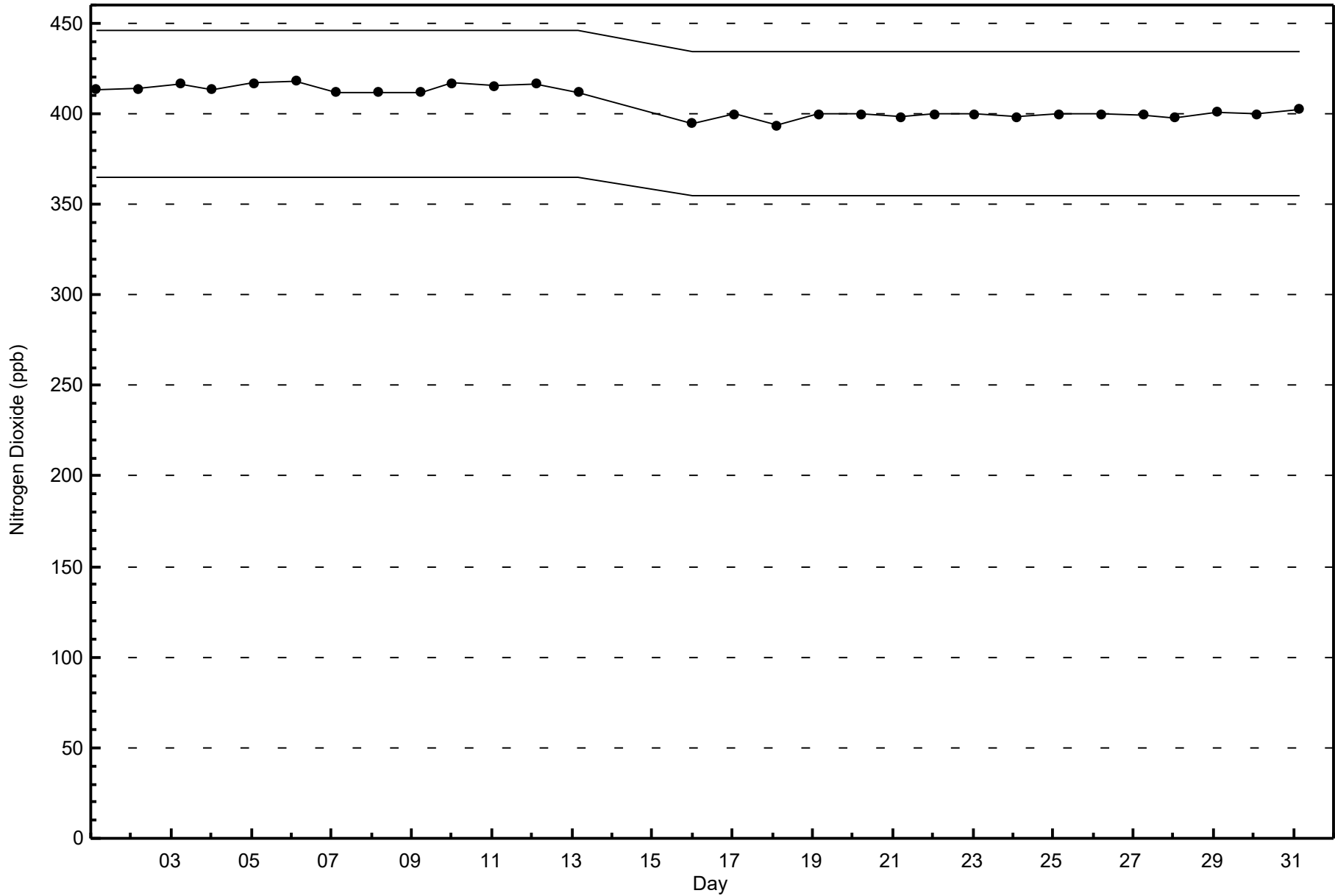
Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Kirby South



Total Number of Valid Hours: 660







Wood Buffalo Environmental Association
Summary of Hour Averages

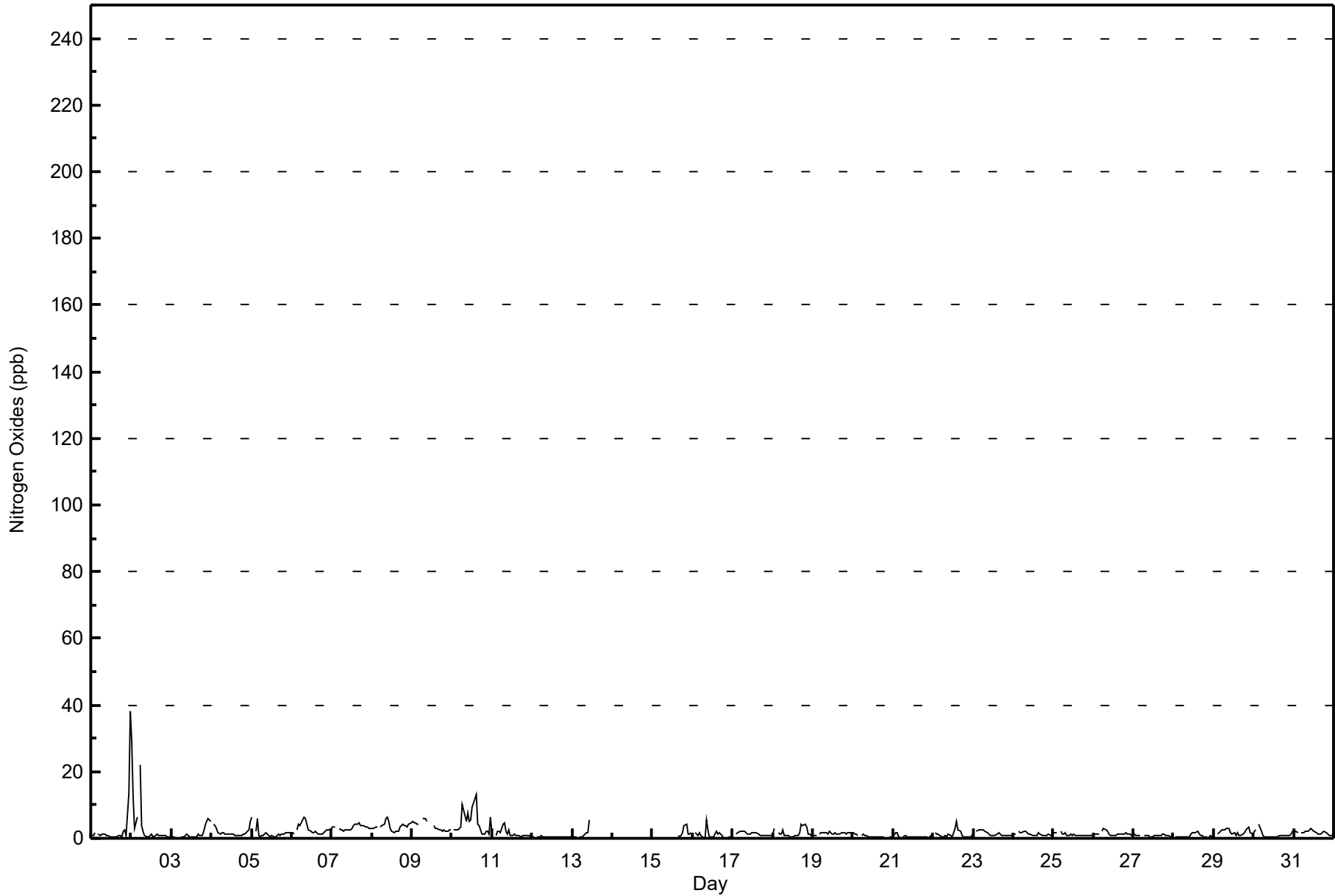
Nitrogen Oxides (NO_x) - ppb
Kirby South - March 2024

Maximum Value: 38.2 ppb on Mar 2 00:00		Maximum Daily Average: 5.0 ppb on Mar 10		Hours in Service: 744																																													
Minimum Value: 0.1 ppb on Mar 16 21:00		Minimum Daily Average: 0.4 ppb on Mar 12		Hours of Data: 660																																													
Maximum Diurnal Average: 3.0 ppb at hour 24		Minimum Diurnal Average: 1.2 ppb at hour 12		Hours of Missing Data: 84																																													
Monthly Average: 1.82 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.7 Median = 1.2 Q ₃ = 2.1 P ₉₀ = 3.9 P ₉₉ = 10.4		Hours of Calibration: 39																																													
				Percent Operational Time: 94.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	1.0	0.9	1.9	Z	1.2	1.0	1.1	1.1	1.2	0.7	0.7	0.6	0.5	0.6	0.5	0.5	0.7	0.9	0.6	2.1	2.4	0.9	13.6	38.2	3.2	38.2																							
2-Mar	29.2	12.4	3.1	6.2	Z	22.2	3.9	2.0	1.0	0.5	0.5	0.8	1.2	0.5	1.0	1.1	0.7	1.0	0.8	0.9	1.0	0.5	0.3	0.2	4.0	29.2																							
3-Mar	0.6	0.6	0.2	0.2	0.2	Z	0.4	0.3	0.9	1.1	0.7	0.4	0.3	0.2	0.4	0.6	1.5	0.7	0.7	2.1	4.0	5.2	6.1	5.0	1.4	6.1																							
4-Mar	Z	4.2	3.9	3.0	1.8	1.3	1.5	1.5	1.3	1.2	1.3	1.2	1.3	1.1	1.0	0.9	0.8	0.9	0.7	1.1	1.1	2.1	2.4	5.3	1.8	5.3																							
5-Mar	6.4	Z	2.3	6.0	0.8	0.6	0.8	0.9	1.6	1.1	1.0	0.5	0.9	0.6	0.6	0.9	1.1	0.9	1.3	1.5	1.6	1.8	1.7	1.6	1.6	6.4																							
6-Mar	1.6	1.5	Z	2.5	4.0	4.0	5.4	6.5	6.0	4.1	2.7	2.1	1.8	1.6	2.0	1.7	1.4	1.1	1.2	1.7	2.0	2.7	2.3	2.7	2.7	6.5																							
7-Mar	3.3	3.5	3.4	Z	2.9	2.7	2.6	2.3	2.5	2.5	2.6	2.7	2.9	3.7	4.3	4.4	4.5	3.6	3.9	3.8	3.5	3.4	3.2	3.0	3.3	4.5																							
8-Mar	3.1	3.1	3.3	3.3	Z	3.4	3.7	4.3	5.8	6.2	5.1	3.1	2.2	1.8	2.0	2.2	2.2	3.4	4.3	3.9	3.7	3.5	4.0	4.7	3.6	6.2																							
9-Mar	4.9	4.8	4.6	4.4	4.3	Z	5.9	6.0	5.8	5.0	UO	UO	UO	3.9	3.0	2.9	2.6	2.5	2.2	2.6	2.2	2.2	2.4	2.5	3.7	6.0																							
10-Mar	Z	2.5	2.5	2.4	3.1	3.2	10.2	8.3	4.9	7.8	5.2	5.4	9.4	10.8	13.2	4.4	4.0	2.7	1.3	1.2	2.3	2.0	1.1	6.5	5.0	13.2																							
11-Mar	1.6	Z	1.0	2.2	2.1	1.5	4.1	4.5	2.1	1.4	2.4	0.7	0.8	1.1	1.0	0.9	0.7	0.6	0.7	0.8	0.8	0.7	0.7	0.4	1.4	4.5																							
12-Mar	0.3	0.3	Z	0.5	0.4	0.9	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.9																						
13-Mar	0.4	0.5	0.5	Z	0.4	0.4	0.4	1.3	1.6	1.8	5.7	C	C	C	C	C	C	C	M	M	M	M	M	M	M	--	5.7																						
14-Mar	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	--	--																						
15-Mar	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.7	0.5	0.8	1.8	4.0	4.1	1.1	1.4	1.5	--	4.1																						
16-Mar	Z	1.6	1.4	1.0	1.6	0.8	0.2	0.1	5.5	2.5	0.3	0.3	0.3	1.2	2.0	1.3	1.5	1.0	0.2	0.1	0.1	0.1	0.2	0.5	1.0	5.5																							
17-Mar	0.3	Z	1.2	1.7	1.9	2.2	2.1	2.0	1.8	1.3	1.1	1.5	1.7	1.6	1.5	1.3	1.0	0.9	1.0	1.0	0.9	1.0	1.0	0.9	1.4	2.2																							
18-Mar	1.1	3.1	Z	1.6	1.1	1.1	2.5	0.8	1.0	0.8	0.6	0.4	0.5	0.6	0.8	0.7	1.5	4.3	3.9	4.3	3.5	1.4	1.1	0.7	1.6	4.3																							
19-Mar	0.9	1.0	1.0	Z	1.2	1.6	1.8	1.7	1.7	1.2	2.2	1.4	1.4	1.8	1.4	1.1	1.5	1.8	1.8	1.7	1.4	1.7	1.9	1.5	1.5	2.2																							
20-Mar	1.8	1.4	1.3	0.9	Z	0.7	1.1	0.8	0.9	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.6	1.8																							
21-Mar	0.2	1.7	1.7	0.6	0.3	Z	0.5	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.4	1.3	0.5	1.7																							
22-Mar	Z	1.7	1.3	1.1	0.8	0.5	0.4	0.8	0.6	1.2	0.9	0.6	1.9	3.0	5.0	2.7	2.1	0.7	0.4	0.4	0.4	0.6	0.6	0.7	1.2	5.0																							
23-Mar	1.6	Z	2.1	2.6	2.5	2.5	2.5	2.2	1.7	1.2	1.0	1.0	1.1	0.9	1.3	1.6	1.1	0.8	0.7	0.9	0.9	0.9	0.8	0.9	1.4	2.6																							
24-Mar	1.1	1.4	Z	2.0	1.9	1.9	2.0	2.0	1.6	1.4	1.2	1.0	0.9	1.0	0.9	1.5	1.2	0.8	0.9	0.9	0.9	1.3	1.0	1.4	1.3	2.0																							
25-Mar	1.7	1.6	1.5	Z	1.9	1.5	1.3	1.5	1.0	1.0	1.1	1.0	1.2	1.0	0.9	0.7	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.9																							
26-Mar	1.1	1.1	1.2	1.2	Z	2.1	2.8	2.5	2.0	1.3	0.9	1.0	0.9	1.0	1.1	1.2	1.2	1.1	1.2	1.6	1.3	1.3	1.1	1.0	1.4	2.8																							
27-Mar	1.1	1.0	1.0	0.9	1.0	Z	1.0	0.9	0.9	0.8	0.6	0.6	0.8	1.0	1.0	1.0	1.0	1.3	1.4	0.7	0.7	0.7	0.3	0.3	0.9	1.4																							
28-Mar	Z	0.5	0.4	0.4	0.5	0.5	0.3	0.3	0.2	0.3	1.2	1.8	1.6	1.6	2.0	1.3	0.7	0.7	0.6	0.3	0.2	0.3	0.7	0.6	0.7	2.0																							
29-Mar	0.5	Z	1.1	1.6	2.1	2.4	2.7	2.8	3.1	2.8	1.8	1.3	1.7	1.0	1.6	1.0	0.9	1.4	1.6	2.7	2.9	3.2	1.8	1.4	1.9	3.2																							
30-Mar	2.1	2.6	Z	4.3	2.1	0.7	0.3	0.5	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.8	0.9	0.9	0.8	0.9	0.9	0.8	1.1	2.3	1.1	4.3																							
31-Mar	2.4	2.1	1.6	Z	1.5	1.6	1.7	2.0	2.0	2.4	3.0	2.6	1.9	1.7	1.3	1.2	1.4	1.5	2.0	1.7	1.3	0.9	0.8	0.7	1.7	3.0																							
																								2.8	2.3	1.8	2.2	1.7	2.4	2.2	2.1	2.1	1.8	1.6	1.2	1.4	1.6	1.8	1.4	1.3	1.3	1.3	1.5	1.6	1.4	1.9	3.0	Diurnal Average	
																								29.2	12.4	4.6	6.2	4.3	22.2	10.2	8.3	6.0	7.8	5.7	5.4	9.4	10.8	13.2	4.4	4.5	4.3	4.3	4.3	4.1	5.2	13.6	38.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	657	99.55	99.55
21 - 40	3	0.45	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: 660

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Kirby South - March 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	10	27	53	58	51	40	19	40	46	105	71	31	15	24	34	33	657
21 - 40	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	28	54	59	51	40	19	40	46	105	71	31	15	24	34	33	660

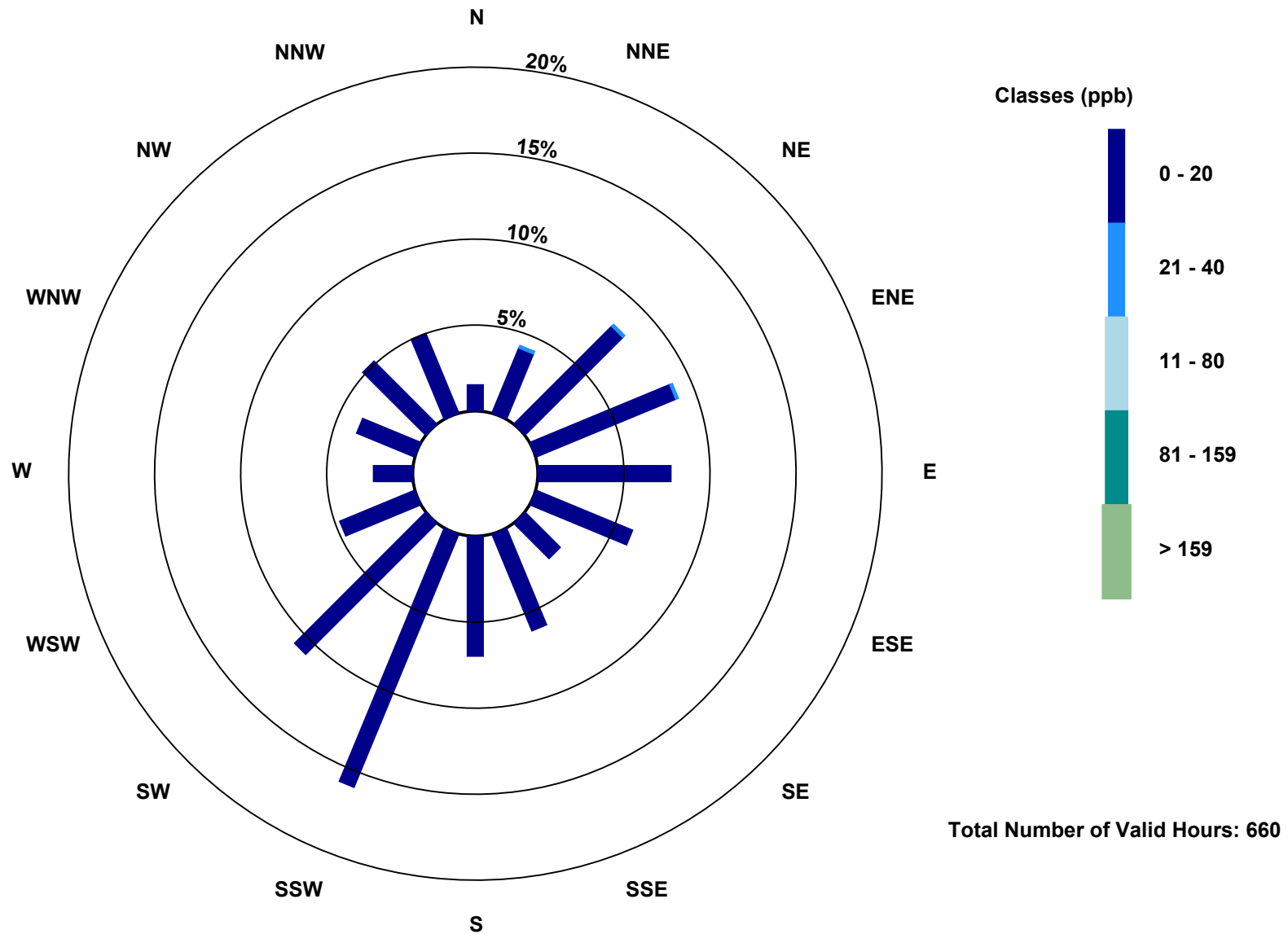
Total Number of Valid Hours: 660

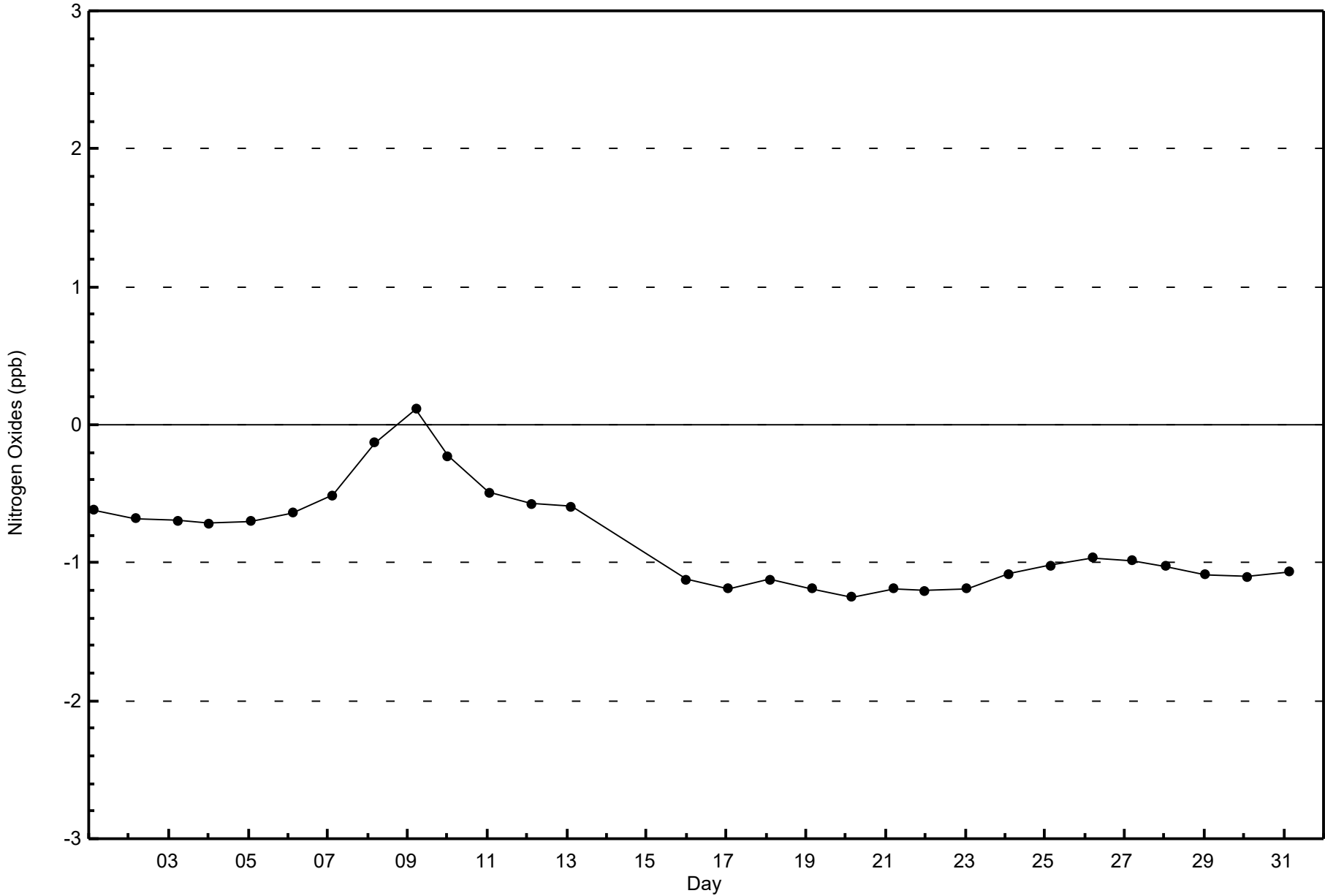
Total Number of Hours: 744

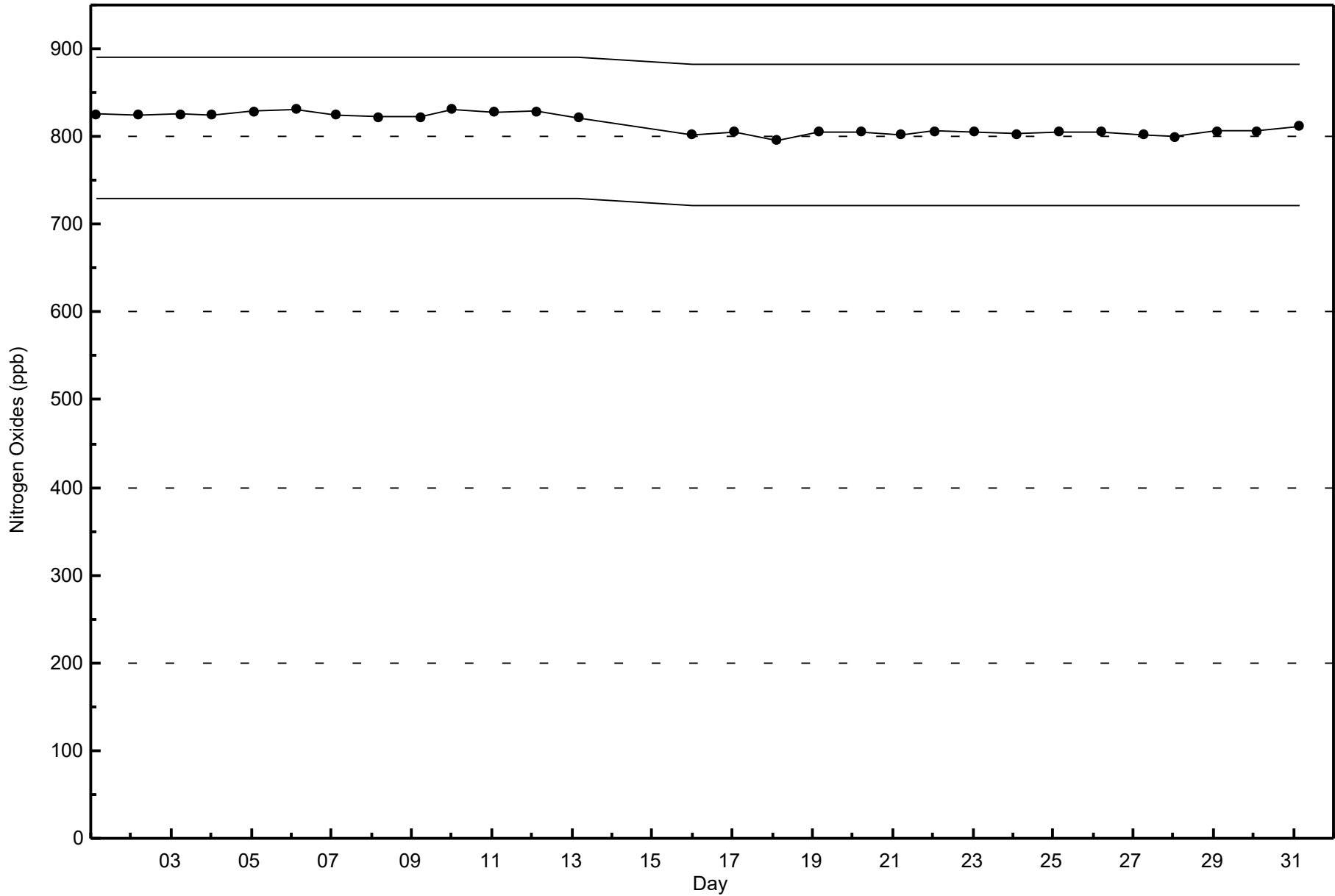


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Kirby South









Wood Buffalo Environmental Association
Summary of Hour Averages

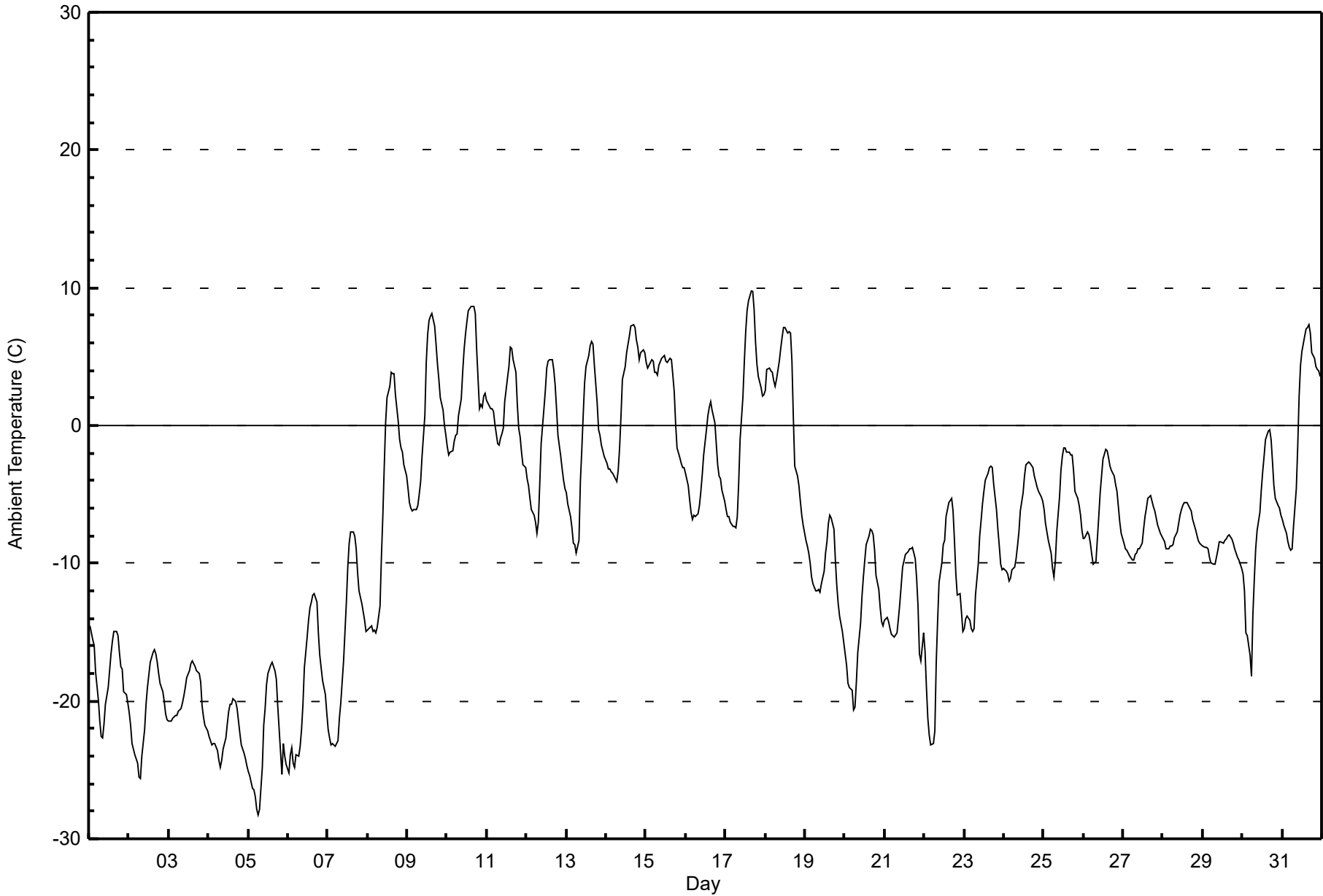
Ambient Temperature (AT) - C
Kirby South - March 2024

Maximum Value: 9.8 C on Mar 17 17:00 Maximum Daily Average: 3.0 C on Mar 10																						Hours in Service:	744			
Minimum Value: -28.3 C on Mar 5 07:00 Minimum Daily Average: -22.8 C on Mar 5																						Hours of Data:	744			
Maximum Diurnal Average: -2.9 C at hour 16 Minimum Diurnal Average: -12.4 C at hour 7																						Hours of Missing Data:	0			
Monthly Average: -7.95 C Percentiles: P ₁ = -25.5 P ₁₀ = -21.2 Q ₁ = -14.8 Median = -7.7 Q ₃ = -1.8 P ₉₀ = 4.4 P ₉₉ = 8.3																						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-Mar	-14.6	-15.1	-15.5	-16.0	-17.9	-19.9	-21.5	-22.6	-22.7	-21.7	-20.2	-19.0	-17.8	-16.6	-15.6	-15.0	-15.0	-15.2	-16.5	-17.5	-17.7	-19.3	-19.5	-20.1	-18.0	-14.6
2-Mar	-20.8	-21.8	-23.1	-23.9	-24.2	-24.5	-25.6	-25.6	-24.0	-22.1	-20.2	-19.0	-18.1	-17.2	-16.4	-16.2	-16.6	-17.2	-18.0	-18.8	-19.4	-20.1	-20.9	-21.4	-20.6	-16.2
3-Mar	-21.5	-21.4	-21.2	-21.2	-21.1	-21.0	-20.8	-20.6	-20.2	-19.6	-19.0	-18.3	-17.8	-17.3	-17.0	-17.2	-17.5	-17.7	-18.0	-18.7	-20.4	-21.2	-21.7	-22.2	-19.7	-17.0
4-Mar	-22.6	-22.9	-23.2	-23.1	-23.1	-23.5	-24.3	-24.8	-24.3	-23.5	-22.7	-21.6	-20.7	-20.3	-20.2	-19.8	-20.0	-20.5	-21.4	-22.4	-23.2	-23.8	-24.2	-24.7	-22.5	-19.8
5-Mar	-25.1	-25.5	-26.4	-26.5	-27.0	-27.9	-28.3	-27.8	-24.8	-21.8	-20.6	-18.8	-18.0	-17.3	-17.2	-17.5	-17.8	-18.5	-20.3	-23.7	-25.3	-23.1	-24.0	-24.6	-22.8	-17.2
6-Mar	-25.3	-23.9	-23.4	-24.5	-24.8	-23.9	-24.0	-23.3	-22.0	-20.2	-17.6	-15.4	-14.1	-13.2	-12.8	-12.3	-12.2	-12.8	-15.1	-16.7	-17.6	-18.5	-19.5	-20.8	-18.9	-12.2
7-Mar	-22.0	-22.7	-23.2	-23.1	-23.3	-23.1	-22.9	-21.2	-20.1	-17.1	-14.9	-12.9	-10.2	-8.6	-7.8	-7.8	-8.0	-8.9	-10.7	-12.0	-12.9	-13.5	-14.1	-15.0	-15.7	-7.8
8-Mar	-14.8	-14.7	-14.6	-14.9	-14.8	-15.1	-14.6	-13.1	-9.6	-6.6	-3.1	0.2	2.0	2.8	3.8	3.7	3.8	2.2	0.3	-1.0	-1.7	-2.0	-2.9	-3.7	-5.3	3.8
9-Mar	-4.6	-5.6	-6.0	-6.2	-6.1	-6.1	-5.8	-4.9	-4.0	-2.2	0.7	4.6	6.6	7.6	8.0	8.1	7.3	5.9	4.5	3.4	2.1	1.1	0.0	-0.7	0.3	8.1
10-Mar	-1.6	-2.1	-1.9	-1.8	-1.1	-0.8	-0.6	0.7	1.9	3.9	5.5	6.6	7.5	8.3	8.6	8.6	8.7	8.1	5.5	1.2	1.5	1.4	2.1	2.4	3.0	8.7
11-Mar	1.8	1.4	1.2	1.3	1.0	0.1	-1.3	-1.4	-0.9	-0.6	-0.2	1.8	3.5	4.3	5.7	5.6	4.8	3.9	1.6	-0.2	-0.8	-1.9	-2.8	-3.1	1.0	5.7
12-Mar	-3.8	-4.4	-5.2	-6.1	-6.5	-7.0	-7.9	-7.0	-4.3	-1.3	1.2	2.5	4.2	4.6	4.8	4.7	4.1	3.0	1.3	-0.7	-2.2	-3.2	-3.9	-4.6	-1.6	4.8
13-Mar	-4.9	-5.7	-6.6	-7.4	-8.6	-8.6	-9.3	-8.4	-4.1	-1.9	0.7	3.1	4.2	5.0	5.8	6.1	5.9	4.4	1.7	-0.3	-0.7	-1.4	-1.8	-2.3	-1.5	6.1
14-Mar	-2.8	-3.1	-3.2	-3.3	-3.5	-3.8	-4.1	-3.3	-1.6	0.7	3.4	4.3	5.3	5.9	6.5	7.2	7.3	7.1	6.2	5.7	4.8	5.3	5.5	5.3	2.2	7.3
15-Mar	4.6	4.2	4.4	4.7	4.7	3.9	3.8	3.7	4.3	4.9	5.0	5.1	4.7	4.5	4.9	4.8	3.6	2.4	0.1	-1.6	-2.3	-2.7	-3.0	-3.1	2.7	5.1
16-Mar	-3.4	-4.4	-5.4	-6.3	-6.8	-6.5	-6.6	-6.4	-5.7	-4.8	-3.6	-2.1	-0.3	0.8	1.4	1.7	1.1	0.2	-1.3	-2.9	-3.6	-3.9	-4.6	-5.5	-3.3	1.7
17-Mar	-6.1	-6.6	-6.6	-7.0	-7.3	-7.4	-7.4	-6.6	-4.1	-1.0	2.0	4.6	6.8	8.3	9.0	9.7	9.8	8.4	6.1	4.5	3.6	2.8	2.1	2.2	0.8	9.8
18-Mar	2.6	4.1	4.2	4.0	3.8	3.3	2.9	3.4	4.6	5.6	6.4	7.1	7.1	6.7	6.9	6.7	4.7	0.6	-2.9	-3.7	-4.4	-5.5	-6.5	-7.3	2.3	7.1
19-Mar	-8.3	-8.8	-9.3	-10.0	-11.0	-11.5	-12.0	-12.0	-11.9	-12.1	-11.5	-10.6	-9.3	-8.5	-7.1	-6.5	-6.7	-7.5	-9.8	-11.6	-12.9	-13.8	-15.0	-15.8	-10.6	-6.5
20-Mar	-16.6	-17.4	-18.7	-19.0	-19.3	-20.7	-20.5	-18.6	-16.4	-14.3	-12.5	-11.0	-9.8	-8.7	-8.1	-7.5	-7.6	-7.9	-9.1	-10.8	-11.9	-13.2	-14.3	-14.6	-13.7	-7.5
21-Mar	-14.1	-13.9	-14.2	-14.8	-15.2	-15.3	-15.4	-15.0	-14.0	-12.9	-11.6	-10.3	-9.4	-9.3	-9.1	-9.0	-8.9	-8.8	-9.6	-11.1	-13.1	-16.5	-17.1	-15.0	-12.7	-8.8
22-Mar	-16.3	-19.0	-21.3	-22.5	-23.2	-23.1	-22.1	-17.2	-14.2	-11.4	-9.9	-8.7	-8.3	-6.7	-6.1	-5.6	-5.3	-6.2	-8.3	-10.8	-12.4	-12.2	-13.6	-14.9	-13.3	-5.3
23-Mar	-14.7	-14.1	-13.8	-14.1	-14.7	-15.0	-14.8	-12.3	-10.1	-8.0	-6.9	-5.6	-4.7	-3.9	-3.5	-3.0	-2.9	-3.1	-4.3	-6.1	-7.5	-8.7	-10.0	-10.5	-8.9	-2.9
24-Mar	-10.4	-10.5	-10.7	-11.3	-11.0	-10.5	-10.2	-9.7	-8.8	-7.8	-6.3	-4.8	-3.6	-2.9	-2.7	-2.7	-2.7	-3.1	-3.6	-4.0	-4.4	-4.7	-5.2	-5.5	-6.6	-2.7
25-Mar	-6.1	-7.1	-7.7	-8.3	-9.2	-10.3	-11.0	-9.9	-7.7	-5.2	-3.2	-2.2	-1.6	-1.7	-2.0	-1.9	-2.1	-2.1	-3.2	-4.7	-5.3	-5.8	-6.5	-7.6	-5.5	-1.6
26-Mar	-8.2	-8.1	-7.8	-7.9	-8.5	-9.4	-10.1	-9.9	-8.3	-6.6	-4.9	-3.6	-2.4	-1.8	-1.8	-2.4	-3.0	-3.3	-3.7	-4.3	-4.8	-5.9	-7.0	-7.8	-5.9	-1.8
27-Mar	-8.5	-8.9	-9.1	-9.3	-9.4	-9.7	-9.8	-9.4	-9.2	-9.0	-8.6	-7.5	-6.7	-6.0	-5.3	-5.1	-5.5	-5.9	-6.2	-6.7	-7.3	-7.8	-8.0	-7.8	-7.8	-5.1
28-Mar	-8.2	-8.5	-9.0	-8.9	-8.8	-8.8	-8.7	-8.2	-7.8	-7.2	-6.6	-6.1	-5.8	-5.6	-5.6	-5.7	-6.0	-6.2	-6.8	-7.5	-8.0	-8.3	-8.6	-8.7	-7.5	-5.6
29-Mar	-8.7	-8.8	-8.8	-9.0	-9.6	-10.0	-10.1	-10.1	-9.5	-9.0	-8.4	-8.4	-8.5	-8.4	-8.2	-8.0	-8.0	-8.2	-8.5	-8.9	-9.3	-9.5	-9.8	-10.4	-9.0	-8.0
30-Mar	-10.8	-12.0	-15.0	-15.2	-16.7	-18.2	-13.8	-11.2	-8.9	-7.6	-6.3	-4.7	-3.3	-2.2	-1.0	-0.4	-0.3	-1.0	-2.6	-4.4	-5.3	-5.8	-6.0	-6.5	-7.5	-0.3
31-Mar	-6.8	-7.3	-7.9	-8.4	-8.8	-9.1	-8.9	-7.3	-4.6	-1.5	2.1	4.4	5.4	6.5	7.1	7.2	7.3	6.7	5.2	4.9	4.3	4.1	4.0	3.6	0.1	7.3
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature (AT) - C
Kirby South - March 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	99	13.31	13.31
-20 - 0	490	65.86	79.17
0 - 10	155	20.83	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

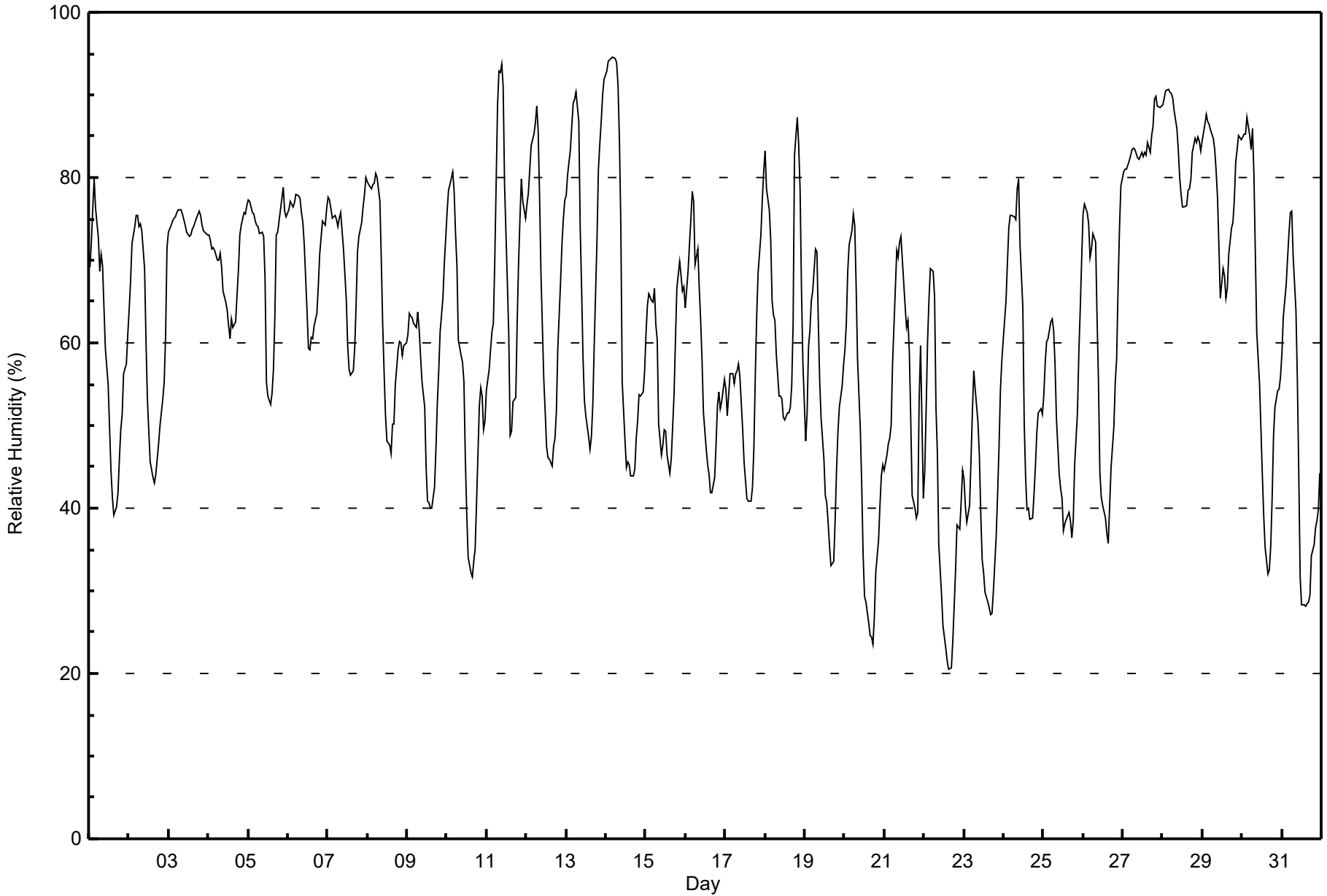
Relative Humidity (RH) - %
Kirby South - March 2024

Maximum Value: 94.6 % on Mar 14 05:00																						Maximum Daily Average: 84.1 % on Mar 27																						Hours in Service: 744			
Minimum Value: 20.5 % on Mar 22 16:00																						Minimum Daily Average: 40.4 % on Mar 22																						Hours of Data: 744			
Maximum Diurnal Average: 74.2 % at hour 7																						Minimum Diurnal Average: 46.9 % at hour 16																						Hours of Missing Data: 0			
Monthly Average: 61.84 %																						Percentiles: P ₁ = 24.5 P ₁₀ = 39.5 Q ₁ = 49.3 Median = 62.5 Q ₃ = 75.3 P ₉₀ = 83.2 P ₉₉ = 92.9																						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-Mar	69.2	72.3	76.3	79.8	76.2	72.7	68.7	70.7	69.3	64.2	59.2	55.0	49.7	44.6	41.3	39.2	40.2	41.9	45.9	49.5	51.4	56.2	57.5	61.1	58.8	79.8																					
2-Mar	64.1	67.5	72.0	74.0	75.5	75.5	74.1	74.4	73.6	69.1	60.4	53.2	49.4	45.6	43.7	43.1	44.1	45.9	47.8	50.0	53.3	55.3	60.9	71.6	60.2	75.5																					
3-Mar	73.4	74.3	74.7	75.1	75.3	75.7	76.0	76.1	75.5	74.9	74.3	73.4	73.0	73.0	73.7	74.0	74.6	75.1	75.9	75.4	74.2	73.5	73.4	73.0	74.5	76.1																					
4-Mar	73.0	72.4	71.4	71.5	71.2	70.0	70.0	70.9	69.1	66.3	64.9	63.9	62.0	60.6	62.8	61.9	62.6	65.7	68.8	73.0	74.2	75.7	75.6	76.6	68.9	76.6																					
5-Mar	77.3	77.1	75.7	75.6	74.7	74.2	74.0	73.2	73.4	72.9	67.7	55.3	53.6	52.6	53.8	56.8	63.1	73.1	73.3	76.2	77.4	78.8	75.9	75.3	70.0	78.8																					
6-Mar	76.2	77.2	76.7	76.5	77.0	78.0	77.8	77.4	75.8	74.6	71.9	63.8	59.3	59.2	60.7	60.5	62.0	63.5	66.8	70.7	72.8	74.7	74.2	76.3	71.0	78.0																					
7-Mar	77.6	77.2	76.3	75.1	75.5	74.8	74.1	75.0	75.8	71.4	68.2	65.2	59.7	56.8	56.1	56.6	59.3	64.6	71.1	72.9	74.7	76.4	77.9	79.9	70.5	79.9																					
8-Mar	79.5	79.1	78.6	79.2	79.3	80.6	80.0	77.1	70.1	62.3	56.4	51.1	48.1	47.7	46.6	50.1	50.2	54.9	59.1	60.2	60.0	58.5	59.7	60.0	63.7	80.6																					
9-Mar	61.0	63.5	63.3	63.1	62.3	61.9	63.8	61.7	58.5	55.4	52.2	44.9	40.8	40.7	40.0	40.0	42.6	47.2	52.8	56.6	61.4	65.4	69.6	72.7	55.9	72.7																					
10-Mar	76.0	78.5	79.2	80.8	78.3	73.2	69.3	60.3	58.5	57.6	55.2	46.0	39.4	34.1	32.1	31.7	33.5	35.0	40.7	52.4	54.5	53.6	49.6	50.6	55.0	80.8																					
11-Mar	54.3	56.7	59.1	61.4	62.3	69.9	88.9	92.8	92.7	93.7	91.0	79.2	67.3	61.0	48.7	49.3	52.8	53.5	62.4	69.6	75.1	79.8	77.1	75.0	69.7	93.7																					
12-Mar	76.8	78.2	81.0	83.9	85.2	86.6	88.7	85.7	77.7	68.4	55.6	51.7	47.4	46.2	45.9	45.1	47.5	48.5	51.7	59.3	67.5	72.0	75.0	77.3	66.8	88.7																					
13-Mar	77.8	80.3	83.4	86.3	89.0	89.5	90.4	86.7	73.9	66.6	58.4	53.1	51.2	48.6	47.2	48.6	52.5	59.6	72.5	81.1	84.1	86.8	90.1	91.8	72.9	91.8																					
14-Mar	92.9	94.1	94.2	94.4	94.6	94.3	93.9	91.1	84.6	74.3	55.2	48.2	45.0	45.7	45.3	43.8	44.0	44.7	48.5	50.5	53.8	53.5	54.1	56.6	66.6	94.6																					
15-Mar	61.2	64.6	65.9	65.2	65.0	66.7	62.1	60.3	50.2	46.4	47.7	49.5	49.3	46.4	44.2	46.0	49.8	53.8	60.4	66.6	69.9	68.2	66.3	66.8	58.0	69.9																					
16-Mar	64.2	68.6	71.9	75.0	78.2	77.2	69.5	71.3	66.6	62.7	57.8	51.5	47.1	45.2	44.1	41.9	41.9	43.7	47.8	52.4	54.0	52.0	52.8	55.6	58.0	78.2																					
17-Mar	54.3	51.2	53.6	56.3	56.2	55.1	56.3	56.6	57.4	55.9	49.5	45.6	43.4	41.2	40.8	40.9	42.5	47.3	56.0	63.3	68.5	73.0	77.4	80.6	55.1	80.6																					
18-Mar	83.3	78.6	76.1	72.6	65.1	63.3	62.8	58.7	53.5	53.6	53.3	51.0	50.7	51.6	51.5	52.2	54.7	62.2	82.7	87.3	83.9	78.5	66.3	57.5	64.6	87.3																					
19-Mar	48.1	51.5	59.4	61.5	65.0	66.3	71.4	71.0	62.5	55.3	50.8	45.9	41.5	40.7	38.3	35.4	33.0	33.6	38.5	44.6	49.2	52.2	54.8	57.2	51.1	71.4																					
20-Mar	59.2	62.3	68.7	71.8	73.6	75.6	74.2	66.9	58.0	49.4	42.7	34.3	29.4	28.6	26.1	24.6	24.4	23.6	26.8	32.3	36.1	40.4	43.9	45.3	46.6	75.6																					
21-Mar	44.6	46.5	47.8	48.5	50.0	57.5	62.1	71.1	70.3	72.2	72.9	70.1	64.5	61.9	62.7	58.9	50.7	41.6	40.0	38.9	39.5	53.3	59.7	41.2	55.3	72.9																					
22-Mar	44.5	52.0	60.1	65.3	69.0	68.6	65.5	52.2	46.6	35.6	29.5	25.8	24.4	23.0	21.5	20.5	20.7	23.9	28.1	32.5	38.0	37.4	40.8	44.6	40.4	69.0																					
23-Mar	43.5	40.2	38.3	40.4	45.7	51.7	56.6	54.5	50.3	46.2	39.1	33.7	32.2	29.8	28.6	28.0	27.2	27.2	30.0	36.5	41.7	47.3	54.2	57.8	40.9	57.8																					
24-Mar	60.3	65.2	69.7	73.9	75.4	75.4	75.2	74.8	78.7	79.9	71.9	64.4	50.3	43.7	39.9	40.1	38.6	38.8	41.7	45.0	49.2	51.6	52.0	51.4	58.6	79.9																					
25-Mar	53.7	57.7	60.2	60.6	62.5	62.8	61.6	57.4	50.9	44.0	42.3	41.2	37.3	38.1	38.7	39.5	38.5	36.4	38.4	45.3	51.5	58.8	64.1	70.0	50.5	70.0																					
26-Mar	75.6	76.7	75.8	74.4	70.4	71.4	73.3	72.2	63.0	55.4	44.5	41.3	40.3	38.8	37.0	35.7	40.3	44.8	49.9	55.3	58.1	66.7	73.8	79.0	58.9	79.0																					
27-Mar	80.7	81.1	81.1	81.5	82.0	83.4	83.6	83.4	82.9	82.3	82.3	83.0	82.6	83.0	82.7	84.3	83.0	85.1	86.4	89.5	89.9	88.6	88.4	88.7	84.1	89.9																					
28-Mar	88.8	89.6	90.5	90.6	90.3	90.1	89.7	88.1	85.9	83.4	80.0	78.0	76.4	76.4	76.6	78.5	78.6	79.8	83.0	84.8	84.3	84.9	84.4	83.2	84.0	90.6																					
29-Mar	84.4	86.4	87.6	86.8	86.4	85.7	84.7	83.4	80.8	77.6	71.7	65.5	69.0	68.1	65.4	66.7	70.7	73.9	74.5	77.3	81.8	83.4	85.1	84.5	78.4	87.6																					
30-Mar	84.9	85.3	85.3	87.3	85.1	83.5	85.9	80.4	70.9	61.4	55.1	49.6	44.0	39.0	35.2	32.0	32.6	35.5	41.2	48.8	52.1	54.2	54.4	55.9	60.0	87.3																					
31-Mar	58.9	63.3	66.9	70.1	73.2	75.7	76.0	70.6	63.9	55.6	44.5	31.8	28.3	28.3	28.1	28.5	28.7	29.5	34.3	35.7	37.6	38.5	39.8	44.3	48.0	76.0																					
																						68.4	70.0	71.6	72.8	73.2	73.8	74.2	72.5	68.4	64.1	58.9	53.7	50.2	48.4	47.1	46.9	47.9	50.1	54.7	59.1	61.9	64.2	65.4	66.5	Diurnal Average	
																						92.9	94.1	94.2	94.4	94.6	94.3	93.9	92.8	92.7	93.7	91.0	83.0	82.6	83.0	82.7	84.3	83.0	85.1	86.4	89.5	89.9	88.6	90.1	91.8	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Kirby South - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Kirby South - March 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	81	10.89	10.89
40 - 60	251	33.74	44.62
60 - 80	311	41.80	86.42
80 - 100	101	13.58	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Kirby South - March 2024

Maximum Speed: 28 km/h on Mar 10 15:00	Maximum Daily Speed Average: 18.8 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 2 km/h on Mar 16 00:00	Minimum Daily Speed Average: 3.9 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 4.0 km/h at hour 22	Minimum Diurnal Speed Average: 2.3 km/h at hour 5	Hours of Missing Data: 0
Monthly Average Velocity: 2.9 km/h 205.7 deg	Percentiles: P ₁ = 3 P ₁₀ = 6 Q ₁ = 9 Median = 12 Q ₃ = 16 P ₉₀ = 20 P ₉₉ = 25	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	NNW8	NNW10	NW11	NW14	NW17	NW16	NW15	NW17	WNW19	NW20	NW20	NW18	NW16	NW13	NW13	NW9	NNW5	NNW7	NNW6	N6	ENE7	NNE8	NW12.4	NW20			
2-Mar	NE9	NE7	ENE6	ENE8	ENE9	ENE8	ESE6	E7	E11	E13	E16	ENE18	ENE19	E20	ENE18	ENE18	ENE16	ENE17	ENE18	ENE21	ENE17	ENE19	ENE20	ENE20	ENE13.9	ENE21	
3-Mar	ENE19	ENE21	ENE21	E19	E19	ENE17	ENE17	ENE16	ENE15	ENE14	ENE15	ENE14	ENE15	NE15	NE13	NE14	NNE15	NNE14	NNE13	N13	NNW16	NNW15	NNW14	NW16	NE12.7	ENE21	
4-Mar	NW16	NW16	NNW17	NNW16	NNW16	NNW16	NW15	NW15	NW18	NW19	NW19	NW17	NW17	WNW17	WNW15	NW15	WNW15	WNW11	WNW9	WNW9	WNW9	WNW9	WNW9	WNW10	NW14.0	NW19	
5-Mar	WNW9	WNW8	W6	W6	WSW6	WSW9	WSW8	WSW7	WSW5	W6	WNW8	NNW7	NW8	SW11	SW10	WSW8	SW9	S5	SSW6	SSW5	SSW7	S7	S7	SSW7	WSW5.6	SW11	
6-Mar	SSW7	SSW8	SSW8	SW7	SSW7	SSW7	SW6	S10	SSW9	SW8	SSW11	SSW15	SW15	SSW14	SSW13	S13	S12	SSW11	SSW12	SW11	SSW11	SSW11	SW14	SW15	SSW10.4	SW15	
7-Mar	SW15	SW14	SW15	SW15	SW13	SW15	SW16	SW19	SSW9	SW21	SSW22	SW20	SW18	SSW18	SSW20	SSW21	SSW18	SSW18	SSW18	SSW18	SSW18	SSW18	SSW18	SSW18	SSW18	SSW17.4	SW22
8-Mar	SW13	WSW14	WSW13	WSW12	WSW12	WSW11	WSW12	WSW12	WSW10	WSW8	WSW8	SW11	SW12	SW12	SW13	SSW11	SSW12	SSW12	SSW13	SSW15	SSW16	SSW16	SSW16	SSW16	SSW16	SSW11.9	SSW16
9-Mar	SSW16	SSW16	SSW16	SSW14	SSW14	SSW15	SSW18	SSW18	SSW19	SSW20	SSW19	SSW19	SSW22	SSW21	SSW19	SSW19	SSW18	SSW15	S16	SSW18	SSW17	SSW16	SW14	SW14	SSW17.1	SSW22	
10-Mar	SW15	WSW15	WSW16	WSW16	WSW18	WSW15	W15	W21	W18	W23	WNW25	W22	W24	W24	W28	WNW25	WNW18	WNW11	WSW4	W4	NNW4	S4	SSE4	ENE7	W14.1	W28	
11-Mar	ENE6	NE7	NE7	NE14	NE14	NE13	ENE10	E6	ENE8	NE8	E9	ESE10	ESE5	ESE4	SE4	E10	E12	E10	E7	ESE7	ESE7	ESE9	SE9	SE12	E7.6	NE14	
12-Mar	ESE10	SE10	ESE8	ESE8	ESE8	E9	ESE8	E7	E9	ESE13	ESE17	ESE17	ESE16	ESE15	ESE15	ESE15	ESE13	ESE12	E10	E10	E11	ESE10	E9	E10	ESE11.0	ESE17	
13-Mar	ESE9	E5	ESE4	ESE4	ESE5	ESE5	SE3	SSW3	SW7	WSW6	WSW4	W3	WSW9	SW10	WSW12	SW13	WSW13	WSW13	WSW13	WSW13	WSW11	WSW11	WSW14	SW13	SW12	SW5.9	WSW14
14-Mar	WSW11	SW11	SW11	SW9	SW10	SW9	SW9	WSW10	WSW11	WSW12	W17	WSW19	WSW22	WSW22	WSW24	WSW22	WSW18	WSW17	WSW16	WSW15	WSW16	WSW19	W17	W19	WSW14.9	WSW24	
15-Mar	W18	W19	WNW20	WNW20	WNW17	WNW18	WNW20	NNW23	NNW25	NNW26	NNW26	N21	N21	N20	N19	NNE16	NNE14	NE11	ENE10	ENE7	ENE7	NE9	ENE7	N2	NNW12.1	NNW26	
16-Mar	ENE6	NE5	ENE6	NE6	ENE7	E8	ENE9	E12	ENE11	ENE9	ENE9	ENE9	NE9	NE9	NE10	NE10	ENE9	ENE11	E8	E7	E8	SE8	SE8	SSE9	ENE7.7	E12	
17-Mar	S10	SSE11	S13	S15	S14	SSW14	SSW16	SW19	SW20	SSW18	SSW19	SSW21	SSW22	SSW21	SSW22	SSW23	SSW22	SW23	SW23	SW24	SW22	SW20	WSW16	WSW16	SSW17.8	SW24	
18-Mar	WSW17	W19	WNW15	WNW12	NW10	NW12	NW14	NW19	NNW18	NW19	NW21	NNW21	NNW18	NNW18	NNW18	NNW19	NNE16	NE19	NE19	NE15	NE15	NNE17	NNE13	NNE16	NNW12.5	NW21	
19-Mar	NNE14	NNE14	NNE12	NNE13	NNE14	NNE15	NE13	NE14	NE15	NE14	NNE11	NE14	NNE12	N11	NNE11	NNE11	NE12	NE11	NE11	NE9	NE9	NE9	NE8	NE9	NE11.7	NE15	
20-Mar	NE10	NE7	ENE5	E4	E4	ESE6	E6	E7	E9	E9	NE8	ENE7	E7	E7	ENE8	ENE5	E9	E10	E9	E7	E8	E8	ESE8	ESE7	E7.0	NE10	
21-Mar	SE8	SE9	SE9	SE10	SE9	ESE9	ESE10	ESE11	ESE11	ESE12	ESE12	E14	E16	E16	E17	E13	ENE15	E13	ENE10	NE7	NE5	ENE3	NE5	NE9	E9.6	E17	
22-Mar	NE8	NE5	NE5	ENE3	ENE3	E5	ESE4	SE7	SE6	SSE3	SSE4	NE7	NW6	ENE4	NNW6	NNW4	ENE3	E11	E9	E7	SE9	SE9	SE9	SSE7	E3.9	E11	
23-Mar	S10	SSW10	SSW10	SSW10	SSW9	SW10	SSW9	SSW10	SW10	SSW10	SSW11	SSW10	S8	S8	WSW7	W7	WSW7	WSW7	SW7	SW8	SW8	SSW8	SW7	SSW8	SSW8.2	SSW11	
24-Mar	SSW9	SW10	SSW10	SSW10	SSW9	SSW9	SSW9	SSW11	SSW13	SSW14	SSW15	SSW14	SSW15	SSW14	SSW10	SSW10	SSW11	SSW11	S9	S10	S10	SSE11	SSE11	SSE13	SSW10.8	SSW15	
25-Mar	SSE14	SSE13	SSE14	S14	SSE15	SSE12	SSE14	S15	S16	S17	S17	S16	S18	S19	S19	S19	S16	S18	S15	SSE11	S13	S15	S16	S13	S14.9	S19	
26-Mar	SSE13	SSE13	S14	S14	S14	S14	S15	S17	S21	S22	S26	S25	S27	S23	S25	S23	S21	S20	SSE19	SSE18	SSE19	SSE18	SSE17	SSE16	S18.8	S27	
27-Mar	SSE17	SSE16	SSE18	SSE17	SSE18	SSE16	SSE18	SSE16	SSE19	SSE19	SSE21	SSE20	SSE17	SSE15	SSE16	SSE13	SE13	SE11	ESE10	ESE9	ESE9	ESE10	E8	E8	SSE14.1	SSE21	
28-Mar	E8	E8	E5	ENE7	ENE6	ENE6	NE7	NE9	ENE10	NE11	NE12	NE12	NNE11	NE12	NNE13	NNE13	NE12	NE10	NE9	ENE9	NE7	NNE5	NNE6	NNE6	NE8.5	NNE13	
29-Mar	NNE5	N5	N7	N7	NNW9	NNW8	N8	NNW10	N10	NNW11	NNW12	NNW14	NNW13	N14	NNW12	NNW12	NNW11	N10	NNW6	NW5	NW6	WNW7	WNW7	WNW7	NNW8.5	N14	
30-Mar	NW7	NW7	NW6	WNW5	W4	WSW5	WSW4	SW7	SW9	SW9	SW10	SW10	SW11	SW13	SSW11	SSW11	SSW12	SSW13	SSW8	SSW9	SSW9	SSW10	SSW12	SSW14	SW7.6	SSW14	
31-Mar	SSW15	SSW16	SSW15	SSW16	SW16	SW15	SW13	SW13	SW15	SW15	SW17	SW20	SW21	SW19	SW20	SW21	SW20	SW18	SSW15	SSW17	SSW18	SSW21	SSW21	SSW23	SW17.2	SSW23	

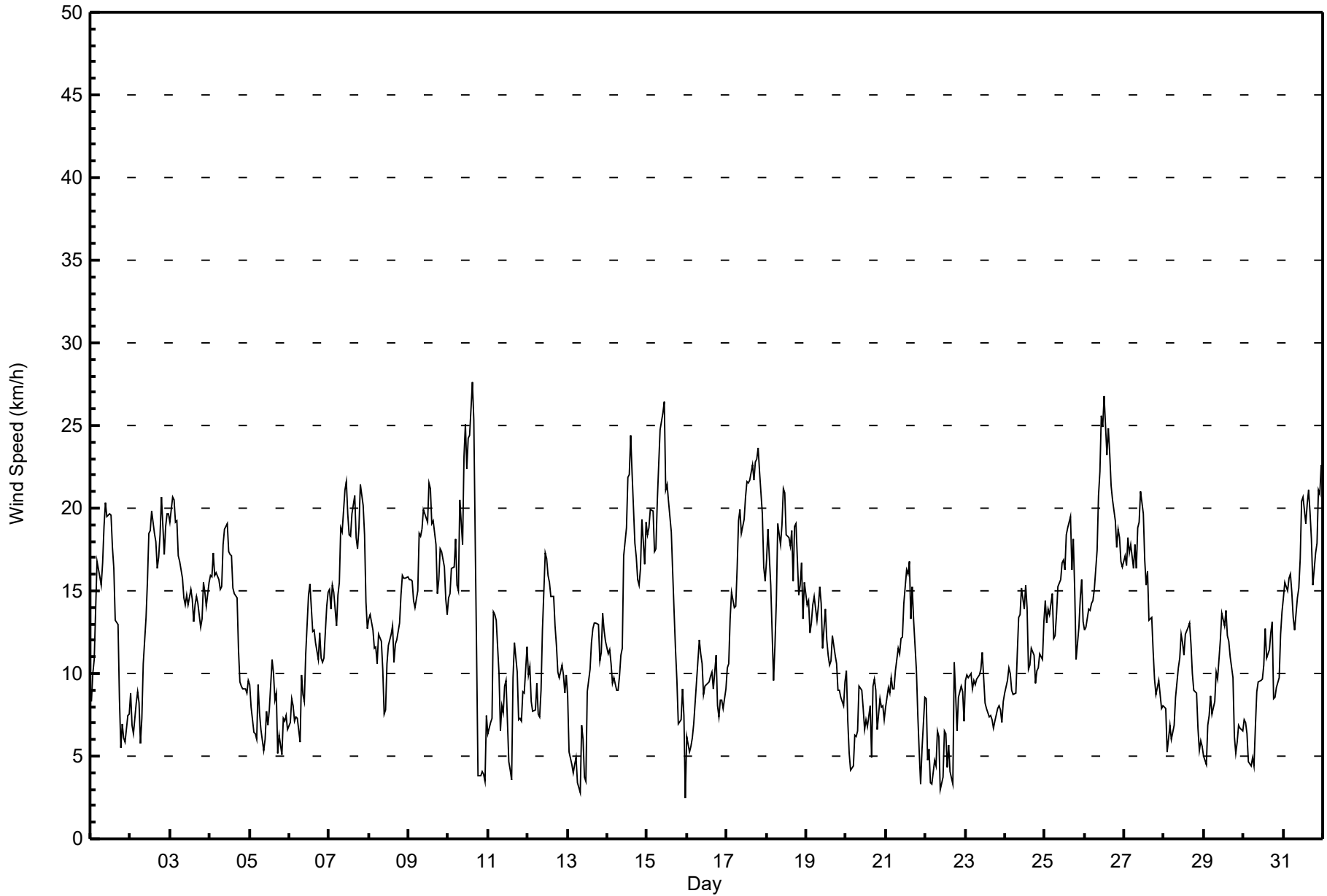
SSW2.6	SSW2.7	SW3.0	SW2.5	SSW2.3	SSW2.4	SSW2.7	SW3.0	SW2.9	SW2.9	SW3.2	SW2.4	SW3.5	SW3.7	SW3.5	SW3.0	SSW2.6	SSE2.9	SSE3.2	S3.2	S3.7	S4.0	S3.6	SSW3.3	Diurnal Average
ENE19	ENE21	ENE21	WNW20	E19	WNW18	WNW20	NW23	NNW25	NNW26	NNW26	S25	S27	W24	W28	WNW25	SSW22	SW23	SW23	SW24	SW22	SSW21	SSW21	SSW23	Diurnal 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 - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Kirby South - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	50	6.72	6.72
6 - 11	298	40.05	46.77
12 - 19	321	43.15	89.92
20 - 28	75	10.08	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
Kirby South - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	2	3	4	7	5	7	2	3	2	2	0	5	3	1	1	3	50
6 - 11	7	8	32	31	35	25	15	6	9	43	29	19	4	14	9	12	298
12 - 19	3	18	20	19	12	11	2	31	27	54	38	27	8	11	23	17	321
20 - 28	3	0	0	5	1	0	0	2	10	14	16	4	6	5	5	4	75
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
Totals	15	29	56	62	53	43	19	42	48	113	83	55	21	31	38	36	744

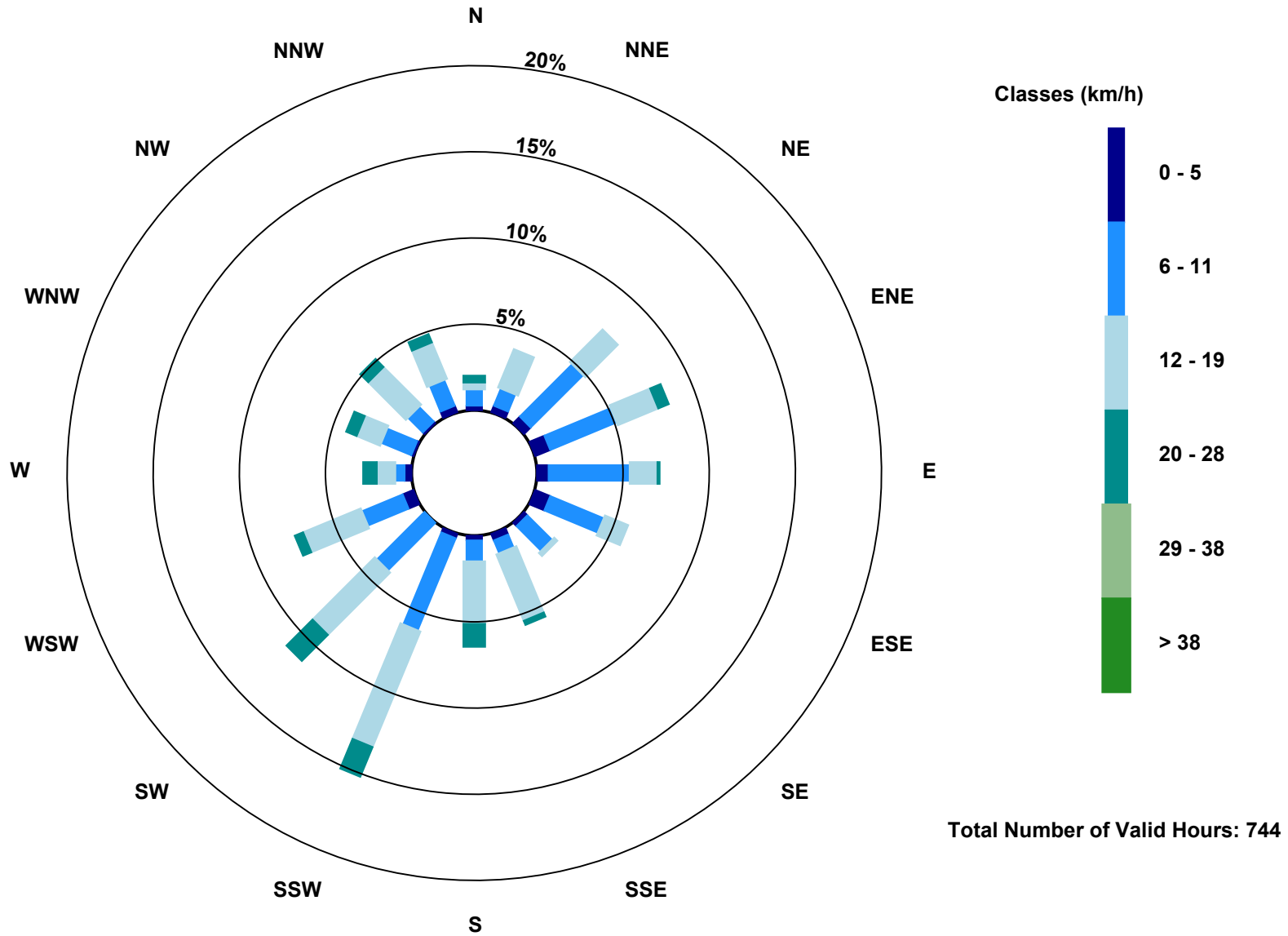
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Kirby South





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Kirby South - March 2024

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



Wood Buffalo Environmental Association
Summary of Hour Averages

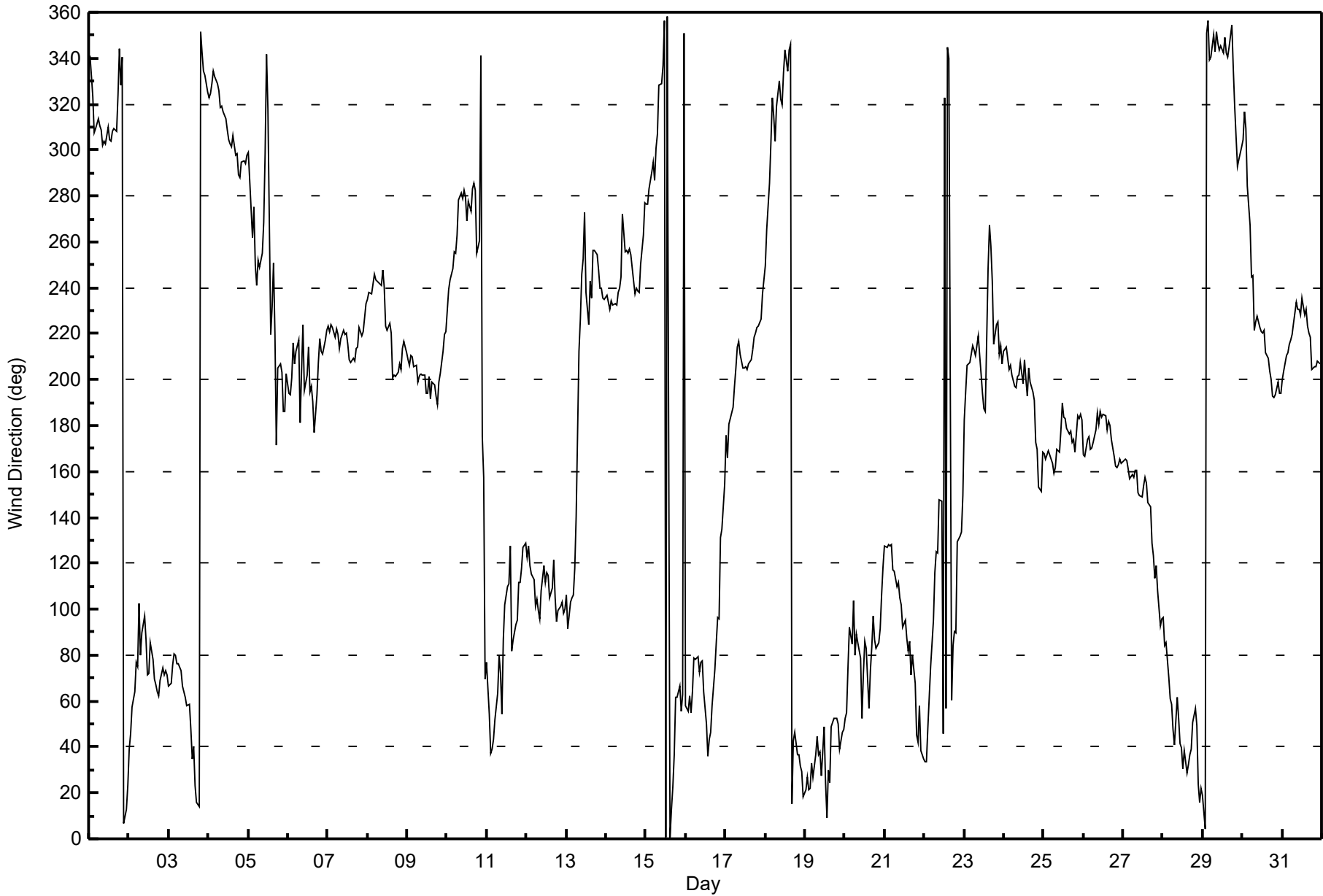
Wind Direction (WD) - deg
Kirby South - March 2024

Direction of Maximum Speed: 273 deg on Mar 10 15:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 175.3 deg on Mar 26																						Hours of Data: 744			
Direction of Minimum Speed: 351 deg on Mar 16 00:00											Direction of Minimum Daily Speed Average: 3.9 deg on Mar 22											Hours of Missing Data: 0			
Monthly Average Direction: 205.7 deg																						Percent Operational Time: 100.0			
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	341	332	324	308	310	314	310	309	302	304	303	310	304	304	308	309	308	324	344	328	340	6	13	23	315.3
2-Mar	39	46	57	64	77	75	102	80	90	97	87	71	72	86	78	70	67	64	62	69	74	71	73	72	73.0
3-Mar	67	68	76	80	80	76	76	73	67	64	62	58	58	47	35	40	23	16	14	351	342	335	333	325	45.9
4-Mar	323	325	329	334	332	329	326	319	319	317	314	308	305	303	301	306	298	298	289	288	295	295	294	298	312.5
5-Mar	299	287	262	275	250	241	252	249	255	268	298	342	318	219	232	251	220	172	205	207	203	186	186	203	244.6
6-Mar	194	194	201	216	207	212	217	181	204	224	196	202	214	194	197	190	177	193	207	218	212	211	217	222	204.1
7-Mar	223	221	224	223	219	222	219	214	218	222	220	220	216	209	207	210	208	213	214	222	219	221	227	233	218.0
8-Mar	235	238	237	241	246	244	243	241	241	248	240	223	222	224	220	201	202	201	203	207	205	213	217	212	223.7
9-Mar	209	206	211	210	205	206	199	201	202	202	202	194	194	201	192	199	198	193	189	199	203	212	220	221	202.3
10-Mar	230	239	243	248	256	255	263	279	281	279	282	280	269	278	273	283	286	283	255	260	341	175	158	70	268.9
11-Mar	77	54	37	39	44	52	63	80	72	54	87	102	110	111	127	82	87	93	95	112	112	118	127	129	82.1
12-Mar	123	127	119	115	113	101	104	99	96	108	119	112	116	115	105	109	121	105	94	99	101	103	98	100	109.3
13-Mar	106	91	103	105	106	118	140	212	227	246	253	273	238	224	243	236	257	257	254	248	240	240	236	235	232.4
14-Mar	237	234	231	234	232	233	232	238	240	245	272	256	256	255	257	255	243	237	240	239	238	250	263	277	248.3
15-Mar	276	276	283	290	295	287	301	307	328	329	337	356	1	358	1	13	23	37	62	62	66	55	63	351	333.3
16-Mar	58	55	62	55	64	79	78	79	73	77	77	64	50	36	43	46	58	74	85	97	96	131	135	154	74.7
17-Mar	175	166	181	183	188	197	205	214	217	211	205	205	206	204	207	208	213	218	220	223	223	226	237	243	210.0
18-Mar	250	265	286	303	323	315	304	319	330	322	320	333	344	334	343	346	15	43	46	37	37	32	29	18	341.4
19-Mar	21	27	22	22	33	27	37	45	36	38	27	49	24	9	30	25	49	53	52	53	50	39	46	47	35.2
20-Mar	53	55	74	92	85	103	80	89	86	79	52	72	86	83	57	73	83	97	87	83	85	92	106	118	81.8
21-Mar	128	127	128	127	128	117	117	110	111	105	102	92	95	87	82	86	71	80	68	45	42	58	38	35	93.6
22-Mar	34	34	48	61	75	95	116	125	125	147	147	45	323	57	345	340	61	84	90	89	129	132	134	149	89.0
23-Mar	182	195	206	207	211	215	213	211	219	211	202	194	187	186	248	267	258	243	215	224	225	211	215	207	212.7
24-Mar	212	214	209	205	207	202	197	196	201	202	207	198	209	200	193	205	199	195	191	173	170	153	152	168	194.5
25-Mar	168	166	167	169	165	164	159	161	170	169	178	190	184	183	179	176	177	173	174	168	185	183	185	182	174.5
26-Mar	167	167	174	175	170	170	173	178	186	181	186	184	185	184	178	182	180	174	167	162	161	163	166	163	175.3
27-Mar	165	165	165	161	157	159	157	161	160	151	149	149	154	157	155	147	144	129	123	114	119	108	93	96	149.0
28-Mar	97	84	86	70	61	58	47	41	61	53	41	40	31	38	29	32	37	39	51	57	49	24	16	22	46.6
29-Mar	19	4	351	356	339	340	350	343	352	347	344	345	342	349	342	341	345	355	336	319	306	293	296	302	340.8
30-Mar	305	317	309	284	267	244	245	222	225	228	223	221	220	221	212	209	204	200	193	192	194	199	194	194	219.0
31-Mar	200	204	210	212	215	217	220	224	234	231	231	228	236	228	230	223	220	218	204	206	206	208	208	207	217.6
198.3	207.5	214.6	215.1	207.7	207.1	211.0	217.8	221.4	228.6	230.0	216.7	227.8	218.9	227.4	223.6	197.2	166.6	165.6	182.2	183.6	187.0	190.0	196.2		
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 - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Kirby South - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 86 deg on Mar 22 17:00 Minimum Value: 3 deg on Mar 5 22:00 Percentiles: P ₁ = 7 P ₁₀ = 10 Q ₁ = 12 Median = 15 Q ₃ = 18 P ₉₀ = 24 P ₉₉ = 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-Mar	19	15	14	17	15	16	15	13	14	14	16	16	17	18	19	19	17	20	20	14	18	18	15	12	20
2-Mar	11	13	8	9	12	11	19	9	14	15	19	18	19	17	17	17	15	14	13	13	13	13	13	12	19
3-Mar	12	12	12	11	11	11	11	11	11	12	12	13	14	16	16	15	17	18	18	22	17	15	14	13	22
4-Mar	12	13	14	16	15	14	14	12	12	14	15	15	19	16	15	17	13	12	8	9	9	9	9	7	19
5-Mar	7	14	10	9	8	7	9	11	15	18	23	38	31	33	28	27	24	22	12	6	5	3	4	9	38
6-Mar	10	7	13	11	15	22	15	12	23	19	22	17	22	22	21	22	16	23	14	13	14	15	14	15	23
7-Mar	14	14	13	13	14	14	15	14	15	14	15	16	18	21	18	16	16	15	15	14	14	14	14	13	21
8-Mar	11	10	10	11	11	7	8	10	12	14	13	18	20	18	19	18	16	14	14	14	15	15	13	14	20
9-Mar	14	14	13	14	14	14	14	15	14	15	15	17	16	16	17	17	16	15	15	15	17	19	16	15	19
10-Mar	13	12	10	10	10	12	13	10	12	11	13	16	15	14	15	12	12	15	30	23	37	75	51	15	75
11-Mar	26	20	21	13	12	14	11	17	14	16	17	24	53	57	73	35	18	12	9	8	7	10	15	14	73
12-Mar	14	14	13	12	10	8	11	11	12	16	19	18	21	20	21	20	17	14	11	11	12	12	12	12	21
13-Mar	13	13	8	7	7	11	33	32	20	26	45	72	26	31	22	26	21	14	12	9	10	10	12	12	72
14-Mar	11	9	9	11	11	10	9	11	13	16	15	14	14	15	14	13	15	13	13	13	13	13	13	10	16
15-Mar	9	9	10	11	12	10	13	15	16	17	20	22	23	25	26	24	26	20	13	12	10	10	16	51	51
16-Mar	15	13	11	10	15	10	11	11	14	16	22	35	36	34	33	32	24	18	12	10	10	23	21	18	36
17-Mar	16	16	16	15	15	16	15	15	14	17	17	18	18	18	18	17	17	15	15	14	13	14	13	12	18
18-Mar	10	13	11	15	17	13	13	13	15	17	16	19	24	20	22	22	29	14	14	15	15	16	17	20	29
19-Mar	20	20	20	21	17	18	16	17	20	20	27	24	33	36	38	33	25	25	12	11	10	12	11	10	38
20-Mar	9	10	12	13	12	11	9	18	15	26	36	51	51	58	49	82	34	20	12	10	12	10	10	13	82
21-Mar	15	14	14	14	14	14	14	14	14	18	21	20	19	24	18	20	17	20	13	12	15	14	13	11	24
22-Mar	11	14	9	12	11	7	13	14	24	78	66	45	43	73	59	66	86	18	15	12	21	12	15	17	86
23-Mar	9	9	8	8	7	7	9	15	19	24	30	41	55	52	43	47	37	32	11	7	8	6	8	5	55
24-Mar	11	10	10	9	10	13	15	15	15	16	19	24	20	27	34	27	23	18	17	15	16	14	13	13	34
25-Mar	13	13	13	14	13	13	12	14	15	18	20	24	24	23	19	20	24	19	14	13	14	15	15	14	24
26-Mar	12	13	15	16	14	14	14	16	17	18	19	19	20	23	19	18	19	16	15	15	15	16	16	15	23
27-Mar	15	15	15	14	15	15	14	15	16	16	13	15	15	16	16	16	15	16	17	14	14	14	13	13	17
28-Mar	12	11	14	11	12	11	13	14	17	17	17	17	20	18	18	17	16	17	15	13	15	15	16	16	20
29-Mar	20	21	19	19	16	17	19	17	20	22	24	20	20	20	20	19	21	21	17	19	15	10	9	10	24
30-Mar	8	12	9	16	13	10	24	13	16	22	28	32	35	27	32	29	20	18	14	11	11	12	13	13	35
31-Mar	14	13	13	12	12	12	13	14	14	15	17	18	19	19	18	19	18	17	16	15	15	15	14	15	19
																			26 21 21 21 17 22 33 32 24 78 66 72 55 73 73 82 86 32 30 23 37 75 51 51						
Diurnal Maximum																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS511
BLACKGOLD
MARCH 2024**

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

April 30, 2024

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)
MARCH 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	14.3	0	4.6	0
H2S (ppb) Average	708	36	36	100	5	0	0.5	0
THC (ppm) Average	709	35	35	100	5	-	2.5	-
NO2 (ppb) Average	708	36	36	100	17	0	5.4	-
NO (ppb) Average	708	36	36	100	31.8	-	4.7	-
NOX (ppb) Average	708	36	36	100	48.8	-	10.2	-
Temperature 2 m (C) Average	744	0	0	100	11.5	-	3.7	-
Relative Humidity (%) Average	744	0	0	100	98.2	-	83.2	-
Wind Speed 10 m (km/h) Average	744	0	0	100	25	-	17	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)
MARCH 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	1.16	1.7	-	0	0	0.1	0.6	1.5	2.7	14.3
H2S (ppb) Average	708	0.1	0.2	-	0	0	0.1	0.1	0.1	0.2	5
THC (ppm) Average	709	2.32	0.2	-	2.2	2.2	2.3	2.3	2.3	2.4	5
NO2 (ppb) Average	708	2.25	2.2	-	0	0.5	0.8	1.6	2.9	5	17
NO (ppb) Average	708	0.51	2	-	0	0	0	0.1	0.4	1	31.8
NOX (ppb) Average	708	2.75	3.6	-	0	0.5	0.9	1.8	3.3	5.4	48.8
Temperature 2 m (C) Average	744	-7.69	9.4	-	-33.5	-20.8	-14.7	-7.1	-0.8	5.2	11.5
Relative Humidity (%) Average	744	61.49	16.7	-	24.1	38	49.3	62.5	75.1	82.5	98.2
Wind Speed 10 m (km/h) Average	744	8.9	5	-	0	3	5	9	12	15	25
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BLACKGOLD (AMS511)
MARCH 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
-----------	-----------------	---------------	---------------------	-------

No operational issues to report



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Blackgold - March 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 14.3 ppb on Mar 10 06:00	Maximum Daily Average: 4.6 ppb on Mar 10		Hours of Data:	709
Minimum Value: 0.0 ppb on Mar 1 10:00	Minimum Daily Average: 0.0 ppb on Mar 28		Hours of Missing Data:	35
Maximum Diurnal Average: 1.7 ppb at hour 12	Minimum Diurnal Average: 0.7 ppb at hour 7		Hours of Calibration:	35
Monthly Average: 1.16 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.6 Q ₃ = 1.5 P ₉₀ = 2.7 P ₉₉ = 8.5		Percent Operational Time:	100.0

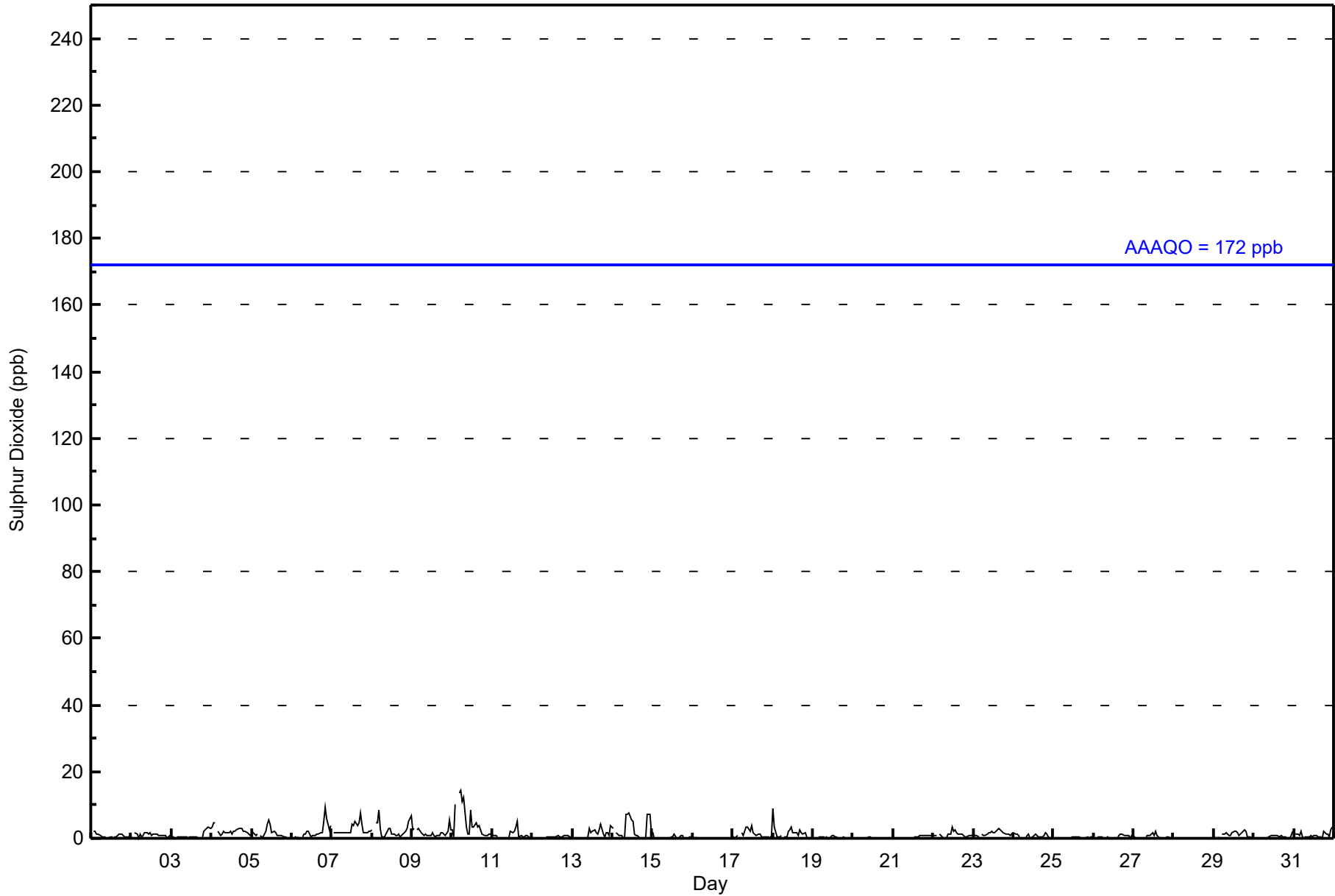
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	Z	2.3	2.1	1.4	1.3	0.9	0.4	0.6	0.6	0.0	0.0	0.4	0.3	0.0	0.6	0.4	1.1	1.3	1.1	0.7	0.2	0.4	0.4	0.8	0.7	2.3
2-Mar	0.4	Z	1.7	1.4	0.1	1.2	0.6	0.8	1.5	1.6	1.5	1.6	0.8	1.5	1.4	1.3	1.0	1.0	1.1	1.0	0.8	0.1	0.3	0.7	1.0	1.7
3-Mar	0.2	0.3	Z	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.0	0.4	0.5	0.4	0.4	0.3	0.2	0.1	0.2	1.9	2.4	2.8	3.4	2.9	0.9	3.4
4-Mar	3.3	4.8	4.8	Z	2.0	0.9	1.3	2.2	1.5	1.7	1.9	2.0	1.2	1.9	2.1	2.6	2.8	2.8	2.9	2.1	2.0	1.7	1.1	0.8	2.2	4.8
5-Mar	1.5	1.5	0.8	1.3	Z	0.8	0.5	0.6	2.0	4.1	5.7	4.2	1.6	2.3	1.6	0.8	0.6	1.0	0.6	0.4	0.3	0.2	0.0	0.0	1.4	5.7
6-Mar	0.0	0.0	0.4	0.0	0.3	Z	0.6	1.3	1.3	2.2	2.3	0.5	0.7	1.0	1.0	1.1	1.3	1.6	1.9	5.0	9.1	6.1	2.4	3.9	1.9	9.1
7-Mar	Z	1.7	1.8	1.8	1.9	1.8	1.9	1.6	1.8	1.7	1.7	1.8	4.4	3.8	4.9	3.8	4.6	7.6	4.3	1.6	1.7	1.9	2.1	2.0	2.7	7.6
8-Mar	2.5	Z	4.5	4.8	8.3	2.8	0.4	0.4	1.2	2.0	3.0	2.9	1.3	1.3	0.9	0.9	1.4	0.5	1.2	1.9	2.3	2.9	5.2	7.0	2.6	8.3
9-Mar	2.5	2.9	Z	2.5	3.0	1.7	1.1	0.9	1.2	0.9	0.9	0.7	1.5	0.9	0.3	0.7	0.9	1.6	1.7	1.5	0.7	2.2	5.7	2.7	1.7	5.7
10-Mar	2.7	0.2	10.4	Z	13.5	14.3	11.1	12.5	3.4	1.3	1.2	8.5	3.2	3.3	4.7	3.2	3.9	2.5	1.5	0.9	0.7	0.7	1.1	1.3	4.6	14.3
11-Mar	0.9	0.9	0.6	0.4	Z	0.2	0.0	0.0	0.0	0.0	0.0	2.2	1.7	2.2	3.5	5.2	0.6	0.9	0.5	0.6	0.8	0.8	0.5	0.0	1.0	5.2
12-Mar	0.1	0.0	0.0	0.2	0.0	Z	0.1	0.0	0.2	0.3	0.6	0.6	0.6	0.6	0.6	0.7	0.6	0.6	0.6	0.7	0.8	0.6	0.6	0.5	0.4	0.8
13-Mar	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.0	1.6	2.3	2.7	1.7	1.4	2.6	4.2	1.4	0.3	1.6	1.6	0.8	3.7	1.3	4.2
14-Mar	3.1	Z	1.7	1.5	0.9	0.6	0.0	0.6	7.4	7.0	7.8	5.6	5.2	1.3	0.7	1.0	0.0	0.0	0.0	0.6	7.0	7.0	1.7	1.7	2.6	7.8
15-Mar	1.5	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	1.3	0.0	0.0	0.3	1.0	0.9	0.0	0.0	0.3	0.3	0.3	0.3	1.5
16-Mar	0.3	0.0	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.1	0.3
17-Mar	0.2	0.2	0.4	0.7	Z	1.6	0.7	2.3	3.4	3.5	2.2	3.7	1.7	1.5	0.8	1.4	1.1	0.5	0.6	0.2	0.2	0.3	0.2	0.7	1.2	3.7
18-Mar	9.1	3.5	0.5	0.5	0.6	0.9	Z	0.4	0.4	2.0	2.7	3.2	1.7	1.5	1.6	0.7	2.4	1.7	1.2	1.6	0.4	0.1	0.0	0.0	1.6	9.1
19-Mar	Z	0.0	0.0	0.0	0.4	0.2	0.4	0.2	0.3	0.0	0.1	0.8	1.0	0.5	0.5	0.1	0.1	0.1	0.4	0.2	0.1	0.0	0.0	0.0	0.2	1.0
20-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
21-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.4	0.5	0.5	0.4	0.7	0.9	0.7	0.7	0.8	1.0	0.8	0.9	0.4	1.0
22-Mar	1.0	1.0	1.0	Z	1.1	0.4	0.0	0.2	0.0	1.4	1.1	3.2	2.2	2.5	1.5	1.3	1.2	1.3	0.6	0.4	0.5	0.7	0.6	0.7	1.0	3.2
23-Mar	1.1	0.8	0.9	0.2	Z	1.1	1.0	1.0	1.2	1.8	1.5	2.3	1.7	1.8	2.4	2.8	2.5	2.3	1.8	1.4	1.1	1.1	0.9	1.2	1.5	2.8
24-Mar	1.5	1.2	1.1	0.8	0.2	Z	0.0	0.0	0.9	1.2	0.0	0.2	1.0	1.4	0.8	0.5	0.5	0.3	0.8	1.5	1.1	0.3	0.0	0.4	0.7	1.5
25-Mar	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.3	0.4	0.5	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.3	0.2	0.5
26-Mar	0.4	Z	0.5	0.5	0.5	0.2	0.0	0.1	0.4	0.2	0.0	0.2	0.0	0.0	0.2	1.0	1.2	1.3	1.0	0.6	0.8	0.7	0.2	0.7	0.5	1.3
27-Mar	0.4	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.9	0.7	1.6	0.9	1.9	0.8	0.5	0.0	0.1	0.0	0.0	0.5	0.4	0.2	0.0	0.4	1.9
28-Mar	0.2	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	0.1	0.0	0.2
29-Mar	0.5	0.1	0.1	0.3	Z	1.2	1.5	1.7	1.3	0.8	0.9	1.5	2.1	2.2	1.6	0.7	1.1	2.2	2.3	2.0	0.6	0.3	0.2	0.1	1.1	2.3
30-Mar	0.1	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.3	0.8	0.7	0.7	0.7	0.8	0.4	0.7	0.6	0.5	0.6	0.0	0.0	0.7	2.0	0.4	2.0
31-Mar	Z	1.1	1.1	0.9	2.3	0.5	0.1	0.3	0.6	0.4	0.7	0.4	0.9	0.6	0.6	0.6	0.5	0.2	2.2	1.2	1.4	0.6	2.5	3.4	1.0	3.4
																								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 (SO₂) - ppb
Blackgold - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Blackgold - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	705	99.44	99.44
11 - 20	4	0.56	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



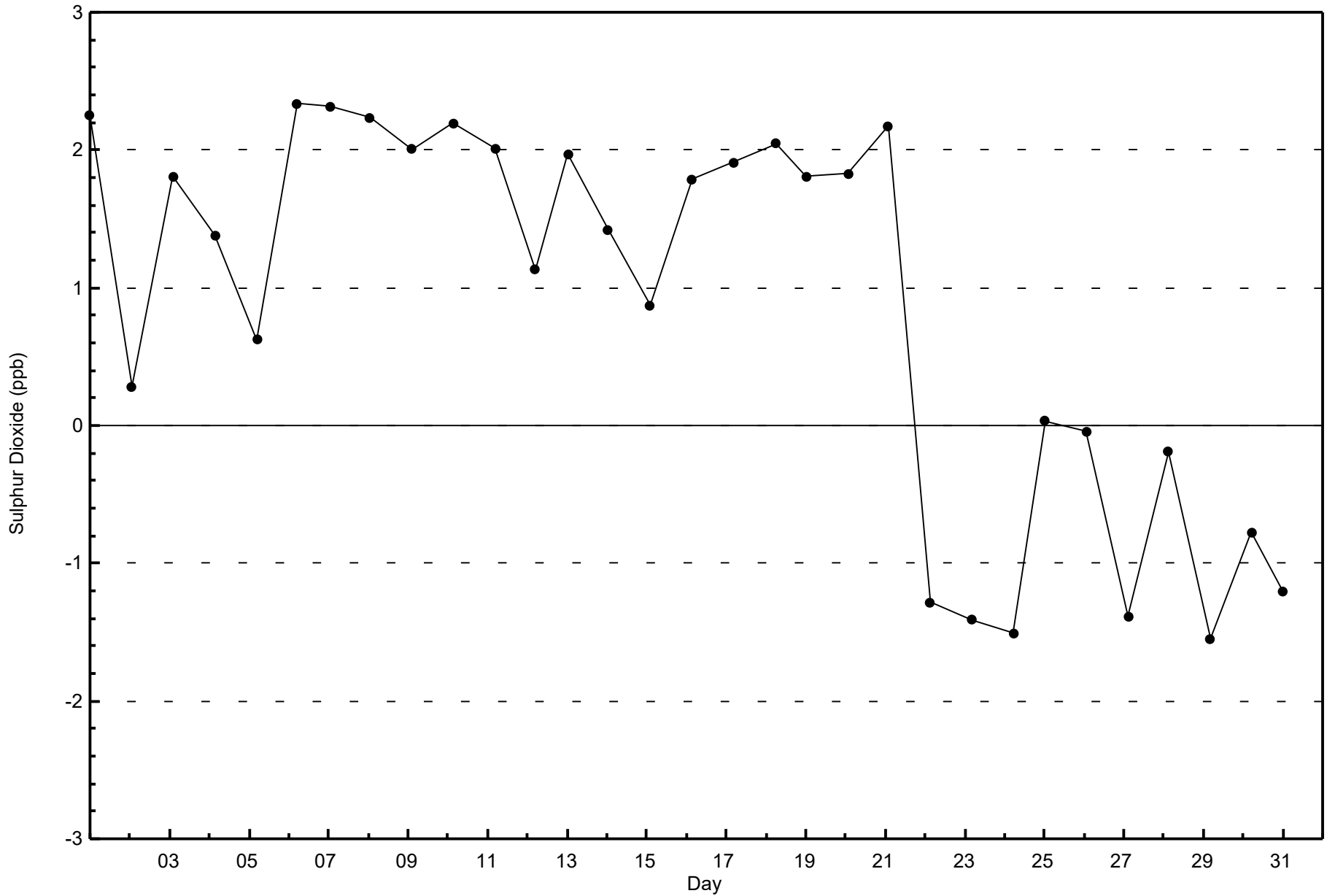
Wood Buffalo Environmental Association
Frequency Distribution

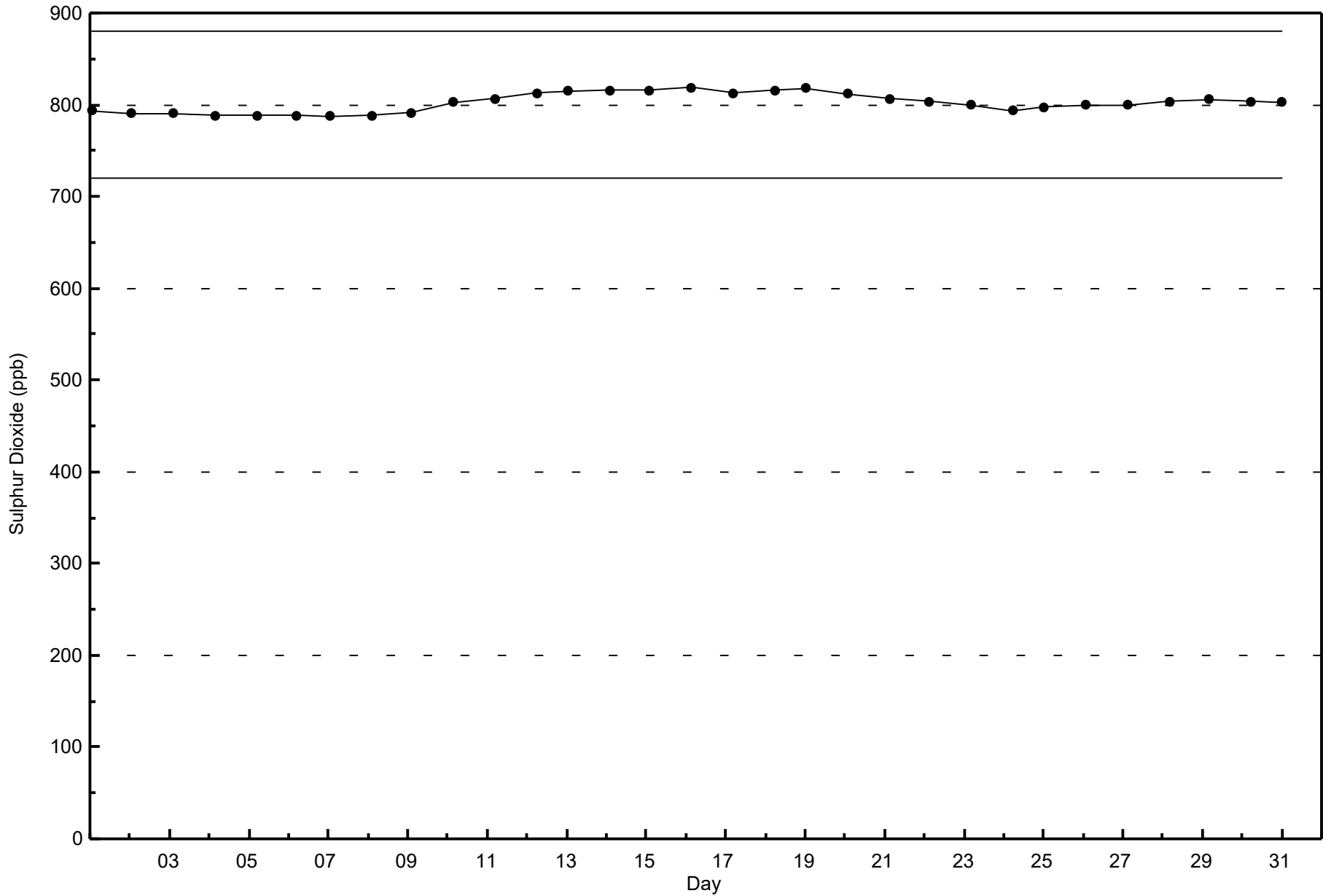
Sulphur Dioxide (SO₂) - ppb
Blackgold - March 2024

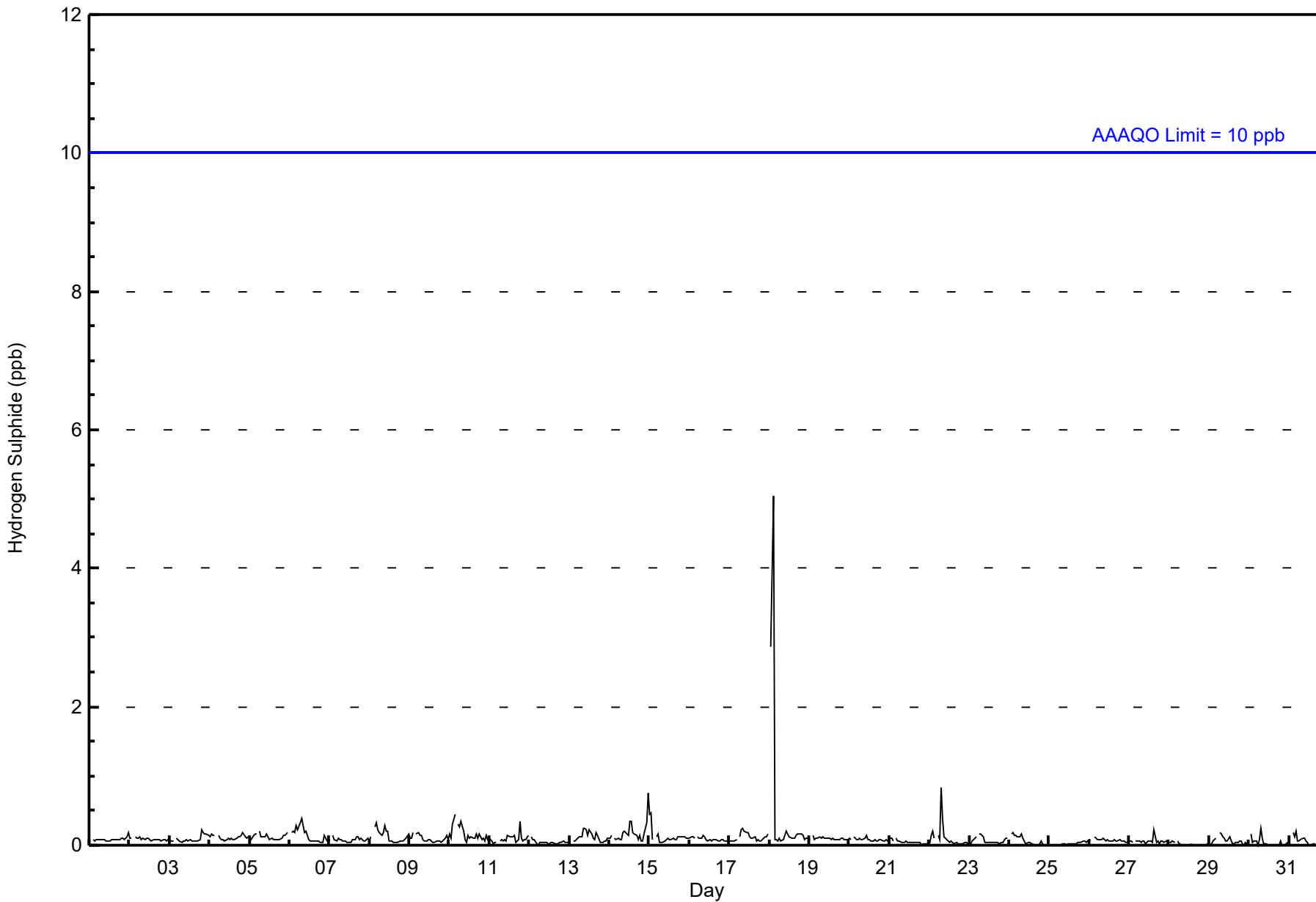
Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	32	53	61	45	31	14	38	46	84	74	46	31	32	44	53	21	705
11 - 20	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	32	53	61	45	31	14	38	46	84	74	46	35	32	44	53	21	709

Total Number of Valid Hours: 709

Total Number of Hours: 744









**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Blackgold - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	706	99.72	99.72
3 - 4	1	0.14	99.86
5 - 7	1	0.14	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Blackgold - March 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	52	61	43	34	15	38	47	83	75	46	34	29	44	53	21	706
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	31	52	61	43	34	15	38	47	83	75	46	34	30	45	53	21	708

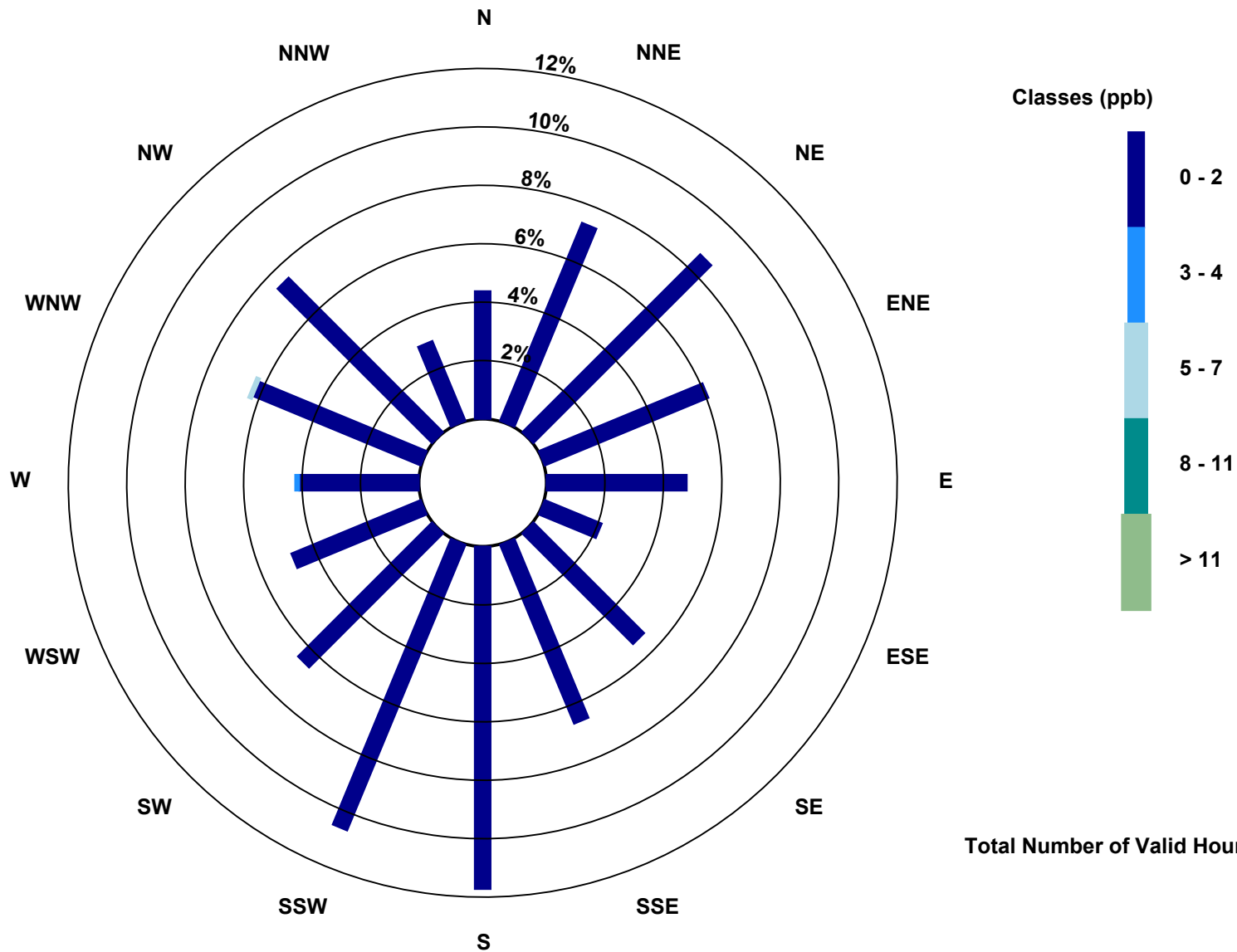
Total Number of Valid Hours: 708

Total Number of Hours: 744

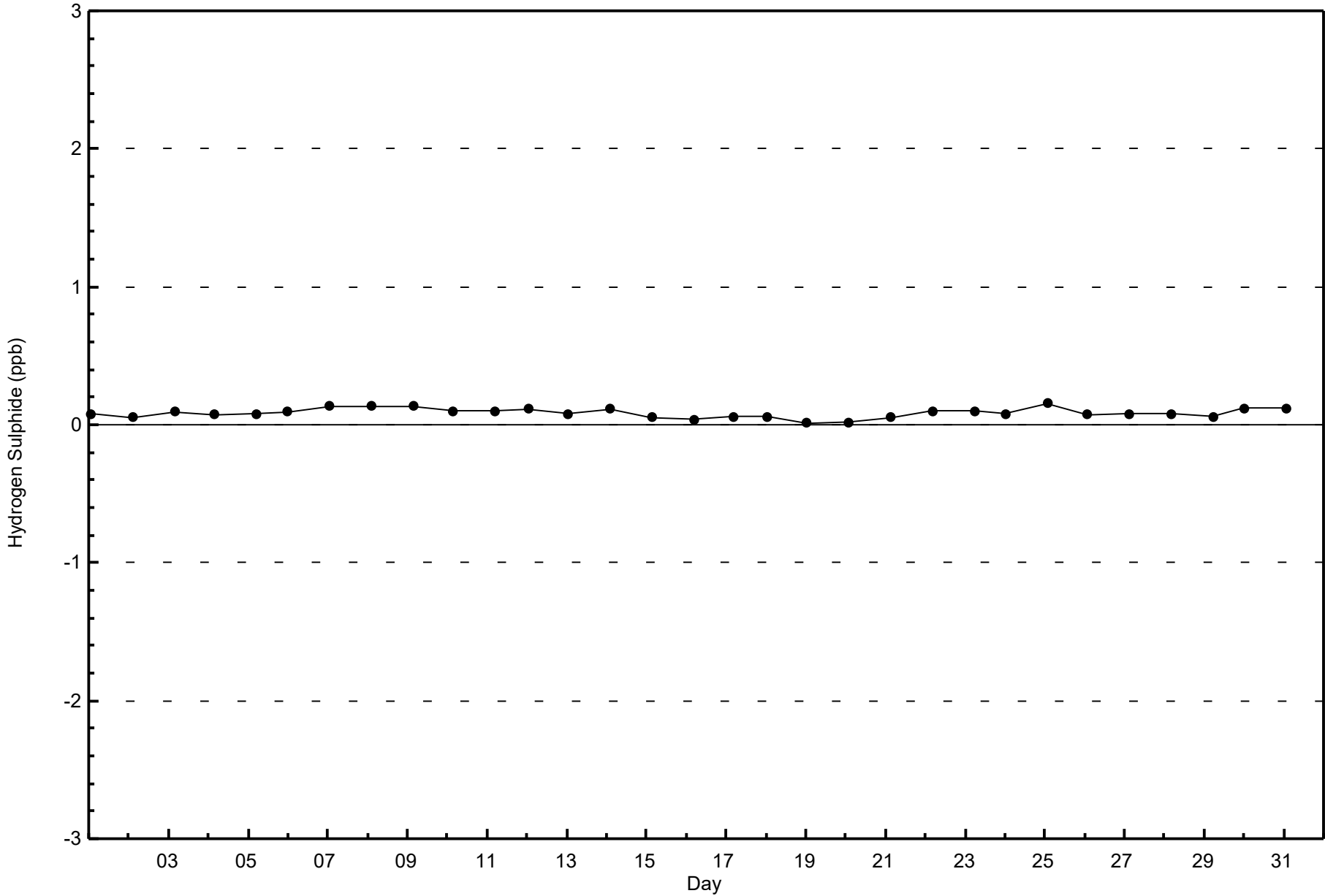


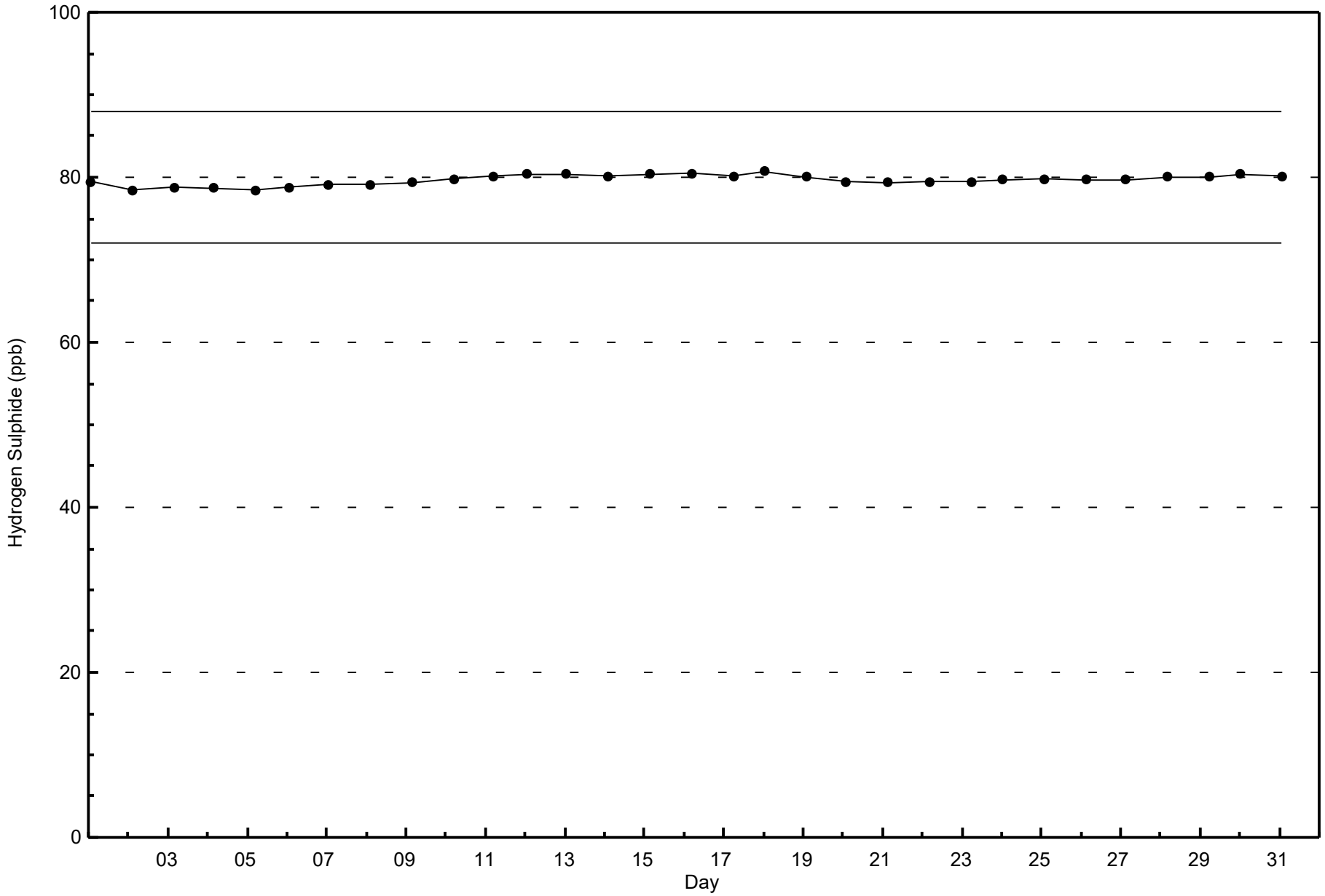
Wood Buffalo Environmental Association
Wind Rose Mar 2024

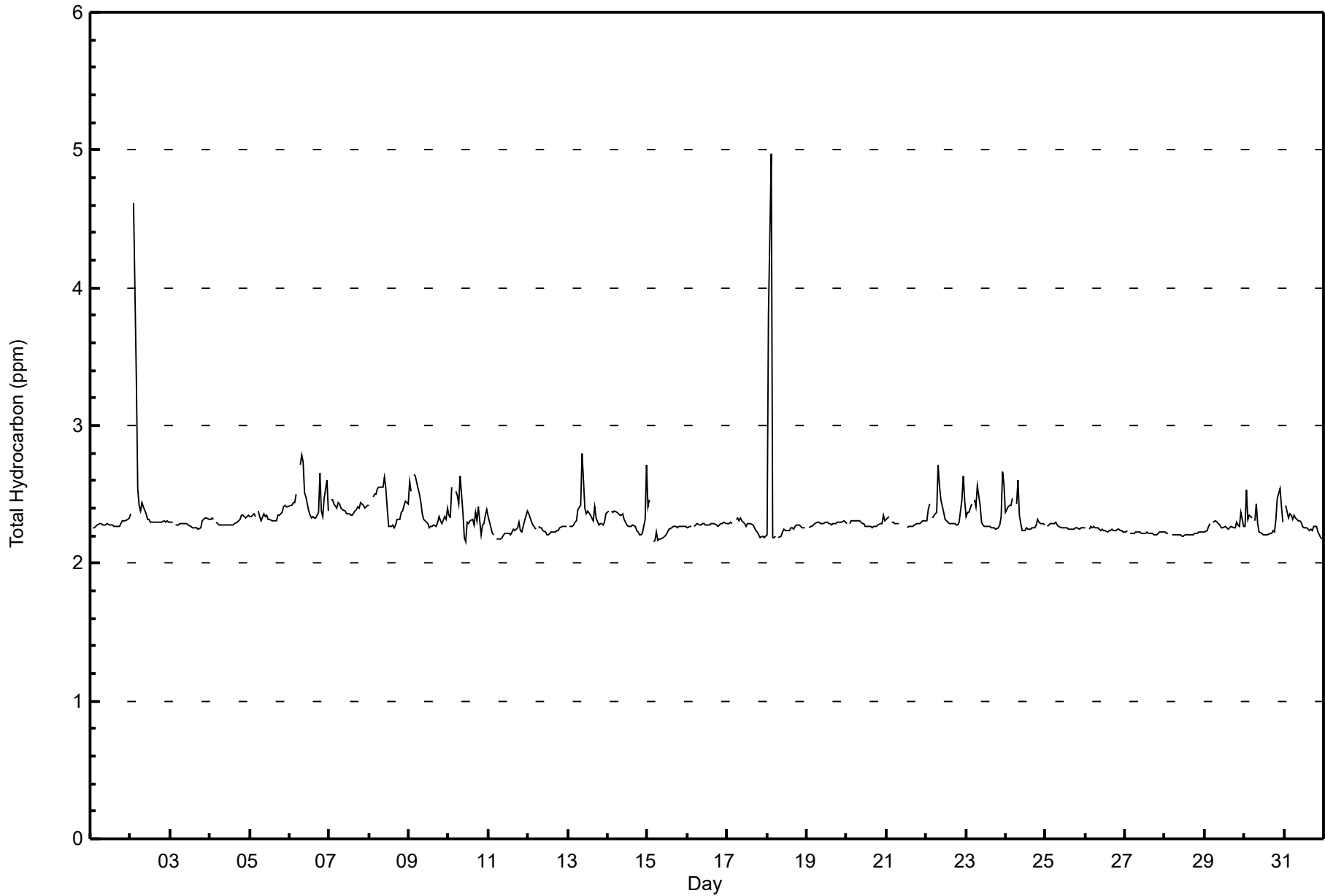
Hydrogen Sulphide (H₂S) - ppb
Blackgold



Total Number of Valid Hours: 708









Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbon (THC) - ppm
Blackgold - March 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	705	99.44	99.44
3.1 - 10.0	4	0.56	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 Hydrocarbon (THC) - ppm
Blackgold - March 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	32	53	61	45	31	14	38	46	84	74	46	35	30	43	52	21	705
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	4
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	32	53	61	45	31	14	38	46	84	74	46	35	32	44	53	21	709

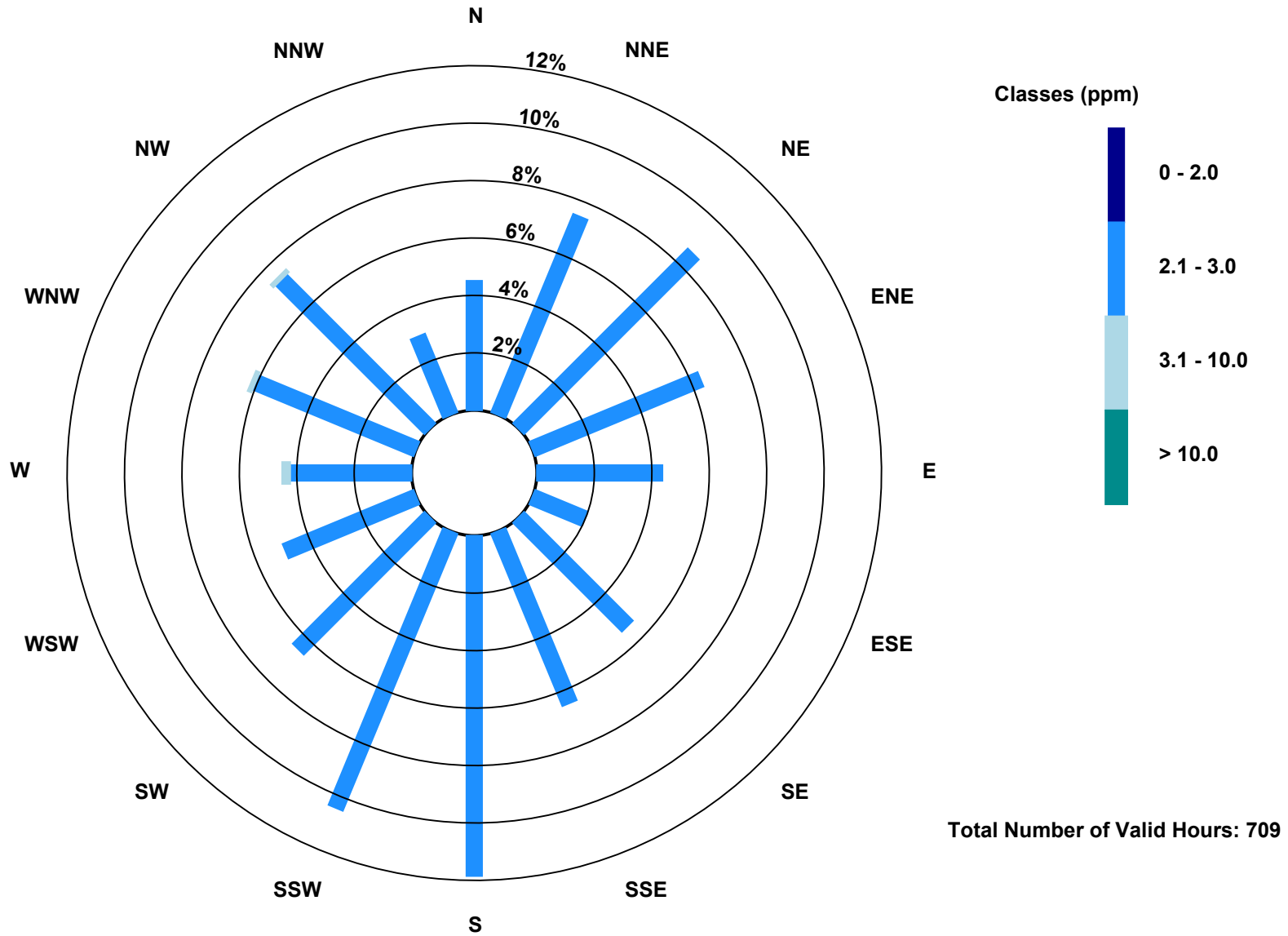
Total Number of Valid Hours: 709

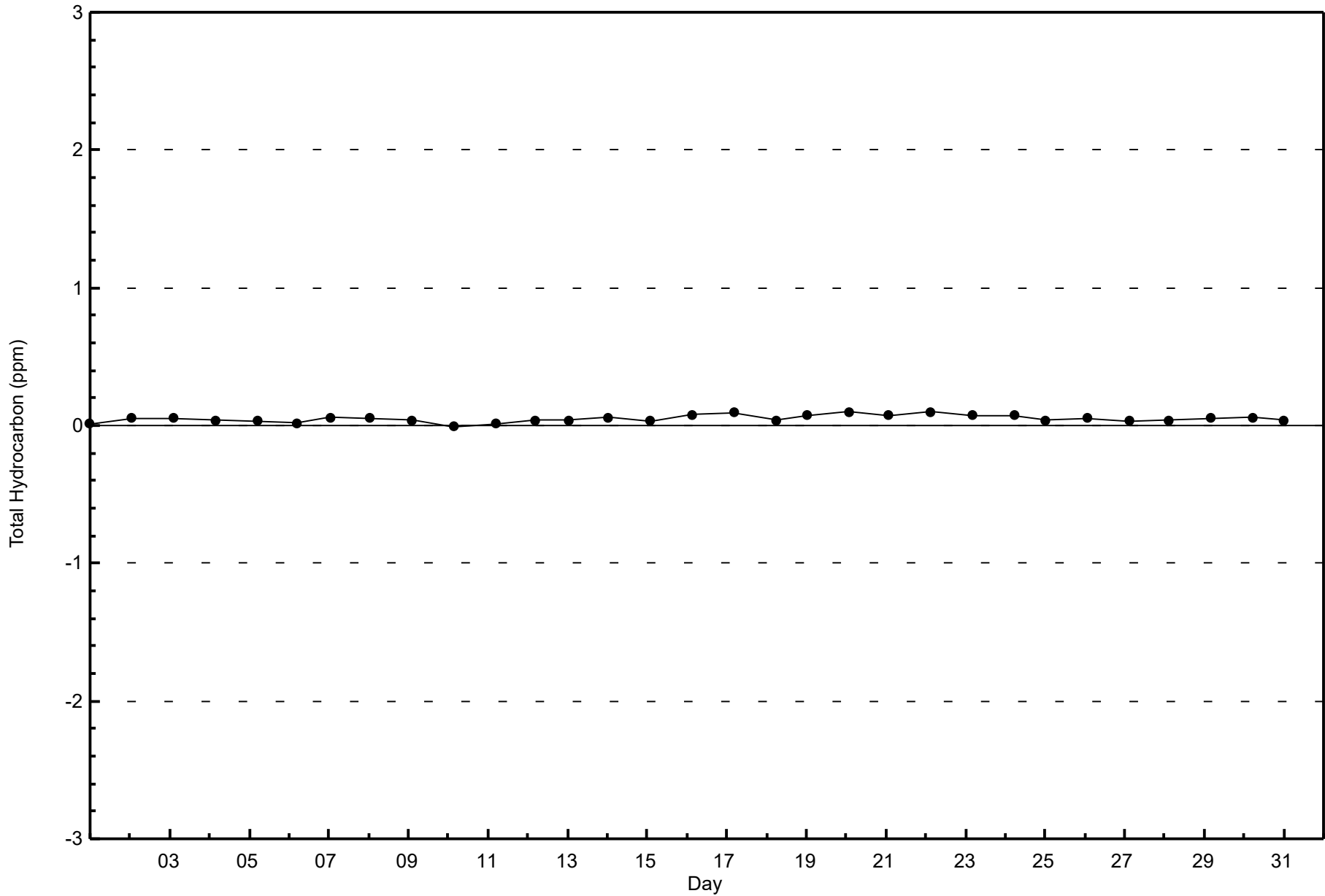
Total Number of Hours: 744

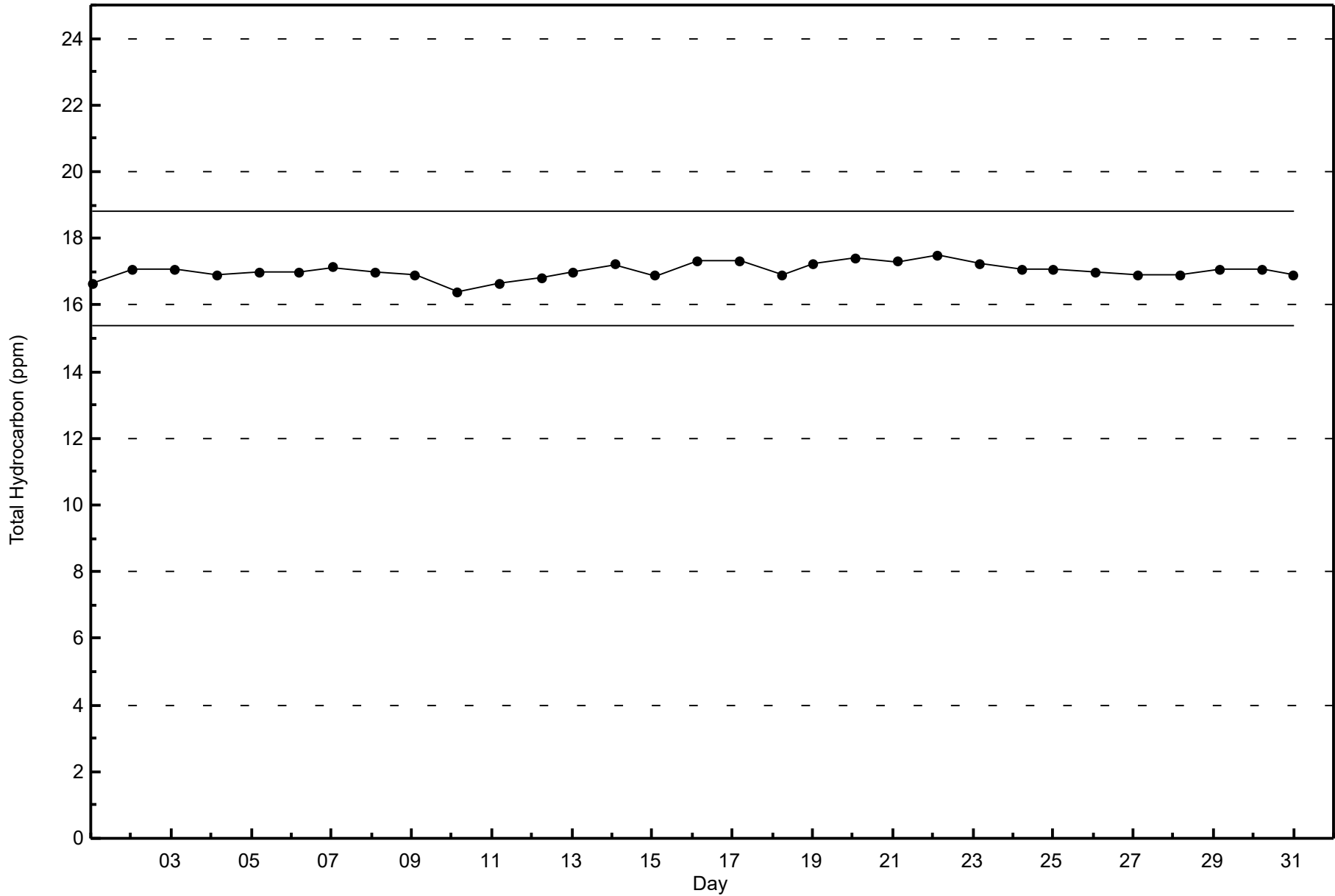


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Total Hydrocarbon (THC) - ppm
Blackgold









Wood Buffalo Environmental Association
Summary of Hour Averages

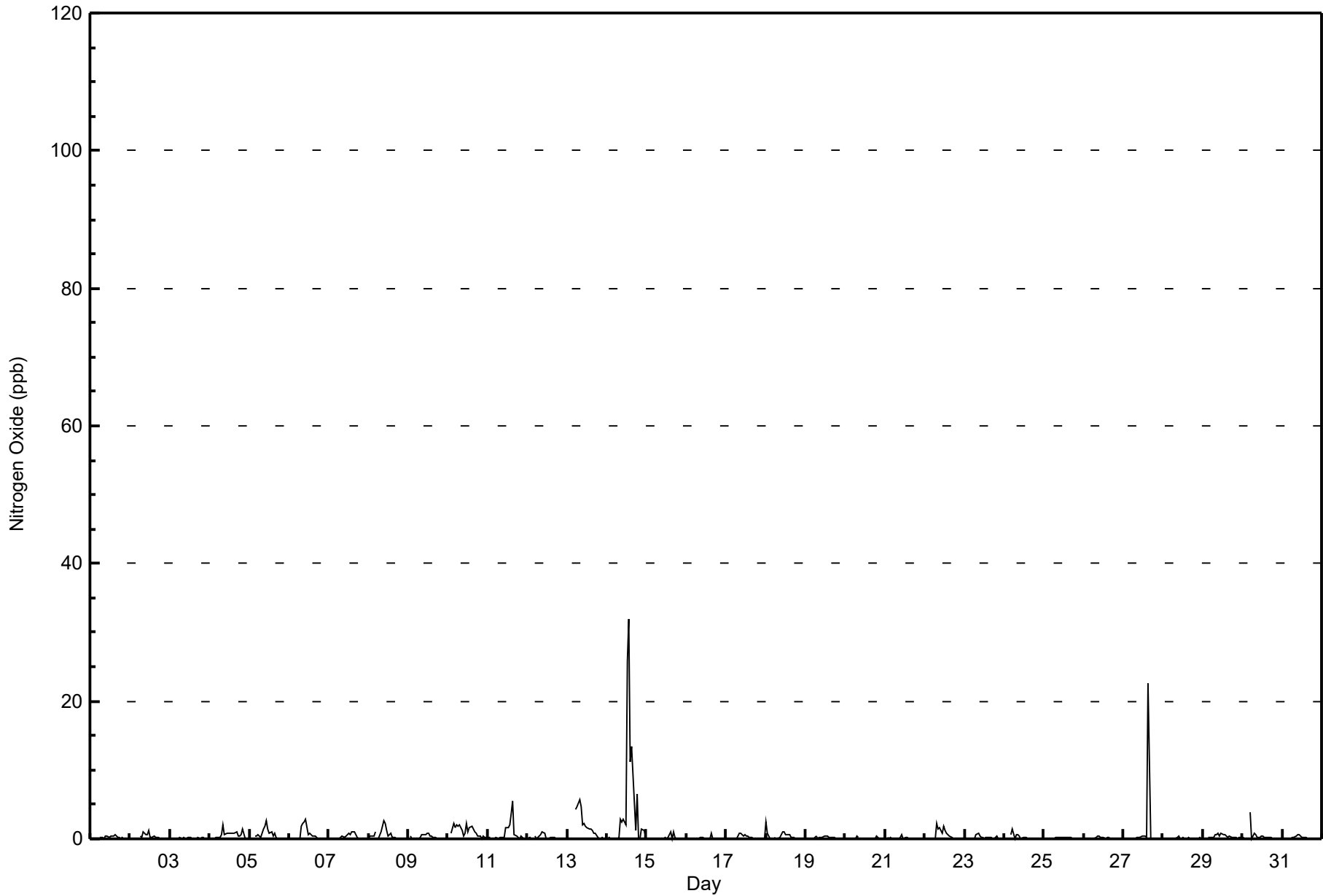
Nitrogen Oxide (NO) - ppb
Blackgold - March 2024

Maximum Value: 31.8 ppb on Mar 14 14:00		Maximum Daily Average: 4.7 ppb on Mar 14		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Mar 1 01:00		Minimum Daily Average: 0.1 ppb on Mar 16		Hours of Data: 708																							
Maximum Diurnal Average: 1.7 ppb at hour 16		Minimum Diurnal Average: 0.0 ppb at hour 24		Hours of Missing Data: 36																							
Monthly Average: 0.51 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 1.0 P ₉₉ = 5.5		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	0.0	0.0	0.1	0.0	Z	0.1	0.3	0.1	0.1	0.3	0.5	0.2	0.3	0.4	0.3	0.7	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.7	
2-Mar	0.0	0.0	0.1	0.0	0.0	Z	0.3	0.2	0.9	0.7	0.7	1.2	0.3	0.3	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	1.2	
3-Mar	Z	0.1	0.0	0.1	0.1	0.0	0.3	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	
4-Mar	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.7	2.0	0.7	0.7	0.9	0.8	0.9	0.7	0.8	1.1	0.4	0.4	0.7	1.4	0.0	0.0	0.0	0.6	2.0	
5-Mar	0.0	0.0	Z	0.3	0.4	0.6	0.4	0.2	1.4	1.8	2.6	1.3	0.8	0.9	0.4	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.6	
6-Mar	0.0	0.0	0.0	Z	0.1	0.0	0.0	1.9	2.3	2.4	2.9	0.6	0.7	0.6	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.9	
7-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.3	0.5	0.3	0.3	0.5	0.7	0.7	0.9	0.9	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	
8-Mar	0.0	0.4	0.3	0.5	1.1	Z	0.1	1.1	1.8	2.7	2.3	1.2	0.4	0.7	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.7	
9-Mar	Z	0.5	0.0	0.0	0.1	0.1	0.1	0.2	0.6	0.6	0.7	0.7	0.7	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.3	0.7	
10-Mar	0.0	Z	0.9	2.3	1.6	2.0	1.8	2.0	1.1	0.4	0.8	2.2	1.1	1.7	1.7	1.4	1.1	0.8	0.3	0.4	0.1	0.4	0.1	0.1	1.1	2.3	
11-Mar	0.2	0.2	Z	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.2	1.6	1.6	2.1	3.6	5.5	0.7	0.5	0.3	0.1	0.5	0.1	0.0	0.1	0.8	5.5	
12-Mar	0.0	0.1	0.1	Z	0.4	0.1	0.1	0.4	0.5	1.1	0.9	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.1	
13-Mar	0.0	0.1	0.1	0.1	Z	4.3	4.7	5.6	4.8	2.0	2.2	1.8	1.6	1.5	1.4	1.3	0.9	0.8	0.1	0.0	0.0	0.1	0.0	0.0	1.5	5.6	
14-Mar	0.0	0.3	0.0	0.0	0.0	Z	0.0	0.2	2.9	2.5	2.9	2.0	25.9	31.8	11.1	13.4	5.3	1.1	6.5	0.0	0.0	1.5	1.2	0.3	4.7	31.8	
15-Mar	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	1.0	0.1	1.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	1.1	
16-Mar	0.0	Z	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	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	
17-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.8	0.8	0.4	0.7	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8	
18-Mar	2.5	0.7	0.0	0.0	Z	0.1	0.1	0.1	0.2	0.7	1.0	1.0	0.7	0.6	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.5	
19-Mar	0.0	0.0	0.0	0.0	Z	0.1	0.3	0.1	0.1	0.1	0.2	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
20-Mar	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.4	0.2	C	C	C	C	C	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.4	
21-Mar	Z	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.7	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
22-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	2.2	1.3	1.6	0.9	1.8	1.2	0.9	0.7	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.2	
23-Mar	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.6	0.8	0.3	0.2	0.3	0.1	0.2	0.3	0.2	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2	0.8	
24-Mar	0.0	0.0	0.0	Z	0.5	1.4	0.1	0.6	0.7	0.4	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.4	
25-Mar	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
26-Mar	0.0	0.1	0.0	0.1	0.0	Z	0.0	0.2	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
27-Mar	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.5	0.3	0.5	0.1	22.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	22.5	
28-Mar	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
29-Mar	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.5	0.7	0.8	0.4	0.8	0.7	0.7	0.3	0.3	0.4	0.2	0.2	0.1	0.3	0.0	0.1	0.1	0.3	0.8	
30-Mar	0.3	0.1	0.1	Z	3.8	0.0	0.4	0.8	0.6	0.3	0.3	0.4	0.5	0.2	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.4	3.8	
31-Mar	0.0	0.1	0.0	0.1	Z	0.1	0.1	0.2	0.4	0.5	0.6	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
		0.1	0.1	0.1	0.1	0.4	0.4	0.3	0.6	0.8	0.8	0.8	0.7	1.4	1.6	0.8	1.7	0.4	0.2	0.3	0.1	0.1	0.1	0.1	0.0	Diurnal Average	
		2.5	0.7	0.9	2.3	3.8	4.3	4.7	5.6	4.8	2.7	2.9	2.2	25.9	31.8	11.1	22.5	5.3	1.1	6.5	0.7	1.4	1.5	1.2	0.3	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxide (NO) - ppb
Blackgold - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxide (NO) - ppb
Blackgold - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	705	99.58	99.58
21 - 40	3	0.42	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxide (NO) - ppb
Blackgold - March 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	28	54	62	45	31	15	39	45	84	74	44	34	32	44	54	20	705
21 - 40	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	28	54	62	45	32	15	39	45	84	74	46	34	32	44	54	20	708

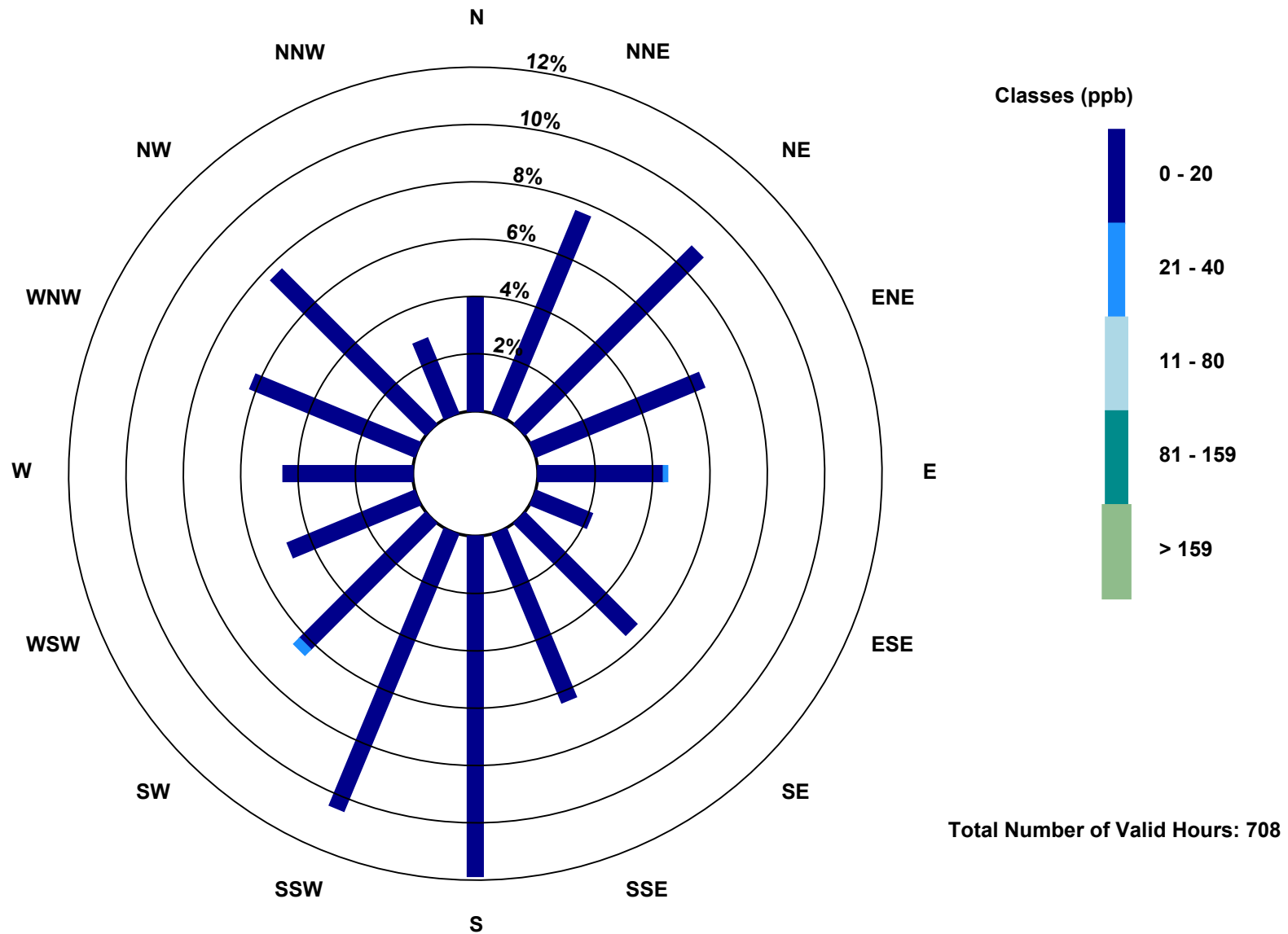
Total Number of Valid Hours: 708

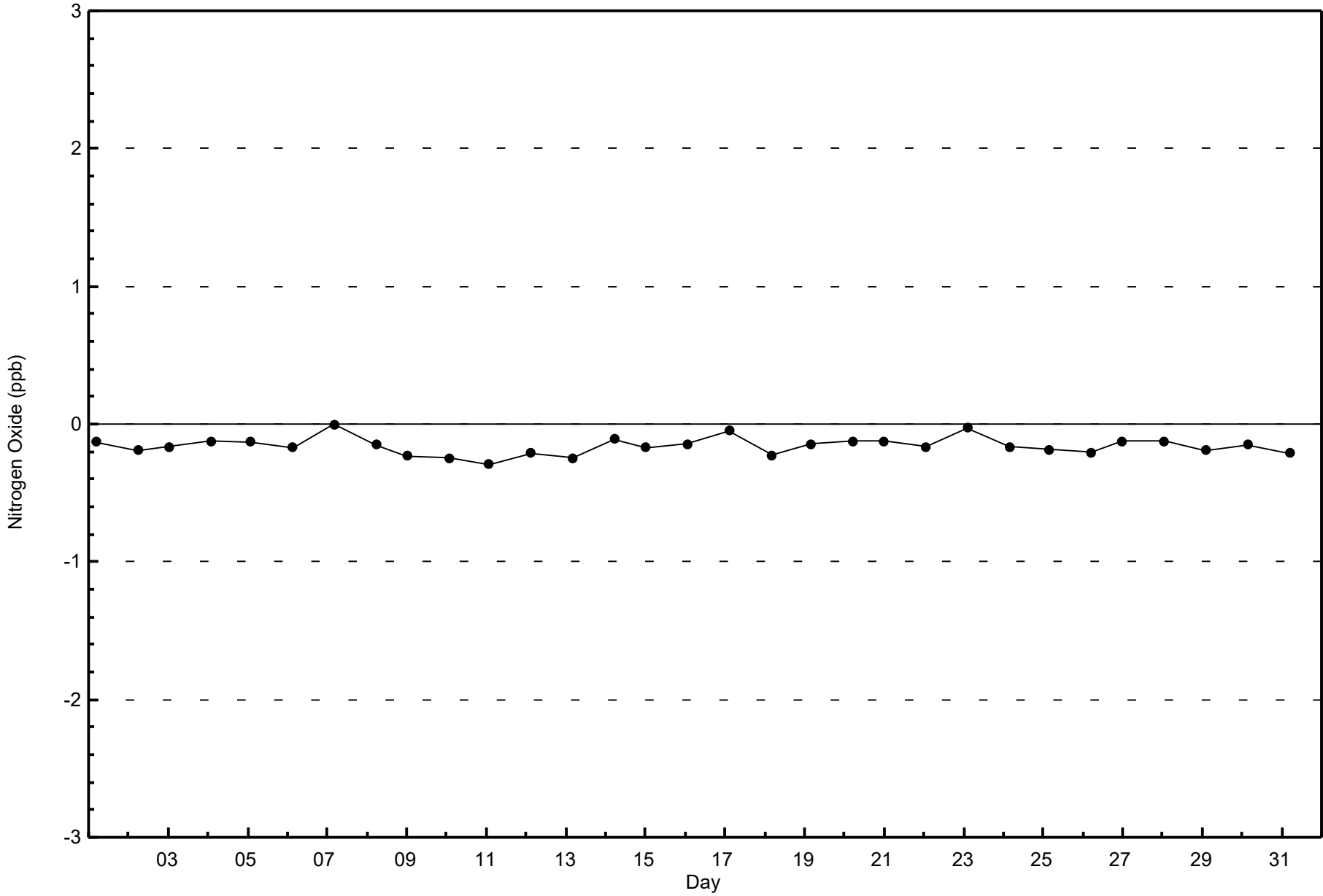
Total Number of Hours: 744

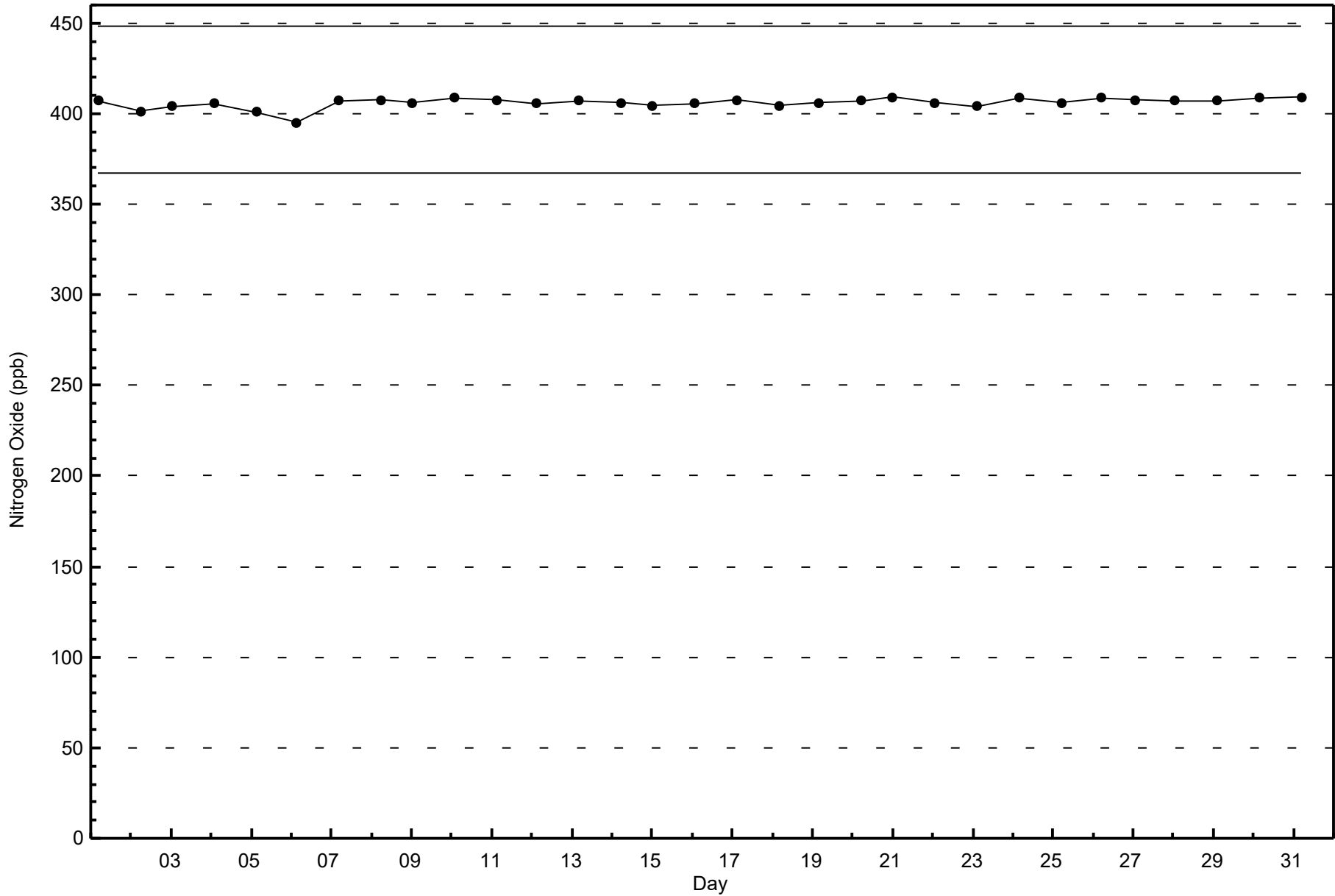


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxide (NO) - ppb
Blackgold









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

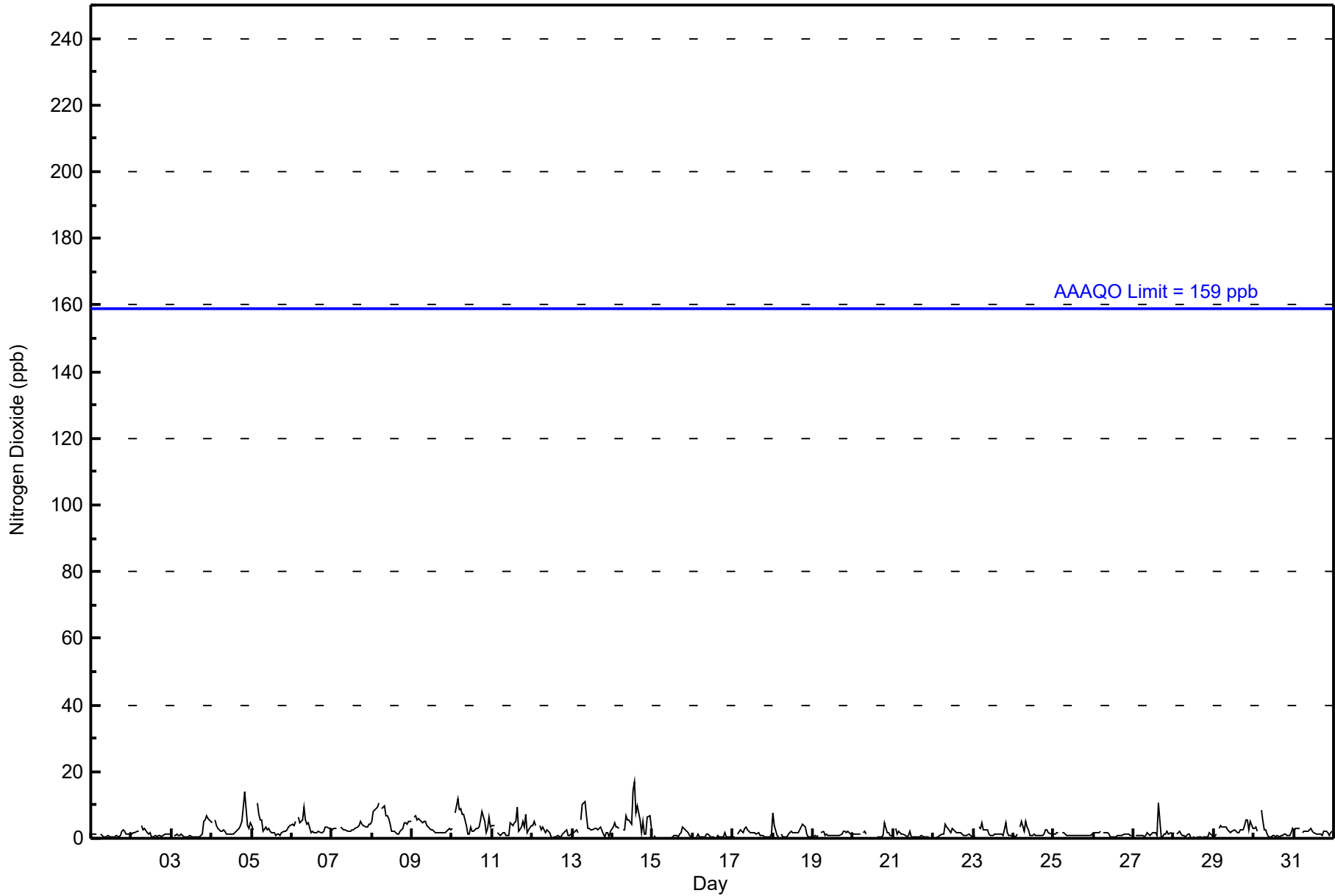
Blackgold - March 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744					
Maximum Value: 17.0 ppb on Mar 14 14:00				Maximum Daily Average: 5.4 ppb on Mar 14		Hours of Data:																708					
Minimum Value: 0.0 ppb on Mar 15 03:00				Minimum Daily Average: 0.6 ppb on Mar 16		Hours of Missing Data:																36					
Maximum Diurnal Average: 3.4 ppb at hour 5				Minimum Diurnal Average: 1.5 ppb at hour 15		Hours of Calibration:																36					
Monthly Average: 2.25 ppb				Percentiles: P ₁ = 0.1 P ₁₀ = 0.5 Q ₁ = 0.8 Median = 1.6 Q ₃ = 2.9 P ₉₀ = 5.0 P ₉₉ = 10.4		Percent Operational Time:																100.0					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Mar	1.4	1.4	1.4	1.1	Z	1.1	0.9	0.6	0.4	0.6	0.7	0.3	0.5	0.5	0.5	0.8	0.5	0.8	2.2	2.7	2.1	1.3	1.2	1.6	1.1	2.7	
2-Mar	1.4	1.9	1.7	2.3	Z	Z	3.8	2.4	3.1	1.6	1.4	1.8	0.6	0.6	0.7	0.6	0.7	0.8	0.5	0.7	1.4	1.2	1.2	1.2	1.5	3.8	
3-Mar	Z	0.7	0.7	1.4	1.0	0.8	1.1	0.4	0.5	0.4	0.5	1.0	0.6	0.4	0.4	0.5	0.4	0.6	1.1	5.2	5.7	6.8	6.1	5.0	1.8	6.8	
4-Mar	4.7	Z	5.4	4.0	3.1	2.2	2.3	2.4	2.2	1.1	1.2	1.2	1.3	1.4	1.7	2.0	3.0	3.8	5.0	9.4	14.1	4.0	2.8	4.7	3.6	14.1	
5-Mar	3.7	2.5	Z	10.4	7.3	5.6	5.7	2.2	3.4	2.4	3.0	2.2	1.5	1.6	0.9	1.2	1.2	1.0	1.5	2.1	2.2	2.6	3.3	3.7	3.1	10.4	
6-Mar	4.2	3.8	5.1	Z	6.4	4.6	5.6	9.4	5.4	4.4	4.5	1.7	2.0	1.9	1.8	1.9	2.1	1.8	1.5	2.3	3.6	3.4	2.8	2.9	3.6	9.4	
7-Mar	2.5	3.0	3.1	2.9	Z	3.3	3.1	2.5	2.7	2.1	2.1	2.2	2.4	2.4	3.0	3.6	3.7	5.1	4.1	3.8	3.6	3.6	4.3	4.4	3.2	5.1	
8-Mar	5.1	8.2	8.7	9.5	10.7	Z	8.8	9.9	6.7	6.8	5.9	4.1	2.1	2.2	1.6	1.2	1.4	2.1	3.0	4.7	4.6	4.2	5.0	5.2	5.3	10.7	
9-Mar	Z	6.5	6.6	5.6	5.8	5.1	4.6	5.1	4.9	4.0	3.1	2.7	2.5	2.0	1.7	1.7	1.7	1.7	1.8	1.5	1.6	2.7	3.1	2.6	3.4	6.6	
10-Mar	3.1	Z	7.6	11.8	8.4	8.7	7.1	7.4	3.7	1.3	1.1	3.3	2.1	2.3	3.1	2.8	3.5	5.6	8.1	4.9	1.7	2.9	6.5	3.6	4.8	11.8	
11-Mar	3.7	3.7	Z	1.8	1.1	0.7	1.7	1.5	0.9	0.8	0.8	4.5	4.0	4.7	5.2	9.3	2.3	3.4	5.0	3.6	7.0	1.9	2.5	3.9	3.2	9.3	
12-Mar	3.9	5.2	4.0	Z	3.7	2.4	3.6	2.7	1.7	2.4	1.9	0.4	0.2	0.3	0.3	0.7	0.6	0.5	1.1	1.6	2.7	0.7	1.0	1.1	1.9	5.2	
13-Mar	1.9	1.7	2.7	1.8	Z	5.5	10.2	11.1	6.6	3.0	2.8	2.5	2.5	3.1	2.8	2.5	3.1	3.4	1.4	0.5	1.6	1.7	0.5	2.2	3.3	11.1	
14-Mar	3.6	4.8	3.4	3.5	3.1	Z	2.6	2.6	6.7	5.3	5.5	4.1	14.5	17.0	7.7	9.9	5.5	1.7	5.0	1.1	1.4	6.4	6.8	3.1	5.4	17.0	
15-Mar	Z	0.7	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.7	0.8	0.5	1.4	1.7	3.2	3.0	2.3	1.9	1.0	0.5	0.8	3.2	
16-Mar	0.5	Z	0.5	1.1	0.4	0.6	0.4	0.4	1.3	1.3	0.7	0.4	0.3	0.2	0.2	0.7	0.4	0.4	0.3	1.5	0.6	0.4	0.6	0.3	0.6	1.5	
17-Mar	0.5	0.5	Z	1.3	2.5	2.3	1.7	3.1	3.4	2.5	1.5	1.9	1.5	1.5	1.3	1.5	1.0	0.7	0.8	0.5	0.4	0.6	0.5	1.2	1.4	3.4	
18-Mar	7.8	3.8	0.7	0.5	Z	1.1	0.5	0.3	0.3	1.3	1.9	2.0	1.5	1.5	1.9	1.6	2.6	3.3	4.2	3.6	1.3	0.5	0.4	0.3	1.9	7.8	
19-Mar	0.6	0.7	0.5	0.9	Z	1.6	2.1	1.0	1.1	0.7	0.7	0.9	1.0	1.0	0.8	0.8	0.8	1.4	2.0	2.0	1.9	2.0	1.4	1.8	1.2	2.1	
20-Mar	1.2	1.2	1.3	1.1	1.4	Z	1.9	2.1	1.1	C	C	C	C	C	0.3	0.3	0.3	0.6	0.9	4.6	1.8	1.9	0.8	0.8	1.3	4.6	
21-Mar	Z	3.1	1.4	2.2	1.5	1.2	1.2	0.8	0.4	1.0	2.1	0.5	0.4	0.4	0.3	0.5	0.5	0.7	0.4	0.5	0.6	0.5	0.2	0.2	0.9	3.1	
22-Mar	0.2	Z	0.5	0.5	0.8	1.2	1.3	4.2	3.2	2.9	1.9	3.1	2.4	2.1	1.6	1.5	1.6	1.4	1.0	0.9	1.0	1.4	1.0	0.4	1.6	4.2	
23-Mar	0.3	1.0	Z	3.2	2.8	4.8	2.6	2.6	2.4	1.4	1.0	1.0	0.8	1.1	1.2	1.3	1.1	1.3	1.0	4.6	1.5	0.8	0.8	0.7	1.7	4.8	
24-Mar	0.7	0.6	1.2	Z	3.5	4.9	2.2	4.9	3.2	2.4	0.7	1.0	1.1	1.0	0.9	0.8	0.8	0.9	1.3	2.5	2.4	1.8	1.2	1.1	1.8	4.9	
25-Mar	1.1	1.3	1.6	1.6	Z	1.8	1.8	1.4	0.9	0.8	0.7	0.8	0.7	0.7	1.0	1.0	0.7	0.7	0.9	0.8	0.8	0.9	1.0	1.2	1.1	1.8	
26-Mar	1.5	1.6	1.9	1.8	2.2	Z	1.7	1.5	1.5	1.2	0.6	0.5	0.6	0.6	0.7	0.8	0.8	1.0	1.1	1.3	1.1	1.1	1.0	0.7	1.2	2.2	
27-Mar	Z	0.9	0.7	0.7	0.7	0.9	0.6	0.8	1.7	1.4	0.8	1.7	1.5	1.7	0.7	10.5	0.5	0.5	1.1	1.2	2.2	1.2	1.6	1.4	1.5	10.5	
28-Mar	1.5	Z	1.4	2.0	1.3	0.7	1.0	0.5	1.1	1.3	0.2	0.2	0.3	0.2	0.3	0.3	0.4	0.2	0.6	0.3	0.6	1.7	1.3	1.0	0.8	2.0	
29-Mar	0.2	1.3	Z	2.8	4.0	3.4	3.3	3.2	2.6	2.0	1.7	2.0	2.4	2.0	1.5	1.5	2.6	2.7	3.8	5.6	5.7	2.4	4.9	3.0	2.8	5.7	
30-Mar	3.0	3.5	2.0	Z	8.4	5.1	2.5	2.6	1.3	0.6	0.6	0.6	0.8	0.8	0.6	0.7	0.6	0.7	1.0	1.1	1.4	0.8	0.9	1.5	2.9	1.9	8.4
31-Mar	2.1	2.8	2.8	3.1	Z	1.9	2.0	2.0	2.1	2.4	2.8	2.2	1.6	1.4	1.3	1.2	1.1	0.9	2.1	2.0	1.5	1.0	1.7	2.1	1.9	3.1	
																								Diurnal Average			
																								Diurnal Maximum			
																								2.3 2.6 2.6 2.9 3.4 2.8 2.8 3.0 2.5 2.0 1.7 1.7 1.8 1.9 1.5 2.1 1.5 1.7 2.2 2.6 2.6 2.1 2.2 2.1			
																								7.8 8.2 8.7 11.8 10.7 8.7 10.2 11.1 6.7 6.8 5.9 4.5 14.5 17.0 7.7 10.5 5.5 5.6 8.1 9.4 14.1 6.8 6.8 5.2			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Blackgold - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Blackgold - March 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
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 (NO₂) - ppb
Blackgold - March 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	28	54	62	45	32	15	39	45	84	74	46	34	32	44	54	20	708
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
Totals	28	54	62	45	32	15	39	45	84	74	46	34	32	44	54	20	708

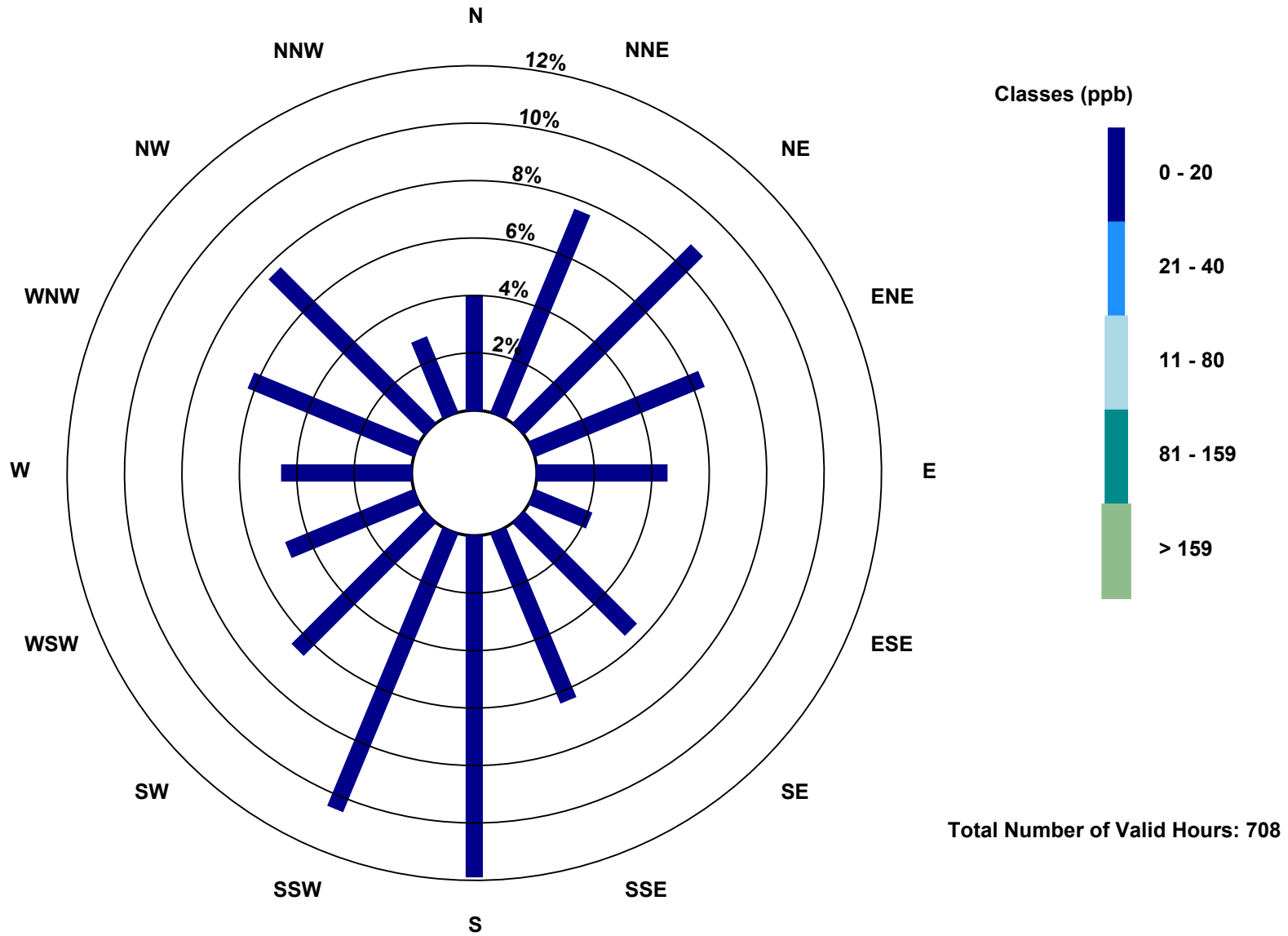
Total Number of Valid Hours: 708

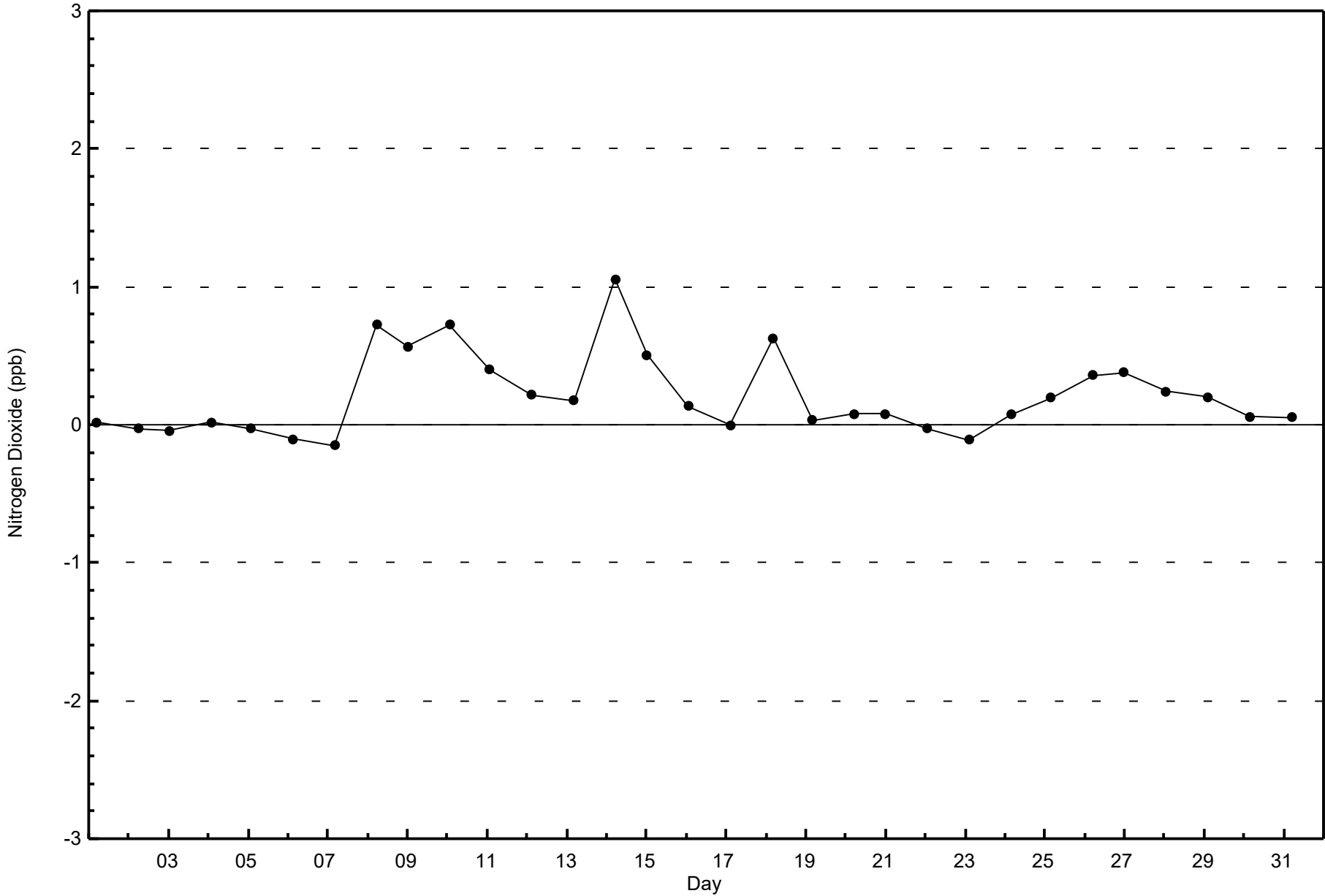
Total Number of Hours: 744

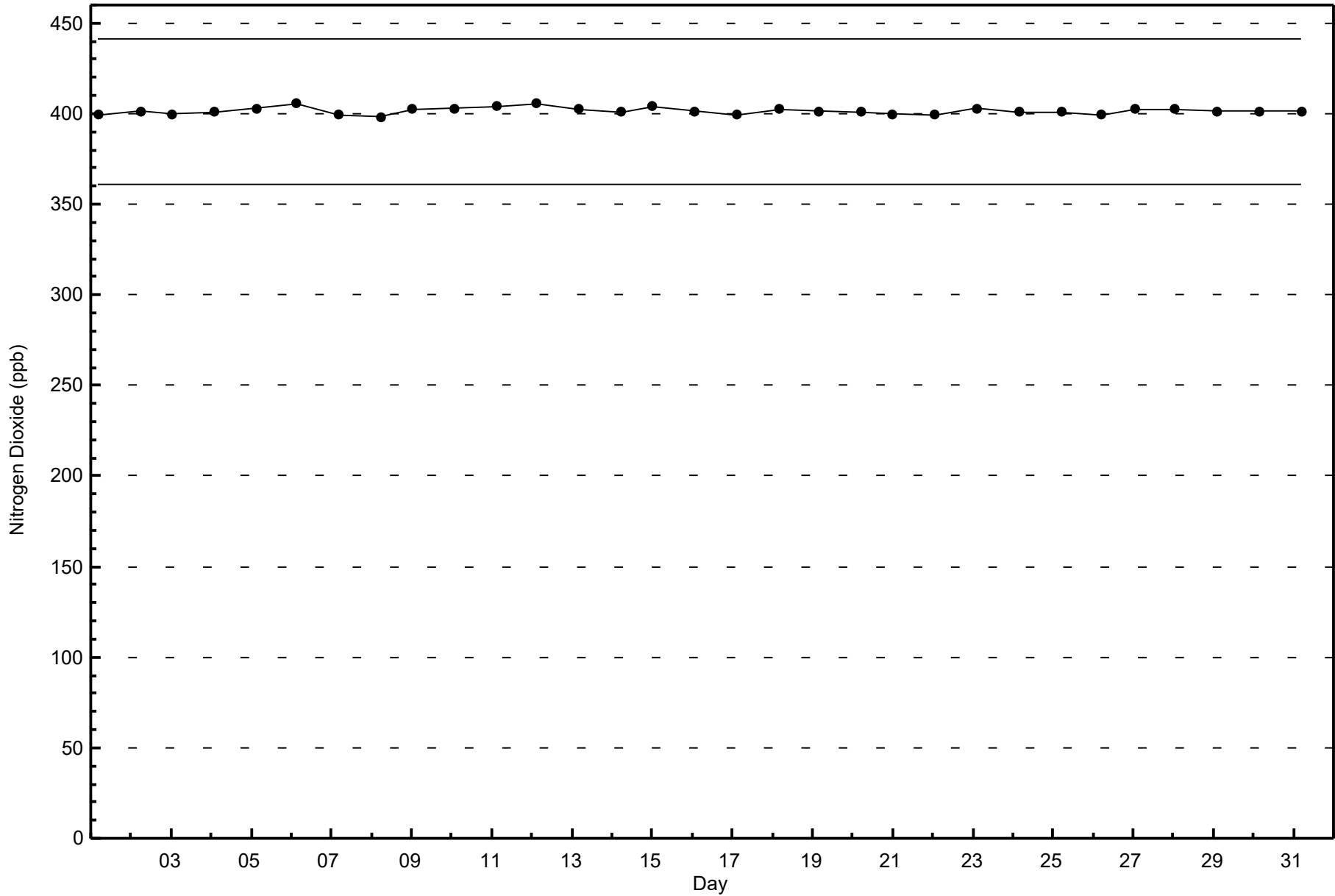


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Dioxide (NO₂) - ppb
Blackgold









Wood Buffalo Environmental Association
Summary of Hour Averages

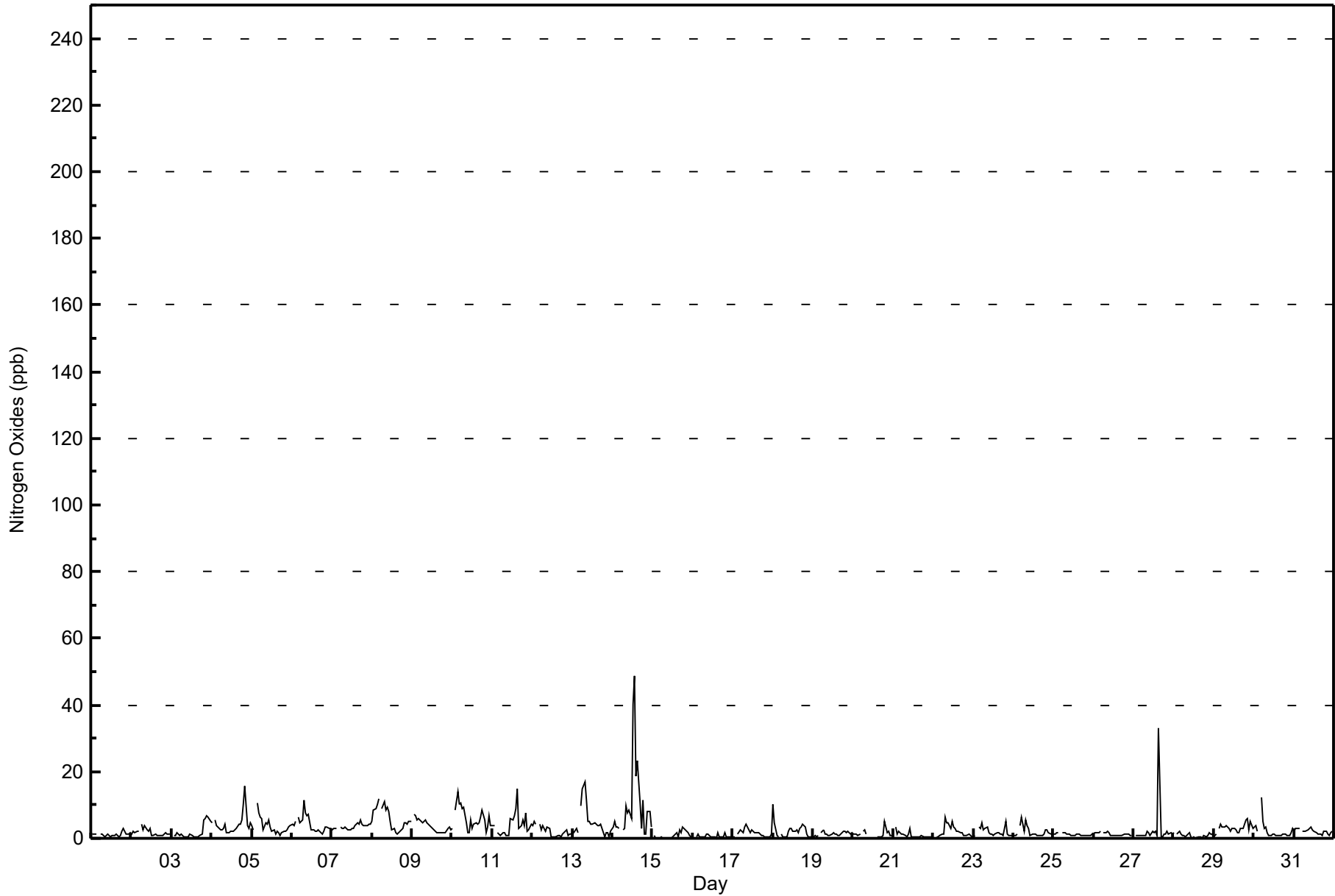
Nitrogen Oxides (NO_x) - ppb
Blackgold - March 2024

Maximum Value: 48.8 ppb on Mar 14 14:00		Maximum Daily Average: 10.2 ppb on Mar 14		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Mar 15 03:00		Minimum Daily Average: 0.6 ppb on Mar 16		Hours of Data: 708																																													
Maximum Diurnal Average: 3.8 ppb at hour 5		Minimum Diurnal Average: 1.8 ppb at hour 18		Hours of Missing Data: 36																																													
Monthly Average: 2.75 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.5 Q ₁ = 0.9 Median = 1.8 Q ₃ = 3.3 P ₉₀ = 5.4 P ₉₉ = 14.9		Hours of Calibration: 36																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Mar	1.4	1.4	1.5	1.1	Z	1.2	1.2	0.7	0.5	0.9	1.2	0.5	0.8	0.9	0.8	1.5	0.6	1.0	2.2	2.8	2.2	1.3	1.3	1.6	1.2	2.8																							
2-Mar	1.4	1.9	1.8	2.3	Z	Z	4.1	2.6	4.0	2.3	2.1	3.0	0.9	0.9	1.1	0.8	0.9	0.9	0.6	0.8	1.5	1.2	1.2	1.2	1.7	4.1																							
3-Mar	Z	0.8	0.7	1.5	1.1	0.8	1.4	0.4	0.6	0.4	0.5	1.1	0.7	0.4	0.5	0.6	0.4	0.7	1.2	5.3	5.9	6.9	6.2	5.1	1.9	6.9																							
4-Mar	4.7	Z	5.4	4.0	3.2	2.4	2.5	3.1	4.2	1.8	1.9	2.1	2.1	2.3	2.4	2.8	4.1	4.2	5.4	10.1	15.5	4.0	2.8	4.7	4.2	15.5																							
5-Mar	3.7	2.5	Z	10.7	7.7	6.2	6.1	2.4	4.8	4.2	5.6	3.5	2.3	2.5	1.3	2.0	1.5	1.0	1.5	2.1	2.2	2.6	3.3	3.7	3.6	10.7																							
6-Mar	4.2	3.8	5.1	Z	6.5	4.6	5.6	11.3	7.7	6.8	7.4	2.3	2.7	2.5	2.2	2.3	2.4	1.8	1.5	2.3	3.6	3.4	2.8	2.9	4.2	11.3																							
7-Mar	2.5	3.0	3.1	2.9	Z	3.3	3.1	2.8	3.2	2.4	2.4	2.7	3.1	3.1	3.9	4.5	4.3	5.4	4.1	3.8	3.6	3.6	4.3	4.4	3.5	5.4																							
8-Mar	5.1	8.6	9.0	10.0	11.8	Z	8.9	11.0	8.5	9.5	8.2	5.3	2.5	2.9	1.8	1.4	1.5	2.1	3.0	4.7	4.6	4.2	5.0	5.2	5.9	11.8																							
9-Mar	Z	7.0	6.6	5.6	5.9	5.2	4.7	5.3	5.5	4.6	3.8	3.4	3.2	2.5	2.1	1.9	1.8	1.8	1.8	1.5	1.7	2.8	3.2	2.6	3.7	7.0																							
10-Mar	3.1	Z	8.5	14.1	10.0	10.7	8.9	9.4	4.8	1.7	1.9	5.5	3.2	4.0	4.8	4.2	4.6	6.4	8.4	5.3	1.8	3.3	6.6	3.7	5.9	14.1																							
11-Mar	3.9	3.9	Z	1.9	1.2	0.8	1.7	1.7	1.0	0.9	1.0	6.1	5.6	6.8	8.8	14.8	3.0	3.9	5.3	3.7	7.5	2.0	2.5	4.0	4.0	14.8																							
12-Mar	3.9	5.3	4.1	Z	4.1	2.5	3.7	3.1	2.2	3.5	2.8	0.5	0.3	0.4	0.4	1.0	0.7	0.5	1.1	1.6	2.7	0.7	1.1	1.1	2.1	5.3																							
13-Mar	1.9	1.8	2.8	1.9	Z	9.8	14.9	16.7	11.4	5.0	5.0	4.3	4.1	4.6	4.2	3.8	4.0	4.2	1.5	0.5	1.6	1.8	0.5	2.2	4.7	16.7																							
14-Mar	3.6	5.1	3.4	3.5	3.1	Z	2.6	2.8	9.6	7.8	8.4	6.1	40.4	48.8	18.8	23.3	10.8	2.8	11.5	1.1	1.4	7.9	8.0	3.4	10.2	48.8																							
15-Mar	Z	0.7	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.9	1.8	0.6	2.5	1.8	3.3	3.0	2.3	1.9	1.0	0.5	0.9	3.3																							
16-Mar	0.5	Z	0.5	1.1	0.4	0.6	0.4	0.4	1.4	1.5	0.8	0.5	0.3	0.2	0.2	1.5	0.4	0.4	0.3	1.5	0.6	0.4	0.6	0.3	0.6	1.5																							
17-Mar	0.5	0.5	Z	1.3	2.5	2.3	1.7	3.4	4.2	3.3	1.9	2.6	2.0	1.9	1.6	1.7	1.1	0.7	0.8	0.5	0.4	0.6	0.5	1.3	1.6	4.2																							
18-Mar	10.3	4.5	0.7	0.5	Z	1.2	0.6	0.4	0.5	2.0	2.9	3.0	2.2	2.1	2.5	1.8	2.8	3.4	4.2	3.6	1.3	0.5	0.4	0.3	2.2	10.3																							
19-Mar	0.6	0.7	0.5	0.9	Z	1.7	2.4	1.1	1.2	0.8	0.9	1.4	1.5	1.4	1.1	1.0	1.0	1.6	2.0	2.0	1.9	2.0	1.4	1.8	1.3	2.4																							
20-Mar	1.2	1.2	1.3	1.1	1.4	Z	1.9	2.5	1.3	C	C	C	C	C	0.4	0.3	0.3	0.6	0.9	5.0	1.8	1.9	0.8	0.8	1.4	5.0																							
21-Mar	Z	3.3	1.4	2.3	1.5	1.2	1.2	0.8	0.4	1.2	2.8	0.6	0.5	0.5	0.3	0.6	0.5	0.8	0.4	0.5	0.6	0.5	0.2	0.2	1.0	3.3																							
22-Mar	0.2	Z	0.5	0.5	0.8	1.2	1.3	6.4	4.5	4.5	2.8	4.9	3.6	3.0	2.3	2.0	1.8	1.5	1.0	0.9	1.0	1.4	1.0	0.4	2.1	6.4																							
23-Mar	0.3	1.0	Z	3.2	2.8	4.8	2.6	3.2	3.2	1.7	1.2	1.3	0.9	1.3	1.5	1.5	1.2	1.3	1.0	4.9	1.5	0.8	0.8	0.7	1.9	4.9																							
24-Mar	0.7	0.6	1.2	Z	4.0	6.3	2.3	5.5	3.9	2.8	0.8	1.2	1.3	1.1	1.0	0.8	0.8	1.0	1.3	2.5	2.4	1.8	1.2	1.2	2.0	6.3																							
25-Mar	1.1	1.3	1.6	1.6	Z	1.8	1.8	1.6	1.2	1.1	0.9	1.0	0.8	0.9	1.2	1.2	0.8	0.8	0.9	0.8	0.8	0.9	1.0	1.2	1.1	1.8																							
26-Mar	1.5	1.7	1.9	1.9	2.2	Z	1.7	1.7	1.9	1.5	0.8	0.7	0.8	0.7	0.8	1.0	0.9	1.0	1.1	1.3	1.1	1.1	1.0	0.7	1.3	2.2																							
27-Mar	Z	0.9	0.7	0.7	0.7	0.9	0.6	0.8	1.9	1.6	1.0	2.2	1.8	2.2	0.8	33.0	0.5	0.5	1.1	1.2	2.2	1.2	1.6	1.4	2.6	33.0																							
28-Mar	1.5	Z	1.4	2.0	1.3	0.7	1.0	0.5	1.4	1.7	0.3	0.2	0.4	0.2	0.4	0.4	0.4	0.2	0.7	0.4	0.7	1.8	1.4	1.1	0.9	2.0																							
29-Mar	0.3	1.4	Z	2.9	4.2	3.6	3.5	3.7	3.3	2.8	2.1	2.8	3.1	2.7	1.8	1.8	3.0	2.9	4.0	5.7	6.0	2.4	5.0	3.1	3.1	6.0																							
30-Mar	3.3	3.6	2.1	Z	12.2	5.1	2.9	3.4	1.9	0.9	0.9	1.2	1.3	0.8	1.0	0.7	0.9	1.1	1.2	1.4	0.9	0.9	1.5	2.9	2.3	12.2																							
31-Mar	2.1	2.9	2.8	3.2	Z	2.0	2.1	2.2	2.5	2.9	3.4	2.7	1.9	1.6	1.4	1.3	1.2	0.9	2.2	2.0	1.5	1.0	1.7	2.1	2.1	3.4																							
																								2.4	2.7	2.6	3.1	3.8	3.1	3.1	3.6	3.3	2.7	2.5	2.4	3.2	3.5	2.4	3.7	2.0	1.8	2.4	2.7	2.7	2.2	2.3	2.1	Diurnal Average	
																								10.3	8.6	9.0	14.1	12.2	10.7	14.9	16.7	11.4	9.5	8.4	6.1	40.4	48.8	18.8	33.0	10.8	6.4	11.5	10.1	15.5	7.9	8.0	5.2	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Blackgold - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Blackgold - March 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.44	99.44
21 - 40	3	0.42	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Blackgold - March 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	28	54	62	45	31	15	39	45	84	74	43	34	32	44	54	20	704
21 - 40	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	3
11 - 80	0	0	0	0	0	0	0	0	0	0	1	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
Totals	28	54	62	45	32	15	39	45	84	74	46	34	32	44	54	20	708

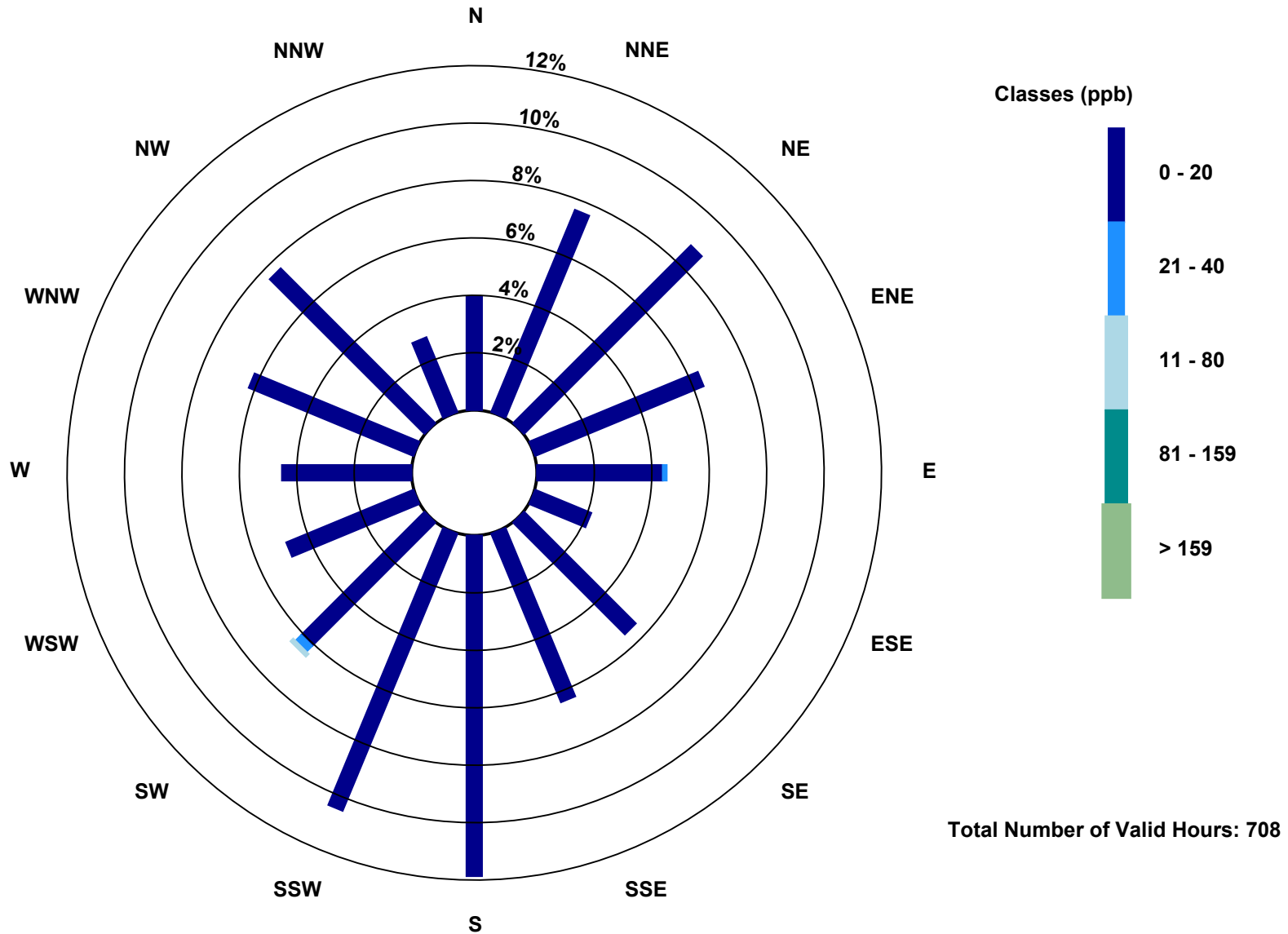
Total Number of Valid Hours: 708

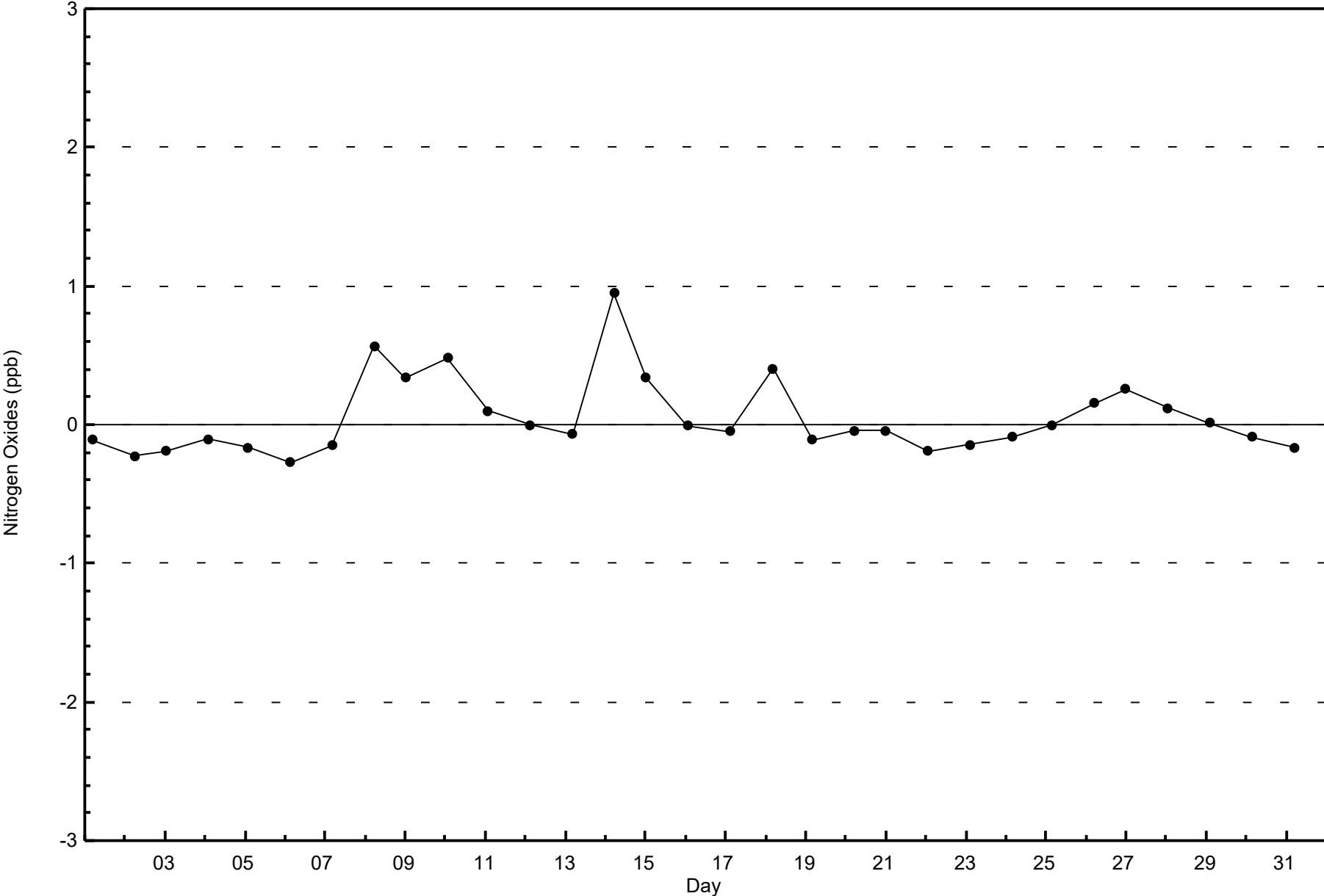
Total Number of Hours: 744

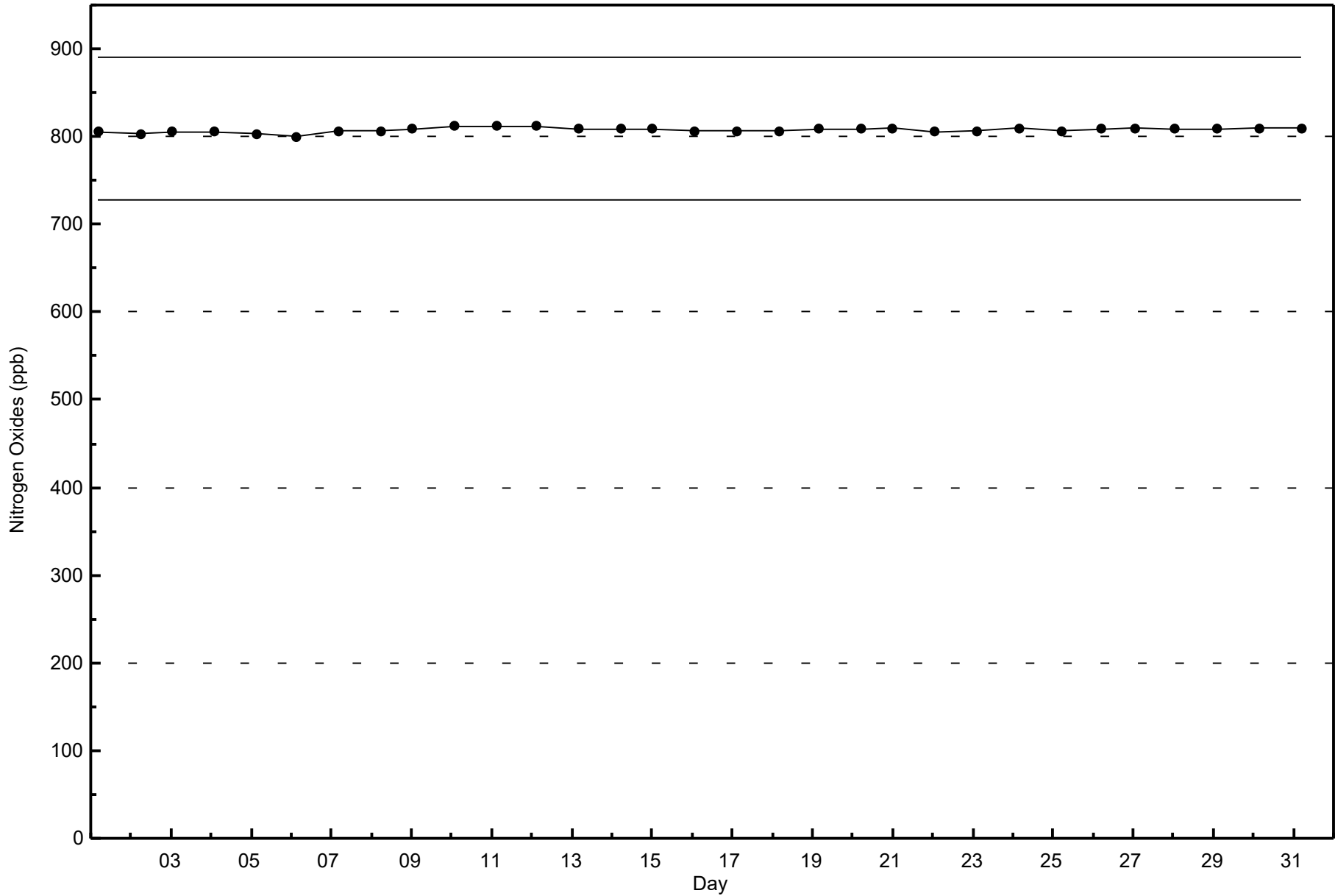


Wood Buffalo Environmental Association
Wind Rose Mar 2024

Nitrogen Oxides (NO_x) - ppb
Blackgold









Wood Buffalo Environmental Association
Summary of Hour Averages

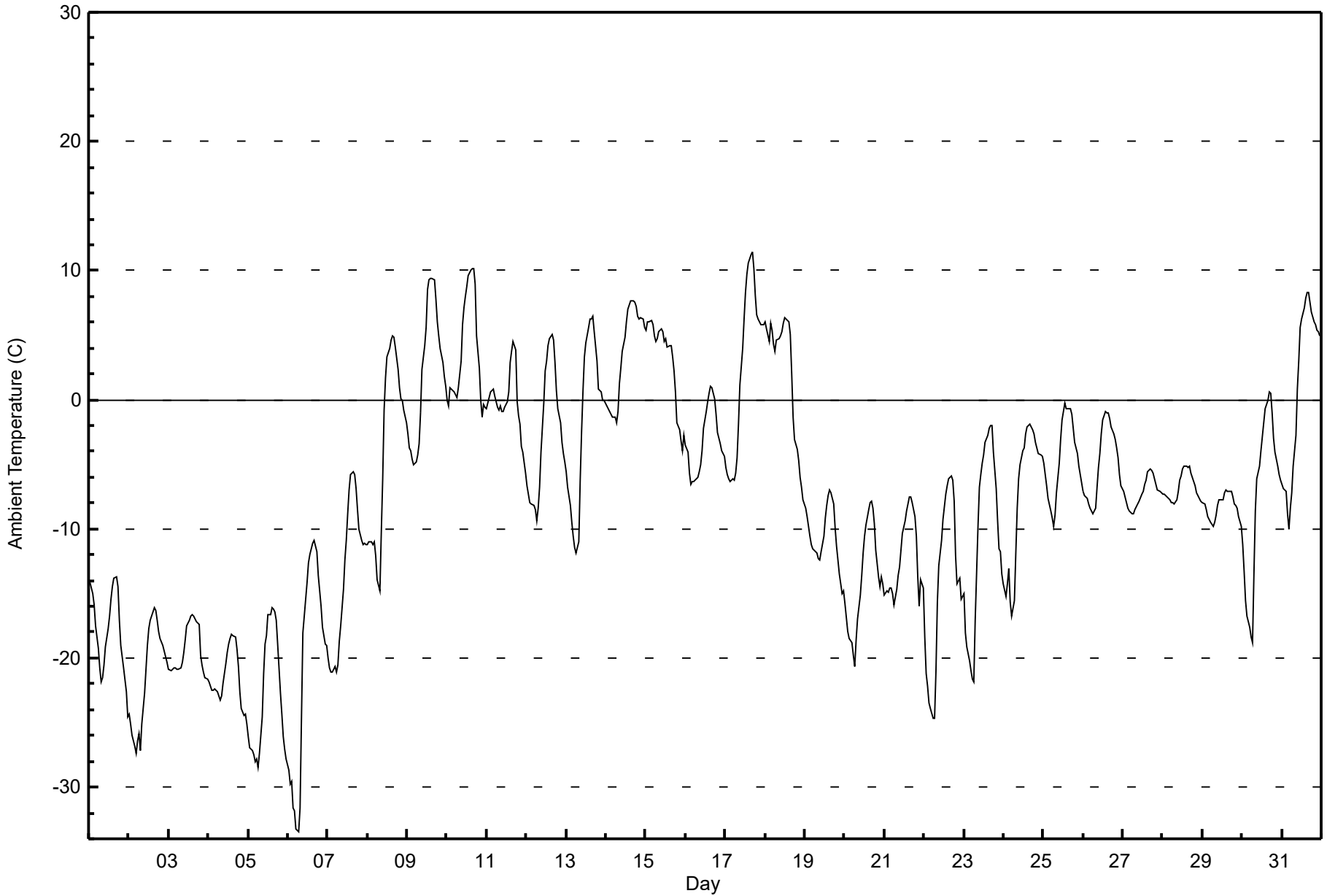
Ambient Temperature (AT) - C
Blackgold - March 2024

Maximum Value: 11.5 C on Mar 17 17:00		Maximum Daily Average: 3.7 C on Mar 10		Hours in Service: 744																																												
Minimum Value: -33.5 C on Mar 6 07:00		Minimum Daily Average: -22.8 C on Mar 5		Hours of Data: 744																																												
Maximum Diurnal Average: -2.4 C at hour 16		Minimum Diurnal Average: -12.9 C at hour 7		Hours of Missing Data: 0																																												
Monthly Average: -7.69 C		Percentiles: P ₁ = -28.6 P ₁₀ = -20.8 Q ₁ = -14.7 Median = -7.1 Q ₃ = -0.8 P ₉₀ = 5.2 P ₉₉ = 9.6		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-Mar	-14.2	-14.6	-15.1	-15.9	-17.5	-19.3	-20.7	-21.9	-21.5	-20.5	-19.1	-17.8	-16.7	-15.5	-14.5	-13.8	-13.7	-14.5	-17.0	-19.1	-19.9	-20.8	-22.6	-24.5	-17.9	-13.7																						
2-Mar	-24.3	-25.1	-26.0	-26.8	-27.3	-26.4	-25.8	-27.2	-25.1	-22.7	-20.9	-19.0	-17.7	-17.1	-16.5	-16.1	-16.3	-17.1	-17.9	-18.5	-19.0	-19.4	-19.9	-20.4	-21.4	-16.1																						
3-Mar	-20.9	-20.9	-20.9	-20.8	-20.8	-20.9	-20.8	-20.8	-20.4	-19.6	-18.6	-17.5	-17.1	-16.7	-16.7	-16.8	-17.0	-17.2	-17.4	-19.8	-20.5	-21.1	-21.5	-21.6	-19.4	-16.7																						
4-Mar	-21.8	-22.2	-22.5	-22.5	-22.4	-22.6	-23.0	-23.3	-23.0	-21.9	-20.4	-19.5	-19.0	-18.5	-18.2	-18.3	-18.4	-19.3	-20.7	-22.6	-23.9	-24.5	-24.4	-25.1	-21.6	-18.2																						
5-Mar	-26.1	-26.9	-27.2	-27.5	-28.1	-27.8	-28.5	-27.3	-24.6	-21.2	-19.0	-18.2	-16.6	-16.7	-16.1	-16.3	-16.5	-17.1	-18.9	-22.7	-24.3	-26.1	-27.0	-27.8	-22.8	-16.1																						
6-Mar	-28.7	-29.8	-29.5	-31.7	-31.9	-33.2	-33.5	-31.6	-24.7	-18.0	-16.8	-14.1	-12.7	-11.9	-11.6	-11.1	-10.9	-11.7	-13.6	-14.9	-16.0	-17.6	-19.0	-19.0	-20.6	-10.9																						
7-Mar	-20.0	-20.7	-21.1	-21.1	-20.7	-21.1	-20.6	-18.7	-17.5	-14.7	-12.4	-10.9	-8.8	-7.0	-5.8	-5.5	-5.8	-6.8	-8.5	-10.1	-10.9	-11.2	-11.1	-11.2	-13.4	-5.5																						
8-Mar	-11.2	-11.0	-11.0	-11.2	-11.0	-12.0	-13.9	-14.8	-10.3	-6.1	-0.8	1.7	3.4	4.0	4.6	4.9	4.9	4.1	2.3	0.9	0.1	-0.1	-0.8	-1.8	-3.5	4.9																						
9-Mar	-2.7	-3.7	-3.9	-4.6	-5.0	-4.8	-4.3	-3.4	-1.1	2.4	4.2	5.6	8.5	9.2	9.4	9.4	9.3	7.8	6.0	4.9	4.0	2.9	1.8	1.0	2.2	9.4																						
10-Mar	0.0	-0.5	1.0	0.7	0.6	0.4	0.2	1.0	3.0	5.8	7.1	8.0	8.8	9.6	10.0	10.2	10.1	9.0	4.9	2.4	0.0	-1.4	-0.4	-0.6	3.7	10.2																						
11-Mar	-0.7	0.1	0.6	0.8	0.8	0.3	-0.6	-0.8	-0.5	-1.0	-0.9	-0.6	-0.2	0.6	2.9	3.8	4.5	3.8	-0.2	-1.3	-1.9	-3.6	-4.0	-5.7	-0.2	4.5																						
12-Mar	-6.6	-7.3	-8.0	-8.1	-8.2	-8.6	-9.3	-8.4	-6.8	-4.1	-0.3	2.2	3.0	4.2	4.7	5.1	4.6	2.9	0.7	-0.7	-1.8	-3.3	-4.1	-4.8	-2.6	5.1																						
13-Mar	-5.6	-6.8	-8.2	-9.5	-10.5	-11.4	-11.9	-11.0	-6.2	-2.5	0.7	3.3	4.4	5.6	6.2	6.2	6.5	5.2	2.9	0.8	0.7	0.6	0.0	-0.1	-1.7	6.5																						
14-Mar	-0.5	-0.7	-1.0	-1.1	-1.3	-1.4	-1.8	-0.9	1.3	2.5	3.7	4.9	6.0	7.0	7.3	7.7	7.6	7.5	7.3	6.5	6.2	6.4	6.2	5.6	3.5	7.7																						
15-Mar	5.4	6.0	6.0	6.1	5.8	4.9	4.5	4.7	5.3	5.5	5.2	4.5	4.7	4.1	4.2	4.1	3.3	2.2	0.7	-1.8	-2.3	-3.2	-4.0	-2.8	3.1	6.1																						
16-Mar	-3.5	-4.1	-5.6	-6.6	-6.4	-6.4	-6.2	-6.0	-5.6	-5.0	-3.9	-2.2	-0.9	-0.1	0.5	1.0	1.0	0.0	-1.1	-2.6	-3.0	-3.5	-4.0	-4.4	-3.3	1.0																						
17-Mar	-5.2	-5.8	-6.1	-6.3	-6.2	-6.2	-5.7	-4.4	-1.9	1.2	4.0	6.2	8.3	9.7	10.6	11.3	11.5	10.1	8.0	6.6	6.2	5.8	5.8	5.8	2.6	11.5																						
18-Mar	6.0	5.5	4.5	5.9	5.3	4.3	3.8	4.6	4.7	4.9	5.3	5.9	6.3	6.1	6.0	5.1	2.0	-1.3	-3.1	-3.8	-4.7	-6.0	-6.8	-7.8	2.2	6.3																						
19-Mar	-8.4	-9.1	-9.8	-10.6	-11.2	-11.6	-11.7	-11.9	-12.3	-12.4	-11.7	-10.5	-9.2	-8.1	-7.4	-7.0	-7.2	-8.1	-9.9	-11.3	-12.4	-13.5	-15.0	-14.8	-10.6	-7.0																						
20-Mar	-15.7	-16.9	-17.9	-18.5	-18.8	-19.8	-20.6	-18.6	-17.0	-15.1	-13.6	-11.9	-10.6	-9.7	-8.5	-8.0	-7.9	-8.4	-9.6	-11.6	-13.7	-14.5	-13.7	-14.2	-14.0	-7.9																						
21-Mar	-15.1	-14.8	-14.9	-14.6	-14.6	-15.0	-15.9	-14.7	-13.6	-12.9	-11.6	-10.3	-9.3	-8.6	-8.1	-7.6	-7.5	-7.9	-9.1	-10.6	-13.7	-16.0	-13.9	-14.6	-12.3	-7.5																						
22-Mar	-18.4	-21.2	-22.2	-23.5	-24.0	-24.7	-24.7	-21.0	-15.7	-12.9	-10.9	-9.3	-8.3	-7.3	-6.7	-6.1	-5.9	-6.2	-7.8	-12.0	-14.2	-13.9	-15.5	-15.3	-14.5	-5.9																						
23-Mar	-15.0	-18.0	-19.1	-20.3	-21.0	-21.7	-21.8	-17.0	-9.8	-6.8	-5.7	-4.9	-4.3	-3.3	-2.7	-2.2	-2.0	-2.0	-4.0	-6.8	-9.4	-11.5	-11.8	-13.5	-10.6	-2.0																						
24-Mar	-14.3	-15.2	-14.3	-13.1	-15.7	-16.8	-15.5	-11.9	-8.4	-6.1	-5.0	-4.0	-3.7	-2.6	-2.1	-2.0	-1.8	-2.3	-2.7	-3.3	-3.8	-4.2	-4.3	-4.4	-7.4	-1.8																						
25-Mar	-4.9	-5.8	-6.7	-7.6	-8.6	-9.1	-9.8	-8.9	-7.2	-4.9	-3.1	-1.5	-1.0	-0.3	-0.7	-0.7	-0.6	-1.1	-2.2	-3.3	-4.2	-5.1	-5.8	-6.5	-4.6	-0.3																						
26-Mar	-7.1	-7.4	-7.6	-8.0	-8.4	-8.6	-8.8	-8.4	-6.8	-5.3	-4.2	-2.6	-1.6	-1.0	-1.0	-1.0	-1.4	-2.2	-2.7	-3.1	-3.8	-4.5	-5.8	-6.7	-4.9	-1.0																						
27-Mar	-7.1	-7.5	-8.0	-8.4	-8.6	-8.8	-8.8	-8.5	-8.3	-8.1	-7.9	-7.4	-7.1	-6.6	-6.2	-5.6	-5.4	-5.4	-5.6	-6.1	-6.5	-7.0	-7.1	-7.2	-7.2	-5.4																						
28-Mar	-7.3	-7.3	-7.4	-7.6	-7.8	-8.0	-8.0	-8.1	-7.8	-7.1	-6.2	-5.9	-5.3	-5.2	-5.1	-5.3	-5.1	-5.7	-6.1	-6.7	-7.2	-7.4	-7.6	-7.9	-6.8	-5.1																						
29-Mar	-8.0	-8.1	-8.5	-9.0	-9.2	-9.5	-9.8	-9.5	-9.0	-8.2	-7.8	-7.7	-7.7	-7.2	-7.0	-7.1	-7.1	-7.1	-7.5	-8.0	-8.2	-8.5	-9.0	-9.8	-8.3	-7.0																						
30-Mar	-11.2	-13.3	-15.6	-16.8	-17.6	-18.4	-18.8	-13.5	-8.6	-6.1	-5.1	-4.0	-2.9	-1.7	-0.6	0.0	0.6	0.5	-1.1	-2.9	-4.1	-5.2	-5.8	-6.2	-7.4	0.6																						
31-Mar	-6.5	-6.8	-7.1	-8.8	-10.0	-8.4	-7.3	-5.2	-2.7	0.8	3.0	5.6	6.3	7.1	7.8	8.3	8.3	7.6	6.8	6.0	5.8	5.4	5.2	5.0	1.1	8.3																						
																								-10.3	-11.0	-11.4	-11.8	-12.3	-12.7	-12.9	-11.9	-9.7	-7.7	-6.2	-4.9	-3.9	-3.2	-2.6	-2.4	-2.5	-3.3	-4.7	-6.3	-7.3	-8.1	-8.6	-9.1	Diurnal Average
																								6.0	6.0	6.0	6.1	5.8	4.9	4.5	4.7	5.3	5.8	7.1	8.0	8.8	9.7	10.6	11.3	11.5	10.1	8.0	6.6	6.2	6.4	6.2	5.8	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature (AT) - C
Blackgold - March 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature (AT) - C
Blackgold - March 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	91	12.23	12.23
-20 - 0	492	66.13	78.36
0 - 10	154	20.70	99.06
10 - 20	7	0.94	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

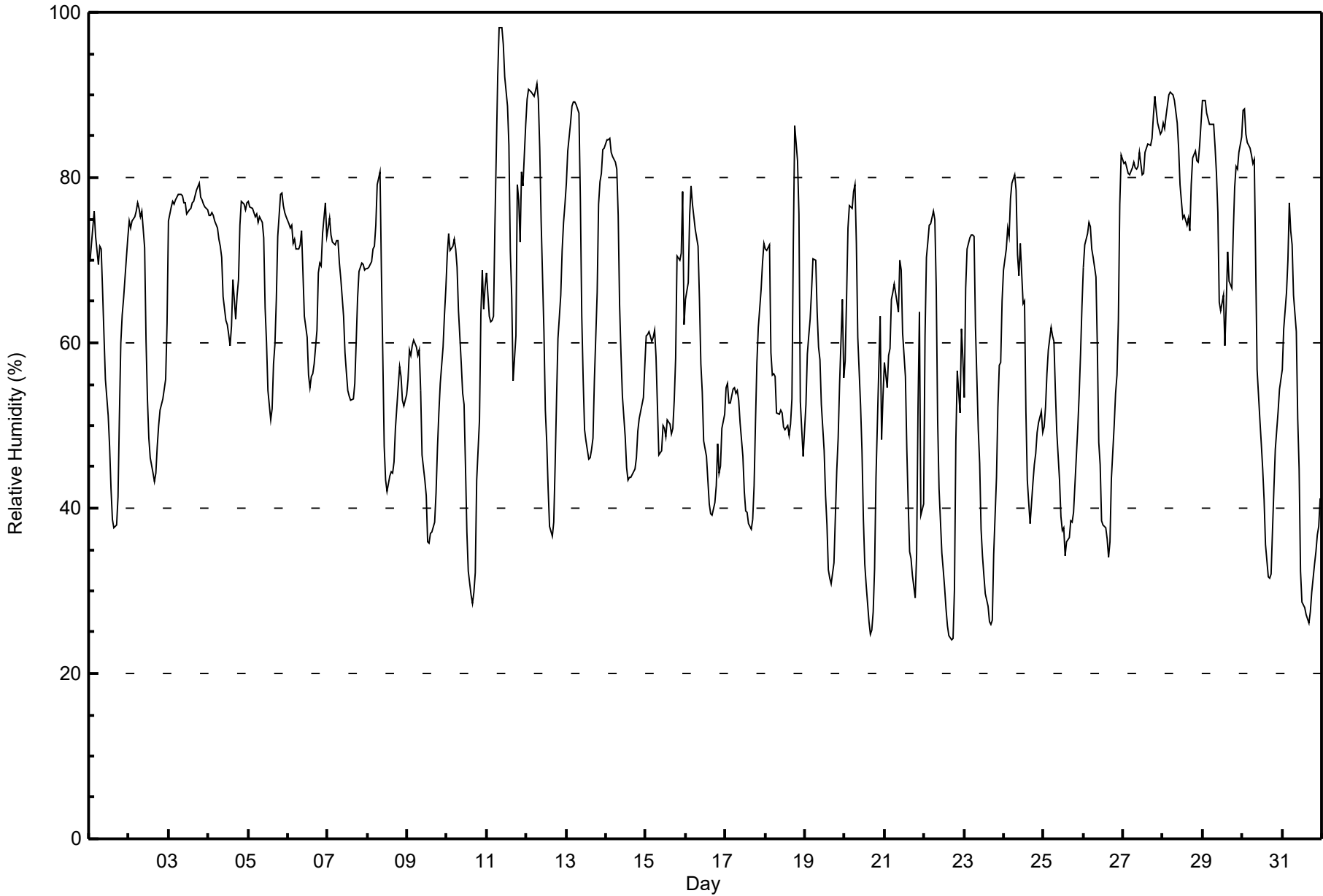
Relative Humidity (RH) - %
Blackgold - March 2024

Maximum Value: 98.2 % on Mar 11 09:00																						Maximum Daily Average: 83.2 % on Mar 27																						Hours in Service: 744			
Minimum Value: 24.1 % on Mar 22 17:00																						Minimum Daily Average: 46.2 % on Mar 31																						Hours of Data: 744			
Maximum Diurnal Average: 74.4 % at hour 7																						Minimum Diurnal Average: 45.5 % at hour 17																						Hours of Missing Data: 0			
Monthly Average: 61.49 %																						Percentiles: P ₁ = 26.2 P ₁₀ = 38.0 Q ₁ = 49.3 Median = 62.5 Q ₃ = 75.1 P ₉₀ = 82.5 P ₉₉ = 90.7																						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-Mar	69.8	71.8	73.8	75.9	73.0	69.6	71.8	71.4	66.2	60.8	55.6	51.1	47.5	42.4	38.6	37.7	38.0	41.3	51.2	60.0	63.4	65.4	70.3	72.7	60.0	75.9																					
2-Mar	74.7	73.9	74.7	75.3	75.9	77.0	76.3	75.2	76.0	71.4	60.3	53.2	48.4	46.1	44.2	43.2	44.3	47.5	50.0	51.9	53.3	54.4	55.5	62.5	61.0	77.0																					
3-Mar	74.8	76.5	77.1	76.8	77.4	77.7	77.9	78.0	77.7	76.9	77.0	75.6	76.1	76.3	77.0	77.1	77.8	78.5	79.4	77.5	77.3	76.8	76.4	76.1	77.1	79.4																					
4-Mar	75.5	75.4	75.8	75.4	74.8	73.9	72.5	71.8	70.3	65.6	62.8	62.2	61.0	59.6	62.1	67.7	62.8	65.7	67.6	74.3	77.1	76.8	76.0	76.9	70.2	77.1																					
5-Mar	77.1	76.4	76.2	75.8	75.2	75.6	74.6	75.2	74.6	72.7	64.3	60.1	54.2	50.8	52.1	57.5	59.9	65.3	73.0	77.9	78.1	76.6	75.7	75.2	69.7	78.1																					
6-Mar	74.4	73.8	74.2	72.1	72.5	71.3	71.3	71.9	73.6	68.5	63.1	60.6	56.2	54.5	56.0	56.2	57.4	61.5	68.5	69.6	69.3	73.3	76.9	72.9	67.5	76.9																					
7-Mar	74.0	75.1	73.0	72.2	71.8	72.3	72.3	69.6	67.8	63.3	58.8	56.4	54.2	53.5	53.0	53.2	55.1	60.1	65.5	68.7	69.6	69.5	68.9	69.0	65.3	75.1																					
8-Mar	68.9	69.1	69.9	71.4	71.7	74.3	79.1	80.7	68.6	58.3	47.5	43.5	42.0	44.0	44.5	44.2	45.5	49.7	54.8	57.2	56.0	53.1	52.4	53.8	58.3	80.7																					
9-Mar	55.6	59.2	58.4	59.7	60.3	59.5	58.4	59.1	54.3	46.5	43.4	41.4	35.9	35.8	36.9	37.1	38.3	41.9	47.3	51.5	55.0	59.6	63.3	66.7	51.0	66.7																					
10-Mar	70.7	73.2	71.2	71.6	72.5	71.4	69.1	63.9	57.5	53.9	52.6	45.1	37.1	32.5	29.5	28.5	29.9	32.3	43.4	50.8	63.6	68.8	64.1	66.9	55.0	73.2																					
11-Mar	68.5	63.2	62.6	62.7	63.3	74.0	92.3	98.1	98.2	98.1	96.1	92.2	88.6	83.9	71.3	65.6	55.4	60.8	79.1	77.3	72.2	80.6	79.1	86.5	77.9	98.2																					
12-Mar	89.4	90.8	90.4	90.3	89.8	90.5	91.3	89.4	83.6	74.8	61.4	51.8	48.0	42.3	37.8	36.7	38.3	45.2	53.1	60.5	65.7	71.2	74.6	76.7	68.5	91.3																					
13-Mar	79.3	83.2	86.6	88.7	89.2	89.2	88.8	87.8	77.3	63.1	55.6	49.5	48.1	46.0	46.2	47.1	48.5	55.4	66.0	76.7	79.5	80.6	83.4	83.5	70.8	89.2																					
14-Mar	84.5	84.5	84.7	83.0	82.6	81.9	81.0	75.5	64.6	58.6	53.6	48.6	45.0	43.4	43.6	43.7	44.4	44.7	46.1	49.4	50.8	51.7	53.4	57.2	60.7	84.7																					
15-Mar	60.9	61.0	61.3	60.2	60.7	61.5	58.3	52.3	46.5	47.0	49.9	49.6	48.7	50.7	50.3	48.9	49.7	53.0	58.1	70.5	70.0	70.8	78.3	62.1	57.5	78.3																					
16-Mar	65.2	67.2	75.5	79.0	76.7	75.3	73.7	71.6	65.2	57.5	54.1	48.2	46.2	43.4	40.6	39.4	39.2	40.7	42.7	47.8	44.2	45.2	49.7	51.3	55.8	79.0																					
17-Mar	54.6	55.1	52.7	52.7	54.4	54.5	54.0	54.3	53.1	50.3	46.4	42.0	39.7	39.5	38.1	37.4	38.7	42.7	50.5	57.7	61.9	66.5	69.7	72.0	51.6	72.0																					
18-Mar	71.3	71.2	71.8	58.8	56.1	56.3	56.0	51.5	51.4	51.9	51.5	49.8	49.4	49.9	48.9	50.1	53.2	72.1	86.2	82.1	75.7	53.0	49.5	46.2	58.9	86.2																					
19-Mar	52.5	58.6	60.8	62.9	66.3	70.1	70.1	63.8	59.6	57.9	52.5	46.9	41.5	38.0	32.6	31.6	30.9	33.4	38.9	44.5	48.5	54.9	65.3	55.7	51.6	70.1																					
20-Mar	57.8	65.5	73.9	76.7	76.3	78.3	79.2	72.1	60.6	52.3	46.9	38.6	33.3	30.6	26.3	24.8	25.3	27.4	32.8	43.7	56.9	63.2	48.4	53.5	51.8	79.2																					
21-Mar	57.7	54.5	58.5	59.3	65.2	66.1	67.1	65.0	63.7	69.9	68.7	61.2	56.0	47.2	40.5	34.8	33.8	31.8	29.1	34.5	52.2	63.7	39.1	40.6	52.5	69.9																					
22-Mar	60.9	70.4	72.2	74.2	74.5	75.9	75.0	66.6	50.7	42.4	34.6	32.5	30.3	27.8	25.8	24.6	24.1	24.2	30.1	48.2	56.5	51.5	61.6	58.1	49.7	75.9																					
23-Mar	53.4	66.6	71.3	72.7	73.0	73.1	72.8	61.9	49.4	45.4	37.5	34.2	31.8	29.6	28.1	26.2	25.9	26.5	34.5	43.7	52.1	57.2	57.7	65.1	49.6	73.1																					
24-Mar	68.8	71.3	73.9	73.0	77.4	79.4	80.4	78.5	70.7	68.2	72.0	64.8	65.1	51.7	43.3	40.6	38.2	43.1	45.2	46.6	49.2	50.4	51.7	49.2	60.5	80.4																					
25-Mar	49.9	52.2	56.3	59.2	61.9	60.8	60.1	54.4	49.3	43.4	38.9	37.2	37.7	34.3	36.0	36.4	38.4	38.3	39.5	42.8	49.6	53.7	58.7	64.3	48.1	64.3																					
26-Mar	69.2	71.9	73.2	74.5	74.1	71.4	70.4	68.0	59.4	47.9	45.3	38.5	38.0	37.7	36.3	34.0	35.9	43.5	50.0	53.9	56.0	62.6	76.8	82.8	57.1	82.8																					
27-Mar	81.7	81.8	81.3	80.4	80.3	81.2	81.9	81.1	81.1	81.3	83.0	80.4	80.4	83.0	83.6	84.0	83.9	84.8	87.4	89.8	88.1	86.5	85.3	85.5	83.2	89.8																					
28-Mar	86.6	85.9	87.5	90.0	90.3	90.1	90.1	89.4	86.6	83.5	79.2	77.2	75.0	75.4	74.3	75.1	73.6	79.1	82.3	83.2	82.0	81.9	83.9	86.7	82.9	90.3																					
29-Mar	89.3	89.4	87.8	87.2	86.4	86.5	86.5	83.8	80.6	75.8	65.0	64.0	65.8	59.7	64.7	71.1	67.4	66.6	73.4	78.9	81.3	81.1	83.0	85.0	77.5	89.4																					
30-Mar	88.1	88.3	85.2	84.2	83.6	82.8	81.7	82.2	69.6	56.8	50.7	47.8	44.7	41.0	35.6	31.6	31.5	32.0	37.3	42.4	47.2	51.8	54.4	55.5	58.6	88.3																					
31-Mar	56.7	61.8	66.1	70.0	77.0	73.5	71.8	65.8	61.3	50.9	44.7	32.5	28.7	28.0	27.0	26.5	26.1	27.4	29.8	33.2	34.8	36.8	37.9	41.2	46.2	77.0																					
																						69.7	71.6	72.8	73.1	73.7	74.0	74.4	71.9	66.7	61.8	57.2	52.8	50.1	47.7	45.9	45.6	45.5	48.9	54.6	59.6	62.5	64.2	65.2	66.2	Diurnal Average	
																						89.4	90.8	90.4	90.3	90.3	90.5	92.3	98.1	98.2	98.1	96.1	92.2	88.6	83.9	83.6	84.0	83.9	84.8	87.4	89.8	88.1	86.5	85.3	86.7	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Blackgold - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity (RH) - %
Blackgold - March 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	95	12.77	12.77
40 - 60	244	32.80	45.56
60 - 80	303	40.73	86.29
80 - 100	102	13.71	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed (WS) - km/h

Blackgold - March 2024

Maximum Speed: 25 km/h on Mar 26 11:00	Maximum Daily Speed Average: 16.9 km/h on Mar 26	Hours in Service: 744
Minimum Speed Value: 0 km/h on Mar 22 08:00	Minimum Daily Speed Average: 1.3 km/h on Mar 22	Hours of Data: 744
Maximum Diurnal Speed Average: 3.0 km/h at hour 21	Minimum Diurnal Speed Average: 0.9 km/h at hour 2	Hours of Missing Data: 0
Monthly Average Velocity: 1.7 km/h 188.2 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 9 Q ₃ = 12 P ₉₀ = 15 P ₉₉ = 21	Percent Operational Time: 100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Mar	NW5	NW6	NW9	NNW11	WNW13	WNW12	WNW12	WNW12	WNW14	WNW16	WNW14	WNW15	NW15	NW13	WNW10	WNW10	NW7	WNW3	W3	NW4	WNW4	WNW3	WNW4	WNW9.4	WNW16	
2-Mar	NNW4	NNE4	W2	NW2	N2	NE5	NE4	WNW1	NE4	ENE7	ENE8	ENE10	NE12	NE12	NE13	NE13	NE11	NE10	NE11	NE13	ENE14	ENE14	ENE13	NE12	NE7.8	ENE14
3-Mar	NE11	NE12	NE11	ENE11	NE9	NE8	NE8	NNE8	NNE8	NNE9	NNE8	NE9	NE9	NNE10	NNE10	NNE9	N10	N10	NNW10	NW13	NW11	NW12	NW12	NNE8.2	NW13	
4-Mar	NW14	NW14	NW15	NW14	NW14	NW14	NW14	NW12	WNW13	NW16	NW12	NW13	NW12	NW11	NW12	NW10	NW11	NW8	WNW6	WNW4	W4	W4	W5	WSW4	NW10.4	NW16
5-Mar	W4	W3	W4	WSW5	WSW5	WSW5	WSW4	SW6	SW5	WSW6	W7	SW6	SW4	SW6	SSW6	SSW5	SSW6	S6	SSW5	SSW4	SW5	SW4	SW3	SW4	SW4.5	W7
6-Mar	WSW2	SW3	W2	WSW1	WNW3	SSW2	SSW2	WNW1	S6	SSW2	N2	S11	S13	SSW14	S13	S12	S12	S10	S7	SSW10	SSW9	S7	S6	SSW10	S6.1	SSW14
7-Mar	SSW9	SSW11	SSW10	SSW12	SSW11	S11	S11	SSW13	SSW13	SSW14	SSW16	SSW18	SSW16	SSW17	SSW18	SSW18	SSW18	SSW16	SSW15	SSW14	SSW15	SSW15	SW12	SW12	SSW13.9	SSW18
8-Mar	SW11	SW10	SW8	WSW7	WSW7	WSW4	N1	E1	SSW5	SSW6	WSW2	S5	SSW10	SSW10	SSW9	SSW11	S10	S10	S10	S11	S12	S13	SSW13	SSW9	SSW7.4	S13
9-Mar	S5	SSE4	S6	S6	S7	SSE7	S9	S8	SSE8	S14	S16	S15	SSE16	S17	S18	S17	S13	S13	S12	S14	S13	SW7	S7	SSW7	S10.6	S18
10-Mar	SSW7	SW6	WSW8	WSW9	WSW11	WSW11	WSW11	W10	W16	WNW16	W14	W15	W14	W15	W15	WSW11	W8	WNW3	WNW4	WSW2	NNW2	E2	W2	WSW8.6	WNW16	
11-Mar	NE2	NE4	N6	NNE4	NE8	NE8	NE5	NE2	NE5	NNE6	NE5	ENE5	E3	NNW3	SSW2	ESE5	E6	SSE4	NNE1	ENE5	ENE4	E3	ENE3	E3	ENE3.4	NE8
12-Mar	ENE3	ENE4	ENE5	NE5	NE5	NE5	NE4	NE4	NE6	NE7	E10	ESE14	ESE14	ESE14	ESE14	ESE12	E11	ENE10	ENE8	E9	E9	ENE6	ENE6	ENE6	E7.4	ESE14
13-Mar	ENE5	NE3	NNE3	N1	WNW1	WNW1	WNW2	NE1	ESE2	ESE2	WNW1	WNW1	SE1	NNW3	WSW6	SW9	WSW7	WSW10	SW8	SW8	SW9	SW9	SW10	SW11	SW3.1	SW11
14-Mar	SW9	SW9	SW8	SW8	SW6	SW7	SW7	SW8	WSW10	WSW9	WSW12	WSW13	SW13	SW15	SW14	SW11	SW9	SSW10	SW11	SW12	SW12	WSW12	WSW9	W9	SSW9.9	SW15
15-Mar	WSW8	W12	WNW13	WNW14	WNW15	WNW14	WNW17	NW18	NW20	NNW18	NNW21	NNW20	NNW15	N14	N14	N12	NNE11	NE8	NNE5	NNE3	NNE3	NNE4	N3	NNE5	NNW9.6	NNW21
16-Mar	NNE3	N4	NE2	NE4	ENE4	NE4	NE4	ENE7	ENE8	ENE8	NE6	NE5	ENE7	NE8	NE8	NE6	NE7	ENE8	ENE6	ENE5	E7	ESE7	SE7	SE9	ENE5.1	SE9
17-Mar	SE8	SE7	SE7	SSE8	SSE9	S11	S12	S8	S9	S11	S15	S16	S17	S20	S20	S19	SSW18	SSW20	SSW19	SSW18	SSW21	SW15	SW16	SW14	S13.2	SSW21
18-Mar	WSW12	W9	WNW10	NW11	NW10	WNW10	WNW11	NW12	NW10	NNW12	NNW14	NNW14	NW14	NW14	NNW10	N12	NNE13	NNE12	NNE9	NNE10	NNE12	N13	N12	N13	NNW9.3	NNW14
19-Mar	N11	N9	N9	N10	N8	N9	NNE8	NNE10	NNE11	NNE9	NNE9	N10	N9	NNE9	NNE9	NNE10	NE11	NE10	NNE8	NNE8	N5	NW4	NNW3	N5	NNE8.2	NE11
20-Mar	NNE5	NE3	NE1	E2	NNE2	N4	NNW1	NE3	ENE7	NE6	ENE6	ENE6	NNE7	E6	NE5	NE7	NE6	NE7	NE5	ENE4	ENE3	ENE4	ESE5	E4	NE4.3	NE7
21-Mar	NE4	E5	ENE4	ENE4	ENE5	ENE6	ENE6	ESE9	ESE10	E10	E10	E13	ENE14	ENE13	ENE10	ENE11	ENE11	NE8	NNE7	NNE4	N3	N3	N5	N5	ENE6.8	ENE14
22-Mar	NNW3	W3	W3	W3	W3	W3	W3	W0	ESE4	ESE5	E5	E3	E4	ENE7	NNE7	NNE4	NNE6	NNE5	ENE4	NE3	SE2	SSE4	S3	SSE7	ENE1.3	ENE7
23-Mar	S4	E0	WNW2	NW2	W2	W3	W3	SE0	S2	SSW7	S8	SSE9	S8	SSW5	S4	SSW3	SSW5	SSW4	SE1	E2	WSW3	SSW4	SSW4	WSW3	SSW2.9	SSE9
24-Mar	W2	SSW5	SSW5	SSW6	SSW2	WNW1	SSW2	SSE3	SSE6	S11	S13	S14	SSE13	S10	S11	SSE10	S12	SSE11	SE9	SE8	SE7	SE7	SE9	SE12	SSE7.2	S14
25-Mar	SE11	SE10	SE9	SE8	SSE8	SSE10	SE9	SSE13	SSE13	SE14	SE14	SSE16	S16	SSE16	SSE17	SSE18	SSE21	SSE16	SSE14	SSE14	SSE15	SSE14	SSE14	SSE12	SSE13.3	SSE21
26-Mar	SSE12	SSE12	SSE12	SE10	SSE10	SSE11	SSE13	SSE14	SSE17	S23	S25	S23	SSE23	SSE24	SSE22	SSE20	S20	SSE20	SSE18	SE16	SE17	SE18	SE18	SE16	SSE16.9	S25
27-Mar	SSE15	SE13	SE15	SE15	SE14	SE14	SE14	SE15	SE16	SE17	SE17	SE21	SE20	SE14	ESE13	E10	E12	E11	E8	E9	E10	E8	E8	E7	ESE12.4	SE21
28-Mar	E6	E8	ENE4	NE5	NE5	NNE4	NE5	NNE7	NE8	NE7	NNE9	NNE9	NNE9	N9	NNE9	N9	NNE9	NNE7	NNE6	NE6	NNE4	NNW4	NNW4	NW4	NNE5.9	NNE9
29-Mar	NW5	NW6	NNW7	NW8	NW8	NW7	NW7	NW8	NW8	NW9	NW12	NW12	NW11	NW12	NW10	NNW9	NNW9	NW7	NW6	WNW5	WNW5	WNW5	WNW5	WNW5	NW7.6	NW12
30-Mar	WNW6	W3	WSW4	WSW4	WSW5	WSW5	WSW3	SSW3	SSW6	SSW8	SSW9	S11	S11	S10	S10	S13	S12	S10	SSW8	S7	S7	S8	S7	S10	SSW6.5	S13
31-Mar	S10	S7	S5	S6	S4	SSW6	SSW6	SSW7	SSW8	SW11	SW12	SW15	SW16	SSW18	SW16	SW15	SSW16	SSW16	S13	S17	S19	S20	SSW21	SSW21	SSW12.3	SSW21

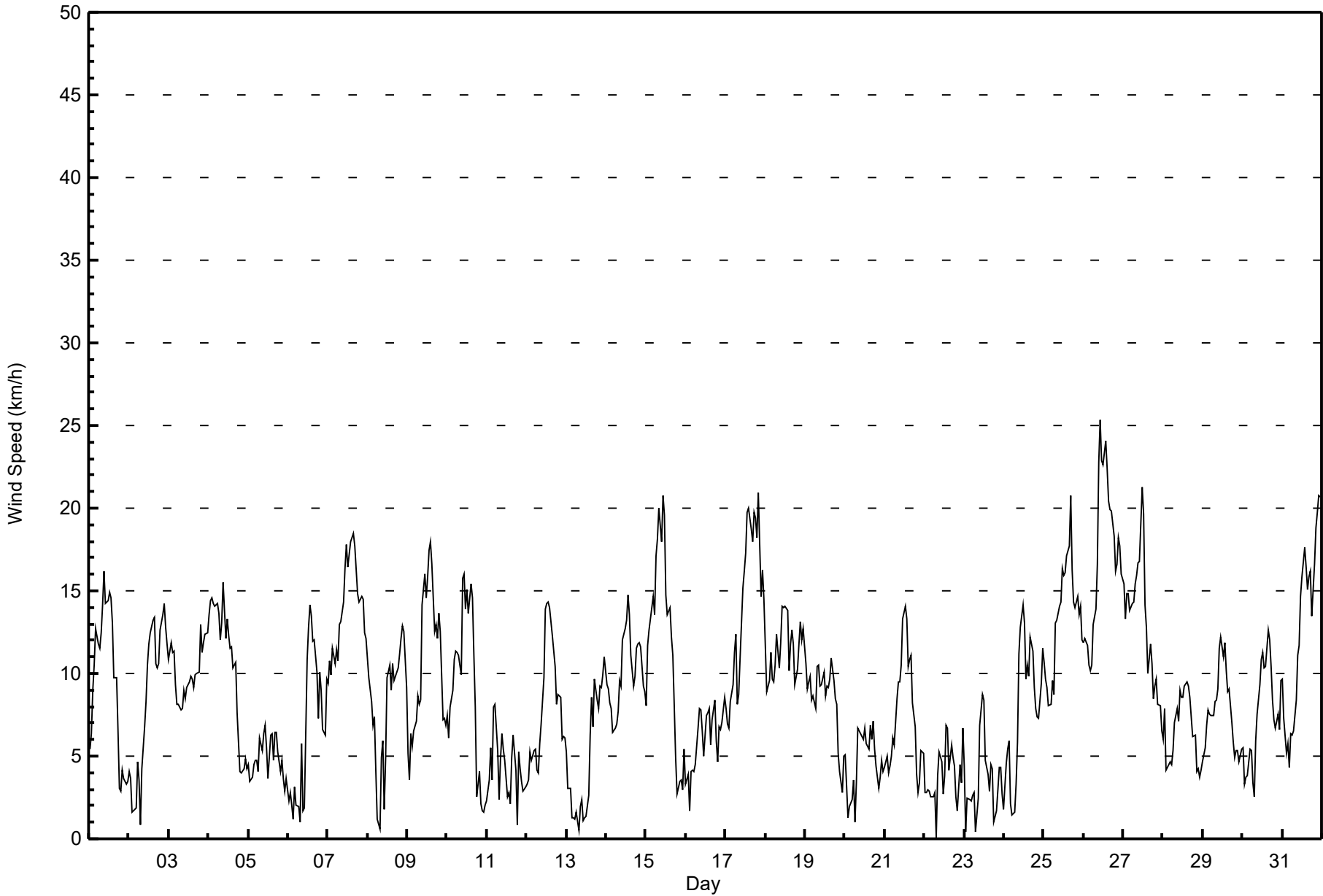
SSW1.2	SW0.9	WSW1.2	WSW1.2	W1.2	WSW1.2	WSW1.3	SW0.9	S0.9	SSW1.4	SSW1.3	S2.5	S2.8	S2.6	S2.7	S2.3	SSE2.6	SSE2.7	SSE2.5	SSE2.6	S3.0	S2.8	S2.8	SSW2.6	Diurnal Average
SSE15	NW14	SE15	SE15	WNW15	SE14	WNW17	NW18	NW20	S23	S25	S23	SSE23	SSE24	SSE22	SSE20	SSE21	SSE20	SSW19	SSW18	SSW21	S20	SSW21	SSW21	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed (WS) - km/h
Blackgold - March 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed (WS) - km/h
Blackgold - March 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	217	29.17	29.17
6 - 11	305	40.99	70.16
12 - 19	200	26.88	97.04
20 - 28	22	2.96	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed (WS) - km/h
Blackgold - March 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	13	18	30	18	13	6	4	5	7	19	7	17	22	22	7	9	217
6 - 11	12	34	30	24	19	3	15	14	41	28	27	17	5	8	23	5	305
12 - 19	7	3	7	5	2	6	19	23	31	25	14	4	7	17	25	5	200
20 - 28	0	0	0	0	0	0	2	6	7	4	0	0	0	0	1	2	22
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	32	55	67	47	34	15	40	48	86	76	48	38	34	47	56	21	744

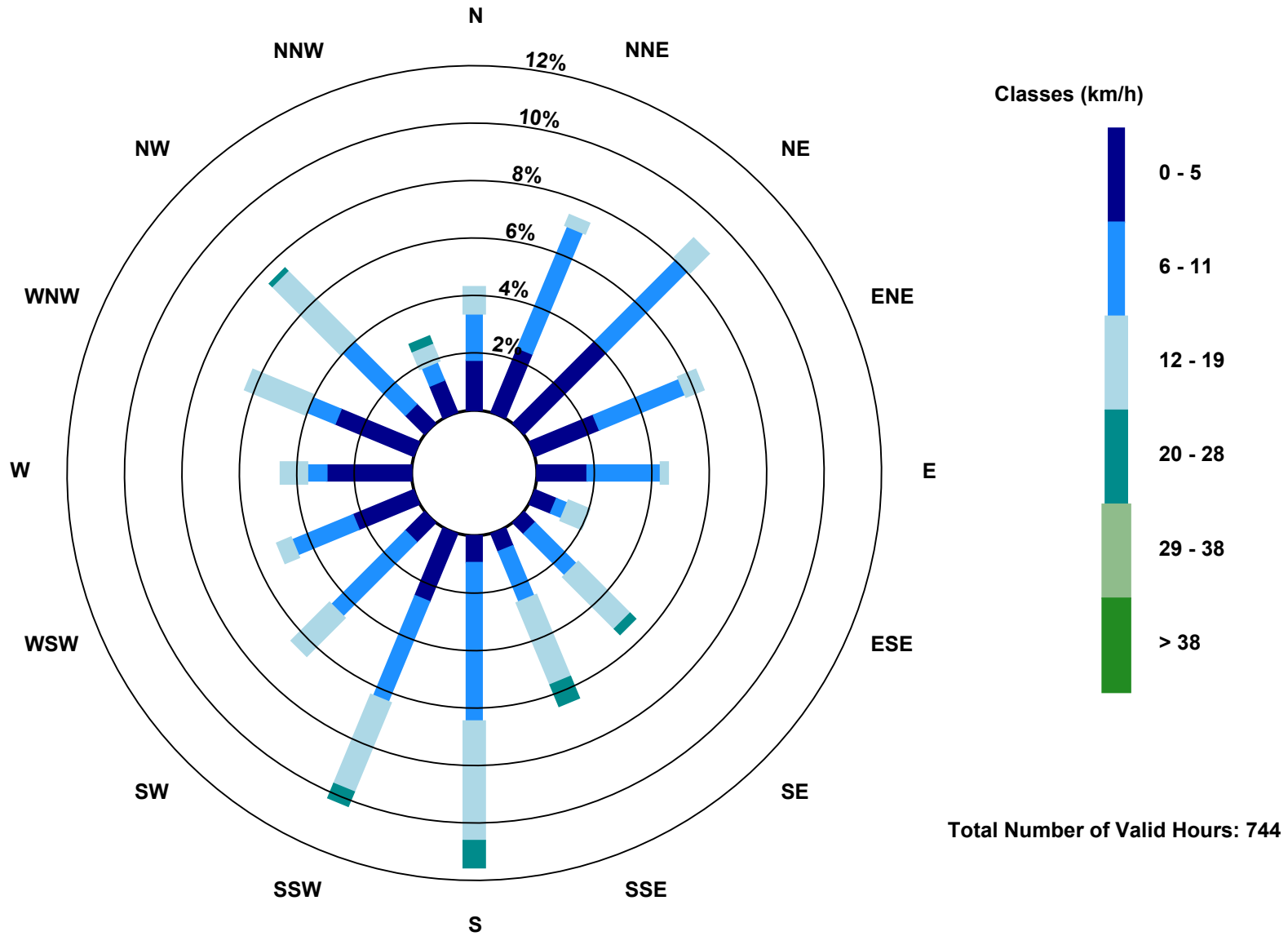
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Mar 2024

Wind Speed (WS) - km/h
Blackgold





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed (WS) - km/h
Blackgold - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Mar 15 11:00 Minimum Value: 0 km/h on Mar 22 07:00 Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 4 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Mar	2	2	3	3	4	4	3	3	4	4	4	4	4	4	3	3	3	3	1	1	1	1	1	1	4
2-Mar	1	1	1	1	1	2	2	1	2	2	3	3	4	4	4	4	4	3	4	4	4	5	4	4	5
3-Mar	3	4	4	3	3	3	2	2	2	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	4
4-Mar	4	4	4	4	4	4	4	4	4	5	3	4	4	3	4	3	3	3	1	1	1	1	1	1	5
5-Mar	1	1	0	1	1	1	1	2	2	2	2	3	3	3	3	2	2	2	1	1	1	1	1	1	3
6-Mar	1	1	1	1	1	1	1	2	3	3	3	3	4	4	3	3	3	2	2	2	2	1	2	2	4
7-Mar	2	3	2	3	2	3	3	3	4	4	5	4	4	4	4	5	4	4	4	3	3	4	4	4	5
8-Mar	4	3	3	2	2	2	1	1	1	2	2	3	3	3	3	3	3	2	2	3	2	3	3	2	4
9-Mar	1	2	2	2	1	1	2	2	3	4	4	4	4	5	4	5	4	3	3	3	3	3	2	2	5
10-Mar	3	2	3	4	3	4	4	4	4	6	5	5	5	5	6	5	5	3	1	2	0	1	1	1	6
11-Mar	1	2	2	1	2	3	3	1	1	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	3
12-Mar	1	1	1	1	1	1	1	2	1	2	4	3	4	3	4	3	3	3	2	3	2	1	1	2	4
13-Mar	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	2	2	3	3	3	3	3
14-Mar	3	3	3	3	2	2	2	3	3	3	4	4	5	5	4	4	3	3	3	3	4	4	4	3	5
15-Mar	3	4	3	5	4	4	5	6	7	6	7	6	5	5	4	4	3	3	2	1	1	1	1	2	7
16-Mar	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	3	2	2	1	1	2	2	2	3
17-Mar	2	1	1	2	3	3	3	3	3	3	4	4	5	5	5	4	5	5	5	5	6	5	5	5	6
18-Mar	4	3	2	3	2	2	3	3	3	4	4	4	4	4	3	4	4	4	3	4	4	5	4	4	5
19-Mar	4	3	3	3	3	3	3	4	4	3	3	4	3	4	3	4	3	3	3	3	2	1	1	2	4
20-Mar	1	1	1	1	1	1	1	2	2	2	2	3	3	3	3	3	2	2	1	1	2	1	1	1	3
21-Mar	1	1	1	1	1	1	1	2	2	2	3	3	4	4	4	4	4	3	3	1	1	1	2	1	4
22-Mar	1	0	0	0	0	0	0	1	2	2	3	3	3	3	3	2	3	2	2	1	2	2	1	3	3
23-Mar	3	1	0	1	0	0	0	1	2	3	3	4	4	3	4	3	3	2	1	1	1	1	1	1	4
24-Mar	1	1	1	1	2	1	1	1	1	3	3	4	3	3	3	3	3	3	2	2	1	2	3	3	4
25-Mar	2	2	2	2	2	2	2	3	3	3	3	5	5	5	5	4	4	4	4	4	3	3	3	3	5
26-Mar	3	3	3	2	2	3	3	4	5	6	6	6	6	6	6	5	5	5	5	4	4	5	5	4	6
27-Mar	4	3	4	4	4	4	3	4	4	4	4	5	5	3	3	2	3	3	2	3	2	2	2	2	5
28-Mar	1	2	2	1	1	1	1	2	3	2	3	3	3	3	3	3	3	2	2	2	1	1	1	1	3
29-Mar	1	2	2	2	2	2	2	2	2	3	3	4	3	3	3	3	3	2	2	1	2	1	1	1	4
30-Mar	1	1	1	0	1	1	1	1	2	3	4	3	4	4	4	4	4	3	3	1	2	1	1	3	4
31-Mar	2	2	2	2	2	2	3	3	3	3	4	5	5	6	5	5	5	5	4	4	4	5	6	6	6
Diurnal Maximum																									



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction (WD) - deg
Blackgold - March 2024

Direction of Maximum Speed: 176 deg on Mar 26 11:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 158.3 deg on Mar 26		Hours of Data:	744
Direction of Minimum Speed: 260 deg on Mar 22 08:00		Hours of Missing Data:	0
Direction of Minimum Daily Speed Average: 1.3 deg on Mar 22		Percent Operational Time:	100.0
Monthly Average Direction: 188.2 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-Mar	314	305	304	299	301	301	293	293	287	294	298	302	296	304	309	303	294	312	295	275	314	295	287	293	298.9
2-Mar	341	12	271	312	11	41	44	284	45	72	70	57	51	40	47	48	44	38	45	53	63	61	60	52	48.6
3-Mar	51	47	50	63	51	45	38	31	26	27	31	46	44	28	29	26	4	1	342	322	326	318	317	313	16.2
4-Mar	311	314	317	315	317	312	310	304	299	305	311	309	308	311	319	326	310	313	297	285	281	279	272	254	308.4
5-Mar	266	271	265	257	255	238	250	232	233	237	272	227	223	215	192	208	201	191	209	206	217	218	230	222	228.9
6-Mar	247	224	271	258	283	202	211	287	179	200	9	171	174	195	179	189	182	183	184	196	196	177	178	199	189.7
7-Mar	194	193	196	200	194	188	189	194	196	196	201	199	198	193	192	198	195	192	195	197	204	207	214	224	197.8
8-Mar	233	234	232	237	241	253	2	94	212	213	239	181	212	213	212	208	187	180	177	181	183	189	192	194	205.0
9-Mar	177	163	179	176	171	164	180	182	156	178	182	177	168	176	173	179	187	182	187	190	186	216	191	194	179.7
10-Mar	200	218	248	247	239	240	237	255	264	280	282	259	269	259	261	268	255	272	286	302	250	340	88	264	258.6
11-Mar	40	34	357	33	43	45	41	36	41	33	44	67	87	341	205	116	96	154	27	72	65	92	68	87	56.3
12-Mar	62	61	63	51	50	51	36	45	54	53	84	107	104	103	112	103	98	75	67	87	87	61	65	64	81.8
13-Mar	58	36	30	350	299	286	292	35	112	120	283	285	134	340	241	234	246	238	226	220	222	221	216	223	231.1
14-Mar	230	235	229	228	223	223	223	231	240	243	242	239	236	220	225	221	216	213	225	220	225	239	253	269	231.0
15-Mar	258	279	285	294	291	284	297	308	322	333	339	332	346	8	3	8	19	38	33	20	15	19	1	28	328.8
16-Mar	15	360	34	43	58	40	56	61	65	58	35	49	65	48	52	35	54	64	71	69	97	118	129	139	64.2
17-Mar	138	136	139	157	160	178	186	182	181	180	186	189	184	189	183	185	198	199	199	206	212	221	226	231	191.2
18-Mar	244	269	288	310	312	295	299	314	324	328	327	328	322	325	331	1	31	29	30	20	17	5	4	351	334.5
19-Mar	11	8	2	4	356	6	19	15	22	27	20	7	0	16	29	30	44	35	33	26	359	319	332	9	15.5
20-Mar	33	51	54	93	23	10	344	43	58	43	64	57	32	83	47	42	55	37	46	61	74	72	106	101	53.7
21-Mar	53	81	62	62	78	70	66	103	102	91	84	81	73	65	68	58	58	54	26	14	353	354	8	8	65.1
22-Mar	338	279	270	271	262	261	269	260	109	107	93	83	99	67	26	28	18	33	76	50	125	152	169	167	73.5
23-Mar	188	80	300	308	268	272	275	136	181	208	176	162	180	203	188	198	212	203	142	100	242	203	209	239	201.4
24-Mar	265	207	197	209	209	292	199	168	164	189	178	181	164	182	174	165	173	152	132	131	143	147	146	145	167.8
25-Mar	139	135	141	143	147	151	146	148	147	139	145	149	171	166	158	161	150	155	153	156	157	158	155	151	152.1
26-Mar	151	158	158	143	147	154	155	157	165	172	176	169	162	156	159	163	187	160	153	146	137	145	146	143	158.3
27-Mar	150	141	140	140	143	141	135	133	130	129	124	132	132	129	112	94	100	96	92	84	87	96	86	90	123.4
28-Mar	84	92	69	45	43	32	34	32	38	37	32	15	15	2	12	5	30	23	31	37	16	346	334	326	27.3
29-Mar	316	319	327	322	316	323	323	322	323	318	317	323	317	313	318	341	340	320	311	288	286	290	289	296	317.3
30-Mar	293	267	256	257	253	245	239	210	210	208	194	188	174	170	184	173	181	187	196	182	178	184	170	175	194.2
31-Mar	179	189	188	188	184	197	198	203	212	221	220	218	219	212	218	217	213	207	189	184	186	186	192	198	201.8

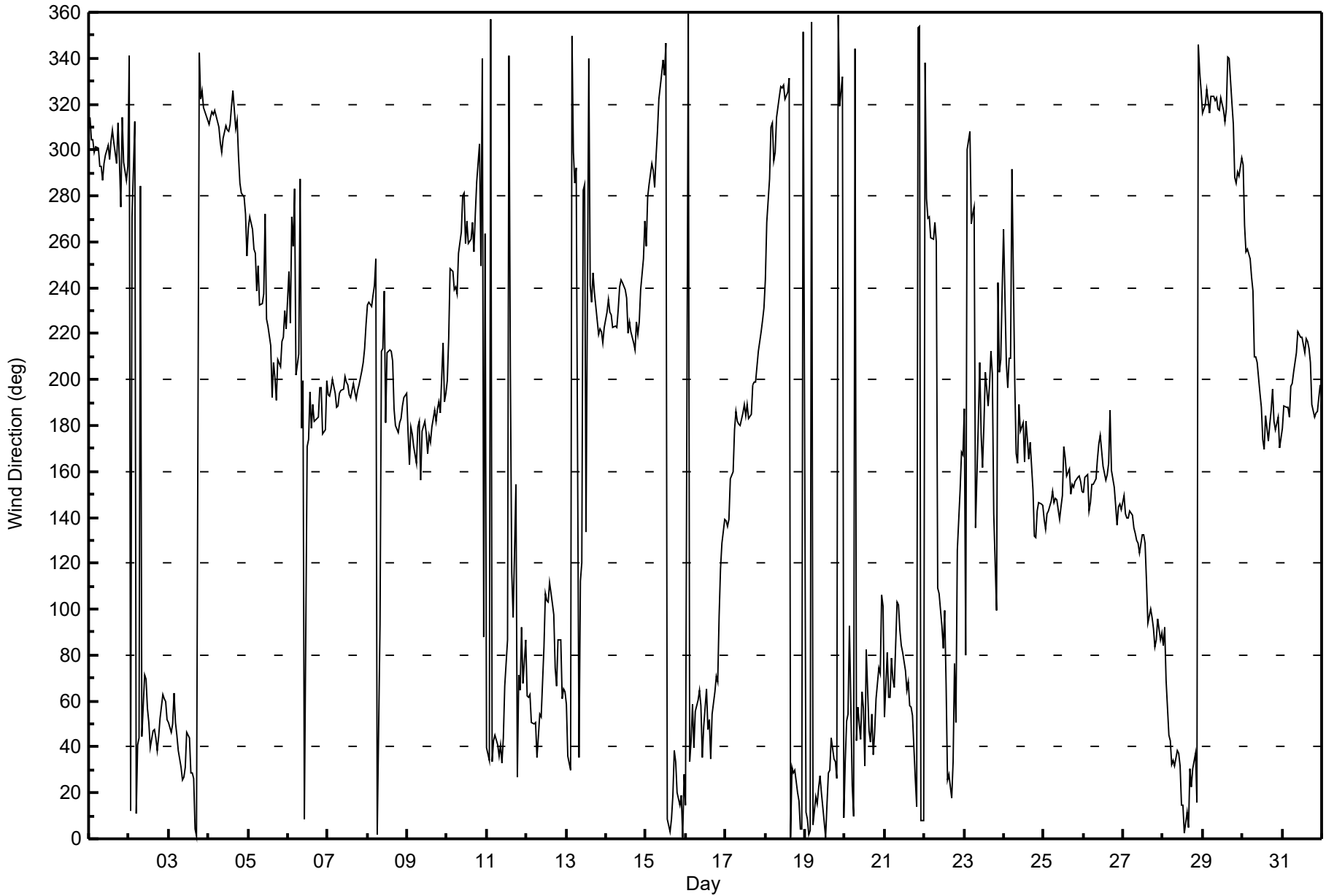
201.5 216.8 248.9 256.7 261.3 248.3 246.1 235.5 190.3 206.3 201.4 180.3 177.6 183.6 177.4 171.5 164.7 159.4 159.3 164.2 175.1 184.8 183.9 193.9
 Diurnal Average

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction (WD) - deg
Blackgold - March 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction (WD) - deg
Blackgold - March 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Mar 13 13:00 Minimum Value: 6 deg on Mar 30 04:00 Percentiles: P ₁ = 10 P ₁₀ = 14 Q ₁ = 17 Median = 22 Q ₃ = 29 P ₉₀ = 45 P ₉₉ = 88																			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-Mar	22	19	17	16	16	17	17	17	20	19	23	23	25	24	24	29	26	22	22	18	24	17	18	20	29	
2-Mar	21	16	51	45	42	24	56	81	24	26	29	34	30	27	27	23	25	21	24	21	20	21	21	22	81	
3-Mar	22	21	21	20	20	21	21	19	20	20	26	24	24	25	26	26	25	24	24	20	20	20	20	19	26	
4-Mar	18	19	19	20	19	18	19	17	18	19	24	24	24	23	23	25	21	20	15	16	14	12	16	11	25	
5-Mar	11	14	9	10	11	16	16	16	30	35	41	48	69	53	63	56	29	29	14	10	13	20	15	22	69	
6-Mar	44	33	50	84	11	39	53	81	17	82	83	26	23	24	21	21	19	15	11	14	15	11	15	16	84	
7-Mar	14	15	15	16	16	14	17	15	21	20	21	19	21	22	18	17	17	14	15	15	16	17	20	22	22	
8-Mar	29	27	27	30	28	30	62	68	19	24	89	54	27	26	28	21	21	13	12	14	13	13	12	14	89	
9-Mar	19	49	26	17	13	14	12	17	24	16	18	20	18	18	17	18	23	14	15	14	20	43	16	19	49	
10-Mar	22	25	34	36	29	28	27	32	32	27	23	33	29	32	31	30	36	32	37	25	29	58	64	40	64	
11-Mar	44	57	29	41	20	22	24	27	23	21	35	37	76	76	74	51	30	19	79	16	12	22	36	23	79	
12-Mar	19	12	10	11	14	14	17	18	21	24	29	19	23	23	17	19	16	20	16	16	17	16	16	16	29	
13-Mar	17	16	17	54	36	30	31	79	31	45	93	85	103	81	60	26	37	27	22	24	23	22	24	103		
14-Mar	28	28	26	27	27	27	25	26	28	32	28	29	32	25	27	25	22	19	23	23	25	31	34	33	34	
15-Mar	31	29	20	19	21	22	18	19	23	24	24	27	34	30	28	29	31	25	19	32	26	21	24	22	34	
16-Mar	41	24	38	16	21	18	22	19	22	29	41	73	57	45	42	62	43	19	24	20	24	24	32	14	73	
17-Mar	13	12	16	14	15	15	15	20	21	21	16	21	20	20	18	18	20	17	17	20	19	27	27	31	31	
18-Mar	32	34	17	20	17	14	18	21	23	24	24	25	26	26	27	29	23	25	23	25	25	25	26	25	34	
19-Mar	25	26	26	25	29	28	28	26	30	32	38	34	45	46	40	33	31	26	23	24	30	19	38	25	46	
20-Mar	20	38	62	62	30	15	82	40	26	49	45	57	53	71	72	45	48	22	18	17	39	20	17	16	82	
21-Mar	14	19	18	12	14	27	17	17	15	22	23	21	22	27	36	32	28	28	23	22	26	26	23	19	36	
22-Mar	39	24	11	9	10	14	11	87	32	46	67	100	89	59	53	76	55	35	13	56	67	20	21	20	100	
23-Mar	40	77	24	26	15	15	13	88	59	35	44	43	56	68	92	88	66	58	84	62	33	22	16	25	92	
24-Mar	34	15	9	13	89	45	56	34	20	18	21	26	23	29	27	28	23	16	12	10	10	12	12	12	89	
25-Mar	12	13	14	13	11	11	12	14	18	16	19	23	24	26	18	17	17	17	15	13	14	13	14	13	26	
26-Mar	13	13	16	15	12	13	14	16	19	18	18	19	20	17	18	18	20	17	17	16	13	15	14	13	20	
27-Mar	14	14	14	14	15	15	13	14	13	14	14	15	14	15	16	18	16	15	16	16	16	14	17	15	18	
28-Mar	17	15	28	22	19	22	19	22	26	30	25	27	30	27	27	27	25	25	22	23	30	23	19	20	30	
29-Mar	14	18	17	19	18	19	19	21	24	27	22	25	25	21	24	27	27	22	20	16	17	15	18	13	27	
30-Mar	12	16	6	6	11	10	23	34	25	38	43	37	32	37	31	22	24	21	16	12	12	12	18	16	43	
31-Mar	14	15	17	20	42	19	68	25	26	22	24	27	24	25	25	25	24	22	17	14	16	15	18	18	68	
	44	77	62	84	89	45	82	88	59	82	93	100	103	81	92	88	66	58	84	62	67	58	64	40		
Diurnal Maximum																										



End of Report

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

April 30, 2024
8:46:03 AM
Request # 4670387

Submitted by: EN6138_DENNY
Submission Date: Apr 30, 2024 8:45:31 AM

File Type

Ambient Data

File Name

AMB-WBEA-202403-V00.xml

Total Number of Files: 1

*** End of Report ***

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

April 30, 2024
9:13:03 AM
Request # 4670414

Submitted by: EN6138_DENNY
Submission Date: Apr 30, 2024 9:12:48 AM

File Type

Calibration Report

File Name

CAL-WBEA-202403.pdf

Total Number of Files: 1

*** End of Report ***

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

April 30, 2024
9:16:45 AM
Request # 4670418

Submitted by: EN6138_DENNY
Submission Date: Apr 30, 2024 9:16:37 AM

File Type
Airshed Monitoring Report

File Name
WBEA-202403.pdf

Total Number of Files: 1

*** End of Report ***