



**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

**DECEMBER 2024
MONTHLY REPORT**

CONTINUOUS MONITORING

January 31, 2025

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
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
Monday Creek	33-1
Station Summaries	33-2
Station Percentiles	33-3
Station Downtime	33-4
Data Summaries	33-5
Jackfish 1	506-1
Station Summaries	506-2
Station Percentiles	506-3
Station Downtime	506-4
Data Summaries	506-5
Kirby North	508-1
Station Summaries	508-2
Station Percentiles	508-3
Station Downtime	508-4
Data Summaries	508-5
Hangingstone Expansion	512-1
Station Summaries	512-2
Station Percentiles	512-3
Station Downtime	512-4
Data Summaries	512-5



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

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

January 31, 2025

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 December 2024
Wood Buffalo Environmental Association**

Enclosed is the December 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 27 – Jackfish 2/3
AMS 08 – Fort Chipewyan	AMS 29 – Surmont 2
AMS 09 – Barge Landing	AMS 30 – Ells River
AMS 11 – Lower Camp (Air Quality)	AMS 33 – Monday Creek
AMS 13 – Fort McKay South	AMS 506 – Jackfish 1
AMS 14 – Anzac	AMS 508 – Kirby North
AMS 17 - Wapasu	AMS 512 – Hangingstone Expansion
AMS 18 – Stony Mountain	



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

Industry Operators	EPEA Approval No.
Athabasca Oil Operations	289664-01-00; 241311-01-00
Canadian Natural	153125-01-00; 20809-02-00; 149968-01-05; 224816-01-00; 237382-01-00; 308463-00-00
Cenovus Energy Inc.	48522-02-00; 206355-01-00
Chemtrade Logistics	404827-00-00
CNOOC International	137467-01-00, 236394-01-00
Connacher Oil and Gas Ltd.	240008-01-00
ConocoPhillips Company	48263-01-00
Greenfire Resources Operating Corporation	153105-01-00
H.J. Baker Sulphur Canada ULC	426549-00-00
Hammerstone Infrastructure Materials Ltd.	189942-01-00
Harvest Operations Corp.	246984-01-00
Imperial Oil Limited	46586-01-00
Inter Pipeline Limited	73203-02-00
IPC Canada Ltd.	301778-00-01
Keyera Energy Ltd.	187-03-03; 462683-00-00
MEG Energy Corp.	216466-01-00
Parsons Creek Aggregates	231302-00-00
PetroChina Canada Ltd.	254465-01-00
Suncor Energy Inc.	94-03-00; 80105-01-00; 151469-01-00; 48408-02-00
Sunshine Oilsands Ltd.	305529-00-00
Surmont Energy	318401-00-00
Syncrude Canada Ltd.	26-03-00
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 Métis Nation
Chard Métis Nation	Fort McMurray 468 First Nation
Chipewyan Prairie Dene First Nation	Lakeland Métis
Christina River Dene Nation Council	McMurray Métis
Conklin Resource Development Advisory Committee	Mikisew Cree First Nation
Fort McKay First Nation	



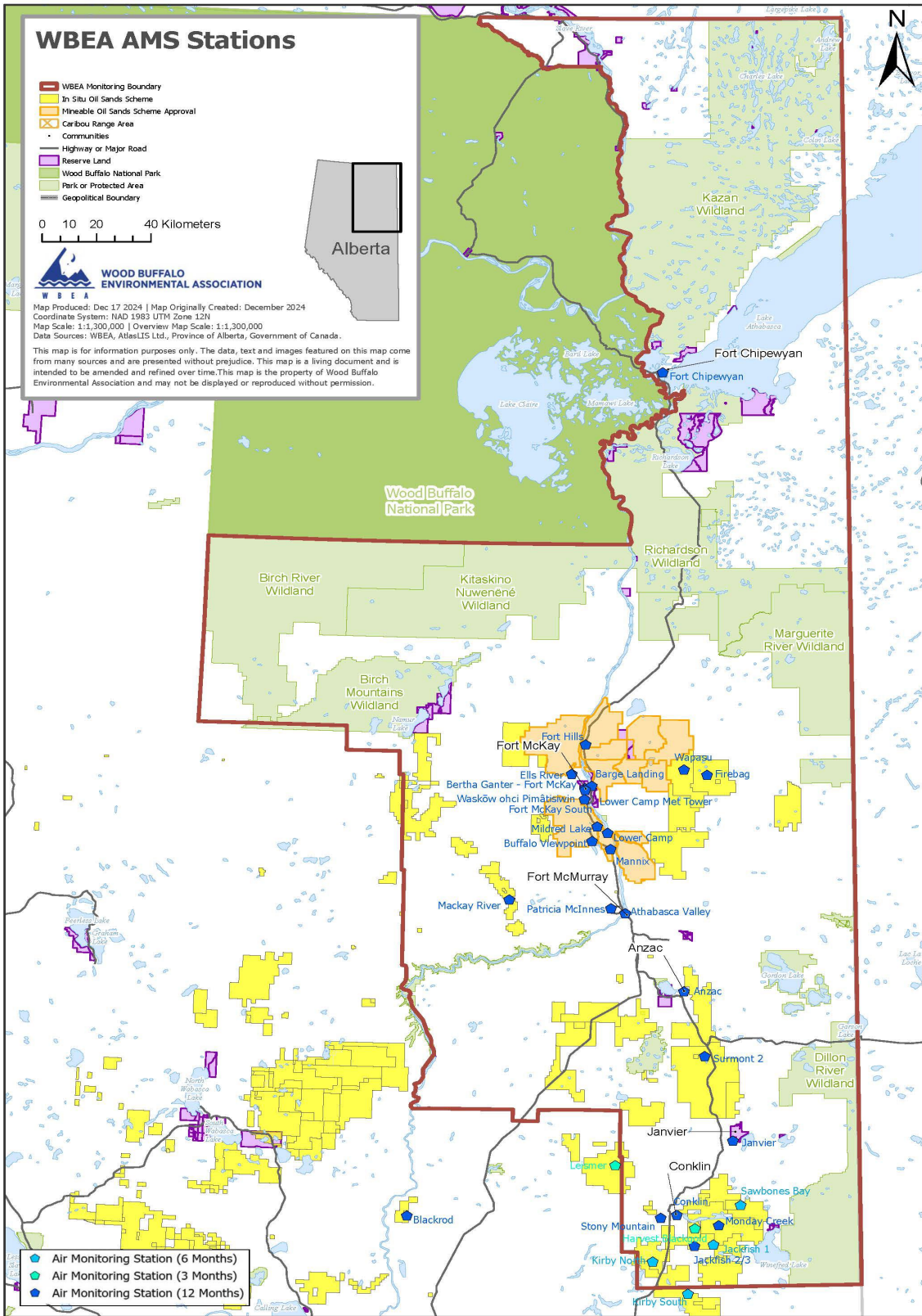


Figure 1. Map of WBEA Continuous Monitoring Network

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

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

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

There was one ground-level concentrations in excess of the 1-hour H₂S objective reported to AEPA; following data validation and processing, the exceedance was confirmed.

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

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

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

Site	Parameter	Date / Time	Reference	Period	Reported	Final	Status*
Ells River	TRS	13Dec24, 02:00	NA	30-min	5.262	5.3	exc
Fort Hills	PM2.5	18Dec24, 13:00	436226	1-hr	154	154.4	exc
Fort Hills	PM2.5	18Dec24, 14:00	436233	1-hr	187	187.5	exc
Fort Hills	PM2.5	18Dec24, 15:00	436235	1-hr	166	166.0	exc
Fort Hills	PM2.5	18Dec24, 16:00	436239	1-hr	90	90.5	exc
Fort Hills	PM2.5	18Dec24, 24:00	436246	24-hr	32	31.8	exc
Lower Camp	H2S	20Dec24, 22:00	436308	1-hr	13	13.6	exc
Ells River	TRS	26Dec24, 18:30	NA	30-min	6	5.7	exc

2.0 Data Processing and Validation

Concentrations reported in near real-time are raw values. The final values are determined after processing data for reporting. For all parameters, except PM_{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 the 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 in the Electronic Transfer System with this monthly report.

3.0 Operational Status

3.1 Continuous Monitoring

In December 2024, there were 7 instances that resulted in monitoring instruments operating less than 90% of the time.

Station	Parameter	Details
Bertha Ganter – Fort McKay	Wind Speed (WS) and Wind Direction (WD) at 10-meter elevation	<p>The wind speed and wind direction (WS/WD) sensor at Bertha Ganter – Fort McKay AMS operated less than 90% of November and December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on December 19, 2024 (reference number 436271).</p> <p>Intermittently throughout November and December, the WS/WD sensor displayed odd signal outputs prompting an investigation. On December 4, the sensor was replaced, and normal operations resumed. Data from the event was invalidated for a total of 160 hours in November and 87 hours in December.</p>
Stony Mountain	Wind Speed (WS) and Wind Direction (WD) at 10-meter elevation	<p>The wind speed and wind direction (WS/WD) sensor at the 10-meter elevation at Stony Mountain AMS operated less than 90% of December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on December 17, 2024 (reference number 436182).</p> <p>On December 3, the WS/WD sensor was not reading properly so the tower was lowered for troubleshooting. The pulley mechanism was not operating normally, and in addition, the sensor was frozen to the tower crossarm due to weather conditions. On December 18, the pulley was repaired, and the sensor was properly deployed. Data from the event was invalidated for a total of 340 hours, resulting in a sensor operational time of 46% for December.</p>
Fort McKay South	Wind Speed (WS) and Wind Direction (WD) at 10-meter elevation	<p>The wind speed and wind direction (WS/WD) sensor at Bertha Ganter – Fort McKay AMS operated less than 90% of November and December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on December 19, 2024 (reference number 436271).</p> <p>Intermittently throughout November and December, the WS/WD sensor displayed odd signal outputs prompting an investigation. On December 4, the sensor was replaced, and normal operations resumed. Data from the event was invalidated for a total of 160 hours in November and 87 hours in December.</p>
Mannix	Vertical Wind Speed (VWS), Wind Speed (WS) and Wind Direction (WD) at 75-meter, 45-meter, 90-meter elevations	<p>The WS/WD/VWS sensor at the 45-meter, 75-meter and 90-meter elevation at Mannix operated less than 90% of December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on January 14, 2025 (reference number 436819).</p> <p>In December 2024, ice fog caused intermittent flat-line periods in the WS/WD/VWS sensors at the 45-meter, 75-meter, and 90-meter elevations. The sensors returned to normal operation once weather conditions changed. Following data validation, 95 hours of data were invalidated at the 45-meter elevation, 205 hours at the 75-meter elevation, and 195 hours at the 90-meter elevation. This led to operational times of 87%, 72%, and 74%, respectively.</p>
Anzac	Total Hydrocarbon (THC) / Non-Methane Hydrocarbon (NMHC) /	The THC/NMHC/CH ₄ analyzer at Anzac AMS operated less than 90% of December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ



	Methane (CH ₄)	<p>4-C. This letter incident was reported to Alberta Environment and Protected Areas (AB EPA) on January 16, 2025 (reference number 436860).</p> <p>During the month of December, the THC/NMHC/CH₄ analyzer experienced periods of unstable baseline response and failure of the daily QA span check to meet AMD criteria. A variety of troubleshooting and maintenance was performed throughout December including adjustment to the span response and the chromatogram window, and replacement of the analyzer actuator. The problem persisted prompting analyzer replacement on January 3, 2025. Data from periods of maintenance and unstable operation were invalidated for a total of 121 hours, resulting in an analyzer operational time of 83.7% for December.</p>
Janvier	Wind Speed (WS) and Wind Direction (WD) at 20-meter elevation	<p>The wind speed and wind direction (WS/WD) sensor at the 20-meter elevation at Janvier AMS operated less than 90% of December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on January 17, 2025 (reference number 436899).</p> <p>In early December, the WS/WD sensor froze due to weather conditions, resulting in intermittent flatlining. Operation returned to normal once weather conditions changed. Data from these events were invalidated for a total of 88 hours, resulting in an operational time of 89% for December.</p>
Lower Camp Tower	Vertical Wind Speed (VWS), Wind Speed (WS) and Wind Direction (WD) at 100-meter and 163-meter elevations	<p>The WS/WD/VWS at the 100-meter and 163-meter elevation at Lower Camp Met Tower operated less than 90% of December 2024, which is a contravention of the Air Monitoring Directive (AMD) (2016, as amended), Chapter 6, Clause DQ 4-C. This incident was reported to Alberta Environment and Protected Areas (AB EPA) on January 28, 2025 (reference number 437200).</p> <p>During the month of December 2024, the output signals from the WS/WD/VWS sensors at the 100-meter and 163-meter elevations experienced intermittent flat-line periods. These disruptions were likely caused by ice fog affecting the sonic sensors. The sensors returned to normal operation once the weather conditions changed. During the data validation process, a total of 92 hours of data at the 100-meter elevation and 196 hours at the 163-meter elevation were invalidated due to these sensor interruptions.</p>

3.2 Intermittent Monitoring

The results for time-integrated sampling of dustfall, precipitation, PAH, TSP, 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.

In December 2024, the Wood Buffalo Environmental Association began reporting the new Alberta Ambient Air Quality Guideline for Total Reduced Sulfur (TRS) which is a 30-minute average limit of 5 ppb to be used for odour management.

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 December 12 interrupted the normal operations of all gaseous analyzers, except the NH₃ analyzer, for 1 hour.

Maintenance to replace the support gas cylinder for the THC/NMHC/CH₄ analyzer on December 17 and 23 resulted in 5 hours of downtime.

Sensor failure due to inconsistency response of the output signal of the wind sensor from December 1 through 3 resulted in 61 hours of invalid data. Subsequent maintenance to lower the tower and replace the wind sensor on December 3 and 4 resulted in additional 25 hour of downtime.

Failure to record data of precipitation collector sensor on December 1 and 2 resulted in 34 hours of invalid data.

Maintenance to reset logger/modem on December 3 interrupted the normal of the solar global radiation sensor for 1 hour

Unstable operation due to excessive signal noise of the precipitation collector on December 6 resulted in 1 hour of invalid data.

The surface leaf wetness sensor operated out of range on December 25 resulting in 1 hour of invalid data.

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 15 hours of invalid data.

Station 2, Mildred Lake

Unstable operation due to excessive baseline noise of the THC/NMHC/CH₄ analyzer on December 27 resulted in 1 hour of invalid data.

Flatline in the output signal of the wind sensor due to being frozen on December 28 resulted in 1 hour of invalid data.



Station 3, Lower Camp – Meteorology

Flatline in the output signal of the wind sensor at 20-meter elevation on December 2 resulted in 3 hours of invalid data.

Flatline in the output signal of the wind sensor at 45-meter elevation on December 2 resulted in 5 hours of invalid data.

Flatlines in the output signal of the wind sensor at 100-meter elevation throughout the month resulted in 92 hours of invalid data.

Flatlines in the output signal of the wind sensor at 163-meter elevation throughout the month resulted in 196 hours of invalid data.

Station 4, Buffalo Viewpoint

Maintenance to replace the manifold blower on December 11 interrupted the normal operations of all gaseous analyzers for 2 hours.

Flatlines in the output signal of the wind sensor on December 18 and 29 resulted in 3 hours of invalid data.

Station 5, Mannix

Cleaning of the manifold on December 3 interrupted the normal operations of all gaseous analyzers except for H₂S for 2 hours.

The relative humidity sensor at 20-meter elevation operated out of range throughout the month resulting in 32 hours of invalid data.

The relative humidity sensor at 75-meter elevation operated out of range throughout the month resulting in 49 hours of invalid data.

The relative humidity sensor at 90-meter elevation operated out of range throughout the month resulting in 11 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor at 20-meter elevation throughout the month resulted in 27 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor at 45-meter elevation throughout the month resulted in 95 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor at 75-meter elevation throughout the month resulted in 205 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor at 90-meter elevation throughout the month resulted in 195 hours of invalid data.



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 33 hours this month.

Cleaning of the manifold on December 11 interrupted the normal operations of all gaseous analyzers except for O₃ analyzer for 2 hours.

Maintenance to replace the analyzer on November 30 and stabilize overnight until December 1 resulted in 7 hours of downtime.

Maintenance to replace the support gas cylinder for the THC/NMHC/CH₄ analyzer on December 20 resulted in 2 hours of downtime.

Station 7, Athabasca Valley

Maintenance to replace the scrubber beads for the TRS analyzer on December 10 and left to stabilize overnight resulted in 21 hours of downtime.

Maintenance to adjust retention time for the THC/NMHC/CH₄ analyzer on December 24 resulted in 3 hours of downtime.

Station 8, Fort Chipewyan

Unstable operation due to flatline in the analyzer output signal of the O₃ analyzer on December 16 to 17 and December 30 to January 1 resulted in 62 hours of invalid data.

Unstable operation due to flatline in the analyzer output signal of the SO₂ analyzer on December 30 to January 1 resulted in 29 hours of invalid data.

Station 9, Barge Landing

Cleaning of the manifold on December 5 interrupted the normal operations of all gaseous analyzers for 1 hour.

Maintenance to replaced support gas cylinder for the THC/NMHC/CH₄ analyzer on December 23 resulted in 2 hours of downtime.

Maintenance due to operator activities interrupted the normal operation of the THC/NMHC/CH₄ analyzer on December 29 for 1 hour.

Maintenance to clean the optical chamber for the PM_{2.5} analyzer on December 29 resulted in 2 hours of downtime.

Failure to record data of relative humidity and temperature on December 11, 12 and 19 resulted in 3 hours of invalid data.



Flatlines in the output signal of the wind sensor at 10-meter elevation throughout the month resulted in 19 hours of invalid data.

Flatlines in the output signal of the wind sensor at 20-meter elevation throughout the month resulted in 8 hours of invalid data.

Station 11, Lower Camp

Flatline in the output signal of the wind sensor due to being frozen on December 29 resulted in 3 hours of invalid data.

Station 13, Fort McKay South

Flatlines in the output signal due to frozen wind sensor throughout the month resulted in 83 hours of invalid data.

Station 14, Anzac

Unstable operations due to excessive baseline drift of the O₃ analyzer on December 1 resulted in 4 hours of invalid data.

Unstable operations due to excessive baseline drift of the THC/NMHC/CH₄ analyzer on December 4 resulted in 2 hours of invalid data.

Unstable operation of the THC/NMHC/CH₄ analyzer due to AMD non-compliance on December 10 to 12 resulted in 49 hours of invalid data.

Unstable operations due to excessive baseline drift of the THC/NMHC/CH₄ analyzer on December 15 and 16 resulted in 33 hours of invalid data. Subsequent maintenance to improve THC/NMHC/CH₄ analyzers performance on December 16 resulted in additional 4 hours of downtime.

Unstable operations due to excessive baseline drift of the THC/NMHC/CH₄ analyzer on December 30 and 31 resulted in 28 hours of invalid data. Subsequent maintenance to improve THC/NMHC/CH₄ analyzers performance on December 31 resulted in additional 5 hours of downtime.

Station 17, Wapasu

The relative humidity sensor operated out of range on December 6 resulting in 5 hours of invalid data.

Flatlines in the output signal due to frozen wind sensor throughout the month resulted in 66 hours of invalid data.

Maintenance to de-ice the wind sensor on December 9 resulted in 3 hours of downtime.



Station 18, Stony Mountain

The surface leaf wetness sensor periodically operated out of range on December 3 resulting in 1 hour of invalid data.

Sensor failure due to inconsistency response of the output signal of the wind sensor at the 10-meter elevation from December 3 through 17 resulted in 340 hours of invalid data. Subsequent maintenance to replace wind speed sensor on December 17 resulted in additional 2 hours of downtime.

A flatline in the output signal of the wind sensor at the 20-meter elevation on December 2, 5, and 18 resulted in 12 hours of invalid data.

Field maintenance of the precipitation collector on December 11 resulted in 1 hour of downtime.

Station 19, Firebag

Unstable operation due to flatline in the output signal of THC/NMHC/CH₄ analyzer on December 8 to 9 resulted in 19 hours of downtime. Subsequent maintenance to reboot the analyzer on December 9 resulted in additional 2 hours of downtime.

Maintenance to adjust the manifold blower on December 17 interrupted the normal operations of all gaseous analyzers, except for NO_x/NO/NO₂ analyzer, for 1 hour.

Flatlines in the output signal due to frozen wind sensor on December 9, 10 and 18 resulted in 3 hours of invalid data.

Station 20, MacKay River

Unstable operation of the THC/NMHC/CH₄ analyzer due to AMD non-compliance on December 11 to 12 resulted in 29 hours of invalid data. Subsequent maintenance to verify daily QA response and replace sample pump for the THC/NMHC/CH₄ analyzer on December 12 resulted in additional 4 hours of downtime.

Flatlines in the output signal of the wind sensor due to being frozen throughout the month resulted in 21 hours of invalid data.

Station 21, Conklin

A flatline in the output signal of the wind sensor on December 14 and 27 resulted in 3 hours of invalid data.

Station 22, Janvier

Cleaning of the manifold on December 20 interrupted the normal operations of NO_x/NO/NO₂, O₃, SO₂, and THC/NMHC/CH₄ analyzers for 1 hour.

Maintenance to replace the support gas cylinder for THC/NMHC/CH₄ analyzer on December 20 resulted in 3 hours of downtime.



A flatline in the output signal of the wind sensor at the 10-meter elevation on December 4, 12, and 29 resulted in 10 hours of invalid data.

Intermittent flatlines in the output signal of the wind sensor at the 20-meter elevation throughout the month resulted in 89 hours of invalid data.

Station 23, Fort Hills

Maintenance to replace the charcoal and sample pump of the NO_x/NO/NO₂ analyzer on December 12 and 13 resulted in 19 hours of downtime.

Cleaning of the manifold on December 17 interrupted the normal operations of TRS and SO₂ analyzers for 1 hour.

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

Station 25, Waskōw ohci Pimâtisiwin

Intermittent flatlines in the output signal of the wind sensor throughout the month resulted in 67 hours of invalid data.

Station 27, Jackfish 2/3

Maintenance to reset logger/modem on December 2 interrupted the normal operations of all parameters for 1 hour.

Failure to record data of all parameters on December 7 resulted in 2 hours of invalid data.

A flatline in the output signal of the wind sensor on December 2 and 3 resulted in 8 hours of invalid data.

Station 29, Surmont 2

Maintenance to replace the support gas cylinder for the THC analyzer on December 4 resulted in 2 hours of downtime.

Stabilization following a maintenance of the H₂S analyzer on December 4 and 5 resulted in 19 hours of downtime.

Maintenance to repair the power distribution card which support the data logger, on December 13, interrupted the normal operations of all parameters, except for PM_{2.5} analyzer, for 2 hours.

Maintenance to replace the calibration gas cylinder for the NO_x/NO/NO₂ analyzer on December 19 resulted in 5 hours of downtime.

Maintenance to reinitiate daily QA checks of the NO_x/NO/NO₂ analyzer on December 20 resulted in 2 hours of downtime.



A flatline in the output signal of the wind sensor on December 3 and 4 resulted in 32 hours of invalid data. Subsequent maintenance to lower the tower and de-ice the wind sensor on December 4 resulted in additional 1 hour of downtime.

The daily span check for the NO_x/NO/NO₂ analyzer was outside the 10% AMD criteria on December 20 through 27 to settling of the calibration gas after it was replaced on December 19.

Station 30, Ells River

Maintenance to replace the support gas cylinder for the THC/NMHC/CH₄ analyzer on December 23 resulted in 3 hours of downtime.

Intermittent flatlines in the output signal of the wind sensor due to being frozen throughout the month resulted in 51 hours of invalid data.

Station 33, Monday Creek

Maintenance to reinitiate daily QA checks of the NO_x/NO/NO₂ analyzer on December 6 and 10 resulted in 7 hours of downtime.

Maintenance to reinitiate daily QA checks of the SO₂ analyzer on December 6 resulted in 1 hour of downtime.

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

The daily span check for the NO_x/NO/NO₂ analyzer was outside the 10% AMD criteria on December 6 through 10 to station calibrator configuration issues.

Station 506, Jackfish 1

Failure to record data of all parameters on December 20 resulted in 1 hours of invalid data.

A flatline in the output signal of the wind sensor on December 2 and 3 resulted in 10 hours of invalid data.

Station 508, Kirby North

Station power failure on December 11 interrupted the normal operations of all parameters for 10 hours.

A flatline in the output signal of the wind sensor on December 2, 3, and 10 resulted in 12 hours of invalid data.

Station 512, Hangingstone Expansion

Station power failure on December 17 interrupted the normal operations of all gaseous analyzers for 3 hours.



A flatline in the output signal of the wind sensor on December 8, 9, and 18 resulted in 12 hours of invalid data.

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

Yours sincerely,

Wood Buffalo Environmental Association

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

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

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

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.



Dianne McIsaac
Regulatory Specialist
Wood Buffalo Environmental Association
Unit 3 - 805 Memorial Drive
Fort McMurray AB T9K 0K4
www.wbea.org
T: (780) 799-4420 | E: dmcisaac@wbea.org

R00_2412

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

December 2024

Page 1 of 3

Created: January 29, 2024 10:00:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	12	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00							
149968-01-00			ONE-HOUR AVERAGE		24-HOUR AVERAGE		
237382-00-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
48522-01-00	SO2(ppb)	1	100	53	0	8.5	0
240008-00-00	SO2(ppb)	2	100	35.4	0	4.8	0
48263-01-00	SO2(ppb)	4	100	3.7	0	0.7	0
224816-00-00	SO2(ppb)	5	100	54.5	0	4.8	0
151469-01-00	SO2(ppb)	6	100	24.9	0	3.5	0
189942-00-00	SO2(ppb)	7	100	4.9	0	1.7	0
206355-00-00	SO2(ppb)	8	92	11.7	0	3.7	0
46586-00-00	SO2(ppb)	9	100	36.3	0	5.9	0
73203-02-00	SO2(ppb)	11	100	102.6	0	10.6	0
216466-01-00	SO2(ppb)	13	100	26.0	0	8.0	0
137467-01-00	SO2(ppb)	14	100	25.5	0	5.3	0
236394-00-00	SO2(ppb)	17	100	23.7	0	4.5	0
254465-00-00	SO2(ppb)	18	100	5.8	0	2.2	0
094-03-00	SO2(ppb)	19	100	35.5	0	6.5	0
80105-01-00	SO2(ppb)	20	100	33.3	0	8.6	0
305529-00-00	SO2(ppb)	21	100	6.0	0	2.1	0
318401-00-00	SO2(ppb)	22	100	8.7	0	2.2	0
026-03-00	SO2(ppb)	23	100	34.5	0	6.3	0
364232-00-00	SO2(ppb)	25	100	45.2	0	7.5	0
228044-00-00	SO2(ppb)	27	100	13.8	0	1.6	0
247548-00-00	SO2(ppb)	29	100	11.5	0	5.0	0
231302-00-00	SO2(ppb)	30	100	30.8	0	3.8	0
246984-01-00	SO2(ppb)	33	100	15.2	0	5.4	0
153125-01-00	SO2(ppb)	506	100	10.7	0	4.0	0
	SO2(ppb)	508	99	4.2	0	1.5	0
	SO2(ppb)	512	100	158.8	0	33.9	0
	H2S(ppb)	1	100	2.8	0	0.8	0
	H2S(ppb)	2	100	6.7	0	1.4	0
	H2S(ppb)	4	100	3.4	0	1.1	0
	H2S(ppb)	5	100	3.4	0	1.1	0
	H2S(ppb)	11	100	13.6	1	1.6	0
	H2S(ppb)	17	100	1.2	0	0.3	0
	H2S(ppb)	19	100	1.4	0	0.3	0
	H2S(ppb)	20	100	3.7	0	0.9	0
	H2S(ppb)	25	100	2.6	0	0.8	0
	H2S(ppb)	27	100	1.3	0	0.4	0
	H2S(ppb)	29	97	0.8	0	0.3	0
	H2S(ppb)	33	100	0.6	0	0.2	0
	H2S(ppb)	506	100	2.0	0	0.4	0
	H2S(ppb)	508	99	0.4	0	0.2	0
	H2S(ppb)	512	100	2.5	0	0.8	0
	TRS(ppb)	1	100	3.2	0	1.3	0
	TRS(ppb)	6	100	1.3	0	0.4	0
	TRS(ppb)	7	97	1.2	0	0.5	0
	TRS(ppb)	8	100	0.6	0	0.4	0
	TRS(ppb)	9	100	2.9	0	1.2	0
	TRS(ppb)	13	100	3.4	0	1.2	0
	TRS(ppb)	14	100	1.5	0	0.6	0
	TRS(ppb)	18	100	0.7	0	0.5	0
	TRS(ppb)	21	100	0.6	0	0.3	0
	TRS(ppb)	22	100	0.5	0	0.3	0
	TRS(ppb)	23	100	2.2	0	1.2	0
	TRS(ppb)	30	100	4.5	0	2.0	0
	THC(ppm)	1	99	4.8	-	2.8	-
	THC(ppm)	2	100	5.2	-	2.7	-
	THC(ppm)	4	100	3.5	-	2.6	-
	THC(ppm)	5	100	3.8	-	2.8	-
	THC(ppm)	6	99	2.9	-	2.2	-
	THC(ppm)	7	100	2.8	-	2.4	-
	THC(ppm)	9	99	4.1	-	2.5	-
	THC(ppm)	11	100	3.7	-	2.6	-
	THC(ppm)	13	100	4.3	-	2.8	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

December 2024

Page 2 of 3

Created: January 29, 2024 10:00:00


APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
	12	2024					
289664-00-00	CONTINUOUS AMBIENT MONITORING						
241311-00-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
20809-02-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
149968-01-00	THC(ppm)	14	84	3.8	-	2.7	-
237382-00-00	THC(ppm)	17	100	3.4	-	2.5	-
48522-01-00	THC(ppm)	18	100	2.4	-	2.3	-
240008-00-00	THC(ppm)	19	97	2.6	-	2.4	-
48263-01-00	THC(ppm)	20	96	4.1	-	2.9	-
224816-00-00	THC(ppm)	21	100	2.6	-	2.3	-
151469-01-00	THC(ppm)	22	99	2.3	-	2.2	-
189942-00-00	THC(ppm)	23	100	7.4	-	3.2	-
206355-00-00	THC(ppm)	29	99	2.8	-	2.5	-
46586-00-00	THC(ppm)	30	100	6.1	-	3.2	-
73203-02-00	THC(ppm)	508	99	3.2	-	2.6	-
216466-01-00	O3(ppb)	1	100	31.9	0	26.4	-
137467-01-00	O3(ppb)	4	100	34.7	0	31.1	-
236394-00-00	O3(ppb)	6	100	37.1	0	31.8	-
254465-00-00	O3(ppb)	7	100	34.4	0	29.3	-
094-03-00	O3(ppb)	8	96	38.4	0	32.4	-
80105-01-00	O3(ppb)	13	100	32.3	0	28.6	-
305529-00-00	O3(ppb)	14	99	37.5	0	35.1	-
318401-00-00	O3(ppb)	17	100	40.2	0	36.6	-
026-03-00	O3(ppb)	18	100	35.3	0	32.5	-
364232-00-00	O3(ppb)	21	100	38.4	0	33.3	-
228044-00-00	O3(ppb)	22	100	40.3	0	34.6	-
247548-00-00	O3(ppb)	1	100	33.1	0	23.1	-
231302-00-00	NO2(ppb)	4	100	38.0	0	16.7	-
246984-01-00	NO2(ppb)	6	100	31.3	0	16.4	-
153125-01-00	NO2(ppb)	7	100	27.7	0	15.1	-
	NO2(ppb)	8	100	32.4	0	12.4	-
	NO2(ppb)	9	100	42.9	0	31.0	-
	NO2(ppb)	13	100	36.5	0	23.8	-
	NO2(ppb)	14	100	28.7	0	11.9	-
	NO2(ppb)	17	100	28.2	0	8.9	-
	NO2(ppb)	18	100	13.0	0	6.8	-
	NO2(ppb)	19	100	42.0	0	18.2	-
	NO2(ppb)	20	100	25.4	0	12.6	-
	NO2(ppb)	21	100	11.0	0	6.4	-
	NO2(ppb)	22	100	21.5	0	11.0	-
	NO2(ppb)	23	97	44.2	0	28.4	-
	NO2(ppb)	27	100	12.5	0	6.3	-
	NO2(ppb)	29	99	23.5	0	11.6	-
	NO2(ppb)	30	100	38.9	0	23.7	-
	NO2(ppb)	33	99	20.3	0	6.6	-
	NO2(ppb)	506	100	17.6	0	7.4	-
	NO2(ppb)	508	99	16.9	0	6.2	-
	NO2(ppb)	512	100	21.2	0	12.1	-
	CO(ppm)	1	100	0.6	0	0.3	-
	CO(ppm)	7	100	0.6	0	0.3	-
	CO(ppm)	8	100	0.3	0	0.2	-
	CO(ppm)	18	100	0.3	0	0.2	-
	CO2(ppm)	1	100	499.3	-	474.2	-
	CO2(ppm)	8	100	457.9	-	450.6	-
	CO2(ppm)	18	100	461.5	-	455.5	-
	NH3(ppb)	1	96	0.0	0	0.0	-
	NH3(ppb)	6	95	0.0	0	0.0	-
	PM2.5(ug/m3)	1	100	49.7	0	18.1	0
	PM2.5(ug/m3)	4	100	30.1	0	12.7	0
	PM2.5(ug/m3)	6	100	73.9	0	13.6	0
	PM2.5(ug/m3)	7	100	39.0	0	13.6	0
	PM2.5(ug/m3)	8	100	17.2	0	10.1	0
	PM2.5(ug/m3)	9	100	35.2	0	19.9	0
	PM2.5(ug/m3)	13	100	20.7	0	15.8	0
	PM2.5(ug/m3)	14	100	23.3	0	10.7	0
	PM2.5(ug/m3)	17	100	16.9	0	9.6	0

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION
MONTHLY AIR MONITORING SUMMARY

December 2024

Page 3 of 3

Created: January 29, 2024 10:00:00

APPROVAL NUMBERS	REPORT DATE						
	MONTH	YEAR					
289664-00-00	12	2024					
241311-00-00	CONTINUOUS AMBIENT MONITORING						
20809-02-00				ONE-HOUR AVERAGE		24-HOUR AVERAGE	
149968-01-00	PARAMETER	STN. NO.	% TIME OPERATIONAL	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION	MAXIMUM CONCENTRATION	NO. READINGS > REGULATION
237382-00-00	PM2.5(ug/m3)	18	100	31	0	12.1	0
48522-01-00	PM2.5(ug/m3)	21	100	40.2	0	16.6	0
240008-00-00	PM2.5(ug/m3)	22	100	40.4	0	15.6	0
48263-01-00	PM2.5(ug/m3)	23	100	187.5	4	31.8	1
224816-00-00	PM2.5(ug/m3)	29	100	27.4	0	10.1	0
151469-01-00	PM2.5(ug/m3)	30	100	26.3	0	14.4	0
189942-00-00	WS(km/h)	1	86	-	-	-	-
206355-00-00	WS(km/h)	2	100	-	-	-	-
46586-00-00	WS(km/h)	4	100	-	-	-	-
73203-02-00	WS(km/h)	5	96	-	-	-	-
216466-01-00	WS(km/h)	6	100	-	-	-	-
137467-01-00	WS(km/h)	7	100	-	-	-	-
236394-00-00	WS(km/h)	8	100	-	-	-	-
254465-00-00	WS(km/h)	9	99	-	-	-	-
094-03-00	WS(km/h)	11	100	-	-	-	-
80105-01-00	WS(km/h)	13	89	-	-	-	-
305529-00-00	WS(km/h)	14	100	-	-	-	-
318401-00-00	WS(km/h)	17	91	-	-	-	-
026-03-00	WS(km/h)	18	98	-	-	-	-
364232-00-00	WS(km/h)	19	99	-	-	-	-
228044-00-00	WS(km/h)	20	97	-	-	-	-
247548-00-00	WS(km/h)	21	100	-	-	-	-
231302-00-00	WS(km/h)	22	88	-	-	-	-
246984-01-00	WS(km/h)	23	99	-	-	-	-
153125-01-00	WS(km/h)	25	91	-	-	-	-
	WS(km/h)	27	99	-	-	-	-
	WS(km/h)	29	95	-	-	-	-
	WS(km/h)	30	93	-	-	-	-
	WS(km/h)	33	98	-	-	-	-
	WS(km/h)	506	99	-	-	-	-
	WS(km/h)	508	97	-	-	-	-
	WS(km/h)	512	98	-	-	-	-
							
SIGNATURE OF ASSOCIATION REPRESENTATIVE					FOR ALBERTA ENVIRONMENT USE ONLY		



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS01 BERTHA GANTER - FORT MCKAY DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY - BERTHA GANTER (AMS01)
DECEMBER 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	53.3	0	8.5	0
H2S(ppb) Average	706	37	38	99.87	2.8	0	0.8	0
TRS(ppb) Average	706	37	38	99.87	3.2	0	1.3	0
THC(ppm) Average	703	35	41	99.19	4.8	-	2.8	-
NMHC(ppm) Average	703	35	41	99.19	0.609	-	0.154	-
CH4(ppm) Average	703	35	41	99.19	4.5	-	2.6	-
O3 (ppb) Average	709	34	35	99.87	31.9	0	26.4	-
NO2 (ppb) Average	705	36	39	99.6	33.1	0	23.1	-
NO (ppb) Average	705	36	39	99.6	97.9	-	29.9	-
NOX (ppb) Average	705	36	39	99.6	131	-	53	-
NH3 (ppb) Average	669	44	75	95.83	0	0	0	-
PM2.5 (ug/m3) Average	742	2	2	100	49.7	0	18.1	0
CO(ppm) Average	708	35	36	99.87	0.6	0	0.3	0
CO2(ppm) Average	707	36	37	99.87	499.3	0	474.2	0
Temperature 2 m (C) Average	744	0	0	100	3.2	-	0.4	-
Temperature 10 m (C) Average	744	0	0	100	3	-	0.5	-
Relative Humidity (%) Average	744	0	0	100	97.1	-	94.7	-
Wind Speed 10 m (km/h) Average	643	0	101	86.42	19	-	12	-
Wind Direction 10 m (deg) Average	643	0	101	86.42	-	-	-	-
Precipitation (mm) Total	705	0	39	94.76	2.1	-	7.5	-
Leaf Wetness (% of range) Average	743	0	1	99.87	69.8	-	10.5	-
Global Solar Radiation (W/m2) Average	743	0	1	99.87	241.9	-	39.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BERTHA GANTER FORT McKAY (AMS01)
 DECEMBER 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	0.97	3.2	-	0	0	0	0.1	0.6	2.3	53.3
H2S (ppb) Average	706	0.44	0.4	-	0	0.1	0.1	0.3	0.7	0.9	2.8
TRS (ppb) Average	706	0.73	0.4	-	0.3	0.4	0.4	0.5	0.9	1.3	3.2
THC (ppm) Average	703	2.26	0.4	-	1.9	2	2	2.1	2.4	2.6	4.8
NMHC(ppm) Average	703	0.064	0.098	-	0	0	0	0	0.1	0.2	0.609
CH4(ppm) Average	703	2.2	0.3	-	1.9	2	2	2.1	2.3	2.4	
O3 (ppb) Average	709	11.26	9	-	0.1	0.7	2.8	10	18	25.2	31.9
NO2 (ppb) Average	705	12.58	8.1	-	0	0.9	6.6	11.9	18.4	24.3	33.1
NO (ppb) Average	705	8.06	15.4	-	0	0	0.2	1.3	8.2	26.3	97.9
NOX (ppb) Average	705	20.64	21.6	-	0	1.9	7.1	13.3	26.8	49.8	131
NH3 (ppb) Average	669	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	742	7	5.6	-	0.7	2.4	3.1	5.1	9.2	14.7	49.7
CO(ppm) Average	708	0.23	0.1	-	0.1	0.2	0.2	0.2	0.3	0.3	0.6
CO2(ppm) Average	707	454.32	10.1	-	436.8	441.9	446.7	452.7	461.1	468.6	499.3
Temperature 2 m (C) Average	744	-13	8.1	-	-33.2	-24.9	-19.1	-10.8	-7.5	-3.4	3.2
Temperature 10 m (C) Average	744	-12.9	8.2	-	-32.9	-24.7	-19.1	-10.9	-7.3	-3	3
Relative Humidity (%) Average	744	81.84	7.9	-	63.8	71.6	75.6	81.7	88.6	91.8	97.1
Wind Speed 10 m (km/h) Average	643	5.6	4	-	0	2	3	5	8	12	19
Wind Direction 10 m (deg) Average	643	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	705	-	-	23.46	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	743	5.01	3.4	-	2.9	3.3	3.5	4.6	5.2	6.3	69.8
Global Solar Radiation (W/m2) Average	743	14.92	36.9	-	0	0	0	0	8.3	46.7	241.9

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS (except NH3)	12 Dec 2024 15:00	12 Dec 2024 15:00	1	Maintenance - sample manifold cleaned
NH3	01 Dec 2024 05:00	31 Dec 2024 05:00	31	Stabilization after daily QA check
THC/NMHC/CH4	17 Dec 2024 14:00	17 Dec 2024 16:00	3	Maintenance - replaced support gas cylinder
THC/NMHC/CH4	23 Dec 2024 12:00	23 Dec 2024 13:00	2	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	01 Dec 2024 01:00	03 Dec 2024 13:00	61	Senson Failure - inconsistent response
Wind Speed, Wind Direction	03 Dec 2024 14:00	04 Dec 2024 14:00	25	Maintenance - troubleshooting, sensor replaced
Wind Speed, Wind Direction	10 Dec 2024 20:00	31 Dec 2024 23:00	15	Flat line in sensor output signal - Sensor frozen
Precipitation Collector	01 Dec 2024 01:00	02 Dec 2024 10:00	34	DAS Failure - data not recorded
Precipitation Collector	06 Dec 2024 11:00	06 Dec 2024 15:00	5	Unstable Operation - excessive signal noise
Surface Leaf Wetness	25 Dec 2024 14:00	25 Dec 2024 14:00	1	Sensor operated out of range
Solar Global Radiation	03 Dec 2024 16:00	03 Dec 2024 16:00	1	Maintenance - logger reset



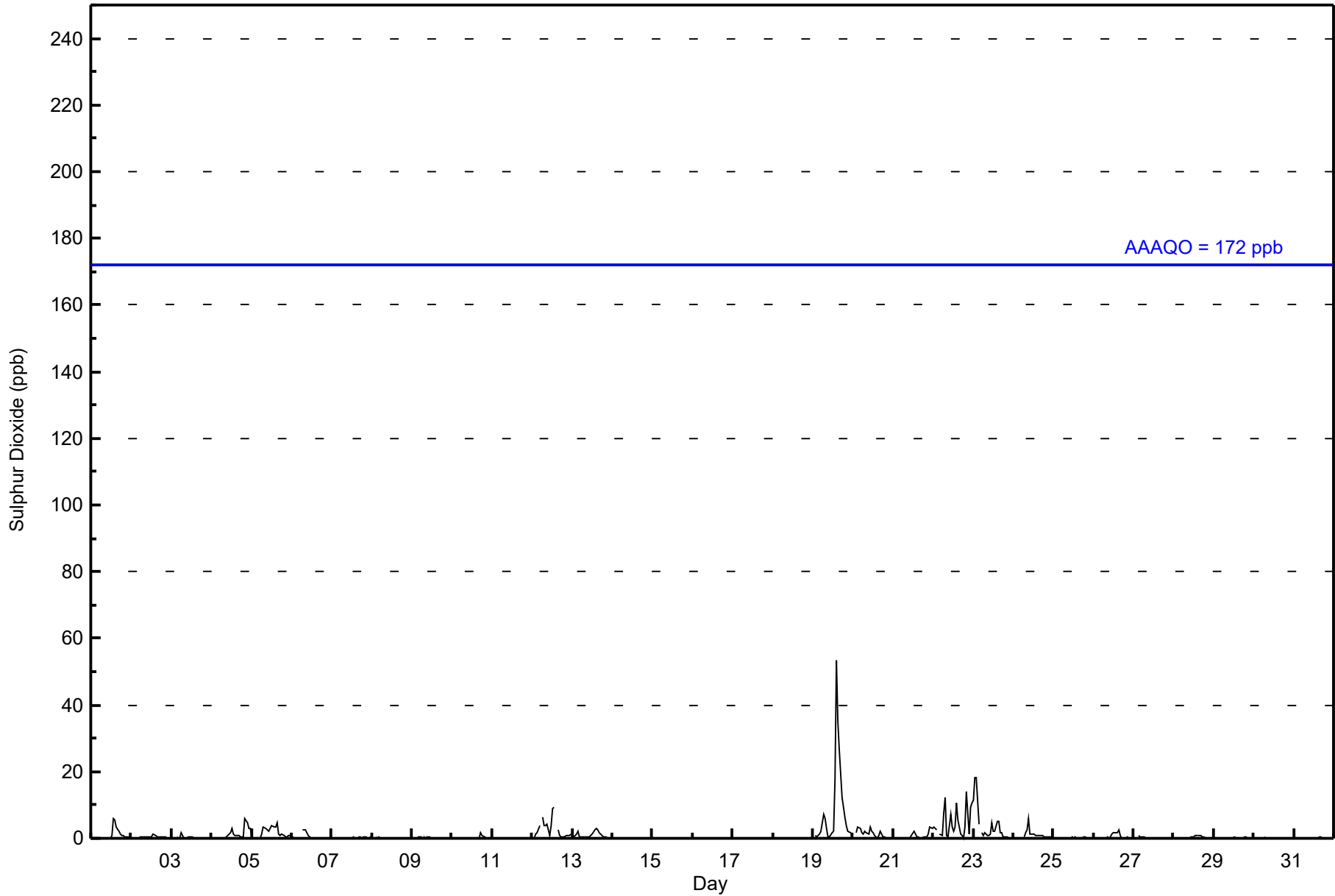
Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 53.3 ppb on Dec 19 15:00		Maximum Daily Average: 8.5 ppb on Dec 19																			Hours of Data:	708																											
Minimum Value: 0.0 ppb on Dec 1 02:00		Minimum Daily Average: 0.0 ppb on Dec 11																			Hours of Missing Data:	36																											
Maximum Diurnal Average: 3.0 ppb at hour 15		Minimum Diurnal Average: 0.3 ppb at hour 6																			Hours of Calibration:	35																											
Monthly Average: 0.97 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.6 P ₉₀ = 2.3 P ₉₉ = 12.3																			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-Dec	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	6.0	5.7	3.6	2.2	1.3	0.9	0.7	0.4	0.4	0.4	0.2	1.0	6.0																							
2-Dec	0.0	Z	0.1	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.5	1.1	0.8	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.3	1.1																							
3-Dec	0.0	0.1	Z	0.4	0.1	0.1	1.6	0.1	0.1	0.0	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6																							
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.2	0.5	1.2	1.6	2.8	1.2	0.9	0.9	0.7	0.6	0.5	0.6	5.9	4.5	2.9	2.8	1.2	5.9																							
5-Dec	0.5	0.2	0.1	0.0	Z	0.0	1.3	3.6	2.8	2.6	2.2	2.9	3.9	3.3	3.6	4.8	1.2	0.9	1.3	0.7	0.2	0.5	0.9	1.0	1.7	4.8																							
6-Dec	0.6	0.0	0.0	0.0	0.0	Z	2.7	2.4	2.3	1.7	0.7	0.0	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.7																							
7-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.1	0.6	0.4	0.2	0.1	0.2	0.1	0.6																							
8-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2																							
9-Dec	0.1	0.1	Z	0.1	0.3	0.3	0.2	0.3	0.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4																							
10-Dec	0.2	0.2	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.0	1.5	0.9	0.5	0.1	0.0	0.0	0.0	0.2	1.5																							
11-Dec	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																							
12-Dec	0.0	0.0	1.1	1.5	3.8	Z	6.3	3.9	3.7	4.0	1.0	4.0	8.9	9.2	M	2.8	0.7	0.4	0.5	0.4	0.8	0.9	0.6	1.4	2.5	9.2																							
13-Dec	Z	0.5	1.3	1.9	0.6	0.4	0.3	0.3	0.3	0.3	0.2	0.8	1.1	2.7	3.1	2.5	1.8	1.1	0.5	0.5	0.3	0.2	0.1	0.1	0.9	3.1																							
14-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.2																							
15-Dec	0.0	0.0	Z	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	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1																							
16-Dec	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-Dec	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
18-Dec	0.0	0.1	0.1	0.2	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2																							
19-Dec	Z	1.1	0.3	0.8	1.5	2.3	7.1	6.0	2.9	0.4	0.6	1.7	2.0	17.8	53.3	35.0	26.6	12.3	9.2	6.4	3.8	2.1	1.7	1.1	8.5	53.3																							
20-Dec	1.3	Z	1.8	3.3	2.8	1.8	1.4	2.2	1.7	1.5	3.2	2.3	1.8	0.9	0.1	0.9	2.1	1.4	0.4	0.2	0.2	0.1	0.0	0.0	1.4	3.3																							
21-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.3	1.4	0.6	0.5	0.2	0.1	0.3	0.3	0.4	1.4	3.3	3.1	0.6	3.3																							
22-Dec	3.2	3.1	2.5	Z	1.4	0.7	7.6	12.3	1.0	0.3	7.2	3.2	2.1	3.3	10.6	5.5	1.5	0.6	0.1	3.2	13.9	1.5	9.3	10.6	4.6	13.9																							
23-Dec	11.2	18.4	18.2	4.3	Z	1.7	0.9	1.7	0.7	1.0	1.4	4.6	2.2	2.0	4.9	4.9	1.7	1.5	0.6	0.5	0.5	0.0	0.0	0.0	3.6	18.4																							
24-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.6	1.9	2.7	5.7	1.4	1.4	1.1	1.0	0.8	0.8	0.7	0.7	0.6	0.6	0.4	0.4	0.3	0.2	0.9	5.7																							
25-Dec	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.0	0.0	0.1	0.4																							
26-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.4	1.3	1.6	1.7	1.9	2.6	0.6	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.5	2.6																							
27-Dec	0.0	0.1	Z	0.7	0.2	0.3	0.5	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.7																							
28-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.5	0.4	0.9	0.7	0.9	0.7	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.9																							
29-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.0	0.1	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.3																							
30-Dec	0.1	0.1	0.2	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
31-Dec	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4																							
																								0.7	0.9	1.0	0.5	0.5	0.3	1.0	1.2	0.6	0.6	0.7	0.9	1.1	1.8	3.0	2.2	1.4	0.8	0.6	0.5	0.9	0.4	0.7	0.7	Diurnal Average	
																								11.2	18.4	18.2	4.3	3.8	2.3	7.6	12.3	3.7	5.7	7.2	4.6	8.9	17.8	53.3	35.0	26.6	12.3	9.2	6.4	13.9	4.5	9.3	10.6	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	696	98.31	98.31
11 - 20	9	1.27	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 - Bertha Ganter - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	78	34	6	4	9	7	16	54	179	48	25	24	31	55	15	14	599
11 - 20	0	0	0	0	0	0	0	1	6	1	0	0	0	1	0	0	9
21 - 60	0	1	0	0	0	0	0	0	1	0	0	1	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	78	35	6	4	9	7	16	55	186	49	25	25	31	56	15	14	611

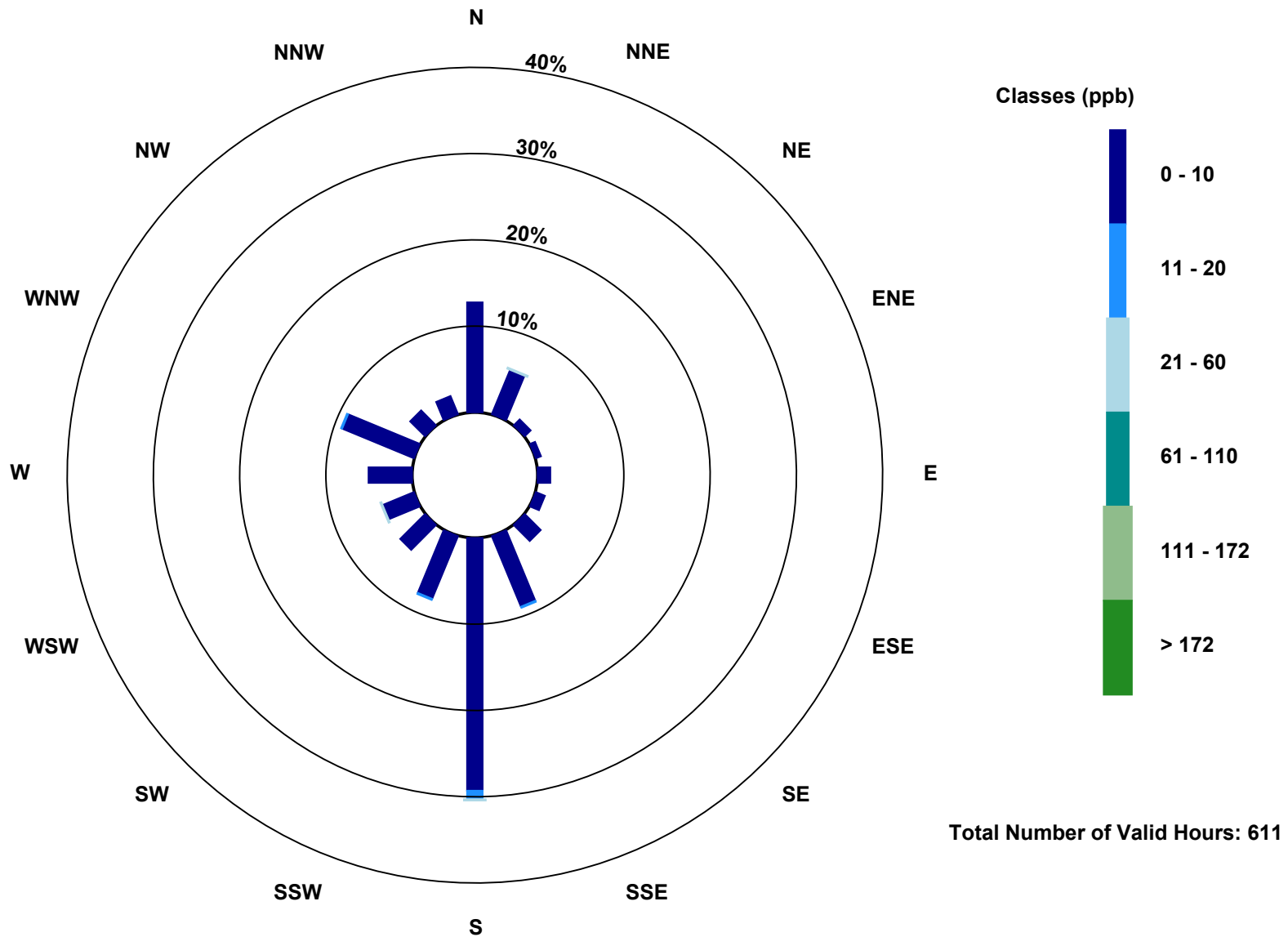
Total Number of Valid Hours: 611

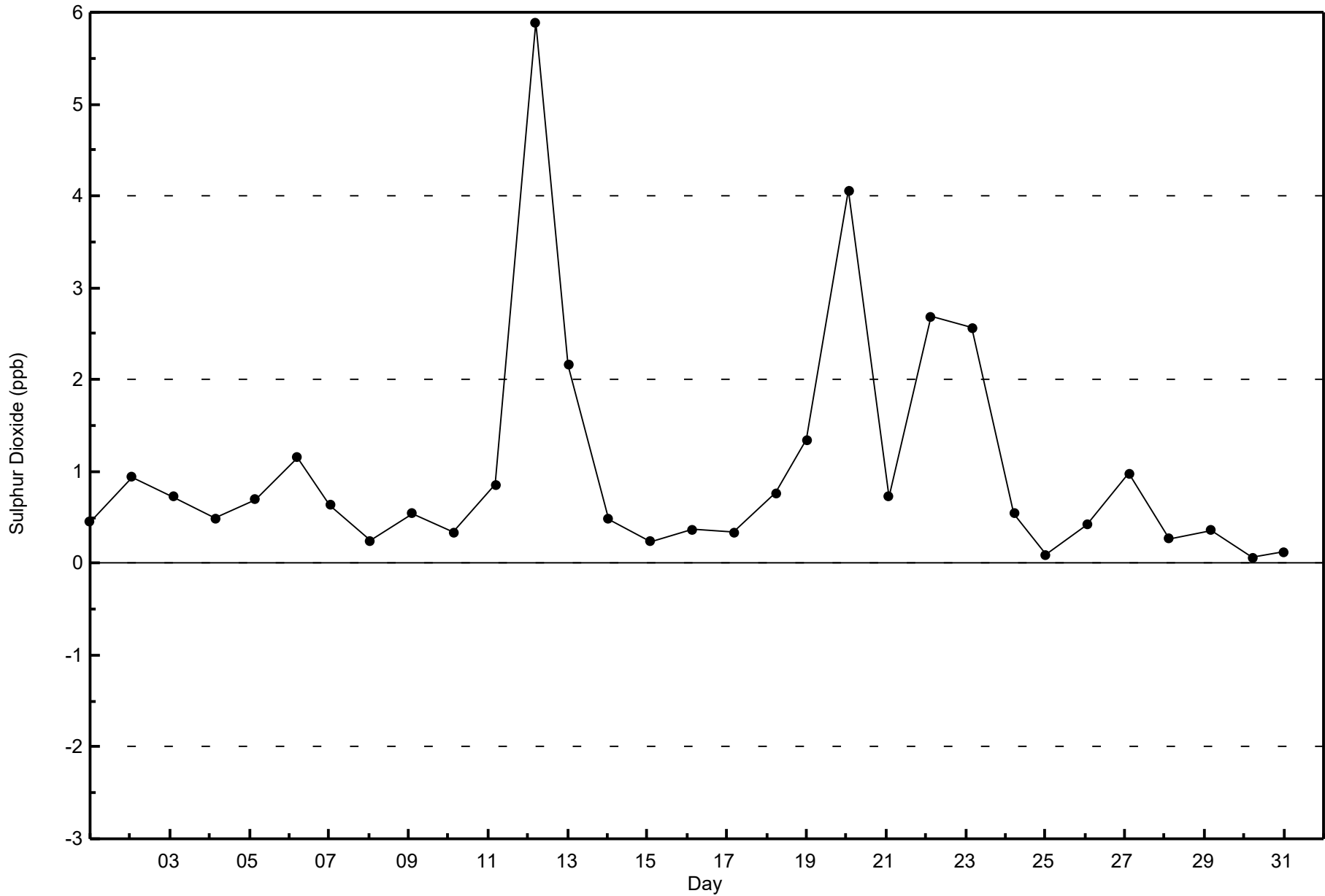
Total Number of Hours: 744

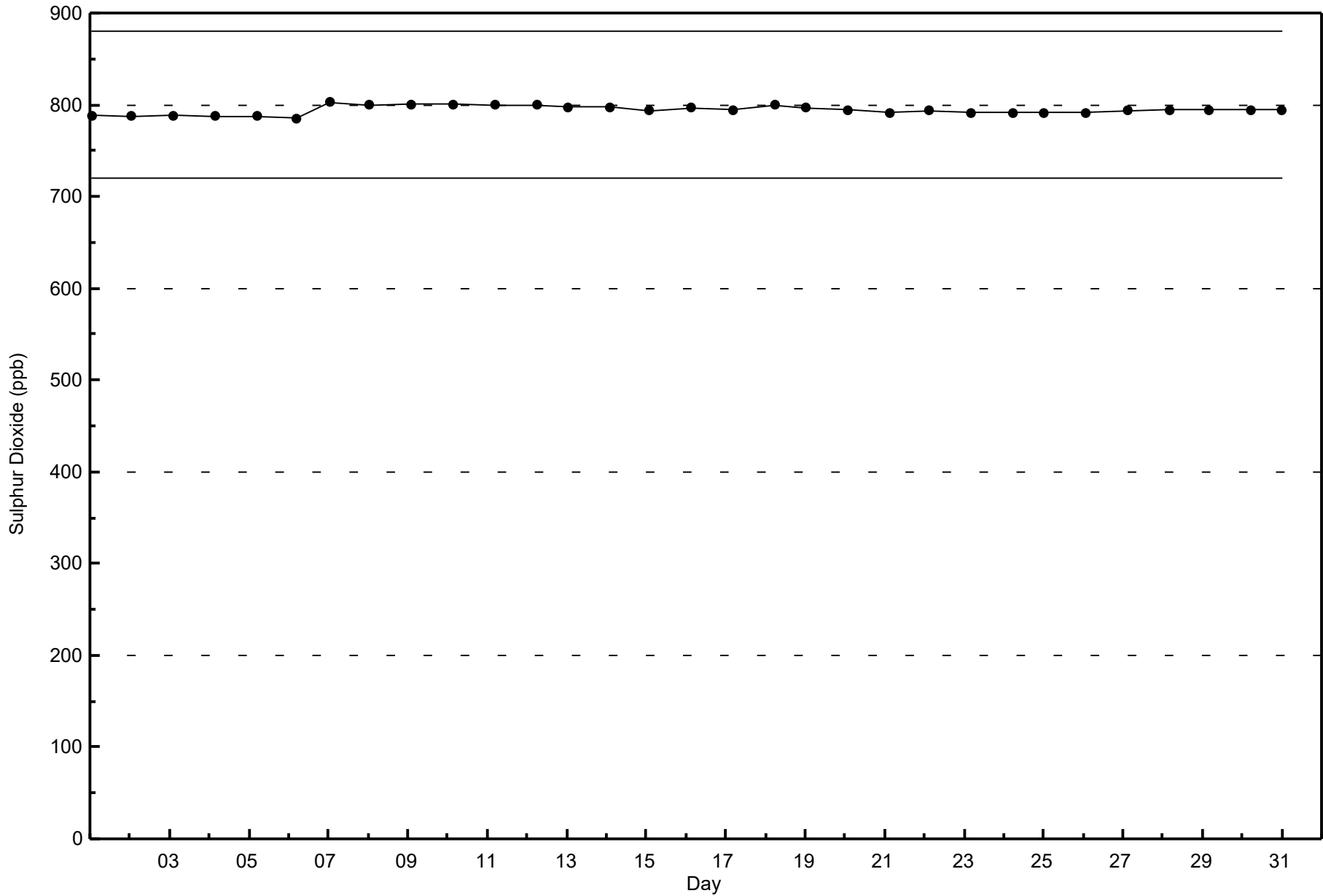


Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





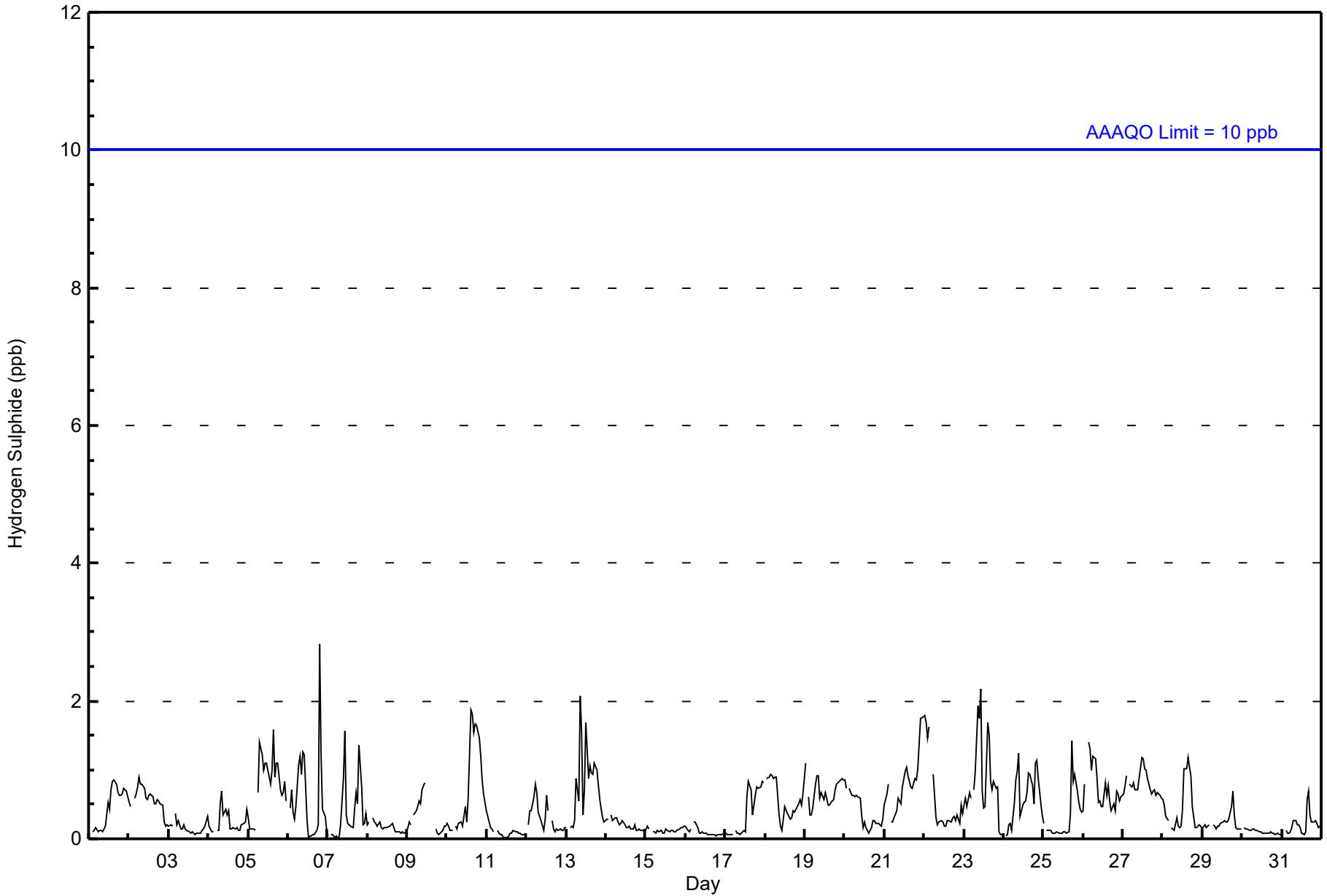




Wood Buffalo Environmental Association
Summary of Hour Averages

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																	Hours in Service: 744									
Maximum Value: 2.8 ppb on Dec 6 20:00																	Maximum Daily Average: 0.8 ppb on Dec 23					Hours of Data: 706				
Minimum Value: 0.0 ppb on Dec 7 07:00																	Minimum Daily Average: 0.1 ppb on Dec 16					Hours of Missing Data: 38				
Maximum Diurnal Average: 0.6 ppb at hour 20																	Minimum Diurnal Average: 0.3 ppb at hour 3					Hours of Calibration: 37				
Monthly Average: 0.44 ppb																	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.7 P ₉₀ = 0.9 P ₉₉ = 1.8					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-Dec	0.2	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.4	0.7	0.8	0.9	0.8	0.7	0.6	0.6	0.6	0.7	0.7	0.6	0.4	0.9
2-Dec	0.5	0.5	Z	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.6	0.6	0.6	0.7	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.2	0.2	0.2	0.6	0.9
3-Dec	0.2	0.2	0.2	Z	0.4	0.2	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.4
4-Dec	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.5	0.7	0.4	0.4	0.4	0.4	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.4	0.2	0.7
5-Dec	0.3	0.1	0.2	0.1	0.1	Z	0.7	1.4	1.2	1.0	1.1	1.1	1.0	0.8	1.0	1.6	0.9	1.1	1.1	0.7	0.6	0.7	0.8	0.5	0.8	1.6
6-Dec	Z	0.4	0.7	0.4	0.3	0.5	1.1	1.2	0.9	1.3	1.2	0.3	0.0	0.0	0.1	0.1	0.1	0.1	0.2	2.8	1.2	0.4	0.3	0.1	0.6	2.8
7-Dec	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.9	1.6	0.3	0.2	0.2	0.2	0.2	0.4	0.7	0.5	1.4	0.7	0.2	0.2	0.4	0.4	1.6
8-Dec	0.2	0.2	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
9-Dec	0.2	0.3	0.2	Z	0.3	0.4	0.5	0.5	0.5	0.7	0.8	C	C	C	C	C	C	0.1	0.1	0.1	0.1	0.1	0.2	0.2	--	0.8
10-Dec	0.2	0.2	0.1	0.1	Z	0.2	0.1	0.2	0.2	0.2	0.3	0.5	0.2	0.6	1.9	1.8	1.6	1.7	1.6	1.5	1.2	0.8	0.7	0.5	0.7	1.9
11-Dec	0.4	0.2	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
12-Dec	Z	0.2	0.4	0.4	0.6	0.8	0.7	0.4	0.3	0.3	0.1	0.3	0.6	0.4	M	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.8
13-Dec	0.2	Z	0.2	0.2	0.2	0.3	0.9	0.5	2.1	1.5	0.3	0.7	1.7	0.9	1.1	1.0	0.9	1.1	1.0	0.8	0.6	0.4	0.3	0.3	0.7	2.1
14-Dec	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
15-Dec	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2
16-Dec	0.2	0.1	0.1	0.1	Z	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3
17-Dec	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	0.6	0.8	0.7	0.3	0.5	0.6	0.7	0.7	0.7	0.8	0.8	0.4	0.8
18-Dec	Z	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.3	0.2	0.1	0.3	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.5	0.5	0.6	0.5	0.7	0.5	0.9
19-Dec	1.1	Z	0.6	0.3	0.4	0.4	0.8	0.9	0.9	0.6	0.7	0.6	0.7	0.6	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.8	0.9	0.9	0.7	1.1
20-Dec	0.9	0.7	Z	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.9
21-Dec	0.5	0.7	0.8	Z	0.2	0.3	0.3	0.4	0.6	0.6	0.5	0.8	1.0	1.0	0.9	0.8	0.8	0.7	0.9	0.9	1.0	1.4	1.8	1.8	0.8	1.8
22-Dec	1.8	1.7	1.5	1.6	Z	0.9	0.6	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.5	0.4	0.6	1.8
23-Dec	0.5	0.6	0.5	0.7	0.6	Z	0.7	1.0	1.9	1.7	2.2	0.7	0.4	0.5	1.7	1.5	0.8	0.7	0.8	0.7	0.8	0.1	0.1	0.1	0.8	2.2
24-Dec	Z	0.0	0.1	0.2	0.2	0.1	0.5	0.9	1.0	1.2	0.3	0.5	0.5	0.5	0.7	1.0	0.9	0.8	0.5	1.1	1.1	0.9	0.5	0.3	0.6	1.2
25-Dec	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	0.4	1.4	0.8	0.9	0.7	0.5	0.4	0.4	0.3	1.4
26-Dec	0.4	0.8	Z	1.4	1.3	1.0	1.2	1.2	0.9	0.5	0.6	0.5	0.5	0.8	0.6	0.8	0.5	0.4	0.5	0.4	0.7	0.7	0.6	0.6	0.7	1.4
27-Dec	0.7	0.8	0.9	Z	0.8	0.7	0.8	0.7	0.7	0.7	0.9	1.2	1.2	1.0	1.0	0.9	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.8	1.2
28-Dec	0.6	0.5	0.3	0.3	Z	0.2	0.1	0.1	0.3	0.2	0.2	0.2	0.4	1.0	1.0	1.2	1.0	0.9	0.5	0.2	0.2	0.2	0.2	0.2	0.4	1.2
29-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.7	0.3	0.2	0.1	0.1	0.1	0.2	0.7
30-Dec	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
31-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.6	0.7	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.7
0.4 0.4 0.3 0.4 0.3 0.4 0.4 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.6 0.5 0.4 0.4 0.4																								Diurnal Average		
1.8 1.7 1.5 1.6 1.3 1.0 1.2 1.4 2.1 1.7 2.2 1.2 1.7 1.0 1.9 1.8 1.6 1.7 1.6 2.8 1.2 1.4 1.8 1.8																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	705	99.86	99.86
3 - 4	1	0.14	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Fort McKay - Bertha Ganter - December 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	73	36	6	3	9	6	17	55	190	50	25	26	30	54	14	14	608
3 - 4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	73	36	6	3	9	6	17	55	191	50	25	26	30	54	14	14	609

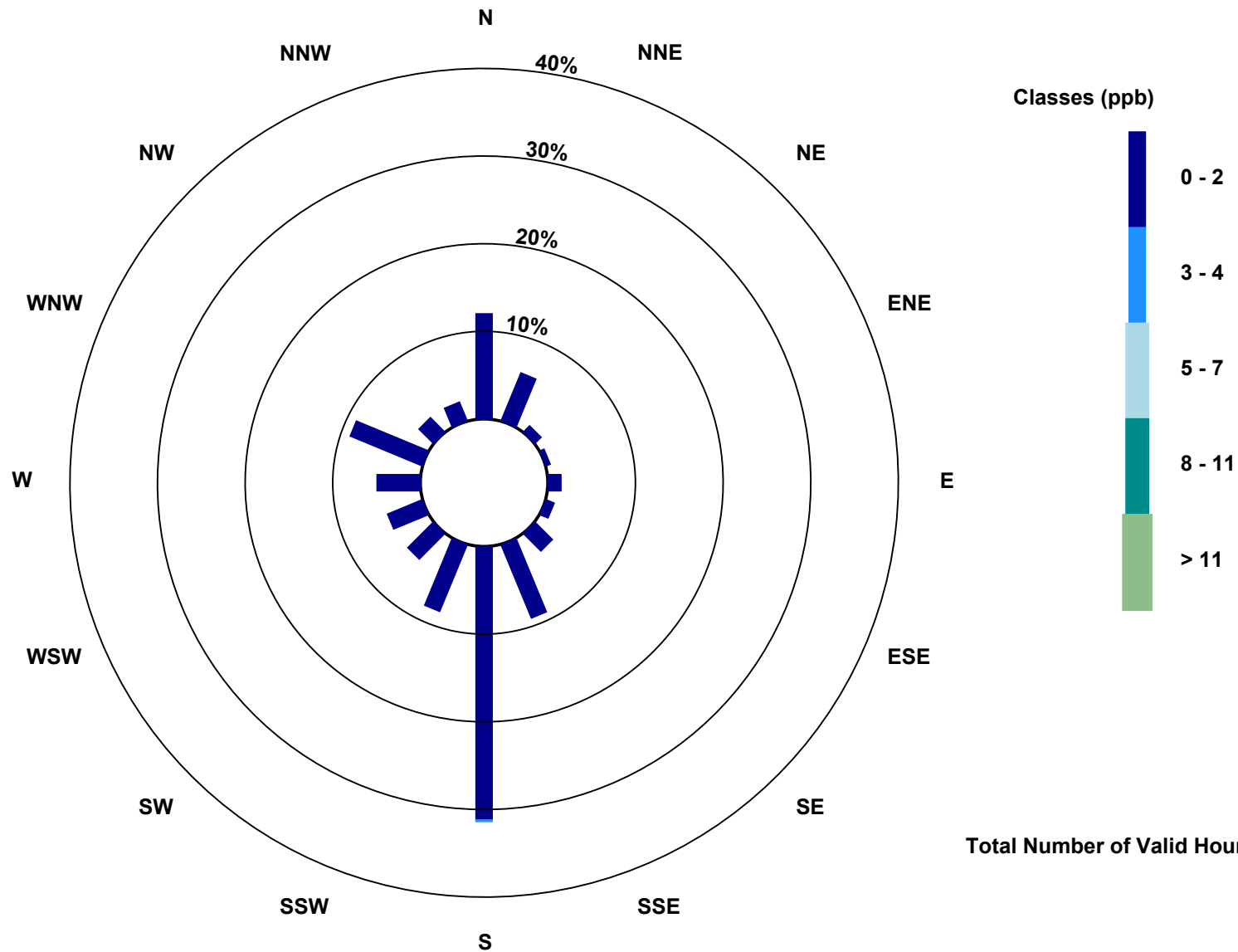
Total Number of Valid Hours: 609

Total Number of Hours: 744

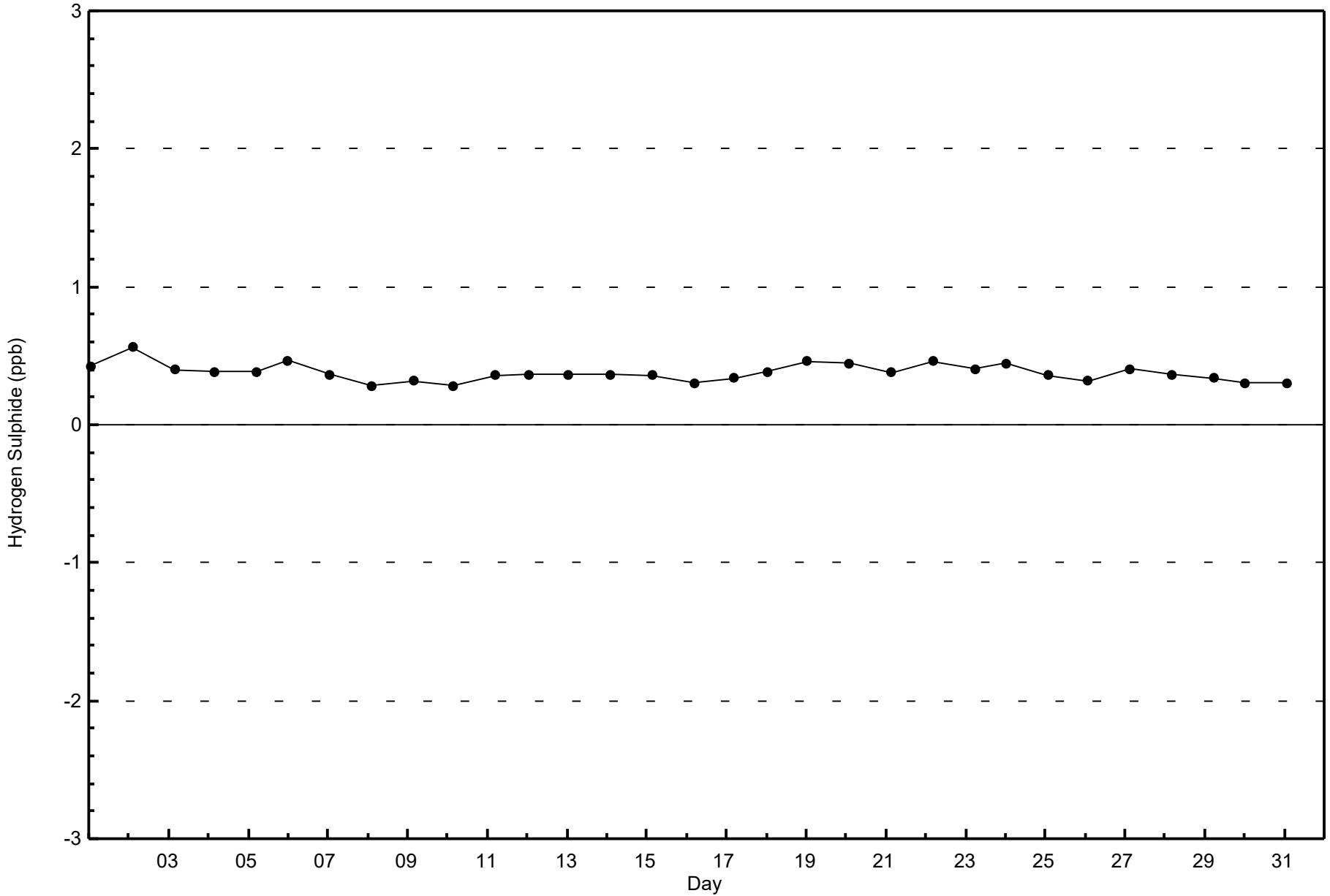


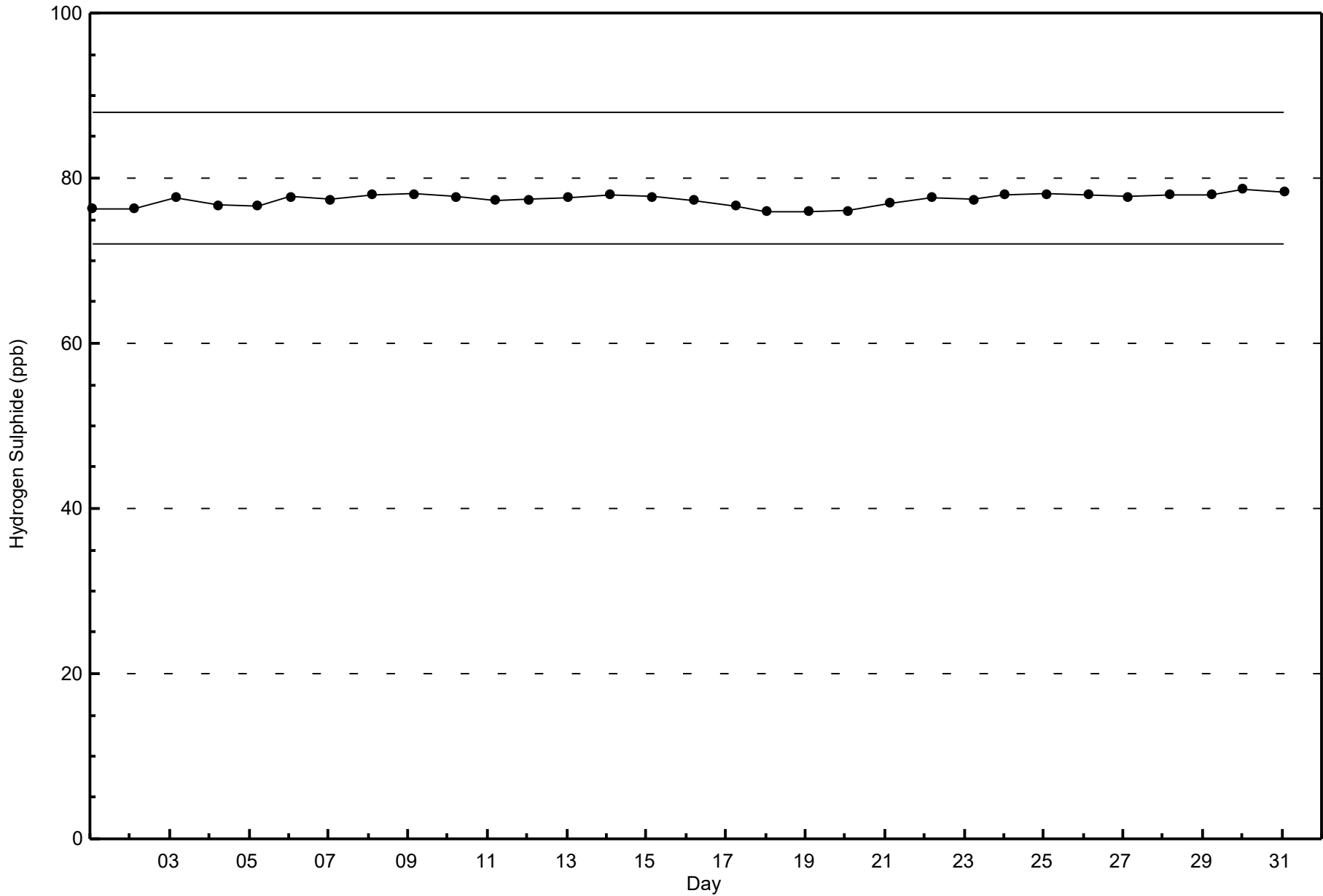
Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 609







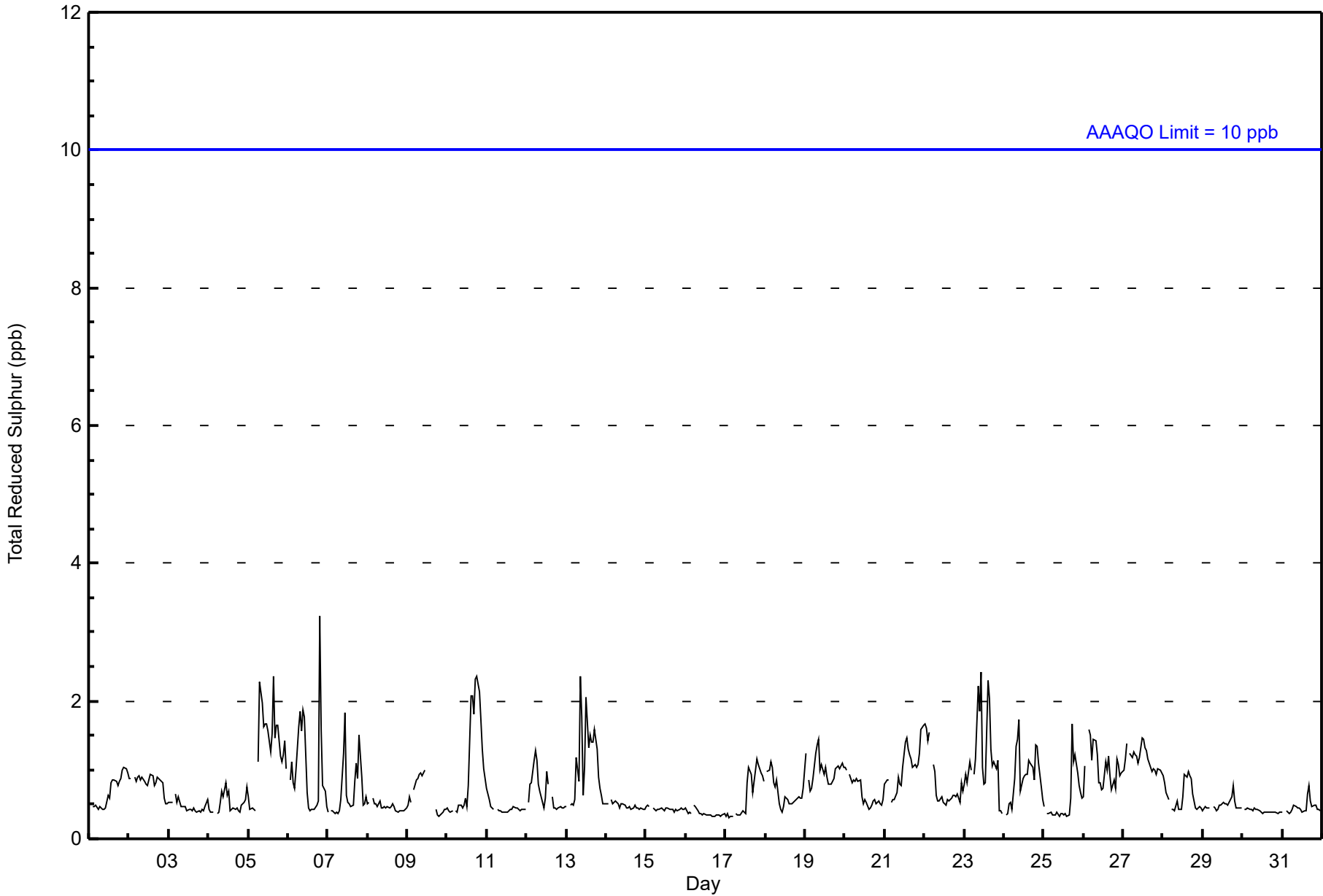
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744					
Maximum Value: 3.2 ppb on Dec 6 20:00		Maximum Daily Average: 1.3 ppb on Dec 5																Hours of Data:		706							
Minimum Value: 0.3 ppb on Dec 17 03:00		Minimum Daily Average: 0.4 ppb on Dec 16																Hours of Missing Data:		38							
Maximum Diurnal Average: 0.9 ppb at hour 20		Minimum Diurnal Average: 0.6 ppb at hour 3																Hours of Calibration:		37							
Monthly Average: 0.73 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.4 Q ₁ = 0.4 Median = 0.5 Q ₃ = 0.9 P ₉₀ = 1.3 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-Dec	0.5	Z	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.6	0.6	0.8	0.9	0.9	0.8	0.8	0.8	0.9	1.0	1.0	1.0	1.0	0.7	1.0	
2-Dec	0.9	0.9	Z	0.9	0.8	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.8	0.8	0.9	0.9	0.9	0.8	0.6	0.5	0.5	0.8	0.9	
3-Dec	0.5	0.5	0.5	Z	0.7	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	0.5	0.7	
4-Dec	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.5	0.7	0.6	0.8	0.6	0.7	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.6	0.8	0.5	0.8	
5-Dec	0.6	0.4	0.4	0.4	0.4	Z	1.1	2.3	2.0	1.6	1.7	1.7	1.6	1.3	1.5	2.4	1.5	1.6	1.6	1.2	1.1	1.2	1.4	1.0	1.3	2.4	
6-Dec	Z	0.9	1.1	0.8	0.7	1.0	1.6	1.9	1.6	1.9	1.8	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.6	3.2	1.6	0.8	0.7	0.5	1.0	3.2	
7-Dec	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.6	1.2	1.8	0.6	0.5	0.5	0.5	0.5	0.8	1.1	0.9	1.5	0.9	0.5	0.5	0.6	0.7	1.8		
8-Dec	0.5	0.5	Z	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.6	
9-Dec	0.5	0.6	0.5	Z	0.7	0.9	0.9	0.9	0.9	0.9	1.0	C	C	C	C	C	C	0.4	0.3	0.3	0.4	0.4	0.4	0.4	--	1.0	
10-Dec	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.5	0.8	2.1	2.1	1.8	2.3	2.4	2.1	1.7	1.3	1.0	0.9	1.0	2.4	
11-Dec	0.7	0.6	0.5	0.5	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	
12-Dec	Z	0.5	0.8	0.8	1.1	1.3	1.1	0.8	0.7	0.6	0.4	0.6	1.0	0.8	M	0.6	0.5	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.7	1.3	
13-Dec	0.5	Z	0.5	0.5	0.5	0.6	1.2	0.8	2.4	1.8	0.6	1.0	2.1	1.3	1.5	1.4	1.4	1.6	1.3	0.9	0.7	0.6	0.5	0.5	1.1	2.4	
14-Dec	0.5	0.5	Z	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.6	
15-Dec	0.5	0.5	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.5	
16-Dec	0.5	0.4	0.4	0.4	Z	0.5	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	
17-Dec	0.3	0.4	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.8	1.0	0.9	0.7	0.8	1.0	1.2	1.1	1.0	0.9	0.8	0.6	1.2	
18-Dec	Z	1.0	1.0	1.1	1.0	0.8	0.8	0.8	0.5	0.4	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	1.1	
19-Dec	1.2	Z	0.9	0.7	0.7	0.9	1.2	1.4	1.5	1.0	1.1	0.9	1.0	0.9	0.8	0.8	0.8	0.9	1.0	1.0	1.1	1.0	1.1	1.0	1.0	1.5	
20-Dec	1.0	1.0	Z	0.9	0.8	0.9	0.8	0.9	0.8	0.8	0.6	0.5	0.6	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.6	0.7	1.0	
21-Dec	0.8	0.9	0.8	Z	0.5	0.6	0.6	0.7	0.9	0.8	0.8	1.0	1.4	1.5	1.3	1.2	1.2	1.0	1.1	1.0	1.1	1.2	1.6	1.6	1.0	1.6	
22-Dec	1.7	1.6	1.4	1.5	Z	1.1	1.0	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.8	0.8	1.7	
23-Dec	0.8	0.9	0.8	1.1	1.0	Z	0.9	1.2	2.2	1.8	2.4	1.0	0.8	0.8	2.3	2.0	1.3	1.1	1.1	1.0	1.1	0.4	0.4	0.4	1.2	2.4	
24-Dec	Z	0.3	0.4	0.5	0.5	0.4	0.9	1.4	1.4	1.7	0.7	0.9	0.9	0.9	0.9	1.1	1.1	1.0	0.8	1.4	1.3	1.1	0.7	0.6	0.9	1.7	
25-Dec	0.5	Z	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.6	1.7	1.1	1.2	0.9	0.8	0.7	0.6	0.6	1.7	
26-Dec	0.6	1.1	Z	1.6	1.5	1.1	1.4	1.4	1.2	0.8	0.8	0.7	0.7	1.1	1.0	1.2	0.9	0.7	0.9	0.7	1.1	1.1	0.9	1.0	1.0	1.6	
27-Dec	1.0	1.2	1.4	Z	1.2	1.2	1.3	1.2	1.2	1.1	1.2	1.5	1.4	1.3	1.3	1.2	1.0	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.2	1.5	
28-Dec	0.9	0.8	0.7	0.6	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.6	0.9	0.9	1.0	0.9	0.9	0.6	0.4	0.4	0.4	0.5	0.4	0.6	1.0	
29-Dec	0.4	0.5	0.4	0.4	0.5	Z	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.8	0.5	0.4	0.4	0.4	0.5	0.5	0.8	
30-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
31-Dec	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.8	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.5	0.8	
																								Diurnal Average		0.7	
																								Diurnal Maximum		1.7	
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 - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	705	99.86	99.86
3 - 4	1	0.14	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort McKay - Bertha Ganter - December 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	73	36	6	3	9	6	17	55	190	50	25	26	30	54	14	14	608
3 - 4	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	73	36	6	3	9	6	17	55	191	50	25	26	30	54	14	14	609

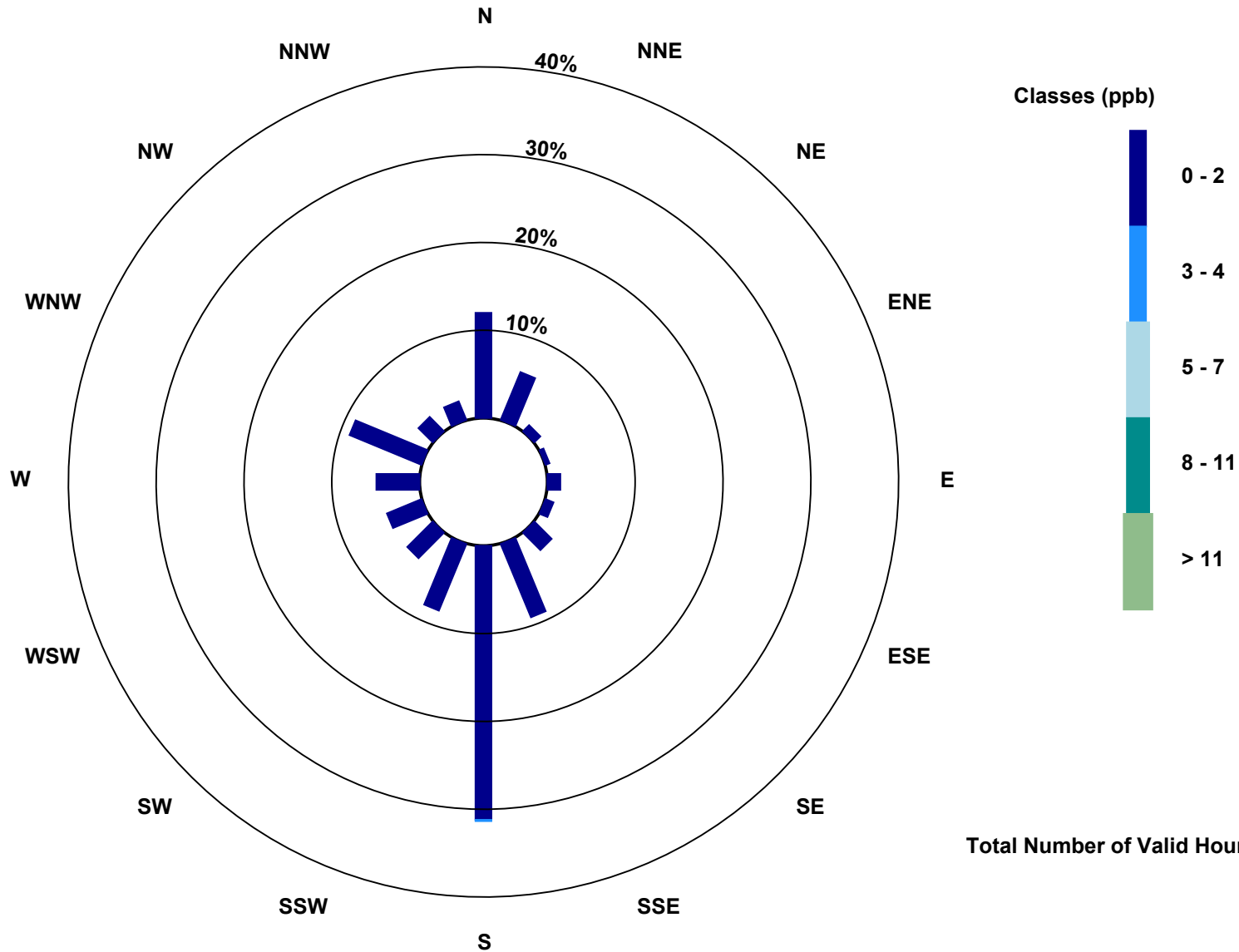
Total Number of Valid Hours: 609

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 609

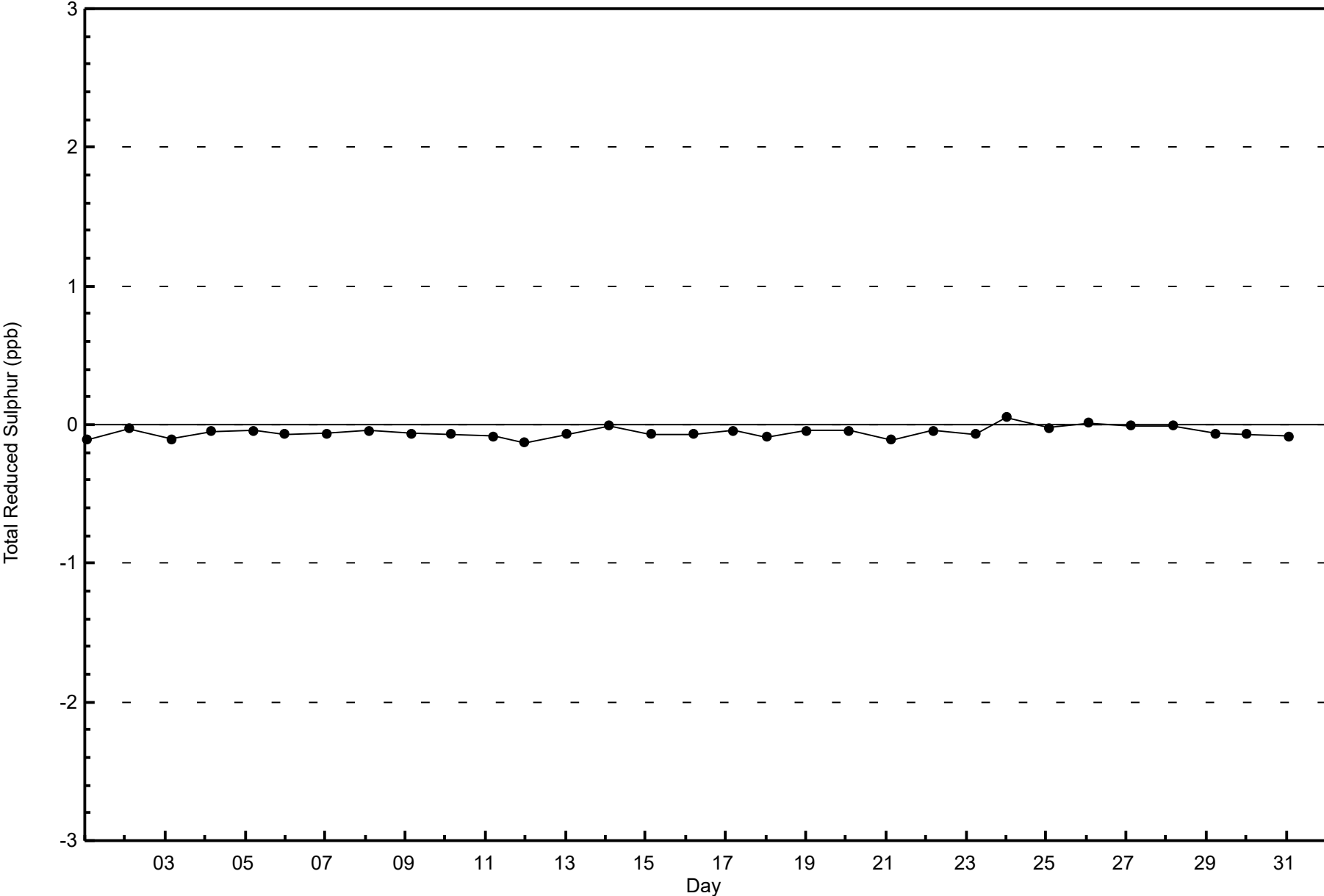


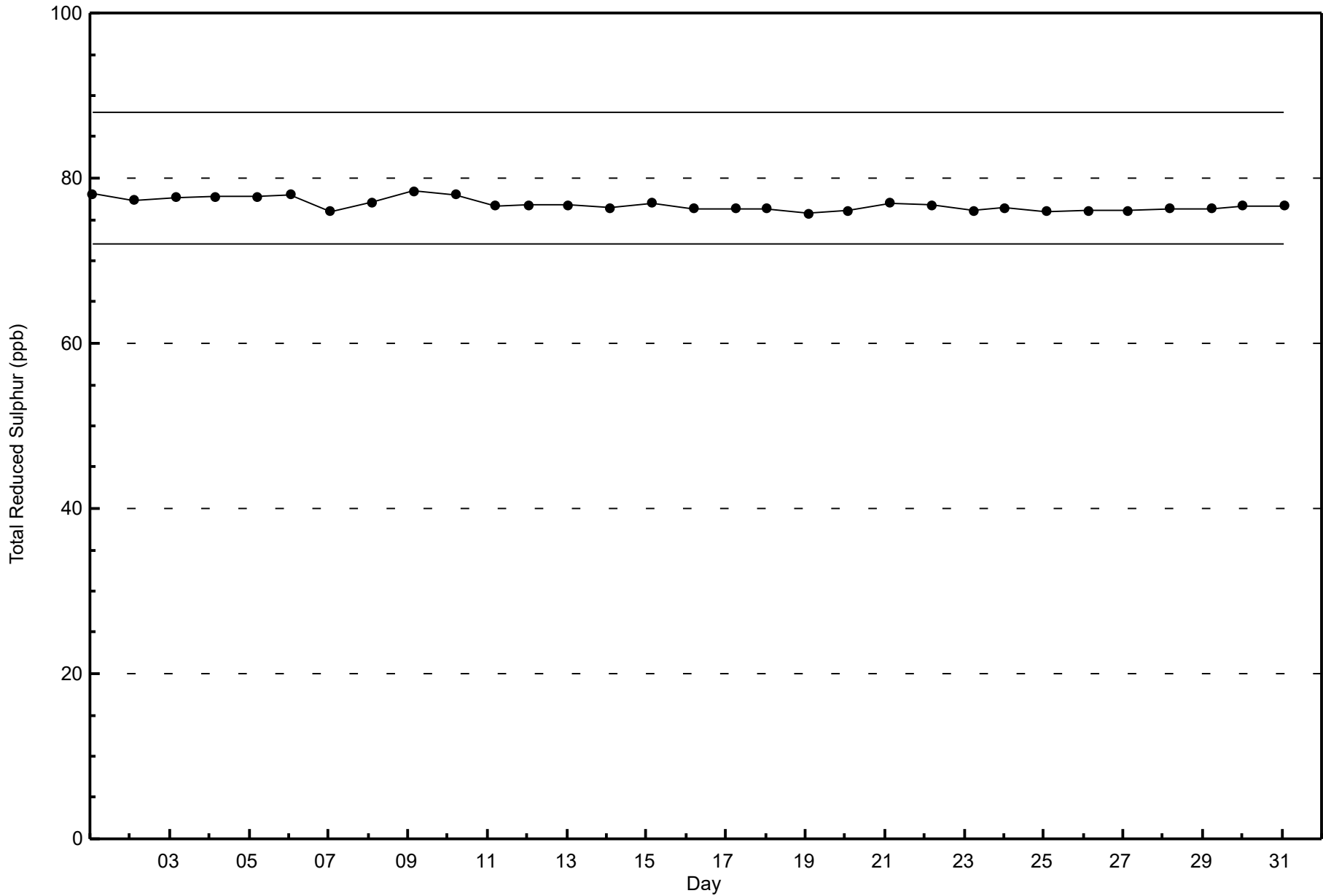
Wood Buffalo Environmental Association

Zero Responses

Total Reduced Sulphur (TRS) - ppb

Fort McKay - Bertha Ganter - December 2024







Wood Buffalo Environmental Association

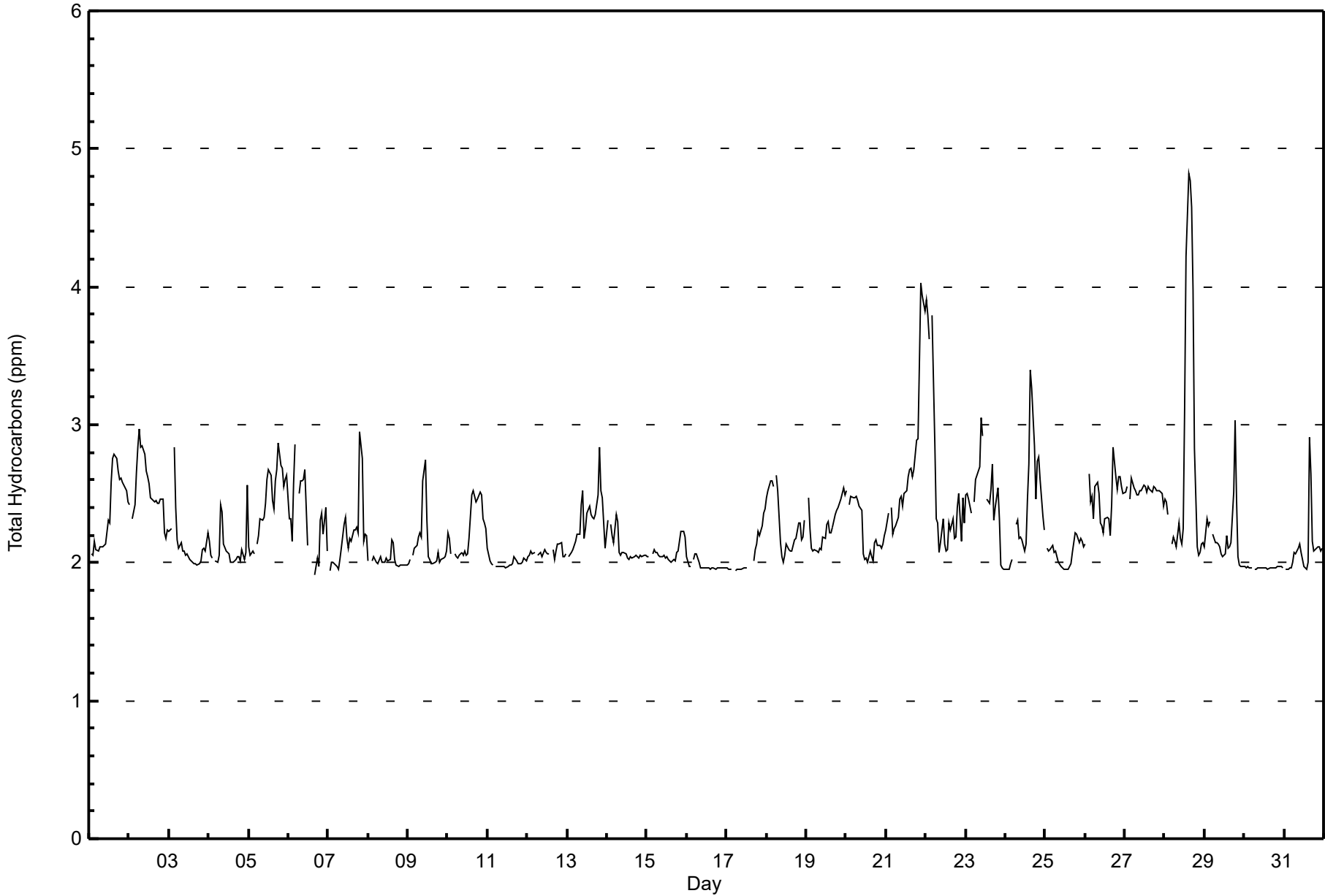
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Fort McKay - Bertha Ganter - December 2024

Maximum Value: 4.8 ppm on Dec 28 15:00		Maximum Daily Average: 2.8 ppm on Dec 28		Hours in Service:	744																						
Minimum Value: 1.9 ppm on Dec 6 17:00		Minimum Daily Average: 2.0 ppm on Dec 30		Hours of Data:	703																						
Maximum Diurnal Average: 2.4 ppm at hour 16		Minimum Diurnal Average: 2.2 ppm at hour 12		Hours of Missing Data:	41																						
Monthly Average: 2.26 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.4 P ₉₀ = 2.6 P ₉₉ = 3.9		Hours of Calibration:	35																						
				Percent Operational Time:	99.2																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.6	2.8	2.8	2.8	2.7	2.6	2.6	2.6	2.6	2.5	2.4	2.4	2.8	
2-Dec	2.4	Z	2.3	2.4	2.7	2.8	3.0	2.8	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.2	2.2	2.2	2.2	2.9	
3-Dec	2.2	2.3	Z	2.8	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.8		
4-Dec	2.2	2.1	2.0	Z	2.0	2.0	2.1	2.4	2.4	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.6	2.6		
5-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.3	2.3	2.3	2.4	2.6	2.7	2.6	2.4	2.4	2.6	2.7	2.9	2.7	2.7	2.5	2.6	2.6	2.9		
6-Dec	2.3	2.3	2.2	2.6	2.9	Z	2.5	2.6	2.6	2.6	2.7	2.1	C	C	C	C	1.9	2.0	2.0	2.3	2.4	2.2	2.4	2.1	2.9		
7-Dec	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.9	2.8	2.2	2.2	2.2	2.9		
8-Dec	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2		
9-Dec	2.0	2.0	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.6	2.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.7		
10-Dec	2.2	2.2	2.1	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5	2.5	2.5	2.4	2.5	2.5	2.5	2.3	2.3	2.2	2.5		
11-Dec	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
12-Dec	2.0	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	M	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1		
13-Dec	Z	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.4	2.5	2.2	2.2	2.4	2.4	2.3	2.3	2.4	2.5	2.8	2.5	2.5	2.3	2.1	2.8		
14-Dec	2.3	Z	2.3	2.2	2.1	2.4	2.3	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	2.1	2.0	2.1	2.1	2.4		
15-Dec	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.2		
16-Dec	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1		
17-Dec	2.0	2.0	2.0	2.0	Z	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	M	M	M	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.4		
18-Dec	2.5	2.5	2.6	2.6	2.6	Z	2.6	2.5	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.6		
19-Dec	Z	2.5	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5		
20-Dec	2.5	Z	2.4	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.5		
21-Dec	2.2	2.4	Z	2.4	2.2	2.3	2.3	2.3	2.5	2.5	2.4	2.5	2.5	2.6	2.7	2.7	2.6	2.7	2.9	2.9	3.4	4.0	3.9	3.8	4.0		
22-Dec	3.9	3.8	3.6	Z	3.8	2.9	2.3	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.3	2.2	2.3	2.2	2.2	2.4	2.5	2.2	2.5	2.3	3.9		
23-Dec	2.5	2.5	2.5	2.4	Z	2.4	2.6	2.6	2.7	3.1	2.9	M	M	2.5	2.4	2.5	2.7	2.3	2.4	2.5	2.3	2.0	2.0	2.0	3.1		
24-Dec	2.0	2.0	1.9	2.0	2.0	Z	2.3	2.3	2.2	2.2	2.2	2.1	2.1	2.5	2.7	3.4	3.3	2.9	2.5	2.7	2.8	2.6	2.3	2.2	3.4		
25-Dec	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	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.1	2.2		
26-Dec	2.1	Z	2.6	2.4	2.5	2.3	2.6	2.6	2.5	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.4	2.8	2.6	2.5	2.6	2.6	2.5	2.5	2.8		
27-Dec	2.5	2.6	Z	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.6	2.5	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.6		
28-Dec	2.5	2.4	2.4	Z	2.1	2.2	2.2	2.1	2.3	2.2	2.1	2.2	3.1	4.2	4.8	4.8	4.6	4.0	2.8	2.1	2.1	2.1	2.1	2.1	4.8		
29-Dec	2.1	2.3	2.3	2.3	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2	2.1	2.1	2.1	2.5	3.0	2.5	2.0	2.0	2.0	2.0	3.0		
30-Dec	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		
31-Dec	Z	1.9	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	2.9	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.9		
																								Diurnal Average		Diurnal Maximum	
																								2.3		3.8	
																								3.9		3.8	

Z - zerospan C - Calibration M - Maintenance





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	207	29.45	29.45
2.1 - 3.0	479	68.14	97.58
3.1 - 10.0	17	2.42	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Fort McKay - Bertha Ganter - December 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	33	10	0	1	3	4	10	13	30	4	7	9	21	40	6	3	194
2.1 - 3.0	43	25	5	3	6	3	6	39	150	44	18	14	9	13	7	10	395
3.1 - 10.0	2	0	1	0	0	0	0	2	2	1	0	2	1	3	2	1	17
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	35	6	4	9	7	16	54	182	49	25	25	31	56	15	14	606

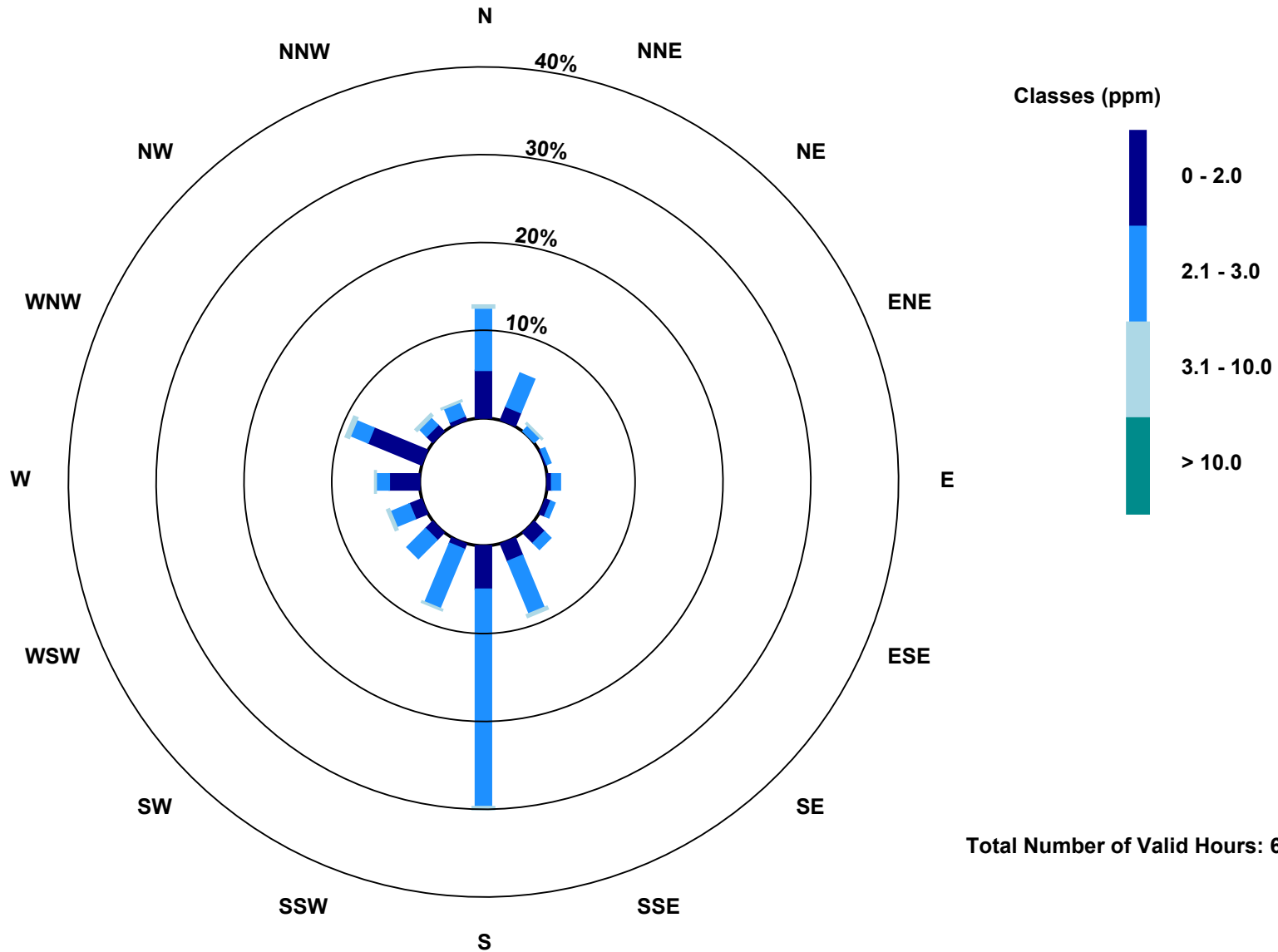
Total Number of Valid Hours: 606

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



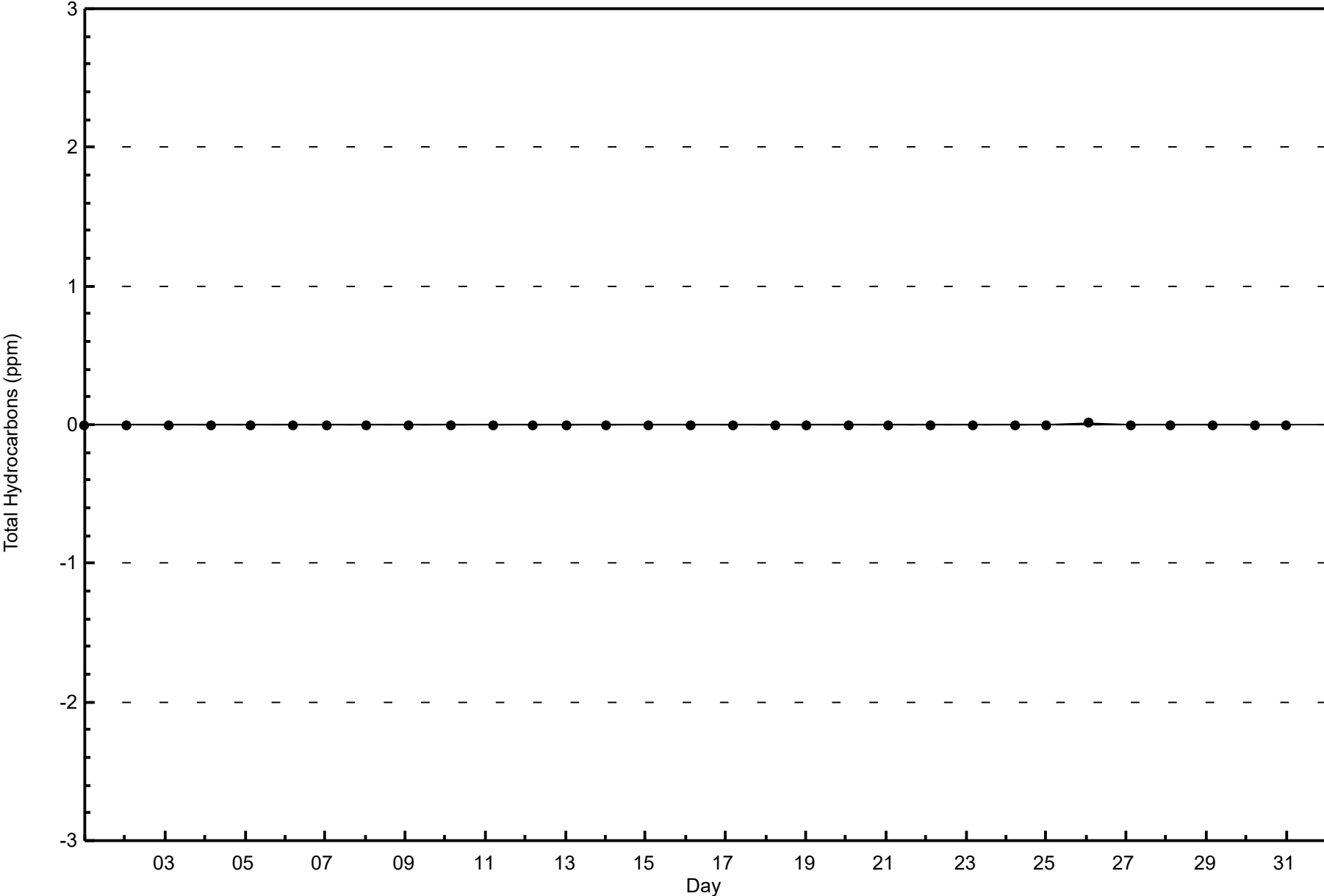


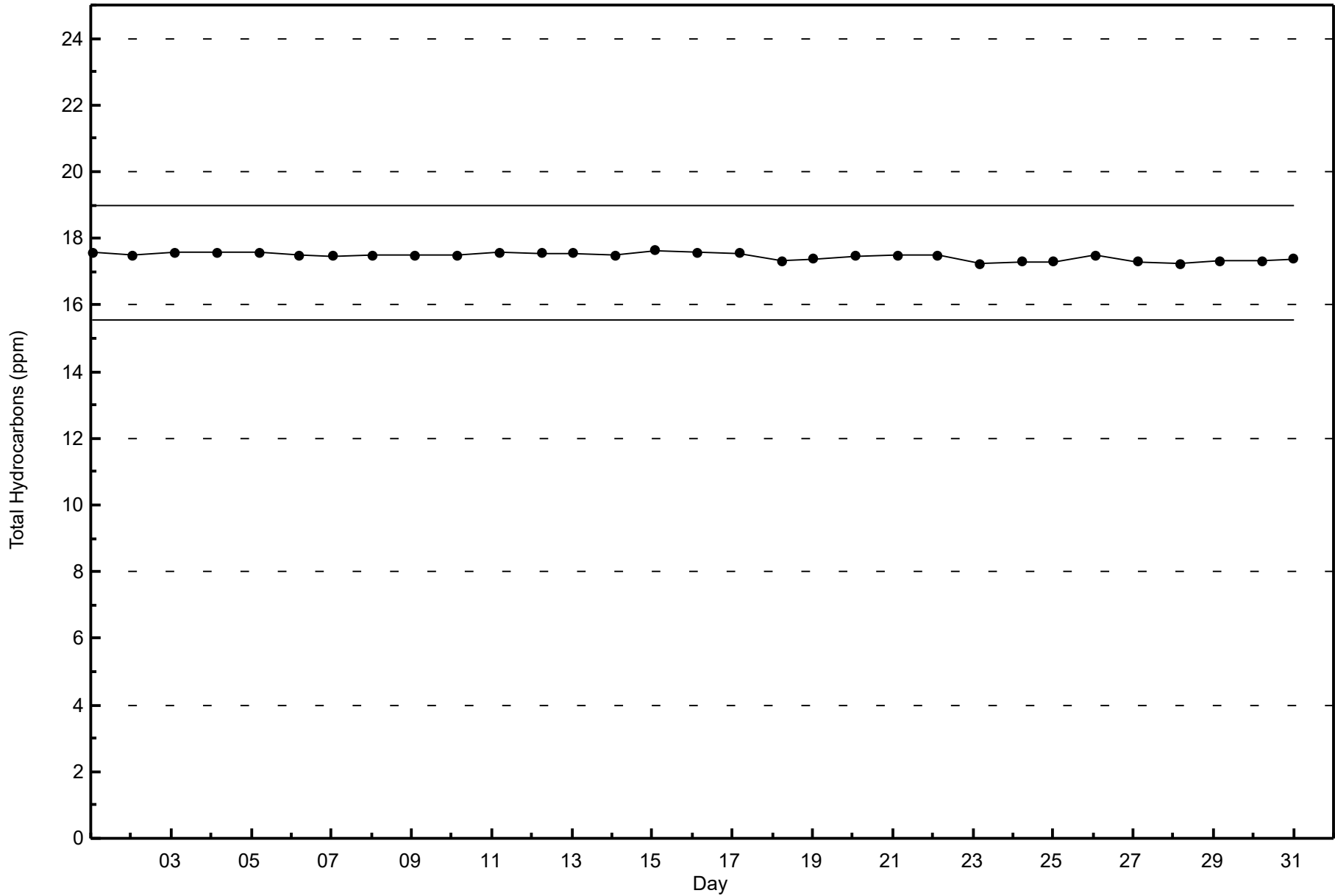
Wood Buffalo Environmental Association

Zero Responses

Total Hydrocarbons (THC) - ppm

Fort McKay - Bertha Ganter - December 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

Non Methane Hydrocarbons (NMHC) - ppm

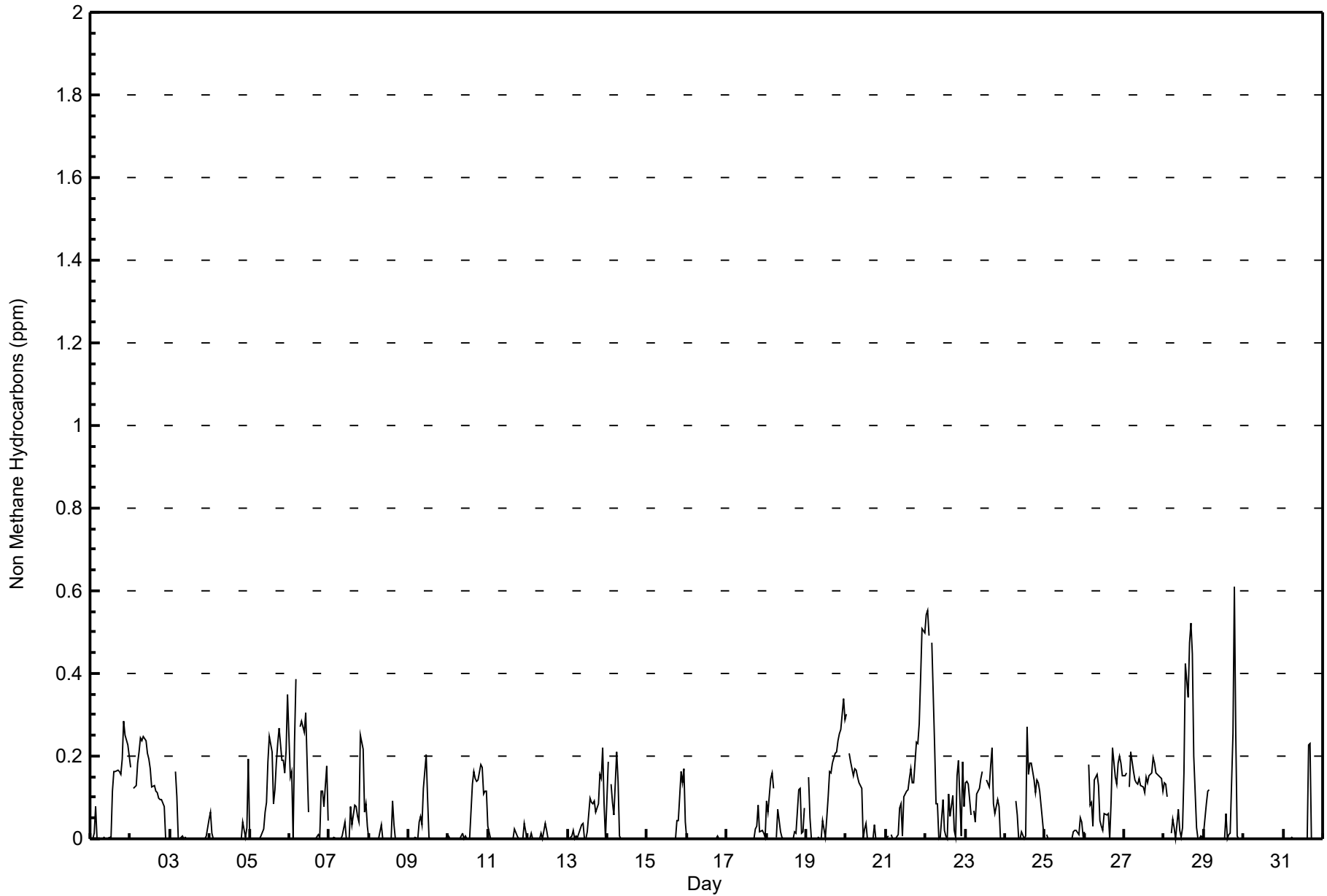
Fort McKay - Bertha Ganter - December 2024

Maximum Value: 0.609 ppm on Dec 29 19:00		Maximum Daily Average: 0.154 ppm on Dec 6		Hours in Service: 744																						
Minimum Value: 0.000 ppm on Dec 1 02:00		Minimum Daily Average: 0.000 ppm on Dec 30		Hours of Data: 703																						
Maximum Diurnal Average: 0.093 ppm at hour 20		Minimum Diurnal Average: 0.030 ppm at hour 12		Hours of Missing Data: 41																						
Monthly Average: 0.064 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 = 0.5		Hours of Calibration: 35																						
				Percent Operational Time: 99.2																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.000	0.015	0.080	0.001	0.000	0.000	0.000	0.004	0.000	0.000	0.002	0.005	0.115	0.164	0.163	0.167	0.164	0.155	0.194	0.285	0.249	0.229	0.199	0.095	0.285
2-Dec	0.173	Z	0.122	0.127	0.181	0.209	0.245	0.238	0.246	0.236	0.208	0.193	0.169	0.126	0.127	0.116	0.111	0.098	0.096	0.097	0.077	0.000	0.000	0.000	0.139	0.246
3-Dec	0.000	0.000	Z	0.163	0.101	0.000	0.000	0.006	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	0.008	0.048	0.014	0.163
4-Dec	0.065	0.013	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.004	0.026	0.194	0.015	0.194
5-Dec	0.004	0.000	0.000	0.000	Z	0.000	0.000	0.008	0.022	0.064	0.087	0.187	0.246	0.210	0.084	0.120	0.183	0.230	0.268	0.189	0.190	0.159	0.213	0.349	0.122	0.349
6-Dec	0.148	0.161	0.000	0.232	0.386	Z	0.270	0.286	0.270	0.258	0.307	0.066	C	C	C	C	0.000	0.009	0.002	0.116	0.116	0.078	0.176	0.044	0.154	0.386
7-Dec	Z	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.008	0.041	0.000	0.000	0.000	0.079	0.033	0.080	0.078	0.055	0.041	0.250	0.216	0.065	0.084	0.032	0.046	0.250
8-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.035	0.000	0.000	0.000	0.000	0.001	0.001	0.091	0.033	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.007	0.091
9-Dec	0.000	0.000	Z	0.000	0.004	0.002	0.041	0.054	0.035	0.123	0.204	0.098	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.025	0.204
10-Dec	0.008	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.013	0.000	0.006	0.000	0.000	0.000	0.132	0.161	0.147	0.138	0.143	0.180	0.173	0.109	0.117	0.114	0.063	0.180
11-Dec	0.031	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.023	0.005	0.000	0.000	0.000	0.000	0.038	0.000	0.004	0.038
12-Dec	0.000	0.000	0.013	0.000	0.000	Z	0.000	0.000	0.014	0.000	0.037	0.021	0.000	0.000	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.037
13-Dec	Z	0.000	0.006	0.021	0.000	0.008	0.004	0.025	0.034	0.039	0.000	0.000	0.017	0.099	0.089	0.084	0.092	0.063	0.086	0.156	0.147	0.222	0.084	0.000	0.055	0.222
14-Dec	0.185	Z	0.132	0.088	0.056	0.210	0.139	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	0.036	0.210
15-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.045	0.046	0.163	0.137	0.168	0.039	0.026	0.168
16-Dec	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	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006
17-Dec	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	M	M	0.001	0.023	0.032	0.080	0.017	0.019	0.015	0.004	0.010	0.080
18-Dec	0.093	0.063	0.147	0.161	0.122	Z	0.004	0.072	0.018	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.018	0.012	0.118	0.120	0.015	0.018	0.075	0.046	0.161	
19-Dec	Z	0.149	0.052	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.044	0.002	0.051	0.102	0.164	0.160	0.183	0.208	0.209	0.238	0.254	0.264	0.338	0.289	0.118	0.338
20-Dec	0.303	Z	0.205	0.186	0.152	0.169	0.167	0.150	0.135	0.120	0.001	0.023	0.037	0.000	0.000	0.000	0.000	0.034	0.001	0.000	0.000	0.000	0.000	0.000	0.073	0.303
21-Dec	0.000	0.005	Z	0.011	0.000	0.000	0.000	0.012	0.074	0.086	0.007	0.101	0.114	0.119	0.146	0.170	0.136	0.137	0.234	0.232	0.280	0.389	0.509	0.499	0.142	0.509
22-Dec	0.541	0.552	0.493	Z	0.475	0.223	0.086	0.085	0.000	0.002	0.094	0.019	0.005	0.000	0.109	0.054	0.106	0.022	0.005	0.151	0.189	0.007	0.187	0.079	0.152	0.552
23-Dec	0.135	0.139	0.132	0.059	Z	0.069	0.039	0.107	0.123	0.147	0.162	M	M	0.141	0.124	0.177	0.222	0.085	0.062	0.093	0.077	0.000	0.000	0.000	0.100	0.222
24-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.090	0.056	0.000	0.000	0.016	0.000	0.006	0.271	0.154	0.182	0.185	0.143	0.110	0.143	0.134	0.114	0.045	0.005	0.072	0.271
25-Dec	Z	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	0.000	0.017	0.021	0.021	0.010	0.050	0.042	0.007	0.008	0.050
26-Dec	0.016	Z	0.178	0.082	0.090	0.030	0.141	0.157	0.130	0.045	0.030	0.021	0.060	0.059	0.060	0.000	0.093	0.222	0.150	0.133	0.182	0.200	0.184	0.154	0.105	0.222
27-Dec	0.151	0.160	Z	0.125	0.211	0.164	0.143	0.135	0.134	0.147	0.129	0.127	0.113	0.148	0.136	0.154	0.158	0.198	0.184	0.160	0.157	0.151	0.147	0.115	0.150	0.211
28-Dec	0.134	0.133	0.102	Z	0.014	0.048	0.026	0.000	0.070	0.019	0.004	0.029	0.161	0.425	0.341	0.474	0.523	0.447	0.201	0.028	0.000	0.000	0.005	0.003	0.139	0.523
29-Dec	0.013	0.084	0.115	0.118	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.001	0.009	0.014	0.256	0.609	0.250	0.005	0.000	0.000	0.000	0.067	0.609
30-Dec	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
31-Dec	Z	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.227	0.230	0.002	0.000	0.001	0.000	0.000	0.000	0.020	0.230
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	356	50.64	50.64
0.006 - 0.05	94	13.37	64.01
0.06 - 0.1	129	18.35	82.36
> 0.1	124	17.64	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay - Bertha Ganter - December 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	47	17	2	2	7	6	13	34	61	12	15	9	24	44	8	5	306
0.006 - 0.05	10	4	1	0	0	1	1	9	33	8	4	7	3	3	2	3	89
0.06 - 0.1	10	6	1	1	1	0	1	8	52	15	4	4	1	3	2	1	110
> 0.1	11	8	2	1	1	0	1	3	36	14	2	5	3	6	3	5	101
Totals	78	35	6	4	9	7	16	54	182	49	25	25	31	56	15	14	606

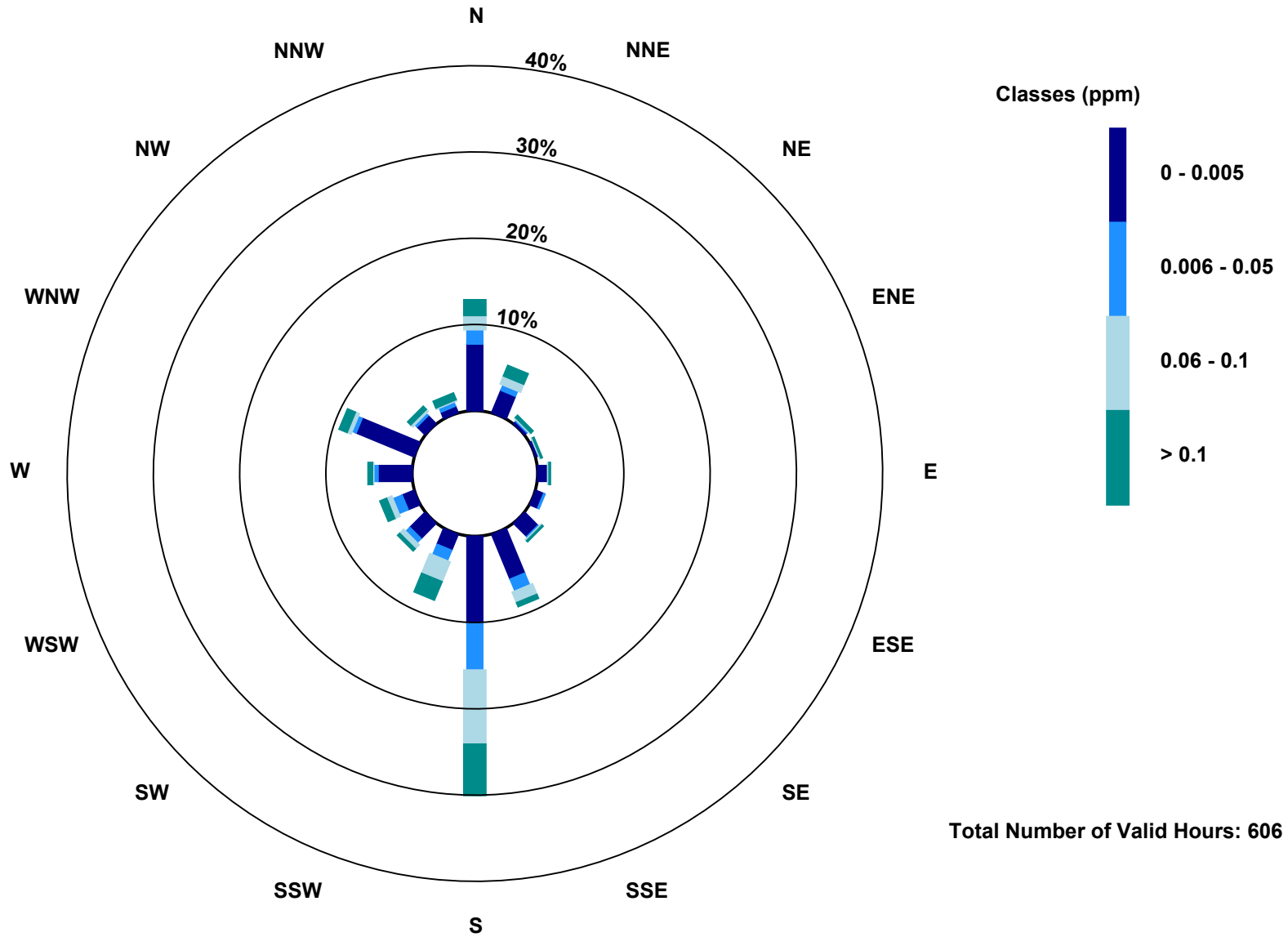
Total Number of Valid Hours: 606

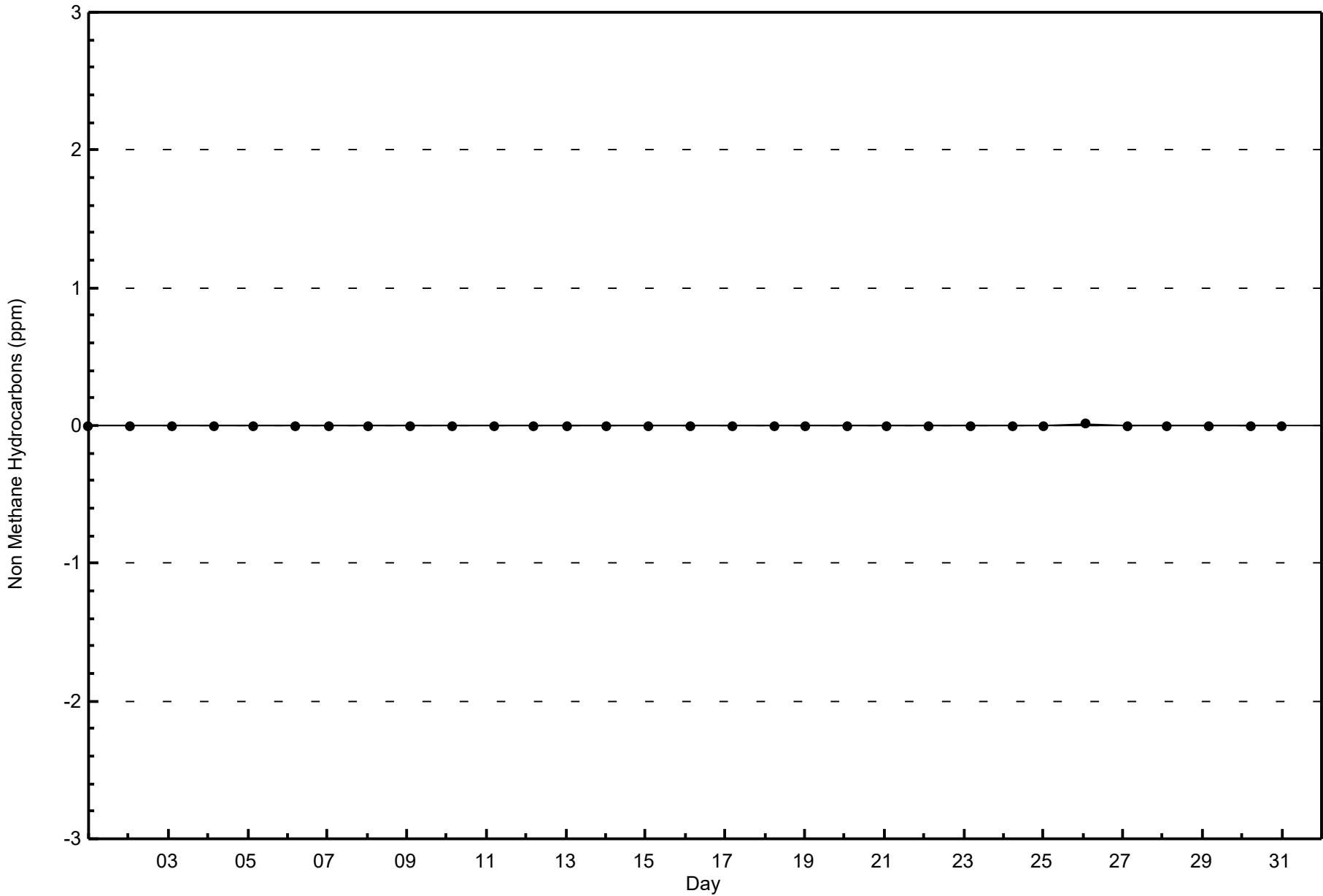
Total Number of Hours: 744

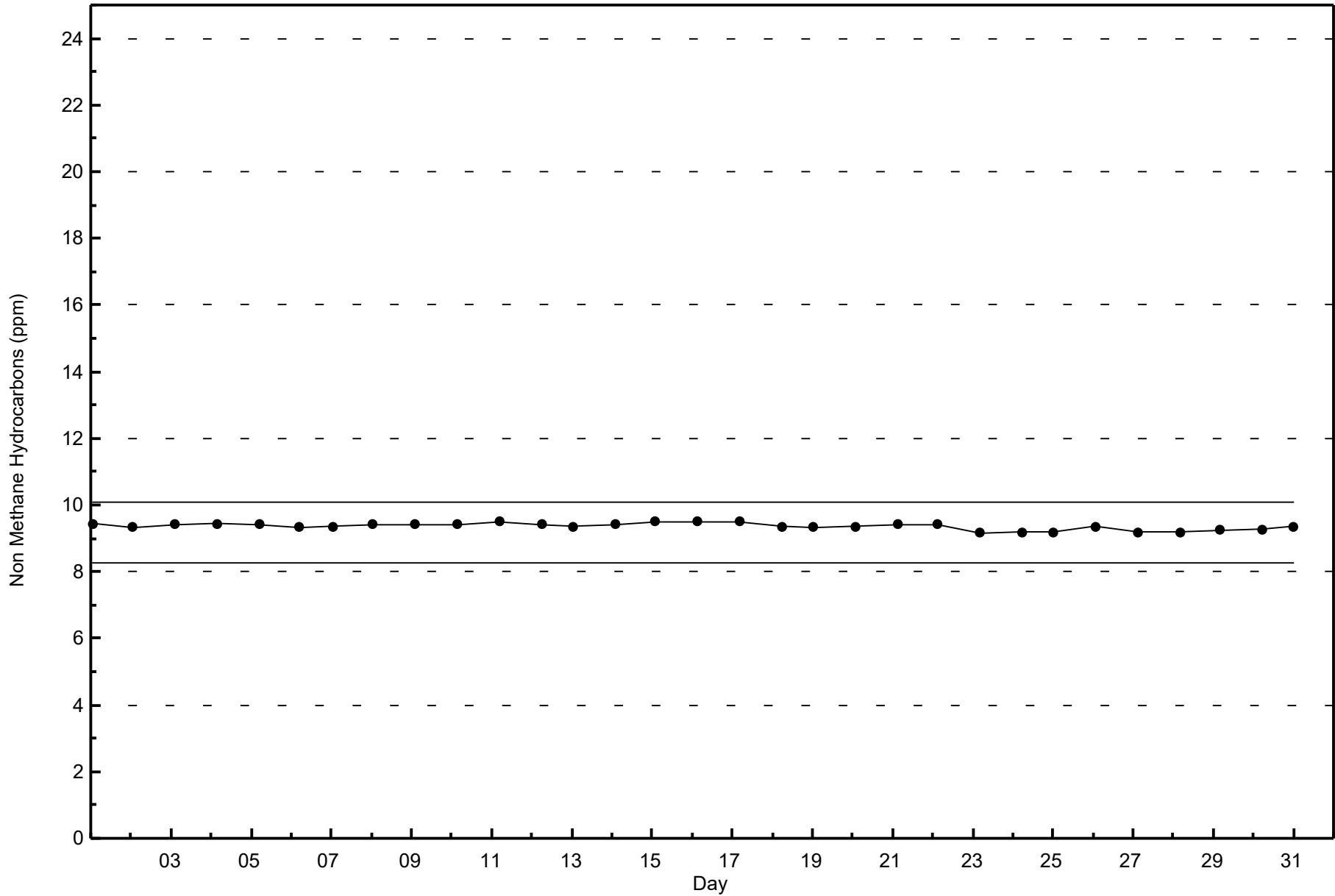


Wood Buffalo Environmental Association
Wind Rose Dec 2024

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









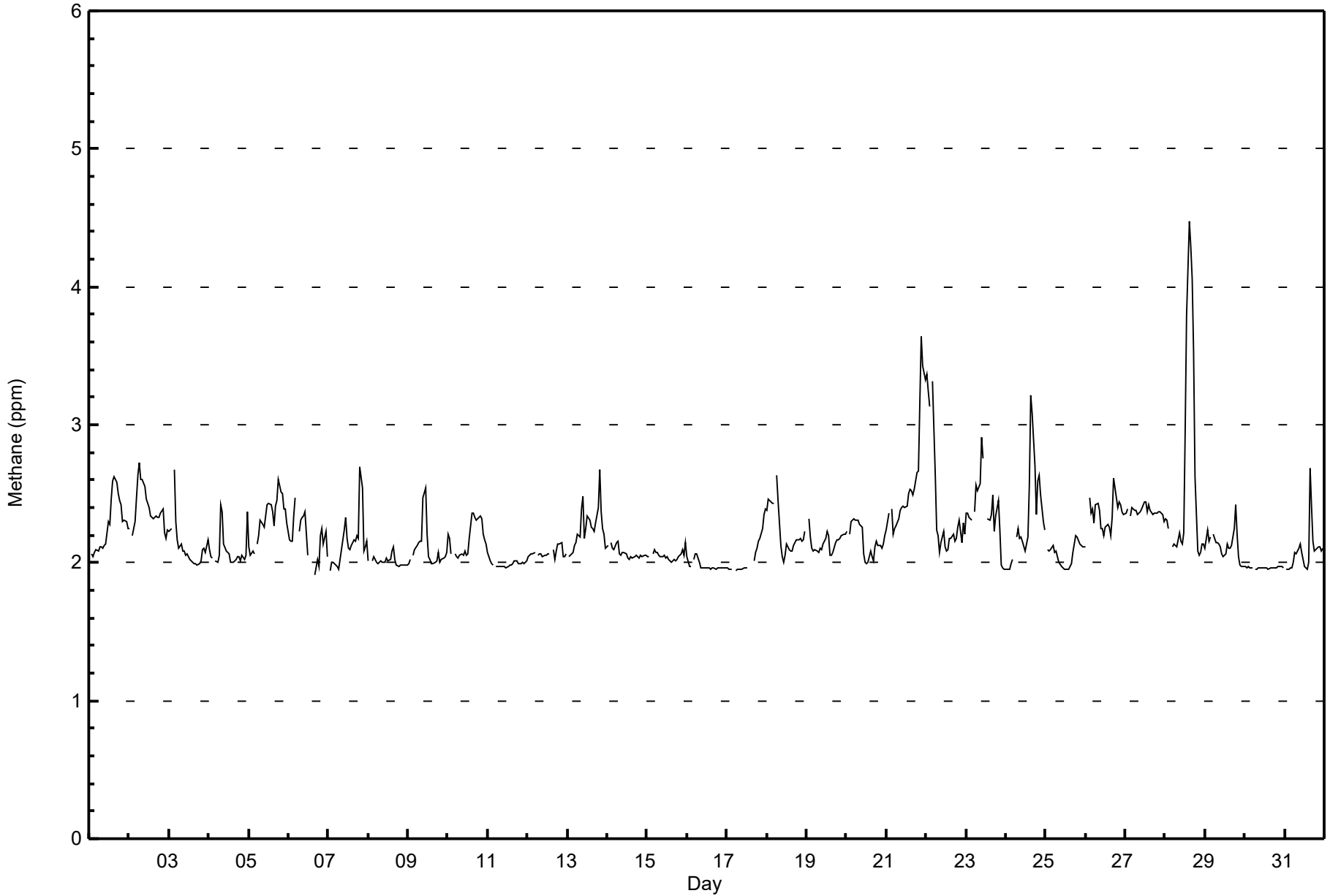
Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744				
Maximum Value: 4.5 ppm on Dec 28 15:00		Maximum Daily Average: 2.6 ppm on Dec 28																			Hours of Data:	703				
Minimum Value: 1.9 ppm on Dec 6 17:00		Minimum Daily Average: 2.0 ppm on Dec 30																			Hours of Missing Data:	41				
Maximum Diurnal Average: 2.3 ppm at hour 16		Minimum Diurnal Average: 2.1 ppm at hour 12																			Hours of Calibration:	35				
Monthly Average: 2.20 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.3 P ₉₀ = 2.4 P ₉₉ = 3.4																			Percent Operational Time:	99.2				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.5	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	2.3	2.2	2.3	2.6
2-Dec	2.3	Z	2.2	2.3	2.5	2.6	2.7	2.6	2.6	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.2	2.2	2.2	2.4	2.7
3-Dec	2.2	2.3	Z	2.7	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.1	2.7	
4-Dec	2.1	2.0	2.0	Z	2.0	2.0	2.1	2.4	2.4	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.4	2.1	2.4	
5-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.6	2.5	2.5	2.4	2.4	2.3	2.6	
6-Dec	2.2	2.2	2.2	2.3	2.5	Z	2.2	2.3	2.3	2.3	2.4	2.1	C	C	C	C	1.9	2.0	2.0	2.2	2.2	2.1	2.2	2.0	2.5	
7-Dec	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.7	2.5	2.1	2.1	2.2	2.7	
8-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
9-Dec	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.5	2.5	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.5	
10-Dec	2.2	2.2	2.1	Z	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.4	
11-Dec	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
12-Dec	2.0	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	M	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	
13-Dec	Z	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.5	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.7	2.4	2.2	2.2	2.1	2.7	
14-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	
15-Dec	2.0	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	
16-Dec	2.0	2.0	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
17-Dec	2.0	2.0	2.0	2.0	Z	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	M	M	M	2.0	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	
18-Dec	2.4	2.5	2.4	2.4	2.4	Z	2.6	2.5	2.1	2.0	2.0	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	2.6	
19-Dec	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	
20-Dec	2.2	Z	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.1	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
21-Dec	2.2	2.4	Z	2.4	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.7	2.7	3.2	3.6	3.4	3.3	3.6	
22-Dec	3.4	3.2	3.1	Z	3.3	2.6	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.3	2.2	3.4	
23-Dec	2.4	2.4	2.3	2.3	Z	2.4	2.6	2.5	2.6	2.9	2.8	M	M	2.3	2.3	2.4	2.5	2.2	2.3	2.5	2.2	2.0	2.0	2.9		
24-Dec	2.0	2.0	1.9	2.0	2.0	Z	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.2	2.6	3.2	3.1	2.7	2.4	2.6	2.6	2.5	2.3	3.2		
25-Dec	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	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2		
26-Dec	2.1	Z	2.5	2.4	2.4	2.3	2.4	2.4	2.4	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.6	
27-Dec	2.4	2.4	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	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	
28-Dec	2.3	2.3	2.2	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.9	3.8	4.5	4.3	4.1	3.5	2.6	2.1	2.1	2.1	2.1	2.1	4.5	
29-Dec	2.1	2.2	2.2	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.2	2.0	2.0	2.0	2.0	2.4	
30-Dec	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	
31-Dec	Z	1.9	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	2.7	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.7	
		2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Diurnal Average
		3.4	3.2	3.1	2.7	3.3	2.6	2.7	2.6	2.6	2.9	2.8	2.4	2.9	3.8	4.5	4.3	4.1	3.5	2.7	2.7	3.2	3.6	3.4	3.3	Diurnal Maximum
Z - zerospan		C - Calibration					M - Maintenance																			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	213	30.30	30.30
2.1 - 3.0	475	67.57	97.87
3.1 - 10.0	15	2.13	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 703

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Fort McKay - Bertha Ganter - December 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	33	12	0	1	3	4	10	13	31	5	7	9	21	40	6	3	198
2.1 - 3.0	43	23	5	3	6	3	6	39	149	44	18	14	9	14	7	10	393
3.1 - 10.0	2	0	1	0	0	0	0	2	2	0	0	2	1	2	2	1	15
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	35	6	4	9	7	16	54	182	49	25	25	31	56	15	14	606

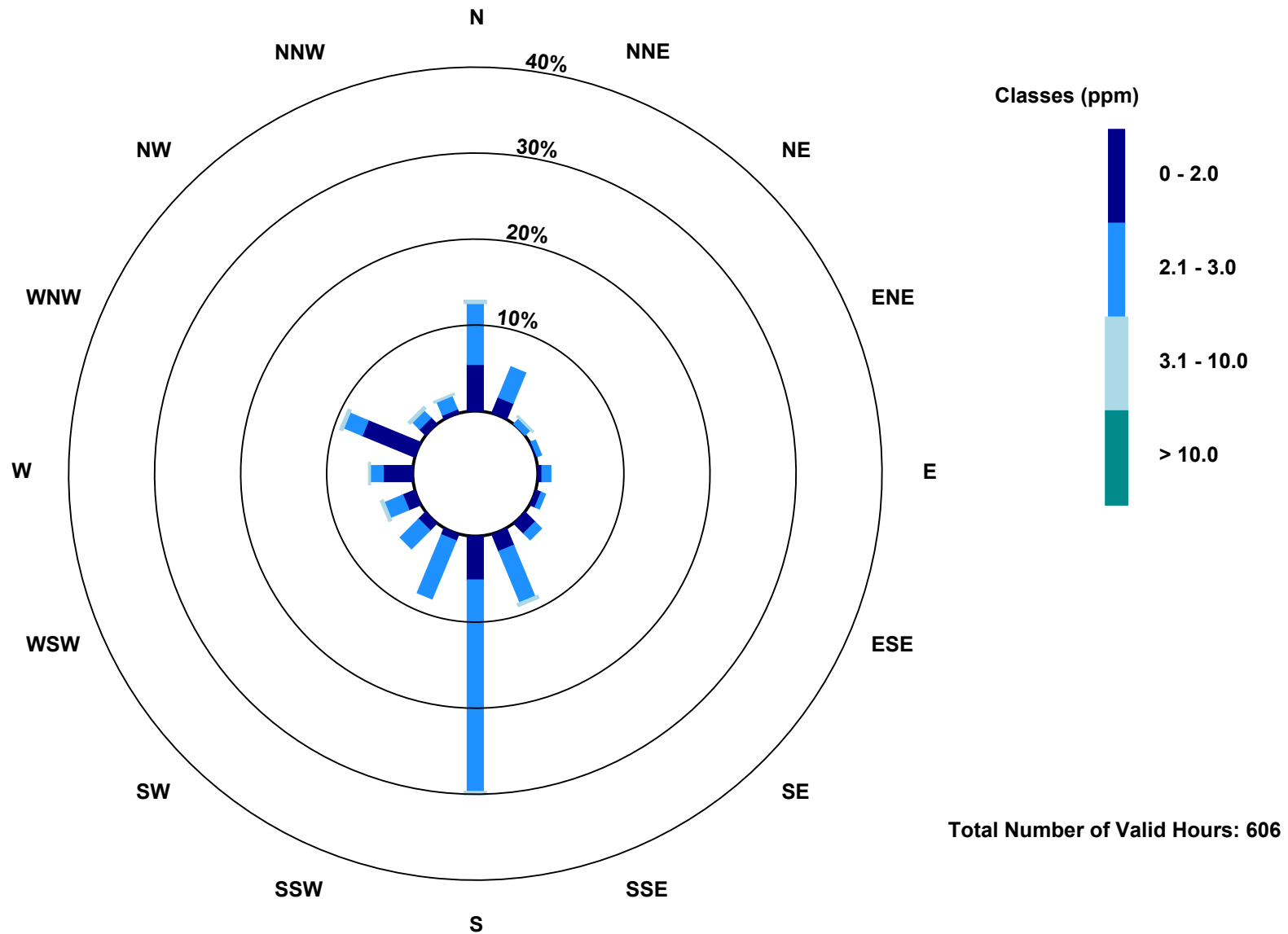
Total Number of Valid Hours: 606

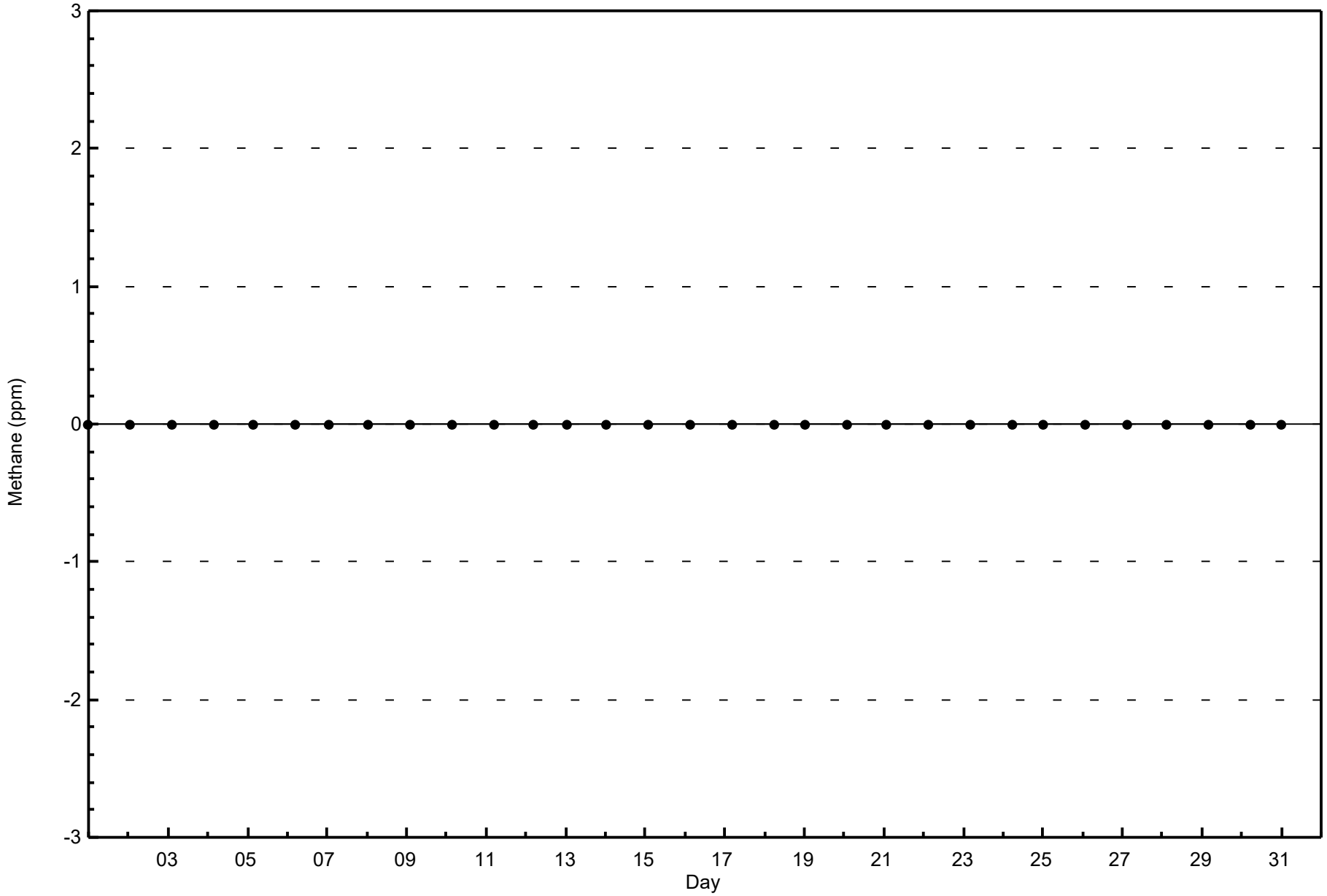
Total Number of Hours: 744

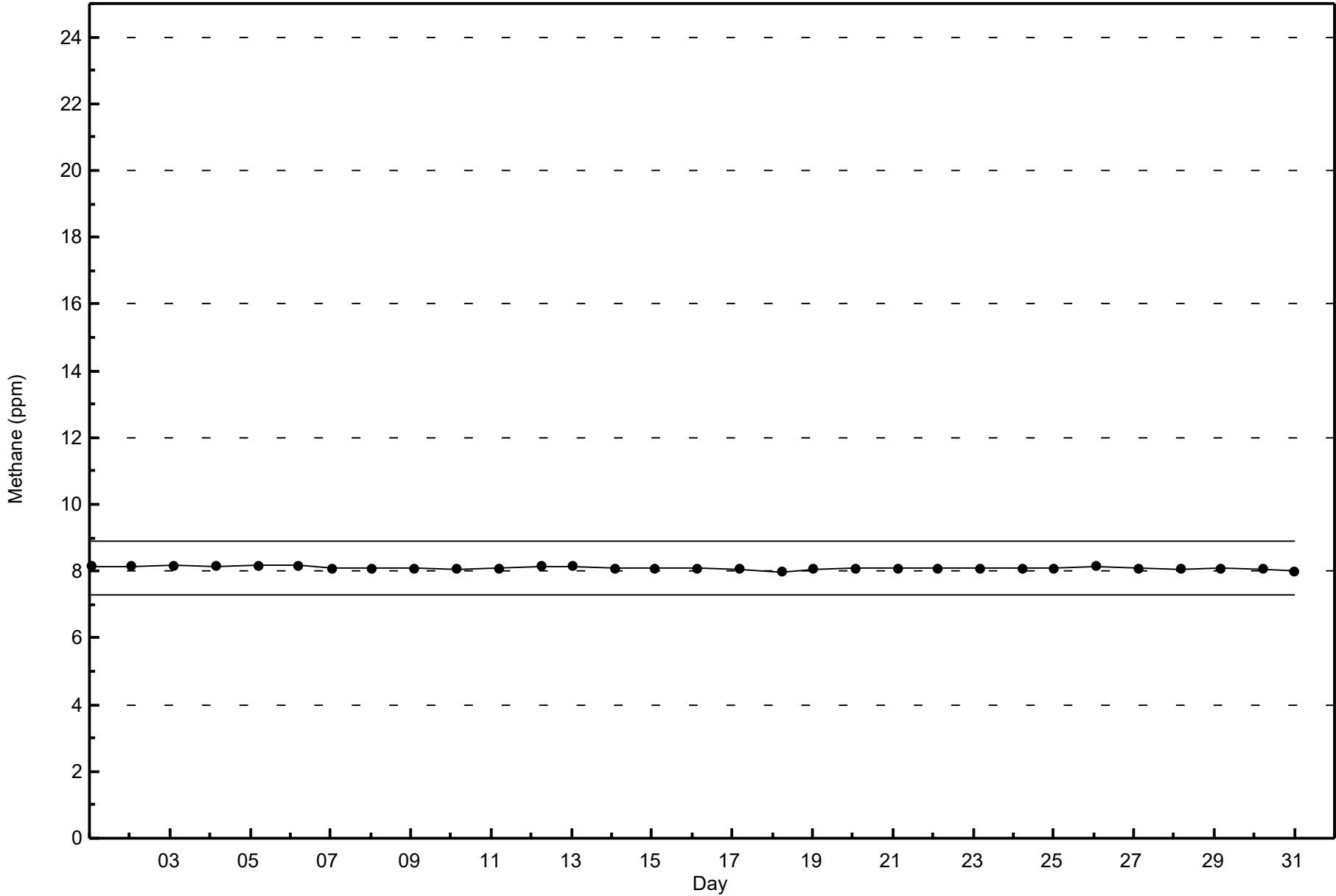


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Fort McKay - Bertha Ganter









Summary of Hour Averages

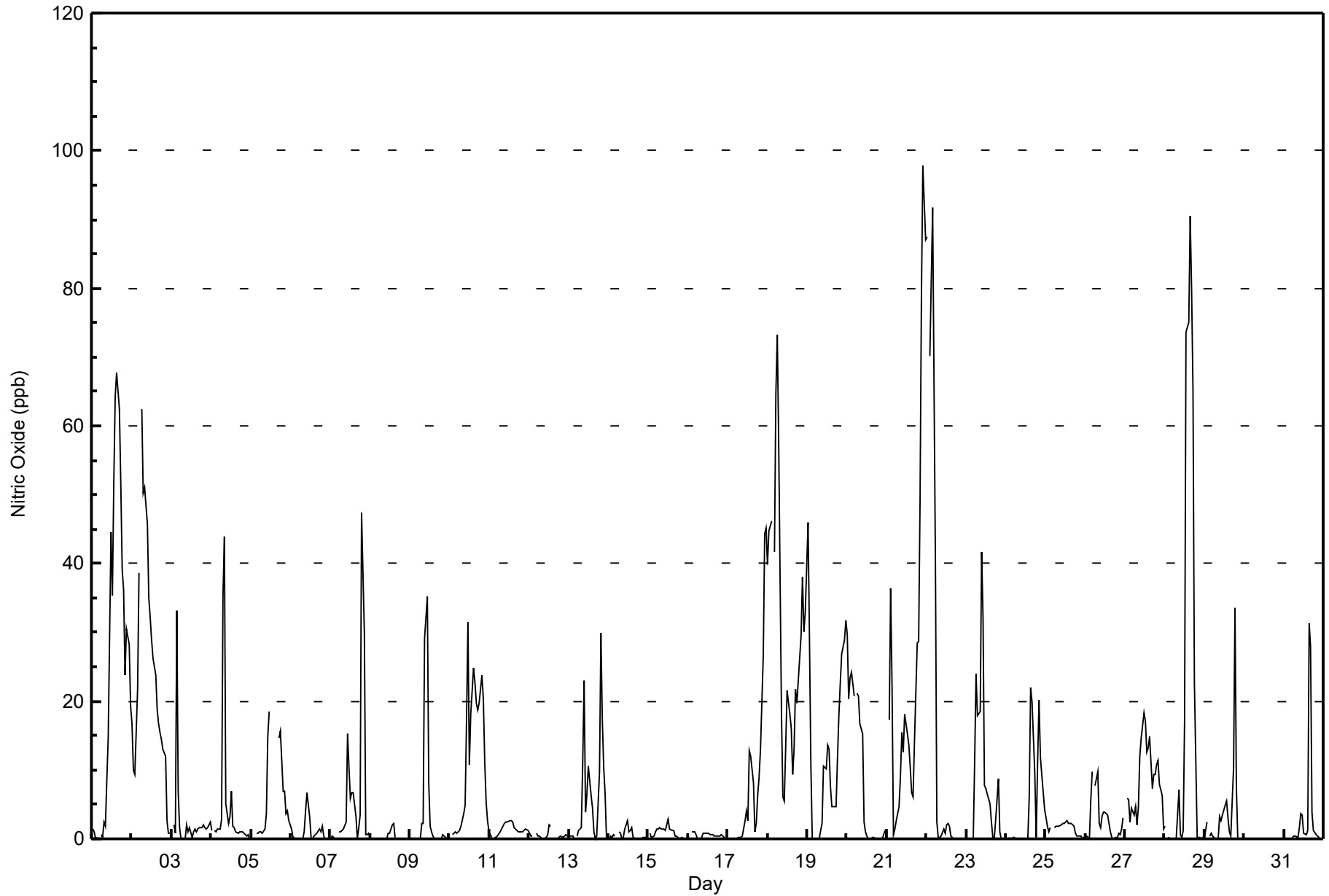
Fort McKay - Bertha Ganter - December 2024

Maximum Value: 97.9 ppb on Dec 21 23:00																						Maximum Daily Average: 29.9 ppb on Dec 18																						Hours in Service: 744	
Minimum Value: 0.0 ppb on Dec 1 03:00																						Minimum Daily Average: 0.0 ppb on Dec 30																						Hours of Data: 705	
Maximum Diurnal Average: 10.5 ppb at hour 16																						Minimum Diurnal Average: 5.1 ppb at hour 6																						Hours of Missing Data: 39	
Monthly Average: 8.06 ppb																						Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 1.3 Q ₃ = 8.2 P ₉₀ = 26.3 P ₉₉ = 79.0																						Hours of Calibration: 36	
																																												Percent Operational Time: 99.6	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	1.5	1.0	0.0	0.2	Z	0.6	0.2	2.4	1.9	8.4	14.7	44.6	35.4	51.8	64.3	67.7	62.4	51.5	39.1	36.3	23.8	30.5	28.3	19.4	25.5	67.7																			
2-Dec	16.8	9.9	9.3	21.8	38.6	Z	62.5	50.1	51.1	45.8	35.0	32.1	29.0	26.3	23.7	18.7	16.7	15.5	14.3	12.9	11.9	2.7	0.7	0.9	23.8	62.5																			
3-Dec	Z	2.0	0.7	33.2	6.8	1.6	0.0	0.0	0.0	2.1	1.1	1.6	0.2	1.0	1.4	1.0	1.5	1.6	1.7	2.0	1.6	1.4	1.6	2.5	2.9	33.2																			
4-Dec	1.2	Z	1.3	1.1	1.4	1.4	2.9	35.5	44.0	5.0	2.3	3.3	6.9	1.9	1.7	1.1	0.8	0.9	0.9	1.0	0.9	0.4	0.5	0.0	5.1	44.0																			
5-Dec	0.0	0.0	Z	0.8	0.8	1.0	1.0	0.9	1.5	3.6	14.8	18.5	C	C	C	C	C	14.7	15.7	7.0	7.0	3.7	4.1	2.6	5.4	18.5																			
6-Dec	1.5	0.2	0.3	Z	0.0	0.0	0.0	0.0	1.0	4.2	6.6	3.1	0.0	0.0	0.4	0.7	0.9	1.4	1.0	1.8	0.3	0.0	0.0	0.0	1.0	6.6																			
7-Dec	0.0	0.5	0.3	0.0	Z	1.0	1.1	1.2	1.5	2.5	15.2	10.4	5.8	6.8	6.7	3.2	0.0	1.6	3.5	47.4	30.0	0.6	0.6	0.9	6.1	47.4																			
8-Dec	0.2	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.8	0.8	2.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2																			
9-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.0	2.3	2.2	29.1	35.2	8.2	1.8	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.7	0.2	0.0	0.0	3.5	35.2																			
10-Dec	0.2	Z	0.6	1.0	0.8	1.0	1.2	1.9	3.6	4.8	17.3	31.5	10.7	18.0	24.8	22.8	19.7	18.6	19.7	23.9	20.2	11.2	5.3	2.6	11.4	31.5																			
11-Dec	0.9	0.2	Z	0.2	0.1	0.4	1.0	1.5	1.9	2.3	2.5	2.5	2.6	2.6	2.5	1.6	1.3	0.9	1.0	1.1	1.1	1.2	1.5	1.3	1.4	2.6																			
12-Dec	0.9	0.4	0.4	Z	0.8	0.4	0.4	0.2	0.0	0.0	0.1	0.6	2.0	1.8	M	0.0	0.0	0.0	0.1	0.4	0.3	0.5	0.6	0.4	0.5	2.0																			
13-Dec	0.2	0.4	0.4	0.0	Z	0.4	1.3	1.7	11.0	23.0	3.9	6.6	10.5	6.2	4.5	1.1	0.0	0.4	9.8	29.9	17.3	10.3	6.6	0.0	6.3	29.9																			
14-Dec	0.0	0.3	0.3	0.5	0.4	Z	1.1	0.7	0.1	0.2	1.3	2.7	1.0	1.2	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.5	2.7																			
15-Dec	Z	0.8	0.2	0.4	1.0	1.4	1.4	1.6	1.5	1.5	1.3	2.0	2.8	1.4	1.2	1.1	0.5	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.9	2.8																			
16-Dec	0.0	Z	1.1	1.1	1.0	0.6	0.1	0.0	0.3	0.7	0.8	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.6	0.4	0.2	0.1	0.5	1.1																			
17-Dec	0.0	0.0	Z	0.0	0.1	0.1	0.2	0.3	0.3	0.4	2.6	4.2	2.6	12.8	12.0	8.2	1.0	2.2	6.3	8.9	13.1	26.6	44.3	45.1	8.3	45.1																			
18-Dec	40.0	44.8	46.1	Z	41.6	64.7	73.1	57.8	18.4	6.1	5.4	13.3	21.6	18.1	16.0	9.4	13.0	21.8	19.6	26.3	29.5	38.0	30.1	32.9	29.9	73.1																			
19-Dec	45.9	29.0	10.8	0.1	Z	0.0	0.0	0.0	1.2	2.3	10.7	10.2	13.6	13.0	7.6	4.6	4.6	4.8	11.6	18.0	22.6	26.8	29.0	31.6	13.0	45.9																			
20-Dec	29.7	20.3	23.4	24.2	20.8	Z	21.1	20.8	16.6	15.2	2.4	0.9	0.5	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.5	1.3	8.6	29.7																			
21-Dec	Z	17.2	36.5	22.0	0.6	1.4	2.7	4.6	9.1	15.4	12.6	18.1	15.2	13.5	10.5	6.6	6.1	14.0	28.5	28.7	49.0	79.2	97.9	87.1	25.1	97.9																			
22-Dec	87.4	Z	70.2	80.9	91.7	39.6	2.5	0.2	0.1	0.3	1.4	0.9	2.1	2.2	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	91.7																			
23-Dec	0.0	0.0	Z	0.0	0.0	11.0	24.0	17.9	18.6	41.7	32.2	7.7	7.2	6.5	5.2	2.4	0.3	0.0	2.7	8.7	1.0	0.0	0.0	0.0	8.1	41.7																			
24-Dec	0.0	0.0	0.1	Z	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	21.9	20.0	9.3	0.3	11.2	20.1	11.9	6.8	4.3	4.9	21.9																			
25-Dec	3.1	1.8	1.0	1.6	Z	1.7	1.8	1.8	1.8	2.0	2.2	2.2	2.4	2.6	2.2	2.2	2.0	1.8	0.9	0.4	0.3	0.5	0.0	0.1	1.6	3.1																			
26-Dec	0.2	0.3	0.0	5.8	9.8	Z	7.7	9.7	2.2	1.6	3.3	3.9	3.9	3.4	2.3	1.1	0.3	0.1	0.2	0.2	0.7	0.7	1.4	3.0	2.7	9.8																			
27-Dec	Z	5.9	5.7	2.5	4.4	3.4	4.6	2.1	4.7	12.0	14.7	18.2	17.1	12.6	13.3	14.7	7.3	9.4	9.4	10.8	11.3	7.9	6.2	1.4	8.7	18.2																			
28-Dec	1.8	Z	0.1	0.0	0.0	0.0	0.0	0.0	7.1	0.7	0.2	1.2	17.4	73.5	75.1	90.5	80.0	65.4	22.7	0.1	0.1	0.2	0.0	0.2	19.0	90.5																			
29-Dec	0.0	2.4	Z	0.5	0.7	0.3	0.0	0.0	0.0	3.2	2.7	3.4	5.0	5.5	3.0	0.9	0.3	10.4	33.6	7.5	0.0	UO	UO	0.0	3.8	33.6																			
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0																		
31-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.3	0.5	0.3	1.7	3.6	3.4	0.7	0.5	1.2	31.4	27.9	3.8	1.1	0.6	0.4	0.1	0.0	0.1	3.4	31.4																			
8.9 5.3 8.0 7.6 8.9 5.1 6.8 7.0 6.5 7.6 7.9 8.3 7.3 9.6 10.1 10.5 8.9 8.1 7.9 9.2 8.5 8.5 8.9 7.7																								Diurnal Average																					
87.4 44.8 70.2 80.9 91.7 64.7 73.1 57.8 51.1 45.8 35.2 44.6 35.4 73.5 75.1 90.5 80.0 65.4 39.1 47.4 49.0 79.2 97.9 87.1																								Diurnal Maximum																					
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																																													



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	614	87.09	87.09
21 - 40	56	7.94	95.04
41 - 80	29	4.11	99.15
81 - 159	5	0.71	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	69	35	4	3	7	6	14	49	169	41	25	20	30	49	13	12	546
21 - 40	6	2	1	1	2	0	1	4	9	8	0	3	1	1	0	1	40
11 - 80	3	0	1	0	0	0	0	1	6	1	2	1	0	0	2	1	18
81 - 159	0	0	0	0	0	0	0	0	1	0	0	1	1	2	0	0	5
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	37	6	4	9	6	15	54	185	50	27	25	32	52	15	14	609

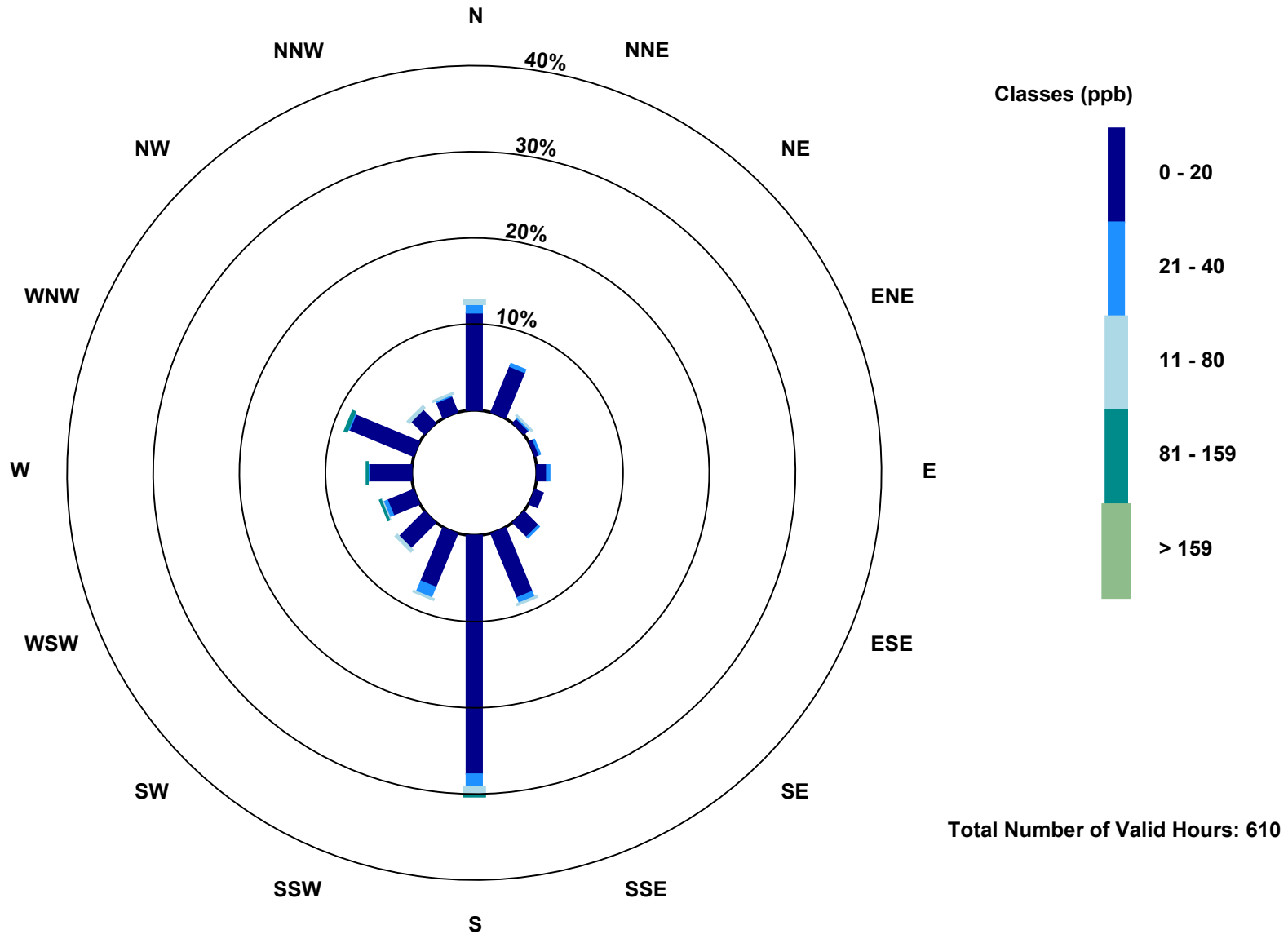
Total Number of Valid Hours: 610

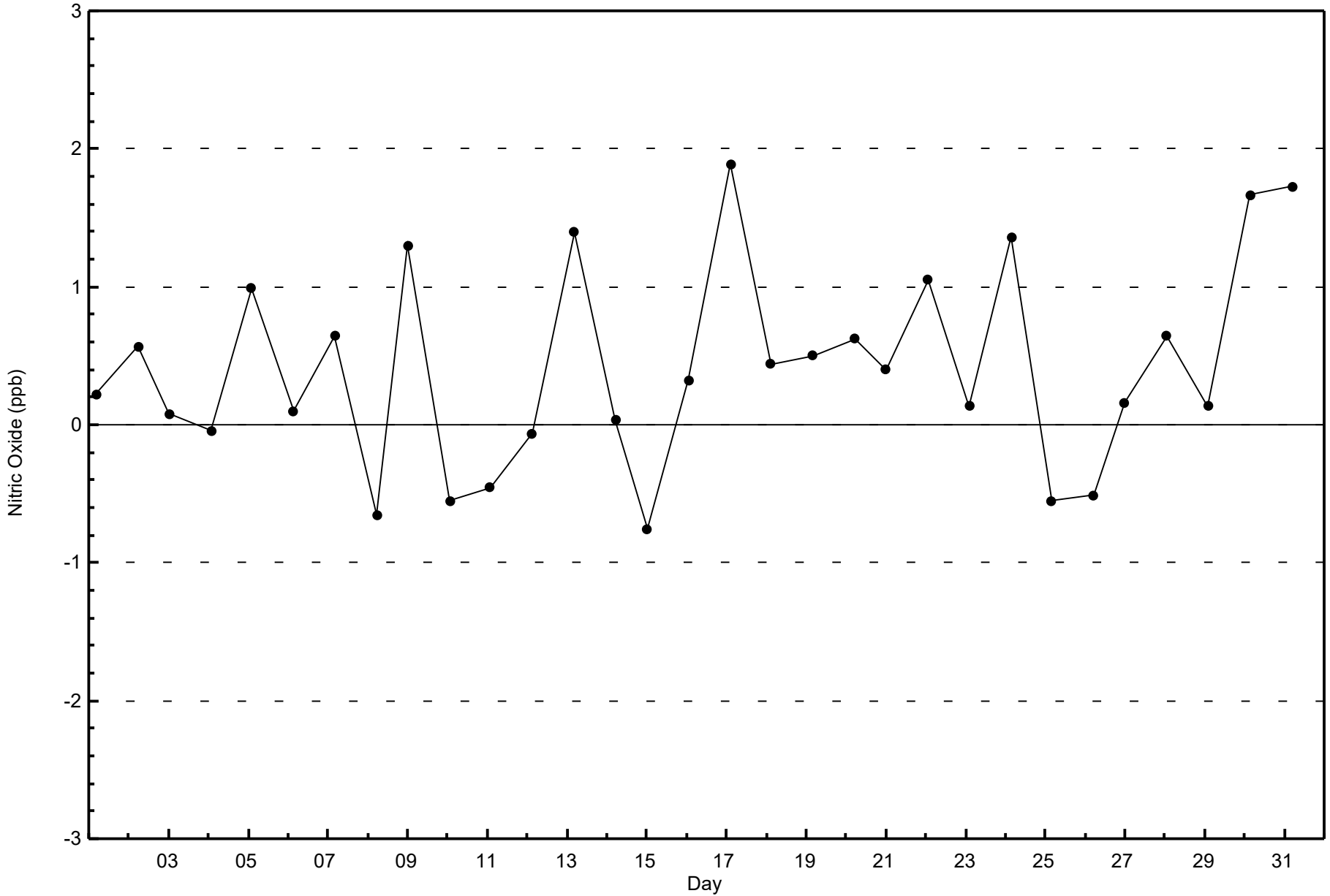
Total Number of Hours: 744

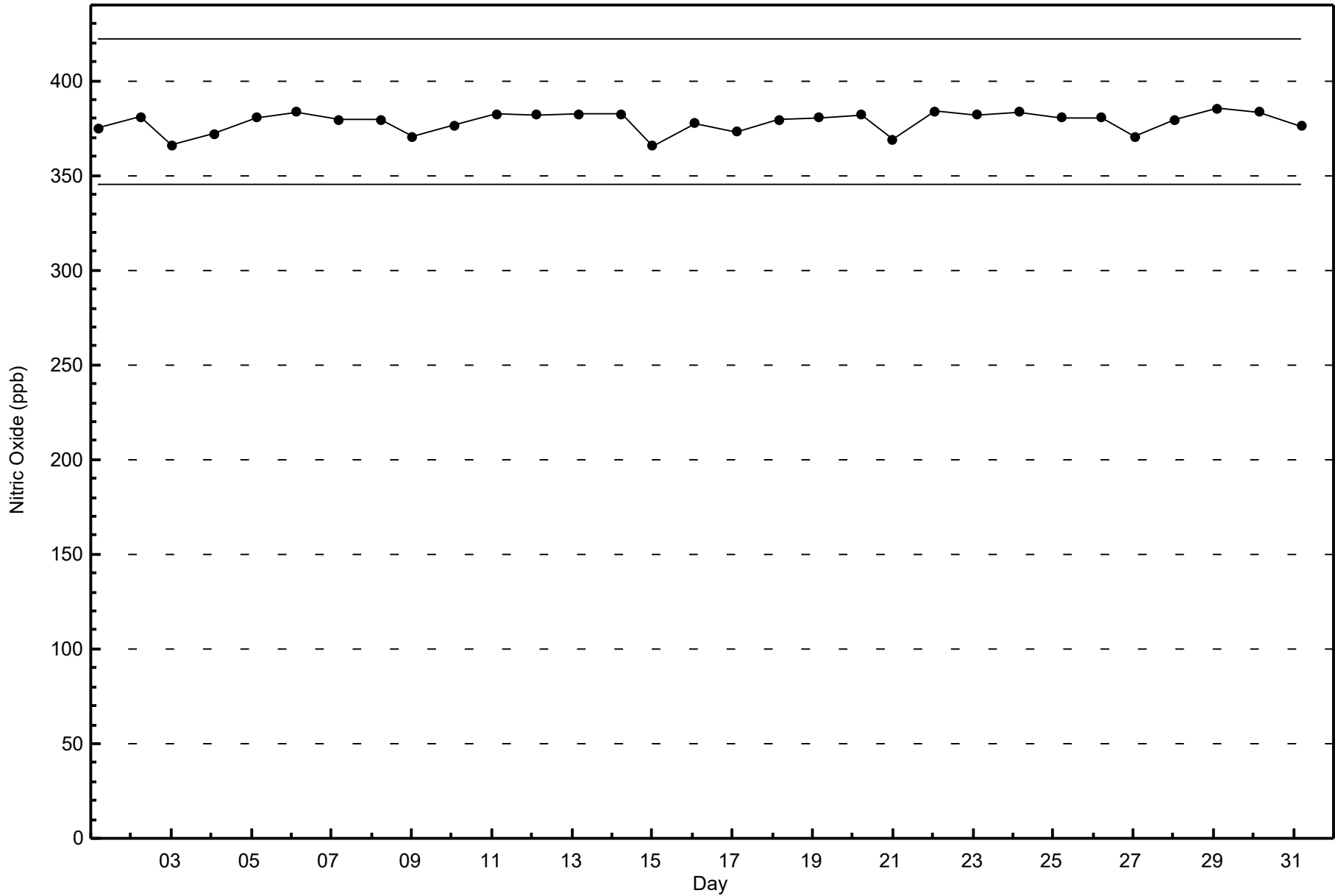


Wood Buffalo Environmental Association
Wind Rose Dec 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

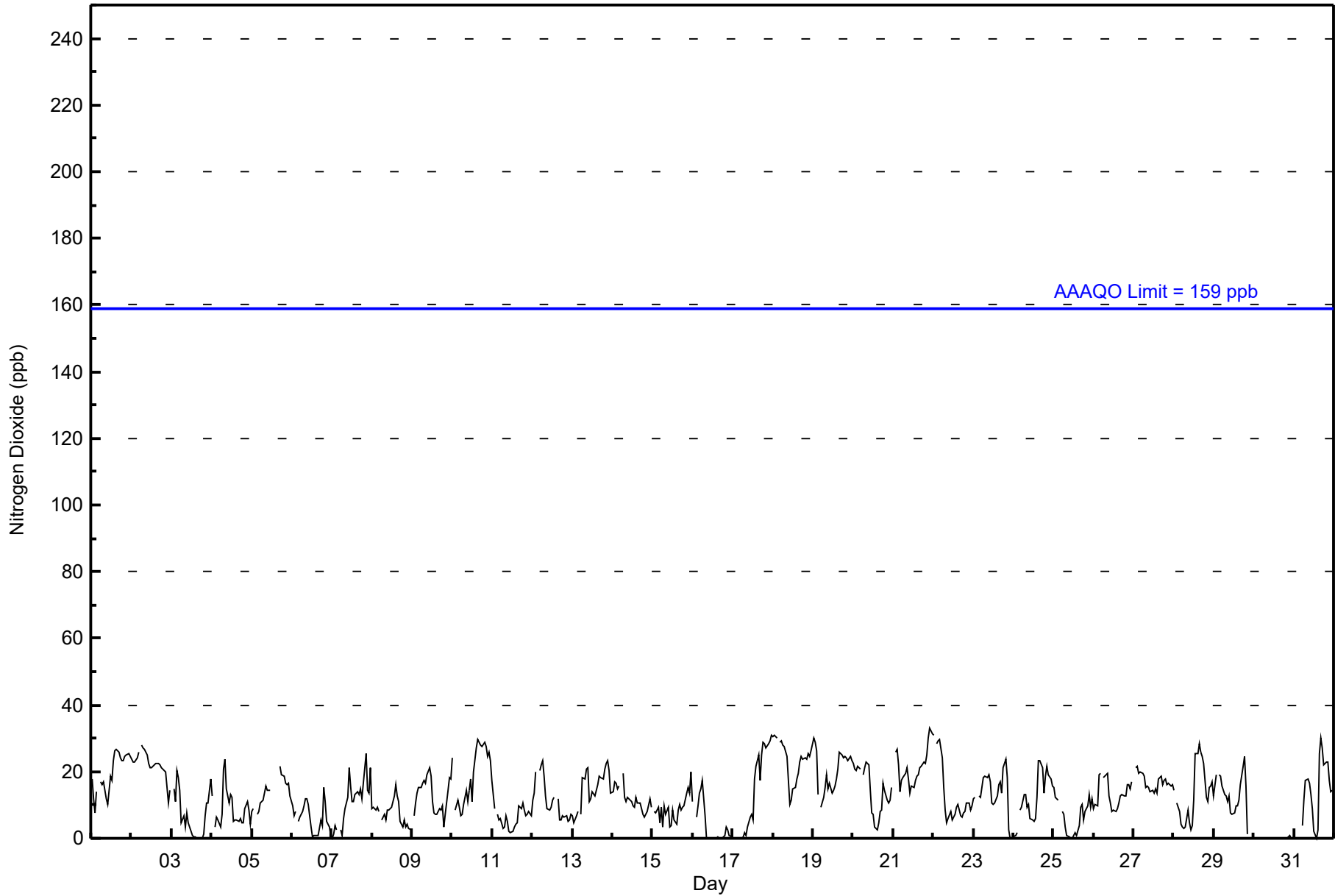
Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum			
Maximum Value: 33.1 ppb on Dec 21 23:00		Maximum Daily Average: 23.1 ppb on Dec 18		Hours of Data: 705																	19.4		26.9			
Minimum Value: 0.0 ppb on Dec 3 19:00		Minimum Daily Average: 0.1 ppb on Dec 30		Hours of Missing Data: 39																	21.9		28.1			
Maximum Diurnal Average: 14.5 ppb at hour 21		Minimum Diurnal Average: 8.8 ppb at hour 13		Hours of Calibration: 36																	6.9		20.3			
Monthly Average: 12.58 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.9 Q ₁ = 6.6 Median = 11.9 Q ₃ = 18.4 P ₉₀ = 24.3 P ₉₉ = 30.0		Hours of Operational Time: 99.6																	8.8		23.7			
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-Dec	18.0	12.0	7.7	13.9	Z	16.8	16.3	17.0	14.5	11.9	10.2	18.6	17.5	23.2	26.1	26.9	25.9	24.2	23.5	23.4	24.5	25.0	25.4	24.6	19.4	26.9
2-Dec	23.7	22.8	23.0	24.1	25.7	Z	28.1	27.0	26.7	24.8	22.3	21.1	21.2	21.7	22.3	22.6	22.4	22.0	21.2	20.7	20.1	15.4	10.4	14.6	21.9	28.1
3-Dec	Z	14.8	11.0	20.3	18.2	14.4	4.7	6.6	3.5	7.6	4.6	3.2	1.0	0.4	0.1	0.1	0.1	0.0	1.4	6.9	10.4	10.8	18.0	6.9	20.3	
4-Dec	12.5	Z	3.6	6.2	5.5	3.6	7.4	20.6	23.7	14.9	10.4	13.3	12.3	4.9	5.5	5.7	5.0	6.1	4.8	4.5	8.8	11.0	8.3	4.4	8.8	23.7
5-Dec	8.0	8.7	Z	7.0	7.9	10.5	11.1	11.4	15.7	14.2	14.6	14.6	C	C	C	C	C	21.5	19.2	18.7	16.6	15.9	16.7	12.6	13.6	21.5
6-Dec	9.6	6.7	7.9	Z	5.1	6.4	7.9	9.9	11.9	12.0	10.0	3.2	0.4	0.9	1.0	0.9	0.8	5.3	3.9	15.3	11.0	5.1	3.2	0.8	6.1	15.3
7-Dec	0.0	1.4	3.7	2.5	Z	2.7	0.9	5.8	8.7	12.1	21.0	15.7	11.1	11.0	13.3	13.8	13.0	15.0	11.7	16.7	25.4	14.3	13.7	21.3	11.1	25.4
8-Dec	8.7	9.3	8.3	9.3	8.0	Z	5.6	7.3	5.7	8.6	8.4	8.7	9.5	12.6	16.0	12.8	10.9	4.9	3.5	5.3	3.3	4.1	2.8	2.4	7.7	16.0
9-Dec	Z	6.9	10.5	13.4	15.3	15.3	16.6	17.2	16.4	19.0	21.0	18.7	11.0	7.5	7.3	7.2	8.8	8.5	9.7	3.4	7.4	14.2	18.4	17.6	12.7	21.0
10-Dec	24.3	Z	8.3	11.3	9.5	6.7	7.1	10.2	14.6	11.2	14.6	18.0	11.1	20.0	27.2	29.8	28.7	27.8	27.4	28.7	27.4	24.6	25.8	23.5	19.0	29.8
11-Dec	17.3	8.9	Z	7.1	5.7	5.8	3.0	3.5	6.9	5.1	2.2	1.8	2.1	3.3	4.2	4.5	9.6	9.1	10.6	8.3	6.9	7.3	8.0	6.7	6.4	17.3
12-Dec	11.5	13.4	20.1	Z	20.2	22.1	23.2	18.6	12.9	8.7	8.5	9.3	11.4	12.2	M	11.9	5.5	5.7	6.7	6.2	6.6	5.2	5.4	7.3	11.5	23.2
13-Dec	6.8	4.5	6.6	8.1	Z	7.0	18.1	17.8	20.9	21.2	10.9	11.7	13.9	12.7	14.4	15.9	18.6	18.1	17.7	20.8	22.3	23.1	20.2	13.5	15.0	23.1
14-Dec	13.9	17.0	16.5	15.0	15.7	Z	19.3	12.4	11.0	12.3	12.0	11.2	9.7	9.4	12.3	10.7	10.6	8.8	7.1	6.5	7.3	8.2	11.9	9.3	11.7	19.3
15-Dec	Z	8.1	7.8	9.5	4.5	9.3	3.6	9.9	7.3	9.5	3.6	4.0	8.4	5.4	4.4	8.3	10.3	8.5	9.5	9.9	13.6	15.1	13.6	19.9	8.9	19.9
16-Dec	10.9	Z	6.4	9.9	13.6	14.7	17.4	6.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.5	1.0	3.6	2.7	0.7	0.5	3.9	17.4
17-Dec	0.1	0.0	Z	0.1	0.1	0.1	0.3	1.8	0.7	3.3	6.3	7.1	5.5	18.0	21.5	24.9	17.3	24.8	28.8	28.6	27.2	28.6	29.4	31.1	13.3	31.1
18-Dec	30.3	30.9	30.2	Z	29.0	29.1	28.1	27.4	24.6	17.5	10.2	11.6	15.0	15.2	17.6	19.6	22.8	24.5	23.7	24.0	23.7	25.5	24.4	26.3	23.1	30.9
19-Dec	29.9	29.0	26.1	13.2	Z	9.3	12.4	15.4	18.9	14.8	16.5	13.4	14.2	15.7	17.6	20.8	25.8	24.8	24.3	24.4	24.0	23.2	24.6	23.1	20.1	29.9
20-Dec	22.6	20.8	20.4	21.5	20.8	Z	19.0	21.1	23.0	22.1	14.2	7.7	7.0	3.5	2.4	4.5	8.0	8.6	16.7	14.2	11.3	10.7	11.3	15.4	14.2	23.0
21-Dec	Z	25.7	26.6	22.1	13.9	17.3	18.2	19.5	21.1	17.8	13.5	15.6	15.1	17.4	18.8	19.2	21.2	21.7	22.8	22.6	24.8	29.9	33.1	31.2	21.3	33.1
22-Dec	30.9	Z	28.5	29.4	29.5	24.3	15.2	8.4	4.7	6.1	8.1	5.4	6.2	7.3	9.2	10.0	6.6	6.3	7.6	7.9	10.4	10.5	8.4	9.8	12.6	30.9
23-Dec	11.8	12.4	Z	12.5	12.4	15.2	18.1	18.7	18.1	19.1	16.9	10.7	10.1	10.5	12.7	15.9	17.1	13.6	21.2	23.8	18.3	2.4	0.2	0.0	13.6	23.8
24-Dec	0.4	0.9	1.5	Z	8.6	9.4	13.3	13.1	9.3	10.2	6.1	5.3	5.1	5.9	12.4	23.2	23.2	21.0	13.4	18.6	21.4	19.0	17.6	15.8	11.9	23.2
25-Dec	15.1	12.2	11.9	11.6	Z	8.2	7.1	3.6	1.0	0.4	0.2	0.2	0.9	1.9	0.9	3.8	9.2	10.0	5.6	8.1	9.9	13.0	9.3	11.8	6.8	15.1
26-Dec	9.1	10.2	9.7	19.2	19.7	Z	18.1	18.9	19.3	12.5	10.4	8.2	8.3	8.2	9.1	10.6	12.8	13.2	12.7	12.9	16.3	16.0	14.8	17.0	13.4	19.7
27-Dec	Z	21.2	21.5	19.4	19.8	19.5	18.8	15.2	15.6	15.1	14.1	14.2	13.7	15.0	13.4	17.7	18.7	16.0	17.4	17.7	16.2	16.4	15.6	16.1	16.9	21.5
28-Dec	14.2	Z	10.7	8.0	4.3	3.3	3.1	3.5	8.4	4.8	2.7	3.9	11.4	25.6	25.4	28.3	25.9	24.7	22.4	12.4	11.1	15.3	15.7	16.8	13.1	28.3
29-Dec	12.5	19.0	Z	18.9	18.5	15.6	13.0	12.5	11.2	12.6	7.8	7.2	7.8	9.9	9.9	11.6	16.2	21.7	24.5	15.8	1.4	UO	UO	0.0	12.7	24.5
30-Dec	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	0.2	0.9	0.2	0.0	0.1	0.9
31-Dec	0.0	0.0	0.1	0.0	Z	3.9	11.3	17.5	17.7	16.4	13.0	8.9	2.0	0.0	2.6	25.3	30.0	27.3	22.1	22.9	22.7	17.4	13.8	14.6	12.6	30.0
13.2 12.2 12.6 12.8 13.3 11.2 12.5 12.9 12.7 11.8 10.1 9.4 8.8 10.0 11.3 13.6 14.2 14.3 14.2 14.3 14.5 14.3 13.8 13.7																								Diurnal Average		
30.9 30.9 30.2 29.4 29.5 29.1 28.1 27.4 26.7 24.8 22.3 21.1 21.2 25.6 27.2 29.8 30.0 27.8 28.8 28.7 27.4 29.9 33.1 31.2																								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
Fort McKay - Bertha Ganter - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	567	80.43	80.43
21 - 40	138	19.57	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: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	68	34	4	1	7	5	15	45	155	36	22	18	28	46	13	10	507
21 - 40	10	3	2	3	2	1	0	9	31	14	5	7	4	6	2	4	103
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	78	37	6	4	9	6	15	54	186	50	27	25	32	52	15	14	610

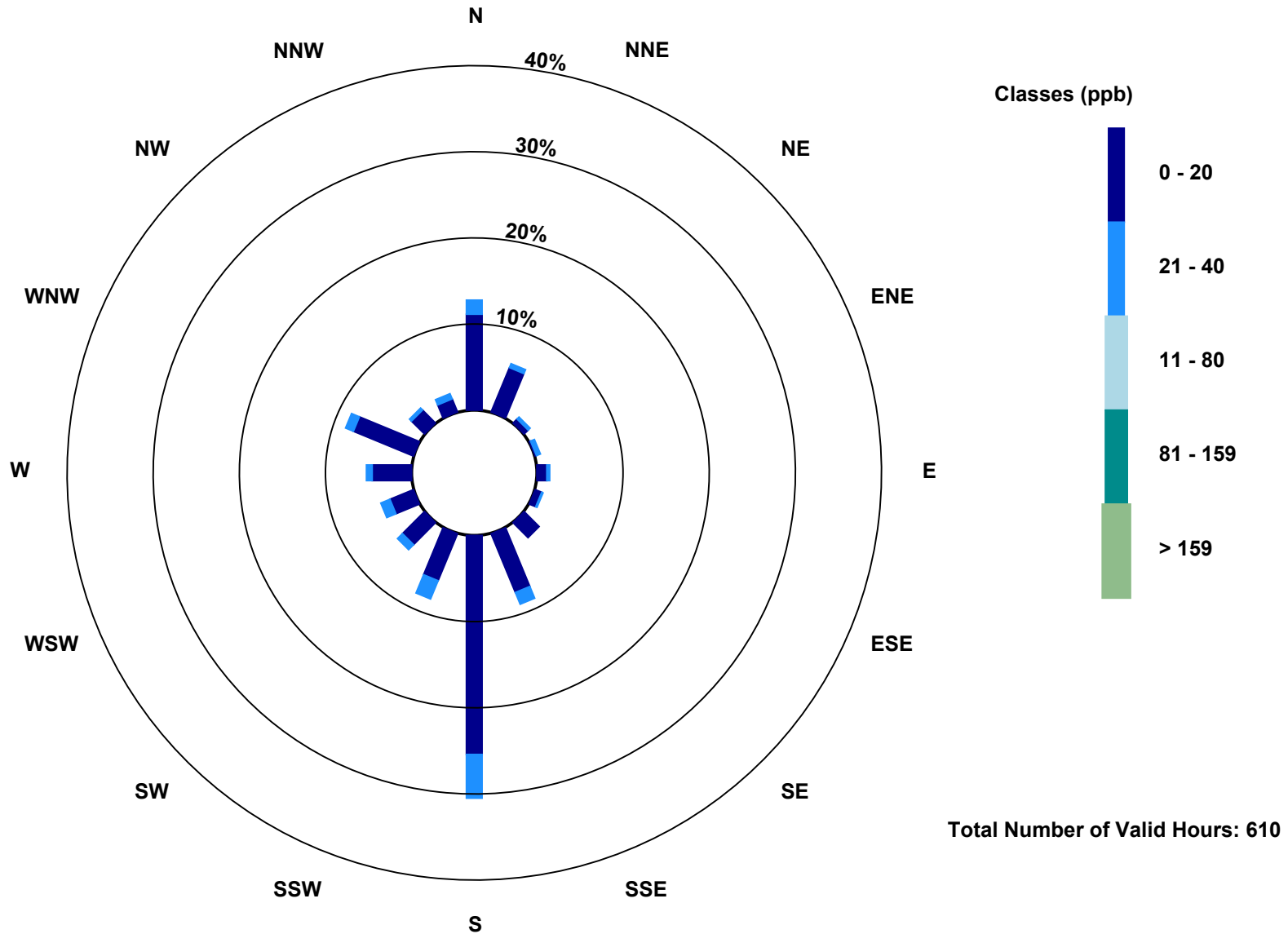
Total Number of Valid Hours: 610

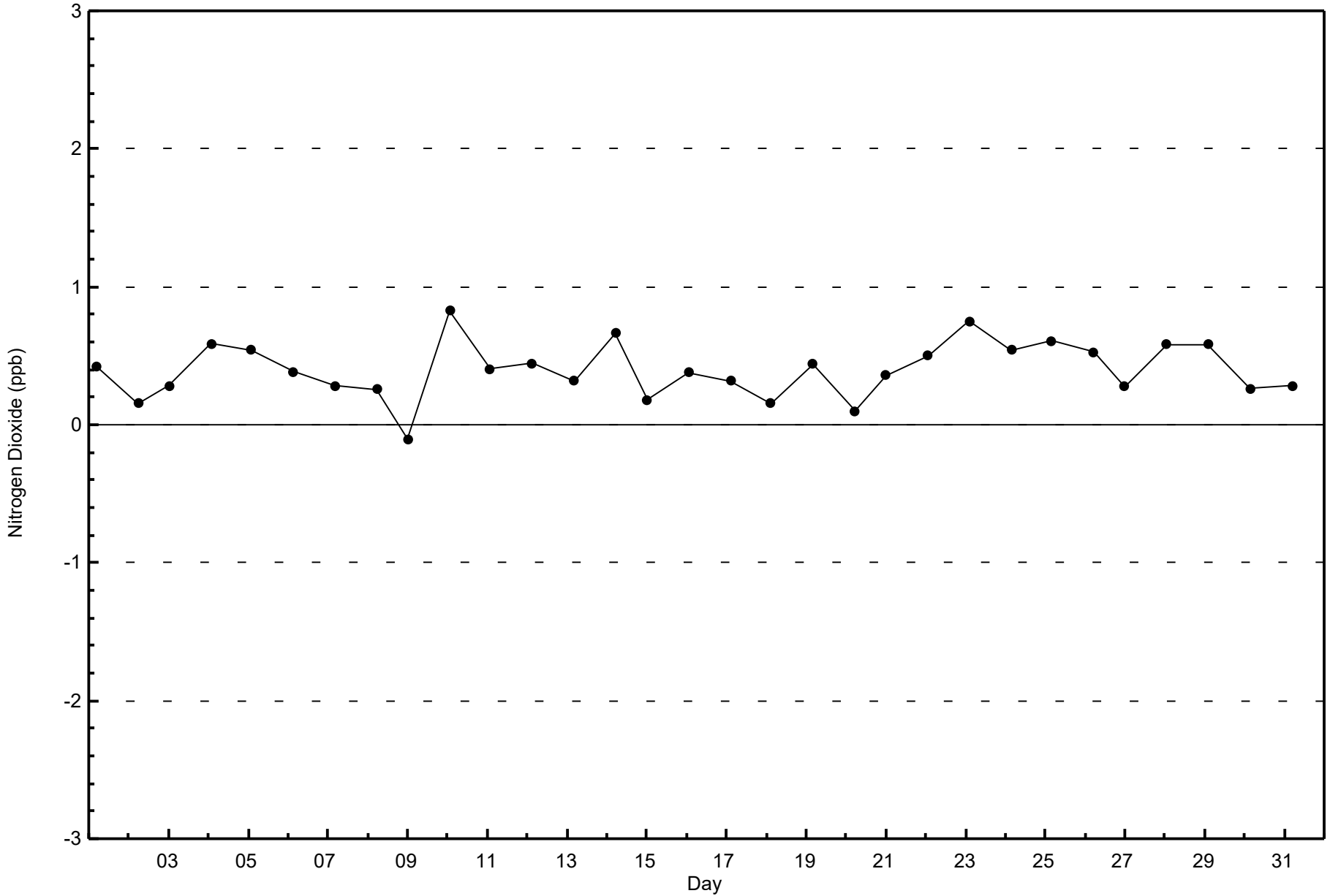
Total Number of Hours: 744

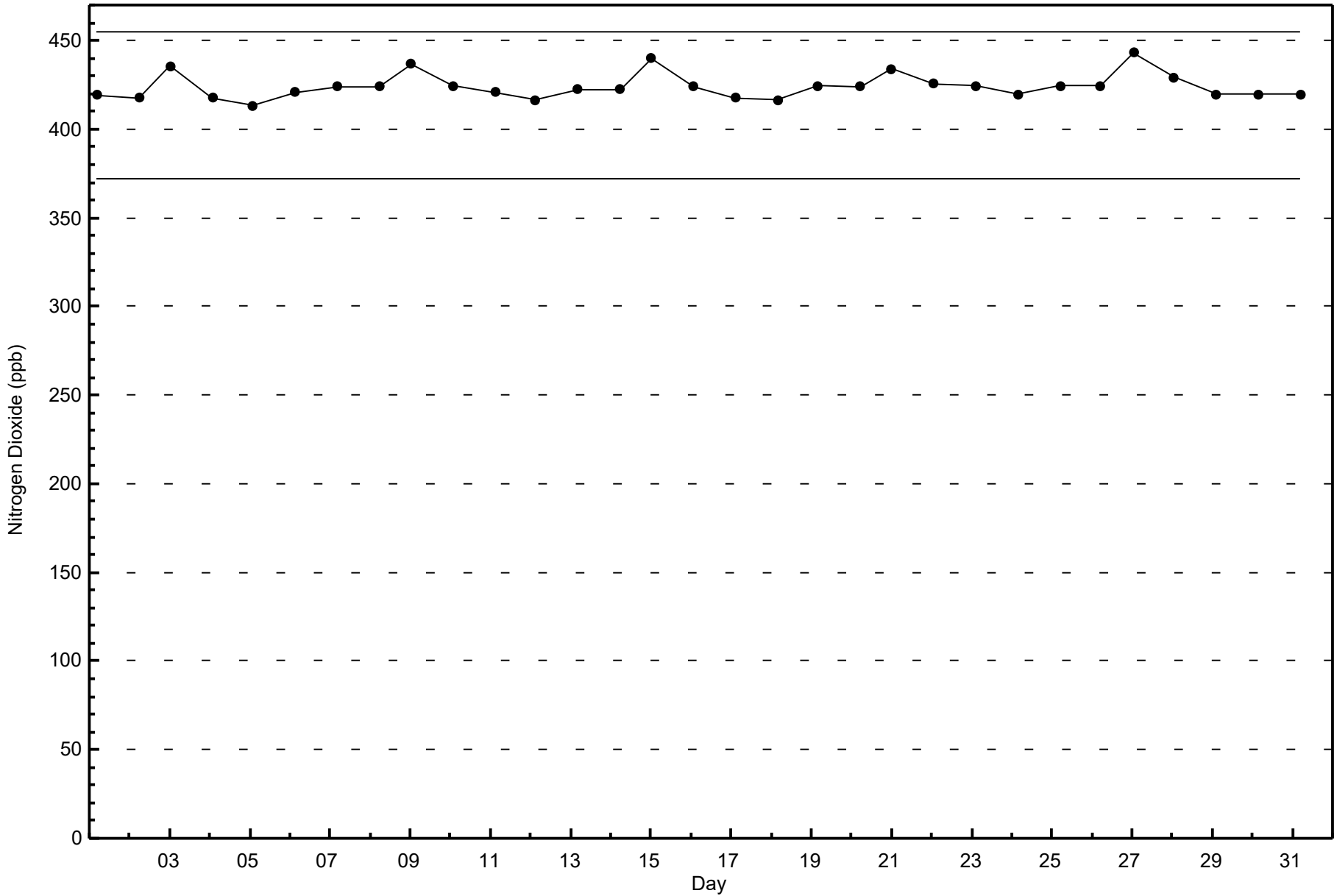


Wood Buffalo Environmental Association
Wind Rose Dec 2024

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

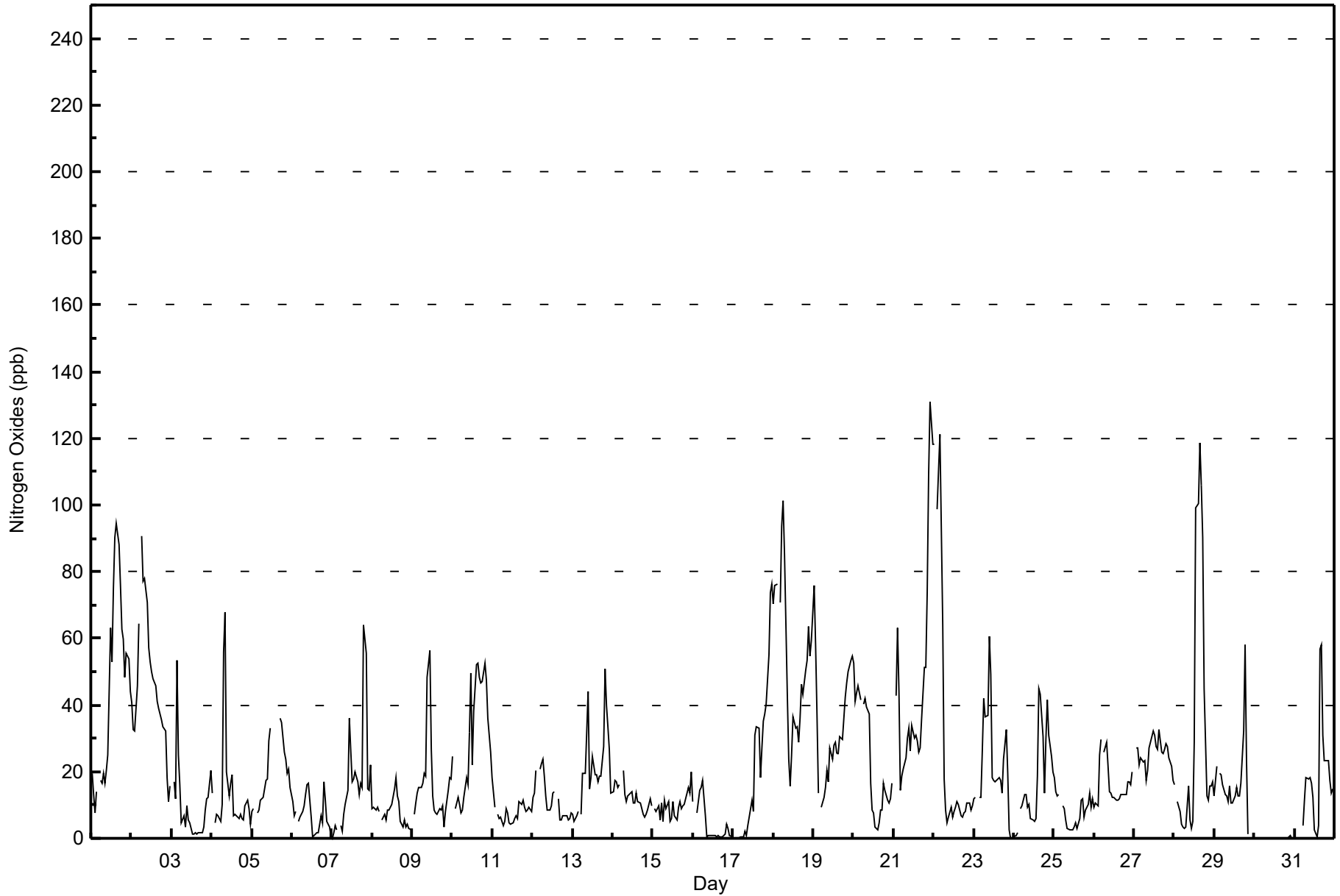








Maximum Value: 131.0 ppb on Dec 21 23:00																						Maximum Daily Average: 53.0 ppb on Dec 18																						Hours in Service: 744					
Minimum Value: 0.0 ppb on Dec 7 01:00																						Minimum Daily Average: 0.1 ppb on Dec 30																						Hours of Data: 705					
Maximum Diurnal Average: 24.0 ppb at hour 16																						Minimum Diurnal Average: 16.1 ppb at hour 13																						Hours of Missing Data: 39					
Monthly Average: 20.64 ppb																						Percentiles: P ₁ = 0.0 P ₁₀ = 1.9 Q ₁ = 7.1 Median = 13.3 Q ₃ = 26.8 P ₉₀ = 49.8 P ₉₉ = 105.7																						Hours of Calibration: 36					
																																												Percent Operational Time: 99.6					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	19.5	13.0	7.7	14.1	Z	17.4	16.5	19.4	16.4	20.3	24.9	63.2	52.9	75.0	90.4	94.6	88.3	75.7	62.6	59.7	48.3	55.5	53.7	44.0	44.9	94.6																							
2-Dec	40.5	32.7	32.3	45.9	64.3	Z	90.6	77.1	77.8	70.6	57.3	53.2	50.2	48.0	46.0	41.3	39.1	37.5	35.5	33.6	32.0	18.1	11.1	15.5	45.7	90.6																							
3-Dec	Z	16.8	11.7	53.5	25.0	16.0	4.7	6.6	3.5	9.7	5.7	4.8	1.2	1.4	1.8	1.1	1.6	1.7	1.7	3.4	8.5	11.8	12.4	20.5	9.8	53.5																							
4-Dec	13.7	Z	4.9	7.3	6.9	5.0	10.3	56.1	67.7	19.9	12.7	16.6	19.2	6.8	7.2	6.8	5.8	7.0	5.7	5.5	9.7	11.4	8.8	4.4	13.9	67.7																							
5-Dec	8.0	8.7	Z	7.8	8.7	11.5	12.1	12.3	17.2	17.8	29.4	33.1	C	C	C	C	C	36.2	34.9	25.7	23.6	19.6	20.8	15.2	19.0	36.2																							
6-Dec	11.1	6.9	8.2	Z	5.1	6.4	7.9	9.9	12.9	16.2	16.6	6.3	0.4	0.9	1.4	1.6	1.7	6.7	4.9	17.1	11.3	5.1	3.2	0.8	7.1	17.1																							
7-Dec	0.0	1.9	4.0	2.5	Z	3.7	2.0	7.0	10.2	14.6	36.2	26.1	16.9	17.8	20.0	17.0	13.0	16.6	15.2	64.1	55.4	14.9	14.3	22.2	17.2	64.1																							
8-Dec	8.9	9.3	8.3	9.3	8.0	Z	5.6	7.3	5.7	8.6	8.5	9.5	10.3	14.6	18.2	12.8	10.9	4.9	3.5	5.3	3.3	4.1	2.8	2.4	7.9	18.2																							
9-Dec	Z	7.0	10.5	13.4	15.3	15.3	16.6	19.5	18.6	48.1	56.2	26.9	12.8	8.5	7.6	7.2	8.8	8.5	9.7	3.4	8.1	14.4	18.4	17.6	16.2	56.2																							
10-Dec	24.5	Z	8.9	12.3	10.3	7.7	8.3	12.1	18.2	16.0	31.9	49.5	21.8	38.0	52.0	52.6	48.4	46.4	47.1	52.6	47.6	35.8	31.1	26.1	30.4	52.6																							
11-Dec	18.2	9.1	Z	7.3	5.8	6.2	4.0	5.0	8.8	7.4	4.7	4.3	4.7	5.9	6.7	6.1	10.9	10.0	11.6	9.4	8.0	8.5	9.5	8.0	7.8	18.2																							
12-Dec	12.4	13.8	20.5	Z	21.0	22.5	23.6	18.8	12.9	8.7	8.6	9.9	13.4	14.0	M	11.9	5.5	5.7	6.8	6.6	6.9	5.7	6.0	7.7	11.9	23.6																							
13-Dec	7.0	4.9	7.0	8.1	Z	7.4	19.4	19.5	31.9	44.2	14.8	18.3	24.4	18.9	18.9	17.0	18.6	18.5	27.5	50.7	39.6	33.4	26.8	13.5	21.3	50.7																							
14-Dec	13.9	17.3	16.8	15.5	16.1	Z	20.4	13.1	11.1	12.5	13.3	13.9	10.7	10.6	13.8	10.8	10.6	8.8	7.1	6.5	7.3	8.3	12.0	9.5	12.2	20.4																							
15-Dec	Z	8.9	8.0	9.9	5.5	10.7	5.0	11.5	8.8	11.0	4.9	6.0	11.2	6.8	5.6	9.4	10.8	8.9	9.7	10.0	13.7	15.1	13.6	19.9	9.8	19.9																							
16-Dec	10.9	Z	7.5	11.0	14.6	15.3	17.5	6.8	0.3	0.7	0.8	0.7	0.7	0.6	0.9	0.5	0.5	0.9	1.4	4.2	3.1	0.9	0.6	4.4	17.5																								
17-Dec	0.1	0.0	Z	0.1	0.2	0.2	0.5	2.1	1.0	3.7	8.9	11.3	8.1	30.8	33.5	33.1	18.3	27.0	35.1	37.5	40.3	55.2	73.7	76.2	21.6	76.2																							
18-Dec	70.3	75.7	76.3	Z	70.6	93.8	101.2	85.2	43.0	23.6	15.6	24.9	36.6	33.3	33.6	29.0	35.8	46.3	43.3	50.3	53.2	63.5	54.5	59.2	53.0	101.2																							
19-Dec	75.8	58.0	36.9	13.3	Z	9.3	12.4	15.4	20.1	17.1	27.2	23.6	27.8	28.7	25.2	25.4	30.4	29.6	35.9	42.4	46.6	50.0	53.6	54.7	33.0	75.8																							
20-Dec	52.3	41.1	43.8	45.7	41.6	Z	40.1	41.9	39.6	37.3	16.6	8.6	7.5	3.5	2.4	4.7	8.3	8.6	16.7	14.2	11.3	10.7	11.8	16.7	22.8	52.3																							
21-Dec	Z	42.9	63.1	44.1	14.5	18.7	20.9	24.1	30.2	33.2	26.1	33.7	30.3	30.9	29.3	25.8	27.3	35.7	51.3	51.3	73.8	109.1	131.0	118.3	46.3	131.0																							
22-Dec	118.3	Z	98.7	110.3	121.2	63.9	17.7	8.6	4.8	6.4	9.5	6.3	8.3	9.5	11.1	10.3	6.6	6.3	7.6	7.9	10.4	10.5	8.4	9.8	29.2	121.2																							
23-Dec	11.8	12.4	Z	12.5	12.4	26.2	42.1	36.6	36.7	60.8	49.1	18.4	17.3	17.0	17.9	18.3	17.4	13.6	23.9	32.5	19.3	2.4	0.2	0.0	21.7	60.8																							
24-Dec	0.4	0.9	1.6	Z	8.9	9.6	13.3	13.1	9.3	10.2	6.1	5.3	5.1	5.9	18.6	45.1	43.2	30.3	13.7	29.8	41.5	30.9	24.4	20.1	16.8	45.1																							
25-Dec	18.2	14.0	12.9	13.2	Z	9.9	8.9	5.4	2.8	2.4	2.4	3.3	4.5	3.1	6.0	11.2	11.8	6.5	8.5	10.2	13.5	9.3	11.9	8.4	18.2																								
26-Dec	9.3	10.5	9.7	25.0	29.5	Z	25.8	28.6	21.5	14.1	13.7	12.1	12.2	11.6	11.4	11.7	13.1	13.3	12.9	13.1	17.0	16.8	16.2	20.0	16.0	29.5																							
27-Dec	Z	27.1	27.2	21.9	24.2	22.9	23.4	17.3	20.3	27.1	28.8	32.4	30.8	27.6	26.7	32.4	26.0	25.4	26.8	28.5	27.5	24.3	21.8	17.5	25.6	32.4																							
28-Dec	16.0	Z	10.8	8.0	4.3	3.3	3.1	3.5	15.5	5.5	2.9	5.1	28.8	99.1	100.5	118.8	105.9	90.1	45.1	12.5	11.2	15.5	15.7	17.0	32.1	118.8																							
29-Dec	12.5	21.4	Z	19.4	19.2	15.9	13.0	12.5	11.2	15.8	10.5	10.6	12.8	15.4	12.9	12.5	16.5	32.1	58.1	23.3	1.4	UO	UO	0.0	16.5	58.1																							
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.9	0.2	0.0	0.1	0.9																							
31-Dec	0.0	0.0	0.1	0.0	Z	4.0	11.6	18.0	18.0	18.1	16.6	12.3	2.7	0.5	3.8	56.7	57.9	31.1	23.2	23.5	23.1	17.5	13.8	14.7	16.0	57.9																							
																								22.1	17.5	20.7	20.5	22.1	16.3	19.3	19.8	19.2	19.4	18.1	17.7	16.1	19.5	21.4	24.0	23.1	22.4	22.1	23.6	23.1	22.9	22.7	21.4	Diurnal Average	
																								118.3	75.7	98.7	110.3	121.2	93.8	101.2	85.2	77.8	70.6	57.3	63.2	52.9	99.1	100.5	118.8	105.9	90.1	62.6	64.1	73.8	109.1	131.0	118.3	Diurnal Maximum	
Z - zerospan																								C - Calibration						M - Maintenance						UO - Unstable Operation													





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	483	68.51	68.51
21 - 40	119	16.88	85.39
41 - 80	84	11.91	97.30
81 - 159	19	2.70	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 McKay - Bertha Ganter - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	60	33	4	1	5	5	12	33	128	27	19	16	27	42	11	8	431
21 - 40	9	2	0	2	3	1	2	15	38	12	5	4	2	6	2	3	106
11 - 80	8	2	1	1	1	0	1	5	17	11	2	3	2	2	0	2	58
81 - 159	1	0	1	0	0	0	0	1	3	0	1	2	1	2	2	1	15
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	37	6	4	9	6	15	54	186	50	27	25	32	52	15	14	610

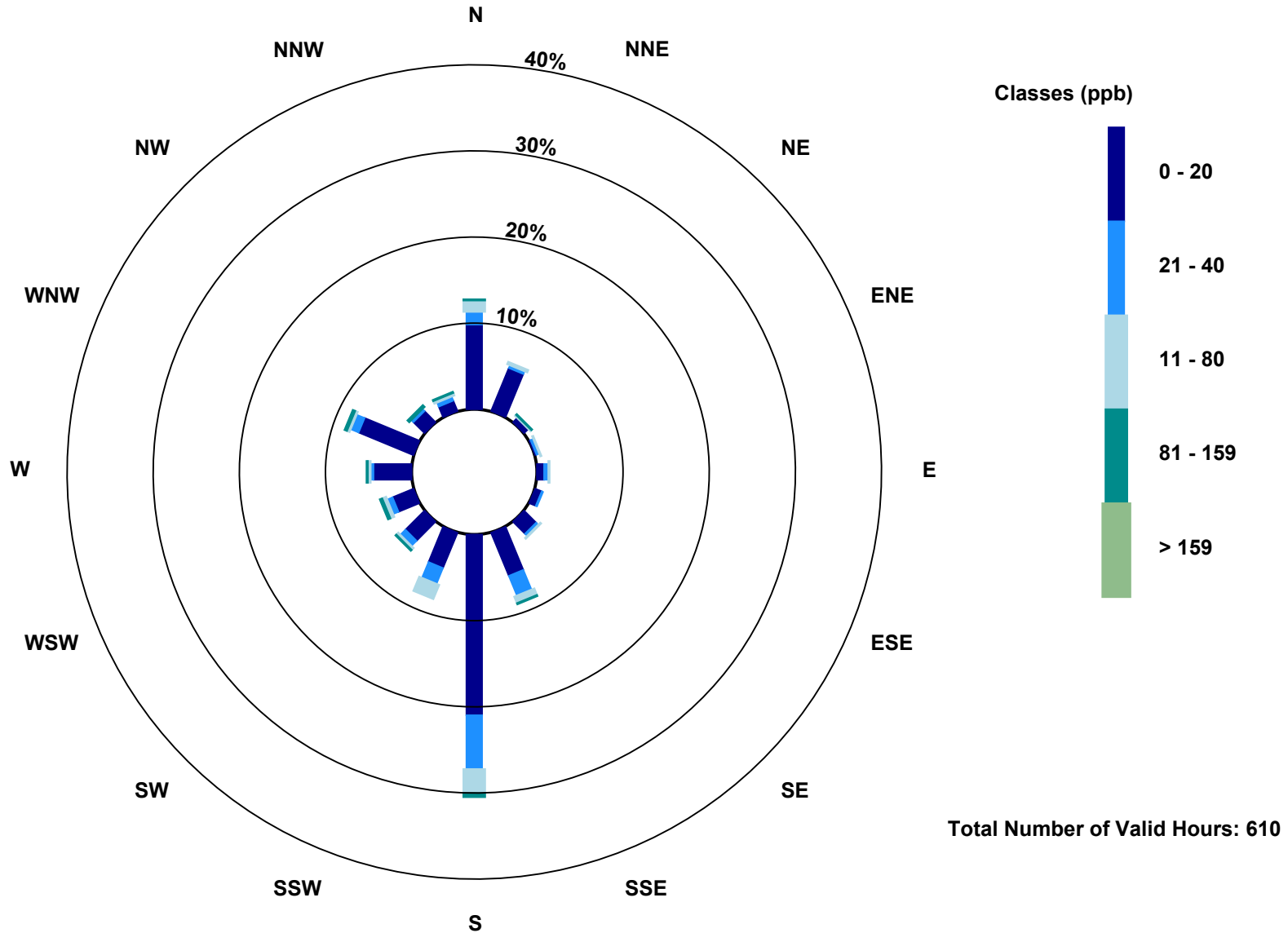
Total Number of Valid Hours: 610

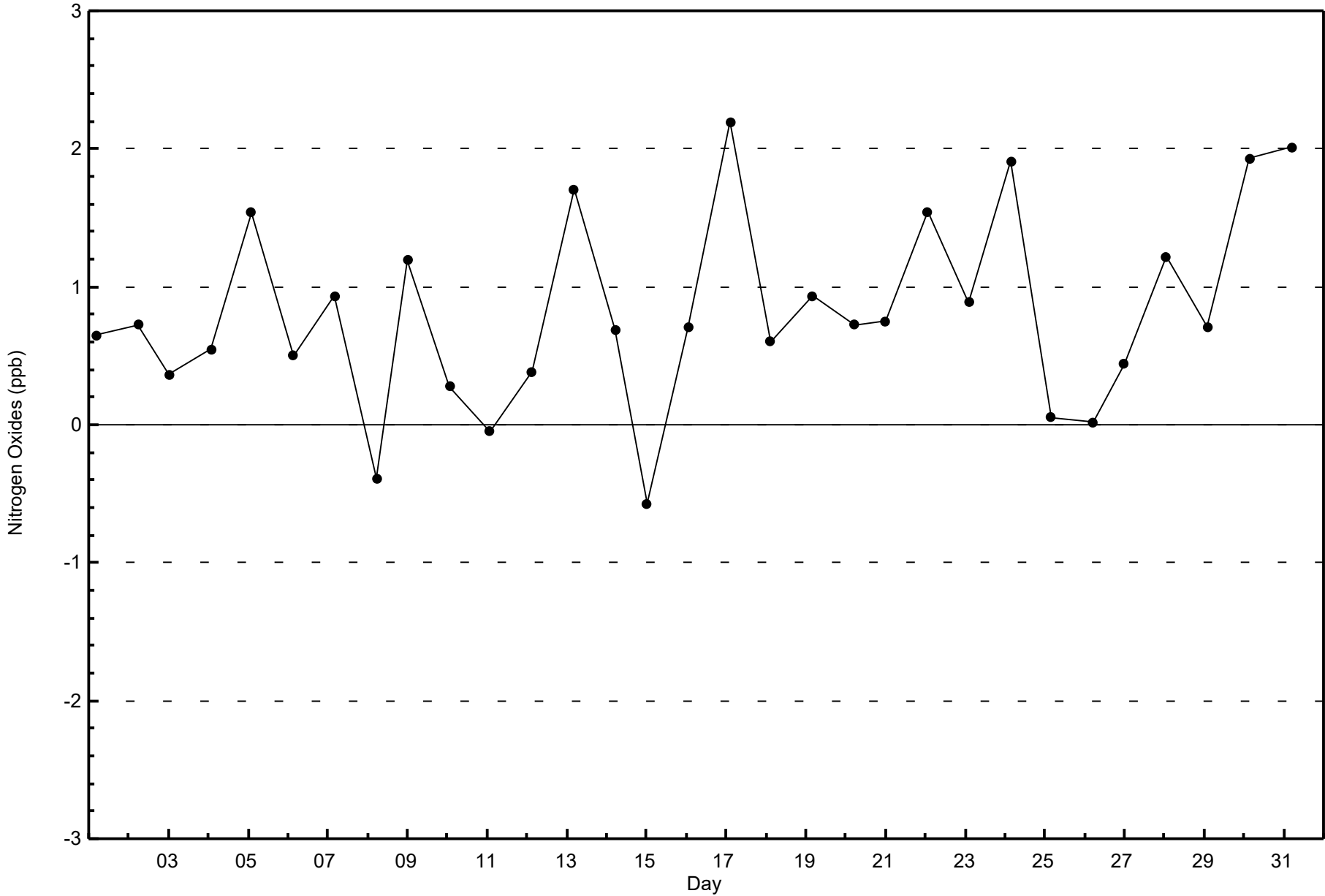
Total Number of Hours: 744

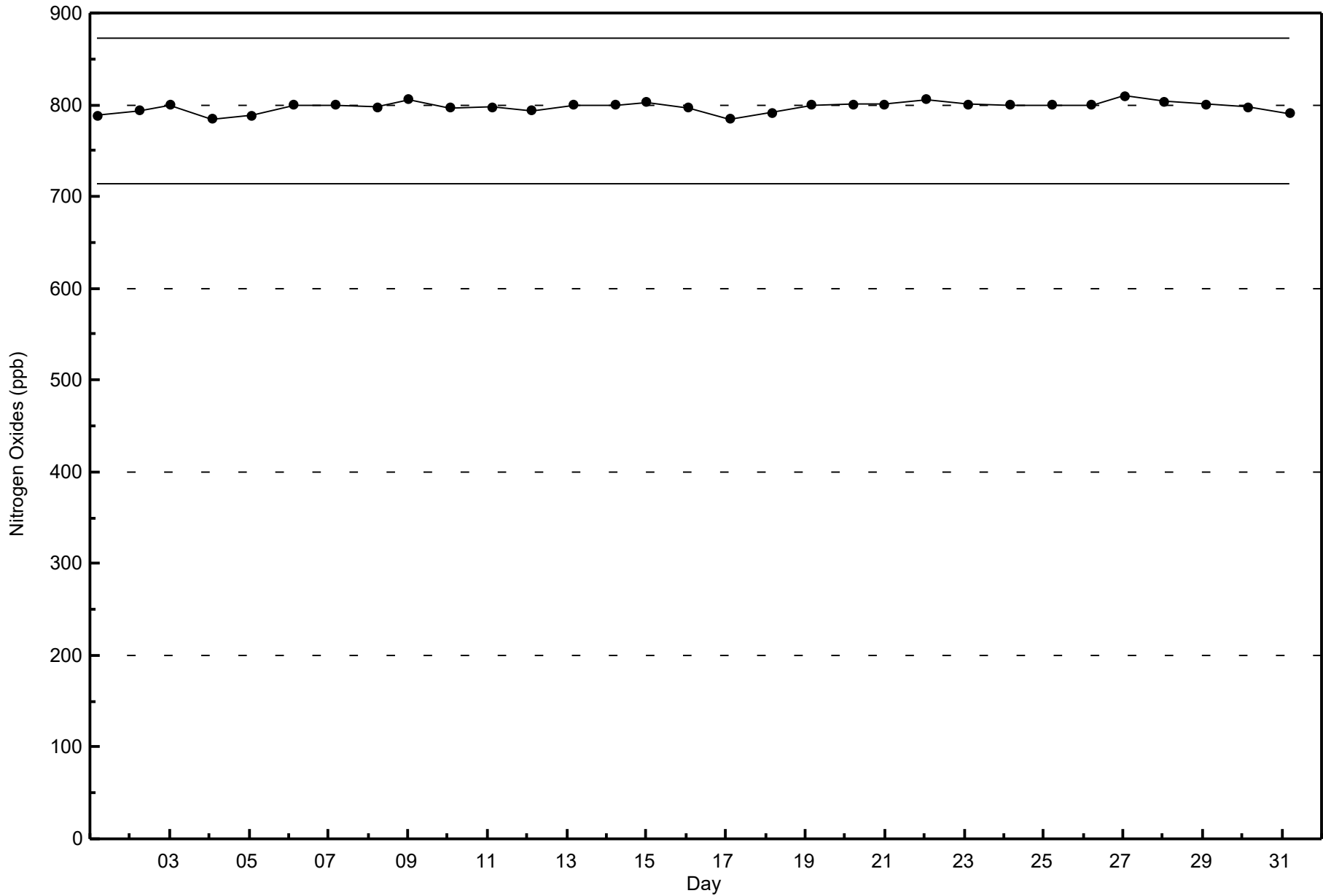


Wood Buffalo Environmental Association
Wind Rose Dec 2024

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









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 31.9 ppb on Dec 20 15:00	Maximum Daily Average: 26.4 ppb on Dec 16		Hours of Data:	709
Minimum Value: 0.1 ppb on Dec 24 21:00	Minimum Daily Average: 1.6 ppb on Dec 27		Hours of Missing Data:	35
Maximum Diurnal Average: 16.0 ppb at hour 13	Minimum Diurnal Average: 9.4 ppb at hour 21		Hours of Calibration:	34
Monthly Average: 11.26 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.7 Q ₁ = 2.8 Median = 10.0 Q ₃ = 18.0 P ₉₀ = 25.2 P ₉₉ = 30.9		Percent Operational Time:	99.9

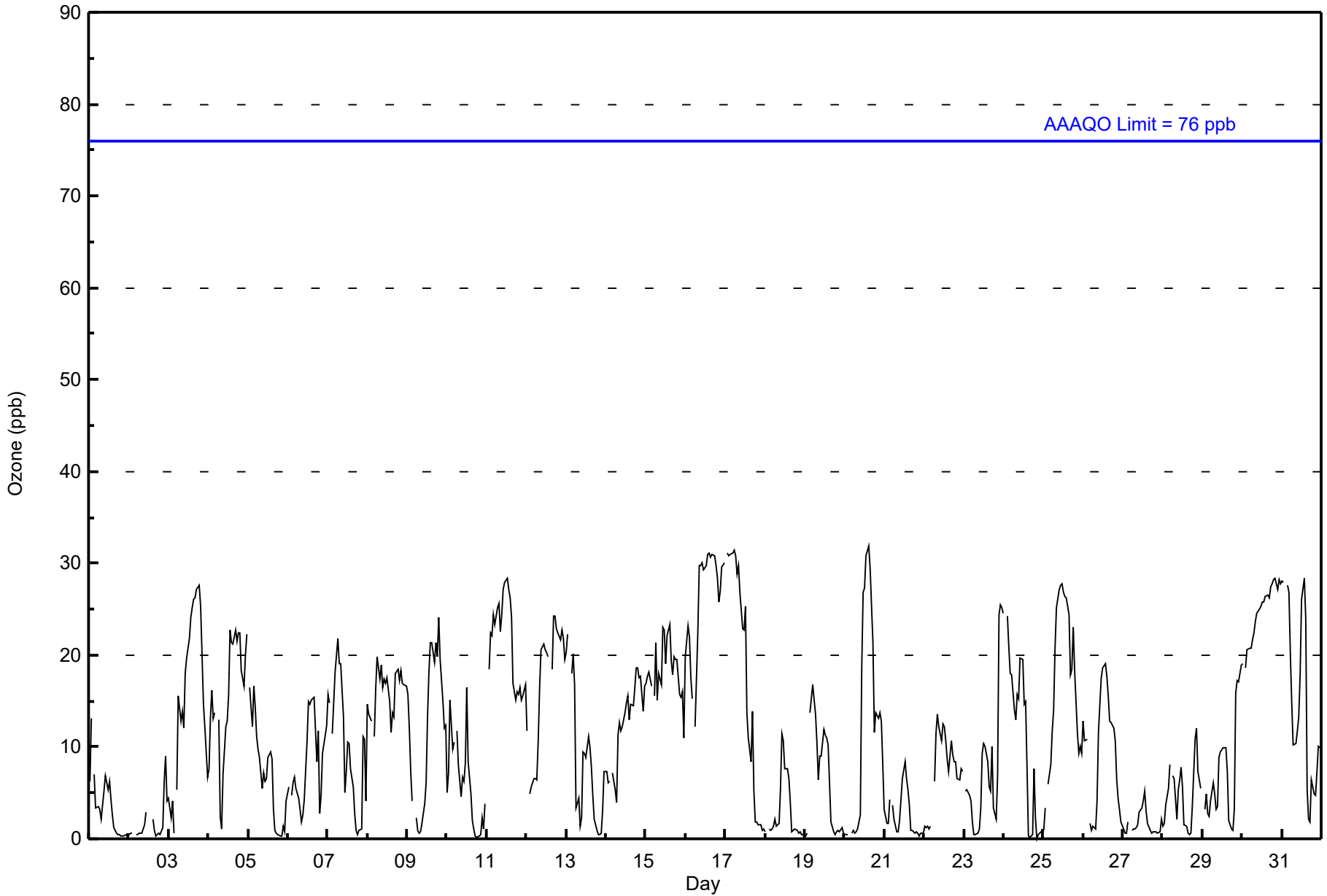
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	6.3	13.1	Z	7.1	3.3	3.5	3.1	2.2	3.6	5.1	6.8	5.4	6.3	4.3	2.5	1.2	0.6	0.5	0.4	0.4	0.3	0.4	0.4	0.3	3.4	13.1																						
2-Dec	0.5	0.6	0.6	Z	0.4	0.4	0.5	0.6	0.6	1.5	2.9	C	C	C	2.2	1.0	0.4	0.5	0.6	0.5	1.3	6.2	9.0	4.2	1.7	9.0																						
3-Dec	4.4	2.3	4.1	0.6	Z	5.4	15.6	12.9	13.9	12.0	18.0	19.7	21.8	24.2	25.2	26.1	26.2	27.1	27.6	25.4	20.1	14.9	12.3	6.6	15.9	27.6																						
4-Dec	7.7	13.0	16.2	13.2	13.7	Z	12.9	2.4	1.1	7.1	12.3	12.8	15.6	22.7	21.4	21.1	22.7	21.4	22.5	22.4	18.3	16.7	19.9	22.3	15.6	22.7																						
5-Dec	Z	16.5	12.2	16.7	14.3	11.1	9.7	8.9	5.6	7.2	6.2	6.5	8.8	9.4	8.7	3.2	1.0	0.6	0.4	0.3	0.3	1.4	0.8	4.2	6.7	16.7																						
6-Dec	5.6	Z	4.7	6.2	6.7	5.4	4.4	3.3	1.8	2.6	4.3	10.7	14.9	14.7	15.1	15.3	15.4	8.3	11.8	2.7	4.8	9.4	11.2	12.3	8.3	15.4																						
7-Dec	15.7	14.8	Z	11.4	18.2	20.0	21.9	19.1	19.0	13.3	5.1	7.3	10.6	10.3	7.7	5.6	2.8	0.9	0.4	1.0	1.1	11.2	10.8	4.1	10.1	21.9																						
8-Dec	14.6	13.6	12.8	Z	11.2	16.3	19.8	17.4	18.9	16.5	17.4	16.9	17.5	15.0	11.6	13.7	13.3	18.0	18.5	17.2	18.4	17.0	16.8	16.7	16.1	19.8																						
9-Dec	15.7	12.1	7.3	4.2	Z	2.3	0.9	0.7	0.7	1.6	3.8	6.1	13.2	18.2	21.3	21.4	19.3	21.4	19.8	24.1	19.5	15.0	12.1	12.3	11.9	24.1																						
10-Dec	5.0	7.2	15.1	9.7	10.5	Z	11.7	8.0	4.5	6.7	6.3	8.3	16.5	8.5	4.9	1.9	1.1	0.3	0.1	0.3	0.5	2.3	1.1	3.7	5.8	16.5																						
11-Dec	Z	18.4	22.3	22.1	24.4	23.3	25.1	25.7	22.6	24.4	27.2	27.9	28.3	27.1	26.2	24.2	16.9	15.1	16.0	15.7	16.5	15.1	15.5	16.7	21.6	28.3																						
12-Dec	11.7	Z	4.8	5.6	6.5	6.6	6.4	10.5	16.3	20.6	21.2	20.6	20.3	19.9	M	18.5	24.3	24.2	22.8	22.4	21.6	22.7	21.8	19.5	16.8	24.3																						
13-Dec	20.3	22.3	Z	18.0	20.1	16.8	3.4	4.4	1.3	2.2	9.4	9.3	8.8	11.2	9.9	7.9	4.7	2.2	1.0	0.4	0.5	0.6	3.0	7.3	8.0	22.3																						
14-Dec	7.4	6.1	6.3	Z	7.2	5.4	3.9	11.3	12.7	11.8	12.2	13.7	14.8	15.6	12.9	14.7	14.5	16.5	18.6	18.6	17.5	17.7	13.9	16.7	12.6	18.6																						
15-Dec	16.9	17.8	18.1	16.6	Z	15.5	21.3	15.1	18.0	16.7	23.1	22.7	19.1	22.2	23.3	19.3	17.8	19.9	19.5	19.5	15.8	15.3	16.0	11.0	18.3	23.3																						
16-Dec	19.8	23.2	21.9	17.6	15.2	Z	12.2	22.6	29.8	29.8	30.0	29.3	29.8	31.0	31.1	30.6	30.9	30.8	29.8	28.3	25.8	27.0	29.6	30.0	26.4	31.1																						
17-Dec	Z	31.2	30.8	30.9	31.1	31.4	30.8	28.8	29.7	26.9	22.8	22.8	25.4	13.7	11.0	8.4	13.9	5.1	1.9	1.9	1.6	1.5	0.9	1.0	17.5	31.4																						
18-Dec	0.8	Z	1.1	1.0	1.0	1.3	2.1	1.4	1.6	5.5	11.4	10.6	7.6	7.7	6.5	4.0	0.8	0.9	1.0	0.9	0.5	0.8	0.4	0.4	3.0	11.4																						
19-Dec	0.4	0.6	Z	13.7	15.3	16.7	13.5	10.6	6.5	9.0	8.9	11.9	11.3	11.1	10.2	6.1	1.8	0.8	0.5	0.8	0.9	0.8	1.3	0.6	6.7	16.7																						
20-Dec	0.5	0.4	0.4	Z	0.6	1.0	0.6	0.7	1.1	2.6	18.7	26.8	27.3	30.9	31.9	29.4	25.3	21.3	11.6	13.7	13.1	13.7	12.9	8.2	12.7	31.9																						
21-Dec	3.2	1.7	1.6	4.3	Z	3.6	2.2	0.8	0.7	1.9	4.2	6.5	8.5	6.6	5.4	3.6	1.0	0.9	0.7	0.8	0.6	0.4	0.6	0.6	2.6	8.5																						
22-Dec	1.4	1.2	1.4	1.1	1.4	Z	6.2	11.4	13.7	12.3	10.6	12.5	12.1	10.7	8.7	7.4	10.7	9.1	8.3	8.3	6.5	6.4	7.7	7.3	7.7	13.7																						
23-Dec	Z	5.2	5.4	4.7	4.1	1.9	0.5	0.6	1.0	3.4	9.3	10.3	10.1	8.4	5.7	5.2	10.1	3.3	2.1	6.9	24.4	25.5	25.2	7.6	25.5																							
24-Dec	24.6	Z	24.3	20.9	18.0	17.9	14.0	13.0	15.7	15.3	19.7	19.7	14.7	14.9	7.8	0.2	0.2	0.5	7.7	2.2	0.1	0.4	0.8	0.4	11.0	24.6																						
25-Dec	1.1	3.4	Z	6.0	8.1	11.8	14.1	20.7	25.2	27.1	27.7	27.7	26.9	26.4	26.3	24.4	17.9	18.4	23.0	18.3	11.5	9.3	10.1	9.3	17.2	27.7																						
26-Dec	12.8	10.7	10.9	Z	1.6	0.9	1.4	1.0	4.1	11.5	14.7	17.5	18.6	19.0	17.8	15.6	12.8	12.6	12.1	10.7	6.5	4.4	3.2	1.8	9.7	19.0																						
27-Dec	1.0	0.5	0.7	1.8	Z	0.9	1.0	1.1	1.2	1.5	2.9	3.3	4.1	5.1	3.0	1.7	0.9	0.6	0.7	0.8	0.7	0.6	0.7	2.1	1.6	5.1																						
28-Dec	1.4	1.6	3.6	5.5	8.0	Z	6.9	6.6	2.1	5.3	6.3	7.7	5.6	1.6	1.4	0.7	0.4	0.7	3.5	10.9	12.1	7.4	6.4	5.4	4.8	12.1																						
29-Dec	Z	3.1	4.9	2.8	2.4	4.1	6.0	4.9	3.1	3.5	8.8	9.4	9.9	10.0	9.9	7.4	2.0	1.0	0.9	3.3	15.8	17.2	17.1	18.9	7.2	18.9																						
30-Dec	19.1	Z	18.6	20.7	20.7	20.7	21.6	22.5	23.6	24.5	25.0	25.4	25.8	25.7	26.4	26.6	26.3	27.4	27.8	28.2	28.4	27.2	28.2	27.7	24.7	28.4																						
31-Dec	28.0	28.0	Z	27.6	26.8	20.2	14.8	10.3	10.3	11.7	13.3	18.0	26.0	28.4	24.0	5.3	2.2	1.8	6.4	4.8	4.7	7.3	10.0	9.9	14.8	28.4																						
																								9.5	10.3	10.0	11.1	11.2	10.2	10.0	9.7	10.0	10.9	13.1	14.9	16.0	15.9	14.1	12.0	10.7	10.3	10.3	9.9	9.4	10.1	10.3	9.9	Diurnal Average
																								28.0	31.2	30.8	30.9	31.1	31.4	30.8	28.8	29.8	29.8	30.0	29.3	29.8	31.0	31.9	30.6	30.9	30.8	29.8	28.3	28.4	27.2	29.6	30.0	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 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	576	81.24	81.24
21 - 50	133	18.76	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
Fort McKay - Bertha Ganter - December 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	70	34	4	4	7	5	9	47	162	51	22	17	11	25	10	14	492
21 - 50	6	3	0	0	2	2	7	8	27	2	4	6	19	31	5	1	123
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	76	37	4	4	9	7	16	55	189	53	26	23	30	56	15	15	615

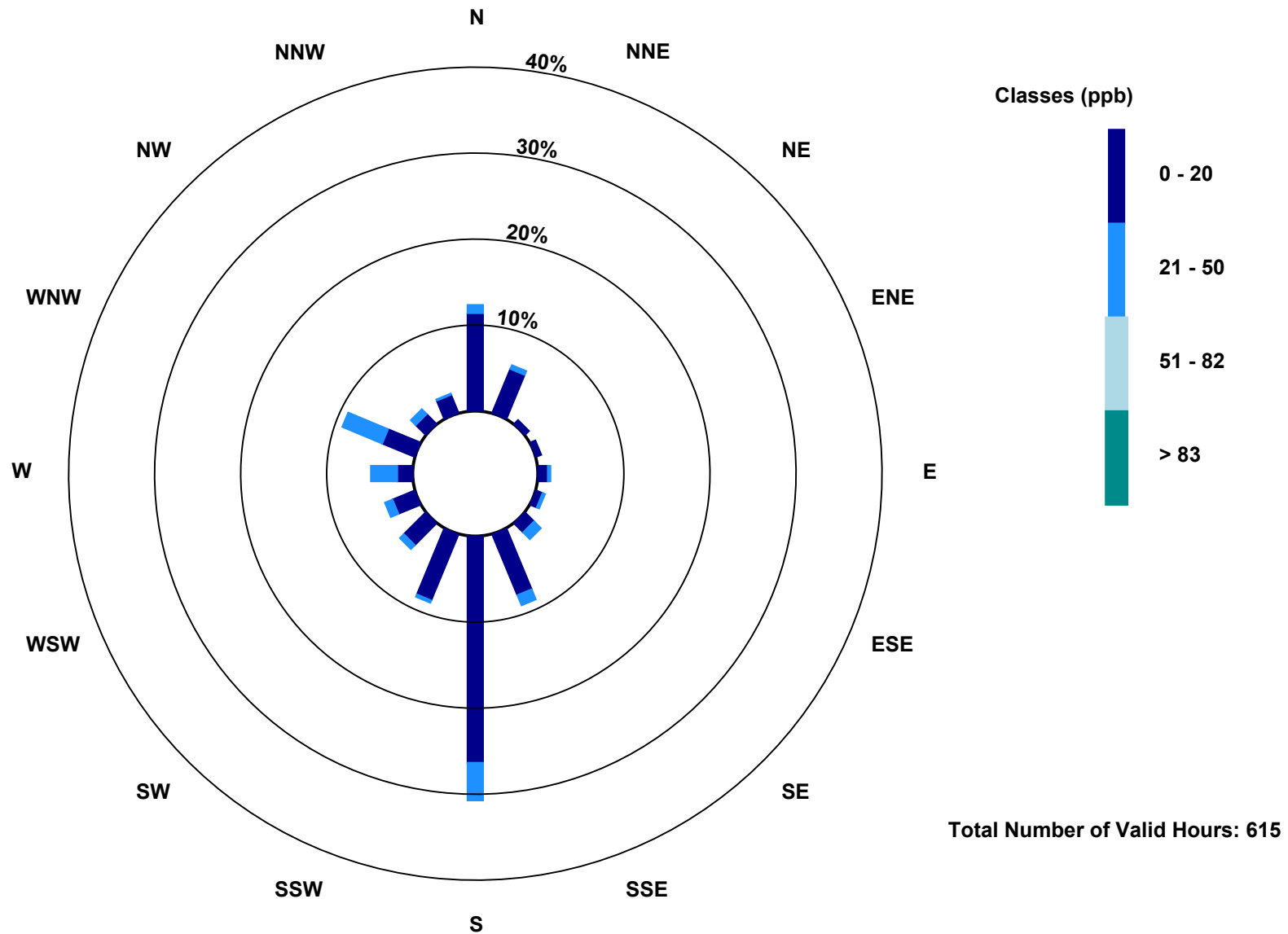
Total Number of Valid Hours: 615

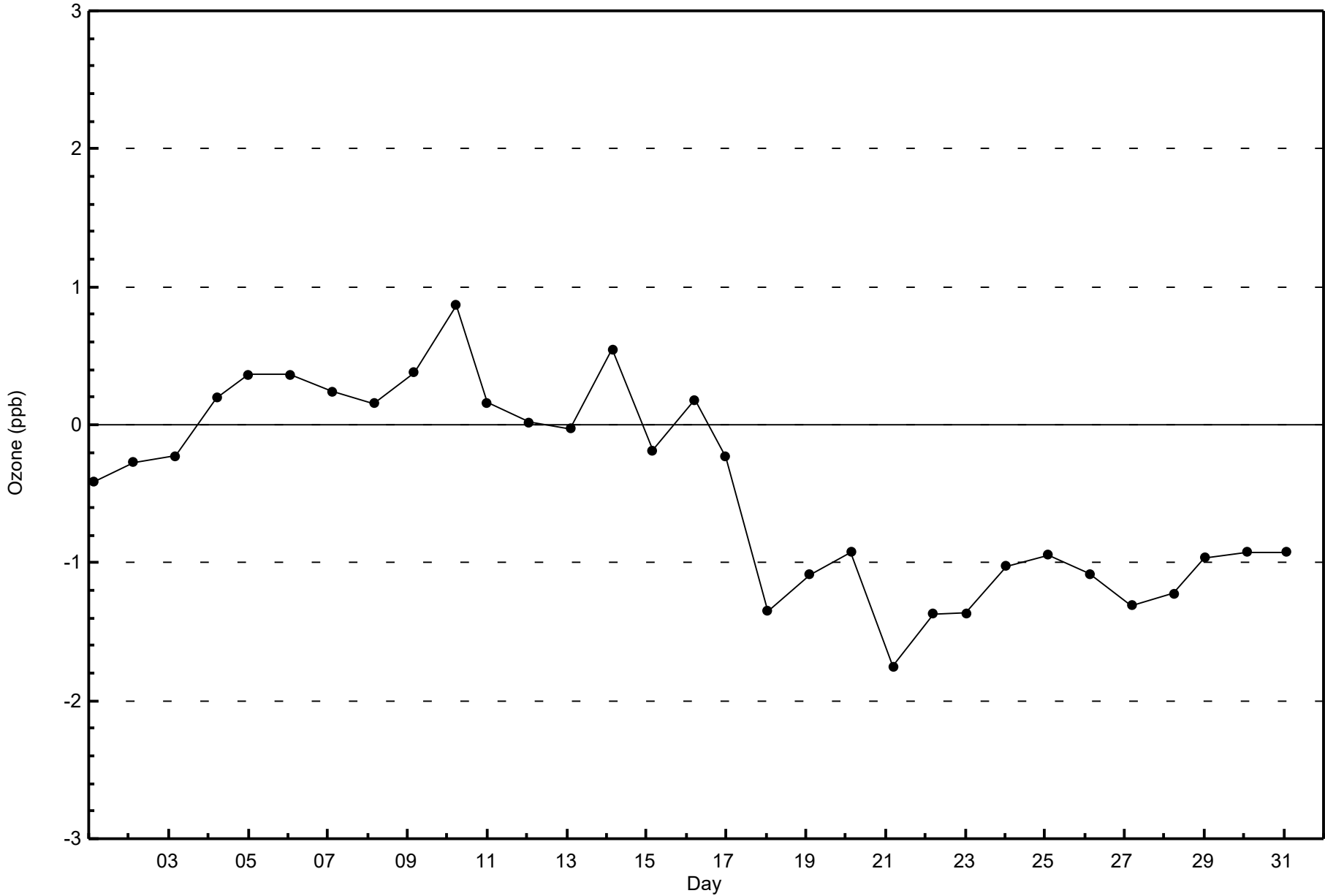
Total Number of Hours: 744

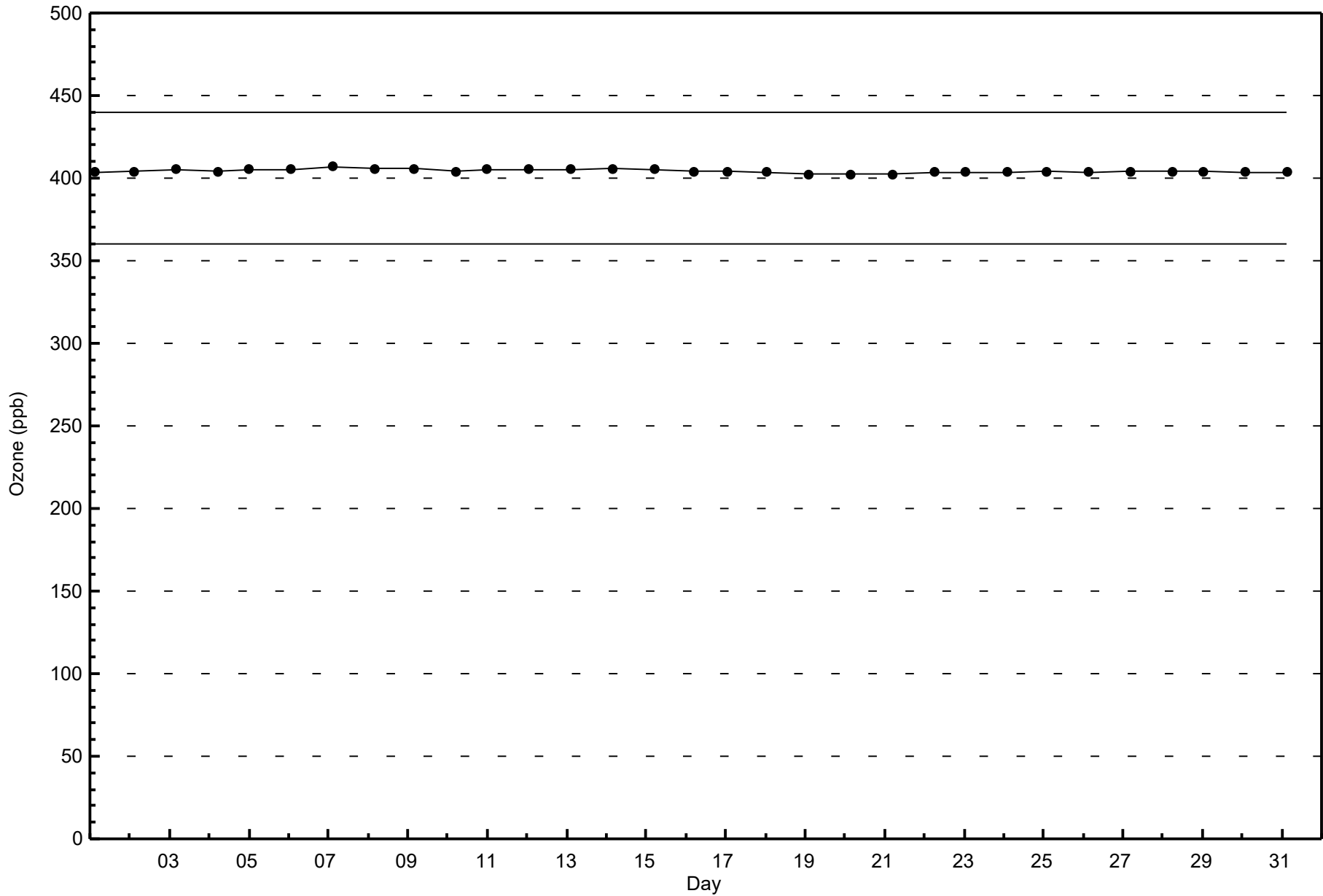


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Fort McKay - Bertha Ganter





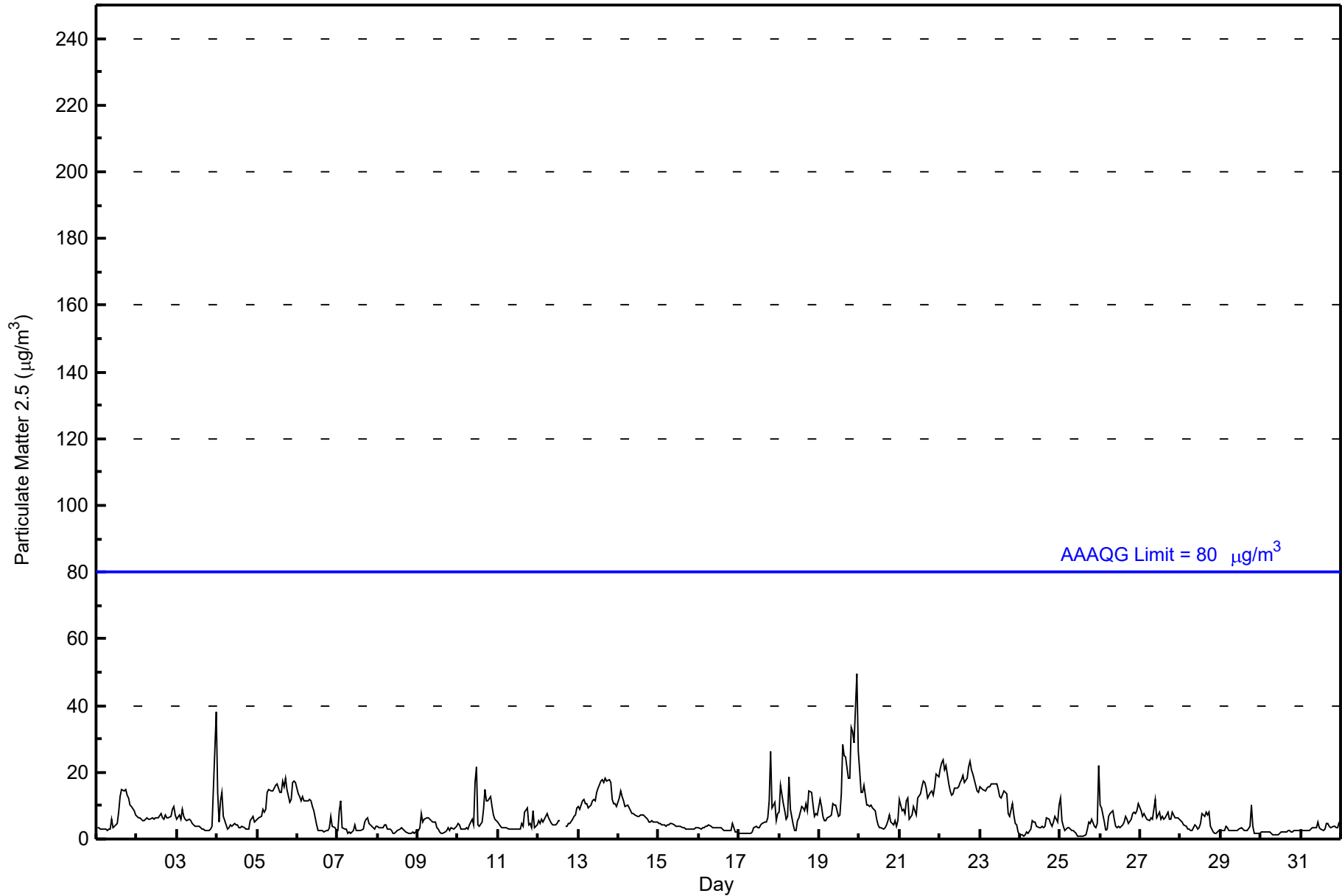




Summary of Hour Averages

Fort McKay - Bertha Ganter - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service:																	744																											
Maximum Value: 49.7 μg/m ³ on Dec 19 23:00		Maximum Daily Average: 18.1 μg/m ³ on Dec 22																	Hours of Data:	742																												
Minimum Value: 0.7 μg/m ³ on Dec 25 12:00		Minimum Daily Average: 2.0 μg/m ³ on Dec 30																	Hours of Missing Data:	2																												
Maximum Diurnal Average: 8.7 μg/m ³ at hour 24		Minimum Diurnal Average: 5.8 μg/m ³ at hour 13																	Hours of Calibration:	2																												
Monthly Average: 7.00 μg/m ³		Percentiles: P ₁ = 1.2 P ₁₀ = 2.4 Q ₁ = 3.1 Median = 5.1 Q ₃ = 9.2 P ₉₀ = 14.7 P ₉₉ = 25.6																	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-Dec	3.5	3.4	3.1	3.1	3.1	2.8	2.7	2.8	2.8	5.9	3.4	4.2	4.7	7.9	12.7	15.0	14.6	14.7	13.2	12.2	10.3	9.6	8.4	7.1	7.1	15.0																						
2-Dec	6.9	6.6	6.2	5.7	5.5	6.0	6.2	6.1	6.1	6.3	6.0	6.3	6.5	6.5	7.7	6.2	6.1	7.0	6.5	6.2	6.8	8.8	9.6	7.0	6.6	9.6																						
3-Dec	6.1	7.4	6.1	8.7	6.8	5.9	5.7	5.8	5.5	4.5	4.2	4.0	3.8	3.9	3.5	3.1	2.9	2.7	2.7	2.9	3.9	15.5	38.0	6.5	38.0																							
4-Dec	13.8	5.1	11.3	14.0	6.6	4.2	3.1	3.3	4.4	3.8	4.7	4.4	4.3	3.2	3.4	3.9	3.3	3.0	2.9	3.0	5.7	6.8	5.2	5.7	5.4	14.0																						
5-Dec	5.9	6.5	6.7	9.0	8.0	9.0	13.8	14.7	14.4	14.4	15.3	15.9	16.7	14.2	14.0	17.6	15.5	18.3	14.6	10.9	11.8	16.9	17.4	17.0	13.3	18.3																						
6-Dec	13.5	12.7	11.6	12.6	11.6	11.5	11.4	11.7	11.2	9.8	8.5	4.4	2.5	2.5	2.4	2.5	2.2	2.7	2.4	3.3	6.9	3.6	3.3	2.6	7.0	13.5																						
7-Dec	2.5	8.5	11.3	3.4	3.1	2.9	1.7	2.1	1.9	2.7	4.1	2.5	2.6	2.4	2.5	3.1	5.1	5.9	6.2	4.5	3.6	3.2	3.2	3.7	3.9	11.3																						
8-Dec	3.8	3.3	3.5	3.6	4.1	4.1	3.0	2.9	2.6	1.9	1.7	2.3	2.6	2.8	3.5	2.9	2.5	2.0	1.7	1.6	1.7	2.3	1.8	2.6	2.7	4.1																						
9-Dec	2.7	3.4	7.6	5.2	6.1	6.4	6.2	6.1	5.5	4.9	4.9	3.2	2.8	2.2	1.8	1.8	2.3	2.6	3.2	2.6	3.3	3.1	3.6	3.8	4.0	7.6																						
10-Dec	4.5	4.0	3.0	3.0	3.0	3.4	2.9	4.2	5.7	4.2	17.1	21.4	4.0	3.7	5.3	8.9	14.9	11.4	11.3	12.9	9.6	7.3	5.8	5.4	7.4	21.4																						
11-Dec	5.0	3.7	3.3	3.3	3.3	3.2	3.0	2.8	2.8	2.8	2.8	2.8	3.0	3.1	4.8	3.8	8.0	9.5	4.3	4.5	3.6	8.5	3.4	4.3	4.2	9.5																						
12-Dec	5.3	4.8	5.8	5.0	6.7	7.6	6.5	5.5	4.9	4.2	4.2	4.7	5.7	5.5	C	C	3.7	3.8	4.5	4.8	5.9	6.8	7.2	9.2	5.6	9.2																						
13-Dec	9.8	8.9	11.3	12.0	10.7	10.5	9.5	10.1	11.3	11.9	11.2	14.1	15.4	17.4	18.0	17.0	18.3	17.5	17.7	16.8	12.0	10.7	10.6	9.9	13.0	18.3																						
14-Dec	12.1	14.3	12.8	11.4	9.6	10.0	9.5	8.6	7.6	7.6	7.1	6.9	6.9	7.0	7.2	7.0	6.4	5.7	5.3	5.2	5.5	5.1	5.0	4.9	7.9	14.3																						
15-Dec	4.8	4.5	4.3	4.0	3.9	4.3	4.3	4.6	4.5	4.4	4.0	3.8	3.9	3.8	3.5	3.3	3.1	3.0	2.8	2.8	2.8	3.1	3.4	3.6	3.8	4.8																						
16-Dec	3.3	3.1	3.2	3.5	3.6	4.0	4.4	3.8	3.5	3.5	3.6	3.5	3.5	3.4	2.9	2.6	2.4	2.4	2.4	2.4	4.5	3.3	2.1	2.0	3.2	4.5																						
17-Dec	1.9	1.7	1.7	1.5	1.5	1.6	1.8	1.9	2.1	3.3	3.8	3.6	3.4	4.2	4.8	5.2	5.0	6.5	11.5	26.2	9.4	11.1	5.7	7.6	5.3	26.2																						
18-Dec	8.2	15.9	10.7	8.7	5.8	6.8	18.9	8.9	4.2	2.6	2.5	5.6	6.3	9.7	9.5	8.5	10.7	8.3	14.5	13.8	10.0	6.7	7.4	7.3	8.8	18.9																						
19-Dec	11.8	9.8	6.9	5.6	5.6	6.2	6.7	7.3	10.8	10.0	10.2	6.7	7.3	13.4	28.5	24.8	24.7	18.2	18.1	33.4	32.4	28.8	49.7	26.2	16.8	49.7																						
20-Dec	20.5	14.2	14.0	16.1	10.1	10.2	9.7	10.2	9.2	8.6	6.1	4.4	3.5	3.2	2.8	3.2	4.0	5.4	7.4	5.2	4.2	5.4	4.0	5.7	7.8	20.5																						
21-Dec	11.9	8.5	8.7	7.6	11.3	12.1	6.0	7.3	9.6	8.5	7.0	12.1	13.7	15.9	17.3	16.9	15.0	12.3	13.9	14.3	13.2	15.8	19.4	18.5	12.4	19.4																						
22-Dec	21.1	22.9	23.9	20.9	21.9	16.4	14.5	13.0	13.5	15.4	15.3	15.6	17.0	17.8	19.1	17.1	18.0	21.8	23.5	20.6	19.6	16.2	14.5	14.0	18.1	23.9																						
23-Dec	15.7	15.3	14.6	14.3	15.0	15.9	15.6	16.6	16.3	16.4	16.3	14.6	12.8	12.5	14.6	13.8	13.5	7.7	6.6	10.4	7.0	4.5	4.2	2.1	12.3	16.6																						
24-Dec	1.1	1.4	1.0	1.2	1.9	1.6	3.0	5.3	5.0	4.9	3.7	3.3	3.3	4.0	3.3	4.0	6.2	5.8	4.5	4.0	5.1	6.7	5.2	10.3	4.0	10.3																						
25-Dec	12.2	5.5	3.8	2.7	3.3	3.3	3.0	2.7	2.5	1.6	0.8	0.7	0.8	0.8	1.0	1.3	3.0	5.0	4.7	5.9	3.9	3.3	4.8	22.2	4.1	22.2																						
26-Dec	10.2	9.1	5.2	2.4	2.8	7.0	7.8	8.5	5.9	3.7	3.5	3.7	3.6	4.3	5.0	6.9	5.7	4.6	5.8	7.5	8.0	7.6	8.6	10.5	6.2	10.5																						
27-Dec	8.7	6.7	7.6	7.0	6.1	5.6	6.5	6.1	8.7	11.7	6.6	8.1	5.8	6.7	6.0	6.6	8.0	5.8	6.1	8.0	7.1	6.2	6.1	5.8	7.0	11.7																						
28-Dec	5.4	5.2	4.4	4.0	3.0	2.8	2.6	2.7	4.2	3.8	2.9	3.2	4.9	7.8	6.6	8.0	7.2	7.9	3.9	1.9	1.6	1.8	2.2	2.5	4.2	8.0																						
29-Dec	2.5	2.6	2.6	3.8	3.3	2.7	2.7	2.7	2.4	2.5	2.6	3.1	3.3	2.9	2.7	2.6	2.6	3.6	10.0	4.0	1.9	1.7	1.7	1.7	3.0	10.0																						
30-Dec	2.0	2.0	2.0	1.9	1.9	2.0	1.7	1.5	1.4	1.4	1.5	1.7	2.0	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.4	2.5	2.4	2.4	2.0	2.5																						
31-Dec	2.5	2.5	2.5	2.5	2.6	2.7	3.0	3.2	3.3	3.5	5.1	3.6	2.8	2.6	2.9	4.6	4.8	3.9	3.6	3.9	4.0	3.5	3.5	5.1	3.4	5.1																						
																								7.7	7.2	7.1	6.7	6.2	6.2	6.4	6.2	6.3	6.2	6.2	6.3	5.8	6.4	7.3	7.5	7.8	7.5	7.7	8.3	7.3	7.3	7.9	8.7	Diurnal Average
																								21.1	22.9	23.9	20.9	21.9	16.4	18.9	16.6	16.3	16.4	17.1	21.4	17.0	17.8	28.5	24.8	24.7	21.8	23.5	33.4	32.4	28.8	49.7	38.0	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 - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	391	52.70	52.70
6 - 15	287	38.68	91.37
16 - 25	56	7.55	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Fort McKay - Bertha Ganter - December 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	25	4	3	7	7	13	26	64	14	17	13	28	50	9	9	344
6 - 15	25	12	2	1	1	0	1	27	102	31	9	9	2	5	3	4	234
16 - 25	0	1	0	0	1	0	3	3	27	6	1	4	3	2	3	2	56
26 - 80	0	0	0	0	0	0	0	0	4	2	1	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	80	38	6	4	9	7	17	56	197	53	28	26	33	57	15	15	641

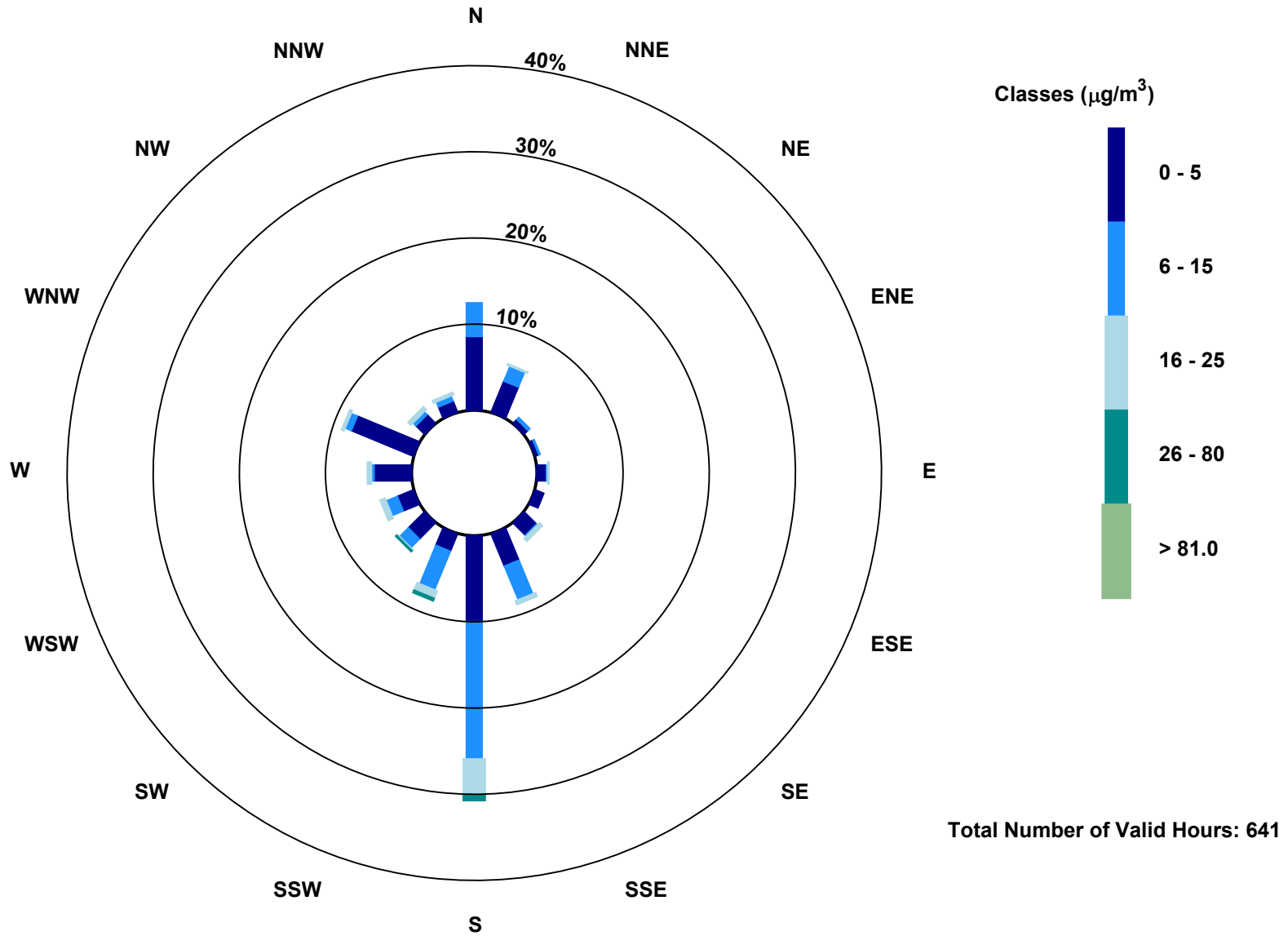
Total Number of Valid Hours: 641

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

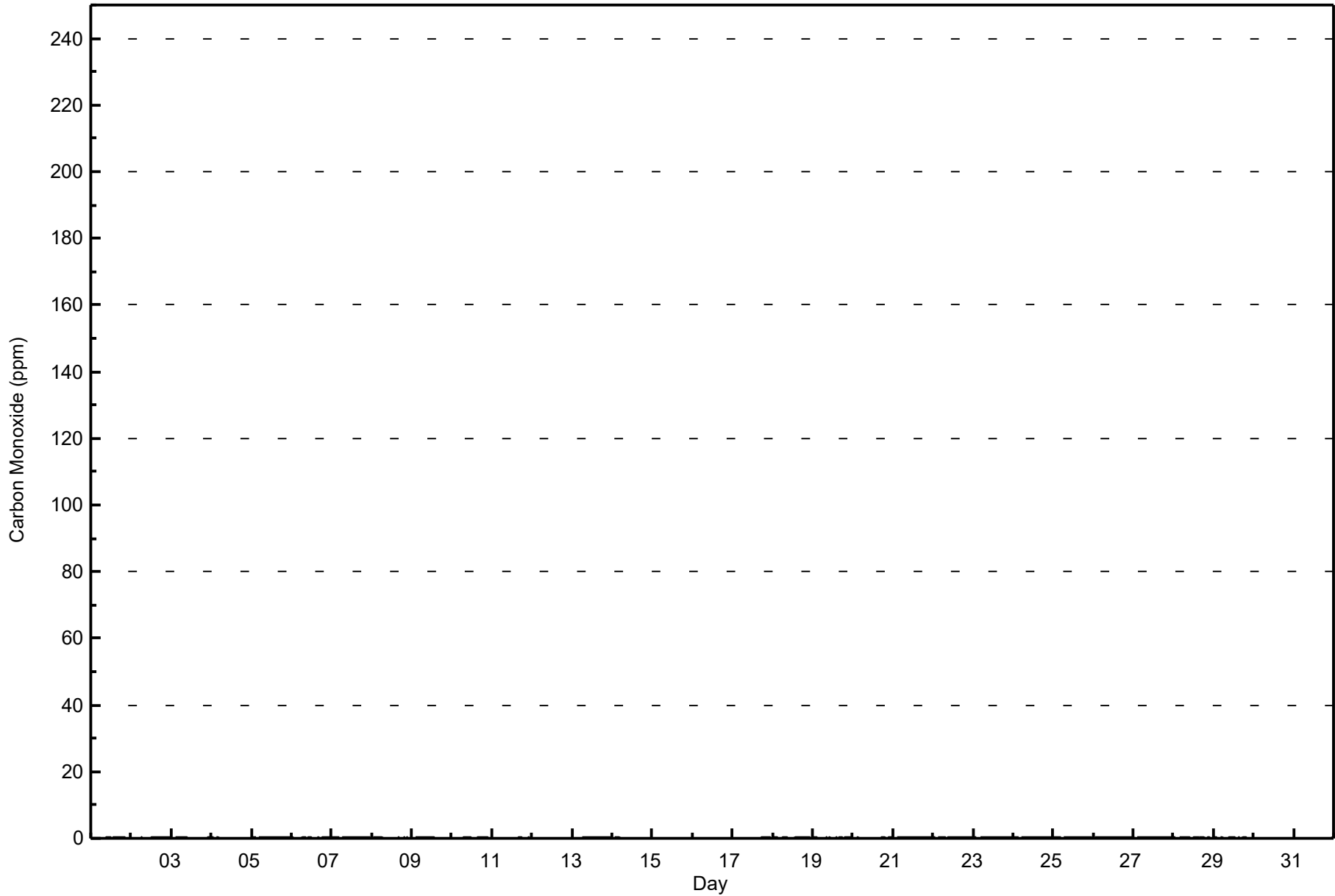
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay - Bertha Ganter





Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	692	97.74	97.74
0.4 - 0.5	15	2.12	99.86
0.6 - 0.7	1	0.14	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Monoxide (CO) - ppm
Fort McKay - Bertha Ganter - December 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	77	35	6	4	8	7	15	52	183	45	25	26	31	55	15	15	599
0.4 - 0.5	1	0	0	0	0	0	1	1	6	5	1	0	0	0	0	0	15
0.6 - 0.7	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
0.8 - 1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1.5 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	35	6	4	8	7	16	53	189	51	26	26	31	55	15	15	615

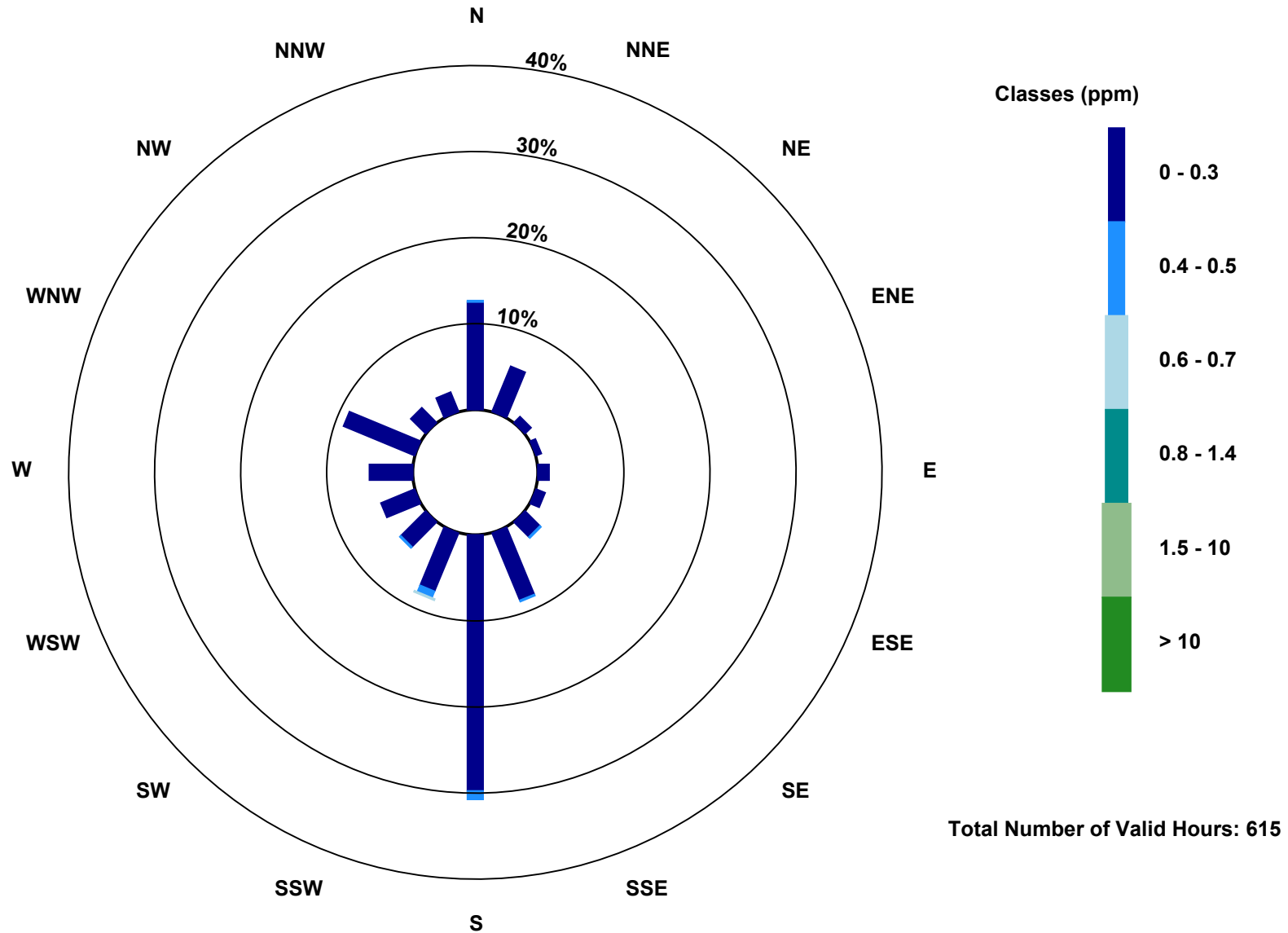
Total Number of Valid Hours: 615

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



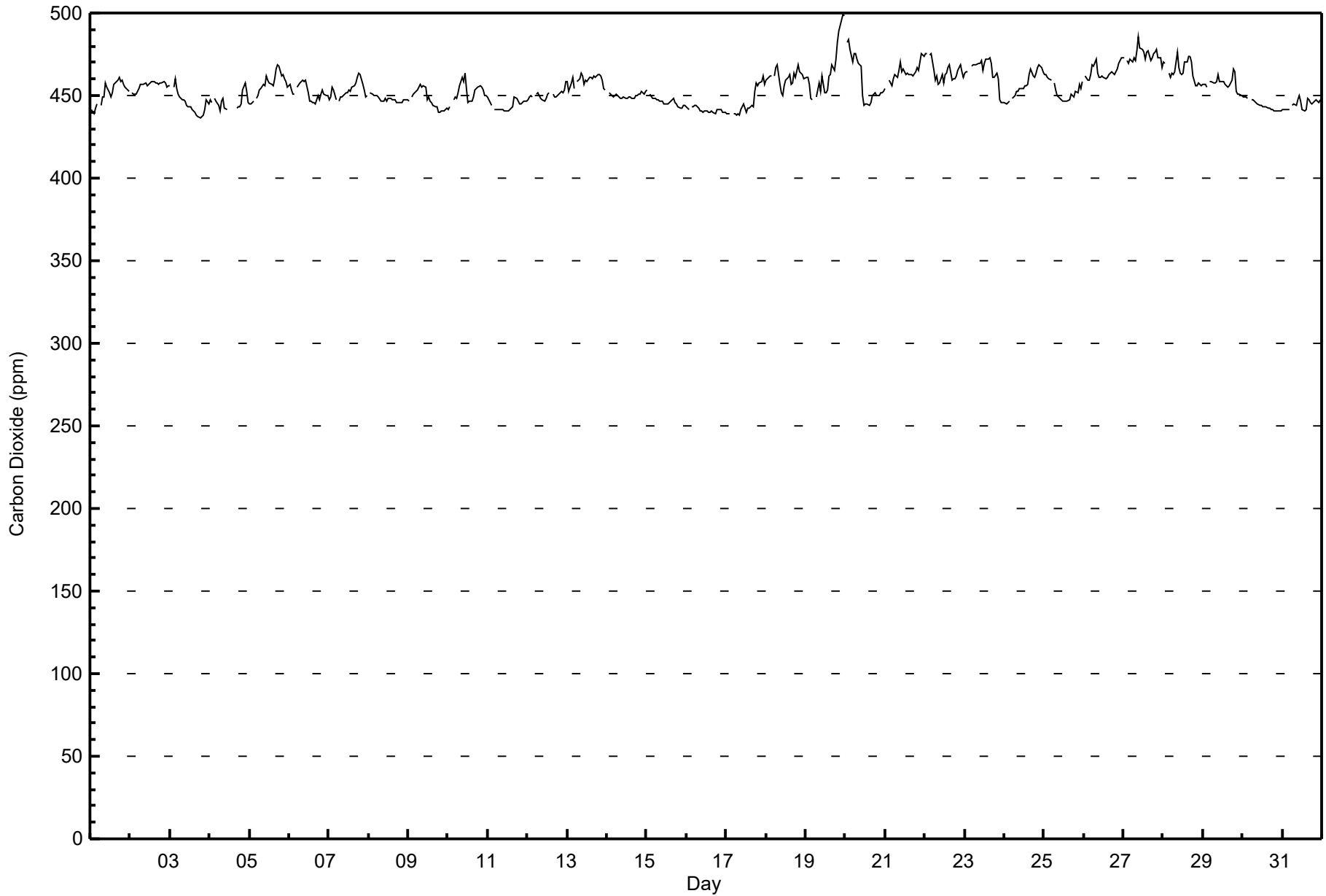


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744						
Maximum Value: 499.3 ppm on Dec 19 23:00		Maximum Daily Average: 474.2 ppm on Dec 27																	Hours of Data:	707								
Minimum Value: 436.8 ppm on Dec 3 19:00		Minimum Daily Average: 441.3 ppm on Dec 16																	Hours of Missing Data:	37								
Maximum Diurnal Average: 455.7 ppm at hour 22		Minimum Diurnal Average: 452.4 ppm at hour 13																	Hours of Calibration:	36								
Monthly Average: 454.32 ppm		Percentiles: P ₁ = 438.8 P ₁₀ = 441.9 Q ₁ = 446.7 Median = 452.7 Q ₃ = 461.1 P ₉₀ = 468.6 P ₉₉ = 481.8																	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-Dec	441.4	439.8	439.1	442.2	444.9	Z	443.8	448.8	449.4	457.4	454.9	451.9	449.2	451.5	456.9	457.8	459.1	460.9	458.5	459.1	456.5	455.3	453.8	452.9	451.5	460.9		
2-Dec	Z	451.6	451.0	451.1	452.4	454.7	456.9	456.5	457.1	457.2	456.3	456.7	457.8	458.2	458.4	458.0	457.8	457.1	458.0	457.5	458.8	457.8	455.4	456.0	456.2	458.8		
3-Dec	455.5	Z	455.4	460.0	453.9	451.2	449.0	447.4	447.3	446.8	444.1	443.0	443.0	441.6	440.8	439.7	438.4	437.3	436.8	437.1	437.7	441.9	447.4	445.3	445.2	460.0		
4-Dec	447.3	445.5	Z	448.1	446.8	444.4	441.1	446.3	448.4	442.3	441.4	C	C	C	C	C	442.4	443.3	443.4	444.8	453.6	457.5	452.8	445.9	446.4	457.5		
5-Dec	445.2	445.2	446.5	Z	448.0	450.0	453.3	454.3	456.6	446.0	461.6	459.1	457.8	456.6	456.3	460.5	465.9	468.7	467.4	461.6	463.1	459.8	458.4	455.3	456.8	468.7		
6-Dec	456.5	453.6	450.6	450.8	Z	455.0	457.4	458.5	459.1	458.7	459.0	451.4	446.8	446.9	446.1	446.1	444.7	450.1	447.6	450.8	453.7	451.2	449.9	449.8	451.9	459.1		
7-Dec	447.5	449.0	455.0	453.1	447.9	Z	446.7	449.2	449.0	450.7	451.6	451.6	453.5	452.5	455.0	456.3	457.6	460.9	463.7	462.6	456.5	453.3	449.4	449.7	453.1	463.7		
8-Dec	Z	451.9	450.6	450.0	450.3	450.0	448.8	446.7	446.6	446.6	448.1	446.6	447.9	448.4	447.8	447.7	447.3	445.5	445.4	446.2	445.5	447.6	447.6	447.9	447.9	451.9		
9-Dec	446.9	Z	449.5	451.2	451.3	453.0	455.0	456.5	455.4	456.1	454.7	447.8	449.1	446.6	445.4	443.7	442.8	442.8	439.9	439.7	440.9	440.5	441.8	442.1	447.5	456.5		
10-Dec	441.9	443.1	Z	447.7	449.4	448.7	451.7	456.0	461.4	458.9	463.5	454.6	445.5	446.4	446.9	449.5	453.0	454.3	455.5	456.0	455.4	453.7	450.3	450.0	451.9	463.5		
11-Dec	448.8	445.5	444.0	Z	441.3	441.7	441.6	441.4	441.7	441.4	441.1	440.9	441.0	441.6	442.4	443.1	449.6	448.0	446.2	445.2	445.0	445.8	446.7	447.0	444.0	449.6		
12-Dec	447.7	449.2	450.2	449.5	Z	450.7	451.7	449.8	448.3	447.2	446.5	447.9	451.2	451.8	M	450.6	449.1	449.0	449.9	450.4	452.5	452.0	453.3	458.5	450.3	458.5		
13-Dec	458.1	452.7	457.4	461.0	454.1	Z	458.8	460.1	463.4	461.9	457.0	459.1	458.8	461.0	461.0	460.0	462.0	461.2	462.5	462.9	462.2	458.9	454.6	453.6	459.2	463.4		
14-Dec	Z	451.4	450.7	449.8	449.3	450.5	449.9	448.7	448.2	448.2	449.1	448.4	448.1	448.7	449.2	448.1	448.2	449.7	449.6	450.4	450.6	452.6	450.6	452.5	449.7	452.6		
15-Dec	453.7	Z	451.1	448.5	448.0	448.5	447.2	447.4	446.5	446.2	445.0	444.8	445.2	445.0	446.7	447.8	448.0	445.8	445.1	442.8	442.5	442.5	444.0	444.4	446.4	453.7		
16-Dec	443.4	441.8	Z	443.4	443.6	443.8	444.2	442.3	440.6	440.3	440.1	441.0	440.5	440.0	439.7	440.4	439.5	439.2	441.5	441.9	441.9	441.2	439.9	439.8	441.3	444.2		
17-Dec	439.4	438.7	439.3	Z	438.8	438.8	438.3	439.3	438.2	441.2	444.6	442.0	439.8	442.5	442.5	443.9	443.6	452.8	457.7	455.9	457.4	458.2	461.5	457.1	445.7	461.5		
18-Dec	459.1	460.4	462.3	462.0	Z	462.3	467.3	469.0	456.5	451.5	449.7	456.0	459.7	460.8	462.5	457.1	457.9	463.3	461.1	468.9	464.5	463.4	462.7	460.4	460.8	469.0		
19-Dec	461.1	461.1	456.5	448.7	447.7	Z	449.3	453.0	457.8	452.6	461.9	452.0	451.4	453.1	461.9	462.8	468.7	465.4	472.3	481.9	488.6	492.5	499.3	498.6	465.1	499.3		
20-Dec	Z	482.2	483.6	478.3	470.7	475.5	475.4	472.2	469.7	467.4	450.2	444.1	445.1	444.6	443.6	445.9	450.1	451.2	451.6	450.3	450.3	451.3	451.7	452.9	459.0	483.6		
21-Dec	454.3	Z	459.6	458.0	456.2	460.4	462.6	461.3	465.3	469.9	464.2	465.9	463.1	463.1	463.0	462.5	462.5	461.6	464.7	466.7	465.6	470.2	475.6	473.8	463.9	475.6		
22-Dec	475.3	475.7	Z	474.7	475.7	465.0	459.4	461.9	456.5	457.2	462.3	458.0	462.7	463.1	467.1	468.3	459.6	460.0	460.4	461.9	465.6	468.8	464.8	461.3	464.6	475.7		
23-Dec	463.2	464.0	464.7	Z	467.7	468.6	468.4	468.7	469.8	469.7	471.4	465.1	469.3	471.9	471.8	473.2	469.1	460.8	460.9	463.6	460.0	447.4	445.6	445.5	464.4	473.2		
24-Dec	445.5	445.1	445.4	446.9	Z	448.5	450.0	452.8	452.2	454.6	454.4	453.8	456.0	456.3	456.6	463.1	466.2	462.2	461.2	463.5	467.1	468.9	466.6	464.1	456.6	468.9		
25-Dec	462.6	462.5	461.1	460.3	459.6	Z	457.9	453.5	450.1	447.9	447.1	446.8	446.7	446.7	446.3	447.8	450.5	449.9	449.4	452.2	452.0	456.9	454.2	458.4	453.1	462.6		
26-Dec	Z	461.5	459.5	459.3	463.0	468.4	467.5	472.4	463.9	461.2	461.3	461.4	461.2	460.5	460.7	462.7	463.7	464.3	462.6	464.3	465.8	469.5	471.3	472.8	464.3	472.8		
27-Dec	472.7	Z	470.9	469.3	471.6	470.4	473.2	471.2	477.4	485.2	479.0	478.1	475.9	472.2	476.6	477.4	471.0	472.8	475.0	476.5	478.0	472.9	473.1	467.4	474.2	485.2		
28-Dec	470.1	469.3	Z	463.7	460.9	463.6	462.8	464.3	475.9	467.2	463.3	463.1	463.6	470.2	470.7	473.8	473.7	470.3	461.6	455.9	455.8	457.3	456.4	456.1	464.8	475.9		
29-Dec	456.4	457.1	455.1	Z	458.9	458.8	457.7	457.7	458.4	462.7	458.8	458.4	458.3	456.5	455.6	455.2	455.6	459.4	466.5	464.2	452.3	450.7	450.5	449.6	457.1	466.5		
30-Dec	449.4	449.5	449.3	448.1	Z	447.9	447.2	446.5	445.8	445.0	444.4	443.8	443.5	443.6	443.3	442.3	442.2	441.6	441.1	440.9	440.8	440.9	440.7	441.0	444.3	449.5		
31-Dec	441.1	441.2	441.5	441.3	441.2	Z	443.9	444.7	444.4	447.5	450.1	446.9	441.7	440.4	441.9	448.2	447.8	446.0	444.7	446.3	447.1	446.9	445.7	447.8	444.7	450.1		
		453.2	453.4	453.8	454.5	453.6	454.8	454.1	454.8	454.9	454.7	454.1	452.7	452.4	452.8	453.7	454.4	454.4	454.7	454.9	455.6	455.7	455.7	455.3	454.8	Diurnal Average		
		475.3	482.2	483.6	478.3	475.7	475.5	475.4	472.4	477.4	485.2	479.0	478.1	475.9	472.2	476.6	477.4	473.7	472.8	475.0	481.9	488.6	492.5	499.3	498.6	Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																						



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	0	0.00	0.00
420 - 440	29	4.10	4.10
440 - 460	490	69.31	73.41
460 - 480	180	25.46	98.87
480 - 500	8	1.13	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 McKay - Bertha Ganter - December 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	1	0	0	0	0	0	0	1	0	0	0	0	10	8	1	0	21
440 - 460	62	32	4	3	7	7	14	40	111	29	17	15	17	36	7	9	410
460 - 480	14	3	2	1	1	0	2	12	72	21	8	11	4	11	7	5	174
480 - 500	1	0	0	0	0	0	0	0	4	1	1	0	0	0	0	1	8
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	35	6	4	8	7	16	53	187	51	26	26	31	55	15	15	613

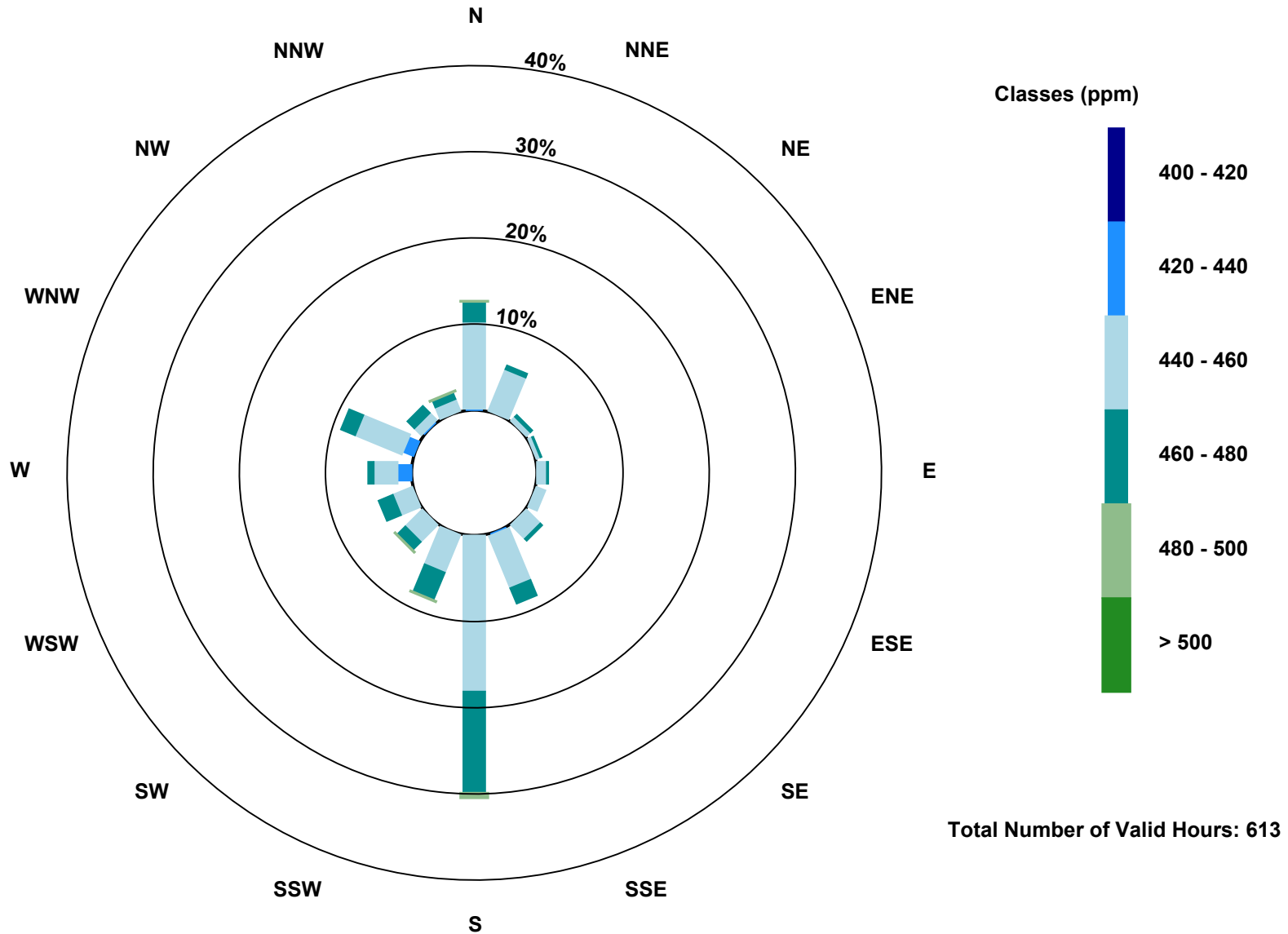
Total Number of Valid Hours: 613

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Ammonia (NH₃) - ppb

Fort McKay - Bertha Ganter - December 2024

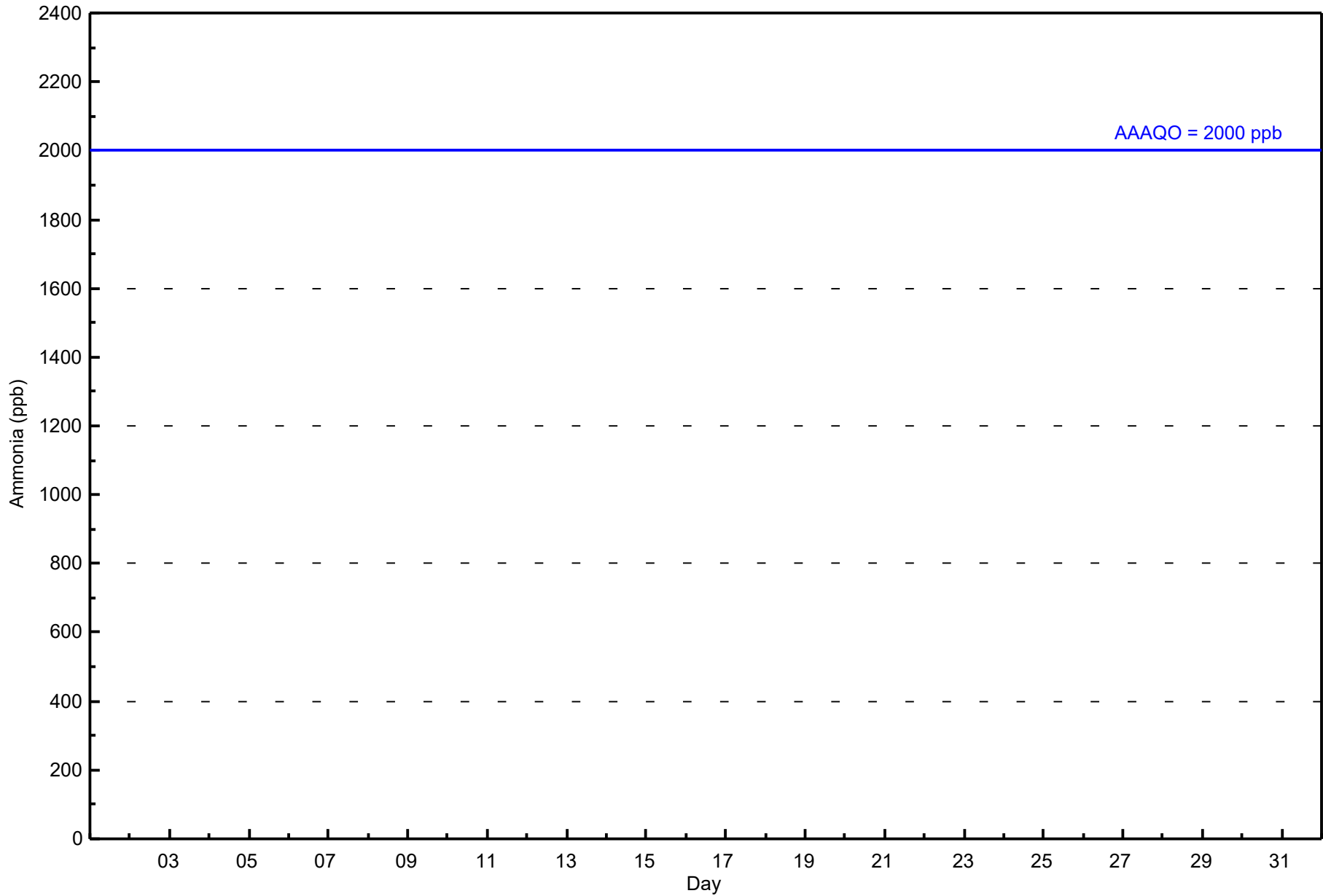
Number of Exceedences (AAAQO): 1-hr: 0		Maximum Value: 0.0 ppb on Dec 1 01:00		Maximum Daily Average: 0.0 ppb on Dec 1		Hours in Service: 744																											
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 1		Minimum Diurnal Average: 0.0 ppb at hour 1		Hours of Data: 669																											
Maximum Diurnal Average: 0.0 ppb at hour 1		Minimum Diurnal Average: 0.0 ppb at hour 1		Monthly Average: 0.00 ppb		Hours of Missing Data: 75																											
		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: 44																											
						Percent Operational Time: 95.8																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	0.0	0.0	0.0	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-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.0
13-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average									
																								Diurnal Maximum									

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 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 5	669	100.00	100.00
6 - 10	0	0.00	100.00
11 - 15	0	0.00	100.00
16 - 20	0	0.00	100.00
21 - 25	0	0.00	100.00
> 26	0	0.00	100.00

Total Number of Valid Hours: 669

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter - December 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	74	37	6	4	8	6	16	47	176	48	26	24	31	51	15	10	579
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	74	37	6	4	8	6	16	47	176	48	26	24	31	51	15	10	579

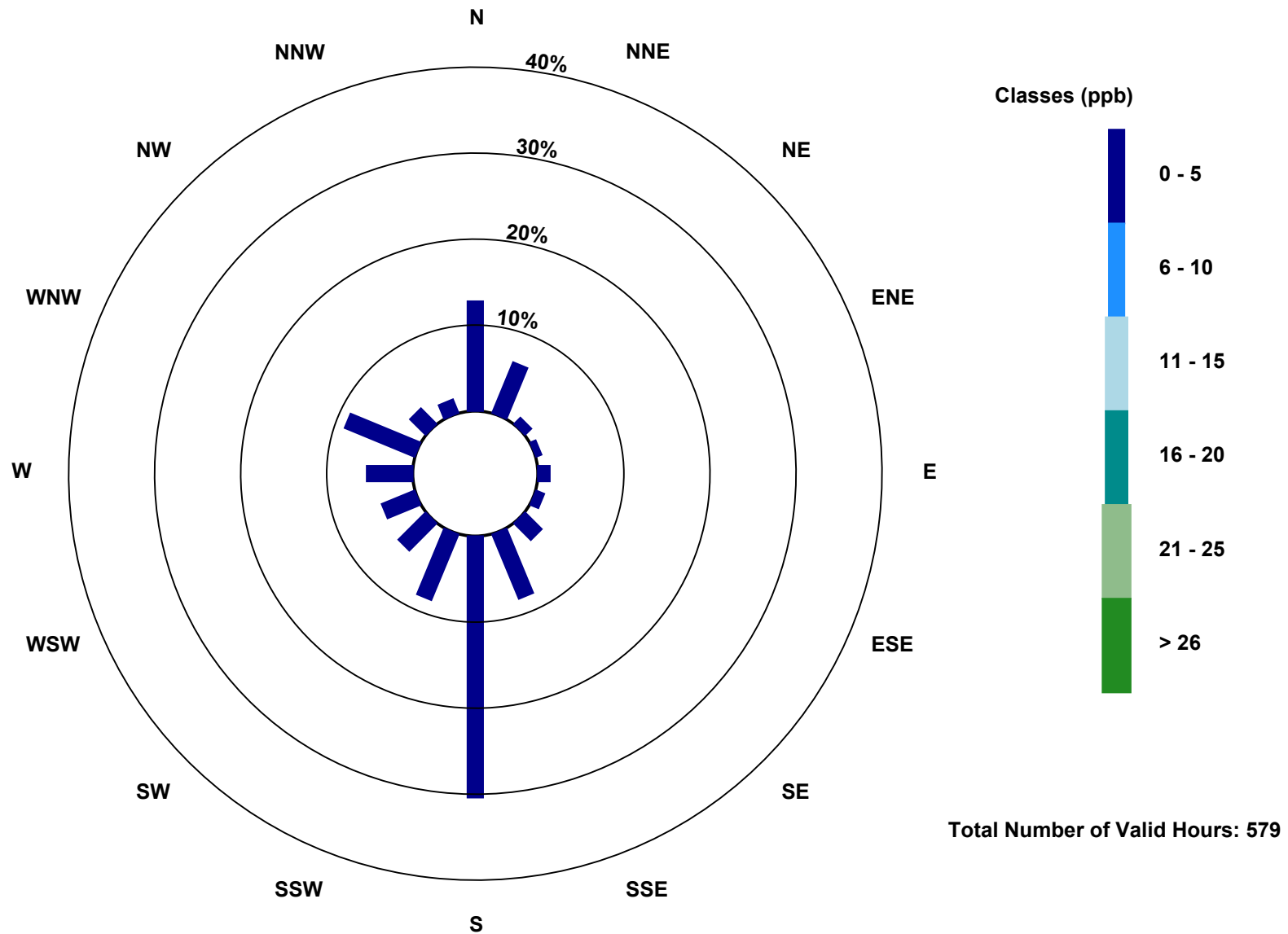
Total Number of Valid Hours: 579

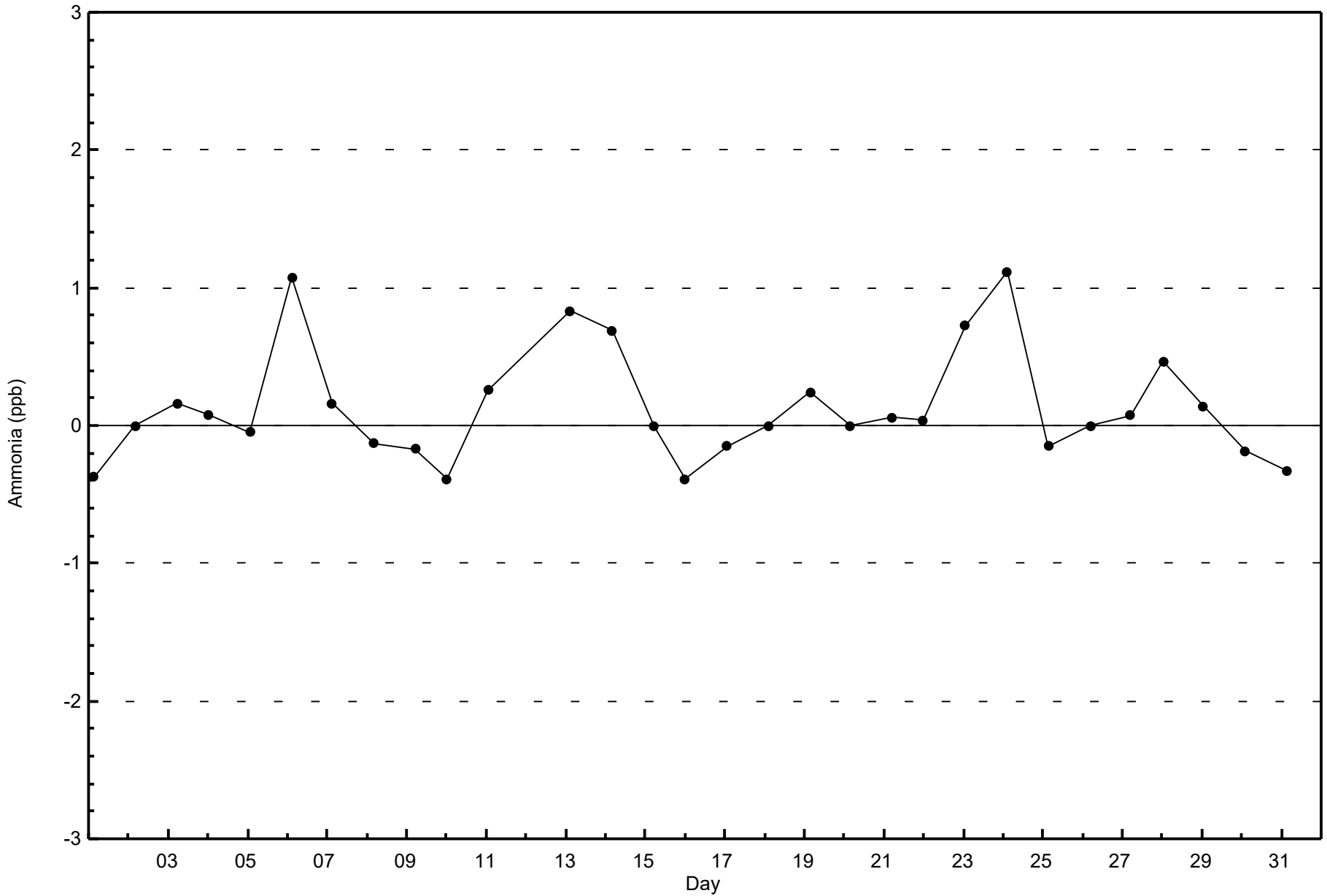
Total Number of Hours: 744

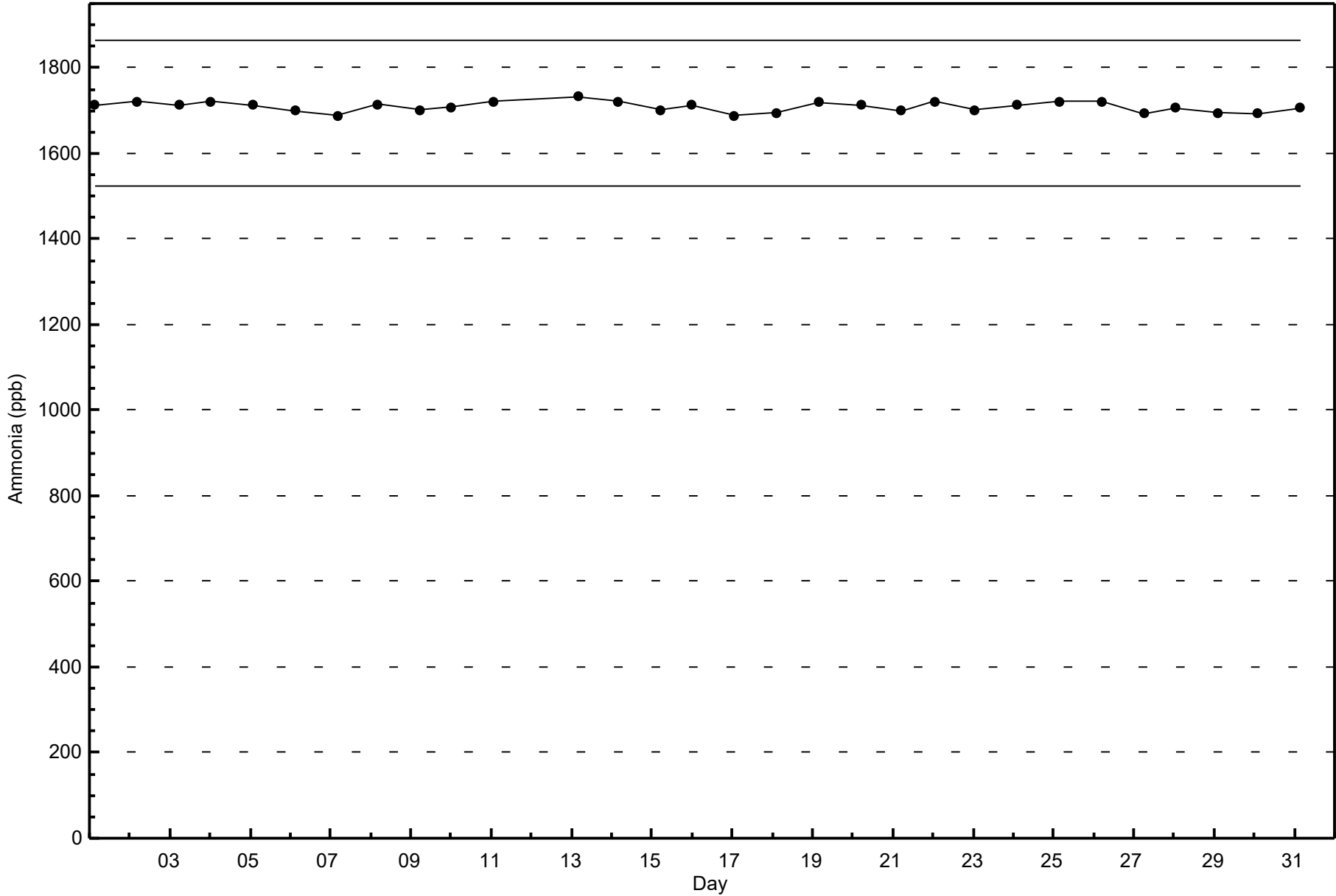


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ammonia (NH₃) - ppb
Fort McKay - Bertha Ganter









Wood Buffalo Environmental Association

Summary of Hour Averages

Ambient Temperature 10m (AT10) - C

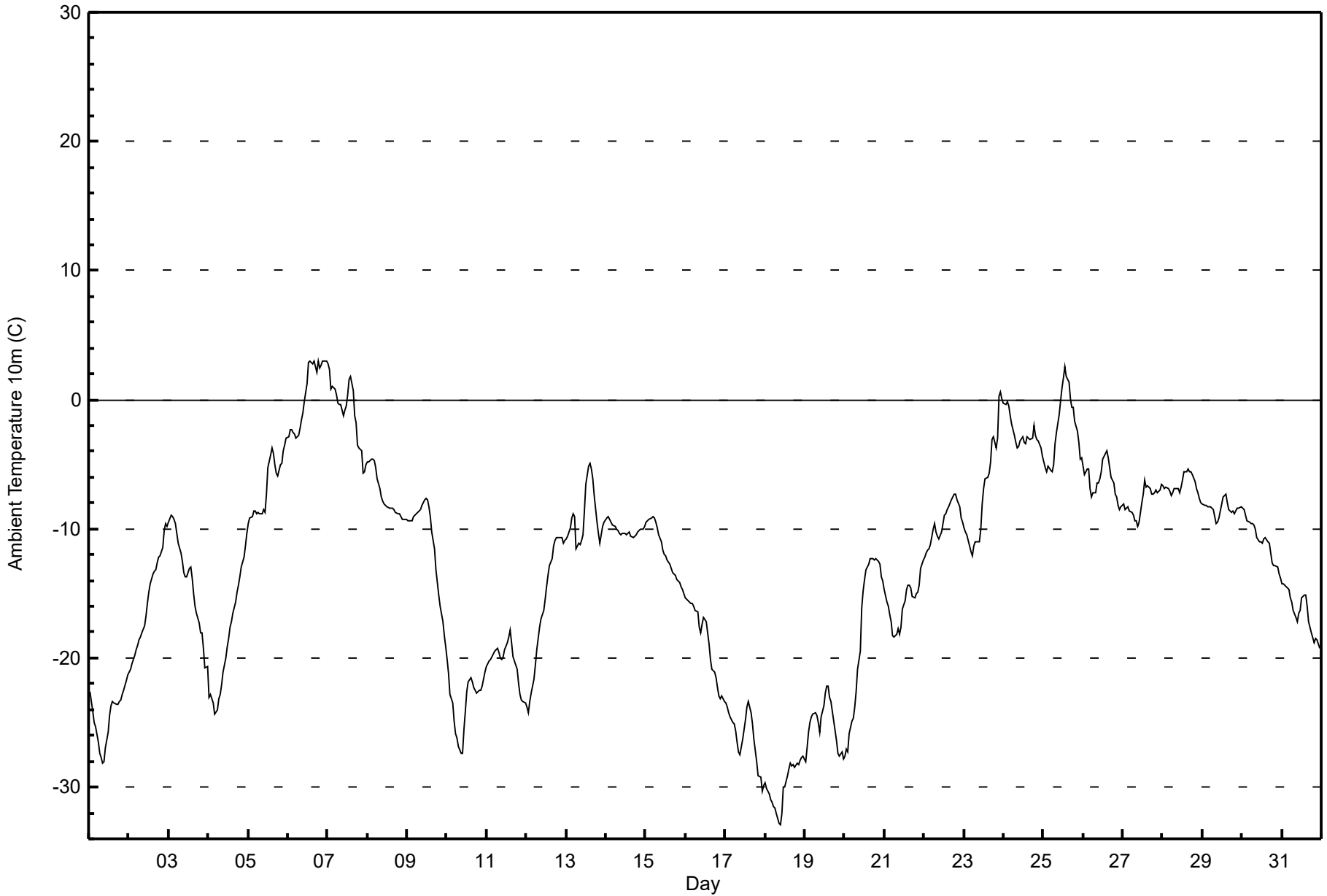
Fort McKay - Bertha Ganter - December 2024

Maximum Value: 3.0 C on Dec 6 17:00		Maximum Daily Average: 0.5 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -32.9 C on Dec 18 10:00		Minimum Daily Average: -29.8 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -11.3 C at hour 15		Minimum Diurnal Average: -14.0 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -12.90 C		Percentiles: P ₁ = -30.8 P ₁₀ = -24.7 Q ₁ = -19.1 Median = -10.9 Q ₃ = -7.3 P ₉₀ = -3.0 P ₉₉ = 2.9		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-Dec	-22.6	-23.4	-24.1	-25.0	-25.3	-26.6	-27.4	-27.7	-28.2	-28.0	-27.0	-25.8	-24.5	-23.7	-23.4	-23.5	-23.6	-23.6	-23.4	-23.3	-22.9	-22.5	-21.8	-21.3	-24.5	-21.3																						
2-Dec	-21.1	-20.9	-20.4	-19.8	-19.4	-19.1	-18.6	-18.4	-18.0	-17.5	-16.7	-15.8	-14.9	-14.2	-13.5	-13.3	-13.1	-12.6	-12.2	-12.1	-11.5	-10.2	-9.5	-9.8	-15.5	-9.5																						
3-Dec	-9.4	-8.9	-9.1	-9.3	-9.6	-10.3	-11.1	-11.9	-12.5	-13.4	-13.7	-13.7	-13.0	-12.9	-13.8	-15.1	-16.0	-16.6	-17.3	-18.1	-18.1	-19.3	-20.8	-20.7	-13.9	-8.9																						
4-Dec	-23.0	-22.8	-23.1	-23.5	-24.3	-24.0	-23.2	-22.8	-22.1	-21.1	-20.0	-19.1	-18.5	-17.7	-17.1	-16.5	-15.6	-14.9	-14.3	-13.8	-13.0	-12.2	-11.3	-10.4	-18.5	-10.4																						
5-Dec	-9.6	-9.2	-9.1	-8.6	-8.7	-8.9	-8.7	-8.9	-8.8	-8.5	-8.7	-7.3	-5.3	-4.3	-3.8	-4.2	-5.1	-5.7	-5.9	-5.0	-5.0	-3.9	-3.5	-2.9	-6.6	-2.9																						
6-Dec	-2.8	-2.3	-2.3	-2.5	-2.6	-2.9	-2.8	-2.2	-1.6	-1.1	-0.2	1.2	2.9	3.0	2.9	2.8	3.0	2.1	3.0	2.4	2.7	2.9	2.9	3.0	0.5	3.0																						
7-Dec	2.8	2.3	0.8	1.0	0.8	0.3	-0.3	-0.4	-0.3	-1.2	-0.8	-0.5	0.4	1.6	1.8	0.7	-1.2	-1.8	-3.6	-3.8	-4.0	-5.6	-5.6	-5.0	-0.9	2.8																						
8-Dec	-4.8	-4.8	-4.6	-4.7	-4.7	-5.3	-6.2	-6.8	-7.5	-7.9	-8.1	-8.2	-8.2	-8.4	-8.4	-8.4	-8.6	-8.7	-8.8	-8.9	-9.0	-9.3	-9.3	-9.3	-7.5	-4.6																						
9-Dec	-9.4	-9.4	-9.4	-9.4	-9.1	-8.9	-8.8	-8.6	-8.5	-8.2	-7.8	-7.6	-7.8	-8.2	-9.1	-10.2	-11.6	-13.1	-14.2	-15.1	-16.0	-17.2	-18.3	-19.1	-11.0	-7.6																						
10-Dec	-20.1	-21.3	-22.8	-23.5	-24.9	-25.9	-26.2	-26.8	-27.4	-27.4	-25.6	-24.1	-22.6	-21.9	-21.6	-21.8	-22.3	-22.5	-22.7	-22.5	-22.5	-22.2	-21.6	-21.1	-23.4	-20.1																						
11-Dec	-20.7	-20.3	-20.1	-19.9	-19.6	-19.4	-19.2	-19.5	-20.0	-20.1	-19.9	-19.3	-18.9	-18.3	-17.9	-18.8	-19.9	-20.6	-20.9	-22.0	-22.8	-23.2	-23.4	-23.5	-20.3	-17.9																						
12-Dec	-23.8	-24.2	-23.4	-22.7	-21.7	-20.5	-19.4	-18.5	-17.6	-16.9	-16.3	-15.5	-14.5	-13.6	-12.9	-12.3	-11.3	-10.9	-10.7	-10.7	-10.7	-10.7	-11.1	-10.9	-15.9	-10.7																						
13-Dec	-10.8	-10.5	-9.9	-9.2	-8.8	-9.1	-11.6	-11.1	-11.2	-10.9	-10.5	-8.6	-6.6	-5.2	-5.0	-5.4	-6.2	-7.4	-9.5	-10.4	-11.1	-10.5	-9.8	-9.5	-9.1	-5.0																						
14-Dec	-9.2	-9.1	-9.2	-9.4	-9.7	-9.8	-10.0	-10.2	-10.4	-10.5	-10.4	-10.4	-10.4	-10.2	-10.5	-10.6	-10.5	-10.4	-10.2	-10.1	-10.0	-10.1	-10.1	-9.8	-10.1	-9.1																						
15-Dec	-9.4	-9.3	-9.3	-9.1	-9.1	-9.2	-9.5	-9.9	-10.4	-11.0	-11.6	-12.0	-12.1	-12.4	-12.7	-13.1	-13.4	-13.5	-13.6	-13.9	-14.2	-14.5	-14.7	-15.0	-11.8	-9.1																						
16-Dec	-15.4	-15.6	-15.6	-15.7	-15.8	-16.0	-16.4	-16.5	-17.7	-18.0	-17.4	-16.9	-17.2	-18.0	-18.9	-20.1	-20.8	-21.1	-21.5	-22.2	-22.9	-23.1	-22.9	-23.3	-18.7	-15.4																						
17-Dec	-23.5	-23.8	-24.2	-24.5	-25.0	-25.1	-25.6	-26.5	-27.2	-27.5	-26.3	-25.5	-24.7	-23.8	-23.4	-24.3	-25.1	-26.3	-27.2	-28.0	-29.1	-29.2	-30.3	-29.9	-26.1	-23.4																						
18-Dec	-29.7	-30.1	-30.6	-31.0	-31.2	-31.5	-31.6	-32.0	-32.8	-32.9	-32.1	-30.0	-30.0	-29.1	-28.5	-28.2	-28.3	-28.3	-28.5	-28.2	-28.3	-28.0	-27.7	-27.6	-29.8	-27.6																						
19-Dec	-28.0	-27.0	-25.7	-25.0	-24.6	-24.3	-24.3	-24.4	-25.0	-25.7	-24.5	-23.7	-22.7	-22.1	-22.1	-23.0	-23.4	-24.8	-25.6	-26.4	-27.4	-27.6	-27.3	-27.8	-25.1	-22.1																						
20-Dec	-27.6	-27.1	-27.3	-25.9	-24.9	-24.7	-23.8	-22.6	-20.9	-19.4	-16.1	-14.8	-13.9	-13.2	-12.8	-12.3	-12.3	-12.3	-12.4	-12.3	-12.5	-12.7	-13.7	-14.0	-17.9	-12.3																						
21-Dec	-14.7	-15.7	-16.0	-16.6	-17.2	-18.3	-18.4	-18.2	-17.8	-18.1	-17.7	-16.2	-15.6	-14.7	-14.4	-14.3	-14.6	-15.2	-15.4	-15.1	-15.0	-14.3	-13.0	-12.5	-15.8	-12.5																						
22-Dec	-12.2	-11.9	-11.7	-11.6	-11.2	-10.1	-9.6	-10.3	-10.6	-10.8	-10.3	-9.6	-8.9	-8.8	-8.5	-8.3	-7.8	-7.6	-7.4	-7.4	-7.8	-8.3	-9.2	-9.4	-9.5	-7.4																						
23-Dec	-9.9	-10.2	-10.4	-11.3	-11.8	-12.1	-11.4	-11.0	-11.1	-11.1	-10.0	-8.1	-6.9	-6.1	-6.0	-5.7	-4.8	-3.0	-2.9	-3.8	-2.9	0.3	0.6	0.1	-7.1	0.6																						
24-Dec	-0.3	-0.3	-0.2	-0.5	-1.3	-1.9	-2.7	-3.3	-3.7	-3.7	-3.2	-2.9	-3.3	-3.4	-2.8	-3.0	-3.1	-3.0	-2.0	-2.7	-3.1	-3.2	-3.7	-4.4	-2.6	-0.2																						
25-Dec	-4.8	-5.3	-5.6	-5.2	-5.4	-5.6	-5.0	-3.4	-2.5	-1.1	0.9	1.7	2.6	1.8	1.3	0.1	-0.6	-0.6	-1.7	-2.5	-3.3	-4.6	-4.4	-2.2	-2.2	2.6																						
26-Dec	-5.2	-5.8	-5.4	-5.4	-6.9	-7.6	-7.2	-7.3	-6.5	-6.5	-6.1	-5.6	-4.7	-4.2	-3.9	-4.5	-5.3	-6.0	-6.4	-7.3	-7.6	-8.1	-8.6	-8.3	-6.3	-3.9																						
27-Dec	-8.1	-8.5	-8.4	-8.3	-8.6	-8.7	-8.9	-9.4	-9.4	-9.8	-9.4	-8.0	-7.3	-6.3	-6.8	-6.7	-6.9	-7.3	-7.3	-7.2	-7.0	-7.2	-7.0	-6.5	-7.9	-6.3																						
28-Dec	-6.6	-6.8	-6.7	-6.9	-7.1	-7.4	-7.2	-6.9	-6.9	-6.9	-7.2	-6.8	-6.2	-5.5	-5.6	-5.4	-5.5	-5.6	-5.8	-6.3	-6.9	-7.2	-7.6	-7.9	-6.6	-5.4																						
29-Dec	-8.1	-8.1	-8.2	-8.3	-8.3	-8.3	-8.5	-9.0	-9.6	-9.5	-9.2	-8.6	-7.5	-7.4	-7.3	-8.0	-8.5	-8.7	-8.7	-8.8	-8.6	-8.4	-8.4	-8.3	-8.4	-7.3																						
30-Dec	-8.4	-8.5	-9.0	-9.4	-9.5	-9.6	-9.6	-9.7	-10.1	-10.7	-11.0	-11.0	-11.1	-10.8	-10.7	-11.0	-11.1	-11.9	-12.6	-12.8	-12.9	-13.0	-13.5	-13.9	-10.9	-8.4																						
31-Dec	-14.3	-14.3	-14.4	-14.6	-14.7	-15.3	-15.6	-16.4	-16.8	-17.2	-16.5	-16.4	-15.3	-15.1	-15.1	-16.0	-17.2	-17.6	-18.1	-18.8	-18.5	-18.6	-18.9	-19.3	-16.5	-14.3																						
																								-13.2	-13.3	-13.4	-13.4	-13.6	-13.7	-13.8	-13.9	-14.0	-14.0	-13.4	-12.6	-11.9	-11.4	-11.3	-11.6	-11.9	-12.2	-12.5	-12.8	-12.9	-12.9	-13.0	-13.0	Diurnal Average
																								2.8	2.3	0.8	1.0	0.8	0.3	-0.3	-0.4	-0.3	-1.1	-0.1	1.2	2.9	3.0	2.9	2.8	3.0	2.1	3.0	2.4	2.7	2.9	2.9	3.0	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	170	22.85	22.85
-20 - 0	542	72.85	95.70
0 - 10	32	4.30	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

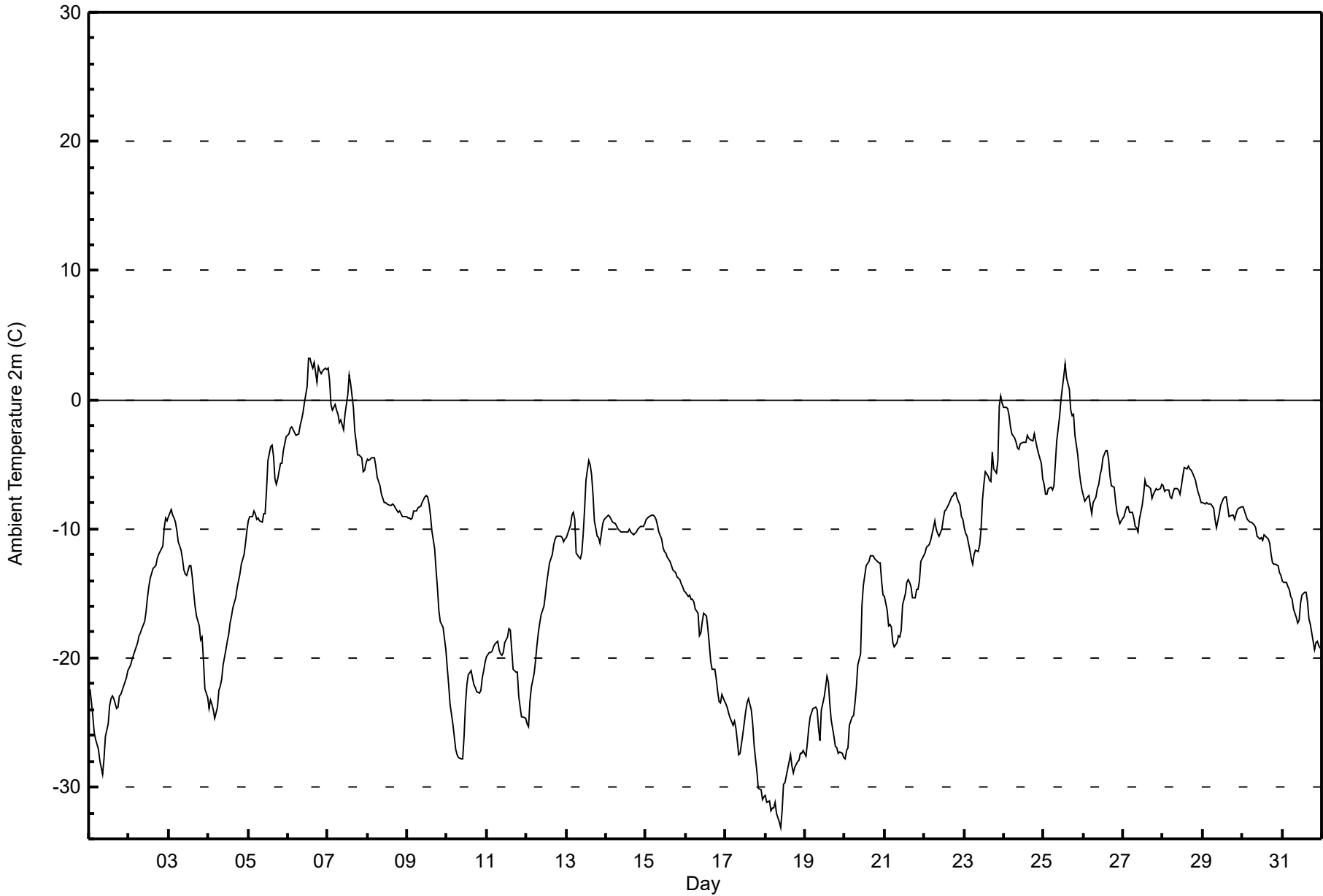
Ambient Temperature 2m (AT2) - C
Fort McKay - Bertha Ganter - December 2024

Maximum Value: 3.2 C on Dec 6 14:00		Maximum Daily Average: 0.4 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -33.2 C on Dec 18 10:00		Minimum Daily Average: -29.8 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -11.1 C at hour 14		Minimum Diurnal Average: -14.1 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -13.00 C		Percentiles: P ₁ = -31.2 P ₁₀ = -24.9 Q ₁ = -19.1 Median = -10.8 Q ₃ = -7.5 P ₉₀ = -3.4 P ₉₉ = 2.4		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-Dec	-22.4	-23.4	-24.4	-25.8	-26.3	-27.1	-27.9	-28.5	-29.0	-27.8	-26.1	-25.1	-23.7	-23.1	-22.9	-23.1	-23.9	-23.8	-23.0	-22.9	-22.5	-22.2	-21.5	-21.0	-24.5	-21.0																						
2-Dec	-20.8	-20.6	-20.1	-19.5	-19.1	-18.8	-18.3	-18.0	-17.7	-17.2	-16.4	-15.4	-14.5	-13.9	-13.1	-13.0	-12.8	-12.3	-11.9	-11.8	-11.3	-9.9	-9.1	-9.4	-15.2	-9.1																						
3-Dec	-9.1	-8.6	-8.9	-9.2	-9.5	-10.2	-11.0	-11.7	-12.3	-13.2	-13.5	-13.6	-12.8	-12.8	-13.7	-15.0	-16.0	-16.8	-17.5	-18.6	-18.4	-20.2	-22.4	-23.0	-14.1	-8.6																						
4-Dec	-23.9	-23.3	-23.6	-24.0	-24.7	-23.8	-22.5	-22.2	-21.6	-20.6	-19.4	-18.7	-18.1	-17.3	-16.8	-16.1	-15.3	-14.6	-14.1	-13.5	-12.7	-12.0	-11.1	-10.2	-18.3	-10.2																						
5-Dec	-9.4	-9.1	-9.1	-8.6	-8.9	-9.2	-9.1	-9.3	-9.5	-8.9	-8.9	-7.0	-4.8	-3.7	-3.5	-4.4	-6.1	-6.5	-6.1	-4.9	-4.9	-4.0	-3.4	-2.8	-6.8	-2.8																						
6-Dec	-2.7	-2.2	-2.1	-2.3	-2.5	-2.8	-2.6	-2.0	-1.5	-1.0	-0.3	1.1	3.2	3.2	2.8	2.5	2.8	1.4	2.6	2.3	2.0	2.2	2.5	2.3	0.4	3.2																						
7-Dec	2.4	1.4	-0.4	-0.8	-0.4	-0.8	-1.2	-1.7	-1.5	-2.3	-1.2	-0.4	0.4	1.9	1.3	-0.6	-2.5	-3.3	-4.2	-4.3	-4.5	-5.6	-5.5	-4.9	-1.6	2.4																						
8-Dec	-4.6	-4.7	-4.5	-4.5	-4.5	-5.1	-6.0	-6.7	-7.3	-7.7	-7.9	-8.0	-8.0	-8.2	-8.1	-8.1	-8.2	-8.4	-8.7	-8.6	-8.8	-9.1	-9.0	-9.0	-7.2	-4.5																						
9-Dec	-9.1	-9.2	-9.3	-9.2	-8.6	-8.6	-8.4	-8.3	-8.3	-8.0	-7.6	-7.4	-7.6	-8.1	-8.9	-10.1	-11.5	-13.2	-14.6	-16.3	-17.2	-17.6	-18.5	-19.4	-11.0	-7.4																						
10-Dec	-20.8	-22.1	-23.6	-25.1	-26.1	-27.0	-27.4	-27.7	-27.8	-27.8	-26.0	-23.6	-22.1	-21.3	-21.0	-21.5	-22.1	-22.3	-22.6	-22.7	-22.5	-21.5	-21.0	-20.3	-23.6	-20.3																						
11-Dec	-19.9	-19.6	-19.6	-19.4	-19.2	-18.9	-18.8	-19.3	-19.7	-19.8	-19.6	-18.8	-18.4	-17.7	-17.8	-19.4	-20.9	-21.1	-21.1	-23.0	-23.8	-24.5	-24.6	-24.7	-20.4	-17.7																						
12-Dec	-25.1	-25.3	-23.4	-22.3	-21.2	-20.2	-19.1	-18.1	-17.3	-16.6	-16.0	-15.1	-14.1	-13.3	-12.6	-12.0	-11.2	-10.8	-10.5	-10.5	-10.5	-10.6	-11.0	-10.8	-15.7	-10.5																						
13-Dec	-10.7	-10.3	-9.7	-9.0	-8.7	-9.3	-11.8	-12.3	-12.3	-11.8	-10.4	-8.5	-6.2	-4.7	-5.1	-5.8	-7.3	-9.4	-10.5	-10.7	-11.1	-10.4	-9.6	-9.3	-9.4	-4.7																						
14-Dec	-9.0	-8.9	-9.1	-9.3	-9.5	-9.6	-9.8	-10.0	-10.2	-10.3	-10.2	-10.2	-10.2	-10.0	-10.3	-10.4	-10.3	-10.2	-10.0	-9.9	-9.8	-9.9	-9.6	-9.6	-9.9	-8.9																						
15-Dec	-9.2	-9.1	-9.1	-9.0	-8.9	-9.1	-9.3	-9.7	-10.2	-10.8	-11.4	-11.8	-11.9	-12.2	-12.5	-12.9	-13.2	-13.3	-13.4	-13.7	-14.0	-14.3	-14.5	-14.8	-11.6	-8.9																						
16-Dec	-14.9	-15.2	-15.2	-15.5	-15.5	-15.7	-16.2	-16.6	-18.2	-18.0	-17.1	-16.6	-16.8	-17.7	-18.9	-20.2	-20.8	-20.9	-21.6	-22.7	-23.4	-23.5	-22.9	-23.4	-18.6	-14.9																						
17-Dec	-23.6	-23.9	-24.4	-24.7	-25.2	-24.9	-25.4	-26.4	-27.5	-27.4	-25.8	-25.0	-24.2	-23.5	-23.2	-24.1	-25.1	-26.7	-27.8	-28.8	-30.1	-30.2	-30.9	-30.7	-26.2	-23.2																						
18-Dec	-30.6	-31.2	-31.1	-31.8	-31.6	-31.6	-31.2	-32.1	-32.7	-33.2	-31.9	-29.8	-29.6	-28.6	-28.0	-27.5	-28.4	-28.9	-28.5	-28.1	-27.9	-27.4	-27.4	-27.2	-29.8	-27.2																						
19-Dec	-27.6	-26.6	-25.4	-24.6	-24.2	-23.9	-23.8	-24.0	-25.4	-26.5	-24.0	-23.1	-22.3	-21.4	-21.9	-23.5	-24.8	-26.1	-26.8	-27.0	-27.4	-27.2	-27.4	-27.7	-25.1	-21.4																						
20-Dec	-27.8	-27.2	-27.0	-25.2	-24.6	-24.4	-23.5	-22.3	-20.5	-19.7	-15.9	-14.4	-13.6	-12.9	-12.5	-12.1	-12.1	-12.1	-12.3	-12.4	-12.6	-12.6	-14.0	-15.1	-17.8	-12.1																						
21-Dec	-15.2	-16.3	-17.5	-17.4	-17.6	-18.8	-19.1	-18.8	-18.2	-18.3	-17.9	-15.9	-15.0	-14.1	-13.9	-14.1	-14.5	-15.3	-15.3	-14.7	-14.7	-14.0	-12.5	-12.1	-15.9	-12.1																						
22-Dec	-11.9	-11.4	-11.3	-11.2	-10.9	-9.9	-9.4	-10.0	-10.3	-10.5	-10.0	-9.3	-8.6	-8.5	-8.2	-8.1	-7.5	-7.4	-7.2	-7.2	-7.6	-8.2	-9.1	-9.3	-9.3	-7.2																						
23-Dec	-9.9	-10.3	-10.6	-11.6	-12.3	-12.7	-12.0	-11.7	-11.7	-11.2	-10.1	-7.7	-6.6	-5.6	-5.9	-6.2	-6.4	-4.1	-5.3	-5.7	-4.7	-0.5	0.3	-0.3	-7.6	0.3																						
24-Dec	-0.6	-0.6	-0.7	-1.3	-2.1	-2.6	-3.0	-3.4	-3.8	-3.8	-3.4	-3.3	-3.3	-3.2	-3.0	-3.1	-3.2	-2.7	-3.2	-3.7	-4.2	-5.0	-6.1	-6.1	-3.0	-0.6																						
25-Dec	-6.5	-7.3	-7.3	-6.9	-6.8	-6.9	-6.6	-5.0	-3.2	-1.3	0.0	1.0	1.8	2.8	1.6	0.8	0.8	-1.2	-1.2	-2.8	-4.3	-5.5	-6.3	-7.0	-3.3	2.8																						
26-Dec	-7.4	-7.9	-7.5	-7.4	-8.2	-8.8	-7.9	-7.5	-6.9	-6.6	-5.8	-5.4	-4.4	-3.9	-4.0	-4.6	-5.9	-6.7	-6.8	-7.9	-8.8	-9.2	-9.6	-9.4	-7.0	-3.9																						
27-Dec	-9.0	-8.6	-8.3	-8.3	-8.7	-8.8	-9.2	-9.8	-9.9	-10.2	-9.3	-8.2	-7.3	-6.2	-6.7	-6.6	-6.9	-7.6	-7.4	-7.1	-6.9	-7.0	-6.9	-6.5	-8.0	-6.2																						
28-Dec	-6.7	-7.1	-7.0	-7.0	-7.5	-7.6	-7.2	-6.9	-6.9	-7.0	-7.4	-6.7	-5.9	-5.3	-5.3	-5.1	-5.4	-5.4	-5.6	-6.2	-6.8	-7.2	-7.5	-8.0	-6.6	-5.1																						
29-Dec	-7.9	-8.0	-8.0	-8.1	-8.1	-8.1	-8.4	-9.3	-9.9	-9.3	-8.9	-8.2	-7.7	-7.5	-7.5	-8.3	-9.1	-9.0	-8.9	-9.2	-8.8	-8.5	-8.5	-8.2	-8.5	-7.5																						
30-Dec	-8.3	-8.6	-8.9	-9.3	-9.4	-9.5	-9.5	-9.7	-10.0	-10.6	-10.7	-10.7	-10.9	-10.5	-10.5	-10.8	-11.1	-11.9	-12.7	-12.8	-12.7	-12.9	-13.4	-13.6	-10.8	-8.3																						
31-Dec	-14.0	-14.1	-14.2	-14.5	-14.7	-15.2	-15.5	-16.2	-16.9	-17.3	-17.1	-15.8	-15.1	-14.9	-14.9	-15.7	-16.9	-17.4	-18.0	-19.3	-18.8	-18.7	-19.1	-19.3	-16.4	-14.0																						
																								-13.4	-13.5	-13.6	-13.6	-13.7	-13.9	-13.9	-14.0	-14.1	-14.0	-13.2	-12.3	-11.6	-11.1	-11.1	-11.6	-12.2	-12.5	-12.7	-13.0	-13.2	-13.1	-13.2	-13.2	Diurnal Average
																								2.4	1.4	-0.4	-0.8	-0.4	-0.8	-1.2	-1.7	-1.5	-1.0	0.0	1.1	3.2	3.2	2.8	2.5	2.8	1.4	2.6	2.3	2.0	2.2	2.5	2.3	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	168	22.58	22.58
-20 - 0	552	74.19	96.77
0 - 10	24	3.23	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



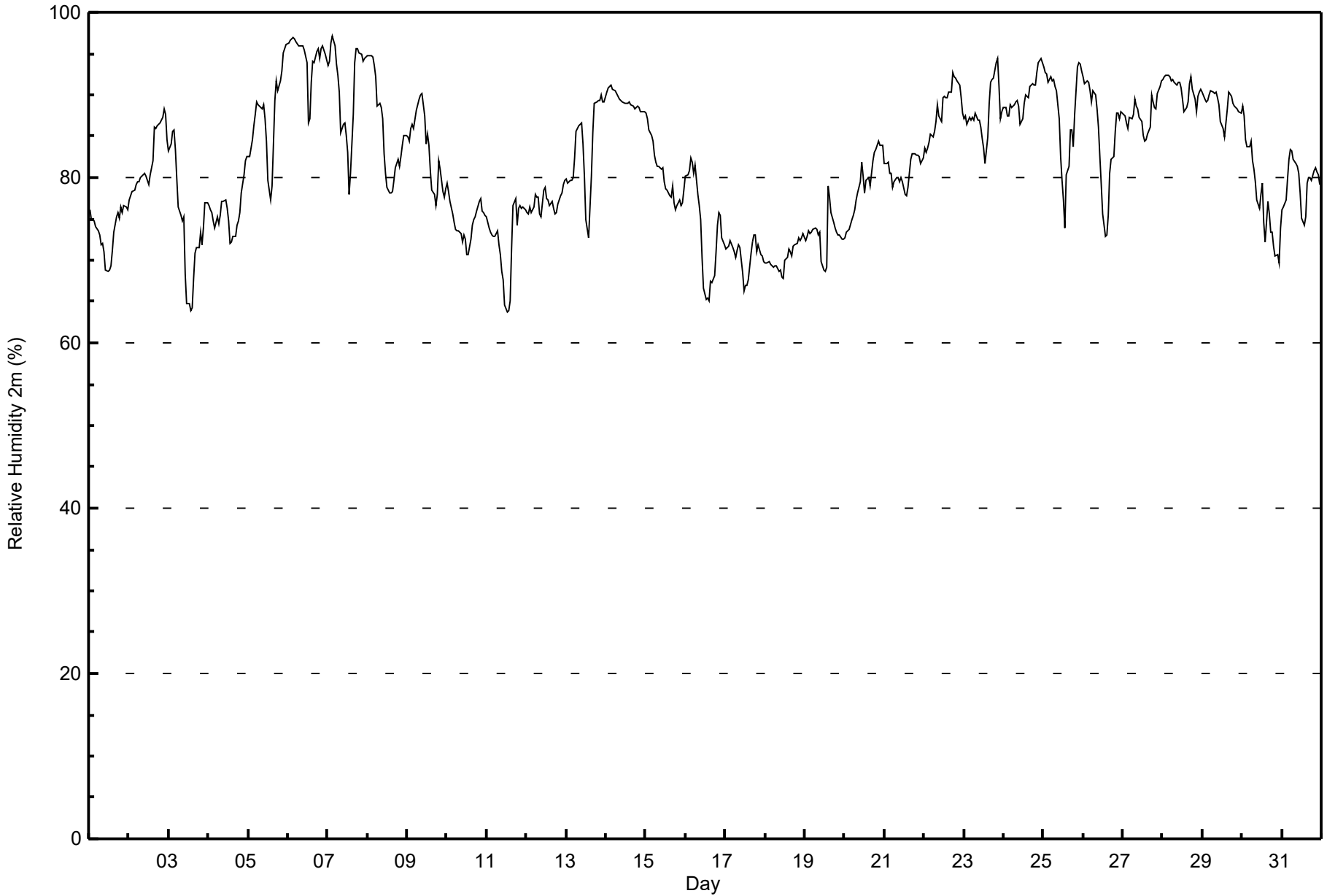
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

Fort McKay - Bertha Ganter - December 2024

Maximum Value: 97.1 % on Dec 7 04:00 Maximum Daily Average: 94.7 % on Dec 6																						Hours in Service:	744																								
Minimum Value: 63.8 % on Dec 11 13:00 Minimum Daily Average: 70.4 % on Dec 18																						Hours of Data:	744																								
Maximum Diurnal Average: 83.4 % at hour 22 Minimum Diurnal Average: 77.0 % at hour 14																						Hours of Missing Data:	0																								
Monthly Average: 81.84 % Percentiles: P ₁ = 65.1 P ₁₀ = 71.6 Q ₁ = 75.6 Median = 81.7 Q ₃ = 88.6 P ₉₀ = 91.8 P ₉₉ = 96.1																						Hours of Calibration:	0																								
																						Percent Operational Time:	100.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Dec	76.2	75.0	74.9	74.8	74.1	73.6	73.1	71.9	72.1	70.9	68.9	68.7	68.8	69.3	71.2	73.4	75.3	75.8	75.1	76.4	75.8	76.7	76.5	76.1	73.5	76.7																					
2-Dec	77.4	77.8	78.4	78.5	79.2	79.5	79.5	80.0	80.2	80.5	80.2	79.7	79.1	80.4	82.0	86.0	86.0	86.3	86.5	86.6	87.3	88.3	87.7	84.6	82.2	88.3																					
3-Dec	83.2	84.1	85.6	85.8	83.3	79.9	76.4	75.5	74.7	75.2	68.4	64.8	64.8	63.8	64.2	67.7	70.8	71.5	71.6	73.5	71.8	73.9	77.0	76.9	74.3	85.8																					
4-Dec	76.7	76.2	75.8	74.8	74.0	75.2	74.4	75.4	77.1	77.3	76.3	74.8	72.1	72.2	72.9	72.8	74.2	74.7	75.8	78.1	80.4	82.0	82.6	76.0	82.6																						
5-Dec	82.6	82.5	84.6	86.3	87.6	89.2	88.8	88.6	88.3	88.9	87.1	84.3	79.7	77.3	79.0	84.0	89.3	91.7	90.6	91.8	92.9	95.0	95.6	96.0	87.6	96.0																					
6-Dec	96.3	96.6	96.8	96.9	96.7	96.4	96.0	96.0	95.9	96.0	95.4	93.9	86.5	87.1	91.5	94.0	93.8	95.3	95.7	94.4	95.5	96.0	94.8	94.3	94.7	96.9																					
7-Dec	93.6	94.1	96.2	97.1	95.9	93.7	92.3	90.4	85.4	86.5	86.6	85.1	83.1	77.9	80.5	87.6	93.8	95.6	95.6	95.2	94.9	94.1	94.5	94.7	91.0	97.1																					
8-Dec	94.8	94.7	94.7	94.6	93.6	92.2	88.6	89.1	88.5	87.1	82.8	80.5	78.8	78.2	78.1	78.2	79.6	81.2	82.2	81.3	82.5	83.9	85.0	85.1	85.6	94.8																					
9-Dec	85.0	84.5	85.9	86.4	85.9	88.2	88.8	89.4	90.0	90.2	87.5	84.0	85.3	83.9	80.9	78.4	77.9	76.5	78.0	82.0	81.1	78.2	77.6	78.6	83.5	90.2																					
10-Dec	79.4	78.3	77.1	75.6	74.5	73.7	73.6	73.5	73.2	72.1	73.0	72.6	70.7	70.7	72.5	74.2	74.9	75.3	75.9	77.2	77.5	76.0	75.8	75.4	74.7	79.4																					
11-Dec	75.3	73.9	73.5	73.1	72.9	72.9	73.6	71.9	70.7	68.6	67.6	64.6	63.8	63.9	65.1	71.3	76.5	77.4	74.2	76.3	76.5	76.2	76.4	76.2	72.2	77.4																					
12-Dec	75.8	75.7	76.4	75.8	76.5	77.9	77.7	77.6	75.7	75.3	78.4	78.9	77.5	77.3	76.6	77.1	76.2	75.6	75.8	76.7	77.8	78.2	79.2	79.7	77.1	79.7																					
13-Dec	79.8	79.3	79.6	79.7	80.1	82.4	85.5	86.3	86.5	86.7	84.1	80.1	74.9	72.7	76.4	80.2	85.5	89.0	89.1	89.4	89.3	89.9	89.1	89.2	83.5	89.9																					
14-Dec	90.3	90.9	91.1	91.1	90.7	90.5	90.2	89.9	89.6	89.3	89.2	89.0	88.9	89.0	89.2	88.8	88.7	88.3	88.4	88.6	88.5	87.9	87.9	88.0	89.3	91.1																					
15-Dec	87.9	87.2	85.8	85.1	84.4	82.8	81.8	81.4	81.3	81.1	81.1	79.6	78.7	78.5	77.9	77.6	79.0	77.0	76.1	76.6	77.3	76.5	76.9	78.6	80.4	87.9																					
16-Dec	80.2	80.3	80.9	82.4	81.9	80.4	81.4	78.0	76.5	74.9	70.4	66.7	65.3	65.4	65.1	67.4	67.3	68.2	71.0	74.2	75.7	75.5	72.7	71.9	73.9	82.4																					
17-Dec	71.4	71.5	71.8	72.3	71.6	71.0	70.3	71.2	71.9	71.5	68.5	66.3	66.9	67.0	67.7	70.9	72.2	73.1	73.1	71.0	71.8	70.7	70.5	69.8	70.6	73.1																					
18-Dec	69.6	69.7	69.8	69.5	69.2	69.2	69.2	69.3	68.6	68.7	68.0	67.9	70.1	70.3	71.3	71.0	70.5	71.7	71.9	72.0	72.8	72.4	72.6	73.2	70.4	73.2																					
19-Dec	72.3	72.9	73.6	73.2	73.5	73.7	74.0	73.7	73.1	73.3	69.8	68.8	68.6	69.1	79.0	77.6	75.7	74.6	73.9	73.3	73.1	73.0	72.5	72.6	73.1	79.0																					
20-Dec	72.8	73.4	73.6	73.7	74.9	75.4	76.1	77.2	78.1	79.5	81.8	80.1	78.1	79.7	80.0	79.0	80.5	82.1	83.1	83.3	84.5	84.0	83.8	83.9	79.1	84.5																					
21-Dec	81.7	81.7	81.9	80.4	80.5	78.8	79.5	80.0	80.0	79.5	80.0	79.5	77.9	77.8	78.9	80.5	82.3	83.0	82.9	82.6	82.7	82.5	81.7	82.4	80.8	83.0																					
22-Dec	83.6	83.0	83.6	84.3	85.2	84.9	85.5	86.8	88.7	87.5	86.8	89.6	89.9	89.7	89.6	90.4	90.3	92.6	92.2	92.1	91.7	91.2	89.7	87.9	88.2	92.6																					
23-Dec	87.1	87.5	86.5	87.3	86.9	87.2	86.9	87.9	86.9	86.9	86.1	84.8	83.6	81.6	84.9	88.9	91.5	91.9	92.1	93.9	94.4	91.1	87.0	87.9	88.0	94.4																					
24-Dec	88.4	88.4	87.5	87.5	88.9	88.4	88.9	89.1	89.3	88.7	86.5	87.1	88.9	89.9	89.8	89.7	91.0	91.4	91.2	91.1	92.8	93.8	94.4	93.9	89.9	94.4																					
25-Dec	93.4	92.7	92.6	91.6	92.3	91.8	91.8	91.0	90.5	87.1	82.6	79.7	77.2	74.0	80.3	81.4	85.7	85.8	83.8	87.7	93.4	93.9	93.8	92.9	87.8	93.9																					
26-Dec	92.1	91.4	91.7	91.5	90.5	89.2	90.6	90.1	88.4	86.0	82.5	79.2	75.5	73.0	73.1	75.3	80.4	82.3	82.6	85.7	87.8	87.8	87.1	88.0	85.1	92.1																					
27-Dec	87.7	87.5	86.6	86.0	87.2	87.2	87.6	89.5	88.6	88.3	87.4	86.7	85.1	84.4	84.6	85.3	86.1	90.0	89.2	88.4	88.4	90.2	91.0	91.6	87.7	91.6																					
28-Dec	91.8	92.3	92.3	92.3	92.2	91.8	91.9	91.5	91.2	91.5	91.6	90.9	89.6	87.9	88.5	89.2	91.3	92.1	90.7	89.5	88.0	89.8	90.3	90.6	90.8	92.3																					
29-Dec	90.3	89.5	89.1	89.4	90.1	90.5	90.4	90.2	90.4	89.7	88.8	86.8	86.0	85.0	86.6	88.3	90.4	89.8	89.0	88.6	88.5	88.3	88.0	87.8	88.8	90.5																					
30-Dec	88.6	87.5	84.5	83.8	83.8	84.4	82.1	81.0	79.5	77.3	76.2	78.0	79.3	74.6	72.2	77.1	75.6	73.5	73.3	71.7	70.5	70.7	69.7	73.8	77.9	88.6																					
31-Dec	76.0	76.5	77.3	79.8	82.2	83.4	83.2	82.2	81.7	81.4	80.4	78.1	75.2	74.2	75.3	79.3	79.9	80.0	79.7	80.8	81.2	80.7	80.4	79.2	79.5	83.4																					
																						83.3	83.1	83.2	83.2	83.2	83.1	82.9	82.8	82.3	81.9	80.5	79.1	77.8	77.0	78.2	80.1	81.6	82.3	82.2	82.8	83.4	83.4	83.3	83.3	Diurnal Average	
																						96.3	96.6	96.8	97.1	96.7	96.4	96.0	96.0	95.9	96.0	95.4	93.9	89.9	89.9	91.5	94.0	93.8	95.6	95.7	95.2	95.5	96.0	95.6	96.0	Diurnal Maximum	



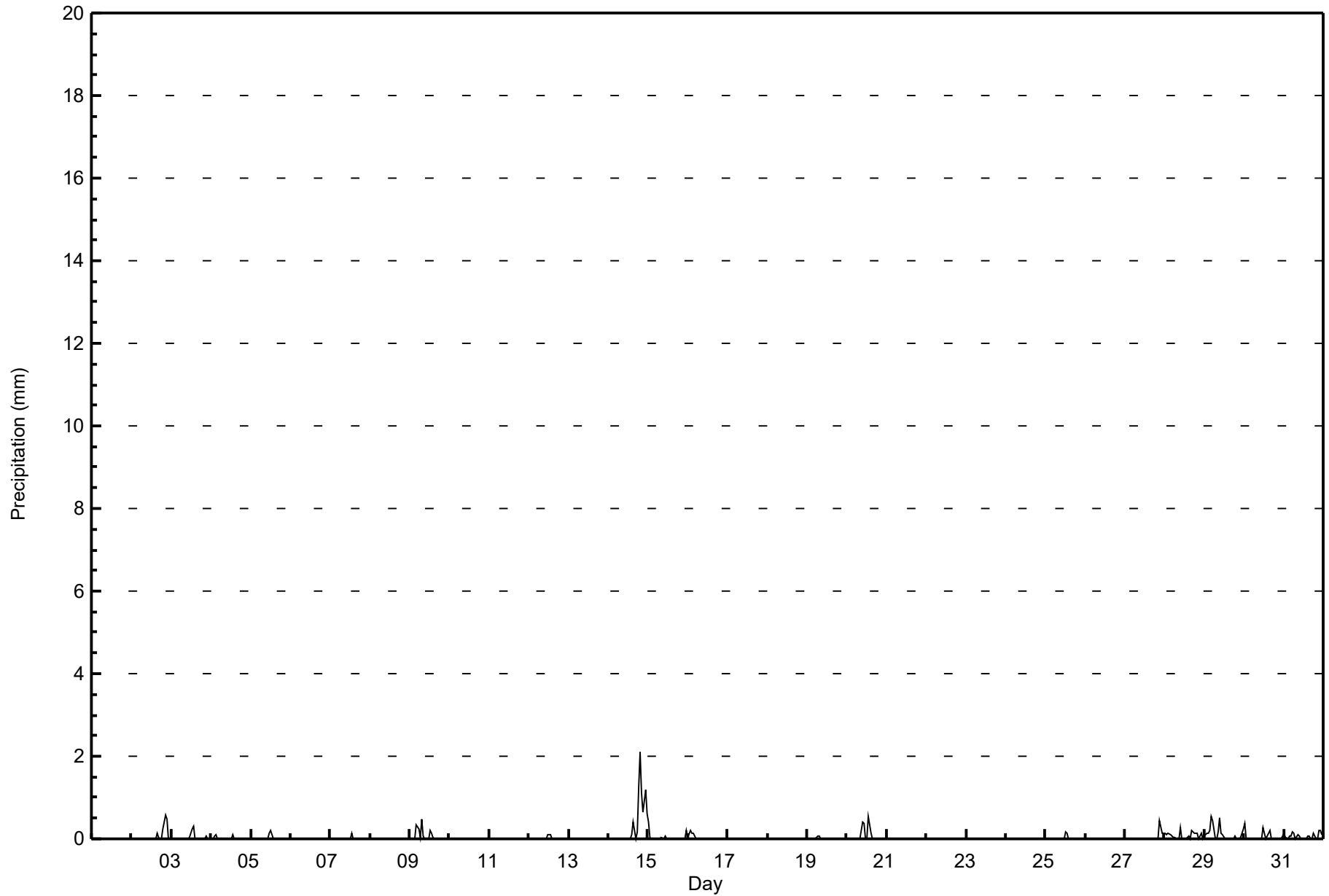


Maximum Value: 2.1 mm on Dec 14 20:00		Maximum Daily Total: 7.5 mm on Dec 14		Hours in Service: 744																						
Minimum Value: 0.0 mm on Dec 2 11:00		Minimum Daily Total: 0.0 mm on Dec 6		Hours of Data: 705																						
Maximum Diurnal Total: 2.5 mm at hour 20		Minimum Diurnal Total: 0.3 mm at hour 17		Hours of Missing Data: 39																						
Monthly Total: 23.46 mm		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 = 0.5		Hours of Calibration: 0																						
				Percent Operational Time: 94.8																						
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-Dec	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	--	--
2-Dec	DF	DF	DF	DF	DF	DF	DF	DF	DF	DF	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.6	0.5	0.0	0.0	--	0.6
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.7	0.3	
4-Dec	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	UO	UO	UO	UO	UO	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-Dec	0.0	0.0	0.0	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	0.1	
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.5	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5	
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.2	1.2	2.1	1.1	0.6	1.2	0.6	7.5	2.1
15-Dec	0.4	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	0.2	0.7	0.4	
16-Dec	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.5	
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.7	0.4	
28-Dec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.2	0.0	0.1	0.2	0.0	1.8	0.3	
29-Dec	0.1	0.2	0.1	0.2	0.5	0.5	0.0	0.0	0.2	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	2.8	0.5	
30-Dec	0.4	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	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.4	
31-Dec	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.1	1.6	0.2	
																								Diurnal Average		
																								Diurnal Maximum		
DF - DAS Failure																										
UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	686	97.30	97.31
0.4 - 0.5	12	1.70	99.01
0.6 - 0.7	3	0.43	99.43
0.8 - 1.4	3	0.43	99.86
1.5 - 10	1	0.14	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



Summary of Hour Averages

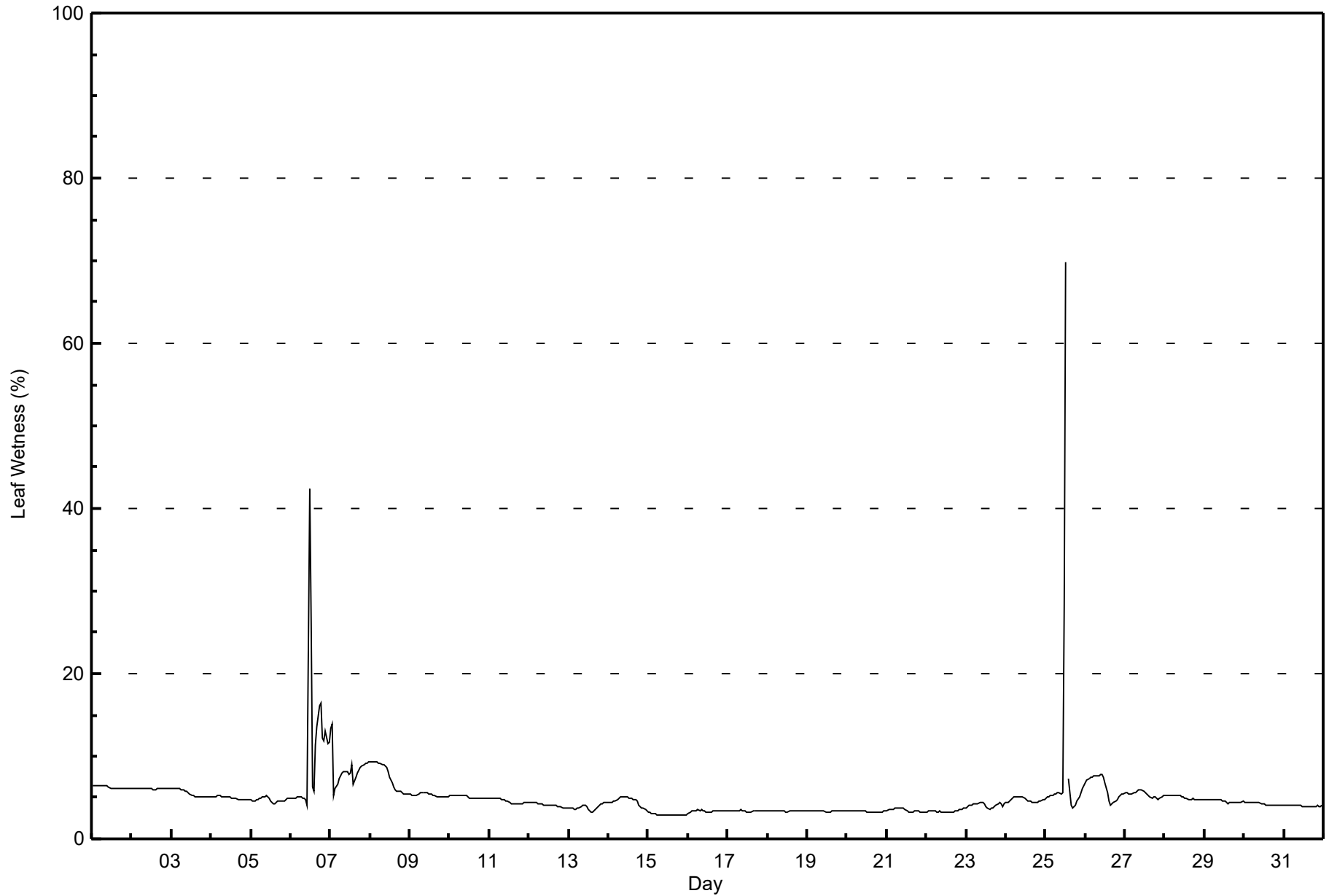
Fort McKay - Bertha Ganter - December 2024

Maximum Value: 69.8 % on Dec 25 13:00		Maximum Daily Average: 10.5 % on Dec 6		Hours in Service: 744																						
Minimum Value: 2.9 % on Dec 15 13:00		Minimum Daily Average: 3.0 % on Dec 15		Hours of Data: 743																						
Maximum Diurnal Average: 7.4 % at hour 13		Minimum Diurnal Average: 4.5 % at hour 15		Hours of Missing Data: 1																						
Monthly Average: 5.01 %		Percentiles: P ₁ = 2.9 P ₁₀ = 3.3 Q ₁ = 3.5 Median = 4.6 Q ₃ = 5.2 P ₉₀ = 6.3 P ₉₉ = 13.5		Hours of Calibration: 0																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.4	6.3	6.1	6.1	6.1	6.1	6.1	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.3	6.5
2-Dec	6.1	6.1	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.1	6.1	6.1	6.0	6.0	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.2	6.1	6.2
3-Dec	6.2	6.1	6.1	6.1	6.1	6.0	6.0	5.9	5.8	5.8	5.7	5.4	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.0	5.0	5.0	5.1	5.1	5.5	6.2
4-Dec	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.1	5.1	5.1	5.0	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.7	4.7	4.7	4.7	4.7	5.0	5.2
5-Dec	4.7	4.7	4.6	4.7	4.7	4.8	4.9	5.0	5.1	5.2	5.1	4.9	4.7	4.3	4.4	4.5	4.6	4.6	4.6	4.6	4.6	4.8	4.9	5.0	4.7	5.2
6-Dec	5.0	4.9	4.9	4.9	5.0	5.1	5.1	5.0	4.9	4.7	4.1	42.3	26.2	6.3	5.8	11.3	13.5	16.2	16.5	12.2	11.8	13.0	11.5	11.6	10.5	42.3
7-Dec	13.5	14.0	5.2	6.1	6.7	7.2	7.6	7.9	8.1	8.2	8.2	7.8	8.0	9.0	6.6	7.5	8.0	8.3	8.6	8.8	9.0	9.2	9.2	9.3	8.4	14.0
8-Dec	9.3	9.3	9.3	9.3	9.3	9.2	9.1	9.0	9.0	8.9	8.6	8.2	7.5	6.8	6.2	5.9	5.8	5.8	5.8	5.6	5.5	5.5	5.4	5.4	7.5	9.3
9-Dec	5.3	5.3	5.3	5.3	5.2	5.5	5.5	5.6	5.6	5.6	5.6	5.5	5.4	5.3	5.3	5.2	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.2	5.3	5.6
10-Dec	5.2	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.2	5.0	4.9	5.0	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.3
11-Dec	5.0	5.0	4.9	4.9	4.9	4.8	4.8	4.8	4.8	4.7	4.6	4.5	4.3	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.5	5.0
12-Dec	4.3	4.4	4.4	4.3	4.3	4.3	4.3	4.2	4.2	4.1	4.1	4.1	4.1	4.0	4.0	4.0	4.0	3.9	3.9	3.8	3.8	3.8	3.8	3.8	4.1	4.4
13-Dec	3.8	3.7	3.7	3.6	3.6	3.7	3.8	3.9	4.0	4.1	4.0	3.9	3.5	3.2	3.3	3.4	3.6	3.8	4.0	4.2	4.3	4.4	4.4	4.4	3.8	4.4
14-Dec	4.4	4.4	4.5	4.5	4.7	4.8	4.9	5.0	5.1	5.1	5.1	5.0	4.9	4.8	4.7	4.5	4.1	3.9	3.8	3.6	3.5	3.4	3.4	3.4	4.5	5.1
15-Dec	3.3	3.2	3.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.3
16-Dec	3.0	3.3	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.1	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5
17-Dec	3.4	3.4	3.4	3.4	3.5	3.4	3.4	3.5	3.5	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.5
18-Dec	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
19-Dec	3.4	3.4	3.4	3.4	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.4
20-Dec	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.3	3.4
21-Dec	3.5	3.5	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.5	3.4	3.3	3.3	3.3	3.3	3.3	3.4	3.3	3.3	3.3	3.3	3.3	3.5	3.7
22-Dec	3.3	3.3	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2	3.2	3.2	3.3	3.3	3.4	3.4	3.4	3.5	3.6	3.7	3.7	3.4	3.7
23-Dec	3.8	3.9	4.0	4.1	4.2	4.2	4.3	4.3	4.4	4.4	4.4	4.2	4.0	3.7	3.6	3.7	3.8	4.0	4.1	4.3	4.4	4.2	3.9	4.2	4.1	4.4
24-Dec	4.4	4.5	4.6	4.7	4.9	5.0	5.1	5.1	5.1	5.1	5.0	4.9	4.8	4.6	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.7	4.8	4.7	5.1
25-Dec	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.6	5.5	5.7	28.4	69.8	OR	7.3	4.1	3.7	4.0	4.1	4.5	5.1	5.6	6.1	6.5	9.0	69.8
26-Dec	6.9	7.1	7.2	7.4	7.5	7.6	7.6	7.6	7.6	7.8	7.9	7.4	6.7	5.6	4.6	4.1	4.3	4.4	4.5	4.8	5.1	5.3	5.4	5.5	6.2	7.9
27-Dec	5.6	5.5	5.5	5.5	5.5	5.5	5.6	5.8	5.9	5.9	5.9	5.8	5.6	5.5	5.3	5.1	4.9	5.0	5.1	4.9	4.8	5.0	5.1	5.2	5.4	5.9
28-Dec	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.0	4.9	4.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.7	4.8	5.0	5.2
29-Dec	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.7	4.8	4.8	4.7	4.6	4.5	4.4	4.3	4.4	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.6	4.8
30-Dec	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.3	4.3	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.0	4.0	4.0	4.2	4.5
31-Dec	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.1	4.0	4.1	4.0	4.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.1
																								Diurnal Average		
																								Diurnal Maximum		
OR - Out of Range																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

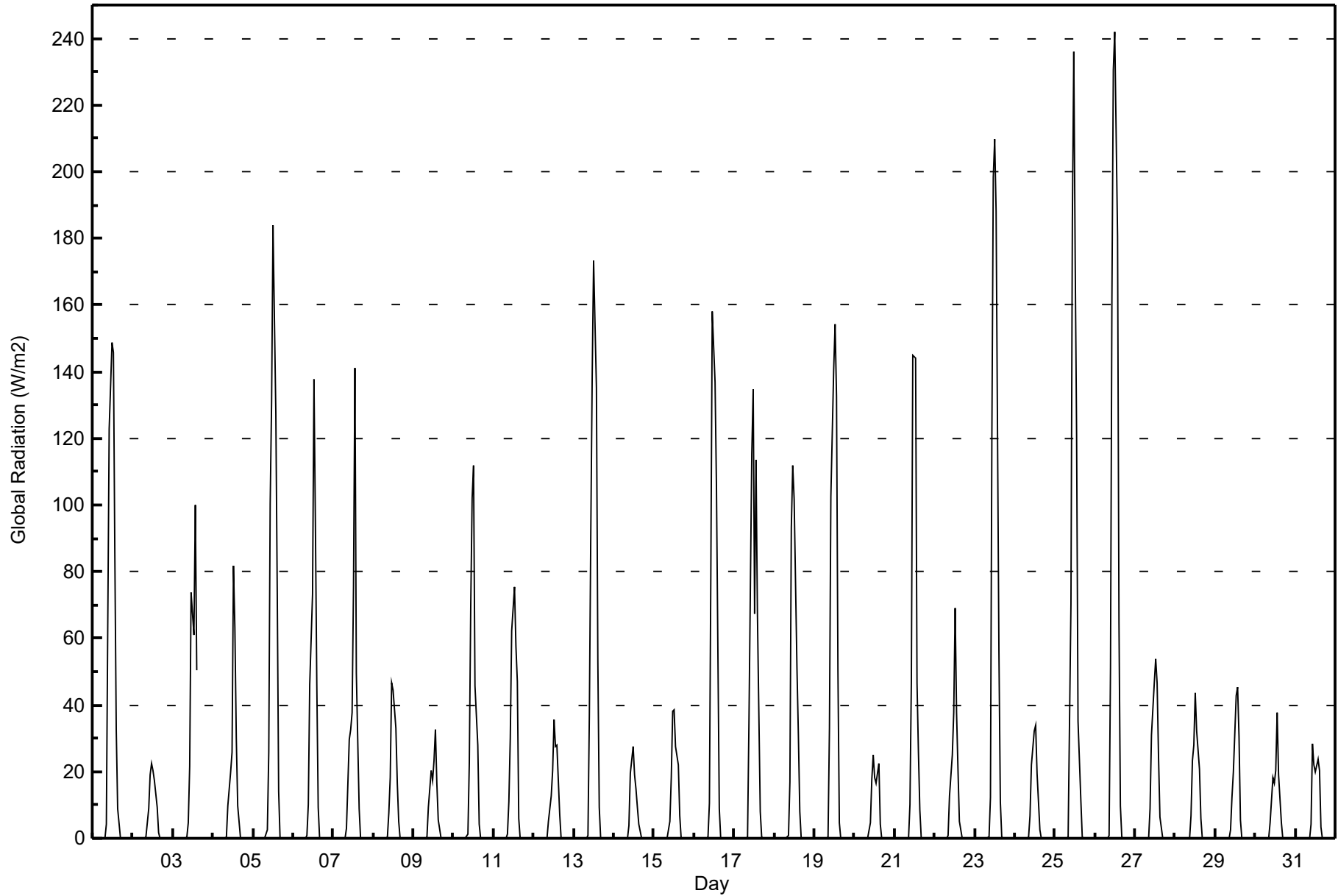
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	0	0.00	0.00
1.5 - 10	728	97.98	97.98
> 10	15	2.02	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Value: 241.9 W/m2 on Dec 26 13:00																						Hours in Service: 744				
Maximum Daily Average: 39.2 W/m2 on Dec 26																						Hours of Data: 743				
Minimum Value: 0.0 W/m2 on Dec 1 01:00																						Hours of Missing Data: 1				
Maximum Diurnal Average: 89.0 W/m2 at hour 13																						Hours of Calibration: 0				
Monthly Average: 14.92 W/m2																						Percent Operational Time: 99.9				
Minimum Daily Average: 4.1 W/m2 on Dec 14																										
Minimum Diurnal Average: 0.0 W/m2 at hour 24																										
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 8.3 P ₉₀ = 46.7 P ₉₉ = 182.6																										
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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	64.5	122.8	148.9	145.6	85.1	32.6	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.5	148.9
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.8	18.9	22.6	20.2	17.4	9.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	22.6
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.7	21.4	73.8	60.8	99.8	50.3	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.5	99.8
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.7	19.8	25.8	81.7	62.9	30.0	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	81.7
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	25.7	100.3	130.9	184.0	127.7	73.8	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5	184.0
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	10.2	46.2	73.3	137.8	95.0	46.5	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	137.8
7-Dec	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	3.1	29.7	32.4	37.8	75.5	141.2	49.4	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	141.2
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	7.7	18.4	46.6	44.5	33.1	16.5	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	46.6
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	9.2	20.5	17.5	23.2	32.7	16.5	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	32.7
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	22.9	69.7	102.0	112.0	45.6	27.8	4.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1	112.0
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	11.1	30.0	62.1	75.6	57.6	46.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	75.6
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.9	12.7	20.2	35.5	27.7	27.9	7.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.7	35.5
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	37.2	91.3	138.8	173.1	135.1	53.3	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6	173.1
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.8	19.6	27.4	19.0	14.6	9.3	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	27.4
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.1	18.0	38.2	38.5	27.7	22.2	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.5	38.5
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	10.7	78.9	158.0	137.0	105.1	56.3	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	158.0
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	34.6	115.2	134.5	67.5	113.7	67.5	8.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	134.5
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	17.0	93.1	111.9	101.9	51.0	31.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	111.9
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	33.2	102.6	140.9	154.4	132.6	50.4	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.8	154.4
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	17.8	25.0	18.2	16.6	22.5	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	25.0
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.2	47.3	144.8	144.1	46.7	25.8	8.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8	144.8
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	12.5	24.9	37.5	69.2	37.8	20.6	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	69.2
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	12.5	120.5	198.5	209.8	188.0	55.7	10.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.2	209.8
24-Dec	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	7.0	22.2	32.3	33.9	19.4	10.8	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	33.9
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	70.1	185.7	236.0	173.4	121.2	35.3	11.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.8	236.0
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	51.2	162.1	230.3	241.9	180.6	64.9	9.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.2	241.9
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.7	31.0	46.6	53.9	46.7	24.6	6.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	53.9
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.8	23.5	27.9	43.7	32.2	20.9	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	43.7
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	12.2	20.1	42.8	45.3	30.5	5.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	45.3
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	18.2	16.4	20.3	37.7	19.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	37.7
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	28.2	22.0	19.9	23.9	20.5	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	28.2
																								Diurnal Average		
																								Diurnal Maximum		
M - Maintenance																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	608	81.83	81.83
21 - 100	96	12.92	94.75
101 - 300	39	5.25	100.00
301 - 600	0	0.00	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Speed: 19 km/h on Dec 14 18:00	Maximum Daily Speed Average: 11.9 km/h on Dec 14	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 21 11:00	Minimum Daily Speed Average: 0.7 km/h on Dec 31	Hours of Data: 643
Maximum Diurnal Speed Average: 2.2 km/h at hour 4	Minimum Diurnal Speed Average: 0.6 km/h at hour 21	Hours of Missing Data: 101
Monthly Average Velocity: 1.3 km/h 206.0 deg	Percentiles: P ₁ = 0 P ₁₀ = 2 Q ₁ = 3 Median = 5 Q ₃ = 8 P ₉₀ = 12 P ₉₉ = 16	Percent Operational Time: 86.4

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-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	---	---	
4-Dec	M	M	M	M	M	M	M	M	M	M	M	M	M	M	S12	S11	S12	S12	S12	S12	S12	S12	S12	S12	---	S17	
5-Dec	S12	S11	SSE2	S8	SSE4	SSW3	S5	S4	S4	SSW5	S6	S4	S6	S5	S4	SSW3	SE0	S3	S5	S4	WSW1	S6	S6	SSW5	\$4.8	S12	
6-Dec	S7	S8	S8	S10	S8	S9	S9	S7	S8	S7	SSW4	SW6	SSW4	S5	SSW5	SW5	SW3	S5	SSW8	S6	S4	S6	SSW6	SSW5	\$6.2	S10	
7-Dec	SW5	S3	SSE4	S6	SW7	SW7	SW7	SSW6	SSW6	S6	SW7	S5	SSE4	S4	S3	S4	S2	SW1	N3	N6	N8	N10	NNE5	N5	SSW1.9	N10	
8-Dec	N10	NNE8	NNW6	N8	N10	N14	N15	N11	N12	N11	N11	N9	N10	N6	NE3	ESE3	ESE1	ESE2	SE4	SSE5	S5	SSE3	S2	S3	NNE5.1	N15	
9-Dec	S5	SSE2	S3	SSE3	S3	NNW0	SW1	SSE3	N4	N7	NNE7	N6	N9	N14	N15	N13	NNE14	N12	N5	NW4	N6	N9	N10	N9	N5.0	N15	
10-Dec	NNW4	WNW6	WNW3	WSW3	W2	W2	W3	SSW2	S3	S3	S2	SE3	SE4	S4	S4	SSW2	SSE3	S3	S1	UO	NO	S2	S3	SSE1	SSW1.5	WNW6	
11-Dec	SE3	SSE3	SE5	SE6	SE5	ESE5	E2	SE6	SE5	SE7	SE6	SSE4	SSE6	S3	S3	WNW3	WSW1	SE1	S4	NNW2	NW2	N2	WSW0	SSW1	SE2.5	SE7	
12-Dec	WNW1	NE0	S5	SSE6	SSE6	SSE8	S7	SSE6	S8	SSE11	SSE11	S12	SSE13	SSE15	S12	SSE8	S12	S13	S14	S13	S12	S12	S10	S10	\$9.3	SSE15	
13-Dec	S11	S12	S9	S11	S10	SSW6	WSW5	WSW4	WSW5	WSW4	W3	SW5	SSW6	S6	SSE6	S5	SSW5	NW3	NW2	NNW4	N7	N8	N5	N7	SSW2.9	S12	
14-Dec	NNE10	NNE10	NNE9	NNE10	N10	NNE12	NNE11	N11	N11	N11	NNE11	NNE10	N11	N10	N11	N13	NNE13	N19	N16	N13	N16	N14	N12	N14	N11.9	N19	
15-Dec	N11	N8	N13	N13	N12	N12	N12	N12	N12	N13	N13	N17	N16	NNE12	NNE14	NNE16	NNE13	NNE12	NNE11	NNE10	NNE9	NNE8	NNE7	NNE5	NE4	N11.1	N17
16-Dec	E3	ESE3	E1	NNE1	ENE2	NE2	N1	WNW5	WNW5	WNW7	WNW7	W5	WNW8	W8	W8	W6	WNW9	WNW8	W5	W4	W4	W5	W6	W7	WNW4.1	WNW9	
17-Dec	W7	WNW7	W5	W5	W5	W2	WNW3	W2	WNW4	WSW2	S3	SSE5	SSE5	SSE6	S6	S5	S5	S3	S3	SSW3	SSW1	SSW4	S4	S4	SW2.7	WNW7	
18-Dec	SSW4	S3	S4	SSW4	SW3	SW2	S1	WSW2	W2	WNW3	WNW2	SSE1	E2	SSE2	SSE2	S2	SW1	WSW3	WNW1	S2	SSE4	S4	SSE4	SSE5	SSW2.0	SSE5	
19-Dec	S6	S8	SSE9	SSE9	SSE10	SSE10	S6	S5	SSW2	NW1	SSE2	SSE4	SSE4	SSE3	S3	NNE1	WSW2	WNW3	W2	SW1	S2	S2	SSW2	S2	\$3.5	SSE10	
20-Dec	W2	NNW3	N2	WSW2	N2	NNW2	N3	NNE2	ENE1	SSW2	SSE9	SSE13	SSE10	S11	S14	S10	S7	SSW2	SW2	SSW1	WNW1	W3	WSW3	S3	\$3.0	S14	
21-Dec	SSW5	SSW4	SSW3	SSW5	SW2	SSW2	S3	S1	SSW3	W1	NW0	S2	SSE4	SE2	E2	NNW3	N3	WNW4	WNW1	NE1	N3	NW1	WSW2	WNW3	SW1.0	SSW5	
22-Dec	W2	WSW2	SSE2	S6	S6	S8	S9	S10	S10	S11	S10	S11	SSE14	S15	S11	S13	S12	S13	S10	S9	S9	S10	S9	S13	\$9.1	S15	
23-Dec	S8	S6	S5	S5	S3	SW3	S5	S4	SSW4	SSW5	SSW5	S6	S8	S9	S11	SSW5	SSW5	S8	SSW4	S4	S6	WSW9	WSW8	W8	SSW5.4	S11	
24-Dec	W7	WSW4	S5	S6	S7	S7	S9	S10	SSE10	S7	S6	WNW1	NNE4	N3	NW5	SSE1	S2	S5	WSW3	SW2	SSW1	SSW1	SW2	SW2	\$3.2	SSE10	
25-Dec	SSW3	SW2	SW3	SSW5	S4	S6	SSE5	SSW3	W6	WSW9	WSW7	WSW8	SW8	SW7	SW7	S5	SSE7	SSE9	S8	S4	W1	WSW2	NNW1	S3	SSW4.3	WSW9	
26-Dec	S5	S5	SW2	WSW3	S2	S3	SSW3	S2	S7	S7	S8	S8	S9	S12	S9	S7	S7	S5	S6	S5	SSW4	SSW1	S3	S5	\$5.2	S12	
27-Dec	S6	S7	S5	S5	S3	S4	SSW2	N2	WSW2	S2	S3	S1	N1	WNW2	SSE1	S5	SSW1	N4	SSE1	S4	SSW0	NNE1	UO	UO	\$1.9	S7	
28-Dec	UO	UO	NNE2	N2	NW2	N2	NNW2	W0	UO	WNW3	NW3	WNW3	WNW3	NW2	NE2	WNW0	N2	NNW3	N6	N8	NNE6	N2	UO	NNE1	NNW2.3	N8	
29-Dec	N1	NNW3	WNW2	S2	S3	SSE3	ESE1	UO	UO	SSE1	SSE3	SE0	NNW1	N1	NNE1	N2	NNE2	UO	SSW2	WNW2	WNW3	WNW4	WNW4	WNW5	WNW0.8	WNW5	
30-Dec	WNW6	WNW5	WNW5	WNW6	WNW6	WNW6	WNW7	WNW8	WNW9	WNW11	WNW10	WNW9	WNW9	WNW9	WNW10	WNW7	WNW9	WNW14	WNW11	NW12	WNW13	NW9	WNW11	WNW4	WNW8.5	WNW14	
31-Dec	W4	WNW4	W4	NNW1	UO	NNE3	NNE2	E2	E1	UO	SW1	SE2	NW5	WNW5	NNE3	ENE3	E2	ENE2	SE1	E0	UO	UO	UO	SE2	NNW0.7	WNW5	

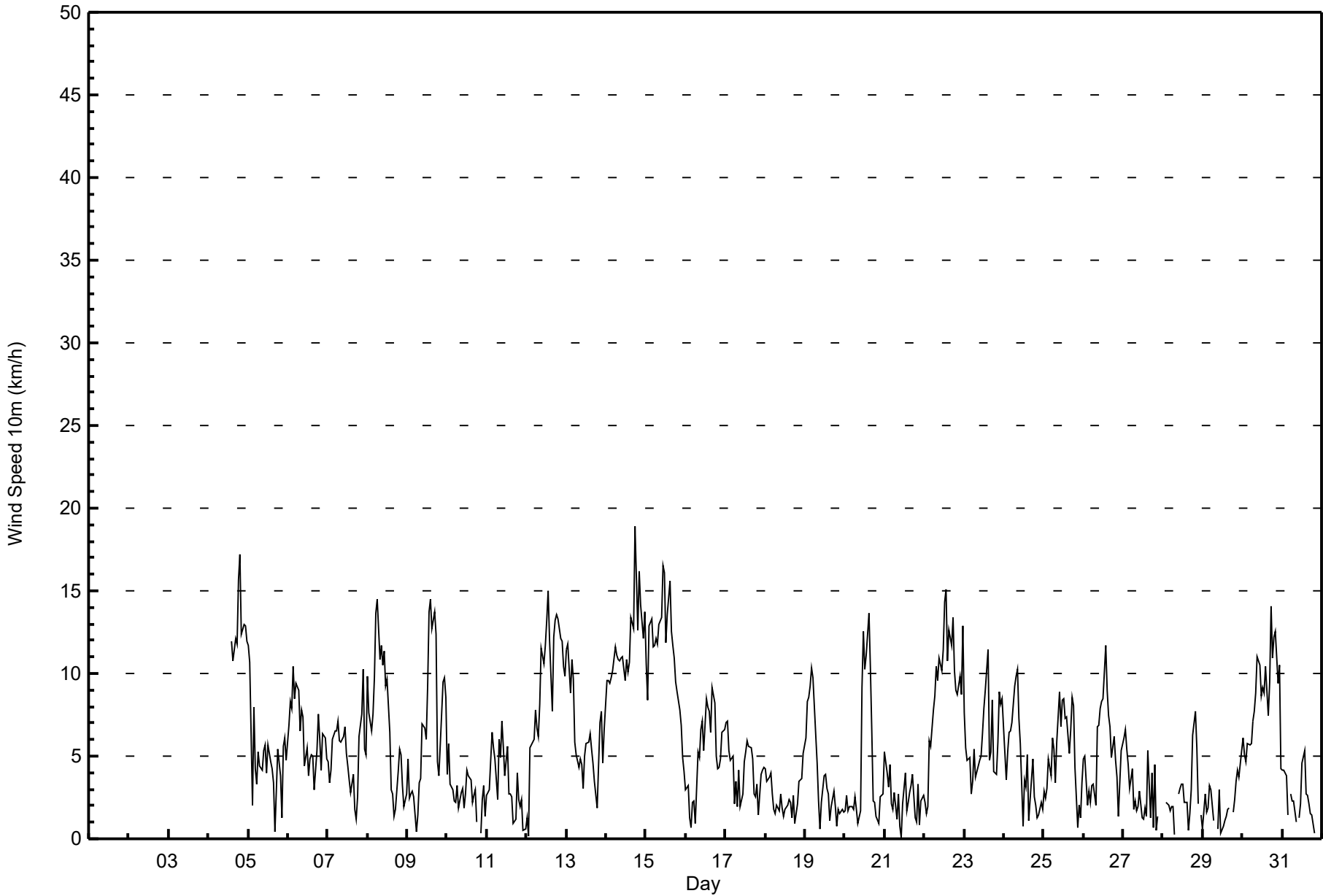
SW1.8SSW1.8SSW1.3	S2.2	S1.6	S1.2SSW1.0SSW1.0	SW1.3	SW1.5	SW1.3SSW1.7	S1.5SSW1.7	S1.9	S1.5SSW1.2	SW1.1SSW1.5SSW1.2	W0.6WSW0.9	SW1.4	SW1.5	Diurnal Average										
S12	S12	N13	N13	N12	N14	N15	N12	N13	N13	N17	N16	SSE14	S15	NNE16	N13	NNE14	N19	N16	S17	N16	N14	S13	N14	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	372	57.85	57.85
6 - 11	205	31.88	89.74
12 - 19	66	10.26	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: 643

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Fort McKay - Bertha Ganter - December 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	23	14	6	4	9	7	13	34	93	46	20	21	24	32	12	14	372
6 - 11	32	16	0	0	0	0	4	19	79	7	8	5	9	23	2	1	205
12 - 19	25	8	0	0	0	0	0	4	26	0	0	0	0	2	1	0	66
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	80	38	6	4	9	7	17	57	198	53	28	26	33	57	15	15	643

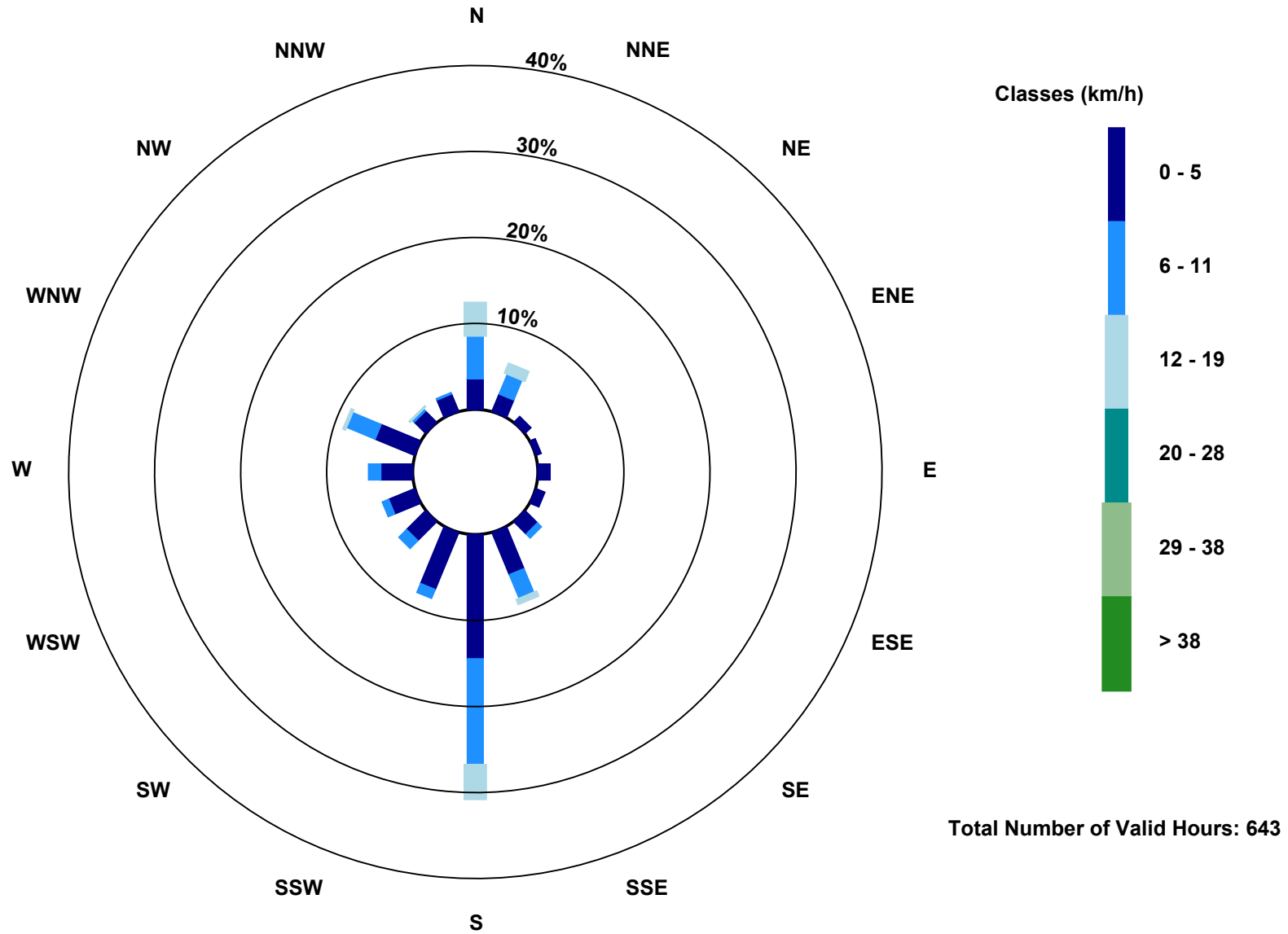
Total Number of Valid Hours: 643

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 4 km/h on Dec 14 18:00	Hours of Data: 643
Minimum Value: 0 km/h on Dec 28 04:00	Hours of Missing Data: 101
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4	Hours of Calibration: 0
	Percent Operational Time: 86.4

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	--
4-Dec	M	M	M	M	M	M	M	M	M	M	M	M	M	M	3	3	3	3	4	4	3	3	3	3	4
5-Dec	3	2	4	2	2	1	2	1	1	1	1	1	2	1	1	1	1	2	2	2	2	2	1	2	4
6-Dec	1	2	2	3	2	2	3	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	1	3
7-Dec	2	1	1	1	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2	2	1	3	2	1	3
8-Dec	3	2	1	1	2	3	3	3	3	3	3	2	2	2	1	1	1	1	1	1	1	1	2	1	3
9-Dec	1	1	2	2	1	1	2	2	2	2	2	2	2	3	4	3	3	4	3	2	3	1	2	1	4
10-Dec	2	1	2	2	2	2	1	1	1	1	1	1	1	1	1	2	1	1	1	UO	1	2	1	1	2
11-Dec	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	1	1	1	1	2
12-Dec	1	1	2	2	1	1	1	2	2	3	2	3	3	3	3	2	3	3	3	3	3	3	2	2	3
13-Dec	2	2	2	2	2	2	1	1	1	1	2	2	2	2	1	2	2	2	2	1	1	2	1	1	2
14-Dec	3	2	2	3	2	3	3	2	2	2	2	2	2	2	2	3	3	4	4	3	3	4	2	3	4
15-Dec	2	3	3	3	3	3	3	3	3	4	4	4	3	3	4	4	3	3	3	3	2	2	1	1	4
16-Dec	1	1	1	1	1	1	1	2	2	2	2	2	4	3	3	3	3	3	2	1	1	2	2	2	4
17-Dec	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1	3
18-Dec	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2
19-Dec	1	2	2	2	2	2	2	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2
20-Dec	1	1	1	1	1	1	1	1	1	2	3	3	2	4	3	3	1	1	1	1	1	1	1	1	4
21-Dec	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	2	1	1	2	1	1	1	1	1	2
22-Dec	1	1	2	1	1	2	2	2	3	2	2	3	3	3	2	3	3	3	3	2	2	2	2	3	3
23-Dec	2	1	1	1	2	2	2	1	1	1	2	1	2	2	3	3	2	1	2	2	2	4	3	3	4
24-Dec	3	2	2	2	1	1	2	3	2	3	2	1	1	2	2	2	2	2	2	1	1	2	1	2	3
25-Dec	1	1	1	1	2	1	1	2	3	4	4	4	3	3	3	1	2	2	2	2	2	1	2	2	4
26-Dec	2	1	1	1	1	1	2	1	2	1	1	1	2	3	3	3	2	2	2	1	2	2	2	1	3
27-Dec	2	1	1	1	2	1	2	1	1	1	2	1	2	2	2	1	1	1	2	1	1	1	UO	UO	2
28-Dec	UO	UO	0	0	1	1	1	1	UO	1	1	1	1	1	1	1	1	2	2	2	2	1	UO	1	2
29-Dec	1	1	1	1	1	1	1	UO	UO	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	2	2
30-Dec	1	1	2	2	2	2	2	2	3	3	3	3	3	3	3	4	3	3	4	4	3	2	2	2	4
31-Dec	2	2	2	1	UO	1	1	1	1	UO	1	1	2	1	1	1	1	1	1	1	UO	UO	UO	1	2
	3	3	4	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3	4	4	4	3	4	3	3
	Diurnal Maximum																								

M - Maintenance UO - Unstable Operation



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

Fort McKay - Bertha Ganter - December 2024

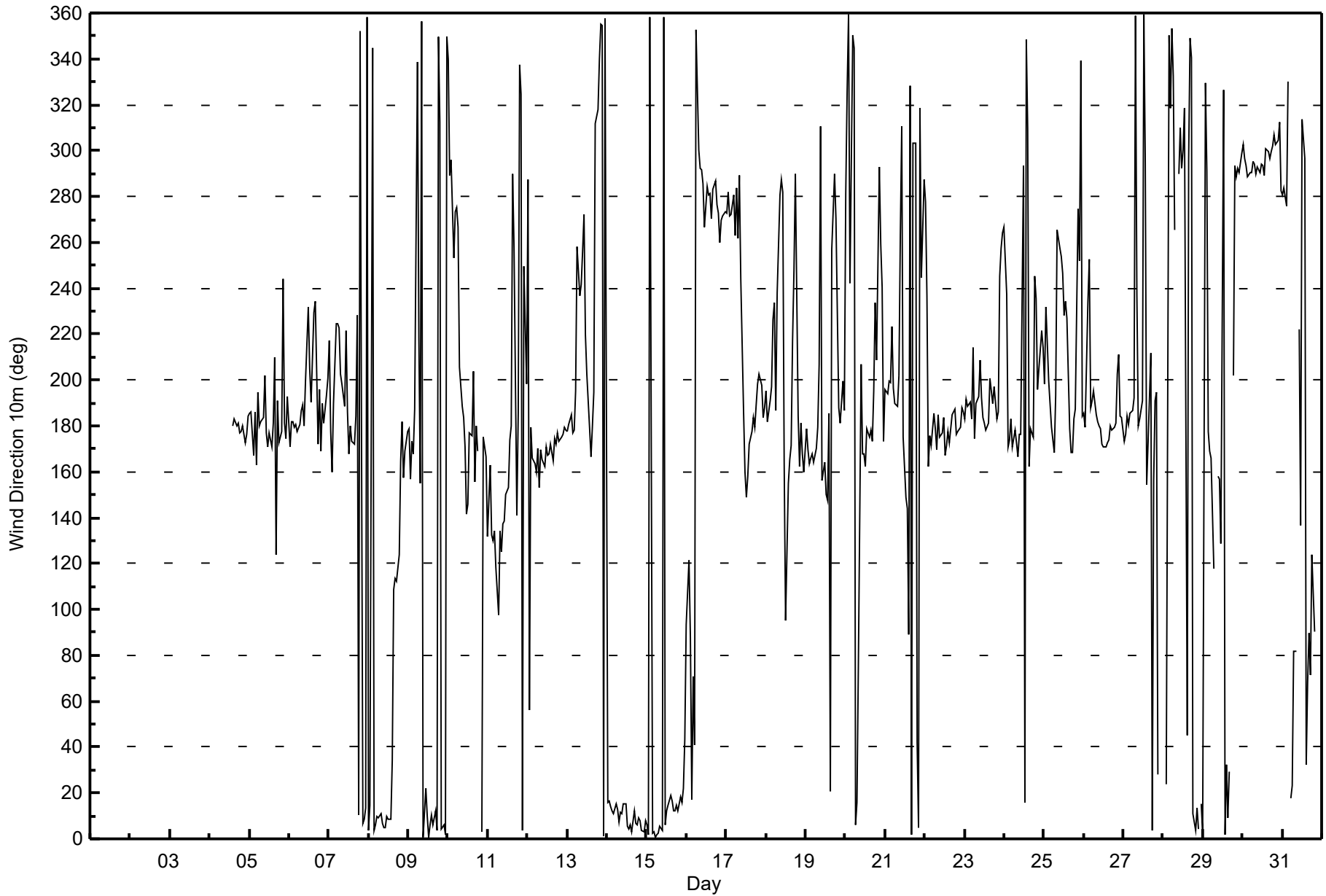
Direction of Maximum Speed: 7 deg on Dec 14 18:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 9.3 deg on Dec 14	Hours of Data: 643
Direction of Minimum Speed: 310 deg on Dec 21 11:00	Direction of Minimum Daily Speed Average: 0.7 deg on Dec 31
Direction of Minimum Speed: 310 deg on Dec 21 11:00	Hours of Missing Data: 101
Monthly Average Direction: 206.0 deg	Percent Operational Time: 86.4

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-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	--
4-Dec	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	--
5-Dec	185	186	167	186	163	194	180	182	184	202	177	171	177	171	181	210	184	181	177	178	180	173	177	184	182.7
6-Dec	171	182	182	180	180	177	181	187	189	180	200	232	205	191	210	229	234	172	196	169	190	181	194	201	188.7
7-Dec	217	178	160	190	224	225	223	202	199	189	221	186	168	180	173	172	184	228	11	352	6	9	14	358	209.8
8-Dec	3	15	345	4	6	10	9	11	6	5	5	9	9	8	34	109	113	112	124	165	182	158	169	177	14.1
9-Dec	179	157	173	168	188	339	218	155	356	1	22	9	1	6	10	6	12	4	350	312	4	6	2	350	5.3
10-Dec	340	289	296	253	273	275	267	206	188	183	171	141	146	177	176	204	156	180	169	UO	3	175	171	167	206.6
11-Dec	132	163	133	130	134	118	98	134	125	137	139	150	153	174	180	290	257	141	186	338	324	4	250	199	141.5
12-Dec	288	56	179	166	164	160	170	153	170	165	162	171	167	168	172	165	174	172	177	173	175	176	179	178	170.8
13-Dec	178	181	185	177	178	195	258	237	242	256	272	220	203	179	166	180	195	312	318	340	355	355	1	358	208.1
14-Dec	16	16	14	12	11	15	13	7	11	15	15	6	4	6	3	12	7	6	9	8	3	3	3	8	9.3
15-Dec	6	2	358	2	3	0	2	3	5	3	358	6	12	15	19	17	12	12	15	12	18	16	22	44	8.4
16-Dec	93	121	88	17	71	41	353	300	292	292	285	266	284	281	281	271	283	287	277	273	260	270	271	273	282.5
17-Dec	273	282	272	272	281	263	284	262	289	244	186	160	149	158	172	178	183	179	189	198	202	198	183	188	217.6
18-Dec	195	182	191	197	226	234	187	238	280	288	282	164	95	155	165	172	217	248	290	184	162	181	168	160	193.9
19-Dec	178	169	164	166	168	164	170	179	207	311	156	164	150	148	185	21	257	290	270	229	188	181	200	187	174.3
20-Dec	281	327	359	242	350	345	6	16	75	207	168	168	163	179	175	178	173	195	233	209	293	259	240	173	182.4
21-Dec	196	194	200	199	223	196	190	189	202	264	310	175	149	144	89	328	2	303	303	42	5	319	244	288	214.9
22-Dec	278	237	162	176	172	185	179	170	185	175	177	183	167	171	178	173	185	186	188	177	177	179	188	186	179.5
23-Dec	183	191	188	190	183	214	174	190	193	209	192	183	181	178	181	200	196	190	197	183	186	245	257	264	198.5
24-Dec	267	237	171	174	183	171	178	172	166	177	176	294	16	349	309	163	179	175	245	236	196	205	222	214	190.2
25-Dec	199	232	216	200	179	174	168	194	266	258	254	246	228	234	227	179	168	168	183	187	275	252	339	185	211.2
26-Dec	186	179	234	252	188	191	195	185	182	180	179	172	171	171	173	174	180	178	180	181	203	211	184	184	181.5
27-Dec	173	176	184	181	185	187	192	359	238	180	183	191	360	295	154	173	212	4	156	191	195	28	UO	UO	184.5
28-Dec	UO	UO	24	350	318	353	333	265	UO	290	310	292	300	318	45	297	349	341	11	4	13	4	UO	15	346.6
29-Dec	3	329	291	177	169	166	118	UO	UO	158	157	129	327	2	32	9	30	UO	202	293	289	292	290	299	285.0
30-Dec	303	297	294	289	290	290	295	294	290	293	290	294	294	289	301	300	297	299	302	307	303	305	313	282	297.4
31-Dec	281	284	276	330	UO	18	23	82	82	UO	222	137	313	297	33	68	90	71	124	90	UO	UO	UO	145	338.9

214.0 208.0 201.9 190.9 189.5 185.4 207.6 193.9 224.4 231.1 215.3 195.9 183.3 192.6 184.7 190.2 199.1 228.6 204.8 213.0 275.2 253.4 233.2 220.5

Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 96 deg on Dec 24 16:00	Hours of Data: 643
Minimum Value: 7 deg on Dec 18 15:00	Hours of Missing Data: 101
Percentiles: P ₁ = 11 P ₁₀ = 13 Q ₁ = 15 Median = 21 Q ₃ = 36 P ₉₀ = 61 P ₉₉ = 90	Hours of Calibration: 0
	Percent Operational Time: 86.4

Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	M	M	M	M	M	M	--	
4-Dec	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	18	
5-Dec	15	15	96	14	19	21	21	21	18	15	13	17	17	19	15	16	18	17	15	16	15	12	14	14	96	
6-Dec	18	15	14	17	15	15	16	17	14	14	22	45	65	39	32	33	49	31	24	25	31	16	19	34	65	
7-Dec	31	33	17	28	17	18	22	33	38	50	24	15	20	46	21	27	82	70	69	20	10	14	21	15	82	
8-Dec	15	18	12	13	14	16	16	17	16	16	15	15	15	16	35	22	45	43	10	15	14	23	15	18	45	
9-Dec	16	29	56	28	34	58	75	27	53	15	25	17	16	16	15	14	14	33	36	35	11	13	11	75	75	
10-Dec	38	16	32	26	53	50	13	68	30	40	30	20	18	21	40	48	31	15	61	UO	12	37	23	67	68	
11-Dec	24	30	20	14	16	20	26	12	18	13	12	25	17	49	46	24	57	77	13	36	47	54	85	82	85	
12-Dec	61	95	20	20	24	13	14	16	17	14	15	16	14	13	14	13	14	13	14	12	13	12	13	13	95	
13-Dec	13	14	14	13	14	36	14	16	13	28	41	23	28	19	14	14	25	45	30	13	16	13	25	12	45	
14-Dec	14	16	16	16	17	16	15	13	14	14	15	15	14	14	16	15	15	16	15	15	14	15	15	15	17	
15-Dec	15	20	17	15	15	17	18	17	17	16	14	16	16	15	16	15	16	17	18	18	17	21	21	22	22	
16-Dec	25	24	21	38	26	28	36	17	16	19	22	34	32	35	28	35	23	21	22	19	23	22	31	27	38	
17-Dec	29	24	29	38	35	76	29	74	26	61	38	24	16	12	15	11	9	17	67	26	79	12	19	15	79	
18-Dec	12	13	11	16	29	39	37	40	31	32	30	68	52	40	7	38	72	35	78	30	15	21	14	14	78	
19-Dec	14	14	11	14	12	12	15	19	62	75	38	27	23	20	36	60	16	19	40	78	27	58	42	53	78	
20-Dec	54	39	67	37	50	43	24	40	64	85	17	16	14	18	14	16	12	31	29	69	90	29	21	59	90	
21-Dec	14	24	23	26	32	63	19	82	13	59	88	64	51	82	35	59	44	42	75	56	22	69	40	32	88	
22-Dec	39	53	79	12	11	17	16	12	16	13	13	16	12	12	15	12	16	16	15	13	14	14	17	14	79	
23-Dec	16	16	18	19	37	45	26	29	20	23	19	16	15	14	13	28	23	12	21	30	24	45	46	35	46	
24-Dec	49	69	55	17	15	15	13	13	13	22	31	88	23	59	31	96	59	46	62	70	84	78	58	59	96	
25-Dec	31	43	34	24	20	11	25	74	57	44	64	44	39	43	35	26	18	12	13	26	94	47	78	35	94	
26-Dec	36	25	60	23	61	20	43	30	14	13	14	13	14	11	11	12	11	26	14	12	53	64	18	12	64	
27-Dec	13	13	14	16	32	20	79	34	57	28	53	45	86	70	83	14	73	18	95	21	96	19	UO	UO	96	
28-Dec	UO	UO	21	17	23	25	41	47	UO	13	14	16	17	49	27	47	30	31	15	15	14	21	UO	UO	35	49
29-Dec	17	32	50	22	18	18	61	UO	UO	58	18	89	84	22	20	24	28	UO	63	29	17	15	17	18	89	
30-Dec	15	17	25	20	19	18	16	15	21	17	20	23	21	21	17	22	18	13	13	11	13	12	12	27	27	
31-Dec	26	26	28	75	UO	25	37	21	25	UO	35	39	40	20	43	24	31	28	58	67	UO	UO	UO	13	75	
Diurnal Maximum																										
61 95 96 75 61 76 79 82 64 85 88 89 86 82 83 96 82 77 95 78 96 78 85 82																										

M - Maintenance UO - Unstable Operation



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS02 MILDRED LAKE DECEMBER 2024

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

January 31, 2025

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

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	35.4	0	4.8	0
H2S (ppb) Average	709	35	35	100	6.7	0	1.4	0
THC (ppm) Average	708	35	36	99.87	5.2	-	2.7	-
NMHC(ppm) Average	708	35	36	99.87	0.042	-	0.002	-
CH4(ppm) Average	708	35	36	99.87	5.2	-	2.7	-
Temperature (C) Average	744	0	0	100	4.4	-	1.1	-
Relative Humidity (%) Average	744	0	0	100	99	-	93.4	-
Wind Speed 10 m (km/h) Average	743	0	1	99.87	24	-	14	-
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 - MILDRED LAKE (AMS02)
DECEMBER 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	1.46	3.4	-	0	0	0.1	0.3	1.1	4	35.4
H2S (ppb) Average	709	0.55	0.8	-	0	0.1	0.1	0.2	0.6	1.5	6.7
THC (ppm) Average	708	2.28	0.3	-	2	2	2.1	2.2	2.3	2.6	5.2
NMHC(ppm) Average	708	0	0.002	-	0	0	0	0	0	0	0.042
CH4(ppm) Average	708	2.28	0.3	-	2	2	2.1	2.2	2.3	2.6	5.2
Temperature 2 m (C) Average	744	-12.38	8.2	-	-33.4	-24.6	-18.7	-10.8	-7	-2.4	4.4
Relative Humidity (%) Average	744	83.49	7.2	-	66.5	74.3	77.8	82.7	89.9	92.8	99
Wind Speed 10 m (km/h) Average	743	7.7	4	-	1	3	4	7	11	14	24
Wind Direction 10 m (deg) Average	743	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	27 Dec 2024 23:00	27 Dec 2024 23:00	1	Unstable Operation - excessive baseline noise
Wind Speed, Wind Direction	28 Dec 2024 02:00	28 Dec 2024 02:00	1	Flat line in sensor output signal - Sensor frozen

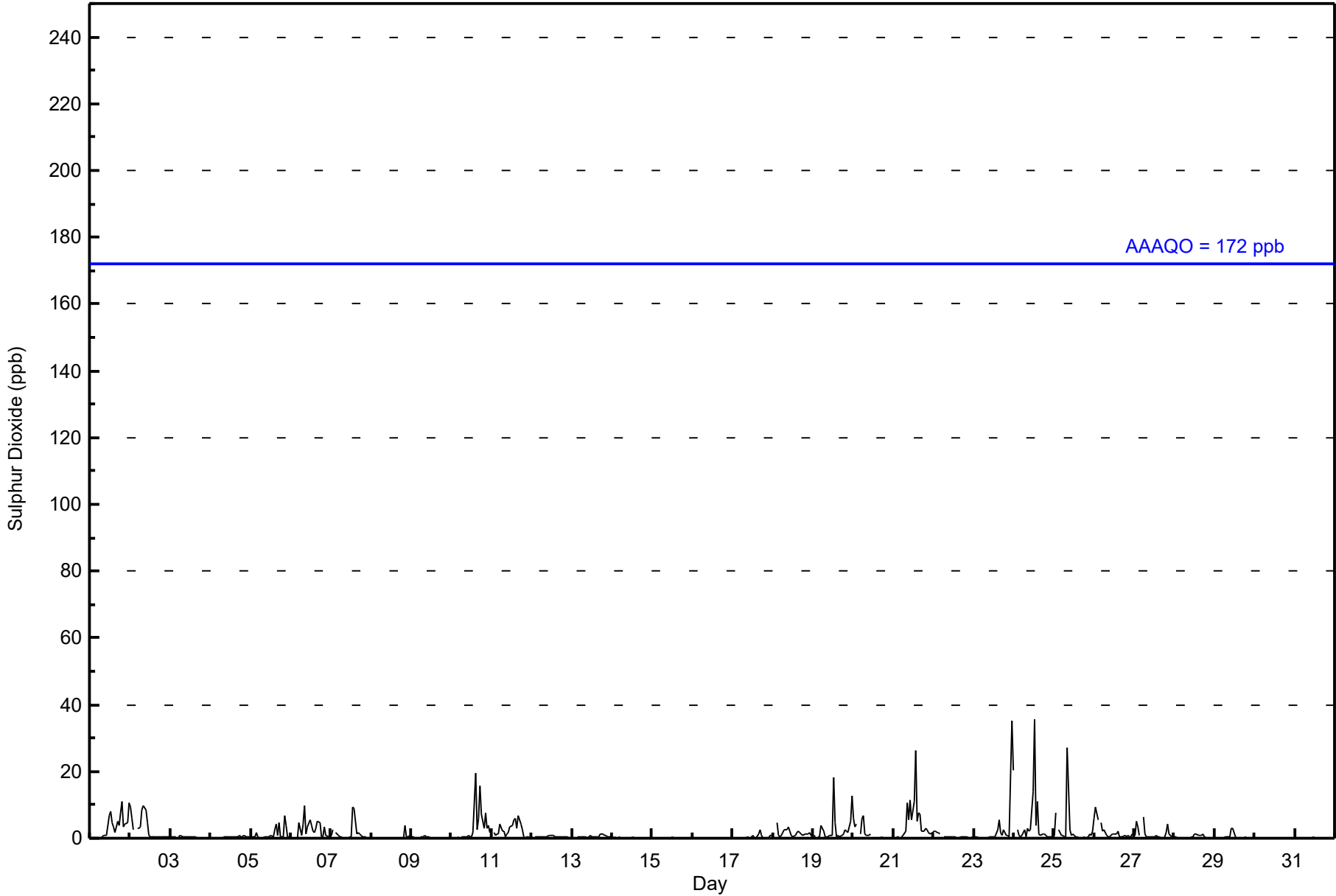


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 35.4 ppb on Dec 24 13:00		Maximum Daily Average: 4.8 ppb on Dec 21		Hours of Data: 709																	Hours of Missing Data: 35		Hours of Calibration: 35																										
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 16		Hours of Operational Time: 100.0																																													
Maximum Diurnal Average: 3.0 ppb at hour 13		Minimum Diurnal Average: 0.5 ppb at hour 4		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 1.1 P ₉₀ = 4.0 P ₉₉ = 17.9																																													
Monthly Average: 1.46 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-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.6	0.9	0.9	6.7	7.9	4.8	3.4	1.8	5.1	3.8	7.8	10.9	3.2	4.3	4.7	10.5	3.4	10.9																							
2-Dec	9.2	6.0	2.6	Z	3.0	2.8	3.4	8.6	9.9	8.4	4.6	0.9	0.6	0.5	0.5	0.4	0.6	0.4	0.5	0.3	0.4	0.4	0.4	0.3	2.8	9.9																							
3-Dec	0.4	0.4	0.3	0.4	Z	0.2	0.9	0.3	0.3	0.2	0.3	0.5	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.0	0.3	0.9																							
4-Dec	0.0	0.1	0.2	0.0	0.1	Z	0.1	0.1	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.6	0.6	0.8	0.6	0.6	0.6	0.5	0.4	0.3	0.4	0.8																							
5-Dec	Z	0.2	0.3	1.7	0.2	0.2	0.2	0.2	0.6	0.5	0.3	0.3	0.7	0.4	2.6	4.2	1.0	4.8	0.4	0.3	6.7	3.8	0.4	0.2	1.3	6.7																							
6-Dec	0.2	Z	0.0	0.0	0.0	4.5	0.7	4.4	9.7	1.4	3.4	5.4	3.6	2.0	1.7	2.9	5.0	4.9	0.6	0.4	3.5	0.7	0.3	0.2	2.4	9.7																							
7-Dec	0.9	2.7	Z	1.7	0.8	0.5	0.3	0.2	0.1	0.1	0.1	0.3	0.5	9.3	9.0	1.2	1.6	1.2	0.9	0.5	0.3	0.1	0.0	0.1	1.4	9.3																							
8-Dec	0.0	0.0	0.1	Z	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	3.7	0.4	0.4	0.9	0.3	3.7																						
9-Dec	0.4	0.2	0.1	0.2	Z	0.2	0.3	0.5	0.7	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	0.2	0.7																							
10-Dec	0.1	0.0	0.0	0.1	0.2	Z	0.4	0.3	0.3	0.5	0.7	0.5	0.2	1.6	19.3	2.6	5.8	15.5	7.2	3.0	7.5	3.1	4.0	1.8	3.3	19.3																							
11-Dec	Z	1.5	0.9	1.1	1.1	4.4	2.3	1.9	0.5	1.1	1.8	3.5	3.6	5.6	6.1	3.0	7.0	4.1	2.7	0.4	0.2	0.2	0.2	0.2	2.3	7.0																							
12-Dec	0.3	Z	0.3	0.3	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.8	0.8	0.9	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.4	0.9																						
13-Dec	0.2	0.3	Z	0.3	0.3	0.3	0.3	0.2	0.3	0.1	0.3	0.8	0.4	0.3	0.4	0.5	0.6	1.2	1.5	1.0	0.8	0.4	0.3	0.3	0.5	1.5																							
14-Dec	0.2	0.2	0.2	Z	0.3	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.3																						
15-Dec	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																							
16-Dec	0.0	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
17-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.4	0.2	0.6	0.8	0.1	0.2	1.3	2.4	1.0	0.1	0.1	0.1	0.1	0.1	0.7	0.7	0.4	2.4																							
18-Dec	0.2	Z	4.5	0.8	0.6	0.7	1.7	2.5	2.6	3.5	2.1	1.0	0.6	0.9	1.9	2.2	1.5	1.1	1.0	1.1	1.1	1.2	1.7	1.0	1.5	4.5																							
19-Dec	0.7	0.4	Z	0.4	0.6	3.8	2.2	0.5	0.5	0.4	0.6	1.0	18.1	4.6	0.6	0.8	0.6	0.9	1.1	2.5	1.9	1.8	5.2	12.6	2.7	18.1																							
20-Dec	5.9	3.2	4.2	Z	1.4	5.8	6.6	1.3	1.0	1.0	1.1	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	1.7	6.6																							
21-Dec	0.2	0.2	0.3	0.3	Z	0.5	0.7	2.3	10.6	5.7	11.6	5.5	11.0	26.3	5.0	7.6	7.3	2.3	2.1	3.0	2.7	1.7	1.3	1.6	4.8	26.3																							
22-Dec	2.2	2.3	1.9	1.9	1.3	Z	0.5	0.4	0.3	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.7	2.3																							
23-Dec	Z	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	2.4	5.4	1.5	1.0	2.6	0.8	0.9	0.5	18.4	35.1	3.1	35.1																							
24-Dec	20.4	Z	2.7	0.8	0.5	0.7	2.4	0.3	2.9	2.1	2.4	14.0	35.4	4.0	10.9	1.4	1.0	1.4	1.4	0.7	0.5	0.3	0.2	0.2	4.6	35.4																							
25-Dec	0.8	7.6	Z	2.6	0.9	1.0	0.5	0.5	27.3	2.4	1.0	1.3	0.8	0.4	0.2	0.2	0.2	0.3	0.2	0.2	1.3	0.8	2.1	2.3	2.3	27.3																							
26-Dec	6.1	9.3	5.4	Z	4.7	2.1	2.6	0.9	0.5	0.4	0.8	1.3	1.2	1.1	2.3	0.5	0.4	0.4	0.6	0.4	0.9	0.4	0.3	1.4	1.9	9.3																							
27-Dec	0.6	5.2	3.2	0.7	Z	6.5	1.3	0.6	0.5	0.4	0.4	0.3	0.3	0.9	0.5	0.2	0.2	0.1	0.2	1.5	4.2	1.3	0.5	0.3	1.3	6.5																							
28-Dec	0.3	0.3	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.6	1.1	1.2	1.1	1.0	1.0	1.2	0.6	0.2	0.1	0.1	0.1	0.1	0.4	1.2																							
29-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.6	2.9	3.0	0.4	0.2	0.0	0.0	0.2	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.4	3.0																							
30-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1																							
31-Dec	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.2																							
																								1.9	1.6	1.1	0.5	0.7	1.4	0.9	0.9	2.3	1.1	1.2	1.7	3.0	2.2	2.3	1.3	1.4	1.5	1.1	0.9	1.3	0.8	1.3	2.3	Diurnal Average	
																								20.4	9.3	5.4	2.6	4.7	6.5	6.6	8.6	27.3	8.4	11.6	14.0	35.4	26.3	19.3	7.6	7.3	15.5	7.8	10.9	7.5	4.3	18.4	35.1	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	692	97.60	97.60
11 - 20	13	1.83	99.44
21 - 60	4	0.56	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Mildred Lake - December 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	97	27	11	7	19	29	65	168	57	36	41	8	10	55	23	38	691
11 - 20	0	0	0	0	0	3	6	2	0	0	0	2	0	0	0	0	13
21 - 60	0	0	0	0	0	0	2	0	0	0	0	1	1	0	0	0	4
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	97	27	11	7	19	32	73	170	57	36	41	11	11	55	23	38	708

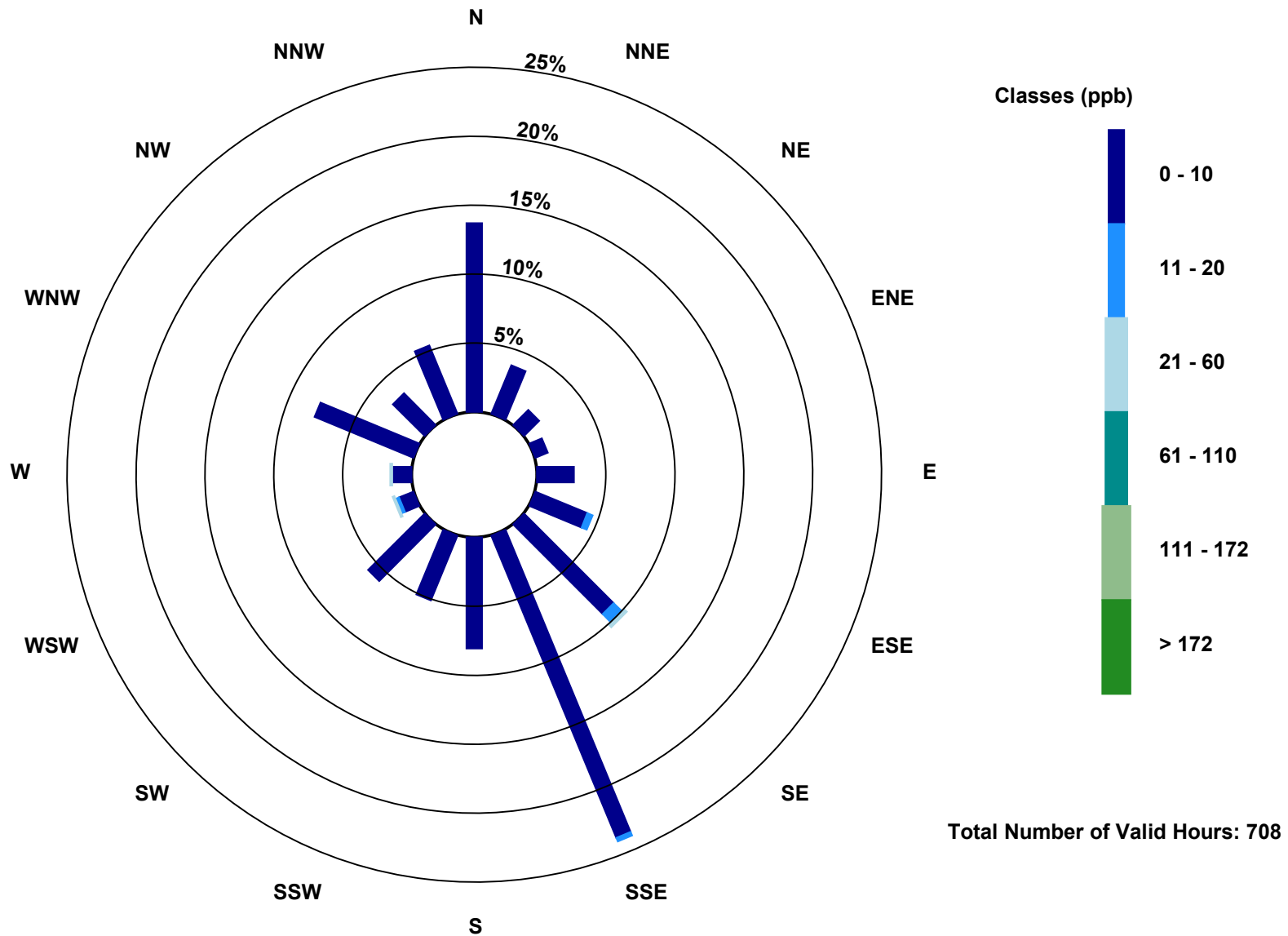
Total Number of Valid Hours: 708

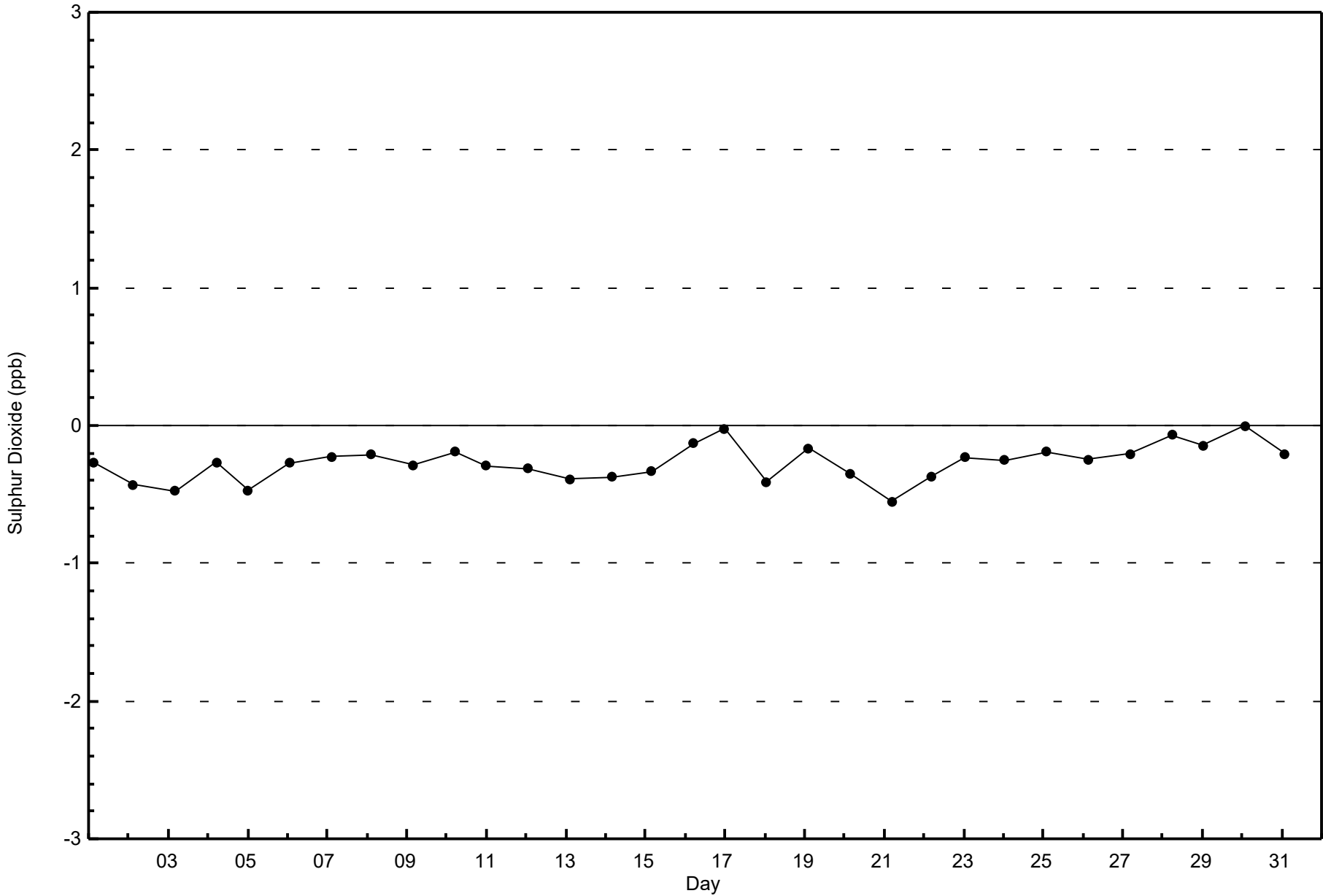
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Mildred Lake

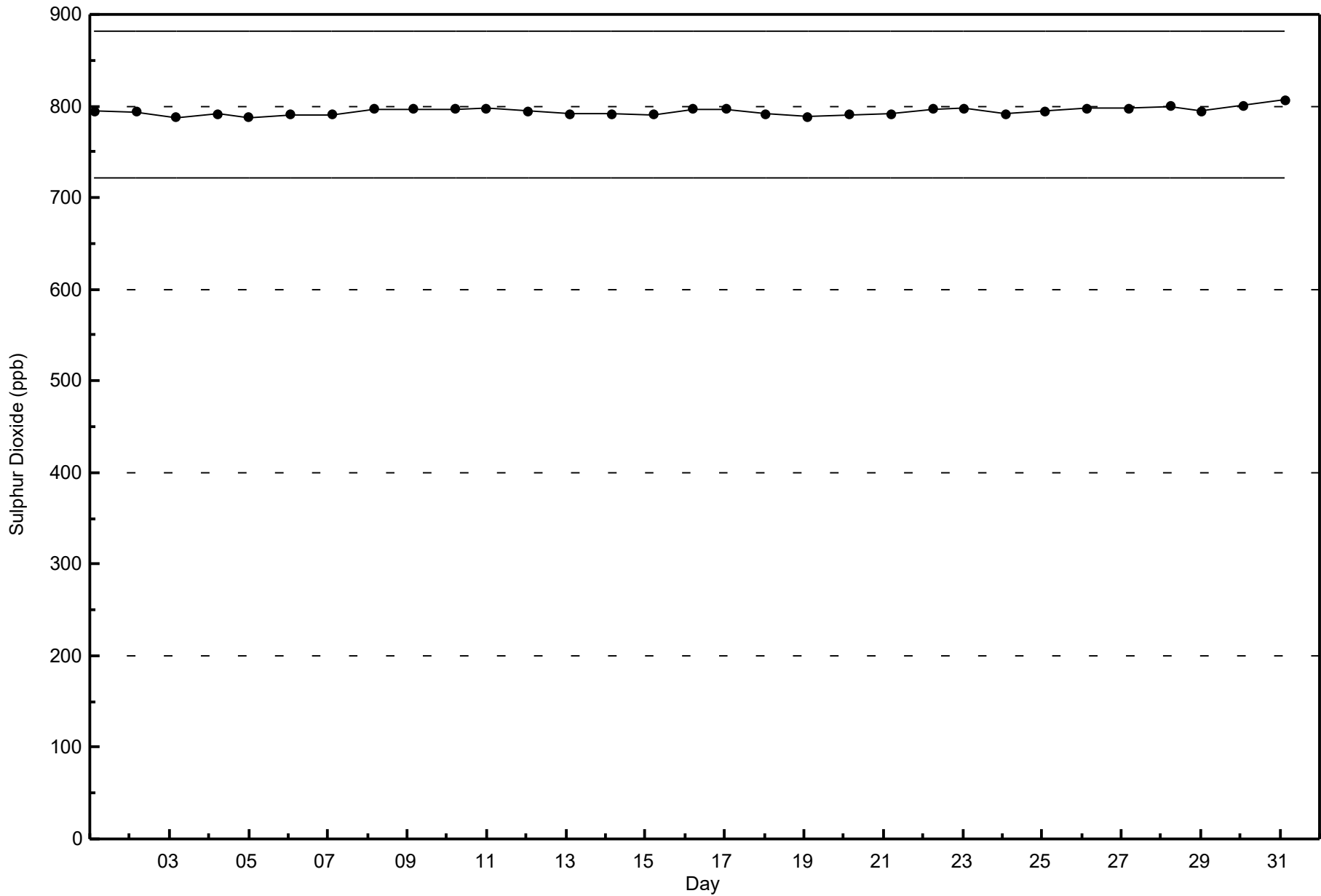






Wood Buffalo Environmental Association
Span Responses

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





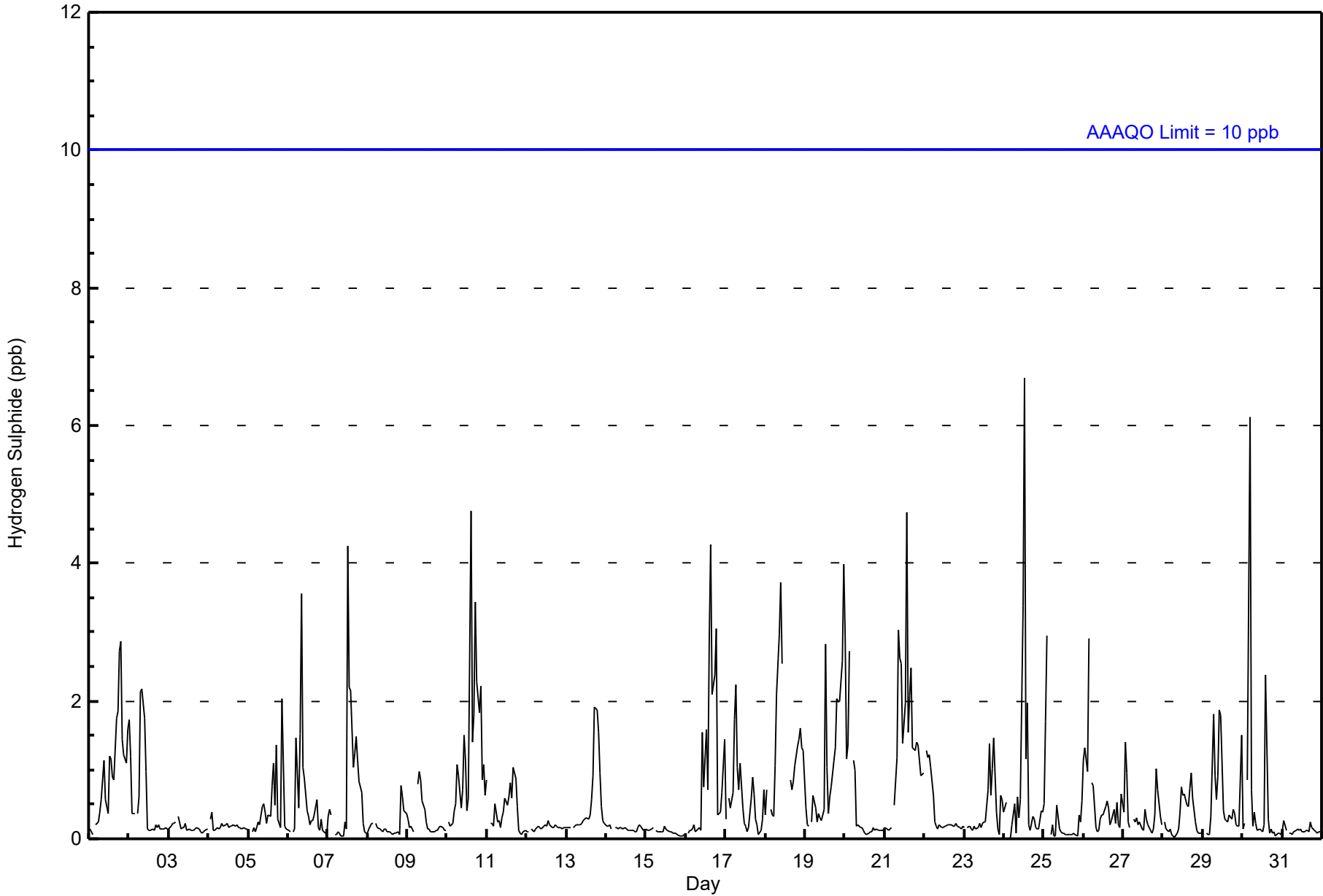
Wood Buffalo Environmental Association
Summary of Hour Averages

Hydrogen Sulphide (H₂S) - ppb
Mildred Lake - December 2024

Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 6.7 ppb on Dec 24 13:00	Maximum Daily Average: 1.4 ppb on Dec 21		Hours of Data:	709
Minimum Value: 0.0 ppb on Dec 24 04:00	Minimum Daily Average: 0.1 ppb on Dec 15		Hours of Missing Data:	35
Maximum Diurnal Average: 0.8 ppb at hour 13	Minimum Diurnal Average: 0.4 ppb at hour 23		Hours of Calibration:	35
Monthly Average: 0.55 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.6 P ₉₀ = 1.5 P ₉₉ = 3.7		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-Dec	0.1	0.1	0.1	Z	0.2	0.3	0.4	0.6	0.9	1.1	0.6	0.4	1.2	1.2	0.9	0.9	1.7	1.9	2.7	2.9	1.5	1.2	1.1	1.6	1.0	2.9																						
2-Dec	1.7	1.2	0.4	0.4	Z	0.4	0.6	2.1	2.2	1.8	1.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.6	2.2																						
3-Dec	0.1	0.2	0.2	0.2	0.2	Z	0.3	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3																						
4-Dec	Z	0.3	0.4	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.4																						
5-Dec	0.1	Z	0.1	0.2	0.1	0.2	0.2	0.2	0.5	0.5	0.4	0.2	0.4	0.3	0.8	1.1	0.5	1.4	0.3	0.2	2.0	1.1	0.2	0.1	0.5	2.0																						
6-Dec	0.1	0.1	Z	0.1	0.1	1.5	0.4	1.5	3.6	1.0	0.9	0.4	0.3	0.2	0.3	0.3	0.3	0.6	0.2	0.1	0.3	0.1	0.1	0.1	0.5	3.6																						
7-Dec	0.3	0.4	0.3	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	4.3	2.2	2.2	1.0	1.2	1.5	1.1	0.8	0.7	0.2	0.1	0.1	0.8	4.3																						
8-Dec	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.6	0.4	0.4	0.2	0.8																						
9-Dec	0.3	0.2	0.2	0.1	0.1	Z	0.8	1.0	0.9	0.6	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.3	1.0																						
10-Dec	Z	0.2	0.2	0.2	0.4	0.5	1.1	0.9	0.4	0.7	1.5	1.1	0.4	0.6	4.8	1.4	1.8	3.4	2.3	1.8	2.2	0.9	1.1	0.6	1.2	4.8																						
11-Dec	0.9	Z	0.2	0.2	0.2	0.5	0.2	0.3	0.2	0.3	0.4	0.6	0.5	0.6	0.8	0.6	1.0	0.9	0.5	0.1	0.1	0.1	0.1	0.1	0.4	1.0																						
12-Dec	0.1	0.1	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3																						
13-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.6	0.9	1.9	1.9	1.5	0.9	0.5	0.3	0.2	0.5	1.9																						
14-Dec	0.2	0.2	0.2	0.1	Z	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2																						
15-Dec	0.1	0.1	0.1	0.1	0.2	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	0.0	0.0	0.0	0.1	0.1	0.2																						
16-Dec	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	1.6	0.8	1.6	0.7	2.9	4.3	2.1	2.4	3.1	0.3	0.4	0.4	0.7	1.5	1.0	4.3																						
17-Dec	0.3	Z	0.6	0.5	0.7	1.7	2.2	1.0	0.7	1.1	0.5	0.2	0.2	0.1	0.2	0.6	0.9	0.7	0.3	0.2	0.1	0.1	0.3	0.7	0.6	2.2																						
18-Dec	0.3	0.7	Z	0.4	0.3	0.3	1.1	2.1	3.0	3.7	2.5	C	C	C	C	0.9	0.7	0.8	1.0	1.3	1.4	1.6	1.3	1.3	1.3	3.7																						
19-Dec	0.5	0.2	0.2	Z	0.2	0.6	0.4	0.2	0.4	0.3	0.3	0.4	2.8	1.0	0.4	0.6	0.8	1.1	1.3	2.0	2.0	2.0	2.6	4.0	1.1	4.0																						
20-Dec	2.9	1.2	1.4	2.7	Z	1.1	1.0	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.5	2.9																						
21-Dec	0.2	0.1	0.1	0.1	0.2	Z	0.5	1.2	3.0	2.6	2.5	1.4	2.0	4.7	1.6	2.1	2.5	1.3	1.3	1.4	1.4	1.1	0.9	1.0	1.4	4.7																						
22-Dec	Z	1.3	1.2	1.2	1.0	0.6	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.3																						
23-Dec	0.2	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.7	1.4	0.6	1.0	1.5	0.4	0.1	0.1	0.6	0.6	0.4	1.5																						
24-Dec	0.4	0.5	Z	0.0	0.0	0.2	0.5	0.1	0.6	0.3	0.6	3.4	6.7	1.2	2.0	0.2	0.1	0.3	0.3	0.2	0.2	0.1	0.4	0.4	0.8	6.7																						
25-Dec	0.5	1.7	2.9	Z	0.1	0.2	0.0	0.0	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.3	0.6	0.3	2.9																						
26-Dec	1.1	1.3	1.0	2.9	Z	0.8	0.8	0.2	0.1	0.1	0.3	0.3	0.3	0.5	0.6	0.5	0.2	0.3	0.4	0.2	0.5	0.2	0.2	0.7	0.6	2.9																						
27-Dec	0.4	1.4	0.9	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.4	0.3	0.2	0.1	0.1	0.1	0.3	1.0	0.7	0.3	0.2	0.4	1.4																						
28-Dec	Z	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.4	0.7	0.6	0.7	0.5	0.5	0.7	1.0	0.6	0.2	0.1	0.1	0.1	0.1	0.3	1.0																						
29-Dec	0.1	Z	0.1	0.1	0.1	0.3	1.8	0.9	0.6	0.9	1.9	1.8	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.2	0.2	0.2	1.5	0.6	1.9																						
30-Dec	0.1	0.2	Z	0.9	6.1	0.7	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.2	2.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.6	6.1																						
31-Dec	0.1	0.3	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	0.1	0.1	0.1	0.3																						
																								0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.8	0.6	0.8	0.6	0.6	0.7	0.7	0.5	0.6	0.4	0.4	0.5	Diurnal Average
																								2.9	1.7	2.9	2.9	6.1	1.7	2.2	2.1	3.6	3.7	2.5	3.4	6.7	4.7	4.8	4.3	2.5	3.4	3.1	2.9	2.2	2.0	2.6	4.0	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Mildred Lake - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	683	96.33	96.33
3 - 4	22	3.10	99.44
5 - 7	4	0.56	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Mildred Lake - December 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	27	10	6	18	28	65	171	56	38	38	11	8	52	21	39	682
3 - 4	1	0	0	1	0	4	7	3	1	0	2	0	0	3	0	0	22
5 - 7	0	0	0	0	0	1	2	0	0	0	0	0	1	0	0	0	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	0	0
Totals	95	27	10	7	18	33	74	174	57	38	40	11	9	55	21	39	708

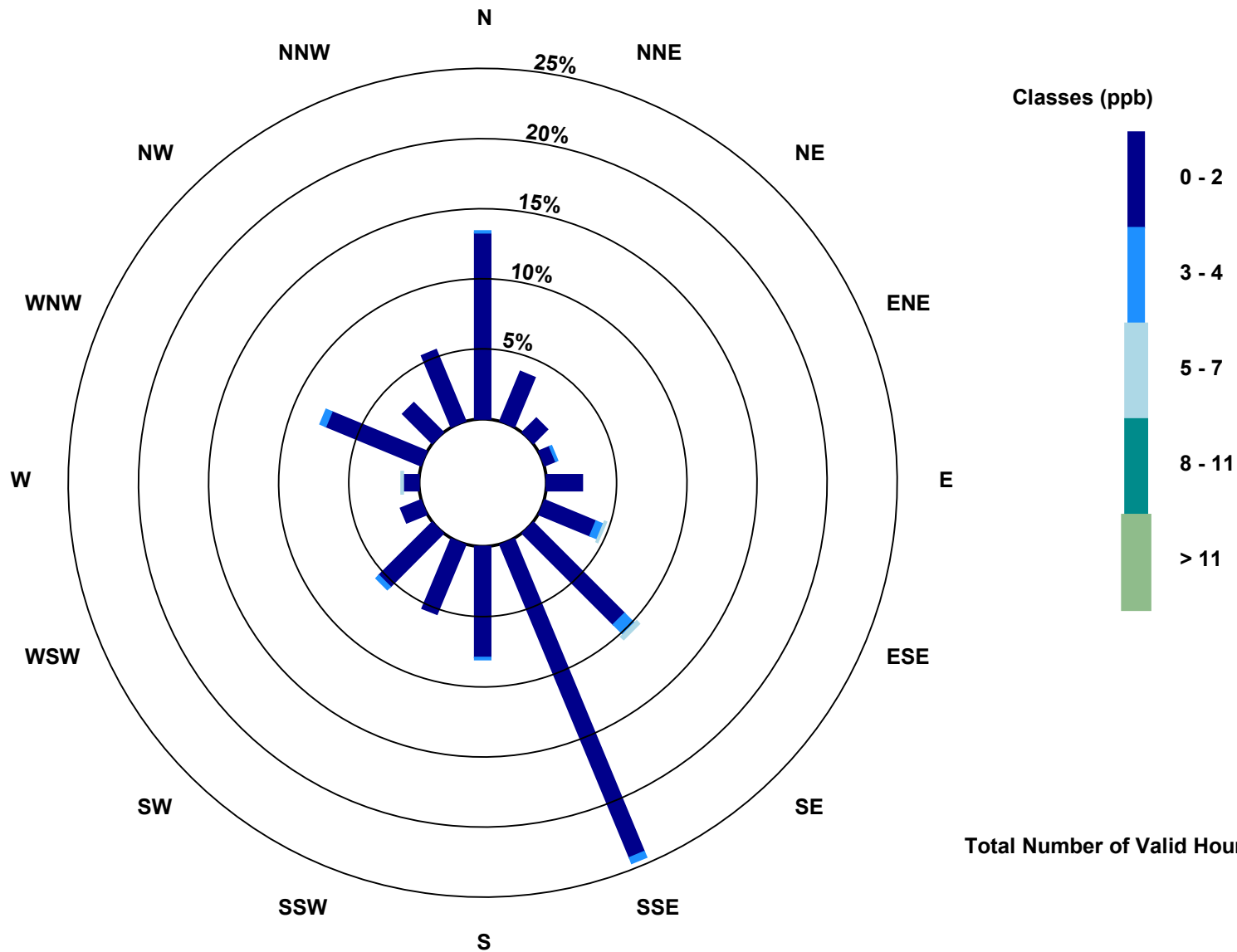
Total Number of Valid Hours: 708

Total Number of Hours: 744

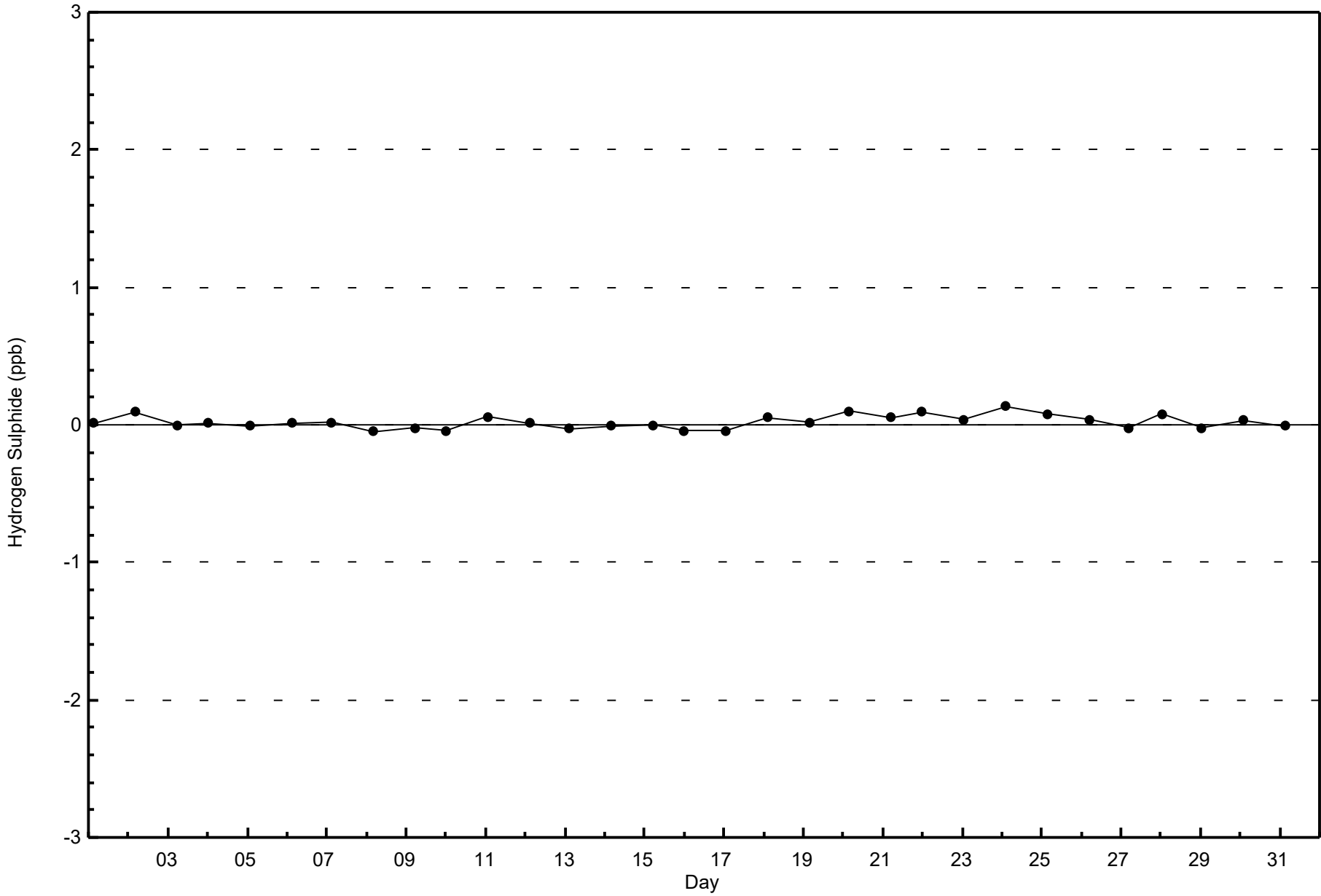


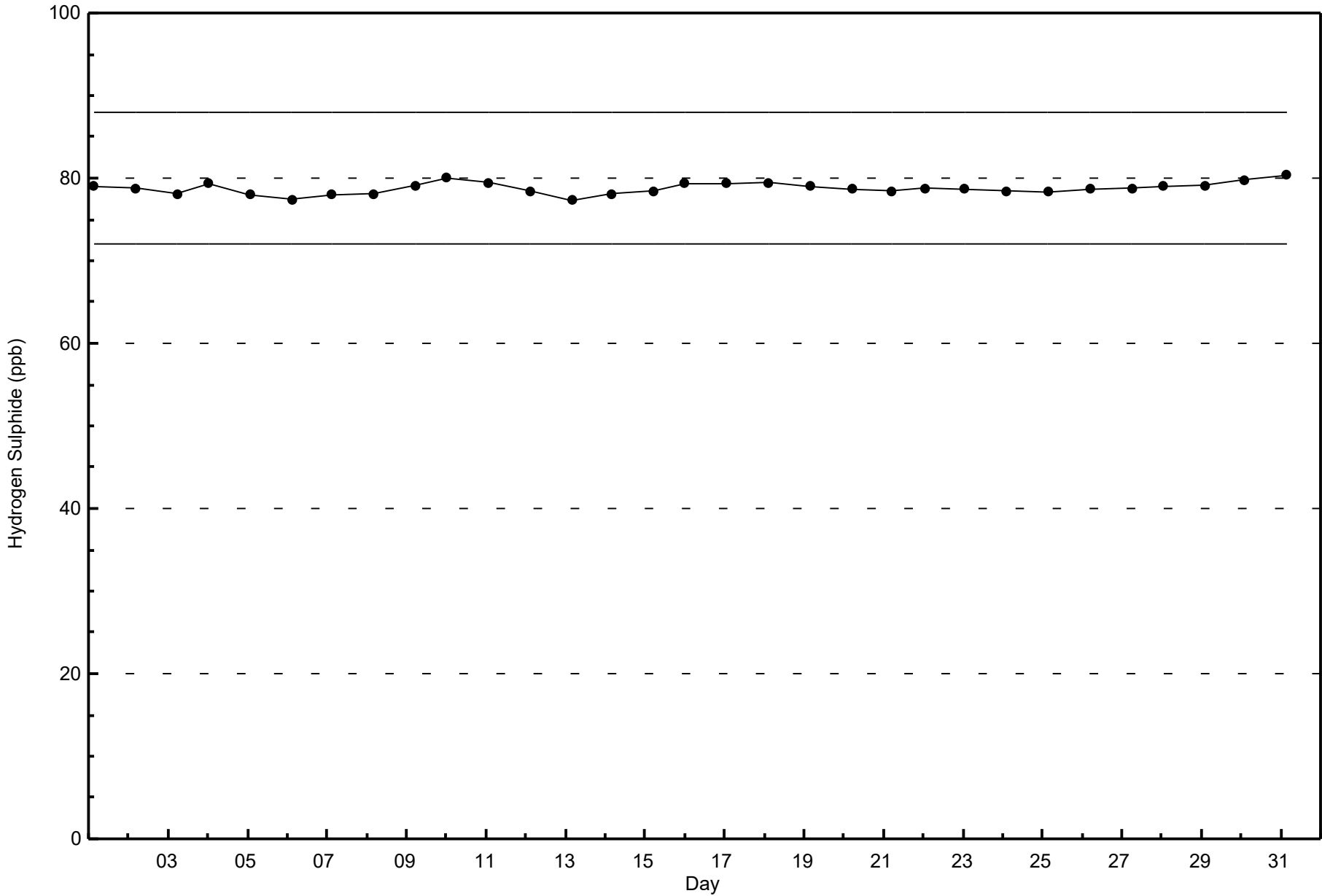
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Mildred Lake



Total Number of Valid Hours: 708







Wood Buffalo Environmental Association
Summary of Hour Averages

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

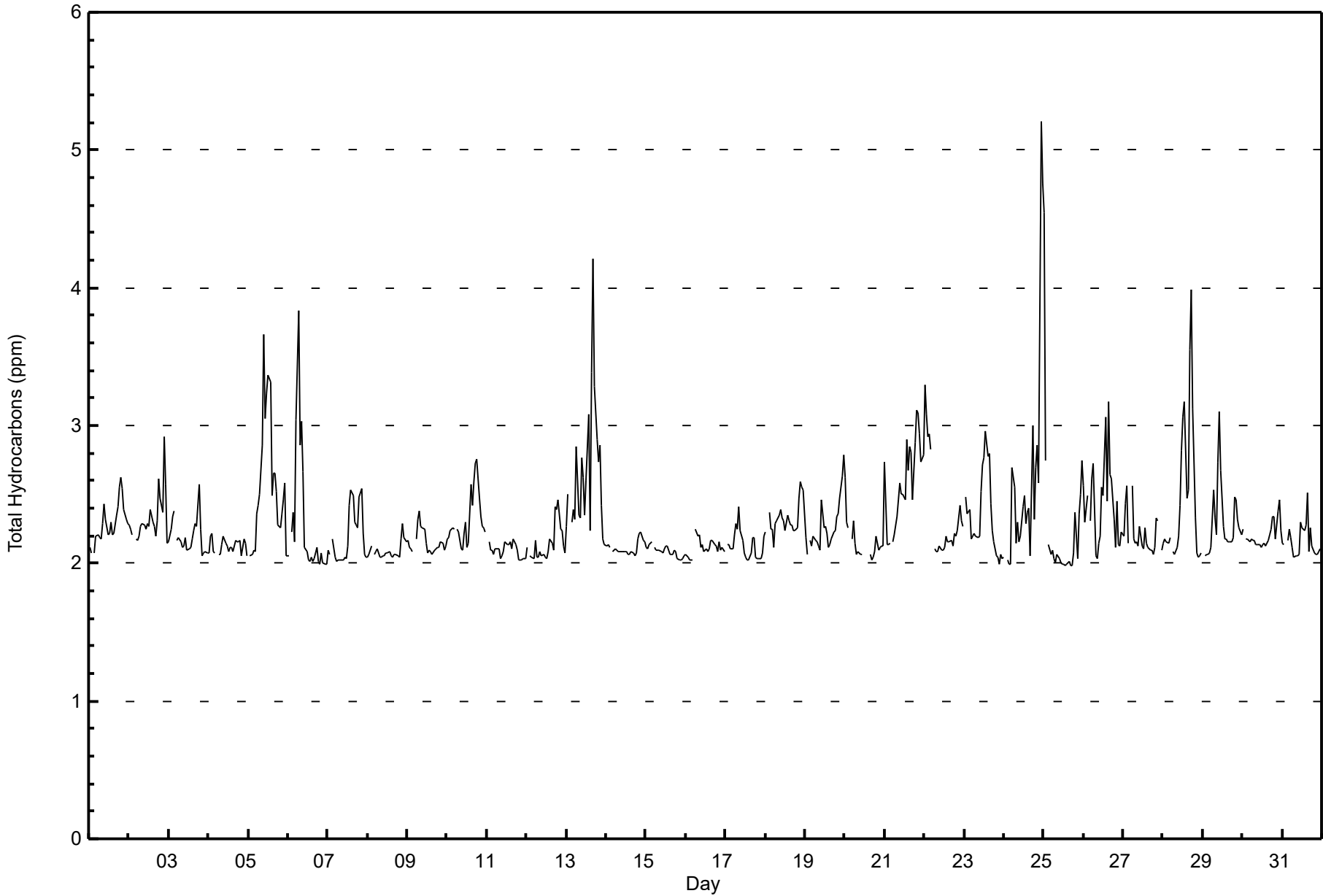
Maximum Value: 5.2 ppm on Dec 24 23:00		Maximum Daily Average: 2.7 ppm on Dec 13		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Dec 25 18:00		Minimum Daily Average: 2.1 ppm on Dec 15		Hours of Data: 708																						
Maximum Diurnal Average: 2.4 ppm at hour 18		Minimum Diurnal Average: 2.2 ppm at hour 5		Hours of Missing Data: 36																						
Monthly Average: 2.28 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.3 P ₉₀ = 2.6 P ₉₉ = 3.5		Hours of Calibration: 35																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.4	2.5	2.6	2.5	2.4	2.3	2.3	2.3	2.6
2-Dec	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.3	2.3	2.2	2.3	2.6	2.5	2.4	2.9	2.6	2.2	2.2	2.9
3-Dec	2.2	2.2	2.3	2.4	Z	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.6
4-Dec	2.1	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.2
5-Dec	Z	2.1	2.1	2.1	2.1	2.4	2.4	2.5	2.9	3.7	3.0	3.2	3.4	3.3	2.5	2.7	2.7	2.5	2.3	2.3	2.4	2.5	2.6	2.1	2.6	3.7
6-Dec	2.0	Z	2.2	2.4	2.2	3.0	3.8	2.9	3.0	2.7	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3	3.8
7-Dec	2.1	2.1	Z	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.5	2.5	2.3	2.3	2.3	2.5	2.5	2.2	2.1	2.0	2.2	2.5
8-Dec	2.0	2.1	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	2.0	2.1	2.1	2.1	2.0	2.2	2.3	2.2	2.2	2.1	2.3
9-Dec	2.2	2.1	2.1	2.1	Z	2.2	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.4
10-Dec	2.2	2.2	2.2	2.3	2.2	Z	2.3	2.2	2.1	2.1	2.2	2.3	2.1	2.2	2.6	2.4	2.6	2.7	2.8	2.5	2.3	2.3	2.3	2.2	2.3	2.8
11-Dec	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2
12-Dec	2.1	Z	2.1	2.0	2.0	2.2	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.4	2.4	2.5	2.2	2.2	2.1	2.1	2.1	2.5
13-Dec	2.3	2.5	Z	2.3	2.4	2.3	2.8	2.3	2.3	2.8	2.6	2.4	2.6	3.1	2.2	3.4	4.2	3.3	2.9	2.7	2.9	2.4	2.2	2.1	2.7	4.2
14-Dec	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	2.2	2.2	2.1	2.2
15-Dec	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	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2
16-Dec	2.1	2.0	2.0	2.0	2.0	Z	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3
17-Dec	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.4
18-Dec	2.2	Z	2.4	2.2	2.2	2.1	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.5	2.6	2.5	2.5	2.6
19-Dec	2.2	2.1	Z	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.5	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.8	2.3	2.8
20-Dec	2.6	2.3	2.3	Z	2.2	2.3	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.6
21-Dec	2.7	2.1	2.1	2.1	Z	2.2	2.2	2.3	2.5	2.6	2.5	2.5	2.5	2.9	2.7	2.8	2.8	2.5	2.9	3.1	3.1	2.9	2.7	2.8	2.6	3.1
22-Dec	3.3	3.1	2.9	2.9	2.8	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.4	2.3	2.3	2.4	3.3
23-Dec	Z	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.7	2.8	3.0	2.8	2.8	2.4	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.3	3.0
24-Dec	2.0	Z	2.0	2.0	2.0	2.7	2.6	2.1	2.3	2.2	2.2	2.4	2.5	2.3	2.4	2.4	2.1	3.0	2.3	2.7	2.9	2.6	5.2	4.8	2.6	5.2
25-Dec	4.5	2.7	Z	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.0	2.4	2.5	2.7	2.3	4.5
26-Dec	2.6	2.3	2.5	Z	2.3	2.6	2.7	2.1	2.0	2.1	2.2	2.6	2.5	3.1	2.5	3.2	2.6	2.6	2.3	2.1	2.5	2.1	2.1	2.2	2.4	3.2
27-Dec	2.2	2.4	2.6	2.1	Z	2.6	2.2	2.1	2.2	2.1	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	UO	2.1	2.2	2.6
28-Dec	2.2	2.2	2.2	2.1	2.2	Z	2.1	2.1	2.1	2.2	2.4	2.8	3.1	3.2	2.5	2.5	3.6	4.0	3.1	2.3	2.1	2.0	2.1	2.1	2.5	4.0
29-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.5	2.3	2.2	2.7	3.1	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.5	2.3	2.3	2.2	2.3	3.1
30-Dec	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	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.4	2.5	2.2	2.5
31-Dec	2.1	2.1	Z	2.2	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.3	2.3	2.2	2.3	2.5	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5
																								Diurnal Average		
																								Diurnal Maximum		
																								2.3 4.5		
																								2.2 3.1		
																								2.2 2.9		
																								2.2 2.9		
																								2.2 2.8		
																								2.3 3.0		
																								3.8 2.9		
																								3.0 3.0		
																								3.7 3.1		
																								3.1 3.2		
																								3.4 3.4		
																								3.3 2.8		
																								3.1 3.4		
																								4.2 4.0		
																								2.3 4.0		
																								2.4 3.1		
																								2.3 3.1		
																								2.3 2.9		
																								2.3 5.2		
																								2.3 4.8		

Z - zerospan C - Calibration UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	77	10.88	10.88
2.1 - 3.0	607	85.73	96.61
3.1 - 10.0	24	3.39	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
Mildred Lake - December 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	4	2	1	0	2	5	14	7	7	21	6	1	0	0	0	77
2.1 - 3.0	88	23	8	5	15	30	65	148	50	29	19	4	10	55	20	37	606
3.1 - 10.0	2	0	1	1	3	0	3	8	0	0	1	1	0	0	3	1	24
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	97	27	11	7	18	32	73	170	57	36	41	11	11	55	23	38	707

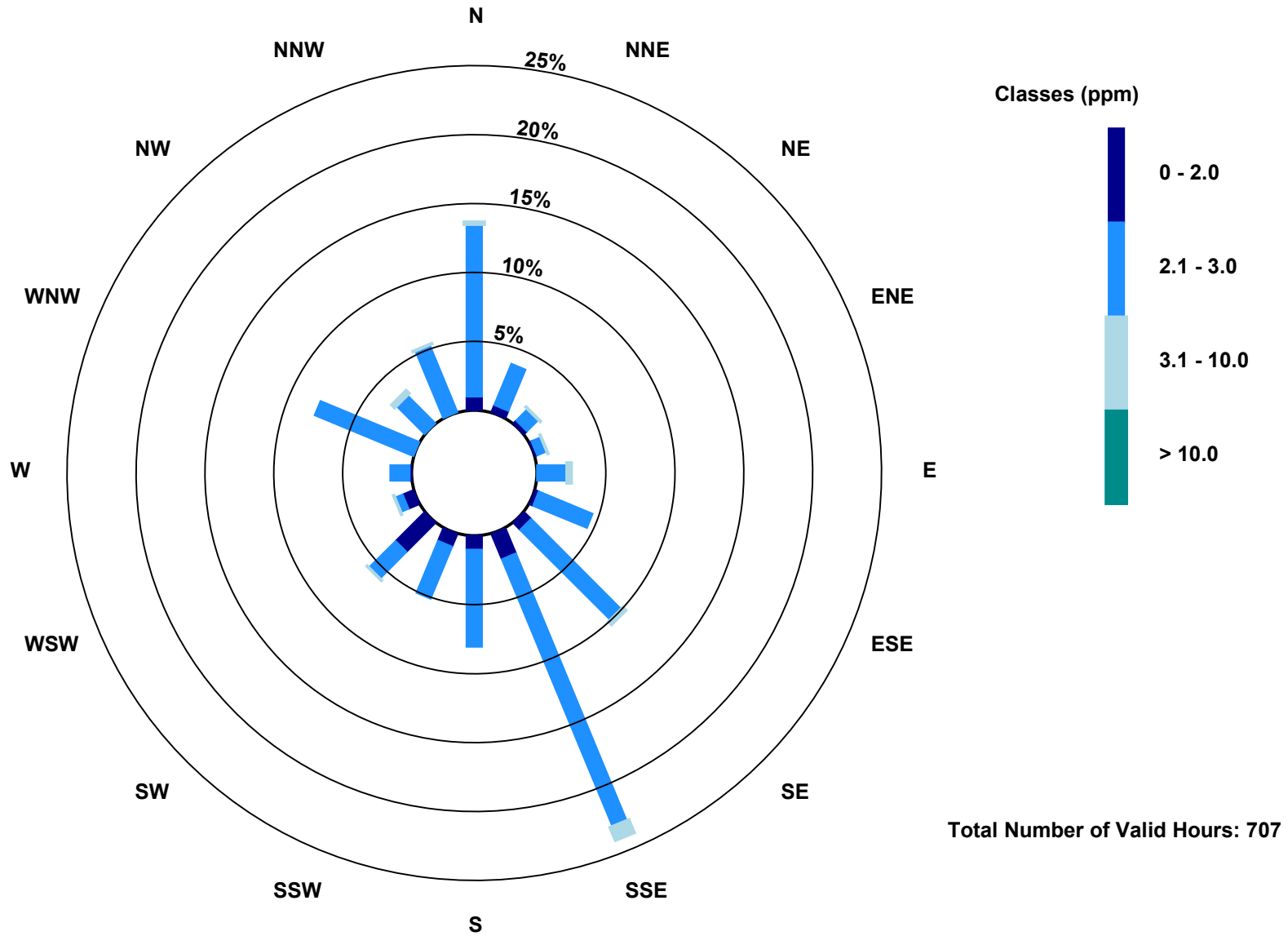
Total Number of Valid Hours: 707

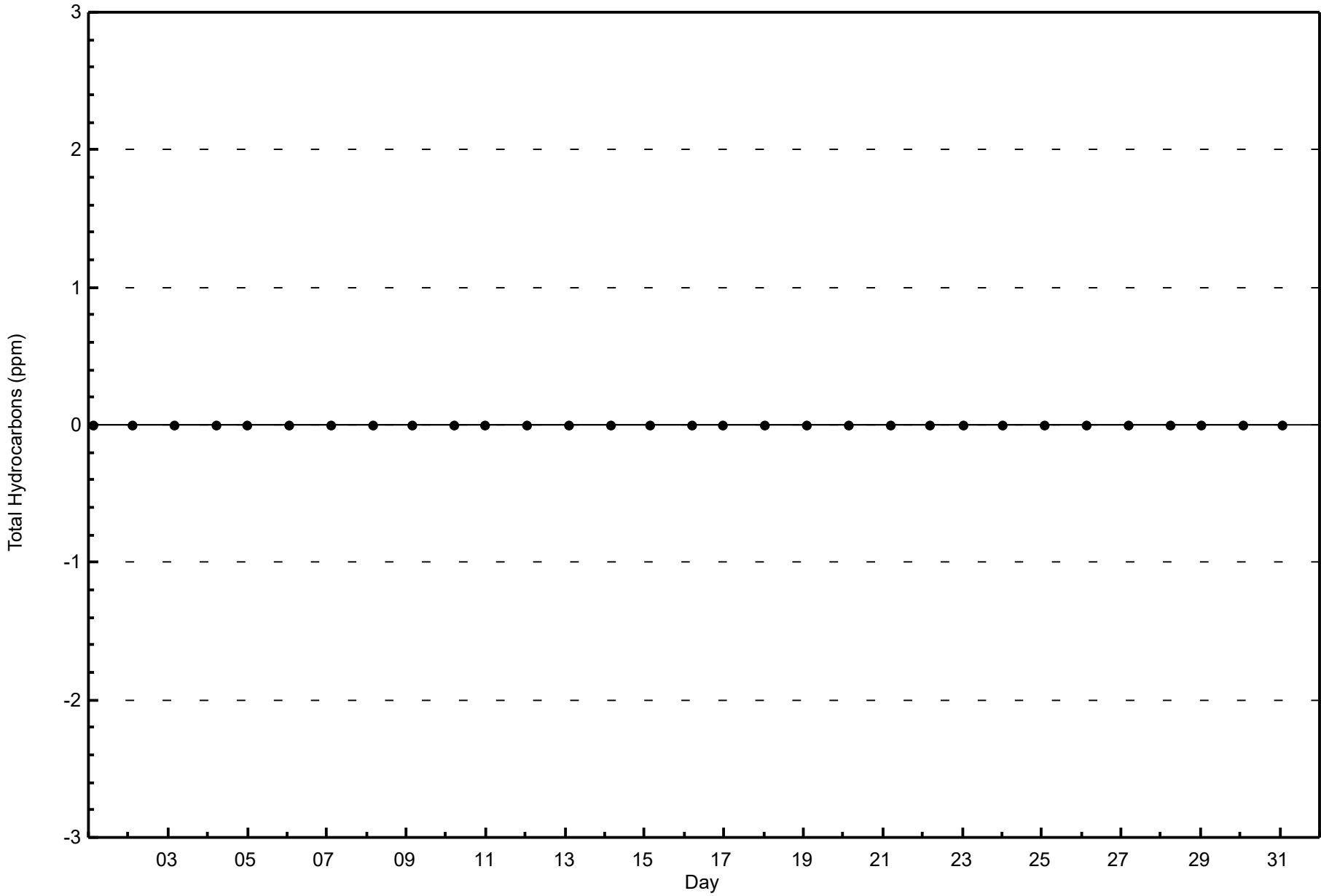
Total Number of Hours: 744

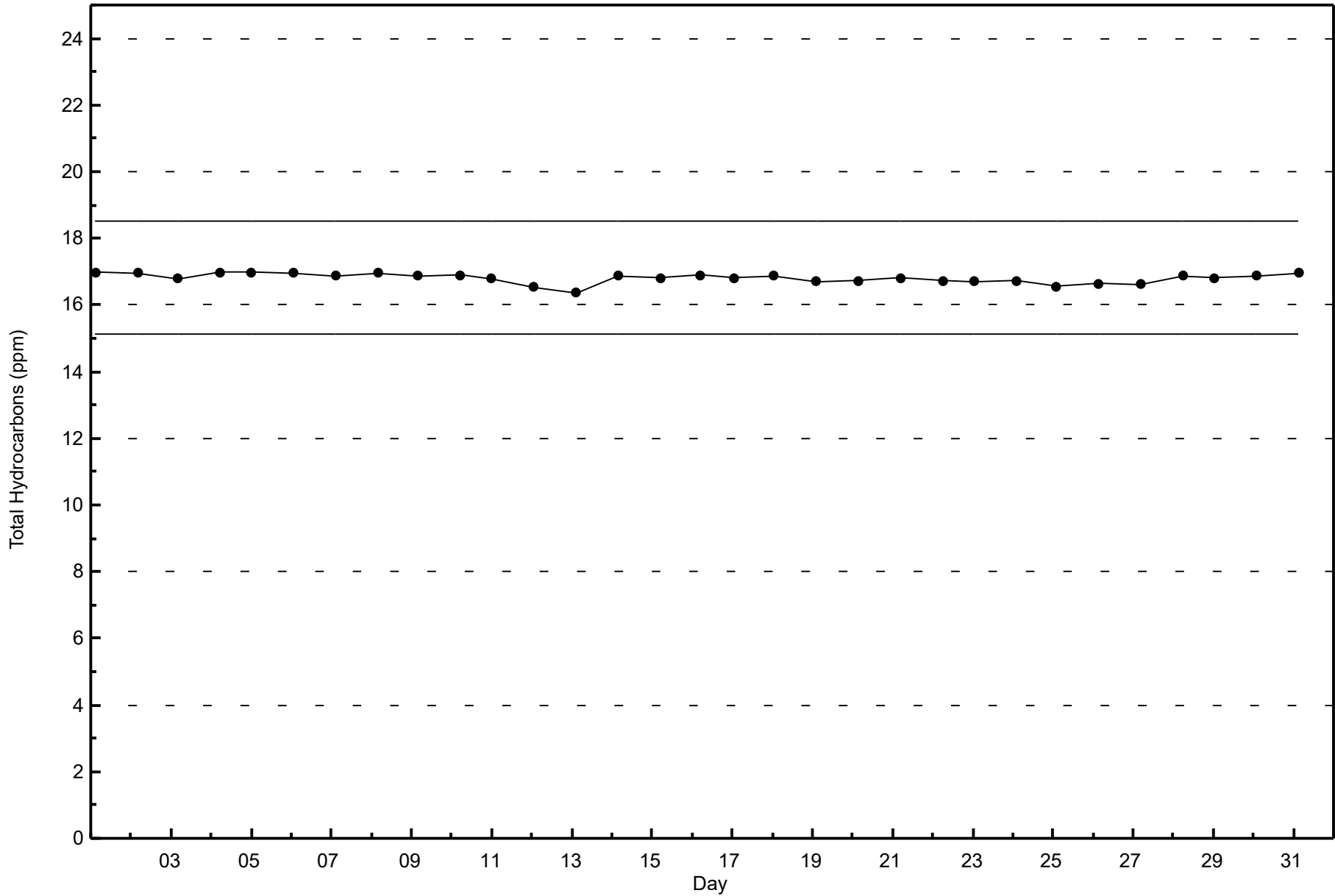


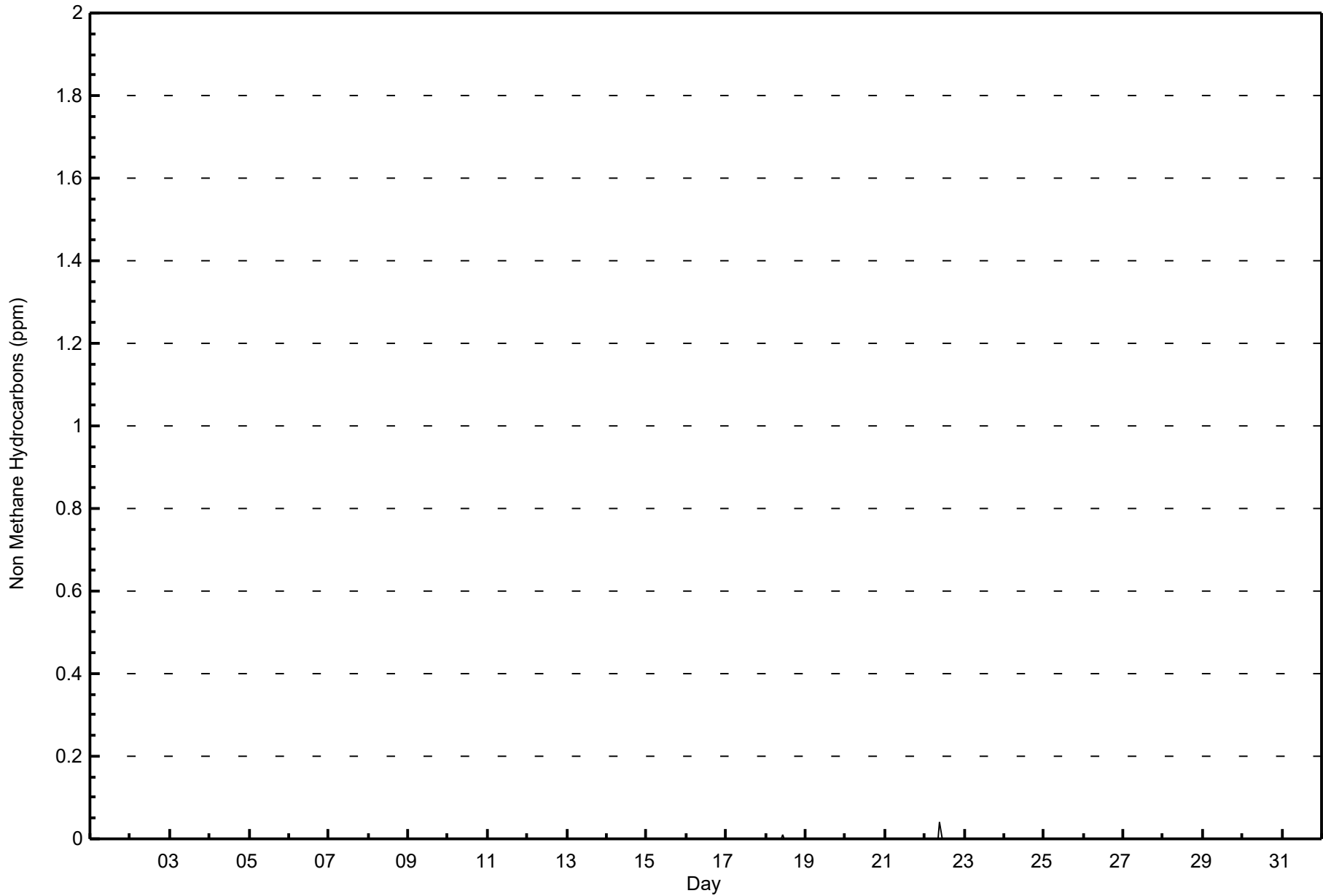
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Mildred Lake











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

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

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Mildred Lake - December 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	96	27	11	7	18	32	73	170	56	36	41	11	11	55	23	38	705
0.006 - 0.05	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
0.06 - 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	97	27	11	7	18	32	73	170	57	36	41	11	11	55	23	38	707

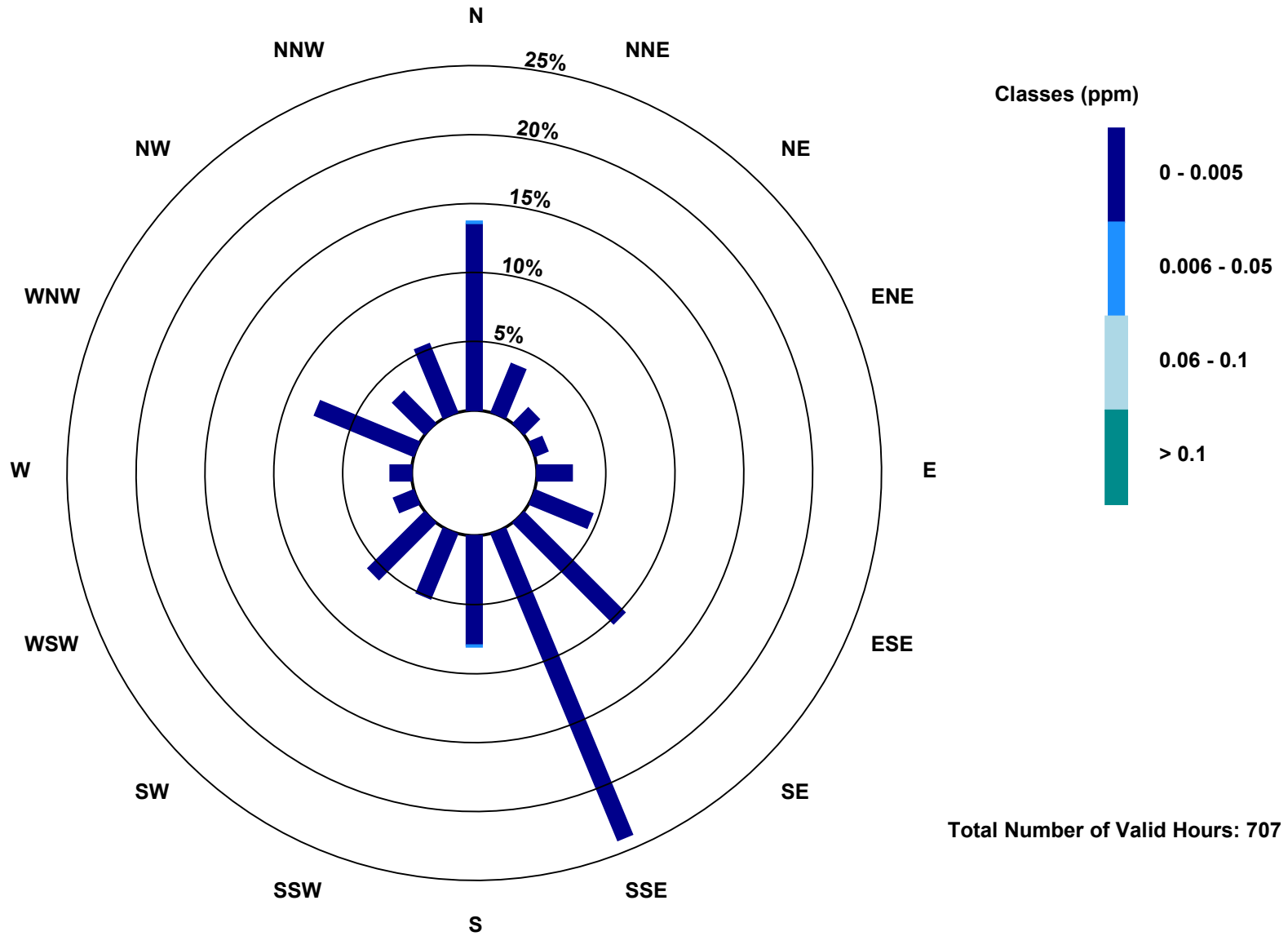
Total Number of Valid Hours: 707

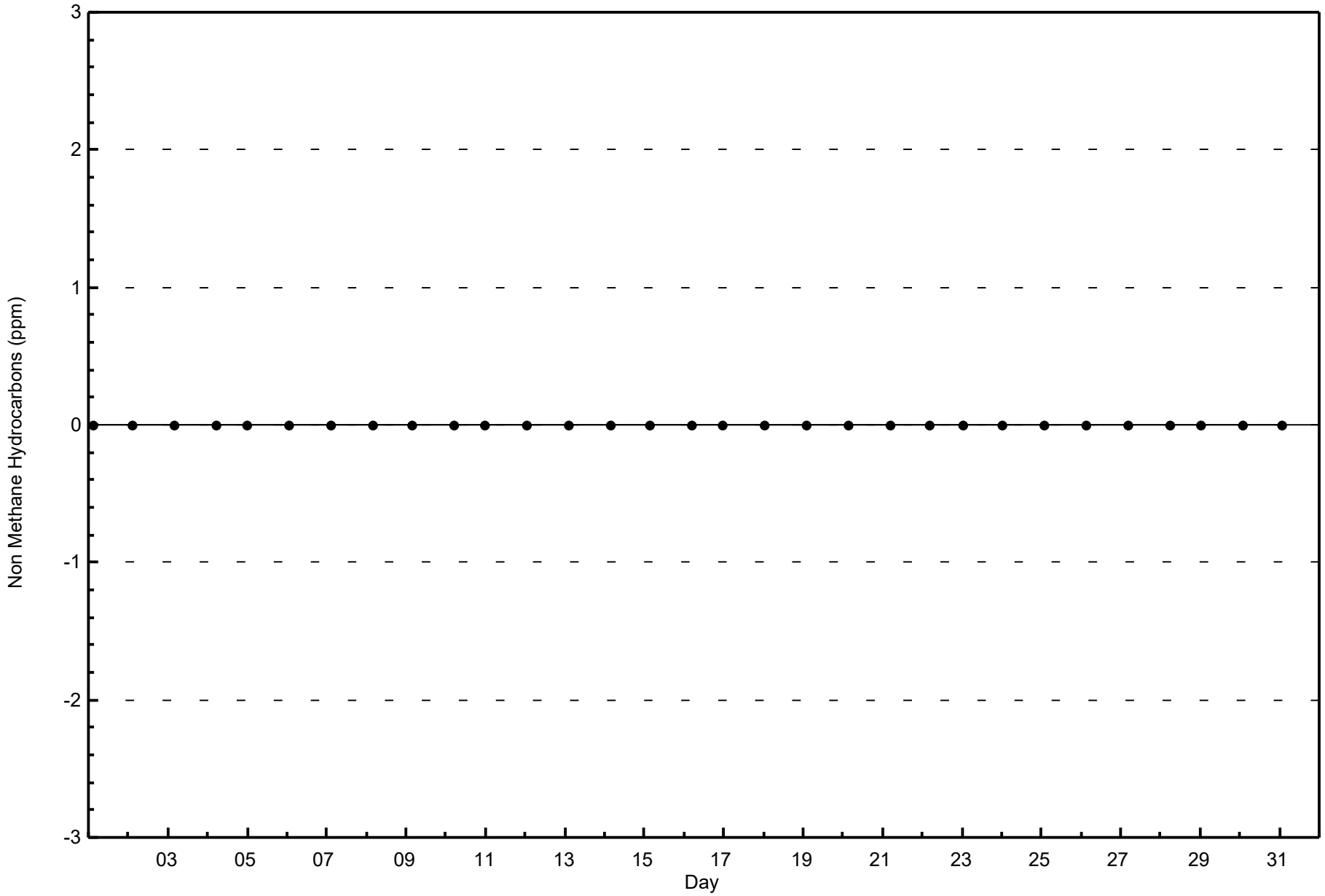
Total Number of Hours: 744

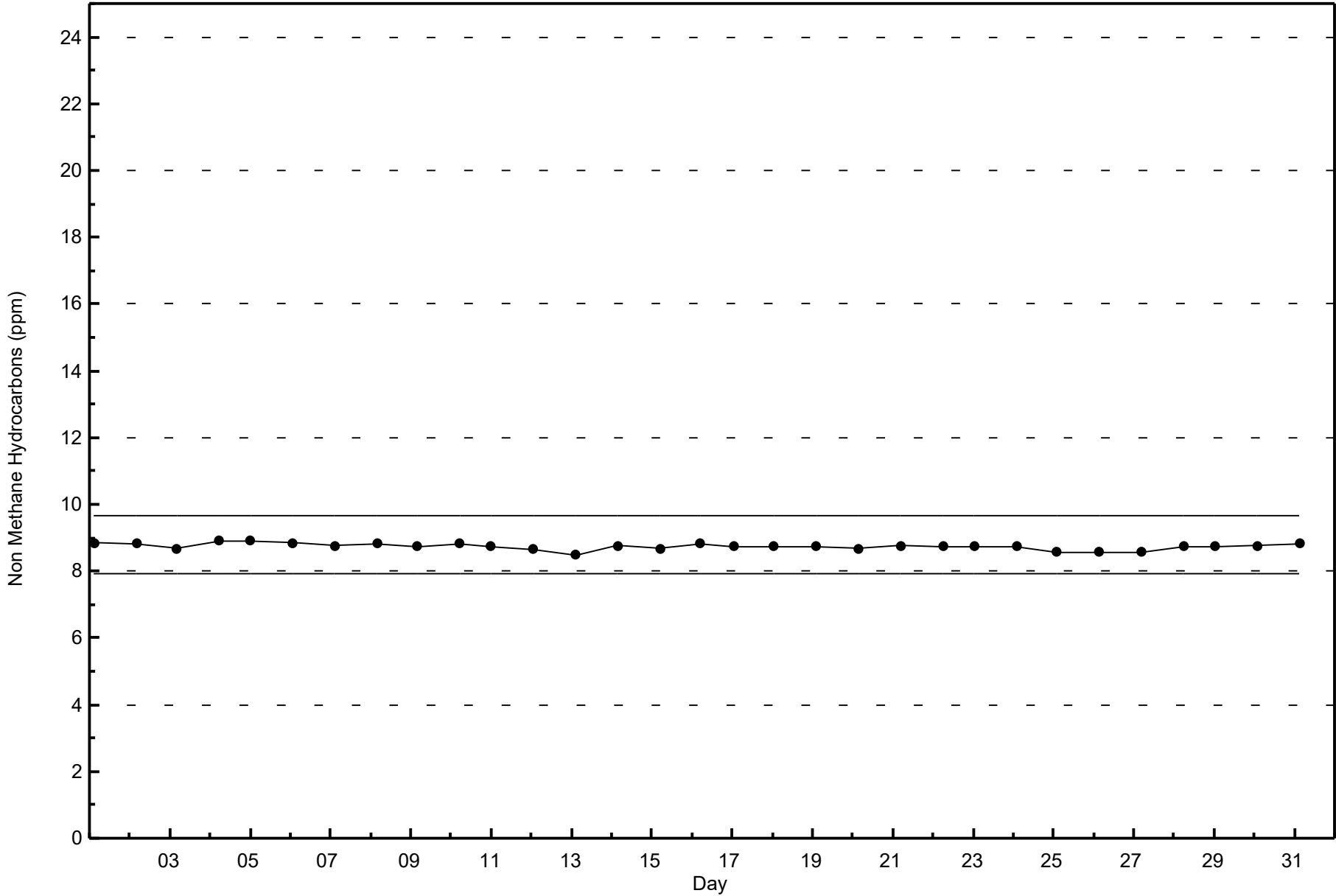


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Mildred Lake









Wood Buffalo Environmental Association

Summary of Hour Averages

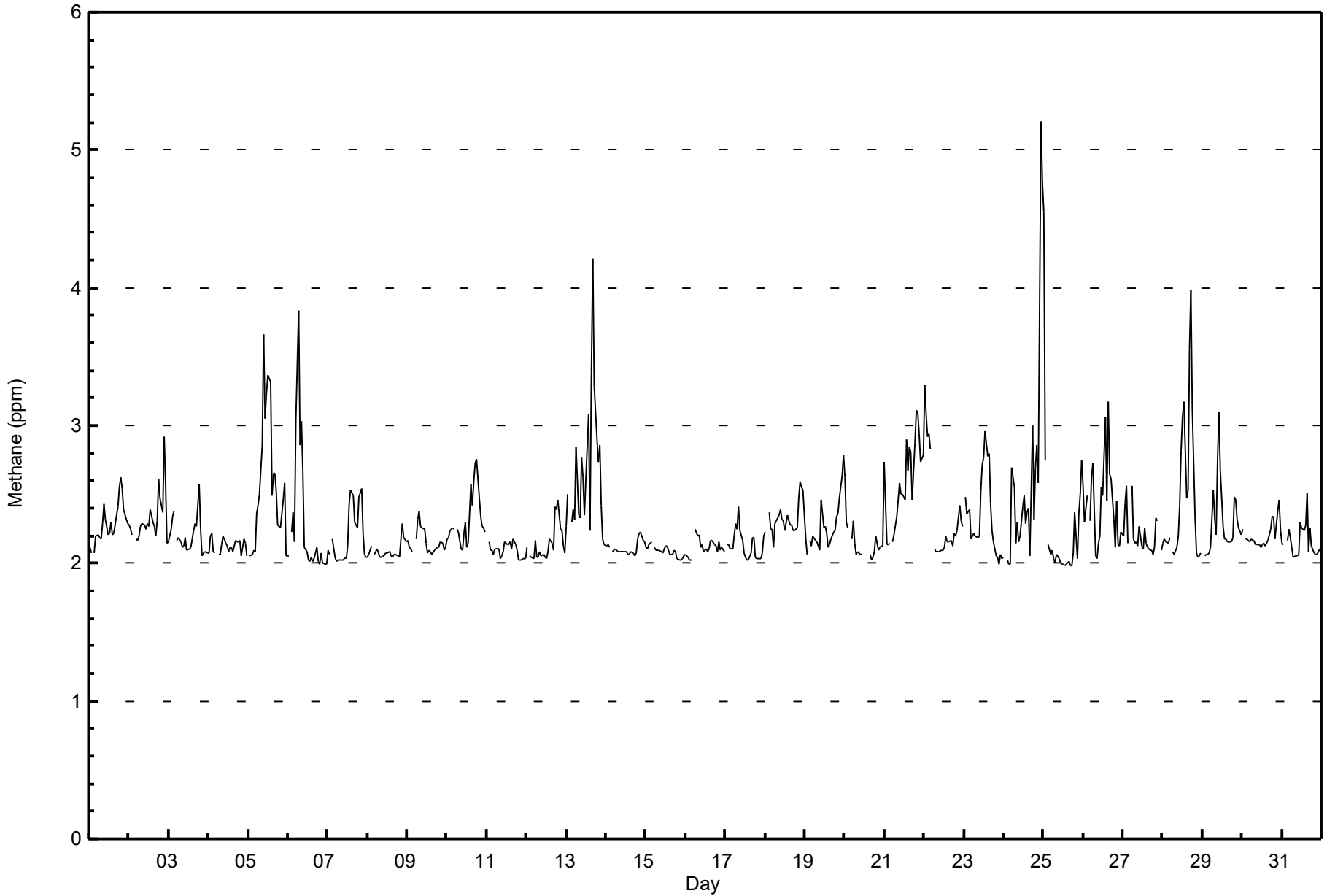
Methane (CH₄) - ppm Mildred Lake - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																									
Maximum Value: 5.2 ppm on Dec 24 23:00		Maximum Daily Average: 2.7 ppm on Dec 13																	Hours of Data:	708																											
Minimum Value: 2.0 ppm on Dec 25 18:00		Minimum Daily Average: 2.1 ppm on Dec 15																	Hours of Missing Data:	36																											
Maximum Diurnal Average: 2.4 ppm at hour 18		Minimum Diurnal Average: 2.2 ppm at hour 5																	Hours of Calibration:	35																											
Monthly Average: 2.28 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.3 P ₉₀ = 2.6 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-Dec	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.4	2.5	2.6	2.5	2.4	2.3	2.3	2.3	2.6																					
2-Dec	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.3	2.3	2.2	2.3	2.6	2.5	2.4	2.9	2.6	2.2	2.2	2.9																					
3-Dec	2.2	2.2	2.3	2.4	Z	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.6																					
4-Dec	2.1	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.2																					
5-Dec	Z	2.1	2.1	2.1	2.1	2.4	2.4	2.5	2.9	3.7	3.0	3.2	3.4	3.3	2.5	2.7	2.7	2.5	2.3	2.3	2.4	2.5	2.6	2.1	2.6	3.7																					
6-Dec	2.0	Z	2.2	2.4	2.2	3.0	3.8	2.9	3.0	2.7	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.3	3.8																					
7-Dec	2.1	2.1	Z	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.5	2.5	2.3	2.3	2.3	2.5	2.5	2.2	2.1	2.0	2.2	2.5																					
8-Dec	2.0	2.1	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	2.0	2.1	2.1	2.1	2.0	2.2	2.3	2.2	2.2	2.1	2.3																					
9-Dec	2.2	2.1	2.1	2.1	Z	2.2	2.3	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.4																					
10-Dec	2.2	2.2	2.2	2.3	2.2	Z	2.3	2.2	2.1	2.1	2.2	2.3	2.1	2.2	2.6	2.4	2.6	2.7	2.8	2.5	2.3	2.3	2.3	2.2	2.3	2.8																					
11-Dec	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.1	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2																					
12-Dec	2.1	Z	2.1	2.0	2.0	2.2	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.4	2.4	2.5	2.2	2.2	2.1	2.1	2.1	2.5																					
13-Dec	2.3	2.5	Z	2.3	2.4	2.3	2.8	2.3	2.3	2.8	2.6	2.4	2.6	3.1	2.2	3.4	4.2	3.3	2.9	2.7	2.9	2.4	2.2	2.1	2.7	4.2																					
14-Dec	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	2.2	2.2	2.1	2.2																					
15-Dec	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	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2																					
16-Dec	2.1	2.0	2.0	2.0	2.0	Z	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.3																					
17-Dec	Z	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.0	2.0	2.0	2.1	2.2	2.1	2.4																					
18-Dec	2.2	Z	2.4	2.2	2.2	2.1	2.3	2.3	2.3	2.4	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.5	2.6	2.5	2.5	2.6																					
19-Dec	2.2	2.1	Z	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.5	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.6	2.8	2.3	2.8																					
20-Dec	2.6	2.3	2.3	Z	2.2	2.3	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.6																					
21-Dec	2.7	2.1	2.1	2.1	Z	2.2	2.2	2.3	2.5	2.6	2.5	2.5	2.5	2.9	2.7	2.8	2.8	2.5	2.9	3.1	3.1	2.9	2.7	2.8	2.6	3.1																					
22-Dec	3.3	3.1	2.9	2.9	2.8	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.4	2.3	2.3	2.4	3.3																					
23-Dec	Z	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.7	2.8	3.0	2.8	2.8	2.4	2.2	2.2	2.1	2.0	2.0	2.1	2.0	2.3	3.0																					
24-Dec	2.0	Z	2.0	2.0	2.0	2.7	2.6	2.1	2.3	2.2	2.2	2.4	2.5	2.3	2.4	2.4	2.1	3.0	2.3	2.7	2.9	2.6	5.2	4.8	2.6	5.2																					
25-Dec	4.5	2.7	Z	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.4	2.0	2.4	2.5	2.7	2.3	4.5																					
26-Dec	2.6	2.3	2.5	Z	2.3	2.6	2.7	2.1	2.0	2.1	2.2	2.6	2.5	3.1	2.5	3.2	2.6	2.6	2.3	2.1	2.5	2.1	2.1	2.2	2.4	3.2																					
27-Dec	2.2	2.4	2.6	2.1	Z	2.6	2.2	2.1	2.2	2.1	2.3	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	UO	2.1	2.2	2.6																					
28-Dec	2.2	2.2	2.2	2.1	2.2	Z	2.1	2.1	2.1	2.2	2.4	2.8	3.1	3.2	2.5	2.5	3.6	4.0	3.1	2.3	2.1	2.0	2.1	2.1	2.5	4.0																					
29-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.5	2.3	2.2	2.7	3.1	2.7	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.5	2.3	2.3	2.2	2.3	3.1																					
30-Dec	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	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.4	2.5	2.2	2.5																					
31-Dec	2.1	2.1	Z	2.2	2.2	2.2	2.1	2.0	2.1	2.1	2.1	2.3	2.3	2.2	2.3	2.5	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5																					
	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	Diurnal Average																					
	4.5	3.1	2.9	2.9	2.8	3.0	3.8	2.9	3.0	3.7	3.1	3.2	3.4	3.3	2.8	3.4	4.2	4.0	3.1	3.1	3.1	2.9	5.2	4.8	Diurnal Maximum																						
Z	-		zerospans			C							-							Calibration							UO							-							Unstable Operation						



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Mildred Lake - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	77	10.88	10.88
2.1 - 3.0	607	85.73	96.61
3.1 - 10.0	24	3.39	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
Mildred Lake - December 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	4	2	1	0	2	5	14	7	7	21	6	1	0	0	0	77
2.1 - 3.0	88	23	8	5	15	30	65	148	50	29	19	4	10	55	20	37	606
3.1 - 10.0	2	0	1	1	3	0	3	8	0	0	1	1	0	0	3	1	24
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	97	27	11	7	18	32	73	170	57	36	41	11	11	55	23	38	707

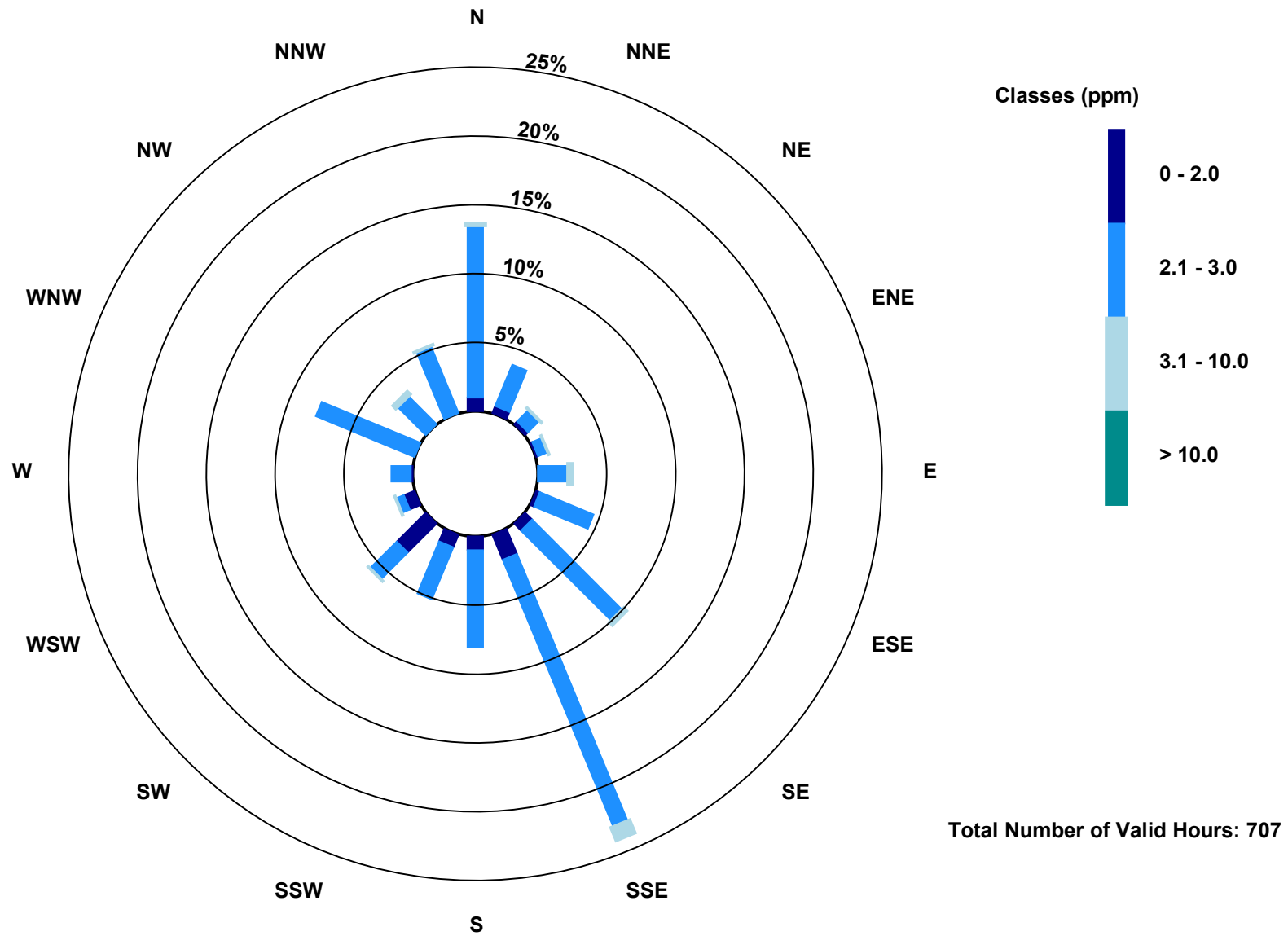
Total Number of Valid Hours: 707

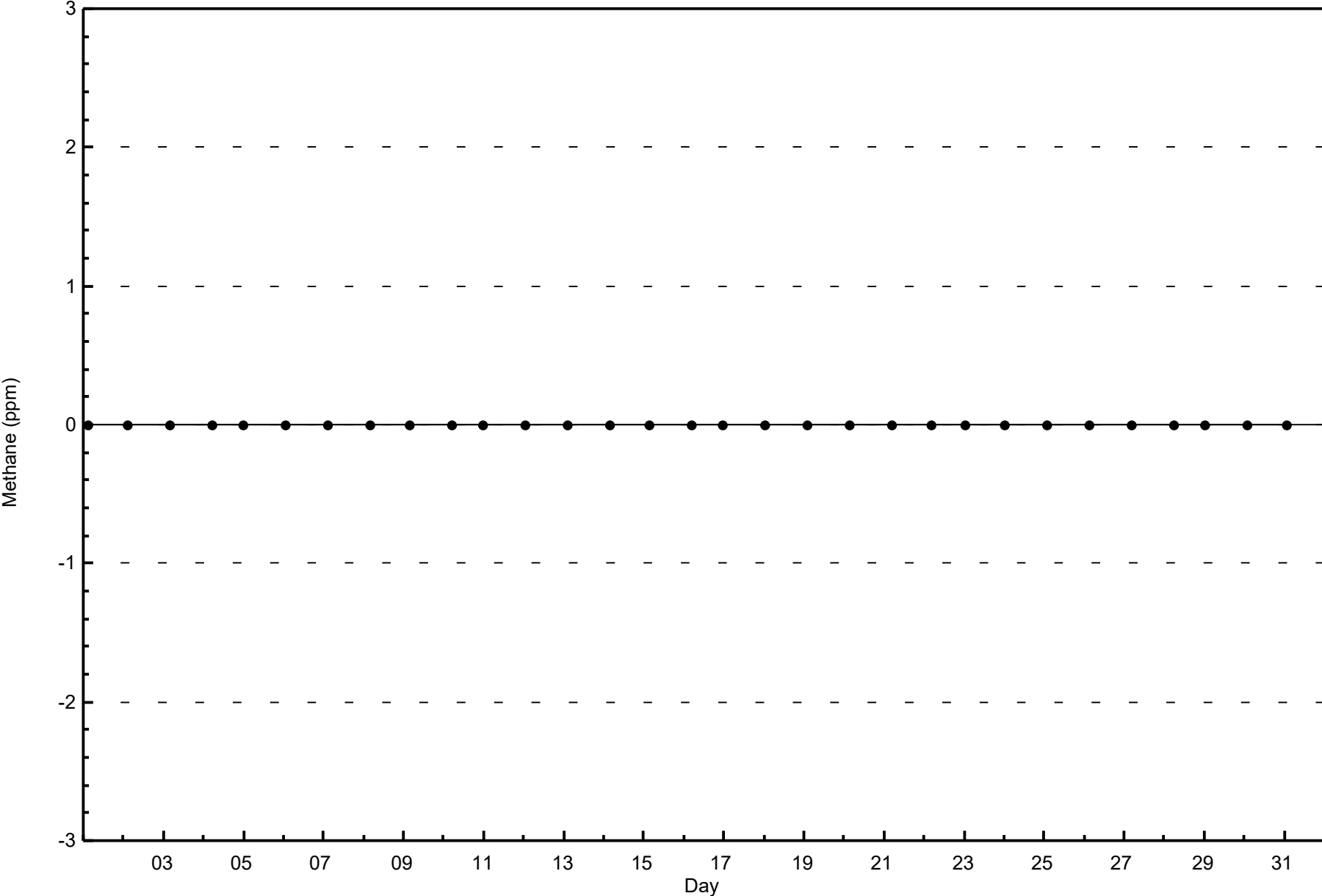
Total Number of Hours: 744

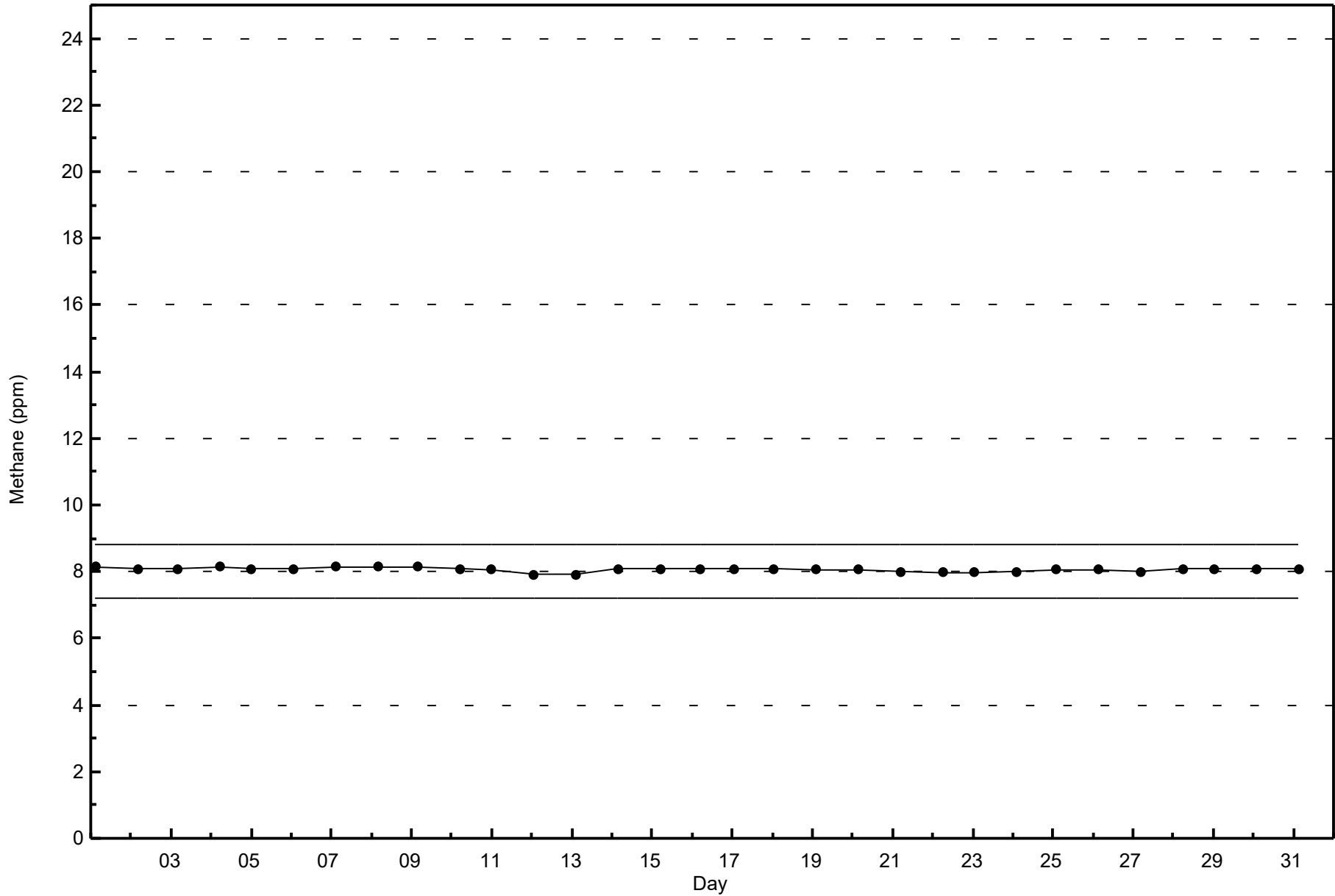


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Mildred Lake









Wood Buffalo Environmental Association
Summary of Hour Averages

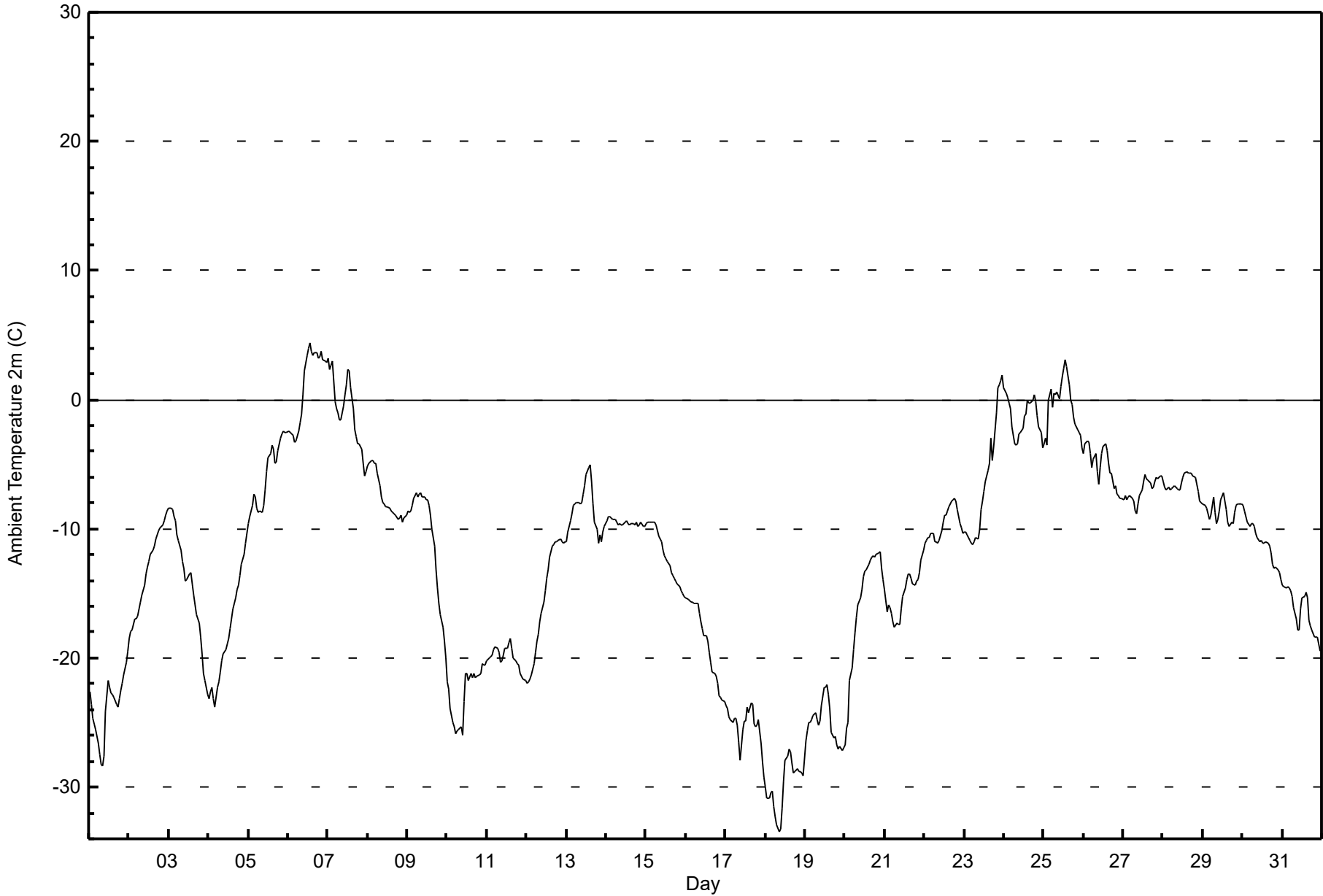
Ambient Temperature 2m (AT2) - C
Mildred Lake - December 2024

Maximum Value: 4.4 C on Dec 6 14:00		Maximum Daily Average: 1.1 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -33.4 C on Dec 18 09:00		Minimum Daily Average: -29.9 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -11.1 C at hour 15		Minimum Diurnal Average: -13.3 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -12.38 C		Percentiles: P ₁ = -30.6 P ₁₀ = -24.6 Q ₁ = -18.7 Median = -10.8 Q ₃ = -7.0 P ₉₀ = -2.4 P ₉₉ = 3.4		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-Dec	-22.6	-23.6	-24.6	-25.1	-25.6	-26.7	-27.5	-28.2	-28.4	-27.6	-24.1	-21.7	-22.3	-22.7	-22.8	-23.1	-23.6	-23.8	-23.1	-22.5	-21.9	-21.3	-20.3	-19.5	-23.9	-19.5																						
2-Dec	-18.5	-18.0	-17.9	-17.0	-17.0	-16.8	-16.2	-15.7	-15.1	-14.4	-13.5	-12.9	-12.5	-12.0	-11.6	-11.3	-10.8	-10.4	-10.1	-9.9	-9.7	-9.4	-9.0	-8.7	-13.3	-8.7																						
3-Dec	-8.4	-8.4	-8.5	-9.0	-9.3	-10.5	-10.9	-11.6	-12.5	-13.1	-14.0	-14.0	-13.5	-13.4	-14.2	-15.1	-15.9	-16.7	-17.3	-18.4	-19.7	-21.2	-21.7	-22.8	-14.2	-8.4																						
4-Dec	-23.1	-22.7	-22.3	-23.1	-23.8	-22.3	-21.8	-21.1	-20.2	-19.7	-19.3	-18.9	-18.5	-17.7	-16.9	-16.3	-15.4	-14.7	-14.3	-13.6	-12.8	-12.0	-11.1	-10.3	-18.0	-10.3																						
5-Dec	-9.6	-9.0	-8.1	-7.4	-7.5	-8.4	-8.7	-8.6	-8.8	-8.2	-7.0	-5.5	-4.5	-4.2	-3.6	-3.9	-4.9	-4.8	-4.0	-3.0	-2.6	-2.4	-2.5	-2.6	-5.8	-2.4																						
6-Dec	-2.4	-2.6	-2.6	-2.7	-3.3	-3.2	-2.5	-1.8	-1.2	0.4	2.3	3.4	3.9	4.4	3.8	3.5	3.7	3.7	3.2	3.3	3.8	3.1	3.0	2.9	1.1	4.4																						
7-Dec	3.2	2.4	2.7	3.0	-0.1	-0.6	-1.1	-1.5	-1.5	-0.5	0.4	1.2	2.3	2.2	0.9	-0.7	-2.4	-2.9	-3.4	-3.4	-3.8	-4.9	-5.9	-5.6	-0.8	3.2																						
8-Dec	-5.1	-4.9	-4.8	-4.7	-4.9	-4.9	-5.7	-6.7	-7.6	-8.0	-8.1	-8.3	-8.3	-8.4	-8.6	-8.8	-8.8	-8.9	-9.3	-9.2	-8.9	-9.5	-9.2	-9.0	-7.5	-4.7																						
9-Dec	-8.6	-8.7	-8.6	-8.2	-7.6	-7.3	-7.5	-7.3	-7.2	-7.6	-7.5	-7.8	-7.8	-8.1	-8.9	-10.0	-11.4	-13.1	-14.6	-15.8	-16.6	-17.6	-18.7	-20.0	-10.7	-7.2																						
10-Dec	-21.9	-22.4	-24.0	-25.0	-25.3	-25.9	-25.7	-25.5	-25.4	-26.0	-23.4	-21.2	-21.2	-21.7	-21.1	-21.5	-21.2	-21.5	-21.4	-21.3	-21.2	-20.4	-20.6	-20.6	-22.7	-20.4																						
11-Dec	-20.2	-20.0	-19.9	-19.7	-19.4	-19.1	-19.3	-19.6	-20.3	-20.2	-19.8	-19.3	-19.2	-18.8	-18.4	-19.3	-20.1	-20.2	-20.4	-20.5	-21.1	-21.5	-21.7	-21.8	-20.0	-18.4																						
12-Dec	-22.0	-21.8	-21.6	-21.3	-20.5	-19.5	-18.7	-18.1	-17.2	-16.5	-15.7	-14.8	-13.8	-13.2	-12.2	-11.3	-11.2	-11.0	-11.0	-10.9	-10.8	-11.0	-11.1	-11.0	-15.3	-10.8																						
13-Dec	-11.0	-10.3	-9.4	-8.9	-8.2	-8.1	-8.0	-8.0	-8.1	-7.9	-7.3	-6.6	-5.8	-5.3	-5.0	-6.4	-8.1	-9.5	-10.0	-11.1	-10.5	-11.0	-10.3	-9.8	-8.5	-5.0																						
14-Dec	-9.4	-9.1	-9.0	-9.2	-9.3	-9.3	-9.4	-9.7	-9.6	-9.7	-9.7	-9.5	-9.4	-9.6	-9.7	-9.6	-9.6	-9.7	-9.5	-9.8	-9.7	-9.5	-9.9	-9.8	-9.5	-9.0																						
15-Dec	-9.6	-9.5	-9.5	-9.5	-9.5	-9.5	-9.7	-10.1	-10.6	-11.0	-11.7	-12.1	-12.3	-12.5	-12.9	-13.3	-13.7	-13.8	-14.0	-14.3	-14.5	-14.8	-15.0	-15.2	-12.0	-9.5																						
16-Dec	-15.4	-15.4	-15.6	-15.7	-15.7	-15.8	-15.7	-15.8	-16.5	-17.2	-17.8	-18.3	-18.3	-18.7	-19.6	-20.3	-21.1	-21.2	-21.4	-21.9	-22.9	-23.0	-23.3	-23.4	-18.7	-15.4																						
17-Dec	-23.7	-23.9	-24.6	-24.7	-25.0	-24.6	-24.7	-25.2	-26.5	-27.9	-25.5	-24.9	-24.9	-23.8	-24.2	-23.5	-23.6	-25.1	-25.3	-25.2	-24.7	-26.7	-28.1	-29.2	-25.2	-23.5																						
18-Dec	-30.0	-30.8	-30.9	-30.4	-30.3	-31.5	-32.2	-32.9	-33.4	-33.2	-31.6	-29.5	-27.9	-27.6	-27.1	-27.3	-28.2	-28.8	-28.8	-28.5	-28.8	-28.8	-28.9	-29.1	-29.9	-27.1																						
19-Dec	-26.4	-25.6	-25.0	-25.0	-24.7	-24.5	-24.3	-24.8	-25.2	-24.9	-23.7	-22.2	-22.3	-22.0	-22.8	-23.9	-25.8	-26.2	-26.0	-26.7	-27.1	-26.8	-27.1	-26.9	-25.0	-22.0																						
20-Dec	-26.7	-25.5	-25.0	-21.8	-20.7	-19.3	-18.0	-16.9	-15.9	-15.4	-14.7	-13.7	-13.3	-13.1	-12.7	-12.4	-12.2	-12.1	-12.2	-12.0	-11.9	-11.8	-13.1	-13.9	-16.0	-11.8																						
21-Dec	-14.7	-16.4	-15.9	-16.1	-16.5	-17.1	-17.6	-17.3	-17.4	-17.4	-16.2	-15.3	-14.6	-13.9	-13.5	-13.5	-13.8	-14.3	-14.3	-14.1	-14.0	-13.4	-12.4	-11.7	-15.1	-11.7																						
22-Dec	-11.1	-10.8	-10.7	-10.7	-10.4	-10.3	-11.0	-11.0	-11.1	-10.9	-10.1	-9.5	-8.9	-8.9	-8.7	-8.3	-7.9	-7.7	-7.6	-7.9	-8.5	-9.6	-9.9	-10.4	-9.7	-7.6																						
23-Dec	-10.2	-10.3	-10.5	-10.8	-11.1	-11.2	-11.0	-10.7	-10.8	-10.0	-8.5	-7.8	-7.1	-6.3	-5.4	-5.0	-3.0	-4.7	-3.6	-1.0	1.0	1.1	1.4	1.9	-6.4	1.9																						
24-Dec	1.0	0.5	0.2	-0.3	-0.7	-2.1	-3.5	-3.5	-3.4	-2.7	-2.5	-2.2	-1.2	-1.2	-0.1	-0.3	-0.3	0.0	0.4	-0.1	-1.3	-2.1	-2.5	-3.7	-1.3	1.0																						
25-Dec	-3.4	-2.9	-3.5	0.0	0.8	-0.5	0.5	0.4	0.6	0.1	1.1	1.8	2.5	3.1	2.6	1.1	0.0	-0.3	-1.3	-1.9	-2.3	-2.6	-2.8	-3.7	-0.5	3.1																						
26-Dec	-4.2	-3.4	-3.2	-3.3	-4.1	-5.2	-4.6	-4.2	-5.6	-6.5	-5.3	-4.2	-3.6	-3.5	-3.9	-5.0	-5.7	-5.7	-6.8	-6.7	-7.4	-7.4	-7.7	-7.7	-5.2	-3.2																						
27-Dec	-7.7	-7.4	-7.7	-7.5	-7.5	-7.6	-7.8	-8.6	-8.8	-8.1	-7.4	-7.0	-6.3	-5.8	-6.1	-6.3	-6.5	-6.9	-6.8	-6.4	-6.0	-6.1	-5.9	-6.0	-7.0	-5.8																						
28-Dec	-6.4	-6.7	-7.0	-6.8	-7.0	-6.9	-6.8	-6.6	-6.8	-6.9	-7.0	-6.4	-6.0	-5.7	-5.5	-5.7	-5.7	-5.7	-5.9	-6.1	-6.6	-7.1	-7.8	-8.0	-6.5	-5.5																						
29-Dec	-8.0	-8.2	-8.4	-8.9	-9.3	-8.9	-7.5	-8.7	-9.6	-9.2	-8.6	-7.7	-7.2	-7.8	-8.5	-9.4	-9.8	-9.4	-9.5	-8.8	-8.1	-8.1	-8.1	-8.1	-8.6	-7.2																						
30-Dec	-8.2	-8.6	-9.1	-9.5	-9.8	-9.6	-9.6	-9.8	-10.3	-10.7	-11.0	-10.9	-11.1	-11.2	-11.0	-11.1	-11.3	-11.8	-12.8	-13.1	-13.0	-13.1	-13.3	-14.0	-11.0	-8.2																						
31-Dec	-14.4	-14.5	-14.5	-14.4	-14.6	-14.8	-15.2	-16.1	-17.0	-17.8	-17.8	-16.2	-15.3	-15.2	-14.9	-15.4	-17.1	-17.5	-17.9	-18.3	-18.4	-18.4	-18.9	-19.4	-16.4	-14.4																						
																								-12.9	-12.9	-12.9	-12.7	-12.8	-13.0	-13.0	-13.1	-13.3	-13.2	-12.4	-11.7	-11.2	-11.1	-11.1	-11.4	-11.8	-12.1	-12.2	-12.2	-12.3	-12.5	-12.7	-12.8	Diurnal Average
																								3.2	2.4	2.7	3.0	0.8	-0.5	0.5	0.4	0.6	0.4	2.3	3.4	3.9	4.4	3.8	3.5	3.7	3.7	3.2	3.3	3.8	3.1	3.0	2.9	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	162	21.77	21.77
-20 - 0	537	72.18	93.95
0 - 10	45	6.05	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

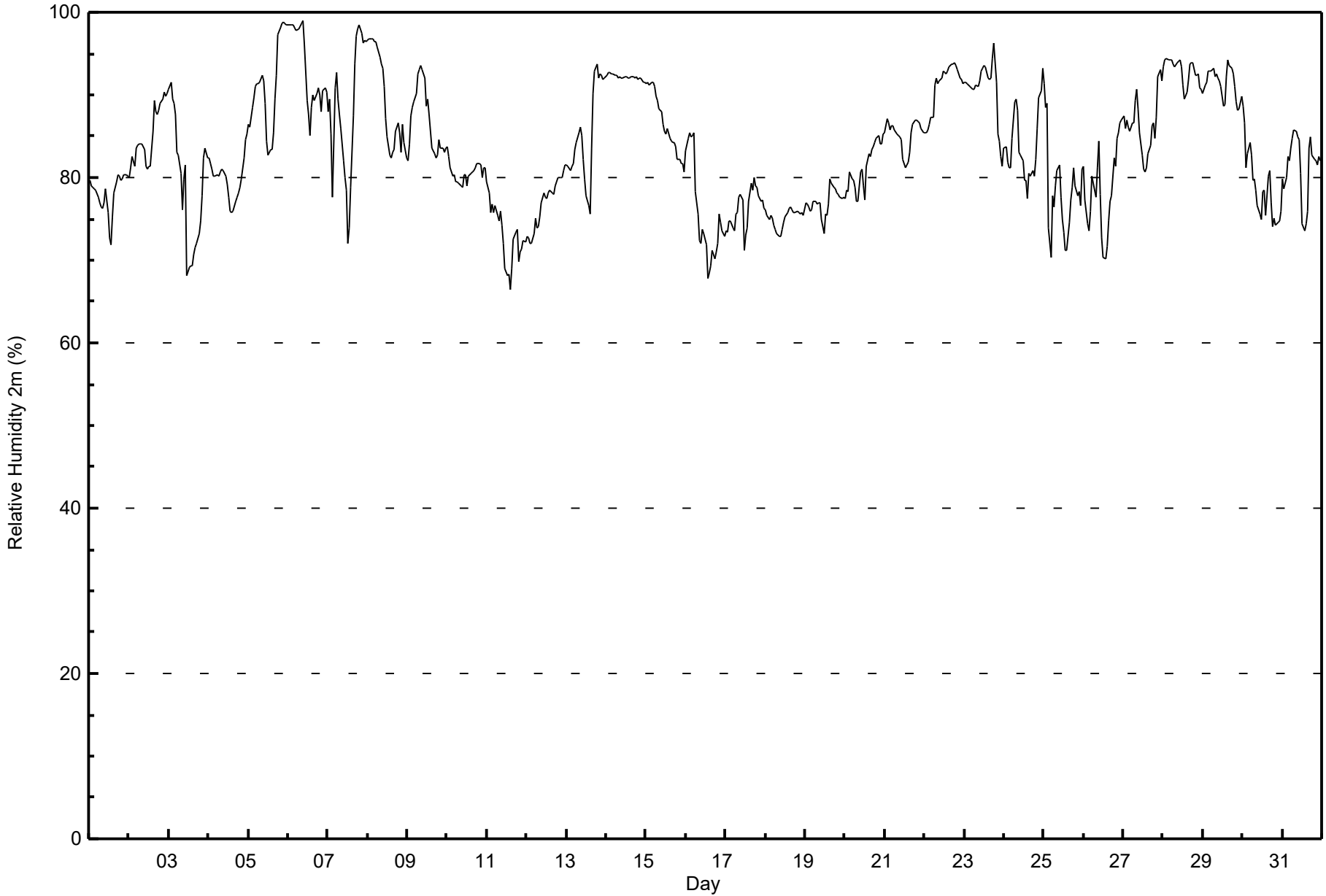
Relative Humidity 2m (RH2) - %
Mildred Lake - December 2024

Maximum Value: 99.0 % on Dec 6 10:00																						Maximum Daily Average: 93.4 % on Dec 6																						Hours in Service: 744			
Minimum Value: 66.5 % on Dec 11 15:00																						Minimum Daily Average: 73.0 % on Dec 11																						Hours of Data: 744			
Maximum Diurnal Average: 84.9 % at hour 1																						Minimum Diurnal Average: 79.5 % at hour 14																						Hours of Missing Data: 0			
Monthly Average: 83.49 %																						Percentiles: P ₁ = 69.1 P ₁₀ = 74.3 Q ₁ = 77.8 Median = 82.7 Q ₃ = 89.9 P ₉₀ = 92.8 P ₉₉ = 98.5																						Hours of Calibration: 0			
																																												Percent Operational Time: 100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Dec	79.7	79.0	78.7	78.7	78.4	77.7	77.0	76.5	76.3	76.9	78.7	75.8	72.7	71.8	75.2	78.1	79.6	80.3	80.1	79.6	79.8	80.4	80.4	80.2	78.0	80.4																					
2-Dec	80.0	81.1	82.5	81.3	83.5	83.8	84.0	84.0	84.1	83.5	81.3	81.0	81.3	81.4	85.5	89.4	87.9	87.7	88.2	89.1	89.6	90.4	89.8	90.2	85.0	90.4																					
3-Dec	90.6	91.6	89.4	89.0	87.6	83.0	82.8	80.5	76.1	79.9	81.6	68.1	69.1	69.3	70.6	71.5	72.1	73.3	74.7	77.8	82.3	83.6	82.3	79.0	91.6																						
4-Dec	82.3	81.6	81.1	80.2	80.2	80.3	80.2	80.6	81.0	80.9	80.2	79.2	77.6	75.9	75.8	75.9	77.1	77.6	78.1	78.9	79.8	82.4	84.6	85.3	79.9	85.3																					
5-Dec	86.5	86.1	88.4	89.7	91.0	91.3	91.4	91.6	92.3	91.8	88.9	84.4	82.7	83.4	83.4	85.5	89.5	92.4	97.2	98.2	98.6	98.8	98.7	98.4	90.8	98.8																					
6-Dec	98.5	98.5	98.6	98.6	98.1	97.8	98.0	98.3	98.7	99.0	96.2	89.4	87.6	85.0	88.5	90.0	89.3	90.2	90.8	90.0	88.0	90.6	90.9	90.4	93.4	99.0																					
7-Dec	88.0	89.6	85.2	77.6	90.9	92.7	89.6	87.7	85.9	82.0	79.9	78.5	72.1	73.8	78.9	87.4	93.7	97.2	97.9	98.5	97.4	96.3	96.6	96.4	88.1	98.5																					
8-Dec	96.6	96.7	96.8	96.7	96.5	96.5	95.7	94.6	93.7	93.2	91.0	87.1	84.9	82.8	82.3	83.0	83.4	85.7	86.7	85.4	83.0	86.5	84.2	82.4	89.4	96.8																					
9-Dec	82.1	84.0	87.5	88.6	89.2	90.1	92.5	93.1	93.6	93.1	92.0	88.7	89.6	87.7	85.5	83.6	82.9	82.4	82.7	84.5	83.6	83.5	83.0	83.6	87.0	93.6																					
10-Dec	83.7	82.6	81.2	80.2	80.3	79.4	79.5	79.4	79.1	78.7	80.4	80.3	79.0	80.2	80.5	80.6	80.9	81.3	81.8	81.7	81.6	80.0	81.3	81.2	80.6	83.7																					
11-Dec	79.5	78.2	75.8	76.8	75.8	76.6	75.4	74.8	75.9	74.2	72.1	68.9	68.1	68.3	66.5	69.0	72.6	73.4	73.7	69.8	71.0	71.4	72.4	72.3	73.0	79.5																					
12-Dec	72.8	72.7	72.0	72.0	73.2	75.1	73.9	74.0	75.2	76.9	78.1	77.7	77.4	78.1	78.5	78.2	77.9	79.0	79.4	80.0	80.0	80.1	80.8	81.5	76.9	81.5																					
13-Dec	81.5	81.4	80.8	81.4	81.8	83.4	84.2	85.4	86.2	85.0	82.3	79.8	77.8	76.6	75.7	83.6	90.2	92.8	93.7	92.1	92.6	92.3	91.9	92.0	85.2	93.7																					
14-Dec	92.4	92.7	92.7	92.6	92.5	92.4	92.3	92.1	92.2	92.1	92.0	92.2	92.3	92.1	92.0	92.2	92.2	92.1	92.2	91.9	92.0	92.1	91.6	91.5	92.2	92.7																					
15-Dec	91.4	91.5	91.3	91.5	91.5	91.0	89.8	89.4	88.4	87.9	86.5	85.6	85.3	86.0	84.8	84.3	84.2	84.2	83.7	82.2	82.1	81.8	81.7	80.7	86.5	91.5																					
16-Dec	83.3	84.7	85.3	84.9	85.2	85.5	78.3	75.6	72.3	72.1	73.7	73.3	71.8	67.8	68.5	69.3	71.2	70.2	71.0	72.0	75.6	74.5	73.6	73.0	75.5	85.5																					
17-Dec	73.6	73.4	74.7	74.7	73.8	73.6	75.5	75.8	77.7	78.1	77.2	71.2	73.0	73.9	77.2	79.3	78.5	80.0	79.0	78.8	77.9	77.2	77.2	76.2	76.1	80.0																					
18-Dec	76.1	75.3	74.9	75.4	75.1	74.3	73.7	73.2	72.8	72.8	73.7	74.5	75.3	75.7	76.2	76.4	76.0	75.7	75.8	75.9	75.8	75.7	75.7	75.5	75.1	76.4																					
19-Dec	76.9	76.7	76.5	76.0	76.2	77.1	77.1	76.7	76.9	76.9	75.0	73.2	75.6	75.3	76.8	79.8	79.3	78.8	78.6	78.2	77.9	77.7	77.4	77.6	77.0	79.8																					
20-Dec	77.4	78.5	78.4	80.6	79.8	79.7	78.8	77.1	77.1	80.7	81.0	78.9	77.4	81.3	82.8	82.5	83.4	83.7	84.2	84.8	85.0	84.1	84.0	85.3	81.1	85.3																					
21-Dec	85.4	87.1	86.6	85.8	86.2	86.2	85.7	85.3	85.1	84.9	84.5	82.2	81.2	81.5	81.8	83.0	85.4	86.5	86.9	86.9	86.7	86.6	85.9	85.5	85.1	87.1																					
22-Dec	85.4	85.5	85.8	86.4	87.4	87.3	91.2	92.0	91.4	91.7	92.0	92.8	92.7	92.5	92.9	93.3	93.7	93.8	93.8	93.6	93.0	92.1	91.8	91.4	91.0	93.8																					
23-Dec	91.5	91.5	91.3	91.0	90.8	90.7	90.8	91.1	91.1	91.7	92.8	93.2	93.6	93.4	92.1	91.9	92.1	94.4	96.3	91.6	85.2	84.4	82.6	81.3	90.7	96.3																					
24-Dec	83.5	83.7	81.9	81.2	81.1	84.8	89.2	89.5	88.2	83.0	82.6	82.0	79.7	79.6	77.4	80.5	80.2	80.8	80.2	82.1	86.0	89.6	90.5	93.2	83.8	93.2																					
25-Dec	91.3	88.4	89.0	73.9	70.3	77.8	76.5	79.0	80.8	81.5	77.6	74.9	73.5	71.3	71.2	74.5	77.3	78.8	81.2	79.0	77.8	78.4	76.7	81.0	78.4	91.3																					
26-Dec	81.4	77.4	74.3	73.5	76.0	80.2	79.3	77.6	81.2	84.4	78.0	72.8	70.4	70.1	71.7	74.8	77.2	77.8	82.4	81.3	84.8	85.4	86.6	87.0	78.6	87.0																					
27-Dec	87.4	86.0	86.9	86.1	85.7	86.6	86.6	89.2	90.7	88.3	85.4	82.8	80.9	80.7	81.1	82.9	83.8	86.2	86.7	84.7	87.3	92.3	93.0	91.7	86.4	93.0																					
28-Dec	93.5	94.2	94.3	94.2	94.2	94.2	93.7	93.4	93.8	94.0	94.3	93.5	91.2	89.6	90.3	91.8	93.8	93.9	93.8	92.5	92.4	92.5	90.8	90.6	92.9	94.3																					
29-Dec	90.1	91.3	91.6	92.9	92.9	92.9	93.2	92.2	92.6	92.0	91.7	91.0	88.6	88.8	92.3	94.3	93.5	93.2	92.6	91.1	89.1	88.2	88.3	89.8	91.4	94.3																					
30-Dec	88.6	86.7	81.2	82.9	84.3	82.6	79.7	79.8	78.5	76.6	75.5	75.0	78.3	78.5	75.4	80.2	80.9	76.9	74.1	75.1	74.2	74.6	74.8	75.9	78.8	88.6																					
31-Dec	79.8	78.6	80.0	82.6	82.1	83.6	84.7	85.8	85.6	85.0	84.6	80.6	74.5	73.6	74.4	75.9	83.5	84.9	82.7	82.3	82.1	81.5	82.5	82.0	81.4	85.8																					
																						84.9	84.7	84.3	83.8	84.2	84.8	84.5	84.4	84.3	84.2	83.2	80.9	79.8	79.5	80.1	82.0	83.3	84.0	84.5	84.1	84.1	84.6	84.6	84.7	Diurnal Average	
																						98.5	98.5	98.6	98.6	98.1	97.8	98.0	98.3	98.7	99.0	96.2	93.5	93.6	93.4	92.9	94.3	93.8	97.2	97.9	98.5	98.6	98.8	98.7	98.4	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





Maximum Speed: 24 km/h on Dec 11 20:00	Maximum Daily Speed Average: 14.4 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 18 19:00	Minimum Daily Speed Average: 1.0 km/h on Dec 21	Hours of Data: 743
Maximum Diurnal Speed Average: 2.4 km/h at hour 2	Minimum Diurnal Speed Average: 0.9 km/h at hour 18	Hours of Missing Data: 1
Monthly Average Velocity: 1.5 km/h 177.1 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 4 Median = 7 Q ₃ = 11 P ₉₀ = 14 P ₉₉ = 19	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-Dec	N7	N7	NNW5	N6	NNW6	NNW4	NNW3	NNW3	SSW3	S3	S3	S4	SSE6	SSE4	SSE3	E3	E4	ESE4	SE4	ESE2	E3	E4	E4	SE7	ENE1.3	N7	
2-Dec	SE8	SE7	ESE5	ESE7	E6	E6	ESE4	ESE4	SE5	SE7	SSE9	SSE10	SSE10	SSE9	SSE10	SSE10	SSE11	SSE8	SSE10	SSE9	SSE8	SSE7	SSE7	S5	SE7.1	SSE11	
3-Dec	SSE2	N5	NNW10	NNW9	N11	N13	N15	NNW16	NW19	NNW13	N11	NNW16	NW13	NW17	NW16	NW15	NNW17	NNW15	NNW13	NW10	NW6	NW4	N3	NNW3	NW10.5	NW19	
4-Dec	NW2	W3	SSW3	SSW2	SSW4	SW5	SSW5	SSE5	SE7	SE10	SSE9	SSE11	SSE12	SSE13	SSE13	SSE11	SSE14	SSE17	SSE14	SSE15	S13	SSE14	SSE14	SSE12	SSE8.8	SSE17	
5-Dec	S10	S11	SSW10	SW8	SW9	S9	S9	SSE9	ESE5	SE7	SSE7	SSE8	SSE7	SE8	SE4	SSE5	SE6	SSE5	SSE6	SSE6	SE7	SSE8	SSE11	S9	SSE7.1	S11	
6-Dec	SSE9	S10	SSE8	SSE11	SSE7	SE9	SSE9	SE7	SSE5	S8	SSW5	SW10	SW8	WSW8	WSW8	WSW9	WSW9	WSW6	SW9	SSW9	SW4	SSW5	SSW6	S5	SSW6.1	SSE11	
7-Dec	SW5	SE4	W5	W9	S5	SW5	SW6	SW8	SW8	SW10	SW9	WSW6	SW6	SE5	S5	SE2	ENE1	NE2	NNW1	NNW7	N9	N11	N11	N9	W2.1	N11	
8-Dec	N9	N6	NNW6	N7	N8	N9	N11	N10	NNE12	N10	N9	N11	N10	N8	NNE7	NNE5	NNE3	ENE3	E4	SE4	SE5	ESE3	ESE4	SE4	NNE5.5	NNE12	
9-Dec	S6	SSE4	SSE4	S5	SSW4	NE2	NNE2	ESE2	NE2	N7	N9	NNE10	N9	N13	N14	N12	N13	N11	NNW9	NNW7	NNW9	N7	N7	NNW4	N4.9	N14	
10-Dec	W2	WNW4	NNW5	N3	SSW3	SSW2	SW4	SSW3	S2	SSW3	W1	E3	SSE3	SSE3	ESE3	SE3	SE5	SE4	ESE4	ESE4	SE4	SE7	ESE5	ESE5	SE1.9	SE7	
11-Dec	ESE5	SE6	SE7	SE8	SE9	ESE8	SE8	ESE6	ESE6	ESE5	ESE5	SE6	SSE8	SSE6	SSE6	SE5	SE5	E4	SE13	SSE24	SSE22	SSE22	SSE19	SSE19	SE9.2	SSE24	
12-Dec	SSE16	SSE18	SSE17	SSE18	SE15	SSE13	SSE19	SSE18	SSE15	SSE14	SSE15	SE15	SE15	SE14	SSE14	SSE11	SSE11	SSE14	SSE13	SSE14	SSE14	SSE14	SSE11	SSE10	SSE14.4	SSE19	
13-Dec	SSE15	SSE18	SSE14	SSE15	SSE18	SSE12	SE15	SSE11	SSE12	SSE13	SE12	SE12	SSE11	SSE9	SSE5	E3	E4	ENE4	N2	N4	N12	N10	N6	N8	SE6.7	SSE18	
14-Dec	N7	NNE9	N8	N9	N10	NNE9	N9	N10	N9	N10	N10	N10	N9	N10	N9	NNE9	N12	N14	N12	N15	N14	N14	N14	N13	N10.6	N15	
15-Dec	N12	N11	NNW9	NNW8	N9	N14	N16	N15	N12	N11	N16	N13	N11	N11	N10	N11	NNE11	N8	NNE9	N9	N9	N9	NNE6	NNE5	N10.5	N16	
16-Dec	NNE3	ESE3	ENE3	NE2	NE2	NNW3	NW10	NW12	NNW12	NNW11	NNW9	NNW10	NNW12	NNW13	NNW14	NNW12	NNW11	NNW13	NNW11	W13	NNW11	NNW14	NNW13	NNW13	WNW8.5	WNW14	
17-Dec	WNW14	W14	W13	W12	W10	W7	WNW5	WNW5	WNW4	SW3	WSW4	SSW4	S5	S4	SE3	SSE4	SE5	SSE5	S4	SSW5	SSW5	SSE4	SSE4	SE3	WSW3.7	WNW14	
18-Dec	S4	SE4	S5	SSE5	S5	SE4	ESE2	S1	ESE1	SW1	N1	NNW1	NNW3	NW2	N1	NE3	N3	NNW3	SW1	SW1	S3	SSE2	SSW4	SSE4	SSE1.0	S5	
19-Dec	SSE9	SSE9	SSE9	SSE9	SSE7	SE7	SSE7	S5	S4	SSE5	SSE5	ESE3	SE4	SE2	E1	NE3	NE2	NNE1	S1	SE2	E2	SSE2	S2	ESE3	SSE3.8	SSE9	
20-Dec	ENE1	SSW4	E3	SSE7	S3	SE9	SE12	SE15	SE17	SE18	SE15	SSE18	SSE18	SSE13	SSE14	SSE13	S9	S8	SSE8	SSE8	SSW3	S7	S5	S3	SSE9.1	SSE18	
21-Dec	S5	S5	SSE1	S3	S2	S3	SE2	ESE2	SE3	ESE3	SSE5	S4	SE4	SE3	E3	SSE1	NE3	NNW5	N6	NE4	N7	N5	SSW2	SW2	ESE1.0	N7	
22-Dec	WSW2	SW3	SW2	S5	SSW7	S9	S9	S9	SSW9	S8	S11	S12	SSE13	SSE13	S13	SSE11	SSE11	S11	SSE10	SSE10	SSE11	SSE11	SSE9	SSE7	S8.7	S13	
23-Dec	SSE10	SSE9	SSE8	SSE9	SSW8	SW7	SSW7	SSW7	S6	SSE6	SSE10	SSE13	SSE12	SSE12	SE12	SSE7	SSW7	SSE6	S8	SW10	SW15	SW14	WSW14	W22	S7.8	W22	
24-Dec	WSW15	WSW13	SW14	SW12	SSW10	SE5	SSE10	SSE8	SE10	SSE13	SE11	SE5	SE6	SE8	SSE9	S5	SSE7	SE10	SSE11	SSE11	SSE7	SSE6	SSE5	SE8	SE6	S7.0	WSW15
25-Dec	SSE7	SSE8	SE8	SW11	SW8	SSW6	SW13	SW13	SSW13	SW13	SW15	SW14	SW13	SW14	SW12	SW9	SSW8	SSE7	SSE7	SSE9	SSE4	ESE7	SE10	SE7	SSW7.8	SW15	
26-Dec	SSE8	SE10	SE7	SE7	ESE5	SSE5	SSE7	S7	SSE7	SSE5	SSE6	SSE6	SSE7	SE8	SE6	SSE7	SSE8	SSE6	S6	SSE7	S5	SSW6	SSE4	S5	SSE6.2	SE10	
27-Dec	SSE4	SSE6	S5	S5	SSE6	SSE5	SSW4	ESE1	SSW4	SSW2	SSE5	SW2	N1	NNW3	S4	S6	S3	SW1	SE3	SE4	SSE4	ENE2	E6	ESE4	SSE2.9	SSE6	
28-Dec	SE3	UO	NNE3	N3	N4	NNE4	N4	NNE3	NNW3	N5	NNW6	NNW6	NW5	NW5	NNW4	NNW3	NNW3	NW3	N6	N7	N6	NNE5	NNE5	NNE5	N3.9	N7	
29-Dec	NNE4	NNE4	NNE2	SSW1	SSW3	SSW3	WNW4	NE3	E3	E3	E3	ENE3	NNW4	NNW6	NNW4	NNW4	NNW4	NW4	NNW2	NW5	WNW9	WNW9	WNW9	WNW8	NW2.7	WNW9	
30-Dec	WNW11	WNW10	WNW12	WNW12	W11	WNW11	WNW13	WNW13	WNW14	WNW15	WNW15	WNW16	WNW15	WNW12	WNW11	WNW11	WNW11	WNW11	WNW11	WNW9	NW12	WNW9	WNW11	WNW12	WNW12.0	WNW16	
31-Dec	WNW11	WNW9	WNW9	WNW9	NW8	NNW7	NW8	N5	NNE4	N5	N5	NW7	NW10	WNW10	WNW9	NW10	NNW6	N5	NNE4	N5	N5	NNE5	NNE3	N5	NW6.0	WNW11	

S1.9 S2.4SSW1.7SSW2.3 S2.0 SSE1.4 S1.5 S1.4 S1.3 SSE1.8 S1.9 S1.7 S2.0 S1.5 S1.6 S1.1 S0.9 SSE0.9 SSE1.6 S1.9 S0.9 SSE1.2 SSE1.6SSW1.3 SSE16 SSE18 SSE17 SSE18 SSE18 N14 SSE19 SSE18 NW19 SE18 N16 SSE18 SSE18 NW17 NW16 NW15WNW17 SSE17 SSE14 SSE24 SSE22 SSE22 SSE19 W22	Diurnal Average	Diurnal Maximum
--	-----------------	-----------------

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

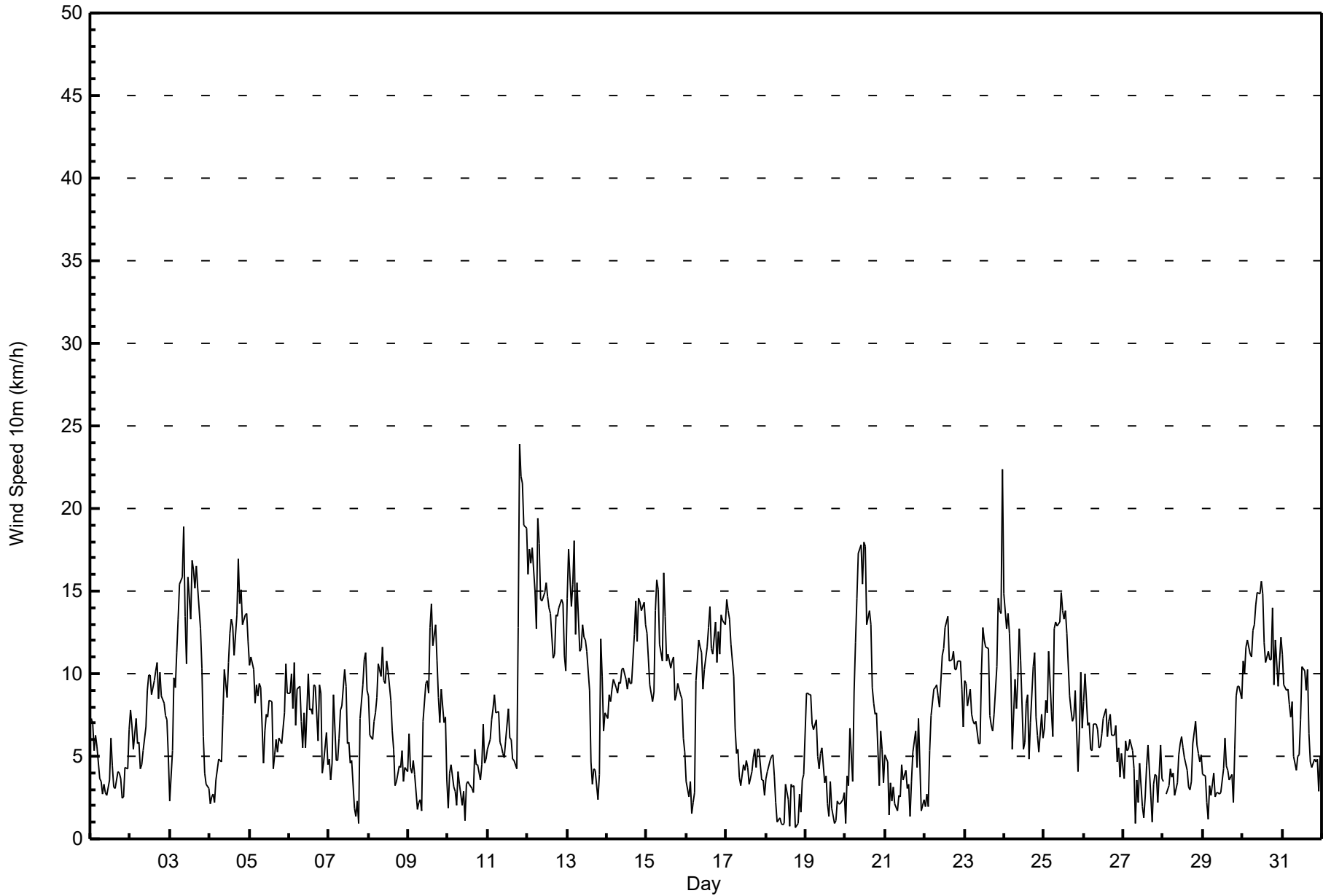
Wind Speed 10m (WS10) - km/h
Mildred Lake - December 2024

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



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	287	38.63	38.63
6 - 11	311	41.86	80.48
12 - 19	141	18.98	99.46
20 - 28	4	0.54	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Mildred Lake - December 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	20	11	7	16	28	31	36	37	25	14	2	4	6	8	22	287
6 - 11	59	8	0	0	3	6	32	92	23	13	16	6	4	26	8	15	311
12 - 19	22	1	0	0	0	0	13	49	1	0	12	4	3	26	7	3	141
20 - 28	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	4
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	101	29	11	7	19	34	76	180	61	38	42	12	12	58	23	40	743

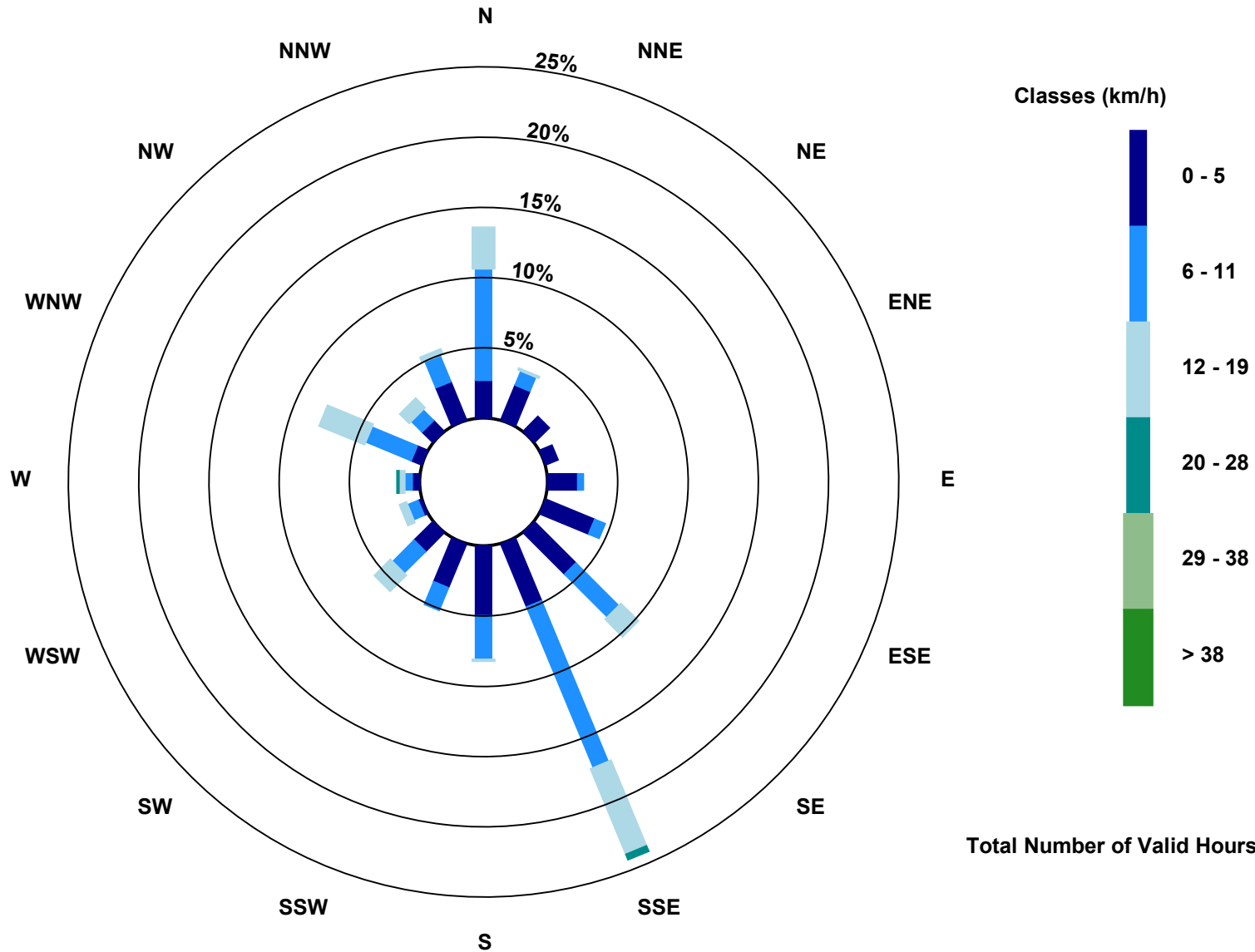
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 151 deg on Dec 11 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 152.2 deg on Dec 12	Hours of Data: 743
Direction of Minimum Speed: 224 deg on Dec 18 19:00	Hours of Missing Data: 1
Direction of Minimum Daily Speed Average: 1.0 deg on Dec 21	Percent Operational Time: 99.9
Monthly Average Direction: 177.1 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-Dec	6	3	346	351	346	341	331	345	198	180	188	176	149	155	151	86	89	113	143	103	89	87	85	127	75.6
2-Dec	130	124	111	110	100	100	107	116	130	131	149	157	153	157	162	153	148	159	149	158	155	155	168	177	143.6
3-Dec	148	5	334	337	11	6	349	328	316	335	350	332	314	312	311	305	297	299	299	321	326	317	351	336	325.3
4-Dec	309	264	210	195	194	220	200	166	146	143	165	154	154	156	162	160	152	155	162	169	155	157	167	167	161.9
5-Dec	171	176	201	228	215	169	172	154	114	160	167	153	153	145	129	165	133	158	158	159	141	158	160	177	166.0
6-Dec	162	172	163	162	155	140	152	142	152	176	209	229	229	241	237	243	243	255	231	207	220	194	194	171	194.6
7-Dec	228	130	276	273	185	219	221	216	226	226	231	240	222	142	175	132	72	38	347	341	1	354	2	5	259.8
8-Dec	6	358	347	353	360	359	354	10	17	7	4	11	2	358	31	28	25	62	92	125	146	106	111	124	16.7
9-Dec	174	161	160	183	195	50	15	123	40	4	11	17	360	8	2	359	1	358	347	348	342	355	357	332	2.7
10-Dec	260	303	337	1	206	209	228	203	178	200	281	95	161	147	116	136	142	128	108	109	132	137	115	104	143.2
11-Dec	115	130	133	131	138	116	127	123	103	110	106	138	149	151	152	133	143	101	146	151	153	150	151	160	141.0
12-Dec	165	155	158	151	146	153	149	148	147	147	147	144	140	140	154	165	162	154	155	153	155	153	159	163	152.2
13-Dec	151	149	157	153	150	148	146	152	154	149	143	146	150	157	160	90	85	60	357	7	352	2	358	354	139.6
14-Dec	11	13	8	6	7	12	4	4	11	4	9	10	3	2	4	15	10	10	359	354	355	351	351	358	3.7
15-Dec	359	357	344	348	358	359	360	0	357	356	357	2	355	9	11	11	14	1	19	10	9	7	20	23	2.6
16-Dec	27	121	68	54	55	346	314	309	302	302	282	288	292	291	288	285	287	286	286	281	285	284	285	282	293.1
17-Dec	283	279	280	277	281	275	283	290	298	217	249	209	190	171	131	150	130	162	182	201	212	160	147	125	245.8
18-Dec	183	142	173	166	178	142	104	188	111	225	4	293	341	320	356	37	1	346	224	221	188	153	193	158	163.5
19-Dec	156	165	157	154	149	134	159	174	169	161	158	103	144	126	95	41	39	30	169	139	99	161	179	123	148.3
20-Dec	57	197	98	152	190	143	137	138	142	143	143	147	150	156	155	164	169	172	154	165	211	187	188	171	153.5
21-Dec	170	180	168	184	190	172	135	116	139	107	154	173	135	144	93	147	45	347	352	42	1	9	207	222	122.4
22-Dec	256	223	230	191	194	184	181	182	199	176	175	173	168	160	175	165	168	173	156	165	155	150	159	164	172.2
23-Dec	157	154	166	166	196	220	193	192	181	168	153	150	151	153	146	147	200	157	182	216	221	222	246	263	187.2
24-Dec	249	243	231	218	205	141	150	153	140	155	144	134	124	132	165	182	160	145	159	158	163	159	146	140	171.1
25-Dec	152	148	140	234	234	213	218	221	248	227	228	229	236	233	233	216	201	168	158	161	164	123	144	140	205.8
26-Dec	147	140	146	139	123	160	155	170	163	148	153	147	154	145	138	161	158	164	177	163	181	206	152	188	156.2
27-Dec	152	168	173	190	161	154	198	122	199	199	164	232	355	347	178	172	187	219	130	139	166	75	91	122	162.8
28-Dec	129	UO	16	3	5	15	1	12	342	351	341	339	314	323	344	332	334	322	356	7	8	17	25	14	355.3
29-Dec	21	26	12	205	193	207	296	43	92	82	92	67	340	333	339	329	341	324	337	310	301	301	295	294	324.6
30-Dec	301	294	296	291	279	289	294	290	292	296	292	294	295	293	288	295	297	295	300	297	310	300	299	299	294.7
31-Dec	298	290	293	300	314	333	319	354	18	11	358	307	304	299	299	313	336	6	12	5	7	15	29	9	324.4

180.7 173.7 196.3 199.8 185.3 154.0 179.8 174.5 176.9 166.5 169.6 172.4 182.4 180.9 182.9 190.1 173.9 160.9 166.2 169.1 190.2 156.9 163.0 191.7
 Diurnal Average

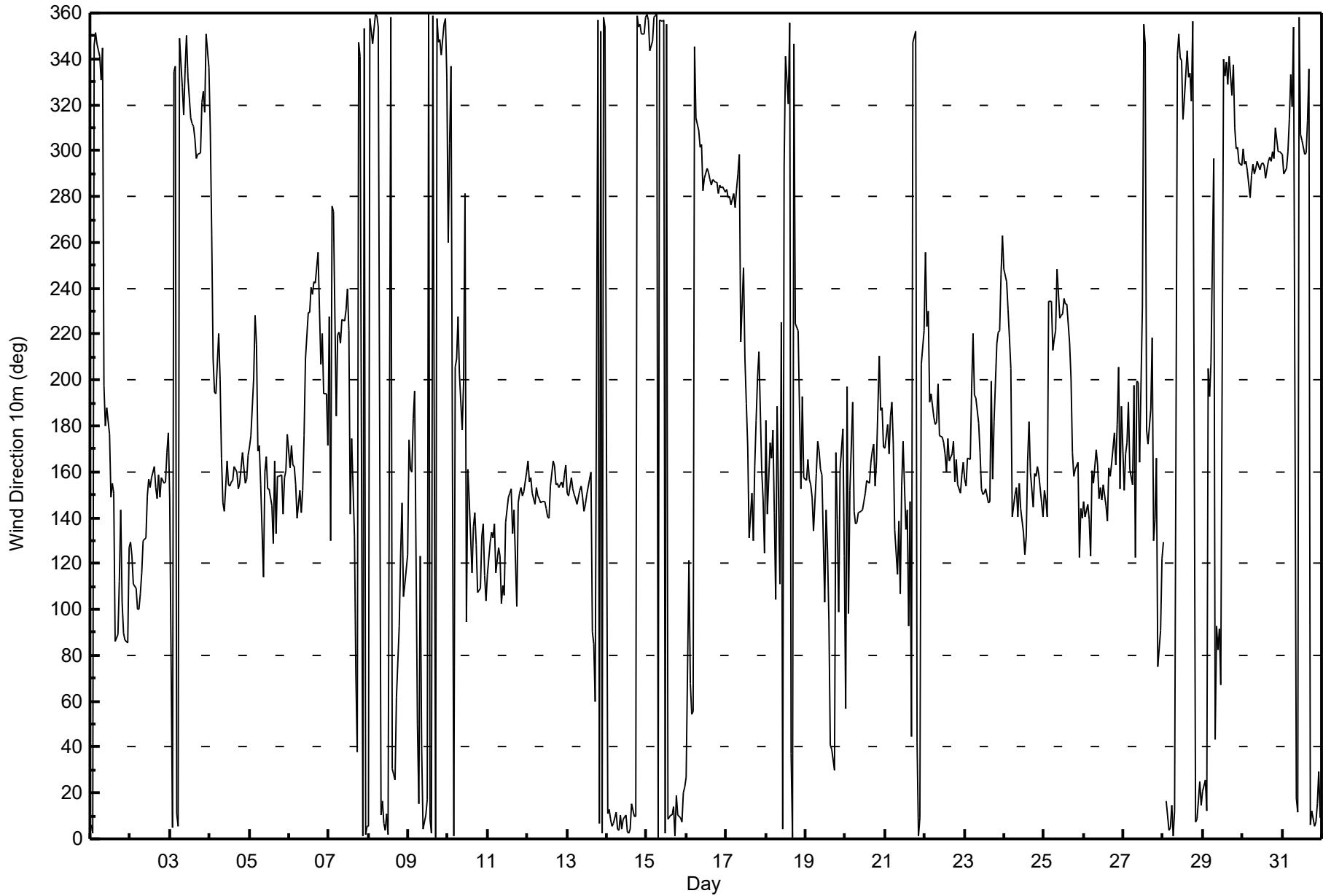
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Dec 7 03:00 Minimum Value: 5 deg on Dec 29 16:00 Percentiles: P ₁ = 10 P ₁₀ = 13 Q ₁ = 15 Median = 17 Q ₃ = 24 P ₉₀ = 40 P ₉₉ = 79																	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-Dec	16	14	17	12	10	19	19	21	31	21	28	44	20	15	18	18	11	16	25	37	22	16	16	24	44	
2-Dec	18	27	23	18	16	16	21	21	19	18	15	15	13	15	16	14	13	15	11	14	13	15	16	21	27	
3-Dec	52	25	16	13	20	19	15	14	11	19	21	13	12	15	13	16	16	15	16	15	8	19	24	18	52	
4-Dec	35	45	59	57	22	19	19	23	16	15	17	16	14	15	16	15	14	13	13	15	15	14	14	14	59	
5-Dec	13	12	41	34	17	21	18	20	28	29	21	15	12	15	29	19	21	25	20	28	18	13	15	15	41	
6-Dec	17	13	22	17	26	13	14	16	18	21	56	24	26	25	29	22	32	33	25	19	57	29	19	37	57	
7-Dec	54	59	94	27	19	35	16	16	26	21	21	36	30	37	50	66	91	38	56	12	14	15	19	16	94	
8-Dec	17	18	16	19	18	17	16	20	19	18	17	18	16	17	24	17	30	15	8	21	12	13	15	20	30	
9-Dec	15	22	39	16	35	57	69	59	83	17	17	21	15	18	16	16	16	16	16	13	13	14	14	35	83	
10-Dec	60	11	21	30	31	36	20	31	58	22	86	25	30	24	29	51	20	14	9	13	17	21	17	13	86	
11-Dec	18	26	19	18	17	19	23	21	11	16	20	22	14	22	15	16	20	21	22	10	11	12	14	14	26	
12-Dec	16	15	14	15	13	13	12	12	13	15	13	13	15	15	15	16	15	13	13	12	13	11	14	14	16	
13-Dec	12	11	14	11	11	11	11	11	13	14	14	12	11	14	47	38	21	25	48	48	12	14	14	13	48	
14-Dec	19	19	18	16	18	16	16	17	17	17	17	17	15	15	17	19	18	17	15	13	12	11	12	14	19	
15-Dec	14	18	51	13	15	13	15	14	17	15	15	16	14	16	20	19	17	21	20	17	17	17	20	22	51	
16-Dec	40	27	20	46	42	35	11	15	15	17	19	17	17	18	17	17	16	18	19	16	16	17	17	18	46	
17-Dec	17	17	17	15	19	21	20	28	34	26	22	31	17	25	15	17	15	19	15	14	18	31	19	37	37	
18-Dec	39	26	20	17	19	24	42	49	41	75	79	61	19	58	79	20	13	17	88	66	26	49	13	13	88	
19-Dec	13	14	15	15	13	18	17	27	22	21	22	33	30	39	61	16	25	57	78	40	41	43	45	30	78	
20-Dec	79	40	39	25	62	18	18	16	14	14	13	14	13	14	13	15	14	13	12	14	61	18	29	39	79	
21-Dec	19	21	63	30	63	39	43	61	28	31	16	41	27	34	35	67	36	39	24	29	14	19	83	55	83	
22-Dec	46	33	51	17	16	13	15	15	17	17	13	13	15	15	13	15	15	14	14	15	12	12	13	14	51	
23-Dec	14	11	17	17	16	19	20	16	18	15	14	11	13	11	11	18	40	15	17	22	20	22	28	19	40	
24-Dec	24	24	23	21	17	38	23	16	17	14	20	26	24	19	16	25	28	16	19	22	12	20	11	16	38	
25-Dec	25	23	27	24	52	65	23	23	27	22	22	23	24	23	22	20	17	19	24	12	57	29	13	20	65	
26-Dec	17	12	14	14	20	24	26	13	15	16	18	14	13	14	19	11	13	15	8	17	19	17	26	16	26	
27-Dec	39	16	15	16	19	23	20	90	41	64	26	73	67	59	53	18	27	66	21	14	16	38	19	18	90	
28-Dec	11	UO	12	14	11	13	16	35	17	12	11	10	16	13	14	21	19	28	15	16	17	18	17	18	35	
29-Dec	17	20	54	67	16	41	24	47	23	11	31	35	20	12	9	5	14	13	10	22	16	16	17	19	67	
30-Dec	16	18	17	18	18	17	17	16	17	17	16	17	16	17	19	17	15	16	15	16	14	16	15	15	19	
31-Dec	16	17	18	17	26	14	10	25	15	10	13	17	17	17	18	14	10	13	14	12	13	16	24	15	26	
	79	59	94	67	63	65	69	90	83	75	86	73	67	59	79	67	91	66	88	66	61	49	83	55		
	Diurnal Maximum																									
UO - Unstable Operation																										





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS03 LOWER CAMP METEOROLOGY DECEMBER 2024

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

January 31, 2025

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

MONTHLY SUMMARY for
AMD SECTION III.B.1(c)

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
Temperature 20 m (C) Average	744	0	0	100	4.9	-	1.1	-
Temperature 45 m (C) Average	744	0	0	100	5.1	-	1.5	-
Temperature 100 m (C) Average	744	0	0	100	5.1	-	2.2	-
Temperature 163 m (C) Average	744	0	0	100	4.9	-	2.6	-
Relative Humidity 20 m (%) Average	744	0	0	100	96.7	-	90.5	-
Relative Humidity 45 m (%) Average	744	0	0	100	96.3	-	90.3	-
Relative Humidity 100 m (%) Average	744	0	0	100	97.7	-	91.3	-
Relative Humidity 163 m (%) Average	744	0	0	100	97.7	-	90.3	-
Wind Speed 20 m (km/h) Average	741	0	3	99.6	31	-	14.0	-
Wind Speed 45 m (km/h) Average	739	0	5	99.33	35	-	20.0	-
Wind Speed 100 m (km/h) Average	652	0	92	87.63	43	-	26.0	-
Wind Speed 163 m (km/h) Average	548	0	196	73.66	47	-	30.0	-
Wind Direction 20 m (deg) Average	741	0	3	99.6	-	-	-	-
Wind Direction 45 m (deg) Average	739	0	5	99.33	-	-	-	-
Wind Direction 100 m (deg) Average	652	0	92	87.63	-	-	-	-
Wind Direction 163 m (deg) Average	548	0	196	73.66	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	741	0	3	99.6	0.7	-	0.0	-
Vertical Wind Speed 45 m (km/h) Average	739	0	5	99.33	1.4	-	0.6	-
Vertical Wind Speed 100 m (km/h) Average	652	0	92	87.63	3.3	-	1.4	-
Vertical Wind Speed 163 m (km/h) Average	548	0	196	73.66	4.9	-	2.0	-

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

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

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
Temperature 20 m (C) Average	744	-12.24	8.2	-	-32.7	-24.5	-18.5	-10.3	-7	-2.5	4.9
Temperature 45 m (C) Average	744	-11.88	8.3	-	-32.3	-23.9	-18.2	-10.2	-6.6	-1.3	5.1
Temperature 100 m (C) Average	744	-11.55	8.3	-	-30.8	-23.2	-18.5	-10.2	-6.1	0.4	5.1
Temperature 163 m (C) Average	744	-11.49	8.3	-	-28	-23	-18.8	-10.6	-6.1	0.9	4.9
Relative Humidity 20 m (%) Average	744	80.63	7.2	-	61.6	71.9	75.8	80	86.1	90.6	96.7
Relative Humidity 45 m (%) Average	744	79.56	7.4	-	60.8	70.6	74.5	78.4	84.7	90.2	96.3
Relative Humidity 100 m (%) Average	744	80.32	7.8	-	59.6	70.8	75.2	79.4	86.2	91.4	97.7
Relative Humidity 163 m (%) Average	744	79.17	8.5	-	51	68.2	74.1	78.4	86.5	90.1	97.7
Wind Speed 20 m (km/h) Average	741	8	6	-	0	2	3	7	12	16	31
Wind Speed 45 m (km/h) Average	739	11.1	7	-	0	3	5	10	16	22	35
Wind Speed 100 m (km/h) Average	652	14.1	9	-	1	4	7	12	20	27	43
Wind Speed 163 m (km/h) Average	548	17.8	10	-	0	6	9	16	25	33	47
Wind Direction 20 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	739	-	-	-	-	-	-	-	-	-	-
Wind Direction 100 m (deg) Average	652	-	-	-	-	-	-	-	-	-	-
Wind Direction 163 m (deg) Average	548	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	741	-0.16	0.3	-	-1.9	-0.5	-0.3	-0.1	0	0.1	0.7
Vertical Wind Speed 45 m (km/h) Average	739	0.25	0.3	-	-0.9	0	0.1	0.2	0.4	0.6	1.4
Vertical Wind Speed 100 m (km/h) Average	652	0.16	0.6	-	-1.4	-0.4	-0.1	0	0.3	0.9	3.3
Vertical Wind Speed 163 m (km/h) Average	548	0.76	0.9	-	-0.9	0	0.2	0.4	1	2.1	4.9

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction, Vertical Wind Speed, 20m	02 Dec 2024 16:00	02 Dec 2024 18:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	02 Dec 2024 16:00	02 Dec 2024 20:00	5	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	02 Dec 2024 16:00	03 Dec 2024 06:00	15	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	05 Dec 2024 20:00	06 Dec 2024 09:00	14	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	08 Dec 2024 01:00	08 Dec 2024 08:00	8	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	14 Dec 2024 02:00	14 Dec 2024 02:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	14 Dec 2024 04:00	14 Dec 2024 15:00	12	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	14 Dec 2024 18:00	15 Dec 2024 09:00	16	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 100m	22 Dec 2024 12:00	23 Dec 2024 13:00	26	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	02 Dec 2024 16:00	03 Dec 2024 13:00	22	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	05 Dec 2024 19:00	06 Dec 2024 07:00	13	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	07 Dec 2024 23:00	11 Dec 2024 06:00	80	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	11 Dec 2024 09:00	11 Dec 2024 14:00	6	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	14 Dec 2024 00:00	14 Dec 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	14 Dec 2024 05:00	15 Dec 2024 19:00	39	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	16 Dec 2024 02:00	16 Dec 2024 09:00	8	Flat line in sensor output signal
Wind Speed, Wind Direction, Vertical Wind Speed, 163m	22 Dec 2024 10:00	23 Dec 2024 12:00	27	Flat line in sensor output signal



Wood Buffalo Environmental Association
Summary of Hour Averages

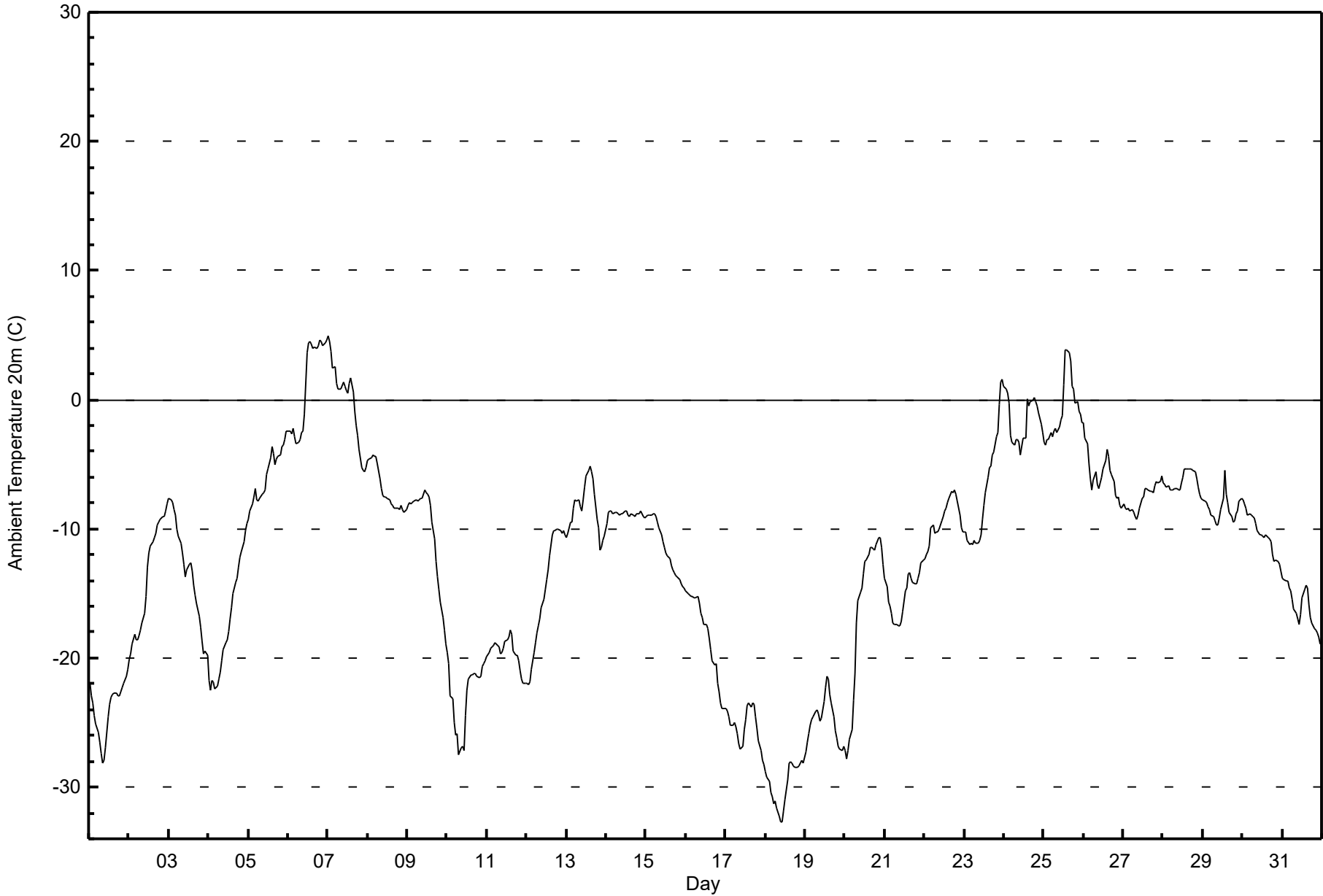
Ambient Temperature 20m (AT20) - C
Lower Camp Met Tower - December 2024

Maximum Value: 4.9 C on Dec 7 01:00		Maximum Daily Average: 1.1 C on Dec 6		Hours in Service: 744																																														
Minimum Value: -32.7 C on Dec 18 10:00		Minimum Daily Average: -29.8 C on Dec 18		Hours of Data: 744																																														
Maximum Diurnal Average: -10.7 C at hour 15		Minimum Diurnal Average: -13.2 C at hour 10		Hours of Missing Data: 0																																														
Monthly Average: -12.24 C		Percentiles: P ₁ = -30.9 P ₁₀ = -24.5 Q ₁ = -18.5 Median = -10.3 Q ₃ = -7.0 P ₉₀ = -2.5 P ₉₉ = 4.3		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-Dec	-21.9	-22.9	-23.5	-24.5	-25.1	-25.8	-26.6	-27.4	-28.1	-27.9	-27.0	-24.5	-23.6	-23.1	-22.9	-22.8	-22.7	-22.9	-23.0	-22.7	-22.3	-22.0	-21.4	-20.9	-24.0	-20.9																								
2-Dec	-20.1	-19.7	-19.0	-18.2	-18.6	-18.6	-18.2	-17.9	-17.3	-16.6	-15.2	-12.9	-11.8	-11.3	-11.0	-10.7	-10.4	-9.7	-9.5	-9.2	-9.1	-9.1	-8.6	-8.1	-13.8	-8.1																								
3-Dec	-7.6	-7.8	-8.0	-8.5	-8.9	-10.0	-10.6	-11.2	-11.9	-12.8	-13.7	-13.2	-12.7	-12.6	-13.2	-14.4	-15.1	-15.8	-16.7	-17.6	-18.7	-19.7	-19.5	-19.8	-13.3	-7.6																								
4-Dec	-21.8	-22.5	-21.7	-21.8	-22.4	-22.2	-21.7	-21.0	-20.2	-19.4	-18.8	-18.6	-18.0	-17.0	-16.1	-15.1	-14.1	-13.8	-12.9	-12.2	-11.8	-11.1	-10.1	-9.6	-17.2	-9.6																								
5-Dec	-9.3	-8.6	-8.0	-7.6	-6.9	-7.7	-7.9	-7.7	-7.3	-7.2	-6.9	-5.8	-5.3	-4.5	-3.6	-4.1	-5.1	-4.6	-4.4	-4.3	-3.6	-3.5	-3.1	-2.4	-5.8	-2.4																								
6-Dec	-2.5	-2.4	-2.7	-2.2	-2.8	-3.4	-3.3	-3.0	-2.5	-2.4	-1.1	3.6	4.4	4.5	4.2	4.0	4.0	4.0	4.2	4.7	4.5	4.2	4.4	4.6	1.1	4.7																								
7-Dec	4.9	4.5	3.8	2.4	2.6	1.2	0.8	0.9	0.8	1.4	1.0	0.7	0.5	1.3	1.7	0.6	-0.9	-2.0	-2.7	-3.9	-5.2	-5.5	-5.5	-5.2	-0.1	4.9																								
8-Dec	-4.7	-4.6	-4.5	-4.3	-4.4	-4.4	-4.9	-6.1	-6.9	-7.4	-7.5	-7.6	-7.6	-7.7	-8.0	-8.2	-8.3	-8.4	-8.4	-8.5	-8.2	-8.5	-8.8	-8.5	-6.9	-4.3																								
9-Dec	-8.2	-8.0	-8.0	-8.0	-7.9	-7.8	-7.9	-7.8	-7.6	-7.6	-7.0	-7.2	-7.3	-7.5	-8.2	-9.5	-10.8	-12.5	-13.8	-14.7	-15.6	-16.9	-17.9	-18.9	-10.3	-7.0																								
10-Dec	-19.5	-20.5	-22.9	-23.2	-25.0	-26.0	-25.9	-27.5	-26.9	-26.9	-27.2	-24.4	-22.5	-21.7	-21.3	-21.3	-21.2	-21.2	-21.4	-21.5	-21.4	-20.7	-20.4	-20.2	-22.9	-19.5																								
11-Dec	-19.9	-19.6	-19.2	-19.1	-19.0	-18.8	-19.0	-19.2	-19.6	-19.6	-19.2	-18.7	-18.6	-18.4	-17.8	-18.2	-19.5	-19.8	-19.8	-20.2	-20.9	-21.7	-22.0	-22.0	-19.6	-17.8																								
12-Dec	-22.0	-22.1	-21.9	-20.9	-19.6	-18.8	-18.1	-17.5	-16.9	-16.1	-15.4	-14.7	-13.9	-13.2	-12.1	-10.5	-10.1	-10.1	-10.0	-10.0	-10.1	-10.4	-10.2	-10.5	-14.8	-10.0																								
13-Dec	-10.6	-10.3	-9.5	-9.5	-8.4	-7.8	-7.9	-7.8	-8.3	-8.6	-7.8	-6.8	-5.9	-5.4	-5.1	-5.6	-6.1	-7.3	-9.2	-9.9	-11.6	-11.5	-10.8	-10.6	-8.4	-5.1																								
14-Dec	-9.6	-8.7	-8.6	-8.7	-8.8	-8.7	-8.7	-8.9	-8.9	-8.9	-8.8	-8.6	-8.7	-8.9	-9.1	-8.9	-8.9	-9.1	-8.8	-8.8	-8.8	-8.6	-9.1	-9.2	-8.9	-8.6																								
15-Dec	-9.1	-9.0	-9.0	-8.9	-8.8	-8.8	-8.8	-9.1	-9.5	-10.0	-10.5	-11.0	-11.4	-11.8	-12.1	-12.4	-12.8	-13.1	-13.4	-13.6	-13.7	-13.9	-14.2	-14.4	-14.6	-11.5	-8.8																							
16-Dec	-14.8	-15.0	-15.2	-15.2	-15.2	-15.3	-15.3	-15.3	-15.7	-16.5	-16.9	-17.4	-17.4	-17.7	-18.5	-19.3	-20.2	-20.5	-20.5	-22.0	-22.6	-23.5	-23.9	-23.9	-18.2	-14.8																								
17-Dec	-23.9	-24.1	-24.5	-25.2	-25.2	-25.0	-25.3	-25.8	-26.7	-27.1	-26.8	-25.5	-24.7	-23.7	-23.5	-23.8	-23.5	-23.5	-24.6	-25.5	-26.4	-27.2	-27.9	-28.2	-25.3	-23.5																								
18-Dec	-28.8	-29.2	-29.6	-30.4	-30.8	-31.3	-31.1	-31.6	-32.3	-32.7	-32.7	-31.9	-30.9	-29.4	-28.2	-28.1	-28.2	-28.4	-28.4	-28.5	-28.3	-28.1	-27.9	-28.2	-29.8	-27.9																								
19-Dec	-27.3	-26.5	-25.8	-25.2	-24.8	-24.6	-24.2	-24.0	-24.4	-24.8	-24.7	-23.4	-22.3	-21.4	-21.7	-22.8	-23.5	-24.6	-25.6	-26.2	-26.8	-27.1	-27.1	-26.8	-24.8	-21.4																								
20-Dec	-27.1	-27.8	-27.2	-26.2	-25.6	-23.3	-21.2	-17.3	-15.6	-15.0	-14.6	-13.5	-12.6	-12.5	-12.0	-11.4	-11.5	-11.5	-11.6	-11.2	-10.7	-10.6	-11.4	-12.8	-16.4	-10.6																								
21-Dec	-13.9	-14.5	-15.6	-15.9	-16.5	-17.3	-17.4	-17.4	-17.5	-17.5	-17.2	-16.4	-14.8	-14.5	-13.5	-13.4	-13.8	-14.1	-14.3	-14.2	-13.8	-13.4	-12.7	-12.4	-15.1	-12.4																								
22-Dec	-12.3	-12.0	-11.7	-11.3	-9.9	-9.7	-10.3	-10.3	-10.2	-10.1	-9.4	-9.0	-8.6	-8.4	-8.0	-7.7	-7.1	-7.2	-7.0	-7.4	-7.9	-8.9	-9.9	-10.2	-9.4	-7.0																								
23-Dec	-10.2	-10.3	-10.9	-11.2	-11.2	-11.2	-10.9	-11.1	-11.1	-10.9	-10.4	-9.3	-8.2	-7.2	-6.0	-5.2	-5.2	-4.3	-4.1	-2.9	-2.5	-0.4	1.3	1.6	-7.2	1.6																								
24-Dec	1.0	0.9	0.5	-0.2	-2.8	-3.3	-3.5	-3.0	-3.1	-3.3	-4.3	-3.0	-2.9	-3.0	0.1	-0.5	-0.2	0.0	0.2	-0.1	-0.5	-1.0	-1.9	-2.5	-1.5	1.0																								
25-Dec	-3.3	-3.5	-3.1	-3.1	-2.5	-2.8	-2.4	-2.2	-2.6	-2.1	-1.6	-1.2	1.1	3.9	3.8	3.7	2.9	1.0	0.8	-0.3	-0.1	-1.0	-1.2	-1.8	-0.7	3.9																								
26-Dec	-1.7	-2.9	-3.5	-4.9	-6.1	-7.0	-6.3	-5.6	-6.5	-6.9	-6.4	-6.0	-5.4	-4.7	-3.8	-4.4	-5.4	-5.8	-6.4	-7.4	-7.6	-7.5	-8.2	-8.4	-5.8	-1.7																								
27-Dec	-8.1	-8.4	-8.5	-8.4	-8.6	-8.5	-8.7	-9.1	-9.2	-9.0	-8.4	-7.7	-7.5	-6.9	-6.9	-7.0	-7.1	-7.1	-7.2	-6.6	-6.3	-6.4	-6.4	-5.9	-7.7	-5.9																								
28-Dec	-6.4	-6.6	-6.8	-6.7	-6.9	-7.0	-6.9	-6.9	-6.9	-7.0	-6.9	-6.5	-6.0	-5.4	-5.4	-5.3	-5.4	-5.4	-5.5	-5.6	-6.2	-6.8	-7.3	-7.6	-6.4	-5.3																								
29-Dec	-7.7	-7.8	-7.9	-8.2	-8.5	-8.9	-9.0	-9.4	-9.7	-9.7	-9.2	-8.5	-7.7	-5.5	-7.3	-8.0	-8.7	-9.0	-9.4	-9.4	-8.8	-8.6	-7.9	-7.6	-8.4	-5.5																								
30-Dec	-7.8	-8.0	-8.4	-8.9	-8.9	-9.0	-9.0	-9.2	-9.6	-10.1	-10.5	-10.5	-10.6	-10.7	-10.5	-10.7	-10.8	-11.0	-12.0	-12.5	-12.4	-12.5	-12.7	-13.3	-10.4	-7.8																								
31-Dec	-13.8	-13.9	-14.0	-14.0	-14.6	-14.8	-15.4	-16.2	-16.6	-17.0	-17.4	-16.6	-15.3	-14.7	-14.4	-14.6	-15.9	-16.9	-17.3	-17.7	-17.9	-18.0	-18.3	-18.9	-16.0	-13.8																								
																								-12.5	-12.6	-12.7	-12.9	-13.0	-13.1	-13.1	-13.1	-13.2	-13.2	-13.0	-12.1	-11.5	-10.9	-10.7	-10.8	-11.2	-11.4	-11.7	-11.9	-12.1	-12.3	-12.3	Diurnal Average			
																								4.9	4.5	3.8	2.4	2.6	1.2	0.8	0.9	0.8	1.4	1.0	3.6	4.4	4.5	4.2	4.0	4.0	4.0	4.0	4.2	4.7	4.5	4.2	4.4	4.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	153	20.56	20.56
-20 - 0	547	73.52	94.09
0 - 10	44	5.91	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

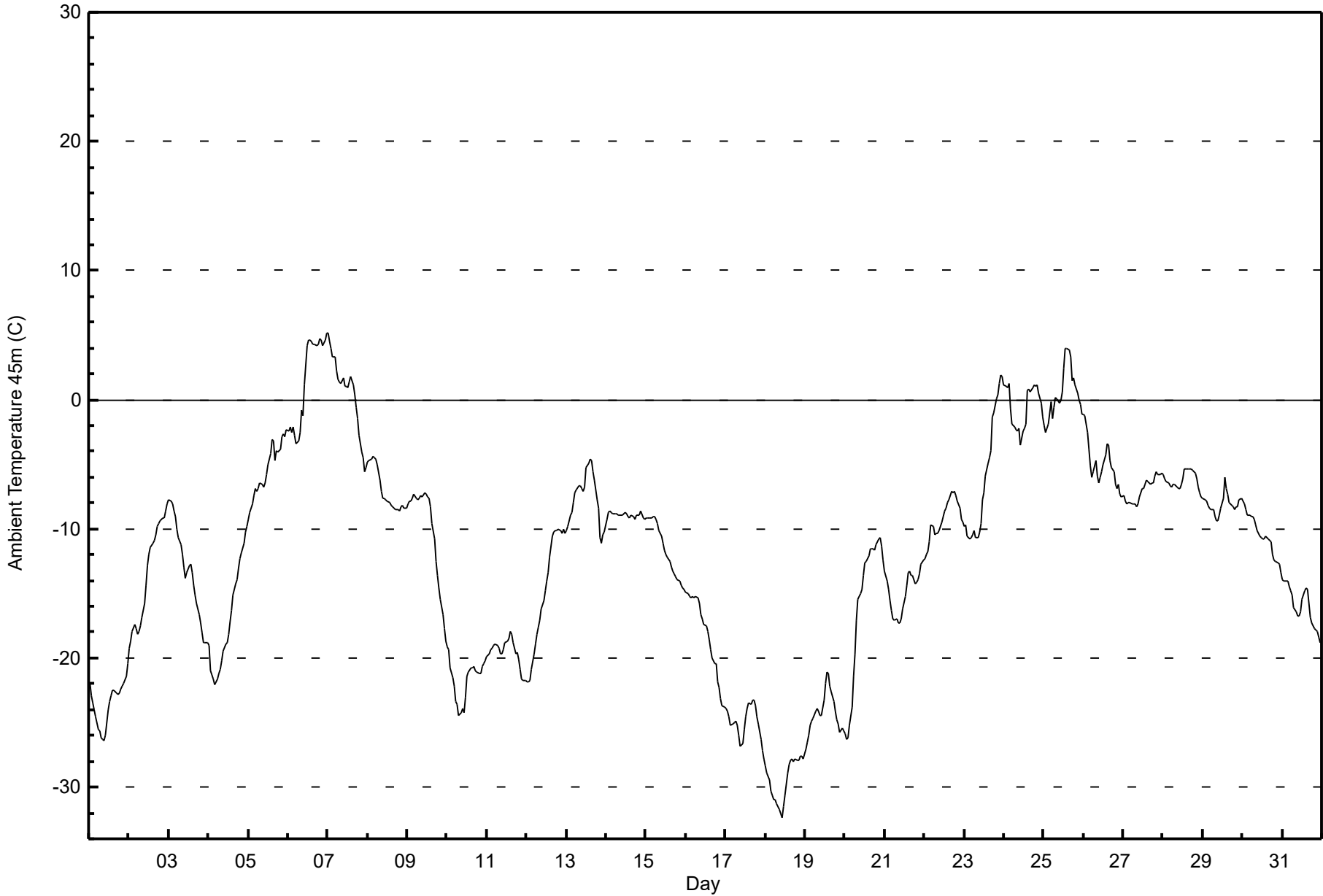
Ambient Temperature 45m (AT45) - C
Lower Camp Met Tower - December 2024

Maximum Value: 5.1 C on Dec 7 01:00		Maximum Daily Average: 1.5 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -32.3 C on Dec 18 11:00		Minimum Daily Average: -29.4 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.5 C at hour 15		Minimum Diurnal Average: -12.7 C at hour 10		Hours of Missing Data: 0																																													
Monthly Average: -11.88 C		Percentiles: P ₁ = -30.7 P ₁₀ = -23.9 Q ₁ = -18.2 Median = -10.2 Q ₃ = -6.6 P ₉₀ = -1.3 P ₉₉ = 4.5		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-Dec	-22.0	-22.9	-23.5	-24.1	-24.6	-25.5	-25.6	-26.2	-26.3	-26.4	-25.9	-24.0	-23.4	-22.9	-22.5	-22.5	-22.7	-22.8	-22.7	-22.4	-22.1	-21.9	-21.4	-20.5	-23.5	-20.5																							
2-Dec	-19.3	-18.7	-18.0	-17.4	-17.8	-18.2	-17.9	-17.5	-16.8	-15.7	-14.4	-12.9	-12.0	-11.4	-11.1	-10.8	-10.5	-9.8	-9.6	-9.4	-9.2	-9.1	-8.6	-8.1	-13.5	-8.1																							
3-Dec	-7.7	-7.9	-8.1	-8.6	-9.0	-10.1	-10.7	-11.3	-12.0	-12.9	-13.8	-13.4	-12.9	-12.7	-13.4	-14.3	-15.1	-15.8	-16.6	-17.3	-18.1	-18.8	-18.8	-18.8	-13.2	-7.7																							
4-Dec	-19.1	-21.0	-21.4	-21.6	-22.0	-21.7	-21.2	-20.9	-20.2	-19.5	-19.0	-18.8	-18.1	-17.2	-16.3	-15.1	-14.2	-13.9	-13.0	-12.3	-11.9	-11.1	-10.2	-9.8	-17.1	-9.8																							
5-Dec	-9.3	-8.7	-8.1	-7.4	-6.9	-7.1	-6.9	-6.4	-6.6	-6.8	-6.4	-5.8	-5.1	-4.2	-3.1	-3.2	-4.7	-4.0	-4.1	-3.8	-2.8	-2.7	-2.9	-2.3	-5.4	-2.3																							
6-Dec	-2.4	-2.1	-2.5	-2.1	-2.8	-3.4	-3.2	-2.6	-0.9	-1.2	1.1	4.2	4.6	4.6	4.5	4.3	4.3	4.2	4.3	4.8	4.6	4.2	4.7	5.1	1.5	5.1																							
7-Dec	5.1	4.5	4.0	3.3	3.3	2.3	1.6	1.4	1.3	1.7	1.1	1.0	1.0	1.3	1.8	1.2	0.4	-0.6	-1.4	-2.7	-4.1	-4.5	-5.6	-5.3	0.5	5.1																							
8-Dec	-4.8	-4.7	-4.6	-4.3	-4.5	-4.6	-5.1	-6.3	-7.1	-7.6	-7.7	-7.8	-7.9	-7.9	-8.2	-8.3	-8.4	-8.5	-8.5	-8.6	-8.3	-8.2	-8.4	-8.4	-7.0	-4.3																							
9-Dec	-8.1	-7.8	-7.8	-7.6	-7.3	-7.7	-7.8	-7.6	-7.4	-7.5	-7.2	-7.4	-7.5	-7.7	-8.3	-9.6	-10.8	-12.5	-13.6	-14.5	-15.4	-16.6	-17.7	-18.7	-10.2	-7.2																							
10-Dec	-19.2	-19.4	-20.8	-21.5	-22.2	-23.4	-23.6	-24.4	-24.3	-24.0	-24.2	-23.0	-21.4	-21.1	-20.7	-20.8	-20.6	-21.0	-21.0	-21.2	-21.2	-20.6	-20.4	-20.3	-21.7	-19.2																							
11-Dec	-19.9	-19.6	-19.4	-19.3	-19.1	-18.9	-19.1	-19.3	-19.7	-19.7	-19.3	-18.8	-18.7	-18.5	-18.0	-18.1	-18.8	-19.6	-19.5	-20.2	-20.8	-21.6	-21.8	-21.8	-19.6	-18.0																							
12-Dec	-21.8	-21.9	-21.8	-20.8	-19.7	-18.9	-18.2	-17.7	-17.0	-16.2	-15.6	-14.8	-14.1	-13.4	-12.2	-10.6	-10.2	-10.1	-10.1	-10.0	-10.2	-10.3	-10.0	-10.4	-14.8	-10.0																							
13-Dec	-10.2	-9.8	-9.0	-8.7	-7.9	-7.2	-7.0	-6.7	-6.7	-6.9	-7.1	-6.8	-5.2	-5.0	-4.6	-4.7	-5.5	-6.3	-7.8	-8.4	-10.7	-11.1	-10.5	-10.3	-7.7	-4.6																							
14-Dec	-9.3	-8.7	-8.6	-8.7	-8.9	-8.8	-8.8	-8.9	-9.0	-8.9	-8.9	-8.7	-8.8	-9.1	-9.2	-9.0	-9.1	-9.3	-8.9	-8.9	-8.9	-8.7	-9.2	-9.3	-8.9	-8.6																							
15-Dec	-9.2	-9.1	-9.1	-9.1	-9.0	-9.0	-9.2	-9.6	-10.1	-10.6	-11.2	-11.6	-12.0	-12.2	-12.5	-13.0	-13.3	-13.5	-13.7	-13.9	-14.1	-14.4	-14.6	-14.7	-11.6	-9.0																							
16-Dec	-14.9	-15.0	-15.2	-15.3	-15.2	-15.3	-15.3	-15.3	-15.8	-16.6	-16.9	-17.4	-17.5	-17.9	-18.6	-19.3	-20.0	-20.5	-20.5	-21.9	-22.3	-23.2	-23.7	-23.8	-18.2	-14.9																							
17-Dec	-23.9	-24.1	-24.5	-25.3	-25.1	-25.0	-24.9	-25.2	-26.0	-26.9	-26.6	-25.6	-24.6	-23.9	-23.4	-23.6	-23.3	-23.2	-23.7	-24.5	-25.1	-26.3	-27.2	-27.8	-25.0	-23.2																							
18-Dec	-28.3	-28.9	-29.4	-30.3	-30.6	-30.9	-31.0	-31.3	-31.7	-32.1	-32.3	-31.5	-30.7	-28.9	-28.2	-27.9	-27.8	-28.0	-27.8	-27.9	-27.9	-27.6	-27.6	-27.8	-29.4	-27.6																							
19-Dec	-27.1	-26.5	-25.9	-25.2	-24.9	-24.7	-24.1	-23.9	-24.2	-24.5	-24.4	-23.3	-22.0	-21.1	-21.2	-22.1	-22.6	-23.4	-24.1	-24.8	-25.1	-25.7	-25.4	-25.7	-24.2	-21.1																							
20-Dec	-25.9	-26.3	-26.2	-25.2	-23.8	-21.4	-19.6	-17.1	-15.5	-15.0	-14.6	-13.6	-12.7	-12.5	-12.1	-11.5	-11.6	-11.6	-11.6	-11.3	-10.7	-10.7	-11.3	-12.4	-16.0	-10.7																							
21-Dec	-13.2	-14.0	-14.7	-15.6	-16.3	-16.9	-17.1	-17.0	-17.3	-17.3	-17.0	-16.2	-15.2	-14.3	-13.4	-13.3	-13.6	-13.6	-14.3	-14.1	-13.9	-13.5	-12.7	-12.4	-14.9	-12.4																							
22-Dec	-12.4	-12.0	-11.7	-11.0	-9.6	-9.8	-10.4	-10.3	-10.3	-10.1	-9.5	-9.1	-8.7	-8.4	-8.0	-7.7	-7.1	-7.2	-7.1	-7.4	-7.8	-8.4	-9.3	-9.5	-9.3	-7.1																							
23-Dec	-9.8	-9.7	-10.6	-10.8	-10.7	-10.5	-10.2	-10.7	-10.7	-10.2	-9.6	-7.8	-7.2	-5.9	-4.9	-4.5	-3.9	-1.3	-1.1	0.1	0.3	1.2	1.9	1.8	-6.0	1.9																							
24-Dec	1.1	1.0	0.9	1.2	-0.7	-1.9	-2.2	-2.3	-2.5	-2.2	-3.5	-2.4	-2.2	-1.9	0.7	0.8	0.6	0.9	1.1	1.0	1.1	0.5	-0.3	-1.3	-0.5	1.2																							
25-Dec	-2.0	-2.5	-2.2	-1.9	-0.2	-1.4	-0.6	0.2	0.1	-0.3	0.0	0.6	2.5	4.0	3.9	3.8	3.3	1.5	1.7	1.1	0.5	-0.1	-0.4	-1.1	0.4	4.0																							
26-Dec	-1.1	-1.3	-2.5	-3.8	-5.2	-6.1	-5.5	-4.7	-5.9	-6.4	-6.0	-5.6	-5.0	-4.3	-3.4	-3.5	-4.8	-5.2	-5.6	-6.6	-6.8	-6.6	-7.3	-7.6	-5.0	-1.1																							
27-Dec	-7.4	-7.8	-8.1	-7.9	-8.0	-8.1	-8.1	-8.0	-8.3	-8.1	-7.5	-6.8	-6.9	-6.6	-6.2	-6.3	-6.6	-6.4	-6.5	-5.9	-5.5	-5.7	-5.8	-5.6	-7.0	-5.5																							
28-Dec	-5.8	-6.1	-6.3	-6.5	-6.7	-6.7	-6.6	-6.6	-6.8	-6.9	-6.9	-6.5	-6.1	-5.4	-5.4	-5.3	-5.4	-5.3	-5.4	-5.6	-6.2	-6.8	-7.2	-7.5	-6.3	-5.3																							
29-Dec	-7.7	-7.8	-7.9	-8.2	-8.4	-8.5	-8.5	-9.0	-9.4	-9.4	-8.9	-8.5	-7.7	-6.0	-6.9	-7.3	-8.0	-8.2	-8.3	-8.5	-8.3	-8.2	-7.8	-7.6	-8.1	-6.0																							
30-Dec	-7.8	-8.1	-8.5	-9.0	-8.9	-9.0	-9.1	-9.3	-9.7	-10.2	-10.5	-10.6	-10.8	-10.8	-10.6	-10.8	-10.9	-11.0	-12.0	-12.5	-12.5	-12.6	-12.8	-13.4	-10.5	-7.8																							
31-Dec	-13.9	-14.0	-14.1	-14.0	-14.5	-14.8	-15.1	-16.1	-16.5	-16.7	-16.7	-16.4	-15.4	-14.8	-14.6	-14.7	-15.8	-16.8	-17.3	-17.7	-17.9	-18.0	-18.3	-18.8	-16.0	-13.9																							
																								-12.2	-12.3	-12.4	-12.5	-12.5	-12.7	-12.6	-12.6	-12.7	-12.7	-12.6	-11.9	-11.3	-10.8	-10.5	-10.6	-10.9	-11.1	-11.3	-11.5	-11.7	-11.8	-12.0	-12.1	Diurnal Average	
																								5.1	4.5	4.0	3.3	3.3	2.3	1.6	1.4	1.3	1.7	1.1	4.2	4.6	4.6	4.5	4.3	4.3	4.2	4.3	4.8	4.6	4.2	4.7	5.1	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	148	19.89	19.89
-20 - 0	536	72.04	91.94
0 - 10	60	8.06	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

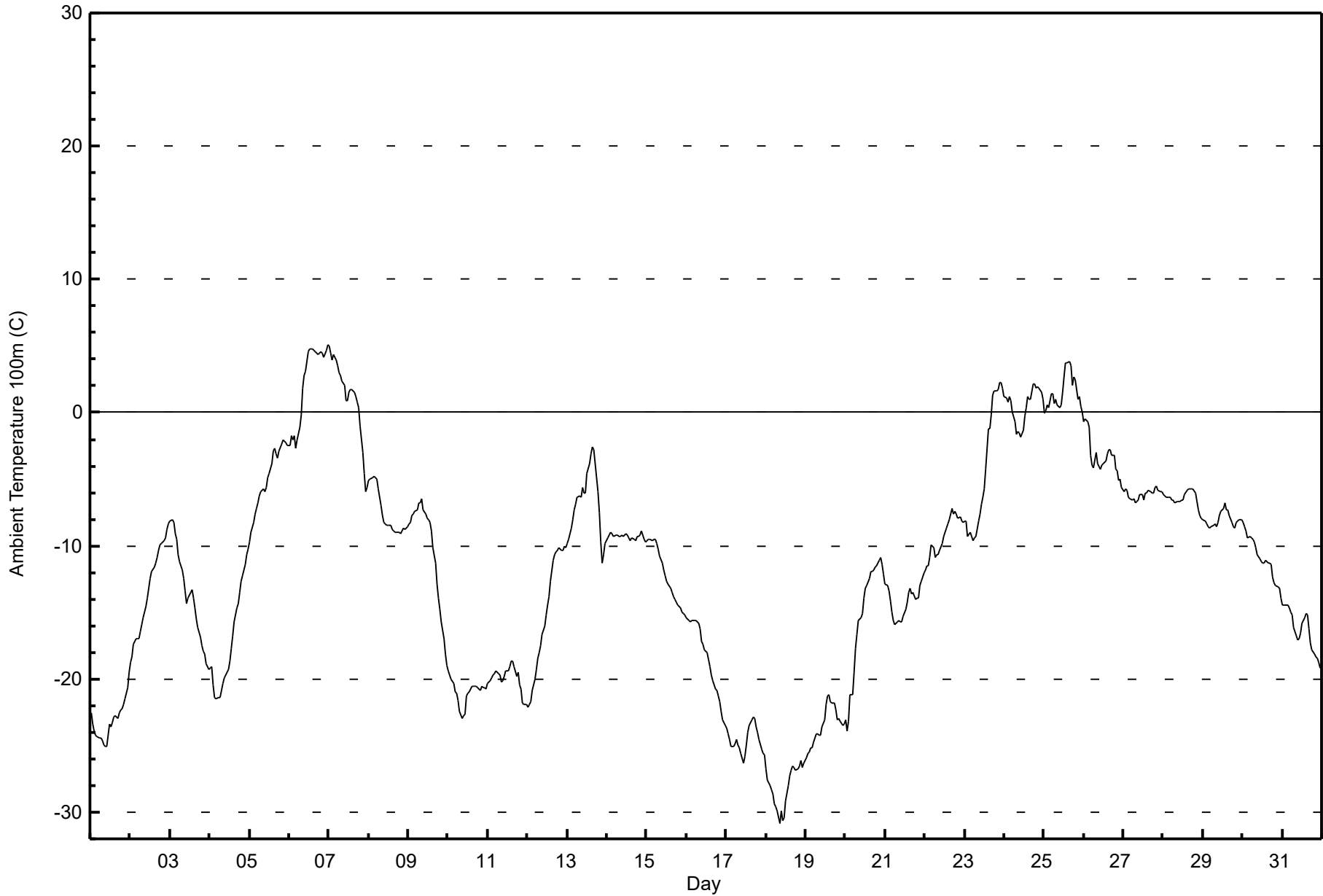
Ambient Temperature 100m (AT100) - C
Lower Camp Met Tower - December 2024

Maximum Value: 5.1 C on Dec 7 00:00		Maximum Daily Average: 2.2 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -30.8 C on Dec 18 09:00		Minimum Daily Average: -28.1 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.5 C at hour 16		Minimum Diurnal Average: -12.1 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -11.55 C		Percentiles: P ₁ = -28.9 P ₁₀ = -23.2 Q ₁ = -18.5 Median = -10.2 Q ₃ = -6.1 P ₉₀ = 0.4 P ₉₉ = 4.6		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-Dec	-22.5	-23.4	-23.9	-24.2	-24.4	-24.4	-24.4	-24.7	-24.9	-25.1	-25.1	-23.4	-23.6	-23.3	-22.9	-22.7	-23.0	-22.5	-22.3	-22.2	-21.9	-21.5	-20.7	-19.5	-23.2	-19.5																						
2-Dec	-18.8	-18.3	-17.4	-17.0	-17.0	-17.0	-16.5	-15.9	-15.4	-14.6	-14.0	-13.2	-12.4	-12.0	-11.6	-11.3	-10.9	-10.3	-10.0	-9.8	-9.6	-9.4	-8.8	-8.4	-13.3	-8.4																						
3-Dec	-8.1	-8.1	-8.3	-9.1	-9.5	-10.6	-11.2	-11.8	-12.5	-13.4	-14.3	-13.9	-13.5	-13.3	-13.9	-14.7	-15.5	-16.1	-16.9	-17.4	-17.9	-18.2	-18.9	-19.2	-13.6	-8.1																						
4-Dec	-19.2	-19.1	-20.5	-21.3	-21.5	-21.4	-21.4	-20.8	-20.3	-19.9	-19.5	-19.3	-18.7	-17.7	-16.8	-15.7	-14.7	-14.3	-13.5	-12.6	-12.3	-11.4	-10.7	-10.3	-17.2	-10.3																						
5-Dec	-9.7	-9.0	-8.2	-7.6	-7.2	-6.8	-6.3	-6.0	-5.7	-6.0	-5.6	-4.9	-4.5	-3.8	-2.9	-2.7	-3.1	-3.4	-2.9	-2.4	-2.1	-2.1	-2.3	-2.4	-4.9	-2.1																						
6-Dec	-2.5	-1.7	-2.0	-1.7	-2.7	-2.0	-1.2	-0.2	1.9	2.8	3.1	4.5	4.7	4.8	4.6	4.6	4.3	4.4	4.6	4.5	4.1	4.6	5.1	2.2	5.1																							
7-Dec	5.0	4.4	4.0	4.4	3.9	3.5	3.0	2.8	2.4	2.1	0.9	0.9	1.5	1.7	1.7	1.5	1.2	0.8	0.3	-1.0	-3.0	-4.5	-5.9	-5.6	1.1	5.0																						
8-Dec	-5.2	-5.0	-4.9	-4.7	-4.9	-5.0	-5.7	-6.9	-7.7	-8.2	-8.4	-8.4	-8.4	-8.5	-8.8	-8.9	-9.0	-9.0	-9.0	-9.1	-8.8	-8.7	-8.7	-8.6	-7.5	-4.7																						
9-Dec	-8.4	-8.2	-7.8	-7.7	-7.4	-7.3	-6.8	-6.8	-6.5	-7.3	-7.6	-7.9	-8.0	-8.2	-8.8	-10.1	-11.3	-12.9	-14.0	-14.8	-15.7	-16.9	-18.1	-19.0	-10.3	-6.5																						
10-Dec	-19.4	-19.7	-20.0	-20.4	-20.9	-21.0	-21.6	-22.4	-23.0	-22.7	-22.7	-21.3	-21.1	-21.0	-20.6	-20.6	-20.5	-20.6	-20.6	-20.8	-20.6	-20.7	-20.7	-20.7	-21.0	-19.4																						
11-Dec	-20.3	-20.1	-19.9	-19.7	-19.6	-19.4	-19.6	-19.7	-20.2	-20.2	-19.8	-19.4	-19.4	-19.1	-18.7	-18.6	-19.1	-19.8	-19.5	-20.4	-20.8	-21.8	-22.0	-21.9	-20.0	-18.6																						
12-Dec	-22.1	-21.9	-21.7	-20.9	-20.0	-19.3	-18.4	-18.0	-17.5	-16.6	-16.0	-15.2	-14.5	-13.8	-12.6	-11.1	-10.7	-10.4	-10.4	-10.2	-10.4	-10.3	-10.1	-10.1	-15.1	-10.1																						
13-Dec	-9.8	-9.5	-8.7	-8.0	-7.3	-6.9	-6.4	-6.3	-6.4	-5.6	-6.0	-6.0	-4.6	-3.9	-3.1	-2.6	-2.8	-3.8	-6.0	-7.5	-9.7	-11.3	-10.6	-9.8	-6.8	-2.6																						
14-Dec	-9.4	-9.2	-9.0	-9.1	-9.3	-9.2	-9.2	-9.3	-9.3	-9.2	-9.3	-9.1	-9.2	-9.4	-9.6	-9.4	-9.5	-9.6	-9.3	-9.3	-9.2	-8.9	-9.5	-9.7	-9.3	-8.9																						
15-Dec	-9.6	-9.5	-9.5	-9.6	-9.5	-9.5	-9.9	-10.3	-10.8	-11.2	-11.8	-12.2	-12.7	-12.9	-13.1	-13.5	-13.8	-14.1	-14.3	-14.4	-14.6	-14.9	-15.1	-15.2	-12.2	-9.5																						
16-Dec	-15.4	-15.6	-15.7	-15.7	-15.6	-15.6	-15.6	-15.8	-16.3	-17.2	-17.4	-17.8	-18.0	-18.5	-19.1	-19.7	-20.2	-20.8	-20.8	-21.3	-21.7	-22.5	-23.1	-23.5	-18.4	-15.4																						
17-Dec	-23.7	-24.1	-24.5	-25.1	-25.1	-24.8	-24.5	-24.9	-25.2	-25.6	-26.3	-25.8	-25.0	-24.0	-23.5	-23.0	-22.9	-23.0	-23.6	-24.1	-24.6	-25.2	-25.6	-25.7	-24.6	-22.9																						
18-Dec	-26.7	-27.5	-28.0	-28.3	-28.7	-29.4	-29.6	-29.9	-30.8	-29.9	-30.7	-30.4	-29.1	-28.0	-27.3	-26.9	-26.6	-26.6	-26.8	-26.8	-26.5	-26.1	-26.6	-26.3	-28.1	-26.1																						
19-Dec	-25.9	-25.6	-25.5	-25.2	-25.1	-24.8	-24.1	-24.2	-24.2	-24.3	-23.6	-23.1	-21.9	-21.3	-21.2	-21.7	-21.8	-21.9	-22.3	-23.1	-23.0	-23.2	-23.5	-23.4	-23.5	-21.2																						
20-Dec	-23.1	-23.9	-23.2	-21.1	-21.2	-19.5	-17.7	-16.7	-15.6	-15.4	-15.0	-13.9	-13.1	-13.0	-12.5	-11.9	-11.9	-11.8	-11.6	-11.5	-11.0	-10.9	-11.4	-12.2	-15.4	-10.9																						
21-Dec	-12.9	-13.0	-13.4	-14.1	-15.0	-15.6	-15.9	-15.8	-15.6	-15.7	-15.8	-15.3	-14.8	-14.2	-13.5	-13.2	-13.6	-13.5	-14.1	-13.9	-13.9	-13.0	-12.6	-12.1	-14.2	-12.1																						
22-Dec	-11.8	-11.5	-11.5	-10.8	-9.9	-10.2	-10.8	-10.7	-10.7	-10.4	-9.8	-9.4	-9.0	-8.7	-8.4	-8.0	-7.2	-7.6	-7.5	-7.6	-8.0	-7.8	-8.1	-8.3	-9.3	-7.2																						
23-Dec	-8.1	-8.1	-9.3	-9.0	-9.3	-9.7	-9.4	-9.3	-8.2	-7.6	-6.9	-6.4	-5.7	-4.2	-1.2	-1.2	-0.2	1.3	1.7	1.7	1.8	2.3	2.2	1.8	-4.2	2.3																						
24-Dec	1.3	1.1	0.8	1.2	0.9	0.0	-0.7	-1.6	-1.4	-1.5	-1.9	-1.4	-0.2	0.3	1.2	1.0	2.1	2.2	1.8	2.0	1.8	1.5	0.9	0.5	2.2	0.5																						
25-Dec	-0.1	0.2	0.6	0.3	1.4	1.4	0.7	1.0	0.5	0.4	0.6	1.5	2.6	3.7	3.7	3.8	3.5	2.0	2.6	2.5	1.0	1.3	0.5	0.0	1.5	3.8																						
26-Dec	-0.7	-0.4	-0.7	-1.1	-3.2	-3.9	-4.1	-3.0	-3.8	-4.0	-4.3	-4.0	-3.8	-3.6	-3.1	-2.8	-2.8	-3.2	-3.3	-4.2	-4.3	-5.1	-5.0	-5.6	-3.3	-0.4																						
27-Dec	-6.0	-5.7	-5.8	-6.4	-6.4	-6.5	-6.5	-6.8	-6.7	-6.6	-6.1	-6.2	-6.5	-6.1	-6.1	-5.8	-6.0	-6.1	-6.0	-5.7	-5.6	-5.8	-5.9	-6.0	-6.1	-5.6																						
28-Dec	-6.2	-6.3	-6.4	-6.4	-6.4	-6.6	-6.6	-6.7	-6.7	-6.7	-6.7	-6.6	-6.5	-6.1	-5.9	-5.7	-5.7	-5.7	-5.8	-6.0	-6.6	-7.3	-7.7	-7.9	-6.5	-5.7																						
29-Dec	-8.0	-8.2	-8.4	-8.6	-8.7	-8.6	-8.4	-8.3	-8.6	-8.3	-7.8	-7.4	-7.2	-6.8	-7.3	-7.3	-7.8	-8.3	-8.6	-8.6	-8.3	-8.1	-8.0	-8.0	-8.1	-6.8																						
30-Dec	-8.2	-8.5	-8.9	-9.4	-9.3	-9.4	-9.5	-9.7	-10.1	-10.6	-11.0	-11.2	-11.3	-11.3	-11.1	-11.3	-11.3	-11.4	-12.4	-12.8	-13.0	-13.1	-13.2	-13.9	-10.9	-8.2																						
31-Dec	-14.4	-14.4	-14.5	-14.4	-14.7	-14.9	-15.1	-16.1	-16.8	-17.0	-17.0	-16.6	-15.9	-15.4	-15.1	-15.2	-16.2	-17.3	-17.8	-18.2	-18.3	-18.5	-18.8	-19.2	-16.3	-14.4																						
																								-11.9	-11.9	-12.0	-12.0	-12.1	-12.1	-12.0	-12.1	-12.1	-12.1	-12.1	-11.7	-11.3	-10.9	-10.6	-10.5	-10.6	-10.8	-10.9	-11.1	-11.4	-11.5	-11.7	-11.8	Diurnal Average
																								5.0	4.4	4.0	4.4	3.9	3.5	3.0	2.8	2.4	2.8	3.1	4.5	4.7	4.8	4.8	4.6	4.6	4.3	4.4	4.6	4.5	4.1	4.6	5.1	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	150	20.16	20.16
-20 - 0	512	68.82	88.98
0 - 10	82	11.02	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

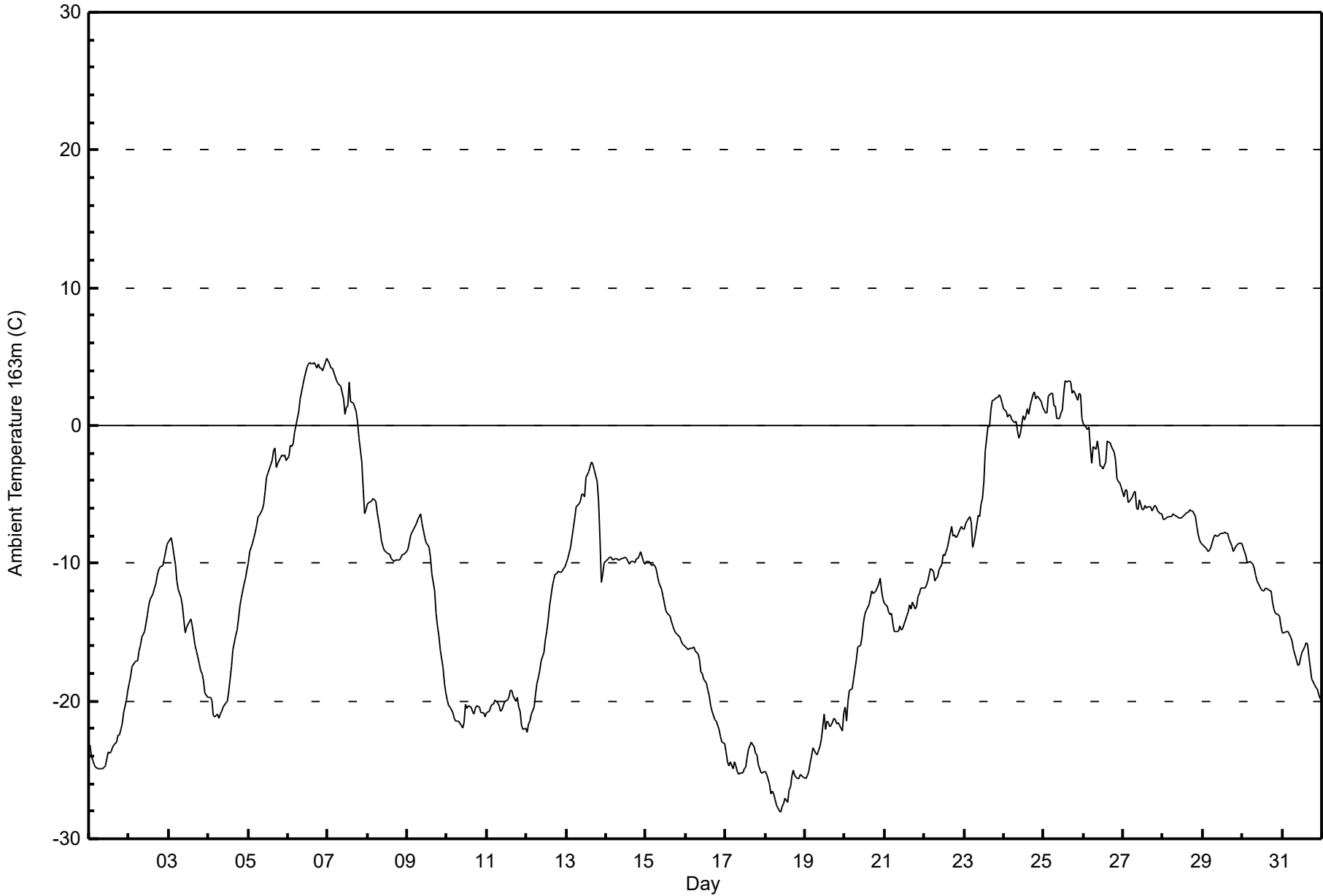
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

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

Maximum Value: 4.9 C on Dec 7 00:00		Maximum Daily Average: 2.6 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -28.0 C on Dec 18 10:00		Minimum Daily Average: -26.4 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.7 C at hour 17		Minimum Diurnal Average: -12.0 C at hour 10		Hours of Missing Data: 0																																													
Monthly Average: -11.49 C		Percentiles: P ₁ = -26.9 P ₁₀ = -23.0 Q ₁ = -18.8 Median = -10.6 Q ₃ = -6.1 P ₉₀ = 0.9 P ₉₉ = 4.5		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-Dec	-23.2	-24.0	-24.3	-24.6	-24.8	-25.0	-24.9	-24.9	-24.9	-24.8	-24.7	-23.7	-23.8	-23.7	-23.4	-23.2	-23.0	-22.5	-22.4	-22.0	-21.7	-20.8	-19.9	-19.2	-23.3	-19.2																							
2-Dec	-18.7	-18.2	-17.5	-17.2	-17.1	-17.1	-16.4	-15.9	-15.4	-14.9	-14.4	-13.8	-13.0	-12.6	-12.2	-11.8	-11.5	-10.9	-10.5	-10.2	-10.1	-9.7	-9.1	-8.6	-13.6	-8.6																							
3-Dec	-8.5	-8.2	-8.8	-9.5	-10.1	-11.3	-11.9	-12.5	-13.2	-14.1	-15.0	-14.6	-14.2	-14.0	-14.6	-15.2	-15.9	-16.4	-17.3	-17.8	-18.0	-18.5	-19.5	-19.8	-14.1	-8.2																							
4-Dec	-19.7	-19.7	-19.9	-21.0	-21.1	-20.9	-21.3	-21.0	-20.7	-20.4	-20.1	-20.0	-19.3	-18.4	-17.5	-16.3	-15.3	-14.8	-14.1	-13.1	-12.5	-11.4	-11.1	-10.5	-17.5	-10.5																							
5-Dec	-10.0	-9.2	-8.5	-8.1	-7.7	-7.2	-6.7	-6.5	-6.1	-5.7	-4.8	-3.7	-3.5	-2.9	-2.6	-1.9	-1.6	-3.0	-2.8	-2.4	-2.1	-2.2	-2.1	-2.6	-4.7	-1.6																							
6-Dec	-2.2	-1.5	-1.5	-1.4	-0.5	0.0	1.0	1.9	2.5	3.0	3.5	4.3	4.4	4.6	4.5	4.4	4.6	4.2	4.5	4.2	4.1	4.0	4.5	4.9	2.6	4.9																							
7-Dec	4.7	4.5	4.1	4.2	3.6	3.3	3.1	3.0	2.9	2.0	0.8	1.3	1.4	3.2	1.7	1.7	1.4	1.0	0.3	-0.9	-2.6	-4.6	-6.4	-6.1	1.1	4.7																							
8-Dec	-5.7	-5.6	-5.4	-5.2	-5.4	-5.5	-6.3	-7.5	-8.3	-8.8	-9.0	-9.2	-9.3	-9.4	-9.7	-9.8	-9.9	-9.8	-9.8	-9.7	-9.5	-9.4	-9.4	-9.2	-8.2	-5.2																							
9-Dec	-9.0	-8.5	-8.0	-7.7	-7.5	-7.1	-6.8	-6.6	-6.4	-7.1	-8.1	-8.6	-8.7	-8.9	-9.5	-10.8	-12.0	-13.6	-14.5	-15.3	-16.3	-17.6	-18.7	-19.5	-10.7	-6.4																							
10-Dec	-20.0	-20.3	-20.4	-20.9	-21.2	-21.4	-21.5	-21.5	-21.7	-21.9	-21.6	-20.3	-20.5	-20.4	-20.4	-20.7	-20.9	-20.6	-20.4	-20.4	-20.8	-20.9	-20.8	-21.1	-20.9	-20.0																							
11-Dec	-20.8	-20.7	-20.5	-20.3	-20.2	-20.0	-20.1	-20.3	-20.7	-20.7	-20.4	-20.1	-19.9	-19.7	-19.2	-19.2	-19.6	-20.0	-19.7	-20.5	-20.7	-21.7	-22.0	-21.9	-20.4	-19.2																							
12-Dec	-22.3	-21.7	-21.4	-20.9	-20.4	-19.5	-18.7	-18.3	-17.8	-17.1	-16.5	-15.6	-14.9	-14.1	-13.1	-11.7	-11.2	-10.8	-10.8	-10.6	-10.7	-10.6	-10.4	-10.2	-15.4	-10.2																							
13-Dec	-10.0	-9.7	-8.9	-8.2	-7.4	-6.7	-5.9	-5.7	-5.5	-5.0	-5.0	-5.2	-3.8	-3.3	-3.0	-2.6	-2.8	-3.3	-4.0	-5.5	-8.2	-11.4	-10.7	-10.0	-6.3	-2.6																							
14-Dec	-9.7	-9.7	-9.5	-9.6	-9.7	-9.7	-9.7	-9.7	-9.8	-9.7	-9.7	-9.6	-9.7	-9.9	-10.0	-9.9	-9.9	-10.0	-9.6	-9.7	-9.4	-9.2	-9.9	-10.1	-9.7	-9.2																							
15-Dec	-9.9	-9.9	-9.9	-10.1	-10.0	-10.1	-10.4	-10.9	-11.4	-11.9	-12.4	-12.9	-13.4	-13.6	-13.9	-14.3	-14.6	-14.8	-15.0	-15.2	-15.4	-15.7	-15.9	-16.0	-12.8	-9.9																							
16-Dec	-16.1	-16.2	-16.2	-16.2	-16.1	-16.0	-16.4	-16.6	-17.0	-17.9	-18.0	-18.4	-18.7	-19.2	-19.7	-20.3	-20.7	-21.4	-21.4	-21.8	-22.1	-22.6	-23.0	-23.1	-19.0	-16.0																							
17-Dec	-23.7	-24.4	-24.8	-24.4	-24.9	-24.4	-24.7	-25.1	-25.3	-25.2	-25.2	-24.9	-24.8	-24.1	-23.5	-22.9	-23.1	-23.3	-23.8	-23.9	-24.6	-25.2	-25.2	-25.1	-24.4	-22.9																							
18-Dec	-25.1	-25.3	-26.1	-26.7	-26.5	-26.7	-27.1	-27.5	-28.0	-28.0	-27.7	-27.5	-27.1	-27.4	-26.4	-26.2	-25.4	-25.0	-25.4	-25.6	-25.6	-25.3	-25.4	-25.5	-26.4	-25.0																							
19-Dec	-25.6	-25.4	-25.1	-24.5	-24.0	-23.4	-23.8	-23.9	-23.6	-23.2	-22.7	-20.9	-22.1	-21.4	-21.6	-21.9	-21.7	-21.2	-21.4	-21.7	-21.5	-21.7	-22.1	-20.8	-22.7	-20.8																							
20-Dec	-20.4	-21.5	-20.0	-19.2	-19.1	-18.4	-17.7	-17.0	-16.1	-15.9	-15.4	-14.4	-13.8	-13.5	-13.0	-12.5	-12.0	-12.2	-12.1	-12.0	-11.5	-11.1	-12.0	-12.6	-15.1	-11.1																							
21-Dec	-12.9	-13.2	-13.6	-13.7	-13.6	-14.4	-15.0	-14.9	-14.9	-14.5	-14.8	-14.7	-14.2	-13.8	-13.5	-13.0	-13.3	-12.8	-13.3	-13.1	-12.5	-12.2	-11.8	-11.8	-13.6	-11.8																							
22-Dec	-11.8	-11.6	-11.3	-10.8	-10.4	-10.5	-11.2	-11.1	-11.0	-10.4	-10.1	-9.3	-9.4	-9.1	-8.8	-8.3	-7.3	-8.0	-8.0	-8.1	-8.0	-7.5	-7.3	-7.5	-9.5	-7.3																							
23-Dec	-7.5	-7.1	-6.9	-6.6	-7.0	-8.9	-8.5	-7.9	-6.5	-6.6	-5.7	-5.3	-4.1	-1.9	0.0	-0.1	1.1	1.8	1.8	2.0	2.0	2.2	2.0	1.6	-3.2	2.2																							
24-Dec	1.2	1.0	0.6	0.8	0.7	0.4	0.2	0.3	-0.4	-1.0	-0.6	0.7	0.4	0.8	1.2	0.8	1.4	2.3	2.4	2.0	2.2	2.0	1.7	1.3	0.9	2.4																							
25-Dec	1.1	0.9	0.9	2.1	2.3	2.4	1.4	1.4	0.5	0.5	0.9	1.1	2.3	3.2	3.2	3.3	3.1	2.4	2.6	2.4	1.8	2.3	2.2	0.5	1.9	3.3																							
26-Dec	0.1	0.0	-0.4	-0.1	-1.6	-2.8	-1.5	-1.7	-1.1	-1.9	-3.0	-2.9	-3.2	-2.6	-1.2	-1.2	-1.2	-1.5	-2.0	-2.5	-3.8	-4.0	-4.2	-4.5	-2.0	0.1																							
27-Dec	-5.2	-4.6	-4.6	-5.5	-5.5	-5.1	-4.9	-4.7	-6.0	-6.1	-5.4	-6.1	-6.1	-5.8	-6.0	-5.9	-5.9	-6.2	-6.0	-5.8	-5.9	-6.2	-6.4	-6.5	-5.7	-4.6																							
28-Dec	-6.8	-6.8	-6.7	-6.6	-6.6	-6.6	-6.4	-6.6	-6.6	-6.7	-6.7	-6.7	-6.6	-6.5	-6.3	-6.3	-6.1	-6.2	-6.3	-6.6	-7.3	-7.9	-8.3	-8.5	-6.8	-6.1																							
29-Dec	-8.6	-8.8	-9.0	-9.1	-9.1	-8.8	-8.1	-7.9	-8.1	-8.1	-8.0	-7.8	-7.8	-7.8	-7.8	-7.9	-8.2	-8.8	-9.2	-9.0	-8.7	-8.6	-8.6	-8.6	-8.4	-7.8																							
30-Dec	-8.8	-9.2	-9.5	-10.0	-9.8	-10.0	-10.1	-10.4	-10.8	-11.3	-11.6	-11.9	-12.0	-12.0	-11.8	-11.9	-12.0	-12.0	-12.9	-13.3	-13.6	-13.7	-13.8	-14.6	-11.5	-8.8																							
31-Dec	-15.1	-15.0	-15.0	-14.9	-15.2	-15.4	-15.6	-16.3	-17.0	-17.4	-17.4	-16.9	-16.4	-16.1	-15.8	-15.8	-16.8	-17.6	-18.4	-18.8	-19.0	-19.1	-19.5	-19.8	-16.8	-14.9																							
																								-11.9	-11.9	-11.9	-11.8	-11.8	-11.8	-11.8	-11.8	-11.9	-12.0	-11.9	-11.5	-11.3	-11.0	-10.8	-10.7	-10.7	-10.8	-11.0	-11.1	-11.4	-11.6	-11.7	-11.8	Diurnal Average	
																								4.7	4.5	4.1	4.2	3.6	3.3	3.1	3.0	2.9	3.0	3.5	4.3	4.4	4.6	4.5	4.4	4.6	4.2	4.5	4.2	4.1	4.0	4.5	4.9	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	159	21.37	21.37
-20 - 0	492	66.13	87.50
0 - 10	93	12.50	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

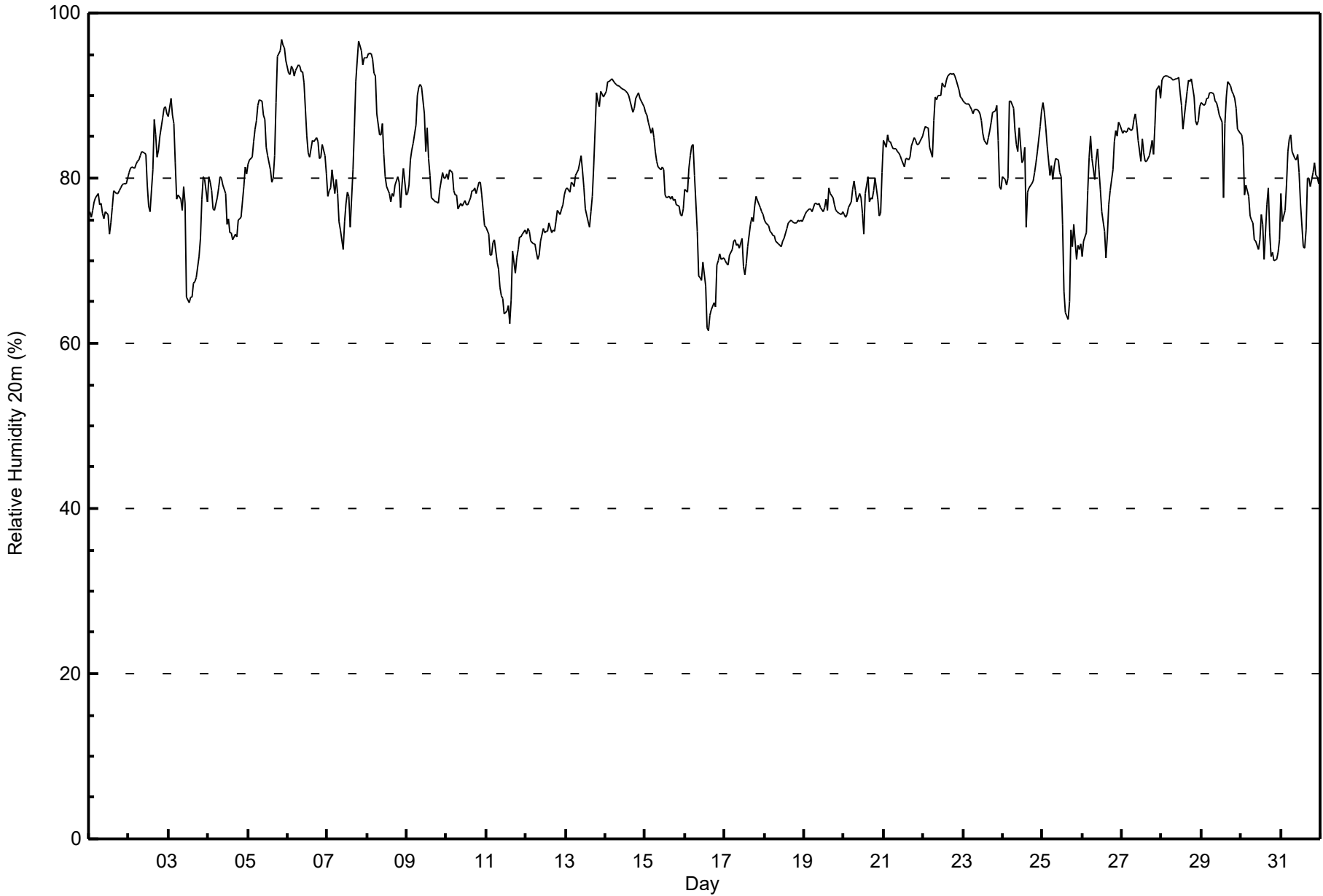
Relative Humidity 20m (RH20) - %
Lower Camp Met Tower - December 2024

Maximum Value: 96.7 % on Dec 5 21:00																						Maximum Daily Average: 90.5 % on Dec 28				Hours in Service: 744																					
Minimum Value: 61.6 % on Dec 16 15:00																						Minimum Daily Average: 69.3 % on Dec 11				Hours of Data: 744																					
Maximum Diurnal Average: 82.4 % at hour 6																						Minimum Diurnal Average: 76.7 % at hour 15				Hours of Missing Data: 0																					
Monthly Average: 80.63 %																						Percentiles: P ₁ = 63.9 P ₁₀ = 71.9 Q ₁ = 75.8 Median = 80.0 Q ₃ = 86.1 P ₉₀ = 90.6 P ₉₉ = 94.9				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-Dec	75.9	75.2	76.0	77.1	77.6	78.1	76.7	76.9	75.8	75.1	76.0	75.6	73.3	74.6	76.5	78.5	78.1	78.2	78.5	78.8	79.2	79.4	79.4	80.0	77.1	80.0																					
2-Dec	80.6	81.2	81.4	81.1	81.7	82.1	82.3	82.8	83.2	83.1	82.9	79.2	76.6	76.0	81.0	87.1	85.3	82.5	83.3	85.1	87.3	88.5	88.6	87.7	82.9	88.6																					
3-Dec	87.5	89.6	87.7	86.6	81.9	77.4	78.0	77.5	76.1	79.0	76.9	65.6	64.9	65.6	65.6	67.2	67.5	67.9	70.6	72.8	77.5	80.2	79.8	77.1	75.9	89.6																					
4-Dec	80.2	79.5	78.4	76.2	77.6	77.6	78.8	80.1	80.0	79.1	78.2	74.4	75.1	73.4	73.5	72.5	73.3	73.0	74.8	75.1	75.2	79.1	81.4	80.5	76.9	81.4																					
5-Dec	81.8	82.2	82.5	84.4	85.9	86.9	88.8	89.5	89.3	87.7	87.1	83.7	82.8	81.0	79.5	80.0	82.8	89.1	94.7	95.5	96.7	96.2	95.7	94.3	87.4	96.7																					
6-Dec	92.8	92.5	93.6	93.2	92.4	93.1	93.7	93.6	92.9	92.8	91.5	85.1	83.0	82.6	83.6	84.6	84.5	84.9	84.4	82.4	82.5	84.1	82.7	80.5	87.8	93.7																					
7-Dec	77.7	78.4	78.8	81.0	78.2	79.8	78.1	74.7	73.7	71.4	74.8	76.9	78.3	77.7	74.1	81.0	86.1	91.7	94.2	96.6	95.5	93.7	94.5	94.6	82.6	96.6																					
8-Dec	94.6	95.1	95.0	94.4	92.7	92.4	87.8	85.3	85.3	86.5	82.9	80.2	79.0	78.2	77.2	78.2	77.9	79.2	80.1	79.4	76.5	79.2	81.1	78.0	84.0	95.1																					
9-Dec	78.1	79.2	82.2	83.5	84.3	86.4	90.0	91.0	91.4	90.9	87.8	83.2	86.2	82.4	80.4	77.6	77.2	77.1	77.2	77.0	78.6	80.7	79.9	80.0	82.6	91.4																					
10-Dec	80.5	79.9	81.0	80.7	78.5	78.0	77.9	76.3	77.0	76.5	77.0	77.3	76.7	76.8	77.7	78.5	78.5	78.9	78.1	79.4	79.4	78.0	76.1	74.3	78.0	81.0																					
11-Dec	74.0	73.2	70.8	70.7	72.3	72.5	69.9	69.0	66.7	65.8	65.4	63.6	63.9	64.6	62.5	65.2	71.1	68.5	70.4	71.4	72.8	72.9	73.1	73.8	69.3	74.0																					
12-Dec	73.2	73.9	73.6	72.4	72.1	72.0	71.0	70.1	70.6	72.4	73.9	73.5	73.6	73.5	74.6	73.4	73.8	73.6	74.8	76.1	75.6	76.2	76.8	77.9	73.7	77.9																					
13-Dec	78.6	78.9	78.2	79.5	79.3	79.0	80.4	81.0	81.9	82.7	80.8	78.8	76.3	74.8	74.0	76.0	77.9	81.5	90.3	89.3	88.6	90.6	90.2	89.8	81.6	90.6																					
14-Dec	90.5	91.7	91.7	91.9	92.0	91.5	91.3	91.2	91.2	91.0	90.8	90.7	90.6	90.3	90.0	89.4	88.0	88.4	89.7	90.0	90.3	89.6	89.1	88.7	90.4	92.0																					
15-Dec	88.0	87.6	86.8	85.4	86.0	84.9	83.2	82.1	81.4	80.9	81.3	81.0	77.9	77.7	77.5	77.8	77.3	77.4	76.8	76.7	75.7	75.4	76.2	80.5	88.0	88.0																					
16-Dec	78.6	78.3	81.2	82.8	83.9	84.1	80.4	73.5	68.1	67.9	67.7	69.8	67.0	61.9	61.6	63.4	64.0	64.9	64.4	69.4	70.0	70.8	70.2	70.4	71.4	84.1																					
17-Dec	70.0	69.7	69.5	70.7	71.3	72.3	72.6	71.8	72.0	71.6	72.8	69.3	68.4	69.7	71.7	74.4	75.2	74.7	76.5	77.8	77.3	76.5	76.0	75.6	72.8	77.8																					
18-Dec	74.9	74.6	74.2	73.6	73.4	73.1	73.0	72.5	72.0	71.8	71.7	72.3	72.8	73.9	74.6	74.8	74.8	74.8	74.6	74.6	74.9	74.8	75.0	74.8	73.8	75.0																					
19-Dec	75.6	75.9	76.1	76.4	76.3	75.9	76.9	76.9	76.8	77.0	76.5	75.9	76.5	77.4	76.0	78.8	78.1	77.7	76.8	76.2	75.9	75.7	75.6	76.0	76.5	78.8																					
20-Dec	75.7	75.3	75.6	76.5	77.1	78.7	79.6	78.5	77.0	78.1	77.7	75.8	73.2	78.2	80.1	77.1	77.6	77.5	78.5	80.1	77.4	75.4	75.8	80.6	77.4	80.6																					
21-Dec	84.5	83.8	85.3	84.3	84.4	83.9	83.6	83.5	83.2	83.1	82.8	82.3	81.3	82.4	82.3	82.1	82.5	83.9	84.8	84.5	84.0	84.1	84.4	85.1	83.6	85.3																					
22-Dec	85.8	86.3	86.1	86.2	83.8	82.6	87.0	89.8	89.6	90.1	90.1	91.6	91.2	91.0	91.9	92.4	92.8	92.5	92.8	92.4	91.8	90.7	89.9	89.6	89.5	92.8																					
23-Dec	89.3	89.1	89.1	89.0	88.7	88.4	87.8	88.2	88.4	88.2	87.8	86.9	85.5	84.6	84.1	84.8	85.7	86.8	88.1	88.1	88.8	84.6	79.1	78.7	86.7	89.3																					
24-Dec	80.2	79.9	79.1	80.0	89.3	89.3	88.4	85.8	84.1	83.3	86.2	81.8	82.3	83.8	74.1	78.4	78.8	79.3	79.7	80.6	81.8	83.3	86.3	88.2	82.7	89.3																					
25-Dec	89.1	87.9	86.0	83.9	80.4	81.6	79.9	81.3	82.4	82.2	80.6	80.2	74.3	66.2	63.8	62.9	65.1	73.7	71.7	74.4	70.1	71.9	71.3	72.1	76.4	89.1																					
26-Dec	70.5	72.4	73.4	78.5	82.5	85.0	82.4	79.7	82.3	83.5	81.1	78.6	75.9	73.5	70.3	73.0	76.8	78.4	81.0	84.3	85.7	85.0	86.9	86.5	79.5	86.9																					
27-Dec	85.4	85.8	85.6	85.6	86.1	85.8	86.0	87.1	87.9	86.5	84.5	82.0	84.7	83.0	82.0	82.0	82.7	83.6	84.5	82.8	86.4	90.7	91.2	89.7	85.5	91.2																					
28-Dec	91.8	92.2	92.4	92.4	92.2	92.3	92.1	91.8	92.1	92.0	92.3	90.3	88.7	86.0	89.1	90.5	91.8	91.7	92.0	89.9	86.9	86.4	86.9	88.7	90.5	92.4																					
29-Dec	89.2	88.9	89.1	89.6	89.7	90.3	90.3	90.2	89.4	89.1	88.4	87.7	86.8	77.6	86.6	89.9	91.6	91.2	90.5	90.1	89.7	88.5	86.0	85.5	88.6	91.6																					
30-Dec	85.3	83.9	77.9	79.1	77.7	75.4	74.8	74.5	72.5	72.4	71.4	72.5	75.5	74.5	70.2	76.8	78.9	73.5	70.6	71.1	70.0	70.1	71.0	72.6	74.7	85.3																					
31-Dec	78.1	74.8	76.0	79.1	83.2	84.8	85.2	83.2	82.4	82.2	82.9	80.6	77.0	71.7	71.5	73.7	80.0	80.0	78.9	80.6	81.8	80.4	80.2	79.4	79.5	85.2																					
																						81.9	81.8	81.7	82.1	82.3	82.4	82.2	81.6	81.2	81.1	80.7	78.9	78.0	76.9	76.7	78.1	79.2	79.9	80.8	81.4	81.4	81.7	81.6	81.5	Diurnal Average	
																						94.6	95.1	95.0	94.4	92.7	93.1	93.7	93.6	92.9	92.8	92.3	91.6	91.2	91.0	91.9	92.4	92.8	92.5	94.7	96.6	96.7	96.2	95.7	94.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	374	50.27	50.27
80 - 100	370	49.73	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

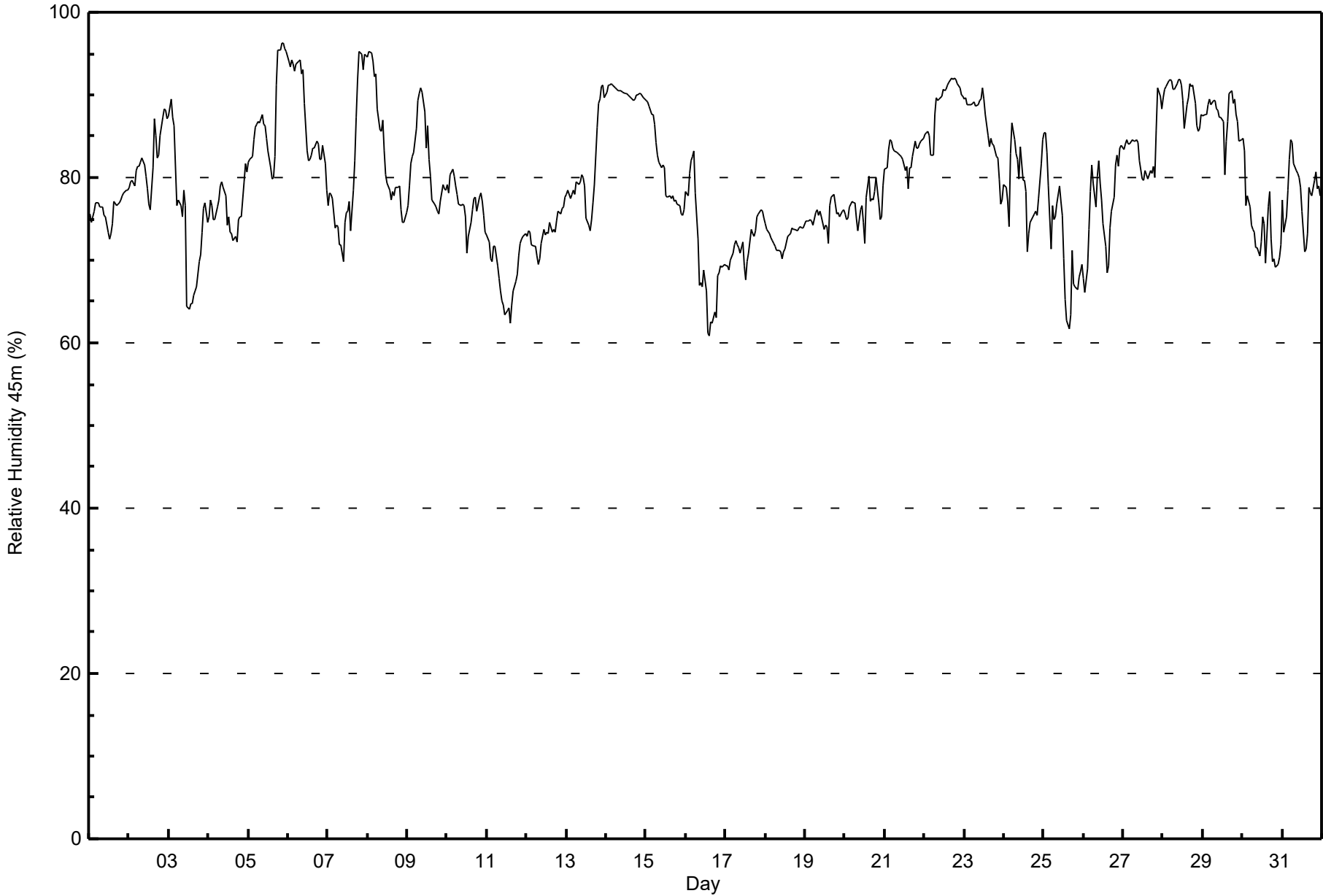


Maximum Value: 96.3 % on Dec 5 21:00 Maximum Daily Average: 90.3 % on Dec 14																						Hours in Service:	744																								
Minimum Value: 60.8 % on Dec 16 15:00 Minimum Daily Average: 68.5 % on Dec 11																						Hours of Data:	744																								
Maximum Diurnal Average: 81.4 % at hour 6 Minimum Diurnal Average: 75.7 % at hour 15																						Hours of Missing Data:	0																								
Monthly Average: 79.56 % Percentiles: P ₁ = 63.2 P ₁₀ = 70.6 Q ₁ = 74.5 Median = 78.4 Q ₃ = 84.7 P ₉₀ = 90.2 P ₉₉ = 95.1																						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-Dec	75.5	74.6	75.3	76.0	76.9	76.9	76.5	76.5	76.4	75.4	75.3	73.5	72.5	73.2	74.4	77.1	76.6	76.8	77.0	77.3	77.7	78.2	78.4	78.5	76.1	78.5																					
2-Dec	78.9	79.5	79.7	79.0	80.8	81.3	81.4	81.9	82.4	81.5	80.2	78.6	76.7	76.1	81.1	87.1	85.0	82.4	82.7	85.0	87.2	88.4	88.2	87.2	82.2	88.4																					
3-Dec	87.4	89.6	87.2	86.2	81.4	76.5	77.3	76.6	75.2	78.4	76.6	64.4	64.1	64.8	64.8	65.8	66.2	66.7	69.8	70.7	73.5	76.3	76.9	74.6	74.6	89.6																					
4-Dec	75.2	77.4	76.6	75.0	74.8	76.4	77.2	79.0	79.4	78.8	77.9	74.2	75.2	73.4	73.2	72.4	72.9	72.3	74.9	75.2	75.2	79.6	81.7	80.8	76.2	81.7																					
5-Dec	81.9	82.2	82.6	84.6	86.1	86.4	86.7	86.6	87.6	86.4	86.2	84.7	83.2	81.2	79.8	80.0	82.6	91.2	95.4	95.5	96.3	96.3	95.7	95.2	87.3	96.3																					
6-Dec	94.1	93.4	94.3	93.8	92.9	93.7	94.1	94.3	92.6	93.1	88.9	83.2	82.1	82.3	82.7	83.5	83.5	84.4	84.0	82.2	82.1	84.0	81.7	78.5	87.5	94.3																					
7-Dec	76.6	78.1	78.0	77.4	74.0	74.2	74.1	71.9	71.9	69.8	74.6	75.8	75.9	77.0	73.5	78.4	82.0	87.2	91.9	95.3	95.0	93.0	94.9	94.8	80.6	95.3																					
8-Dec	94.6	95.3	95.0	94.1	92.2	92.5	88.4	85.7	85.6	87.0	83.2	80.3	79.3	78.5	77.3	78.3	77.7	78.8	78.8	79.0	76.1	74.7	74.5	75.8	83.4	95.3																					
9-Dec	76.5	79.0	81.7	82.6	83.0	85.9	89.3	90.1	90.9	90.3	88.0	83.6	82.3	80.2	77.4	76.8	76.5	76.0	75.6	77.2	79.2	78.7	78.5	81.9	90.9																						
10-Dec	79.2	78.1	80.3	81.1	80.2	79.0	77.9	76.8	76.6	76.8	76.6	75.2	70.9	73.0	74.5	76.2	77.5	77.6	76.0	77.6	78.2	77.1	75.4	73.4	76.9	81.1																					
11-Dec	73.1	72.2	70.1	69.8	71.7	71.7	69.3	67.9	66.3	65.2	64.6	63.4	63.8	64.3	62.3	64.6	66.3	67.4	68.3	70.6	72.1	72.6	72.9	73.1	68.5	73.1																					
12-Dec	73.0	73.5	73.5	71.8	71.6	71.7	70.5	69.5	70.2	72.1	73.7	73.1	73.4	73.2	74.6	73.4	73.8	73.4	74.8	75.9	75.6	76.2	76.4	77.7	73.4	77.7																					
13-Dec	78.0	78.4	77.4	78.0	78.4	78.0	79.5	79.2	79.4	80.4	80.1	79.0	75.1	74.3	73.5	75.0	77.0	79.1	86.0	88.9	89.5	91.0	91.1	89.6	80.7	91.1																					
14-Dec	90.3	91.1	91.1	91.3	91.2	90.8	90.7	90.6	90.5	90.4	90.3	90.2	90.0	89.9	89.7	89.3	89.5	90.1	90.1	90.2	90.1	89.6	89.5	89.5	90.3	91.3																					
15-Dec	89.3	89.2	88.6	87.6	87.6	86.5	84.2	82.7	81.9	81.2	81.5	81.2	77.8	77.6	77.8	77.5	77.7	77.1	77.3	76.8	76.6	75.6	75.4	76.0	81.0	89.3																					
16-Dec	78.3	77.8	80.5	82.0	82.5	83.2	78.2	72.6	67.0	67.2	66.7	68.8	66.3	61.2	60.8	62.5	62.3	63.7	63.1	68.1	68.4	69.4	69.1	69.5	70.4	83.2																					
17-Dec	69.4	69.3	68.8	70.1	70.8	71.9	72.5	71.8	71.5	70.8	72.2	69.3	67.6	69.8	70.9	73.8	73.2	72.8	73.6	75.3	75.7	76.0	75.9	75.1	72.0	76.0																					
18-Dec	74.4	73.8	73.1	72.7	72.4	72.0	71.7	71.1	71.2	71.0	70.1	71.0	71.3	72.8	73.0	73.3	73.9	73.7	73.7	73.5	73.9	74.1	73.9	73.9	72.7	74.4																					
19-Dec	74.7	74.7	74.8	74.8	74.8	74.3	75.8	76.1	75.5	76.0	75.2	73.7	74.2	74.0	72.0	76.6	77.6	77.9	76.8	75.6	75.7	75.2	75.9	76.0	75.3	77.9																					
20-Dec	75.6	75.0	75.2	76.5	77.1	77.0	77.0	75.0	73.5	76.1	76.6	74.6	72.1	77.7	80.1	77.0	77.5	77.4	78.4	80.0	76.9	75.0	75.3	79.0	76.5	80.1																					
21-Dec	81.1	81.2	83.3	84.5	84.4	83.6	83.3	83.0	82.8	82.7	82.5	82.2	80.9	81.4	78.7	81.1	81.2	82.6	84.4	83.5	83.6	84.1	84.4	84.8	82.7	84.8																					
22-Dec	85.3	85.4	85.6	85.0	82.7	82.7	87.6	89.7	89.3	89.6	89.9	90.6	90.5	90.7	91.2	91.5	92.1	91.9	92.1	91.8	91.3	90.8	90.1	89.8	89.0	92.1																					
23-Dec	89.6	89.6	88.9	88.8	88.8	89.0	89.1	88.7	88.9	89.3	89.6	90.8	89.6	87.6	85.0	83.8	84.7	84.0	83.9	82.5	82.3	79.8	76.8	77.2	86.2	90.8																					
24-Dec	79.2	78.8	77.2	74.0	82.9	86.5	84.5	83.0	82.3	79.8	83.7	79.6	79.7	78.4	71.1	73.2	74.5	75.3	75.6	75.9	75.4	77.4	81.7	84.7	78.9	86.5																					
25-Dec	85.3	85.5	83.0	78.9	71.4	76.6	74.8	75.2	76.8	79.0	77.1	75.5	70.2	65.2	62.8	61.7	63.4	71.2	67.1	66.8	66.5	68.0	68.6	69.5	72.5	85.5																					
26-Dec	67.8	66.1	68.9	73.7	78.3	81.5	79.4	76.4	80.2	82.1	79.4	77.2	74.4	71.8	68.5	69.4	73.9	75.9	77.6	81.6	82.7	81.4	83.6	83.9	76.5	83.9																					
27-Dec	83.3	84.2	84.6	84.1	84.1	84.5	84.3	84.4	84.6	84.2	82.1	79.9	79.7	80.8	80.3	79.8	80.9	80.6	81.4	80.0	85.8	90.9	89.8	88.3	83.4	90.9																					
28-Dec	89.7	90.7	91.1	91.7	91.8	91.6	90.7	90.6	91.3	91.9	91.8	91.2	89.3	85.9	88.8	89.6	91.4	91.1	91.2	88.9	86.3	85.6	85.9	87.6	89.8	91.9																					
29-Dec	87.5	87.6	87.7	88.9	89.5	88.8	89.3	89.2	88.3	88.1	87.3	87.2	86.7	80.4	84.4	86.7	90.3	90.5	89.0	89.5	87.7	86.7	84.3	84.6	87.5	90.5																					
30-Dec	84.8	83.2	76.5	77.8	76.5	74.2	73.8	73.4	71.5	71.5	70.6	72.2	75.3	74.3	69.7	76.4	78.2	72.5	69.8	70.2	69.2	69.5	70.3	71.9	73.9	84.8																					
31-Dec	77.3	73.4	75.2	78.4	82.2	84.5	84.2	81.6	80.8	80.5	80.1	78.9	75.9	71.0	71.3	73.2	78.8	78.2	77.7	79.6	80.7	78.7	79.0	77.8	78.3	84.5																					
																						80.9	80.9	80.8	81.0	81.1	81.4	81.1	80.4	80.1	80.2	79.8	78.2	77.1	76.3	75.7	77.0	78.0	78.7	79.3	79.9	80.2	80.5	80.5	80.5	Diurnal Average	
																						94.6	95.3	95.0	94.1	92.9	93.7	94.1	94.3	92.6	93.1	91.8	91.2	90.5	90.7	91.2	91.5	92.1	91.9	95.4	95.5	96.3	96.3	95.7	95.2	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	423	56.85	56.85
80 - 100	321	43.15	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

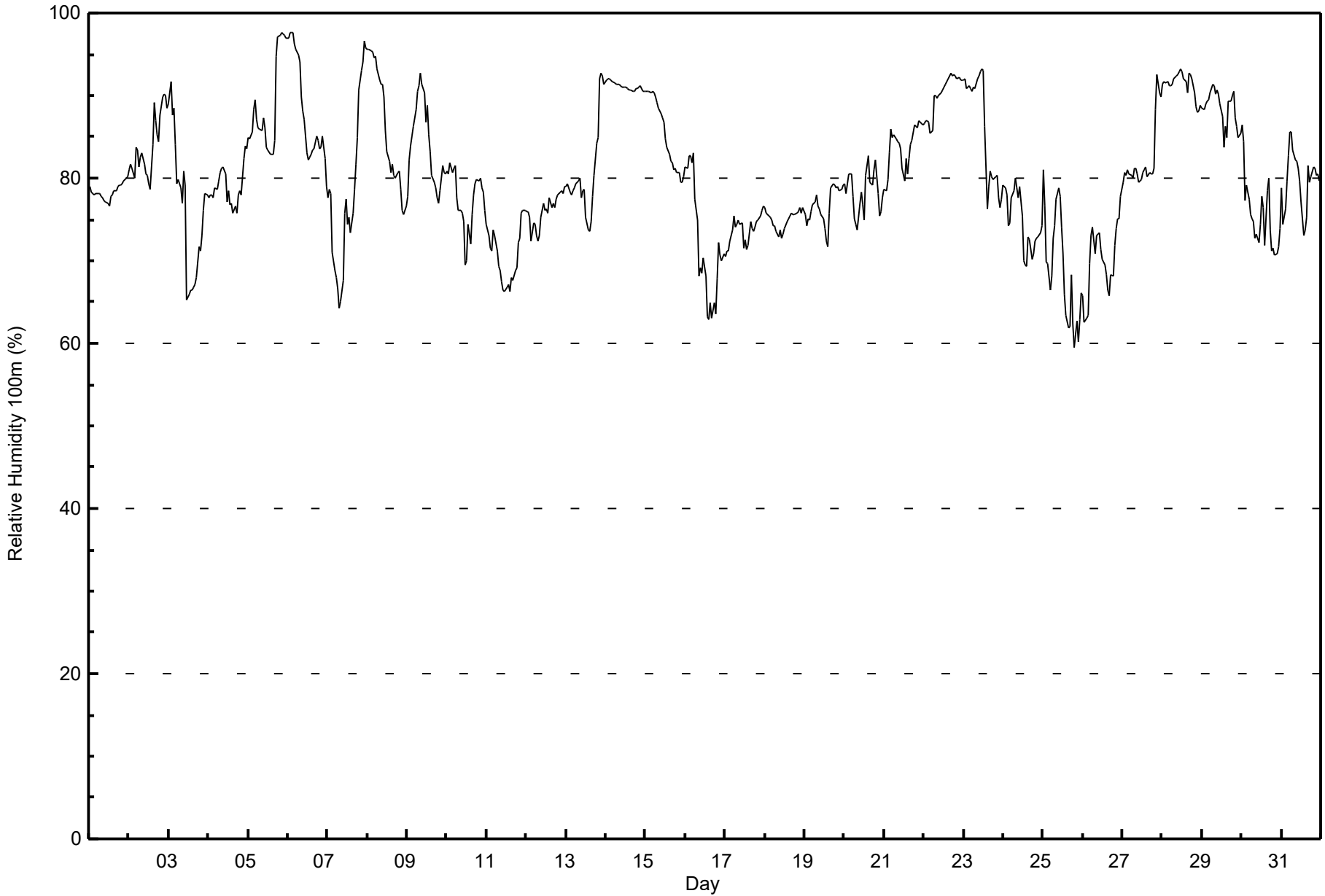
Relative Humidity 100m (RH100) - %
Lower Camp Met Tower - December 2024

Maximum Value: 97.7 % on Dec 6 02:00																						Maximum Daily Average: 91.3 % on Dec 28																						Hours in Service: 744			
Minimum Value: 59.6 % on Dec 25 20:00																						Minimum Daily Average: 68.9 % on Dec 25																						Hours of Data: 744			
Maximum Diurnal Average: 82.0 % at hour 1																						Minimum Diurnal Average: 77.1 % at hour 15																						Hours of Missing Data: 0			
Monthly Average: 80.32 %																						Percentiles: P ₁ = 62.8 P ₁₀ = 70.8 Q ₁ = 75.2 Median = 79.4 Q ₃ = 86.2 P ₉₀ = 91.4 P ₉₉ = 97.1																						Hours of Calibration: 0			
																						Percentiles: P ₁ = 62.8 P ₁₀ = 70.8 Q ₁ = 75.2 Median = 79.4 Q ₃ = 86.2 P ₉₀ = 91.4 P ₉₉ = 97.1																						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-Dec	79.0	78.3	78.1	78.0	78.1	78.1	78.1	77.8	77.7	77.3	77.1	77.0	76.6	77.8	77.9	78.5	78.5	79.0	79.1	79.1	79.3	79.7	80.0	80.2	78.3	80.2																					
2-Dec	81.1	81.8	81.2	80.1	83.7	83.4	81.4	82.5	83.0	81.7	80.5	80.3	79.3	78.7	84.1	89.1	87.0	85.3	84.3	87.7	89.8	90.1	90.0	88.5	83.9	90.1																					
3-Dec	89.0	91.6	87.7	88.5	84.0	79.3	79.9	78.9	77.0	80.8	79.2	65.3	66.0	66.5	66.4	66.9	67.1	67.9	71.7	71.3	73.0	76.1	78.1	77.9	76.3	91.6																					
4-Dec	77.7	77.9	78.0	77.6	78.8	78.6	79.6	80.6	81.2	81.4	80.5	77.1	78.5	76.7	76.9	75.8	76.5	75.7	77.9	78.5	77.9	82.4	83.9	83.6	78.9	83.9																					
5-Dec	84.9	84.7	85.6	88.3	89.5	87.1	86.1	85.9	85.8	87.3	86.2	83.8	83.3	82.9	83.0	82.8	84.6	94.8	97.1	97.3	97.6	97.5	97.3	97.0	88.8	97.6																					
6-Dec	97.0	97.7	97.6	97.6	96.2	95.7	94.8	94.1	89.8	88.1	87.2	83.0	82.2	82.6	82.9	83.5	83.6	85.1	84.6	83.5	83.7	85.2	82.4	79.0	88.2	97.7																					
7-Dec	77.7	78.6	78.1	71.0	68.9	67.9	66.7	64.2	65.1	67.7	75.8	77.4	74.4	75.3	73.4	75.7	78.7	81.6	84.9	90.7	93.1	94.1	96.5	95.8	78.1	96.5																					
8-Dec	95.6	95.6	95.5	95.2	94.6	94.8	93.2	91.8	91.3	91.4	89.8	85.7	83.2	82.0	80.6	81.6	80.4	80.1	80.7	80.9	78.7	76.1	75.6	76.6	86.3	95.6																					
9-Dec	77.7	82.3	83.9	85.1	86.2	88.3	90.6	91.3	92.7	91.4	90.4	86.8	88.9	85.2	83.3	80.3	79.5	78.9	77.6	76.9	78.5	81.6	80.7	80.6	84.1	92.7																					
10-Dec	80.8	80.5	81.9	80.6	81.1	81.5	77.6	76.1	76.0	75.8	74.7	69.4	70.0	74.4	72.0	75.6	78.0	79.4	79.9	79.7	79.9	78.9	78.3	76.2	77.4	81.9																					
11-Dec	74.3	73.0	71.5	71.2	73.7	73.0	71.3	69.3	68.9	67.5	66.5	66.3	66.8	67.2	66.3	68.0	67.6	68.9	69.1	72.2	72.7	75.7	76.1	76.0	70.5	76.1																					
12-Dec	76.0	75.9	75.2	72.3	74.6	74.4	73.1	72.4	73.0	75.2	76.9	76.1	76.2	75.8	77.6	76.5	76.9	76.4	77.4	78.0	78.2	78.4	78.1	79.0	76.0	79.0																					
13-Dec	78.9	79.4	78.3	78.0	78.5	78.8	79.4	79.6	80.0	77.6	78.4	78.6	75.3	73.8	73.5	74.7	77.8	80.4	84.2	84.9	92.0	92.7	92.4	91.4	80.8	92.7																					
14-Dec	91.9	92.1	92.0	91.9	91.7	91.6	91.4	91.3	91.3	91.2	91.1	91.1	91.0	90.8	90.7	90.8	90.5	90.6	90.9	90.9	91.0	91.2	90.6	90.5	91.2	92.1																					
15-Dec	90.5	90.6	90.6	90.4	90.5	90.3	89.8	89.1	88.5	87.8	87.2	86.7	84.7	83.7	82.8	82.0	81.9	81.1	81.2	80.6	80.6	79.4	79.5	80.1	85.4	90.6																					
16-Dec	81.3	81.3	82.7	82.8	81.9	83.0	77.4	74.9	68.1	69.1	68.5	70.4	68.2	63.2	62.9	64.9	63.0	64.9	63.5	67.8	72.1	70.7	70.0	70.8	71.8	83.0																					
17-Dec	70.5	71.2	71.3	72.3	73.7	75.5	74.1	74.4	74.9	74.4	74.5	71.4	72.5	71.4	71.9	74.8	74.0	73.5	74.0	74.8	75.0	75.5	76.2	76.7	73.7	76.7																					
18-Dec	76.4	75.7	75.4	75.2	74.9	74.2	74.3	73.6	72.9	73.7	72.7	73.2	73.9	74.7	75.1	75.5	75.7	75.6	75.6	75.8	75.9	76.4	75.8	76.4	74.9	76.4																					
19-Dec	75.5	74.3	75.0	74.9	76.0	76.8	77.1	77.9	76.6	76.2	75.6	75.0	73.9	72.3	71.6	75.7	78.8	79.4	79.1	78.8	79.0	78.5	78.7	79.1	76.5	79.4																					
20-Dec	79.3	78.2	79.3	80.6	80.5	77.8	75.0	74.4	73.7	77.0	78.2	76.7	74.9	80.3	82.7	79.5	79.3	79.2	81.0	82.1	78.1	75.3	75.9	77.5	78.2	82.7																					
21-Dec	78.7	78.4	79.8	83.1	85.9	84.9	85.2	84.8	84.5	84.3	83.5	81.3	79.6	82.4	80.5	82.4	84.1	84.6	86.4	86.3	86.1	87.0	86.9	86.4	83.6	87.0																					
22-Dec	86.7	87.0	87.0	86.7	85.3	85.7	90.1	90.0	89.7	90.0	90.4	90.8	91.0	91.4	91.7	92.1	92.8	92.3	92.5	92.3	92.0	92.2	91.9	91.8	90.1	92.8																					
23-Dec	91.9	92.0	90.8	91.2	90.9	90.6	90.9	90.9	92.0	92.4	92.9	93.2	93.0	86.2	76.2	79.0	80.9	80.2	79.8	80.1	80.3	77.6	76.5	77.5	86.1	93.2																					
24-Dec	79.1	78.9	78.0	74.3	74.5	77.6	78.5	80.0	78.8	77.6	78.9	75.4	69.9	69.6	69.4	72.8	72.5	70.1	70.8	72.4	72.6	72.9	73.5	74.2	74.7	80.0																					
25-Dec	81.1	76.6	69.8	69.7	66.4	68.2	72.6	74.3	77.4	78.9	77.8	74.0	70.9	66.0	63.5	61.8	62.1	68.4	62.4	59.6	62.8	60.1	62.8	66.1	68.9	81.1																					
26-Dec	65.7	62.6	63.0	63.3	69.7	73.1	74.1	70.8	73.1	73.3	73.4	71.4	70.2	69.5	68.3	66.4	65.8	68.3	68.2	71.8	73.9	75.0	75.1	77.7	70.2	77.7																					
27-Dec	79.5	80.7	80.3	81.1	80.6	80.4	80.1	81.2	81.2	80.5	79.4	79.9	80.7	81.1	81.4	80.1	80.6	80.5	80.5	81.1	88.3	92.6	90.4	89.9	82.2	92.6																					
28-Dec	91.4	91.7	91.5	91.8	91.2	91.2	91.3	92.0	92.3	92.6	92.9	93.3	92.9	92.0	91.7	90.4	92.6	92.6	92.0	90.4	88.6	88.0	88.2	88.8	91.3	93.3																					
29-Dec	88.5	88.4	89.0	89.3	89.5	90.3	91.3	91.2	90.1	90.6	90.2	88.9	87.4	83.7	86.3	84.9	89.2	89.3	90.0	90.5	87.4	86.3	84.8	85.4	88.4	91.3																					
30-Dec	86.4	84.4	77.4	79.1	77.4	75.6	75.1	74.8	72.8	73.2	72.2	74.4	77.7	76.5	71.8	78.5	80.0	73.7	71.1	71.5	70.7	70.8	71.7	73.9	75.4	86.4																					
31-Dec	78.8	74.4	76.3	79.7	82.8	85.6	85.5	83.4	82.2	82.1	81.1	79.7	77.2	73.0	73.6	75.2	81.6	79.6	80.1	81.4	81.2	80.3	80.5	79.6	79.8	85.6																					
																						82.0	81.8	81.4	81.3	81.7	81.7	81.5	81.1	80.7	80.9	80.8	79.2	78.4	77.6	77.1	77.9	78.8	79.3	79.6	80.3	81.0	81.2	81.2	81.4	Diurnal Average	
																						97.0	97.7	97.6	97.6	96.2	95.7	94.8	94.1	92.7	92.6	92.9	93.3	93.0	92.0	91.7	92.1	92.8	94.8	97.1	97.3	97.6	97.5	97.3	97.0	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	1	0.13	0.13
60 - 80	396	53.23	53.36
80 - 100	347	46.64	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

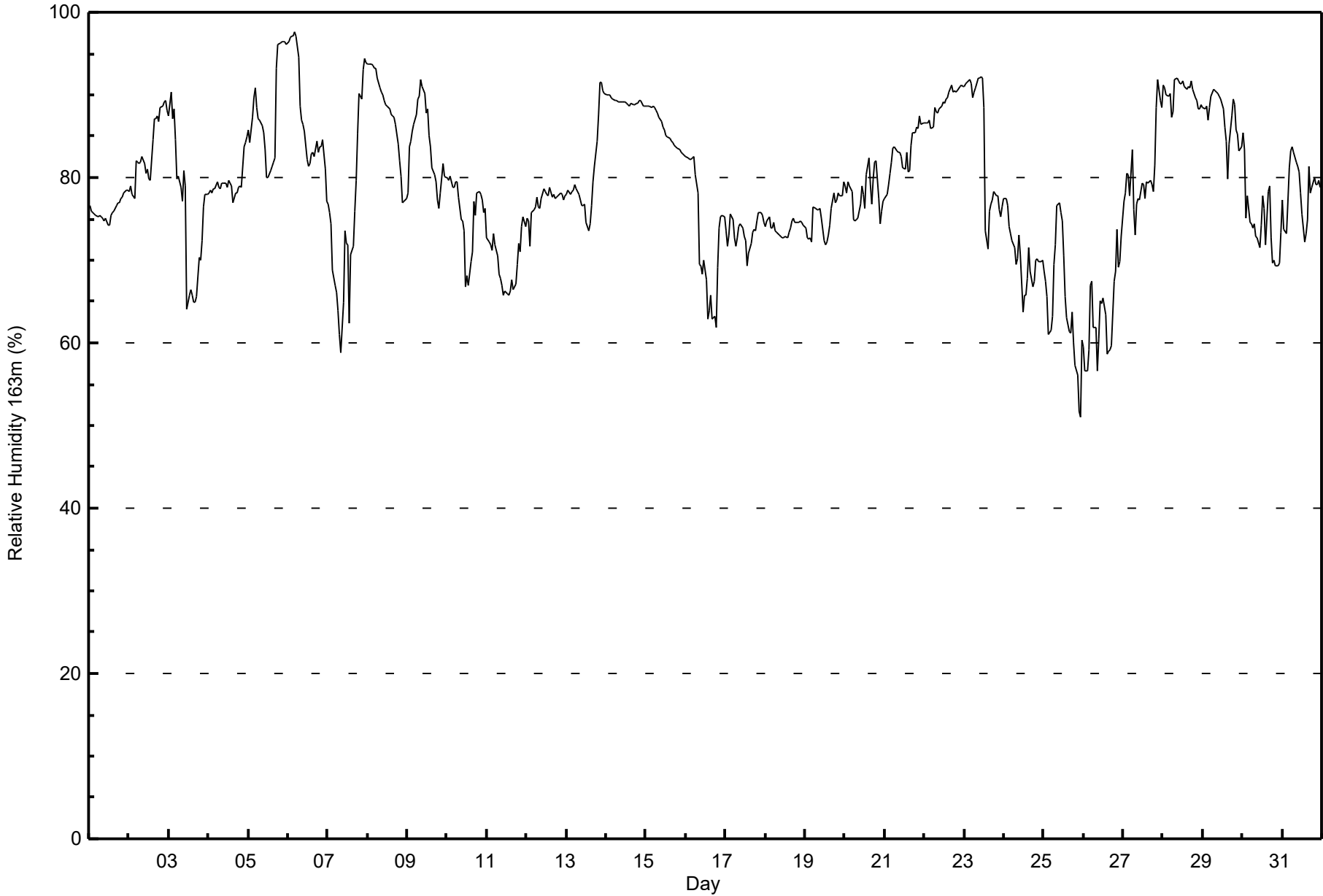
Relative Humidity 163m (RH163) - %
Lower Camp Met Tower - December 2024

Maximum Value: 97.7 % on Dec 6 05:00 Maximum Daily Average: 90.3 % on Dec 28																						Hours in Service:	744																								
Minimum Value: 51.0 % on Dec 25 23:00 Minimum Daily Average: 63.5 % on Dec 26																						Hours of Data:	744																								
Maximum Diurnal Average: 80.6 % at hour 1 Minimum Diurnal Average: 76.1 % at hour 14																						Hours of Missing Data:	0																								
Monthly Average: 79.17 % Percentiles: P ₁ = 58.7 P ₁₀ = 68.2 Q ₁ = 74.1 Median = 78.4 Q ₃ = 86.5 P ₉₀ = 90.1 P ₉₉ = 96.4																						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-Dec	76.6	76.0	75.8	75.6	75.4	75.3	75.4	75.3	75.2	74.7	75.1	74.2	74.2	75.4	75.7	76.0	76.6	76.9	77.0	77.4	77.7	78.2	78.6	78.4	76.1	78.6																					
2-Dec	78.3	79.0	78.0	77.5	82.0	81.9	81.7	81.9	82.6	81.6	80.5	81.0	79.8	79.7	84.5	87.0	87.1	87.5	86.8	88.5	88.7	89.1	89.2	88.1	83.4	89.2																					
3-Dec	87.4	90.3	87.1	88.4	84.6	79.8	80.2	78.8	77.2	80.8	79.0	64.0	65.8	66.4	65.8	65.0	64.8	65.6	70.3	70.0	72.3	76.5	78.0	77.9	75.7	90.3																					
4-Dec	78.1	78.5	78.2	78.6	78.6	79.6	78.9	78.7	79.4	79.2	79.3	78.8	79.7	79.4	79.0	76.9	78.1	78.1	78.8	79.1	78.8	83.8	84.3	84.9	79.4	84.9																					
5-Dec	85.7	84.2	87.3	89.6	90.8	88.5	87.1	87.0	86.3	85.4	83.4	80.1	80.0	80.9	81.4	81.8	82.3	93.1	96.0	96.3	96.5	96.4	96.5	96.0	88.0	96.5																					
6-Dec	96.4	97.0	97.1	97.2	97.7	97.2	94.5	88.7	87.0	86.5	85.6	82.2	81.3	81.8	82.8	83.1	82.6	84.5	83.0	83.8	83.8	84.6	81.0	77.2	87.3	97.7																					
7-Dec	76.8	75.7	74.4	68.8	67.0	66.2	63.9	61.0	58.8	64.9	73.5	72.1	71.9	62.3	70.7	71.7	75.9	79.7	85.2	90.1	89.4	93.1	94.4	93.8	75.1	94.4																					
8-Dec	93.8	93.7	93.7	93.6	93.2	93.3	92.1	90.8	90.3	90.0	89.4	88.9	88.6	88.4	87.7	87.4	87.3	86.4	84.1	82.1	80.1	76.9	77.1	77.5	87.8	93.8																					
9-Dec	78.2	83.8	84.5	85.7	86.5	87.7	89.6	89.8	91.9	91.1	90.2	87.8	88.3	85.1	83.8	81.2	80.3	79.4	77.3	76.3	78.2	81.8	80.2	80.1	84.1	91.9																					
10-Dec	80.0	79.7	80.2	78.8	78.9	79.4	79.6	77.6	74.9	74.7	73.6	66.7	68.2	66.9	69.8	71.0	77.2	75.5	78.1	78.3	77.9	77.3	75.8	76.3	75.7	80.2																					
11-Dec	72.7	72.2	71.8	71.2	73.2	71.9	70.6	68.3	67.9	66.9	65.7	66.3	66.0	65.7	66.3	67.6	66.4	67.1	69.6	72.0	71.0	74.0	75.2	74.1	69.7	75.2																					
12-Dec	75.1	74.8	71.7	75.7	76.2	76.5	77.6	76.5	76.2	77.5	78.6	78.4	77.9	77.9	78.8	77.6	77.9	77.4	77.6	77.9	78.1	78.0	77.3	77.8	77.0	78.8																					
13-Dec	78.0	78.5	77.9	78.3	78.5	79.2	78.6	77.9	77.4	76.6	76.5	76.7	74.6	73.6	74.4	76.7	79.4	81.4	84.4	87.6	91.5	91.5	90.5	90.2	80.4	91.5																					
14-Dec	90.1	90.0	89.9	89.7	89.5	89.4	89.3	89.2	89.2	89.2	89.1	89.1	88.9	88.8	88.7	88.9	88.9	88.8	89.0	88.9	89.3	89.4	88.7	88.6	89.2	90.1																					
15-Dec	88.7	88.7	88.7	88.5	88.6	88.5	88.2	87.7	87.3	86.8	86.2	85.7	85.1	84.9	84.7	84.4	84.2	83.9	83.8	83.6	83.4	83.0	82.8	82.7	85.8	88.7																					
16-Dec	82.5	82.4	82.2	82.3	82.3	82.5	80.4	78.2	69.6	69.3	68.3	70.0	67.7	63.0	64.0	65.8	62.9	63.3	61.8	69.2	73.8	75.3	75.3	75.2	72.8	82.5																					
17-Dec	73.6	71.8	73.1	75.6	75.0	72.7	71.7	72.7	74.1	74.3	73.8	72.9	72.4	69.3	70.9	72.0	73.4	73.7	73.6	74.8	75.7	75.7	75.4	74.5	73.4	75.7																					
18-Dec	74.1	74.8	75.2	74.0	73.9	74.6	73.6	73.4	73.1	72.9	72.7	72.8	72.9	72.7	73.3	73.8	74.7	75.1	74.6	74.5	74.6	74.7	74.5	74.3	74.0	75.2																					
19-Dec	73.8	72.7	72.6	72.8	72.1	76.5	76.3	76.2	76.2	76.2	75.1	72.4	71.8	72.1	73.1	74.2	76.2	78.1	77.0	77.2	78.1	77.8	77.7	79.5	75.2	79.5																					
20-Dec	79.0	78.1	79.6	79.0	78.4	74.9	74.8	75.0	75.1	76.8	79.0	78.0	76.3	80.4	82.4	79.1	76.8	79.9	81.9	82.1	77.5	74.4	75.9	77.2	78.0	82.4																					
21-Dec	77.5	78.0	79.1	80.5	81.9	83.6	83.8	83.3	83.1	83.1	82.6	81.2	81.0	83.1	80.6	80.8	84.0	85.4	85.3	86.1	86.0	87.4	86.5	86.6	82.9	87.4																					
22-Dec	86.6	86.7	86.7	87.0	85.9	86.2	88.5	87.9	87.8	88.3	88.7	89.2	89.1	89.5	89.7	90.3	91.2	90.4	90.6	90.4	90.6	91.0	91.2	91.0	88.9	91.2																					
23-Dec	91.0	91.4	91.6	91.9	91.4	89.7	90.3	90.8	92.1	92.0	92.3	92.0	88.4	73.6	71.4	75.9	76.7	77.2	78.4	77.8	77.8	76.1	75.3	76.4	84.2	92.3																					
24-Dec	77.4	77.5	76.7	74.1	73.2	72.3	71.5	69.5	70.1	73.1	70.6	63.8	65.8	65.8	67.8	71.6	68.7	66.8	67.4	70.1	70.1	69.8	69.9	70.0	70.6	77.5																					
25-Dec	68.7	67.4	65.6	61.0	61.5	63.3	69.6	71.9	76.7	76.9	75.7	74.8	70.5	65.5	63.0	61.4	61.2	63.8	59.9	57.3	56.0	51.8	51.0	60.4	64.8	76.9																					
26-Dec	59.5	56.7	56.7	59.1	66.9	67.5	61.8	61.9	56.6	60.4	65.1	64.7	65.5	63.4	58.6	59.1	59.2	59.6	67.5	68.7	73.7	69.2	69.8	72.8	63.5	73.7																					
27-Dec	77.1	78.1	80.6	80.3	77.8	83.4	76.0	73.1	76.8	77.5	77.3	79.3	79.2	77.4	79.5	79.3	79.7	79.1	78.3	81.6	88.6	91.9	89.3	88.5	80.4	91.9																					
28-Dec	91.2	90.8	90.1	89.8	90.1	87.4	88.0	91.8	92.0	91.7	91.3	91.4	91.8	91.0	90.7	91.0	90.9	91.7	90.7	89.7	89.3	88.3	88.3	88.7	90.3	92.0																					
29-Dec	88.5	88.2	88.6	87.0	88.4	89.9	90.7	90.5	90.3	90.2	89.9	89.4	88.3	86.1	84.4	79.8	84.0	87.5	89.5	88.7	85.8	85.2	83.3	83.8	87.4	90.7																					
30-Dec	85.5	83.3	75.1	77.8	74.6	74.4	73.9	74.4	72.9	72.8	71.6	74.2	77.7	76.3	71.9	78.4	78.9	72.7	69.7	69.9	69.3	69.4	69.7	73.4	74.5	85.5																					
31-Dec	77.4	73.7	73.3	77.1	81.1	83.2	83.8	83.1	81.8	81.3	80.7	78.1	75.6	72.2	73.3	74.9	81.4	78.2	78.9	80.1	79.1	79.1	79.6	78.8	78.6	83.8																					
																						80.6	80.4	80.1	80.2	80.5	80.5	80.1	79.4	79.0	79.4	79.4	77.9	77.6	76.1	76.4	76.9	77.7	78.3	78.9	79.7	80.1	80.3	80.1	80.5	Diurnal Average	
																						96.4	97.0	97.1	97.2	97.7	97.2	94.5	91.8	92.1	92.0	92.3	92.0	91.8	91.0	90.7	91.0	91.2	93.1	96.0	96.3	96.5	96.4	96.5	96.0	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	15	2.02	2.02
60 - 80	418	56.18	58.20
80 - 100	311	41.80	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 31 km/h on Dec 4 20:00	Maximum Daily Speed Average: 13.5 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 29 04:00	Minimum Daily Speed Average: 0.5 km/h on Dec 10	Hours of Data: 741
Maximum Diurnal Speed Average: 3.1 km/h at hour 13	Minimum Diurnal Speed Average: 1.1 km/h at hour 3	Hours of Missing Data: 3
Monthly Average Velocity: 2.1 km/h 144.4 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 3 Median = 7 Q ₃ = 12 P ₉₀ = 16 P ₉₉ = 23	Percent Operational Time: 99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NNW7	NNW6	NW6	NNW4	NW3	W3	NNW3	WNW2	E1	SW1	SSW2	SE2	SSE3	SSW4	SW3	NNE1	NE1	NW1	N1	NNW2	NNW3	NNW4	NNW4	NNW3	NW1.7	NNW7
2-Dec	NNW5	NNW5	NNW4	N6	NNW7	NNW6	NNW6	NNW5	NNW5	NNW6	NNW3	SSE7	SSE14	SSE13	SSE14	UO	UO	UO	SE14	SSE13	SE10	SE9	SE5	SE4	SE2.3	SE14
3-Dec	SSW2	NNW5	NW7	NW9	N15	N17	NNW17	NNW13	NW11	NNW13	NNW11	NW14	NW13	NW14	NNW15	NNW15	NNW17	NNW14	NNW7	NW5	NNW3	NW2	W4	NNW5	NNW9.6	NNW17
4-Dec	NW4	NW4	NW4	WNW4	W3	NW3	SE2	SE2	ESE4	SE8	SE9	SE14	SSE12	SE13	SSE14	SE19	SE18	SSE21	SSE31	SSE27	SSE23	SSE25	SSE21	SSE10.7	SSE31	
5-Dec	SE18	SE19	SE13	SE6	S8	SE15	SE15	SE12	SE11	SE11	SE10	ESE5	SE12	SE9	SE9	SE9	SE8	SE8	SE9	ESE6	SE11	SE9	SE7	SE10	SE10.3	SE19
6-Dec	SE10	SE16	SE10	SE13	SE11	SE10	SE12	SE12	SE15	SE14	SE14	WSW15	WSW17	WSW11	WSW13	WSW14	WSW13	SW4	SW11	S5	SSW6	SE3	SSW6	S7	S6.6	WSW17
7-Dec	SW14	SW6	WSW8	WSW10	SW10	SW3	SW4	SW8	SW19	SW16	SW4	SE6	SE8	SE8	SSE7	SE2	WSW1	WNW1	NNW1	NW3	NW3	NNW5	NNW9	NNW7	SW3.8	SW19
8-Dec	NNW9	N9	NNW7	NNW7	NNW8	NNW11	N13	N12	N12	N9	N11	N11	N10	N7	NNE7	NNE5	NNE2	NE1	ESE2	SE3	SSE4	E3	ESE3	ESE4	N5.8	N13
9-Dec	SE5	ESE5	ESE7	ESE6	ESE6	E1	NW2	SE1	N1	NNW4	N8	N9	NNW7	N13	N14	NNW12	NNW10	NNW9	NW7	NNW7	NW6	NNW4	NW5	NW5	N4.0	N14
10-Dec	WNW3	NW4	NW2	W2	NNW3	NW3	NNW4	NNW1	WSW1	WNW1	WNW2	S2	SE5	SE2	SE2	SSW2	ESE5	SE5	ESE3	NNW1	ESE1	ESE4	ESE5	E4	ESE0.5	ESE5
11-Dec	E3	SE4	SE9	SE10	ESE4	E5	ESE5	E4	SE3	SE4	ESE3	SE3	SSE4	SSE4	SSE3	NE1	ESE2	E2	SE4	E1	NE1	NNW2	NE3	NNW3	ESE2.8	SE10
12-Dec	ENE2	ENE2	NNW1	ESE5	SE13	SE8	SE11	SE14	SE15	ESE14	ESE15	ESE18	ESE17	SE18	SE15	SSE21	SSE19	SE23	SSE19	SE18	SE17	SE17	SE17	SE15	SE13.5	SE23
13-Dec	SE17	SE18	SE18	SE22	SE22	SE22	SE22	SE21	SE24	SE25	SE16	SE8	SE13	SE9	SE13	SE14	SE12	ESE3	NNW3	NW3	NNW4	NW3	NW2	NNW3	SE11.7	SE25
14-Dec	NNW3	N7	NNW7	NNW10	N10	N8	NNW6	NNW8	N8	NNW9	N9	N8	NNW7	NNW11	NNW8	N10	N13	N12	NNW11	NNW6	NNW7	NW5	NNW6	NNW6	NNW8.1	N13
15-Dec	NW5	NW5	NW9	NNW8	NNW8	NNW12	N13	NNW12	NNW12	NNW13	NNW14	N11	NNW14	N14	NNW14	NNW13	N9	NNW9	N9	N9	N7	N8	N7	N4	NNW9.8	NNW14
16-Dec	NNE3	N2	N3	NW2	NNE1	NW2	NW5	NW8	NW11	NW11	NNW10	WSW10	W12	WNW17	WNW17	W14	WNW13	WNW15	WNW14	W14	WSW13	WSW14	WSW11	W8	WNW8.8	WNW17
17-Dec	W7	W5	W6	WNW5	W6	W8	WSW9	WSW9	WSW8	WSW6	WSW4	WSW6	SSE1	ESE2	SE3	ESE4	ESE6	SE6	SE3	SE4	SE5	SE8	SE10	SE10	SSW2.6	SE10
18-Dec	SE5	ESE4	SE6	SE8	SE8	SE8	SE2	ESE1	ESE1	NNW1	NW2	NW2	WNW3	WNW2	WNW1	NNW1	NW2	NW3	NW2	NNE0	ESE2	N0	SW1	ESE1	SE1.2	SE8
19-Dec	ESE7	ESE6	SE6	SE6	SE7	SE9	SE8	ESE3	SE4	SE5	SE10	SE4	SE3	WSW1	SSW1	W2	WNW1	NW2	NW1	WSW1	NW2	WNW1	S1	S1	SE3.0	SE10
20-Dec	NW2	NNW3	W1	NNW4	NNW4	N2	SSW2	SE11	SE16	SE22	SE16	SE18	SE23	SE23	SE18	SSE20	SSE15	SSE15	SSE12	SSE7	S6	SSW12	S8	SE7	SE9.3	SE23
21-Dec	SE7	SE5	SSE2	S3	SSE5	SE5	SSE5	SE4	SE6	SE7	SE8	SE6	SE4	SE4	ENE1	NW1	NNW3	NNW5	NNW4	NNW3	NNW4	NW3	NNW2	NNW4	SE1.8	SE8
22-Dec	NNW3	NNW3	NW2	SSW1	SSE4	S9	SSE6	S9	SSW7	S11	SSE14	S20	SSE22	SSE27	SSE17	SSE14	SSE16	SSE17	SSE22	SSE24	SSE16	SE15	SE10	SE10	SSE11.3	SSE27
23-Dec	SE11	SE12	SE9	SE9	SE8	S4	SE9	SE7	SE10	SE14	SE17	SE22	SE23	SE21	SE19	SE15	SE21	SE17	SE18	ESE13	SSE5	WSW9	WSW17	SE12.2	SE23	
24-Dec	W15	WSW12	SSE6	SE8	SE17	SE17	SE14	SE16	SE16	SE12	SE10	SE4	SE4	SE3	SSE5	NW2	SSE3	SE11	SE12	SE10	SE17	SE14	SE13	SE10	SE8.6	SE17
25-Dec	SE11	SE12	SE16	SE15	ESE15	ESE15	ESE10	SE11	SE10	SE10	SE13	ESE10	SE6	WSW20	SW21	SSW14	S11	SE10	SE10	ESE13	ESE11	SE13	SE15	SE16	SE10.1	SW21
26-Dec	SE13	SE18	SE11	SE11	SE8	SE8	SE7	ESE8	ESE9	ESE7	SE6	SE10	SE10	SE11	SE8	SE10	ESE5	SE6	SSE7	SE7	SSE6	SE5	SE7	SE7	SE8.4	SE18
27-Dec	SE5	SE9	SE9	SE6	SE9	SE7	SE4	SSE1	SE4	SE3	SE4	NNW3	NW1	NW1	SE7	SE6	SE1	NW2	SE2	S1	ENE1	NNW3	NW1	NW2	SE2.8	SE9
28-Dec	NNW3	NNW2	NNW3	NNW3	NNW3	WNW1	NW2	NNW2	NNW3	NNW3	WNW3	NNW1	NNW2	N5	NW2	NW2	W2	WNW3	NNW4	N7	N6	N6	NNW4	NW2	NNW2.9	N7
29-Dec	NNW1	NNW2	NNW2	N0	SSW2	ESE4	ESE4	ESE2	SE3	ENE1	NNE0	S1	WNW1	WNW1	WNW3	NW1	NW2	WNW2	NNW2	NNW3	N2	NNW4	WNW7	WNW11	NW1.2	WNW11
30-Dec	NW9	NW10	NNW12	WNW12	W16	W19	NNW15	NNW16	NNW18	NNW16	NNW15	NNW14	NNW12	NNW13	NNW15	NNW11	WNW8	WNW10	WNW13	WNW9	WNW12	WNW9	WNW9	WNW11	WNW12.5	W19
31-Dec	WNW8	NNW12	NNW11	NW8	N5	W2	N2	N3	NNW3	NNW2	NW3	WNW2	NNW5	NW9	NW7	NW8	N5	NNW4	NNW4	NNW2	NNW2	N3	NNW3	NNW3	NW4.4	WNW12

SSE1.3 SE1.5 SSE1.1 SE1.6 SE2.1 SE1.8 ESE1.9 SE2.0 SE2.5 SE2.6 SE2.8 SE2.5 SSE3.1 SSE2.3 S2.4 S1.8 SSE1.9 SE1.9 SSE2.6 SE3.0 SE2.7 SE2.3 SSE2.0 SSE1.7	Diurnal Average
SE18 SE19 SE18 SE22 SE22 SE22 SE22 SE21 SE24 SE25 SE17 SE22 SE23 SSE27 SW21 SSE21 SE21 SE23 SSE22 SSE31 SSE27 SSE23 SSE25 SSE21	Diurnal Maximum

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

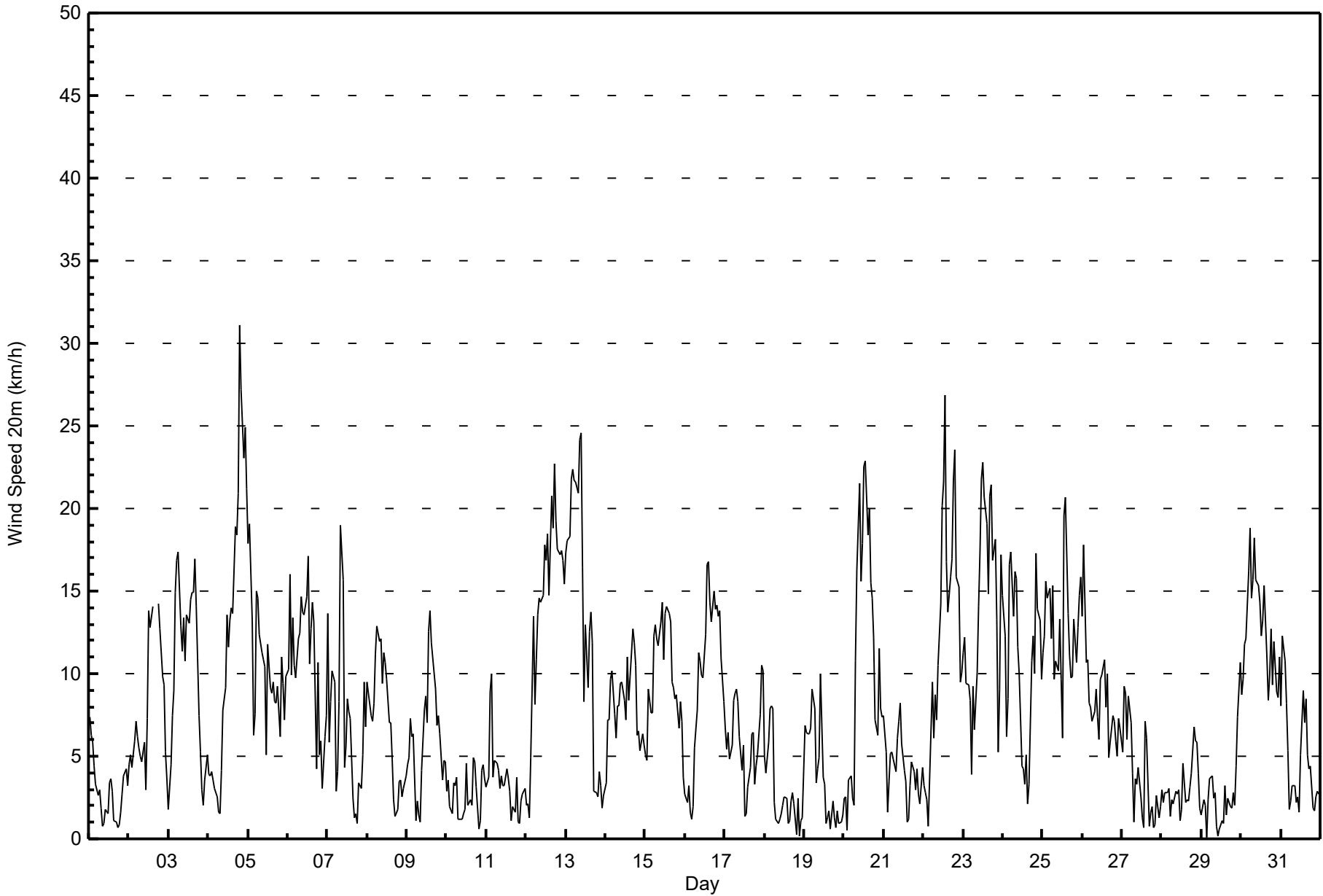
Wind Speed 20m (WS20) - km/h
Lower Camp Met Tower - December 2024

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



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	311	41.97	41.97
6 - 11	235	31.71	73.68
12 - 19	164	22.13	95.82
20 - 28	30	4.05	99.87
29 - 38	1	0.13	100.00
> 38	0	0.00	100.00

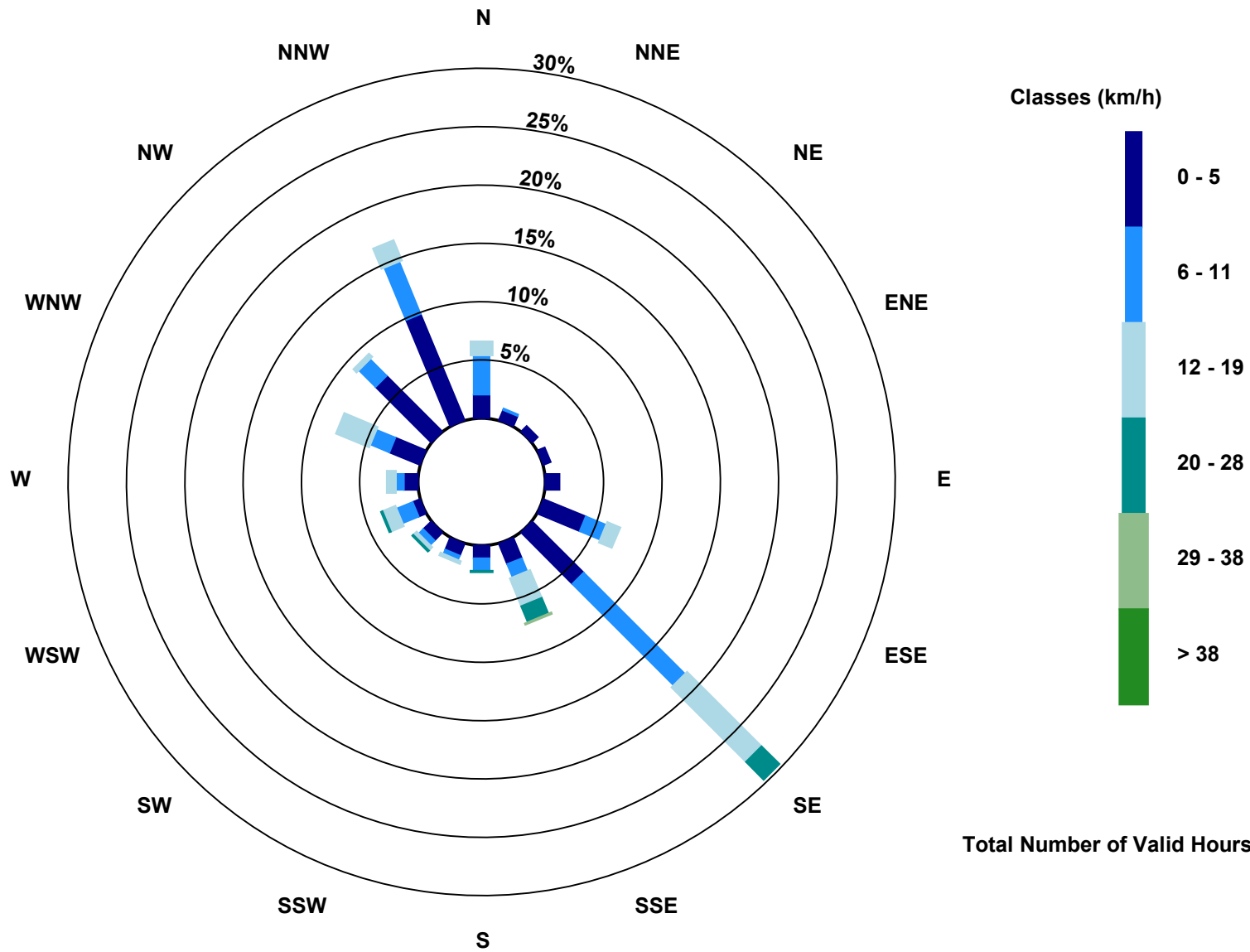
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





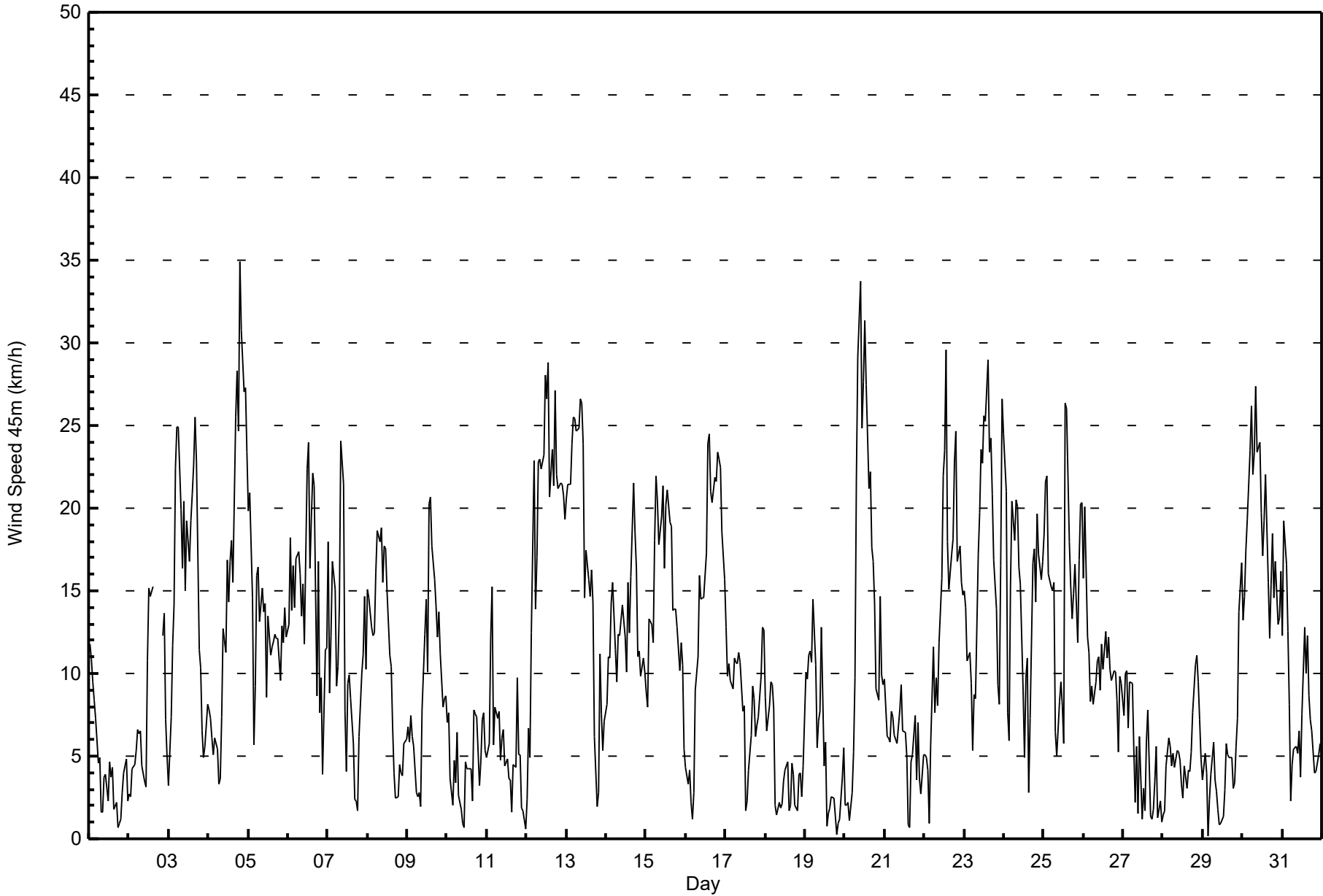
Maximum Speed: 35 km/h on Dec 4 20:00		Maximum Daily Speed Average: 19.5 km/h on Dec 12		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Dec 29 04:00		Minimum Daily Speed Average: 1.6 km/h on Dec 10		Hours of Data: 739																						
Maximum Diurnal Speed Average: 3.7 km/h at hour 11		Minimum Diurnal Speed Average: 1.3 km/h at hour 3		Hours of Missing Data: 5																						
Monthly Average Velocity: 2.1 km/h 141.4 deg		Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 10 Q ₃ = 16 P ₉₀ = 22 P ₉₉ = 29		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-Dec	N12	NNW9	NNW8	NNW7	NNW5	NW5	WNW2	SW2	SE4	SE4	ESE2	SE5	S4	SSW4	NE2	E2	NE1	E1	ENE1	NNW3	NNW4	NNW5	N2	NNW2.2	N12	
2-Dec	NE3	N3	ENE4	NE5	N5	NNW7	NNW6	NNW7	NNW4	NNE3	ESE3	SE11	SSE15	SE15	SSE15	UO	UO	UO	UO	UO	SE12	SE14	SE7	SSE5	ESE3.6	SSE15
3-Dec	SSW3	NNW7	NNW12	NW14	N22	N25	NNW25	NNW20	NW16	NNW20	NNW15	NW19	NW17	NW19	NNW21	NNW23	NNW26	NNW23	NW11	NW10	NW7	NW5	NW6	NW8	NW14.5	WNW26
4-Dec	WNW8	W7	W6	W5	WSW6	WSW5	SSW3	SE4	ESE7	SE13	SE11	SE17	SE14	SE17	SE18	SE16	SE26	SE28	SE25	SSE35	SSE31	SSE27	SSE27	SSE23	SSE13.1	SSE35
5-Dec	SSE20	SE21	SSE15	SSE6	S9	SE16	SE16	SE13	SE15	SE14	SE14	ESE9	SE13	SE11	SE12	SE12	ESE12	SE12	SE12	SE10	SE13	SE12	SE14	SE12	SE12.7	SSE21
6-Dec	SE13	SSE18	SE14	SE16	SE14	SE17	SE17	SE16	SE13	SE15	SE12	WSW22	WSW24	WSW16	WSW19	WSW22	WSW21	WSW9	SW17	SSW8	SW10	SSW4	SW11	SSW12	S9.2	WSW24
7-Dec	SW18	WSW9	WSW12	WSW17	SW15	SW9	SW10	SW14	SW24	SW21	SW8	SSE4	ESE9	ESE10	SSE8	ESE6	SE2	NNW2	NW2	NNW6	NNW10	NNW11	NNW15	N10	WSW5.7	SW24
8-Dec	N15	N15	NNW13	NNW12	NNW12	N16	N19	N18	N19	N15	N18	N18	N15	N11	NNE10	NNE7	N4	NE2	E3	ESE5	SSE4	ESE4	ESE6	SE6	N9.3	N19
9-Dec	SE7	SE6	SE7	SE6	SE6	ESE3	NNW3	SE3	E2	NNW8	N12	N14	NNW10	N20	N21	N18	NNW16	NNW14	NNW12	NNW14	NNW11	NNW8	NNW8	NNW9	N6.8	N21
10-Dec	NNW7	NW8	NNW4	NW2	WSW5	NW3	WSW6	WSW3	ENE2	SSW1	SE1	SE5	SE4	ESE4	ESE4	SE2	SE8	SE8	ESE7	E3	ESE5	ESE7	ESE8	ESE5	ESE1.6	SE8
11-Dec	ESE5	SE6	SE12	SE15	ESE6	E8	ESE7	E8	ESE5	ESE6	ESE7	SE4	SE5	SE4	SE4	ESE2	SE4	ESE4	ESE10	ESE5	ESE5	ENE2	ENE2	ENE1	ESE5.4	SE15
12-Dec	SE2	SE7	SE5	SE12	SE23	SE14	SE17	ESE23	ESE23	ESE22	ESE23	ESE28	ESE27	ESE29	SE21	SSE24	SE21	SE27	SE22	SE21	SE22	SE21	SE21	SE19	SE19.5	ESE29
13-Dec	SE21	SE21	SE21	SE24	SE26	SE25	SE25	SE25	SE27	SE26	SE24	SE15	SE17	SE16	SE15	SE16	SE14	ESE6	NNW2	NNW3	NNW11	NNW8	NW5	NNW7	SE13.7	SE27
14-Dec	NNW8	N11	N11	N14	N15	N11	NNW9	NNW12	N12	N13	N14	N12	NNW10	N16	N12	N16	N22	N19	NNW16	NNW11	NNW11	NNW10	NNW11	NNW10	N12.7	N22
15-Dec	NNW9	NW8	NW13	NNW13	NNW12	NNW18	N22	N20	NNW18	NNW19	NNW21	N16	NNW20	N21	N19	NNW19	N14	N14	N14	N13	N10	N12	N11	N5	NNW14.9	N22
16-Dec	NNE4	N3	N4	NW2	NNE1	NW3	NW9	NW11	NW16	NW14	NNW15	W15	W17	NNW24	NNW24	W21	NNW20	NNW22	NNW22	W23	W23	WSW22	WSW19	WSW16	NNW13.3	WNW24
17-Dec	WSW13	W10	W11	W10	W9	W11	W11	WSW11	WSW11	WSW11	SW8	WSW8	SSW2	E2	ESE4	ESE6	SE9	SE8	SE6	SE7	SE7	SE10	SE13	SE13	SSW4.0	SE13
18-Dec	SE9	SE7	SE8	ESE10	ESE9	ESE8	SE2	SSE1	SSE2	WNW2	NW2	NW3	NW4	WNW5	W2	NW2	NW5	NW4	W2	SW2	SE4	SE4	SSE3	ESE4	SE1.6	ESE10
19-Dec	SE10	ESE10	SE11	SE11	SE11	SE14	SE11	SE6	SE7	SE8	SE13	ESE4	SE6	W1	SW2	NNW2	NNW3	NW2	WNW1	SW0	NW1	WSW1	SSE4	SE6	SE5.0	SE14
20-Dec	SSE2	WNW2	ESE2	NE1	N3	ESE5	SE10	SE22	SE29	SE34	ESE25	SE28	SE31	SE27	SE21	SSE22	SSE18	SSE17	SSE14	SSE9	SSW8	SSW15	S10	SSE9	SE13.9	SE34
21-Dec	SE10	SE6	SE6	SE6	SE8	ESE7	SE6	SE6	SE7	ESE8	SE9	ESE7	ESE6	SE5	NE1	W1	N5	NNW5	NNW7	NNW4	NNW7	NW4	NW3	NNW5	ESE2.6	SE10
22-Dec	NNW5	NNW5	NNW4	S1	SSE6	S12	SSE8	S10	S8	S12	SSE16	S22	SSE23	SSE30	SSE18	SSE15	SSE17	SSE18	SSE23	SSE25	SE17	SE18	SE16	SE15	SSE12.7	SSE30
23-Dec	SE15	SE14	SE11	SE11	SE9	S5	SSE9	SE8	SE17	SE20	SE24	SE23	SE26	SE25	SE29	SE23	SE24	SE21	SE17	SE14	SE9	SW8	WSW17	WSW27	SE13.9	SE29
24-Dec	WSW25	WSW21	SSW8	SSE6	SE15	SE20	SE18	SE20	SE20	SE16	SE15	SE9	ESE5	ESE10	SE11	SSE3	SE7	SE17	SE18	SE14	SE20	SE17	SE16	SE17	SSE11.6	WSW25
25-Dec	SE18	SE22	SE22	SE16	ESE15	ESE15	ESE15	SE6	SSE5	SSW8	SE10	ESE8	S6	SW26	SW26	SW18	SSW15	SE13	SSE15	SE17	SE12	SE17	SE20	SE20	SSE11.8	SW26
26-Dec	SE16	SE20	SE12	ESE11	SE8	SE9	ESE8	ESE10	ESE11	ESE11	ESE9	ESE12	ESE10	SE13	SE11	SE12	ESE10	ESE10	SE10	ESE10	SE8	SE5	ESE10	ESE9	SE10.6	SE20
27-Dec	SE7	ESE10	SE10	SE7	ESE10	ESE9	ESE5	ESE2	SE6	S2	ESE6	W1	NW3	NW2	SE6	SE8	E1	N1	SE2	ESE3	ESE6	ENE1	E2	SSE1	SE4.0	SE10
28-Dec	NE1	N2	N4	NNW6	NNW6	NNW4	NNW5	NW4	NNW5	NNW5	NNW5	NW3	NNW2	NNW4	NW3	NW4	WNW4	WNW5	NNW8	N11	N11	N9	NNW7	NNW5	NNW5.0	N11
29-Dec	NNW4	NNW5	N4	E0	SSW2	SE4	ESE6	ESE4	ESE3	E2	ESE1	E1	N1	NW3	NW6	NW5	NNW5	NW5	W3	NW3	NW6	NW7	WNW14	NNW17	NW2.7	WNW17
30-Dec	NNW13	WNW15	WNW17	WNW19	WNW23	WNW26	WNW22	WNW23	WNW27	WNW23	WNW24	WNW20	WNW17	WNW19	WNW22	WNW16	WNW12	WNW15	WNW18	WNW15	WNW17	WNW13	WNW13	WNW16	WNW18.5	WNW27
31-Dec	WNW12	WNW19	WNW17	NW13	NNW8	NW2	N5	NNE5	N6	NNW5	NNW7	NW4	NW8	NW13	NW10	NW12	N9	NNW7	N6	NNW4	NNW4	N5	NNW5	NNW6	NNW7.2	WNW19
SSE1.7 SSE1.5 SE1.3 SE1.5 SE2.0 ESE2.3 ESE2.0 ESE2.3 SE2.9 SE3.0 ESE3.7 SE2.8 SE3.1 SSE2.4 S2.3 S1.6 SSE1.8 SE1.9 SSE2.3 SE2.7 SSE2.2 SSE2.3 SSE2.2 S2.1																								Diurnal Average		
WSW25 SE22 SE22 SE24 SE26WNW26NNW25 SE25 SE29 SE34 ESE25 ESE28 SE31 SSE30 SE29 SSE24WNW26 SE28 SE25 SSE35 SSE31 SSE27 SSE27WSW27																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Dec 24 14:00														Hours in Service: 744 Hours of Data: 739 Hours of Missing Data: 5 Hours of Calibration: 0 Percent Operational Time: 99.3											
Minimum Value: 1 km/h on Dec 19 20:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 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-Dec	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	3
2-Dec	2	1	3	3	3	2	1	2	2	2	3	5	2	2	3	UO	UO	UO	UO	UO	3	2	4	2	5
3-Dec	2	2	3	3	7	4	5	4	5	4	4	6	4	4	5	4	5	6	4	2	2	1	1	1	7
4-Dec	1	2	2	1	2	2	2	1	3	2	2	2	4	4	4	4	5	6	6	5	5	4	4	3	6
5-Dec	2	2	5	1	2	2	2	2	1	2	2	3	2	2	1	2	3	3	4	4	4	3	4	3	5
6-Dec	5	2	3	4	3	3	3	4	2	2	3	4	3	3	3	2	6	3	4	3	3	2	4	3	6
7-Dec	3	4	3	3	2	4	5	5	3	5	5	3	2	2	2	2	2	1	1	3	2	3	4	3	5
8-Dec	5	4	5	4	4	4	4	4	4	4	4	4	3	4	2	2	1	1	1	1	1	1	1	1	5
9-Dec	2	2	4	1	2	2	1	2	2	2	4	4	2	5	4	5	5	4	2	3	2	3	2	2	5
10-Dec	2	2	1	1	2	1	2	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	1	1	2
11-Dec	2	4	3	4	4	4	3	2	2	3	3	2	2	2	1	1	2	2	5	5	4	2	2	2	5
12-Dec	2	4	4	6	6	4	5	6	5	5	4	5	5	5	4	4	4	3	5	3	3	3	3	2	6
13-Dec	2	3	3	2	2	2	2	2	3	1	4	6	2	3	2	2	1	4	1	3	3	4	2	1	6
14-Dec	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	4	4	3	3	2	3	3	3	4
15-Dec	3	2	3	3	4	4	4	4	4	4	4	5	4	4	3	4	3	3	3	4	3	3	3	2	5
16-Dec	3	2	1	1	1	1	4	4	3	4	3	3	5	5	6	5	7	6	5	4	3	3	4	5	7
17-Dec	5	4	4	5	4	2	3	3	3	3	3	2	2	1	1	2	1	1	1	1	2	2	1	1	5
18-Dec	1	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	2
19-Dec	3	2	3	3	3	3	2	3	2	2	3	2	2	1	1	1	1	1	1	1	1	1	1	1	3
20-Dec	1	1	2	1	2	4	5	6	5	6	6	6	6	4	4	4	3	2	3	2	2	3	3	2	6
21-Dec	1	1	1	2	1	1	1	1	1	1	1	3	2	3	1	1	1	3	3	1	2	1	1	2	3
22-Dec	2	1	1	1	2	3	2	3	4	3	5	2	4	4	4	4	3	5	3	3	4	2	2	3	5
23-Dec	2	3	2	2	2	3	3	2	2	3	3	2	2	1	2	2	2	3	2	2	2	4	4	5	5
24-Dec	7	6	5	4	3	3	4	2	3	6	4	2	3	7	6	3	5	5	4	2	3	2	3	7	7
25-Dec	3	3	2	3	4	3	3	3	3	4	3	3	7	4	4	4	3	3	3	2	2	4	2	3	7
26-Dec	3	2	2	2	2	3	2	2	2	2	2	2	2	4	3	3	2	3	4	2	1	1	2	3	4
27-Dec	2	2	2	2	2	2	2	1	2	1	2	2	1	1	4	2	1	1	2	1	2	1	1	1	4
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	2	1	1	3
29-Dec	1	1	1	1	1	1	1	2	2	1	1	1	1	2	3	3	1	1	1	1	2	1	4	4	4
30-Dec	3	4	4	4	4	4	4	4	5	5	5	6	5	5	4	5	4	4	4	3	4	3	3	4	6
31-Dec	3	4	3	4	2	1	1	1	1	1	1	2	2	4	3	3	1	1	1	2	1	2	1	1	4
Diurnal Maximum																									
7 6 5 6 7 4 5 6 5 6 6 6 7 7 6 5 7 6 6 5 5 4 4 5																									
UO - Unstable Operation																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	204	27.60	27.60
6 - 11	221	29.91	57.51
12 - 19	198	26.79	84.30
20 - 28	108	14.61	98.92
29 - 38	8	1.08	100.00
> 38	0	0.00	100.00

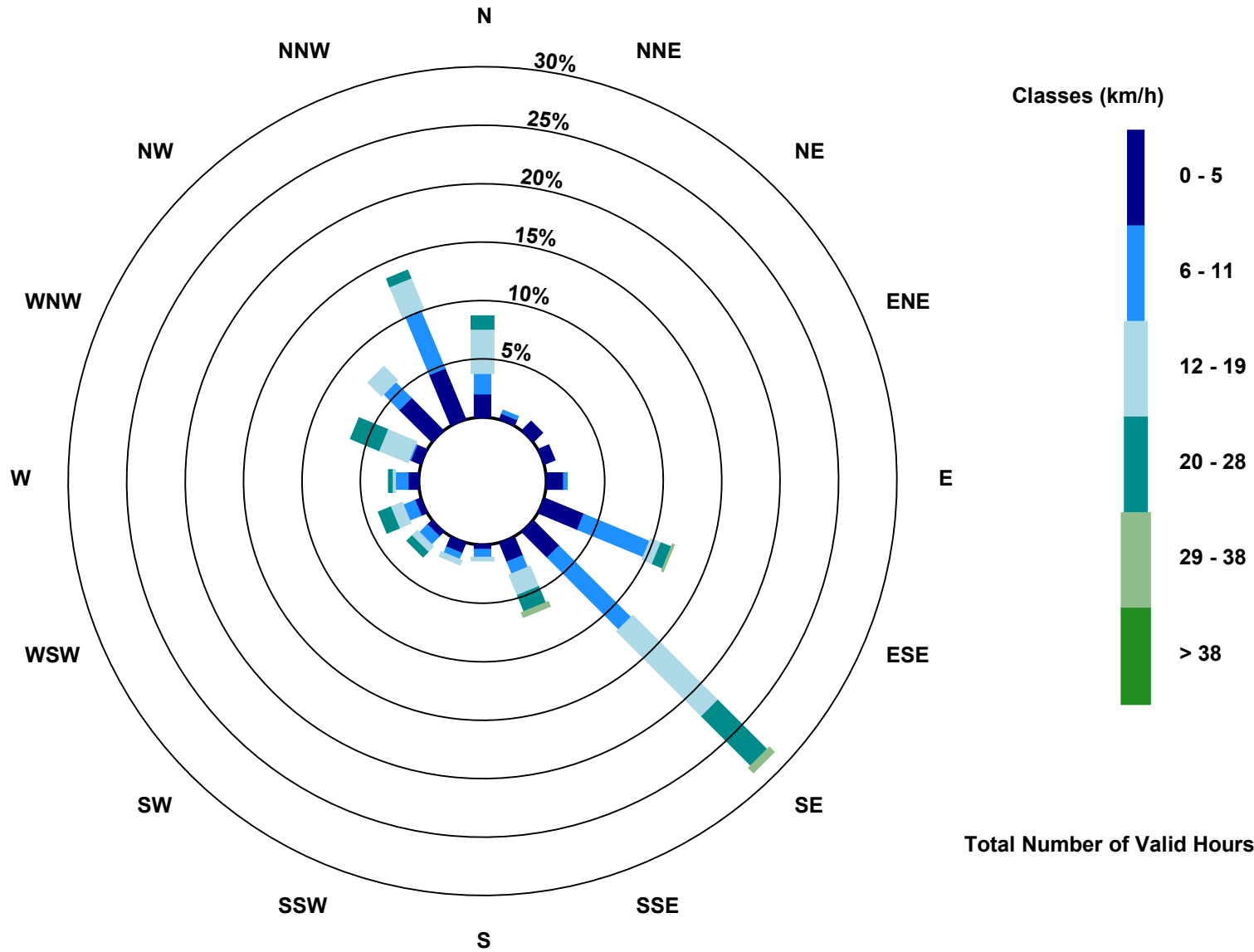
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 739



Maximum Speed: 43 km/h on Dec 20 10:00	Maximum Daily Speed Average: 25.3 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 18 09:00	Minimum Daily Speed Average: 1.6 km/h on Dec 10	Hours of Data: 652
Maximum Diurnal Speed Average: 6.0 km/h at hour 6	Minimum Diurnal Speed Average: 2.2 km/h at hour 13	Hours of Missing Data: 92
Monthly Average Velocity: 3.4 km/h 191.5 deg	Percentiles: P ₁ = 1 P ₁₀ = 4 Q ₁ = 7 Median = 12 Q ₃ = 20 P ₉₀ = 27 P ₉₉ = 36	Percent Operational Time: 87.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	N14	N14	NNW13	NNW13	NNW13	NNW11	NNW10	NNW6	WSW2	SSE4	SW3	SSW2	SE5	SSE4	SSW3	E2	ESE5	ESE6	SE6	ESE6	ESE4	ESE5	SE5	SE11	NNE1.9	N14
2-Dec	SE12	ESE10	ESE17	ESE14	SE9	SE6	SE8	SE8	SE11	SE12	SE13	SE16	SSE18	SE16	SSE18	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SSE18
3-Dec	UO	UO	UO	UO	UO	UO	NNW30	NNW26	NW22	NNW24	NNW19	NNW27	NW22	NW25	NW27	WNW30	WNW35	WNW32	NW18	NW17	NW15	NNW13	N9	NNW9	NW21.1	WNW35
4-Dec	NNW11	NW10	W9	WNW4	WSW2	SW7	SSW5	SSE5	SE11	SE16	SE13	SE18	SE16	SE20	SE21	SE19	SE28	SE33	SE27	SSE40	SSE37	SSE34	SSE33	SSE28	SSE15.4	SSE40
5-Dec	SSE23	SSE23	S18	SW7	SSW13	S17	S17	S12	SSE10	SE11	SE18	SSE11	SE12	SE12	SE12	SSE13	SSE11	SSE15	SE17	UO	UO	UO	UO	UO	SSE13.3	SSE23
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	S8	SW8	WSW32	WSW32	WSW25	WSW29	WSW32	WSW32	WSW17	WSW27	SW17	WSW16	SW13	SW18	SW16	---	WSW32
7-Dec	WSW23	WSW17	W20	W21	WSW16	WSW15	WSW19	WSW20	WSW24	SW28	SW16	WSW10	S5	SE12	S9	SE3	ESE5	NW1	WNW2	NNW8	N19	N17	N19	N13	W8.7	SW28
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	N20	N18	N20	N19	N17	N13	NNE11	NNE8	NNE5	NNE4	ENE4	E6	SSE4	ESE3	ESE7	SE8	---	N20
9-Dec	SSE9	S6	SSW6	SSW6	SW7	SW1	NW5	SSW2	SW2	N10	N15	N17	N12	N24	N23	N21	N21	N20	N19	N20	NNW17	N12	NNW13	NNW13	N9.4	N24
10-Dec	NNW11	NNW11	NNW10	N11	NW5	WNW3	WSW12	WSW13	WSW7	WSW9	WSW8	SW1	SSW3	SSE4	ESE4	ESE7	SE11	SE12	SE9	SE7	SE11	SE13	SE11	SE7	S1.6	WSW13
11-Dec	SE9	SE11	SE16	SE21	SE9	ESE12	ESE11	ESE12	ESE9	ESE11	ESE12	SE7	ESE9	SE6	SE6	SE3	SE7	ESE10	SE23	SE17	SE20	ESE9	SE7	SE8	SE11.0	SE23
12-Dec	SSE8	SE18	SE20	SE23	SE30	SE21	SE25	SE29	SE31	SE30	SE28	SE33	SE32	SE35	SE26	SSE26	SSE23	SSE28	SSE25	SSE25	SSE26	SSE25	SSE27	SSE25	SE25.3	SE35
13-Dec	SSE28	SSE26	SSE28	SSE31	SSE35	SSE33	SSE31	SSE30	SSE31	SSE30	SSE24	SSE21	SSE19	SSE17	S14	S14	S12	SE7	ESE3	ENE2	NNW21	N11	NNW9	NNW14	SSE15.7	SSE35
14-Dec	N12	UO	N12	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE17	NNE21	UO	UO	UO	UO	UO	UO	---	NNE21
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	N23	N24	N18	N23	N24	N22	N22	N16	N17	N16	N15	N13	N14	N12	N6	---	N24
16-Dec	NNE5	NNE3	NNE3	WSW1	SSE1	NW3	NW15	NNW14	NW21	NW19	NNW19	W19	NNW22	WNW30	WNW31	WNW26	WNW29	WNW30	WNW29	W29	W28	W29	W30	W25	WNW18.1	WNW31
17-Dec	W24	W19	W20	WSW21	W15	WNW13	WNW8	WNW7	WNW6	W10	WSW15	WSW13	SW7	SSW3	SSE3	SSE5	SSE8	S9	S7	SSW7	SSW7	S6	S8	S10	WSW8.0	W24
18-Dec	SSE8	SE9	SSE10	SSE11	S13	SSE8	SE7	S2	N1	NW3	WNW2	W4	NNW6	NW6	NNW6	NNE5	NNE5	NNW5	NNW4	NW3	SSW3	SE4	S5	S7	SSE1.7	S13
19-Dec	SSE13	SSE15	SE14	SSE15	SE14	SE19	SSE13	SSE6	SSE9	SSE9	SSE9	ESE9	SSE5	SW2	SW3	NE3	E3	SE1	ESE2	SE5	SE4	SE3	SSE4	SE10	SSE7.4	SE19
20-Dec	ESE11	SSW5	SE10	SE18	SE17	SE24	SE29	SE35	SE39	SE43	SE33	SE36	SE35	SE30	SSE23	SSE26	SSE23	S20	S16	S15	SSW15	SSW21	SSW15	S10	SSE20.6	SE43
21-Dec	S11	SSW10	SSW5	SE5	SE10	SSE8	SE11	SSE7	S5	SSE6	S5	S5	SE7	SSE5	SE3	SSE3	ENE2	N3	NNW12	NE5	N9	NNE5	WSW4	WSW7	SSE2.9	NNW12
22-Dec	WSW6	WSW6	WNW3	SSW4	S8	S16	S11	S13	S11	S16	SSE20	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SSE20
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WSW38
24-Dec	WSW38	WSW35	SW16	SSW9	S13	SSE18	SSE22	SSE25	SSE23	SSE24	SE20	ESE19	ESE15	SE23	SE19	SSE9	SSE14	SSE26	SSE27	SSE21	SSE26	SSE22	SSE19	SSE18	SSE16.3	WSW38
25-Dec	SE18	SE19	SE15	SSW9	SSW9	SSW10	S10	SW12	WSW12	WSW21	WSW15	S5	SW16	WSW33	SW34	SW25	SSW24	S19	SSW22	S23	S15	SSE19	SSE23	SSE18	SSW14.9	SW34
26-Dec	SSE20	SSE24	SSE16	SE15	ESE12	SSE10	SE15	SSE13	SSE18	SSE15	SSE13	SSE9	SSE13	SE11	SSE16	SSE16	SSE13	SE12	SSE10	SSE11	SSW7	SSE6	S5	SSE12.8	SSE24	
27-Dec	S5	SSE10	SE13	SSW4	SSE8	S9	SSW7	SW1	SSW6	SSW8	SE14	SSE3	NW4	NNW6	S3	S9	SW4	WSW4	SSW2	SE8	SE10	ESE6	ESE10	ESE4	SSE4.7	SE14
28-Dec	ESE4	ESE2	NE2	NNE3	NE5	NE6	NNE5	N4	NNW6	NNW8	NNW10	NNW11	NW6	NW4	NNW5	NNW6	NNW7	NW7	NNW12	N13	N13	N12	N9	N9	N6.1	N13
29-Dec	N6	N7	N6	N1	SSW2	SSW4	SSW3	SE2	ESE5	SE3	E2	ENE1	NNE2	NNW7	NW10	NNW10	NNW8	N5	NW3	NW6	WNW13	WNW15	WNW21	WNW24	NW4.7	WNW24
30-Dec	NW19	WNW21	WNW24	WNW26	WNW30	WNW32	WNW29	WNW31	WNW36	WNW31	WNW32	WNW25	WNW22	WNW25	WNW27	WNW20	WNW17	WNW22	WNW26	WNW22	WNW22	WNW19	WNW18	WNW20	WNW24.7	WNW36
31-Dec	WNW18	WNW25	WNW23	WNW19	NW11	NNW10	NNW8	N8	NNE8	N7	N8	NW9	NW13	NW16	NW14	NW17	N10	N9	N8	N7	N8	N6	N7	N9	NW10.1	WNW25

SSW4.2	SSW5.0	SSW4.0	S4.3	S5.5	S6.0	S4.3	S4.5	S4.3	S3.9	S3.3	S2.2	SSW2.2	SSW2.8	SSW3.5	SW2.8	SSW2.7	S3.1	SSW3.1	S3.0	SSW2.2	SSW2.6	SSW3.5	SW3.6	Diurnal Average
WSW38	WSW35	SSE28	SSE31	SSE35	SSE33	SSE31	SE35	SE39	SE43	SE33	SE36	SE35	SE35	SW34	WSW32	WNW35	SE33	WNW29	SSE40	SSE37	SSE34	SSE33	WSW38	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

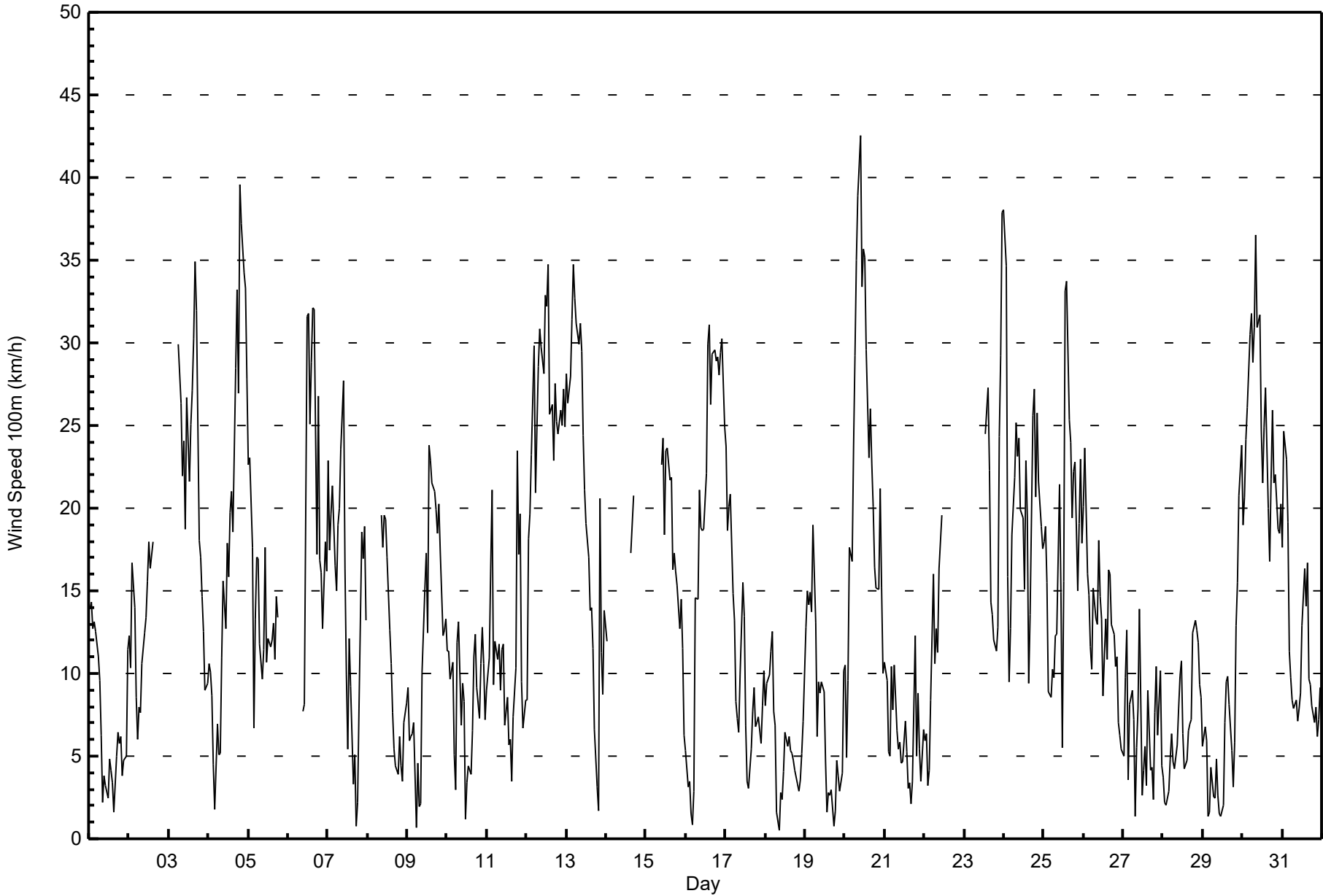
Wind Speed 100m (WS100) - km/h
Lower Camp Met Tower - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 10 km/h on Dec 25 13:00														Hours in Service: 744 Hours of Data: 652 Hours of Missing Data: 92 Hours of Calibration: 0 Percent Operational Time: 87.6											
Minimum Value: 1 km/h on Dec 28 04:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 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-Dec	3	2	1	1	1	1	1	2	1	1	2	2	1	2	1	1	1	1	1	1	1	2	2	3	3
2-Dec	4	4	5	6	4	3	2	2	3	2	3	4	3	3	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	6
3-Dec	UO	UO	UO	UO	UO	UO	5	4	6	4	4	6	4	4	5	4	5	5	5	2	1	2	3	2	6
4-Dec	1	1	2	2	1	2	2	1	3	3	2	2	5	4	4	5	4	6	6	5	5	4	4	3	6
5-Dec	3	2	7	3	3	2	2	2	1	3	3	4	1	1	2	1	2	2	2	UO	UO	UO	UO	UO	7
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	6	3	3	2	2	2	5	3	3	3	2	3	2	2	6
7-Dec	3	4	4	3	2	4	2	3	3	2	6	3	2	4	3	2	2	2	1	4	2	2	4	4	6
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	3	3	3	3	3	3	2	2	1	1	1	2	1	1	1	1	3
9-Dec	2	2	3	2	2	2	2	2	1	3	3	3	2	5	3	4	5	3	3	2	2	3	2	1	5
10-Dec	2	2	2	1	2	2	2	2	4	2	2	2	1	1	2	1	3	2	1	1	1	1	1	1	4
11-Dec	2	3	3	3	4	4	3	3	3	3	3	2	2	3	2	2	2	5	5	7	6	4	4	4	7
12-Dec	4	5	5	6	5	4	3	5	4	4	3	3	3	3	4	4	3	3	4	5	5	4	5	4	6
13-Dec	4	4	4	3	3	3	2	3	3	2	3	3	2	3	1	1	1	2	1	2	4	5	2	1	5
14-Dec	1	UO	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	UO	UO	UO	UO	UO	UO	UO	3
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	3	4	2	3	2	3	3	2	3	4	2	3	2	4
16-Dec	3	2	1	1	1	3	5	4	3	4	4	3	4	4	5	5	5	6	5	2	2	2	2	4	6
17-Dec	4	3	2	4	4	3	2	3	2	3	3	4	1	1	1	1	1	2	2	2	2	1	1	2	4
18-Dec	1	2	2	3	4	1	3	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	1	4
19-Dec	3	2	2	2	2	3	3	3	2	1	2	1	2	1	1	1	1	1	1	1	2	2	1	2	3
20-Dec	3	3	5	5	5	6	3	3	3	5	6	5	6	4	3	3	3	1	2	2	2	3	2	1	6
21-Dec	2	2	1	2	3	2	3	3	2	1	1	2	5	3	1	2	1	4	4	1	2	2	1	1	5
22-Dec	1	1	1	2	3	4	3	4	5	4	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	3	3	3	2	2	2	4	5	4	4	5
24-Dec	5	4	9	4	3	2	3	3	3	4	3	2	3	8	7	3	5	5	4	4	2	3	1	2	9
25-Dec	2	2	2	3	3	3	4	5	7	8	5	3	10	3	3	3	5	2	4	3	3	4	3	5	10
26-Dec	4	3	2	2	2	3	2	2	3	2	2	2	1	4	2	4	4	3	2	2	3	2	1	3	4
27-Dec	3	2	3	2	2	2	2	1	2	1	4	3	3	1	3	2	1	1	1	3	2	2	2	2	4
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	2	3	3	2	2	2	3
29-Dec	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	2	1	1	1	2	2	3	2	4	4
30-Dec	3	3	3	4	2	2	3	3	3	4	3	6	5	4	3	5	4	4	4	3	3	3	2	3	6
31-Dec	3	2	2	4	2	1	2	2	1	1	1	3	3	3	3	3	2	1	1	1	1	2	1	1	4
														Diurnal Maximum											
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	121	18.56	18.56
6 - 11	183	28.07	46.63
12 - 19	175	26.84	73.47
20 - 28	116	17.79	91.26
29 - 38	54	8.28	99.54
> 38	3	0.46	100.00

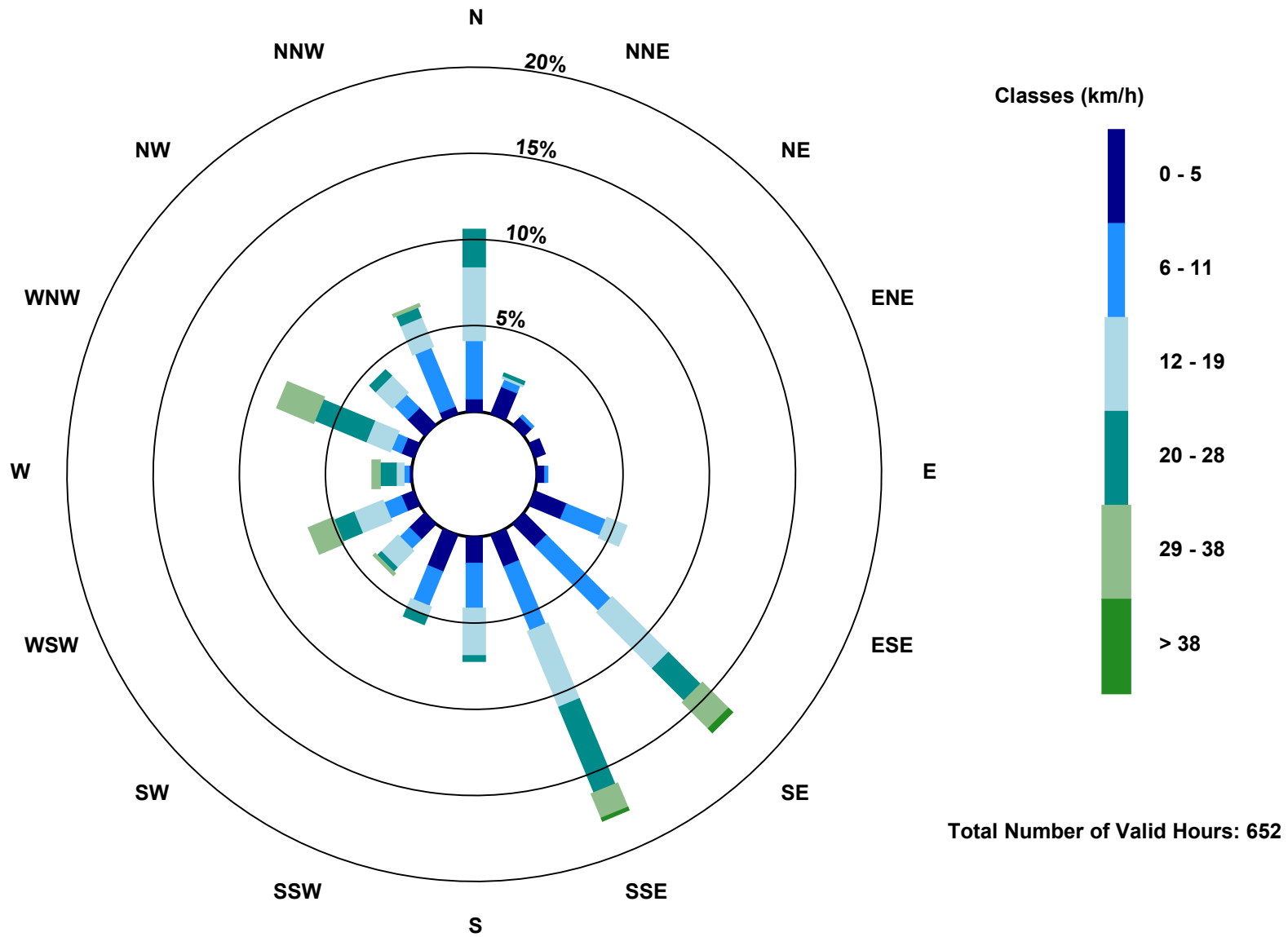
Total Number of Valid Hours: 652

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Speed: 47 km/h on Dec 20 10:00	Maximum Daily Speed Average: 29.9 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 1 09:00	Minimum Daily Speed Average: 3.5 km/h on Dec 1	Hours of Data: 548
Maximum Diurnal Speed Average: 8.9 km/h at hour 9	Minimum Diurnal Speed Average: 4.0 km/h at hour 22	Hours of Missing Data: 196
Monthly Average Velocity: 6.8 km/h 201.2 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 9 Median = 16 Q ₃ = 25 P ₉₀ = 33 P ₉₉ = 43	Percent Operational Time: 73.7

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-Dec	N15	N17	NNE18	N15	NNE9	N8	N8	N6	WNW0	SW4	SW7	SW4	ESE4	SE4	S3	ESE3	ESE9	SE8	SSE8	SE12	SE11	SE16	SE18	SE22	E3.5	SE22	
2-Dec	SE24	SE22	SE25	SE24	SE18	SE14	SE16	SE15	SE17	SE16	SE17	SSE17	SSE20	SSE17	SSE19	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SE25	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NW28	NW33	NW37	NW44	NW41	NW27	NNW23	NNW19	---	NW44	
4-Dec	N13	NNW11	NNW9	NNW5	NE3	SE3	SSE7	SSE9	SSE14	SE18	SE14	SE18	SSE16	SSE20	SSE21	SE21	SSE27	SE34	SSE29	SSE43	SSE45	S40	S39	S33	SSE16.7	SSE45	
5-Dec	S28	SSW27	SSW22	WSW11	SW17	SSW17	SSW17	SW14	SSW10	SSW9	S13	S11	S13	SSE13	SSE10	S11	S8	S18	UO	UO	UO	UO	UO	UO	SSW13.9	S28	
6-Dec	UO	UO	UO	UO	UO	UO	UO	S16	SSW13	WSW14	WSW20	W38	W37	W26	W32	W36	W36	W22	WSW29	WSW23	WSW18	WSW18	WSW22	WSW21	---	W38	
7-Dec	WSW27	W25	W27	WNW22	W18	WNW17	W18	W16	W17	WSW28	WSW26	WSW20	SW9	SSE12	SSW9	WSW2	SW4	W7	NW5	NNW13	NNE28	NNE23	UO	UO	W11.8	NNE28	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
11-Dec	UO	UO	UO	UO	UO	UO	SE16	SE17	UO	UO	UO	UO	UO	UO	SE8	SE7	SE11	SE18	SE31	SE26	SE30	SE22	SE20	SE22	---	SE31	
12-Dec	SE18	SE27	SE30	SE28	SE33	SE25	SE25	SE30	SE33	SE34	SE33	SE34	SE35	SE33	SE28	SSE28	SSE25	SSE30	SSE30	SSE31	SSE31	SSE33	SSE36	SSE35	SSE29.9	SSE36	
13-Dec	SSE36	SSE35	SSE34	SSE34	SSE39	S35	S32	S33	S27	S22	S20	SSE20	S16	SSW15	SW14	SW14	SW10	WSW6	WSW3	WSW3	N15	NNE17	NNE13	UO	S16.6	SSE39	
14-Dec	NNE14	NNE14	NNE13	NNE14	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE14	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE18	NNE13	NNE15	NNE12	---	NNE18
16-Dec	NNE7	UO	UO	UO	UO	UO	UO	UO	UO	NW21	NNW18	W15	NNW23	NNW30	NNW31	NNW29	NNW32	NNW35	NNW31	NNW27	NNW26	W29	NNW29	NNW28	---	NNW35	
17-Dec	W29	W23	W25	WNW23	WNW18	WNW18	NW14	NW13	NW12	NW12	WNW12	WNW9	W7	WSW7	WSW6	SW9	SSW8	SW8	SW9	WSW14	WSW14	WSW8	SW10	SW9	W11.6	W29	
18-Dec	SSW8	SSE8	SSE14	SSE17	SSE20	SSE14	SE10	SE7	SE6	SE4	SE5	SSE5	ESE5	WNW3	SW2	E3	E5	ESE10	S5	SSW7	S11	S11	S14	S16	SSE7.5	SSE20	
19-Dec	S20	S18	SSE17	SSE15	SSE13	SSE13	SE13	SSE9	S9	SSW8	SW9	SSW1	S4	SE2	SSW3	E1	ESE3	SSE5	S7	SSE6	SSE7	SSE7	SSE12	SE20	SSE8.6	SE20	
20-Dec	SE21	SSE15	SE24	SE32	SE32	SE36	SE36	SE39	SE43	SE47	SE37	SE38	SE36	SSE31	SSE26	SSE30	S25	SSW20	SSW17	SSW18	SW18	SW20	SW16	SW9	SSE24.5	SE47	
21-Dec	SSW7	SW11	WSW9	SSW6	SSE8	SSE17	SSE10	S12	S12	SSE9	SSE10	S10	SSE8	SSE8	SE6	SSE8	SSE4	SE4	NNW6	NE4	NNE7	ENE9	SE7	S7	SSE5.8	SSE17	
22-Dec	SSW7	SW8	SSW6	S9	S14	S21	S17	S16	S15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	S21	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	S21	S21	SSW27	SSW26	SW25	SW21	SW18	SW22	WSW25	WSW34	WSW38	W44	---	W44
24-Dec	W43	WSW42	WSW25	SW17	SSW13	SSW17	S17	S18	S23	SSE33	SSE31	SE28	SE19	SE31	SE24	SSE15	SSE23	SSE31	S35	S28	S20	S19	SSW16	SSW16	S18.7	W43	
25-Dec	S17	S18	SSW17	WSW26	SW24	SW24	SW22	WSW26	WSW24	WSW33	WSW29	SW15	SW26	WSW38	WSW39	SW30	SW27	SSW26	SSW25	SSW26	SSW25	SSW21	S20	S19	SW23.4	WSW39	
26-Dec	S22	S22	S23	SSE17	SSE13	SSE15	SSE25	SSE21	SSE26	SSE27	S25	S17	S13	S16	S11	S15	S19	S21	SSE13	SE15	SSE12	S13	SSE13	SSE13	SSE17.4	SSE27	
27-Dec	SSE10	SSE16	SSE13	SSE6	SSE11	SE11	SSE9	ESE6	S13	S13	SE24	SE8	E4	NNE1	SSE5	SSE15	S8	SW8	SSW9	SE13	SE14	SE11	ESE16	ESE10	SSE9.4	SE24	
28-Dec	SE6	SE4	ESE2	SE1	ENE2	E5	ENE8	NE11	NE10	NNE9	NNE9	N11	NW10	NW8	NW7	NW6	NNW8	NNW9	N15	N15	NNE12	N14	NNE12	N11	NNE6.6	N15	
29-Dec	NNE7	NNE7	NNE7	N4	WSW3	WSW7	NNW11	NW8	NW6	NW5	NW4	NNW5	NNW6	NW11	NW13	NNW12	N10	NNE7	NNW3	NW10	NW19	NNW22	NNW25	NNW26	NW8.6	NNW26	
30-Dec	NNW24	NNW25	NNW30	NNW30	NNW32	NNW34	NNW33	NNW33	NNW38	NNW35	NNW36	NNW29	NNW25	NNW28	NNW29	NNW23	NNW22	NNW27	NW33	NW27	NW27	NW23	NW23	NW24	NNW28.6	NNW38	
31-Dec	WNW23	WNW25	WNW25	NW23	NW17	NNW13	NW12	NNW8	N9	NNE10	N10	NW16	NW17	NW19	NNW17	NW20	N10	N11	NNE11	NNE9	NNE12	NNE9	N9	NNE13	NNW12.4	NNW25	

SSW6.3SSW7.2SSW6.4SSW5.4	S8.2	S8.5	S8.2	S8.2	S8.9	S8.4	S8.5	SSW7.4	SSW7.1	SSW6.9	SW7.6	SW7.6	SW7.3	SSW7.2	SW6.6	SSW5.7	SSW4.0	SSW4.0	SSW6.1	SSW7.1	Diurnal Average		
W43WSW42	SSE34	SSE34	SSE39	SE36	SE36	SE39	SE43	SE47	SE37	SE38	W37	WSW38	WSW39	NW37	NW44	NW41	S35	SSE43	SSE45	S40	S39	W44	Diurnal Maximum

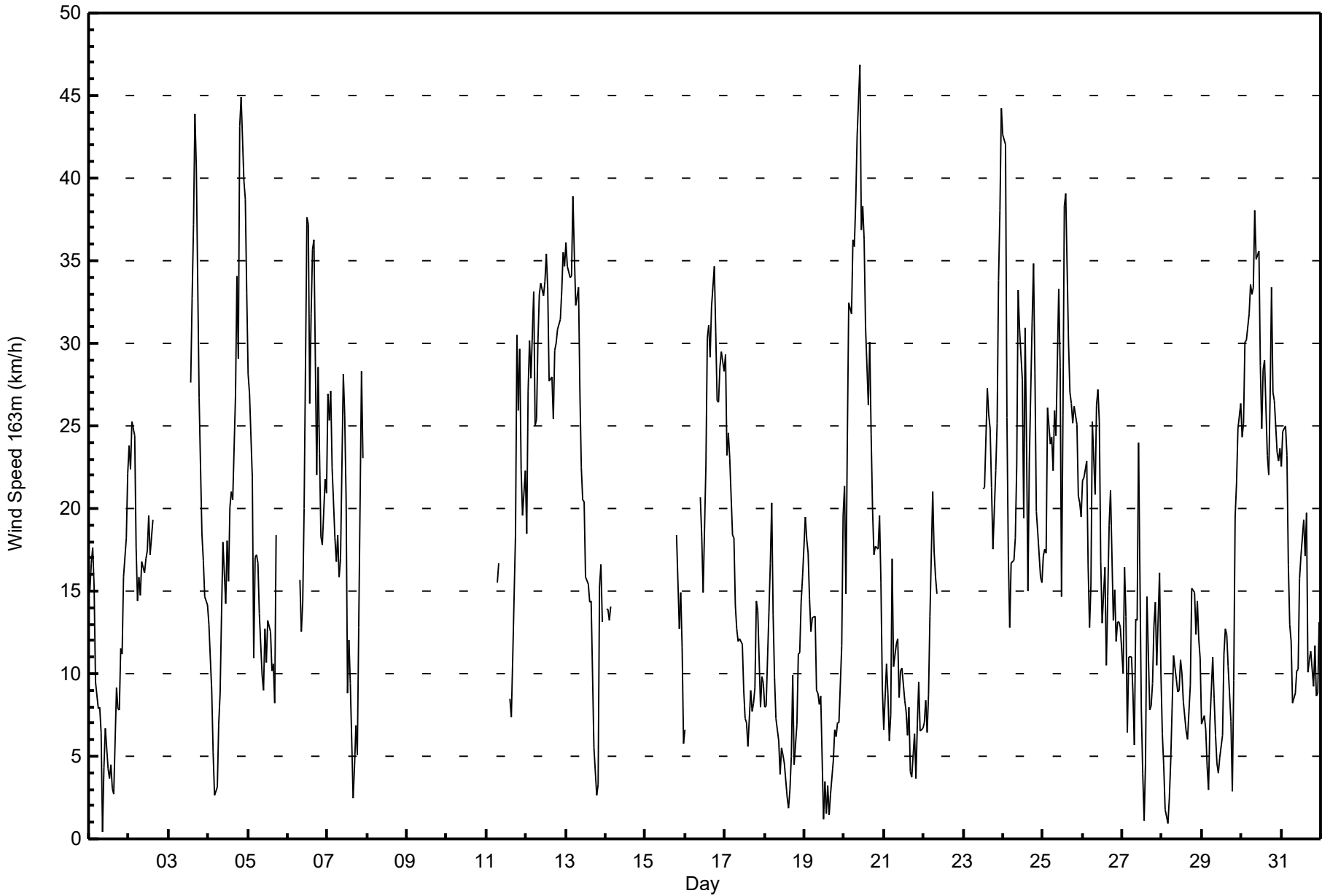
UO - Unstable Operation
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Dec 24 03:00														Hours in Service: 744 Hours of Data: 548 Hours of Missing Data: 196 Hours of Calibration: 0 Percent Operational Time: 73.7											
Minimum Value: 1 km/h on Dec 1 16:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 4 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-Dec	2	2	2	3	1	1	1	1	1	2	1	2	1	1	1	1	2	1	2	2	3	3	3	3	3
2-Dec	3	3	4	5	5	4	2	2	2	2	3	3	2	2	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	4	4	3	4	5	2	2	2	2	2	2
4-Dec	1	2	2	2	1	2	1	1	3	2	1	3	4	3	3	3	4	6	6	5	3	3	2	2	2
5-Dec	2	2	7	3	3	2	2	2	2	2	2	2	2	2	2	2	2	4	UO	UO	UO	UO	UO	UO	UO
6-Dec	UO	UO	UO	UO	UO	UO	UO	2	2	4	6	3	4	2	2	1	4	3	3	3	1	1	3	2	2
7-Dec	2	2	3	3	2	4	3	3	3	4	3	2	4	2	4	2	2	3	2	3	4	2	UO	UO	UO
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
10-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
11-Dec	UO	UO	UO	UO	UO	UO	3	2	UO	UO	UO	UO	UO	UO	3	2	3	7	3	5	3	5	6	3	7
12-Dec	4	3	3	5	5	3	2	5	3	3	3	3	3	3	4	3	3	3	4	4	5	5	3	3	5
13-Dec	2	3	2	3	2	2	2	3	3	2	3	2	2	2	1	1	2	2	1	2	7	6	2	UO	UO
14-Dec	2	2	1	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2	2	3	1	3
16-Dec	3	UO	UO	UO	UO	UO	UO	UO	UO	4	4	2	6	3	4	5	2	5	5	2	2	3	2	2	6
17-Dec	2	4	2	2	5	2	2	3	2	2	2	2	2	1	1	1	1	2	1	3	1	1	2	1	5
18-Dec	2	3	4	5	2	2	1	2	2	2	2	2	2	1	1	2	2	1	2	1	2	1	2	2	5
19-Dec	2	2	2	2	2	2	2	3	2	1	1	1	1	2	1	1	2	1	1	2	2	2	3	2	3
20-Dec	3	4	6	5	3	4	3	3	3	3	5	5	5	4	3	3	3	1	1	1	2	2	2	3	6
21-Dec	1	2	2	2	4	2	3	2	3	1	2	1	2	3	3	2	2	3	4	1	2	2	2	1	4
22-Dec	1	1	2	2	4	3	4	3	5	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	2	3	3	4	3	2	3	4	4	4	3	4
24-Dec	4	4	9	5	2	2	3	2	5	5	3	2	2	6	8	5	3	4	4	3	1	1	2	1	9
25-Dec	3	2	2	5	6	5	5	4	5	5	4	5	9	3	3	6	2	3	4	4	3	3	3	4	9
26-Dec	2	3	3	2	2	5	2	3	1	2	2	4	1	2	2	4	6	3	2	2	3	3	4	3	6
27-Dec	3	2	2	3	1	2	2	1	2	2	4	5	2	1	4	2	2	1	1	3	3	2	2	3	5
28-Dec	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	2	2	3	3	3	2	3	3
29-Dec	1	1	1	1	2	1	3	3	1	1	1	2	2	1	1	1	1	1	1	5	2	2	1	2	5
30-Dec	3	3	2	2	2	1	3	2	2	3	2	5	5	4	2	4	3	3	2	4	2	2	1	3	5
31-Dec	3	1	2	2	3	1	2	2	2	1	1	3	3	4	3	3	2	2	2	2	2	2	2	2	4
														Diurnal Maximum											
4 4 9 5 6 5 5 5 5 5 5 6 5 9 6 8 6 6 6 7 6 5 7 6 6 4																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	48	8.76	8.76
6 - 11	130	23.72	32.48
12 - 19	156	28.47	60.95
20 - 28	123	22.45	83.39
29 - 38	77	14.05	97.45
> 38	14	2.55	100.00

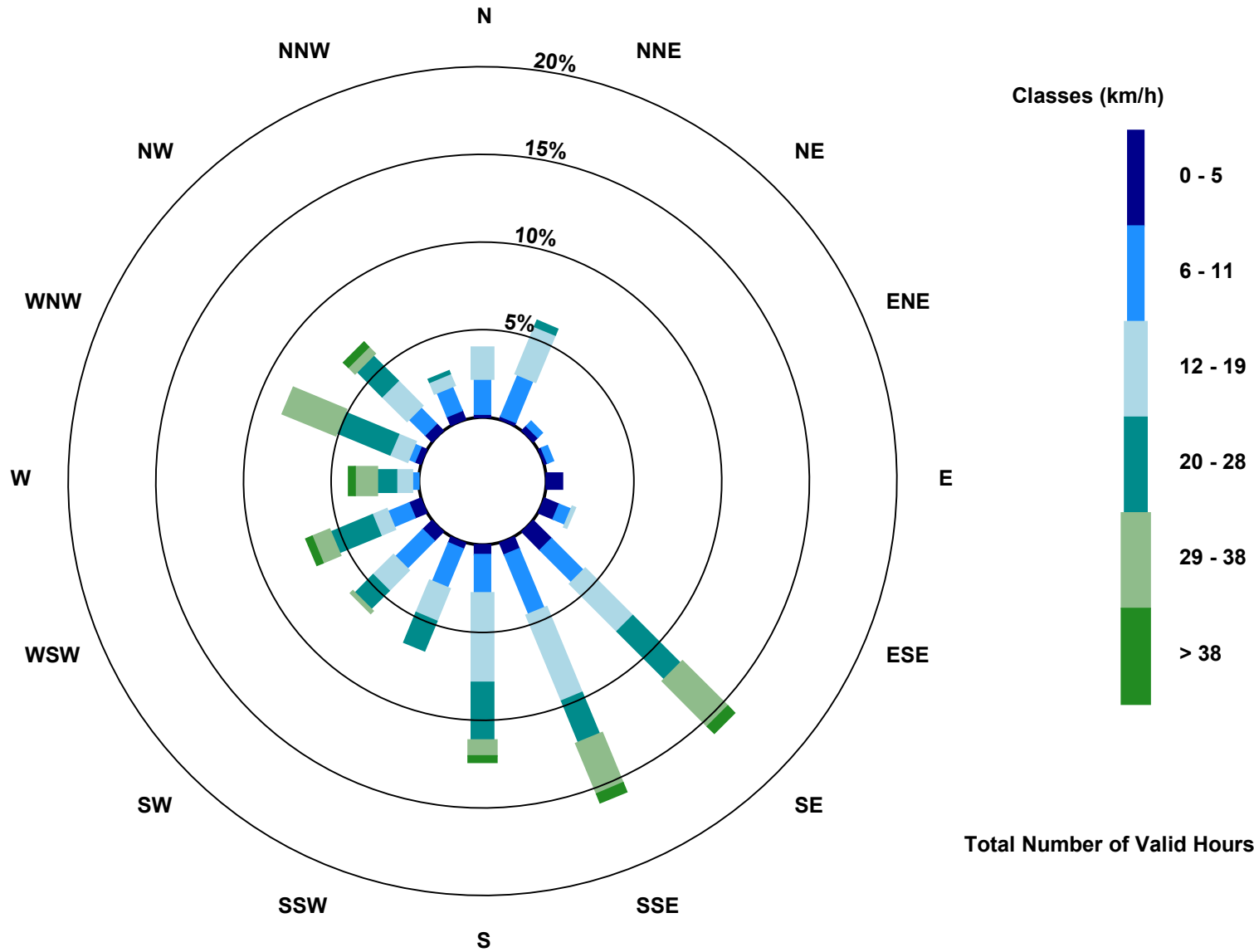
Total Number of Valid Hours: 548

Total Number of Hours: 744



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

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





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 150 deg on Dec 4 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 133.7 deg on Dec 12	Hours of Data: 741
Direction of Minimum Speed: 351 deg on Dec 29 04:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.5 deg on Dec 10	Percent Operational Time: 99.6
Monthly Average Direction: 144.4 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-Dec	346	332	317	342	324	281	306	298	90	220	195	145	147	212	219	32	49	317	354	329	336	342	348	333	322.9
2-Dec	337	336	343	356	347	342	336	333	337	345	347	150	159	149	159	UO	UO	UO	140	152	146	142	139	135	133.4
3-Dec	209	336	325	323	349	353	343	334	319	343	334	324	311	309	300	299	293	294	338	325	335	310	267	302	321.3
4-Dec	317	315	304	284	261	322	126	131	114	126	141	143	148	146	148	156	143	135	151	150	152	149	153	151	148.7
5-Dec	146	144	145	145	177	137	134	129	132	131	129	118	132	130	136	132	124	129	128	119	136	130	131	144	135.8
6-Dec	136	143	134	142	133	126	126	133	128	129	130	246	251	246	246	250	247	230	228	184	207	140	210	188	177.8
7-Dec	231	232	254	247	222	230	216	215	221	226	218	138	128	129	156	132	238	286	327	317	326	340	346	346	226.8
8-Dec	348	352	344	336	345	347	349	2	3	358	356	358	1	4	12	15	13	47	107	133	150	97	123	120	1.5
9-Dec	133	119	121	120	120	84	326	133	356	334	359	2	345	356	353	347	340	336	325	332	323	334	317	306	353.9
10-Dec	301	307	315	272	337	306	328	346	240	300	295	184	138	141	134	206	123	132	117	347	112	108	107	98	118.6
11-Dec	98	135	144	132	121	92	111	94	125	142	114	146	155	164	154	52	111	81	136	92	45	348	35	348	120.7
12-Dec	62	64	345	120	132	131	139	127	125	118	118	123	118	126	134	152	148	141	147	141	144	138	140	137	133.7
13-Dec	138	138	140	136	138	136	135	134	134	134	134	131	131	131	131	131	128	117	348	323	330	322	320	329	133.7
14-Dec	345	353	345	344	349	350	337	339	351	346	355	350	343	345	348	8	2	349	344	346	343	326	329	329	347.0
15-Dec	325	314	320	333	335	345	350	344	343	344	345	349	343	349	346	345	351	346	358	2	357	358	2	350	345.6
16-Dec	16	3	358	304	22	315	315	306	311	308	282	258	281	290	287	280	285	286	284	260	258	251	253	259	282.7
17-Dec	267	273	277	289	263	263	246	245	252	257	248	237	154	118	129	118	115	134	125	131	135	132	133	133	205.8
18-Dec	137	117	132	135	133	134	138	106	122	332	320	325	293	285	299	337	304	322	326	16	110	350	218	123	130.8
19-Dec	123	116	124	128	127	130	138	118	140	134	131	138	134	238	212	265	300	316	310	251	322	298	183	169	133.3
20-Dec	322	342	280	335	330	355	193	131	128	130	126	127	139	145	146	152	153	155	152	153	184	197	180	143	145.2
21-Dec	127	133	150	169	164	135	149	137	138	138	136	132	136	140	68	315	348	334	339	337	334	309	345	347	127.8
22-Dec	332	327	310	199	150	191	148	170	195	182	161	170	162	158	165	165	164	161	152	157	150	137	128	128	160.0
23-Dec	125	133	132	133	141	171	144	132	124	129	130	132	134	135	132	135	128	129	132	124	120	148	242	258	136.0
24-Dec	259	258	168	136	129	130	130	135	134	133	138	132	139	145	159	324	150	133	138	132	133	133	134	139	141.7
25-Dec	131	136	131	126	117	121	113	112	126	138	129	114	146	238	234	213	181	125	139	120	116	128	128	133	140.6
26-Dec	129	133	135	131	139	133	125	117	123	112	125	132	135	128	131	128	112	128	152	129	155	141	139	138	131.3
27-Dec	138	133	138	143	128	131	128	162	138	129	146	327	317	304	129	127	139	325	139	189	77	335	320	317	132.4
28-Dec	337	337	332	328	344	300	325	329	333	335	300	331	341	354	312	304	280	287	328	355	5	352	333	322	333.6
29-Dec	337	339	347	351	213	113	113	118	130	59	19	191	285	302	293	323	306	292	340	340	352	347	298	301	319.7
30-Dec	318	304	296	289	280	281	285	285	284	286	287	289	300	288	286	296	303	297	303	296	302	302	297	296	291.9
31-Dec	294	291	295	314	355	260	358	358	342	331	321	286	345	312	316	311	351	341	346	333	329	352	342	329	319.7

150.9	142.0	147.8	135.9	129.5	124.9	118.0	124.2	137.9	130.9	125.8	143.3	146.8	165.8	180.2	179.6	155.7	143.6	147.3	142.6	144.5	140.7	155.7	165.8
Diurnal Average																							

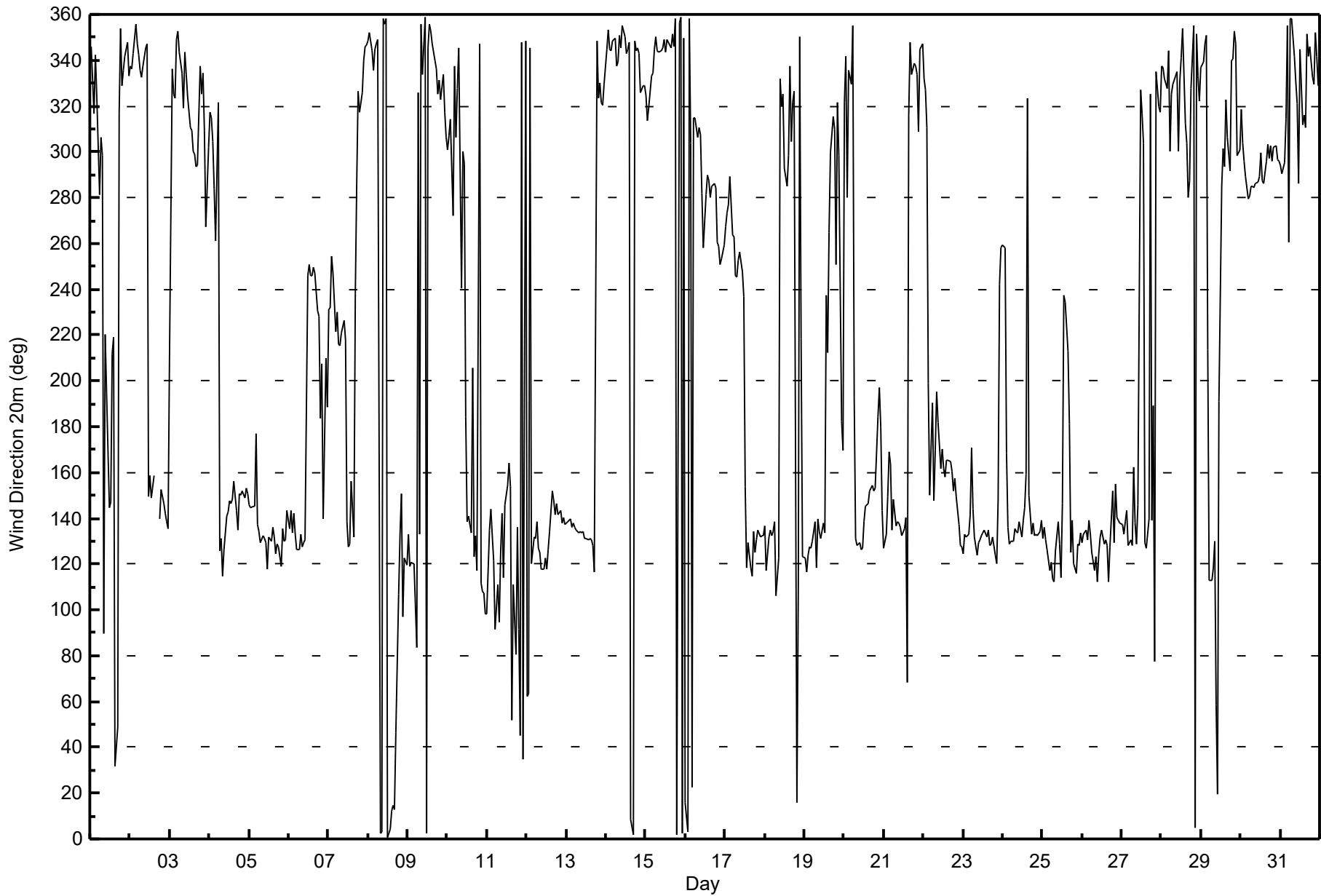
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 102 deg on Dec 18 22:00		Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6																							
Minimum Value: 4 deg on Dec 13 09:00																									
Percentiles: P ₁ = 5 P ₁₀ = 9 Q ₁ = 14 Median = 19 Q ₃ = 30 P ₉₀ = 58 P ₉₉ = 91																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	19	19	15	18	23	33	38	36	84	41	31	38	27	25	61	70	36	42	48	47	16	21	14	19	84
2-Dec	14	12	26	28	18	15	14	14	12	12	58	69	9	10	13	UO	UO	UO	9	12	11	14	20	28	69
3-Dec	83	17	19	17	16	15	14	16	19	17	18	17	16	15	16	16	19	23	19	22	49	21	17	83	
4-Dec	16	26	25	34	19	40	34	33	25	19	14	11	17	15	15	11	13	16	12	9	7	9	8	7	40
5-Dec	8	6	22	25	28	8	9	8	7	7	11	18	8	10	9	15	11	18	20	53	11	13	23	15	53
6-Dec	26	10	20	17	18	22	15	13	6	9	14	27	11	14	13	12	36	47	22	38	19	42	32	25	47
7-Dec	9	28	15	18	12	71	51	33	6	11	65	24	13	11	31	69	50	58	62	27	38	38	18	21	71
8-Dec	16	22	17	18	19	16	16	19	19	21	18	18	19	21	21	20	30	32	28	32	25	25	29	23	32
9-Dec	18	17	16	12	12	84	28	53	74	18	20	25	19	17	16	22	18	17	16	17	16	44	18	15	84
10-Dec	32	26	34	62	21	26	37	84	61	58	60	49	24	40	54	60	25	16	22	79	65	26	19	19	84
11-Dec	35	64	16	20	32	30	34	33	49	48	47	40	28	29	25	82	47	93	72	99	100	64	41	49	100
12-Dec	73	77	89	58	22	25	20	19	19	18	16	18	17	16	14	12	10	8	10	10	13	9	11	9	89
13-Dec	6	7	7	5	6	6	5	6	4	5	21	59	13	24	8	5	5	73	68	66	23	55	40	29	73
14-Dec	26	18	15	14	15	18	19	19	18	16	17	18	20	15	21	19	17	14	15	25	20	26	25	25	26
15-Dec	26	28	14	21	18	15	18	20	18	15	14	17	16	14	15	14	15	19	19	21	20	17	20	27	28
16-Dec	35	38	19	45	43	23	18	16	15	15	21	15	21	18	18	18	22	21	20	16	16	16	24	31	45
17-Dec	42	47	39	64	52	18	10	10	14	20	36	27	52	50	18	15	12	13	30	19	14	12	6	8	64
18-Dec	15	17	12	15	10	11	29	77	91	56	39	35	29	34	63	46	27	15	22	90	16	102	86	32	102
19-Dec	12	16	22	22	21	17	17	47	24	15	7	18	49	71	66	61	72	32	52	71	32	82	57	64	82
20-Dec	47	40	91	29	25	81	80	21	18	16	18	19	15	11	10	8	7	7	8	18	19	9	19	12	91
21-Dec	10	28	61	33	12	9	11	13	8	7	8	30	22	62	58	83	25	41	28	29	22	35	24	15	83
22-Dec	20	16	25	67	41	24	15	20	25	23	13	6	9	7	10	13	11	15	8	7	10	9	14	12	67
23-Dec	11	11	10	9	11	55	40	14	19	14	12	7	7	7	15	15	7	5	7	6	7	56	23	17	56
24-Dec	26	28	50	16	6	6	12	10	15	27	19	48	26	67	49	76	67	34	37	13	5	10	8	22	76
25-Dec	17	18	9	9	8	12	10	21	23	28	12	18	47	10	9	19	15	23	22	13	16	15	9	9	47
26-Dec	15	6	13	10	10	29	20	11	9	9	15	9	8	13	14	14	30	19	20	14	10	14	12	22	30
27-Dec	22	11	8	21	9	11	20	76	34	22	45	51	74	83	39	16	91	61	78	83	84	18	62	44	91
28-Dec	14	12	15	17	16	46	25	23	23	19	22	55	61	11	32	22	30	28	18	18	20	19	17	30	61
29-Dec	40	20	23	92	22	18	26	28	15	57	97	102	58	78	21	51	26	33	19	15	70	13	24	19	102
30-Dec	19	22	18	20	16	15	16	17	17	17	18	18	18	19	16	20	18	16	16	16	15	16	17	19	22
31-Dec	20	17	18	22	25	25	22	13	15	21	23	78	24	19	16	16	19	14	13	66	30	20	26	15	78
	83	77	91	92	52	84	80	84	91	58	97	102	74	83	66	83	91	93	78	99	100	102	86	64	
	Diurnal Maximum																								
UO - Unstable Operation																									





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 147 deg on Dec 4 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 130.6 deg on Dec 12	Hours of Data: 739
Direction of Minimum Speed: 99 deg on Dec 29 04:00	Hours of Missing Data: 5
Direction of Minimum Daily Speed Average: 1.6 deg on Dec 10	Percent Operational Time: 99.3
Monthly Average Direction: 141.4 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-Dec	351	338	329	333	332	328	324	303	221	126	135	110	132	186	205	54	85	40	89	57	334	344	346	7	344.5
2-Dec	37	6	74	47	352	336	336	336	346	19	104	138	156	143	155	UO	UO	UO	UO	UO	139	135	140	151	123.3
3-Dec	203	342	329	326	351	355	345	335	318	344	337	324	310	309	299	298	293	292	323	324	322	323	317	315	322.4
4-Dec	301	273	278	276	247	255	204	125	122	127	138	138	140	139	139	146	135	131	145	147	151	149	150	150	147.5
5-Dec	148	146	155	163	189	141	142	136	128	126	129	118	129	127	129	131	123	127	124	124	131	132	130	153	136.4
6-Dec	140	153	137	144	133	127	125	125	131	127	130	246	250	244	245	246	245	240	230	208	221	199	221	208	190.7
7-Dec	234	238	255	240	221	227	229	225	224	227	226	161	123	122	158	123	137	328	304	330	333	331	348	351	236.9
8-Dec	350	357	348	341	348	350	352	1	3	359	358	359	2	5	12	13	11	37	90	118	156	111	112	126	2.9
9-Dec	140	141	134	144	143	110	331	125	100	341	0	3	348	357	355	350	344	339	334	338	331	348	331	328	353.1
10-Dec	328	312	335	310	254	306	257	254	65	198	131	134	145	120	104	139	135	124	112	99	113	118	111	104	121.7
11-Dec	108	128	130	124	113	94	105	98	118	120	107	125	127	146	146	104	132	104	115	115	107	66	63	58	115.6
12-Dec	130	125	128	124	130	125	125	123	121	118	118	121	118	123	128	147	144	139	144	143	140	138	142	137	130.6
13-Dec	140	138	142	140	140	140	137	138	142	138	133	128	133	129	131	127	121	338	345	334	327	322	335	337	134.7
14-Dec	347	355	350	349	351	354	342	344	356	351	358	356	348	349	353	10	2	352	348	347	346	336	334	337	350.9
15-Dec	333	323	323	337	339	346	355	350	348	347	348	351	347	351	349	348	353	349	359	4	357	0	1	352	348.5
16-Dec	15	10	0	321	18	321	317	305	307	306	282	260	280	289	287	281	289	287	283	259	260	250	253	253	281.3
17-Dec	257	261	262	262	269	266	260	258	257	250	233	240	194	99	108	122	124	140	135	136	139	125	125	125	211.9
18-Dec	133	127	127	123	121	114	124	150	155	298	305	323	320	292	279	317	312	317	275	235	133	142	163	123	132.0
19-Dec	125	121	125	131	127	129	138	126	136	128	126	121	131	269	218	342	328	315	302	231	306	237	155	131	129.5
20-Dec	150	291	120	55	3	118	130	125	127	128	122	125	134	142	144	151	155	157	158	167	194	198	187	150	141.5
21-Dec	139	145	129	139	142	123	128	125	124	121	129	117	122	135	46	281	358	332	334	332	336	313	316	333	115.0
22-Dec	341	343	340	183	165	189	149	169	189	177	162	169	160	156	165	165	159	159	150	154	145	138	134	132	157.4
23-Dec	130	140	130	130	142	183	158	125	128	131	133	138	134	134	129	128	124	128	132	137	139	226	245	255	141.1
24-Dec	256	255	202	164	135	134	141	140	135	140	132	127	107	123	135	156	141	137	144	138	145	143	138	138	147.6
25-Dec	134	128	127	124	120	121	118	134	153	194	145	113	188	235	233	216	194	139	161	144	130	129	129	131	150.9
26-Dec	136	133	124	123	124	131	119	111	113	116	117	122	123	126	124	127	117	117	138	121	130	135	120	123	124.2
27-Dec	125	123	126	132	119	120	121	119	130	169	123	260	323	308	145	132	86	360	124	123	123	61	93	164	124.1
28-Dec	35	8	349	336	340	336	330	322	333	338	327	322	328	348	326	324	303	296	334	354	3	355	342	335	338.8
29-Dec	333	340	349	99	205	128	117	103	117	82	112	93	350	326	319	322	337	320	273	316	320	321	292	294	317.7
30-Dec	312	300	293	289	282	282	286	285	285	288	288	291	298	287	286	294	301	294	300	295	300	299	296	294	291.3
31-Dec	292	289	292	307	348	322	357	13	357	345	332	326	322	309	313	309	352	348	352	343	341	359	348	341	322.6

165.1 160.3 137.8 139.5 131.0 119.7 112.3 115.7 132.5 126.4 116.7 130.3 138.7 154.2 175.6 178.1 146.5 138.3 151.9 145.1 148.0 149.1 158.0 171.4
 Diurnal Average

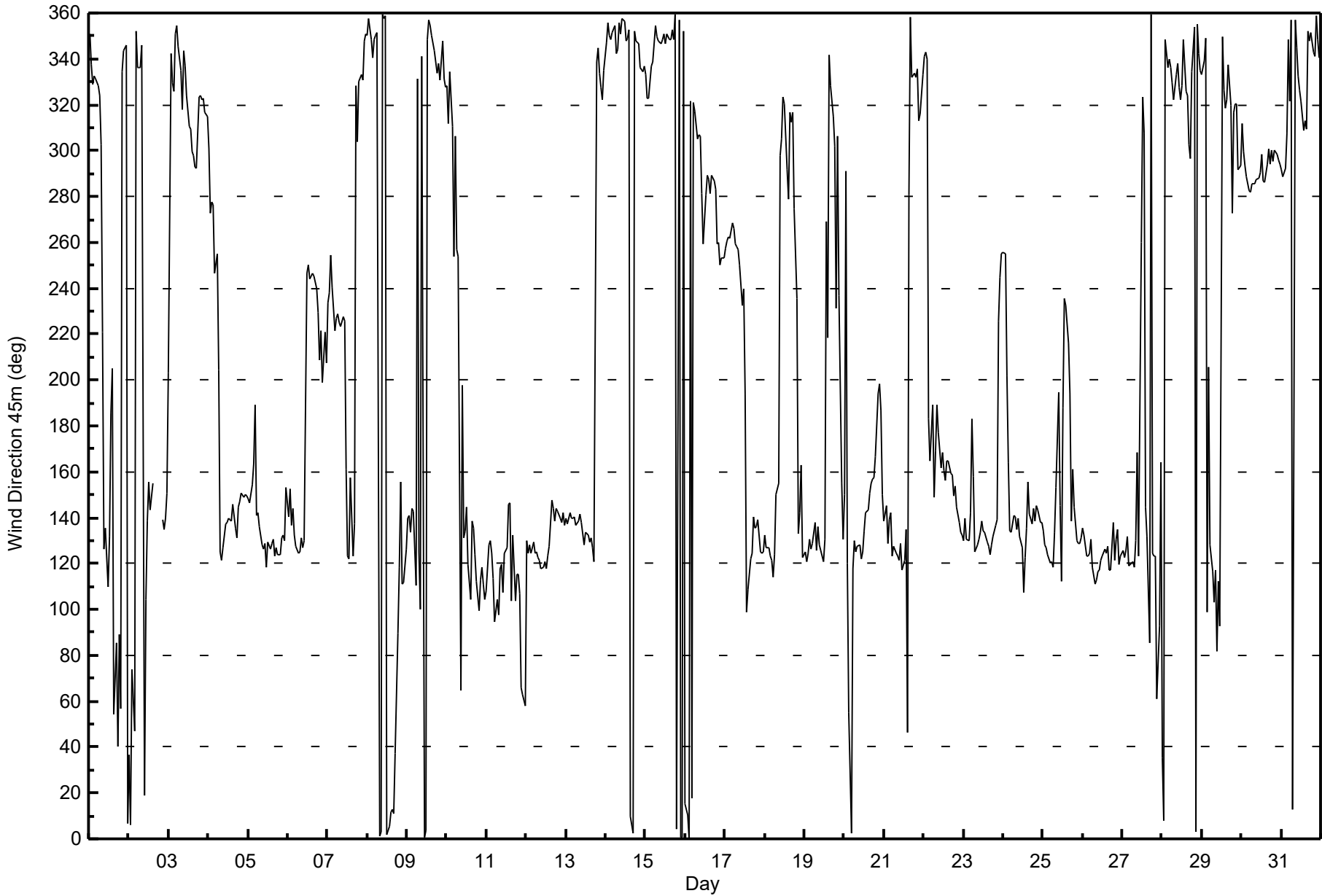
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Dec 12 00:00 Minimum Value: 3 deg on Dec 23 15:00 Percentiles: P ₁ = 4 P ₁₀ = 7 Q ₁ = 9 Median = 12 Q ₃ = 20 P ₉₀ = 43 P ₉₉ = 84																	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-Dec	13	11	10	8	12	16	16	37	55	17	14	22	15	28	23	50	13	55	59	68	15	19	13	46	68
2-Dec	51	52	47	73	45	15	11	12	32	41	68	25	9	10	13	UO	UO	UO	UO	UO	10	8	16	23	73
3-Dec	48	11	12	11	11	8	9	10	17	12	13	14	13	13	10	9	9	11	20	9	9	16	18	10	48
4-Dec	12	15	21	24	9	18	32	12	15	9	9	7	17	14	11	12	10	9	11	8	6	8	7	7	32
5-Dec	6	5	21	34	28	7	9	11	5	5	6	10	5	9	7	10	4	12	11	19	10	9	10	12	34
6-Dec	20	8	18	17	13	7	7	7	8	5	19	12	6	9	8	6	19	28	11	28	10	40	10	10	40
7-Dec	6	19	11	12	5	19	20	10	4	7	50	48	10	7	32	9	57	27	51	12	8	8	13	16	57
8-Dec	11	13	14	14	12	10	10	11	11	11	9	10	12	12	14	13	16	17	22	29	20	17	13	9	29
9-Dec	12	15	17	17	19	22	26	42	53	9	13	14	11	10	9	15	11	12	10	10	10	14	10	7	53
10-Dec	12	14	25	30	14	20	20	33	38	86	77	18	23	12	35	48	22	7	6	20	10	14	10	11	86
11-Dec	23	36	13	12	18	15	19	18	38	32	24	29	26	48	21	51	21	45	29	74	71	81	85	103	103
12-Dec	73	36	67	21	11	15	12	9	10	10	8	8	8	8	10	12	9	6	9	9	11	8	11	7	73
13-Dec	8	7	8	6	7	7	5	5	4	4	7	18	5	6	9	4	5	47	80	64	10	23	12	7	80
14-Dec	13	10	9	8	7	10	12	10	12	10	11	11	12	8	14	10	7	7	8	14	9	13	14	12	14
15-Dec	12	21	9	12	12	8	9	10	10	9	8	12	9	8	8	8	9	12	10	14	13	13	12	17	21
16-Dec	20	23	11	30	47	14	13	11	11	11	15	9	16	10	10	12	13	13	14	7	6	6	11	14	47
17-Dec	21	26	24	35	28	14	11	7	8	12	15	16	60	31	15	9	8	15	13	13	22	8	5	5	60
18-Dec	7	10	7	9	7	8	71	38	57	30	27	17	17	21	41	22	10	16	42	38	26	9	33	9	71
19-Dec	6	9	9	10	11	9	12	27	16	8	5	17	22	80	69	53	19	26	33	98	54	50	27	10	98
20-Dec	56	85	44	77	63	53	27	9	7	7	10	11	11	10	9	7	7	6	7	16	14	7	18	13	85
21-Dec	10	19	16	18	11	7	10	8	5	6	6	14	12	51	58	88	13	52	12	23	12	27	35	22	88
22-Dec	11	8	14	82	29	21	16	20	27	22	12	5	8	6	9	12	10	14	6	6	7	5	5	7	82
23-Dec	6	10	8	10	18	47	36	11	6	4	4	4	4	3	3	4	4	6	4	8	18	42	10	9	47
24-Dec	12	14	49	44	6	5	10	8	8	18	14	17	25	41	37	76	39	19	21	10	5	11	4	6	76
25-Dec	6	5	4	9	10	7	12	43	57	40	25	25	58	6	6	14	13	22	21	16	22	8	5	9	58
26-Dec	15	10	7	7	17	18	18	11	7	6	9	5	8	11	9	10	9	5	10	11	5	16	7	9	18
27-Dec	12	8	7	18	8	6	13	33	17	58	14	75	32	64	38	12	51	48	86	25	15	56	39	72	86
28-Dec	44	39	10	8	6	8	7	18	12	7	16	23	33	9	19	12	22	22	10	12	7	11	10	11	44
29-Dec	11	8	12	83	18	20	12	13	14	38	62	98	57	29	16	6	12	9	23	10	17	14	13	12	98
30-Dec	13	15	11	10	9	7	9	9	9	10	9	12	13	11	9	13	13	10	11	9	10	11	10	12	15
31-Dec	13	9	10	15	13	26	13	11	10	11	7	30	16	13	12	11	15	12	10	40	16	14	12	9	40
73 85 67 83 63 53 71 43 57 86 77 98 60 80 69 88 57 55 86 98 71 81 85 103																									
Diurnal Maximum																									
UO - Unstable Operation																									





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 132 deg on Dec 20 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 137.6 deg on Dec 12	Hours of Data: 652
Direction of Minimum Speed: 352 deg on Dec 18 09:00	Hours of Missing Data: 92
Direction of Minimum Daily Speed Average: 1.6 deg on Dec 10	Percent Operational Time: 87.6
Monthly Average Direction: 191.5 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-Dec	356	351	347	341	336	338	329	339	243	156	228	199	129	159	200	100	111	123	130	121	112	122	133	127	19.8
2-Dec	125	118	122	121	126	134	136	126	129	130	133	141	154	145	154	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-Dec	UO	UO	UO	UO	UO	UO	347	338	317	343	341	327	312	309	304	301	296	296	308	321	326	339	352	338	319.6
4-Dec	327	312	278	294	249	227	202	163	143	137	139	139	144	141	140	142	139	136	145	149	154	154	154	157	149.8
5-Dec	162	166	186	216	209	172	177	184	168	146	154	154	151	145	138	159	154	153	154	UO	UO	UO	UO	UO	164.9
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	190	233	253	257	250	249	250	249	249	239	226	238	230	235	231	--
7-Dec	246	252	260	264	251	255	252	244	239	235	235	245	180	135	176	143	123	312	290	330	3	350	355	1	259.2
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	5	1	358	358	1	2	16	19	14	31	69	101	158	114	116	132	--
9-Dec	159	179	192	205	223	231	305	203	231	10	7	9	355	358	359	356	352	349	349	352	343	358	347	347	351.2
10-Dec	347	332	335	358	313	286	257	250	245	249	253	227	211	147	102	119	142	134	130	127	136	134	131	124	176.2
11-Dec	125	128	132	128	124	112	115	113	113	117	113	124	120	130	134	135	139	122	130	127	127	121	135	142	124.9
12-Dec	147	136	131	131	136	132	130	129	128	127	127	127	126	127	133	149	149	147	150	152	149	152	153	153	137.6
13-Dec	154	152	153	154	153	153	153	155	156	155	148	147	155	159	175	177	178	142	104	68	338	352	333	344	153.7
14-Dec	4	UO	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	19	16	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	349	351	352	349	352	353	353	357	353	2	10	2	3	5	357	--
16-Dec	18	26	18	254	149	309	314	303	304	305	283	264	282	290	287	284	290	289	286	270	272	265	264	263	284.0
17-Dec	263	265	264	257	271	287	302	303	293	277	240	244	224	206	162	168	162	187	182	211	213	178	177	170	244.0
18-Dec	155	146	155	160	172	158	131	174	352	320	303	279	340	304	331	27	31	342	334	318	200	138	183	180	165.9
19-Dec	166	158	146	149	140	137	153	152	151	154	161	122	159	222	229	47	100	137	123	135	137	142	164	145	148.0
20-Dec	122	199	132	137	135	136	130	130	133	132	129	132	138	146	148	154	166	174	181	191	208	210	206	185	148.5
21-Dec	174	195	193	145	140	161	132	152	175	153	175	182	134	157	137	153	75	9	335	55	351	28	255	254	156.3
22-Dec	255	253	291	195	171	185	173	174	183	172	165	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	144	158	158	181	184	193	210	229	240	247	255	--
24-Dec	254	253	232	213	171	157	157	159	149	154	137	120	117	126	134	161	155	151	156	159	163	162	162	156	164.4
25-Dec	143	146	168	210	197	203	186	228	245	240	237	180	229	237	235	224	211	174	193	188	182	160	153	154	199.3
26-Dec	161	152	149	134	121	151	144	153	165	162	155	156	158	152	143	161	164	155	141	158	149	194	164	172	153.8
27-Dec	174	152	137	192	168	170	195	224	201	213	140	163	318	330	184	178	215	247	207	137	134	113	108	119	161.6
28-Dec	117	106	46	13	36	52	18	352	332	340	336	329	322	311	334	333	329	317	345	359	7	0	359	353	351.4
29-Dec	354	1	2	10	199	192	204	124	123	135	85	70	19	333	325	336	342	350	326	319	301	297	293	294	316.5
30-Dec	305	298	296	292	284	286	291	288	288	290	290	293	298	290	287	293	297	295	300	299	302	303	300	297	293.3
31-Dec	294	290	294	302	323	342	330	10	16	10	349	315	306	304	305	309	352	10	10	1	3	9	359	358	324.8

203.2 201.1 192.0 186.7 177.3 172.4 173.9 178.1 180.8 174.4 169.9 177.1 194.0 193.2 213.0 223.9 211.9 188.8 195.0 185.7 211.8 207.2 209.2 215.5
 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

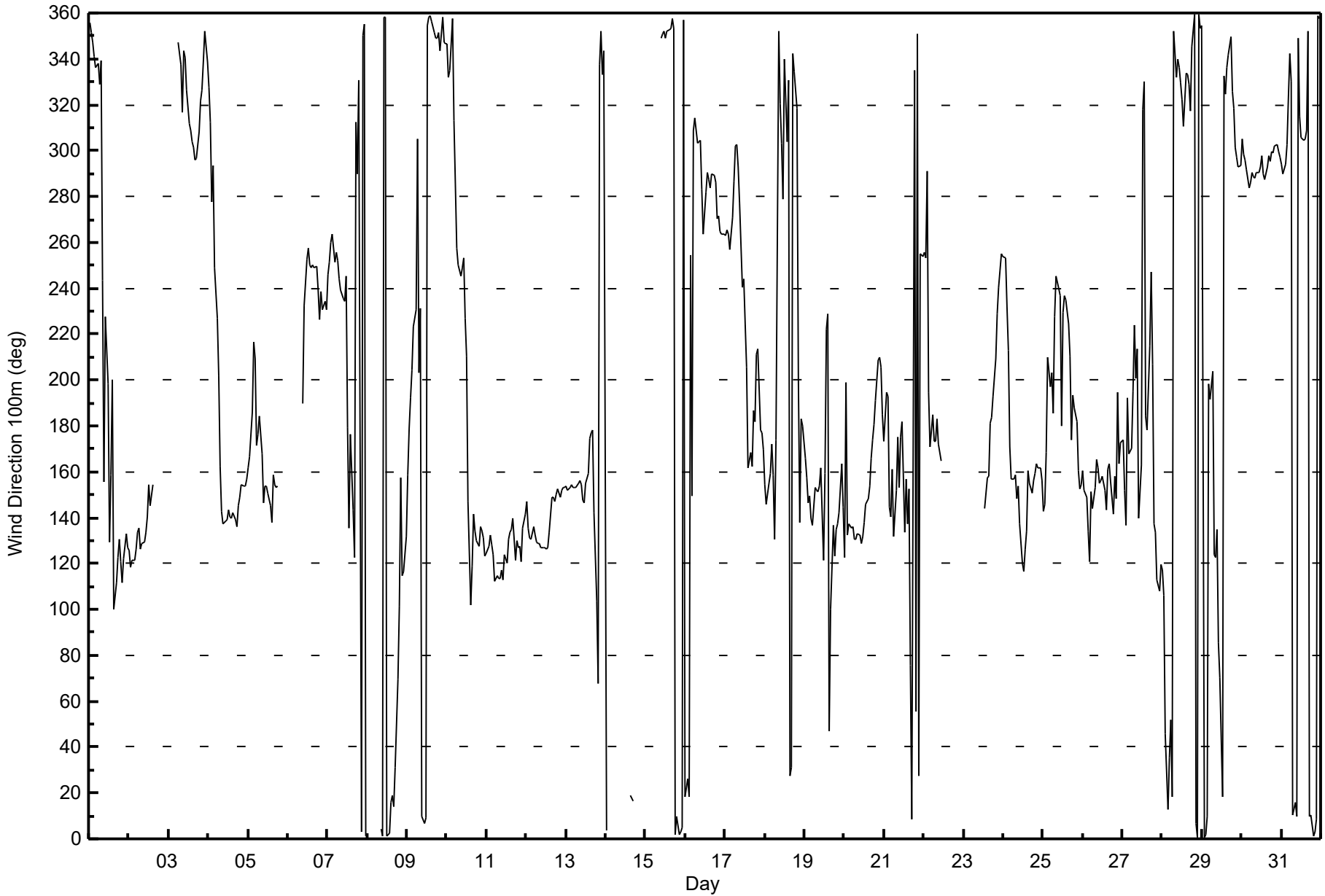
Wind Direction 100m (WD100) - deg
Lower Camp Met Tower - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 101 deg on Dec 9 06:00	Hours of Data: 652
Minimum Value: 2 deg on Dec 7 10:00	Hours of Missing Data: 92
Percentiles: P ₁ = 3 P ₁₀ = 5 Q ₁ = 7 Median = 10 Q ₃ = 15 P ₉₀ = 29 P ₉₉ = 74	Hours of Calibration: 0
	Percent Operational Time: 87.6

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-Dec	11	8	10	5	5	4	6	11	46	19	21	41	22	28	14	36	9	6	17	10	13	20	21	11	46
2-Dec	11	14	10	21	24	26	15	11	11	8	9	14	7	10	12	UO	UO	UO	UO	UO	UO	UO	UO	UO	26
3-Dec	UO	UO	UO	UO	UO	UO	6	6	13	10	9	11	8	10	7	7	6	6	12	5	5	10	13	9	13
4-Dec	7	10	19	32	40	10	32	14	12	6	9	5	14	10	8	9	7	8	9	6	6	6	5	5	40
5-Dec	6	6	20	31	16	7	11	11	12	11	8	11	7	8	4	13	12	13	8	UO	UO	UO	UO	UO	31
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	24	42	3	3	3	3	3	4	10	6	12	5	10	6	6	42
7-Dec	5	8	9	9	7	12	9	6	3	2	12	20	24	10	25	49	10	91	43	16	11	7	10	12	91
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	10	8	7	7	10	9	11	12	12	10	17	21	19	20	10	7	21
9-Dec	10	20	20	14	17	101	16	64	56	14	9	10	9	7	7	11	8	8	8	6	8	9	8	7	101
10-Dec	9	8	11	4	38	19	4	9	21	6	6	88	40	17	15	25	13	7	5	11	6	5	6	11	88
11-Dec	18	17	8	6	15	13	13	11	20	13	12	19	14	28	14	32	15	21	9	14	11	21	37	29	37
12-Dec	33	11	9	6	5	7	4	4	5	6	6	4	5	3	7	9	8	7	8	8	8	9	9	8	33
13-Dec	7	8	6	4	5	4	4	4	3	3	7	8	5	8	9	7	8	26	32	67	5	9	6	6	67
14-Dec	8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	4	UO	UO	UO	UO	UO	UO	UO	10
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	7	5	9	5	5	6	6	7	7	8	12	10	9	10	13	13
16-Dec	16	22	54	78	69	45	9	9	8	8	11	7	13	6	5	8	6	7	9	4	4	3	4	5	78
17-Dec	6	9	6	10	14	13	10	17	15	15	7	11	16	23	22	9	15	11	14	14	15	14	9	6	23
18-Dec	12	7	11	9	10	14	9	35	89	17	19	17	12	17	7	20	20	7	15	30	32	27	20	11	89
19-Dec	8	9	7	7	8	4	12	29	12	9	9	6	37	27	42	46	12	74	44	12	25	23	36	13	74
20-Dec	23	44	13	12	11	13	4	3	4	4	6	7	9	8	7	7	5	5	4	8	7	4	9	18	44
21-Dec	7	12	17	17	8	10	8	12	17	12	18	18	30	28	29	33	45	56	7	19	12	28	31	10	56
22-Dec	13	8	30	31	18	12	15	17	20	12	8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	31
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	6	8	16	11	6	10	11	7	5	5	16
24-Dec	5	6	32	31	12	8	9	9	7	10	13	6	5	9	12	16	21	12	6	8	4	6	3	5	32
25-Dec	5	9	10	26	30	23	32	30	32	10	24	64	34	4	4	11	7	21	14	9	18	12	11	13	64
26-Dec	12	6	9	9	6	19	18	5	7	4	6	8	9	16	10	9	8	6	11	11	21	11	10	18	21
27-Dec	37	12	7	38	8	7	21	57	23	20	8	74	15	16	71	10	20	20	49	13	8	15	10	17	74
28-Dec	14	20	17	11	13	7	19	9	9	6	10	4	13	9	9	8	8	11	9	9	5	9	10	10	20
29-Dec	12	8	9	46	54	11	53	74	11	19	31	52	54	9	9	6	6	17	19	11	7	6	5	6	74
30-Dec	9	9	7	6	4	3	5	4	4	5	5	9	10	8	6	9	10	7	7	6	6	7	6	7	10
31-Dec	9	3	4	7	11	6	7	13	7	9	13	15	11	10	9	8	8	9	11	9	9	11	9	8	15
	37	44	54	78	69	101	53	74	89	24	42	88	54	28	71	49	45	91	49	67	32	28	37	29	

Diurnal Maximum

UO - Unstable Operation





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 139 deg on Dec 20 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 146.4 deg on Dec 12	Hours of Data: 548
Direction of Minimum Speed: 295 deg on Dec 1 09:00	Hours of Missing Data: 196
Direction of Minimum Daily Speed Average: 3.5 deg on Dec 1	Percent Operational Time: 73.7
Monthly Average Direction: 201.2 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-Dec	5	10	13	10	12	7	349	358	295	215	228	219	120	135	171	119	119	144	157	137	134	130	133	133	88.1	
2-Dec	129	126	128	129	129	127	134	131	139	146	143	148	154	150	153	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	312	311	308	304	308	312	328	345	2	12	5	--	
4-Dec	353	335	333	344	36	134	162	163	157	140	140	144	152	148	148	146	148	144	149	155	165	171	169	177	155.2	
5-Dec	185	192	212	246	227	204	209	216	210	193	173	177	170	168	158	176	176	178	UO	UO	UO	UO	UO	UO	193.7	
6-Dec	UO	UO	UO	UO	UO	UO	UO	184	208	240	254	261	266	264	259	260	260	260	253	239	254	247	256	254	--	
7-Dec	258	263	272	284	272	285	281	276	265	247	244	247	217	165	198	256	230	273	317	341	26	16	UO	UO	272.0	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
11-Dec	UO	UO	UO	UO	UO	UO	138	136	UO	UO	UO	UO	UO	UO	131	135	134	129	138	137	136	135	139	140	--	
12-Dec	144	142	137	141	143	140	141	140	139	136	138	138	137	138	144	153	154	154	157	158	159	159	160	161	146.4	
13-Dec	161	161	165	167	165	173	173	180	182	182	178	165	187	196	218	220	224	256	249	237	4	22	13	UO	175.4	
14-Dec	19	17	20	18	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	21	15	18	16	14	--
16-Dec	27	UO	UO	UO	UO	UO	UO	UO	UO	313	292	274	290	295	292	287	293	293	296	285	288	281	282	284	--	
17-Dec	279	278	278	282	288	299	308	306	310	309	287	283	261	248	244	221	205	217	231	248	247	242	232	217	271.4	
18-Dec	212	154	160	162	168	151	139	141	130	125	124	164	110	303	236	84	100	114	177	199	185	171	189	187	161.4	
19-Dec	170	169	162	162	168	147	146	167	177	204	214	196	190	142	198	90	119	153	186	163	150	150	153	140	163.4	
20-Dec	132	154	140	139	141	140	140	140	141	139	139	141	144	152	155	163	189	194	197	208	228	229	224	217	155.4	
21-Dec	194	220	237	202	159	161	157	169	174	154	164	169	148	157	134	153	153	130	330	49	12	71	135	184	163.1	
22-Dec	198	214	206	170	172	176	177	169	173	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	173	186	195	199	226	221	230	233	239	245	253	260	--	
24-Dec	261	257	242	230	212	198	183	189	169	163	148	137	130	130	140	161	162	165	171	179	189	190	194	192	182.4	
25-Dec	174	184	213	238	233	231	229	237	254	249	244	235	236	242	240	234	224	203	213	209	211	202	187	189	224.7	
26-Dec	190	174	169	155	155	160	157	159	166	161	170	182	177	173	190	181	179	177	154	145	148	174	166	161	167.8	
27-Dec	160	148	148	153	157	142	161	120	188	185	141	144	99	17	159	168	171	230	210	137	141	126	118	115	152.0	
28-Dec	125	142	115	126	59	84	69	50	43	30	16	351	322	317	321	326	344	336	1	10	16	11	19	11	12.6	
29-Dec	30	20	12	7	238	239	294	309	318	312	325	327	334	324	326	342	355	12	331	309	306	302	302	300	318.8	
30-Dec	306	302	303	300	295	297	299	295	293	297	297	298	300	295	291	298	301	302	307	309	309	313	310	304	300.4	
31-Dec	301	298	303	310	313	328	319	328	7	19	356	308	307	304	302	314	351	8	32	23	19	15	10	15	327.9	

208.7 207.2 203.9 201.0 189.1 183.1 179.1 179.6 183.5 189.5 188.4 193.3 194.6 209.6 219.1 224.3 223.1 209.8 215.6 204.5 213.4 211.7 207.1 208.9
 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

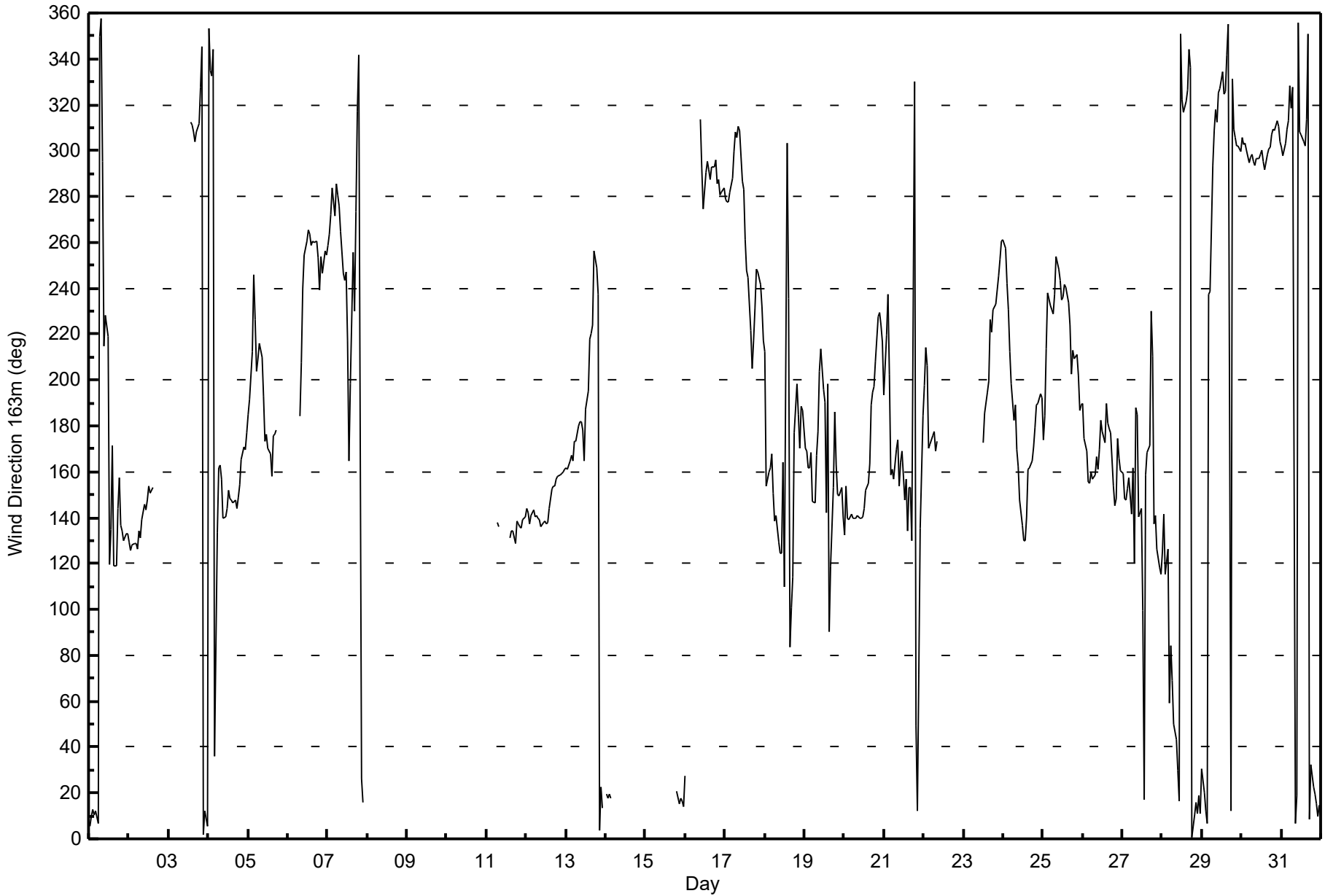
Wind Direction 163m (WD163) - deg
Lower Camp Met Tower - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 85 deg on Dec 1 09:00	Hours of Data: 548
Minimum Value: 2 deg on Dec 6 17:00	Hours of Missing Data: 196
Percentiles: P ₁ = 3 P ₁₀ = 4 Q ₁ = 5 Median = 8 Q ₃ = 11 P ₉₀ = 18 P ₉₉ = 65	Hours of Calibration: 0
	Percent Operational Time: 73.7

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-Dec	10	7	7	6	7	9	10	15	85	28	7	17	27	22	18	20	9	9	13	6	10	6	5	4	85
2-Dec	4	4	4	9	11	13	7	8	7	10	12	11	5	8	8	UO	UO	UO	UO	UO	UO	UO	UO	UO	13
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9	6	6	4	3	6	6	8	8	7	7	9
4-Dec	8	9	13	21	36	32	10	10	11	5	11	7	12	10	7	7	7	7	7	6	5	6	4	4	36
5-Dec	3	5	17	11	8	7	10	8	10	25	14	7	7	5	8	14	18	13	UO	UO	UO	UO	UO	UO	25
6-Dec	UO	UO	UO	UO	UO	UO	UO	11	13	13	11	3	2	4	3	3	2	4	8	8	6	6	10	4	13
7-Dec	7	6	9	9	9	11	7	10	7	4	2	5	29	13	20	43	11	20	27	8	7	10	UO	UO	43
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	13	2	UO	UO	UO	UO	UO	UO	13	14	13	10	5	5	3	6	10	7	14
12-Dec	10	5	3	4	4	5	5	5	5	5	5	5	6	5	8	7	6	6	6	6	7	7	5	5	10
13-Dec	4	5	4	4	4	5	3	3	4	7	11	14	6	12	6	5	5	34	56	53	16	5	5	UO	56
14-Dec	6	6	3	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	8
16-Dec	11	UO	UO	UO	UO	UO	UO	UO	UO	12	13	9	12	5	6	6	3	5	6	5	5	3	3	3	13
17-Dec	6	7	4	6	11	4	6	7	4	5	11	11	18	9	11	9	11	7	10	5	3	8	6	7	18
18-Dec	7	15	13	9	6	7	7	12	11	19	13	31	24	44	32	52	14	9	27	10	6	8	7	6	52
19-Dec	3	4	5	9	9	7	7	19	15	12	8	74	18	59	45	71	24	32	8	24	15	14	19	5	74
20-Dec	3	12	8	7	4	3	4	4	4	3	5	6	8	6	6	8	4	4	5	3	7	6	9	12	12
21-Dec	13	11	10	27	10	4	7	8	8	9	7	9	7	18	20	20	34	77	14	21	14	7	28	15	77
22-Dec	14	10	10	10	10	7	10	10	13	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	14
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	7	9	5	10	7	6	7	7	6	5	4	5	10
24-Dec	4	3	19	12	11	9	9	13	16	8	10	4	6	3	10	10	13	10	6	8	8	6	5	8	19
25-Dec	7	9	8	7	9	8	9	8	10	3	5	25	12	4	4	9	6	10	9	7	7	11	11	17	25
26-Dec	11	9	8	7	11	14	9	5	3	4	11	6	5	3	8	6	7	12	5	6	10	13	10	10	14
27-Dec	17	9	6	18	9	7	11	16	8	25	5	21	13	72	47	6	18	26	22	10	8	12	6	6	72
28-Dec	11	11	37	85	12	5	9	4	10	6	14	7	15	5	6	14	7	8	9	9	7	7	8	8	85
29-Dec	14	7	9	10	46	16	15	13	10	13	16	25	12	7	9	4	9	11	36	6	5	4	4	3	46
30-Dec	5	6	4	4	4	3	3	3	3	4	3	7	8	6	5	7	7	4	3	4	3	5	4	5	8
31-Dec	5	4	3	3	6	5	5	17	13	9	16	7	7	7	7	8	7	12	7	7	5	9	8	7	17
	17	15	37	85	46	32	15	19	85	28	16	74	29	72	47	71	34	77	56	53	16	14	28	17	

Diurnal Maximum

UO - Unstable Operation





Maximum Value: 0.7 km/h on Dec 25 05:00		Maximum Daily Average: 0.0 km/h on Dec 29		Hours in Service:	744																							
Minimum Value: -1.9 km/h on Dec 2 19:00		Minimum Daily Average: -0.5 km/h on Dec 12		Hours of Data:	741																							
Maximum Diurnal Average: -0.1 km/h at hour 4		Minimum Diurnal Average: -0.3 km/h at hour 14		Hours of Missing Data:	3																							
Monthly Average: -0.16 km/h		Percentiles: P ₁ = -0.9 P ₁₀ = -0.5 Q ₁ = -0.3 Median = -0.1 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-Dec	0.0	0.1	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.1	0.1	
2-Dec	0.1	0.0	0.1	0.3	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.3	-0.4	-0.2	UO	UO	UO	-1.9	-0.2	-0.3	-0.3	-0.2	0.1	-0.2	0.1	-0.2	0.3
3-Dec	0.1	-0.1	-0.2	0.0	-0.3	-0.5	-0.6	-0.2	-0.2	-0.5	-0.5	-0.3	-0.6	-0.8	-0.8	-0.5	-0.6	-0.4	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.3	0.1	0.1	
4-Dec	-0.1	-0.1	-0.2	-0.2	-0.1	0.0	0.0	0.0	-0.1	-0.3	-0.3	-0.5	-0.3	-0.4	-0.6	-0.6	-0.5	-0.4	-0.6	-0.9	-0.9	-0.6	-0.8	-0.7	-0.4	0.0	0.0	
5-Dec	-0.4	-0.4	-0.2	-0.1	-0.2	0.1	0.2	0.2	0.1	-0.2	-0.6	-0.2	-0.3	-0.4	-0.2	-0.1	0.0	-0.3	-0.3	-0.2	-0.5	-0.3	-0.5	-0.1	-0.2	0.2	0.2	
6-Dec	-0.3	-0.1	-0.1	-0.2	-0.4	0.0	-0.5	-0.6	-0.3	0.2	0.2	-0.6	-0.8	-0.5	-0.6	-0.6	-0.2	0.0	0.1	0.1	0.0	0.1	0.1	-0.2	-0.2	0.2	0.2	
7-Dec	-0.1	-0.3	-0.5	-0.4	0.1	0.0	0.1	0.1	-0.4	-0.3	0.0	-0.1	0.0	-0.3	-0.2	0.1	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1	0.1	0.1	
8-Dec	-0.3	-0.2	-0.1	-0.1	-0.2	-0.3	-0.3	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.1	0.0	-0.1	-0.1	0.1	0.1	
9-Dec	0.0	-0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.1	-0.1	0.1	0.2	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.2	-0.1	-0.1	0.2	0.2	
10-Dec	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.2	0.0	0.1	0.1	
11-Dec	-0.2	-0.1	-0.4	-0.2	-0.2	-0.2	-0.2	-0.1	-0.2	-0.2	0.0	-0.1	-0.2	-0.2	-0.3	0.0	0.0	-0.1	0.1	0.0	0.0	-0.2	0.0	0.2	-0.1	0.2	0.2	
12-Dec	0.2	0.1	0.1	0.2	-0.2	-0.1	-0.2	-0.6	-0.4	-0.6	-0.7	-0.7	-0.6	-0.7	-0.6	-0.8	-0.7	-1.1	-0.7	-0.7	-0.4	-0.8	-0.7	-0.7	-0.5	0.2	0.2	
13-Dec	-0.3	-0.6	-0.5	-0.6	-0.7	-0.5	-0.5	-0.3	-0.3	-0.5	-0.6	-0.5	-0.5	-0.3	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.3	0.2	0.2	
14-Dec	-0.1	-0.1	-0.3	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4	-0.1	-0.2	-0.2	-0.4	-0.2	0.1	0.1	-0.2	-0.3	-0.1	-0.1	0.0	0.0	0.0	-0.1	0.1	0.1	
15-Dec	0.0	-0.1	-0.3	0.0	0.0	-0.2	-0.4	-0.2	-0.3	-0.3	-0.4	-0.2	-0.5	-0.4	-0.6	-0.5	-0.2	-0.1	0.0	-0.1	0.0	-0.1	0.0	-0.2	-0.2	0.0	0.0	
16-Dec	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.2	-0.4	-0.3	-0.6	-0.5	-0.4	-0.4	-0.6	-0.7	-0.4	-0.5	-0.6	-0.3	-0.4	-0.2	-0.3	-0.3	-0.2	-0.3	0.0	0.0	
17-Dec	0.0	-0.4	-0.4	-0.2	-0.3	-0.6	-0.4	-0.4	-0.4	-0.3	-0.1	-0.3	-0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.1	0.0	-0.1	0.3	0.3	
18-Dec	0.1	0.1	0.0	-0.3	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.2	0.1	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.2	
19-Dec	-0.1	-0.1	-0.3	-0.3	-0.2	-0.2	-0.1	-0.2	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	0.1	
20-Dec	0.1	0.0	0.0	0.1	0.1	0.1	0.2	-0.2	-0.4	-0.5	-0.4	-0.7	-0.7	-0.8	-0.7	-0.6	-0.3	-0.4	-0.3	-0.1	0.1	-0.1	-0.1	0.1	-0.2	0.2	0.2	
21-Dec	0.2	0.1	0.0	0.0	-0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.0	-0.2	-0.2	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	
22-Dec	-0.1	0.0	-0.1	0.0	0.0	-0.1	-0.2	-0.2	-0.3	-0.4	-0.6	-1.2	-1.2	-1.4	-0.8	-0.6	-0.4	-0.7	-0.7	-1.0	-0.3	-0.7	-0.1	-0.2	-0.5	0.0	0.0	
23-Dec	-0.6	-0.3	-0.1	0.0	0.1	-0.1	-0.4	-0.1	-0.4	-0.6	-0.6	-0.7	-0.6	-0.5	-0.3	-0.4	-0.5	-0.1	0.1	0.1	0.5	0.0	-0.4	-0.7	-0.3	0.5	0.5	
24-Dec	-0.4	-0.3	0.0	0.3	0.1	-0.4	-0.2	-0.4	-0.4	-0.1	-0.1	-0.1	0.0	-0.1	-0.2	0.0	-0.1	-0.2	0.0	-0.1	0.1	-0.1	0.1	0.2	-0.1	0.2	0.3	
25-Dec	-0.3	-0.6	-0.1	0.3	0.7	0.2	0.0	0.2	0.3	0.3	0.0	0.0	-0.1	-0.5	-0.3	-0.4	-0.3	-0.1	0.1	-0.1	-0.3	0.0	-0.5	-0.2	-0.1	0.7	0.7	
26-Dec	-0.1	-0.3	-0.3	-0.3	0.2	-0.2	-0.3	0.0	-0.1	0.0	0.1	-0.2	-0.2	-0.3	-0.1	0.0	0.1	0.2	0.0	0.2	-0.1	0.1	0.3	0.1	-0.1	0.3	0.3	
27-Dec	0.1	-0.1	-0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	-0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	
28-Dec	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	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	-0.1	0.0	0.0	0.1	0.1	
29-Dec	0.0	-0.1	0.0	0.0	0.0	0.2	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.2	-0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	-0.3	0.0	0.3	0.3	
30-Dec	0.0	-0.2	-0.3	0.1	-0.3	-0.6	-0.3	-0.3	-0.2	-0.5	-0.3	-0.4	-0.3	-0.4	-0.6	-0.5	-0.3	-0.4	-0.6	-0.3	-0.6	-0.3	-0.3	-0.3	-0.3	0.1	0.1	
31-Dec	-0.1	-0.3	-0.3	-0.2	-0.1	0.0	0.0	0.1	0.0	0.0	-0.1	-0.1	0.0	-0.2	-0.2	-0.3	-0.1	-0.1	0.0	0.0	0.1	0.0	-0.1	-0.1	-0.1	0.1	0.1	
																								Diurnal Average				
																								Diurnal Maximum				
UO - Unstable Operation																												



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

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



Maximum Value: 1.4 km/h on Dec 4 17:00 Maximum Daily Average: 0.6 km/h on Dec 12																								Hours in Service: 744 Hours of Data: 739			
Minimum Value: -0.9 km/h on Dec 22 13:00 Minimum Daily Average: -0.2 km/h on Dec 30 Maximum Diurnal Average: 0.3 km/h at hour 19 Minimum Diurnal Average: 0.2 km/h at hour 2 Monthly Average: 0.25 km/h Percentiles: P ₁ = -0.5 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 1.1																								Hours of Missing Data: 5 Hours of Calibration: 0 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-Dec	0.3	0.3	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.2	0.3	0.8
2-Dec	0.4	0.3	0.2	0.5	0.1	0.0	0.1	0.0	0.2	0.3	0.3	0.7	0.5	0.7	0.8	UO	UO	UO	UO	UO	0.5	0.3	0.2	0.3	0.3	0.8	
3-Dec	0.6	0.0	0.0	0.0	0.2	0.1	-0.1	0.0	0.0	0.0	-0.3	0.1	-0.4	-0.5	-0.4	-0.5	-0.2	-0.1	0.1	0.0	0.0	0.2	0.1	0.0	-0.1	0.6	
4-Dec	0.0	0.1	-0.1	-0.1	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.5	0.5	0.7	0.8	0.5	1.4	1.0	1.3	0.4	-0.2	0.0	-0.3	0.0	0.3	1.4	
5-Dec	0.3	0.4	0.0	0.3	0.3	0.7	0.9	0.7	0.8	0.3	-0.1	0.0	0.1	0.0	0.2	0.4	0.3	-0.3	-0.1	0.3	-0.1	0.3	0.2	0.4	0.3	0.9	
6-Dec	0.3	0.3	0.3	0.4	0.5	0.7	-0.2	-0.3	0.2	0.7	0.8	0.2	-0.1	0.0	0.0	0.1	0.7	0.2	1.3	0.4	0.6	0.4	1.0	0.4	0.4	1.3	
7-Dec	0.4	-0.2	-0.2	0.3	0.9	0.3	0.5	1.1	0.7	0.9	0.4	0.2	0.4	0.1	0.1	0.4	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.3	0.3	1.1	
8-Dec	0.4	0.7	0.6	0.6	0.3	0.4	0.2	0.4	0.4	0.3	0.4	0.6	0.6	0.6	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.3	0.7	
9-Dec	0.3	0.2	0.2	0.4	0.4	0.5	0.1	0.2	0.2	0.1	0.5	0.6	0.2	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.0	0.2	0.6	
10-Dec	0.2	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.3	0.3	0.1	0.5	0.2	0.3	0.2	0.3	0.1	0.0	-0.1	0.2	0.5	
11-Dec	0.0	0.2	0.5	0.6	0.1	0.1	0.1	0.2	0.1	0.2	0.6	0.2	0.2	0.0	-0.2	0.1	0.2	0.2	0.7	0.4	0.9	0.1	0.1	0.4	0.3	0.9	
12-Dec	0.2	0.5	0.8	0.8	0.8	0.6	0.8	0.5	0.7	0.4	0.4	0.6	0.6	0.6	0.2	0.6	1.0	0.8	0.8	0.6	0.5	0.4	0.3	0.3	0.6	1.0	
13-Dec	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.5	0.4	0.5	0.3	0.1	0.6	0.5	0.9	0.8	0.4	0.4	0.2	0.2	0.3	0.1	0.1	0.3	0.3	0.9	
14-Dec	0.1	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.5	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.4	0.3	0.5	
15-Dec	0.1	0.0	-0.2	0.3	0.1	0.5	0.5	0.4	0.2	0.2	0.2	0.1	0.0	0.2	0.0	0.2	0.2	0.3	0.4	0.1	0.4	0.2	0.2	0.2	0.2	0.5	
16-Dec	0.2	0.1	0.0	0.1	0.1	0.0	0.1	-0.3	-0.2	-0.3	-0.4	0.0	0.0	-0.6	-0.3	-0.1	0.0	-0.1	-0.1	0.2	0.4	0.7	0.9	0.9	0.1	0.9	
17-Dec	0.8	-0.1	0.1	0.1	-0.3	-0.6	0.2	0.0	0.1	0.0	0.3	0.1	0.0	0.1	0.3	0.4	0.3	0.5	0.5	0.4	0.5	0.8	0.6	0.4	0.2	0.8	
18-Dec	0.6	0.5	0.3	0.2	0.6	0.6	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.0	-0.1	0.1	0.1	0.3	0.2	0.1	0.3	0.2	0.6		
19-Dec	0.2	0.1	-0.1	0.1	0.3	0.2	0.1	0.2	0.4	0.5	0.3	0.3	0.5	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.3	0.2	0.5	
20-Dec	0.2	0.2	0.2	0.2	0.3	0.5	0.5	0.9	0.8	0.4	0.5	0.7	0.8	0.9	1.0	0.0	-0.1	-0.2	0.0	0.2	0.7	0.6	0.5	0.5	0.4	1.0	
21-Dec	0.6	0.4	0.4	0.3	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.0	0.2	0.0	0.0	0.1	0.2	0.1	0.2	0.6	
22-Dec	0.1	0.1	0.1	0.1	0.4	0.8	0.1	0.4	0.2	0.1	0.1	-0.7	-0.9	-0.9	-0.2	0.0	0.6	0.1	0.3	0.0	1.3	1.0	0.7	0.5	0.2	1.3	
23-Dec	-0.2	0.2	0.3	0.3	0.5	0.2	0.1	0.3	0.1	0.0	0.6	1.1	0.5	0.6	0.8	0.2	0.1	0.4	1.1	0.7	0.7	0.4	0.2	0.1	0.4	1.1	
24-Dec	0.4	0.4	0.6	0.4	0.7	0.4	0.7	0.2	-0.3	0.7	0.8	0.3	0.1	0.5	0.3	0.3	0.2	0.4	0.6	0.6	0.8	0.6	1.2	1.2	0.5	1.2	
25-Dec	0.6	0.2	0.6	0.8	1.4	1.0	0.3	0.3	0.4	0.8	0.7	0.3	0.4	0.7	0.7	0.2	0.5	0.4	0.6	0.6	0.1	0.7	0.1	0.5	0.5	1.4	
26-Dec	0.1	0.0	-0.1	-0.1	0.5	0.1	0.0	0.2	0.2	0.1	0.4	0.4	0.1	0.0	0.3	0.5	0.6	0.6	0.4	0.5	0.4	0.4	0.7	0.7	0.3	0.7	
27-Dec	0.5	0.3	0.3	0.4	0.5	0.5	0.4	0.2	0.3	0.2	0.2	0.2	0.0	0.1	0.2	0.5	0.2	0.2	0.3	0.3	0.4	0.1	0.3	0.2	0.3	0.5	
28-Dec	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.1	0.2	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.4	0.2	0.1	0.2	0.1	0.4	
29-Dec	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.1	0.2	0.6	
30-Dec	0.0	-0.2	0.0	0.1	-0.2	-0.3	-0.2	-0.1	-0.2	0.1	-0.2	0.1	0.0	-0.3	-0.5	-0.5	-0.1	-0.2	-0.3	-0.1	-0.3	-0.1	-0.1	-0.2	-0.2	0.1	
31-Dec	0.0	-0.2	-0.3	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	-0.3	-0.1	-0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.2	
																								Diurnal Average			
																								Diurnal Maximum			
UO - Unstable Operation																											



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.2 km/h on Dec 24 01:00 Minimum Value: 0.1 km/h on Dec 29 16:00 Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 1.0 Q ₃ = 1.6 P ₉₀ = 2.2 P ₉₉ = 2.9																								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-Dec	1.3	1.2	0.8	0.6	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.4	0.3	0.5	0.5	0.7	1.3
2-Dec	0.9	0.8	1.3	1.9	1.5	0.9	0.9	0.6	0.7	1.0	1.2	1.7	1.5	1.5	1.7	UO	UO	UO	UO	UO	1.3	1.3	0.7	0.8	1.9
3-Dec	0.9	0.5	1.6	1.8	1.9	2.0	2.4	2.6	2.3	2.0	1.9	3.0	2.6	2.7	2.7	2.4	2.9	2.7	1.8	0.9	0.5	0.4	0.6	0.4	3.0
4-Dec	0.3	0.5	0.7	0.5	0.6	0.5	0.4	0.3	1.0	1.3	1.2	1.4	1.9	2.0	1.9	1.8	2.3	2.3	2.5	3.1	2.8	2.7	2.9	2.3	3.1
5-Dec	1.6	1.3	1.5	0.8	1.1	0.8	1.1	0.8	0.6	0.6	0.7	0.7	0.6	0.6	0.4	0.6	0.6	1.1	0.9	0.8	0.8	0.8	1.0	1.3	1.6
6-Dec	1.1	1.4	0.9	1.1	1.2	1.4	1.4	0.9	0.6	0.8	1.4	1.6	1.5	1.6	1.2	1.4	1.6	1.1	1.7	1.6	1.0	1.1	1.1	1.0	1.7
7-Dec	1.1	1.7	1.4	1.3	1.0	1.2	1.3	1.5	1.2	1.6	1.3	1.0	0.8	0.8	0.9	0.3	0.2	0.3	0.2	0.4	0.8	1.1	1.8	1.7	1.8
8-Dec	2.3	2.3	2.4	2.5	1.5	1.6	1.8	2.0	1.9	1.8	1.6	1.5	1.6	1.3	1.0	0.9	0.6	0.3	0.3	0.6	0.6	0.2	0.3	0.3	2.5
9-Dec	0.7	0.8	0.7	0.7	0.9	0.6	0.2	0.3	0.2	0.7	1.5	1.8	1.2	1.8	1.9	2.2	1.9	1.9	1.5	1.5	1.2	0.9	1.0	0.6	2.2
10-Dec	0.7	0.5	0.2	0.3	0.4	0.2	0.7	0.3	0.3	0.3	0.2	0.3	0.4	0.2	0.3	0.3	0.5	0.5	0.4	0.4	0.5	0.8	0.7	0.7	0.8
11-Dec	1.0	1.2	1.7	1.9	1.1	1.2	1.2	1.1	1.4	1.4	1.2	1.1	1.1	0.9	0.7	0.6	0.8	1.1	2.2	2.0	1.8	1.1	1.0	1.3	2.2
12-Dec	1.4	1.8	1.8	2.2	2.4	2.0	2.5	2.2	2.6	2.6	2.3	2.8	2.8	2.8	2.3	2.5	1.9	1.8	2.2	2.0	2.1	1.9	2.3	1.6	2.8
13-Dec	1.8	1.5	1.6	1.5	1.9	1.9	1.3	1.4	1.1	1.0	1.5	1.9	1.1	1.1	0.6	0.5	0.5	0.4	0.3	0.3	1.0	0.8	0.3	0.5	1.9
14-Dec	0.7	1.1	1.0	1.2	1.2	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.2	1.3	1.7	1.8	1.7	1.6	1.3	1.4	1.1	1.3	1.7	1.5	1.8
15-Dec	1.2	1.1	1.5	1.7	1.5	1.8	1.9	2.2	2.0	1.9	1.9	1.7	1.9	1.7	1.6	1.8	1.5	1.4	1.5	1.6	1.5	1.6	1.2	0.8	2.2
16-Dec	0.7	0.5	0.4	0.3	0.2	0.3	1.2	1.4	2.0	2.0	1.5	1.5	2.3	2.8	2.8	2.2	2.6	2.8	2.4	2.4	1.9	1.5	1.9	2.1	2.8
17-Dec	2.4	2.0	2.0	2.4	1.6	1.2	0.7	0.7	1.4	1.3	1.1	1.4	0.5	0.4	0.3	0.4	0.6	0.7	0.6	0.7	0.7	0.4	0.4	0.4	2.4
18-Dec	0.4	0.5	0.5	0.8	0.6	0.6	0.4	0.3	0.2	0.1	0.2	0.3	0.3	0.3	0.4	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.8
19-Dec	0.5	0.9	1.4	1.3	1.2	1.5	0.9	0.8	0.6	0.3	0.4	0.4	0.5	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.4	1.5
20-Dec	0.3	0.3	0.3	0.5	1.0	2.1	1.6	2.1	2.6	2.8	2.9	3.0	2.6	2.3	1.9	2.1	1.5	1.3	1.1	1.3	1.4	1.7	1.3	0.7	3.0
21-Dec	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.2	0.3	0.3	0.3	0.9	0.2	0.8	0.6	0.4	0.5	0.9
22-Dec	0.4	0.3	0.3	0.2	1.1	1.3	1.4	1.6	1.3	1.4	1.9	1.5	2.2	2.4	2.0	1.8	1.8	2.0	2.0	2.1	1.9	1.2	1.1	1.1	2.4
23-Dec	1.2	1.1	0.7	0.7	0.8	1.0	1.3	0.7	1.2	1.0	1.1	0.9	0.8	0.7	1.2	1.2	1.4	1.1	0.7	0.9	1.4	1.7	1.9	3.0	3.0
24-Dec	3.2	3.1	2.0	1.0	0.7	0.6	1.1	1.4	1.5	1.9	1.1	1.3	0.5	1.1	1.5	0.7	0.8	1.4	1.4	1.2	0.9	0.8	0.6	0.8	3.2
25-Dec	1.0	1.0	0.8	1.0	1.7	1.3	1.7	1.6	1.5	1.8	2.1	1.8	1.8	1.9	2.0	1.7	1.6	1.4	1.4	1.2	1.2	1.1	1.0	0.9	2.1
26-Dec	1.6	1.3	0.8	0.7	0.5	1.0	1.0	0.8	0.6	0.7	0.6	0.6	0.5	0.7	0.6	0.9	0.7	0.6	0.5	0.5	0.3	0.5	0.4	0.6	1.6
27-Dec	0.4	0.4	0.5	0.6	0.4	0.4	0.4	0.2	0.3	0.3	0.6	0.4	0.3	0.2	0.4	0.6	0.3	0.2	0.2	0.5	0.7	0.4	0.6	0.4	0.7
28-Dec	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.3	0.3	0.3	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.7	1.0	0.8	0.9	0.7	0.5	1.0
29-Dec	0.3	0.3	0.4	0.2	0.2	0.3	0.6	0.4	0.2	0.3	0.3	0.5	0.3	0.6	0.3	0.1	0.2	0.3	0.2	0.2	0.7	0.9	1.9	1.9	1.9
30-Dec	1.8	2.0	2.2	2.3	2.3	2.3	2.4	2.6	3.2	2.8	2.8	2.8	2.5	2.7	2.4	1.9	1.9	2.0	2.3	1.5	1.8	1.6	1.5	2.0	3.2
31-Dec	1.8	2.0	1.9	1.8	0.8	0.4	0.3	0.5	0.4	0.4	0.2	0.6	1.2	1.9	1.6	1.6	0.6	0.6	0.7	0.5	0.7	0.5	0.5	0.5	2.0
3.2 3.1 2.4 2.5 2.4 2.3 2.5 2.6 3.2 2.8 2.9 3.0 2.8 2.8 2.8 2.5 2.9 2.8 2.5 3.1 2.8 2.7 2.9 3.0																									
Diurnal Maximum																									
UO - Unstable Operation																									



Maximum Value: 3.3 km/h on Dec 4 19:00		Maximum Daily Average: 1.4 km/h on Dec 12		Hours in Service: 744																							
Minimum Value: -1.4 km/h on Dec 16 14:00		Minimum Daily Average: -0.6 km/h on Dec 30		Hours of Data: 652																							
Maximum Diurnal Average: 0.4 km/h at hour 19		Minimum Diurnal Average: 0.0 km/h at hour 9		Hours of Missing Data: 92																							
Monthly Average: 0.16 km/h		Percentiles: P ₁ = -1.0 P ₁₀ = -0.4 Q ₁ = -0.1 Median = 0.0 Q ₃ = 0.3 P ₉₀ = 0.9 P ₉₉ = 2.6		Hours of Calibration: 0																							
				Percent Operational Time: 87.6																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	-0.1	-0.1	-0.3	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	-0.2	-0.2	-0.1	0.0	0.1	0.0	0.0	-0.1	0.0	0.1	0.0	0.3	0.0	0.3	
2-Dec	0.2	0.0	0.7	0.1	0.2	-0.1	0.0	0.0	0.3	0.2	0.4	1.9	1.2	2.0	1.7	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.0	
3-Dec	UO	UO	UO	UO	UO	UO	-0.1	-0.2	-0.1	-0.4	-0.6	-0.6	-1.1	-0.9	-0.8	-1.1	-0.8	-0.4	0.5	-0.3	-0.2	-0.1	-0.2	-0.3	-0.4	0.5	
4-Dec	-0.2	-0.3	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.3	0.4	0.2	0.9	1.1	2.0	2.6	2.6	2.9	1.8	3.3	0.8	0.2	-0.2	-0.2	-0.5	0.7	3.3	
5-Dec	-0.3	-0.3	0.0	0.0	0.1	-0.2	0.0	-0.2	-0.1	0.4	0.5	0.1	0.4	0.0	0.5	0.3	0.2	-0.5	-0.1	UO	UO	UO	UO	UO	0.0	0.5	
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.1	0.1	0.1	-0.1	-0.1	-0.3	0.1	1.0	0.1	2.2	0.7	0.4	1.0	1.3	0.4	--	2.2	
7-Dec	-0.2	-0.9	-0.4	0.1	0.2	0.1	0.7	1.4	0.3	1.1	1.2	0.2	-0.1	-0.1	0.0	0.1	0.1	0.0	0.0	-0.1	0.0	0.1	0.4	0.3	0.2	1.4	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	0.1	0.5	0.2	0.2	0.4	0.5	-0.2	-0.1	0.2	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	--	0.5	
9-Dec	-0.2	-0.3	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.4	0.6	0.7	0.0	0.2	-0.2	-0.4	0.1	0.1	0.0	0.2	-0.2	-0.1	-0.1	-0.1	0.0	0.7	
10-Dec	-0.1	-0.1	0.0	0.0	0.0	-0.1	0.0	0.1	0.1	0.0	-0.1	0.0	-0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.2	0.4	0.0	-0.1	-0.3	0.0	0.4	
11-Dec	-0.1	0.8	1.8	1.4	0.2	0.5	0.3	0.5	-0.2	0.1	1.0	0.4	1.0	0.3	-0.3	0.0	-0.3	0.1	2.7	2.6	2.8	0.6	-0.2	-0.1	0.7	2.8	
12-Dec	-0.2	2.4	3.2	2.8	2.0	1.8	2.5	0.9	1.3	0.8	0.6	0.8	0.7	0.9	1.1	1.7	2.2	1.9	1.8	1.5	0.8	1.0	0.3	0.2	1.4	3.2	
13-Dec	-0.3	-0.3	-0.1	-0.2	-0.3	0.1	0.2	0.4	-0.1	0.9	0.8	1.6	1.0	1.1	0.2	-0.1	-0.2	0.2	0.0	0.1	-0.1	-0.1	0.0	0.1	0.2	1.6	
14-Dec	0.0	UO	0.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	0.5	UO	UO	UO	UO	UO	UO	UO	--	1.3	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.4	0.7	0.3	0.3	-0.1	-0.2	-0.1	0.0	0.2	0.2	0.2	-0.4	-0.1	0.1	--	0.7	
16-Dec	0.2	0.0	-0.1	0.0	0.0	-0.1	-0.4	-0.5	-1.0	-0.7	-0.6	0.1	-0.3	-1.4	-0.5	-0.1	-0.3	-0.5	-0.3	0.1	0.2	0.8	1.8	2.2	-0.1	2.2	
17-Dec	2.4	0.3	0.5	1.0	-0.5	-0.9	-0.2	-0.2	-0.1	0.0	0.5	0.5	-0.2	-0.1	0.0	-0.1	-0.1	0.1	0.0	0.1	0.0	-0.1	-0.2	-0.4	0.1	2.4	
18-Dec	0.1	0.3	0.1	-0.1	0.0	0.2	0.3	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.2	0.1	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.3	
19-Dec	-0.2	0.4	0.4	0.7	0.5	0.1	0.1	-0.1	0.2	0.2	-0.1	0.3	0.1	-0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.1	0.7	
20-Dec	0.1	0.0	0.2	0.5	0.4	0.7	0.7	1.1	0.3	-0.5	1.1	1.3	1.6	2.1	1.9	0.0	-0.8	-0.7	-0.5	0.5	1.4	1.0	1.0	0.3	0.6	2.1	
21-Dec	-0.2	0.1	0.0	0.1	0.4	-0.1	0.2	0.1	0.0	0.1	0.0	-0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.4	
22-Dec	-0.1	-0.1	-0.1	-0.1	0.6	1.1	0.2	0.8	0.1	-0.3	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	1.1	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.0	0.6	-0.1	-0.6	-0.4	0.0	-0.1	0.0	0.3	0.2	0.5	--	1.0	
24-Dec	1.6	1.3	0.7	-0.4	0.0	0.1	0.6	-0.4	-0.2	1.0	1.3	0.6	0.2	0.6	0.5	0.1	0.2	0.4	0.8	0.0	-0.2	0.0	0.1	0.6	0.4	1.6	
25-Dec	0.8	0.6	-0.4	-0.1	0.1	0.1	-0.2	0.1	0.3	1.2	1.0	0.2	0.7	0.7	0.4	0.2	0.9	0.5	0.7	0.2	-0.1	0.2	-0.2	0.2	0.3	1.2	
26-Dec	-0.6	-0.4	-0.3	0.1	0.3	0.1	-0.5	-0.1	-0.4	-1.1	-0.5	0.6	0.0	-0.2	0.3	0.4	0.0	0.2	0.3	0.0	0.5	-0.1	-0.1	-0.1	-0.1	0.6	
27-Dec	-0.1	0.1	0.5	0.0	-0.1	-0.2	-0.1	0.0	0.0	-0.2	0.2	0.0	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.0	0.1	0.2	0.4	0.2	0.0	0.5	
28-Dec	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.1	-0.2	-0.2	0.1	-0.1	-0.2	0.0	0.0	-0.1	0.1	
29-Dec	-0.1	0.0	0.0	0.0	0.0	-0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.1	0.1	0.0	-0.1	-0.4	-0.2	0.2	-0.3	0.0	0.2	
30-Dec	-0.2	-0.4	-0.6	-0.4	-0.5	-0.8	-0.8	-0.7	-1.0	-0.5	-0.8	0.0	-0.3	-1.0	-1.1	-0.8	-0.6	-0.5	-0.8	-0.6	-0.9	-0.4	-0.5	-0.5	-0.6	0.0	
31-Dec	-0.3	-0.6	-0.8	-0.3	0.0	0.1	0.1	0.2	0.2	0.0	-0.1	-0.2	-0.4	-0.6	-0.6	-0.4	-0.1	-0.2	-0.3	0.2	0.0	0.1	0.0	-0.1	-0.2	0.2	
		0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.4	0.2	0.2	0.1	0.1	0.1	Diurnal Average	
		2.4	2.4	3.2	2.8	2.0	1.8	2.5	1.4	1.3	1.2	1.3	1.9	1.6	2.1	2.6	2.6	2.9	1.9	3.3	2.6	2.8	1.0	1.8	2.2	Diurnal Maximum	
UO - Unstable Operation																											



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Vertical Wind Speed 100m (VW100) - km/h
Lower Camp Met Tower - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.3 km/h on Dec 4 20:00 Minimum Value: 0.1 km/h on Dec 1 12:00 Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 1.0 Q ₃ = 1.6 P ₉₀ = 2.1 P ₉₉ = 2.9																								Hours in Service: 744 Hours of Data: 652 Hours of Missing Data: 92 Hours of Calibration: 0 Percent Operational Time: 87.6	
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-Dec	1.3	1.1	0.9	0.5	0.5	0.4	0.4	0.2	0.3	0.2	0.2	0.1	0.4	0.4	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.7	0.8	1.6	1.6
2-Dec	1.6	1.5	1.8	2.8	2.1	1.5	1.1	0.8	1.2	1.1	1.5	2.0	1.6	1.7	2.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.8
3-Dec	UO	UO	UO	UO	UO	UO	2.2	2.3	2.4	1.9	1.7	2.7	2.3	2.5	2.3	2.9	2.4	2.2	0.9	0.3	0.7	1.0	0.8	2.9	
4-Dec	0.4	0.6	0.9	0.6	0.3	0.5	0.3	0.4	1.1	1.1	1.3	1.5	2.0	2.0	2.1	2.2	2.6	2.3	2.8	3.3	2.7	2.5	2.7	3.3	
5-Dec	1.5	1.3	1.4	1.1	1.0	1.1	1.5	1.1	0.9	0.8	1.1	0.7	0.7	0.7	0.6	0.8	0.7	1.7	1.0	UO	UO	UO	UO	1.7	
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	1.6	1.3	1.0	0.7	0.5	0.6	1.1	1.1	1.3	1.7	0.8	1.1	0.9	1.7	
7-Dec	1.0	1.5	1.8	1.2	0.8	1.2	1.1	1.0	0.6	1.0	1.2	1.3	1.0	0.9	1.2	0.5	0.3	0.7	0.3	0.4	1.0	1.0	1.9	2.0	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	1.4	1.7	1.6	1.5	1.6	1.3	1.0	1.0	0.6	0.3	0.4	0.6	0.8	0.4	0.3	1.7	
9-Dec	0.8	1.0	0.6	0.8	1.0	0.5	0.2	0.3	0.3	0.7	1.6	2.1	1.1	1.8	2.0	2.3	2.0	2.0	1.5	1.4	1.1	1.1	1.1	2.3	
10-Dec	1.1	0.5	0.3	0.2	0.5	0.2	0.7	0.5	0.6	0.6	0.3	0.3	0.3	0.2	0.4	0.3	0.5	0.6	0.4	0.4	0.6	1.0	0.6	1.1	
11-Dec	1.4	1.5	1.5	1.6	1.3	1.6	1.3	1.3	1.9	1.8	1.3	1.4	1.2	1.3	1.2	1.0	1.4	1.7	2.7	2.3	2.0	2.0	1.8	2.7	
12-Dec	1.8	2.0	1.7	1.4	1.8	1.5	1.6	1.7	2.3	2.4	2.0	2.0	2.2	1.9	2.3	2.7	2.5	2.5	2.7	2.9	2.8	2.9	3.2	3.2	
13-Dec	2.4	2.6	2.1	1.9	2.3	1.8	1.8	1.6	1.3	1.3	1.3	1.3	1.2	1.2	0.9	0.5	0.4	0.4	0.3	0.3	0.6	0.7	0.3	2.6	
14-Dec	0.7	UO	0.9	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9	1.8	UO	UO	UO	UO	UO	UO	1.9	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.5	1.5	1.6	1.6	1.5	1.4	1.6	1.6	1.5	1.8	2.1	1.8	1.8	1.3	2.1	
16-Dec	0.7	0.5	0.3	0.2	0.2	0.6	0.9	1.6	1.8	1.9	1.4	1.1	2.0	2.0	1.9	2.0	2.1	2.5	1.8	1.2	1.1	1.2	2.5		
17-Dec	1.7	2.0	1.4	2.7	1.9	1.2	0.7	0.6	0.7	0.9	1.2	1.2	0.6	0.3	0.3	0.3	0.7	0.9	0.9	0.9	0.8	0.5	0.4	2.7	
18-Dec	0.5	0.5	0.7	0.8	0.6	0.5	0.6	0.2	0.2	0.1	0.2	0.5	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.8	
19-Dec	0.6	0.9	1.1	1.3	1.1	1.2	0.9	0.9	0.8	0.5	0.5	0.4	0.5	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.4	1.3	
20-Dec	0.4	0.5	0.7	1.2	1.9	3.2	1.5	1.4	2.1	2.5	2.7	2.6	2.9	2.8	2.4	2.2	1.0	0.7	0.5	1.0	1.3	1.1	1.2	3.2	
21-Dec	0.9	0.8	0.6	0.6	0.4	0.6	0.5	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.4	0.3	0.9	
22-Dec	0.4	0.3	0.3	0.4	1.9	1.4	1.8	1.7	1.5	1.6	1.9	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1	1.9	1.7	1.8	1.2	0.6	1.0	1.5	1.7	2.0	2.0	
24-Dec	2.0	2.1	2.3	1.5	0.9	1.1	1.4	1.7	2.0	2.4	1.5	1.2	0.6	1.0	1.7	1.0	1.3	1.8	1.5	1.4	0.8	0.9	0.5	2.4	
25-Dec	0.9	1.0	1.2	1.4	2.0	1.8	2.2	2.3	1.9	1.8	2.3	2.5	2.3	1.6	1.8	1.5	1.5	1.6	1.7	1.5	1.5	1.4	1.7	2.5	
26-Dec	2.1	1.6	1.5	0.8	0.4	0.9	1.2	0.7	0.8	0.8	0.9	0.9	0.4	0.9	0.8	0.9	1.1	0.9	0.6	0.6	0.6	0.6	0.4	2.1	
27-Dec	0.6	0.7	0.5	0.5	0.4	0.3	0.4	0.2	0.3	0.5	1.0	0.5	0.2	0.2	0.4	0.8	0.4	0.2	0.3	1.0	1.2	0.7	0.9	1.2	
28-Dec	0.5	0.3	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.2	0.2	0.4	0.6	0.5	0.5	0.2	0.1	0.3	0.7	1.3	0.8	1.1	1.0	1.3	
29-Dec	0.4	0.3	0.5	0.2	0.2	0.2	0.8	0.7	0.3	0.2	0.4	0.6	0.5	0.7	0.6	0.2	0.3	0.5	0.3	0.3	0.9	1.2	1.3	1.4	
30-Dec	1.7	1.8	2.0	1.8	1.4	1.1	1.6	1.5	1.7	2.2	2.0	2.8	2.7	2.3	1.8	1.8	2.1	1.8	2.1	1.5	1.7	1.5	1.3	2.8	
31-Dec	1.9	0.9	1.1	1.6	1.1	0.3	0.4	0.6	0.8	0.6	0.4	1.1	1.6	1.8	1.5	1.3	0.5	0.8	1.0	0.6	0.8	0.7	0.8	1.9	
2.4 2.6 2.3 2.8 2.3 3.2 2.2 2.3 2.4 2.5 2.7 2.8 2.9 2.8 2.4 2.7 2.9 2.5 2.8 3.3 2.8 2.9 3.2 2.6																									
Diurnal Maximum																									
UO - Unstable Operation																									



Maximum Value: 4.9 km/h on Dec 12 03:00																								Maximum Daily Average: 2.0 km/h on Dec 12																								Hours in Service: 744	
Minimum Value: -0.9 km/h on Dec 31 19:00																								Minimum Daily Average: 0.1 km/h on Dec 28																								Hours of Data: 548	
Maximum Diurnal Average: 1.1 km/h at hour 11																								Minimum Diurnal Average: 0.5 km/h at hour 9																								Hours of Missing Data: 196	
Monthly Average: 0.76 km/h																								Percentiles: P ₁ = -0.3 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 0.4 Q ₃ = 1.0 P ₉₀ = 2.1 P ₉₉ = 4.4																								Hours of Calibration: 0	
Percentiles: P ₁ = -0.3 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 0.4 Q ₃ = 1.0 P ₉₀ = 2.1 P ₉₉ = 4.4																								Percent Operational Time: 73.7																									
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-Dec	0.2	0.0	0.1	0.1	-0.1	0.0	0.2	0.1	0.2	0.3	0.3	0.2	0.0	0.0	0.1	0.2	0.3	0.2	0.0	0.3	0.4	0.3	0.4	0.6	0.2	0.6																							
2-Dec	0.7	0.2	1.0	0.4	0.8	0.2	0.1	0.3	0.7	0.8	1.3	3.2	2.2	3.1	3.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	3.2																							
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.0	0.0	0.3	0.3	1.0	2.0	0.3	0.1	0.0	-0.3	-0.2	--	2.0																							
4-Dec	0.0	0.1	0.2	0.2	0.1	0.1	0.4	0.4	0.8	0.7	0.5	1.2	1.7	3.1	3.3	3.5	3.6	2.6	4.1	1.5	1.3	0.1	0.1	-0.2	1.2	4.1																							
5-Dec	0.2	0.3	1.0	0.3	1.1	0.6	0.8	0.4	0.4	0.4	0.7	0.3	0.7	0.1	0.5	0.7	0.5	0.2	UO	UO	UO	UO	UO	UO	0.5	1.1																							
6-Dec	UO	UO	UO	UO	UO	UO	UO	0.1	0.3	0.7	1.5	1.9	1.4	1.5	1.7	2.4	3.7	1.6	4.4	2.2	1.6	2.4	2.7	1.3	--	4.4																							
7-Dec	1.0	0.0	0.8	0.9	1.1	0.8	1.4	1.7	1.1	2.6	3.8	1.9	0.5	0.3	0.3	0.1	0.2	0.3	0.3	0.2	0.3	0.4	UO	UO	0.9	3.8																							
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																							
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--																							
11-Dec	UO	UO	UO	UO	UO	UO	0.6	0.6	UO	UO	UO	UO	UO	UO	-0.1	0.0	-0.6	0.0	3.4	4.4	4.5	1.9	0.1	2.1	--	4.5																							
12-Dec	0.7	3.8	4.9	3.6	2.5	2.5	2.6	1.4	1.8	1.1	1.3	1.0	1.4	1.3	2.1	2.7	2.7	2.5	1.7	1.4	1.2	1.4	0.6	0.6	2.0	4.9																							
13-Dec	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.3	0.0	0.5	1.2	2.6	1.1	0.9	0.9	0.7	0.6	0.4	0.2	0.4	0.2	0.2	0.1	UO	0.5	2.6																							
14-Dec	0.5	0.3	0.1	0.8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.8																							
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	-0.2	-0.4	0.7	0.2	--	1.3																						
16-Dec	0.1	UO	UO	UO	UO	UO	UO	UO	UO	1.1	1.5	3.0	1.8	0.1	2.7	1.8	1.1	1.0	0.9	1.1	1.0	1.8	2.8	3.5	--	3.5																							
17-Dec	4.5	2.2	2.3	2.6	0.9	-0.3	0.3	0.3	0.2	0.2	1.1	1.1	0.3	0.4	0.3	0.3	0.2	0.6	0.7	1.0	0.7	0.5	0.6	0.4	0.9	4.5																							
18-Dec	0.5	0.5	0.6	0.5	1.0	1.0	0.2	0.4	0.3	0.3	0.1	0.0	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	1.0																							
19-Dec	0.2	0.9	1.1	1.1	0.8	0.4	0.7	0.0	0.6	0.4	0.3	0.2	0.3	0.1	0.2	0.1	0.1	0.3	0.1	0.1	0.4	0.3	0.4	0.9	0.4	1.1																							
20-Dec	0.5	0.5	0.9	1.8	1.5	1.7	1.1	1.6	0.7	-0.3	1.9	2.1	2.4	2.7	2.1	0.2	-0.3	0.0	0.3	1.6	2.3	1.7	1.6	0.8	1.2	2.7																							
21-Dec	0.3	0.5	0.6	0.4	0.2	0.8	0.6	0.3	0.2	0.5	0.3	0.3	0.5	0.2	0.2	0.3	0.1	0.3	0.2	0.1	0.1	-0.2	0.2	0.2	0.3	0.8																							
22-Dec	0.1	0.3	0.2	0.2	0.8	2.2	1.2	1.8	0.7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	2.2																							
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.1	0.4	0.5	0.3	0.7	0.8	1.0	1.1	1.5	2.1	2.5	2.9	--	2.9																							
24-Dec	4.7	4.6	2.5	0.3	0.8	0.6	0.6	0.2	0.0	2.6	2.7	1.5	0.4	0.3	1.1	0.8	0.9	1.1	1.5	0.3	0.4	0.4	0.6	0.7	1.2	4.7																							
25-Dec	0.6	0.3	0.5	1.3	0.9	1.5	1.0	1.9	1.6	3.2	3.3	0.7	2.2	2.4	2.1	1.5	2.1	1.6	1.5	1.2	1.2	0.3	0.0	0.9	1.4	3.3																							
26-Dec	-0.1	-0.3	-0.3	0.2	0.5	1.0	0.7	0.8	0.3	0.0	-0.5	0.5	0.3	0.2	0.2	0.8	0.5	0.4	0.6	0.6	0.6	0.4	0.3	0.8	0.4	1.0																							
27-Dec	0.3	0.8	0.8	0.4	0.5	0.5	0.3	0.2	0.2	0.2	1.2	0.6	0.1	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.3	0.4	0.5	0.3	0.4	1.2																							
28-Dec	0.1	0.1	0.1	0.1	0.1	0.1	-0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	-0.1	0.0	0.1	0.1	0.2																							
29-Dec	0.0	0.1	0.1	0.0	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.2	0.1	0.1	0.5	1.0	0.4	0.2	1.0																							
30-Dec	0.6	0.6	0.4	0.6	0.7	0.3	0.6	0.7	0.3	0.8	0.4	0.7	0.7	0.0	0.1	0.2	0.2	0.6	0.5	0.3	-0.1	0.4	0.4	0.2	0.4	0.8																							
31-Dec	0.2	0.3	-0.1	0.5	0.6	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.2	0.0	0.1	0.3	0.1	0.1	-0.9	0.5	0.1	0.3	0.1	0.2	0.2	0.6																							
																								Diurnal Average																									
																								Diurnal Maximum																									
0.7 0.7 0.8 0.7 0.7 0.7 0.6 0.6 0.5 0.8 1.1 1.1 0.8 0.7 0.9 0.7 0.7 0.7 1.0 0.9 0.8 0.6 0.7 0.8																																																	
4.7 4.6 4.9 3.6 2.5 2.5 2.6 1.9 1.8 3.2 3.8 3.2 2.4 3.1 3.3 3.5 3.7 2.6 4.4 4.4 4.5 2.4 2.8 3.5																																																	
UO - Unstable Operation																																																	



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.4 km/h on Dec 20 13:00		Hours in Service: 744 Hours of Data: 548 Hours of Missing Data: 196 Hours of Calibration: 0 Percent Operational Time: 73.7																								
Minimum Value: 0.2 km/h on Dec 28 17:00																										
Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.6 Median = 1.0 Q ₃ = 1.6 P ₉₀ = 2.1 P ₉₉ = 3.0																										
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-Dec	1.5	1.2	1.0	0.7	0.6	0.7	0.6	0.2	0.4	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.9	0.7	1.0	1.0	1.2	1.5	1.5	
2-Dec	1.2	1.2	1.2	2.5	2.5	2.1	1.4	1.2	1.4	1.6	1.7	2.0	1.6	1.7	1.8	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.5	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.4	1.9	1.9	2.1	1.7	2.4	0.9	0.4	0.9	1.2	0.8	2.4	
4-Dec	0.4	0.8	0.6	0.8	0.3	0.4	0.4	0.7	1.5	1.1	1.3	1.4	2.0	2.2	2.5	2.3	3.0	2.6	3.1	2.9	1.7	1.5	1.5	0.7	3.1	
5-Dec	0.7	0.9	1.4	1.2	0.8	1.3	1.8	1.1	1.1	1.2	1.3	0.8	0.7	0.8	0.7	2.3	0.4	2.3	UO	UO	UO	UO	UO	UO	2.3	
6-Dec	UO	UO	UO	UO	UO	UO	UO	1.4	1.2	1.9	2.1	1.8	1.0	1.0	0.7	1.0	1.3	1.0	1.5	1.7	0.9	0.9	1.0	0.9	2.1	
7-Dec	1.2	1.0	2.0	1.8	1.0	1.8	1.2	1.3	1.0	1.3	1.0	1.1	1.0	0.7	1.1	0.5	0.4	0.9	0.4	0.4	1.0	1.2	UO	UO	2.0	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
11-Dec	UO	UO	UO	UO	UO	UO	1.2	1.2	UO	UO	UO	UO	UO	UO	1.2	1.3	1.7	1.8	2.9	1.9	1.3	3.0	2.5	2.0	3.0	
12-Dec	2.0	1.7	1.6	1.6	2.0	1.7	1.9	2.1	2.3	2.5	2.3	2.5	2.5	2.1	2.5	2.8	2.4	2.6	2.5	2.8	3.0	3.2	2.5	2.2	3.2	
13-Dec	1.7	2.1	1.7	1.4	1.7	1.1	0.7	0.7	0.8	1.4	1.7	1.5	0.8	1.1	0.8	0.6	0.5	0.6	0.3	0.4	0.5	1.0	0.5	UO	2.1	
14-Dec	1.2	1.3	1.1	1.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3.0	1.9	2.2	1.7	1.0	3.0
16-Dec	1.2	UO	UO	UO	UO	UO	UO	UO	UO	2.2	1.5	1.4	1.9	1.1	1.8	1.7	1.4	2.0	1.4	1.3	1.3	1.4	1.4	1.2	2.2	
17-Dec	1.2	2.0	1.0	1.9	1.6	0.9	0.6	0.8	0.4	0.6	0.9	0.9	0.5	0.4	0.3	0.3	0.5	0.7	0.9	0.9	0.5	0.3	0.6	0.5	2.0	
18-Dec	0.4	0.6	0.7	0.8	0.7	0.7	0.5	0.4	0.5	0.3	0.6	0.8	0.6	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.6	0.5	0.5	0.8	
19-Dec	0.9	1.0	1.2	1.2	1.1	1.2	0.7	0.9	1.0	0.6	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.6	0.5	0.7	1.1	1.2	
20-Dec	0.6	0.7	1.1	1.3	1.6	2.1	2.1	2.3	2.9	2.3	2.9	3.3	3.4	3.2	2.6	2.1	0.7	0.6	0.5	0.6	0.9	0.8	1.2	0.9	3.4	
21-Dec	0.7	0.9	0.8	0.8	0.5	0.7	0.6	0.5	0.3	0.4	0.4	0.5	0.4	0.5	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.9	
22-Dec	0.4	0.6	0.5	0.6	2.1	1.6	1.9	1.6	1.6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1	1.3	1.6	1.5	1.7	1.2	1.2	1.4	1.8	1.9	1.9	1.7	1.9	
24-Dec	1.8	1.7	2.8	1.8	1.4	1.2	1.1	1.2	2.5	2.7	1.3	0.8	0.8	1.0	1.9	1.4	1.4	1.7	1.3	1.3	0.7	0.7	0.6	0.6	2.8	
25-Dec	1.3	1.3	1.1	2.0	2.1	1.9	2.3	2.3	2.1	1.5	1.9	3.0	2.5	1.9	1.9	1.7	1.6	1.8	1.9	1.9	1.6	1.5	1.4	1.0	3.0	
26-Dec	1.6	1.2	1.5	1.3	1.0	0.9	1.3	0.7	0.8	0.9	1.0	0.9	0.5	1.0	0.6	0.8	1.0	1.0	0.5	0.6	0.4	0.7	0.5	0.7	1.6	
27-Dec	0.6	0.7	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.7	1.3	0.7	0.4	0.3	0.4	1.1	0.8	0.5	0.5	1.4	1.4	0.9	0.7	0.6	1.4	
28-Dec	0.6	0.4	0.3	0.3	0.2	0.4	0.5	0.4	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.9	1.3	0.9	1.2	1.1	0.8	1.3	
29-Dec	0.7	0.5	0.5	0.3	0.2	0.4	1.2	0.9	0.4	0.3	0.7	1.0	0.7	0.7	0.5	0.3	0.6	0.8	0.4	0.6	0.9	1.2	1.0	1.1	1.2	
30-Dec	1.5	1.4	1.5	1.4	1.2	1.1	1.5	1.2	1.2	1.7	1.4	2.6	2.6	1.9	1.5	1.7	1.8	1.3	1.5	0.9	1.0	1.3	0.9	1.6	2.6	
31-Dec	1.5	0.8	0.8	1.3	1.1	0.5	0.7	0.5	0.9	0.9	0.5	1.1	1.4	1.7	1.6	1.1	0.4	1.2	1.0	0.7	0.9	0.9	0.9	1.0	1.7	
Diurnal Maximum																										
UO - Unstable Operation																										



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS04 BUFFALO VIEWPOINT DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)
DECEMBER 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	3.7	0	0.7	0
H2S (ppb) Average	706	36	38	99.73	3.4	0	1.1	0
THC (ppm) Average	710	34	34	100	3.5	-	2.6	-
NMHC(ppm) Average	710	34	34	100	0	-	0	-
CH4(ppm) Average	710	34	34	100	3.5	-	2.6	-
O3(ppb) Average	708	34	36	99.73	34.7	0	31.1	-
NO2(ppb) Average	705	37	39	99.73	38	0	16.7	-
NO(ppb) Average	705	37	39	99.73	121	-	21.5	-
NOX(ppb) Average	705	37	39	99.73	159	-	35.3	-
PM2.5(ug/m3) Average	742	2	2	100	30.1	0	12.7	0
Temperature (C) Average	744	0	0	100	4.7	-	1.1	-
Relative Humidity (%) Average	744	0	0	100	97.3	-	91.5	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	25	-	12	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BUFFALO VIEWPOINT (AMS04)
DECEMBER 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	0.22	0.4	-	0	0	0	0.1	0.2	0.5	3.7
H2S (ppb) Average	706	0.23	0.4	-	0	0.1	0.1	0.1	0.2	0.5	3.4
THC (ppm) Average	710	2.18	0.2	-	2	2.1	2.1	2.1	2.2	2.3	3.5
NMHC(ppm) Average	710	0	0	-	0	0	0	0	0	0	0
CH4(ppm) Average	710	2.18	0.2	-	2	2.1	2.1	2.1	2.2	2.3	3.5
O3(ppb) Average	708	18.84	8.5	-	1.2	5.6	13.2	19.5	25.1	29.7	34.7
NO2(ppb) Average	705	7.2	7.4	-	0	0.8	2.4	4.7	9.2	19.5	38
NO(ppb) Average	705	3.95	12.7	-	0	0	0.1	0.2	1	7.4	121
NOX(ppb) Average	705	11.14	18.6	-	0	0.9	2.5	5	10.1	24.8	159
PM2.5(ug/m3) Average	742	4.38	3.8	-	0.2	1.3	2.1	2.9	5.4	9.7	30.1
Temperature 2 m (C) Average	744	-12.32	8.3	-	-32.9	-24.2	-18.9	-10.8	-6.9	-2.1	4.7
Relative Humidity (%) Average	744	82.36	7.1	-	64.4	73.1	77.1	82.4	89.2	91.2	97.3
Wind Speed 10 m (km/h) Average	741	7.5	4	-	0	3	5	7	10	12	25
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	11 Dec 2024 08:00	11 Dec 2024 09:00	2	Maintenance - replace manifold blower
Wind Speed, Wind Direction	18 Dec 2024 11:00	18 Dec 2024 11:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	18 Dec 2024 20:00	18 Dec 2024 20:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	29 Dec 2024 05:00	29 Dec 2024 05:00	1	Flat line in sensor output signal - Sensor frozen

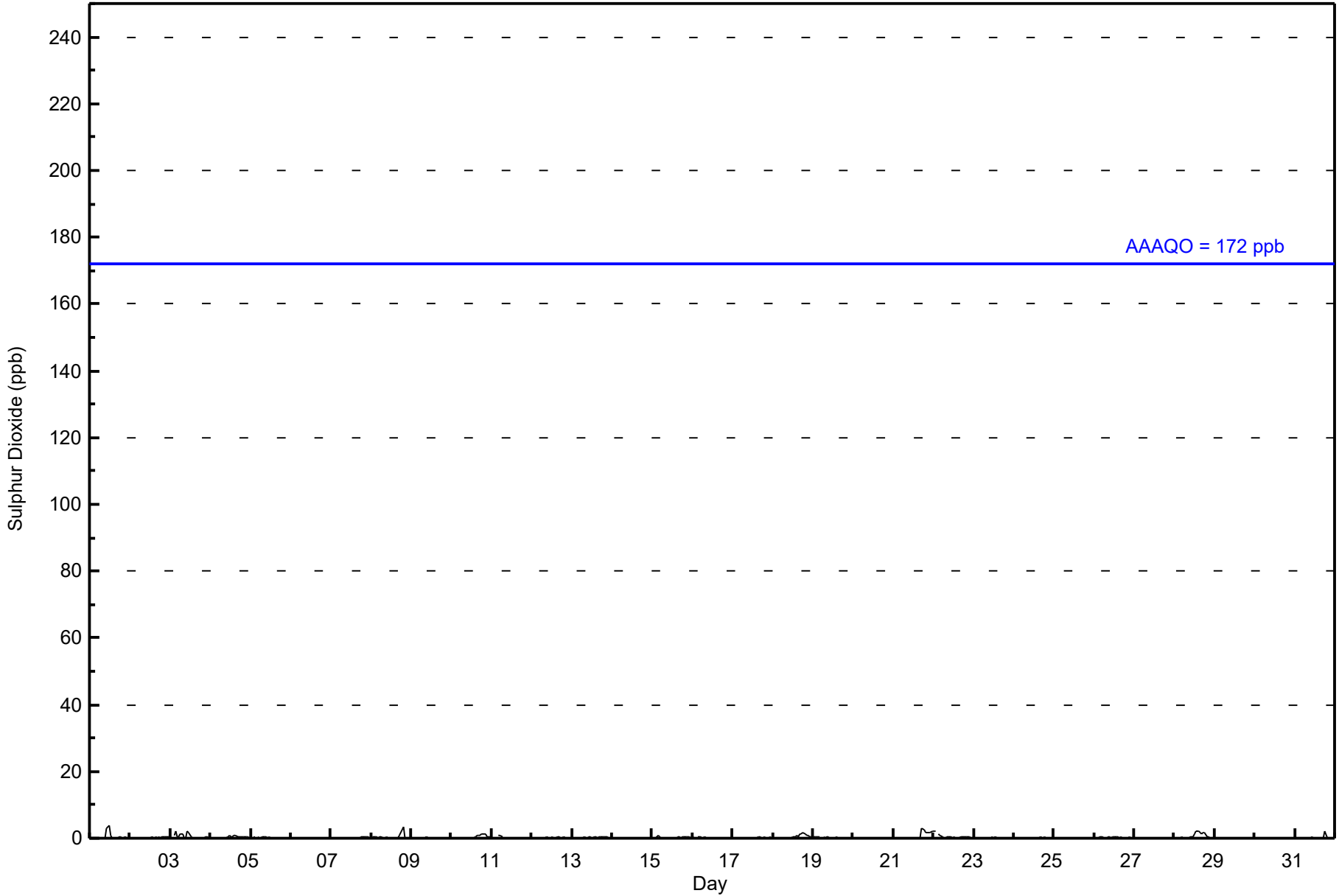


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744																												
Maximum Value: 3.7 ppb on Dec 1 12:00		Maximum Daily Average: 0.7 ppb on Dec 28		Hours of Data: 709														709																														
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 6		Hours of Missing Data: 35														35																														
Maximum Diurnal Average: 0.5 ppb at hour 19		Minimum Diurnal Average: 0.1 ppb at hour 9		Hours of Calibration: 35														35																														
Monthly Average: 0.22 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.5 P ₉₉ = 2.2		Percent Operational Time: 100.0														100.0																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	2.8	3.7	0.8	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.0	0.5	0.4	3.7																						
2-Dec	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.4	0.6	0.2	0.2	0.2	0.2	0.2	0.6																					
3-Dec	0.3	Z	0.9	2.2	0.4	0.2	1.2	1.1	0.0	0.0	2.3	1.5	0.4	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.3	0.3	0.0	0.5	2.3																						
4-Dec	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.8	0.5	0.4	0.9	0.8	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.2	0.3	0.9																						
5-Dec	0.1	0.1	0.3	Z	0.4	0.2	0.1	0.2	0.3	0.4	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
6-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
7-Dec	0.1	0.0	0.0	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.2	0.3	0.5	0.2	0.3	0.2	0.1	0.5																						
8-Dec	Z	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.9	2.5	3.6	0.1	0.2	0.1	0.0	0.5	3.6																						
9-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3																						
10-Dec	0.1	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.3	0.7	0.8	1.1	1.2	1.3	1.4	0.6	0.3	0.2	0.4	1.4																						
11-Dec	0.1	0.2	0.2	Z	0.8	0.8	0.2	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																						
12-Dec	0.0	0.0	0.0	0.0	Z	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.1	0.0	0.1	0.2	0.3																						
13-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.4	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.3	0.3	0.6	0.2	0.2	0.1	0.2	0.6																						
14-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1																						
15-Dec	0.1	Z	0.1	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.8																						
16-Dec	0.3	0.2	Z	0.3	0.5	0.6	0.2	0.2	0.2	0.2	0.0	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																						
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.2	0.0	0.3	0.1	0.1	0.2	0.1	0.1	0.3																						
18-Dec	0.2	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.7	0.3	1.2	1.1	1.5	1.1	1.0	0.6	0.6	0.4	0.4	1.5																						
19-Dec	0.4	0.2	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.4																						
20-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1																						
21-Dec	0.0	Z	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.2	0.0	0.0	0.0	3.1	2.5	1.9	1.5	1.7	1.8	2.2	0.7	3.1																						
22-Dec	2.2	2.0	Z	1.3	0.9	0.6	0.2	0.2	0.2	0.4	0.4	0.1	0.2	0.2	0.1	0.2	0.3	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.5	2.2																						
23-Dec	0.2	0.1	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.1	0.2																						
24-Dec	0.1	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	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.2																						
25-Dec	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2																						
26-Dec	Z	0.1	0.1	0.3	0.3	0.3	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	0.1	0.2	0.1	0.0	0.2	0.3																						
27-Dec	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
28-Dec	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.5	0.5	0.6	1.3	2.2	2.0	1.9	1.4	1.6	1.6	0.5	0.2	0.2	0.2	0.2	0.7	2.2																						
29-Dec	0.1	0.1	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
30-Dec	0.0	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
31-Dec	0.0	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	2.0	0.1	0.2	0.1	0.1	0.1	0.1	2.0																						
																								0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.5	0.4	0.3	0.2	0.2	0.2	Diurnal Average
																								2.2	2.0	0.9	2.2	0.9	0.8	1.2	1.1	0.3	0.5	2.8	3.7	1.3	2.2	2.0	1.9	1.4	3.1	2.5	3.6	1.5	1.7	1.8	2.2	Diurnal Maximum
Z - zerospan C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	709	100.00	100.00
11 - 20	0	0.00	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint - December 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	80	32	6	1	7	13	102	197	38	20	17	33	39	49	48	24	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	80	32	6	1	7	13	102	197	38	20	17	33	39	49	48	24	706

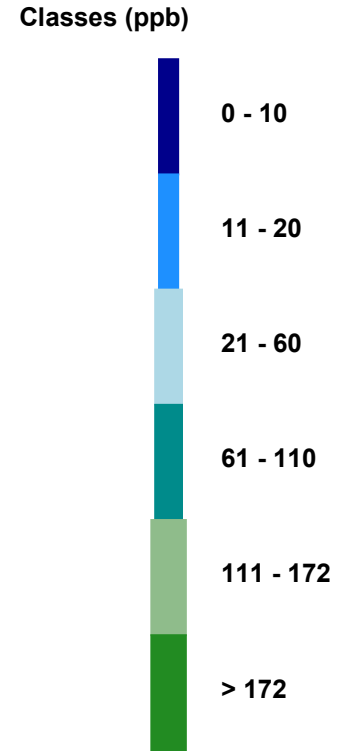
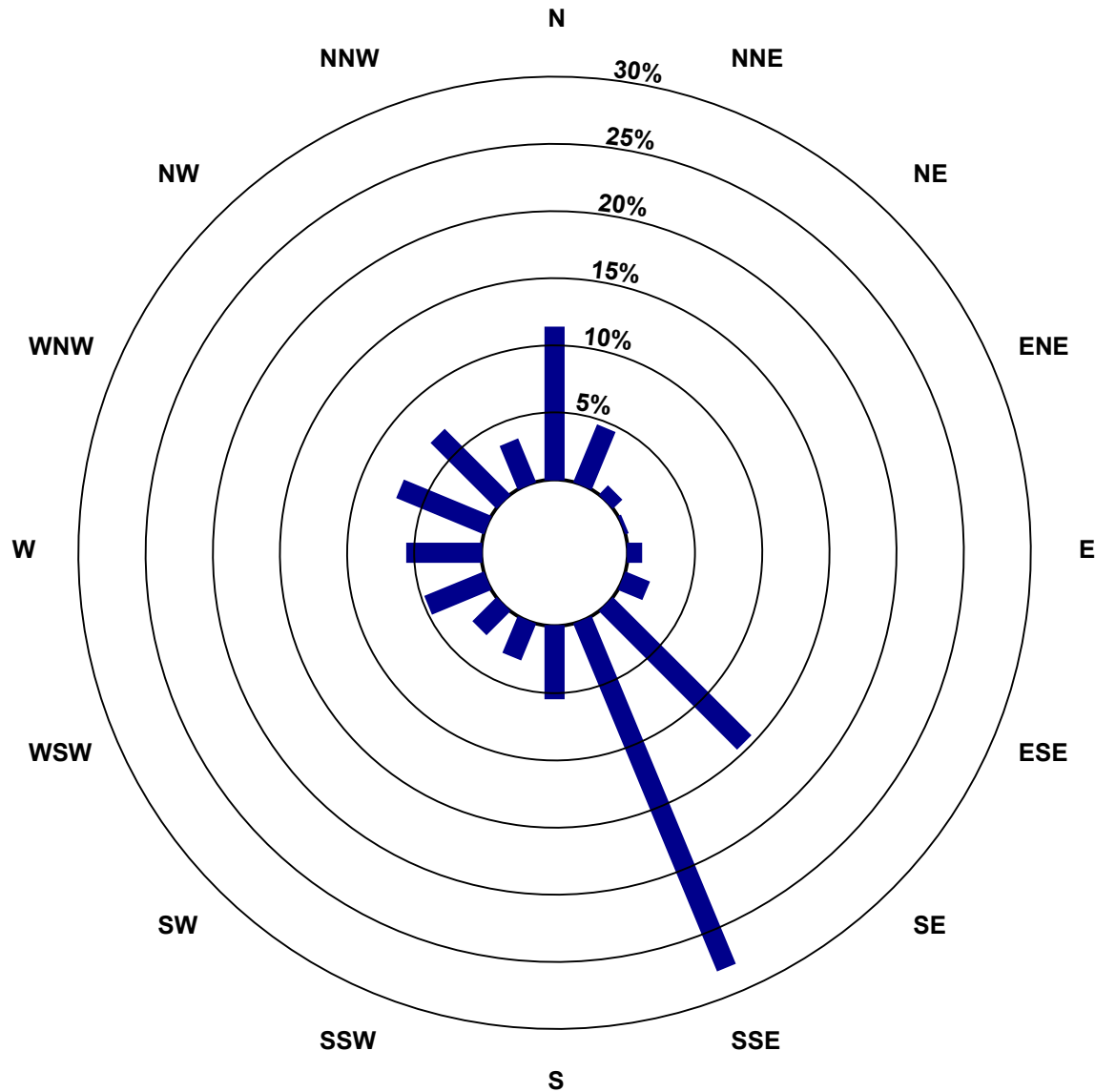
Total Number of Valid Hours: 706

Total Number of Hours: 744

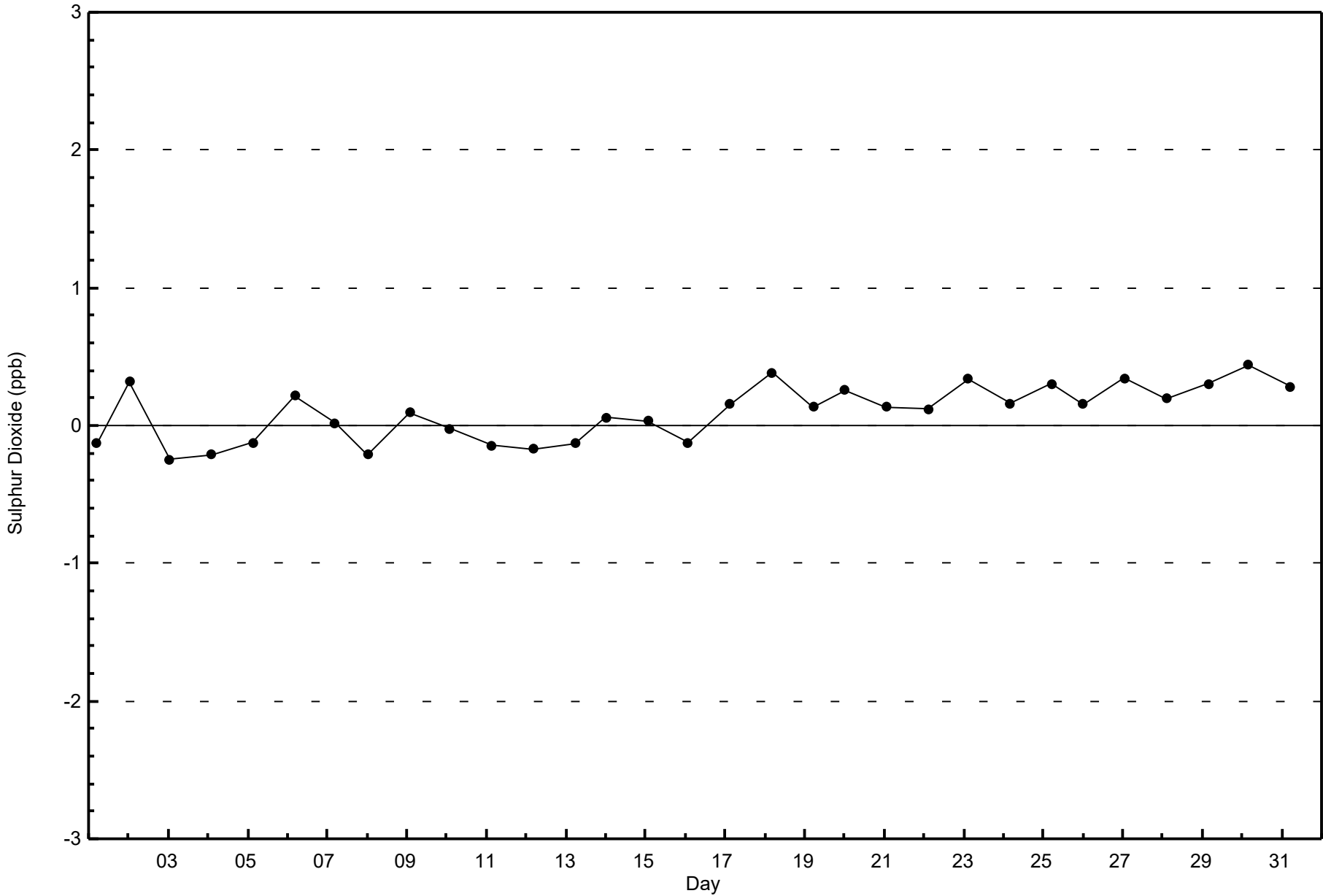


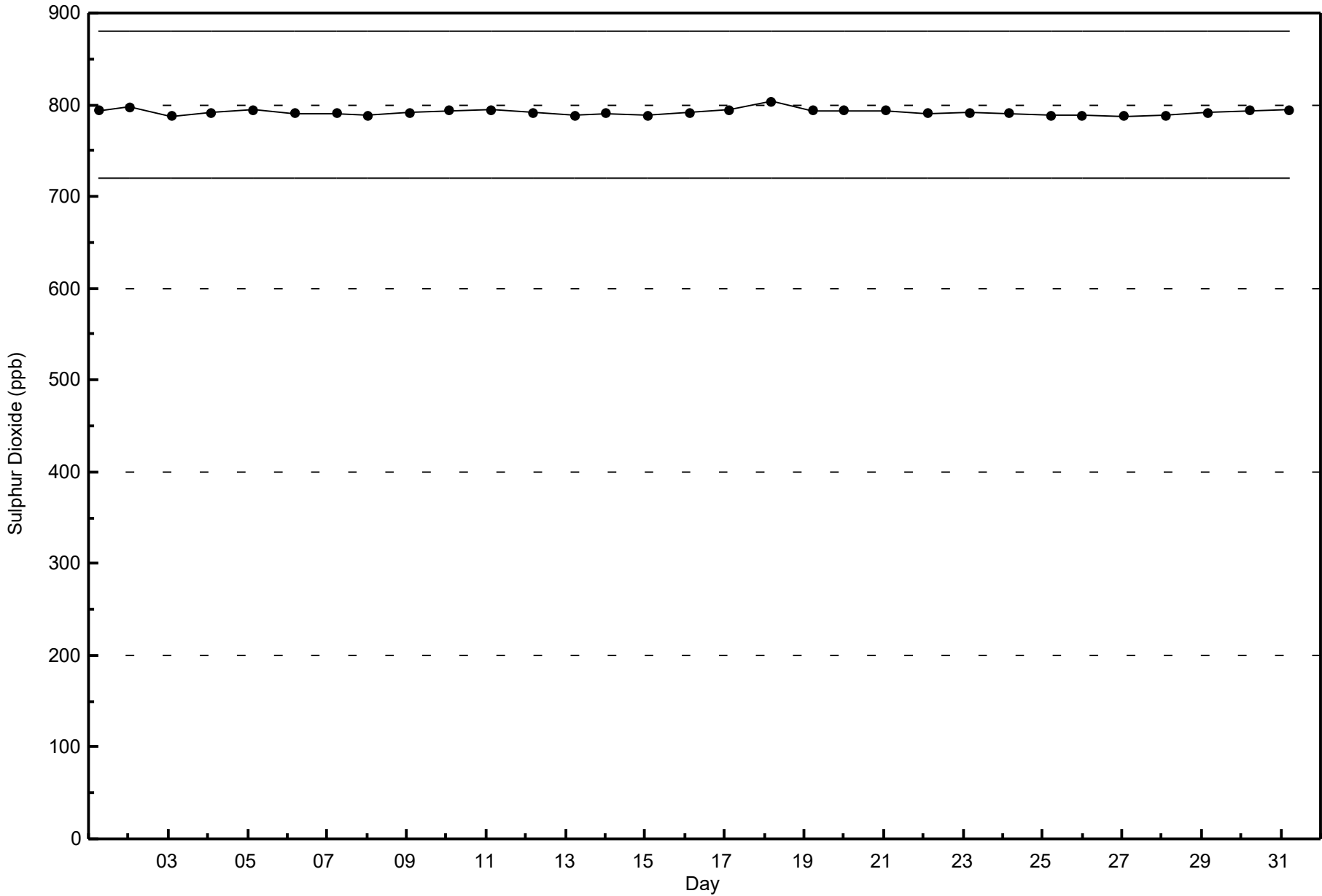
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Buffalo Viewpoint



Total Number of Valid Hours: 706







Wood Buffalo Environmental Association

Summary of Hour Averages

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

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 3.4 ppb on Dec 28 12:00	Maximum Daily Average: 1.1 ppb on Dec 28		Hours of Data:	706
Minimum Value: 0.0 ppb on Dec 17 17:00	Minimum Daily Average: 0.0 ppb on Dec 17		Hours of Missing Data:	38
Maximum Diurnal Average: 0.4 ppb at hour 20	Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Calibration:	36
Monthly Average: 0.23 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.5 P ₉₉ = 1.8		Percent Operational Time:	99.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.1	0.1	0.1	0.1	0.3	0.7	0.7	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.4	0.6	0.6	0.6	0.3	0.3	0.2	0.2	0.2	0.3	0.7
2-Dec	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2
3-Dec	0.2	0.1	Z	0.4	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.6	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.5	0.3	0.2	0.2	0.6
4-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2
5-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3
6-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
7-Dec	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.3	0.3	1.0	0.4	0.1	0.1	0.2	1.0
8-Dec	0.1	Z	0.3	0.3	0.2	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.9	0.3	0.3	0.2	0.2	0.2	0.9
9-Dec	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.6	0.2	0.1	0.1	0.2	0.6
10-Dec	0.2	0.5	1.8	Z	0.5	0.7	0.7	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.6	0.8	1.0	0.8	0.6	0.5	0.2	0.1	0.1	0.5	1.8
11-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.1	M	M	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.2	
12-Dec	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
13-Dec	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	0.2	0.2	0.2	0.3	0.2	0.6	2.6	2.2	0.6	0.3	0.3	0.4	2.6
14-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
15-Dec	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
16-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
17-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.3	0.8	1.3	1.2	1.5	1.1	0.6	0.7	0.9	1.1	0.9	0.9	0.8	0.8	0.6	1.5
19-Dec	Z	0.3	0.2	0.1	0.1	0.1	0.1	C	C	C	C	C	0.2	0.1	0.0	0.1	0.1	0.4	0.3	0.7	0.6	0.2	0.3	0.3	0.2	0.7
20-Dec	0.3	Z	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
21-Dec	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	0.2	0.2	1.4	1.8	1.2	1.2	1.2	1.3	1.2	0.5	1.8
22-Dec	1.6	1.5	1.4	Z	1.0	0.3	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	0.1	0.4	1.6
23-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
24-Dec	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
25-Dec	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
26-Dec	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27-Dec	0.1	0.1	Z	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2
28-Dec	0.2	0.1	0.1	Z	0.3	0.2	0.2	0.2	1.1	3.0	3.0	3.4	1.4	0.8	0.9	1.0	2.6	3.4	1.7	0.5	0.2	0.1	0.1	0.1	1.1	3.4
29-Dec	0.1	0.1	0.1	0.1	Z	0.8	0.7	0.3	0.3	0.2	0.2	0.2	0.3	0.5	0.5	1.3	0.4	0.5	0.2	0.2	0.2	0.2	0.2	0.2	0.3	1.3
30-Dec	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	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2
31-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.1	0.1	0.1	0.0	0.1	0.1	0.3	0.1	0.4	0.1	0.1	0.1	0.1	0.1	1.1

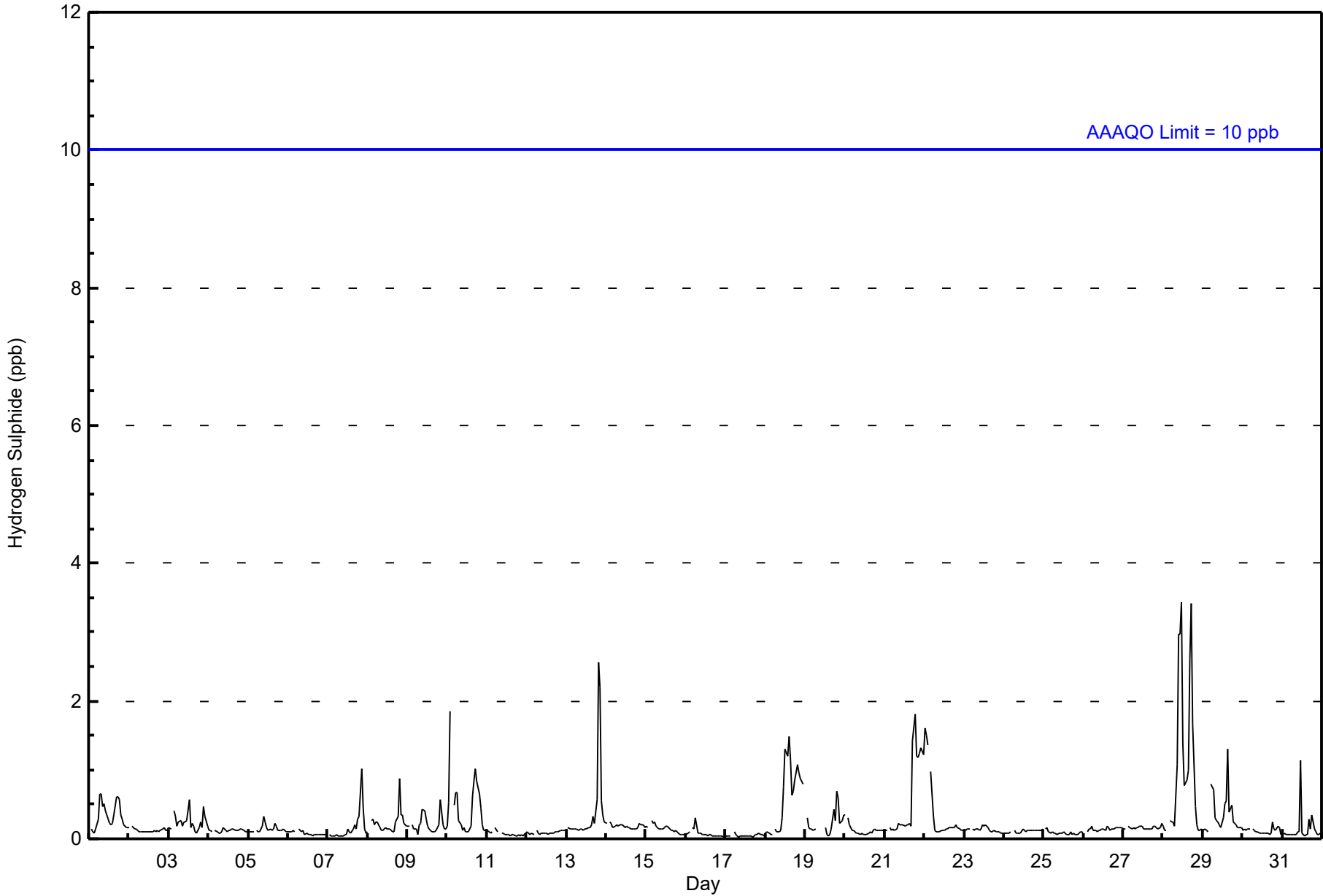
0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	Diurnal Average
1.6	1.5	1.8	0.4	1.0	0.8	0.7	0.7	1.1	3.0	3.0	3.4	1.4	1.2	1.5	1.3	2.6	3.4	1.8	2.6	2.2	1.2	1.3	1.2	0.2	0.2	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	700	99.15	99.15
3 - 4	6	0.85	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
Buffalo Viewpoint - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	80	32	5	2	7	12	98	196	41	18	18	34	41	46	45	23	698
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	6
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	80	32	5	2	7	12	98	196	41	18	18	34	41	47	50	23	704

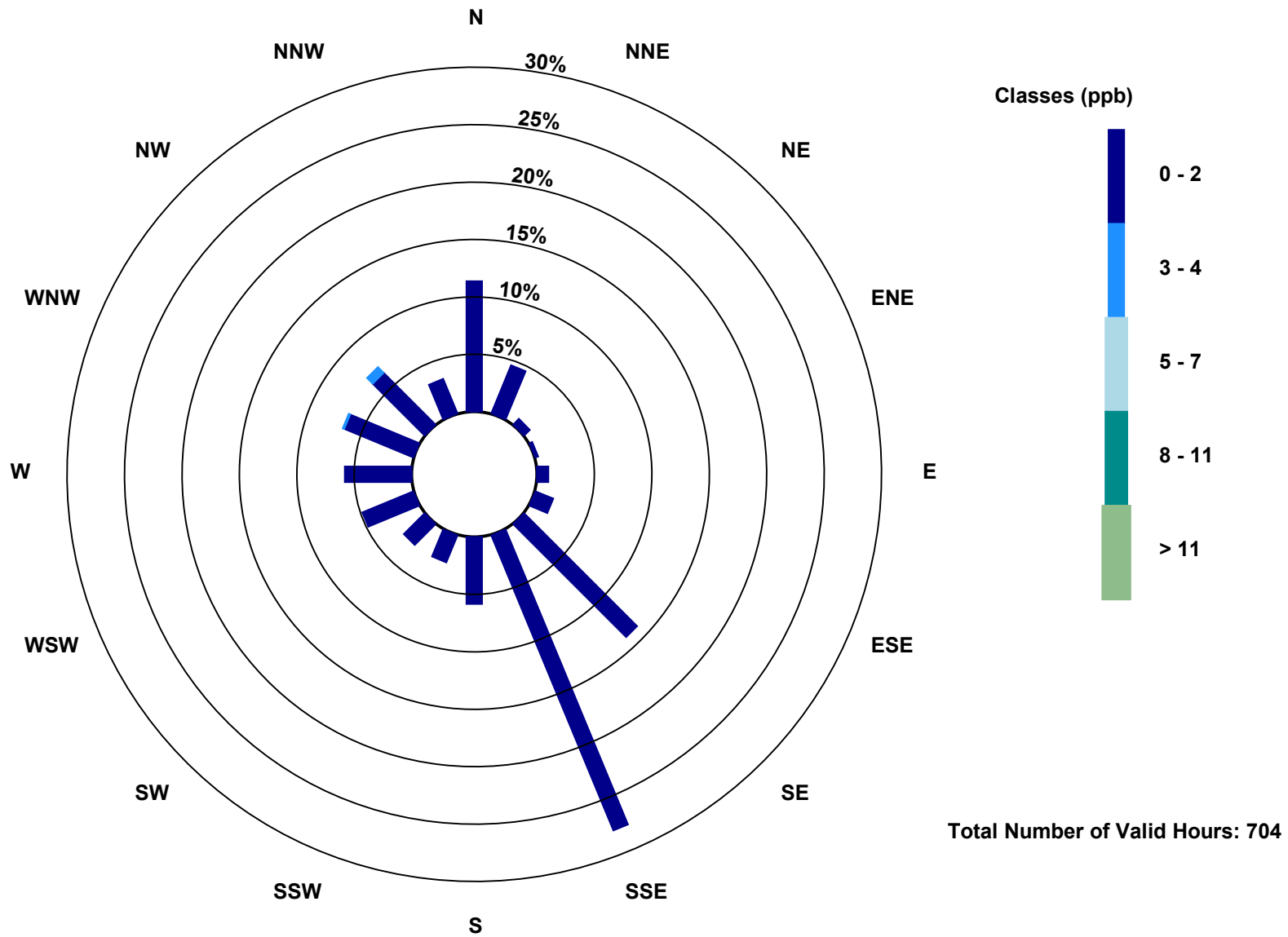
Total Number of Valid Hours: 704

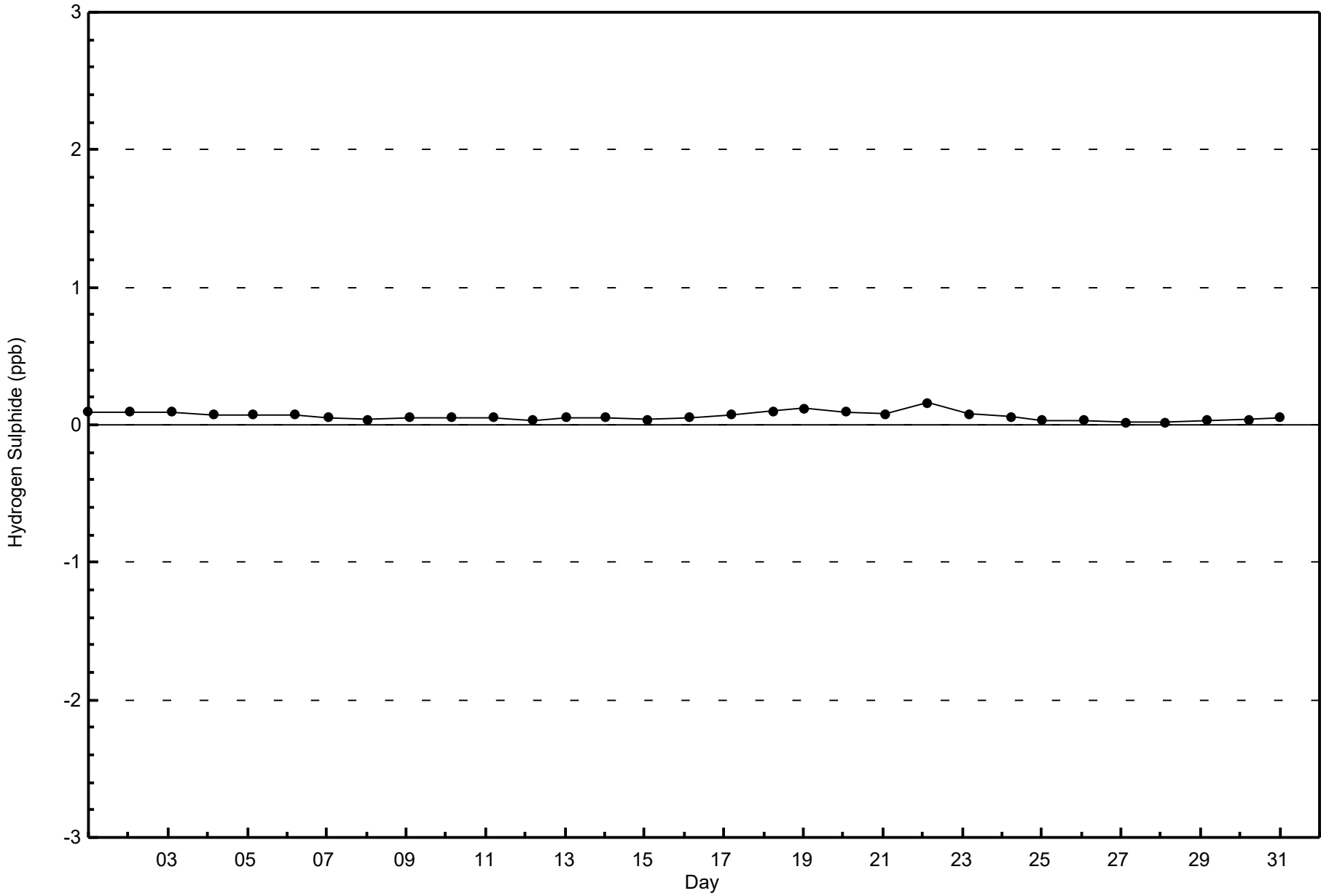
Total Number of Hours: 744

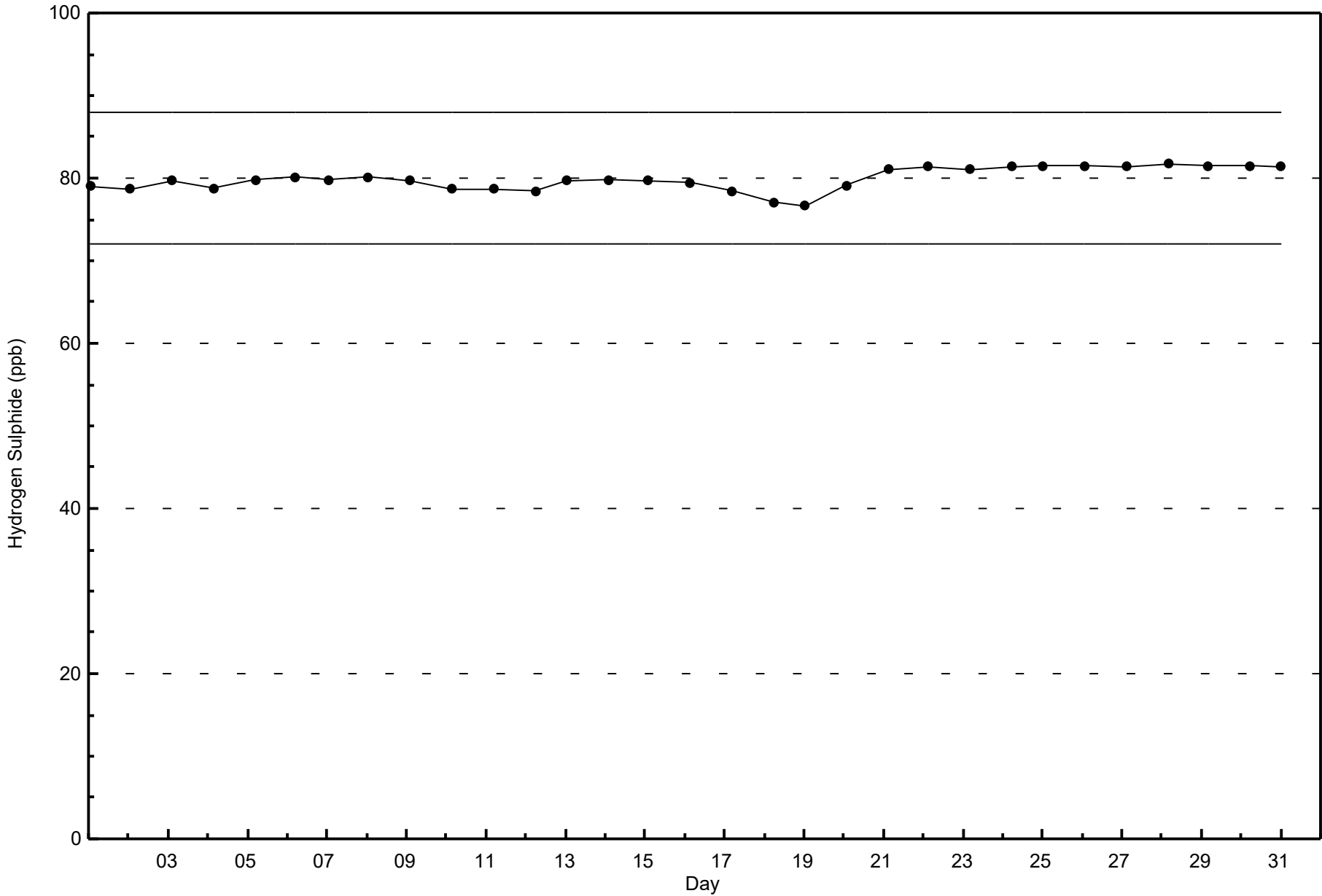


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Buffalo Viewpoint

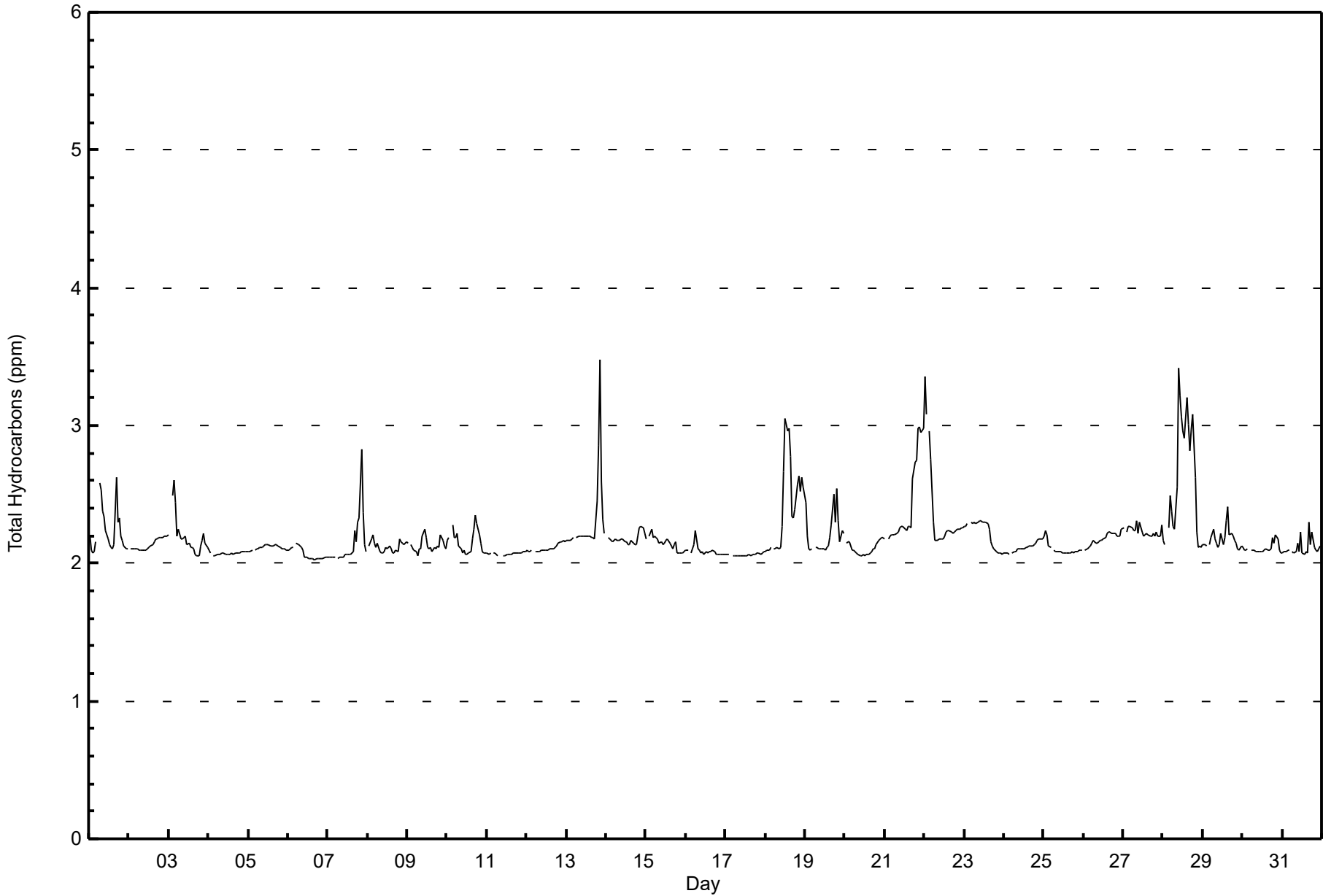








Maximum Value: 3.5 ppm on Dec 13 21:00		Maximum Daily Average: 2.6 ppm on Dec 28		Hours in Service: 744																													
Minimum Value: 2.0 ppm on Dec 6 17:00		Minimum Daily Average: 2.1 ppm on Dec 17		Hours of Data: 710																													
Maximum Diurnal Average: 2.3 ppm at hour 21		Minimum Diurnal Average: 2.1 ppm at hour 3		Hours of Missing Data: 34																													
Monthly Average: 2.18 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.1 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 3.1		Hours of Calibration: 34																													
				Percent Operational Time: 100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24									
1-Dec	2.2	2.1	2.1	2.1	2.2	Z	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.6	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.6
2-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	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-Dec	2.2	Z	2.5	2.6	2.4	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.6		
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
6-Dec	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.8	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	
8-Dec	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2	
9-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	
10-Dec	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
12-Dec	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
13-Dec	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.9	3.5	2.6	2.3	2.2	2.3	2.3	2.2	2.3	3.5	3.5		
14-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.2	2.3		
15-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
16-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
17-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
18-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.7	3.0	3.0	3.0	2.8	2.3	2.3	2.4	2.6	2.6	2.5	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	3.0		
19-Dec	2.4	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	2.2	2.3	2.5	2.3	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	
20-Dec	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
21-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.6	2.7	2.7	3.0	3.0	3.0	3.0	2.4	2.4	2.4	2.4	2.4	2.4	3.0		
22-Dec	3.4	3.1	Z	3.0	2.8	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	2.4	2.4	2.4	2.4	2.4	2.4	3.4		
23-Dec	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
24-Dec	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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2		
25-Dec	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
26-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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-Dec	2.3	Z	2.2	2.3	2.3	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
28-Dec	2.2	2.1	Z	2.3	2.5	2.4	2.3	2.2	2.6	3.4	3.2	3.1	3.0	2.9	3.2	3.0	2.8	3.0	3.1	2.6	2.2	2.1	2.1	2.1	2.6	2.6	2.6	2.6	2.6	2.6	3.4		
29-Dec	2.1	2.1	2.1	Z	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.3	2.4	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.4		
30-Dec	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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2		
31-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	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	2.3	
		2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	Diurnal Average							
		3.4	3.1	2.5	3.0	2.8	2.4	2.6	2.5	2.6	3.4	3.2	3.1	3.0	3.2	3.0	2.8	3.0	3.1	2.9	3.5	3.0	3.0	3.0	Diurnal Maximum								
Z - zerspan		C - Calibration																															





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	24	3.38	3.38
2.1 - 3.0	678	95.49	98.87
3.1 - 10.0	8	1.13	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
Buffalo Viewpoint - December 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	1	1	1	2	2	11	6	0	0	0	24
2.1 - 3.0	79	32	6	1	7	13	102	196	37	18	15	21	33	48	44	23	675
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	4	1	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	80	32	6	1	7	13	103	197	38	20	17	33	39	49	48	24	707

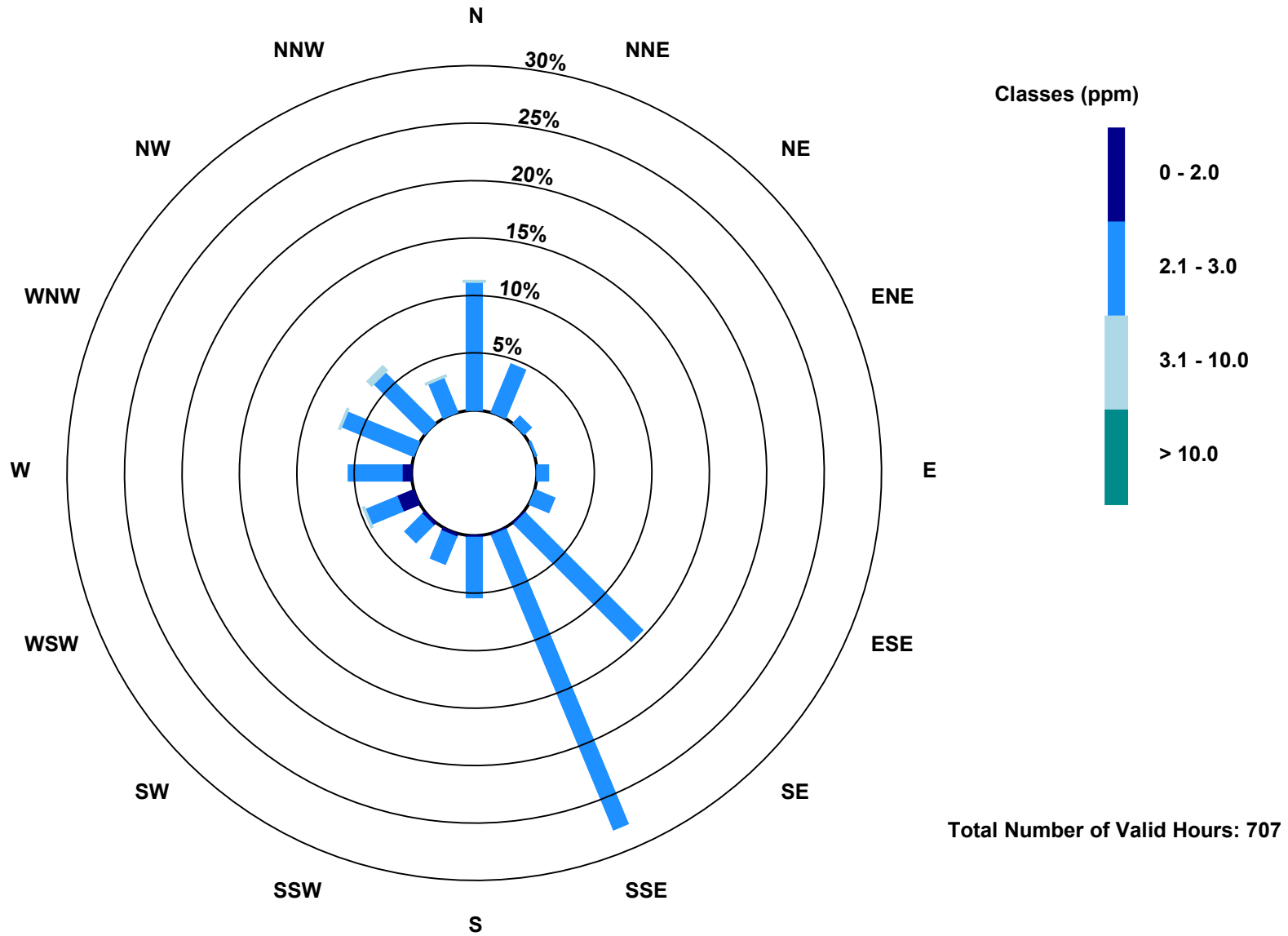
Total Number of Valid Hours: 707

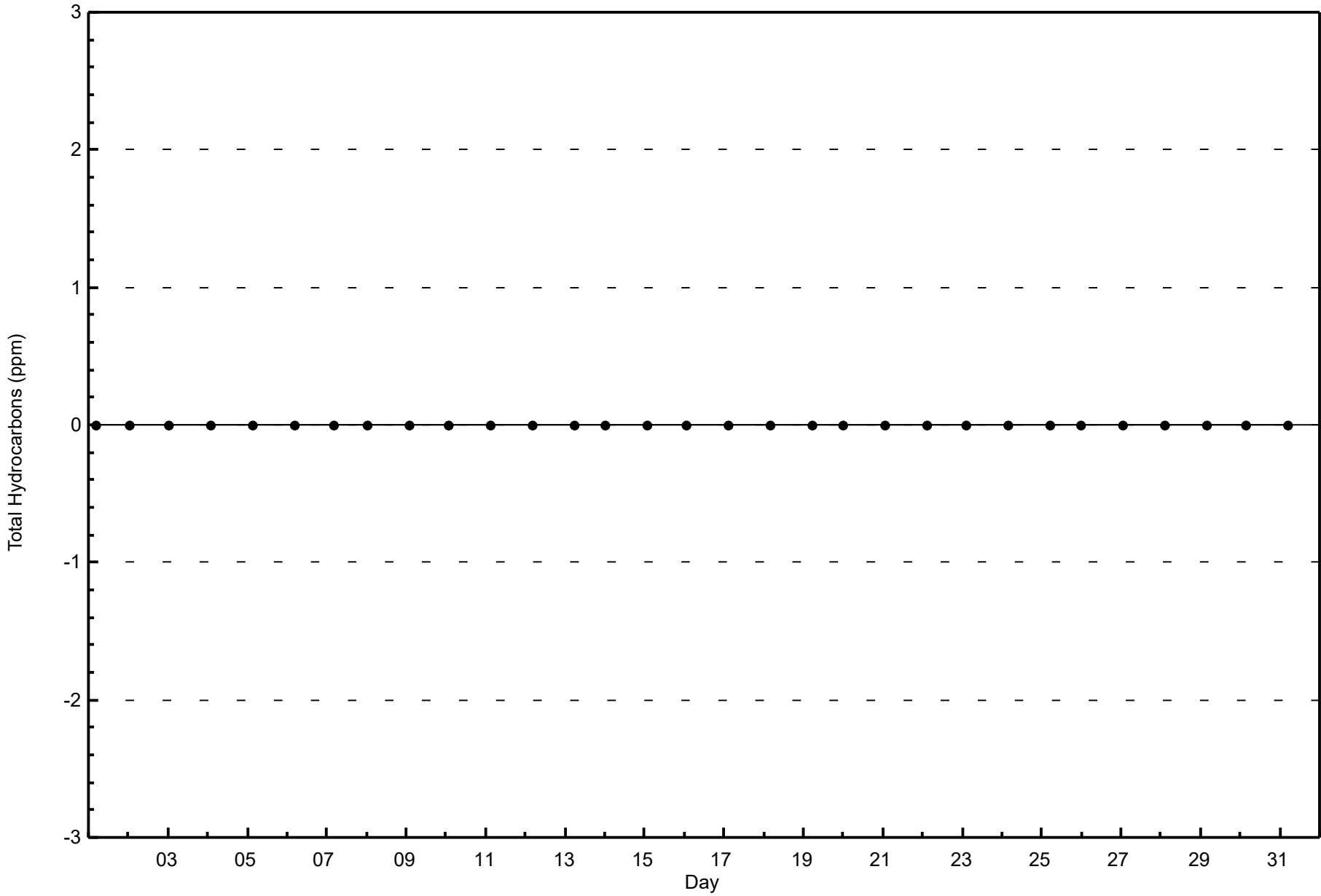
Total Number of Hours: 744

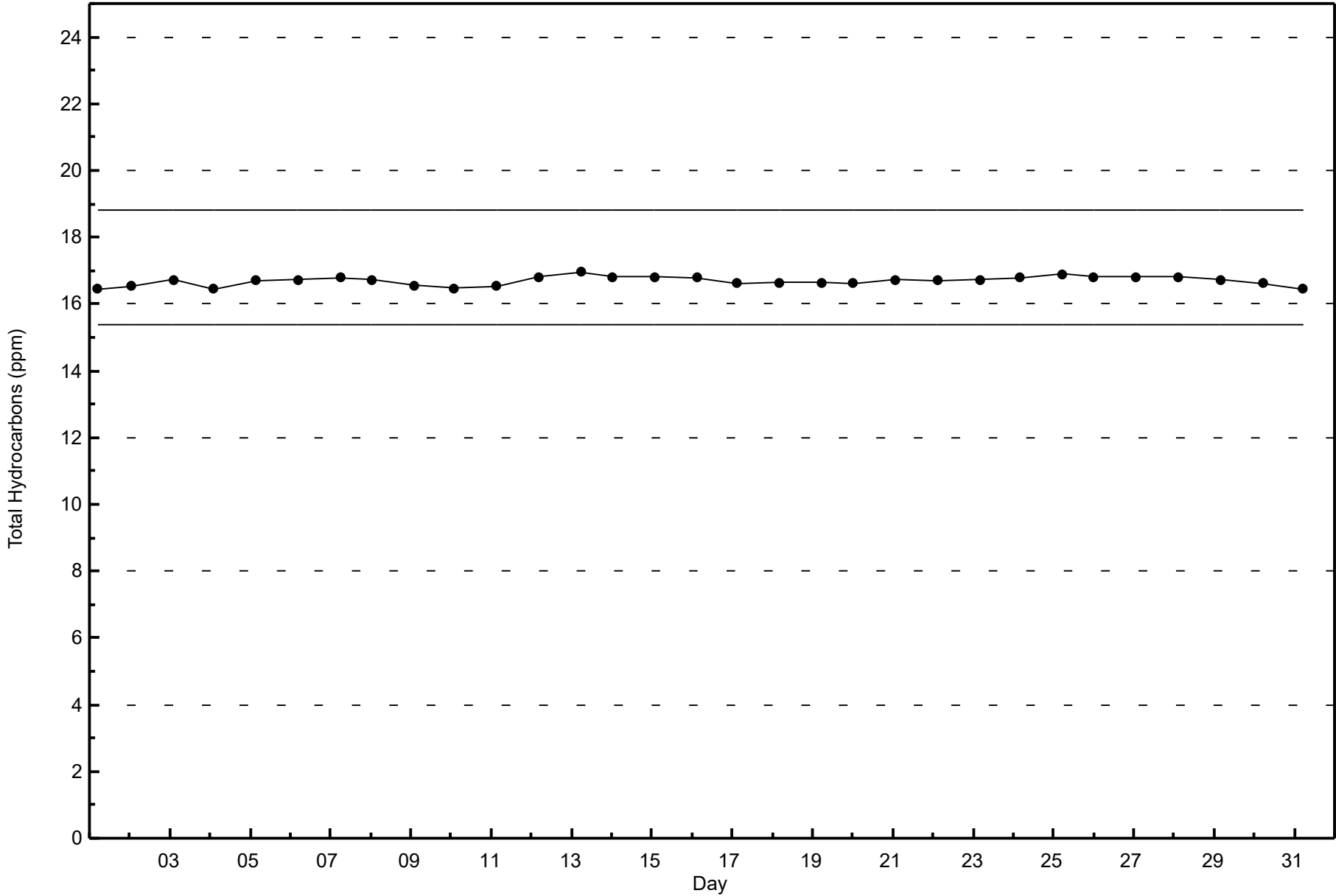


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Buffalo Viewpoint



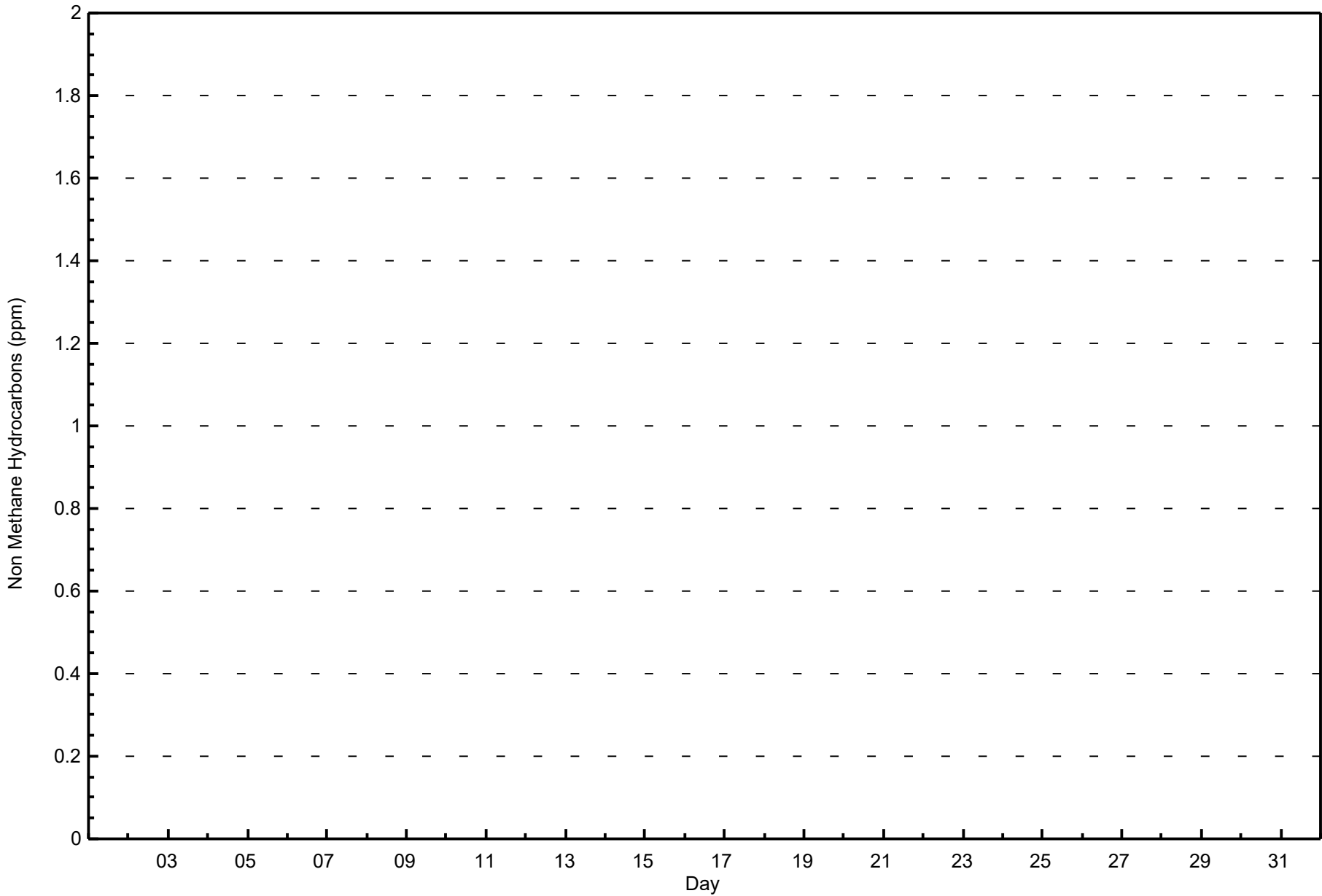






Wood Buffalo Environmental Association
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm
Buffalo Viewpoint - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	710	100.00	100.00
0.006 - 0.05	0	0.00	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 710
Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Buffalo Viewpoint - December 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	80	32	6	1	7	13	103	197	38	20	17	33	39	49	48	24	707
0.006 - 0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.06 - 0.1	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	80	32	6	1	7	13	103	197	38	20	17	33	39	49	48	24	707

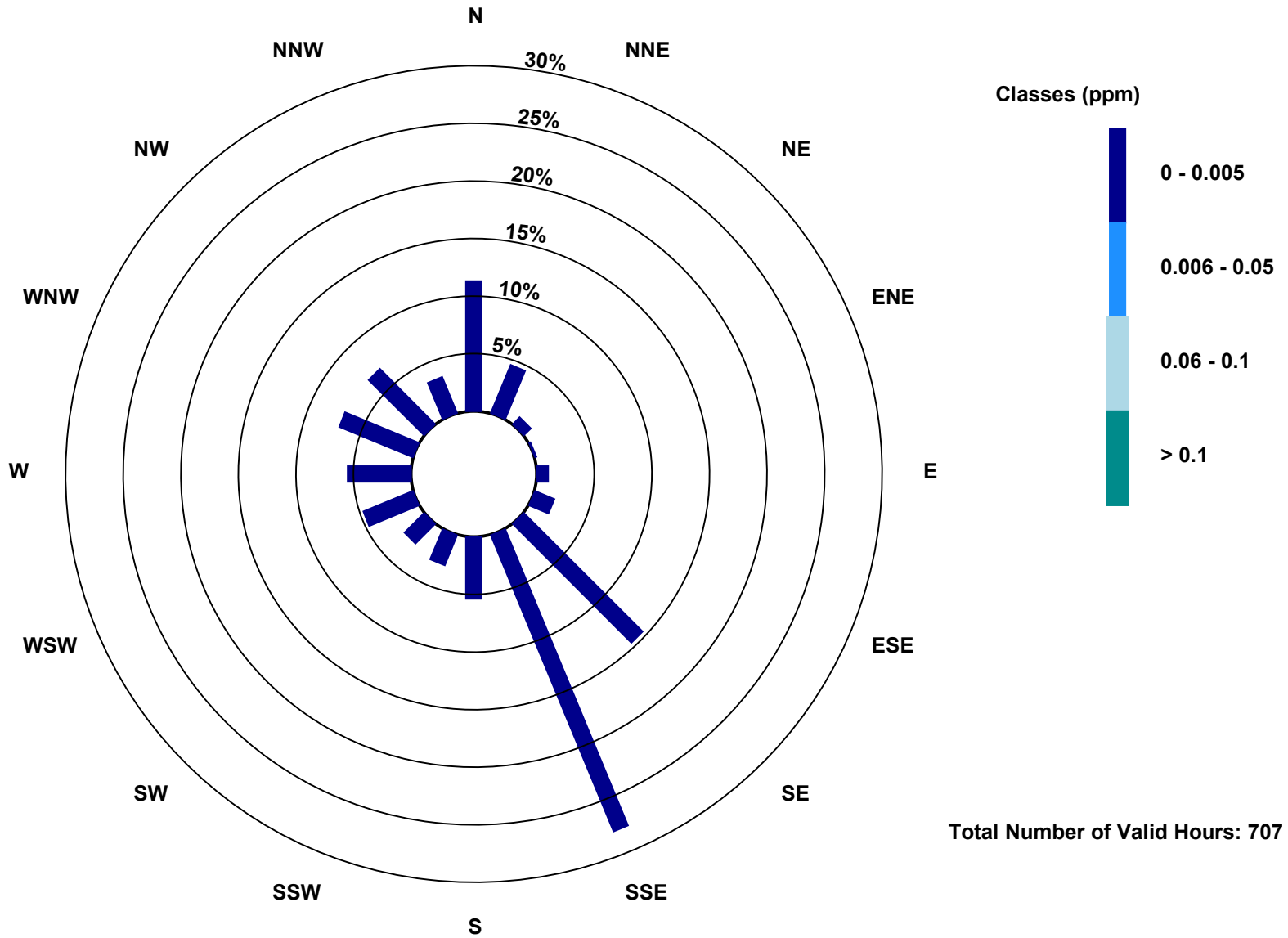
Total Number of Valid Hours: 707

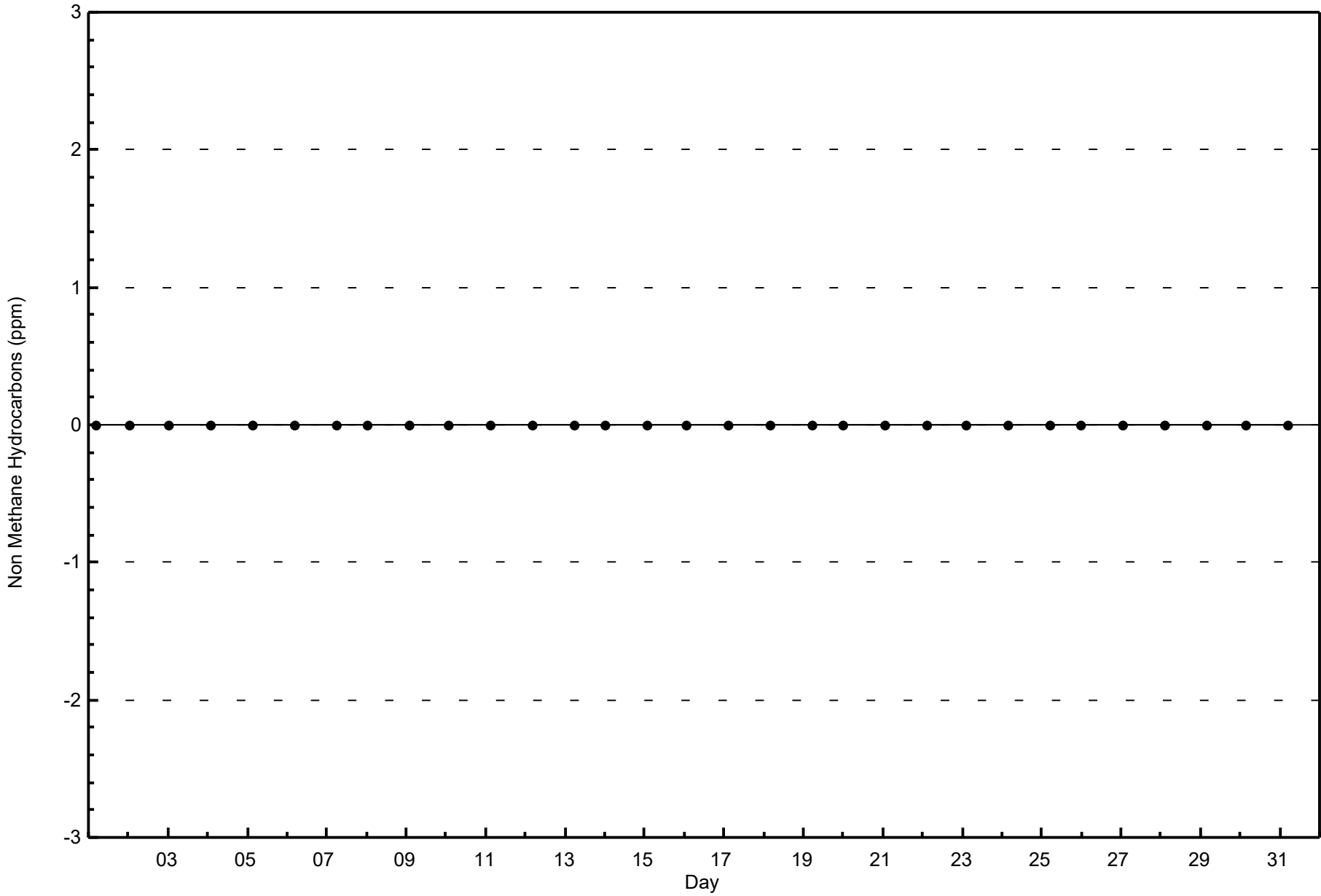
Total Number of Hours: 744

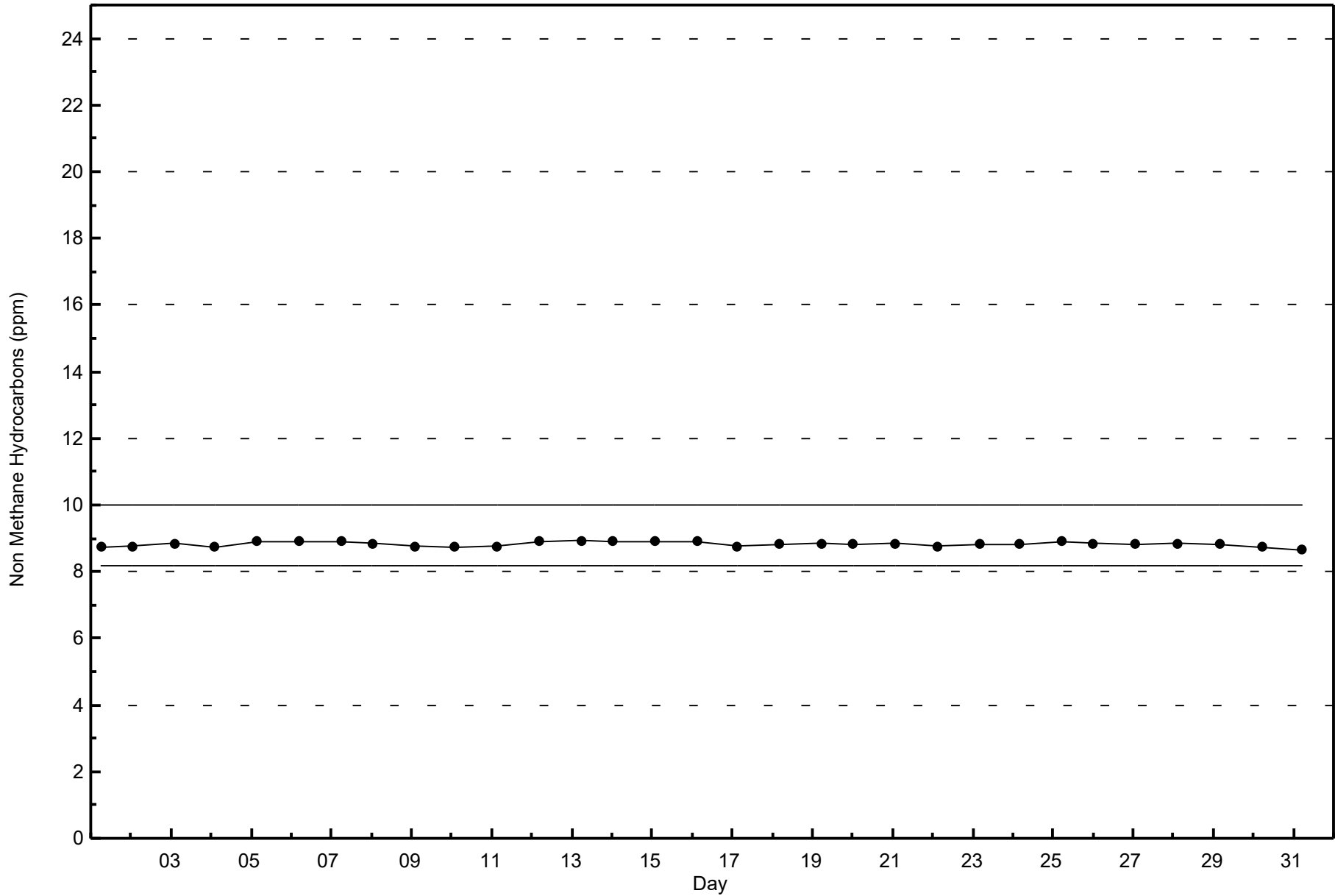


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Buffalo Viewpoint







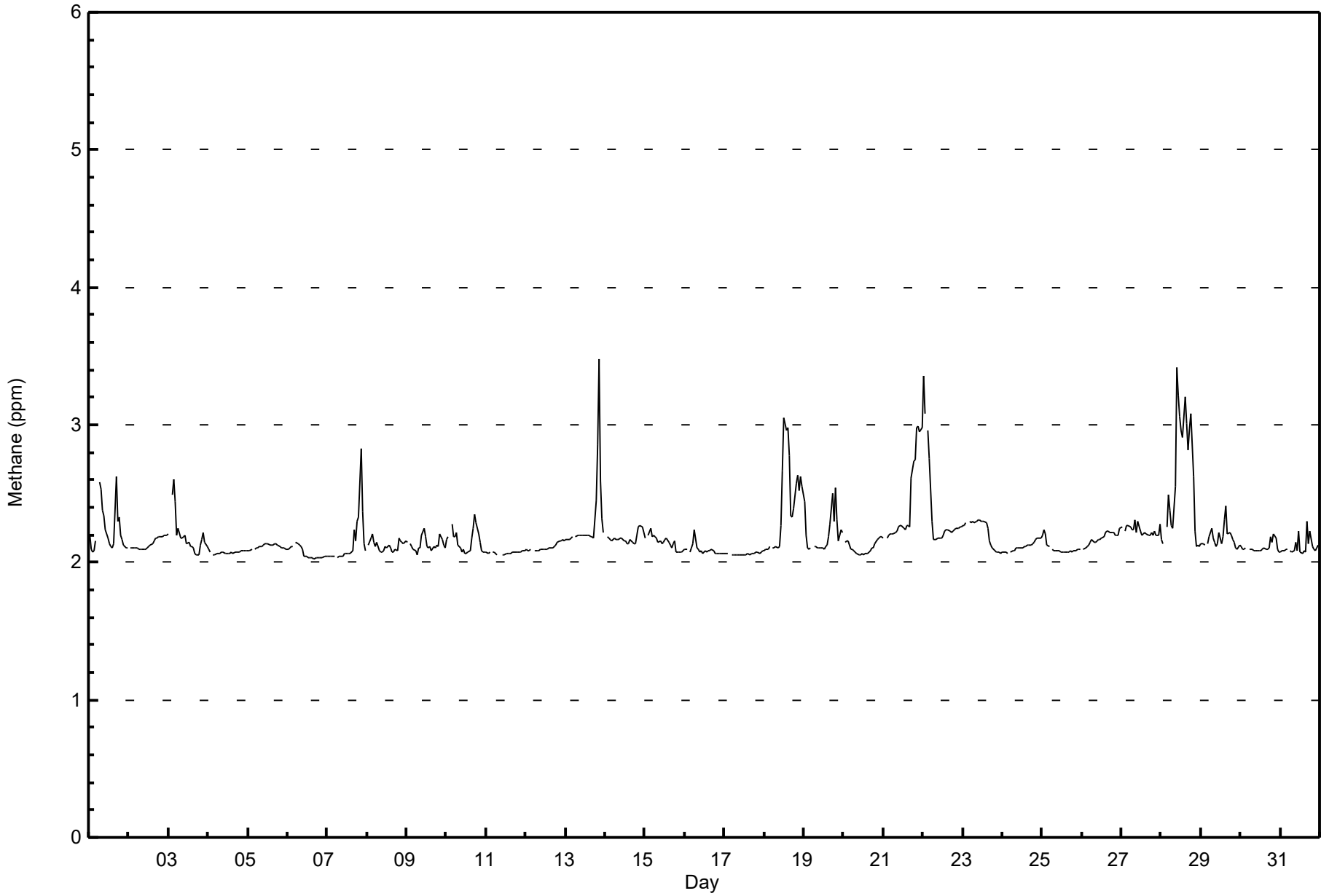


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																																		
Maximum Value: 3.5 ppm on Dec 13 21:00		Maximum Daily Average: 2.6 ppm on Dec 28				Hours of Data:		710																																																		
Minimum Value: 2.0 ppm on Dec 6 17:00		Minimum Daily Average: 2.1 ppm on Dec 17				Hours of Missing Data:		34																																																		
Maximum Diurnal Average: 2.3 ppm at hour 21		Minimum Diurnal Average: 2.1 ppm at hour 3				Hours of Calibration:		34																																																		
Monthly Average: 2.18 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.1 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 3.1				Percent Operational Time:		100.0																																																		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																		
1-Dec	2.2	2.1	2.1	2.1	2.2	Z	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.6	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.6																										
2-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	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-Dec	2.2	Z	2.5	2.6	2.4	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.6																											
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																										
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																										
6-Dec	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																										
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.8	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8																										
8-Dec	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.2	2.2																										
9-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2																										
10-Dec	2.2	2.2	Z	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3																										
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																										
12-Dec	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																										
13-Dec	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.9	3.5	2.6	2.3	2.2	2.3	2.3	2.3	2.2	2.3	3.5	3.5																											
14-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																										
15-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																										
16-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																										
17-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																										
18-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.7	3.0	3.0	3.0	2.8	2.3	2.3	2.4	2.6	2.6	2.5	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	3.0																											
19-Dec	2.4	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	2.2	2.3	2.5	2.3	2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5																										
20-Dec	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																										
21-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.6	2.7	2.7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0																										
22-Dec	3.4	3.1	Z	3.0	2.8	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.4																										
23-Dec	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																										
24-Dec	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																										
25-Dec	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																										
26-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	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-Dec	2.3	Z	2.2	2.3	2.3	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																										
28-Dec	2.2	2.1	Z	2.3	2.5	2.4	2.3	2.2	2.6	3.4	3.2	3.1	3.0	2.9	3.2	3.0	2.8	3.0	3.1	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.4																										
29-Dec	2.1	2.1	2.1	Z	2.1	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	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	2.4																										
30-Dec	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	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2																										
31-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	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	2.3																										
																											2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Diurnal Average	
																											3.4	3.1	2.5	3.0	2.8	2.4	2.6	2.5	2.6	3.4	3.2	3.1	3.0	3.0	3.2	3.0	2.8	3.0	3.1	2.9	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	Diurnal Maximum
Z - zerspan																											C - Calibration																															



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Buffalo Viewpoint - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	24	3.38	3.38
2.1 - 3.0	678	95.49	98.87
3.1 - 10.0	8	1.13	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
Buffalo Viewpoint - December 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	1	1	1	2	2	11	6	0	0	0	24
2.1 - 3.0	79	32	6	1	7	13	102	196	37	18	15	21	33	48	44	23	675
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	4	1	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	80	32	6	1	7	13	103	197	38	20	17	33	39	49	48	24	707

Total Number of Valid Hours: 707

Total Number of Hours: 744

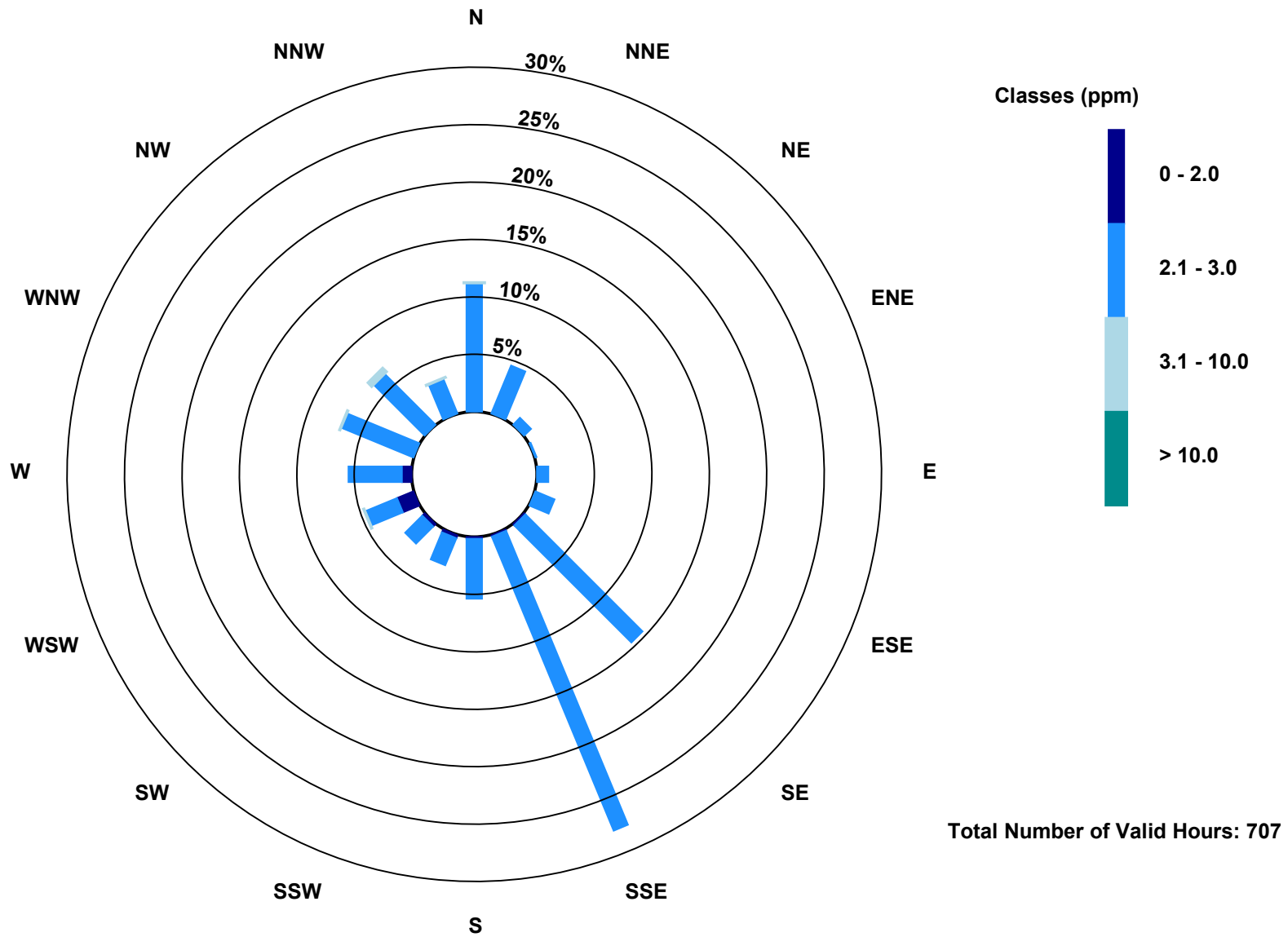


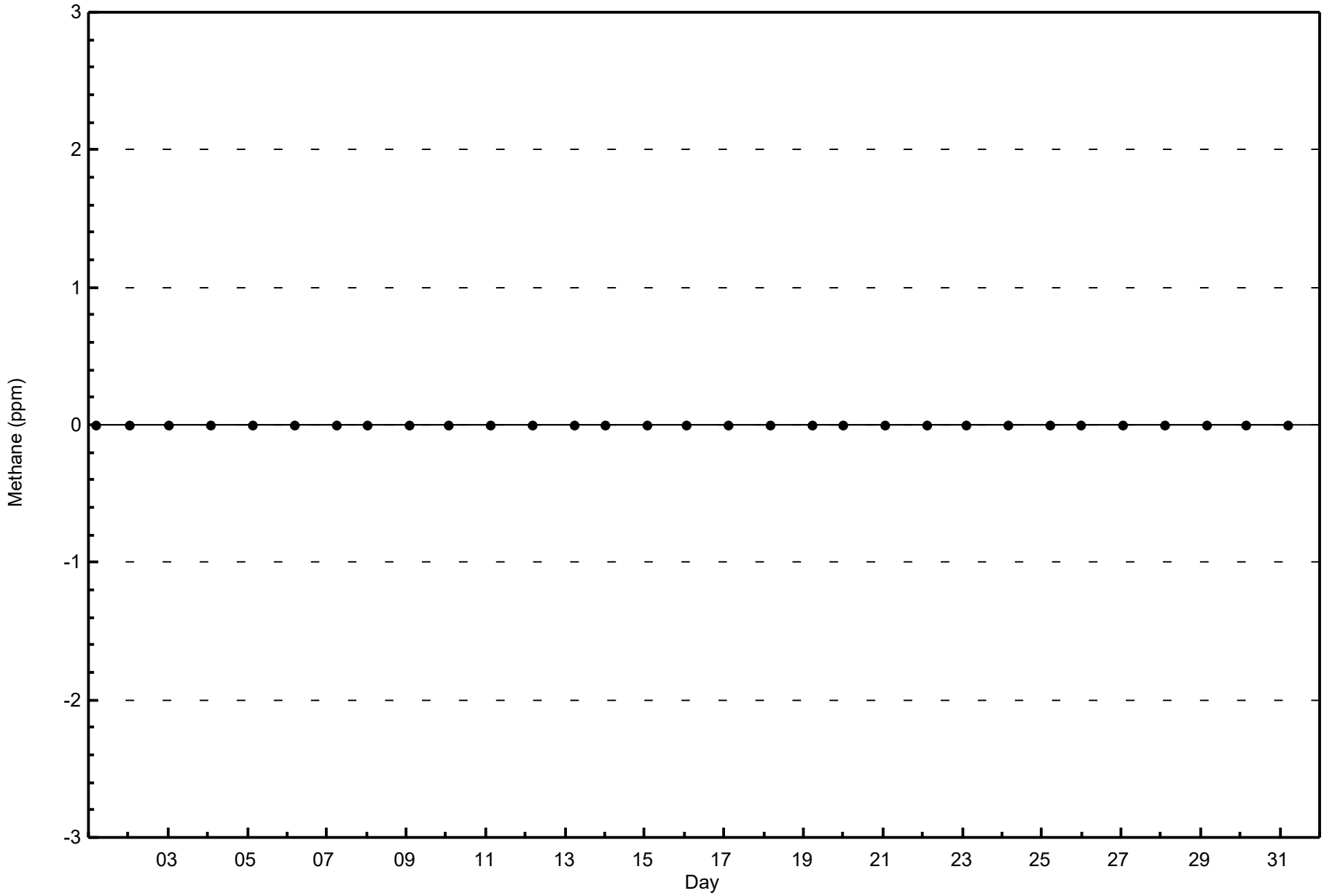
Wood Buffalo Environmental Association

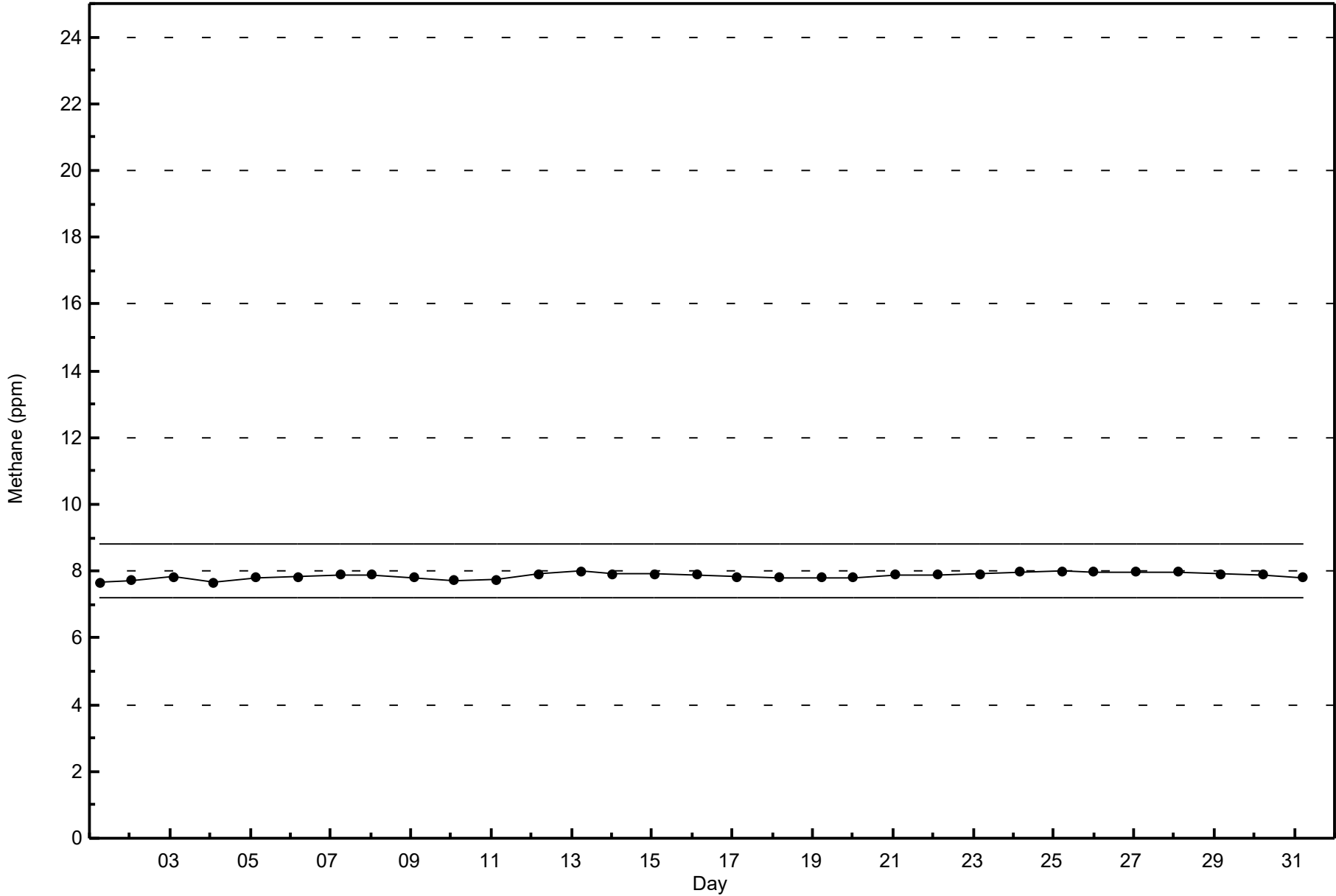
Wind Rose Dec 2024

Methane (CH₄) - ppm

Buffalo Viewpoint

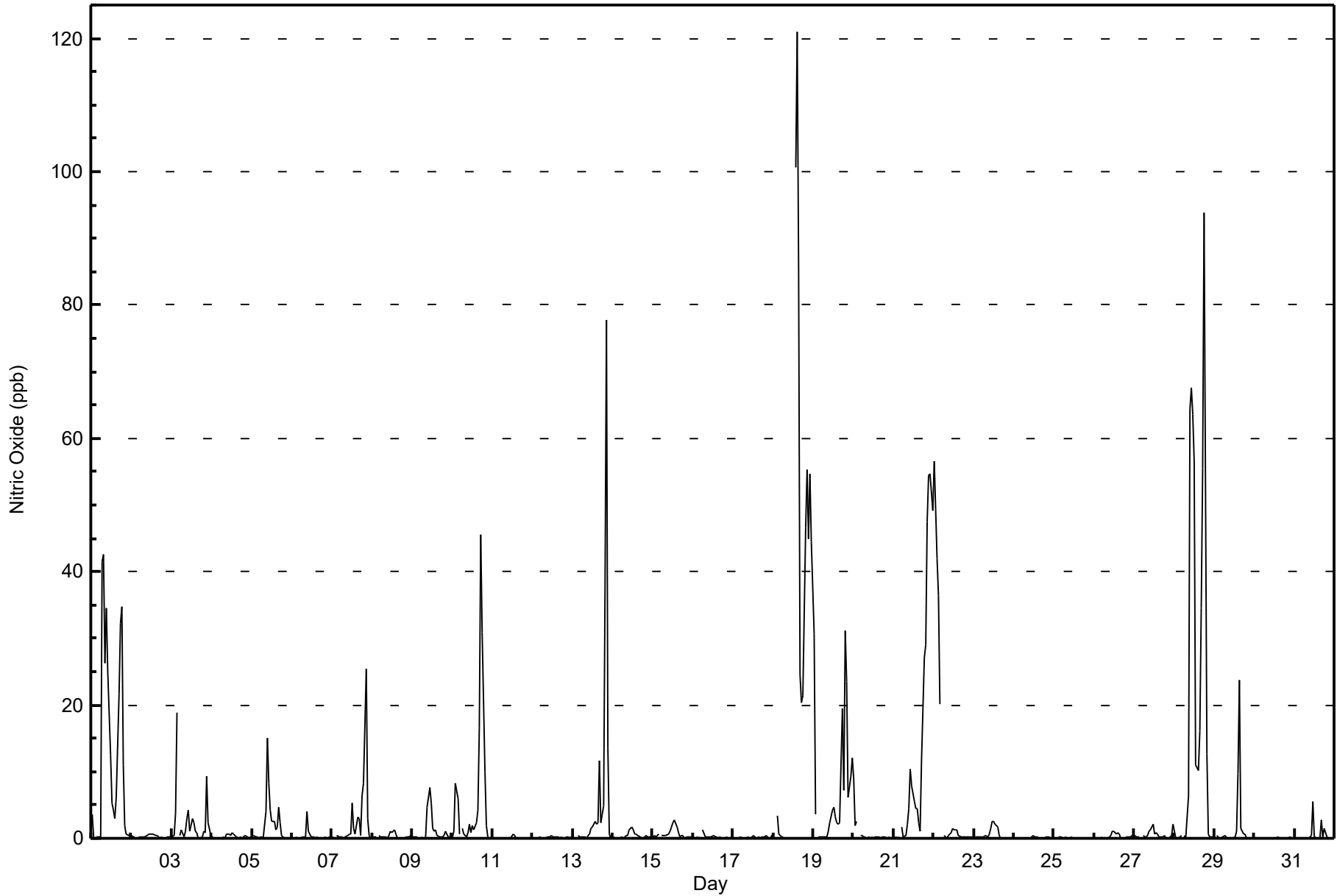








Maximum Value: 121.0 ppb on Dec 18 15:00		Maximum Daily Average: 21.5 ppb on Dec 28		Hours in Service: 744																																												
Minimum Value: 0.0 ppb on Dec 3 18:00		Minimum Daily Average: 0.0 ppb on Dec 30		Hours of Data: 705																																												
Maximum Diurnal Average: 7.7 ppb at hour 21		Minimum Diurnal Average: 0.2 ppb at hour 6		Hours of Missing Data: 39																																												
Monthly Average: 3.95 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 1.0 P ₉₀ = 7.4 P ₉₉ = 63.2		Hours of Calibration: 37																																												
				Percent Operational Time: 99.7																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	3.6	0.2	Z	0.3	0.3	0.3	41.4	42.6	26.3	34.4	25.1	12.5	5.2	4.2	3.0	6.2	21.5	32.2	34.7	11.0	1.8	0.5	0.4	0.3	13.4	42.6																						
2-Dec	0.4	0.2	0.2	Z	0.3	0.2	0.3	0.1	0.3	0.3	0.6	0.6	0.7	0.6	0.5	0.3	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.7																						
3-Dec	0.1	0.4	3.9	18.8	Z	0.5	1.3	0.3	1.1	3.0	4.2	1.1	3.0	2.3	1.1	0.9	0.0	0.0	0.2	1.0	0.7	9.3	2.4	0.4	2.4	18.8																						
4-Dec	0.1	0.1	0.1	0.0	0.0	Z	0.0	0.1	0.0	0.7	0.7	0.5	0.8	0.6	0.5	0.1	0.0	0.1	0.0	0.1	0.3	0.2	0.1	0.1	0.2	0.8																						
5-Dec	Z	0.3	0.3	0.1	0.1	0.1	0.3	0.0	4.1	15.0	8.3	4.3	2.6	2.5	1.3	1.7	4.6	2.4	0.4	0.1	0.0	0.0	0.0	0.0	2.1	15.0																						
6-Dec	0.0	Z	0.2	0.0	0.0	0.1	0.2	0.1	0.2	4.1	1.0	0.2	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.3	4.1																						
7-Dec	0.2	0.1	Z	0.4	0.2	0.2	0.2	0.1	0.2	0.4	0.7	0.6	5.3	1.6	0.7	3.2	2.9	0.5	6.4	8.2	25.3	2.9	0.4	0.1	2.6	25.3																						
8-Dec	0.1	0.2	0.3	Z	0.3	0.3	0.3	0.1	0.1	0.0	0.4	1.0	0.8	1.2	0.7	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.4	0.3	1.2																						
9-Dec	0.2	0.3	0.2	0.3	Z	0.1	0.1	0.0	0.1	4.6	7.6	5.3	1.6	1.0	1.2	0.5	0.2	0.2	0.3	0.4	1.1	0.2	0.2	0.3	1.1	7.6																						
10-Dec	0.2	1.1	8.2	5.9	0.6	Z	1.4	0.6	0.3	0.7	2.0	0.9	1.9	1.3	2.3	4.3	16.6	45.6	30.9	10.1	1.9	0.1	0.0	0.0	6.0	45.6																						
11-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	M	M	0.1	0.0	0.0	0.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6																						
12-Dec	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.3	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.2	0.1	0.4																						
13-Dec	0.2	0.1	Z	0.3	0.3	0.2	0.2	0.2	0.1	0.4	0.7	1.5	1.8	2.5	2.2	2.4	11.6	2.4	4.9	38.1	77.8	13.6	0.7	0.1	7.1	77.8																						
14-Dec	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.2	0.4	0.5	1.3	1.7	1.4	0.7	0.7	0.5	0.3	0.1	0.0	0.2	0.4	0.2	0.2	0.2	0.4	1.7																						
15-Dec	0.3	0.3	0.2	0.5	Z	0.4	0.4	0.4	0.4	0.6	1.1	1.7	2.4	2.8	1.8	0.8	0.2	0.5	0.5	0.1	0.2	0.1	0.2	0.1	0.7	2.8																						
16-Dec	0.2	0.0	0.1	0.1	0.1	Z	1.3	0.3	0.2	0.2	0.2	0.1	0.3	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	1.3																						
17-Dec	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.4	0.3	0.1	0.1	0.0	0.2	0.2	0.2	0.5	0.0	0.0	0.4	0.1	0.5																						
18-Dec	0.6	Z	3.4	0.7	0.5	0.2	0.3	C	C	C	C	C	C	C	100.7	121.0	85.9	24.5	20.3	21.4	46.6	55.2	44.9	54.6	44.4	--	121.0																					
19-Dec	30.7	3.6	Z	0.3	0.2	0.3	0.3	0.2	0.3	1.0	2.4	4.2	4.7	3.2	2.3	2.2	2.3	19.5	7.2	31.2	23.6	6.1	9.4	12.0	7.3	31.2																						
20-Dec	9.0	2.0	2.5	Z	0.4	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.7	9.0																						
21-Dec	0.0	0.1	0.1	0.2	Z	1.7	0.3	0.4	2.1	4.4	10.4	7.9	5.5	4.5	4.4	2.3	1.1	11.5	27.2	29.0	47.6	54.5	54.8	49.1	13.9	54.8																						
22-Dec	56.5	49.4	42.0	36.5	20.2	Z	0.4	0.3	0.0	0.4	0.9	1.6	1.2	1.3	1.3	0.5	0.2	0.1	0.2	0.2	0.3	0.1	0.1	0.2	9.3	56.5																						
23-Dec	Z	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.6	1.5	2.4	2.5	2.2	1.7	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.6	2.5																						
24-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3	0.1	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4																						
25-Dec	0.1	0.0	Z	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
26-Dec	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.4	1.1	1.1	0.7	0.9	0.5	0.0	0.0	0.1	0.1	0.1	0.3	0.2	0.5	0.3	1.1																						
27-Dec	0.5	0.2	0.1	0.2	Z	0.4	0.3	0.3	0.4	1.0	1.2	2.1	0.7	0.8	0.6	0.2	0.2	0.1	0.5	0.1	0.1	0.0	0.4	2.2	0.5	2.2																						
28-Dec	1.0	0.0	0.0	0.1	0.4	Z	0.3	0.1	6.4	64.5	67.6	63.5	56.7	11.0	10.1	16.2	34.5	55.6	93.8	12.7	0.6	0.2	0.1	0.2	21.5	93.8																						
29-Dec	Z	0.5	0.3	0.1	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.1	0.3	1.0	9.7	23.8	1.4	0.6	0.7	0.0	0.0	0.0	0.0	0.0	1.7	23.8																						
30-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.3																						
31-Dec	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.5	5.4	0.1	0.0	0.0	0.0	2.8	0.3	1.5	0.2	0.0	0.0	0.0	0.1	0.5	5.4																						
																								4.0	2.3	2.5	2.5	1.0	0.2	1.6	1.6	1.5	4.6	4.7	4.0	3.4	4.8	5.4	5.0	4.1	6.2	7.5	6.1	7.7	4.3	4.0	3.6	Diurnal Average
																								56.5	49.4	42.0	36.5	20.2	1.7	41.4	42.6	26.3	64.5	67.6	63.5	56.7	100.7	121.0	85.9	34.5	55.6	93.8	46.6	77.8	54.5	54.8	49.1	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance																				





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	661	93.76	93.76
21 - 40	19	2.70	96.45
41 - 80	21	2.98	99.43
81 - 159	4	0.57	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
Buffalo Viewpoint - December 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	27	5	2	8	13	96	193	35	16	16	32	35	47	41	21	660
21 - 40	2	1	1	0	0	0	5	2	2	2	0	0	1	1	1	1	19
11 - 80	3	0	0	0	0	0	1	3	0	1	1	2	1	1	5	2	20
81 - 159	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	1	4
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	78	30	6	2	8	13	102	198	37	19	17	34	37	49	48	25	703

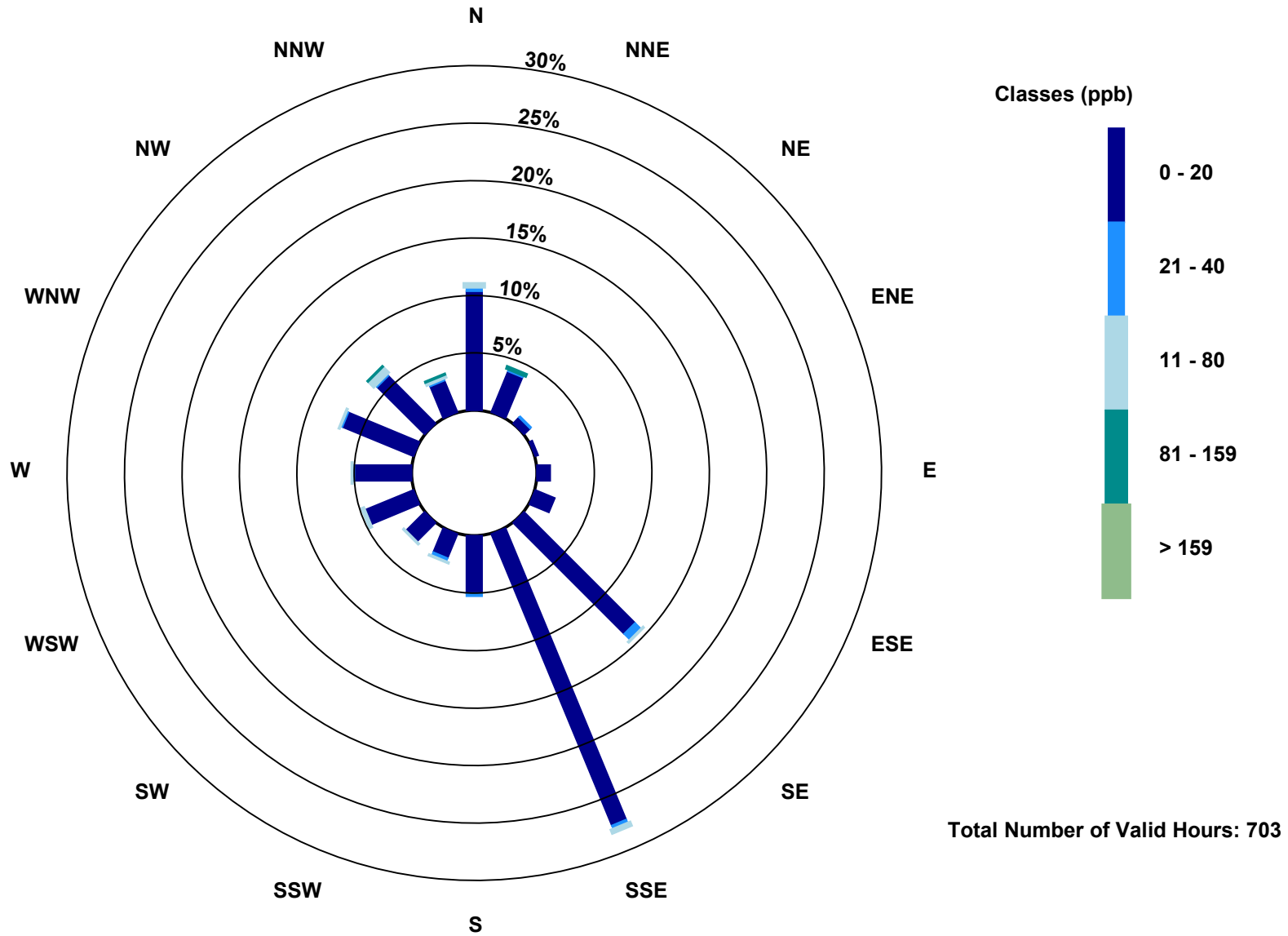
Total Number of Valid Hours: 703

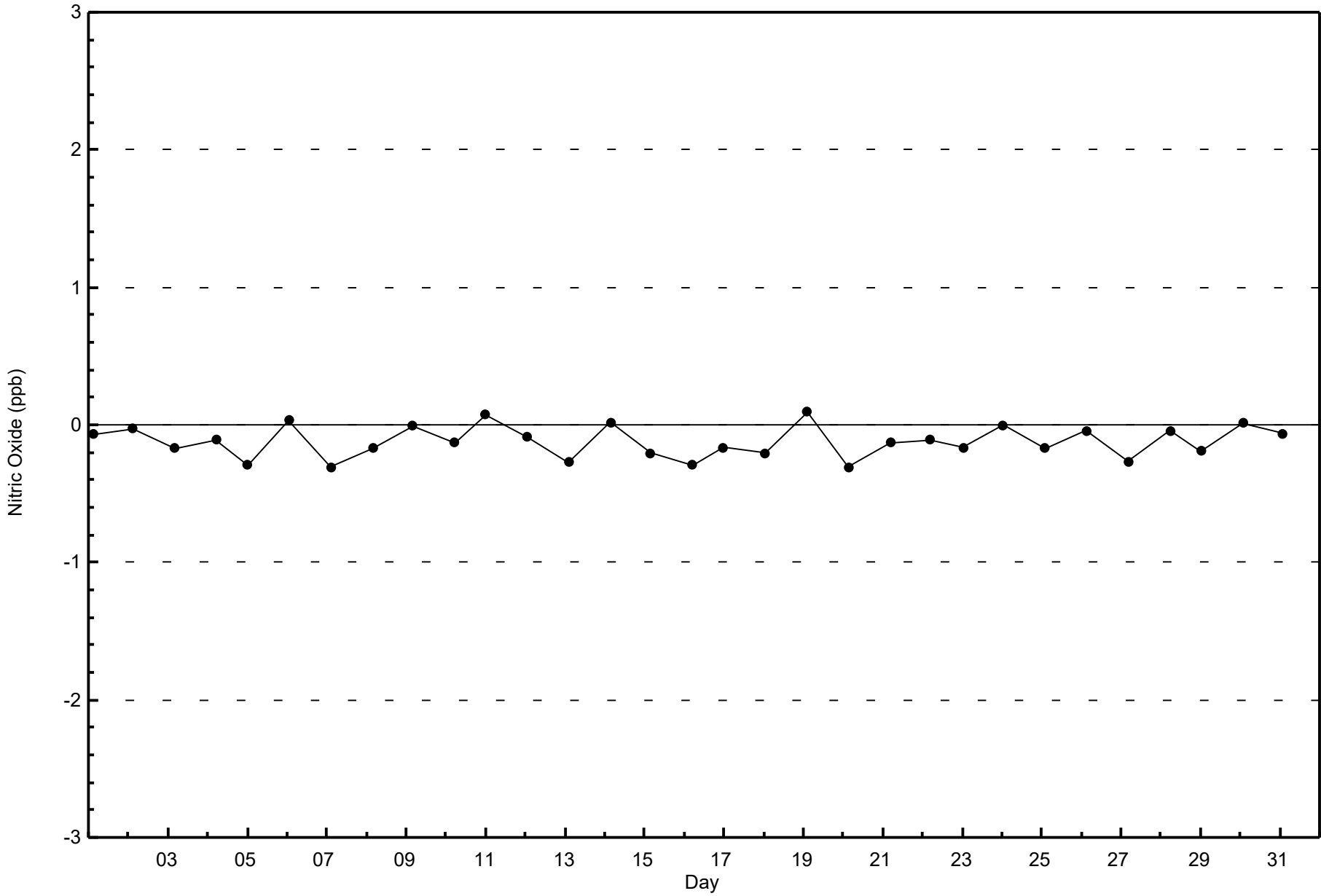
Total Number of Hours: 744

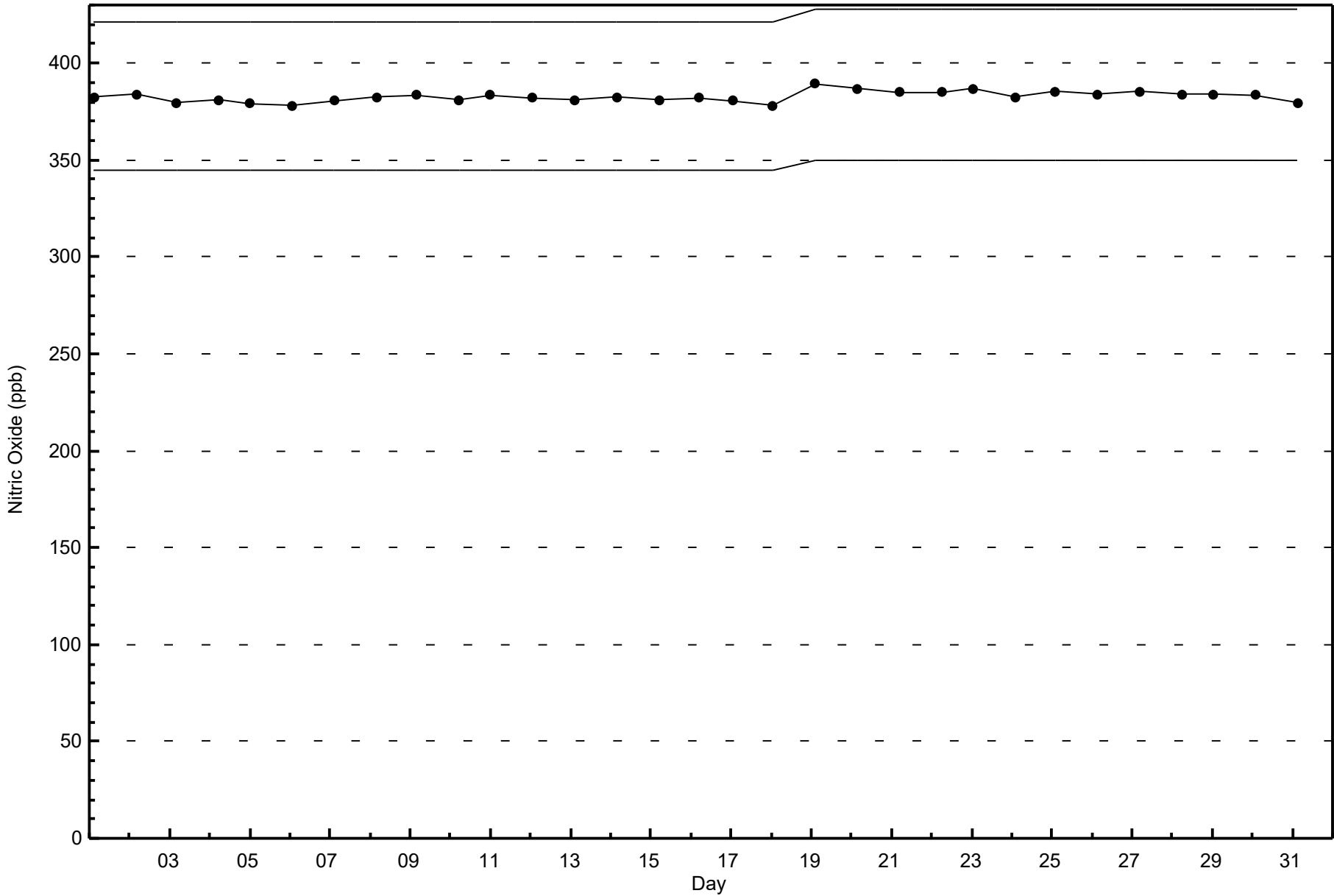


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Buffalo Viewpoint





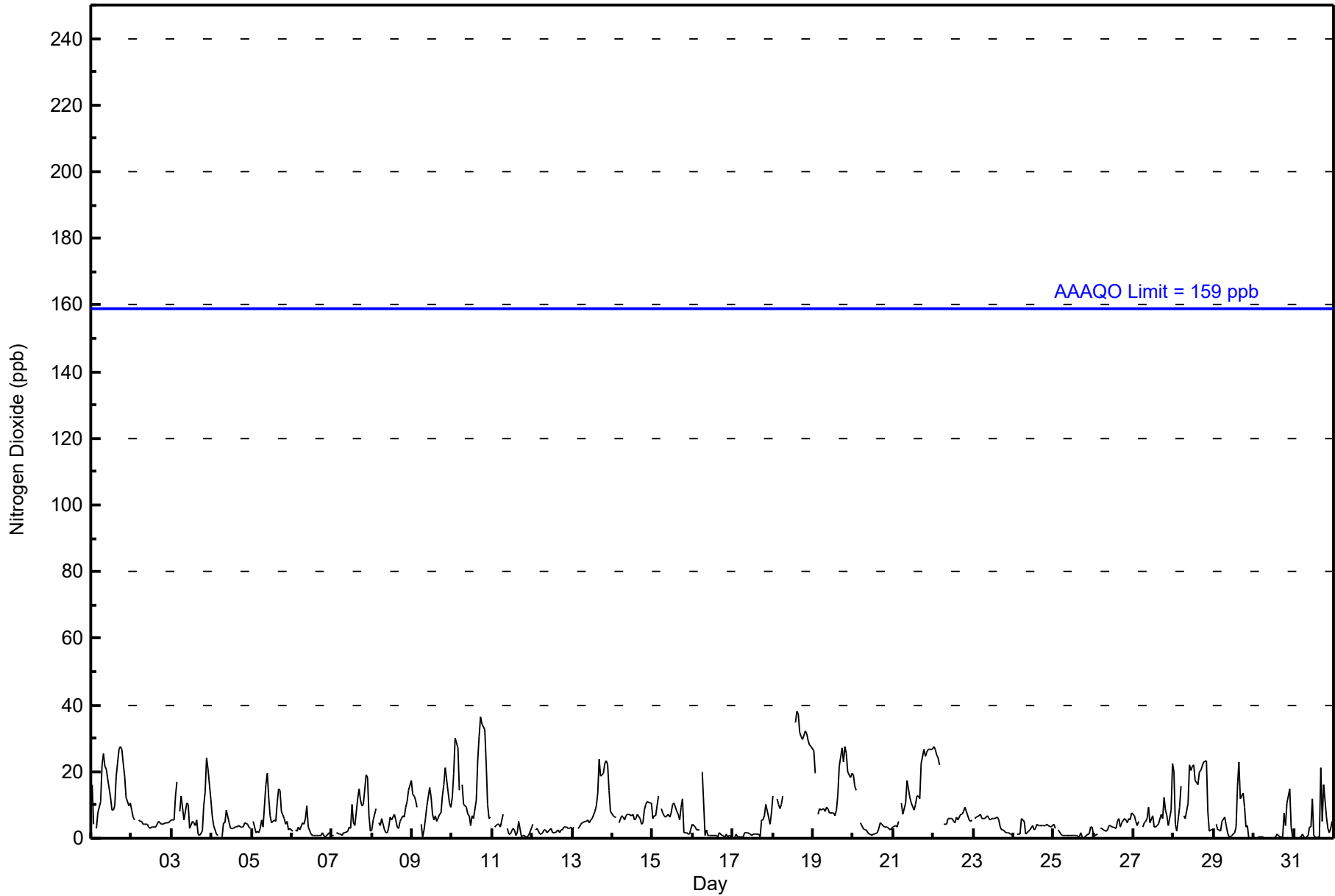




Wood Buffalo Environmental Association
Summary of Hour Averages

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

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 38.0 ppb on Dec 18 15:00		Maximum Daily Average: 16.7 ppb on Dec 10																			Hours of Data:	705																										
Minimum Value: 0.0 ppb on Dec 30 07:00		Minimum Daily Average: 1.4 ppb on Dec 25																			Hours of Missing Data:	39																										
Maximum Diurnal Average: 10.6 ppb at hour 19		Minimum Diurnal Average: 4.7 ppb at hour 6																			Hours of Calibration:	37																										
Monthly Average: 7.20 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.8 Q ₁ = 2.4 Median = 4.7 Q ₃ = 9.2 P ₉₀ = 19.5 P ₉₉ = 31.8																			Percent Operational Time:	99.7																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	16.2	4.4	Z	3.0	7.6	11.0	22.1	25.4	21.7	20.7	17.7	12.3	8.4	8.3	9.8	18.8	26.5	27.4	26.8	22.5	18.7	12.2	9.7	10.6	15.7	27.4																						
2-Dec	8.5	6.3	5.6	Z	5.3	4.9	5.2	4.4	4.2	4.1	3.5	3.1	3.2	3.3	3.5	4.1	5.0	4.6	4.3	4.4	4.6	4.6	4.8	5.1	4.6	8.5																						
3-Dec	5.5	5.7	12.5	17.1	Z	8.1	12.7	5.7	8.1	10.8	10.2	2.8	5.2	4.7	3.9	5.6	1.3	0.7	2.1	9.7	14.1	24.2	20.6	12.0	8.8	24.2																						
4-Dec	6.6	4.0	2.5	1.3	0.9	Z	0.6	4.8	4.5	8.4	4.5	3.1	3.1	3.1	3.2	3.6	3.7	3.5	3.2	3.4	4.5	4.3	3.5	3.1	3.6	8.4																						
5-Dec	Z	5.2	1.5	2.1	1.8	3.0	5.6	3.3	16.2	19.7	12.4	6.6	4.7	5.6	4.9	10.4	14.7	14.2	8.0	5.9	4.4	4.9	2.4	3.0	7.0	19.7																						
6-Dec	2.3	Z	2.5	2.3	3.4	2.4	4.6	4.1	5.9	9.9	3.3	1.3	1.0	0.8	0.8	0.9	1.0	0.8	1.8	0.8	0.5	1.0	1.5	0.9	2.3	9.9																						
7-Dec	0.9	0.9	Z	1.5	1.3	1.2	1.0	1.8	1.6	2.2	3.2	2.8	10.0	4.6	3.9	11.8	14.9	11.4	9.7	10.2	19.1	18.4	6.8	2.0	6.1	19.1																						
8-Dec	2.6	5.7	8.9	Z	4.8	3.9	5.8	2.7	1.6	1.6	3.4	6.2	5.3	7.2	5.7	3.4	3.0	4.9	6.7	6.2	9.4	10.9	14.4	17.2	6.2	17.2																						
9-Dec	13.3	12.9	11.3	9.4	Z	4.4	0.4	2.5	5.8	9.6	15.1	12.4	7.3	5.5	6.9	5.2	7.2	7.5	12.6	16.3	21.2	13.9	10.6	9.2	9.6	21.2																						
10-Dec	12.3	19.7	30.0	27.0	14.5	Z	15.9	10.1	9.5	7.3	6.7	3.7	6.9	6.0	11.6	23.1	30.3	36.5	34.5	32.7	22.4	10.0	5.9	6.4	16.7	36.5																						
11-Dec	Z	3.6	3.7	4.2	4.2	3.6	7.1	M	M	3.0	1.2	1.2	2.8	2.4	0.8	1.5	4.9	0.5	0.8	1.0	0.6	0.5	0.9	2.9	2.4	7.1																						
12-Dec	4.1	Z	2.5	2.9	1.3	1.2	1.6	2.4	2.5	1.7	2.7	3.0	1.9	1.6	1.8	2.5	1.8	2.4	2.7	3.3	3.3	3.1	2.8	3.2	2.4	4.1																						
13-Dec	2.6	3.2	Z	3.1	3.3	4.1	4.8	4.9	5.1	5.5	4.7	5.4	5.8	8.1	9.8	13.5	23.6	18.6	19.5	22.4	23.5	22.0	14.5	8.0	10.3	23.6																						
14-Dec	6.6	6.2	6.3	Z	4.8	6.7	6.4	5.5	6.7	7.0	7.0	6.8	7.4	5.7	5.9	7.2	6.0	4.3	4.7	8.4	10.3	11.1	10.8	10.5	7.1	11.1																						
15-Dec	5.9	6.7	6.8	12.5	Z	8.7	7.6	6.9	6.2	7.3	6.3	7.6	10.1	10.7	8.0	7.1	5.3	9.3	12.0	1.9	1.6	1.4	1.1	2.8	6.7	12.5																						
16-Dec	4.1	3.2	2.7	2.5	2.6	Z	19.9	1.0	2.6	0.8	0.7	0.7	0.8	0.7	0.5	1.6	0.7	0.8	0.2	1.2	0.6	0.9	0.6	2.2	19.9																							
17-Dec	Z	0.3	1.3	0.6	0.6	0.6	0.5	1.6	1.7	1.6	1.1	0.7	1.1	1.1	1.3	1.2	0.5	5.7	5.4	6.6	10.1	6.5	4.1	7.6	2.7	10.1																						
18-Dec	12.9	Z	12.0	10.1	9.1	10.2	12.9	C	C	C	C	C	C	34.8	38.0	37.5	31.8	30.5	29.7	32.3	31.2	29.1	27.8	27.4	--	38.0																						
19-Dec	26.4	19.5	Z	7.1	9.0	8.6	9.0	8.1	9.4	9.0	7.8	7.8	7.6	6.9	8.4	13.1	21.4	27.2	22.9	27.6	25.3	20.0	18.4	19.5	14.8	27.6																						
20-Dec	19.1	15.5	14.3	Z	4.6	3.7	3.1	2.7	2.5	1.4	1.2	1.0	1.1	1.4	1.7	2.9	4.6	4.3	3.8	3.4	3.3	2.9	2.6	2.9	4.5	19.1																						
21-Dec	3.2	4.0	3.5	5.1	Z	10.8	7.4	10.4	17.2	14.7	12.1	10.7	8.5	10.0	12.6	12.9	12.0	22.4	26.6	24.5	25.7	26.9	26.8	26.9	14.6	26.9																						
22-Dec	27.6	26.7	25.2	24.3	22.2	Z	4.3	4.3	4.2	5.8	5.8	5.9	5.1	4.7	6.3	5.6	7.2	7.3	7.9	9.2	7.9	5.5	5.2	5.3	10.2	27.6																						
23-Dec	Z	6.0	6.5	6.9	7.0	5.9	6.1	5.9	6.6	6.1	5.5	5.9	5.8	5.9	6.4	5.6	3.6	2.4	2.5	1.7	1.9	1.9	1.1	1.1	4.7	7.0																						
24-Dec	1.0	Z	1.2	1.1	1.3	5.8	5.1	1.1	1.5	2.1	2.5	3.8	2.5	3.0	4.2	3.9	4.0	3.9	4.0	3.8	4.1	3.8	3.4	3.9	3.1	5.8																						
25-Dec	4.4	3.1	Z	2.4	1.1	0.9	1.0	1.0	0.7	0.8	0.9	0.8	0.8	0.8	0.7	0.4	1.5	0.5	0.2	0.4	1.1	1.3	3.5	3.2	1.4	4.4																						
26-Dec	1.2	0.8	1.3	Z	3.0	3.1	2.6	2.3	2.4	3.8	3.7	3.5	3.4	2.9	5.0	6.0	3.3	4.6	5.9	5.5	4.6	6.1	5.6	7.7	3.8	7.7																						
27-Dec	6.8	4.9	3.8	5.1	Z	3.5	4.6	5.2	6.1	9.2	4.8	6.8	3.2	3.5	3.8	4.4	7.2	5.9	12.4	8.6	6.8	3.7	8.3	22.6	6.6	22.6																						
28-Dec	20.0	4.1	2.0	9.5	15.5	Z	6.9	6.1	10.7	21.9	20.4	21.6	22.1	17.2	16.3	19.8	20.4	21.5	22.9	23.2	7.9	2.0	2.7	2.7	13.8	23.2																						
29-Dec	Z	4.2	2.7	2.7	2.1	4.9	6.5	3.7	1.5	0.3	0.5	0.8	1.6	3.5	15.6	22.9	11.9	13.4	9.4	3.6	3.7	0.2	0.2	0.4	5.1	22.9																						
30-Dec	0.5	Z	0.2	0.4	0.6	0.4	0.0	0.1	0.1	0.2	0.1	0.0	0.2	0.5	1.2	0.6	0.3	0.6	7.7	4.0	10.7	14.8	3.3	0.4	2.0	14.8																						
31-Dec	0.1	0.1	Z	0.3	0.6	1.1	0.5	0.2	0.9	3.5	3.4	11.8	0.8	0.2	0.5	0.6	21.3	5.0	16.2	6.2	3.1	1.7	2.8	5.2	3.7	21.3																						
																								8.3	6.8	6.8	6.3	5.1	4.7	6.2	4.8	5.8	6.7	5.7	5.3	4.9	5.6	6.6	8.3	9.7	9.8	10.6	10.0	9.9	8.7	7.3	7.6	Diurnal Average
																								27.6	26.7	30.0	27.0	22.2	11.0	22.1	25.4	21.7	21.9	20.4	21.6	22.1	34.8	38.0	37.5	31.8	36.5	34.5	32.7	31.2	29.1	27.8	27.4	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	644	91.35	91.35
21 - 40	61	8.65	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
Buffalo Viewpoint - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	69	27	5	2	8	13	92	189	31	17	16	32	35	46	41	20	643
21 - 40	9	3	1	0	0	0	10	9	6	2	1	2	2	3	7	5	60
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	78	30	6	2	8	13	102	198	37	19	17	34	37	49	48	25	703

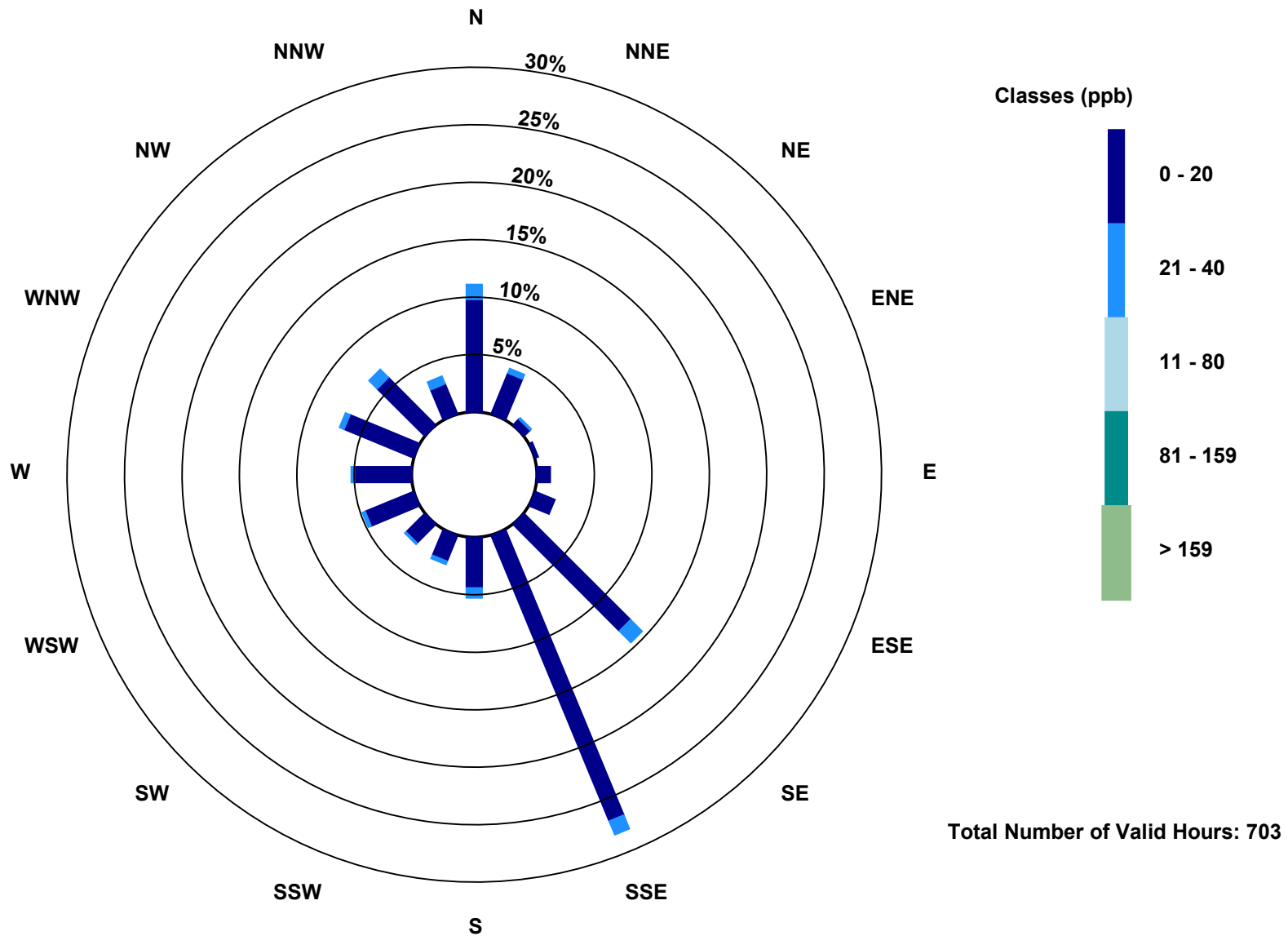
Total Number of Valid Hours: 703

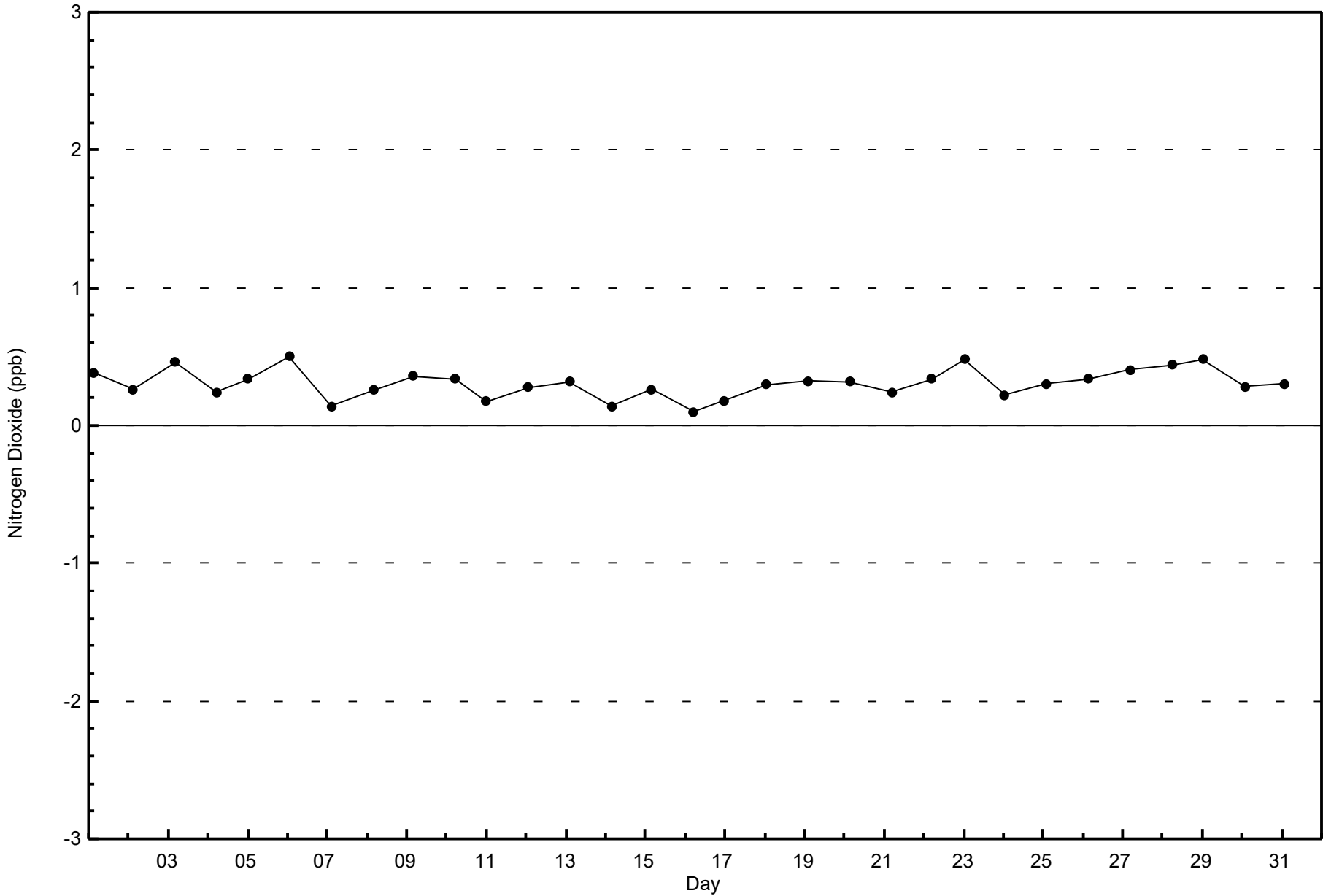
Total Number of Hours: 744

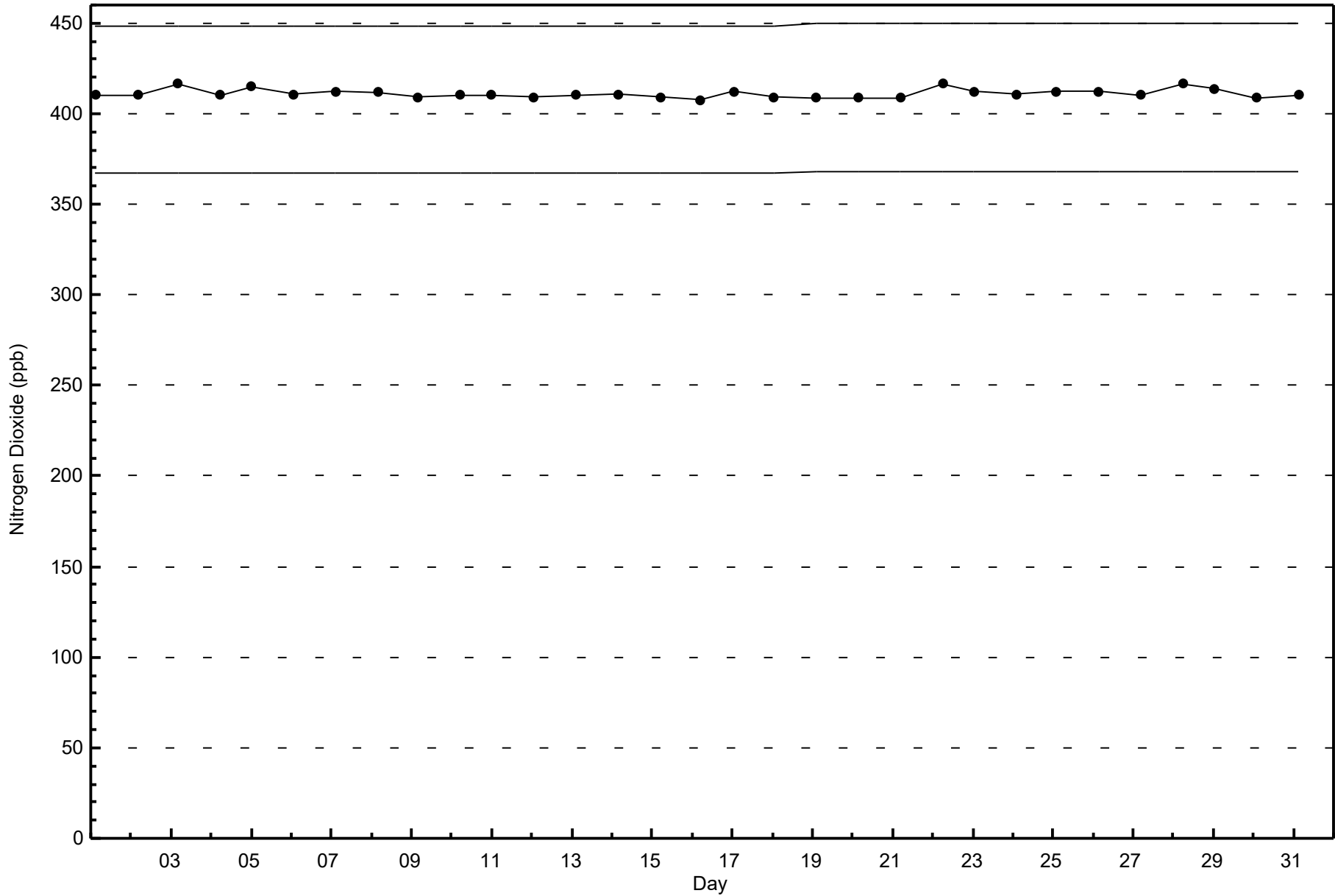


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Buffalo Viewpoint









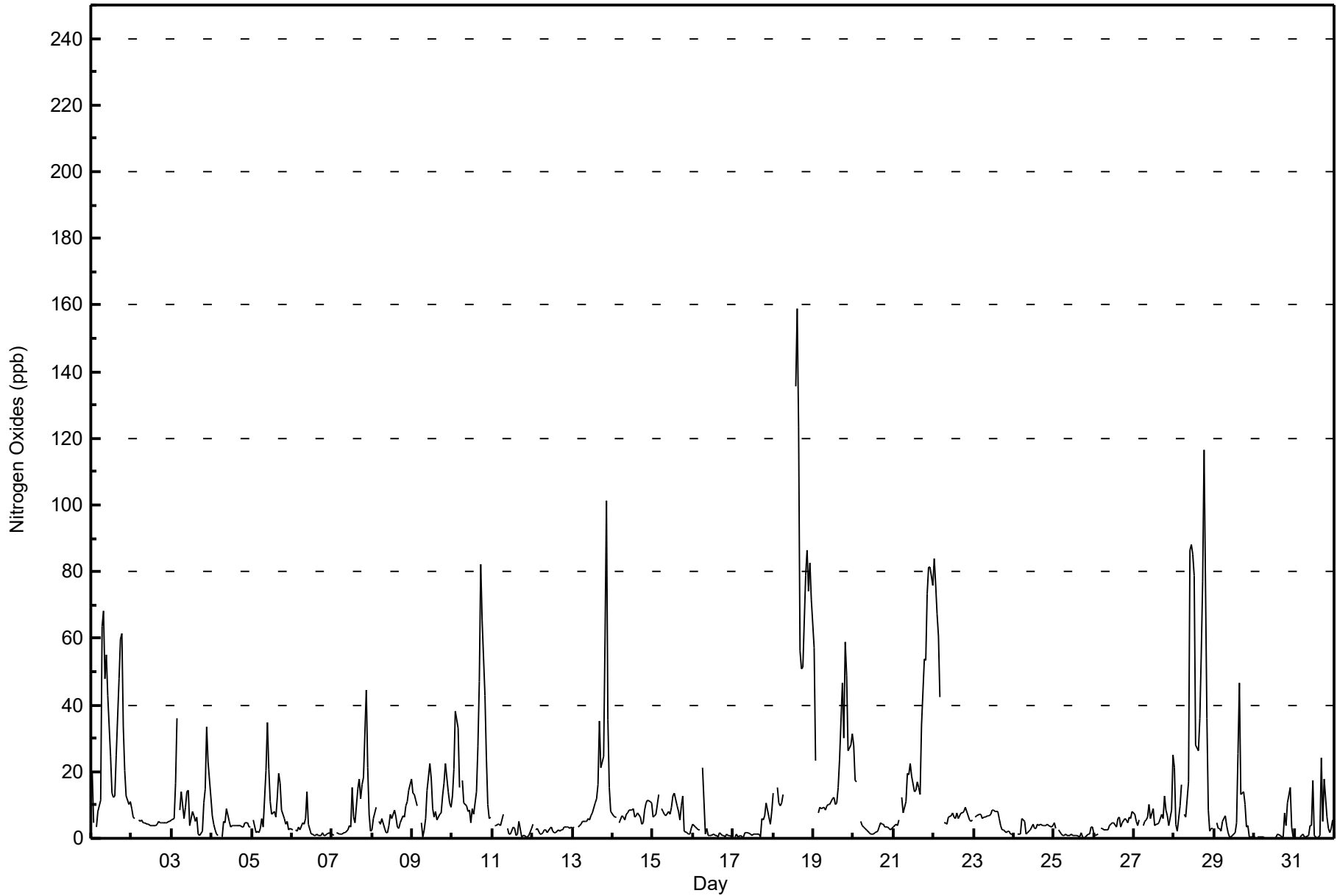
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

Buffalo Viewpoint - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 159.0 ppb on Dec 18 15:00		Maximum Daily Average: 35.3 ppb on Dec 28																	Hours of Data:	705							
Minimum Value: 0.0 ppb on Dec 30 12:00		Minimum Daily Average: 1.4 ppb on Dec 25																	Hours of Missing Data:	39							
Maximum Diurnal Average: 18.0 ppb at hour 19		Minimum Diurnal Average: 4.9 ppb at hour 6																	Hours of Calibration:	37							
Monthly Average: 11.14 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.9 Q ₁ = 2.5 Median = 5.0 Q ₃ = 10.1 P ₉₀ = 24.8 P ₉₉ = 86.3																	Percent Operational Time:	99.7							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	19.8	4.6	Z	3.3	7.9	11.3	63.5	68.0	48.0	55.1	42.8	24.8	13.6	12.5	12.8	25.0	48.0	59.6	61.5	33.5	20.5	12.7	10.1	10.9	29.1	68.0	
2-Dec	8.9	6.5	5.8	Z	5.6	5.1	5.5	4.5	4.5	4.4	4.1	3.7	3.9	3.9	4.0	4.4	5.2	4.7	4.5	4.5	4.7	4.8	4.9	5.2	4.9	8.9	
3-Dec	5.6	6.1	16.4	35.9	Z	8.6	14.0	6.0	9.2	13.8	14.4	3.9	8.2	7.0	5.0	6.5	1.3	0.7	2.3	10.7	14.8	33.5	23.0	12.4	11.3	35.9	
4-Dec	6.7	4.1	2.6	1.3	0.9	Z	0.6	4.9	4.5	9.1	5.2	3.6	3.9	3.7	3.7	3.7	3.6	3.2	3.5	4.8	4.5	3.6	3.2	3.8	9.1		
5-Dec	Z	5.5	1.8	2.2	1.9	3.1	5.9	3.3	20.3	34.7	20.7	10.9	7.3	8.1	6.2	12.1	19.3	16.6	8.4	6.0	4.4	4.9	2.4	3.0	9.1	34.7	
6-Dec	2.3	Z	2.7	2.3	3.4	2.5	4.8	4.2	6.1	14.0	4.3	1.5	1.2	0.9	0.8	1.1	1.0	0.8	1.8	0.8	0.7	1.1	1.7	0.9	2.6	14.0	
7-Dec	1.1	1.0	Z	1.9	1.5	1.4	1.2	1.9	1.8	2.6	3.9	3.4	15.3	6.2	4.6	15.0	17.8	11.9	16.1	18.4	44.4	21.3	7.2	2.1	8.8	44.4	
8-Dec	2.7	5.9	9.2	Z	5.1	4.2	6.1	2.8	1.7	1.6	3.8	7.2	6.1	8.4	6.4	3.4	3.0	4.9	6.7	6.2	9.6	11.1	14.6	17.6	6.5	17.6	
9-Dec	13.5	13.2	11.5	9.7	Z	4.5	0.5	2.5	5.9	14.2	22.7	17.7	8.9	6.5	8.1	5.7	7.4	7.7	12.9	16.7	22.3	14.1	10.8	9.5	10.7	22.7	
10-Dec	12.5	20.8	38.2	32.9	15.1	Z	17.3	10.7	9.8	8.0	8.7	4.6	8.8	7.3	13.9	27.4	46.9	82.1	65.4	42.8	24.3	10.1	5.9	6.4	22.6	82.1	
11-Dec	Z	3.6	3.7	4.2	4.2	3.6	7.1	M	M	3.1	1.2	1.2	3.4	2.8	0.8	1.5	4.9	0.5	0.8	1.0	0.6	0.5	0.9	2.9	2.5	7.1	
12-Dec	4.1	Z	2.5	2.9	1.4	1.2	1.6	2.4	2.6	1.8	2.9	3.4	2.2	1.9	1.9	2.7	1.9	2.5	2.7	3.3	3.5	3.3	2.9	3.4	2.6	4.1	
13-Dec	2.8	3.3	Z	3.4	3.6	4.3	5.0	5.1	5.2	5.9	5.4	6.9	7.6	10.6	12.0	15.9	35.2	21.0	24.4	60.5	101.3	35.6	15.2	8.1	17.3	101.3	
14-Dec	6.7	6.3	6.3	Z	4.9	6.8	6.5	5.7	7.1	7.5	8.3	8.5	8.8	6.4	6.6	7.7	6.3	4.4	4.7	8.6	10.7	11.3	11.0	10.7	7.5	11.3	
15-Dec	6.2	7.0	7.0	13.0	Z	9.1	8.0	7.3	6.6	7.9	7.4	9.3	12.5	13.5	9.8	7.9	5.5	9.8	12.5	2.0	1.8	1.5	1.3	2.9	7.4	13.5	
16-Dec	4.3	3.2	2.8	2.6	2.7	Z	21.2	1.3	2.8	1.0	0.9	0.8	1.1	0.8	0.9	0.6	1.7	0.7	0.8	0.2	1.3	0.6	0.9	0.6	2.3	21.2	
17-Dec	Z	0.3	1.3	0.6	0.7	0.6	0.5	1.6	1.7	1.8	1.2	0.9	1.5	1.4	1.4	1.3	0.5	5.9	5.6	6.8	10.6	6.5	4.1	8.0	2.8	10.6	
18-Dec	13.5	Z	15.4	10.8	9.6	10.4	13.2	C	C	C	C	C	C	135.5	159.0	123.4	56.3	50.8	51.1	78.9	86.4	74.0	82.4	71.8	--	159.0	
19-Dec	57.1	23.1	Z	7.4	9.2	8.9	9.3	8.3	9.7	10.0	10.2	12.0	12.3	10.1	10.7	15.3	23.7	46.7	30.1	58.8	48.9	26.1	27.8	31.5	22.1	58.8	
20-Dec	28.1	17.5	16.8	Z	5.0	4.0	3.4	2.9	2.6	1.6	1.3	1.2	1.2	1.7	1.9	3.2	4.7	4.4	4.0	3.5	3.3	3.0	2.6	2.9	5.3	28.1	
21-Dec	3.2	4.1	3.6	5.3	Z	12.5	7.7	10.8	19.3	19.1	22.5	18.6	14.0	14.5	17.0	15.2	13.1	33.9	53.8	53.5	73.3	81.4	81.6	76.0	28.4	81.6	
22-Dec	84.1	76.1	67.2	60.8	42.4	Z	4.7	4.6	4.2	6.2	6.7	7.5	6.3	6.0	7.6	6.1	7.4	7.4	8.1	9.4	8.2	5.6	5.3	5.5	19.4	84.1	
23-Dec	Z	6.3	6.7	7.2	7.3	6.1	6.3	6.2	6.8	6.7	7.0	8.3	8.3	8.1	8.1	6.0	3.6	2.4	2.5	1.7	2.0	1.9	1.1	1.1	5.3	8.3	
24-Dec	1.0	Z	1.2	1.1	1.3	5.8	5.1	1.1	1.5	2.1	2.6	4.2	2.8	3.1	4.4	3.9	4.1	4.0	4.0	3.9	4.2	3.9	3.5	4.0	3.2	5.8	
25-Dec	4.5	3.1	Z	2.6	1.2	0.9	1.0	1.1	0.8	0.8	1.1	0.9	0.8	0.8	0.7	0.4	1.5	0.5	0.2	0.4	1.1	1.3	3.5	3.2	1.4	4.5	
26-Dec	1.2	0.8	1.3	Z	3.1	3.1	2.6	2.3	2.4	3.9	4.1	4.6	4.5	3.6	5.9	6.5	3.3	4.6	6.0	5.6	4.7	6.4	5.8	8.2	4.1	8.2	
27-Dec	7.3	5.1	3.9	5.3	Z	3.9	4.9	5.5	6.5	10.2	6.0	8.9	3.9	4.3	4.4	4.6	7.4	6.0	12.9	8.7	6.9	3.7	8.7	24.8	7.1	24.8	
28-Dec	21.0	4.1	2.0	9.6	15.9	Z	7.2	6.2	17.1	86.4	88.0	85.1	78.8	28.2	26.4	36.0	54.9	77.1	116.7	35.9	8.5	2.2	2.8	2.9	35.3	116.7	
29-Dec	Z	4.7	3.0	2.8	2.1	5.2	6.8	3.7	1.5	0.3	0.5	0.9	1.9	4.5	25.3	46.7	13.3	14.0	10.1	3.6	3.7	0.2	0.2	0.4	6.8	46.7	
30-Dec	0.5	Z	0.2	0.4	0.6	0.4	0.0	0.1	0.1	0.2	0.1	0.0	0.2	0.5	1.5	0.6	0.3	0.6	7.7	4.0	10.8	15.1	3.3	0.4	2.1	15.1	
31-Dec	0.1	0.1	Z	0.4	0.7	1.1	0.5	0.2	1.0	3.7	3.9	17.2	0.9	0.2	0.5	0.6	24.1	5.3	17.7	6.4	3.1	1.7	2.8	5.3	4.2	24.1	
		12.3	9.1	9.3	8.8	6.0	4.9	7.8	6.4	7.3	11.2	10.4	9.4	8.3	10.4	12.0	13.2	13.8	16.0	18.0	16.1	17.6	13.0	11.3	11.1	Diurnal Average	
		84.1	76.1	67.2	60.8	42.4	12.5	63.5	68.0	48.0	86.4	88.0	85.1	78.8	135.5	159.0	123.4	56.3	82.1	116.7	78.9	101.3	81.4	82.4	76.0	Diurnal Maximum	
Z - zerospan		C - Calibration					M - Maintenance																				





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	618	87.66	87.66
21 - 40	38	5.39	93.05
41 - 80	35	4.96	98.01
81 - 159	13	1.84	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint - December 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	67	26	5	2	6	12	89	186	29	15	16	32	35	45	35	17	617
21 - 40	5	1	0	0	2	1	6	6	4	1	0	0	0	2	6	4	38
11 - 80	4	1	1	0	0	0	6	5	4	2	1	1	2	1	3	3	34
81 - 159	1	2	0	0	0	0	1	1	0	1	0	1	0	1	4	1	13
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	77	30	6	2	8	13	102	198	37	19	17	34	37	49	48	25	702

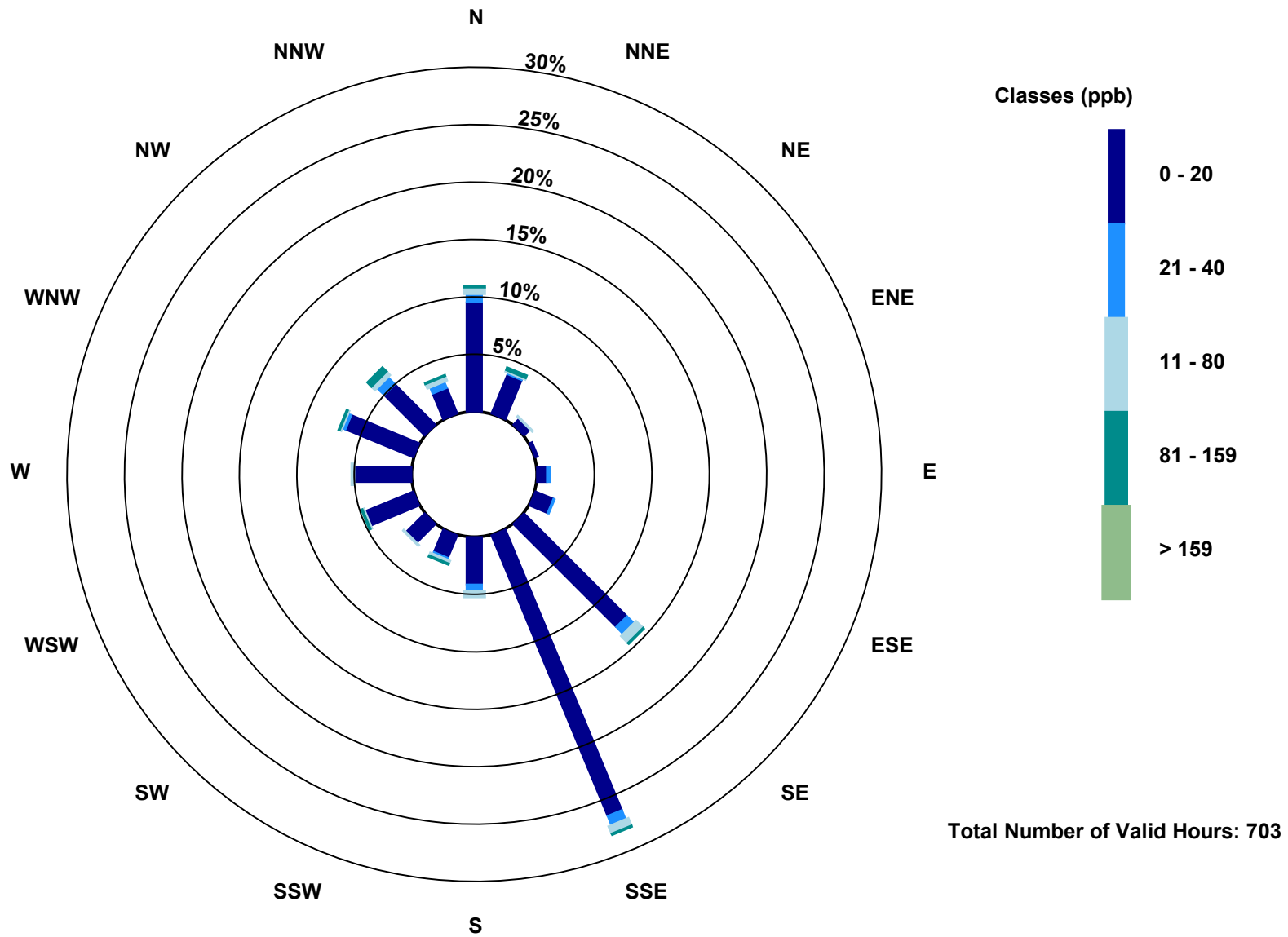
Total Number of Valid Hours: 703

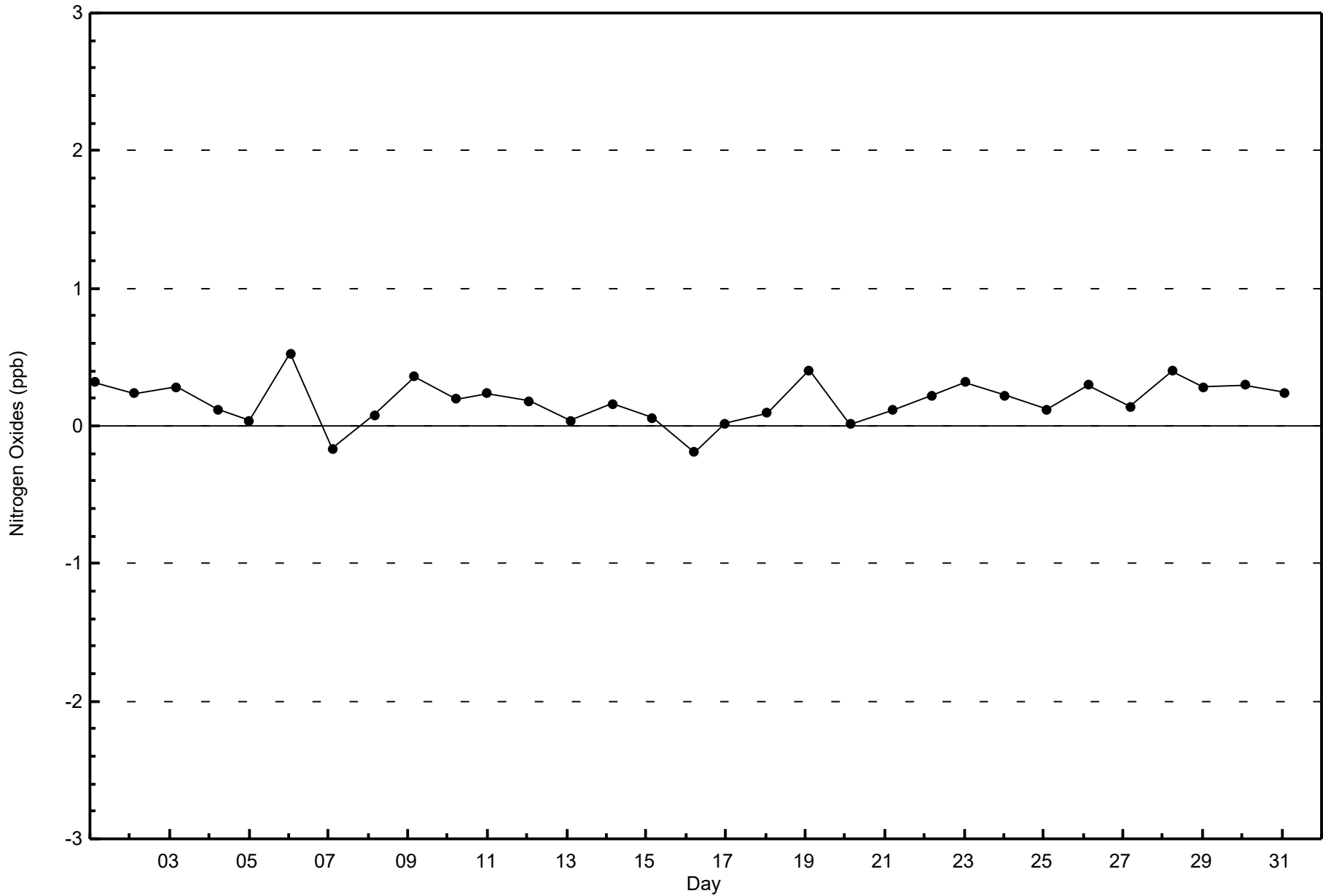
Total Number of Hours: 744

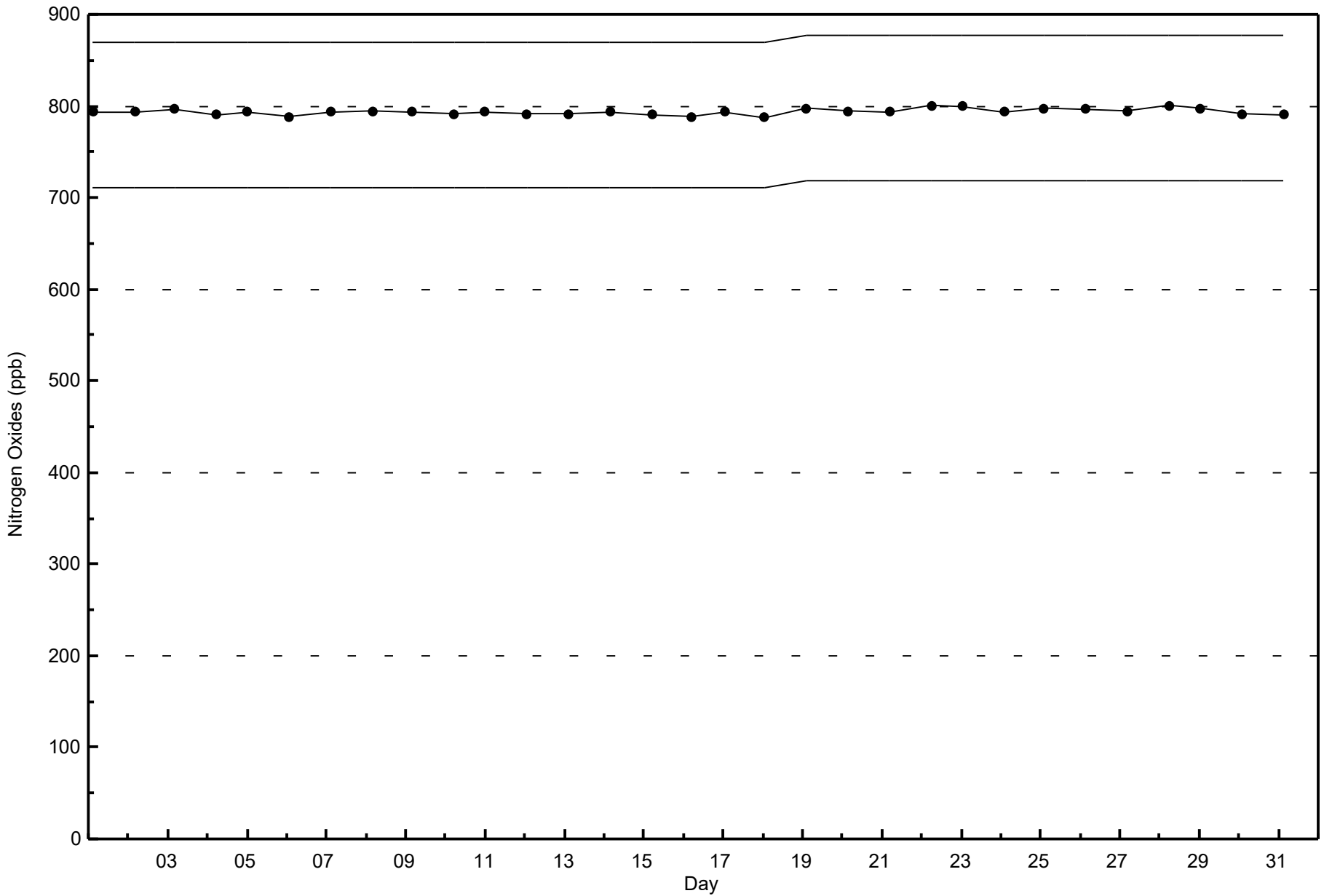


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Buffalo Viewpoint









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Buffalo Viewpoint - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 34.7 ppb on Dec 25 15:00	Maximum Daily Average: 31.1 ppb on Dec 25		Hours of Data:	708
Minimum Value: 1.2 ppb on Dec 19 18:00	Minimum Daily Average: 6.5 ppb on Dec 18		Hours of Missing Data:	36
Maximum Diurnal Average: 21.6 ppb at hour 14	Minimum Diurnal Average: 16.5 ppb at hour 19		Hours of Calibration:	34
Monthly Average: 18.84 ppb	Percentiles: P ₁ = 1.5 P ₁₀ = 5.6 Q ₁ = 13.2 Median = 19.5 Q ₃ = 25.1 P ₉₀ = 29.7 P ₉₉ = 33.9		Percent Operational Time:	99.7

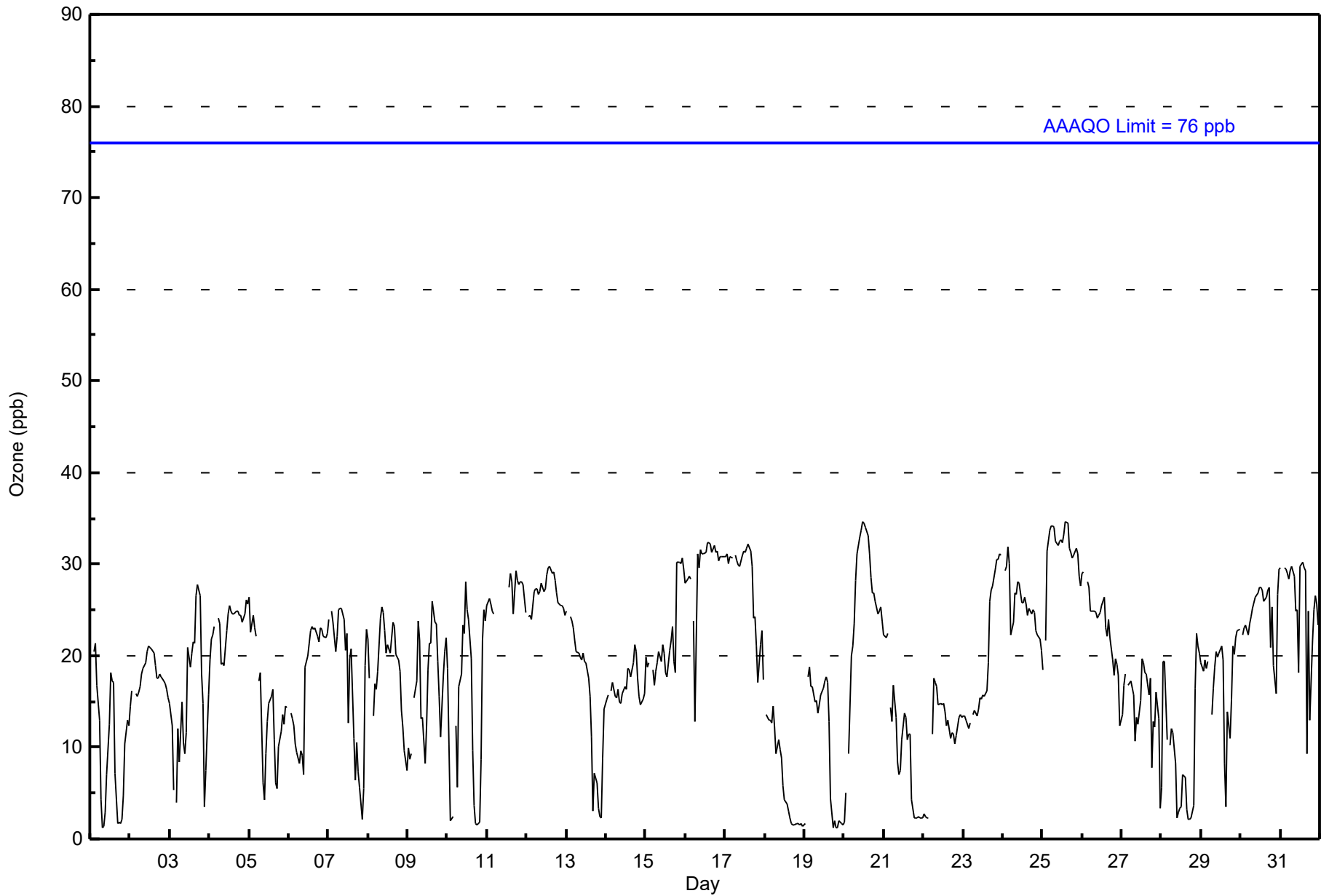
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	9.7	Z	20.4	21.4	16.8	13.0	4.3	1.2	1.4	2.8	7.0	12.5	18.1	17.3	17.0	7.2	1.6	1.9	1.7	2.1	4.8	10.4	13.0	12.4	9.5	21.4
2-Dec	14.5	16.2	Z	15.8	15.6	16.1	16.6	18.0	18.6	19.2	20.4	21.0	21.0	20.7	20.2	19.0	17.5	17.6	18.0	17.6	17.3	17.0	16.4	15.4	17.8	21.0
3-Dec	14.8	12.4	5.3	Z	3.9	12.1	8.5	15.0	10.5	9.4	11.6	20.9	18.7	20.2	21.4	21.4	26.5	27.7	26.6	18.0	14.7	3.6	7.5	15.7	15.1	27.7
4-Dec	19.5	21.7	22.3	23.2	Z	24.1	23.5	19.1	19.3	18.8	22.7	24.6	25.5	24.9	24.6	24.8	24.8	24.5	24.5	23.7	24.6	26.1	25.7	23.3	26.1	
5-Dec	26.4	22.6	24.4	23.1	22.1	Z	17.3	18.1	6.0	4.3	9.3	12.9	14.8	15.5	16.4	10.8	6.1	5.4	10.0	11.7	13.6	12.5	14.6	14.3	14.4	26.4
6-Dec	Z	13.7	13.1	12.4	10.4	9.4	8.3	9.6	9.1	7.0	18.8	20.0	21.3	22.8	23.2	22.9	23.0	22.1	21.6	23.1	22.9	22.1	22.0	22.5	17.5	23.2
7-Dec	23.9	Z	24.9	23.6	20.4	22.1	25.0	25.2	25.2	24.0	20.6	22.5	12.6	19.7	20.7	10.9	6.4	10.5	7.3	5.7	2.2	5.5	18.8	22.9	17.4	25.2
8-Dec	21.8	17.6	Z	13.4	16.9	16.3	18.3	24.1	25.4	24.6	22.7	20.2	21.2	20.2	21.9	23.7	23.2	20.1	19.5	18.3	14.1	12.2	9.6	7.4	18.8	25.4
9-Dec	9.8	8.7	9.3	Z	15.4	17.2	23.9	21.7	13.0	13.3	8.2	12.4	18.5	21.4	21.4	26.0	23.7	23.5	19.3	15.6	11.2	17.9	20.4	21.9	17.1	26.0
10-Dec	18.6	10.4	1.9	2.4	Z	12.3	5.6	16.6	18.1	23.3	22.4	28.0	25.1	24.0	19.7	9.7	3.6	1.7	1.6	1.8	8.8	21.7	25.1	23.9	14.2	28.0
11-Dec	25.5	26.2	25.7	24.9	24.6	Z	23.4	M	M	27.3	C	C	C	27.4	28.9	28.0	24.5	29.2	28.2	27.8	28.1	28.1	27.8	24.7	26.7	29.2
12-Dec	Z	24.3	24.5	23.9	27.0	27.4	27.3	26.7	26.9	28.0	27.0	27.3	28.9	29.6	29.7	28.9	29.2	28.1	26.9	25.8	25.4	25.5	25.2	24.3	26.9	29.7
13-Dec	24.9	Z	24.2	23.8	23.0	21.6	20.5	20.3	19.8	19.5	20.2	19.4	19.2	17.5	15.5	11.1	3.1	7.2	6.0	3.4	2.4	2.3	8.9	14.2	15.1	24.9
14-Dec	15.2	15.8	Z	16.1	17.1	15.6	15.4	16.3	15.0	14.8	15.8	16.7	16.3	18.6	18.5	17.7	19.2	21.2	20.5	17.6	15.6	14.7	15.2	15.8	16.7	21.2
15-Dec	19.8	18.7	19.2	Z	18.4	16.7	18.3	19.3	20.4	19.4	21.2	20.2	18.2	17.7	20.6	21.6	23.2	19.4	18.2	30.2	30.1	30.0	30.6	29.4	21.8	30.6
16-Dec	27.9	28.4	28.7	28.3	Z	23.8	12.8	31.2	29.6	31.6	31.1	31.1	31.2	32.3	32.3	32.2	31.3	32.0	31.2	31.4	30.3	30.8	30.8	30.8	29.6	32.3
17-Dec	30.8	31.1	30.1	30.8	30.7	Z	31.0	30.3	29.8	29.8	31.0	31.4	31.3	31.8	32.1	31.4	29.8	24.1	24.2	21.1	17.1	21.2	22.7	17.5	27.9	32.1
18-Dec	Z	13.6	13.0	12.9	12.7	14.4	12.3	9.3	10.8	9.8	8.9	5.8	4.3	3.8	3.1	2.3	1.7	1.5	1.6	1.6	1.7	1.5	1.7	1.4	6.5	14.4
19-Dec	1.6	Z	17.6	18.8	16.7	16.6	15.0	15.1	13.8	14.7	15.7	16.5	17.2	17.7	17.1	12.8	4.5	1.2	1.9	1.2	1.3	2.1	1.7	1.5	10.5	18.8
20-Dec	1.8	5.0	Z	9.3	20.0	21.1	23.5	28.2	31.1	32.9	33.8	34.7	34.5	34.0	33.1	31.1	28.6	26.9	26.9	25.9	24.6	24.9	25.3	23.9	25.3	34.7
21-Dec	22.3	21.9	22.4	Z	14.3	12.7	16.8	13.3	8.3	6.9	7.4	10.8	13.7	13.3	10.8	11.4	11.4	4.2	2.4	2.3	2.3	2.4	2.4	2.4	10.3	22.4
22-Dec	2.7	2.4	2.4	2.3	Z	11.4	17.5	17.0	16.6	14.7	14.8	14.7	14.8	13.9	12.3	13.0	10.9	11.7	11.4	10.4	11.2	13.2	13.6	13.3	11.6	17.5
23-Dec	13.4	13.4	12.9	12.1	12.6	Z	13.5	14.0	13.5	14.1	15.4	15.2	15.7	15.6	16.1	19.2	25.9	27.2	27.6	29.4	30.6	30.6	31.1	31.0	19.6	31.1
24-Dec	Z	29.3	29.7	31.8	30.1	22.2	23.7	26.9	26.7	28.1	28.0	25.8	25.9	26.3	25.6	24.4	25.2	24.6	25.0	24.8	22.7	22.3	21.8	20.6	25.7	31.8
25-Dec	18.5	Z	21.6	31.5	33.8	34.1	34.1	34.0	32.5	32.0	32.5	32.7	32.3	33.2	34.7	34.5	31.8	31.3	30.7	31.0	31.8	31.1	28.7	27.6	31.1	34.7
26-Dec	28.9	29.1	Z	28.0	27.5	24.9	24.9	24.8	24.8	24.2	24.5	24.6	25.4	26.3	23.0	22.1	23.9	21.9	19.6	17.9	19.7	19.1	17.9	12.4	23.3	29.1
27-Dec	13.6	16.7	18.0	Z	16.8	17.3	16.5	15.6	10.7	13.2	12.6	15.2	19.6	19.2	18.1	18.0	15.6	17.5	7.8	12.8	12.2	16.0	13.1	3.4	14.8	19.6
28-Dec	5.6	19.4	19.4	10.8	Z	10.3	12.1	11.6	8.3	2.3	3.0	3.4	3.6	6.9	6.6	3.2	2.1	2.1	2.3	3.6	16.5	22.4	21.1	20.3	9.4	22.4
29-Dec	19.2	18.4	19.6	18.6	19.3	Z	13.6	16.5	18.8	20.4	19.9	20.3	21.1	19.6	8.2	3.6	13.8	11.1	15.2	21.1	20.2	21.9	22.8	22.9	17.7	22.9
30-Dec	Z	22.3	23.1	23.3	22.3	23.5	24.3	25.1	25.8	26.4	26.9	27.5	27.4	27.1	25.9	26.4	27.2	27.4	21.0	25.3	18.9	15.9	26.8	29.4	24.8	29.4
31-Dec	29.7	Z	29.5	29.4	29.0	28.4	29.3	29.8	28.7	24.9	25.0	18.2	29.7	30.1	29.7	29.3	9.4	24.8	12.9	21.7	25.0	26.6	25.7	23.3	25.7	30.1
	17.7	18.4	19.4	19.7	19.9	18.6	18.6	19.8	18.6	18.8	19.3	20.2	20.9	21.6	20.9	19.3	17.7	17.7	16.5	16.9	16.8	17.7	19.0	18.5		Diurnal Average
	30.8	31.1	30.1	31.8	33.8	34.1	34.1	34.0	32.5	32.9	33.8	34.7	34.5	34.0	34.7	34.5	31.8	32.0	31.2	31.4	31.8	31.1	31.1	31.0		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
Buffalo Viewpoint - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Buffalo Viewpoint - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	385	54.38	54.38
21 - 50	323	45.62	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
Buffalo Viewpoint - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	58	19	4	0	8	7	62	102	32	9	4	7	9	11	30	20	382
21 - 50	23	13	1	2	0	5	38	94	9	8	13	26	31	37	20	3	323
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	81	32	5	2	8	12	100	196	41	17	17	33	40	48	50	23	705

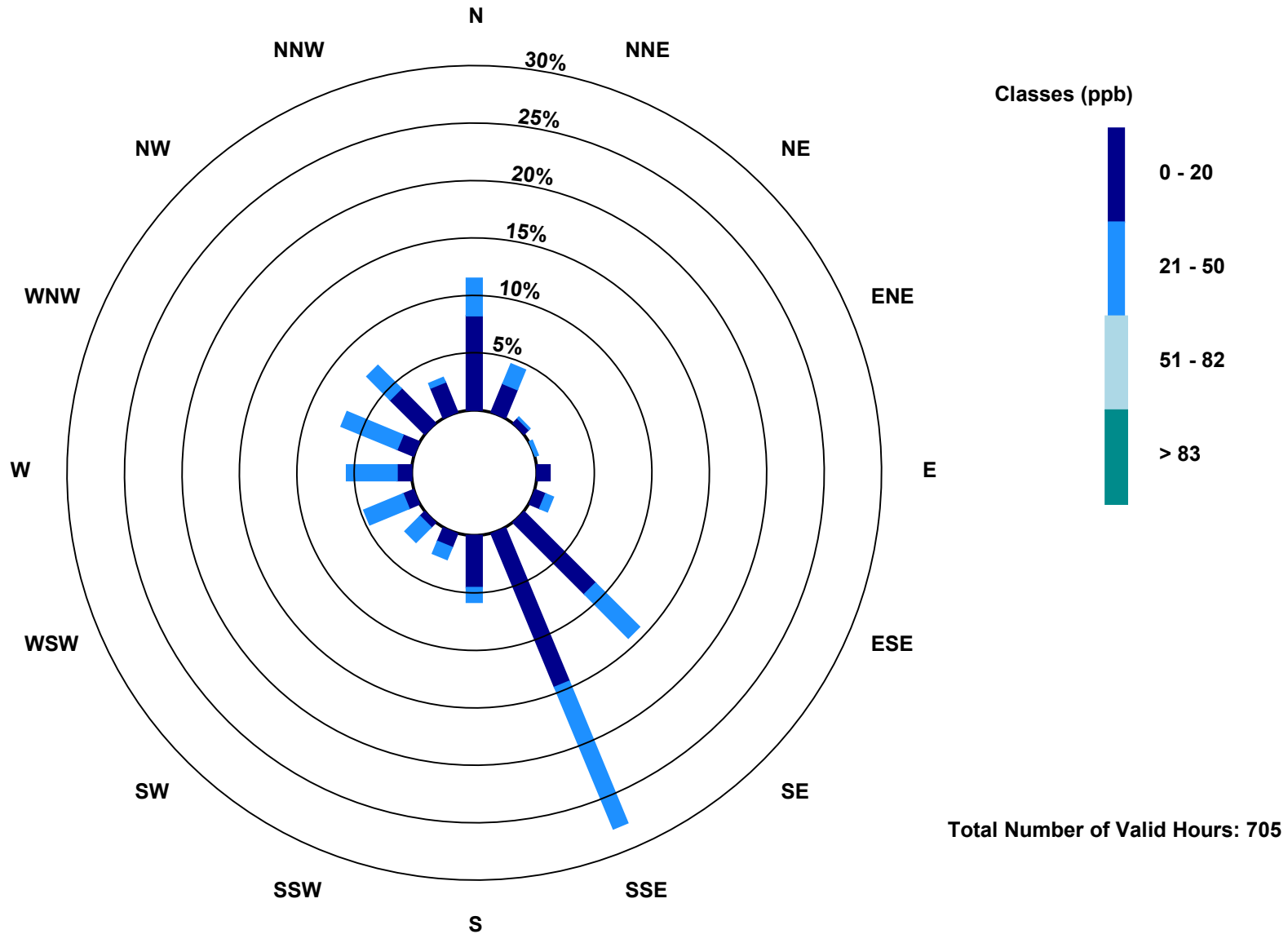
Total Number of Valid Hours: 705

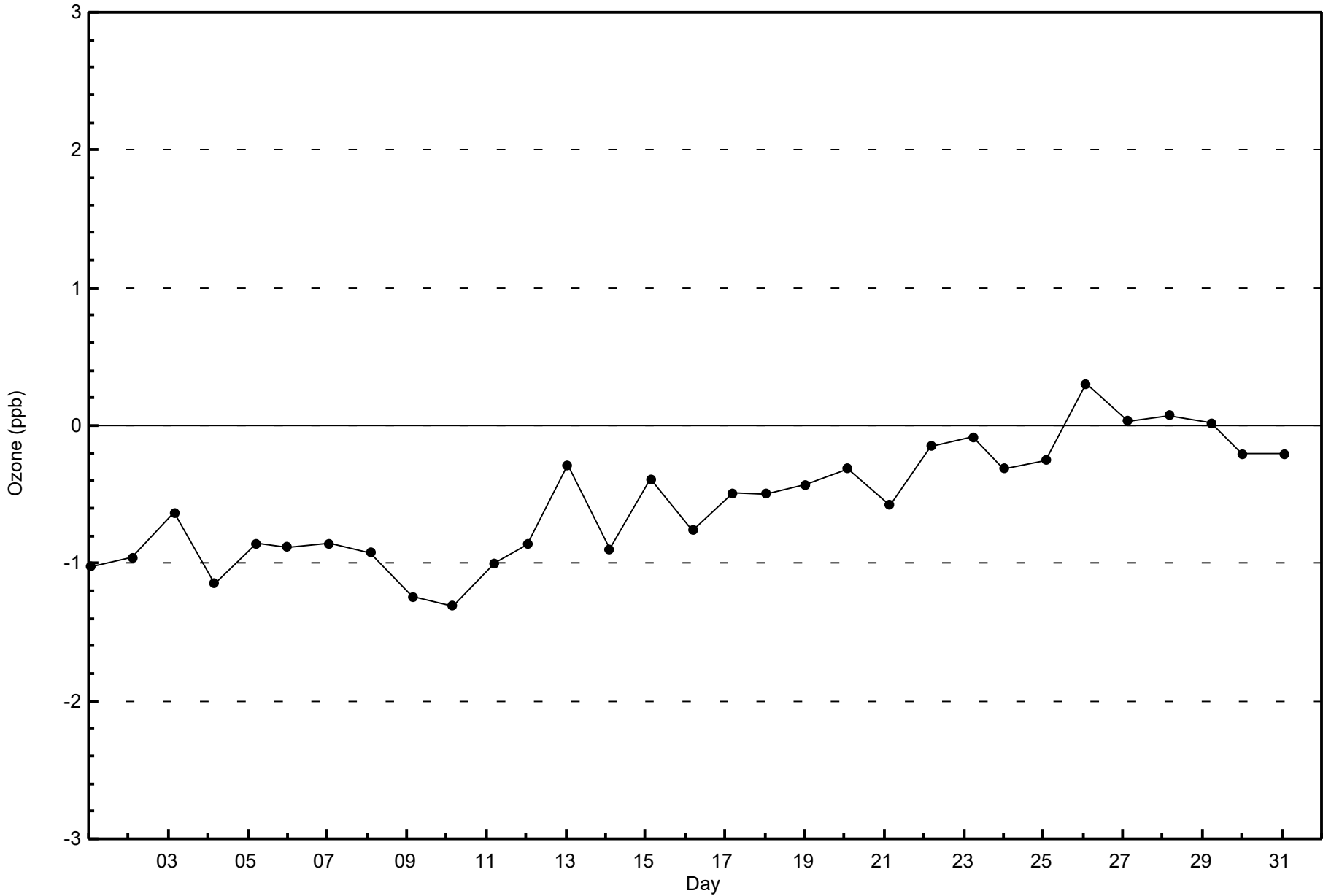
Total Number of Hours: 744

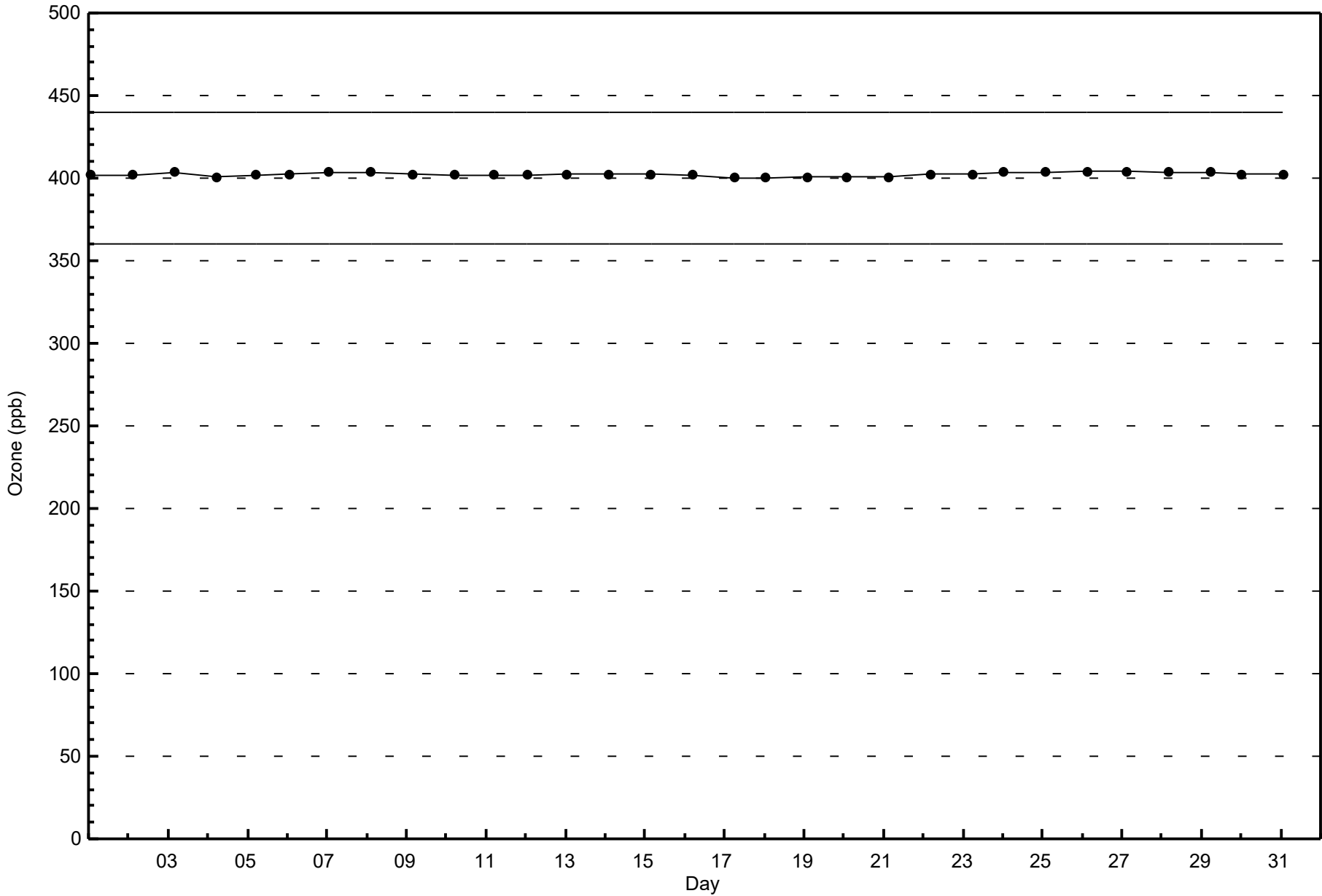


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Buffalo Viewpoint









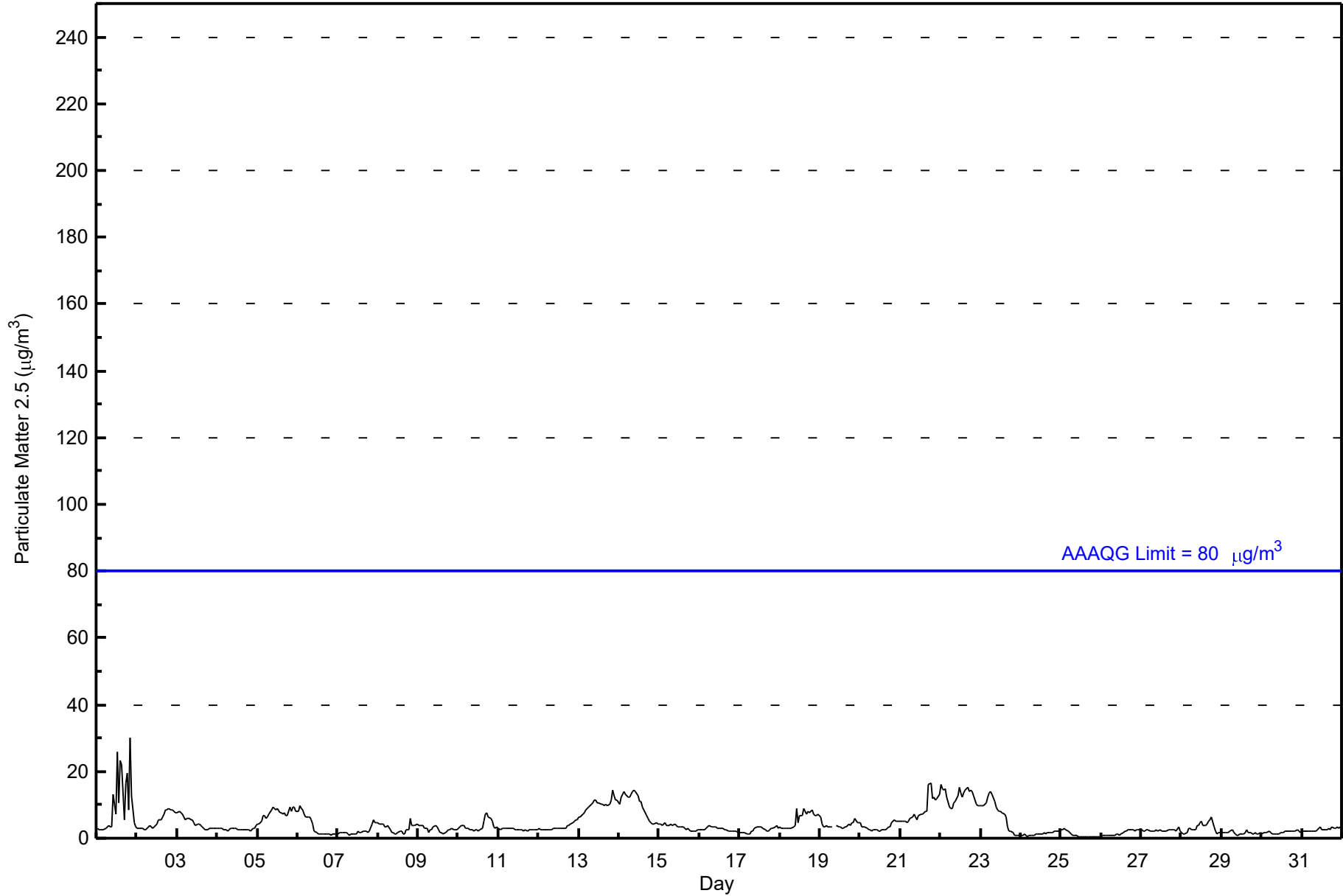
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Buffalo Viewpoint - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 30.1 µg/m ³ on Dec 1 21:00		Maximum Daily Average: 12.7 µg/m ³ on Dec 22																	Hours of Data:	742																													
Minimum Value: 0.2 µg/m ³ on Dec 25 17:00		Minimum Daily Average: 1.0 µg/m ³ on Dec 25																	Hours of Missing Data:	2																													
Maximum Diurnal Average: 5.2 µg/m ³ at hour 21		Minimum Diurnal Average: 4.0 µg/m ³ at hour 6																	Hours of Calibration:	2																													
Monthly Average: 4.38 µg/m ³		Percentiles: P ₁ = 0.3 P ₁₀ = 1.3 Q ₁ = 2.1 Median = 2.9 Q ₃ = 5.4 P ₉₀ = 9.7 P ₉₉ = 16.0																	Percent Operational Time:	100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.8	2.5	2.5	2.5	2.7	2.8	3.6	3.9	3.2	3.2	13.2	7.3	25.9	10.6	23.4	22.1	5.4	16.5	19.7	8.5	30.1	12.7	4.5	3.2	9.7	30.1																							
2-Dec	3.0	2.8	2.9	2.9	2.7	2.7	2.8	3.3	3.6	3.0	3.3	3.8	4.2	5.3	5.5	6.4	7.4	8.5	8.4	9.0	8.3	8.6	8.0	7.7	5.2	9.0																							
3-Dec	7.6	7.9	7.8	7.0	6.5	5.4	5.9	5.8	5.3	5.4	4.5	4.0	4.2	4.1	3.8	3.3	2.9	2.6	2.6	2.8	2.8	3.1	3.1	2.9	4.6	7.9																							
4-Dec	2.9	3.0	2.8	2.8	2.7	2.4	2.3	2.7	2.9	2.9	2.8	2.8	2.6	2.7	2.7	2.6	2.6	2.6	2.4	2.5	2.2	2.8	3.2	3.6	2.7	3.6																							
5-Dec	4.4	4.4	5.2	6.6	6.9	6.0	6.4	7.1	8.3	9.4	8.9	8.4	8.7	7.7	7.5	7.4	7.5	6.9	7.0	9.1	8.1	9.1	9.3	7.9	7.4	9.4																							
6-Dec	8.0	9.6	9.1	8.4	7.4	6.5	6.4	6.5	5.3	4.4	2.2	1.5	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.1	1.1	1.1	1.3	1.1	3.8	9.6																							
7-Dec	1.3	1.9	1.7	1.8	1.8	1.6	1.1	0.9	1.1	1.3	1.5	1.3	2.1	1.9	1.7	2.0	2.0	1.9	1.8	2.1	4.4	5.4	4.5	4.9	2.2	5.4																							
8-Dec	4.5	4.2	4.4	4.0	3.3	3.3	3.9	2.4	1.8	1.6	1.2	1.5	1.5	2.1	2.0	1.4	1.4	2.5	2.4	6.0	3.7	3.9	4.0	4.3	3.0	6.0																							
9-Dec	3.8	3.9	3.8	3.7	3.1	2.9	1.6	2.4	2.6	3.5	3.6	3.2	2.5	1.7	1.6	1.4	1.8	2.2	2.5	2.5	2.9	2.7	2.6	2.7	2.7	3.9																							
10-Dec	3.0	3.4	3.9	3.6	2.9	2.8	2.8	2.7	2.3	2.3	2.6	2.4	2.1	2.6	2.9	5.2	7.0	7.7	6.5	5.9	4.9	3.5	3.0	3.2	3.7	7.7																							
11-Dec	3.0	2.7	2.8	3.0	2.9	2.9	2.9	2.8	2.9	2.8	2.7	2.7	2.7	2.5	2.4	2.3	2.3	2.1	2.5	2.4	2.4	2.4	2.3	2.6	2.6	3.0																							
12-Dec	2.8	2.6	2.4	2.6	2.6	2.5	2.4	2.5	2.6	2.8	2.8	3.0	2.9	3.0	2.8	3.0	3.0	3.7	3.6	4.3	4.7	5.3	5.5	5.7	3.3	5.7																							
13-Dec	6.2	6.5	7.1	7.7	8.4	9.1	9.3	10.0	10.5	11.4	11.4	10.5	10.4	10.2	10.1	9.6	10.2	9.7	10.1	11.3	14.3	12.8	11.4	11.3	10.0	14.3																							
14-Dec	10.1	12.2	12.9	14.0	13.0	12.2	12.4	13.2	14.1	14.5	14.1	12.6	10.9	10.8	9.5	8.3	7.0	6.0	5.0	4.5	4.3	4.4	4.6	4.4	9.8	14.5																							
15-Dec	4.2	4.1	4.0	4.7	3.7	3.9	4.0	4.0	4.0	4.1	3.8	3.5	3.5	3.4	3.2	3.0	2.7	2.8	2.7	2.2	1.9	2.0	2.0	2.3	3.3	4.7																							
16-Dec	2.6	2.6	2.7	2.7	2.8	3.2	3.8	3.5	3.6	3.4	3.5	3.0	3.2	3.2	2.9	2.7	2.5	2.1	2.2	2.1	2.1	2.0	1.9	1.8	2.8	3.8																							
17-Dec	1.7	1.6	1.6	1.5	1.4	1.5	1.4	2.0	2.2	2.8	3.4	3.2	3.4	3.3	3.0	2.7	2.3	2.1	2.4	2.8	2.8	3.3	3.6	3.0	2.5	3.6																							
18-Dec	3.2	3.0	3.1	2.9	2.8	3.1	3.1	3.1	3.6	3.7	8.7	4.8	6.8	6.9	8.7	7.9	7.3	8.2	7.7	8.3	7.4	6.9	6.9	7.0	5.6	8.7																							
19-Dec	6.2	4.4	3.6	3.4	3.6	3.4	3.4	3.2	C	C	3.8	3.4	3.4	3.0	2.9	3.3	3.5	4.2	3.7	4.8	4.7	6.0	4.6	4.8	4.0	6.2																							
20-Dec	4.5	3.4	3.5	3.5	3.0	2.7	2.5	2.3	2.5	2.5	2.5	2.1	2.1	2.3	2.4	2.5	2.8	3.2	3.6	4.8	5.4	5.3	5.1	5.0	3.3	5.4																							
21-Dec	4.9	5.1	5.1	5.0	4.8	5.1	5.8	6.4	7.1	6.3	5.6	7.0	7.3	7.4	7.8	8.1	7.9	16.0	16.7	12.1	12.2	11.6	11.9	13.1	8.3	16.7																							
22-Dec	16.0	14.9	14.5	14.6	12.2	9.4	8.8	9.0	10.7	11.2	12.5	15.3	13.5	12.4	13.4	14.5	15.4	14.0	14.6	14.1	12.8	10.0	9.9	9.9	12.7	16.0																							
23-Dec	9.7	9.6	9.7	10.7	12.5	13.7	13.9	13.1	10.9	9.5	8.3	8.0	8.1	7.7	7.4	6.3	3.5	2.2	2.0	1.5	1.0	0.7	0.8	0.9	7.2	13.9																							
24-Dec	0.9	0.9	1.1	0.7	0.6	0.6	0.7	0.7	0.8	1.3	1.2	1.1	1.3	1.2	1.5	1.4	1.6	1.7	1.7	1.7	2.2	2.1	2.2	2.4	1.3	2.4																							
25-Dec	2.6	2.7	2.8	2.5	2.1	1.6	1.3	1.0	0.9	0.7	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.5	0.6	1.0	2.8																							
26-Dec	0.6	0.7	0.8	0.7	0.8	1.0	1.0	1.0	1.1	1.2	1.1	1.0	1.3	1.6	2.0	2.3	2.5	2.5	2.4	2.4	2.2	2.6	2.6	2.5	1.6	2.6																							
27-Dec	2.6	2.3	1.9	2.5	2.4	2.1	2.2	2.1	2.2	2.5	2.3	2.3	2.1	2.0	2.0	2.2	2.5	2.5	2.7	2.6	2.4	2.3	3.2	2.2	2.3	3.2																							
28-Dec	1.8	1.4	1.3	1.7	3.0	2.8	2.6	2.5	2.6	3.7	4.0	4.5	4.9	3.9	3.7	4.3	5.0	5.5	6.2	3.4	1.9	1.3	1.5	1.8	3.1	6.2																							
29-Dec	1.8	1.9	1.7	1.7	1.6	2.3	2.6	1.5	1.2	0.9	1.0	1.2	1.2	1.4	1.8	2.4	1.5	1.6	1.5	1.3	1.6	1.4	1.4	1.5	1.6	2.6																							
30-Dec	1.4	1.6	1.8	1.9	1.9	1.7	1.4	1.3	1.2	1.1	1.3	1.6	1.7	1.8	2.0	2.0	2.0	2.0	2.2	2.0	2.1	2.4	2.1	1.9	1.8	2.4																							
31-Dec	2.0	2.1	2.0	2.2	2.2	2.2	2.1	2.2	2.2	2.7	2.9	3.4	2.5	2.4	2.5	2.5	3.1	2.7	3.5	2.9	2.9	3.2	3.2	3.2	2.6	3.5																							
																								4.2	4.2	4.2	4.3	4.1	4.0	4.0	4.0	4.1	4.2	4.6	4.2	4.8	4.2	4.7	4.7	4.1	4.8	4.9	4.6	5.2	4.6	4.2	4.2	Diurnal Average	
																								16.0	14.9	14.5	14.6	13.0	13.7	13.9	13.2	14.1	14.5	14.1	15.3	25.9	12.4	23.4	22.1	15.4	16.5	19.7	14.1	30.1	12.8	11.9	13.1	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 - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	564	76.01	76.01
6 - 15	169	22.78	98.79
16 - 25	7	0.94	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}) - μg/m³
Buffalo Viewpoint - December 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	66	18	4	2	5	14	77	139	20	14	17	32	39	49	48	19	563
6 - 15	16	14	2	0	2	0	28	64	20	6	1	3	2	1	2	6	167
16 - 25	2	0	0	0	1	0	1	0	2	0	0	0	0	1	0	0	7
26 - 80	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	84	32	6	2	8	14	107	204	42	20	18	35	41	51	50	25	739

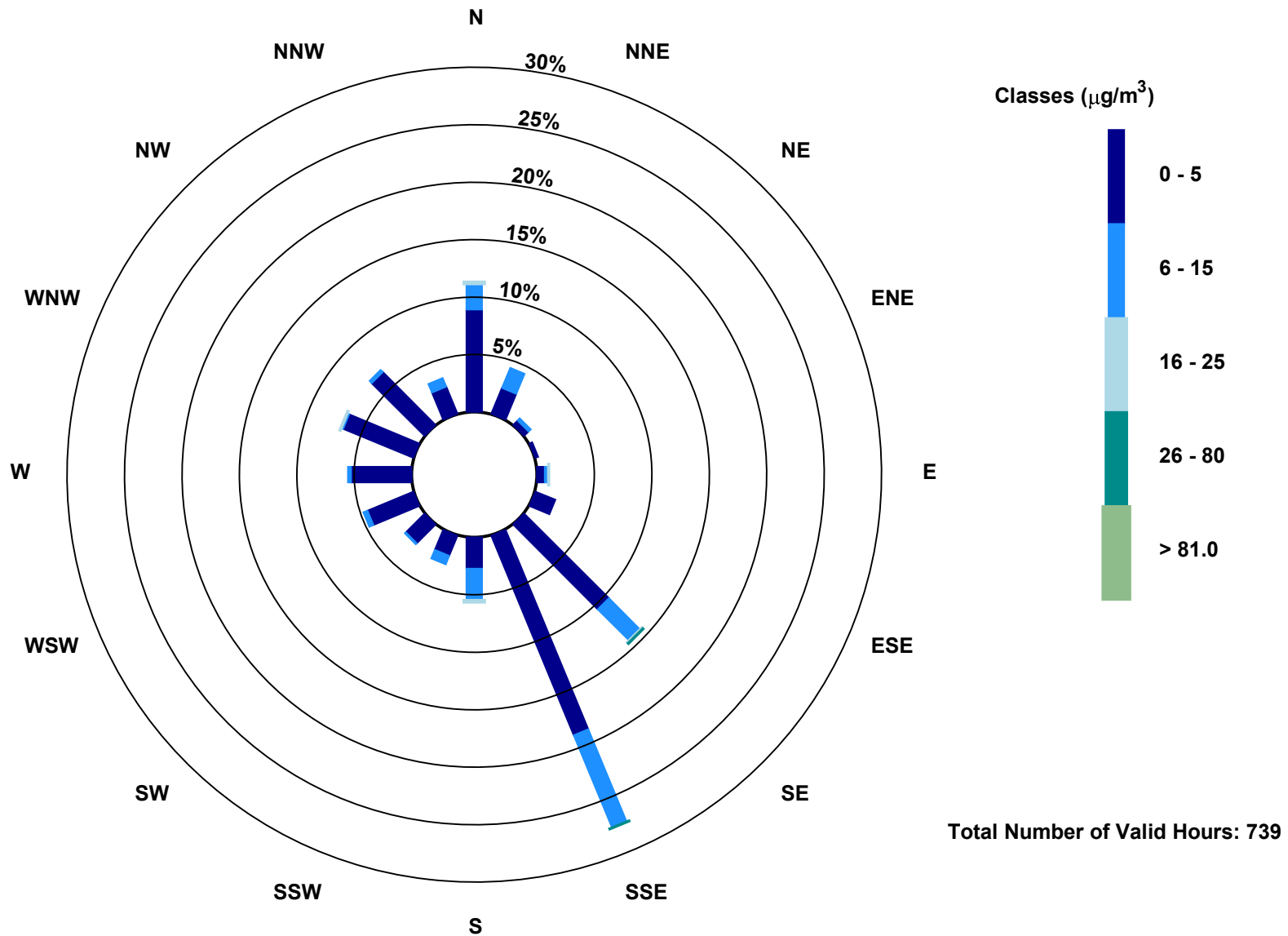
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

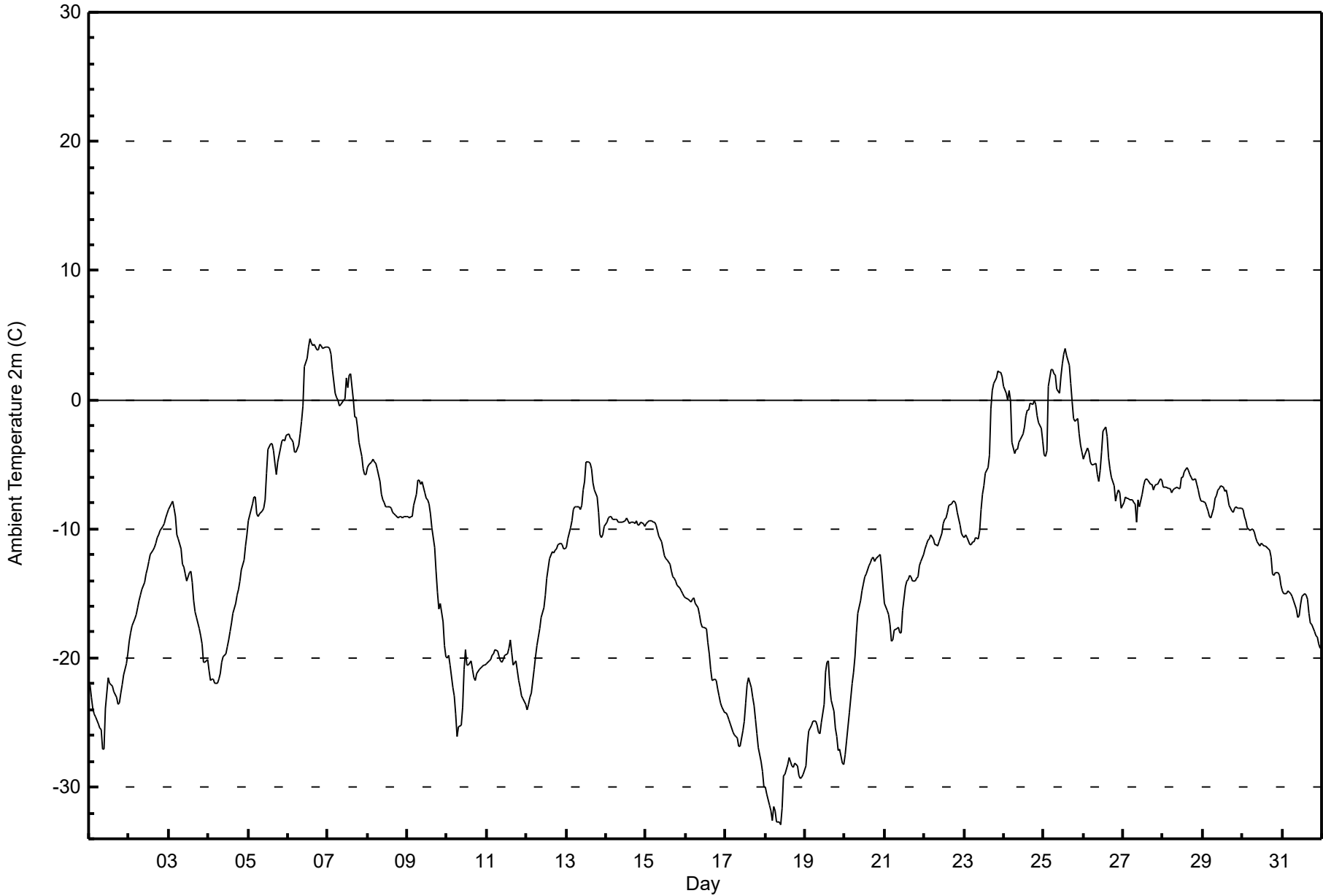
Ambient Temperature 2m (AT2) - C
Buffalo Viewpoint - December 2024

Maximum Value: 4.7 C on Dec 6 14:00		Maximum Daily Average: 1.1 C on Dec 6		Hours in Service:	744																																											
Minimum Value: -32.9 C on Dec 18 10:00		Minimum Daily Average: -30.1 C on Dec 18		Hours of Data:	744																																											
Maximum Diurnal Average: -10.7 C at hour 15		Minimum Diurnal Average: -13.2 C at hour 9		Hours of Missing Data:	0																																											
Monthly Average: -12.32 C		Percentiles: P ₁ = -31.5 P ₁₀ = -24.2 Q ₁ = -18.9 Median = -10.8 Q ₃ = -6.9 P ₉₀ = -2.1 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-Dec	-22.1	-23.0	-24.0	-24.3	-24.6	-25.1	-25.4	-25.6	-27.1	-27.1	-23.9	-21.5	-22.0	-22.0	-22.1	-22.6	-23.0	-23.5	-23.4	-22.8	-22.1	-21.3	-20.5	-19.7	-23.3	-19.7																						
2-Dec	-18.7	-18.0	-17.5	-17.0	-16.6	-16.1	-15.6	-15.1	-14.6	-14.2	-13.5	-13.0	-12.6	-12.0	-11.7	-11.5	-11.1	-10.7	-10.4	-10.1	-9.8	-9.6	-9.2	-8.8	-13.2	-8.8																						
3-Dec	-8.5	-8.1	-7.8	-8.4	-9.1	-10.4	-10.8	-11.6	-12.7	-12.9	-13.5	-14.0	-13.4	-13.3	-14.1	-15.6	-16.4	-16.9	-17.7	-18.3	-18.9	-20.3	-20.3	-20.1	-13.9	-7.8																						
4-Dec	-21.0	-21.7	-21.6	-21.6	-22.0	-21.9	-21.7	-21.2	-20.3	-19.9	-19.7	-19.1	-18.6	-17.9	-17.3	-16.6	-15.8	-15.1	-14.7	-14.0	-13.2	-12.4	-11.3	-10.4	-17.9	-10.4																						
5-Dec	-9.3	-8.9	-8.1	-7.5	-7.5	-8.8	-9.0	-8.8	-8.6	-8.4	-7.8	-5.7	-3.8	-3.4	-3.4	-3.9	-5.0	-5.8	-4.8	-3.7	-3.2	-3.1	-3.1	-2.8	-6.0	-2.8																						
6-Dec	-2.7	-3.0	-3.1	-3.3	-4.0	-4.0	-3.5	-2.7	-1.6	-0.5	2.5	3.2	4.1	4.7	4.4	4.2	4.3	3.8	3.9	4.3	4.1	4.0	4.1	4.1	1.1	4.7																						
7-Dec	4.1	3.9	3.5	2.3	0.5	0.1	-0.1	-0.4	-0.3	-0.1	0.1	1.7	0.9	1.9	2.0	0.0	-1.3	-1.3	-2.2	-3.3	-4.4	-5.4	-5.8	-5.8	-0.4	4.1																						
8-Dec	-5.2	-5.0	-4.8	-4.6	-4.8	-4.9	-5.4	-6.4	-7.4	-7.7	-8.0	-8.3	-8.3	-8.3	-8.4	-8.8	-8.9	-9.0	-9.2	-9.0	-9.0	-9.2	-9.0	-9.0	-7.4	-4.6																						
9-Dec	-9.1	-9.2	-9.0	-9.0	-8.2	-7.3	-6.2	-6.2	-6.6	-6.4	-7.2	-7.7	-7.7	-8.0	-8.8	-9.9	-11.4	-13.3	-14.9	-16.2	-15.8	-17.2	-19.0	-19.9	-10.6	-6.2																						
10-Dec	-20.0	-19.8	-20.5	-22.3	-22.9	-24.3	-26.1	-25.3	-25.2	-23.8	-20.8	-19.4	-20.5	-20.5	-20.2	-20.9	-21.6	-21.7	-21.2	-20.9	-20.7	-20.6	-20.6	-20.6	-21.7	-19.4																						
11-Dec	-20.4	-20.3	-20.1	-19.8	-19.6	-19.4	-19.5	-19.9	-20.2	-20.3	-20.1	-19.8	-19.7	-19.2	-18.6	-19.6	-20.5	-20.3	-21.0	-21.7	-22.3	-22.9	-23.2	-23.6	-20.5	-18.6																						
12-Dec	-24.0	-23.5	-23.1	-22.8	-20.9	-19.8	-19.0	-18.4	-17.7	-16.9	-16.1	-15.1	-13.8	-13.1	-12.3	-11.7	-11.8	-11.7	-11.5	-11.2	-11.1	-11.2	-11.5	-11.6	-15.8	-11.1																						
13-Dec	-11.4	-10.8	-9.9	-9.4	-8.5	-8.3	-8.3	-8.3	-8.5	-8.2	-7.0	-6.3	-4.9	-4.8	-5.0	-5.4	-6.4	-7.0	-7.5	-8.7	-10.5	-10.6	-10.4	-9.8	-8.2	-4.8																						
14-Dec	-9.4	-9.2	-9.0	-9.1	-9.2	-9.3	-9.3	-9.5	-9.5	-9.5	-9.4	-9.3	-9.1	-9.4	-9.6	-9.5	-9.5	-9.6	-9.4	-9.7	-9.7	-9.4	-9.6	-9.8	-9.4	-9.0																						
15-Dec	-9.6	-9.5	-9.4	-9.3	-9.5	-9.5	-9.7	-10.1	-10.6	-11.0	-11.6	-12.1	-12.3	-12.4	-12.8	-13.3	-13.7	-13.8	-14.1	-14.3	-14.5	-14.7	-15.0	-15.2	-12.0	-9.3																						
16-Dec	-15.4	-15.5	-15.6	-15.7	-15.5	-15.4	-15.8	-16.1	-16.7	-17.3	-17.6	-17.6	-17.7	-18.8	-19.6	-20.8	-21.7	-21.6	-21.8	-22.4	-22.9	-23.5	-23.8	-24.2	-18.9	-15.4																						
17-Dec	-24.2	-24.4	-24.7	-25.1	-25.7	-26.0	-26.0	-26.2	-26.8	-26.8	-25.7	-24.9	-23.5	-22.1	-21.6	-22.3	-23.0	-23.7	-24.8	-25.9	-27.0	-28.0	-28.8	-30.0	-25.3	-21.6																						
18-Dec	-30.0	-30.5	-31.4	-31.8	-32.6	-31.5	-31.8	-32.7	-32.7	-32.9	-31.6	-29.1	-29.1	-28.2	-27.8	-28.0	-28.4	-28.4	-28.1	-28.3	-29.1	-29.3	-29.2	-29.0	-30.1	-27.8																						
19-Dec	-28.3	-26.7	-25.7	-25.4	-25.2	-24.9	-24.9	-25.2	-25.8	-25.9	-25.0	-23.6	-21.1	-20.4	-20.3	-22.2	-23.3	-24.1	-25.5	-26.1	-27.2	-27.1	-28.1	-28.3	-25.0	-20.3																						
20-Dec	-27.5	-26.5	-25.4	-24.3	-21.9	-21.1	-19.9	-18.0	-16.6	-15.6	-14.8	-14.2	-13.8	-13.5	-12.9	-12.6	-12.4	-12.2	-12.5	-12.3	-12.0	-12.0	-13.1	-14.4	-16.6	-12.0																						
21-Dec	-15.7	-16.3	-16.7	-17.4	-18.7	-18.6	-17.8	-17.7	-17.6	-18.1	-18.0	-16.3	-14.5	-14.0	-13.9	-13.6	-13.7	-14.0	-14.0	-13.9	-13.7	-12.9	-12.5	-12.0	-15.5	-12.0																						
22-Dec	-11.5	-11.2	-10.9	-10.8	-10.5	-10.7	-11.2	-11.3	-11.3	-11.0	-10.3	-9.6	-9.2	-9.2	-8.7	-8.2	-8.1	-7.9	-7.8	-8.1	-8.7	-9.7	-10.4	-10.6	-9.9	-7.8																						
23-Dec	-10.7	-10.5	-10.7	-11.2	-11.2	-11.0	-11.0	-10.7	-10.7	-10.2	-8.6	-7.3	-6.7	-5.7	-5.3	-4.3	-0.7	0.7	1.2	1.7	2.2	2.1	2.1	1.8	-5.6	2.2																						
24-Dec	1.0	0.5	0.0	0.8	0.0	-3.4	-4.2	-3.8	-3.8	-3.3	-3.1	-2.6	-2.1	-1.3	-0.9	-0.8	-0.3	-0.4	-0.1	-0.4	-1.2	-1.8	-2.2	-3.1	-1.5	1.0																						
25-Dec	-4.2	-4.4	-3.9	1.1	2.3	2.4	2.0	1.9	0.8	0.4	1.8	2.8	3.6	3.9	3.4	2.7	1.2	-0.2	-1.4	-1.7	-1.4	-2.6	-3.6	-4.1	0.1	3.9																						
26-Dec	-4.6	-4.3	-3.7	-4.1	-4.8	-5.1	-5.0	-5.0	-5.8	-6.3	-5.5	-4.0	-2.5	-2.1	-2.9	-4.5	-5.3	-6.0	-6.7	-7.9	-7.3	-7.0	-7.2	-8.4	-5.2	-2.1																						
27-Dec	-7.9	-7.6	-7.6	-7.7	-7.8	-7.8	-8.0	-8.0	-9.4	-7.8	-8.3	-7.3	-6.6	-6.2	-6.1	-6.2	-6.5	-6.6	-7.0	-6.7	-6.5	-6.6	-6.2	-6.2	-7.2	-6.1																						
28-Dec	-6.8	-6.8	-6.8	-6.8	-6.9	-7.2	-7.0	-6.9	-6.8	-6.9	-6.9	-6.0	-6.0	-5.6	-5.2	-5.5	-5.8	-6.0	-6.2	-6.1	-6.5	-7.0	-7.5	-7.8	-6.6	-5.2																						
29-Dec	-7.9	-8.0	-8.2	-8.6	-9.1	-9.2	-8.4	-7.6	-7.4	-7.0	-6.9	-6.7	-6.8	-7.1	-7.0	-7.6	-8.2	-8.6	-8.7	-8.4	-8.3	-8.4	-8.4	-8.4	-8.0	-6.7																						
30-Dec	-8.5	-9.0	-9.4	-9.9	-10.1	-10.0	-10.0	-10.3	-10.7	-11.0	-11.3	-11.1	-11.3	-11.3	-11.4	-11.5	-11.6	-12.2	-13.5	-13.6	-13.3	-13.4	-13.7	-14.4	-11.4	-8.5																						
31-Dec	-14.8	-15.0	-15.0	-14.8	-14.9	-15.0	-15.2	-15.6	-16.2	-16.9	-16.8	-15.9	-15.2	-15.0	-15.1	-15.5	-16.5	-17.3	-17.4	-18.0	-18.2	-18.4	-18.9	-19.2	-16.3	-14.8																						
																								-13.0	-13.0	-12.9	-12.8	-12.9	-13.0	-13.0	-13.0	-13.2	-13.0	-12.4	-11.6	-11.1	-10.8	-10.7	-11.2	-11.5	-11.8	-12.0	-12.2	-12.3	-12.6	-12.8	-12.9	Diurnal Average
																								4.1	3.9	3.5	2.3	2.3	2.4	2.0	1.9	0.8	0.4	2.5	3.2	4.1	4.7	4.4	4.2	4.3	3.8	3.9	4.3	4.1	4.0	4.1	4.1	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	162	21.77	21.77
-20 - 0	533	71.64	93.41
0 - 10	49	6.59	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

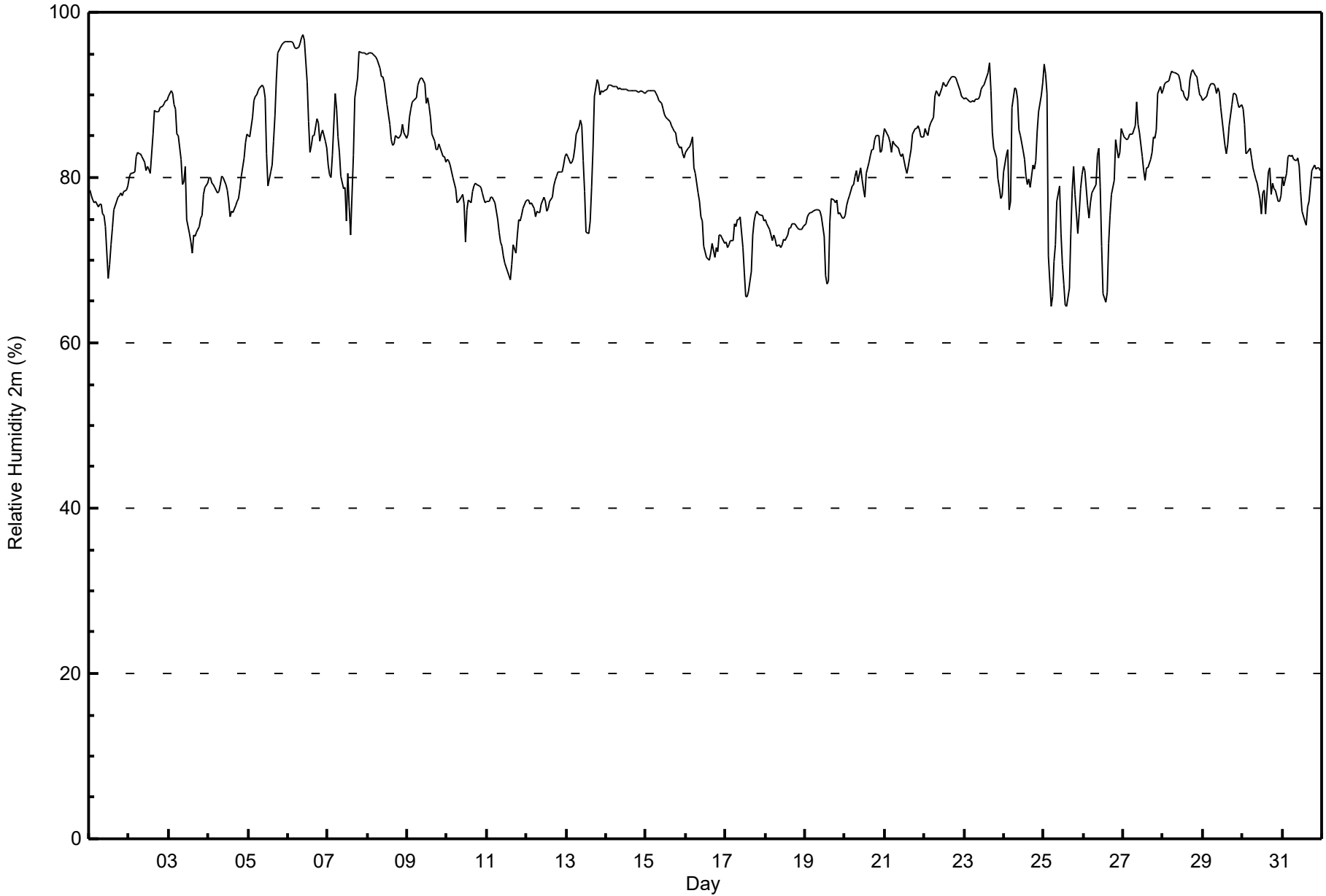
Relative Humidity 2m (RH2) - %
Buffalo Viewpoint - December 2024

Maximum Value: 97.3 % on Dec 6 10:00 Maximum Daily Average: 91.5 % on Dec 28																						Hours in Service:	744																								
Minimum Value: 64.4 % on Dec 25 15:00 Minimum Daily Average: 72.5 % on Dec 17																						Hours of Data:	744																								
Maximum Diurnal Average: 84.0 % at hour 1 Minimum Diurnal Average: 78.2 % at hour 14																						Hours of Missing Data:	0																								
Monthly Average: 82.36 % Percentiles: P ₁ = 66.0 P ₁₀ = 73.1 Q ₁ = 77.1 Median = 82.4 Q ₃ = 89.2 P ₉₀ = 91.2 P ₉₉ = 96.4																						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-Dec	78.4	77.7	77.3	76.9	77.1	76.4	76.8	76.8	75.6	75.4	74.2	67.7	69.6	71.9	73.9	76.0	77.1	77.6	77.7	78.2	77.9	78.2	78.4	79.0	76.1	79.0																					
2-Dec	80.0	80.5	80.6	80.7	82.6	83.0	82.9	82.9	82.5	81.8	80.8	81.3	81.0	80.5	85.3	88.1	88.0	87.9	88.0	88.5	88.7	89.1	89.3	89.4	84.3	89.4																					
3-Dec	89.9	90.4	90.2	88.9	88.3	85.3	85.0	82.2	79.1	79.6	81.3	74.9	73.1	72.1	70.9	73.1	72.9	73.4	74.1	75.1	75.5	78.0	78.8	79.3	79.6	90.4																					
4-Dec	80.0	80.0	79.2	79.2	78.8	78.1	78.4	79.2	80.2	80.1	79.2	78.5	77.0	75.3	75.8	75.8	76.5	77.1	77.4	78.7	80.2	82.3	84.3	85.2	79.0	85.2																					
5-Dec	85.1	85.0	87.2	89.4	89.9	90.0	90.6	90.8	91.1	90.8	89.7	82.9	79.0	80.7	81.5	84.4	87.5	91.9	95.0	95.7	96.1	96.3	96.4	96.4	89.3	96.4																					
6-Dec	96.5	96.4	96.4	96.3	95.8	95.5	95.8	96.3	96.9	97.3	96.6	91.5	86.7	83.0	83.9	85.1	85.0	87.1	86.6	84.5	85.3	85.8	84.4	83.6	90.5	97.3																					
7-Dec	81.5	80.3	80.0	82.7	90.1	88.4	85.0	83.0	80.2	78.6	78.9	74.7	80.5	76.5	73.0	82.8	89.7	90.9	92.0	95.2	95.1	95.1	94.9	85.2	95.2																						
8-Dec	94.9	95.1	95.0	94.9	94.8	94.6	94.3	93.2	92.2	92.2	91.5	90.2	88.7	86.4	84.5	83.9	84.2	85.1	84.7	84.9	85.3	86.4	85.5	84.8	89.5	95.1																					
9-Dec	85.2	87.2	88.3	89.2	89.3	89.7	91.2	91.7	92.0	92.1	91.4	89.0	89.6	88.7	87.2	85.3	84.3	83.4	83.4	84.2	83.5	82.5	82.5	81.9	87.2	92.1																					
10-Dec	82.3	82.0	81.5	80.1	79.3	78.6	76.9	77.1	77.6	78.0	76.8	72.2	76.1	77.3	77.0	78.3	79.1	79.3	79.2	78.9	78.8	78.2	77.4	76.9	78.3	82.3																					
11-Dec	77.1	77.1	77.6	77.7	77.3	77.0	74.9	73.3	72.2	71.7	70.5	69.7	68.7	68.2	67.6	69.6	71.9	70.9	73.1	75.0	74.8	75.4	76.2	77.0	73.5	77.7																					
12-Dec	77.2	77.4	76.8	77.0	76.2	75.3	75.9	75.8	75.7	76.8	77.6	77.1	75.9	76.3	77.2	77.7	79.0	79.7	80.2	80.7	80.6	80.6	81.6	82.5	77.9	82.5																					
13-Dec	82.9	82.5	81.8	81.9	82.4	83.6	85.2	86.0	87.0	86.2	82.0	78.4	73.4	73.2	74.7	78.8	83.5	89.9	91.9	91.3	90.1	90.5	90.4	90.5	84.1	91.9																					
14-Dec	90.7	91.2	91.2	91.2	91.1	91.1	91.0	90.7	90.8	90.7	90.6	90.6	90.8	90.6	90.5	90.5	90.5	90.5	90.6	90.3	90.4	90.6	90.4	90.3	90.7	91.2																					
15-Dec	90.4	90.4	90.5	90.6	90.5	90.5	90.1	89.8	89.3	89.0	88.3	87.7	87.4	87.2	86.8	86.3	85.9	85.6	85.4	84.2	83.6	83.8	82.9	82.3	87.4	90.6																					
16-Dec	83.1	83.5	83.8	84.3	84.9	81.2	80.5	78.1	77.1	75.2	74.8	71.7	70.3	70.2	69.9	70.9	72.1	70.3	71.5	71.1	73.1	73.1	72.6	72.1	75.6	84.9																					
17-Dec	72.3	71.6	71.9	72.4	72.4	74.4	74.0	74.9	74.9	75.3	71.6	68.5	65.6	65.6	66.2	68.6	73.0	74.8	75.7	75.9	75.7	75.4	75.4	74.8	72.5	75.9																					
18-Dec	74.9	74.5	73.8	73.1	72.4	73.1	72.6	71.7	71.9	71.5	71.9	72.6	72.3	73.0	73.8	73.9	74.4	74.4	74.4	73.9	73.7	73.7	73.8	74.1	73.3	74.9																					
19-Dec	74.5	75.2	75.6	75.8	75.8	76.0	76.2	76.1	76.0	75.9	75.2	72.9	68.1	67.2	67.5	74.6	77.4	77.3	76.9	77.4	75.5	75.8	75.2	75.1	74.7	77.4																					
20-Dec	75.5	76.6	77.3	77.7	79.0	79.2	80.2	80.8	79.5	81.1	79.8	78.6	77.7	80.5	81.9	82.8	83.4	83.5	84.6	85.1	85.1	83.0	83.2	84.7	80.9	85.1																					
21-Dec	86.0	85.2	85.0	84.3	83.1	84.4	84.1	83.7	83.6	82.9	82.5	82.9	81.2	80.6	81.4	82.5	83.3	85.3	85.9	86.0	86.2	85.8	84.9	84.9	84.0	86.2																					
22-Dec	85.9	85.5	85.0	86.1	86.6	87.3	89.9	90.5	90.3	89.8	90.8	91.5	91.2	91.0	91.4	91.7	92.2	92.3	92.2	92.0	91.5	90.5	89.9	89.7	89.8	92.3																					
23-Dec	89.6	89.7	89.6	89.2	89.1	89.3	89.2	89.4	89.5	89.9	90.7	90.9	91.1	91.8	92.7	94.0	90.6	85.4	83.5	82.4	79.9	78.8	77.5	77.8	87.6	94.0																					
24-Dec	80.6	82.6	83.4	76.1	77.1	88.4	90.9	90.7	89.5	85.8	85.1	83.2	82.2	80.2	79.2	79.9	78.9	81.5	81.1	82.0	85.6	88.0	90.0	91.6	83.9	91.6																					
25-Dec	93.7	92.5	90.2	70.6	64.4	65.7	69.8	71.9	77.2	79.0	73.2	69.4	67.1	64.6	64.4	66.7	73.2	78.5	81.4	77.9	73.2	75.8	78.6	80.3	75.0	93.7																					
26-Dec	81.4	80.8	76.7	75.1	76.9	78.1	78.5	79.2	82.7	83.6	78.8	71.8	66.0	64.9	66.1	72.0	75.5	77.9	79.7	84.6	83.4	82.4	83.0	86.0	77.7	86.0																					
27-Dec	84.9	84.7	84.5	84.8	85.3	85.2	85.8	86.3	89.2	86.4	85.5	82.6	80.9	79.7	81.1	81.2	82.3	83.1	85.0	84.7	85.7	90.1	91.1	90.2	85.0	91.1																					
28-Dec	90.7	91.4	91.5	91.8	92.4	92.8	92.7	92.7	92.6	92.4	91.7	90.4	90.6	89.9	89.3	89.8	91.9	92.7	93.1	92.4	92.2	91.0	90.0	89.8	91.5	93.1																					
29-Dec	89.3	89.7	89.8	90.4	90.9	91.4	91.4	91.1	90.3	90.8	90.4	88.4	85.5	83.9	82.8	84.1	86.3	88.8	90.1	90.2	90.0	89.2	88.5	88.7	88.8	91.4																					
30-Dec	88.3	86.4	82.9	83.1	83.6	82.3	81.1	80.6	79.9	79.3	77.4	75.6	78.2	78.5	75.5	80.6	81.2	78.0	79.3	78.6	78.4	77.0	77.0	77.7	80.0	88.3																					
31-Dec	80.0	78.9	80.5	82.6	82.7	82.5	82.7	82.2	82.1	82.4	81.4	78.3	75.9	74.7	74.3	76.5	77.1	79.0	80.9	81.6	81.1	81.2	81.1	80.9	80.0	82.7																					
																						84.0	83.9	83.7	83.0	83.2	83.5	83.7	83.5	83.3	82.3	79.9	78.8	78.2	78.3	80.2	81.5	82.4	83.1	83.3	83.1	83.3	83.4	83.6	Diurnal Average		
																						96.5	96.4	96.4	96.3	95.8	95.5	95.8	96.3	96.9	97.3	96.6	91.5	91.2	91.8	92.7	94.0	92.2	92.7	95.0	95.7	96.1	96.3	96.4	96.4	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

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





Maximum Speed: 25 km/h on Dec 24 00:00	Maximum Daily Speed Average: 12.1 km/h on Dec 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 19 15:00	Minimum Daily Speed Average: 0.8 km/h on Dec 1	Hours of Data: 741
Maximum Diurnal Speed Average: 1.9 km/h at hour 4	Minimum Diurnal Speed Average: 0.6 km/h at hour 21	Hours of Missing Data: 3
Monthly Average Velocity: 1.2 km/h 213.0 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 7 Q ₃ = 10 P ₉₀ = 12 P ₉₉ = 18	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-Dec	N9	N7	N6	N6	NNW6	N4	NNW4	NNW3	S4	SSE4	SSW2	SSW2	SE4	SE3	S2	E3	SE4	S3	SE4	SSE3	SSE3	SSE5	SE4	SSE4	E0.8	N9
2-Dec	SSE6	SE6	SE6	SSE5	SE5	SE5	SSE5	SSE5	SSE6	SSE6	SSE8	SSE7	SSE7	SSE7	SSE7	SE7	SSE7	SSE5	SSE6	SSE6	SSE6	SSE5	S4	SSE4	SSE5.7	SSE8
3-Dec	SSE2	N3	NNW12	NNW12	N12	N14	NNW17	NNW17	NW18	NW16	NNW13	NNW16	NW13	NW15	NW15	NW17	NW18	NW15	NW14	NW13	NW10	NNW6	WNW3	NW3	NNW11.5	NW18
4-Dec	WNW5	W4	WSW3	WNW2	SSW1	SW4	S3	SSE4	SE6	SE7	SSE7	SSE7	SSE10	SSE10	SSE9	SSE9	SSE10	SSE10	SSE10	SSE11	SSE11	SSE11	SSE11	SSE8	SSE6.4	SSE13
5-Dec	S8	S7	SSW10	WSW6	SSW6	SSE4	SSE6	SSE7	SE6	SE6	SE6	SE6	SSE4	SE6	SE7	SE6	SE8	SSE6	SSE6	SSE5	SSE5	SSE6	S7	S8	SSE5.4	SSW10
6-Dec	SSE5	SSE6	S5	SSE7	S8	SE6	SSE6	SSE6	SSE6	SSE5	WSW9	W11	W17	WSW15	WSW16	WSW18	W19	W14	WSW9	WSW13	W11	WSW7	WSW8	SSW7	SW7.2	W19
7-Dec	WSW10	WSW13	W17	WSW9	SSE8	S6	S7	SSW7	SW8	SW7	SSW5	WSW1	SE7	SE5	SE3	ESE2	ESE4	NNW3	SW2	NW5	N10	N9	N12	N9	WSW2.4	W17
8-Dec	N10	N7	N6	N9	N7	N8	N10	N10	NNE10	N9	N9	N9	N8	N8	NNE6	NE4	NNE2	E3	E4	SE3	SE4	ESE3	SE4	SSE5	NNE5.0	N10
9-Dec	SSE5	SSE6	SE6	SE6	S4	WSW4	NW5	W4	WSW2	N7	NNE9	N9	N7	N13	N14	N16	N16	N15	N12	N10	N9	N8	NNE8	NNE8	N5.7	N16
10-Dec	WNW2	WNW4	NW3	S2	WSW3	WSW4	SSW4	SW5	SSW3	W4	WNW3	WSW2	SSW1	ESE4	ESE3	SSE4	SE5	SE5	SE5	SSE5	SSE6	SSE7	SE6	SE6	S2.3	SSE7
11-Dec	SE6	SSE5	SE6	SE7	SE6	SE6	ESE8	ESE9	SE9	SE10	SE10	SE9	ESE10	SE9	SE7	ESE6	SE7	SE10	SSE8	SE7	SE8	SE7	SE7	SSE7	SE7.6	ESE10
12-Dec	SSE6	SSE7	SSE7	SSE5	SSE7	SSE7	SSE8	SE9	SSE9	SE9	SSE9	SSE9	SSE9	SSE9	SSE10	SSE9	SSE8	SSE9	SSE9	SSE10	SSE11	SSE11	SSE10	SSE9	SSE8.6	SSE11
13-Dec	SSE10	SSE11	SSE8	SSE10	SSE11	SSE8	SSE10	SSE9	SSE10	SE10	SE8	SE7	SE6	SE6	SE8	SE8	SE9	E3	NW2	WNW3	N9	N8	NNW6	N7	SE4.9	SSE11
14-Dec	N7	N9	N9	N9	NNE10	NNE11	N10	N10	NNE10	NNE11	NNE11	NNE9	N10	NNE10	NNE10	NNE11	N11	N11	NNE12	N11	N10	N11	NNE11	N11	N10.2	NNE12
15-Dec	N12	NNW9	N14	NNW10	N12	NNW10	N14	NNW13	N14	N14	N16	N14	N12	N12	N12	N12	N9	N9	N9	N9	N9	N6	N7	N5	N10.8	N16
16-Dec	NNE3	ENE2	ENE3	NNW0	SSW2	NW8	NW8	NNW10	NW11	NW12	W10	W12	WNW12	WNW13	WNW12	WNW9	W10	WNW15	W17	W18	W17	W18	W18	W21	WNW9.7	W21
17-Dec	W20	W20	W18	W15	WNW9	WNW8	W8	W7	W7	WSW5	WSW7	WSW6	WSW5	W6	W6	SW5	S4	SSE5	SSE6	SSE5	SSE6	SE8	SSE7	SE7	WSW5.8	W20
18-Dec	SSE7	SE8	SSE8	SE7	SSE5	SE5	SE3	S3	SSW1	W2	UO	NW2	NNE4	NNW2	NNE2	NNE4	NNE4	N4	W1	UO	SSE4	SSE4	S3	SSE4	SE1.9	SE8
19-Dec	SE5	SSE6	SSE5	SSE7	SSE8	SSE6	SSE8	SSE7	SSE8	SE7	SSE6	E3	S3	W1	N0	NE5	SE3	S2	S4	SE5	SSE4	S4	SSE6	SE6	SSE4.5	SSE8
20-Dec	S4	SSE4	SE6	S6	SE4	SE4	SSE5	SE7	SSE10	SSE11	SSE12	SSE13	SSE12	SSE10	SSE9	SSE9	SSE6	SSE5	SE5	SSE5	SSE5	SSW6	SSE6	SSE5	SSE6.9	SSE13
21-Dec	SSE5	SSE6	SSE4	SSE4	SSE6	SSE6	SSE5	SE3	SE5	SE5	SSE5	SSE3	SE3	S3	NE3	S3	E3	N3	N5	NE4	N6	N4	WSW2	SW3	SE2.0	N6
22-Dec	WNW3	WSW3	W2	SSW4	S6	S9	S8	S8	S8	S7	S8	S10	S10	SSE12	S8	SSE8	SSE9	S9	SSE8	SSE9	SSE9	SSE7	SSE7	SSE7	S6.9	SSE12
23-Dec	SSE7	SSE9	SSE9	SSE9	SSE8	SSW5	SSE7	SSE6	SSE6	SSE6	SSE6	SSE6	SSE7	SSE6	SSE6	S8	SW10	SW9	SW10	SW14	WSW15	WSW16	WSW20	W25	SSW7.2	W25
24-Dec	W24	W13	WNW3	WSW6	S6	ESE10	SE9	SSE9	SE9	SSE11	SE9	SSE6	SE5	SE9	S6	S2	SSE7	SSE9	SSE10	SSE6	SSE5	SSE5	SSE5	SE6	S5.1	W24
25-Dec	SE6	SE8	SE10	SW12	SW13	SW12	SW12	WSW15	W11	W8	WSW9	WSW15	WSW16	WSW14	SW14	SSW8	SSE7	SSE7	SE8	SE10	ESE9	SE12	SE10	SE9	SSW6.7	WSW16
26-Dec	SE8	SE7	SSE6	SE6	SSE5	SSE6	SSE5	SSE6	SSE8	SSE7	SSE6	SSE5	SSE7	SE6	SSE6	SSE5	SSE7	SSE7	SSE8	SSE6	S6	SE6	SSE5	SSE5	SSE6.1	SE8
27-Dec	SSE6	SE8	SSE9	SSE6	SE7	SSE9	SSE3	SSE2	SSW2	SW3	SE3	SE3	SE3	WNW0	SSE4	S6	SSW1	WSW2	ESE4	SE4	SSE1	E2	ESE3	SE5	SSE3.6	SSE9
28-Dec	ESE5	SE4	E2	NE3	NE4	NNE4	N3	NNW3	NW4	NW4	NW4	NW6	NW6	NW4	NNW3	NW3	NW3	NW4	NW4	N6	N6	NNE6	NNE5	N4	N2.8	N6
29-Dec	N4	N3	NNW2	NW1	UO	SW5	W5	W6	W6	W9	WNW5	NW5	NW8	NW8	NNW5	NNW5	NW5	WNW4	WNW5	NW9	NW10	WNW10	WNW11	WNW10	WNW5.4	WNW11
30-Dec	WNW12	WNW11	WNW13	WNW12	WNW12	WNW13	WNW14	WNW14	WNW16	WNW15	WNW15	WNW17	WNW15	WNW12	W11	WNW10	WNW11	WNW10	NW10	NW9	NW11	NW11	NW10	WNW12	WNW12.1	WNW17
31-Dec	WNW11	WNW11	WNW9	WNW8	WNW7	WNW8	NW9	NW9	NW8	N3	NNE1	WNW7	NW12	NW11	WNW10	NW11	NW10	NW8	N4	NNE5	NNE5	NNE4	NNE5	NNE5	NW6.4	NW12

SW1.6SSW1.6 SW1.3 SW1.9 S1.8SSW1.2 SW1.0 SW1.4SSW1.2SSW1.1 S1.1WSW1.1 SW1.2 SW1.1 SW1.1 SW0.7SSW0.8 SW1.0SSW1.2SSW1.3 SW0.6SSW1.1SSW1.3SSW1.5	Diurnal Average
W24 W20 W18 W15 SW13 N14 NNW17 NNW17 NW18 NW16 N16WNW17 W17WSW15WSW16WSW18 W19 N15 W17 W18 W17 W18WSW20 W25	Diurnal Maximum

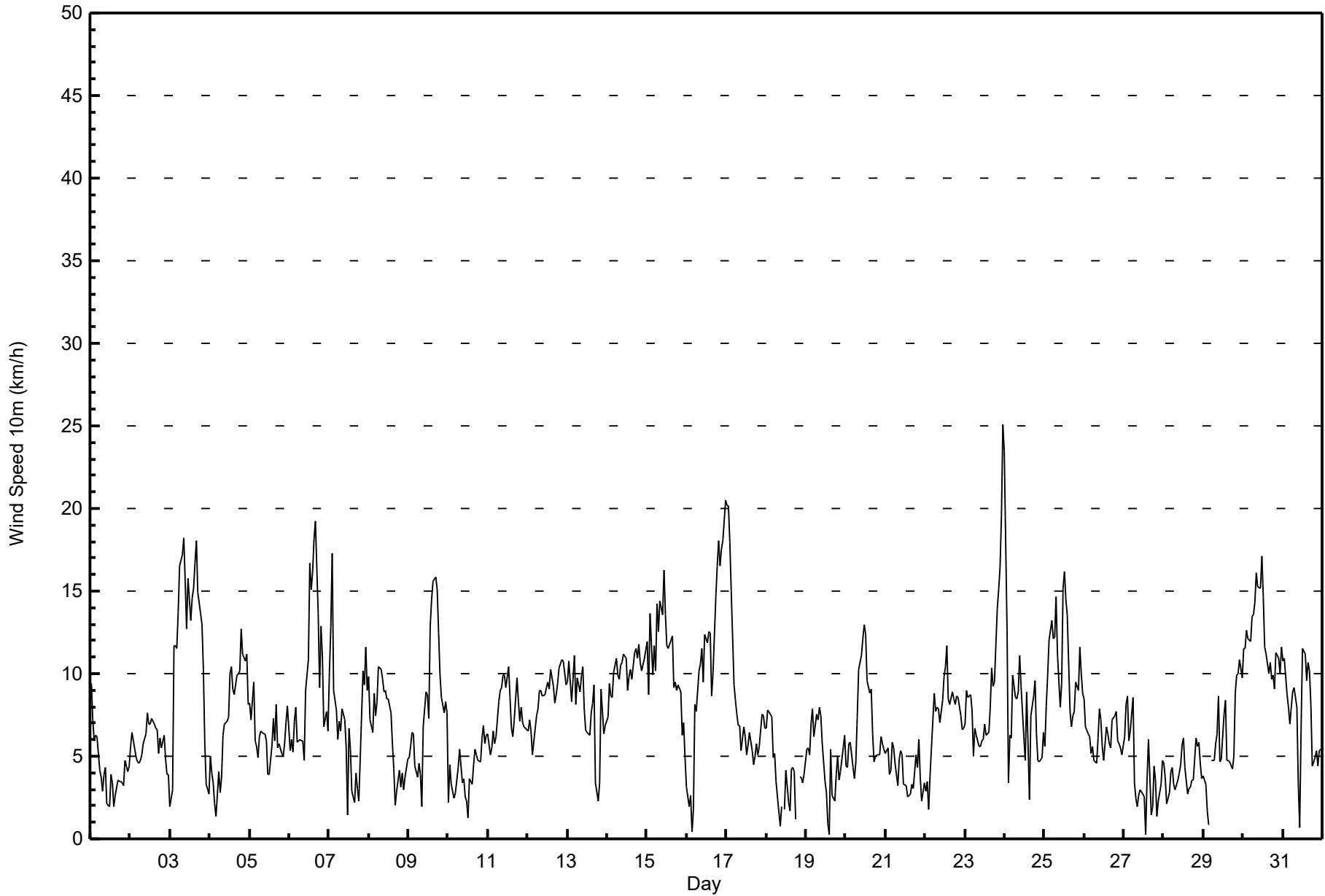
UO - Unstable Operation
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	244	32.93	32.93
6 - 11	396	53.44	86.37
12 - 19	95	12.82	99.19
20 - 28	6	0.81	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Buffalo Viewpoint - December 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	14	6	2	8	8	34	59	18	14	7	12	8	13	17	11	244
6 - 11	50	17	0	0	0	6	73	141	24	6	5	11	15	20	21	7	396
12 - 19	21	1	0	0	0	0	1	5	0	0	6	11	13	18	12	7	95
20 - 28	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	6
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	84	32	6	2	8	14	108	205	42	20	18	35	41	51	50	25	741

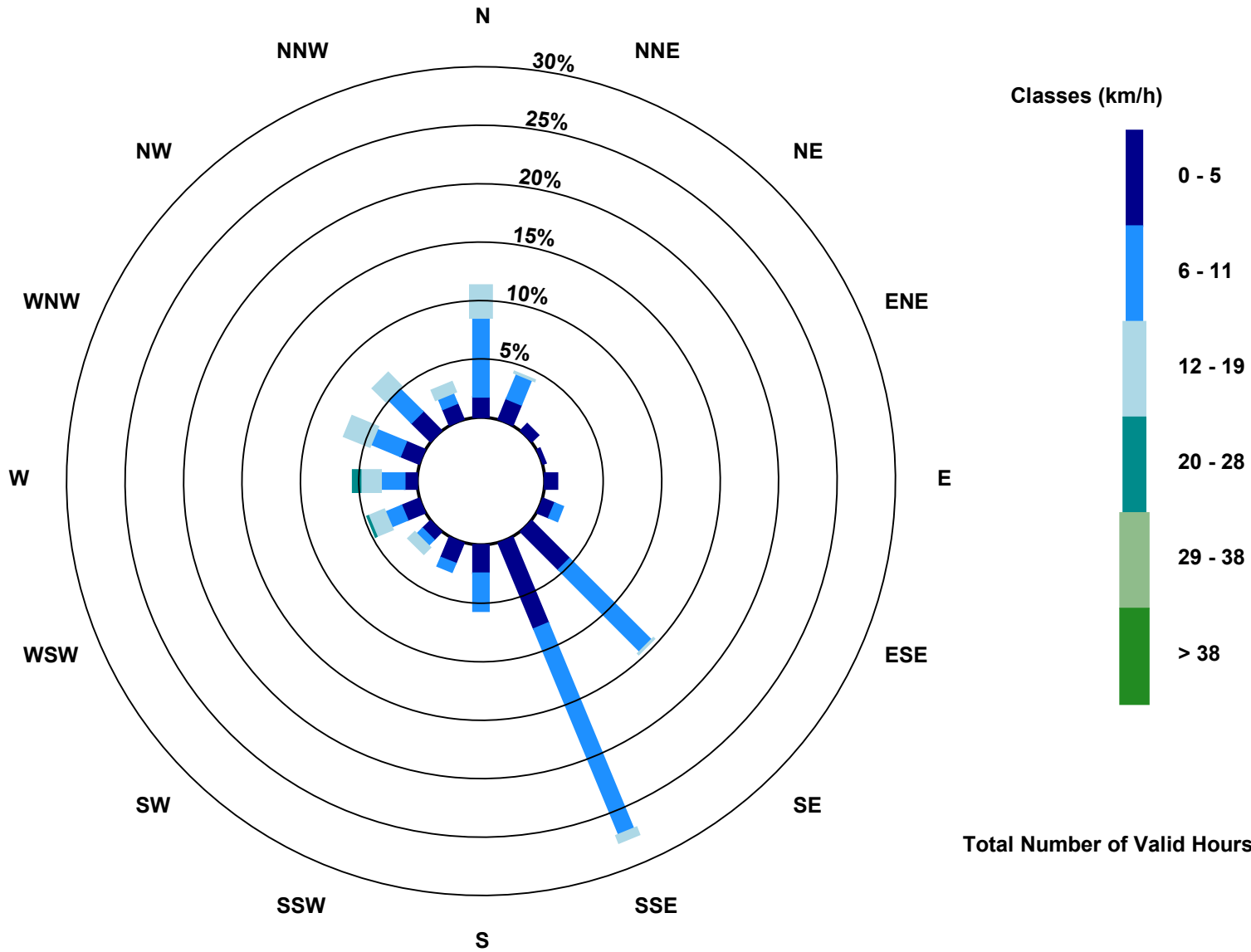
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

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

Direction of Maximum Speed: 259 deg on Dec 24 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 298.8 deg on Dec 30	Hours of Data: 741
Direction of Minimum Speed: 349 deg on Dec 19 15:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.8 deg on Dec 1	Percent Operational Time: 99.6
Monthly Average Direction: 213.0 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-Dec	5	359	352	349	348	356	348	347	181	153	195	193	128	140	169	92	132	174	142	161	150	154	142	152	87.9
2-Dec	149	141	138	151	141	140	147	151	154	149	150	151	157	153	161	145	149	154	153	157	158	153	176	167	151.6
3-Dec	159	0	335	336	355	2	346	330	322	320	345	336	320	317	315	314	310	310	313	316	321	327	285	325	326.5
4-Dec	296	278	247	297	206	222	181	159	141	141	158	158	161	161	161	162	161	159	163	164	167	156	163	168	166.3
5-Dec	183	180	210	256	204	163	157	156	132	124	142	165	147	134	128	143	128	157	150	147	147	167	173	181	161.0
6-Dec	164	168	175	165	169	145	158	155	154	162	252	280	263	255	253	258	264	267	237	239	269	250	239	200	235.3
7-Dec	258	256	264	242	148	186	184	205	221	217	212	246	131	142	143	103	120	331	227	319	355	356	357	356	247.4
8-Dec	358	10	352	354	356	3	356	7	13	9	6	6	4	4	15	35	33	86	85	143	143	123	136	164	13.8
9-Dec	166	148	146	141	181	251	315	278	237	3	18	10	7	6	3	1	1	359	357	356	352	9	14	14	4.1
10-Dec	293	300	305	180	248	243	207	225	196	272	297	237	193	114	121	156	131	139	146	168	153	150	134	142	176.0
11-Dec	135	150	132	136	146	127	123	121	124	132	133	125	119	124	130	122	126	133	151	140	140	138	144	148	132.5
12-Dec	149	148	155	160	155	150	153	145	156	146	151	153	155	158	161	167	160	157	159	154	163	163	168	168	156.8
13-Dec	154	152	158	157	157	159	159	159	151	145	139	141	138	133	136	143	129	98	318	295	353	355	344	352	142.6
14-Dec	4	11	9	6	12	17	10	5	17	12	14	15	15	11	13	20	17	10	4	12	9	358	10	12	11.1
15-Dec	2	343	353	346	351	344	350	345	353	351	355	354	357	356	2	5	1	2	11	9	7	4	7	6	356.3
16-Dec	12	66	61	327	204	312	313	299	317	306	278	263	289	293	284	293	280	282	269	265	266	263	267	266	281.5
17-Dec	266	266	271	269	283	292	280	279	271	254	255	255	247	269	264	214	179	160	160	159	167	143	147	145	248.9
18-Dec	149	137	152	146	163	126	143	189	212	272	UO	311	15	329	14	27	29	356	278	UO	153	158	191	155	139.0
19-Dec	144	156	149	159	157	155	150	153	149	144	147	96	185	266	349	55	127	171	170	138	155	177	148	130	147.8
20-Dec	178	164	129	188	142	146	147	139	148	148	156	153	152	160	158	167	166	160	138	151	149	194	165	153	155.9
21-Dec	149	160	168	165	166	159	148	129	141	139	156	155	132	171	53	177	90	9	6	40	6	352	251	236	138.9
22-Dec	287	251	278	203	182	177	175	169	188	178	173	171	169	159	175	163	164	170	156	163	156	157	164	166	171.7
23-Dec	161	156	153	161	167	196	166	164	164	165	155	143	156	149	157	169	216	215	229	232	238	240	249	259	201.6
24-Dec	264	281	299	247	187	120	141	151	140	158	142	151	134	144	185	181	159	149	162	164	167	160	148	132	170.1
25-Dec	143	139	137	232	232	231	235	239	273	269	246	246	243	242	234	205	166	159	137	131	112	125	135	135	206.5
26-Dec	140	143	148	137	149	155	165	163	163	163	150	154	162	153	131	152	155	152	157	150	161	184	132	156	152.7
27-Dec	160	144	158	162	144	156	163	160	197	230	145	145	134	296	148	169	200	245	121	128	147	92	112	126	151.8
28-Dec	118	132	100	34	36	28	359	336	324	318	318	307	306	315	337	318	321	308	324	354	357	30	22	7	349.3
29-Dec	4	1	333	312	UO	229	279	272	263	274	289	315	315	317	334	345	313	287	294	305	306	302	300	298	301.4
30-Dec	301	301	300	292	282	290	296	294	299	301	298	303	300	294	277	292	297	290	310	317	320	313	304	302	298.8
31-Dec	293	294	294	286	292	297	304	309	320	2	18	297	306	305	302	307	316	320	8	31	29	31	27	27	315.0

225.8 207.9 221.3 223.5 189.9 195.4 216.3 226.1 211.8 198.2 191.1 248.9 234.7 235.9 232.2 215.2 200.6 228.9 192.3 200.9 231.8 195.2 199.4 201.7
 Diurnal Average

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 101 deg on Dec 27 14:00	Hours of Data: 741
Minimum Value: 4 deg on Dec 18 10:00	Hours of Missing Data: 3
Percentiles: P ₁ = 9 P ₁₀ = 15 Q ₁ = 18 Median = 21 Q ₃ = 28 P ₉₀ = 34 P ₉₉ = 73	Hours of Calibration: 0
	Percent Operational Time: 99.6

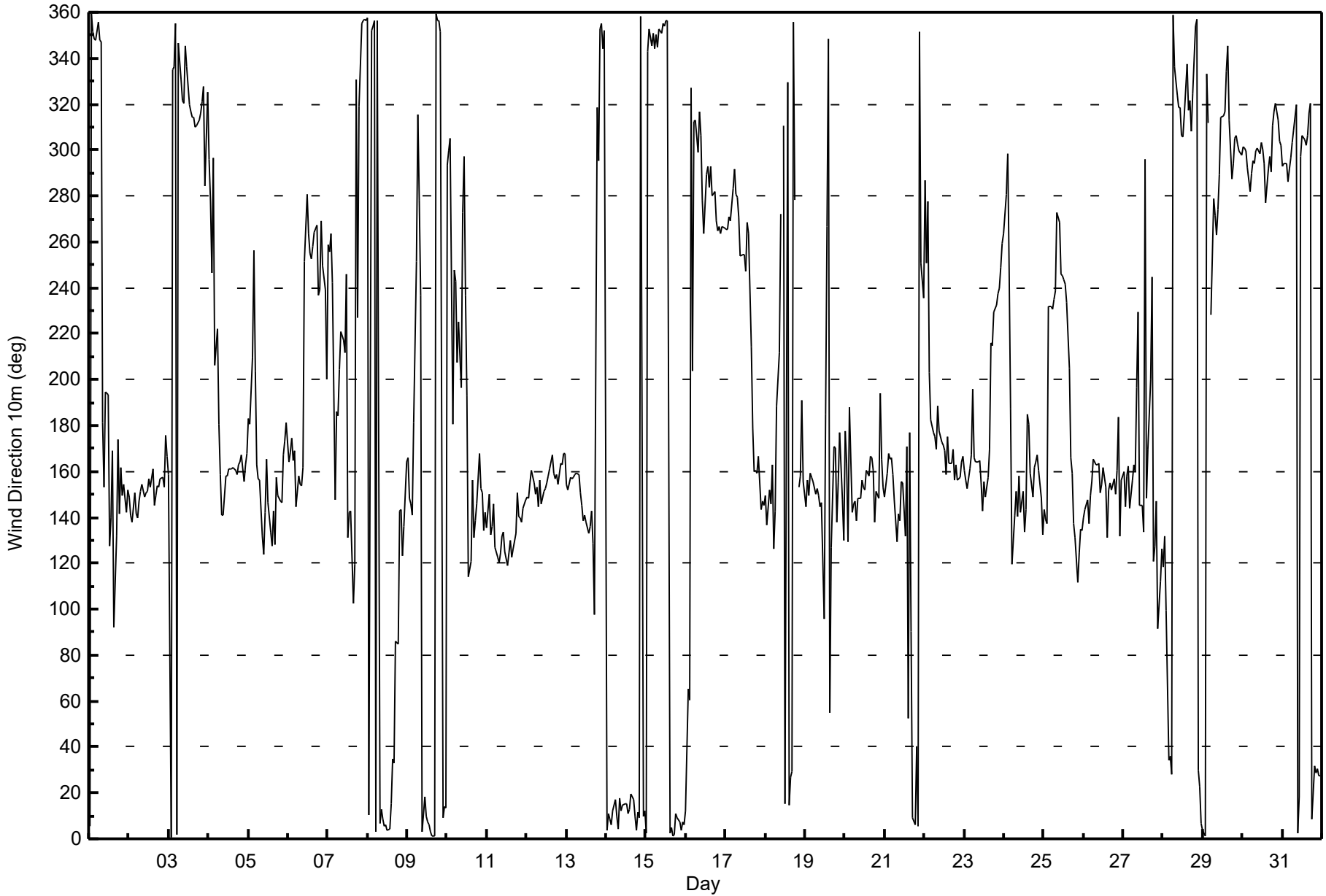
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	18	17	18	16	16	12	20	31	27	8	32	39	26	25	41	39	31	23	19	27	24	29	33	31	41
2-Dec	32	31	30	32	29	30	30	27	31	31	29	32	34	30	28	28	28	32	31	25	28	34	22	27	34
3-Dec	57	72	23	19	21	20	22	22	19	19	22	18	18	21	19	18	18	17	17	17	24	17	34	72	
4-Dec	16	22	40	26	84	18	33	24	25	31	32	30	27	30	32	28	29	31	28	27	29	27	26	26	84
5-Dec	24	23	48	44	24	27	19	22	15	13	19	27	26	18	15	13	10	21	27	25	28	24	27	24	48
6-Dec	29	31	32	23	22	21	25	44	28	62	38	22	12	14	15	15	12	13	19	21	25	29	19	26	62
7-Dec	13	14	11	30	19	19	11	22	15	19	36	86	14	51	50	84	32	49	56	25	20	13	18	21	86
8-Dec	19	19	19	17	19	18	19	21	18	19	20	21	19	21	21	21	32	16	23	33	23	35	25	20	35
9-Dec	19	14	17	20	30	55	28	42	62	37	19	20	20	20	20	20	20	19	16	16	17	25	15	16	62
10-Dec	37	14	20	49	24	8	21	21	23	24	14	52	72	15	25	33	18	17	18	21	26	25	27	30	72
11-Dec	28	32	26	29	30	31	27	24	24	26	30	24	21	28	25	22	25	29	27	28	28	26	25	27	32
12-Dec	24	26	28	30	29	29	29	28	30	31	28	32	30	30	33	28	29	29	30	29	30	28	25	26	33
13-Dec	27	27	28	31	27	32	27	26	23	21	22	21	25	16	12	20	6	39	38	56	18	17	16	15	56
14-Dec	18	18	16	18	17	16	16	17	17	16	16	16	17	16	15	16	18	18	17	17	17	17	17	15	18
15-Dec	17	19	19	18	19	18	20	18	20	19	19	21	22	19	21	20	19	19	20	21	19	20	19	22	22
16-Dec	29	18	15	53	36	30	24	20	19	20	20	12	21	21	19	19	18	19	14	9	11	10	11	11	53
17-Dec	11	11	15	15	18	17	18	17	13	24	20	18	20	19	17	14	19	16	10	19	17	8	13	18	24
18-Dec	13	11	18	12	19	17	17	15	65	4	UO	15	13	28	28	23	12	16	39	UO	24	17	7	25	65
19-Dec	17	22	26	22	17	23	19	15	13	11	20	45	50	79	88	13	31	41	15	10	30	33	17	15	88
20-Dec	25	25	19	26	27	24	24	25	27	30	29	32	31	31	33	30	27	26	23	22	15	21	15	13	33
21-Dec	18	10	34	23	13	10	12	9	8	16	17	22	32	40	73	54	47	69	22	27	14	22	48	25	73
22-Dec	17	20	41	33	20	24	26	25	22	25	28	28	28	27	26	28	27	28	27	27	27	28	27	26	41
23-Dec	23	25	23	23	24	31	29	25	25	23	32	27	27	21	27	14	15	17	18	17	18	18	17	14	32
24-Dec	11	35	68	28	46	13	28	21	20	26	28	32	35	32	36	84	37	28	29	32	35	38	16	14	84
25-Dec	23	16	13	31	16	19	23	20	22	31	35	20	18	19	18	29	17	24	19	17	23	13	21	18	35
26-Dec	21	21	20	18	28	27	34	22	18	21	21	24	29	20	17	20	17	16	13	17	17	17	19	22	34
27-Dec	26	18	19	25	18	15	68	55	73	57	38	30	56	101	55	27	64	50	11	20	21	17	19	24	101
28-Dec	21	23	29	11	16	13	14	34	23	14	14	18	20	20	23	19	15	19	16	18	15	21	21	16	34
29-Dec	17	19	37	22	UO	18	29	35	38	15	20	20	21	19	24	23	28	15	17	18	19	19	19	20	38
30-Dec	20	20	21	20	19	20	20	19	20	20	21	21	19	20	17	20	20	21	18	16	17	18	18	19	21
31-Dec	19	19	19	18	17	19	19	19	16	36	61	24	20	20	20	19	16	18	21	15	15	16	17	16	61
	57	72	68	53	84	55	68	55	73	62	61	86	72	101	88	84	64	69	56	56	35	38	48	34	
	Diurnal Maximum																								

UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

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





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS05 MANNIX DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
DECEMBER 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	54.5	0	4.8	0
H2S (ppb) Average	707	37	37	100	3	0	1.1	0
THC (ppm) Average	708	34	36	99.73	3.8	-	2.8	-
NMHC(ppm) Average	708	34	36	99.73	0.245	-	0.076	-
CH4(ppm) Average	708	34	36	99.73	3.8	-	2.7	-
Temperature 2 m (C) Average	744	0	0	100	3.9	-	0.4	-
Temperature 20 m (C) Average	744	0	0	100	4.7	-	1.3	-
Temperature 45 m (C) Average	744	0	0	100	4.7	-	1.8	-
Temperature 75 m (C) Average	744	0	0	100	4.7	-	2.4	-
Temperature 90 m (C) Average	744	0	0	100	4.8	-	2.7	-
Relative Humidity 2 m (%) Average	744	0	0	100	96	-	93	-
Relative Humidity 20 m (%) Average	712	0	32	95.7	99	-	93	-
Relative Humidity 45 m (%) Average	744	0	0	100	98	-	91	-
Relative Humidity 75 m (%) Average	695	0	49	93.41	100	-	97	-
Relative Humidity 90 m (%) Average	733	0	11	98.52	100	-	93	-
Wind Speed 20 m (km/h) Average	717	0	27	96.37	24	-	18	-
Wind Speed 45 m (km/h) Average	649	0	95	87.23	30	-	23	-
Wind Speed 75 m (km/h) Average	539	0	205	72.45	35	-	25	-
Wind Speed 90 m (km/h) Average	549	0	195	73.79	37	-	27	-
Wind Direction 20 m (deg) Average	717	0	27	96.37	-	-	-	-
Wind Direction 45 m (deg) Average	649	0	95	87.23	-	-	-	-
Wind Direction 75 m (deg) Average	539	0	205	72.45	-	-	-	-
Wind Direction 90 m (deg) Average	549	0	195	73.79	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	717	0	27	96.37	5.7	-	1	-
Vertical Wind Speed 45 m (km/h) Average	649	0	95	87.23	1.4	-	0.5	-
Vertical Wind Speed 75 m (km/h) Average	539	0	205	72.45	1.9	-	0.4	-
Vertical Wind Speed 90 m (km/h) Average	549	0	195	73.79	1.8	-	0.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
DECEMBER 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	1.01	3.3	-	0	0	0.1	0.2	0.6	2.5	54.5
H2S (ppb) Average	707	0.4	0.4	-	0	0.1	0.2	0.2	0.4	0.9	3.4
THC (ppm) Average	708	2.24	0.2	-	2.1	2.1	2.1	2.2	2.3	2.4	3.8
NMHC(ppm) Average	708	0.014	0.03	-	0	0	0	0	0	0	0.245
CH4(ppm) Average	708	2.23	0.2	-	2.1	2.1	2.1	2.2	2.2	2.4	3.8
Temperature 2 m (C) Average	744	-12.45	7.9	-	-32	-24.1	-18.7	-10.9	-7	-3.2	3.9
Temperature 20 m (C) Average	744	-11.96	8.1	-	-30.5	-23.3	-18.7	-10.7	-6.6	-0.8	4.7
Temperature 45 m (C) Average	744	-11.85	8.2	-	-29.3	-22.9	-18.9	-10.9	-6.4	0	4.7
Temperature 75 m (C) Average	744	-11.7	8.3	-	-28.1	-23	-18.9	-11	-6.4	0.9	4.7
Temperature 90 m (C) Average	744	-11.52	8.3	-	-27.6	-23	-18.9	-10.9	-6.2	1.1	4.8
Relative Humidity 2 m (%) Average	744	82.4	7	-	65	73	77	82	89	91	96
Relative Humidity 20 m (%) Average	712	80.8	8	-	62	71	75	80	86	93	99
Relative Humidity 45 m (%) Average	744	81.4	8	-	61	71	76	81	88	91	98
Relative Humidity 75 m (%) Average	695	82	10	-	57	70	75	81	91	97	100
Relative Humidity 90 m (%) Average	733	81.1	9	-	55	69	75	81	89	93	100
Wind Speed 20 m (km/h) Average	717	10.3	5	-	0	3	6	10	14	17	24
Wind Speed 45 m (km/h) Average	649	14.5	7	-	1	5	9	15	20	23	30
Wind Speed 75 m (km/h) Average	539	17.4	8	-	1	6	11	18	24	28	35
Wind Speed 90 m (km/h) Average	549	18.3	8	-	0	7	12	18	25	30	37
Wind Direction 20 m (deg) Average	717	-	-	-	-	-	-	-	-	-	-
Wind Direction 45 m (deg) Average	649	-	-	-	-	-	-	-	-	-	-
Wind Direction 75 m (deg) Average	539	-	-	-	-	-	-	-	-	-	-
Wind Direction 90 m (deg) Average	549	-	-	-	-	-	-	-	-	-	-
Vertical Wind Speed 20 m (km/h) Average	717	0.16	0.6	-	-1.4	-0.3	-0.1	0.1	0.4	0.6	5.7
Vertical Wind Speed 45 m (km/h) Average	649	-0.05	0.4	-	-1.2	-0.7	-0.3	0	0.2	0.5	1.4
Vertical Wind Speed 75 m (km/h) Average	539	0.18	0.3	-	-0.9	-0.2	0	0.2	0.3	0.5	1.9
Vertical Wind Speed 90 m (km/h) Average	549	-0.19	0.4	-	-1.7	-0.7	-0.4	-0.2	0	0.2	1.8

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2, THC/NMHC/CH4	03 Dec 2024 15:00	03 Dec 2024 16:00	2	Maintenance - sample manifold cleaned
Relative Humidity, 20m	05 Dec 2024 18:00	06 Dec 2024 11:00	18	Sensor operated out of range
Relative Humidity, 20m	07 Dec 2024 20:00	07 Dec 2024 21:00	2	Sensor operated out of range
Relative Humidity, 20m	07 Dec 2024 23:00	08 Dec 2024 07:00	9	Sensor operated out of range
Relative Humidity, 20m	23 Dec 2024 15:00	23 Dec 2024 17:00	3	Sensor operated out of range
Relative Humidity, 75m	05 Dec 2024 17:00	06 Dec 2024 08:00	16	Sensor operated out of range
Relative Humidity, 75m	07 Dec 2024 20:00	08 Dec 2024 08:00	13	Sensor operated out of range
Relative Humidity, 75m	09 Dec 2024 07:00	09 Dec 2024 10:00	4	Sensor operated out of range
Relative Humidity, 75m	13 Dec 2024 21:00	13 Dec 2024 21:00	1	Sensor operated out of range
Relative Humidity, 75m	23 Dec 2024 09:00	23 Dec 2024 16:00	8	Sensor operated out of range
Relative Humidity, 75m	28 Dec 2024 11:00	28 Dec 2024 13:00	3	Sensor operated out of range
Relative Humidity, 75m	28 Dec 2024 15:00	28 Dec 2024 16:00	2	Sensor operated out of range
Relative Humidity, 75m	28 Dec 2024 19:00	28 Dec 2024 20:00	2	Sensor operated out of range
Relative Humidity, 90m	05 Dec 2024 19:00	05 Dec 2024 23:00	5	Sensor operated out of range
Relative Humidity, 90m	06 Dec 2024 02:00	06 Dec 2024 06:00	5	Sensor operated out of range
Relative Humidity, 90m	23 Dec 2024 15:00	23 Dec 2024 15:00	1	Sensor operated out of range
Wind Speed, Wind Direction, Vertical Wind Speed, 20m	14 Dec 2024 08:00	14 Dec 2024 15:00	8	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 20m	22 Dec 2024 19:00	23 Dec 2024 13:00	19	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	02 Dec 2024 15:00	02 Dec 2024 16:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	03 Dec 2024 09:00	03 Dec 2024 14:00	6	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	05 Dec 2024 19:00	06 Dec 2024 09:00	15	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	08 Dec 2024 01:00	08 Dec 2024 17:00	17	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	14 Dec 2024 02:00	15 Dec 2024 17:00	40	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	22 Dec 2024 12:00	22 Dec 2024 20:00	9	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 45m	23 Dec 2024 11:00	23 Dec 2024 16:00	6	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 75m	02 Dec 2024 15:00	03 Dec 2024 15:00	25	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 75m	05 Dec 2024 18:00	06 Dec 2024 07:00	14	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 75m	08 Dec 2024 00:00	11 Dec 2024 07:00	80	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 75m	14 Dec 2024 01:00	16 Dec 2024 12:00	60	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 75m	22 Dec 2024 10:00	23 Dec 2024 11:00	26	Flat line in sensor output signal - Sensor frozen

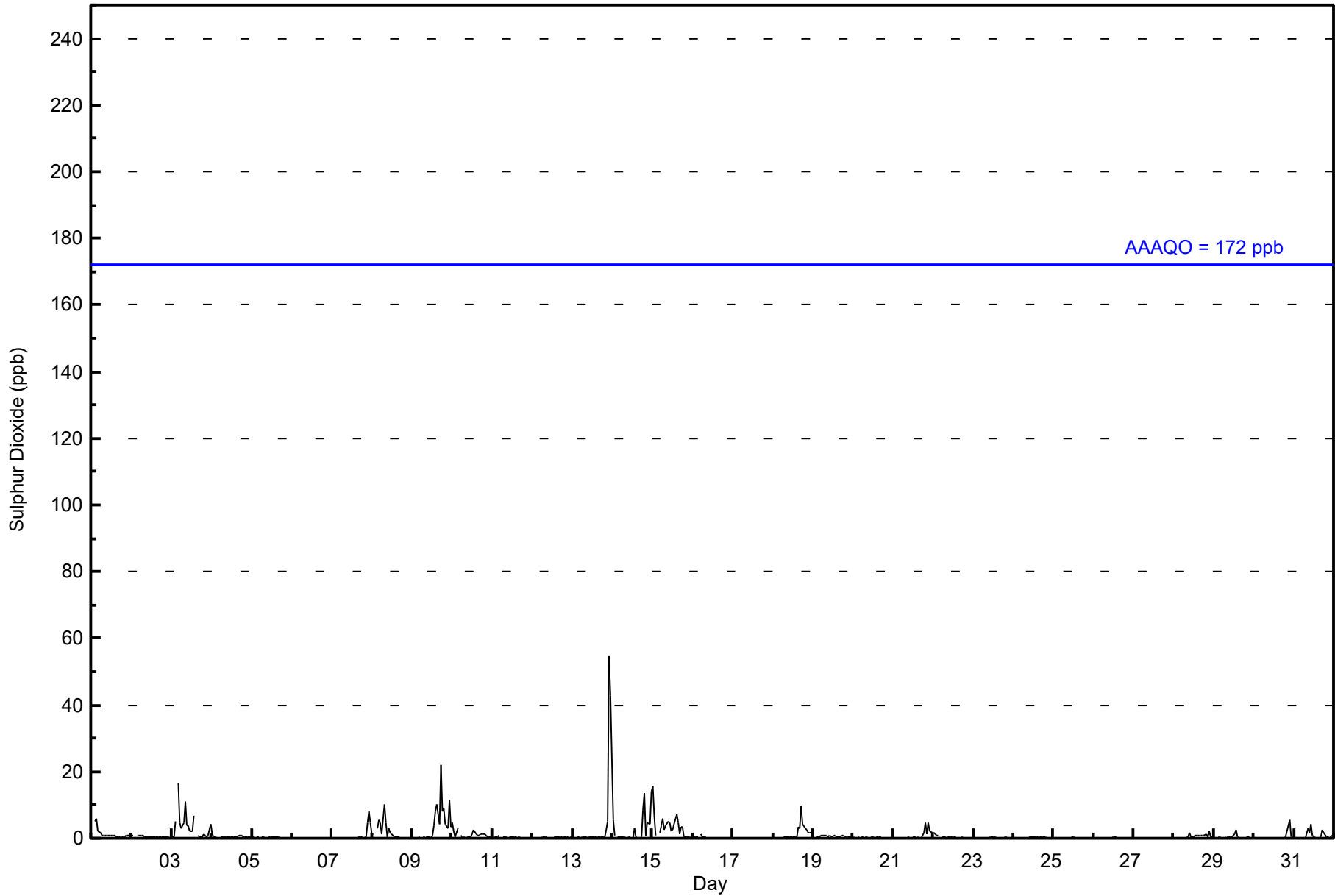
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MANNIX (AMS05)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	02 Dec 2024 23:00	03 Dec 2024 07:00	9	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	03 Dec 2024 13:00	03 Dec 2024 13:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	05 Dec 2024 19:00	06 Dec 2024 07:00	13	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	08 Dec 2024 00:00	11 Dec 2024 13:00	86	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	14 Dec 2024 01:00	16 Dec 2024 12:00	60	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction, Vertical Wind Speed, 90m	22 Dec 2024 09:00	23 Dec 2024 10:00	26	Flat line in sensor output signal - Sensor frozen



Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																									
Maximum Value: 54.5 ppb on Dec 13 23:00		Maximum Daily Average: 4.8 ppb on Dec 13		Hours of Data: 708																																												
Minimum Value: 0.0 ppb on Dec 6 04:00		Minimum Daily Average: 0.0 ppb on Dec 17		Hours of Missing Data: 36																																												
Maximum Diurnal Average: 2.8 ppb at hour 23		Minimum Diurnal Average: 0.5 ppb at hour 12		Hours of Calibration: 34																																												
Monthly Average: 1.01 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.6 P ₉₀ = 2.5 P ₉₉ = 11.6		Percent Operational Time: 99.7																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	2.8	Z	4.9	5.9	2.0	1.9	0.8	1.0	0.7	0.7	0.9	0.7	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.6	0.7	0.9	0.9	1.3	5.9																						
2-Dec	0.9	0.9	Z	1.0	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.5	1.0																						
3-Dec	0.2	0.3	4.9	Z	16.4	4.5	3.0	4.8	11.1	4.0	3.7	2.2	2.1	6.6	M	M	0.6	0.4	0.5	1.4	0.8	0.4	1.1	4.0	3.5	16.4																						
4-Dec	1.3	0.4	0.4	0.3	Z	0.3	0.2	0.4	0.5	0.4	0.4	0.3	0.4	0.5	0.6	0.6	0.6	0.7	0.6	0.5	0.6	0.5	0.4	0.4	0.5	1.3																						
5-Dec	0.3	0.2	0.2	0.2	0.2	Z	0.2	0.4	0.1	0.2	0.2	0.4	0.4	0.4	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4																						
6-Dec	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
7-Dec	0.0	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.3	4.6	8.0	4.8	0.9	8.0																						
8-Dec	1.4	1.4	Z	3.1	5.5	4.6	1.3	10.1	4.7	0.6	2.9	1.7	1.2	0.6	0.5	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	1.8	10.1																						
9-Dec	0.1	0.2	0.1	Z	0.3	0.2	0.2	0.3	0.2	0.4	0.3	0.1	0.7	3.7	8.1	10.2	4.0	22.2	8.1	9.0	4.4	3.0	11.6	3.5	4.0	22.2																						
10-Dec	4.8	2.0	0.4	2.9	Z	0.7	0.3	0.3	0.2	0.3	0.3	0.4	1.1	2.4	1.3	0.8	1.0	1.3	1.4	1.2	0.7	0.4	0.3	0.2	1.1	4.8																						
11-Dec	0.2	0.3	0.4	0.6	1.0	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.3	1.0																						
12-Dec	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	C	C	C	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.4																						
13-Dec	0.3	Z	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.3	0.4	2.7	5.3	54.5	43.0	4.8	54.5																						
14-Dec	5.5	0.9	Z	0.4	0.5	0.3	0.4	0.3	0.2	0.2	0.3	0.2	0.2	3.1	0.4	0.2	0.1	0.3	8.4	13.6	1.0	4.8	4.1	13.9	2.6	13.9																						
15-Dec	15.8	6.6	0.8	Z	1.8	3.9	6.1	2.7	3.7	5.1	4.6	2.1	2.6	4.1	7.3	4.9	1.3	3.5	3.4	0.5	0.5	0.5	0.3	0.2	3.6	15.8																						
16-Dec	0.2	0.2	0.2	0.4	Z	1.1	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.2	1.1																						
17-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
18-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.5	0.6	0.5	0.3	0.4	3.4	3.1	9.7	4.3	3.2	2.4	1.8	1.6	1.5	1.5	9.7																						
19-Dec	0.8	Z	0.6	0.6	0.6	0.8	0.7	0.7	0.7	0.6	0.7	0.6	0.8	0.7	0.5	0.3	0.5	0.9	1.0	0.5	0.3	0.3	0.3	0.2	0.6	1.0																						
20-Dec	0.2	0.1	Z	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.5																						
21-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.3	0.1	0.2	0.2	0.3	0.2	0.4	0.1	0.2	1.9	4.6	1.4	4.8	2.0	1.7	0.8	4.8																						
22-Dec	1.5	1.2	1.0	0.8	Z	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.4	1.5																						
23-Dec	0.1	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.3																						
24-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.4	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.4																						
25-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3																						
26-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
27-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2																						
28-Dec	0.0	0.0	0.1	0.1	Z	0.2	0.1	0.1	0.4	1.6	0.4	0.3	0.4	0.8	1.0	0.7	0.9	0.9	0.7	1.3	0.3	2.1	0.3	0.3	0.6	2.1																						
29-Dec	0.1	0.0	0.1	0.4	0.3	Z	0.3	0.2	0.3	0.3	0.2	0.3	1.1	2.6	0.4	0.1	0.2	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.3	2.6																						
30-Dec	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.4	2.0	5.4	0.4	0.1	0.4	5.4																						
31-Dec	0.1	Z	0.0	0.0	0.0	0.1	0.0	0.0	2.9	1.5	4.3	1.0	0.6	0.2	0.1	0.1	0.3	2.5	1.9	0.2	0.3	0.1	0.3	0.8	0.7	4.3																						
																								1.4	0.6	0.6	0.7	1.2	0.8	0.6	0.8	0.9	0.6	0.8	0.5	0.5	1.0	0.8	0.9	0.5	1.5	1.1	1.3	0.6	1.2	2.8	2.5	Diurnal Average
																								15.8	6.6	4.9	5.9	16.4	4.6	6.1	10.1	11.1	5.1	4.6	2.2	2.6	6.6	8.1	10.2	4.0	22.2	8.4	13.6	4.4	5.4	54.5	43.0	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Mannix - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	699	98.73	98.73
11 - 20	6	0.85	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
Mannix - December 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	32	3	3	4	9	81	193	66	27	17	28	45	54	23	26	673
11 - 20	3	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6
21 - 60	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	68	34	3	3	4	9	81	193	66	27	17	28	45	54	24	26	682

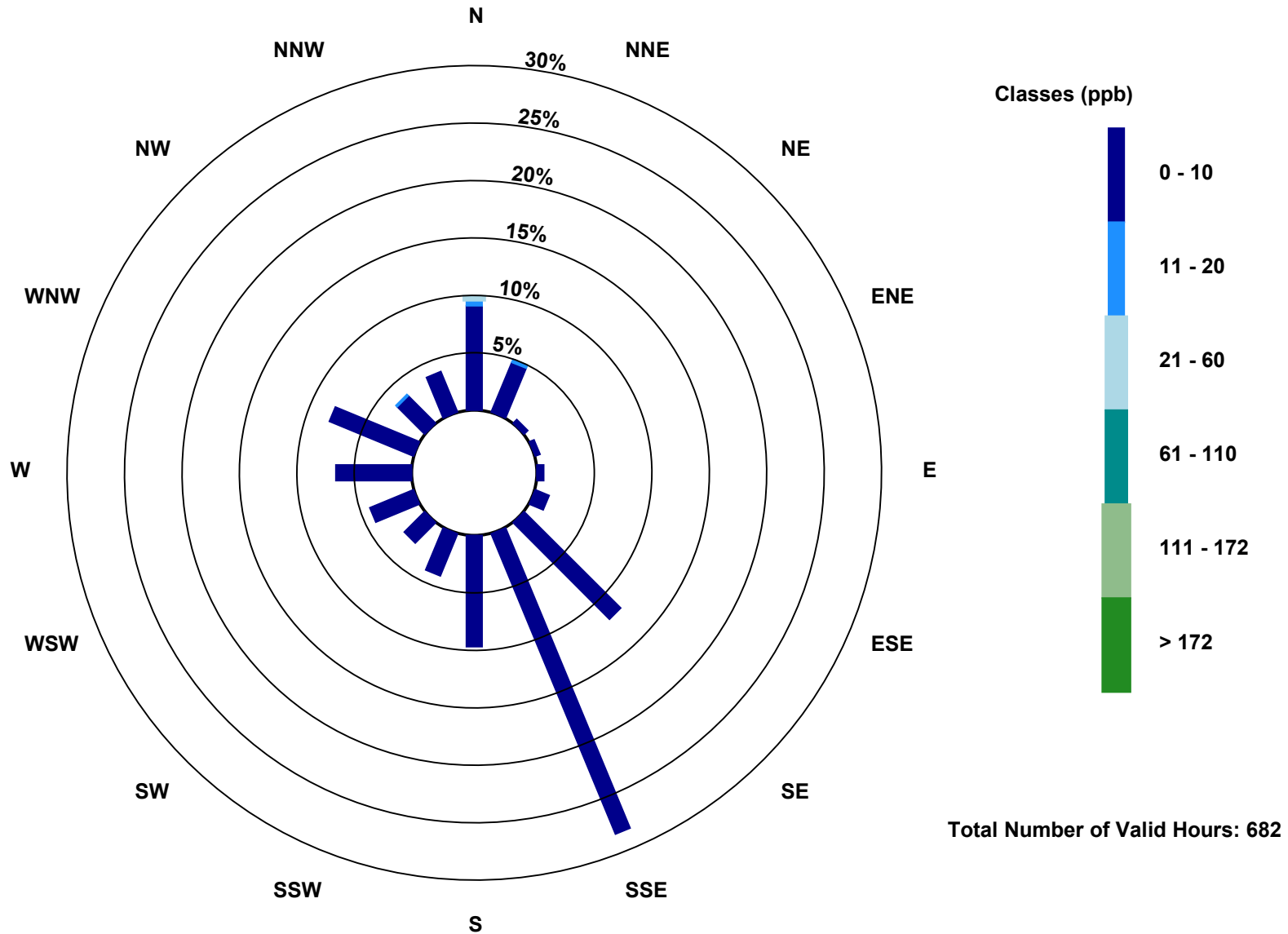
Total Number of Valid Hours: 682

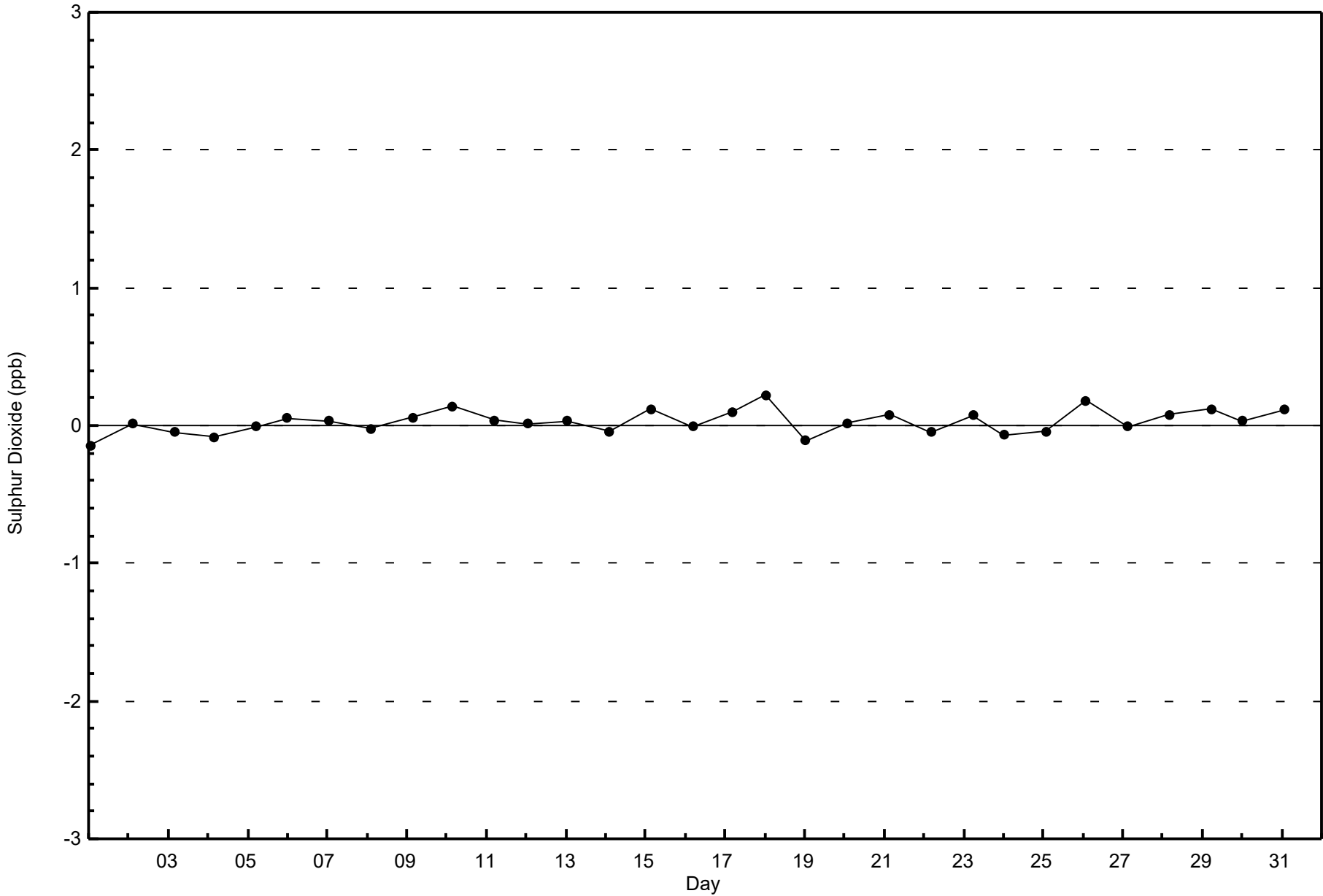
Total Number of Hours: 744

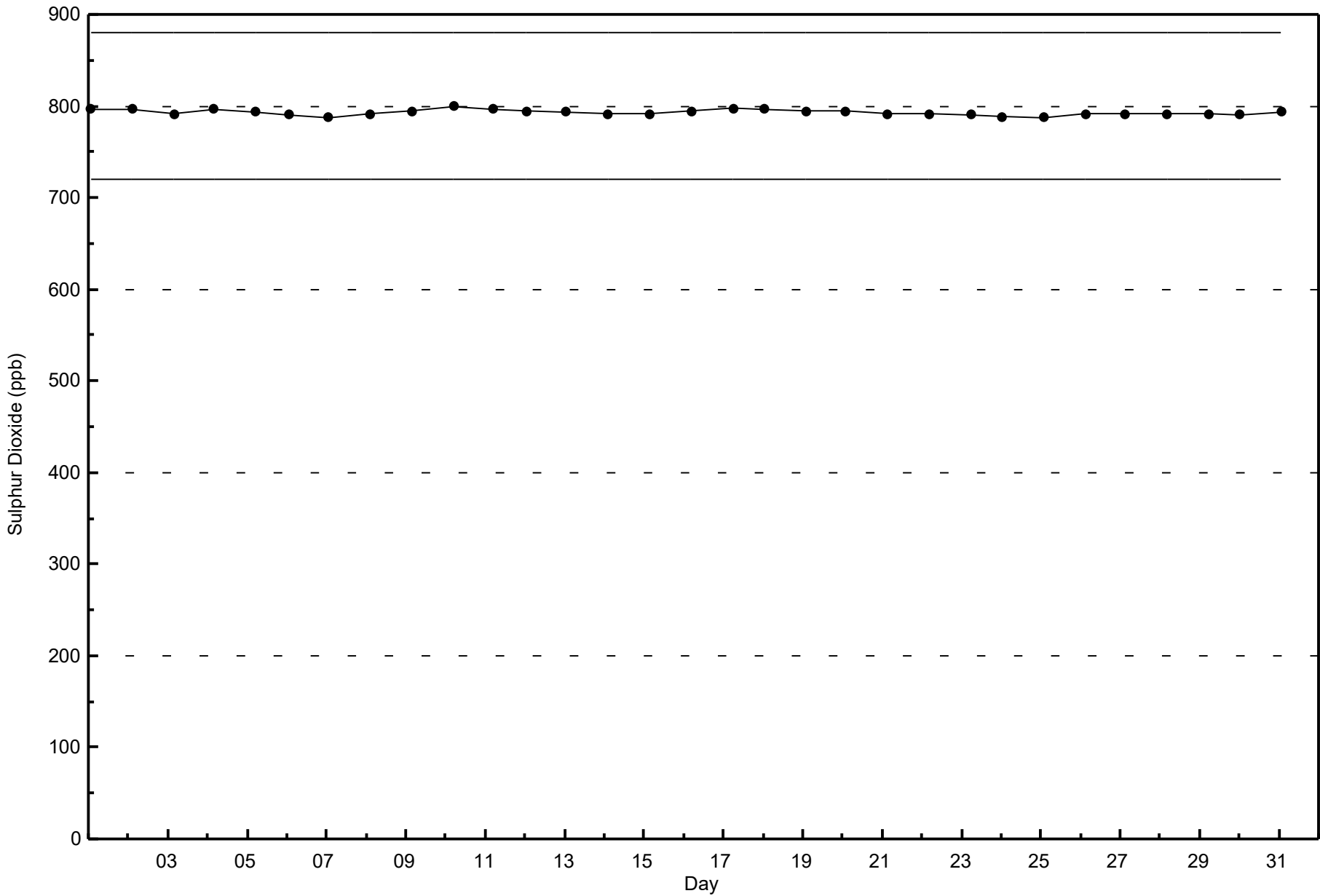


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Mannix









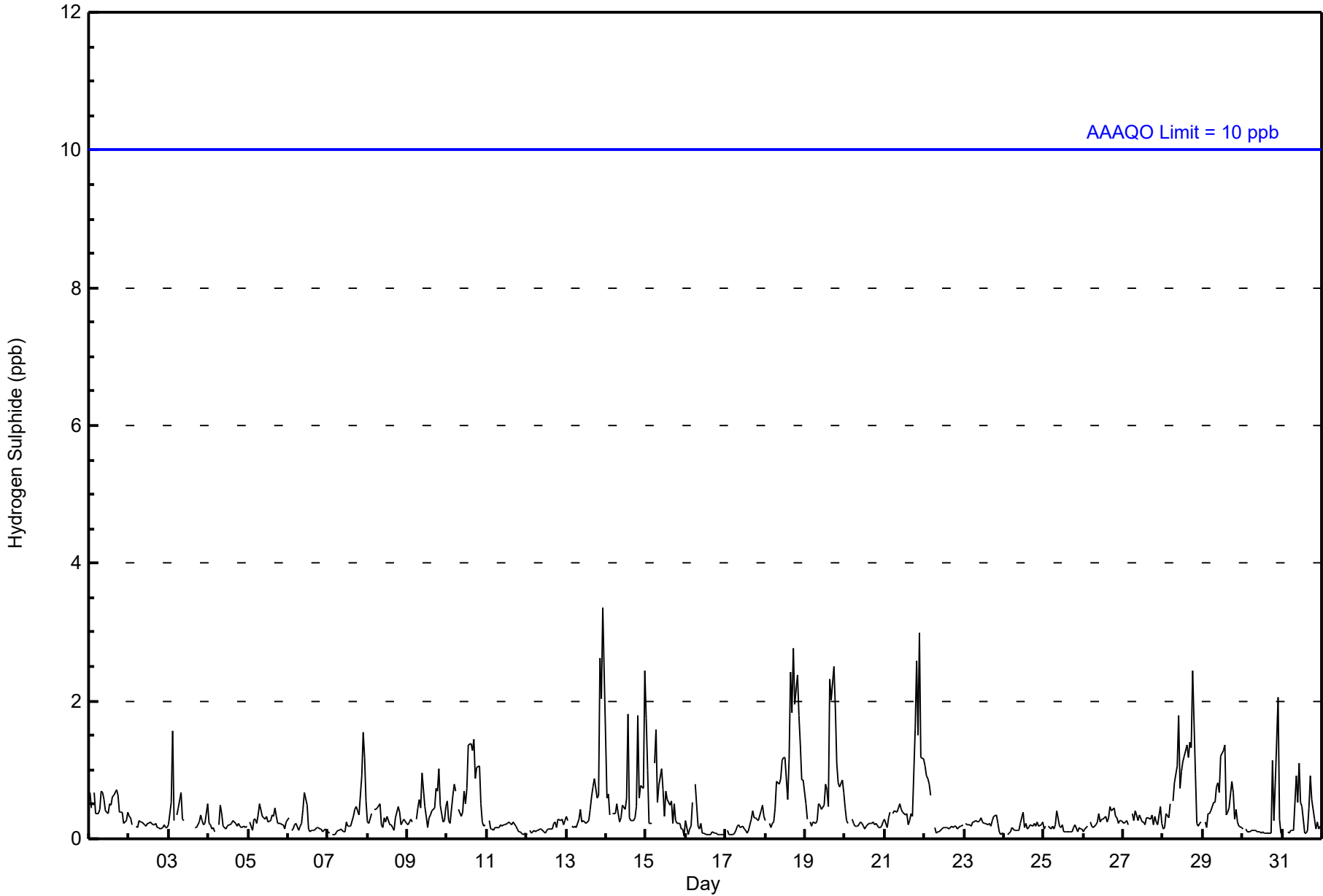
Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H₂S) - ppb

Mannix - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																									
Maximum Value: 3.4 ppb on Dec 13 23:00		Maximum Daily Average: 1.1 ppb on Dec 18																	Hours of Data: 707		Hours of Missing Data: 37																											
Minimum Value: 0.0 ppb on Dec 16 00:00		Minimum Daily Average: 0.2 ppb on Dec 16																	Hours of Calibration: 37		Percent Operational Time: 100.0																											
Maximum Diurnal Average: 0.6 ppb at hour 19		Minimum Diurnal Average: 0.2 ppb at hour 4																																														
Monthly Average: 0.40 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.4 P ₉₀ = 0.9 P ₉₉ = 2.4																																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.7	0.4	Z	0.7	0.4	0.4	0.4	0.7	0.7	0.6	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.6	0.4	0.4	0.4	0.2	0.3	0.4	0.5	0.7																						
2-Dec	0.3	0.3	0.2	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3																						
3-Dec	0.2	0.5	1.6	0.3	Z	0.3	0.5	0.7	0.3	0.3	C	C	C	C	C	C	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.5	1.6																							
4-Dec	0.2	0.2	0.1	0.2	0.1	Z	0.2	0.5	0.4	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	0.5																							
5-Dec	Z	0.2	0.1	0.3	0.3	0.2	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5																							
6-Dec	0.3	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.4	0.7	0.5	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.7																							
7-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.9	1.5	1.2	1.5																							
8-Dec	0.2	0.2	0.4	Z	0.4	0.4	0.4	0.5	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.1	0.3	0.5	0.4	0.2	0.2	0.3	0.2	0.5																							
9-Dec	0.2	0.2	0.3	0.2	Z	0.3	0.4	0.6	0.4	1.0	0.5	0.3	0.2	0.3	0.4	0.4	0.4	0.7	0.7	1.0	0.5	0.2	0.3	0.5	1.0																							
10-Dec	0.5	0.3	0.2	0.6	0.8	0.7	Z	0.4	0.3	0.4	0.7	0.5	0.7	1.4	1.4	1.3	1.4	0.9	1.0	1.0	0.5	0.3	0.2	0.2	1.4																							
11-Dec	Z	0.3	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	0.1	0.1	0.1	0.1	0.1	0.3																							
12-Dec	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	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3																							
13-Dec	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.3	0.4	0.2	0.3	0.2	0.2	0.3	0.4	0.6	0.8	0.9	0.6	0.6	2.6	2.0	3.4	2.4	3.4																							
14-Dec	0.6	0.7	0.4	Z	0.4	0.4	0.5	0.4	0.2	0.3	0.5	0.4	0.6	1.8	0.3	0.3	0.3	0.3	0.5	1.8	0.6	0.8	0.7	2.4	2.4																							
15-Dec	1.7	1.0	0.2	0.2	Z	1.1	1.6	0.5	0.8	1.0	0.7	0.3	0.7	0.6	0.5	0.6	0.2	0.5	0.3	0.2	0.2	0.1	0.2	0.0	1.7																							
16-Dec	0.3	0.1	0.1	0.2	0.5	Z	0.8	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	0.8																							
17-Dec	Z	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	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.5																							
18-Dec	0.3	Z	0.2	0.2	0.2	0.2	0.5	0.8	0.8	0.9	1.1	1.2	1.2	0.6	1.2	2.4	1.8	2.8	2.0	2.4	1.8	1.4	0.8	0.9	2.8																							
19-Dec	0.5	0.3	Z	0.3	0.2	0.3	0.2	0.3	0.5	0.5	0.4	0.5	0.8	0.7	0.5	2.3	2.0	2.5	1.9	1.1	0.8	0.8	0.9	0.7	2.5																							
20-Dec	0.5	0.3	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5																							
21-Dec	0.3	0.2	0.3	0.4	Z	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.2	0.3	0.4	0.3	1.6	2.6	1.5	3.0	1.2	1.1	3.0																							
22-Dec	1.1	0.9	0.9	0.8	0.6	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	0.2	0.2	0.2	0.2	0.2	0.2	1.1																							
23-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.3																							
24-Dec	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4																							
25-Dec	0.1	0.2	Z	0.2	0.1	0.2	0.1	0.2	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.4																							
26-Dec	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.5	0.4	0.4	0.3	0.3	0.2	0.3	0.3	0.5																							
27-Dec	0.2	0.2	0.3	0.2	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.5	0.2	0.5																							
28-Dec	0.1	0.2	0.4	0.3	0.5	Z	0.5	0.8	1.1	1.8	0.7	1.0	1.1	1.2	1.4	1.2	1.4	1.3	2.4	0.9	0.2	0.2	0.2	0.2	2.4																							
29-Dec	Z	0.2	0.2	0.4	0.4	0.4	0.5	0.5	0.8	0.8	0.7	1.2	1.3	1.4	0.3	0.4	0.4	0.8	0.7	0.3	0.4	0.3	0.2	0.2	1.4																							
30-Dec	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	1.1	0.3	0.8	2.1	0.3	0.1	2.1																							
31-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.9	0.5	1.1	0.5	0.5	0.1	0.1	0.1	0.5	0.9	0.6	0.3	0.2	0.2	0.1	0.2	1.1																							
																								0.4	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.5	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	Diurnal Average
																								1.7	1.0	1.6	0.8	0.8	1.1	1.6	0.8	1.1	1.8	1.1	1.2	1.3	1.8	1.4	2.4	2.0	2.8	2.4	2.6	2.6	3.0	3.4	2.4	Diurnal Maximum
Z - zerospan C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Mannix - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	701	99.15	99.15
3 - 4	6	0.85	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
Mannix - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	61	33	3	3	4	9	82	195	65	28	18	27	45	53	23	26	675
3 - 4	3	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	6
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	64	34	3	3	4	9	82	196	65	28	18	27	45	54	23	26	681

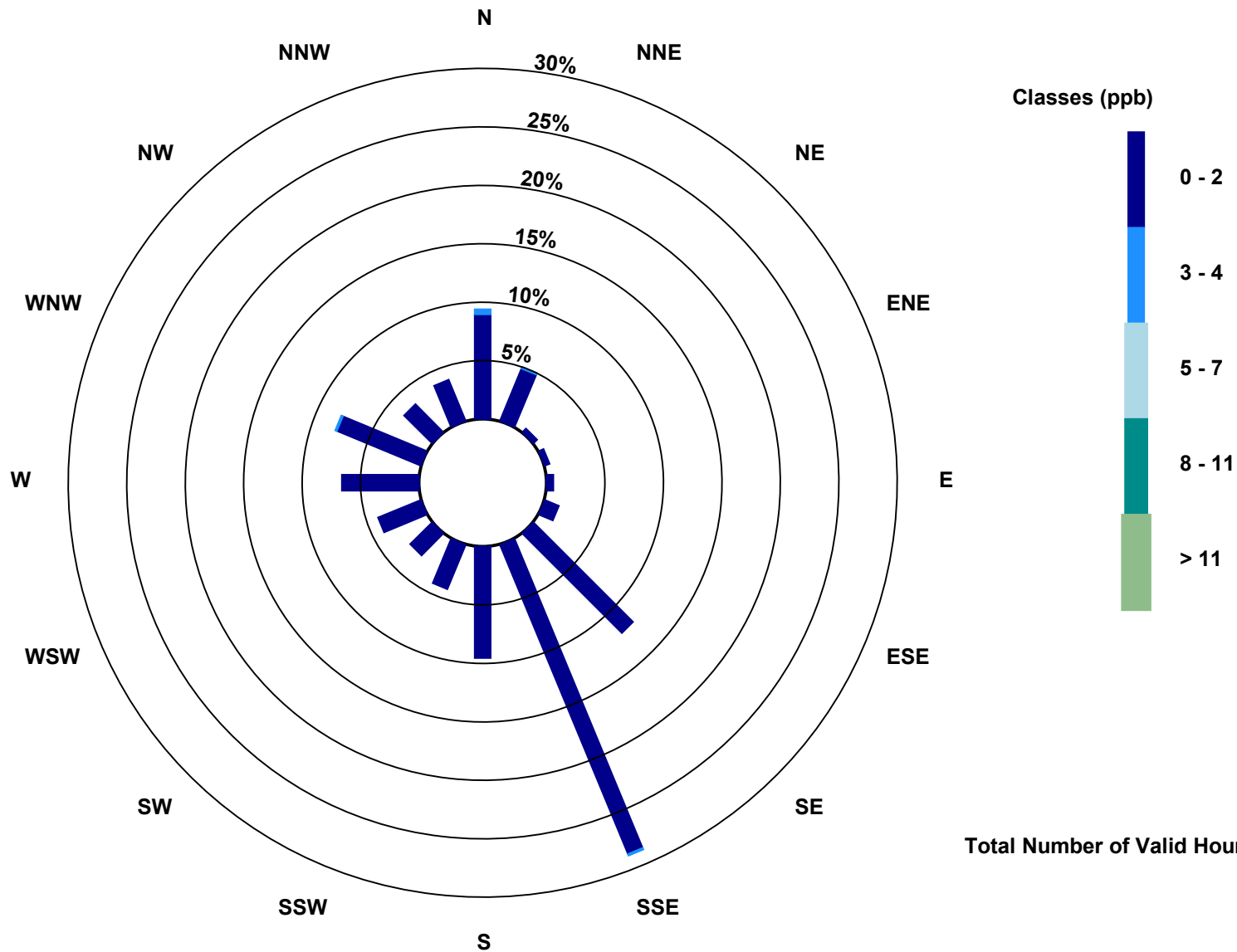
Total Number of Valid Hours: 681

Total Number of Hours: 744

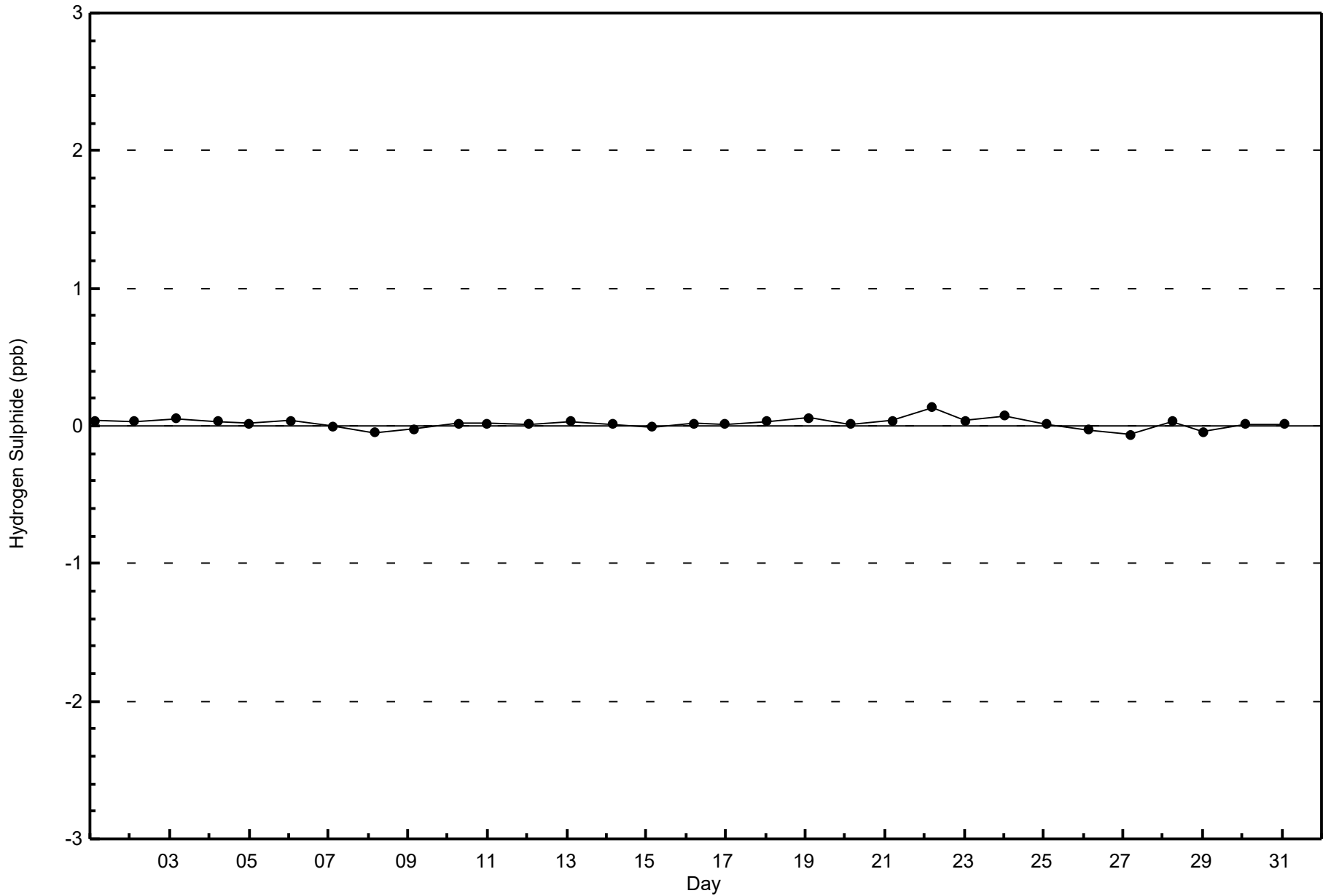


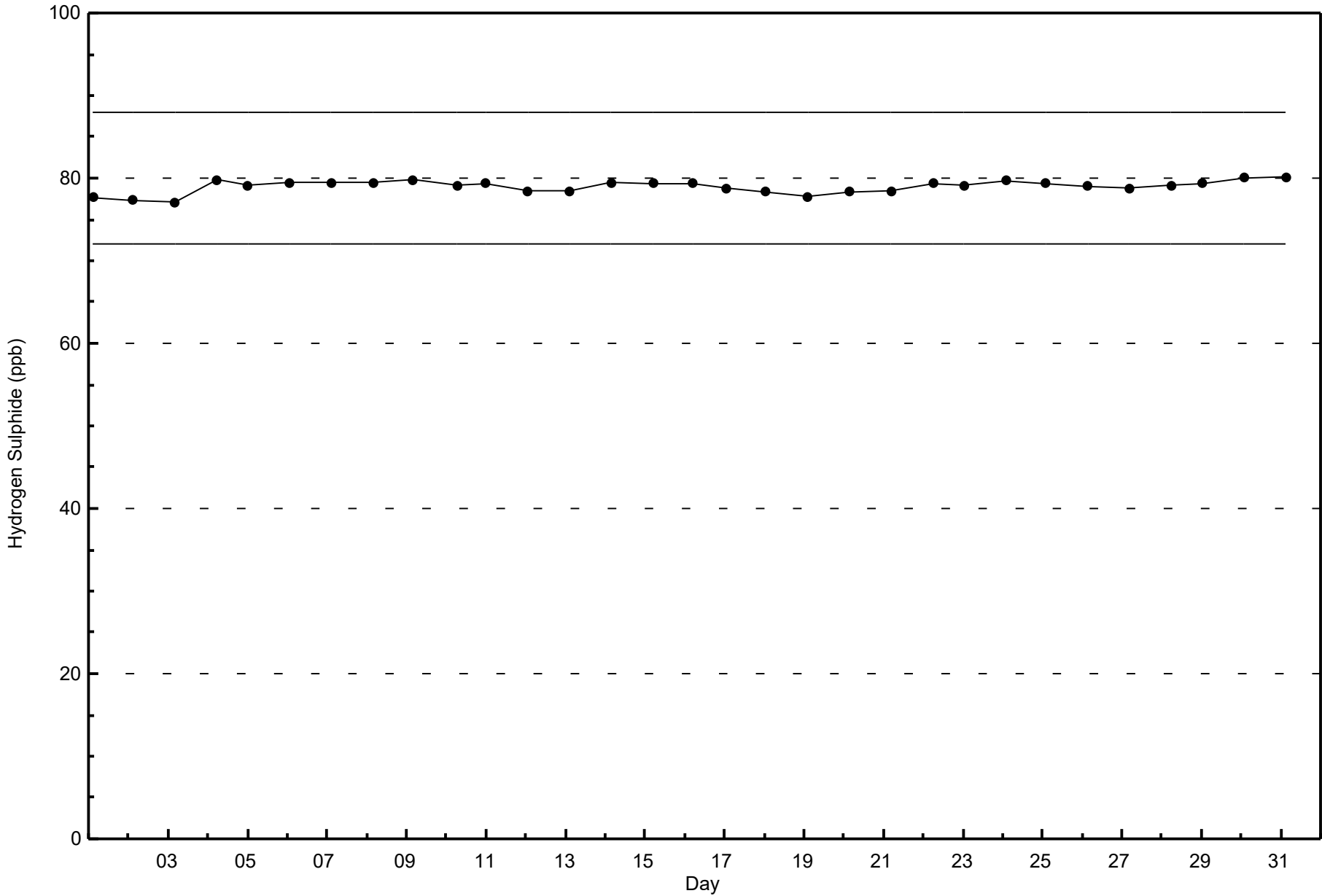
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Mannix



Total Number of Valid Hours: 681







Wood Buffalo Environmental Association
Summary of Hour Averages

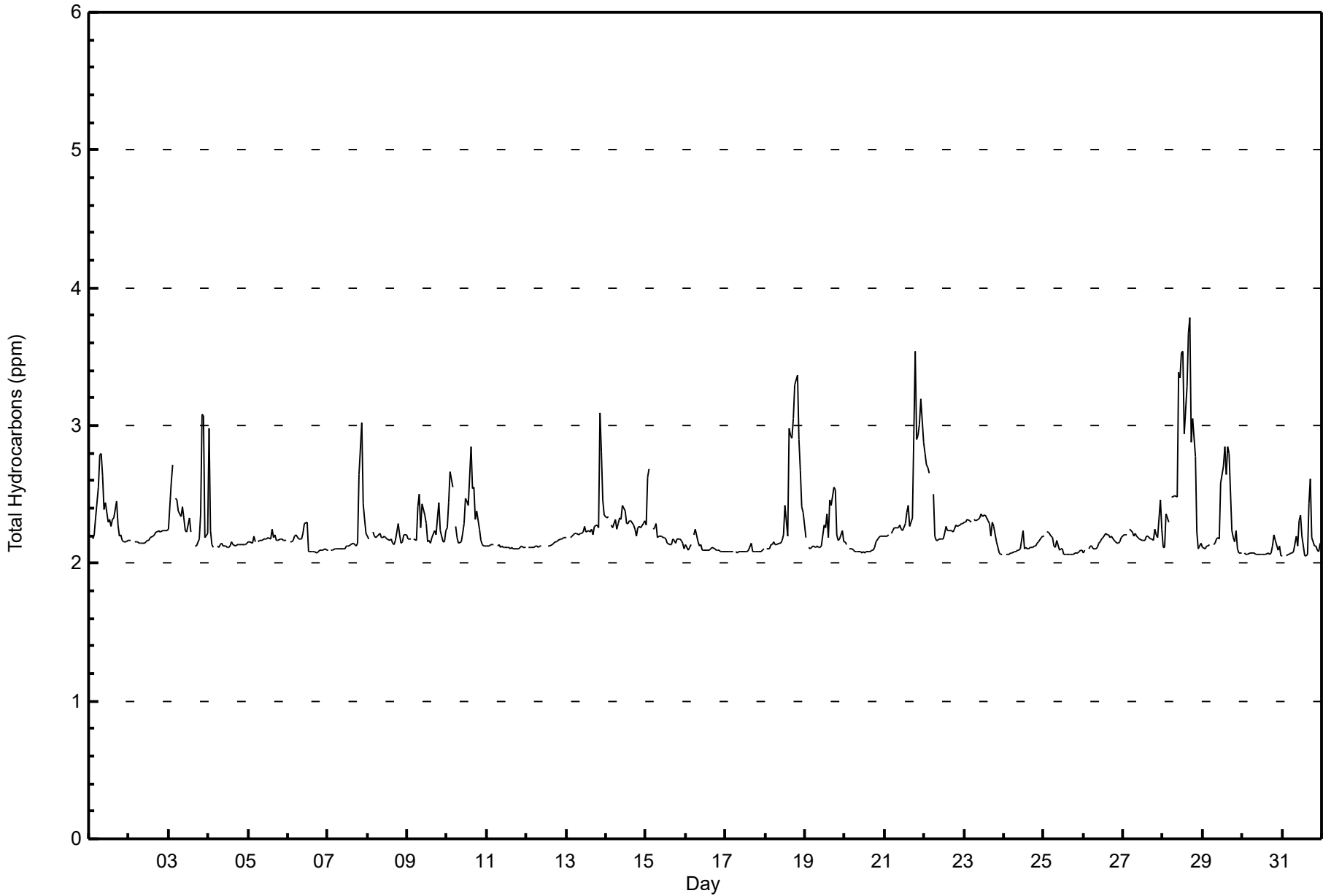
Total Hydrocarbons (THC) - ppm
Mannix - December 2024

Maximum Value: 3.8 ppm on Dec 28 17:00		Maximum Daily Average: 2.8 ppm on Dec 28		Hours in Service: 744																						
Minimum Value: 2.1 ppm on Dec 31 01:00		Minimum Daily Average: 2.1 ppm on Dec 30		Hours of Data: 708																						
Maximum Diurnal Average: 2.3 ppm at hour 21		Minimum Diurnal Average: 2.2 ppm at hour 5		Hours of Missing Data: 36																						
Monthly Average: 2.24 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.1 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.3 P ₉₀ = 2.4 P ₉₉ = 3.3		Hours of Calibration: 34																						
				Percent Operational Time: 99.7																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.2	Z	2.2	2.2	2.3	2.5	2.8	2.8	2.6	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8
2-Dec	2.2	2.2	Z	2.2	2.2	2.2	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
3-Dec	2.3	2.6	2.7	Z	2.5	2.5	2.4	2.3	2.4	2.3	2.2	2.2	2.3	2.2	M	M	2.1	2.1	2.2	2.4	3.1	3.1	2.2	2.2	2.4	3.1
4-Dec	3.0	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.0
5-Dec	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
6-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
7-Dec	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	2.6	3.0	2.4	2.3	2.2	2.2	3.0
8-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3
9-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.4	2.5	2.3	2.4	2.3	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.3	2.4	2.2	2.2	2.2	2.2	2.3	2.5
10-Dec	2.3	2.4	2.7	2.6	Z	2.3	2.2	2.1	2.2	2.2	2.3	2.5	2.5	2.4	2.8	2.5	2.5	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.3	2.8
11-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
13-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	3.1	2.8	2.5	2.3	2.3	3.1
14-Dec	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4
15-Dec	2.3	2.6	2.7	Z	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.2	2.7
16-Dec	2.1	2.1	2.1	2.1	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	2.2
17-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.4	2.2	3.0	2.9	2.9	3.0	3.3	3.4	2.9	2.7	2.4	2.4	2.5	3.4
19-Dec	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.4	2.2	2.5	2.4	2.6	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.6
20-Dec	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.2
21-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.3	3.5	2.9	2.9	3.0	3.2	2.9	2.5	3.5
22-Dec	2.8	2.7	2.7	2.7	Z	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.8
23-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.3	2.4
24-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2
25-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
26-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2
27-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.2	2.5
28-Dec	2.1	2.1	2.4	2.3	Z	2.5	2.5	2.5	2.5	3.4	3.3	3.5	3.5	2.9	3.3	3.7	3.8	2.9	3.0	2.8	2.2	2.1	2.1	2.1	2.8	3.8
29-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.6	2.7	2.8	2.6	2.8	2.8	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.8
30-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2
31-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.4	2.2	2.1	2.1	2.1	2.4	2.6	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.6
	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2		Diurnal Average
	3.0	2.7	2.7	2.7	2.5	2.5	2.8	2.8	2.6	3.4	3.3	3.5	3.5	2.9	3.3	3.7	3.8	3.0	3.5	3.4	3.1	3.1	3.2	2.9		Diurnal Maximum
Z - zerospan		C - Calibration				M - Maintenance																				



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Mannix - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mannix - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	694	98.02	98.02
3.1 - 10.0	14	1.98	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
Mannix - December 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	67	34	3	3	4	9	81	193	66	27	17	27	45	51	17	24	668
3.1 - 10.0	1	0	0	0	0	0	0	0	0	0	0	1	0	3	7	2	14
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	68	34	3	3	4	9	81	193	66	27	17	28	45	54	24	26	682

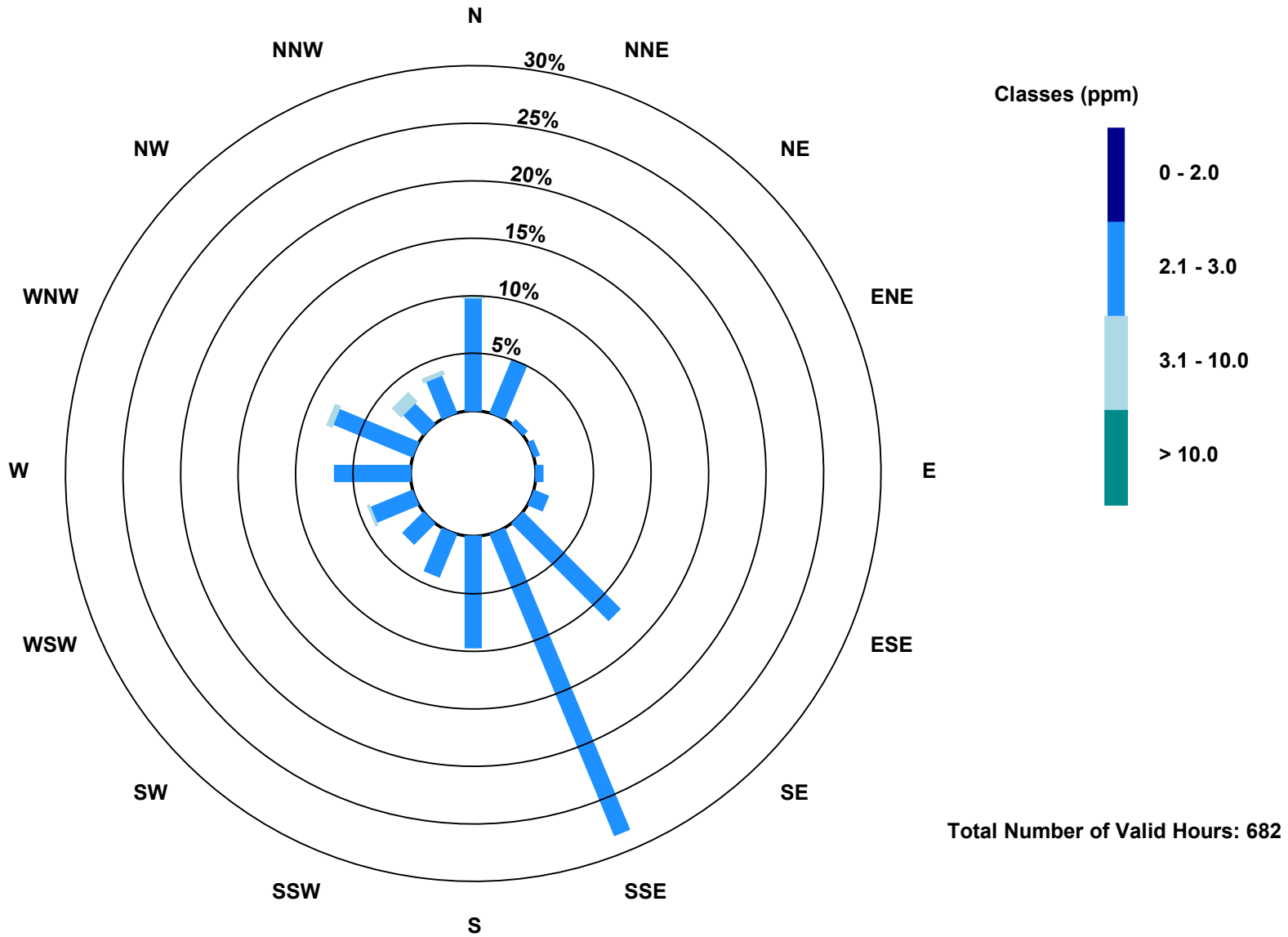
Total Number of Valid Hours: 682

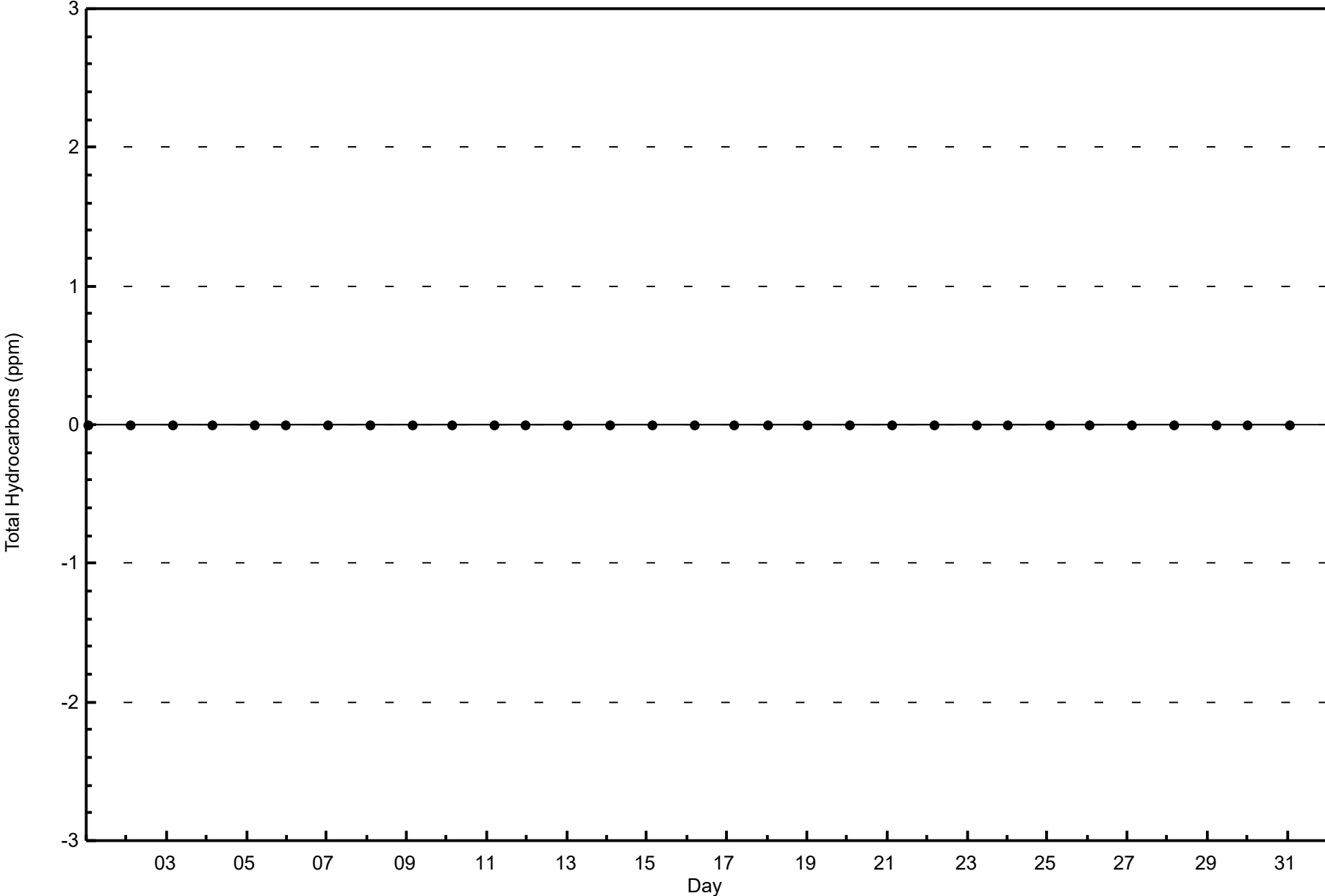
Total Number of Hours: 744

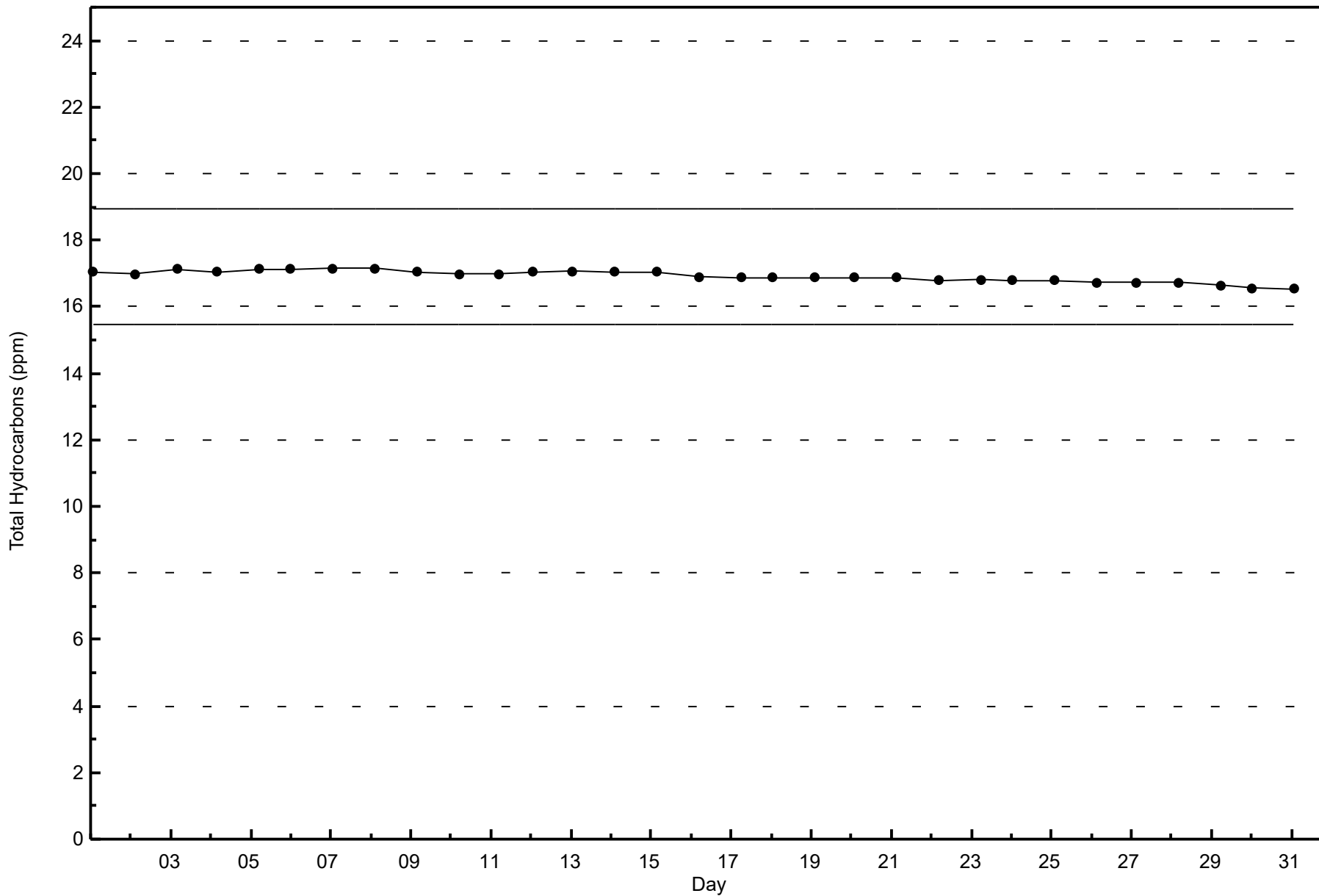


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Mannix





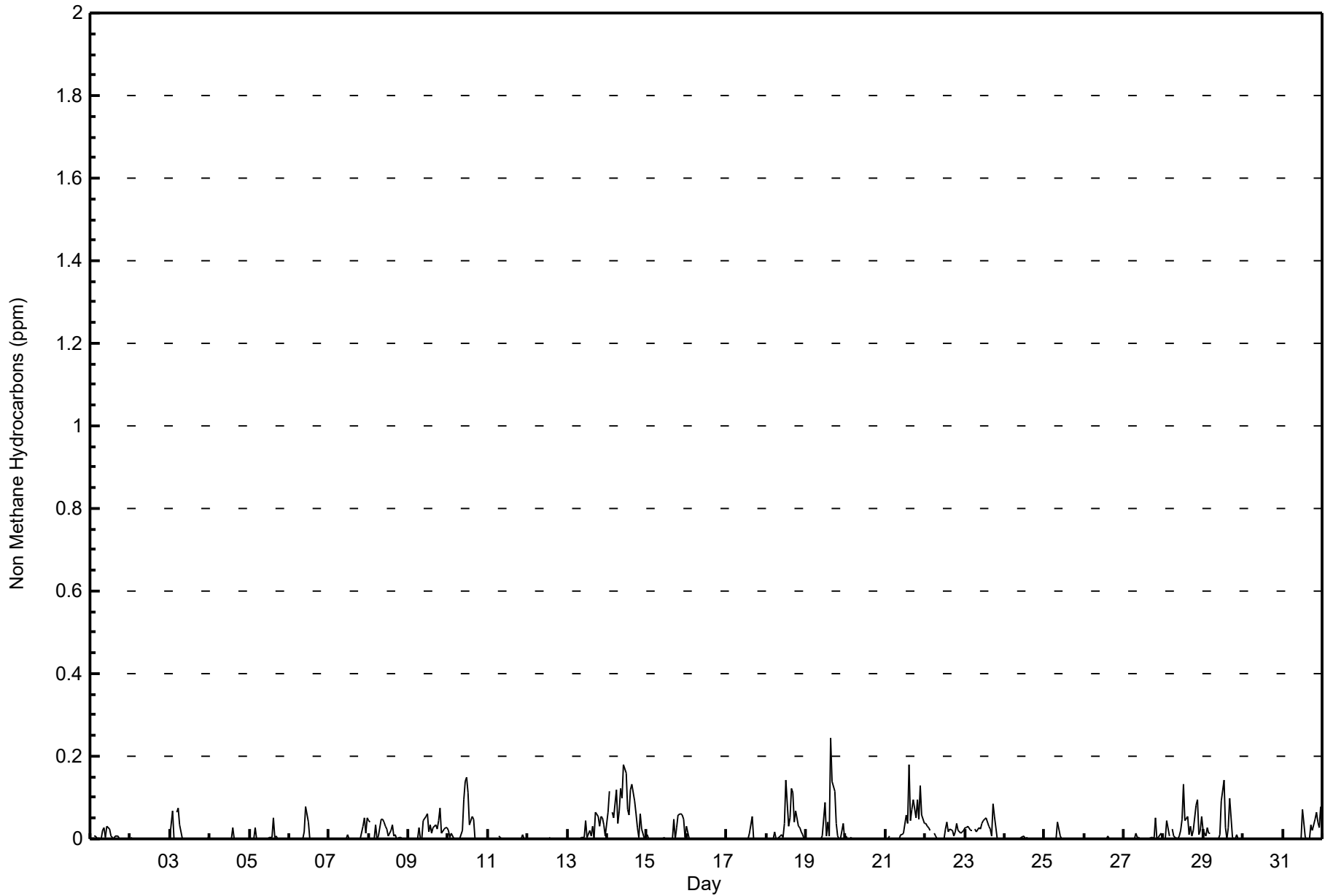




Summary of Hour Averages

Mannix - December 2024

Maximum Value: 0.245 ppm on Dec 19 16:00		Maximum Daily Average: 0.076 ppm on Dec 14		Hours in Service:	744																						
Minimum Value: 0.000 ppm on Dec 1 01:00		Minimum Daily Average: 0.000 ppm on Dec 30		Hours of Data:	708																						
Maximum Diurnal Average: 0.028 ppm at hour 12		Minimum Diurnal Average: 0.005 ppm at hour 7		Hours of Missing Data:	36																						
Monthly Average: 0.014 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:	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-Dec	0.000	Z	0.005	0.006	0.000	0.000	0.000	0.020	0.026	0.003	0.031	0.024	0.008	0.003	0.000	0.007	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.031	
2-Dec	0.000	0.004	Z	0.000	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	0.004
3-Dec	0.004	0.069	0.000	Z	0.064	0.074	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.012	0.074	
4-Dec	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	0.026	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.026	
5-Dec	0.000	0.000	0.000	0.028	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.002	0.052	0.002	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.052	
6-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.016	0.077	0.041	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.077	
7-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.051	0.014	0.052	0.007	
8-Dec	0.043	0.039	Z	0.000	0.033	0.000	0.008	0.047	0.049	0.040	0.031	0.024	0.008	0.021	0.033	0.008	0.009	0.001	0.002	0.002	0.000	0.000	0.000	0.000	0.017	0.049	
9-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.028	0.000	0.001	0.045	0.053	0.062	0.017	0.033	0.014	0.027	0.034	0.024	0.045	0.076	0.014	0.023	0.028	0.026	0.024	0.076	
10-Dec	0.020	0.002	0.014	0.001	Z	0.000	0.000	0.000	0.020	0.096	0.140	0.149	0.111	0.035	0.055	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.149		
11-Dec	0.000	0.001	0.000	0.000	0.000	Z	0.005	0.004	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	0.012	0.001	0.000	0.001	0.012	
12-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	C	C	C	0.003	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	
13-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.002	0.004	0.043	0.004	0.020	0.005	0.031	0.000	0.064	0.053	0.032	0.056	0.052	0.035	0.006	0.018	0.064	
14-Dec	0.063	0.115	Z	0.063	0.049	0.119	0.039	0.067	0.123	0.099	0.180	0.161	0.072	0.057	0.120	0.131	0.091	0.060	0.028	0.005	0.060	0.025	0.000	0.008	0.076	0.180	
15-Dec	0.009	0.000	0.000	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.046	0.000	0.027	0.059	0.061	0.058	0.046	0.005	0.014	0.061	
16-Dec	0.032	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.032		
17-Dec	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	0.014	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.054	
18-Dec	Z	0.000	0.000	0.000	0.000	0.017	0.000	0.000	0.006	0.012	0.004	0.037	0.141	0.031	0.050	0.121	0.111	0.040	0.069	0.031	0.026	0.015	0.010	0.000	0.031	0.141	
19-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.087	0.008	0.040	0.008	0.245	0.138	0.116	0.038	0.007	0.000	0.000	0.038	0.000	0.032	0.245	
20-Dec	0.007	0.000	Z	0.004	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.007	
21-Dec	0.000	0.000	0.008	Z	0.001	0.001	0.000	0.000	0.000	0.012	0.012	0.013	0.057	0.037	0.180	0.045	0.072	0.096	0.050	0.095	0.048	0.130	0.059	0.039	0.041	0.180	
22-Dec	0.038	0.030	0.028	0.020	Z	0.015	0.006	0.000	0.000	0.000	0.000	0.000	0.025	0.042	0.016	0.023	0.020	0.007	0.019	0.037	0.021	0.014	0.016	0.021	0.017	0.042	
23-Dec	0.027	0.028	0.029	0.022	0.019	Z	0.025	0.018	0.027	0.024	0.038	0.043	0.046	0.051	0.032	0.023	0.007	0.086	0.053	0.001	0.000	0.000	0.000	0.000	0.026	0.086	
24-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.007	0.001	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.001	0.001	0.000	0.001	0.007	
25-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.042	0.006	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.042	
26-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.006	
27-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.013	0.002	0.002	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.002	0.001	0.051	0.000	0.004	0.013	0.000	0.004	0.051	
28-Dec	0.000	0.000	0.044	0.008	Z	0.024	0.007	0.004	0.001	0.008	0.022	0.047	0.131	0.044	0.055	0.011	0.029	0.006	0.022	0.082	0.097	0.010	0.021	0.055	0.032	0.131	
29-Dec	0.022	0.008	0.028	0.014	0.014	Z	0.000	0.000	0.000	0.000	0.010	0.093	0.141	0.026	0.000	0.028	0.100	0.003	0.000	0.000	0.009	0.000	0.000	0.000	0.022	0.141	
30-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.071	0.002	0.000	0.000	0.001	0.033	0.022	0.048	0.066	0.042	0.026	0.079	0.017	0.079	
		0.010	0.012	0.006	0.006	0.007	0.010	0.005	0.006	0.010	0.012	0.021	0.028	0.028	0.015	0.022	0.027	0.022	0.017	0.014	0.017	0.016	0.014	0.010	0.009	Diurnal Average	
		0.063	0.115	0.044	0.063	0.064	0.119	0.039	0.067	0.123	0.099	0.180	0.161	0.141	0.057	0.180	0.245	0.138	0.116	0.069	0.095	0.097	0.130	0.059	0.079	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	478	67.51	67.51
0.006 - 0.05	173	24.44	91.95
0.06 - 0.1	53	7.49	99.44
> 0.1	4	0.56	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	18	0	2	1	1	0	71	162	52	20	12	25	39	42	13	20	478
0.006 - 0.05	41	19	0	0	1	6	8	27	13	7	5	2	4	9	7	6	155
0.06 - 0.1	9	15	1	2	1	3	2	3	1	0	0	1	2	3	4	0	47
> 0.1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
Totals	68	34	3	3	4	9	81	193	66	27	17	28	45	54	24	26	682

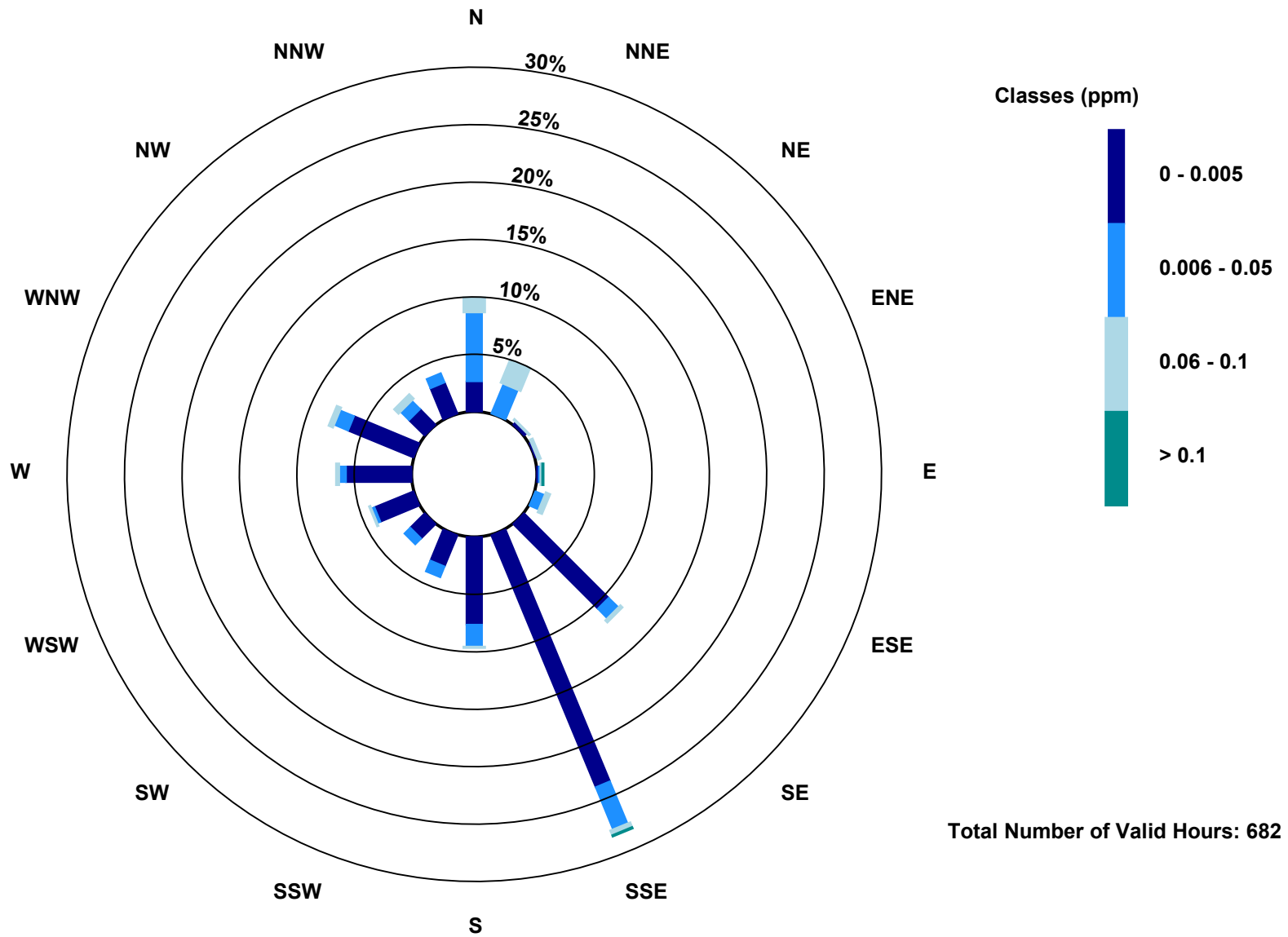
Total Number of Valid Hours: 682

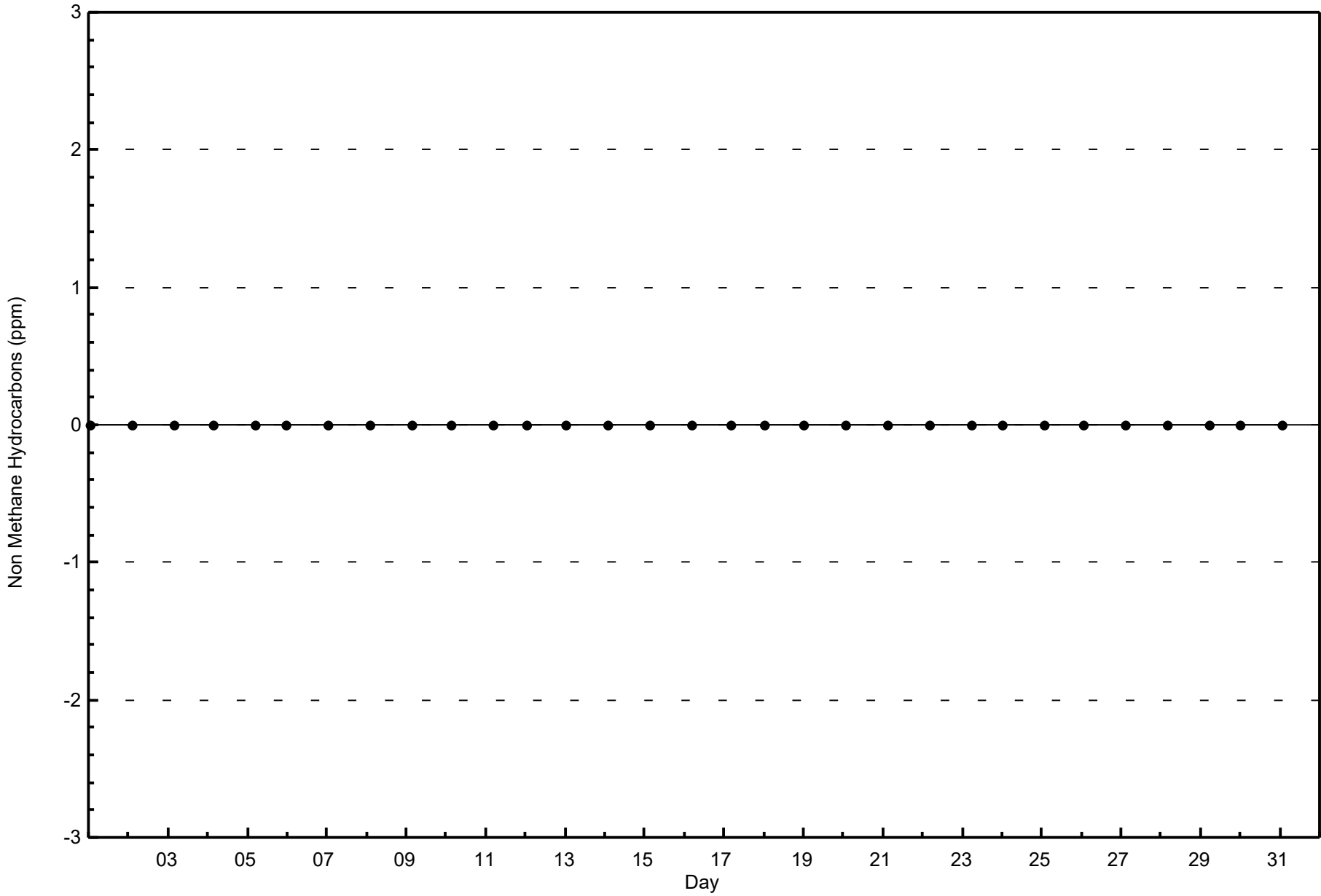
Total Number of Hours: 744

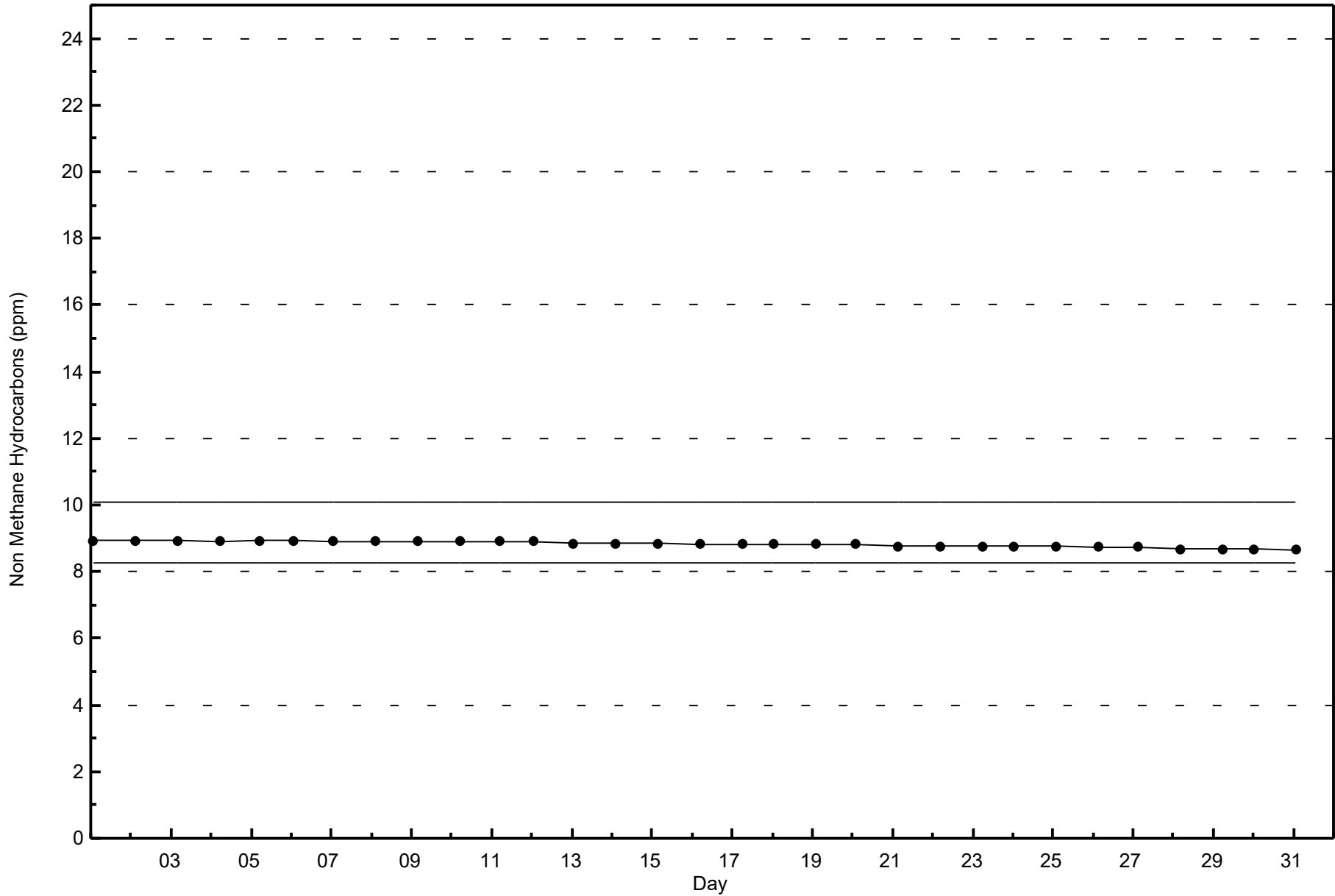


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Mannix







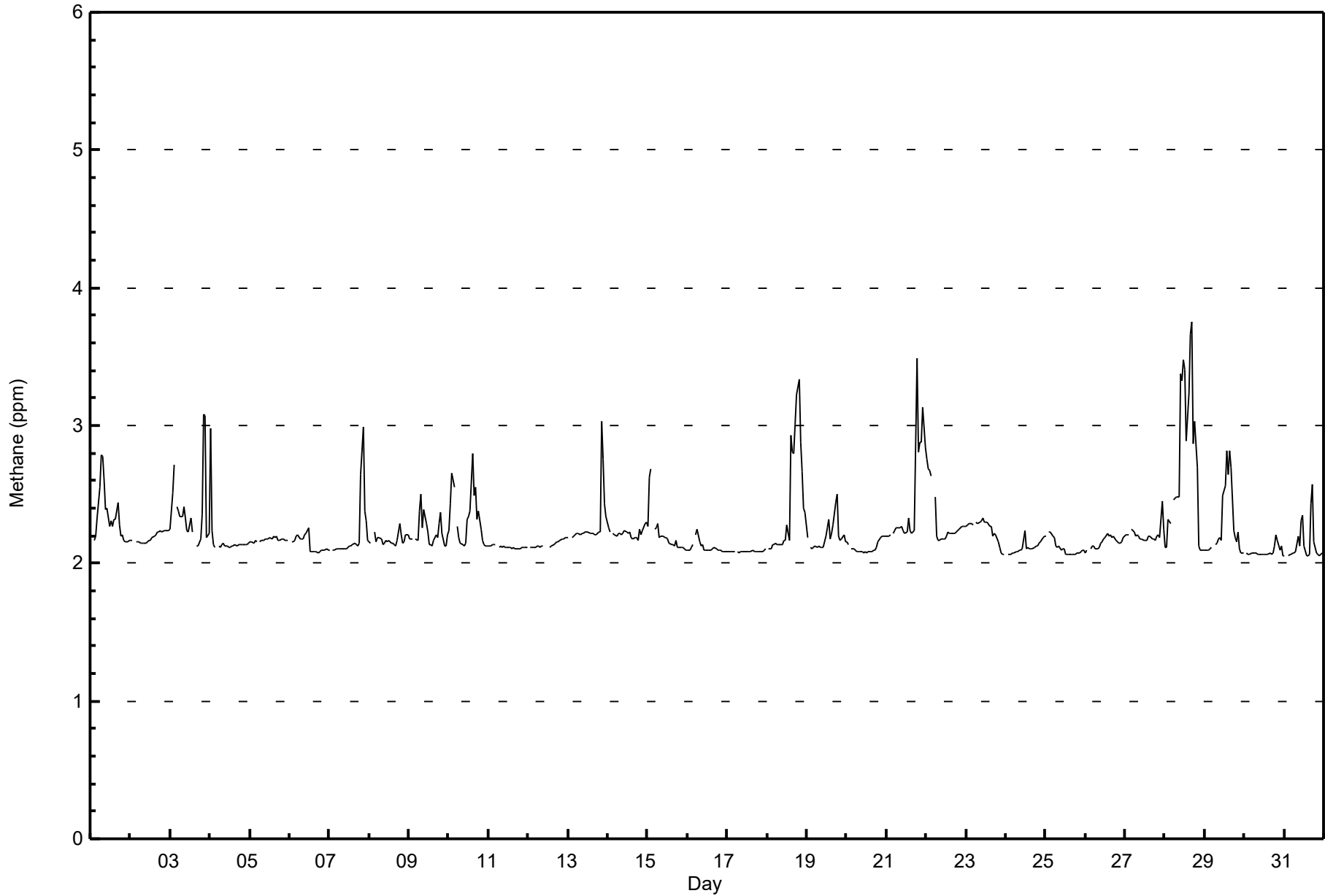


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744							
Maximum Value: 3.8 ppm on Dec 28 17:00		Maximum Daily Average: 2.7 ppm on Dec 28		Hours of Data: 708														708									
Minimum Value: 2.1 ppm on Dec 31 01:00		Minimum Daily Average: 2.1 ppm on Dec 30		Hours of Missing Data: 36														36									
Maximum Diurnal Average: 2.3 ppm at hour 21		Minimum Diurnal Average: 2.2 ppm at hour 5		Hours of Calibration: 34														34									
Monthly Average: 2.23 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.1 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.2 P ₉₀ = 2.4 P ₉₉ = 3.3		Percent Operational Time: 99.7														99.7									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	2.2	Z	2.2	2.2	2.3	2.5	2.8	2.8	2.6	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.8	
2-Dec	2.2	2.2	Z	2.2	2.2	2.2	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	
3-Dec	2.2	2.5	2.7	Z	2.4	2.4	2.3	2.3	2.4	2.3	2.2	2.2	2.3	2.2	M	M	2.1	2.1	2.2	2.4	3.1	3.1	2.2	2.2	2.4	3.1	
4-Dec	3.0	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	3.0	
5-Dec	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
6-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
7-Dec	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	2.6	3.0	2.4	2.3	2.2	2.2	3.0	
8-Dec	2.2	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.1	2.2	2.2	2.2	2.2	2.3	
9-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.4	2.5	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.2	2.1	2.1	2.2	2.2	2.5	
10-Dec	2.2	2.4	2.6	2.6	Z	2.3	2.2	2.1	2.1	2.1	2.1	2.3	2.3	2.4	2.8	2.5	2.5	2.3	2.4	2.2	2.2	2.1	2.1	2.1	2.3	2.8	
11-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
12-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
13-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.0	2.8	2.4	2.3	2.3	3.0	
14-Dec	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.2	2.3	
15-Dec	2.3	2.6	2.7	Z	2.2	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	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.7	
16-Dec	2.1	2.1	2.1	2.1	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	2.2	
17-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
18-Dec	Z	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	2.9	2.8	2.8	3.0	3.2	3.3	2.9	2.7	2.4	2.4	2.4	3.3	
19-Dec	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.3	2.2	2.2	2.3	2.4	2.5	2.2	2.2	2.2	2.2	2.2	2.5		
20-Dec	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	
21-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	3.5	2.8	2.9	2.9	3.1	2.8	3.5	
22-Dec	2.8	2.7	2.7	2.6	Z	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.8	
23-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3	
24-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	
25-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	
26-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	
27-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.3	2.2	2.5	
28-Dec	2.1	2.1	2.3	2.3	Z	2.5	2.5	2.5	2.5	3.4	3.3	3.5	3.4	2.9	3.2	3.7	3.8	2.9	3.0	2.7	2.1	2.1	2.1	2.1	2.7	3.8	
29-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.2	2.2	2.5	2.6	2.8	2.6	2.8	2.7	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.3	2.8	
30-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	
31-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.3	2.4	2.1	2.1	2.1	2.1	2.4	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.6	
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan		C - Calibration						M - Maintenance																			



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Mannix - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Mannix - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	695	98.16	98.16
3.1 - 10.0	13	1.84	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
Mannix - December 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	68	34	3	3	4	9	81	193	66	27	17	27	45	51	17	24	669
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	7	2	13
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	68	34	3	3	4	9	81	193	66	27	17	28	45	54	24	26	682

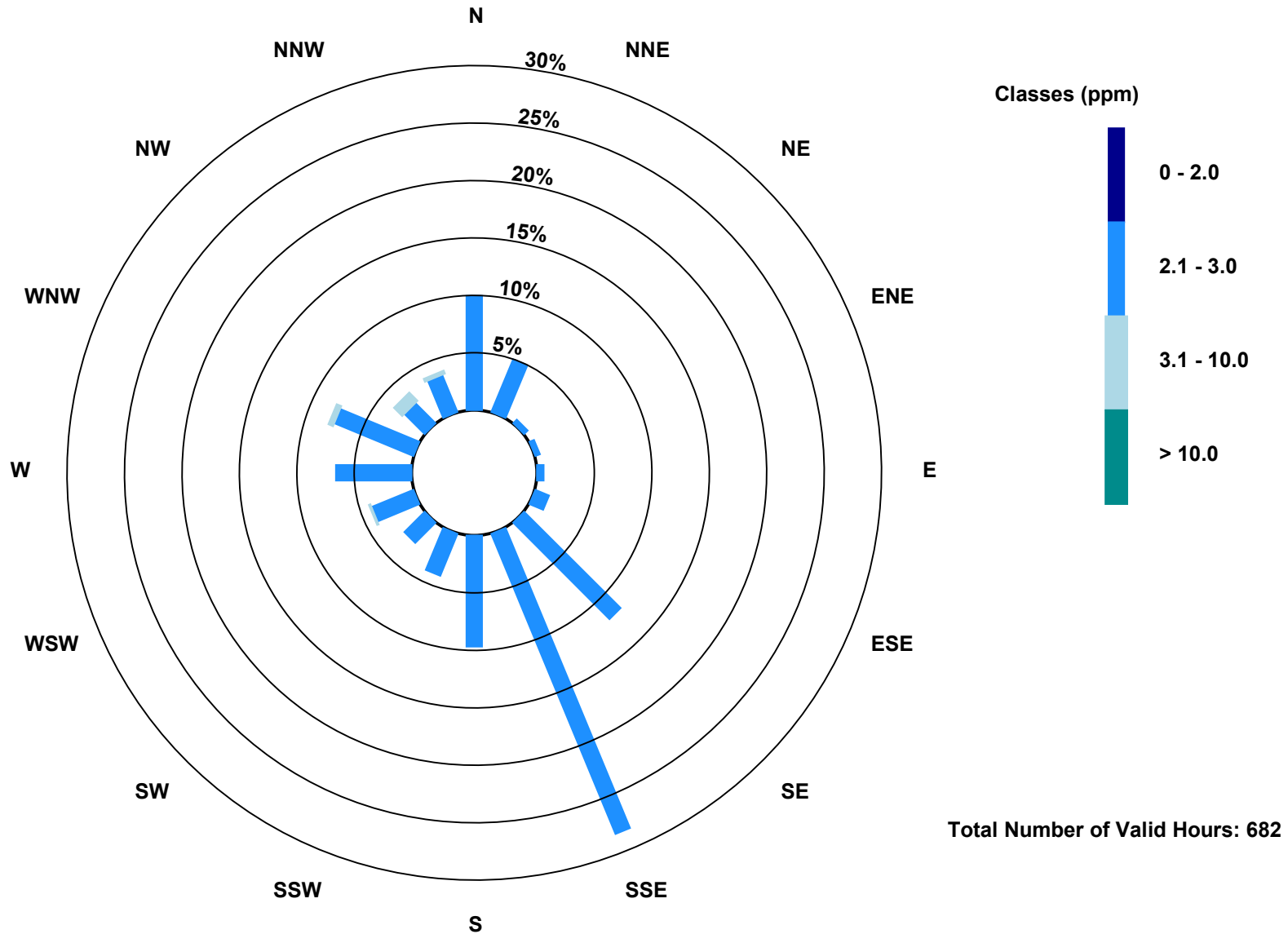
Total Number of Valid Hours: 682

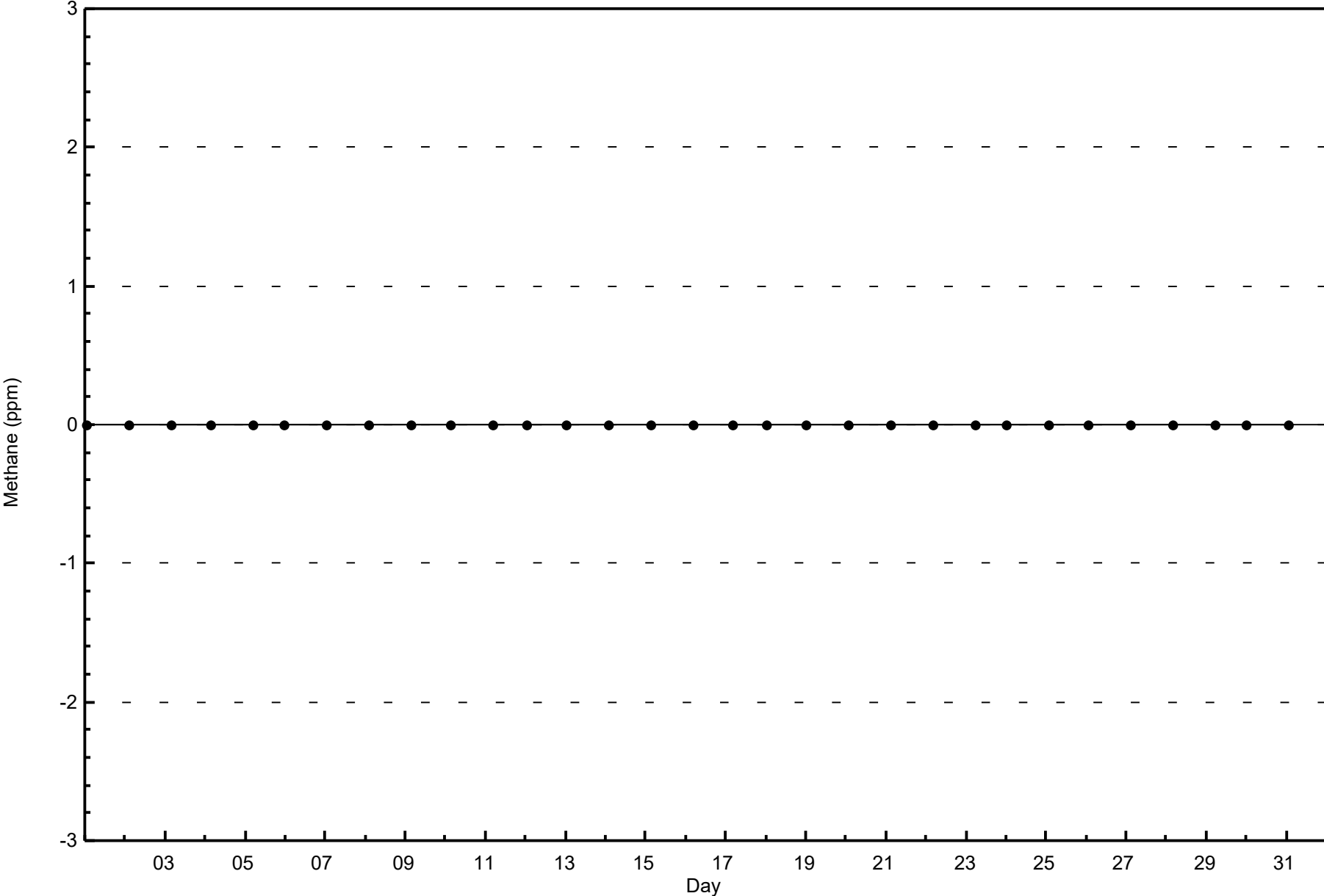
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Mannix

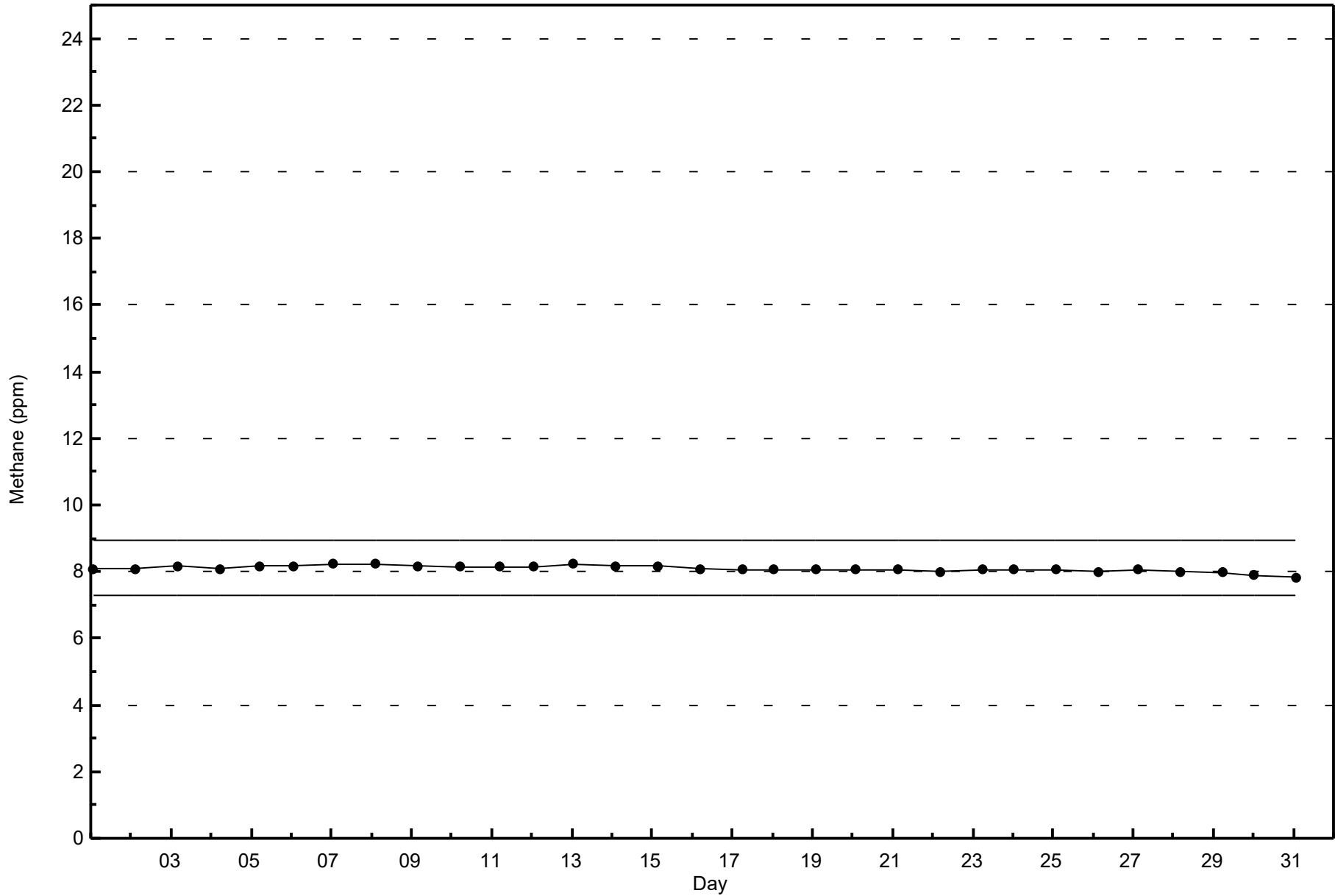






Wood Buffalo Environmental Association
Span Responses

Methane (CH₄) - ppm
Mannix - December 2024

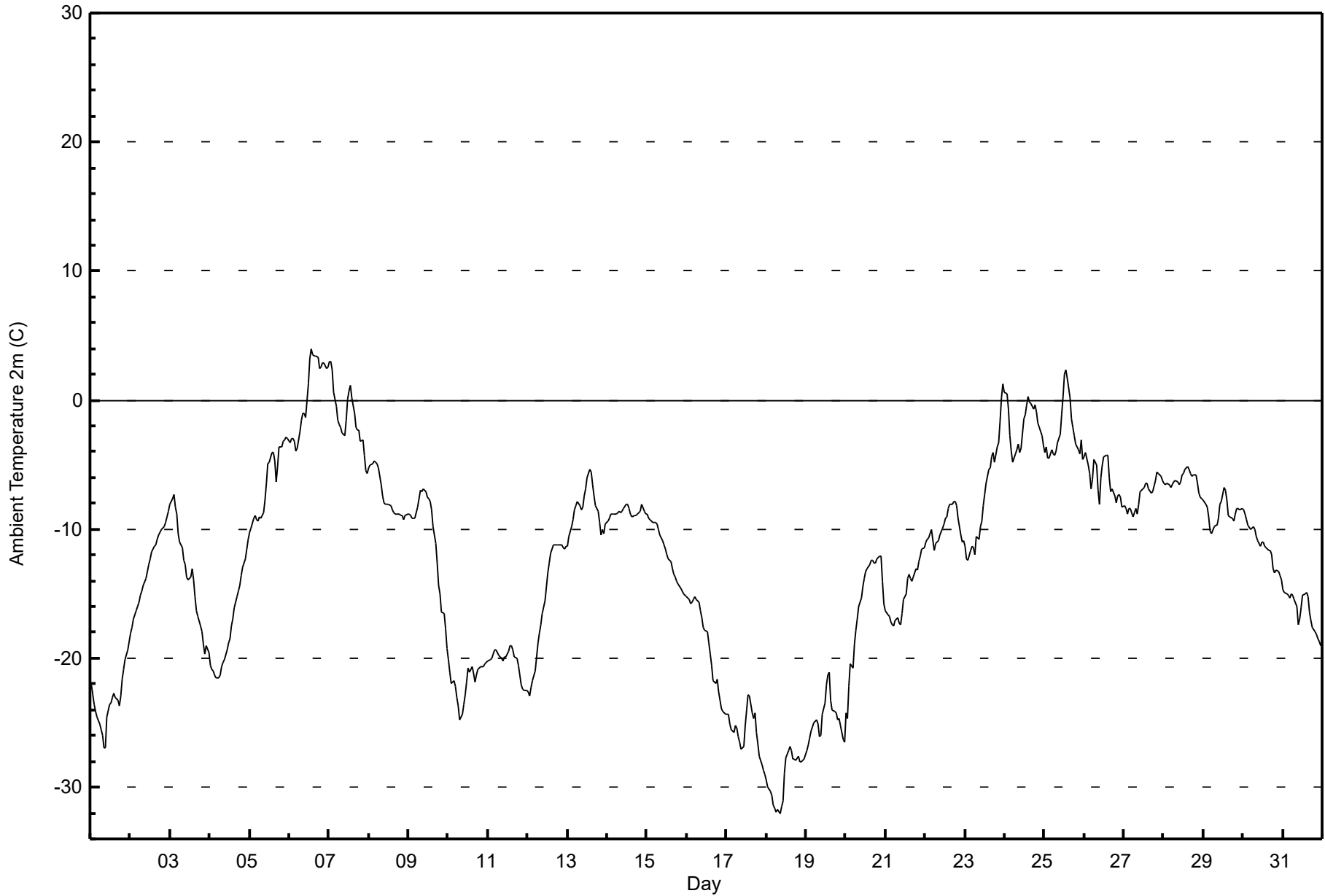




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Mannix - December 2024

Maximum Value: 3.9 C on Dec 6 14:00		Maximum Daily Average: 0.4 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -32.0 C on Dec 18 09:00		Minimum Daily Average: -29.3 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.9 C at hour 14		Minimum Diurnal Average: -13.3 C at hour 6		Hours of Missing Data: 0																																												
Monthly Average: -12.45 C		Percentiles: P ₁ = -30.5 P ₁₀ = -24.1 Q ₁ = -18.7 Median = -10.9 Q ₃ = -7.0 P ₉₀ = -3.2 P ₉₉ = 2.9		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-Dec	-22.1	-22.8	-23.6	-24.1	-24.5	-25.1	-25.6	-26.0	-27.0	-27.0	-24.6	-23.6	-23.5	-23.1	-22.7	-23.0	-23.2	-23.7	-23.0	-21.6	-20.8	-20.1	-19.4	-18.7	-23.3	-18.7																						
2-Dec	-18.1	-17.7	-16.9	-16.3	-16.0	-15.6	-15.1	-14.8	-14.4	-13.9	-13.2	-12.7	-12.3	-11.7	-11.4	-11.2	-10.8	-10.4	-10.3	-10.0	-9.8	-9.5	-9.1	-8.6	-12.9	-8.6																						
3-Dec	-8.0	-7.6	-7.4	-8.3	-8.9	-10.3	-11.0	-11.5	-12.4	-12.8	-13.7	-13.9	-13.7	-13.1	-14.0	-15.3	-16.3	-16.8	-17.5	-17.9	-18.9	-19.7	-19.0	-19.6	-13.6	-7.4																						
4-Dec	-20.6	-20.9	-21.0	-21.3	-21.5	-21.5	-21.3	-20.7	-20.3	-20.1	-19.4	-18.8	-18.5	-17.5	-16.9	-16.1	-15.2	-14.8	-14.3	-13.6	-13.0	-12.3	-11.5	-10.8	-17.6	-10.8																						
5-Dec	-10.3	-9.9	-9.2	-8.9	-9.2	-9.4	-9.1	-9.2	-8.7	-7.8	-6.5	-5.0	-4.9	-4.1	-4.0	-4.7	-6.4	-5.2	-3.6	-3.6	-3.2	-3.0	-2.9	-3.0	-6.3	-2.9																						
6-Dec	-3.3	-3.0	-3.0	-3.2	-4.0	-3.7	-2.4	-1.6	-1.1	-1.1	-1.3	1.3	3.2	3.9	3.5	3.4	3.5	3.4	2.5	2.5	2.9	2.9	2.5	2.5	0.4	3.9																						
7-Dec	2.9	3.0	2.4	0.6	-0.5	-1.6	-1.9	-2.1	-2.5	-2.7	-1.6	0.1	0.7	1.2	0.2	-1.0	-2.1	-2.3	-2.4	-3.2	-3.0	-4.3	-5.5	-5.7	-1.3	3.0																						
8-Dec	-5.3	-5.0	-4.9	-4.8	-4.8	-4.9	-5.2	-6.6	-7.4	-7.9	-8.1	-8.1	-8.0	-8.2	-8.5	-8.7	-8.9	-8.8	-8.8	-8.9	-8.9	-9.3	-9.0	-8.8	-7.4	-4.8																						
9-Dec	-8.9	-9.0	-9.1	-9.1	-9.1	-8.3	-7.6	-7.0	-7.1	-6.9	-7.1	-7.5	-7.6	-7.9	-8.5	-9.8	-11.1	-12.6	-14.3	-15.0	-16.4	-16.6	-17.8	-19.2	-10.6	-6.9																						
10-Dec	-20.2	-21.1	-21.9	-21.7	-22.2	-23.1	-23.7	-24.8	-24.4	-23.6	-22.9	-21.9	-20.8	-21.1	-20.7	-21.1	-21.9	-21.3	-20.9	-20.7	-20.7	-20.7	-20.5	-20.4	-21.8	-20.2																						
11-Dec	-20.2	-20.2	-20.0	-19.7	-19.4	-19.3	-19.8	-19.9	-20.0	-20.3	-19.9	-19.9	-19.5	-19.1	-19.0	-19.4	-19.9	-20.0	-20.6	-21.3	-22.1	-22.4	-22.5	-22.5	-20.3	-19.0																						
12-Dec	-22.6	-23.0	-22.3	-21.7	-20.9	-19.9	-18.8	-18.1	-17.4	-16.5	-15.6	-14.5	-13.4	-12.6	-11.9	-11.2	-11.2	-11.2	-11.2	-11.2	-11.4	-11.6	-11.4	-15.4	-11.2																							
13-Dec	-11.3	-10.6	-9.8	-9.2	-8.5	-8.2	-7.9	-8.2	-8.5	-8.3	-7.4	-6.9	-6.0	-5.4	-5.6	-6.6	-7.4	-8.2	-8.7	-9.5	-10.4	-10.0	-10.4	-9.6	-8.4	-5.4																						
14-Dec	-9.4	-9.1	-8.8	-8.8	-8.8	-8.8	-8.7	-8.7	-8.7	-8.6	-8.4	-8.1	-8.1	-8.4	-8.8	-9.0	-8.9	-9.0	-8.8	-8.7	-8.6	-8.0	-8.6	-8.9	-8.7	-8.0																						
15-Dec	-8.8	-9.1	-9.3	-9.5	-9.5	-9.5	-9.6	-10.0	-10.5	-10.9	-11.2	-11.5	-12.0	-12.3	-12.5	-13.0	-13.5	-13.8	-14.0	-14.3	-14.5	-14.8	-15.0	-15.1	-11.8	-8.8																						
16-Dec	-15.3	-15.5	-15.8	-15.6	-15.5	-15.3	-15.4	-15.7	-16.4	-16.8	-17.6	-17.8	-18.0	-18.8	-19.6	-20.5	-21.8	-22.0	-21.7	-22.6	-23.3	-23.9	-24.2	-24.4	-18.9	-15.3																						
17-Dec	-24.4	-24.4	-25.1	-25.6	-25.8	-25.2	-25.4	-26.0	-26.5	-27.0	-26.8	-25.2	-24.0	-22.8	-22.9	-24.2	-24.7	-24.3	-25.7	-26.7	-27.6	-28.2	-28.7	-29.1	-25.7	-22.8																						
18-Dec	-29.4	-30.0	-30.3	-30.6	-31.4	-31.6	-31.9	-31.7	-32.0	-31.5	-31.1	-28.9	-27.7	-27.1	-26.9	-27.2	-27.8	-27.9	-27.9	-27.6	-28.0	-28.0	-27.9	-27.8	-29.3	-26.9																						
19-Dec	-27.1	-26.7	-26.2	-25.6	-25.3	-25.0	-24.7	-25.1	-26.1	-26.0	-24.3	-23.5	-22.1	-21.4	-21.1	-23.3	-24.0	-24.1	-24.2	-24.8	-24.7	-25.3	-26.3	-26.5	-24.7	-21.1																						
20-Dec	-24.2	-24.7	-22.2	-20.4	-20.8	-18.9	-17.9	-16.9	-16.0	-15.3	-14.5	-13.8	-13.3	-13.1	-12.7	-12.4	-12.4	-12.6	-12.7	-12.3	-12.1	-12.1	-14.1	-15.8	-15.9	-12.1																						
21-Dec	-16.3	-16.6	-16.8	-17.2	-17.4	-17.5	-17.1	-16.8	-17.3	-17.4	-16.5	-15.5	-15.0	-13.8	-13.5	-13.8	-14.1	-13.7	-13.1	-13.2	-12.5	-12.1	-11.6	-11.4	-15.0	-11.4																						
22-Dec	-11.0	-10.8	-10.7	-10.4	-10.0	-11.7	-11.1	-11.0	-10.9	-10.5	-10.0	-9.6	-9.2	-9.0	-8.4	-8.1	-8.1	-7.9	-7.9	-8.2	-9.1	-10.4	-11.0	-10.9	-9.8	-7.9																						
23-Dec	-11.3	-12.3	-12.4	-11.7	-11.3	-11.4	-11.9	-10.6	-10.8	-9.8	-9.4	-8.2	-7.4	-6.5	-5.3	-5.3	-4.4	-4.1	-4.9	-3.7	-3.3	-1.6	0.2	1.2	-7.3	1.2																						
24-Dec	0.6	0.5	-0.7	-2.7	-3.9	-4.8	-4.2	-3.9	-3.5	-4.0	-3.8	-1.4	-1.1	-0.3	0.3	0.2	-0.2	-0.7	-0.4	-0.9	-1.8	-2.2	-2.7	-3.5	-1.9	0.6																						
25-Dec	-4.1	-3.6	-4.5	-4.5	-3.8	-4.2	-4.2	-4.0	-3.3	-2.6	-1.2	0.3	2.0	2.4	1.7	0.2	-1.5	-2.1	-2.8	-3.4	-3.9	-4.2	-3.1	-4.6	-2.5	2.4																						
26-Dec	-4.4	-4.0	-5.1	-5.7	-6.9	-6.2	-4.6	-5.0	-7.0	-8.1	-6.0	-5.0	-4.4	-4.3	-4.3	-6.0	-7.1	-6.9	-7.4	-8.0	-7.4	-7.3	-7.5	-8.3	-6.1	-4.0																						
27-Dec	-8.2	-8.4	-8.8	-8.4	-8.4	-9.0	-8.7	-8.4	-8.9	-8.1	-7.1	-6.9	-6.8	-6.4	-6.5	-6.9	-7.2	-7.1	-6.7	-6.2	-5.6	-5.7	-5.9	-6.2	-7.4	-5.6																						
28-Dec	-6.5	-6.5	-6.5	-6.6	-6.8	-6.6	-6.3	-6.3	-6.4	-6.5	-6.3	-5.8	-5.7	-5.4	-5.1	-5.4	-5.7	-5.9	-5.8	-5.8	-6.5	-7.2	-7.5	-7.6	-6.3	-5.1																						
29-Dec	-7.7	-8.0	-8.3	-9.0	-10.2	-10.4	-9.8	-9.7	-9.7	-9.2	-8.0	-7.8	-6.8	-7.0	-7.8	-8.9	-9.1	-9.1	-9.4	-8.9	-8.4	-8.4	-8.5	-8.4	-8.7	-6.8																						
30-Dec	-8.5	-8.9	-9.2	-9.7	-10.0	-9.9	-9.8	-10.0	-10.5	-10.9	-11.4	-11.0	-11.0	-11.4	-11.4	-11.6	-11.6	-12.0	-13.0	-13.4	-13.2	-13.3	-13.6	-14.0	-11.2	-8.5																						
31-Dec	-14.6	-14.9	-15.0	-15.1	-15.3	-15.0	-15.1	-15.5	-16.0	-17.4	-16.9	-16.1	-15.1	-15.0	-15.0	-15.2	-16.4	-17.1	-17.6	-17.9	-18.2	-18.5	-18.7	-19.1	-16.3	-14.6																						
																								-12.8	-12.9	-13.0	-13.1	-13.2	-13.3	-13.1	-13.1	-13.3	-13.2	-12.6	-11.9	-11.3	-10.9	-10.9	-11.5	-11.9	-12.0	-12.2	-12.3	-12.4	-12.5	-12.6	-12.8	Diurnal Average
																								2.9	3.0	2.4	0.6	-0.5	-1.6	-1.9	-1.6	-1.1	-1.1	-1.2	1.3	3.2	3.9	3.5	3.4	3.5	3.4	2.5	2.5	2.9	2.9	2.5	2.5	Diurnal Maximum





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Mannix - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	158	21.24	21.24
-20 - 0	555	74.60	95.83
0 - 10	31	4.17	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

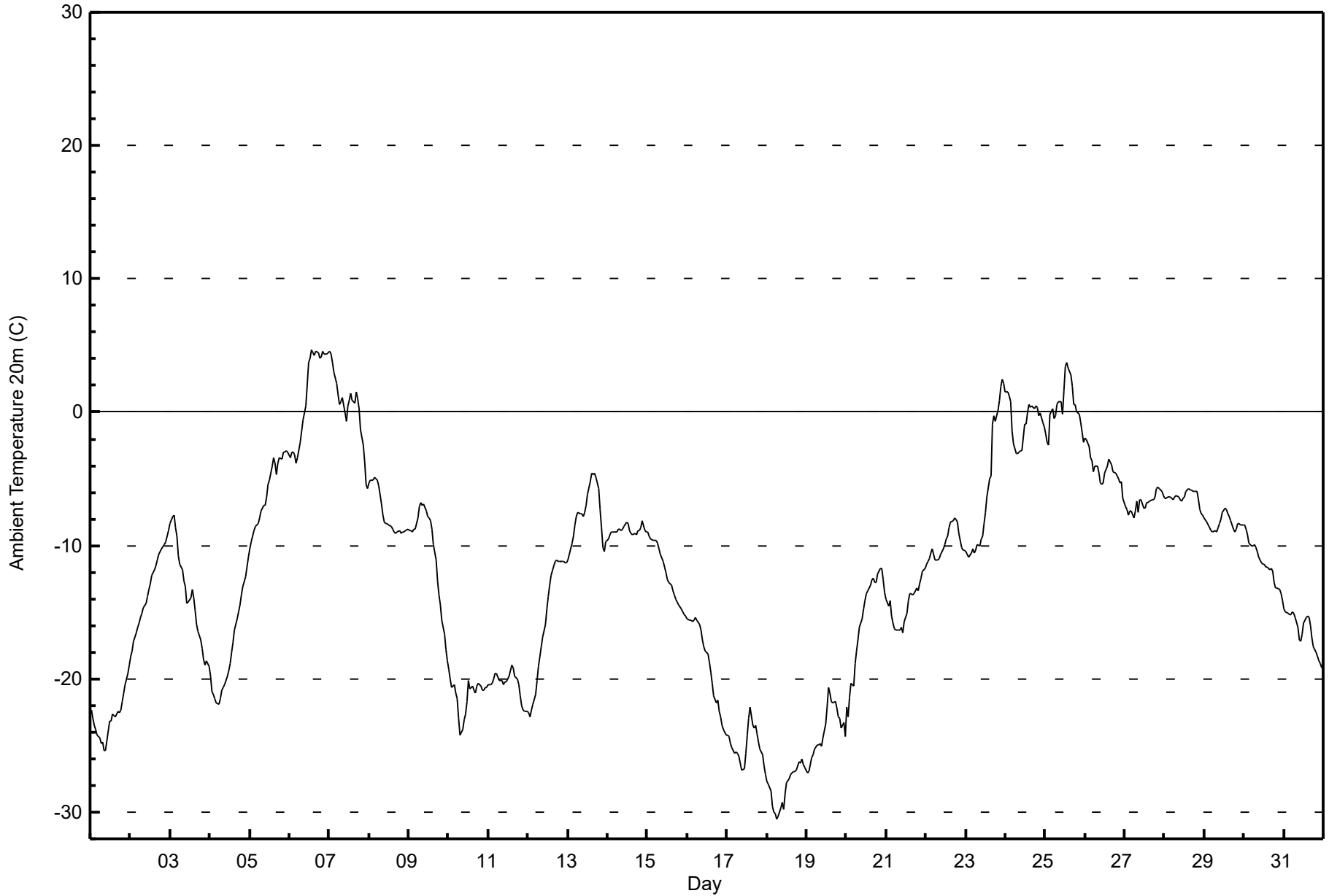


Maximum Value: 4.7 C on Dec 6 14:00		Maximum Daily Average: 1.3 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -30.5 C on Dec 18 07:00		Minimum Daily Average: -28.1 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.9 C at hour 15		Minimum Diurnal Average: -12.7 C at hour 6		Hours of Missing Data: 0																																													
Monthly Average: -11.96 C		Percentiles: P ₁ = -29.0 P ₁₀ = -23.3 Q ₁ = -18.7 Median = -10.7 Q ₃ = -6.6 P ₉₀ = -0.8 P ₉₉ = 4.4		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-Dec	-22.3	-23.0	-23.4	-23.8	-24.3	-24.5	-24.8	-24.7	-25.4	-25.4	-24.6	-23.2	-23.2	-22.6	-22.8	-22.8	-22.5	-22.5	-22.3	-21.7	-21.0	-20.4	-19.6	-18.9	-22.9	-18.9																							
2-Dec	-18.3	-17.9	-17.2	-16.5	-16.2	-15.8	-15.4	-15.1	-14.6	-14.3	-13.8	-13.3	-12.8	-12.3	-11.8	-11.5	-11.0	-10.7	-10.4	-10.2	-10.0	-9.7	-9.3	-8.9	-13.2	-8.9																							
3-Dec	-8.4	-7.9	-7.7	-8.7	-9.3	-10.7	-11.4	-11.8	-12.6	-13.1	-14.3	-14.3	-13.9	-13.3	-14.0	-14.9	-16.0	-16.5	-17.1	-17.7	-18.5	-19.0	-18.7	-19.1	-13.7	-7.7																							
4-Dec	-19.8	-21.0	-21.2	-21.5	-21.8	-21.9	-21.5	-20.9	-20.6	-20.4	-19.9	-19.4	-18.9	-18.0	-17.3	-16.3	-15.5	-15.0	-14.5	-13.7	-13.1	-12.4	-11.6	-10.9	-17.8	-10.9																							
5-Dec	-10.3	-9.8	-8.9	-8.5	-8.5	-8.4	-7.9	-7.5	-7.0	-7.0	-6.4	-5.4	-5.1	-4.0	-3.4	-3.9	-4.7	-3.8	-3.4	-3.5	-3.0	-3.0	-2.9	-3.0	-5.8	-2.9																							
6-Dec	-3.4	-3.0	-3.0	-3.2	-3.9	-3.5	-2.3	-1.4	-0.6	-0.1	0.5	3.8	4.0	4.7	4.4	4.3	4.6	4.5	4.0	4.2	4.6	4.4	4.4	4.5	1.3	4.7																							
7-Dec	4.6	4.4	3.8	2.9	2.2	1.3	0.6	0.8	1.1	0.0	-0.7	0.5	0.9	1.4	0.9	0.6	1.5	1.0	0.2	-1.4	-2.4	-3.7	-5.4	-5.8	0.4	4.6																							
8-Dec	-5.4	-5.1	-5.1	-4.9	-5.0	-5.1	-5.5	-6.9	-7.8	-8.2	-8.4	-8.4	-8.5	-8.6	-8.8	-9.0	-9.1	-9.0	-8.9	-9.0	-9.0	-9.0	-8.8	-8.8	-7.6	-4.9																							
9-Dec	-8.9	-8.9	-9.0	-8.8	-8.8	-7.9	-7.1	-6.7	-7.0	-6.9	-7.4	-7.9	-8.0	-8.2	-8.8	-9.9	-11.1	-12.6	-13.7	-14.4	-15.6	-16.6	-17.8	-18.6	-10.4	-6.7																							
10-Dec	-19.3	-20.0	-20.6	-20.4	-21.1	-21.5	-23.0	-24.2	-23.8	-23.1	-22.7	-21.7	-20.1	-20.8	-20.6	-20.8	-21.0	-20.5	-20.4	-20.5	-20.8	-20.8	-20.7	-20.6	-21.2	-19.3																							
11-Dec	-20.4	-20.5	-20.3	-20.0	-19.6	-19.6	-20.1	-20.1	-20.1	-20.5	-20.2	-20.3	-19.8	-19.4	-19.0	-19.1	-19.8	-20.0	-20.5	-21.3	-22.0	-22.3	-22.4	-22.4	-20.4	-19.0																							
12-Dec	-22.5	-22.9	-22.3	-21.9	-21.2	-20.1	-19.1	-18.4	-17.6	-16.8	-15.9	-14.8	-13.9	-13.0	-12.2	-11.5	-11.2	-11.1	-11.2	-11.2	-11.1	-11.2	-11.3	-11.2	-15.6	-11.1																							
13-Dec	-11.1	-10.6	-9.9	-9.3	-8.5	-7.9	-7.5	-7.6	-7.7	-7.8	-7.5	-7.0	-6.1	-5.2	-4.6	-4.6	-4.6	-4.9	-5.8	-7.3	-8.6	-10.1	-10.5	-9.7	-7.7	-4.6																							
14-Dec	-9.5	-9.2	-8.9	-8.9	-9.0	-9.0	-8.8	-8.8	-8.9	-8.8	-8.6	-8.3	-8.4	-8.9	-9.1	-9.2	-9.1	-9.2	-8.9	-8.9	-8.7	-8.2	-8.9	-9.0	-8.9	-8.2																							
15-Dec	-9.0	-9.3	-9.5	-9.6	-9.6	-9.6	-9.8	-10.2	-10.7	-11.2	-11.6	-12.1	-12.6	-12.8	-13.0	-13.4	-13.7	-14.0	-14.3	-14.5	-14.7	-15.0	-15.2	-15.3	-12.1	-9.0																							
16-Dec	-15.5	-15.6	-15.6	-15.7	-15.6	-15.4	-15.6	-15.9	-16.4	-17.0	-17.6	-17.9	-18.1	-18.8	-19.5	-20.3	-21.3	-21.8	-21.6	-22.4	-22.9	-23.5	-23.8	-24.2	-18.8	-15.4																							
17-Dec	-24.3	-24.3	-24.8	-25.2	-25.6	-25.5	-25.6	-25.8	-26.3	-26.8	-26.7	-25.6	-24.2	-22.9	-22.2	-23.5	-23.7	-23.5	-24.1	-24.7	-25.3	-25.7	-26.5	-27.2	-25.0	-22.2																							
18-Dec	-27.7	-27.9	-28.4	-29.6	-30.0	-30.1	-30.5	-30.3	-29.7	-29.2	-29.8	-28.6	-27.8	-27.4	-27.2	-27.1	-26.9	-27.0	-26.8	-26.2	-26.3	-26.0	-26.4	-26.6	-28.1	-26.0																							
19-Dec	-27.1	-26.9	-26.5	-25.9	-25.6	-25.3	-24.9	-24.9	-24.9	-25.0	-24.4	-23.4	-22.1	-20.7	-21.1	-21.7	-21.8	-21.7	-22.2	-22.8	-23.0	-23.7	-23.3	-24.4	-23.9	-20.7																							
20-Dec	-22.1	-22.9	-21.4	-20.4	-20.5	-18.8	-18.0	-17.0	-16.2	-15.5	-14.7	-14.1	-13.6	-13.4	-13.0	-12.5	-12.5	-12.7	-12.8	-12.2	-11.7	-11.7	-12.5	-13.5	-15.6	-11.7																							
21-Dec	-14.0	-14.5	-14.2	-15.3	-15.8	-16.3	-16.4	-16.3	-16.4	-16.2	-16.5	-15.7	-15.1	-14.1	-13.7	-13.6	-13.7	-13.6	-13.2	-13.4	-12.9	-12.4	-11.9	-11.8	-14.5	-11.8																							
22-Dec	-11.4	-11.2	-11.0	-10.6	-10.3	-11.1	-11.1	-11.1	-10.9	-10.6	-10.3	-9.9	-9.5	-9.3	-8.6	-8.3	-8.1	-8.0	-8.0	-8.3	-9.1	-10.1	-10.4	-10.3	-9.9	-8.0																							
23-Dec	-10.5	-10.7	-10.8	-10.5	-10.3	-10.5	-10.3	-10.0	-10.1	-9.5	-9.4	-8.3	-7.5	-6.4	-5.0	-4.8	-0.8	-0.3	-0.7	0.1	0.9	1.9	2.5	2.2	-5.8	2.5																							
24-Dec	1.5	1.5	1.2	0.7	-1.4	-2.4	-3.1	-3.1	-3.0	-2.9	-2.9	-0.9	-0.9	-0.1	0.6	0.4	0.4	0.3	0.4	0.3	-0.3	0.0	-0.8	-1.1	-0.6	1.5																							
25-Dec	-1.6	-2.2	-2.5	-0.2	0.3	-0.5	-0.2	0.6	0.8	0.8	0.8	-0.1	1.6	3.4	3.7	3.3	2.8	1.9	0.6	0.5	0.1	-0.1	-0.7	-1.5	-2.3	0.3	3.7																						
26-Dec	-1.9	-2.1	-2.6	-3.4	-3.6	-4.4	-4.1	-4.1	-4.6	-5.3	-5.4	-5.3	-4.6	-4.0	-3.5	-3.7	-4.0	-4.4	-4.6	-4.8	-5.0	-5.3	-5.2	-6.5	-4.3	-1.9																							
27-Dec	-7.1	-7.4	-7.7	-7.5	-7.5	-8.0	-7.4	-6.7	-7.5	-6.6	-6.5	-7.2	-7.2	-6.8	-6.8	-6.7	-6.6	-6.6	-6.4	-5.7	-5.7	-5.7	-6.0	-6.3	-6.8	-5.7																							
28-Dec	-6.5	-6.5	-6.4	-6.4	-6.4	-6.6	-6.3	-6.3	-6.3	-6.6	-6.6	-6.6	-6.5	-6.3	-5.9	-5.8	-5.8	-5.8	-6.0	-5.9	-5.9	-6.6	-7.3	-7.6	-7.8	-6.4	-5.8																						
29-Dec	-8.0	-8.2	-8.4	-8.7	-8.9	-9.0	-8.9	-9.0	-8.7	-8.4	-8.0	-7.5	-7.2	-7.3	-7.7	-7.8	-8.1	-8.8	-9.0	-8.8	-8.4	-8.3	-8.4	-8.4	-8.3	-7.2																							
30-Dec	-8.5	-8.8	-9.2	-9.8	-10.1	-10.0	-9.9	-10.1	-10.5	-10.9	-11.4	-11.4	-11.4	-11.6	-11.7	-11.8	-11.7	-11.9	-12.8	-13.2	-13.2	-13.3	-13.6	-14.1	-11.3	-8.5																							
31-Dec	-14.8	-15.0	-15.1	-15.2	-15.2	-15.0	-15.1	-15.4	-16.1	-17.1	-17.2	-16.7	-15.8	-15.4	-15.2	-15.4	-16.0	-17.0	-17.6	-18.0	-18.3	-18.6	-18.8	-19.1	-16.4	-14.8																							
																								-12.4	-12.5	-12.5	-12.5	-12.6	-12.7	-12.6	-12.5	-12.6	-12.6	-12.6	-11.9	-11.4	-11.0	-10.9	-11.0	-11.0	-11.2	-11.3	-11.5	-11.7	-11.9	-12.0	-12.2	Diurnal Average	
																								4.6	4.4	3.8	2.9	2.2	1.3	0.6	0.8	1.1	0.8	0.5	3.8	4.0	4.7	4.4	4.3	4.6	4.5	4.0	4.2	4.6	4.4	4.4	4.5	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 20m (AT20) - C
Mannix - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	162	21.77	21.77
-20 - 0	523	70.30	92.07
0 - 10	59	7.93	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

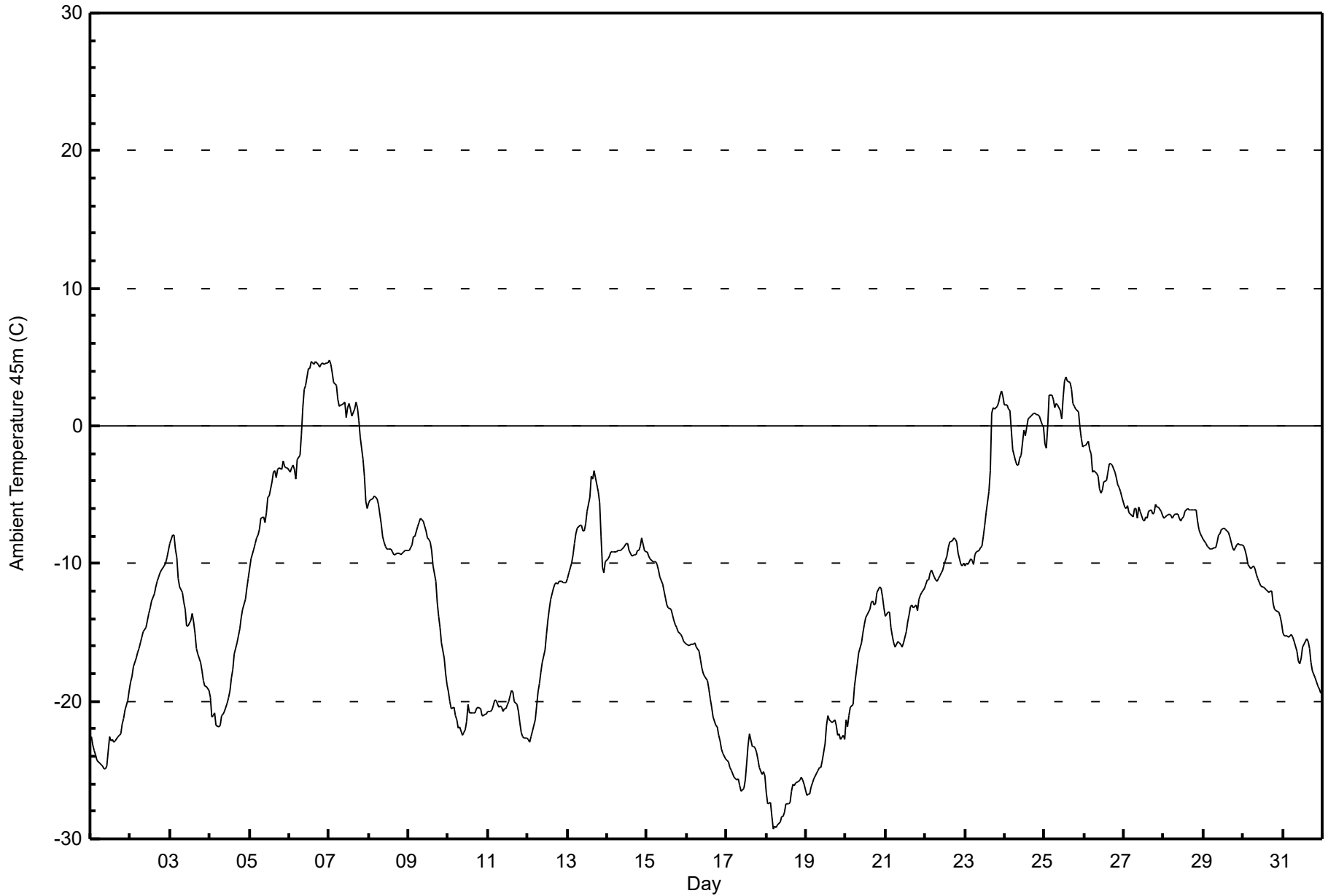


Maximum Value: 4.7 C on Dec 7 01:00		Maximum Daily Average: 1.8 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -29.3 C on Dec 18 05:00		Minimum Daily Average: -27.3 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.8 C at hour 17		Minimum Diurnal Average: -12.4 C at hour 6		Hours of Missing Data: 0																																													
Monthly Average: -11.85 C		Percentiles: P ₁ = -28.2 P ₁₀ = -22.9 Q ₁ = -18.9 Median = -10.9 Q ₃ = -6.4 P ₉₀ = 0.0 P ₉₉ = 4.5		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-Dec	-22.5	-23.2	-23.6	-23.9	-24.4	-24.5	-24.6	-24.7	-24.9	-24.9	-24.7	-22.5	-22.9	-22.8	-23.0	-22.9	-22.6	-22.5	-22.4	-21.7	-21.2	-20.7	-19.9	-19.3	-22.9	-19.3																							
2-Dec	-18.6	-18.2	-17.5	-16.8	-16.5	-16.2	-15.7	-15.4	-15.0	-14.7	-14.2	-13.7	-13.2	-12.7	-12.2	-11.7	-11.3	-11.0	-10.7	-10.5	-10.2	-10.0	-9.6	-9.0	-13.5	-9.0																							
3-Dec	-8.6	-7.9	-7.9	-8.9	-9.5	-11.1	-11.7	-12.1	-12.9	-13.3	-14.6	-14.5	-14.2	-13.6	-14.2	-15.1	-16.1	-16.6	-17.2	-17.8	-18.5	-18.9	-18.9	-19.2	-13.9	-7.9																							
4-Dec	-19.7	-21.1	-21.1	-20.9	-21.8	-21.8	-21.8	-21.0	-20.9	-20.7	-20.1	-19.7	-19.2	-18.3	-17.6	-16.6	-15.8	-15.3	-14.8	-14.0	-13.4	-12.6	-11.8	-11.1	-18.0	-11.1																							
5-Dec	-10.4	-9.6	-8.9	-8.5	-8.1	-7.9	-7.6	-6.8	-6.6	-7.0	-6.3	-5.2	-5.1	-4.1	-3.3	-3.3	-3.8	-3.2	-3.0	-3.1	-2.6	-2.9	-3.0	-3.1	-5.6	-2.6																							
6-Dec	-3.3	-3.0	-2.8	-3.2	-3.8	-2.5	-2.1	-0.6	1.3	2.7	3.0	4.2	4.2	4.7	4.5	4.4	4.7	4.5	4.3	4.5	4.6	4.4	4.6	4.6	1.8	4.7																							
7-Dec	4.7	4.5	3.9	3.2	2.9	1.9	1.4	1.5	1.6	1.8	0.6	1.3	1.6	1.2	0.7	1.2	1.7	1.3	0.4	-0.9	-2.5	-3.7	-5.5	-6.0	0.8	4.7																							
8-Dec	-5.6	-5.3	-5.3	-5.1	-5.2	-5.3	-5.7	-7.1	-8.0	-8.5	-8.7	-8.9	-9.0	-9.0	-9.1	-9.3	-9.4	-9.3	-9.2	-9.3	-9.3	-9.2	-9.0	-9.0	-7.9	-5.1																							
9-Dec	-9.1	-8.9	-8.7	-8.0	-8.1	-7.3	-7.0	-6.7	-6.8	-6.9	-7.7	-8.2	-8.3	-8.5	-9.1	-10.2	-11.3	-12.8	-13.8	-14.6	-15.7	-16.9	-18.0	-18.8	-10.5	-6.7																							
10-Dec	-19.4	-20.1	-20.5	-20.5	-21.0	-21.3	-21.9	-21.9	-22.5	-22.3	-22.1	-21.5	-20.2	-20.8	-20.8	-20.9	-20.8	-20.5	-20.4	-20.6	-21.1	-21.0	-20.9	-20.9	-21.0	-19.4																							
11-Dec	-20.8	-20.8	-20.6	-20.3	-20.0	-19.9	-20.4	-20.4	-20.4	-20.8	-20.5	-20.5	-20.0	-19.6	-19.2	-19.4	-20.0	-20.3	-20.7	-21.6	-22.3	-22.6	-22.6	-22.7	-20.7	-19.2																							
12-Dec	-22.8	-23.0	-22.6	-22.1	-21.4	-20.3	-19.4	-18.7	-17.9	-17.1	-16.2	-15.1	-14.2	-13.3	-12.6	-11.8	-11.5	-11.4	-11.4	-11.3	-11.3	-11.3	-11.4	-11.3	-15.8	-11.3																							
13-Dec	-11.1	-10.7	-9.9	-9.3	-8.6	-7.9	-7.4	-7.3	-7.3	-7.7	-7.6	-7.1	-6.2	-5.2	-3.6	-3.8	-3.2	-3.7	-4.8	-5.6	-8.0	-10.3	-10.7	-9.8	-7.4	-3.2																							
14-Dec	-9.7	-9.4	-9.2	-9.2	-9.2	-9.2	-9.1	-9.0	-9.1	-9.0	-8.8	-8.5	-8.5	-9.1	-9.3	-9.5	-9.3	-9.3	-9.1	-9.0	-8.7	-8.2	-9.0	-9.2	-9.1	-8.2																							
15-Dec	-9.2	-9.4	-9.7	-9.9	-9.9	-9.8	-10.1	-10.5	-11.0	-11.5	-12.0	-12.5	-13.0	-13.2	-13.4	-13.7	-14.1	-14.4	-14.7	-14.9	-15.2	-15.4	-15.6	-15.7	-12.4	-9.2																							
16-Dec	-15.9	-15.9	-15.9	-15.9	-15.9	-15.8	-16.1	-16.4	-17.0	-17.6	-18.0	-18.2	-18.5	-19.1	-19.8	-20.5	-21.2	-21.8	-21.8	-22.5	-22.9	-23.5	-23.8	-24.2	-19.1	-15.8																							
17-Dec	-24.3	-24.4	-24.8	-25.1	-25.5	-25.6	-25.8	-25.6	-26.2	-26.5	-26.3	-25.7	-24.5	-23.2	-22.4	-23.3	-23.3	-23.4	-23.7	-24.2	-24.8	-25.3	-25.2	-25.5	-24.8	-22.4																							
18-Dec	-26.7	-27.5	-27.4	-28.4	-29.3	-29.1	-29.1	-29.0	-28.8	-28.3	-28.4	-28.1	-27.4	-27.4	-27.4	-26.6	-26.0	-26.1	-25.9	-25.9	-25.7	-25.5	-25.7	-26.0	-27.3	-25.5																							
19-Dec	-26.8	-26.8	-26.7	-26.2	-25.9	-25.6	-25.2	-25.1	-24.8	-24.8	-24.3	-23.1	-21.7	-21.1	-21.3	-21.5	-21.6	-21.4	-21.7	-22.4	-22.4	-22.8	-22.5	-22.7	-23.7	-21.1																							
20-Dec	-21.4	-21.9	-21.0	-20.5	-20.2	-18.9	-18.1	-17.3	-16.4	-15.8	-15.0	-14.4	-13.9	-13.7	-13.3	-12.8	-12.7	-13.0	-12.9	-12.1	-11.7	-11.8	-12.4	-13.3	-15.6	-11.7																							
21-Dec	-13.8	-13.5	-13.5	-14.6	-15.2	-15.7	-16.1	-15.6	-15.7	-15.9	-16.1	-15.8	-15.0	-14.2	-13.8	-13.1	-13.0	-13.2	-13.0	-13.4	-12.6	-12.3	-12.1	-11.8	-14.1	-11.8																							
22-Dec	-11.5	-11.2	-11.2	-10.7	-10.5	-11.0	-11.2	-11.3	-11.1	-10.8	-10.4	-10.1	-9.8	-9.5	-8.8	-8.5	-8.3	-8.2	-8.2	-8.5	-9.3	-10.1	-10.1	-10.0	-10.0	-8.2																							
23-Dec	-10.1	-10.0	-10.0	-9.7	-9.8	-10.0	-9.4	-9.2	-9.0	-8.9	-8.7	-8.0	-7.2	-6.3	-4.8	-3.2	0.9	1.4	1.2	1.4	1.7	2.3	2.6	2.2	-5.0	2.6																							
24-Dec	1.6	1.5	1.2	1.2	-0.3	-1.8	-2.6	-2.8	-2.8	-2.3	-2.1	-0.3	-0.7	-0.1	0.6	0.6	0.7	0.9	0.9	0.8	0.8	0.7	0.1	-0.1	-0.2	1.6																							
25-Dec	-1.3	-1.6	0.0	2.2	2.2	1.9	1.4	1.6	1.5	1.1	0.5	2.0	3.3	3.6	3.3	3.1	2.6	1.6	1.4	1.2	1.0	-0.1	-0.9	-1.6	1.3	3.6																							
26-Dec	-1.4	-1.4	-1.1	-1.7	-2.1	-3.4	-3.2	-3.4	-3.6	-4.6	-4.9	-4.7	-4.1	-4.0	-3.4	-2.7	-2.8	-2.8	-3.4	-3.8	-4.3	-4.4	-4.8	-5.2	-3.4	-1.1																							
27-Dec	-5.9	-6.0	-5.8	-6.3	-6.4	-6.6	-6.0	-6.0	-6.7	-5.9	-6.2	-6.8	-6.9	-6.6	-6.7	-6.2	-6.1	-6.4	-6.3	-5.7	-5.9	-5.9	-6.2	-6.5	-6.3	-5.7																							
28-Dec	-6.7	-6.6	-6.5	-6.4	-6.5	-6.7	-6.5	-6.4	-6.4	-6.7	-6.9	-6.7	-6.6	-6.2	-6.1	-6.1	-6.1	-6.1	-6.1	-6.1	-6.1	-6.9	-7.5	-7.9	-8.0	-6.6	-6.1																						
29-Dec	-8.2	-8.5	-8.7	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-8.5	-8.0	-7.9	-7.5	-7.4	-7.5	-7.6	-7.7	-8.0	-8.9	-9.0	-8.8	-8.6	-8.6	-8.7	-8.7	-8.4	-7.4																						
30-Dec	-8.7	-9.1	-9.4	-10.0	-10.3	-10.3	-10.2	-10.3	-10.7	-11.1	-11.6	-11.6	-11.7	-11.8	-11.9	-12.1	-12.0	-12.0	-12.9	-13.3	-13.4	-13.5	-13.8	-14.4	-11.5	-8.7																							
31-Dec	-15.1	-15.2	-15.3	-15.3	-15.3	-15.1	-15.3	-15.6	-16.3	-17.1	-17.3	-16.9	-16.1	-15.7	-15.5	-15.6	-16.2	-17.2	-17.8	-18.3	-18.6	-18.9	-19.1	-19.4	-16.6	-15.1																							
																								-12.3	-12.4	-12.3	-12.2	-12.4	-12.4	-12.4	-12.3	-12.4	-12.4	-12.4	-11.9	-11.5	-11.2	-11.0	-10.9	-10.8	-11.0	-11.2	-11.4	-11.6	-11.8	-12.0	-12.1	Diurnal Average	
																								4.7	4.5	3.9	3.2	2.9	1.9	1.4	1.6	1.6	2.7	3.0	4.2	4.2	4.7	4.5	4.4	4.7	4.5	4.3	4.5	4.6	4.4	4.6	4.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 45m (AT45) - C
Mannix - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

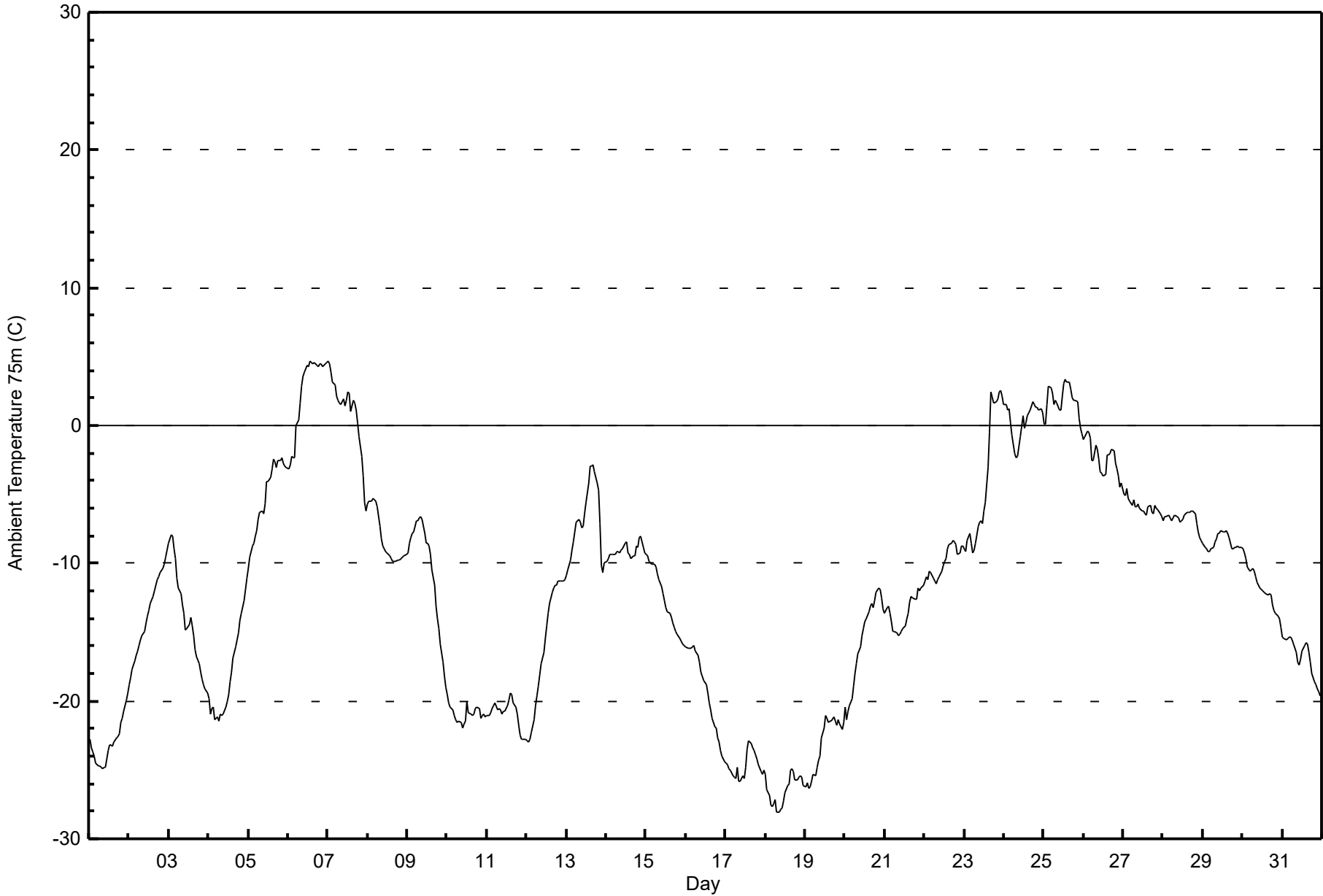
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	165	22.18	22.18
-20 - 0	505	67.88	90.05
0 - 10	74	9.95	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 4.7 C on Dec 7 01:00		Maximum Daily Average: 2.4 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -28.1 C on Dec 18 09:00		Minimum Daily Average: -26.5 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.8 C at hour 17		Minimum Diurnal Average: -12.2 C at hour 2		Hours of Missing Data: 0																																													
Monthly Average: -11.70 C		Percentiles: P ₁ = -27.2 P ₁₀ = -23.0 Q ₁ = -18.9 Median = -11.0 Q ₃ = -6.4 P ₉₀ = 0.9 P ₉₉ = 4.5		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-Dec	-22.8	-23.4	-23.7	-24.0	-24.5	-24.7	-24.7	-24.9	-24.9	-24.9	-24.8	-23.5	-23.2	-23.1	-23.3	-23.0	-22.7	-22.6	-22.4	-21.6	-21.3	-20.7	-20.0	-19.4	-23.1	-19.4																							
2-Dec	-18.8	-18.3	-17.7	-17.1	-16.7	-16.4	-16.0	-15.6	-15.3	-14.9	-14.4	-13.9	-13.4	-12.9	-12.4	-12.0	-11.6	-11.2	-10.9	-10.7	-10.4	-10.1	-9.6	-9.0	-13.7	-9.0																							
3-Dec	-8.6	-7.9	-8.1	-8.9	-9.7	-11.1	-11.8	-12.2	-13.0	-13.6	-14.9	-14.8	-14.4	-13.9	-14.5	-15.3	-16.3	-16.8	-17.3	-17.9	-18.4	-18.8	-19.1	-19.5	-14.0	-7.9																							
4-Dec	-19.9	-21.0	-20.5	-20.4	-21.4	-21.2	-21.5	-21.0	-21.1	-20.9	-20.4	-20.0	-19.5	-18.6	-17.9	-16.8	-16.1	-15.6	-15.1	-14.1	-13.6	-12.7	-11.9	-11.1	-18.0	-11.1																							
5-Dec	-10.4	-9.6	-8.8	-8.5	-8.1	-7.6	-6.8	-6.3	-6.2	-6.4	-5.7	-4.0	-4.1	-3.8	-3.1	-2.5	-2.6	-3.0	-2.5	-2.6	-2.3	-2.8	-2.9	-3.0	-5.1	-2.3																							
6-Dec	-3.1	-2.8	-2.3	-2.4	-2.4	0.0	0.4	1.6	2.8	3.5	3.8	4.3	4.2	4.7	4.5	4.5	4.6	4.4	4.3	4.5	4.5	4.3	4.5	4.6	2.4	4.7																							
7-Dec	4.7	4.5	3.8	3.1	2.9	2.2	1.8	1.6	1.5	1.9	1.5	1.8	2.5	2.3	1.0	1.8	1.6	1.1	0.2	-0.8	-2.3	-3.6	-5.6	-6.2	1.0	4.7																							
8-Dec	-5.7	-5.5	-5.5	-5.3	-5.4	-5.5	-5.9	-7.3	-8.2	-8.7	-8.9	-9.1	-9.2	-9.4	-9.6	-9.9	-9.9	-9.8	-9.8	-9.8	-9.7	-9.6	-9.4	-9.3	-8.2	-5.3																							
9-Dec	-9.3	-8.6	-8.1	-7.8	-7.7	-6.9	-6.9	-6.7	-6.6	-6.8	-7.8	-8.5	-8.6	-8.8	-9.4	-10.5	-11.6	-13.1	-14.0	-14.8	-15.9	-17.1	-18.2	-19.0	-10.5	-6.6																							
10-Dec	-19.5	-20.2	-20.4	-20.7	-21.1	-21.4	-21.6	-21.5	-21.6	-21.9	-21.7	-21.5	-20.0	-20.9	-20.9	-21.0	-20.9	-20.6	-20.4	-20.5	-21.2	-21.0	-21.0	-21.2	-20.9	-19.5																							
11-Dec	-21.1	-21.0	-20.9	-20.6	-20.3	-20.1	-20.7	-20.6	-20.7	-21.0	-20.8	-20.7	-20.3	-19.9	-19.4	-19.5	-20.1	-20.5	-21.0	-21.8	-22.5	-22.7	-22.8	-22.8	-20.9	-19.4																							
12-Dec	-22.9	-23.0	-22.7	-22.3	-21.3	-20.4	-19.6	-18.9	-18.1	-17.3	-16.5	-15.4	-14.5	-13.6	-12.9	-12.1	-11.7	-11.6	-11.6	-11.3	-11.3	-11.3	-11.2	-11.2	-16.0	-11.2																							
13-Dec	-10.9	-10.5	-9.7	-9.1	-8.5	-7.7	-7.0	-6.8	-7.1	-7.4	-7.4	-6.4	-5.6	-4.2	-2.9	-2.9	-2.8	-3.4	-4.2	-4.7	-7.1	-10.2	-10.6	-9.9	-7.0	-2.8																							
14-Dec	-9.9	-9.7	-9.4	-9.4	-9.4	-9.4	-9.2	-9.1	-9.3	-9.1	-9.0	-8.5	-8.4	-9.2	-9.3	-9.6	-9.4	-9.5	-8.7	-8.9	-8.1	-8.1	-8.9	-9.3	-9.1	-8.1																							
15-Dec	-9.3	-9.4	-9.9	-10.1	-10.1	-10.0	-10.3	-10.7	-11.2	-11.7	-12.3	-12.7	-13.2	-13.5	-13.6	-14.0	-14.3	-14.7	-14.9	-15.2	-15.4	-15.7	-15.9	-16.0	-12.7	-9.3																							
16-Dec	-16.1	-16.2	-16.2	-16.2	-16.1	-15.9	-16.3	-16.6	-17.2	-17.9	-18.3	-18.5	-18.8	-19.4	-20.1	-20.7	-21.2	-21.9	-22.0	-22.7	-23.0	-23.6	-24.0	-24.4	-19.3	-15.9																							
17-Dec	-24.5	-24.6	-24.9	-25.0	-25.4	-25.5	-25.6	-24.8	-25.9	-25.8	-25.4	-25.7	-24.8	-23.5	-22.9	-23.1	-23.4	-23.6	-23.9	-24.2	-24.6	-25.2	-25.3	-25.0	-24.7	-22.9																							
18-Dec	-25.3	-26.4	-26.9	-27.5	-27.7	-27.4	-27.2	-28.1	-28.1	-27.9	-27.8	-27.3	-26.6	-26.1	-26.0	-25.1	-24.9	-25.1	-25.8	-25.8	-25.5	-25.4	-25.6	-26.2	-26.5	-24.9																							
19-Dec	-26.2	-26.0	-26.3	-26.2	-25.8	-25.3	-25.4	-24.8	-24.3	-24.0	-22.7	-21.9	-21.1	-21.3	-21.5	-21.5	-21.5	-21.1	-21.4	-21.8	-21.3	-21.7	-22.0	-21.6	-23.2	-21.1																							
20-Dec	-20.4	-21.4	-20.8	-20.3	-19.9	-18.9	-18.0	-17.3	-16.6	-16.0	-15.3	-14.7	-14.2	-14.0	-13.6	-13.1	-13.0	-13.2	-12.7	-12.1	-11.8	-11.9	-12.5	-13.3	-15.6	-11.8																							
21-Dec	-13.6	-13.2	-13.1	-13.6	-14.2	-14.9	-15.0	-15.1	-15.2	-15.1	-14.9	-14.7	-14.6	-14.0	-13.6	-12.8	-12.4	-12.5	-12.6	-12.6	-11.8	-12.0	-11.8	-11.6	-13.5	-11.6																							
22-Dec	-11.3	-11.0	-11.2	-10.6	-10.7	-11.1	-11.3	-11.5	-11.2	-11.0	-10.6	-10.2	-9.9	-9.6	-9.0	-8.7	-8.5	-8.4	-8.4	-8.7	-9.4	-9.3	-8.8	-8.8	-10.0	-8.4																							
23-Dec	-9.0	-9.2	-8.4	-7.8	-8.5	-9.3	-9.0	-8.5	-7.4	-7.0	-7.0	-7.1	-6.2	-5.6	-3.1	-0.5	2.4	2.0	1.7	1.7	1.9	2.4	2.5	2.1	-4.0	2.5																							
24-Dec	1.5	1.6	1.2	1.2	0.2	-0.7	-2.0	-2.3	-2.2	-1.5	-0.8	0.7	-0.2	0.2	0.7	0.9	1.1	1.7	1.5	1.4	1.4	1.1	1.2	0.9	0.4	1.7																							
25-Dec	0.1	0.1	1.5	2.9	2.8	2.3	1.5	1.9	1.6	1.2	1.1	2.2	3.1	3.4	3.2	3.1	2.6	2.0	1.9	1.8	1.7	0.5	-0.2	-0.6	1.7	3.4																							
26-Dec	-1.0	-0.9	-0.4	-0.5	-0.9	-2.6	-2.6	-1.4	-1.7	-2.4	-3.4	-3.5	-3.7	-3.5	-2.1	-2.2	-2.1	-1.8	-1.9	-2.8	-3.2	-3.7	-4.5	-4.2	-2.4	-0.4																							
27-Dec	-5.0	-5.1	-4.6	-5.3	-5.5	-5.7	-5.4	-5.9	-5.9	-5.7	-6.0	-6.2	-6.2	-6.4	-6.5	-5.9	-5.8	-6.3	-6.4	-5.8	-6.0	-6.1	-6.4	-6.6	-5.9	-4.6																							
28-Dec	-6.9	-6.6	-6.6	-6.5	-6.7	-6.9	-6.7	-6.5	-6.6	-6.8	-7.0	-6.9	-6.8	-6.5	-6.4	-6.3	-6.3	-6.2	-6.2	-6.4	-7.1	-7.7	-8.2	-8.3	-6.8	-6.2																							
29-Dec	-8.5	-8.8	-9.0	-9.1	-9.1	-9.0	-8.8	-8.4	-8.3	-7.9	-7.8	-7.7	-7.8	-7.8	-7.6	-7.8	-8.1	-9.0	-8.9	-8.9	-8.8	-8.8	-8.9	-8.9	-8.5	-7.6																							
30-Dec	-9.0	-9.3	-9.7	-10.3	-10.6	-10.5	-10.4	-10.6	-11.0	-11.4	-11.8	-11.9	-12.0	-12.1	-12.2	-12.3	-12.2	-12.3	-13.0	-13.5	-13.6	-13.8	-14.1	-14.6	-11.8	-9.0																							
31-Dec	-15.4	-15.5	-15.5	-15.5	-15.4	-15.3	-15.6	-15.8	-16.5	-17.2	-17.3	-17.0	-16.4	-16.0	-15.8	-15.9	-16.5	-17.2	-18.0	-18.6	-18.9	-19.2	-19.4	-19.6	-16.8	-15.3																							
																								-12.2	-12.2	-12.1	-12.1	-12.2	-12.2	-12.2	-12.1	-12.1	-12.1	-12.1	-11.7	-11.4	-11.2	-11.0	-10.8	-10.8	-11.0	-11.1	-11.3	-11.5	-11.7	-12.0	-12.0	Diurnal Average	
																								4.7	4.5	3.8	3.1	2.9	2.3	1.8	1.9	2.8	3.5	3.8	4.3	4.2	4.7	4.5	4.5	4.6	4.4	4.3	4.5	4.5	4.3	4.5	4.6	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

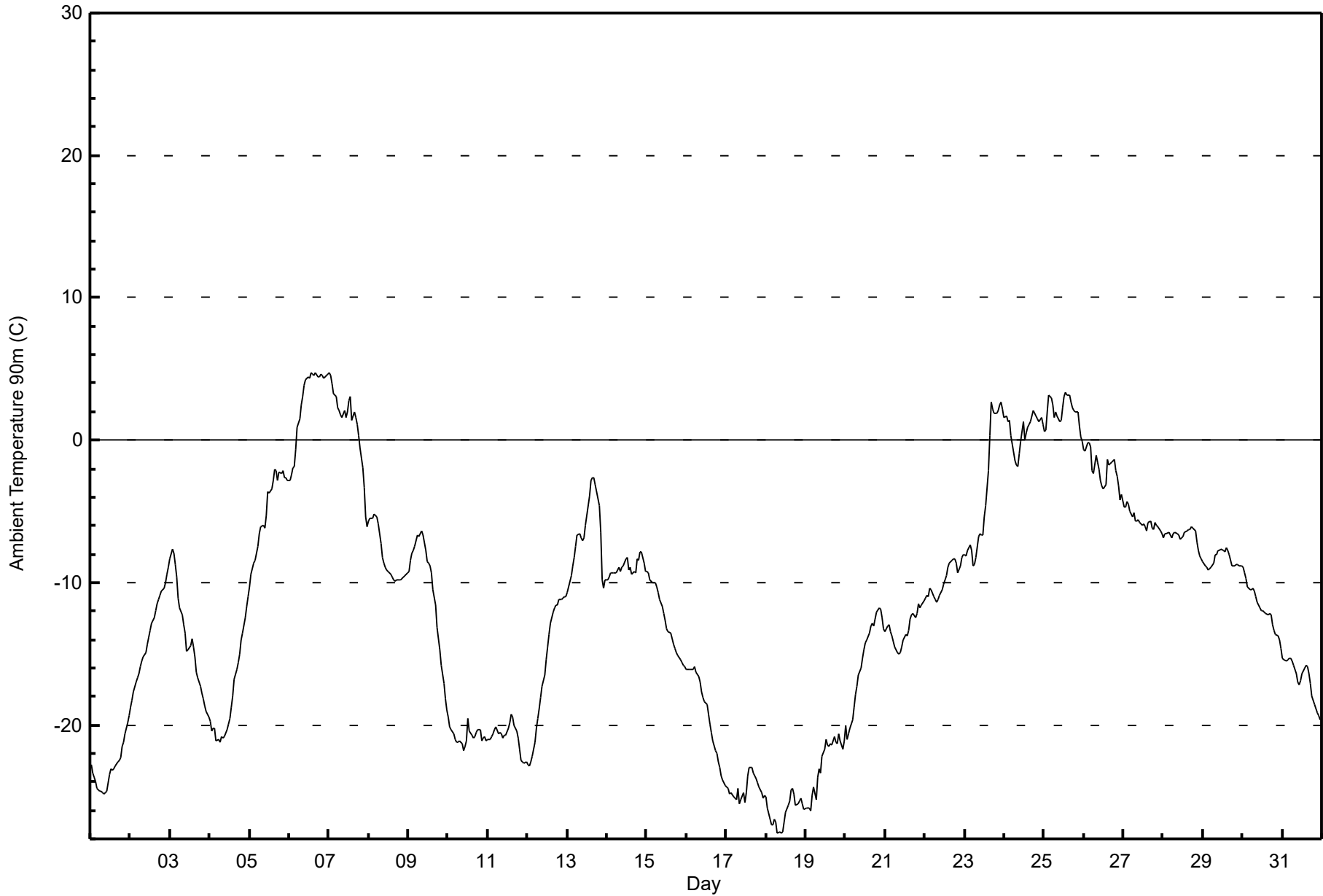
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	168	22.58	22.58
-20 - 0	491	65.99	88.58
0 - 10	85	11.42	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 4.8 C on Dec 7 01:00		Maximum Daily Average: 2.7 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -27.6 C on Dec 18 10:00		Minimum Daily Average: -26.1 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.6 C at hour 17		Minimum Diurnal Average: -12.0 C at hour 1		Hours of Missing Data: 0																																												
Monthly Average: -11.52 C		Percentiles: P ₁ = -26.8 P ₁₀ = -23.0 Q ₁ = -18.9 Median = -10.9 Q ₃ = -6.2 P ₉₀ = 1.1 P ₉₉ = 4.6		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-Dec	-22.8	-23.4	-23.7	-23.9	-24.5	-24.6	-24.6	-24.8	-24.9	-24.8	-24.6	-23.5	-23.1	-23.2	-23.1	-22.9	-22.6	-22.5	-22.3	-21.5	-21.2	-20.6	-19.9	-19.4	-23.0	-19.4																						
2-Dec	-18.8	-18.3	-17.7	-17.0	-16.7	-16.4	-15.9	-15.6	-15.2	-14.9	-14.4	-13.8	-13.4	-12.9	-12.4	-12.0	-11.5	-11.2	-10.9	-10.6	-10.4	-10.0	-9.4	-8.9	-13.7	-8.9																						
3-Dec	-8.3	-7.6	-8.0	-8.8	-9.6	-11.1	-11.7	-12.2	-13.0	-13.6	-14.9	-14.8	-14.4	-13.9	-14.5	-15.3	-16.3	-16.7	-17.2	-17.8	-18.2	-18.7	-19.1	-19.4	-14.0	-7.6																						
4-Dec	-19.8	-20.4	-20.2	-20.2	-21.1	-21.0	-21.2	-20.9	-20.8	-20.4	-20.0	-19.5	-18.7	-18.0	-16.8	-16.1	-15.6	-15.0	-14.1	-13.5	-12.5	-11.7	-11.0		-17.9	-11.0																						
5-Dec	-10.3	-9.5	-8.6	-8.4	-8.0	-7.5	-6.6	-6.1	-5.9	-6.2	-5.3	-3.6	-3.7	-3.4	-2.8	-2.1	-2.1	-2.2	-2.4	-2.2	-2.6	-2.7	-2.8		-4.9	-2.1																						
6-Dec	-2.8	-2.5	-2.0	-1.8	-0.6	0.9	1.5	2.5	3.1	3.8	4.2	4.5	4.4	4.7	4.6	4.6	4.7	4.4	4.4	4.6	4.6	4.4	4.5	4.7	2.7	4.7																						
7-Dec	4.8	4.6	3.9	3.2	3.1	2.3	2.1	1.8	1.6	2.1	1.6	2.0	2.8	3.0	1.4	1.9	1.6	1.1	0.3	-0.6	-2.0	-3.4	-5.4	-6.1	1.2	4.8																						
8-Dec	-5.7	-5.5	-5.4	-5.2	-5.3	-5.4	-5.9	-7.3	-8.2	-8.7	-8.9	-9.1	-9.2	-9.4	-9.6	-9.8	-9.9	-9.8	-9.8	-9.9	-9.8	-9.7	-9.5	-9.3	-8.2	-5.2																						
9-Dec	-9.2	-8.4	-7.9	-7.7	-7.5	-6.7	-6.8	-6.6	-6.4	-6.6	-7.8	-8.5	-8.6	-8.8	-9.4	-10.5	-11.6	-13.1	-13.9	-14.7	-15.8	-17.1	-18.2	-18.9	-10.4	-6.4																						
10-Dec	-19.5	-20.1	-20.3	-20.6	-21.0	-21.2	-21.2	-21.1	-21.3	-21.8	-21.5	-21.2	-19.5	-20.5	-20.7	-20.9	-20.8	-20.5	-20.3	-20.4	-21.1	-20.9	-20.8	-21.1	-20.8	-19.5																						
11-Dec	-21.1	-21.0	-20.9	-20.6	-20.3	-20.1	-20.7	-20.5	-20.6	-20.9	-20.7	-20.7	-20.2	-19.8	-19.3	-19.4	-20.0	-20.4	-21.0	-21.7	-22.5	-22.6	-22.7	-22.6	-20.8	-19.3																						
12-Dec	-22.8	-22.9	-22.6	-22.2	-21.2	-20.2	-19.6	-18.9	-18.1	-17.3	-16.5	-15.4	-14.5	-13.6	-12.9	-12.1	-11.7	-11.6	-11.5	-11.2	-11.2	-11.1	-11.0	-11.0	-15.9	-11.0																						
13-Dec	-10.7	-10.3	-9.5	-8.8	-8.2	-7.4	-6.7	-6.6	-6.9	-7.0	-6.9	-5.9	-5.3	-3.9	-2.8	-2.6	-2.7	-3.1	-4.1	-4.6	-6.5	-9.8	-10.4	-9.8	-6.7	-2.6																						
14-Dec	-9.8	-9.6	-9.3	-9.3	-9.3	-9.3	-9.1	-8.9	-9.2	-8.9	-8.9	-8.9	-8.3	-8.2	-9.1	-9.0	-9.4	-9.2	-9.3	-8.4	-8.5	-7.9	-7.9	-8.6	-9.2	-8.9	-7.9																					
15-Dec	-9.2	-9.3	-9.8	-10.0	-10.0	-10.0	-10.3	-10.7	-11.2	-11.7	-12.2	-12.7	-13.2	-13.5	-13.5	-13.9	-14.3	-14.7	-14.9	-15.1	-15.4	-15.6	-15.9	-15.9	-12.6	-9.2																						
16-Dec	-16.1	-16.1	-16.1	-16.1	-16.1	-15.9	-16.3	-16.6	-17.0	-17.7	-18.0	-18.4	-18.6	-19.3	-20.0	-20.5	-21.1	-21.8	-22.0	-22.6	-23.0	-23.6	-23.9	-24.3	-19.2	-15.9																						
17-Dec	-24.4	-24.5	-24.8	-24.7	-25.1	-25.2	-25.3	-24.4	-25.6	-25.3	-24.7	-25.4	-24.8	-23.5	-23.0	-23.0	-23.3	-23.5	-23.8	-24.0	-24.3	-24.7	-25.1	-24.9	-24.5	-23.0																						
18-Dec	-25.0	-25.9	-26.6	-27.0	-27.0	-26.7	-26.8	-27.6	-27.5	-27.6	-27.5	-26.8	-26.1	-25.7	-25.4	-24.6	-24.4	-24.8	-25.6	-25.5	-25.4	-25.2	-25.5	-26.0	-26.1	-24.4																						
19-Dec	-25.9	-25.8	-25.8	-26.0	-24.9	-24.4	-25.2	-23.7	-23.1	-23.3	-22.2	-21.7	-21.0	-21.4	-21.5	-21.3	-21.4	-20.9	-21.2	-21.3	-20.7	-21.1	-21.7	-21.1	-22.8	-20.7																						
20-Dec	-20.0	-21.0	-20.6	-20.2	-19.6	-18.7	-17.9	-17.2	-16.5	-16.0	-15.3	-14.7	-14.2	-14.0	-13.6	-13.1	-12.9	-13.1	-12.6	-12.1	-11.8	-11.9	-12.5	-13.2	-15.5	-11.8																						
21-Dec	-13.5	-13.0	-13.0	-13.4	-13.8	-14.1	-14.6	-14.9	-15.0	-14.9	-14.6	-14.0	-13.6	-13.8	-13.4	-12.5	-12.3	-12.2	-12.5	-12.2	-11.5	-11.8	-11.6	-11.3	-13.2	-11.3																						
22-Dec	-11.1	-10.9	-11.0	-10.4	-10.5	-11.0	-11.2	-11.4	-11.2	-10.9	-10.5	-10.1	-9.8	-9.5	-8.9	-8.6	-8.4	-8.3	-8.3	-8.6	-9.3	-8.8	-8.2	-8.0	-9.8	-8.0																						
23-Dec	-8.0	-8.2	-7.8	-7.4	-7.7	-8.8	-8.7	-8.2	-6.7	-6.6	-6.7	-6.7	-5.4	-4.6	-2.1	0.3	2.6	2.2	1.8	1.9	2.1	2.5	2.6	2.2	-3.6	2.6																						
24-Dec	1.6	1.7	1.3	1.4	0.3	-0.3	-1.5	-1.8	-1.8	-1.0	-0.1	1.3	0.0	0.5	0.9	1.1	1.3	2.0	1.9	1.7	1.5	1.3	1.6	1.1	0.7	2.0																						
25-Dec	0.6	0.7	1.9	3.1	3.0	2.4	1.6	2.0	1.7	1.2	1.4	2.3	3.1	3.4	3.2	3.2	2.7	2.2	2.1	2.0	2.0	1.0	0.2	0.0	2.0	3.4																						
26-Dec	-0.7	-0.8	-0.2	-0.2	-0.5	-2.2	-2.3	-1.1	-1.6	-2.0	-2.8	-3.2	-3.4	-3.2	-1.4	-1.7	-1.6	-1.6	-1.3	-2.2	-2.6	-3.3	-4.2	-3.8	-2.0	-0.2																						
27-Dec	-4.7	-4.7	-4.3	-4.5	-5.0	-5.4	-5.1	-5.7	-5.6	-5.6	-5.8	-6.0	-5.8	-6.1	-6.4	-5.7	-5.6	-6.2	-6.3	-5.7	-6.0	-6.1	-6.4	-6.6	-5.6	-4.3																						
28-Dec	-6.9	-6.5	-6.6	-6.5	-6.6	-6.8	-6.6	-6.4	-6.5	-6.6	-7.0	-6.9	-6.7	-6.5	-6.3	-6.3	-6.3	-6.1	-6.2	-6.4	-7.1	-7.7	-8.1	-8.3	-6.8	-6.1																						
29-Dec	-8.5	-8.8	-9.0	-9.1	-9.1	-8.9	-8.6	-8.1	-8.1	-7.8	-7.7	-7.6	-7.8	-7.8	-7.6	-7.7	-8.0	-8.8	-8.8	-8.8	-8.8	-8.7	-8.8	-8.9	-8.4	-7.6																						
30-Dec	-8.9	-9.3	-9.7	-10.3	-10.5	-10.5	-10.4	-10.6	-11.0	-11.4	-11.8	-11.9	-12.0	-12.1	-12.2	-12.3	-12.2	-12.2	-13.0	-13.4	-13.6	-13.8	-14.0	-14.6	-11.7	-8.9																						
31-Dec	-15.4	-15.5	-15.5	-15.4	-15.3	-15.3	-15.5	-15.8	-16.4	-17.0	-17.2	-16.9	-16.4	-16.0	-15.8	-15.9	-16.4	-17.1	-18.0	-18.6	-18.9	-19.1	-19.3	-19.6	-16.8	-15.3																						
																								-12.0	-12.0	-11.9	-11.9	-11.9	-11.9	-12.0	-11.9	-11.9	-11.9	-11.9	-11.5	-11.2	-11.0	-10.8	-10.6	-10.6	-10.8	-11.0	-11.1	-11.3	-11.6	-11.8	-11.9	Diurnal Average
																								4.8	4.6	3.9	3.2	3.1	2.4	2.1	2.5	3.1	3.8	4.2	4.5	4.4	4.7	4.6	4.6	4.7	4.4	4.4	4.6	4.6	4.4	4.5	4.7	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	166	22.31	22.31
-20 - 0	490	65.86	88.17
0 - 10	88	11.83	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) - %

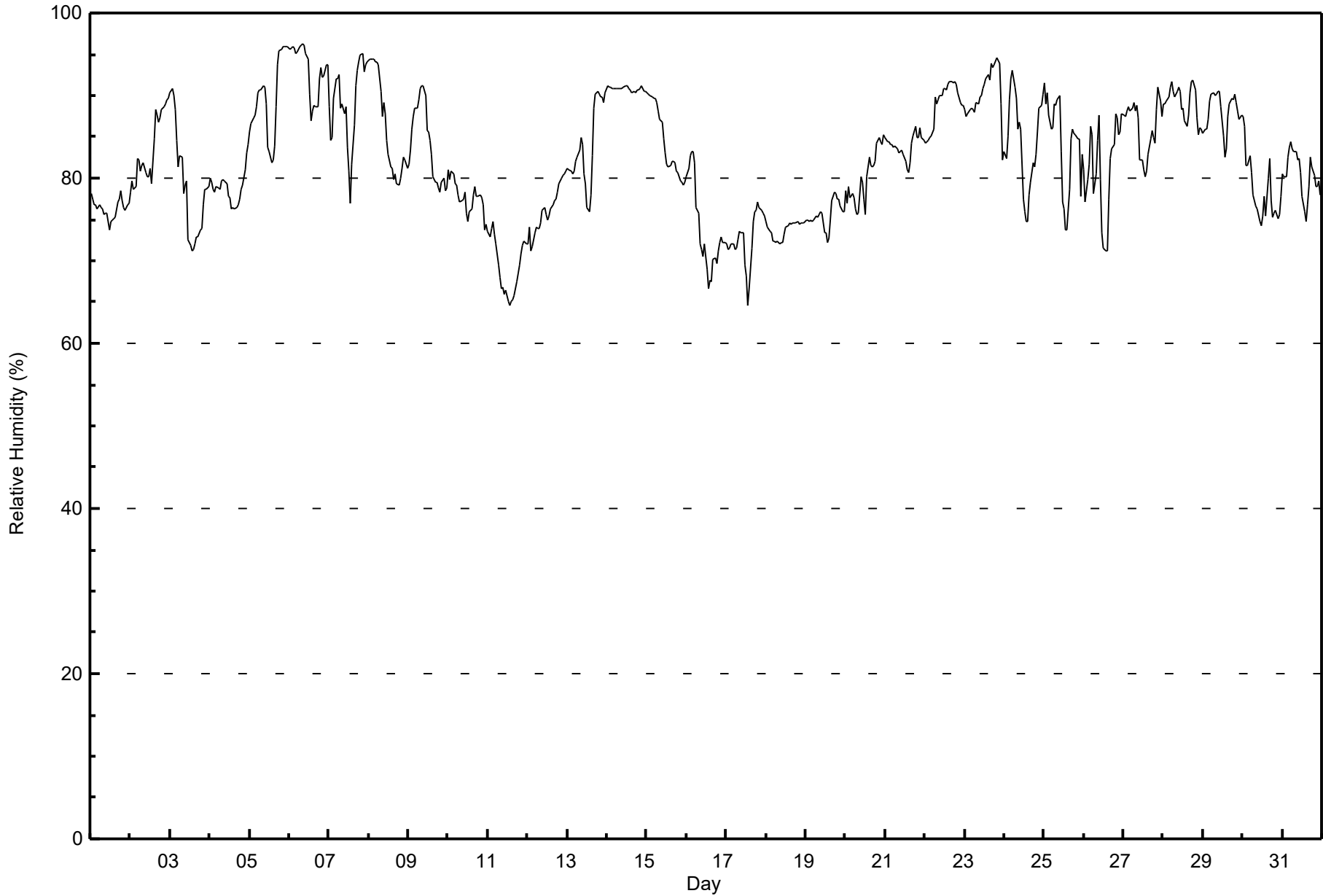
Mannix - December 2024

Maximum Value: 96 % on Dec 6 09:00 Maximum Daily Average: 93.2 % on Dec 6																		Hours in Service: 744 Hours of Data: 744								
Minimum Value: 65 % on Dec 11 14:00 Minimum Daily Average: 69.2 % on Dec 11 Maximum Diurnal Average: 84.0 % at hour 5 Minimum Diurnal Average: 78.1 % at hour 14 Monthly Average: 82.4 % Percentiles: P ₁ = 66 P ₁₀ = 73 Q ₁ = 77 Median = 82 Q ₃ = 89 P ₉₀ = 91 P ₉₉ = 96																		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-Dec	78	78	77	77	76	77	76	76	76	76	76	74	75	75	75	75	77	78	79	77	77	76	77	77	76.3	79
2-Dec	78	80	79	79	82	82	81	81	82	81	80	80	81	79	85	88	88	87	87	88	89	89	89	90	83.6	90
3-Dec	90	91	90	88	85	81	83	83	78	79	80	73	72	71	71	72	73	73	74	74	77	79	79	79	78.9	91
4-Dec	80	80	79	78	79	79	80	80	80	79	80	78	78	76	76	76	77	77	77	79	79	81	83	84	78.8	84
5-Dec	86	87	87	88	89	90	91	91	91	91	89	84	83	82	82	84	89	94	95	96	96	96	96	96	89.6	96
6-Dec	96	96	96	96	95	95	96	96	96	96	95	94	90	87	88	89	89	89	92	93	92	92	94	94	93.2	96
7-Dec	89	85	85	90	92	92	92	88	89	88	89	84	81	77	82	86	91	93	94	95	95	93	94	94	89.0	95
8-Dec	94	94	94	94	94	94	94	90	87	89	88	85	83	81	81	80	80	79	79	80	81	83	82	81	86.2	94
9-Dec	82	83	86	88	89	89	89	91	91	91	90	86	86	85	83	80	79	79	79	78	79	80	78	79	84.2	91
10-Dec	81	80	81	81	79	79	78	77	77	78	78	76	75	76	76	78	79	78	78	78	78	77	74	74	77.7	81
11-Dec	74	73	74	75	73	72	69	68	67	67	66	66	65	65	65	65	66	68	69	69	71	72	72	72	69.2	75
12-Dec	72	74	71	72	73	74	74	74	75	76	76	76	75	75	76	77	77	78	78	79	80	80	81	81	76.0	81
13-Dec	81	81	81	80	81	82	83	83	85	84	80	79	76	76	78	83	88	90	91	90	90	90	89	90	83.9	91
14-Dec	91	91	91	91	91	91	91	91	91	91	91	91	91	91	91	90	90	90	91	91	91	91	91	91	90.8	91
15-Dec	90	90	90	90	90	90	89	88	87	87	85	83	82	81	82	82	82	82	81	81	80	79	79	79	84.5	90
16-Dec	80	81	83	83	83	82	76	76	72	71	70	72	69	67	68	67	70	70	70	71	72	73	72	72	73.8	83
17-Dec	72	71	72	72	72	71	71	73	74	73	73	69	68	65	67	72	75	76	76	77	76	76	76	75	72.6	77
18-Dec	75	74	74	73	72	72	72	72	72	72	72	73	74	74	75	74	75	75	75	75	74	75	75	75	73.7	75
19-Dec	75	75	75	75	75	75	75	75	76	76	76	73	73	72	73	75	77	78	78	78	77	77	76	76	75.5	78
20-Dec	78	77	79	78	78	78	76	76	76	80	80	77	76	80	83	82	81	81	82	84	85	84	84	85	80.0	85
21-Dec	85	84	84	84	84	84	84	84	83	83	83	83	82	81	81	82	84	85	86	85	85	86	85	85	83.9	86
22-Dec	84	84	85	85	85	86	90	89	90	90	90	91	91	91	91	92	92	92	92	91	90	89	89	89	89.0	92
23-Dec	88	88	88	88	88	88	88	89	89	90	90	91	91	92	93	92	94	93	94	95	94	94	89	82	90.3	95
24-Dec	83	82	85	89	92	93	91	90	86	87	86	77	76	75	78	79	82	81	83	86	88	89	90	84.3	93	
25-Dec	92	89	90	88	86	86	89	89	89	90	83	77	76	74	74	79	85	86	85	85	85	85	78	83	84.3	92
26-Dec	81	77	80	82	86	85	78	80	85	88	80	73	71	71	71	77	82	84	84	88	87	85	86	88	81.3	88
27-Dec	88	88	88	89	88	88	89	88	89	87	82	82	81	80	81	83	85	86	85	84	88	91	89	87	86.1	91
28-Dec	89	89	89	90	91	92	91	90	90	91	90	88	88	87	86	88	90	92	92	91	87	85	86	86	89.1	92
29-Dec	85	86	86	87	89	90	90	90	90	90	90	89	85	83	84	87	89	90	90	90	89	88	87	88	88.0	90
30-Dec	88	86	81	81	83	81	78	77	77	76	75	74	75	78	75	80	82	77	75	76	76	75	76	78	78.4	88
31-Dec	81	80	80	82	84	84	84	83	83	82	82	81	78	76	75	77	79	82	81	80	79	79	80	78	80.5	84
	83.4	83.0	83.2	83.6	84.0	84.0	83.5	83.2	82.9	83.2	82.1	80.0	79.0	78.1	78.7	80.3	82.1	82.7	82.9	83.3	83.4	83.5	83.0	83.2	Diurnal Average	
	96	96	96	96	95	95	96	96	96	96	95	94	91	92	93	92	94	94	95	96	96	96	96	96	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity (RH) - %
Mannix - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity (RH) - %
Mannix - December 2024

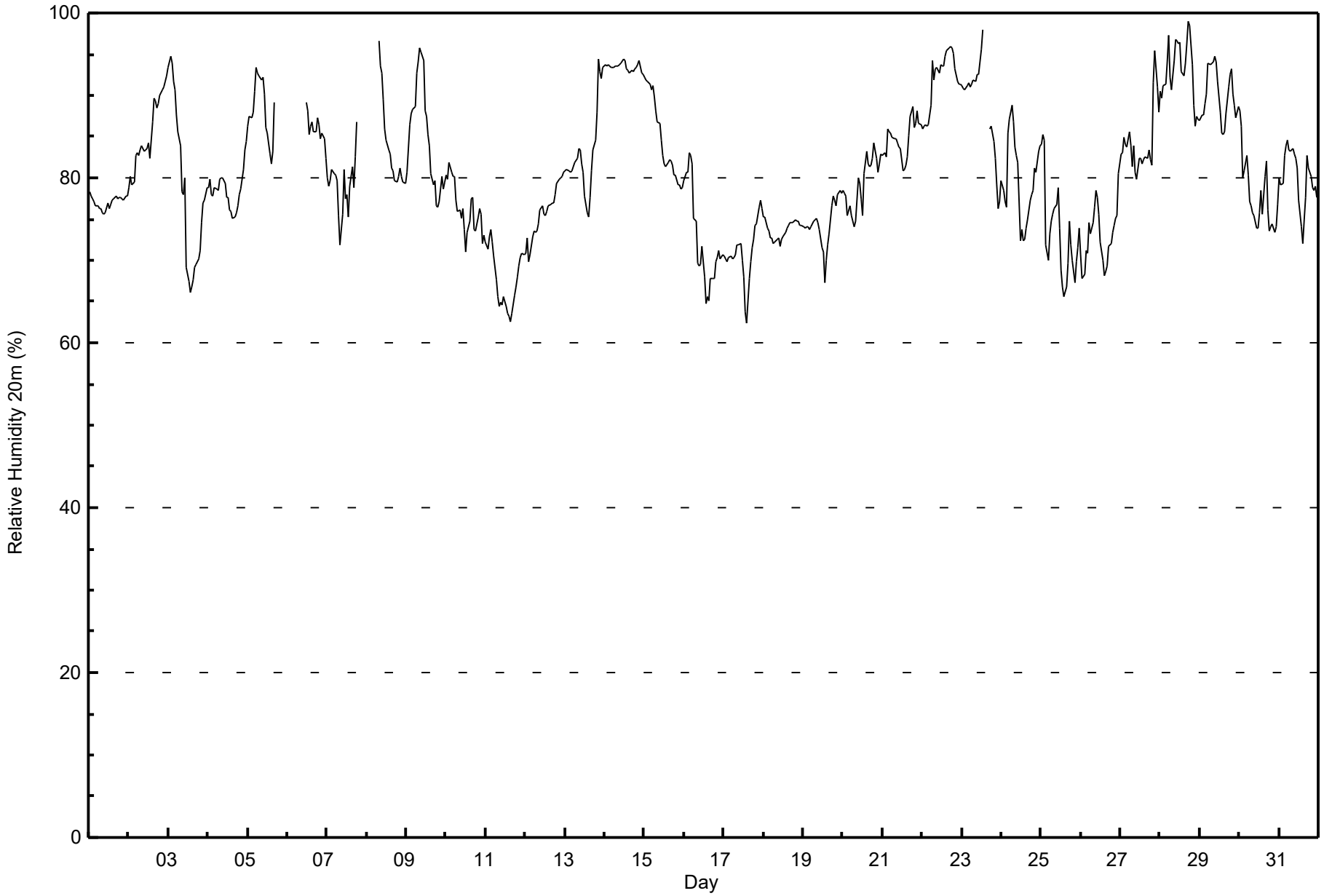
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	299	40.19	40.19
80 - 100	445	59.81	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 99 % on Dec 28 18:00																		Maximum Daily Average: 93.5 % on Dec 14						Hours in Service: 744																																											
Minimum Value: 62 % on Dec 17 15:00																		Minimum Daily Average: 67.7 % on Dec 11						Hours of Data: 712																																											
Maximum Diurnal Average: 82.6 % at hour 6																		Minimum Diurnal Average: 77.7 % at hour 15						Hours of Missing Data: 32																																											
Monthly Average: 80.8 %																		Percentiles: P ₁ = 64 P ₁₀ = 71 Q ₁ = 75 Median = 80 Q ₃ = 86 P ₉₀ = 93 P ₉₉ = 96						Hours of Calibration: 0																																											
																								Percent Operational Time: 95.7																																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																																											
1-Dec	78	78	77	77	77	77	76	76	76	76	76	77	76	77	77	77	78	78	78	78	77	77	78	78	77.1	78																																									
2-Dec	79	80	79	79	83	83	83	83	84	83	83	84	84	82	87	90	89	88	89	90	91	91	92	92	85.4	92																																									
3-Dec	93	95	94	92	91	88	86	84	78	78	80	69	67	66	67	68	69	69	70	71	75	77	77	79	78.4	95																																									
4-Dec	79	80	78	78	79	79	78	80	80	80	79	78	78	76	76	75	75	76	77	78	79	81	83	84	78.5	84																																									
5-Dec	86	87	87	88	91	93	93	92	92	92	90	86	85	83	82	83	89	OR	OR	OR	OR	OR	OR	OR	--	93																																									
6-Dec	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	89	88	85	86	87	86	86	87	86	85	85	85	82	--	89																																									
7-Dec	80	79	80	81	81	80	80	75	72	76	81	78	78	75	79	81	79	83	87	OR	OR	96	OR	OR	80.0	96																																									
8-Dec	OR	OR	OR	OR	OR	OR	OR	97	94	93	90	86	85	83	83	81	81	80	79	80	81	80	79	79	--	97																																									
9-Dec	81	84	86	88	88	89	93	94	96	95	94	88	87	85	84	81	79	80	77	76	77	80	79	80	85.0	96																																									
10-Dec	80	80	82	81	80	80	77	76	76	75	76	74	71	73	75	77	78	74	74	75	76	76	72	73	76.3	82																																									
11-Dec	72	71	73	74	72	71	68	66	64	65	65	66	64	64	63	63	64	66	67	68	69	70	71	71	67.7	74																																									
12-Dec	71	73	70	71	73	74	73	74	74	76	77	76	75	76	77	77	77	77	78	79	80	80	80	81	75.7	81																																									
13-Dec	81	81	81	81	81	81	82	82	84	83	82	81	78	76	75	78	81	83	85	88	94	93	92	93	83.1	94																																									
14-Dec	94	94	94	94	93	93	94	94	94	94	94	94	93	93	93	93	93	93	93	93	94	94	93	93	93.5	94																																									
15-Dec	92	92	92	91	91	91	90	88	87	87	85	83	82	81	82	82	82	82	80	80	79	79	79	79	84.8	92																																									
16-Dec	80	81	81	83	83	82	75	75	70	69	69	72	68	65	66	65	68	68	68	70	70	71	70	71	72.4	83																																									
17-Dec	71	70	70	70	71	70	70	71	72	72	72	70	68	64	62	68	70	71	72	74	74	76	77	76	70.9	77																																									
18-Dec	75	75	74	74	73	73	72	72	73	73	72	73	73	73	74	74	75	75	75	75	75	75	74	74	73.7	75																																									
19-Dec	74	74	74	74	74	74	75	75	75	75	74	71	71	67	70	72	73	77	78	77	77	78	79	78	74.4	79																																									
20-Dec	78	78	78	75	77	75	75	74	75	80	79	78	75	81	83	82	81	82	82	84	82	81	82	83	79.2	84																																									
21-Dec	83	83	83	86	86	85	85	85	85	84	84	84	81	81	82	83	85	87	89	86	87	88	87	86	84.7	89																																									
22-Dec	86	86	86	86	86	89	94	92	93	93	93	94	94	94	95	95	96	96	96	95	93	92	91	91	92.0	96																																									
23-Dec	91	91	91	91	92	91	91	92	92	93	92	94	96	98	OR	OR	OR	86	86	84	82	79	76	77	88.8	98																																									
24-Dec	80	78	77	77	85	87	89	87	84	83	82	72	74	72	74	75	77	78	78	81	81	83	84	79.6	89																																										
25-Dec	84	85	85	72	70	73	75	76	76	77	79	74	69	67	66	67	70	75	72	70	67	70	72	74	73.4	85																																									
26-Dec	71	68	68	71	71	75	73	74	77	78	78	76	72	70	68	69	69	72	72	73	74	75	75	80	72.9	80																																									
27-Dec	83	83	85	84	84	86	84	81	84	81	80	82	82	82	82	82	82	83	82	82	92	95	91	88	84.2	95																																									
28-Dec	91	90	91	91	94	97	92	91	94	97	97	96	96	93	92	94	96	99	98	94	89	86	88	87	93.1	99																																									
29-Dec	87	88	88	89	90	94	94	94	94	95	94	92	88	85	85	86	88	91	93	93	90	89	87	89	90.1	95																																									
30-Dec	88	86	80	81	83	80	77	77	76	75	74	74	76	78	76	80	82	76	74	74	74	73	74	77	77.7	88																																									
31-Dec	80	79	79	83	84	85	83	83	84	83	82	81	77	74	72	75	78	83	81	80	79	79	79	78	80.0	85																																									
																		81.6		81.7		81.4		81.4		82.0		82.6		81.9		82.0		81.7		82.0		81.7		80.3		79.2		78.1		77.7		78.6		79.6		80.3		80.5		80.5		80.8		81.6		80.9		81.3		Diurnal Average	
																		94		95		94		94		94		97		94		97		96		97		97		96		96		98		95		95		96		99		98		95		94		96		93		93		Diurnal Maximum	
OR - Out of Range																																																																			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 20m (RH20) - %
Mannix - December 2024

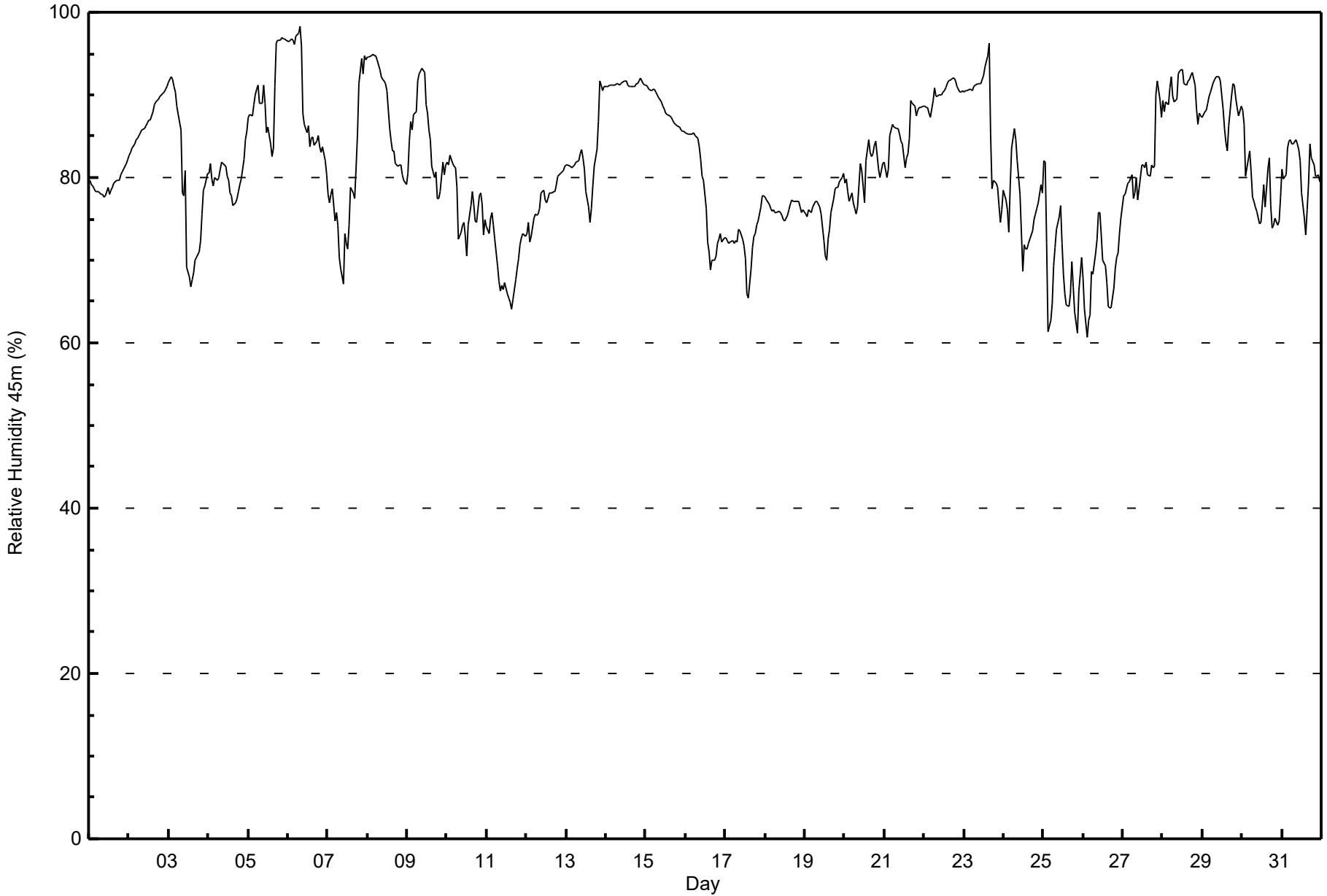
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	349	49.02	49.02
80 - 100	363	50.98	100.00

Total Number of Valid Hours: 712

Total Number of Hours: 744



Maximum Value: 98 % on Dec 6 08:00																		Maximum Daily Average: 91.3 % on Dec 14																		Hours in Service: 744							
Minimum Value: 61 % on Dec 26 03:00																		Minimum Daily Average: 68.7 % on Dec 26																		Hours of Data: 744							
Maximum Diurnal Average: 82.9 % at hour 6																		Minimum Diurnal Average: 79.0 % at hour 14																		Hours of Missing Data: 0							
Monthly Average: 81.4 %																		Percentiles: P ₁ = 64 P ₁₀ = 71 Q ₁ = 76 Median = 81 Q ₃ = 88 P ₉₀ = 91 P ₉₉ = 97																		Hours of Calibration: 0							
																																				Percent Operational Time: 100.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																			
1-Dec	80	79	79	79	78	78	78	78	78	78	78	79	78	78	79	79	80	80	80	80	81	81	82	82	79.2	82																	
2-Dec	83	83	84	84	85	85	85	85	86	86	86	87	87	87	88	89	89	89	90	90	90	90	91	91	87.0	91																	
3-Dec	92	92	92	91	90	89	88	86	78	78	81	69	68	67	68	68	70	70	71	72	76	78	79	81	78.9	92																	
4-Dec	80	82	80	79	80	80	80	81	82	82	81	80	80	78	78	77	77	78	79	80	82	85	86	80.1	86																		
5-Dec	87	88	88	89	90	91	91	89	89	91	89	85	86	84	83	84	91	96	97	97	97	97	97	97	90.4	97																	
6-Dec	96	97	97	97	96	97	97	98	96	88	86	86	86	84	85	85	84	84	85	84	83	84	82	80	89.1	98																	
7-Dec	78	77	78	79	75	76	74	70	69	67	73	72	71	74	79	78	78	81	85	91	94	93	95	94	79.2	95																	
8-Dec	95	95	95	95	95	95	94	93	92	92	92	91	91	86	84	83	83	82	81	82	82	80	80	79	88.1	95																	
9-Dec	81	84	87	86	88	88	92	93	93	93	93	89	88	86	85	81	80	81	77	77	78	82	80	82	85.1	93																	
10-Dec	82	82	83	82	81	81	79	73	73	74	75	73	71	74	77	78	77	75	75	78	78	77	73	75	76.8	83																	
11-Dec	74	73	75	76	74	72	69	68	66	67	66	67	66	65	65	64	65	68	69	70	72	73	73	73	69.7	76																	
12-Dec	73	75	72	73	75	76	75	76	76	78	78	77	77	78	78	78	78	79	80	81	81	81	81	81	77.3	81																	
13-Dec	81	82	81	81	81	82	82	82	83	83	82	81	78	76	75	76	79	81	83	87	92	91	91	91	82.6	92																	
14-Dec	91	91	91	91	91	91	91	91	91	91	91	92	92	91	91	91	91	91	91	91	92	92	91	91	91.3	92																	
15-Dec	91	91	91	91	91	91	90	90	90	89	89	88	88	88	88	87	87	87	86	86	86	86	86	86	88.4	91																	
16-Dec	85	85	85	85	85	85	85	85	84	82	80	80	76	72	71	69	70	70	70	72	73	73	72	73	77.9	85																	
17-Dec	73	72	72	72	72	72	72	72	74	73	72	72	70	66	65	69	71	73	73	74	75	76	78	78	72.5	78																	
18-Dec	78	77	77	76	76	76	76	76	76	76	75	75	75	75	76	77	77	77	77	77	77	76	76	76	76.3	78																	
19-Dec	76	75	76	76	76	76	77	77	77	77	76	72	71	70	72	74	76	78	79	79	79	79	80	80	76.1	80																	
20-Dec	79	80	78	77	78	77	76	76	76	82	81	79	77	82	85	83	83	83	84	84	81	80	81	82	80.1	85																	
21-Dec	82	80	81	85	86	86	86	86	86	85	84	84	81	82	83	85	89	89	89	88	88	88	88	89	85.4	89																	
22-Dec	89	88	89	88	87	89	91	90	90	90	90	90	91	91	91	92	92	92	92	92	91	90	90	91	90.2	92																	
23-Dec	90	90	90	91	91	90	91	91	91	91	91	92	92	93	95	96	85	79	80	79	79	77	75	76	87.4	96																	
24-Dec	79	77	76	73	79	84	86	85	82	80	78	69	72	71	71	72	72	74	75	76	76	77	79	78	76.7	86																	
25-Dec	82	82	72	61	63	65	69	72	74	75	77	72	68	66	65	64	66	70	67	64	61	66	68	70	69.1	82																	
26-Dec	68	64	61	63	63	69	68	71	73	76	76	73	70	69	67	64	64	64	67	69	70	71	73	75	68.7	76																	
27-Dec	78	78	79	79	80	80	77	78	80	77	79	81	82	81	82	80	80	82	81	81	90	92	89	87	81.4	92																	
28-Dec	89	88	89	89	91	92	90	89	90	93	93	93	93	91	91	92	92	92	93	91	88	86	88	87	90.5	93																	
29-Dec	87	88	88	89	90	90	91	92	92	92	92	92	88	86	84	83	86	90	91	91	90	89	87	89	89.1	92																	
30-Dec	88	86	80	81	83	81	78	77	76	76	74	75	77	79	76	81	82	77	74	74	75	74	75	78	78.3	88																	
31-Dec	81	80	80	83	84	85	84	84	85	84	83	82	78	75	73	76	79	84	82	82	80	80	80	79	81.1	85																	
																		82.8	82.6	82.1	82.0	82.4	82.9	82.8	82.3	82.2	82.2	82.1	80.5	79.6	79.0	79.0	79.2	79.8	80.4	80.7	81.2	81.7	82.0	82.1	82.5	Diurnal Average	
																		96	97	97	97	96	97	97	98	96	93	93	93	93	93	95	96	92	96	97	97	97	97	97	97	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 45m (RH45) - %
Mannix - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	333	44.76	44.76
80 - 100	411	55.24	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



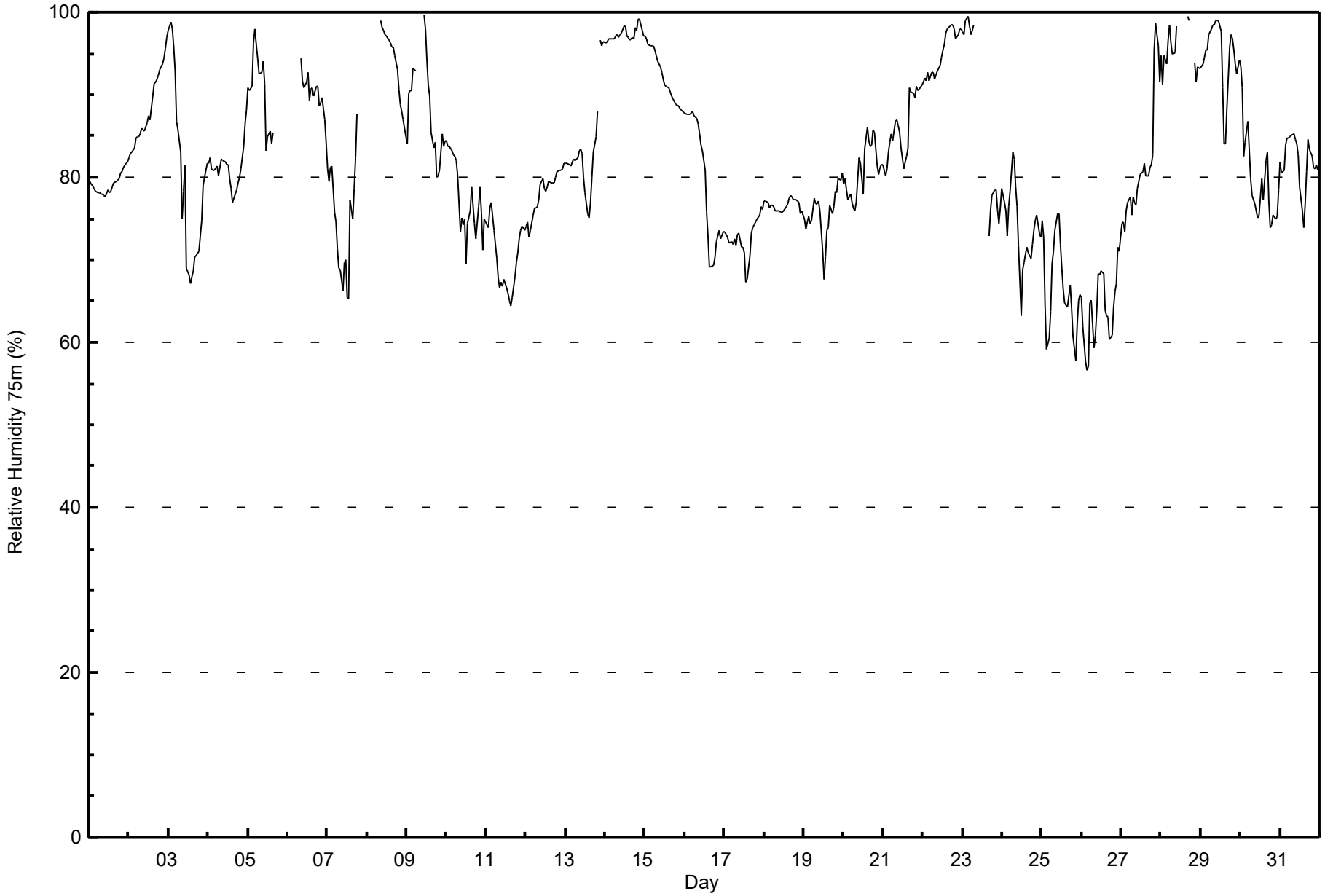
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 75m (RH75) - %

Mannix - December 2024

Maximum Value: 100 % on Dec 28 14:00																	Maximum Daily Average: 97.3 % on Dec 14																	Hours in Service: 744								
Minimum Value: 57 % on Dec 26 04:00																	Minimum Daily Average: 64.1 % on Dec 26																	Hours of Data: 695								
Maximum Diurnal Average: 83.6 % at hour 1																	Minimum Diurnal Average: 79.7 % at hour 15																	Hours of Missing Data: 49								
Monthly Average: 82.0 %																	Percentiles: P ₁ = 61 P ₁₀ = 70 Q ₁ = 75 Median = 81 Q ₃ = 91 P ₉₀ = 97 P ₉₉ = 99																	Hours of Calibration: 0								
																																		Percent Operational Time: 93.4								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																		
1-Dec	80	79	79	79	78	78	78	78	78	78	78	78	78	78	79	79	80	80	80	80	81	81	82	82	79.2	82																
2-Dec	82	83	83	84	85	85	85	85	86	86	86	87	87	87	90	91	92	92	92	93	94	94	96	97	88.4	97																
3-Dec	98	99	98	96	93	87	86	83	75	78	81	69	68	67	68	69	70	70	71	73	75	79	80	82	79.8	99																
4-Dec	82	82	81	81	81	81	80	81	82	82	82	82	82	80	79	77	78	78	79	80	81	84	86	88	81.2	88																
5-Dec	91	90	91	96	98	96	94	93	93	94	91	83	85	86	84	85	OR	OR	OR	OR	OR	OR	OR	OR	--	98																
6-Dec	OR	OR	OR	OR	OR	OR	OR	OR	94	92	91	92	93	89	91	91	90	91	91	89	89	90	87	84	--	94																
7-Dec	81	80	81	81	76	75	71	69	69	66	70	70	65	65	77	75	79	82	88	OR	OR	OR	OR	OR	74.8	88																
8-Dec	OR	OR	OR	OR	OR	OR	OR	OR	99	98	98	97	97	97	96	96	96	95	93	91	89	88	87	85	--	99																
9-Dec	84	90	91	91	93	93	OR	OR	OR	OR	100	98	94	91	90	85	84	84	80	80	81	85	84	84	88.1	100																
10-Dec	84	84	84	83	83	83	82	80	73	75	74	75	69	74	76	79	77	74	72	77	79	76	71	75	77.5	84																
11-Dec	75	74	76	77	75	74	70	68	67	67	67	68	67	66	65	64	65	68	70	71	73	74	74	74	70.3	77																
12-Dec	74	75	73	74	75	76	76	76	77	79	80	79	78	79	79	79	79	79	80	81	81	81	81	82	78.1	82																
13-Dec	82	82	82	81	82	82	82	82	83	83	83	80	78	76	75	77	80	83	85	88	OR	97	96	96	83.2	97																
14-Dec	96	96	97	97	97	97	97	97	97	97	97	98	98	97	97	97	97	97	98	98	99	99	98	97	97.3	99																
15-Dec	97	97	96	96	96	96	95	95	94	93	93	92	91	91	90	90	89	89	89	89	88	88	88	88	92.2	97																
16-Dec	88	88	88	88	88	88	87	87	86	85	84	83	81	76	73	69	69	69	70	72	73	74	73	73	79.7	88																
17-Dec	73	73	73	72	72	72	72	72	73	73	71	72	71	67	68	71	73	74	74	75	75	75	76	76	72.7	76																
18-Dec	77	77	77	76	77	77	76	76	76	76	76	76	76	76	77	78	78	78	77	77	77	77	76	76	76.6	78																
19-Dec	75	74	75	75	74	75	78	77	77	77	76	71	68	70	74	74	77	76	76	78	78	80	80	81	75.6	81																
20-Dec	79	80	78	77	78	77	76	76	77	82	82	80	78	83	86	84	84	84	86	85	81	80	81	82	80.7	86																
21-Dec	82	80	81	83	84	85	84	87	87	86	85	84	81	82	83	84	91	90	90	90	91	90	91	91	85.9	91																
22-Dec	92	92	92	93	92	93	93	92	92	93	94	95	95	96	97	98	98	99	98	98	97	97	98	98	95.0	99																
23-Dec	98	97	99	100	98	97	98	99	OR	OR	OR	OR	OR	OR	OR	OR	73	76	78	78	78	76	74	76	--	100																
24-Dec	79	77	76	73	77	78	83	82	79	76	72	63	69	70	71	72	71	70	72	74	75	75	73	73	74.1	83																
25-Dec	75	73	65	59	61	64	69	71	73	76	76	72	69	66	65	64	66	67	64	61	58	62	65	66	66.9	76																
26-Dec	65	62	58	57	57	65	65	59	61	64	68	68	69	68	64	63	63	60	61	64	66	67	71	71	64.1	71																
27-Dec	74	75	73	76	77	78	75	78	77	77	79	80	80	81	82	80	80	81	82	83	95	99	96	92	81.2	99																
28-Dec	95	91	95	94	97	99	96	95	95	98	OR	OR	OR	100	OR	OR	100	99	OR	OR	94	91	93	93	--	100																
29-Dec	93	94	95	95	95	97	98	99	99	99	99	99	98	91	84	84	88	96	97	97	95	94	93	94	94.7	99																
30-Dec	93	91	83	84	87	83	80	78	77	77	75	75	78	80	77	82	83	77	74	74	75	75	78	78	79.7	93																
31-Dec	82	80	81	84	85	85	85	85	85	85	84	83	79	76	74	77	81	85	83	83	81	81	82	81	81.8	85																
																	83.6	83.2	82.7	82.8	83.1	83.2	82.7	82.1	82.1	82.5	82.4	80.9	80.1	80.2	79.7	79.8	81.0	81.5	81.1	81.3	82.1	83.1	83.0	83.2	Diurnal Average	
																	98	99	99	100	98	99	98	99	99	99	100	99	98	100	97	98	100	99	98	98	99	99	98	98	Diurnal Maximum	
OR - Out of Range																																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 75m (RH75) - %
Mannix - December 2024

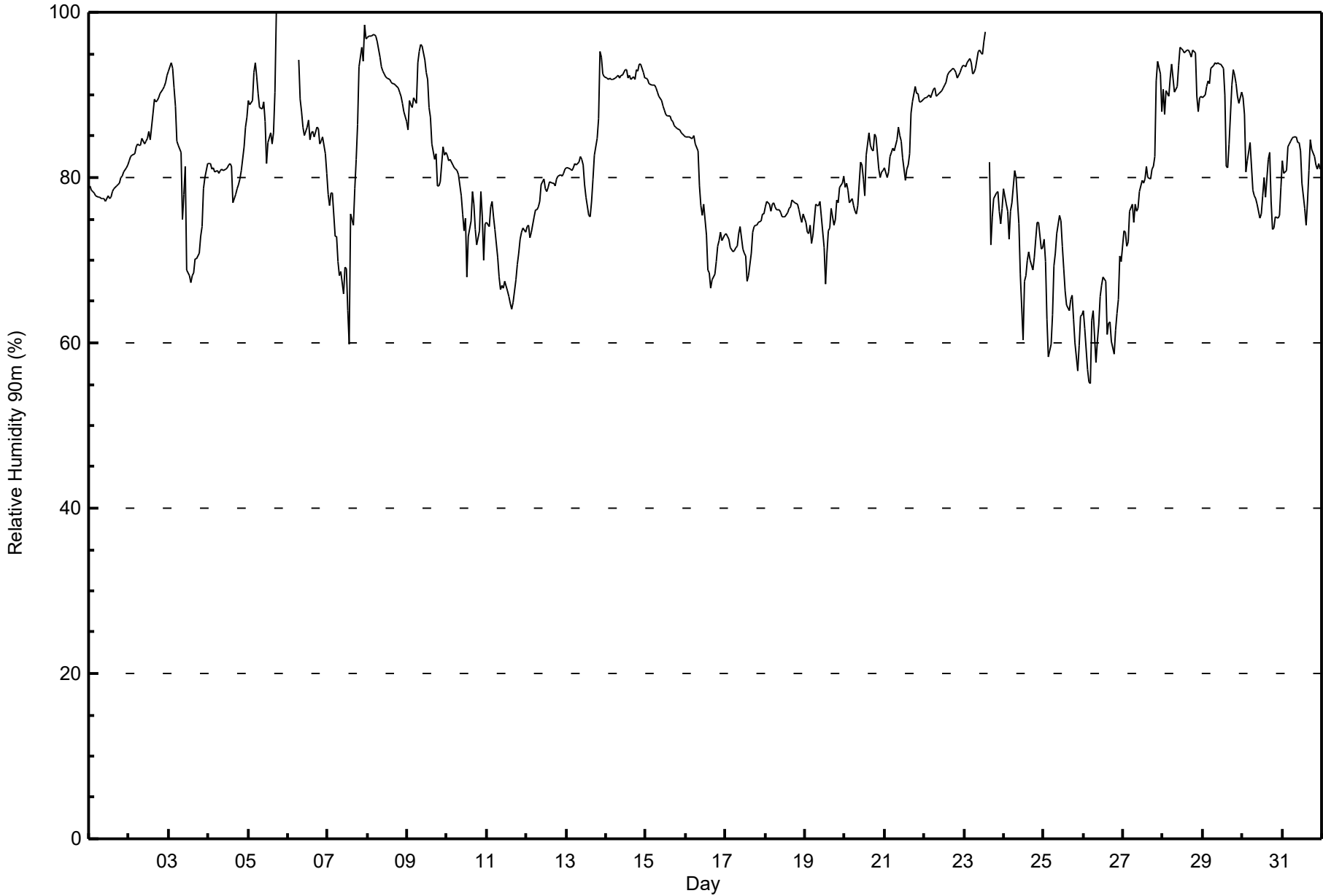
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	6	0.86	0.86
60 - 80	314	45.18	46.04
80 - 100	374	53.81	99.86

Total Number of Valid Hours: 695

Total Number of Hours: 744



Maximum Value: 100 % on Dec 5 18:00																			Maximum Daily Average: 92.9 % on Dec 8						Hours in Service: 744																								
Minimum Value: 55 % on Dec 26 05:00																			Minimum Daily Average: 62.6 % on Dec 26						Hours of Data: 733																								
Maximum Diurnal Average: 83.1 % at hour 1																			Minimum Diurnal Average: 78.8 % at hour 15						Hours of Missing Data: 11																								
Monthly Average: 81.1 %																			Percentiles: P ₁ = 60 P ₁₀ = 69 Q ₁ = 75 Median = 81 Q ₃ = 89 P ₉₀ = 93 P ₉₉ = 97						Hours of Calibration: 0																								
																									Percent Operational Time: 98.5																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	79	79	78	78	78	78	78	77	77	77	77	78	77	78	78	79	79	79	79	80	80	81	81	82	78.6	82																							
2-Dec	82	82	83	83	84	84	84	84	85	84	84	85	86	85	88	89	89	89	90	90	91	91	92	92	86.5	92																							
3-Dec	93	94	93	91	89	84	84	83	75	78	81	69	68	67	68	68	70	70	71	73	74	79	80	82	78.5	94																							
4-Dec	82	82	81	81	81	81	80	81	81	81	81	81	82	82	81	77	78	79	79	80	81	84	86	87	81.2	87																							
5-Dec	89	89	89	93	94	92	90	89	88	89	87	82	84	86	84	85	90	100	OR	OR	OR	OR	OR	100	89.5	100																							
6-Dec	100	OR	OR	OR	OR	OR	94	89	88	86	85	86	87	85	85	86	85	86	86	84	84	85	83	80	86.6	100																							
7-Dec	78	77	78	78	73	73	70	68	69	66	69	69	64	60	76	74	79	82	87	93	96	94	99	97	77.8	99																							
8-Dec	97	97	97	97	97	97	96	95	93	93	93	92	92	92	92	91	91	91	91	90	90	89	88	87	92.9	97																							
9-Dec	86	89	89	88	90	89	94	95	96	96	94	93	92	88	87	84	82	83	79	79	80	84	83	83	87.6	96																							
10-Dec	83	82	82	82	81	81	81	80	78	76	74	75	68	73	75	78	77	74	72	74	78	75	70	74	76.8	83																							
11-Dec	75	74	76	77	75	74	70	68	66	67	67	67	66	66	65	64	65	68	70	71	73	73	74	73	70.2	77																							
12-Dec	74	74	73	73	75	76	76	76	77	79	80	79	78	79	79	79	79	79	80	80	80	80	80	81	77.9	81																							
13-Dec	81	81	81	81	81	82	82	82	83	82	82	79	78	75	75	77	80	83	85	87	95	95	93	92	82.9	95																							
14-Dec	92	92	92	92	92	92	92	92	92	92	92	93	93	92	92	92	92	92	93	93	94	94	93	92	92.4	94																							
15-Dec	92	92	91	91	91	91	91	90	90	89	89	88	88	87	87	87	87	86	86	86	86	85	85	85	88.4	92																							
16-Dec	85	85	85	85	85	85	84	83	79	77	75	77	73	69	68	67	68	68	70	72	72	73	72	73	76.3	85																							
17-Dec	73	73	73	71	71	71	71	72	73	74	71	71	71	68	68	71	73	74	74	74	75	75	76	76	72.4	76																							
18-Dec	76	77	77	76	77	77	76	76	76	76	75	75	75	76	76	77	77	77	77	77	76	75	75	76	76.2	77																							
19-Dec	75	73	73	74	72	73	77	77	77	77	75	72	67	71	74	74	76	74	75	77	77	79	79	80	74.9	80																							
20-Dec	79	79	78	77	77	77	76	76	77	82	81	80	78	83	86	84	83	83	85	85	81	80	81	81	80.3	86																							
21-Dec	81	80	81	83	83	84	83	85	86	85	84	82	80	81	82	83	88	89	91	90	90	89	89	89	84.9	91																							
22-Dec	90	90	90	90	90	91	91	90	90	90	90	91	91	92	92	93	93	93	93	93	92	93	93	94	91.4	94																							
23-Dec	94	93	94	94	94	93	93	93	95	95	95	95	96	98	OR	82	72	75	77	78	78	76	74	76	87.5	98																							
24-Dec	79	77	76	72	76	77	81	83	80	77	74	68	67	68	70	71	70	69	70	73	75	75	71	72	72.8	81																							
25-Dec	72	70	63	58	60	63	69	71	73	75	75	72	69	66	65	64	65	66	63	60	57	60	63	63	65.9	75																							
26-Dec	64	62	57	55	55	63	64	58	60	62	66	67	68	67	61	62	62	60	59	62	64	65	71	70	62.6	71																							
27-Dec	74	73	72	72	76	77	75	77	76	76	78	80	79	80	81	80	80	81	81	82	92	94	93	88	79.9	94																							
28-Dec	91	88	90	90	92	94	92	90	91	94	96	96	95	95	95	95	95	95	95	95	90	88	90	90	92.6	96																							
29-Dec	90	90	91	92	91	93	94	94	94	94	94	94	93	90	81	81	84	91	93	92	91	90	89	90	90.7	94																							
30-Dec	90	88	81	82	84	81	78	78	77	77	75	76	78	80	78	82	83	77	74	74	75	75	79	79	79.0	90																							
31-Dec	82	81	81	84	84	84	85	85	85	84	84	83	79	76	74	77	81	85	83	83	81	81	82	81	81.9	85																							
																								83.1	82.1	81.5	81.4	81.6	81.9	82.3	81.7	81.4	81.6	81.3	80.2	79.5	79.1	78.8	79.2	79.8	80.6	80.3	80.9	81.6	81.9	82.0	82.8	Diurnal Average	
																								100	97	97	97	97	97	96	95	96	96	96	96	96	96	98	95	95	95	100	95	95	96	95	100	Diurnal Maximum	
OR - Out of Range																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 90m (RH90) - %
Mannix - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	11	1.50	1.50
60 - 80	327	44.61	46.11
80 - 100	392	53.48	99.59

Total Number of Valid Hours: 733

Total Number of Hours: 744



Maximum Speed: 24 km/h on Dec 24 00:00	Maximum Daily Speed Average: 17.7 km/h on Dec 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 29 11:00	Minimum Daily Speed Average: 1.7 km/h on Dec 1	Hours of Data: 717
Maximum Diurnal Speed Average: 3.6 km/h at hour 9	Minimum Diurnal Speed Average: 1.7 km/h at hour 21	Hours of Missing Data: 27
Monthly Average Velocity: 2.9 km/h 183.6 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 6 Median = 10 Q ₃ = 14 P ₉₀ = 17 P ₉₉ = 22	Percent Operational Time: 96.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	N10	N9	N12	N10	N7	NNW6	NW5	N2	SSW4	S4	SSW4	SE1	ESE3	SSW2	SSW2	ESE3	ESE4	SSE8	SSE7	SE9	SE10	SE13	SE11	SE11	ESE1.7	SE13
2-Dec	SE12	SE15	SE16	SE14	SE11	SE12	SSE12	SSE11	SE11	SE11	SE12	SSE11	SE10	SE12	SSE13	SE13	SE13	SSE12	SSE14	SSE13	SSE12	SSE12	SSE10	S9	SSE12.0	SE16
3-Dec	S4	N2	NNW11	NW11	NNE19	N16	N18	NNW16	NW23	NW19	N15	NNW17	NW18	NW22	WNW21	WNW20	WNW23	WNW20	WNW18	NW14	NW9	NNW5	N12	N7	NW13.2	NW23
4-Dec	NNW5	WSW2	W5	W6	SW4	SW6	S4	SSE8	SSE10	SSE12	SSE11	SSE11	SSE14	SSE13	SSE15	SSE13	SSE17	SE19	SSE16	SSE20	SSE18	SSE20	SSE16	SSE16	SSE10.2	SSE20
5-Dec	SSE13	SSE12	S12	ESE2	SSE9	SSE10	SSE9	SSE10	SE10	SE11	SSE13	SSE11	SSE13	SE8	SE5	SSE10	SE7	SSE10	SSE13	SSE7	SE5	SSE5	SSE9	SSW5	SSE9.0	SSE13
6-Dec	SSE4	S7	SSE6	SSE8	S2	SSE6	SSE11	SSE12	SSE11	E3	ESE3	WNW11	W16	WSW15	WSW12	WSW16	WSW15	W10	SW10	SSW6	WSW4	WSW7	SW6	SSW7	SW5.8	WSW16
7-Dec	WSW13	WSW13	WSW14	WSW15	WSW15	SW9	WSW12	WSW11	SW14	SW13	SSW7	S4	SSE10	SSE13	SSE11	S5	WSW5	W3	W8	WNW8	N11	N13	N12	NNE13	WSW5.5	WSW15
8-Dec	N11	N10	NNW10	N10	N12	N10	N12	NNE20	NNE20	NNE14	N15	N13	N11	N9	NNE8	NNE6	N4	NE4	ENE5	E5	S3	SSE3	SE3	SSE7	NNE7.8	NNE20
9-Dec	SSE8	S8	S5	S4	S6	SSW2	NNW2	S2	S3	NNE5	NNE10	NNE15	N12	N15	N17	N18	N18	N16	NNW16	N15	NNW11	N13	N17	N12	N7.1	N18
10-Dec	NNW8	NNW7	N4	NNW5	WNW4	W4	WSW9	W9	W2	W7	NW3	ESE3	SE2	ESE3	E3	SSE3	SSE9	SSE10	SSE8	SSE7	SSE10	SSE10	SSE12	SSE10	S2.2	SSE12
11-Dec	SE13	SE13	SE11	SE12	SE13	SE16	SE18	SE17	SE17	SE16	SE16	SSE14	SE16	SE15	SSE14	SE14	SE15	SE16	SE19	SE21	SE18	SE17	SE18	SE23	SE15.9	SE23
12-Dec	SE18	SE15	SE21	SE18	SE12	SSE12	SE14	SE13	SSE14	SE14	SE18	SE20	SE20	SE17	SE16	SSE14	SE13	SE15	SSE15	SSE14	SSE15	SSE15	SSE15	SSE13	SE15.5	SE21
13-Dec	SSE14	SSE15	SSE13	SSE16	SSE17	SSE17	SSE18	SSE20	SSE18	SSE17	SSE17	SSE17	SSE16	SSE12	SSE9	SSE10	SSE10	SSE10	SSE5	SSE5	SSW3	N8	N7	N7	SSE10.0	SSE20
14-Dec	NNE11	NNE9	NNE9	NNE10	NNE11	NNE12	N8	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNE10	N15	N13	N15	N11	N15	N12	N12	---	NNE15
15-Dec	N12	NW8	NW9	NNW9	NNW13	NNW10	NNW11	NNW12	NNW12	NNW13	NNW13	NNW15	NNW12	NNW13	N12	N12	N12	NNE11	NNW9	N11	NNE11	NNE12	NNE11	NNE10	N10.5	NNW15
16-Dec	NNE4	NNW2	N2	WSW3	SW3	W7	WNW10	WNW14	WNW13	WNW14	W15	W16	W21	WNW19	W21	W20	W17	W17	W18	W17	W18	W17	W18	W16	W12.8	W21
17-Dec	W17	W17	W15	W18	W15	W10	W12	W11	WSW9	WSW8	WSW4	SW4	W3	SSW1	SSE7	SSW5	SSW7	SSW5	SSW6	SSW7	S7	SSE10	SSE9	WSW7.1	W18	
18-Dec	SSE8	SE8	SSE9	SSE12	SSE10	SSE7	SSE3	S4	SSE1	SSE4	NE1	SSW2	N2	W4	WNW1	NE5	NW3	WNW3	WNW1	WNW1	S2	S7	S7	S7	SSE3.1	SSE12
19-Dec	SSE9	SSE11	SSE10	SSE11	SSE11	SE10	SSE12	SSE9	SSE8	SSE6	SSE6	ESE4	SSE4	SSE2	S2	E3	ENE1	SSE3	SSE4	SSE4	S4	S3	SSE7	SSE8	SSE6.2	SSE12
20-Dec	SE9	S9	SE13	SE15	SSE9	SE12	SE16	SE20	SE20	SE19	SE19	SE19	SE20	SSE15	SSE14	SSE16	SSE14	SSE13	SSE11	S8	SSW7	SSW8	S7	SSE9	SSE12.9	SE20
21-Dec	S10	S11	SSE7	SSE6	SSE9	SSE8	SE7	SSE7	S5	SSE7	S6	S3	SE5	S5	SSE3	S6	SSE3	W2	NNW5	NNE5	N4	N4	WSW4	SW5	SSE3.8	S11
22-Dec	WSW4	SW5	W2	SSW4	S6	S8	S12	S8	S7	S9	SSE13	SSE15	SSE16	SSE16	S10	S8	SSE11	S8	UO	UO	UO	UO	UO	UO	S8.5	SSE16
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	ESE5	SSE10	SSE12	SSW12	S9	SSE7	S9	S9	SW15	WSW18	WSW24	---	WSW24
24-Dec	WSW19	WSW16	S7	S8	SSE12	SSE15	SSE14	SE14	SSE11	SSE15	SE12	SE15	SE19	SSE18	SSE10	SSE9	SSE11	SSE14	SSE10	SSE11	SSE13	SSE14	SSE13	SSE11.5	SE21	
25-Dec	SSE13	SSE15	SSE12	S10	S9	S13	S12	SSW10	SW6	SW9	SSE9	SSW7	SW14	WSW19	SW19	SSW12	S13	S14	S15	SSE13	S11	SSE13	SE13	SSE13	S10.6	SW19
26-Dec	SSE13	SSE12	SSE10	SSE9	SSE10	SSE11	SSE11	SSE11	SSE13	SSE15	SSE12	SSE11	SSE11	SSE11	SSE10	SSE12	SSE11	SSE9	S8	SSE11	S10	S9	SSE8	S8	SSE10.6	SSE15
27-Dec	S7	SSE8	S8	SSW8	S8	S8	SW6	SW3	S7	S6	SSE10	SW4	W3	WSW3	S6	S7	SSW4	W3	SSW2	SE4	SE9	SE6	SE8	SE10	S5.0	SE10
28-Dec	SSE9	SSE9	SE4	SSE3	NNE3	N3	NNE2	N2	NNW3	NW3	NW5	NW6	NW7	WNW4	NW5	NW4	WNW5	WNW7	WNW5	N6	NNE11	N11	N9	NNE7	NNW2.7	NNE11
29-Dec	N7	NNE7	N5	NNE3	WSW2	S4	S3	SSE2	SSE3	WSW1	W0	ENE1	NW5	NW8	NW11	NW10	WNW8	NW2	WNW3	WNW9	WNW13	WNW13	WNW13	WNW13	WNW4.5	WNW13
30-Dec	WNW14	WNW16	WNW17	WNW19	W19	WNW18	WNW20	WNW20	WNW22	WNW20	WNW20	WNW24	WNW22	WNW19	W21	W18	WNW15	W16	WNW17	WNW15	WNW13	WNW12	WNW13	WNW16	WNW17.7	WNW24
31-Dec	WNW15	W15	WNW15	W12	W10	WNW8	WNW10	WNW10	N5	N5	NW5	WNW8	WNW12	WNW15	WNW14	WNW12	NW11	NNW8	N6	NNE6	NNE8	NNE9	N9	NNE11	NW8.0	WNW15
S2.8 S3.4 S2.6 S3.0 S2.7 S3.2 S3.5 S3.6 S3.6 S3.3 SSE3.4 S2.6 SSW3.1 SSW2.9 SSW3.1 SSW2.9 SSW2.9 SSW2.9 S2.6 S2.6 SSE1.7 SSE2.1 SSE2.5 S2.9																								Diurnal Average		
WSW19 W17 SE21 WNW19 W19 WNW18 WNW20 WNW20 NW23 WNW20 WNW20 WNW24 WNW22 NW22 WNW21 W20 WNW23 WNW20 SE19 SE21 SSE20 SSE18 SSE20 WSW24																								Diurnal Maximum		

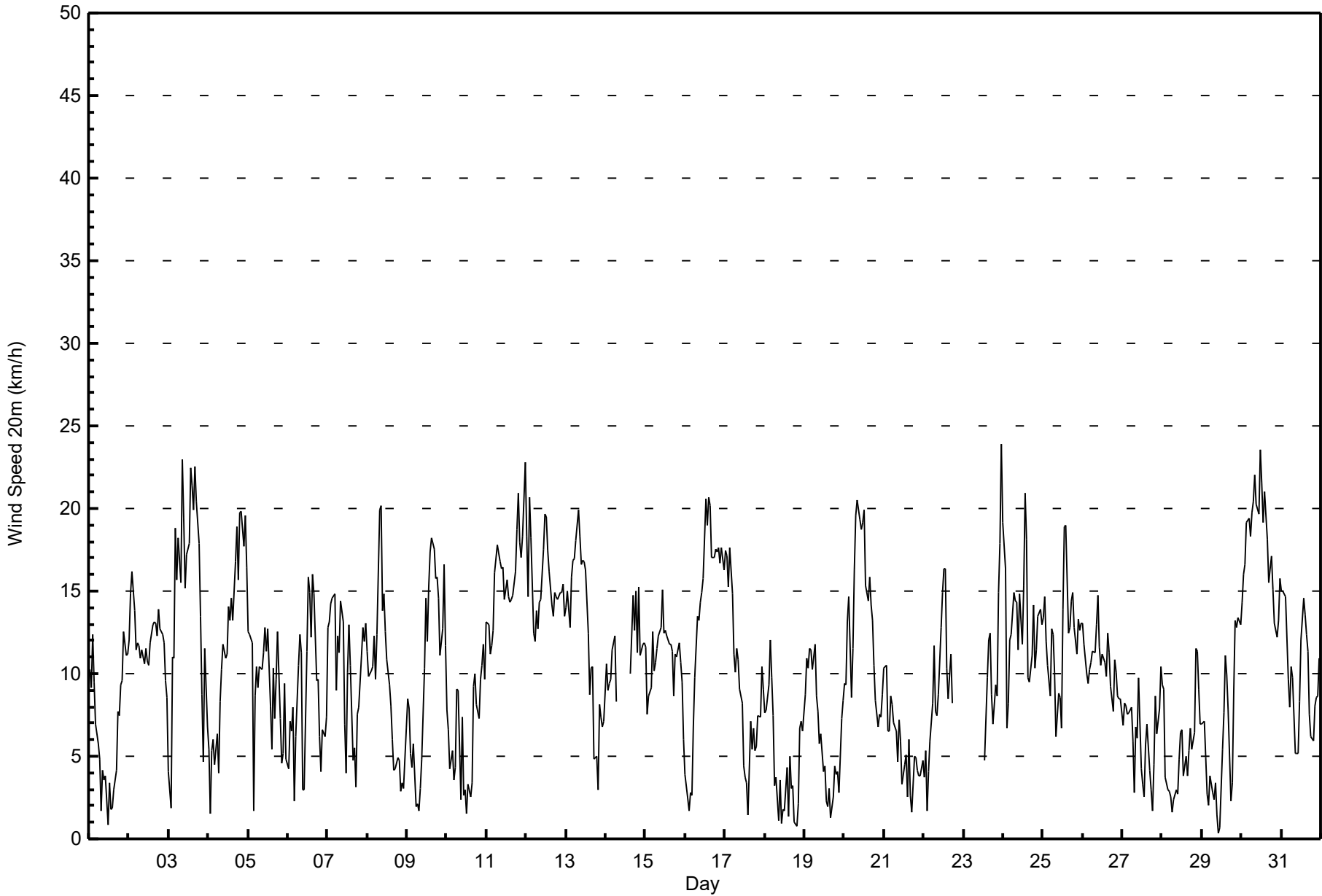
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Dec 4 18:00 Minimum Value: 1 km/h on Dec 29 11:00 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: 717 Hours of Missing Data: 27 Hours of Calibration: 0 Percent Operational Time: 96.4								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	3	3	4	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	4
2-Dec	3	4	4	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	4	4	3	4
3-Dec	3	2	5	4	6	6	7	6	6	7	4	5	4	6	5	4	4	4	4	3	5	3	3	3	7
4-Dec	2	1	2	2	2	2	2	3	2	2	2	3	3	3	4	3	4	7	4	5	4	4	4	4	7
5-Dec	2	2	4	2	2	1	1	2	2	4	2	3	2	3	2	2	3	2	4	4	4	3	4	3	4
6-Dec	3	4	4	4	3	4	4	4	3	4	4	4	3	5	3	3	3	4	2	3	3	2	3	3	5
7-Dec	3	3	3	2	3	3	2	2	3	3	3	3	2	4	3	2	1	1	2	1	4	3	5	5	5
8-Dec	4	4	4	4	4	3	4	5	5	4	4	4	4	3	2	2	1	1	2	2	2	1	1	2	5
9-Dec	2	3	2	2	1	2	1	1	2	3	3	4	4	4	5	5	5	5	4	5	3	4	4	5	5
10-Dec	2	2	2	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	1	3	2	3	2	3
11-Dec	3	3	3	4	3	5	4	5	4	5	5	4	4	4	3	4	4	5	5	6	5	5	5	6	6
12-Dec	5	5	5	6	3	3	4	4	3	4	5	5	5	5	4	4	3	4	3	3	3	3	3	3	6
13-Dec	3	3	3	3	4	3	3	3	3	3	3	3	3	3	2	1	1	2	2	2	3	3	2	4	4
14-Dec	3	2	3	3	3	3	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	5	4	3	3	4	3	3	5
15-Dec	4	3	2	3	4	3	3	4	4	4	4	4	4	4	3	3	4	3	3	4	3	3	3	2	4
16-Dec	1	1	1	1	1	3	2	3	3	4	3	3	4	3	4	3	3	3	3	2	2	3	3	2	4
17-Dec	3	2	2	2	3	2	2	2	2	2	2	1	1	1	1	2	1	2	1	2	3	1	1	2	3
18-Dec	2	2	1	3	1	2	2	2	1	1	1	2	1	1	1	2	1	1	1	1	2	2	2	1	3
19-Dec	2	2	2	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	2	1	3	2	3
20-Dec	3	2	3	4	2	3	4	4	5	4	5	5	6	4	3	4	3	3	2	2	1	2	1	1	6
21-Dec	2	2	3	1	2	2	2	1	1	1	1	2	3	2	1	2	2	2	2	2	2	3	2	1	3
22-Dec	1	1	1	2	2	2	4	2	2	3	3	3	4	4	4	3	4	4	UO	UO	UO	UO	UO	UO	4
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	4	4	4	2	1	2	2	5	4	5	5
24-Dec	4	5	3	2	1	2	3	3	3	3	3	3	4	5	5	3	4	3	3	2	2	2	3	2	5
25-Dec	2	3	2	2	2	2	3	3	3	4	3	2	3	4	4	3	3	2	2	2	2	2	3	4	4
26-Dec	3	2	2	3	2	2	3	1	1	2	3	3	2	4	2	2	2	2	3	2	2	2	2	2	4
27-Dec	3	2	2	2	2	2	2	2	2	3	2	1	2	2	2	2	2	2	1	3	2	2	3	3	3
28-Dec	2	2	2	2	2	1	1	1	1	1	1	2	2	1	2	1	1	2	1	3	4	3	3	2	4
29-Dec	2	2	1	1	2	1	1	1	1	1	1	1	3	3	2	2	2	3	3	2	3	2	3	3	3
30-Dec	3	3	4	4	3	4	4	5	4	4	4	5	5	4	3	3	3	3	4	3	3	3	2	4	5
31-Dec	3	3	3	1	2	1	2	3	2	1	2	3	3	3	3	3	2	2	2	2	2	3	3	3	3
Diurnal Maximum																								5	
UO - Unstable Operation																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	154	21.48	21.48
6 - 11	267	37.24	58.72
12 - 19	263	36.68	95.40
20 - 28	33	4.60	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 717

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 20m (WS20) - km/h
Mannix - December 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	6	3	3	4	9	8	20	20	14	7	10	11	9	10	7	154
6 - 11	27	20	0	0	0	0	18	95	42	12	7	5	10	10	10	11	267
12 - 19	29	8	0	0	0	0	52	83	7	2	5	14	22	28	3	10	263
20 - 28	0	2	0	0	0	0	9	4	0	0	0	1	4	11	2	0	33
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	69	36	3	3	4	9	87	202	69	28	19	30	47	58	25	28	717

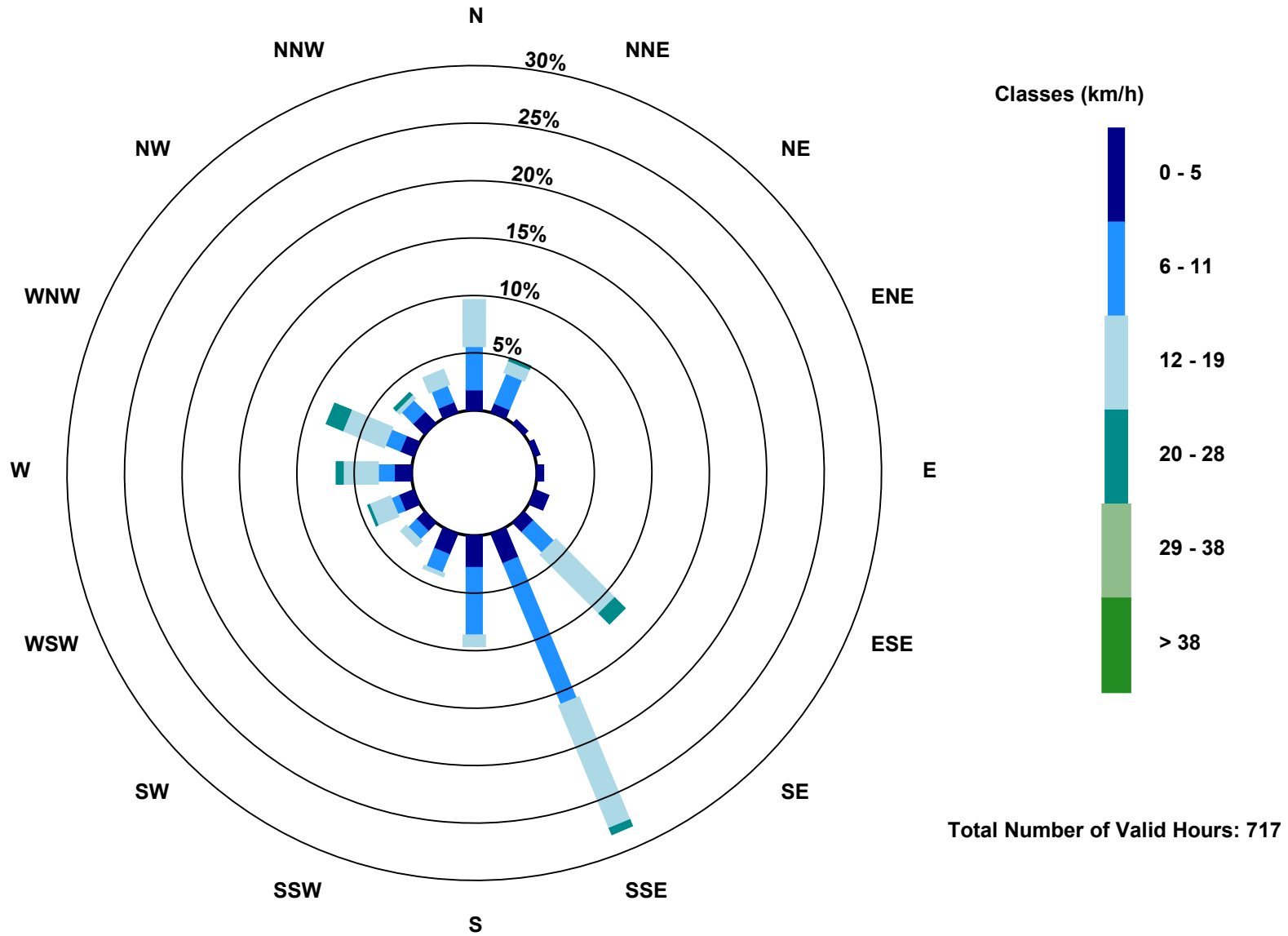
Total Number of Valid Hours: 717

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Speed: 30 km/h on Dec 24 00:00	Maximum Daily Speed Average: 22.7 km/h on Dec 30	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 5 04:00	Minimum Daily Speed Average: 1.4 km/h on Dec 10	Hours of Data: 649
Maximum Diurnal Speed Average: 8.3 km/h at hour 9	Minimum Diurnal Speed Average: 3.4 km/h at hour 21	Hours of Missing Data: 95
Monthly Average Velocity: 5.6 km/h 181.3 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 9 Median = 15 Q ₃ = 20 P ₉₀ = 23 P ₉₉ = 28	Percent Operational Time: 87.2

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-Dec	N14	N14	N19	NNE13	N10	N9	NNW7	N4	SW2	SSE5	SSW5	SSE1	SE3	S2	SSW3	ESE3	ESE4	SSE10	SE11	SE13	SE13	SE17	SE16	SE16	E3.0	N19		
2-Dec	SE16	SE20	SE21	SE18	SE15	SE16	SE15	SE14	SE14	SE13	SE14	SE13	SE12	SE14	UO	UO	SE14	SSE15	SE16	SSE14	SSE13	SE13	SSE10	SSE9	SE14.3	SE21		
3-Dec	S5	NNW5	NNW17	NNW18	N23	N24	N27	NNW28	UO	UO	UO	UO	UO	UO	UO	NNW28	NNW27	NNW30	NNW28	NNW25	NNW20	NW14	NNW9	N16	N11	NW16.8	WNW30	
4-Dec	NNW9	WNW2	WNW8	NW7	WSW4	SW6	SSW5	SSE11	SSE13	SSE14	SSE12	SE13	SSE16	SSE15	SSE18	SSE17	SE21	SE24	SE19	SSE26	SSE26	SSE24	SSE27	SSE23	SSE12.5	SSE27		
5-Dec	SSE18	S18	S20	S1	SSE10	SSE16	S15	S15	SSE16	SSE19	SSE19	SSE16	SSE19	SE13	SE10	SSE17	SSE15	S19	UO	UO	UO	UO	UO	UO	SSE15.0	S20		
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	S10	SW5	W17	W21	WSW22	WSW19	W23	WSW21	W14	WSW16	SW13	WSW8	WSW11	WSW11	SW11	---	WSW23		
7-Dec	WSW18	WSW20	WSW20	WSW19	WSW22	WSW16	WSW21	WSW20	WSW19	SW20	SW15	SW7	SSE14	SSE18	SSE15	S9	WSW8	W6	W10	NW11	N17	N19	N18	NNE17	WSW8.7	WSW22		
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NE5	NE6	E5	S5	SE4	SE4	SSE8	---	SSE8
9-Dec	SSE12	S12	S8	SSW9	SW8	W7	NW6	WNW3	SW4	N7	NNE13	NNE19	N16	N20	N23	N24	N23	N21	N23	N20	N16	N17	N22	N16	N9.7	N24		
10-Dec	N11	NNW9	NW8	N8	NNW5	NW2	W13	W16	W8	WNW12	WNW8	ESE3	SSE1	ESE3	E2	SE5	SSE13	SE13	SE9	SSE8	SSE11	SE13	SE15	SE11	S1.4	W16		
11-Dec	SE16	SE16	SE13	SE15	SE16	SE18	SE21	SE20	SE21	SE20	SE21	SE18	SE19	SE19	SE18	SE19	SE20	SE21	SE24	SE28	SE23	SE23	SE24	SE30	SE20.1	SE30		
12-Dec	SE24	SE21	SE27	SE24	SE17	SE16	SE18	SE17	SE18	SE19	SE22	SE25	SE24	SE21	SE21	SE18	SE18	SE20	SSE20	SSE20	SSE21	SSE22	SSE22	SSE20	SE20.6	SE27		
13-Dec	SSE21	SSE22	SSE19	SSE23	SSE25	SSE24	SSE27	SSE29	SSE27	SSE25	SSE23	SSE23	SSE22	SSE18	S14	SSE17	S14	S8	SSE9	S8	NNW12	N10	N10	N11	SSE14.7	SSE29		
14-Dec	NNE14	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE14		
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NNW12	N14	NNE14	NNE15	NNE13	NNE12	N7	---	NNE15
16-Dec	NNE4	NNW3	N2	SW3	SW4	W9	NNW13	NNW17	NNW18	NNW18	W19	W18	W23	NNW24	W25	W25	W24	W22	W22	W22	W22	W22	W21	W16.0	W25			
17-Dec	W22	W21	W20	W23	W20	W16	W14	NNW17	W15	W13	W13	WSW7	WSW5	W4	SW2	SSE8	SSW9	SSW11	SSW10	SW10	SW11	SSW10	S11	SSE10	WSW10.5	W23		
18-Dec	SSE12	SE13	SSE14	SSE21	SSE15	SE13	SE6	SE6	SE6	SE7	SE6	SSE7	NE1	W5	NW1	NE6	NNE6	NNE3	SSE2	S3	S7	SSE12	S13	S12	SSE6.6	SSE21		
19-Dec	S16	SSE17	SSE14	SSE15	SSE15	SE13	SSE15	SSE14	SSE14	SSE12	SSE10	ESE5	SE4	SSE2	SSW3	E3	ESE3	SSE4	SSE6	SE6	SSE6	SSE8	SSE13	SE13	SSE9.5	SSE17		
20-Dec	SE16	SSE16	SE21	SE21	SE15	SE17	SE22	SE26	SE27	SE25	SE23	SE23	SE25	SE19	SE18	SSE20	SSE18	SSE17	SSE15	S16	SSW13	SSW13	S13	S13	SSE17.8	SE27		
21-Dec	S16	S12	SSE7	SSE13	SSE14	SSE16	SSE13	SSE11	SSE9	SSE12	S12	S7	SE6	SSE8	SSE4	S10	SSE7	S3	NNW6	NNE7	N8	NE6	SW3	S7	SSE6.8	SSE16		
22-Dec	SSW4	SSW7	SW2	SSE7	S10	S14	S16	S12	S12	S12	SSE16	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE17	SSE17	SSE18	SSE20	---	SSE20		
23-Dec	SSE18	SSE17	SSE19	SSE20	SSE19	S16	S16	SSE18	SSE22	SSE21	UO	UO	UO	UO	UO	UO	SW26	SSW18	SSW14	SSW14	SSW14	SW22	WSW24	WSW30	S15.5	WSW30		
24-Dec	WSW26	WSW23	SSW9	SSW10	SE16	SSE20	SSE24	SSE22	SSE23	SSE20	SE21	SE16	SE21	SE28	SE24	SE16	SSE19	SSE22	SE18	SSE21	SSE22	SSE21	SSE18	SSE17.1	SE28			
25-Dec	SSE21	SSE22	S17	SW18	SW17	SSW17	SSW21	SW19	WSW13	SW14	S10	SW12	SW18	WSW25	SW26	SSW19	SSW22	S25	S23	S21	S19	SSE20	SSE20	SSE22	SSW16.9	SW26		
26-Dec	SSE22	SSE21	SSE19	SE16	SE16	SSE17	SSE19	SSE17	SSE20	SSE21	SSE18	SSE18	SSE15	SSE16	SSE16	SSE21	SSE19	SSE18	SSE14	SSE18	SSE15	S15	SSE12	SSE13	SSE17.2	SSE22		
27-Dec	S15	SE15	SE14	S14	S15	SSE17	SSW10	SW6	S14	S11	SE15	S6	SW2	WSW2	S9	S14	S9	WSW6	SSW4	SE7	SE11	SE8	ESE10	SE14	SSE9.1	SSE17		
28-Dec	SE13	SE12	SE5	SE5	NE4	NNE5	NE3	N3	NNW4	NNW4	NW6	NW8	NW8	WNW5	NW6	NW5	NW7	WNW9	NW8	N9	NNE16	N17	NNE12	NNE9	N3.8	N17		
29-Dec	NNE9	NNE9	NNE6	NNE3	SW3	SW4	WSW3	SW2	WSW1	WNW7	WNW6	WNW3	NW8	NW11	NW16	NW13	NW11	NW5	WNW8	WNW14	WNW18	WNW18	WNW18	WNW18	NW7.6	WNW18		
30-Dec	WNW19	WNW21	WNW22	WNW24	W24	WNW24	WNW25	WNW26	WNW27	WNW26	WNW26	WNW29	WNW27	WNW24	W23	W21	WNW20	W20	WNW24	WNW21	WNW18	WNW16	WNW17	WNW20	WNW22.7	WNW29		
31-Dec	WNW19	W18	WNW18	W15	W13	WNW12	WNW15	WNW14	NNW8	N7	NW7	WNW11	WNW15	WNW19	WNW18	WNW16	NW15	NNW10	NNE8	NNE7	NNE10	NNE11	N11	NNE14	NW10.6	WNW19		

S6.2	S7.0	S5.7	S6.1	S6.4	S6.6	S6.8	S6.5	S8.3	S8.0	S7.4	S5.5	S5.5	S5.2	SSW4.9	SSW5.5	SSW6.3	S5.2	SSW4.1	S4.4	S3.4	SSE4.0	SSE4.4	SSE5.2	Diurnal Average
WSW26	WSW23	SE27	SE24	SSE25	SSE24	SSE27	SSE29	NNW27	NNW26	NNW26	NNW29	NNW27	SE28	WNW28	NNW27	NNW30	NNW28	NNW25	SE28	SSE26	SSE24	SSE27	WSW30	Diurnal Maximum

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



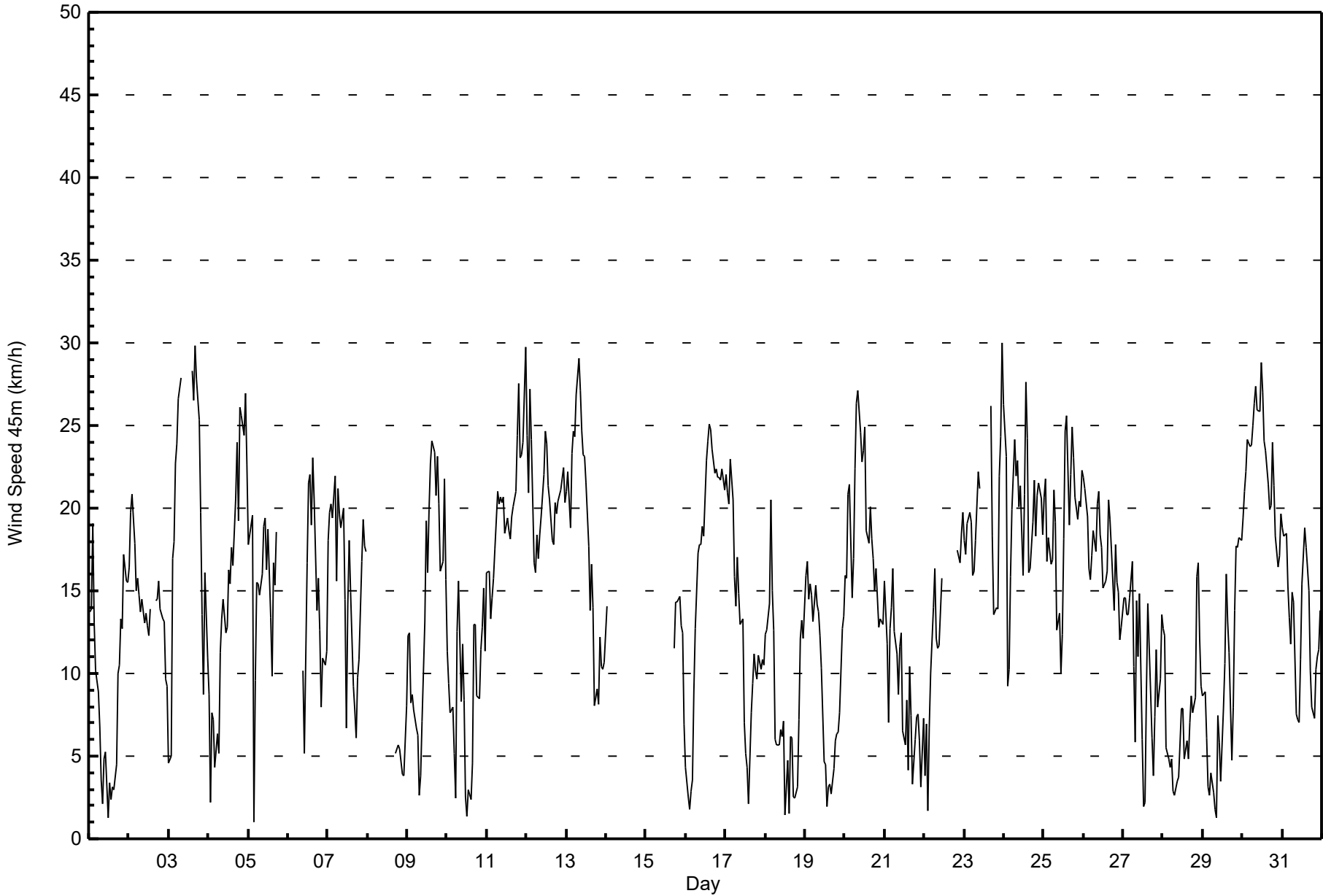
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

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

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 8 km/h on Dec 4 18:00	Hours of Data: 649
Minimum Value: 0 km/h on Dec 28 09:00	Hours of Missing Data: 95
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6	Hours of Calibration: 0
	Percent Operational Time: 87.2

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

UO - Unstable Operation





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	78	12.02	12.02
6 - 11	135	20.80	32.82
12 - 19	269	41.45	74.27
20 - 28	162	24.96	99.23
29 - 38	5	0.77	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 649

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	4	4	0	3	6	6	8	6	6	12	5	2	4	4	5	78
6 - 11	14	10	3	0	0	1	14	23	15	9	7	6	4	8	14	7	135
12 - 19	12	13	0	0	0	0	63	82	29	9	8	7	14	24	4	4	269
20 - 28	10	1	0	0	0	0	39	47	4	2	4	12	21	21	0	1	162
29 - 38	0	0	0	0	0	0	1	1	0	0	0	1	0	2	0	0	5
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	39	28	7	0	3	7	123	161	54	26	31	31	41	59	22	17	649

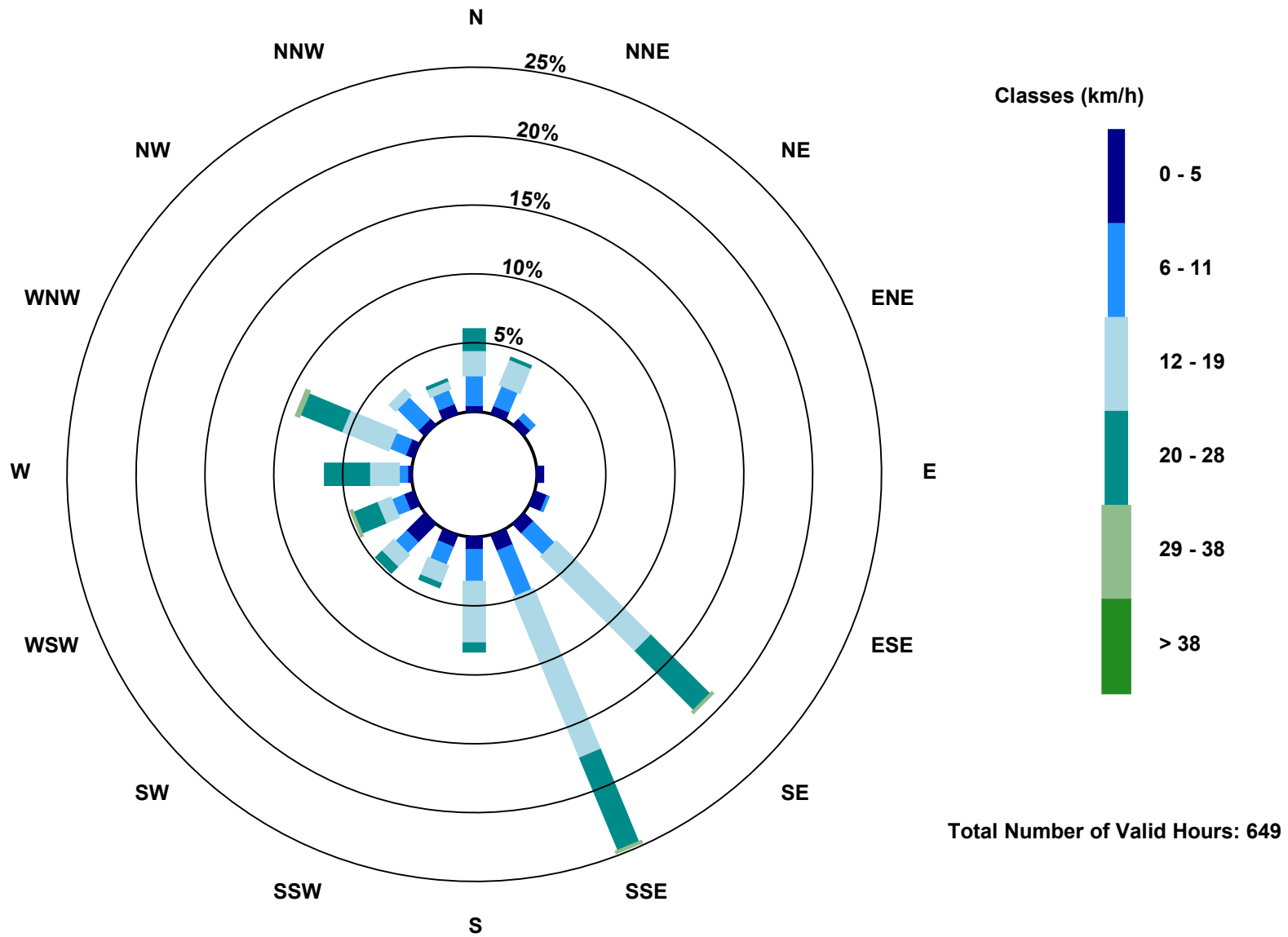
Total Number of Valid Hours: 649

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Speed: 35 km/h on Dec 13 07:00	Maximum Daily Speed Average: 25.2 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 1 09:00	Minimum Daily Speed Average: 4.2 km/h on Dec 1	Hours of Data: 539
Maximum Diurnal Speed Average: 11.0 km/h at hour 9	Minimum Diurnal Speed Average: 4.3 km/h at hour 21	Hours of Missing Data: 205
Monthly Average Velocity: 8.1 km/h 188.8 deg	Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 11 Median = 18 Q ₃ = 24 P ₉₀ = 28 P ₉₉ = 33	Percent Operational Time: 72.5

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-Dec	N16	N17	NNE22	NNE16	NNE12	NNE12	N7	NNE5	SSW1	S5	SSW6	S2	SE4	S3	S4	ESE2	SE6	SSE11	SE14	SE13	SE16	SE21	SE18	SE18	E4.2	NNE22	
2-Dec	SE20	SE21	SE21	SE19	SE17	SE19	SE18	SE17	SE17	SE15	SE14	SSE14	SSE13	SE15	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SE21	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW34	
4-Dec	N12	WNW7	NW9	N8	NNW1	S3	S8	SSE15	SSE18	SE17	SE13	SSE13	SSE17	SSE17	SSE20	SSE20	SE24	SE27	SSE22	SSE32	SSE29	SSE31	SSE33	S27	SSE14.4	SSE33	
5-Dec	S22	S24	SSW24	WSW4	SSW8	S14	S17	SSW14	SSE13	SSE20	SSE21	SSE13	SSE20	SSE20	SE13	SSE18	S19	UO	UO	UO	UO	UO	UO	UO	---	SSW24	
6-Dec	UO	UO	UO	UO	UO	UO	UO	S19	S17	SW12	WSW14	W21	W26	W27	WSW24	W28	WSW24	W18	WSW20	SW17	WSW12	W14	WSW14	SW15	---	W28	
7-Dec	W22	W24	W25	WSW22	WSW22	WSW20	WSW25	WSW24	WSW22	WSW21	WSW19	WSW12	S11	SSE20	SSE17	SSW10	WSW9	W7	W11	NW12	N22	NNE23	N22	UO	WSW11.7	WSW25	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
11-Dec	UO	UO	UO	UO	UO	UO	UO	SE13	SE20	SE21	SE22	SE21	SE20	SE20	SE21	SE20	SE24	SE21	SE27	SE31	SE26	SE26	SE27	SE34	---	SE34	
12-Dec	SE30	SE27	SE33	SE29	SE22	SE21	SE22	SE20	SE23	SE23	SE24	SE26	SE26	SE24	SE23	SSE21	SSE22	SE26	SSE25	SSE27	SSE28	SSE29	SSE29	SSE27	SE25.2	SE33	
13-Dec	SSE28	SSE30	SSE25	SSE31	SSE32	SSE32	SSE35	S33	S32	SSE31	SSE29	SSE26	SSE22	S19	SSW14	SSW15	SSW11	SSW4	S4	SSW6	N13	N13	N15	N14	SSE16.5	SSE35	
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---	
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	W23	WNW26	W27	W28	WNW28	WNW26	WNW26	W25	W25	W25	W26	W24	---	W28	
17-Dec	W26	W24	W24	W28	W25	W22	W20	WNW22	WNW18	WNW18	WNW17	W11	WSW8	W6	WSW4	SSW6	SW11	SSW11	SW10	SW10	WSW14	SW12	SSW11	SSW7	W13.6	W28	
18-Dec	SSE7	SE13	SSE17	SSE22	SSE17	SE16	SE8	SE13	SE8	SE9	SE7	SE7	ESE3	SE2	ESE4	ESE6	E8	ESE3	SSE6	SSE7	SSE11	SSE14	S15	S14	SSE9.2	SSE22	
19-Dec	SSE20	SSE21	SSE21	SSE20	SSE18	SSE17	SSE19	S19	S17	S14	S6	E1	SSE3	SSW2	SSW4	ESE3	SE3	SSE5	SSE8	SE10	SE12	SE12	SE17	SE18	SSE11.7	SSE21	
20-Dec	SE16	SSE20	SE22	SE25	SE19	SE22	SE28	SE30	SE32	SE29	SE25	SE25	SE27	SSE22	SSE21	SSE23	SSE21	SSE20	S18	SSW18	SSW15	SSW16	SSW15	S12	SSE20.3	SE32	
21-Dec	S14	SSW8	SSW3	SSE10	SSE15	SSE21	SSE16	SSE15	S13	SSE12	SSE14	S13	SSE5	SSE10	SE4	SSE10	SSE11	SSE4	NW5	NNE5	NE8	ENE9	SSE5	SSE13	SSE8.2	SSE21	
22-Dec	SSE8	SSE10	S3	SE11	SSE13	S18	S19	S15	S14	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	S19	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE31	SSE29	SSE28	S29	SSW27	SW34	SW25	SW20	SW20	SW19	WSW27	WSW30	W35	---	W35
24-Dec	WSW31	WSW29	SW13	SW13	S15	SSE20	S28	S27	SSE29	SSE29	SSE29	SE16	SE16	SE24	SE28	SSE21	SSE22	SSE26	SSE29	S26	S25	S24	S20	S15	S19.4	WSW31	
25-Dec	SSE24	S22	SW19	SW25	SW24	SW22	SW23	SW24	WSW17	WSW18	SW15	SW18	WSW21	WSW28	SW29	SW22	SSW24	SSW27	S24	SSW25	SSW24	S21	S22	S25	SSW20.7	SW29	
26-Dec	S28	S25	SSE25	SE20	SE19	SSE20	SE23	SSE23	SSE24	SSE24	S21	S18	S19	SSE13	S21	S23	SSE21	SE15	SE22	SE16	SSE16	SSE12	SE17	SSE19.9	S28		
27-Dec	SSE14	SE14	SE12	SSE11	SSE12	SSE14	SSE9	S7	SSE19	SSE13	SE17	SE10	E3	NNE2	S10	SSE16	SSE11	SW8	SSW6	SE8	SE12	SE8	ESE7	SE12	SSE9.8	SSE19	
28-Dec	SE15	SE11	SE5	SE5	ENE5	NE6	ENE4	NE2	N2	N3	NW6	NW8	NW8	NW5	NW6	NW5	NW8	NW9	NW8	NNE10	NNE19	NNE20	NNE14	NNE11	N4.4	NNE20	
29-Dec	NNE9	NNE10	NNE7	NNE3	SW3	WSW6	WNW7	WNW7	WNW6	WNW11	WNW10	WNW6	NW9	NW12	NW17	NNW14	NNW13	WNW8	WNW10	WNW16	WNW20	WNW20	WNW21	WNW21	NW9.7	WNW21	
30-Dec	WNW22	WNW24	WNW25	WNW27	WNW26	WNW27	WNW28	WNW29	WNW30	WNW29	WNW29	WNW31	WNW28	WNW26	W25	W23	WNW23	WNW23	WNW28	WNW25	WNW21	WNW19	WNW19	WNW21	WNW25.2	WNW31	
31-Dec	WNW21	WNW20	WNW21	W18	WNW16	WNW14	WNW18	NW17	NNW10	N9	NNW10	WNW13	WNW16	WNW20	WNW19	WNW18	NW16	NNW12	NNE8	NNE9	NNE11	NNE13	NNE12	NNE15	NW12.2	WNW21	

S8.5	S8.9	S7.5	S7.8	S8.4	S9.6	S10.3	S10.3	S11.0	S10.4	S9.6	S8.5	S7.8	S8.1	SSW8.7	SSW8.5	SSW8.8	SSW7.7	SSW7.1	SSW7.1	SSW4.3	S5.0	S5.7	S7.3	Diurnal Average
WSW31	SSE30	SE33	SSE31	SSE32	SSE32	SSE35	S33	SE32	SSE31	WNW29	SSE31	SSE29	WSW28	SW29	WNW30	WNW34	WNW32	WNW30	SSE32	SSE29	SSE31	SSE33	W35	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

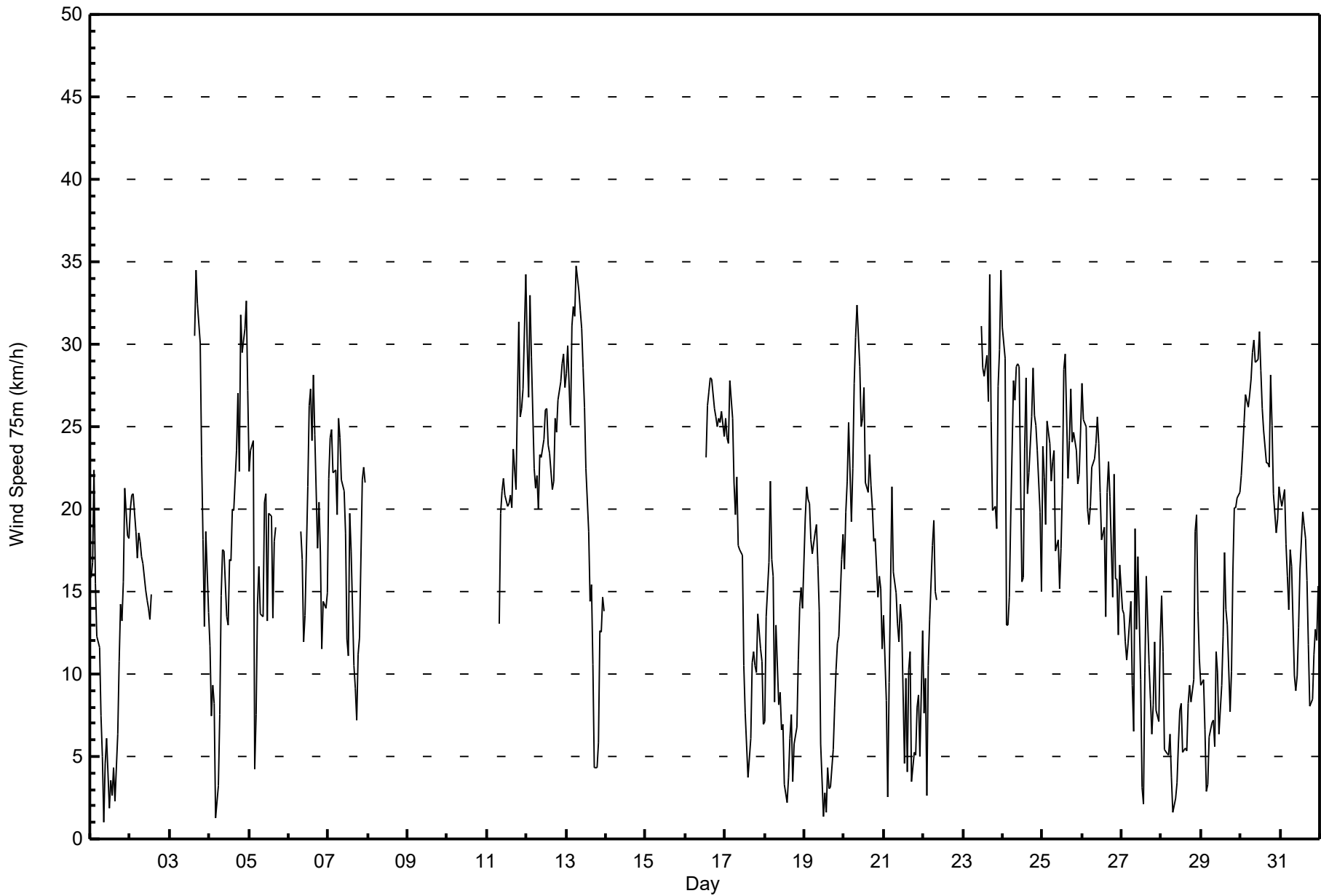
Wind Speed 75m (WS75) - km/h
Mannix - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Dec 11 19:00														Hours in Service: 744 Hours of Data: 539 Hours of Missing Data: 205 Hours of Calibration: 0 Percent Operational Time: 72.5												
Minimum Value: 0 km/h on Dec 28 09:00																										
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-Dec	3	3	4	3	3	2	1	1	1	2	1	1	2	1	1	1	3	1	2	4	4	4	3	3	4	
2-Dec	4	4	5	4	4	4	3	3	4	3	3	3	3	3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	4	4	3	5	7	4	3	4	7	
4-Dec	3	3	2	2	2	2	2	3	2	2	3	2	2	3	2	3	4	5	9	4	4	3	3	3	9	
5-Dec	3	2	4	2	2	2	1	1	3	3	2	2	3	3	2	2	2	UO	UO	UO	UO	UO	UO	UO	4	
6-Dec	UO	UO	UO	UO	UO	UO	UO	2	2	2	5	4	3	6	3	3	3	4	2	4	4	3	3	2	6	
7-Dec	4	3	4	2	2	3	1	2	3	3	1	6	2	3	2	5	2	1	2	2	5	2	6	UO	6	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
10-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	5	5	6	6	5	6	4	4	5	4	7	9	7	6	6	6	6	9	
12-Dec	5	6	5	6	3	3	5	4	3	4	5	6	6	5	5	4	3	3	3	2	3	3	2	2	6	
13-Dec	2	2	2	3	3	2	2	2	2	2	2	1	2	2	1	2	1	3	2	1	6	3	4	5	6	
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	4	3	2	2	3	3	2	2	2	3	2	4	
17-Dec	2	2	2	1	3	1	3	1	1	1	1	2	2	1	1	3	2	2	1	2	4	2	1	2	4	
18-Dec	2	3	2	3	1	3	5	4	5	4	4	3	1	2	2	3	2	1	1	1	2	2	1	1	5	
19-Dec	1	1	3	2	2	2	2	3	2	4	3	1	1	1	2	2	1	2	2	2	3	3	3	4	4	
20-Dec	6	4	5	5	4	3	4	5	5	5	5	6	6	4	4	3	2	2	1	1	1	3	2	2	6	
21-Dec	2	2	2	2	4	1	2	2	1	1	1	4	2	3	2	2	2	3	1	2	2	3	3	2	4	
22-Dec	2	1	2	4	2	4	4	2	2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	4	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	1	2	3	3	3	3	3	4	3	6	5	5	6	
24-Dec	4	6	5	2	2	4	4	2	2	2	8	5	7	8	5	3	3	3	2	1	2	3	2	2	8	
25-Dec	4	2	3	5	5	3	4	4	4	4	4	3	4	5	4	4	2	1	2	3	3	2	3	8	8	
26-Dec	3	2	1	3	2	2	3	1	1	1	2	1	2	4	2	3	2	3	3	4	3	2	2	2	4	
27-Dec	2	5	3	3	2	3	3	3	4	4	4	4	2	1	6	2	2	2	2	4	2	3	3	4	6	
28-Dec	2	3	4	4	2	2	2	1	0	1	1	1	1	1	1	1	1	1	1	4	4	3	3	2	4	
29-Dec	2	2	2	1	2	1	2	2	2	1	1	2	3	3	1	1	1	2	2	2	2	2	2	2	3	
30-Dec	3	2	3	3	2	3	3	3	3	3	3	4	4	3	2	2	2	3	3	3	2	2	2	3	4	
31-Dec	2	2	2	1	1	1	2	3	2	1	2	3	3	3	3	2	3	2	1	2	2	3	3	2	3	
														Diurnal Maximum												
6 6 5 6 5 4 5 5 5 6 8 6 7 8 6 5 5 9 9 7 7 6 6 8																										
UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	46	8.53	8.53
6 - 11	91	16.88	25.42
12 - 19	164	30.43	55.84
20 - 28	193	35.81	91.65
29 - 38	45	8.35	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 539

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 75m (WS75) - km/h
Mannix - December 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	4	1	2	2	5	6	5	7	5	1	2	0	0	3	1	46
6 - 11	3	8	2	1	1	2	12	15	5	11	4	3	4	9	9	2	91
12 - 19	10	8	0	0	0	0	39	33	24	7	10	8	3	13	5	4	164
20 - 28	2	3	0	0	0	0	44	46	16	7	9	13	23	29	1	0	193
29 - 38	0	0	0	0	0	0	8	19	3	0	2	3	1	9	0	0	45
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	17	23	3	3	3	7	109	118	55	30	26	29	31	60	18	7	539

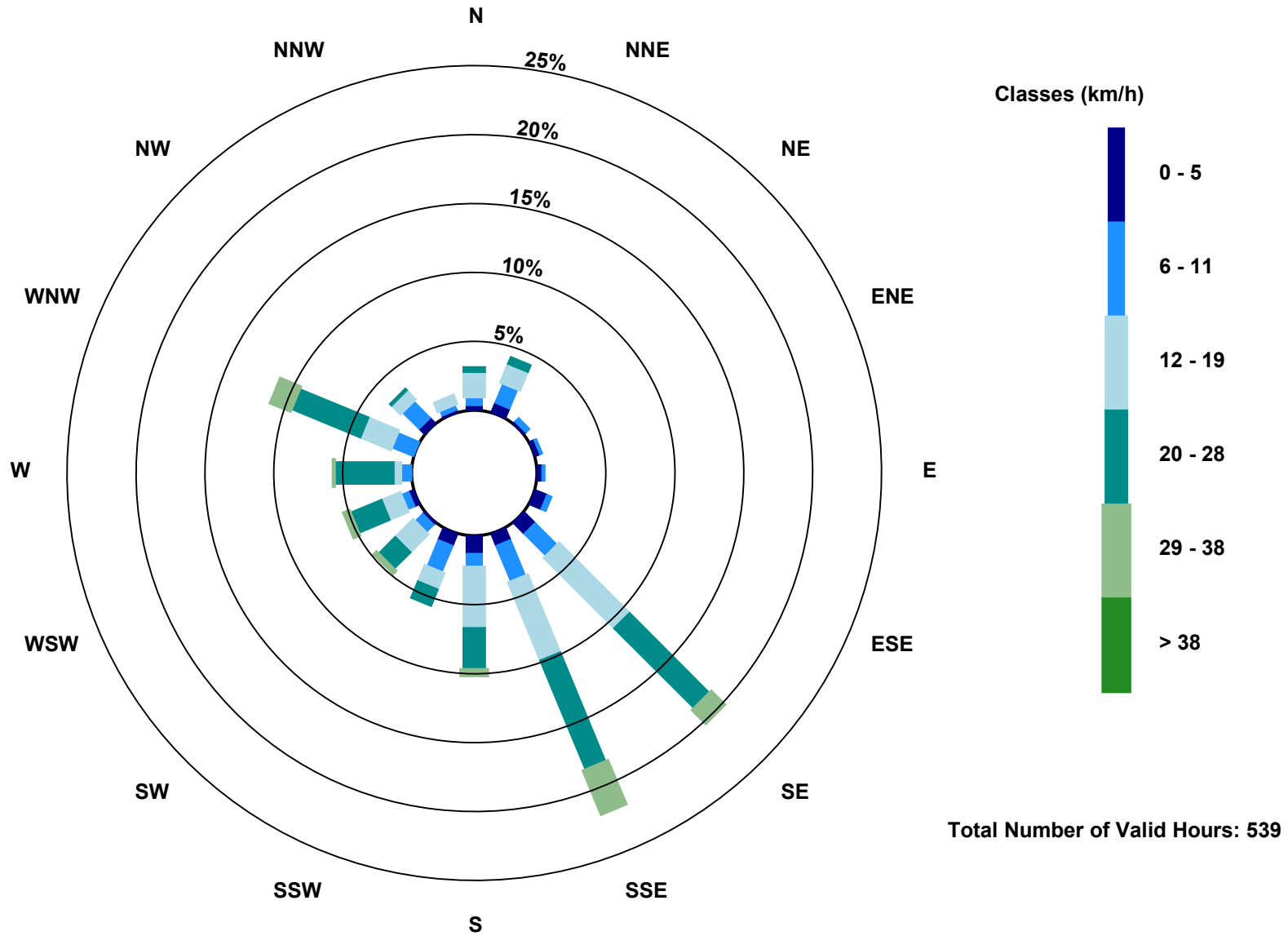
Total Number of Valid Hours: 539

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Speed: 37 km/h on Dec 12 00:00	Maximum Daily Speed Average: 27.1 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 1 09:00	Minimum Daily Speed Average: 4.7 km/h on Dec 1	Hours of Data: 549
Maximum Diurnal Speed Average: 9.9 km/h at hour 7	Minimum Diurnal Speed Average: 4.6 km/h at hour 21	Hours of Missing Data: 195
Monthly Average Velocity: 7.6 km/h 222.6 deg	Percentiles: P ₁ = 2 P ₁₀ = 7 Q ₁ = 12 Median = 18 Q ₃ = 25 P ₉₀ = 30 P ₉₉ = 35	Percent Operational Time: 73.8

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-Dec	NNE17	NNE18	NE24	NE16	NE13	NE13	NNE8	NE6	WNW0	SSW4	SW5	SSW2	S4	SSW2	S5	SSE3	S8	S11	S16	SSE16	SSE18	SSE23	SSE20	SSE20	ESE4.7	NE24
2-Dec	SSE22	SSE21	SSE21	SSE20	SSE19	SSE20	S19	S18	S18	S16	S15	S14	S14	S16	S16	S16	S18	S17	S20	S18	S15	S18	UO	UO	S17.8	SSE22
3-Dec	UO	UO	UO	UO	UO	UO	UO	N31	NNW37	N34	NNE28	N31	UO	NNW33	NNW32	NNW32	NW37	NNW35	NNW33	NNW25	N21	NNE15	NNE20	NNE15	---	NNW37
4-Dec	NNE13	NNW11	NNW10	NNE9	ENE2	S3	SSW8	S14	S19	S18	S14	S13	S17	S17	S21	S21	S25	S28	S24	S34	S31	S33	SSW34	SSW28	S14.7	SSW34
5-Dec	SSW23	SW24	SW25	WNW6	WSW8	SSW13	SW15	SW12	SSW10	S17	SSW18	SSW10	SSW16	S19	S14	SSW16	SW16	SSW21	UO	UO	UO	UO	UO	UO	SSW15.0	SW25
6-Dec	UO	UO	UO	UO	UO	UO	UO	SW16	SW16	W14	W17	WNW23	WNW28	WNW29	WNW26	WNW30	WNW26	WNW19	W22	W19	WNW13	WNW16	W15	W16	---	WNW30
7-Dec	WNW23	WNW26	WNW26	WNW23	WNW22	WNW20	WNW25	WNW25	WNW22	W21	W20	W15	SW10	SSW18	SSW18	WSW10	W10	WNW8	NW12	N13	NE23	NE24	NNE22	UO	WNW12.5	WNW26
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	SSE21	SSE22	SSE20	SSE25	SSE23	SSE29	SSE34	SSE29	SSE31	SSE31	SSE37	---	SSE37
12-Dec	S32	SSE29	S35	SSE32	SSE25	SSE24	SSE25	SSE22	S25	SSE25	SSE26	SSE27	S28	S25	S25	S22	S23	S27	S26	S29	S30	S31	S32	S30	S27.1	SSE35
13-Dec	S30	S32	S27	S33	S35	SSW32	SSW33	SSW33	SSW32	SSW30	SSW28	SSW24	SSW20	SSW17	WSW14	WSW14	WSW10	W4	SW2	WSW4	NNE12	NE13	NNE17	NNE15	SSW15.8	S35
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	NW22	NW27	NW28	NW29	NW30	NW28	NW27	WNW27	WNW27	WNW27	WNW27	WNW26	---	NW30
17-Dec	WNW27	WNW26	WNW25	NW30	NW29	NW25	NW22	NNW23	NW19	NW18	NW17	WNW12	WNW9	WNW6	W4	WSW7	WSW11	WSW11	W11	W11	WNW15	W14	WSW10	WSW7	WNW14.8	NW30
18-Dec	SSW4	SSE10	S17	S21	S18	S21	SSE13	S14	SSE9	SSE11	SE8	SSE8	SE7	SSE6	SSE6	SE9	SE9	SE6	S7	S9	S11	S13	SSW16	SSW14	S10.4	SSW21
19-Dec	S19	S22	S20	SSW21	SSW16	S15	S19	SSW16	SW13	SW10	WSW4	NNW2	SW2	WSW2	WSW5	SSE3	SSE4	S6	S9	S13	SSE14	SSE15	S19	SSE23	S11.4	SSE23
20-Dec	SSE18	S22	SSE21	SSE26	SSE22	SSE25	SSE30	SSE33	SSE34	S31	S26	S27	S29	S23	S23	S24	SSW22	SSW21	SSW18	SW18	WSW15	WSW17	SW15	SW10	S20.9	SSE34
21-Dec	SSW11	WSW7	W3	S6	S13	SSW18	SSW13	SSW14	SSW13	SSW10	SSW15	SSW13	SSW5	S8	SSE4	S10	S10	SSE5	NNW5	ENE4	ENE7	E9	S7	S15	S7.5	SSW18
22-Dec	S9	S11	S4	SSE12	S15	SSW18	SSW20	SSW16	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SSW20
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WSW36
24-Dec	WNW32	WNW31	WSW15	WSW15	SW14	SSW17	SSW24	SSW25	SSW28	SSW31	S33	SSE22	SSE19	SSE25	S29	S23	S25	S27	SSW30	SSW27	SSW24	SSW22	SW17	SW14	SSW19.5	S33
25-Dec	SSW20	SW20	WSW21	W28	W27	WSW23	WSW24	W25	W19	W20	W19	W19	W20	W30	W31	WSW23	WSW24	SW27	SW23	WSW26	WSW25	SSW20	SSW21	SW23	WSW21.9	W31
26-Dec	SW28	SSW24	SSW25	S22	SSE21	S21	S24	S22	S24	S26	SSW25	SSW20	SSW16	SSW19	SSW10	SSW18	SSW21	SSW20	S14	S24	SSE15	S17	S12	S17	S19.5	SW28
27-Dec	S13	SSE15	SSE15	S11	SSE8	S11	S9	S6	S19	S13	SSE20	SSE12	ESE5	ENE3	SSW9	S16	S12	WSW8	SSW7	SSE9	SSE13	SSE9	SE9	SSE13	S10.3	SSE20
28-Dec	SSE15	SSE12	SSE6	SSE6	ESE5	E6	ESE4	E1	NNE2	NNE3	N6	N8	NNW9	NNW6	N6	NNW6	N9	NNW10	N9	NE10	NE20	NE20	NE15	NE12	NE4.8	NE20
29-Dec	NE10	NE10	NE7	NE3	W3	W7	NW10	NW10	NW8	NW13	NW11	NNW7	NNW10	NNW13	N18	N14	N14	NNW9	NW10	NNW17	NNW21	NNW21	NW22	NW22	NNW10.8	NW22
30-Dec	NW24	NW25	NW27	NW28	NW27	NW28	NW29	NW31	NW31	NW30	NW31	NW32	NW29	NW27	NW25	NW24	NW24	NW24	NNW30	NNW27	NNW22	NNW20	NW21	NW22	NW26.5	NW32
31-Dec	NW22	NW21	NW23	NW19	NW17	NNW15	NW19	NNW18	N11	N11	N12	NNW14	NNW17	NW20	NW20	NW19	NNW17	N13	NE8	NE9	NE11	NE13	NE12	NE16	NNW13.4	NW23

SW8.1 SW8.3 SW7.4 SW7.7 SW8.2SSW9.2SSW9.9 SW8.5 SW8.8 SW8.3SSW8.7 SW6.6 SW7.3 SW7.3 SW8.1 SW8.3WSW8.7 SW8.2 SW7.4 SW7.5 SW4.6SSW5.2 SW5.4 SW7.1	Diurnal Average
WNW32 S32 SSE35 S33 S35 SSW32 SSW33 SSE33NNW37 N34 SSW34 NW32 NW29NNW33NNW32NNW32 NW37NNW35NNW33 SSE34 S31 S33 SSW34 SSE37	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 90m (WS90) - km/h

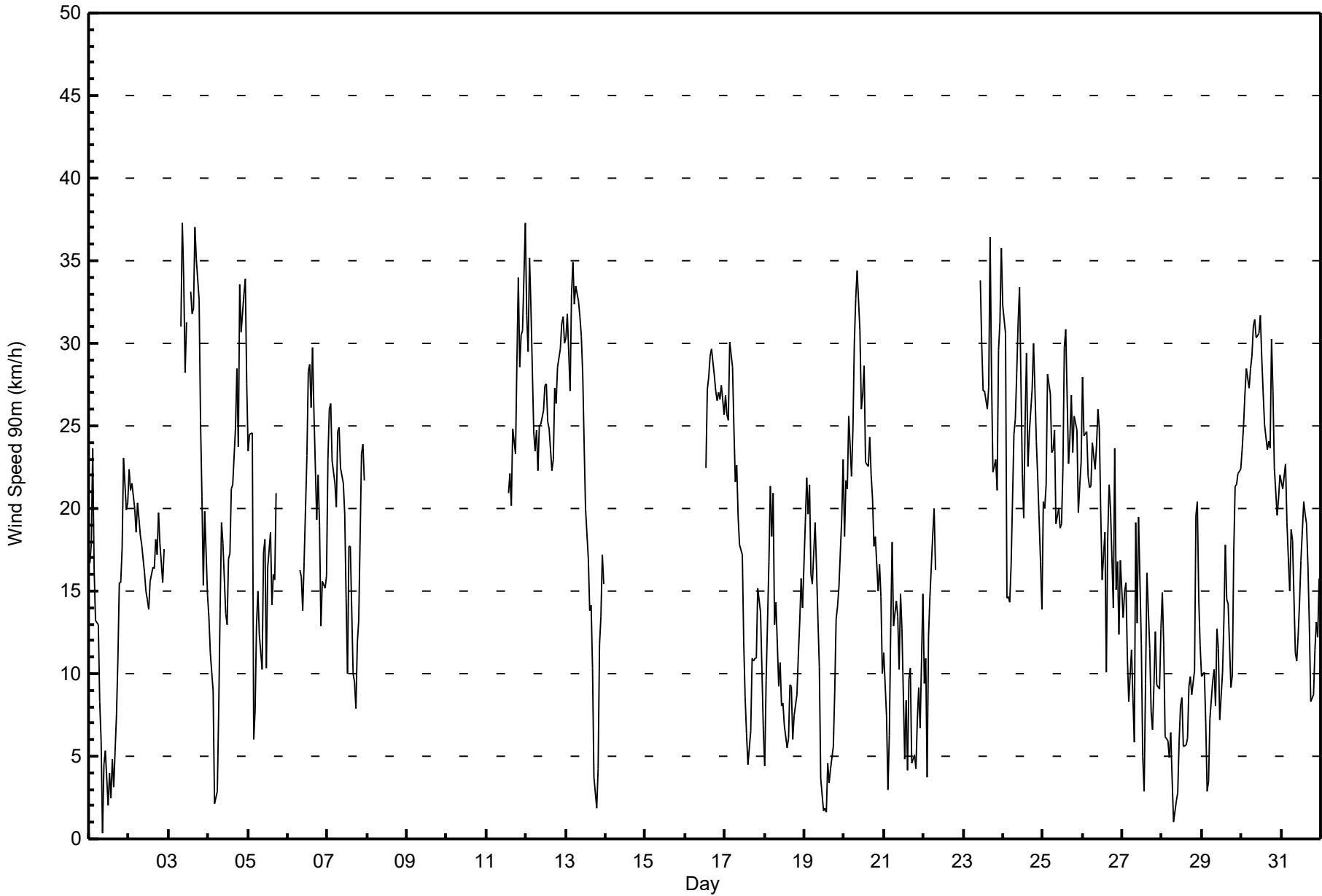
Mannix - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 8 km/h on Dec 4 18:00			Hours of Data:	549
Minimum Value: 0 km/h on Dec 28 09:00			Hours of Missing Data:	195
			Hours of Calibration:	0
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6			Percent Operational Time:	73.8

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

Diurnal Maximum

UO - Unstable Operation





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	38	6.92	6.92
6 - 11	98	17.85	24.77
12 - 19	159	28.96	53.73
20 - 28	183	33.33	87.07
29 - 38	71	12.93	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 549

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

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

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	0	2	1	3	1	3	0	5	4	5	3	4	4	1	0	2	38
6 - 11	7	2	8	1	2	0	5	12	18	8	3	10	4	4	4	10	98
12 - 19	6	8	9	0	0	0	0	18	46	24	11	6	10	5	9	7	159
20 - 28	1	3	5	0	0	0	0	29	34	27	9	11	9	21	27	7	183
29 - 38	3	0	0	0	0	0	0	13	16	10	0	1	4	5	12	7	71
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	17	15	23	4	3	3	5	77	118	74	26	32	31	36	52	33	549

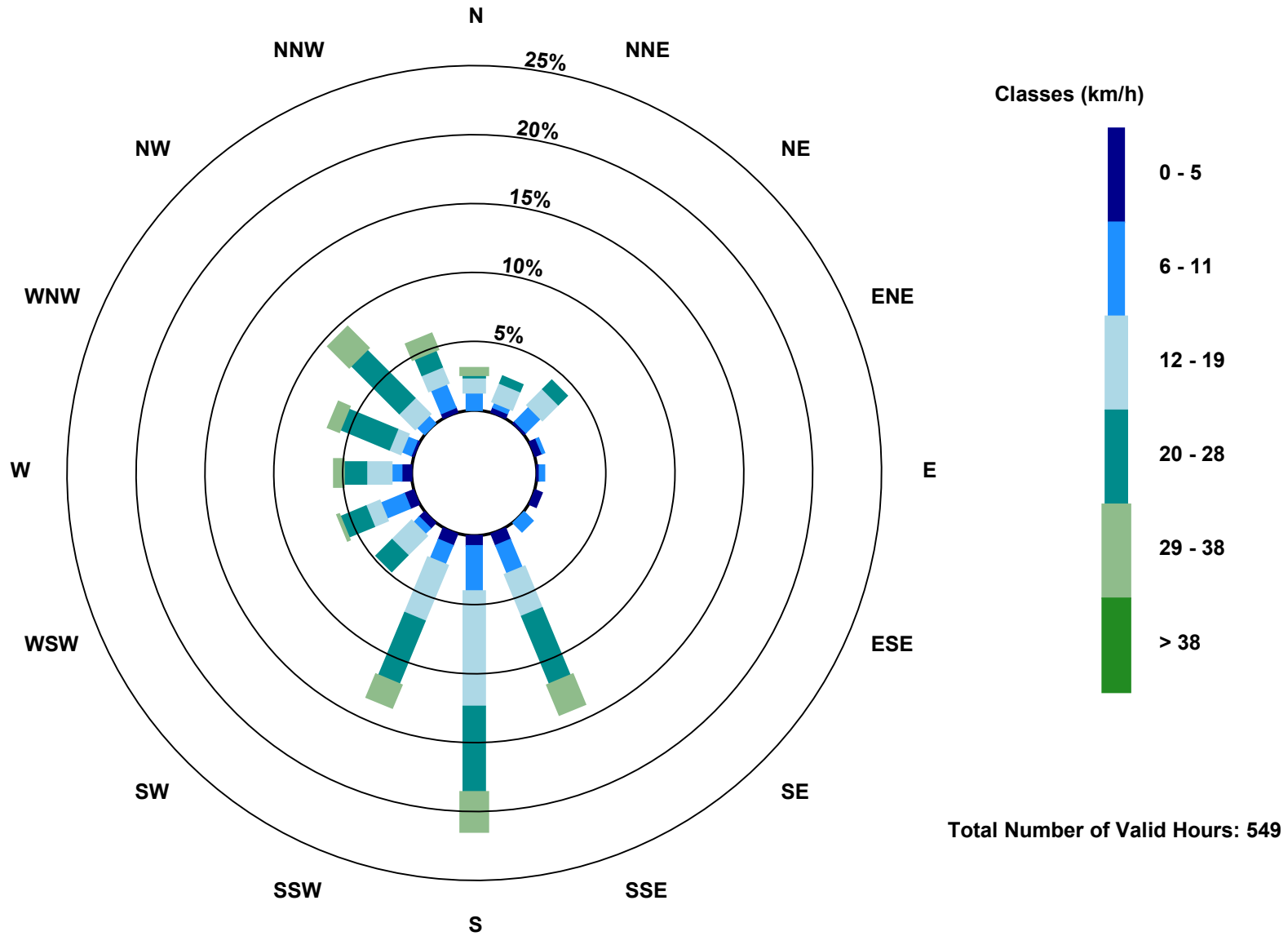
Total Number of Valid Hours: 549

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 20m (WD20) - deg
Mannix - December 2024

Direction of Maximum Speed: 257 deg on Dec 24 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 285.5 deg on Dec 30	Hours of Data: 717
Direction of Minimum Speed: 270 deg on Dec 29 11:00	Hours of Missing Data: 27
Direction of Minimum Daily Speed Average: 1.7 deg on Dec 1	Percent Operational Time: 96.4
Monthly Average Direction: 183.6 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-Dec	355	355	3	8	355	347	309	0	210	184	208	128	118	200	211	103	110	157	154	144	146	143	143	137	112.6
2-Dec	142	139	135	140	139	139	148	150	146	144	145	148	146	145	148	144	145	153	149	154	154	149	158	170	146.5
3-Dec	175	354	340	326	18	5	349	333	310	322	350	333	305	304	298	297	292	293	295	304	313	328	1	352	320.7
4-Dec	330	255	276	279	229	232	190	168	155	154	158	147	157	155	154	152	147	140	148	153	158	155	159	159	159.2
5-Dec	162	162	177	103	159	152	157	156	149	146	154	160	156	146	127	156	146	168	155	151	125	159	147	192	155.4
6-Dec	168	169	168	163	182	152	156	157	157	85	115	283	272	257	253	258	251	260	229	207	237	251	223	205	220.8
7-Dec	254	251	255	240	238	226	245	245	236	218	194	179	156	149	154	187	241	272	262	294	358	3	359	19	243.2
8-Dec	9	10	348	350	7	357	354	14	14	12	10	8	4	8	23	24	10	42	59	100	180	149	145	165	12.8
9-Dec	165	174	169	178	171	200	335	184	189	26	18	19	8	11	9	7	4	7	348	353	348	10	11	3	8.0
10-Dec	346	335	351	345	286	267	246	260	271	277	315	120	127	107	97	148	160	148	151	166	162	156	149	150	179.8
11-Dec	136	133	133	133	137	129	132	135	137	139	139	148	138	140	149	143	144	139	137	136	134	131	134	138	137.2
12-Dec	143	142	142	138	144	147	142	140	147	141	138	138	139	141	144	147	146	143	150	149	147	150	151	150	143.8
13-Dec	151	147	155	150	153	160	156	160	161	156	153	153	155	156	157	154	160	149	147	201	354	350	354	353	153.3
14-Dec	13	22	15	12	12	19	352	UO	UO	UO	UO	UO	UO	UO	UO	12	9	9	9	7	11	3	355	4	--
15-Dec	7	324	313	333	344	342	344	342	342	345	347	344	346	352	356	2	13	345	6	20	20	18	17	4	353.2
16-Dec	14	333	352	241	229	266	288	283	293	296	278	261	274	284	278	275	277	276	278	272	268	262	263	261	275.8
17-Dec	264	268	267	268	271	268	259	274	268	250	258	241	236	268	203	160	194	195	199	199	207	173	162	148	243.4
18-Dec	152	144	165	156	168	149	164	181	150	167	54	192	357	268	295	34	323	297	289	286	182	175	181	180	168.5
19-Dec	164	165	154	162	161	144	158	165	161	168	154	123	159	154	186	101	69	167	168	154	176	176	166	158	158.5
20-Dec	142	181	146	143	156	144	143	138	141	139	141	142	142	147	148	158	164	161	160	189	198	198	178	160	151.6
21-Dec	169	174	157	150	150	153	145	160	177	152	170	173	146	173	149	186	150	261	341	28	349	4	243	219	163.4
22-Dec	254	228	274	195	181	179	173	178	183	174	162	163	160	156	172	176	155	190	UO	UO	UO	UO	UO	UO	173.3
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	123	155	162	211	187	159	169	187	232	244	257	--
24-Dec	253	250	180	172	150	149	158	158	145	159	147	141	139	136	148	167	162	156	159	159	151	159	156	153	160.2
25-Dec	154	155	153	187	183	174	189	206	228	221	154	197	233	241	230	203	189	178	169	168	172	150	143	157	184.5
26-Dec	164	152	152	152	157	166	160	163	168	165	156	156	156	151	149	163	158	152	180	161	169	187	162	173	161.0
27-Dec	174	163	171	199	171	178	230	234	189	191	151	227	267	242	177	187	210	278	200	133	140	131	127	139	174.8
28-Dec	149	150	130	151	20	0	19	355	335	324	309	311	305	292	310	324	297	283	295	3	15	5	8	16	342.3
29-Dec	10	19	9	28	241	187	178	166	163	256	270	61	310	310	310	311	298	313	293	290	300	292	289	288	303.1
30-Dec	293	292	290	285	280	284	286	286	284	285	285	288	287	285	273	276	284	277	291	292	295	294	286	285	285.5
31-Dec	283	280	282	270	279	295	289	302	351	350	308	289	300	295	293	293	306	329	8	27	17	25	7	16	308.4

184.7 187.1 182.8 189.1 180.3 172.9 187.9 187.9 186.3 182.1 159.4 177.0 191.6 196.6 201.9 195.8 202.3 192.2 184.9 171.6 166.2 166.9 166.1 174.5
 Diurnal Average

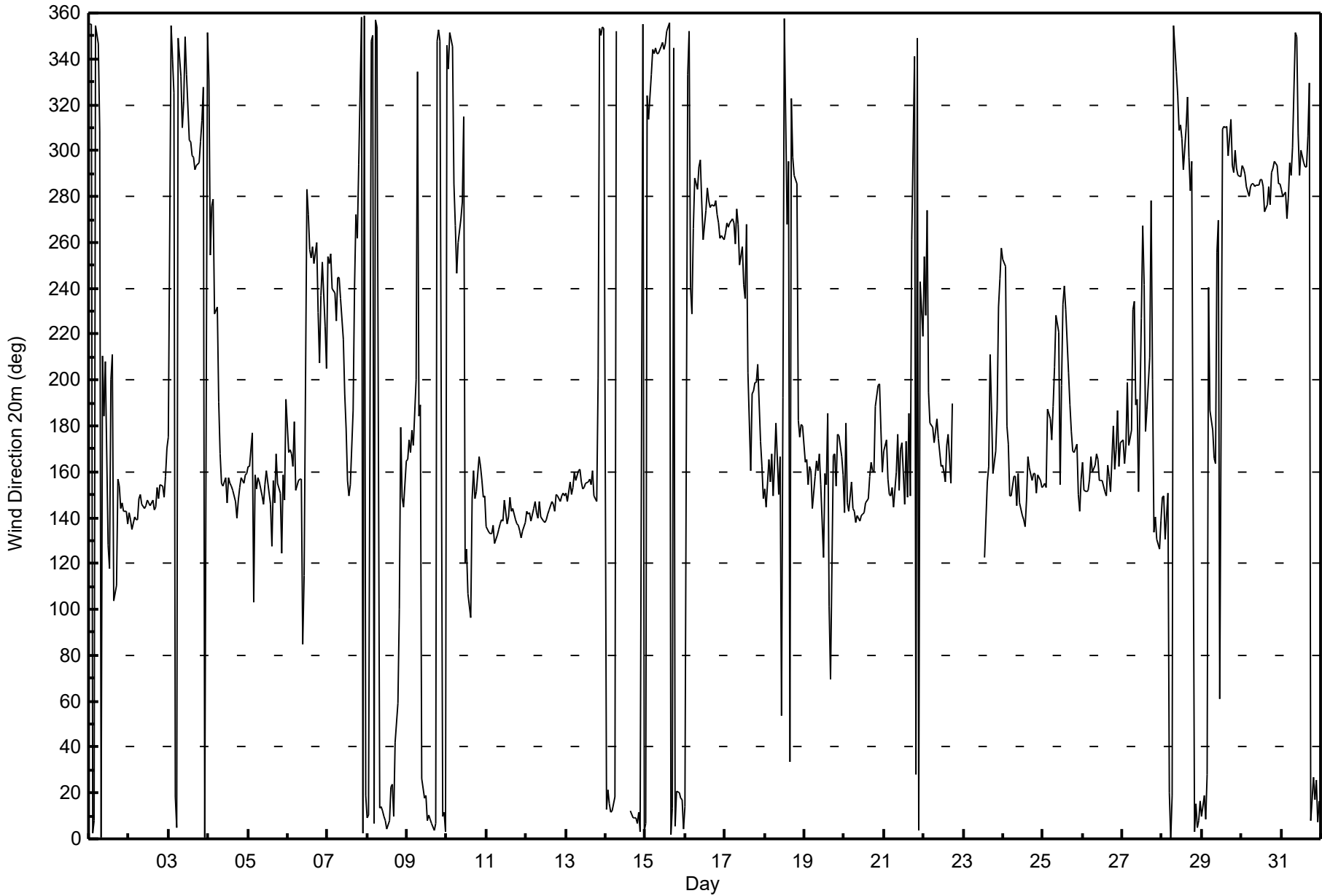
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 20m (WD20) - deg
Mannix - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Dec 3 02:00 Minimum Value: 4 deg on Dec 26 10:00 Percentiles: P ₁ = 6 P ₁₀ = 8 Q ₁ = 9 Median = 12 Q ₃ = 18 P ₉₀ = 38 P ₉₉ = 77																	Hours in Service: 744 Hours of Data: 717 Hours of Missing Data: 27 Hours of Calibration: 0 Percent Operational Time: 96.4								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	20	17	12	11	27	19	19	64	18	14	18	71	33	54	38	19	15	7	12	12	11	11	11	10	71
2-Dec	10	10	8	11	11	10	10	10	10	12	12	11	12	11	10	10	10	9	8	7	6	9	10	15	15
3-Dec	58	100	24	24	14	21	15	20	10	20	13	14	12	11	11	10	8	9	9	10	18	54	13	16	100
4-Dec	23	90	22	16	17	14	29	10	9	8	9	14	9	10	10	10	11	9	11	8	9	8	7	90	
5-Dec	8	8	24	73	12	6	11	8	7	11	7	10	7	13	22	9	12	10	9	24	68	40	21	52	73
6-Dec	47	29	38	30	97	38	16	12	10	72	75	18	13	12	11	9	10	16	13	27	48	20	18	23	97
7-Dec	17	12	11	9	8	13	8	12	8	12	14	50	8	9	17	30	10	20	15	29	22	11	18	16	50
8-Dec	15	17	26	19	14	15	14	12	10	13	12	14	17	14	17	21	13	18	19	38	27	27	22	7	38
9-Dec	8	11	14	15	14	75	39	50	26	74	12	11	13	13	13	14	18	15	14	14	16	12	10	15	75
10-Dec	15	21	26	13	39	14	9	7	79	9	60	39	59	12	39	48	17	9	8	10	12	9	10	11	79
11-Dec	9	8	7	8	10	11	8	9	9	10	10	11	10	11	9	10	11	11	10	9	8	9	9	8	11
12-Dec	10	10	10	11	10	10	11	11	10	11	9	9	10	11	11	11	10	9	9	9	10	9	9	9	11
13-Dec	8	9	9	9	10	7	8	6	6	7	8	7	7	9	11	5	6	24	15	55	39	16	15	22	55
14-Dec	11	12	13	16	13	12	28	UO	UO	UO	UO	UO	UO	UO	UO	18	13	14	11	11	7	18	13	11	28
15-Dec	13	22	14	14	14	15	15	16	16	14	16	13	13	13	13	12	17	15	15	15	13	14	16	15	22
16-Dec	28	18	46	24	28	25	12	11	11	11	10	8	8	9	8	9	8	7	8	6	7	6	6	7	46
17-Dec	7	6	6	5	6	10	10	10	7	15	18	30	25	21	63	10	25	18	14	11	21	9	6	14	63
18-Dec	14	10	12	6	7	13	30	18	44	20	49	68	34	16	45	12	47	32	63	73	78	11	6	11	78
19-Dec	11	9	11	11	9	12	10	14	11	18	21	28	25	59	58	33	62	39	14	27	26	43	26	9	62
20-Dec	19	24	16	13	16	11	9	8	9	9	9	11	11	10	10	11	8	8	8	12	11	11	9	15	24
21-Dec	10	5	17	12	11	9	10	10	26	8	14	40	27	20	42	16	49	85	30	13	30	48	39	12	85
22-Dec	25	10	29	31	14	9	11	16	17	16	9	8	9	8	18	21	13	38	UO	UO	UO	UO	UO	UO	38
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	61	19	10	16	19	20	18	20	17	11	11	61
24-Dec	11	12	39	21	6	9	12	8	9	13	16	15	11	9	14	16	27	18	11	12	9	7	7	7	39
25-Dec	8	8	7	19	32	10	11	15	73	28	15	36	12	10	9	18	12	7	7	12	15	9	8	12	73
26-Dec	11	8	6	11	17	15	16	6	5	4	7	9	7	11	8	7	7	8	12	7	9	19	11	10	19
27-Dec	28	22	11	15	15	11	22	66	16	45	13	34	32	59	27	13	27	62	64	44	9	14	16	9	66
28-Dec	10	8	26	63	46	31	58	36	27	21	17	13	17	22	14	21	12	12	22	18	13	13	11	14	63
29-Dec	12	16	12	17	68	17	23	25	10	44	78	78	26	12	7	6	18	53	39	10	9	9	9	9	78
30-Dec	9	9	10	8	8	9	9	9	8	9	9	9	9	10	7	8	9	7	9	9	8	9	8	8	10
31-Dec	8	8	8	6	7	10	10	17	12	14	16	14	11	10	10	10	11	15	10	15	13	15	13	11	17
																	Diurnal Maximum								
UO - Unstable Operation																									





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 45m (WD45) - deg
Mannix - December 2024

Direction of Maximum Speed: 258 deg on Dec 24 00:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 286.0 deg on Dec 30	Hours of Data: 649
Direction of Minimum Speed: 184 deg on Dec 5 04:00	Hours of Missing Data: 95
Direction of Minimum Daily Speed Average: 1.4 deg on Dec 10	Percent Operational Time: 87.2
Monthly Average Direction: 181.3 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-Dec	357	358	6	12	4	1	337	9	218	162	196	165	130	190	200	105	122	149	144	132	137	137	137	134	93.9
2-Dec	138	135	132	136	136	137	144	144	142	141	142	146	144	143	UO	UO	138	147	144	153	155	146	154	166	142.5
3-Dec	186	341	339	333	11	4	352	344	UO	UO	UO	UO	UO	UO	300	297	291	294	296	303	319	344	3	356	324.9
4-Dec	347	288	283	311	254	235	198	166	154	147	150	144	155	153	151	148	144	139	145	152	157	154	158	161	155.7
5-Dec	168	172	183	184	167	162	172	169	152	148	156	163	156	146	131	156	165	169	UO	UO	UO	UO	UO	UO	161.7
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	179	219	276	270	257	255	259	253	263	238	223	249	258	238	222	--
7-Dec	257	255	258	247	243	242	250	253	243	228	218	224	160	151	155	183	241	263	271	307	0	4	360	16	250.9
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	39	53	98	169	138	131	154	--
9-Dec	164	180	189	212	214	269	322	293	223	11	20	18	9	11	9	6	4	6	351	353	349	11	11	6	1.3
10-Dec	355	342	320	355	331	308	267	272	281	286	303	114	151	112	93	143	154	137	134	148	156	146	141	142	187.2
11-Dec	134	131	132	133	136	125	128	130	134	136	137	141	135	138	142	137	139	136	137	135	132	130	134	137	134.6
12-Dec	141	138	141	136	140	142	139	137	144	139	137	136	138	140	142	145	145	142	149	148	147	149	151	150	142.2
13-Dec	151	147	154	151	153	158	156	161	164	157	153	154	155	158	172	166	177	169	153	185	348	354	358	357	156.1
14-Dec	13	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	14	344	11	234	222	272	292	283	292	297	277	261	273	284	278	276	278	277	278	271	269	264	265	263	276.3
17-Dec	265	269	268	271	273	274	269	282	273	265	264	252	238	262	231	165	213	199	211	215	227	201	186	155	250.1
18-Dec	151	140	150	156	164	145	131	136	137	135	140	158	36	274	321	48	30	28	168	181	174	163	174	186	152.3
19-Dec	169	162	153	160	161	144	156	163	158	167	159	122	146	167	201	98	115	149	149	143	148	158	153	136	154.9
20-Dec	132	160	137	139	140	140	139	136	139	137	140	139	141	144	146	156	163	160	162	191	201	202	184	170	150.2
21-Dec	172	182	151	151	147	156	150	154	167	163	172	175	143	159	147	169	161	191	327	30	10	34	216	185	158.7
22-Dec	211	200	235	168	174	177	170	176	179	173	162	UO	UO	UO	UO	UO	UO	UO	UO	UO	156	150	152	152	--
23-Dec	154	161	155	151	159	176	179	161	154	153	UO	UO	UO	UO	UO	UO	219	208	208	208	213	235	245	258	190.5
24-Dec	255	253	198	197	163	152	158	161	149	161	144	133	132	132	145	162	161	160	157	164	159	165	163	160	162.2
25-Dec	154	158	179	220	219	208	204	219	240	233	185	217	234	242	231	210	196	183	175	185	186	157	155	163	196.4
26-Dec	168	156	150	138	137	156	147	151	160	160	160	161	165	157	151	161	159	147	154	150	151	172	166	156	155.8
27-Dec	170	144	143	173	171	168	192	215	179	169	138	172	234	252	178	181	189	243	204	128	133	128	121	133	163.9
28-Dec	141	138	125	129	44	29	44	7	346	337	314	314	307	297	312	320	308	294	309	6	16	8	12	18	357.2
29-Dec	15	22	13	27	236	218	251	231	241	287	288	297	306	310	313	318	312	307	288	292	299	293	289	288	303.9
30-Dec	292	292	288	285	279	284	285	285	284	286	286	287	287	284	273	277	285	278	293	295	297	295	288	286	286.0
31-Dec	283	280	282	273	279	297	290	301	345	352	319	294	298	293	291	293	306	332	13	26	19	21	9	16	308.9

176.7 178.3 175.2 179.6 179.3 176.6 184.9 189.4 177.0 174.7 170.6 176.5 181.6 188.2 209.8 199.8 202.4 190.2 193.9 181.6 174.6 164.9 167.0 167.7
 Diurnal Average

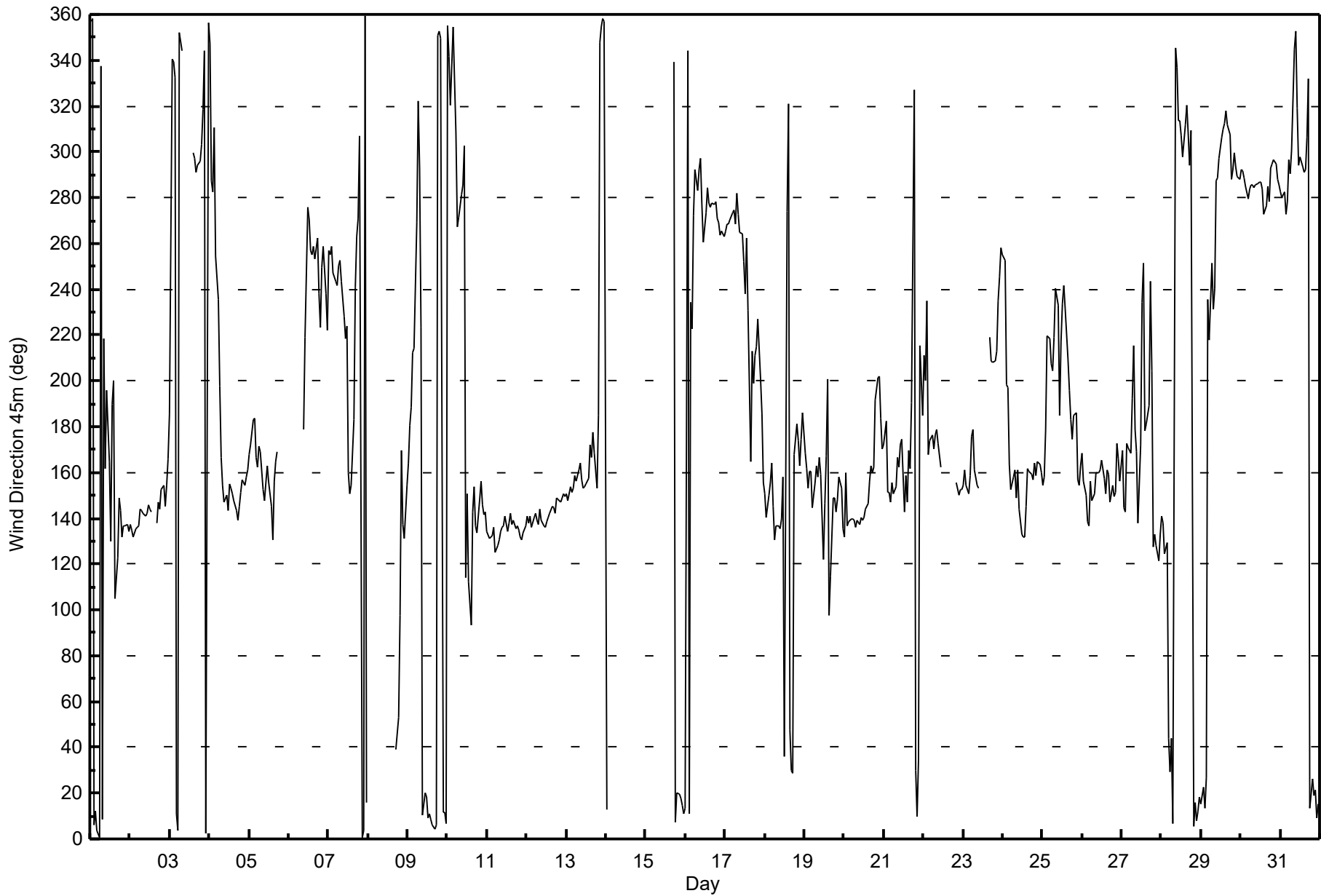
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 45m (WD45) - deg
Mannix - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 92 deg on Dec 5 04:00 Minimum Value: 3 deg on Dec 2 21:00 Percentiles: P ₁ = 3 P ₁₀ = 5 Q ₁ = 7 Median = 9 Q ₃ = 14 P ₉₀ = 25 P ₉₉ = 67																	Hours in Service: 744 Hours of Data: 649 Hours of Missing Data: 95 Hours of Calibration: 0 Percent Operational Time: 87.2																														
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-Dec	15	12	7	9	17	10	17	22	76	18	11	70	30	45	18	17	14	6	12	8	9	7	8	7	76																						
2-Dec	8	8	6	9	8	8	8	9	8	9	9	8	10	9	UO	UO	9	8	6	22	3	17	14	14	22																						
3-Dec	55	34	13	13	7	11	8	7	UO	UO	UO	UO	UO	UO	8	8	6	6	6	6	16	27	9	11	55																						
4-Dec	14	81	17	24	32	10	24	6	8	7	8	13	9	8	7	8	8	8	8	9	6	7	5	5	81																						
5-Dec	6	5	10	92	16	8	9	7	5	6	4	5	5	8	9	9	8	7	UO	UO	UO	UO	UO	UO	92																						
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	15	66	10	9	7	7	6	7	10	8	15	17	13	9	12	66																						
7-Dec	11	8	7	7	4	6	4	7	5	10	11	46	8	6	12	34	8	14	12	25	18	7	11	11	46																						
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	15	17	34	16	23	20	6	34																						
9-Dec	6	11	9	10	18	24	13	59	23	43	9	8	9	9	9	11	15	12	10	10	14	10	7	8	59																						
10-Dec	11	16	22	10	33	45	8	3	42	12	27	44	68	17	51	43	12	6	8	11	7	9	7	9	68																						
11-Dec	7	5	5	5	8	10	5	8	7	8	8	10	9	8	8	7	8	9	8	7	6	6	7	7	10																						
12-Dec	7	7	8	8	8	8	9	8	8	8	8	7	8	8	8	8	8	7	7	6	7	6	6	6	9																						
13-Dec	5	6	8	5	6	5	5	3	4	5	5	4	4	9	9	4	6	24	12	26	36	11	11	14	36																						
14-Dec	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	7																						
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	17																						
16-Dec	25	30	43	36	15	23	10	8	8	8	8	7	7	7	7	8	5	5	6	4	5	4	4	5	43																						
17-Dec	6	5	5	3	3	6	8	7	6	12	13	19	18	16	36	15	13	13	5	9	6	8	10	13	36																						
18-Dec	9	9	10	5	10	13	14	10	9	8	10	28	52	17	53	9	14	36	17	22	18	5	9	4	53																						
19-Dec	4	5	9	9	8	9	7	10	9	8	18	20	21	73	58	32	25	20	10	12	14	20	11	8	73																						
20-Dec	11	13	8	10	9	9	6	6	7	7	8	9	9	8	8	9	6	6	6	5	4	5	6	13	13																						
21-Dec	10	6	15	8	8	4	7	9	15	4	7	26	22	24	34	14	26	63	34	8	16	24	63	11	63																						
22-Dec	34	15	44	30	7	6	6	10	12	11	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	8	5	3	3	44																						
23-Dec	4	4	4	4	10	22	21	4	4	3	UO	UO	UO	UO	UO	UO	6	11	9	13	13	11	9	9	22																						
24-Dec	7	9	35	21	7	7	11	6	6	12	17	14	8	6	12	12	20	13	8	10	6	5	6	8	35																						
25-Dec	5	6	16	8	18	11	7	10	20	20	21	21	9	8	6	15	9	4	6	9	15	9	7	9	21																						
26-Dec	7	4	5	6	9	6	10	5	3	4	4	6	5	9	4	4	6	9	11	6	7	14	9	10	14																						
27-Dec	10	12	6	15	4	6	14	18	10	35	9	33	81	62	25	9	19	26	51	20	6	10	15	6	81																						
28-Dec	7	5	21	58	25	13	36	38	14	23	11	10	12	14	10	17	10	9	17	13	9	9	7	10	58																						
29-Dec	10	9	10	15	61	12	53	50	39	7	10	17	18	8	3	4	11	34	17	6	6	6	6	6	61																						
30-Dec	7	6	7	6	5	6	7	7	6	7	7	6	6	7	6	7	6	6	7	6	6	7	6	6	7																						
31-Dec	5	6	6	5	5	7	6	13	11	13	14	8	8	7	7	8	8	13	8	11	10	10	7	7	14																						
Diurnal Maximum																								55	81	44	92	61	45	53	59	76	43	66	70	81	73	58	43	26	63	51	34	36	27	63	14
UO - Unstable Operation																																															





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 75m (WD75) - deg
Mannix - December 2024

Direction of Maximum Speed: 164 deg on Dec 13 07:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 145.7 deg on Dec 12	Hours of Data: 539
Direction of Minimum Speed: 211 deg on Dec 1 09:00	Hours of Missing Data: 205
Direction of Minimum Daily Speed Average: 4.2 deg on Dec 1	Percent Operational Time: 72.5
Monthly Average Direction: 188.8 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-Dec	3	6	12	21	15	14	2	17	211	178	193	177	146	181	176	117	142	147	144	135	138	139	139	138	95.8
2-Dec	140	139	136	139	139	141	145	146	144	144	145	148	148	144	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	303	296	299	301	309	329	351	8	2	--
4-Dec	352	297	308	354	343	188	186	166	156	145	146	147	156	155	152	148	146	143	148	153	159	159	163	169	155.7
5-Dec	177	182	196	250	196	176	190	192	163	157	166	166	163	154	144	168	184	UO	UO	UO	UO	UO	UO	UO	--
6-Dec	UO	UO	UO	UO	UO	UO	UO	179	191	222	240	272	270	259	258	261	258	266	245	235	257	262	247	236	--
7-Dec	261	259	263	255	253	253	258	258	251	239	240	246	183	158	166	201	238	265	279	321	9	13	6	UO	257.8
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	131	137	139	139	142	137	140	141	138	140	137	140	139	138	137	139	140	--
12-Dec	143	141	143	141	141	141	141	139	146	142	141	140	142	144	145	149	148	146	152	152	152	154	155	154	145.7
13-Dec	155	152	157	156	159	165	164	171	173	166	163	165	168	175	201	194	208	208	176	206	352	5	6	5	165.4
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	275	287	280	280	282	282	282	273	272	268	269	267	--
17-Dec	270	272	273	276	279	280	280	295	283	283	282	264	248	264	242	202	227	210	225	235	247	231	206	192	263.9
18-Dec	157	145	153	161	160	143	130	145	133	137	129	143	116	137	117	102	88	117	158	161	167	157	177	183	149.6
19-Dec	161	157	158	163	166	151	158	170	172	182	180	97	159	200	208	116	138	153	150	145	138	141	146	138	157.4
20-Dec	134	147	138	141	139	141	140	139	142	141	144	143	144	148	151	159	166	165	177	202	211	209	192	184	153.6
21-Dec	175	200	194	149	153	166	163	163	169	167	165	179	158	153	140	158	158	147	314	32	38	61	155	160	159.3
22-Dec	157	166	171	145	165	175	169	175	177	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	156	163	162	174	199	228	221	224	225	228	240	249	260	--
24-Dec	258	255	218	219	187	168	169	174	161	164	147	134	131	134	146	156	161	160	161	172	173	179	184	183	172.2
25-Dec	167	180	214	231	229	223	217	231	246	243	228	229	238	244	235	219	205	198	191	203	204	174	173	178	212.2
26-Dec	179	169	162	146	138	149	145	152	151	151	162	175	175	169	167	170	174	160	140	144	139	159	155	146	158.1
27-Dec	151	141	137	150	153	153	163	183	165	161	138	140	90	22	174	165	160	230	194	136	138	134	122	135	152.4
28-Dec	140	135	127	124	68	50	71	42	2	356	324	325	314	305	320	318	322	308	325	12	20	14	21	22	10.6
29-Dec	24	29	18	23	233	241	282	286	287	287	294	299	309	314	319	328	327	298	293	300	303	298	294	291	306.7
30-Dec	295	296	293	289	284	288	289	288	288	290	290	291	290	287	276	281	289	283	299	301	302	300	293	290	290.3
31-Dec	286	284	287	280	284	299	294	304	338	351	330	302	301	297	293	296	313	337	18	28	22	22	14	18	312.8

187.4	187.9	188.6	185.0	185.3	179.1	183.5	184.7	176.9	176.4	176.0	179.6	188.1	189.4	195.9	204.7	210.9	206.4	206.4	196.6	194.4	184.8	188.9	185.9
Diurnal Average																							

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



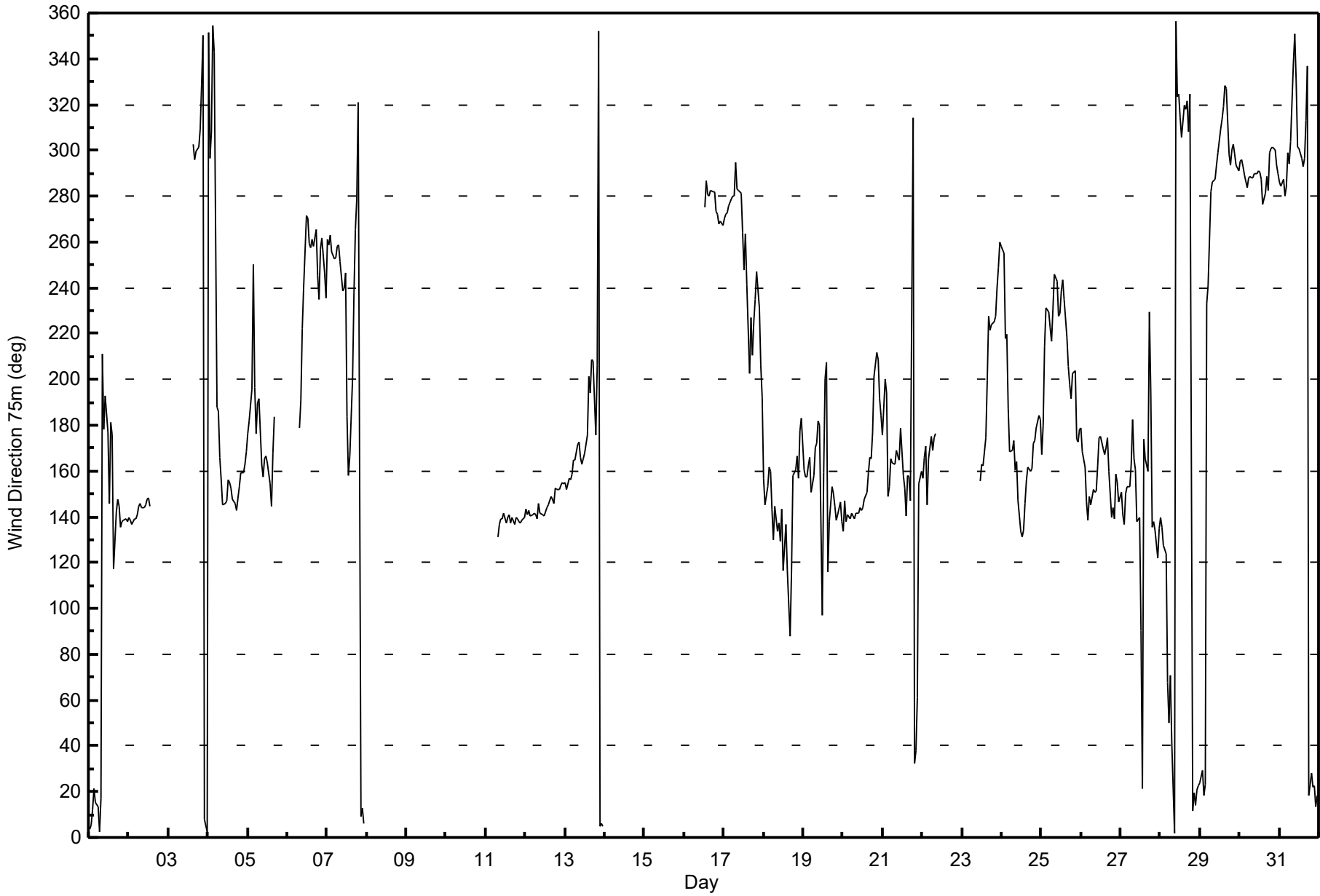
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 75m (WD75) - deg
Mannix - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 89 deg on Dec 19 14:00	Hours of Data: 539
Minimum Value: 2 deg on Dec 17 04:00	Hours of Missing Data: 205
	Hours of Calibration: 0
	Percent Operational Time: 72.5
Percentiles: P ₁ = 3 P ₁₀ = 4 Q ₁ = 5 Median = 7 Q ₃ = 11 P ₉₀ = 19 P ₉₉ = 55	

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	12	7	5	7	10	6	14	12	88	12	9	47	23	36	20	18	12	7	7	7	7	4	4	4	88
2-Dec	5	5	5	7	6	6	6	6	6	7	8	8	9	7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	9
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	7	5	5	5	6	11	18	8	9	18
4-Dec	13	31	20	20	75	46	17	5	6	5	7	12	9	7	6	6	7	6	8	5	5	3	4	75	
5-Dec	4	3	7	41	24	10	12	5	8	4	5	9	6	5	6	10	9	UO	UO	UO	UO	UO	UO	41	
6-Dec	UO	UO	UO	UO	UO	UO	UO	8	15	13	24	8	7	5	5	6	7	8	6	12	12	11	8	8	24
7-Dec	9	7	6	6	5	5	3	5	4	8	5	23	16	6	9	39	10	18	11	24	16	8	7	UO	39
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	10	6	7	6	8	6	6	6	5	5	8	7	5	5	5	5	4	10
12-Dec	5	4	5	5	4	5	7	6	5	6	6	6	6	6	7	7	6	5	5	3	5	4	4	3	7
13-Dec	3	3	6	3	4	3	2	3	3	4	3	3	4	11	5	7	10	29	28	26	28	9	8	11	29
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	7	6	7	7	4	5	6	4	5	4	5	4	7
17-Dec	5	5	4	2	3	4	5	7	6	10	10	13	11	12	25	20	10	8	8	16	8	7	6	16	25
18-Dec	15	8	8	8	8	9	15	11	17	11	18	14	17	52	33	12	14	19	8	6	15	6	7	5	52
19-Dec	5	3	6	7	5	6	4	9	7	9	24	79	26	89	42	32	19	16	8	8	6	7	7	5	89
20-Dec	8	8	4	6	6	5	4	4	4	5	6	8	8	7	7	7	4	5	7	3	4	4	6	16	16
21-Dec	12	8	42	9	10	3	4	5	10	3	6	15	29	21	21	12	14	61	30	18	14	11	32	5	61
22-Dec	18	10	40	13	6	5	5	7	10	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	40
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5	4	7	4	18	4	6	6	8	10	8	8	8	18
24-Dec	6	7	28	15	8	9	10	5	7	9	12	9	10	7	8	8	15	8	6	11	4	6	8	14	28
25-Dec	4	9	11	6	8	8	7	9	13	12	14	10	9	7	6	12	8	4	7	6	10	13	10	9	14
26-Dec	6	3	3	7	4	5	6	4	2	5	4	4	5	6	5	4	7	11	4	5	5	12	10	5	12
27-Dec	10	11	6	15	6	5	11	21	9	27	8	12	47	56	41	8	15	21	38	12	5	12	14	7	56
28-Dec	5	6	19	29	18	11	19	49	12	20	11	9	12	11	12	14	8	8	15	12	7	7	6	8	49
29-Dec	9	8	9	16	53	6	16	6	9	4	6	11	14	8	4	4	8	17	9	4	5	5	5	5	53
30-Dec	6	6	6	5	5	5	6	6	6	6	5	6	6	7	6	7	5	6	6	4	4	6	5	5	7
31-Dec	5	6	5	4	5	5	6	11	10	8	10	8	7	6	6	7	10	10	9	8	8	8	7	6	11
Diurnal Maximum																									
18 31 42 41 75 46 19 49 88 27 24 79 47 89 42 39 19 61 38 26 28 18 32 16																									

UO - Unstable Operation





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 90m (WD90) - deg
Mannix - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 91 deg on Dec 1 09:00			Hours of Data:	549
Minimum Value: 2 deg on Dec 19 01:00			Hours of Missing Data:	195
			Hours of Calibration:	0
Percentiles: P ₁ = 2 P ₁₀ = 4 Q ₁ = 5 Median = 7 Q ₃ = 11 P ₉₀ = 16 P ₉₉ = 57			Percent Operational Time:	73.8

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-Dec	11	7	5	6	9	6	11	11	91	9	11	49	21	37	18	16	8	5	5	6	5	4	4	4	91
2-Dec	4	7	5	8	6	5	6	5	6	7	8	8	9	7	7	6	7	7	4	6	3	6	UO	UO	9
3-Dec	UO	UO	UO	UO	UO	UO	UO	10	5	13	5	7	UO	7	9	7	5	5	4	6	7	15	7	9	15
4-Dec	12	20	17	15	44	44	14	7	6	5	7	13	9	7	5	5	6	7	6	7	5	4	3	3	44
5-Dec	4	3	6	25	23	13	13	4	12	6	7	12	5	6	7	12	9	6	UO	UO	UO	UO	UO	UO	25
6-Dec	UO	UO	UO	UO	UO	UO	UO	11	14	13	18	7	6	5	5	5	7	8	6	12	10	10	8	8	18
7-Dec	9	7	6	6	5	6	5	6	5	8	5	15	16	9	9	39	11	18	10	20	16	9	6	UO	39
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	5	5	5	7	7	4	4	4	5	4	7
12-Dec	4	4	5	5	3	4	6	5	5	6	6	6	6	7	6	7	6	4	5	3	4	3	3	2	7
13-Dec	2	3	5	2	4	3	2	3	3	4	3	3	4	12	4	6	9	53	62	28	20	10	6	9	62
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	6	5	6	6	3	4	5	3	4	4	4	4	6
17-Dec	5	4	4	2	2	4	5	9	7	12	8	15	10	9	21	13	9	8	8	17	9	6	7	11	21
18-Dec	22	11	10	9	5	9	10	8	12	9	16	12	10	17	15	7	7	11	8	4	15	7	6	9	22
19-Dec	2	3	5	5	4	7	3	11	10	21	28	63	61	77	40	33	15	19	7	8	6	6	7	4	77
20-Dec	5	8	6	7	5	5	4	4	4	5	6	8	8	7	6	7	4	5	6	3	4	4	6	18	18
21-Dec	10	14	38	14	16	6	6	4	9	5	6	13	30	11	23	11	12	52	27	24	15	11	22	4	52
22-Dec	11	7	32	11	8	6	5	6	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	32
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	4	3	9	5	16	4	5	5	7	10	8	8	8	16
24-Dec	7	7	23	12	7	11	11	6	8	8	11	5	6	5	9	7	15	9	7	11	5	7	9	14	23
25-Dec	5	9	8	5	7	8	7	9	13	11	11	9	9	7	6	11	7	3	7	5	7	15	12	11	15
26-Dec	7	4	3	7	2	5	7	5	2	4	5	3	5	7	10	4	10	13	8	6	5	11	11	3	13
27-Dec	11	11	4	11	9	7	17	25	7	26	6	9	29	40	51	7	13	23	37	10	5	12	11	6	51
28-Dec	5	7	16	22	18	13	22	64	10	15	10	8	12	11	11	9	6	9	14	12	6	6	6	7	64
29-Dec	8	9	9	16	42	10	13	4	7	3	6	10	12	7	4	3	5	14	6	4	5	4	4	5	42
30-Dec	6	5	5	5	4	5	5	5	5	5	5	6	6	7	6	6	5	6	5	4	4	6	5	5	7
31-Dec	4	5	5	4	4	4	6	10	8	7	9	7	7	6	6	7	11	8	9	9	8	7	7	5	11
	22	20	38	25	44	44	22	64	91	26	28	63	61	77	51	39	15	53	62	28	20	15	22	18	

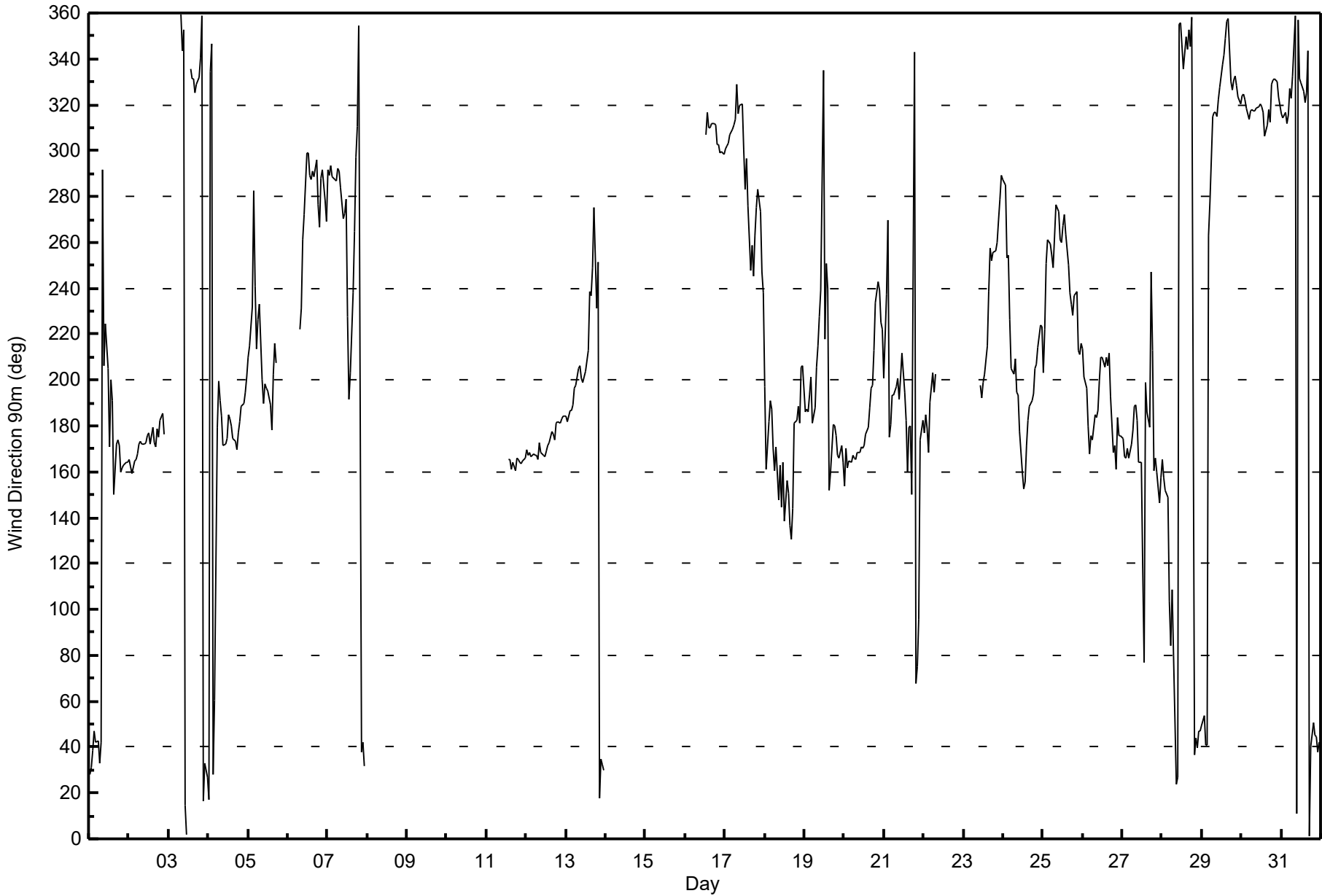
Diurnal Maximum

UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 90m (WD90) - deg
Mannix - December 2024





Maximum Value: 5.7 km/h on Dec 23 14:00 Maximum Daily Average: 1.0 km/h on Dec 6																						Hours in Service: 744 Hours of Data: 717					
Minimum Value: -1.4 km/h on Dec 3 00:00 Minimum Daily Average: -0.7 km/h on Dec 3 Maximum Diurnal Average: 0.3 km/h at hour 14 Minimum Diurnal Average: 0.0 km/h at hour 19 Monthly Average: 0.16 km/h Percentiles: P ₁ = -1.1 P ₁₀ = -0.3 Q ₁ = -0.1 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 0.6 P ₉₉ = 3.0																						Hours of Missing Data: 27 Hours of Calibration: 0 Percent Operational Time: 96.4					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	-0.2	-0.1	-0.2	-0.2	-0.1	-0.2	-0.1	0.0	-0.1	0.0	-0.1	0.2	0.2	0.1	0.0	0.2	0.5	0.3	0.3	0.3	0.4	0.4	0.3	0.5	0.1	0.5	
2-Dec	0.6	0.5	0.6	0.4	0.4	0.6	0.5	0.5	0.6	0.6	0.4	0.5	0.6	0.5	0.0	-0.6	-0.2	-0.4	-0.6	-0.9	-0.9	-0.9	-1.3	-1.4	0.0	0.6	
3-Dec	-1.0	-0.8	-1.1	-0.9	-1.2	-1.2	-1.3	-1.2	-1.1	-0.6	-0.5	-0.4	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6	-0.4	-0.2	-0.1	-0.2	-0.2	0.0	-0.7	0.0	
4-Dec	-0.2	0.0	-0.1	-0.1	-0.2	-0.3	0.0	0.3	0.5	0.3	0.5	0.6	0.4	0.6	0.5	0.4	0.8	0.8	0.6	0.7	0.8	0.7	0.8	0.7	0.4	0.8	
5-Dec	0.5	0.5	0.0	0.1	0.1	0.5	0.3	0.3	0.4	0.6	0.5	0.4	0.5	0.6	0.4	0.3	0.2	-1.2	0.7	2.7	2.8	3.2	3.0	0.7	3.2		
6-Dec	2.9	3.0	3.5	3.8	3.6	3.6	3.0	1.4	0.6	2.8	-0.3	-0.2	-0.3	-0.4	-0.4	-0.4	-0.3	-0.3	-0.1	-0.1	-0.1	-0.2	-0.4	1.0	3.8		
7-Dec	-0.4	-0.5	-0.5	-0.5	-0.5	-0.4	-0.5	-0.4	-0.4	-0.4	-0.4	0.0	0.2	0.4	0.3	0.0	-0.1	0.0	-0.1	-0.2	-0.3	-0.3	-0.1	-0.1	-0.2	0.4	
8-Dec	-0.1	0.2	0.7	-0.1	-0.2	-0.1	-0.3	-0.6	-0.4	-0.2	-0.4	-0.1	0.0	0.0	0.1	0.1	-0.1	0.3	0.3	0.4	0.1	0.2	0.2	0.2	0.0	0.7	
9-Dec	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	-0.2	-0.2	-0.1	-0.2	0.0	-0.2	-0.2	0.1	-0.1	-0.1	-0.2	0.0	0.3	
10-Dec	-0.1	-0.1	-0.1	-0.2	0.0	-0.1	-0.2	-0.1	0.1	0.0	0.1	0.4	0.3	0.2	0.1	0.1	0.3	0.5	0.6	0.3	0.3	0.4	0.5	0.3	0.2	0.6	
11-Dec	0.3	0.3	0.3	0.3	0.6	0.9	0.5	0.5	0.6	0.6	0.5	0.5	0.4	0.4	0.6	0.2	0.5	0.4	0.5	0.7	0.6	0.6	0.5	0.7	0.5	0.9	
12-Dec	0.6	0.6	0.7	0.6	0.5	0.5	0.7	0.6	0.5	0.5	0.7	0.6	0.6	0.7	0.8	0.7	0.7	0.8	0.6	0.5	0.7	0.6	0.7	0.6	0.6	0.8	
13-Dec	0.6	0.6	0.5	0.6	0.7	0.6	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.2	0.4	0.2	0.1	0.2	0.0	-0.1	0.0	-0.1	-0.1	0.4	0.8		
14-Dec	-0.2	0.1	0.1	-0.1	0.1	0.5	1.9	UO	UO	UO	UO	UO	UO	UO	UO	1.9	1.1	0.5	-0.2	-0.1	-0.3	-0.2	-0.2	-0.1	--	1.9	
15-Dec	0.0	-0.2	-0.1	-0.2	-0.3	-0.2	-0.2	-0.2	-0.2	-0.2	0.0	-0.1	-0.3	-0.2	-0.2	-0.2	0.1	-0.2	-0.2	0.0	0.1	0.0	0.1	-0.1	-0.1	0.1	
16-Dec	0.1	0.0	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.3	-0.3	-0.2	-0.4	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.3	-0.3	-0.2	0.1	
17-Dec	-0.3	-0.2	-0.2	-0.2	-0.2	-0.4	-0.5	-0.3	0.0	-0.2	-0.1	-0.2	0.1	-0.2	0.2	0.1	-0.1	0.0	-0.1	-0.1	-0.1	0.0	0.1	0.3	-0.1	0.3	
18-Dec	0.3	0.2	0.2	0.5	0.1	0.4	-0.1	-0.1	0.1	0.2	0.1	0.2	0.2	-0.1	0.1	0.1	-0.1	-0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.5	
19-Dec	0.2	0.2	0.4	0.3	0.4	0.5	0.4	0.2	0.3	0.1	0.1	0.3	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.6	0.2	0.6	
20-Dec	0.5	-0.2	0.3	0.7	0.1	0.4	0.3	0.7	0.6	0.8	0.6	0.6	0.9	0.5	0.6	0.5	0.4	0.5	0.4	0.0	-0.1	0.0	0.0	0.2	0.4	0.9	
21-Dec	0.2	-0.1	0.2	0.3	0.4	0.4	0.1	0.1	0.0	0.4	0.1	0.1	0.4	0.0	0.2	-0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	-0.1	0.1	0.4	
22-Dec	-0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.4	0.6	0.6	0.2	0.5	1.6	3.0	UO	UO	UO	UO	UO	UO	0.4	3.0	
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	5.7	3.2	2.1	-0.1	0.0	0.0	-0.1	-0.3	-0.4	-0.6	--	5.7		
24-Dec	-0.4	-0.4	-0.1	0.0	0.4	0.5	0.5	0.6	0.6	0.4	0.6	0.6	0.5	0.8	0.5	0.1	0.2	0.3	0.4	0.3	0.4	0.5	0.5	0.5	0.3	0.8	
25-Dec	0.5	0.6	0.2	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	0.0	0.2	0.1	-0.4	-0.5	-0.4	-0.3	-0.2	-0.2	0.3	0.3	0.1	0.7	0.6	0.4	0.0	0.7	
26-Dec	0.4	0.4	0.3	0.3	0.5	0.2	0.2	0.3	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.3	0.1	-0.1	0.4	0.1	0.3	0.5	
27-Dec	0.0	0.1	0.1	-0.2	0.1	-0.1	-0.3	-0.1	-0.2	-0.2	0.3	-0.2	0.0	0.1	0.0	-0.2	0.0	0.0	0.1	0.5	0.5	0.5	0.8	0.2	0.1	0.8	
28-Dec	0.2	0.2	0.4	0.3	0.1	0.1	0.2	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	-0.3	-0.2	0.0	0.0	0.4	
29-Dec	-0.2	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	-0.2	-0.2	0.0	0.1	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.1	
30-Dec	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.3	-0.2	-0.2	-0.5	-0.2	-0.3	-0.2	-0.3	-0.2	-0.2	-0.4	-0.3	-0.2	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1
31-Dec	-0.2	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	-0.1	-0.1	-0.2	0.0	-0.1	-0.1	-0.1	-0.2	-0.2	0.0	0.1	0.0	0.3	-0.2	0.0	-0.1	0.3	
																								Diurnal Average			
																								Diurnal Maximum			
UO - Unstable Operation																											



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 3.1 km/h on Dec 3 07:00 Minimum Value: 0.1 km/h on Dec 29 05:00 Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.6 Median = 1.1 Q ₃ = 1.7 P ₉₀ = 2.1 P ₉₉ = 2.7																	Hours in Service: 744 Hours of Data: 717 Hours of Missing Data: 27 Hours of Calibration: 0 Percent Operational Time: 96.4								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1.4	1.5	1.7	1.0	0.9	0.8	0.5	0.3	0.3	0.4	0.6	0.6	0.7	0.6	0.4	0.4	0.6	0.4	0.7	1.2	1.3	1.6	1.4	1.5	1.7
2-Dec	1.5	1.7	1.9	1.8	1.5	1.6	1.5	1.3	1.5	1.4	1.4	1.4	1.2	1.5	1.9	2.0	1.9	1.9	2.0	1.8	1.8	1.8	1.9	1.7	2.0
3-Dec	1.5	1.3	1.8	1.9	2.7	2.7	3.1	2.7	2.7	2.5	2.4	2.6	2.0	2.5	2.3	1.9	2.3	2.1	2.0	1.4	1.0	0.9	1.7	1.1	3.1
4-Dec	0.8	0.9	0.7	0.4	0.5	0.6	0.7	0.9	1.1	1.2	1.1	1.3	1.3	1.4	1.5	1.4	2.0	2.4	1.7	2.2	1.9	1.9	1.8	1.5	2.4
5-Dec	1.1	1.0	1.5	0.4	0.5	0.6	0.6	0.5	0.9	1.3	1.0	1.0	1.1	0.9	0.8	0.7	0.7	0.9	1.9	2.3	1.9	1.9	2.1	1.8	2.3
6-Dec	1.8	1.9	1.9	2.0	1.8	1.8	2.1	1.8	1.4	2.4	1.6	1.0	1.2	2.1	1.6	1.5	1.6	1.1	0.9	1.1	1.1	0.9	1.0	1.2	2.4
7-Dec	1.5	1.7	1.6	1.0	0.9	0.8	0.9	0.9	0.6	0.9	0.8	0.7	0.9	1.6	1.3	0.6	0.4	0.4	0.3	0.4	1.5	1.5	1.9	2.0	2.0
8-Dec	1.6	2.1	3.1	2.1	1.9	1.6	2.1	2.4	2.4	2.0	2.0	2.0	1.7	1.4	1.2	0.9	0.5	0.7	0.8	0.8	0.5	0.4	0.5	0.5	3.1
9-Dec	0.8	0.8	0.4	0.4	0.4	0.4	0.5	0.5	0.3	0.9	1.4	2.1	1.7	2.1	2.4	2.3	2.5	2.4	2.4	2.3	1.7	1.7	2.0	1.4	2.5
10-Dec	1.0	0.7	0.7	0.6	0.4	0.3	0.5	0.5	0.5	0.4	0.5	0.6	0.6	0.5	0.4	0.6	0.8	1.0	0.8	0.6	1.0	1.0	1.3	1.2	1.3
11-Dec	1.6	1.5	1.2	1.3	1.6	1.9	2.0	1.8	2.0	2.1	2.1	1.8	2.1	1.9	1.7	1.8	1.9	2.1	2.4	2.5	2.1	2.1	2.2	2.7	2.7
12-Dec	2.4	1.9	2.7	2.2	1.5	1.5	2.1	1.7	1.7	1.8	2.1	2.2	2.3	2.2	2.2	1.8	1.7	1.9	1.6	1.5	1.6	1.6	1.6	1.5	2.7
13-Dec	1.4	1.7	1.3	1.7	1.9	1.5	1.7	1.4	1.2	1.5	1.6	1.4	1.3	1.1	0.5	0.4	0.3	0.3	0.3	0.4	0.9	1.1	1.1	1.4	1.9
14-Dec	1.4	1.3	1.3	1.8	1.7	1.8	2.3	UO	UO	UO	UO	UO	UO	UO	UO	2.1	2.4	2.1	1.9	1.5	1.6	1.3	1.6	1.7	2.4
15-Dec	1.6	0.9	1.1	1.2	1.8	1.5	1.8	1.9	2.0	2.0	2.4	1.8	1.8	1.8	1.7	1.6	1.6	1.2	1.6	1.7	1.8	1.6	1.5	0.9	2.4
16-Dec	0.7	0.3	0.3	0.2	0.3	0.9	1.2	1.4	1.5	1.6	1.2	1.3	1.3	1.9	1.6	1.3	1.0	1.3	1.5	1.1	0.9	1.2	1.2	1.3	1.9
17-Dec	1.2	1.1	1.0	0.8	0.9	1.0	0.9	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.6	0.4	0.5	0.7	0.5	0.4	0.6	0.3	0.3	0.6	1.2
18-Dec	0.5	0.6	0.5	0.9	0.4	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.5	0.3	0.4	0.4	0.3	0.1	0.2	0.3	0.3	0.3	0.9
19-Dec	0.8	1.0	1.2	1.2	1.1	1.3	1.2	1.1	0.7	0.6	0.7	0.6	0.7	0.6	0.6	0.3	0.2	0.2	0.3	0.3	0.4	0.3	0.4	0.5	1.3
20-Dec	1.3	0.9	1.4	1.8	1.1	1.4	1.9	2.2	2.4	2.3	2.1	2.4	2.3	1.9	1.7	1.5	1.2	1.1	1.0	1.1	0.8	0.9	0.5	0.5	2.4
21-Dec	0.5	0.4	0.3	0.4	0.6	0.7	0.8	0.5	0.3	0.3	0.6	0.6	0.7	0.7	0.5	0.5	0.4	0.5	0.6	0.5	0.7	0.5	0.4	0.5	0.8
22-Dec	0.4	0.4	0.4	0.5	0.8	0.7	1.4	1.1	1.1	1.0	1.2	1.4	1.5	1.6	1.6	1.5	2.1	2.5	UO	UO	UO	UO	UO	UO	2.5
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.2	2.0	2.0	1.5	1.0	0.6	0.9	1.0	1.8	2.2	2.5	2.5
24-Dec	2.3	2.2	1.3	0.8	0.7	1.0	1.3	1.2	1.5	1.0	1.3	1.4	1.9	2.3	1.9	1.0	1.3	1.1	1.2	1.0	0.9	0.9	0.8	0.7	2.3
25-Dec	1.0	1.0	0.7	0.9	1.1	0.9	1.2	1.6	1.0	1.3	1.2	1.3	1.7	2.3	1.9	1.3	1.2	1.2	0.9	0.9	0.8	1.0	1.2	1.2	2.3
26-Dec	1.0	1.0	0.6	0.7	0.6	0.6	0.9	0.5	0.6	0.5	0.6	0.8	0.8	1.1	0.8	0.4	0.5	0.5	0.4	0.4	0.5	0.6	0.5	0.3	1.1
27-Dec	0.6	0.7	0.5	0.7	0.5	0.5	0.5	0.3	0.6	0.9	0.8	0.5	0.4	0.4	0.5	0.7	0.4	0.4	0.4	0.8	1.1	0.9	1.3	1.3	1.3
28-Dec	1.1	0.9	0.7	0.7	0.5	0.6	0.6	0.3	0.3	0.3	0.5	0.7	0.7	0.6	0.6	0.4	0.4	0.4	0.6	1.0	1.7	1.7	1.1	1.0	1.7
29-Dec	0.9	1.0	0.7	0.3	0.1	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.9	0.9	0.9	0.6	0.5	0.7	0.5	0.8	1.3	1.3	1.4	1.4	1.4
30-Dec	1.5	1.6	1.8	1.9	1.6	1.8	2.0	2.1	2.1	2.2	2.1	2.4	2.3	1.8	1.4	1.4	1.6	1.3	1.8	1.5	1.4	1.3	1.2	1.5	2.4
31-Dec	1.4	1.2	1.3	0.7	0.5	0.8	1.2	1.1	0.7	0.4	0.5	0.9	1.3	1.5	1.5	1.3	1.1	0.7	0.7	0.9	1.1	1.3	1.1	1.2	1.5
																	2.4 2.2 3.1 2.2 2.7 2.7 3.1 2.7 2.7 2.5 2.4 2.6 2.3 2.5 2.4 2.3 2.5 2.5 2.4 2.5 2.1 2.1 2.2 2.7								
Diurnal Maximum																									
UO - Unstable Operation																									



Maximum Value: 1.4 km/h on Dec 27 23:00		Maximum Daily Average: 0.5 km/h on Dec 12		Hours in Service: 744																								
Minimum Value: -1.2 km/h on Dec 17 07:00		Minimum Daily Average: -0.6 km/h on Dec 30		Hours of Data: 649																								
Maximum Diurnal Average: 0.0 km/h at hour 23		Minimum Diurnal Average: -0.2 km/h at hour 16		Hours of Missing Data: 95																								
Monthly Average: -0.05 km/h		Percentiles: P ₁ = -1.0 P ₁₀ = -0.7 Q ₁ = -0.3 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.5 P ₉₉ = 0.8		Hours of Calibration: 0																								
				Percent Operational Time: 87.2																								
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-Dec	0.0	0.2	0.0	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.0	0.2	0.2	-0.2	0.1	0.5	0.1	0.1	0.0	0.3	0.3	-0.1	0.3	0.0	0.5		
2-Dec	0.4	0.2	0.2	0.1	0.2	0.3	0.4	0.3	0.4	0.4	0.2	0.4	0.4	0.4	UO	UO	-0.3	-0.4	-0.6	-0.4	-0.8	-0.6	0.0	-0.4	0.0	0.4		
3-Dec	-0.3	0.0	-0.6	-0.5	0.7	0.2	1.0	-1.1	UO	UO	UO	UO	UO	UO	-1.2	-0.8	-0.9	-0.8	-0.7	-0.4	0.1	-0.3	-0.2	0.1	-0.3	1.0		
4-Dec	-0.5	-0.1	-0.6	-0.3	-0.4	-0.4	-0.1	-0.1	0.1	0.0	0.1	0.3	0.2	0.5	0.3	0.2	0.8	0.7	0.5	0.6	0.5	0.7	0.5	0.3	0.2	0.8		
5-Dec	0.1	0.0	-0.4	-0.1	-0.2	0.1	-0.1	-0.2	0.4	0.7	0.4	0.0	0.3	0.5	0.4	0.2	0.1	0.0	UO	UO	UO	UO	UO	UO	UO	0.7		
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.2	-0.2	-0.6	-0.8	-0.8	-0.8	-1.0	-0.6	-0.8	-0.8	-0.4	-0.4	-0.3	-0.5	-0.7	--	-0.2		
7-Dec	-0.6	-0.8	-0.8	-1.0	-1.0	-0.9	-0.9	-0.8	-0.9	-1.0	-0.9	-0.2	-0.1	0.5	0.4	-0.1	-0.4	-0.3	-0.3	-0.4	-0.1	-0.2	0.2	0.4	-0.4	0.5		
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.3	0.2	0.5	0.0	0.2	0.4	0.1	--	0.5	
9-Dec	0.1	-0.3	-0.3	-0.4	-0.5	-0.3	-0.3	-0.2	-0.2	0.1	0.4	0.5	0.4	0.2	0.3	0.2	0.5	0.5	0.0	0.1	0.2	0.1	0.3	0.0	0.1	0.5		
10-Dec	-0.1	-0.1	0.3	-0.1	-0.1	-0.1	-0.3	-0.4	-0.3	-0.2	-0.1	0.2	0.4	0.1	0.1	0.1	0.2	0.4	0.5	0.3	0.1	0.2	0.1	0.1	0.0	0.5		
11-Dec	-0.1	-0.2	-0.3	-0.2	0.3	0.9	0.1	0.1	0.3	0.4	0.2	0.5	0.2	0.1	0.4	0.0	0.3	0.1	0.2	0.5	0.5	0.5	0.3	0.5	0.2	0.9		
12-Dec	0.5	0.4	0.8	0.4	0.4	0.3	0.6	0.1	0.4	0.2	0.6	0.5	0.4	0.6	0.8	0.6	0.6	0.7	0.5	0.6	0.7	0.5	0.5	0.5	0.5	0.8		
13-Dec	0.5	0.6	0.2	0.6	0.6	0.4	0.7	0.5	0.2	0.7	0.6	0.5	0.3	0.3	-0.2	-0.1	-0.2	-0.1	0.0	-0.2	0.0	0.0	0.1	0.1	0.2	0.7		
14-Dec	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.0	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.2	0.2	0.4	0.6	0.2	0.9	0.0	--	0.9
16-Dec	0.0	-0.1	0.1	-0.1	-0.2	-0.4	-0.2	-0.4	-0.3	-0.1	-0.5	-0.7	-0.8	-0.7	-0.9	-0.8	-0.8	-0.7	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.5	0.1	
17-Dec	-0.6	-0.6	-0.5	-0.6	-0.6	-0.8	-1.2	-0.9	-0.1	-0.4	-0.4	-0.4	-0.2	-0.5	0.1	-0.1	-0.5	-0.4	-0.3	-0.4	-0.5	-0.4	-0.3	0.2	-0.4	0.2		
18-Dec	0.2	0.2	0.3	0.5	-0.1	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.2	-0.2	0.0	0.1	0.0	0.0	0.0	0.0	-0.2	0.0	-0.3	-0.4	0.1	0.6		
19-Dec	-0.2	0.0	0.2	0.1	0.2	0.6	0.2	0.0	0.0	-0.2	-0.1	0.1	0.1	-0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.7	0.1	0.7		
20-Dec	0.6	-0.1	0.2	0.6	0.1	0.3	0.4	0.5	0.5	0.8	0.4	0.3	0.7	0.5	0.4	0.3	0.1	0.2	0.1	-0.6	-0.6	-0.6	-0.3	-0.1	0.2	0.8		
21-Dec	-0.2	-0.4	0.1	0.4	0.5	0.4	0.0	-0.1	-0.1	0.1	-0.2	0.0	0.4	-0.2	0.1	-0.1	0.0	-0.1	0.0	0.1	0.0	0.0	-0.1	-0.3	0.0	0.5		
22-Dec	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.1	-0.1	-0.2	-0.1	0.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.1	0.1	0.3	0.4	--	0.4		
23-Dec	0.3	0.3	0.3	0.2	0.2	-0.1	0.0	0.3	0.4	0.5	UO	UO	UO	UO	UO	UO	-1.1	-0.5	-0.5	-0.7	-0.7	-1.0	-1.1	-1.1	-0.2	0.5		
24-Dec	-0.9	-0.7	-0.3	-0.5	0.0	0.4	0.3	0.3	0.7	0.2	0.5	0.6	0.6	0.8	0.4	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.8		
25-Dec	0.3	0.3	-0.3	-0.9	-0.6	-0.8	-0.9	-0.6	-0.3	-0.3	0.0	-0.2	-0.7	-1.0	-0.8	-0.8	-0.8	-0.4	-0.3	-0.4	-0.5	0.4	0.4	0.2	-0.4	0.4		
26-Dec	0.0	0.1	0.4	0.6	0.5	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.5	0.1	0.1	0.6	0.2	0.2	0.2	-0.2	0.1	0.1	0.2	0.6		
27-Dec	0.0	0.3	0.5	-0.1	-0.1	-0.2	-0.4	-0.4	-0.3	-0.3	0.1	-0.2	-0.1	-0.2	-0.2	-0.5	-0.1	-0.1	0.1	0.6	0.2	0.5	1.4	-0.1	0.0	1.4		
28-Dec	-0.1	-0.1	0.4	0.4	0.3	0.5	0.2	0.1	0.0	0.0	-0.2	-0.2	-0.2	0.0	0.0	-0.2	-0.3	-0.3	-0.2	0.0	0.5	0.1	0.0	0.1	0.0	0.5		
29-Dec	0.0	0.2	-0.1	0.0	-0.1	-0.2	-0.2	-0.1	-0.1	-0.3	-0.2	-0.2	-0.2	-0.1	-0.4	-0.5	-0.2	-0.1	-0.1	-0.4	-0.4	-0.5	-0.5	-0.7	-0.2	0.2		
30-Dec	-0.6	-0.6	-0.6	-0.7	-0.7	-0.7	-0.8	-0.6	-0.9	-0.8	-0.7	-0.9	-0.8	-0.7	-0.5	-0.7	-0.6	-0.5	-0.7	-0.6	-0.5	-0.4	-0.5	-0.6	-0.6	-0.4	-0.4	
31-Dec	-0.6	-0.6	-0.6	-0.4	-0.5	-0.4	-0.5	-0.2	-0.1	-0.3	-0.2	-0.3	-0.2	-0.5	-0.5	-0.4	-0.3	-0.4	0.1	0.3	0.3	0.5	-0.1	0.1	-0.2	0.5		
																								Diurnal Average				
																								Diurnal Maximum				
UO - Unstable Operation																												



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																	Hours in Service: 744									
Maximum Value: 3.2 km/h on Dec 3 07:00																	Hours of Data: 649									
Minimum Value: 0.1 km/h on Dec 28 09:00																	Hours of Missing Data: 95									
Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.5 Median = 1.0 Q ₃ = 1.6 P ₉₀ = 2.1 P ₉₉ = 2.9																	Hours of Calibration: 0									
																	Percent Operational Time: 87.2									
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-Dec	1.3	1.6	1.5	1.0	0.8	0.9	0.5	0.4	0.3	0.2	0.4	0.8	0.9	0.8	0.4	0.5	0.7	0.4	0.8	1.3	1.7	1.8	1.4	1.6	1.8	
2-Dec	1.9	1.7	1.9	1.9	1.7	1.9	1.9	1.8	1.8	1.9	1.8	1.7	1.6	1.9	UO	UO	1.8	1.4	1.2	2.0	0.9	1.3	1.0	0.5	2.0	
3-Dec	0.6	0.6	1.4	1.6	2.6	2.2	3.2	3.1	UO	UO	UO	UO	UO	UO	2.6	2.1	2.4	2.2	2.0	1.3	1.1	1.2	1.8	1.5	3.2	
4-Dec	1.2	1.2	1.0	0.6	0.5	0.3	0.7	0.9	1.3	1.5	1.4	1.7	1.6	1.7	1.8	1.9	2.7	2.9	2.0	2.4	2.0	2.1	1.8	1.3	2.9	
5-Dec	1.0	0.8	1.1	0.6	0.5	0.4	0.6	0.3	0.6	1.2	0.8	0.7	0.8	1.0	1.0	0.5	0.5	0.5	UO	UO	UO	UO	UO	UO	1.2	
6-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.7	1.3	1.3	1.3	1.9	1.5	1.5	1.6	1.2	0.8	1.1	1.3	1.0	1.0	0.8	1.9	
7-Dec	1.4	1.6	1.7	0.8	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.4	0.6	1.3	1.1	0.5	0.4	0.4	0.3	1.3	1.0	1.8	2.0	2.0		
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1	0.9	0.9	0.6	0.6	0.7	0.6	1.1	
9-Dec	0.8	0.6	0.4	0.3	0.4	0.4	0.4	0.4	0.2	1.1	1.6	2.0	1.8	2.3	2.4	2.6	2.8	2.6	2.7	2.6	2.1	2.0	2.2	1.3	2.8	
10-Dec	1.1	1.0	0.9	0.7	0.6	0.3	0.3	0.4	0.7	0.4	0.7	0.5	0.7	0.4	0.4	0.5	0.5	1.2	1.1	0.8	1.1	1.2	1.5	1.5	1.5	
11-Dec	1.6	1.4	1.2	1.4	2.0	2.7	2.0	2.0	2.0	2.3	2.3	2.4	2.3	2.0	2.0	1.8	2.2	2.5	2.8	2.8	2.2	2.2	2.4	2.9	2.9	
12-Dec	2.7	2.2	3.0	2.4	1.7	1.7	2.6	2.1	2.0	2.2	2.5	2.6	2.7	2.7	2.6	2.1	2.1	2.2	1.8	1.5	1.8	1.6	1.6	1.6	3.0	
13-Dec	1.5	1.7	1.2	1.7	2.0	1.7	1.7	1.0	1.0	1.4	1.5	1.2	1.1	0.9	0.3	0.3	0.4	0.4	0.4	0.4	0.7	1.1	1.4	1.7	2.0	
14-Dec	1.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1	
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	1.8	1.9	1.9	1.6	1.7	0.9	1.9
16-Dec	0.9	0.3	0.4	0.2	0.2	0.8	1.1	1.2	1.4	1.4	1.1	1.3	1.4	1.8	1.6	1.4	1.0	1.3	1.5	1.2	1.1	1.2	1.3	1.2	1.8	
17-Dec	1.3	1.2	1.0	0.7	0.8	0.8	0.9	0.5	0.4	0.3	0.2	0.5	0.8	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.5	1.3	
18-Dec	0.6	0.8	0.4	0.6	0.3	0.8	0.4	0.5	0.7	0.6	0.7	0.6	0.5	0.3	0.3	0.5	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.8	
19-Dec	0.4	0.6	1.3	1.0	0.9	1.5	1.1	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.6	0.2	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.7	1.5	
20-Dec	1.6	0.7	1.2	1.9	1.3	1.5	2.0	2.2	2.6	2.7	2.3	2.9	2.7	2.4	2.1	1.6	1.3	1.1	0.8	0.5	0.4	0.6	0.4	0.3	2.9	
21-Dec	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.4	0.3	0.2	0.5	0.6	0.7	0.6	0.6	0.3	0.4	0.6	0.4	0.4	0.6	0.6	0.4	0.6	0.7	
22-Dec	0.5	0.3	0.5	0.6	0.6	0.6	1.2	0.9	0.9	0.9	1.0	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.3	0.6	0.4	0.5	1.3	
23-Dec	0.6	0.4	0.4	0.6	0.8	1.0	0.5	0.4	0.5	0.8	UO	UO	UO	UO	UO	UO	1.3	1.2	1.0	1.3	1.5	2.2	2.7	3.0	3.0	
24-Dec	2.5	2.5	1.8	1.1	0.5	1.0	0.9	0.9	1.2	0.9	1.3	1.4	2.0	2.2	1.9	0.9	1.0	0.9	0.9	0.9	0.7	0.6	0.5	0.6	2.5	
25-Dec	0.9	0.9	0.9	1.2	1.5	1.3	1.2	1.8	1.5	1.8	1.8	1.7	2.2	2.6	2.0	1.2	0.8	0.5	0.6	0.8	0.7	0.8	0.9	0.8	2.6	
26-Dec	0.8	0.7	0.5	0.7	0.5	0.3	0.6	0.5	0.3	0.3	0.4	0.5	0.5	0.9	0.6	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.9	
27-Dec	0.4	0.6	0.4	0.3	0.3	0.3	0.2	0.4	0.5	1.1	0.8	0.5	0.4	0.2	0.4	0.4	0.3	0.6	0.6	1.1	1.1	1.2	1.6	1.2	1.6	
28-Dec	1.3	0.8	1.0	1.0	0.7	0.8	0.9	0.3	0.1	0.2	0.5	0.6	0.7	0.7	0.6	0.4	0.4	0.4	0.7	1.0	1.7	1.7	1.1	1.2	1.7	
29-Dec	1.0	1.1	0.9	0.5	0.2	0.2	0.5	0.3	0.3	0.2	0.4	0.4	0.9	0.9	0.6	0.5	0.6	1.1	0.6	0.7	1.2	1.2	1.4	1.4	1.4	
30-Dec	1.6	1.6	2.0	1.9	1.5	1.7	2.1	2.2	2.1	2.2	2.1	2.3	2.2	1.7	1.5	1.3	1.6	1.5	1.8	1.4	1.3	1.2	1.2	1.5	2.3	
31-Dec	1.3	1.3	1.3	0.7	0.5	0.8	1.1	1.0	0.7	0.5	0.6	1.0	1.5	1.4	1.5	1.5	1.1	0.7	0.7	1.2	1.3	1.6	1.1	1.3	1.6	
Diurnal Maximum																										
2.7 2.5 3.0 2.4 2.6 2.7 3.2 3.1 2.6 2.7 2.5 2.9 2.7 2.7 2.6 2.6 2.8 2.9 2.8 2.8 2.2 2.2 2.7 3.0																										
UO - Unstable Operation																										



Maximum Value: 1.9 km/h on Dec 23 12:00 Maximum Daily Average: 0.4 km/h on Dec 13																								Hours in Service:	744	
Minimum Value: -0.9 km/h on Dec 17 07:00 Minimum Daily Average: 0.0 km/h on Dec 20																								Hours of Data:	539	
Maximum Diurnal Average: 0.3 km/h at hour 14 Minimum Diurnal Average: 0.1 km/h at hour 3																								Hours of Missing Data:	205	
Monthly Average: 0.18 km/h Percentiles: $P_1 = -0.6$ $P_{10} = -0.2$ $Q_1 = 0.0$ Median = 0.2 $Q_3 = 0.3$ $P_{90} = 0.5$ $P_{99} = 0.9$																								Hours of Calibration:	0	
																								Percent Operational Time:	72.5	
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-Dec	0.0	0.2	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.1	0.2	0.1	0.2	0.4	0.4	0.1	0.1	0.5	0.1	-0.1	-0.5	-0.3	-0.2	-0.3	-0.3	0.0	0.5
2-Dec	-0.1	-0.4	-0.8	-0.4	-0.4	-0.2	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.2
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.2	0.3	0.5	0.5	0.3	0.9	0.2	-0.1	0.4	--	0.9
4-Dec	-0.2	0.3	-0.1	0.2	0.1	0.2	0.4	0.4	0.3	-0.2	0.0	0.2	0.3	0.4	0.2	0.0	0.4	-0.2	0.2	0.3	0.7	0.9	0.9	0.6	0.3	0.9
5-Dec	0.5	0.4	0.0	0.2	0.1	0.4	0.3	0.0	0.5	0.9	0.6	0.3	0.5	0.6	0.3	0.5	0.6	UO	UO	UO	UO	UO	UO	--	0.9	
6-Dec	UO	UO	UO	UO	UO	UO	UO	0.4	0.2	0.0	0.2	0.0	0.0	0.5	0.2	0.2	-0.3	0.0	0.0	0.3	0.2	0.2	0.0	0.0	--	0.5
7-Dec	0.1	0.1	0.0	-0.2	0.0	0.0	0.1	0.1	0.0	-0.1	-0.1	0.2	0.1	0.8	0.5	0.3	0.0	0.1	0.1	0.1	-0.1	-0.3	0.0	UO	0.1	0.8
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	-0.1	-0.5	-0.2	0.0	0.1	-0.5	-0.4	-0.2	-0.6	-0.4	-0.6	-0.5	-0.4	-0.4	-0.5	-0.4	-0.3	--	0.1
12-Dec	0.0	-0.2	-0.2	-0.4	-0.1	-0.1	-0.1	-0.4	-0.1	-0.3	-0.1	-0.2	-0.2	0.0	0.3	0.4	0.3	0.2	0.4	0.3	0.3	0.3	0.5	0.5	0.0	0.5
13-Dec	0.5	0.3	0.4	0.8	1.0	0.9	1.2	0.8	0.6	1.0	0.9	0.5	0.2	0.5	0.0	0.1	0.0	0.1	0.3	0.1	0.3	0.0	0.1	0.0	0.4	1.2
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.0	--	0.2
17-Dec	0.1	0.1	0.3	0.1	0.3	-0.3	-0.9	-0.3	0.8	0.3	0.3	0.1	0.1	-0.1	0.3	0.0	-0.1	0.0	0.2	0.0	0.1	0.0	-0.1	0.3	0.1	0.8
18-Dec	0.3	0.2	0.4	0.7	0.4	0.2	0.0	-0.1	-0.2	-0.2	-0.2	0.2	0.4	0.3	0.2	-0.1	0.1	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.7
19-Dec	0.5	0.5	0.9	0.6	0.5	0.5	0.4	0.5	0.3	0.3	0.2	0.1	0.2	0.0	0.1	0.1	0.2	0.2	0.2	0.0	-0.1	-0.1	0.0	-0.1	0.3	0.9
20-Dec	-0.2	-0.1	-0.5	-0.2	-0.2	-0.2	-0.3	-0.4	-0.3	-0.1	-0.2	-0.3	0.0	0.4	0.2	0.6	0.5	0.5	0.3	-0.3	-0.1	-0.2	0.2	0.2	0.0	0.6
21-Dec	0.2	0.0	0.2	0.4	0.7	0.9	0.6	0.2	0.3	0.5	0.3	0.2	0.2	0.0	0.2	0.2	0.3	0.1	0.3	0.1	0.2	0.1	0.2	0.2	0.3	0.9
22-Dec	0.3	0.4	0.1	0.1	0.3	0.3	0.3	0.4	0.4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.4
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9	1.6	0.7	0.9	0.4	0.1	0.3	0.1	0.0	0.0	0.1	-0.1	0.2	--	1.9
24-Dec	0.3	0.3	0.1	0.0	0.2	0.5	0.5	0.7	0.8	0.8	0.2	0.1	-0.1	0.0	0.0	0.3	0.4	0.6	0.6	0.5	0.5	0.5	0.4	0.3	0.3	0.8
25-Dec	0.5	0.6	0.0	0.0	0.3	-0.1	0.0	0.4	0.3	0.5	0.8	0.6	0.3	0.2	0.3	-0.1	-0.2	-0.1	0.2	-0.1	-0.1	0.6	0.5	0.5	0.2	0.8
26-Dec	0.5	0.5	0.8	0.3	-0.1	0.1	0.0	0.2	0.2	0.2	0.6	0.5	0.5	0.6	0.5	0.4	0.4	0.7	0.0	0.0	0.0	0.2	0.3	0.1	0.3	0.8
27-Dec	0.3	0.0	-0.1	0.2	0.4	0.3	0.3	0.1	0.4	-0.1	-0.3	0.1	0.2	0.2	0.2	0.2	0.4	0.3	0.6	0.5	-0.2	0.3	1.5	-0.7	0.2	1.5
28-Dec	-0.6	-0.7	0.4	0.4	0.4	0.8	0.4	0.2	0.1	0.2	0.1	0.1	0.2	0.3	0.2	0.1	-0.1	0.1	0.1	0.2	0.6	0.3	-0.2	0.0	0.2	0.8
29-Dec	0.0	0.1	-0.2	0.0	0.1	0.0	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.3	-0.2	-0.3	0.1	0.2	0.8	0.4	0.3	0.5	0.4	0.1	0.2	0.8
30-Dec	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.5	0.2	0.4	0.4	0.3	0.3	0.3	0.4	0.3	0.2	0.3	0.4	0.5	0.4	0.3	0.3	0.2	0.3	0.5
31-Dec	0.0	0.2	0.0	0.2	0.1	0.2	0.2	0.5	0.1	0.0	-0.1	0.3	0.6	0.4	0.3	0.3	0.2	-0.2	0.3	0.3	0.3	0.3	0.0	0.0	0.2	0.6
																								Diurnal Average		
																								Diurnal Maximum		
UO - Unstable Operation																										



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.9 km/h on Dec 24 00:00		Hours in Service: 744 Hours of Data: 539 Hours of Missing Data: 205 Hours of Calibration: 0 Percent Operational Time: 72.5																							
Minimum Value: 0.1 km/h on Dec 29 05:00																									
Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 0.5 Median = 0.9 Q ₃ = 1.5 P ₉₀ = 2.0 P ₉₉ = 2.6																									
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-Dec	1.2	1.4	1.3	1.0	0.9	0.8	0.5	0.4	0.3	0.2	0.2	0.7	0.8	0.8	0.5	0.6	0.8	0.4	0.6	1.1	1.5	1.4	1.0	1.3	1.5
2-Dec	1.5	1.3	1.6	1.9	1.5	1.5	1.5	1.4	1.6	1.7	1.7	1.7	1.5	1.8	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.9
3-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.0	2.4	2.1	1.8	1.3	1.4	1.6	1.9	1.5	2.4
4-Dec	1.5	1.6	1.4	0.9	0.4	0.6	0.7	0.6	1.0	1.0	1.3	1.7	1.6	1.5	1.5	2.4	2.6	1.8	2.1	1.9	1.7	1.3	0.9	2.6	
5-Dec	0.9	0.8	0.9	0.9	0.6	0.4	0.3	0.4	0.5	0.7	0.7	0.7	0.5	0.6	0.7	0.4	0.4	UO	UO	UO	UO	UO	UO	0.9	
6-Dec	UO	UO	UO	UO	UO	UO	UO	1.1	1.3	1.0	1.8	1.4	1.5	1.8	1.5	1.5	1.7	1.3	1.0	1.3	1.5	1.1	1.2	1.0	1.8
7-Dec	1.5	1.7	1.8	0.8	0.4	0.3	0.3	0.4	0.7	0.6	0.5	0.4	0.5	0.9	0.8	0.5	0.5	0.5	0.5	0.9	0.9	2.3	UO	2.3	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	2.1	1.9	2.1	2.1	2.3	2.0	1.7	1.6	1.4	1.9	2.2	2.5	2.2	1.9	2.0	2.2	2.4	2.5
12-Dec	2.3	1.9	2.6	2.2	1.3	1.4	2.3	1.8	1.6	1.8	2.2	2.3	2.5	2.3	2.4	2.0	1.7	1.7	1.5	1.1	1.3	1.3	1.2	1.1	2.6
13-Dec	1.0	1.0	0.9	1.1	1.6	1.2	1.0	0.8	0.8	1.0	1.1	0.8	0.7	0.5	0.3	0.4	0.6	0.3	0.6	0.3	0.6	1.1	1.2	1.8	1.8
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.6	1.7	1.6	1.4	0.9	1.4	1.6	1.2	1.2	1.3	1.4	1.2	1.7
17-Dec	1.3	1.2	1.1	0.7	0.6	0.7	0.5	0.5	0.5	0.4	0.3	0.4	0.7	0.6	0.5	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	1.3
18-Dec	0.4	0.7	0.4	0.4	0.3	0.9	1.2	0.7	1.0	0.8	0.9	0.8	0.8	0.8	0.7	1.3	0.7	0.8	0.3	0.2	0.2	0.3	0.3	0.3	1.3
19-Dec	0.3	0.5	0.9	0.7	0.5	1.0	0.8	0.5	0.5	0.5	0.4	0.4	0.6	0.6	0.5	0.3	0.6	0.4	0.2	0.6	0.8	0.7	0.5	0.9	1.0
20-Dec	1.6	0.9	1.1	1.7	1.3	1.3	1.6	1.7	2.2	2.4	2.2	2.6	2.6	2.1	2.0	1.5	1.1	0.8	0.4	0.3	0.4	0.5	0.4	0.3	2.6
21-Dec	0.3	0.6	0.5	0.5	0.5	0.4	0.5	0.3	0.3	0.2	0.4	0.5	0.6	0.3	0.6	0.3	0.4	0.8	0.4	0.2	0.3	0.8	0.5	0.6	0.8
22-Dec	0.7	0.4	0.7	0.8	0.6	0.7	1.0	0.7	0.9	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.0
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.0	0.7	0.9	0.8	1.0	1.3	1.4	1.3	1.6	2.0	2.6	2.7	2.9	2.9
24-Dec	2.4	2.6	2.0	1.4	0.7	0.6	0.5	0.7	0.8	0.6	1.2	1.6	1.9	1.9	1.6	0.9	0.9	1.0	0.8	0.8	0.5	0.5	0.6	0.8	2.6
25-Dec	0.8	0.9	1.1	1.7	1.8	1.6	1.5	2.3	1.9	2.2	2.2	2.0	2.5	2.5	2.3	1.4	0.9	0.7	1.1	1.0	0.8	0.6	0.6	0.6	2.5
26-Dec	0.6	0.5	0.4	0.7	0.8	0.4	0.6	0.4	0.4	0.5	0.4	0.4	0.5	0.5	0.3	0.3	0.4	0.4	0.6	0.5	0.7	0.5	0.3	0.3	0.8
27-Dec	0.5	0.8	0.8	0.6	0.3	0.4	0.3	0.6	0.5	1.2	1.1	0.8	0.5	0.3	0.3	0.4	0.5	0.8	0.9	1.4	0.9	1.3	1.8	1.1	1.8
28-Dec	1.1	1.1	1.3	1.2	0.8	0.9	1.0	0.3	0.2	0.2	0.4	0.6	0.7	0.7	0.8	0.5	0.4	0.5	0.8	1.2	1.6	1.6	1.1	1.2	1.6
29-Dec	1.1	1.1	0.8	0.4	0.1	0.2	0.7	0.4	0.4	0.2	0.3	0.5	1.1	0.9	0.3	0.5	0.7	1.4	0.5	0.7	1.2	1.2	1.4	1.3	1.4
30-Dec	1.6	1.7	2.0	1.9	1.5	1.9	2.0	2.2	2.1	2.2	2.1	2.4	2.2	1.7	1.6	1.3	1.5	1.5	1.6	1.4	1.2	1.3	1.1	1.3	2.4
31-Dec	1.3	1.4	1.2	0.7	0.4	0.7	1.0	1.2	0.7	0.6	0.6	1.2	1.8	1.6	1.6	1.5	1.2	0.5	0.7	1.1	1.3	1.4	1.0	1.2	1.8
Diurnal Maximum																									
2.4 2.6 2.6 2.2 1.8 1.9 2.3 2.3 2.2 2.4 2.2 2.6 2.6 2.5 2.4 2.0 2.4 2.6 2.5 2.2 2.0 2.6 2.7 2.9																									
UO - Unstable Operation																									



Summary of Hour Averages

Mannix - December 2024

Maximum Value: 1.8 km/h on Dec 7 23:00																				Maximum Daily Average: 0.2 km/h on Dec 28					Hours in Service: 744	
Minimum Value: -1.7 km/h on Dec 17 07:00																				Minimum Daily Average: -0.6 km/h on Dec 25					Hours of Data: 549	
Maximum Diurnal Average: -0.1 km/h at hour 23																				Minimum Diurnal Average: -0.3 km/h at hour 16					Hours of Missing Data: 195	
Monthly Average: -0.19 km/h																				Percentiles: P ₁ = -1.0 P ₁₀ = -0.7 Q ₁ = -0.4 Median = -0.2 Q ₃ = 0.0 P ₉₀ = 0.2 P ₉₉ = 1.3					Hours of Calibration: 0	
																									Percent Operational Time: 73.8	
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-Dec	0.7	1.1	1.0	0.4	0.3	0.4	0.3	0.2	0.0	-0.1	-0.2	-0.1	0.2	0.1	0.0	0.0	0.3	-0.1	-0.1	-0.6	-0.4	-0.2	-0.2	-0.3	0.1	1.1
2-Dec	0.1	-0.5	-1.0	-0.5	-0.3	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	0.0	-0.3	-0.3	-0.1	-0.3	-0.2	-0.1	-0.3	-0.3	UO	UO	-0.3	0.1	
3-Dec	UO	UO	UO	UO	UO	UO	UO	0.0	0.1	-0.3	-0.2	1.4	UO	-0.3	-0.2	-0.3	-0.7	-0.3	-0.2	0.2	1.6	0.8	0.6	1.0	--	1.6
4-Dec	0.2	0.4	0.0	0.4	0.1	0.1	0.1	-0.1	-0.3	-0.3	-0.3	-0.1	-0.2	0.0	-0.3	-0.2	0.2	-0.2	-0.1	-0.3	-0.3	-0.2	-0.3	-0.7	-0.1	0.4
5-Dec	-0.7	-0.7	-0.8	0.0	-0.3	-0.3	-0.3	-0.5	-0.2	0.2	-0.4	-0.3	-0.3	0.1	0.3	-0.3	-0.2	-0.5	UO	UO	UO	UO	UO	UO	-0.3	0.3
6-Dec	UO	UO	UO	UO	UO	UO	UO	-0.8	-0.6	-0.5	-0.2	-0.7	-0.8	-0.2	-0.5	-0.6	-1.1	-0.6	-0.6	-0.2	-0.2	-0.2	-0.5	-0.5	--	-0.2
7-Dec	-0.6	-0.6	-0.7	-0.9	-0.6	-0.6	-0.6	-0.5	-0.7	-0.8	-0.6	-0.3	-0.4	0.2	-0.4	-0.3	-0.4	-0.1	-0.2	0.1	0.7	0.5	1.8	UO	-0.3	1.8
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.4	-0.1	-0.8	-0.4	-0.9	-0.4	-0.2	-0.4	-0.5	-0.3	0.1	--	0.1
12-Dec	0.2	0.0	0.1	-0.3	0.1	0.0	0.0	-0.4	-0.1	-0.2	-0.1	-0.2	-0.2	-0.1	0.2	0.2	0.1	0.3	0.0	-0.1	0.0	-0.2	-0.3	-0.1	0.0	0.3
13-Dec	-0.2	0.0	-0.4	-0.1	0.0	-0.5	-0.4	-0.9	-1.0	-0.5	-0.5	-0.8	-0.8	-0.4	-0.4	-0.4	-0.4	-0.1	0.0	-0.1	0.6	0.5	0.7	0.6	-0.2	0.7
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	-0.8	-0.6	-0.8	-0.8	-0.5	-0.5	-0.4	-0.6	-0.8	-0.7	-0.6	-0.6	--	-0.4
17-Dec	-0.6	-0.6	-0.3	-0.7	-0.4	-1.0	-1.7	-0.7	0.3	0.0	-0.1	-0.2	-0.2	-0.4	0.1	-0.3	-0.5	-0.4	-0.1	-0.3	-0.3	-0.4	-0.4	-0.1	-0.4	0.3
18-Dec	0.0	-0.1	0.0	-0.1	-0.3	0.0	-0.2	-0.1	-0.3	-0.4	-0.1	-0.1	0.3	0.0	0.1	0.0	0.3	0.2	0.1	0.0	-0.2	-0.1	-0.5	-0.4	-0.1	0.3
19-Dec	-0.3	-0.3	0.2	-0.3	-0.4	0.2	-0.3	-0.3	-0.4	-0.4	-0.1	0.0	0.0	-0.2	-0.2	0.1	0.0	0.0	0.0	-0.1	-0.1	-0.2	-0.1	0.0	-0.1	0.2
20-Dec	-0.8	-0.3	-0.8	-0.2	-0.3	0.0	0.0	-0.1	0.1	0.0	-0.2	-0.3	-0.1	0.1	-0.2	-0.2	-0.5	-0.4	-0.6	-0.8	-0.7	-0.8	-0.4	-0.2	-0.3	0.1
21-Dec	-0.3	-0.4	0.0	0.1	0.1	0.0	-0.1	-0.4	-0.3	0.0	-0.3	-0.3	0.0	-0.2	0.1	-0.1	-0.1	0.1	0.1	0.1	0.4	0.4	0.1	-0.3	-0.1	0.4
22-Dec	0.1	0.0	-0.1	0.0	-0.2	-0.7	-0.5	-0.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.1
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	0.4	1.2	0.3	0.2	-0.4	-0.7	-0.8	-0.5	-0.5	-0.7	-0.7	-0.8	-1.0	-0.7	--	1.2
24-Dec	-0.5	-0.4	-0.5	-0.7	-0.5	-0.4	-0.6	-0.5	-0.3	-0.2	-0.2	-0.4	-0.8	-1.1	-0.3	-0.1	-0.3	-0.2	-0.6	-0.6	-0.7	-0.6	-0.5	-0.4	-0.5	-0.1
25-Dec	-0.6	-0.4	-0.6	-0.7	-0.5	-0.8	-0.7	-0.2	-0.3	-0.1	0.4	0.0	-0.4	-0.8	-0.9	-0.9	-0.9	-0.9	-0.8	-0.9	-0.9	-0.4	-0.6	-0.5	-0.6	0.4
26-Dec	-0.7	-0.7	-0.3	0.1	0.2	0.0	0.0	-0.2	-0.2	-0.3	-0.6	-0.5	-0.4	-0.4	-0.1	-0.6	-0.6	-0.1	-0.1	0.0	-0.3	-0.2	0.0	0.0	-0.3	0.2
27-Dec	0.0	-0.1	0.0	0.0	0.0	0.1	0.0	-0.1	-0.2	-0.5	-0.3	0.0	0.2	0.2	-0.3	-0.3	0.0	-0.1	0.4	0.3	-0.2	0.2	1.5	-1.1	0.0	1.5
28-Dec	-0.8	-0.9	0.4	0.4	0.5	1.3	0.4	0.1	0.1	0.2	0.0	0.2	0.0	0.1	0.1	0.0	-0.2	-0.1	0.1	0.4	1.3	1.0	0.2	0.2	0.2	1.3
29-Dec	0.1	0.3	-0.2	0.0	-0.1	-0.2	-0.1	0.0	0.0	-0.1	-0.2	-0.2	0.2	0.1	-0.1	-0.2	0.3	-0.1	0.3	-0.2	-0.3	-0.3	-0.4	-0.5	-0.1	0.3
30-Dec	-0.4	-0.6	-0.5	-0.5	-0.4	-0.4	-0.6	-0.3	-0.5	-0.4	-0.4	-0.6	-0.4	-0.5	-0.2	-0.3	-0.4	-0.3	-0.4	-0.2	-0.2	-0.3	-0.5	-0.4	-0.4	-0.2
31-Dec	-0.4	-0.4	-0.6	-0.3	-0.4	-0.4	-0.3	0.1	0.3	0.2	0.0	-0.1	0.1	-0.2	-0.2	-0.3	0.0	0.0	0.5	0.5	0.7	0.6	0.3	0.4	0.0	0.7
																								Diurnal Average		
																								Diurnal Maximum		
-0.3 -0.3 -0.2 -0.2 -0.2 -0.2 -0.3 -0.3 -0.2 -0.2 -0.2 -0.1 -0.2 -0.2 -0.2 -0.3 -0.3 -0.2 -0.2 -0.2 -0.1 -0.1 -0.1 -0.2 0.7 1.1 1.0 0.4 0.5 1.3 0.4 0.2 0.3 0.2 0.4 1.4 0.3 0.2 0.3 0.2 0.3 0.3 0.3 0.5 0.5 1.6 1.0 1.8 1.0																										
UO - Unstable Operation																										



Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																				Hours in Service: 744					
Maximum Value: 3.2 km/h on Dec 24 00:00																				Hours of Data: 549					
Minimum Value: 0.1 km/h on Dec 28 09:00																				Hours of Missing Data: 195					
Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.5 Median = 0.8 Q ₃ = 1.4 P ₉₀ = 1.9 P ₉₉ = 2.6																				Hours of Calibration: 0					
																				Percent Operational Time: 73.8					
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-Dec	1.1	1.3	1.4	1.0	0.9	0.8	0.6	0.4	0.3	0.3	0.2	0.7	0.8	0.8	0.5	0.6	0.7	0.3	0.4	0.8	1.0	1.0	0.7	0.8	1.4
2-Dec	1.1	1.2	1.4	1.6	1.2	1.2	1.4	1.3	1.5	1.7	1.6	1.7	1.5	1.8	1.6	1.4	1.4	1.0	1.2	1.2	1.0	0.5	UO	UO	1.8
3-Dec	UO	UO	UO	UO	UO	UO	UO	2.5	2.2	1.8	1.5	1.8	UO	2.1	2.5	1.8	2.2	2.0	1.6	1.1	1.5	1.7	1.9	1.6	2.5
4-Dec	1.5	1.7	1.4	1.0	0.5	0.6	0.7	0.4	0.8	0.9	1.3	1.7	1.6	1.5	1.4	1.5	2.3	2.4	1.7	2.1	2.0	1.5	1.3	0.8	2.4
5-Dec	0.9	0.7	0.9	0.9	0.6	0.4	0.4	0.5	0.5	0.7	0.7	0.8	0.5	0.7	0.6	0.4	0.3	0.3	UO	UO	UO	UO	UO	UO	0.9
6-Dec	UO	UO	UO	UO	UO	UO	UO	1.3	1.4	1.3	1.9	1.6	1.6	1.8	1.6	1.4	1.7	1.4	0.9	1.4	1.5	1.2	1.2	1.0	1.9
7-Dec	1.7	1.8	1.9	0.8	0.4	0.3	0.3	0.4	0.7	0.7	0.5	0.5	0.5	0.8	0.7	0.5	0.5	0.6	0.5	0.6	0.9	0.8	1.9	UO	1.9
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	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-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.4	1.3	1.2	1.5	1.9	2.3	1.8	1.6	1.5	1.9	1.9	2.3
12-Dec	2.0	1.7	2.1	1.7	0.9	1.0	2.0	1.4	1.6	1.5	1.9	2.2	2.5	2.3	2.3	2.0	1.7	1.4	1.4	0.9	1.2	1.2	1.1	0.9	2.5
13-Dec	0.9	0.9	0.8	0.9	1.4	0.9	0.7	0.7	0.6	0.8	0.9	0.7	0.5	0.3	0.4	0.5	0.6	0.3	0.7	0.2	0.7	1.0	1.2	1.7	1.7
14-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
15-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.8	1.7	1.7	1.3	0.9	1.5	1.6	1.2	1.2	1.3	1.5	1.2	1.8
17-Dec	1.4	1.3	1.2	0.7	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.4	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	1.4
18-Dec	0.3	0.6	0.5	0.6	0.2	0.5	0.8	0.5	0.8	0.7	0.8	0.8	0.8	0.9	0.7	0.7	0.6	0.7	0.3	0.3	0.2	0.3	0.3	0.3	0.9
19-Dec	0.2	0.4	0.7	0.5	0.4	0.7	0.6	0.4	0.4	0.5	0.3	0.4	0.6	0.5	0.5	0.3	0.5	0.3	0.2	0.3	0.5	0.6	0.5	0.6	0.7
20-Dec	1.2	0.9	0.9	1.6	1.1	1.0	1.2	1.2	1.9	2.1	2.2	2.7	2.6	2.1	1.9	1.5	1.0	0.8	0.4	0.4	0.4	0.5	0.4	0.2	2.7
21-Dec	0.3	0.7	0.6	0.4	0.5	0.3	0.3	0.3	0.3	0.2	0.3	0.4	0.5	0.3	0.4	0.3	0.3	0.7	0.3	0.3	0.4	0.9	0.5	0.6	0.9
22-Dec	0.8	0.4	0.7	0.9	0.6	0.7	0.8	1.1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.1
23-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	1.0	0.7	0.6	0.8	0.7	1.2	1.3	1.5	1.3	1.8	2.1	2.7	2.8	3.2	3.2
24-Dec	2.3	2.7	2.1	1.4	0.8	0.5	0.5	0.5	0.7	0.5	0.8	1.1	1.7	1.5	1.6	0.8	0.9	1.1	0.9	0.7	0.5	0.4	0.7	0.9	2.7
25-Dec	0.7	0.9	1.2	1.6	1.9	1.8	1.7	2.5	2.1	2.2	2.3	2.0	2.6	2.5	2.3	1.6	1.1	0.7	1.1	1.1	1.0	0.6	0.6	0.4	2.6
26-Dec	0.5	0.5	0.4	0.7	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.6	0.6	0.3	0.3	0.7
27-Dec	0.4	0.6	0.4	0.4	0.3	0.3	0.4	0.7	0.4	1.2	0.8	0.6	0.5	0.3	0.4	0.4	0.3	0.9	1.0	1.4	0.5	1.3	2.0	1.1	2.0
28-Dec	0.8	1.2	1.4	1.3	0.8	1.2	1.1	0.3	0.1	0.2	0.4	0.6	0.7	0.7	0.8	0.5	0.4	0.6	0.8	1.3	1.5	1.6	1.1	1.1	1.6
29-Dec	1.1	1.1	0.8	0.5	0.2	0.3	0.8	0.4	0.5	0.3	0.3	0.5	1.1	0.7	0.3	0.4	0.8	1.4	0.5	0.6	1.0	1.1	1.3	1.3	1.4
30-Dec	1.6	1.6	1.9	1.8	1.5	1.8	2.0	2.2	2.2	2.2	2.2	2.4	2.2	1.7	1.7	1.4	1.5	1.6	1.5	1.2	1.0	1.2	1.1	1.3	2.4
31-Dec	1.3	1.5	1.2	0.7	0.4	0.6	1.0	1.1	0.8	0.6	0.6	1.2	1.8	1.6	1.6	1.4	1.1	0.6	0.8	1.1	1.3	1.4	1.0	1.1	1.8
Diurnal Maximum																									
2.3 2.7 2.1 1.8 1.9 1.8 2.0 2.5 2.2 2.2 2.3 2.7 2.6 2.5 2.5 2.0 2.3 2.4 2.3 2.1 2.1 2.7 2.8 3.2																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS06
PATRICIA MCINNES
DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)
DECEMBER 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	24.9	0	3.5	0
TRS (ppb) Average	706	36	38	99.73	1.3	0	0.4	0
THC (ppm) Average	701	32	43	98.52	2.9	-	2.2	-
NMHC(ppm) Average	701	32	43	98.52	0.13	-	0.018	-
CH4(ppm) Average	701	32	43	98.52	2.8	-	2.2	-
O3 (ppb) Average	708	36	36	100	37.1	0	31.8	-
NO2 (ppb) Average	706	36	38	99.73	31.3	0	16.4	-
NO (ppb) Average	706	36	38	99.73	43.9	-	10.3	-
NOX (ppb) Average	706	36	38	99.73	67.6	-	26.5	-
NH3 (ppb) Average	671	38	73	95.3	0	0	0	-
PM2.5 (ug/m3) Average	742	2	2	100	73.9	0	13.6	0
Temperature 2 m (C) Average	744	0	0	100	6.3	-	1.1	-
Relative Humidity (%) Average	744	0	0	100	98.1	-	90.9	-
Wind Speed 10 m (km/h) Average	744	0	0	100	23	-	17	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - PATRICIA McINNES (AMS06)
DECEMBER 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	0.73	1.7	-	0	0.1	0.1	0.3	0.5	1.4	24.9
TRS (ppb) Average	706	0.22	0.1	-	0.1	0.1	0.1	0.2	0.2	0.3	1.3
THC (ppm) Average	701	2.03	0.1	-	1.9	1.9	2	2	2.1	2.1	2.9
NMHC(ppm) Average	701	0.004	0.014	-	0	0	0	0	0	0	0.13
CH4(ppm) Average	701	2.03	0.1	-	1.9	1.9	2	2	2.1	2.1	2.8
O3 (ppb) Average	708	19.74	8.1	-	1.7	8.3	13.6	20.3	26.7	30.2	37.1
NO2 (ppb) Average	706	8.38	6.7	-	0	0.5	3	7	12.3	18	31.3
NO (ppb) Average	706	2.79	4.7	-	0	0.1	0.3	1.2	3.1	6.7	43.9
NOX (ppb) Average	706	11.17	10.4	-	0	0.7	3.7	8.6	15.7	24.1	67.6
NH3 (ppb) Average	671	0	0	-	0	0	0	0	0	0	0
PM2.5 (ug/m3) Average	742	5.88	6	-	0.3	1.7	2.5	3.6	7.3	12.8	73.9
Temperature 2 m (C) Average	744	-12.13	8.1	-	-32.9	-24	-18.8	-10.9	-6.7	-2	6.3
Relative Humidity (%) Average	744	81.79	7.3	-	55.3	72.8	76.6	81.5	88.3	91.1	98.1
Wind Speed 10 m (km/h) Average	744	9	5	-	0	4	5	8	12	16	23
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	11 Dec 2024 15:00	11 Dec 2024 16:00	2	Maintenance - sample manifold cleaned
THC/NMHC/CH4	01 Dec 2024 01:00	01 Dec 2024 07:00	7	Maintenance - replaced analyzer
THC/NMHC/CH4	20 Dec 2024 14:00	20 Dec 2024 15:00	2	Maintenance - replaced support gas cylinder
NH3	01 Dec 2024 05:00	31 Dec 2024 05:00	33	Stabilization after daily QA check



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

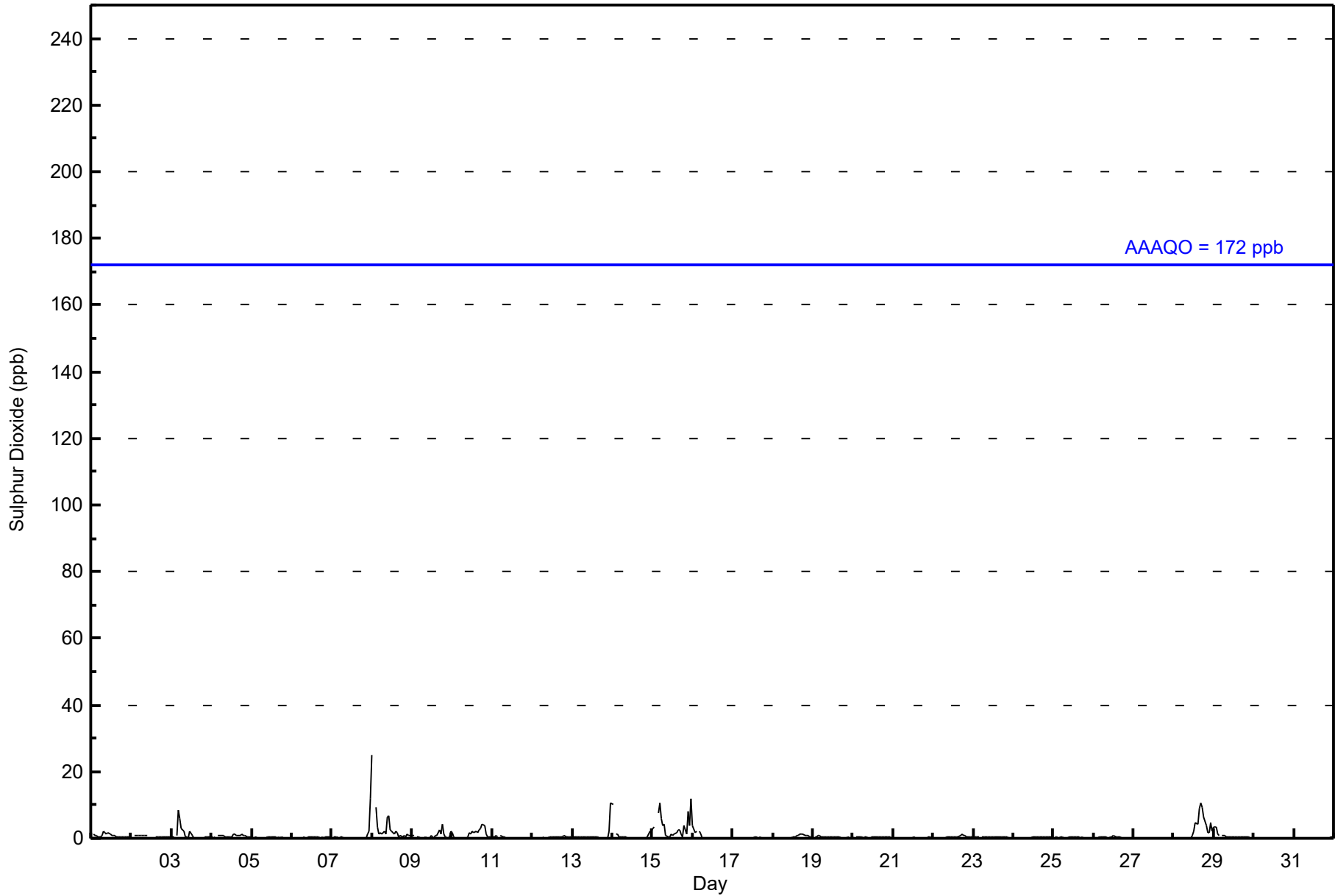
Patricia McInnes - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 24.9 ppb on Dec 8 01:00	Maximum Daily Average: 3.5 ppb on Dec 15		Hours of Data:	707
Minimum Value: 0.0 ppb on Dec 16 17:00	Minimum Daily Average: 0.1 ppb on Dec 31		Hours of Missing Data:	37
Maximum Diurnal Average: 2.0 ppb at hour 1	Minimum Diurnal Average: 0.3 ppb at hour 9		Hours of Calibration:	35
Monthly Average: 0.73 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.5 P ₉₀ = 1.4 P ₉₉ = 9.4		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-Dec	Z	1.2	0.9	1.1	0.5	0.4	0.9	2.0	1.7	1.2	1.6	1.3	0.8	0.7	0.7	0.5	0.4	0.4	0.3	0.4	0.3	0.5	0.6	0.4	0.8	2.0
2-Dec	0.6	Z	0.9	1.0	0.9	0.8	0.7	0.8	0.9	0.9	C	C	C	C	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.6	1.0
3-Dec	0.2	0.2	Z	0.8	8.5	6.1	2.8	2.0	0.3	0.2	0.2	2.1	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.4	0.3	0.4	1.2	8.5
4-Dec	0.3	0.2	0.6	Z	0.9	0.9	0.8	0.7	0.6	0.5	0.2	0.4	0.5	1.1	1.2	1.0	1.0	1.0	1.1	1.0	0.8	0.5	0.3	0.3	0.7	1.2
5-Dec	0.3	0.2	0.2	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.4
6-Dec	0.1	0.1	0.1	0.2	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3
7-Dec	Z	0.3	0.3	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	1.3	2.0	11.7	0.8	11.7
8-Dec	24.9	Z	9.4	3.6	1.3	1.9	1.3	2.2	1.3	6.2	6.7	2.7	2.2	1.2	2.1	1.8	0.5	0.7	0.5	1.0	0.6	1.1	0.7	0.7	3.2	24.9
9-Dec	0.7	0.7	Z	0.3	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.9	0.4	0.2	0.8	0.7	2.7	1.1	4.3	1.1	0.3	0.2	0.3	2.3	0.8	4.3
10-Dec	1.5	0.3	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.3	1.7	1.2	1.9	1.6	2.1	1.9	2.6	3.1	4.2	3.7	1.4	0.6	0.4	0.5	1.3	4.2
11-Dec	0.4	0.5	0.7	0.6	Z	0.8	0.5	0.2	0.1	0.1	0.1	0.2	0.2	0.1	M	M	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.8
12-Dec	0.0	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.8	0.4	0.4	0.3	0.3	0.3	0.8
13-Dec	Z	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.0	0.1	2.1	10.4	0.8	10.4
14-Dec	10.3	Z	1.1	1.2	0.4	0.3	0.3	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	2.1	1.9	0.9	10.3
15-Dec	3.0	3.4	Z	7.8	10.8	5.9	4.0	4.0	0.8	0.5	0.4	1.2	0.7	1.3	1.8	2.4	2.4	1.2	0.5	3.8	1.1	8.3	3.7	11.8	3.5	11.8
16-Dec	3.7	1.8	2.3	Z	2.2	1.2	0.2	0.2	0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	3.7
17-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.3
18-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.5	1.0	0.8	1.2	1.3	1.1	1.0	1.0	0.7	0.6	0.5	0.5	1.3
19-Dec	Z	0.5	0.6	0.7	0.7	0.6	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.3	0.1	0.1	0.2	0.1	0.3	0.1	0.2	0.4	0.7
20-Dec	0.3	Z	0.4	0.3	0.4	0.3	0.1	0.3	0.2	0.2	0.2	0.2	0.3	0.5	0.5	0.4	0.5	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.3	0.5
21-Dec	0.2	0.1	Z	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.4
22-Dec	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.1	0.3	0.3	0.4	0.3	0.3	0.4	0.5	0.6	0.8	1.2	1.0	0.7	0.5	0.4	0.4	0.3	0.4	1.2
23-Dec	0.3	0.3	0.3	0.2	Z	0.3	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	0.1	0.3	0.4
24-Dec	0.1	0.1	0.1	0.1	0.0	Z	0.1	0.0	0.1	0.2	0.2	0.3	0.2	0.6	0.6	0.5	0.5	0.6	0.5	0.5	0.4	0.3	0.2	0.3	0.3	0.6
25-Dec	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3
26-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.4	0.2	0.1	0.1	0.3	0.5	0.7	0.5	0.5	0.5	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7
27-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
28-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7	2.1	4.7	4.0	9.1	10.7	9.4	6.4	3.7	1.5	1.5	4.6	1.9	2.6	10.7
29-Dec	3.5	3.4	1.3	0.6	Z	1.0	1.0	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.7	3.5
30-Dec	0.2	0.2	0.1	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2
31-Dec	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.3	0.3	0.1	0.3

2.0	0.6	0.8	0.8	1.1	0.9	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.4	0.6	0.7	1.5	Diurnal Average	
24.9	3.4	9.4	7.8	10.8	6.1	4.0	4.0	1.7	6.2	6.7	2.7	2.2	4.7	4.0	9.1	10.7	9.4	6.4	3.8	1.5	8.3	4.6	11.8	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
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	34	22	3	8	8	53	131	62	58	42	54	37	26	69	41	54	702
11 - 20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4
21 - 60	1	0	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	36	22	3	8	8	53	131	62	58	42	54	37	26	69	41	57	707

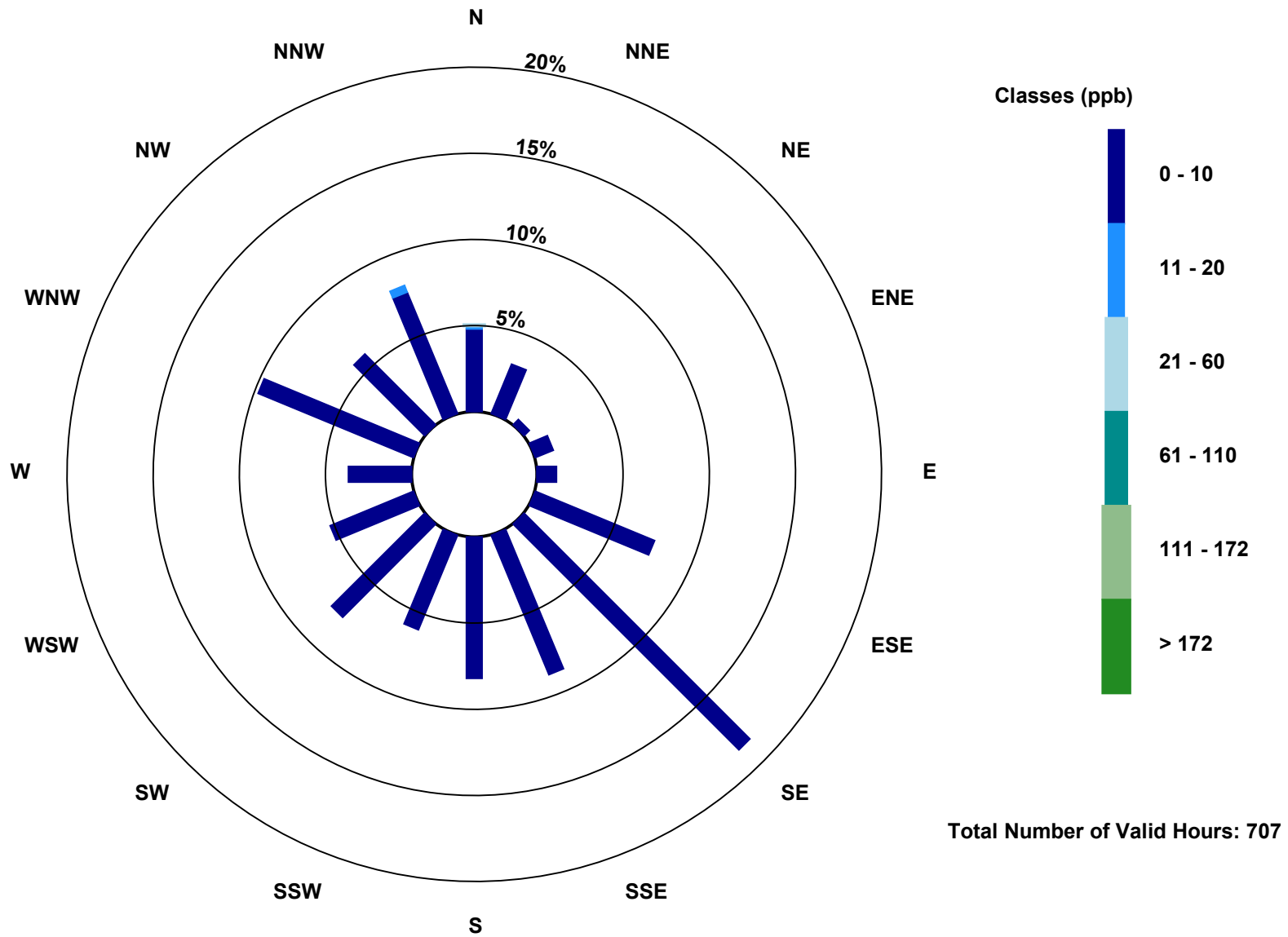
Total Number of Valid Hours: 707

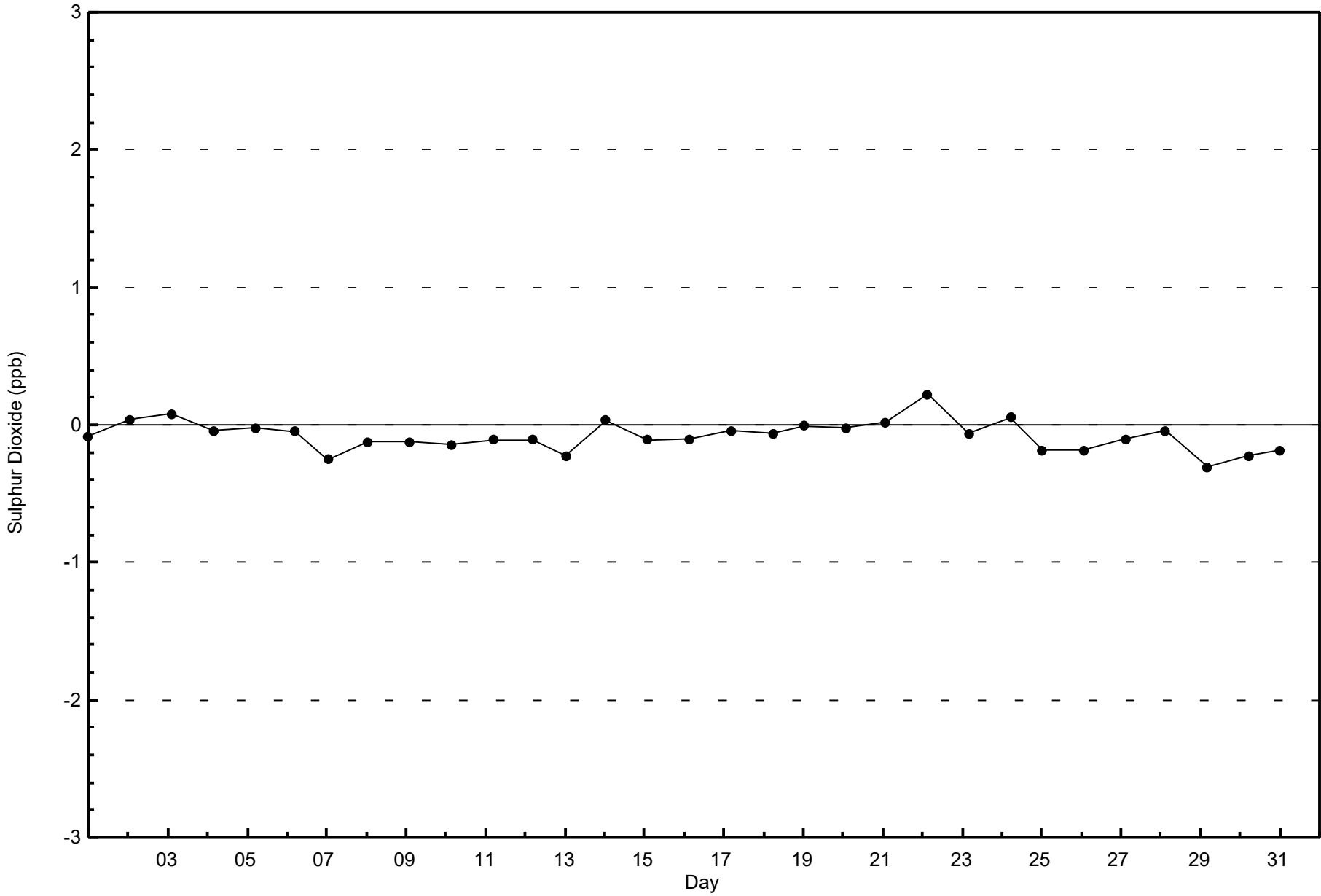
Total Number of Hours: 744

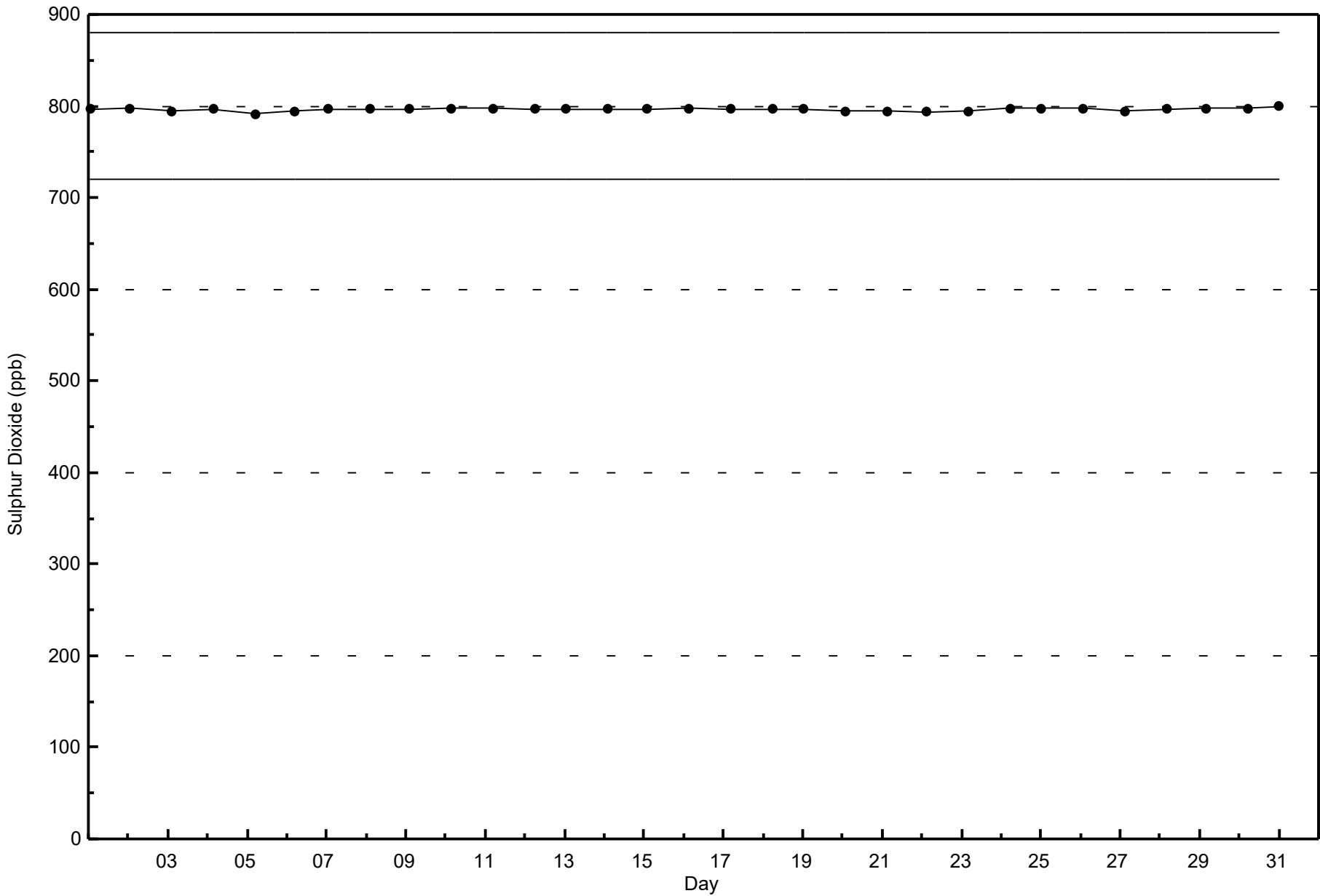


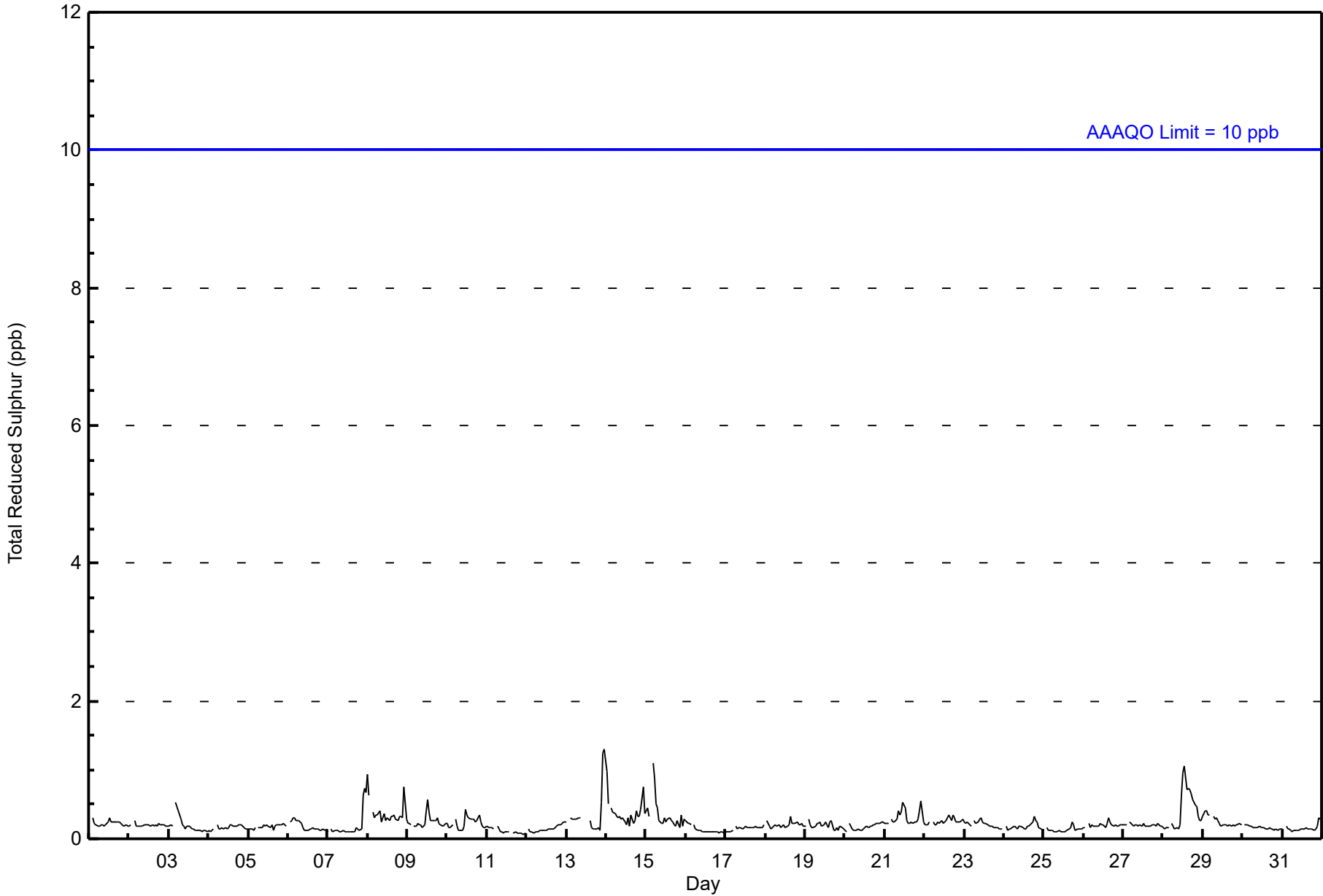
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Patricia McInnes











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Patricia McInnes - December 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**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	36	23	3	8	9	55	135	60	58	38	53	36	25	72	40	55	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	36	23	3	8	9	55	135	60	58	38	53	36	25	72	40	55	706

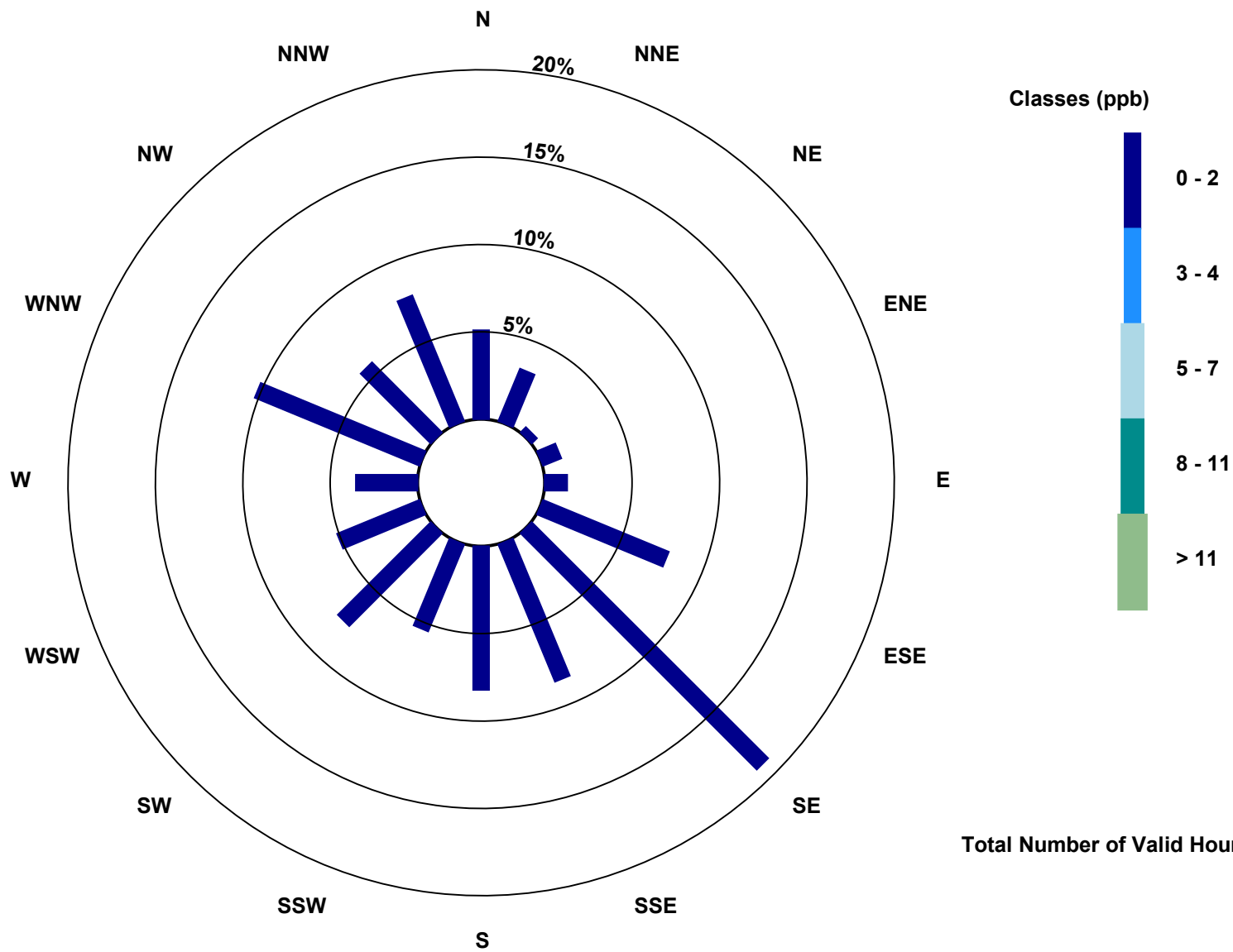
Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Patricia McInnes

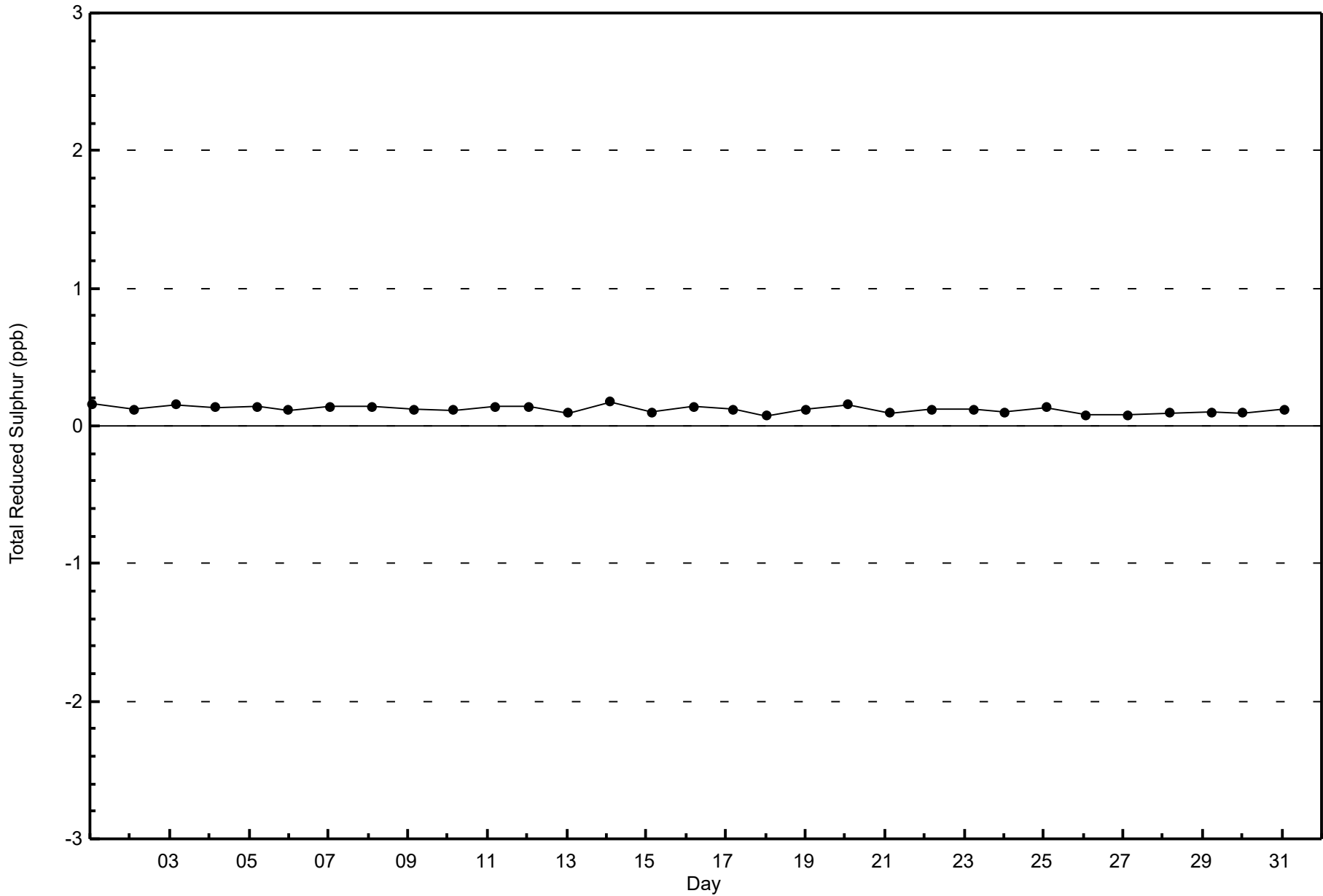


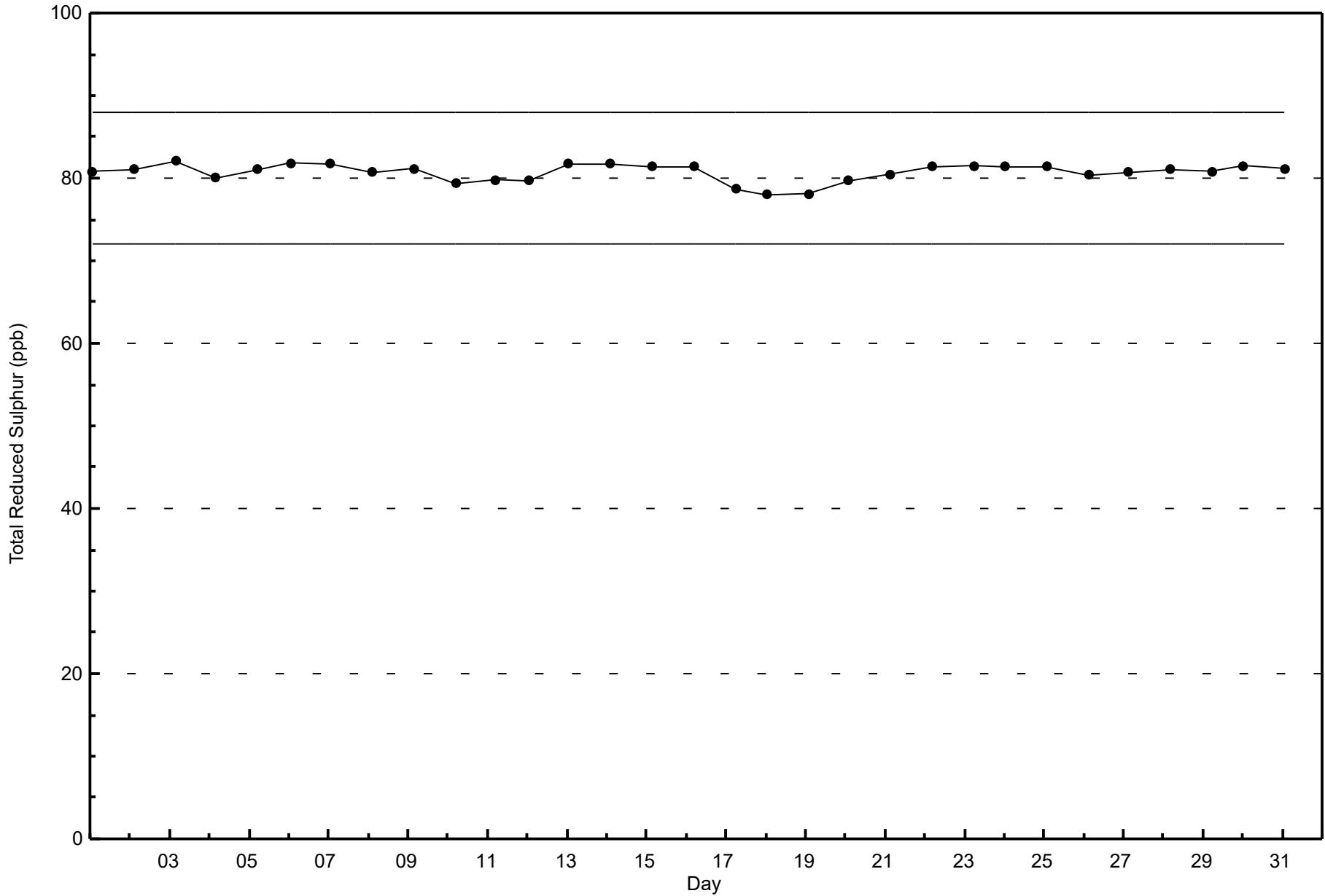
Total Number of Valid Hours: 706



Wood Buffalo Environmental Association
Zero Responses

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







Wood Buffalo Environmental Association
Summary of Hour Averages

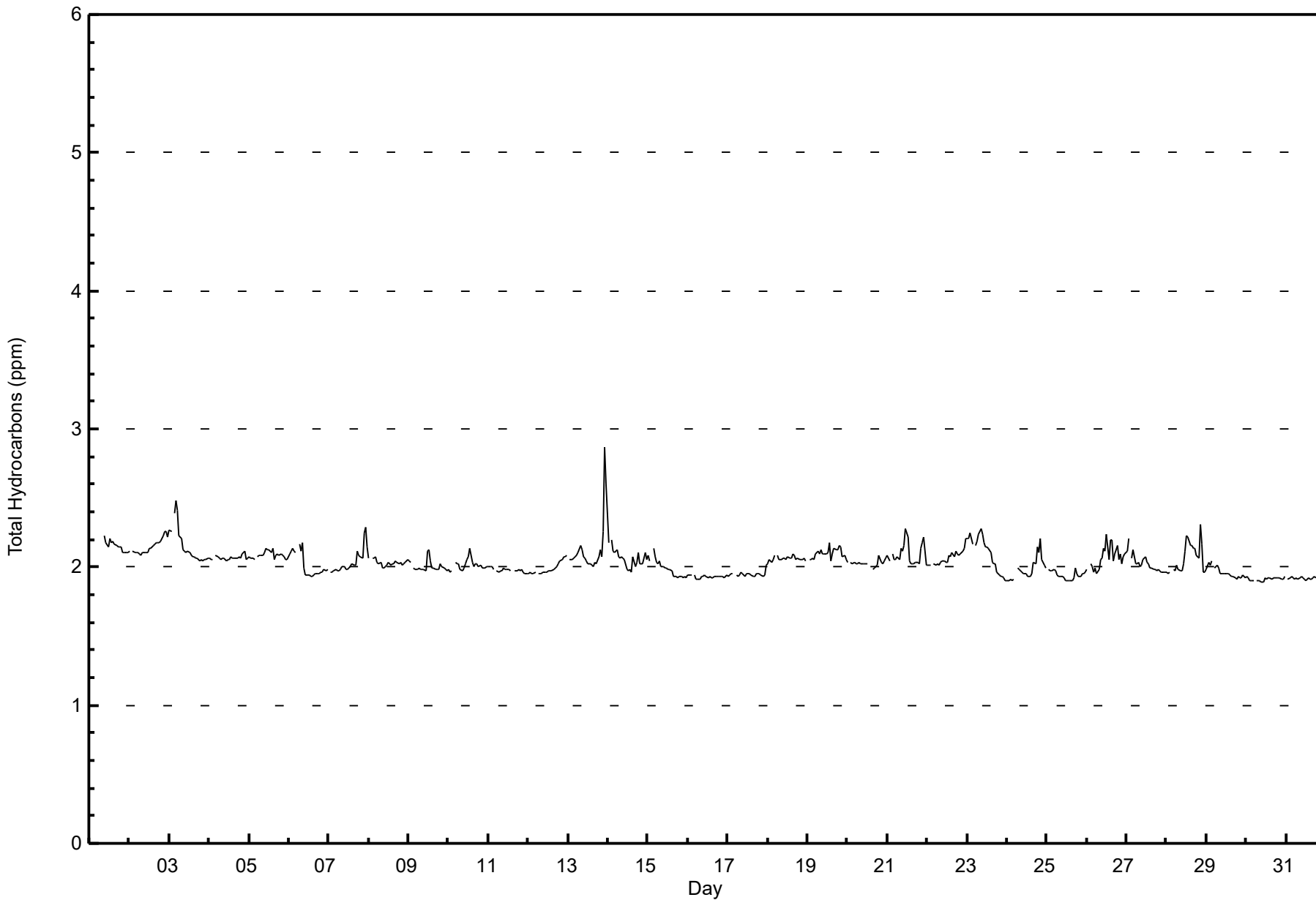
Total Hydrocarbons (THC) - ppm
Patricia McInnes - December 2024

Maximum Value: 2.9 ppm on Dec 13 23:00		Maximum Daily Average: 2.2 ppm on Dec 3		Hours in Service: 744																						
Minimum Value: 1.9 ppm on Dec 30 10:00		Minimum Daily Average: 1.9 ppm on Dec 30		Hours of Data: 701																						
Maximum Diurnal Average: 2.1 ppm at hour 23		Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Missing Data: 43																						
Monthly Average: 2.03 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 1.9 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.3		Hours of Calibration: 32																						
				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-Dec	M	M	M	M	M	M	M	C	C	2.2	2.2	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	--	2.2
2-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.3
3-Dec	2.3	2.3	Z	2.4	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.5
4-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Dec	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
6-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.2	2.1	2.2	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
7-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.0	2.3
8-Dec	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1
9-Dec	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
10-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
11-Dec	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	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
12-Dec	2.0	2.0	2.0	2.0	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1
13-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.3	2.9	2.6	2.1	2.9
14-Dec	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.2
15-Dec	2.1	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1
16-Dec	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
17-Dec	1.9	1.9	2.0	2.0	Z	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	2.0	1.9	2.0
18-Dec	2.0	2.1	2.0	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	2.0	2.1	2.1
19-Dec	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	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2
20-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	M	M	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.0	2.1
21-Dec	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.1	2.3
22-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2
23-Dec	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.1	2.3
24-Dec	1.9	1.9	1.9	1.9	1.9	Z	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.2
25-Dec	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0
26-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.0	2.1	2.2	2.1	2.1	2.0	2.1	2.1	2.1	2.2
27-Dec	2.1	2.2	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
28-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.2	2.0	2.0	2.1	2.3
29-Dec	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	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
30-Dec	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
31-Dec	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	2.0	2.0	2.0	1.9	2.0
		2.0																						Diurnal Average		
		2.3																						Diurnal Maximum		
Z - zerospan		C - Calibration						M - Maintenance																		



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	420	59.91	59.91
2.1 - 3.0	281	40.09	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
Patricia McInnes - December 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	21	12	3	5	3	38	64	16	22	20	48	29	21	59	24	35	420
2.1 - 3.0	15	10	0	3	5	15	69	46	36	22	6	8	5	8	14	19	281
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	36	22	3	8	8	53	133	62	58	42	54	37	26	67	38	54	701

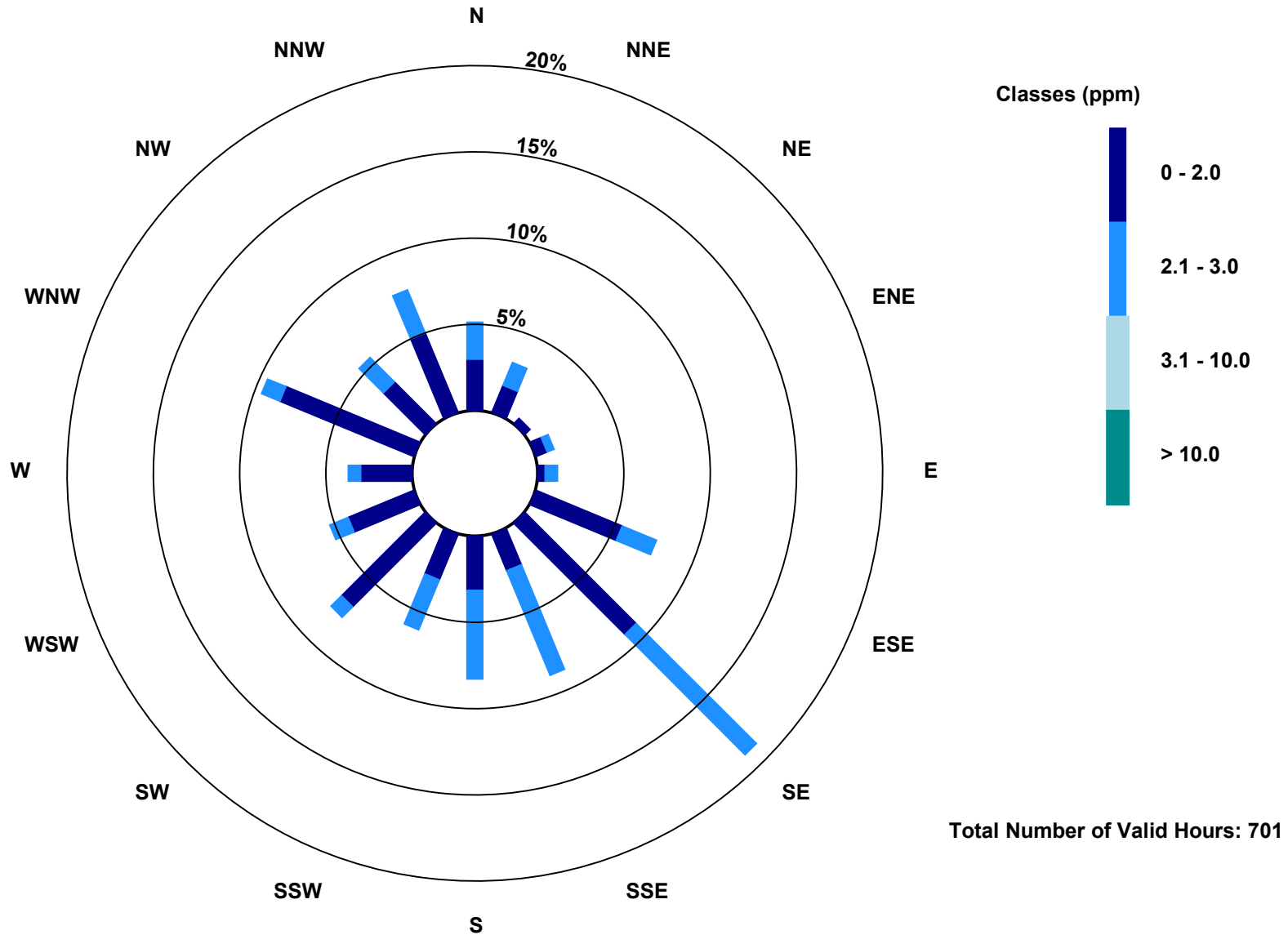
Total Number of Valid Hours: 701

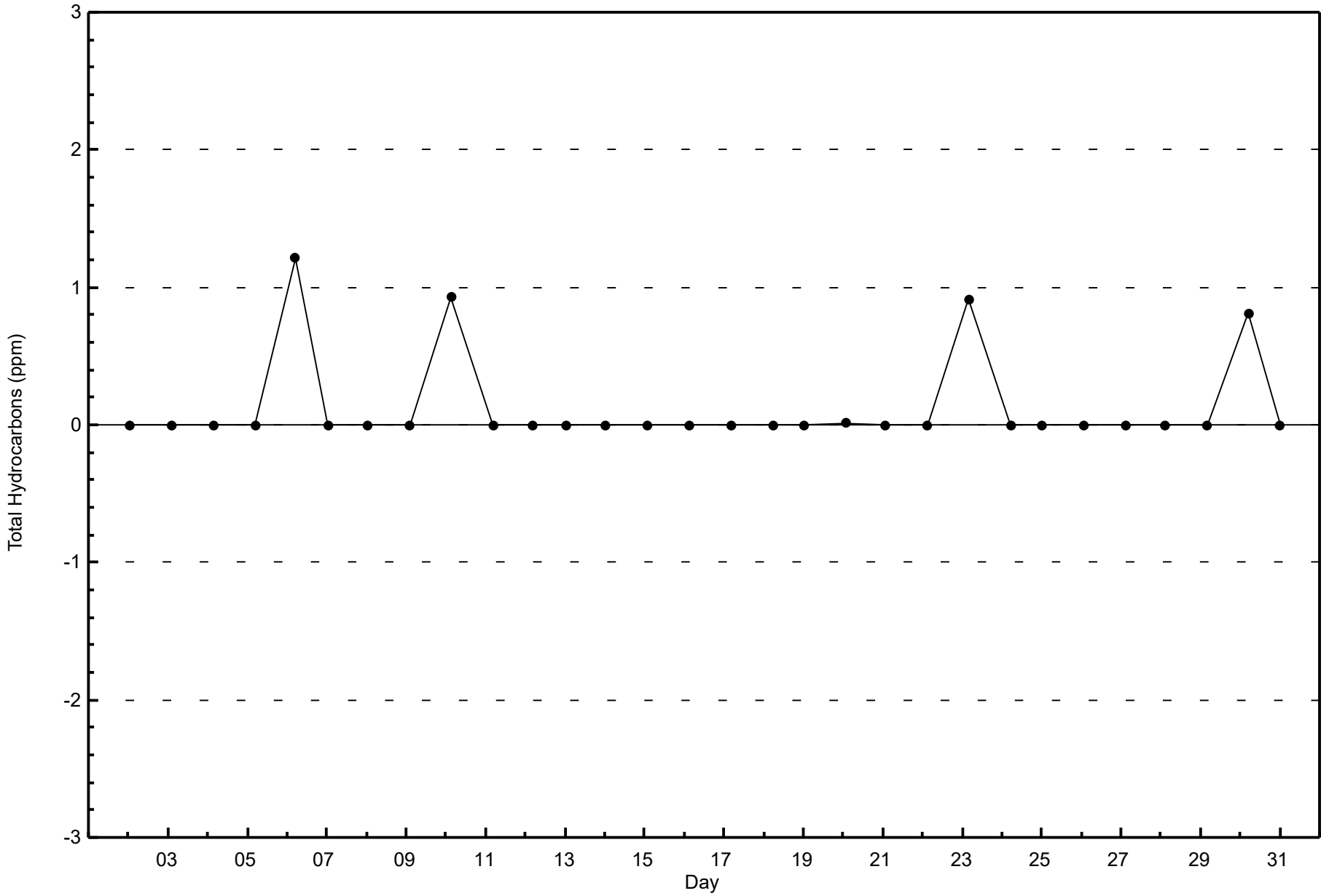
Total Number of Hours: 744

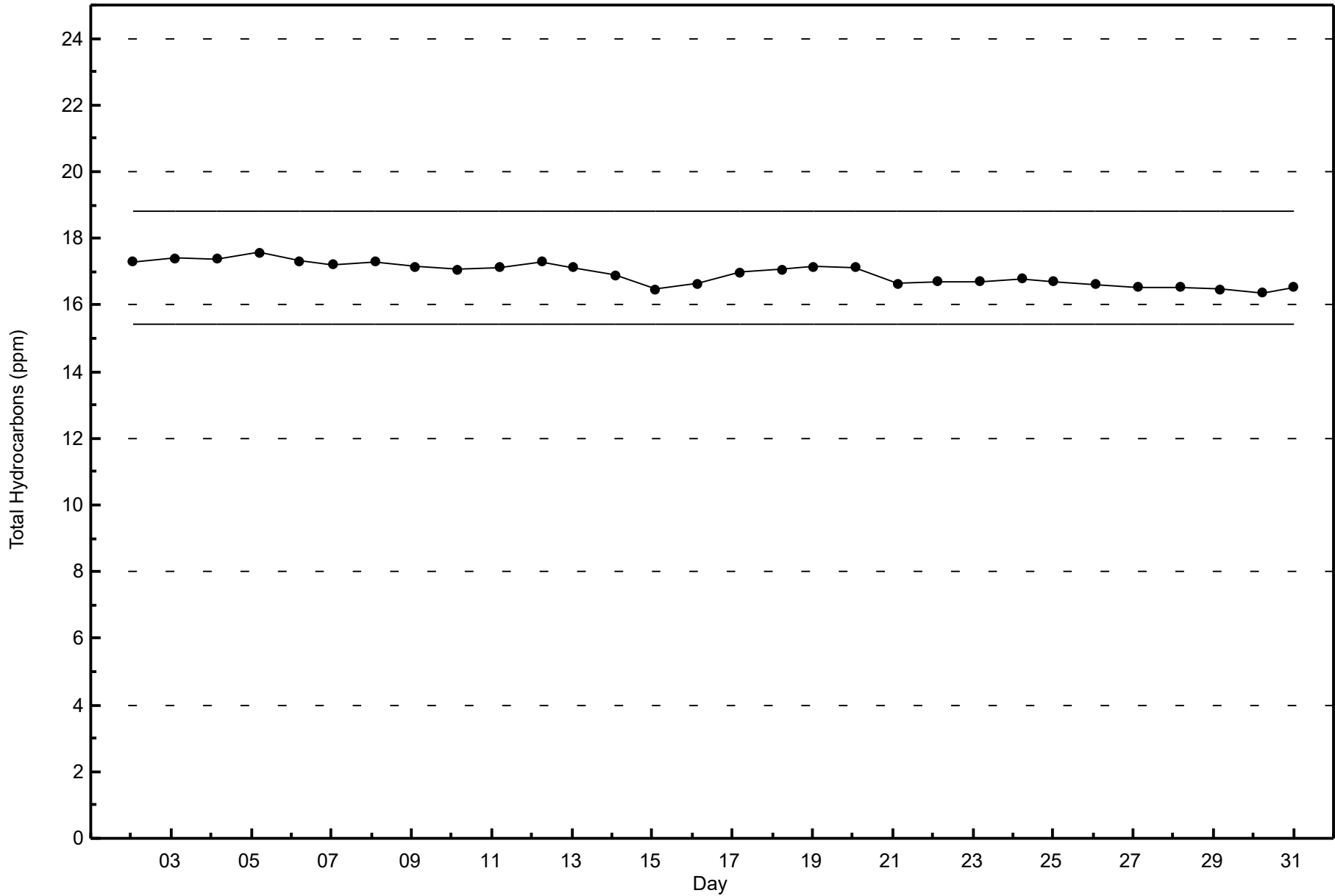


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Patricia McInnes







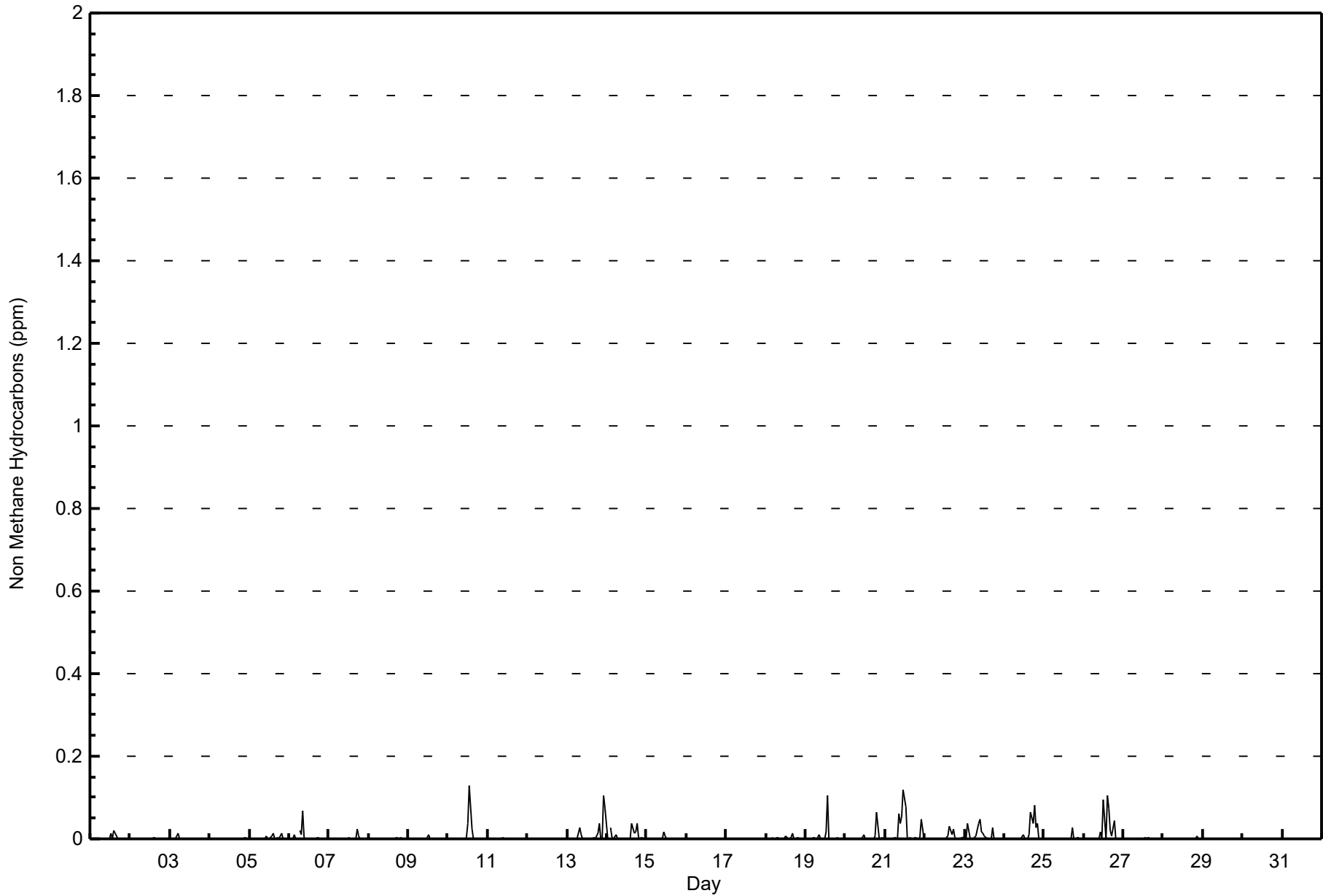


Maximum Value: 0.130 ppm on Dec 10 14:00		Maximum Daily Average: 0.018 ppm on Dec 21		Hours in Service:	744																					
Minimum Value: 0.000 ppm on Dec 1 10:00		Minimum Daily Average: 0.000 ppm on Dec 16		Hours of Data:	701																					
Maximum Diurnal Average: 0.009 ppm at hour 13		Minimum Diurnal Average: 0.000 ppm at hour 2		Hours of Missing Data:	43																					
Monthly Average: 0.004 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:	32																					
				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-Dec	M	M	M	M	M	M	M	C	C	0.000	0.000	0.000	0.012	0.000	0.021	0.012	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-	0.021
2-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
3-Dec	0.000	0.000	Z	0.000	0.006	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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
4-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002
5-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.000	0.000	0.006	0.014	0.000	0.000	0.002	0.000	0.013	0.000	0.000	0.000	0.002	0.014
6-Dec	0.000	0.000	0.000	0.010	0.000	Z	0.022	0.010	0.067	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.001	0.001	0.000	0.005	0.067
7-Dec	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	0.025	0.008	0.000	0.000	0.000	0.000	0.000	0.002	0.025
8-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.003
9-Dec	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	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.010
10-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.037	0.130	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.130
11-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
12-Dec	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
13-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.027	0.011	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.014	0.037	0.000	0.000	0.107	0.075	0.012	0.107
14-Dec	0.000	Z	0.027	0.002	0.001	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.036	0.014	0.017	0.038	0.003	0.001	0.003	0.000	0.000	0.000	0.007	0.038
15-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	0.007	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017
16-Dec	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
17-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18-Dec	0.000	0.000	0.000	0.000	0.002	Z	0.001	0.005	0.000	0.000	0.000	0.001	0.008	0.000	0.000	0.003	0.015	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.002	0.015
19-Dec	Z	0.000	0.001	0.000	0.000	0.004	0.000	0.003	0.010	0.000	0.000	0.000	0.017	0.107	0.000	0.000	0.000	0.002	0.000	0.002	0.000	0.002	0.000	0.000	0.006	0.107
20-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.012	0.000	M	M	0.000	0.000	0.000	0.006	0.064	0.000	0.000	0.003	0.002	0.004	0.064
21-Dec	0.001	0.000	Z	0.000	0.000	0.000	0.002	0.000	0.061	0.036	0.053	0.117	0.080	0.002	0.000	0.003	0.000	0.001	0.004	0.000	0.000	0.004	0.046	0.000	0.018	0.117
22-Dec	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	0.002	0.008	0.029	0.009	0.022	0.003	0.000	0.000	0.001	0.002	0.002	0.003	0.029
23-Dec	0.001	0.000	0.037	0.000	Z	0.001	0.002	0.007	0.038	0.049	0.016	0.014	0.008	0.002	0.001	0.000	0.000	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.049
24-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.009	0.063	0.038	0.083	0.026	0.037	0.000	0.000	0.000	0.012	0.083
25-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.000	0.000	0.005	0.000	0.000	0.000	0.001	0.026
26-Dec	0.000	Z	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.017	0.000	0.095	0.000	0.105	0.076	0.019	0.006	0.046	0.000	0.002	0.000	0.000	0.000	0.016	0.105
27-Dec	0.001	0.000	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
28-Dec	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	0.006	0.001	0.000	0.000	0.000	0.006
29-Dec	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
30-Dec	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
31-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm
Patricia McInnes - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	626	89.30	89.30
0.006 - 0.05	61	8.70	98.00
0.06 - 0.1	14	2.00	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
Patricia McInnes - December 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	31	18	2	6	5	49	120	46	46	36	52	37	25	65	38	50	626
0.006 - 0.05	4	4	1	1	3	3	11	12	10	5	1	0	1	2	0	3	61
0.06 - 0.1	1	0	0	1	0	1	2	4	2	1	1	0	0	0	0	1	14
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	36	22	3	8	8	53	133	62	58	42	54	37	26	67	38	54	701

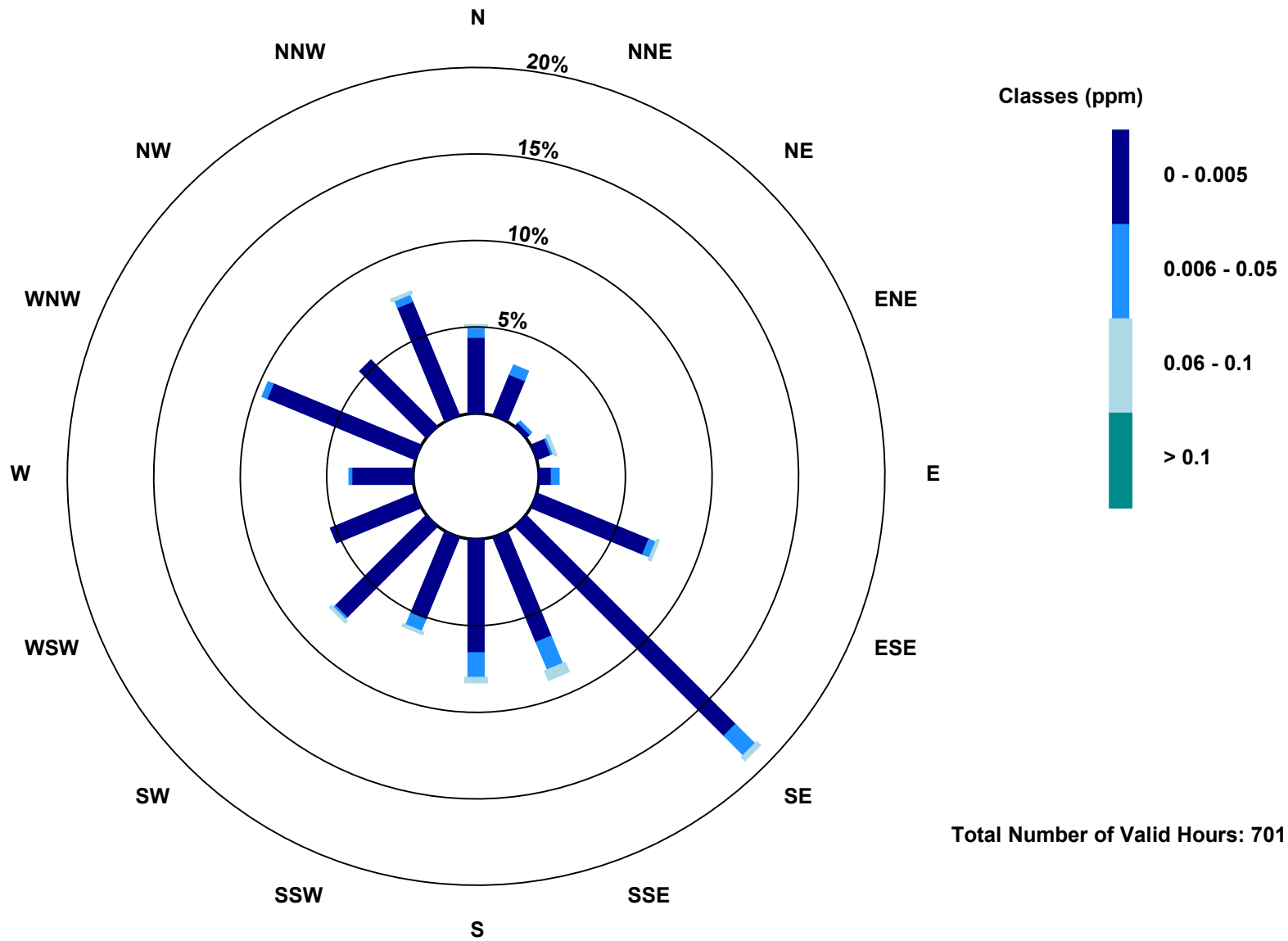
Total Number of Valid Hours: 701

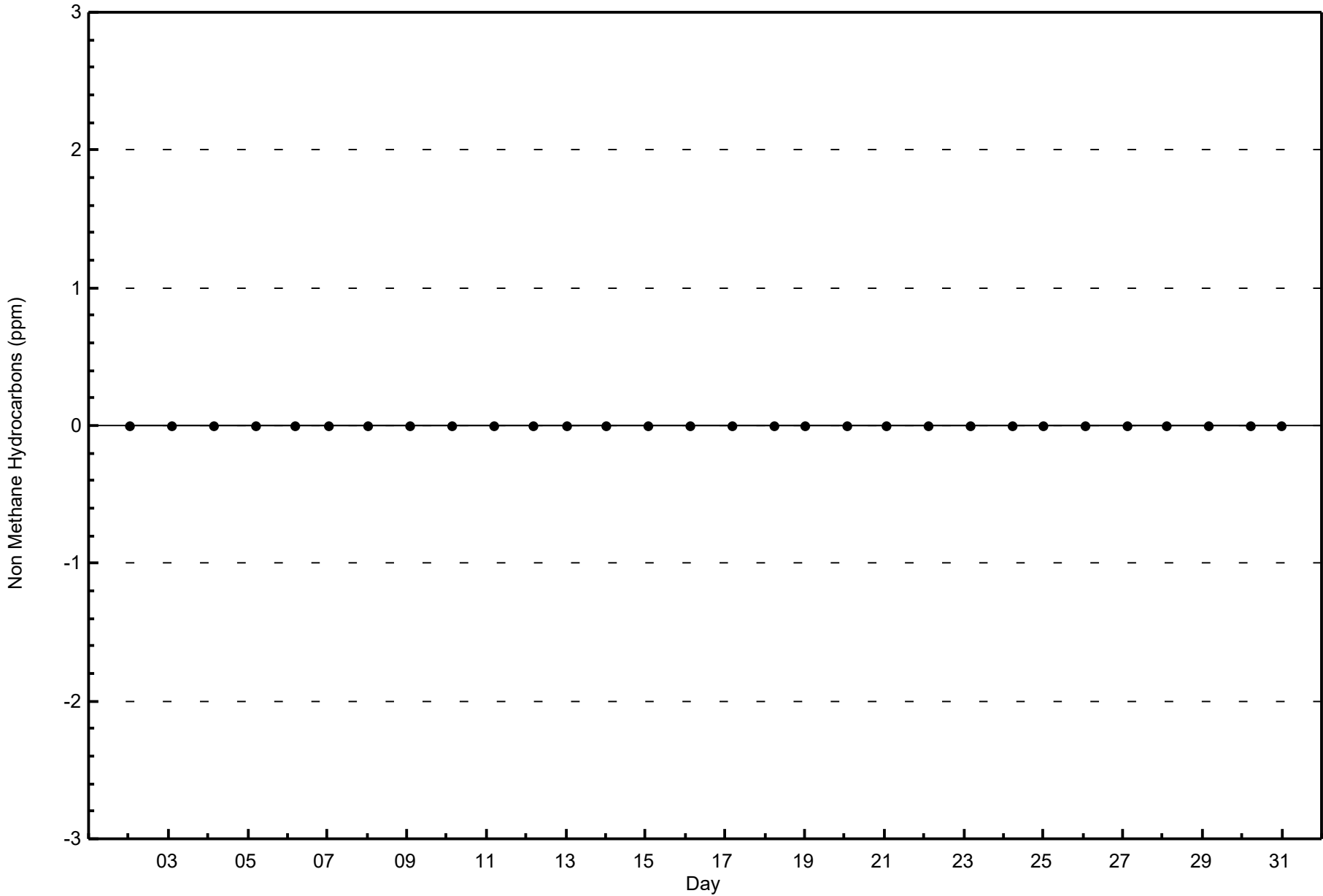
Total Number of Hours: 744

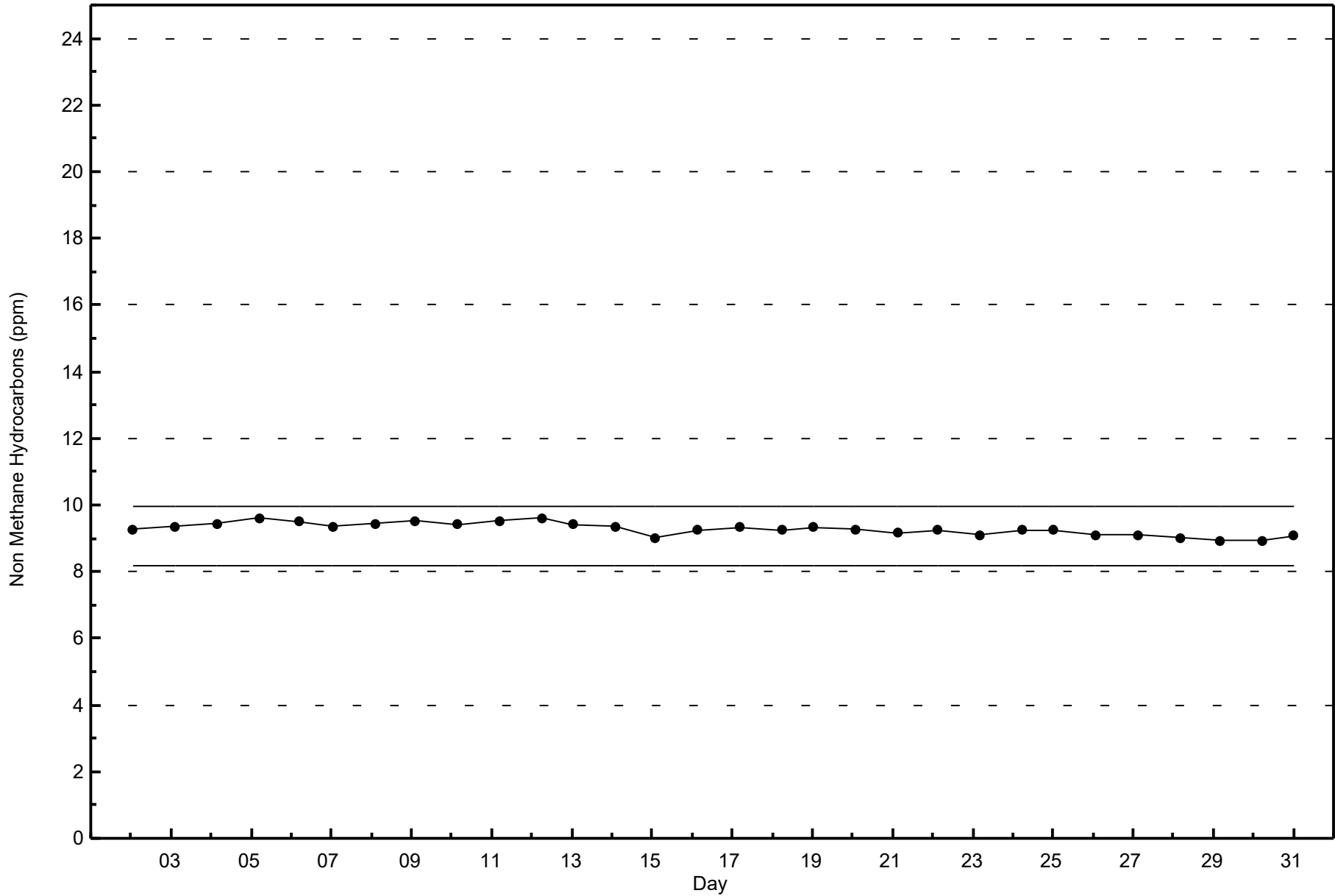


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Patricia McInnes









Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

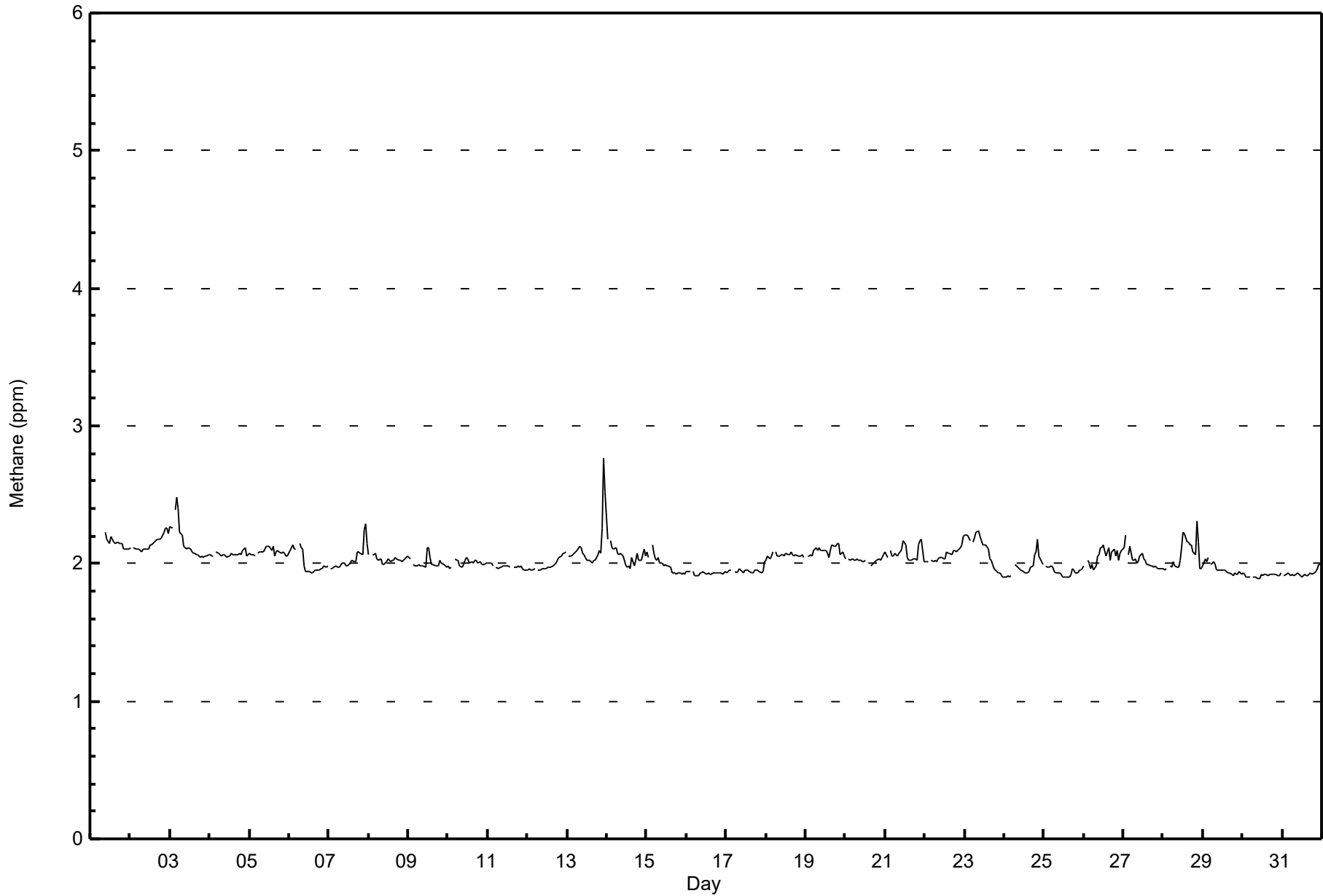
Patricia McInnes - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 2.8 ppm on Dec 13 23:00	Maximum Daily Average: 2.2 ppm on Dec 3		Hours of Data:	701
Minimum Value: 1.9 ppm on Dec 30 10:00	Minimum Daily Average: 1.9 ppm on Dec 30		Hours of Missing Data:	43
Maximum Diurnal Average: 2.1 ppm at hour 23	Minimum Diurnal Average: 2.0 ppm at hour 17		Hours of Calibration:	32
Monthly Average: 2.03 ppm	Percentiles: P ₁ = 1.9 P ₁₀ = 1.9 Q ₁ = 2.0 Median = 2.0 Q ₃ = 2.1 P ₉₀ = 2.1 P ₉₉ = 2.3		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-Dec	M	M	M	M	M	M	M	C	C	2.2	2.2	2.1	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	--	2.2	
2-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.3	
3-Dec	2.3	2.3	Z	2.4	2.5	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.0	2.1	2.1	2.1	2.2	2.5	
4-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
5-Dec	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	
6-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
7-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.3	2.1	2.0	2.3	
8-Dec	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
9-Dec	2.0	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	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	
10-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
11-Dec	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	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
12-Dec	2.0	2.0	2.0	2.0	2.0	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	
13-Dec	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	2.1	2.1	2.1	2.3	2.8	2.5	2.1	2.8	
14-Dec	2.2	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.2	
15-Dec	2.1	2.0	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	
16-Dec	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	
17-Dec	1.9	1.9	2.0	2.0	Z	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	2.0	1.9	2.0	
18-Dec	2.0	2.1	2.0	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	2.0	2.1	2.1	
19-Dec	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	2.1	2.1	
20-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	M	M	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	
21-Dec	2.1	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.0	2.1	2.2	
22-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	
23-Dec	2.2	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	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.1	2.2	
24-Dec	1.9	1.9	1.9	1.9	1.9	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.0	2.0	2.0	2.0	2.2	
25-Dec	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	
26-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	
27-Dec	2.1	2.2	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
28-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.3	2.2	2.0	2.0	2.1	2.3	
29-Dec	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	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	
30-Dec	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	
31-Dec	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	2.0	2.0	2.0	1.9	2.0	

2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	Diurnal Average			
2.3	2.3	2.2	2.4	2.5	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.8	2.5	Diurnal Maximum	

Z - zerospan C - Calibration M - Maintenance





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Patricia McInnes - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	424	60.49	60.49
2.1 - 3.0	277	39.51	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
Patricia McInnes - December 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	21	13	3	6	3	39	64	16	22	20	49	29	21	59	24	35	424
2.1 - 3.0	15	9	0	2	5	14	69	46	36	22	5	8	5	8	14	19	277
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	36	22	3	8	8	53	133	62	58	42	54	37	26	67	38	54	701

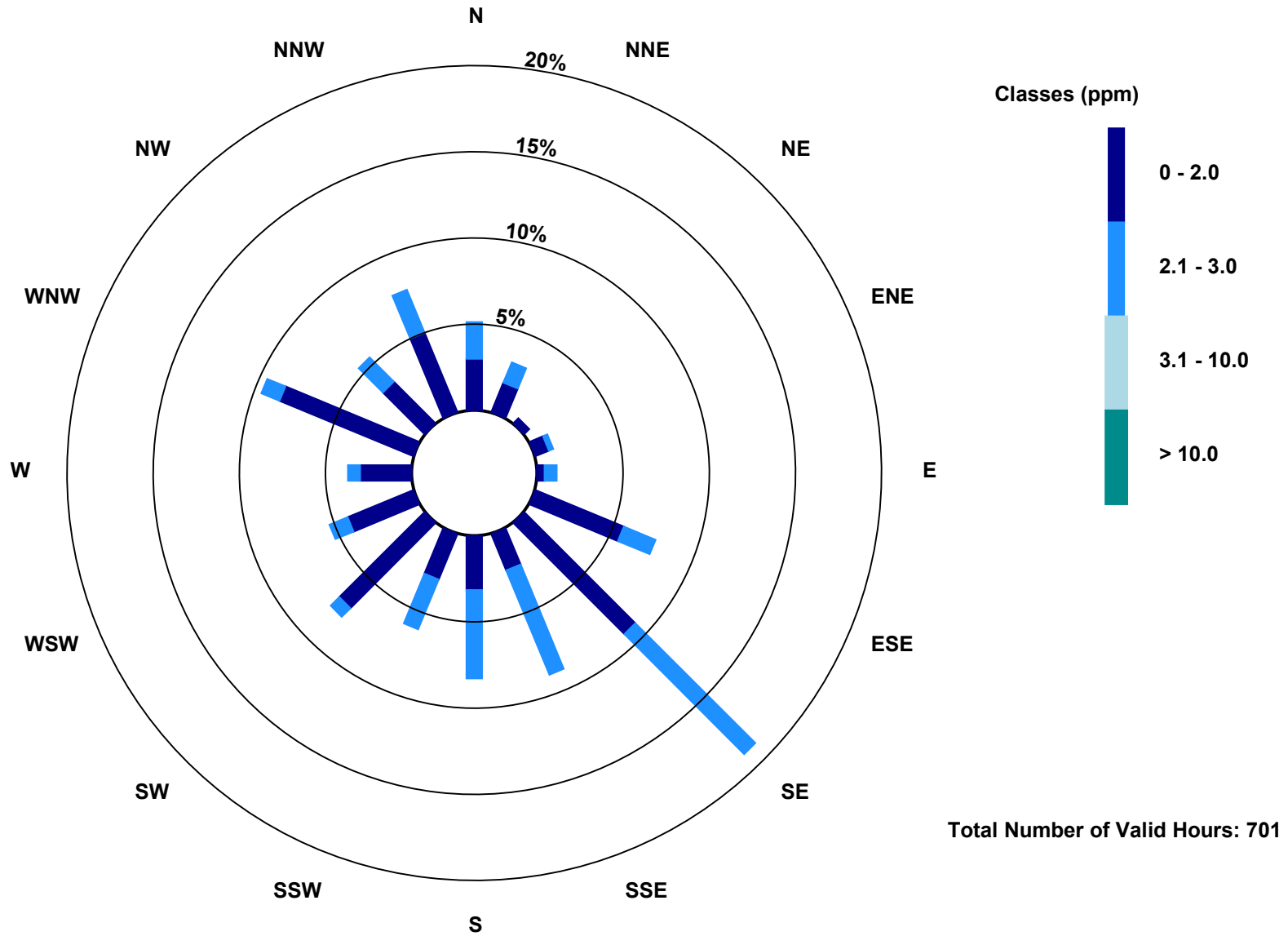
Total Number of Valid Hours: 701

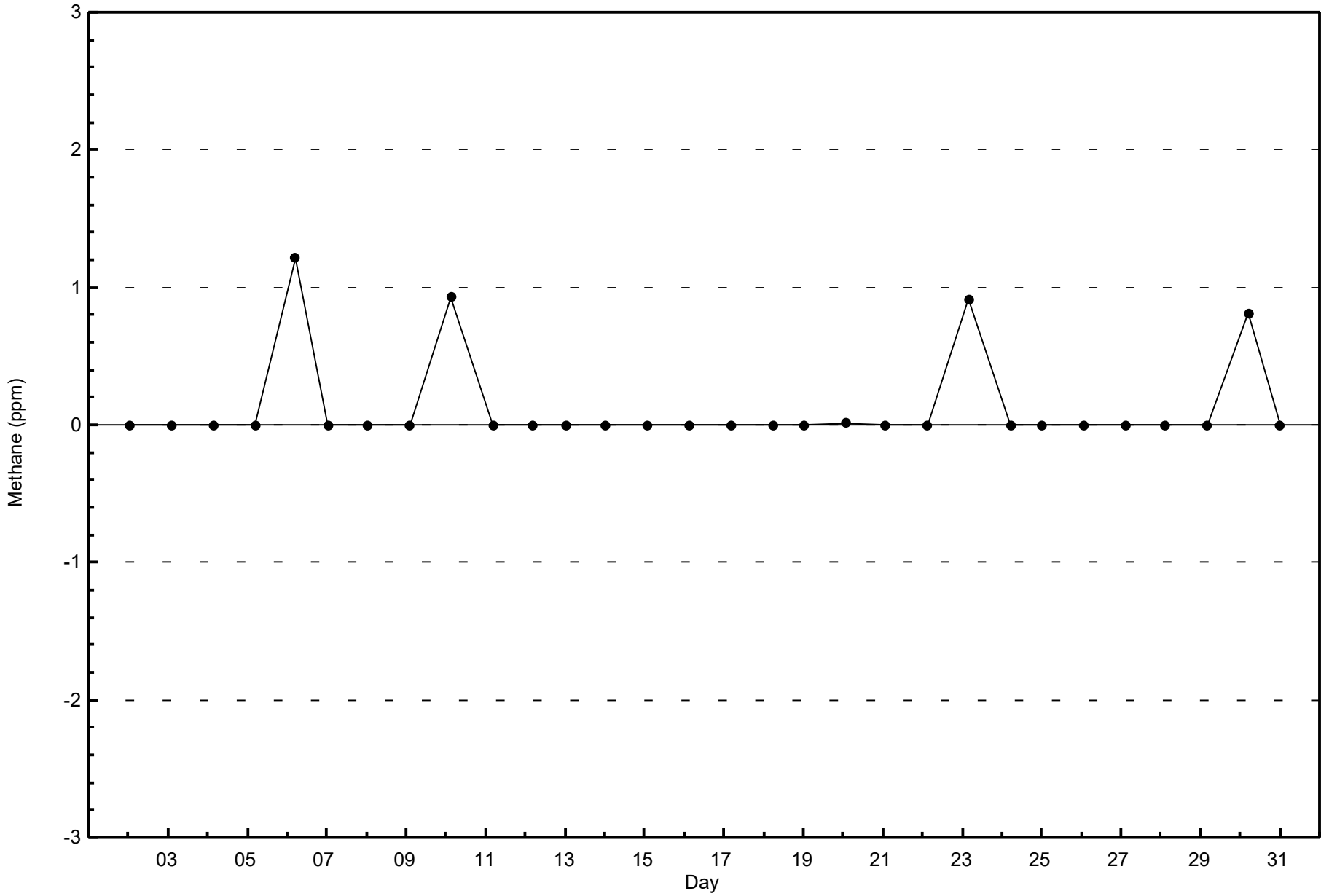
Total Number of Hours: 744

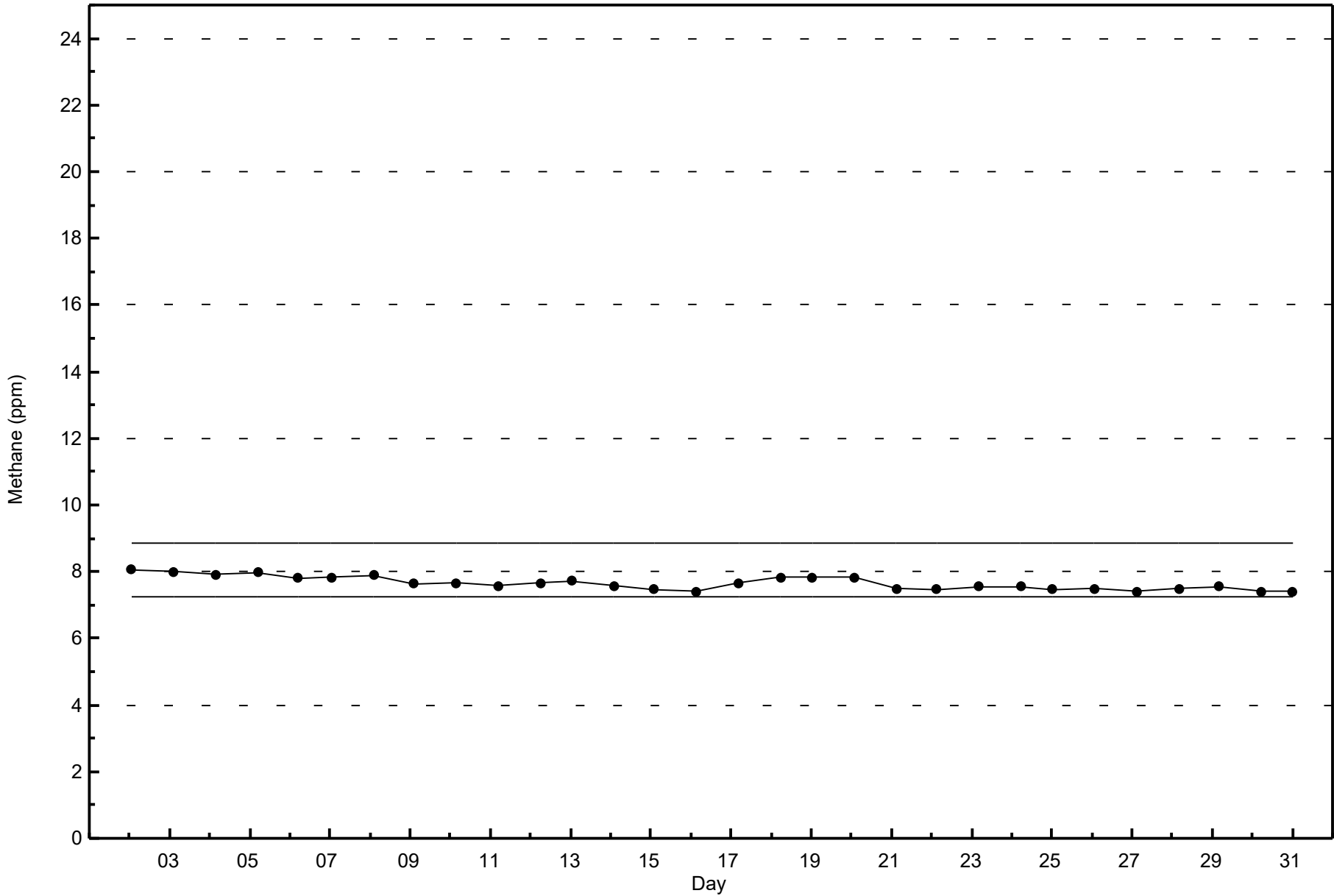


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Patricia McInnes





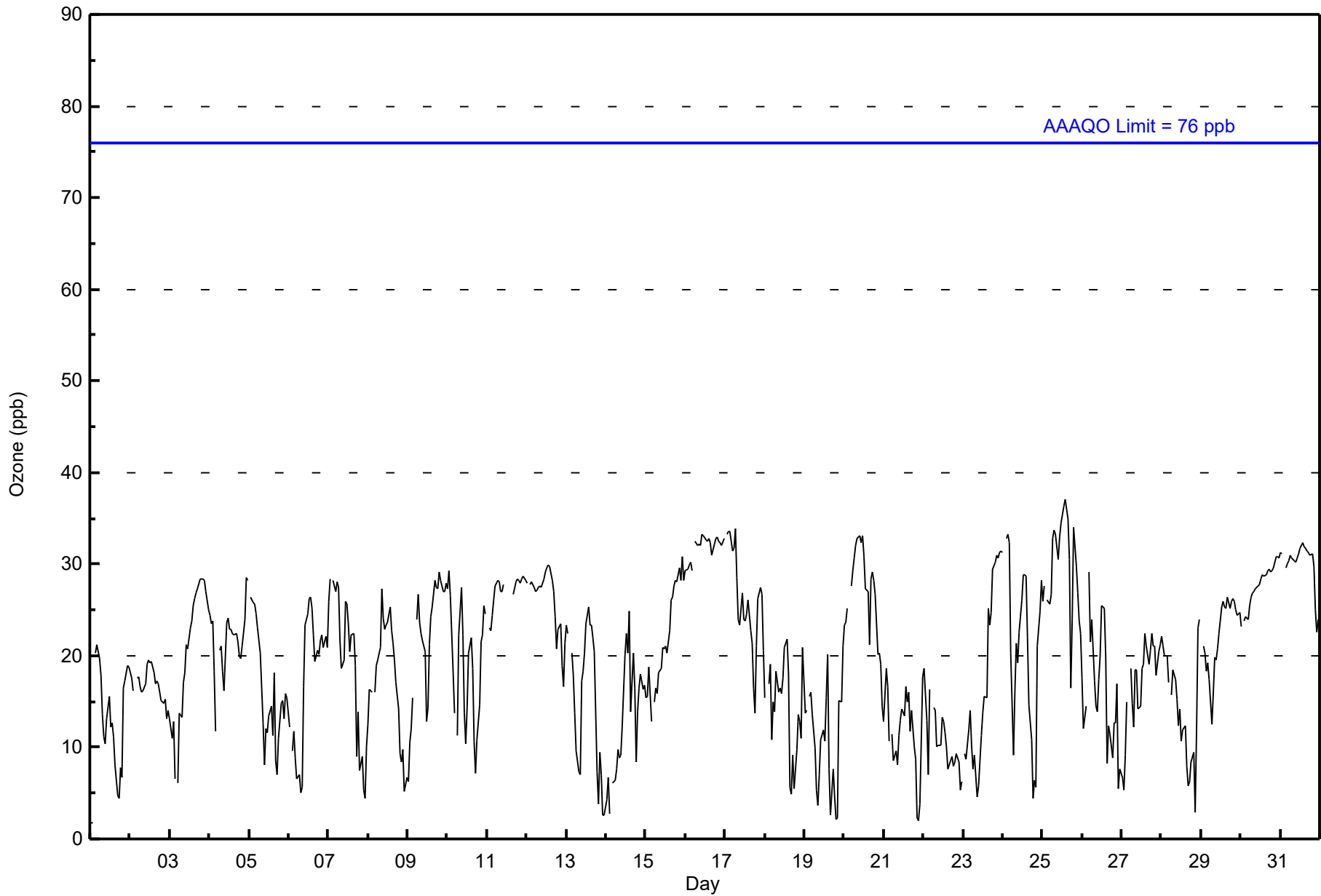




Summary of Hour Averages

Patricia McInnes - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 37.1 ppb on Dec 25 15:00		Maximum Daily Average: 31.8 ppb on Dec 16																	Hours of Data: 708								
Minimum Value: 1.7 ppb on Dec 1 01:00		Minimum Daily Average: 10.7 ppb on Dec 19																	Hours of Missing Data: 36								
Maximum Diurnal Average: 22.5 ppb at hour 15		Minimum Diurnal Average: 17.7 ppb at hour 19																	Hours of Calibration: 36								
Monthly Average: 19.74 ppb		Percentiles: P ₁ = 2.6 P ₁₀ = 8.3 Q ₁ = 13.6 Median = 20.3 Q ₃ = 26.7 P ₉₀ = 30.2 P ₉₉ = 33.7																	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-Dec	1.7	1.9	Z	20.3	21.2	19.7	17.9	13.6	11.1	10.3	13.2	15.6	12.2	12.7	11.1	8.1	4.7	4.4	7.8	6.7	16.5	17.3	18.8	18.8	12.4	21.2	
2-Dec	18.2	17.6	16.1	Z	17.5	17.7	16.7	16.0	16.2	16.9	19.1	19.5	19.2	19.4	18.1	16.9	17.2	16.9	16.0	15.1	14.9	15.3	13.1	14.0	16.8	19.5	
3-Dec	13.1	10.9	12.8	6.6	Z	6.1	13.7	13.2	17.0	18.1	21.2	20.8	23.0	23.8	25.5	26.3	26.8	27.4	28.4	28.4	28.2	27.0	25.0	20.5	28.4		
4-Dec	24.4	23.4	23.8	18.4	11.8	Z	20.6	21.1	18.3	16.1	23.7	24.1	22.9	22.8	22.4	22.2	22.4	21.5	20.0	19.6	21.1	24.0	28.5	28.2	21.8	28.5	
5-Dec	Z	26.4	25.8	25.6	24.5	23.0	21.7	20.3	12.7	8.1	12.0	11.6	13.4	14.5	11.3	18.1	8.5	7.0	10.9	14.9	15.2	13.1	15.9	15.5	16.1	26.4	
6-Dec	12.2	Z	9.6	11.8	8.9	6.6	7.0	5.1	5.7	16.7	23.4	24.5	26.3	26.3	25.2	22.3	19.3	20.6	20.1	21.6	22.3	20.9	22.1	20.9	17.4	26.3	
7-Dec	25.9	28.3	Z	28.2	27.0	28.0	27.4	21.7	18.6	19.5	25.9	25.7	23.4	20.4	22.3	22.4	18.8	9.0	13.9	7.4	8.9	5.4	4.4	10.1	19.3	28.3	
8-Dec	12.6	16.3	16.1	Z	16.0	18.9	19.5	20.9	27.2	24.1	23.0	23.3	23.6	25.3	22.8	21.4	19.6	17.1	14.1	9.3	8.5	9.8	5.1	6.8	17.4	27.2	
9-Dec	6.3	10.5	12.0	15.4	Z	23.9	26.7	23.7	22.4	21.6	20.5	12.8	14.3	21.3	24.3	25.3	28.2	27.5	27.2	29.2	28.2	27.0	27.0	27.9	21.9	29.2	
10-Dec	27.3	29.3	26.6	18.1	13.8	Z	11.3	22.2	27.4	22.3	13.8	10.4	14.3	20.3	21.9	18.5	10.7	7.1	10.8	14.7	21.5	22.3	25.5	24.5	18.9	29.3	
11-Dec	Z	23.0	22.7	24.5	26.1	27.7	28.3	28.1	27.0	27.0	27.8	C	C	C	C	C	26.6	28.1	28.3	28.2	28.0	28.4	28.7	28.3	27.0	28.7	
12-Dec	28.0	Z	27.7	28.0	27.5	27.0	27.2	27.5	27.6	27.5	28.4	29.1	29.6	29.9	29.8	28.3	27.0	24.2	20.7	22.9	23.5	18.9	16.7	21.4	26.0	29.9	
13-Dec	23.4	22.4	Z	20.3	17.8	13.7	9.6	7.3	7.0	17.2	18.4	20.3	23.5	25.3	23.4	23.3	21.9	20.4	7.3	3.8	9.4	7.1	2.6	2.6	15.1	25.3	
14-Dec	4.2	6.7	2.7	Z	6.1	6.4	7.7	9.7	8.8	9.2	12.3	20.2	22.4	20.3	24.9	13.9	20.3	16.5	8.4	13.9	16.5	18.0	16.3	16.8	13.1	24.9	
15-Dec	15.5	15.6	18.8	12.9	Z	15.0	16.4	15.9	18.2	18.6	20.9	20.8	21.0	20.2	22.8	26.1	26.4	27.7	28.2	28.1	29.6	28.2	30.9	28.3	22.0	30.9	
16-Dec	29.3	29.4	29.9	30.2	29.3	Z	32.5	32.1	32.2	32.1	33.3	33.1	32.7	32.5	32.8	32.4	31.0	32.2	32.8	32.9	32.5	32.3	32.1	32.8	31.8	33.3	
17-Dec	Z	33.2	33.5	33.6	31.5	31.7	33.9	28.6	24.0	23.3	26.8	24.0	23.7	24.5	26.1	22.8	21.4	16.4	13.8	21.0	26.2	27.5	26.8	20.6	25.9	33.9	
18-Dec	15.5	Z	16.9	19.1	10.9	15.0	13.8	18.4	16.1	16.5	15.8	17.5	20.9	21.8	17.9	5.7	4.8	9.1	5.5	9.8	13.6	12.8	11.0	20.9	14.3	21.8	
19-Dec	13.7	14.0	Z	15.5	16.0	13.6	9.9	5.4	3.7	7.0	10.8	11.9	10.7	15.4	20.1	7.6	2.6	7.6	4.6	2.1	2.3	15.2	14.9	21.0	10.7	21.0	
20-Dec	23.4	23.6	25.2	Z	27.5	29.2	30.6	32.0	32.8	33.1	32.3	33.1	30.8	27.3	27.0	21.2	28.3	29.1	28.2	26.7	20.2	20.3	19.0	14.4	26.8	33.1	
21-Dec	12.9	18.6	16.7	10.7	Z	11.4	8.6	9.6	8.1	11.2	13.0	14.1	13.5	16.7	14.9	16.0	11.7	14.0	10.1	8.7	2.3	2.0	3.9	17.8	11.6	18.6	
22-Dec	18.6	15.7	13.0	7.0	16.3	Z	14.3	14.1	10.0	10.2	10.2	13.2	12.9	11.7	10.0	7.7	8.6	9.0	8.0	8.4	9.2	8.3	5.4	6.3	10.8	18.6	
23-Dec	Z	9.3	8.7	12.0	14.1	10.3	7.7	9.1	4.6	5.8	8.6	11.2	13.8	15.6	15.4	25.1	23.3	24.7	29.4	30.1	31.0	30.7	31.3	31.4	17.5	31.4	
24-Dec	31.2	Z	32.7	33.3	32.4	20.3	9.1	16.2	21.3	19.3	22.6	26.1	28.8	28.9	28.6	21.9	14.6	10.9	4.4	6.5	5.6	21.1	24.9	28.2	21.2	33.3	
25-Dec	25.9	27.6	Z	26.1	25.7	26.7	32.8	33.7	33.2	30.4	33.0	34.5	35.4	36.3	37.1	35.0	30.6	16.5	24.0	34.0	29.8	26.8	23.8	22.4	29.6	37.1	
26-Dec	17.5	12.0	14.5	Z	29.2	21.5	24.0	17.2	14.4	13.9	17.4	20.0	25.5	25.2	19.9	8.2	12.4	11.5	8.8	12.6	12.7	17.0	5.5	7.6	16.0	29.2	
27-Dec	6.7	5.4	9.2	14.9	Z	18.7	14.8	12.3	18.4	18.5	14.2	14.5	18.6	19.0	22.5	21.1	19.1	20.6	22.5	21.0	21.0	17.8	20.5	21.2	17.1	22.5	
28-Dec	22.1	21.0	20.0	20.0	17.0	Z	15.7	18.5	17.4	15.2	12.3	14.2	10.7	11.9	12.4	7.9	5.8	6.2	8.4	9.5	3.0	11.9	23.1	24.0	14.3	24.0	
29-Dec	Z	21.0	20.3	18.2	19.2	17.5	12.5	16.1	19.9	19.6	20.8	22.4	25.4	25.9	25.4	25.1	26.4	25.1	26.0	26.3	25.9	25.0	24.3	24.8	22.3	26.4	
30-Dec	23.2	Z	23.8	24.3	24.0	25.5	26.4	26.9	27.0	27.4	27.6	27.8	28.4	28.9	28.7	28.9	29.3	29.5	29.1	29.3	29.6	30.8	30.9	30.6	27.7	30.9	
31-Dec	31.3	31.1	Z	29.6	30.0	30.3	30.9	30.7	30.3	30.2	30.6	31.2	31.8	32.3	31.9	31.8	31.5	31.2	31.0	31.2	29.7	25.0	22.5	23.9	30.0	32.3	
		18.6	19.0	19.2	20.2	20.8	19.4	19.0	18.9	18.7	18.9	20.4	20.9	21.8	22.5	22.5	20.4	19.4	18.4	17.7	18.5	18.9	19.6	19.4	20.5	Diurnal Average	
		31.3	33.2	33.5	33.6	32.4	31.7	33.9	33.7	33.2	33.1	33.3	34.5	35.4	36.3	37.1	35.0	31.5	32.2	32.8	34.0	32.5	32.3	32.1	32.8	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
Patricia McInnes - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	360	50.85	50.85
21 - 50	348	49.15	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
Patricia McInnes - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	22	15	3	6	8	26	73	53	52	21	14	8	8	8	14	29	360
21 - 50	16	7	0	2	1	27	59	11	6	19	39	30	16	64	27	24	348
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	38	22	3	8	9	53	132	64	58	40	53	38	24	72	41	53	708

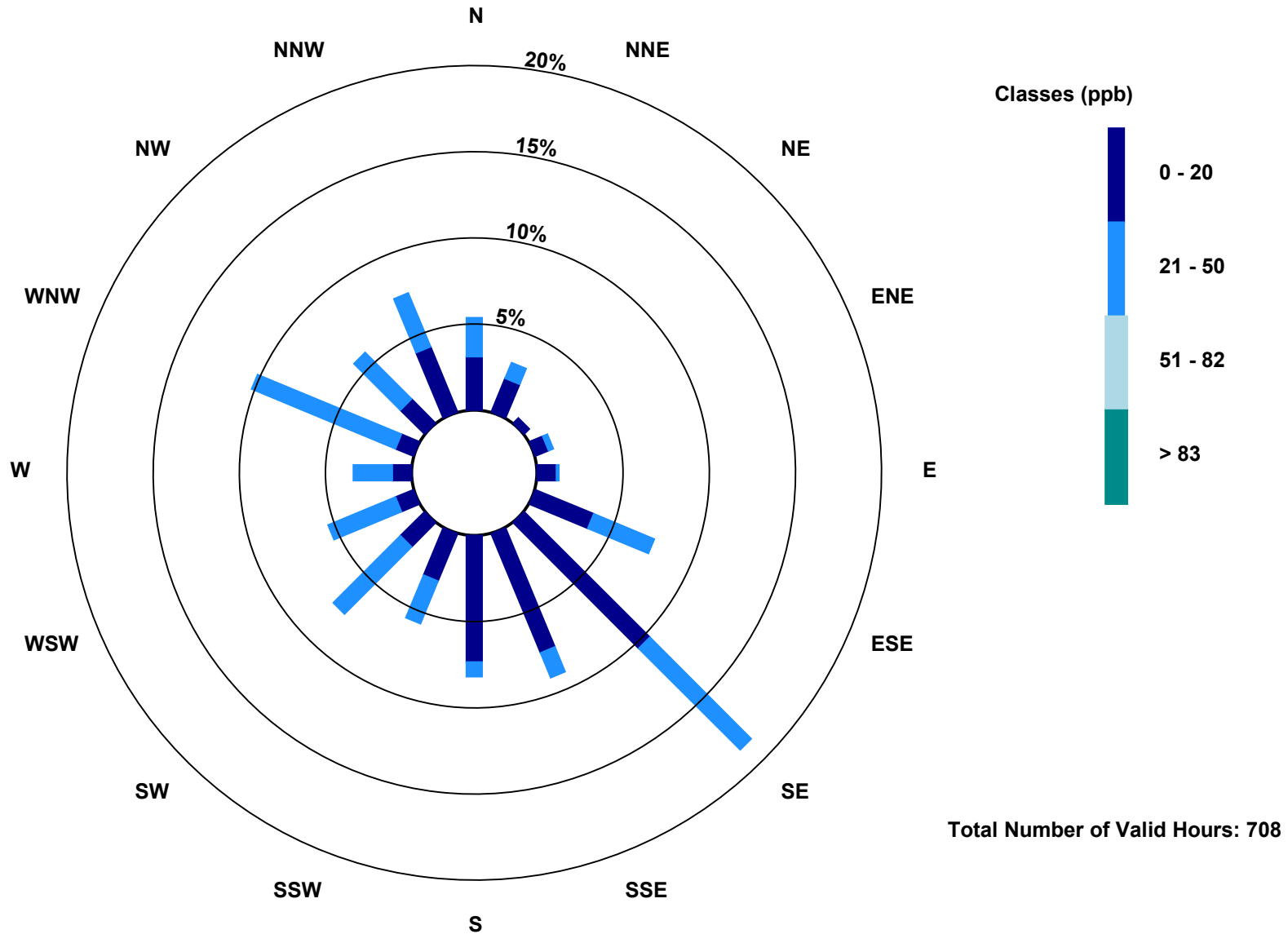
Total Number of Valid Hours: 708

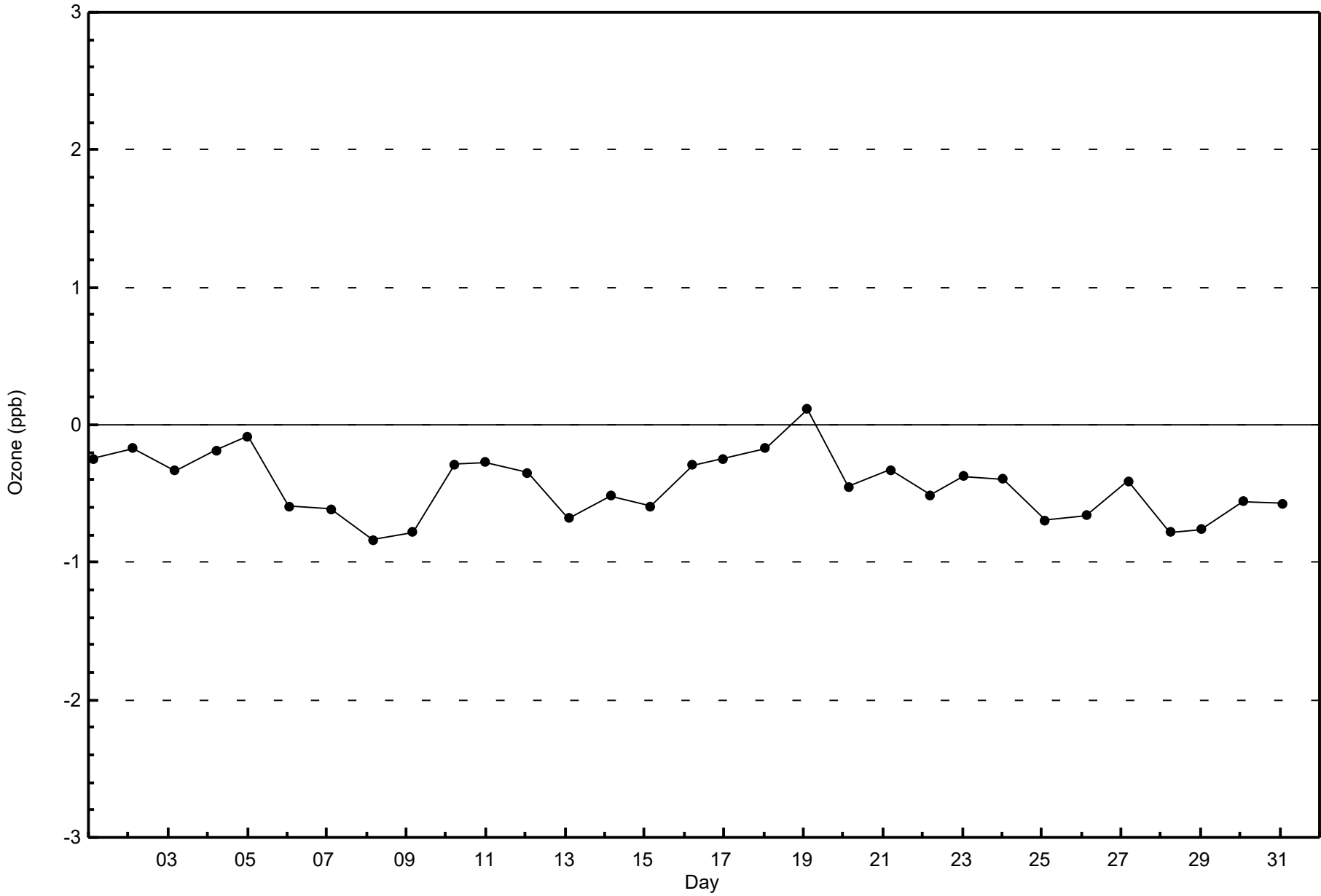
Total Number of Hours: 744

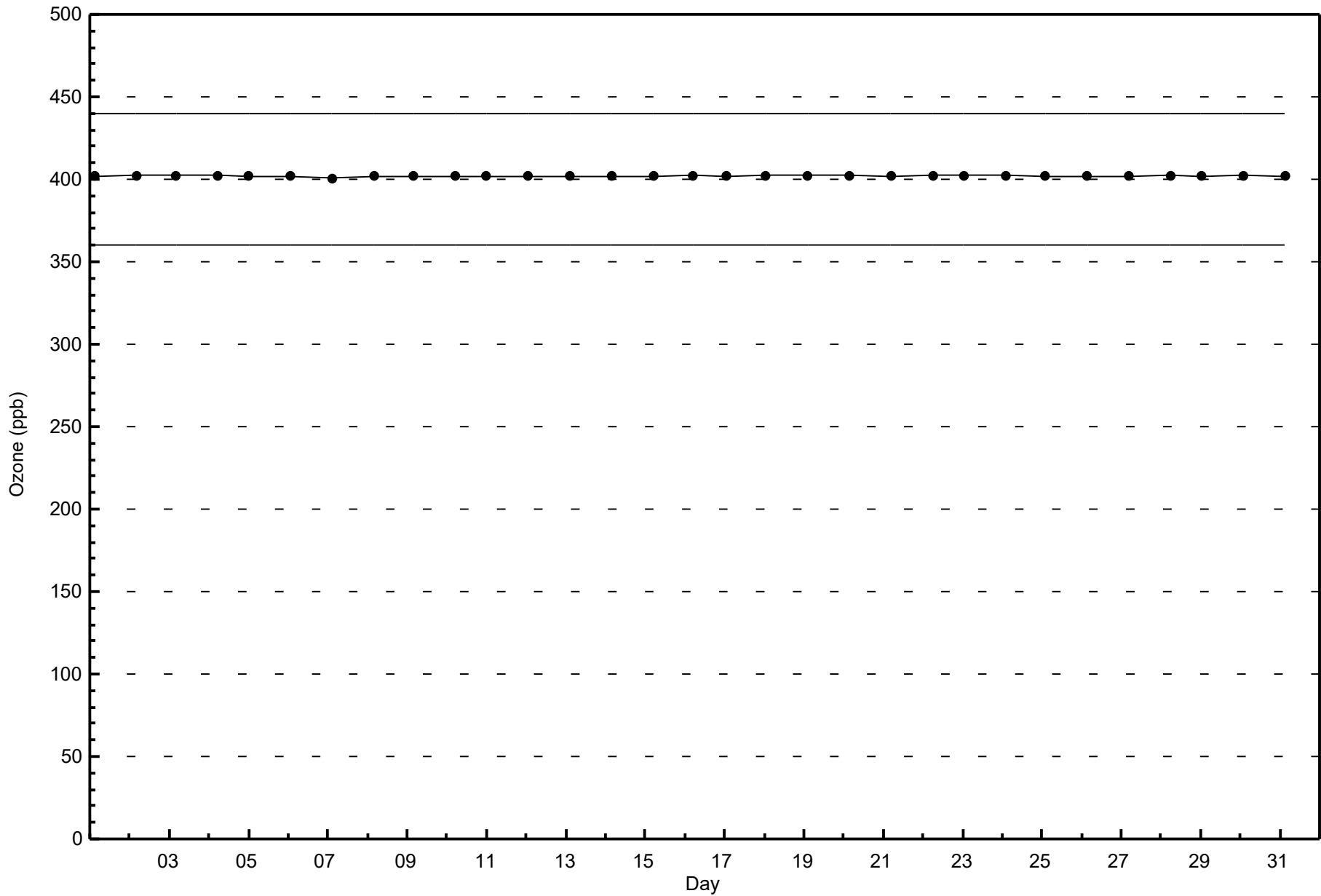


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Patricia McInnes









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

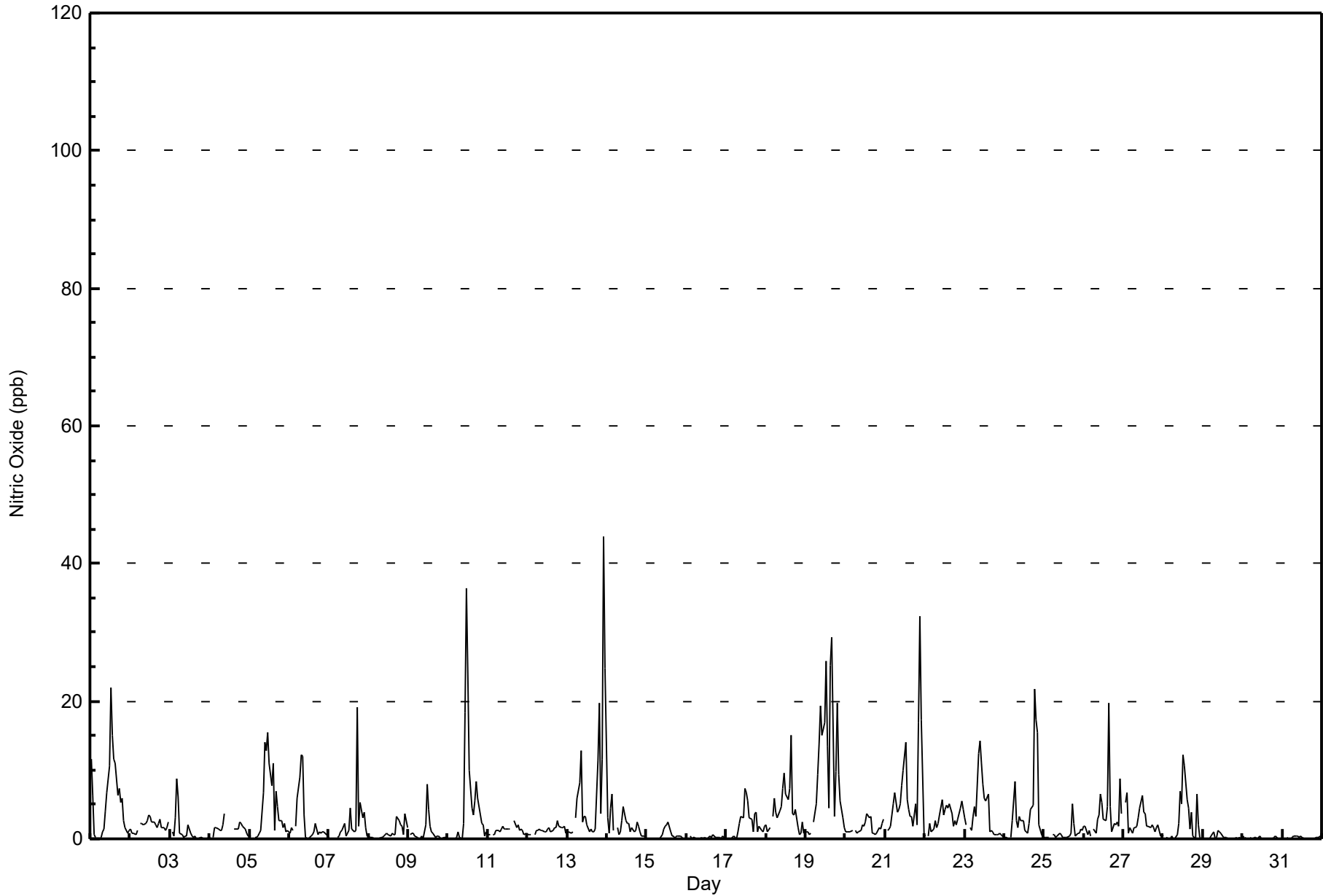
Patricia McInnes - December 2024

Maximum Value: 43.9 ppb on Dec 13 23:00																				Maximum Daily Average: 10.3 ppb on Dec 19					Hours in Service: 744																								
Minimum Value: 0.0 ppb on Dec 3 17:00																				Minimum Daily Average: 0.1 ppb on Dec 30					Hours of Data: 706																								
Maximum Diurnal Average: 5.5 ppb at hour 12																				Minimum Diurnal Average: 0.9 ppb at hour 3					Hours of Missing Data: 38																								
Monthly Average: 2.79 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 1.2 Q ₃ = 3.1 P ₉₀ = 6.7 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-Dec	11.6	6.3	0.7	0.1	Z	0.1	0.2	0.9	1.5	4.0	6.8	10.6	21.9	15.0	11.7	11.0	6.4	7.3	5.3	6.0	2.7	1.5	0.8	1.3	5.8	21.9																							
2-Dec	1.4	0.8	0.8	0.7	1.3	Z	2.1	2.2	2.0	2.2	2.6	3.4	3.3	2.4	2.5	2.1	1.6	2.3	2.8	1.7	1.6	1.3	1.6	2.4	2.0	3.4																							
3-Dec	Z	1.0	0.4	3.1	8.8	6.0	0.8	0.7	0.2	0.4	0.5	1.9	0.8	0.3	0.3	0.4	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.2	1.1	8.8																							
4-Dec	0.1	Z	0.2	1.5	1.6	1.4	1.3	1.3	2.1	3.6	C	C	C	C	C	1.4	1.5	1.5	2.5	2.2	1.8	1.4	0.8	0.4	1.5	3.6																							
5-Dec	0.5	0.4	Z	0.2	0.2	0.5	0.8	1.3	6.7	14.1	12.9	15.4	11.0	7.7	11.0	1.1	6.9	4.6	2.5	2.6	1.6	2.3	1.1	1.2	4.6	15.4																							
6-Dec	0.9	1.6	1.1	Z	1.7	5.9	9.0	12.2	12.1	3.4	0.2	0.1	0.1	0.4	0.6	1.1	2.3	0.6	1.1	0.7	0.9	0.9	0.7	0.4	2.5	12.2																							
7-Dec	0.1	0.0	0.0	0.0	Z	0.2	0.5	1.0	1.2	2.3	0.4	0.8	1.1	4.6	1.5	0.9	1.2	19.2	1.9	5.3	3.0	3.9	1.7	0.3	2.2	19.2																							
8-Dec	0.3	0.2	0.1	0.0	0.0	Z	0.1	0.1	0.2	0.5	0.7	0.8	0.7	0.4	0.8	0.7	0.7	3.2	2.7	2.0	1.8	0.5	3.7	1.6	1.0	3.7																							
9-Dec	Z	0.7	0.7	0.7	0.4	0.2	0.0	0.0	0.3	0.0	1.9	8.0	4.2	1.9	1.0	0.8	0.2	0.4	0.4	0.2	0.1	0.2	0.2	0.2	1.0	8.0																							
10-Dec	0.1	Z	0.0	0.0	0.0	0.2	1.1	0.3	0.1	2.3	18.3	36.4	24.0	10.0	4.4	3.4	5.5	8.4	5.8	3.5	2.3	2.1	0.5	1.0	5.6	36.4																							
11-Dec	0.6	0.7	Z	0.7	0.6	1.2	1.2	1.1	1.5	1.9	1.5	1.4	1.5	1.4	M	M	2.5	1.7	1.9	1.2	1.3	1.2	0.7	0.8	1.3	2.5																							
12-Dec	0.5	0.6	0.6	Z	0.6	1.2	1.3	1.4	1.2	1.2	1.0	1.0	1.5	1.6	1.1	1.3	1.7	1.7	2.6	1.7	1.5	1.7	1.8	0.9	1.3	2.6																							
13-Dec	0.9	1.1	0.8	0.9	Z	3.0	5.8	8.2	12.8	2.4	3.3	3.2	2.1	1.1	1.5	1.0	0.9	1.4	11.3	19.8	3.7	11.6	43.9	24.7	7.2	43.9																							
14-Dec	3.1	0.9	4.5	6.4	1.3	Z	1.6	0.6	1.0	2.7	4.7	2.7	2.3	2.3	1.1	1.6	1.1	1.2	2.5	1.8	1.0	0.5	0.4	0.1	2.0	6.4																							
15-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	1.3	1.8	2.0	2.3	1.1	0.4	0.3	0.1	0.3	0.3	0.3	0.1	0.0	0.0	0.5	2.3																							
16-Dec	0.0	Z	0.4	0.0	0.2	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.6	0.3	0.1	0.1	0.3	0.1	0.3	0.0	0.2	0.6																							
17-Dec	0.0	0.0	Z	0.1	0.4	0.1	0.1	1.0	2.1	3.4	3.0	7.3	6.8	5.5	3.1	2.8	0.9	3.6	3.8	0.9	1.8	1.3	1.1	1.9	2.2	7.3																							
18-Dec	2.1	1.0	1.6	Z	3.2	5.9	3.9	3.1	4.0	4.6	7.4	9.6	6.5	5.6	7.4	15.0	3.7	3.4	4.3	1.7	0.7	0.9	2.5	0.8	4.3	15.0																							
19-Dec	1.1	1.1	0.5	0.8	Z	2.4	5.1	9.4	13.8	19.2	15.0	16.8	25.8	13.4	4.4	25.2	29.2	3.4	9.7	19.8	9.4	5.5	3.1	1.7	10.3	29.2																							
20-Dec	1.0	1.0	1.0	1.0	1.3	Z	1.2	0.8	0.9	1.2	2.0	1.9	2.3	3.6	3.1	3.2	0.9	0.7	0.7	0.9	1.6	1.5	2.2	2.9	1.6	3.6																							
21-Dec	Z	1.2	1.3	1.9	3.5	5.0	6.8	3.9	4.2	5.1	7.7	10.0	14.0	5.6	4.2	3.3	3.2	1.8	5.0	2.1	16.9	32.3	17.4	0.7	6.8	32.3																							
22-Dec	0.4	Z	0.3	2.2	1.0	1.3	2.7	1.6	2.2	3.5	5.7	3.5	4.3	4.9	4.5	5.0	3.6	1.7	2.7	2.1	2.8	4.6	5.5	4.3	3.1	5.7																							
23-Dec	3.1	2.0	Z	1.6	1.2	3.2	4.7	3.2	12.5	14.2	10.9	8.0	5.8	5.5	6.5	0.9	1.2	1.1	0.7	0.5	0.6	0.8	0.7	0.4	3.9	14.2																							
24-Dec	0.1	0.1	0.1	Z	0.2	2.5	8.3	2.6	1.7	3.2	2.7	2.6	1.1	1.1	0.9	2.2	4.3	5.0	21.7	17.4	15.5	2.0	0.6	0.3	4.2	21.7																							
25-Dec	0.3	0.2	0.1	0.2	Z	0.7	0.5	0.3	0.5	0.8	0.5	0.3	0.1	0.2	0.3	0.4	0.8	5.1	2.2	0.4	0.9	0.8	1.4	1.2	0.8	5.1																							
26-Dec	1.9	1.8	0.7	1.2	0.5	Z	1.4	0.8	2.9	3.4	6.6	5.2	2.9	2.6	4.8	19.6	4.7	1.1	2.3	2.0	2.4	1.9	8.7	3.7	3.6	19.6																							
27-Dec	Z	5.2	6.7	0.8	1.7	0.9	1.5	1.5	1.9	3.1	4.5	6.2	3.9	3.6	1.9	1.8	1.7	2.0	1.7	1.1	1.6	2.1	0.5	0.6	2.5	6.7																							
28-Dec	0.3	Z	0.3	0.0	0.0	0.3	0.0	0.0	0.7	2.3	6.9	5.0	12.1	10.6	5.6	4.6	1.5	4.0	0.4	0.1	6.5	2.0	0.3	0.0	2.8	12.1																							
29-Dec	0.0	0.0	Z	0.0	0.0	0.4	1.1	0.0	0.1	1.1	1.0	0.8	0.2	0.2	0.2	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.2	1.1																							
30-Dec	0.3	0.1	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.1	0.0	0.0	0.1	0.4																						
31-Dec	0.0	0.0	0.0	0.1	Z	0.1	0.3	0.4	0.4	0.3	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.3	0.4	0.1	0.4																							
																								1.2	1.1	0.9	0.9	1.2	1.7	2.0	1.9	2.9	3.5	4.4	5.5	5.4	3.8	3.0	3.7	2.9	2.8	3.2	3.2	2.8	2.7	3.3	1.8	Diurnal Average	
																								11.6	6.3	6.7	6.4	8.8	6.0	9.0	12.2	13.8	19.2	18.3	36.4	25.8	15.0	11.7	25.2	29.2	19.2	21.7	19.8	16.9	32.3	43.9	24.7	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	696	98.58	98.58
21 - 40	9	1.27	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Patricia McInnes - December 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	36	22	3	7	6	51	132	61	53	42	54	37	26	72	39	55	696
21 - 40	1	0	0	1	3	3	0	0	1	0	0	0	0	0	0	0	9
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	37	22	3	8	9	54	132	61	54	42	54	37	26	72	39	56	706

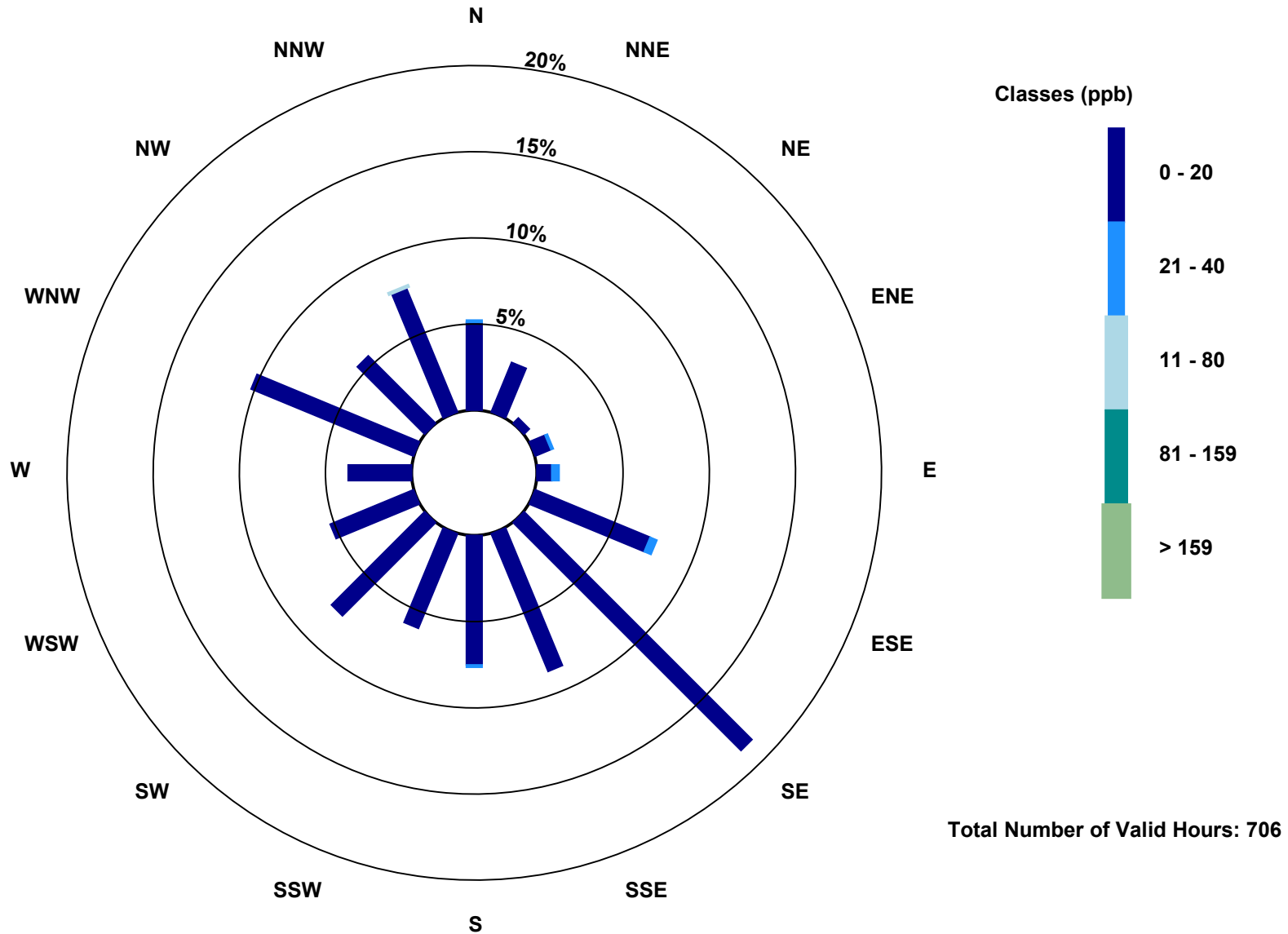
Total Number of Valid Hours: 706

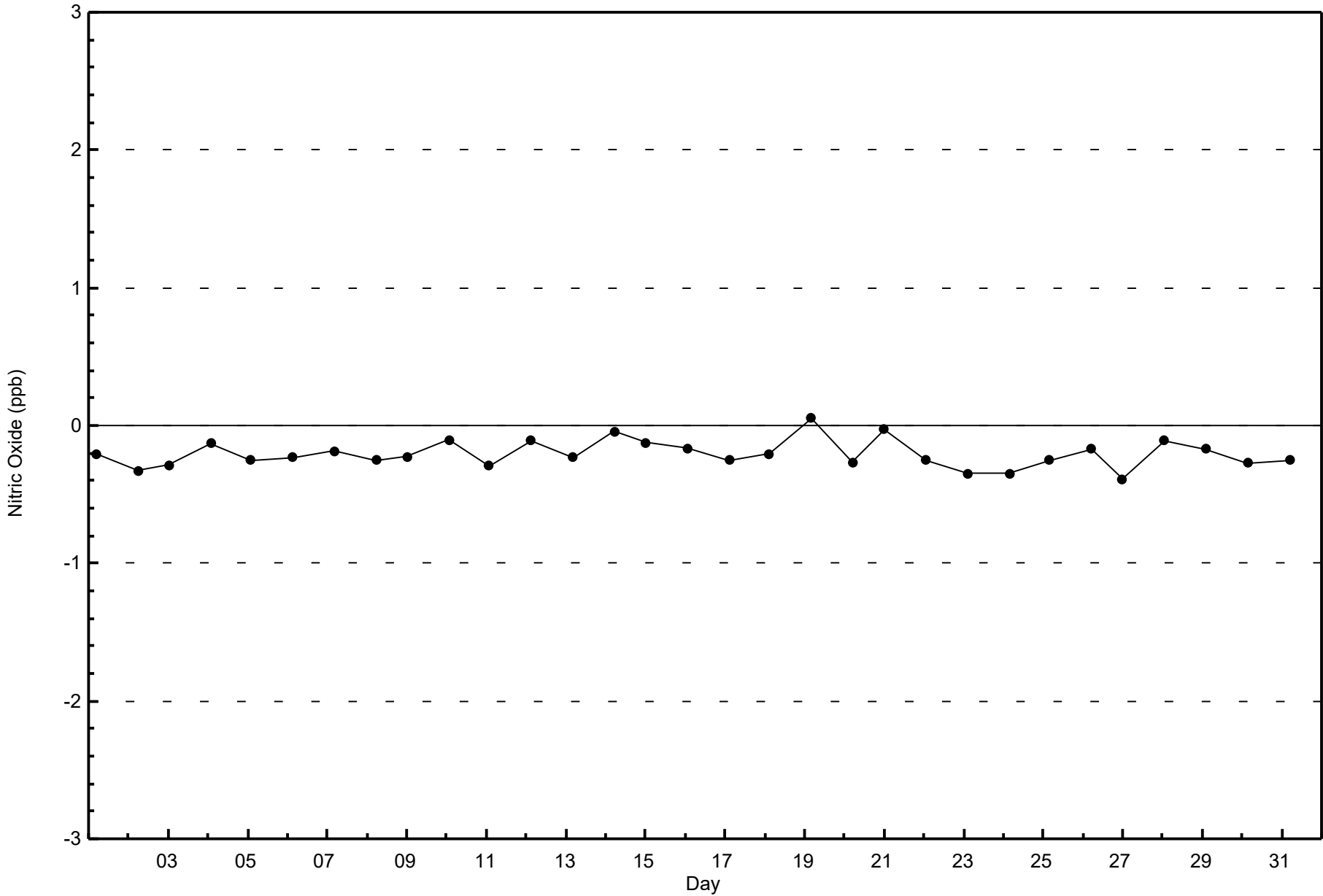
Total Number of Hours: 744

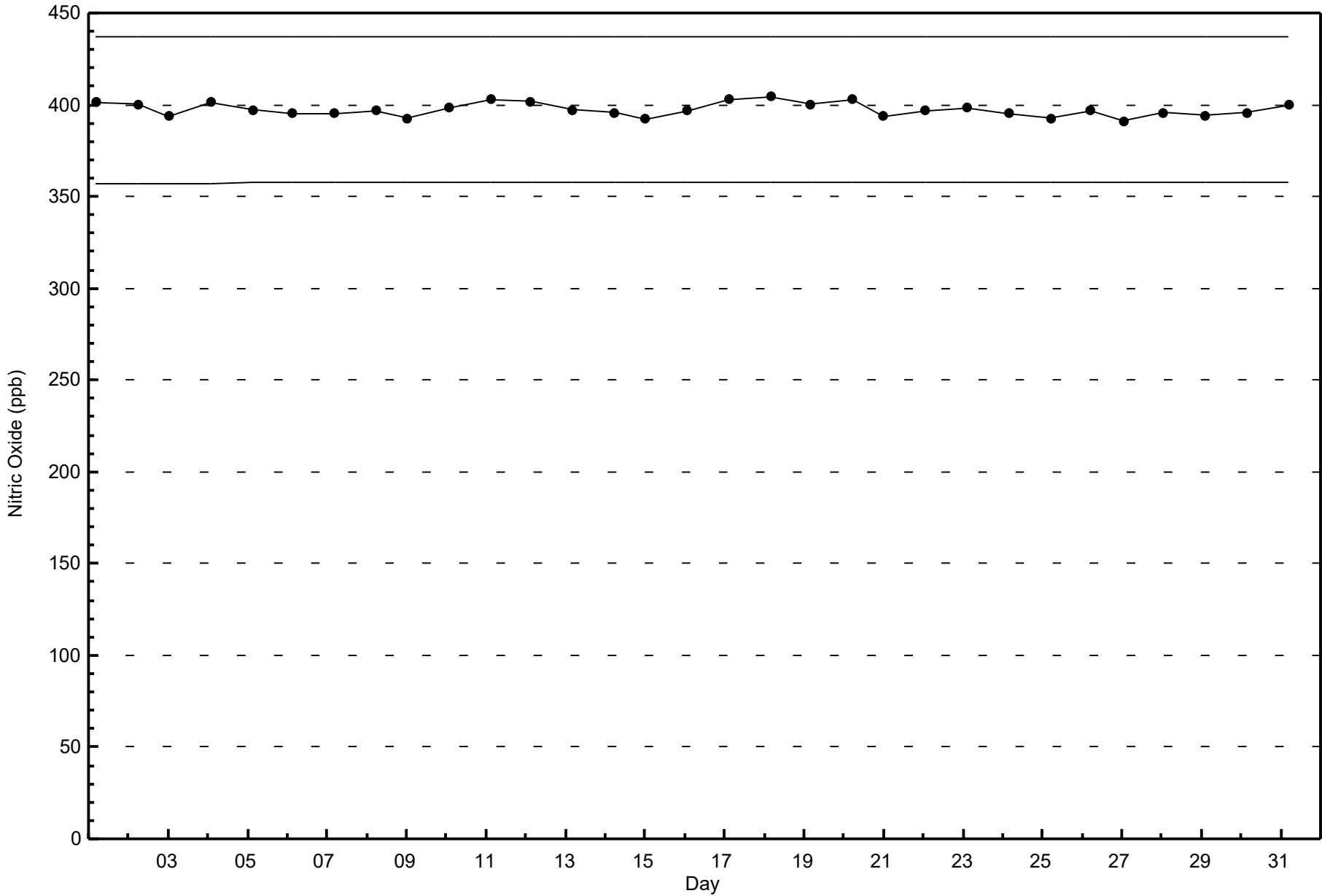


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Patricia McInnes









Wood Buffalo Environmental Association

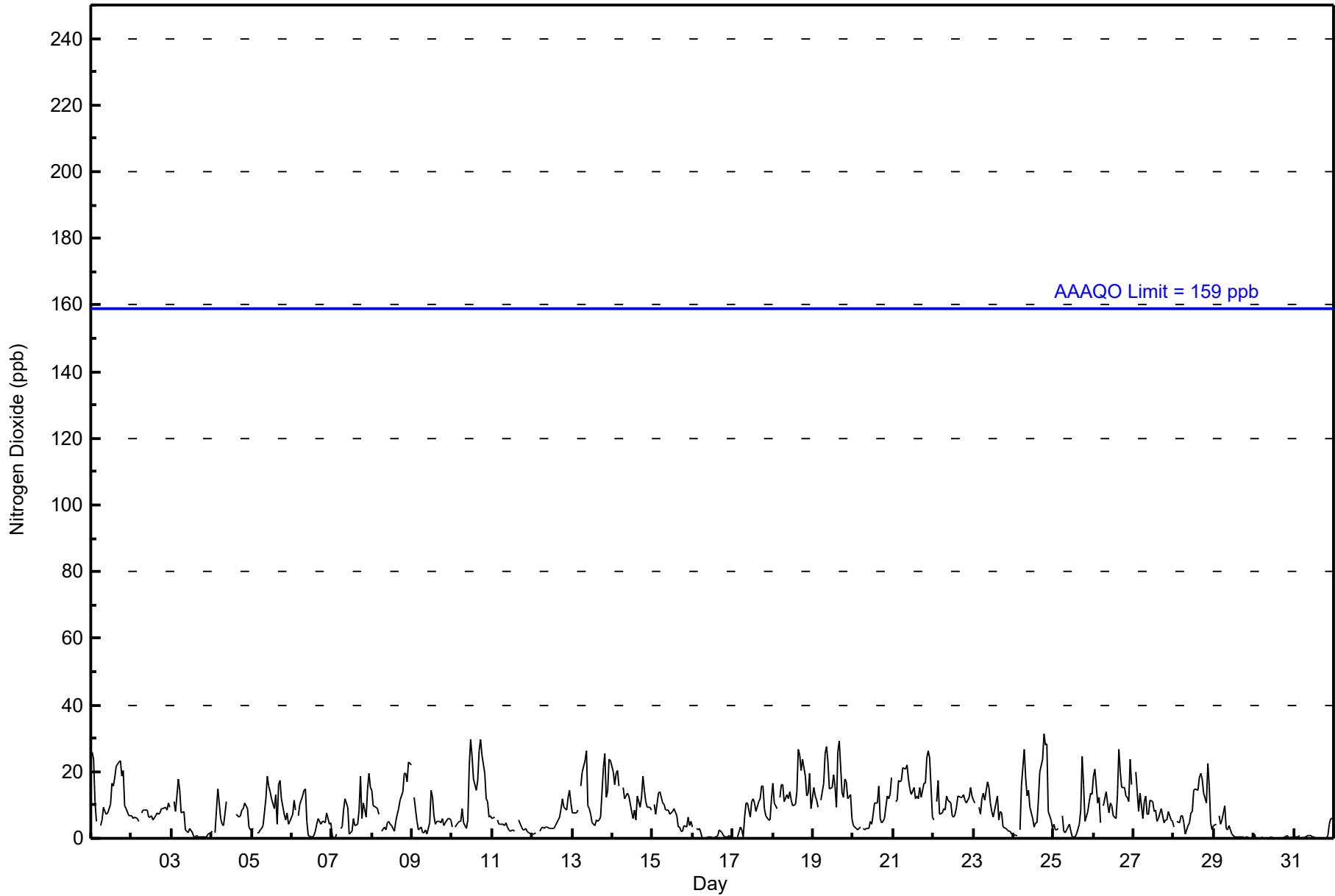
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Patricia McInnes - December 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 Dec 24 19:00		Maximum Daily Average: 16.4 ppb on Dec 21		Hours of Data: 706																	7.5		10.7																										
Minimum Value: 0.0 ppb on Dec 17 01:00		Minimum Daily Average: 0.2 ppb on Dec 30		Hours of Missing Data: 38																	4.2		18.0																										
Maximum Diurnal Average: 10.8 ppb at hour 18		Minimum Diurnal Average: 6.7 ppb at hour 14		Hours of Calibration: 36																	6.9		14.8																										
Monthly Average: 8.38 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.5 Q ₁ = 3.0 Median = 7.0 Q ₃ = 12.3 P ₉₀ = 18.0 P ₉₉ = 26.8		Percent Operational Time: 99.7																	8.3		18.5																										
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-Dec	25.9	23.6	11.0	5.1	Z	4.0	5.3	9.4	8.2	7.0	7.6	10.2	16.7	15.7	18.4	21.8	22.8	23.2	18.8	20.3	9.8	8.8	6.7	6.8	13.4	25.9																							
2-Dec	6.7	5.9	6.5	5.9	5.2	Z	7.6	8.5	8.5	8.4	6.4	6.4	6.8	5.7	6.9	7.5	7.4	7.7	8.7	9.1	9.2	8.6	10.7	9.2	7.5	10.7																							
3-Dec	Z	10.9	8.2	12.7	18.0	14.4	7.5	8.0	2.5	2.0	1.5	3.1	1.6	0.6	0.5	0.7	0.5	0.5	0.3	0.3	0.3	0.5	1.1	1.5	4.2	18.0																							
4-Dec	2.1	Z	1.6	8.4	14.8	6.1	4.4	3.9	7.4	11.2	C	C	C	C	C	7.2	6.4	6.7	8.5	9.1	10.8	9.1	3.6	2.4	6.9	14.8																							
5-Dec	2.6	2.8	Z	1.7	1.7	2.5	2.9	3.7	11.9	18.5	15.6	13.8	11.8	8.8	13.2	4.2	16.1	17.4	11.9	7.0	5.4	7.7	4.3	5.0	8.3	18.5																							
6-Dec	7.3	11.3	8.3	Z	6.7	10.3	12.6	14.5	14.9	5.2	0.7	0.4	0.4	1.0	2.3	4.1	5.9	4.2	5.2	5.0	4.7	7.7	4.1	4.6	6.1	14.9																							
7-Dec	0.7	0.2	0.1	1.2	Z	3.1	3.3	8.3	11.9	9.2	1.2	1.5	2.3	5.8	3.8	4.4	8.5	18.7	5.9	10.6	6.5	14.8	19.3	15.4	6.8	19.3																							
8-Dec	14.3	9.8	9.3	9.1	7.3	Z	2.2	3.5	2.6	4.5	5.0	4.2	3.7	2.2	5.0	7.2	9.1	11.6	13.9	19.5	19.5	17.0	22.9	22.1	9.8	22.9																							
9-Dec	Z	12.3	8.5	5.1	2.7	3.5	1.7	1.8	2.4	1.3	4.6	14.6	12.1	6.8	4.4	5.1	5.0	4.6	6.0	4.0	4.6	5.8	5.9	5.3	5.6	14.6																							
10-Dec	3.3	Z	3.4	4.7	5.2	5.1	8.7	4.5	2.9	5.6	21.6	29.7	24.6	17.9	14.6	17.2	26.2	29.6	24.8	19.4	11.9	10.9	6.5	6.7	13.3	29.7																							
11-Dec	5.9	6.2	Z	5.5	4.4	4.1	4.2	3.7	4.6	3.5	2.5	2.2	2.6	2.3	M	M	5.3	3.4	2.6	2.4	2.8	2.2	1.5	1.4	3.5	6.2																							
12-Dec	1.3	1.3	1.6	Z	2.2	3.1	3.2	3.1	3.2	3.4	3.0	2.8	2.9	2.9	3.7	5.3	6.2	8.7	11.8	9.3	8.3	12.3	14.4	10.8	5.4	14.4																							
13-Dec	7.6	7.8	7.8	8.6	Z	15.5	20.0	23.4	26.1	9.7	8.8	7.4	4.7	3.9	5.6	5.0	5.3	6.3	21.1	25.6	12.3	14.0	23.7	23.1	12.8	26.1																							
14-Dec	20.0	16.0	19.5	20.2	15.7	Z	15.1	11.9	12.8	13.4	12.6	7.9	6.1	8.5	5.5	12.8	9.3	12.1	18.6	14.3	10.9	9.2	9.5	8.4	12.6	20.2																							
15-Dec	Z	10.2	7.3	13.6	14.0	12.1	10.4	10.3	8.5	8.6	7.0	7.8	8.2	9.1	6.9	3.4	3.3	2.2	2.1	3.7	3.3	6.3	3.7	5.2	7.3	14.0																							
16-Dec	3.3	Z	2.8	2.5	3.0	1.5	0.2	0.1	0.1	0.6	0.5	0.4	0.2	0.5	0.5	0.7	2.5	1.7	0.8	0.4	0.4	0.5	0.7	0.2	1.0	3.3																							
17-Dec	0.0	0.2	Z	0.3	3.3	2.7	0.5	6.5	10.8	10.4	6.2	11.2	12.0	10.7	8.2	11.0	11.9	15.7	15.7	8.8	6.8	5.5	5.4	12.0	7.6	15.7																							
18-Dec	16.7	10.6	8.8	Z	12.4	15.9	15.9	11.0	13.2	12.0	14.1	11.5	9.6	10.3	14.0	26.7	25.1	20.5	23.9	18.6	12.5	13.5	19.5	9.0	15.0	26.7																							
19-Dec	15.3	12.9	11.6	9.4	Z	11.6	16.5	25.5	27.6	22.7	14.9	15.4	19.0	15.6	9.3	25.8	29.4	13.7	12.2	18.0	16.9	11.7	13.2	6.1	16.3	29.4																							
20-Dec	4.0	3.6	2.9	2.7	3.2	Z	3.1	2.6	2.9	3.0	4.9	4.3	7.0	10.8	10.4	15.5	5.9	4.8	4.9	6.1	12.7	11.9	13.3	18.3	6.9	18.3																							
21-Dec	Z	10.9	11.3	17.3	16.8	17.3	21.3	20.7	22.1	17.7	15.0	13.1	15.4	12.0	12.7	12.0	15.4	12.1	16.6	16.6	24.3	26.3	24.3	6.5	16.4	26.3																							
22-Dec	5.6	Z	11.0	17.3	7.3	7.5	8.8	8.4	12.6	11.5	10.6	6.7	6.3	7.3	9.5	12.7	12.2	12.1	13.1	11.5	10.5	12.4	15.1	12.9	10.6	17.3																							
23-Dec	11.3	10.8	Z	9.2	7.2	11.7	13.6	11.3	16.9	15.4	10.5	8.0	6.4	8.4	12.7	5.4	7.9	7.5	3.3	2.9	2.4	2.2	2.0	1.3	8.2	16.9																							
24-Dec	1.1	1.0	0.9	Z	2.4	15.6	26.8	18.4	12.7	14.2	9.5	5.9	3.2	4.5	4.6	11.4	20.0	23.6	31.3	28.1	28.6	8.1	5.3	2.9	12.2	31.3																							
25-Dec	4.1	2.4	2.5	2.9	Z	6.6	2.1	1.8	2.5	4.4	2.2	0.6	0.4	0.3	1.3	4.2	8.5	24.5	16.0	5.2	8.1	11.1	13.4	13.2	6.0	24.5																							
26-Dec	18.8	20.8	10.7	12.3	4.5	Z	9.6	13.8	10.8	7.6	10.8	9.8	6.7	5.9	13.1	26.5	19.8	15.3	15.1	12.7	12.4	11.1	23.6	16.0	13.4	26.5																							
27-Dec	Z	20.0	13.9	7.9	13.6	5.8	11.2	12.6	7.3	7.4	11.3	11.2	8.2	8.6	4.9	6.1	8.9	6.8	4.7	5.6	5.6	8.0	5.4	4.9	8.7	20.0																							
28-Dec	3.5	Z	5.0	4.7	6.6	6.8	4.6	1.2	3.7	4.5	7.7	8.1	14.5	14.7	14.4	18.2	19.7	17.8	13.7	10.5	22.4	15.5	4.7	2.7	9.8	22.4																							
29-Dec	3.7	4.4	Z	6.7	4.4	5.6	9.6	3.1	2.5	3.7	2.5	1.3	0.3	0.3	0.5	0.4	0.4	0.5	0.2	0.6	0.6	0.2	0.2	0.2	2.3	9.6																							
30-Dec	1.1	0.1	0.1	Z	0.3	0.1	0.1	0.2	0.2	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.4	0.3	0.8	0.2	0.3	0.1	0.2	1.1																							
31-Dec	0.1	0.3	0.5	0.7	Z	0.4	0.2	0.5	0.8	0.8	0.7	0.5	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.9	4.3	5.9	6.1	1.0	6.1																							
																								7.2	8.3	6.7	7.5	7.3	7.4	8.2	8.3	8.9	8.0	7.3	7.3	7.1	6.7	7.1	9.4	10.5	10.8	10.7	9.9	9.2	8.9	9.4	7.8	Diurnal Average	
																								25.9	23.6	19.5	20.2	18.0	17.3	26.8	25.5	27.6	22.7	21.6	29.7	24.6	17.9	18.4	26.7	29.4	29.6	31.3	28.1	28.6	26.3	24.3	23.1	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Patricia McInnes - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	662	93.77	93.77
21 - 40	44	6.23	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
Patricia McInnes - December 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	35	21	3	7	7	45	129	49	47	42	54	35	25	72	39	52	662
21 - 40	2	1	0	1	2	9	3	12	7	0	0	2	1	0	0	4	44
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	37	22	3	8	9	54	132	61	54	42	54	37	26	72	39	56	706

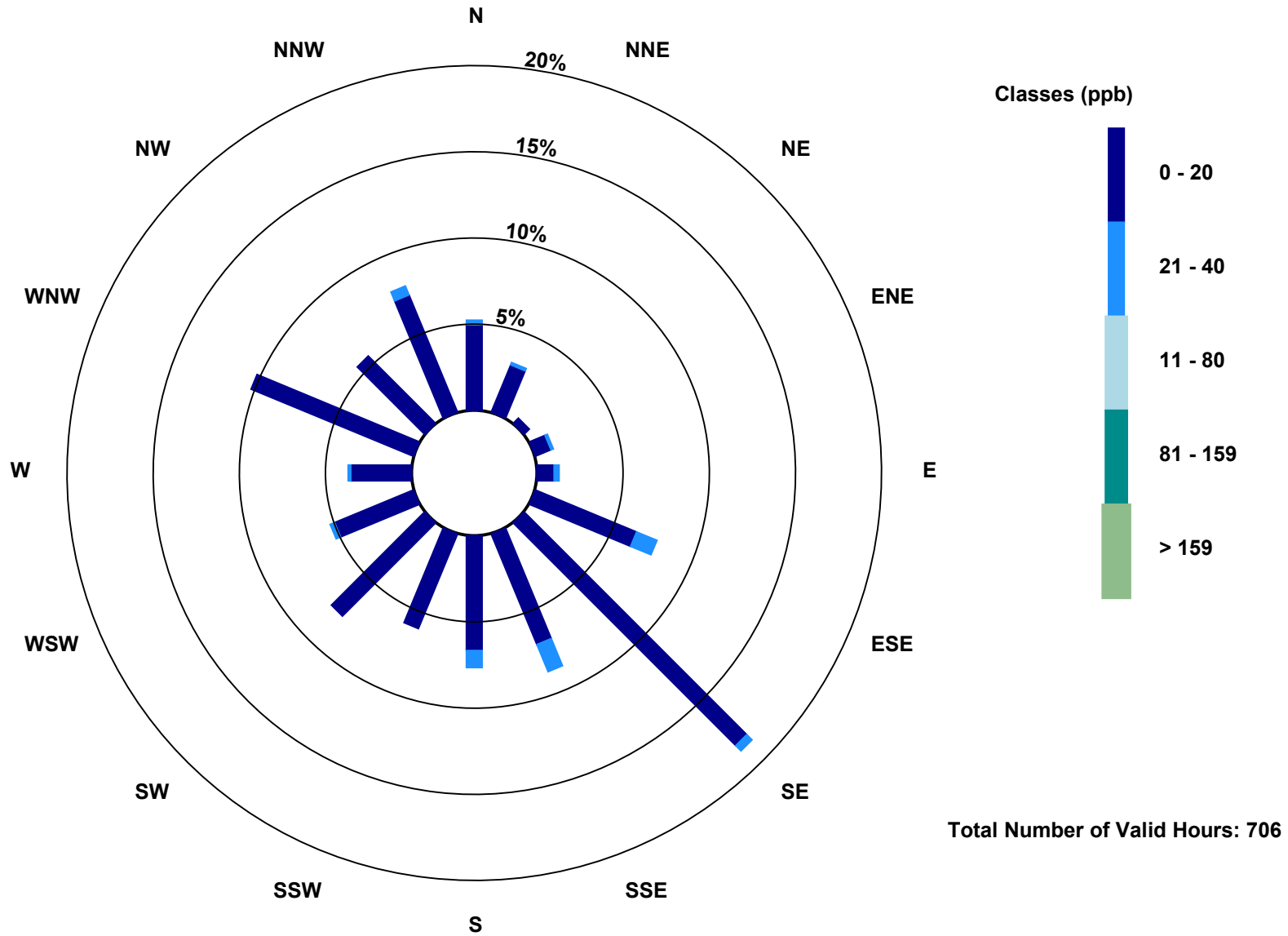
Total Number of Valid Hours: 706

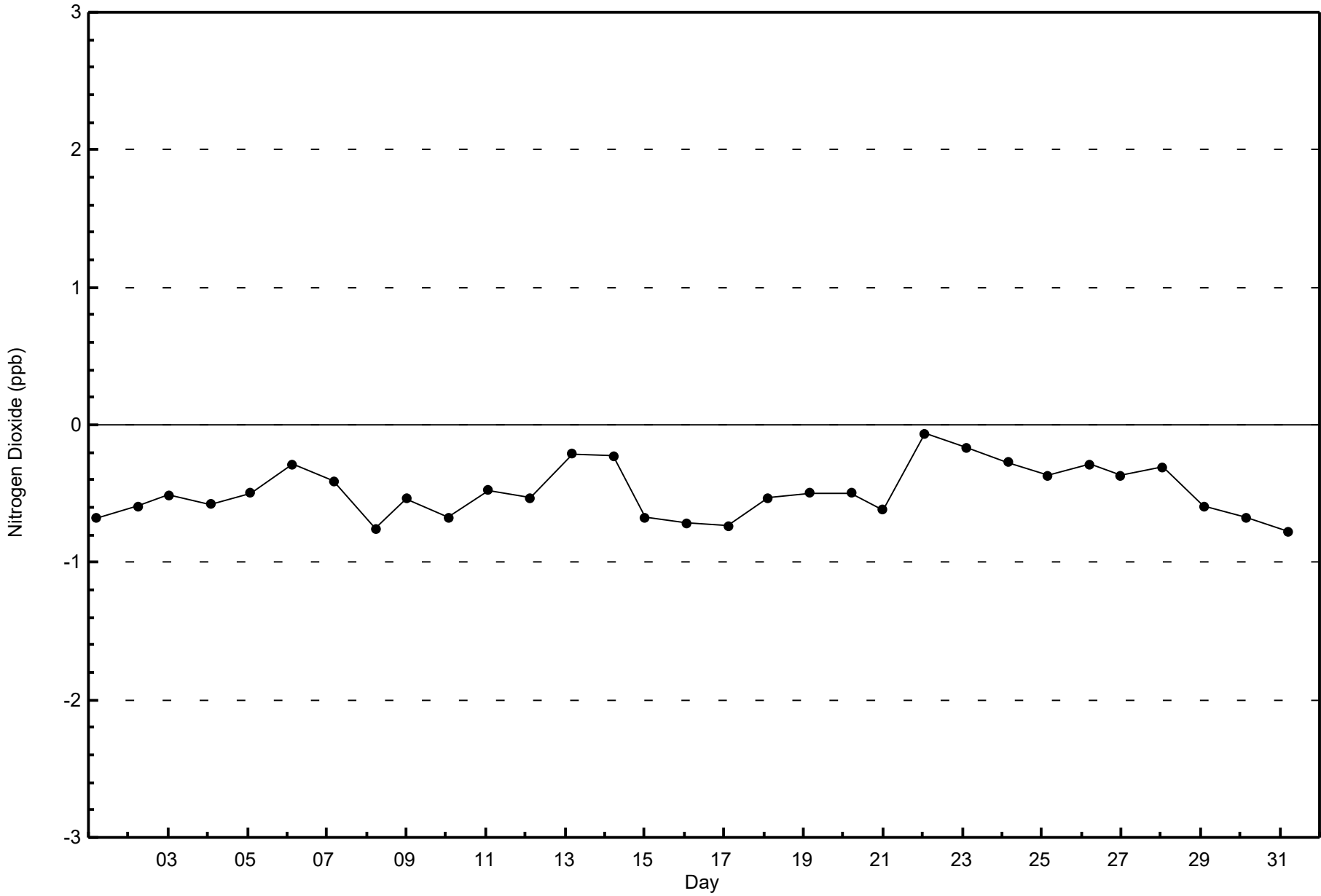
Total Number of Hours: 744

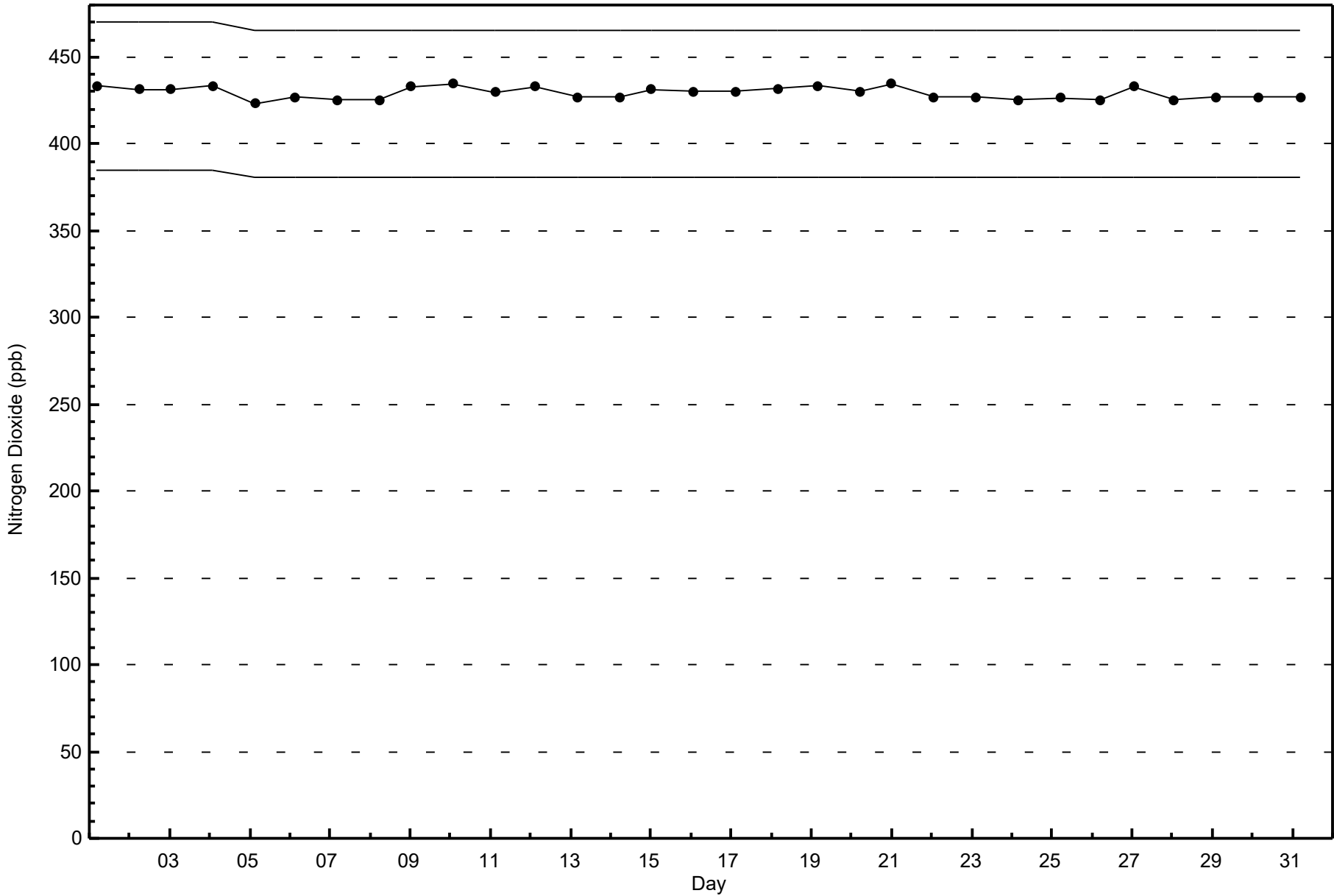


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Patricia McInnes









Wood Buffalo Environmental Association
Summary of Hour Averages

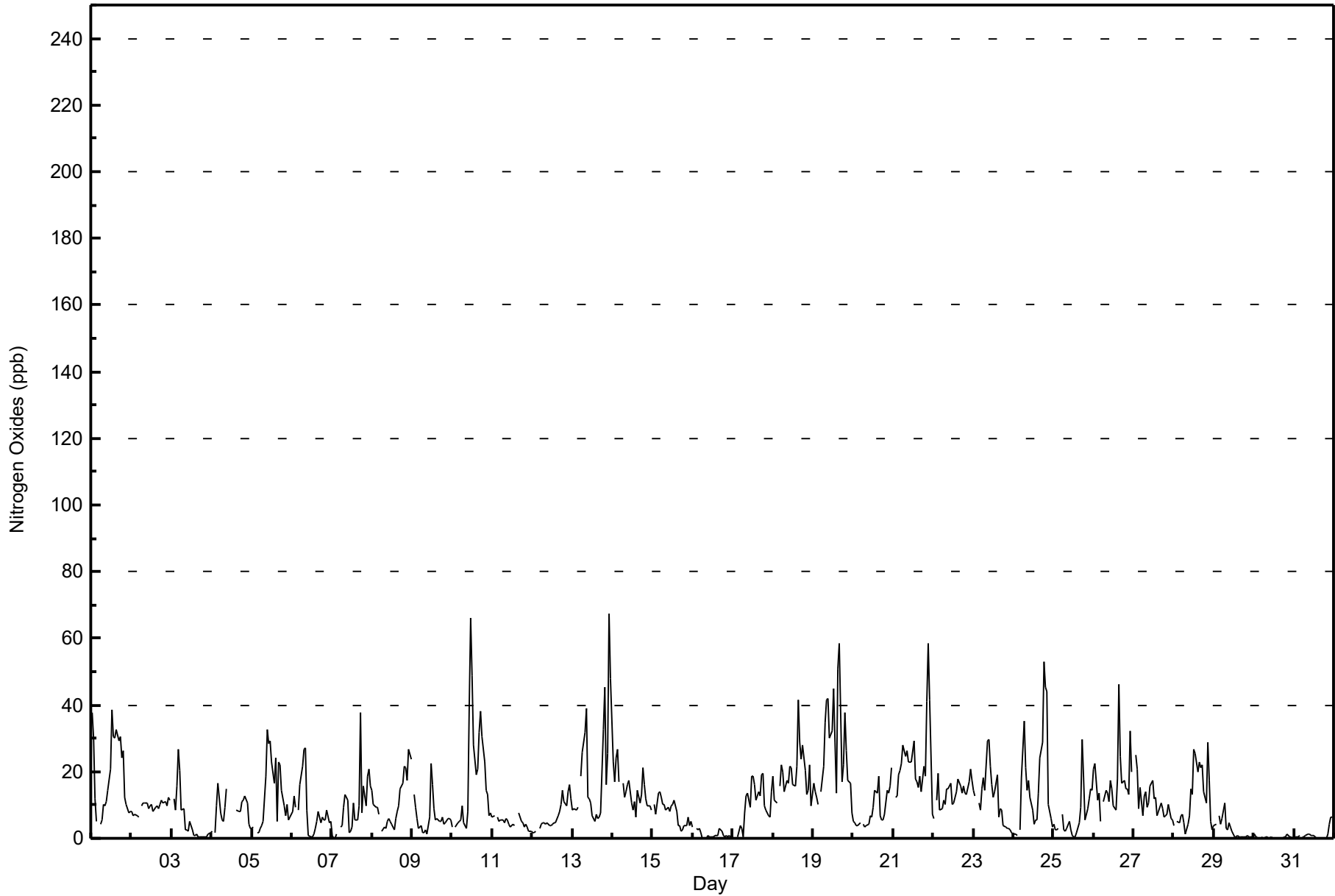
Nitrogen Oxides (NO_x) - ppb
Patricia McInnes - December 2024

Maximum Value: 67.6 ppb on Dec 13 23:00																					Maximum Daily Average: 26.5 ppb on Dec 19					Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 17 01:00																					Minimum Daily Average: 0.3 ppb on Dec 30					Hours of Data: 706																							
Maximum Diurnal Average: 13.9 ppb at hour 19																					Minimum Diurnal Average: 7.6 ppb at hour 3					Hours of Missing Data: 38																							
Monthly Average: 11.17 ppb																					Percentiles: P ₁ = 0.1 P ₁₀ = 0.7 Q ₁ = 3.7 Median = 8.6 Q ₃ = 15.7 P ₉₀ = 24.1 P ₉₉ = 47.7					Hours of Calibration: 36																							
																					Percent Operational Time: 99.7																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	37.5	29.9	11.7	5.2	Z	4.1	5.5	10.3	9.7	11.0	14.4	20.8	38.6	30.7	30.1	32.8	29.2	30.5	24.1	26.3	12.5	10.3	7.5	8.1	19.2	38.6																							
2-Dec	8.1	6.7	7.3	6.6	6.5	Z	9.7	10.7	10.5	10.6	9.0	9.8	10.1	8.1	9.4	9.6	9.0	10.0	11.5	10.8	10.8	9.9	12.3	11.6	9.5	12.3																							
3-Dec	Z	11.9	8.6	15.8	26.8	20.4	8.3	8.7	2.7	2.4	2.0	5.0	2.4	0.9	0.8	1.1	0.5	0.5	0.5	0.4	0.3	0.5	1.1	1.7	5.4	26.8																							
4-Dec	2.2	Z	1.8	9.9	16.4	7.5	5.7	5.2	9.5	14.8	C	C	C	C	C	8.6	7.9	8.2	11.0	11.3	12.6	10.5	4.4	2.8	8.3	16.4																							
5-Dec	3.1	3.2	Z	1.9	1.9	3.0	3.7	5.0	18.6	32.6	28.5	29.2	22.8	16.5	24.2	5.3	23.0	22.0	14.4	9.6	7.0	10.0	5.4	6.2	12.9	32.6																							
6-Dec	8.2	12.9	9.4	Z	8.4	16.2	21.6	26.7	27.0	8.6	0.9	0.5	0.5	1.4	2.9	5.2	8.2	4.8	6.3	5.7	5.6	8.6	4.8	5.0	8.7	27.0																							
7-Dec	0.8	0.2	0.1	1.2	Z	3.3	3.8	9.3	13.1	11.5	1.6	2.3	3.4	10.4	5.3	5.3	9.7	37.9	7.8	15.9	9.5	18.7	21.0	15.7	9.0	37.9																							
8-Dec	14.6	10.0	9.4	9.1	7.3	Z	2.3	3.6	2.8	5.0	5.7	5.0	4.4	2.6	5.8	7.9	9.8	14.8	16.6	21.5	21.3	17.5	26.6	23.7	10.8	26.6																							
9-Dec	Z	13.0	9.2	5.8	3.1	3.7	1.7	1.8	2.7	1.3	6.5	22.6	16.3	8.7	5.4	5.9	5.2	5.0	6.4	4.2	4.7	6.0	6.1	5.5	6.6	22.6																							
10-Dec	3.4	Z	3.4	4.7	5.2	5.3	9.8	4.8	3.0	7.9	39.9	66.1	48.6	27.9	19.0	20.6	31.7	38.0	30.6	22.9	14.2	13.0	7.0	7.7	18.9	66.1																							
11-Dec	6.5	6.9	Z	6.2	5.0	5.3	5.4	4.8	6.1	5.4	4.0	3.6	4.1	3.7	M	M	7.8	5.1	4.5	3.6	4.1	3.4	2.2	2.2	4.8	7.8																							
12-Dec	1.8	1.9	2.2	Z	2.8	4.3	4.5	4.5	4.4	4.6	4.0	3.8	4.4	4.5	4.8	6.6	7.9	10.4	14.4	11.0	9.8	14.0	16.2	11.7	6.7	16.2																							
13-Dec	8.5	8.9	8.6	9.5	Z	18.5	25.8	31.6	38.9	12.1	12.1	10.6	6.8	5.0	7.1	6.0	6.2	7.7	32.4	45.4	16.0	25.6	67.6	47.8	19.9	67.6																							
14-Dec	23.1	16.9	24.0	26.6	17.0	Z	16.7	12.5	13.8	16.1	17.3	10.6	8.4	10.8	6.6	14.4	10.4	13.3	21.1	16.1	11.9	9.7	9.9	8.5	14.6	26.6																							
15-Dec	Z	10.2	7.3	13.6	14.0	12.1	10.4	10.3	8.6	9.3	8.3	9.6	10.2	11.4	8.0	3.8	3.6	2.3	2.4	4.0	3.6	6.4	3.7	5.2	7.7	14.0																							
16-Dec	3.3	Z	3.2	2.5	3.2	1.8	0.2	0.1	0.1	0.7	0.6	0.5	0.3	0.7	0.8	0.9	3.1	2.0	0.9	0.5	0.7	0.6	1.0	0.2	1.2	3.3																							
17-Dec	0.0	0.2	Z	0.4	3.7	2.8	0.6	7.5	12.9	13.8	9.2	18.5	18.8	16.2	11.3	13.8	12.8	19.3	19.5	9.7	8.6	6.8	6.5	13.9	9.9	19.5																							
18-Dec	18.8	11.6	10.4	Z	15.6	21.8	19.8	14.1	17.2	16.6	21.5	21.1	16.1	15.9	21.4	41.7	28.8	23.9	28.2	20.3	13.2	14.4	22.0	9.8	19.3	41.7																							
19-Dec	16.4	14.0	12.1	10.2	Z	14.0	21.6	34.9	41.4	41.9	29.9	32.2	44.8	29.0	13.7	51.0	58.6	17.1	21.9	37.8	26.3	17.2	16.3	7.8	26.5	58.6																							
20-Dec	5.0	4.6	3.9	3.7	4.5	Z	4.3	3.4	3.8	4.2	6.9	6.2	9.3	14.4	13.5	18.7	6.8	5.5	5.6	7.0	14.3	13.4	15.5	21.2	8.5	21.2																							
21-Dec	Z	12.1	12.6	19.2	20.3	22.3	28.1	24.6	26.3	22.8	22.7	23.1	29.4	17.6	16.9	15.3	18.6	13.9	21.6	18.7	41.2	58.6	41.7	7.2	23.3	58.6																							
22-Dec	6.0	Z	11.3	19.5	8.3	8.8	11.5	10.0	14.8	15.0	16.3	10.2	10.6	12.2	14.0	17.7	15.8	13.8	15.8	13.6	13.3	17.0	20.6	17.2	13.6	20.6																							
23-Dec	14.4	12.8	Z	10.8	8.4	14.9	18.3	14.5	29.4	29.6	21.4	16.0	12.2	13.9	19.2	6.3	9.1	8.6	4.0	3.4	3.0	3.0	2.7	1.7	12.1	29.6																							
24-Dec	1.2	1.1	1.0	Z	2.6	18.1	35.1	21.0	14.4	17.4	12.2	8.5	4.3	5.6	5.5	13.6	24.3	28.6	53.0	45.5	44.1	10.1	5.9	3.2	16.4	53.0																							
25-Dec	4.4	2.6	2.6	3.1	Z	7.3	2.6	2.1	3.0	5.2	2.7	0.9	0.5	0.5	1.6	4.6	9.3	29.6	18.2	5.6	9.0	11.9	14.8	14.4	6.8	29.6																							
26-Dec	20.7	22.6	11.4	13.5	5.0	Z	11.0	14.6	13.7	11.0	17.4	15.0	9.6	8.5	17.9	46.1	24.5	16.4	17.4	14.7	14.8	13.0	32.3	19.7	17.0	46.1																							
27-Dec	Z	25.2	20.6	8.7	15.3	6.7	12.7	14.1	9.2	10.5	15.8	17.4	12.1	12.2	6.8	7.9	10.6	8.8	6.4	6.7	7.2	10.1	5.9	5.5	11.1	25.2																							
28-Dec	3.8	Z	5.3	4.7	6.6	7.1	4.6	1.2	4.4	6.8	14.6	13.1	26.6	25.3	20.0	22.8	21.2	21.8	14.1	10.6	28.9	17.5	5.0	2.7	12.5	28.9																							
29-Dec	3.7	4.4	Z	6.7	4.4	6.0	10.7	3.1	2.6	4.8	3.5	2.1	0.5	0.5	0.7	0.4	0.4	0.6	0.2	0.6	0.8	0.3	0.3	0.3	2.5	10.7																							
30-Dec	1.4	0.2	0.2	Z	0.4	0.1	0.1	0.3	0.3	0.1	0.6	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.5	0.4	1.2	0.3	0.3	0.1	0.3	1.4																							
31-Dec	0.1	0.3	0.5	0.8	Z	0.5	0.5	0.9	1.2	1.1	0.9	0.8	0.8	0.1	0.1	0.1	0.1	0.0	0.1	0.1	1.1	4.4	6.2	6.5	1.2	6.5																							
																								8.3	9.4	7.6	8.5	8.5	9.1	10.2	10.2	11.8	11.4	11.7	12.8	12.6	10.5	10.1	13.1	13.4	13.6	13.9	13.0	12.0	11.7	12.7	9.5	Diurnal Average	
																								37.5	29.9	24.0	26.6	26.8	22.3	35.1	34.9	41.4	41.9	39.9	66.1	48.6	30.7	30.1	51.0	58.6	38.0	53.0	45.5	44.1	58.6	67.6	47.8	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	596	84.42	84.42
21 - 40	92	13.03	97.45
41 - 80	18	2.55	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
Patricia McInnes - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	31	19	3	4	4	39	117	40	33	38	54	35	24	71	38	46	596
21 - 40	5	2	0	3	3	12	14	18	16	4	0	2	2	1	1	9	92
11 - 80	1	1	0	1	2	3	1	3	5	0	0	0	0	0	0	1	18
81 - 159	0	0	0	0	0	0	0	0	0	0	0	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	37	22	3	8	9	54	132	61	54	42	54	37	26	72	39	56	706

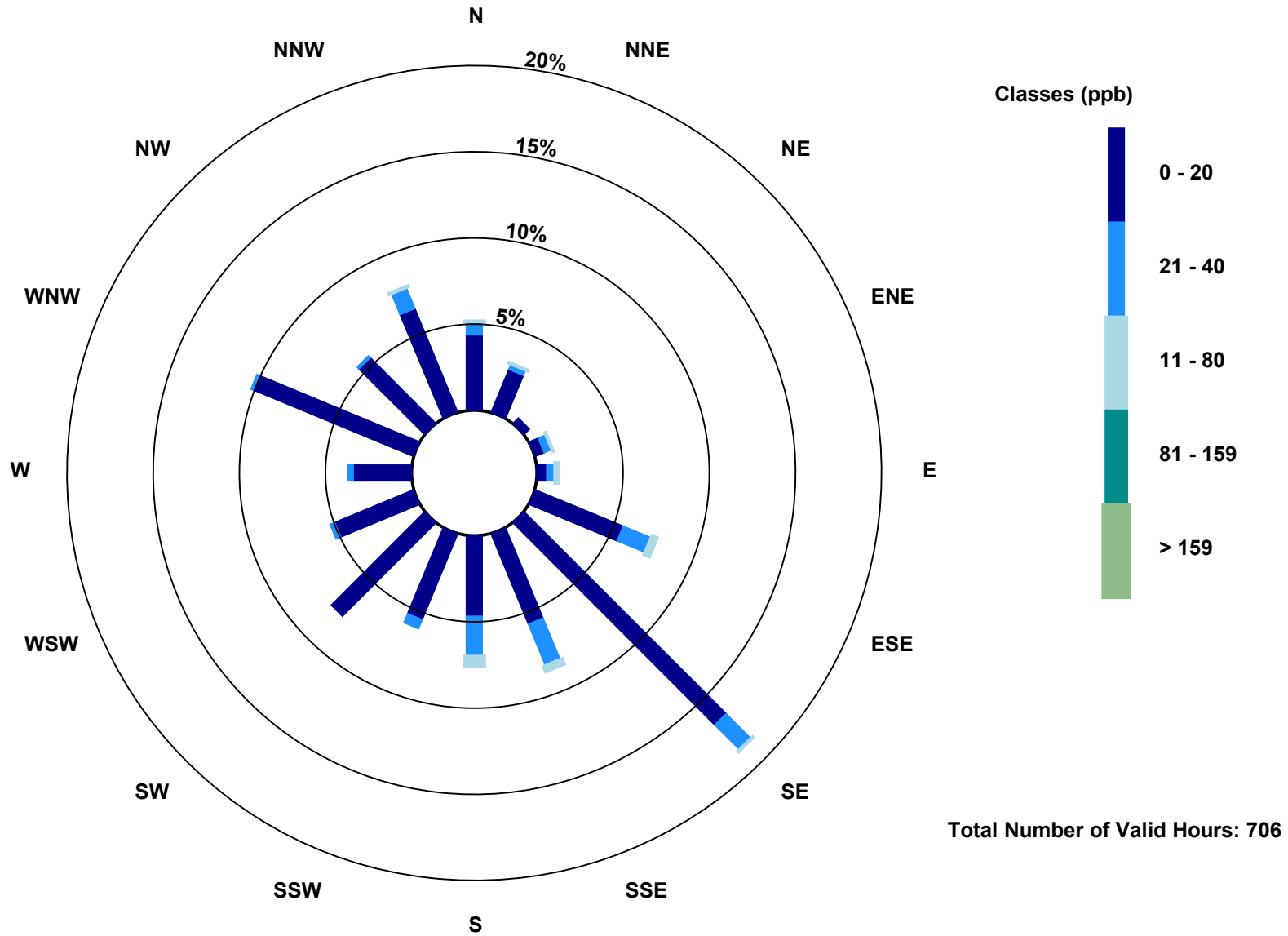
Total Number of Valid Hours: 706

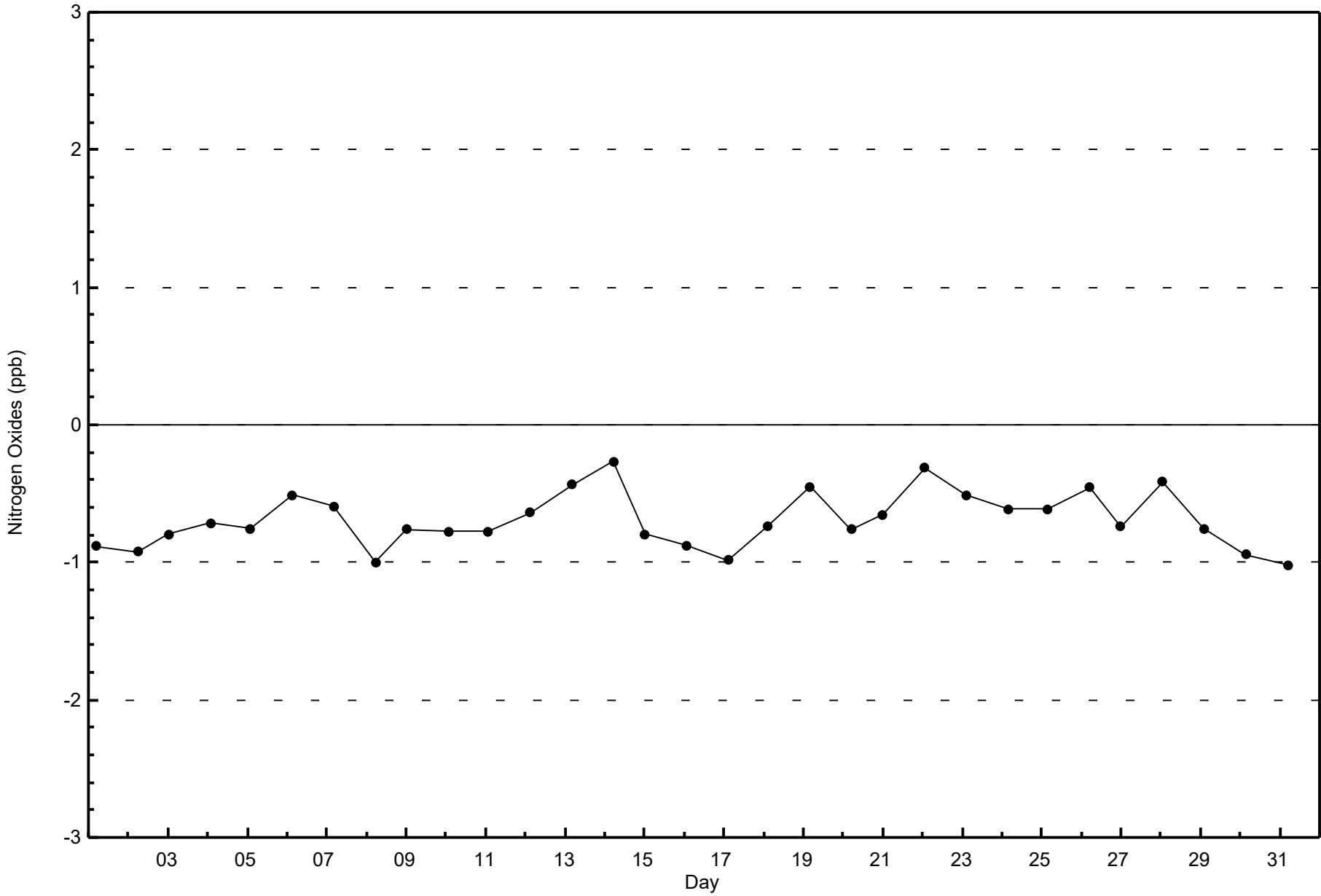
Total Number of Hours: 744

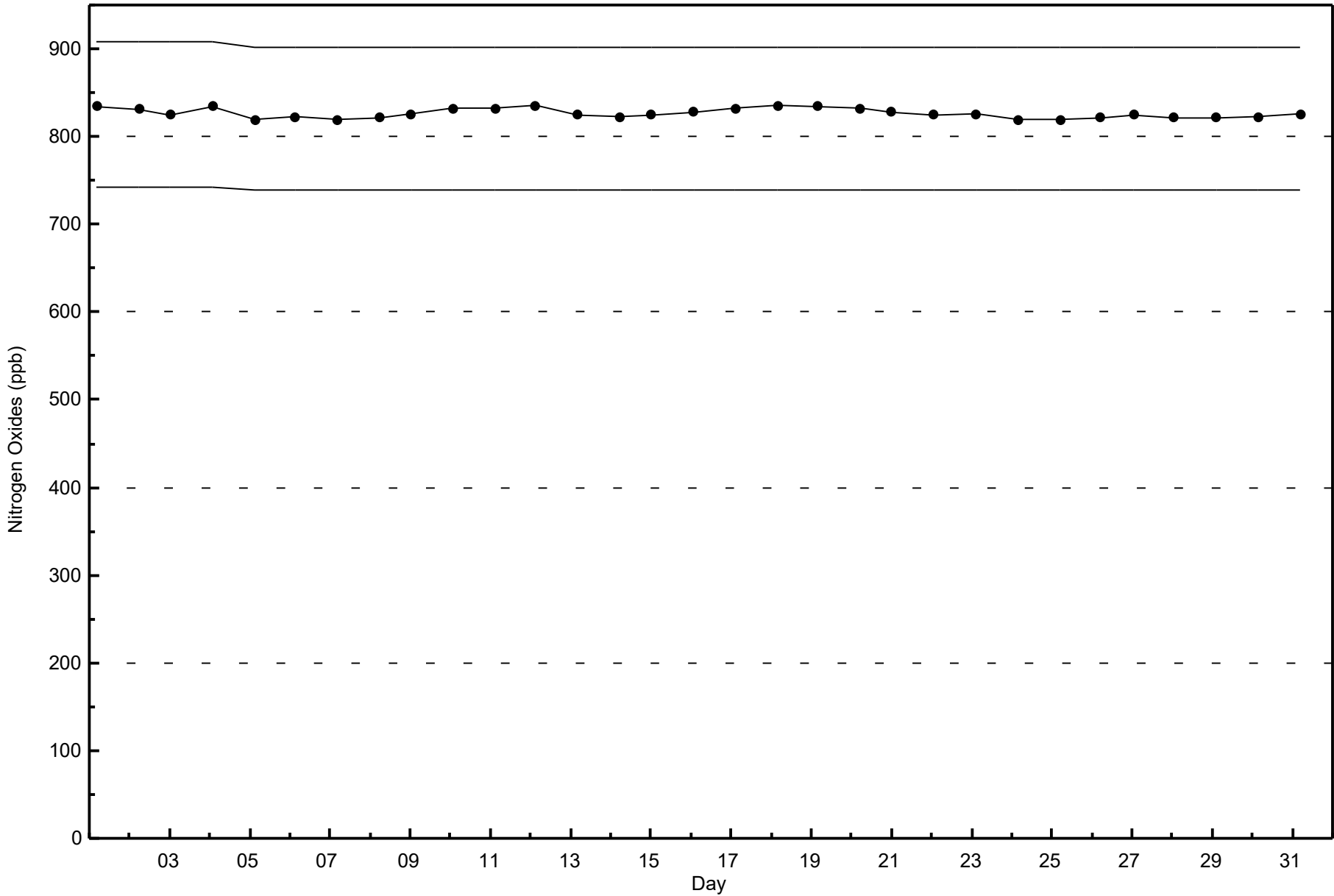


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Patricia McInnes







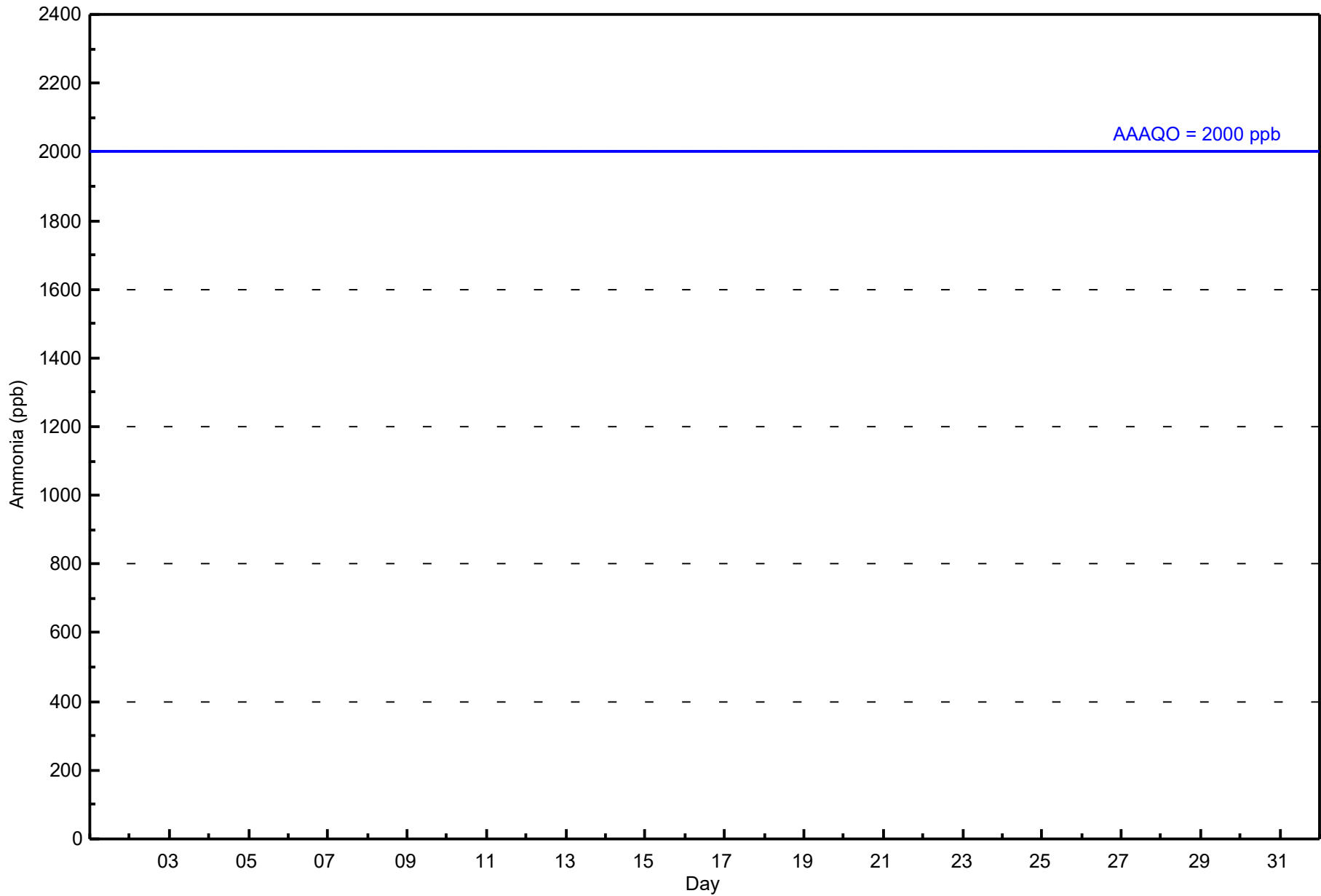


Number of Exceedences (AAAO): 1-hr: 0		Hours in Service: 744																			Daily Average		Daily Maximum											
Maximum Value: 0.0 ppb on Dec 1 01:00		Maximum Daily Average: 0.0 ppb on Dec 1																			Hours of Data: 671		Daily Maximum											
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 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: 38		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: 95.3		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-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
2-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
3-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
4-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
6-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
7-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
8-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	C	C	C	C	C	C	C	RE	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
10-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
11-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	M	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
12-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26-Dec	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27-Dec	0.0	0.0	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28-Dec	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29-Dec	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30-Dec	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31-Dec	0.0	0.0	0.0	Z	RE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
																								Diurnal Average		Diurnal Maximum								
																								Diurnal Average		Diurnal Maximum								
Z - zerospan C - Calibration M - Maintenance RE - Recovery																																		
Alberta Ambient Air Quality Objectives (AAAO): 1-hr 2000 ppb																																		



Wood Buffalo Environmental Association
Hourly Averages

Ammonia (NH₃) - ppb
Patricia McInnes - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ammonia (NH₃) - ppb
Patricia McInnes - December 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
Patricia McInnes - December 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	30	17	3	8	9	52	131	60	53	39	53	34	24	69	37	52	671
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	30	17	3	8	9	52	131	60	53	39	53	34	24	69	37	52	671

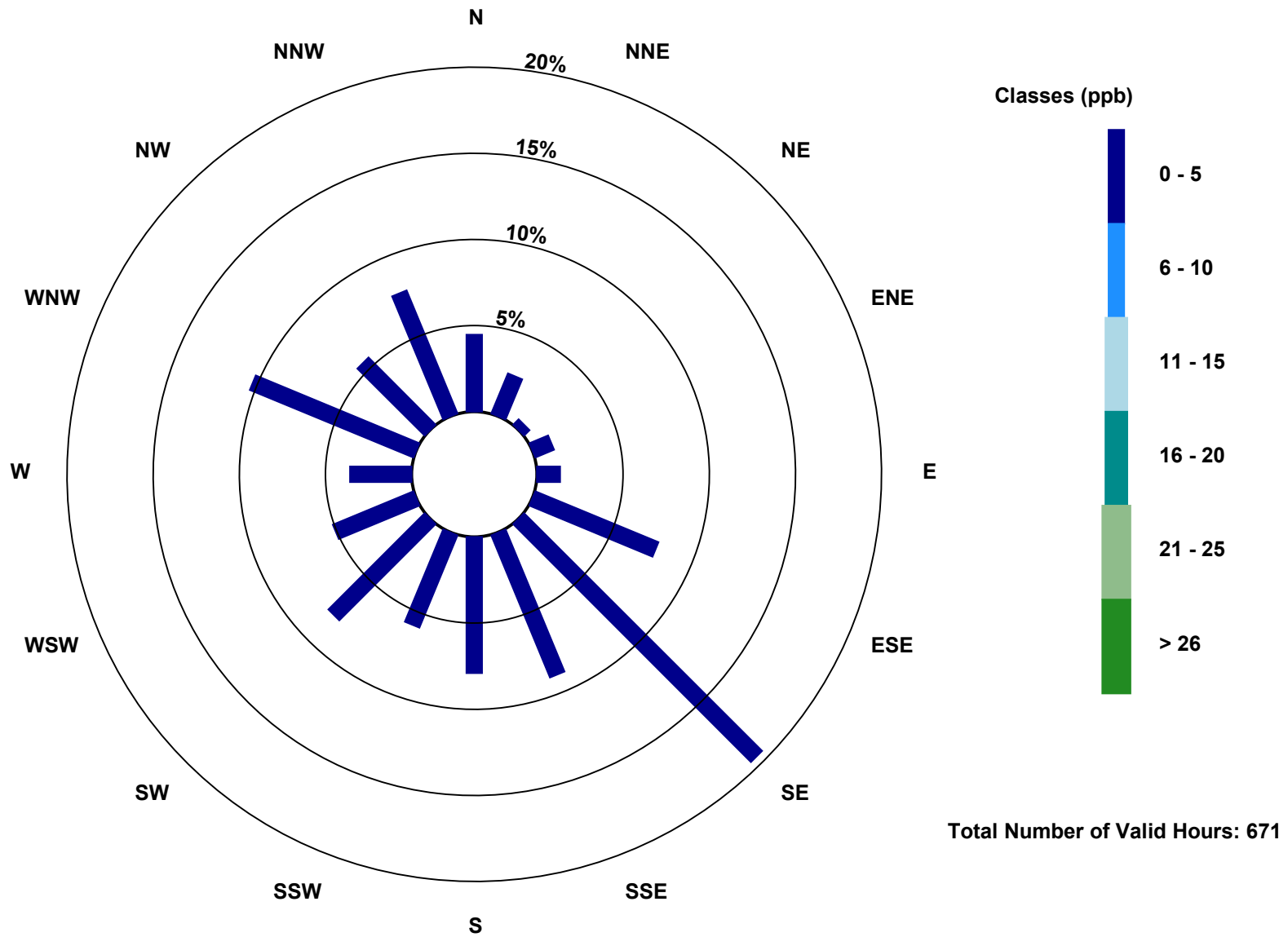
Total Number of Valid Hours: 671

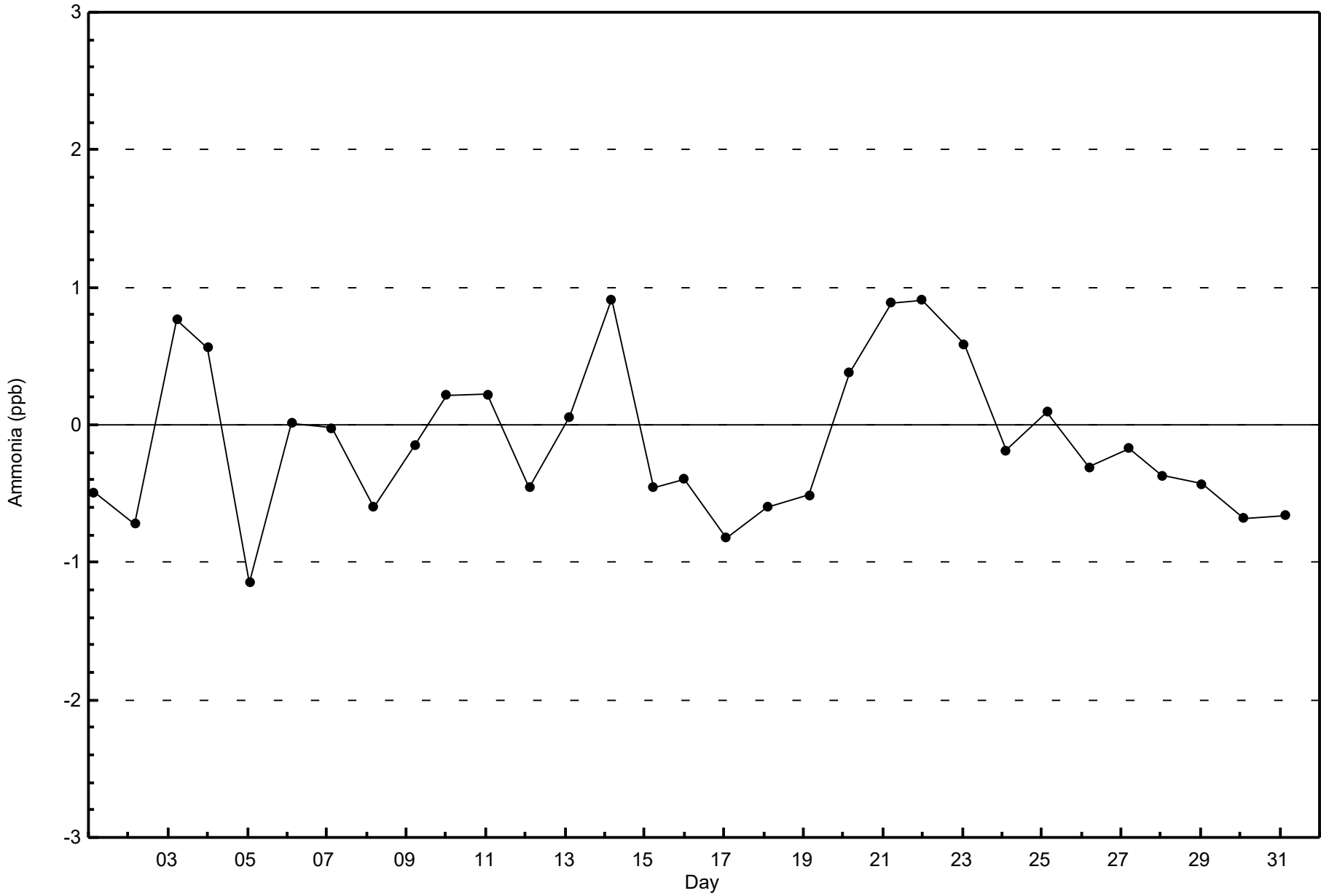
Total Number of Hours: 744

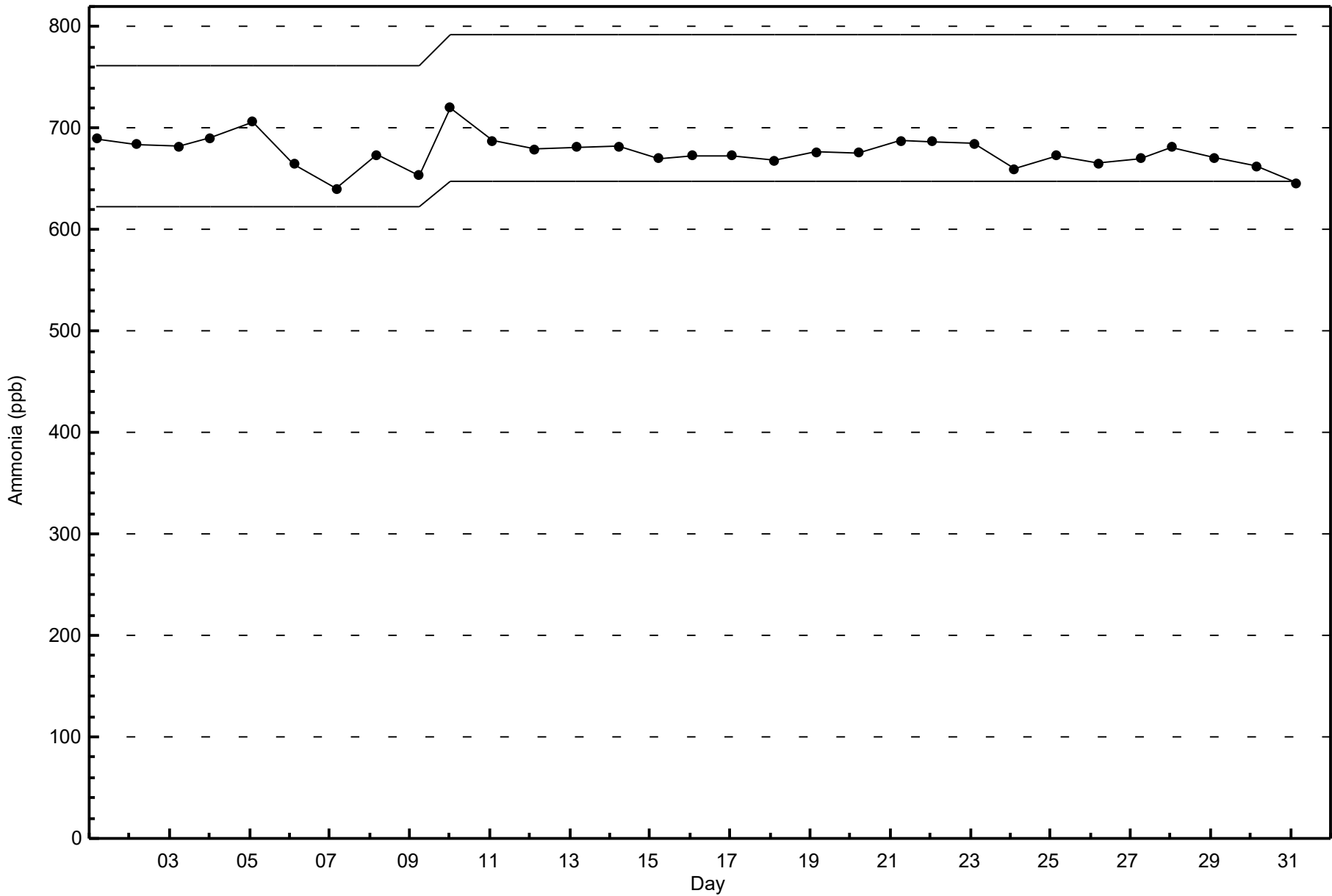


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ammonia (NH₃) - ppb
Patricia McInnes









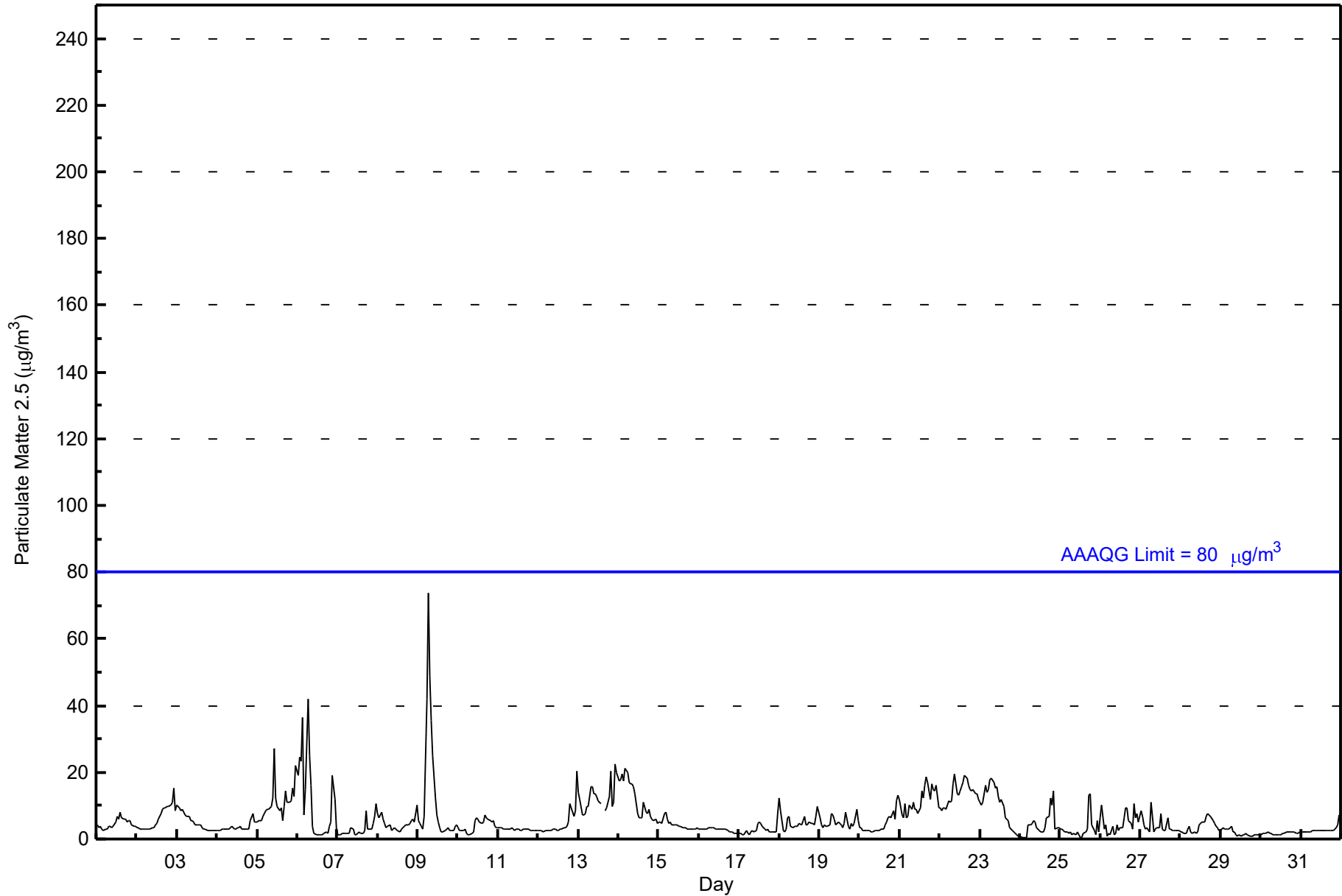
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Patricia McInnes - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Hours of Data: 742					
Maximum Value: 73.9 µg/m ³ on Dec 9 07:00		Maximum Daily Average: 13.6 µg/m ³ on Dec 22																	Hours of Missing Data: 2							
Minimum Value: 0.3 µg/m ³ on Dec 25 14:00		Minimum Daily Average: 1.7 µg/m ³ on Dec 30																	Hours of Calibration: 2							
Maximum Diurnal Average: 8.7 µg/m ³ at hour 7		Minimum Diurnal Average: 4.7 µg/m ³ at hour 15																	Percent Operational Time: 100.0							
Monthly Average: 5.88 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 1.7 Q ₁ = 2.5 Median = 3.6 Q ₃ = 7.3 P ₉₀ = 12.8 P ₉₉ = 24.8																								
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-Dec	4.3	3.4	3.7	2.8	2.7	2.8	3.1	3.8	3.7	3.5	3.9	5.1	6.7	6.0	8.2	6.3	5.8	6.1	5.0	5.3	5.5	4.1	3.9	3.9	4.6	8.2
2-Dec	3.4	3.2	3.1	2.9	2.9	2.9	2.8	3.0	3.1	3.2	3.5	4.0	4.5	5.8	7.6	9.0	9.4	9.4	9.7	9.7	10.2	11.0	15.1	8.6	6.2	15.1
3-Dec	10.0	9.2	8.3	8.8	8.3	7.3	6.7	6.7	5.6	5.4	4.9	4.4	4.1	4.1	4.1	3.5	3.1	2.9	2.7	2.7	2.6	2.6	2.5	5.1	10.0	
4-Dec	2.6	2.5	2.6	3.1	3.1	2.8	2.8	2.8	3.5	3.6	3.1	2.8	3.3	3.5	3.6	3.0	2.9	2.8	3.1	3.1	5.4	7.7	5.3	4.9	3.5	7.7
5-Dec	5.0	5.4	5.6	6.7	7.8	8.5	8.7	9.0	9.9	12.1	27.0	12.4	9.9	8.6	9.3	5.4	9.8	14.2	11.2	11.1	11.6	15.4	12.7	22.1	10.8	27.0
6-Dec	19.0	24.6	23.1	36.5	7.0	15.0	41.8	24.9	15.9	3.7	1.6	1.3	1.1	1.2	1.3	1.4	1.7	2.0	1.7	3.8	5.0	18.9	11.8	3.1	11.1	41.8
7-Dec	1.2	1.2	1.4	1.6	1.7	1.6	1.5	1.8	3.5	2.8	1.4	1.4	1.5	1.9	1.5	1.8	2.4	8.3	3.0	3.1	2.9	4.8	6.8	10.5	2.9	10.5
8-Dec	7.8	6.2	8.2	6.1	4.8	3.6	3.7	4.4	2.5	3.1	3.2	2.9	2.5	2.1	2.8	3.3	3.9	4.1	4.2	4.5	5.7	5.7	5.3	10.3	4.6	10.3
9-Dec	5.3	4.6	4.0	2.8	6.6	41.9	73.9	48.7	35.5	24.8	12.3	7.1	5.2	3.3	2.2	2.2	2.6	3.0	3.3	2.6	2.4	2.7	3.7	4.1	12.7	73.9
10-Dec	3.6	2.6	2.7	2.5	2.8	1.7	1.4	1.5	1.6	1.9	5.7	6.3	6.0	5.0	4.6	5.2	7.4	6.5	5.8	5.5	5.2	5.5	3.8	3.6	4.1	7.4
11-Dec	3.3	3.3	3.3	3.1	2.9	3.0	2.8	2.9	3.2	2.8	2.7	2.8	2.8	2.6	2.5	2.9	2.9	2.9	2.8	2.6	2.6	2.6	2.5	2.4	2.8	3.3
12-Dec	2.4	2.4	2.4	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.8	2.7	2.7	2.9	3.0	3.3	3.4	3.8	5.0	10.6	7.9	7.0	8.3	20.3	4.5	20.3
13-Dec	13.9	11.7	7.4	7.4	7.8	9.8	9.6	15.8	15.9	13.6	13.7	12.8	11.4	10.5	C	C	8.4	9.2	12.6	20.2	9.7	11.1	22.4	19.9	12.5	22.4
14-Dec	17.3	17.6	19.3	17.4	21.2	19.7	16.9	16.6	16.4	15.6	13.5	7.4	6.4	6.5	6.3	11.1	8.2	7.6	9.0	6.6	6.1	5.7	6.0	4.6	11.8	21.2
15-Dec	5.1	4.9	4.7	7.5	8.2	6.1	4.8	5.0	4.4	4.4	4.4	4.2	3.7	3.6	3.5	3.3	3.2	3.0	2.8	2.8	2.8	3.2	3.1	3.3	4.3	8.2
16-Dec	3.0	3.0	2.8	3.0	3.0	2.9	3.3	3.5	3.6	3.4	2.9	2.8	3.0	3.0	3.0	2.9	2.8	2.5	2.2	2.2	2.1	1.9	1.8	1.7	2.8	3.6
17-Dec	1.6	1.5	1.4	1.4	2.4	1.8	1.4	2.0	2.5	1.9	2.6	4.5	4.9	4.7	3.9	3.0	2.6	3.0	2.3	2.1	1.9	2.0	2.0	7.4	2.7	7.4
18-Dec	12.2	8.5	2.5	2.3	3.1	6.4	6.6	3.7	3.3	3.8	3.7	3.9	4.5	4.4	5.5	6.7	4.3	4.2	5.0	4.8	4.6	4.4	6.7	9.6	5.2	12.2
19-Dec	6.4	4.1	3.5	4.2	3.8	4.0	4.1	7.7	7.1	5.9	4.2	4.9	4.7	4.3	3.6	4.7	8.0	4.0	2.9	4.6	4.0	4.5	8.9	5.3	5.0	8.9
20-Dec	3.3	3.2	2.7	2.5	2.6	2.4	2.5	2.3	2.3	2.5	2.4	2.6	2.6	3.0	3.1	4.1	5.0	6.5	6.8	6.5	8.4	6.1	11.4	13.3	4.5	13.3
21-Dec	11.9	7.1	6.4	10.5	6.6	6.7	10.1	8.8	10.9	9.0	8.9	7.4	9.5	14.6	12.2	16.1	18.6	17.0	11.8	16.6	14.9	14.6	16.0	9.3	11.5	18.6
22-Dec	9.3	8.5	9.1	9.4	8.8	11.6	11.0	11.3	16.6	19.3	13.4	13.1	14.4	15.9	16.8	19.2	18.1	16.2	14.9	14.5	15.0	13.7	13.7	11.9	13.6	19.3
23-Dec	11.0	10.4	11.0	16.0	14.1	14.7	17.6	18.1	17.0	15.4	15.5	12.6	11.2	11.9	9.7	6.2	6.0	5.5	3.3	2.7	2.3	1.8	1.2	0.8	9.8	18.1
24-Dec	0.6	0.6	0.5	0.5	0.6	4.2	4.1	4.5	5.6	5.0	3.4	2.4	2.2	2.2	2.2	3.4	6.1	6.9	12.2	10.3	14.6	3.1	3.4	3.4	4.3	14.6
25-Dec	3.1	2.8	2.5	2.2	2.1	1.8	2.1	1.4	1.5	1.4	2.2	1.3	0.4	0.3	1.6	1.9	3.1	13.2	13.5	4.4	2.5	1.3	5.6	1.9	3.1	13.5
26-Dec	6.6	10.0	3.1	4.4	0.8	1.6	1.4	3.7	1.2	1.6	4.2	2.5	3.2	3.5	6.5	9.3	9.3	5.3	4.7	3.2	10.8	6.2	7.7	5.2	4.8	10.8
27-Dec	8.4	7.0	4.4	2.8	3.5	1.9	10.9	6.7	2.2	2.8	3.4	3.4	7.5	2.9	2.4	2.7	6.2	3.1	2.9	2.5	2.4	2.7	2.5	2.4	4.1	10.9
28-Dec	2.1	1.9	1.9	1.7	3.0	3.8	2.2	1.6	1.9	1.5	2.1	4.4	4.5	5.0	5.1	6.6	7.5	7.4	6.8	5.4	4.7	3.9	3.2	2.6	3.8	7.5
29-Dec	2.7	3.4	3.1	2.8	2.8	3.0	3.9	2.2	2.2	1.5	0.9	1.1	1.0	1.1	1.4	1.6	1.1	1.0	0.9	0.9	1.3	1.3	1.2	1.3	1.8	3.9
30-Dec	1.5	1.6	1.8	1.9	1.9	1.7	1.5	1.4	1.3	1.2	1.2	1.3	1.5	1.7	1.8	1.9	2.0	2.1	2.1	2.2	2.0	1.8	1.8	2.1	1.7	2.2
31-Dec	1.9	1.9	2.0	2.1	2.1	2.1	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	3.0	3.3	4.3	7.3	2.7	7.3
6.1 5.7 5.1 5.8 4.9 6.5 8.7 7.4 6.7 5.9 5.7 4.8 4.8 4.8 4.7 5.2 5.8 6.0 5.7 5.8 5.8 6.6 6.8																								Diurnal Average		
19.0 24.6 23.1 36.5 21.2 41.9 73.9 48.7 35.5 24.8 27.0 13.1 14.4 15.9 16.8 19.2 18.6 17.0 14.9 20.2 15.0 18.9 22.4 22.1																								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 - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	491	66.17	66.17
6 - 15	204	27.49	93.67
16 - 25	40	5.39	99.06
26 - 80	7	0.94	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
Patricia McInnes - December 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	23	8	1	3	4	44	93	18	20	21	45	30	24	72	40	45	491
6 - 15	12	7	2	5	5	14	41	36	32	18	9	6	1	2	2	12	204
16 - 25	4	8	0	0	0	0	6	10	7	3	0	0	1	0	0	1	40
26 - 80	0	0	0	0	0	0	0	2	1	0	0	3	1	0	0	0	7
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	39	23	3	8	9	58	140	66	60	42	54	39	27	74	42	58	742

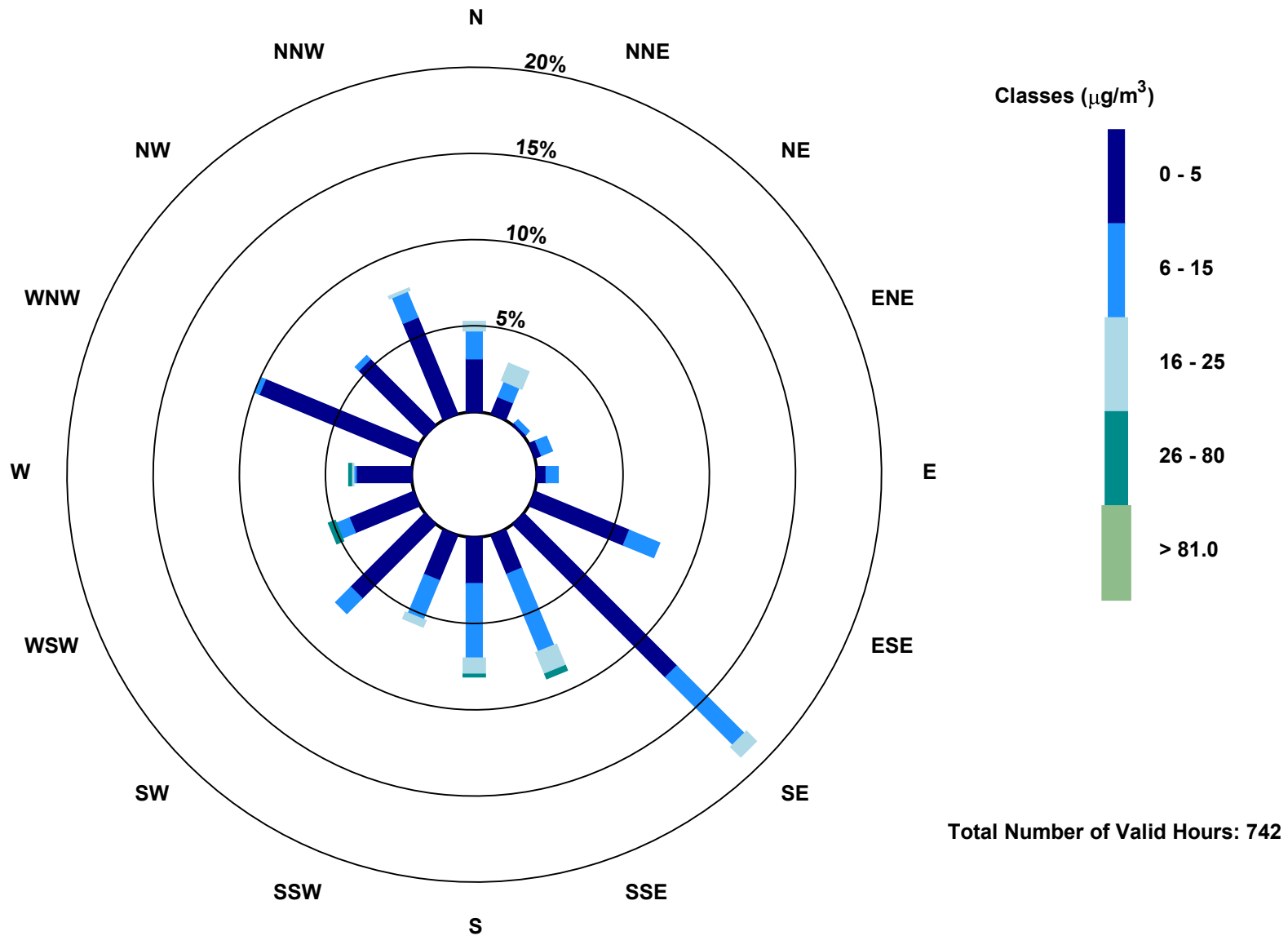
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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

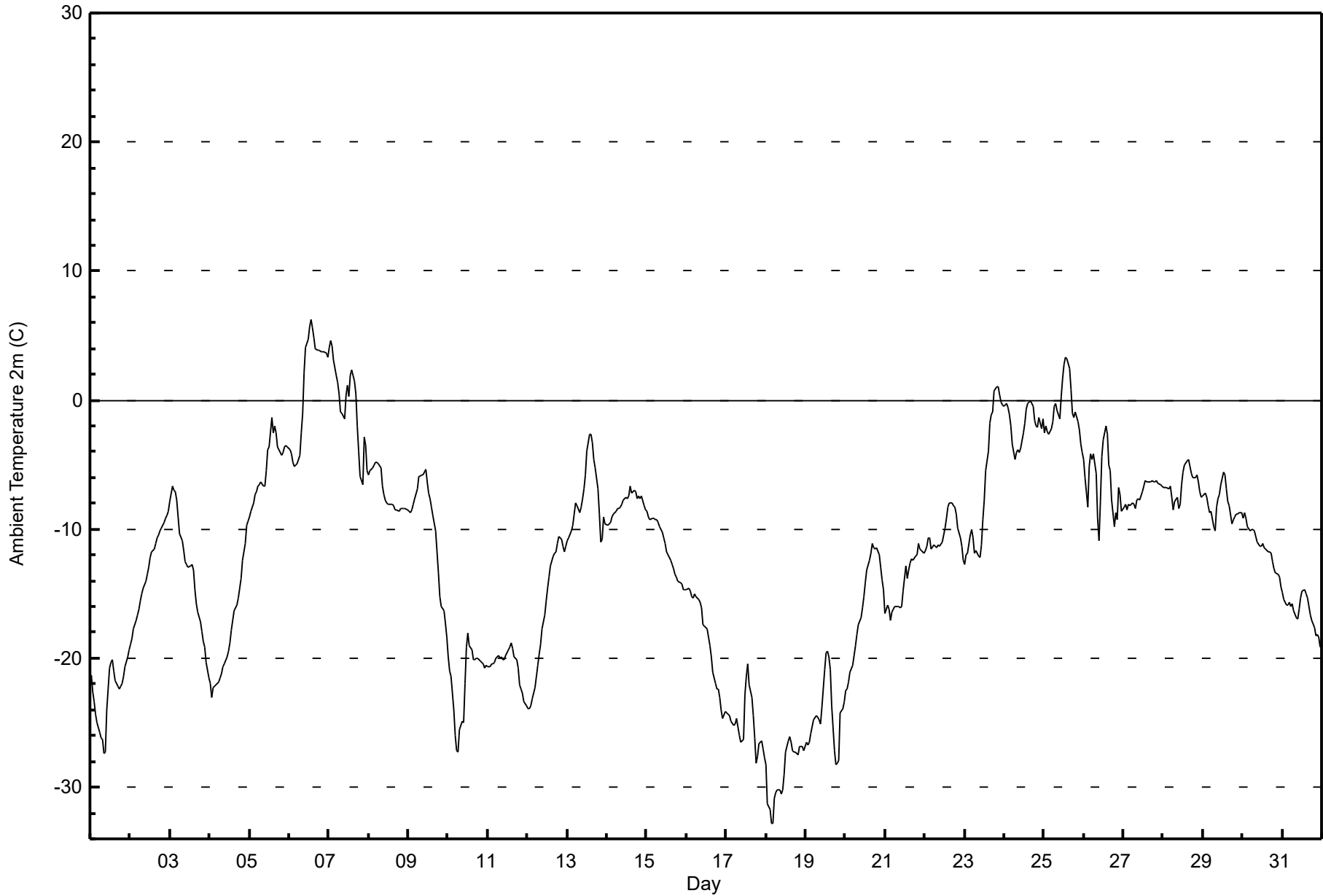




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Patricia McInnes - December 2024

Maximum Value: 6.3 C on Dec 6 14:00		Maximum Daily Average: 1.1 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -32.9 C on Dec 18 04:00		Minimum Daily Average: -28.8 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.1 C at hour 14		Minimum Diurnal Average: -13.1 C at hour 10		Hours of Missing Data: 0																																												
Monthly Average: -12.13 C		Percentiles: P ₁ = -30.3 P ₁₀ = -24.0 Q ₁ = -18.8 Median = -10.9 Q ₃ = -6.7 P ₉₀ = -2.0 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-Dec	-21.3	-22.6	-23.4	-24.4	-25.0	-25.8	-26.2	-26.3	-27.4	-27.3	-24.0	-20.8	-20.3	-20.1	-21.0	-21.8	-22.2	-22.4	-22.1	-22.0	-21.4	-20.7	-19.8	-19.4	-22.8	-19.4																						
2-Dec	-18.9	-18.4	-17.7	-17.0	-16.6	-16.2	-15.6	-15.0	-14.6	-14.1	-13.5	-13.0	-12.2	-11.7	-11.5	-11.1	-10.7	-10.4	-10.2	-9.9	-9.5	-9.1	-8.9	-8.6	-13.1	-8.6																						
3-Dec	-7.8	-6.6	-7.0	-7.1	-7.8	-9.1	-10.4	-10.9	-11.6	-12.6	-12.7	-12.9	-12.9	-12.8	-13.1	-14.7	-15.8	-16.5	-17.2	-18.0	-18.7	-19.1	-20.4	-21.5	-13.2	-6.6																						
4-Dec	-21.9	-23.1	-22.3	-22.2	-22.1	-21.9	-21.5	-21.2	-20.7	-20.4	-19.9	-19.5	-18.8	-17.9	-17.1	-16.3	-15.8	-15.3	-14.5	-13.8	-12.4	-11.1	-9.7	-9.4	-17.9	-9.4																						
5-Dec	-9.1	-8.6	-7.9	-7.3	-7.0	-6.7	-6.5	-6.3	-6.7	-6.6	-5.5	-3.8	-3.6	-1.4	-2.5	-2.0	-2.5	-3.6	-3.9	-4.3	-4.0	-3.6	-3.5	-3.6	-5.0	-1.4																						
6-Dec	-3.8	-4.2	-4.9	-5.1	-5.0	-4.9	-4.3	-2.5	-1.0	2.1	4.1	4.8	5.7	6.3	5.6	4.8	3.9	3.9	3.9	3.8	3.8	3.7	3.6	3.3	1.1	6.3																						
7-Dec	4.1	4.6	4.1	3.1	1.9	1.3	0.5	-1.0	-1.0	-1.5	0.3	1.1	0.3	2.0	2.3	1.5	0.5	-2.0	-3.9	-5.9	-6.6	-2.8	-3.5	-5.4	-0.2	4.6																						
8-Dec	-5.8	-5.5	-5.2	-5.0	-4.8	-4.8	-4.9	-5.3	-6.7	-7.3	-7.7	-8.0	-8.1	-8.1	-8.1	-8.2	-8.5	-8.5	-8.6	-8.4	-8.4	-8.4	-8.4	-8.5	-7.1	-4.8																						
9-Dec	-8.6	-8.7	-8.5	-8.1	-7.7	-6.9	-5.9	-5.9	-5.8	-5.8	-5.3	-6.3	-7.2	-7.6	-8.3	-8.9	-10.2	-11.8	-13.4	-15.2	-16.0	-16.3	-17.3	-18.4	-9.8	-5.3																						
10-Dec	-19.9	-21.0	-21.5	-24.1	-26.0	-27.2	-27.3	-25.5	-24.9	-25.0	-22.0	-19.2	-18.1	-19.1	-19.4	-20.1	-20.1	-20.0	-20.0	-20.2	-20.4	-20.4	-20.7	-20.6	-21.8	-18.1																						
11-Dec	-20.7	-20.7	-20.5	-20.4	-20.3	-20.0	-19.8	-20.0	-19.9	-20.1	-20.1	-19.8	-19.3	-19.2	-18.8	-19.3	-19.9	-20.1	-20.8	-22.1	-22.4	-22.7	-23.3	-23.7	-20.6	-18.8																						
12-Dec	-23.9	-23.9	-23.7	-23.1	-22.3	-21.4	-20.6	-19.7	-18.9	-17.8	-16.6	-15.5	-14.6	-13.7	-12.8	-12.1	-11.9	-11.8	-11.1	-10.5	-10.8	-11.3	-11.8	-11.3	-16.3	-10.5																						
13-Dec	-10.9	-10.7	-10.1	-9.7	-8.8	-8.0	-8.2	-8.7	-8.3	-7.7	-6.9	-5.8	-3.9	-2.6	-2.7	-3.3	-4.6	-5.3	-6.9	-8.8	-11.0	-10.8	-9.0	-9.6	-7.6	-2.6																						
14-Dec	-9.7	-9.6	-9.4	-9.0	-8.8	-8.6	-8.4	-8.4	-8.3	-8.1	-7.7	-7.5	-7.6	-7.4	-6.6	-7.2	-7.0	-7.1	-7.6	-7.5	-7.6	-7.5	-8.2	-8.5	-8.1	-6.6																						
15-Dec	-8.6	-9.1	-9.3	-9.2	-9.2	-9.3	-9.3	-9.4	-9.8	-10.2	-10.6	-11.1	-11.7	-12.0	-12.4	-12.8	-13.1	-13.5	-13.8	-14.0	-14.1	-14.3	-14.6	-14.7	-11.5	-8.6																						
16-Dec	-14.7	-14.6	-14.8	-15.2	-15.3	-15.1	-15.2	-15.4	-15.7	-16.1	-17.4	-17.6	-17.8	-18.4	-19.1	-19.9	-21.1	-22.0	-22.4	-22.3	-23.1	-24.0	-24.7	-24.1	-18.6	-14.6																						
17-Dec	-24.2	-24.3	-24.5	-24.9	-25.2	-25.1	-24.7	-25.4	-26.0	-26.5	-26.3	-22.8	-21.4	-20.5	-22.0	-23.0	-24.4	-26.2	-28.2	-27.6	-26.6	-26.4	-27.0	-27.7	-25.0	-20.5																						
18-Dec	-28.3	-31.3	-31.7	-32.9	-32.8	-30.8	-30.4	-30.2	-30.2	-30.5	-30.3	-29.0	-27.2	-26.4	-26.0	-26.5	-27.1	-27.3	-27.3	-27.5	-26.8	-26.9	-26.9	-27.1	-28.8	-26.0																						
19-Dec	-26.5	-26.8	-26.5	-25.9	-25.3	-24.8	-24.5	-24.6	-24.8	-25.1	-23.8	-20.9	-19.6	-19.4	-19.9	-20.9	-23.7	-27.1	-28.2	-28.1	-27.9	-24.2	-23.9	-23.3	-24.4	-19.4																						
20-Dec	-22.5	-22.4	-21.8	-21.1	-20.5	-19.8	-19.1	-18.2	-17.4	-16.9	-16.1	-15.2	-14.1	-13.1	-12.4	-11.9	-11.1	-11.4	-11.5	-11.4	-12.0	-12.9	-14.0	-14.7	-15.9	-11.1																						
21-Dec	-16.5	-15.9	-16.2	-17.0	-16.4	-16.2	-16.0	-16.0	-16.0	-16.1	-16.0	-14.8	-12.8	-13.9	-13.2	-12.7	-12.3	-12.4	-12.1	-12.0	-11.1	-11.5	-11.7	-11.9	-14.2	-11.1																						
22-Dec	-11.7	-11.3	-10.7	-10.7	-11.6	-11.2	-11.4	-11.4	-11.2	-11.4	-11.0	-10.5	-9.9	-9.2	-8.3	-7.9	-8.0	-8.1	-8.3	-8.8	-9.9	-10.7	-11.3	-12.4	-10.3	-7.9																						
23-Dec	-12.7	-12.0	-11.9	-10.5	-10.0	-10.7	-11.9	-11.6	-12.1	-12.2	-11.3	-9.3	-7.8	-5.4	-4.0	-1.8	-1.1	-0.9	0.8	1.0	1.1	0.4	-0.2	-0.3	-6.4	1.1																						
24-Dec	-0.5	-0.2	-0.6	-1.2	-2.0	-3.4	-4.6	-4.1	-3.8	-4.1	-3.7	-2.6	-1.8	-0.7	-0.2	-0.1	0.0	-0.5	-1.6	-2.0	-2.1	-1.4	-2.2	-1.5	-1.9	0.0																						
25-Dec	-2.6	-2.0	-2.4	-2.7	-2.3	-1.6	-0.5	-0.3	-0.8	-1.4	0.2	1.7	2.8	3.3	3.2	2.5	0.8	-1.0	-1.4	-0.9	-1.6	-2.3	-3.4	-4.0	-0.7	3.3																						
26-Dec	-4.6	-6.0	-8.3	-5.2	-4.2	-4.6	-4.1	-5.7	-9.2	-10.9	-7.9	-4.4	-3.1	-2.0	-2.6	-5.0	-5.5	-7.7	-9.8	-8.7	-9.3	-6.7	-7.4	-8.6	-6.3	-2.0																						
27-Dec	-8.3	-8.1	-8.5	-8.0	-8.2	-7.9	-8.1	-8.4	-7.8	-7.6	-7.7	-7.1	-6.7	-6.3	-6.3	-6.3	-6.4	-6.2	-6.3	-6.3	-6.3	-6.5	-6.6	-6.7	-7.2	-6.2																						
28-Dec	-6.8	-6.8	-6.7	-6.8	-6.7	-7.5	-8.6	-7.9	-7.6	-8.4	-8.0	-6.5	-5.6	-5.1	-4.7	-4.6	-5.1	-5.7	-6.0	-6.0	-5.8	-6.3	-7.1	-7.5	-6.6	-4.6																						
29-Dec	-7.4	-7.2	-7.6	-8.2	-8.7	-8.6	-9.8	-10.2	-8.3	-7.6	-7.3	-6.5	-5.6	-5.8	-6.9	-7.9	-8.2	-9.6	-9.3	-9.0	-8.8	-8.9	-8.7	-8.7	-8.1	-5.6																						
30-Dec	-9.2	-8.8	-9.2	-9.8	-10.2	-10.0	-10.1	-10.1	-10.6	-11.0	-11.3	-11.3	-11.2	-11.4	-11.5	-11.8	-11.8	-11.8	-12.6	-13.0	-13.4	-13.5	-13.7	-14.5	-11.3	-8.8																						
31-Dec	-14.9	-15.4	-15.9	-15.9	-15.7	-16.0	-15.8	-16.4	-16.8	-16.9	-16.2	-15.3	-14.8	-14.7	-15.0	-15.3	-15.9	-16.7	-17.0	-17.6	-18.3	-18.2	-18.3	-19.1	-16.3	-14.7																						
																								-12.8	-12.9	-13.0	-13.0	-13.1	-13.0	-13.0	-13.0	-13.0	-13.1	-12.3	-11.3	-10.6	-10.1	-10.2	-10.5	-10.9	-11.6	-12.0	-12.2	-12.3	-12.1	-12.3	-12.6	Diurnal Average
																								4.1	4.6	4.1	3.1	1.9	1.3	0.5	-0.3	-0.8	2.1	4.1	4.8	5.7	6.3	5.6	4.8	3.9	3.9	3.9	3.8	3.8	3.7	3.6	3.3	Diurnal Maximum





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Patricia McInnes - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	155	20.83	20.83
-20 - 0	548	73.66	94.49
0 - 10	41	5.51	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

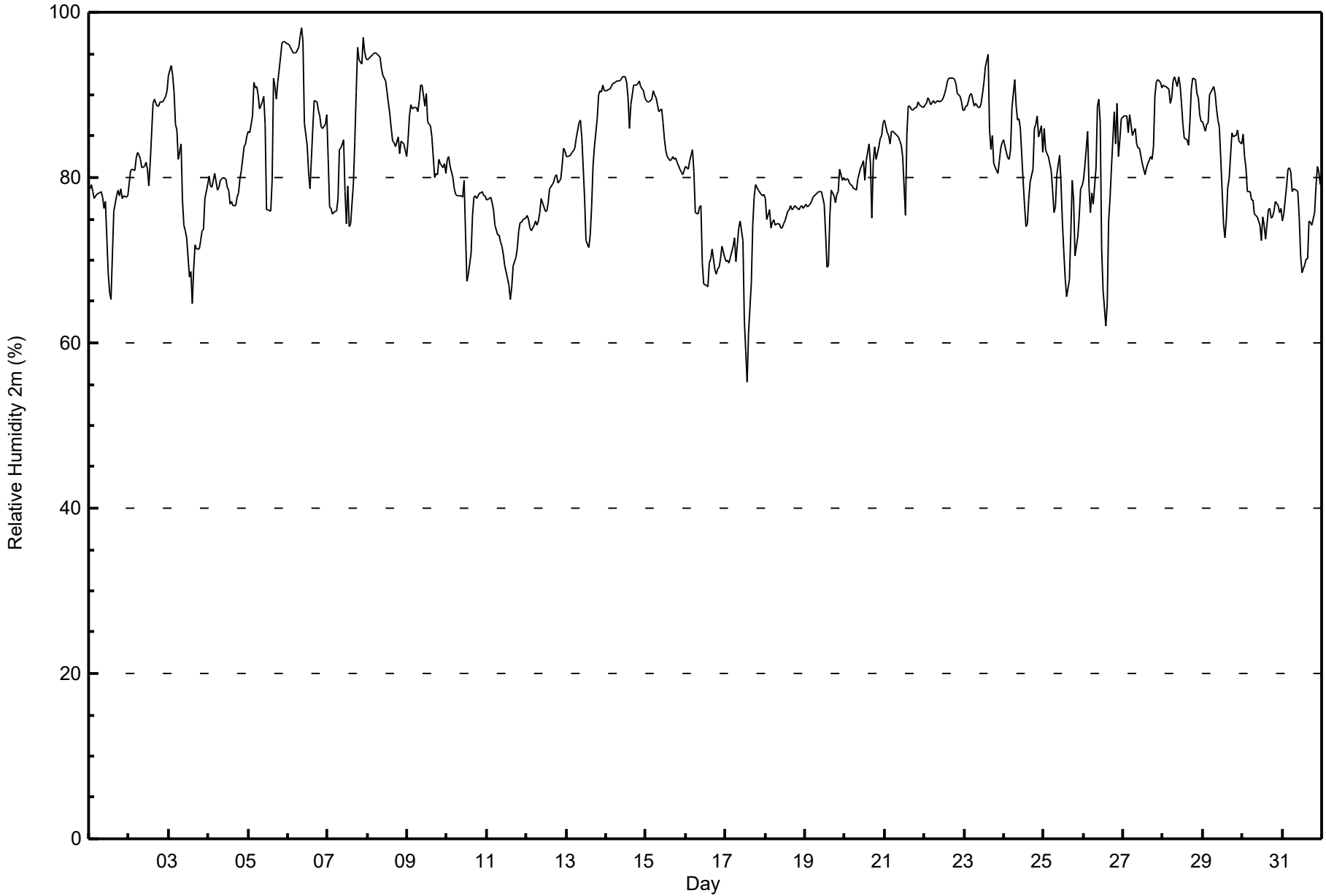
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity 2m (RH2) - %
Patricia McInnes - December 2024

Maximum Value: 98.1 % on Dec 6 09:00																						Maximum Daily Average: 90.9 % on Dec 14																						Hours in Service: 744			
Minimum Value: 55.3 % on Dec 17 14:00																						Minimum Daily Average: 71.5 % on Dec 17																						Hours of Data: 744			
Maximum Diurnal Average: 83.7 % at hour 1																						Minimum Diurnal Average: 76.0 % at hour 14																						Hours of Missing Data: 0			
Monthly Average: 81.79 %																						Percentiles: P ₁ = 65.2 P ₁₀ = 72.8 Q ₁ = 76.6 Median = 81.5 Q ₃ = 88.3 P ₉₀ = 91.1 P ₉₉ = 96.2																						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-Dec	78.6	79.2	78.2	77.5	77.8	78.1	78.1	78.3	77.6	76.3	77.1	68.4	66.1	65.2	70.7	75.9	77.8	78.5	77.8	78.6	77.5	77.9	77.6	77.7	76.1	79.2																					
2-Dec	79.3	80.8	81.1	80.9	82.4	83.1	82.8	82.2	81.2	81.4	81.8	80.9	79.0	81.9	89.0	89.5	89.1	88.6	88.6	89.2	89.1	89.4	89.9	90.5	84.6	90.5																					
3-Dec	92.3	93.6	92.5	90.4	86.5	85.7	82.1	84.0	77.4	74.3	73.6	72.8	68.0	68.7	64.7	69.0	71.8	71.3	71.4	72.4	73.6	73.7	77.5	79.2	77.8	93.6																					
4-Dec	80.2	79.0	78.8	79.7	80.6	78.5	78.8	79.7	79.8	80.0	79.8	78.8	78.5	76.9	77.0	76.6	76.6	77.6	78.2	79.8	80.9	83.8	84.0	85.1	79.5	85.1																					
5-Dec	85.7	85.4	87.4	91.5	90.8	91.0	89.9	88.3	89.1	89.8	86.5	76.1	76.1	75.9	79.7	92.1	91.1	89.4	91.6	94.6	96.2	96.5	96.4	96.3	88.6	96.5																					
6-Dec	96.1	95.8	95.4	95.0	95.1	95.1	95.7	97.2	98.1	96.4	86.7	83.8	80.7	78.6	82.2	85.9	89.3	89.2	88.2	87.4	86.1	86.0	86.4	87.6	89.9	98.1																					
7-Dec	82.2	76.5	76.2	75.5	76.0	75.9	77.5	83.3	83.6	84.5	78.3	74.4	79.1	74.1	74.4	79.3	84.5	90.3	95.8	94.3	93.8	96.9	95.3	94.5	83.2	96.9																					
8-Dec	94.2	94.5	94.7	94.9	95.1	95.0	95.0	94.6	93.2	92.5	92.1	91.7	90.3	87.7	85.9	84.4	84.2	83.7	84.8	82.9	84.5	84.3	84.1	82.5	89.4	95.1																					
9-Dec	84.6	87.5	88.9	88.3	88.5	88.5	88.0	89.4	91.1	91.3	88.6	90.2	86.8	86.4	86.3	85.0	80.1	80.6	80.4	82.2	81.7	81.2	81.6	80.5	85.7	91.3																					
10-Dec	82.1	82.5	81.3	80.1	78.6	78.0	77.8	77.8	77.7	77.7	79.7	73.4	67.5	68.3	70.9	75.5	77.5	77.7	77.5	78.1	78.2	78.2	77.8	77.7	77.2	82.5																					
11-Dec	77.4	77.4	77.6	77.0	76.1	74.3	73.0	73.1	72.2	71.6	70.7	69.3	67.8	67.0	65.2	66.8	69.3	70.3	71.5	73.6	74.6	74.5	74.9	75.1	72.5	77.6																					
12-Dec	75.3	74.8	73.9	73.5	74.3	74.7	74.3	74.7	75.8	77.4	76.5	76.0	76.0	76.9	78.6	79.1	79.4	80.2	80.3	79.4	79.9	81.5	83.5	83.2	77.5	83.5																					
13-Dec	82.5	82.5	82.6	83.0	83.2	83.5	84.8	86.6	87.0	85.0	81.3	77.5	72.3	71.6	73.0	76.5	81.4	83.7	87.1	90.0	90.5	90.4	91.1	90.6	83.2	91.1																					
14-Dec	90.6	90.6	90.8	91.1	91.3	91.5	91.6	91.7	91.7	91.9	92.2	92.3	91.6	89.6	85.9	88.8	91.1	91.2	91.2	91.3	91.7	91.1	90.5	89.7	90.9	92.3																					
15-Dec	89.4	89.2	89.2	89.4	90.5	90.0	89.7	88.8	87.9	88.3	86.7	84.6	83.2	82.5	82.1	82.2	82.6	82.2	82.3	81.8	81.1	80.6	80.4	80.8	85.2	90.5																					
16-Dec	81.3	81.0	82.0	82.7	83.4	80.7	75.7	75.7	76.4	76.5	69.7	67.1	66.9	66.7	69.6	70.2	71.3	68.9	68.4	68.9	69.1	70.1	71.7	70.3	73.5	83.4																					
17-Dec	69.9	70.1	69.6	70.4	71.7	72.7	69.8	71.9	73.8	74.7	72.4	62.8	59.0	55.3	61.3	67.4	74.3	77.6	79.1	78.7	78.5	78.0	77.8	78.0	71.5	79.1																					
18-Dec	77.4	74.9	76.1	73.9	74.5	75.0	74.3	74.4	74.4	73.9	74.0	74.4	74.7	75.9	76.1	76.6	76.2	76.3	76.5	76.3	76.0	76.5	76.6	76.3	75.5	77.4																					
19-Dec	76.7	76.4	76.7	76.8	77.1	77.7	78.0	78.2	78.3	78.2	78.3	76.8	73.2	69.1	69.4	75.2	78.5	77.8	76.9	77.9	78.4	81.0	79.6	80.0	76.9	81.0																					
20-Dec	79.7	79.8	79.8	79.4	79.0	78.7	78.7	78.5	79.8	81.2	81.6	82.1	79.6	82.0	84.1	81.7	75.0	81.8	83.8	82.3	83.7	84.7	85.1	86.6	81.2	86.6																					
21-Dec	86.9	85.4	85.2	84.1	85.7	85.6	85.4	85.1	84.8	84.4	83.9	82.5	75.5	85.3	88.6	88.7	88.3	88.2	88.5	88.5	89.1	88.7	88.7	88.6	86.1	89.1																					
22-Dec	88.8	89.0	89.6	89.4	88.9	89.3	89.0	89.1	89.4	89.1	89.3	89.7	90.3	90.9	91.7	92.1	92.0	92.0	91.8	91.3	90.3	89.8	89.1	88.2	90.0	92.1																					
23-Dec	88.1	88.7	88.7	90.0	90.2	89.6	88.6	89.0	88.4	88.4	89.0	90.1	91.5	93.5	94.9	85.8	83.4	85.1	81.7	80.9	80.5	82.1	83.5	84.3	87.3	94.9																					
24-Dec	84.7	83.1	82.4	82.3	83.4	88.4	91.9	88.7	86.9	87.1	85.9	79.5	76.7	74.1	74.5	77.5	79.5	81.0	86.0	86.4	87.4	85.0	86.3	83.0	83.4	91.9																					
25-Dec	85.9	83.4	82.8	82.6	80.8	78.5	75.8	76.5	80.3	82.6	79.3	74.6	70.9	67.8	65.5	67.7	73.2	79.6	77.3	70.6	72.8	75.2	78.6	79.0	76.7	85.9																					
26-Dec	79.7	81.4	85.5	78.9	75.8	78.1	76.8	81.2	88.6	89.5	86.6	71.6	66.4	62.1	64.8	74.8	77.4	81.2	88.0	84.2	89.1	82.5	84.6	87.1	79.8	89.5																					
27-Dec	87.4	87.5	87.5	85.5	87.6	85.1	85.6	85.9	84.0	83.6	83.6	81.8	81.1	80.4	81.2	81.7	82.5	82.3	83.8	89.9	91.6	91.9	91.6	90.9	85.6	91.9																					
28-Dec	91.1	91.1	91.0	90.7	89.0	89.6	91.7	92.2	91.0	92.2	91.1	89.1	86.4	84.7	84.5	83.9	86.8	90.7	92.0	91.8	90.2	89.6	87.6	86.8	89.4	92.2																					
29-Dec	86.8	85.7	86.5	86.7	89.9	90.3	91.1	90.1	88.4	87.0	86.0	82.3	74.3	72.8	74.8	78.8	79.9	85.4	84.9	85.1	85.1	85.8	84.4	84.1	84.4	91.1																					
30-Dec	85.2	82.5	81.2	78.4	78.3	77.3	77.4	75.6	75.5	75.3	74.2	72.3	75.3	74.2	72.6	76.0	76.2	75.1	75.3	76.0	77.1	76.7	75.8	76.3	76.7	85.2																					
31-Dec	74.8	75.7	79.1	81.1	81.3	80.8	78.4	78.6	78.5	78.3	75.3	70.7	68.5	69.4	70.1	70.2	74.7	74.6	74.2	75.7	78.9	81.4	80.6	79.2	76.2	81.4																					
																						83.7	83.4	83.6	83.2	83.3	83.2	82.8	83.2	83.3	83.2	81.7	78.6	76.5	76.0	77.1	79.2	80.5	81.7	82.4	82.6	83.1	83.4	83.6	83.5	Diurnal Average	
																						96.1	95.8	95.4	95.0	95.1	95.1	95.7	97.2	98.1	96.4	92.2	92.3	91.6	93.5	94.9	92.1	92.0	92.0	95.8	94.6	96.2	96.9	96.4	96.3	Diurnal Maximum	





Maximum Speed: 23 km/h on Dec 6 12:00		Maximum Daily Speed Average: 16.5 km/h on Dec 30		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Dec 10 11:00		Minimum Daily Speed Average: 0.8 km/h on Dec 10		Hours of Data: 744																						
Maximum Diurnal Speed Average: 2.0 km/h at hour 1		Minimum Diurnal Speed Average: 0.5 km/h at hour 13		Hours of Missing Data: 0																						
Monthly Average Velocity: 1.4 km/h 219.2 deg		Percentiles: P ₁ = 1 P ₁₀ = 4 Q ₁ = 5 Median = 8 Q ₃ = 12 P ₉₀ = 16 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-Dec	N8	NNW8	NNW10	NNW9	NW7	WNW7	NW6	NW5	WNW5	WSW1	WSW1	E1	E3	E2	ESE3	E6	ESE6	SE5	ESE5	SE6	SE10	SE9	ESE10	ESE12	ENE1.4	ESE12
2-Dec	SE15	ESE15	ESE15	SE15	SE16	SE14	SE10	SE10	SE10	SE10	SE11	SE11	SE10	SE12	SE11	ESE11	SE11	SE9	SE10	SSE9	SSE8	SSE7	SE6	SE6	SE10.7	SE16
3-Dec	S5	NNE3	N7	NNW14	NNW18	N15	N15	NNW14	NW23	NW22	NW20	NNW19	NNW18	NW18	NW21	NW17	WNW14	NW17	NW17	NW14	NW12	NNW9	NW8	WNW8	NW13.4	NW23
4-Dec	WNW8	W8	WNW7	W3	SSW2	SW7	SSW6	SSW7	SSE5	ESE9	SE11	SE12	SE10	SE11	SE13	SE14	SE18	SE16	SE12	SE12	SSE10	SSE9	S13	SSW14	SSW7.0	SE18
5-Dec	SSW12	SSW9	SW11	WSW18	WSW15	WSW13	WSW12	SW12	SSW7	S6	S5	SE6	SSE6	S5	S5	SW8	SE5	SE6	SE8	SE9	SE8	SE4	SE8	S7	SSW6.2	WSW18
6-Dec	SSE5	SSE5	S5	S6	SSW6	S5	SSE7	SSE6	SSE6	SW12	WSW19	W23	W15	WSW8	WSW7	WSW9	SW8	SW6	SW9	SSW8	SSW7	S7	SSW9	SSW9	SW7.0	W23
7-Dec	WSW13	W13	W18	WSW7	WSW7	WSW6	WSW10	SSW9	S7	SW8	WSW12	SW11	SW12	SSW10	SSW9	SW9	WSW6	WNW1	W5	W4	NW6	N11	NNW12	N16	WSW6.4	W18
8-Dec	N14	N12	N11	NNW9	NNW8	N9	NNW9	N11	N11	N11	N11	NNE9	N9	NNW9	NNE6	NNE5	NNE6	NE3	E2	ESE3	S3	S1	ESE4	SSE4	N6.2	N14
9-Dec	S6	SSW5	SW6	SW7	SW8	WSW7	W9	WSW6	WSW7	W7	N7	N13	N14	NNE14	NNE17	NNE16	N15	NNE18	N14	NNW9	NNW11	NNW12	N9	N9	NNW6.2	NNE18
10-Dec	NW7	NW9	WNW6	WNW5	NW3	W5	W5	W8	W6	WNW5	NNW0	ESE3	ESE3	ENE5	ENE3	S4	ESE4	ESE6	ESE7	SE7	ESE9	ESE8	ESE10	SE10	ESE0.8	ESE10
11-Dec	ESE14	SE12	ESE12	ESE12	ESE13	ESE15	ESE14	ESE12	ESE11	ESE13	ESE16	ESE16	ESE12	ESE12	SE13	ESE13	ESE10	ESE16	SE18	SE18	SE15	SE17	SE18	SE19	ESE14.2	SE19
12-Dec	SE17	SE16	SE18	SE19	SE15	SE16	SE18	SE17	SE17	SE16	SE16	ESE18	ESE18	SE15	SE15	SE12	SE11	SE10	SSE9	SSE11	SSE12	SSE10	SSE8	SSE9	SE14.2	SE19
13-Dec	SSE10	SE9	SE7	SE8	SSE9	SSE8	SE8	SSE8	S8	S9	S9	SSW7	SSW9	SW10	SW8	SW12	WSW11	WSW9	SSE4	S3	W6	NNW8	NNW10	N9	SSW4.5	SW12
14-Dec	N9	NNE8	N10	NNE9	NNE10	NNE9	NNE8	N9	NNE8	NNE7	NE6	E7	ENE8	ENE10	NNE12	NE12	NNE10	NNE7	NNE8	NNE10	NNW8	N10	NW6	NW6	NNE7.8	NE12
15-Dec	NNW7	NNW9	NNW11	NNW11	NNW13	NNW12	NNW13	NNW14	NNW14	NNW16	N15	NNW14	NNW15	N14	NNW13	NNW11	NNW11	NNW12	NNW12	N10	N11	N9	NNW7	NNW12.0	NNW16	
16-Dec	NW5	NNW5	NW4	NW3	W3	WNW8	NNW10	NNW8	NW7	W10	NNW15	NNW16	NNW16	NNW18	NNW16	NNW14	NNW11	W12	W12	NNW15	W15	W13	W11	NNW14	NNW10.5	NNW18
17-Dec	W15	W14	WNW15	WNW13	WNW5	WNW7	WNW5	SW6	SW5	SW8	SW6	SE2	SE3	SE3	S5	SW4	WSW5	SW5	SW5	WSW5	SW7	SW10	SW8	S5	WSW5.2	W15
18-Dec	SSE4	SE3	S4	SSE2	S4	ESE5	SSE4	SE6	SE5	SE4	W1	S2	ESE5	SE6	ESE6	S1	W2	WSW2	WSW3	WSW3	NW3	SW4	S4	S3	SSE2.5	SE6
19-Dec	SE4	SSE5	S3	S5	SSE6	SSE6	SE4	SE4	SSE3	S5	S3	SE2	E3	S3	S4	E5	ESE3	ESE2	S1	SE3	SSE3	SE7	SE5	SE9	SSE3.6	SE9
20-Dec	SE11	SE11	SE14	SE14	SE15	ESE16	SE16	SE20	SE19	SE21	SE15	SE18	SE13	SE10	SE10	SSE6	SSW11	SSW10	SSW9	SW7	SSW5	SW7	SW6	S5	SE10.3	SE21
21-Dec	S5	S5	S5	SSE4	S6	SSW6	SSE5	SSE6	SSE6	SE6	SSW3	SSW2	ESE5	SE5	ESE4	SSE6	SE5	SE4	ENE2	NNE5	NNE4	ENE3	SE4	SE6	SSE3.4	SE6
22-Dec	SSE4	S0	ENE1	ESE3	SE8	SE6	SE5	SE5	S4	SSW3	S5	S6	SSE7	SSE8	SSE6	SE4	SE7	SSE7	SE8	SE7	SE6	SSE5	S3	SSW3	SSE4.8	SE8
23-Dec	SSW4	SSW4	S4	SE7	SE8	SSE5	SSW3	SSW4	S3	S4	S5	SSE6	S7	S8	S9	SW16	SW12	SW13	SW18	WSW19	SW20	SW18	WSW16	WSW20	SW8.3	SW20
24-Dec	WSW20	WSW21	WSW20	WSW16	SW11	SSE5	S5	S7	SE8	SSE7	ESE9	SE12	SE16	SE17	SE14	SE7	SE7	SSE4	S4	S6	SSE4	SSW9	SW9	SW13	S6.9	WSW21
25-Dec	SW10	SW15	SW12	SW10	SW8	SW9	SW13	SW9	SW11	SSW4	SW10	WSW18	WSW22	WSW20	SW14	SW10	SSW7	SSE7	SSW7	SW9	SW7	SSW8	SSW6	S7	SW9.9	WSW22
26-Dec	SSE7	SSE7	SSE6	SSE8	SE9	SSE5	SE6	S4	SSW4	SSW4	SSW6	S3	SSE7	SSE5	SE5	SSE5	SE6	SE3	SE5	SE2	SSW4	S4	SE2	S2	SSE4.6	SE9
27-Dec	SSE3	SSE3	SSE4	SSW4	SE3	SE4	S3	SE5	SE6	SE9	SSE3	SE5	SSE4	SE5	SE9	SE7	SSE5	SE7	ESE9	ESE7	ESE8	ESE6	SE6	ESE6	SE5.3	SE9
28-Dec	ESE6	ESE5	ESE5	E2	N4	N4	NNW4	NW3	NNW4	NW4	NW5	NW5	NNW6	NNW5	NNW5	N4	NNW3	NW4	WNW4	WNW5	NNW10	N9	N9	NNW6	NNW3.5	NNW10
29-Dec	NNW6	NNW5	N7	NNW5	WNW4	WSW4	SW4	W7	W9	WNW9	WNW8	WNW8	NW12	NNW14	NNW11	NNW9	NW9	NW8	WNW9	NW10	NW10	NW11	NW13	NNW11	NW7.7	NNW14
30-Dec	WNW9	NW14	WNW14	NW18	WNW16	WNW17	WNW19	WNW17	WNW19	WNW20	WNW21	WNW21	NW22	NW21	WNW19	WNW17	WNW16	WNW17	WNW13	WNW14	WNW13	WNW12	WNW13	WNW15	WNW16.5	NW22
31-Dec	WNW17	NW13	WNW9	WNW9	WNW9	WNW11	WNW11	WNW11	WNW10	WNW10	WNW11	WNW14	NW16	NW16	WNW16	WNW13	WNW13	WNW11	WNW10	WNW9	NNW6	NNW6	NNW6	N6	WNW10.6	WNW17
SSW2.0WSW1.8WSW1.8 SW1.6SSW1.5SSW1.3 SW1.6SSW1.7SSW1.5 SW1.8 SW1.7 SW1.0 SW0.5 SW0.7 S0.8 SW1.2SSW1.2SSW1.1SSW1.5 SW1.7 SW1.4 SW1.4SSW1.2 SW1.8																								Diurnal Average		
WSW20WSW21WSW20 SE19NNW18WNW17WNW19 SE20 NW23 NW22WNW21 W23 NW22WNW21 NW21WNW17 SE18 NNE18 SE18WSW19 SW20 SW18 SE18WSW20																								Diurnal Maximum		

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

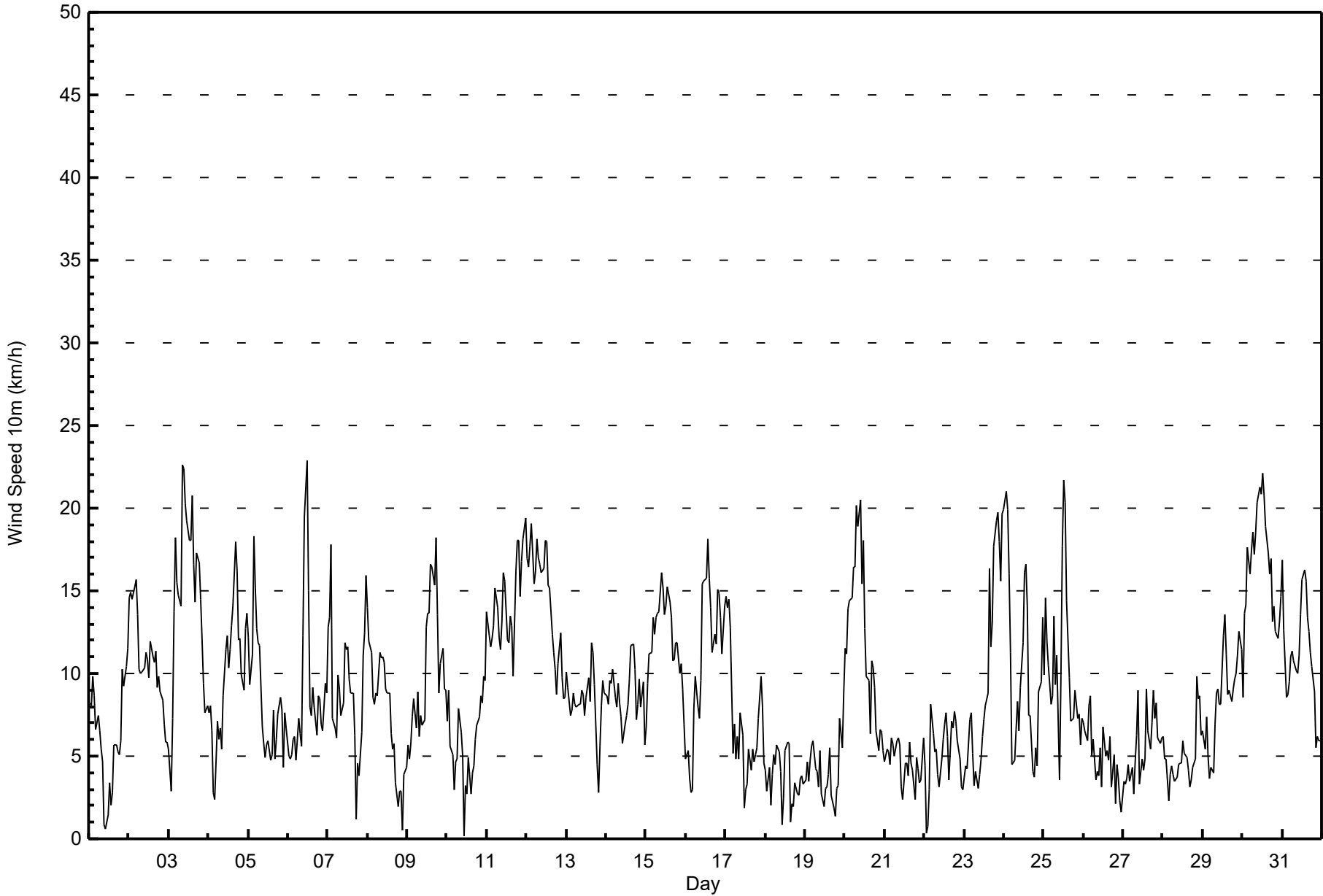
Wind Speed 10m (WS10) - km/h
Patricia McInnes - December 2024

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Patricia McInnes - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Patricia McInnes - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	207	27.82	27.82
6 - 11	332	44.62	72.45
12 - 19	186	25.00	97.45
20 - 28	19	2.55	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Patricia McInnes - December 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	4	1	6	6	17	31	29	42	17	6	8	7	9	12	9	207
6 - 11	25	14	1	2	3	20	62	36	17	23	35	14	10	28	13	29	332
12 - 19	11	5	1	0	0	21	45	1	1	2	14	11	9	33	12	20	186
20 - 28	0	0	0	0	0	0	2	0	0	0	1	6	1	4	5	0	19
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	39	23	3	8	9	58	140	66	60	42	56	39	27	74	42	58	744

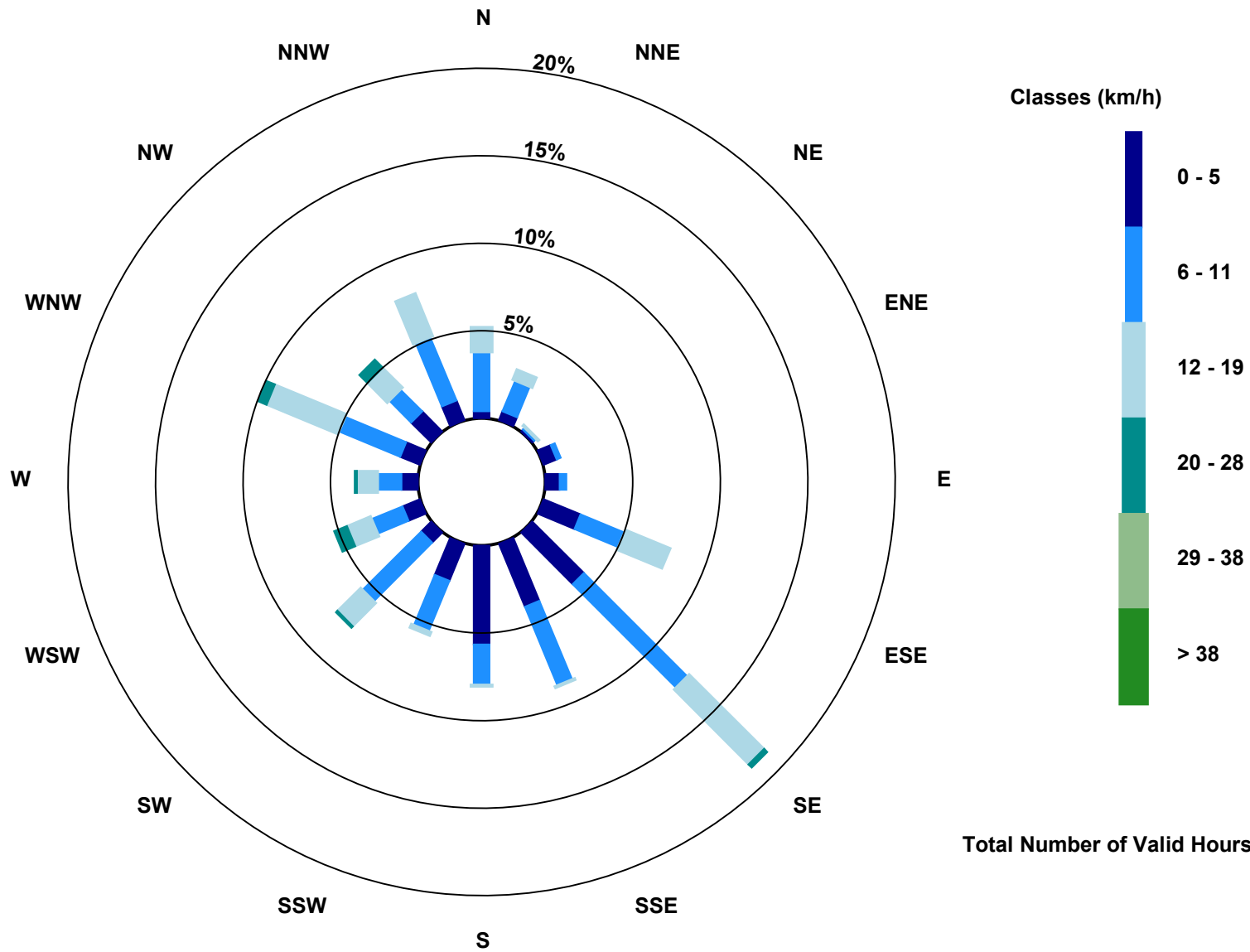
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Patricia McInnes





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Patricia McInnes - December 2024

Direction of Maximum Speed: 259 deg on Dec 6 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 299.3 deg on Dec 30	Hours of Data: 744
Direction of Minimum Speed: 338 deg on Dec 10 11:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.8 deg on Dec 10	Percent Operational Time: 100.0
Monthly Average Direction: 219.2 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-Dec	354	336	342	337	317	299	305	324	299	242	248	79	100	92	105	100	122	124	123	130	127	129	122	119	67.1
2-Dec	125	123	122	125	127	129	130	127	127	127	126	131	131	126	128	123	128	131	131	149	166	161	139	146	130.4
3-Dec	176	24	2	345	345	1	357	344	324	318	322	336	328	314	316	307	299	304	306	314	322	327	325	296	325.0
4-Dec	283	269	294	275	200	219	209	211	155	118	126	125	132	127	129	124	128	130	131	135	147	159	188	197	151.8
5-Dec	198	208	217	245	247	237	237	224	198	181	169	135	152	177	178	222	124	141	133	129	125	146	144	169	195.1
6-Dec	161	154	183	174	201	173	164	148	168	234	252	259	268	249	244	241	227	231	221	206	196	184	196	195	219.0
7-Dec	242	265	261	256	249	245	241	201	182	218	238	236	223	204	207	227	240	300	281	270	318	353	346	352	252.5
8-Dec	351	352	354	344	342	352	346	354	359	1	10	12	0	341	17	27	24	40	91	118	188	180	117	158	1.7
9-Dec	189	213	223	222	236	252	262	257	250	271	349	2	6	12	13	15	7	13	4	341	335	346	9	2	342.4
10-Dec	325	320	300	299	325	278	265	271	278	282	338	108	107	74	58	179	115	109	108	136	123	117	112	124	117.8
11-Dec	116	124	116	118	120	117	121	117	118	117	122	119	111	121	125	119	116	122	126	126	129	131	128	127	121.7
12-Dec	129	129	128	127	126	127	126	126	128	127	125	122	123	126	127	127	129	134	147	155	151	148	147	153	130.6
13-Dec	151	138	139	137	147	153	142	151	172	187	189	196	207	230	228	232	242	245	152	189	261	330	344	350	191.8
14-Dec	3	12	7	15	14	13	12	6	16	21	41	79	88	76	62	30	42	24	33	22	348	356	323	23.9	
15-Dec	337	333	331	332	342	336	333	337	341	343	352	343	340	348	349	343	337	335	341	341	352	352	356	331	341.5
16-Dec	323	346	324	304	265	282	292	300	311	277	284	284	289	288	287	290	284	276	277	284	279	268	262	283	285.8
17-Dec	279	279	292	294	284	296	291	227	224	217	226	142	131	128	179	221	247	224	229	247	233	225	225	170	249.7
18-Dec	154	145	191	167	182	123	150	137	138	138	280	173	117	135	114	180	260	246	241	252	321	228	180	172	160.8
19-Dec	131	168	180	171	168	154	134	146	156	181	183	134	83	173	190	83	118	123	175	127	152	136	140	127	146.9
20-Dec	131	135	125	130	126	123	126	126	130	130	130	125	127	137	134	159	198	208	209	215	208	222	215	190	142.9
21-Dec	185	182	187	158	188	194	151	155	153	144	199	209	119	145	121	158	128	145	71	24	24	62	145	139	151.0
22-Dec	147	182	69	120	141	138	127	138	181	199	173	172	165	149	154	145	140	156	145	145	140	151	184	207	151.9
23-Dec	202	201	179	142	141	160	203	208	183	191	175	166	169	172	190	226	217	224	236	238	236	236	239	251	215.4
24-Dec	252	246	243	237	216	166	172	178	138	160	115	127	127	124	136	140	140	160	180	174	168	209	218	223	186.6
25-Dec	217	231	229	228	232	222	224	226	225	204	221	242	250	249	233	216	196	152	193	221	214	216	204	187	224.7
26-Dec	166	158	162	151	137	160	143	189	205	205	194	176	165	168	145	151	142	139	146	131	197	175	138	182	161.4
27-Dec	165	150	149	192	132	135	170	145	135	138	151	126	147	144	128	145	154	134	117	112	120	119	132	118	135.8
28-Dec	122	107	104	96	359	358	340	318	330	307	319	323	328	327	348	350	339	321	296	305	344	4	5	336	345.6
29-Dec	334	346	350	344	284	244	232	268	273	282	283	295	324	330	328	329	311	304	303	304	311	311	306	300	307.7
30-Dec	293	305	302	304	298	301	299	297	296	301	301	300	306	304	300	300	300	295	291	294	292	296	295	300	299.3
31-Dec	303	305	300	289	286	300	298	294	290	288	284	298	311	313	299	298	299	299	296	303	334	336	345	355	302.4

213.2 238.0 246.0 229.5 207.9 207.4 220.2 208.7 210.1 218.0 233.2 219.6 230.4 223.7 181.1 231.4 203.1 208.0 208.2 218.0 224.0 232.2 211.1 216.0
 Diurnal Average

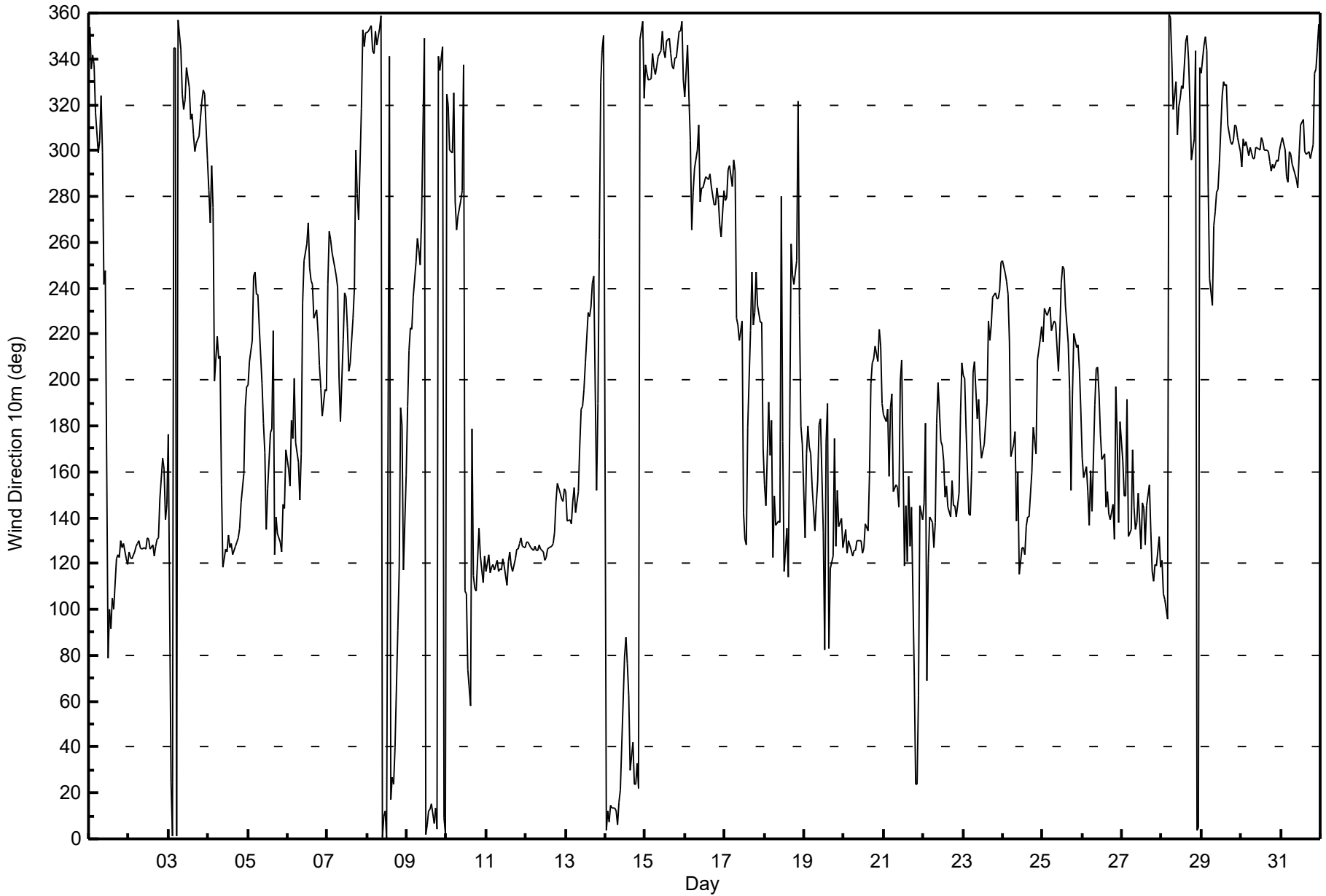
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Patricia McInnes - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97 deg on Dec 10 11:00 Minimum Value: 5 deg on Dec 1 06:00 Percentiles: P ₁ = 8 P ₁₀ = 9 Q ₁ = 11 Median = 14 Q ₃ = 19 P ₉₀ = 30 P ₉₉ = 74																	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-Dec	14	12	15	8	15	5	9	15	17	44	85	80	25	48	29	13	12	15	18	19	14	15	17	12	85
2-Dec	11	11	12	12	11	12	13	13	14	12	12	13	14	12	13	12	13	14	16	14	13	15	16	15	16
3-Dec	15	88	19	15	11	17	17	17	12	10	11	16	15	13	12	9	9	9	9	9	10	9	12	8	88
4-Dec	17	10	12	61	24	12	15	14	30	14	15	15	14	13	12	12	13	13	18	12	18	17	15	61	
5-Dec	14	15	17	19	13	12	12	15	21	24	22	18	32	32	41	19	31	16	14	13	16	28	16	17	41
6-Dec	17	17	27	18	22	24	14	26	33	24	10	11	13	19	17	13	14	24	12	13	15	15	19	13	33
7-Dec	12	13	10	27	24	22	10	9	13	13	15	11	10	17	15	10	14	86	28	32	19	16	12	14	86
8-Dec	14	15	15	14	12	14	13	15	16	16	14	11	18	10	16	20	14	31	68	32	33	94	33	23	94
9-Dec	13	18	12	11	12	19	11	10	10	10	43	17	13	12	15	12	15	13	15	10	8	13	12	14	43
10-Dec	18	8	18	11	42	26	8	21	12	8	97	28	46	27	56	40	30	12	12	22	13	13	14	15	97
11-Dec	12	13	12	12	13	12	14	13	13	14	13	13	13	15	13	16	15	13	12	12	14	14	13	13	16
12-Dec	14	13	13	13	14	13	13	11	13	12	12	12	12	12	12	11	12	12	18	17	12	11	10	11	18
13-Dec	13	12	16	13	12	11	12	15	10	10	11	17	15	13	15	9	10	26	43	44	19	24	11	15	44
14-Dec	14	13	16	15	11	14	12	12	16	12	22	17	13	16	17	10	14	14	13	14	9	17	15	18	22
15-Dec	17	8	8	11	11	10	9	9	10	11	14	14	11	12	12	11	11	10	10	10	15	14	17	13	17
16-Dec	13	15	11	25	10	17	10	11	14	21	11	12	13	11	11	11	9	10	12	10	9	11	11	11	25
17-Dec	9	11	11	9	66	18	31	12	17	14	17	56	21	40	18	41	19	13	11	21	11	9	19	28	66
18-Dec	24	39	22	40	23	18	20	16	15	20	95	58	21	18	18	58	24	29	21	33	26	35	26	19	95
19-Dec	16	22	22	18	15	16	22	29	32	16	40	46	29	50	50	15	30	21	45	19	40	23	18	15	50
20-Dec	18	18	13	14	14	12	13	11	14	11	12	10	13	13	14	30	14	15	13	14	12	11	11	13	30
21-Dec	24	10	20	20	11	10	25	12	10	20	25	36	24	19	39	25	27	26	60	13	16	27	33	14	60
22-Dec	20	78	66	34	14	14	14	13	30	34	16	16	13	12	27	26	15	14	12	12	13	15	26	24	78
23-Dec	18	16	18	14	14	23	21	25	21	17	15	12	12	11	17	10	11	12	10	10	9	9	10	9	25
24-Dec	9	9	10	11	20	32	39	21	13	21	14	19	12	12	15	60	21	49	25	28	47	14	17	11	60
25-Dec	12	9	8	10	10	12	11	16	11	67	29	11	10	10	13	12	10	11	16	11	16	9	18	14	67
26-Dec	15	10	10	19	18	28	20	25	19	13	16	20	14	26	20	21	12	20	12	63	33	61	51	58	63
27-Dec	22	31	30	37	58	52	25	20	23	26	52	22	32	43	14	15	16	16	14	14	11	17	16	14	58
28-Dec	15	13	14	23	26	12	19	15	16	9	12	16	11	12	19	11	14	20	8	14	10	15	14	12	26
29-Dec	9	14	13	28	21	8	11	7	6	8	8	14	12	10	8	9	9	8	6	8	8	9	8	10	28
30-Dec	9	10	9	9	9	10	9	10	10	9	9	10	9	10	9	9	9	9	9	9	8	9	8	9	10
31-Dec	8	8	8	8	9	7	8	9	7	7	9	11	11	12	11	10	9	8	9	17	9	8	14	13	17
																	Diurnal Maximum								





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS07 ATHABASCA VALLEY DECEMBER 2024

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

January 31, 2025

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

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	708	36	36	100	4.9	0	1.7	0
TRS (ppb) Average	686	37	58	97.18	1.2	0	0.5	0
THC (ppm) Average	705	36	39	99.6	2.8	-	2.4	-
NMHC (ppm) Average	705	36	39	99.6	0.146	-	0.014	-
CH4(ppm) Average	705	36	39	99.6	2.8	-	2.4	-
O3 (ppb) Average	710	34	34	100	34.4	0	29.3	-
NO2 (ppb) Average	707	37	37	100	27.7	0	15.1	-
NO (ppb) Average	707	37	37	100	41.3	-	12.1	-
NOX (ppb) Average	707	37	37	100	61.2	-	26.3	-
PM2.5 (ug/m3) Average	742	2	2	100	39	0	13.6	0
CO(ppm) Average	710	34	34	100	0.6	0	0.3	-
Temperature 2 m (C) Average	744	0	0	100	4.2	-	-1.1	-
Relative Humidity (%) Average	744	0	0	100	93.9	-	88.9	-
Barometric Pressure (inHg) Average	744	0	0	100	29.8	-	29.7	-
Wind Speed 10 m (km/h) Average	744	0	0	100	27	-	15	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-

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

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

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	708	0.27	0.5	-	0	0	0.1	0.1	0.3	0.5	4.9
TRS (ppb) Average	686	0.23	0.1	-	0.1	0.1	0.2	0.2	0.2	0.4	1.2
THC (ppm) Average	705	2.15	0.1	-	2	2	2.1	2.1	2.2	2.3	2.8
NMHC (ppm) Average	705	0.003	0.013	-	0	0	0	0	0	0	0.146
CH4(ppm) Average	705	2.14	0.1	-	2	2	2.1	2.1	2.2	2.3	2.8
O3 (ppb) Average	710	16.37	7.5	-	1.9	6.2	10.9	15.7	22.4	26.8	34.4
NO2 (ppb) Average	707	10.21	5.5	-	0.7	3.2	6.3	9.5	13.6	17.9	27.7
NO (ppb) Average	707	4.04	5.4	-	0	0.1	0.7	2.4	4.7	9.5	41.3
NOX (ppb) Average	707	14.25	9.9	-	0.7	3.7	7.5	12.3	18	26.6	61.2
PM2.5 (ug/m3) Average	742	5.89	4.4	-	0.7	2.7	3.3	4.2	6.7	11.9	39
CO(ppm) Average	710	0.17	0.1	-	0.1	0.1	0.1	0.2	0.2	0.2	0.6
Temperature 2 m (C) Average	744	-12.83	7.9	-	-34.1	-24.3	-19	-11	-7.4	-4.4	4.2
Relative Humidity (%) Average	744	77.97	8	-	56.5	67.5	71.6	77.7	85	88.6	93.9
Barometric Pressure (inHg) Average	744	29.07	0.4	-	28.4	28.6	28.7	29	29.4	29.6	29.8
Wind Speed 10 m (km/h) Average	744	7.5	5	-	0	2	3	7	11	14	27
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
TRS	10 Dec 2024 15:00	11 Dec 2024 11:00	21	Maintenance - replace scrubber beads and stabilization
THC/NMHC/CH4	24 Dec 2024 07:00	24 Dec 2024 09:00	3	Maintennace - adjust analyzer retention time



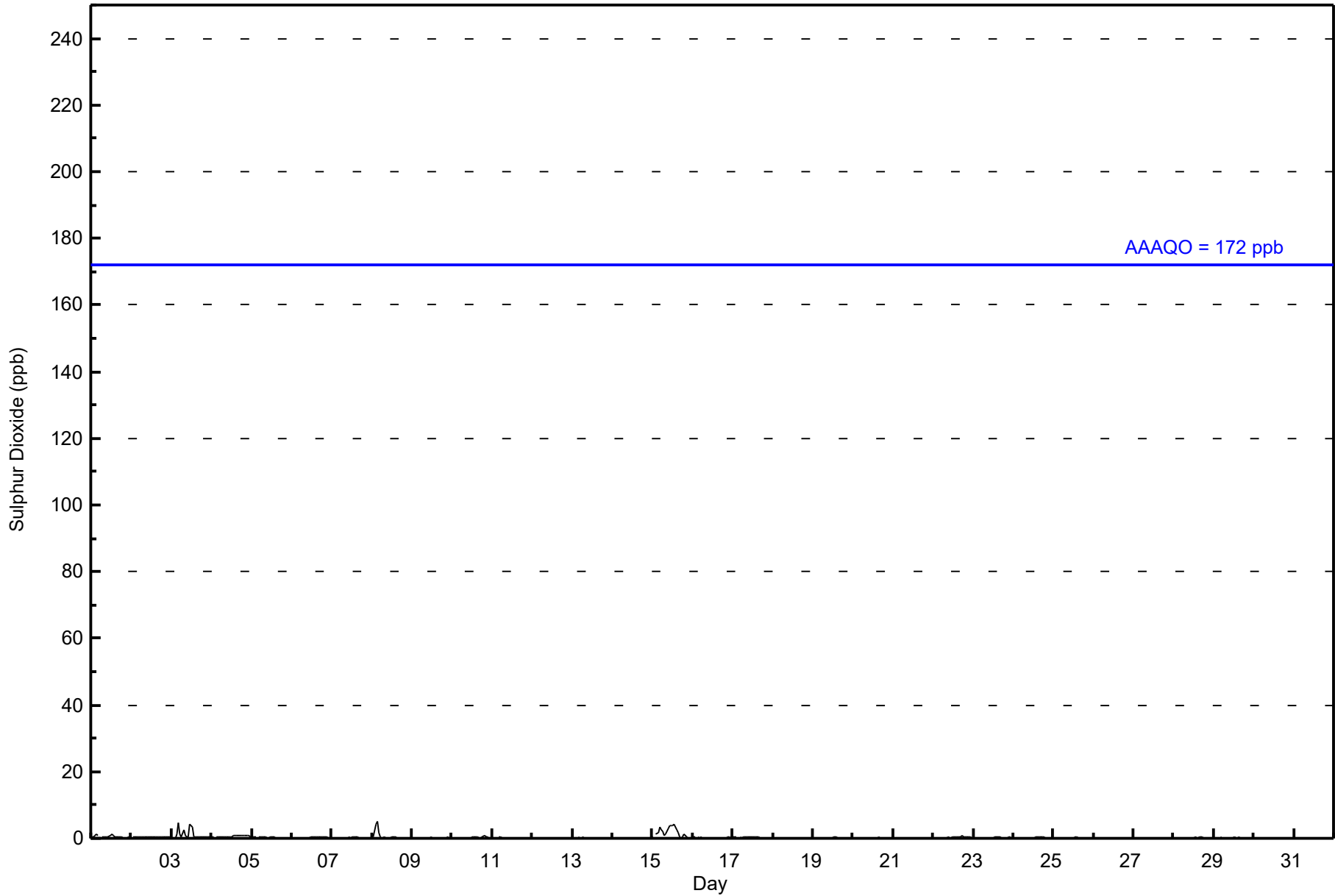
Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Athabasca Valley - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 4.9 ppb on Dec 8 04:00		Maximum Daily Average: 1.7 ppb on Dec 15														Hours of Data: 708										
Minimum Value: 0.0 ppb on Dec 9 18:00		Minimum Daily Average: 0.0 ppb on Dec 31														Hours of Missing Data: 36										
Maximum Diurnal Average: 0.5 ppb at hour 5		Minimum Diurnal Average: 0.1 ppb at hour 23														Hours of Calibration: 36										
Monthly Average: 0.27 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.5 P ₉₉ = 3.6														Percent Operational Time: 100.0										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.5	0.3	0.7	1.3	0.7	Z	0.4	0.3	0.3	0.3	0.6	0.9	1.1	0.8	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.5	1.3
2-Dec	Z	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.5	0.6
3-Dec	0.2	Z	0.2	1.3	4.5	1.1	0.5	2.4	0.9	0.3	0.4	4.1	3.6	0.6	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.3	1.0	4.5
4-Dec	0.4	0.2	Z	0.4	0.6	0.6	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.8	0.8	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.6	1.0
5-Dec	0.5	0.5	0.5	Z	0.3	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.5
6-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.4
7-Dec	0.2	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
8-Dec	Z	0.6	4.1	4.9	1.6	0.6	0.2	0.4	0.1	0.1	0.1	0.1	0.2	0.3	0.6	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.7	4.9
9-Dec	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.1	0.0	0.1	0.6
10-Dec	0.0	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.3	0.2	0.2	0.5	0.7	0.4	0.3	0.2	0.1	0.2	0.7
11-Dec	0.1	0.1	0.2	Z	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
12-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
13-Dec	0.1	0.1	0.2	0.2	0.2	Z	0.2	0.1	0.2	0.2	C	C	C	C	C	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.2
14-Dec	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5	0.1	0.5
15-Dec	0.3	Z	1.4	1.6	3.6	2.5	2.1	0.7	1.4	2.8	3.9	3.9	3.6	4.1	2.5	1.7	0.2	0.2	0.2	1.1	0.4	0.2	0.1	0.2	1.7	4.1
16-Dec	0.2	0.3	Z	0.4	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.4
17-Dec	0.2	0.2	0.3	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.4
18-Dec	0.0	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	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.2
19-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3
20-Dec	Z	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2
21-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.2
22-Dec	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	0.4	0.5	0.7	0.6	0.4	0.3	0.3	0.2	0.2	0.3	0.7
23-Dec	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3
24-Dec	0.2	0.2	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	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3
25-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
26-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
27-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
28-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.3	0.3	0.3	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3
29-Dec	0.1	0.1	0.0	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
30-Dec	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
31-Dec	0.0	0.0	0.0	0.0	0.0	Z	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	0.1
																								Diurnal Average		
																								Diurnal Maximum		
																								0.2 0.2 0.4 0.5 0.5 0.3 0.2 0.3 0.2 0.2 0.3 0.4 0.5 0.4 0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.1 0.1 0.1 0.1		
																								0.5 0.6 4.1 4.9 4.5 2.5 2.1 2.4 1.4 2.8 3.9 4.1 3.6 4.1 2.5 1.7 0.9 0.9 0.9 1.1 0.8 0.7 0.7 0.6		
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
Athabasca Valley - December 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
Athabasca Valley - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	14	6	8	17	24	175	99	27	34	54	36	32	37	35	58	52	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	14	6	8	17	24	175	99	27	34	54	36	32	37	35	58	52	708

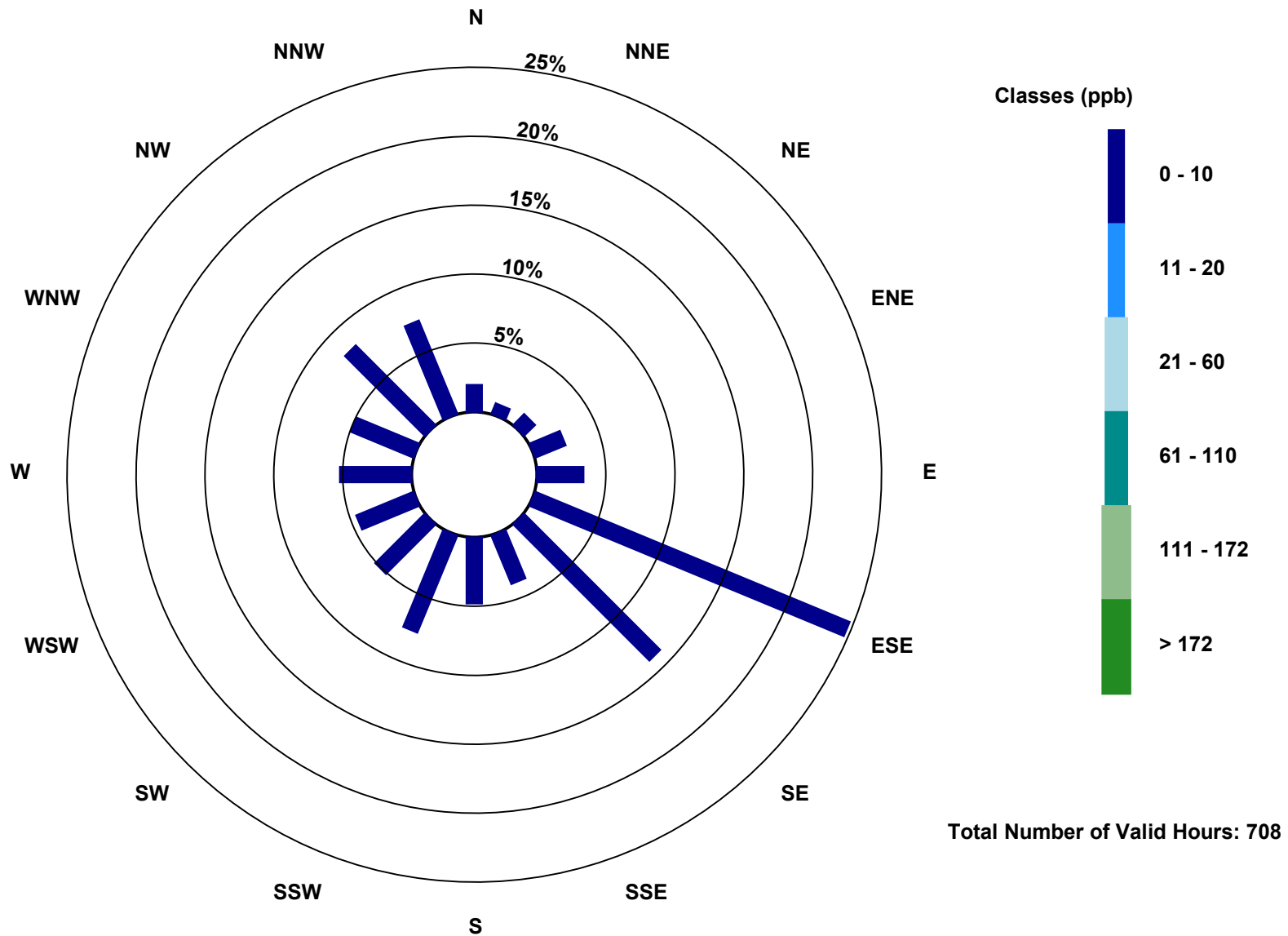
Total Number of Valid Hours: 708

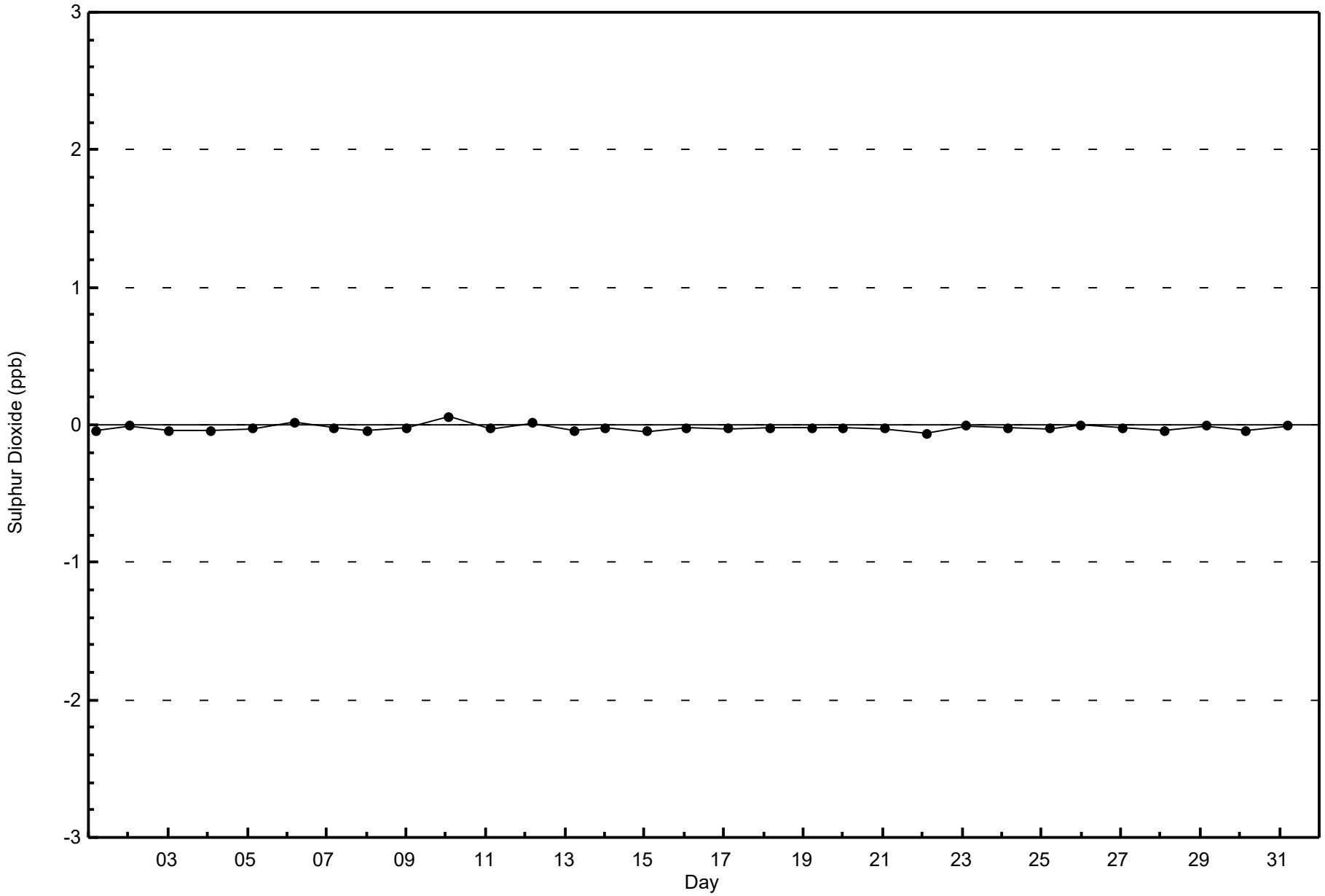
Total Number of Hours: 744

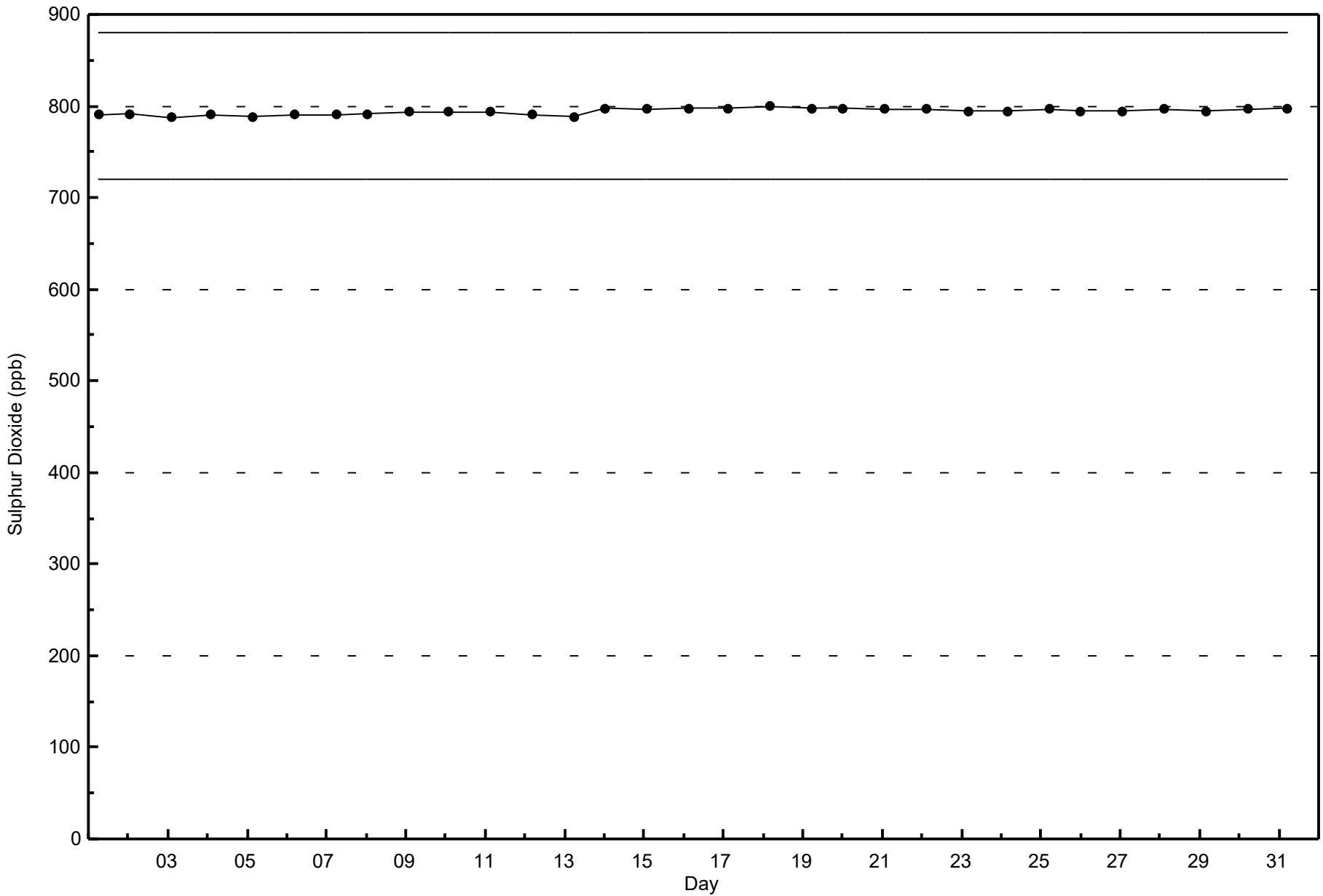


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Athabasca Valley









Wood Buffalo Environmental Association
Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - December 2024

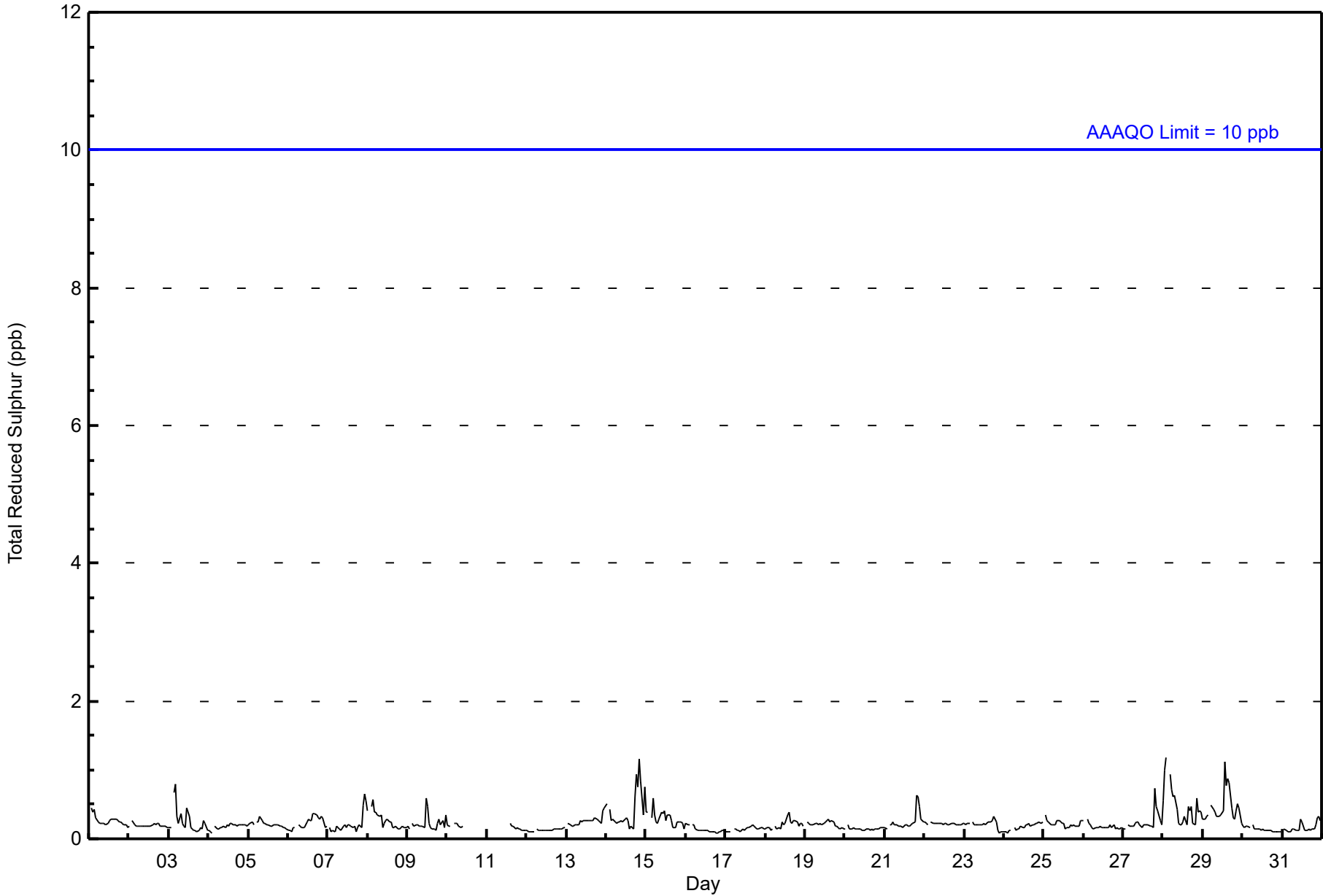
Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 1.2 ppb on Dec 28 03:00		Maximum Daily Average: 0.5 ppb on Dec 28																	Hours of Data: 686		Hours of Missing Data: 58						
Minimum Value: 0.1 ppb on Dec 24 03:00		Minimum Daily Average: 0.1 ppb on Dec 12																	Hours of Calibration: 37		Percent Operational Time: 97.2						
Maximum Diurnal Average: 0.3 ppb at hour 5		Minimum Diurnal Average: 0.2 ppb at hour 10																									
Monthly Average: 0.23 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.4 P ₉₉ = 0.8																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	Z	0.4	0.4	0.4	0.3	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	0.2	0.3	0.4	
2-Dec	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	
3-Dec	0.2	0.2	Z	0.7	0.8	0.3	0.2	0.4	0.2	0.2	0.2	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.2	0.1	0.2	0.8	
4-Dec	0.1	0.1	0.1	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
5-Dec	0.2	0.2	0.2	0.2	Z	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	0.1	0.2	0.3	
6-Dec	0.1	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	
7-Dec	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.5	0.7	0.6	0.2	0.7	
8-Dec	0.4	Z	0.5	0.6	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.6	
9-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.5	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.2	0.3	0.2	0.6	
10-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	0.2	
11-Dec	M	M	M	M	M	M	M	M	M	M	M	C	C	C	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
12-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
13-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.5	0.3	0.5	
14-Dec	0.5	Z	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.1	0.2	0.2	0.6	0.9	0.8	1.2	0.8	0.3	0.7	0.4	1.2	
15-Dec	0.4	0.4	Z	0.3	0.6	0.4	0.3	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.6	
16-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
17-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	
18-Dec	0.1	0.2	0.2	0.1	0.1	Z	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.4	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	
19-Dec	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	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	
20-Dec	0.2	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	
21-Dec	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	0.2	0.2	0.2	0.6	0.6	0.5	0.3	0.2	0.3	0.6	
22-Dec	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	
23-Dec	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	
24-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
25-Dec	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3	
26-Dec	0.3	Z	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.3	
27-Dec	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	0.7	0.5	0.4	0.3	0.2	0.2	0.2	0.7	
28-Dec	0.6	1.0	1.2	Z	0.9	0.7	0.6	0.6	0.4	0.2	0.2	0.2	0.3	0.2	0.5	0.4	0.5	0.2	0.2	0.6	0.4	0.4	0.4	0.5	1.2	1.2	
29-Dec	0.3	0.3	0.3	0.3	Z	0.5	0.4	0.4	0.3	0.3	0.3	0.4	0.4	1.1	0.8	0.9	0.8	0.5	0.3	0.3	0.4	0.5	0.5	0.2	0.5	1.1	
30-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
31-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.2	0.3	
																								Diurnal Average		Diurnal Maximum	
																								0.2		0.6	
																								0.3		1.2	
																								0.2		0.7	
																								0.3		0.7	
																								0.2		0.4	
																								0.4		0.6	
																								0.4		0.5	
																								0.6		0.8	
																								0.8		0.9	
																								0.6		0.8	
																								0.9		0.8	
																								0.8		0.7	
																								0.7		0.7	

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



Wood Buffalo Environmental Association
Hourly Averages

Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	686	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - December 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	15	6	7	17	22	176	89	25	31	55	37	28	36	34	57	51	686
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	15	6	7	17	22	176	89	25	31	55	37	28	36	34	57	51	686

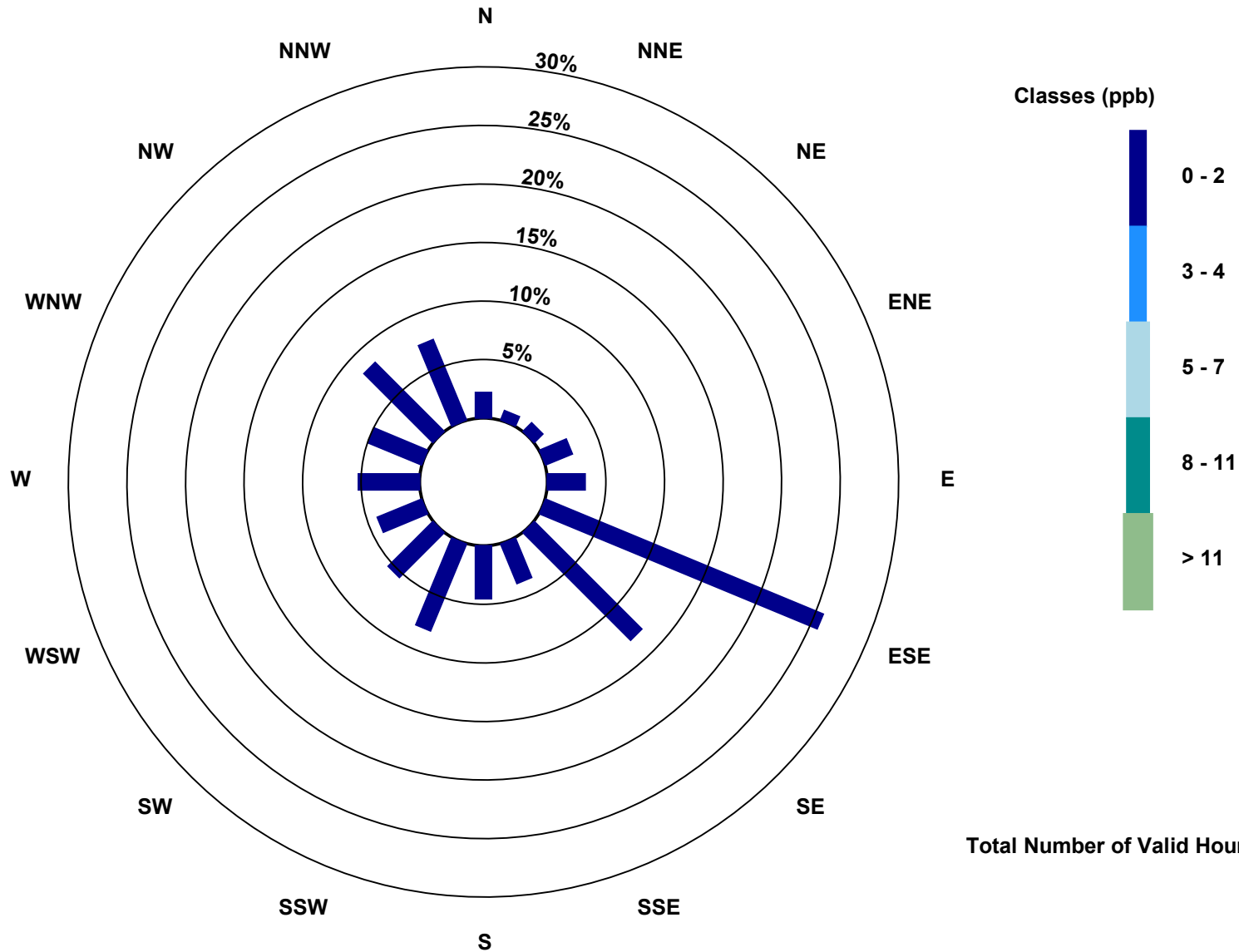
Total Number of Valid Hours: 686

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Athabasca Valley

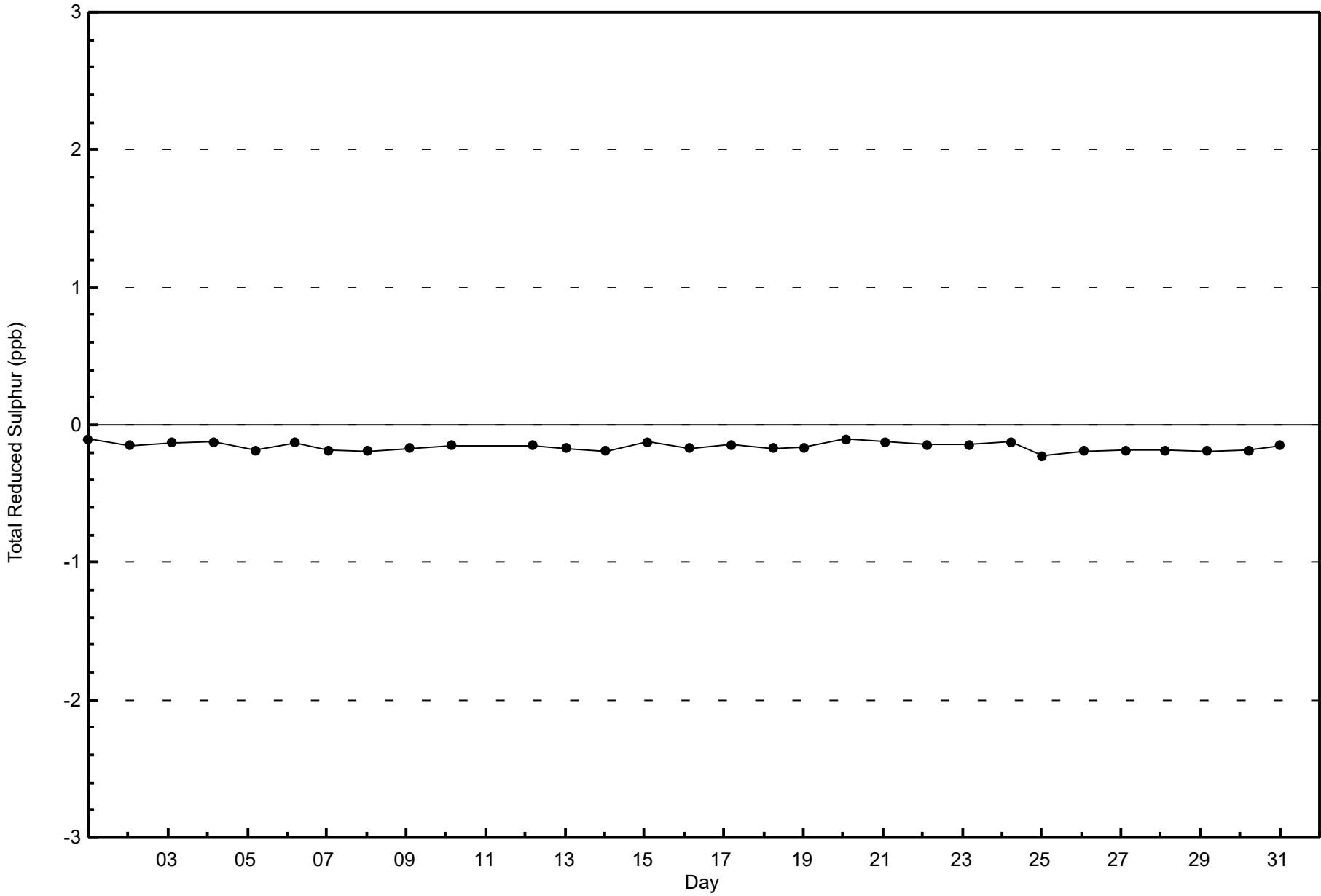


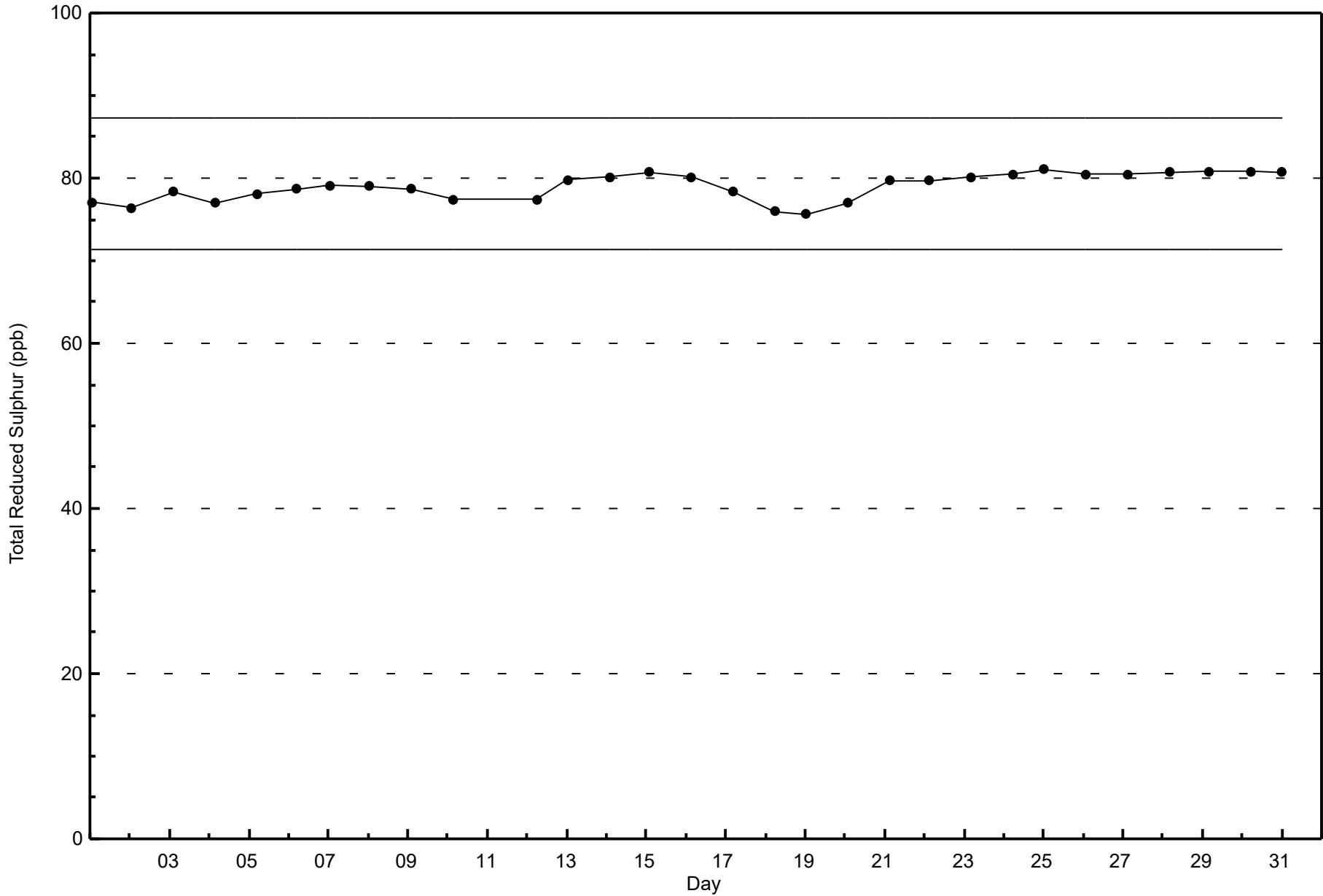
Total Number of Valid Hours: 686



Wood Buffalo Environmental Association
Zero Responses

Total Reduced Sulphur (TRS) - ppb
Athabasca Valley - December 2024







Wood Buffalo Environmental Association
Summary of Hour Averages

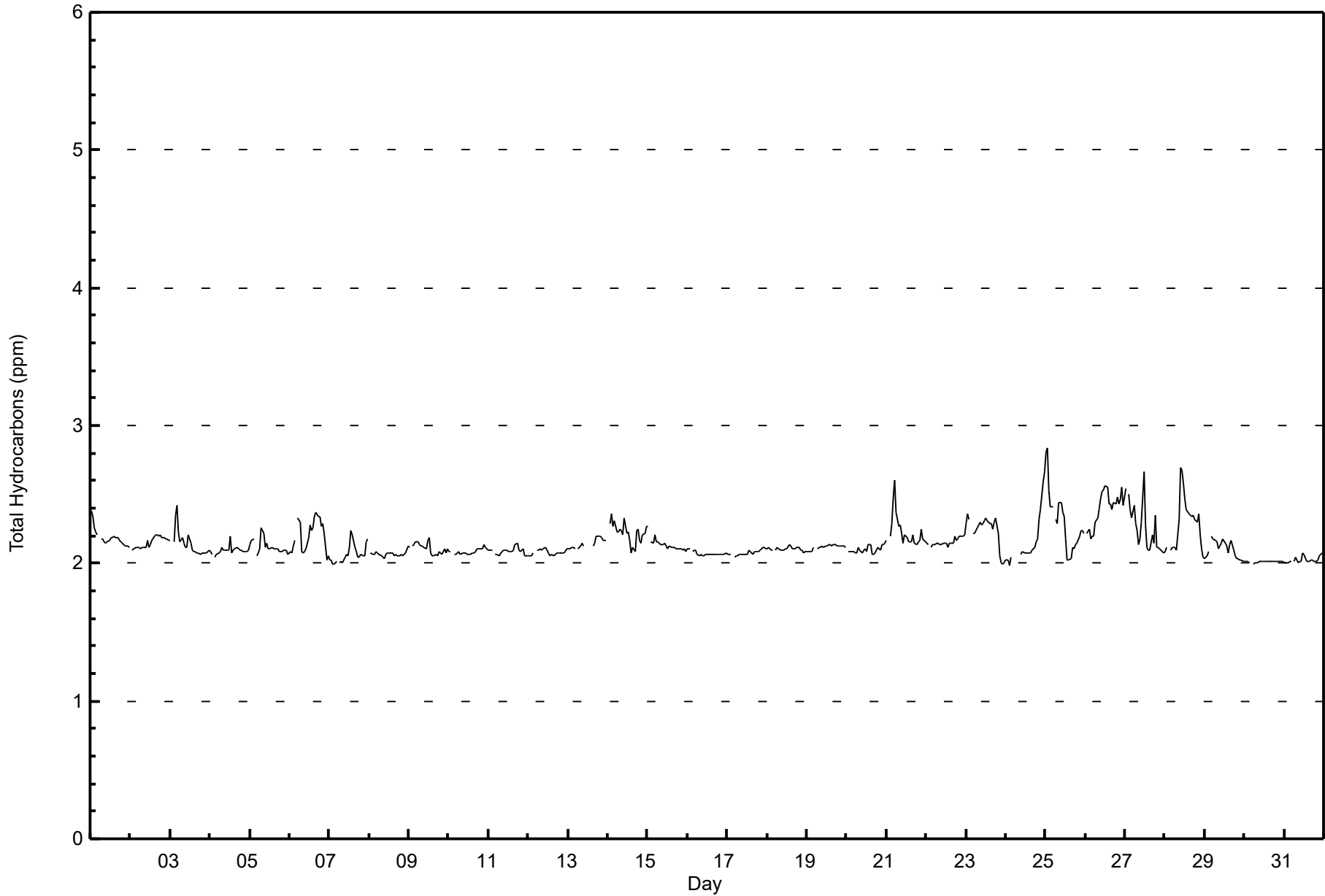
Total Hydrocarbons (THC) - ppm
Athabasca Valley - December 2024

Maximum Value: 2.8 ppm on Dec 25 02:00		Maximum Daily Average: 2.4 ppm on Dec 26		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Dec 24 03:00		Minimum Daily Average: 2.0 ppm on Dec 30		Hours of Data: 705																						
Maximum Diurnal Average: 2.2 ppm at hour 12		Minimum Diurnal Average: 2.1 ppm at hour 16		Hours of Missing Data: 39																						
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 = 2.6		Hours of Calibration: 36																						
				Percent Operational Time: 99.6																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.4	2.3	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4
2-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
3-Dec	2.2	Z	2.2	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4
4-Dec	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
5-Dec	2.1	2.2	2.2	Z	2.1	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
6-Dec	2.1	2.1	2.1	2.2	Z	2.3	2.3	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.0	2.1	2.2	2.4
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.1	2.2
8-Dec	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	2.0	2.1	2.1	2.1	2.1	2.1
9-Dec	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
10-Dec	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
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
13-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	C	C	C	C	C	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14-Dec	Z	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.4
15-Dec	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3
16-Dec	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
17-Dec	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	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
19-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
20-Dec	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
21-Dec	2.2	Z	2.2	2.3	2.5	2.6	2.4	2.3	2.3	2.2	2.1	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	2.6
22-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
23-Dec	2.3	2.4	2.3	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.2	2.4
24-Dec	2.0	2.0	2.0	2.0	Z	2.1	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.6	2.7	2.2	2.7
25-Dec	2.8	2.8	2.5	2.4	2.4	Z	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.8
26-Dec	Z	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.6	2.4	2.4	2.6
27-Dec	2.5	Z	2.5	2.4	2.3	2.4	2.3	2.2	2.1	2.2	2.3	2.7	2.3	2.1	2.1	2.1	2.2	2.1	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.7
28-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.7	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.1	2.0	2.3	2.7
29-Dec	2.0	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2
30-Dec	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
31-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	76	10.78	10.78
2.1 - 3.0	629	89.22	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Athabasca Valley - December 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	1	3	4	5	12	8	2	18	14	5	4	76
2.1 - 3.0	14	6	8	17	24	171	96	23	29	42	28	30	19	21	53	48	629
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	14	6	8	17	24	172	99	27	34	54	36	32	37	35	58	52	705

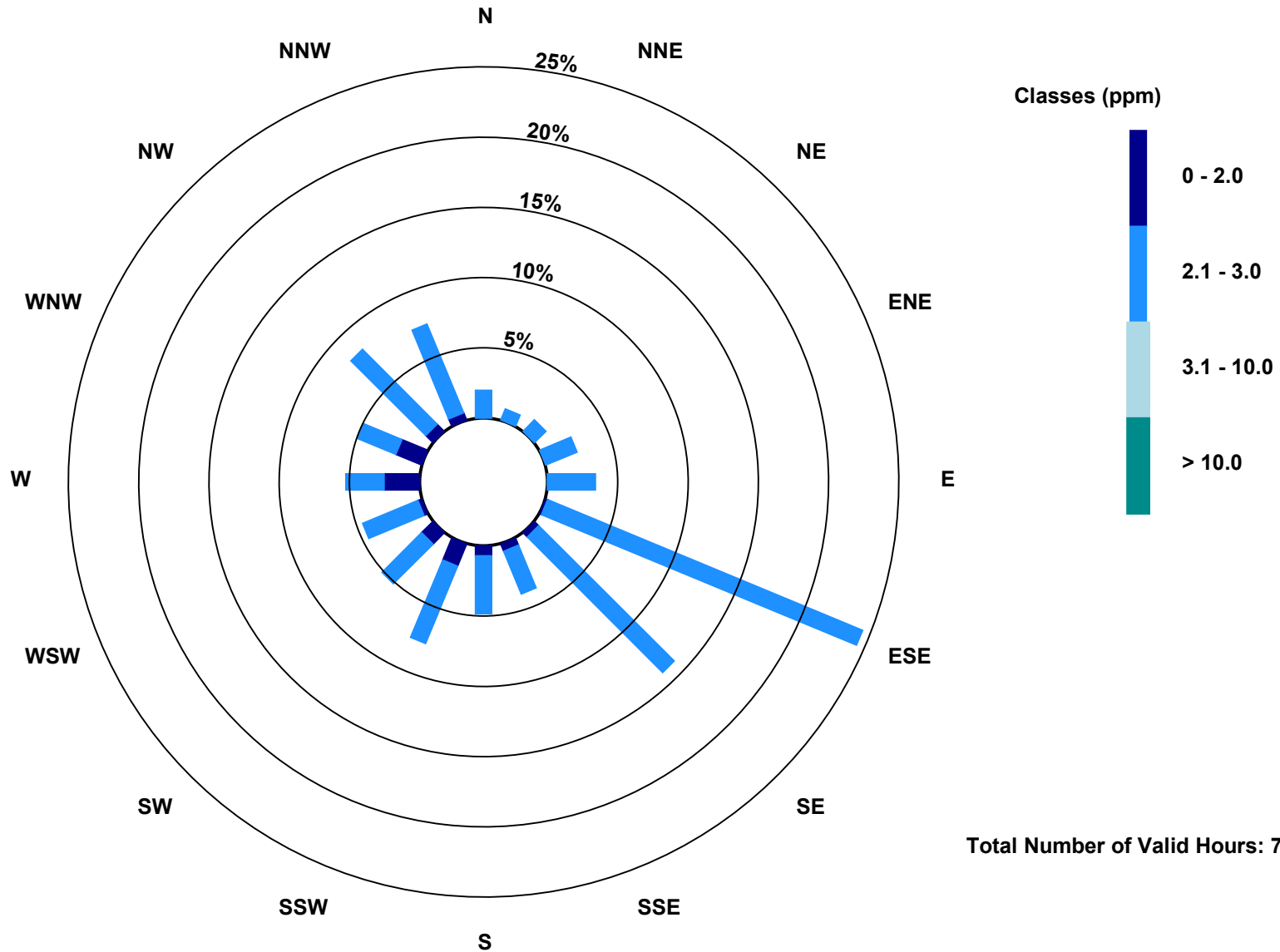
Total Number of Valid Hours: 705

Total Number of Hours: 744

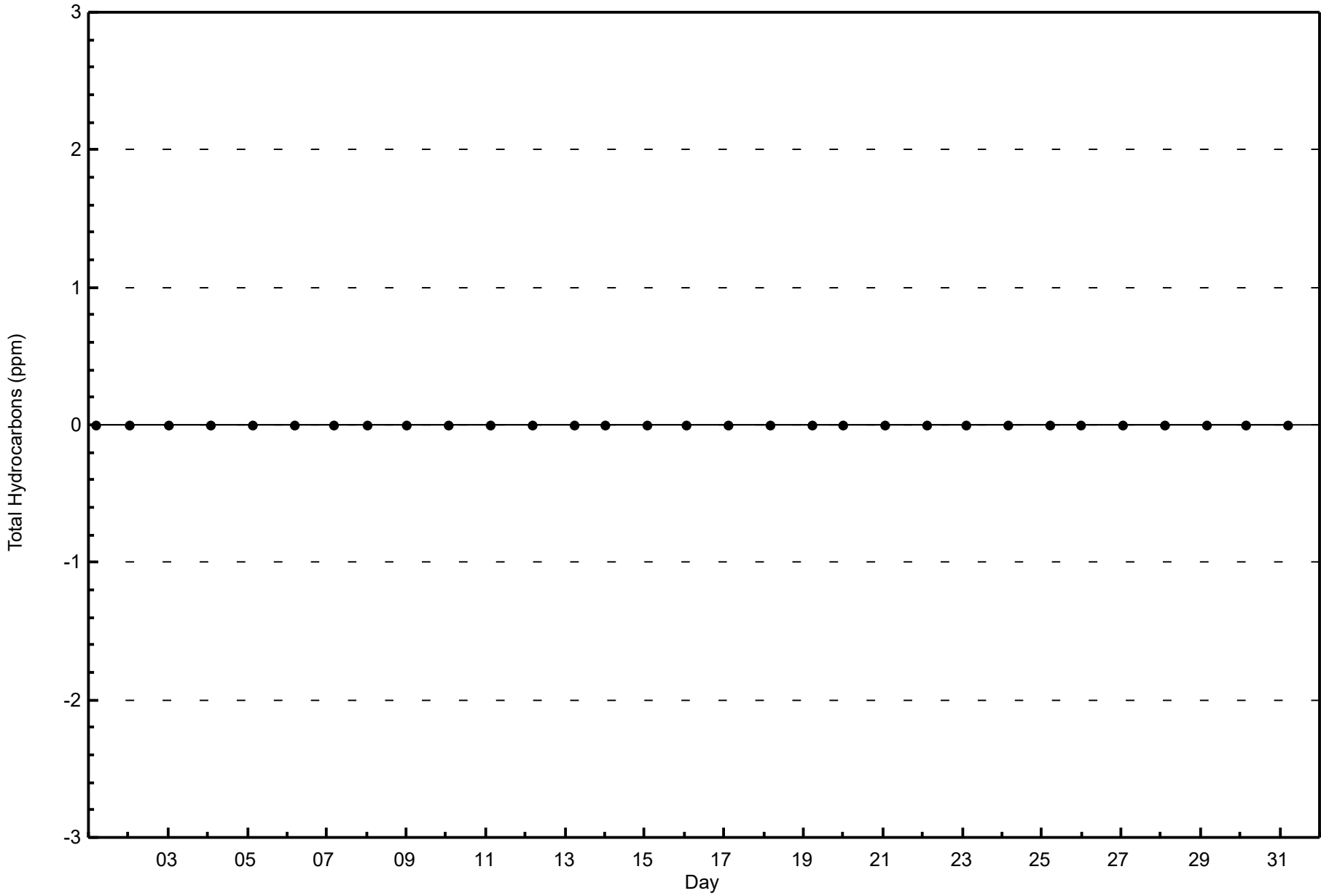


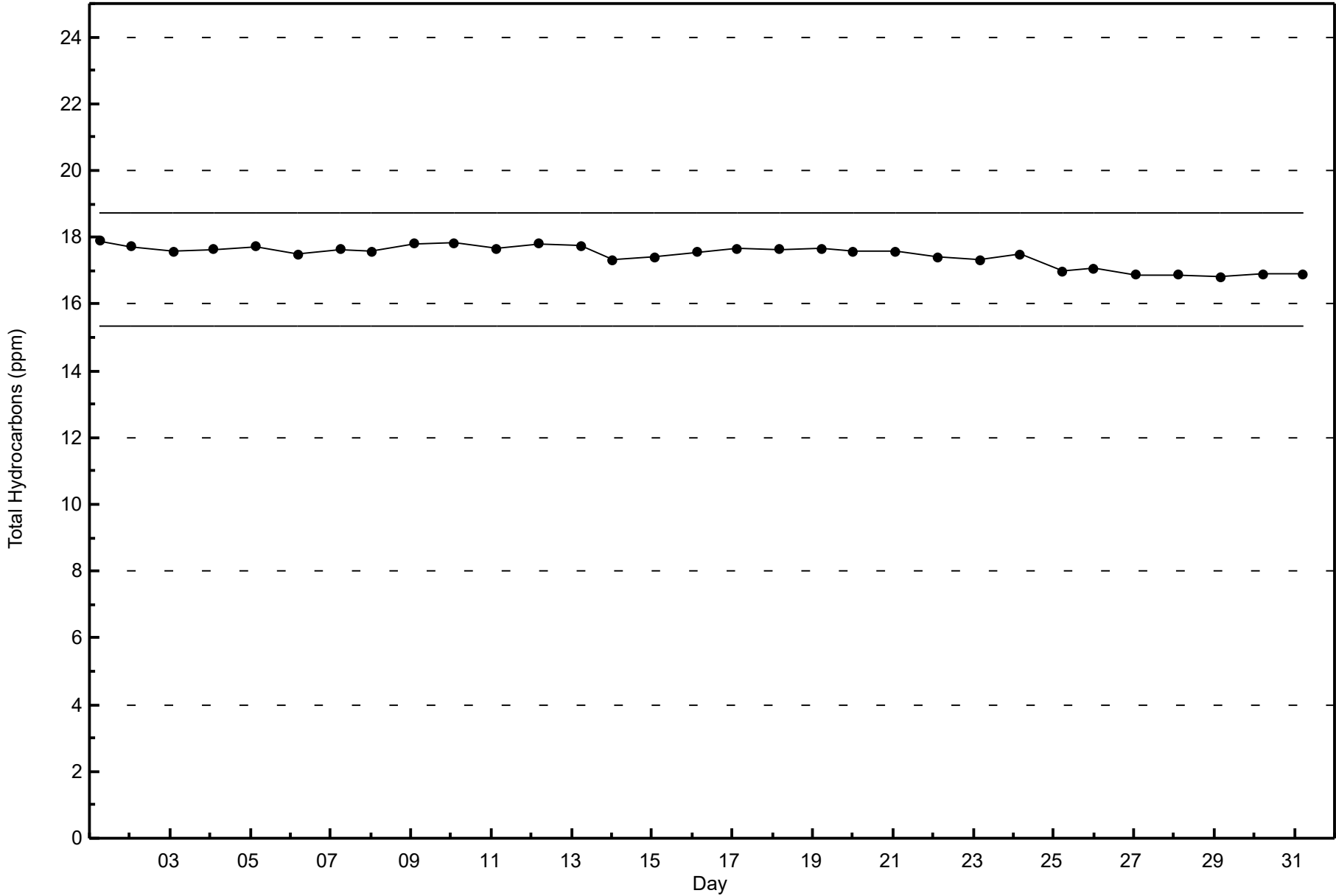
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Athabasca Valley



Total Number of Valid Hours: 705







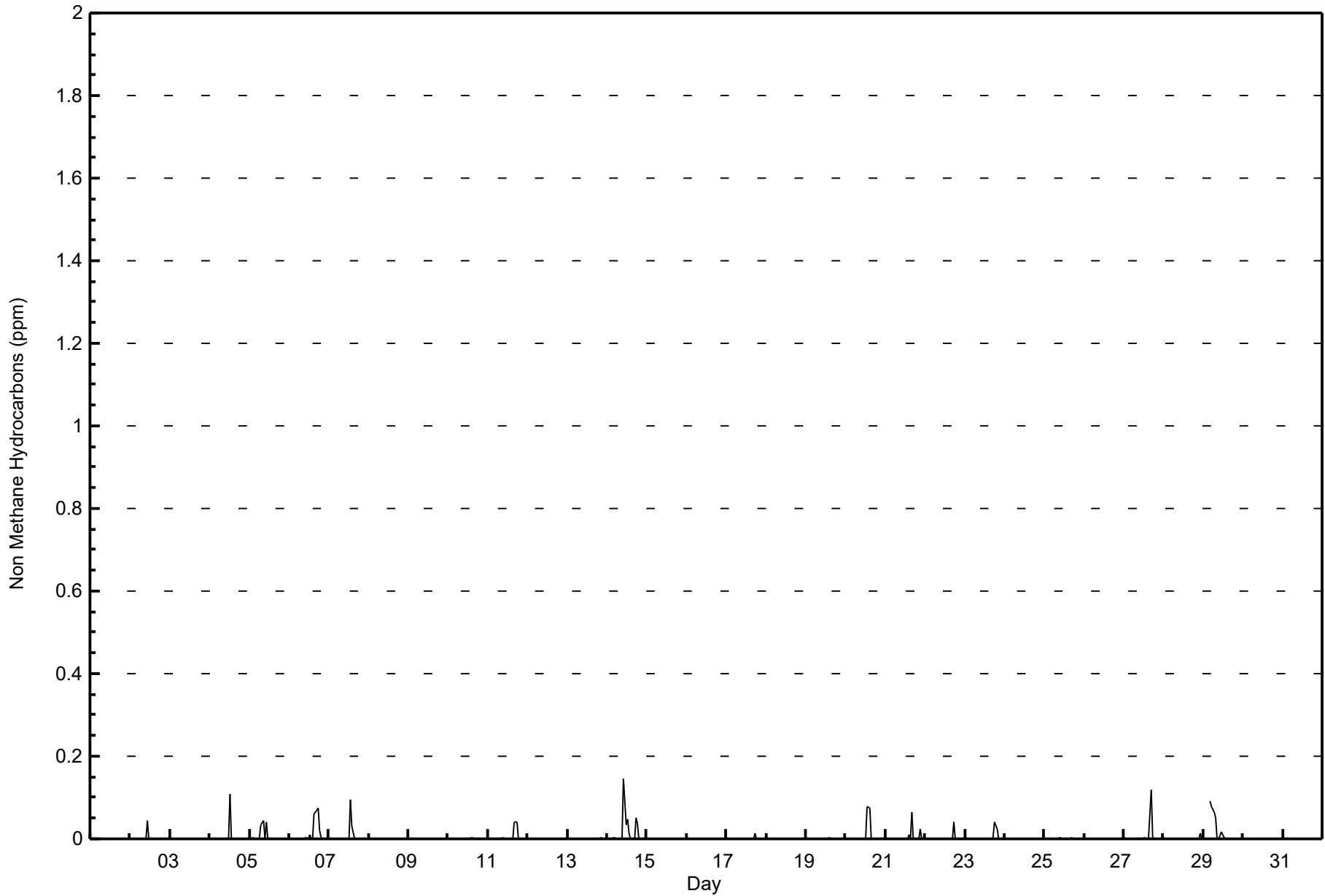
Wood Buffalo Environmental Association

Summary of Hour Averages

Non Methane Hydrocarbons (NMHC) - ppm

Athabasca Valley - December 2024

Maximum Value: 0.146 ppm on Dec 14 11:00		Maximum Daily Average: 0.014 ppm on Dec 14		Hours in Service: 744																																	
Minimum Value: 0.000 ppm on Dec 1 01:00		Minimum Daily Average: 0.000 ppm on Dec 1		Hours of Data: 705																																	
Maximum Diurnal Average: 0.009 ppm at hour 17		Minimum Diurnal Average: 0.000 ppm at hour 1		Hours of Missing Data: 39																																	
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: 36																																	
				Percent Operational Time: 99.6																																	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24													
1-Dec	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	0.000	0.000	
2-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.044
3-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	
5-Dec	0.000	0.000	0.003	Z	0.000	0.000	0.000	0.002	0.033	0.045	0.000	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.045		
6-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.011	0.000	0.000	0.060	0.063	0.075	0.020	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	0.075			
7-Dec	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	0.094	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.094			
8-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
9-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
10-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
11-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.042	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.042			
12-Dec	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		
13-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.000	0.000	0.000	0.000	0.004	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		
14-Dec	Z	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.146	0.034	0.047	0.014	0.000	0.002	0.000	0.050	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.146			
15-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
16-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	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	0.013	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	0.000	0.001	0.013			
18-Dec	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		
19-Dec	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	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004		
20-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.075	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.077			
21-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.000	0.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.063				
22-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.041			
23-Dec	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	0.002	0.039	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.039			
24-Dec	0.000	0.000	0.000	0.000	Z	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000			
25-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	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			
26-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	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	0.117	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	0.005	0.117			
28-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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			
29-Dec	0.000	0.000	0.000	Z	0.090	0.079	0.063	0.051	0.001	0.001	0.006	0.015	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	0.013	0.090		
30-Dec	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			
31-Dec	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			
		0.000	0.000	0.000	0.000	0.004	0.003	0.002	0.003	0.002	0.000	0.008	0.002	0.006	0.006	0.004	0.002	0.009	0.007	0.003	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	Diurnal Average		
		0.000	0.000	0.003	0.000	0.090	0.079	0.063	0.051	0.045	0.003	0.146	0.034	0.108	0.094	0.075	0.060	0.117	0.075	0.039	0.023	0.004															





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	668	94.75	94.75
0.006 - 0.05	24	3.40	98.16
0.06 - 0.1	13	1.84	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.005	13	6	7	14	22	158	95	27	32	54	36	32	37	33	56	46	668
0.006 - 0.05	1	0	1	2	1	7	3	0	2	0	0	0	0	0	2	5	24
0.06 - 0.1	0	0	0	1	1	7	1	0	0	0	0	0	0	2	0	1	13
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	14	6	8	17	24	172	99	27	34	54	36	32	37	35	58	52	705

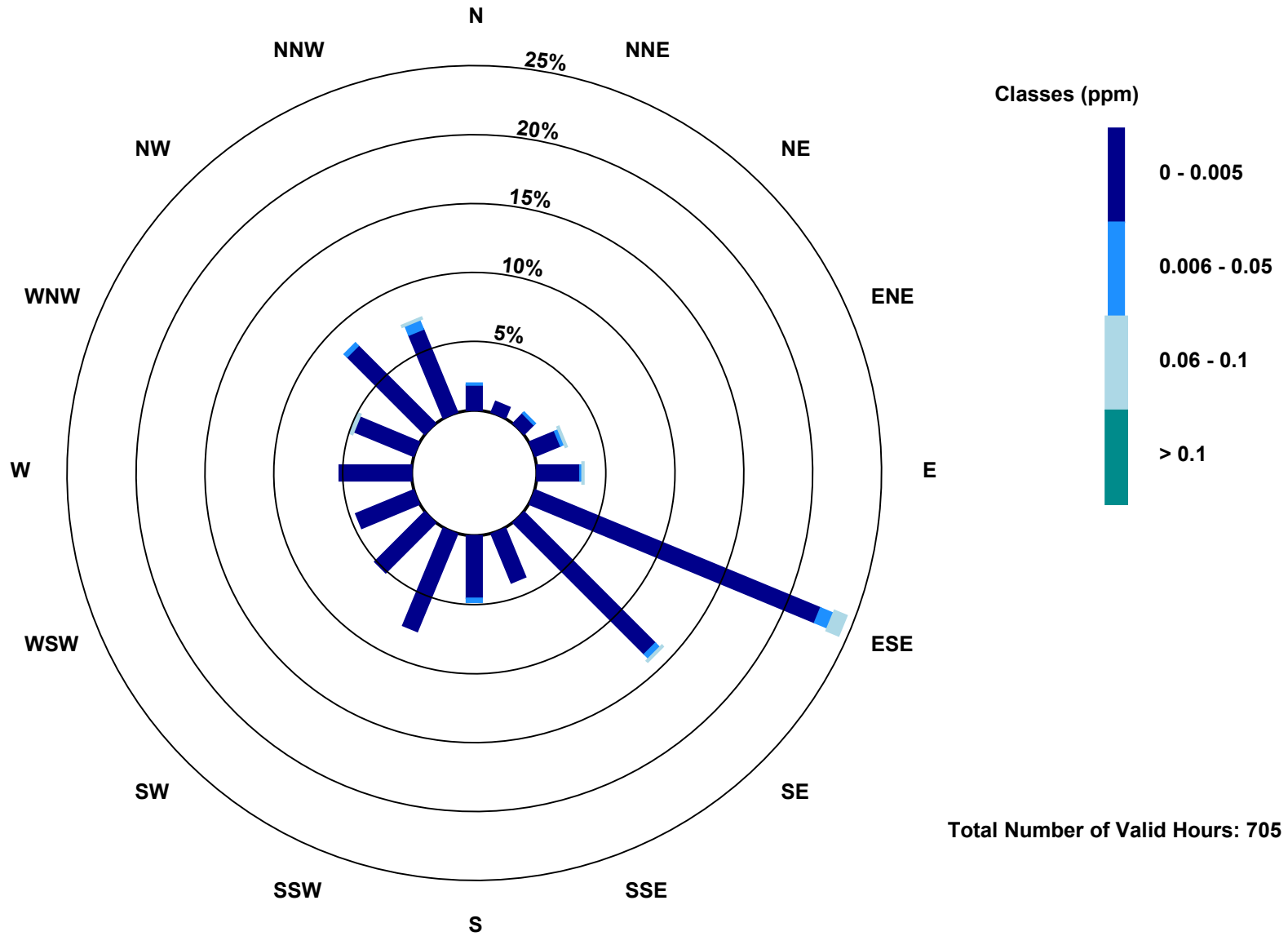
Total Number of Valid Hours: 705

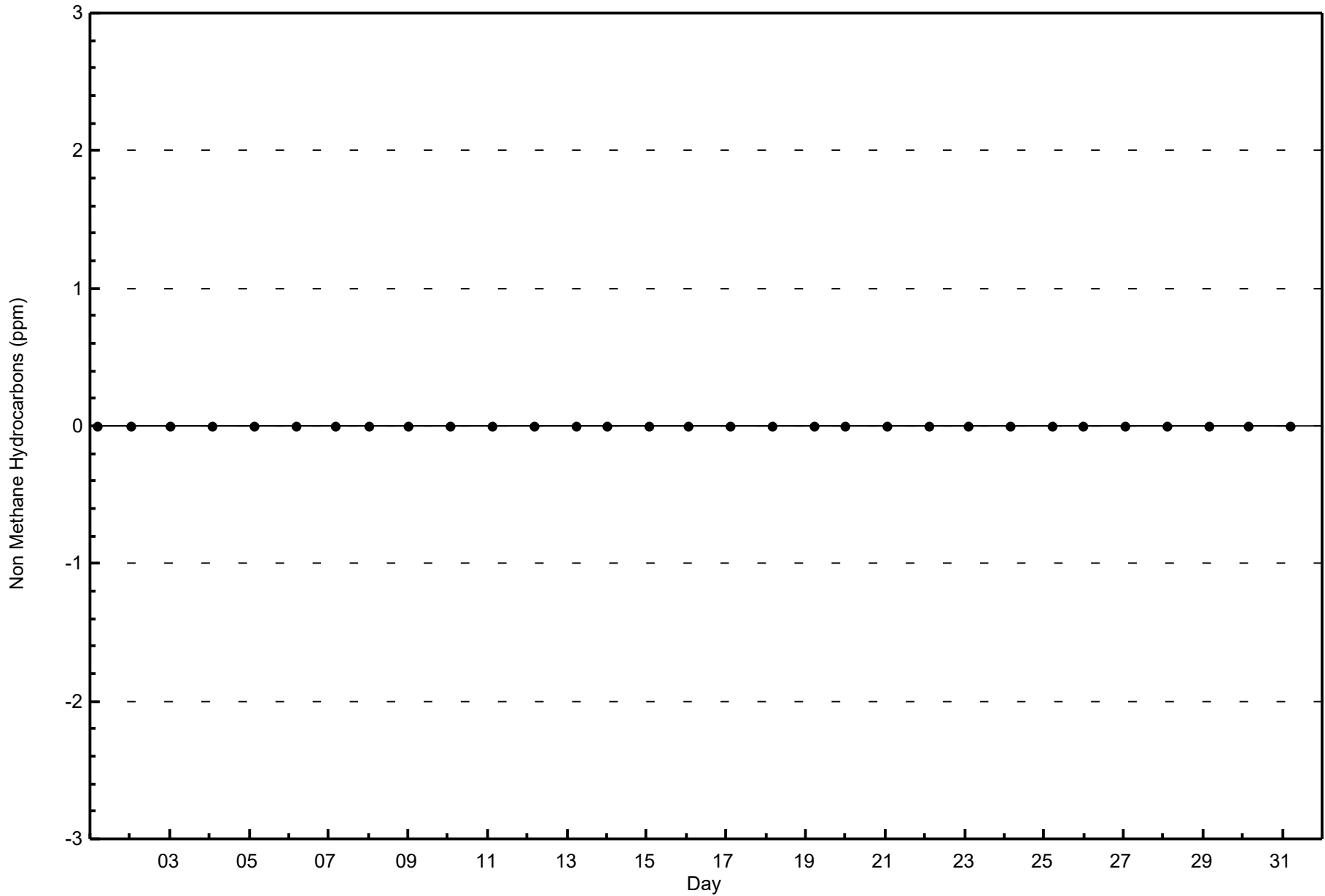
Total Number of Hours: 744

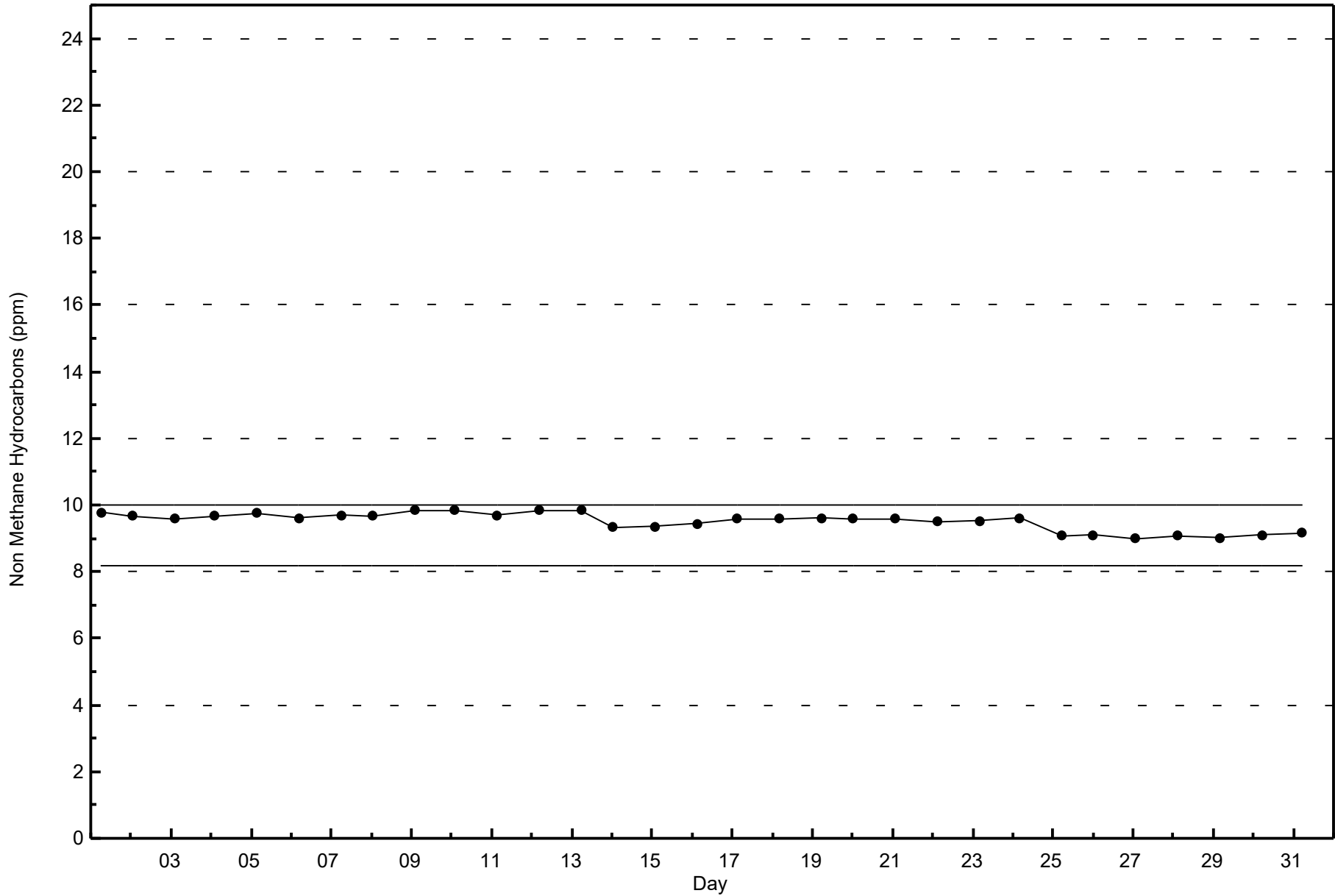


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Athabasca Valley

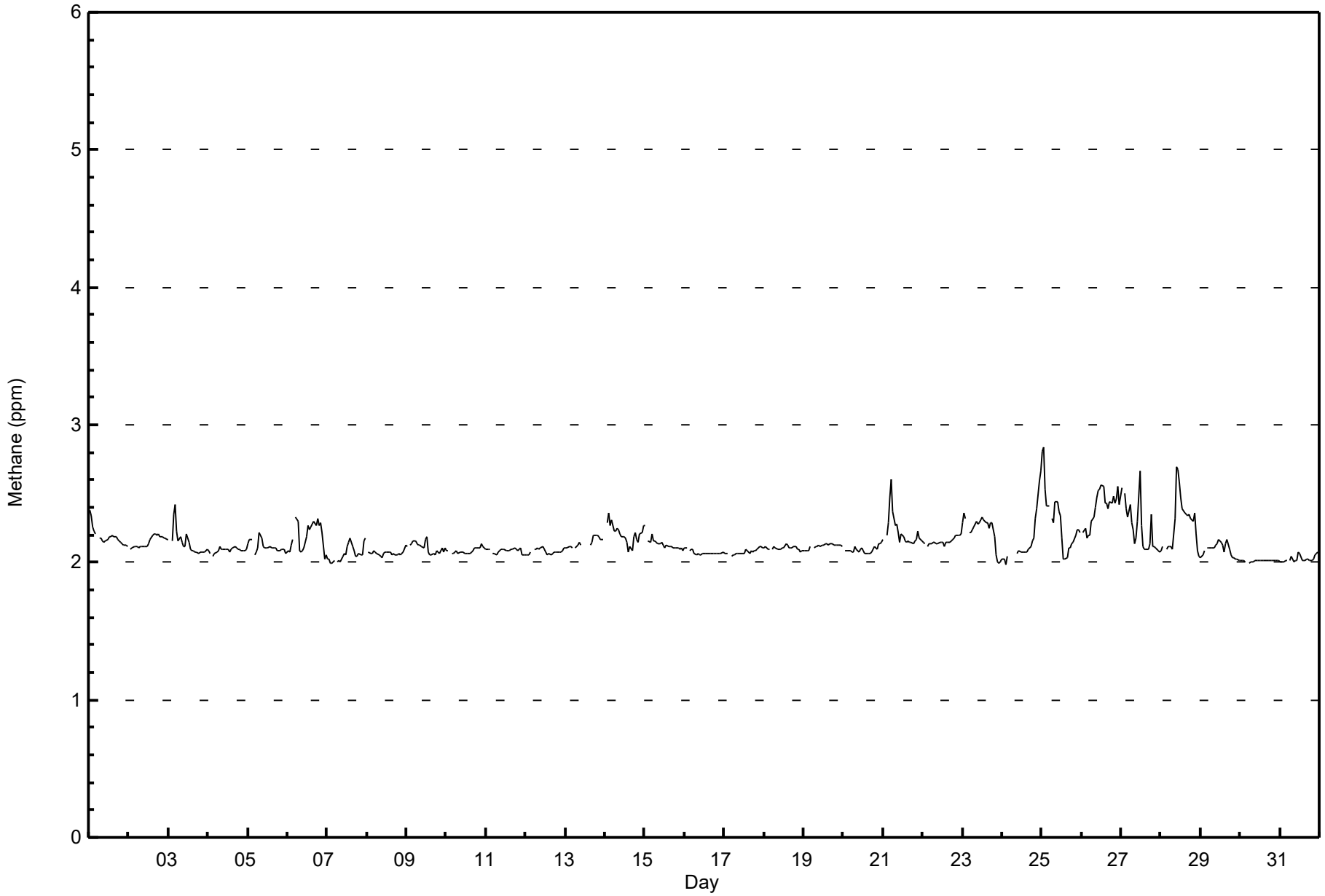








Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																														
Maximum Value: 2.8 ppm on Dec 25 02:00		Maximum Daily Average: 2.4 ppm on Dec 26																	Hours of Data: 705																																
Minimum Value: 2.0 ppm on Dec 24 03:00		Minimum Daily Average: 2.0 ppm on Dec 30																	Hours of Missing Data: 39																																
Maximum Diurnal Average: 2.2 ppm at hour 12		Minimum Diurnal Average: 2.1 ppm at hour 15																	Hours of Calibration: 36																																
Monthly Average: 2.14 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 = 2.6																	Percent Operational Time: 99.6																																
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																											
1-Dec	2.4	2.3	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.4																									
2-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
3-Dec	2.2	Z	2.2	2.4	2.4	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																								
4-Dec	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
5-Dec	2.1	2.2	2.2	Z	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2																								
6-Dec	2.1	2.1	2.1	2.2	Z	2.3	2.3	2.1	2.1	2.1	2.1	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.0	2.1	2.2	2.3	2.3																								
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2																								
8-Dec	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	2.0	2.1	2.1	2.1	2.1	2.1																								
9-Dec	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																								
10-Dec	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																								
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
12-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
13-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	C	C	C	C	C	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
14-Dec	Z	2.3	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.3	2.3	2.4																								
15-Dec	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3																								
16-Dec	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																								
17-Dec	2.1	2.1	2.1	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
18-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
19-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																								
20-Dec	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																								
21-Dec	2.2	Z	2.2	2.3	2.5	2.6	2.4	2.3	2.3	2.2	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.6																								
22-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2																								
23-Dec	2.3	2.4	2.3	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.1	2.0	2.0	2.0	2.0	2.0	2.4																								
24-Dec	2.0	2.0	2.0	2.0	Z	2.1	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.6	2.7	2.7	2.7	2.7																								
25-Dec	2.8	2.8	2.5	2.4	2.4	Z	2.3	2.3	2.4	2.4	2.4	2.3	2.2	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.8																								
26-Dec	Z	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.6	2.4	2.4	2.6																								
27-Dec	2.5	Z	2.5	2.4	2.3	2.4	2.3	2.2	2.1	2.2	2.3	2.7	2.3	2.1	2.1	2.1	2.1	2.1	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.7																								
28-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.3	2.7	2.7	2.6	2.5	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.1	2.0	2.0	2.3	2.7																								
29-Dec	2.0	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																								
30-Dec	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																								
31-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	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	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average	
																								2.8	2.8	2.5	2.4	2.5	2.6	2.4	2.3	2.4	2.7	2.7	2.7	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.6	2.7	2.7	2.7	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Athabasca Valley - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	76	10.78	10.78
2.1 - 3.0	629	89.22	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Athabasca Valley - December 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	1	3	4	5	12	8	2	18	14	5	4	76
2.1 - 3.0	14	6	8	17	24	171	96	23	29	42	28	30	19	21	53	48	629
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	14	6	8	17	24	172	99	27	34	54	36	32	37	35	58	52	705

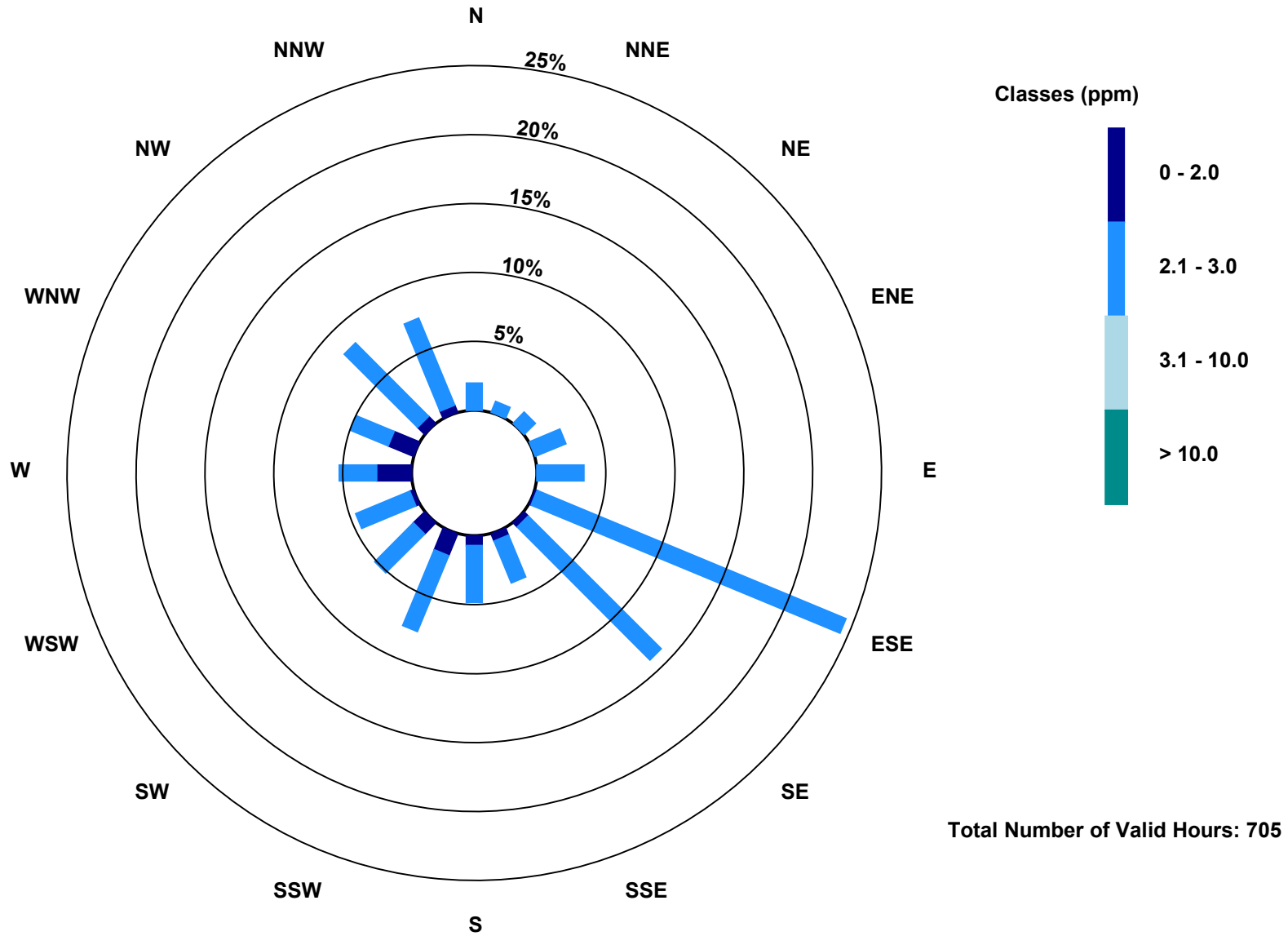
Total Number of Valid Hours: 705

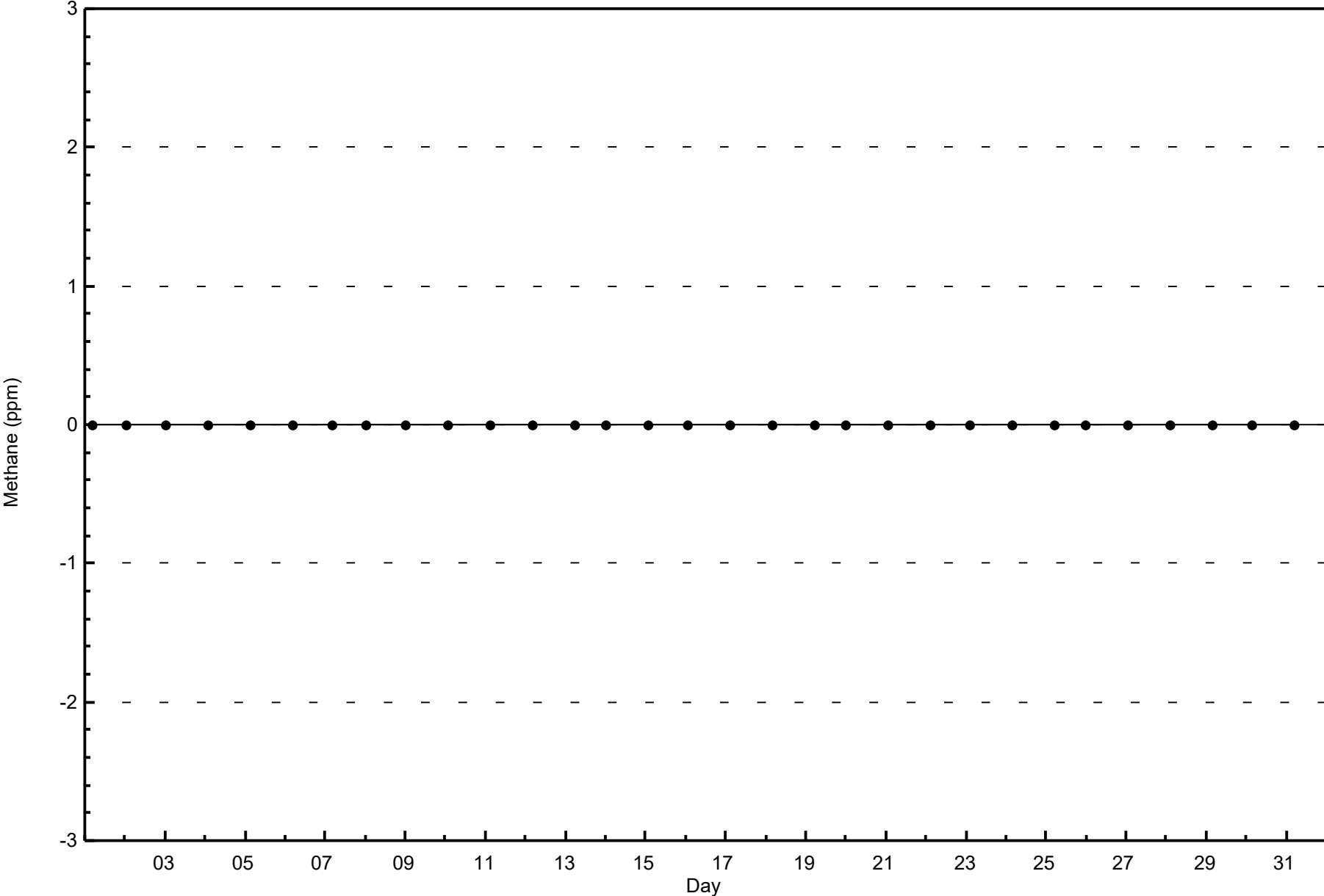
Total Number of Hours: 744

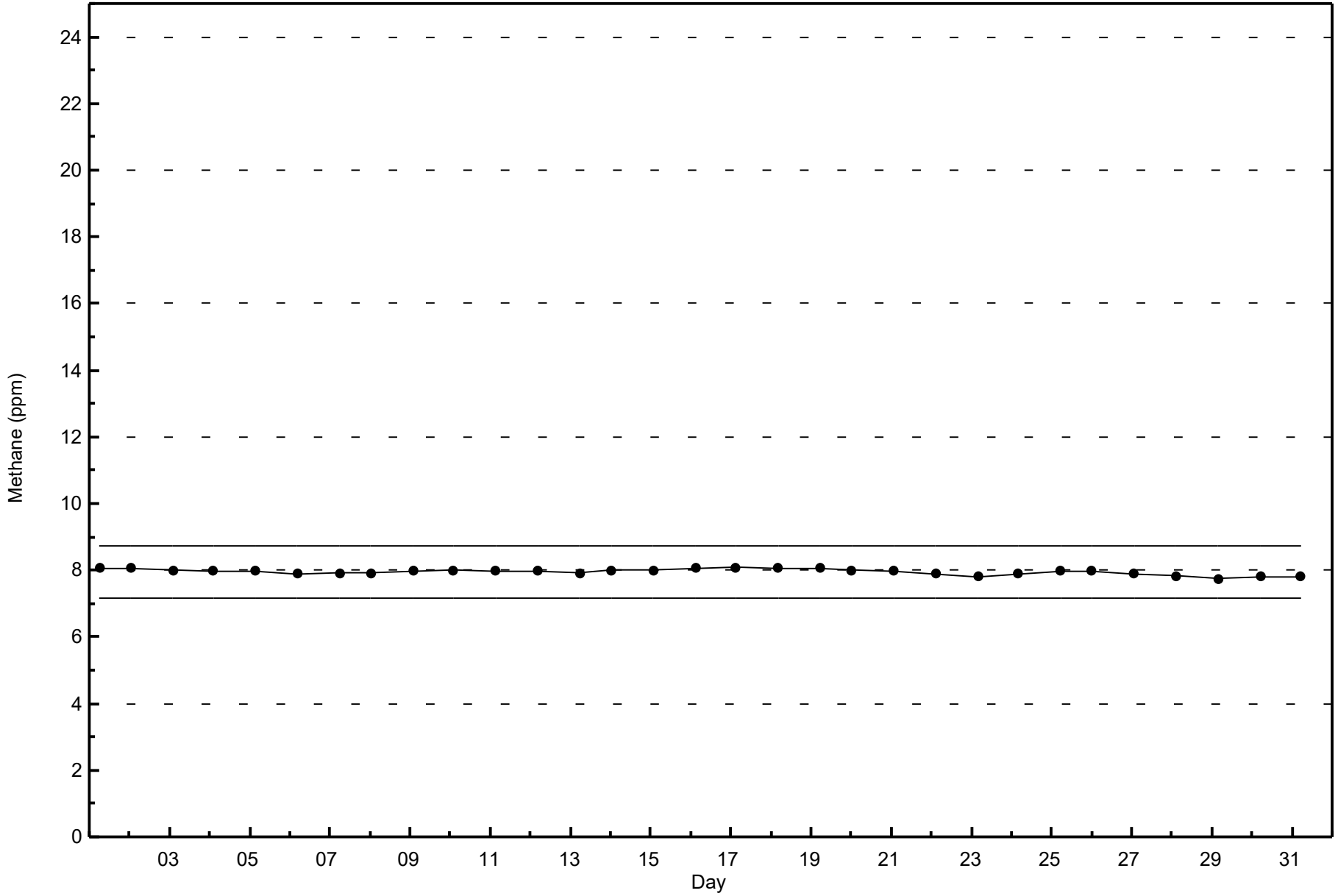


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Athabasca Valley





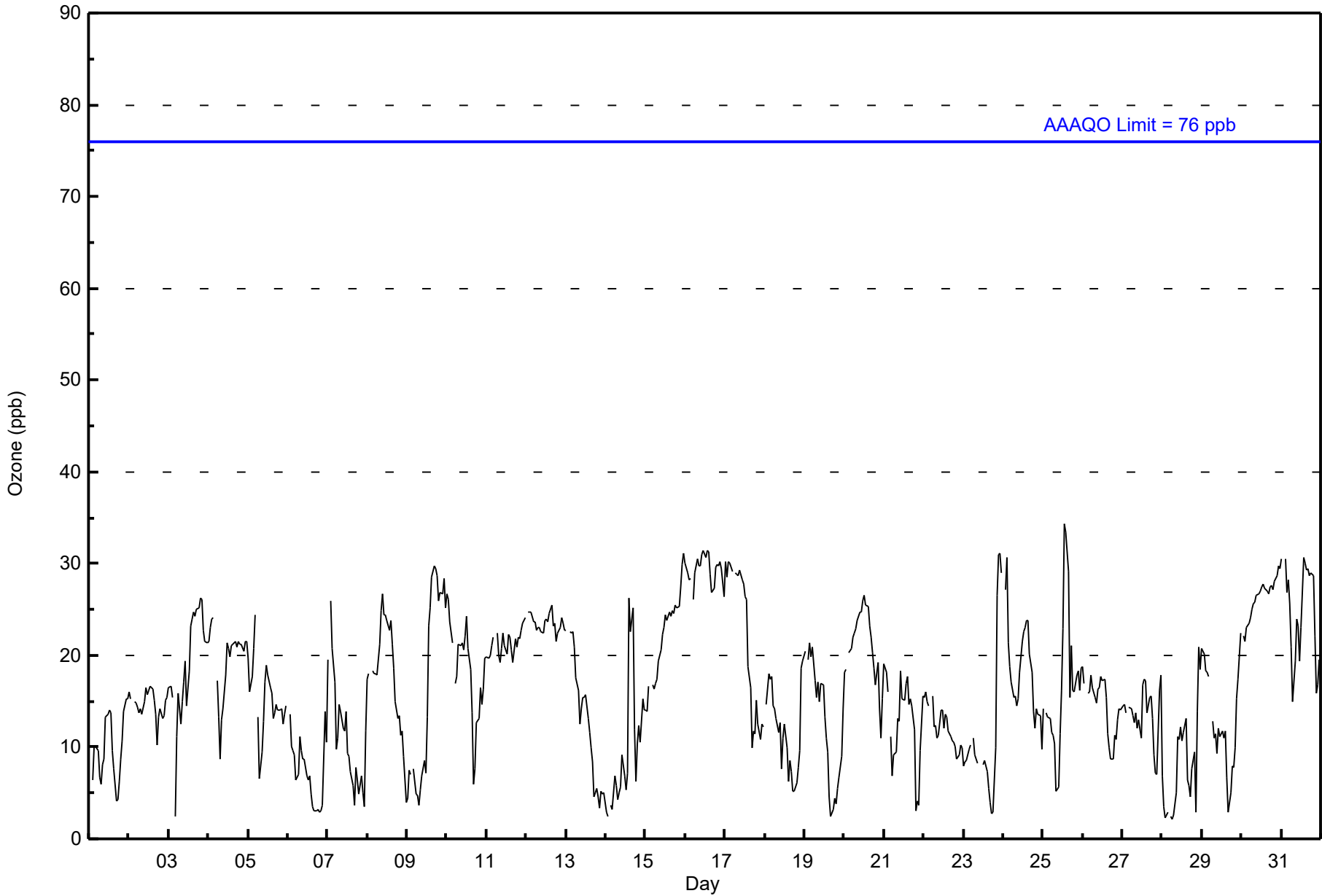




Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 34.4 ppb on Dec 25 14:00	Maximum Daily Average: 29.3 ppb on Dec 16		Hours of Data:	710
Minimum Value: 1.9 ppb on Dec 1 01:00	Minimum Daily Average: 7.2 ppb on Dec 6		Hours of Missing Data:	34
Maximum Diurnal Average: 18.7 ppb at hour 14	Minimum Diurnal Average: 14.3 ppb at hour 19		Hours of Calibration:	34
Monthly Average: 16.37 ppb	Percentiles: P ₁ = 2.6 P ₁₀ = 6.2 Q ₁ = 10.9 Median = 15.7 Q ₃ = 22.4 P ₉₀ = 26.8 P ₉₉ = 31.0		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	1.9	Z	6.4	10.0	10.1	9.7	6.7	6.0	8.1	8.7	13.3	13.5	14.0	13.8	9.7	7.7	4.1	4.3	6.3	8.7	10.7	13.9	15.2	15.3	9.5	15.3																							
2-Dec	16.0	15.2	Z	14.9	14.9	14.4	13.7	14.1	13.6	14.9	16.4	15.7	16.2	16.6	16.3	15.1	13.6	10.2	13.2	14.1	13.1	13.5	15.0	15.4	14.6	16.6																							
3-Dec	16.5	16.7	15.5	Z	2.5	11.1	15.9	12.5	14.9	17.1	19.4	14.5	18.3	23.1	23.9	24.7	24.3	25.0	25.2	26.2	26.1	22.8	21.6	21.3	19.1	26.2																							
4-Dec	21.6	23.0	24.0	24.1	Z	17.2	13.2	8.7	13.0	14.2	17.9	21.3	20.7	19.9	21.1	21.2	21.4	21.0	21.6	21.2	21.1	20.4	21.6	21.6	19.6	24.1																							
5-Dec	19.7	16.0	17.7	20.8	24.3	Z	13.3	6.6	9.5	12.9	17.0	18.8	17.8	16.4	15.8	13.2	13.8	14.7	14.0	14.0	14.2	12.6	13.6	14.5	15.3	24.3																							
6-Dec	Z	13.6	10.1	9.7	9.1	6.3	6.9	11.1	9.7	8.7	8.7	6.8	6.5	6.8	4.9	3.5	3.1	3.1	3.2	3.0	3.0	3.7	13.9	10.5	7.2	13.9																							
7-Dec	19.6	Z	26.0	20.8	17.0	9.8	10.9	14.6	13.9	12.0	11.7	13.9	9.3	9.0	7.3	5.7	3.7	7.8	6.5	4.9	6.9	5.0	3.5	11.8	10.9	26.0																							
8-Dec	17.4	18.0	Z	18.2	18.0	18.1	17.9	21.2	24.8	26.7	24.5	24.3	23.8	22.7	23.9	21.2	18.6	14.9	13.2	13.4	11.3	11.7	9.0	4.0	18.1	26.7																							
9-Dec	4.5	7.4	7.0	Z	7.7	4.9	4.7	3.7	5.3	6.8	8.6	7.2	13.2	23.2	25.1	28.6	29.8	29.4	28.7	26.0	26.8	26.6	28.3	25.2	16.5	29.8																							
10-Dec	26.8	26.0	23.6	21.3	Z	16.9	17.7	21.2	21.1	21.4	20.6	22.1	24.3	20.8	18.5	13.7	6.0	7.6	12.6	13.1	16.4	14.7	16.2	19.7	18.4	26.8																							
11-Dec	19.8	19.6	20.0	21.1	21.9	Z	22.5	20.0	19.3	20.8	22.4	21.1	20.2	22.2	22.0	20.7	19.3	21.9	20.8	21.9	21.8	22.7	23.5	24.0	21.3	24.0																							
12-Dec	Z	24.7	24.6	24.7	23.6	23.6	22.7	23.0	23.0	22.5	22.4	23.8	24.0	23.6	24.6	25.5	23.2	23.4	21.5	22.4	23.1	24.0	23.5	22.8	23.5	25.5																							
13-Dec	22.7	Z	22.6	22.4	22.6	20.9	17.6	16.2	12.5	14.2	15.4	15.5	15.7	13.2	11.5	9.9	8.3	4.5	5.5	4.5	3.3	5.3	4.8	5.1	12.8	22.7																							
14-Dec	2.9	2.4	Z	3.6	3.1	6.9	5.8	4.3	5.0	5.6	9.1	6.9	5.3	7.1	26.3	22.6	25.1	11.9	6.2	10.3	12.3	10.5	15.2	14.0	9.7	26.3																							
15-Dec	14.0	13.8	16.6	Z	16.7	16.3	16.9	17.4	19.4	20.6	22.2	23.1	24.4	23.8	24.6	24.3	24.9	24.5	25.5	25.2	25.3	27.4	29.9	31.2	22.1	31.2																							
16-Dec	30.0	28.9	28.2	28.4	Z	26.1	29.0	30.5	29.8	29.7	31.0	31.5	30.6	31.5	31.3	28.8	26.8	27.3	29.5	29.9	29.7	30.2	29.5	26.3	29.3	31.5																							
17-Dec	30.1	28.5	30.2	30.0	29.2	Z	29.0	28.8	28.7	29.3	28.2	27.8	26.3	26.1	18.7	16.4	9.9	11.8	11.5	15.1	12.4	10.9	12.5	12.3	21.9	30.2																							
18-Dec	Z	14.7	18.0	17.3	17.7	14.5	14.2	13.1	11.7	12.6	7.7	11.0	12.4	9.9	6.3	8.5	7.3	5.1	5.2	6.2	7.7	9.5	18.6	19.4	11.7	19.4																							
19-Dec	20.4	Z	19.5	21.3	19.9	20.9	17.2	15.4	17.1	15.0	16.9	16.8	13.3	11.0	9.4	4.6	2.4	3.2	4.4	3.8	5.5	6.7	9.1	14.2	12.5	21.3																							
20-Dec	18.1	18.4	Z	20.2	20.7	22.0	22.4	22.8	23.8	24.7	24.7	26.0	26.5	25.4	25.3	23.2	22.0	20.3	18.5	16.8	19.3	14.2	11.0	15.3	20.9	26.5																							
21-Dec	19.1	18.1	16.0	Z	11.1	6.9	9.2	9.4	13.2	12.9	18.4	15.3	15.1	17.0	17.6	14.6	15.3	14.5	11.9	3.0	4.1	3.7	9.6	15.6	12.7	19.1																							
22-Dec	15.5	16.0	14.9	14.5	Z	15.6	12.2	12.4	11.0	11.3	14.0	14.0	12.1	13.6	13.2	11.7	11.1	10.7	10.5	10.0	8.6	9.2	10.2	10.0	12.3	16.0																							
23-Dec	7.9	8.4	8.5	9.8	10.2	Z	11.0	9.1	8.3	C	C	C	8.1	8.6	7.4	5.4	3.9	2.8	2.9	9.9	26.5	30.9	31.2	29.0	12.0	31.2																							
24-Dec	Z	27.2	30.7	21.4	18.8	17.1	15.4	15.6	14.4	15.3	18.1	21.6	22.5	23.1	23.9	23.8	20.2	18.2	13.9	12.1	14.1	13.6	13.4	9.8	18.4	30.7																							
25-Dec	14.2	Z	13.7	13.2	13.2	11.6	11.2	10.4	5.2	5.7	11.4	16.2	22.9	34.4	33.5	29.1	15.5	21.0	16.1	16.0	17.9	18.3	16.2	18.7	16.8	34.4																							
26-Dec	18.8	16.9	Z	15.8	16.1	17.9	16.4	15.4	14.8	16.3	16.4	17.7	17.3	17.4	15.4	11.4	9.9	8.7	8.7	11.2	10.9	13.0	14.2	14.0	14.6	18.8																							
27-Dec	14.5	14.6	13.8	Z	14.3	14.1	13.4	12.7	13.7	12.1	13.0	11.0	16.7	17.3	17.2	13.7	15.5	15.6	13.2	9.1	7.1	7.0	16.1	17.8	13.6	17.8																							
28-Dec	6.9	3.5	2.3	3.0	Z	2.4	2.2	2.6	5.1	11.1	10.8	12.2	10.7	11.6	13.1	6.4	5.8	4.6	7.6	9.5	2.9	14.0	21.0	18.4	8.2	21.0																							
29-Dec	20.7	20.1	18.3	18.2	17.7	Z	12.8	11.0	11.4	9.2	12.1	11.2	11.7	11.0	11.8	6.7	2.8	5.0	7.9	7.8	10.0	15.2	17.5	22.4	12.7	22.4																							
30-Dec	Z	22.1	21.5	23.0	23.4	24.1	25.0	25.6	25.8	26.5	26.7	26.9	27.4	27.8	27.4	27.1	26.6	27.5	27.6	27.1	28.0	28.7	29.8	29.4	26.3	29.8																							
31-Dec	30.5	Z	30.6	26.9	28.1	25.7	20.9	15.0	19.4	24.0	23.2	19.4	23.1	30.6	30.1	29.2	29.4	28.7	29.0	28.7	22.1	15.8	16.8	19.6	24.6	30.6																							
																								17.3	17.4	18.5	18.3	16.6	15.2	15.1	14.5	15.0	16.1	17.4	17.6	17.8	18.7	18.6	16.7	15.0	14.5	14.3	14.4	14.9	15.3	17.1	17.7	Diurnal Average	
																								30.5	28.9	30.7	30.0	29.2	26.1	29.0	30.5	29.8	29.7	31.0	31.5	30.6	34.4	33.5	29.2	29.8	29.4	29.5	29.9	29.7	30.9	31.2	31.2	Diurnal Maximum	

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ozone (O₃) - ppb
Athabasca Valley - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	476	67.04	67.04
21 - 50	234	32.96	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
Athabasca Valley - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	14	4	8	16	23	132	67	20	30	32	19	25	9	16	35	26	476
21 - 50	1	2	1	1	0	49	29	5	4	22	19	6	29	17	23	26	234
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	15	6	9	17	23	181	96	25	34	54	38	31	38	33	58	52	710

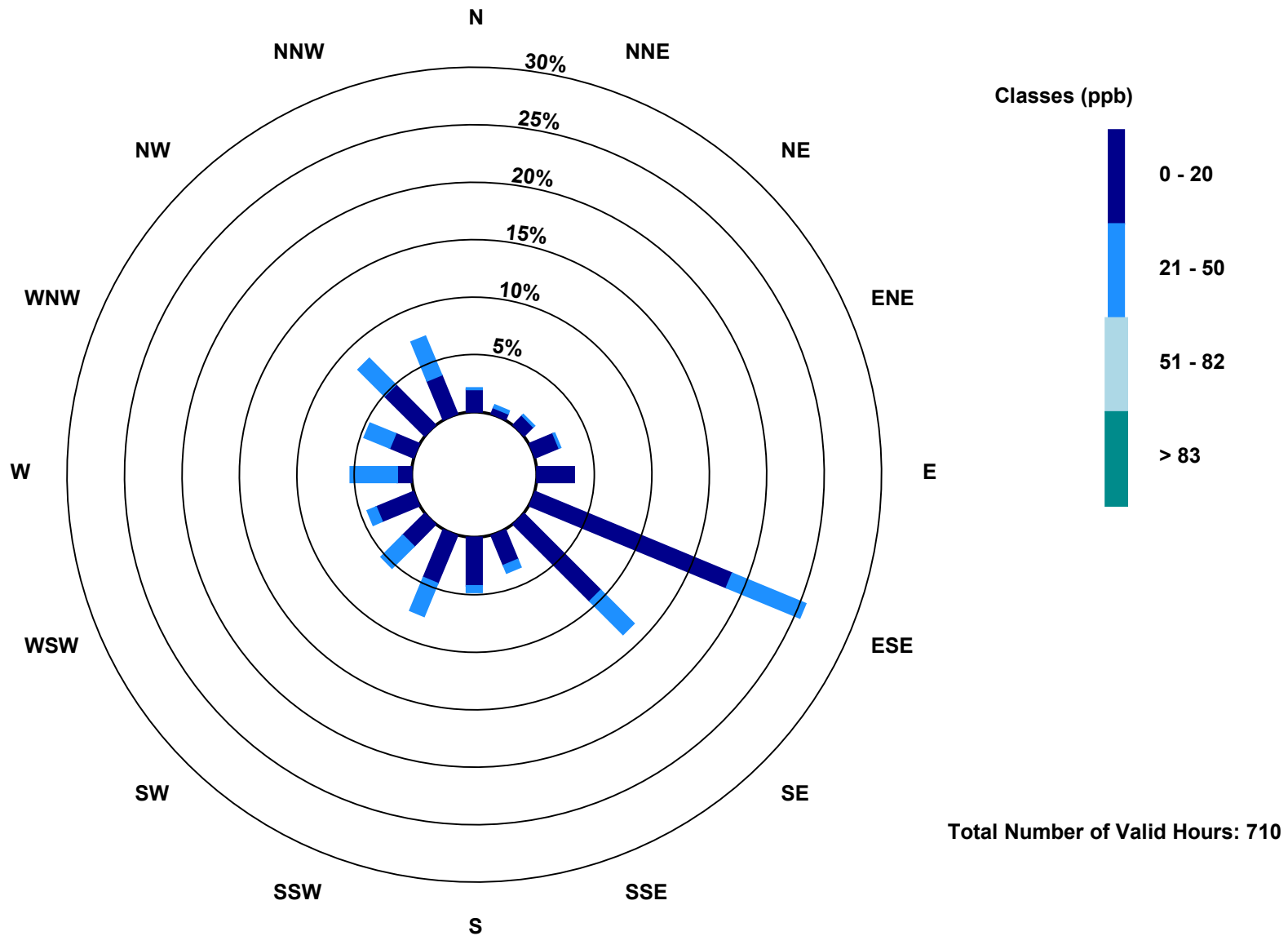
Total Number of Valid Hours: 710

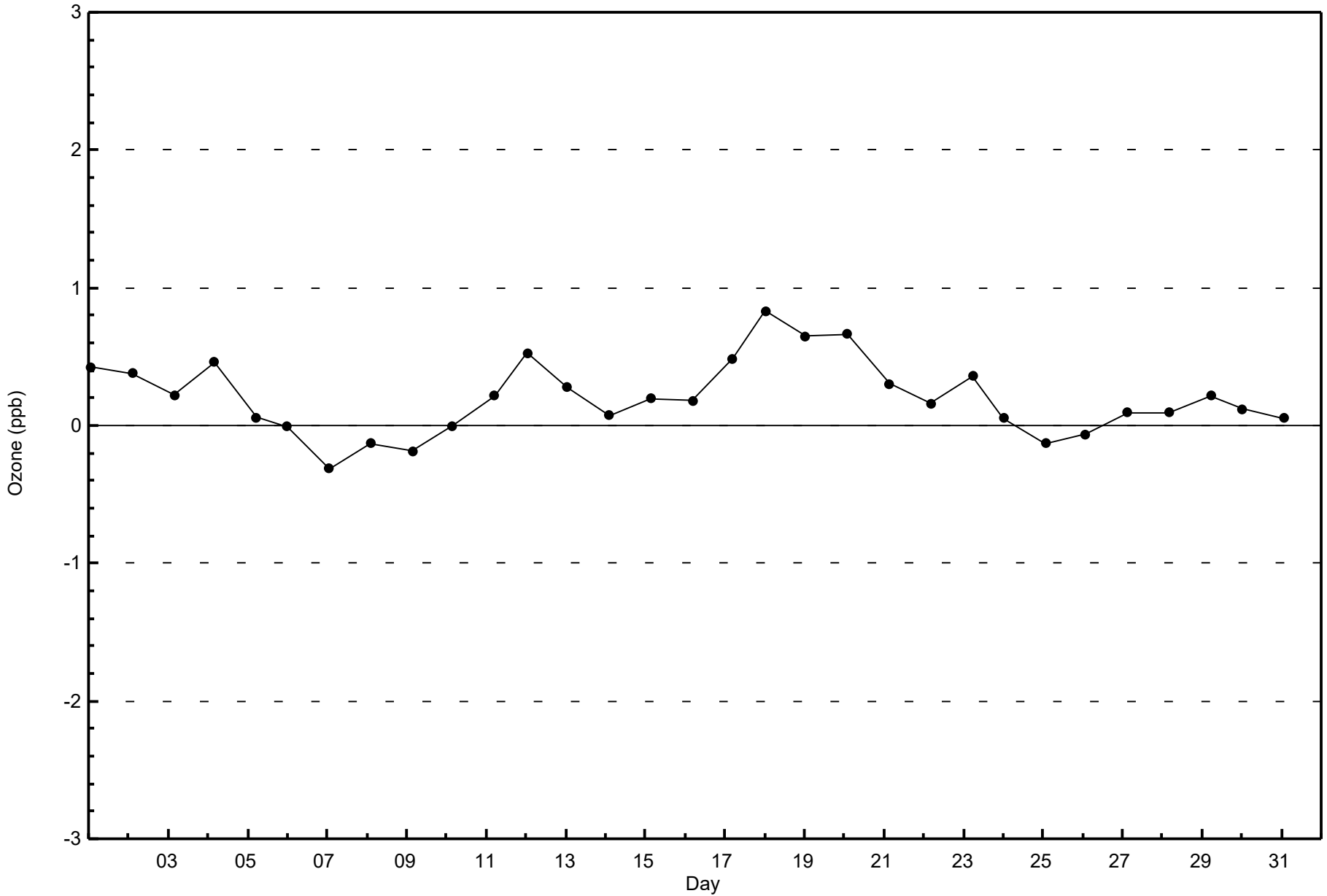
Total Number of Hours: 744

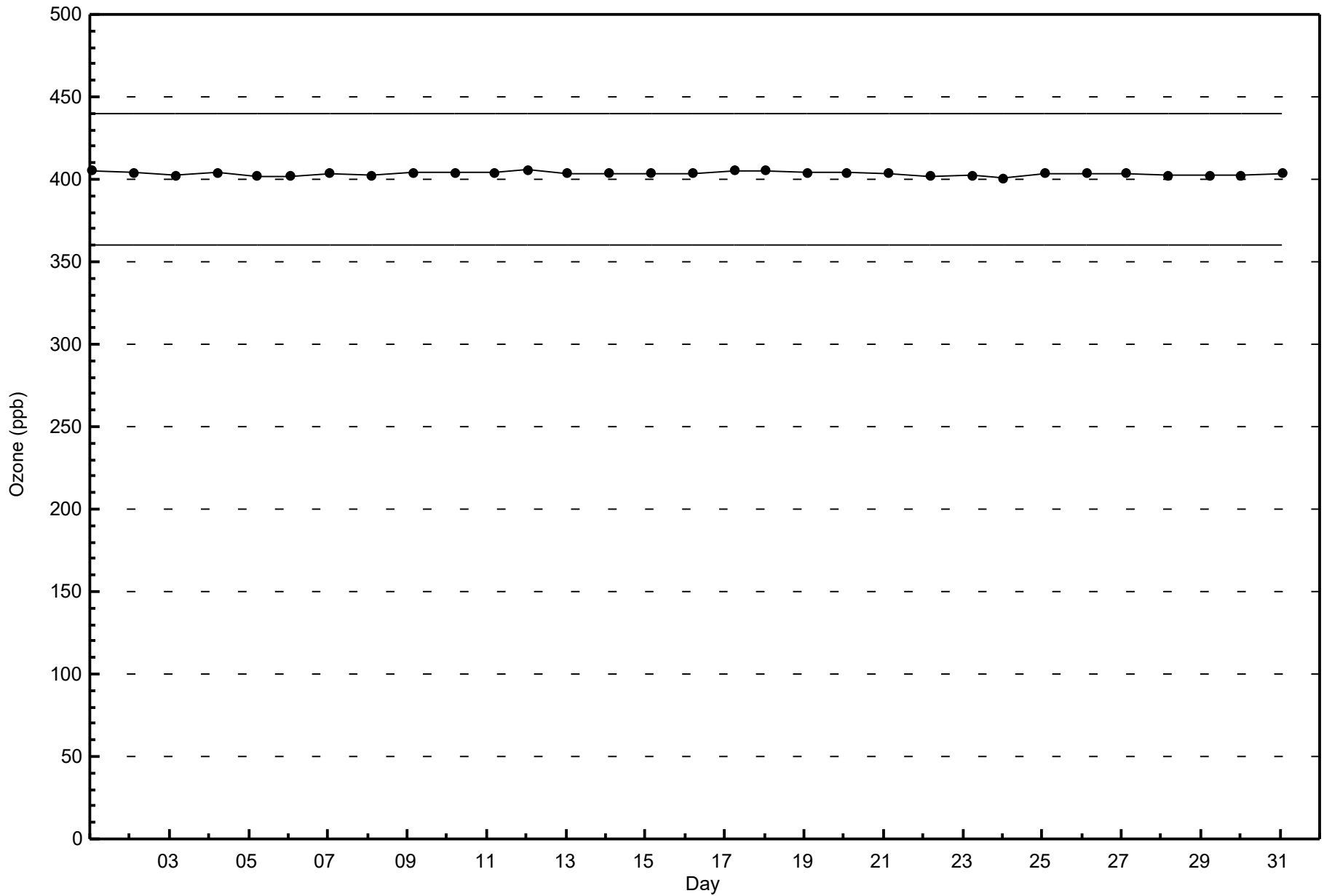


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Athabasca Valley

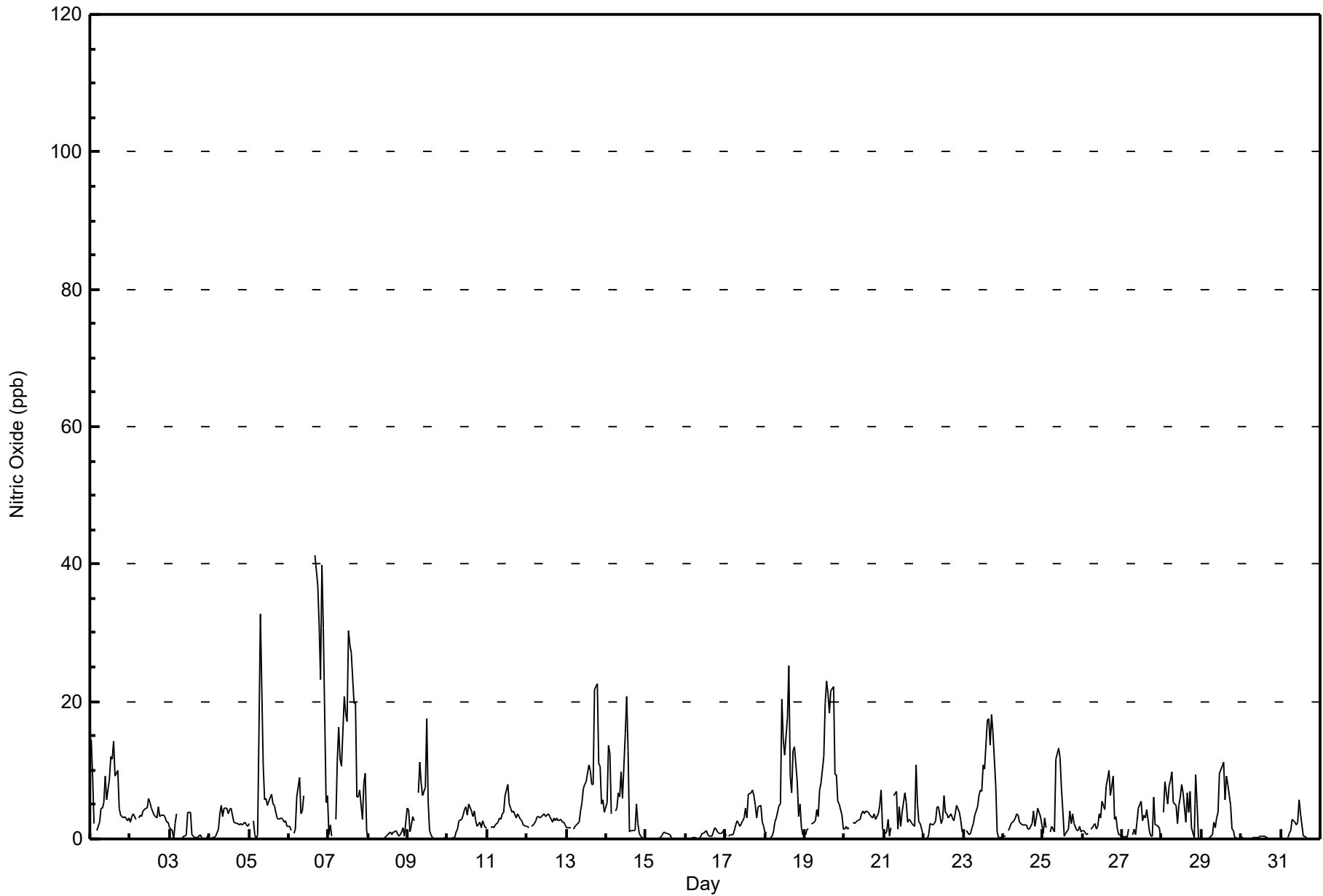








Maximum Value: 41.3 ppb on Dec 6 17:00		Maximum Daily Average: 12.1 ppb on Dec 7		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 3 03:00		Minimum Daily Average: 0.1 ppb on Dec 30		Hours of Data: 707																							
Maximum Diurnal Average: 7.1 ppb at hour 13		Minimum Diurnal Average: 1.1 ppb at hour 4		Hours of Missing Data: 37																							
Monthly Average: 4.04 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.7 Median = 2.4 Q ₃ = 4.7 P ₉₀ = 9.5 P ₉₉ = 28.1		Hours of Calibration: 37																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	14.4	8.9	2.1	Z	1.2	2.5	4.4	4.5	5.4	9.1	5.7	8.7	12.0	11.6	14.2	9.1	10.0	4.5	3.5	3.2	3.1	3.2	2.6	3.0	6.4	14.4	
2-Dec	2.4	3.2	3.6	2.9	Z	3.1	3.5	3.3	4.1	4.4	4.6	5.9	5.3	4.4	3.5	3.2	3.1	4.6	3.3	3.4	3.4	3.1	2.5	2.4	3.6	5.9	
3-Dec	1.7	1.2	0.0	2.2	3.6	Z	0.0	0.1	0.4	0.5	0.6	3.9	3.9	0.7	0.5	0.2	0.2	0.2	0.5	0.2	0.0	0.0	0.1	0.6	0.9	3.9	
4-Dec	Z	0.3	0.2	0.2	0.4	1.5	3.7	5.0	3.3	4.4	4.5	3.7	4.3	4.5	3.4	2.4	2.2	2.2	2.0	2.2	2.1	2.5	2.1	1.9	2.6	5.0	
5-Dec	2.2	Z	2.7	0.5	0.1	0.7	16.0	32.7	10.7	5.7	5.9	5.0	5.5	6.5	5.0	4.9	3.9	3.2	2.8	3.0	2.8	2.5	2.7	1.8	5.5	32.7	
6-Dec	1.8	1.2	Z	0.8	1.4	6.1	8.9	3.7	4.1	6.2	C	C	C	C	C	C	41.3	37.0	31.4	23.1	39.9	30.8	5.3	6.3	--	41.3	
7-Dec	0.5	1.9	0.4	Z	2.9	11.3	16.3	11.7	10.6	20.7	18.2	17.2	30.3	28.2	27.1	19.7	20.0	6.1	6.1	7.1	2.9	8.1	9.5	1.2	12.1	30.3	
8-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.3	0.4	0.5	0.9	0.6	0.9	1.0	1.3	0.4	0.6	1.0	1.7	0.5	4.6	0.6	4.6	
9-Dec	4.2	1.1	2.0	3.2	2.6	Z	6.8	11.2	8.1	6.4	7.5	17.4	5.6	1.3	0.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	3.4	17.4	
10-Dec	Z	0.0	0.0	0.3	0.2	1.1	1.4	2.7	2.8	3.4	4.3	4.7	3.4	5.2	4.1	3.2	4.1	2.7	1.9	2.5	1.7	2.6	2.1	1.6	2.4	5.2	
11-Dec	1.6	Z	1.7	1.8	1.6	2.0	2.4	3.1	2.9	3.7	4.0	6.3	7.9	5.1	4.4	3.9	4.1	3.0	3.7	3.2	2.8	2.6	2.1	1.8	3.3	7.9	
12-Dec	1.8	1.6	Z	1.8	2.3	2.6	3.2	3.2	3.1	3.3	3.7	3.3	3.4	3.6	3.3	2.4	3.0	2.6	2.9	2.7	2.8	2.4	2.4	2.0	2.8	3.7	
13-Dec	1.6	1.5	1.6	Z	1.5	1.8	2.1	2.4	4.1	5.3	7.4	7.9	8.4	10.8	9.9	8.0	8.0	21.7	22.5	11.0	10.5	5.2	5.6	3.9	7.1	22.5	
14-Dec	5.3	13.6	12.4	3.6	Z	4.1	4.4	6.7	6.0	9.7	5.9	15.3	20.7	12.8	1.1	1.2	1.2	1.2	5.0	2.3	0.7	0.4	0.0	0.1	5.8	20.7	
15-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.4	0.8	1.0	0.8	0.9	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	1.0	
16-Dec	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.3	0.9	0.8	1.2	0.5	0.5	0.4	0.3	1.7	1.3	1.0	0.8	0.7	0.8	1.4	0.6	1.7	
17-Dec	0.4	Z	0.4	0.5	0.6	1.3	2.0	2.7	2.3	1.7	2.7	3.1	4.4	3.0	6.5	6.8	7.1	6.3	4.8	3.0	4.7	4.8	2.4	1.7	3.2	7.1	
18-Dec	0.8	1.0	Z	0.2	0.4	1.1	2.4	3.0	4.9	5.1	20.4	14.4	12.2	17.7	25.2	9.2	6.7	12.8	13.4	8.4	3.2	5.1	1.7	0.5	7.4	25.2	
19-Dec	0.7	1.5	1.4	Z	2.3	2.3	2.7	4.4	3.3	7.1	8.2	12.0	19.7	23.0	21.1	18.4	21.6	22.2	9.3	9.4	5.4	5.0	3.5	1.4	8.9	23.0	
20-Dec	1.4	1.7	1.3	1.5	Z	2.4	2.3	2.4	2.7	2.8	3.6	4.1	3.7	4.0	4.0	3.4	3.3	3.1	3.7	2.9	3.7	4.9	7.2	1.7	3.1	7.2	
21-Dec	0.7	1.1	2.8	0.5	1.6	Z	6.2	6.9	1.4	4.7	1.7	3.9	6.6	5.2	2.4	2.8	2.6	2.2	1.8	10.8	5.0	2.5	2.2	0.7	3.3	10.8	
22-Dec	Z	0.0	0.0	0.6	2.3	2.1	2.2	2.6	4.6	4.7	2.3	2.8	6.2	3.9	3.6	3.1	3.6	3.0	2.7	3.6	4.8	3.8	2.6	1.0	2.9	6.2	
23-Dec	1.3	Z	1.1	0.7	0.8	1.5	2.2	3.4	4.7	6.3	7.1	7.0	10.8	10.2	17.4	17.6	13.6	18.2	15.4	7.8	1.1	0.2	0.1	0.2	6.5	18.2	
24-Dec	0.4	0.5	Z	1.3	1.7	2.2	2.6	3.1	3.6	3.5	2.5	2.0	2.1	2.0	2.0	1.5	1.5	2.2	4.1	1.8	3.1	4.5	3.3	2.0	2.3	4.5	
25-Dec	0.8	3.0	1.5	Z	1.0	1.8	1.5	1.0	11.6	13.2	11.9	7.3	4.1	0.5	0.8	1.4	4.1	2.3	3.6	2.1	1.3	1.3	1.8	1.1	3.4	13.2	
26-Dec	1.1	1.1	0.6	0.8	Z	1.5	1.5	2.3	1.4	1.9	3.7	3.1	5.5	4.3	7.6	8.8	10.0	6.2	9.1	2.8	3.2	1.4	0.6	0.6	3.4	10.0	
27-Dec	0.4	0.2	0.4	0.1	1.3	Z	0.6	1.4	0.6	2.4	4.4	5.5	2.7	3.5	2.9	4.4	1.1	0.4	0.4	6.1	1.9	2.0	1.6	0.2	1.9	6.1	
28-Dec	Z	3.9	8.3	5.0	7.8	8.6	9.7	5.3	4.8	2.3	4.8	6.2	7.9	6.6	2.4	6.7	4.0	6.9	1.7	0.2	9.5	5.0	0.1	0.1	5.1	9.7	
29-Dec	0.0	Z	0.0	0.0	0.1	0.2	0.6	2.4	1.7	3.0	3.9	9.7	10.7	11.3	5.8	9.1	8.0	5.0	1.3	1.3	0.3	0.2	0.1	0.0	3.2	11.3	
30-Dec	0.2	0.2	Z	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
31-Dec	0.0	0.0	0.0	Z	0.1	0.7	1.3	2.9	2.4	2.0	2.4	5.8	3.7	0.4	0.3	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	1.0	5.8	
		1.8	1.9	1.7	1.1	1.5	2.4	3.6	4.3	3.7	4.7	5.1	6.3	7.1	6.4	6.0	5.1	6.1	5.9	5.1	4.1	3.9	3.4	2.1	1.4	Diurnal Average	
		14.4	13.6	12.4	5.0	7.8	11.3	16.3	32.7	11.6	20.7	20.4	17.4	30.3	28.2	27.1	19.7	41.3	37.0	31.4	23.1	39.9	30.8	9.5	6.3	Diurnal Maximum	
Z - zerospan		C - Calibration																									





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	688	97.31	97.31
21 - 40	18	2.55	99.86
41 - 80	1	0.14	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

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



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Athabasca Valley - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	6	9	15	21	169	96	24	33	55	37	30	38	33	57	50	688
21 - 40	0	0	0	0	2	5	5	1	1	0	1	1	0	0	1	1	18
11 - 80	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	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	15	6	9	15	23	175	101	25	34	55	38	31	38	33	58	51	707

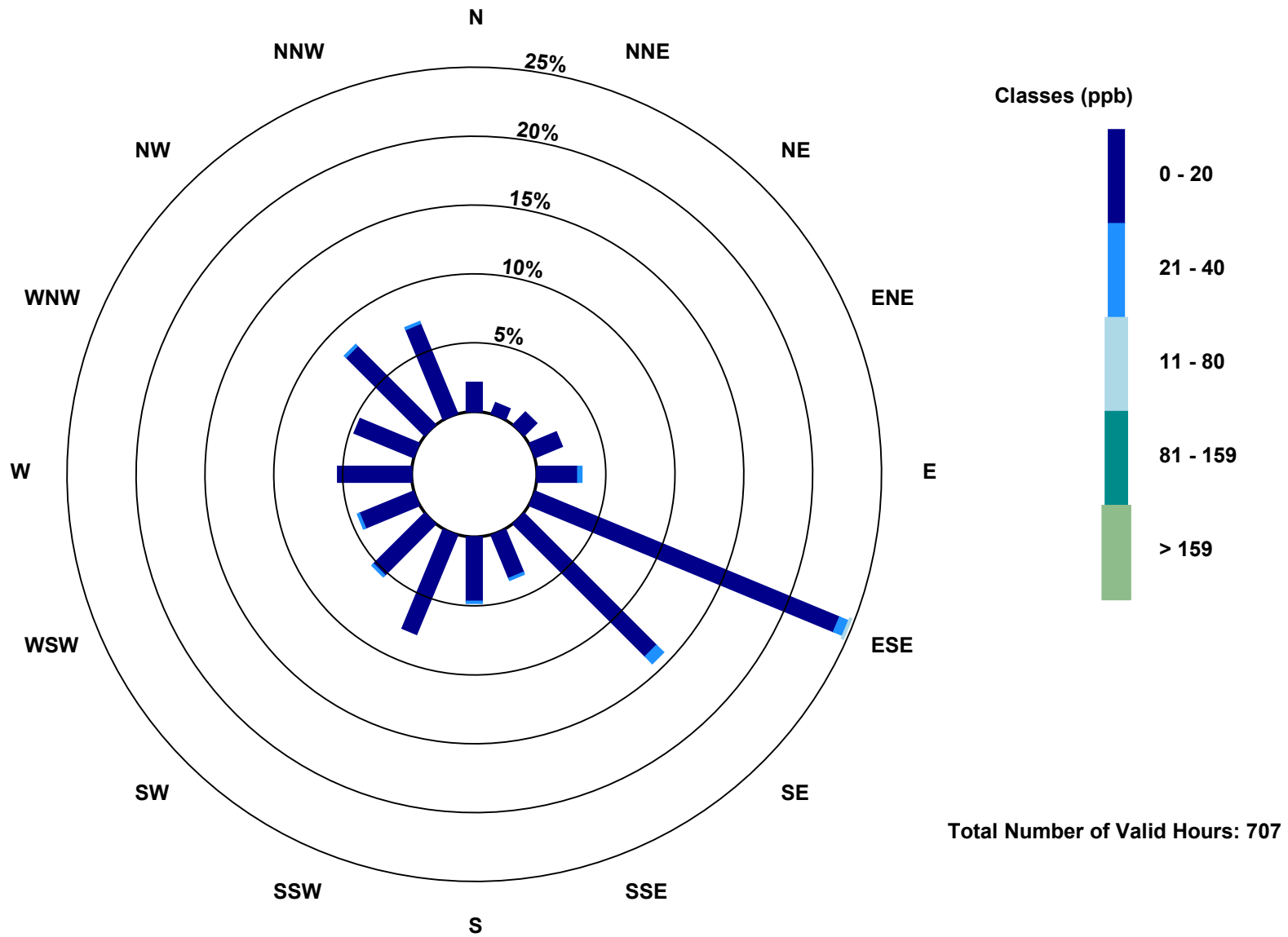
Total Number of Valid Hours: 707

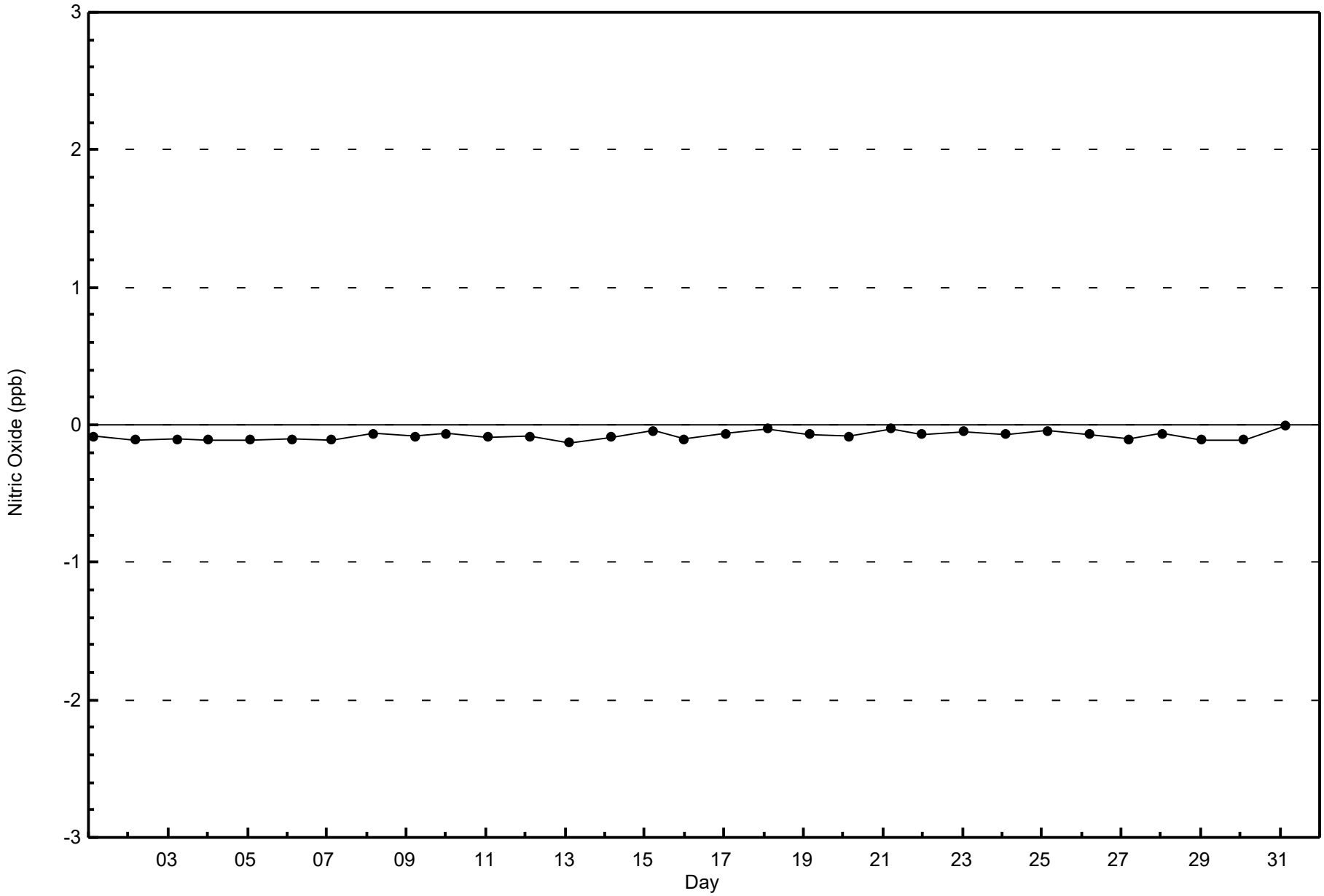
Total Number of Hours: 744

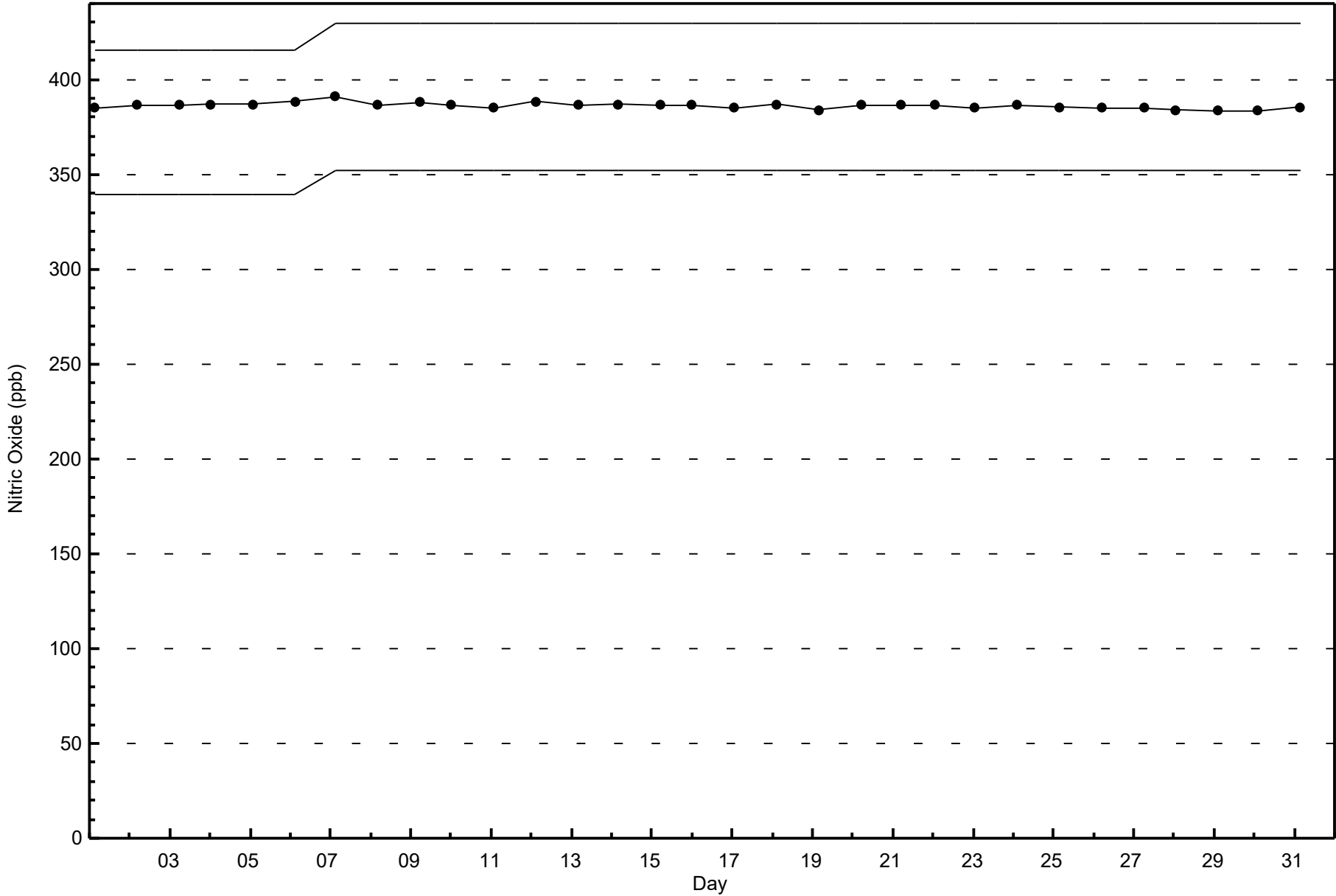


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Athabasca Valley









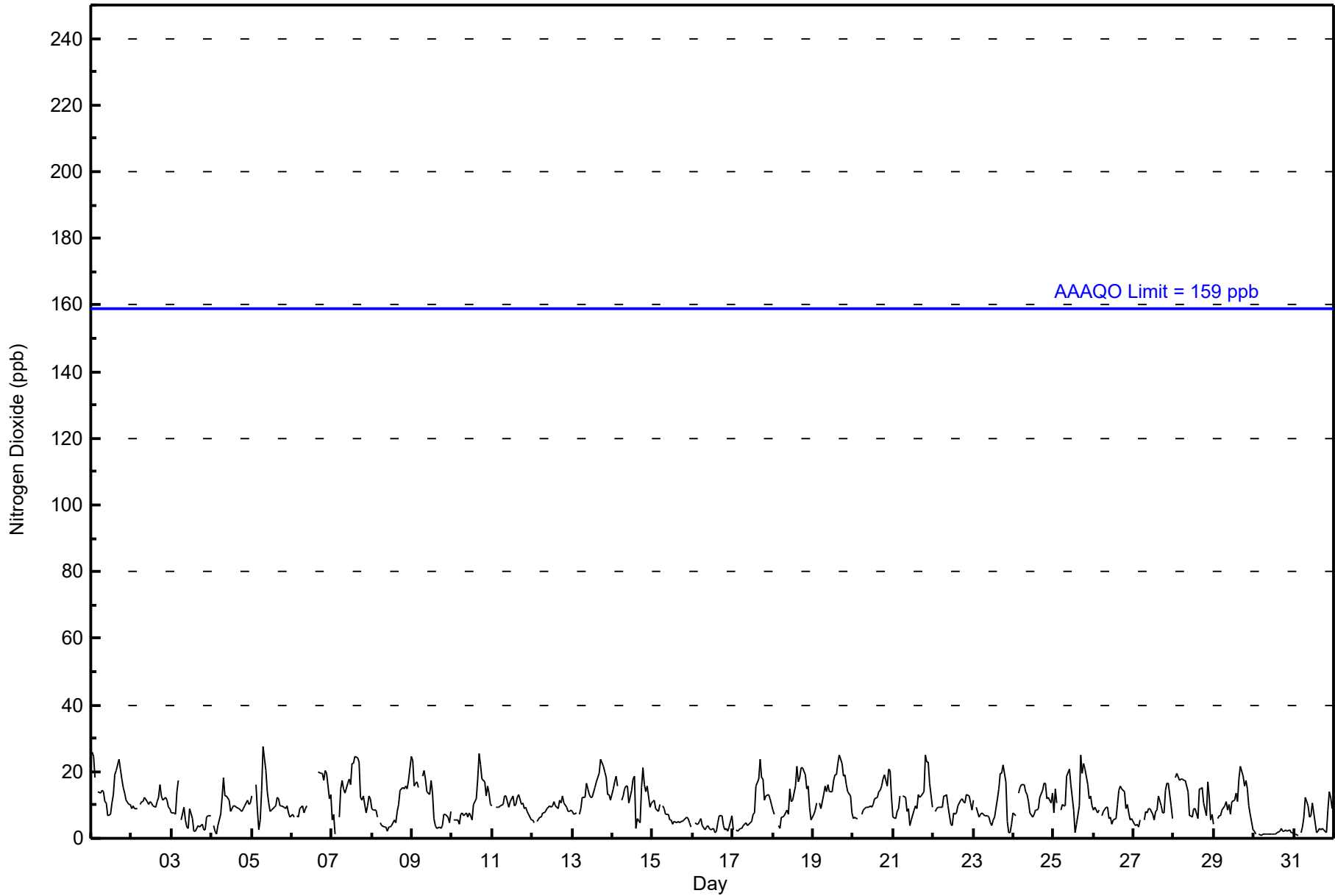
Wood Buffalo Environmental Association
Summary of Hour Averages

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

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 27.7 ppb on Dec 5 08:00	Maximum Daily Average: 15.1 ppb on Dec 19		Hours of Data:	707
Minimum Value: 0.7 ppb on Dec 31 03:00	Minimum Daily Average: 1.7 ppb on Dec 30		Hours of Missing Data:	37
Maximum Diurnal Average: 13.9 ppb at hour 17	Minimum Diurnal Average: 7.9 ppb at hour 4		Hours of Calibration:	37
Monthly Average: 10.21 ppb	Percentiles: P ₁ = 1.2 P ₁₀ = 3.2 Q ₁ = 6.3 Median = 9.5 Q ₃ = 13.6 P ₉₀ = 17.9 P ₉₉ = 24.4		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-Dec	25.7	24.4	18.3	Z	13.9	13.4	14.2	14.0	11.2	10.5	6.8	7.2	10.6	13.1	18.9	20.2	23.8	20.8	17.7	15.3	13.6	11.6	10.2	10.0	15.0	25.7
2-Dec	8.8	9.7	9.1	9.0	Z	10.0	11.0	11.2	12.3	11.0	10.0	11.1	10.7	9.6	9.4	10.9	12.4	16.2	12.5	11.3	12.2	11.4	9.5	9.0	10.8	16.2
3-Dec	7.8	7.5	7.0	13.9	17.5	Z	5.7	9.3	5.7	3.2	3.0	8.7	6.1	2.0	2.0	2.9	3.9	3.2	4.1	2.5	2.7	6.3	6.8	6.7	6.0	17.5
4-Dec	Z	4.0	2.0	1.3	4.0	7.4	12.3	18.1	12.9	12.9	11.4	7.9	8.8	9.9	9.6	9.3	8.7	8.3	7.9	8.8	9.6	11.3	10.2	10.5	9.0	18.1
5-Dec	12.6	Z	16.1	8.5	2.7	5.6	14.4	27.7	20.2	13.8	10.5	7.9	8.3	9.5	9.6	12.4	11.7	9.7	9.9	9.5	8.8	9.6	7.6	6.4	11.0	27.7
6-Dec	7.1	6.4	Z	6.7	6.2	8.7	9.9	7.7	8.7	9.8	C	C	C	C	C	C	19.9	19.3	19.5	17.3	20.2	19.4	11.8	13.2	--	20.2
7-Dec	5.6	7.4	1.2	Z	6.3	14.8	17.3	14.9	13.6	16.6	17.6	16.0	22.3	22.4	24.4	24.1	22.9	12.4	11.6	12.6	7.7	9.8	12.6	11.9	14.2	24.4
8-Dec	8.9	8.4	8.6	6.3	Z	4.5	3.7	3.6	3.4	2.1	3.4	3.3	4.0	5.5	4.5	7.9	10.3	14.2	15.4	14.7	15.7	14.8	17.2	24.6	8.9	24.6
9-Dec	23.3	15.6	16.4	17.1	15.1	Z	18.8	20.3	17.6	14.0	13.1	17.3	13.5	6.0	3.7	2.9	3.2	2.8	4.0	7.4	7.1	6.3	4.6	7.9	11.2	23.3
10-Dec	Z	5.7	5.5	5.7	4.4	7.3	7.5	6.7	7.5	6.5	7.6	6.8	5.3	10.0	12.0	17.8	25.6	22.1	17.9	17.0	12.6	15.8	13.5	10.0	10.9	25.6
11-Dec	9.8	Z	9.5	9.3	9.2	9.7	10.1	12.8	12.7	11.0	9.5	11.2	12.7	9.8	10.0	12.1	13.0	10.0	10.8	9.1	9.2	8.1	7.0	5.6	10.1	13.0
12-Dec	5.6	4.7	Z	5.0	6.3	6.5	7.8	7.8	8.0	9.0	9.9	9.3	9.9	10.9	9.8	9.1	11.4	10.7	12.6	10.7	9.2	8.0	8.1	8.3	8.6	12.6
13-Dec	8.1	7.1	7.7	Z	7.3	9.1	12.1	12.4	16.5	14.8	13.2	12.4	12.4	15.2	17.0	18.1	19.6	23.8	21.6	20.1	18.3	13.1	13.0	11.5	14.1	23.8
14-Dec	14.8	16.8	18.7	15.6	Z	11.4	12.8	14.9	15.6	15.6	10.6	14.4	18.0	18.5	2.8	6.1	4.6	15.2	21.0	16.2	13.8	15.8	9.5	10.7	13.6	21.0
15-Dec	11.0	11.5	9.1	7.9	10.0	Z	9.8	8.8	7.2	7.0	5.7	5.3	4.2	5.0	4.5	4.9	4.7	5.0	5.1	5.4	6.2	6.1	4.6	3.4	6.6	11.5
16-Dec	Z	4.6	4.3	4.1	5.0	6.1	3.7	2.4	3.2	3.7	3.1	2.4	2.8	1.8	2.2	4.7	6.8	6.6	3.7	2.5	2.9	2.2	3.2	6.7	3.9	6.8
17-Dec	2.5	Z	2.5	2.3	3.0	3.0	3.9	4.4	4.6	3.8	4.8	5.2	7.1	7.5	15.5	17.9	23.8	18.3	17.6	11.6	12.9	13.1	11.8	10.1	9.0	23.8
18-Dec	8.4	7.4	Z	3.7	3.0	6.4	6.4	6.8	8.4	7.0	14.9	11.0	11.6	15.8	21.5	16.8	18.3	21.1	21.2	18.9	14.9	15.5	9.4	5.7	11.9	21.5
19-Dec	7.1	8.6	10.5	Z	10.4	9.1	13.1	15.7	13.9	16.3	14.1	14.0	17.3	19.2	19.0	22.6	25.1	22.6	18.8	19.0	15.9	14.1	12.5	7.8	15.1	25.1
20-Dec	6.0	6.4	6.1	5.9	Z	7.4	8.3	9.0	9.3	9.3	9.9	9.4	10.0	11.8	12.3	14.1	14.5	15.6	17.7	18.9	15.7	20.8	20.2	12.3	11.8	20.8
21-Dec	6.5	6.1	8.1	8.7	12.9	Z	12.9	12.1	7.9	9.0	3.7	5.4	8.6	9.9	9.1	13.2	12.1	12.5	14.0	24.9	23.0	22.9	16.6	9.3	11.7	24.9
22-Dec	Z	8.0	9.1	9.2	9.3	9.3	12.5	12.6	13.0	9.7	4.3	3.9	7.6	7.4	7.6	9.6	11.6	12.0	10.9	10.8	13.0	12.8	10.7	8.5	9.7	13.0
23-Dec	11.3	Z	9.4	6.3	7.1	7.7	7.2	6.9	6.7	6.3	4.8	3.7	5.3	6.5	11.8	14.9	19.7	19.5	22.0	17.0	4.9	1.8	1.7	4.3	9.0	22.0
24-Dec	7.6	6.8	Z	13.5	15.3	15.9	16.3	13.8	13.3	11.1	7.8	6.5	7.2	8.3	8.6	8.9	12.1	14.2	16.6	16.5	11.8	12.2	10.8	13.5	11.7	16.6
25-Dec	7.7	14.8	10.6	Z	8.3	10.0	9.9	9.7	18.5	20.9	16.3	12.3	8.4	1.9	4.1	9.8	25.2	19.3	22.4	20.8	16.0	11.7	12.7	9.7	13.1	25.2
26-Dec	8.5	9.2	7.8	8.6	Z	6.7	8.2	9.3	9.5	6.0	6.4	4.3	5.5	5.8	10.2	14.3	15.8	14.7	13.8	8.8	10.2	7.7	5.3	6.0	8.8	15.8
27-Dec	4.2	3.9	4.1	3.6	5.5	Z	5.5	7.9	7.5	8.7	8.9	7.1	5.7	8.1	8.6	12.7	9.8	7.8	7.6	14.5	16.6	16.4	9.7	5.8	8.3	16.6
28-Dec	Z	18.3	19.5	17.2	18.0	18.0	17.2	17.2	14.0	6.9	6.9	6.5	9.0	9.0	6.0	14.7	14.8	15.4	10.7	6.9	16.9	12.4	5.7	7.3	12.5	19.5
29-Dec	4.4	Z	5.9	6.9	6.9	8.3	9.9	10.9	8.4	10.2	7.4	10.9	11.3	13.4	11.2	17.7	21.4	18.6	15.8	17.4	14.7	9.8	7.4	2.4	10.9	21.4
30-Dec	2.2	1.3	Z	1.3	0.9	1.1	1.4	1.3	1.4	1.1	1.2	1.2	1.2	1.4	1.6	2.1	2.8	2.2	2.1	2.5	2.3	2.4	1.5	1.6	1.7	2.8
31-Dec	1.1	1.1	0.7	Z	1.8	3.4	6.3	12.4	9.8	6.4	6.6	10.8	7.6	1.6	2.1	2.8	2.5	3.0	2.4	1.8	8.3	14.0	12.3	9.1	5.6	14.0
8.7 8.7 8.8 7.9 8.1 8.5 10.0 11.1 10.4 9.5 8.4 8.4 9.1 9.2 9.7 11.9 13.9 13.5 13.2 12.6 11.8 11.5 9.6 8.7																								Diurnal Average		
25.7 24.4 19.5 17.2 18.0 18.0 18.8 27.7 20.2 20.9 17.6 17.3 22.3 22.4 24.4 24.1 25.6 23.8 22.4 24.9 23.0 22.9 20.2 24.6																								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
Athabasca Valley - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	673	95.19	95.19
21 - 40	34	4.81	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	6	8	13	23	167	94	23	33	55	35	30	37	32	57	48	673
21 - 40	3	0	1	2	0	8	7	2	1	0	3	1	1	1	1	3	34
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	15	6	9	15	23	175	101	25	34	55	38	31	38	33	58	51	707

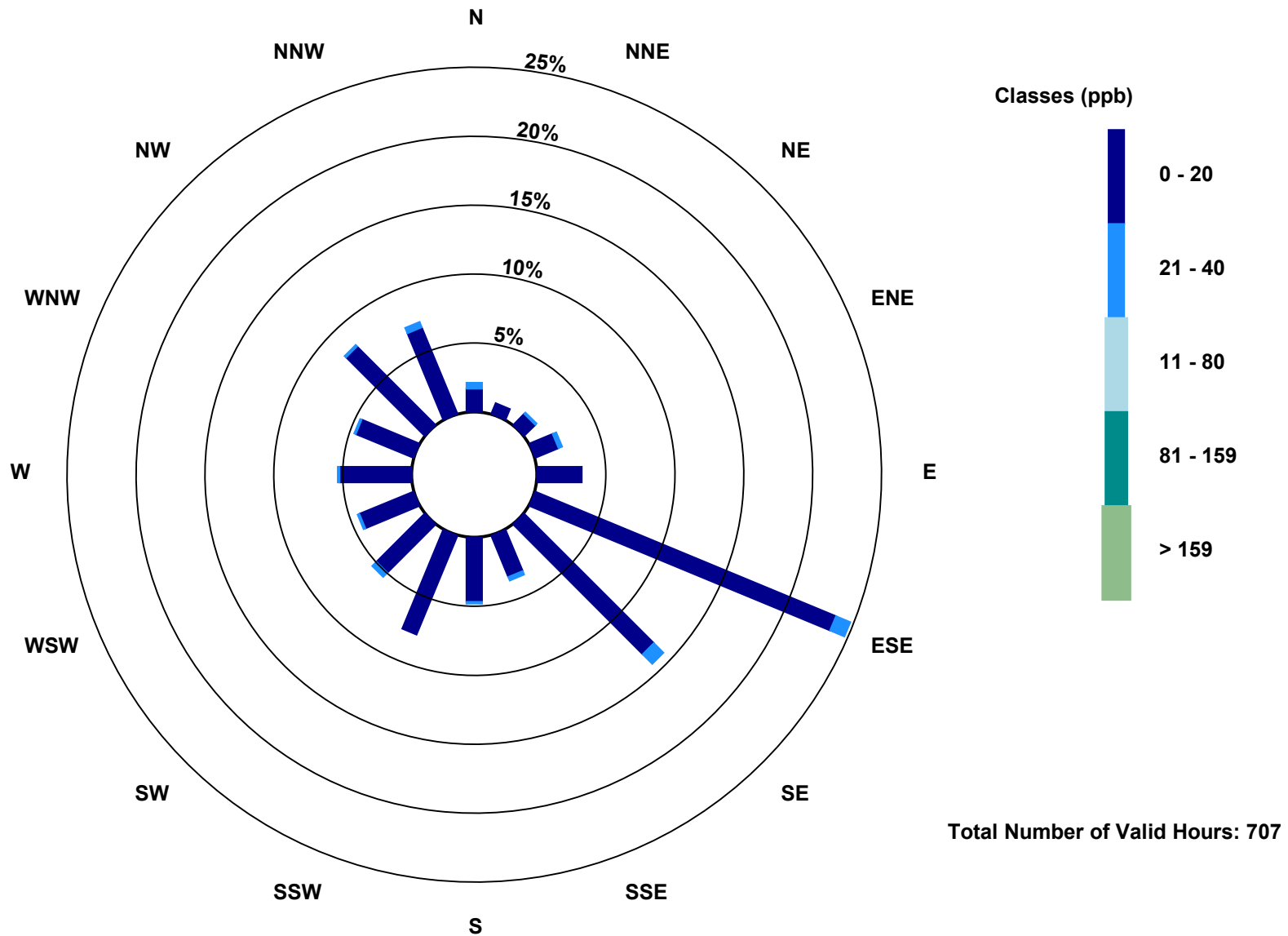
Total Number of Valid Hours: 707

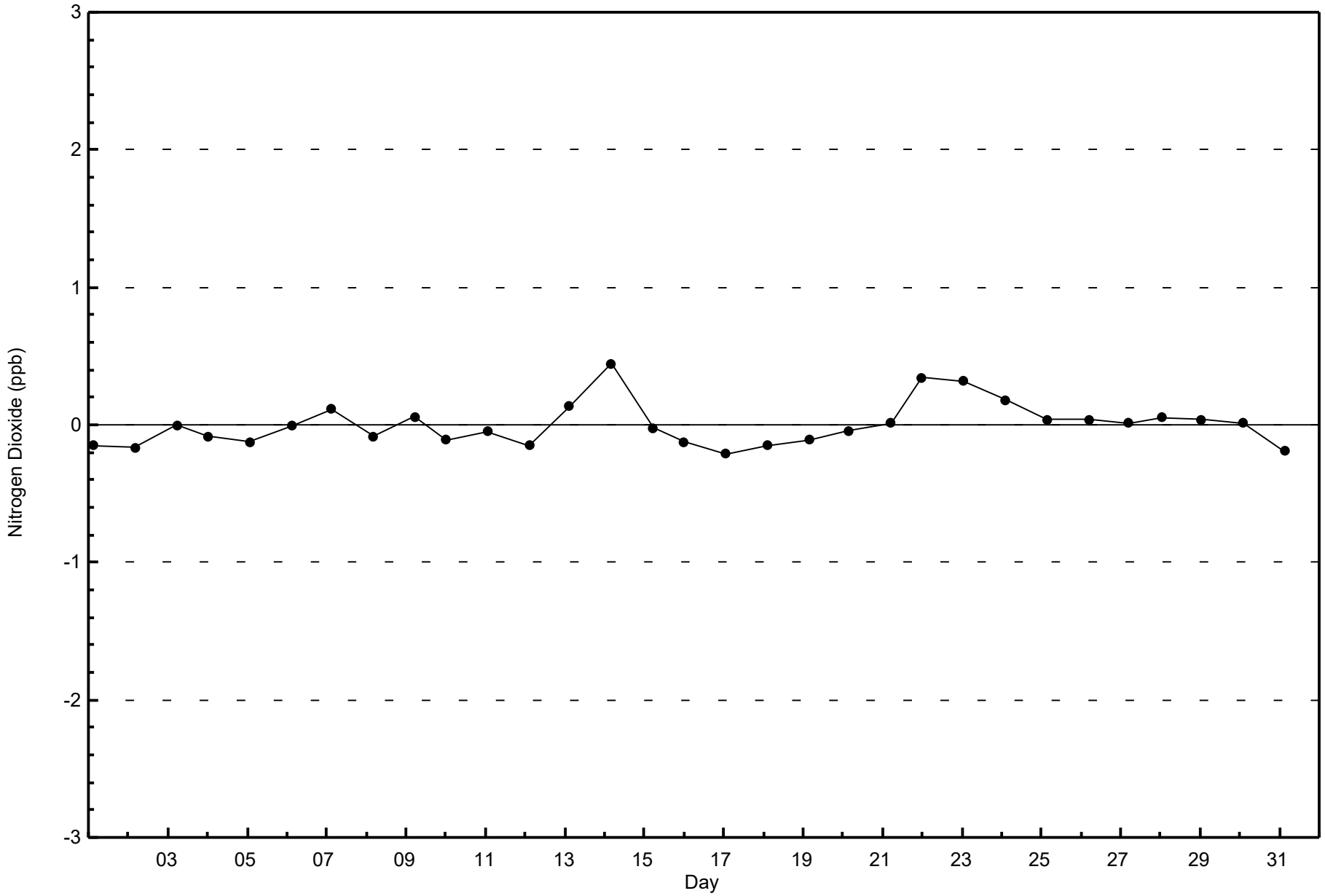
Total Number of Hours: 744

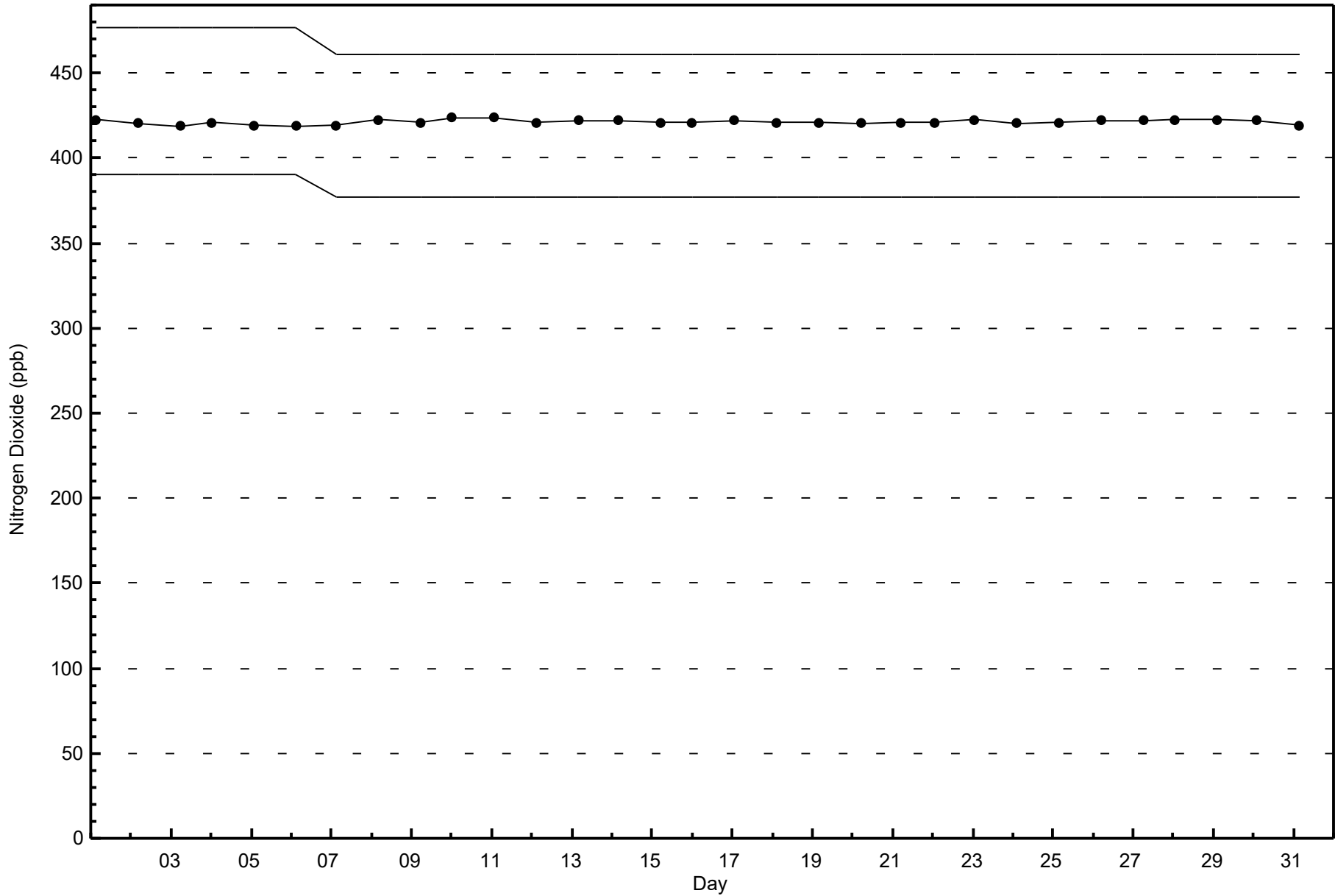


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Athabasca Valley









Wood Buffalo Environmental Association
Summary of Hour Averages

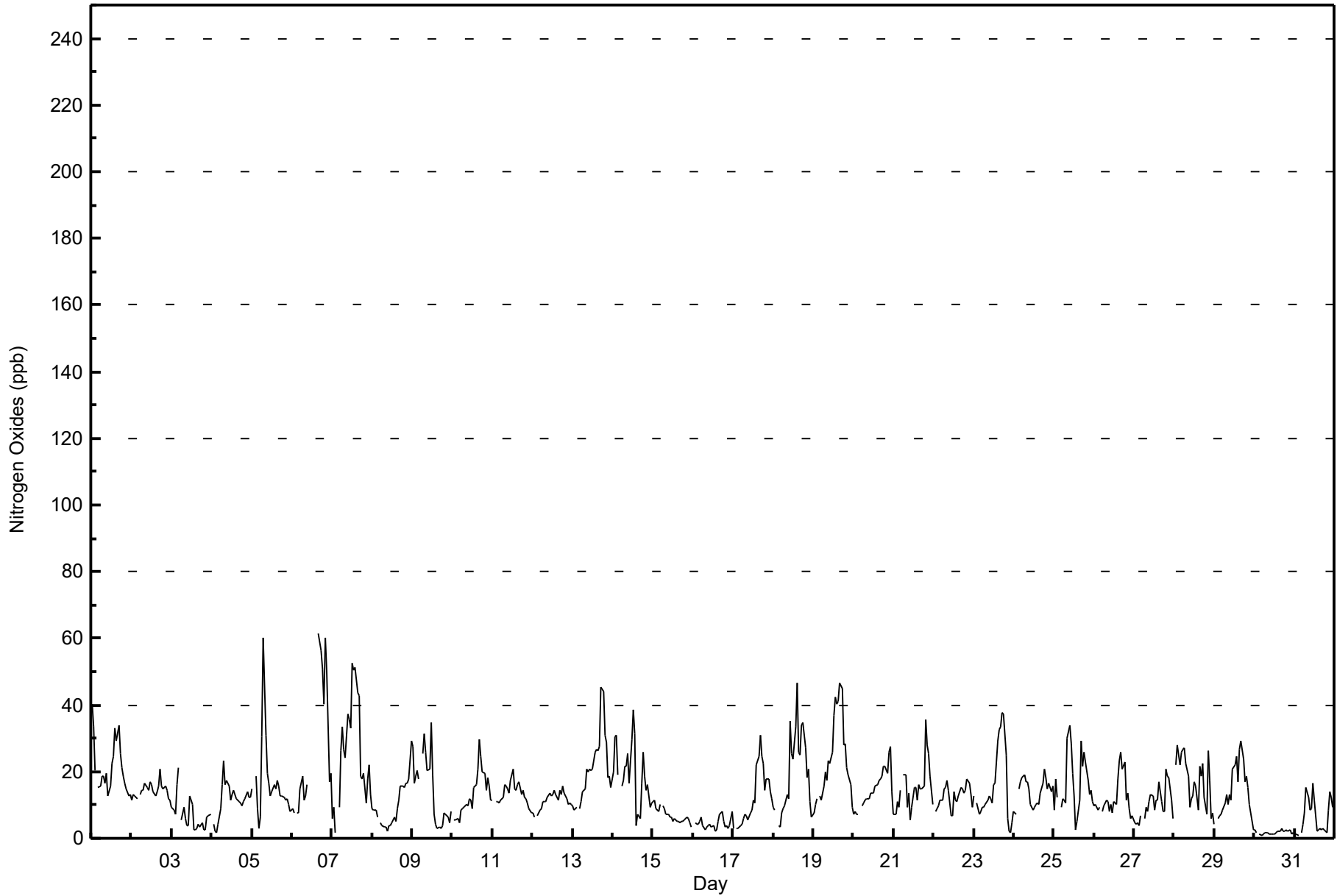
Nitrogen Oxides (NO_x) - ppb
Athabasca Valley - December 2024

Maximum Value: 61.2 ppb on Dec 6 17:00		Maximum Daily Average: 26.3 ppb on Dec 7		Hours in Service:	744																						
Minimum Value: 0.7 ppb on Dec 31 03:00		Minimum Daily Average: 1.8 ppb on Dec 30		Hours of Data:	707																						
Maximum Diurnal Average: 20.1 ppb at hour 17		Minimum Diurnal Average: 9.0 ppb at hour 4		Hours of Missing Data:	37																						
Monthly Average: 14.25 ppb		Percentiles: P ₁ = 1.4 P ₁₀ = 3.7 Q ₁ = 7.5 Median = 12.3 Q ₃ = 18.0 P ₉₀ = 26.6 P ₉₉ = 50.6		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-Dec	40.1	33.3	20.4	Z	15.1	15.9	18.6	18.5	16.6	19.6	12.5	15.9	22.6	24.7	33.1	29.3	33.8	25.3	21.2	18.5	16.7	14.8	12.8	13.0	21.4	40.1	
2-Dec	11.2	12.9	12.7	11.9	Z	13.1	14.5	14.5	16.4	15.4	14.6	17.0	16.0	14.0	12.9	14.1	15.5	20.8	15.8	14.7	15.6	14.5	12.0	11.4	14.4	20.8	
3-Dec	9.5	8.7	7.0	16.1	21.1	Z	5.7	9.4	6.1	3.7	3.6	12.6	10.0	2.7	2.5	3.1	4.1	3.4	4.6	2.7	2.7	6.3	6.9	7.3	7.0	21.1	
4-Dec	Z	4.3	2.2	1.5	4.4	8.9	16.0	23.1	16.2	17.3	15.9	11.6	13.1	14.4	13.0	11.7	10.9	10.5	9.9	11.0	11.7	13.8	12.3	12.4	11.6	23.1	
5-Dec	14.8	Z	18.8	9.0	2.8	6.3	30.4	60.4	30.9	19.5	16.4	12.9	13.8	16.0	14.6	17.3	15.6	12.9	12.7	12.5	11.6	12.1	10.3	8.2	16.5	60.4	
6-Dec	8.9	7.6	Z	7.5	7.6	14.8	18.8	11.4	12.8	16.0	C	C	C	C	C	C	61.2	56.3	50.9	40.4	60.1	50.2	17.1	19.5	--	61.2	
7-Dec	6.1	9.3	1.6	Z	9.2	26.1	33.6	26.6	24.2	37.3	35.8	33.2	52.6	50.6	51.5	43.8	42.9	18.5	17.7	19.7	10.6	17.9	22.1	13.1	26.3	52.6	
8-Dec	8.9	8.4	8.6	6.3	Z	4.5	3.7	3.6	3.5	2.2	3.7	3.7	4.5	6.4	5.1	8.8	11.3	15.5	15.8	15.3	16.7	16.5	17.7	29.2	9.6	29.2	
9-Dec	27.5	16.7	18.4	20.3	17.7	Z	25.6	31.5	25.7	20.4	20.6	34.7	19.1	7.3	4.3	3.0	3.3	2.8	4.0	7.4	7.1	6.3	4.8	7.9	14.6	34.7	
10-Dec	Z	5.7	5.5	6.0	4.6	8.4	8.9	9.4	10.3	9.9	11.9	11.5	8.7	15.2	16.1	21.0	29.7	24.8	19.8	19.5	14.3	18.4	15.6	11.6	13.3	29.7	
11-Dec	11.4	Z	11.2	11.1	10.8	11.7	12.5	15.9	15.6	14.7	13.5	17.5	20.6	14.9	14.4	16.0	17.1	13.0	14.5	12.3	12.0	10.7	9.1	7.4	13.4	20.6	
12-Dec	7.4	6.3	Z	6.8	8.6	9.1	11.0	11.0	11.1	12.3	13.6	12.6	13.3	14.5	13.1	11.5	14.4	13.3	15.5	13.4	12.0	10.4	10.5	10.3	11.4	15.5	
13-Dec	9.7	8.6	9.3	Z	8.8	10.9	14.2	14.8	20.6	20.1	20.6	20.3	20.8	26.0	26.9	26.1	27.6	45.5	44.1	31.1	28.8	18.3	18.6	15.4	21.2	45.5	
14-Dec	20.1	30.4	31.1	19.2	Z	15.5	17.2	21.6	21.6	25.3	16.5	29.7	38.7	31.3	3.9	7.3	5.8	16.4	26.0	18.5	14.5	16.2	9.5	10.8	19.4	38.7	
15-Dec	11.0	11.5	9.1	7.9	10.0	Z	9.9	8.9	7.3	7.4	6.5	6.3	5.0	5.9	5.0	5.1	4.7	5.0	5.1	5.4	6.2	6.1	4.7	3.4	6.9	11.5	
16-Dec	Z	4.6	4.3	4.1	5.1	6.2	3.8	2.4	3.3	4.0	4.0	3.2	4.0	2.3	2.7	5.1	7.1	8.3	5.0	3.5	3.7	2.9	4.0	8.1	4.4	8.3	
17-Dec	2.9	Z	2.9	2.8	3.6	4.3	5.9	7.1	6.9	5.5	7.5	8.3	11.5	10.5	22.0	24.7	30.9	24.6	22.4	14.6	17.6	17.9	14.2	11.8	12.2	30.9	
18-Dec	9.2	8.4	Z	3.9	3.4	7.5	8.8	9.8	13.3	12.1	35.3	25.4	23.8	33.5	46.7	26.0	25.0	33.9	34.6	27.3	18.1	20.6	11.1	6.2	19.3	46.7	
19-Dec	7.8	10.1	11.9	Z	12.7	11.4	15.8	20.1	17.2	23.4	22.3	26.0	37.0	42.2	40.1	41.0	46.7	44.8	28.1	28.4	21.3	19.1	16.0	9.2	24.0	46.7	
20-Dec	7.4	8.1	7.4	7.4	Z	9.8	10.6	11.4	12.0	12.1	13.5	13.5	13.7	15.8	16.3	17.5	17.8	18.7	21.4	21.8	19.4	25.7	27.4	14.0	14.9	27.4	
21-Dec	7.2	7.2	10.9	9.2	14.5	Z	19.1	19.0	9.3	13.7	5.4	9.3	15.2	15.1	11.5	16.0	14.7	14.7	15.8	35.7	28.0	25.4	18.8	10.0	15.0	35.7	
22-Dec	Z	8.0	9.1	9.8	11.6	11.4	14.7	15.2	17.6	14.4	6.6	6.7	13.8	11.3	11.2	12.7	15.2	15.0	13.6	14.4	17.8	16.6	13.3	9.5	12.6	17.8	
23-Dec	12.6	Z	10.5	7.0	7.9	9.2	9.4	10.3	11.4	12.6	11.9	10.7	16.1	16.7	29.2	32.5	33.3	37.7	37.4	24.8	6.0	2.0	1.8	4.5	15.5	37.7	
24-Dec	8.0	7.3	Z	14.8	17.0	18.1	18.9	16.9	16.9	14.6	10.3	8.5	9.3	10.3	10.6	10.4	13.6	16.4	20.7	18.3	14.9	16.7	14.1	15.5	14.0	20.7	
25-Dec	8.5	17.8	12.1	Z	9.3	11.8	11.4	10.7	30.1	34.1	28.2	19.6	12.5	2.4	4.9	11.2	29.3	21.6	26.0	22.9	17.3	13.0	14.5	10.8	16.5	34.1	
26-Dec	9.6	10.3	8.4	9.4	Z	8.2	9.7	11.6	10.9	7.9	10.1	7.4	11.0	10.1	17.8	23.1	25.8	20.9	22.9	11.6	13.4	9.1	5.9	6.6	12.2	25.8	
27-Dec	4.6	4.1	4.5	3.7	6.8	Z	6.1	9.3	8.1	11.1	13.3	12.6	8.4	11.6	11.5	17.1	10.9	8.2	8.0	20.6	18.5	18.4	11.3	6.0	10.2	20.6	
28-Dec	Z	22.2	27.8	22.2	25.8	26.6	26.9	22.5	18.8	9.2	11.7	12.7	16.9	15.6	8.4	21.4	18.8	22.3	12.4	7.1	26.4	17.4	5.8	7.4	17.7	27.8	
29-Dec	4.4	Z	5.9	6.9	7.0	8.5	10.5	13.3	10.1	13.2	11.3	20.6	22.0	24.7	17.0	26.8	29.4	23.6	17.1	18.7	15.0	10.0	7.5	2.4	14.2	29.4	
30-Dec	2.4	1.5	Z	1.3	0.9	1.2	1.5	1.5	1.5	1.2	1.4	1.5	1.5	1.8	2.0	2.2	2.8	2.2	2.2	2.5	2.3	2.4	1.5	1.6	1.8	2.8	
31-Dec	1.1	1.1	0.7	Z	1.9	4.1	7.6	15.3	12.2	8.4	9.0	16.6	11.3	2.0	2.4	3.0	2.5	3.1	2.5	1.8	8.3	14.0	12.3	9.1	6.5	16.6	
		10.5	10.6	10.5	9.0	9.5	10.9	13.6	15.4	14.1	14.1	13.6	14.7	16.2	15.7	17.0	20.1	19.4	18.3	16.7	15.8	14.9	11.7	10.1	Diurnal Average		
		40.1	33.3	31.1	22.2	25.8	26.6	33.6	60.4	30.9	37.3	35.8	34.7	52.6	50.6	51.5	43.8	61.2	56.3	50.9	40.4	60.1	50.2	27.4	29.2	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	572	80.91	80.91
21 - 40	117	16.55	97.45
41 - 80	18	2.55	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 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	8	6	5	10	14	147	80	17	26	53	30	20	34	27	51	44	572
21 - 40	6	0	4	5	8	23	16	7	6	2	7	10	4	6	7	6	117
11 - 80	1	0	0	0	1	5	5	1	2	0	1	1	0	0	0	1	18
81 - 159	0	0	0	0	0	0	0	0	0	0	0	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	15	6	9	15	23	175	101	25	34	55	38	31	38	33	58	51	707

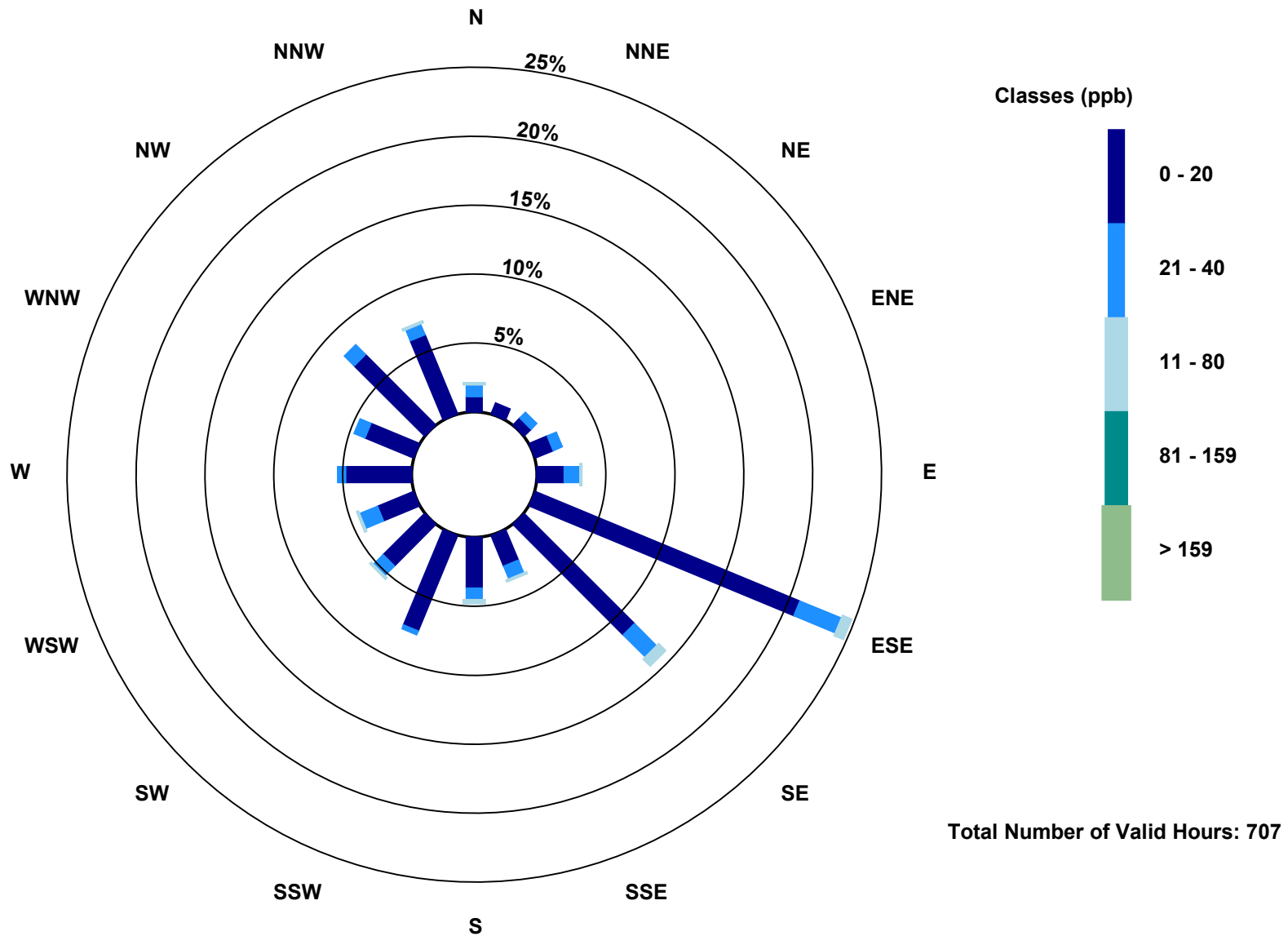
Total Number of Valid Hours: 707

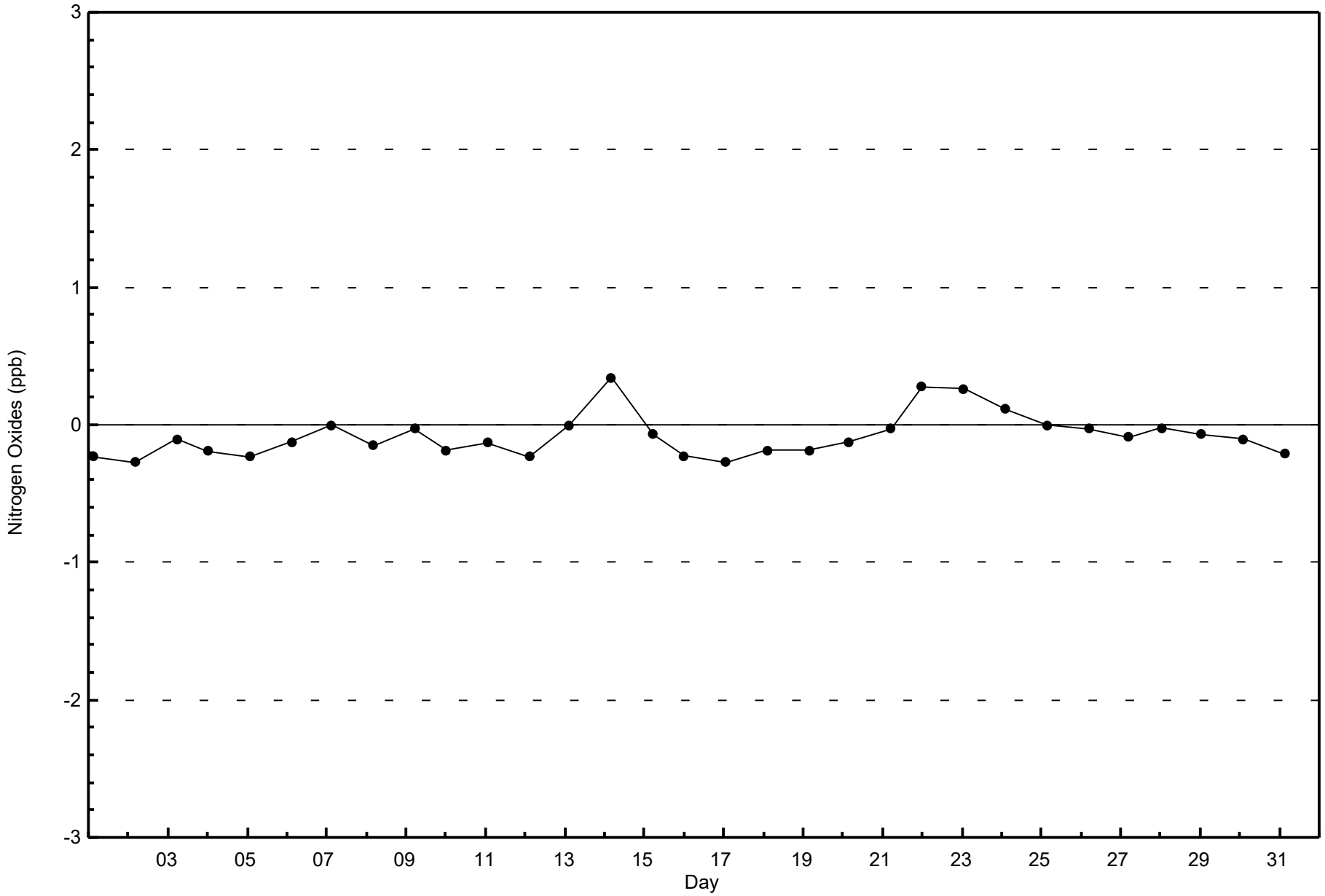
Total Number of Hours: 744

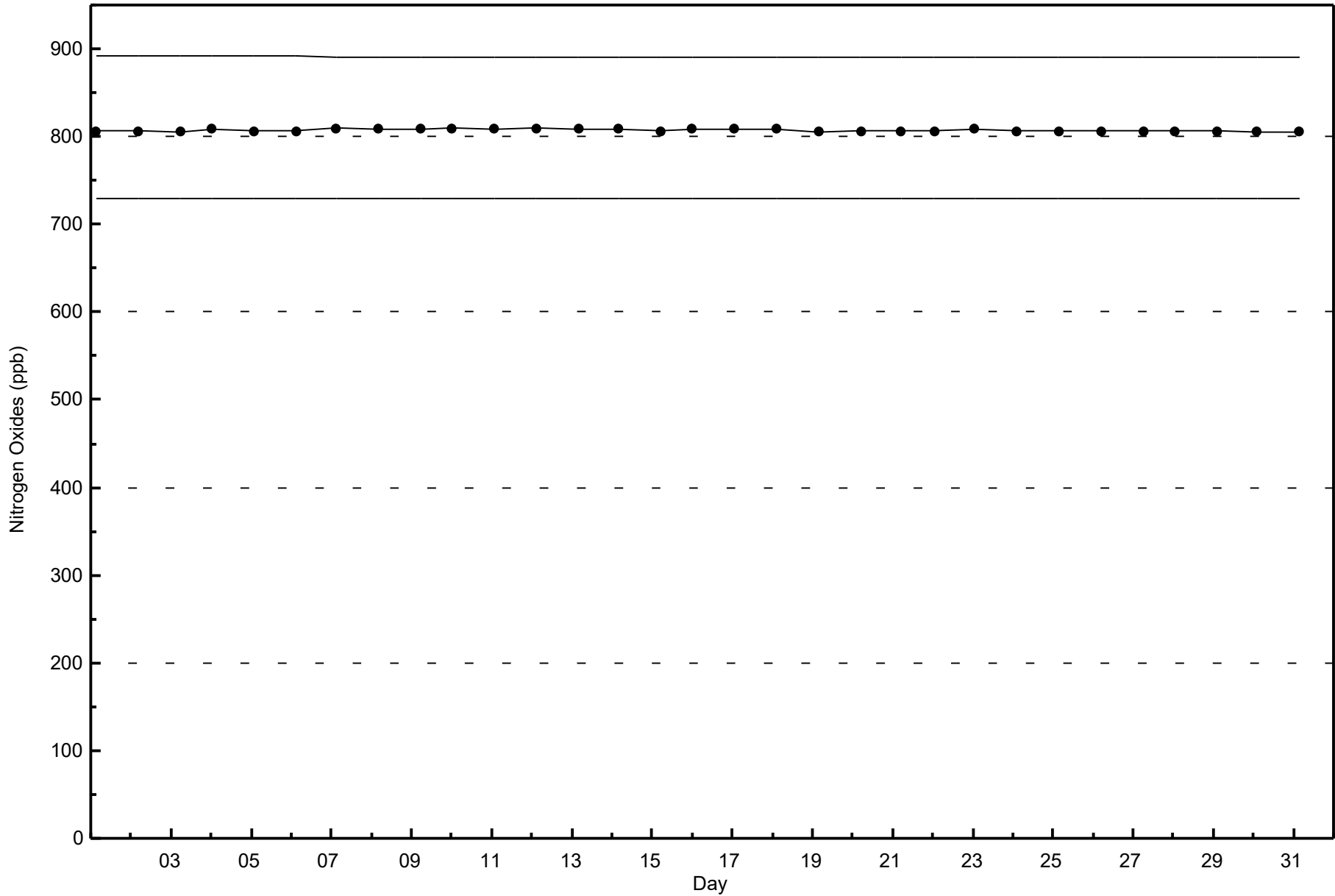


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Athabasca Valley









Wood Buffalo Environmental Association

Summary of Hour Averages

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

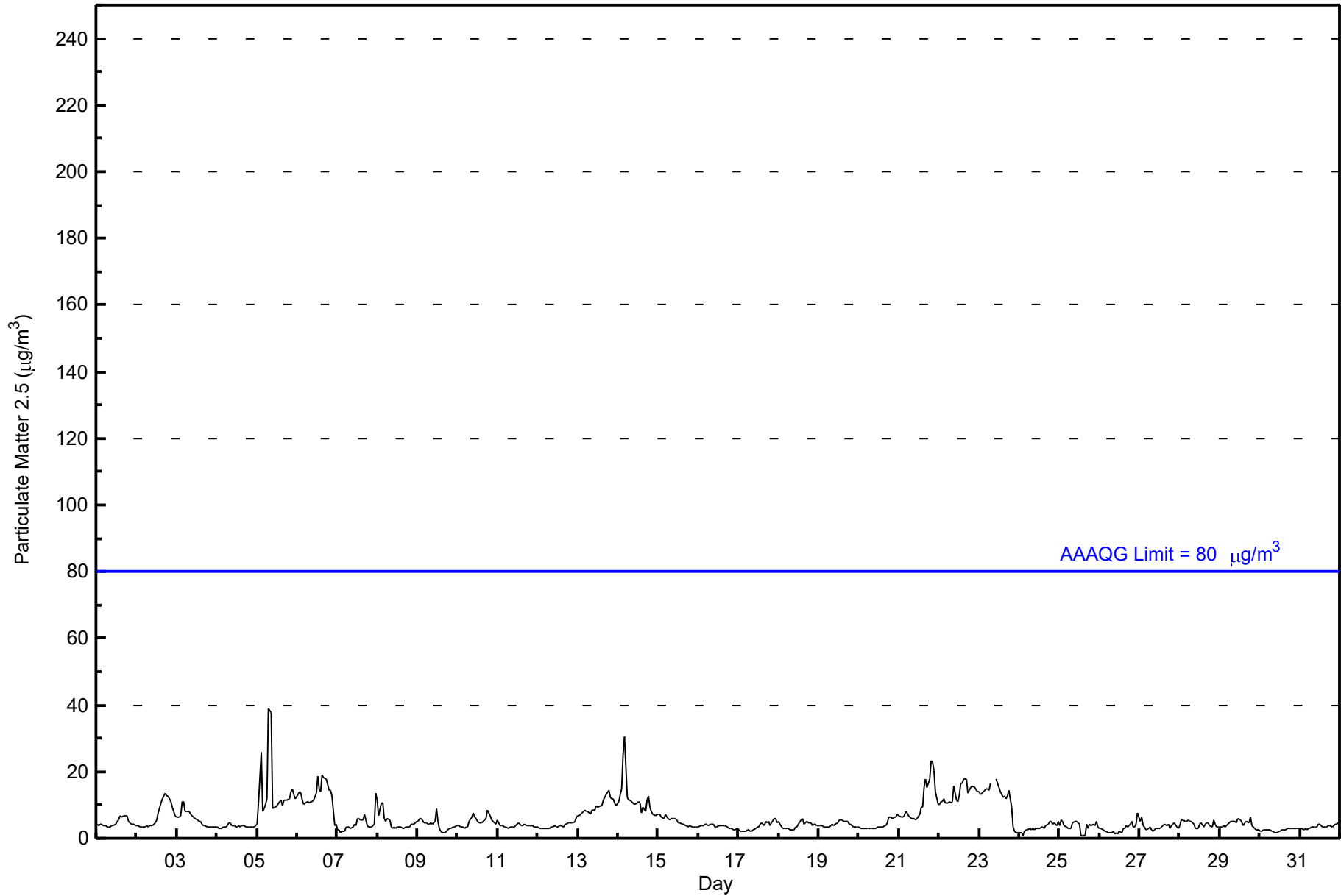
Athabasca Valley - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 39.0 µg/m ³ on Dec 5 08:00		Maximum Daily Average: 13.6 µg/m ³ on Dec 5																	Hours of Data:	742																													
Minimum Value: 0.7 µg/m ³ on Dec 25 15:00		Minimum Daily Average: 2.5 µg/m ³ on Dec 30																	Hours of Missing Data:	2																													
Maximum Diurnal Average: 6.9 µg/m ³ at hour 19		Minimum Diurnal Average: 5.0 µg/m ³ at hour 10																	Hours of Calibration:	2																													
Monthly Average: 5.89 µg/m ³		Percentiles: P ₁ = 1.5 P ₁₀ = 2.7 Q ₁ = 3.3 Median = 4.2 Q ₃ = 6.7 P ₉₀ = 11.9 P ₉₉ = 19.8																	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-Dec	4.0	3.8	4.2	4.4	4.0	3.6	3.4	3.4	3.4	3.7	3.8	4.2	5.3	5.5	6.6	6.3	6.9	6.6	6.7	5.1	4.6	4.2	4.2	3.8	4.7	6.9																							
2-Dec	3.7	3.6	3.5	3.3	3.4	3.5	3.7	3.5	3.8	3.9	4.1	4.5	5.5	7.8	10.7	11.8	12.6	13.5	12.9	12.6	10.9	9.3	7.9	7.0	7.0	13.5																							
3-Dec	6.3	6.3	6.8	11.1	10.9	7.9	8.1	8.2	7.3	6.9	6.4	5.8	5.6	5.1	5.1	4.4	3.8	3.7	3.3	3.2	3.2	3.2	3.4	3.6	5.8	11.1																							
4-Dec	3.5	3.2	3.0	3.0	3.3	3.4	3.7	4.7	4.5	4.0	3.8	3.5	3.5	3.8	3.5	3.8	3.6	3.4	3.2	3.3	3.3	3.5	3.5	3.8	3.6	4.7																							
5-Dec	4.3	10.6	26.0	8.1	8.9	10.3	11.7	39.0	37.8	8.7	9.3	9.4	9.9	11.2	11.5	9.7	11.2	11.3	11.5	11.8	13.9	15.0	13.0	11.9	13.6	39.0																							
6-Dec	13.2	13.9	13.7	11.6	10.3	10.8	10.9	10.7	10.9	10.8	11.4	13.6	18.7	15.0	14.1	19.0	18.0	17.8	16.0	14.3	14.3	12.9	3.8	4.2	12.9	19.0																							
7-Dec	2.6	2.6	1.6	2.1	2.2	3.2	3.4	3.3	3.0	3.2	4.2	4.0	5.9	6.1	5.4	5.5	7.3	5.6	3.9	3.6	3.3	4.0	4.1	13.6	4.3	13.6																							
8-Dec	11.3	6.8	10.6	10.6	5.9	5.1	5.9	5.4	3.3	2.9	3.3	2.8	3.5	3.5	3.4	3.2	3.1	3.2	3.4	3.6	4.3	4.3	4.1	4.9	4.9	11.3																							
9-Dec	5.2	5.9	5.8	5.3	4.8	4.5	4.1	4.4	4.8	4.3	5.0	8.7	5.1	2.9	2.0	1.8	1.9	2.2	2.5	2.9	2.9	3.2	3.2	3.8	4.1	8.7																							
10-Dec	3.7	3.8	3.6	3.2	3.1	3.2	3.5	4.9	6.3	7.5	6.2	5.8	5.1	4.9	4.7	5.1	5.4	6.0	8.6	6.6	5.5	5.1	4.7	4.4	5.0	8.6																							
11-Dec	5.3	3.9	3.9	3.9	3.5	3.2	3.2	3.4	3.5	3.5	3.5	3.9	4.6	4.0	3.8	3.8	4.2	3.8	4.0	3.9	3.9	3.7	3.6	3.3	3.8	5.3																							
12-Dec	3.3	3.0	3.0	2.9	3.0	3.0	3.0	3.1	3.2	3.2	3.6	3.4	3.5	3.6	3.8	3.6	4.1	4.3	4.7	4.8	4.6	4.5	5.3	6.2	3.8	6.2																							
13-Dec	6.8	6.9	7.6	7.9	8.5	8.0	8.0	7.4	8.3	8.4	8.7	9.9	9.4	9.7	9.7	11.4	12.2	13.0	14.2	12.4	11.9	11.8	10.8	9.5	9.7	14.2																							
14-Dec	10.9	13.3	14.7	24.8	30.4	12.3	11.5	11.5	11.2	10.7	10.3	10.7	11.1	10.4	7.5	9.2	8.2	11.3	12.8	9.5	7.9	7.2	6.9	7.4	11.7	30.4																							
15-Dec	7.4	7.4	6.2	6.0	7.3	6.5	6.0	5.7	5.8	6.0	6.0	5.6	4.7	4.7	4.4	4.4	3.8	3.8	3.5	3.7	3.4	3.3	3.4	3.3	5.1	7.4																							
16-Dec	3.5	3.8	3.8	3.7	4.2	4.2	4.0	4.2	4.4	4.2	3.5	3.4	3.6	3.7	3.7	3.7	3.6	3.4	3.0	2.9	2.8	2.6	2.6	2.8	3.6	4.4																							
17-Dec	2.3	2.2	2.1	2.0	2.0	2.4	2.5	2.3	2.2	2.4	2.8	3.3	3.5	4.3	4.6	3.9	5.0	4.8	4.9	4.0	4.9	6.0	5.8	4.7	3.5	6.0																							
18-Dec	5.2	4.2	2.9	2.8	2.9	2.9	2.9	2.6	2.4	2.5	3.5	3.4	4.2	5.5	5.8	4.4	4.7	4.9	4.8	4.8	3.8	4.4	4.1	3.8	3.9	5.8																							
19-Dec	4.0	3.6	3.8	3.5	3.3	3.2	3.4	4.0	4.4	3.9	4.2	4.5	5.3	5.5	5.4	5.0	5.0	4.9	4.2	4.2	3.8	3.6	3.5	3.3	4.1	5.5																							
20-Dec	3.2	3.0	3.0	3.1	3.1	3.1	3.0	2.9	2.9	3.1	3.1	3.3	3.3	3.3	3.5	3.6	3.7	4.5	6.4	6.2	6.1	6.6	6.5	7.1	4.1	7.1																							
21-Dec	6.7	6.2	6.4	6.9	8.2	7.6	6.8	6.1	6.0	6.1	5.7	5.9	7.3	9.2	9.3	15.4	17.9	15.1	17.8	23.3	23.0	20.4	14.2	10.0	10.9	23.3																							
22-Dec	10.3	10.9	11.0	11.7	10.7	10.8	10.9	10.6	10.9	15.5	11.3	10.9	13.2	16.5	16.5	17.6	18.0	13.7	14.5	15.2	15.7	15.4	14.5	14.1	13.4	18.0																							
23-Dec	13.9	13.1	13.7	14.3	15.0	14.9	14.3	16.6	C	C	17.7	16.4	15.1	14.0	12.3	12.8	11.9	12.8	14.3	9.4	3.5	2.1	1.8	1.6	11.9	17.7																							
24-Dec	1.6	1.5	0.9	2.1	2.6	2.4	2.9	2.7	2.8	2.5	2.8	3.0	2.9	3.4	3.2	3.1	3.7	4.3	5.1	5.2	4.1	4.8	3.7	4.9	3.2	5.2																							
25-Dec	4.0	5.5	5.0	3.8	3.6	3.0	2.8	2.9	4.6	4.9	5.1	4.5	4.2	0.8	0.7	1.0	4.2	2.8	4.4	3.9	4.1	3.7	5.0	3.3	3.7	5.5																							
26-Dec	2.9	3.0	2.7	2.1	2.1	1.6	1.7	1.7	2.1	1.5	1.5	1.4	1.9	1.7	2.8	3.0	3.9	3.4	4.1	4.9	3.6	3.3	4.1	7.7	2.9	7.7																							
27-Dec	5.0	6.5	3.9	3.2	2.5	2.9	3.4	2.5	2.3	2.5	3.0	2.8	2.8	3.4	3.8	4.2	3.6	4.1	3.0	3.7	4.3	4.5	3.3	2.9	3.5	6.5																							
28-Dec	3.7	5.4	5.4	5.0	5.2	5.4	5.1	4.9	4.3	3.0	3.1	3.2	4.1	4.8	3.5	4.4	4.7	4.6	3.7	3.2	5.4	4.1	3.3	3.3	4.3	5.4																							
29-Dec	3.3	3.5	3.7	3.3	3.7	4.2	4.9	4.9	4.9	5.0	4.7	5.7	5.6	4.7	3.7	4.7	5.1	4.7	6.3	3.6	3.5	3.2	2.7	2.4	4.3	6.3																							
30-Dec	2.3	2.3	2.5	2.6	2.7	2.6	2.3	2.1	2.1	1.9	1.8	2.0	2.2	2.4	2.6	2.7	2.9	3.0	3.0	3.0	2.9	2.9	2.8	2.8	2.5	3.0																							
31-Dec	2.8	2.8	2.7	2.8	2.7	2.8	3.0	3.4	3.2	3.2	3.3	4.0	4.0	3.2	3.3	3.5	3.5	3.9	3.8	3.2	3.8	4.2	4.4	4.8	3.4	4.8																							
																								5.4	5.6	6.1	5.9	5.9	5.2	5.3	6.2	5.9	5.0	5.4	5.6	5.9	6.0	5.8	6.3	6.7	6.6	6.9	6.5	6.2	6.0	5.3	5.5	Diurnal Average	
																								13.9	13.9	26.0	24.8	30.4	14.9	14.3	39.0	37.8	15.5	17.7	16.4	18.7	16.5	16.5	19.0	18.0	17.8	17.8	23.3	23.0	20.4	14.5	14.1	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
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	503	67.79	67.79
6 - 15	215	28.98	96.77
16 - 25	20	2.70	99.46
26 - 80	4	0.54	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
Athabasca Valley - December 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	12	2	3	9	12	112	70	18	23	39	37	27	36	30	34	39	503
6 - 15	3	4	6	5	12	63	32	10	11	15	2	5	2	5	26	14	215
16 - 25	1	0	0	2	2	8	1	0	1	3	0	0	0	0	1	1	20
26 - 80	0	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	4
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	16	6	9	17	26	186	103	28	35	57	39	32	38	35	61	54	742

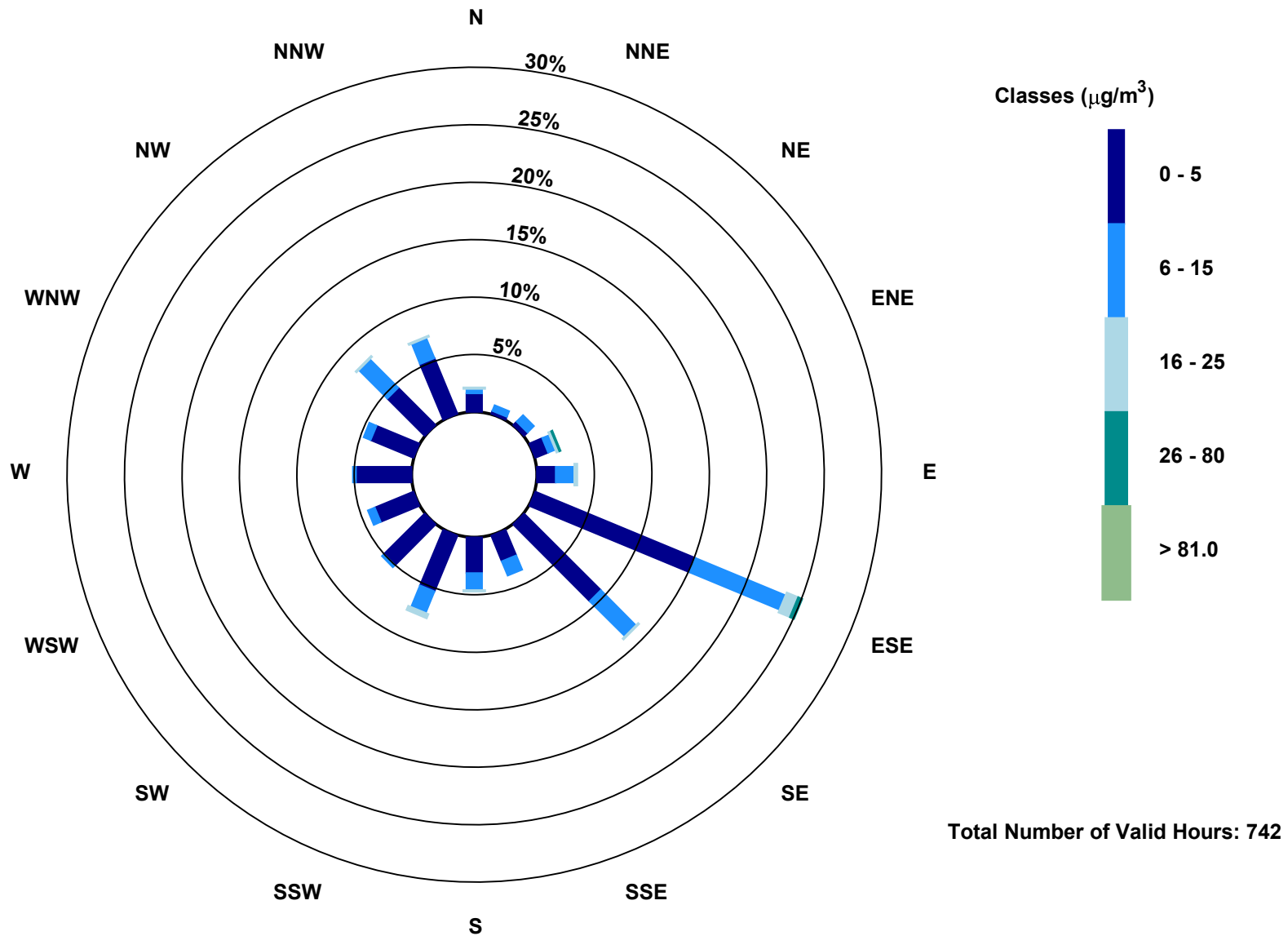
Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 742



Wood Buffalo Environmental Association

Summary of Hour Averages

Carbon Monoxide (CO) - ppm

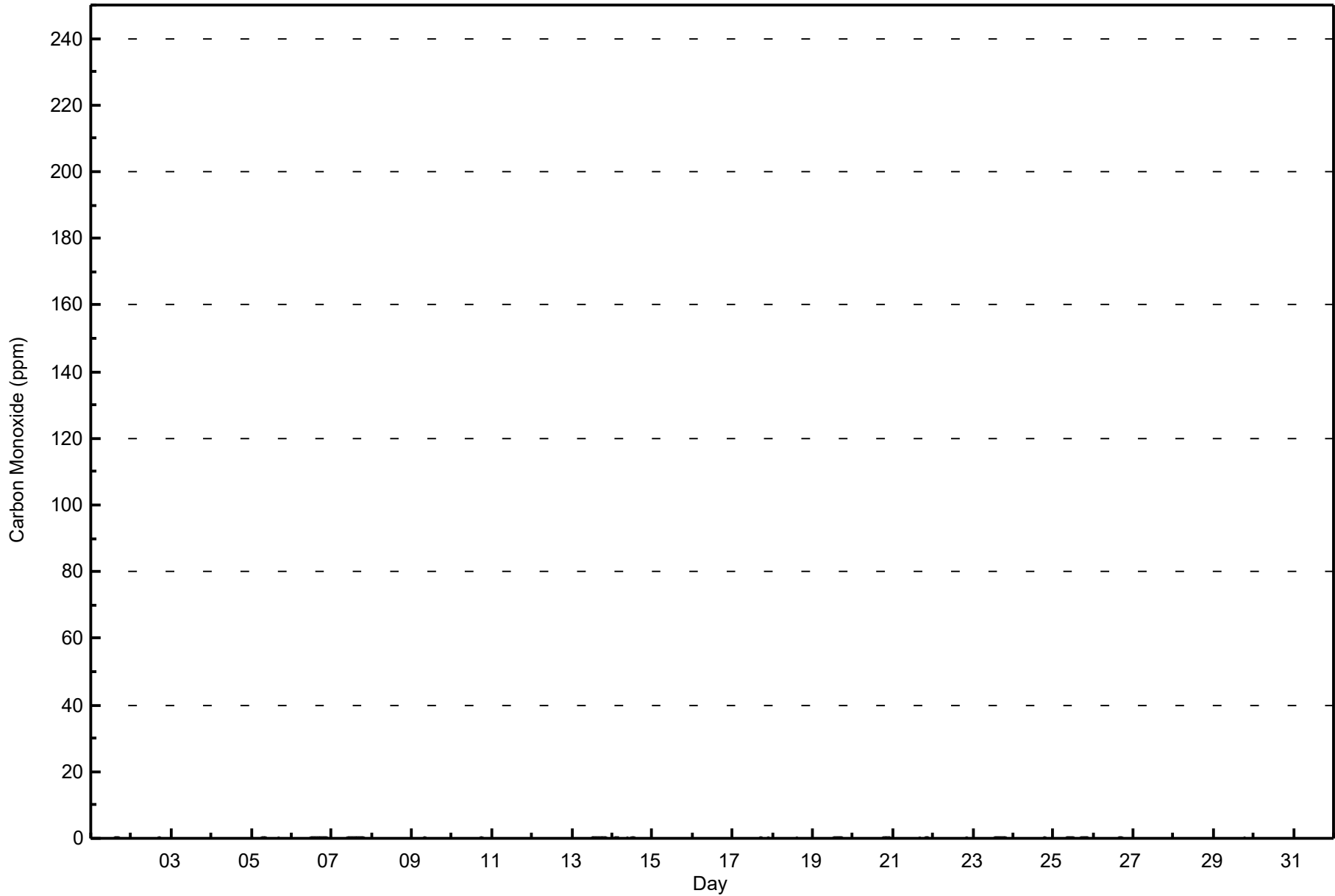
Athabasca Valley - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.6 ppm on Dec 6 18:00 Maximum Daily Average: 0.3 ppm on Dec 6		Hours in Service: 744 Hours of Data: 710 Hours of Missing Data: 34 Hours of Calibration: 34 Percent Operational Time: 100.0																									
Minimum Value: 0.1 ppm on Dec 18 03:00 Maximum Diurnal Average: 0.2 ppm at hour 17 Monthly Average: 0.17 ppm		Minimum Daily Average: 0.1 ppm on Dec 30 Minimum Diurnal Average: 0.1 ppm at hour 1 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 = 0.4																									
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-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2
2-Dec	0.1	0.1	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
3-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
4-Dec	0.1	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
5-Dec	0.1	0.2	Z	0.2	0.1	0.2	0.3	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5
6-Dec	0.2	0.2	0.2	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.6	0.6	0.6	0.5	0.4	0.5	0.5	0.2	0.2	0.2	0.2	0.6
7-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
8-Dec	0.1	0.1	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
9-Dec	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
10-Dec	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	0.2	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
11-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
12-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
13-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4
14-Dec	0.2	0.3	0.3	0.2	0.3	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3
15-Dec	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
16-Dec	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
17-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
18-Dec	0.2	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2
19-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.3
20-Dec	0.1	0.1	0.1	0.1	0.1	Z	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	0.2	0.2	0.2	0.2	0.2	0.2
21-Dec	Z	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	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-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	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-Dec	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	0.3	0.3	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.4
24-Dec	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	0.2
25-Dec	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	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3
26-Dec	0.1	0.2	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	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3
27-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2
28-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2
29-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
30-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
31-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																											



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	692	97.46	97.46
0.4 - 0.5	15	2.11	99.58
0.6 - 0.7	3	0.42	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Monoxide (CO) - ppm
Athabasca Valley - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 0.3	16	6	9	17	22	171	90	26	33	55	37	30	37	34	58	51	692
0.4 - 0.5	0	0	0	0	2	8	3	1	1	0	0	0	0	0	0	0	15
0.6 - 0.7	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3
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	16	6	9	17	25	181	93	27	34	55	37	30	37	34	58	51	710

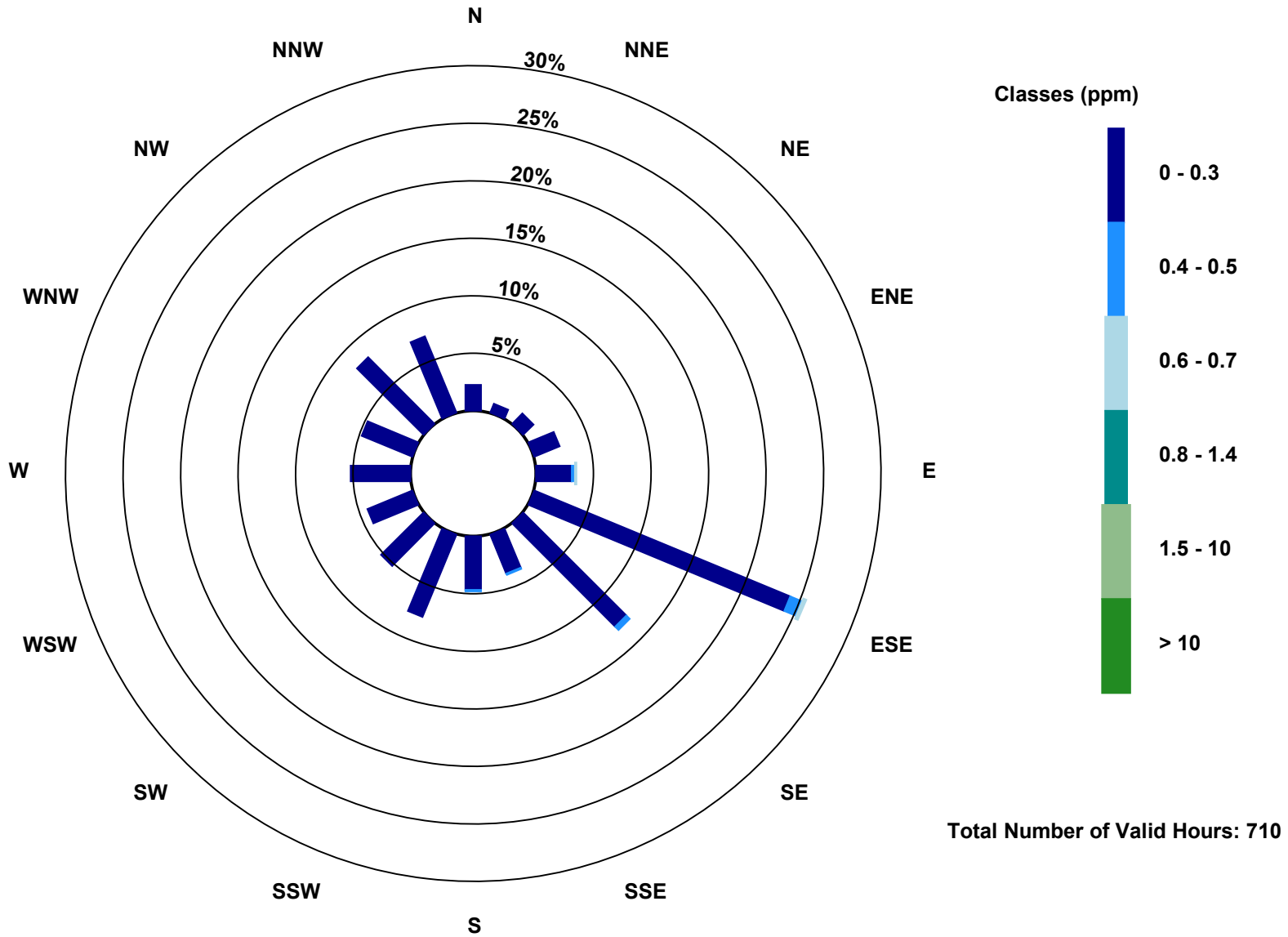
Total Number of Valid Hours: 710

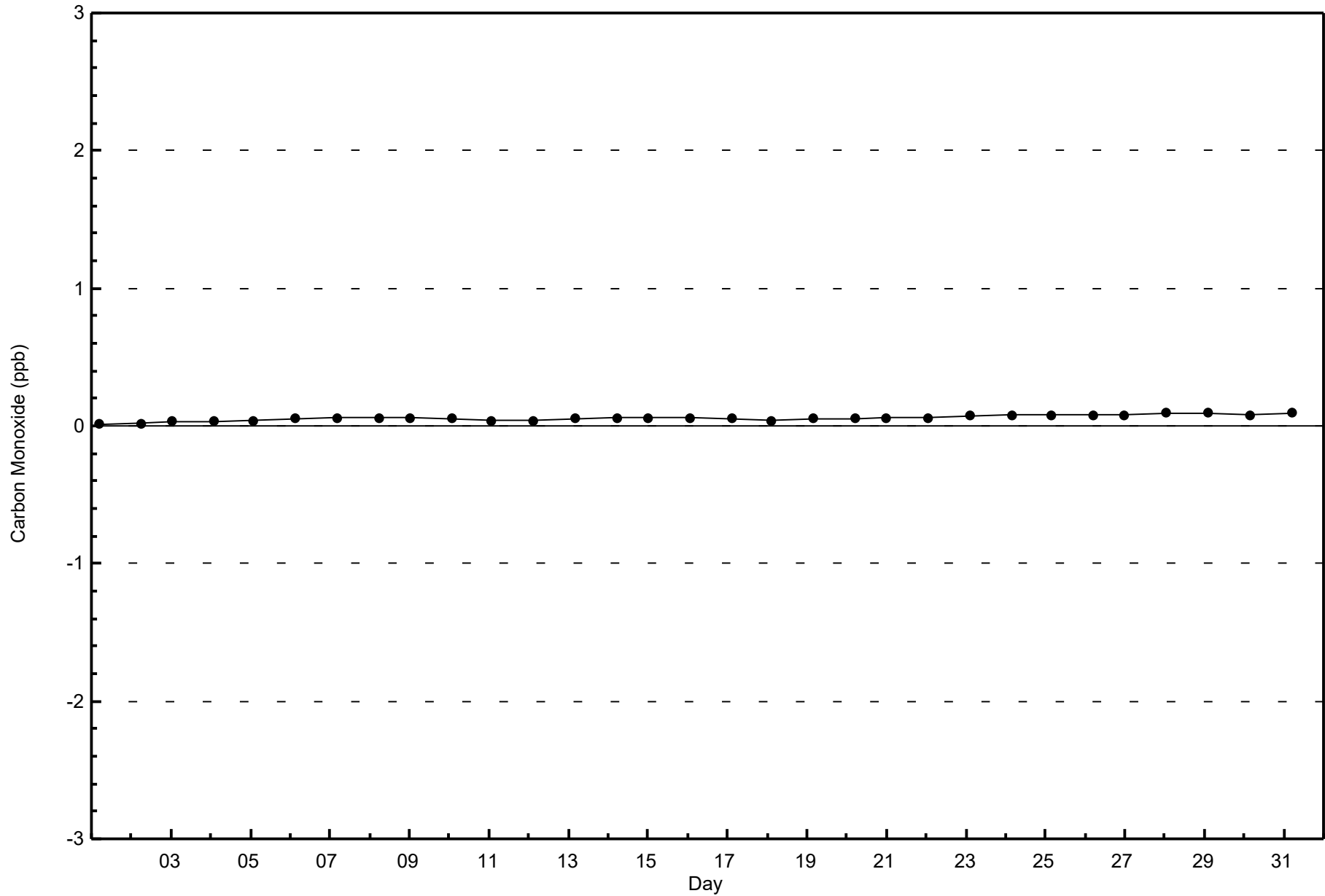
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Carbon Monoxide (CO) - ppm
Athabasca Valley

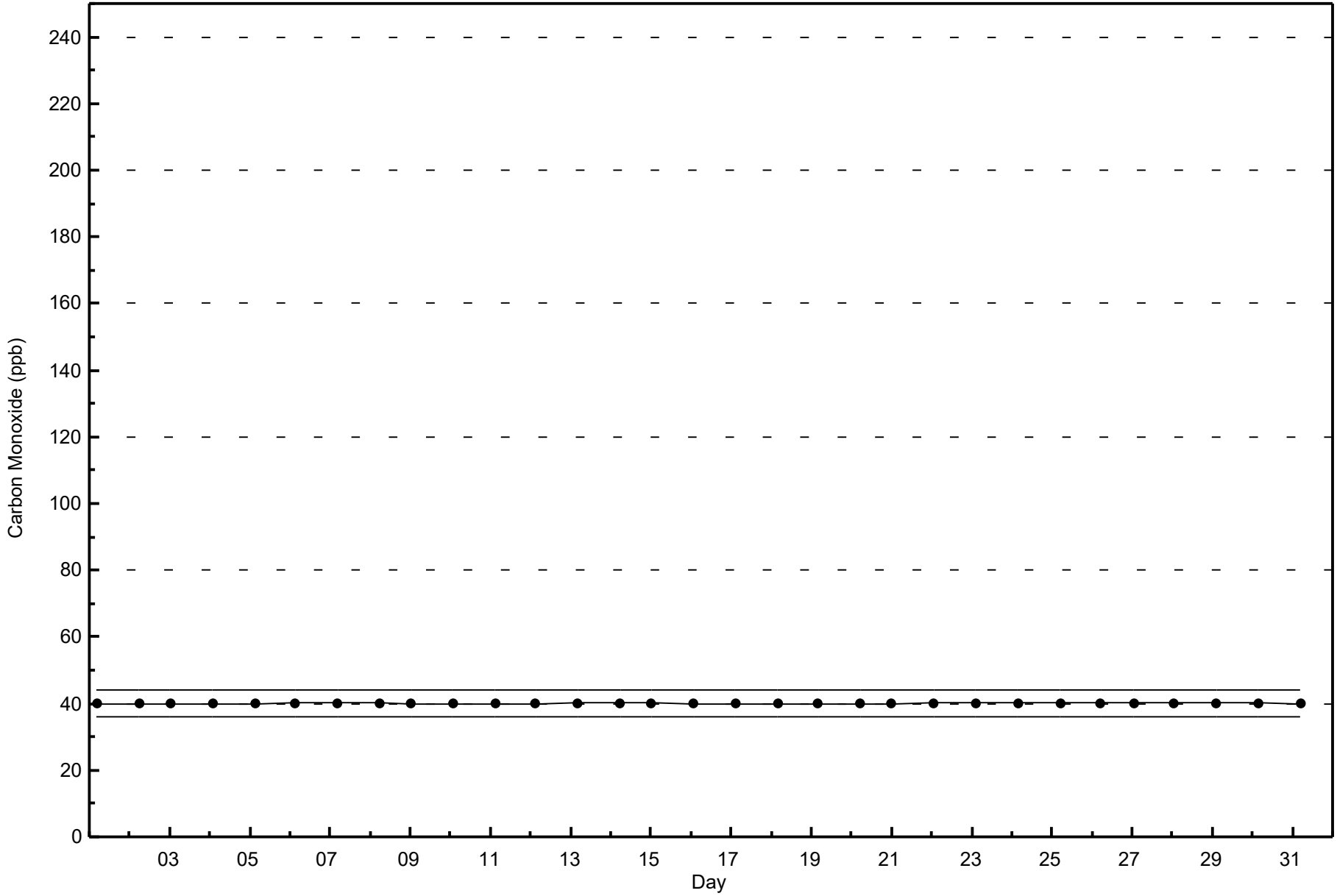






Wood Buffalo Environmental Association
Span Responses

Carbon Monoxide (CO) - ppb
Athabasca Valley - December 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

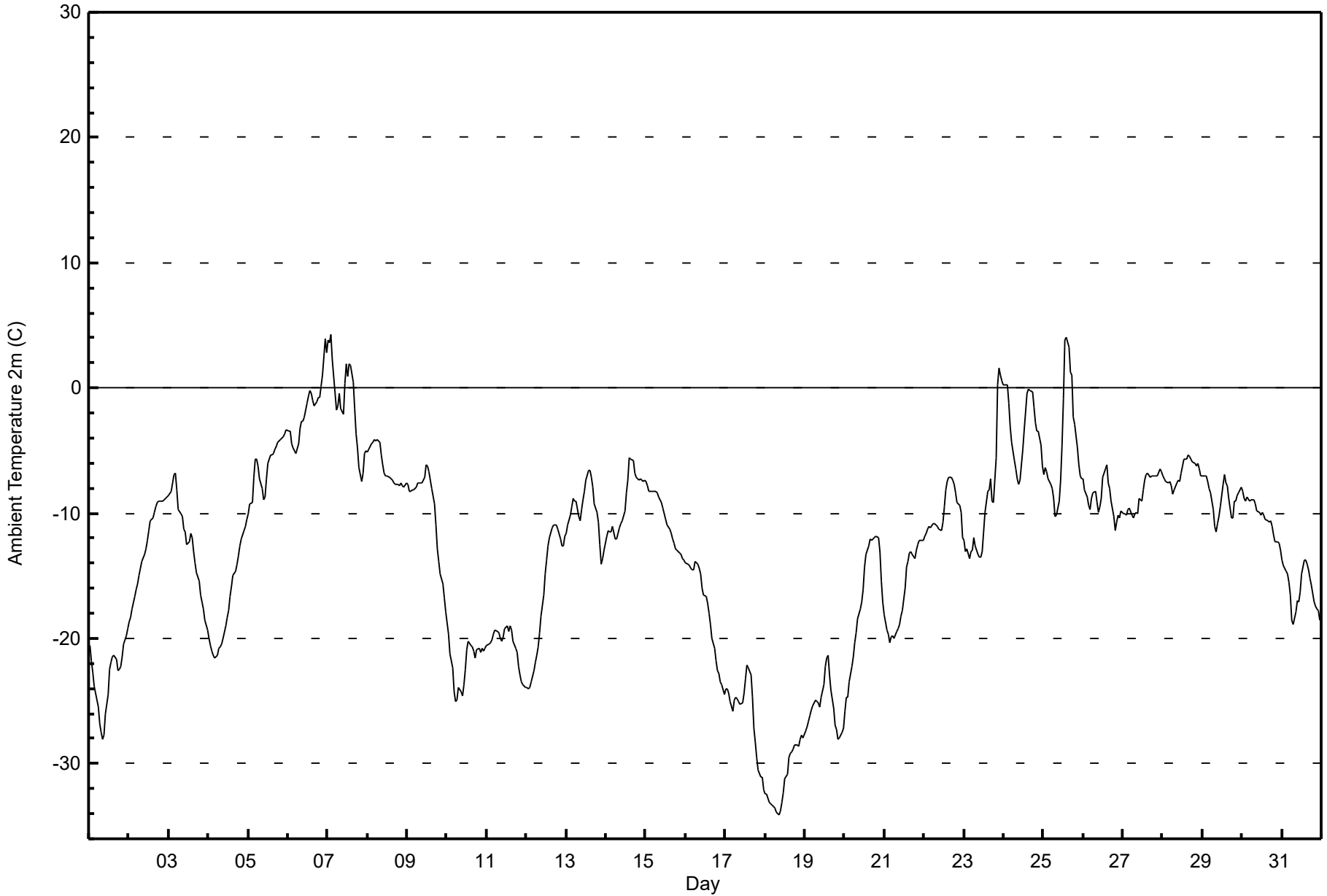
Ambient Temperature 2m (AT2) - C
Athabasca Valley - December 2024

Maximum Value: 4.2 C on Dec 7 03:00		Maximum Daily Average: -1.1 C on Dec 7		Hours in Service: 744																																												
Minimum Value: -34.1 C on Dec 18 09:00		Minimum Daily Average: -31.1 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.8 C at hour 15		Minimum Diurnal Average: -14.1 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -12.83 C		Percentiles: P ₁ = -33.1 P ₁₀ = -24.3 Q ₁ = -19.0 Median = -11.0 Q ₃ = -7.4 P ₉₀ = -4.4 P ₉₉ = 2.6		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-Dec	-20.6	-21.8	-22.7	-23.8	-24.3	-25.5	-26.8	-27.5	-28.1	-27.7	-26.0	-24.5	-22.4	-21.9	-21.5	-21.4	-21.6	-22.5	-22.5	-22.2	-21.5	-20.5	-19.8	-19.2	-23.2	-19.2																						
2-Dec	-18.7	-18.3	-17.7	-16.7	-16.1	-15.6	-15.0	-14.4	-13.8	-13.3	-12.8	-12.1	-11.4	-10.6	-10.4	-10.0	-9.5	-9.2	-9.0	-9.0	-9.1	-9.0	-8.8	-8.7	-12.5	-8.7																						
3-Dec	-8.6	-8.2	-7.6	-6.9	-6.8	-8.2	-9.7	-10.1	-10.3	-11.3	-11.5	-12.5	-12.3	-11.7	-12.0	-13.0	-13.9	-14.7	-15.5	-16.5	-17.1	-17.6	-18.5	-19.3	-12.2	-6.8																						
4-Dec	-20.0	-20.5	-21.1	-21.4	-21.6	-21.4	-20.8	-20.7	-20.5	-20.0	-18.9	-18.4	-17.8	-16.7	-15.9	-15.0	-14.6	-14.1	-13.3	-12.6	-12.0	-11.4	-11.1	-10.5	-17.1	-10.5																						
5-Dec	-10.0	-9.3	-9.2	-7.1	-5.7	-5.7	-6.3	-7.2	-8.1	-8.9	-8.7	-7.2	-6.0	-5.4	-5.4	-5.3	-4.9	-4.7	-4.4	-4.1	-4.1	-3.8	-3.7	-3.3	-6.2	-3.3																						
6-Dec	-3.4	-3.5	-4.5	-4.8	-5.0	-5.3	-4.4	-3.2	-2.7	-2.6	-2.4	-1.2	-0.6	-0.2	-0.4	-0.9	-1.4	-1.1	-0.7	-0.8	0.2	1.0	3.9	2.8	-1.7	3.9																						
7-Dec	3.9	3.6	4.2	2.2	0.5	-1.8	-1.4	-0.5	-1.6	-2.1	0.3	1.9	0.9	1.9	1.8	0.4	-1.6	-3.6	-4.8	-6.3	-7.4	-6.8	-5.2	-5.0	-1.1	4.2																						
8-Dec	-5.1	-4.9	-4.5	-4.3	-4.1	-4.2	-4.1	-4.3	-5.4	-6.1	-6.8	-7.0	-7.0	-7.2	-7.3	-7.4	-7.5	-7.7	-7.7	-7.8	-7.6	-7.8	-7.9	-7.6	-6.3	-4.1																						
9-Dec	-7.7	-8.3	-8.2	-8.1	-8.1	-8.0	-7.6	-7.5	-7.6	-7.6	-7.2	-6.1	-6.3	-6.7	-7.3	-8.1	-9.2	-11.0	-12.8	-13.9	-14.8	-15.6	-16.8	-17.9	-9.7	-6.1																						
10-Dec	-18.8	-19.6	-21.3	-22.4	-24.3	-25.1	-24.9	-24.0	-24.3	-24.6	-23.7	-22.5	-20.9	-20.2	-20.6	-20.7	-21.0	-21.5	-20.9	-20.7	-21.2	-20.8	-21.0	-20.8	-21.9	-18.8																						
11-Dec	-20.5	-20.4	-20.4	-20.1	-19.7	-19.3	-19.4	-19.5	-20.0	-20.2	-19.9	-19.3	-19.0	-19.4	-19.0	-19.3	-20.2	-20.8	-21.1	-22.2	-22.9	-23.5	-23.7	-24.0	-20.6	-19.0																						
12-Dec	-23.9	-24.0	-23.9	-23.4	-22.6	-21.9	-21.3	-20.6	-19.6	-18.2	-16.5	-14.9	-13.7	-12.6	-11.9	-11.2	-11.0	-11.0	-10.9	-11.3	-12.0	-12.7	-12.6	-11.8	-16.4	-10.9																						
13-Dec	-11.6	-10.9	-10.1	-9.5	-8.8	-9.0	-9.1	-10.3	-10.6	-9.7	-9.0	-8.2	-7.4	-6.6	-6.6	-7.2	-7.9	-9.3	-9.9	-10.7	-12.5	-14.1	-13.6	-12.9	-9.8	-6.6																						
14-Dec	-11.9	-11.4	-11.5	-11.5	-11.0	-12.1	-12.0	-11.7	-11.2	-10.8	-10.6	-9.8	-8.4	-7.3	-5.6	-5.7	-5.8	-6.8	-7.1	-7.3	-7.3	-7.2	-7.5	-7.3	-9.1	-5.6																						
15-Dec	-7.5	-7.8	-8.2	-8.2	-8.2	-8.3	-8.3	-8.4	-8.7	-9.2	-9.6	-10.0	-10.5	-11.0	-11.3	-11.6	-12.1	-12.4	-12.8	-12.9	-13.2	-13.3	-13.6	-13.8	-10.5	-7.5																						
16-Dec	-14.0	-14.1	-14.2	-14.4	-14.5	-14.5	-13.9	-14.1	-14.4	-14.8	-16.0	-16.5	-16.7	-17.2	-18.0	-18.9	-20.0	-20.8	-21.7	-22.6	-22.8	-23.5	-23.7	-24.5	-17.7	-13.9																						
17-Dec	-24.0	-24.1	-24.3	-25.0	-25.8	-24.9	-24.7	-24.8	-25.0	-25.2	-25.2	-24.3	-23.3	-22.1	-22.3	-22.9	-24.7	-27.2	-28.3	-29.5	-30.5	-31.1	-31.1	-32.0	-25.9	-22.1																						
18-Dec	-32.4	-32.5	-33.1	-33.2	-33.3	-33.5	-33.6	-33.9	-34.1	-33.7	-33.1	-32.3	-31.2	-30.9	-29.6	-29.2	-29.1	-28.8	-28.5	-28.5	-28.6	-28.0	-27.7	-27.9	-31.1	-27.7																						
19-Dec	-27.4	-27.0	-26.6	-26.2	-25.7	-25.4	-24.9	-25.0	-25.2	-25.4	-24.7	-23.7	-22.3	-21.5	-21.4	-22.9	-24.1	-25.6	-27.0	-27.3	-28.1	-28.0	-27.5	-27.1	-25.4	-21.4																						
20-Dec	-25.8	-24.7	-24.7	-23.4	-22.3	-21.4	-20.4	-19.6	-18.5	-17.7	-17.1	-16.1	-14.3	-13.3	-12.6	-12.0	-12.2	-12.1	-11.9	-11.8	-12.0	-13.0	-15.4	-17.1	-17.1	-11.8																						
21-Dec	-18.1	-19.4	-19.7	-20.3	-19.9	-19.8	-19.9	-19.5	-19.3	-18.9	-18.2	-17.8	-16.0	-14.3	-13.8	-13.2	-13.1	-13.3	-13.6	-13.0	-12.5	-12.2	-12.2	-12.2	-16.3	-12.2																						
22-Dec	-11.9	-11.6	-11.2	-11.1	-11.1	-10.8	-10.8	-10.9	-11.1	-11.3	-11.4	-10.7	-9.5	-8.1	-7.4	-7.2	-7.2	-7.3	-7.7	-8.4	-9.1	-9.4	-9.9	-12.0	-9.9	-7.2																						
23-Dec	-12.2	-13.1	-12.9	-13.6	-13.1	-13.0	-11.9	-12.6	-13.3	-13.5	-13.5	-13.0	-11.5	-9.9	-8.3	-8.2	-7.2	-9.1	-9.1	-5.6	0.3	1.6	1.0	0.5	-9.2	1.6																						
24-Dec	0.3	0.2	0.3	-1.3	-3.1	-4.4	-5.8	-6.4	-7.2	-7.7	-7.4	-4.9	-3.3	-1.9	-0.5	-0.1	-0.2	-0.4	-1.6	-2.8	-3.5	-3.5	-4.6	-6.2	-3.2	0.3																						
25-Dec	-6.9	-6.3	-6.7	-7.3	-7.7	-8.0	-8.8	-10.2	-10.2	-9.0	-7.3	-4.5	-0.8	3.8	4.1	3.3	1.2	1.0	-2.3	-2.9	-4.8	-6.1	-7.0	-7.2	-4.6	4.1																						
26-Dec	-7.3	-8.1	-8.7	-9.4	-9.7	-8.8	-8.3	-8.3	-9.1	-10.0	-9.5	-8.8	-7.1	-6.5	-6.2	-7.6	-8.0	-9.1	-10.2	-11.4	-10.7	-10.1	-10.4	-9.8	-8.9	-6.2																						
27-Dec	-10.0	-10.0	-10.1	-9.7	-9.6	-10.1	-10.4	-10.0	-9.9	-10.1	-8.8	-9.1	-8.2	-7.3	-6.9	-6.8	-7.2	-7.0	-7.0	-7.1	-7.0	-7.0	-6.5	-6.7	-8.4	-6.5																						
28-Dec	-7.0	-7.3	-7.5	-7.6	-7.4	-7.8	-8.4	-8.1	-7.6	-7.4	-7.4	-6.8	-6.2	-5.6	-5.6	-5.4	-5.5	-5.7	-5.9	-6.0	-6.2	-6.0	-6.5	-7.0	-6.8	-5.4																						
29-Dec	-7.1	-7.0	-7.1	-7.4	-8.0	-8.3	-9.8	-11.0	-11.5	-10.9	-10.3	-9.4	-7.7	-7.0	-7.6	-7.8	-8.8	-10.4	-10.4	-9.1	-9.1	-8.6	-8.3	-7.9	-8.8	-7.0																						
30-Dec	-8.2	-8.8	-9.0	-8.8	-9.0	-8.9	-8.9	-8.9	-9.3	-9.8	-10.0	-10.1	-10.0	-10.2	-10.5	-10.6	-10.7	-10.6	-11.1	-11.7	-12.3	-12.3	-12.4	-13.0	-10.2	-8.2																						
31-Dec	-13.7	-14.2	-14.7	-14.9	-15.5	-16.6	-18.5	-18.8	-17.9	-17.0	-17.1	-16.3	-14.9	-13.8	-13.8	-14.1	-14.6	-15.2	-15.8	-17.1	-17.4	-17.7	-17.8	-18.5	-16.1	-13.7																						
																								-13.2	-13.3	-13.4	-13.5	-13.6	-13.8	-13.9	-13.9	-14.1	-14.0	-13.6	-12.8	-11.8	-11.0	-10.8	-11.0	-11.4	-12.0	-12.4	-12.7	-12.8	-12.9	-12.9	-13.2	Diurnal Average
																								3.9	3.6	4.2	2.2	0.5	-1.8	-1.4	-0.5	-1.6	-2.1	0.3	1.9	0.9	3.8	4.1	3.3	1.2	1.0	-0.7	-0.8	0.3	1.6	3.9	2.8	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Athabasca Valley - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Athabasca Valley - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	161	21.64	21.64
-20 - 0	557	74.87	96.51
0 - 10	26	3.49	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

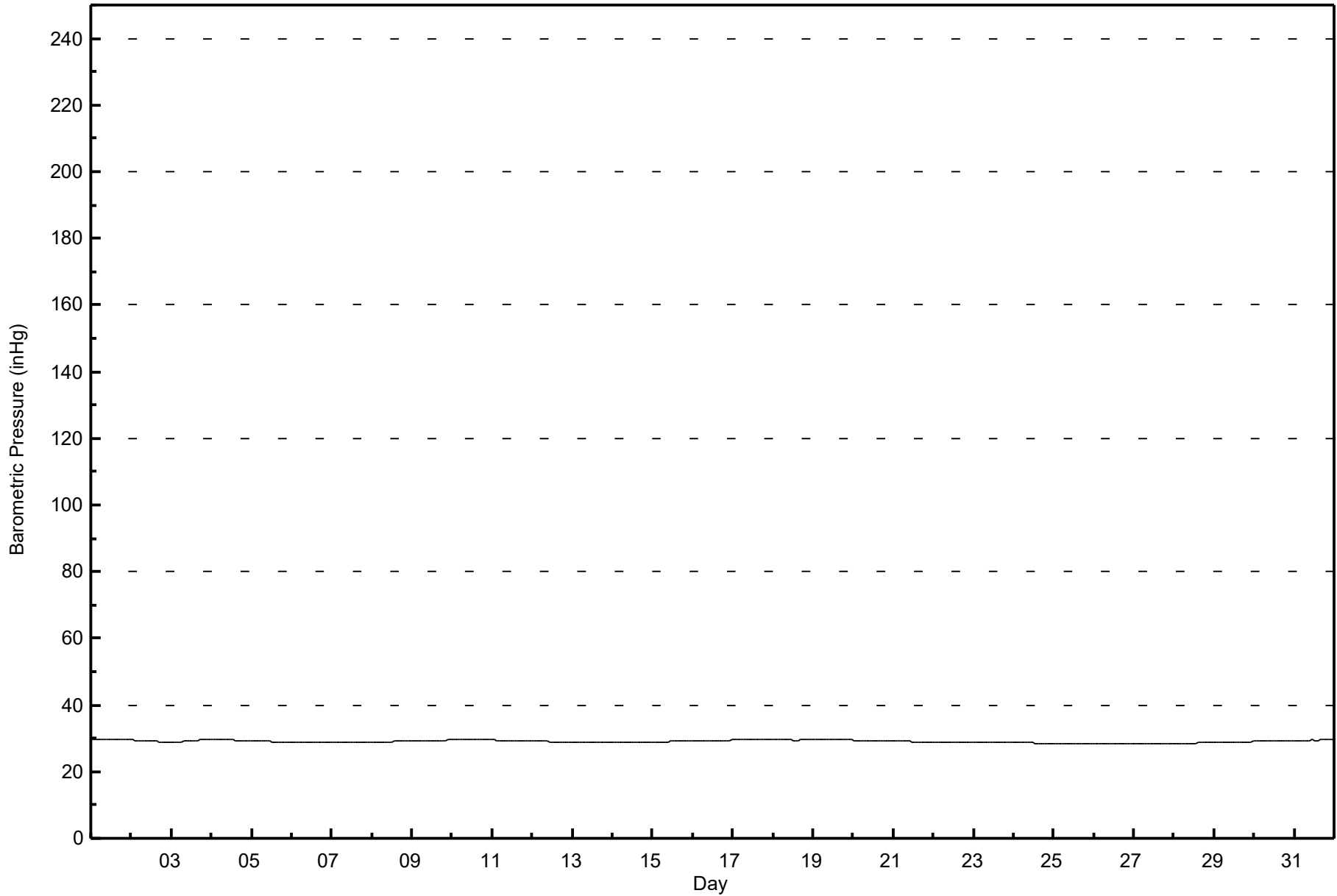
Barometric Pressure (BP) - inHg
Athabasca Valley - December 2024

Maximum Value: 29.8 inHg on Dec 1 11:00 Maximum Daily Average: 29.7 inHg on Dec 1																						Hours in Service:	744			
Minimum Value: 28.4 inHg on Dec 24 20:00 Minimum Daily Average: 28.5 inHg on Dec 26																						Hours of Data:	744			
Maximum Diurnal Average: 29.1 inHg at hour 11 Minimum Diurnal Average: 29.1 inHg at hour 22																						Hours of Missing Data:	0			
Monthly Average: 29.07 inHg Percentiles: P ₁ = 28.5 P ₁₀ = 28.6 Q ₁ = 28.7 Median = 29.0 Q ₃ = 29.4 P ₉₀ = 29.6 P ₉₉ = 29.7																						Hours of Calibration:	0			
																						Percent Operational Time:	100.0			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	29.6	29.6	29.7	29.7	29.7	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.5	29.7	29.8
2-Dec	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.8	28.8	28.8	29.1	29.5
3-Dec	28.8	28.8	28.8	28.8	28.9	29.0	29.0	29.1	29.1	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.2	29.6
4-Dec	29.6	29.7	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.5	29.7
5-Dec	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	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.1
6-Dec	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.9
7-Dec	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	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7
8-Dec	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.0	29.2
9-Dec	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	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.3	29.5
10-Dec	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	29.5	29.6	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6
11-Dec	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.5
12-Dec	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.7	29.0	29.3
13-Dec	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.8	28.9
14-Dec	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.8	28.8	28.8	28.9
15-Dec	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.1	29.3
16-Dec	29.3	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.3	29.5	
17-Dec	29.5	29.5	29.5	29.5	29.5	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	29.6	29.7	
18-Dec	29.7	29.6	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	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.7
19-Dec	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	29.5	29.6	29.6
20-Dec	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.2	29.4	
21-Dec	29.0	29.0	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	28.9	28.9	28.9	28.9	29.0	29.1	
22-Dec	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.9	29.0
23-Dec	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8
24-Dec	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.4	28.4	28.4	28.4	28.4	28.4	28.6	28.8
25-Dec	28.4	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5
26-Dec	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.5	28.6
27-Dec	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6
28-Dec	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.6	28.7
29-Dec	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	28.9	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	28.9	29.0
30-Dec	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.4
31-Dec	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.5
29.1																						Diurnal Average				
29.7																						Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Summary of Hour Averages

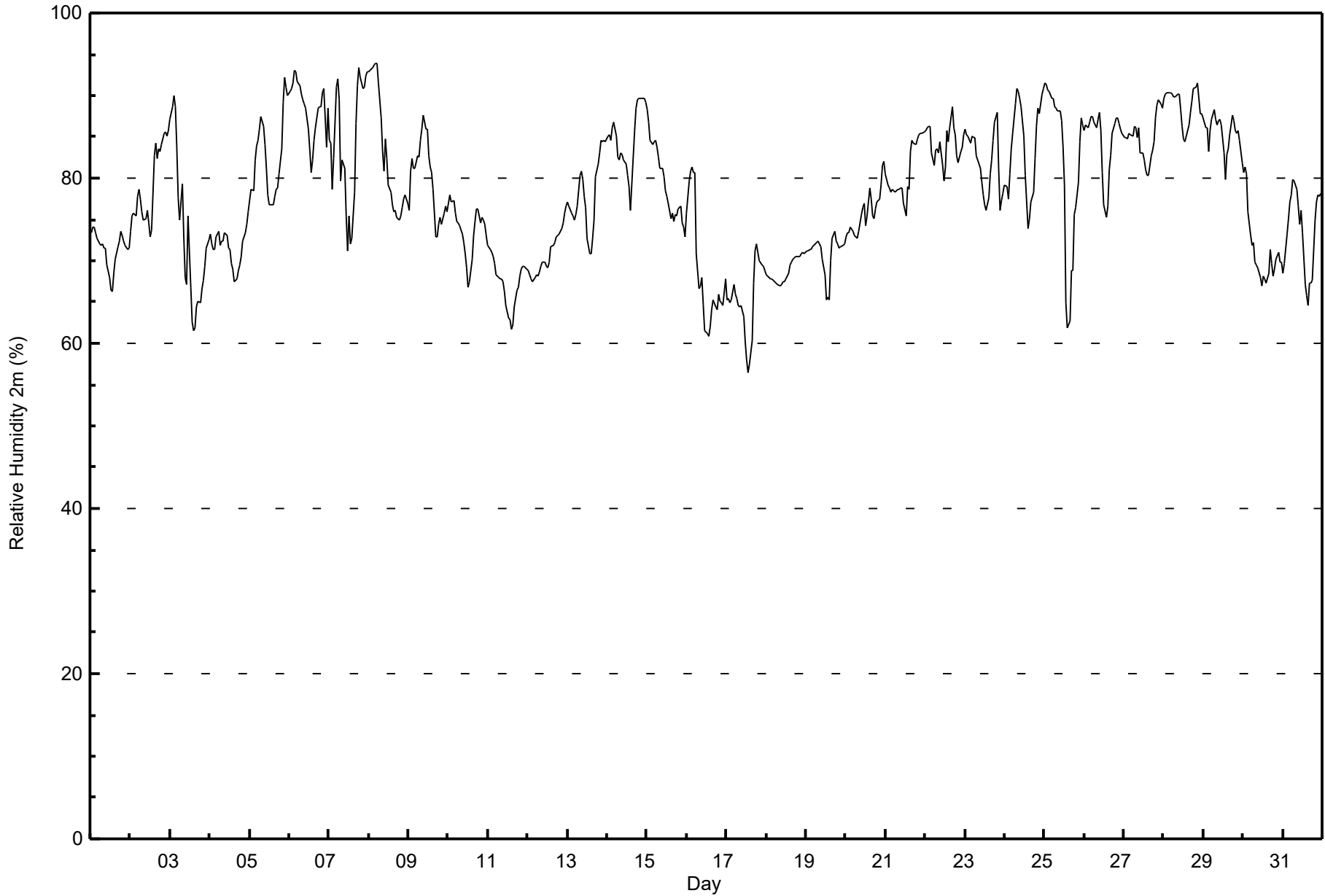
Relative Humidity 2m (RH2) - %
Athabasca Valley - December 2024

Maximum Value: 93.9 % on Dec 8 06:00		Maximum Daily Average: 88.9 % on Dec 28		Hours in Service: 744																							
Minimum Value: 56.5 % on Dec 17 14:00		Minimum Daily Average: 65.3 % on Dec 17		Hours of Data: 744																							
Maximum Diurnal Average: 80.3 % at hour 5		Minimum Diurnal Average: 72.7 % at hour 14		Hours of Missing Data: 0																							
Monthly Average: 77.97 %		Percentiles: P ₁ = 61.5 P ₁₀ = 67.5 Q ₁ = 71.6 Median = 77.7 Q ₃ = 85.0 P ₉₀ = 88.6 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-Dec	73.5	74.0	74.0	73.3	72.8	72.1	71.9	72.1	71.6	71.4	69.4	68.0	66.5	66.2	68.5	70.1	71.6	72.4	73.5	73.0	72.3	71.9	71.4	71.5	71.4	74.0	
2-Dec	73.5	75.4	75.7	75.5	77.8	78.7	77.4	75.9	74.9	75.2	76.0	74.6	72.9	73.8	82.7	84.3	82.4	83.5	83.3	84.1	85.4	85.6	85.1	85.7	79.1	85.7	
3-Dec	87.1	88.6	90.0	88.6	83.7	77.6	74.9	79.2	72.9	67.9	67.1	75.5	66.8	62.5	61.5	61.9	64.4	65.0	66.5	67.7	69.4	71.6	72.6	71.6	90.0		
4-Dec	73.3	72.1	71.4	71.4	72.8	73.6	71.9	72.3	72.4	73.4	73.1	71.6	71.4	69.7	69.0	67.5	67.9	68.8	69.5	70.5	72.3	73.4	74.4	75.9	71.6	75.9	
5-Dec	77.3	78.6	78.5	82.3	83.9	84.5	86.0	87.5	86.2	84.1	81.2	77.9	76.7	76.7	77.8	78.6	78.8	80.5	83.5	89.2	92.2	91.0	89.9	82.5	92.2		
6-Dec	90.6	90.8	91.6	93.1	92.9	91.7	91.1	90.2	89.5	88.9	88.4	85.9	83.4	80.6	82.2	84.5	86.1	88.4	88.6	88.7	90.3	90.8	83.7	88.4	88.4	93.1	
7-Dec	84.6	84.2	78.6	82.4	91.0	92.1	89.5	79.6	82.3	81.3	75.4	71.3	75.3	72.1	72.7	78.3	86.6	91.2	93.5	92.2	90.8	91.0	92.4	92.9	84.2	93.5	
8-Dec	92.9	93.0	93.4	93.7	93.9	93.9	91.6	87.3	83.2	80.9	84.7	82.4	79.2	78.2	76.8	75.9	76.0	75.2	75.0	75.5	76.4	77.5	77.9	76.9	83.0	93.9	
9-Dec	76.1	80.8	82.3	81.3	81.1	82.7	82.5	84.6	86.0	87.7	85.9	86.0	82.8	81.3	80.6	78.7	72.9	72.9	74.3	75.3	74.5	75.7	76.7	76.0	79.9	87.7	
10-Dec	76.9	77.9	77.2	77.3	75.7	74.7	74.6	74.3	73.3	72.2	70.8	69.2	66.7	67.4	70.2	73.1	74.7	76.3	76.2	74.6	75.3	74.9	74.4	73.1	73.8	77.9	
11-Dec	71.9	71.3	71.0	70.5	69.6	68.3	67.9	67.7	67.9	67.4	66.3	64.7	63.0	62.8	61.8	62.2	64.4	66.4	66.7	68.1	69.0	69.4	69.4	69.0	67.4	71.9	
12-Dec	68.8	68.3	67.8	67.5	67.9	68.3	68.2	68.7	69.2	69.8	69.9	69.3	69.2	69.8	71.6	71.8	72.2	72.8	73.1	73.3	73.8	74.6	75.7	76.6	70.8	76.6	
13-Dec	77.1	76.7	75.8	75.5	74.9	75.6	76.6	80.3	80.9	79.9	77.7	76.5	72.8	70.8	70.8	72.8	74.9	80.2	81.8	83.1	84.7	84.4	84.6	84.4	78.0	84.7	
14-Dec	85.2	85.3	84.6	86.1	86.7	85.1	82.6	82.1	83.0	82.9	82.2	81.7	80.3	79.0	76.2	79.3	85.8	88.5	89.4	89.6	89.7	89.7	89.7	89.1	84.7	89.7	
15-Dec	88.3	86.8	84.6	84.0	84.4	84.6	83.7	82.6	81.2	81.2	80.2	78.6	77.9	77.0	75.0	75.8	74.8	75.6	75.4	76.3	76.6	74.6	74.0	72.9	79.4	88.3	
16-Dec	75.8	79.6	80.8	81.3	80.6	80.7	70.8	66.5	67.0	67.9	64.8	61.6	61.1	60.8	62.1	64.0	65.3	64.4	64.0	66.0	65.1	64.9	64.5	67.8	68.6	81.3	
17-Dec	65.2	65.4	65.0	65.2	67.1	65.9	65.4	64.6	64.4	64.5	63.2	60.1	58.0	56.5	57.5	60.4	67.2	71.1	72.1	70.9	70.1	69.5	69.4	68.8	65.3	72.1	
18-Dec	68.3	68.2	67.8	67.7	67.6	67.4	67.4	67.1	67.0	67.1	67.4	67.5	67.9	68.4	69.4	69.8	70.1	70.3	70.5	70.5	70.5	70.9	71.0	70.8	68.8	71.0	
19-Dec	71.2	71.3	71.4	71.4	71.6	71.9	72.3	72.4	72.0	71.7	70.1	68.2	65.2	65.5	65.3	70.1	72.7	73.5	72.5	72.1	71.5	71.6	71.9	72.0	70.8	73.5	
20-Dec	72.8	73.3	73.4	74.1	73.6	73.1	73.0	72.8	73.6	75.6	76.4	77.0	74.3	75.4	78.8	77.5	75.5	75.2	76.4	77.1	77.5	79.1	81.4	82.1	75.8	82.1	
21-Dec	80.4	79.2	78.8	78.3	78.6	78.5	78.3	78.6	78.7	78.9	78.7	77.0	75.4	78.9	78.7	83.2	84.5	84.3	84.2	84.7	85.2	85.4	85.4	85.6	80.8	85.6	
22-Dec	85.8	86.2	86.3	86.3	83.0	81.5	83.3	83.5	83.1	84.4	81.5	79.7	81.4	85.7	84.3	86.1	88.7	86.1	85.2	82.8	81.8	83.3	83.7	85.3	84.1	88.7	
23-Dec	86.0	85.2	85.0	84.2	85.1	85.0	84.9	82.8	81.7	81.2	79.5	77.9	76.8	76.1	77.6	80.5	82.2	84.6	86.8	87.9	81.1	76.1	77.2	78.2	81.8	87.9	
24-Dec	79.1	79.0	77.4	80.4	83.5	85.4	88.9	90.9	90.5	89.6	88.6	85.1	80.4	77.1	74.0	75.0	77.2	78.2	82.3	86.3	88.4	87.7	90.2	90.8	83.6	90.9	
25-Dec	91.5	91.3	90.7	90.6	89.6	89.6	88.7	88.5	88.2	88.2	86.9	83.8	80.4	79.1	64.9	61.9	62.7	68.8	68.8	75.5	76.5	79.5	84.4	87.4	81.8	91.5	
26-Dec	85.7	86.5	86.1	86.8	87.5	87.5	86.8	86.0	87.1	88.0	85.7	80.6	76.8	75.2	76.7	81.0	82.6	85.4	86.6	87.4	87.3	86.6	86.0	85.4	84.6	88.0	
27-Dec	84.9	85.0	84.8	85.4	85.2	85.2	86.3	86.1	84.9	86.2	83.1	83.0	82.2	81.0	80.4	80.4	82.7	83.4	84.4	87.3	88.8	89.4	88.9	88.5	84.9	89.4	
28-Dec	89.7	90.2	90.4	90.3	90.3	90.2	89.8	89.8	90.2	90.1	88.3	86.3	84.7	84.4	85.8	86.4	87.9	89.3	90.8	91.1	91.5	89.6	87.8	87.7	88.9	91.5	
29-Dec	87.2	86.0	86.1	83.1	85.7	87.2	88.4	87.1	86.5	86.9	87.2	86.5	83.1	79.9	82.8	83.6	85.3	87.6	87.0	85.8	85.4	85.8	84.7	81.8	85.4	88.4	
30-Dec	80.7	81.4	80.6	75.8	73.1	71.9	72.1	69.9	69.5	69.1	67.9	67.0	68.1	67.8	67.3	68.5	71.3	69.6	68.2	68.9	70.1	70.9	69.9	69.8	71.2	81.4	
31-Dec	68.4	69.7	73.2	75.1	77.1	77.9	79.8	79.7	78.6	76.6	74.4	76.2	73.4	67.1	65.7	64.6	67.4	67.3	67.6	75.0	77.1	78.0	77.8	78.2	73.6	79.8	
		79.7	80.0	79.8	79.9	80.3	80.1	79.6	79.1	78.6	78.4	77.2	75.8	74.0	72.7	73.1	74.4	76.2	77.3	78.0	78.9	79.3	79.6	79.6	79.8	Diurnal Average	
		92.9	93.0	93.4	93.7	93.9	93.9	91.6	90.9	90.5	90.1	88.6	86.5	84.7	85.7	85.8	86.4	88.7	91.2	93.5	92.2	91.5	92.2	92.4	92.9	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Athabasca Valley - December 2024





Maximum Speed: 27 km/h on Dec 3 10:00	Maximum Daily Speed Average: 15.0 km/h on Dec 30	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 29 07:00	Minimum Daily Speed Average: 0.8 km/h on Dec 1	Hours of Data: 744
Maximum Diurnal Speed Average: 2.3 km/h at hour 7	Minimum Diurnal Speed Average: 0.5 km/h at hour 14	Hours of Missing Data: 0
Monthly Average Velocity: 1.5 km/h 150.5 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 3 Median = 7 Q ₃ = 11 P ₉₀ = 14 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-Dec	NNW8	WNW6	NW5	WNW3	WSW4	SW6	SW3	WSW3	WSW4	ESE1	SW2	SW3	W2	WNW2	NE2	E4	ESE5	ENE5	ENE5	ESE5	E5	ESE8	SE8	ESE10	SE0.8	ESE10
2-Dec	ESE12	ESE11	ESE11	ESE11	ESE11	ESE11	ESE10	ESE11	ESE10	ESE10	ESE11	ESE10	ESE11	ESE12	ESE13	ESE12	ESE10	SE5	ESE9	SE10	SE9	SE9	SE9	ESE10	ESE10.2	ESE13
3-Dec	SE10	E5	NW7	NW13	NW18	NNW19	NNW14	NNW13	WNW24	WNW27	WNW23	NNW16	NW16	WNW20	WNW22	WNW23	W19	W19	WNW15	NNW10	NW11	NW9	W5	SW7	NW12.9	WNW27
4-Dec	SW8	SW7	SSW9	SSW12	S5	SE4	SE6	SE6	ESE8	ESE7	ESE10	SE10	SE10	SE8	ESE12	ESE15	ESE18	ESE17	ESE20	ESE19	ESE16	ESE14	ESE15	ESE12	SE9.2	ESE20
5-Dec	ESE10	ESE7	ESE8	SW3	WSW8	ESE2	ESE3	ESE7	ESE11	ESE13	ESE13	ESE13	ESE12	ESE12	ESE13	ESE12	ESE12	ESE11	ESE10	ESE11	ESE8	ESE6	ESE9	SE10	ESE8.6	ESE13
6-Dec	SE8	SE6	SSW4	S4	S6	S4	SE7	SE11	ESE12	SE14	ESE11	E7	E6	E5	ESE7	ESE5	ESE7	E6	ESE6	ESE4	SE4	SSE3	S6	S3	SE5.8	SE14
7-Dec	SSE4	SSW4	SW15	SSW5	SSW4	SSE3	SSW6	S5	S7	SE4	ESE3	SSE5	SE5	ESE5	SE6	SE4	S1	WSW3	SW3	SSW1	W3	WNW3	WNW6	NW16	SSW2.3	NW16
8-Dec	NW15	NW11	NW12	NW12	WNW8	NW14	NW13	NW15	NNW14	NNW12	NNW14	NW14	NNW12	NNW10	NNW7	N6	N5	N3	N2	N1	SSW1	NNE3	ENE3	SE4	NNW8.0	NW15
9-Dec	SSE4	ESE3	ESE4	SE5	ESE4	ESE5	ESE6	ESE6	E6	ENE5	NE3	NW12	NW15	NNW13	NNW14	NNW14	NNW15	NNW15	NNW13	NW10	NW8	NW8	NNW7	NW8	NNW5.0	NNW15
10-Dec	NW6	W4	NW2	WSW4	WSW5	SSW2	SSW4	SSW8	SSW7	SSW7	S3	SW4	SSW3	SW3	NW3	WSW1	N1	NE3	E5	E5	E7	ESE5	SE6	SE8	S1.7	SSW8
11-Dec	SE8	SE8	SE8	ESE8	SE8	SE9	SE9	SE8	SE9	SE9	SE9	SSE8	SSE9	SE11	SE10	SE10	SE10	SE10	SSE10	SE10	SE11	SE10	SE10	SE12	SE9.3	SE12
12-Dec	SE11	SE12	SE12	SE13	SE13	SE17	SE20	ESE15	ESE16	SE15	ESE14	ESE14	ESE13	ESE12	ESE13	ESE14	ESE13	ESE13	ESE14	SE15	ESE15	ESE17	ESE15	ESE15	ESE14.1	SE20
13-Dec	ESE14	ESE16	ESE13	ESE11	ESE15	ESE14	ESE10	ESE8	ESE7	ESE10	ESE12	ESE11	ESE11	SE12	SE11	ESE9	ESE8	SE5	ESE5	SE4	SSE1	NW2	NNW1	NNE2	ESE8.4	ESE16
14-Dec	NE2	NE4	E5	ENE6	ENE6	E8	E7	E7	E6	E6	ENE3	ENE2	NW1	NNW2	NE7	NNE9	NNE8	NNW11	NNW8	NNW10	NNW11	NNW11	NNW11	NW8	NNE4.2	NNW11
15-Dec	NNW8	NNW11	NW12	NW9	NW14	NW11	NW13	NW15	NW15	NW18	NW15	NNW12	NNW13	NW13	NW13	NNW11	NNW11	NW14	NNW8	NW9	NNW10	NNW11	NNW11	NW10	NW12.1	NW18
16-Dec	NW5	NNW3	NNW3	NNW4	NNW2	WSW3	W13	WNW12	WNW12	W9	WSW18	WSW20	W17	W21	W22	WNW13	W9	SW11	SW12	SSW11	SW11	SW10	SSW5	SSE5	W8.7	W22
17-Dec	SSW6	S6	SSW8	SSW6	SSW7	SSW10	SSW11	SSW13	SW11	SW11	SSW8	SSW6	SSW5	ENE1	SW3	S3	SSE2	ENE2	E1	SSW1	E2	SE2	SSE1	ESE3	SSW4.8	SSW13
18-Dec	E2	ESE3	ESE1	E1	WSW1	WSW1	W2	WSW4	WSW4	WSW2	WSW3	WNW2	WNW2	WSW2	WSW3	WSW3	SW3	SW3	WSW2	W1	SSW1	SSE5	SSW1	SW1.4	SSE5	
19-Dec	ESE3	SE5	SE6	ESE7	SE7	ESE9	ESE7	SE6	ESE7	ESE6	ESE6	SE4	SE2	S2	E1	N2	NNW1	SW1	SW2	SW1	WSW2	NNE1	SE4	ESE5	SE3.4	ESE9
20-Dec	ESE7	ESE7	ESE7	ESE8	ESE9	ESE12	SE12	SE14	SE15	SE13	SE11	ESE13	ESE14	ESE12	ESE13	ESE13	ESE12	ESE10	ESE9	ESE7	ESE8	ESE7	SE3	SSW3	ESE9.8	SE15
21-Dec	SSW4	SSW3	SSW3	SSE2	S2	SSE3	S2	SSW1	WSW1	SSE1	NNE2	W1	SE2	ESE5	NE2	ESE4	ESE7	ESE2	NNW6	NW6	ENE3	N1	SE4	ENE2	SE1.1	ESE7
22-Dec	N2	NW2	N2	E1	ESE8	SE7	SE5	SE5	SSE4	S4	SSW8	SSW9	S6	ESE12	ESE12	ESE8	ESE12	ESE13	ESE15	SE12	SE8	SE8	SE7	SSE2	SE5.9	ESE15
23-Dec	SSW1	SSW2	SW2	SSW4	ESE4	SE4	SSE7	SSW8	SSW7	SSW7	SSW7	SSW9	SSW8	S6	SE6	SSE5	SE6	ESE4	ESE5	S6	SW16	SW22	SW12	S5	S5.7	SW22
24-Dec	SSE5	SE5	SSE4	SE7	ESE9	ESE9	ESE10	ESE11	ESE9	ESE9	ESE9	ESE8	ESE6	ESE9	SE15	ESE15	SE11	ESE10	SE4	ESE3	S3	S4	S5	SSE3	ESE7.1	ESE15
25-Dec	S4	SE6	SE6	SE6	SE4	ESE6	ESE5	ESE3	ESE2	ESE9	ESE7	ESE4	SSW10	S7	SSE5	SE8	SE10	SE8	ESE3	ESE6	ESE6	ESE6	ESE8	ESE8	SE5.4	SE10
26-Dec	SE7	SE5	SSE4	SE5	SSE4	SE3	S2	S2	SSE2	SSW4	S4	SSW5	SSW5	S4	SSE4	S3	S4	W1	SW2	WSW2	S4	SE1	SW3	S3	S2.9	SE7
27-Dec	SSW4	SSW1	S2	E1	SE3	ENE2	NE2	ESE5	NE2	ESE3	SE3	SE1	E4	E5	ESE4	ESE3	ESE3	ENE3	NW2	NNW5	N2	N2	ESE4	ENE3	E1.7	E5
28-Dec	NNW2	NNW3	N3	NNW2	N3	N1	WSW2	SW2	SW2	SW5	SSW4	SSW4	SSW4	SW3	SW2	WSW2	WSW2	W1	WSW2	WSW3	W3	NNW9	NNW7	WNW3	W1.8	NNW9
29-Dec	NW4	NNW4	NW8	NW9	WNW4	NNW1	WNW0	S1	ENE2	NE2	NNW2	NW2	N1	NW5	NW6	NW6	W3	WSW4	W3	WNW2	WNW3	NW6	NW4	W7	NW3.2	NW9
30-Dec	SW8	SW8	WSW4	WNW13	W15	W19	W20	W22	W22	W21	W22	WNW25	WNW24	WNW20	WNW14	WNW12	WNW8	W14	W15	W11	W13	W12	W15	W16	W15.0	WNW25
31-Dec	W16	WNW8	NNW2	SSW4	SW7	SW6	ESE2	SSW3	SW6	SSW7	SW4	NNW5	NW6	WNW14	WNW16	W16	W16	W16	WNW9	NW6	NW5	NW5	NNW5	NW4	W6.3	W16

SSE1.5 SE1.9 SSE1.3 SSE1.2 SSE1.7 SE2.2 SSE2.3 SSE2.1 SSE1.9 SSE2.2 SSE1.7 S1.1 SSE0.7 SSE0.5 SE1.2 ESE1.4 SE2.2 SE1.1 SE1.2 ESE1.4 SSE1.4 S1.0 SSE1.9 SSE1.6	Diurnal Average
W16 ESE16 SW15 SE13 NW18 W19 SE20 W22WNW24WNW27WNW23WNW25WNW24 W21 W22WNW23 W19 W19 ESE20 ESE19 SW16 SW22 ESE15 NW16	Diurnal Maximum

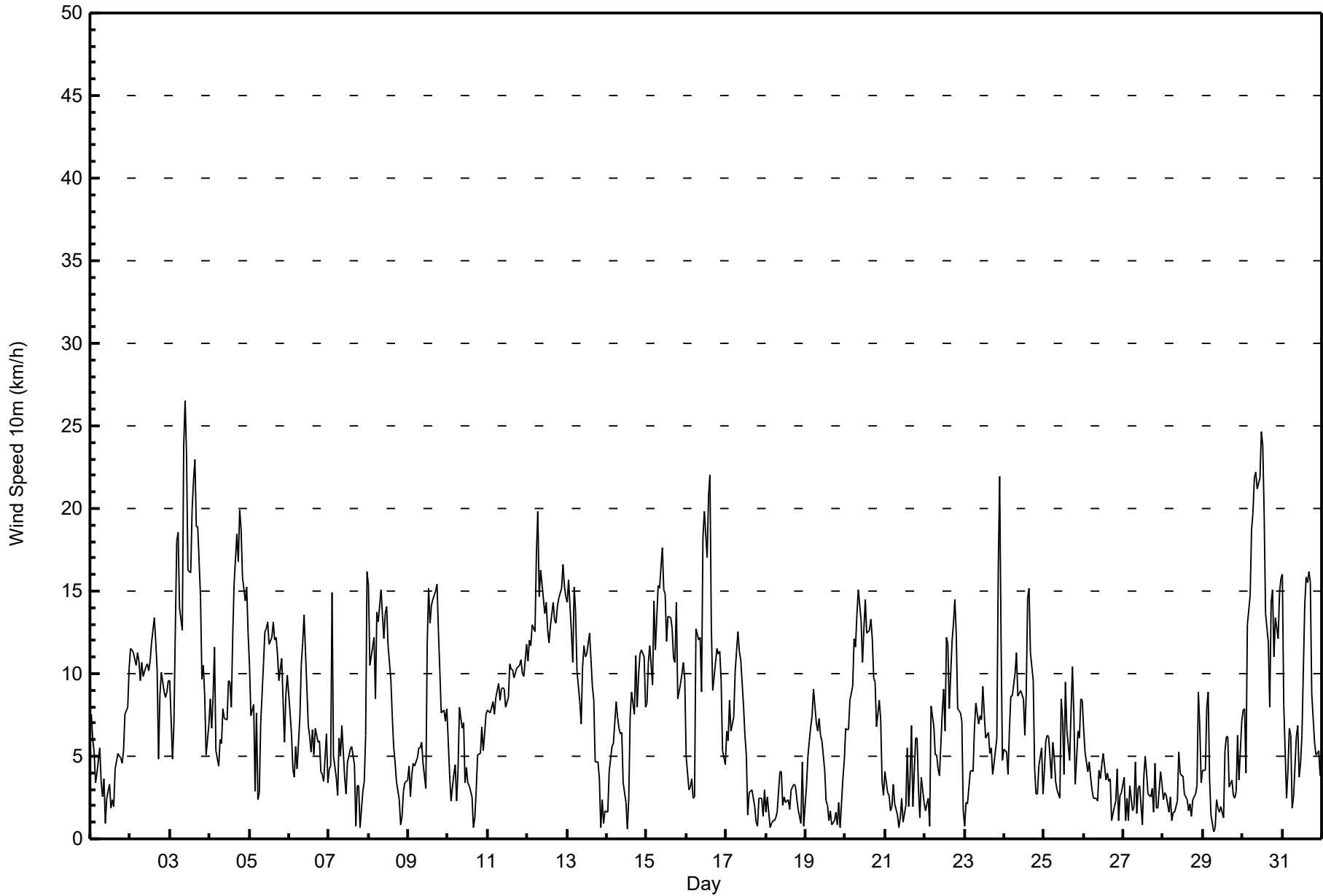
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Athabasca Valley - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 30 04:00																	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0								
Minimum Value: 0 km/h on Dec 28 16:00																									
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 3 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-Dec	2	2	2	1	2	1	1	1	2	1	1	1	1	1	2	1	2	1	1	2	2	2	2	2	2
2-Dec	2	2	2	3	3	2	3	3	2	2	2	2	2	3	3	3	3	2	2	2	2	2	2	2	2
3-Dec	2	2	2	2	5	5	4	4	5	5	4	3	3	4	5	4	3	4	6	2	2	1	1	2	6
4-Dec	1	2	2	2	3	1	1	1	2	1	3	3	2	2	3	4	4	4	4	4	3	3	3	3	4
5-Dec	2	1	2	3	3	1	1	1	3	2	2	3	3	2	2	2	2	2	2	3	2	3	2	3	3
6-Dec	2	2	2	2	2	1	3	3	3	2	3	2	2	2	1	2	1	1	2	2	2	2	3	2	3
7-Dec	3	3	3	3	2	1	2	2	2	1	1	1	2	1	2	1	1	1	1	2	1	1	3	4	4
8-Dec	3	3	3	3	2	3	3	4	4	3	3	2	3	3	2	1	1	1	1	1	1	1	1	2	4
9-Dec	1	1	1	2	1	2	1	1	1	1	1	4	3	3	4	4	4	4	3	2	2	2	2	2	4
10-Dec	2	1	1	2	1	2	4	3	2	3	3	3	3	1	1	2	1	2	2	2	2	2	2	2	4
11-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	3	2	3	3	3
12-Dec	2	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3	2	2	2	3	3	3	3	3	3
13-Dec	3	3	4	3	3	3	2	2	2	2	3	2	2	2	4	2	2	2	2	2	1	1	1	1	4
14-Dec	1	2	1	1	2	2	1	2	2	1	1	2	1	1	2	2	2	2	3	3	2	1	2	2	3
15-Dec	2	2	1	3	2	2	2	2	3	3	3	3	2	3	3	3	3	2	3	2	2	2	2	2	3
16-Dec	1	1	1	1	1	2	3	2	2	3	4	3	3	3	4	4	3	2	2	2	3	3	2	2	4
17-Dec	1	2	1	1	2	2	3	2	2	2	2	1	1	2	1	1	1	1	1	1	2	1	2	2	3
18-Dec	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	2	2
19-Dec	2	2	1	2	2	2	2	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	2	2	2
20-Dec	2	3	2	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	2	2	1	3
21-Dec	3	1	2	2	2	1	1	1	1	2	1	1	2	3	1	2	2	2	2	2	2	1	1	2	3
22-Dec	1	1	1	2	2	2	1	1	1	2	1	2	2	3	3	2	4	3	3	3	2	2	3	2	4
23-Dec	2	2	1	2	2	2	2	5	2	2	3	2	3	2	2	2	2	2	1	4	5	4	4	5	5
24-Dec	2	2	2	2	2	2	2	3	2	2	3	3	3	3	3	5	4	2	3	1	2	2	2	2	5
25-Dec	1	1	2	2	2	2	2	2	1	2	3	3	2	3	2	2	1	3	2	2	3	3	4	3	4
26-Dec	3	3	1	1	1	2	2	1	1	1	2	2	2	2	1	1	1	1	1	1	2	2	1	1	3
27-Dec	1	2	2	1	2	1	1	3	1	3	2	2	2	2	2	2	1	1	1	1	1	1	2	1	3
28-Dec	1	1	1	1	1	1	1	2	1	1	2	3	2	1	1	0	1	1	0	0	1	4	2	1	4
29-Dec	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	3	3
30-Dec	1	1	2	6	3	3	4	3	3	4	4	4	4	4	3	3	2	4	4	3	2	1	2	3	6
31-Dec	3	5	1	1	3	2	1	2	1	1	1	1	3	3	3	3	2	2	4	1	1	1	1	1	5
Diurnal Maximum																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Athabasca Valley - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	317	42.61	42.61
6 - 11	263	35.35	77.96
12 - 19	144	19.35	97.31
20 - 28	20	2.69	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Athabasca Valley - December 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	15	4	8	15	17	40	31	24	27	32	21	29	11	11	15	17	317
6 - 11	1	2	1	2	9	87	57	4	8	25	13	1	4	6	23	20	263
12 - 19	0	0	0	0	0	58	14	0	0	2	4	1	16	9	23	17	144
20 - 28	0	0	0	0	0	1	1	0	0	0	1	1	7	9	0	0	20
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	16	6	9	17	26	186	103	28	35	59	39	32	38	35	61	54	744

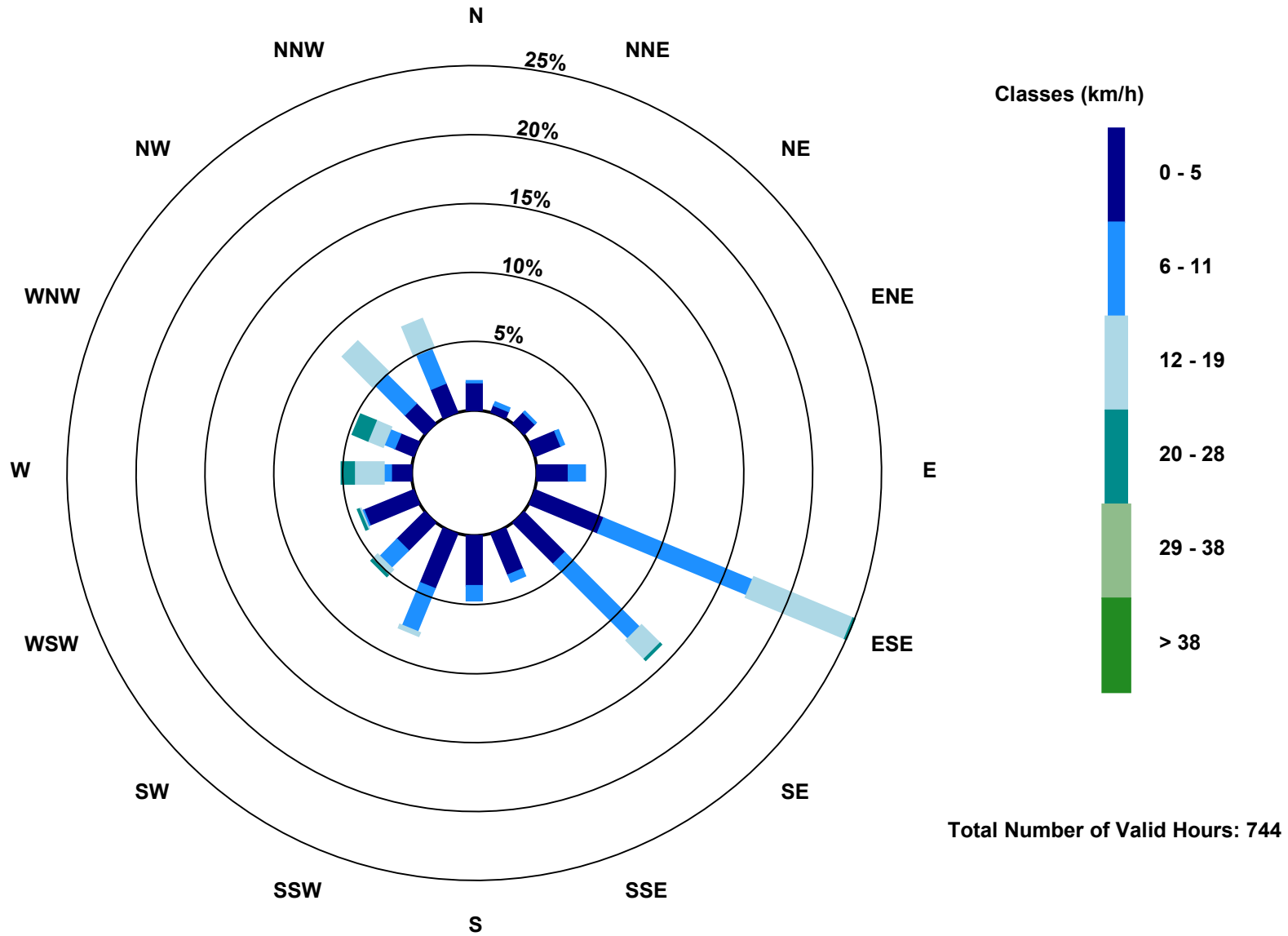
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Athabasca Valley





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Athabasca Valley - December 2024

Direction of Maximum Speed: 293 deg on Dec 3 10:00 Direction of Maximum Daily Speed Average: 273.5 deg on Dec 30	Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0
Direction of Minimum Speed: 282 deg on Dec 29 07:00 Direction of Minimum Daily Speed Average: 0.8 deg on Dec 1	Percent Operational Time: 100.0
Monthly Average Direction: 150.5 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-Dec	327	298	309	300	244	220	228	249	239	103	229	231	273	289	43	81	114	78	70	112	99	123	125	122	140.0
2-Dec	116	119	123	123	118	115	115	112	111	109	115	118	112	110	109	107	106	136	113	127	135	126	124	121	116.7
3-Dec	124	94	321	321	317	329	339	329	303	293	300	328	315	296	293	288	271	271	295	332	320	305	278	231	303.8
4-Dec	233	224	211	207	187	144	138	127	120	118	139	116	126	133	114	107	108	109	109	113	115	123	123	119	127.7
5-Dec	115	115	116	234	246	123	103	122	121	120	117	115	120	121	123	116	119	121	120	117	115	120	122	136	121.8
6-Dec	137	128	197	174	189	170	146	127	123	124	113	99	93	88	109	102	114	97	116	108	140	155	181	171	128.4
7-Dec	157	192	227	212	206	150	198	176	179	142	106	152	127	123	128	132	176	247	231	197	276	293	303	326	197.8
8-Dec	323	325	325	319	299	320	322	326	328	338	330	325	334	339	334	3	352	360	352	359	213	28	73	129	330.2
9-Dec	167	109	112	127	115	107	107	109	99	76	52	323	325	339	337	335	334	337	329	320	311	324	334	313	343.4
10-Dec	307	279	321	247	254	207	193	194	193	195	173	215	208	229	306	250	349	51	82	88	80	103	137	127	179.3
11-Dec	125	138	126	123	141	127	137	138	142	137	134	147	149	142	141	143	131	127	148	142	139	136	138	141	137.5
12-Dec	137	137	137	129	126	124	125	120	122	125	123	114	118	115	114	117	116	117	122	125	122	122	119	116	122.4
13-Dec	115	118	119	114	116	115	107	102	110	115	119	117	115	129	125	119	121	125	116	128	160	311	348	28	116.3
14-Dec	42	56	80	72	63	101	93	88	89	94	70	70	321	345	51	19	20	334	341	339	335	327	329	319	21.7
15-Dec	335	327	315	312	318	308	304	310	317	321	324	321	330	329	324	323	330	330	323	328	320	321	314	306	320.1
16-Dec	325	348	342	342	341	253	265	290	293	277	257	258	259	272	268	282	268	234	216	210	218	224	206	165	260.3
17-Dec	193	189	203	196	207	208	208	213	217	214	205	199	204	61	223	177	151	68	89	196	98	128	147	106	198.8
18-Dec	97	118	122	93	86	256	246	267	239	237	249	241	293	298	254	239	240	235	217	251	268	197	149	199	230.2
19-Dec	109	136	139	123	125	119	123	124	117	123	114	128	131	170	94	0	337	233	235	231	243	25	144	104	125.8
20-Dec	106	120	103	112	121	123	124	124	129	134	126	118	119	120	117	121	119	119	114	108	118	122	141	192	121.1
21-Dec	206	197	198	167	175	158	176	192	239	149	33	274	126	116	54	115	119	103	341	325	75	356	136	77	127.5
22-Dec	356	318	359	79	120	124	140	130	149	184	203	204	171	114	122	115	119	119	114	124	138	135	131	159	132.0
23-Dec	195	207	236	200	113	135	164	196	203	201	205	209	201	186	133	154	137	116	111	187	216	219	216	169	191.0
24-Dec	161	132	149	124	114	116	114	111	105	110	102	106	105	107	134	119	125	119	141	106	188	184	178	159	122.8
25-Dec	171	133	137	124	140	116	105	102	122	104	116	110	120	208	172	154	134	127	134	116	116	103	112	119	129.3
26-Dec	126	128	155	139	157	126	186	175	161	197	190	205	200	190	163	170	170	266	222	247	191	133	219	184	172.8
27-Dec	192	196	184	101	136	58	56	118	50	111	145	130	94	100	111	117	109	65	319	347	356	4	117	64	100.7
28-Dec	346	333	352	345	352	1	252	225	233	215	211	208	212	227	232	246	247	281	245	253	279	332	337	298	276.7
29-Dec	326	339	321	324	294	343	282	183	57	46	328	309	356	322	307	321	281	242	272	289	301	310	308	280	311.3
30-Dec	234	214	253	285	272	271	269	267	266	270	275	282	289	288	284	299	292	277	266	281	270	265	266	267	273.5
31-Dec	279	293	331	203	216	214	119	204	227	211	235	329	326	301	285	274	265	266	288	313	311	319	333	316	277.0

153.1	140.4	164.6	161.9	164.9	139.5	153.1	154.6	167.5	164.5	168.0	188.4	166.8	168.6	135.4	109.0	124.0	130.2	127.3	119.7	159.4	169.9	151.7	146.6
Diurnal Average																							

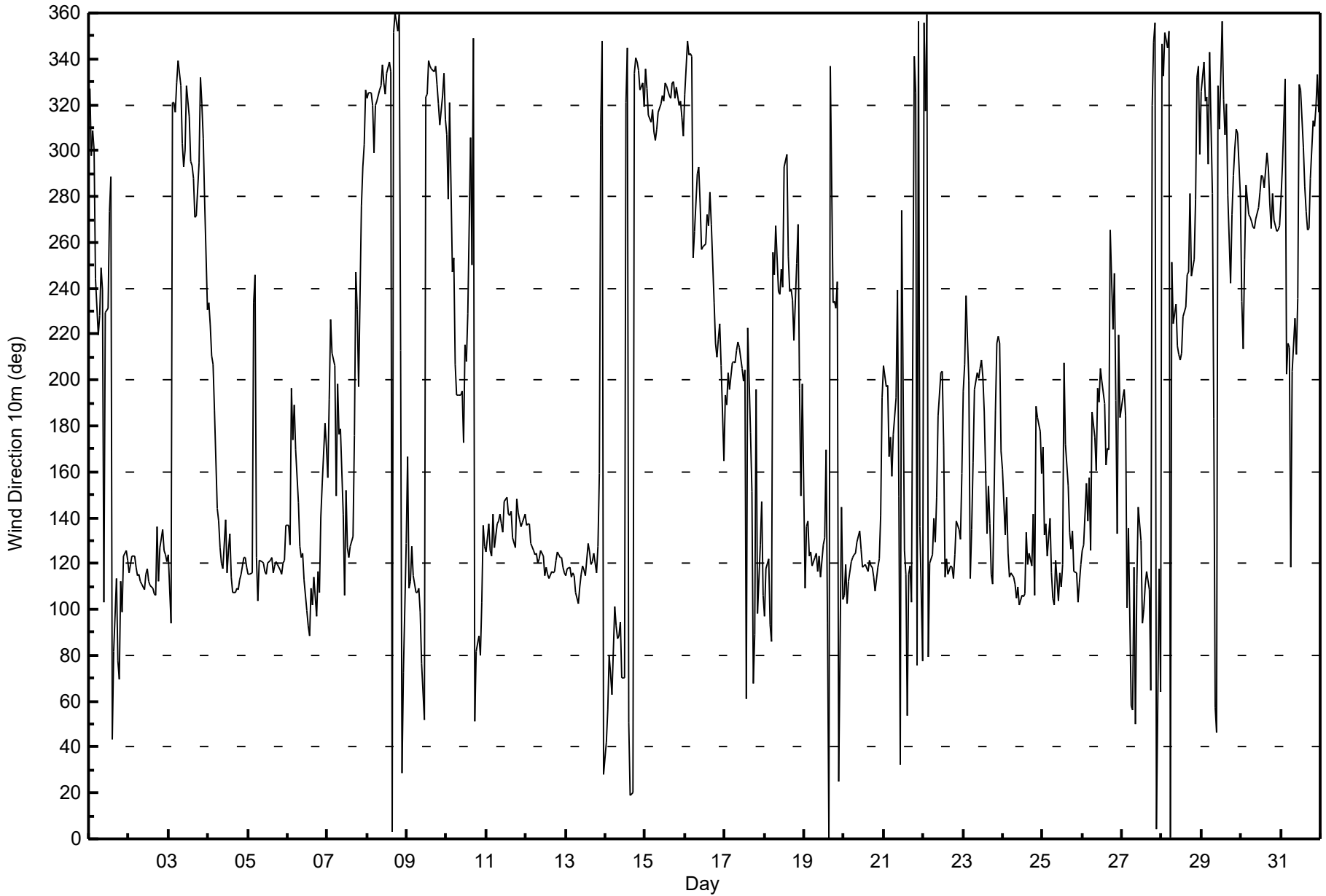
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Athabasca Valley - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 103 deg on Dec 27 12:00 Minimum Value: 7 deg on Dec 15 03:00 Percentiles: P ₁ = 8 P ₁₀ = 11 Q ₁ = 14 Median = 20 Q ₃ = 41 P ₉₀ = 65 P ₉₉ = 96																								Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	19	24	39	29	27	14	24	64	34	76	52	21	42	16	69	25	22	20	14	37	28	21	18	12	76
2-Dec	12	12	13	15	15	15	18	14	15	13	14	13	14	13	12	14	16	45	19	17	16	15	14	13	45
3-Dec	13	56	12	10	9	15	18	16	12	8	15	14	12	11	11	9	12	11	27	15	10	9	29	15	56
4-Dec	10	23	11	7	34	30	18	25	16	17	27	21	18	21	17	14	13	14	13	13	13	12	12	12	34
5-Dec	11	15	14	87	19	63	46	8	13	11	12	12	18	14	10	11	12	15	22	15	17	27	18	16	87
6-Dec	20	28	51	47	31	43	32	18	14	10	17	20	29	28	14	37	16	19	26	47	47	66	47	55	66
7-Dec	67	64	11	33	55	45	15	25	16	27	39	24	28	21	19	35	84	28	54	101	34	31	29	13	101
8-Dec	13	15	14	12	16	9	9	14	17	17	15	11	16	19	19	19	20	22	29	52	73	17	22	42	73
9-Dec	14	44	30	29	27	26	17	17	23	22	61	10	11	19	18	17	17	17	13	13	16	22	19	12	61
10-Dec	14	21	40	42	28	69	66	35	30	38	65	57	58	48	48	88	59	50	24	43	22	26	21	23	88
11-Dec	20	21	17	15	20	21	15	15	16	16	16	19	19	16	14	14	17	18	17	19	16	19	18	17	21
12-Dec	18	17	20	17	14	12	10	13	13	12	13	12	13	14	12	13	12	13	12	11	11	10	12	13	20
13-Dec	14	13	19	19	15	13	21	20	17	12	13	14	10	10	18	14	16	42	31	54	90	54	72	50	90
14-Dec	70	34	19	13	27	26	20	21	22	18	53	86	88	48	15	21	26	13	17	15	13	8	12	16	88
15-Dec	16	9	7	10	8	8	9	8	10	8	12	11	13	13	12	14	13	13	9	13	13	12	14	12	16
16-Dec	14	22	18	15	32	44	11	11	13	32	14	9	11	11	8	13	23	15	10	9	11	15	37	35	44
17-Dec	13	28	9	16	11	9	8	8	8	8	13	12	12	92	27	37	38	71	89	88	61	42	69	64	92
18-Dec	86	80	93	87	102	78	87	54	15	14	18	17	35	32	47	24	19	18	28	57	49	98	59	95	102
19-Dec	63	30	21	16	18	16	19	28	21	26	35	43	63	72	85	54	70	77	56	72	61	88	53	50	88
20-Dec	31	48	26	26	22	15	16	14	13	14	18	15	14	14	13	12	13	15	10	11	12	17	45	42	48
21-Dec	20	52	72	79	61	33	77	87	97	86	68	73	88	43	69	62	23	90	17	19	50	83	37	53	97
22-Dec	35	33	30	69	15	23	25	22	33	34	9	9	36	14	18	18	14	16	13	15	19	22	27	72	72
23-Dec	100	87	68	65	76	52	43	39	17	12	18	9	16	37	31	36	31	44	30	65	14	9	15	62	100
24-Dec	42	59	69	34	15	24	16	16	25	26	23	31	51	28	19	14	24	24	67	58	78	61	36	47	78
25-Dec	41	18	20	27	56	23	37	52	42	78	16	32	56	26	24	29	12	9	25	56	38	37	33	28	78
26-Dec	36	43	28	21	37	64	79	46	53	22	50	20	16	34	45	40	29	71	53	52	30	93	56	65	93
27-Dec	22	98	54	92	67	61	61	63	69	78	59	103	53	32	44	58	61	33	52	22	29	37	57	27	103
28-Dec	35	14	21	60	29	71	59	85	61	12	14	77	38	28	27	29	29	58	21	23	23	22	17	24	85
29-Dec	20	16	11	10	25	52	96	84	52	34	50	38	58	19	12	15	15	17	34	32	23	20	29	17	96
30-Dec	19	8	33	27	11	10	10	9	9	11	11	11	10	13	19	16	19	16	11	13	9	9	7	10	33
31-Dec	10	39	42	15	21	47	58	73	16	10	34	21	29	14	13	11	8	8	33	8	21	15	13	18	73
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS08 FORT CHIPEWYAN DECEMBER 2024

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

January 31, 2025

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

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	650	32	94	91.67	11.7	0	3.7	0
TRS (ppb) Average	708	36	36	100	0.6	0	0.4	0
O3(ppb) Average	681	34	63	96.1	38.4	0	32.4	-
NO2(ppb) Average	708	36	36	100	32.4	0	12.4	-
NO(ppb) Average	708	36	36	100	8.2	-	2	-
NOX(ppb) Average	708	36	36	100	36	-	14.4	-
PM2.5(ug/m3) Average	743	1	1	100	17.2	0	10.1	0
CO(ppm) Average	710	34	34	100	0.3	0	0.2	-
CO2(ppm) Average	710	34	34	100	457.9	-	450.6	-
Temperature 2 m (C) Average	744	0	0	100	1.5	-	-2.3	-
Relative Humidity (%) Average	744	0	0	100	98	-	96.2	-
Wind Speed 10 m (km/h) Average	744	0	0	100	36	-	24	-
Wind Direction 10 m (deg) Average	744	0	0	100	-	-	-	-
PC(mm) Total	744	0	0	100	0.9	-	3.3	-
Leaf Wetness (% of range) Average	744	0	0	100	16.9	-	8.1	-
Global Solar Radiation (W/m2) Average	744	0	0	100	206.3	-	35	-

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

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

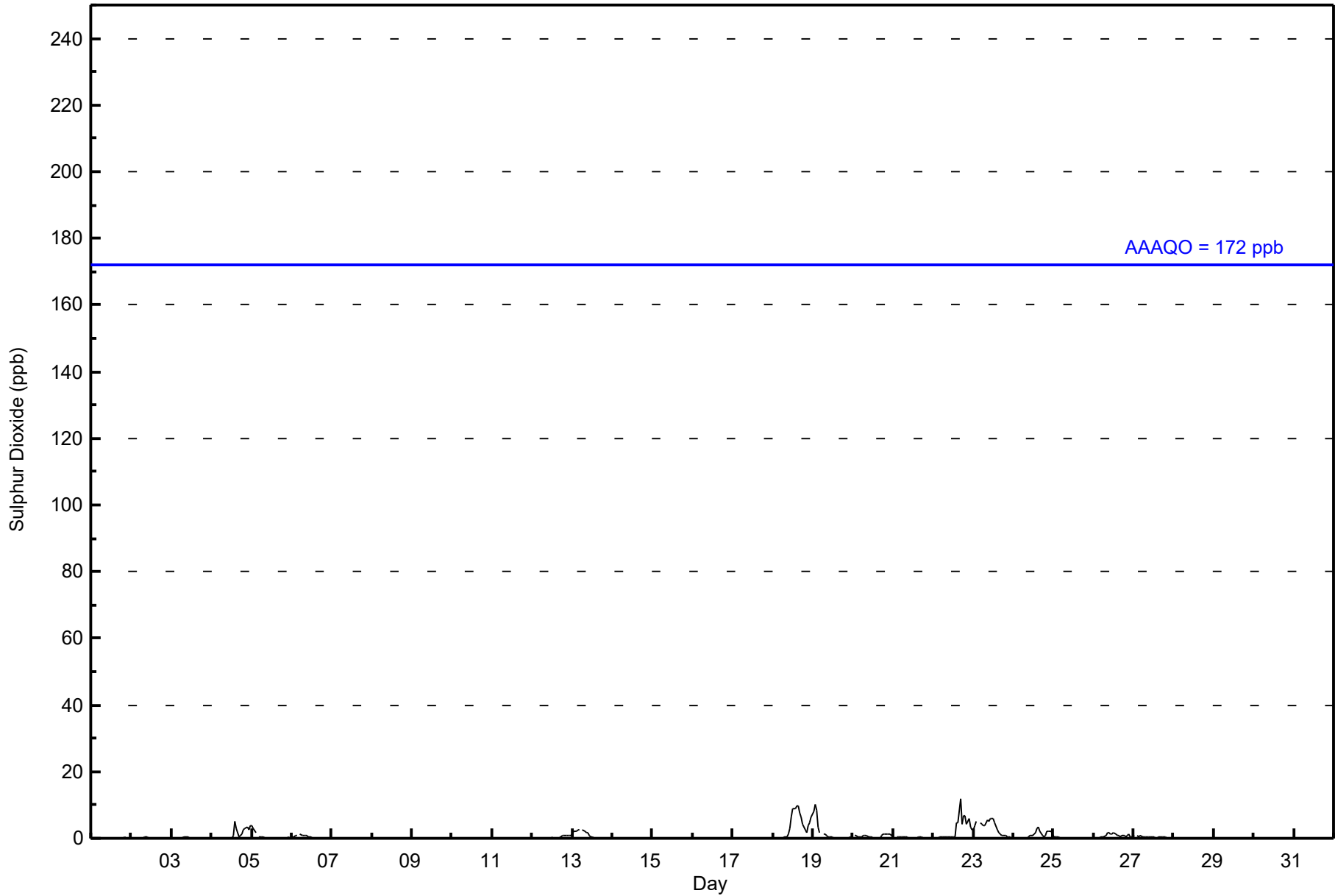
MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2(ppb) Average	650	0.63	1.5	-	0	0	0	0.1	0.4	1.8	11.7
TRS (ppb) Average	708	0.18	0.1	-	0	0.1	0.1	0.2	0.2	0.3	0.6
O3(ppb) Average	681	24.15	6.6	-	0.1	15.8	20.6	25.2	28.7	31.3	38.4
NO2(ppb) Average	708	2.26	4.1	-	0	0.1	0.3	0.7	2.2	7	32.4
NO(ppb) Average	708	0.31	0.8	-	0	0	0	0.1	0.3	0.5	8.2
NOX(ppb) Average	708	2.57	4.6	-	0	0.1	0.4	0.8	2.4	7.8	36
PM2.5(ug/m3) Average	743	3.89	2.9	-	0.5	1.5	2.2	3.1	4.2	7.3	17.2
CO(ppm) Average	710	0.1	0	-	0	0	0.1	0.1	0.1	0.1	0.3
CO2(ppm) Average	710	435.81	6.1	-	424.7	428.3	430.3	436	440.2	442.4	457.9
Temperature 2 m (C) Average	744	-15.49	8.2	-	-32.9	-27.7	-21.9	-13.9	-9.9	-4.6	1.5
Relative Humidity (%) Average	744	81.67	6.8	-	68.7	73.5	75.4	81.2	86.8	90.7	98
Wind Speed 10 m (km/h) Average	744	13.8	6	-	1	6	9	13	18	22	36
Wind Direction 10 m (deg) Average	744	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	27.51	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	3.54	1.9	-	1.8	2	2.1	2.6	4.6	6.5	16.9
Global Solar Radiation (W/m2) Average	744	15.25	35.1	-	0	0	0	0	7.6	53.9	206.3

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

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
O3	30 Dec 2024 05:00	30 Dec 2024 07:00	3	Unstable Operation - flatline in analyzer output signal
O3	30 Dec 2024 23:00	01 Jan 2025 00:00	26	Unstable Operation - flatline in analyzer output signal
SO2	16 Dec 2024 20:00	17 Dec 2024 14:00	19	Unstable Operation - flatline in analyzer output signal
SO2	30 Dec 2024 06:00	01 Jan 2025 00:00	43	Unstable Operation - flatline in analyzer output signal





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	649	99.85	99.85
11 - 20	1	0.15	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 650

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	3	14	33	69	122	21	36	24	17	26	24	28	89	67	54	22	649
11 - 20	0	0	0	0	0	1	0	0	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	3	14	33	69	122	22	36	24	17	26	24	28	89	67	54	22	650

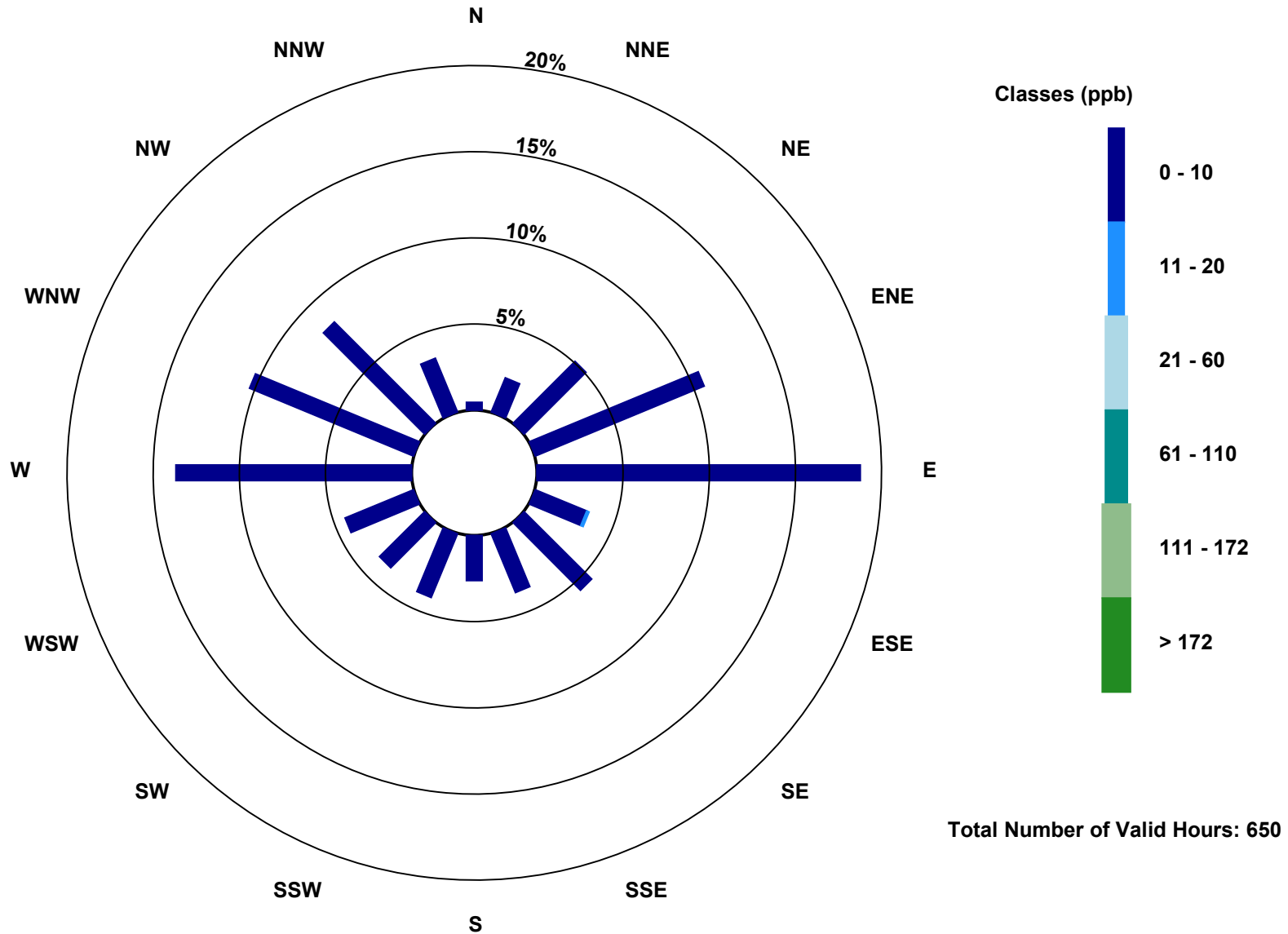
Total Number of Valid Hours: 650

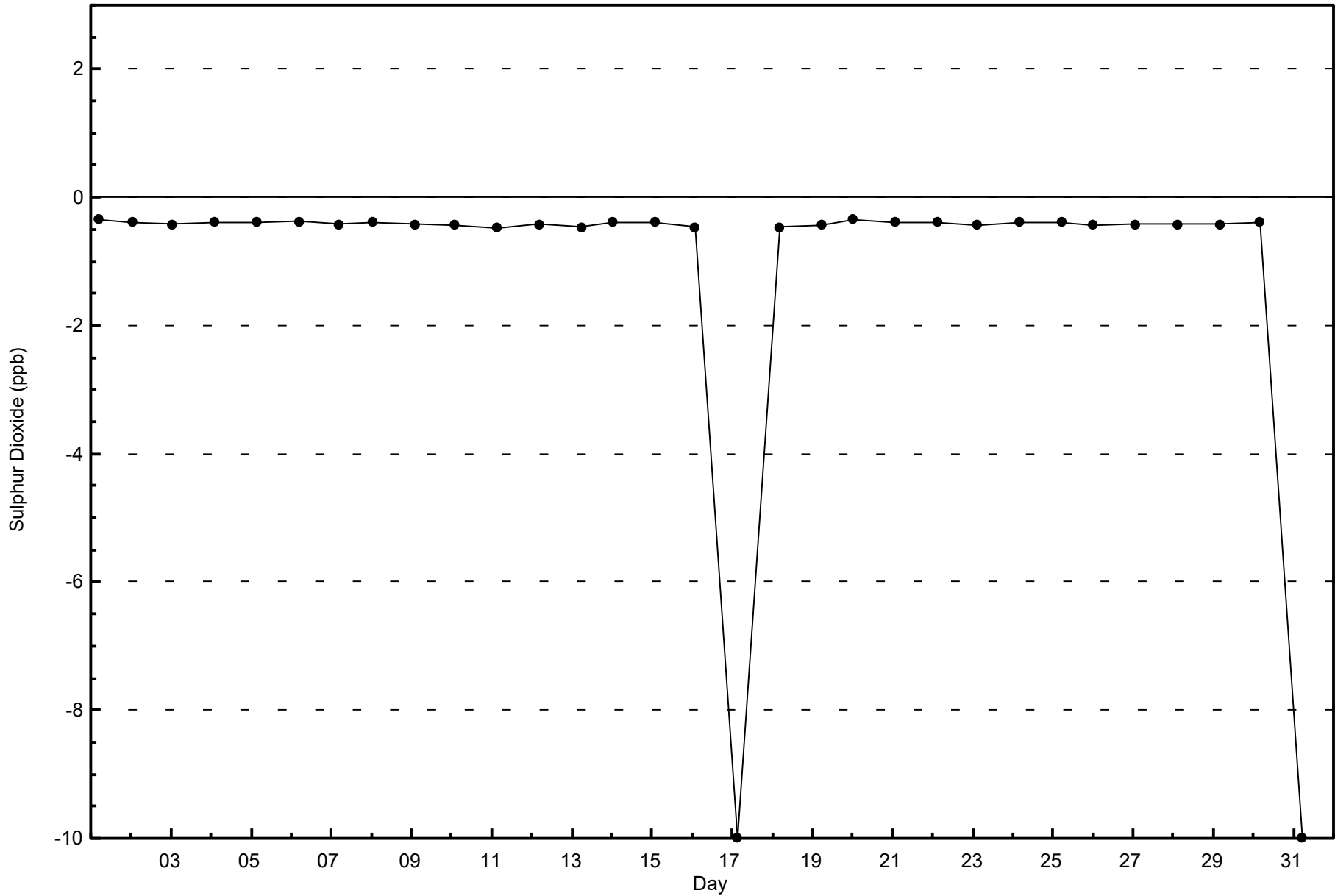
Total Number of Hours: 744

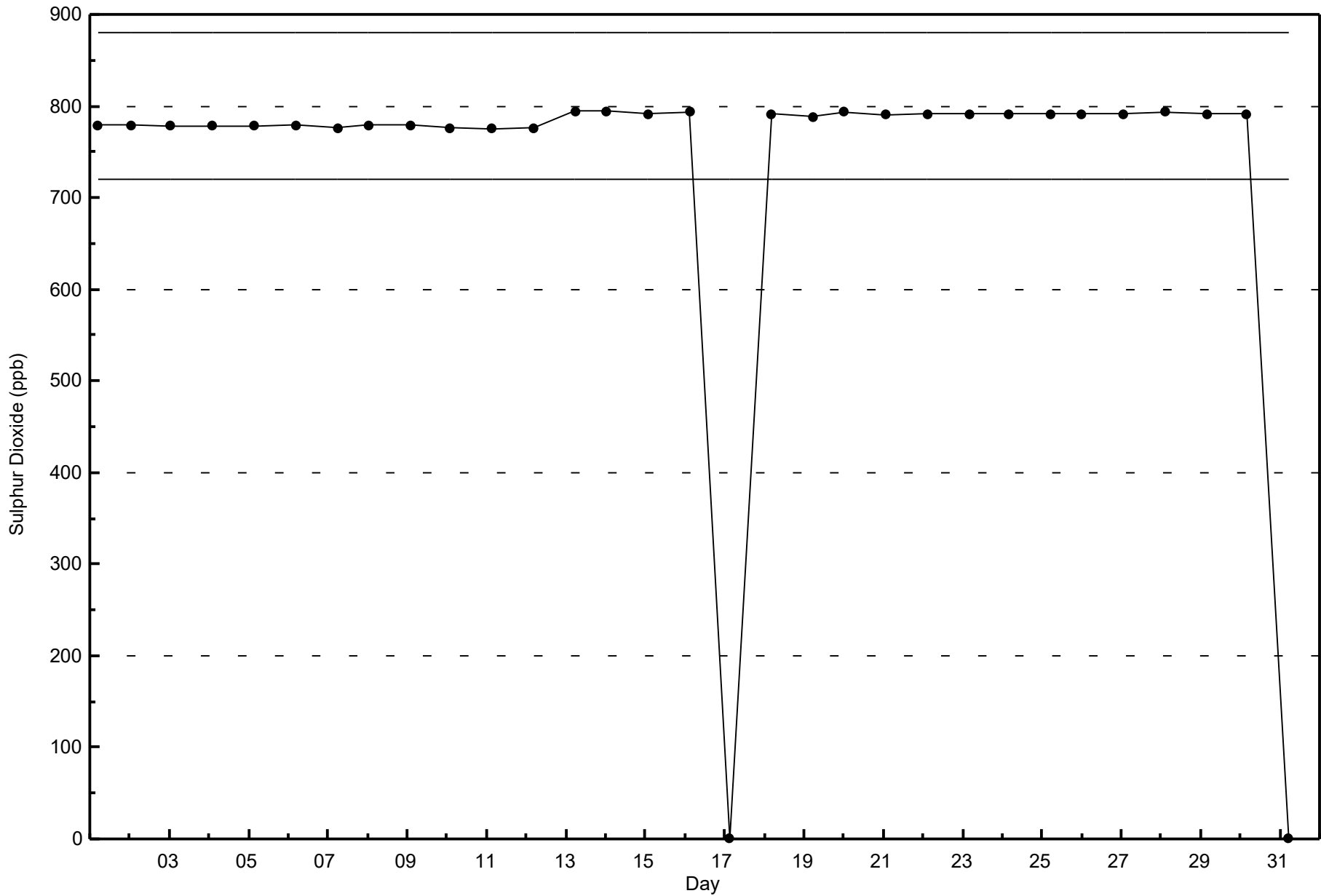


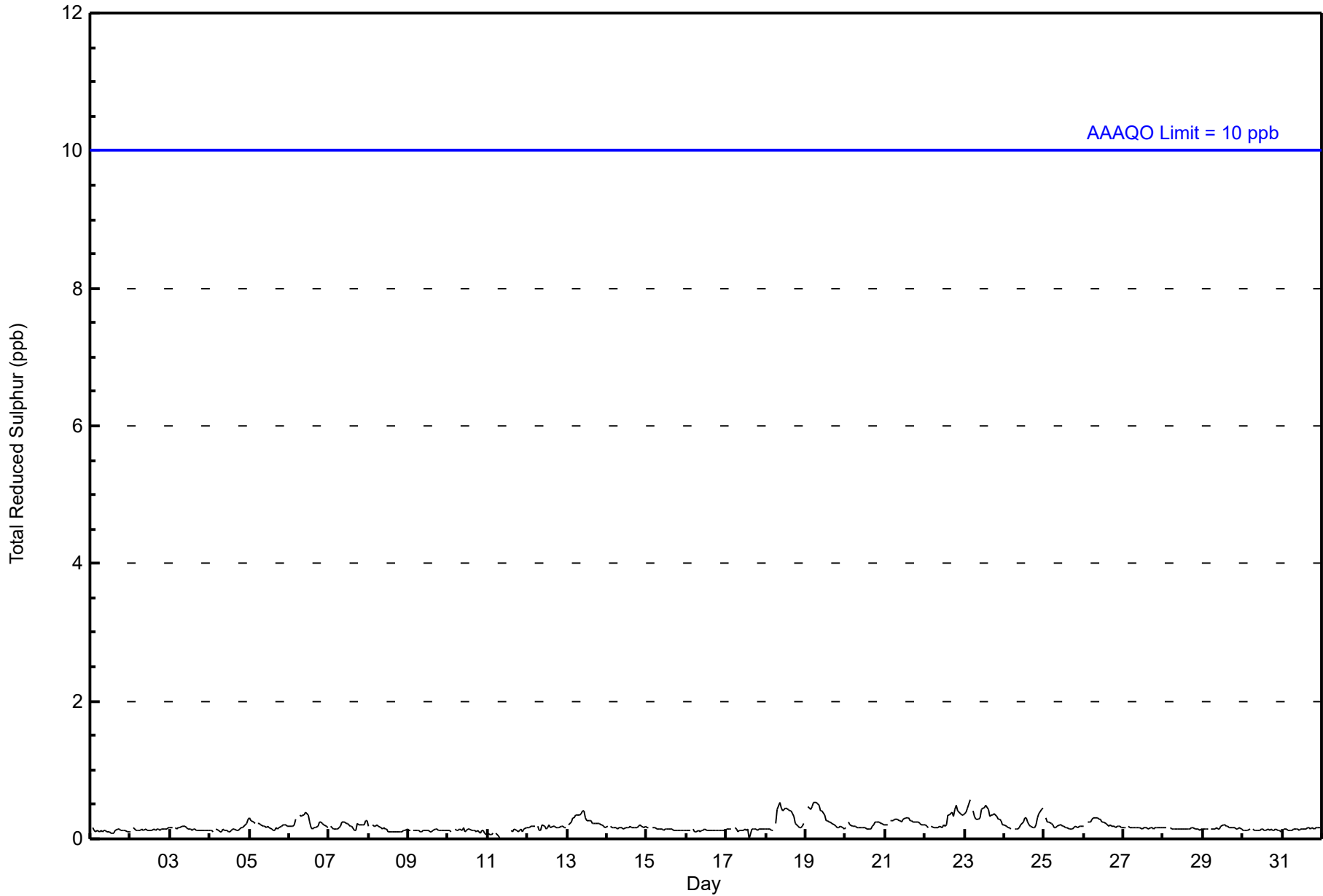
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Fort Chipewyan











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	3	14	33	65	121	20	36	26	18	25	26	32	97	108	62	22	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	3	14	33	65	121	20	36	26	18	25	26	32	97	108	62	22	708

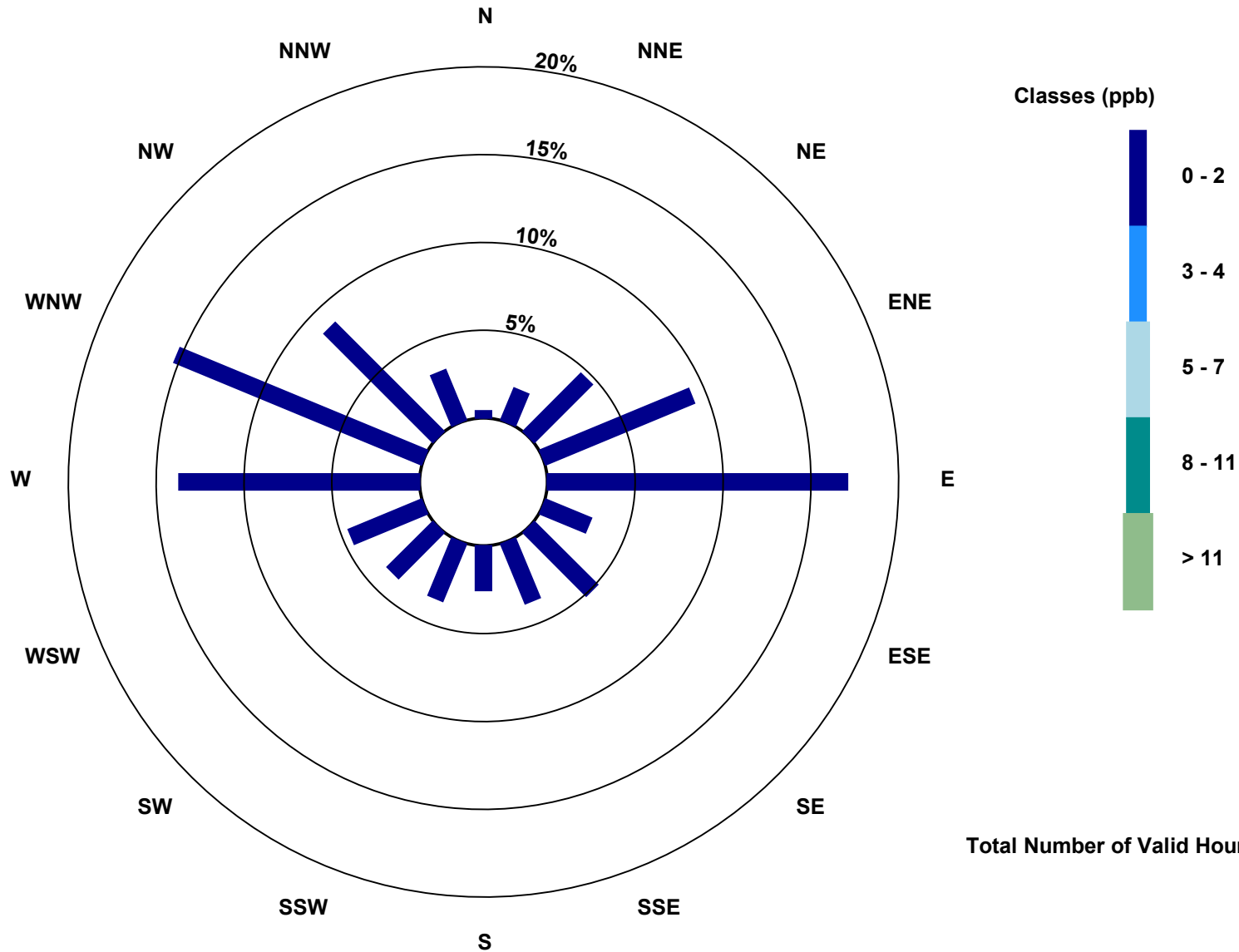
Total Number of Valid Hours: 708

Total Number of Hours: 744

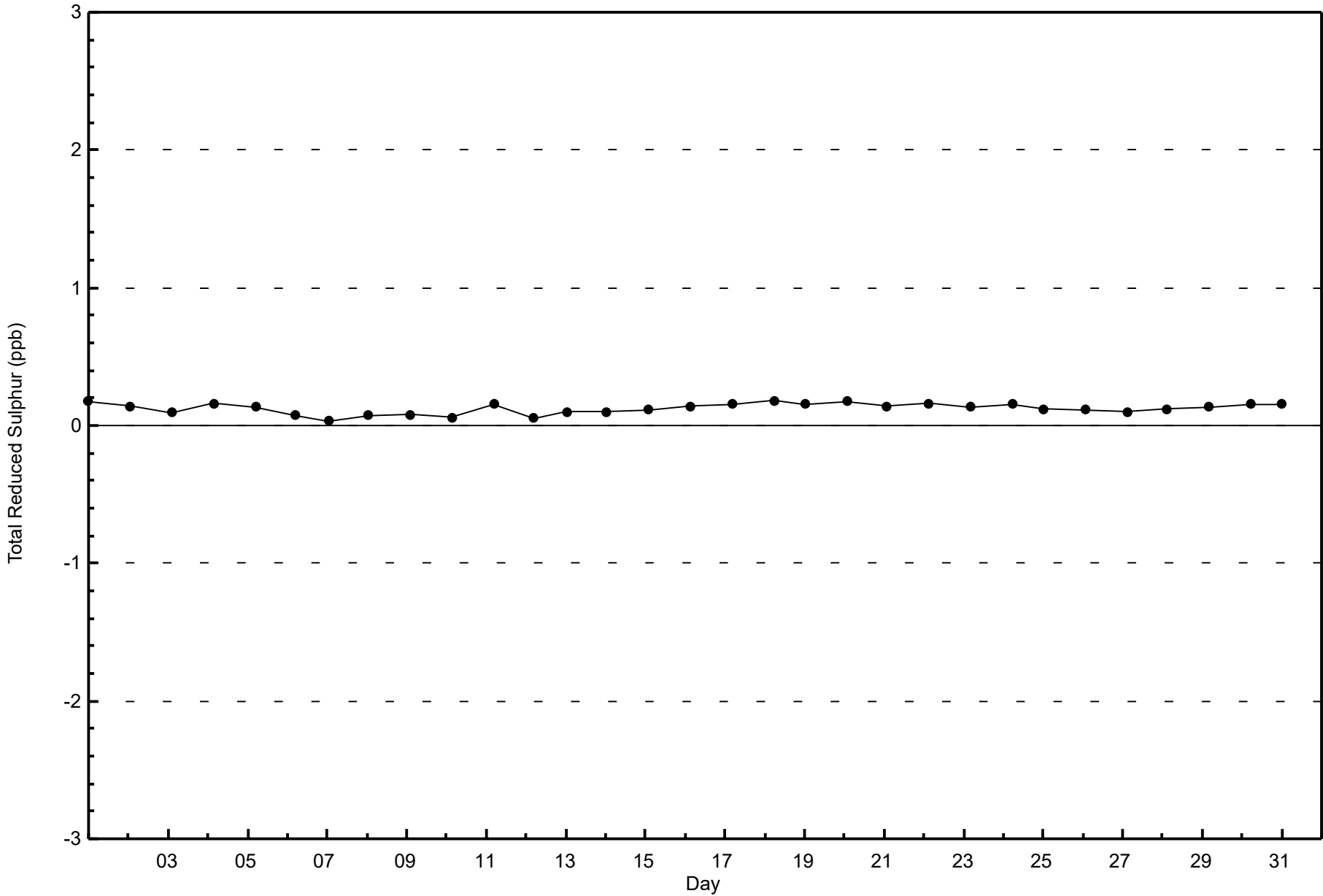


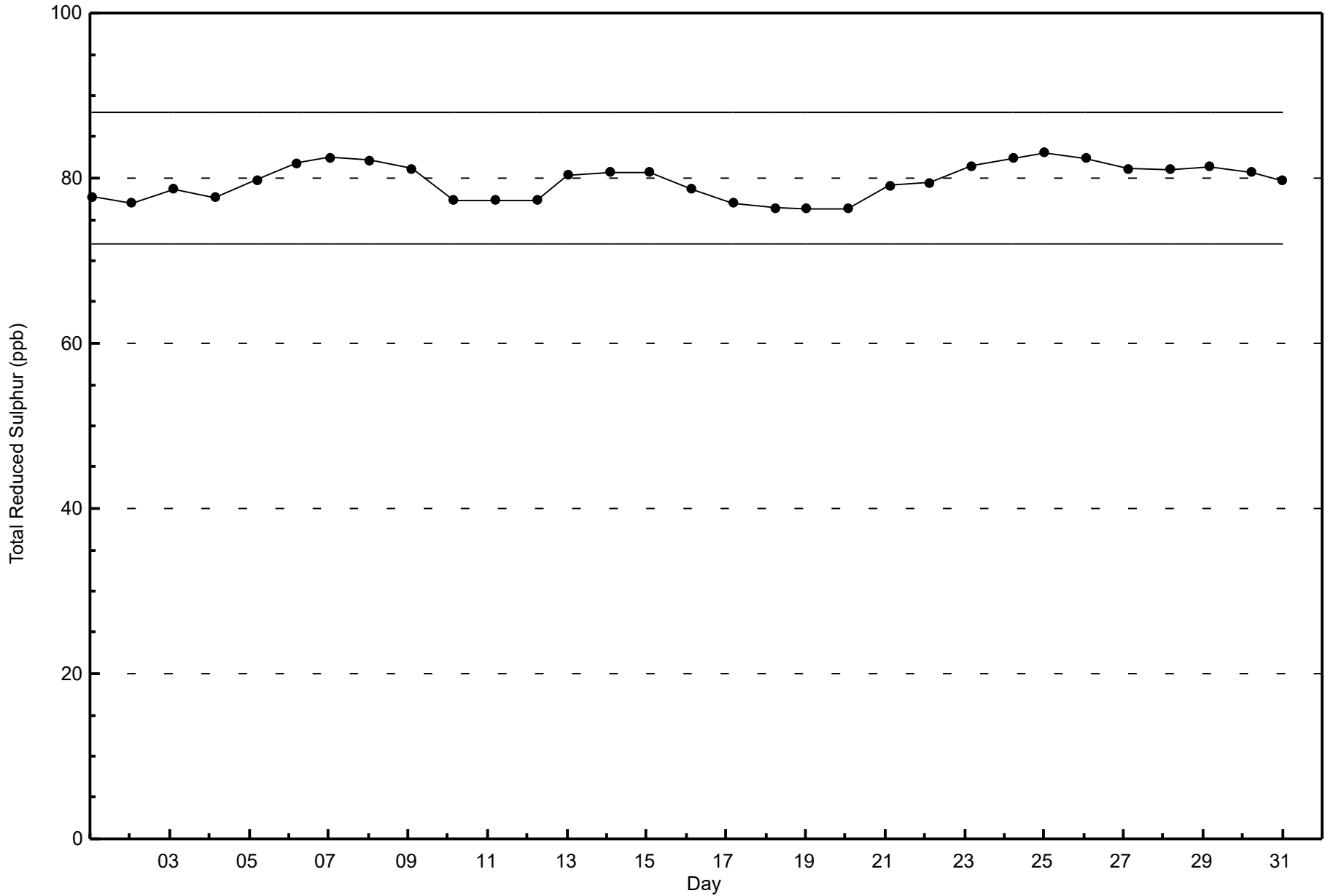
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Fort Chipewyan



Total Number of Valid Hours: 708





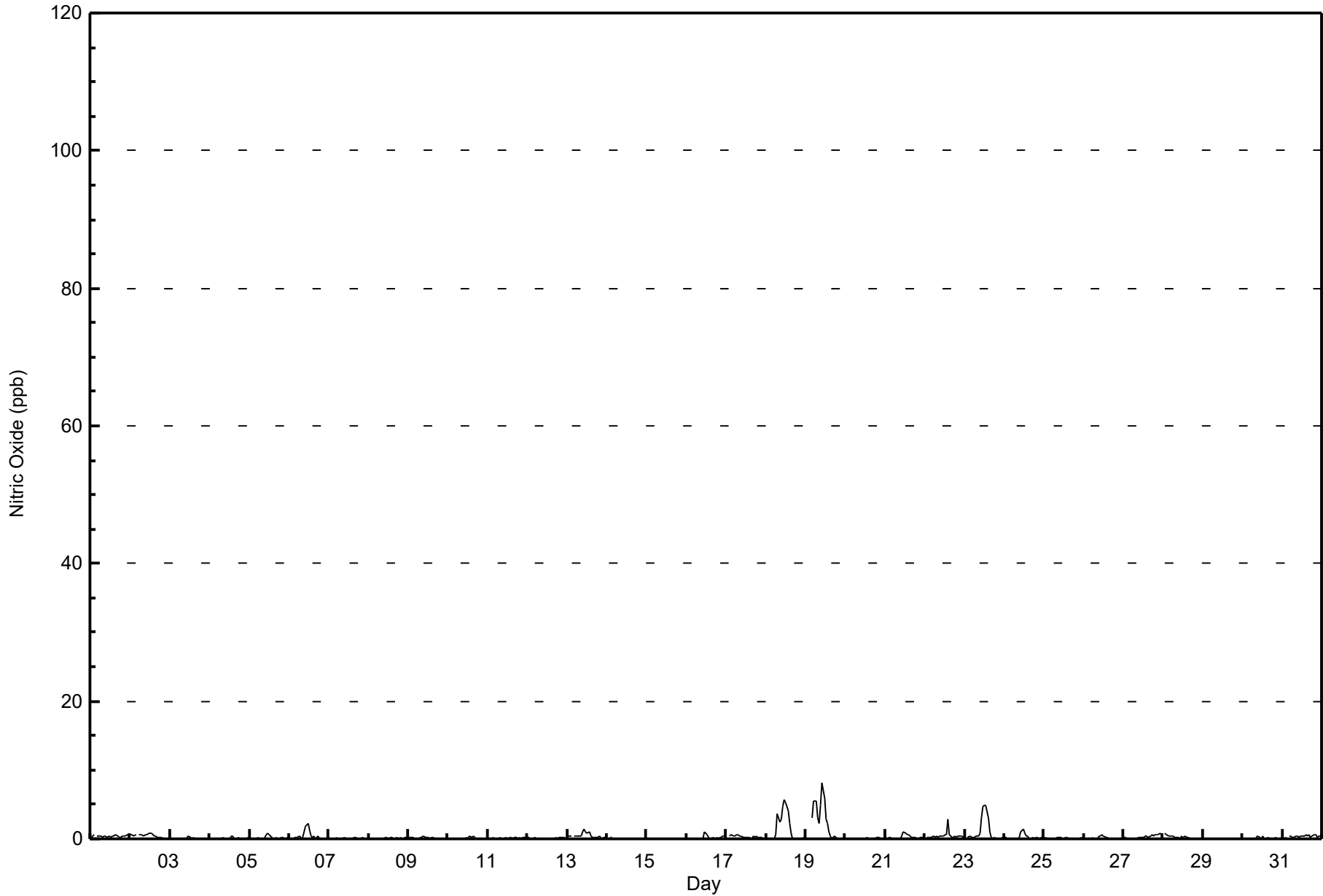


Maximum Value: 8.2 ppb on Dec 19 11:00																				Maximum Daily Average: 2.0 ppb on Dec 19					Hours in Service: 744								
Minimum Value: 0.0 ppb on Dec 2 21:00																				Minimum Daily Average: 0.0 ppb on Dec 29					Hours of Data: 708								
Maximum Diurnal Average: 1.0 ppb at hour 12																				Minimum Diurnal Average: 0.1 ppb at hour 22					Hours of Missing Data: 36								
Monthly Average: 0.31 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 0.5 P ₉₉ = 4.9					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-Dec	0.2	0.4	0.5	Z	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.5	0.3	0.5	0.4	0.7	0.5	0.3	0.1	0.4	0.4	0.4	0.6	0.5	0.4	0.7							
2-Dec	0.6	0.5	0.5	0.6	Z	0.6	0.5	0.6	0.5	0.5	0.5	0.8	0.8	0.7	0.5	0.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.4	0.8							
3-Dec	0.0	0.0	0.1	0.0	0.1	Z	0.0	0.0	0.1	0.0	0.0	0.3	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3							
4-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.2	0.1	0.4								
5-Dec	0.0	Z	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.5	0.8	0.5	0.2	0.0	0.0	0.2	0.0	0.2	0.2	0.0	0.1	0.1	0.1	0.8								
6-Dec	0.1	0.0	Z	0.1	0.2	0.3	0.4	0.0	0.2	1.0	1.9	2.2	1.3	0.4	0.2	0.4	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	2.2								
7-Dec	0.0	0.0	0.0	Z	0.2	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2								
8-Dec	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.0	0.2	0.2	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.2	0.1	0.3								
9-Dec	0.1	0.3	0.1	0.2	0.1	Z	0.1	0.1	0.3	0.4	0.3	0.2	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4									
10-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.3	0.3	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.4									
11-Dec	0.0	Z	0.1	0.1	0.1	0.0	0.0	0.2	0.0	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.2	0.2	0.1	0.2	0.0	0.1	0.2	0.3	0.3								
12-Dec	0.1	0.3	Z	0.1	0.1	0.0	0.0	0.0	0.0	C	C	C	C	C	0.0	0.0	0.0	0.2	0.1	0.3	0.1	0.3	0.3	0.0	0.3								
13-Dec	0.4	0.3	0.5	Z	0.4	0.5	0.4	0.3	0.4	1.1	1.4	1.1	0.8	1.0	0.5	0.3	0.2	0.2	0.3	0.4	0.1	0.0	0.1	0.1	1.4								
14-Dec	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1								
15-Dec	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								
16-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.1	0.7	0.2	0.1	0.1	0.2	0.0	0.2	0.0	0.2	0.1	0.4	0.5	1.1								
17-Dec	0.3	Z	0.4	0.5	0.5	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.3	0.1	0.2	0.2	0.0	0.1	0.6								
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.7	3.6	2.4	2.8	4.7	5.7	5.3	4.1	2.3	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	5.7								
19-Dec	0.0	0.0	0.0	Z	3.0	5.5	5.5	3.0	2.2	4.9	8.2	5.9	2.8	2.2	1.0	0.5	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	8.2								
20-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2								
21-Dec	0.2	0.1	0.2	0.3	0.0	Z	0.0	0.0	0.1	0.1	0.5	0.9	0.8	0.6	0.6	0.3	0.2	0.2	0.3	0.0	0.1	0.1	0.2	0.3	0.9								
22-Dec	Z	0.2	0.1	0.1	0.3	0.4	0.2	0.4	0.3	0.4	0.5	0.3	0.6	0.6	2.8	0.7	0.3	0.2	0.3	0.2	0.4	0.3	0.3	0.1	2.8								
23-Dec	0.4	Z	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.8	3.1	4.7	4.9	5.0	3.1	1.0	0.3	0.0	0.2	0.1	0.0	0.1	0.1	0.1	5.0								
24-Dec	0.1	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1	1.5	0.8	0.4	0.5	0.1	0.0	0.2	0.1	0.2	0.1	0.0	0.2	0.3	1.5								
25-Dec	0.0	0.2	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.2								
26-Dec	0.1	0.0	0.0	0.1	Z	0.2	0.1	0.0	0.0	0.4	0.4	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5								
27-Dec	0.3	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.3	0.4	0.2	0.4	0.6	0.4	0.5	0.7	0.7	0.7	0.5	0.7								
28-Dec	Z	0.9	0.6	0.5	0.5	0.4	0.4	0.3	0.2	0.3	0.1	0.3	0.1	0.5	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.9								
29-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.3	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.4								
31-Dec	0.4	0.1	0.3	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.5	0.5	0.4	0.6	0.3	0.5	0.3	0.3	0.5	0.5	0.2	0.4	0.4	0.6								
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	3	14	33	68	121	23	32	26	18	25	26	32	94	110	60	23	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	3	14	33	68	121	23	32	26	18	25	26	32	94	110	60	23	708

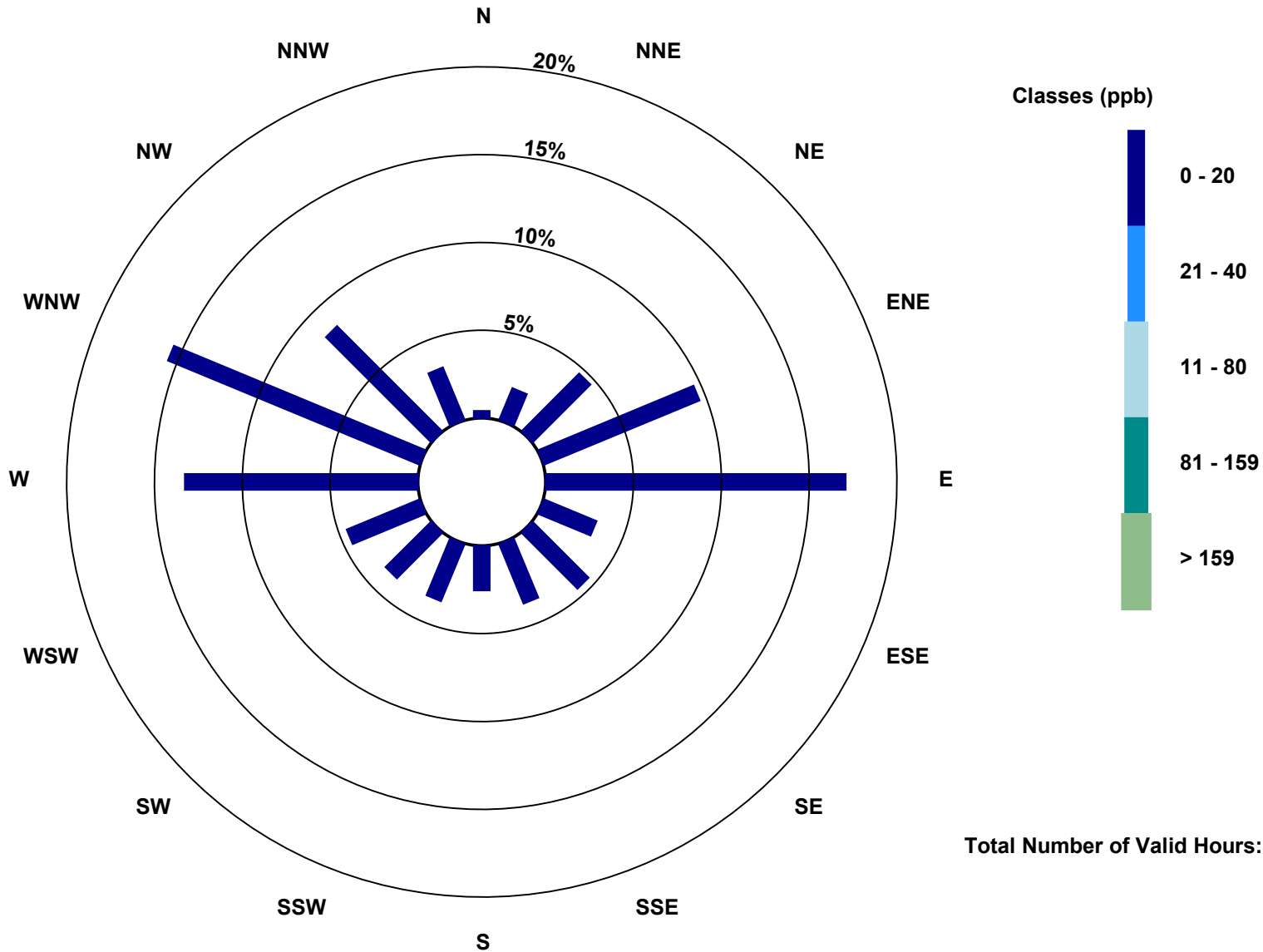
Total Number of Valid Hours: 708

Total Number of Hours: 744

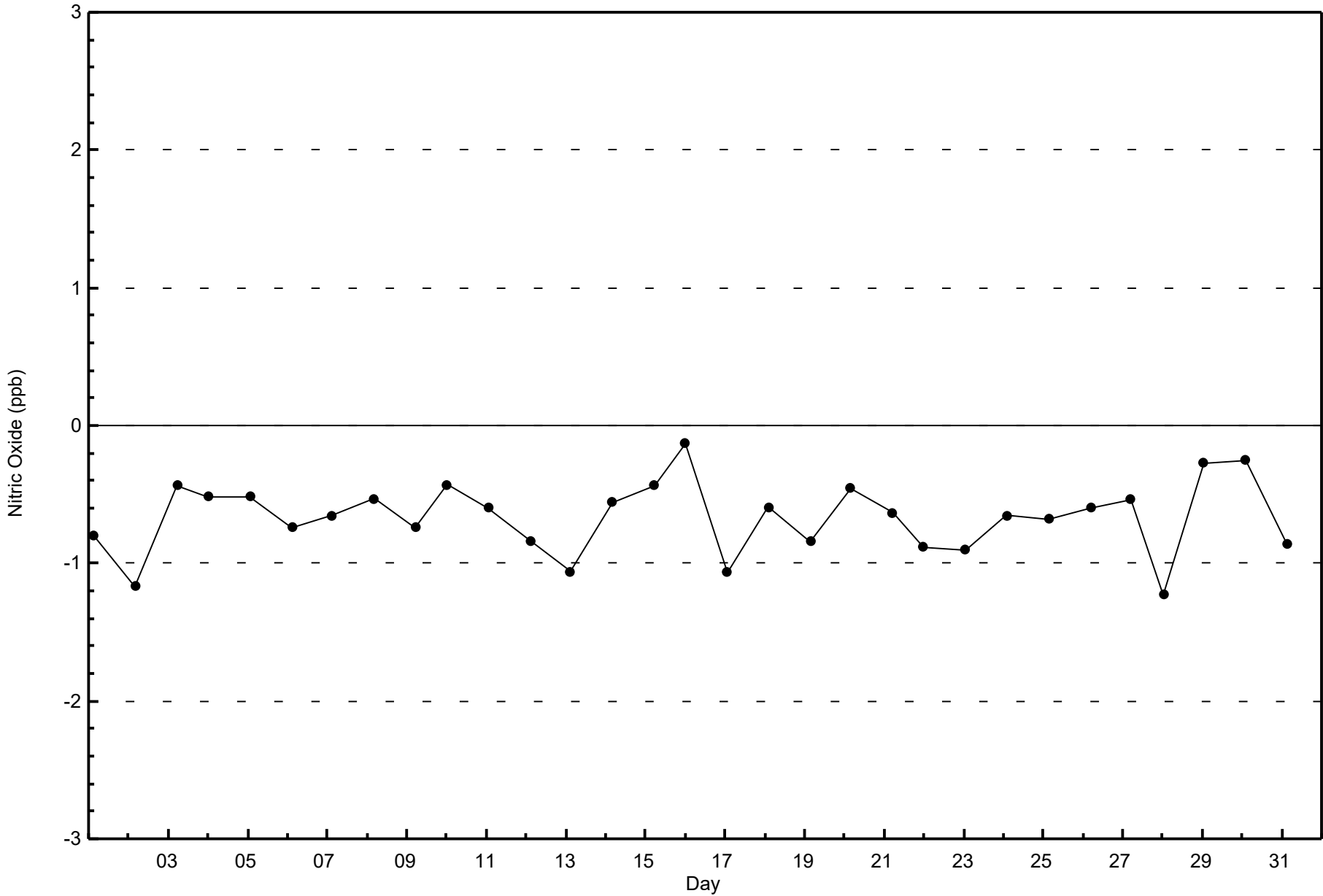


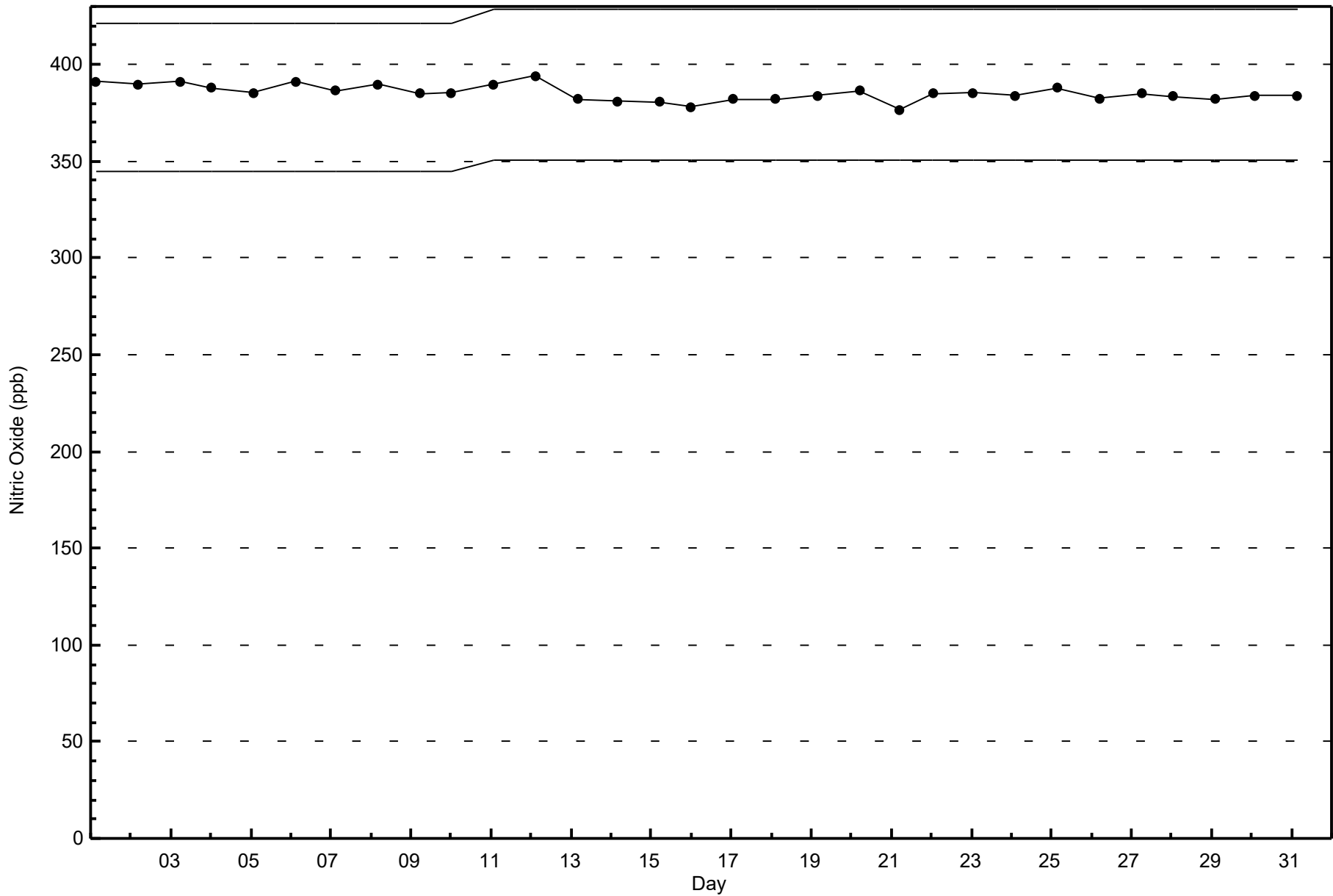
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Fort Chipewyan



Total Number of Valid Hours: 708







Wood Buffalo Environmental Association

Summary of Hour Averages

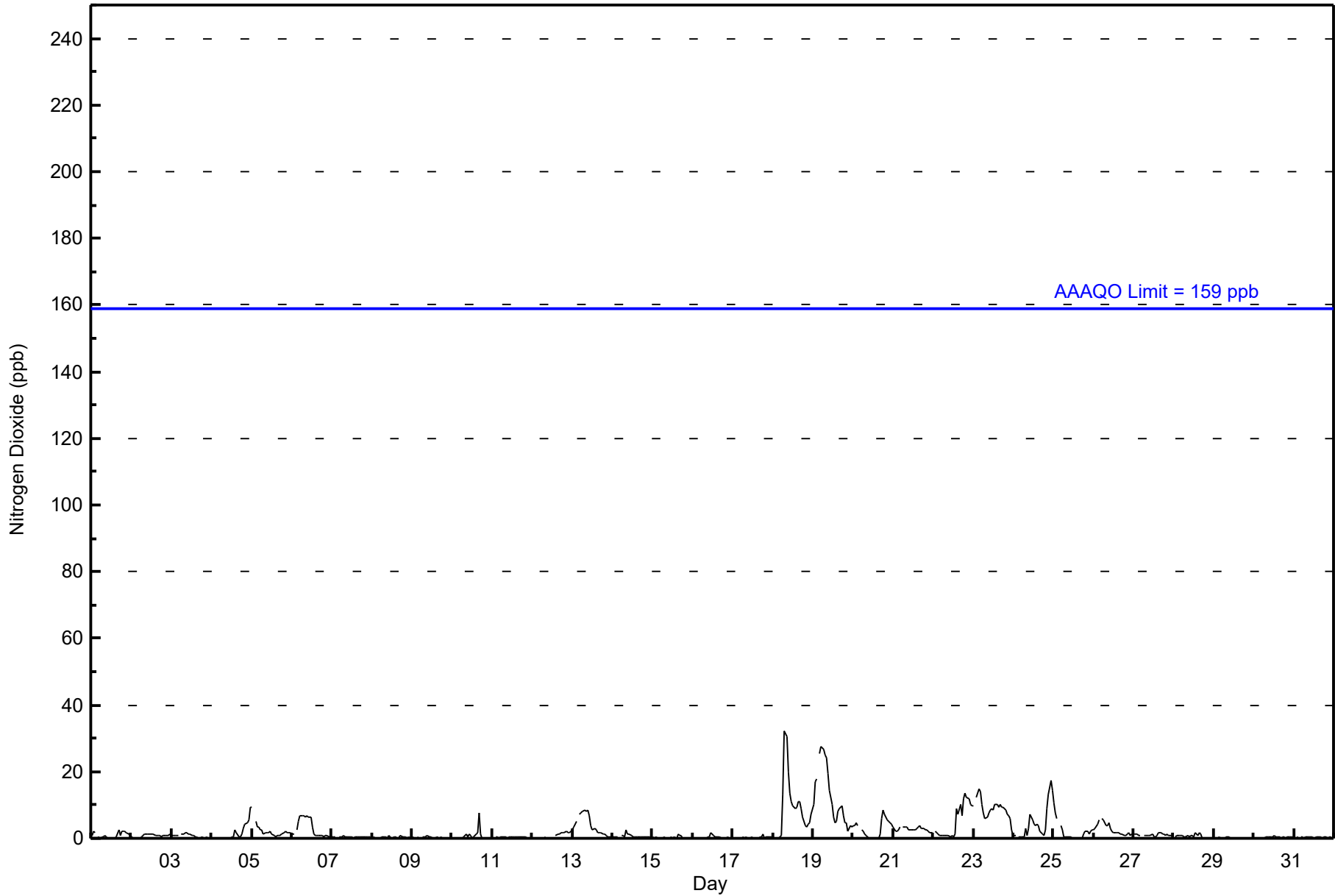
Nitrogen Dioxide (NO₂) - ppb

Fort Chipewyan - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 32.4 ppb on Dec 18 08:00	Maximum Daily Average: 12.4 ppb on Dec 19		Hours of Data:	708
Minimum Value: 0.0 ppb on Dec 1 12:00	Minimum Daily Average: 0.1 ppb on Dec 29		Hours of Missing Data:	36
Maximum Diurnal Average: 3.2 ppb at hour 8	Minimum Diurnal Average: 1.6 ppb at hour 4		Hours of Calibration:	36
Monthly Average: 2.26 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.3 Median = 0.7 Q ₃ = 2.2 P ₉₀ = 7.0 P ₉₉ = 20.1		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.7	2.2	1.6	Z	0.6	0.2	0.4	0.4	1.0	0.4	0.2	0.0	0.0	0.0	0.1	0.4	2.6	0.9	2.2	2.3	2.2	1.6	1.1	1.0	1.0	2.6
2-Dec	0.6	0.2	0.2	0.2	Z	0.2	0.3	0.7	1.3	1.4	1.3	1.2	1.2	1.1	0.9	0.9	0.7	0.7	0.6	0.7	0.8	0.9	0.9	1.4	0.8	1.4
3-Dec	1.0	1.0	0.7	0.7	0.8	Z	1.2	1.3	1.7	1.6	1.2	1.3	0.8	0.8	0.6	0.3	0.2	0.1	0.3	0.1	0.2	0.3	0.2	0.2	0.7	1.7
4-Dec	Z	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	2.7	1.9	0.5	0.4	1.4	3.1	4.1	4.8	5.6	9.3	1.5	9.3
5-Dec	9.3	Z	5.2	3.3	3.2	2.7	2.4	1.3	1.5	1.6	1.6	2.2	1.4	0.9	0.5	0.7	1.0	0.7	1.3	1.8	2.2	1.8	1.8	1.6	2.2	9.3
6-Dec	1.3	1.3	Z	2.5	5.0	6.8	6.7	6.8	6.5	6.6	6.3	6.2	3.6	1.4	0.9	0.8	1.0	0.8	0.7	0.5	0.8	0.7	0.5	0.4	3.0	6.8
7-Dec	0.5	0.4	0.5	Z	0.4	0.5	0.5	0.7	0.5	0.5	0.6	0.4	0.4	0.1	0.3	0.6	0.5	0.6	0.5	0.3	0.4	0.4	0.4	0.3	0.4	0.7
8-Dec	0.1	0.3	0.2	0.2	Z	0.1	0.3	0.4	0.5	0.2	0.7	0.5	0.2	0.5	0.3	0.2	0.2	1.0	0.4	0.3	0.4	0.1	0.3	0.2	0.3	1.0
9-Dec	0.4	0.2	0.2	0.1	0.3	Z	0.4	0.3	0.3	0.8	0.3	0.4	0.2	0.2	0.2	0.3	0.1	0.3	0.1	0.2	0.0	0.2	0.2	0.0	0.2	0.8
10-Dec	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.3	1.3	0.4	1.1	0.8	0.2	0.6	1.4	1.6	7.8	1.2	0.2	0.2	0.2	0.2	0.1	0.1	0.8	7.8
11-Dec	0.4	Z	0.3	0.4	0.2	0.6	0.4	0.6	0.5	0.2	0.4	0.3	0.3	0.6	0.6	0.5	0.4	0.4	0.5	0.3	0.3	0.2	0.0	0.0	0.4	0.6
12-Dec	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.3	C	C	C	C	C	1.0	1.1	1.3	1.5	1.6	1.8	2.2	1.8	1.6	2.0	0.9	2.2
13-Dec	2.5	3.3	4.9	Z	7.3	7.6	8.0	8.5	7.9	8.4	6.8	3.7	2.4	3.0	2.6	1.9	1.9	1.8	1.4	1.2	0.8	0.6	0.6	0.5	3.8	8.5
14-Dec	0.5	0.3	0.4	0.5	Z	0.7	1.0	0.5	2.4	1.4	1.3	0.9	0.6	0.5	0.6	0.3	0.5	0.6	0.3	0.4	0.6	0.6	0.3	0.2	0.7	2.4
15-Dec	0.4	0.2	0.3	0.0	0.0	Z	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.4	0.0	1.1	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
16-Dec	Z	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.4	0.5	1.7	0.7	0.6	0.4	0.3	0.4	0.2	0.2	0.2	0.2	0.3	0.1	0.0	0.3	1.7
17-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.1	0.4	0.2	0.2	0.5	0.2	0.1	0.2	0.2	0.3	0.4	1.2	0.2	0.3	0.3	0.4	0.3	0.3	1.2
18-Dec	0.3	0.2	Z	0.2	0.3	1.0	13.1	32.4	30.5	20.1	13.5	10.9	9.6	8.8	9.2	11.1	11.1	9.0	6.3	3.8	3.2	4.1	4.6	7.0	9.1	32.4
19-Dec	10.0	17.0	17.7	Z	25.5	27.4	26.5	25.1	24.0	19.7	14.6	10.0	6.2	4.8	4.9	8.0	8.8	9.7	6.8	4.6	4.8	2.2	3.8	3.2	12.4	27.4
20-Dec	3.9	3.9	4.6	3.9	Z	2.6	2.1	1.3	0.8	0.1	0.0	0.1	0.0	0.0	0.0	1.2	6.0	8.5	7.1	5.3	5.0	4.8	4.1	2.8	8.5	
21-Dec	3.3	2.1	2.0	2.7	3.2	Z	3.3	3.2	3.2	2.4	2.5	2.7	2.7	2.7	3.1	3.3	3.9	2.9	2.9	2.7	2.4	2.0	1.7	1.7	2.7	3.9
22-Dec	Z	2.0	1.7	1.4	1.0	0.9	1.0	0.9	0.7	0.7	0.5	0.7	0.6	1.3	8.9	7.1	10.3	6.6	12.0	13.7	12.1	11.8	10.2	9.8	5.0	13.7
23-Dec	9.8	Z	12.3	14.9	14.0	10.2	7.8	5.9	6.2	7.5	8.4	9.1	8.6	10.1	10.3	9.5	10.2	9.2	9.4	8.4	7.1	6.7	5.8	2.5	8.9	14.9
24-Dec	1.0	0.7	Z	0.6	0.5	0.5	0.6	3.1	0.9	3.1	7.0	5.5	4.3	3.9	4.1	3.7	2.1	1.3	1.0	2.7	8.7	13.3	17.4	14.2	4.4	17.4
25-Dec	10.7	7.6	5.8	Z	4.0	2.7	0.4	0.3	0.5	0.3	0.3	0.2	0.1	0.2	0.2	0.0	0.1	0.1	1.3	2.2	2.0	1.3	2.3	2.6	2.0	10.7
26-Dec	2.5	2.8	4.4	5.7	Z	6.0	5.4	4.0	3.8	4.8	3.0	2.3	1.9	1.7	1.7	1.6	1.3	1.2	1.0	0.7	1.2	1.5	1.0	1.2	2.6	6.0
27-Dec	1.4	1.1	1.1	0.8	1.0	Z	0.9	0.8	0.7	0.7	0.9	1.3	0.4	0.5	1.0	1.7	1.6	1.1	1.1	0.9	1.2	1.0	0.8	0.7	1.0	1.7
28-Dec	Z	0.6	0.7	0.7	0.8	0.8	0.3	0.3	0.7	0.3	0.8	0.8	0.3	1.8	1.0	1.6	1.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.6	1.8
29-Dec	0.0	Z	0.0	0.3	0.1	0.1	0.0	0.3	0.5	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.5
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.5	0.5	0.5	0.6	0.8	0.3	0.6	0.5	0.2	0.4	0.3	0.1	0.4	0.3	0.3	0.3	0.3	0.8
31-Dec	0.2	0.2	0.3	Z	0.3	0.4	0.2	0.4	0.5	0.4	0.3	0.4	0.2	0.3	0.3	0.3	0.3	0.1	0.3	0.3	0.2	0.3	0.5	0.2	0.3	0.5
	2.3	1.8	2.5	1.6	2.7	2.8	2.7	3.2	3.2	2.8	2.5	2.2	1.6	1.6	1.9	2.0	2.3	1.9	2.1	2.0	2.1	2.1	2.2	2.1		Diurnal Average
	10.7	17.0	17.7	14.9	25.5	27.4	26.5	32.4	30.5	20.1	14.6	10.9	9.6	10.1	10.3	11.1	11.1	9.7	12.0	13.7	12.1	13.3	17.4	14.2		Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	3	14	33	68	121	22	32	25	18	25	26	29	93	109	60	23	701
21 - 40	0	0	0	0	0	1	0	1	0	0	0	3	1	1	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	3	14	33	68	121	23	32	26	18	25	26	32	94	110	60	23	708

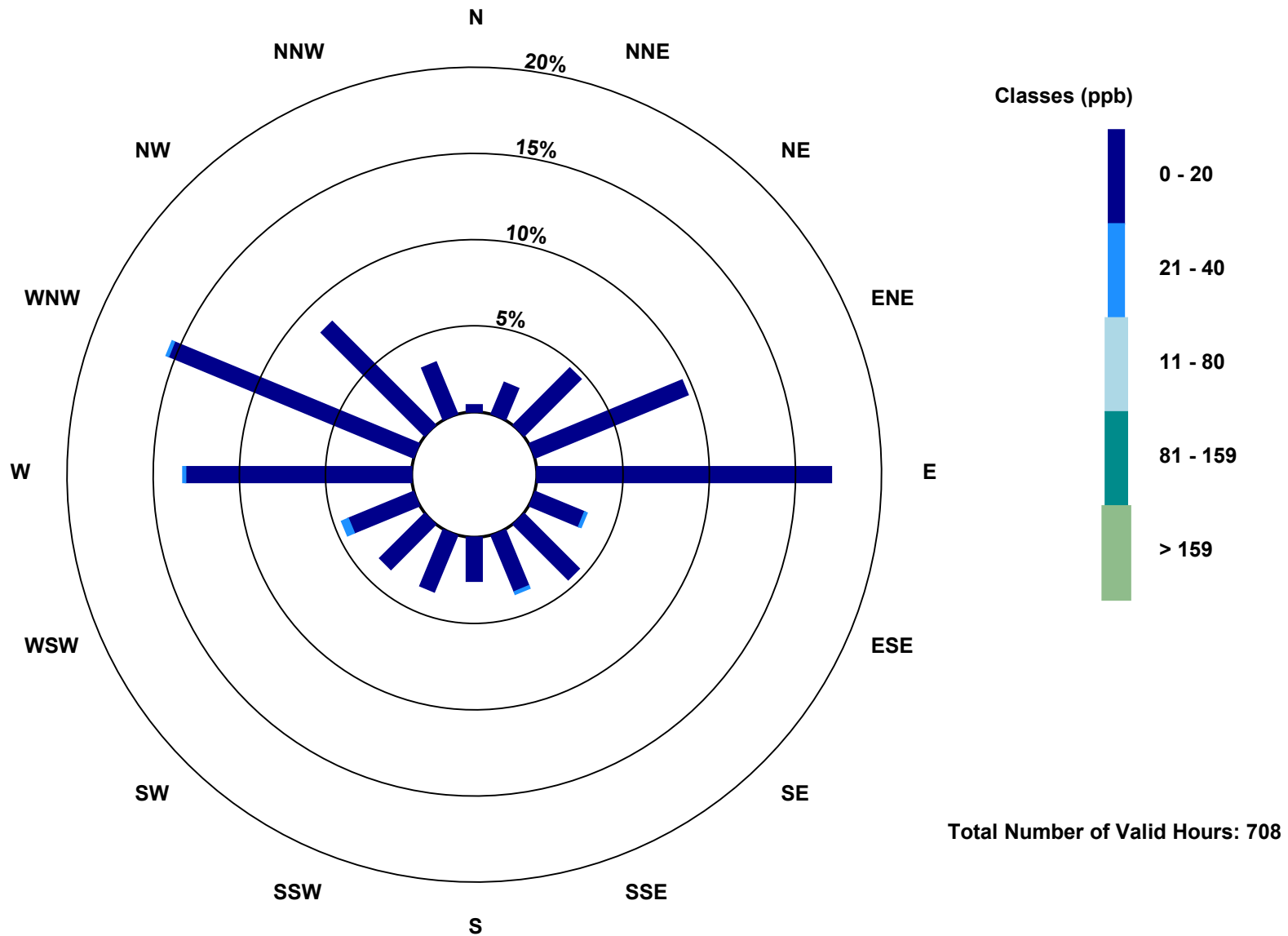
Total Number of Valid Hours: 708

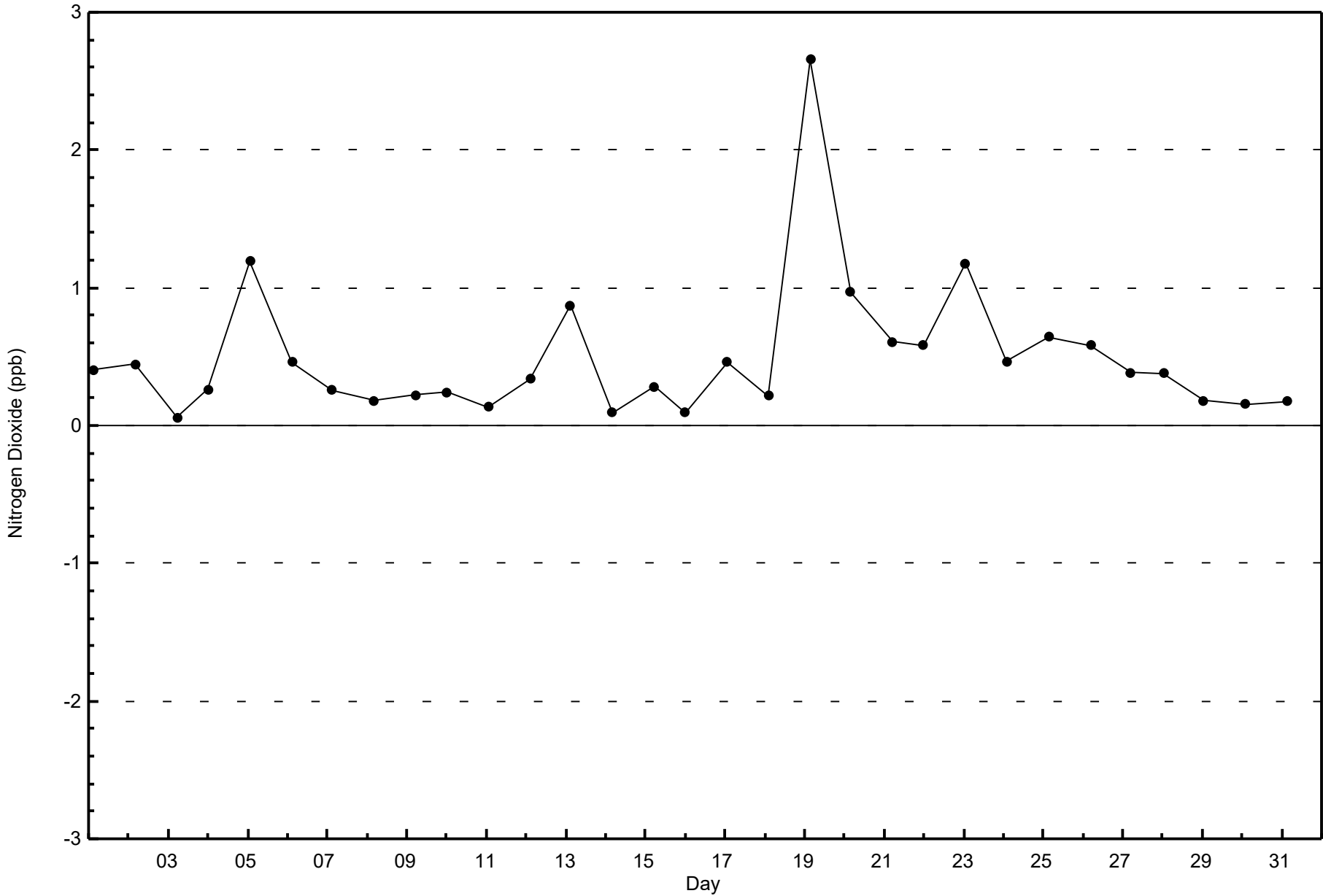
Total Number of Hours: 744

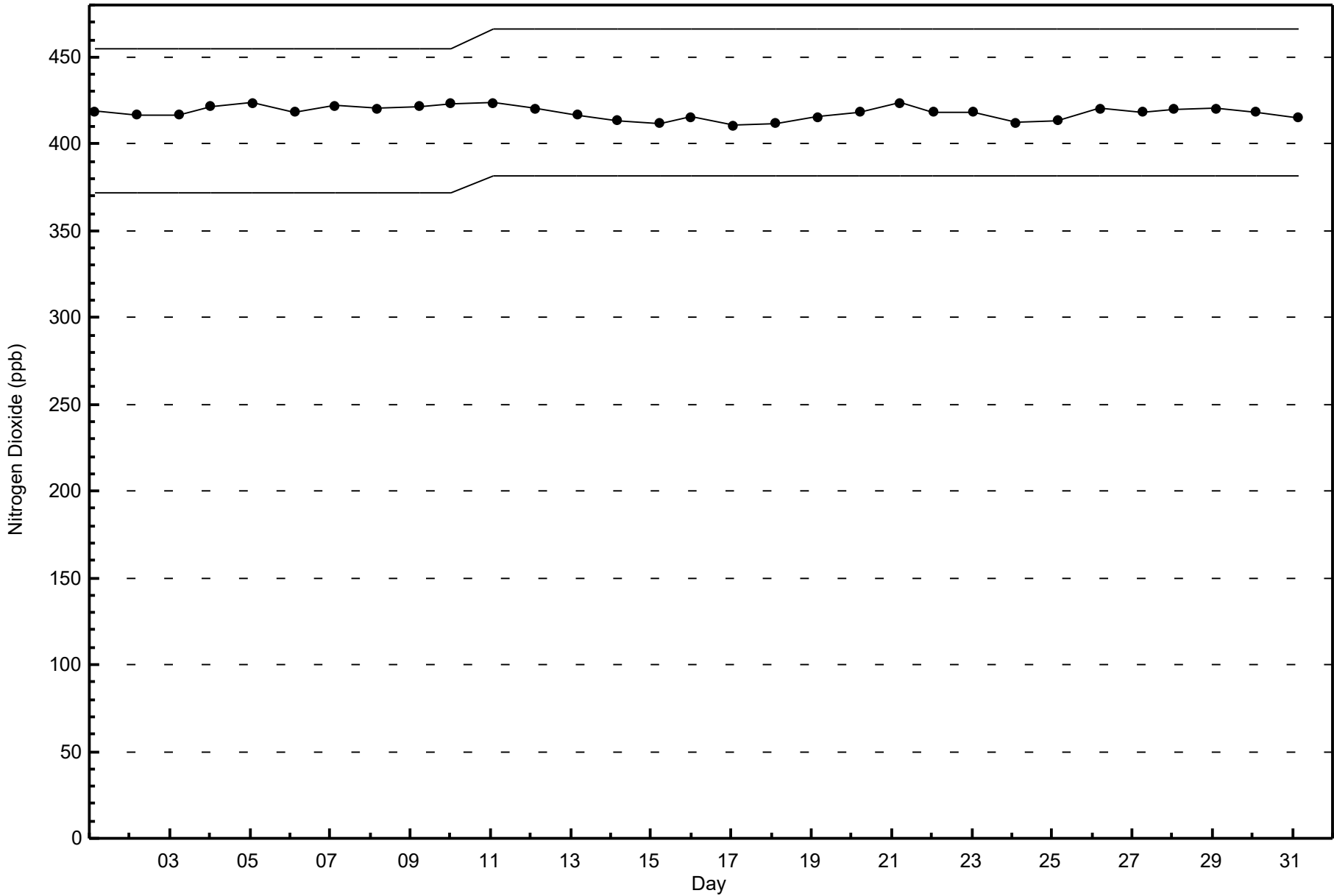


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Fort Chipewyan









Wood Buffalo Environmental Association
Summary of Hour Averages

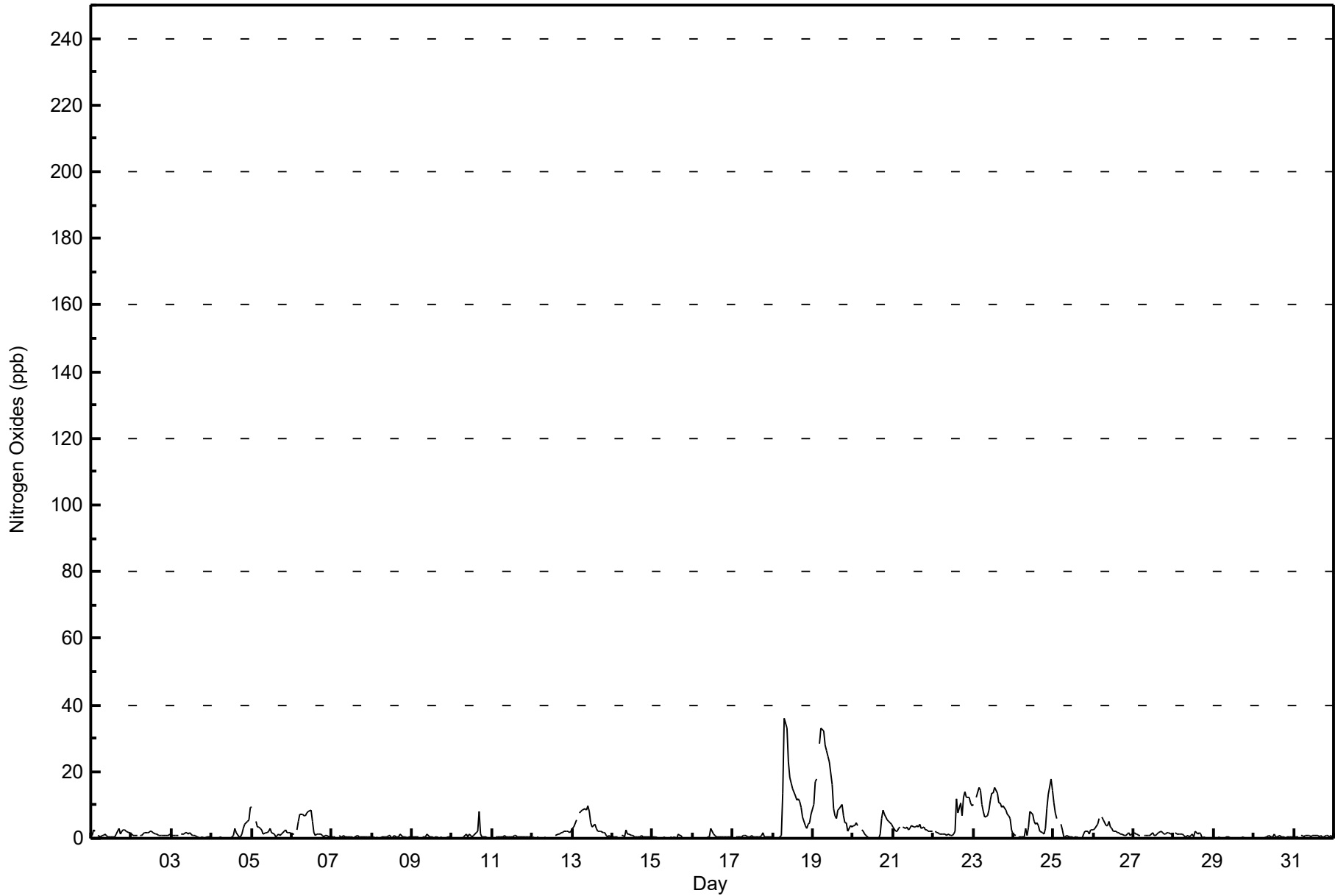
Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan - December 2024

Maximum Value: 36.0 ppb on Dec 18 08:00		Maximum Daily Average: 14.4 ppb on Dec 19		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Dec 4 05:00		Minimum Daily Average: 0.1 ppb on Dec 29		Hours of Data: 708																																													
Maximum Diurnal Average: 3.6 ppb at hour 8		Minimum Diurnal Average: 1.7 ppb at hour 4		Hours of Missing Data: 36																																													
Monthly Average: 2.57 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.4 Median = 0.8 Q ₃ = 2.4 P ₉₀ = 7.8 P ₉₉ = 24.5		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-Dec	0.9	2.6	2.1	Z	1.0	0.6	0.8	0.7	1.4	0.7	0.4	0.5	0.3	0.5	0.5	1.1	3.1	1.2	2.3	2.7	2.6	2.0	1.7	1.5	1.3	3.1																							
2-Dec	1.2	0.7	0.7	0.8	Z	0.8	0.8	1.3	1.8	1.9	1.8	2.0	2.0	1.8	1.4	1.2	1.0	0.9	0.9	0.8	0.8	0.9	0.9	1.4	1.2	2.0																							
3-Dec	1.0	1.0	0.8	0.7	0.9	Z	1.2	1.3	1.8	1.6	1.2	1.6	1.0	0.8	0.8	0.3	0.2	0.1	0.3	0.1	0.2	0.3	0.2	0.2	0.8	1.8																							
4-Dec	Z	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.9	3.1	1.9	0.5	0.6	1.4	3.1	4.1	4.9	5.6	9.5	1.6	9.5																							
5-Dec	9.3	Z	5.2	3.3	3.2	3.0	2.4	1.3	1.5	1.8	2.1	3.0	1.9	1.1	0.5	0.7	1.2	0.7	1.3	2.0	2.4	1.8	1.9	1.7	2.3	9.3																							
6-Dec	1.4	1.3	Z	2.6	5.2	7.1	7.1	6.8	6.7	7.6	8.2	8.4	4.9	1.8	1.1	1.2	1.1	1.1	0.7	0.5	0.8	0.7	0.5	0.4	3.4	8.4																							
7-Dec	0.5	0.4	0.5	Z	0.6	0.5	0.5	0.7	0.6	0.6	0.6	0.4	0.4	0.1	0.3	0.7	0.6	0.6	0.5	0.4	0.6	0.4	0.4	0.3	0.5	0.7																							
8-Dec	0.2	0.3	0.2	0.2	Z	0.1	0.3	0.4	0.5	0.3	0.9	0.8	0.2	0.7	0.5	0.3	0.2	1.1	0.4	0.5	0.4	0.1	0.5	0.3	0.4	1.1																							
9-Dec	0.5	0.5	0.3	0.3	0.4	Z	0.5	0.4	0.6	1.2	0.6	0.6	0.3	0.2	0.4	0.4	0.1	0.3	0.1	0.2	0.0	0.2	0.3	0.0	0.4	1.2																							
10-Dec	Z	0.1	0.1	0.1	0.2	0.2	0.1	0.3	1.3	0.4	1.1	1.0	0.2	1.0	1.7	1.9	8.0	1.2	0.3	0.2	0.3	0.2	0.1	0.1	0.9	8.0																							
11-Dec	0.4	Z	0.4	0.5	0.3	0.6	0.4	0.8	0.5	0.3	0.5	0.4	0.3	0.8	0.7	0.5	0.6	0.6	0.6	0.5	0.3	0.3	0.2	0.3	0.5	0.8																							
12-Dec	0.1	0.4	Z	0.2	0.2	0.1	0.0	0.1	0.3	C	C	C	C	C	1.0	1.1	1.3	1.7	1.7	2.1	2.3	2.1	1.9	2.0	1.0	2.3																							
13-Dec	2.9	3.6	5.4	Z	7.7	8.1	8.4	8.8	8.3	9.5	8.2	4.8	3.2	4.0	3.1	2.2	2.1	2.0	1.7	1.6	0.9	0.6	0.7	0.6	4.3	9.5																							
14-Dec	0.5	0.3	0.5	0.6	Z	0.7	1.0	0.5	2.4	1.4	1.3	0.9	0.6	0.5	0.6	0.3	0.5	0.6	0.3	0.4	0.6	0.6	0.3	0.2	0.7	2.4																							
15-Dec	0.4	0.2	0.3	0.0	0.0	Z	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.4	0.0	1.1	1.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1																							
16-Dec	Z	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.5	0.5	2.8	1.4	0.8	0.5	0.4	0.6	0.2	0.4	0.2	0.4	0.4	0.5	0.5	0.5	2.8																							
17-Dec	0.3	Z	0.4	0.5	0.5	0.6	0.8	0.7	0.8	0.5	0.5	0.7	0.4	0.3	0.3	0.3	0.6	0.6	1.5	0.3	0.5	0.5	0.4	0.4	0.5	1.5																							
18-Dec	0.3	0.2	Z	0.2	0.3	1.0	13.8	36.0	32.9	22.9	18.2	16.6	14.9	12.9	11.5	11.9	11.1	9.1	6.3	3.8	3.2	4.1	4.6	7.2	10.6	36.0																							
19-Dec	10.0	17.0	17.7	Z	28.5	32.9	32.0	28.1	26.2	24.6	22.8	15.9	9.0	7.0	5.9	8.5	8.8	10.0	6.9	4.6	4.8	2.2	3.8	3.2	14.4	32.9																							
20-Dec	3.9	3.9	4.6	3.9	Z	2.6	2.1	1.3	0.8	0.1	0.0	0.1	0.0	0.1	0.0	0.0	1.2	6.0	8.5	7.2	5.5	5.0	4.8	4.1	2.9	8.5																							
21-Dec	3.5	2.2	2.2	3.0	3.2	Z	3.3	3.2	3.3	2.5	3.0	3.6	3.5	3.3	3.7	3.6	4.1	3.1	3.2	2.7	2.5	2.1	1.9	2.0	3.0	4.1																							
22-Dec	Z	2.2	1.8	1.5	1.3	1.3	1.2	1.3	1.0	1.1	1.0	1.0	1.2	1.9	11.7	7.8	10.6	6.8	12.3	13.9	12.5	12.1	10.5	9.9	5.5	13.9																							
23-Dec	10.2	Z	12.5	15.2	14.2	10.4	8.1	6.2	6.6	8.3	11.5	13.8	13.5	15.1	13.4	10.5	10.5	9.2	9.6	8.5	7.1	6.8	5.9	2.6	10.0	15.2																							
24-Dec	1.1	0.9	Z	0.6	0.5	0.5	0.6	3.1	0.9	3.4	8.1	7.0	5.1	4.3	4.6	3.8	2.1	1.5	1.1	2.9	8.8	13.3	17.6	14.5	4.6	17.6																							
25-Dec	10.7	7.8	5.8	Z	4.0	2.7	0.4	0.3	0.7	0.4	0.4	0.3	0.1	0.4	0.4	0.0	0.1	0.1	1.3	2.2	2.1	1.3	2.5	2.6	2.0	10.7																							
26-Dec	2.6	2.8	4.4	5.8	Z	6.2	5.5	4.0	3.8	5.2	3.4	2.8	2.3	1.9	1.8	1.6	1.3	1.2	1.0	0.7	1.2	1.5	1.0	1.2	2.7	6.2																							
27-Dec	1.7	1.2	1.1	0.8	1.0	Z	0.9	0.8	0.7	0.8	1.0	1.6	0.7	0.8	1.4	1.9	2.0	1.7	1.5	1.4	1.9	1.7	1.5	1.2	1.3	2.0																							
28-Dec	Z	1.5	1.3	1.2	1.3	1.2	0.7	0.6	0.9	0.6	0.9	1.1	0.4	2.3	1.2	1.7	1.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.8	2.3																							
29-Dec	0.0	Z	0.0	0.3	0.1	0.1	0.0	0.3	0.5	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.5																							
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.5	0.9	0.6	0.6	1.1	0.4	0.6	0.7	0.2	0.4	0.3	0.1	0.6	0.4	0.3	0.3	0.4	1.1																							
31-Dec	0.6	0.3	0.6	Z	0.7	0.8	0.5	0.7	0.8	0.7	0.5	0.9	0.7	0.7	0.9	0.6	0.8	0.4	0.6	0.8	0.7	0.5	0.9	0.6	0.7	0.9																							
																								2.5	2.0	2.7	1.7	2.9	3.2	3.0	3.6	3.5	3.3	3.3	3.1	2.3	2.2	2.4	2.2	2.5	2.1	2.2	2.1	2.2	2.2	2.3	2.2	Diurnal Average	
																								10.7	17.0	17.7	15.2	28.5	32.9	32.0	36.0	32.9	24.6	22.8	16.6	14.9	15.1	13.4	11.9	11.1	10.0	12.3	13.9	12.5	13.3	17.6	14.5	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	698	98.59	98.59
21 - 40	10	1.41	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

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

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	3	14	33	68	121	21	32	25	18	25	26	28	92	109	60	23	698
21 - 40	0	0	0	0	0	2	0	1	0	0	0	4	2	1	0	0	10
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	3	14	33	68	121	23	32	26	18	25	26	32	94	110	60	23	708

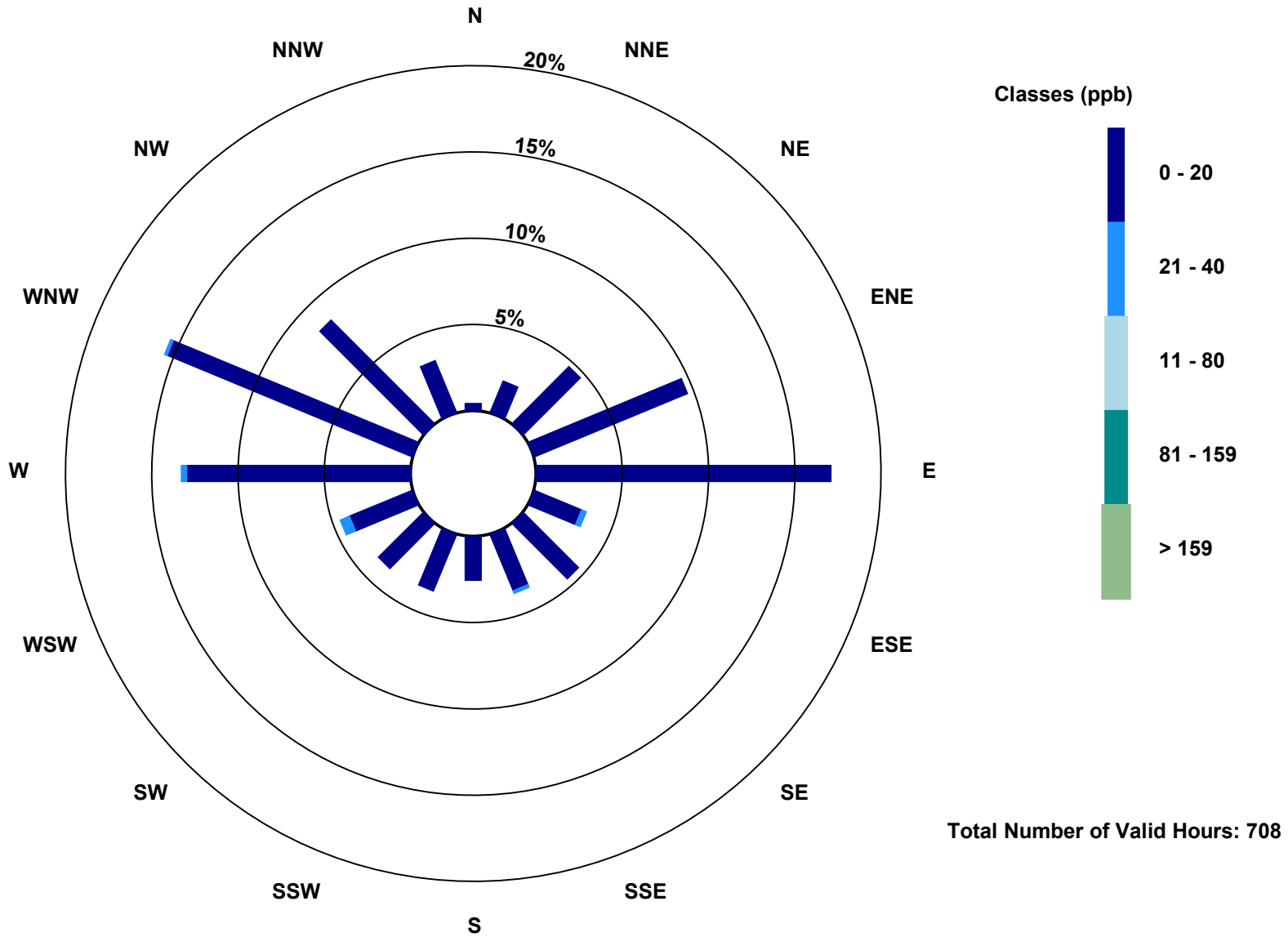
Total Number of Valid Hours: 708

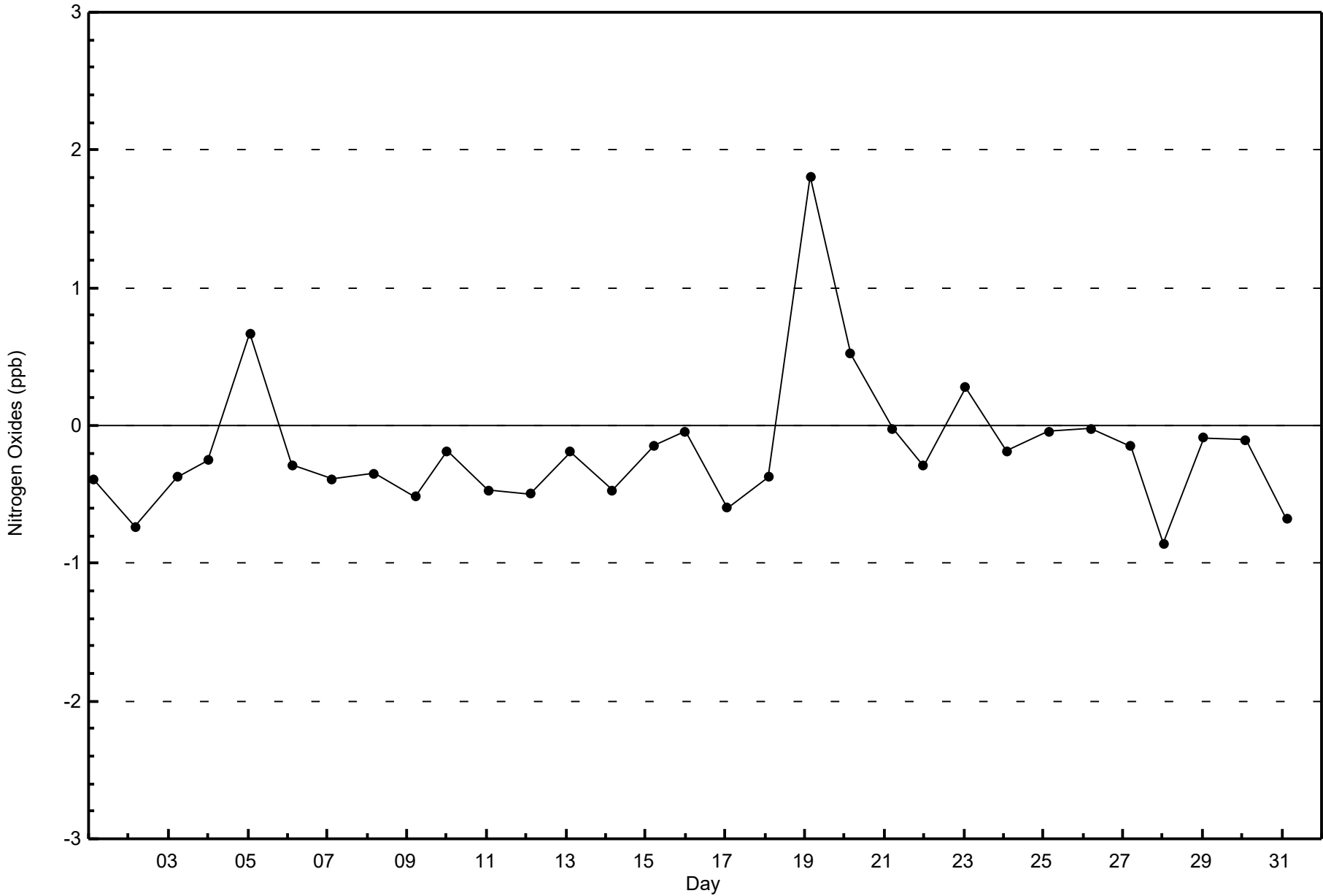
Total Number of Hours: 744

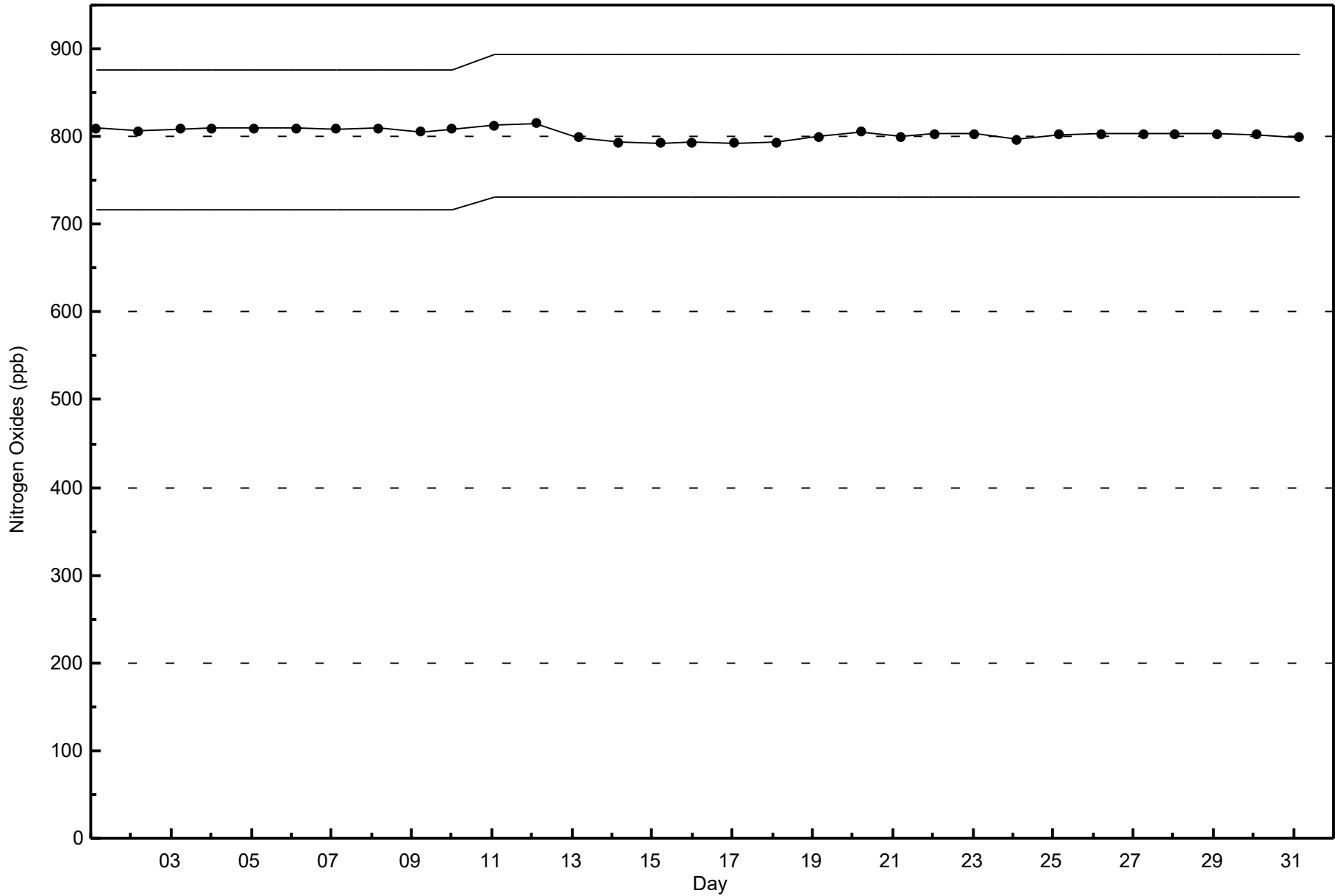


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Fort Chipewyan









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

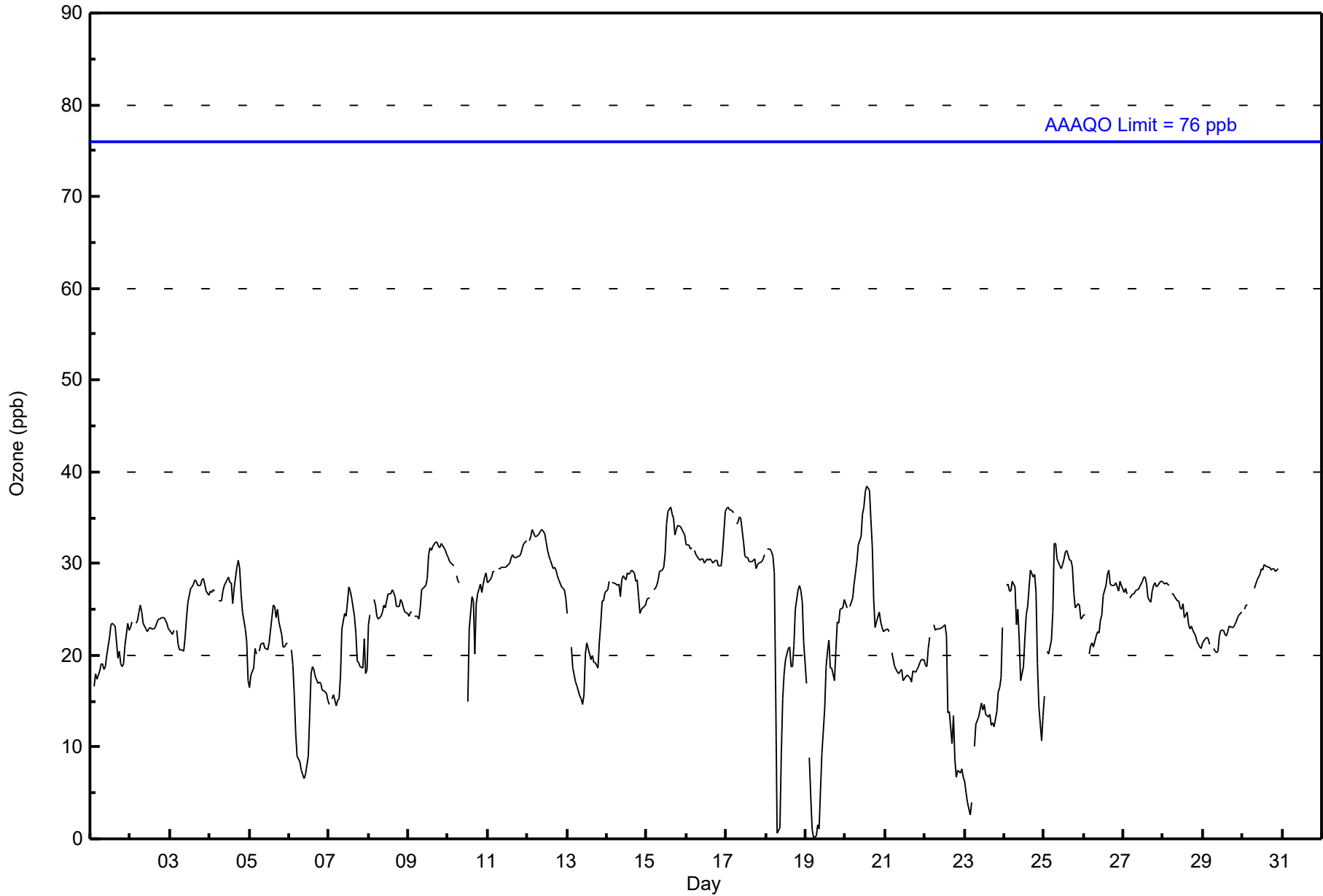
Fort Chipewyan - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 38.4 ppb on Dec 20 14:00	Maximum Daily Average: 32.4 ppb on Dec 17		Hours of Data:	681
Minimum Value: 0.1 ppb on Dec 19 06:00	Minimum Daily Average: 12.2 ppb on Dec 23		Hours of Missing Data:	63
Maximum Diurnal Average: 26.0 ppb at hour 14	Minimum Diurnal Average: 22.1 ppb at hour 5		Hours of Calibration:	34
Monthly Average: 24.15 ppb	Percentiles: P ₁ = 2.3 P ₁₀ = 15.8 Q ₁ = 20.6 Median = 25.2 Q ₃ = 28.7 P ₉₀ = 31.3 P ₉₉ = 35.9		Percent Operational Time:	96.1

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	18.0	Z	16.7	18.1	17.4	18.4	19.0	19.0	18.4	18.8	20.0	22.0	23.4	23.4	23.3	23.2	19.7	20.5	19.1	18.8	19.0	21.0	23.5	22.8	20.1	23.5	
2-Dec	23.0	23.6	Z	23.5	23.7	24.7	25.5	24.6	23.4	22.9	22.6	22.9	23.0	22.9	23.2	23.6	24.0	24.0	24.1	24.2	23.8	23.5	23.0	23.6	25.5		
3-Dec	22.7	22.3	22.7	Z	22.7	21.1	20.6	20.6	20.4	21.9	24.1	25.8	27.2	27.4	27.8	28.2	28.1	27.6	27.6	28.2	28.3	27.7	27.1	26.6	25.1	28.3	
4-Dec	27.0	26.9	27.1	26.9	Z	25.9	25.9	25.9	27.0	27.6	28.3	28.5	28.0	27.9	25.7	27.3	29.6	30.4	29.4	26.6	24.8	22.9	21.4	17.2	26.4	30.4	
5-Dec	16.4	17.8	18.7	20.8	20.2	Z	20.4	21.2	21.3	20.8	20.7	20.6	21.4	24.2	25.4	25.3	24.1	25.1	23.7	22.3	20.9	20.9	21.2	21.3	21.5	25.4	
6-Dec	Z	20.6	18.9	15.8	11.6	9.0	8.3	7.5	7.0	6.6	7.1	9.0	13.4	18.0	18.7	18.4	17.7	17.0	17.1	16.9	16.2	16.1	15.8	15.2	14.0	20.6	
7-Dec	14.7	Z	15.2	15.7	14.5	15.0	15.3	17.6	22.8	24.5	24.2	25.8	27.5	27.0	26.3	24.2	22.5	19.4	19.2	18.7	18.6	21.8	18.0	18.5	20.3	27.5	
8-Dec	23.4	24.4	Z	26.1	25.4	24.2	24.0	24.3	24.7	25.5	25.2	26.0	26.8	26.7	27.1	26.8	26.4	25.4	25.3	26.1	25.8	25.2	24.8	24.6	25.4	27.1	
9-Dec	24.2	24.6	24.8	Z	24.3	24.2	23.9	25.1	27.1	27.3	27.6	28.4	30.9	31.7	31.4	31.8	32.3	32.3	31.9	31.8	32.1	31.8	31.5	31.0	28.8	32.3	
10-Dec	30.7	30.2	30.0	29.8	Z	28.7	28.1	27.9	C	C	C	C	15.0	22.8	26.4	26.0	20.1	25.7	26.7	27.7	26.9	27.8	28.6	29.0	26.7	30.7	
11-Dec	28.0	28.2	28.6	29.2	29.1	Z	29.4	29.4	29.6	29.6	29.6	29.6	30.0	30.0	30.6	31.0	30.7	30.6	30.8	30.9	31.2	31.7	32.1	32.5	30.1	32.5	
12-Dec	Z	32.5	33.0	33.7	33.0	33.0	33.1	33.2	33.5	33.6	33.3	32.3	31.5	30.9	30.4	29.5	29.6	29.3	28.7	28.3	27.5	27.4	27.1	26.2	30.9	33.7	
13-Dec	24.6	Z	20.9	18.5	17.8	17.1	16.6	15.6	15.2	14.7	15.8	20.1	21.4	20.1	19.5	20.0	19.2	19.2	18.6	21.6	23.5	25.9	25.9	26.9	19.9	26.9	
14-Dec	27.1	28.1	Z	27.9	27.9	27.8	27.7	27.8	26.3	28.1	28.7	28.2	28.9	28.8	29.1	29.3	29.0	28.0	28.3	26.4	24.6	25.1	25.4	25.4	27.6	29.3	
15-Dec	26.0	26.2	26.3	Z	27.1	27.3	27.7	28.2	29.1	29.4	29.5	31.1	34.3	35.8	36.1	35.3	35.0	33.1	33.8	34.2	34.0	33.7	33.4	33.0	31.3	36.1	
16-Dec	32.1	32.0	31.5	31.7	Z	31.5	31.0	30.6	30.4	30.5	30.4	30.1	30.5	30.3	30.5	30.4	30.0	30.4	30.4	29.7	29.7	29.7	31.3	35.7	30.9	35.7	
17-Dec	36.0	36.2	35.8	35.8	35.6	Z	34.4	34.4	35.1	34.9	32.3	30.8	30.7	30.6	30.3	30.2	30.4	30.4	29.5	30.0	30.1	30.1	30.6	31.0	32.4	36.2	
18-Dec	Z	31.6	31.5	31.3	30.8	29.0	15.6	0.5	1.2	9.3	15.3	18.0	19.5	20.7	20.9	18.7	18.7	21.0	25.1	27.2	27.6	27.0	25.8	21.4	21.2	31.6	
19-Dec	17.0	Z	8.8	4.7	1.0	0.1	0.2	1.5	1.0	5.3	9.3	14.1	18.8	20.4	21.6	18.6	18.5	17.2	20.6	23.6	23.5	25.0	25.1	26.1	14.0	26.1	
20-Dec	25.7	25.2	Z	25.4	26.3	27.7	29.0	30.2	32.0	33.0	35.3	36.2	37.9	38.4	37.9	34.8	31.9	26.0	23.0	23.7	24.6	23.7	23.1	22.6	29.3	38.4	
21-Dec	22.7	22.8	22.6	Z	20.3	19.6	18.8	18.2	18.0	18.3	18.4	17.3	17.7	17.9	17.7	17.5	17.1	18.3	18.2	18.4	18.7	19.2	19.5	19.5	19.0	22.8	
22-Dec	18.9	18.7	20.7	22.0	Z	23.4	22.7	22.9	22.9	22.8	23.0	23.2	23.4	22.2	13.7	13.9	10.3	13.4	8.8	6.7	7.5	7.2	7.7	6.8	16.6	23.4	
23-Dec	6.2	5.1	3.9	2.5	4.0	Z	10.1	12.5	13.2	14.1	14.8	14.0	14.6	13.5	13.2	13.6	12.3	12.7	12.3	13.8	16.1	16.5	17.5	23.1	12.2	23.1	
24-Dec	Z	27.7	27.8	27.0	27.1	28.1	27.4	23.3	25.0	21.7	17.3	18.8	21.8	24.4	25.4	27.3	29.3	28.5	28.8	26.8	19.0	14.5	10.7	13.4	23.5	29.3	
25-Dec	15.6	Z	20.5	20.1	21.7	24.7	32.2	32.2	30.4	29.7	29.5	29.8	30.4	31.3	31.4	30.4	30.3	29.5	26.8	25.2	25.6	25.5	23.9	24.1	27.0	32.2	
26-Dec	24.5	24.4	Z	20.2	21.0	21.4	20.9	22.1	22.6	22.4	23.8	24.4	26.5	27.7	28.8	29.3	27.8	27.7	27.6	27.9	27.5	27.1	28.1	27.7	25.3	29.3	
27-Dec	26.9	27.3	26.7	Z	26.2	26.7	26.7	27.0	27.1	27.2	27.5	28.1	28.6	28.5	27.7	26.2	25.8	27.1	27.6	27.9	27.5	27.6	28.0	28.0	27.3	28.6	
28-Dec	27.9	27.7	27.9	27.6	Z	26.7	26.8	26.4	26.0	25.9	25.1	25.1	25.7	24.1	24.7	23.4	22.9	23.1	22.7	22.2	21.5	21.3	20.9	20.8	24.6	27.9	
29-Dec	21.4	21.8	22.0	21.8	21.2	Z	20.8	20.5	20.3	20.4	22.2	22.7	22.7	22.2	22.1	22.6	23.1	23.1	23.0	23.4	23.6	24.2	24.4	24.7	22.4	24.7	
30-Dec	Z	25.0	25.4	25.5	UO	UO	UO	27.3	27.8	28.2	28.9	29.5	29.3	30.0	29.7	29.6	29.7	29.3	29.5	29.4	29.2	29.4	UO	UO	28.5	30.0	
31-Dec	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	--	--

23.2	25.2	23.5	23.3	22.1	23.2	22.8	22.6	22.7	23.3	23.8	24.6	25.4	26.0	25.9	25.5	24.9	24.8	24.6	24.6	24.3	24.4	24.0	24.1	Diurnal Average	
36.0	36.2	35.8	35.8	35.6	33.0	34.4	34.4	35.1	34.9	35.3	36.2	37.9	38.4	37.9	35.3	35.0	33.1	33.8	34.2	34.0	33.7	33.4	35.7	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Fort Chipewyan - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	165	24.23	24.23
21 - 50	516	75.77	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 681

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ozone (O₃) - ppb
Fort Chipewyan - December 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	9	16	12	11	14	9	15	12	11	30	16	4	6	165
21 - 50	3	14	32	59	106	9	26	14	9	10	13	20	63	66	56	16	516
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	3	14	32	68	122	21	37	28	18	25	25	31	93	82	60	22	681

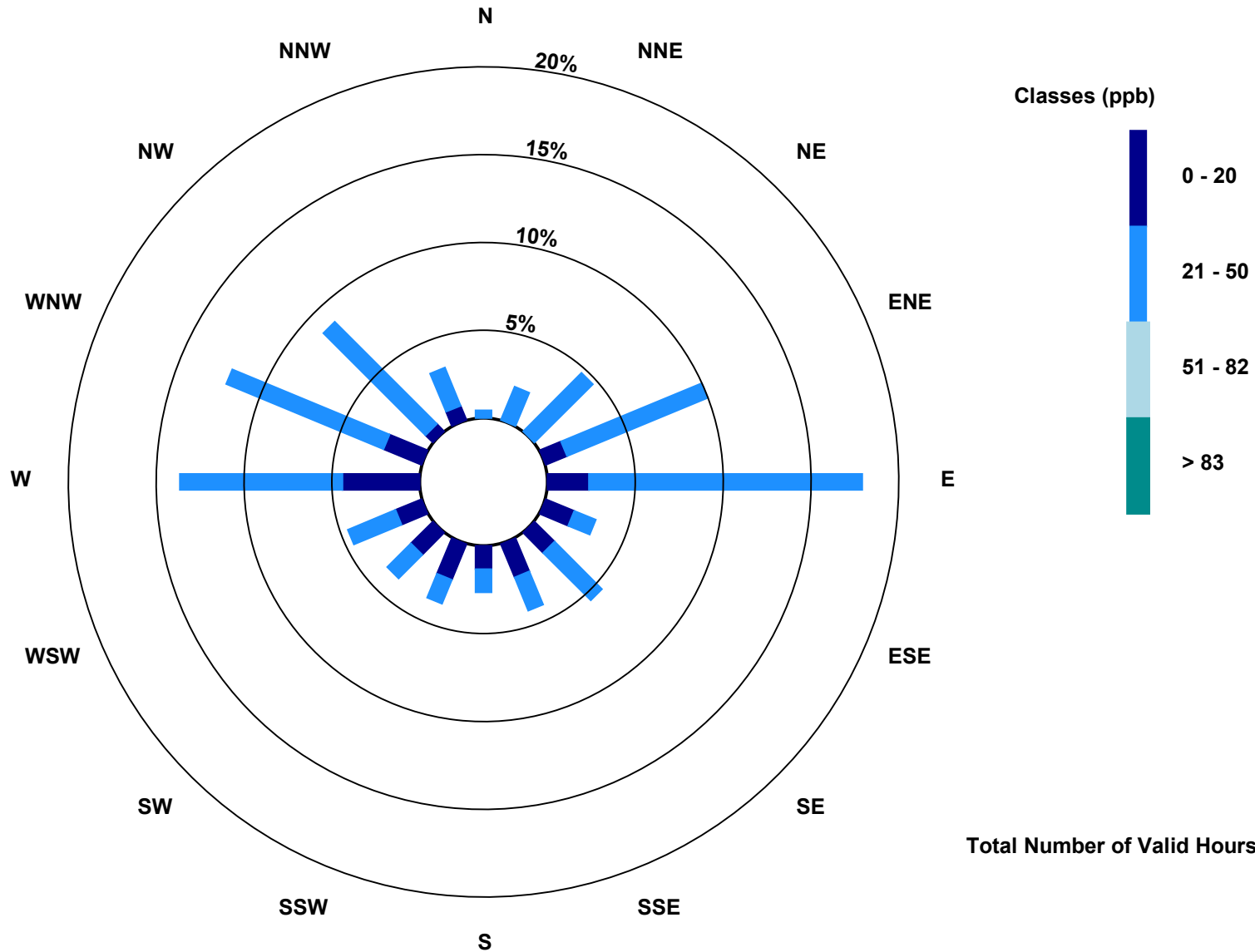
Total Number of Valid Hours: 681

Total Number of Hours: 744

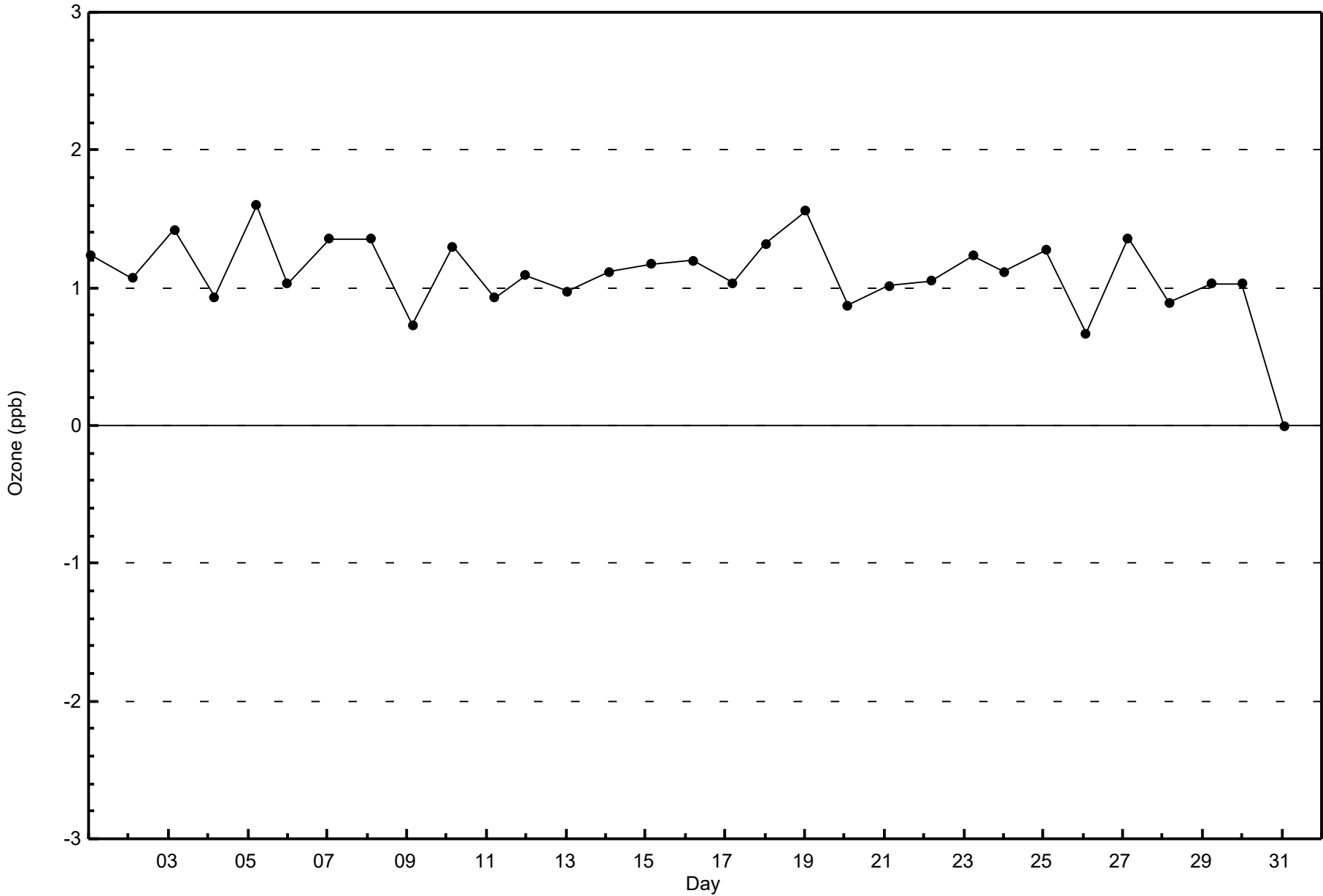


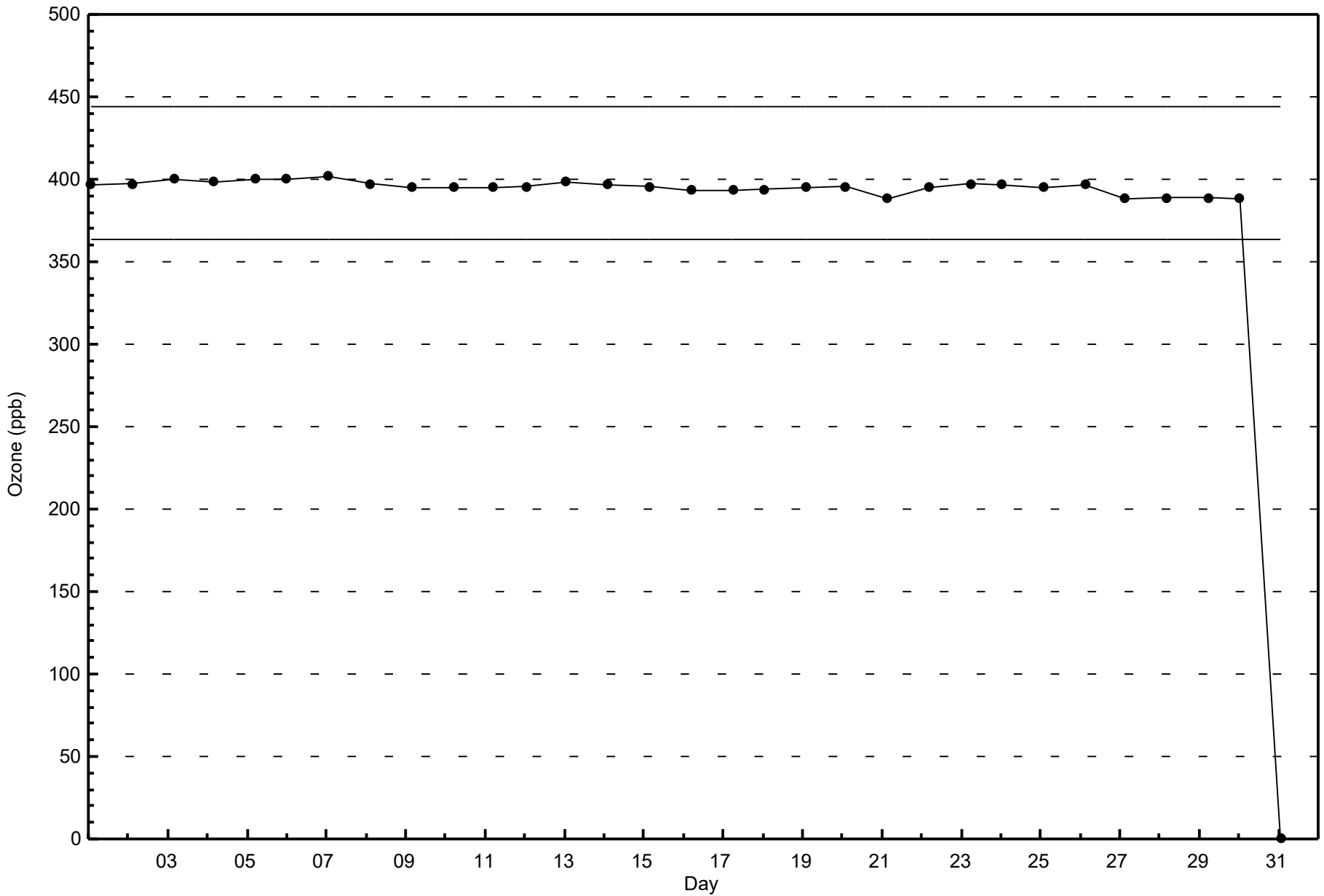
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Fort Chipewyan



Total Number of Valid Hours: 681



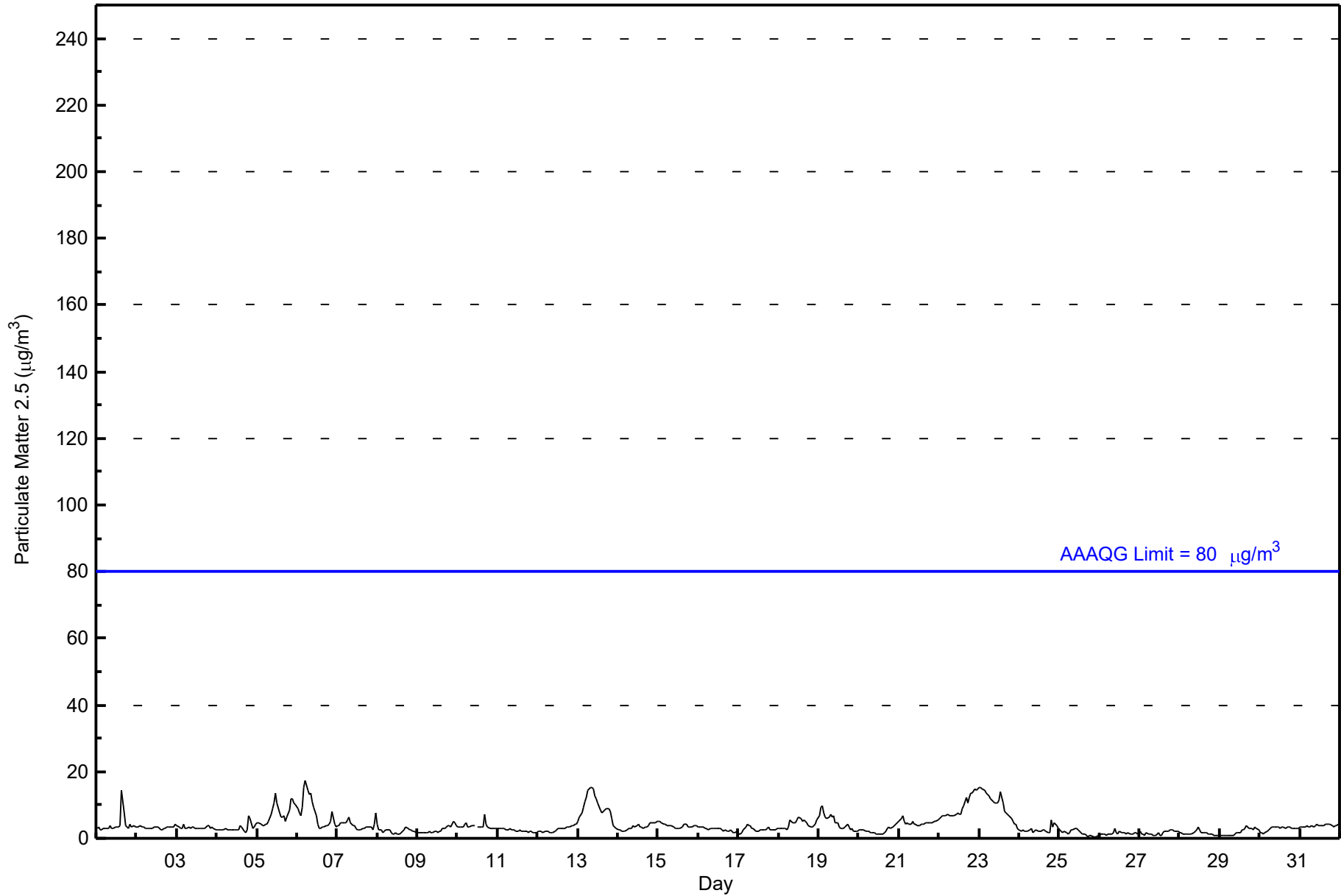




Summary of Hour Averages

Fort Chipewyan - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 17.2 µg/m ³ on Dec 6 06:00		Maximum Daily Average: 10.1 µg/m ³ on Dec 23																	Hours of Data:	743																												
Minimum Value: 0.5 µg/m ³ on Dec 25 22:00		Minimum Daily Average: 1.5 µg/m ³ on Dec 26																	Hours of Missing Data:	1																												
Maximum Diurnal Average: 4.3 µg/m ³ at hour 8		Minimum Diurnal Average: 3.5 µg/m ³ at hour 15																	Hours of Calibration:	1																												
Monthly Average: 3.89 µg/m ³		Percentiles: P ₁ = 0.8 P ₁₀ = 1.5 Q ₁ = 2.2 Median = 3.1 Q ₃ = 4.2 P ₉₀ = 7.3 P ₉₉ = 14.8																	Percent Operational Time:	100.0																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	3.0	3.4	2.7	2.6	2.8	2.8	3.0	3.1	3.9	3.0	2.9	3.5	3.3	3.3	3.8	14.4	7.8	3.9	3.2	3.1	4.4	3.4	3.8	3.6	3.9	14.4																						
2-Dec	3.5	3.5	3.7	3.4	3.2	3.1	2.9	3.1	3.1	3.2	3.2	3.4	3.3	3.3	2.7	2.7	2.9	3.0	3.2	3.3	3.3	3.4	3.3	4.1	3.2	4.1																						
3-Dec	3.9	3.2	2.9	2.9	4.1	3.1	2.9	3.2	3.1	3.4	3.3	3.1	3.0	2.9	3.0	2.9	2.9	3.1	3.8	3.7	3.0	3.3	2.8	2.7	3.2	4.1																						
4-Dec	2.7	2.7	2.6	2.7	2.7	3.0	2.7	2.7	2.7	2.7	2.6	2.6	2.7	2.6	3.6	3.3	1.9	1.9	2.5	6.7	5.8	3.1	3.2	4.1	3.1	6.7																						
5-Dec	4.9	4.7	4.3	3.9	4.0	4.1	4.4	5.2	7.1	9.0	10.4	13.5	10.7	7.5	6.2	6.2	6.8	5.0	6.2	8.6	12.0	11.9	10.7	10.3	7.4	13.5																						
6-Dec	8.8	7.5	6.9	9.4	15.2	17.2	14.4	13.2	13.7	11.2	9.3	6.8	4.3	3.1	3.0	3.4	3.5	3.7	3.9	4.3	5.1	8.2	4.4	3.5	7.7	17.2																						
7-Dec	3.7	3.8	4.8	4.6	4.7	4.9	5.4	6.5	4.6	3.7	3.6	3.2	2.5	2.5	2.4	3.0	3.1	3.4	3.5	3.5	3.3	2.4	4.1	7.4	4.0	7.4																						
8-Dec	4.1	2.7	2.7	1.7	2.2	2.5	2.6	2.3	1.6	1.3	1.2	1.6	1.3	1.1	1.7	2.0	2.6	3.3	3.0	2.4	2.5	2.0	1.9	1.9	2.2	4.1																						
9-Dec	1.8	1.7	1.6	1.6	1.6	1.6	1.9	2.0	1.6	1.7	2.1	2.1	1.8	1.9	2.1	2.9	2.8	3.6	4.0	3.8	3.6	4.9	4.9	4.0	2.6	4.9																						
10-Dec	3.6	3.5	3.5	3.4	4.3	4.7	3.4	3.5	3.9	3.7	3.9	C	3.3	3.4	3.5	3.6	7.3	4.1	3.2	3.1	3.0	3.0	3.1	3.0	3.7	7.3																						
11-Dec	3.0	2.9	2.8	2.8	2.8	2.7	2.7	2.8	2.6	2.4	2.4	2.1	2.0	2.6	2.2	2.2	2.1	2.1	1.9	2.3	2.0	1.8	1.8	1.8	2.4	3.0																						
12-Dec	2.1	2.0	2.0	1.9	2.0	2.0	2.0	1.9	1.9	1.8	2.1	2.7	2.9	3.0	3.2	3.2	3.1	3.2	3.3	3.4	3.7	3.9	4.0	4.4	2.7	4.4																						
13-Dec	5.1	6.5	7.7	9.5	11.1	12.3	14.3	15.3	15.3	14.7	12.9	11.8	10.5	8.6	7.7	8.0	8.4	8.8	8.7	8.0	5.8	4.0	3.5	3.2	9.2	15.3																						
14-Dec	2.7	2.4	2.3	2.1	2.1	2.7	3.1	3.1	3.0	3.8	3.4	3.9	4.1	3.4	3.3	3.1	3.3	3.2	3.7	4.5	4.8	4.7	4.7	5.2	3.5	5.2																						
15-Dec	5.1	5.0	4.7	4.3	4.1	3.9	3.8	3.8	3.8	3.3	3.0	2.9	2.9	2.9	3.2	4.2	4.1	4.1	3.4	3.3	3.4	3.9	4.0	3.8	3.8	5.1																						
16-Dec	3.6	3.4	3.3	3.2	3.1	2.8	2.7	2.9	2.9	2.9	3.2	3.1	2.8	2.9	2.4	2.3	2.6	2.1	2.1	2.5	2.1	1.9	1.7	2.1	2.7	3.6																						
17-Dec	1.4	1.4	1.6	2.7	3.6	4.2	3.9	3.6	3.1	2.8	2.2	2.1	2.2	2.3	2.4	2.5	2.6	2.8	3.2	2.7	2.7	2.5	2.6	2.8	2.7	4.2																						
18-Dec	2.9	2.8	2.8	2.8	2.8	2.7	3.3	5.4	4.7	4.6	4.8	5.3	6.4	5.9	5.2	5.5	5.2	4.6	3.9	3.4	3.2	4.0	4.3	5.4	4.2	6.4																						
19-Dec	6.7	9.5	9.6	7.8	6.2	5.8	6.2	7.3	6.5	6.9	4.6	4.6	3.5	3.1	2.9	3.0	3.3	4.2	3.3	2.5	3.0	2.2	2.3	2.3	4.9	9.6																						
20-Dec	2.6	2.6	2.7	2.5	2.2	2.1	2.0	1.8	1.7	1.6	1.4	1.4	1.4	1.4	1.2	1.6	2.2	2.8	3.2	3.2	3.3	3.7	4.1	4.6	2.4	4.6																						
21-Dec	4.9	5.8	6.9	4.9	4.3	4.6	4.3	4.2	5.2	4.1	4.3	4.0	4.0	4.0	4.4	4.7	4.5	4.6	4.6	4.6	5.0	5.3	5.5	4.7	6.9																							
22-Dec	6.0	6.6	6.9	6.7	6.8	7.3	6.6	6.8	6.6	6.8	7.0	7.6	7.2	7.3	8.7	9.9	12.4	10.7	12.3	13.4	13.5	15.0	14.3	14.7	9.2	15.0																						
23-Dec	15.2	15.3	14.9	14.3	13.5	13.2	12.7	11.7	11.1	10.4	10.7	10.6	11.6	13.8	10.4	7.9	7.6	7.1	6.8	6.0	4.9	4.4	4.1	3.0	10.1	15.3																						
24-Dec	2.6	2.2	2.4	2.2	2.3	2.1	2.3	2.8	1.5	2.2	2.7	2.0	2.2	2.2	2.7	2.0	2.0	1.7	1.8	5.6	3.3	4.6	3.7	3.0	2.6	5.6																						
25-Dec	2.6	2.0	1.8	1.9	1.7	1.4	1.6	2.4	2.6	2.8	2.9	2.7	2.2	1.9	1.5	1.2	0.9	0.6	0.6	0.7	0.6	0.5	0.5	0.7	1.6	2.9																						
26-Dec	0.8	1.3	1.4	1.4	0.8	1.1	1.2	1.4	1.8	3.1	1.8	1.5	1.9	1.7	1.7	1.9	1.3	1.6	1.2	1.1	1.2	1.9	1.8	1.2	1.5	3.1																						
27-Dec	2.0	1.3	1.2	1.0	1.5	1.1	1.3	1.2	0.9	1.0	1.0	1.6	0.8	1.0	1.5	2.1	2.2	2.0	2.4	2.4	2.4	2.3	2.1	2.0	1.6	2.4																						
28-Dec	1.8	1.5	1.4	1.3	1.3	1.2	1.2	1.4	1.7	1.9	2.7	3.3	2.5	1.6	1.6	1.7	1.6	1.3	1.1	1.1	1.0	1.0	1.0	0.9	1.5	3.3																						
29-Dec	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.1	1.6	1.6	1.8	2.5	2.4	3.0	3.7	2.9	2.8	2.9	2.7	3.4	2.8	2.5	1.9	3.7																						
30-Dec	1.7	1.6	1.5	1.7	2.1	2.6	3.0	3.2	3.2	3.3	3.2	3.3	3.2	3.2	3.2	3.1	3.2	3.3	3.2	3.1	3.0	3.1	3.1	3.1	2.8	3.3																						
31-Dec	3.2	3.3	3.4	3.6	3.7	3.5	3.6	3.7	3.6	3.7	4.1	3.8	3.9	3.9	3.7	4.3	4.4	4.4	4.1	3.7	3.5	3.7	3.9	4.3	3.8	4.4																						
																								3.8	3.8	3.8	3.7	4.0	4.1	4.1	4.3	4.2	4.1	4.0	4.1	3.7	3.6	3.5	3.9	4.0	3.6	3.7	4.0	3.9	4.0	3.8	3.9	Diurnal Average
																								15.2	15.3	14.9	14.3	15.2	17.2	14.4	15.3	15.3	14.7	12.9	13.5	11.6	13.8	10.4	14.4	12.4	10.7	12.3	13.4	13.5	15.0	14.3	14.7	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 Chipewyan - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	628	84.52	84.52
6 - 15	114	15.34	99.87
16 - 25	1	0.13	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Chipewyan - December 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	3	14	34	65	98	14	26	16	10	19	19	25	89	111	62	23	628
6 - 15	0	0	0	6	28	9	12	11	8	7	8	7	12	3	2	1	114
16 - 25	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
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	3	14	34	71	126	23	38	28	18	26	27	32	101	114	64	24	743

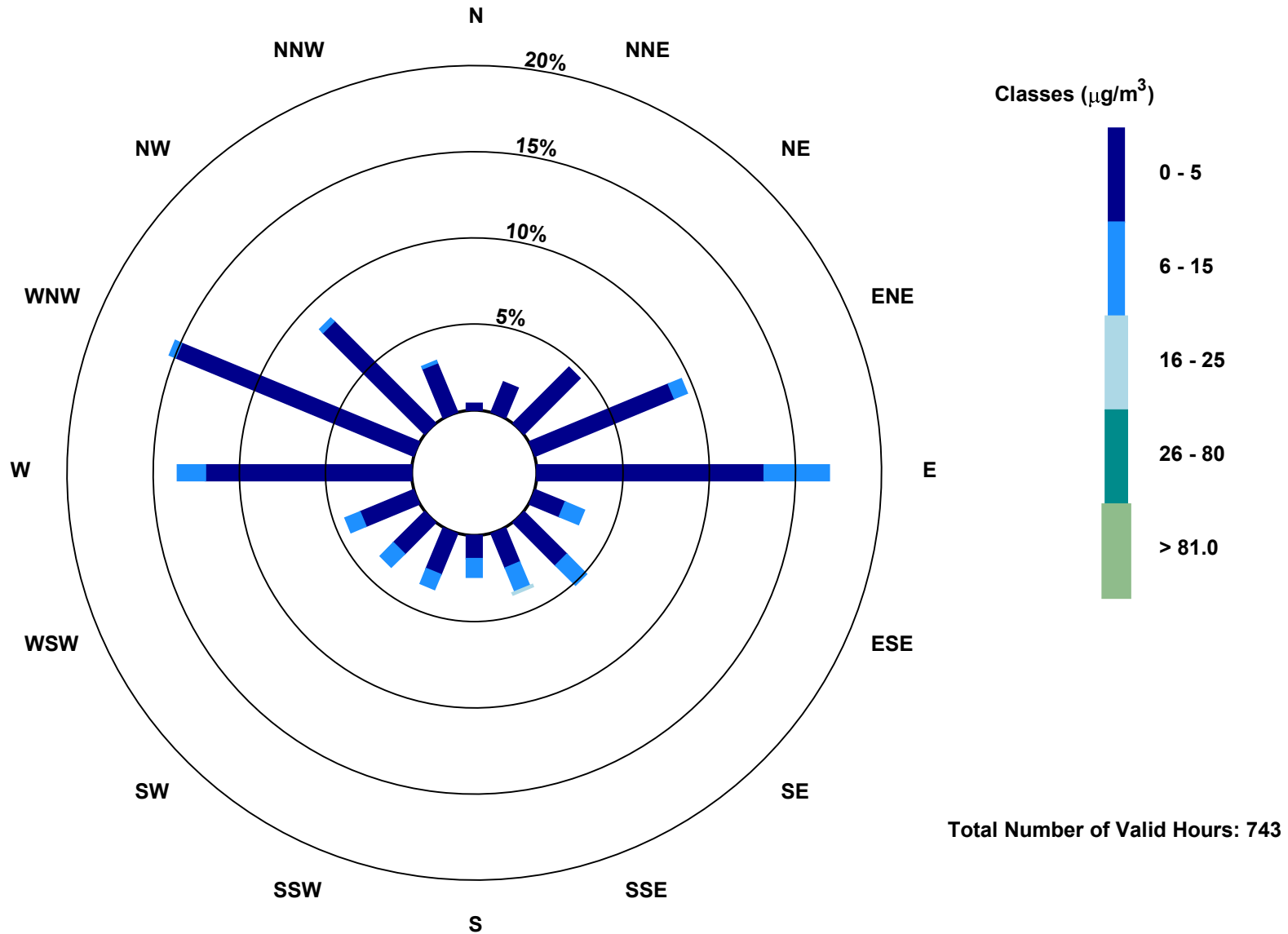
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

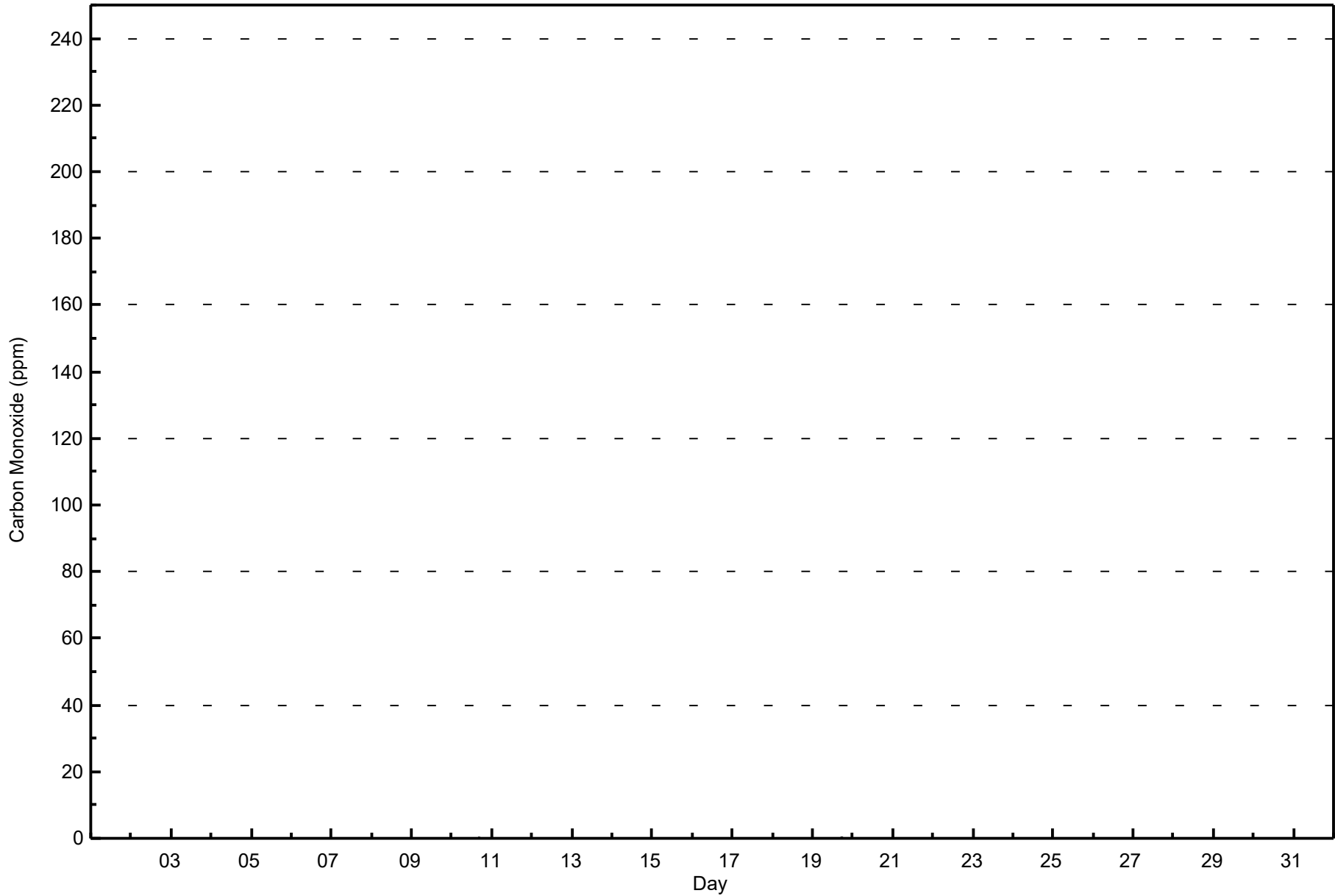
Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort Chipewyan





Wood Buffalo Environmental Association
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Carbon Monoxide (CO) - ppm
Fort Chipewyan - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.3	710	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Monoxide (CO) - ppm
Fort Chipewyan - December 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	1	14	33	67	122	22	36	28	18	26	24	30	95	111	60	23	710
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	1	14	33	67	122	22	36	28	18	26	24	30	95	111	60	23	710

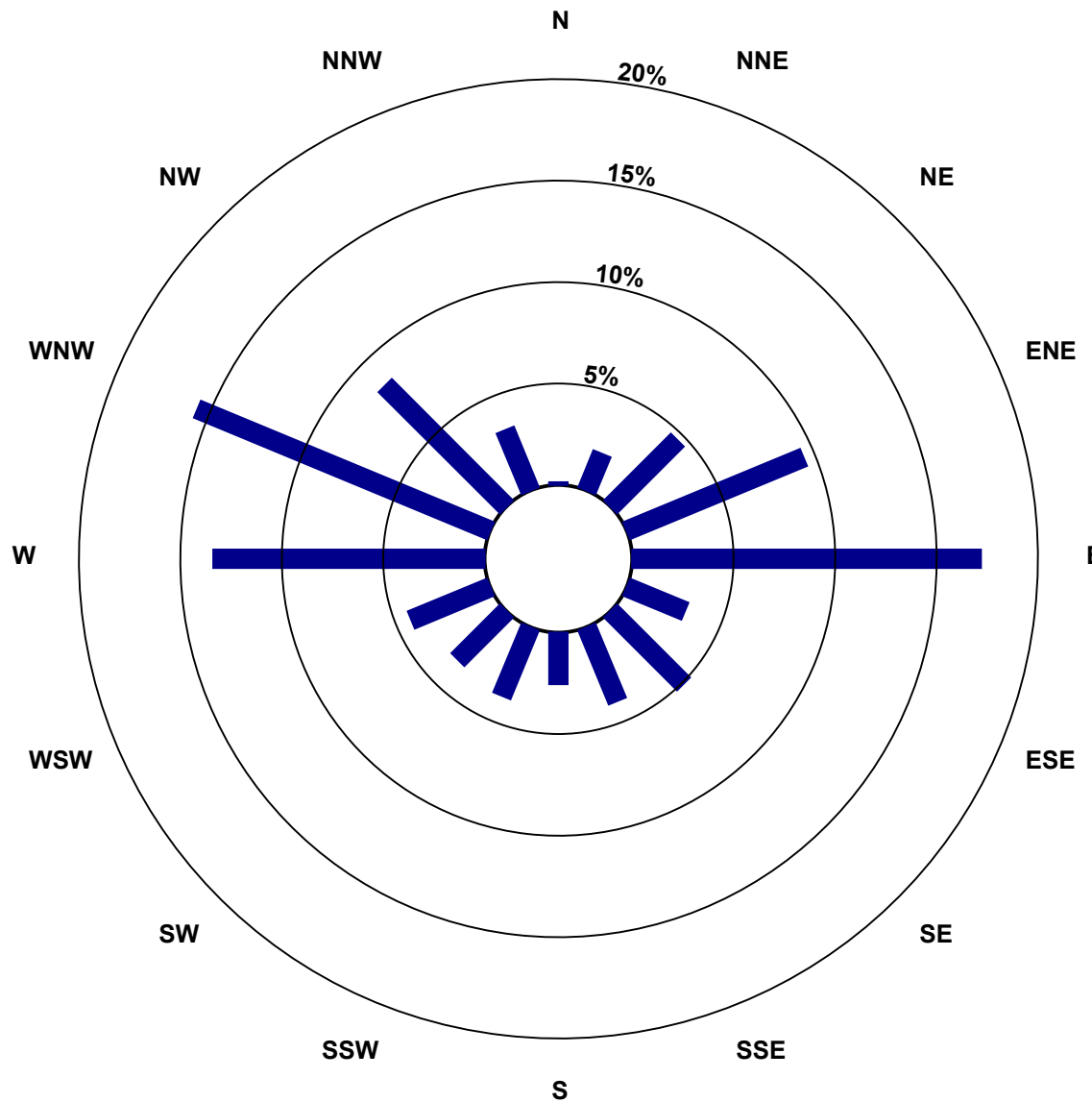
Total Number of Valid Hours: 710

Total Number of Hours: 744

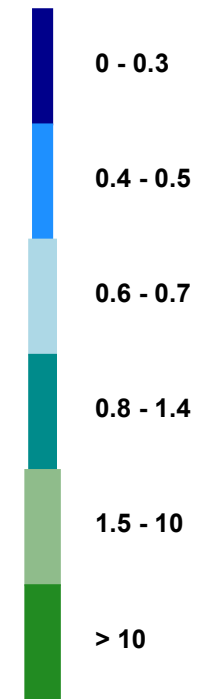


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Carbon Monoxide (CO) - ppm
Fort Chipewyan



Classes (ppm)



Total Number of Valid Hours: 710



Wood Buffalo Environmental Association
Summary of Hour Averages

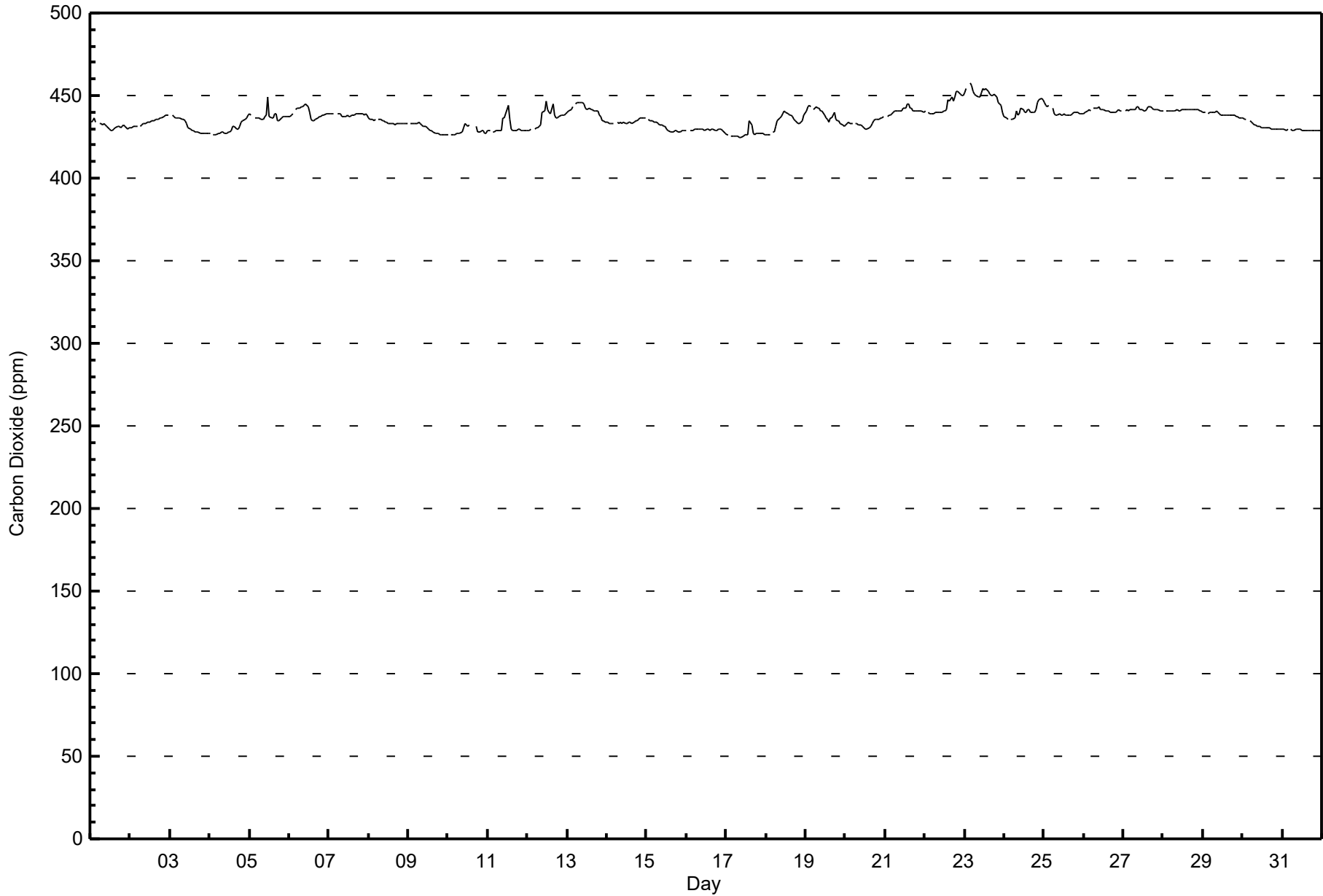
Carbon Dioxide (CO₂) - ppm
Fort Chipewyan - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																								Hours in Service:		
Maximum Value: 457.9 ppm on Dec 23 04:00																								744		
Minimum Value: 424.7 ppm on Dec 17 10:00																								Hours of Data:		
Maximum Diurnal Average: 436.9 ppm at hour 12																								710		
Monthly Average: 435.81 ppm																								Hours of Missing Data:		
Percentiles: P ₁ = 425.8 P ₁₀ = 428.3 Q ₁ = 430.3 Median = 436.0 Q ₃ = 440.2 P ₉₀ = 442.4 P ₉₉ = 452.7																								34		
Minimum Daily Average: 426.9 ppm on Dec 17																								Hours of Calibration:		
Minimum Diurnal Average: 435.1 ppm at hour 5																								34		
Daily Average																								Percent Operational Time:		
100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	433.9	435.1	436.2	434.3	Z	433.2	432.8	432.3	433.0	432.4	431.4	429.7	428.6	428.9	429.4	430.3	431.8	431.0	430.9	431.4	432.3	431.2	429.5	430.2	431.7	436.2
2-Dec	430.5	430.5	431.0	431.5	431.6	Z	431.2	431.8	432.7	433.2	433.5	434.0	434.2	434.9	435.1	435.3	435.6	436.0	436.3	436.7	437.1	437.7	437.8	438.5	434.2	438.5
3-Dec	Z	438.2	437.5	436.6	436.5	436.7	436.3	435.8	435.8	434.6	432.9	430.9	429.5	429.1	428.7	428.0	427.8	427.7	427.4	427.2	426.9	426.8	426.8	426.9	431.5	438.2
4-Dec	426.8	Z	426.3	426.4	426.6	427.2	427.5	427.6	427.9	427.1	426.8	427.8	428.0	428.5	431.6	431.6	429.9	430.0	431.1	433.6	434.7	435.6	436.1	438.0	429.9	438.0
5-Dec	438.8	438.4	Z	436.7	436.7	436.6	436.5	435.9	435.7	437.1	437.9	448.8	437.5	436.2	436.8	438.9	438.6	434.4	435.0	436.1	436.9	437.2	437.2	437.1	437.4	448.8
6-Dec	437.5	437.9	438.7	Z	441.7	442.7	442.3	442.9	443.0	444.2	445.1	443.4	439.5	435.8	434.5	434.7	435.4	436.4	437.0	437.2	438.1	438.5	438.6	438.9	439.3	445.1
7-Dec	439.0	439.3	438.9	438.8	Z	439.3	439.0	438.8	437.3	436.9	437.6	437.9	437.4	437.6	437.8	438.3	438.7	439.1	439.0	439.1	439.1	437.7	439.0	438.5	438.4	439.3
8-Dec	436.6	435.9	435.4	435.2	435.3	Z	435.7	435.4	435.1	434.4	434.2	433.7	433.2	433.0	432.6	432.6	432.6	432.8	432.9	432.7	432.8	433.0	433.2	433.1	434.0	436.6
9-Dec	Z	433.1	433.0	433.1	433.1	433.4	433.5	432.9	431.9	431.5	431.2	430.6	429.5	428.8	428.7	428.3	427.4	426.9	426.8	426.6	426.3	426.3	426.3	426.4	429.8	433.5
10-Dec	426.6	Z	426.4	426.3	426.5	426.8	427.3	427.5	427.8	430.5	432.7	432.0	431.2	432.5	C	C	C	431.0	428.4	427.9	429.0	428.4	427.5	427.5	428.7	432.7
11-Dec	428.5	428.7	Z	428.2	428.2	428.7	428.6	429.0	429.1	436.5	436.3	438.7	443.7	435.3	429.5	429.0	429.1	429.1	429.3	429.3	429.0	429.1	428.9	428.8	430.9	443.7
12-Dec	429.0	429.2	429.3	Z	430.0	430.4	430.8	431.1	432.3	440.2	440.5	446.3	441.6	440.1	438.9	444.5	438.5	436.4	436.8	437.3	438.0	438.1	438.4	439.1	436.4	446.3
13-Dec	440.0	440.9	441.9	443.3	Z	444.9	445.8	445.7	445.8	445.8	444.6	442.3	441.6	442.0	441.9	441.1	440.9	440.6	440.8	438.6	436.9	435.1	434.7	434.2	441.3	445.8
14-Dec	433.9	433.4	433.4	433.2	Z	433.7	433.2	433.6	433.3	433.7	433.1	433.3	433.5	433.7	433.7	433.3	433.5	434.8	434.8	435.7	436.7	436.6	436.4	436.0	434.2	436.7
15-Dec	Z	435.2	435.1	434.7	434.3	433.9	433.5	433.1	432.4	432.0	431.7	431.1	429.7	428.7	428.3	428.3	428.0	428.7	428.5	428.4	428.4	428.5	428.5	428.6	430.9	435.2
16-Dec	428.9	Z	429.1	428.9	429.1	429.3	429.3	429.4	429.4	429.3	429.3	429.1	429.3	429.3	429.2	429.3	429.4	429.0	429.2	429.5	429.5	429.4	428.7	426.8	429.1	429.5
17-Dec	426.5	426.3	Z	425.7	425.5	425.4	425.4	425.2	424.9	424.7	425.8	426.5	426.4	426.5	434.8	432.5	426.9	426.6	427.5	427.0	427.0	427.3	427.1	426.7	426.9	434.8
18-Dec	426.6	426.4	426.6	Z	427.6	428.3	431.3	434.4	436.2	437.1	439.3	440.7	439.9	439.3	438.4	438.3	437.2	435.8	434.3	433.2	433.1	434.2	434.8	438.2	434.4	440.7
19-Dec	440.7	443.4	444.2	442.9	Z	441.9	443.5	442.0	442.6	440.8	440.3	438.2	436.1	435.3	434.2	436.1	436.8	439.6	435.9	434.7	434.6	432.8	431.9	431.6	438.3	444.2
20-Dec	432.2	432.8	433.5	433.3	433.4	Z	432.8	432.7	432.4	432.2	431.1	430.8	430.1	429.9	430.3	431.4	432.6	434.9	435.9	436.0	435.8	436.2	436.7	436.9	433.2	436.9
21-Dec	Z	437.5	438.0	438.4	439.3	440.1	440.5	440.6	440.7	440.3	440.7	442.3	442.7	444.5	445.3	442.3	442.3	441.0	441.1	440.9	440.6	440.5	440.3	440.2	440.9	445.3
22-Dec	440.3	Z	439.6	439.2	439.0	439.1	439.6	439.4	439.6	439.8	440.2	440.6	440.6	441.6	447.5	446.9	449.2	446.8	449.3	452.7	452.3	450.7	450.1	450.3	444.1	452.7
23-Dec	451.6	454.0	Z	457.9	456.0	452.7	451.0	449.8	449.4	449.4	451.3	453.8	453.6	454.5	452.7	450.5	450.1	450.2	450.5	448.8	446.1	445.1	444.0	439.9	450.6	457.9
24-Dec	437.5	436.3	435.7	Z	435.4	435.2	436.2	440.7	438.4	439.2	442.3	441.3	440.1	439.6	441.1	441.2	439.6	439.5	439.7	441.7	446.1	447.2	448.3	447.1	440.4	448.3
25-Dec	446.1	443.8	443.5	443.9	Z	442.3	438.8	438.3	438.4	438.6	438.5	438.4	438.6	438.4	438.0	438.4	438.4	438.7	439.5	440.0	439.5	439.2	439.3	439.1	439.9	446.1
26-Dec	439.4	439.8	441.0	441.4	440.9	Z	442.4	442.0	442.3	443.5	441.9	441.3	441.1	440.6	440.6	440.4	440.1	440.2	440.0	440.1	440.7	441.4	440.6	441.0	441.0	443.5
27-Dec	Z	440.9	441.4	441.0	441.6	441.3	441.4	441.3	443.0	443.5	441.3	441.4	440.5	440.8	441.7	442.9	443.1	442.0	441.6	441.2	441.5	441.2	440.7	440.4	441.5	443.5
28-Dec	440.4	Z	440.4	440.5	440.9	440.7	440.5	440.5	441.2	441.0	441.1	441.2	441.1	441.2	441.2	441.5	441.6	441.4	441.4	441.5	441.4	441.4	441.0	440.4	441.0	441.6
29-Dec	439.9	439.6	Z	439.4	439.5	439.6	439.9	440.1	440.3	440.1	438.9	438.1	438.0	438.4	438.5	438.3	438.1	438.1	438.0	437.7	437.5	437.1	436.7	436.3	438.6	440.3
30-Dec	436.1	435.9	435.4	Z	434.6	433.6	433.0	432.5	432.1	431.7	431.2	430.9	430.9	430.6	430.5	430.3	430.1	430.1	429.8	429.6	429.9	429.7	429.7	429.6	431.7	436.1
31-Dec	429.6	429.4	429.1	429.4	Z	429.3	429.1	429.2	429.3	429.3	429.3	429.3	429.2	429.1	429.0	428.9	428.8	428.9	428.9	429.1	429.1	429.1	429.1	429.1	429.1	429.6
	435.3	436.2	435.4	436.2	435.1	435.9	435.8	435.9	435.9	436.5	436.5	436.9	436.0	435.6	436.0	436.1	435.7	435.4	435.4	435.5	435.7	435.6	435.4	435.3		Diurnal Average
	451.6	454.0	444.2	457.9	456.0	452.7	451.0	449.8	449.4	449.4	451.3	453.8	453.6	454.5	452.7	450.5	450.1	450.2	450.5	452.7	452.3	450.7	450.1	450.3		Diurnal Maximum
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	0	0.00	0.00
420 - 440	550	77.46	77.46
440 - 460	160	22.54	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: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Carbon Dioxide (CO₂) - ppm
Fort Chipewyan - December 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	0	9	26	41	93	13	23	13	9	13	13	25	85	109	58	20	550
440 - 460	1	5	7	24	29	9	13	15	9	13	11	5	11	2	3	3	160
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	1	14	33	65	122	22	36	28	18	26	24	30	96	111	61	23	710

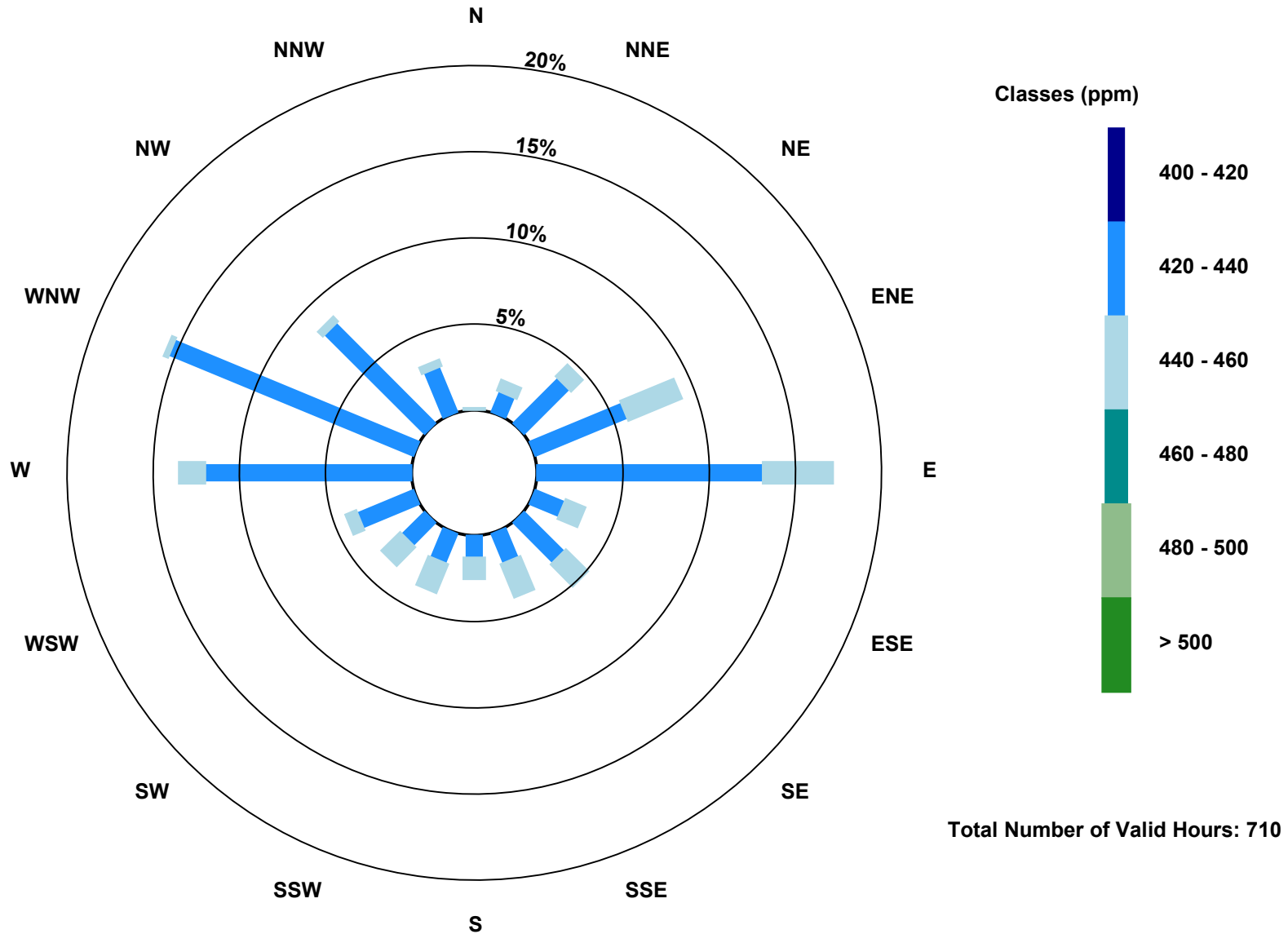
Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Carbon Dioxide (CO₂) - ppm
Fort Chipewyan

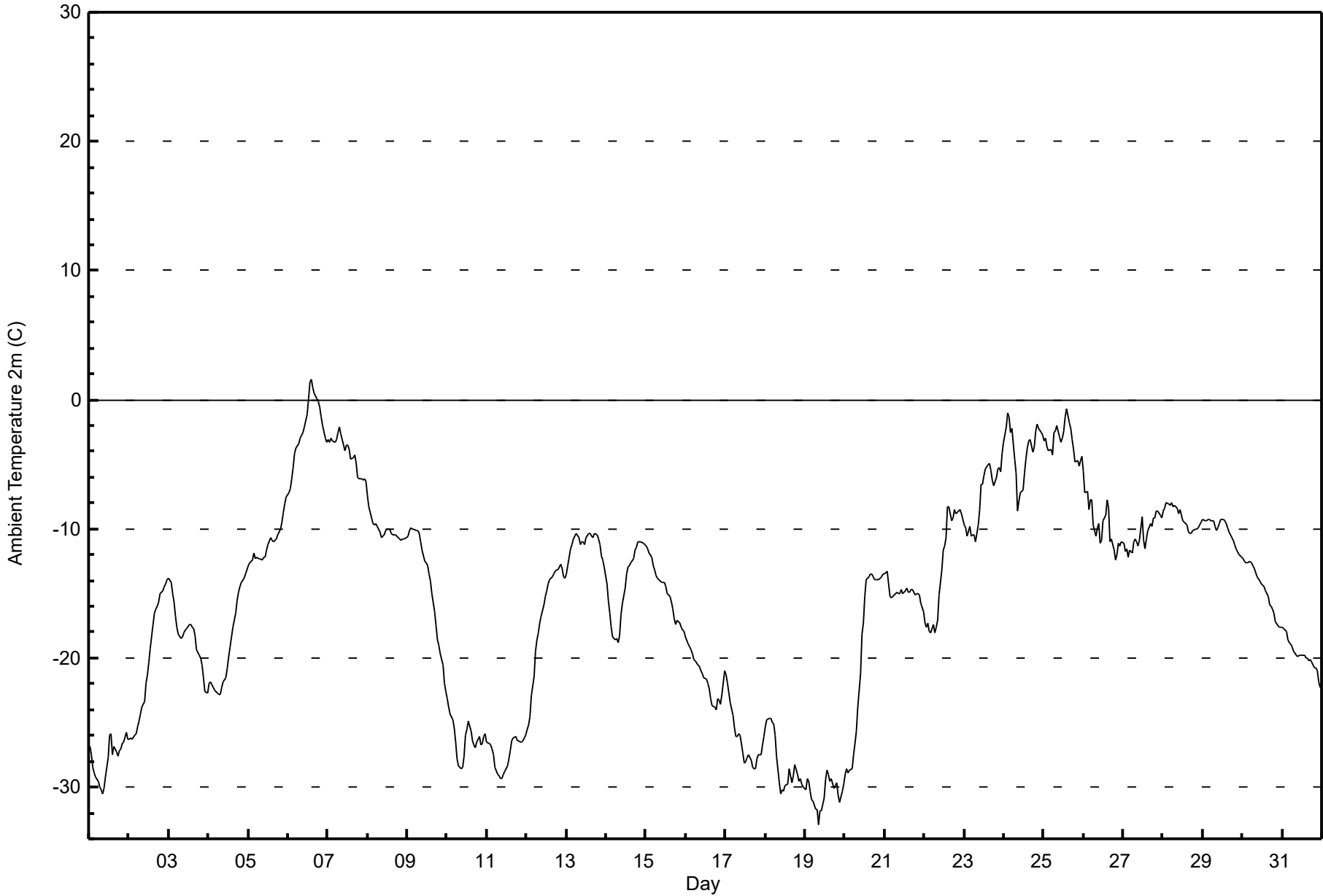




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Fort Chipewyan - December 2024

Maximum Value: 1.5 C on Dec 6 15:00		Maximum Daily Average: -2.3 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -32.9 C on Dec 19 09:00		Minimum Daily Average: -30.4 C on Dec 19		Hours of Data: 744																																													
Maximum Diurnal Average: -14.5 C at hour 15		Minimum Diurnal Average: -16.5 C at hour 9		Hours of Missing Data: 0																																													
Monthly Average: -15.49 C		Percentiles: P ₁ = -30.9 P ₁₀ = -27.7 Q ₁ = -21.9 Median = -13.9 Q ₃ = -9.9 P ₉₀ = -4.6 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-Dec	-26.9	-27.5	-28.5	-28.9	-29.2	-29.5	-30.0	-30.2	-30.5	-30.1	-29.2	-27.7	-26.0	-25.9	-27.5	-26.8	-27.3	-27.6	-27.1	-27.1	-26.6	-26.5	-25.7	-26.3	-27.9	-25.7																							
2-Dec	-26.3	-26.2	-26.3	-26.0	-25.8	-25.4	-24.9	-24.4	-23.8	-23.4	-21.9	-21.3	-20.3	-19.2	-17.4	-16.5	-16.2	-16.0	-15.7	-15.1	-14.8	-14.5	-14.2	-14.0	-20.4	-14.0																							
3-Dec	-13.9	-14.2	-15.0	-15.7	-16.7	-17.6	-18.2	-18.5	-18.4	-18.0	-17.8	-17.8	-17.4	-17.4	-17.6	-17.7	-18.3	-19.4	-19.8	-20.0	-20.6	-21.5	-22.6	-22.7	-18.2	-13.9																							
4-Dec	-22.0	-21.8	-22.0	-22.3	-22.5	-22.7	-22.8	-22.8	-22.3	-21.9	-21.5	-20.8	-19.9	-19.1	-18.4	-17.6	-16.5	-15.5	-14.9	-14.5	-14.2	-13.8	-13.5	-13.1	-19.0	-13.1																							
5-Dec	-12.8	-12.6	-12.4	-11.9	-12.3	-12.2	-12.3	-12.4	-12.4	-12.2	-12.1	-11.7	-11.2	-10.7	-10.9	-11.0	-10.9	-10.8	-10.5	-10.0	-9.5	-8.7	-8.0	-7.6	-11.1	-7.6																							
6-Dec	-7.2	-6.9	-6.1	-5.2	-4.2	-3.8	-3.4	-3.0	-2.7	-2.6	-2.1	-1.2	0.1	1.4	1.5	1.0	0.5	0.0	-0.1	-0.6	-1.4	-2.0	-3.0	-3.3	-2.3	1.5																							
7-Dec	-3.0	-3.3	-2.9	-3.2	-3.3	-3.1	-2.5	-2.1	-2.6	-3.5	-3.9	-3.5	-3.5	-3.9	-4.6	-4.5	-4.3	-4.9	-6.0	-6.1	-6.1	-6.2	-6.1	-6.3	-4.1	-2.1																							
8-Dec	-7.5	-8.3	-9.2	-9.6	-9.7	-9.6	-9.8	-10.3	-10.7	-10.5	-10.4	-10.1	-10.0	-10.1	-10.3	-10.5	-10.5	-10.5	-10.7	-10.7	-10.9	-10.8	-10.8	-10.7	-10.1	-7.5																							
9-Dec	-10.6	-10.1	-9.9	-10.1	-10.0	-10.1	-10.1	-10.4	-11.0	-11.6	-12.5	-12.6	-12.9	-13.5	-14.0	-15.0	-16.4	-17.5	-18.5	-19.0	-19.7	-20.5	-21.9	-22.6	-14.2	-9.9																							
10-Dec	-23.2	-23.8	-24.3	-24.8	-25.4	-26.5	-27.9	-28.4	-28.6	-28.5	-27.6	-25.9	-25.5	-24.9	-25.7	-26.4	-26.7	-27.0	-26.5	-26.1	-26.7	-26.6	-26.1	-25.8	-26.2	-23.2																							
11-Dec	-26.5	-26.6	-26.7	-27.0	-27.5	-28.5	-29.0	-29.1	-29.3	-29.3	-29.0	-28.8	-28.4	-27.8	-27.1	-26.4	-26.2	-26.1	-26.4	-26.4	-26.5	-26.5	-26.4	-26.0	-27.4	-26.0																							
12-Dec	-25.6	-25.2	-24.5	-23.0	-21.4	-19.5	-18.6	-18.0	-17.3	-16.7	-15.9	-15.2	-14.8	-14.3	-14.0	-13.7	-13.5	-13.3	-13.2	-13.1	-12.7	-13.1	-13.7	-13.8	-16.8	-12.7																							
13-Dec	-13.5	-12.8	-11.5	-11.2	-10.8	-10.6	-10.3	-10.6	-11.2	-11.0	-11.0	-11.2	-10.6	-10.3	-10.3	-10.5	-10.7	-10.4	-10.5	-10.8	-11.2	-12.1	-12.4	-13.0	-11.2	-10.3																							
14-Dec	-14.3	-15.5	-16.5	-17.6	-18.4	-18.6	-18.5	-18.9	-18.3	-16.7	-15.8	-14.6	-13.5	-13.0	-12.9	-12.6	-12.3	-11.7	-11.4	-11.0	-11.0	-11.0	-11.2	-11.2	-14.4	-11.0																							
15-Dec	-11.3	-11.6	-11.8	-12.2	-12.8	-13.2	-13.6	-13.9	-14.0	-14.1	-14.1	-14.1	-14.5	-15.0	-15.3	-15.7	-16.2	-17.0	-17.4	-17.1	-17.3	-17.7	-17.8	-18.0	-14.8	-11.3																							
16-Dec	-18.4	-18.9	-19.1	-19.3	-19.7	-20.1	-20.2	-20.5	-20.7	-20.9	-21.2	-21.5	-21.6	-21.9	-22.4	-23.1	-23.7	-23.8	-24.0	-23.2	-23.3	-23.6	-22.8	-21.0	-21.5	-18.4																							
17-Dec	-21.3	-21.9	-22.7	-23.5	-24.5	-25.4	-26.1	-26.0	-25.9	-26.0	-27.4	-28.2	-28.0	-27.7	-27.5	-28.0	-28.5	-28.6	-28.6	-28.6	-27.8	-27.5	-27.5	-26.8	-26.0	-26.3	-21.3																						
18-Dec	-25.4	-24.8	-24.6	-24.7	-25.0	-25.2	-26.0	-27.6	-29.6	-30.5	-30.2	-30.3	-29.9	-29.7	-28.5	-29.1	-29.7	-29.1	-28.2	-29.0	-29.5	-29.3	-29.7	-30.0	-28.1	-24.6																							
19-Dec	-30.2	-29.4	-29.6	-30.3	-31.0	-31.1	-31.7	-31.7	-32.9	-31.9	-31.8	-30.9	-29.4	-28.6	-29.0	-29.6	-29.4	-30.1	-29.9	-29.7	-30.6	-31.2	-30.4	-29.8	-30.4	-28.6																							
20-Dec	-29.0	-28.6	-28.9	-28.7	-28.6	-27.5	-26.6	-25.7	-23.8	-21.2	-18.2	-17.3	-15.2	-13.9	-13.7	-13.5	-13.5	-13.7	-13.9	-13.9	-13.9	-13.9	-13.7	-13.5	-19.6	-13.5																							
21-Dec	-13.5	-13.3	-14.2	-15.3	-15.4	-15.2	-15.1	-15.0	-15.0	-15.0	-14.7	-15.0	-14.8	-14.5	-14.9	-15.0	-14.7	-14.7	-15.1	-15.0	-15.0	-15.1	-15.8	-16.4	-14.9	-13.3																							
22-Dec	-17.3	-17.6	-17.3	-17.9	-18.1	-17.5	-18.1	-17.6	-17.1	-15.1	-13.1	-11.7	-11.4	-10.6	-8.2	-8.3	-9.3	-9.2	-8.5	-8.8	-8.7	-8.5	-8.8	-9.3	-12.8	-8.2																							
23-Dec	-9.7	-10.0	-10.6	-9.8	-10.5	-10.4	-10.4	-11.0	-9.7	-8.5	-6.6	-6.6	-5.9	-5.4	-5.1	-4.9	-5.4	-6.2	-6.7	-6.0	-5.3	-5.3	-5.6	-4.1	-7.5	-4.1																							
24-Dec	-3.3	-2.2	-1.0	-1.3	-2.6	-2.2	-4.6	-5.7	-8.7	-7.9	-7.2	-7.0	-5.7	-4.6	-3.7	-3.2	-3.1	-4.1	-3.7	-2.5	-1.8	-2.2	-2.6	-2.7	-3.9	-1.0																							
25-Dec	-3.2	-2.9	-3.6	-3.9	-3.9	-4.2	-2.5	-2.4	-2.0	-2.8	-3.3	-3.0	-2.4	-1.4	-0.7	-1.8	-2.2	-3.1	-3.8	-4.8	-4.7	-5.1	-4.7	-4.4	-3.2	-0.7																							
26-Dec	-5.6	-7.2	-7.1	-8.5	-7.7	-7.8	-9.7	-10.6	-9.9	-9.5	-11.1	-10.9	-9.3	-8.9	-7.8	-8.4	-11.0	-10.7	-11.6	-12.4	-12.0	-11.1	-11.3	-11.0	-9.6	-5.6																							
27-Dec	-11.1	-11.8	-11.5	-12.1	-11.6	-11.9	-11.0	-10.8	-11.0	-11.3	-10.9	-9.1	-10.9	-11.5	-10.8	-10.1	-9.6	-9.8	-9.2	-9.1	-8.7	-8.7	-9.0	-9.1	-10.4	-8.7																							
28-Dec	-8.7	-8.4	-7.9	-8.1	-8.2	-8.0	-8.3	-8.1	-8.4	-8.8	-8.5	-8.9	-9.4	-9.5	-9.7	-10.2	-10.4	-10.3	-10.2	-10.1	-10.0	-9.9	-9.7	-9.5	-9.1	-7.9																							
29-Dec	-9.3	-9.3	-9.3	-9.3	-9.3	-9.3	-9.4	-9.8	-10.1	-9.9	-9.6	-9.2	-9.2	-9.4	-9.6	-9.9	-10.2	-10.6	-10.9	-11.2	-11.5	-11.8	-12.0	-12.2	-10.1	-9.2																							
30-Dec	-12.4	-12.6	-12.7	-12.6	-12.5	-12.6	-12.9	-13.1	-13.4	-13.8	-14.1	-14.2	-14.3	-14.5	-14.8	-15.2	-15.8	-16.0	-16.2	-16.5	-17.2	-17.5	-17.6	-17.6	-14.6	-12.4																							
31-Dec	-17.6	-17.7	-18.0	-18.6	-18.9	-18.9	-19.1	-19.5	-19.7	-19.9	-19.8	-19.7	-19.8	-19.8	-20.0	-20.0	-20.2	-20.1	-20.3	-20.8	-20.8	-21.0	-21.8	-22.3	-19.8	-17.6																							
																								-15.5	-15.6	-15.7	-15.9	-16.0	-16.1	-16.3	-16.4	-16.5	-16.2	-15.9	-15.5	-15.0	-14.7	-14.5	-14.7	-14.9	-15.1	-15.1	-15.1	-15.2	-15.3	-15.3	Diurnal Average		
																								-3.0	-2.2	-1.0	-1.3	-2.6	-2.2	-2.5	-2.1	-2.0	-2.6	-2.1	-1.2	0.1	1.4	1.5	1.0	0.5	0.0	-0.1	-0.6	-1.4	-2.0	-2.6	-2.7	Diurnal Maximum	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Fort Chipewyan - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	220	29.57	29.57
-20 - 0	518	69.62	99.19
0 - 10	6	0.81	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

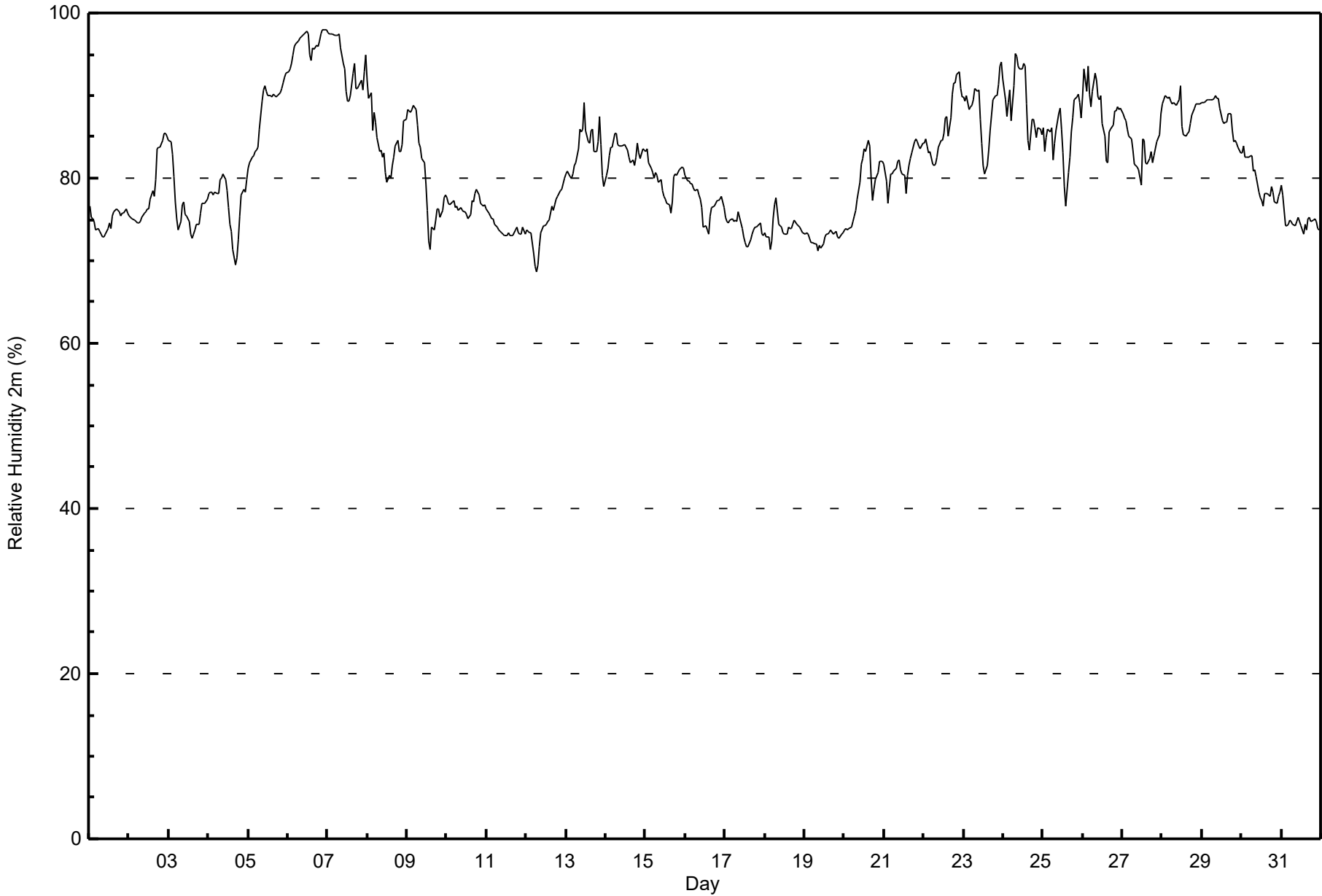
Relative Humidity 2m (RH2) - %
Fort Chipewyan - December 2024

Maximum Value: 98.0 % on Dec 6 23:00																						Maximum Daily Average: 96.2 % on Dec 6																						Hours in Service: 744	
Minimum Value: 68.7 % on Dec 12 07:00																						Minimum Daily Average: 72.8 % on Dec 19																						Hours of Data: 744	
Maximum Diurnal Average: 82.8 % at hour 1																						Minimum Diurnal Average: 79.8 % at hour 15																						Hours of Missing Data: 0	
Monthly Average: 81.67 %																						Percentiles: P ₁ = 71.3 P ₁₀ = 73.5 Q ₁ = 75.4 Median = 81.2 Q ₃ = 86.8 P ₉₀ = 90.7 P ₉₉ = 97.5																						Hours of Calibration: 0	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	76.5	75.3	75.1	74.7	73.7	73.9	73.5	73.1	72.9	72.9	73.3	73.9	74.6	74.0	75.5	76.0	76.3	76.1	75.9	75.5	75.7	75.7	76.2	75.8	74.8	76.5																			
2-Dec	75.4	75.3	75.0	74.9	74.7	74.6	74.6	74.8	75.2	75.8	75.9	76.3	76.3	77.5	78.4	77.8	79.8	83.5	83.8	83.7	84.6	85.4	85.4	85.1	78.5	85.4																			
3-Dec	84.6	84.3	82.9	80.2	77.0	75.1	73.8	74.8	76.8	77.1	75.7	75.4	74.7	73.1	72.7	73.2	73.8	74.4	74.4	75.7	77.0	77.0	77.0	77.5	76.6	84.6																			
4-Dec	78.2	78.4	78.3	77.9	78.3	78.2	78.2	79.8	80.0	80.5	79.8	78.5	76.4	74.5	73.6	71.3	69.5	70.3	72.5	75.4	77.9	78.6	78.4	79.9	76.9	80.5																			
5-Dec	81.2	81.9	82.6	82.7	83.3	83.4	83.8	86.0	89.3	90.7	91.2	90.5	90.0	90.0	89.9	90.1	90.0	89.8	90.0	90.3	90.9	91.6	92.2	92.6	88.1	92.6																			
6-Dec	93.0	93.2	93.8	94.9	95.9	96.3	96.6	96.9	97.1	97.3	97.5	97.8	97.5	95.0	94.2	95.7	95.6	96.1	95.9	96.5	97.4	97.9	98.0	97.9	96.2	98.0																			
7-Dec	97.7	97.4	97.5	97.4	97.3	97.2	97.3	97.4	95.8	94.0	93.2	90.6	89.3	89.3	90.1	92.7	93.9	90.9	90.8	91.2	91.8	90.7	92.8	94.9	93.8	97.7																			
8-Dec	91.8	89.7	90.4	85.8	88.0	86.8	84.9	83.2	83.3	82.5	83.0	80.7	79.6	80.4	80.0	81.5	82.6	83.9	84.5	83.3	83.2	84.1	86.9	87.1	84.5	91.8																			
9-Dec	88.3	88.2	87.9	88.3	88.8	88.3	86.5	84.2	83.7	82.4	81.9	79.3	76.1	72.4	71.3	74.1	73.8	74.9	76.2	76.2	75.3	76.1	77.6	78.0	80.4	88.8																			
10-Dec	77.6	77.0	76.8	77.1	77.3	76.4	76.6	76.0	76.5	76.0	76.0	75.9	75.7	75.1	75.6	77.2	77.2	78.2	78.7	78.0	76.9	76.8	76.7	76.7	76.7	78.7																			
11-Dec	76.2	75.8	75.4	75.0	75.1	74.5	74.0	73.7	73.5	73.4	73.2	73.0	73.1	73.4	73.1	73.1	73.0	73.7	74.1	73.4	73.2	73.1	74.0	73.3	73.9	76.2																			
12-Dec	73.7	73.6	73.4	73.4	70.9	69.3	68.7	69.5	71.7	73.3	74.2	74.2	74.5	74.7	74.9	76.5	76.1	76.9	77.5	77.9	78.5	78.6	79.3	80.0	74.6	80.0																			
13-Dec	80.4	80.9	80.2	80.0	80.5	81.5	81.8	83.6	85.9	85.6	86.0	89.2	85.8	84.3	84.3	85.8	85.9	83.2	83.2	84.4	87.4	84.1	80.3	78.9	83.5	89.2																			
14-Dec	80.3	81.1	82.7	83.7	83.7	85.4	85.5	84.1	83.9	83.8	83.9	84.0	83.8	83.5	82.5	81.8	82.2	81.4	82.5	84.2	83.1	82.4	83.6	83.4	83.2	85.5																			
15-Dec	83.2	83.6	81.8	81.2	80.6	80.0	80.6	80.3	79.4	79.8	78.5	77.8	77.5	76.9	76.8	75.8	77.2	80.2	80.5	80.4	81.0	81.2	81.3	81.1	79.9	83.6																			
16-Dec	80.4	79.6	79.7	79.4	79.3	78.9	78.5	78.6	78.0	77.5	76.4	74.0	74.2	73.7	73.2	75.4	76.4	76.6	76.9	77.3	77.2	77.5	77.8	76.4	77.2	80.4																			
17-Dec	75.3	74.8	74.6	75.0	75.1	74.8	74.9	74.8	75.9	75.3	74.0	73.0	72.2	71.6	71.7	72.5	73.1	73.7	74.1	74.1	74.3	74.6	73.2	73.1	74.0	75.9																			
18-Dec	73.3	72.9	72.8	71.4	72.3	75.1	76.7	77.7	74.4	74.3	74.1	73.4	73.2	73.3	74.1	73.9	73.9	74.4	74.9	74.5	74.2	74.1	73.7	73.3	74.0	77.7																			
19-Dec	73.1	73.5	73.3	72.7	72.3	72.3	72.0	72.0	71.2	71.9	71.5	72.1	72.9	73.3	73.3	73.4	73.7	73.3	73.5	73.6	73.0	72.8	73.2	73.4	72.8	73.7																			
20-Dec	73.8	74.0	73.8	73.9	74.0	74.7	75.3	76.1	77.5	79.5	81.7	82.4	83.6	83.2	84.5	83.8	80.1	77.3	78.6	79.8	80.7	82.0	82.1	82.0	78.9	84.5																			
21-Dec	81.7	79.6	77.0	78.9	80.5	80.6	80.9	81.2	82.1	82.2	81.0	80.5	80.4	78.1	80.4	81.6	82.4	83.0	84.4	84.7	84.5	83.8	83.5	84.2	81.5	84.7																			
22-Dec	84.2	84.8	83.8	83.0	83.3	81.6	81.6	81.6	82.5	83.7	84.7	84.5	85.4	87.2	87.4	85.0	87.3	90.1	91.6	91.6	92.5	92.8	90.9	89.8	86.3	92.8																			
23-Dec	89.8	89.4	90.0	88.2	88.6	88.8	89.6	90.9	90.6	90.7	87.1	84.3	81.5	80.5	81.6	83.4	85.7	87.7	89.5	89.9	90.1	91.4	93.6	94.1	88.2	94.1																			
24-Dec	92.0	89.5	87.5	89.2	90.7	86.9	91.3	95.0	94.8	93.6	93.2	93.9	93.5	88.9	84.6	83.4	87.2	87.2	86.1	84.9	86.0	85.9	85.2	89.3	89.3	95.0																			
25-Dec	86.1	83.3	84.9	86.0	85.6	86.1	82.2	84.3	85.8	87.8	88.5	86.0	83.0	79.0	76.5	80.7	82.5	85.6	87.3	89.5	89.8	90.2	89.1	87.3	85.3	90.2																			
26-Dec	89.9	93.3	90.6	93.5	90.2	88.6	90.6	92.8	91.9	89.9	89.5	90.0	86.6	85.2	82.1	81.8	85.6	86.0	86.5	88.2	88.2	88.6	88.3	88.5	88.6	93.5																			
27-Dec	87.8	87.4	86.9	85.9	85.1	84.8	83.3	81.7	81.6	81.4	81.0	79.1	84.8	84.6	81.9	81.7	82.3	83.3	81.9	82.7	83.5	84.4	85.2	87.8	83.8	87.8																			
28-Dec	89.0	89.4	90.0	89.7	89.9	89.4	88.9	89.2	88.8	89.1	89.4	91.2	86.2	85.3	85.1	85.4	85.6	86.6	87.7	88.5	89.0	89.0	88.9	89.0	88.3	91.2																			
29-Dec	89.1	89.2	89.3	89.5	89.5	89.5	89.5	89.6	90.1	89.7	89.7	88.5	87.0	86.6	86.8	86.7	87.7	87.8	85.7	84.4	84.5	84.3	83.7	83.1	87.6	90.1																			
30-Dec	83.1	83.9	82.5	82.6	82.6	82.7	82.7	80.8	81.0	80.2	78.4	77.6	77.4	76.5	78.2	78.1	78.0	77.9	79.0	78.3	77.1	76.9	77.7	78.3	79.6	83.9																			
31-Dec	79.1	78.1	74.3	74.3	74.3	75.0	74.7	74.3	74.2	74.8	75.2	74.8	74.2	73.3	74.4	73.8	75.1	75.2	74.8	74.9	75.1	74.7	73.9	73.8	74.8	79.1																			
82.8 82.5 82.1 81.9 81.9 81.6 81.6 81.9 82.1 82.2 81.9 81.3 80.7 80.0 79.8 80.1 80.6 81.3 81.7 82.1 82.3 82.5 82.6 82.6																								Diurnal Average																					
97.7 97.4 97.5 97.4 97.3 97.2 97.3 97.4 97.1 97.3 97.5 97.8 97.5 95.0 94.2 95.7 95.6 96.1 95.9 96.5 97.4 97.9 98.0 97.9																								Diurnal Maximum																					



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Fort Chipewyan - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Fort Chipewyan - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	333	44.76	44.76
80 - 100	411	55.24	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

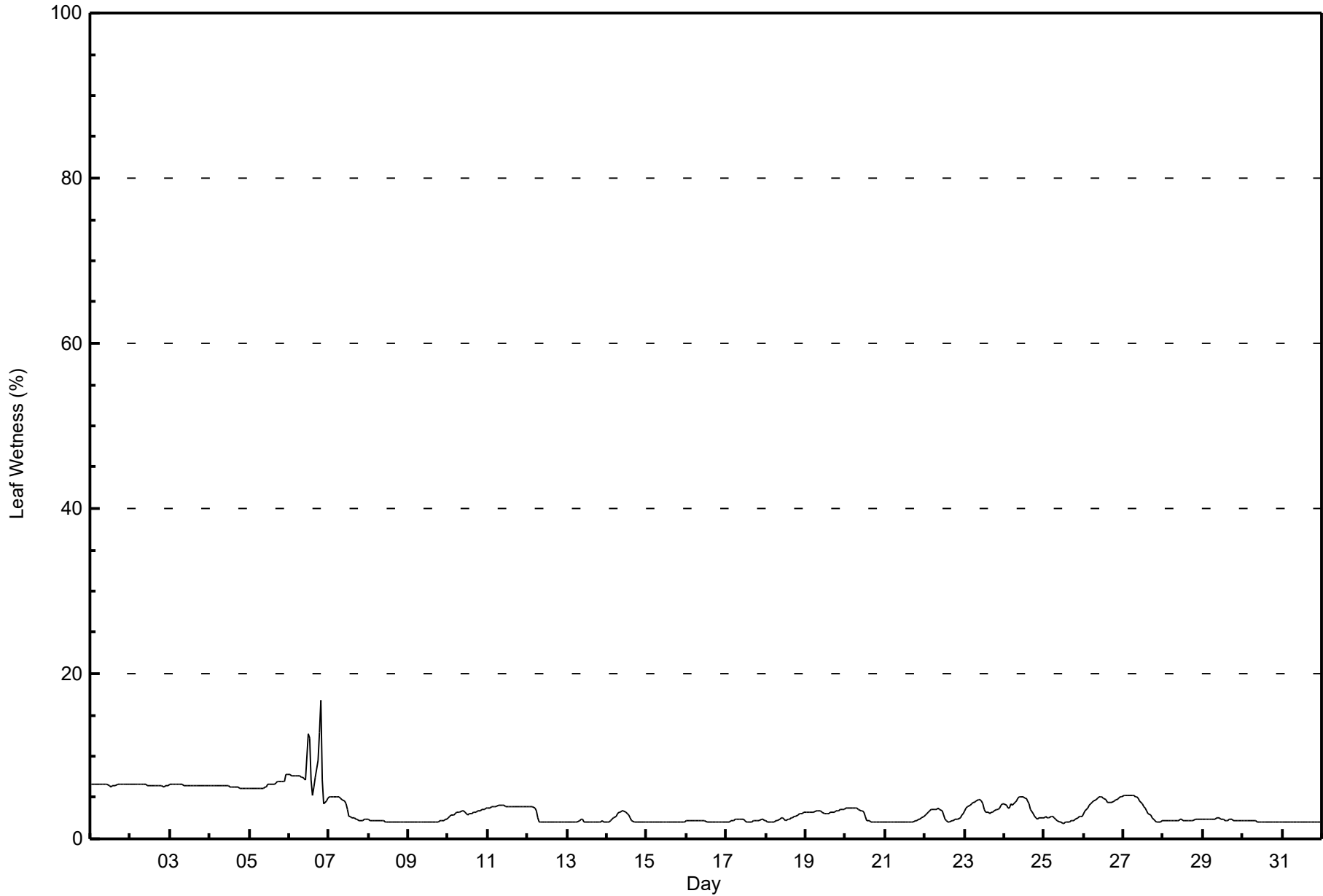
Fort Chipewyan - December 2024

Maximum Value: 16.9 % on Dec 6 20:00																				Maximum Daily Average: 8.1 % on Dec 6					Hours in Service: 744																							
Minimum Value: 1.8 % on Dec 25 12:00																				Minimum Daily Average: 2.0 % on Dec 31					Hours of Data: 744																							
Maximum Diurnal Average: 3.7 % at hour 9																				Minimum Diurnal Average: 3.3 % at hour 15					Hours of Missing Data: 0																							
Monthly Average: 3.54 %																				Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.6 Q ₃ = 4.6 P ₉₀ = 6.5 P ₉₉ = 7.7					Hours of Calibration: 0																							
																									Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.5	6.3	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.6																						
2-Dec	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.6																					
3-Dec	6.5	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.5	6.5	6.5	6.5	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.6																						
4-Dec	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.5	6.4	6.4	6.3	6.3	6.3	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.3	6.5																						
5-Dec	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.2	6.3	6.5	6.6	6.6	6.7	6.9	7.0	7.0	7.0	6.9	6.9	7.8	7.7	6.6	7.8																						
6-Dec	7.7	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.4	7.3	7.1	12.8	12.3	7.1	5.3	6.3	7.4	9.5	12.9	16.9	7.1	4.3	4.6	4.9	8.1	16.9																						
7-Dec	5.0	5.0	5.0	5.1	5.1	5.1	5.0	4.9	4.7	4.6	4.3	3.5	2.8	2.6	2.5	2.4	2.3	2.3	2.2	2.3	2.4	2.4	2.4	2.4	3.6	5.1																						
8-Dec	2.4	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																						
9-Dec	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	2.2	2.2	2.3	2.5	2.1	2.5																						
10-Dec	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.3	3.2	3.0	2.9	3.0	3.1	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.6	3.7	3.2	3.7																						
11-Dec	3.7	3.8	3.8	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.0	3.9	3.9	3.8	3.8	3.8	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	4.0																						
12-Dec	3.9	4.0	3.9	3.9	3.7	3.3	2.5	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5	4.0																						
13-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.4	2.4	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.4																						
14-Dec	2.0	2.1	2.2	2.4	2.6	2.8	3.0	3.1	3.3	3.4	3.4	3.3	3.1	2.9	2.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5	3.4																						
15-Dec	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	2.1	2.1	2.1	2.1																						
16-Dec	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.0	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																						
17-Dec	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.5	2.4	2.4	2.4	2.2	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.2	2.5																						
18-Dec	2.2	2.1	2.0	2.0	2.1	2.1	2.1	2.3	2.4	2.5	2.5	2.4	2.3	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.0	3.1	3.1	2.5	3.1																						
19-Dec	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.4	3.3	3.2	3.1	3.0	3.1	3.1	3.2	3.2	3.3	3.3	3.4	3.4	3.5	3.5	3.6	3.3	3.6																						
20-Dec	3.7	3.7	3.7	3.7	3.7	3.8	3.8	3.7	3.6	3.5	3.3	3.2	2.8	2.3	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.9	3.8																						
21-Dec	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.3	2.5	2.7	2.1	2.7																						
22-Dec	2.9	3.1	3.3	3.4	3.5	3.6	3.6	3.6	3.6	3.5	3.3	2.9	2.4	2.1	2.1	2.1	2.2	2.3	2.3	2.3	2.4	2.6	2.8	3.1	2.9	3.6																						
23-Dec	3.4	3.7	3.9	4.1	4.2	4.4	4.5	4.6	4.7	4.8	4.6	4.2	3.5	3.3	3.2	3.1	3.2	3.3	3.4	3.5	3.6	3.8	4.0	4.2	3.9	4.8																						
24-Dec	4.2	4.1	3.7	3.7	4.2	4.1	4.3	4.6	4.9	5.0	5.0	5.0	5.0	4.8	4.6	4.2	3.5	3.1	2.8	2.6	2.4	2.5	2.5	2.5	3.9	5.0																						
25-Dec	2.6	2.6	2.6	2.6	2.7	2.7	2.5	2.4	2.2	2.1	2.0	1.8	1.8	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.6	2.8	2.8	2.7	2.3	2.8																						
26-Dec	3.0	3.4	3.7	4.0	4.3	4.5	4.6	4.8	4.9	5.0	5.0	5.0	4.9	4.7	4.4	4.3	4.4	4.4	4.5	4.7	4.8	4.9	5.0	5.1	4.5	5.1																						
27-Dec	5.2	5.2	5.3	5.3	5.3	5.3	5.2	5.1	5.0	4.8	4.6	4.2	3.9	3.7	3.3	3.0	2.8	2.6	2.4	2.2	2.1	2.1	2.1	2.1	3.9	5.3																						
28-Dec	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.2	2.4																						
29-Dec	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.5																						
30-Dec	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	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																						
31-Dec	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.1																						
																								3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.6	3.4	3.3	3.3	3.3	3.4	3.5	3.6	3.3	3.3	3.4	3.4	Diurnal Average
																								7.7	7.7	7.6	7.6	7.6	7.6	7.6	7.5	7.4	7.3	7.1	12.8	12.3	7.1	6.6	6.7	7.4	9.5	12.9	16.9	7.1	6.9	7.8	7.7	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

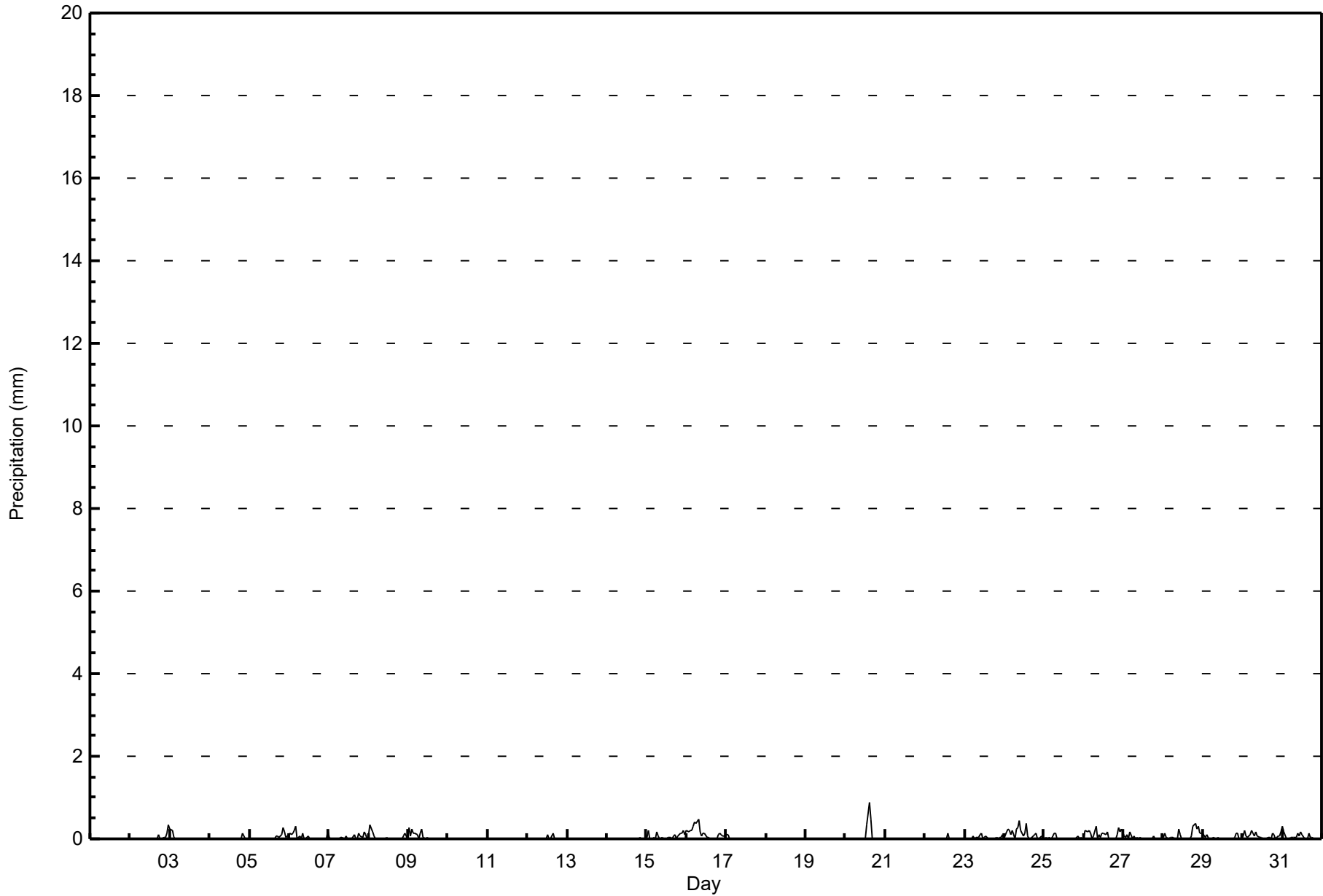
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	0	0.00	0.00
1.5 - 10	740	99.46	99.46
> 10	4	0.54	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 0.9 mm on Dec 20 15:00		Maximum Daily Total: 3.3 mm on Dec 16		Hours in Service: 744																																													
Minimum Value: 0.0 mm on Dec 1 01:00		Minimum Daily Total: 0.0 mm on Dec 1		Hours of Data: 744																																													
Maximum Diurnal Total: 2.2 mm at hour 2		Minimum Diurnal Total: 0.3 mm at hour 17		Hours of Missing Data: 0																																													
Monthly Total: 27.51 mm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.1 P ₉₉ = 0.4		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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.4	0.7	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
3-Dec	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.2	0.0	0.1	0.8	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
6-Dec	0.1	0.1	0.1	0.2	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
7-Dec	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
8-Dec	0.1	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
9-Dec	0.3	0.1	0.2	0.1	0.1	0.1	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	1.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	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	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
15-Dec	0.1	0.2	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	1.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
16-Dec	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	3.3	0.5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
17-Dec	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.9	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
23-Dec	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.8	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
24-Dec	0.0	0.2	0.2	0.2	0.1	0.2	0.0	0.3	0.3	0.4	0.2	0.1	0.2	0.4	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	3.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
25-Dec	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
26-Dec	0.0	0.2	0.2	0.2	0.1	0.0	0.1	0.3	0.0	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.6	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
27-Dec	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
28-Dec	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.2	0.3	2.3	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
29-Dec	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
30-Dec	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	1.9	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
31-Dec	0.3	0.2	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	1.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1														
																								1.7	2.2	1.4	1.2	1.4	1.1	1.1	1.6	1.2	1.4	0.9	0.7	0.6	1.0	1.3	0.8	0.3	0.5	0.8	1.0	1.3	1.5	1.2	1.5	Diurnal Average	
																								0.3	0.4	0.2	0.2	0.3	0.4	0.4	0.5	0.3	0.4	0.2	0.2	0.2	0.4	0.9	0.5	0.1	0.1	0.3	0.4	0.3	0.3	0.2	0.4	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Fort Chipewyan - December 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	736	98.92	98.92
0.4 - 0.5	7	0.94	99.87
0.6 - 0.7	0	0.00	99.87
0.8 - 1.4	1	0.13	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

Total Number of Valid Hours: 744

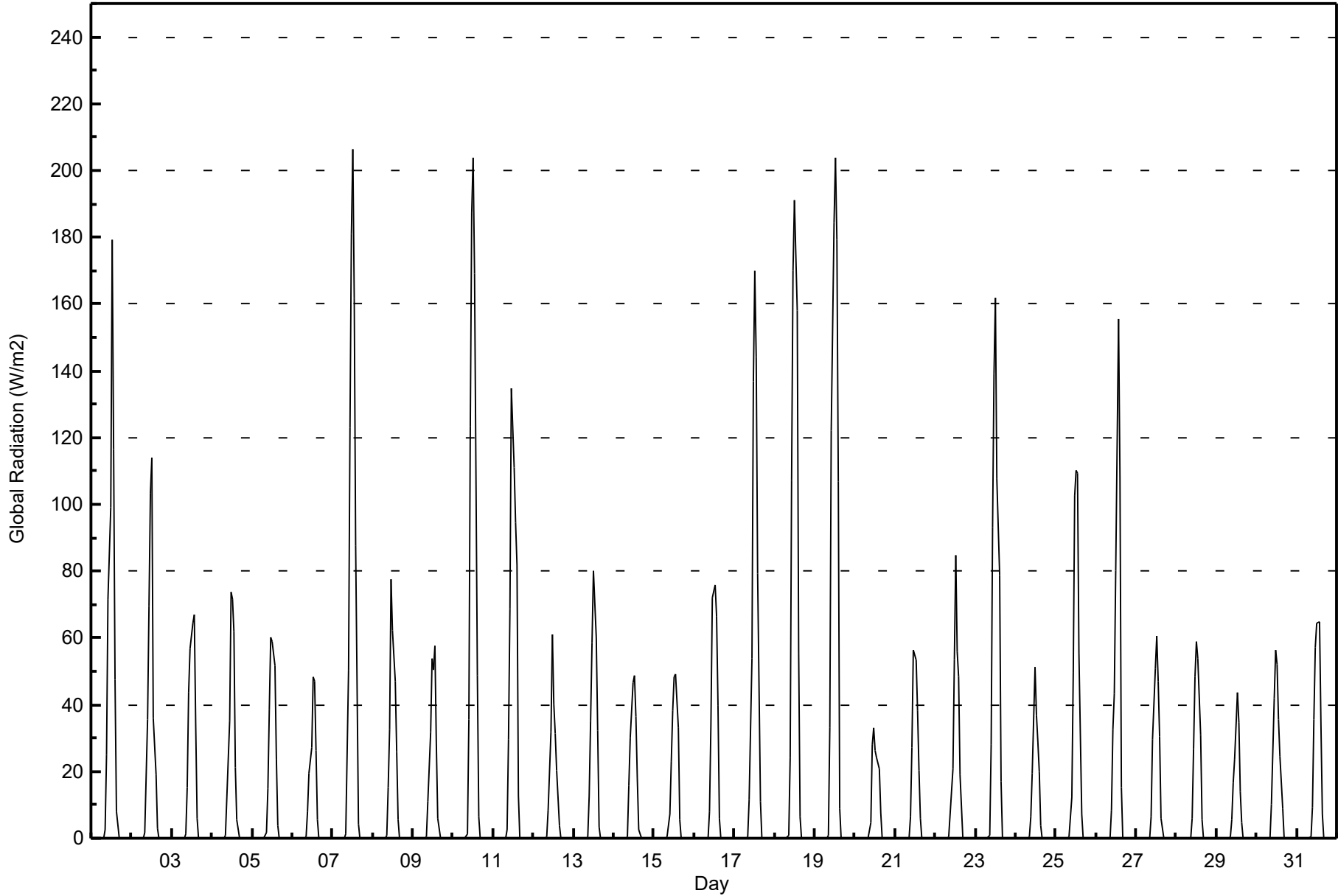
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

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

Maximum Value: 206.3 W/m2 on Dec 7 13:00		Maximum Daily Average: 35.0 W/m2 on Dec 19		Hours in Service:	744																					
Minimum Value: 0.0 W/m2 on Dec 1 03:00		Minimum Daily Average: 6.0 W/m2 on Dec 29		Hours of Data:	744																					
Maximum Diurnal Average: 92.3 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 20		Hours of Missing Data:	0																					
Monthly Average: 15.25 W/m2		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 7.6 P ₉₀ = 53.9 P ₉₉ = 179.4		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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	24.8	71.5	99.2	179.4	116.3	47.5	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.9	179.4
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	35.4	69.6	103.3	113.8	36.1	19.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.9	113.8
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	15.3	43.7	56.6	64.6	67.0	33.8	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	67.0
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	12.1	35.3	73.9	71.5	61.7	21.2	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	73.9
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	14.9	38.8	60.4	59.0	51.6	23.7	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	60.4
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.1	19.6	27.2	48.2	47.0	26.3	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	48.2
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	50.5	122.8	180.8	206.3	161.7	87.8	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.0	206.3
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	15.2	32.5	77.3	62.1	47.0	25.8	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	77.3
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	11.2	31.9	53.9	50.4	57.4	28.4	5.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	57.4
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	35.6	123.2	187.4	204.0	169.1	48.5	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.3	204.0
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	29.7	68.8	134.9	111.1	94.6	81.7	12.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3	134.9
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	8.6	31.6	61.0	40.2	31.5	20.5	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	61.0
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	12.6	35.3	58.7	80.2	60.2	32.1	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	80.2
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	15.6	30.0	46.5	48.8	36.6	17.9	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	48.8
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	7.3	22.9	38.0	48.2	49.1	33.1	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	49.1
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	7.9	33.7	72.2	76.0	66.5	39.7	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	76.0
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.3	54.0	137.0	170.1	144.2	79.3	11.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.3	170.1
18-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	24.1	107.1	169.7	191.2	158.1	55.6	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.7	191.2
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	32.9	122.2	184.3	203.9	179.4	106.8	9.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0	203.9
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.7	28.2	33.0	26.5	24.3	20.7	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	33.0
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.4	27.0	56.4	53.2	38.3	20.3	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	56.4
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	7.0	20.8	53.4	84.6	56.1	48.2	19.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	84.6
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	28.1	93.3	138.8	161.7	107.4	78.7	16.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.1	161.7
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.4	19.3	51.2	36.9	28.7	19.9	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	51.2
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	12.2	49.7	102.4	110.3	109.3	55.5	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.6	110.3
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.6	32.5	43.2	80.2	155.4	108.2	15.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5	155.4
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.5	29.5	51.0	60.4	47.1	30.3	5.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	60.4
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	5.9	26.7	48.2	58.8	53.7	30.9	5.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	58.8
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	5.7	16.4	23.6	43.6	34.8	14.0	4.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	43.6
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	10.0	42.0	56.3	52.0	35.4	24.8	8.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	56.3
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	9.3	35.4	57.0	64.5	64.9	34.1	7.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.4	64.9
																								Diurnal Average		
																								Diurnal Maximum		





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

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

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	590	79.30	79.30
21 - 100	120	16.13	95.43
101 - 300	34	4.57	100.00
301 - 600	0	0.00	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Speed 10m (WS10) - km/h
Fort Chipewyan - December 2024

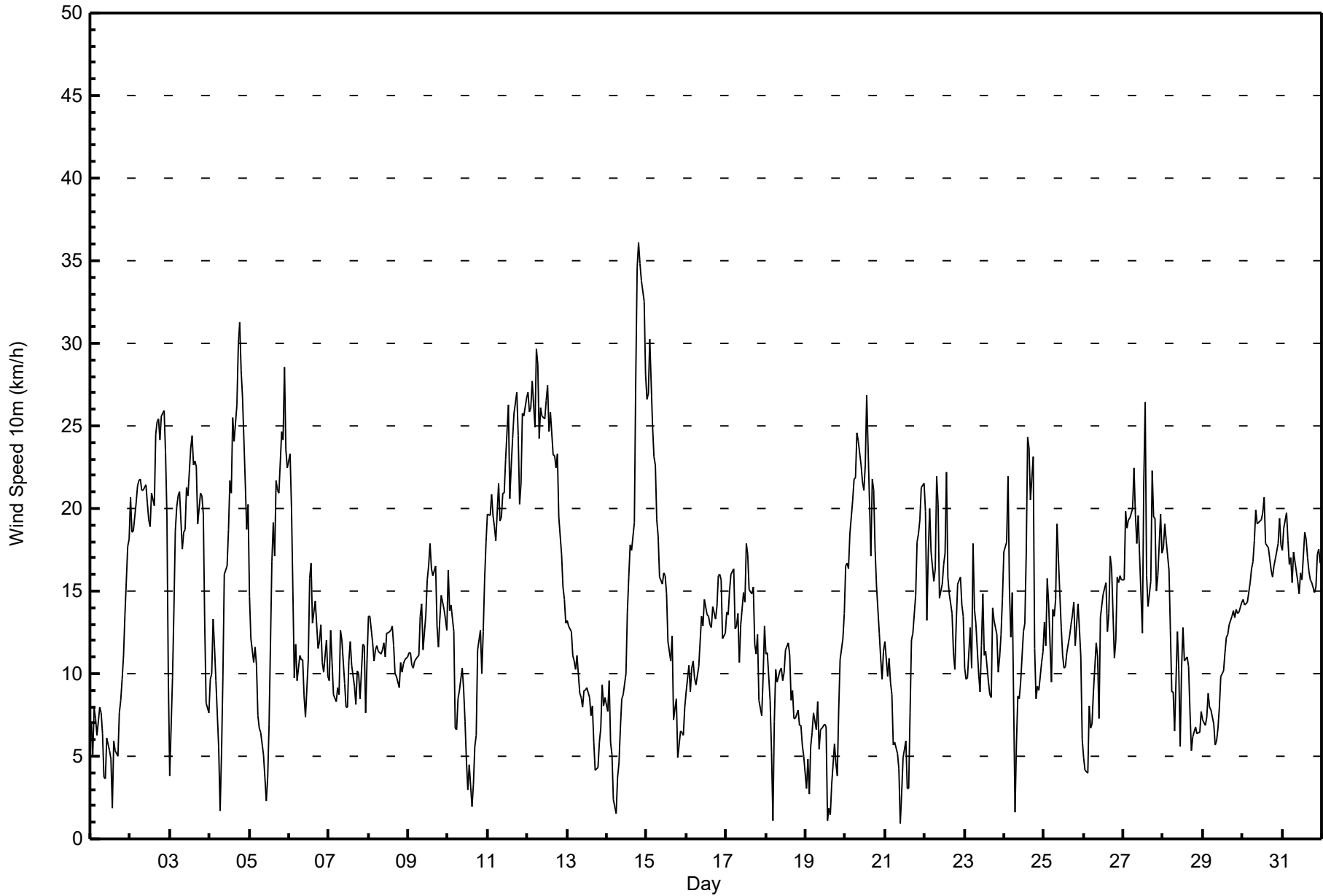
Maximum Speed: 36 km/h on Dec 14 20:00		Maximum Daily Speed Average: 22.2 km/h on Dec 11		Hours in Service: 744																							
Minimum Speed Value: 1 km/h on Dec 21 10:00		Minimum Daily Speed Average: 0.3 km/h on Dec 19		Hours of Data: 744																							
Maximum Diurnal Speed Average: 2.4 km/h at hour 3		Minimum Diurnal Speed Average: 0.9 km/h at hour 6		Hours of Missing Data: 0																							
Monthly Average Velocity: 1.5 km/h 47.3 deg		Percentiles: P ₁ = 2 P ₁₀ = 6 Q ₁ = 9 Median = 13 Q ₃ = 18 P ₉₀ = 22 P ₉₉ = 30		Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	WNW7	W5	WNW8	W7	W6	W8	W8	W6	W4	WSW4	WSW6	WSW5	SW5	S2	E6	SSE5	E5	E8	E8	ESE10	ESE11	E14	E18	E18	SE1.2	E18	
2-Dec	E21	ENE19	ENE19	ENE20	ENE21	ENE22	ENE22	ENE21	ENE21	ENE21	ENE20	E19	E19	ENE21	E20	ESE25	ESE25	E25	E24	E26	E26	E23	E20	NE10	E20.9	E26	
3-Dec	N4	NW10	WNW14	NW19	NW20	NW21	NW21	WNW18	WNW19	WNW19	WNW21	WNW21	WNW24	WNW24	WNW23	WNW23	NW23	NW19	NW21	NW21	NW20	WNW13	WSW8	WSW8	WNW17.4	WNW24	
4-Dec	W10	W10	W13	W12	W10	W6	WSW2	SE5	SE10	SE16	SE16	SE19	SE22	SE21	SE25	SE24	SE26	SSE30	S31	S28	S27	S22	S19	SSW20	SSE12.8	S31	
5-Dec	SSW15	SSW12	SW11	SW12	SW11	SW7	WSW7	WSW6	WSW5	SW4	ENE2	E4	ESE7	E17	E19	E17	E22	E21	E21	E25	E24	E29	E24	E22	ESE8.2	E29	
6-Dec	E23	E20	E15	SE10	S12	SSE10	S11	S11	SSW11	SW9	SW7	SW11	WSW16	WSW17	W13	W14	W14	W12	W12	W13	WNW11	WNW10	WNW12	WNW10	SW5.1	E23	
7-Dec	WNW10	WNW13	WNW11	WNW9	W8	W9	W9	W13	W12	WSW9	WSW8	WSW8	W11	W12	W11	WNW9	WNW8	NNW10	NNW10	NNW8	NW12	NW12	NNW8	NNW11	WNW8.7	W13	
8-Dec	NNW13	NNW13	NNW12	NW11	NW11	WNW12	WNW11	WNW11	WNW11	WNW12	WNW11	NW12	WNW12	WNW13	WNW13	WNW12	WNW10	WNW10	W9	W11	W10	W11	W11	W11	WNW10.9	NNW13	
9-Dec	W11	W11	W11	W10	W11	W11	WNW11	WNW13	NW14	NW11	NW14	NW16	NW17	NW18	NW16	NW16	NW16	NW13	NW12	NW13	NW15	NW14	NW13	WNW13	WNW12.8	NW18	
10-Dec	NW16	NW14	NW14	NW13	WNW7	W7	W9	W9	W10	W9	WNW7	NW5	NNW3	W4	NNW2	ENE3	ENE6	E6	E11	ESE13	ESE10	E13	E16	E18	NNW2.1	E18	
11-Dec	ENE20	ENE20	E21	ENE20	E19	ENE18	ENE22	ENE19	ENE19	ENE21	ENE21	E23	E26	ENE21	ENE23	ENE24	ENE26	ENE27	ENE24	ENE20	E21	E26	E26	ENE27	ENE22.2	ENE27	
12-Dec	E27	E26	E26	E28	ESE25	ESE30	SE29	SE24	SE26	SE26	SE25	SE27	SE27	SSE25	SSE26	SSE23	SSE23	SSE22	SSE23	SSE19	SSE17	SE15	SE15	SE13	SE21.1	ESE30	
13-Dec	SE13	SE13	SSE13	SE11	SE11	SSE10	SSE11	SSW9	SSW9	W8	WSW9	W9	WSW9	W9	W7	W8	WNW6	W4	WSW4	NW6	NW7	NNW9	NNW8	NNW9	SW3.3	SE13	
14-Dec	NNW8	NNW10	NNW6	NNW5	NNW2	N2	NE4	NNE5	NE7	NE8	NE9	NNE10	NE14	NE16	NE18	NE17	NE19	NE28	NE35	NE36	NE35	NE34	NE33	NE28	NE15.2	NE36	
15-Dec	NE27	NE27	NE30	NE25	NE23	NE19	NNE18	NNE16	NNE15	NNE16	NE16	NE15	NNE12	NNE11	NE12	NNE7	NW8	NNW8	NNW5	NW7	NW6	NW6	NW6	WNW8	NNE13.6	NE30	
16-Dec	WNW9	NW10	WNW9	WNW10	W11	W10	W9	W10	W12	W13	W13	WNW15	W14	W14	W13	W13	W14	W13	W14	W16	W16	W16	W16	WNW12	NW12	W12.2	W16
17-Dec	NW14	NW14	NW15	NW16	NW16	WNW13	WNW13	WNW14	W11	W13	W15	WSW14	W18	W17	W15	W15	W15	W12	WNW11	W12	W8	WSW7	WSW10	W13	WNW12.5	W18	
18-Dec	WSW11	WSW11	W8	W5	W1	SSE7	SSE10	SSE9	ESE10	ESE10	E10	E10	E11	E12	E11	E8	E9	E7	E7	E8	E7	E7	E6	E5	ESE4.9	E12	
19-Dec	ESE3	SW5	W3	W6	WSW6	WSW8	W7	WNW8	WSW5	W7	WSW7	WNW7	WNW7	SW1	SE2	SE1	E3	E6	E5	E4	E8	ENE11	E12	E14	NW0.3	E14	
20-Dec	E17	E17	ENE16	ENE18	E21	ENE22	E22	E25	E24	ENE23	E22	E21	ESE23	ESE27	SE20	SSE17	S22	SSW21	SSW18	SSW15	SSW12	SSW11	SSW10	SSW11	ESE12.5	ESE27	
21-Dec	SW12	SW10	W11	W9	W9	W6	W6	W5	NW4	NW1	S3	SSW5	SSW6	SSW3	E3	ENE8	ENE12	ENE12	ENE15	ENE18	ENE18	ENE19	E21	E22	E3.0	ENE22	
22-Dec	E20	E13	E17	E20	E17	ENE16	ENE16	ENE22	E20	E15	E15	E17	E17	E22	SE16	SE15	ESE14	SE11	S10	S13	SSE15	SSE16	SSE14	SSE13	ESE13.0	E22	
23-Dec	SE10	SE10	ESE10	SE13	ESE10	ESE18	ESE14	ESE13	ESE10	SE9	SSE12	SSE15	SSE11	S11	SSW10	SSW9	SSW9	SSW14	SW13	SW12	SW10	SW11	SW12	W15	SSE7.9	ESE18	
24-Dec	W17	W18	W22	WSW15	WSW12	W15	S2	E6	E9	E8	E9	E13	E13	E17	ENE24	ENE24	E21	E23	E12	SE8	S9	SSE9	SSE11	S11	ESE4.4	ENE24	
25-Dec	SSW13	SSW12	SSW16	SW14	SW9	SW14	WSW13	W14	W19	W15	W13	W11	WSW10	WSW10	SW11	SW12	SW13	SW14	SW14	SSW12	SW14	SSW13	SSW11	S6	SW11.5	W19	
26-Dec	SE5	SE4	ESE4	ESE8	SSE7	E7	E9	E12	E11	E7	E13	E14	E15	E15	E13	E14	E17	E16	E11	E12	E16	E16	E16	E16	E11.2	E17	
27-Dec	ENE16	E20	ENE19	E19	ENE19	E20	ENE22	E20	E18	E20	ENE17	ENE12	E22	ENE26	ENE16	ENE14	ENE16	ENE22	ENE20	ENE19	ENE15	ENE16	ENE20	ENE17	ENE18.3	ENE26	
28-Dec	ENE18	ENE19	ENE18	ENE16	NE13	NE9	NE9	NE7	NE13	NE10	NNE6	NE10	NE13	NNE11	NNE11	NNE10	NNE8	N5	NNW6	NNW7	NNW6	NW6	NW6	NW8	NE8.7	ENE19	
29-Dec	NNW7	NW7	NW7	NW9	NW8	NW8	WNW7	WNW6	NW6	WNW7	NW8	NW10	WNW10	WNW11	WNW12	NW12	WNW13	NW13	WNW14	WNW13	NW14	NW14	WNW14	WNW14	NW10.1	WNW14	
30-Dec	WNW15	WNW14	WNW14	WNW14	WNW15	WNW16	WNW17	WNW18	WNW20	WNW19	WNW19	WNW19	WNW20	WNW21	WNW18	WNW18	WNW17	WNW16	WNW16	WNW17	WNW17	WNW18	WNW18	WNW18	WNW17.2	WNW21	
31-Dec	WNW17	WNW19	WNW20	WNW18	WNW17	WNW17	WNW15	WNW17	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16	WNW16.7	WNW20	
NE2.3 NNE2.3 N2.4 N1.9 N1.5 NNE0.9 NE1.2 NNE1.4 NNE1.5 NNE1.3 NE1.0 NE1.1 ENE1.5 ENE1.8 ENE1.9 ENE1.5 ENE2.1 E2.2 E1.5 E1.5 ENE1.3 ENE2.3 ENE2.4 NE2.1																								Diurnal Average			
E27 NE27 NE30 E28 ESE25 ESE30 SE29 E25 SE26 SE26 SE25 SE27 SE27 ESE27 SSE26 ESE25 SE26 SSE30 NE35 NE36 NE35 NE34 NE33 NE28																								Diurnal Maximum			
All monthly, daily, and diurnal averages have been calculated using vector methods																											



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Fort Chipewyan - December 2024

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Fort Chipewyan - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	53	7.12	7.12
6 - 11	248	33.33	40.46
12 - 19	299	40.19	80.65
20 - 28	133	17.88	98.52
29 - 38	11	1.48	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Fort Chipewyan - December 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	3	1	1	2	7	2	5	1	3	2	4	6	8	0	3	5	53
6 - 11	0	8	8	4	28	10	9	10	7	11	11	19	51	34	22	16	248
12 - 19	0	5	12	31	45	5	11	10	3	11	12	7	41	70	33	3	299
20 - 28	0	0	7	34	45	5	12	6	4	2	0	0	1	10	7	0	133
29 - 38	0	0	6	0	1	1	1	1	1	0	0	0	0	0	0	0	11
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	3	14	34	71	126	23	38	28	18	26	27	32	101	114	65	24	744

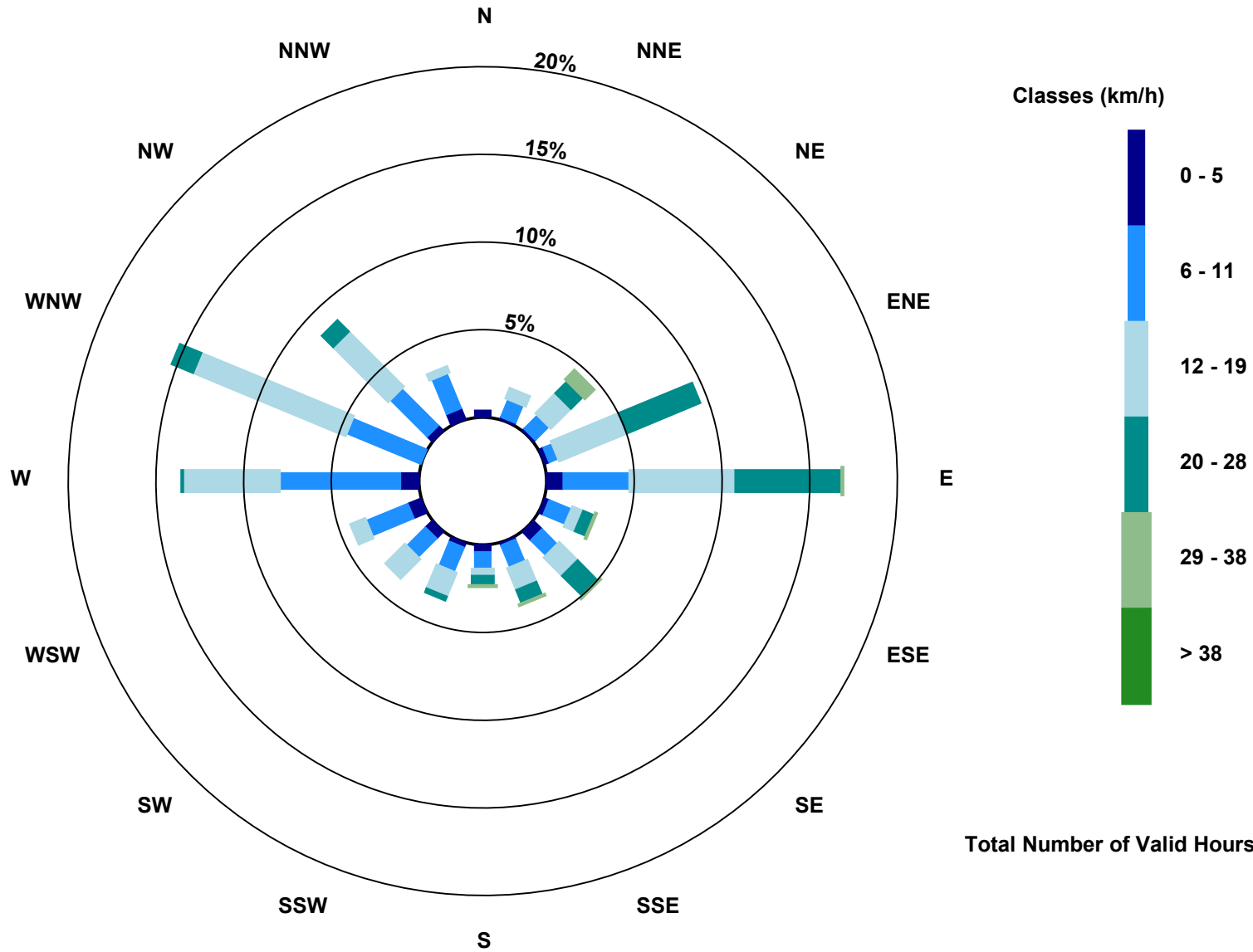
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Fort Chipewyan



Total Number of Valid Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Fort Chipewyan - December 2024

Direction of Maximum Speed: 54 deg on Dec 14 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 76.9 deg on Dec 11	Hours of Data: 744
Direction of Minimum Speed: 315 deg on Dec 21 10:00	Hours of Missing Data: 0
Direction of Minimum Daily Speed Average: 0.3 deg on Dec 19	Percent Operational Time: 100.0
Monthly Average Direction: 47.3 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-Dec	288	266	282	277	277	274	274	273	278	249	241	244	221	170	98	151	92	83	100	105	111	93	88	85	124.5
2-Dec	79	75	74	73	75	74	76	73	73	76	77	81	82	76	92	104	102	96	87	87	88	84	82	56	82.2
3-Dec	356	313	301	307	308	305	307	299	284	289	289	286	299	301	300	301	308	304	306	314	311	303	243	254	300.1
4-Dec	271	274	271	273	273	270	257	133	135	128	137	130	133	132	126	138	146	163	171	177	186	186	190	194	166.4
5-Dec	199	212	217	232	226	231	240	254	257	235	77	85	107	88	91	94	95	94	82	83	85	84	80	79	103.7
6-Dec	87	90	100	136	172	160	171	182	195	215	222	232	246	254	278	278	276	273	271	277	287	288	286	292	234.2
7-Dec	283	282	289	284	278	276	267	269	269	253	241	238	268	265	274	285	293	331	341	339	323	324	329	327	288.5
8-Dec	337	332	327	312	304	297	303	299	299	287	287	305	303	291	297	296	291	287	280	280	281	265	271	276	297.0
9-Dec	275	279	277	274	273	278	293	295	310	307	309	318	318	323	317	311	319	316	315	306	310	309	304	297	303.7
10-Dec	307	310	308	308	298	271	259	268	278	279	298	323	329	277	338	77	73	90	97	110	104	91	90	84	341.7
11-Dec	75	78	82	77	80	72	76	73	75	77	77	80	79	77	74	73	75	71	74	75	86	81	80	78	76.9
12-Dec	82	86	84	88	103	121	129	137	139	133	136	142	140	152	159	159	160	164	166	165	155	145	134	136	132.9
13-Dec	135	140	155	146	144	147	168	192	210	261	257	264	252	280	263	273	285	265	249	314	325	335	331	337	223.1
14-Dec	332	340	335	344	337	10	39	17	38	44	54	26	42	40	46	38	43	52	56	54	53	52	49	44	43.0
15-Dec	44	42	42	42	40	40	34	32	31	30	33	35	37	22	25	42	23	315	341	344	320	322	321	299	28.9
16-Dec	297	310	295	282	280	277	272	274	276	279	281	288	276	279	266	267	275	263	265	273	272	274	283	305	278.6
17-Dec	314	319	313	314	308	297	298	292	273	269	259	255	267	271	269	269	271	275	284	281	274	254	258	259	281.7
18-Dec	253	251	261	262	261	163	161	148	112	108	96	94	84	82	79	86	86	97	96	87	83	86	101	87	108.5
19-Dec	113	234	263	267	255	252	280	296	255	277	255	293	292	219	135	132	81	85	91	85	80	78	83	83	308.1
20-Dec	79	82	76	78	80	78	79	79	80	77	87	86	106	122	132	166	179	193	197	194	203	205	206	213	114.2
21-Dec	218	231	260	260	265	272	261	264	306	315	188	208	206	204	100	72	75	75	77	76	74	76	79	79	89.5
22-Dec	83	84	83	82	82	71	67	74	82	86	97	100	86	93	139	145	123	130	188	179	168	163	163	161	107.1
23-Dec	142	130	123	140	105	111	115	105	106	135	161	166	168	181	193	194	194	213	217	227	222	222	228	266	168.3
24-Dec	268	262	264	257	246	260	180	85	80	95	94	98	99	92	76	72	82	82	100	129	172	158	159	175	117.5
25-Dec	203	198	208	218	231	223	250	262	276	273	276	265	249	241	232	226	230	228	229	209	214	208	210	182	232.5
26-Dec	143	127	106	110	156	101	92	87	90	84	91	91	88	91	84	81	89	88	89	90	88	82	86	82	91.3
27-Dec	76	80	77	83	77	81	76	79	79	82	66	74	95	78	69	58	63	66	66	66	59	60	65	61	73.0
28-Dec	63	63	64	62	54	54	45	43	54	41	21	37	36	25	22	24	15	356	346	339	329	321	320	323	34.7
29-Dec	327	325	314	308	308	304	295	301	309	288	313	304	300	298	299	307	303	307	302	302	304	306	301	297	304.4
30-Dec	294	292	291	290	292	293	289	294	299	299	298	297	298	298	295	297	295	293	294	285	285	284	285	290	293.0
31-Dec	292	301	300	295	292	298	298	298	293	295	296	297	298	299	297	301	300	302	300	299	299	304	300	304	298.4
	34.7	15.9	359.2	0.3	355.6	16.4	35.1	18.1	26.7	29.4	44.7	47.4	64.8	57.7	68.3	68.7	77.4	86.1	86.5	79.9	73.8	67.6	73.8	43.0	
	Diurnal Average																								

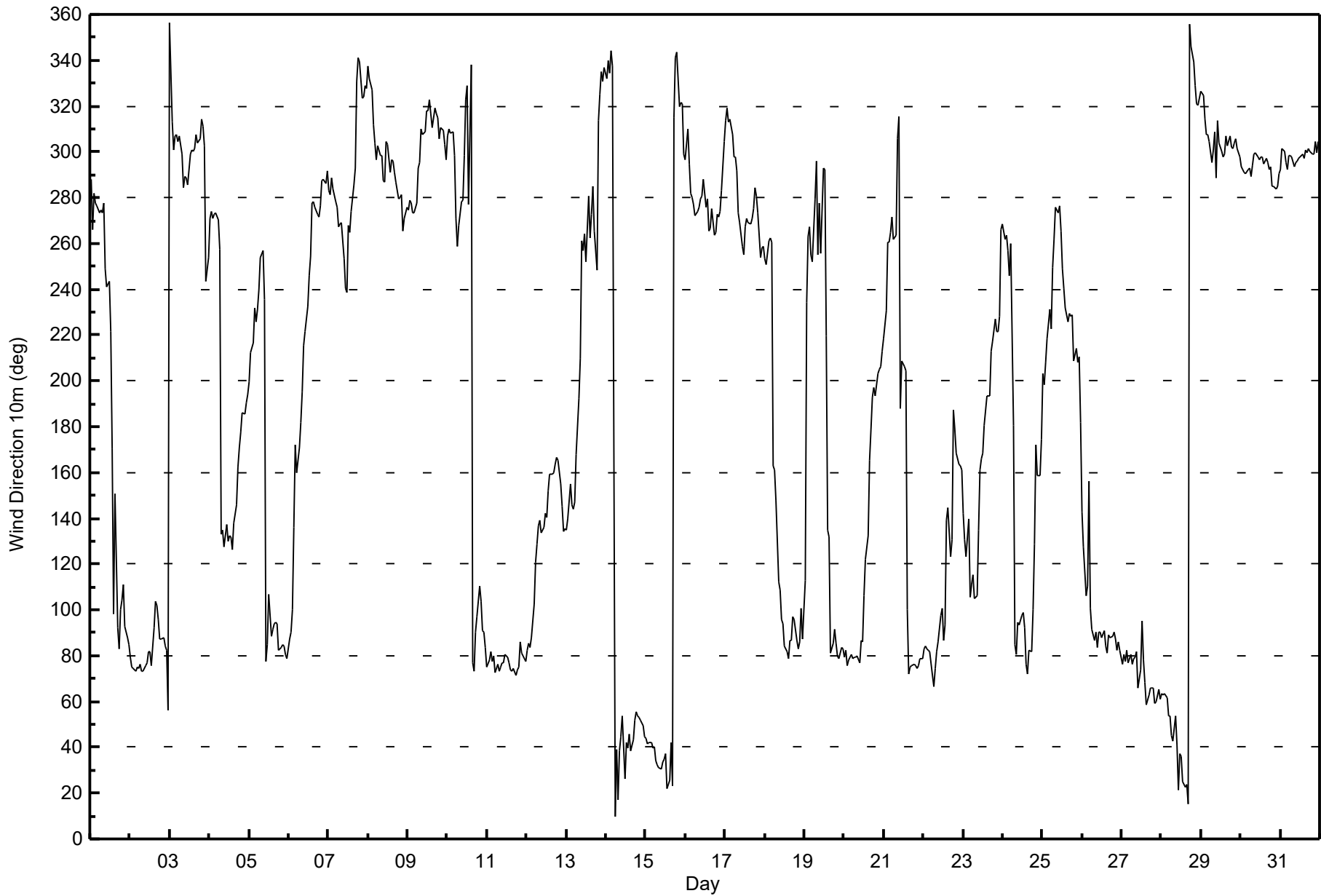
All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Fort Chipewyan - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 87 deg on Dec 14 06:00 Minimum Value: 2 deg on Dec 18 14:00 Percentiles: P ₁ = 4 P ₁₀ = 6 Q ₁ = 8 Median = 13 Q ₃ = 17 P ₉₀ = 22 P ₉₉ = 63		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-Dec	12	25	11	10	12	12	10	18	33	27	15	20	13	65	29	11	23	8	8	7	8	7	6	5	65	
2-Dec	4	5	5	6	5	6	5	5	6	6	6	6	6	5	9	5	5	4	4	4	4	4	5	12	12	
3-Dec	44	19	16	17	18	17	18	17	14	15	15	14	16	15	16	16	17	16	15	18	17	19	19	20	44	
4-Dec	17	17	13	14	16	25	85	22	10	8	9	7	8	8	7	8	9	13	7	8	8	8	8	9	85	
5-Dec	9	9	9	11	11	12	13	15	20	19	40	28	13	9	8	7	6	7	7	5	5	7	7	5	40	
6-Dec	5	6	6	19	9	14	11	8	12	13	10	15	14	18	16	13	12	13	12	12	12	13	13	13	19	
7-Dec	17	12	16	14	17	17	17	14	12	14	15	16	16	14	14	17	24	29	25	26	20	23	33	22	33	
8-Dec	22	22	26	21	17	16	17	17	17	15	17	19	17	15	16	15	16	14	14	13	14	13	12	13	26	
9-Dec	12	14	13	12	14	13	16	17	19	20	17	22	22	25	23	19	24	21	22	16	18	18	16	16	25	
10-Dec	17	18	16	17	19	18	18	18	10	13	29	35	58	22	60	16	14	9	7	5	10	4	4	7	60	
11-Dec	4	4	4	4	5	5	4	4	4	4	4	4	5	5	5	5	5	5	6	7	6	5	5	4	7	
12-Dec	5	5	5	8	5	7	7	8	7	8	9	9	8	12	11	10	10	8	8	8	12	15	16	20	20	
13-Dec	16	14	14	16	13	17	11	20	11	28	23	17	19	28	15	15	23	21	18	21	26	22	20	22	28	
14-Dec	23	20	30	30	81	87	16	34	19	13	10	17	10	10	10	11	9	9	9	9	9	9	10	10	87	
15-Dec	10	10	10	11	12	11	13	12	15	15	13	14	13	17	19	11	19	21	30	31	18	19	18	17	31	
16-Dec	14	14	17	13	13	14	15	14	13	13	14	14	14	14	14	14	12	14	13	13	13	13	16	18	18	
17-Dec	21	21	18	21	19	15	15	14	14	14	14	15	13	13	13	13	12	13	12	13	21	16	14	13	21	
18-Dec	14	14	16	17	69	21	9	12	7	8	8	8	4	2	4	8	6	15	7	4	7	8	13	9	69	
19-Dec	45	26	23	18	17	15	18	18	30	13	23	46	21	86	59	63	49	10	32	36	10	5	6	5	86	
20-Dec	6	7	6	6	6	5	5	4	5	4	8	6	18	4	8	13	9	9	9	8	8	8	8	8	18	
21-Dec	10	17	16	13	16	19	17	19	37	64	30	11	15	28	52	7	10	5	7	5	7	6	5	5	64	
22-Dec	5	6	6	5	5	7	9	7	5	7	7	6	6	12	12	12	11	19	16	10	9	11	12	11	19	
23-Dec	15	12	15	11	28	8	10	8	13	23	12	13	9	15	11	10	13	11	8	10	9	10	13	14	28	
24-Dec	13	15	14	14	14	12	86	20	11	15	18	9	14	8	7	6	6	6	13	29	16	21	12	15	86	
25-Dec	10	18	8	15	12	9	14	17	13	13	12	15	15	15	14	11	11	11	10	11	9	9	12	32	32	
26-Dec	45	50	57	30	34	22	9	4	6	14	7	6	5	7	7	7	6	5	7	9	6	7	7	6	57	
27-Dec	8	5	5	6	6	7	6	6	7	6	11	21	7	9	8	9	9	12	11	11	8	9	8	8	21	
28-Dec	7	6	6	7	8	12	12	16	9	11	24	15	18	17	18	17	22	21	21	18	17	19	21	21	24	
29-Dec	22	20	16	12	12	15	13	14	13	13	20	16	17	15	15	16	15	18	15	15	16	16	14	15	22	
30-Dec	16	16	16	15	15	15	14	16	15	14	16	15	15	15	15	14	14	14	14	15	14	14	12	14	16	
31-Dec	14	14	14	15	15	15	16	15	15	16	16	16	15	14	14	15	16	16	15	15	16	15	15	15	16	
		45	50	57	30	81	87	86	34	37	64	40	46	58	86	60	63	49	29	32	36	26	23	33	32	
		Diurnal Maximum																								





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS09 BARGE LANDING DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)
DECEMBER 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	34	35	99.87	36.3	0	5.9	0
TRS(ppb) Average	708	36	36	100	2.9	0	1.2	0
THC(ppm) Average	706	34	38	99.46	4.1	-	2.5	-
NMHC(ppm) Average	706	34	38	99.46	0.244	-	0.027	-
CH4(ppm) Average	706	34	38	99.46	4.1	-	2.5	-
NO2 (ppb) Average	707	36	37	99.87	42.9	0	31	-
NO (ppb) Average	707	36	37	99.87	132.3	-	57.3	-
NOX (ppb) Average	707	36	37	99.87	175.2	-	88.4	-
PM2.5(ug/m3) Average	740	2	4	99.73	35.2	0	19.9	0
Temperature (C) Average	741	0	3	99.6	3.3	-	0.8	-
Relative Humidity (%) Average	742	0	2	99.73	99	-	96.4	-
Barometric Pressure (inHg) Average	744	0	0	100	29.7	-	29.6	-
Wind Speed 10 m (km/h) Average	725	0	19	97.45	11	-	7	-
Wind Direction 10 m (deg) Average	725	0	19	97.45	-	-	-	-
Wind Speed 20 m (km/h) Average	736	0	8	98.92	19	-	13	-
Wind Direction 20 m (deg) Average	736	0	8	98.92	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)
 DECEMBER 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Min	P10	Percentile					Max
							Q1	Median	Q3	P90		
SO2 (ppb) Average	709	0.75	2.1	-	0	0	0	0.2	0.7	1.8	36.3	
TRS(ppb) Average	708	0.62	0.4	-	0.2	0.3	0.3	0.5	0.8	1.1	2.9	
THC(ppm) Average	706	2.11	0.3	-	1.8	1.9	2	2.1	2.2	2.3	4.1	
NMHC(ppm) Average	706	0.005	0.021	-	0	0	0	0	0	0	0.244	
CH4(ppm) Average	706	2.11	0.2	-	1.8	1.9	2	2.1	2.2	2.3	4.1	
NO2 (ppb) Average	707	14.77	9.2	-	0.2	2	7.5	14.5	21.1	27.4	42.9	
NO (ppb) Average	707	12.11	20.5	-	0	0	0.2	2.3	14.8	39.9	132.3	
NOX (ppb) Average	707	26.88	28	-	0.2	2.1	7.9	17.3	35.7	66.9	175.2	
PM2.5(ug/m3) Average	740	8.21	6	-	1.3	2.7	3.8	6	10.5	17.8	35.2	
Temperature (C) Average	741	-12.72	8.1	-	-32.8	-24.6	-18.9	-10.7	-7.2	-3.1	3.3	
Relative Humidity (%) Average	742	83.97	8.3	-	58.1	73.5	77.7	83.3	90.7	95.2	99	
Barometric Pressure (inHg) Average	744	28.96	0.4	-	28.3	28.5	28.6	28.9	29.3	29.5	29.7	
Wind Speed 10 m (km/h) Average	725	4.1	2	-	0	1	2	4	6	7	11	
Wind Direction 10 m (deg) Average	725	122.4	-	-	-	-	-	-	-	-	-	
Wind Speed 20 m (km/h) Average	736	7.8	4	-	0	3	5	7	11	13	19	
Wind Direction 20 m (deg) Average	736	141.7	-	-	-	-	-	-	-	-	-	

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - BARGE LANDING (AMS09)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	05 Dec 2024 12:00	05 Dec 2024 12:00	1	Maintenance - sample manifold cleaned
THC/ NMHC/ CH4	23 Dec 2024 11:00	23 Dec 2024 12:00	2	Maintenance - replaced support gas cylinder
THC/ NMHC/ CH4	29 Dec 2024 14:00	29 Dec 2024 14:00	1	Maintenance - station operator activities
PM2.5	29 Dec 2024 13:00	29 Dec 2024 14:00	2	Maintenance - clean optical chamber
Relative Humidity, Temperature 2 m	11 Dec 2024 12:00	11 Dec 2024 12:00	1	DAS Failure - data not recorded
Relative Humidity, Temperature 2 m	12 Dec 2024 05:00	12 Dec 2024 05:00	1	DAS Failure - data not recorded
Relative Humidity, Temperature 2 m	19 Dec 2024 14:00	19 Dec 2024 14:00	1	DAS Failure - data not recorded
Wind Speed, Wind Direction 10m	01 Dec 2024 19:00	01 Dec 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	10 Dec 2024 05:00	10 Dec 2024 06:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	18 Dec 2024 11:00	18 Dec 2024 11:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	27 Dec 2024 22:00	27 Dec 2024 22:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	28 Dec 2024 01:00	28 Dec 2024 01:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	28 Dec 2024 04:00	28 Dec 2024 06:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	28 Dec 2024 08:00	28 Dec 2024 08:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Dec 2024 02:00	29 Dec 2024 03:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Dec 2024 15:00	29 Dec 2024 15:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Dec 2024 18:00	29 Dec 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Dec 2024 23:00	30 Dec 2024 00:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	31 Dec 2024 10:00	31 Dec 2024 10:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	31 Dec 2024 21:00	31 Dec 2024 22:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	18 Dec 2024 11:00	18 Dec 2024 13:00	3	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	18 Dec 2024 19:00	18 Dec 2024 19:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	19 Dec 2024 17:00	19 Dec 2024 18:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	20 Dec 2024 08:00	20 Dec 2024 08:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	29 Dec 2024 03:00	29 Dec 2024 03:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

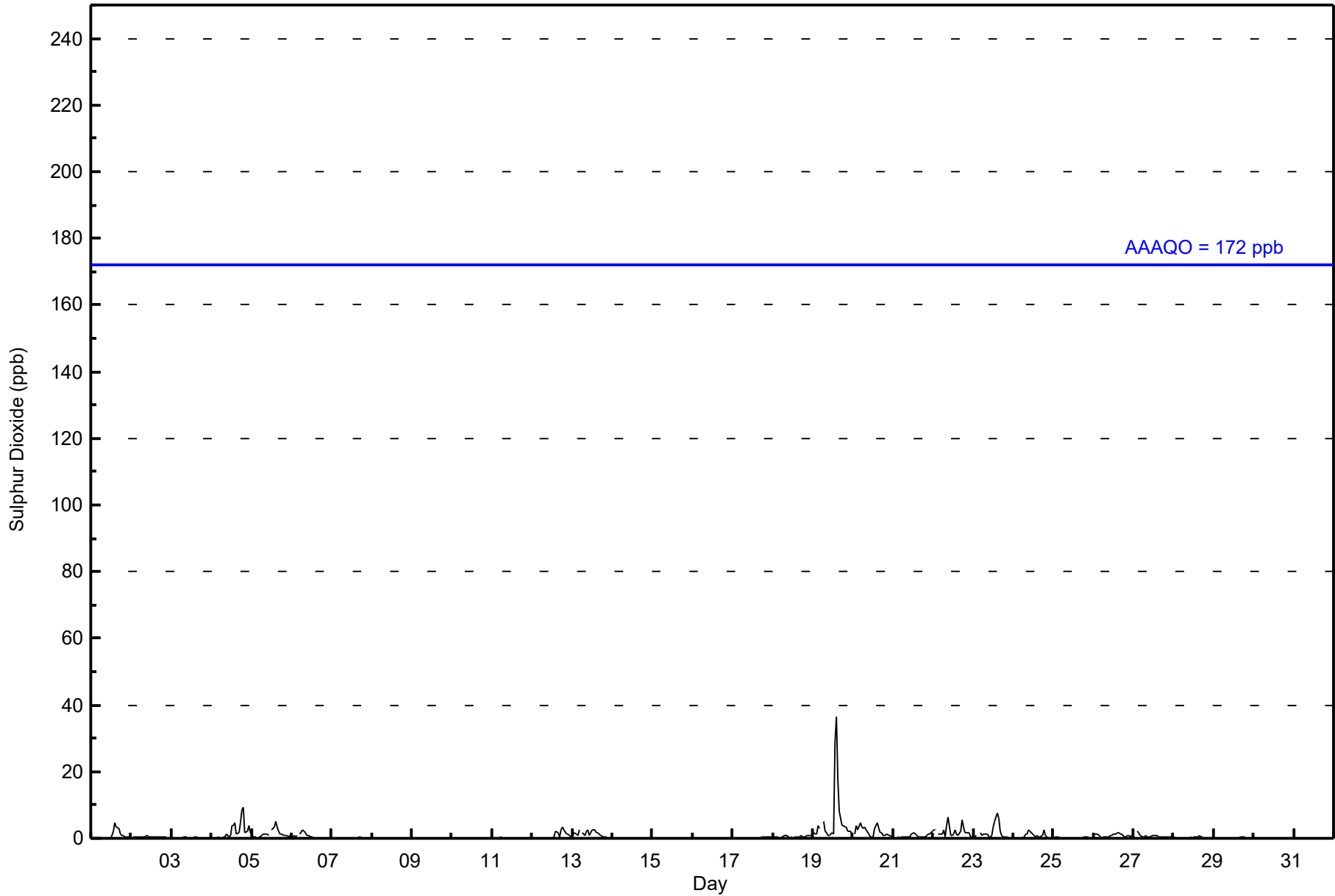
Sulphur Dioxide (SO₂) - ppb
Barge Landing - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 36.3 ppb on Dec 19 15:00	Maximum Daily Average: 5.9 ppb on Dec 19		Hours of Data:	709
Minimum Value: 0.0 ppb on Dec 1 01:00	Minimum Daily Average: 0.0 ppb on Dec 8		Hours of Missing Data:	35
Maximum Diurnal Average: 2.4 ppb at hour 15	Minimum Diurnal Average: 0.3 ppb at hour 1		Hours of Calibration:	34
Monthly Average: 0.75 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.7 P ₉₀ = 1.8 P ₉₉ = 6.3		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-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.0	0.1	0.0	0.1	0.7	2.2	4.6	3.4	2.8	1.3	0.9	0.7	0.4	0.4	0.4	0.6	0.8	4.6	
2-Dec	Z	0.4	0.3	0.3	0.4	0.4	0.5	0.6	0.6	0.6	0.5	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.4	0.6	
3-Dec	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.5	0.2	0.2	C	C	C	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.5	
4-Dec	0.1	0.1	Z	0.2	0.2	0.2	0.1	0.5	0.4	1.4	0.4	0.8	3.7	4.0	4.7	1.4	1.5	4.8	8.5	9.3	1.6	2.2	4.0	1.8	2.3	9.3	
5-Dec	1.1	0.6	0.5	Z	0.4	0.3	0.7	1.1	1.3	1.2	1.0	M	2.7	3.6	5.2	3.3	2.2	1.3	1.1	0.9	0.8	1.0	0.6	0.9	1.5	5.2	
6-Dec	0.4	0.7	0.4	0.7	Z	1.2	2.6	2.0	1.7	0.8	0.6	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.6	2.6	
7-Dec	0.1	0.1	0.0	0.1	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3	
8-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
10-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
11-Dec	0.0	0.0	0.0	Z	0.2	0.2	0.2	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	0.1	0.1	0.2	
12-Dec	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.3	2.1	1.8	0.6	2.6	3.4	2.4	1.4	1.3	0.8	0.3	0.8	3.4	
13-Dec	0.2	1.6	1.1	1.0	2.7	Z	1.5	0.9	2.3	2.3	0.9	1.5	2.4	2.7	1.7	1.8	1.2	0.8	0.4	0.3	0.3	0.1	0.2	0.1	1.2	2.7	
14-Dec	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
15-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.4	0.5	0.5	0.3	0.3	0.3	0.4	0.1	0.5	
18-Dec	0.5	0.3	0.3	0.2	Z	0.4	0.5	0.7	0.7	0.3	0.2	0.2	0.2	0.3	0.5	0.6	0.6	0.7	0.6	0.6	0.7	0.7	0.7	0.7	0.5	0.7	
19-Dec	1.6	1.1	1.3	3.6	2.9	Z	5.2	2.0	1.6	0.8	1.0	1.7	1.4	28.9	36.3	17.7	8.1	4.0	3.7	3.3	3.3	2.0	2.2	1.4	5.9	36.3	
20-Dec	Z	1.3	3.9	2.4	4.8	3.4	2.9	3.5	2.6	1.4	0.6	0.3	0.3	3.1	4.6	2.9	1.7	1.7	0.7	1.0	1.2	0.8	0.7	0.5	2.0	4.8	
21-Dec	0.4	Z	0.2	0.2	0.2	0.3	0.5	0.4	0.4	0.4	0.4	1.3	1.6	1.1	0.8	0.5	0.3	0.3	0.3	0.4	0.8	1.4	1.3	2.2	0.7	2.2	
22-Dec	2.5	2.6	Z	1.2	1.1	1.3	2.4	0.5	3.7	6.3	1.1	0.8	1.4	2.3	1.2	1.1	2.3	5.4	3.4	1.7	1.7	1.6	0.5	0.3	2.0	6.3	
23-Dec	0.3	0.2	0.7	Z	1.5	0.9	1.1	1.3	1.4	0.5	0.4	1.0	3.3	5.0	7.8	6.0	2.1	0.8	0.6	0.4	0.3	0.2	0.1	0.0	1.6	7.8	
24-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.6	1.5	1.3	2.5	2.0	1.3	1.0	0.5	0.8	0.5	0.5	0.8	2.4	0.6	0.3	0.2	0.0	0.0	0.7	2.5	
25-Dec	0.0	0.4	0.6	0.3	0.2	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.2	0.1	0.2	0.6
26-Dec	Z	1.1	1.1	0.8	0.4	0.2	0.2	0.5	0.2	0.3	0.9	0.9	1.2	1.1	1.5	1.8	1.2	1.3	0.5	0.4	0.8	1.0	0.6	0.8	0.8	1.8	
27-Dec	0.5	Z	2.2	1.8	0.6	0.4	0.6	0.8	0.6	0.6	0.4	0.7	0.9	0.8	0.7	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.6	2.2	
28-Dec	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3	0.4	0.6	0.7	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.7	
29-Dec	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	0.5	0.4	0.2	0.0	0.1	0.1	0.1	0.1	0.5	
30-Dec	0.1	0.2	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
31-Dec	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	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	

0.3	0.4	0.5	0.5	0.6	0.4	0.7	0.6	0.6	0.7	0.4	0.4	0.7	1.9	2.4	1.5	0.9	0.9	0.9	0.8	0.5	0.5	0.4	0.4	Diurnal Average	
2.5	2.6	3.9	3.6	4.8	3.4	5.2	3.5	3.7	6.3	2.0	1.7	3.7	28.9	36.3	17.7	8.1	5.4	8.5	9.3	3.3	2.2	4.0	2.2	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
Barge Landing - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	706	99.58	99.58
11 - 20	1	0.14	99.72
21 - 60	2	0.28	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Barge Landing - December 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	63	42	20	15	22	25	55	124	115	40	44	14	30	34	19	36	698
11 - 20	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
21 - 60	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	63	42	20	16	22	25	55	125	115	40	45	14	30	34	19	36	701

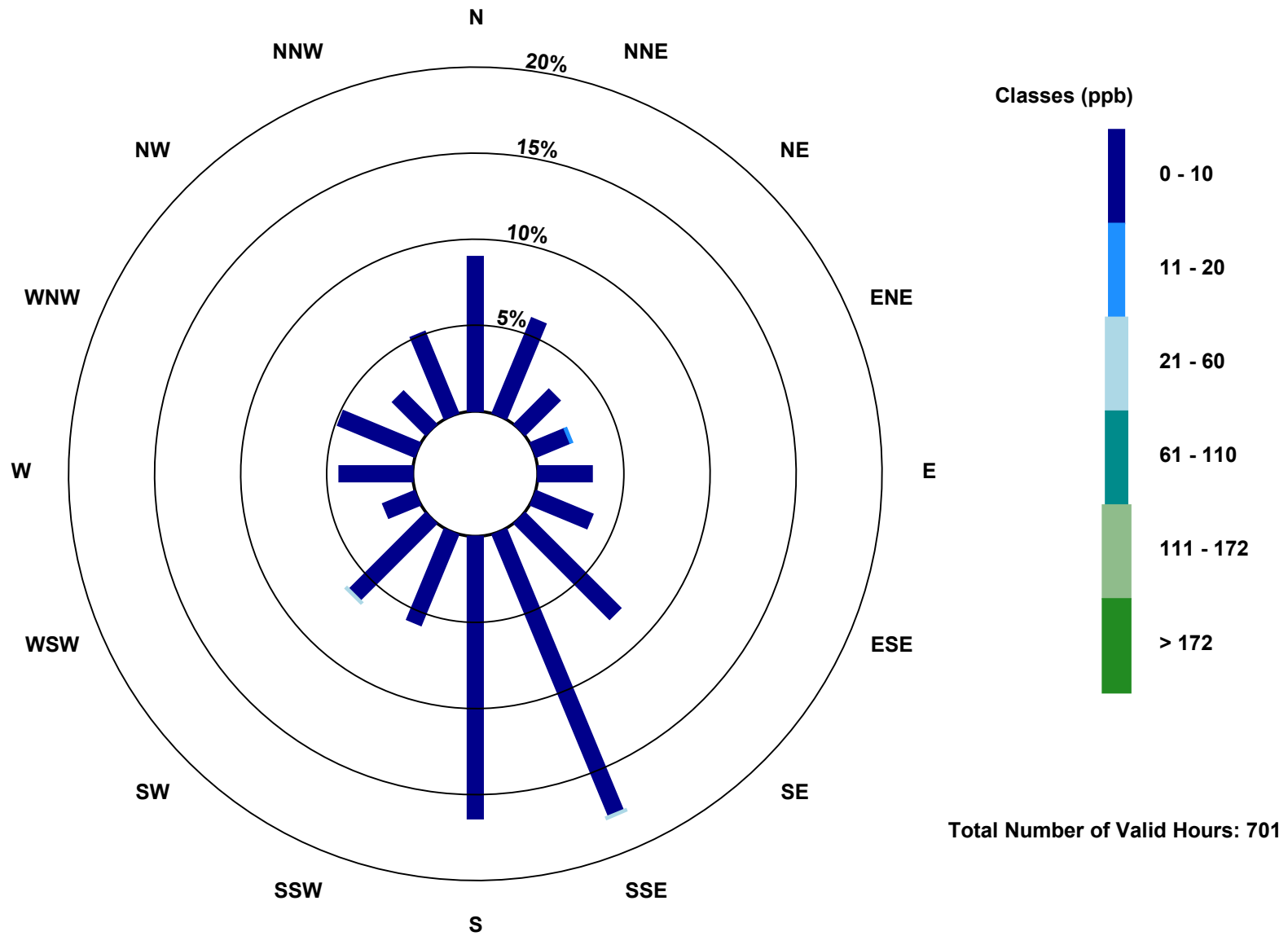
Total Number of Valid Hours: 701

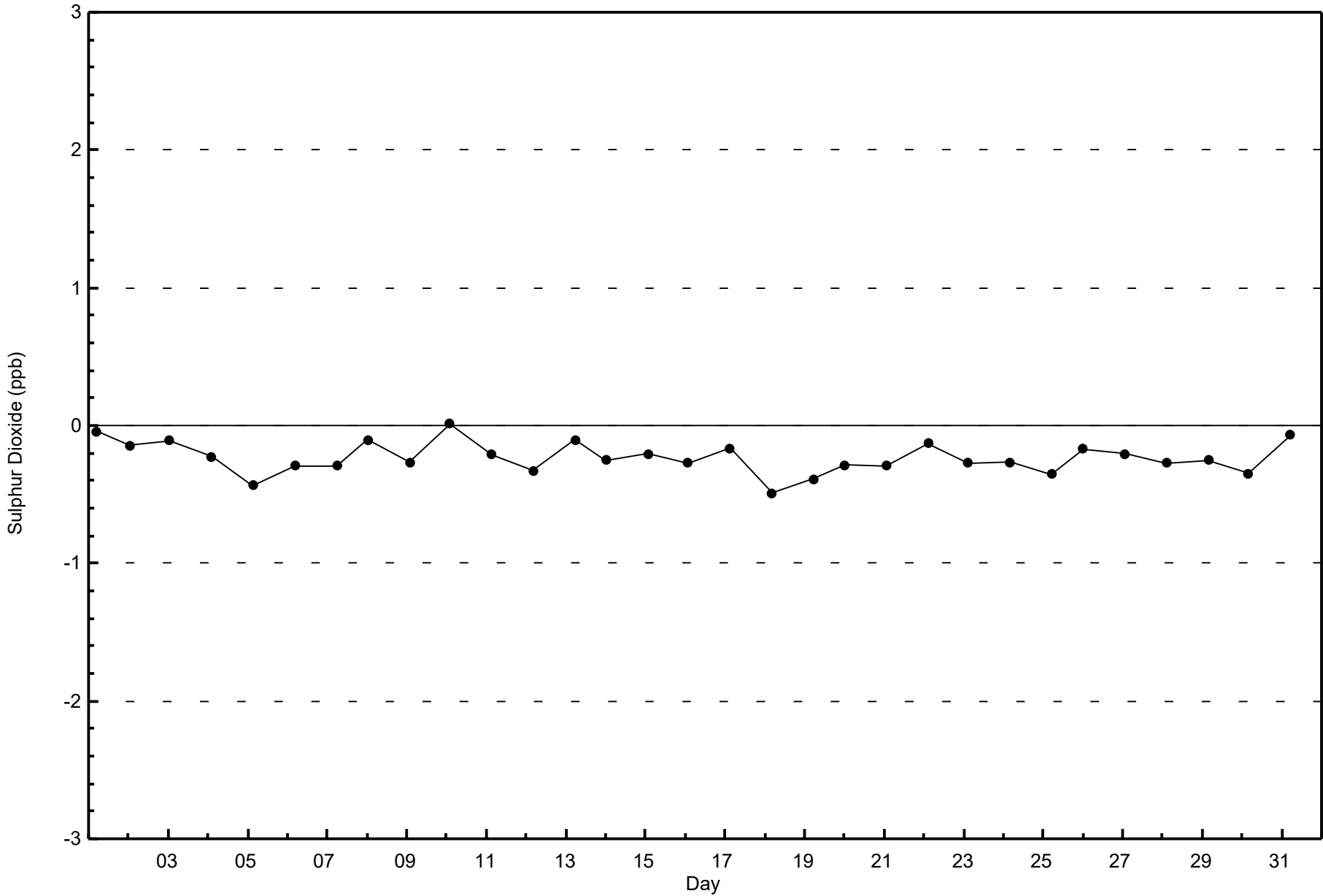
Total Number of Hours: 744

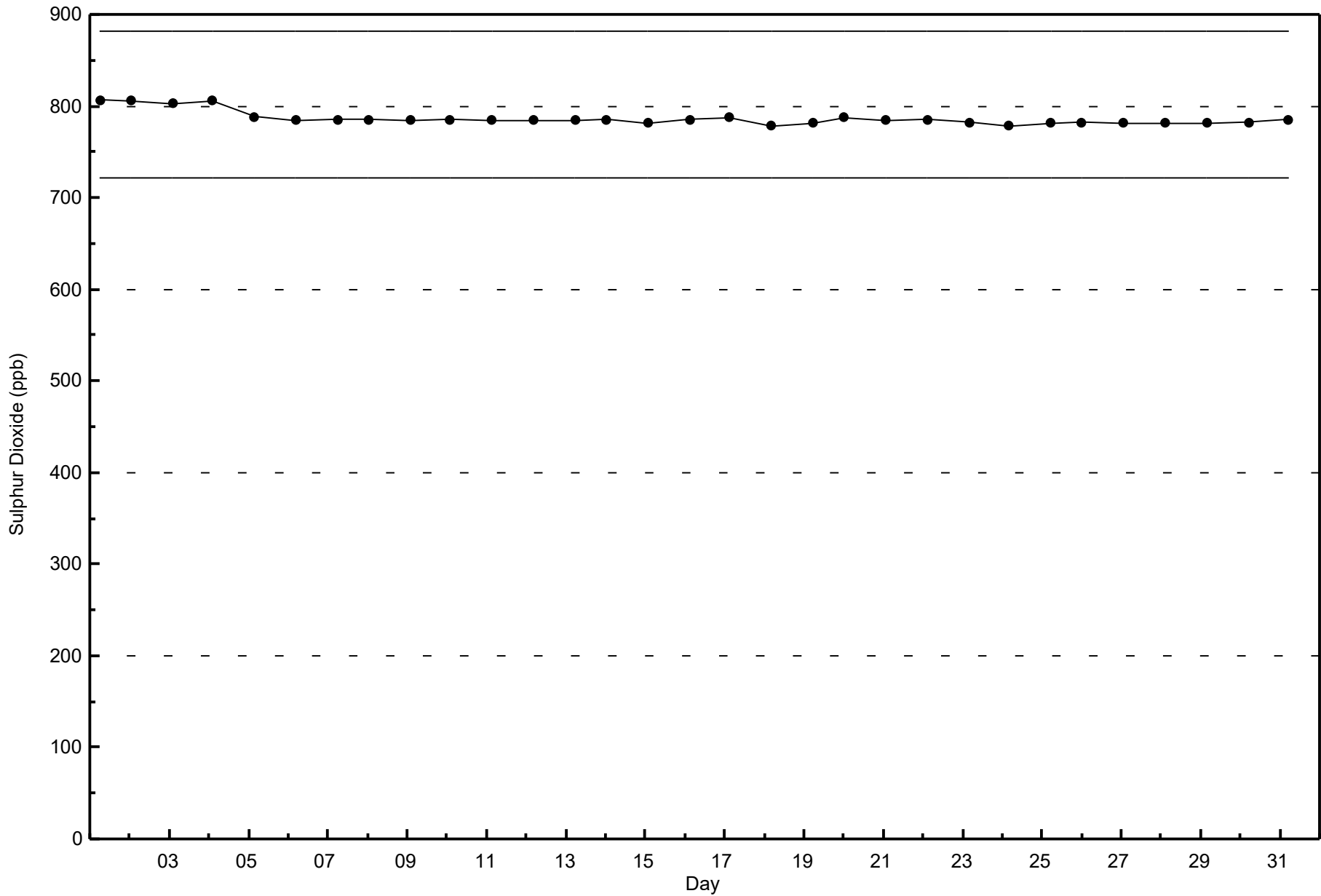


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Barge Landing









Wood Buffalo Environmental Association

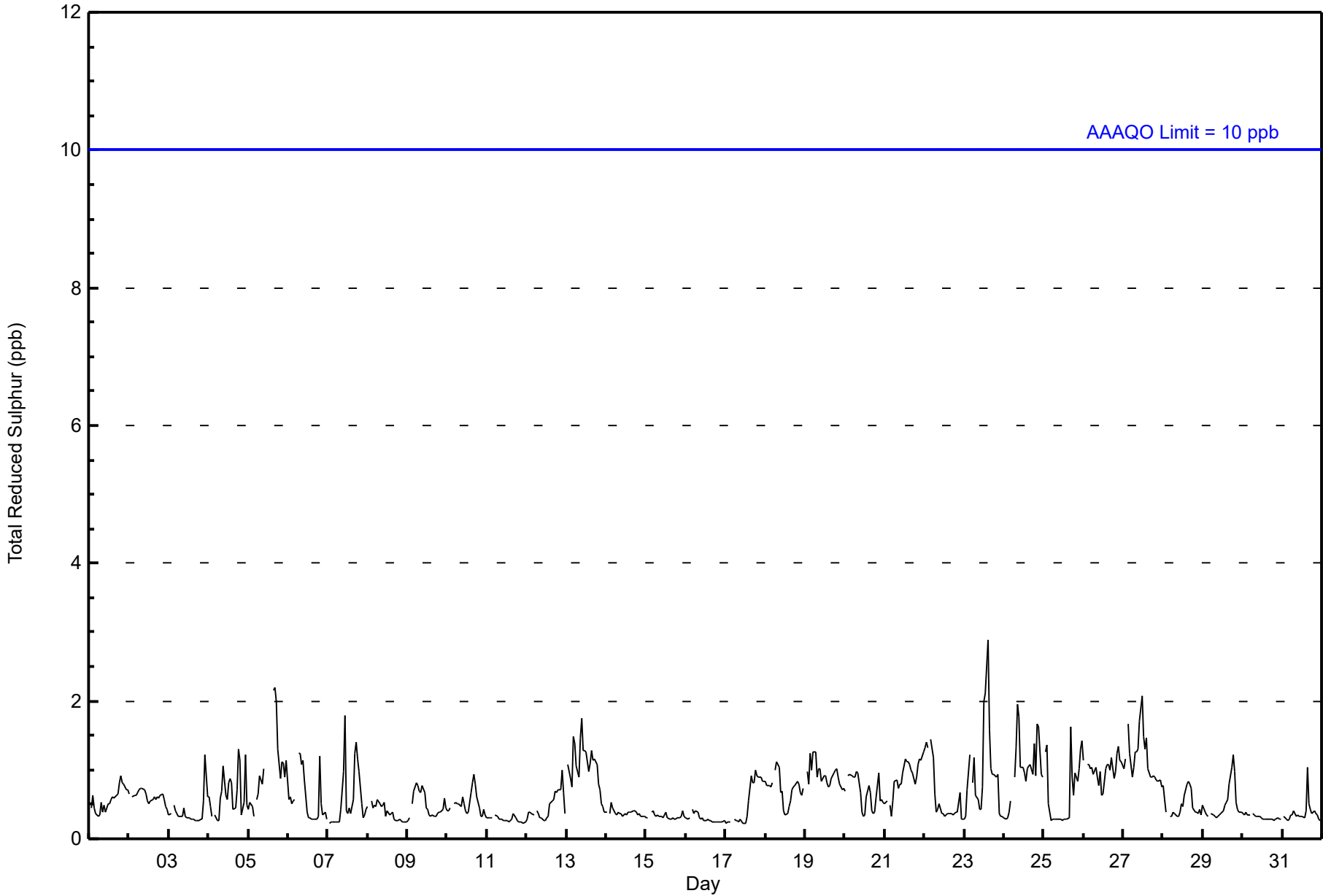
Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Barge Landing - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 2.9 ppb on Dec 23 15:00		Maximum Daily Average: 1.2 ppb on Dec 27		Hours of Data: 708														Hours of Missing Data: 36		Hours of Calibration: 36							
Minimum Value: 0.2 ppb on Dec 17 13:00		Minimum Daily Average: 0.3 ppb on Dec 11		Hours of Calibration: 36														Percent Operational Time: 100.0									
Maximum Diurnal Average: 0.7 ppb at hour 17		Minimum Diurnal Average: 0.5 ppb at hour 1		Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.3 Median = 0.5 Q ₃ = 0.8 P ₉₀ = 1.1 P ₉₉ = 1.9																							
Monthly Average: 0.62 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-Dec	Z	0.4	0.6	0.4	0.4	0.3	0.3	0.5	0.4	0.5	0.4	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.8	0.9	0.8	0.8	0.7	0.7	0.6	0.9	
2-Dec	0.7	Z	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.6	0.7	
3-Dec	0.3	0.4	Z	0.5	0.4	0.4	0.3	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	1.2	0.6	0.4	1.2	
4-Dec	0.6	0.5	0.3	Z	0.3	0.3	0.3	0.6	0.7	1.1	0.6	0.6	0.8	0.9	0.8	0.4	0.4	0.7	1.3	1.1	0.3	0.5	1.2	0.5	0.7	1.3	
5-Dec	0.4	0.5	0.5	0.3	Z	0.6	0.7	0.9	0.8	1.0	C	C	C	C	C	2.2	2.2	2.0	1.3	0.9	1.1	1.1	0.9	1.1	1.0	2.2	
6-Dec	0.6	0.6	0.5	0.5	0.6	Z	1.3	1.2	1.1	1.1	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.2	0.5	0.3	0.4	0.3	0.6	1.3	
7-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.4	1.0	1.8	0.4	0.4	0.4	0.4	0.6	1.2	1.4	1.2	1.0	0.5	0.3	0.4	0.4	0.4	0.6	1.8	
8-Dec	0.5	Z	0.6	0.4	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.4	0.6	
9-Dec	0.3	0.3	Z	0.5	0.7	0.8	0.8	0.7	0.7	0.8	0.7	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.6	0.4	0.5	0.8	
10-Dec	0.4	0.4	0.4	Z	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.4	0.7	0.8	0.9	0.8	0.6	0.4	0.3	0.3	0.4	0.4	0.5	0.9	
11-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.4	
12-Dec	0.3	0.4	0.4	0.4	0.3	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.5	0.6	0.7	0.7	0.7	0.7	1.0	0.7	0.4	0.5	1.0	
13-Dec	Z	1.1	0.9	0.7	1.5	1.4	1.1	0.9	1.5	1.7	1.3	1.3	1.3	1.0	1.1	1.3	1.1	1.2	1.1	0.8	0.7	0.5	0.5	0.4	1.1	1.7	
14-Dec	0.4	Z	0.4	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.5	
15-Dec	0.3	0.3	Z	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.4	
16-Dec	0.3	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.4	
17-Dec	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.5	0.9	0.8	0.8	1.0	0.9	0.9	0.9	0.8	0.8	0.5	1.0	
18-Dec	0.8	0.8	0.8	0.8	0.8	Z	1.0	1.1	1.0	0.7	0.7	0.4	0.3	0.4	0.5	0.5	0.7	0.8	0.8	0.8	0.8	0.7	0.6	0.7	0.7	1.1	
19-Dec	Z	1.0	0.8	1.2	1.0	1.3	1.3	0.9	1.0	1.0	0.8	0.9	0.9	0.8	0.8	0.8	0.9	1.0	1.0	1.0	0.9	0.8	0.7	0.7	0.9	1.3	
20-Dec	0.7	Z	0.9	0.9	0.9	0.9	0.9	1.0	0.9	0.7	0.4	0.3	0.3	0.6	0.8	0.7	0.4	0.4	0.4	0.6	1.0	0.5	0.6	0.5	0.7	1.0	
21-Dec	0.5	0.6	Z	0.5	0.3	0.5	0.8	0.8	0.7	0.8	0.8	1.0	1.1	1.1	1.1	1.1	1.0	0.9	0.8	0.9	1.1	1.2	1.1	1.3	0.9	1.3	
22-Dec	1.3	1.4	1.3	Z	1.4	1.2	0.6	0.4	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.3	0.3	0.6	1.4	
23-Dec	0.3	0.3	0.7	1.2	Z	0.8	1.2	0.6	0.6	0.4	0.4	0.8	2.0	2.1	2.9	1.6	1.0	0.9	0.9	0.9	0.9	0.4	0.3	0.3	0.9	2.9	
24-Dec	0.3	0.3	0.3	0.4	0.5	Z	0.9	1.3	2.0	1.8	1.0	1.0	1.0	0.8	1.0	1.1	1.1	0.9	1.4	0.9	1.7	1.6	0.9	0.9	1.0	2.0	
25-Dec	Z	1.3	1.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.6	0.9	0.6	1.0	0.8	1.0	1.3	1.4	0.7	1.6	
26-Dec	1.1	Z	1.1	1.1	1.0	1.0	0.9	1.0	0.9	0.8	1.0	0.6	0.7	1.0	1.1	1.1	1.0	1.2	0.9	1.0	1.2	1.3	1.1	1.1	1.0	1.3	
27-Dec	1.0	1.2	Z	1.7	1.2	0.9	1.0	1.3	1.3	1.3	1.7	2.1	1.5	1.3	1.5	1.0	0.9	0.9	0.9	0.9	0.8	0.8	0.8	0.7	1.2	2.1	
28-Dec	0.8	0.6	0.4	Z	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.6	0.8	0.8	0.8	0.8	0.7	0.4	0.4	0.4	0.4	0.3	0.5	0.8	
29-Dec	0.5	0.4	0.3	0.3	Z	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.6	0.8	1.0	1.2	1.0	0.5	0.4	0.4	0.4	0.5	1.2	
30-Dec	0.4	0.4	0.4	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	
31-Dec	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.0	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	1.0	
																								Diurnal Average		Diurnal Maximum	
																								0.5		1.3	
																								0.6		1.4	
																								0.6		1.4	
																								0.6		1.7	
																								0.6		1.5	
																								0.6		1.4	
																								0.6		1.3	
																								0.6		1.3	
																								0.6		2.0	
																								0.7		1.8	
																								0.6		1.8	
																								0.5		2.1	
																								0.6		2.0	
																								0.6		2.1	
																								0.7		2.9	
																								0.7		2.2	
																								0.7		2.2	
																								0.7		2.0	
																								0.7		1.4	
																								0.6		1.2	
																								0.6		1.7	
																								0.6		1.6	
																								0.6		1.3	
																								0.6		1.4	

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**

**Total Reduced Sulphur (TRS) - ppb
Barge Landing - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	707	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Barge Landing - December 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	41	19	16	23	25	54	121	115	42	43	14	31	34	21	36	699
3 - 4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	64	41	19	16	23	25	54	122	115	42	43	14	31	34	21	36	700

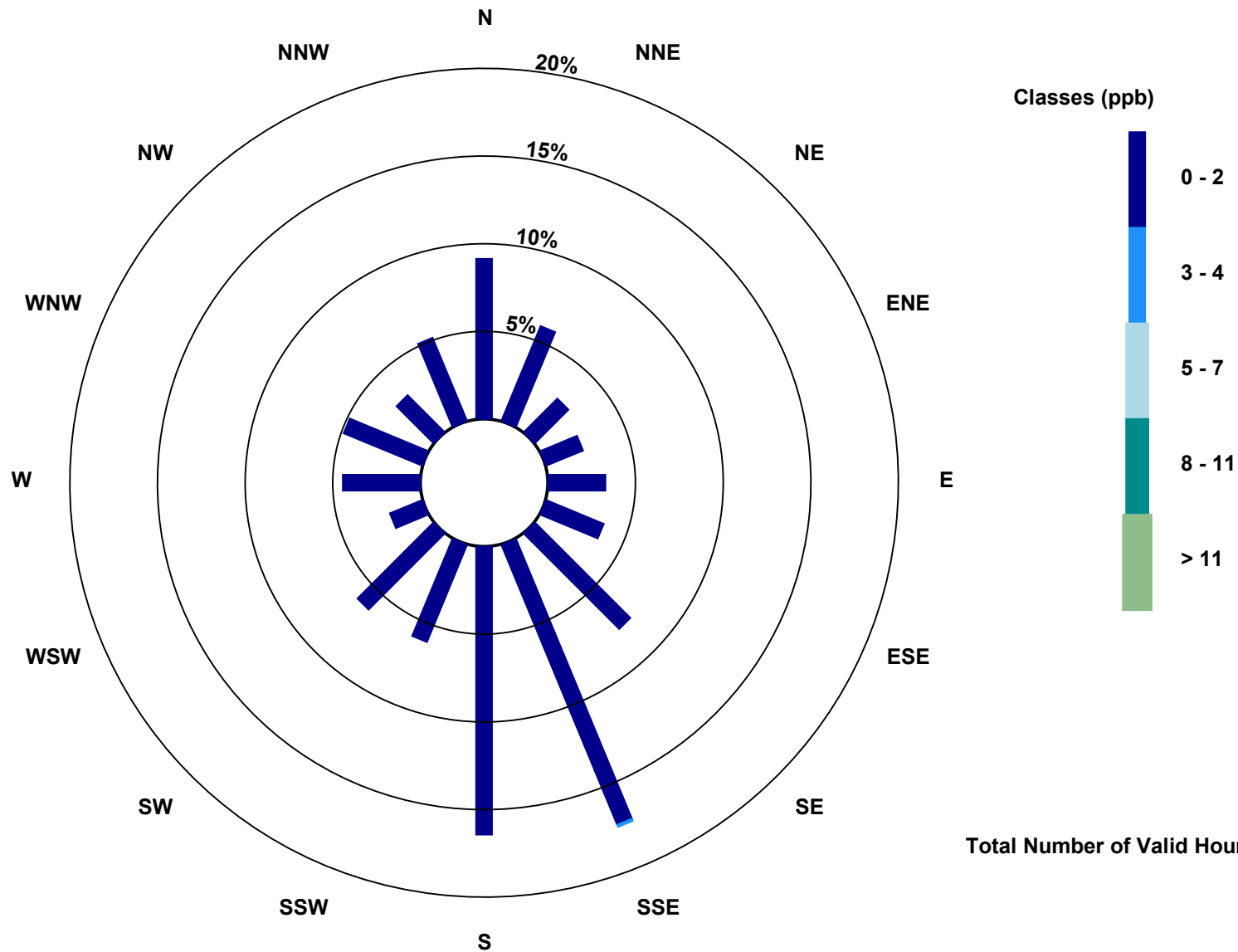
Total Number of Valid Hours: 700

Total Number of Hours: 744

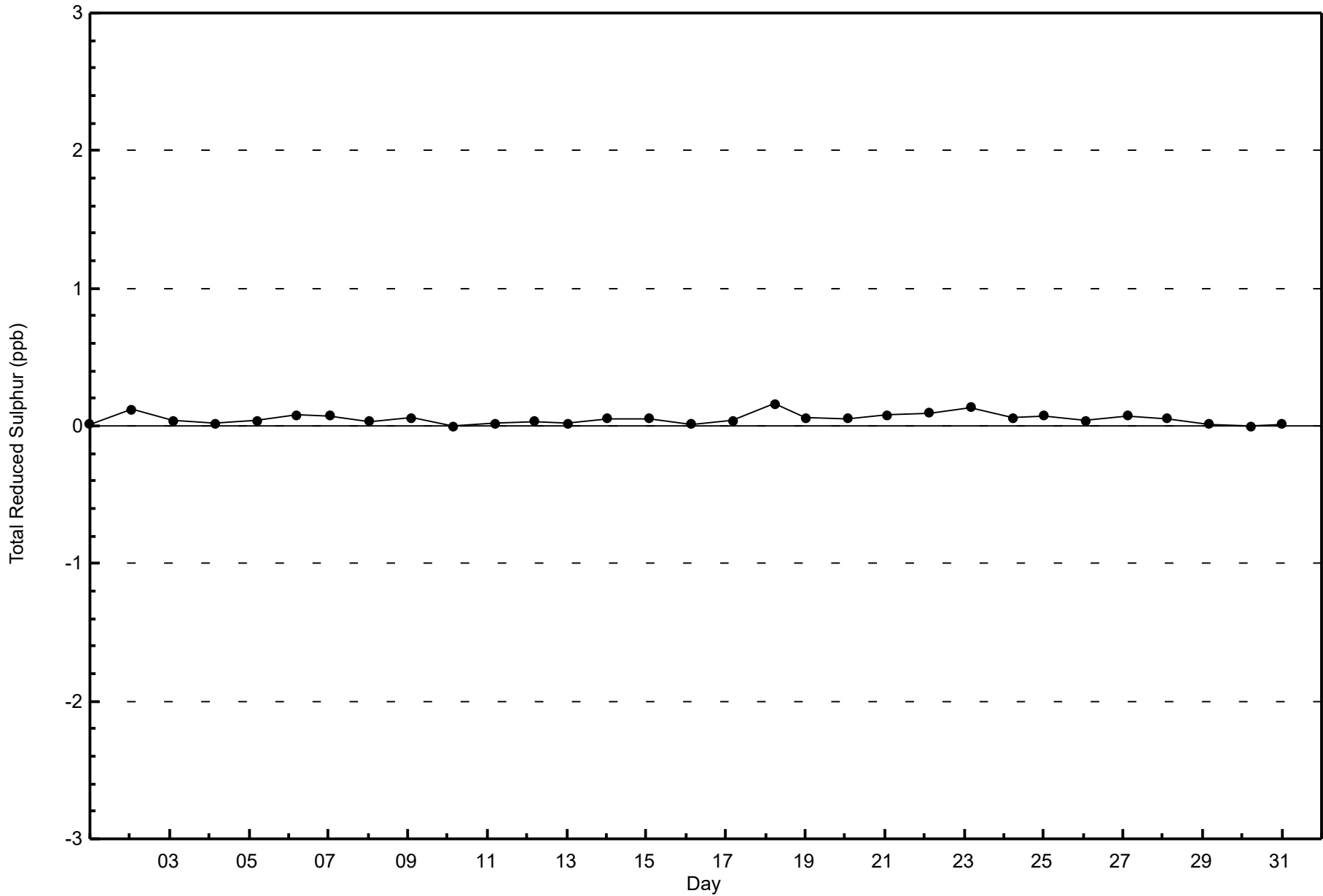


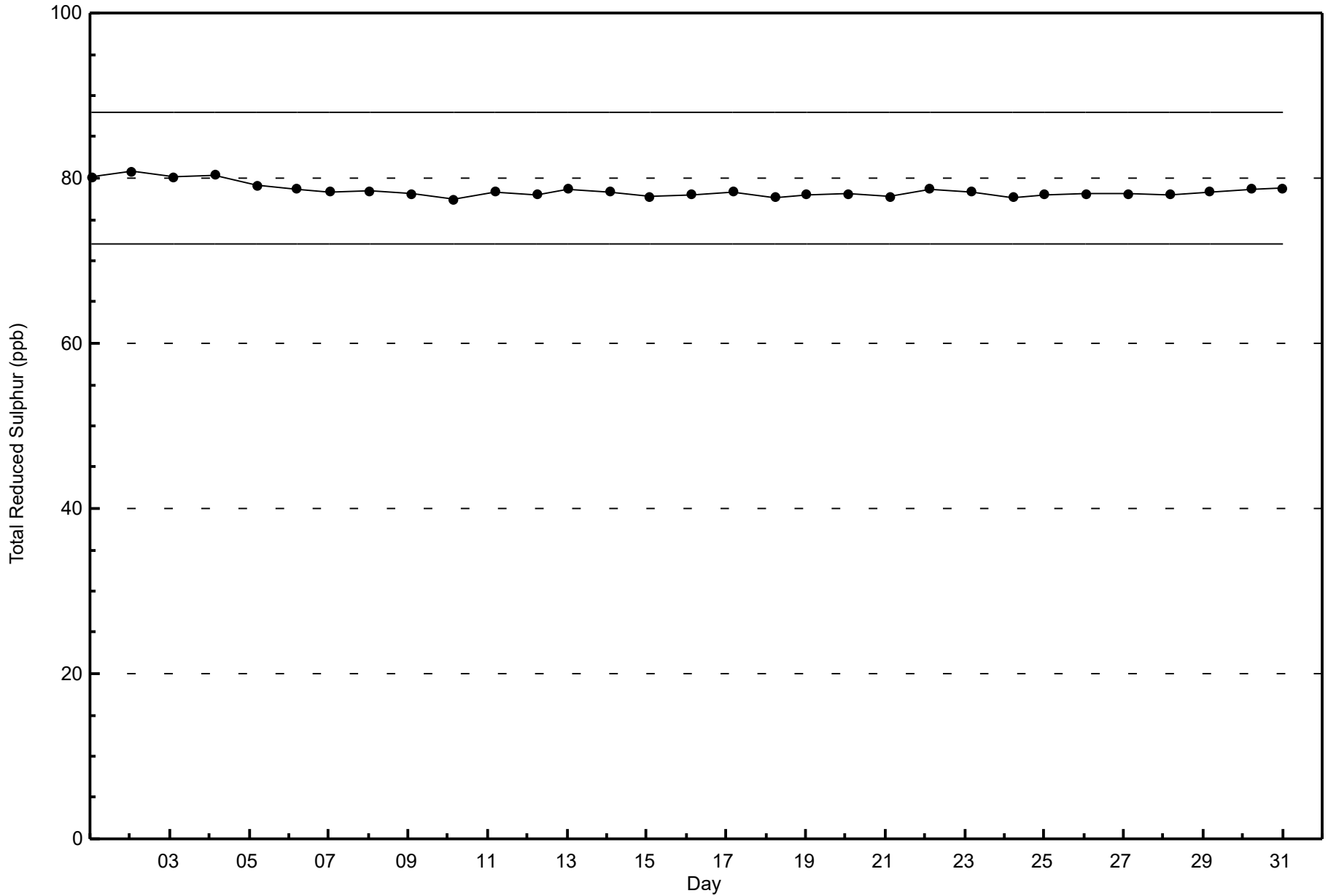
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Barge Landing



Total Number of Valid Hours: 700

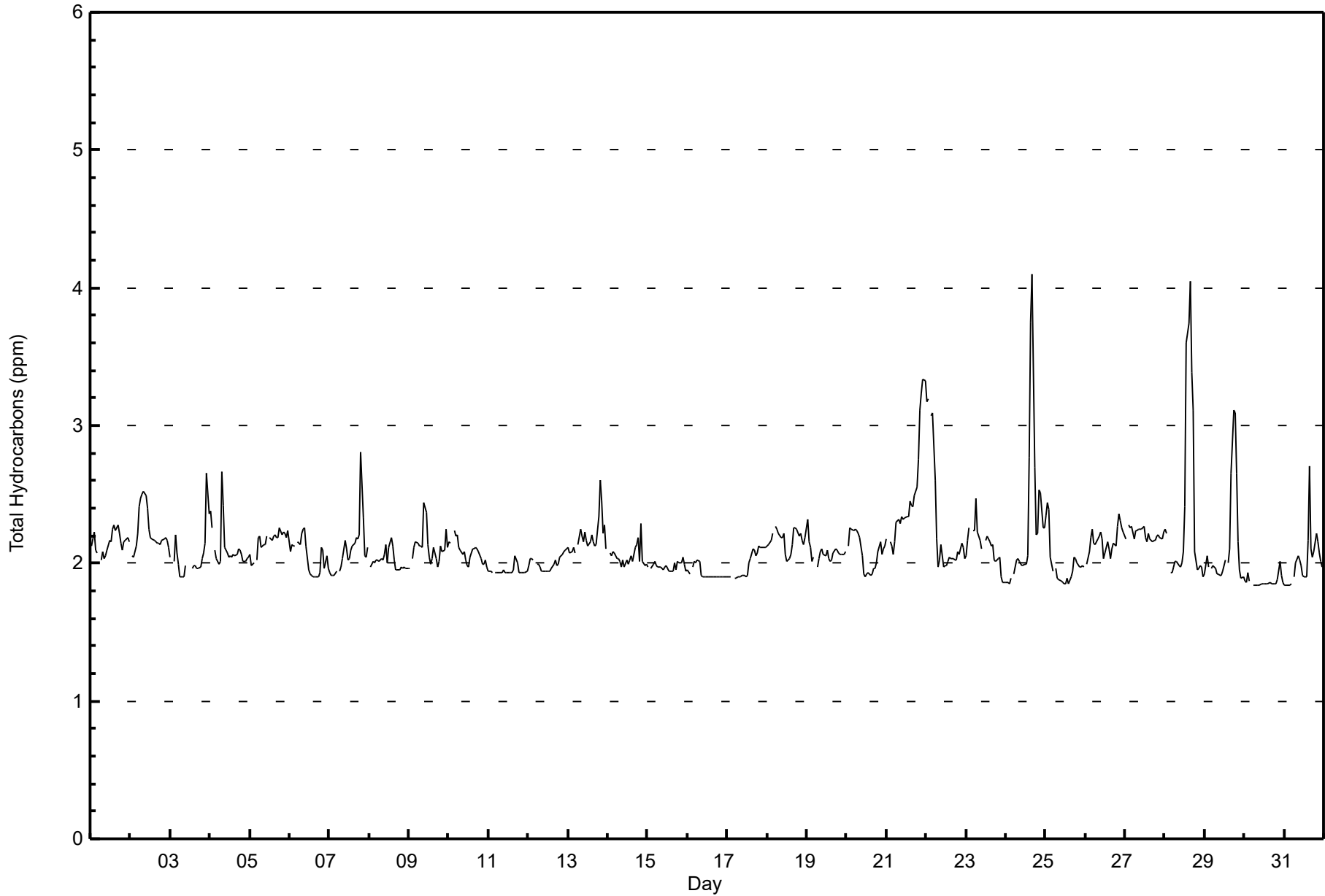






Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Barge Landing - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Barge Landing - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	338	47.88	47.88
2.1 - 3.0	351	49.72	97.59
3.1 - 10.0	17	2.41	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Barge Landing - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	35	20	10	10	10	13	27	50	36	18	27	10	20	26	8	16	336
2.1 - 3.0	26	21	10	3	12	12	27	74	75	22	16	4	8	7	11	17	345
3.1 - 10.0	2	1	0	2	0	0	1	1	2	0	2	0	2	1	0	3	17
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	63	42	20	15	22	25	55	125	113	40	45	14	30	34	19	36	698

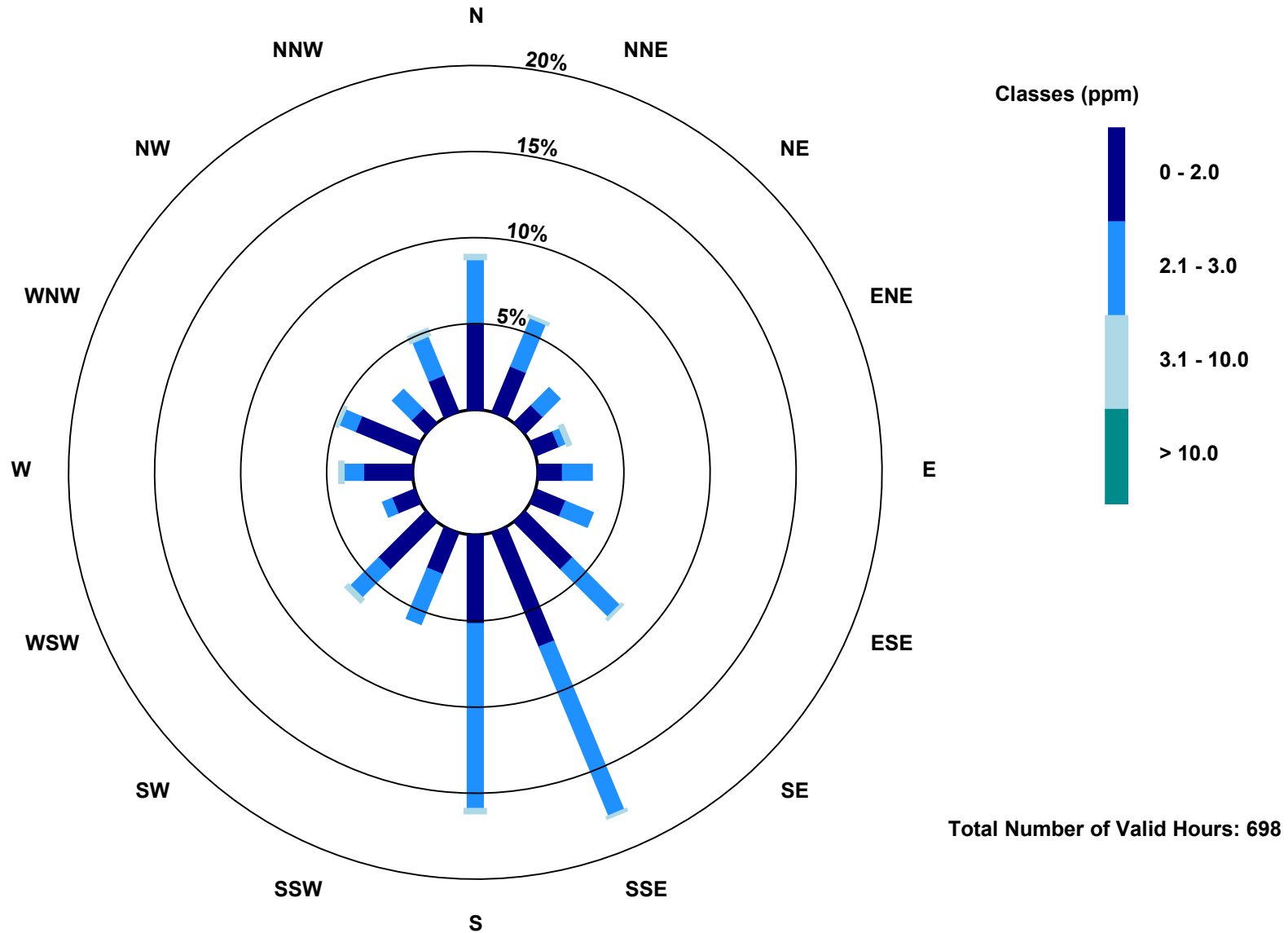
Total Number of Valid Hours: 698

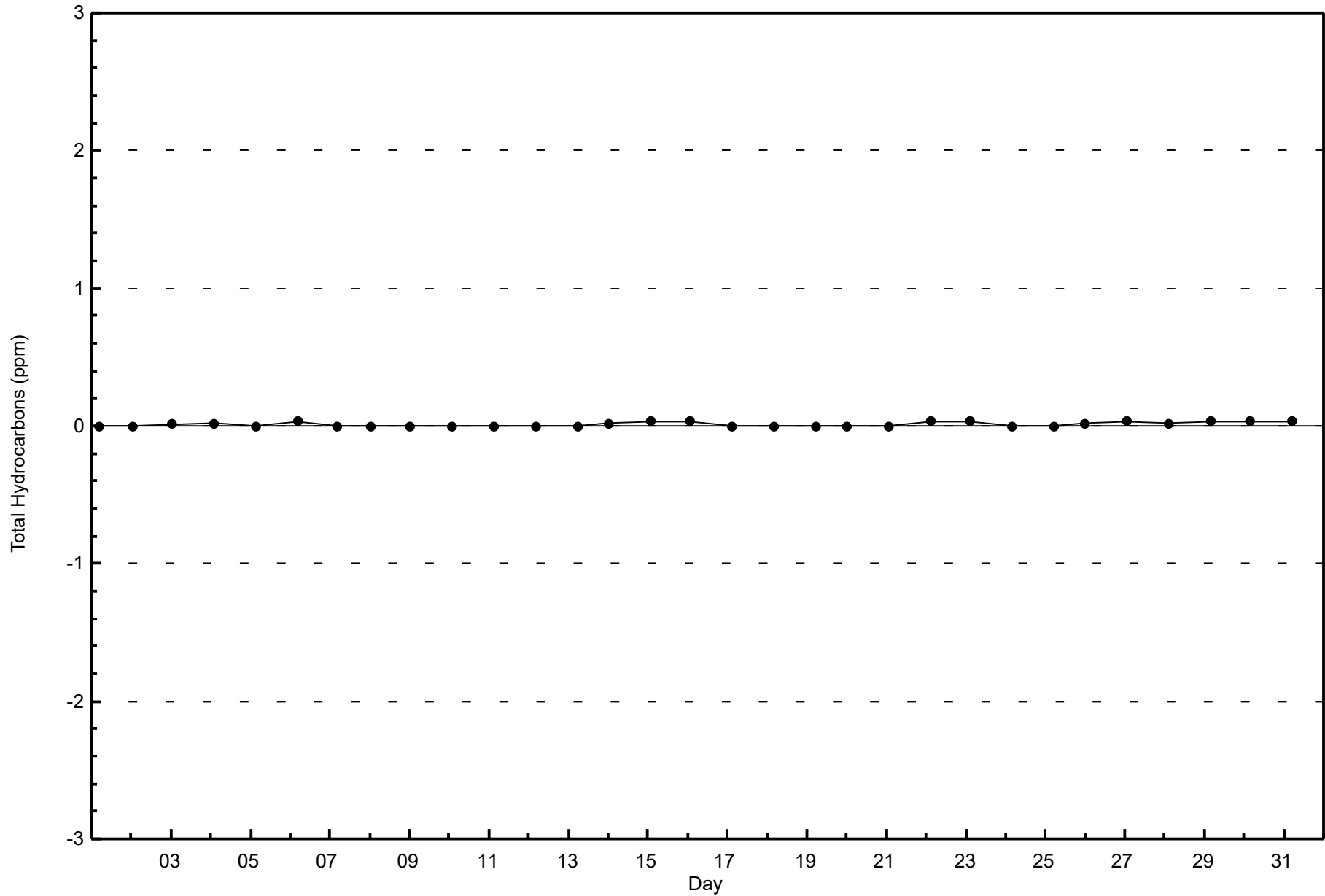
Total Number of Hours: 744

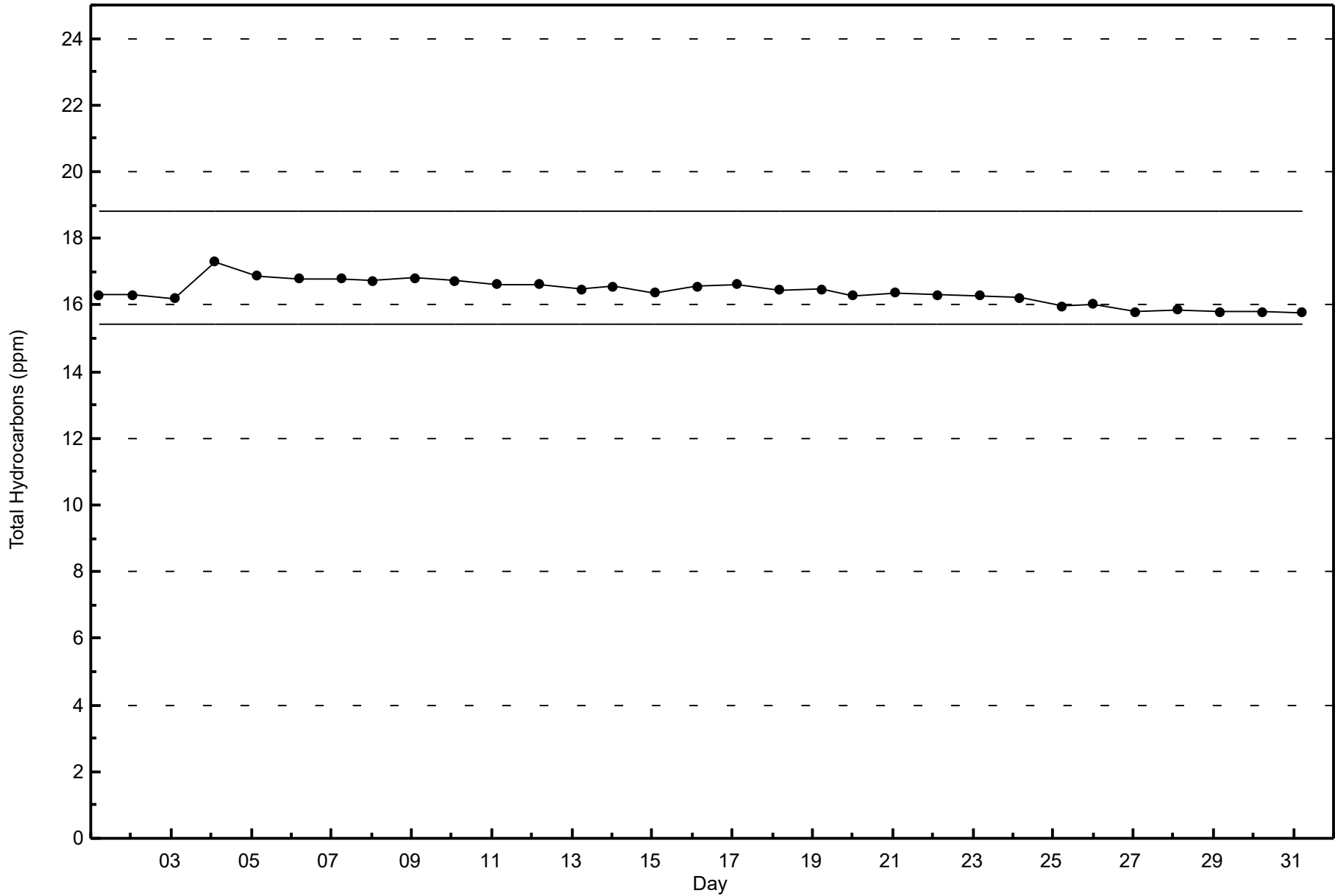


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Barge Landing









Summary of Hour Averages

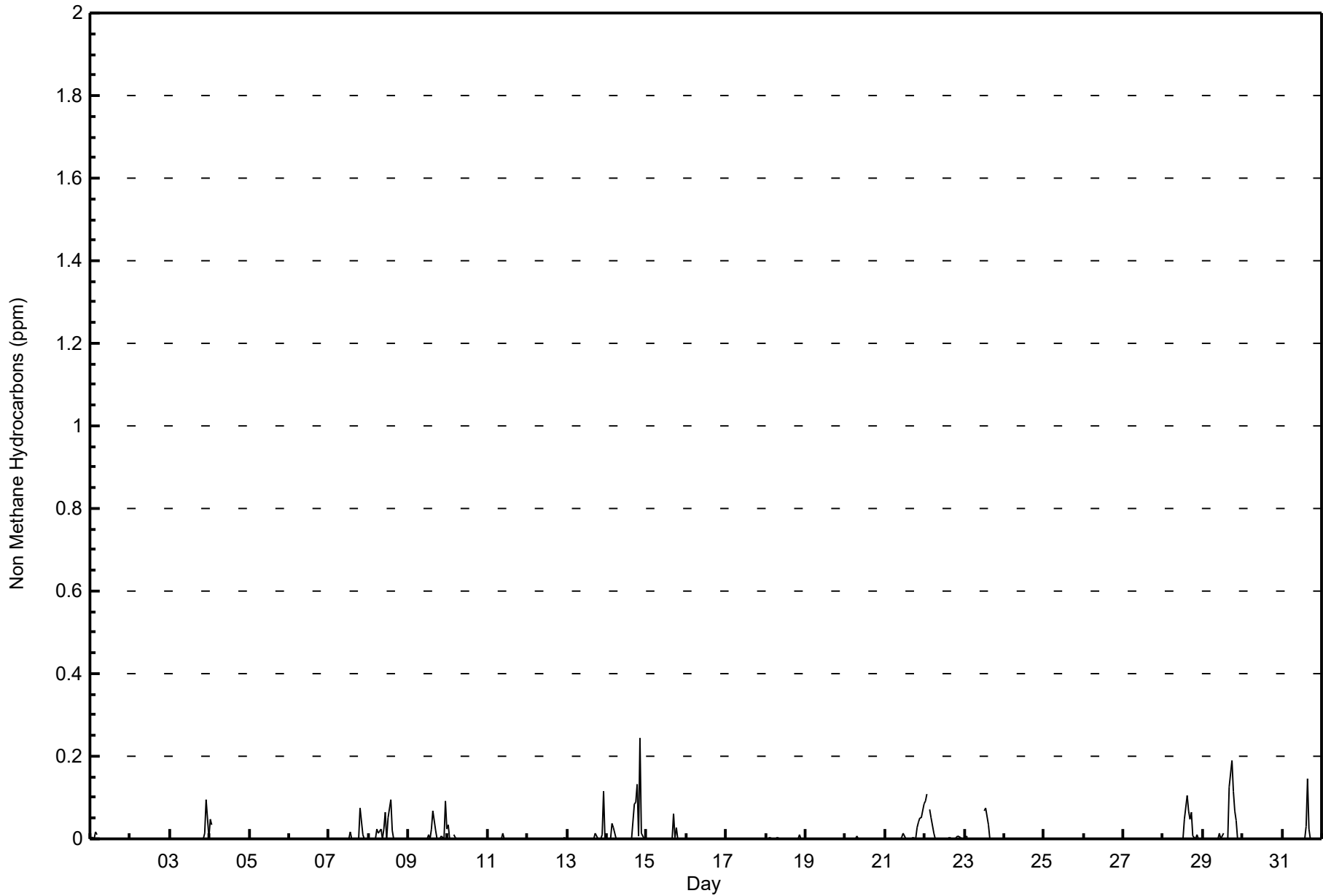
Barge Landing - December 2024

Maximum Value: 0.244 ppm on Dec 14 21:00		Maximum Daily Average: 0.027 ppm on Dec 14		Hours in Service:	744																						
Minimum Value: 0.000 ppm on Dec 1 07:00		Minimum Daily Average: 0.000 ppm on Dec 2		Hours of Data:	706																						
Maximum Diurnal Average: 0.012 ppm at hour 21		Minimum Diurnal Average: 0.000 ppm at hour 9		Hours of Missing Data:	38																						
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:	34																						
				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-Dec	0.002	0.002	0.001	0.017	0.010	Z	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	
2-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	C	C	C	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.096	0.005	0.006	0.096	
4-Dec	0.048	0.036	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.048	
5-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	M	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
6-Dec	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-Dec	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	0.016	0.000	0.000	0.000	0.000	0.000	0.074	0.011	0.000	0.000	0.001	0.004	0.074	
8-Dec	Z	0.000	0.000	0.000	0.001	0.024	0.012	0.023	0.001	0.023	0.064	0.000	0.050	0.095	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.014	0.095	
9-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.011	0.000	0.025	0.067	0.021	0.000	0.000	0.000	0.008	0.000	0.090	0.023	0.011	0.090	
10-Dec	0.034	0.000	Z	0.011	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.034		
11-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.013	0.013	
12-Dec	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	0.003	0.000	0.000	0.000	0.003	
13-Dec	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	0.013	0.000	0.000	0.000	0.009	0.116	0.000	0.006	0.116		
14-Dec	Z	0.000	0.000	0.038	0.026	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.085	0.089	0.131	0.006	0.244	0.013	0.000	0.000	0.027	0.244	0.244	
15-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.062	0.003	0.027	0.000	0.000	0.000	0.000	0.000	0.004	0.062		
16-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	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-Dec	0.000	0.000	0.003	0.000	Z	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	0.010	0.000	0.000	0.000	0.001	0.010		
19-Dec	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-Dec	Z	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	0.000	0.000	0.000	0.000	0.000	0.008	
21-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.015	0.000	0.000	0.000	0.000	0.002	0.000	0.027	0.042	0.053	0.050	0.086	0.012	0.086		
22-Dec	0.091	0.108	Z	0.072	0.053	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.004	0.001	0.001	0.000	0.003	0.006	0.003	0.000	0.001	0.016	0.108		
23-Dec	0.000	0.006	0.003	Z	0.000	0.000	0.000	0.000	0.000	0.000	M	M	0.067	0.073	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.073		
24-Dec	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		
25-Dec	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	
26-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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		
28-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.047	0.104	0.068	0.046	0.063	0.005	0.000	0.009	0.000	0.000	0.001	0.015	0.104		
29-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.015	M	0.000	0.000	0.125	0.188	0.115	0.067	0.043	0.000	0.000	0.026	0.188		
30-Dec	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		
31-Dec	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	0.030	0.146	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.146		
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration M - Maintenance																											



Wood Buffalo Environmental Association
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	633	89.66	89.66
0.006 - 0.05	47	6.66	96.32
0.06 - 0.1	24	3.40	99.72
> 0.1	2	0.28	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing - December 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	32	14	11	22	23	55	123	104	40	41	14	26	32	18	31	626
0.006 - 0.05	15	7	2	3	0	2	0	1	6	0	3	0	1	1	1	4	46
0.06 - 0.1	7	3	4	0	0	0	0	1	3	0	1	0	3	1	0	1	24
> 0.1	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Totals	63	42	20	15	22	25	55	125	113	40	45	14	30	34	19	36	698

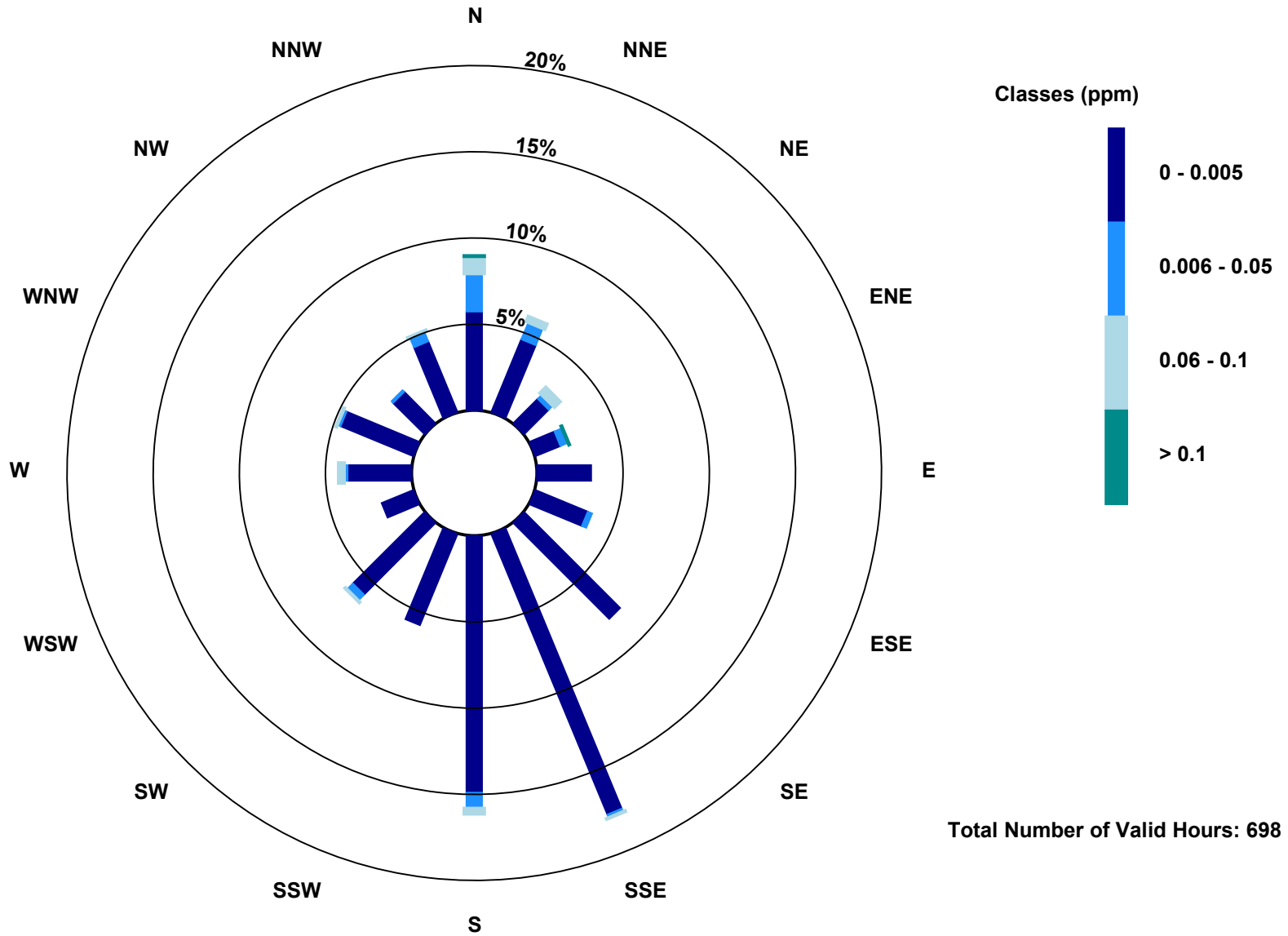
Total Number of Valid Hours: 698

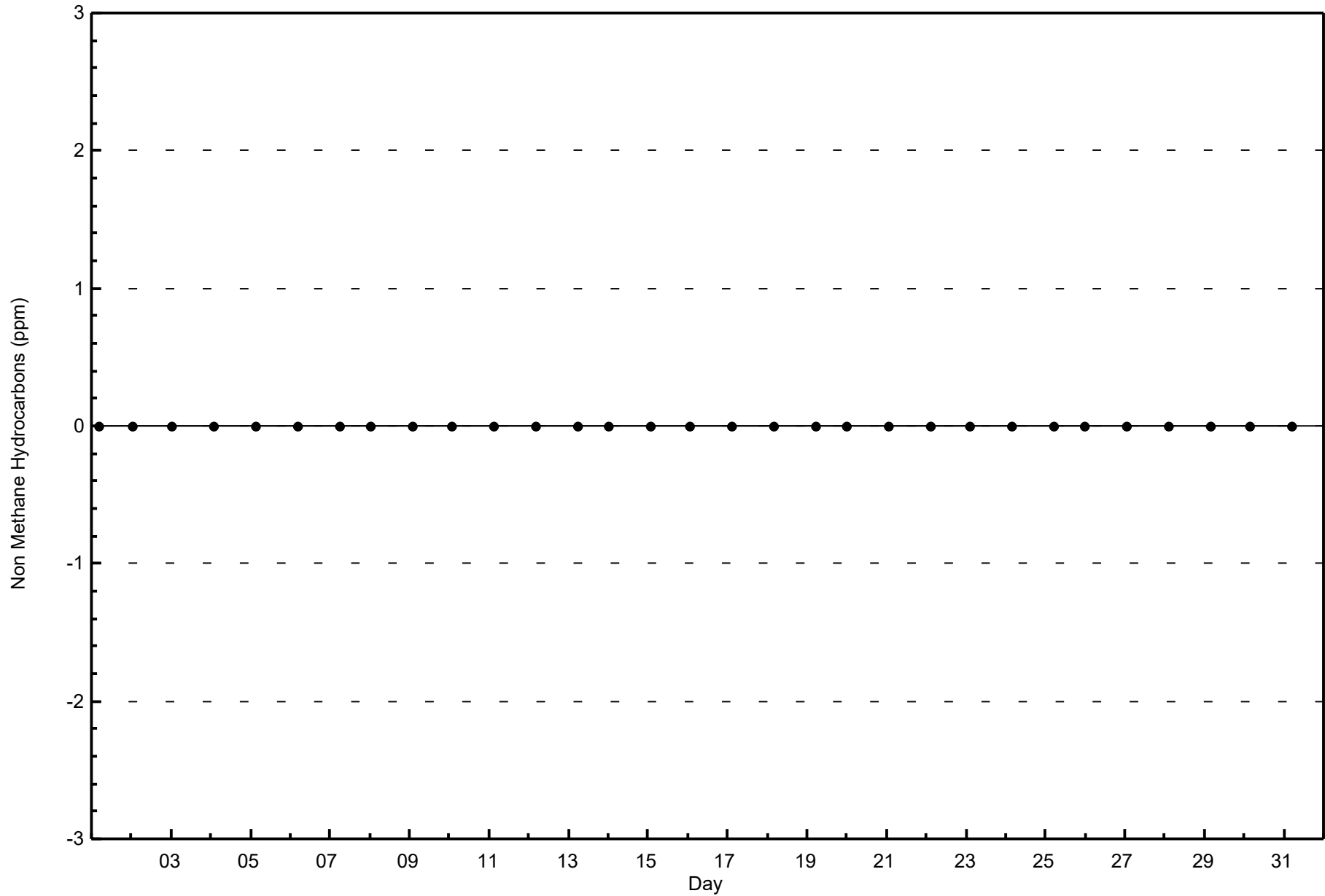
Total Number of Hours: 744

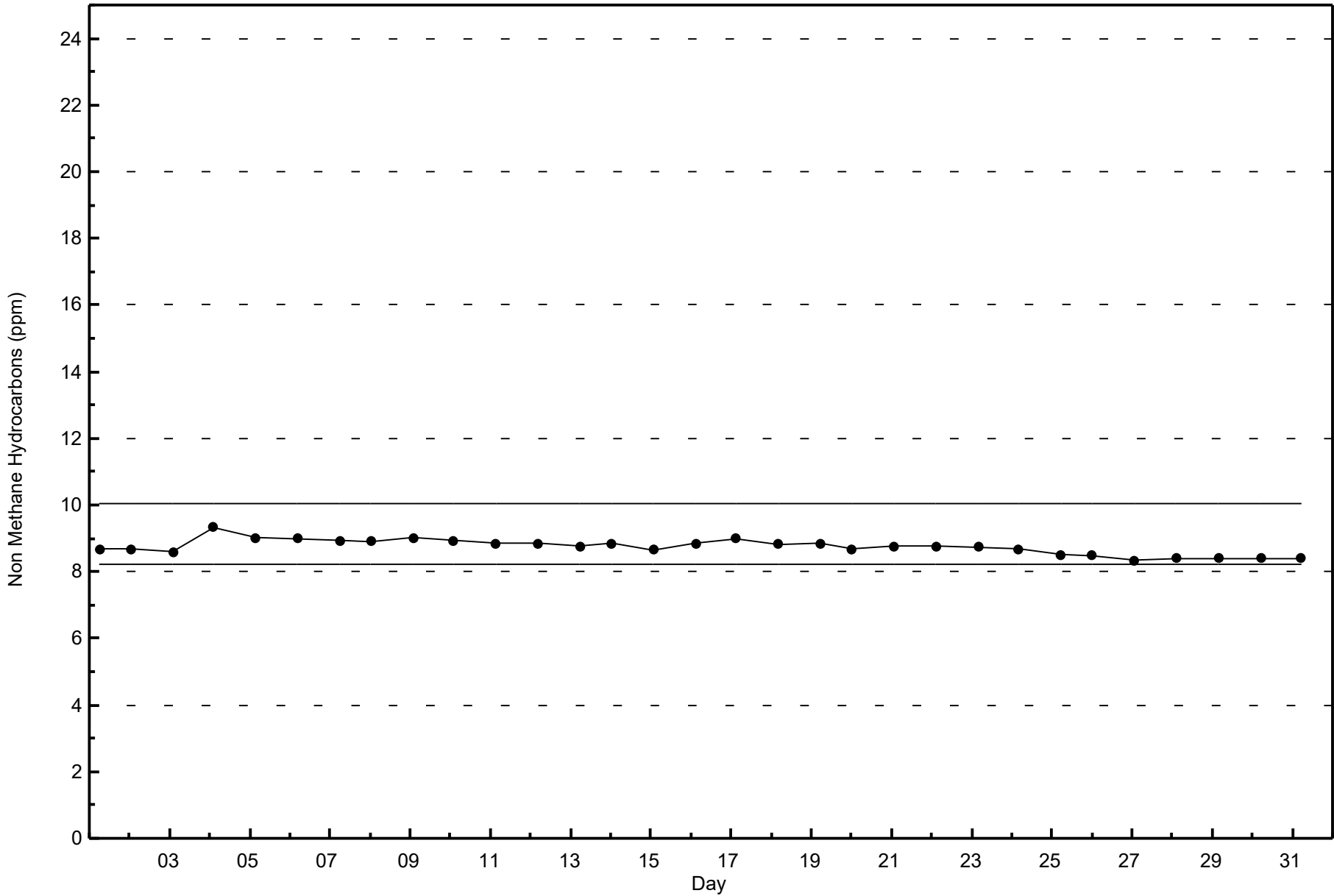


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Barge Landing



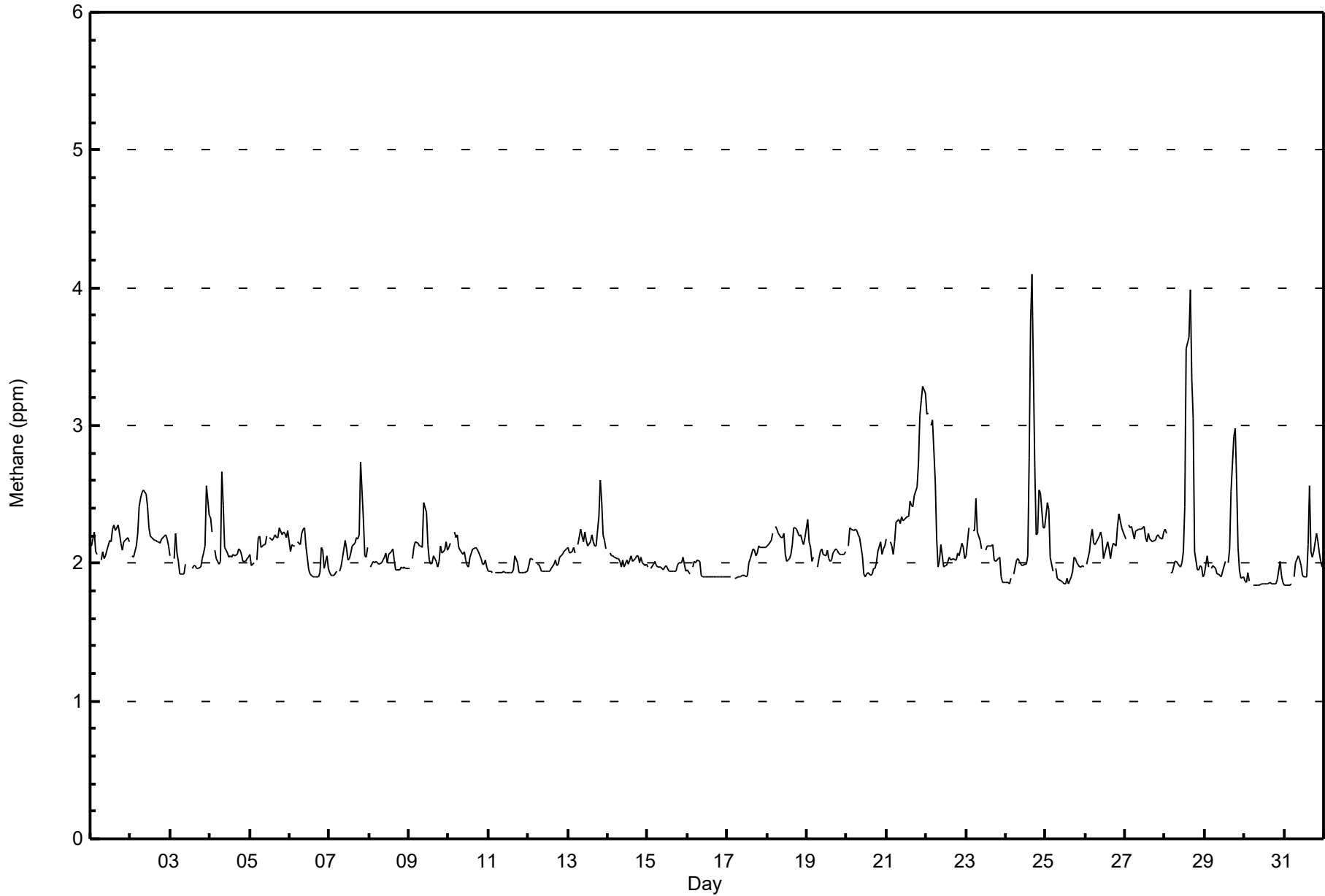






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Barge Landing - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Barge Landing - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	343	48.58	48.58
2.1 - 3.0	350	49.58	98.16
3.1 - 10.0	13	1.84	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Barge Landing - December 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	40	21	10	10	10	13	27	50	36	17	27	10	20	26	8	16	341
2.1 - 3.0	21	20	10	4	12	12	27	75	77	23	16	4	8	7	11	17	344
3.1 - 10.0	2	1	0	1	0	0	1	0	0	0	2	0	2	1	0	3	13
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	63	42	20	15	22	25	55	125	113	40	45	14	30	34	19	36	698

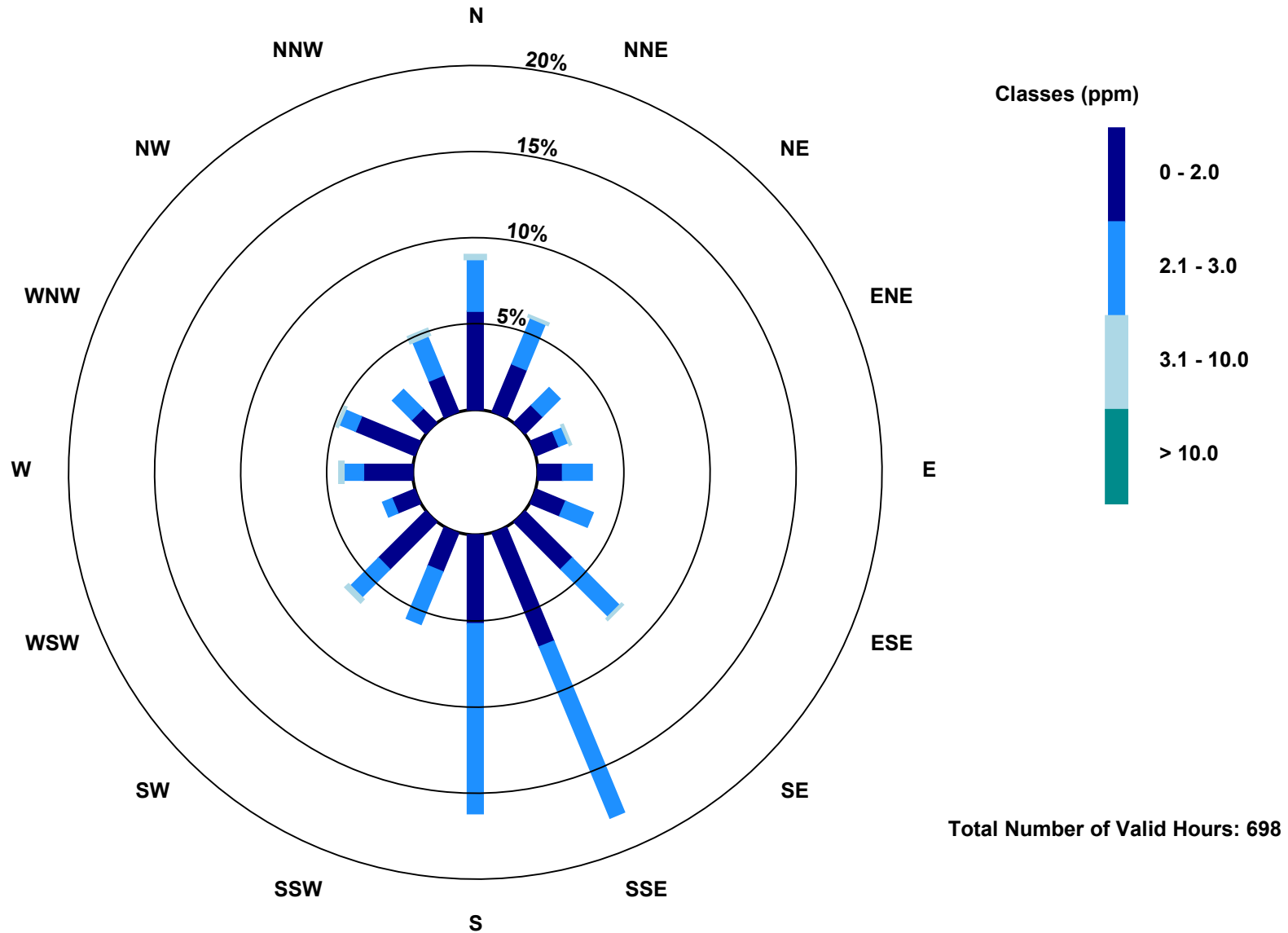
Total Number of Valid Hours: 698

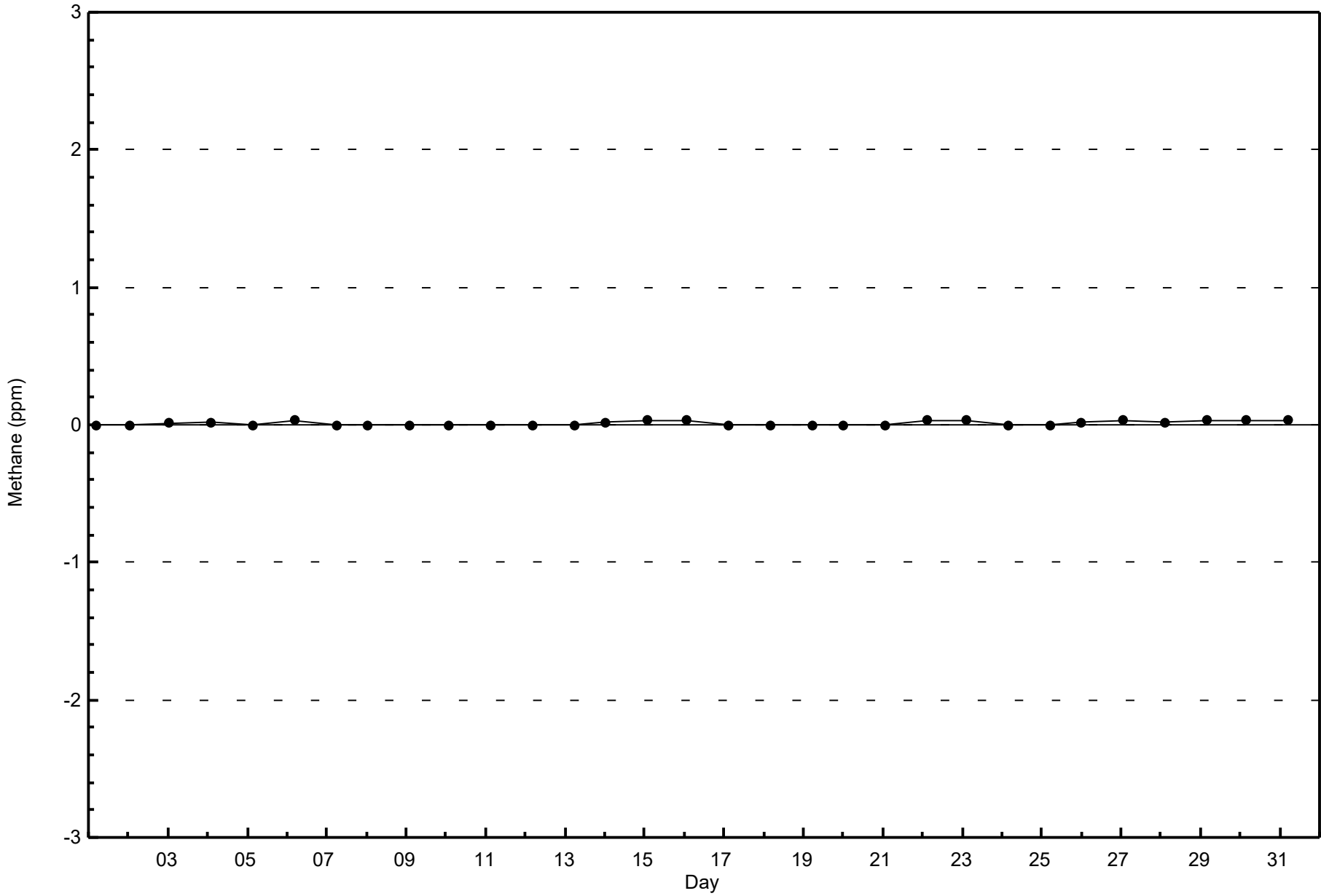
Total Number of Hours: 744

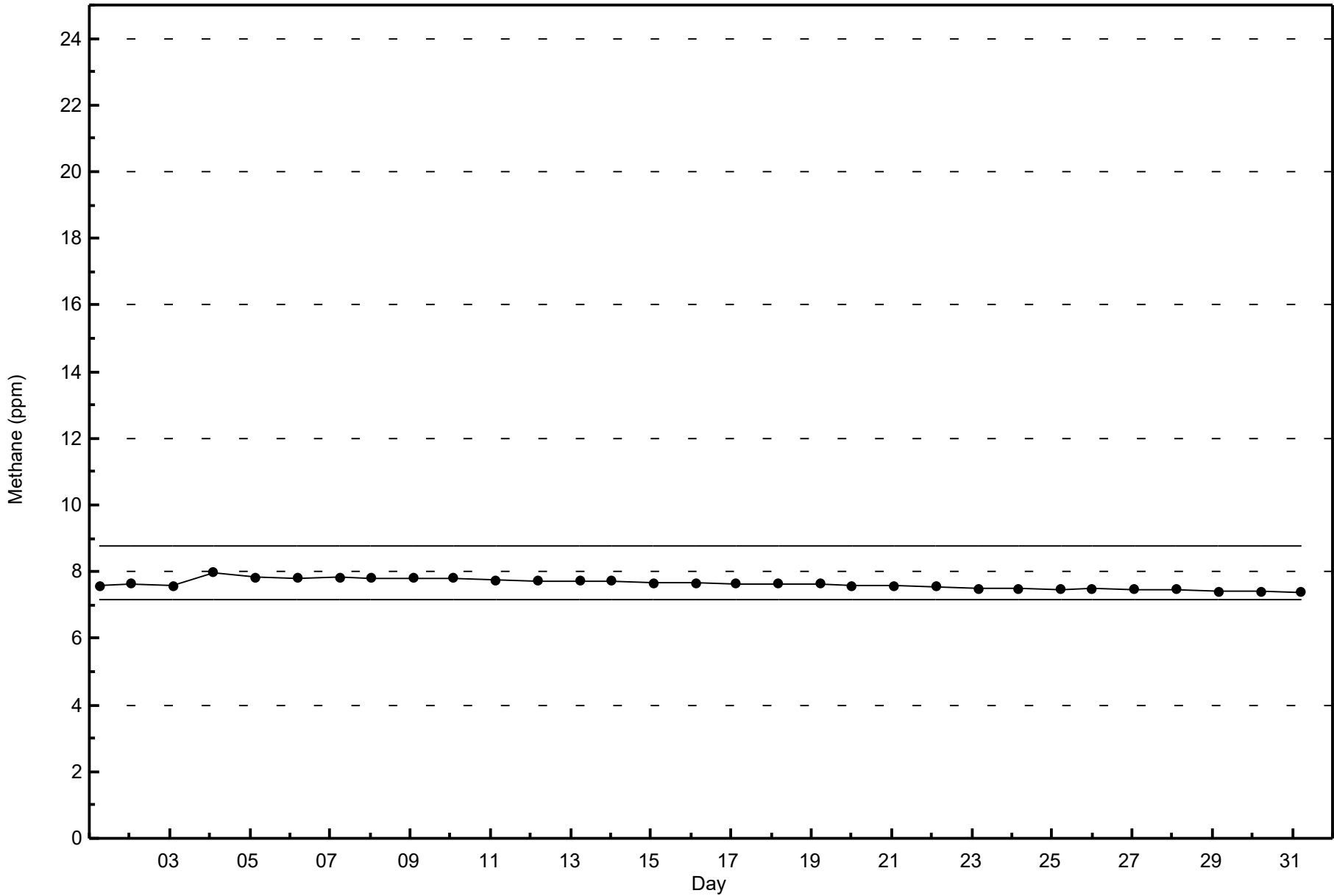


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Barge Landing

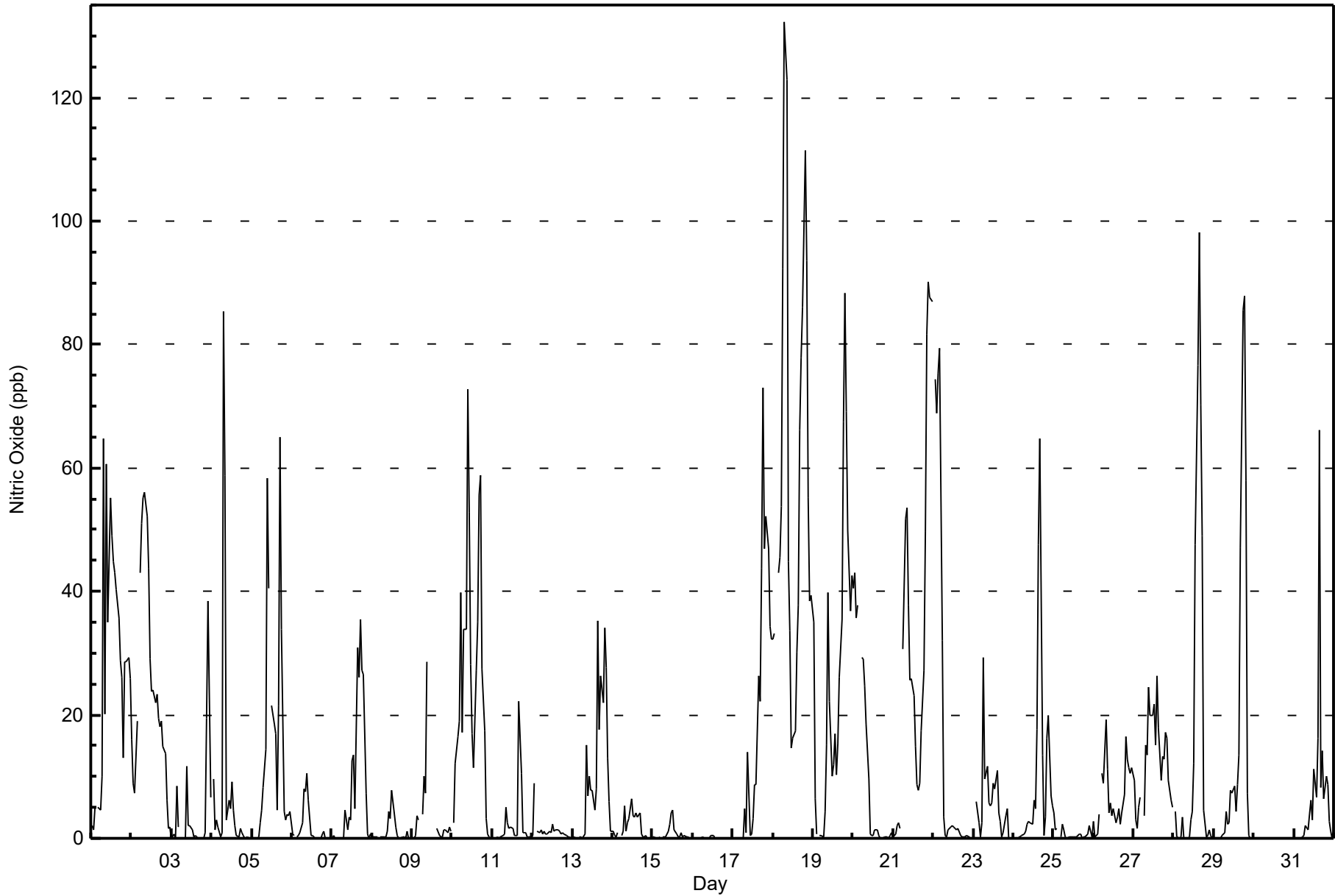








Maximum Value: 132.3 ppb on Dec 18 08:00																						Maximum Daily Average: 57.3 ppb on Dec 18																						Hours in Service: 744	
Minimum Value: 0.0 ppb on Dec 6 17:00																						Minimum Daily Average: 0.0 ppb on Dec 30																						Hours of Data: 707	
Maximum Diurnal Average: 19.4 ppb at hour 18																						Minimum Diurnal Average: 5.6 ppb at hour 3																						Hours of Missing Data: 37	
Monthly Average: 12.11 ppb																						Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 2.3 Q ₃ = 14.8 P ₉₀ = 39.9 P ₉₉ = 88.3																						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-Dec	2.1	1.3	5.0	Z	4.9	4.7	10.1	64.7	20.2	60.6	34.9	55.1	48.9	44.8	42.9	40.4	35.7	28.8	26.0	13.1	28.7	28.6	29.4	25.9	28.6	64.7																			
2-Dec	15.9	8.8	7.4	19.1	Z	43.0	51.1	55.1	56.0	52.1	43.7	29.1	23.7	24.0	22.0	23.4	19.4	18.0	19.1	14.9	13.8	6.3	1.6	1.9	24.8	56.0																			
3-Dec	0.1	0.6	0.0	8.5	1.9	Z	0.0	0.0	0.1	11.7	2.0	2.0	1.4	0.3	0.5	0.2	0.0	0.0	0.0	0.0	1.0	19.4	38.3	6.5	4.1	38.3																			
4-Dec	Z	9.5	1.3	2.9	1.8	0.1	1.0	85.4	58.9	2.9	6.2	4.9	9.2	4.6	2.1	0.6	0.2	1.6	0.8	0.4	0.1	0.1	0.1	0.1	8.5	85.4																			
5-Dec	0.0	Z	0.0	0.0	0.2	2.5	4.6	8.2	14.4	58.4	40.6	M	21.4	18.4	16.9	4.6	21.5	65.0	33.8	4.4	3.0	4.0	3.6	4.3	15.0	65.0																			
6-Dec	0.8	0.6	Z	0.1	0.5	0.8	2.4	8.0	7.4	10.5	6.1	0.6	0.6	0.2	0.1	0.0	0.0	0.6	1.3	0.0	0.0	0.0	0.0	0.0	1.8	10.5																			
7-Dec	0.0	0.4	0.0	Z	0.0	0.0	0.0	0.0	4.6	1.4	3.5	2.9	12.5	13.5	4.8	30.8	26.0	35.6	27.3	26.6	7.4	0.6	0.0	0.6	8.6	35.6																			
8-Dec	0.4	0.3	0.2	0.2	Z	0.3	0.3	0.2	0.2	1.1	4.3	3.2	7.7	3.9	1.8	0.4	0.0	0.1	0.2	0.2	0.1	1.2	0.0	0.0	1.1	7.7																			
9-Dec	0.0	0.0	0.4	3.6	3.0	Z	4.0	10.1	7.4	28.7	C	C	C	C	C	1.6	0.4	0.3	0.3	1.4	1.4	0.8	1.7	1.0	3.7	28.7																			
10-Dec	Z	2.5	12.1	16.4	18.9	39.9	17.0	33.8	33.8	72.8	52.9	28.1	16.9	11.4	27.3	34.9	55.7	58.9	27.4	17.4	3.3	0.7	0.3	0.1	25.3	72.8																			
11-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.6	0.8	5.0	2.4	1.7	1.7	1.7	0.5	0.5	0.3	22.1	10.6	0.9	0.9	0.9	0.2	0.2	0.3	2.3	22.1																			
12-Dec	0.4	9.0	Z	1.1	0.8	1.4	0.6	1.1	0.7	0.8	1.1	0.8	2.3	1.1	1.3	1.4	1.1	0.6	1.0	0.6	0.5	0.2	0.1	0.1	1.2	9.0																			
13-Dec	0.1	0.1	0.1	Z	0.2	0.3	0.1	0.8	15.2	6.8	10.0	7.8	7.7	4.6	8.0	35.3	17.6	26.3	21.9	34.1	27.7	13.0	6.0	1.0	10.6	35.3																			
14-Dec	1.2	0.4	0.3	0.8	Z	0.5	1.2	5.3	1.2	2.6	3.2	6.3	3.7	3.5	4.1	3.4	4.1	0.7	0.2	0.2	0.5	0.1	0.1	0.1	1.9	6.3																			
15-Dec	0.3	0.2	0.1	0.1	0.2	Z	0.2	0.3	0.3	1.1	2.2	4.0	4.6	1.4	0.8	0.3	0.3	0.9	0.2	0.4	0.3	0.2	0.1	0.0	0.8	4.6																			
16-Dec	Z	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																			
17-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	4.8	0.9	13.9	0.5	0.6	3.3	8.7	8.7	26.3	22.1	43.7	73.1	46.8	52.2	46.9	34.4	32.2	18.2	73.1																			
18-Dec	32.3	33.3	Z	43.1	45.5	53.7	92.3	132.3	122.9	44.9	33.7	14.7	16.2	17.5	30.3	37.9	66.1	77.7	86.1	111.4	93.6	55.2	38.5	39.4	57.3	132.3																			
19-Dec	35.0	6.3	0.7	Z	0.4	0.6	0.3	4.3	15.1	39.8	22.1	10.0	11.9	16.9	10.3	15.3	26.1	35.6	67.5	88.3	69.1	49.8	36.8	42.5	26.3	88.3																			
20-Dec	40.4	43.0	35.8	37.7	Z	29.3	29.1	24.7	18.6	9.6	0.6	0.5	0.5	1.5	1.3	0.4	0.1	0.1	0.0	0.1	0.3	0.0	0.5	0.9	12.0	43.0																			
21-Dec	0.2	0.7	2.1	2.5	1.5	Z	30.6	51.7	53.6	37.8	25.6	25.8	23.2	14.9	8.7	7.7	9.0	17.4	27.2	49.5	81.8	90.2	87.6	86.9	32.0	90.2																			
22-Dec	Z	74.3	68.8	75.3	79.5	32.1	3.5	0.5	0.2	1.3	1.8	2.1	1.8	1.6	1.3	1.6	0.4	0.1	0.2	0.2	0.6	0.2	0.0	0.1	15.1	79.5																			
23-Dec	0.2	Z	5.9	2.5	0.3	2.4	29.3	9.7	11.6	5.8	5.2	5.7	8.9	8.0	11.1	4.0	2.8	0.3	0.9	3.8	4.9	0.1	0.0	0.0	5.4	29.3																			
24-Dec	0.0	0.0	Z	0.1	0.1	0.4	0.6	1.2	2.4	2.8	2.5	2.4	6.2	4.9	17.7	47.7	64.8	13.4	0.6	3.3	16.1	19.9	6.9	5.4	9.5	64.8																			
25-Dec	4.2	1.4	1.5	Z	0.2	2.3	1.5	0.2	0.1	0.3	0.2	0.1	0.3	0.2	0.2	0.7	0.8	0.0	0.1	0.3	0.7	2.1	1.2	0.2	0.8	4.2																			
26-Dec	2.9	0.2	0.6	3.9	Z	10.6	9.0	19.3	11.3	4.1	5.7	3.6	4.7	2.6	3.4	4.8	2.2	4.2	7.1	16.4	12.8	11.4	10.5	11.3	7.1	19.3																			
27-Dec	9.3	3.0	1.5	5.0	6.6	Z	3.7	15.1	13.5	24.4	19.8	19.9	21.7	15.1	26.4	17.8	9.4	13.2	12.9	17.2	16.4	9.4	6.1	5.0	12.7	26.4																			
28-Dec	Z	4.3	0.2	0.0	0.2	3.5	0.1	0.0	0.0	0.2	2.9	4.3	12.0	47.6	76.8	98.3	70.2	48.9	4.5	0.3	0.4	1.3	0.4	0.0	16.4	98.3																			
29-Dec	0.0	Z	0.0	0.0	0.1	0.4	0.9	4.2	2.3	2.5	7.8	7.3	8.4	4.4	8.6	13.5	47.2	85.6	87.9	58.0	7.3	0.4	0.0	0.1	15.1	87.9																			
30-Dec	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																		
31-Dec	0.0	0.0	0.0	Z	0.0	0.1	0.5	2.1	1.3	3.9	6.1	2.9	11.3	6.6	16.3	66.2	8.2	14.2	6.4	10.0	8.7	2.7	1.0	0.0	7.3	66.2																			
5.6 7.7 5.6 8.9 6.4 8.8 9.5 17.5 15.5 16.3 11.6 8.5 9.8 9.4 11.8 16.8 17.2 19.4 17.2 16.8 14.6 11.8 9.9 8.6																								Diurnal Average																					
40.4 74.3 68.8 75.3 79.5 53.7 92.3 132.3 122.9 72.8 52.9 55.1 48.9 47.6 76.8 98.3 70.2 85.6 87.9 111.4 93.6 90.2 87.6 86.9																								Diurnal Maximum																					
Z - zerospan C - Calibration M - Maintenance																																													





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Barge Landing - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	568	80.34	80.34
21 - 40	71	10.04	90.38
41 - 80	53	7.50	97.88
81 - 159	15	2.12	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
Barge Landing - December 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	52	35	15	13	17	18	38	105	95	36	33	13	27	29	14	25	565
21 - 40	4	1	2	1	4	5	10	14	6	2	3	1	1	4	4	5	67
11 - 80	2	1	2	0	1	2	9	7	10	5	1	0	2	0	3	8	53
81 - 159	0	1	0	2	0	0	0	0	5	1	3	0	1	1	0	0	14
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	58	38	19	16	22	25	57	126	116	44	40	14	31	34	21	38	699

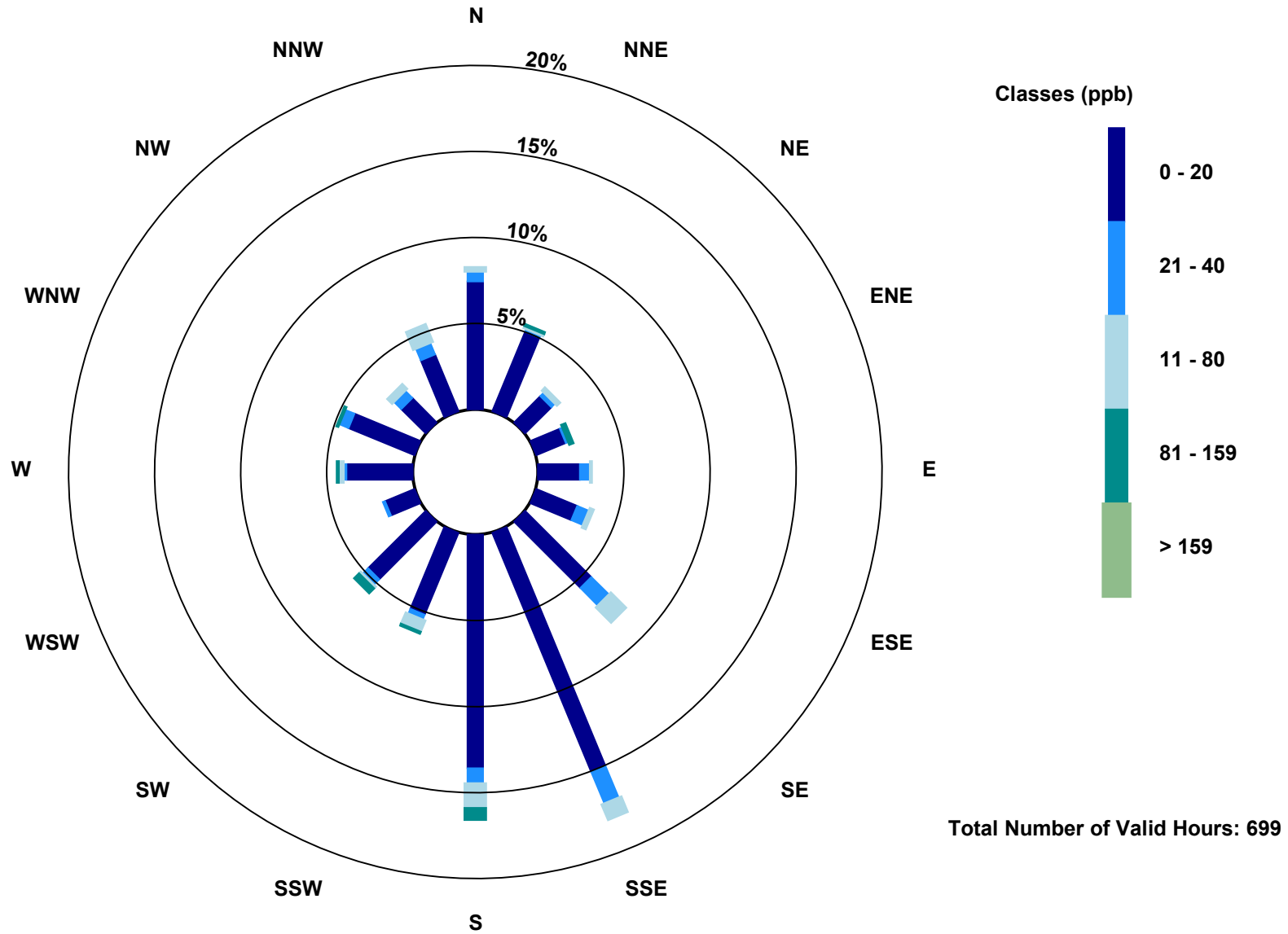
Total Number of Valid Hours: 699

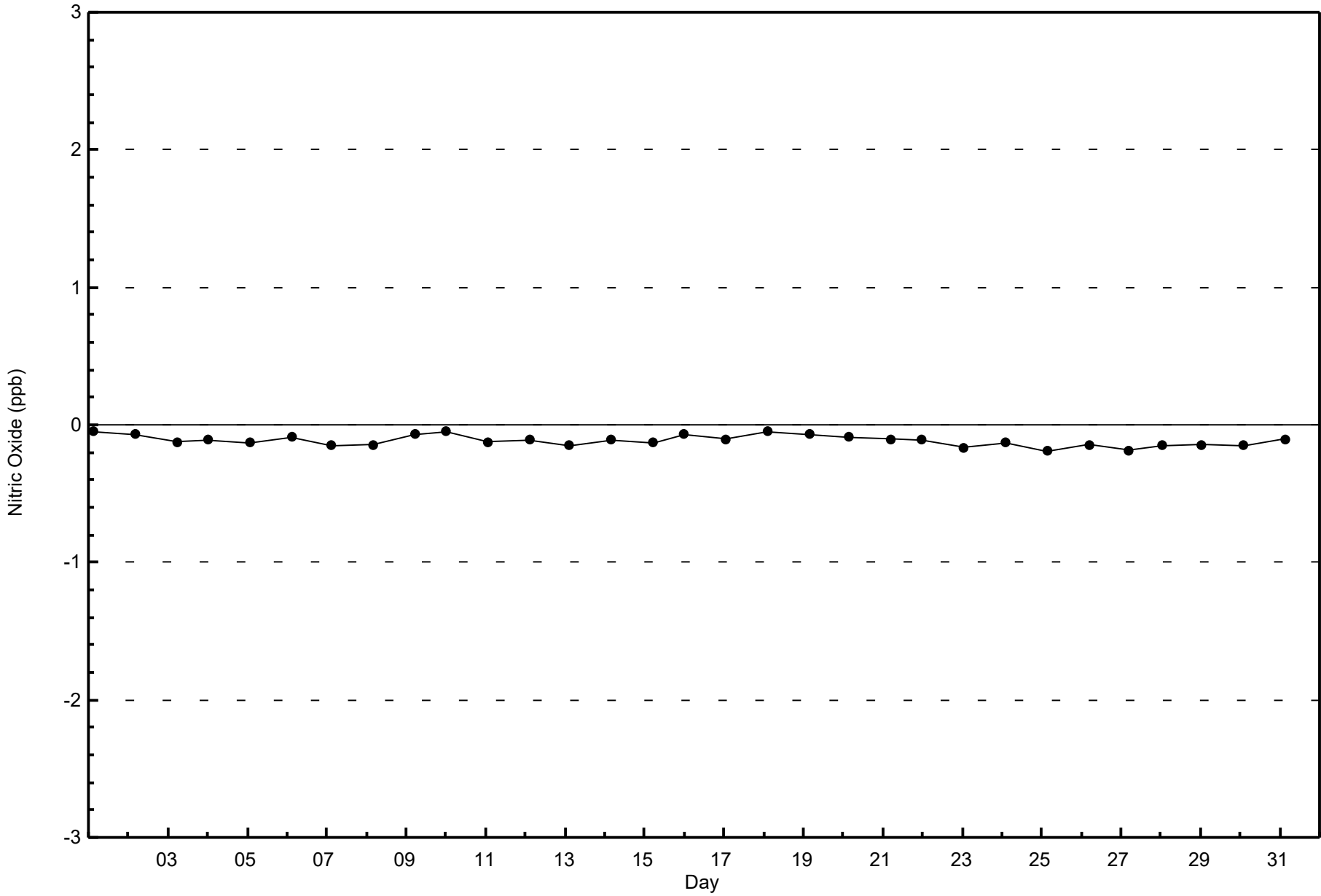
Total Number of Hours: 744

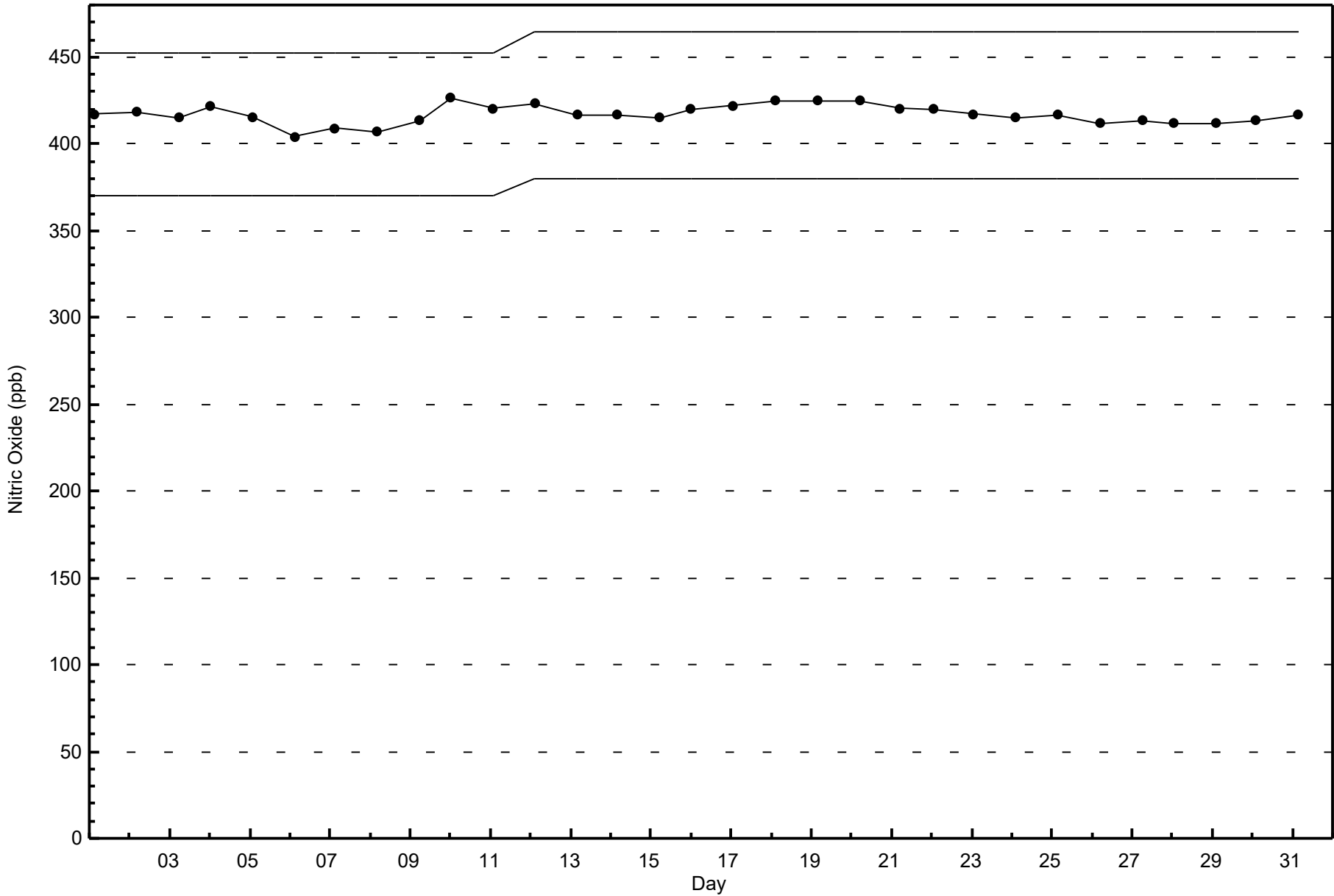


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Barge Landing









Wood Buffalo Environmental Association

Summary of Hour Averages

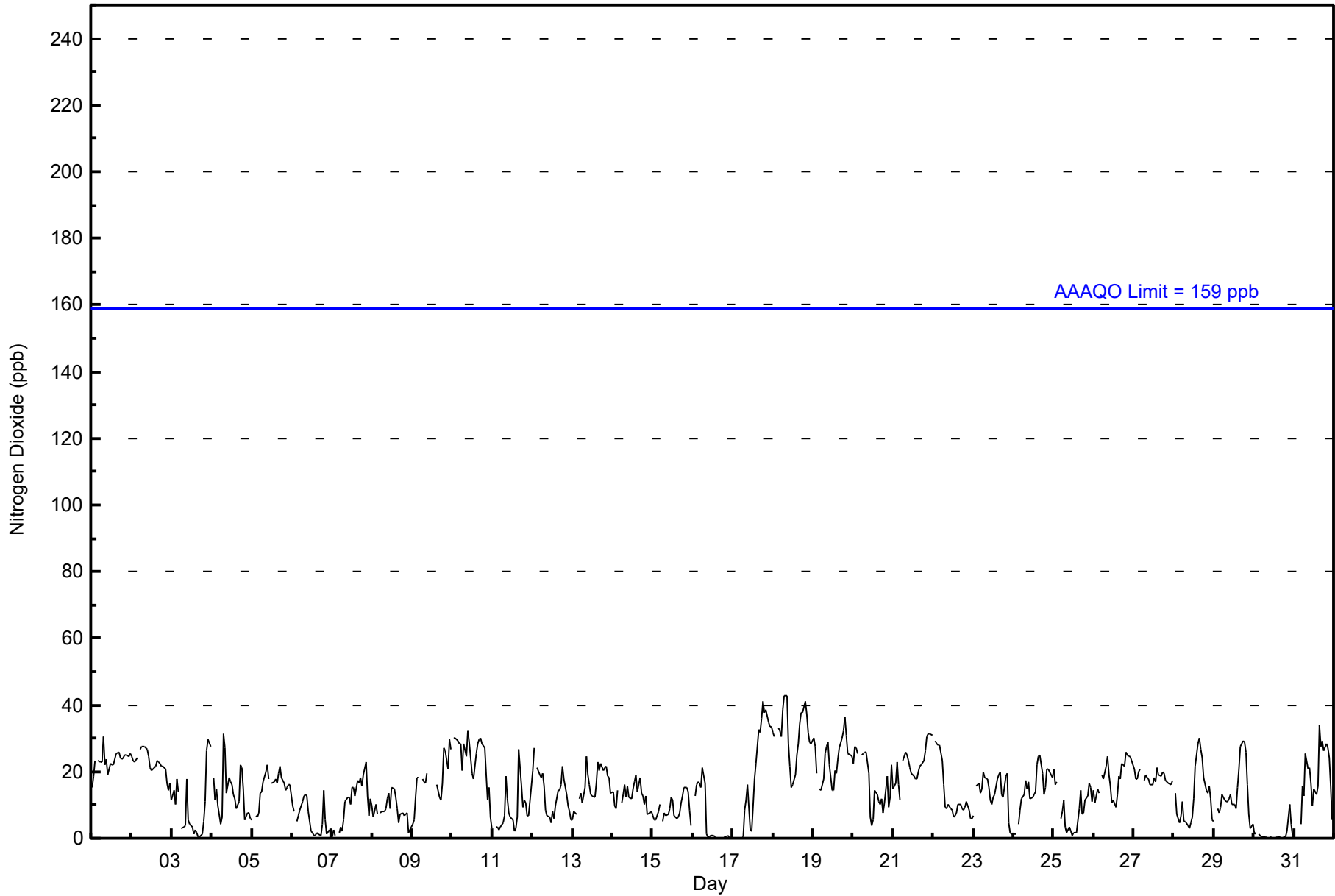
Nitrogen Dioxide (NO₂) - ppb Barge Landing - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 42.9 ppb on Dec 18 08:00		Maximum Daily Average: 31.0 ppb on Dec 18		Hours of Data: 707																	23.3		30.6																										
Minimum Value: 0.2 ppb on Dec 16 15:00		Minimum Daily Average: 1.1 ppb on Dec 30		Hours of Missing Data: 37																	22.6		27.7																										
Maximum Diurnal Average: 18.5 ppb at hour 20		Minimum Diurnal Average: 10.3 ppb at hour 12		Hours of Calibration: 36																	9.4		29.6																										
Monthly Average: 14.77 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 2.0 Q ₁ = 7.5 Median = 14.5 Q ₃ = 21.1 P ₉₀ = 27.4 P ₉₉ = 37.8		Percent Operational Time: 99.9																	13.8		31.5																										
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-Dec	15.1	18.6	23.4	Z	23.4	23.0	22.9	30.6	21.9	23.7	19.2	22.5	21.9	21.9	23.9	25.5	25.8	24.3	23.8	24.0	24.9	25.1	24.6	25.3	23.3	30.6																							
2-Dec	24.4	23.2	22.9	24.3	Z	26.8	27.6	27.7	27.6	26.5	24.4	21.0	20.3	20.9	21.6	23.3	22.8	22.5	21.6	21.7	20.8	16.5	14.6	16.5	22.6	27.7																							
3-Dec	11.5	14.5	10.0	17.9	14.0	Z	2.9	3.6	3.7	17.6	5.6	4.3	3.5	1.2	2.4	1.6	0.6	0.6	1.3	5.2	11.2	26.4	29.6	27.4	9.4	29.6																							
4-Dec	Z	18.1	11.3	15.0	9.9	4.2	6.4	31.5	27.3	13.6	18.2	17.0	16.3	13.2	11.8	9.1	11.1	22.0	21.1	14.7	5.4	7.6	7.5	5.9	13.8	31.5																							
5-Dec	5.4	Z	6.6	6.3	7.7	13.4	13.8	16.8	19.9	22.2	18.0	M	16.5	16.8	17.8	16.6	19.4	21.5	18.4	16.7	14.3	15.2	16.1	16.2	15.3	22.2																							
6-Dec	9.9	8.1	Z	4.9	6.7	8.5	11.0	12.5	13.1	12.6	8.0	2.0	1.5	1.0	1.0	1.5	1.1	1.0	4.4	14.2	5.4	1.2	2.4	1.0	5.8	14.2																							
7-Dec	0.6	2.4	1.0	Z	1.7	3.6	2.2	5.3	11.0	12.2	12.2	10.3	15.1	15.3	12.5	17.2	16.4	18.2	15.6	19.2	22.8	12.6	6.6	11.9	10.7	22.8																							
8-Dec	9.6	6.5	10.3	7.1	Z	7.6	8.0	8.0	8.7	12.0	13.5	9.0	15.2	14.7	12.2	8.9	4.6	7.4	7.6	6.6	7.2	7.5	1.7	3.5	8.6	15.2																							
9-Dec	4.2	5.6	12.2	18.4	18.2	Z	17.8	16.9	16.5	19.4	C	C	C	C	C	16.3	12.2	11.6	16.6	27.3	26.3	20.9	29.5	26.5	17.6	29.5																							
10-Dec	Z	30.1	29.9	29.1	28.2	28.5	20.5	28.4	24.4	32.3	28.7	24.1	19.6	17.8	25.6	28.2	29.6	29.9	28.6	27.1	18.9	11.3	15.1	6.3	24.4	32.3																							
11-Dec	3.0	Z	3.2	3.4	2.7	3.3	4.6	6.6	18.8	11.7	7.8	6.4	5.3	2.1	3.0	6.3	26.6	15.7	9.5	11.6	10.6	6.9	6.9	15.6	8.3	26.6																							
12-Dec	20.4	27.3	Z	21.2	19.0	18.3	19.7	15.6	8.6	6.7	6.3	4.8	8.1	5.9	9.8	14.6	14.2	16.3	21.8	17.7	13.2	9.8	8.2	5.6	13.6	27.3																							
13-Dec	5.5	8.2	7.1	Z	11.8	13.4	13.7	15.4	24.4	19.1	16.1	13.1	12.8	12.3	16.7	23.0	20.4	22.5	20.2	21.0	21.4	18.8	18.4	13.5	15.9	24.4																							
14-Dec	14.0	9.7	8.9	14.2	Z	10.7	13.0	16.0	12.1	15.5	12.1	12.0	14.8	17.0	18.9	14.0	18.1	13.7	12.8	10.3	12.7	7.0	7.7	8.1	12.8	18.9																							
15-Dec	6.7	5.4	5.4	8.1	10.1	Z	5.0	7.5	6.7	7.0	9.1	12.2	11.4	6.9	5.9	6.3	7.5	10.7	12.7	15.4	15.3	13.9	8.3	3.8	8.8	15.4																							
16-Dec	Z	12.5	16.1	17.1	16.4	15.3	21.3	16.7	1.2	0.5	0.4	0.8	0.9	0.6	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.3	0.2	5.3	21.3																							
17-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.5	8.3	11.3	16.3	2.5	2.2	9.6	17.8	22.3	32.7	31.9	36.2	41.2	37.9	38.7	34.7	33.5	33.3	17.9	41.2																							
18-Dec	31.9	30.3	Z	33.2	32.0	30.3	38.4	42.9	42.7	28.3	21.8	15.3	16.1	19.1	25.2	28.6	34.5	37.8	37.6	41.1	37.3	31.8	28.9	28.5	31.0	42.9																							
19-Dec	30.1	27.4	19.4	Z	15.0	14.4	17.7	25.4	27.4	29.0	21.9	14.2	14.2	20.3	19.4	23.7	27.2	30.1	32.4	36.5	30.8	25.6	24.8	24.6	24.0	36.5																							
20-Dec	22.4	27.7	27.0	25.4	Z	25.1	25.5	25.7	25.9	19.6	6.3	4.0	5.6	14.2	13.3	11.1	10.0	11.9	7.5	10.8	18.7	9.5	12.1	21.9	16.6	27.7																							
21-Dec	14.7	16.6	22.9	16.0	11.5	Z	23.4	25.9	25.0	23.3	21.1	19.3	18.7	17.8	17.8	19.9	21.6	22.1	23.4	26.2	30.6	31.3	31.2	31.1	22.2	31.3																							
22-Dec	Z	29.3	28.2	27.9	27.8	23.4	16.3	9.2	9.0	10.0	8.7	8.4	6.4	6.6	7.5	10.1	10.0	8.9	8.5	9.2	11.2	8.3	6.1	6.1	12.9	29.3																							
23-Dec	6.7	Z	15.5	16.6	13.5	14.7	20.0	18.2	18.0	15.3	11.5	10.3	12.3	13.0	17.8	19.1	19.9	13.1	12.2	18.8	19.7	4.5	1.9	1.4	13.7	20.0																							
24-Dec	1.3	1.4	Z	4.1	8.4	11.9	13.2	17.2	14.9	17.1	11.8	12.3	13.2	13.8	21.9	24.7	25.0	19.5	13.3	15.2	20.7	20.8	18.9	18.3	14.7	25.0																							
25-Dec	20.7	16.1	16.9	Z	6.0	8.0	11.4	3.3	1.9	3.6	2.0	1.0	1.6	1.5	1.6	8.8	14.5	7.4	7.8	11.4	12.6	16.7	15.1	11.0	8.7	20.7																							
26-Dec	14.5	10.4	14.7	13.5	Z	18.9	17.9	21.5	24.6	19.2	15.7	10.5	11.3	9.2	13.0	18.8	17.7	22.3	21.5	25.9	25.1	24.5	24.7	23.3	18.2	25.9																							
27-Dec	20.7	17.7	17.9	20.1	20.9	Z	17.2	19.2	18.3	17.9	16.3	16.0	18.1	16.9	21.3	18.9	18.8	20.0	19.6	17.5	16.8	16.7	15.9	17.3	18.3	21.3																							
28-Dec	Z	13.7	7.2	4.7	6.6	10.9	5.2	4.9	3.9	3.1	4.7	6.2	11.7	21.7	28.4	30.2	26.8	24.3	18.1	14.4	13.7	15.7	11.8	5.7	12.8	30.2																							
29-Dec	5.2	Z	8.7	7.6	9.2	13.2	11.3	10.9	11.2	11.9	13.2	10.0	10.0	8.8	15.4	20.8	27.5	29.2	29.0	25.9	16.3	7.4	3.1	4.2	13.5	29.2																							
30-Dec	1.4	1.5	Z	1.3	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.2	0.2	0.4	0.4	2.0	10.0	4.4	0.8	1.1	10.0																							
31-Dec	0.2	0.2	0.2	Z	4.4	15.6	12.7	25.6	20.9	21.0	16.4	9.8	14.9	13.1	15.7	34.0	27.4	29.2	26.3	28.3	27.0	24.0	15.6	5.7	16.9	34.0																							
																								11.6	14.7	13.4	14.3	12.5	14.0	14.1	16.7	16.2	15.8	12.5	10.3	11.6	12.1	14.1	16.6	17.5	17.8	17.3	18.5	17.8	15.6	14.4	13.6	Diurnal Average	
																								31.9	30.3	29.9	33.2	32.0	30.3	38.4	42.9	42.7	32.3	28.7	24.1	21.9	21.9	28.4	34.0	34.5	37.8	41.2	41.1	38.7	34.7	33.5	33.3	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Barge Landing - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Barge Landing - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	515	72.84	72.84
21 - 40	188	26.59	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 Dioxide (NO₂) - ppb
Barge Landing - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	47	32	14	8	17	15	38	92	89	34	30	13	26	29	10	18	512
21 - 40	11	6	5	8	5	10	18	34	26	9	9	1	5	5	11	20	183
11 - 80	0	0	0	0	0	0	1	0	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	58	38	19	16	22	25	57	126	116	44	40	14	31	34	21	38	699

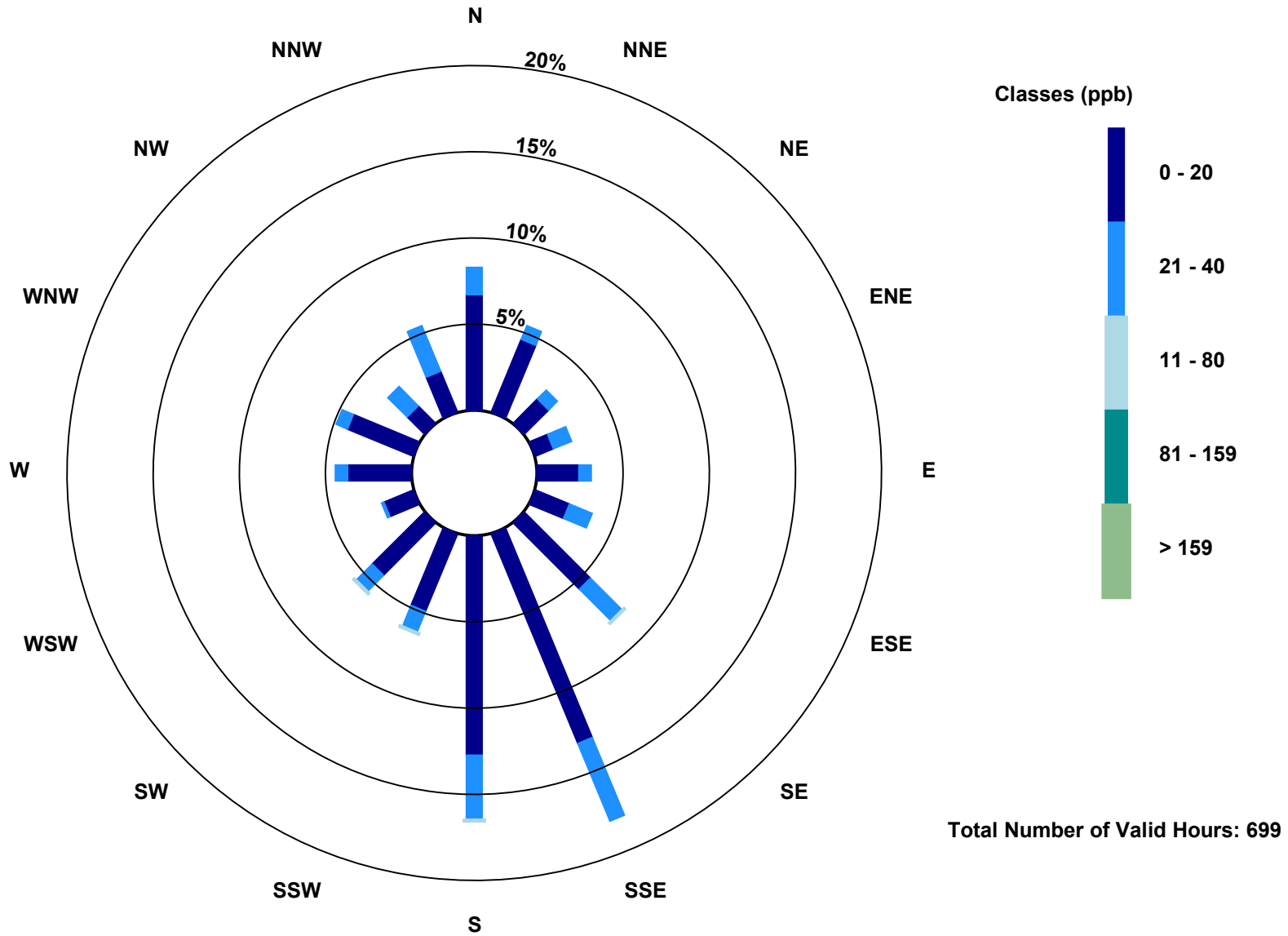
Total Number of Valid Hours: 699

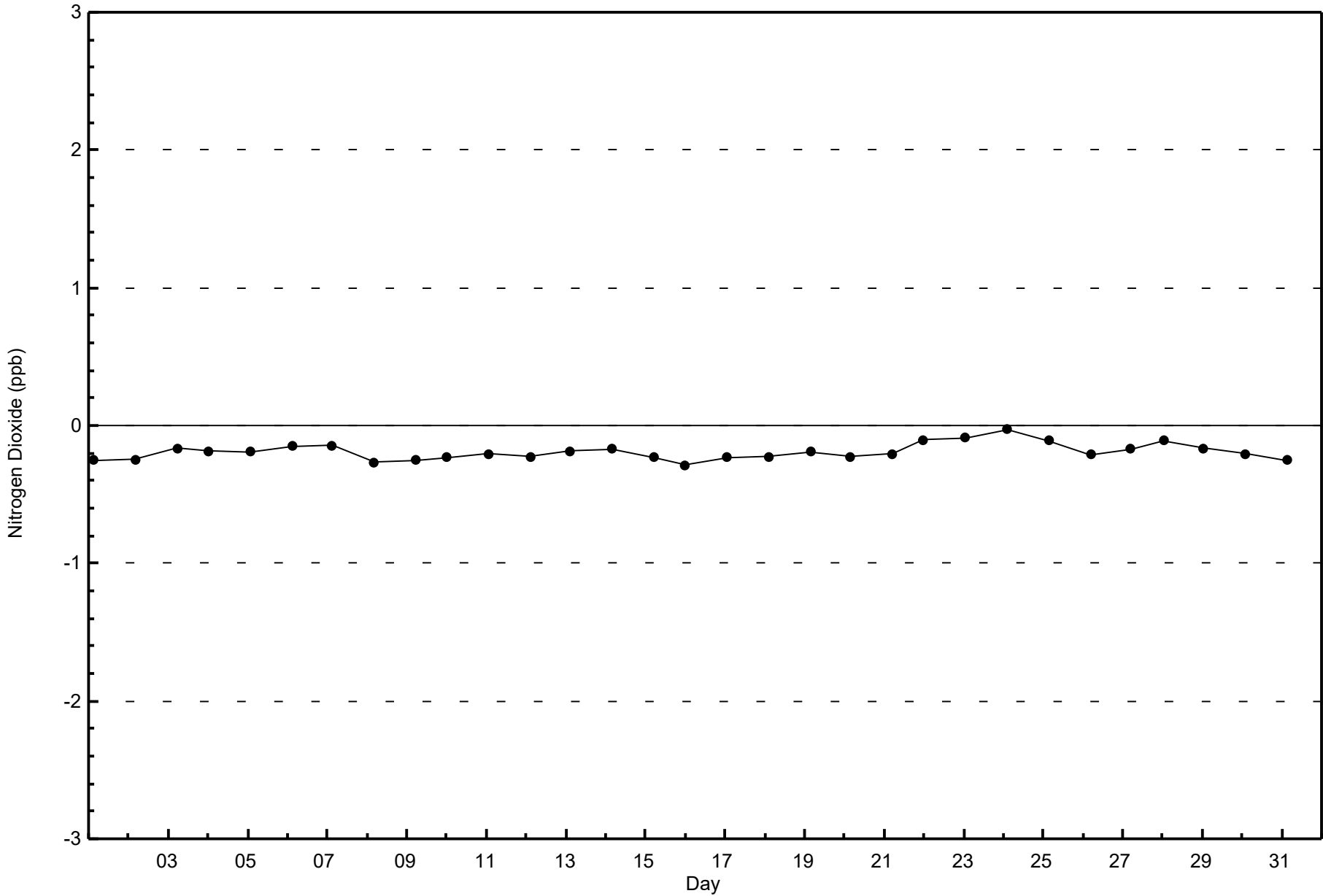
Total Number of Hours: 744

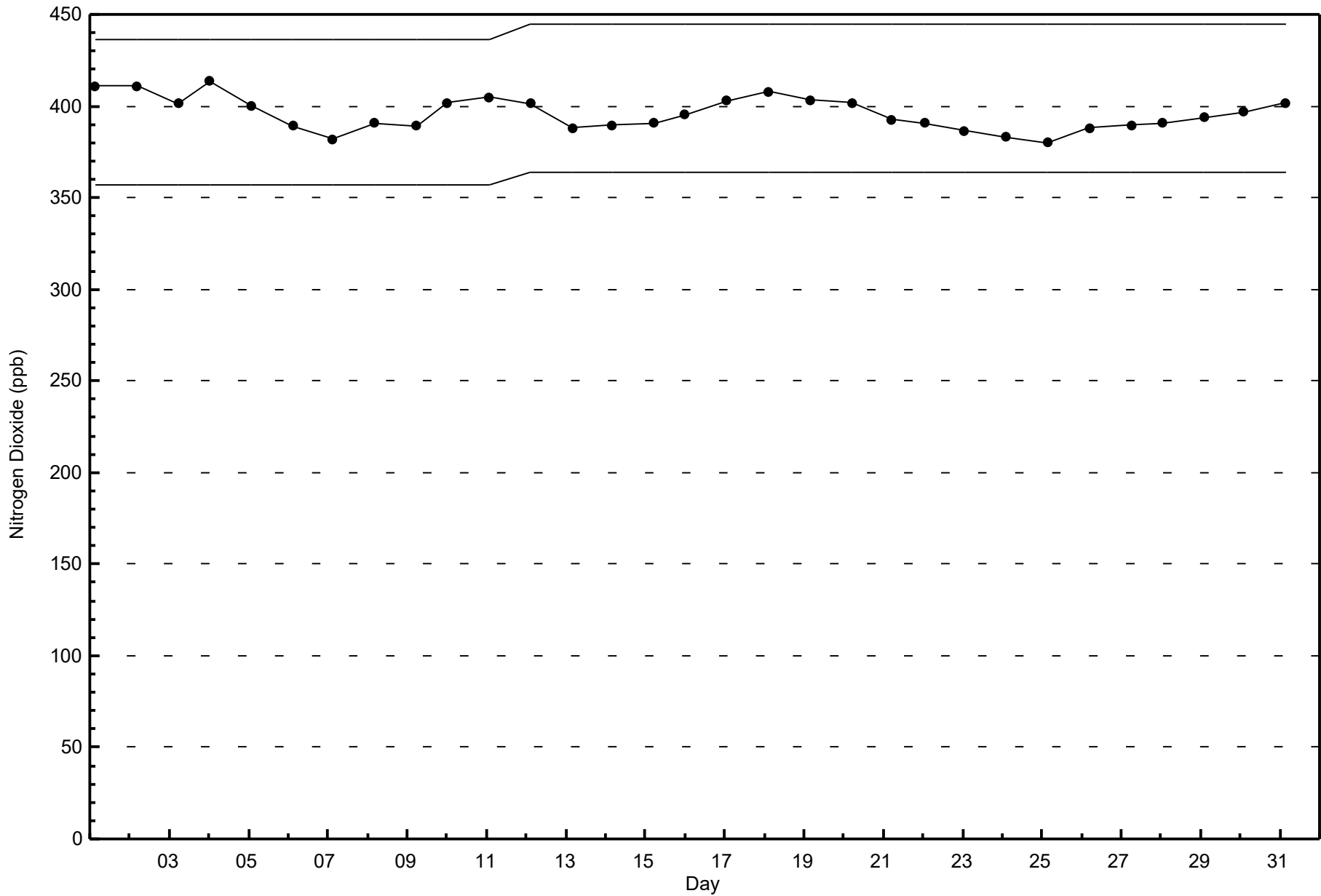


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Barge Landing





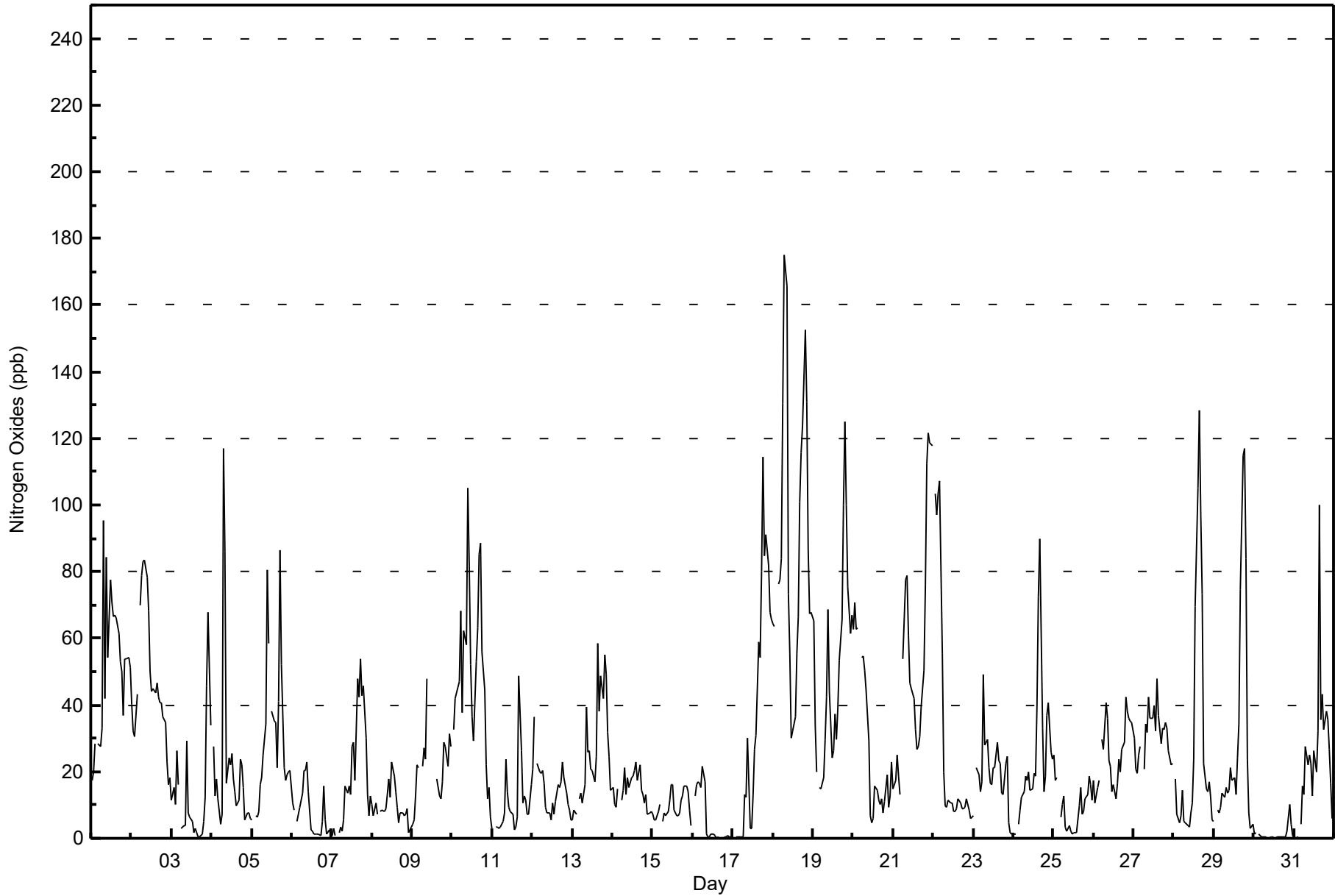




Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Barge Landing - December 2024

Maximum Value: 175.2 ppb on Dec 18 08:00 Maximum Daily Average: 88.4 ppb on Dec 18																						Hours in Service: 744 Hours of Data: 707				
Minimum Value: 0.2 ppb on Dec 16 17:00 Minimum Daily Average: 1.1 ppb on Dec 30 Maximum Diurnal Average: 37.2 ppb at hour 18 Minimum Diurnal Average: 17.2 ppb at hour 1 Monthly Average: 26.88 ppb Percentiles: P ₁ = 0.2 P ₁₀ = 2.1 Q ₁ = 7.9 Median = 17.3 Q ₃ = 35.7 P ₉₀ = 66.9 P ₉₉ = 123.5																						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-Dec	17.2	19.9	28.4	Z	28.3	27.7	33.0	95.3	42.1	84.3	54.1	77.6	70.8	66.7	66.8	65.9	61.5	53.1	49.8	37.1	53.6	53.7	54.0	51.2	51.8	95.3
2-Dec	40.3	32.0	30.3	43.4	Z	69.8	78.7	82.8	83.6	78.6	68.1	50.1	44.0	44.9	43.6	46.7	42.2	40.5	40.7	36.6	34.6	22.8	16.2	18.4	47.4	83.6
3-Dec	11.6	15.1	10.0	26.4	15.9	Z	2.9	3.6	3.8	29.3	7.6	6.3	4.9	1.5	2.9	1.8	0.6	0.6	1.3	5.2	12.2	45.8	67.9	33.9	13.5	67.9
4-Dec	Z	27.6	12.6	17.9	11.7	4.3	7.4	116.9	86.2	16.5	24.4	21.9	25.5	17.8	13.9	9.7	11.3	23.6	21.9	15.1	5.5	7.7	7.6	6.0	22.3	116.9
5-Dec	5.4	Z	6.6	6.3	7.9	15.9	18.4	25.0	34.3	80.6	58.6	M	37.9	35.2	34.7	21.2	40.9	86.5	52.2	21.1	17.3	19.2	19.7	20.5	30.3	86.5
6-Dec	10.7	8.7	Z	5.0	7.2	9.3	13.4	20.5	20.5	23.1	14.1	2.6	2.1	1.2	1.1	1.5	1.1	1.0	5.0	15.5	5.4	1.2	2.4	1.0	7.6	23.1
7-Dec	0.6	2.8	1.0	Z	1.7	3.6	2.2	5.3	15.6	13.6	15.7	13.2	27.6	28.8	17.3	48.0	42.4	53.8	42.9	45.8	30.2	13.2	6.6	12.5	19.3	53.8
8-Dec	10.0	6.8	10.5	7.3	Z	7.9	8.3	8.2	8.9	13.1	17.8	12.2	22.9	18.6	14.0	9.3	4.6	7.5	7.8	6.8	7.3	8.7	1.7	3.5	9.7	22.9
9-Dec	4.2	5.6	12.6	22.0	21.2	Z	21.8	27.0	23.9	48.1	C	C	C	C	C	17.9	12.6	11.9	16.9	28.7	27.7	21.7	31.2	27.5	21.3	48.1
10-Dec	Z	32.6	42.0	45.5	47.1	68.4	37.5	62.2	58.2	105.1	81.6	52.2	36.5	29.2	52.9	63.1	85.3	88.8	56.0	44.5	22.2	12.0	15.4	6.4	49.8	105.1
11-Dec	3.1	Z	3.3	3.5	2.8	3.4	5.2	7.4	23.8	14.1	9.5	8.1	7.0	2.6	3.5	6.6	48.7	26.3	10.4	12.5	11.5	7.1	7.1	15.9	10.6	48.7
12-Dec	20.8	36.3	Z	22.3	19.8	19.7	20.3	16.7	9.3	7.5	7.4	5.6	10.4	7.0	11.1	16.0	15.3	16.9	22.8	18.3	13.7	10.0	8.3	5.7	14.8	36.3
13-Dec	5.6	8.3	7.2	Z	12.0	13.7	10.8	16.2	39.6	25.9	26.1	20.9	20.5	16.9	24.7	58.3	38.0	48.8	42.1	55.1	49.1	31.8	24.4	14.5	26.5	58.3
14-Dec	15.2	10.1	9.2	15.0	Z	11.2	14.2	21.3	13.3	18.1	15.3	18.3	18.5	20.5	23.0	17.4	22.2	14.4	13.0	10.5	13.2	7.1	7.8	8.2	14.6	23.0
15-Dec	7.0	5.6	5.5	8.2	10.3	Z	5.2	7.8	7.0	8.1	11.3	16.2	16.0	8.3	6.7	6.6	7.8	11.6	12.9	15.8	15.6	14.1	8.4	3.8	9.6	16.2
16-Dec	Z	12.5	16.2	17.2	16.5	15.4	21.5	16.8	1.2	0.5	0.5	1.2	1.3	0.7	0.2	0.2	0.2	0.2	0.2	0.3	0.6	0.7	0.3	0.2	5.4	21.5
17-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.5	13.1	12.2	30.2	3.0	2.8	12.9	26.5	31.0	59.0	54.0	79.9	114.3	84.7	90.9	81.6	67.9	65.5	36.1	114.3
18-Dec	64.2	63.6	Z	76.3	77.5	84.0	130.7	175.2	165.6	73.2	55.5	30.0	32.3	36.6	55.5	66.5	100.6	115.5	123.7	152.5	130.9	87.0	67.4	67.9	88.4	175.2
19-Dec	65.1	33.7	20.1	Z	15.4	15.0	18.0	29.7	42.5	68.8	44.0	24.2	26.1	37.2	29.7	39.0	53.3	65.7	99.9	124.8	99.9	75.4	61.6	67.1	50.3	124.8
20-Dec	62.8	70.7	62.8	63.1	Z	54.4	54.6	50.4	44.5	29.2	6.9	4.5	6.1	15.7	14.6	11.5	10.1	12.0	7.5	10.9	19.0	9.5	12.6	22.8	28.5	70.7
21-Dec	14.9	17.3	25.0	18.5	13.0	Z	54.0	77.6	78.6	61.1	46.7	45.1	41.9	32.7	26.5	27.6	30.6	39.5	50.6	75.7	112.4	121.5	118.8	118.0	54.2	121.5
22-Dec	Z	103.6	97.0	103.2	107.3	55.5	19.8	9.7	9.2	11.3	10.5	10.5	8.2	8.2	8.8	11.7	10.4	9.0	8.7	9.4	11.8	8.5	6.1	6.2	28.0	107.3
23-Dec	6.9	Z	21.4	19.1	13.8	17.1	49.3	27.9	29.6	21.1	16.7	16.0	21.2	21.0	28.9	23.1	22.7	13.4	13.1	22.6	24.6	4.6	1.9	1.4	19.0	49.3
24-Dec	1.3	1.4	Z	4.2	8.5	12.3	13.8	18.4	17.3	19.9	14.3	14.7	19.4	18.7	39.6	72.4	89.8	32.9	13.9	18.5	36.8	40.7	25.8	23.7	24.3	89.8
25-Dec	24.9	17.5	18.4	Z	6.2	10.3	12.9	3.5	2.0	3.9	2.2	1.1	1.9	1.7	1.8	9.5	15.3	7.4	7.9	11.7	13.3	18.8	16.3	11.2	9.5	24.9
26-Dec	17.4	10.6	15.3	17.4	Z	29.5	26.9	40.8	35.9	23.3	21.4	14.1	16.0	11.8	16.4	23.6	19.9	26.5	28.6	42.3	37.9	35.9	35.2	34.6	25.3	42.3
27-Dec	30.0	20.7	19.4	25.1	27.5	Z	20.9	34.3	31.8	42.3	36.1	35.9	39.8	32.0	47.7	36.7	28.2	33.2	32.5	34.7	33.2	26.1	22.0	22.3	31.0	47.7
28-Dec	Z	18.0	7.4	4.7	6.8	14.4	5.3	4.9	3.9	3.3	7.6	10.5	23.7	69.3	105.2	128.5	97.0	73.2	22.6	14.7	14.1	17.0	12.2	5.7	29.1	128.5
29-Dec	5.2	Z	8.7	7.6	9.3	13.6	12.2	15.1	13.5	14.4	21.0	17.3	18.4	13.2	24.0	34.3	74.7	114.8	116.9	83.9	23.6	7.8	3.1	4.3	28.5	116.9
30-Dec	1.4	1.5	Z	1.3	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.3	0.5	0.2	0.2	0.4	0.4	2.0	10.0	4.4	0.8	1.1	10.0
31-Dec	0.2	0.2	0.2	Z	4.4	15.7	13.2	27.7	22.2	24.9	22.5	12.7	26.2	19.7	32.0	100.2	35.6	43.4	32.7	38.3	35.7	26.7	16.6	5.7	24.2	100.2
17.2 22.4 18.9 23.2 19.0 22.8 23.7 34.2 31.6 32.0 24.0 18.8 21.3 21.5 26.0 33.4 34.8 37.2 34.5 35.3 32.4 27.3 24.2 22.1																								Diurnal Average		
65.1 103.6 97.0 103.2 107.3 84.0 130.7 175.2 165.6 105.1 81.6 77.6 70.8 69.3 105.2 128.5 100.6 115.5 123.7 152.5 130.9 121.5 118.8 118.0																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Barge Landing - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	398	56.29	56.29
21 - 40	156	22.07	78.36
41 - 80	108	15.28	93.64
81 - 159	42	5.94	99.58
> 159	2	0.28	99.86

Total Number of Valid Hours: 707

Total Number of Hours: 744



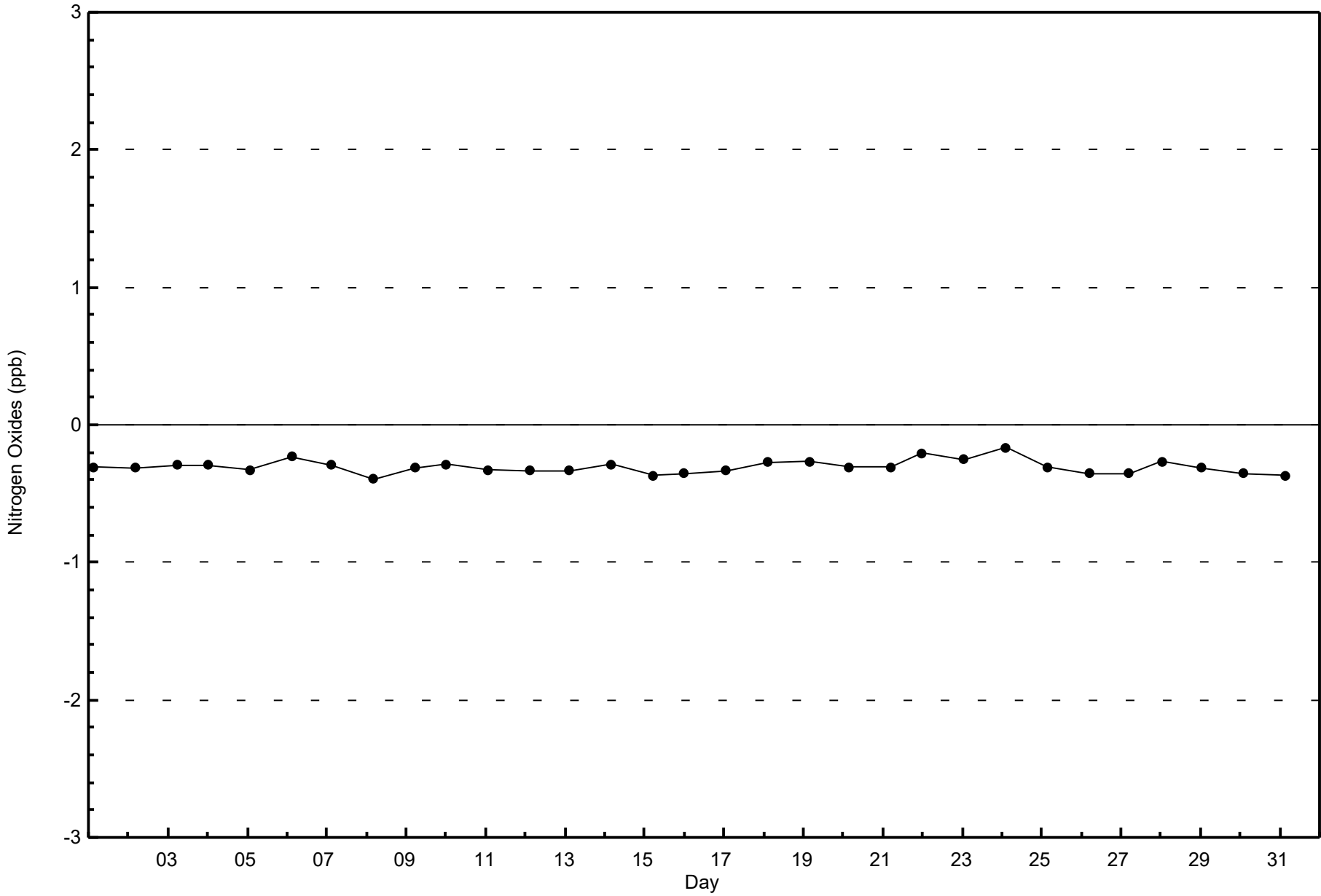
**Wood Buffalo Environmental Association
Frequency Distribution**

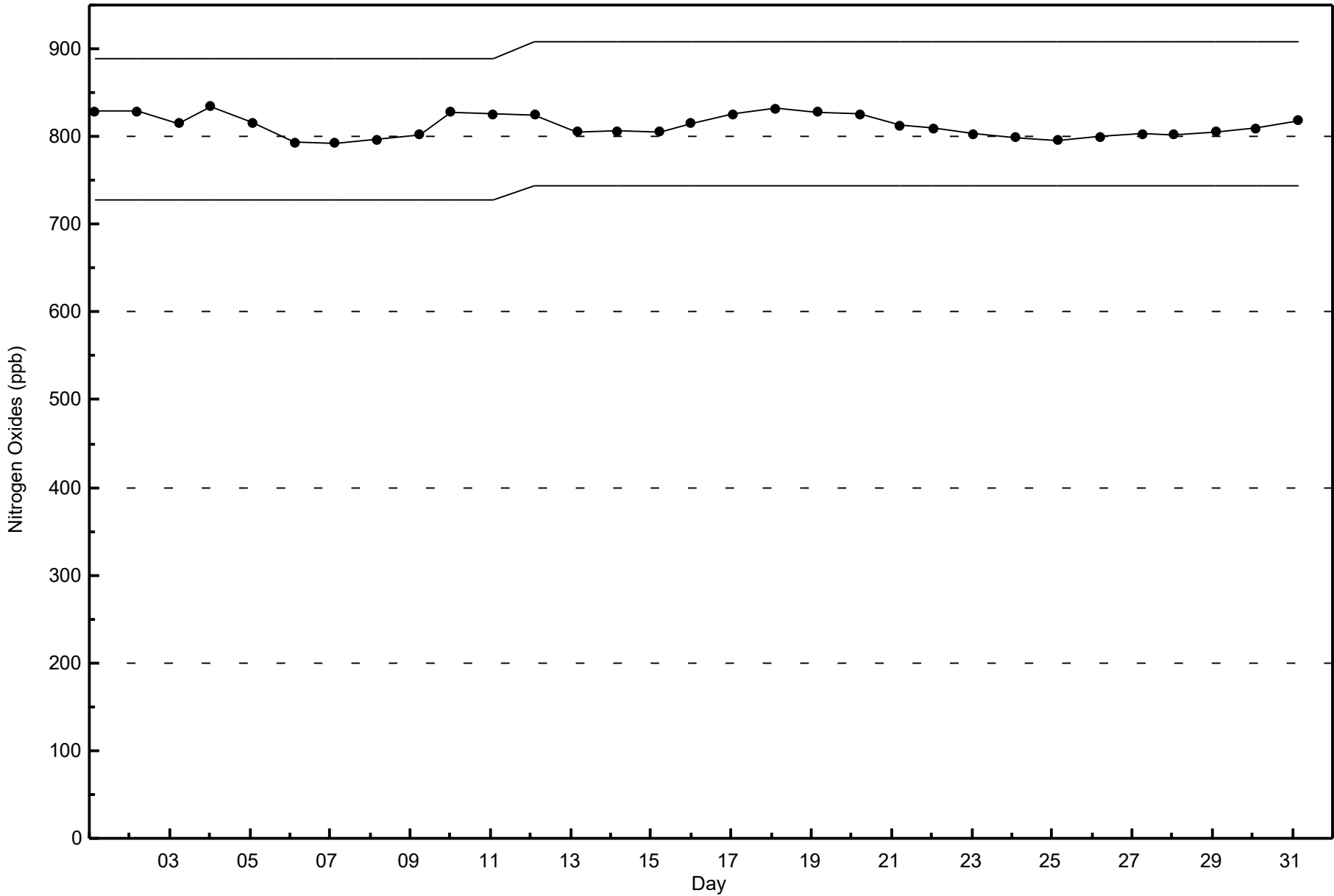
**Nitrogen Oxides (NO_x) - ppb
Barge Landing - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	37	26	11	8	11	8	27	62	65	31	27	10	22	27	10	15	397
21 - 40	14	8	4	4	7	8	10	41	29	4	3	3	5	2	4	8	154
11 - 80	6	3	3	2	3	7	15	20	9	5	6	1	1	4	7	12	104
81 - 159	1	1	1	2	1	2	5	3	12	3	3	0	3	1	0	3	41
> 159	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Totals	58	38	19	16	22	25	57	126	115	44	40	14	31	34	21	38	698

Total Number of Valid Hours: 699

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

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

Barge Landing - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																										
Maximum Value: 35.2 µg/m ³ on Dec 19 15:00		Maximum Daily Average: 19.9 µg/m ³ on Dec 22		Hours of Data: 740																	Hours of Missing Data: 4		Hours of Calibration: 2																										
Minimum Value: 1.3 µg/m ³ on Dec 25 13:00		Minimum Daily Average: 2.2 µg/m ³ on Dec 30		Hours of Calibration: 2																	Percent Operational Time: 99.7																												
Maximum Diurnal Average: 9.3 µg/m ³ at hour 16		Minimum Diurnal Average: 7.3 µg/m ³ at hour 12		Percentiles: P ₁ = 1.8 P ₁₀ = 2.7 Q ₁ = 3.8 Median = 6.0 Q ₃ = 10.5 P ₉₀ = 17.8 P ₉₉ = 25.5																																													
Monthly Average: 8.21 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-Dec	4.1	4.5	4.1	4.0	4.3	4.3	3.9	6.1	6.1	5.7	4.8	5.9	7.4	8.6	15.2	17.7	20.1	17.4	15.4	13.8	13.4	13.1	12.4	11.4	9.3	20.1																							
2-Dec	9.2	8.1	7.5	7.1	6.8	7.9	8.2	8.6	8.4	7.8	7.5	6.9	7.3	7.5	7.6	8.3	7.9	7.8	8.7	8.2	8.2	11.1	11.2	10.8	8.3	11.2																							
3-Dec	9.0	9.5	8.3	10.4	8.5	8.7	7.2	5.9	5.7	5.7	5.1	5.1	5.1	5.1	4.8	4.0	3.6	3.3	3.2	3.5	4.0	5.0	5.5	4.4	5.9	10.4																							
4-Dec	4.0	3.7	3.3	3.2	3.2	2.9	3.2	5.7	6.6	7.0	6.5	6.1	6.7	6.3	6.3	4.0	4.1	5.7	7.4	6.6	3.5	5.0	8.4	5.8	5.2	8.4																							
5-Dec	6.4	7.0	8.0	9.6	10.6	12.2	13.9	14.0	14.7	17.0	18.8	20.4	21.5	21.5	23.9	22.0	22.8	22.6	17.5	13.9	17.9	18.6	19.2	19.1	16.4	23.9																							
6-Dec	15.4	15.3	15.4	15.3	15.8	15.5	14.5	13.4	12.2	10.2	8.4	4.0	3.5	3.1	2.9	2.8	2.8	2.7	2.7	3.3	2.9	2.7	2.9	2.6	7.9	15.8																							
7-Dec	2.4	2.4	2.6	2.5	2.6	2.5	2.1	1.8	1.9	3.3	3.3	3.0	3.8	4.3	3.2	4.5	7.7	8.6	7.8	6.8	5.0	3.8	3.8	4.9	3.9	8.6																							
8-Dec	5.2	4.8	4.8	5.0	5.6	5.3	3.9	3.3	3.0	2.6	2.8	3.2	3.5	4.1	4.0	2.7	2.0	2.7	2.3	2.2	2.4	2.5	1.8	2.0	3.4	5.6																							
9-Dec	2.9	3.1	4.7	6.1	7.2	7.6	7.1	6.7	6.4	6.0	5.7	C	C	2.7	2.6	2.7	2.9	3.0	3.4	4.1	4.0	3.9	4.4	4.3	4.6	7.6																							
10-Dec	4.6	5.3	5.1	5.0	5.3	5.2	4.7	4.6	4.6	6.6	13.5	11.0	5.9	4.3	5.6	6.3	6.0	10.3	6.2	5.1	4.2	3.9	5.1	3.9	5.9	13.5																							
11-Dec	3.1	3.1	3.2	3.3	3.4	3.6	3.4	3.1	3.6	3.9	5.2	5.3	4.7	3.0	3.0	3.6	5.2	4.8	3.1	3.2	3.4	3.0	3.0	3.6	3.7	5.3																							
12-Dec	4.4	5.6	5.8	4.7	4.5	4.9	4.9	4.4	3.5	3.8	3.7	3.8	3.9	4.3	5.3	5.6	5.9	6.9	7.3	7.4	8.3	10.5	10.1	9.3	5.8	10.5																							
13-Dec	10.1	13.6	14.1	15.4	18.7	17.9	15.9	16.4	20.7	22.0	17.2	17.7	19.6	22.7	22.9	23.8	22.2	22.0	22.1	23.1	19.6	15.4	14.4	14.3	18.4	23.8																							
14-Dec	16.0	15.9	14.8	14.3	12.4	12.0	11.4	11.4	10.5	10.6	9.4	9.1	9.0	8.7	9.0	8.2	8.0	6.9	6.6	6.3	6.6	6.2	5.9	6.0	9.8	16.0																							
15-Dec	5.7	5.5	5.1	5.0	5.4	6.5	5.5	5.6	5.6	5.4	5.3	5.1	4.9	4.7	4.6	4.0	3.9	3.6	3.6	3.5	3.9	3.9	3.5	4.0	4.7	6.5																							
16-Dec	4.0	4.0	4.3	4.3	4.5	4.9	5.7	5.2	3.9	3.8	3.9	4.0	4.0	3.9	3.3	2.9	2.8	2.8	2.7	2.8	3.2	3.1	2.7	2.5	3.7	5.7																							
17-Dec	2.4	2.3	2.3	2.2	2.1	2.2	2.6	2.6	2.9	3.3	3.5	3.8	4.2	4.7	6.1	7.5	7.9	8.6	9.8	9.9	10.2	8.2	19.0	18.1	6.1	19.0																							
18-Dec	15.1	8.0	8.1	7.8	8.2	7.9	9.9	10.4	11.1	7.4	6.1	4.9	4.4	5.5	7.4	10.3	13.1	17.0	16.8	15.6	15.7	16.1	14.7	15.5	10.7	17.0																							
19-Dec	15.1	10.6	7.7	8.9	8.3	7.6	6.6	7.9	9.1	9.0	8.8	7.9	9.0	29.3	35.2	26.7	21.4	17.0	16.8	20.8	23.6	19.2	16.5	13.9	14.9	35.2																							
20-Dec	12.6	17.2	17.9	15.8	17.8	17.4	16.6	15.1	13.6	10.8	5.1	3.9	4.6	5.8	6.2	6.0	5.4	6.3	7.7	8.4	10.4	7.1	8.1	11.2	10.5	17.9																							
21-Dec	10.1	10.0	10.0	9.1	10.7	9.7	13.1	13.0	12.8	13.7	15.4	17.3	19.4	19.6	22.6	23.0	23.0	19.4	17.9	20.1	23.4	24.3	23.0	27.1	17.0	27.1																							
22-Dec	25.5	27.5	27.3	25.6	26.9	21.8	15.8	14.9	14.9	17.5	15.4	16.6	18.1	18.4	18.0	20.1	19.9	19.0	20.0	21.2	22.7	19.0	15.6	16.9	19.9	27.5																							
23-Dec	16.2	16.1	19.6	20.3	18.4	18.8	21.5	23.4	24.4	18.6	16.2	16.2	18.7	20.9	17.0	14.8	12.6	6.3	5.4	7.6	6.7	3.2	2.3	2.3	14.5	24.4																							
24-Dec	3.3	2.7	2.4	2.5	3.4	3.2	4.7	6.6	5.3	4.9	5.3	4.7	4.9	4.7	6.2	7.0	8.7	7.3	8.0	6.2	5.7	6.2	5.1	4.5	5.1	8.7																							
25-Dec	5.6	8.6	9.6	5.1	4.3	4.5	5.7	4.6	4.1	3.5	2.7	2.1	1.3	2.1	2.7	2.1	5.2	2.3	3.7	4.5	3.7	3.6	3.8	4.1	4.1	9.6																							
26-Dec	4.8	7.3	7.0	7.1	8.4	10.5	7.4	9.0	9.1	6.7	9.4	6.5	5.0	6.9	7.8	7.1	6.6	11.5	7.1	7.3	7.9	10.9	9.2	8.4	7.9	11.5																							
27-Dec	10.3	9.3	13.3	13.6	7.7	7.1	7.4	10.0	10.1	10.7	10.2	10.1	9.9	8.5	9.5	11.2	10.9	8.4	10.3	8.8	8.6	8.5	10.2	7.4	9.7	13.6																							
28-Dec	7.3	7.5	4.6	3.8	2.9	4.6	4.5	4.4	4.8	5.0	3.8	5.1	6.7	9.7	14.0	17.1	12.8	10.1	5.3	3.1	5.2	5.0	3.2	3.1	6.4	17.1																							
29-Dec	4.2	8.2	4.1	4.9	4.0	5.9	4.6	3.9	3.4	4.3	4.0	4.8	M	M	2.7	3.2	5.0	5.5	5.6	4.7	3.3	2.5	2.1	2.1	4.2	8.2																							
30-Dec	2.0	2.2	2.4	2.1	2.0	2.1	1.8	1.7	1.5	1.5	1.6	1.9	2.1	2.4	2.5	2.4	2.5	2.5	2.3	2.2	2.5	2.9	2.7	2.5	2.2	2.9																							
31-Dec	2.4	2.5	2.4	2.5	2.8	3.2	3.2	3.8	3.6	3.6	3.7	3.7	3.8	3.6	3.9	6.4	4.2	4.3	4.0	4.1	3.9	4.0	3.8	3.7	3.6	6.4																							
																								7.9	8.1	8.1	8.0	8.0	8.0	7.8	8.0	8.0	7.8	7.5	7.3	7.7	8.6	9.2	9.3	9.3	8.9	8.4	8.3	8.5	8.1	8.2	8.1	Diurnal Average	
																								25.5	27.5	27.3	25.6	26.9	21.8	21.5	23.4	24.4	22.0	18.8	20.4	21.5	29.3	35.2	26.7	23.0	22.6	22.1	23.1	23.6	24.3	23.0	27.1	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
Hourly Averages

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Barge Landing - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Barge Landing - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	340	45.95	45.95
6 - 15	288	38.92	84.86
16 - 25	104	14.05	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Barge Landing - December 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	32	23	16	12	14	12	27	30	23	25	30	11	26	29	14	13	337
6 - 15	29	14	4	1	9	9	27	79	53	19	8	2	2	4	5	21	286
16 - 25	3	5	0	1	1	4	5	19	43	0	5	1	4	2	3	5	101
26 - 80	0	0	0	1	0	0	0	3	1	0	2	0	1	0	0	0	8
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	64	42	20	15	24	25	59	131	120	44	45	14	33	35	22	39	732

Total Number of Valid Hours: 732

Total Number of Hours: 744

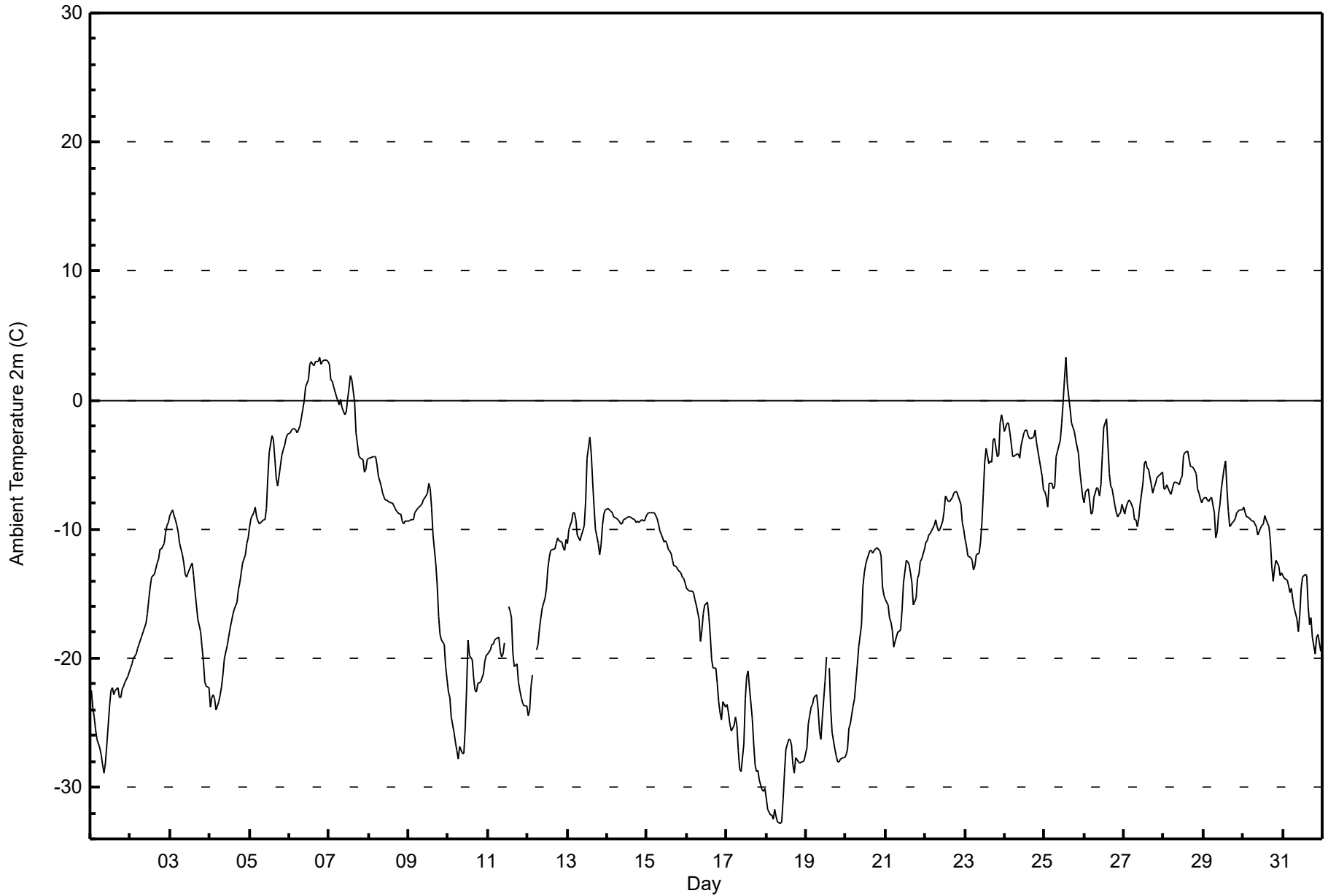


Maximum Value: 3.3 C on Dec 25 14:00																						Maximum Daily Average: 0.8 C on Dec 6																						Hours in Service: 744	
Minimum Value: -32.8 C on Dec 18 09:00																						Minimum Daily Average: -29.7 C on Dec 18																						Hours of Data: 741	
Maximum Diurnal Average: -9.6 C at hour 14																						Minimum Diurnal Average: -14.0 C at hour 9																						Hours of Missing Data: 3	
Monthly Average: -12.72 C																						Percentiles: P ₁ = -31.7 P ₁₀ = -24.6 Q ₁ = -18.9 Median = -10.7 Q ₃ = -7.2 P ₉₀ = -3.1 P ₉₉ = 3.0																						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-Dec	-22.5	-23.8	-24.6	-25.5	-26.3	-26.9	-27.5	-28.3	-28.9	-28.1	-26.7	-23.7	-22.5	-22.2	-22.8	-22.5	-22.3	-23.1	-23.1	-22.4	-22.1	-21.8	-21.4	-21.1	-24.2	-21.1																			
2-Dec	-20.7	-20.5	-20.1	-19.7	-19.3	-18.9	-18.5	-18.2	-17.9	-17.3	-16.5	-15.4	-14.5	-13.7	-13.5	-13.0	-12.6	-12.3	-11.5	-11.6	-11.2	-10.2	-9.7	-9.5	-15.3	-9.5																			
3-Dec	-9.0	-8.5	-8.9	-9.3	-9.7	-10.3	-11.1	-11.9	-12.7	-13.5	-13.7	-13.4	-12.8	-12.7	-13.6	-14.8	-15.8	-17.0	-18.0	-19.2	-20.2	-21.8	-22.2	-22.2	-14.3	-8.5																			
4-Dec	-23.8	-23.1	-22.8	-23.2	-24.0	-23.3	-22.9	-22.1	-21.2	-20.0	-19.0	-18.4	-17.8	-17.2	-16.7	-16.2	-15.7	-14.7	-14.1	-13.4	-12.7	-12.0	-11.1	-10.6	-18.2	-10.6																			
5-Dec	-9.8	-9.1	-8.7	-8.3	-9.1	-9.4	-9.5	-9.5	-9.3	-9.3	-8.4	-6.0	-4.1	-2.7	-3.1	-4.5	-6.1	-6.7	-5.9	-4.2	-3.8	-3.5	-2.9	-2.7	-6.5	-2.7																			
6-Dec	-2.5	-2.3	-2.2	-2.2	-2.4	-2.5	-2.0	-1.4	-0.7	-0.1	1.0	1.6	2.7	3.0	2.8	2.7	3.0	3.0	3.3	2.7	3.0	3.1	3.1	2.9	0.8	3.3																			
7-Dec	2.8	1.6	1.4	1.1	0.3	0.0	-0.4	0.0	-0.6	-1.2	-0.9	0.0	0.9	2.0	1.6	-0.1	-2.5	-3.4	-4.3	-4.5	-4.6	-5.5	-5.3	-4.6	-1.1	2.8																			
8-Dec	-4.5	-4.5	-4.4	-4.4	-4.4	-5.1	-5.9	-6.7	-7.2	-7.6	-7.8	-7.8	-7.9	-7.9	-8.0	-8.2	-8.4	-8.6	-8.8	-8.8	-9.3	-9.6	-9.3	-9.3	-7.3	-4.4																			
9-Dec	-9.4	-9.3	-9.3	-9.3	-8.8	-8.4	-8.3	-8.1	-8.1	-7.7	-7.4	-7.2	-6.4	-6.9	-8.4	-10.5	-12.8	-14.4	-16.8	-18.1	-18.6	-19.0	-20.7	-21.6	-11.5	-6.4																			
10-Dec	-22.6	-23.1	-24.6	-25.8	-26.5	-27.2	-27.8	-26.9	-27.4	-27.4	-25.5	-22.3	-18.6	-19.8	-20.1	-21.6	-22.5	-22.6	-22.0	-21.8	-21.5	-21.3	-20.3	-19.8	-23.3	-18.6																			
11-Dec	-19.7	-19.3	-19.0	-18.9	-18.6	-18.5	-18.4	-19.5	-20.0	-19.7	-18.8	DF	-16.0	-16.3	-16.9	-19.6	-20.7	-20.4	-21.8	-22.5	-23.1	-23.5	-23.7	-23.7	-19.9	-16.0																			
12-Dec	-24.5	-24.0	-22.2	-21.3	DF	-19.4	-18.9	-17.7	-16.8	-16.1	-15.3	-14.6	-13.1	-12.2	-11.7	-11.5	-11.6	-11.1	-10.7	-10.9	-11.0	-11.4	-11.6	-10.8	-15.1	-10.7																			
13-Dec	-11.1	-10.0	-9.3	-8.7	-8.7	-9.3	-10.4	-10.9	-10.4	-10.1	-9.8	-7.9	-4.5	-2.9	-4.2	-6.3	-8.3	-10.0	-11.2	-12.0	-11.2	-9.8	-8.8	-8.5	-8.9	-2.9																			
14-Dec	-8.4	-8.5	-8.6	-8.8	-9.1	-9.2	-9.3	-9.3	-9.5	-9.5	-9.3	-9.1	-9.0	-9.1	-9.0	-9.2	-9.3	-9.5	-9.4	-9.5	-9.3	-9.3	-9.4	-9.1	-9.2	-8.4																			
15-Dec	-8.8	-8.7	-8.7	-8.7	-8.7	-8.9	-9.2	-9.6	-10.1	-10.7	-11.0	-10.9	-11.1	-11.5	-11.9	-12.4	-12.9	-12.9	-13.0	-13.2	-13.4	-13.7	-13.8	-14.2	-11.2	-8.7																			
16-Dec	-14.6	-14.8	-14.8	-14.8	-14.9	-15.4	-15.9	-16.9	-18.7	-17.8	-16.5	-15.9	-15.6	-16.7	-18.2	-20.1	-20.8	-20.7	-22.0	-23.4	-24.2	-24.7	-23.4	-23.8	-18.5	-14.6																			
17-Dec	-23.5	-24.2	-25.1	-25.6	-25.3	-24.6	-25.3	-27.2	-28.6	-28.8	-26.6	-23.2	-21.4	-21.0	-22.2	-24.6	-26.6	-28.2	-28.8	-28.7	-29.4	-30.3	-30.3	-30.1	-26.2	-21.0																			
18-Dec	-30.9	-31.7	-32.2	-32.2	-32.5	-31.8	-32.2	-32.7	-32.8	-32.7	-31.0	-28.9	-27.1	-26.3	-26.3	-26.8	-28.2	-28.8	-27.7	-28.0	-28.2	-28.1	-28.1	-27.9	-29.7	-26.3																			
19-Dec	-26.9	-25.1	-24.4	-23.8	-23.5	-23.0	-22.8	-23.9	-25.7	-26.3	-24.6	-21.7	-19.9	DF	-20.7	-23.9	-25.8	-27.1	-27.6	-28.1	-28.1	-27.8	-27.7	-27.7	-25.1	-19.9																			
20-Dec	-27.5	-27.0	-25.4	-25.2	-23.7	-23.2	-21.8	-20.6	-19.1	-17.4	-14.5	-13.4	-12.8	-12.3	-11.6	-11.7	-11.9	-11.7	-11.5	-11.4	-11.6	-12.0	-14.4	-15.2	-17.0	-11.4																			
21-Dec	-15.4	-15.9	-16.8	-17.2	-17.9	-19.2	-18.7	-17.9	-17.9	-17.7	-16.2	-14.1	-12.4	-12.5	-12.7	-13.3	-14.2	-15.9	-15.3	-13.8	-13.5	-12.5	-12.3	-11.5	-15.2	-11.5																			
22-Dec	-11.1	-10.9	-10.4	-10.3	-10.1	-9.7	-9.3	-9.8	-10.1	-10.0	-9.3	-8.6	-7.4	-7.6	-7.8	-7.9	-7.5	-7.2	-7.1	-7.1	-7.4	-8.0	-9.5	-10.0	-8.9	-7.1																			
23-Dec	-10.8	-11.3	-12.1	-12.2	-12.5	-13.2	-12.8	-12.0	-11.9	-11.0	-9.5	-7.2	-4.8	-3.8	-4.9	-4.7	-4.8	-3.1	-2.9	-4.4	-4.3	-1.8	-1.2	-1.7	-7.5	-1.2																			
24-Dec	-2.4	-1.8	-1.7	-2.6	-3.4	-4.4	-4.3	-4.1	-4.2	-4.5	-3.6	-2.6	-2.3	-2.8	-3.0	-3.0	-3.0	-2.8	-2.4	-3.3	-4.0	-4.6	-5.9	-7.0	-3.5	-1.7																			
25-Dec	-7.1	-7.5	-8.2	-6.4	-6.4	-6.9	-6.6	-4.4	-3.9	-3.1	-1.8	-0.2	1.6	3.3	1.3	-0.7	-1.8	-2.1	-2.4	-3.0	-4.2	-5.6	-6.5	-7.6	-3.8	3.3																			
26-Dec	-8.0	-7.1	-6.8	-7.8	-8.8	-8.8	-7.5	-6.8	-6.9	-7.4	-6.6	-4.3	-2.1	-1.5	-3.5	-5.7	-6.7	-6.9	-8.2	-8.8	-9.1	-8.8	-8.7	-8.1	-6.9	-1.5																			
27-Dec	-8.8	-8.2	-7.9	-7.7	-7.9	-8.4	-9.3	-9.3	-9.9	-9.2	-8.0	-6.4	-5.0	-4.7	-5.3	-5.4	-6.6	-7.2	-6.8	-6.5	-6.0	-5.9	-5.7	-5.5	-7.1	-4.7																			
28-Dec	-6.9	-6.9	-6.6	-7.1	-7.3	-6.9	-6.5	-6.3	-6.5	-6.5	-6.2	-6.0	-4.3	-4.0	-4.0	-4.6	-5.2	-5.2	-5.3	-5.7	-6.8	-7.2	-7.6	-7.9	-6.1	-4.0																			
29-Dec	-7.6	-7.5	-7.8	-7.9	-7.7	-7.5	-8.8	-10.7	-10.3	-8.9	-8.0	-6.9	-5.2	-4.7	-6.9	-8.6	-9.8	-9.5	-9.4	-9.2	-8.7	-8.6	-8.5	-8.5	-8.2	-4.7																			
30-Dec	-8.3	-8.8	-9.1	-9.1	-9.2	-9.4	-9.4	-9.6	-9.8	-10.5	-9.9	-9.7	-9.6	-9.0	-9.2	-9.9	-10.9	-12.9	-14.0	-13.1	-12.5	-12.9	-13.6	-13.4	-10.6	-8.3																			
31-Dec	-13.6	-13.8	-13.9	-14.3	-14.9	-14.6	-15.5	-16.1	-17.0	-17.9	-16.6	-14.5	-13.7	-13.5	-13.6	-16.0	-17.4	-16.9	-18.4	-19.7	-18.4	-18.2	-18.8	-19.4	-16.1	-13.5																			
																						Diurnal Average																							
																						Diurnal Maximum																							
DF - DAS Failure																																													



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Barge Landing - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Barge Landing - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	163	22.00	22.00
-20 - 0	551	74.36	96.36
0 - 10	27	3.64	100.00
10 - 20	0	0.00	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

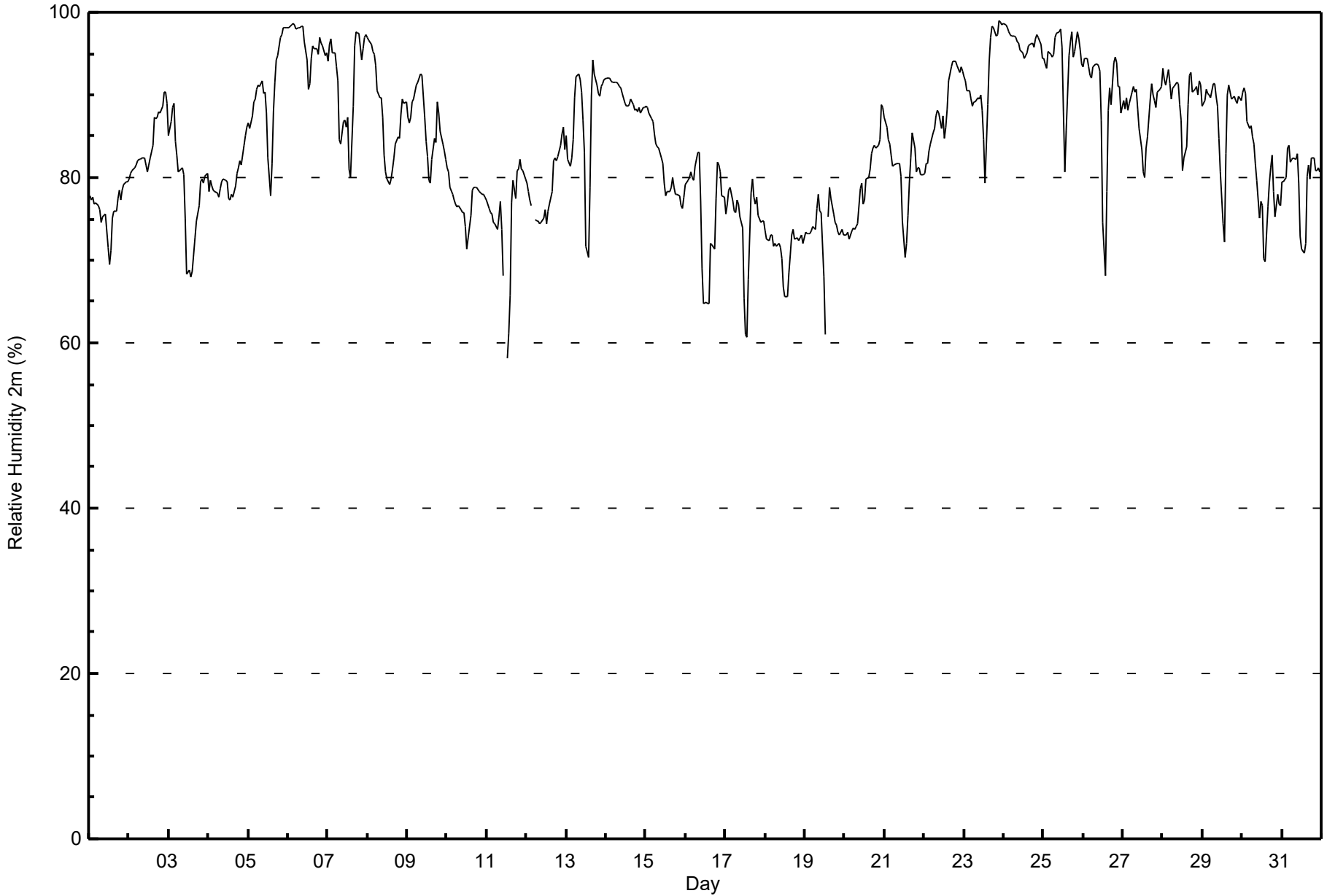
Relative Humidity 2m (RH2) - %
Barge Landing - December 2024

Maximum Value: 99.0 % on Dec 23 22:00		Maximum Daily Average: 96.4 % on Dec 24		Hours in Service: 744																							
Minimum Value: 58.1 % on Dec 11 13:00		Minimum Daily Average: 71.4 % on Dec 18		Hours of Data: 741																							
Maximum Diurnal Average: 86.2 % at hour 23		Minimum Diurnal Average: 76.1 % at hour 14		Hours of Missing Data: 3																							
Monthly Average: 83.98 %		Percentiles: P ₁ = 64.8 P ₁₀ = 73.5 Q ₁ = 77.7 Median = 83.3 Q ₃ = 90.7 P ₉₀ = 95.2 P ₉₉ = 98.4		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-Dec	77.7	77.3	77.7	76.8	77.0	76.5	76.1	74.6	75.3	75.4	75.6	71.6	69.4	71.2	75.1	76.0	76.0	77.4	78.6	77.2	78.5	79.1	79.4	79.5	76.2	79.5	
2-Dec	79.8	80.5	80.9	81.2	81.6	82.0	82.1	82.2	82.4	82.4	81.6	80.7	81.5	82.4	83.8	87.4	87.1	87.3	88.0	87.8	88.7	90.3	90.3	89.0	84.2	90.3	
3-Dec	85.2	86.8	88.6	89.0	84.4	82.7	80.7	81.1	81.2	80.4	75.1	68.3	68.9	67.9	68.7	70.6	72.7	74.8	76.6	79.6	79.8	79.3	80.2	80.4	78.5	89.0	
4-Dec	78.3	79.7	79.0	78.6	78.4	78.1	77.6	78.6	79.5	79.8	79.7	79.5	77.5	77.3	77.9	77.6	78.9	80.5	81.1	82.0	81.5	83.9	85.0	86.1	79.8	86.1	
5-Dec	86.6	85.9	87.4	89.1	89.5	90.7	91.2	91.1	91.8	90.2	90.3	87.8	82.3	77.8	81.7	88.0	91.6	94.3	94.8	97.0	97.3	98.1	98.2	98.1	90.4	98.2	
6-Dec	98.2	98.4	98.5	98.6	98.4	98.0	98.1	98.2	98.4	98.3	96.5	94.2	90.7	91.4	94.4	96.0	95.6	95.6	95.0	97.0	96.3	95.9	94.8	95.0	96.3	98.6	
7-Dec	94.1	96.1	96.7	95.1	95.2	93.3	91.6	84.6	84.0	86.8	87.0	86.1	87.2	81.0	80.0	88.7	96.0	97.7	97.4	97.5	94.3	95.5	97.0	97.4	91.7	97.7	
8-Dec	96.9	96.6	96.1	95.3	95.0	93.6	90.5	89.7	89.7	87.3	82.6	80.8	79.8	79.1	79.9	81.1	82.3	84.1	85.0	84.7	87.6	89.5	89.0	89.1	87.7	96.9	
9-Dec	87.3	86.7	87.2	89.1	89.5	91.3	91.5	92.1	92.5	92.4	87.3	84.4	82.5	79.7	79.3	82.2	84.7	84.3	89.1	87.8	85.6	84.0	83.2	82.2	86.5	92.5	
10-Dec	81.2	80.6	78.8	77.9	77.3	76.8	76.4	76.6	76.1	75.7	75.8	74.1	71.4	72.7	75.4	78.4	78.8	78.9	78.8	78.4	78.1	78.0	77.9	77.5	77.2	81.2	
11-Dec	77.2	76.2	75.7	75.6	74.6	74.4	73.8	75.2	77.1	73.8	68.1	DF	58.1	61.2	65.7	76.9	79.6	77.4	80.9	81.0	82.2	80.9	80.9	79.9	75.1	82.2	
12-Dec	79.3	78.4	77.3	76.6	DF	74.9	74.7	74.7	74.5	74.6	75.2	76.1	74.4	76.0	76.7	78.3	82.1	82.4	82.1	82.5	83.9	85.3	86.0	83.3	78.7	86.0	
13-Dec	85.1	82.3	81.4	82.4	84.6	89.7	92.3	92.5	91.9	90.3	87.0	83.1	71.7	70.4	78.8	89.9	94.2	92.5	91.2	90.1	89.9	91.1	91.4	91.8	86.9	94.2	
14-Dec	92.0	92.0	92.0	91.7	91.6	91.5	91.4	91.1	90.8	90.1	89.0	88.7	88.6	88.8	89.4	88.8	88.2	88.3	87.9	88.4	87.8	88.4	88.4	88.4	89.9	92.0	
15-Dec	88.7	88.5	87.8	87.1	86.8	85.3	84.1	83.8	83.5	82.3	81.7	79.3	77.8	78.4	78.3	78.8	79.9	78.8	77.9	78.0	77.8	76.6	76.3	77.6	81.5	88.7	
16-Dec	79.2	79.6	80.0	80.6	79.9	79.6	81.4	83.1	83.0	77.0	69.0	64.7	64.9	64.8	72.0	71.9	71.3	77.5	81.9	81.6	80.6	77.7	77.6	76.0	83.1		
17-Dec	75.6	76.8	78.5	78.8	77.1	75.9	75.8	77.2	76.8	75.3	73.8	65.4	60.9	60.7	67.6	78.1	79.8	77.6	76.9	77.6	75.4	74.5	74.7	74.8	74.4	79.8	
18-Dec	73.6	72.6	72.4	73.1	73.0	71.7	72.0	71.7	72.1	71.6	70.2	66.9	65.6	65.7	68.5	70.7	73.1	73.6	72.5	72.7	72.3	72.7	73.0	72.1	71.4	73.6	
19-Dec	73.4	73.1	73.1	73.2	73.5	74.1	73.8	76.3	78.0	75.9	75.8	67.9	61.0	DF	75.3	78.9	77.5	75.7	74.6	74.3	73.4	73.0	73.7	73.0	73.9	78.9	
20-Dec	73.0	73.1	73.4	72.6	73.5	73.8	73.7	74.1	74.4	78.7	79.4	76.7	77.3	79.8	80.0	81.0	82.8	83.5	83.9	83.6	83.9	84.5	88.7	88.5	78.9	88.7	
21-Dec	87.3	86.1	84.7	84.1	82.7	81.3	81.5	81.7	81.6	81.7	80.1	74.7	70.4	72.0	75.4	79.3	82.4	85.4	83.6	80.6	81.2	81.2	80.3	80.3	80.8	87.3	
22-Dec	80.5	81.7	81.7	83.2	84.0	85.4	86.0	87.5	88.2	87.8	85.9	87.5	84.7	86.1	88.3	91.6	93.3	94.1	94.1	94.1	93.6	92.7	93.4	92.8	88.3	94.1	
23-Dec	92.2	91.7	90.5	90.5	89.5	88.6	89.1	89.2	89.6	89.5	89.9	88.2	84.6	79.3	88.9	94.1	96.9	98.3	98.2	97.2	97.3	99.0	98.8	98.4	92.1	99.0	
24-Dec	98.7	98.5	98.1	97.7	97.4	97.0	97.2	97.0	96.5	96.2	95.4	95.2	94.5	94.8	95.1	96.0	96.1	96.3	95.7	96.8	97.3	96.9	96.0	94.4	96.4	98.7	
25-Dec	94.3	93.7	93.2	95.2	94.9	94.6	95.0	97.0	97.5	97.7	98.0	95.5	88.0	80.6	85.7	94.7	96.4	97.7	94.5	95.3	97.7	96.8	95.4	93.7	94.3	98.0	
26-Dec	93.4	94.4	94.4	93.4	92.4	92.1	93.4	93.7	93.7	93.5	93.0	86.9	74.6	68.1	78.3	88.1	90.9	88.8	93.9	94.5	93.8	91.1	91.1	87.7	89.8	94.5	
27-Dec	89.4	88.4	89.6	88.1	88.9	90.3	91.0	90.4	90.6	88.3	85.9	83.3	80.6	80.0	83.6	84.9	89.5	91.4	89.9	89.3	88.5	90.3	90.7	91.1	88.1	91.4	
28-Dec	93.3	91.8	91.3	93.1	91.4	89.6	90.8	91.0	91.5	91.4	88.8	87.0	80.8	82.4	83.8	88.8	92.4	92.8	90.3	90.7	91.0	90.0	91.7	91.1	89.9	93.3	
29-Dec	88.7	89.3	90.7	90.2	90.0	89.6	91.4	91.3	89.8	88.6	84.8	80.7	74.3	72.3	82.8	90.1	91.1	89.4	89.7	89.8	89.4	89.0	89.8	89.3	87.6	91.4	
30-Dec	90.3	90.8	90.1	86.8	85.9	86.3	85.0	84.1	81.6	79.7	75.0	77.1	76.5	70.1	69.9	76.4	79.3	81.1	82.7	78.3	75.3	77.9	76.8	76.5	80.6	90.8	
31-Dec	79.4	79.5	80.0	83.6	84.0	81.9	82.3	82.4	82.2	82.8	79.3	72.9	71.4	70.8	72.1	80.2	81.6	79.9	82.4	82.3	80.8	80.8	81.1	80.7	79.8	84.0	
		85.5	85.4	85.4	85.4	85.4	84.9	84.9	85.0	84.4	82.5	80.2	76.5	76.1	78.9	83.4	85.3	85.5	86.0	86.0	85.9	86.0	86.2	85.7	Diurnal Average		
		98.7	98.5	98.5	98.6	98.4	98.0	98.1	98.2	98.4	98.3	98.0	95.8	94.5	94.8	95.1	96.0	96.9	98.3	98.2	97.5	97.7	99.0	98.8	98.4	Diurnal Maximum	
DF - DAS Failure																											



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Barge Landing - December 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Barometric Pressure (BP) - inHg

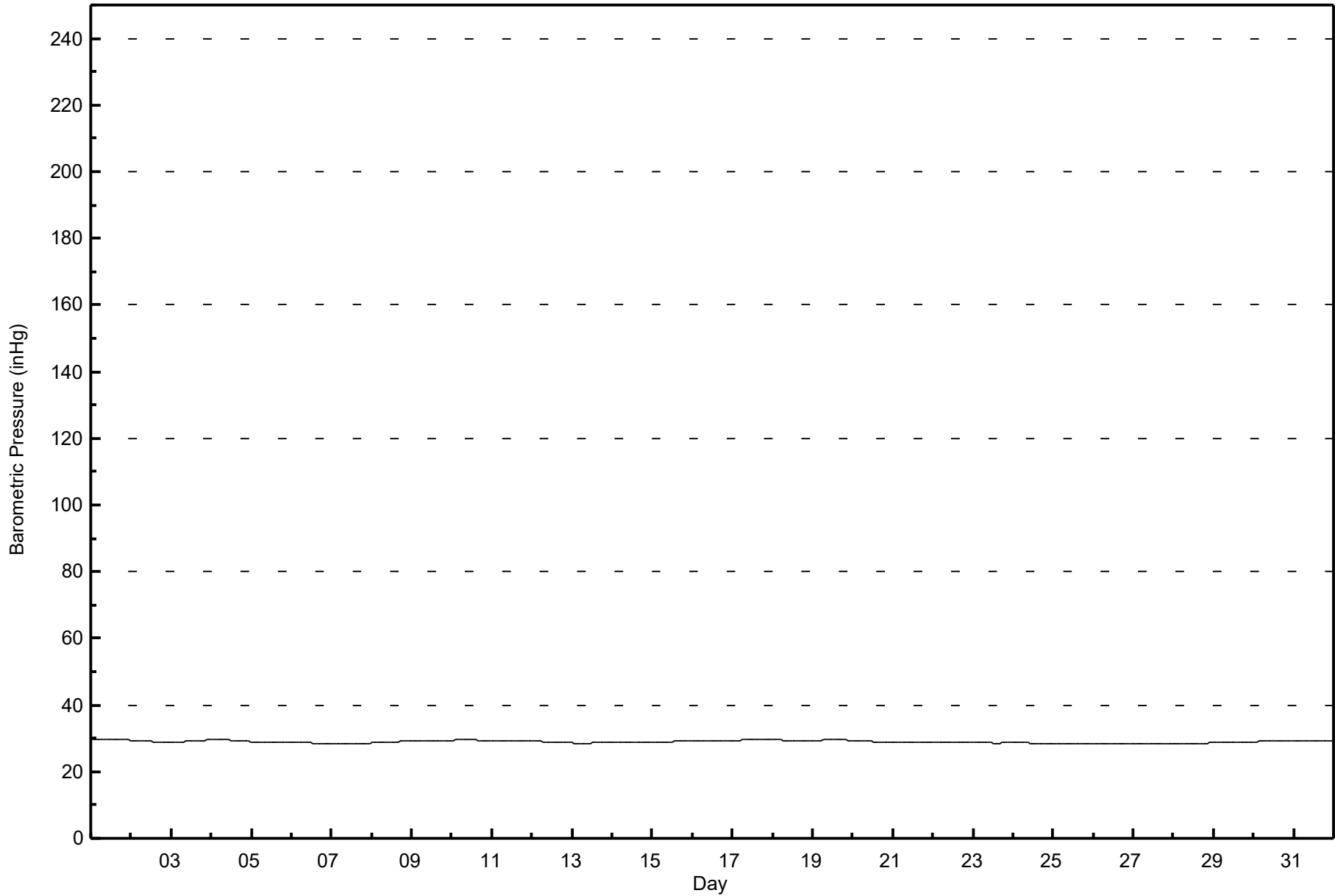
Barge Landing - December 2024

Maximum Value: 29.7 inHg on Dec 1 11:00 Maximum Daily Average: 29.6 inHg on Dec 1																						Hours in Service:	744			
Minimum Value: 28.3 inHg on Dec 24 22:00 Minimum Daily Average: 28.4 inHg on Dec 25																						Hours of Data:	744			
Maximum Diurnal Average: 29.0 inHg at hour 11 Minimum Diurnal Average: 29.0 inHg at hour 22																						Hours of Missing Data:	0			
Monthly Average: 28.96 inHg Percentiles: P ₁ = 28.3 P ₁₀ = 28.5 Q ₁ = 28.6 Median = 28.9 Q ₃ = 29.3 P ₉₀ = 29.5 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-Dec	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.4	29.4	29.6	29.7
2-Dec	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	28.9	28.9	28.9	28.8	28.8	28.7	28.7	28.7	28.7	29.0	29.4
3-Dec	28.7	28.7	28.7	28.8	28.8	28.9	28.9	29.0	29.0	29.1	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.1	29.5
4-Dec	29.5	29.6	29.6	29.6	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.0	29.0	29.4	29.6
5-Dec	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	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	29.0
6-Dec	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.8
7-Dec	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.5	28.6
8-Dec	28.6	28.6	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.9	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	28.9	29.1
9-Dec	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.2	29.4
10-Dec	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	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5
11-Dec	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	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.4
12-Dec	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.9	29.1
13-Dec	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.6	28.8
14-Dec	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8
15-Dec	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.0	29.2
16-Dec	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.3
17-Dec	29.4	29.4	29.4	29.4	29.4	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	29.5	29.6
18-Dec	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.5
19-Dec	29.4	29.4	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.5	29.5
20-Dec	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	29.1	29.3
21-Dec	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.9	28.9
22-Dec	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	28.7	28.7	28.7	28.7	28.7	28.8	28.8
23-Dec	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7
24-Dec	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.4	28.4	28.4	28.4	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.5	28.7
25-Dec	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	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
26-Dec	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.5	28.4	28.5
27-Dec	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.4	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5
28-Dec	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.5	28.6
29-Dec	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	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.8	28.9
30-Dec	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.1	29.1	29.2	29.2	29.2	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.2	29.3
31-Dec	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.4	29.3	29.4
																						Diurnal Average				
																						Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Barometric Pressure (BP) - inHg
Barge Landing - December 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

Barge Landing - December 2024

Maximum Speed: 11 km/h on Dec 20 12:00	Maximum Daily Speed Average: 6.8 km/h on Dec 15	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 19 18:00	Minimum Daily Speed Average: 0.3 km/h on Dec 1	Hours of Data: 725
Maximum Diurnal Speed Average: 1.6 km/h at hour 1	Minimum Diurnal Speed Average: 0.7 km/h at hour 7	Hours of Missing Data: 19
Monthly Average Velocity: 1.0 km/h 165.1 deg	Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 4 Q ₃ = 6 P ₉₀ = 7 P ₉₉ = 9	Percent Operational Time: 97.5

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NE3	NNE3	NNE3	N2	WNW1	NNW2	NNE0	SE2	WSW2	SE1	SW2	SE2	SE2	SW2	SSW2	ESE1	ESE2	ESE2	UO	SE1	NNE1	N2	NW2	NW2	NE0.3	NE3
2-Dec	NNW2	NNW3	NNW3	NNW4	NNW4	NNW3	NNW4	NNW3	NNW3	NNW3	NW2	NW2	WNW1	NW1	NW2	NNE1	NNW1	N1	N1	NNW1	SSW1	S2	WSW2	SSW3	NW1.6	NNW4
3-Dec	SSW4	WNW2	NNW4	N5	NNE6	N8	NNW9	NNW7	NNW7	N5	NNW8	NW8	NW8	NW10	NW8	NW8	WNW5	NW4	NNW5	NW3	NNW2	NE2	E3	WSW2	NNW4.7	NW10
4-Dec	S2	NW1	WSW1	SSE1	SSW2	SW2	SSW2	SSW2	SE3	SE4	S4	SSE5	SSE7	S7	S7	S7	S7	S6	S8	S10	S10	S9	S10	S8	S4.9	S10
5-Dec	S8	S9	S5	SSW6	SE4	SE4	SE5	ESE5	SE4	SE3	SE5	SE6	S4	SSE3	S2	SW3	E2	S3	SSE5	SSE5	SE3	S4	S4	SSW4	SSE3.8	S9
6-Dec	SSE6	S6	S5	S7	S6	SSE6	SSE6	SSE5	S6	S5	SW5	SW6	SW5	SW8	SW6	SW6	SW8	SW8	SW7	S5	SW7	SSW5	SSW5	SW6	SSW5.4	SW8
7-Dec	SW6	SSE3	SW6	SW6	SSW5	SSW7	SW9	SW9	SSW5	SSW7	SSW7	S5	SSE4	S3	SW3	SSE3	ENE2	ESE1	NE2	N4	N4	NNE6	NE5	NNE3	SSW2.4	SW9
8-Dec	N5	N5	N4	NNE5	NNE6	N7	N7	NNE7	NNE6	N7	N7	NNE6	NNE6	NNE4	NE3	E3	E2	ESE2	ESE4	SE4	S3	SE2	ESE3	SE3	NNE3.3	N7
9-Dec	SSE4	ESE4	ESE3	ESE3	ESE3	E3	SE2	ESE4	NNE2	NNE4	NNE5	NNE4	N5	N8	NNE8	NNE7	N9	N9	N3	N5	N5	N5	N3	NNW3	NNE3.1	N9
10-Dec	N3	NW2	ENE1	S0	UO	UO	W3	SSE1	SSE2	SE3	SE1	ESE3	ESE2	S1	SSE1	S1	ESE3	ESE4	ESE4	ESE3	ESE4	SE4	SE3	SE4	ESE1.7	SE4
11-Dec	SE5	SE4	SE3	SE5	SE4	ESE4	SE5	SE5	ESE3	ESE4	ESE3	E3	ESE5	SE6	SE4	NNW1	E2	SE6	SE5	ESE3	SSE4	SE4	SSE4	S3	SE3.8	ESE6
12-Dec	SSW2	SSE4	S4	S4	S5	SSE5	S4	SSE4	SSE5	SE5	SE7	SSE6	SE5	SSE7	SSE8	SSE7	SSE6	SSE7	SSE7	SSE8	SSE8	SSE8	S9	S10	SSW5.9	S10
13-Dec	S8	S8	S8	S8	S8	SSE8	SSW4	S5	SSE6	S3	NW1	SW3	SSW6	S6	SSE4	SSE4	SE2	NNW2	NNW4	NNW4	NNW4	N6	N5	NNE6	S2.4	S8
14-Dec	NNE7	NNE7	NNE7	N6	N7	NNE7	NNE7	N7	N7	N7	NNE8	NNE8	N6	N5	NNE7	NNE8	N6	N8	N5	N5	N5	N6	N6	N5	N6.5	NNE8
15-Dec	N6	N5	N7	N7	N7	N8	N8	N8	N8	N9	N9	N8	N8	N9	N9	NNE9	N8	N7	NNE7	NNE6	NNE5	NNE5	NE3	ENE3	N6.8	N9
16-Dec	E3	E3	E2	E2	E3	ENE3	NE1	WNW3	NW4	WNW4	WNW4	W5	W7	WNW6	W8	WSW8	W7	W7	W3	WSW4	SW3	WSW3	WSW6	WSW7	W2.9	WSW8
17-Dec	WSW7	W6	WSW4	W4	W3	W4	WSW4	SW3	W1	SW3	SW3	SSW3	SSE2	SE4	SSE4	SE3	SE4	ESE4	ESE4	SSE3	SE3	SE4	SSE4	SE4	SSW1.8	WSW7
18-Dec	SE3	ESE4	SE3	SE2	SW1	SSE1	SE2	SSE1	SSW0	W2	UO	WSW2	N0	ESE2	ESE2	ESE3	E2	S1	SSE0	SSE2	SE4	SE3	SE3	SE4	SE1.6	SE4
19-Dec	SE5	SSE6	SSE7	SSE6	SSE6	SSE5	SSW2	SSE3	SSE2	E2	SE3	SE3	WSW2	SSE1	SW3	E2	ESE2	E0	ESE1	ESE2	SSE2	ESE4	SE2	ESE2	SE2.7	SSE7
20-Dec	WSW1	NNW2	ENE2	WSW2	N1	NNW1	NNW1	N1	NW1	S5	SSE8	SSE11	SSE8	S7	SSE8	SSE7	S5	S4	SSW3	SSE2	S1	WSW2	SSW1	S4	S2.8	SSE11
21-Dec	SSW5	SSW4	SSE3	SSW4	SSW1	SE3	SE4	ESE2	S1	N0	ESE0	WSW2	SSE1	W3	E1	NNE1	N2	NNW2	WNW2	NE0	N1	ENE2	WSW3	W2	SSW0.7	SSW5
22-Dec	W3	WSW3	SSE2	SSE4	S4	S5	SSE5	S6	S6	S7	S8	S8	S10	S9	S9	S9	S9	S9	S7	S7	S7	S8	S7	S7	S6.5	S10
23-Dec	S6	S4	SSE4	S4	S2	SW3	SSE4	S3	SSE4	S4	S5	S6	S7	S7	S8	SSE6	SSE6	S6	S4	SSE4	SSE6	SW7	SSW5	SW3	S4.8	S8
24-Dec	S4	SW6	SSW5	SSE5	S5	SE6	SSE6	SE7	SE6	SSE4	SE6	NNE1	N3	N2	NNW5	SE0	ESE2	SSE4	SW2	S0	SSW2	S1	SW1	ESE2	SSE2.2	SE7
25-Dec	SSE2	SSW3	SSW3	SW6	S4	S5	SSE5	SSW4	S3	SE4	SSW4	SW6	SW8	SW6	SW6	S5	SSE6	SSE7	SSE7	SSE5	SSE4	SSE1	ESE1	SE4	S4.0	SW8
26-Dec	SE5	SSE5	SSE3	SSE1	SE2	SE3	SSE2	SSE4	SSE6	SSE6	SSE6	SSE5	SSE5	SSE7	SSE5	SSE5	SSE6	SE5	SE5	SSE5	SSE2	SSE3	SE4	SE4	SSE4.3	SSE7
27-Dec	SE4	SE5	SE4	SE4	SE3	SE4	SSW1	E2	S1	ESE3	SE4	SSE2	ENE2	N1	S1	SSE3	SE1	NNW3	E1	SE3	ESE1	UO	E2	E2	SE2.0	SE5
28-Dec	UO	E2	E1	UO	UO	UO	NNW1	UO	W1	NW1	NNW3	NW3	WNW3	NNW1	NNE1	WNW2	NNW2	NW2	NNE4	N3	N4	N2	NNE2	NE3	N1.5	NNE4
29-Dec	NE2	UO	UO	SSW2	S2	SE2	E2	E3	ESE3	ESE3	ESE3	ESE2	ENE1	E2	UO	NE2	E1	UO	SW1	W2	WNW2	WNW2	UO	UO	ESE0.9	ESE3
30-Dec	NW2	WNW1	W1	WNW3	NW2	NW2	WNW3	NW3	WNW6	WNW6	W6	WNW7	WNW6	W7	NW7	WNW6	WNW5	NW6	NW4	NW6	NW4	NW4	NW6	W3	WNW4.3	NW7
31-Dec	WSW3	WSW3	WSW2	SE1	E2	ENE3	ENE3	E4	E4	UO	SW1	WSW2	N1	N1	E3	NE2	E4	ENE3	ESE3	ESE1	UO	UO	ENE1	NNE1	E0.9	E4

S1.6	S1.3	SSE1.2	S1.4	SSE1.1	SE1.1	SSE0.7	SE1.1	SE0.8	SE0.9	S0.9	S1.2	S1.0	SSW1.2	SSW1.1	SSE1.0	SSE0.9	SSE0.8	SSE1.1	SSE1.1	SSE1.0	SSE1.0	SSE1.1	SSE1.5	Diurnal Average	
S8	S9	S8	S8	S8	N8	SW9	SW9	N8	N9	N9	SSE11	S10	NW10	N9	NNE9	S9	S9	S8	S10	S10	S9	S10	S10	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

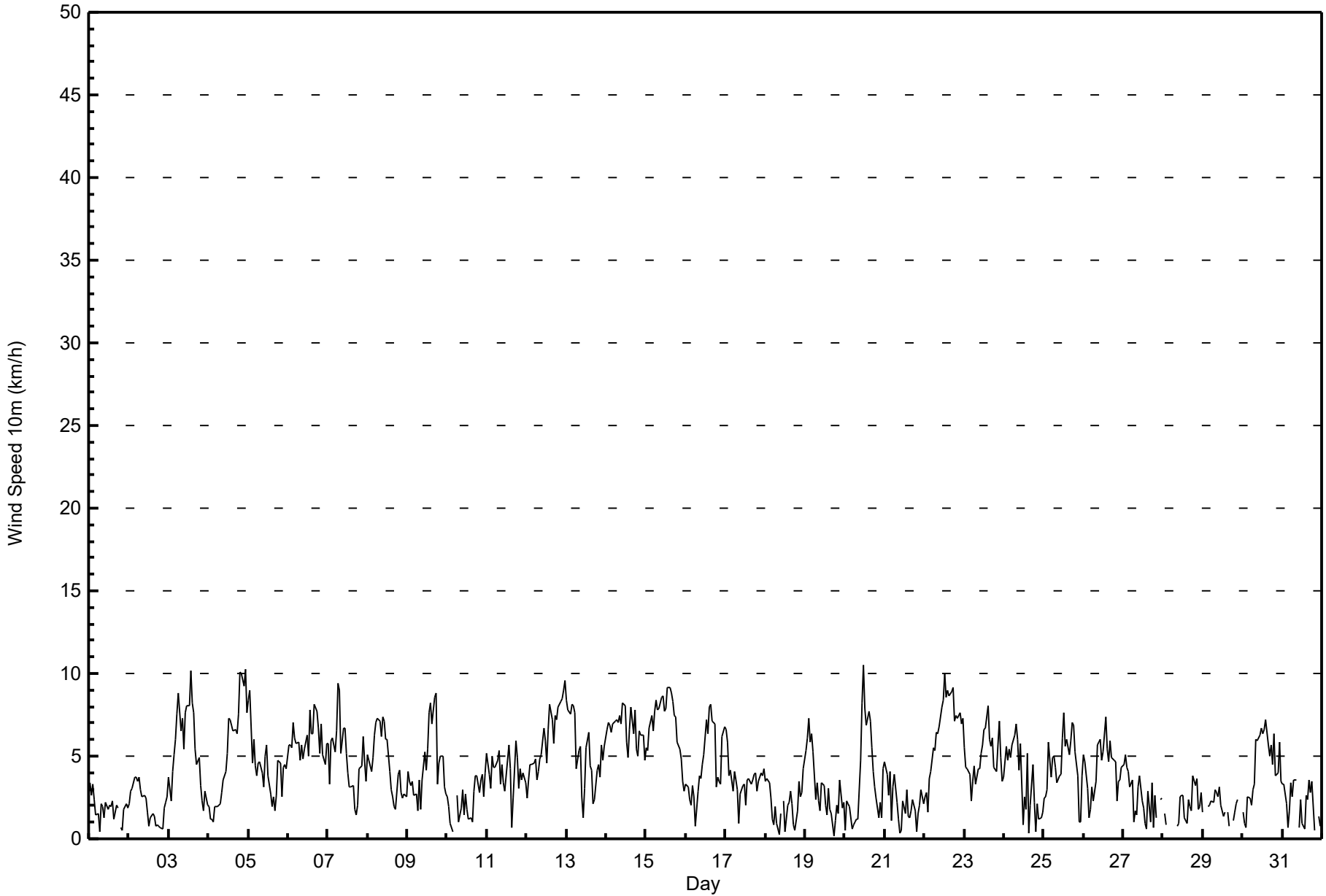
Wind Speed 10m (WS10) - km/h
Barge Landing - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 4 km/h on Dec 20 12:00 Minimum Value: 0 km/h on Dec 29 10:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 1 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 3																		Hours in Service: 744 Hours of Data: 725 Hours of Missing Data: 19 Hours of Calibration: 0 Percent Operational Time: 97.5								
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-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
3-Dec	2	1	1	2	2	3	3	2	2	2	3	3	3	4	3	3	3	2	2	1	1	1	1	1	1	4
4-Dec	1	1	2	1	1	1	1	1	1	1	2	2	3	3	3	2	2	2	3	4	4	3	4	3	4	4
5-Dec	3	3	3	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	2	1	2	3	3
6-Dec	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3
7-Dec	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2
8-Dec	2	1	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
9-Dec	1	1	2	1	1	1	1	1	1	1	2	1	3	3	3	2	3	4	1	1	2	2	1	1	4	4
10-Dec	1	1	1	1	UO	UO	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2	2
11-Dec	1	1	1	2	1	1	2	2	1	1	1	1	2	3	2	1	1	2	1	1	1	1	1	1	1	3
12-Dec	1	1	2	2	2	2	1	1	2	2	2	2	1	3	3	2	2	3	3	3	3	3	3	3	3	3
13-Dec	3	3	3	3	3	3	1	2	2	2	1	1	3	2	1	1	2	1	2	1	1	2	2	2	2	3
14-Dec	2	2	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-Dec	1	1	2	2	2	3	3	2	3	3	3	2	3	3	2	3	3	2	2	2	2	2	1	1	3	
16-Dec	1	1	1	1	1	1	1	2	1	1	2	2	3	3	3	3	3	3	1	1	1	1	2	2	3	
17-Dec	2	2	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
18-Dec	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
19-Dec	1	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	
20-Dec	1	1	1	1	1	1	1	1	1	3	3	4	3	3	3	3	2	1	1	1	1	1	1	1	4	
21-Dec	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	2	
22-Dec	1	1	1	1	1	2	2	2	2	3	3	3	4	3	3	3	3	3	3	3	3	3	2	2	4	
23-Dec	2	1	1	1	1	2	1	1	1	1	2	2	2	2	3	2	2	2	1	1	2	2	2	2	3	
24-Dec	2	2	2	1	2	1	1	2	1	1	2	1	2	1	2	2	2	2	2	1	1	1	1	2	2	
25-Dec	1	1	1	1	1	1	1	2	2	1	2	2	2	3	2	1	1	2	2	1	1	1	2	1	3	
26-Dec	1	1	1	1	1	1	1	1	2	1	2	2	2	3	2	1	1	1	1	1	1	1	1	1	3	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	UO	1	1	2	
28-Dec	UO	1	1	UO	UO	UO	1	UO	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	
29-Dec	1	UO	UO	1	1	1	1	0	1	0	1	1	1	1	UO	1	1	UO	1	1	1	1	UO	UO	1	
30-Dec	1	1	1	1	1	1	1	1	2	2	3	3	2	3	3	2	2	2	2	2	2	2	2	1	3	
31-Dec	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	2	1	1	1	1	UO	UO	1	1	2	
Diurnal Maximum																										
3 3 3 3 3 3 3 2 3 3 3 4 4 4 3 3 3 3 4 3 4 4 3 4 3																										
UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Barge Landing - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Barge Landing - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	517	71.31	71.31
6 - 11	208	28.69	100.00
12 - 19	0	0.00	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: 725

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Barge Landing - December 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	38	20	12	14	30	51	75	67	52	32	20	20	15	18	21	32	517
6 - 11	36	22	0	0	0	1	7	39	47	5	21	4	6	7	9	4	208
12 - 19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	74	42	12	14	30	52	82	106	99	37	41	24	21	25	30	36	725

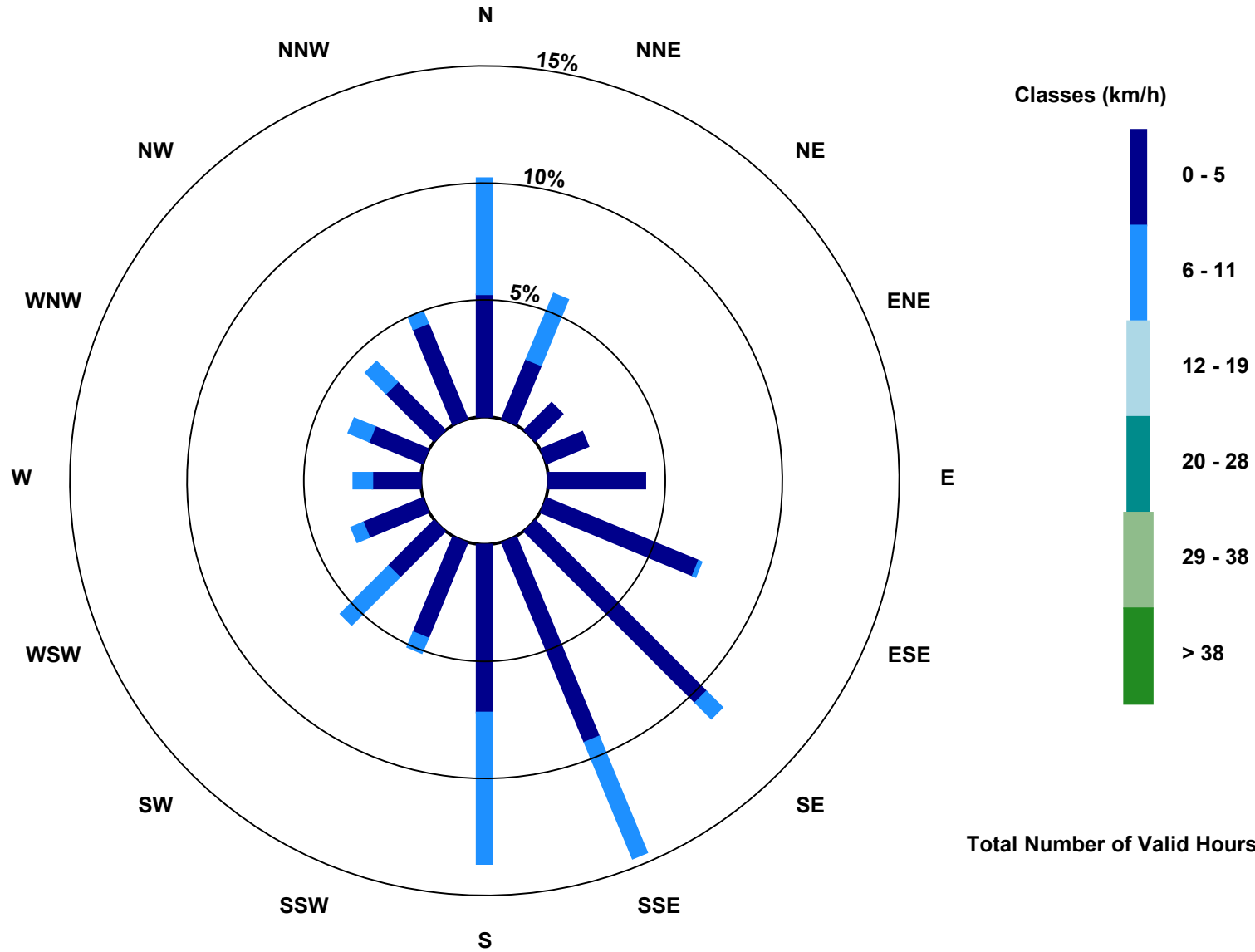
Total Number of Valid Hours: 725

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Barge Landing





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Barge Landing - December 2024

Direction of Maximum Speed: 158 deg on Dec 20 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 6.1 deg on Dec 15	Hours of Data: 725
Direction of Minimum Speed: 94 deg on Dec 19 18:00	Hours of Missing Data: 19
Direction of Minimum Daily Speed Average: 0.3 deg on Dec 1	Percent Operational Time: 97.5
Monthly Average Direction: 165.1 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-Dec	40	27	14	6	284	343	21	125	242	129	226	136	138	225	209	113	115	120	UO	140	24	351	325	326	44.3
2-Dec	342	344	332	335	336	331	333	330	330	331	318	304	288	304	316	16	335	359	5	348	195	176	244	197	324.3
3-Dec	203	289	342	4	17	353	345	348	346	11	337	324	320	315	314	308	295	309	333	316	338	38	79	242	332.4
4-Dec	180	313	253	165	198	230	200	193	137	145	176	163	164	169	184	185	186	181	177	175	180	170	172	177	176.6
5-Dec	186	191	169	194	129	126	133	123	125	153	138	134	173	163	185	235	95	171	154	155	126	172	169	195	160.6
6-Dec	156	170	181	177	173	163	162	165	178	170	217	214	216	223	221	225	236	232	216	180	215	198	205	220	198.7
7-Dec	222	164	216	218	200	206	220	223	199	193	213	191	153	178	215	157	77	115	39	356	359	20	42	15	203.8
8-Dec	350	8	352	14	14	5	9	18	27	5	2	23	19	32	55	86	85	102	107	138	176	130	120	136	28.1
9-Dec	151	121	118	119	116	98	135	121	14	12	28	26	7	359	18	16	6	3	4	352	360	2	352	340	23.9
10-Dec	0	317	77	189	UO	UO	259	157	152	125	136	112	114	169	151	178	110	112	116	109	115	126	129	124	122.8
11-Dec	124	135	124	128	131	117	130	132	104	117	110	101	109	138	135	327	97	124	142	122	147	128	163	173	128.1
12-Dec	199	157	173	169	182	167	185	158	157	142	146	150	129	147	161	158	156	166	160	156	167	165	169	173	161.4
13-Dec	172	176	180	171	171	168	196	172	165	180	308	223	201	184	163	148	136	348	337	344	345	6	9	23	174.5
14-Dec	24	20	21	9	7	18	17	10	9	10	14	20	2	5	23	26	11	358	352	352	357	349	352	350	9.2
15-Dec	358	0	353	354	357	355	359	358	360	2	358	356	4	4	9	17	10	11	30	17	13	15	52	63	6.1
16-Dec	83	94	94	83	88	74	40	303	304	300	285	259	263	288	280	258	273	274	268	253	228	241	257	255	270.6
17-Dec	254	273	257	262	276	269	245	232	264	234	228	207	154	146	155	140	129	114	110	147	124	137	154	133	194.8
18-Dec	136	115	132	145	232	151	130	168	199	273	UO	242	359	115	112	105	100	186	166	149	127	138	140	124	135.2
19-Dec	140	149	148	157	147	148	197	159	164	98	128	125	252	152	232	91	113	94	115	112	147	109	126	119	144.7
20-Dec	251	332	76	246	1	332	331	360	326	172	166	158	154	169	161	167	170	177	210	162	188	239	193	172	170.3
21-Dec	192	200	168	206	203	125	125	113	179	356	116	244	156	265	96	14	355	332	302	40	354	69	242	280	193.5
22-Dec	263	241	160	167	174	179	164	170	185	172	173	178	177	181	181	171	186	183	176	178	173	178	189	181	179.4
23-Dec	174	180	162	170	188	228	168	170	164	178	171	174	180	186	175	167	161	185	187	152	166	215	196	215	178.9
24-Dec	189	231	208	147	171	142	156	143	131	165	146	14	349	357	329	137	121	147	216	186	213	184	231	121	164.0
25-Dec	158	196	208	218	189	186	157	207	175	143	198	214	224	219	214	170	159	167	162	154	163	151	120	134	183.5
26-Dec	146	161	165	165	128	140	162	150	154	151	162	158	165	166	155	148	153	146	144	150	165	151	130	145	153.0
27-Dec	131	139	135	136	129	132	194	80	180	119	127	162	75	359	189	166	132	345	79	146	122	UO	93	91	127.4
28-Dec	UO	90	80	UO	UO	UO	336	UO	264	324	336	311	298	348	14	285	336	323	23	351	9	10	33	52	352.0
29-Dec	37	UO	UO	196	169	126	98	96	114	119	111	112	78	87	UO	44	86	UO	221	271	297	301	UO	UO	109.9
30-Dec	316	287	265	290	307	312	301	307	290	285	281	294	282	280	304	299	282	310	312	310	306	315	316	280	297.1
31-Dec	258	248	256	125	92	68	71	93	93	UO	224	242	353	354	79	55	92	78	114	122	UO	UO	57	31	87.8

169.8 174.7 163.6 173.6 150.2 136.4 158.8 142.9 145.9 141.7 171.1 184.8 190.6 200.7 192.6 164.7 150.0 168.0 151.7 153.8 164.4 151.7 164.2 168.4
 Diurnal Average

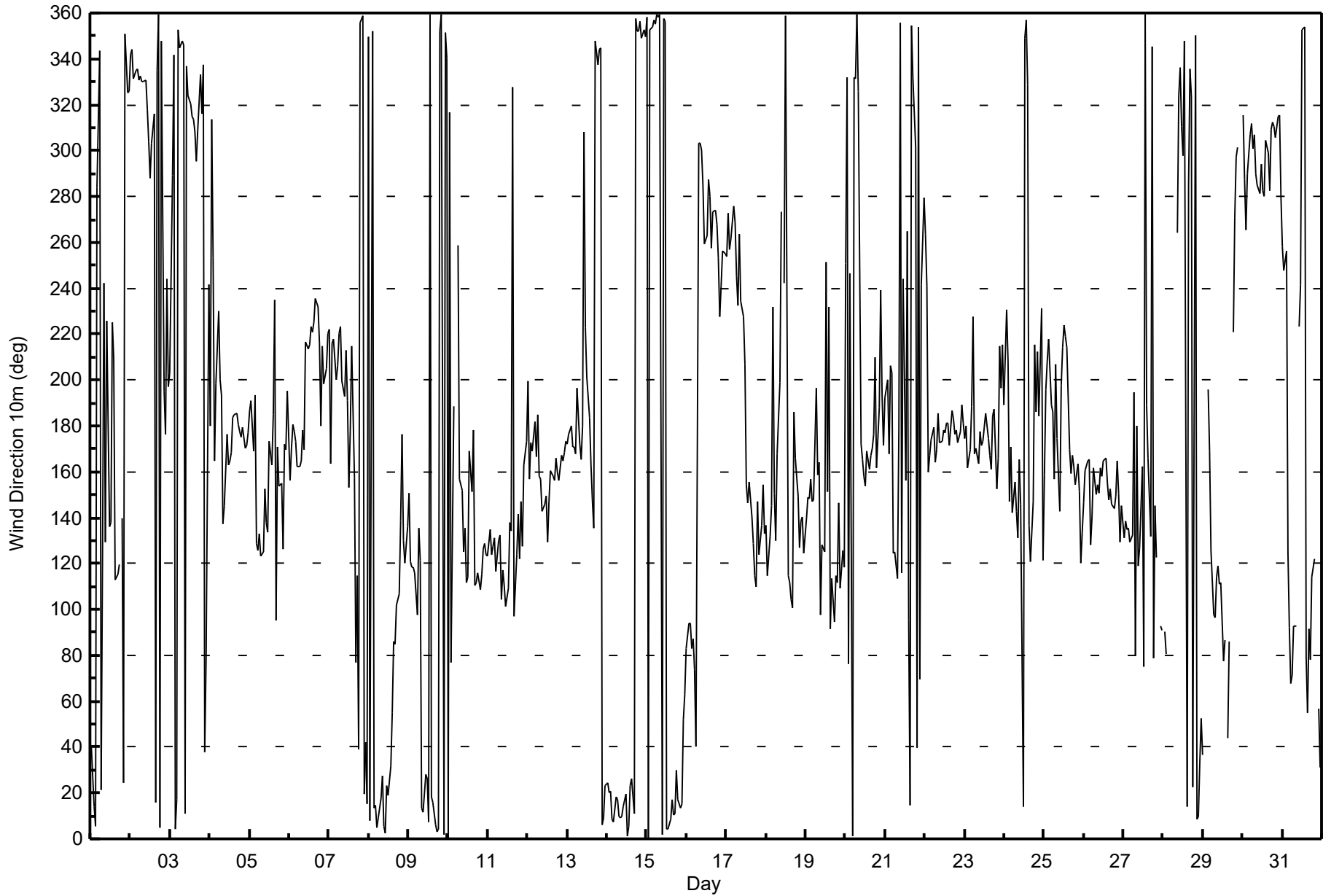
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Barge Landing - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Dec 27 15:00 Minimum Value: 8 deg on Dec 28 02:00 Percentiles: P ₁ = 11 P ₁₀ = 17 Q ₁ = 20 Median = 26 Q ₃ = 35 P ₉₀ = 59 P ₉₉ = 88		Hours in Service: 744 Hours of Data: 725 Hours of Missing Data: 19 Hours of Calibration: 0 Percent Operational Time: 97.5																																													
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-Dec	20	22	24	16	43	26	74	42	68	44	29	53	61	55	20	41	38	17	UO	75	54	35	28	27	75																						
2-Dec	21	18	24	18	19	20	18	23	23	22	30	36	63	34	33	24	63	72	72	30	73	36	19	61	73																						
3-Dec	48	45	21	23	26	22	20	19	19	22	22	21	23	24	23	31	42	29	17	17	26	46	32	63	63																						
4-Dec	51	50	85	73	41	31	33	35	22	29	33	33	31	29	30	28	29	31	27	29	30	29	26	28	85																						
5-Dec	25	28	48	27	24	14	20	33	18	31	15	14	35	45	47	31	67	42	36	26	67	28	27	34	67																						
6-Dec	24	27	29	31	27	27	26	30	28	32	30	25	60	21	23	21	16	18	33	26	20	30	31	18	60																						
7-Dec	28	33	20	18	23	24	18	18	42	30	29	27	21	46	29	25	35	44	50	23	15	21	23	35	50																						
8-Dec	19	21	20	17	19	20	22	20	19	23	23	20	20	21	24	22	16	19	14	24	24	21	15	14	24																						
9-Dec	18	20	49	19	27	25	76	20	50	30	20	20	22	20	19	21	19	23	32	15	17	18	19	16	76																						
10-Dec	32	25	30	86	UO	UO	36	77	69	20	76	32	61	58	63	55	30	10	10	15	13	13	19	14	86																						
11-Dec	14	19	30	17	19	18	22	15	18	14	20	26	22	24	25	77	35	16	14	13	13	16	22	18	77																						
12-Dec	27	18	27	34	29	29	30	27	30	25	22	24	23	28	27	25	22	25	24	23	27	26	26	25	34																						
13-Dec	26	28	26	25	26	23	23	21	24	64	69	33	35	25	27	13	82	29	19	13	14	17	28	17	82																						
14-Dec	17	17	18	19	17	18	19	18	19	20	20	20	22	22	19	19	19	20	22	21	19	22	20	24	24																						
15-Dec	19	16	17	19	24	22	22	23	19	21	21	20	18	20	19	19	19	21	20	22	23	25	23	25	25																						
16-Dec	22	18	15	16	20	38	28	33	27	29	36	30	31	31	31	21	30	29	34	23	21	23	20	18	38																						
17-Dec	19	30	22	21	41	16	18	51	50	22	23	36	57	27	23	17	18	14	10	40	26	25	25	12	57																						
18-Dec	21	13	20	22	69	66	28	38	79	37	UO	22	51	28	15	10	16	64	99	43	10	48	35	12	99																						
19-Dec	16	26	21	28	22	24	40	28	32	40	20	51	47	66	17	33	17	85	50	46	53	12	51	47	85																						
20-Dec	93	29	51	67	58	38	45	31	44	43	32	27	28	29	29	31	27	22	34	26	72	29	79	18	93																						
21-Dec	23	24	38	27	77	20	15	23	63	60	84	47	71	28	55	76	55	50	66	72	49	47	29	34	84																						
22-Dec	27	24	47	27	26	24	28	27	28	28	27	26	27	30	27	27	28	30	29	27	28	29	26	26	47																						
23-Dec	25	23	19	35	48	35	32	38	24	25	26	27	28	26	24	26	20	26	29	23	21	31	55	81	81																						
24-Dec	57	31	42	21	35	20	21	17	13	37	31	91	28	68	21	99	73	59	83	88	59	82	73	78	99																						
25-Dec	44	42	36	24	32	20	31	65	50	51	51	36	23	36	30	25	19	19	19	25	22	89	96	27	96																						
26-Dec	16	22	34	69	64	47	49	23	16	16	23	32	30	24	21	20	19	21	15	19	56	17	16	16	69																						
27-Dec	14	13	14	16	26	46	72	52	88	29	23	37	53	73	100	32	81	14	88	28	41	UO	10	13	100																						
28-Dec	UO	8	33	UO	UO	UO	16	UO	39	21	15	13	21	44	44	29	18	34	25	17	16	23	17	17	44																						
29-Dec	38	UO	UO	21	29	45	23	12	27	11	16	21	65	34	UO	15	34	UO	54	61	25	30	UO	UO	65																						
30-Dec	26	53	79	35	28	27	28	28	33	34	29	29	28	31	27	29	31	33	27	25	47	28	23	31	79																						
31-Dec	23	21	29	73	34	16	25	12	13	UO	75	20	73	55	29	23	17	26	24	17	UO	UO	18	45	75																						
Diurnal Maximum																								93	53	85	86	77	66	76	77	88	64	84	91	73	73	100	99	82	85	99	88	73	89	96	81
UO - Unstable Operation																																															





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Speed 20m (WS20) - km/h
Barge Landing - December 2024

Maximum Speed: 19 km/h on Dec 3 14:00	Maximum Daily Speed Average: 12.4 km/h on Dec 15	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 31 11:00	Minimum Daily Speed Average: 0.8 km/h on Dec 1	Hours of Data: 736
Maximum Diurnal Speed Average: 3.0 km/h at hour 1	Minimum Diurnal Speed Average: 1.7 km/h at hour 15	Hours of Missing Data: 8
Monthly Average Velocity: 2.1 km/h 176.2 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 7 Q ₃ = 11 P ₉₀ = 13 P ₉₉ = 17	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-Dec	NE8	NNE7	NNE9	N7	NW5	NW5	NNW3	ESE1	SW4	SSW3	SSW3	SE2	SE3	SSW3	SSW4	ESE2	ESE4	SE4	SSE2	SE1	ENE1	N2	NW3	NW3	NNE0.8	NNE9
2-Dec	NNW3	NNW5	NNW5	NNW7	NNW7	NNW6	NNW6	NNW5	NNW4	NNW4	NW3	WNW2	W1	NNW1	WNW1	E2	ESE2	S1	SE2	S1	S5	S5	SW5	SSW5	NW1.8	NNW7
3-Dec	SSW7	W4	NNW8	N10	NNE13	N14	NNW17	NNW13	NNW14	N11	NNW15	NW15	NW15	NW19	WNW15	WNW14	WNW10	WNW9	NW10	NW8	NNW7	N6	NE7	W2	NNW9.2	NW19
4-Dec	SW6	W3	W3	SW3	SSW5	SW3	SSW3	S4	SE4	SE6	S7	SSE9	SSE12	SSE13	S11	S11	S11	S12	S13	S18	S18	SSE17	SSE19	S14	S8.7	SSE19
5-Dec	S14	S16	S9	SSW11	SE8	SSE8	SE10	SE9	SE8	S7	SSE10	SE9	SSE7	SSE5	S3	SW5	SE4	SSE6	SSE10	SSE9	ESE5	S9	SSE8	S7	SSE7.6	S16
6-Dec	SSE10	S10	S10	S12	S11	SSE11	SSE11	SSE9	S11	S10	SW11	SW11	SW9	SW13	SW12	SW12	SW14	SW14	SSW13	S10	SSW13	SSW10	SSW9	SW11	SSW10.2	SW14
7-Dec	SW11	SSW7	SW11	SW13	SSW11	SSW13	SSW17	SW16	SSW11	SSW13	SSW12	S10	SSE7	S6	SSW6	S6	E5	SSW3	N3	NE10	N9	NNE13	NE9	NE7	SSW4.9	SSW17
8-Dec	N9	N8	N7	NNE10	NNE12	N12	N13	NNE14	NNE13	N13	N12	NNE12	NNE11	NNE8	NE5	E5	E4	E3	E6	SE6	S6	SSE5	SE5	SSE6	NNE6.0	NNE14
9-Dec	SSE8	SE6	SE6	ESE7	SE4	E5	ESE3	SE6	NNE4	N7	NNE10	NNE8	N9	N13	NNE17	NNE14	N15	N16	N8	N11	N11	N10	N7	NNW7	NNE6.1	NNE17
10-Dec	N7	NW7	NNW5	NNE2	SW4	NW4	W8	SW2	SW5	SSW4	SSW2	ESE3	ESE3	SE3	SSE3	ESE4	SE6	SE8	SE8	ESE6	ESE6	SE6	SE4	SE6	SE1.8	SE8
11-Dec	SE8	SE5	SE4	SE7	SE6	ESE6	SE7	SE8	ESE6	ESE8	ESE5	ESE4	ESE6	SE8	SE6	NW2	E4	SE11	SE9	SE6	SSE9	SE7	SSE9	S8	SE6.3	SE11
12-Dec	S7	SSE9	S9	SSE8	S8	SSE8	S5	SSE6	SSE8	SE7	SSE10	SSE9	SE6	SSE11	SSE14	SSE12	SSE11	SSE14	SSE13	SSE14	SSE15	SSE16	SSE17	SSE17	SSE10.5	SSE17
13-Dec	S15	S14	S13	SSE15	SSE15	SSE14	S9	S12	SSE12	S8	W3	S5	S10	S11	S8	SSE8	SSE5	NNW5	NNW9	NNW10	N8	N11	NNE9	NNE12	SSE4.6	SSE15
14-Dec	NNE14	NNE14	NNE14	N11	N11	NNE13	NNE13	N11	N12	N11	NNE14	NNE15	N9	N7	NNE12	NNE14	N9	N12	N9	N8	N11	NNW10	NNW11	N8	N11.0	NNE15
15-Dec	N9	N9	N12	N13	N11	N13	N14	N14	N13	N16	N16	N14	N14	N16	N17	NNE18	N16	N14	NNE16	NNE12	NNE10	NNE9	NE6	NE5	N12.4	NNE18
16-Dec	ENE6	E5	E4	ENE4	E5	ENE4	NE3	WNW7	WNW8	WNW7	W8	W8	W11	W11	W13	W13	W13	W12	W6	WSW7	WSW7	WSW7	W10	WSW10	W5.1	W13
17-Dec	WSW10	W11	WSW7	W8	W5	W7	WSW6	WSW6	W4	WSW6	SW5	SSW4	SSE3	SSE5	SSE6	SSE6	SSE8	SE7	SE8	S8	S6	S8	S10	SSE9	SSW4.5	W11
18-Dec	SSE8	SE8	SSE7	SSE7	S4	S3	S4	SSW3	SW2	NW3	UO	UO	UO	SE1	SE2	ESE4	E5	ESE3	UO	S3	S6	S6	S7	SSE8	SSE3.9	SSE8
19-Dec	SE10	SSE10	SSE12	SSE10	SSE10	SSE9	S4	SSE7	SSE5	SE3	SE5	SE4	WSW2	SSE2	SW4	ENE3	UO	UO	W1	SW1	S2	SE4	S4	SSE4	SSE4.7	SSE12
20-Dec	SE2	NW5	NNE4	WSW3	NW2	WNW2	NNW2	UO	SSW1	SSE11	SSE15	SSE19	SSE14	SSE12	SSE14	SSE12	SSE10	S7	SSW6	SSE5	S4	SSW5	S5	S9	S5.9	SSE19
21-Dec	S10	SSW9	SSW6	SSW8	S4	SSE6	SSE8	SSE6	S5	SSE3	SE1	SW2	SE3	W4	E2	N3	N4	NNW6	NW4	NNE1	NNE3	ENE5	SW3	W3	S1.9	S10
22-Dec	W3	SW3	SSE2	SSE6	S7	S10	SSE10	SSE12	S10	S11	S14	S14	S16	S15	S15	SSE15	S14	S14	S12	S12	S12	S13	S12	S12	S10.8	S16
23-Dec	S10	S8	SSE9	SSE8	S6	SW8	S9	S8	S9	S8	S10	S11	S11	SSE15	SSE13	S13	S14	S11	S9	S12	SW13	SW9	SW7	S9.4	SSE15	
24-Dec	SSW6	SW9	SW9	SSE10	S10	SSE11	SSE14	SSE13	SE11	SSE9	SSE11	ENE1	NNW6	N4	NNW10	NNW2	SE3	SSE11	SSW7	WSW4	SW7	SW5	WSW5	SSW5	S4.8	SSE14
25-Dec	SSW5	SSW6	S8	SW13	SW9	SSW11	S11	SW10	SSW6	SSE6	SSW7	SSW10	SW12	SW9	SW10	S10	SSE12	S14	S14	S11	S10	S5	SSW5	S6	SSW8.7	S14
26-Dec	SSE10	S11	S9	SW6	SW4	S7	SSE8	SSE9	SSE13	SSE13	SSE12	SSE8	S9	SSE13	SSE10	SSE10	SSE13	SSE11	SSE10	SSE11	SSE8	S9	S7	SSE9	SSE9.4	SSE13
27-Dec	SSE9	SSE12	SSE9	SSE8	SSE7	SSE8	S6	SE1	SSE4	SSE6	SSE8	S8	E3	N2	WNW1	SSE6	SSE3	NNW8	NNE3	SSE5	SSE4	E3	E5	E5	SSE3.9	SSE12
28-Dec	E4	ESE5	E4	E2	NNE2	N2	NNW5	NNE3	NW2	NNW4	NNW6	NW5	WNW4	N1	N2	WNW4	NNW5	NNW4	NNE8	N6	N7	NNE4	NE5	NE6	N2.9	NNE8
29-Dec	NE4	NE3	UO	S4	S4	SE4	E5	E6	SE5	SE5	ESE5	ESE3	ENE2	ENE2	NE2	NE5	NE6	ENE4	S1	W3	WNW6	WNW6	WNW4	NNW4	E1.3	E6
30-Dec	NW5	WNW3	WNW2	WNW6	WNW5	WNW5	WNW6	WNW7	WNW11	W11	W11	WNW12	WNW11	W11	WNW13	WNW10	W9	WNW11	WNW9	WNW12	WNW7	NW8	WNW11	W7	WNW8.4	WNW13
31-Dec	W5	WSW5	W4	NNE1	ENE3	ENE7	ENE6	E8	ENE7	ENE4	ESE0	SW3	NNW1	NW1	NE4	NE6	ENE7	ENE6	E5	ESE3	SSW1	NNE1	NE4	NE2	ENE2.2	E8

S3.0	S2.5	S2.1	S2.6	S1.9	SSE1.8	S1.7	SSE2.2	S1.8	S2.0	S1.8	S2.1	S1.8	SSW2.1	SSW1.7	SSE1.8	SSE2.2	S1.9	SSE2.0	S2.1	S2.3	S2.0	S2.3	S2.9	Diurnal Average
SSE15	S16	NNE14	SSE15	SSE15	SSE14	NNW17	SW16	NNW14	N16	N16	SSE19	S16	NW19	N17	NNE18	N16	N16	NNE16	S18	S18	SSE17	SSE19	SSE17	Diurnal Maximum

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

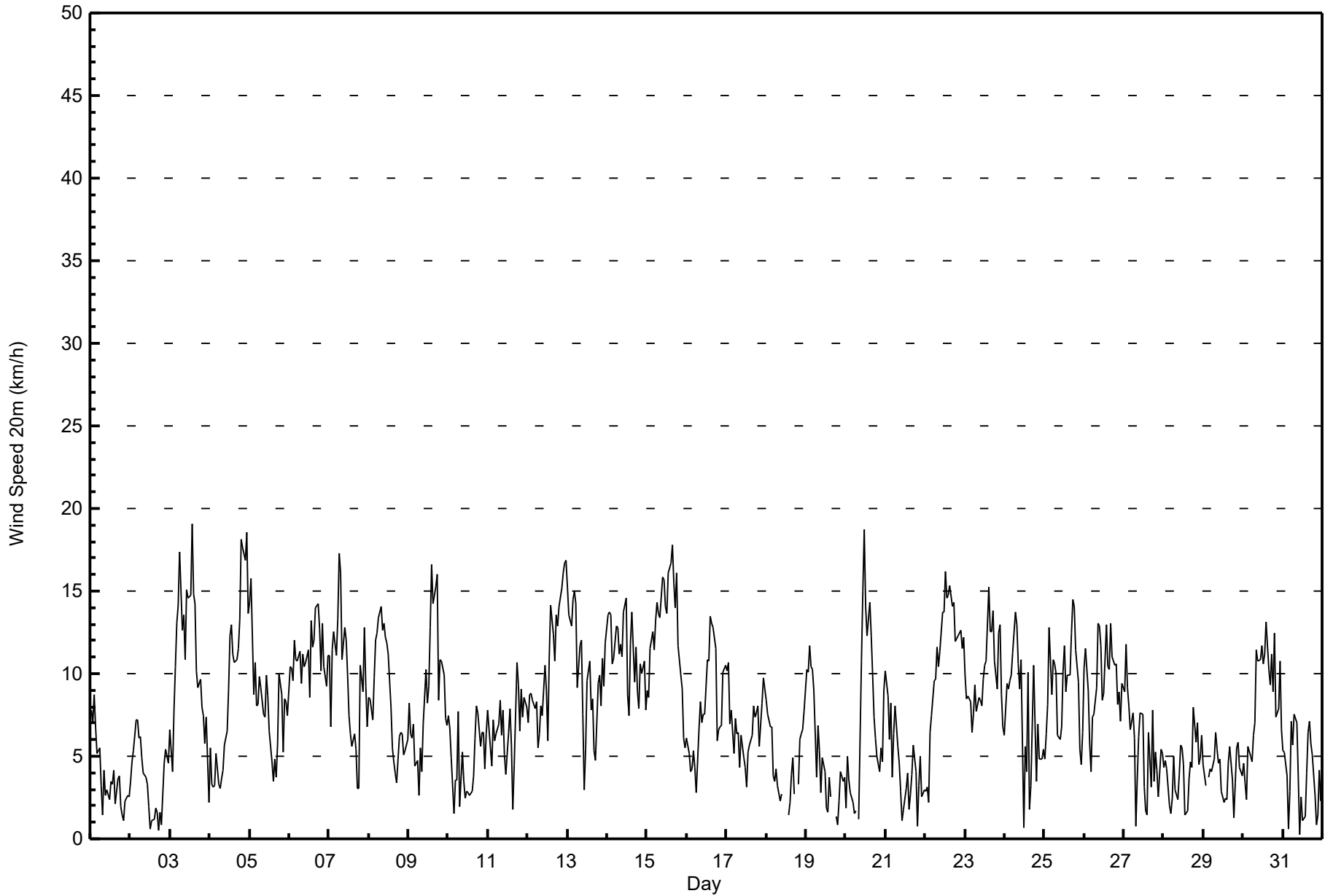
Wind Speed 20m (WS20) - km/h
Barge Landing - December 2024

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 20m (WS20) - km/h
Barge Landing - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h
Barge Landing - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	248	33.70	33.70
6 - 11	344	46.74	80.43
12 - 19	144	19.57	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: 736

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 20m (WS20) - km/h
Barge Landing - December 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	9	11	11	11	21	18	26	18	23	18	18	5	15	12	14	18	248
6 - 11	34	11	9	6	3	7	33	75	68	20	17	9	14	18	5	15	344
12 - 19	22	21	0	0	0	0	0	38	29	6	10	0	4	5	3	6	144
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	65	43	20	17	24	25	59	131	120	44	45	14	33	35	22	39	736

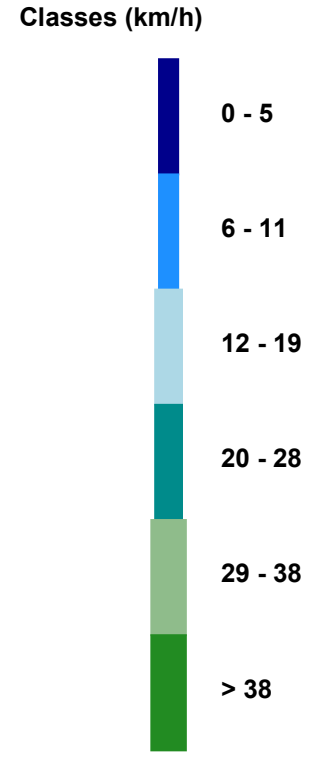
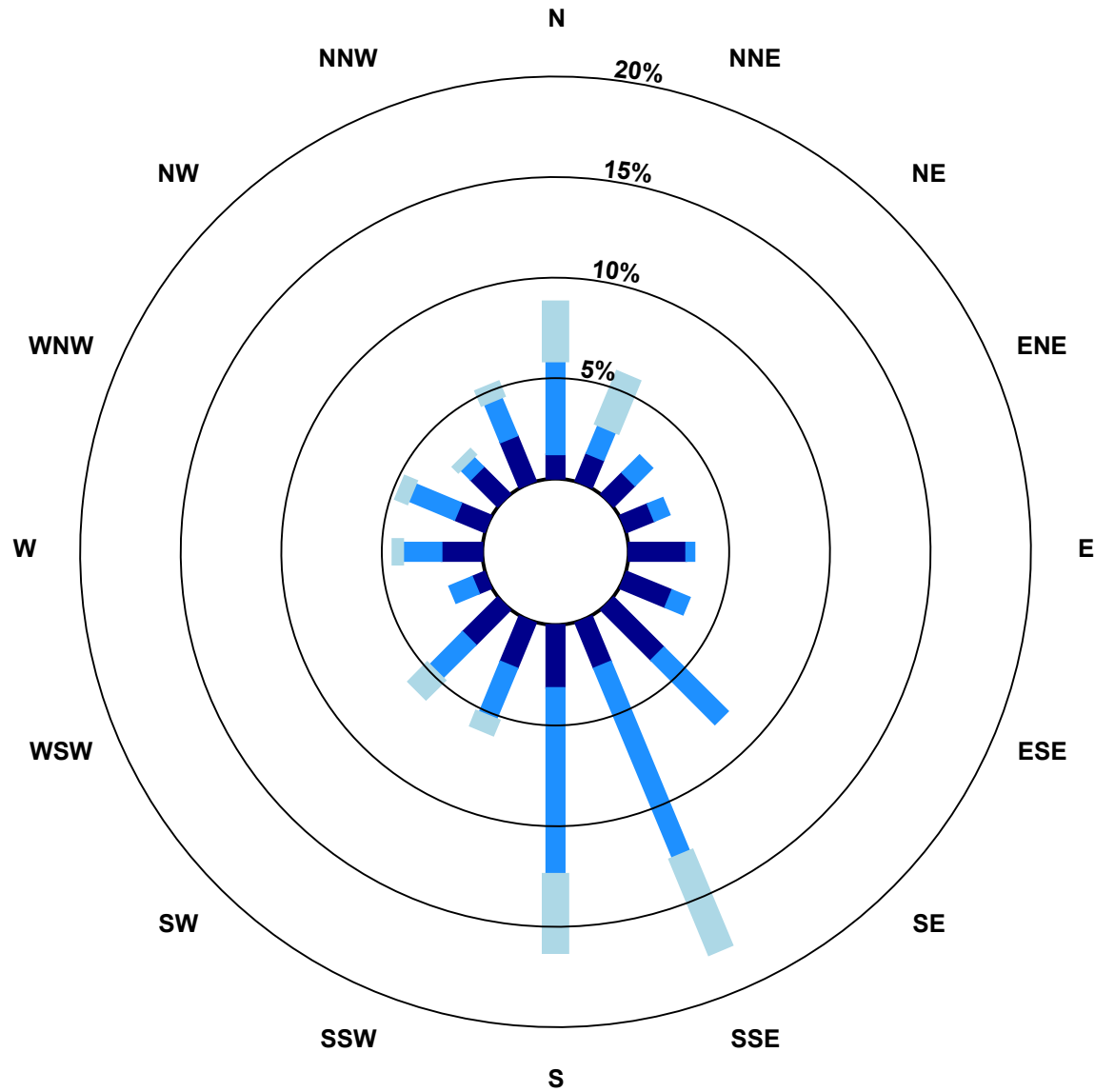
Total Number of Valid Hours: 736

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 20m (WS20) - km/h
Barge Landing



Total Number of Valid Hours: 736



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 20m (WD20) - deg
Barge Landing - December 2024

Direction of Maximum Speed: 305 deg on Dec 3 14:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 3.6 deg on Dec 15	Hours of Data: 736
Direction of Minimum Speed: 110 deg on Dec 31 11:00	Direction of Minimum Daily Speed Average: 0.8 deg on Dec 1
Direction of Minimum Speed: 110 deg on Dec 31 11:00	Hours of Missing Data: 8
Monthly Average Direction: 176.2 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-Dec	34	22	17	2	316	323	328	112	232	207	203	137	136	192	201	123	116	132	155	125	57	7	317	325	19.7
2-Dec	338	336	329	332	331	330	330	332	327	331	313	290	266	337	300	87	117	185	134	170	182	171	214	203	313.5
3-Dec	200	278	338	1	15	351	340	343	342	8	332	318	310	305	303	294	286	295	324	319	327	358	54	266	327.4
4-Dec	225	274	263	218	210	221	195	191	144	146	172	161	162	165	175	179	181	172	172	169	174	165	168	174	175.1
5-Dec	183	188	173	193	140	153	146	129	134	170	150	144	168	165	170	219	145	155	159	160	121	172	167	189	163.6
6-Dec	159	170	178	175	171	166	165	165	179	184	219	215	217	220	224	226	235	226	212	185	213	206	208	222	199.2
7-Dec	225	210	220	214	203	203	212	214	204	196	208	190	166	183	210	172	100	203	4	36	11	17	41	39	201.5
8-Dec	355	7	351	12	13	5	8	14	21	3	3	17	15	24	44	80	83	100	100	139	172	154	140	150	25.4
9-Dec	159	133	125	123	135	91	121	128	24	10	25	21	4	358	14	13	6	2	359	355	5	5	357	348	20.5
10-Dec	4	319	342	24	224	317	264	219	218	192	197	119	113	128	149	117	129	126	125	121	119	130	137	126	137.0
11-Dec	126	139	130	128	134	115	132	134	111	117	115	102	113	141	137	313	97	126	143	142	149	139	160	169	132.5
12-Dec	180	163	169	163	170	160	177	155	156	145	149	150	136	150	159	156	157	161	158	156	165	163	167	168	160.0
13-Dec	169	171	174	167	166	164	182	173	164	172	281	191	184	181	169	161	152	342	332	339	352	8	13	19	168.6
14-Dec	20	18	18	6	4	15	15	8	8	9	13	18	2	2	19	20	9	358	353	352	357	348	346	349	7.6
15-Dec	354	357	349	349	351	350	356	356	355	358	353	354	2	4	7	14	9	9	25	17	14	16	43	51	3.6
16-Dec	75	90	88	78	81	67	37	291	290	287	280	264	266	281	277	259	273	274	266	257	239	248	259	255	272.1
17-Dec	255	272	257	261	268	270	249	243	274	241	224	193	154	152	158	151	150	140	143	173	177	174	174	163	204.7
18-Dec	161	128	152	160	187	184	171	199	234	311	UO	UO	UO	141	125	115	100	118	UO	189	177	174	178	153	159.9
19-Dec	145	154	151	156	151	150	186	161	168	146	142	133	241	147	226	66	UO	UO	263	222	175	138	173	166	156.6
20-Dec	144	307	25	248	315	303	334	UO	210	161	162	155	154	164	159	165	167	177	203	167	187	212	187	175	169.9
21-Dec	188	195	196	205	181	162	148	147	170	162	132	234	141	262	90	3	3	337	317	26	18	62	231	271	183.3
22-Dec	260	233	162	167	177	179	165	166	182	171	169	173	171	175	175	168	181	180	173	172	170	173	185	178	175.0
23-Dec	175	180	167	168	182	217	176	176	172	178	173	173	175	179	168	165	170	187	191	183	183	222	218	225	182.4
24-Dec	201	233	214	168	191	159	164	152	139	163	150	74	347	8	324	346	139	156	204	248	220	217	241	197	182.4
25-Dec	195	197	191	221	215	196	185	214	209	163	204	212	221	219	215	183	168	173	171	171	176	181	196	181	193.5
26-Dec	165	172	184	214	231	173	168	163	162	160	165	164	169	165	160	155	160	157	157	159	167	171	169	167	166.6
27-Dec	152	152	151	152	152	148	186	125	148	168	154	175	92	5	297	167	166	339	12	151	156	85	83	88	146.9
28-Dec	96	103	98	80	30	1	343	14	317	332	334	304	293	353	8	287	341	342	21	350	9	21	40	52	5.7
29-Dec	42	46	UO	185	182	141	92	100	129	138	112	104	66	78	56	40	48	62	175	272	286	288	287	340	85.4
30-Dec	309	297	302	283	292	296	290	290	282	281	279	286	282	278	294	291	280	295	297	295	299	307	302	279	289.9
31-Dec	260	256	265	13	58	62	65	84	75	75	110	231	335	318	52	47	77	74	93	110	209	18	52	43	64.1

172.6 183.1 177.9 183.1 177.6 163.7 179.1 162.5 174.2 169.0 183.0 183.6 188.7 199.5 196.3 167.7 155.6 172.1 165.6 169.9 179.9 171.7 177.8 176.9
 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 20m (WD20) - deg
Barge Landing - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 94 deg on Dec 10 04:00	Hours of Data: 736
Minimum Value: 4 deg on Dec 28 02:00	Hours of Missing Data: 8
Percentiles: P ₁ = 7 P ₁₀ = 10 Q ₁ = 13 Median = 16 Q ₃ = 22 P ₉₀ = 43 P ₉₉ = 85	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-Dec	14	13	19	10	23	12	21	77	22	13	23	37	44	36	13	43	15	8	68	62	46	40	28	25	77
2-Dec	15	13	19	11	12	13	11	18	16	19	22	27	82	47	30	50	76	86	75	69	10	16	19	49	86
3-Dec	31	40	15	20	20	16	15	15	15	16	16	17	16	14	14	17	20	14	15	12	14	20	21	62	62
4-Dec	13	34	45	29	14	18	26	19	16	19	20	18	18	14	17	17	20	19	16	15	16	13	13	14	45
5-Dec	14	16	24	17	24	10	12	14	14	10	11	10	19	24	27	20	50	36	19	16	62	15	14	23	62
6-Dec	11	13	15	18	14	14	12	15	12	16	18	13	50	12	12	11	10	11	21	14	9	15	14	10	50
7-Dec	14	18	11	10	11	11	9	10	29	14	15	15	12	29	18	15	20	40	85	28	23	16	15	39	85
8-Dec	28	18	17	13	14	17	16	14	12	19	17	14	13	14	20	17	9	15	11	19	10	20	8	5	28
9-Dec	10	16	23	14	26	16	60	18	43	23	14	13	18	16	15	16	17	18	17	12	13	14	12	10	60
10-Dec	16	13	18	94	34	18	11	67	27	19	36	33	47	40	35	39	29	4	6	10	9	11	16	11	94
11-Dec	11	15	22	12	15	18	16	10	12	10	15	24	19	18	18	74	42	10	8	11	7	10	12	8	74
12-Dec	10	8	13	19	16	15	19	14	15	14	13	15	20	16	13	12	11	11	11	11	13	12	12	12	20
13-Dec	13	15	14	12	12	11	13	9	10	40	54	21	19	15	16	7	31	18	9	7	14	13	18	12	54
14-Dec	11	11	11	15	14	13	13	15	15	16	14	13	19	21	14	13	16	17	19	17	16	16	16	18	21
15-Dec	16	15	13	15	18	17	17	18	17	17	17	18	16	15	15	13	14	17	13	16	17	20	17	17	20
16-Dec	17	14	12	11	15	30	21	23	13	16	20	20	22	18	18	13	16	15	16	13	11	13	13	12	30
17-Dec	13	15	14	12	27	9	7	14	24	13	17	27	44	16	13	10	8	10	9	15	14	12	9	6	44
18-Dec	12	10	14	14	24	15	15	17	33	26	UO	UO	UO	56	21	8	13	27	UO	27	9	19	14	16	56
19-Dec	13	14	10	14	11	12	28	13	19	36	17	54	61	69	28	31	UO	UO	49	82	19	17	32	17	82
20-Dec	62	28	46	64	24	59	52	UO	68	13	16	14	13	15	14	17	14	15	18	17	23	16	19	8	68
21-Dec	13	11	17	18	21	7	15	10	30	60	88	57	50	25	67	62	41	43	43	64	32	25	64	25	88
22-Dec	19	22	39	16	14	13	17	13	16	16	13	13	13	16	15	13	18	17	15	13	14	15	15	14	39
23-Dec	13	12	9	22	26	22	17	23	14	12	49	14	15	16	11	11	10	13	11	10	12	20	39	45	49
24-Dec	46	21	24	19	27	14	11	10	9	25	23	91	18	57	14	89	91	38	37	57	19	22	20	23	91
25-Dec	24	20	18	13	12	12	15	23	37	40	36	23	16	25	19	17	9	9	11	11	9	70	34	16	70
26-Dec	12	11	13	24	20	28	22	9	7	7	11	17	16	11	11	9	9	11	9	9	27	7	10	8	28
27-Dec	11	8	9	10	17	19	21	85	39	13	19	15	64	69	77	14	70	10	58	23	24	18	6	11	85
28-Dec	9	4	5	21	14	15	10	24	18	13	13	10	13	48	44	24	12	23	19	13	12	18	12	8	48
29-Dec	23	30	UO	21	17	26	21	13	19	10	9	14	50	29	13	12	14	18	57	45	9	14	9	14	57
30-Dec	19	38	60	19	18	17	14	17	17	17	16	18	16	17	17	17	17	18	16	14	23	15	13	17	60
31-Dec	13	13	21	79	25	9	17	7	9	15	84	21	50	37	51	16	15	18	20	12	76	56	13	22	84
	62	40	60	94	34	59	60	85	68	60	88	91	82	69	77	89	91	86	85	82	76	70	64	62	

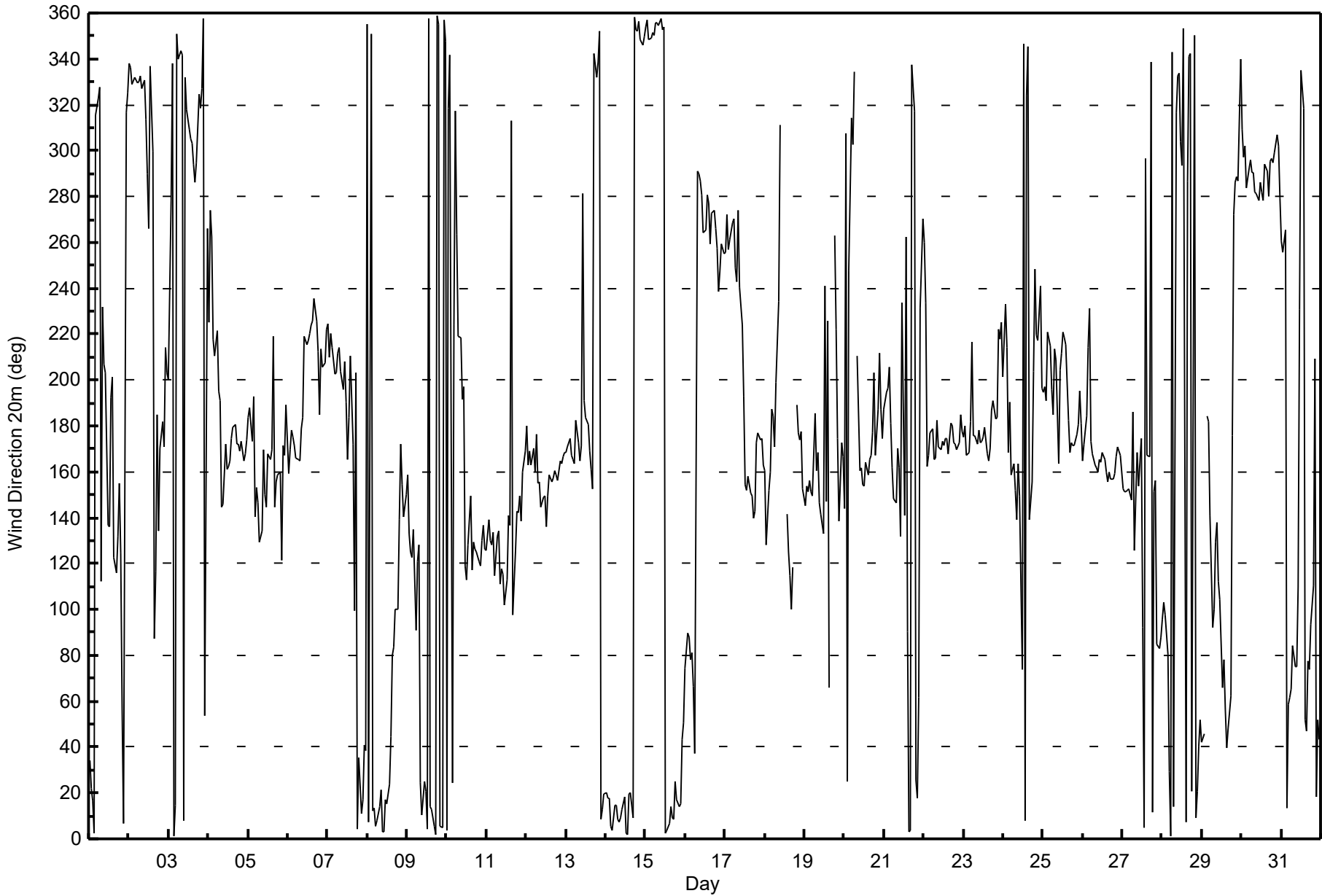
Diurnal Maximum

UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 20m (WD20) - deg
Barge Landing - December 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS11 LOWER CAMP DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)
DECEMBER 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	102.6	0	10.6	0
H2S (ppb) Average	708	36	36	100	13.6	1	1.6	0
THC (ppm) Average	709	35	35	100	3.7	-	2.6	-
CH4(ppm) Average	709	35	35	100	3.5	-	2.5	-
NMHC(ppm) Average	709	35	35	100	0.427	-	0.133	-
Temperature (C) Average	744	0	0	100	4.8	-	1	-
Relative Humidity (%) Average	744	0	0	100	98.2	-	92	-
Barometric Pressure (inHg) Average	744	0	0	100	29.9	-	29.8	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	29	-	18	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)
DECEMBER 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	1.81	6.3	-	0	0	0.1	0.3	0.8	3.4	102.6
H2S (ppb) Average	708	0.6	0.9	-	0	0.1	0.2	0.4	0.6	1.1	13.6
THC (ppm) Average	709	2.16	0.3	-	1.8	1.9	2	2.1	2.3	2.4	3.7
CH4(ppm) Average	709	2.11	0.2	-	1.8	1.9	2	2.1	2.2	2.4	3.5
NMHC(ppm) Average	709	0.041	0.047	-	0	0	0	0	0.1	0.1	0.427
Temperature 2 m (C) Average	744	-12.51	8.1	-	-33.5	-24.7	-18.2	-10.3	-7.1	-3.8	4.8
Relative Humidity (%) Average	744	83.25	7.3	-	63.2	73.9	77.5	83.6	89.4	92.6	98.2
Barometric Pressure (inHg) Average	744	29.16	0.4	-	28.5	28.7	28.8	29.1	29.5	29.7	29.9
Wind Speed 10 m (km/h) Average	741	8.3	6	-	0	2	3	8	12	16	29
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-

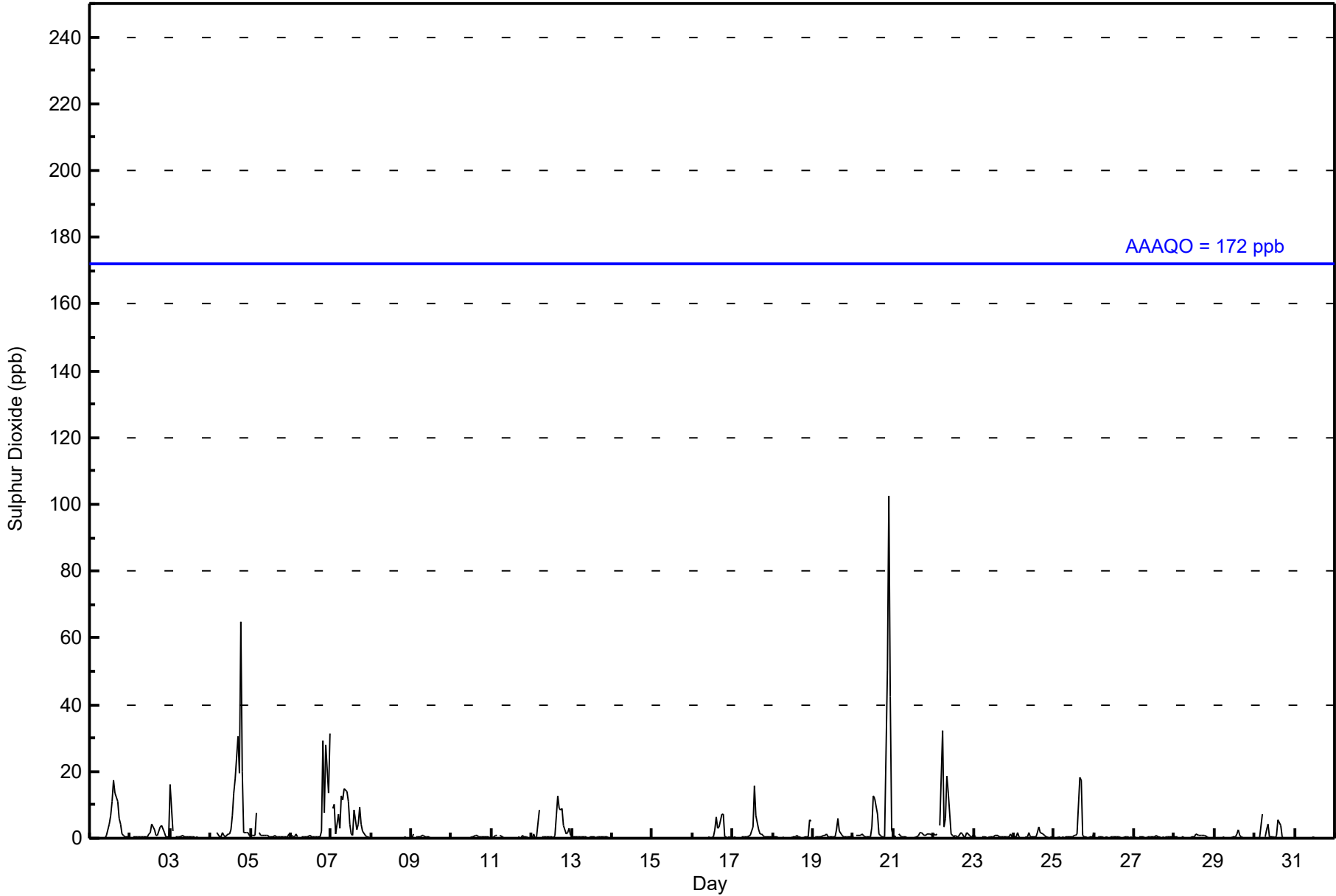
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - LOWER CAMP (AMS11)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	29 Dec 2024 10:00	29 Dec 2024 12:00	3	Flat line in sensor output signal - Sensor frozen



Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 102.6 ppb on Dec 20 22:00		Maximum Daily Average: 10.6 ppb on Dec 20																	Hours of Data: 709								
Minimum Value: 0.0 ppb on Dec 1 04:00		Minimum Daily Average: 0.0 ppb on Dec 15																	Hours of Missing Data: 35								
Maximum Diurnal Average: 4.6 ppb at hour 22		Minimum Diurnal Average: 0.7 ppb at hour 4																	Hours of Calibration: 35								
Monthly Average: 1.81 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.8 P ₉₀ = 3.4 P ₉₉ = 29.1																	Percent Operational Time: 100.0								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	Z	0.1	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.7	4.3	7.0	10.8	17.3	13.6	11.0	5.8	4.4	1.4	0.9	0.6	0.6	0.4	3.4	17.3	
2-Dec	0.5	Z	0.5	0.6	0.5	0.4	0.4	0.5	0.5	0.5	0.6	1.5	1.6	4.2	2.6	1.0	0.6	1.9	3.4	3.7	1.8	0.6	0.5	0.6	1.3	4.2	
3-Dec	16.1	2.2	Z	0.6	0.4	0.3	0.2	1.0	0.4	0.3	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	1.1	16.1	
4-Dec	0.0	0.1	0.0	Z	1.7	0.3	0.5	1.9	0.8	0.5	1.1	1.1	2.5	6.9	13.5	17.6	30.4	19.3	65.0	20.0	1.7	1.9	1.5	0.8	8.2	65.0	
5-Dec	0.8	0.6	0.8	7.5	Z	1.6	0.8	0.7	0.7	1.0	1.0	0.6	0.6	0.5	0.7	0.6	0.3	0.4	0.3	0.3	0.2	0.3	0.3	1.2	0.9	7.5	
6-Dec	1.1	0.4	0.3	1.3	0.6	Z	0.2	0.3	0.2	0.3	0.4	0.7	0.5	0.4	0.2	0.2	0.3	0.4	2.3	29.2	7.4	28.1	13.4	31.5	5.2	31.5	
7-Dec	Z	8.9	10.0	1.3	7.2	2.8	12.7	11.4	14.7	13.8	10.8	4.3	1.3	0.7	8.6	2.7	4.4	9.2	4.4	2.0	0.8	0.5	0.3	0.2	5.8	14.7	
8-Dec	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.1	0.2	
9-Dec	0.2	1.2	Z	0.3	0.6	0.5	0.7	0.7	0.5	0.4	0.3	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	0.3	1.2	
10-Dec	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.8	0.7	0.5	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.8	
11-Dec	0.2	0.3	0.7	0.8	Z	0.7	0.4	0.2	0.1	0.1	0.0	0.1	C	C	C	C	0.4	0.2	1.0	0.4	0.2	0.2	0.1	0.1	0.3	1.0	
12-Dec	0.1	1.4	0.2	0.3	8.6	Z	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.2	0.7	12.5	8.8	8.6	8.7	3.6	1.4	1.8	3.1	0.7	2.7	12.5	
13-Dec	Z	0.5	0.5	0.3	0.4	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.4	0.5	0.2	0.2	0.2	0.5	0.6	0.4	0.3	0.3	0.2	0.1	0.3	0.6	
14-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
15-Dec	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	
16-Dec	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.5	2.5	6.2	3.1	3.5	7.2	7.4	0.4	0.2	0.2	0.3	0.2	1.4	7.4	
17-Dec	0.2	0.2	0.2	0.2	Z	0.4	0.3	0.3	0.5	0.3	0.7	1.9	3.3	15.6	6.6	2.6	1.3	1.1	0.8	0.5	0.6	0.5	0.3	0.3	1.7	15.6	
18-Dec	0.4	0.3	0.3	0.1	0.2	Z	0.4	0.2	0.2	0.2	0.1	0.2	0.5	0.4	0.8	0.6	0.6	0.1	0.1	0.3	0.3	0.5	5.5	5.1	0.8	5.5	
19-Dec	Z	0.3	0.3	0.3	0.6	0.4	0.7	1.0	1.1	0.5	0.3	0.3	0.3	0.6	2.6	6.0	2.0	0.9	0.3	0.3	0.3	0.4	0.6	0.8	0.9	6.0	
20-Dec	0.6	Z	0.7	0.9	1.0	1.1	0.9	0.4	0.5	0.5	0.3	3.3	12.9	11.7	7.2	1.4	0.7	0.6	0.4	0.5	50.3	102.6	42.3	2.3	10.6	102.6	
21-Dec	0.9	0.4	Z	1.2	0.7	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.5	1.0	1.7	1.7	1.0	1.0	1.3	1.2	1.2	1.0	0.7	1.7	
22-Dec	1.1	1.0	1.1	Z	4.0	32.2	3.4	5.8	18.8	13.6	1.1	0.7	0.6	0.6	0.5	0.4	1.7	1.5	0.6	0.6	1.5	0.9	0.4	0.6	4.0	32.2	
23-Dec	1.4	0.4	0.2	0.2	Z	0.4	0.4	0.2	0.1	0.4	0.4	0.3	0.4	1.0	0.8	0.4	0.2	0.2	0.3	0.3	0.2	0.6	1.2	0.3	0.4	1.4	
24-Dec	0.2	0.4	1.8	0.6	0.2	Z	0.4	0.1	0.3	0.3	1.7	0.4	0.3	0.2	1.8	3.5	1.8	1.1	0.7	0.4	0.5	0.2	0.3	0.3	0.8	3.5	
25-Dec	Z	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.3	0.4	0.4	0.3	0.8	0.9	1.2	18.1	17.4	1.0	0.5	0.2	0.2	0.3	0.6	0.4	1.9	18.1	
26-Dec	1.6	Z	0.5	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.4	0.2	0.3	0.2	0.2	0.2	0.3	1.6	
27-Dec	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.8	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.4	0.3	0.8	
28-Dec	0.3	0.3	0.3	Z	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.4	1.1	0.8	0.7	0.6	0.9	0.7	0.3	0.1	0.1	0.1	0.1	0.4	1.1	
29-Dec	0.1	0.1	0.1	0.1	Z	0.3	0.1	0.1	0.1	0.0	0.2	0.2	0.4	1.3	2.4	0.8	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.3	2.4	
30-Dec	0.1	0.1	0.2	0.2	7.3	Z	0.5	2.7	4.4	0.4	0.5	0.5	0.2	0.7	5.6	3.6	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	1.2	7.3	
31-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	
		1.1	0.8	0.7	0.7	1.3	1.7	0.8	1.0	1.5	1.2	0.7	0.8	1.2	2.1	2.8	3.1	2.9	2.1	3.4	2.2	2.3	4.6	2.4	1.6	Diurnal Average	
		16.1	8.9	10.0	7.5	8.6	32.2	12.7	11.4	18.8	13.8	10.8	4.3	12.9	15.6	17.3	18.1	30.4	19.3	65.0	29.2	50.3	102.6	42.3	31.5	Diurnal Maximum	
Z - zerospan		C - Calibration																									
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr 172 ppb								24-hr 48 ppb																	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Lower Camp - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	677	95.49	95.49
11 - 20	23	3.24	98.73
21 - 60	7	0.99	99.72
61 - 110	2	0.28	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 - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	38	8	3	2	10	38	223	36	3	3	7	17	30	110	79	67	674
11 - 20	2	1	1	0	0	1	6	2	3	0	5	1	0	0	1	0	23
21 - 60	0	0	0	0	0	0	1	1	5	0	0	0	0	0	0	0	7
61 - 110	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	40	9	4	2	10	39	231	39	11	4	12	18	30	110	80	67	706

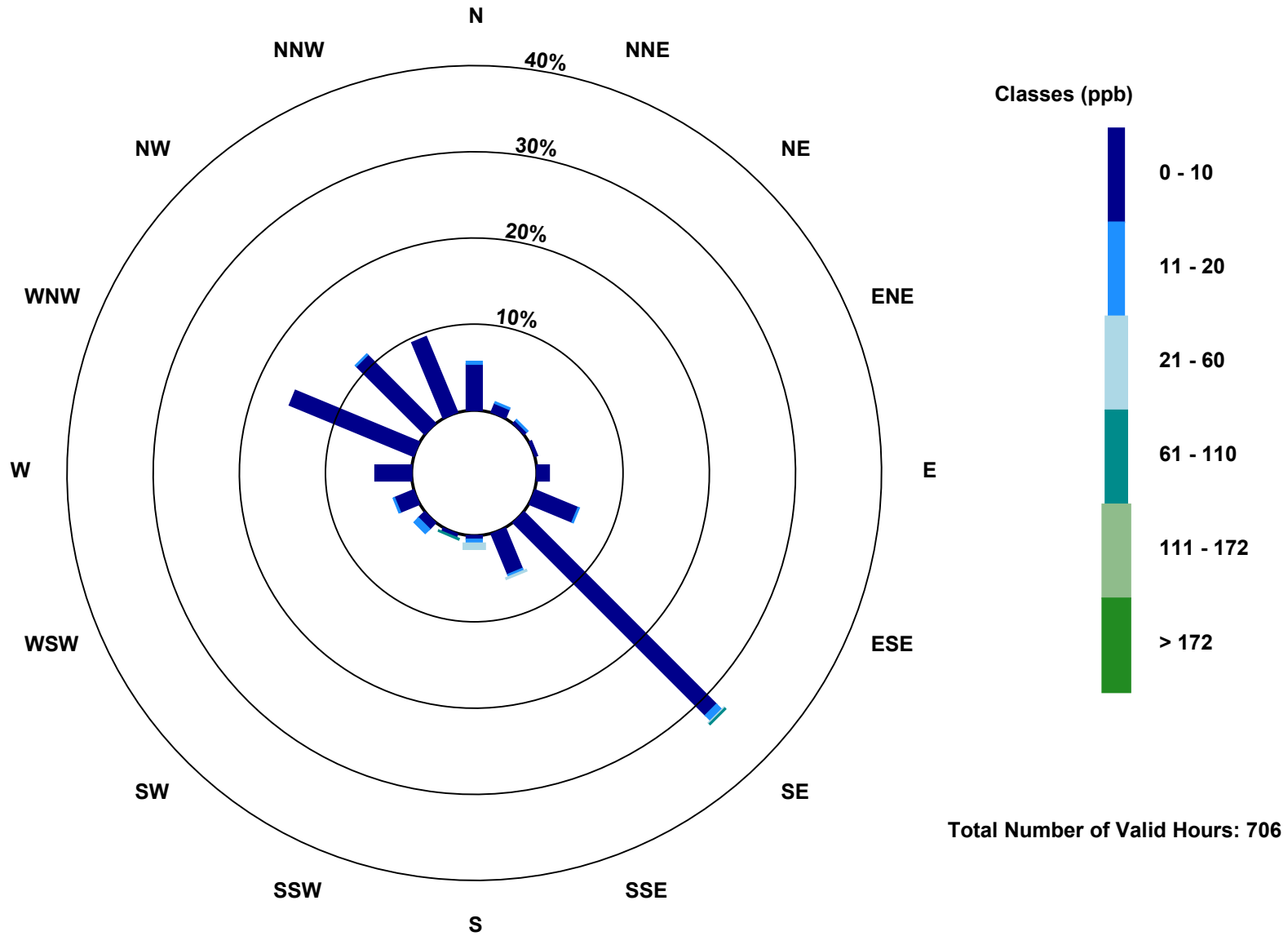
Total Number of Valid Hours: 706

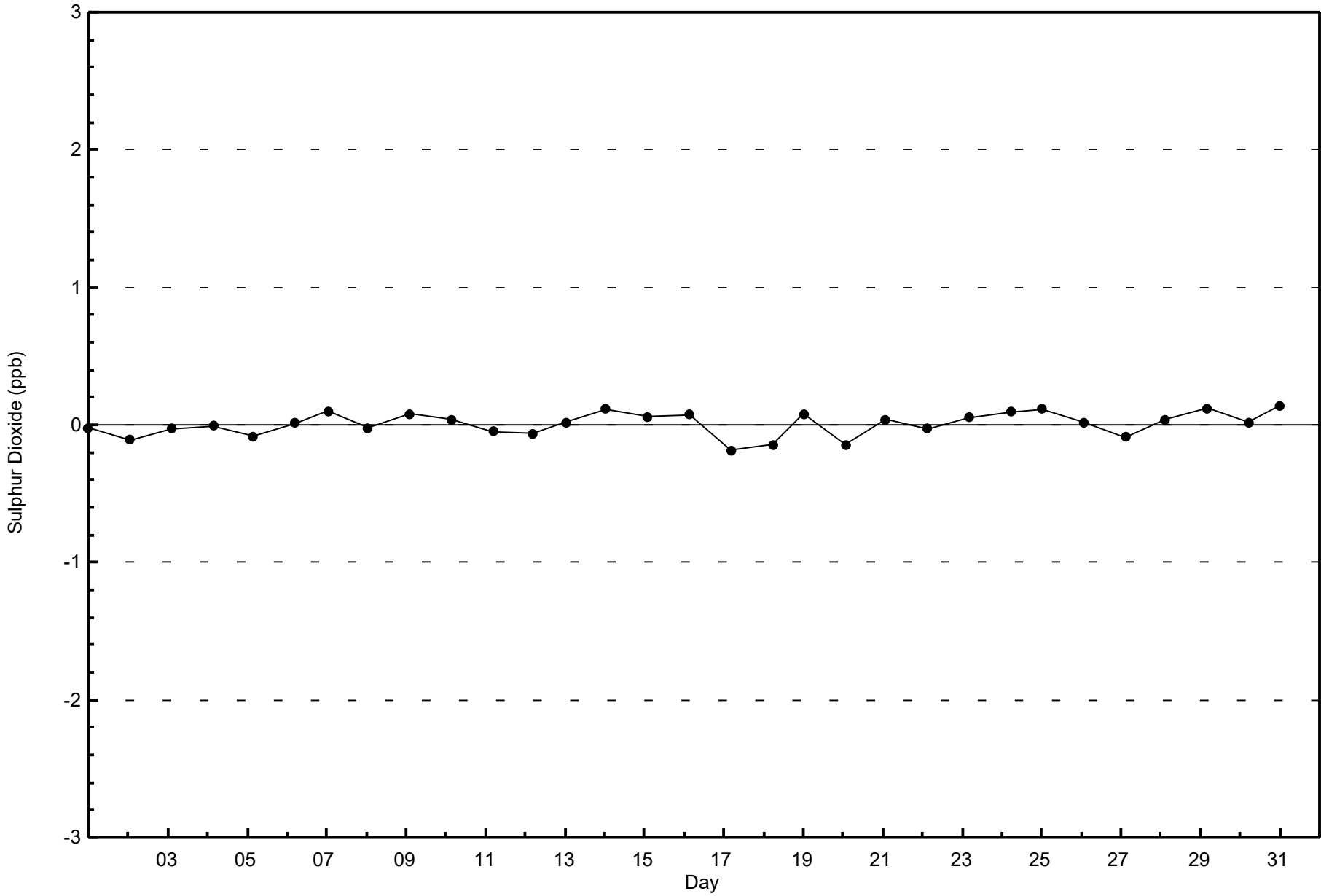
Total Number of Hours: 744

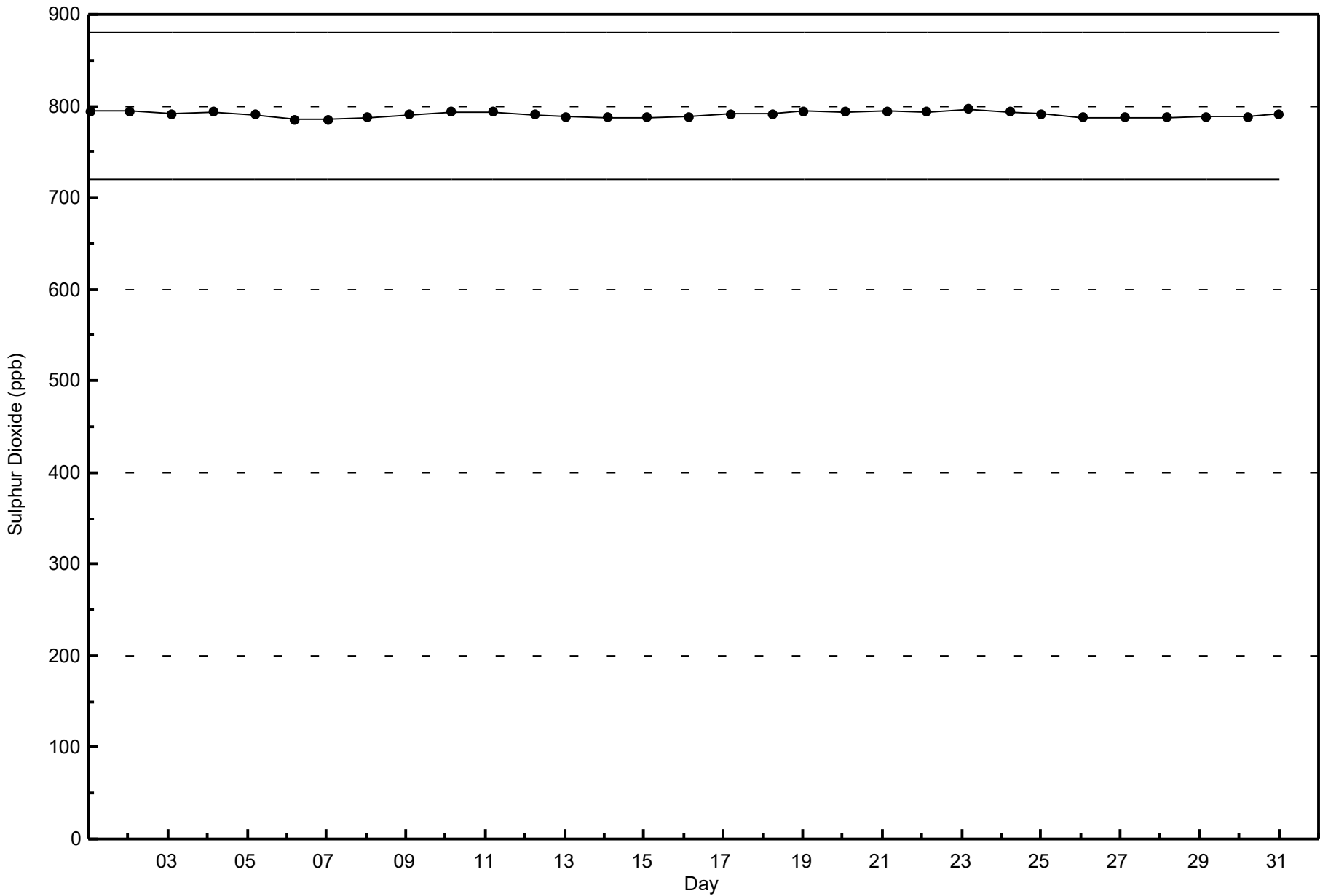


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Lower Camp

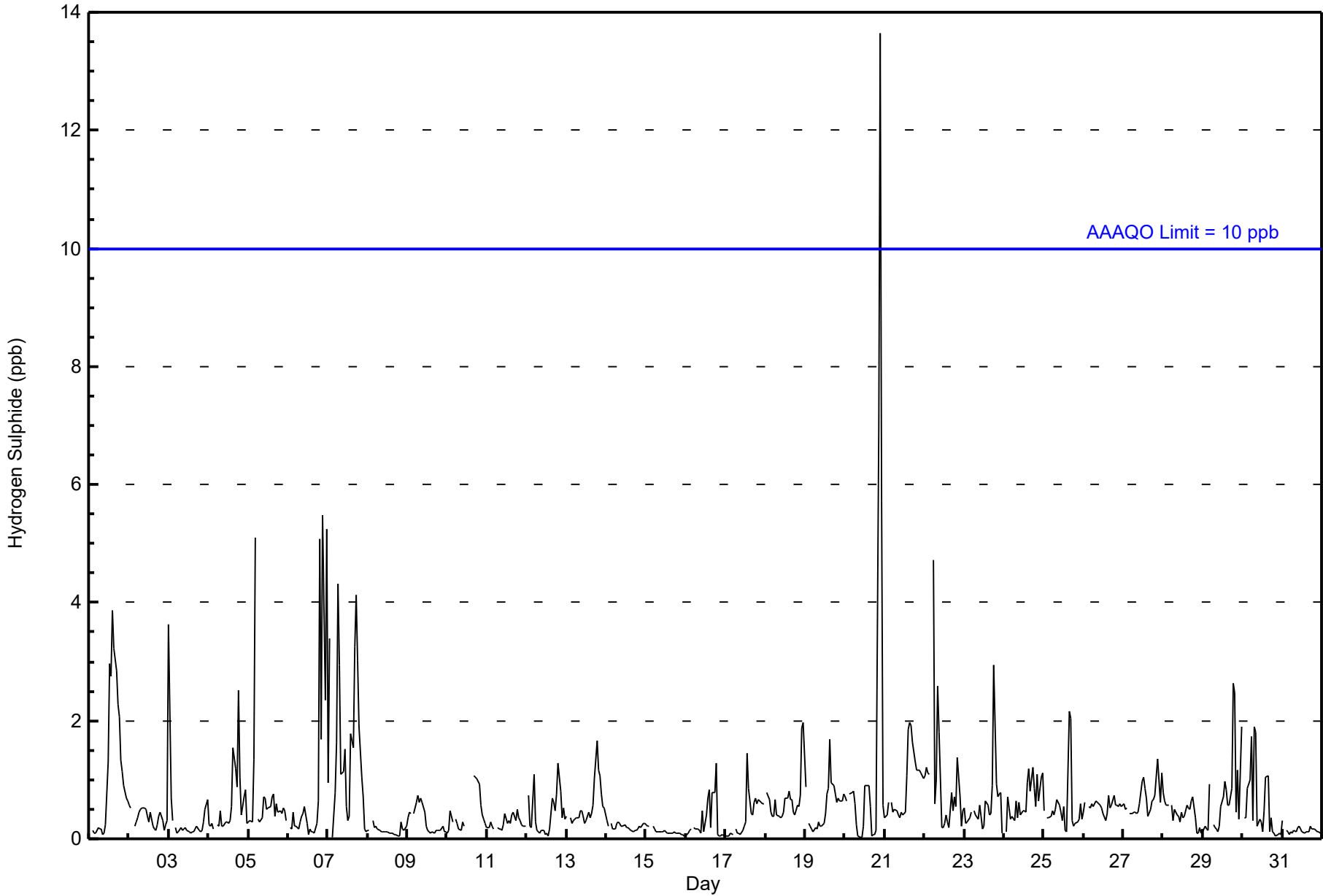








Number of Exceedences (AAAQO):		1-hr: 1	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 13.6 ppb on Dec 20 22:00		Maximum Daily Average: 1.6 ppb on Dec 7																	Hours of Data: 708																														
Minimum Value: 0.0 ppb on Dec 20 11:00		Minimum Daily Average: 0.1 ppb on Dec 15																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 1.1 ppb at hour 22		Minimum Diurnal Average: 0.4 ppb at hour 12																	Hours of Calibration: 36																														
Monthly Average: 0.60 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.4 Q ₃ = 0.6 P ₉₀ = 1.1 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-Dec	0.1	Z	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	1.3	3.0	2.8	3.9	3.2	2.8	2.3	2.1	1.3	1.1	0.9	0.7	0.6	1.2	3.9																							
2-Dec	0.6	0.5	Z	0.2	0.3	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.4	0.2	0.2	0.1	0.2	0.4	0.5	0.3	0.1	0.2	0.3	0.4	0.6																							
3-Dec	3.6	0.7	0.3	Z	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.3	0.5	0.7	0.4	3.6																							
4-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.5	0.2	0.2	0.3	0.3	0.3	0.3	0.5	1.5	1.2	0.9	2.5	1.0	0.4	0.7	0.8	0.3	0.6	2.5																							
5-Dec	0.3	0.3	0.3	1.4	5.1	Z	0.3	0.3	0.3	0.7	0.7	0.5	0.5	0.5	0.7	0.8	0.4	0.6	0.5	0.5	0.4	0.5	0.5	0.3	0.7	5.1																							
6-Dec	Z	0.2	0.2	0.5	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.3	0.1	0.2	0.1	0.1	0.1	0.3	0.6	5.1	1.7	5.5	2.4	5.2	1.1	5.5																							
7-Dec	1.0	3.4	Z	0.0	0.8	1.6	4.3	2.9	1.1	1.1	1.5	0.5	0.3	0.4	1.8	1.6	3.3	4.1	3.0	1.9	1.0	0.7	0.2	0.1	1.6	4.3																							
8-Dec	0.1	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.1	0.3																							
9-Dec	0.3	0.5	0.4	Z	0.4	0.6	0.7	0.6	0.7	0.6	0.5	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.7																							
10-Dec	0.1	0.1	0.5	0.3	Z	0.3	0.3	0.2	0.1	0.3	0.2	C	C	C	C	C	1.1	1.1	1.0	0.9	0.6	0.4	0.3	0.3	0.4	1.1																							
11-Dec	0.2	0.2	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.2	0.4	0.3	0.3	0.3	0.4	0.5	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.3	0.5																							
12-Dec	Z	0.7	0.2	0.2	1.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.7	0.6	0.5	0.8	1.3	0.8	0.4	0.5	0.3	0.4	1.3																							
13-Dec	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.3	0.4	0.4	0.4	0.6	1.0	1.7	1.2	1.1	0.8	0.6	0.5	0.6	1.7																							
14-Dec	0.3	0.2	Z	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.3																							
15-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
16-Dec	0.1	0.1	0.1	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.5	0.1	0.4	0.7	0.8	0.2	0.8	0.8	1.3	0.1	0.1	0.1	0.1	0.1	0.3	1.3																							
17-Dec	0.1	0.0	0.0	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.3	1.4	0.9	0.4	0.4	0.6	0.7	0.6	0.7	0.6	0.6	0.6	0.4	1.4																							
18-Dec	Z	0.8	0.7	0.5	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.4	0.7	0.7	0.8	0.7	0.7	0.4	0.4	0.6	0.5	0.7	1.9	2.0	0.7	2.0																							
19-Dec	0.9	Z	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.7	0.9	1.7	0.9	0.9	0.8	0.6	0.7	0.6	0.7	0.8	0.5	1.7																							
20-Dec	0.7	0.6	Z	0.8	0.8	0.8	0.6	0.2	0.1	0.0	0.0	0.2	0.9	0.9	0.9	0.5	0.0	0.1	0.1	0.2	7.0	13.6	5.7	0.6	1.5	13.6																							
21-Dec	0.4	0.4	0.6	Z	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.5	1.1	1.9	2.0	1.9	1.6	1.3	1.2	1.2	1.2	1.1	1.0	0.9	2.0																							
22-Dec	1.1	1.2	1.1	1.1	Z	4.7	0.6	1.0	2.6	1.8	0.2	0.2	0.3	0.4	0.3	0.2	0.8	0.5	0.7	0.6	1.4	0.7	0.2	0.5	1.0	4.7																							
23-Dec	0.5	0.3	0.3	0.3	0.4	Z	0.5	0.4	0.3	0.6	0.4	0.2	0.2	0.6	0.6	0.4	0.4	0.9	2.9	0.9	0.7	0.8	0.8	0.1	0.6	2.9																							
24-Dec	Z	0.1	0.7	0.5	0.3	0.4	0.3	0.6	0.4	0.6	0.4	0.5	0.5	0.5	1.0	1.2	0.8	1.2	0.9	0.5	1.1	0.6	1.0	1.1	0.7	1.2																							
25-Dec	0.5	Z	0.3	0.4	0.4	0.5	0.4	0.5	0.7	0.6	0.5	0.3	0.5	0.1	0.1	2.2	2.0	0.3	0.2	0.3	0.3	0.3	0.6	0.3	0.5	2.2																							
26-Dec	0.5	0.6	Z	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.4	0.7	0.5	0.6	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7																							
27-Dec	0.6	0.5	0.5	Z	0.4	0.4	0.5	0.5	0.4	0.5	0.6	1.0	1.0	0.8	0.7	0.4	0.5	0.6	0.7	0.7	1.0	1.3	0.6	1.1	0.7	1.3																							
28-Dec	0.8	0.6	0.6	0.6	Z	0.6	0.3	0.5	0.4	0.4	0.3	0.5	0.4	0.4	0.6	0.5	0.5	0.6	0.7	0.4	0.1	0.1	0.2	0.1	0.4	0.8																							
29-Dec	0.1	0.2	0.2	0.1	0.9	Z	0.2	0.2	0.2	0.1	0.2	0.5	0.7	1.0	0.8	0.6	0.6	0.8	2.6	2.5	0.5	1.2	0.3	1.9	0.7	2.6																							
30-Dec	Z	0.3	0.3	0.9	1.0	1.7	0.3	1.9	1.8	0.2	0.3	0.3	0.1	0.5	1.0	1.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.6	1.9																							
31-Dec	0.3	Z	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	0.2	0.2	0.1	0.1	0.1	0.1	0.3																							
																								0.5	0.5	0.4	0.4	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.7	0.7	0.7	0.9	0.8	0.8	1.1	0.7	0.7	Diurnal Average	
																								3.6	3.4	1.1	1.4	5.1	4.7	4.3	2.9	2.6	1.8	1.5	1.3	3.0	2.8	3.9	3.2	3.3	4.1	3.0	5.1	7.0	13.6	5.7	5.2	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Lower Camp - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	684	96.61	96.61
3 - 4	16	2.26	98.87
5 - 7	7	0.99	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
Lower Camp - December 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	40	8	2	2	9	40	230	36	5	2	10	19	27	109	78	64	681
3 - 4	2	1	1	0	0	0	2	0	1	2	1	1	1	2	2	0	16
5 - 7	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	7
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	1	0	0	0	0	0	0	1
Totals	42	9	3	2	9	40	232	37	12	5	11	20	28	111	80	64	705

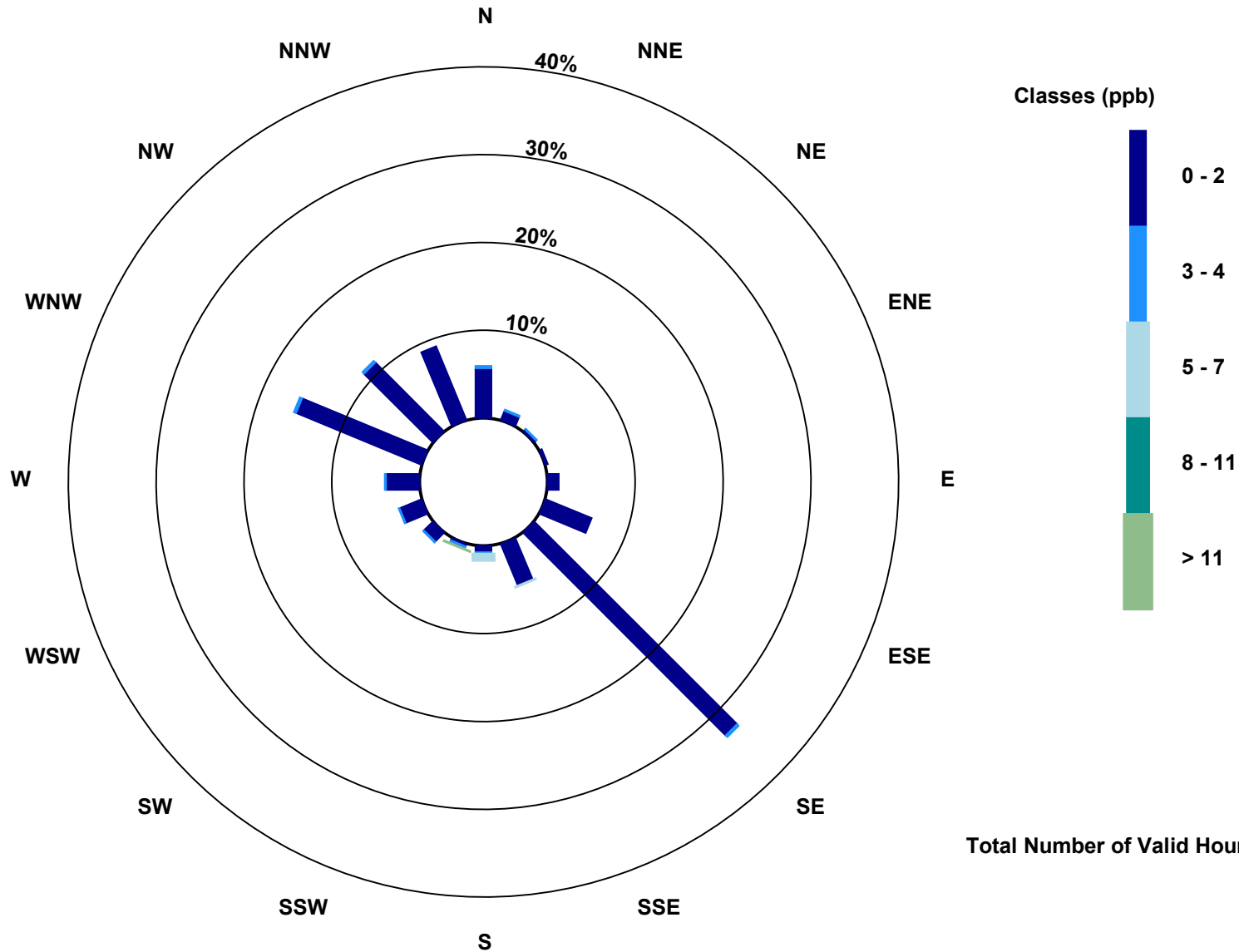
Total Number of Valid Hours: 705

Total Number of Hours: 744

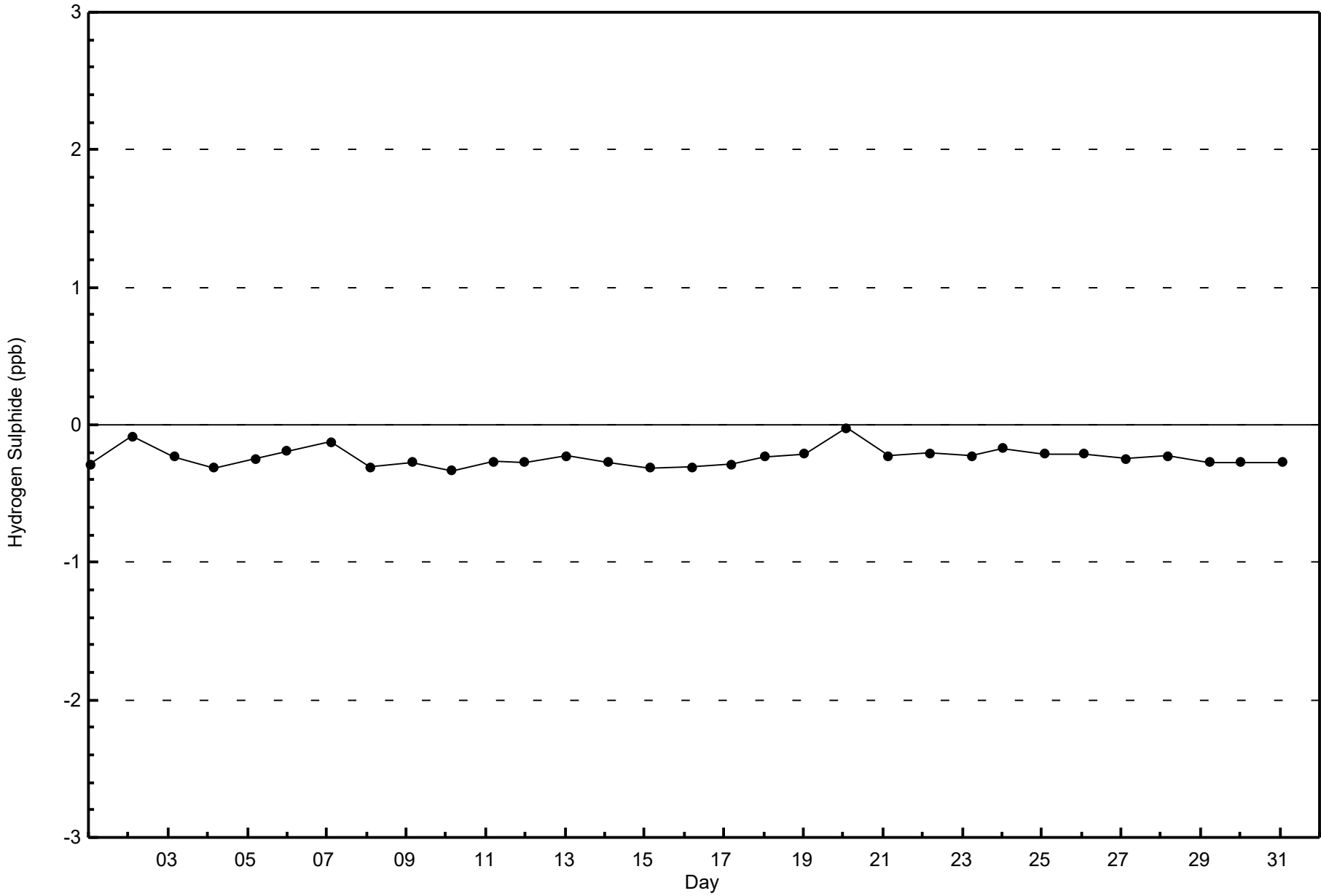


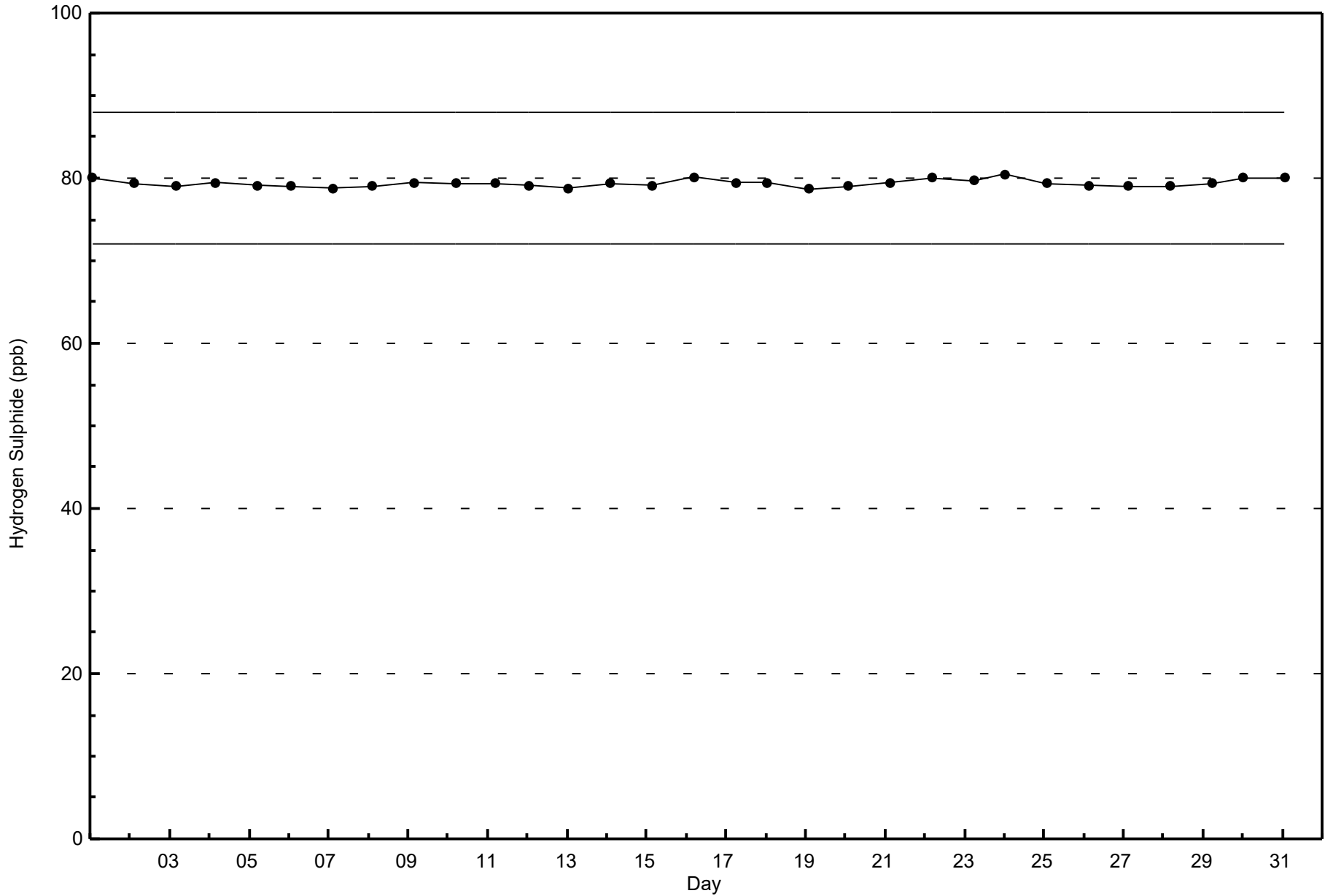
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Lower Camp



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association
Summary of Hour Averages

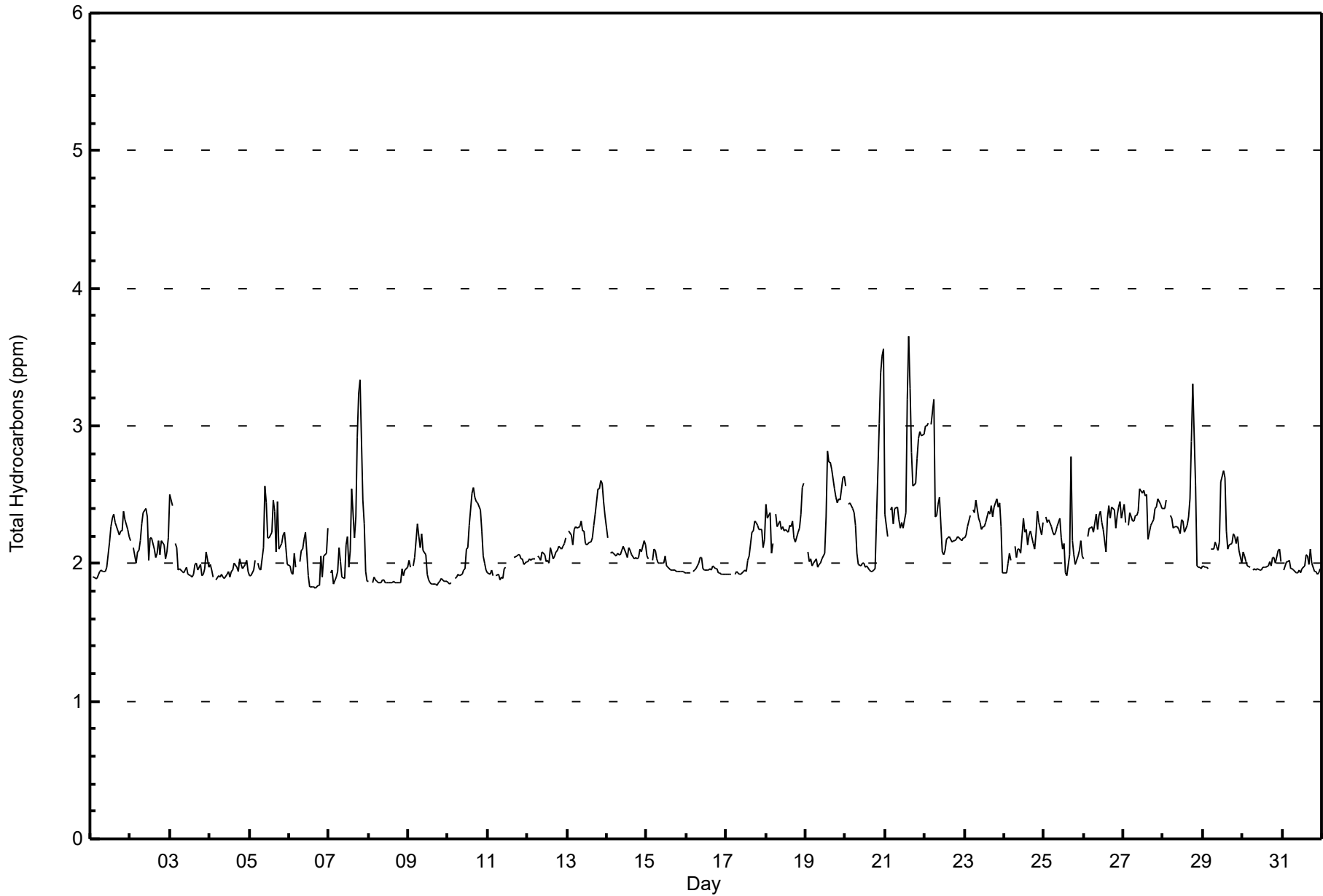
Total Hydrocarbons (THC) - ppm
Lower Camp - December 2024

Maximum Value: 3.7 ppm on Dec 21 15:00		Maximum Daily Average: 2.6 ppm on Dec 21		Hours in Service: 744																																												
Minimum Value: 1.8 ppm on Dec 6 17:00		Minimum Daily Average: 1.9 ppm on Dec 8		Hours of Data: 709																																												
Maximum Diurnal Average: 2.2 ppm at hour 20		Minimum Diurnal Average: 2.1 ppm at hour 4		Hours of Missing Data: 35																																												
Monthly Average: 2.16 ppm		Percentiles: P ₁ = 1.8 P ₁₀ = 1.9 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.3 P ₉₀ = 2.4 P ₉₉ = 3.2		Hours of Calibration: 35																																												
				Percent Operational Time: 100.0																																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	Z	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	1.9	2.0	2.2	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.4	2.3	2.2	2.2	2.1	2.4																						
2-Dec	2.2	Z	2.1	2.0	2.1	2.1	2.2	2.3	2.4	2.4	2.3	2.0	2.2	2.2	2.1	2.0	2.1	2.2	2.1	2.2	2.1	2.0	2.1	2.2	2.2	2.4																						
3-Dec	2.5	2.4	Z	2.1	2.1	1.9	2.0	1.9	1.9	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0	1.9	2.0	2.1	2.0	2.0	2.5																							
4-Dec	2.0	2.0	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0																							
5-Dec	1.9	1.9	2.0	2.0	Z	2.0	2.0	2.0	2.1	2.6	2.4	2.2	2.2	2.2	2.5	2.4	2.1	2.5	2.1	2.1	2.2	2.2	2.1	2.0	2.6																							
6-Dec	2.0	1.9	1.9	2.1	2.0	Z	2.0	2.1	2.1	2.2	2.2	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	1.9	2.1	2.1	2.3	2.3																							
7-Dec	Z	1.9	2.0	1.9	1.9	1.9	2.1	2.0	1.9	1.9	2.1	2.2	2.0	2.1	2.5	2.2	2.3	2.9	3.2	3.3	2.5	2.3	1.9	1.9	3.3																							
8-Dec	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	1.9	2.0	1.9	2.0																							
9-Dec	2.0	2.0	Z	2.0	2.0	2.3	2.2	2.1	2.2	2.1	2.1	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.3																							
10-Dec	1.9	1.8	1.9	Z	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.1	2.1	2.3	2.5	2.6	2.5	2.5	2.4	2.4	2.2	2.1	2.0	2.0	2.6																							
11-Dec	1.9	1.9	1.9	1.9	Z	1.9	1.9	1.9	1.9	1.9	2.0	2.0	C	C	C	C	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1																							
12-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.1	2.0	2.0	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	2.1	2.2																							
13-Dec	Z	2.2	2.2	2.1	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.6	2.6	2.5	2.3	2.6																							
14-Dec	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2																							
15-Dec	2.1	2.0	Z	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	2.1																							
16-Dec	1.9	1.9	1.9	Z	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	2.0																							
17-Dec	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	2.0	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.1	2.2	2.3																							
18-Dec	2.4	2.3	2.4	2.1	2.1	Z	2.4	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.6	2.6	2.6																							
19-Dec	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3	2.8	2.7	2.7	2.7	2.5	2.5	2.4	2.5	2.5	2.6	2.6	2.8																							
20-Dec	2.6	Z	2.4	2.4	2.4	2.4	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	2.0	2.3	3.0	3.4	3.5	3.6	3.6																							
21-Dec	2.4	2.2	Z	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.4	3.2	3.7	3.3	2.8	2.6	2.6	2.8	2.9	3.0	2.9	2.9	3.7																							
22-Dec	3.0	3.0	3.0	Z	3.0	3.2	2.3	2.4	2.4	2.5	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.2																							
23-Dec	2.2	2.2	2.3	2.4	Z	2.4	2.4	2.5	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.3	1.9	2.5																							
24-Dec	1.9	1.9	2.0	2.1	2.0	Z	2.1	2.0	2.1	2.1	2.1	2.3	2.2	2.3	2.1	2.2	2.2	2.2	2.1	2.2	2.4	2.3	2.2	2.3	2.4																							
25-Dec	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.1	2.1	1.9	1.9	2.1	2.8	2.2	2.1	2.0	2.1	2.1	2.2	2.0	2.8																							
26-Dec	2.0	Z	2.2	2.3	2.3	2.3	2.2	2.4	2.2	2.3	2.4	2.3	2.2	2.1	2.3	2.4	2.3	2.4	2.4	2.3	2.3	2.4	2.5	2.3	2.5																							
27-Dec	2.4	2.3	Z	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.2	2.3	2.3	2.3	2.4	2.4	2.5	2.4	2.4	2.5																							
28-Dec	2.4	2.4	2.5	Z	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.5	2.9	3.3	2.6	2.0	2.0	2.0	2.0	3.3																							
29-Dec	2.0	2.0	2.0	2.0	Z	2.1	2.1	2.2	2.1	2.1	2.2	2.6	2.7	2.6	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.1	2.0	2.7																							
30-Dec	2.1	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1																							
31-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	2.0	1.9	2.0	2.0	2.1	2.0	2.0	2.1	2.0	1.9	1.9	1.9	1.9	2.0	2.1																							
																								2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	Diurnal Average
																								3.0	3.0	3.0	2.4	3.0	3.2	2.4	2.5	2.4	2.6	2.5	2.6	2.7	3.2	3.7	3.3	2.8	2.9	3.3	3.3	3.0	3.4	3.5	3.6	Diurnal Maximum
Z - zerospan C - Calibration																																																



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Lower Camp - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Lower Camp - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	308	43.44	43.44
2.1 - 3.0	391	55.15	98.59
3.1 - 10.0	10	1.41	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
Lower Camp - December 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	28	5	2	2	7	19	63	12	0	1	6	16	24	61	28	34	308
2.1 - 3.0	12	4	2	0	3	19	166	27	9	2	6	2	6	46	52	32	388
3.1 - 10.0	0	0	0	0	0	1	2	0	2	1	0	0	0	3	0	1	10
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	40	9	4	2	10	39	231	39	11	4	12	18	30	110	80	67	706

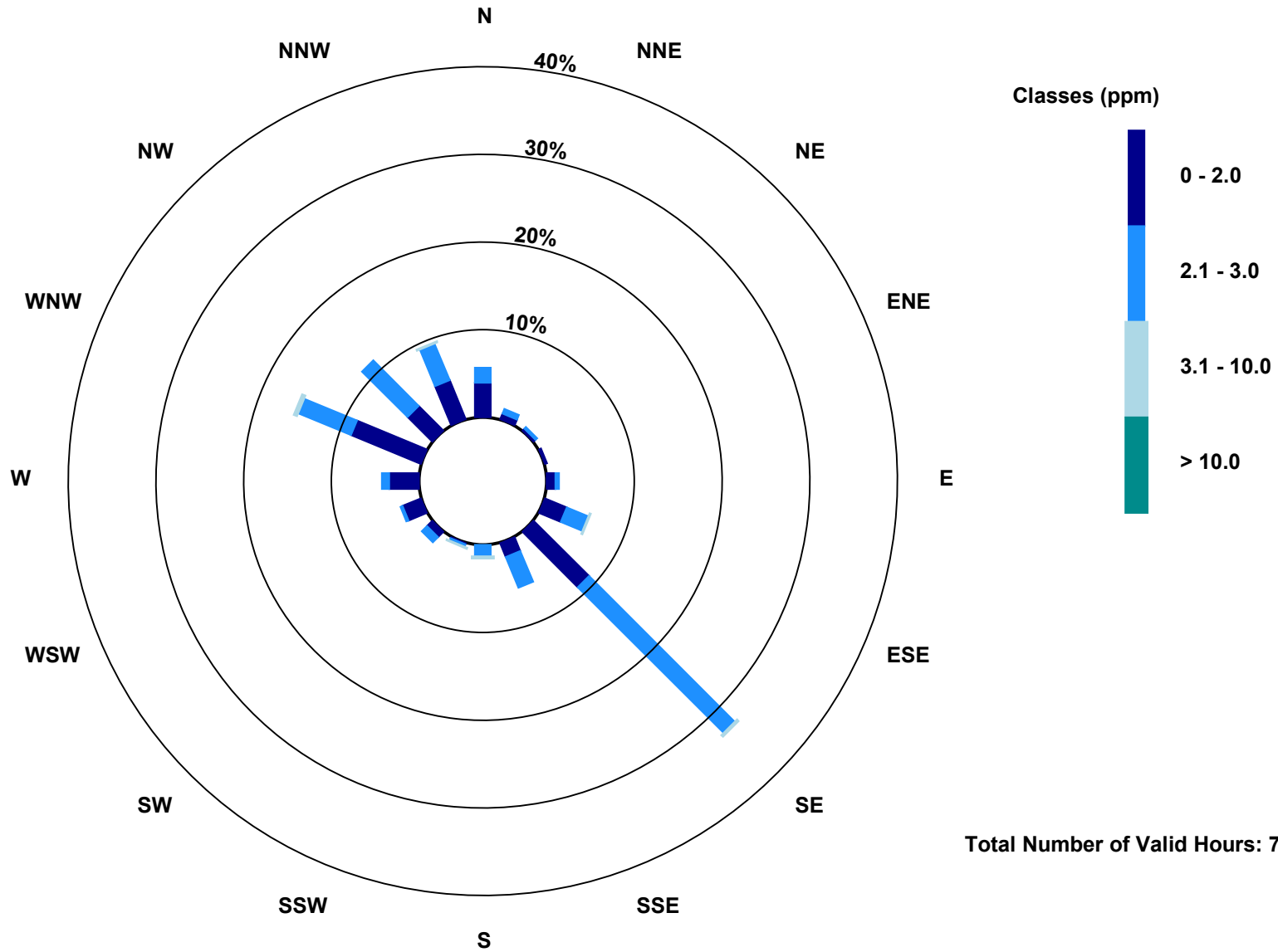
Total Number of Valid Hours: 706

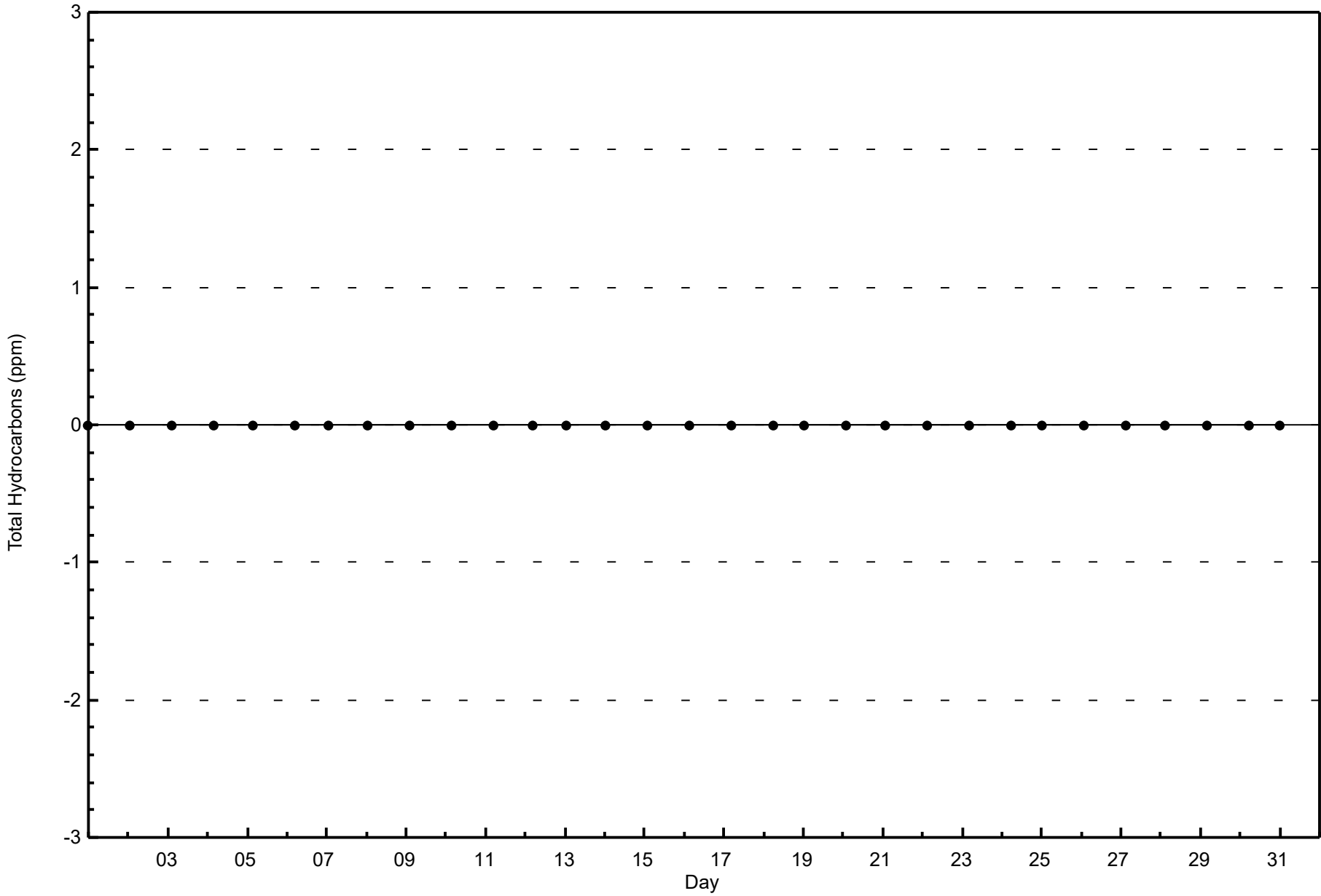
Total Number of Hours: 744

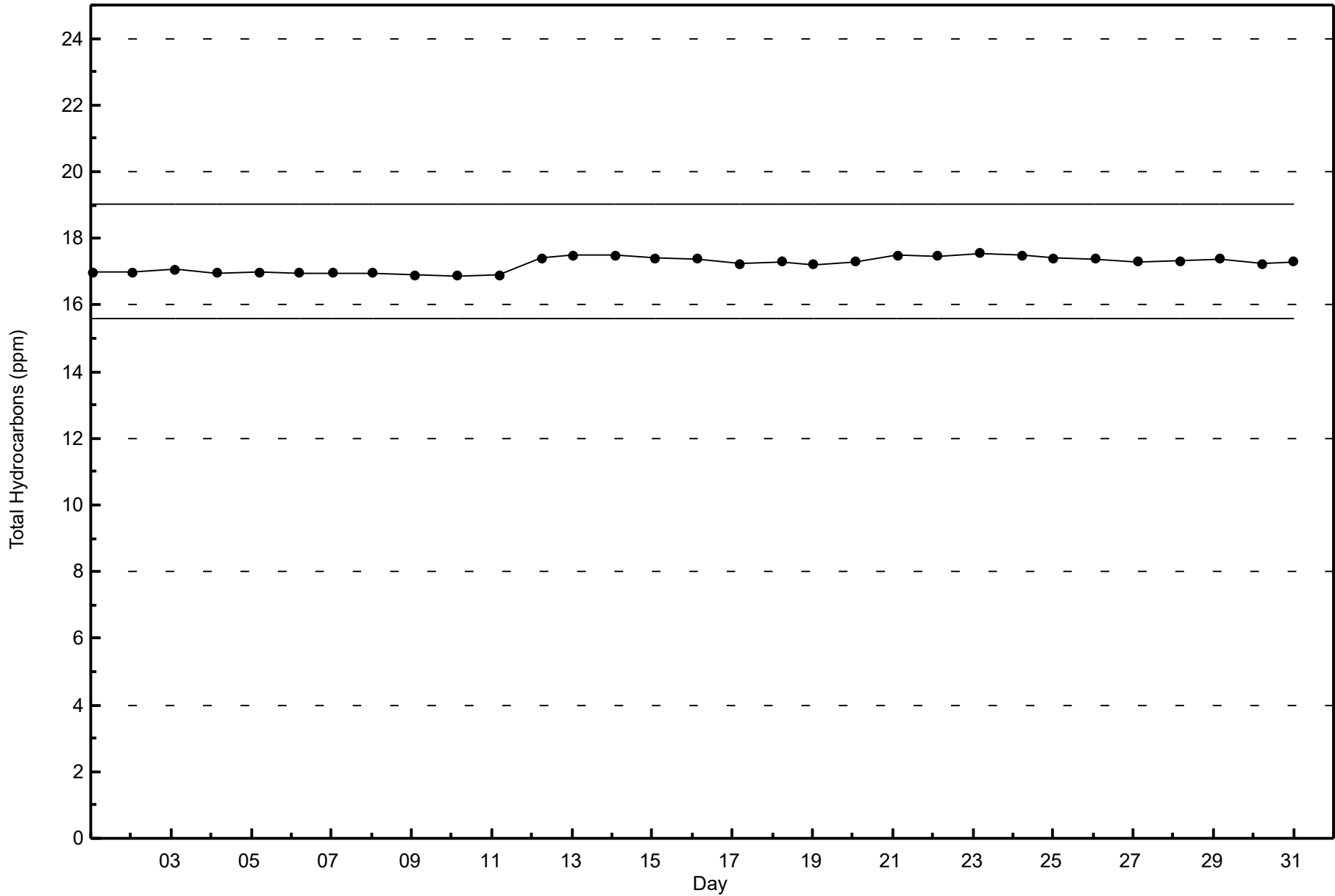


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Lower Camp



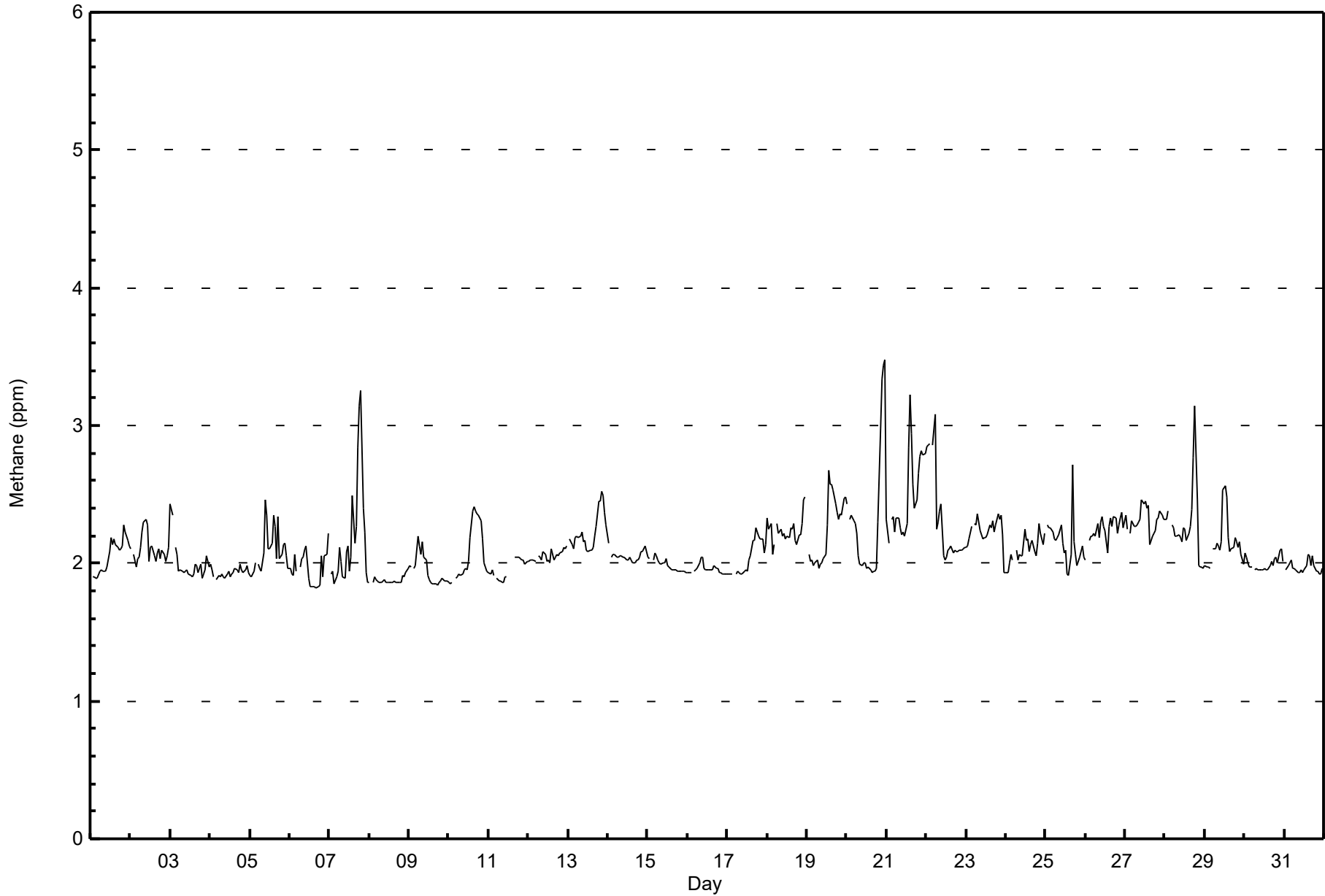






Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Lower Camp - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Lower Camp - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	341	48.10	48.10
2.1 - 3.0	360	50.78	98.87
3.1 - 10.0	8	1.13	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Lower Camp - December 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	31	5	2	2	7	22	74	13	1	1	6	16	24	65	30	42	341
2.1 - 3.0	9	4	2	0	3	16	156	26	8	2	6	2	6	42	50	25	357
3.1 - 10.0	0	0	0	0	0	1	1	0	2	1	0	0	0	3	0	0	8
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	40	9	4	2	10	39	231	39	11	4	12	18	30	110	80	67	706

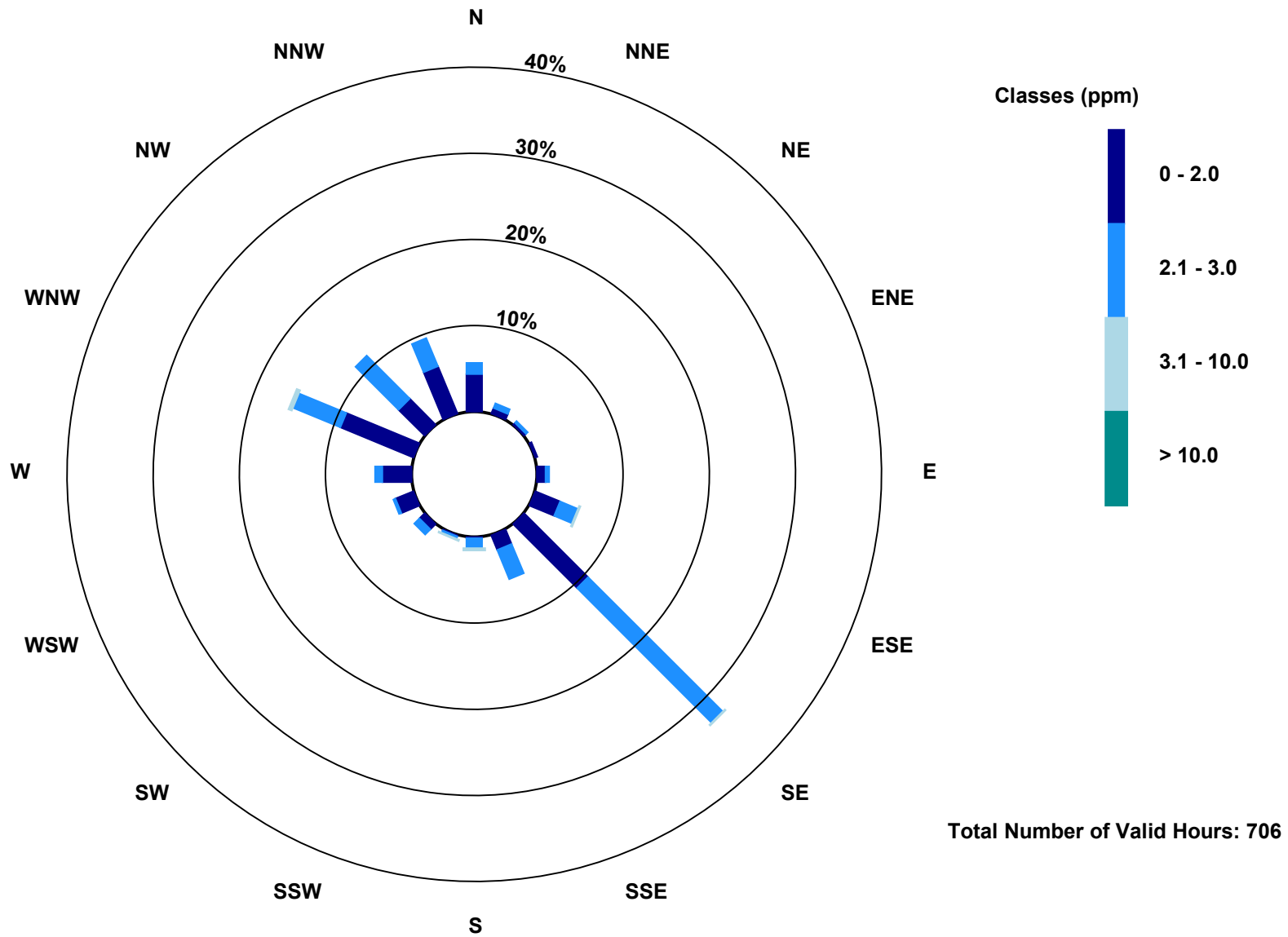
Total Number of Valid Hours: 706

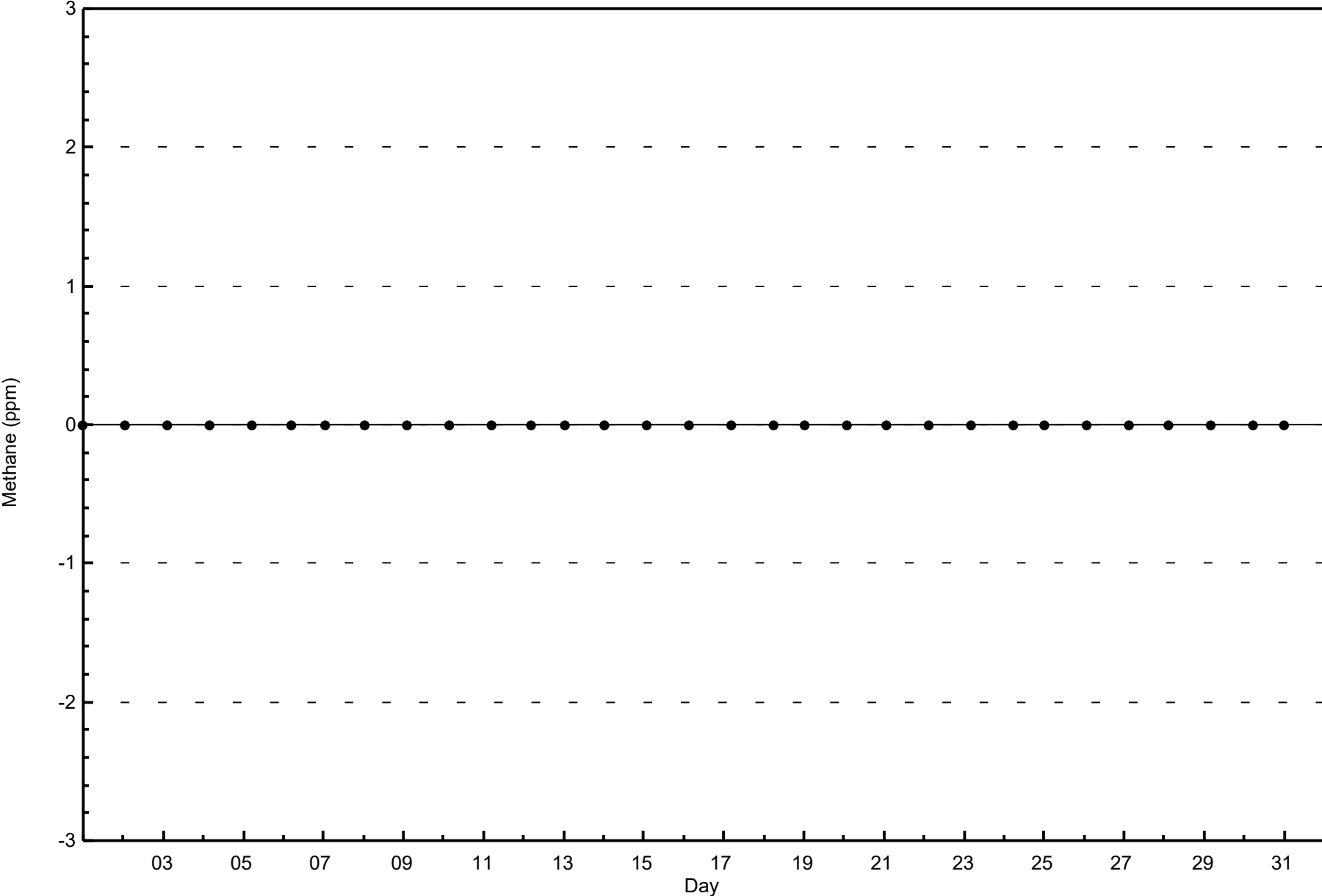
Total Number of Hours: 744

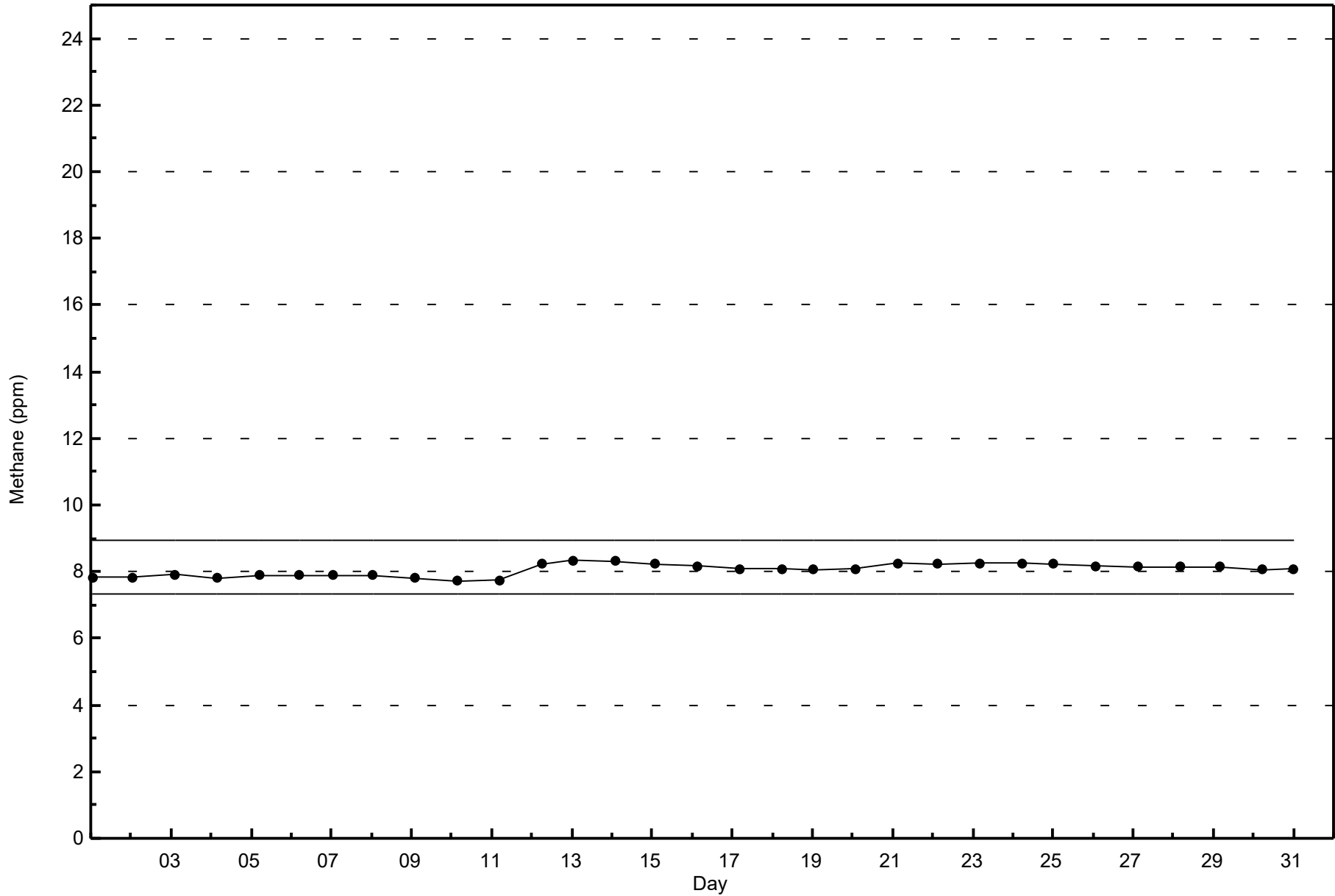


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Lower Camp





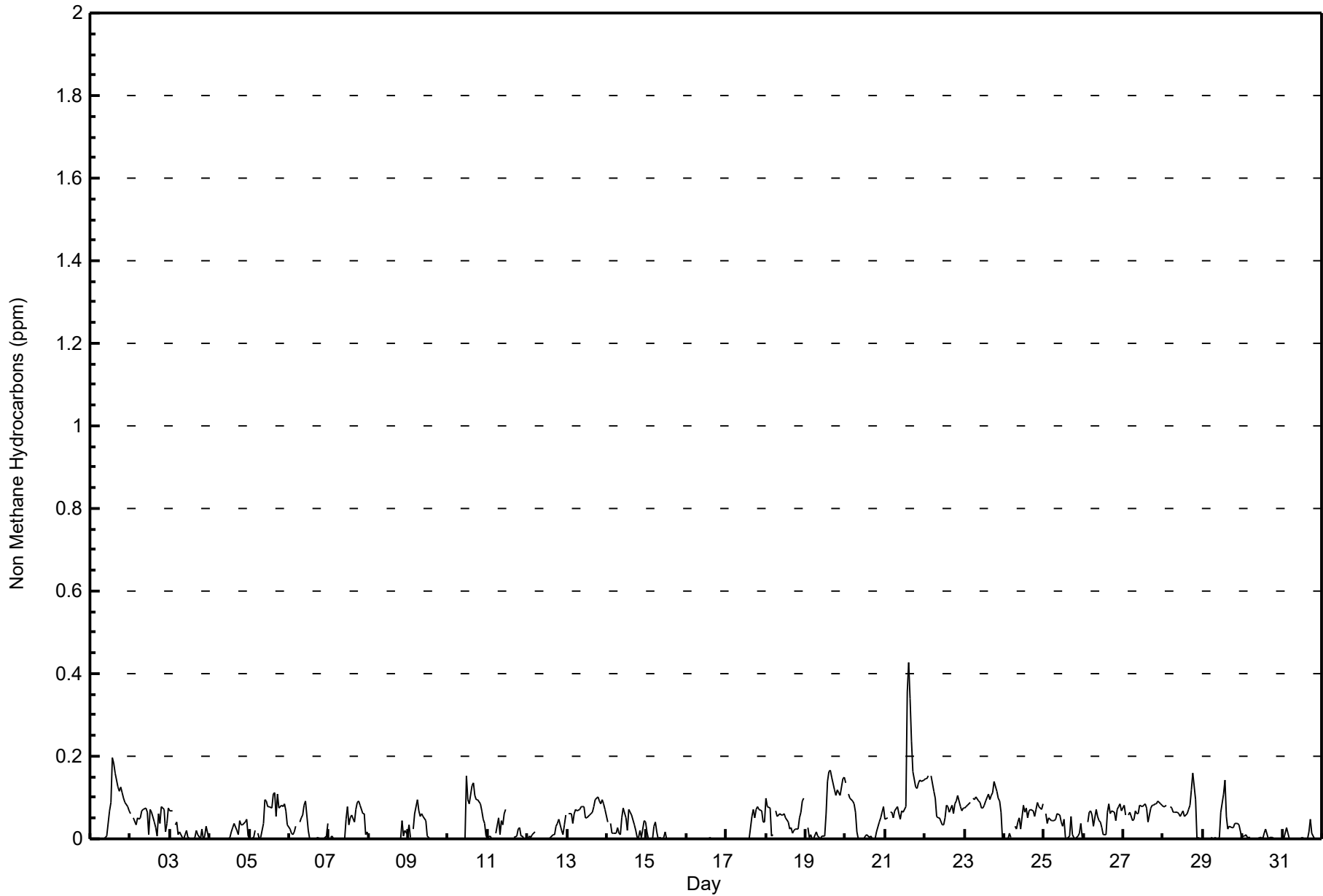




Summary of Hour Averages

Lower Camp - December 2024

Maximum Value: 0.427 ppm on Dec 21 15:00		Maximum Daily Average: 0.133 ppm on Dec 21		Hours in Service:	744																					
Minimum Value: 0.000 ppm on Dec 1 02:00		Minimum Daily Average: 0.000 ppm on Dec 16		Hours of Data:	709																					
Maximum Diurnal Average: 0.060 ppm at hour 15		Minimum Diurnal Average: 0.026 ppm at hour 4		Hours of Missing Data:	35																					
Monthly Average: 0.041 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.1 P ₉₉ = 0.2		Hours of Calibration:	35																					
				Percent Operational Time:	100.0																					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.007	0.069	0.087	0.197	0.185	0.160	0.124	0.114	0.127	0.113	0.098	0.087	0.077	0.067	0.066	0.197
2-Dec	0.061	Z	0.052	0.035	0.051	0.049	0.051	0.067	0.072	0.075	0.065	0.011	0.071	0.065	0.042	0.028	0.008	0.062	0.036	0.079	0.071	0.017	0.036	0.074	0.051	0.079
3-Dec	0.068	0.068	Z	0.033	0.042	0.010	0.016	0.003	0.001	0.010	0.019	0.002	0.000	0.000	0.003	0.020	0.011	0.001	0.022	0.000	0.005	0.031	0.001	0.016	0.068	
4-Dec	0.000	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.002	0.016	0.027	0.038	0.021	0.011	0.043	0.035	0.035	0.041	0.049	0.007	0.014	0.049
5-Dec	0.002	0.000	0.004	0.021	Z	0.013	0.002	0.005	0.038	0.095	0.092	0.079	0.079	0.076	0.108	0.111	0.055	0.109	0.074	0.080	0.077	0.083	0.068	0.034	0.057	0.111
6-Dec	0.024	0.015	0.012	0.018	0.032	Z	0.042	0.052	0.057	0.081	0.093	0.021	0.001	0.000	0.001	0.001	0.001	0.004	0.001	0.001	0.001	0.002	0.006	0.037	0.022	0.093
7-Dec	Z	0.004	0.007	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.049	0.077	0.034	0.051	0.056	0.042	0.071	0.088	0.093	0.081	0.063	0.061	0.010	0.016	0.035	0.093
8-Dec	0.004	Z	0.000	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043	0.008	0.019	0.009	0.004	0.043
9-Dec	0.034	0.004	Z	0.024	0.060	0.093	0.069	0.054	0.062	0.053	0.046	0.006	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.022	0.093
10-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.152	0.095	0.084	0.128	0.135	0.105	0.095	0.094	0.085	0.068	0.049	0.036	0.008	0.049	0.152
11-Dec	0.004	0.007	0.000	0.000	Z	0.014	0.050	0.010	0.044	0.032	0.060	0.070	C	C	C	C	0.003	0.006	0.023	0.026	0.007	0.008	0.000	0.002	0.019	0.070
12-Dec	0.000	0.007	0.002	0.010	0.018	Z	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.009	0.010	0.029	0.038	0.046	0.020	0.009	0.035	0.059	0.013	0.059	
13-Dec	Z	0.061	0.062	0.036	0.062	0.071	0.069	0.072	0.078	0.078	0.079	0.052	0.052	0.059	0.061	0.066	0.079	0.094	0.101	0.091	0.085	0.094	0.085	0.071	0.072	0.101
14-Dec	0.040	Z	0.038	0.015	0.014	0.013	0.027	0.012	0.009	0.050	0.074	0.051	0.021	0.071	0.063	0.057	0.036	0.022	0.003	0.005	0.019	0.005	0.043	0.042	0.032	0.074
15-Dec	0.018	0.001	Z	0.000	0.029	0.040	0.015	0.001	0.004	0.002	0.002	0.017	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.040
16-Dec	0.000	0.000	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
17-Dec	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	0.055	0.071	0.050	0.072	0.079	0.071	0.067	0.039	0.042	0.024	0.079
18-Dec	0.099	0.077	0.075	0.005	0.012	Z	0.067	0.054	0.061	0.057	0.058	0.060	0.052	0.040	0.025	0.026	0.015	0.022	0.022	0.023	0.050	0.065	0.093	0.098	0.050	0.099
19-Dec	Z	0.026	0.002	0.009	0.000	0.001	0.018	0.007	0.004	0.001	0.006	0.006	0.060	0.137	0.163	0.167	0.149	0.120	0.106	0.118	0.111	0.106	0.144	0.150	0.070	0.167
20-Dec	0.137	Z	0.108	0.100	0.091	0.086	0.064	0.016	0.000	0.000	0.000	0.000	0.008	0.010	0.002	0.008	0.000	0.001	0.000	0.017	0.040	0.051	0.065	0.079	0.038	0.137
21-Dec	0.046	0.049	Z	0.063	0.066	0.052	0.069	0.079	0.062	0.049	0.066	0.064	0.076	0.357	0.427	0.338	0.236	0.163	0.126	0.122	0.135	0.144	0.139	0.142	0.133	0.427
22-Dec	0.147	0.144	0.152	Z	0.153	0.114	0.098	0.055	0.052	0.050	0.034	0.034	0.050	0.082	0.078	0.066	0.081	0.063	0.085	0.091	0.104	0.077	0.067	0.073	0.085	0.153
23-Dec	0.074	0.077	0.083	0.090	Z	0.099	0.096	0.100	0.090	0.089	0.073	0.073	0.081	0.092	0.107	0.096	0.105	0.111	0.140	0.115	0.099	0.092	0.064	0.000	0.089	0.140
24-Dec	0.001	0.000	0.001	0.015	0.004	Z	0.032	0.025	0.041	0.052	0.025	0.083	0.065	0.074	0.051	0.068	0.073	0.066	0.054	0.072	0.090	0.077	0.072	0.085	0.049	0.090
25-Dec	Z	0.062	0.038	0.052	0.044	0.045	0.043	0.047	0.061	0.057	0.040	0.030	0.047	0.004	0.000	0.006	0.056	0.011	0.004	0.001	0.008	0.013	0.038	0.005	0.031	0.062
26-Dec	0.014	Z	0.040	0.065	0.066	0.059	0.032	0.070	0.056	0.043	0.040	0.028	0.011	0.011	0.066	0.083	0.062	0.068	0.065	0.045	0.072	0.078	0.083	0.067	0.053	0.083
27-Dec	0.081	0.057	Z	0.057	0.063	0.046	0.048	0.066	0.060	0.060	0.080	0.079	0.082	0.086	0.075	0.041	0.076	0.080	0.083	0.084	0.086	0.091	0.086	0.081	0.072	0.091
28-Dec	0.079	0.080	0.082	Z	0.077	0.075	0.063	0.065	0.065	0.063	0.055	0.060	0.069	0.055	0.061	0.070	0.081	0.118	0.161	0.095	0.001	0.002	0.000	0.000	0.064	0.161
29-Dec	0.000	0.000	0.000	0.000	Z	0.002	0.000	0.005	0.001	0.000	0.002	0.064	0.110	0.141	0.054	0.023	0.030	0.026	0.028	0.038	0.036	0.038	0.033	0.004	0.028	0.141
30-Dec	0.007	0.007	0.009	0.004	0.004	Z	0.000	0.000	0.000	0.000	0.003	0.002	0.001	0.012	0.023	0.002	0.003	0.004	0.003	0.001	0.001	0.000	0.000	0.000	0.004	0.023
31-Dec	Z	0.001	0.028	0.014	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.016	0.049	0.015	0.000	0.000	0.000	0.001	0.000	0.006	0.049
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	247	34.84	34.84
0.006 - 0.05	205	28.91	63.75
0.06 - 0.1	242	34.13	97.88
> 0.1	15	2.12	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp - December 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	22	5	3	1	2	15	37	4	1	1	6	15	23	56	28	26	245
0.006 - 0.05	9	0	1	1	6	13	88	15	6	1	2	2	2	18	19	22	205
0.06 - 0.1	7	4	0	0	2	9	105	20	4	2	4	0	4	31	32	17	241
> 0.1	2	0	0	0	0	2	1	0	0	0	0	1	1	5	1	2	15
Totals	40	9	4	2	10	39	231	39	11	4	12	18	30	110	80	67	706

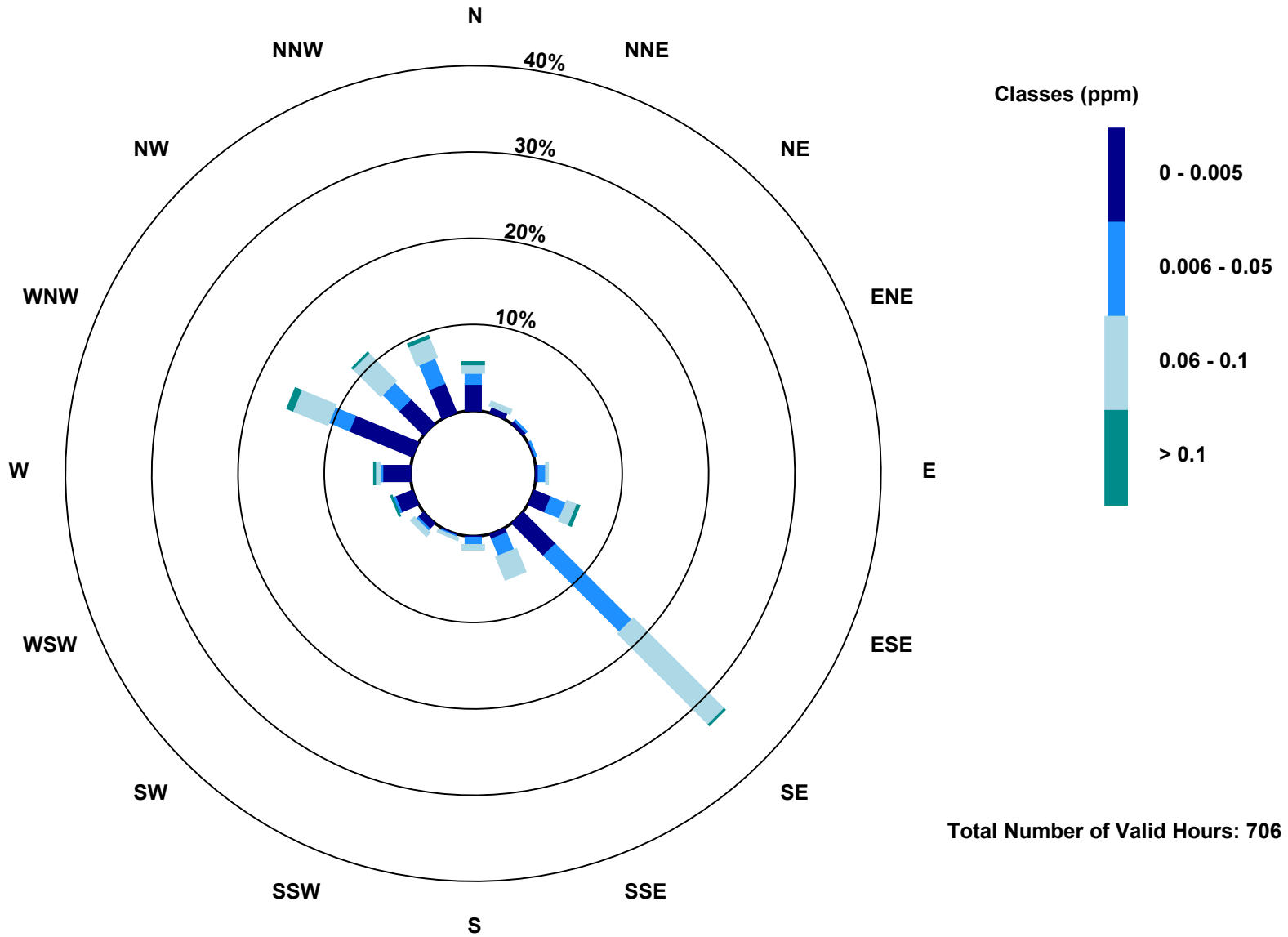
Total Number of Valid Hours: 706

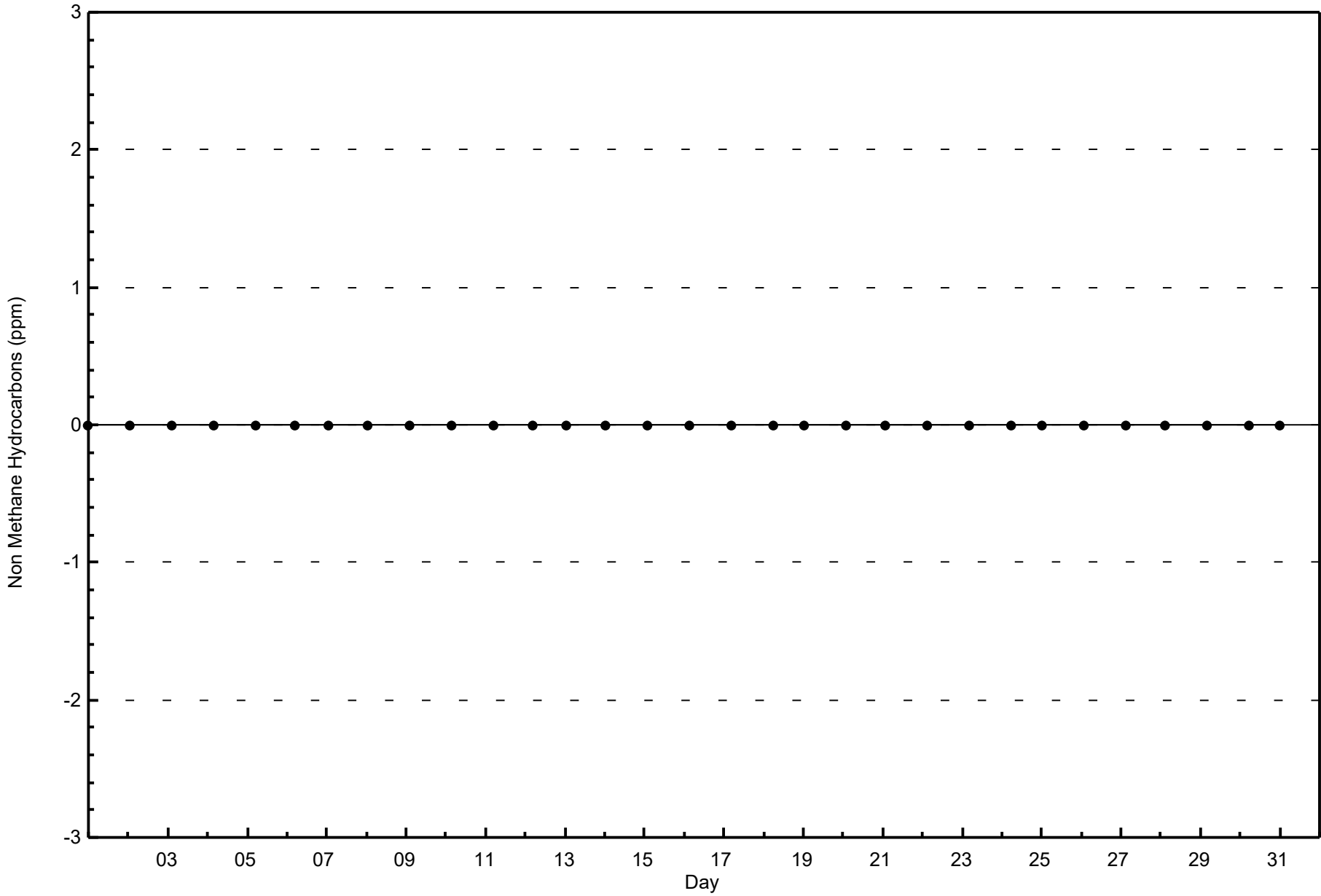
Total Number of Hours: 744

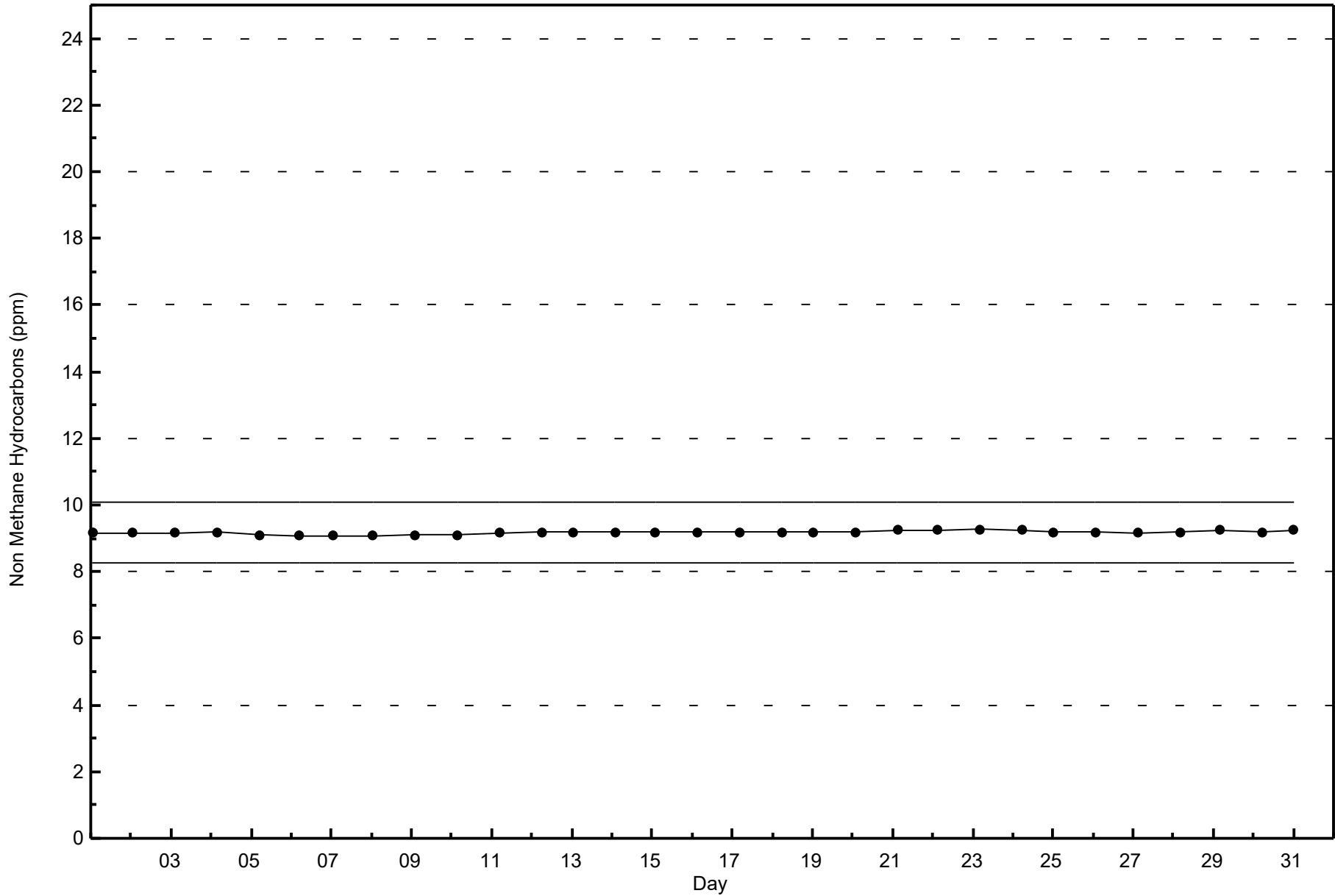


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Lower Camp









Wood Buffalo Environmental Association
Summary of Hour Averages

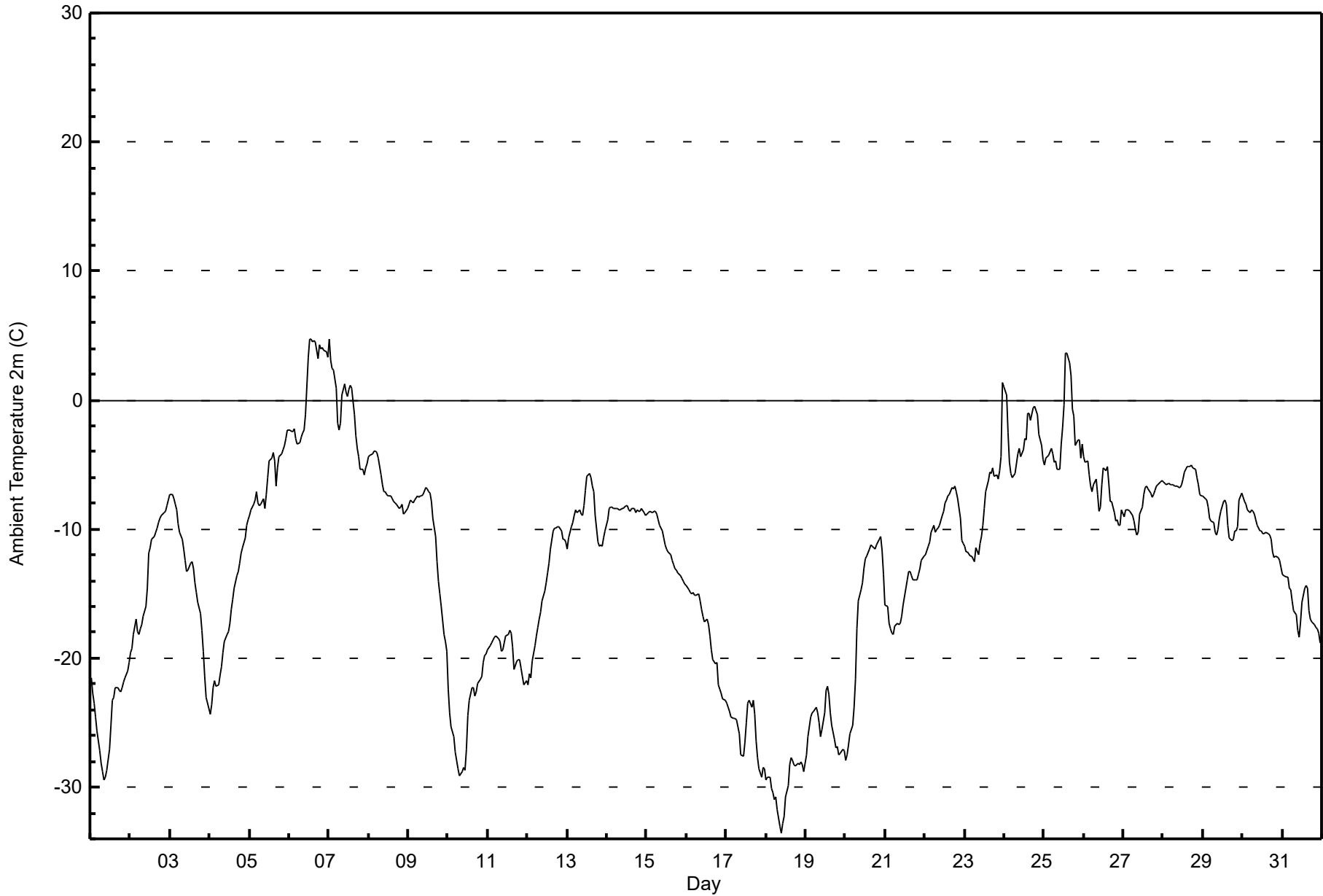
Ambient Temperature 2m (AT2) - C
Lower Camp - December 2024

Maximum Value: 4.8 C on Dec 6 14:00		Maximum Daily Average: 1.0 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -33.5 C on Dec 18 10:00		Minimum Daily Average: -29.8 C on Dec 18		Hours of Data: 744																																													
Maximum Diurnal Average: -10.7 C at hour 15		Minimum Diurnal Average: -13.5 C at hour 10		Hours of Missing Data: 0																																													
Monthly Average: -12.51 C		Percentiles: P ₁ = -30.6 P ₁₀ = -24.7 Q ₁ = -18.2 Median = -10.3 Q ₃ = -7.1 P ₉₀ = -3.8 P ₉₉ = 4.0		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-Dec	-21.5	-22.7	-23.5	-24.6	-25.6	-27.2	-28.2	-28.7	-29.5	-29.2	-28.7	-27.0	-25.2	-23.3	-23.1	-22.3	-22.3	-22.5	-22.6	-22.2	-21.8	-21.5	-21.0	-20.4	-24.4	-20.4																							
2-Dec	-19.6	-19.2	-18.1	-16.9	-17.9	-18.2	-17.8	-17.4	-16.8	-16.0	-14.6	-11.9	-11.5	-10.8	-10.5	-10.3	-9.9	-9.4	-9.1	-8.9	-8.7	-8.7	-8.2	-7.8	-13.3	-7.8																							
3-Dec	-7.3	-7.3	-7.6	-8.1	-8.5	-9.6	-10.2	-10.8	-11.5	-12.4	-13.3	-13.1	-12.6	-12.5	-13.1	-14.1	-14.9	-15.6	-16.6	-17.8	-19.4	-21.5	-23.1	-23.9	-13.5	-7.3																							
4-Dec	-24.3	-23.6	-22.3	-21.7	-22.2	-22.0	-21.3	-20.7	-19.6	-18.7	-18.2	-18.0	-17.3	-16.2	-15.5	-14.6	-13.6	-13.3	-12.6	-11.9	-11.4	-10.7	-9.7	-9.2	-17.0	-9.2																							
5-Dec	-8.9	-8.5	-8.1	-7.8	-7.1	-7.9	-8.1	-8.1	-7.7	-8.3	-7.3	-6.0	-4.8	-4.5	-4.0	-4.7	-6.7	-5.2	-4.4	-4.1	-3.9	-3.5	-3.0	-2.3	-6.0	-2.3																							
6-Dec	-2.3	-2.5	-2.5	-2.2	-3.0	-3.5	-3.3	-2.9	-2.6	-2.4	-1.2	3.3	4.7	4.8	4.5	4.6	4.6	3.2	4.2	4.0	4.0	3.9	3.8	3.4	1.0	4.8																							
7-Dec	4.7	3.1	2.5	2.3	0.9	-1.8	-2.4	-1.8	0.4	1.3	0.6	0.3	0.9	1.2	0.9	-1.1	-2.7	-3.7	-4.4	-5.4	-5.4	-5.7	-5.3	-4.9	-1.1	4.7																							
8-Dec	-4.4	-4.3	-4.2	-3.9	-3.9	-4.0	-4.5	-5.8	-6.5	-7.1	-7.1	-7.3	-7.4	-7.5	-7.7	-7.9	-8.0	-8.0	-8.4	-8.3	-8.0	-8.8	-8.7	-8.4	-6.7	-3.9																							
9-Dec	-8.1	-7.7	-7.8	-8.0	-7.7	-7.4	-7.5	-7.4	-7.4	-7.4	-6.8	-6.9	-7.1	-7.2	-7.9	-9.2	-10.6	-12.5	-14.1	-15.0	-16.0	-18.1	-18.7	-19.4	-10.2	-6.8																							
10-Dec	-22.4	-24.2	-25.3	-26.1	-27.3	-27.9	-28.6	-29.1	-28.8	-28.5	-28.6	-27.0	-24.4	-23.2	-22.3	-22.3	-22.9	-22.6	-21.9	-21.7	-21.4	-20.3	-19.8	-19.7	-24.4	-19.7																							
11-Dec	-19.3	-19.1	-18.8	-18.6	-18.4	-18.3	-18.5	-18.7	-19.4	-19.3	-18.8	-18.3	-18.2	-17.8	-18.0	-19.1	-20.9	-20.2	-20.2	-20.1	-20.8	-21.4	-22.0	-21.7	-19.4	-17.8																							
12-Dec	-22.0	-21.2	-21.5	-20.2	-19.0	-18.2	-17.6	-17.0	-16.4	-15.6	-14.8	-14.1	-13.4	-12.7	-11.6	-10.1	-9.9	-9.9	-9.8	-9.8	-10.1	-10.8	-10.8	-11.0	-14.5	-9.8																							
13-Dec	-11.5	-10.7	-9.8	-9.5	-8.9	-8.5	-8.7	-8.5	-8.9	-9.0	-8.2	-7.0	-5.9	-5.7	-6.0	-6.6	-7.1	-8.9	-11.0	-11.4	-11.2	-11.3	-10.7	-10.1	-9.0	-5.7																							
14-Dec	-9.2	-8.4	-8.2	-8.3	-8.4	-8.4	-8.4	-8.5	-8.5	-8.4	-8.4	-8.2	-8.2	-8.5	-8.6	-8.4	-8.4	-8.7	-8.5	-8.6	-8.6	-8.4	-8.7	-8.9	-8.5	-8.2																							
15-Dec	-8.8	-8.7	-8.7	-8.7	-8.6	-8.6	-8.8	-9.2	-9.7	-10.2	-10.7	-11.2	-11.6	-11.8	-12.0	-12.4	-12.8	-13.0	-13.2	-13.4	-13.6	-13.9	-14.1	-14.2	-11.2	-8.6																							
16-Dec	-14.4	-14.7	-14.9	-15.0	-14.9	-15.1	-15.1	-15.0	-15.6	-16.2	-16.8	-17.2	-17.0	-17.4	-18.3	-19.3	-20.1	-20.4	-20.3	-22.0	-22.4	-22.8	-23.1	-23.3	-18.0	-14.4																							
17-Dec	-23.5	-23.8	-24.1	-24.5	-24.7	-24.8	-25.3	-25.9	-27.5	-27.6	-26.5	-25.0	-23.5	-23.3	-23.9	-23.3	-24.3	-26.4	-27.7	-28.5	-29.2	-28.5	-28.5	-28.5	-25.6	-23.3																							
18-Dec	-29.5	-29.2	-29.2	-30.1	-30.4	-30.9	-30.7	-31.8	-33.0	-33.5	-32.8	-32.3	-30.7	-29.8	-28.2	-27.7	-28.0	-28.3	-28.3	-28.2	-28.3	-28.0	-28.3	-28.8	-29.8	-27.7																							
19-Dec	-27.5	-26.1	-25.3	-24.6	-24.2	-24.1	-23.8	-24.2	-25.0	-26.1	-25.6	-24.2	-22.5	-22.2	-22.8	-24.2	-25.2	-26.3	-26.9	-26.8	-27.5	-27.3	-27.0	-27.1	-25.3	-22.2																							
20-Dec	-27.9	-27.5	-26.8	-25.9	-25.2	-23.8	-21.7	-17.7	-15.6	-14.7	-14.2	-13.1	-12.3	-12.0	-11.5	-11.2	-11.4	-11.4	-11.5	-11.2	-10.8	-10.6	-11.7	-13.5	-16.4	-10.6																							
21-Dec	-15.8	-16.0	-17.3	-17.8	-18.1	-18.2	-17.5	-17.3	-17.4	-17.3	-16.7	-15.9	-14.6	-13.9	-13.3	-13.3	-13.7	-14.0	-14.0	-13.9	-13.5	-13.1	-12.4	-12.1	-15.3	-12.1																							
22-Dec	-12.0	-11.7	-11.4	-11.0	-10.3	-9.7	-10.3	-10.0	-9.9	-9.7	-8.9	-8.6	-8.0	-7.8	-7.5	-7.4	-6.8	-6.8	-6.7	-7.1	-7.6	-9.1	-10.9	-11.1	-9.2	-6.7																							
23-Dec	-11.4	-11.8	-11.8	-12.1	-12.1	-12.4	-12.5	-11.4	-12.0	-11.2	-10.5	-9.7	-8.3	-7.2	-6.3	-5.5	-5.7	-5.3	-6.0	-5.8	-6.1	-5.5	-4.4	1.3	-8.5	1.3																							
24-Dec	1.0	0.3	-2.5	-4.8	-5.7	-6.0	-5.6	-4.9	-4.2	-3.7	-4.3	-3.8	-3.0	-3.1	-1.0	-1.0	-1.6	-0.6	-0.5	-0.9	-1.1	-2.7	-3.5	-4.6	-2.8	1.0																							
25-Dec	-5.0	-4.5	-4.4	-4.3	-3.7	-4.1	-4.8	-4.7	-5.4	-5.4	-3.5	-2.1	-0.4	3.6	3.6	2.9	1.9	-0.7	-1.2	-3.5	-3.1	-3.1	-4.5	-3.4	-2.5	3.6																							
26-Dec	-4.4	-4.9	-4.7	-5.8	-6.7	-7.1	-6.6	-6.1	-7.3	-8.6	-8.3	-6.5	-5.2	-5.5	-5.1	-6.4	-7.9	-7.9	-8.7	-9.3	-9.3	-9.7	-9.7	-8.5	-7.1	-4.4																							
27-Dec	-9.0	-8.5	-8.5	-8.5	-8.6	-8.9	-9.4	-10.1	-10.5	-10.2	-8.8	-8.3	-7.3	-6.8	-6.7	-6.9	-7.2	-7.6	-7.3	-7.0	-6.7	-6.5	-6.4	-6.2	-8.0	-6.2																							
28-Dec	-6.3	-6.4	-6.6	-6.5	-6.6	-6.6	-6.5	-6.6	-6.7	-6.7	-6.8	-6.5	-6.1	-5.6	-5.2	-5.1	-5.1	-5.0	-5.3	-5.4	-6.0	-6.5	-7.3	-7.4	-6.2	-5.0																							
29-Dec	-7.4	-7.6	-7.8	-8.2	-9.1	-9.4	-9.5	-10.2	-10.5	-10.1	-9.2	-8.6	-7.9	-7.8	-8.1	-9.7	-10.7	-10.8	-10.7	-10.2	-10.2	-9.8	-7.7	-7.2	-9.1	-7.2																							
30-Dec	-7.5	-7.8	-8.1	-8.5	-8.7	-8.5	-8.6	-8.8	-9.3	-9.7	-10.1	-10.1	-10.3	-10.4	-10.2	-10.3	-10.5	-10.8	-11.8	-12.2	-12.1	-12.2	-12.4	-13.0	-10.1	-7.5																							
31-Dec	-13.5	-13.6	-13.7	-13.7	-14.6	-14.7	-15.6	-16.3	-16.6	-17.8	-18.4	-17.2	-15.7	-14.6	-14.3	-14.6	-16.3	-17.0	-17.2	-17.4	-17.6	-17.7	-18.1	-18.8	-16.0	-13.5																							
																								-12.9	-12.9	-12.9	-13.0	-13.2	-13.4	-13.4	-13.4	-13.4	-13.5	-13.5	-13.2	-12.4	-11.5	-10.9	-10.7	-11.0	-11.5	-11.9	-12.1	-12.4	-12.5	-12.7	-12.8	-12.6	Diurnal Average
																								4.7	3.1	2.5	2.3	0.9	-1.8	-2.4	-1.8	0.4	1.3	0.6	3.3	4.7	4.8	4.5	4.6	4.6	4.6	3.2	4.2	4.0	4.0	3.9	3.8	3.4	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Lower Camp - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Lower Camp - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	156	20.97	20.97
-20 - 0	556	74.73	95.70
0 - 10	32	4.30	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

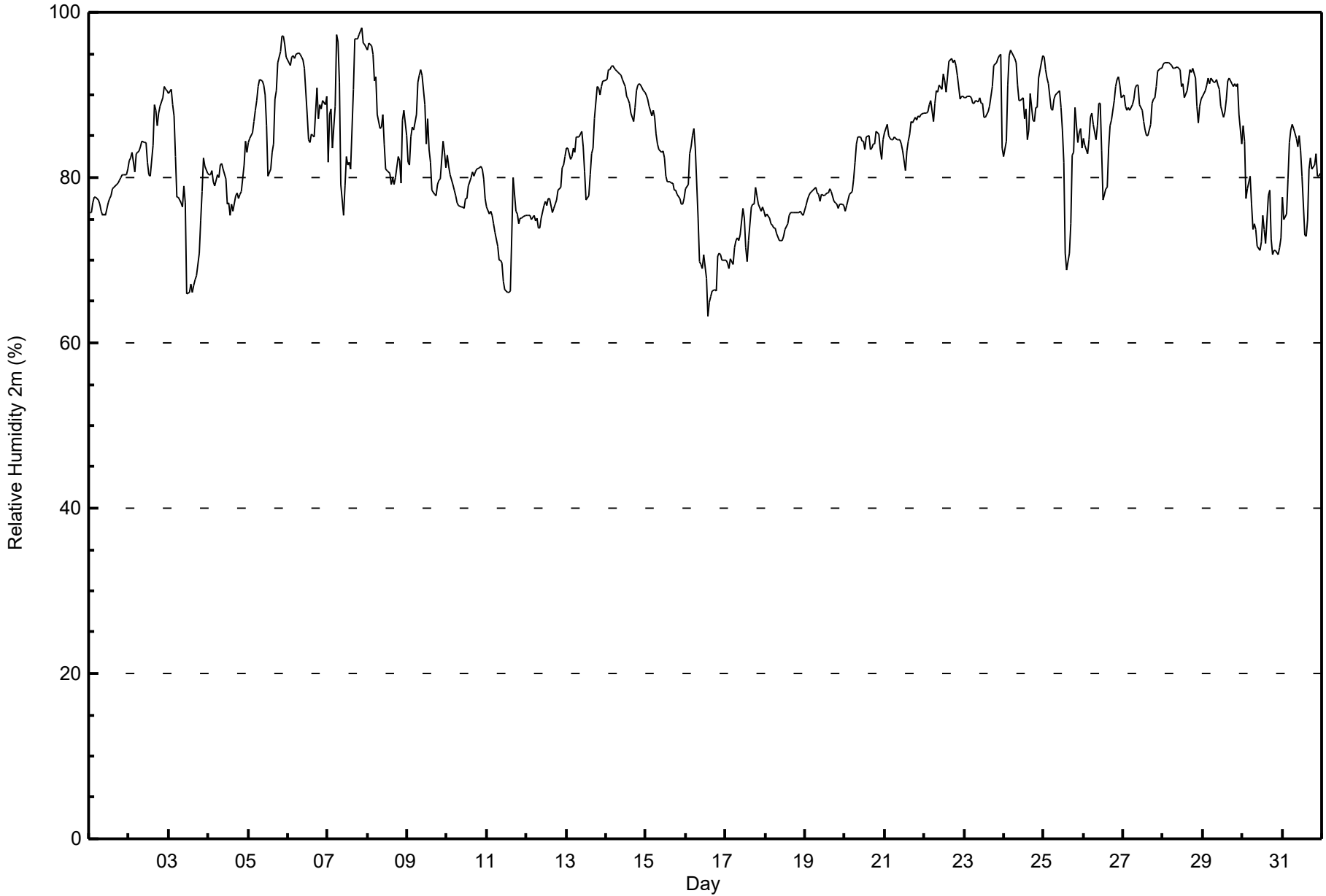
Relative Humidity 2m (RH2) - %
Lower Camp - December 2024

Maximum Value: 98.2 % on Dec 7 21:00																						Maximum Daily Average: 92.0 % on Dec 28																						Hours in Service: 744	
Minimum Value: 63.2 % on Dec 16 14:00																						Minimum Daily Average: 72.7 % on Dec 11																						Hours of Data: 744	
Maximum Diurnal Average: 84.9 % at hour 22																						Minimum Diurnal Average: 79.3 % at hour 14																						Hours of Missing Data: 0	
Monthly Average: 83.25 %																						Percentiles: P ₁ = 66.2 P ₁₀ = 73.9 Q ₁ = 77.5 Median = 83.6 Q ₃ = 89.4 P ₉₀ = 92.6 P ₉₉ = 96.6																						Hours of Calibration: 0	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	75.8	75.7	77.0	77.6	77.7	77.3	76.9	76.0	75.4	75.5	75.5	77.0	77.5	77.8	78.6	78.8	79.1	79.4	79.7	80.0	80.3	80.4	80.3	81.1	77.9	81.1																			
2-Dec	82.1	82.3	83.1	80.7	83.0	83.0	83.3	83.8	84.4	84.3	84.3	81.8	80.3	80.1	83.8	88.8	88.2	86.3	87.8	88.6	89.7	91.1	90.8	90.5	85.1	91.1																			
3-Dec	90.2	90.7	88.8	87.5	82.6	77.6	77.7	76.9	76.4	78.9	77.0	66.0	66.2	67.1	66.1	66.9	67.6	68.1	70.8	74.7	78.3	82.5	81.4	80.5	76.7	90.7																			
4-Dec	80.3	80.3	80.8	79.5	79.0	80.3	80.0	81.4	81.7	81.1	79.9	76.9	77.0	75.5	76.8	76.0	77.8	78.1	77.5	77.9	78.3	81.6	84.4	83.0	79.4	84.4																			
5-Dec	84.3	84.7	85.4	86.7	88.2	89.4	91.1	91.8	91.7	91.2	90.1	86.2	80.1	81.0	83.1	84.1	89.4	90.6	93.9	95.2	97.1	97.1	96.1	94.6	89.3	97.1																			
6-Dec	93.9	93.5	94.6	94.7	94.5	95.0	95.1	94.9	94.6	94.3	93.3	87.7	84.5	84.2	85.2	85.0	84.8	90.9	87.1	88.9	88.3	89.3	88.9	89.8	90.5	95.1																			
7-Dec	81.8	87.7	88.3	83.6	88.6	97.3	96.4	91.5	79.2	75.4	79.0	82.6	81.5	81.8	81.0	90.6	96.7	96.8	96.8	97.3	98.2	96.2	96.2	95.8	89.2	98.2																			
8-Dec	95.5	96.3	96.0	94.9	91.7	92.3	87.7	85.9	86.2	87.6	84.2	81.1	80.8	80.6	79.1	79.9	79.2	80.1	82.6	82.0	79.4	86.9	88.2	85.2	86.0	96.3																			
9-Dec	81.9	81.5	85.0	86.2	85.7	87.6	91.5	92.3	93.0	92.4	88.7	84.1	87.2	83.4	81.9	78.5	77.9	77.9	79.1	79.6	79.9	84.4	83.0	81.1	84.3	93.0																			
10-Dec	82.7	81.4	80.3	79.1	78.4	77.8	77.0	76.6	76.5	76.4	76.3	77.5	77.5	78.9	79.9	80.7	80.2	80.6	81.0	81.1	81.4	81.1	79.8	77.4	79.1	82.7																			
11-Dec	76.5	75.5	75.9	75.4	74.4	73.3	71.7	70.0	70.0	69.7	67.5	66.5	66.1	66.1	66.3	72.9	80.0	76.0	75.6	74.4	75.0	75.0	75.3	75.4	72.7	80.0																			
12-Dec	75.4	75.4	75.4	74.9	75.3	74.7	75.1	73.9	73.9	75.0	76.6	77.0	76.7	77.5	77.5	75.8	76.2	76.7	77.3	78.6	78.8	81.2	81.5	82.6	76.8	82.6																			
13-Dec	83.6	83.6	82.2	82.6	83.6	83.1	84.9	84.9	85.2	85.6	83.8	80.6	77.3	77.8	80.3	82.8	83.6	87.2	91.0	90.8	90.1	91.0	91.8	91.7	85.0	91.8																			
14-Dec	91.8	93.0	93.0	93.4	93.6	93.0	92.8	92.7	92.6	92.3	91.8	91.0	89.9	89.5	88.9	87.8	86.8	88.5	90.6	91.2	91.4	91.2	90.5	90.3	91.1	93.6																			
15-Dec	89.9	89.5	88.6	87.5	88.1	87.3	85.3	84.1	83.4	83.0	83.2	82.5	80.1	79.4	79.4	79.3	79.4	78.5	78.4	78.0	77.5	76.8	76.7	77.4	82.2	89.9																			
16-Dec	78.7	79.1	82.8	83.8	85.1	85.9	83.5	75.0	69.9	69.5	68.9	70.7	67.8	63.2	65.0	65.5	66.3	66.5	66.3	70.5	70.8	70.6	70.0	69.9	72.7	85.9																			
17-Dec	70.0	69.6	69.0	70.1	69.5	71.6	72.4	72.8	72.4	73.0	76.3	75.1	71.5	69.8	72.3	76.4	76.8	76.8	78.8	77.9	76.9	76.0	76.4	75.9	73.6	78.8																			
18-Dec	75.2	75.6	75.1	74.4	74.2	73.9	74.0	73.2	72.3	72.4	72.4	72.9	73.7	74.3	75.5	75.8	75.7	75.7	75.7	75.7	75.7	76.0	75.6	75.4	74.6	76.0																			
19-Dec	76.7	77.3	77.8	78.2	78.4	78.4	78.8	78.1	77.9	77.1	78.0	77.8	77.9	78.1	78.2	78.6	78.3	77.1	77.0	76.8	76.2	76.8	76.7	76.5	77.6	78.8																			
20-Dec	75.9	76.7	77.2	77.9	78.3	79.8	81.9	84.1	84.8	84.9	84.3	84.4	83.4	84.9	85.1	83.4	83.6	84.1	84.1	85.6	85.3	83.3	82.1	84.7	82.5	85.6																			
21-Dec	85.5	86.4	85.1	84.8	84.6	84.6	84.9	84.6	84.6	84.5	84.1	83.3	80.8	83.2	84.4	85.3	86.8	86.7	87.3	87.0	87.5	87.3	87.6	87.8	85.3	87.8																			
22-Dec	87.7	87.8	87.9	88.8	89.3	86.7	88.9	90.5	90.4	91.1	90.7	92.5	91.7	90.3	92.3	94.0	94.5	93.9	94.3	93.6	92.3	89.4	89.8	89.8	90.8	94.5																			
23-Dec	89.6	89.6	89.9	89.8	89.6	89.1	88.9	89.4	89.1	89.7	89.0	89.0	87.2	87.3	87.9	88.7	89.8	91.0	93.6	93.8	94.4	94.8	94.9	83.5	90.0	94.9																			
24-Dec	82.6	84.5	91.1	94.7	95.4	95.1	94.4	94.0	91.2	89.3	89.4	89.6	87.2	88.3	84.6	85.8	90.3	86.9	86.7	88.4	88.4	92.1	93.9	94.8	89.9	95.4																			
25-Dec	94.6	93.0	92.0	91.4	88.3	88.2	89.5	90.1	90.1	90.5	88.5	85.8	81.9	70.9	68.8	70.9	74.4	82.7	83.0	88.6	84.3	85.4	86.0	83.6	85.1	94.6																			
26-Dec	84.7	83.9	82.9	84.6	87.3	87.9	86.4	84.6	86.3	89.1	89.0	83.1	77.3	78.6	78.7	83.6	86.2	86.9	89.4	91.1	91.9	92.3	91.1	89.7	86.1	92.3																			
27-Dec	90.1	88.7	88.2	88.5	88.2	88.9	89.5	90.8	91.1	91.1	88.7	88.1	86.8	85.7	85.1	85.2	86.5	89.1	89.4	89.6	90.9	92.9	93.2	93.2	89.1	93.2																			
28-Dec	93.7	93.9	93.9	93.8	93.7	93.5	93.3	93.2	93.4	93.3	93.0	91.0	91.3	89.6	90.6	91.7	93.0	92.7	93.3	92.1	88.6	86.6	88.7	89.5	92.0	93.9																			
29-Dec	89.8	90.6	91.3	92.1	91.4	92.1	91.6	91.6	91.8	91.2	90.7	88.6	87.4	87.9	89.5	91.7	92.0	91.3	91.0	91.3	91.0	91.3	87.7	84.0	90.4	92.1																			
30-Dec	86.3	84.4	77.5	78.7	80.2	76.9	73.8	74.3	73.7	71.7	71.1	72.2	75.4	73.7	72.0	77.7	78.5	72.6	70.6	71.3	71.1	70.8	71.6	72.7	75.0	86.3																			
31-Dec	77.6	74.9	75.6	79.9	84.3	85.7	86.5	85.9	84.7	83.7	85.0	83.3	80.2	73.1	72.9	75.0	81.1	82.3	81.1	81.6	82.8	80.1	80.1	80.5	80.7	86.5																			
84.0 84.1 84.2 84.4 84.6 84.7 84.7 84.2 83.5 83.4 82.9 81.5 80.1 79.3 79.7 81.2 82.6 83.0 83.6 84.3 84.2 84.9 84.8 84.1																								Diurnal Average																					
95.5 96.3 96.0 94.9 95.4 97.3 96.4 94.9 94.6 94.3 93.3 92.5 91.7 90.3 92.3 94.0 96.7 96.8 96.8 97.3 98.2 97.1 96.2 95.8																								Diurnal Maximum																					



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Lower Camp - December 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Barometric Pressure (BP) - inHg

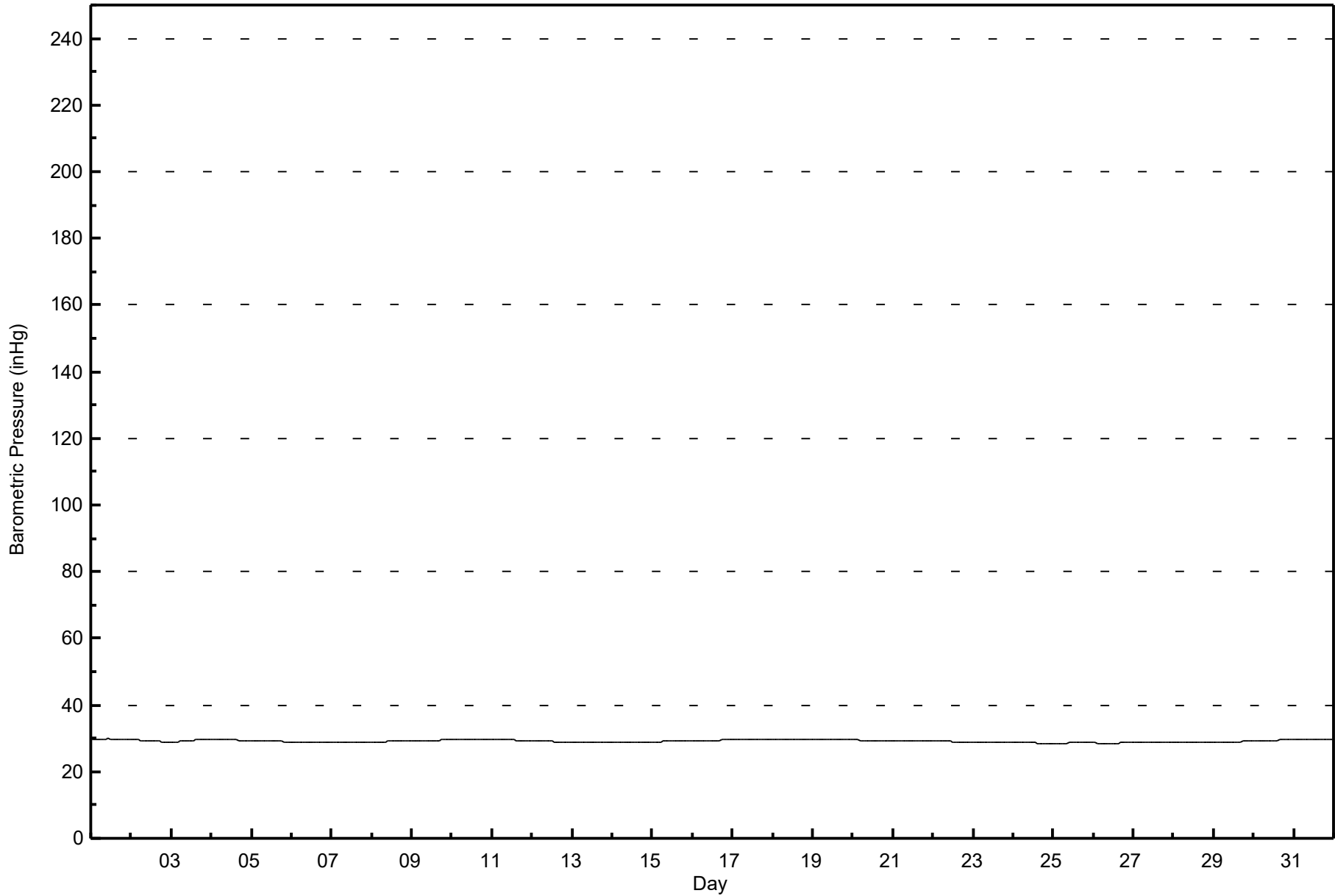
Lower Camp - December 2024

Maximum Value: 29.9 inHg on Dec 1 11:00																				Maximum Daily Average: 29.8 inHg on Dec 1					Hours in Service:	744
Minimum Value: 28.5 inHg on Dec 24 23:00																				Minimum Daily Average: 28.6 inHg on Dec 25					Hours of Data:	744
Maximum Diurnal Average: 29.2 inHg at hour 11																				Minimum Diurnal Average: 29.2 inHg at hour 22					Hours of Missing Data:	0
Monthly Average: 29.16 inHg																				Percentiles: P ₁ = 28.5 P ₁₀ = 28.7 Q ₁ = 28.8 Median = 29.1 Q ₃ = 29.5 P ₉₀ = 29.7 P ₉₉ = 29.8					Hours of Calibration:	0
																									Percent Operational Time:	100.0
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.9	29.9	29.9	29.9	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.6	29.8	29.9	
2-Dec	29.6	29.6	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.1	29.1	29.1	29.0	29.0	28.9	28.9	28.9	29.2	29.6	
3-Dec	28.9	28.9	28.9	29.0	29.0	29.1	29.1	29.2	29.2	29.3	29.4	29.4	29.4	29.4	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.7	29.7	29.3	29.7	
4-Dec	29.7	29.8	29.8	29.8	29.8	29.7	29.7	29.7	29.7	29.7	29.7	29.6	29.6	29.4	29.5	29.5	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.6	29.8	
5-Dec	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	29.1	29.2	
6-Dec	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	28.7	28.7	28.7	28.7	28.7	28.7	28.8	29.0	
7-Dec	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.7	28.8	
8-Dec	28.8	28.8	28.9	28.9	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	29.3	29.3	29.3	29.3	29.1	29.3	
9-Dec	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.4	29.5	29.5	29.5	29.6	29.6	29.6	29.4	29.6	
10-Dec	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	29.6	29.7	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.7	29.7	
11-Dec	29.6	29.6	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	29.5	29.6	
12-Dec	29.4	29.3	29.3	29.3	29.3	29.2	29.2	29.2	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.8	29.1	29.4	
13-Dec	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	28.8	29.0	
14-Dec	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	28.9	29.0	29.0	
15-Dec	28.9	28.9	28.9	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.2	29.2	29.2	29.3	29.3	29.3	29.3	29.3	29.3	29.3	29.4	29.4	29.2	29.4	
16-Dec	29.4	29.4	29.4	29.4	29.4	29.3	29.3	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	
17-Dec	29.6	29.6	29.6	29.6	29.6	29.7	29.7	29.7	29.7	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.8	29.7	29.8	
18-Dec	29.8	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	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.8	
19-Dec	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	29.6	29.6	29.7	29.7	
20-Dec	29.5	29.5	29.5	29.5	29.4	29.4	29.4	29.4	29.3	29.3	29.3	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.2	29.1	29.1	29.1	29.3	29.5	
21-Dec	29.1	29.1	29.1	29.2	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.1	29.0	29.0	29.0	29.1	29.2	
22-Dec	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0	28.9	28.9	28.9	28.9	29.0	29.0	
23-Dec	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.8	28.9	
24-Dec	28.9	28.9	28.9	28.9	28.9	28.9	28.8	28.8	28.8	28.8	28.8	28.7	28.7	28.6	28.6	28.6	28.6	28.5	28.5	28.5	28.5	28.5	28.5	28.7	28.9	
25-Dec	28.5	28.5	28.5	28.5	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	
26-Dec	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.6	28.7	
27-Dec	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.6	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	
28-Dec	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.7	28.8	28.8	28.8	28.8	28.8	28.8	28.7	28.8	
29-Dec	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	29.0	29.0	29.0	29.0	29.0	29.0	29.1	29.1	29.1	29.1	29.0	29.1	
30-Dec	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	29.4	29.4	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.4	29.5	
31-Dec	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.6	29.6	29.6	29.5	29.5	29.5	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.6	29.5	29.6	
29.2																								Diurnal Average		
29.8																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Barometric Pressure (BP) - inHg
Lower Camp - December 2024





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

Lower Camp - December 2024

Maximum Speed: 29 km/h on Dec 20 10:00	Maximum Daily Speed Average: 17.6 km/h on Dec 12	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 19 00:00	Minimum Daily Speed Average: 0.5 km/h on Dec 10	Hours of Data: 741
Maximum Diurnal Speed Average: 3.6 km/h at hour 11	Minimum Diurnal Speed Average: 0.8 km/h at hour 1	Hours of Missing Data: 3
Monthly Average Velocity: 1.6 km/h 151.2 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 3 Median = 8 Q ₃ = 12 P ₉₀ = 16 P ₉₉ = 23	Percent Operational Time: 99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NNW8	NW8	WNW7	NW4	WNW4	WNW3	NW3	NW2	N1	WNW2	WNW1	SW1	SSW2	WSW3	NW1	N1	N1	WNW1	NW1	WNW2	NW3	NW3	NW3	NW3	NW2.4	NNW8
2-Dec	NW3	NW3	NE1	ENE5	NNW6	NW6	NW5	WNW5	NW4	NNW5	NNW1	SE10	SSE8	SE9	SSE9	SE13	SE12	SE10	SE15	SE8	SE8	SE10	SE6	ESE3	SE3.5	SE15
3-Dec	NNE2	NW5	NW9	NW11	NNW14	N17	NNW16	NNW15	NW15	NNW14	NNW10	NW17	WNW14	WNW16	WNW19	WNW20	WNW22	WNW19	NW9	WNW5	W4	WNW3	WNW3	WNW4	NW10.9	WNW22
4-Dec	NW6	NW6	NW5	WNW6	W6	N3	ESE1	SE1	SE7	ESE11	SE9	SE12	SE11	SE13	SE14	SE12	SE19	SE24	SE16	SSE19	SSE16	SE14	SSE15	SSE13	SE8.1	SE24
5-Dec	SE14	SE13	SE10	SSE4	S5	SE10	SE12	SE10	SE10	SE10	SE13	SE11	SE13	SE9	SE7	SE11	SE9	SE10	SE12	SE11	SE11	SE10	SE13	SE9	SE10.2	SE14
6-Dec	SE11	SE12	SE11	SE13	SE13	SE16	SE19	SE16	SE13	SE13	SE12	WSW13	WSW17	W6	W11	WSW14	WSW14	WSW2	SW8	SSE3	SW4	S3	SW3	S5	S6.2	SE19
7-Dec	WSW10	SSW3	W7	WSW9	SW7	NE2	NE2	SW3	SW15	SW10	SSE4	SE7	SE8	SE11	SSE5	S1	WNW0	W3	WNW2	WNW5	W6	NW5	NNW9	N9	SW2.6	SW15
8-Dec	NNW9	N10	N9	NNW8	NNW8	NNW11	N13	N14	N13	N11	N12	N15	N14	NNE10	NNE9	NNE5	NNW3	NE2	SE2	SE4	SSE2	N0	SE2	ESE2	N6.8	N15
9-Dec	SSE3	SE5	SE6	SE6	SE7	SE4	NW3	E1	NNE1	WNW4	N9	N11	NNW6	N15	N15	NNW12	NNW10	NW10	WNW9	WNW9	WNW8	NW3	WNW7	WNW7	NNW4.0	N15
10-Dec	NW2	NNW3	NW2	NW2	NW3	WNW3	NW2	WNW1	NW1	NW2	NW2	WNW1	ESE2	SSE1	E1	SW1	ESE3	E1	NNE1	NW2	N1	ESE6	E6	E3	NNE0.5	E6
11-Dec	E5	SE7	SE11	SE16	ESE7	E11	E7	E8	SSE2	ESE8	ESE10	SE7	ESE9	SE5	SSE4	WSW1	NNE1	NNW2	SE12	SE16	ESE14	SE7	SE7	SE8	ESE7.1	SE16
12-Dec	SE4	SE15	SE14	SE18	SE23	SE17	SE17	ESE23	ESE23	ESE23	ESE24	ESE28	ESE27	ESE27	SE17	SE14	SE13	SE18	SE14	SE12	SE13	SE14	SE13	SE14	SE17.6	ESE28
13-Dec	SE12	SE14	SE13	SE16	SE17	SE15	SE15	SE17	SE19	SE20	SE17	SE16	SE14	SE13	SE13	SE10	SSE0	WNW2	WNW2	WNW5	WNW4	NW4	NW4	SE9.9	SE20	
14-Dec	WNW4	N7	NNW7	NNW8	NNW9	NNW7	NW6	NNW8	N8	NNW8	N10	NNW8	NNW7	NNW10	NNW8	N11	N14	NNW11	NNW8	NW6	NW7	WNW7	NW8	NW8	NNW7.7	N14
15-Dec	WNW7	WNW7	NW11	NW9	NNW8	NNW10	N14	NNW13	NNW11	NNW12	NNW14	N13	NNW12	N14	NNW13	NNW12	N10	NNW10	N10	N9	N8	N9	N8	N5	NNW10.1	N14
16-Dec	NNE4	NNW3	NNW4	WNW3	NNW1	WNW3	WNW5	WNW9	WNW12	WNW12	WNW11	W13	W15	WNW18	W15	W17	W14	W15	W16	W14	W15	WSW19	WSW19	WSW18	W10.7	WSW19
17-Dec	WSW18	W12	W11	W13	W10	W10	WSW10	W8	WSW9	WNW6	E2	ENE1	ESE3	ESE1	SE4	ESE5	SE7	SE5	NNW0	NNW1	ESE2	ESE5	SE9	SE8	WSW3.1	WSW18
18-Dec	SE3	SE4	SE7	SE10	SE9	SE7	SE3	ESE1	NNE2	N2	NW1	NNW2	WNW3	NW3	NNW2	NW2	NW4	NW3	NNW1	NW1	ESE1	NW1	W1	W0	ESE0.9	SE10
19-Dec	SE5	SE8	SE9	SE8	ESE9	SE11	SE7	SE3	SE2	ESE1	SE7	SE4	SE3	SSW1	ESE1	W1	NNW1	NW2	NNW1	NNW1	NW2	NW1	N1	N1	SE2.8	SE11
20-Dec	NNW2	NW2	NNW1	N2	WNW3	NW2	SW1	SE9	SE14	SE29	ESE24	ESE25	SE23	SE17	SE14	SSE12	SSE9	SSE7	SSE7	SSE5	S3	SSW7	S5	SE6	SE8.1	SE29
21-Dec	SE6	ESE4	E1	SE1	S2	SE4	SSE3	SE4	SE5	SE7	SE7	SE5	SE5	SE4	ESE1	NNW1	NNW2	WNW3	NW4	NW3	NW5	WNW4	NNW4	NNW5	SE1.1	SE7
22-Dec	NW4	NW4	WNW4	W1	WNW0	S4	SSE5	SE6	S4	S5	SSE8	S9	SSE12	SSE14	SSE8	SSE8	SSE9	SSE11	SSE13	SSE13	SE11	SE14	SE14	SE13	SSE6.9	SSE14
23-Dec	SE13	SE12	SE8	SE8	SE7	SSE2	ESE7	SE9	SE17	SE16	SE18	SE18	SE20	SE18	SE21	SE20	SE19	SE17	SE14	SE14	SE11	SE10	SW1	W16	SE11.9	SE21
24-Dec	W12	WSW7	SE7	SE8	SE14	SE15	SE15	SE14	ESE15	SE13	SE13	SE8	SE5	SE7	SSE3	WNW4	SE2	SE10	SE11	SE9	SE11	SE12	SE11	SE8	SE8.1	SE15
25-Dec	SE14	SE18	SE16	SE12	SE13	SE12	SE12	SE12	SE11	SE12	SE16	SE13	SE9	WSW15	WSW16	SW9	S6	SE11	SE9	SE11	ESE9	SE11	SE15	SE14	SE10.3	SE18
26-Dec	ESE9	SE14	SE9	SE11	SSE6	SE9	SE12	SE13	SE12	SE11	SE7	SE11	SE10	SE12	SE9	SE10	ESE8	SE6	SE4	SE8	SSE3	ESE1	SE5	SE7	SE8.7	SE14
27-Dec	SE4	SE8	SE9	SSE5	SE8	SE6	SE3	NW1	SE2	SE1	SE3	NW2	NW2	NW1	SE8	SE7	S1	NW2	SSE1	WNW1	NW2	WNW4	WNW4	WNW2	SSE1.9	SE9
28-Dec	WNW3	WNW3	WNW3	WNW4	NW3	WNW2	WNW4	NW4	NW4	NW4	WNW5	WNW4	NNW3	NNW5	WNW4	WNW4	WNW4	WNW5	WNW5	NNW5	N6	NNW6	WNW5	WNW4	NW3.8	N6
29-Dec	WNW4	NW3	NW2	WSW1	SSW1	SE2	SE4	SE4	N1	UO	UO	UO	WNW1	WNW3	WSW5	W2	WNW3	NW2	NW1	WNW2	NNW1	NW3	WNW10	WNW16	WNW2.3	WNW16
30-Dec	NW10	WNW13	WNW17	WNW18	W16	WNW18	WNW20	WNW19	WNW21	WNW23	WNW22	WNW22	WNW19	WNW19	WNW16	WNW14	WNW14	WNW15	WNW17	WNW13	WNW14	WNW12	WNW12	WNW15	WNW16.5	WNW23
31-Dec	WNW14	WNW14	WNW15	NW9	NW2	W3	NW2	NW3	WNW3	W3	WNW4	WNW3	NNW6	NW11	NW9	WNW10	NNW6	NW6	NNW4	WNW3	WNW4	N4	NNW4	WNW4	NW5.8	WNW15

SSW0.8	SSE1.3	S1.1	SSE1.7	SSE1.9	ESE1.9	ESE1.7	ESE1.9	SE2.0	SE2.6	ESE3.6	SE2.9	SE2.6	SSE1.4	S1.5	SSW1.4	S0.9	S1.1	SSE1.6	SSE2.0	S1.4	SSE1.7	S1.3	SSW1.4	Diurnal Average
WSW18	SE18	WNW17	SE18	SE23	WNW18	WNW20	ESE23	ESE23	SE29	ESE24	ESE28	ESE27	ESE27	SE21	SE20	WNW22	SE24	WNW17	SSE19	SSE16	WSW19	WSW19	WSW18	Diurnal Maximum

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

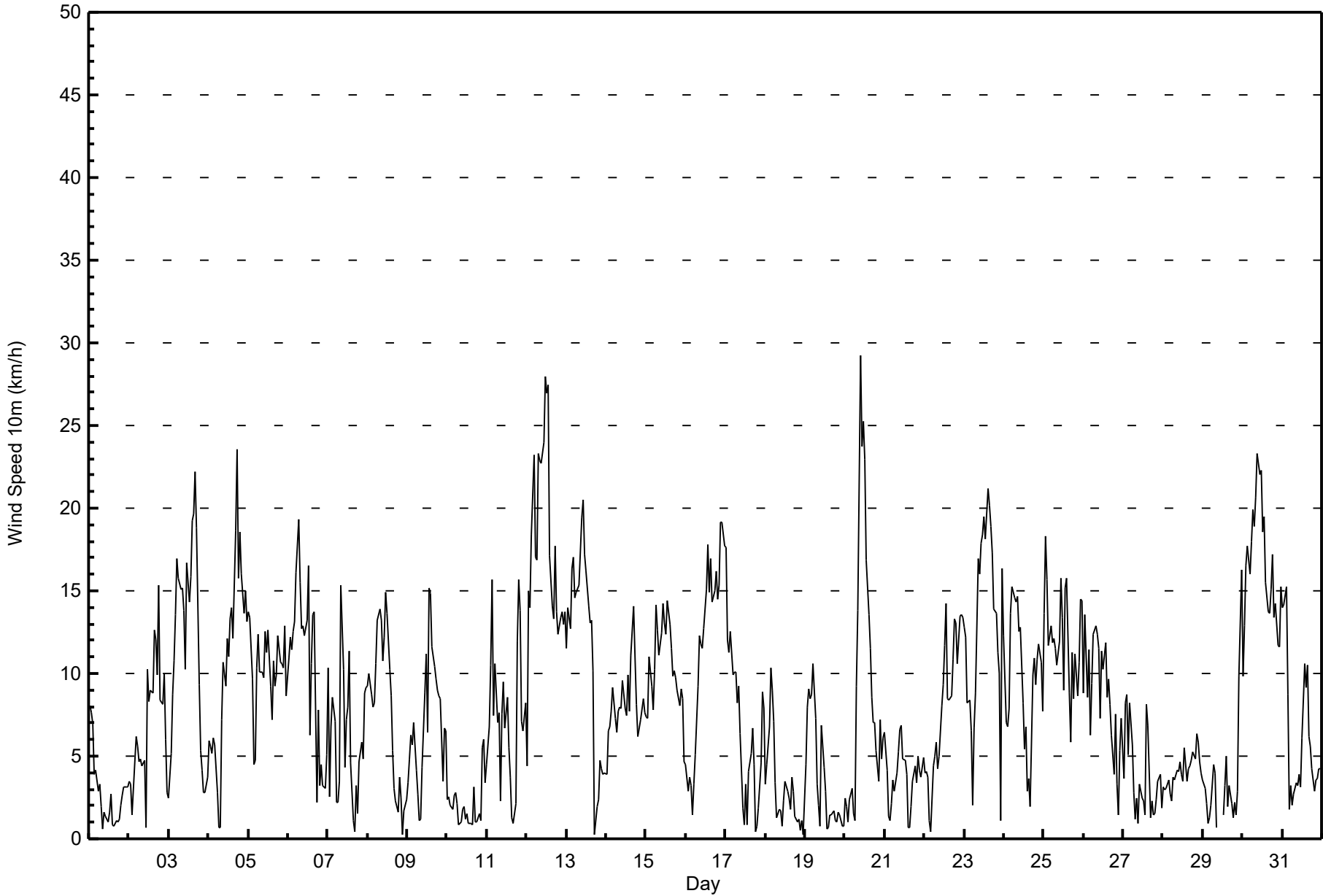
Wind Speed 10m (WS10) - km/h
Lower Camp - December 2024

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Lower Camp - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Lower Camp - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	296	39.95	39.95
6 - 11	230	31.04	70.99
12 - 19	191	25.78	96.76
20 - 28	23	3.10	99.87
29 - 38	1	0.13	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Lower Camp - December 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	7	4	2	7	17	36	20	10	4	7	5	9	65	62	28	296
6 - 11	16	2	0	0	4	13	98	11	2	1	4	5	9	15	21	29	230
12 - 19	13	0	0	0	0	2	101	9	0	0	1	10	14	28	2	11	191
20 - 28	0	0	0	0	0	9	7	0	0	0	0	0	0	7	0	0	23
29 - 38	0	0	0	0	0	0	1	0	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	42	9	4	2	11	41	243	40	12	5	12	20	32	115	85	68	741

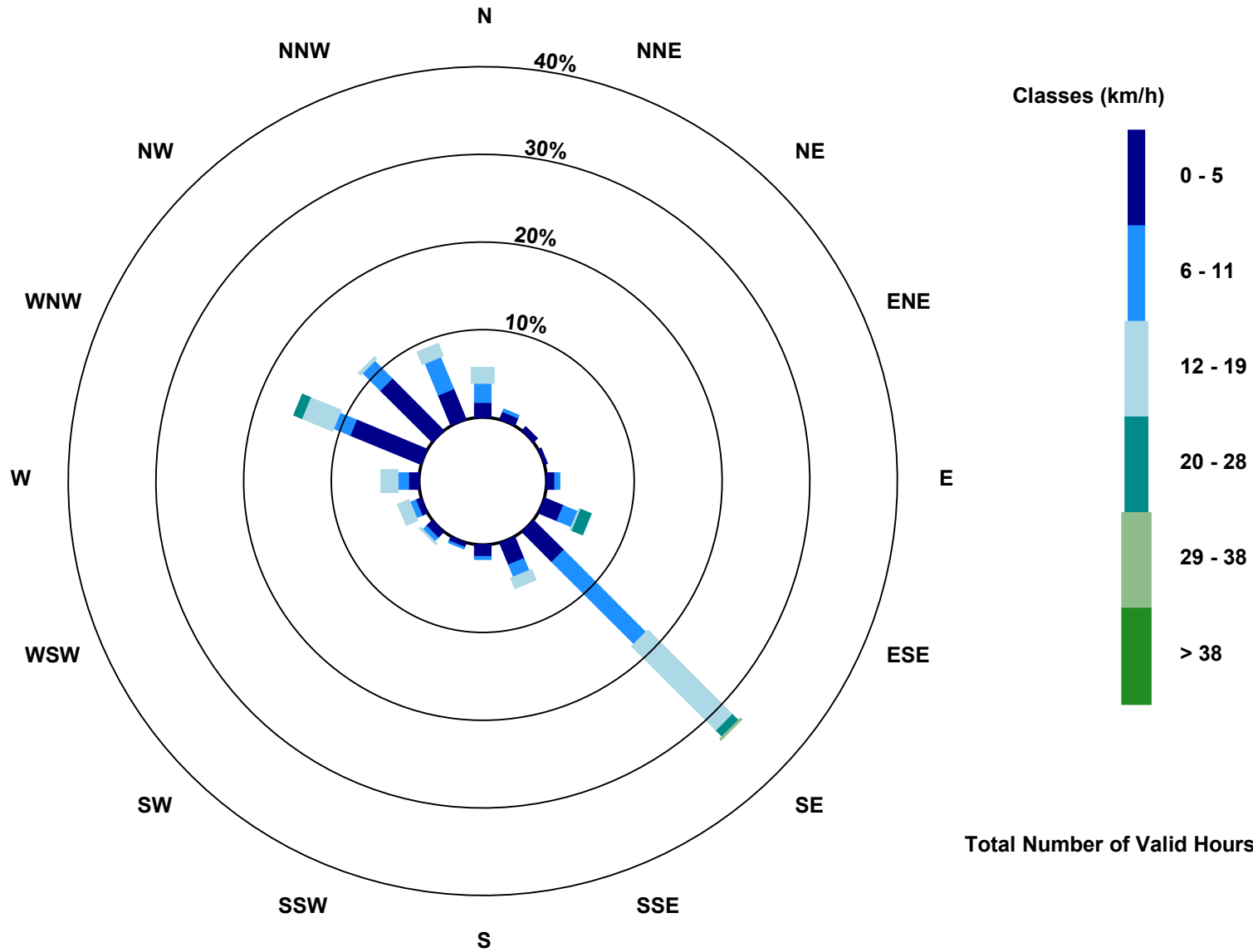
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Lower Camp



Total Number of Valid Hours: 741



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

Lower Camp - December 2024

Direction of Maximum Speed: 125 deg on Dec 20 10:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 127.8 deg on Dec 12		Hours of Data:	741
Direction of Minimum Speed: 267 deg on Dec 19 00:00		Hours of Missing Data:	3
Direction of Minimum Daily Speed Average: 0.5 deg on Dec 10		Percent Operational Time:	99.6
Monthly Average Direction: 151.2 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-Dec	345	316	293	305	288	289	307	322	11	303	282	231	193	253	322	8	4	291	316	295	314	323	326	309	308.4
2-Dec	311	305	52	59	328	325	314	303	307	328	342	137	157	144	151	135	127	142	131	143	136	133	135	107	133.7
3-Dec	33	323	309	311	348	355	343	328	310	338	327	317	303	302	293	293	288	287	320	301	272	283	285	297	312.7
4-Dec	305	320	314	295	273	6	103	127	125	122	133	138	136	137	137	142	136	131	142	147	150	145	148	147	141.0
5-Dec	139	141	137	148	171	137	138	139	138	134	133	131	133	135	140	134	132	135	133	132	132	136	130	141	136.3
6-Dec	136	140	137	142	129	131	134	135	136	137	138	249	257	267	261	257	254	257	225	161	215	183	219	171	171.4
7-Dec	241	212	261	250	228	51	48	217	223	222	160	142	135	133	157	185	291	278	295	294	278	304	338	354	230.8
8-Dec	348	353	349	330	345	348	351	360	0	358	353	356	2	15	16	24	346	38	136	141	167	356	131	117	359.2
9-Dec	147	137	128	138	136	140	315	95	16	302	358	7	339	354	355	343	334	325	302	300	300	315	299	289	337.2
10-Dec	306	333	309	305	322	301	309	294	323	318	320	293	107	160	100	223	109	81	12	319	9	112	101	83	14.0
11-Dec	87	128	130	125	115	96	96	99	151	119	109	124	119	128	150	257	23	333	127	129	123	124	137	138	120.6
12-Dec	138	134	130	129	130	125	126	122	120	116	119	122	118	123	126	146	141	137	141	139	137	133	132	130	127.8
13-Dec	136	133	137	136	134	139	137	137	139	138	137	138	137	136	135	135	138	155	286	288	299	285	309	304	138.5
14-Dec	297	349	339	337	344	346	323	327	350	341	354	348	342	340	343	11	3	346	334	324	322	292	310	306	338.5
15-Dec	302	297	311	318	321	343	352	341	341	341	348	352	344	349	346	340	353	346	357	1	358	355	359	350	342.4
16-Dec	19	333	339	301	328	299	293	302	303	301	286	263	276	289	277	276	279	279	280	268	263	250	250	252	277.6
17-Dec	256	271	271	261	276	280	254	263	258	295	97	77	116	112	135	122	126	138	348	343	121	116	135	138	242.3
18-Dec	131	127	131	135	133	138	133	121	17	8	311	330	290	325	327	325	308	316	337	322	116	315	273	267	122.4
19-Dec	124	126	131	127	123	128	135	126	142	108	135	129	127	202	111	267	336	321	340	348	314	312	7	359	126.8
20-Dec	331	324	336	351	303	313	219	124	124	125	120	123	133	140	141	149	152	154	150	147	191	199	174	144	136.4
21-Dec	127	119	96	138	169	129	166	139	142	137	139	141	132	136	107	332	336	300	322	315	313	289	329	341	134.1
22-Dec	312	308	295	263	292	174	148	146	190	174	161	173	166	158	162	157	155	154	150	155	145	135	130	131	155.1
23-Dec	125	127	137	136	136	168	115	133	127	131	132	130	132	138	136	135	134	133	134	134	134	130	218	271	134.9
24-Dec	259	255	141	133	136	133	134	125	120	140	141	132	145	133	166	300	140	140	146	138	138	134	137	143	141.0
25-Dec	135	133	133	137	139	135	131	132	136	134	134	138	139	245	241	216	169	136	142	131	119	134	128	138	143.9
26-Dec	122	130	141	137	150	138	134	135	133	130	134	135	138	132	137	133	119	129	146	134	156	115	129	145	134.4
27-Dec	126	140	139	155	139	137	136	319	143	124	140	322	306	325	138	137	190	305	147	295	316	295	292	301	147.4
28-Dec	292	292	284	293	304	284	295	311	320	305	284	289	336	348	303	292	283	284	294	337	357	339	301	284	307.0
29-Dec	298	316	315	245	208	132	130	124	2	UO	UO	UO	296	290	253	264	298	304	309	286	338	320	293	294	289.8
30-Dec	313	299	293	290	275	284	286	285	287	289	290	291	293	293	282	291	298	292	296	289	297	294	287	293	290.5
31-Dec	292	291	293	304	315	273	317	312	286	275	293	293	340	305	309	302	335	319	328	303	290	350	333	299	304.2

211.7 153.4 170.3 161.3 147.0 120.3 122.9 122.8 141.6 129.0 123.0 132.8 141.1 151.4 185.8 194.8 172.9 170.4 163.8 159.6 171.4 163.3 170.8 208.7
Diurnal Average

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

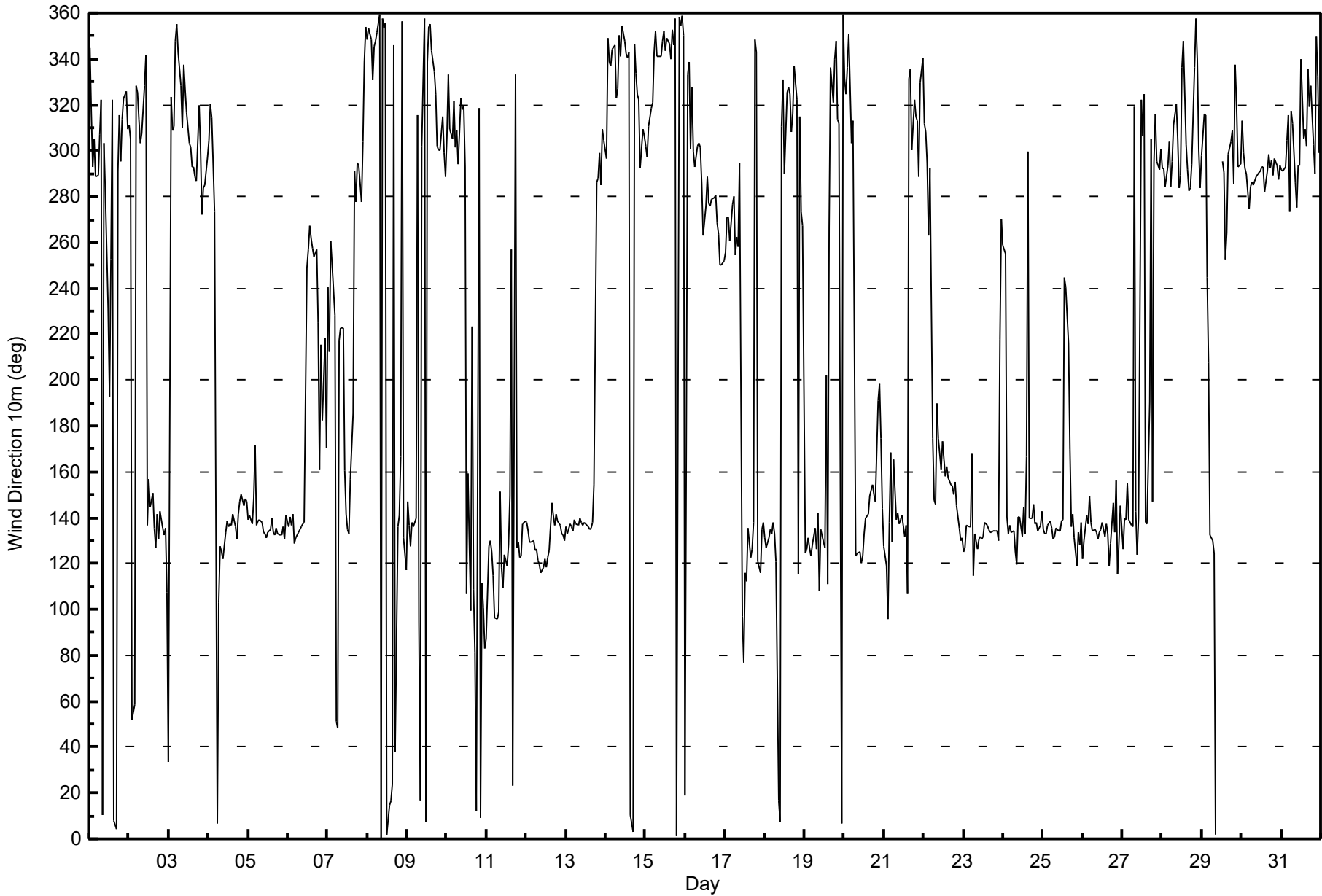
Wind Direction 10m (WD10) - deg
Lower Camp - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Dec 23 23:00 Minimum Value: 4 deg on Dec 24 06:00 Percentiles: P ₁ = 6 P ₁₀ = 9 Q ₁ = 12 Median = 19 Q ₃ = 33 P ₉₀ = 66 P ₉₉ = 92																		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-Dec	23	14	17	22	21	31	30	47	90	37	31	60	45	43	77	71	44	33	51	38	13	24	21	17	90
2-Dec	17	21	75	73	37	21	13	16	16	24	81	24	26	23	27	14	12	23	13	23	19	10	31	56	81
3-Dec	71	19	15	12	20	16	19	15	16	20	18	13	11	11	10	10	10	11	20	26	14	41	40	33	71
4-Dec	13	20	22	33	30	44	93	91	25	11	17	15	20	18	20	20	14	12	21	22	21	21	20	20	93
5-Dec	12	13	23	30	35	11	9	8	9	9	5	5	6	12	22	9	7	15	7	9	9	9	9	19	35
6-Dec	11	12	13	25	15	7	6	8	11	11	14	42	12	30	18	14	32	76	42	72	30	48	73	42	76
7-Dec	14	53	56	38	47	80	76	93	16	28	47	13	14	6	50	76	66	34	62	26	14	23	22	23	93
8-Dec	21	19	19	17	21	19	18	18	18	20	16	15	14	15	20	23	27	44	75	37	44	86	73	59	86
9-Dec	44	34	17	15	10	57	28	92	73	26	31	21	21	20	17	22	21	19	11	12	15	29	13	16	92
10-Dec	52	32	37	42	30	34	75	64	71	36	32	56	66	81	85	72	47	77	59	28	48	42	18	37	85
11-Dec	54	48	16	10	41	25	30	40	80	25	17	24	12	33	46	61	98	68	77	13	16	83	64	30	98
12-Dec	87	16	13	9	9	11	9	6	8	8	7	8	6	7	11	25	19	12	20	17	16	11	12	9	87
13-Dec	10	9	9	7	8	10	9	7	9	7	6	8	6	5	13	6	12	90	40	57	25	24	23	15	90
14-Dec	27	17	18	18	19	20	17	18	21	20	20	18	19	21	16	13	19	20	25	18	18	16	16	16	27
15-Dec	14	18	9	13	16	19	19	21	19	18	19	19	19	18	18	18	22	16	21	19	16	14	31	31	
16-Dec	27	31	27	23	32	8	16	13	11	11	13	13	16	12	14	12	16	16	15	13	13	10	10	12	32
17-Dec	13	19	17	22	20	18	11	21	12	36	74	88	29	93	21	10	15	34	90	82	71	21	12	14	93
18-Dec	64	58	10	8	8	14	40	78	34	47	77	26	23	30	23	43	12	16	24	33	48	48	30	72	78
19-Dec	46	9	8	11	10	9	12	73	68	89	18	14	42	88	91	57	32	34	33	33	23	50	67	72	91
20-Dec	32	41	70	42	28	69	73	13	7	7	9	13	16	17	19	23	20	21	19	28	49	31	40	17	73
21-Dec	15	36	77	95	44	34	36	18	16	11	10	29	9	59	95	68	50	37	22	33	15	26	18	20	95
22-Dec	16	9	12	43	81	51	43	41	56	47	38	31	31	27	31	33	30	29	24	23	22	11	7	7	81
23-Dec	8	11	10	8	14	77	53	11	6	7	7	6	6	8	6	6	6	5	6	7	7	15	98	14	98
24-Dec	40	66	31	10	7	4	7	9	12	19	15	27	36	55	71	68	79	31	23	12	10	7	22	41	79
25-Dec	9	6	7	9	8	9	8	12	12	8	8	11	40	16	15	33	36	13	21	10	16	14	7	7	40
26-Dec	18	9	17	10	28	15	13	7	6	6	9	7	10	7	12	8	24	49	54	12	34	87	20	21	87
27-Dec	71	15	12	29	10	21	83	52	83	90	86	32	28	57	32	16	74	30	89	44	35	17	15	38	90
28-Dec	12	10	14	14	13	10	17	9	18	12	10	28	28	17	25	8	14	21	13	27	21	20	18	9	28
29-Dec	22	17	16	46	39	52	16	34	62	UO	UO	UO	29	19	9	40	24	18	14	32	25	15	13	9	62
30-Dec	15	13	10	10	11	11	11	10	10	10	10	10	11	10	13	11	10	9	9	9	9	10	11	10	15
31-Dec	10	10	10	20	71	14	22	14	12	22	13	33	20	16	14	9	22	17	20	21	12	31	27	17	71
87 66 77 95 81 80 93 93 90 90 86 88 66 93 95 76 98 90 90 82 71 87 98 72																								Diurnal Maximum	
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 10m (WD10) - deg
Lower Camp - December 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS13 FORT MCKAY SOUTH DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)
DECEMBER 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	26	0	8	0
TRS(ppb) Average	708	36	36	100	3.7	0	1.2	0
THC(ppm) Average	710	34	34	100	4.3	-	2.8	-
NMHC(ppm) Average	710	34	34	100	0.419	-	0.077	-
CH4(ppm) Average	710	34	34	100	4.2	-	2.7	-
O3(ppb) Average	709	35	35	100	32.3	0	28.6	-
NO2(ppb) Average	709	35	35	100	36.5	0	23.8	-
NO(ppb) Average	709	35	35	100	121.6	-	36.5	-
NOX(ppb) Average	709	35	35	100	158.1	-	60.4	-
PM2.5(ug/m3) Average	743	1	1	100	20.7	0	15.8	0
ET(C) Average	744	0	0	100	3.4	-	-0.4	-
RH(%) Average	744	0	0	100	100	-	96.6	-
WS(km/h) Average	661	0	83	88.84	17	-	11	-
WD(deg) Average	661	0	83	88.84	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)
 DECEMBER 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	1.22	2.7	-	0	0.2	0.3	0.5	1	2.2	26
TRS(ppb) Average	708	0.71	0.4	-	0.3	0.4	0.4	0.6	0.9	1.2	3.4
THC(ppm) Average	710	2.36	0.3	-	2.1	2.1	2.2	2.3	2.5	2.7	4.3
NMHC(ppm) Average	710	0.014	0.041	-	0	0	0	0	0	0	0.419
CH4(ppm) Average	710	2.34	0.3	-	2.1	2.1	2.2	2.3	2.4	2.6	4.2
O3(ppb) Average	709	11.59	8.9	-	0.9	1.5	3.2	9.7	18.4	25.7	32.3
NO2(ppb) Average	709	11.27	7.9	-	0	1.3	5.8	9.5	15.9	23.7	36.5
NO(ppb) Average	709	8.17	17.2	-	0	0	0	0.4	7.4	25.7	121.6
NOX(ppb) Average	709	19.44	23.4	-	0	1.5	6.1	11.4	24.2	47.3	158.1
PM2.5(ug/m3) Average	743	4.6	3.7	-	0.3	1.4	2.1	3.3	5.3	10.2	20.7
Temperature 2 m (C) Average	744	-13.42	8.2	-	-34.1	-25.6	-19.5	-11.2	-8	-3.7	3.4
Relative Humidity (%) Average	744	84.05	7.5	-	65.7	74.4	77.8	83.9	90.6	93	100
Wind Speed 10 m (km/h) Average	661	5.6	4	-	0	1	2	5	9	12	17
Wind Direction 10 m (deg) Average	661	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT McKAY SOUTH (AMS13)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	01 Dec 2024 10:00	01 Dec 2024 11:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	01 Dec 2024 18:00	01 Dec 2024 20:00	3	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	02 Dec 2024 15:00	02 Dec 2024 15:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	02 Dec 2024 17:00	02 Dec 2024 17:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	05 Dec 2024 08:00	05 Dec 2024 08:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	05 Dec 2024 15:00	05 Dec 2024 16:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	07 Dec 2024 18:00	07 Dec 2024 18:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	08 Dec 2024 17:00	08 Dec 2024 18:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	08 Dec 2024 22:00	08 Dec 2024 22:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	09 Dec 2024 00:00	09 Dec 2024 00:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	09 Dec 2024 05:00	09 Dec 2024 07:00	3	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	09 Dec 2024 09:00	09 Dec 2024 09:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	10 Dec 2024 09:00	10 Dec 2024 09:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	10 Dec 2024 21:00	10 Dec 2024 22:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	12 Dec 2024 00:00	12 Dec 2024 00:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	16 Dec 2024 03:00	16 Dec 2024 06:00	4	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	18 Dec 2024 02:00	18 Dec 2024 02:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	18 Dec 2024 04:00	18 Dec 2024 04:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	18 Dec 2024 07:00	18 Dec 2024 12:00	6	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	18 Dec 2024 16:00	18 Dec 2024 16:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	18 Dec 2024 19:00	18 Dec 2024 20:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	19 Dec 2024 20:00	19 Dec 2024 23:00	4	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	20 Dec 2024 03:00	20 Dec 2024 03:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	21 Dec 2024 10:00	21 Dec 2024 10:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	22 Dec 2024 01:00	22 Dec 2024 01:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	27 Dec 2024 05:00	27 Dec 2024 05:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	27 Dec 2024 08:00	27 Dec 2024 08:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	27 Dec 2024 12:00	27 Dec 2024 12:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	27 Dec 2024 21:00	27 Dec 2024 21:00	1	Unstable Operation - flatline in analyzer output signal

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT MCKAY SOUTH (AMS13)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	27 Dec 2024 23:00	28 Dec 2024 01:00	3	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	28 Dec 2024 04:00	28 Dec 2024 10:00	7	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	28 Dec 2024 16:00	28 Dec 2024 17:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	28 Dec 2024 23:00	29 Dec 2024 00:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	29 Dec 2024 03:00	29 Dec 2024 04:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	29 Dec 2024 08:00	29 Dec 2024 13:00	6	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	29 Dec 2024 16:00	29 Dec 2024 17:00	2	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	31 Dec 2024 05:00	31 Dec 2024 05:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	31 Dec 2024 07:00	31 Dec 2024 07:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	31 Dec 2024 12:00	31 Dec 2024 12:00	1	Unstable Operation - flatline in analyzer output signal
Wind Speed, Wind Direction	31 Dec 2024 18:00	01 Jan 2025 00:00	7	Unstable Operation - flatline in analyzer output signal



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 26.0 ppb on Dec 22 13:00	Maximum Daily Average: 8.0 ppb on Dec 22		Hours of Data:	710
Minimum Value: 0.0 ppb on Dec 17 12:00	Minimum Daily Average: 0.2 ppb on Dec 15		Hours of Missing Data:	34
Maximum Diurnal Average: 2.6 ppb at hour 15	Minimum Diurnal Average: 0.7 ppb at hour 19		Hours of Calibration:	34
Monthly Average: 1.22 ppb	Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.3 Median = 0.5 Q ₃ = 1.0 P ₉₀ = 2.2 P ₉₉ = 17.1		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.3	Z	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.6	1.0	2.6	8.0	6.4	3.1	1.7	1.4	1.2	1.4	1.3	1.6	1.2	0.9	1.5	8.0
2-Dec	0.9	1.0	Z	0.5	0.9	1.3	1.5	1.6	1.5	1.4	1.4	1.8	1.9	2.1	1.5	1.1	1.0	0.9	0.9	0.9	0.8	0.8	0.7	0.7	1.2	2.1
3-Dec	0.9	0.8	0.6	Z	0.6	0.5	0.9	0.4	0.2	0.4	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.9	
4-Dec	0.2	0.3	0.2	0.3	Z	0.5	0.5	0.9	0.9	1.0	1.6	2.0	1.6	0.9	1.1	1.2	1.0	0.9	0.9	1.6	18.8	5.6	5.1	3.5	2.2	18.8
5-Dec	1.0	0.7	0.6	0.6	0.5	Z	0.5	0.5	0.5	0.5	C	C	C	2.2	2.4	0.8	0.5	0.7	0.9	1.0	0.7	0.7	0.5	3.2	0.9	3.2
6-Dec	Z	0.6	0.4	0.5	0.7	1.0	1.8	1.7	1.8	0.9	0.8	0.7	0.7	0.7	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.7	1.8
7-Dec	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.6	0.7	0.7	0.6	0.8	0.4	0.3	0.3	0.4	0.8
8-Dec	0.2	0.3	Z	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	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.3
9-Dec	0.3	0.3	0.4	Z	0.2	0.3	0.4	0.8	0.7	0.7	1.1	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	1.1
10-Dec	0.1	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.3	0.6	0.7	0.7	0.9	0.8	0.7	0.6	0.6	0.6	0.6	0.8	0.8	0.6	0.3	0.5	0.9
11-Dec	0.3	0.2	0.4	0.4	0.4	Z	0.6	0.4	0.2	0.2	0.2	0.2	1.6	1.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.6
12-Dec	Z	0.0	0.9	2.8	5.1	4.4	6.0	7.0	17.1	6.6	5.2	6.5	7.7	9.3	5.9	1.5	0.8	0.7	0.8	0.8	3.1	2.0	1.5	2.4	4.3	17.1
13-Dec	1.4	Z	8.2	2.1	1.0	0.8	0.6	0.6	0.7	0.8	1.1	1.1	2.3	2.7	1.1	1.4	1.4	1.3	1.0	1.0	0.8	0.8	0.6	0.5	1.4	8.2
14-Dec	0.5	0.4	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.4	0.3	0.3	0.3	0.2	0.5
15-Dec	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.3
16-Dec	0.2	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.4
17-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.4	0.2	0.1	0.1	0.4	0.6	1.1	1.7	1.8	2.2	0.4	2.2
18-Dec	Z	2.0	1.7	1.4	1.0	0.9	0.8	1.0	0.7	0.5	0.6	0.7	0.9	0.8	0.8	1.0	1.0	0.9	1.1	1.0	1.1	1.2	1.1	1.1	1.0	2.0
19-Dec	2.2	Z	0.8	1.0	0.9	2.4	3.2	0.5	0.2	0.1	0.2	1.7	2.1	1.0	23.0	20.2	7.6	1.4	1.1	0.6	0.5	0.7	0.6	0.6	3.2	23.0
20-Dec	0.7	0.8	Z	1.8	2.1	2.3	1.8	1.9	1.7	1.5	3.7	3.7	1.2	0.8	0.9	2.2	7.7	1.5	1.1	1.0	1.0	1.1	0.9	0.8	1.8	7.7
21-Dec	0.6	0.6	0.6	Z	0.9	0.8	0.5	0.4	0.4	0.5	0.6	1.6	1.6	1.3	1.4	1.1	0.8	0.8	1.0	1.0	1.2	3.1	4.4	3.7	1.3	4.4
22-Dec	3.6	3.9	3.6	3.3	Z	1.3	3.2	6.8	0.9	1.7	7.2	19.6	26.0	4.0	21.9	5.5	6.8	2.9	2.8	17.1	24.1	1.7	11.8	3.4	8.0	26.0
23-Dec	11.6	9.8	5.7	2.0	1.5	Z	2.3	8.3	1.6	2.6	3.6	5.6	2.5	1.8	2.9	3.8	1.3	0.9	0.8	0.7	0.7	0.6	0.5	0.5	3.1	11.6
24-Dec	Z	0.4	0.3	0.3	0.4	0.4	1.2	1.7	0.6	0.6	1.0	1.6	1.1	1.5	1.1	1.0	0.8	0.8	0.7	0.6	0.8	0.8	0.6	0.5	0.8	1.7
25-Dec	0.5	Z	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.6
26-Dec	0.3	0.3	Z	0.3	0.3	0.5	0.6	0.6	0.5	0.4	0.5	0.7	1.0	1.0	2.5	0.8	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6	2.5
27-Dec	0.8	0.8	0.7	Z	0.6	0.5	0.4	0.4	0.3	0.3	0.6	0.6	0.9	1.0	0.7	0.7	0.5	0.4	0.4	0.5	0.4	0.6	0.5	0.4	0.6	1.0
28-Dec	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.3	0.4	1.0	0.8	1.1	2.0	2.1	1.9	1.4	1.2	0.5	0.4	0.4	0.3	0.3	0.7	2.1
29-Dec	0.4	0.4	0.3	0.3	0.4	Z	0.3	0.4	0.3	0.5	0.7	0.7	0.7	0.7	0.5	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7
30-Dec	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.4
31-Dec	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.5	0.7	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.7

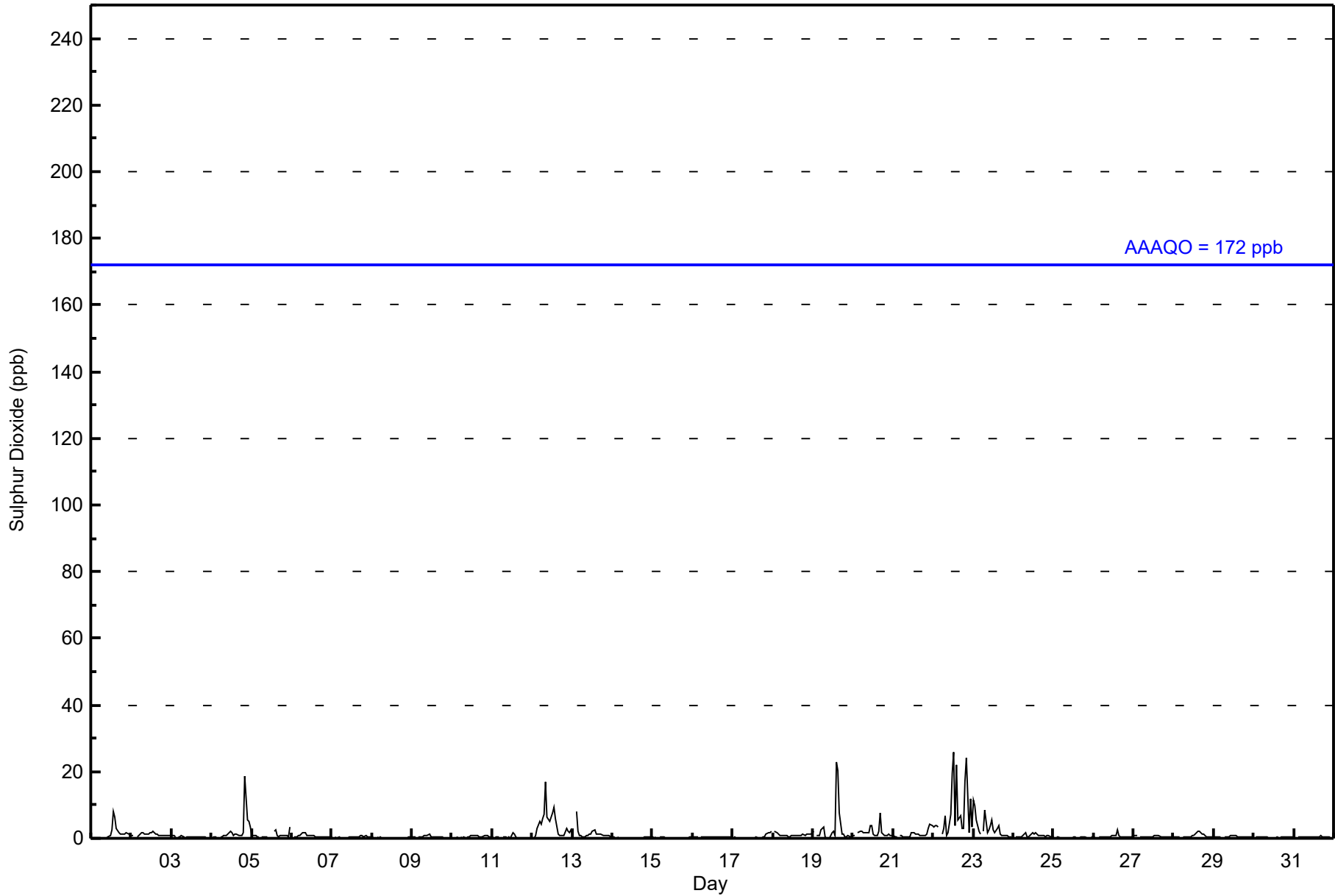
1.1	1.0	1.1	0.8	0.7	0.8	1.0	1.2	1.1	0.8	1.1	1.8	2.0	1.5	2.6	1.7	1.3	0.7	0.7	1.1	2.0	0.9	1.2	0.9	Diurnal Average	
11.6	9.8	8.2	3.3	5.1	4.4	6.0	8.3	17.1	6.6	7.2	19.6	26.0	9.3	23.0	20.2	7.7	2.9	2.8	17.1	24.1	5.6	11.8	3.7	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Fort McKay South - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort McKay South - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	699	98.45	98.45
11 - 20	7	0.99	99.44
21 - 60	4	0.56	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort McKay South - December 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	81	45	7	3	5	6	22	49	127	47	42	46	35	46	35	23	619
11 - 20	0	0	1	0	0	0	0	1	3	2	0	0	0	0	0	0	7
21 - 60	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	4
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	81	45	8	3	5	6	22	50	133	49	42	46	35	47	35	23	630

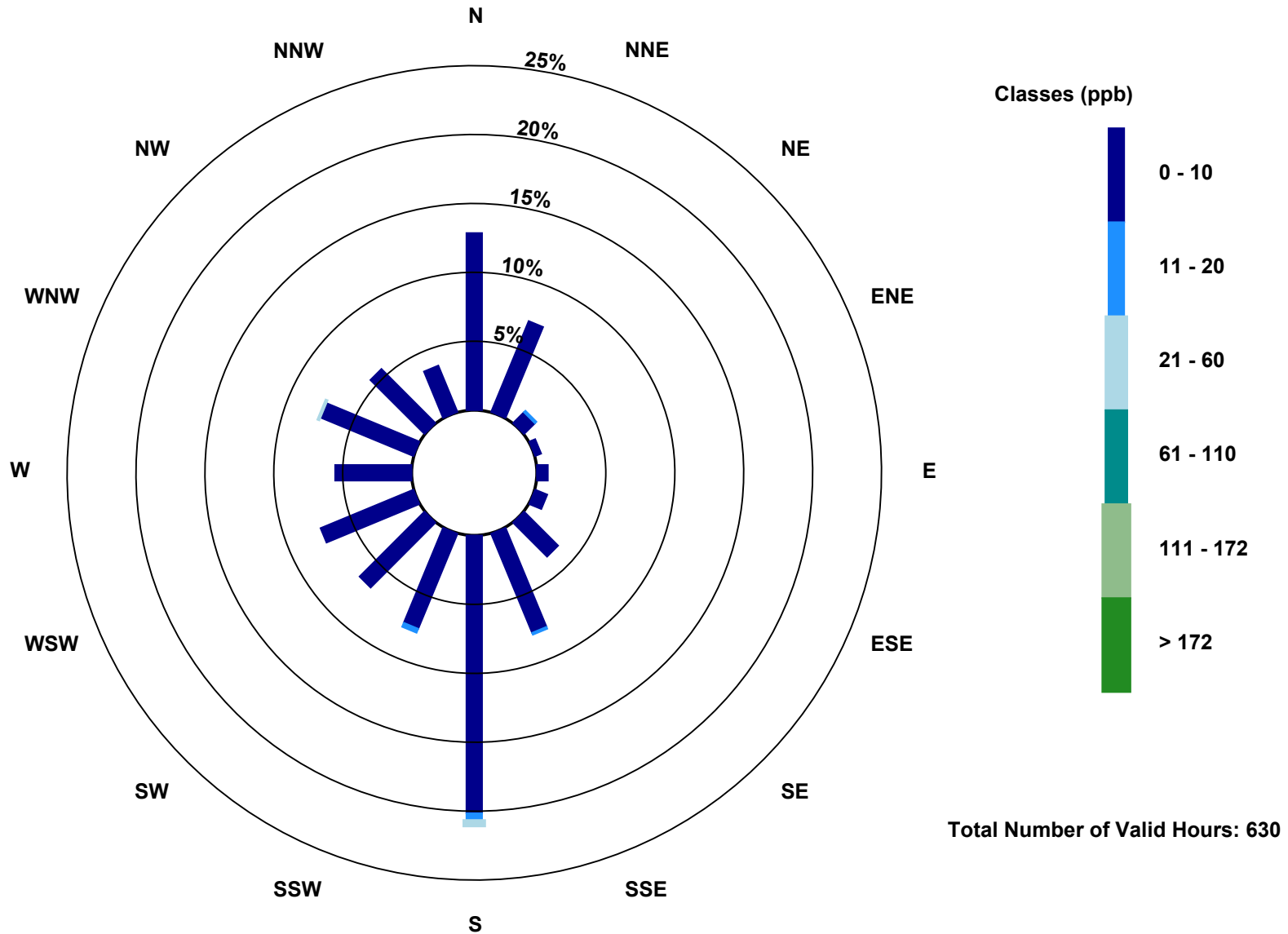
Total Number of Valid Hours: 630

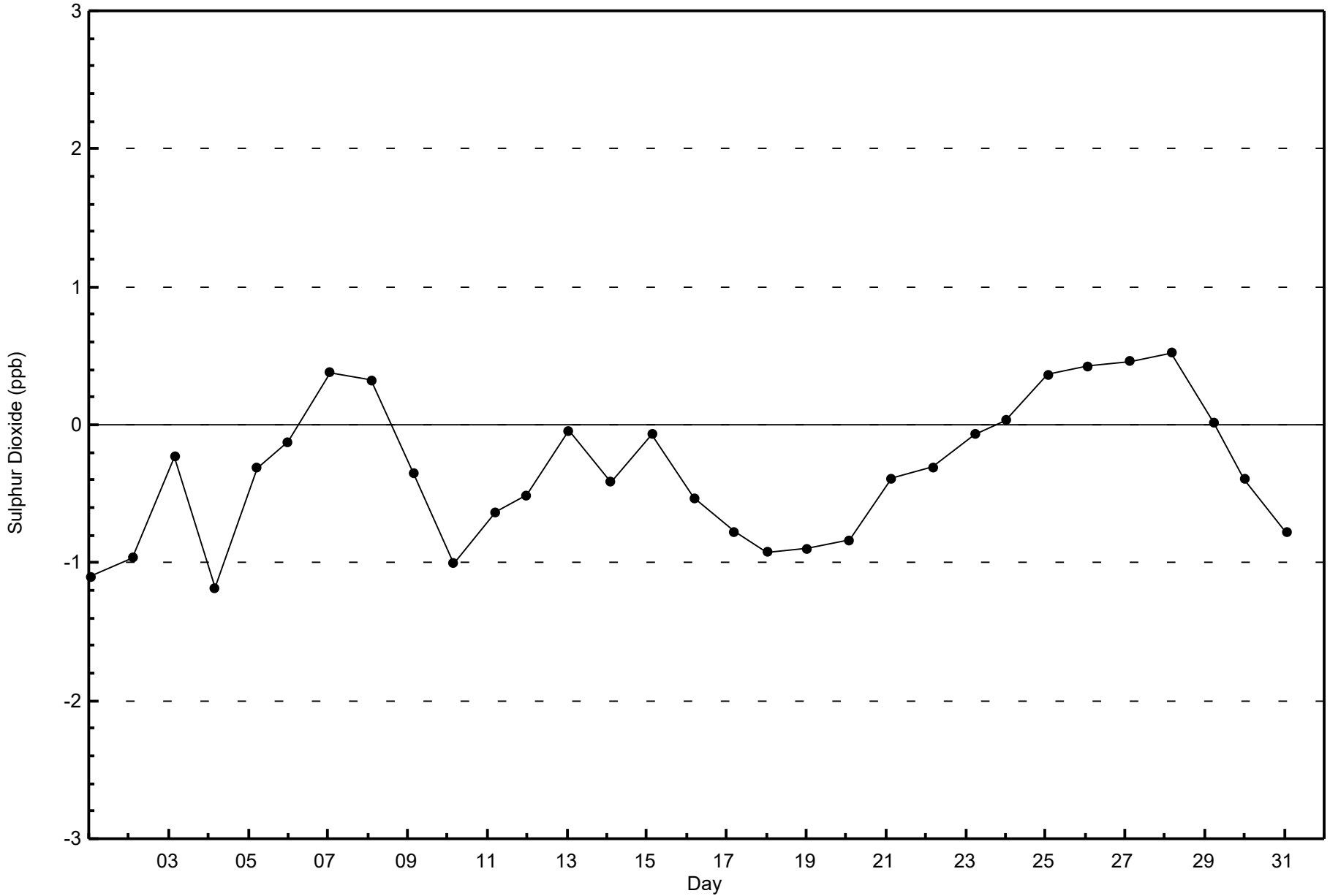
Total Number of Hours: 744

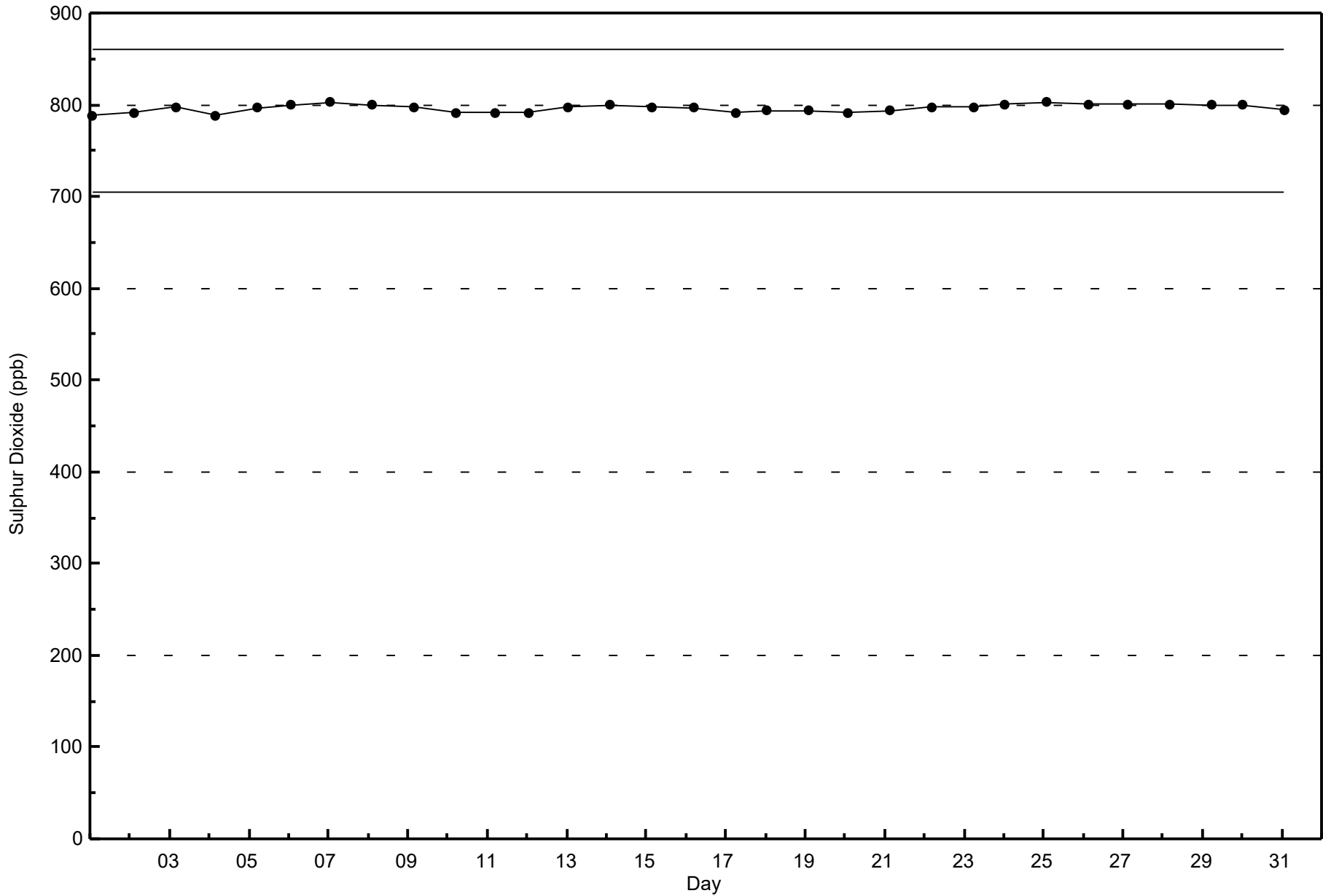


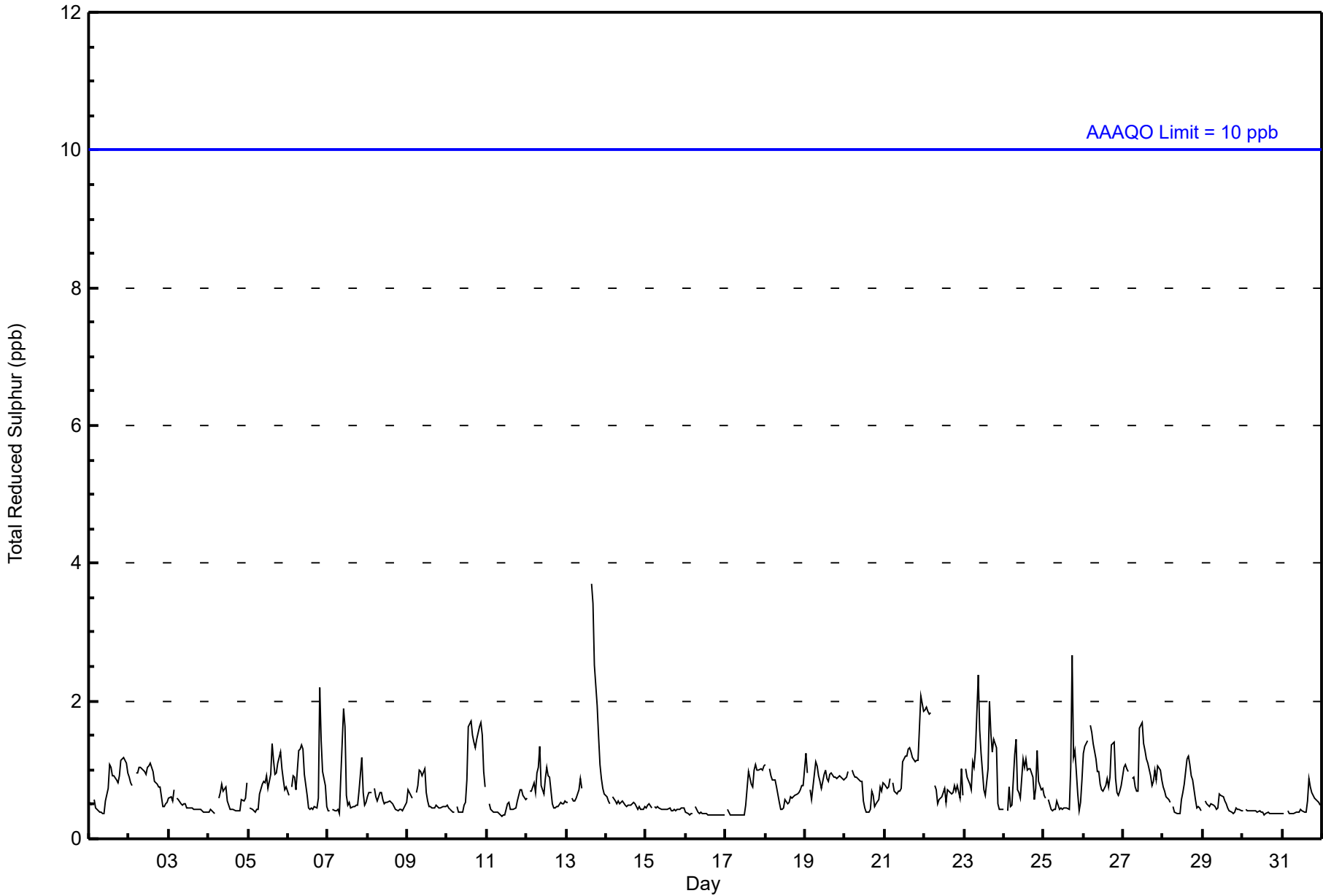
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Fort McKay South











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Total Reduced Sulphur (TRS) - ppb
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	704	99.44	99.44
3 - 4	4	0.56	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 - December 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	82	43	8	3	4	7	21	51	134	48	41	45	35	45	35	24	626
3 - 4	0	0	0	0	0	0	0	0	2	0	0	1	0	1	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	82	43	8	3	4	7	21	51	136	48	41	46	35	46	35	24	630

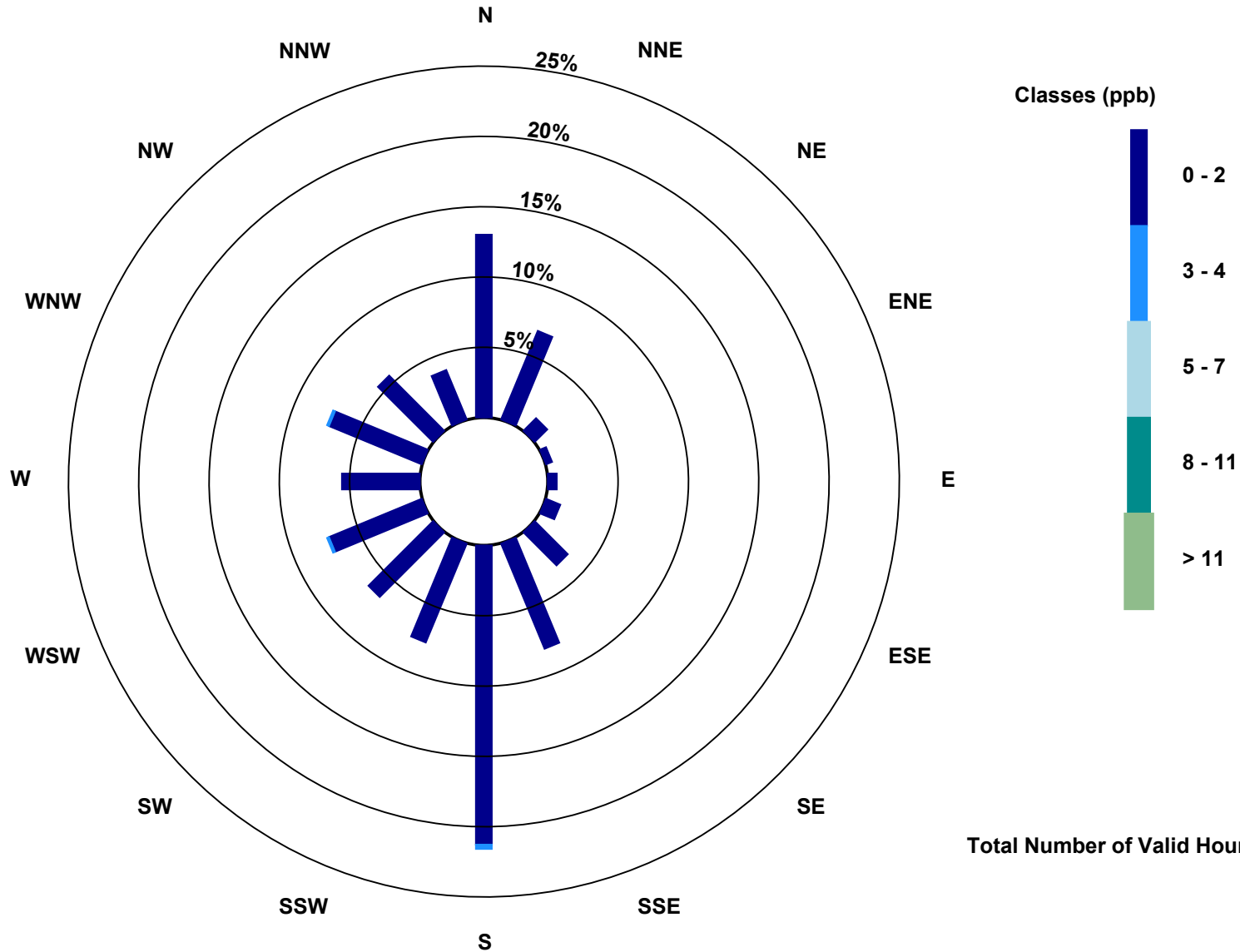
Total Number of Valid Hours: 630

Total Number of Hours: 744

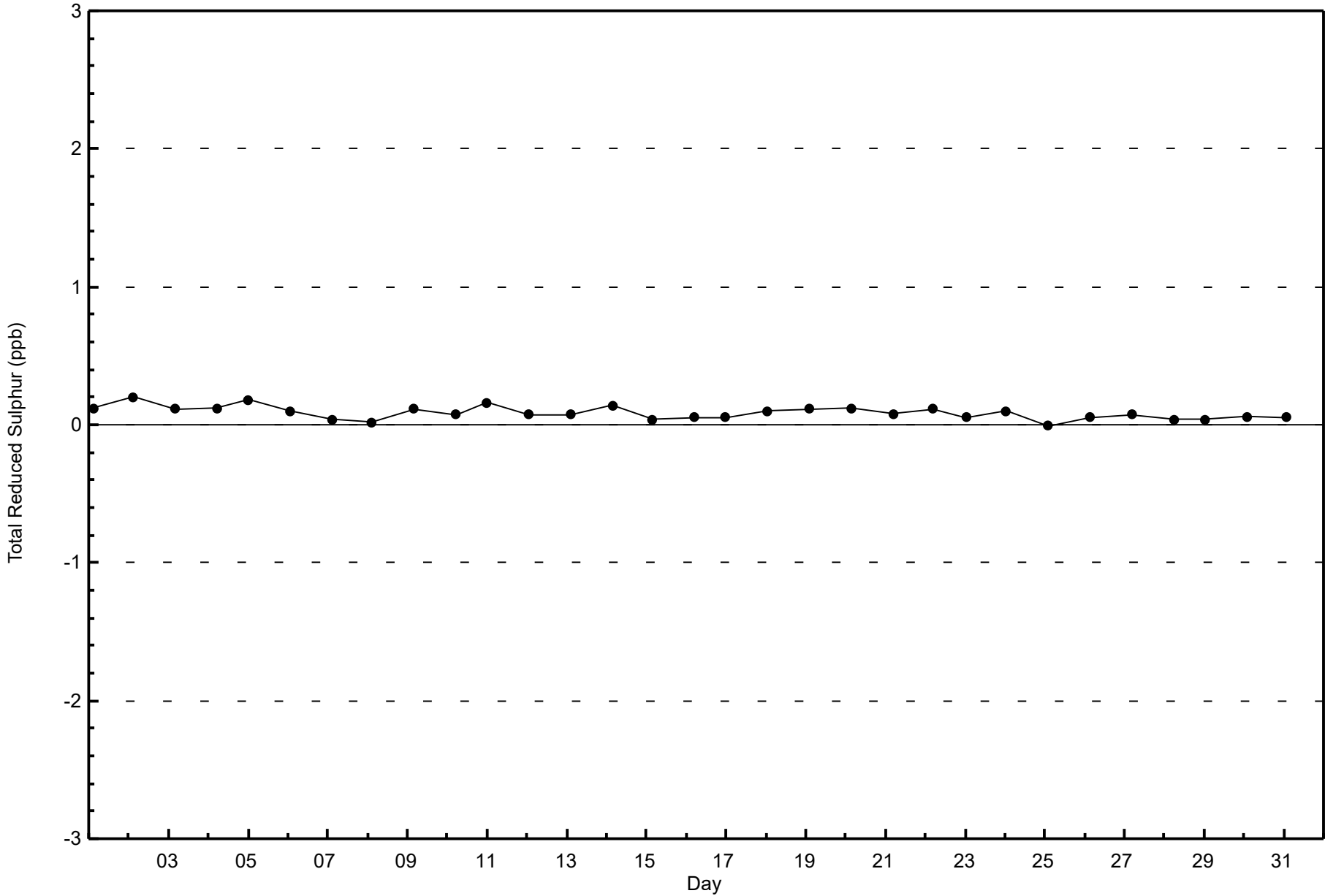


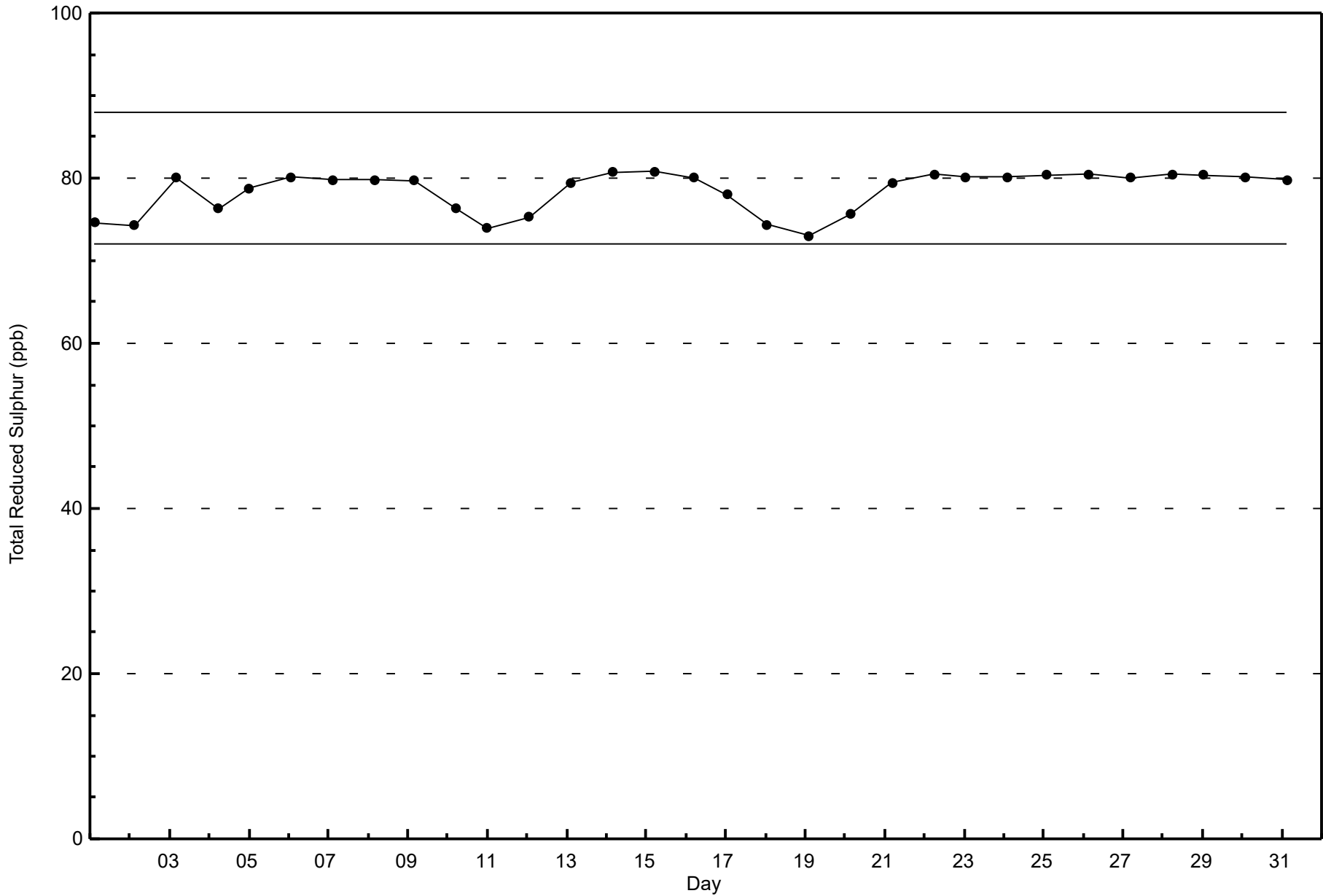
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Fort McKay South



Total Number of Valid Hours: 630







Wood Buffalo Environmental Association
Summary of Hour Averages

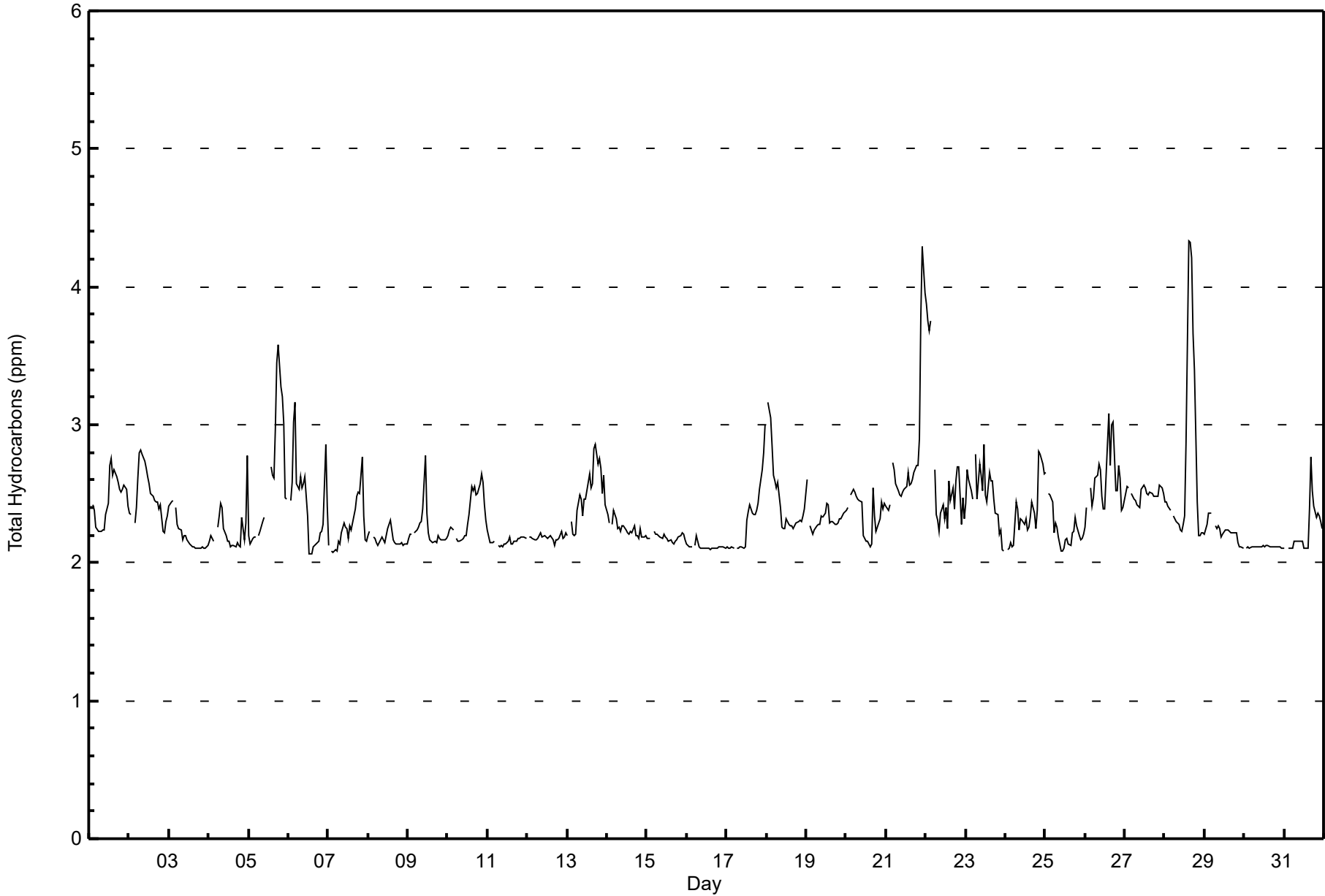
Total Hydrocarbons (THC) - ppm
Fort McKay South - December 2024

Maximum Value: 4.3 ppm on Dec 28 15:00		Maximum Daily Average: 2.8 ppm on Dec 21		Hours in Service: 744																						
Minimum Value: 2.1 ppm on Dec 6 14:00		Minimum Daily Average: 2.1 ppm on Dec 16		Hours of Data: 710																						
Maximum Diurnal Average: 2.4 ppm at hour 17		Minimum Diurnal Average: 2.3 ppm at hour 12		Hours of Missing Data: 34																						
Monthly Average: 2.36 ppm		Percentiles: P ₁ = 2.1 P ₁₀ = 2.1 Q ₁ = 2.2 Median = 2.3 Q ₃ = 2.5 P ₉₀ = 2.7 P ₉₉ = 3.7		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-Dec	2.3	Z	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.7	2.8	2.6	2.7	2.6	2.6	2.5	2.5	2.5	2.6	2.5	2.4	2.5	2.8
2-Dec	2.4	2.4	Z	2.3	2.4	2.6	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.2	2.2	2.3	2.3	2.5	2.8
3-Dec	2.4	2.4	2.5	Z	2.4	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	2.1	2.1	2.1	2.2	2.5
4-Dec	2.2	2.2	2.2	2.2	Z	2.3	2.3	2.4	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.2	2.3	2.8	2.2	2.8
5-Dec	2.2	2.1	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	C	C	C	2.7	2.6	2.6	3.0	3.4	3.6	3.3	3.2	3.0	2.5	2.5	2.6	3.6
6-Dec	Z	2.5	2.6	3.0	3.2	2.6	2.5	2.6	2.5	2.6	2.6	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.9	2.4	2.4	3.2
7-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.3	2.3	2.2	2.2	2.3	2.2	2.3	2.4	2.5	2.5	2.5	2.8	2.3	2.2	2.2	2.3	2.8
8-Dec	2.2	2.2	Z	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3
9-Dec	2.2	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.4	2.8	2.4	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.8
10-Dec	2.2	2.2	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.6	2.5	2.6	2.5	2.5	2.6	2.6	2.6	2.4	2.3	2.3	2.6
11-Dec	2.2	2.1	2.1	2.1	2.2	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	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
12-Dec	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	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
13-Dec	2.2	Z	2.3	2.2	2.2	2.2	2.4	2.5	2.5	2.3	2.5	2.5	2.5	2.6	2.5	2.6	2.8	2.9	2.7	2.8	2.7	2.5	2.6	2.4	2.5	2.9
14-Dec	2.3	2.3	Z	2.3	2.4	2.3	2.2	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
15-Dec	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	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
16-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
17-Dec	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	2.3	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.5	2.7	2.8	3.0	2.3
18-Dec	Z	3.2	3.1	2.9	2.6	2.6	2.5	2.6	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	2.3	2.3	2.3	2.4	2.4
19-Dec	2.6	Z	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3
20-Dec	2.4	2.4	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.2	2.2	2.2	2.2	2.1	2.1	2.5	2.3	2.2	2.3	2.3	2.4	2.4	2.4	2.3	2.5
21-Dec	2.4	2.4	2.4	Z	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.9	3.8	4.3	4.0	2.8	4.3
22-Dec	3.9	3.7	3.7	3.7	Z	2.7	2.3	2.3	2.2	2.4	2.4	2.3	2.4	2.2	2.6	2.5	2.5	2.4	2.6	2.7	2.7	2.3	2.5	2.3	2.7	3.9
23-Dec	2.4	2.7	2.6	2.5	2.5	Z	2.8	2.5	2.7	2.6	2.5	2.9	2.5	2.4	2.6	2.6	2.6	2.5	2.4	2.3	2.2	2.2	2.1	2.1	2.5	2.9
24-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.4	2.4	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.4	2.3	2.4	2.8	2.8	2.7	2.6	2.4	2.8
25-Dec	2.7	Z	2.5	2.5	2.4	2.2	2.3	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.7
26-Dec	2.3	2.4	Z	2.5	2.4	2.5	2.6	2.6	2.7	2.7	2.5	2.4	2.4	2.9	3.1	2.7	3.0	3.0	2.5	2.5	2.7	2.6	2.4	2.4	2.6	3.1
27-Dec	2.5	2.6	2.5	Z	2.5	2.5	2.4	2.4	2.4	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.6
28-Dec	2.4	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.9	4.3	4.3	4.2	3.7	3.4	2.4	2.2	2.2	2.2	2.2	2.7	4.3
29-Dec	2.2	2.3	2.4	2.4	2.4	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.4
30-Dec	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
31-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.4	2.8	2.5	2.4	2.3	2.4	2.3	2.3	2.3	2.2	2.8
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Fort McKay South - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort McKay South - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	690	97.18	97.18
3.1 - 10.0	20	2.82	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Fort McKay South - December 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	81	43	8	3	5	6	21	49	130	46	41	45	34	46	34	22	614
3.1 - 10.0	0	2	0	0	0	0	1	1	3	3	1	1	1	1	1	1	16
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	81	45	8	3	5	6	22	50	133	49	42	46	35	47	35	23	630

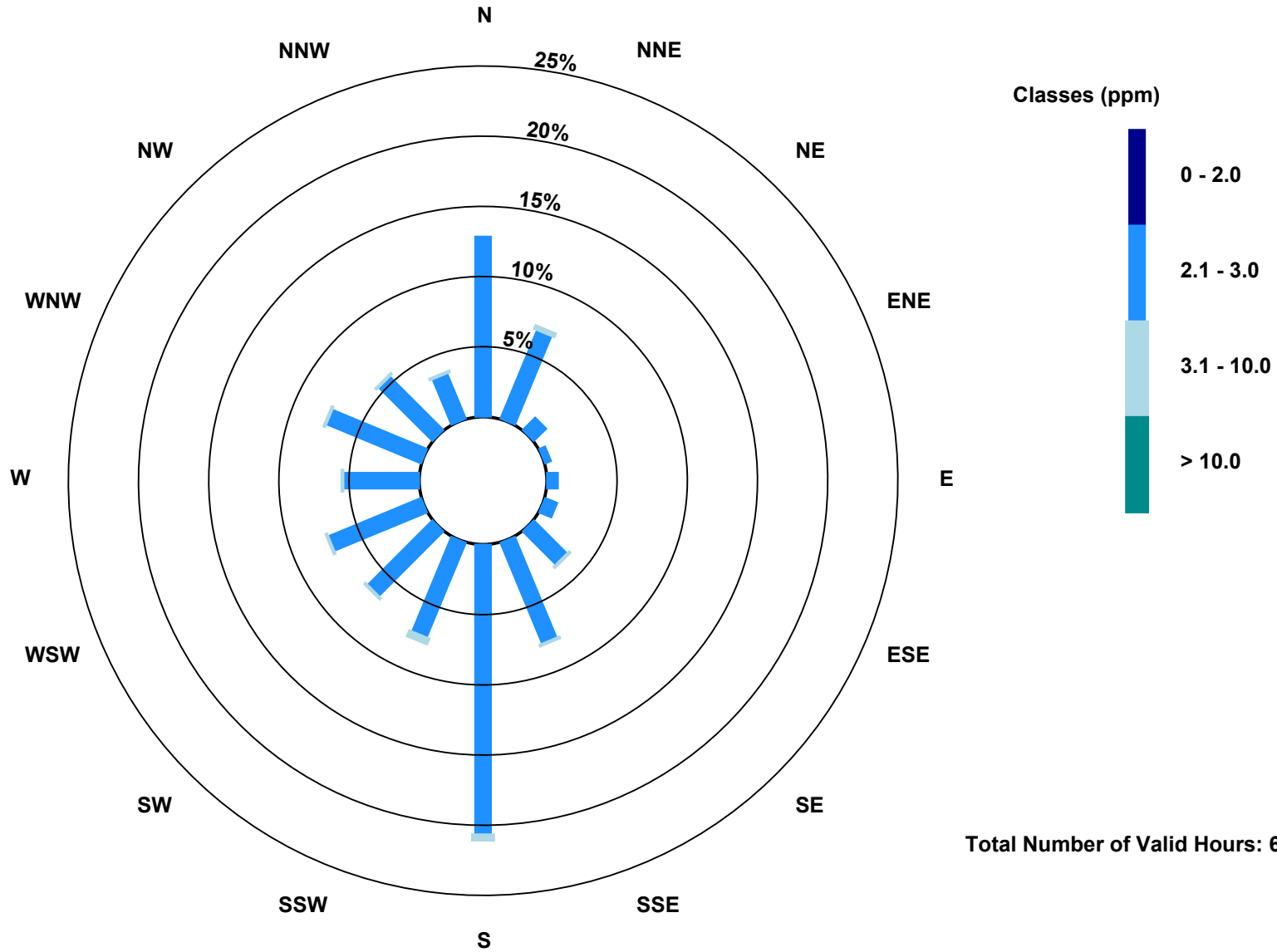
Total Number of Valid Hours: 630

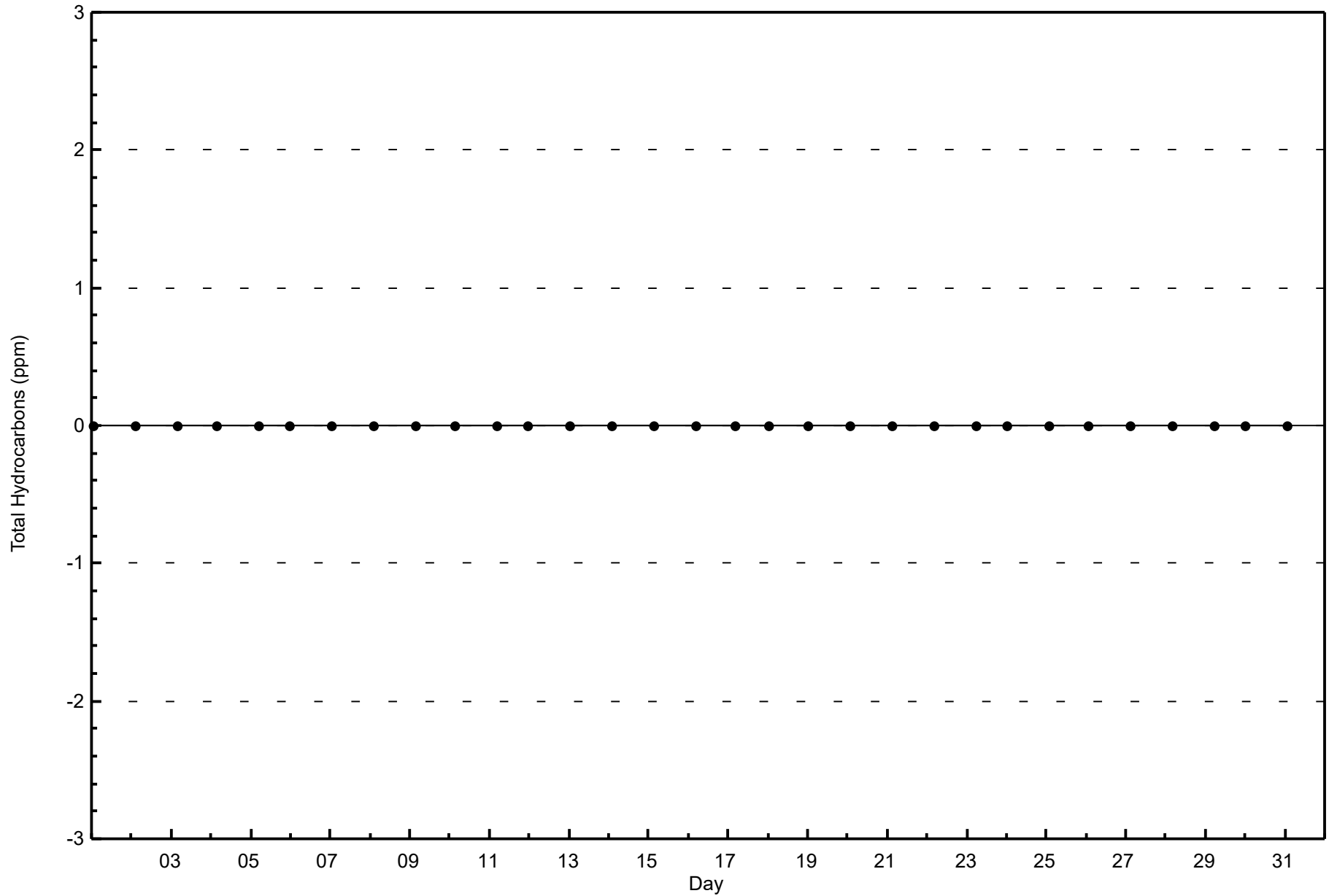
Total Number of Hours: 744

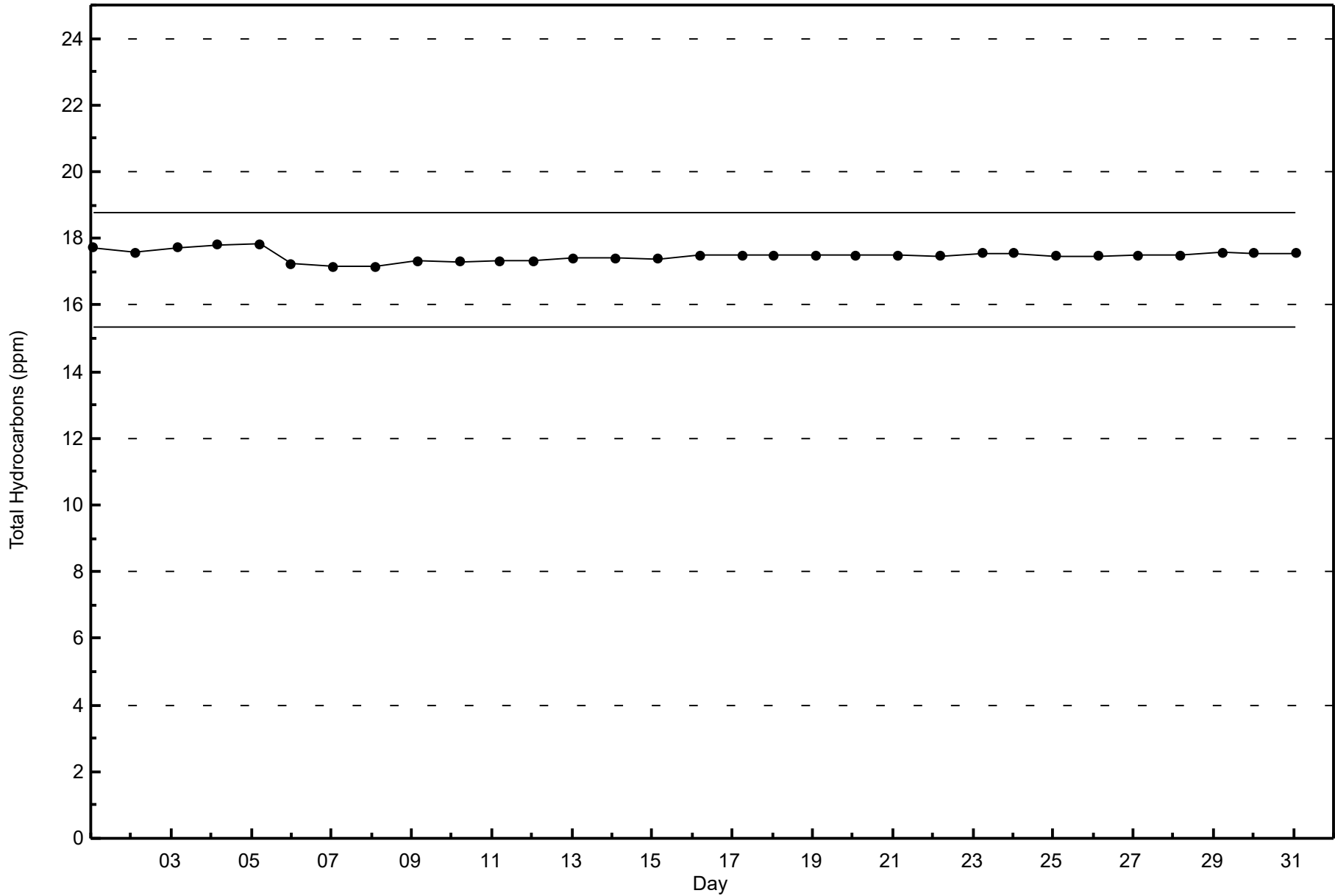


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Fort McKay South







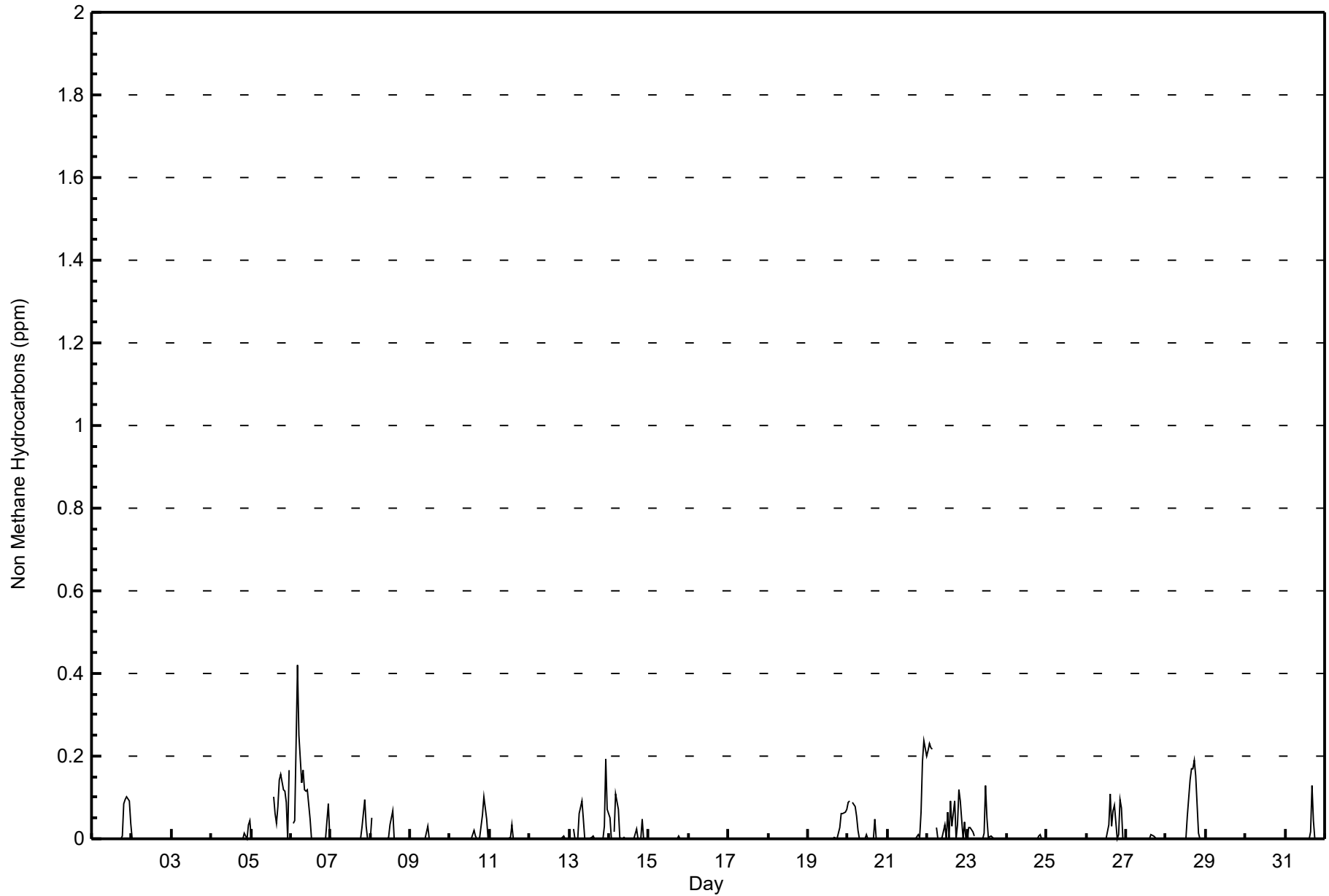


Maximum Value: 0.419 ppm on Dec 6 05:00		Maximum Daily Average: 0.077 ppm on Dec 6		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Dec 1 01:00		Minimum Daily Average: 0.000 ppm on Dec 2		Hours of Data: 710																							
Maximum Diurnal Average: 0.026 ppm at hour 23		Minimum Diurnal Average: 0.004 ppm at hour 10		Hours of Missing Data: 34																							
Monthly Average: 0.014 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: 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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.086	0.094	0.103	0.090	0.036	0.018	0.103	
2-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	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-Dec	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	0.014	0.001	0.035	0.045	0.004	0.045	
5-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	0.102	0.060	0.036	0.078	0.141	0.156	0.120	0.116	0.089	0.002	0.166	0.053	0.166
6-Dec	Z	0.037	0.044	0.230	0.419	0.250	0.134	0.168	0.120	0.115	0.118	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.085	0.007	0.077	0.419	
7-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.029	0.093	0.031	0.000	0.000	0.007	0.093	
8-Dec	0.000	0.050	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.032	0.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.068	
9-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.030	
10-Dec	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	0.020	0.005	0.000	0.000	0.003	0.056	0.101	0.075	0.049	0.001	0.014	0.101	
11-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.034	
12-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.006	0.006
13-Dec	0.000	Z	0.024	0.001	0.000	0.000	0.062	0.092	0.048	0.000	0.000	0.000	0.001	0.004	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.195	0.072	0.023	0.195	
14-Dec	0.051	0.000	Z	0.017	0.108	0.071	0.005	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.000	0.014	0.108	
15-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
16-Dec	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
17-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.012	0.027	0.061	0.060	0.063	0.071	0.013	0.071	
20-Dec	0.088	0.091	Z	0.089	0.079	0.055	0.022	0.000	0.000	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.048	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.021	0.091	
21-Dec	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	0.012	0.004	0.066	0.185	0.237	0.201	0.031	0.237	
22-Dec	0.215	0.232	0.222	0.219	Z	0.028	0.000	0.000	0.000	0.004	0.033	0.001	0.063	0.000	0.092	0.030	0.091	0.000	0.034	0.120	0.090	0.000	0.039	0.000	0.066	0.232	
23-Dec	0.000	0.028	0.027	0.017	0.005	Z	0.000	0.000	0.000	0.000	0.012	0.127	0.050	0.002	0.007	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	0.127	
24-Dec	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	0.000	0.000	0.006	0.011	0.000	0.000	0.000	0.001	0.011	
25-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	0.000	Z	0.001	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.033	0.109	0.029	0.069	0.080	0.000	0.009	0.096	0.075	0.001	0.000	0.000	0.022	0.109	
27-Dec	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	0.009	0.008	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.009	
28-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.056	0.142	0.169	0.170	0.189	0.151	0.015	0.000	0.000	0.000	0.000	0.000	0.039	0.189	
29-Dec	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
30-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.016	0.129	0.044	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.129	
		0.014	0.018	0.012	0.022	0.024	0.016	0.007	0.008	0.005	0.004	0.006	0.006	0.005	0.010	0.014	0.010	0.020	0.015	0.012	0.015	0.026	0.021	0.026	0.019	Diurnal Average	
		0.215	0.232	0.222	0.230	0.419	0.250	0.134	0.168	0.120	0.115	0.118	0.127	0.063	0.102	0.142	0.169	0.170	0.189	0.156	0.120	0.116	0.185	0.237	0.201	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	589	82.96	82.96
0.006 - 0.05	54	7.61	90.56
0.06 - 0.1	49	6.90	97.46
> 0.1	18	2.54	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South - December 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	64	35	7	3	5	6	20	45	92	37	39	46	32	42	30	20	523
0.006 - 0.05	9	3	1	0	0	0	0	3	24	3	2	0	0	0	3	2	50
0.06 - 0.1	7	6	0	0	0	0	1	2	12	6	1	0	2	4	1	0	42
> 0.1	1	1	0	0	0	0	1	0	5	3	0	0	1	1	1	1	15
Totals	81	45	8	3	5	6	22	50	133	49	42	46	35	47	35	23	630

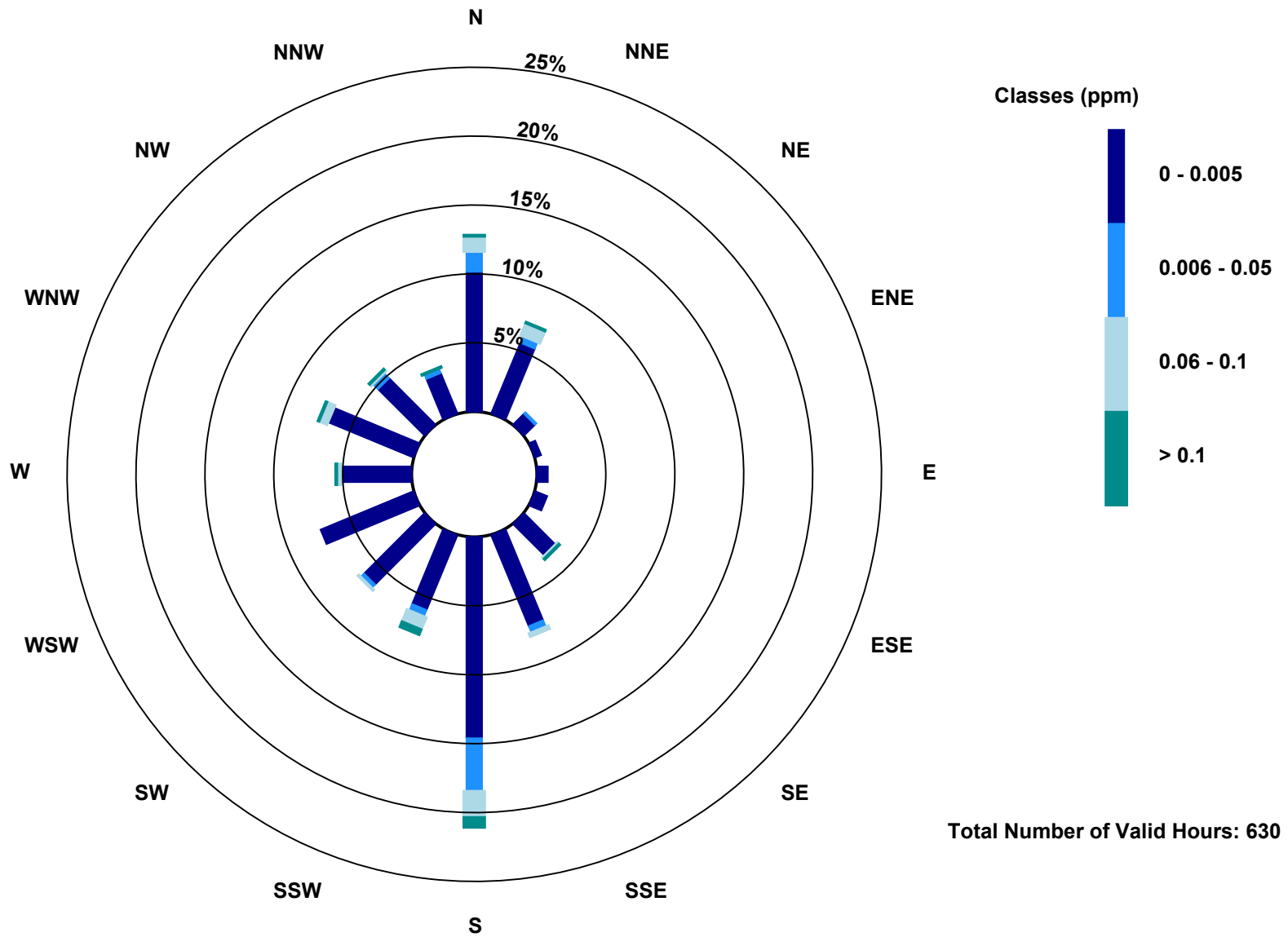
Total Number of Valid Hours: 630

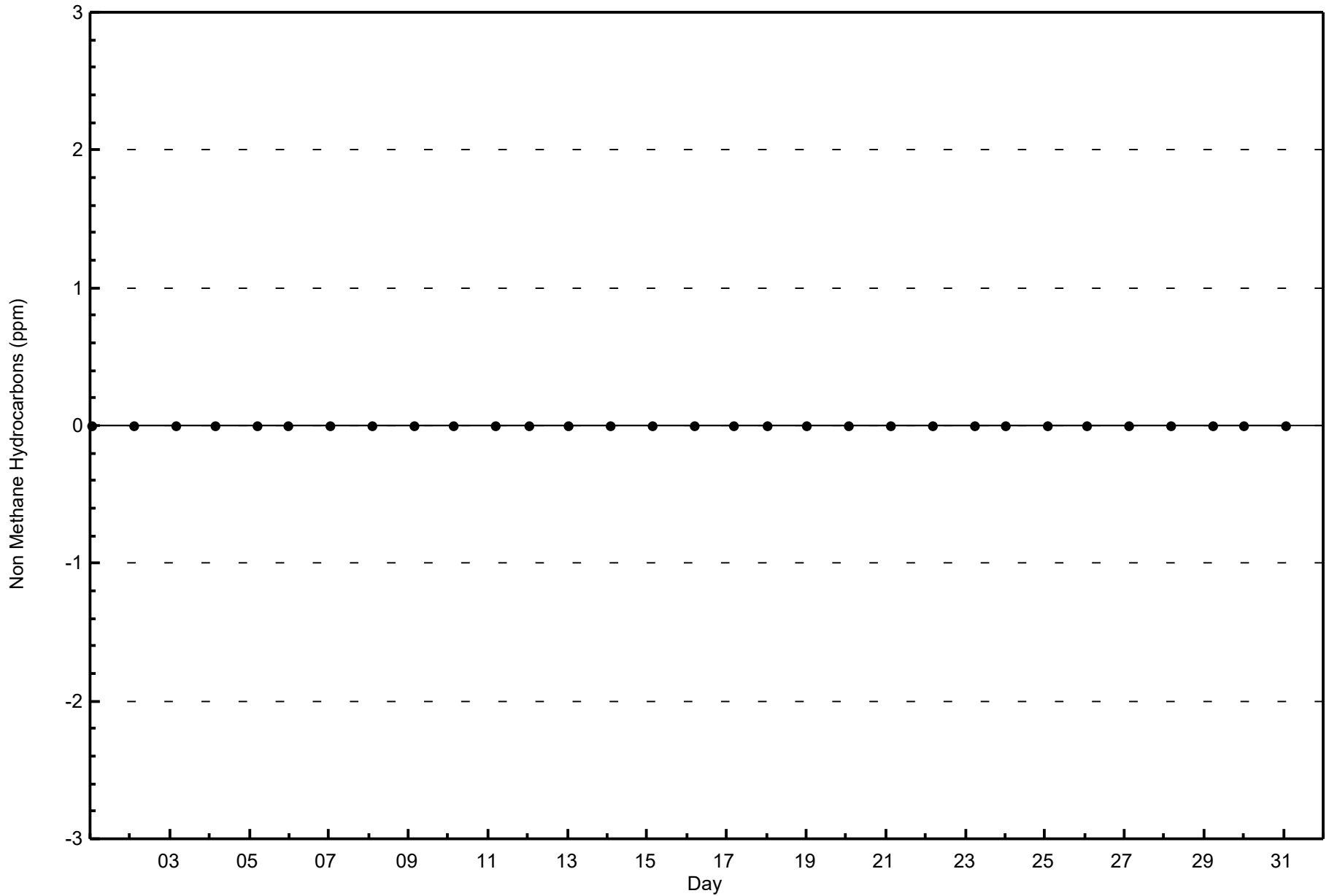
Total Number of Hours: 744

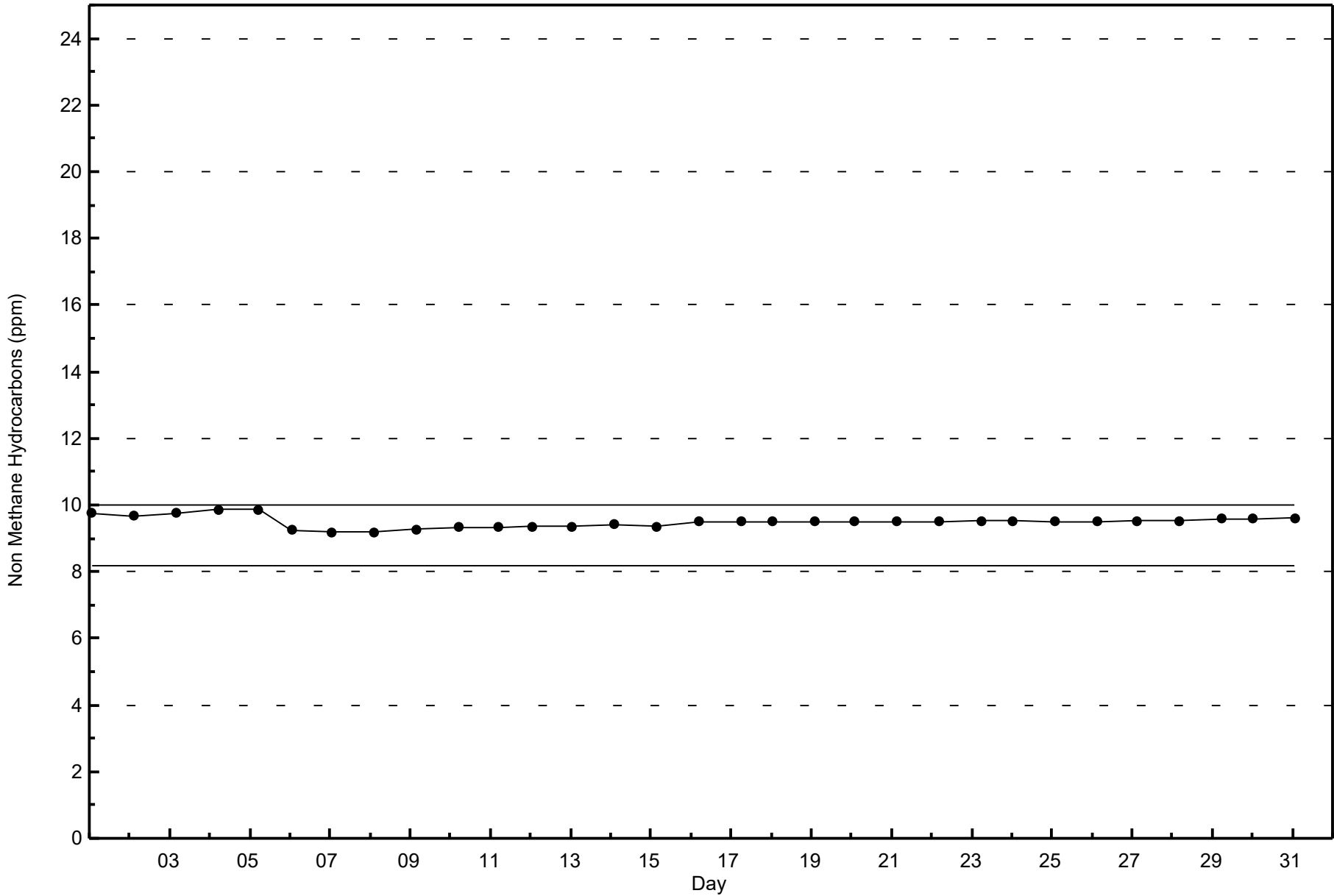


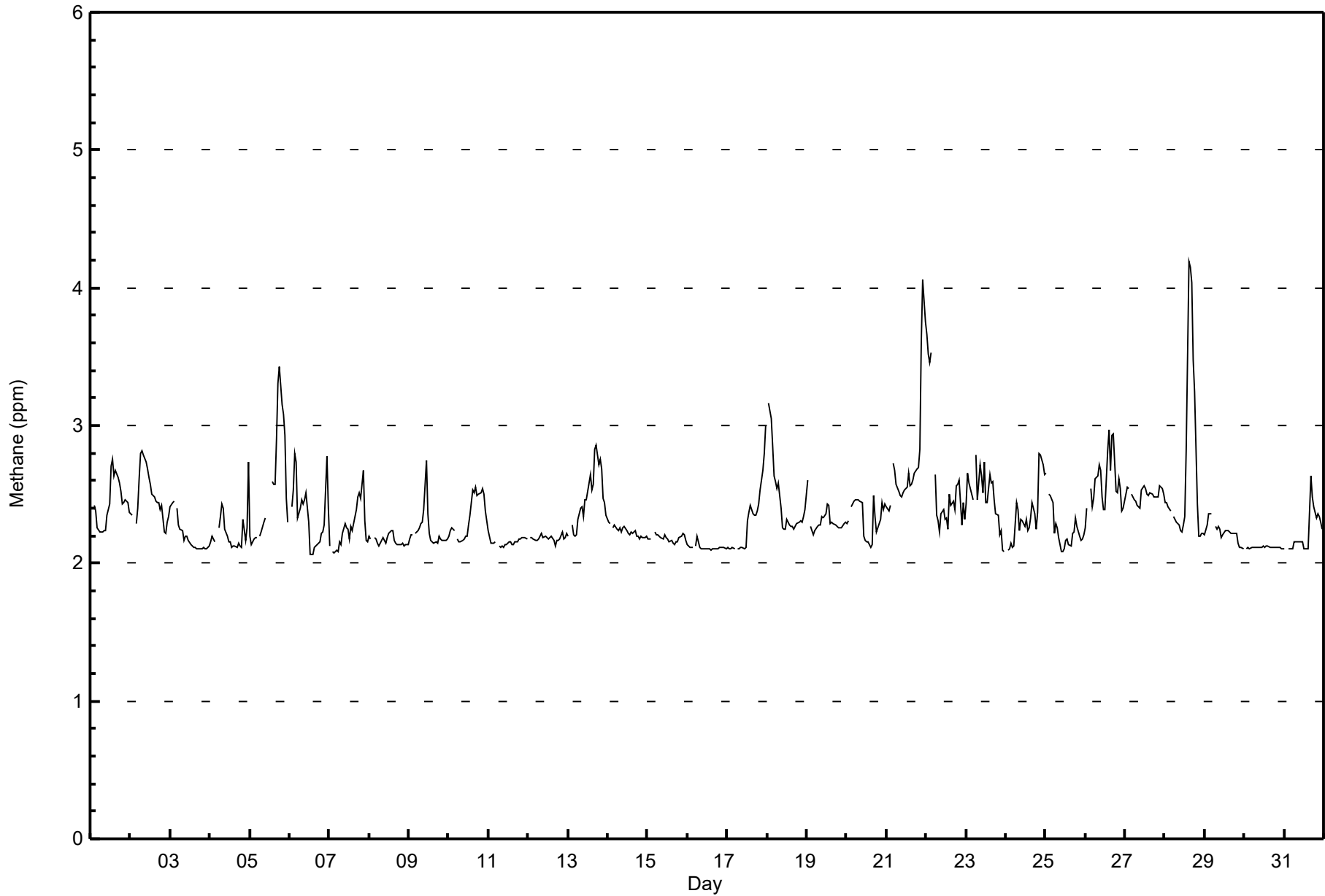
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Fort McKay South











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Fort McKay South - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	692	97.46	97.46
3.1 - 10.0	18	2.54	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 McKay South - December 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	81	43	8	3	5	6	21	50	131	46	41	45	34	46	34	22	616
3.1 - 10.0	0	2	0	0	0	0	1	0	2	3	1	1	1	1	1	1	14
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	81	45	8	3	5	6	22	50	133	49	42	46	35	47	35	23	630

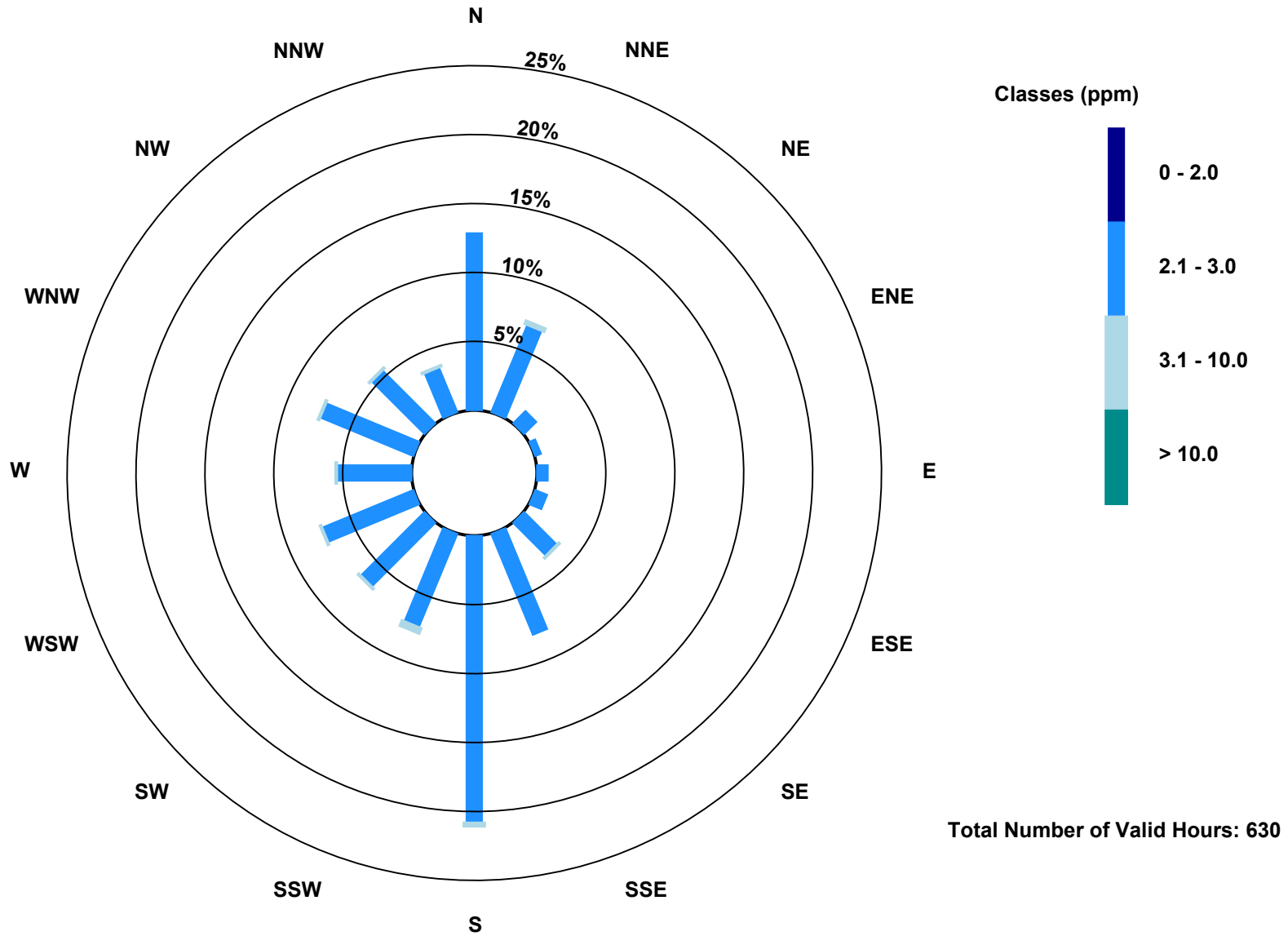
Total Number of Valid Hours: 630

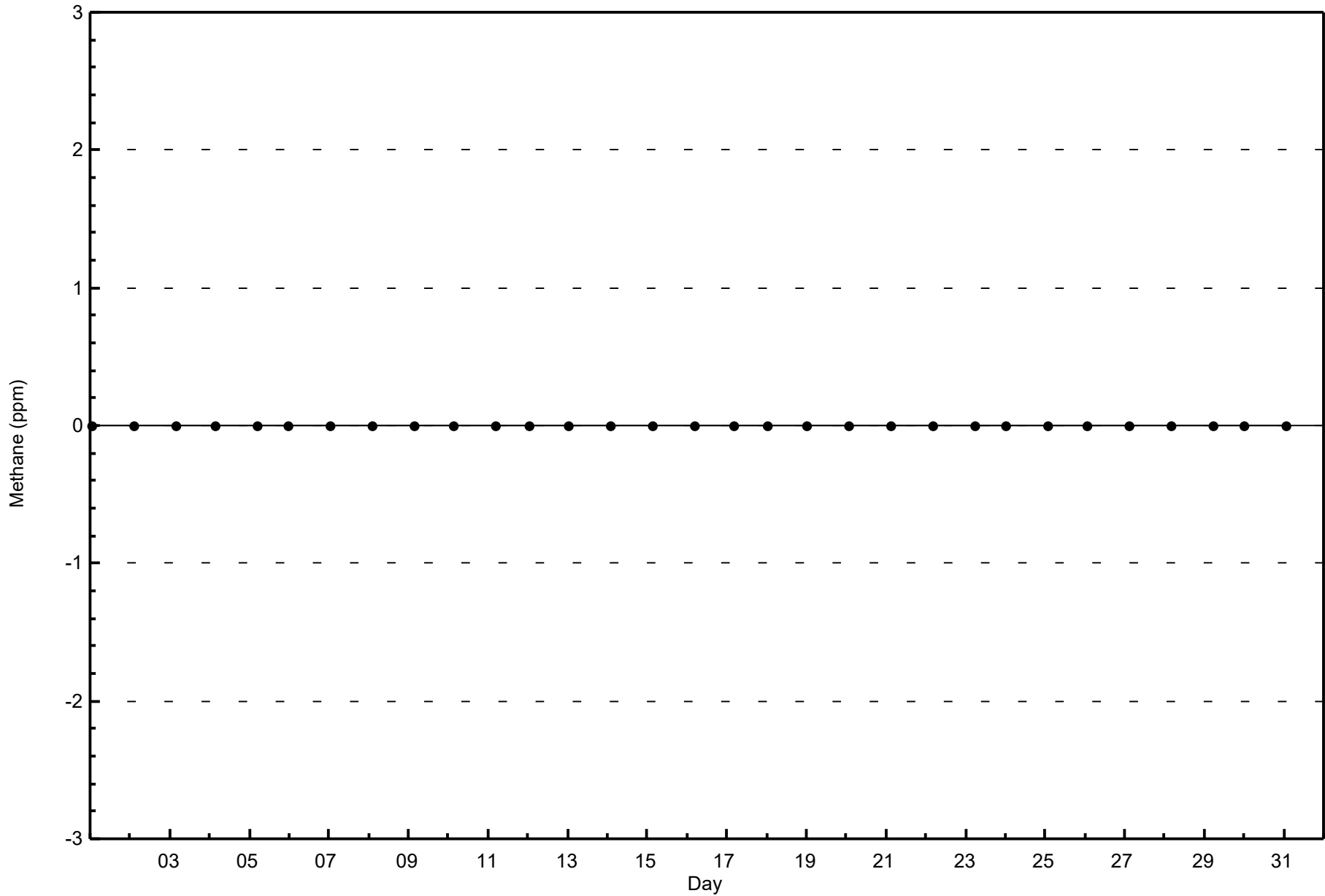
Total Number of Hours: 744

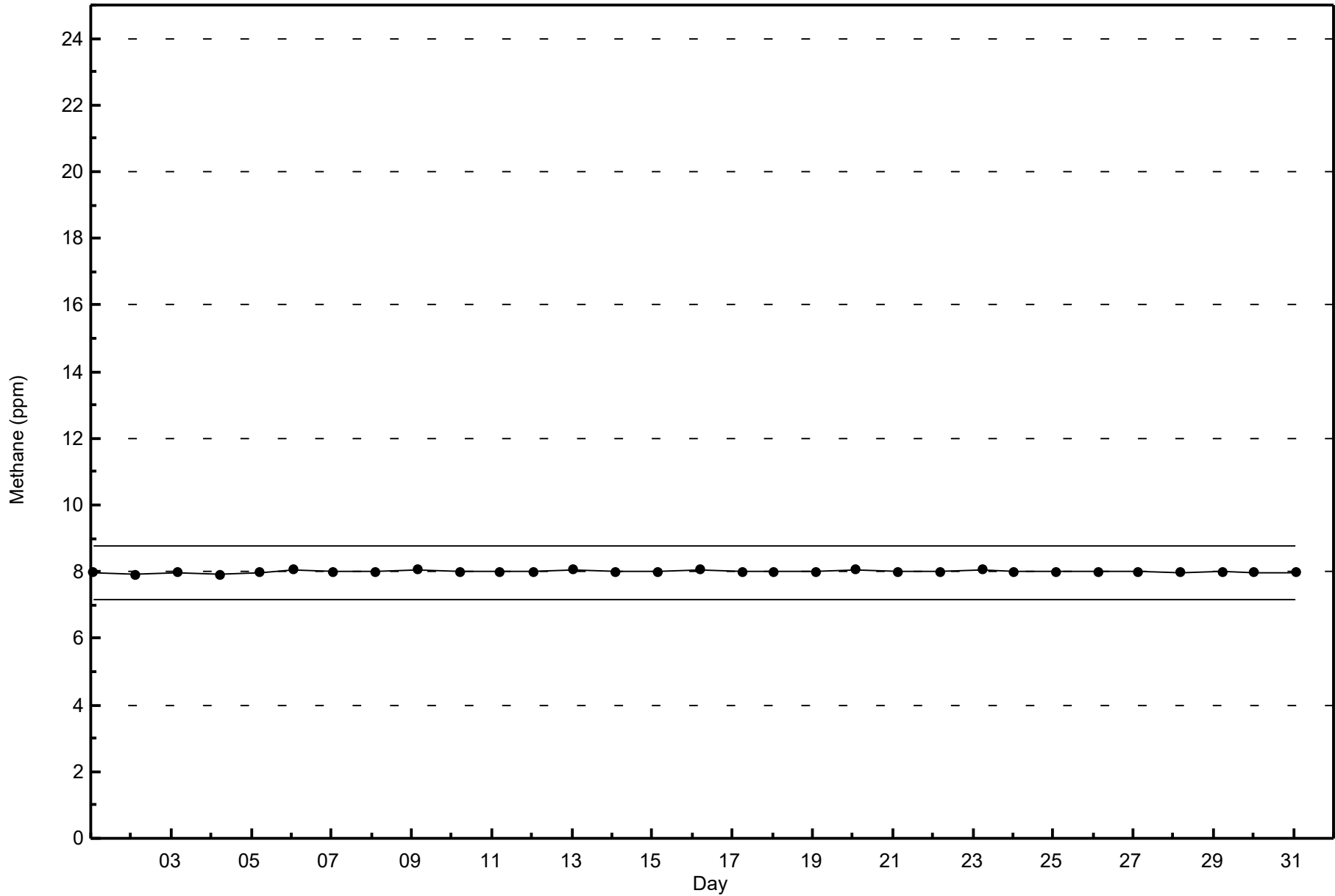


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Fort McKay South - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 32.3 ppb on Dec 16 14:00	Maximum Daily Average: 28.6 ppb on Dec 16		Hours of Data:	709
Minimum Value: 0.9 ppb on Dec 18 00:00	Minimum Daily Average: 2.8 ppb on Dec 18		Hours of Missing Data:	35
Maximum Diurnal Average: 16.7 ppb at hour 13	Minimum Diurnal Average: 9.8 ppb at hour 8		Hours of Calibration:	35
Monthly Average: 11.59 ppb	Percentiles: P ₁ = 1.1 P ₁₀ = 1.5 Q ₁ = 3.2 Median = 9.7 Q ₃ = 18.4 P ₉₀ = 25.7 P ₉₉ = 31.2		Percent Operational Time:	100.0

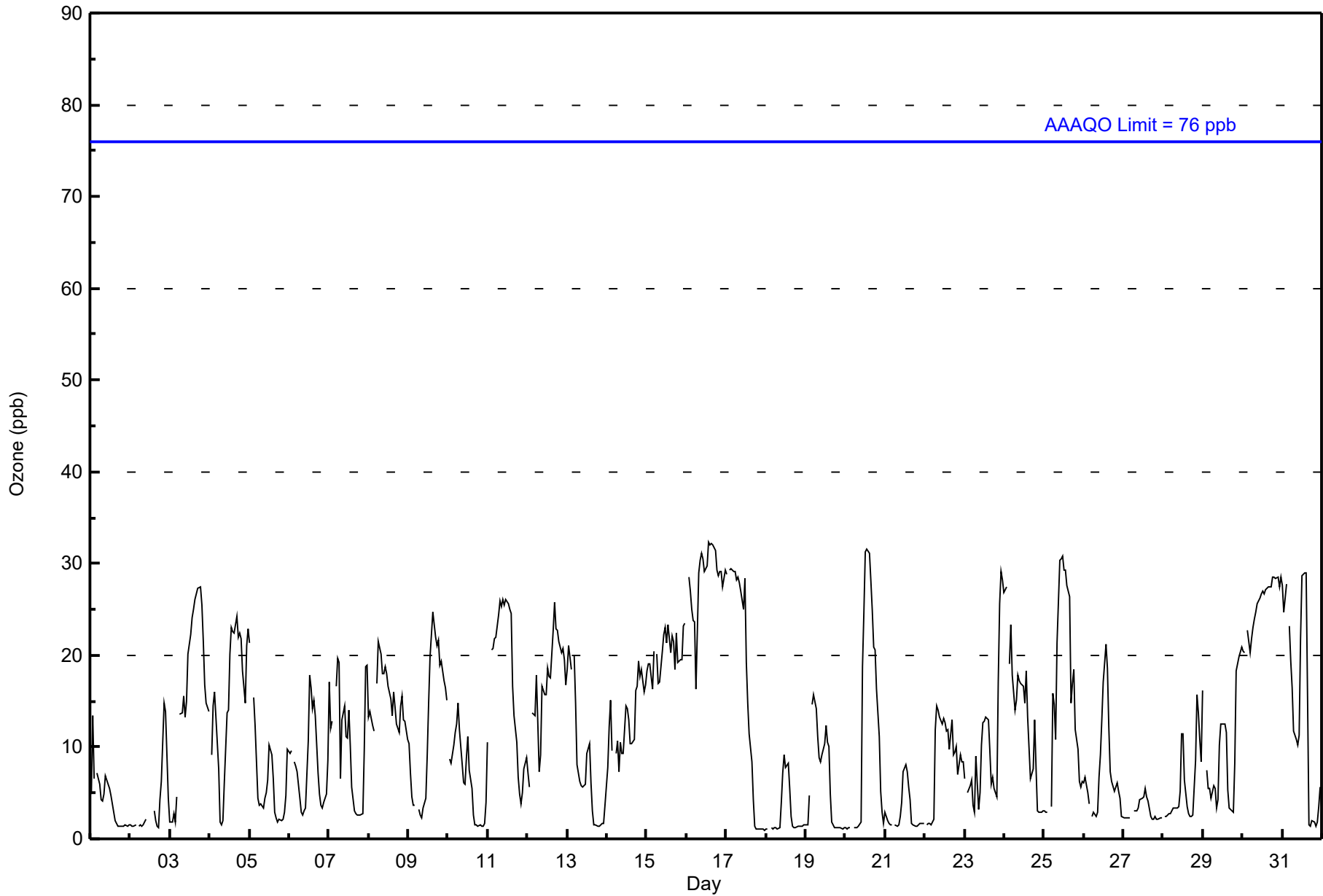
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	4.9	13.5	6.6	Z	7.2	5.9	4.3	4.1	4.9	6.8	6.4	5.6	4.8	3.7	2.9	2.0	1.4	1.4	1.4	1.4	1.3	1.5	1.4	1.5	4.1	13.5																							
2-Dec	1.5	1.4	1.4	1.5	Z	1.4	1.5	1.3	1.5	2.2	C	C	C	C	3.1	2.0	1.3	1.3	4.3	6.3	14.7	13.8	9.1	4.4	3.9	14.7																							
3-Dec	1.8	1.8	2.8	1.8	4.5	Z	13.6	13.7	15.5	13.3	14.9	20.1	22.3	24.1	25.0	26.0	26.6	27.2	27.4	25.4	21.5	16.8	14.9	13.9	16.3	27.4																							
4-Dec	Z	9.1	14.5	15.9	13.3	7.6	1.9	1.5	2.0	6.1	13.7	14.0	20.2	23.0	22.6	22.4	24.3	22.0	22.5	21.8	18.3	14.7	21.1	22.9	15.5	24.3																							
5-Dec	21.3	Z	15.3	12.4	8.4	4.4	3.6	3.9	3.4	4.4	5.1	6.5	10.1	9.1	6.6	3.0	2.2	1.9	2.1	2.0	2.1	2.9	4.8	9.8	6.3	21.3																							
6-Dec	9.3	9.6	Z	8.4	7.9	7.4	4.4	2.8	2.5	3.0	3.4	10.7	17.9	16.5	14.2	15.2	13.5	7.1	4.8	3.7	3.4	3.9	4.9	8.5	8.0	17.9																							
7-Dec	17.1	12.0	12.7	Z	16.6	19.6	19.3	6.5	13.0	14.6	11.2	10.9	14.1	10.3	5.6	3.1	2.7	2.6	2.6	2.6	2.7	9.6	18.8	18.9	10.7	19.6																							
8-Dec	13.3	13.8	12.4	11.8	Z	17.0	21.5	20.1	18.0	18.0	18.8	18.0	16.6	15.2	13.5	16.0	14.4	12.5	11.6	14.4	15.5	13.0	12.9	10.8	15.2	21.5																							
9-Dec	10.3	7.2	4.6	3.7	3.7	Z	3.2	2.6	2.3	3.4	4.4	9.2	14.8	19.8	22.2	24.8	22.0	21.0	21.7	19.0	19.3	17.3	16.5	15.2	12.5	24.8																							
10-Dec	Z	8.7	8.2	10.3	11.6	12.5	14.8	12.0	8.1	6.1	5.9	8.8	11.2	7.5	5.5	2.6	1.6	1.5	1.4	1.5	1.4	1.4	1.7	3.9	6.4	14.8																							
11-Dec	10.5	Z	20.6	20.7	21.9	21.9	24.3	25.9	25.4	26.0	25.4	26.1	25.6	25.0	24.6	16.6	13.4	10.5	6.7	4.9	3.8	5.0	7.7	8.8	17.5	26.1																							
12-Dec	7.2	5.7	Z	13.7	13.4	17.9	12.7	7.3	9.2	16.6	15.7	15.6	18.7	17.6	17.5	22.7	25.7	22.8	22.8	21.6	20.2	20.7	19.5	16.8	16.6	25.7																							
13-Dec	18.4	21.0	18.4	Z	20.0	14.8	8.1	6.3	5.7	5.6	5.8	6.0	9.3	10.3	6.1	3.0	1.6	1.5	1.4	1.4	1.5	1.6	1.8	3.7	7.5	21.0																							
14-Dec	7.8	12.1	15.0	9.7	Z	9.3	10.7	7.3	10.5	9.4	9.3	14.5	14.2	13.0	10.3	10.4	10.9	16.1	16.7	19.4	17.7	18.4	16.1	16.8	12.8	19.4																							
15-Dec	18.3	19.0	19.0	16.3	20.4	Z	20.1	16.9	17.0	20.5	22.3	23.0	21.3	23.4	20.3	22.1	21.6	18.4	22.5	19.2	19.5	19.5	23.2	23.5	20.3	23.5																							
16-Dec	Z	28.5	26.9	25.1	23.8	23.6	16.3	29.0	30.3	31.1	30.6	29.1	29.7	32.3	32.0	32.2	32.0	31.5	29.3	28.7	29.2	29.1	27.4	29.2	28.6	32.3																							
17-Dec	28.9	Z	29.3	29.4	29.2	29.2	28.2	28.5	27.9	26.9	25.0	28.3	19.3	14.8	11.4	8.4	4.3	1.4	1.0	1.1	1.0	1.1	1.0	0.9	16.4	29.4																							
18-Dec	1.0	1.0	Z	1.2	1.0	1.2	1.2	1.1	1.2	3.9	7.2	9.1	7.8	8.2	5.4	2.4	1.3	1.2	1.3	1.4	1.4	1.3	1.4	1.5	2.8	9.1																							
19-Dec	1.5	1.6	4.7	Z	14.6	15.8	14.2	11.1	8.9	8.5	9.2	10.3	12.4	10.6	10.1	4.9	1.8	1.3	1.3	1.2	1.2	1.2	1.1	1.2	6.5	15.8																							
20-Dec	1.2	1.0	1.2	1.2	Z	1.3	1.3	1.3	1.3	1.8	18.7	24.7	31.2	31.6	31.2	28.0	24.8	21.0	20.6	16.3	11.2	5.2	3.0	1.7	12.2	31.6																							
21-Dec	3.0	2.0	1.6	1.6	1.5	Z	1.6	1.4	1.6	2.5	4.0	7.3	8.1	7.3	5.7	4.3	1.7	1.5	1.4	1.4	1.5	1.7	1.7	1.7	2.9	8.1																							
22-Dec	Z	1.6	1.7	1.7	1.6	2.2	11.9	14.4	14.1	13.3	12.5	13.1	12.6	11.7	11.8	9.8	12.9	9.2	9.5	10.1	7.0	9.1	8.4	8.3	9.1	14.4																							
23-Dec	6.5	Z	5.1	5.7	6.4	3.6	2.9	8.9	3.3	5.0	10.2	12.6	12.7	13.3	13.0	9.7	5.9	6.7	5.5	4.6	17.1	25.6	29.2	28.2	10.5	29.2																							
24-Dec	26.8	27.4	Z	19.1	23.3	17.9	14.0	15.1	17.9	17.3	16.9	16.6	14.8	18.3	13.3	9.9	6.6	7.7	13.0	7.8	3.1	2.9	3.0	3.1	13.7	27.4																							
25-Dec	3.0	2.9	2.9	Z	3.5	15.9	14.7	10.8	21.3	30.4	30.5	30.8	29.3	29.3	27.7	26.3	14.7	16.9	18.4	11.9	9.7	6.3	5.7	6.2	16.1	30.8																							
26-Dec	6.1	6.7	5.1	3.8	Z	2.4	2.9	2.5	2.9	6.7	9.2	13.0	17.1	21.2	18.6	12.2	7.3	6.3	5.1	5.6	6.1	5.1	4.5	2.5	7.5	21.2																							
27-Dec	2.3	2.3	2.3	2.3	2.3	Z	3.0	3.0	3.0	3.4	4.3	4.5	4.5	5.5	4.5	4.1	2.4	2.2	2.2	2.5	2.1	2.2	2.3	2.3	3.0	5.5																							
28-Dec	Z	2.4	2.5	2.8	2.8	3.0	3.4	3.3	3.3	3.5	5.2	11.4	11.4	6.4	3.5	2.7	2.5	2.5	2.7	8.5	15.7	13.7	10.8	8.3	5.7	15.7																							
29-Dec	16.1	Z	7.4	5.5	5.5	4.4	5.8	5.5	3.4	4.3	10.2	12.5	12.5	12.5	11.6	5.3	3.3	3.1	2.9	8.3	18.2	19.0	19.9	21.0	9.5	21.0																							
30-Dec	20.5	20.3	Z	22.7	20.3	21.9	23.1	23.9	24.7	25.6	26.2	26.8	27.0	26.8	27.2	27.5	27.4	27.5	28.5	28.5	28.4	28.5	27.4	28.6	25.6	28.6																							
31-Dec	27.6	24.7	27.7	Z	23.2	19.4	16.4	11.8	10.8	10.2	11.3	21.8	28.6	28.9	28.9	15.6	1.6	1.3	2.0	1.9	1.4	1.8	3.5	5.7	14.2	28.9																							
																								11.0	9.9	10.4	9.9	11.8	11.6	10.5	9.8	10.2	11.3	13.1	15.4	16.7	16.6	14.7	12.7	10.8	10.0	10.1	9.8	10.2	10.1	10.5	10.6	Diurnal Average	
																								28.9	28.5	29.3	29.4	29.2	29.2	28.2	29.0	30.3	31.1	30.6	30.8	31.2	32.3	32.0	32.2	32.0	31.5	29.3	28.7	29.2	29.1	29.2	29.2	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
Fort McKay South - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Fort McKay South - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	570	80.39	80.39
21 - 50	139	19.61	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
Fort McKay South - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	74	33	6	2	3	3	16	46	114	47	36	36	12	23	20	25	496
21 - 50	6	8	1	0	2	4	5	6	22	3	5	10	21	24	16	0	133
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	80	41	7	2	5	7	21	52	136	50	41	46	33	47	36	25	629

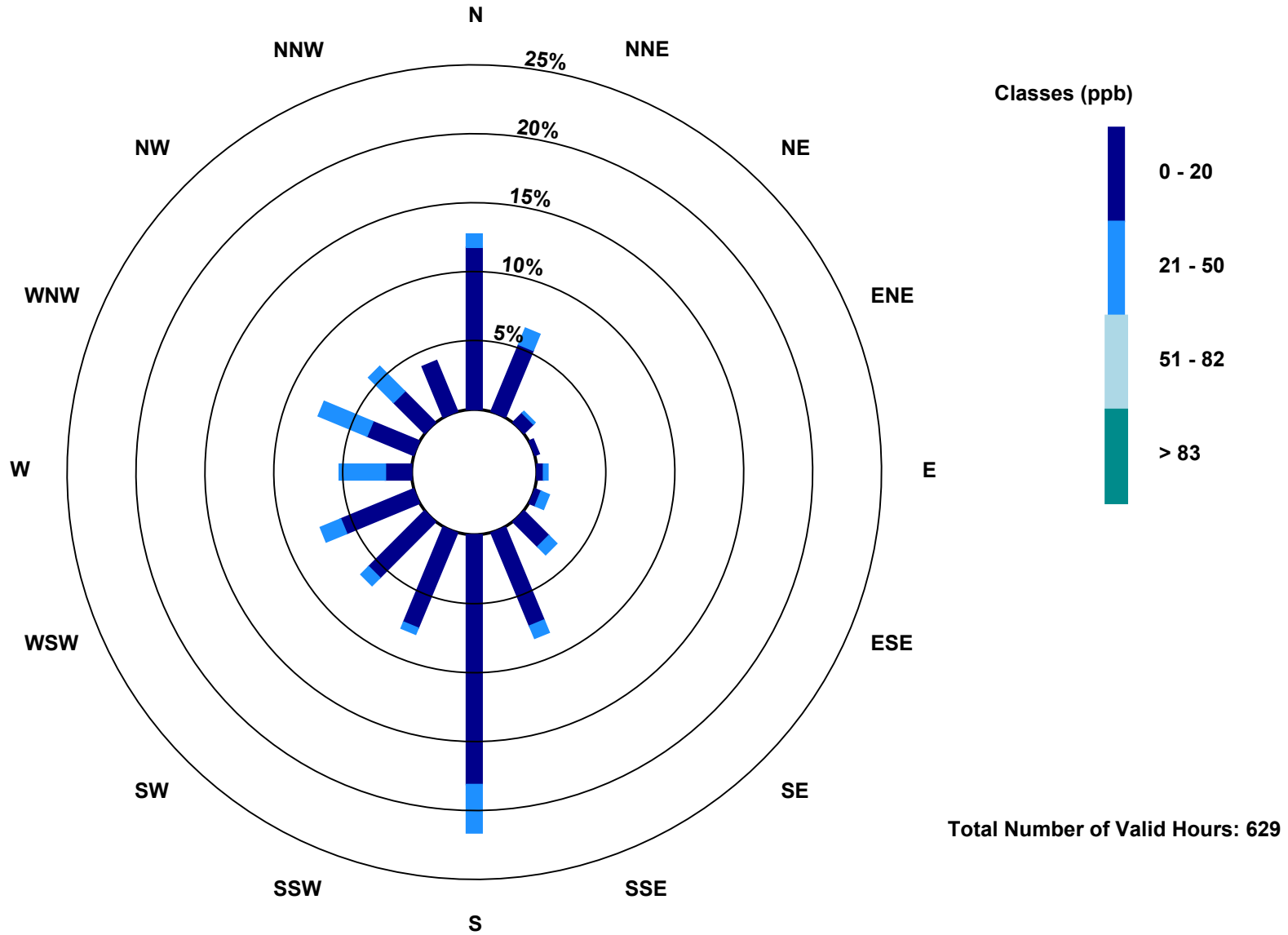
Total Number of Valid Hours: 629

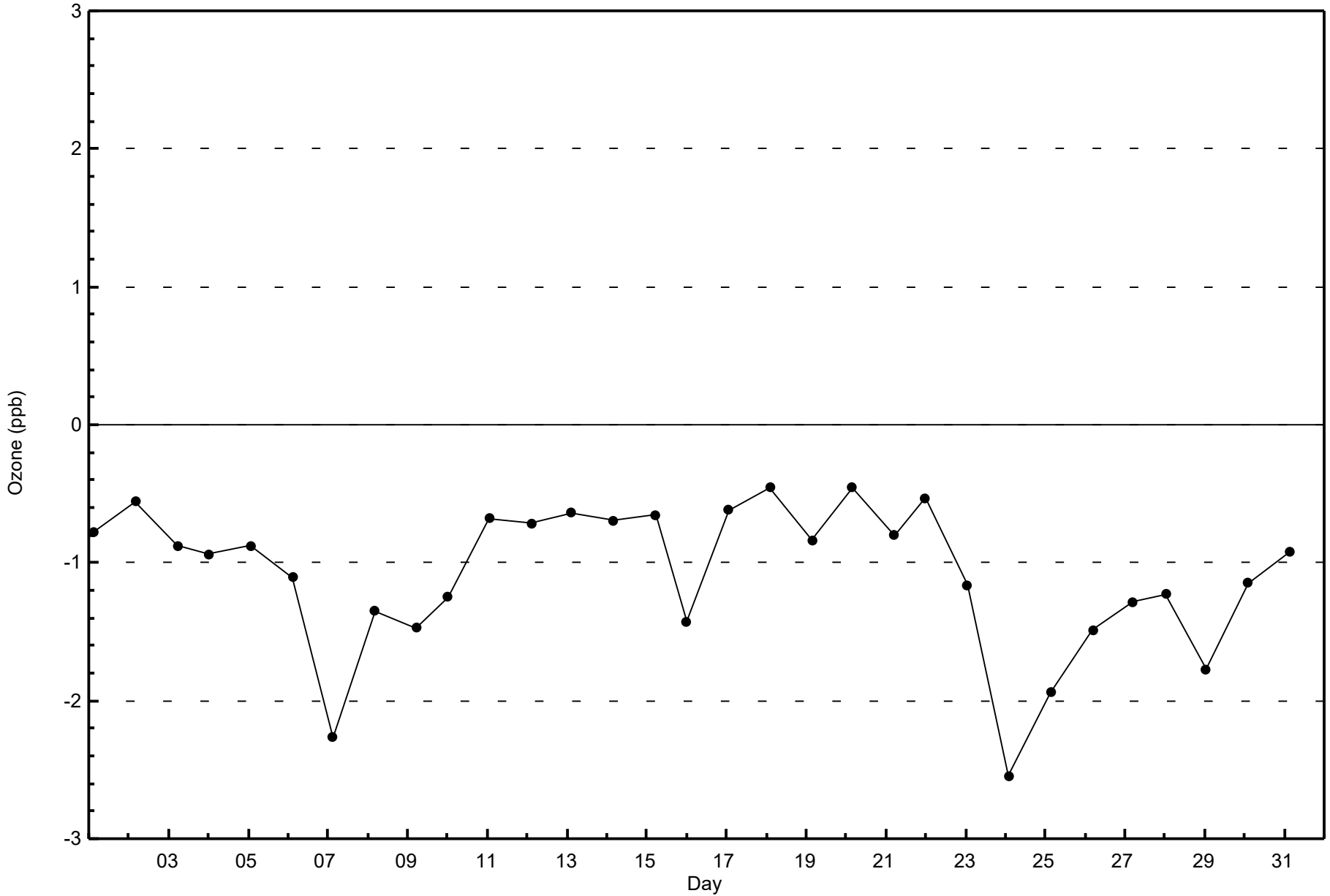
Total Number of Hours: 744

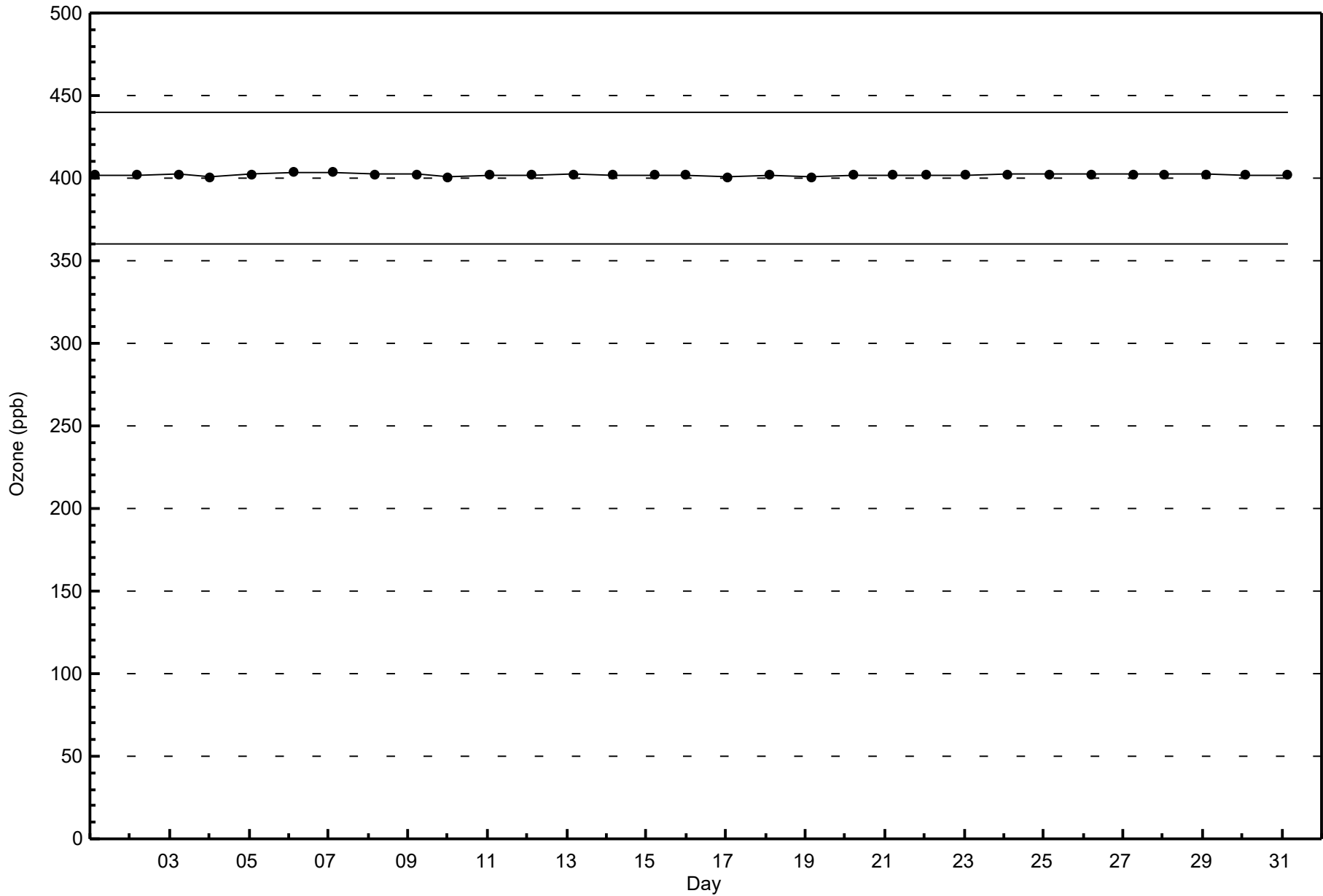


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Fort McKay South

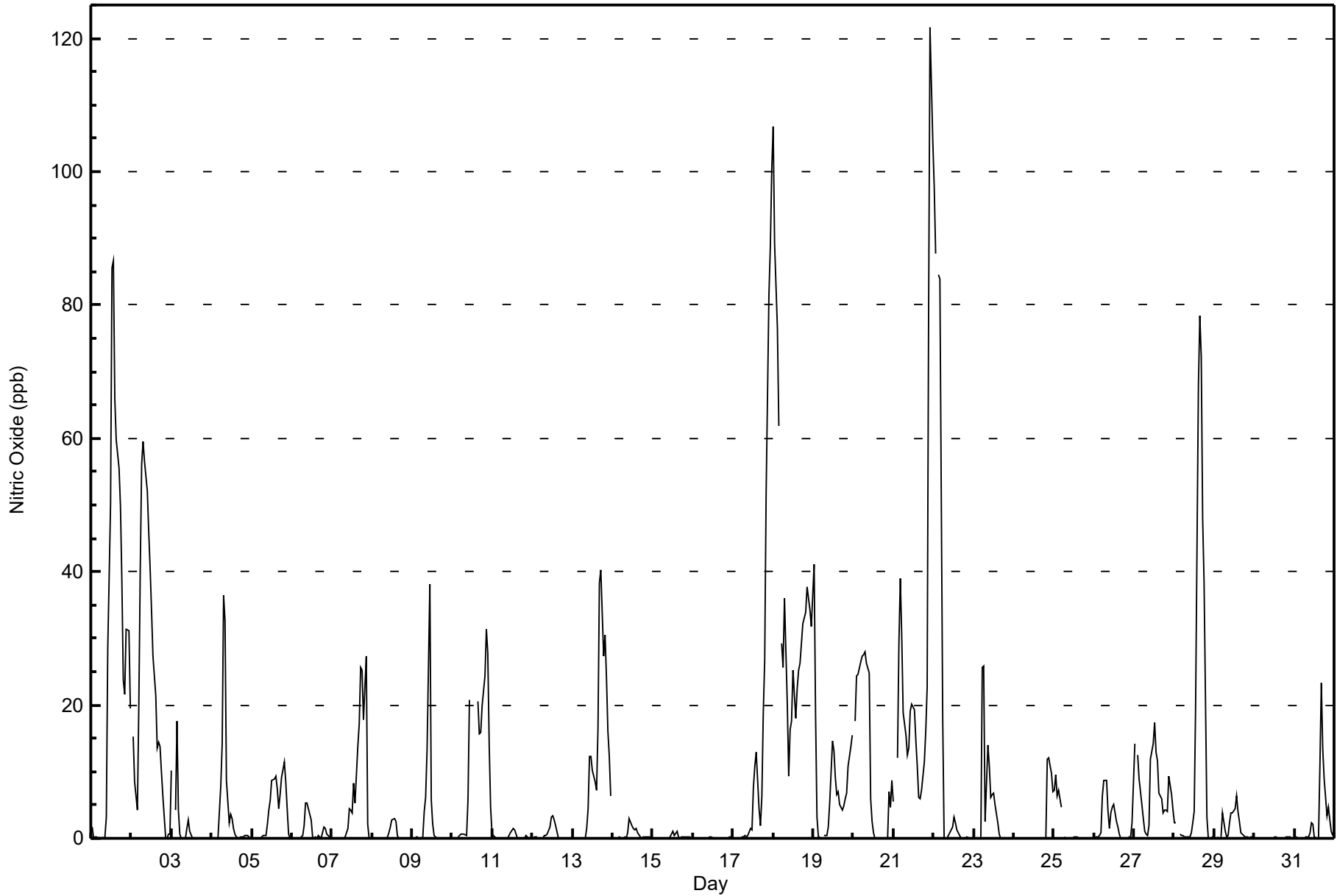








Maximum Value: 121.6 ppb on Dec 21 23:00 Maximum Daily Average: 36.5 ppb on Dec 18																						Hours in Service:	744				
Minimum Value: 0.0 ppb on Dec 1 02:00 Minimum Daily Average: 0.0 ppb on Dec 16																						Hours of Data:	709				
Maximum Diurnal Average: 11.1 ppb at hour 1 Minimum Diurnal Average: 5.4 ppb at hour 10																						Hours of Missing Data:	35				
Monthly Average: 8.17 ppb Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.4 Q ₃ = 7.4 P ₉₀ = 25.7 P ₉₉ = 87.5																						Hours of Calibration:	35				
																						Percent Operational Time:	100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	1.6	0.0	0.2	0.2	0.1	Z	0.2	0.1	0.3	3.2	28.4	50.1	85.7	86.7	65.9	59.7	55.4	49.8	38.5	23.7	21.7	31.4	31.1	19.5	28.4	86.7	
2-Dec	Z	15.3	8.5	4.2	20.1	40.4	56.1	59.5	56.6	52.1	46.0	40.5	34.0	27.4	21.3	13.6	14.4	13.8	10.0	6.4	0.0	0.0	0.7	0.6	23.5	59.5	
3-Dec	10.3	Z	4.3	17.6	4.3	0.7	0.0	0.0	0.0	1.4	2.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	17.6	
4-Dec	0.0	0.0	Z	0.0	0.0	7.8	14.1	36.4	32.6	8.7	2.3	3.6	3.1	1.5	0.7	0.3	0.1	0.1	0.2	0.2	0.4	0.4	0.2	0.1	4.9	36.4	
5-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.4	0.4	2.2	4.2	5.8	8.8	8.8	9.3	7.4	4.6	6.7	9.1	11.5	8.5	4.4	0.6	0.0	4.0	11.5	
6-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.5	1.8	5.2	5.4	4.4	2.7	0.2	0.1	0.1	0.0	0.3	0.1	0.9	1.7	1.5	0.5	0.3	0.0	1.1	5.4	
7-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.2	1.5	4.4	4.2	3.9	8.3	5.3	13.8	17.1	25.6	25.2	17.8	27.3	2.2	0.1	0.1	6.8	27.3	
8-Dec	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.8	1.7	2.7	3.1	2.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	3.1	
9-Dec	0.0	Z	0.2	0.1	0.1	0.1	0.1	4.1	6.1	13.1	38.2	5.7	2.0	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	38.2	
10-Dec	0.0	0.0	Z	0.3	0.4	0.6	0.6	0.5	0.5	6.0	20.7	C	C	C	C	20.5	15.7	16.0	20.0	24.3	31.3	27.8	14.0	4.8	10.7	31.3	
11-Dec	0.7	0.3	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	1.4	1.2	0.6	0.0	0.0	0.0	0.0	0.1	0.4	0.2	0.0	0.1	0.3	1.4	
12-Dec	0.0	0.3	0.2	0.3	Z	0.0	0.0	0.3	0.4	0.7	1.8	3.2	3.5	2.7	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	3.5	
13-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	1.5	4.4	12.3	12.2	10.3	8.4	7.1	16.5	38.5	40.2	27.4	30.5	24.2	16.2	12.2	6.3	11.7	40.2	
14-Dec	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.9	2.9	1.9	1.4	1.4	1.5	0.9	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5	2.9	
15-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	1.1	0.5	1.0	0.3	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.2	1.1	
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.2	
17-Dec	0.1	0.1	0.0	Z	0.0	0.2	0.2	0.4	0.3	0.4	1.5	1.4	7.7	10.9	12.9	4.4	1.9	6.3	18.8	26.7	51.5	81.5	88.8	100.4	18.1	100.4	
18-Dec	106.9	89.2	76.5	61.8	Z	29.2	25.7	36.0	20.1	9.4	16.2	17.6	25.3	18.0	22.4	25.1	26.4	29.3	32.1	33.8	37.7	36.0	34.2	31.8	36.5	106.9	
19-Dec	41.2	18.5	3.2	0.1	0.3	Z	0.4	0.3	0.3	1.7	5.2	14.6	13.1	9.1	6.5	7.0	5.2	4.2	4.9	5.9	6.8	10.8	13.7	15.4	8.2	41.2	
20-Dec	Z	17.5	24.3	24.7	26.6	27.3	27.5	27.9	26.3	24.8	6.0	2.6	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	4.7	8.7	11.2	27.9	
21-Dec	5.5	Z	12.1	29.2	39.0	30.2	18.8	15.5	12.5	13.6	19.2	20.2	19.3	14.6	10.7	6.1	5.9	7.3	11.4	16.1	22.6	77.7	121.6	104.4	27.5	121.6	
22-Dec	97.6	87.6	Z	84.5	83.9	18.1	0.0	0.0	0.0	0.4	1.2	1.7	3.1	2.4	1.3	0.8	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	16.6	97.6	
23-Dec	0.1	0.1	0.1	Z	0.2	25.7	25.8	2.6	13.9	10.8	6.2	6.7	6.7	5.1	2.4	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	25.8	
24-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	12.0	9.8	7.0	1.8	12.0
25-Dec	7.3	9.5	6.3	7.2	4.6	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	9.5	
26-Dec	Z	0.1	0.2	0.4	0.9	6.3	8.6	8.7	4.0	1.4	3.9	4.7	5.1	2.4	1.6	0.7	0.0	0.0	0.0	0.0	0.0	0.2	0.3	2.4	2.3	8.7	
27-Dec	14.1	Z	12.5	8.8	7.1	3.0	1.0	0.6	0.5	1.8	11.8	14.2	17.3	13.0	11.6	6.7	5.9	3.7	4.1	4.3	3.9	9.3	6.5	4.3	7.2	17.3	
28-Dec	2.4	2.3	Z	0.6	0.4	0.3	0.3	0.1	0.1	0.3	0.8	2.3	4.1	19.7	67.9	78.4	72.2	47.9	38.2	3.2	0.1	0.0	0.1	0.1	14.9	78.4	
29-Dec	0.0	0.1	0.2	Z	0.1	3.9	1.0	0.2	0.4	2.3	3.7	3.8	4.5	6.4	4.1	2.6	0.9	0.4	0.3	0.2	0.1	0.1	0.1	0.1	1.6	6.4	
30-Dec	0.0	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	0.0	0.1	0.2
31-Dec	0.0	0.1	0.0	0.0	0.0	Z	0.0	0.1	0.3	0.9	2.4	2.0	0.2	0.0	0.0	11.0	23.3	13.4	8.9	3.5	4.6	2.8	1.0	0.5	3.3	23.3	
11.1 9.3 5.7 9.2 7.2 7.8 5.9 6.3 5.9 5.4 8.0 7.5 8.9 8.4 8.6 8.9 9.3 8.5 8.1 6.8 8.2 10.4 11.0 9.9																								Diurnal Average			
106.9 89.2 76.5 84.5 83.9 40.4 56.1 59.5 56.6 52.1 46.0 50.1 85.7 86.7 67.9 78.4 72.2 49.8 38.5 33.8 51.5 81.5 121.6 104.4																								Diurnal Maximum			
Z - zerospan C - Calibration																											





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	619	87.31	87.31
21 - 40	58	8.18	95.49
41 - 80	19	2.68	98.17
81 - 159	12	1.69	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 709

Total Number of Hours: 744



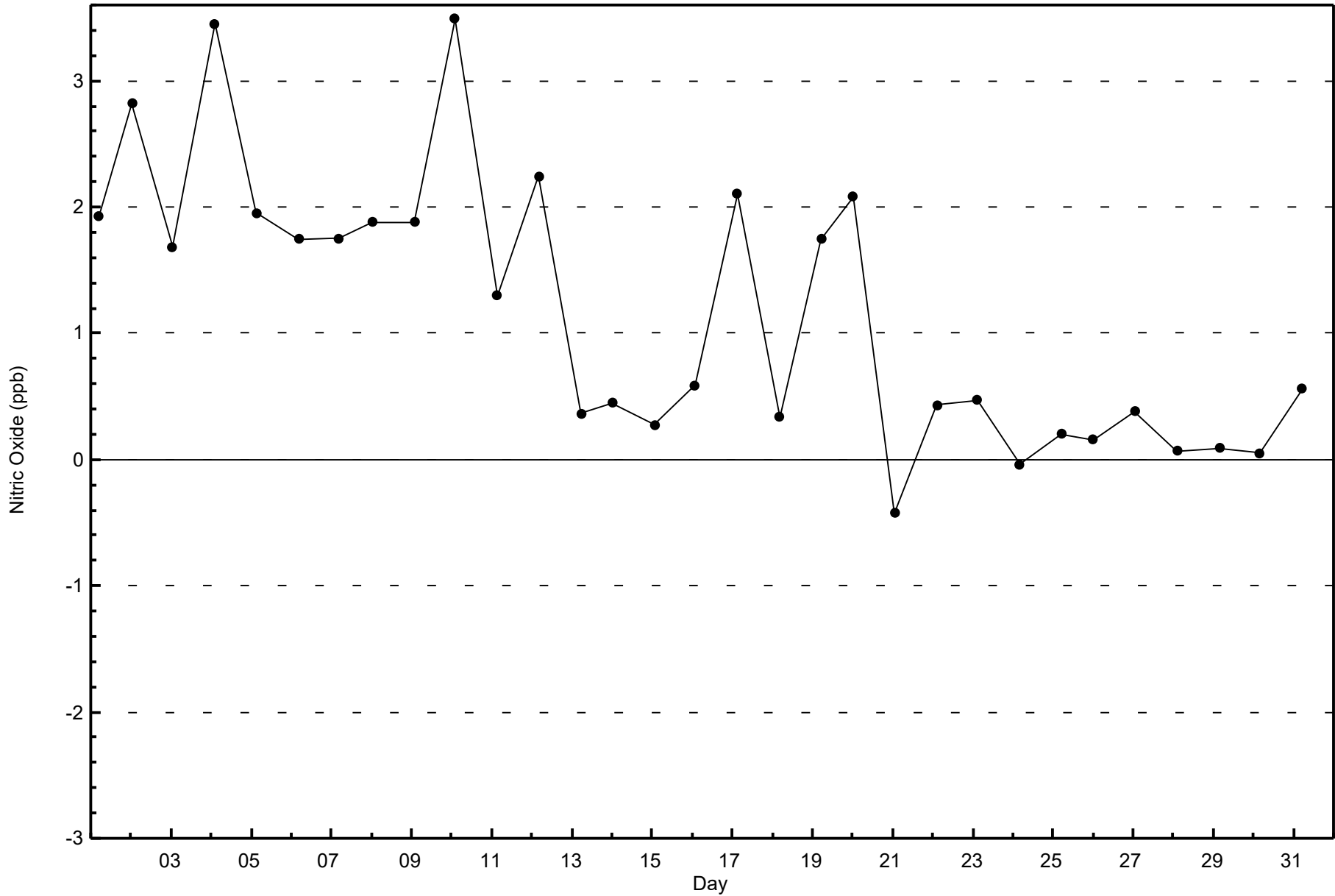
**Wood Buffalo Environmental Association
Frequency Distribution**

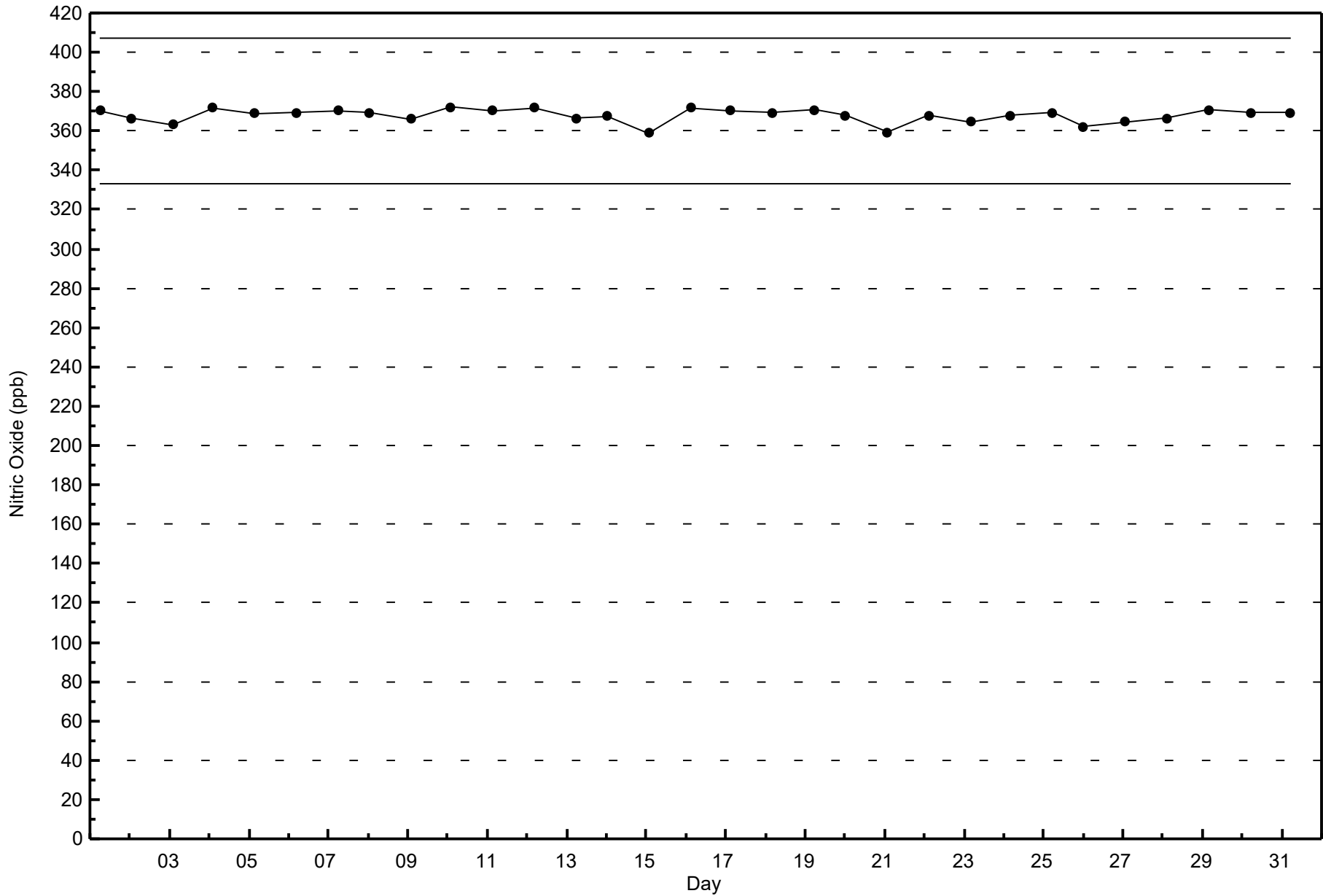
**Nitric Oxide (NO) - ppb
Fort McKay South - December 2024**

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	35	6	3	5	5	17	44	125	47	36	40	33	43	30	15	557
21 - 40	6	7	2	0	0	0	1	4	4	1	4	3	1	3	3	6	45
11 - 80	3	2	0	0	0	1	1	0	2	0	0	2	0	1	1	2	15
81 - 159	0	0	0	0	0	0	0	2	2	1	2	1	1	0	1	0	10
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	82	44	8	3	5	6	19	50	133	49	42	46	35	47	35	23	627

Total Number of Valid Hours: 628

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Fort McKay South - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 36.5 ppb on Dec 21 23:00	Maximum Daily Average: 23.8 ppb on Dec 18		Hours of Data:	709
Minimum Value: 0.0 ppb on Dec 3 15:00	Minimum Daily Average: 0.2 ppb on Dec 30		Hours of Missing Data:	35
Maximum Diurnal Average: 13.1 ppb at hour 22	Minimum Diurnal Average: 9.2 ppb at hour 12		Hours of Calibration:	35
Monthly Average: 11.27 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 1.3 Q ₁ = 5.8 Median = 9.5 Q ₃ = 15.9 P ₉₀ = 23.7 P ₉₉ = 31.0		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	21.9	11.7	16.9	15.7	12.2	Z	12.3	11.6	10.2	7.3	14.1	21.3	27.9	28.5	26.4	25.1	22.7	22.5	22.1	24.3	24.7	27.3	27.4	25.4	20.0	28.5	
2-Dec	Z	24.6	23.7	22.4	24.5	26.8	28.6	29.0	28.2	26.6	25.0	23.8	23.1	22.8	22.6	22.8	23.1	22.3	18.7	16.5	7.0	7.5	11.4	15.4	21.6	29.0	
3-Dec	18.2	Z	14.4	18.7	16.9	16.4	7.6	7.4	2.7	7.9	8.8	3.8	1.2	0.2	0.0	0.0	0.0	0.0	0.0	1.3	0.6	0.7	1.5	5.6	18.7		
4-Dec	3.1	5.8	Z	2.2	1.8	11.9	19.5	22.4	23.4	17.7	13.0	14.8	8.7	5.9	5.7	6.0	4.7	7.1	5.9	6.3	11.1	14.9	8.6	5.6	9.8	23.4	
5-Dec	6.4	5.2	10.9	Z	8.9	8.1	8.9	8.8	9.0	6.0	3.3	4.1	8.6	10.7	12.2	11.1	10.7	10.0	10.8	13.5	10.6	9.1	11.3	6.3	8.9	13.5	
6-Dec	5.7	6.1	5.9	6.3	Z	5.8	8.6	7.8	8.6	5.5	2.8	2.1	1.1	0.9	1.5	3.2	5.6	4.9	6.4	10.1	5.9	4.0	5.3	1.9	5.0	10.1	
7-Dec	0.9	0.5	0.6	0.5	3.4	Z	7.3	3.6	9.9	11.8	12.6	9.6	7.5	11.4	6.6	7.8	7.1	6.8	6.7	9.4	22.1	17.0	7.5	5.3	7.6	22.1	
8-Dec	Z	11.0	10.6	10.3	10.0	6.1	4.8	6.8	8.8	9.0	8.3	9.3	11.6	13.6	15.4	11.7	7.9	7.0	5.3	5.3	4.3	2.7	2.6	2.7	8.0	15.4	
9-Dec	3.3	Z	13.0	12.9	11.7	12.4	12.9	16.7	15.8	17.7	21.8	17.6	12.2	7.7	7.7	5.8	8.2	10.5	9.3	5.6	7.2	12.2	13.0	15.0	11.7	21.8	
10-Dec	13.6	13.6	Z	8.5	6.2	4.5	2.8	6.7	7.8	11.5	14.0	C	C	C	C	24.0	24.8	24.9	23.4	24.1	25.5	26.8	28.5	25.3	16.7	28.5	
11-Dec	18.1	6.7	8.3	Z	7.9	7.4	4.1	3.2	3.6	2.8	4.5	4.3	5.9	7.1	6.8	6.7	7.3	7.6	12.7	15.9	20.3	19.5	16.1	13.0	9.1	20.3	
12-Dec	14.5	14.8	16.7	15.7	Z	12.1	19.0	26.3	23.7	15.1	16.0	17.6	15.0	15.5	15.7	9.0	4.9	7.8	7.2	7.5	8.3	7.1	7.3	10.4	13.4	26.3	
13-Dec	8.4	5.7	8.4	7.9	5.9	Z	6.7	6.3	10.6	15.1	13.1	10.4	11.6	13.0	10.7	18.2	15.9	14.3	13.4	13.4	16.5	22.8	22.6	18.4	12.6	22.8	
14-Dec	Z	11.4	8.2	14.4	17.4	15.6	13.8	18.0	15.1	17.0	17.1	11.7	12.2	13.5	16.5	16.2	16.3	10.8	10.1	6.8	8.5	8.0	10.9	10.1	13.0	18.0	
15-Dec	8.5	Z	7.3	10.5	5.2	10.1	5.7	9.7	9.9	6.9	5.1	4.8	7.3	5.2	9.2	7.6	8.4	12.4	8.9	13.0	13.1	12.8	9.0	8.9	8.7	13.1	
16-Dec	7.3	2.7	Z	2.9	3.4	3.4	11.9	1.4	0.2	0.2	0.4	1.3	1.3	0.0	0.0	0.0	0.0	0.1	1.8	1.8	1.1	0.9	3.5	1.7	2.1	11.9	
17-Dec	2.4	2.4	2.3	Z	2.3	1.6	2.7	1.9	1.3	2.8	5.2	3.4	14.1	18.9	22.4	20.8	21.5	24.6	26.2	26.3	27.9	29.5	30.1	31.7	14.0	31.7	
18-Dec	32.3	31.0	28.1	28.2	Z	24.1	24.3	24.2	23.0	18.0	15.2	14.7	17.6	16.6	20.6	25.6	25.4	24.4	24.4	24.0	24.7	27.3	28.1	25.6	23.8	32.3	
19-Dec	30.5	29.0	25.8	16.1	13.1	Z	12.6	11.5	11.6	10.3	8.7	14.8	14.7	15.7	17.7	22.6	23.9	21.9	20.8	19.0	18.0	18.5	16.8	16.2	17.8	30.5	
20-Dec	Z	15.7	19.1	19.4	20.7	20.9	20.3	20.8	20.7	19.7	14.1	11.1	3.7	2.5	2.8	5.1	7.0	8.1	8.1	11.6	14.4	24.3	26.3	26.4	14.9	26.4	
21-Dec	22.3	Z	21.2	21.3	20.4	18.6	15.8	14.8	14.2	13.8	12.3	16.3	17.0	18.3	19.8	19.9	20.9	21.1	20.5	21.1	22.6	30.7	36.5	34.0	20.6	36.5	
22-Dec	33.2	31.9	Z	29.5	29.0	22.0	9.6	6.3	6.4	6.9	7.7	7.3	8.3	8.2	8.2	9.3	7.0	9.4	9.5	9.5	13.4	9.9	10.5	11.1	13.2	33.2	
23-Dec	13.4	12.2	10.9	Z	7.4	15.1	19.2	12.4	18.4	14.9	11.6	10.5	10.5	11.4	15.0	11.9	12.0	13.5	15.4	9.5	4.5	0.2	0.2	11.3	19.2		
24-Dec	0.7	0.5	0.0	6.7	Z	8.7	11.5	11.7	6.6	4.9	5.8	7.2	6.4	7.2	7.6	9.0	11.1	8.9	4.2	4.3	14.2	8.9	8.5	9.4	7.1	14.2	
25-Dec	9.2	9.2	9.2	12.1	8.4	Z	8.3	5.2	3.2	0.7	0.8	0.9	1.9	1.7	4.5	6.3	16.1	7.5	3.9	8.9	7.3	5.8	5.0	5.4	6.2	16.1	
26-Dec	Z	5.4	7.5	9.6	10.7	10.6	13.4	11.2	9.7	8.8	7.6	6.8	8.6	6.7	7.5	8.1	6.1	6.8	6.0	5.8	6.4	5.6	5.3	7.3	7.9	13.4	
27-Dec	13.2	Z	13.3	11.4	10.0	9.5	10.0	6.9	6.3	5.8	8.9	8.7	10.1	12.1	13.0	16.5	13.6	8.6	10.1	14.3	11.0	14.9	13.6	10.6	11.0	16.5	
28-Dec	8.5	7.7	Z	5.3	3.9	4.2	3.4	2.3	1.8	1.2	1.4	5.6	8.6	16.3	25.3	26.9	22.7	21.9	24.4	18.0	9.7	11.6	12.0	9.3	11.0	26.9	
29-Dec	7.5	10.1	14.5	Z	11.9	17.9	13.1	9.8	8.2	7.6	7.5	7.3	6.4	9.2	8.8	7.5	6.4	5.1	4.4	5.0	1.8	1.2	0.4	0.3	7.5	17.9	
30-Dec	0.3	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3
31-Dec	1.1	3.7	0.6	0.4	0.5	Z	4.9	5.0	6.3	5.8	4.3	5.3	0.2	0.1	0.0	14.8	31.9	28.5	25.1	22.2	20.3	19.0	15.7	12.8	9.9	31.9	

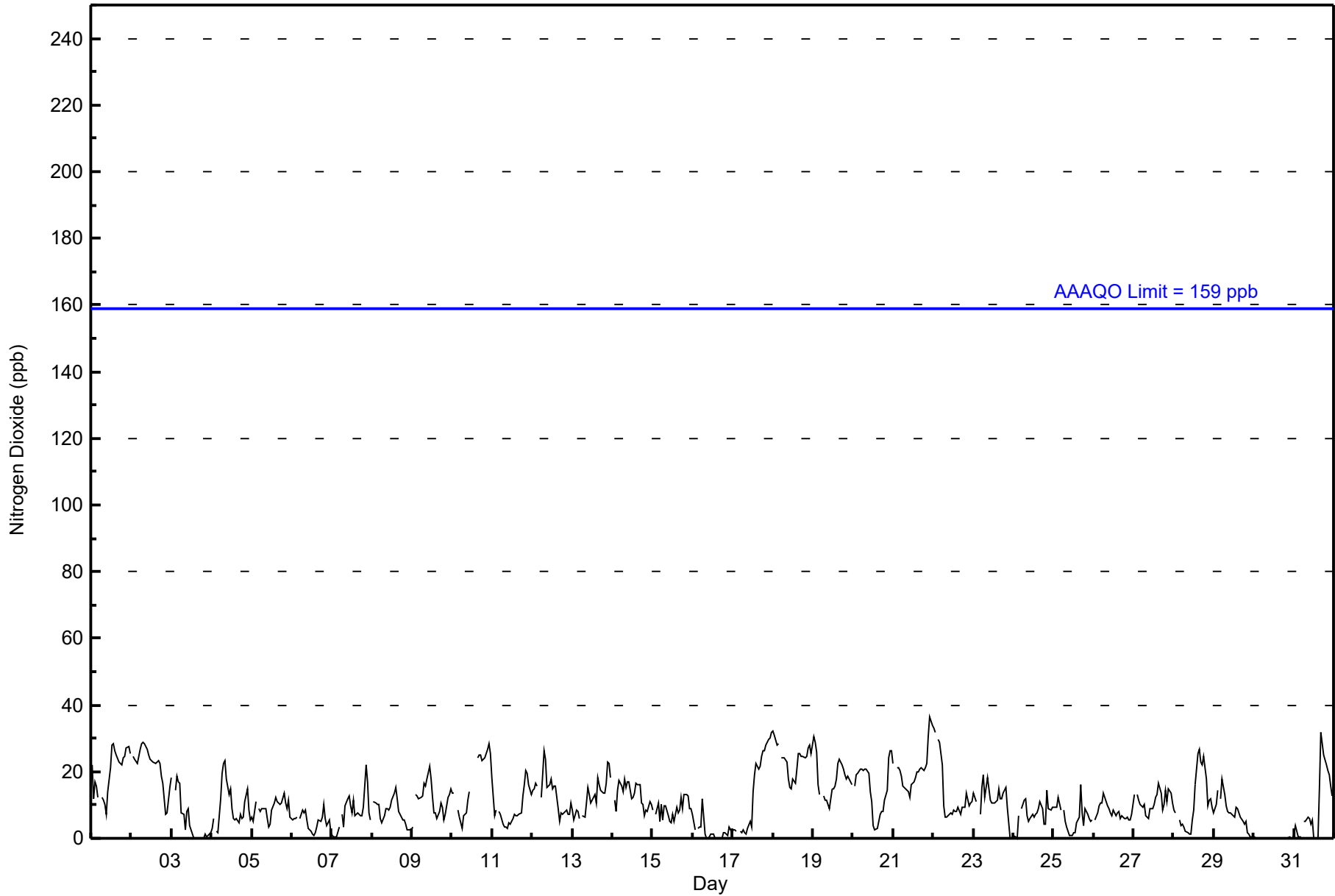
11.7	10.7	11.4	11.9	10.5	11.8	11.1	10.6	10.5	9.7	9.4	9.2	9.5	10.0	10.9	12.3	12.7	12.2	11.7	12.2	12.5	13.1	12.7	11.9	Diurnal Average	
33.2	31.9	28.1	29.5	29.0	26.8	28.6	29.0	28.2	26.6	25.0	23.8	27.9	28.5	26.4	26.9	31.9	28.5	26.2	26.3	27.9	30.7	36.5	34.0	Diurnal Maximum	

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 McKay South - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	594	83.78	83.78
21 - 40	115	16.22	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
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	68	31	5	3	5	4	17	40	123	43	34	39	33	44	27	18	534
21 - 40	14	13	3	0	0	2	2	10	10	6	8	8	2	3	8	5	94
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	82	44	8	3	5	6	19	50	133	49	42	47	35	47	35	23	628

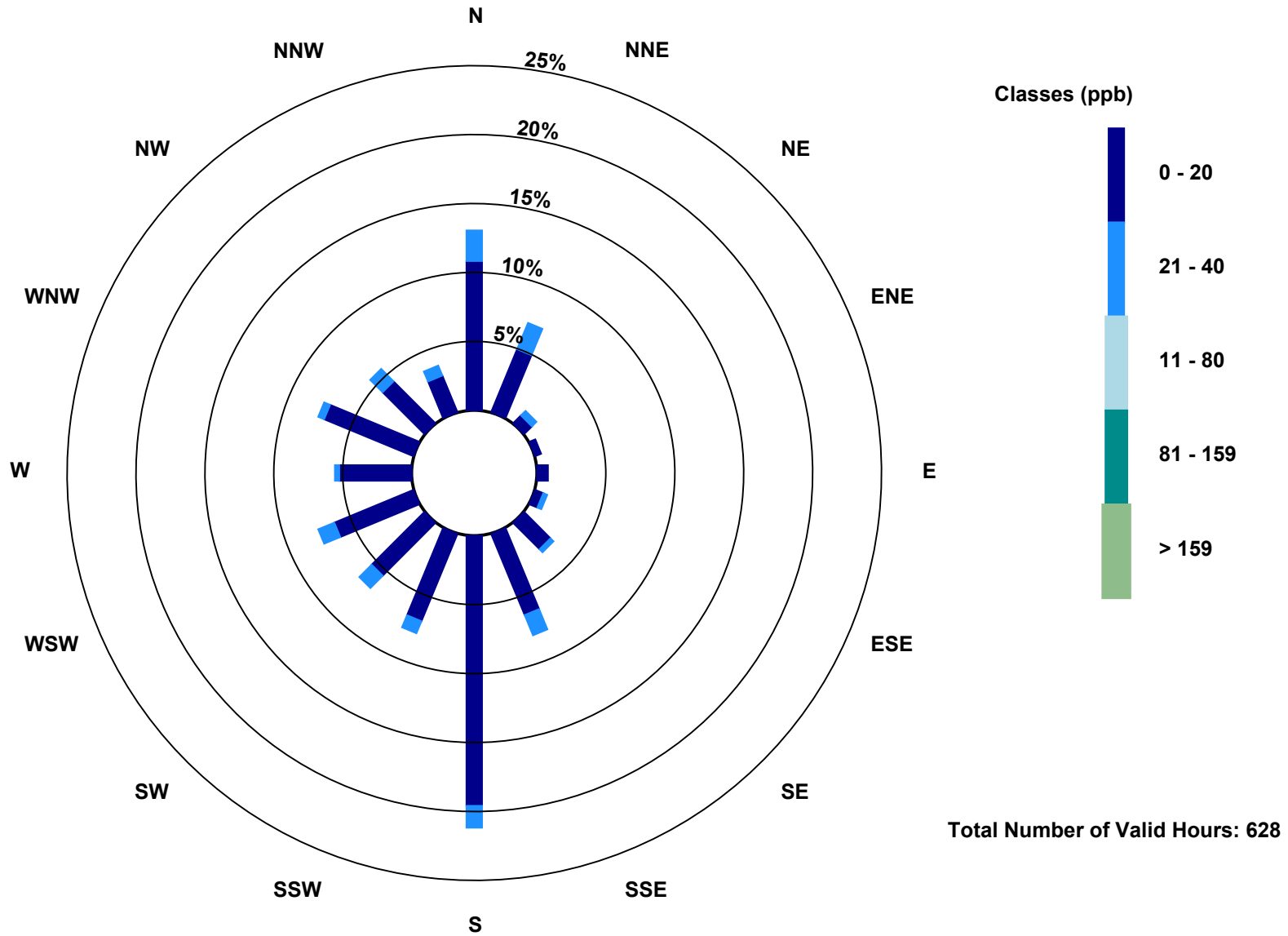
Total Number of Valid Hours: 628

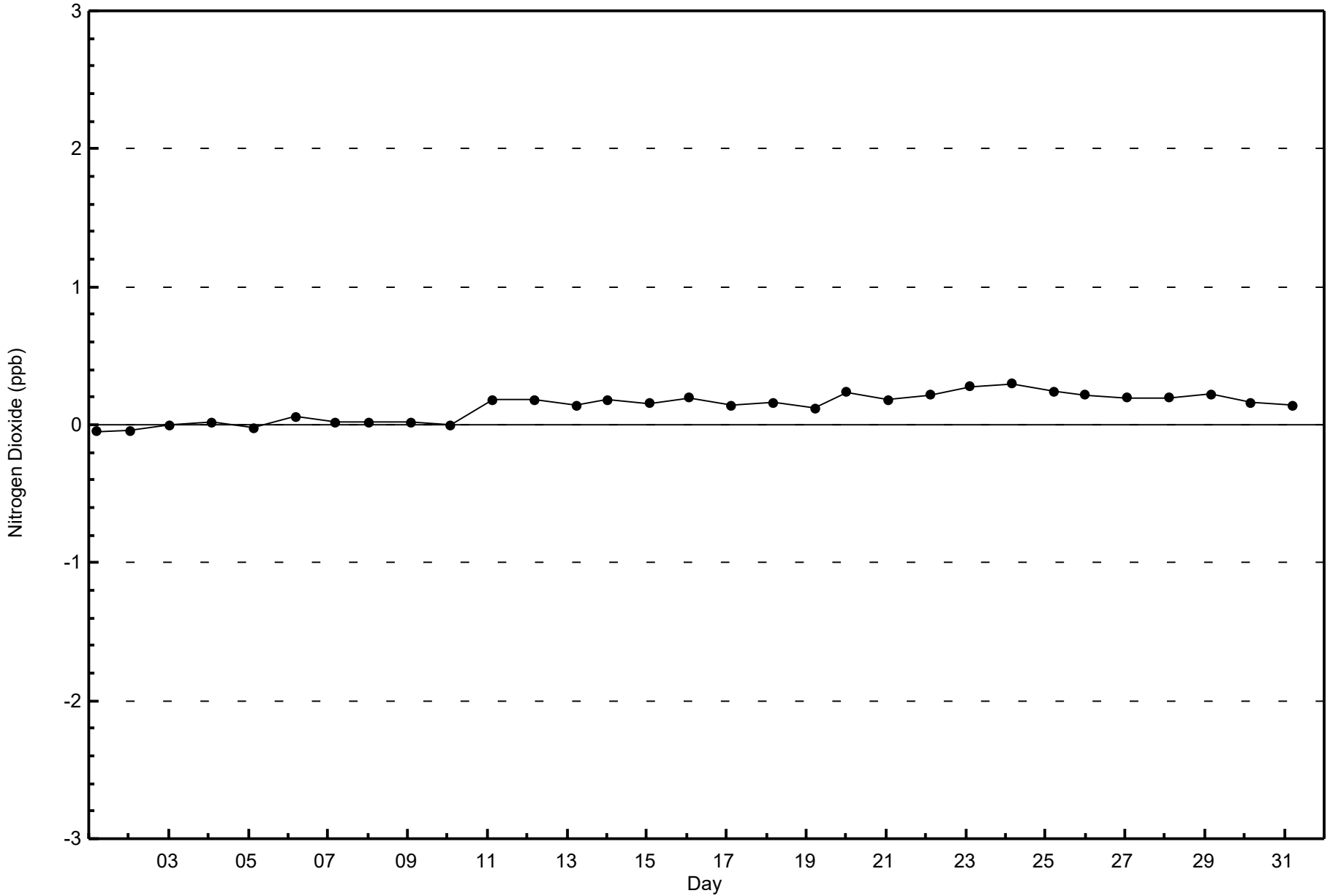
Total Number of Hours: 744

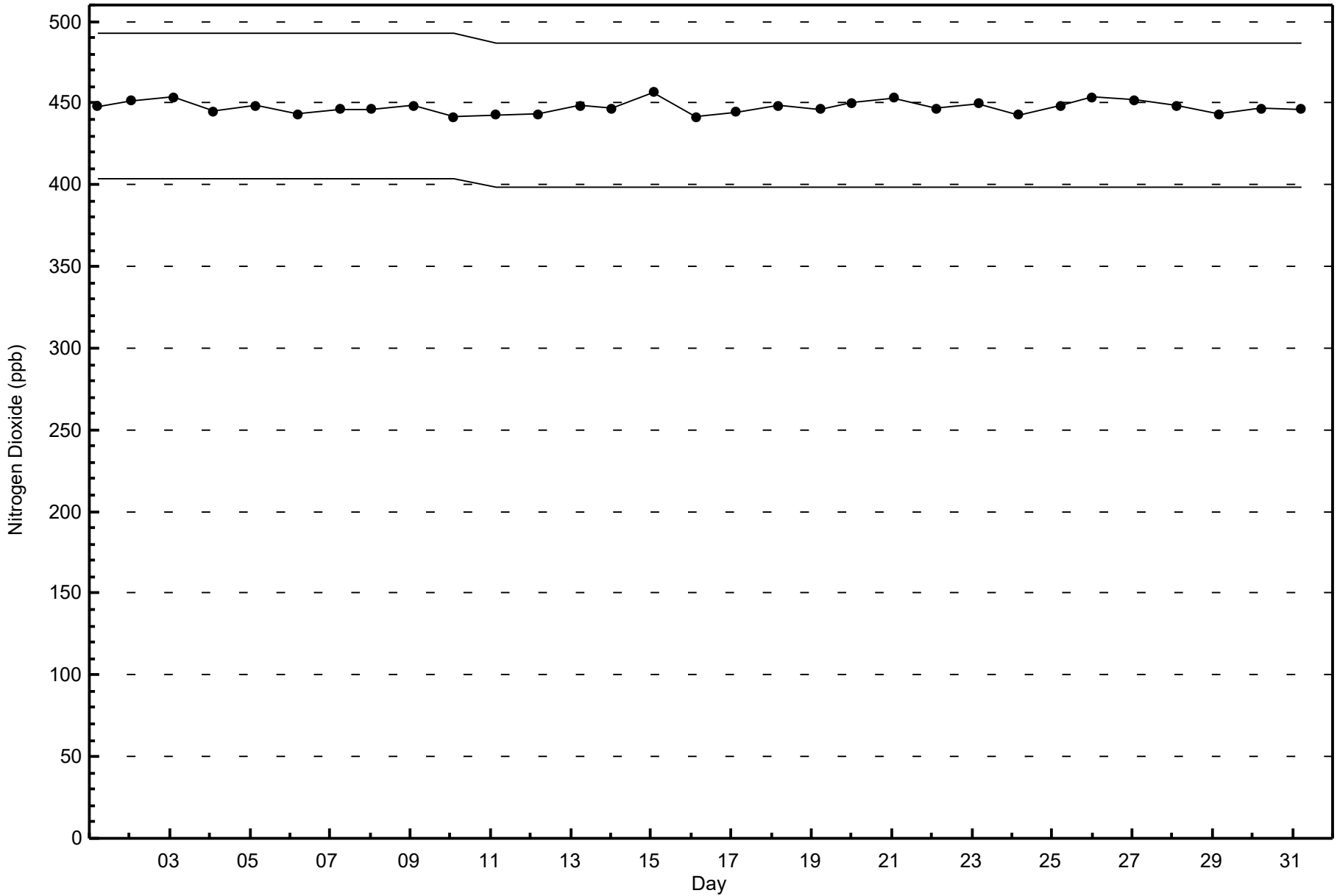


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Fort McKay South





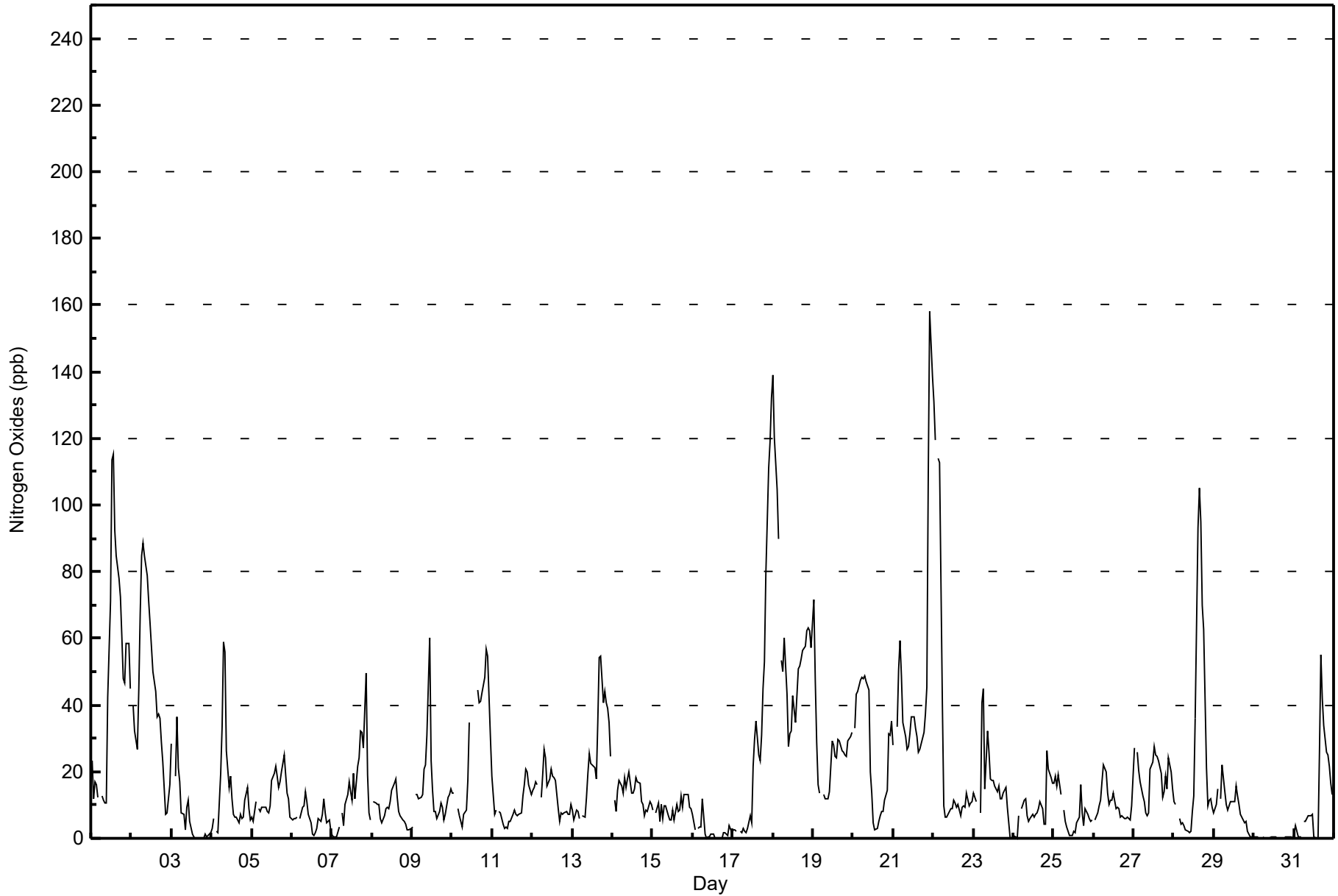




Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb
Fort McKay South - December 2024

Maximum Value: 158.1 ppb on Dec 21 23:00																						Maximum Daily Average: 60.4 ppb on Dec 18																						Hours in Service: 744	
Minimum Value: 0.0 ppb on Dec 3 15:00																						Minimum Daily Average: 0.2 ppb on Dec 30																						Hours of Data: 709	
Maximum Diurnal Average: 23.7 ppb at hour 23																						Minimum Diurnal Average: 15.1 ppb at hour 10																						Hours of Missing Data: 35	
Monthly Average: 19.44 ppb																						Percentiles: P ₁ = 0.0 P ₁₀ = 1.5 Q ₁ = 6.1 Median = 11.4 Q ₃ = 24.2 P ₉₀ = 47.3 P ₉₉ = 118.6																						Hours of Calibration: 35	
																																												Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	23.5	11.7	17.1	15.9	12.3	Z	12.5	11.7	10.5	10.5	42.5	71.4	113.6	115.2	92.3	84.8	78.1	72.3	60.6	48.0	46.4	58.7	58.5	44.9	48.4	115.2																			
2-Dec	Z	39.9	32.2	26.6	44.6	67.2	84.7	88.5	84.8	78.7	71.0	64.3	57.1	50.2	43.9	36.4	37.5	36.1	28.7	22.9	7.0	7.5	12.1	16.0	45.1	88.5																			
3-Dec	28.5	Z	18.7	36.3	21.2	17.1	17.1	7.6	7.4	2.7	9.3	11.6	4.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.6	0.7	1.5	7.4	36.3																			
4-Dec	3.1	5.8	Z	2.2	1.8	19.7	33.6	58.8	56.0	26.4	15.3	18.4	11.8	7.4	6.4	6.3	4.8	7.2	6.1	6.5	11.5	15.3	8.8	5.7	14.7	58.8																			
5-Dec	6.4	5.2	10.9	Z	8.9	8.1	9.1	9.2	9.4	8.2	7.5	9.9	17.4	19.5	21.5	18.5	15.3	16.7	19.9	25.0	19.1	13.5	11.9	6.3	12.9	25.0																			
6-Dec	5.7	6.1	5.9	6.3	Z	5.8	9.1	9.6	13.8	10.9	7.2	4.8	1.3	1.0	1.6	3.2	5.9	5.0	7.3	11.8	7.4	4.5	5.6	1.9	6.2	13.8																			
7-Dec	0.9	0.5	0.6	0.5	3.4	Z	7.4	3.7	10.1	13.3	17.0	13.8	11.4	19.7	11.9	21.6	24.2	32.4	31.9	27.2	49.4	19.2	7.6	5.4	14.5	49.4																			
8-Dec	Z	11.1	10.7	10.4	10.1	6.1	4.8	6.8	8.8	9.2	9.1	11.0	14.3	16.7	17.9	12.2	7.9	7.0	5.3	5.3	4.3	2.7	2.7	2.8	8.6	17.9																			
9-Dec	3.3	Z	13.2	13.0	11.8	12.5	13.0	20.8	21.9	30.8	60.0	23.3	14.2	8.2	7.9	5.8	8.2	10.5	9.3	5.6	7.2	12.2	13.0	15.0	14.8	60.0																			
10-Dec	13.6	13.6	Z	8.8	6.6	5.1	3.4	7.2	8.3	17.5	34.7	C	C	C	C	44.5	40.5	40.9	43.4	48.4	56.8	54.6	42.5	30.1	27.4	56.8																			
11-Dec	18.8	7.0	8.3	Z	7.9	7.4	4.1	3.2	3.6	2.8	5.0	5.2	7.3	8.3	7.4	6.7	7.3	7.6	12.7	16.0	20.7	19.7	16.1	13.1	9.4	20.7																			
12-Dec	14.5	15.1	16.9	16.0	Z	12.1	19.0	26.6	24.1	15.8	17.8	20.8	18.5	18.2	17.5	9.0	4.9	7.8	7.2	7.5	8.3	7.1	7.3	10.4	14.0	26.6																			
13-Dec	8.4	5.7	8.4	7.9	5.9	Z	6.7	6.3	12.1	19.5	25.4	22.6	21.9	21.4	17.8	34.7	54.4	54.5	40.8	43.9	40.7	39.0	34.8	24.7	24.2	54.5																			
14-Dec	Z	11.4	8.2	14.4	17.5	15.6	13.8	18.2	15.2	17.9	20.0	13.6	13.6	14.9	18.0	17.1	16.5	10.9	10.2	6.9	8.6	8.1	11.1	10.2	13.6	20.0																			
15-Dec	8.5	Z	7.4	10.5	5.2	10.1	5.7	9.7	9.9	6.9	5.3	5.4	8.4	5.7	10.2	7.9	8.5	12.6	9.1	13.1	13.3	13.0	9.2	8.9	8.9	13.3																			
16-Dec	7.3	2.7	Z	2.9	3.4	3.4	11.9	1.4	0.2	0.2	0.5	1.5	1.3	0.0	0.0	0.0	0.0	0.1	1.8	1.8	1.2	1.0	3.7	1.8	2.1	11.9																			
17-Dec	2.5	2.5	2.3	Z	2.3	1.8	2.9	2.3	1.6	3.2	6.7	4.8	21.8	29.8	35.3	25.2	23.4	30.9	45.0	53.0	79.4	111.0	118.9	132.1	32.1	132.1																			
18-Dec	139.2	120.2	104.6	90.0	Z	53.3	50.0	60.2	43.1	27.4	31.4	32.3	42.9	34.6	43.0	50.7	51.8	53.7	56.5	57.8	62.4	63.3	62.3	57.4	60.4	139.2																			
19-Dec	71.7	47.5	29.0	16.2	13.4	Z	13.0	11.8	11.9	12.0	13.9	29.4	27.8	24.8	24.2	29.6	29.1	26.1	25.7	24.9	24.8	29.3	30.5	31.6	26.0	71.7																			
20-Dec	Z	33.2	43.4	44.1	47.3	48.2	47.8	48.7	47.0	44.5	20.1	13.7	4.5	2.5	2.8	5.1	7.0	8.1	8.1	11.6	14.4	31.2	31.0	35.1	26.0	48.7																			
21-Dec	27.8	Z	33.3	50.5	59.4	48.8	34.6	30.3	26.7	27.4	31.5	36.5	36.3	32.9	30.5	26.0	26.8	28.4	31.9	37.2	45.2	108.4	158.1	138.4	48.1	158.1																			
22-Dec	130.8	119.5	Z	114.0	112.9	40.1	9.6	6.3	6.4	7.3	8.9	9.0	11.4	10.6	9.5	10.1	7.0	9.4	9.5	9.5	13.5	9.9	10.5	11.1	29.9	130.8																			
23-Dec	13.5	12.3	11.0	Z	7.6	40.8	45.0	15.0	32.3	25.7	17.8	17.2	17.2	15.6	13.8	15.6	11.9	12.0	13.5	15.4	9.5	4.5	0.2	0.2	16.0	45.0																			
24-Dec	0.7	0.5	0.0	6.7	Z	8.7	11.5	11.7	6.6	4.9	5.8	7.3	6.5	7.2	7.6	9.0	11.1	8.9	4.2	4.3	26.1	20.9	18.3	16.4	8.9	26.1																			
25-Dec	16.5	18.7	15.5	19.3	13.0	Z	8.4	5.2	3.2	0.8	0.9	1.0	2.1	1.8	4.7	6.3	16.1	7.5	3.9	8.9	7.3	5.8	5.0	5.4	7.7	19.3																			
26-Dec	Z	5.5	7.7	10.0	11.6	16.9	22.0	19.9	13.7	10.2	11.5	11.5	13.7	9.1	9.1	8.8	6.1	6.8	6.0	5.8	6.4	5.8	5.6	9.7	10.2	22.0																			
27-Dec	27.3	Z	25.8	20.2	17.1	12.5	11.0	7.5	6.8	7.6	20.7	22.9	27.4	25.1	24.6	23.2	19.5	12.3	14.2	18.6	14.9	24.2	20.1	14.9	18.2	27.4																			
28-Dec	10.9	10.0	Z	5.9	4.3	4.5	3.7	2.4	1.9	1.5	2.2	7.9	12.7	36.0	93.2	105.3	94.9	69.8	62.6	21.2	9.8	11.6	12.1	9.4	25.8	105.3																			
29-Dec	7.5	10.2	14.7	Z	12.0	21.8	14.1	10.0	8.6	9.9	11.2	11.1	10.9	15.6	12.9	10.1	7.3	5.5	4.7	5.2	1.9	1.3	0.5	0.4	9.0	21.8																			
30-Dec	0.3	0.3	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.1	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.3	0.2	0.2	0.4	0.4																		
31-Dec	1.1	3.8	0.6	0.4	0.5	Z	4.9	5.1	6.6	6.7	6.7	7.3	0.4	0.1	0.0	25.8	55.2	41.9	34.0	25.7	24.9	21.8	16.7	13.3	13.2	55.2																			
22.8 20.0 17.2 21.1 17.8 19.5 16.9 17.0 16.4 15.1 17.4 16.8 18.3 18.4 19.5 21.3 22.0 20.7 19.8 19.0 20.8 23.4 23.7 21.7																								Diurnal Average																					
139.2 120.2 104.6 114.0 112.9 67.2 84.7 88.5 84.8 78.7 71.0 71.4 113.6 115.2 93.2 105.3 94.9 72.3 62.6 57.8 79.4 111.0 158.1 138.4																								Diurnal Maximum																					
Z - zerospan C - Calibration																																													





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	506	71.37	71.37
21 - 40	107	15.09	86.46
41 - 80	72	10.16	96.61
81 - 159	24	3.39	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
Fort McKay South - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	59	28	3	2	5	4	10	32	112	35	29	36	32	40	24	11	462
21 - 40	13	7	3	1	0	1	7	12	12	11	7	3	1	3	5	4	90
11 - 80	8	8	2	0	0	1	1	4	6	2	4	5	1	3	5	7	57
81 - 159	2	1	0	0	0	0	1	2	3	1	2	3	1	1	1	1	19
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	82	44	8	3	5	6	19	50	133	49	42	47	35	47	35	23	628

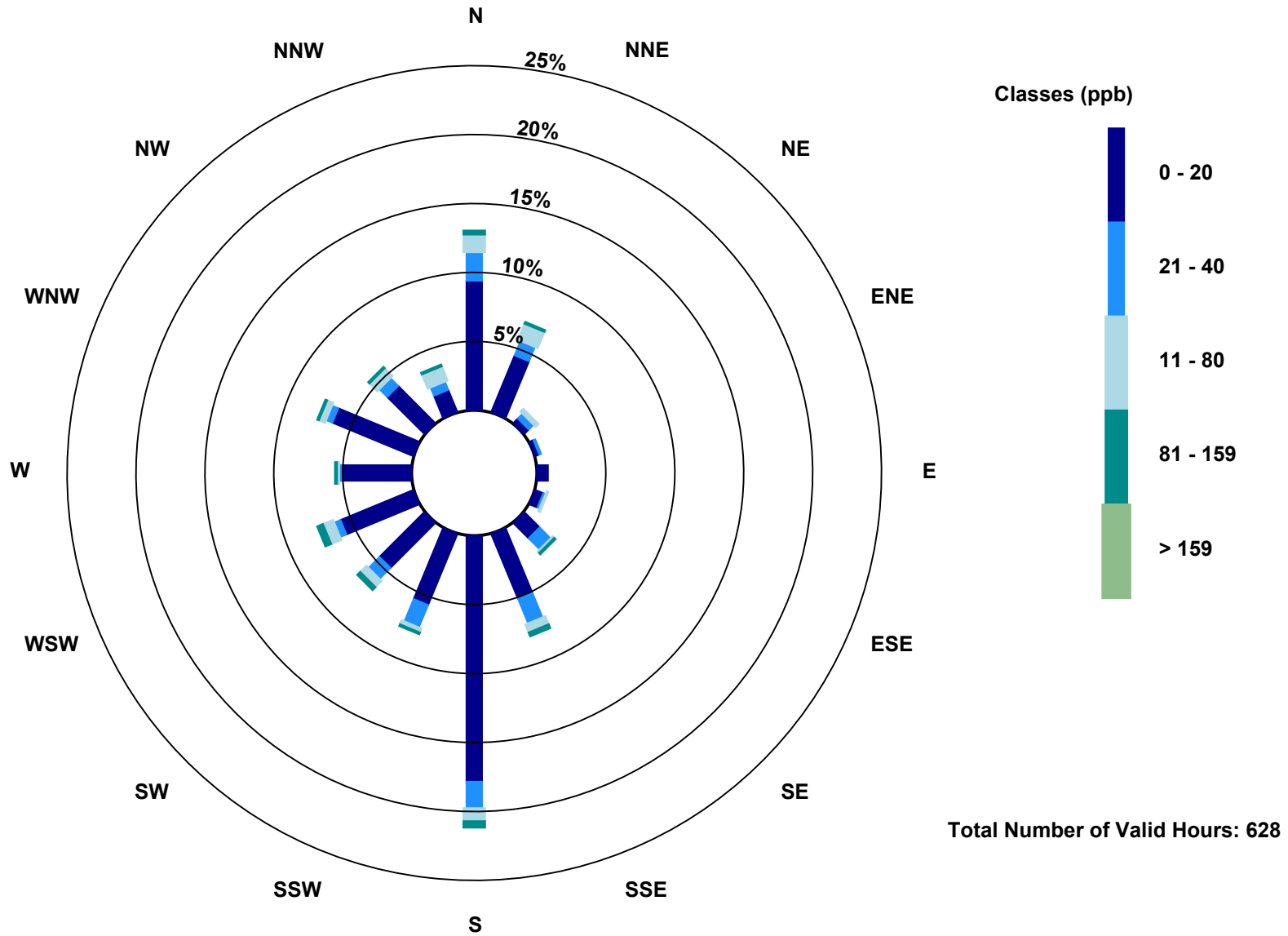
Total Number of Valid Hours: 628

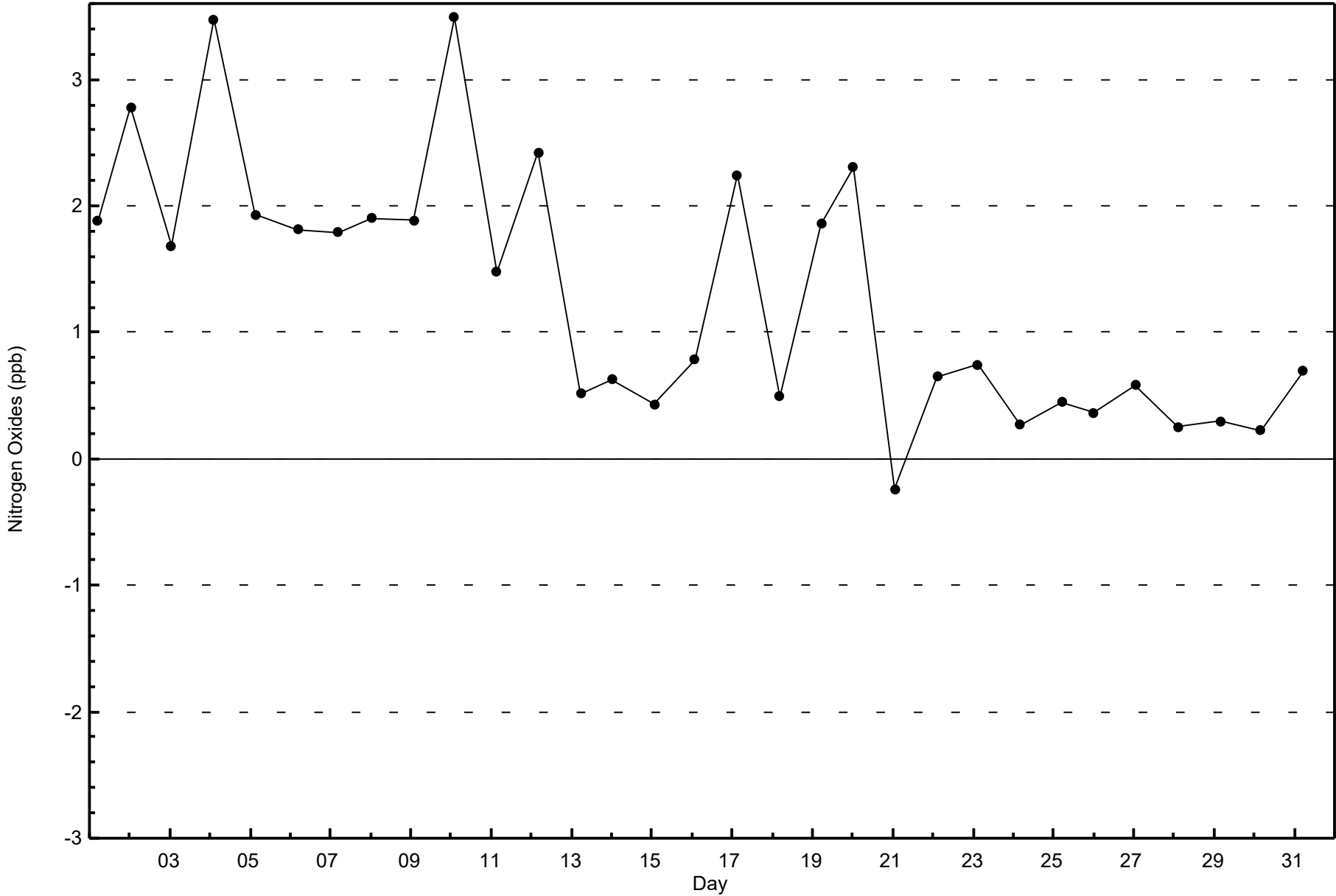
Total Number of Hours: 744

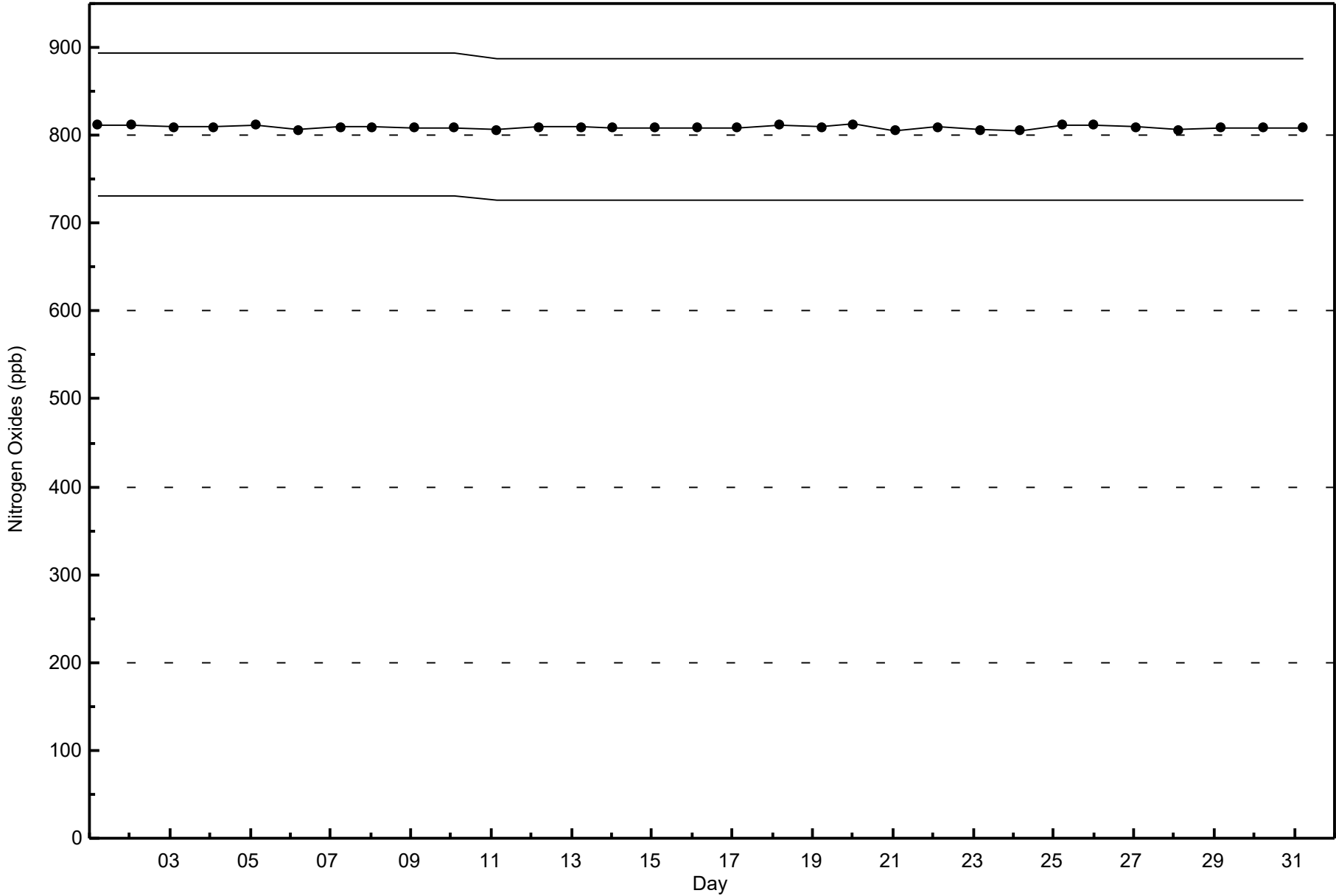


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Fort McKay South









Wood Buffalo Environmental Association

Summary of Hour Averages

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

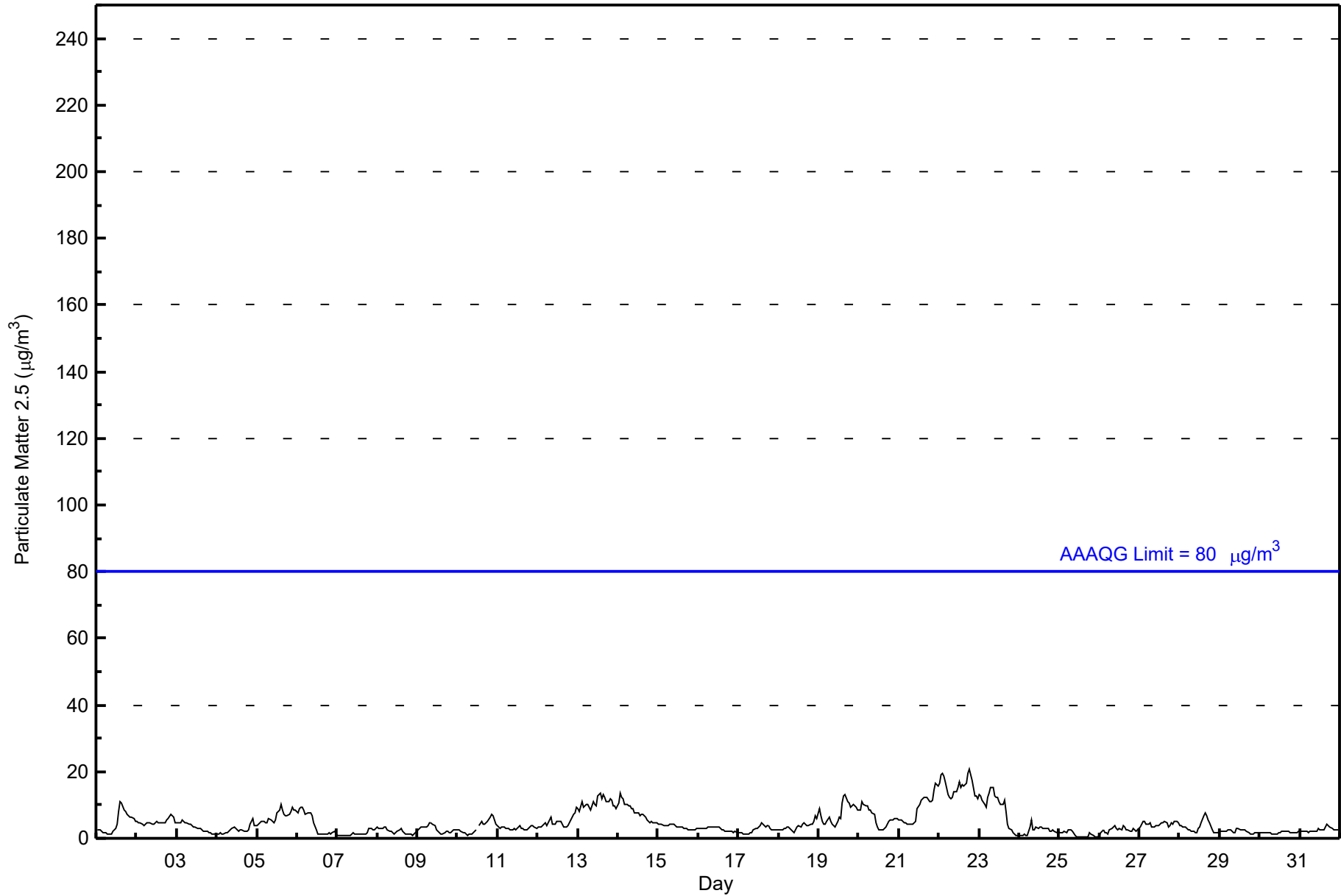
Fort McKay South - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																											
Maximum Value: 20.7 µg/m ³ on Dec 22 19:00		Maximum Daily Average: 15.8 µg/m ³ on Dec 22																	Hours of Data: 743																													
Minimum Value: 0.3 µg/m ³ on Dec 25 15:00		Minimum Daily Average: 1.2 µg/m ³ on Dec 25																	Hours of Missing Data: 1																													
Maximum Diurnal Average: 5.2 µg/m ³ at hour 15		Minimum Diurnal Average: 4.1 µg/m ³ at hour 11																	Hours of Calibration: 1																													
Monthly Average: 4.60 µg/m ³		Percentiles: P ₁ = 0.5 P ₁₀ = 1.4 Q ₁ = 2.1 Median = 3.3 Q ₃ = 5.3 P ₉₀ = 10.2 P ₉₉ = 17.1																	Percent Operational Time: 100.0																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	2.7	2.5	2.6	1.9	1.7	1.5	1.3	1.2	1.2	1.1	2.0	3.1	4.2	8.0	11.1	10.5	8.4	8.0	7.1	6.7	6.5	6.5	5.9	5.0	4.6	11.1																						
2-Dec	5.0	4.8	4.6	4.1	4.0	4.0	4.5	4.5	4.6	4.3	4.3	4.8	4.9	4.8	4.7	4.5	4.7	4.6	5.4	5.8	7.0	6.9	6.5	4.7	4.9	7.0																						
3-Dec	4.6	4.7	4.7	5.5	5.0	4.7	4.5	4.3	4.4	3.8	3.3	3.2	3.1	3.1	2.9	2.5	2.3	2.1	2.0	1.9	1.8	1.4	1.3	1.2	3.3	5.5																						
4-Dec	1.2	1.3	1.6	1.5	1.2	1.6	1.9	2.3	2.7	2.9	3.5	3.2	2.7	2.3	2.5	2.4	2.1	2.2	2.1	2.4	4.3	5.8	4.0	3.8	2.5	5.8																						
5-Dec	4.0	4.4	4.9	5.0	5.0	4.5	4.7	5.9	5.4	5.2	4.8	5.3	7.6	8.6	10.2	8.5	7.2	6.7	6.8	7.1	7.9	9.5	8.5	8.4	6.5	10.2																						
6-Dec	7.8	9.0	9.3	9.4	8.7	7.2	7.6	7.4	7.5	6.6	4.7	2.8	1.4	1.4	1.3	1.2	1.5	1.5	1.3	1.5	1.5	1.7	2.0	1.3	4.4	9.4																						
7-Dec	1.0	0.8	0.8	0.9	1.0	0.9	0.8	0.7	1.0	1.7	1.4	1.4	1.4	1.3	1.2	1.3	1.3	1.3	1.6	2.9	3.0	2.5	2.3	3.1	1.5	3.1																						
8-Dec	3.5	3.1	3.1	2.9	3.3	3.4	2.6	2.3	2.3	1.7	1.2	1.8	2.3	2.6	2.9	2.1	1.5	1.3	1.2	1.1	1.1	0.9	1.4	2.2	2.2	3.5																						
9-Dec	2.7	3.1	3.3	3.3	3.3	3.5	3.9	4.8	4.7	4.1	3.9	2.8	2.1	1.5	1.4	1.3	1.6	1.9	2.3	1.9	1.9	2.4	2.5	2.7	2.8	4.8																						
10-Dec	2.5	2.4	2.1	1.7	1.5	1.1	0.9	1.3	1.1	1.6	2.2	2.5	C	3.7	5.0	4.4	4.3	4.7	5.1	6.2	7.1	6.9	5.3	4.2	3.4	7.1																						
11-Dec	3.8	3.0	3.3	3.3	3.2	3.2	2.9	2.6	2.5	2.5	2.8	2.7	3.5	4.0	3.0	2.8	2.7	2.6	3.1	3.2	3.8	3.9	3.5	3.1	3.1	4.0																						
12-Dec	3.3	3.2	3.6	3.8	4.5	3.8	4.8	5.4	6.2	4.3	4.3	4.9	5.3	5.1	4.9	3.6	3.2	3.5	4.0	4.5	6.3	7.3	7.6	9.2	4.9	9.2																						
13-Dec	8.8	8.0	10.8	9.4	9.6	10.0	10.0	8.7	9.9	10.9	10.3	9.6	12.9	13.7	11.8	13.2	12.1	11.2	11.1	11.7	11.4	9.9	9.8	9.0	10.6	13.7																						
14-Dec	10.8	13.7	12.3	12.0	10.4	10.1	9.8	9.6	8.8	8.9	7.7	7.7	7.5	6.8	7.0	7.0	6.4	5.5	5.1	4.8	5.0	4.7	4.6	4.6	8.0	13.7																						
15-Dec	4.3	4.2	4.1	3.7	3.7	4.0	3.9	4.3	4.3	4.1	3.8	3.6	3.5	3.4	3.4	3.1	2.9	3.0	2.6	2.6	2.6	2.7	2.7	2.8	3.5	4.3																						
16-Dec	2.9	2.8	2.8	2.9	3.0	2.9	3.4	3.5	3.3	3.3	3.3	3.2	3.2	3.1	2.7	2.4	2.2	2.2	2.1	2.0	1.9	1.9	2.0	1.8	2.7	3.5																						
17-Dec	1.7	1.7	1.6	1.5	1.4	1.3	1.4	1.5	1.7	2.4	3.0	3.0	3.4	3.9	4.8	4.0	3.3	3.7	3.8	3.1	2.8	2.7	2.6	2.7	2.6	4.8																						
18-Dec	2.6	2.6	2.4	2.8	3.0	3.2	3.3	3.0	2.3	1.7	2.4	3.3	3.8	3.3	4.4	4.8	4.2	3.9	3.9	4.0	4.4	5.3	6.6	5.8	3.6	6.6																						
19-Dec	9.0	6.7	5.0	4.3	4.1	4.9	6.4	5.3	4.3	3.8	3.4	5.1	6.4	5.9	10.4	12.8	12.9	11.1	10.4	9.4	9.9	10.2	9.2	8.4	7.5	12.9																						
20-Dec	8.7	8.6	11.0	10.3	9.9	9.6	8.4	8.5	7.5	7.1	4.9	3.5	2.7	2.6	2.6	3.1	3.5	4.1	5.2	5.7	5.4	5.7	5.9	5.8	6.3	11.0																						
21-Dec	5.3	5.6	4.9	4.8	4.6	4.4	4.1	4.2	4.4	4.8	4.9	9.0	10.1	11.4	11.9	12.3	12.3	12.3	10.9	10.9	11.6	14.3	16.6	15.7	8.8	16.6																						
22-Dec	16.5	19.3	19.5	18.6	17.0	13.2	12.2	11.8	12.1	14.1	14.0	15.4	17.1	15.3	16.1	15.7	16.6	19.7	20.7	19.1	17.2	12.9	12.7	11.7	15.8	20.7																						
23-Dec	13.1	12.6	11.4	10.3	9.5	12.4	13.6	15.5	15.4	12.7	12.4	12.4	11.0	10.1	10.3	11.5	8.1	4.3	2.8	2.6	1.8	1.2	1.0	0.9	9.0	15.5																						
24-Dec	1.0	1.0	0.9	1.1	1.0	0.7	3.5	5.3	2.7	2.5	3.5	3.0	3.3	3.2	2.9	3.0	3.0	2.9	2.2	2.2	2.7	2.1	1.8	1.9	2.4	5.3																						
25-Dec	1.8	1.7	1.6	2.2	1.9	2.5	2.6	2.4	2.0	0.8	0.6	0.4	0.4	0.4	0.3	0.3	0.5	0.4	1.7	1.3	0.8	0.5	0.4	0.4	1.2	2.6																						
26-Dec	0.7	1.7	2.7	1.7	1.5	1.4	2.6	2.9	3.4	3.6	3.0	2.6	2.8	2.6	3.7	3.2	2.7	2.7	2.3	2.3	2.8	2.6	2.2	2.4	2.5	3.7																						
27-Dec	3.3	4.3	5.2	5.2	4.4	4.3	4.5	3.5	3.4	3.4	3.8	3.9	4.2	4.7	4.5	5.2	4.7	3.4	3.9	4.8	4.3	5.2	5.1	4.5	4.3	5.2																						
28-Dec	3.9	3.8	3.6	3.2	2.8	2.7	2.7	2.2	1.9	1.6	1.9	3.0	3.2	4.6	7.0	7.7	6.8	5.4	4.5	2.5	1.7	1.6	1.8	1.7	3.4	7.7																						
29-Dec	2.1	2.0	2.1	2.1	2.1	2.6	2.5	2.0	1.7	1.8	2.9	2.8	2.7	2.7	2.7	2.3	1.9	1.7	1.4	1.4	1.5	1.6	1.5	1.6	2.1	2.9																						
30-Dec	1.7	1.8	1.9	1.8	1.9	1.8	1.6	1.4	1.3	1.2	1.3	1.7	1.9	2.0	2.1	2.0	2.1	2.0	1.8	1.7	1.8	1.9	1.8	1.9	1.8	2.1																						
31-Dec	2.0	2.1	2.1	2.1	2.0	1.9	2.3	2.2	2.2	2.1	2.0	2.9	2.5	2.5	2.6	3.2	4.3	3.8	3.4	3.0	2.7	2.7	2.6	2.6	2.6	4.3																						
																								4.6	4.7	4.8	4.6	4.4	4.3	4.5	4.5	4.4	4.2	4.1	4.3	4.7	4.8	5.2	5.2	4.9	4.6	4.6	4.5	4.7	4.7	4.6	4.4	Diurnal Average
																								16.5	19.3	19.5	18.6	17.0	13.2	13.6	15.5	15.4	14.1	14.0	15.4	17.1	15.3	16.1	15.7	16.6	19.7	20.7	19.1	17.2	14.3	16.6	15.7	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
Hourly Averages

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

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

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	567	76.31	76.31
6 - 15	161	21.67	97.98
16 - 25	15	2.02	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Fort McKay South - December 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	65	34	6	3	5	6	17	43	73	35	41	46	35	42	30	19	500
6 - 15	20	12	2	0	0	0	4	10	58	15	3	3	1	7	5	6	146
16 - 25	0	0	0	0	0	0	1	0	10	1	0	0	1	0	1	0	14
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	85	46	8	3	5	6	22	53	141	51	44	49	37	49	36	25	660

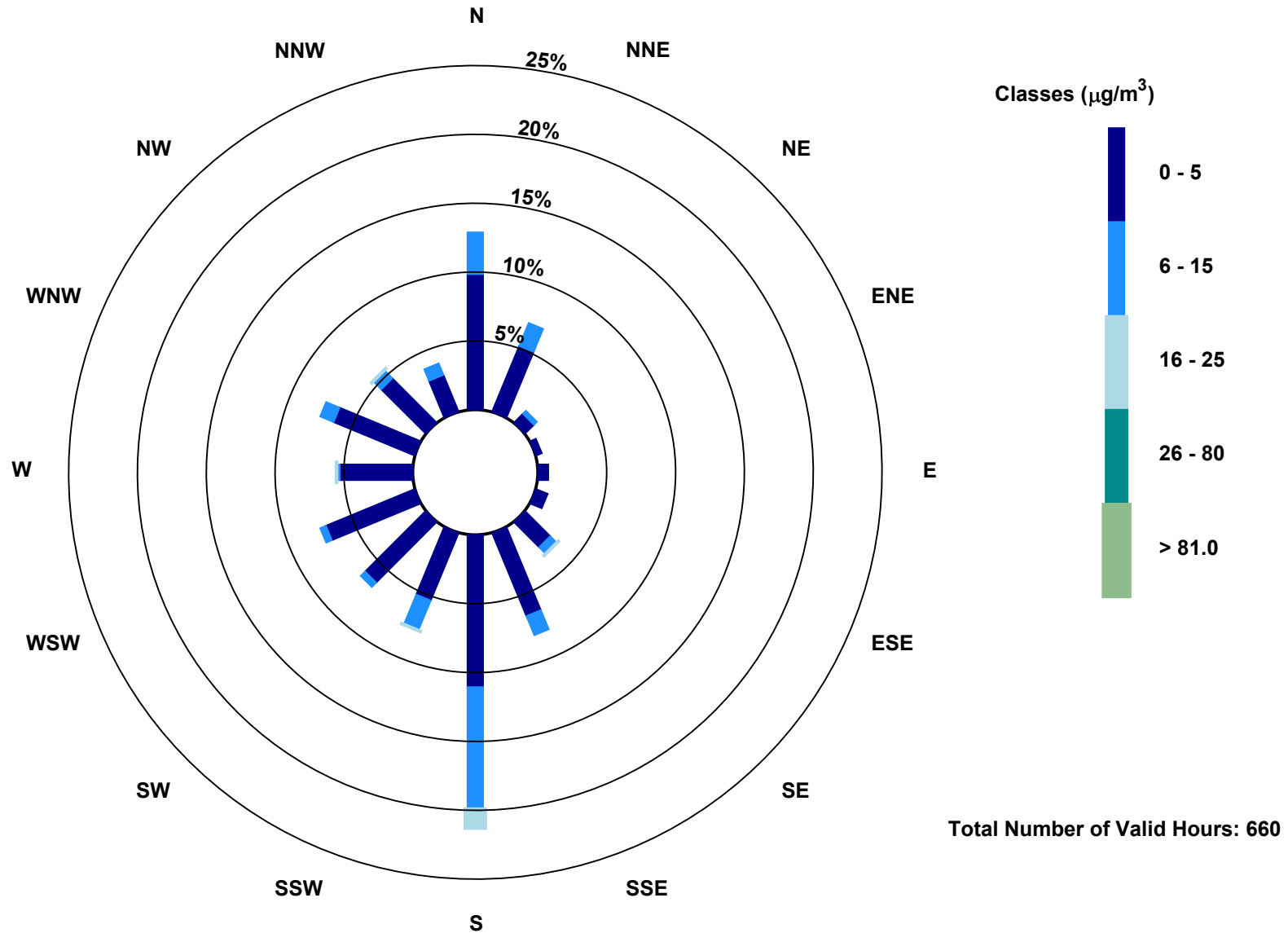
Total Number of Valid Hours: 660

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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

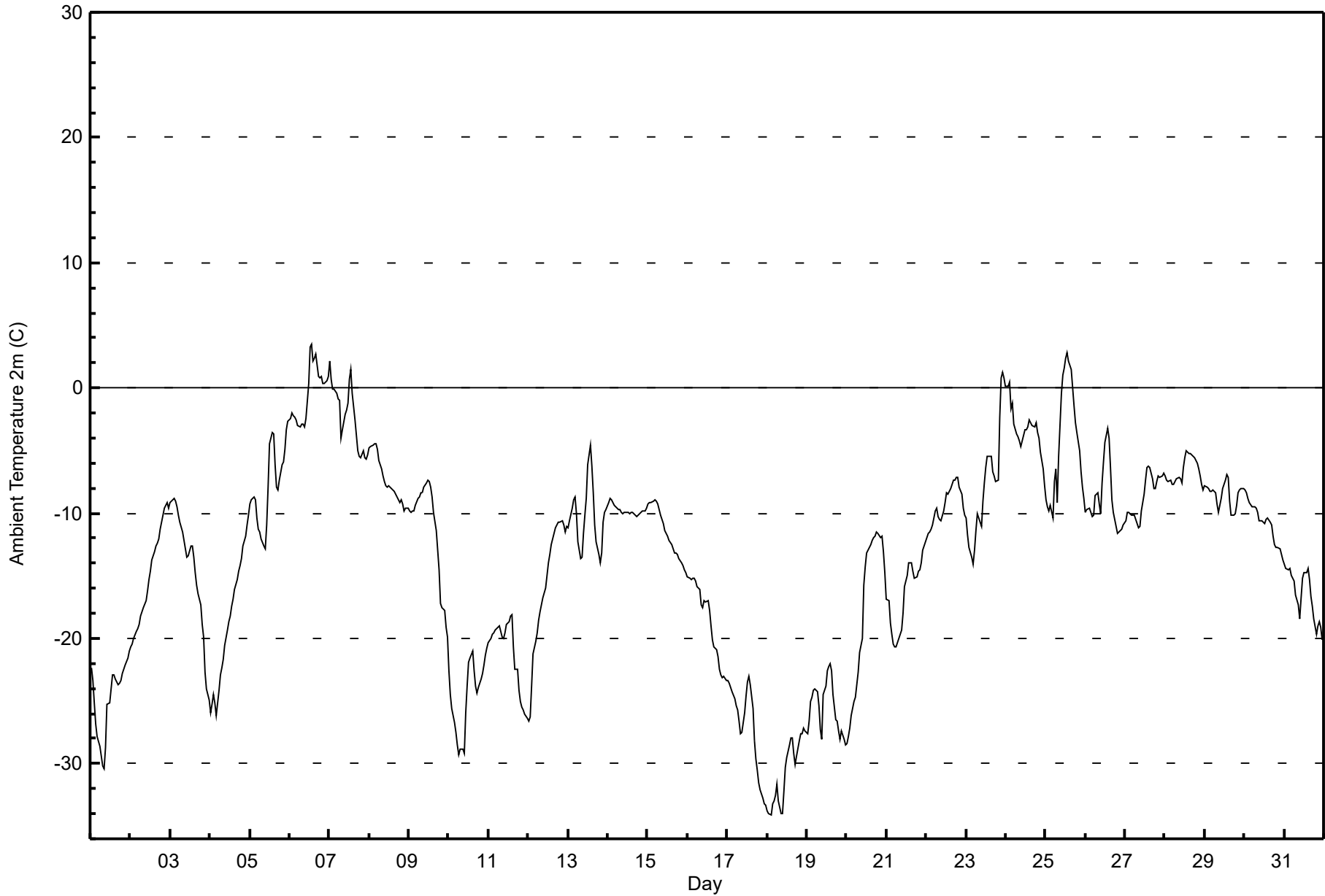




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Fort McKay South - December 2024

Maximum Value: 3.4 C on Dec 6 14:00 Maximum Daily Average: -0.4 C on Dec 6 Minimum Value: -34.1 C on Dec 18 03:00 Minimum Daily Average: -30.7 C on Dec 18 Maximum Diurnal Average: -11.0 C at hour 14 Minimum Diurnal Average: -14.8 C at hour 9 Monthly Average: -13.42 C Percentiles: P ₁ = -33.1 P ₁₀ = -25.6 Q ₁ = -19.5 Median = -11.2 Q ₃ = -8.0 P ₉₀ = -3.7 P ₉₉ = 2.1																								Hours in Service:	744		
																								Hours of Data:	744		
																								Hours of Missing Data:	0		
																								Hours of Calibration:	0		
																								Percent Operational Time:	100.0		
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	-22.4	-23.4	-25.1	-26.8	-27.8	-28.6	-29.4	-30.1	-30.4	-28.8	-25.3	-25.2	-24.1	-22.9	-23.0	-23.2	-23.7	-23.5	-23.4	-22.8	-22.5	-22.1	-21.5	-21.0	-24.9	-21.0	
2-Dec	-20.7	-20.4	-20.0	-19.4	-19.2	-18.8	-18.3	-17.9	-17.6	-17.0	-16.1	-15.3	-14.7	-13.7	-13.1	-12.6	-12.4	-12.0	-11.2	-10.8	-9.6	-9.4	-9.1	-9.6	-15.0	-9.1	
3-Dec	-9.2	-8.9	-8.8	-9.0	-9.4	-10.1	-10.7	-11.5	-12.2	-12.9	-13.5	-13.4	-12.7	-12.6	-13.5	-14.7	-15.7	-16.4	-17.3	-18.9	-19.8	-22.7	-24.1	-25.0	-14.3	-8.8	
4-Dec	-25.9	-25.2	-24.5	-25.2	-26.2	-26.2	-24.1	-23.0	-22.4	-21.7	-20.5	-19.3	-18.7	-18.2	-17.4	-16.8	-16.1	-15.3	-14.6	-14.2	-13.6	-12.6	-11.8	-10.9	-10.2	-18.7	-10.2
5-Dec	-9.2	-9.0	-8.7	-9.0	-10.4	-11.3	-11.5	-12.1	-12.6	-12.8	-10.9	-7.9	-4.4	-3.6	-3.7	-6.2	-7.9	-8.2	-7.4	-6.1	-5.9	-4.9	-3.4	-2.7	-7.9	-2.7	
6-Dec	-2.4	-2.0	-2.2	-2.4	-2.6	-3.0	-3.1	-2.9	-2.9	-3.1	-2.4	0.4	3.2	3.4	2.2	2.4	2.7	0.9	0.8	1.0	0.3	0.4	0.6	0.9	-0.4	3.4	
7-Dec	2.1	0.7	-0.1	-0.1	-0.4	-0.9	-1.0	-4.0	-3.3	-2.1	-1.8	-1.3	0.7	1.5	-0.4	-2.5	-3.8	-5.0	-5.5	-5.5	-5.0	-5.6	-5.7	-5.4	-2.3	2.1	
8-Dec	-4.8	-4.7	-4.6	-4.5	-4.5	-4.9	-5.8	-6.5	-7.1	-7.5	-7.8	-7.9	-7.8	-8.0	-8.2	-8.3	-8.5	-8.8	-9.2	-8.9	-9.2	-9.9	-9.6	-9.6	-7.4	-4.5	
9-Dec	-9.9	-9.9	-9.8	-9.9	-9.4	-8.8	-8.7	-8.3	-8.4	-8.0	-7.5	-7.4	-7.4	-7.9	-8.7	-9.9	-11.3	-13.0	-14.5	-17.2	-17.5	-17.8	-19.1	-19.9	-11.3	-7.4	
10-Dec	-22.6	-24.5	-25.6	-26.7	-27.5	-28.5	-29.2	-28.9	-28.9	-29.1	-25.9	-23.8	-22.0	-21.6	-21.1	-22.6	-23.8	-24.3	-23.9	-23.2	-22.8	-22.1	-21.3	-20.7	-24.6	-20.7	
11-Dec	-20.3	-19.9	-19.7	-19.6	-19.4	-19.2	-19.0	-19.4	-19.9	-20.0	-19.6	-18.9	-18.7	-18.2	-18.1	-20.7	-22.5	-22.5	-24.2	-25.1	-25.5	-25.7	-26.1	-26.4	-21.2	-18.1	
12-Dec	-26.6	-26.3	-23.8	-21.2	-20.2	-19.5	-18.6	-17.9	-17.3	-16.7	-16.0	-15.0	-14.0	-13.3	-12.5	-11.6	-11.1	-10.9	-10.8	-10.7	-10.6	-10.9	-11.5	-11.0	-15.8	-10.6	
13-Dec	-11.2	-10.7	-9.6	-9.0	-8.7	-10.0	-12.3	-13.7	-13.5	-11.6	-10.1	-8.9	-6.1	-4.6	-6.3	-8.4	-10.9	-12.3	-13.3	-14.0	-13.1	-10.7	-9.9	-9.7	-10.4	-4.6	
14-Dec	-9.1	-8.8	-9.0	-9.1	-9.4	-9.6	-9.7	-9.8	-9.9	-10.1	-10.0	-9.9	-9.9	-10.1	-9.9	-10.1	-10.2	-10.2	-10.2	-10.1	-10.0	-9.8	-9.8	-9.6	-9.7	-8.8	
15-Dec	-9.3	-9.2	-9.1	-9.0	-8.9	-9.0	-9.3	-9.7	-10.2	-10.8	-11.3	-11.7	-11.9	-12.2	-12.5	-12.8	-13.2	-13.2	-13.3	-13.6	-14.0	-14.2	-14.5	-14.8	-11.6	-8.9	
16-Dec	-15.1	-15.2	-15.3	-15.2	-15.2	-15.4	-15.9	-16.1	-17.3	-17.5	-16.9	-17.1	-17.0	-17.7	-19.0	-20.1	-20.7	-20.9	-21.4	-22.4	-22.9	-23.1	-23.1	-23.3	-18.5	-15.1	
17-Dec	-23.4	-23.6	-24.0	-24.3	-24.8	-25.4	-25.7	-26.6	-27.7	-27.5	-25.9	-24.6	-23.5	-23.0	-23.6	-25.6	-28.1	-29.6	-30.5	-31.5	-32.1	-32.8	-33.2	-33.3	-27.1	-23.0	
18-Dec	-33.8	-34.0	-34.1	-33.2	-33.0	-32.6	-31.7	-33.0	-33.9	-34.0	-32.2	-30.3	-29.5	-28.6	-28.0	-27.9	-29.1	-30.1	-29.4	-28.2	-27.6	-27.6	-27.2	-27.4	-30.7	-27.2	
19-Dec	-27.7	-26.6	-25.1	-24.6	-24.1	-24.0	-24.2	-25.3	-27.2	-28.1	-24.5	-23.8	-22.6	-22.2	-22.0	-22.6	-24.4	-26.5	-26.6	-27.4	-28.0	-27.4	-28.1	-28.5	-25.5	-22.0	
20-Dec	-28.4	-27.9	-27.2	-26.2	-25.1	-24.7	-23.7	-22.6	-21.1	-20.0	-15.8	-14.3	-13.1	-13.0	-12.5	-12.2	-12.0	-11.8	-11.5	-11.6	-11.9	-11.8	-13.1	-14.8	-17.8	-11.5	
21-Dec	-16.8	-17.0	-18.8	-19.7	-20.4	-20.7	-20.7	-20.0	-19.7	-19.3	-18.0	-15.9	-14.9	-14.0	-14.0	-14.0	-14.6	-15.2	-15.1	-14.6	-14.5	-14.0	-12.9	-12.2	-16.5	-12.2	
22-Dec	-11.9	-11.6	-11.5	-11.3	-10.9	-9.8	-9.6	-10.2	-10.5	-10.6	-9.8	-9.2	-8.3	-8.5	-8.2	-8.0	-7.4	-7.3	-7.1	-7.2	-7.9	-8.5	-9.6	-10.1	-9.4	-7.1	
23-Dec	-10.4	-11.7	-12.8	-13.5	-14.0	-13.0	-11.4	-10.1	-10.7	-11.0	-9.0	-7.6	-6.3	-5.4	-5.5	-5.5	-6.7	-7.0	-7.5	-7.3	-2.3	0.8	1.2	0.8	-7.8	1.2	
24-Dec	0.2	0.1	0.4	-1.6	-1.2	-2.8	-3.6	-3.9	-4.2	-4.7	-4.3	-3.3	-3.1	-2.6	-2.8	-3.1	-3.1	-2.8	-3.5	-4.0	-5.2	-6.5	-7.8	-3.2	0.4		
25-Dec	-8.9	-9.4	-9.9	-9.4	-10.4	-7.5	-6.5	-9.1	-5.4	-0.4	1.0	1.6	2.4	2.8	2.2	1.5	0.0	-1.4	-2.8	-3.6	-5.0	-6.7	-7.9	-8.9	-4.2	2.8	
26-Dec	-9.9	-9.7	-9.6	-10.0	-10.3	-10.2	-8.6	-8.4	-9.2	-10.1	-7.6	-5.9	-4.4	-3.2	-4.0	-6.3	-9.0	-9.9	-11.0	-11.6	-11.5	-11.4	-11.3	-11.0	-8.9	-3.2	
27-Dec	-10.6	-9.9	-10.0	-10.0	-10.1	-10.2	-10.4	-10.9	-11.2	-11.1	-9.8	-8.5	-7.4	-6.3	-6.2	-6.4	-7.2	-8.0	-8.1	-7.4	-7.1	-7.2	-7.1	-6.8	-8.7	-6.2	
28-Dec	-7.1	-7.4	-7.5	-7.4	-7.7	-7.7	-7.4	-7.2	-7.2	-7.3	-7.6	-6.4	-5.6	-5.1	-5.3	-5.2	-5.4	-5.5	-5.5	-6.0	-6.5	-7.0	-7.7	-8.2	-6.7	-5.1	
29-Dec	-7.8	-7.9	-8.1	-8.3	-8.3	-8.2	-8.4	-9.3	-9.9	-9.3	-8.8	-8.1	-7.4	-6.9	-7.2	-9.0	-10.2	-10.2	-10.1	-9.3	-8.3	-8.1	-8.1	-8.0	-8.5	-6.9	
30-Dec	-8.1	-8.3	-8.8	-9.2	-9.5	-9.5	-9.4	-9.6	-10.0	-10.6	-10.6	-10.7	-10.8	-10.5	-10.4	-10.7	-11.0	-11.8	-12.5	-12.7	-12.8	-12.9	-13.3	-13.7	-10.7	-8.1	
31-Dec	-14.1	-14.4	-14.5	-14.4	-15.0	-15.2	-15.4	-16.6	-17.3	-18.4	-16.8	-15.2	-14.8	-14.7	-14.4	-15.3	-16.7	-17.5	-18.4	-19.7	-19.0	-18.7	-19.1	-20.1	-16.5	-14.1	
																								Diurnal Average	-13.4		
																								Diurnal Maximum	2.1		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Fort McKay South - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	174	23.39	23.39
-20 - 0	540	72.58	95.97
0 - 10	30	4.03	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

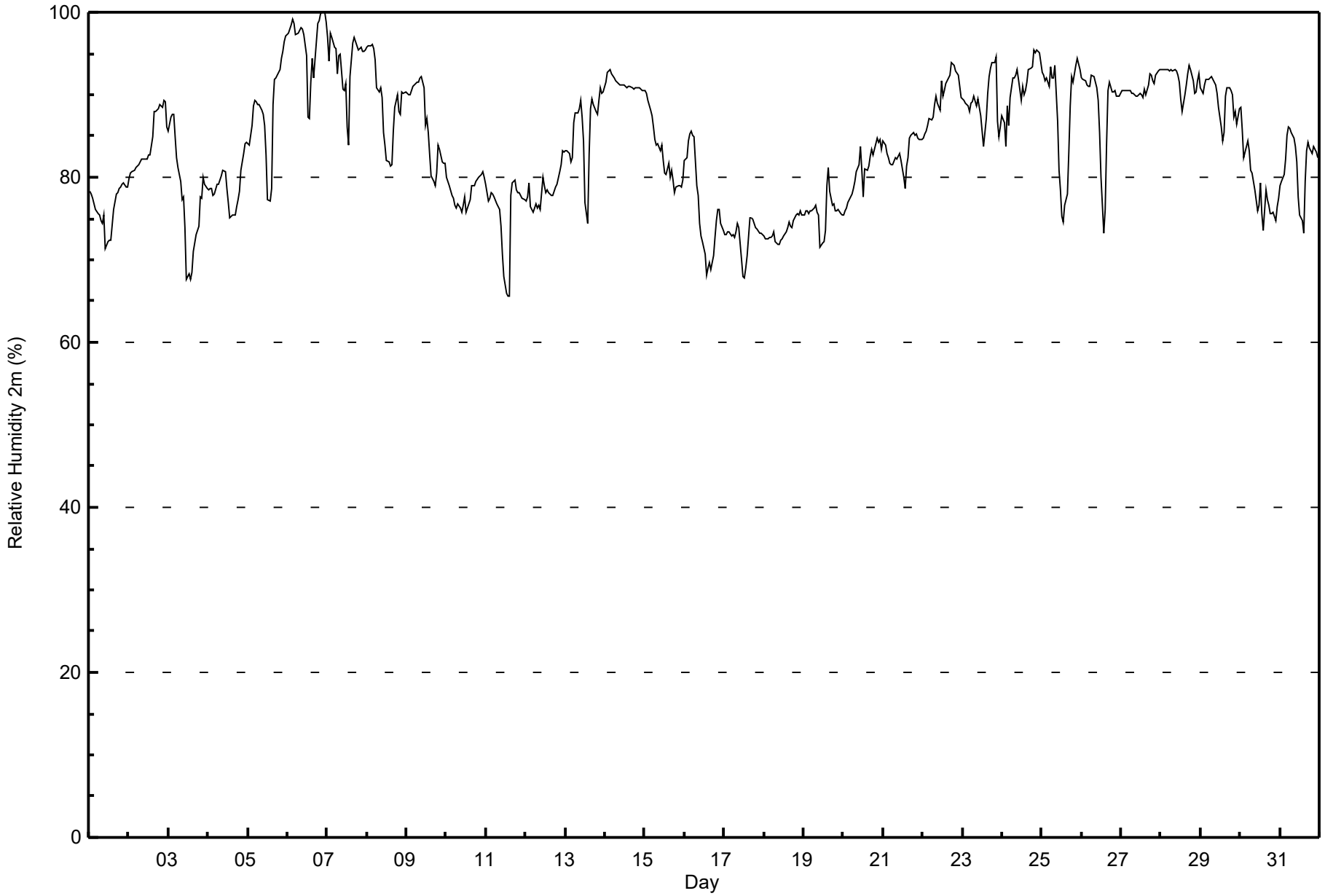
Relative Humidity 2m (RH2) - %
Fort McKay South - December 2024

Maximum Value: 100.0 % on Dec 6 22:00																						Hours in Service: 744				
Maximum Daily Average: 96.6 % on Dec 6																						Hours of Data: 744				
Minimum Value: 65.7 % on Dec 11 14:00																						Hours of Missing Data: 0				
Minimum Daily Average: 72.7 % on Dec 17																						Hours of Calibration: 0				
Maximum Diurnal Average: 85.6 % at hour 22																						Percent Operational Time: 100.0				
Minimum Diurnal Average: 79.0 % at hour 14																										
Monthly Average: 84.05 %																										
Percentiles: P ₁ = 68.0 P ₁₀ = 74.4 Q ₁ = 77.8 Median = 83.9 Q ₃ = 90.6 P ₉₀ = 93.0 P ₉₉ = 98.6																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	78.2	77.9	77.4	76.8	76.1	75.6	75.4	74.7	74.5	75.4	71.4	72.2	72.4	72.3	74.3	76.1	78.0	78.2	78.6	78.8	79.1	79.4	78.8	78.9	76.3	79.4
2-Dec	79.8	80.5	80.7	80.8	81.2	81.4	81.5	81.9	82.2	82.3	82.1	82.1	82.7	82.7	85.0	88.0	88.0	88.2	88.2	88.9	88.5	89.3	89.1	86.0	84.2	89.3
3-Dec	85.6	87.2	87.7	87.6	84.9	82.5	81.2	79.5	77.2	77.6	73.8	67.6	68.4	67.7	68.5	71.0	72.0	73.0	74.0	77.6	77.4	79.9	79.2	78.7	77.5	87.7
4-Dec	78.4	78.6	78.7	77.8	77.9	79.2	79.2	79.7	80.2	80.9	80.6	78.7	76.9	75.2	75.3	75.5	75.4	76.5	77.2	78.3	80.9	82.8	84.0	84.2	78.8	84.2
5-Dec	84.1	83.9	86.2	88.6	89.3	89.2	88.8	88.8	88.2	87.7	86.3	82.6	77.3	77.0	78.6	88.8	91.8	92.1	92.4	93.1	94.3	95.3	96.5	97.1	88.3	97.1
6-Dec	97.4	98.0	98.6	99.1	98.6	97.3	97.4	97.8	98.1	97.9	97.4	94.7	87.3	87.1	91.5	94.4	92.1	96.5	98.6	99.0	99.9	100.0	100.0	98.9	96.6	100.0
7-Dec	97.0	94.1	97.5	97.0	95.8	95.5	92.5	94.8	95.0	90.8	90.5	91.4	86.2	84.0	92.1	96.3	97.0	96.5	96.0	95.4	95.7	95.3	95.3	95.4	94.0	97.5
8-Dec	95.8	95.9	96.0	96.0	95.7	94.3	90.8	90.4	90.9	89.6	85.5	83.9	82.0	81.8	81.4	81.5	85.6	88.4	90.1	87.9	87.7	90.3	90.2	90.4	89.2	96.0
9-Dec	90.2	90.0	90.0	90.5	91.0	91.3	91.5	91.6	92.0	92.1	90.8	86.2	87.1	85.4	82.8	80.1	79.5	79.0	80.6	84.0	83.4	81.9	81.8	81.7	86.4	92.1
10-Dec	80.1	79.5	78.9	77.9	77.5	76.7	76.3	76.7	76.3	75.8	76.6	77.6	75.8	76.2	77.2	78.9	78.9	79.0	79.5	80.0	80.2	80.4	80.6	80.0	78.2	80.6
11-Dec	79.2	77.2	77.4	78.2	77.9	77.6	76.7	76.4	76.1	74.0	70.7	68.0	65.9	65.7	65.7	77.8	79.3	79.7	78.5	78.1	78.1	77.9	77.5	77.3	75.4	79.7
12-Dec	77.2	77.6	79.3	76.5	75.8	76.3	76.8	76.3	76.7	76.1	80.0	79.1	78.1	78.5	78.1	77.8	77.9	78.4	78.8	79.2	80.6	81.5	83.2	83.1	78.4	83.2
13-Dec	83.3	83.2	82.9	81.8	82.3	86.7	87.8	87.8	88.4	89.4	87.3	84.4	76.9	74.4	82.8	88.4	89.4	88.8	87.9	87.7	89.3	90.8	90.2	90.3	85.9	90.8
14-Dec	91.5	92.8	92.8	93.1	92.6	92.0	91.7	91.6	91.3	91.1	91.1	91.1	90.9	91.1	91.1	91.1	90.9	90.8	90.8	90.9	90.9	90.8	90.6	90.6	91.4	93.1
15-Dec	90.5	90.1	89.3	88.2	87.5	86.0	84.6	83.8	84.1	83.2	83.9	82.0	80.5	80.3	81.7	80.0	80.9	79.7	78.2	78.9	79.0	79.0	78.9	79.7	82.9	90.5
16-Dec	82.1	82.3	84.4	85.3	85.5	85.1	84.9	79.0	77.8	74.5	72.9	72.2	70.7	68.1	69.0	69.7	68.8	70.5	72.6	74.8	76.1	76.1	74.5	73.5	76.3	85.5
17-Dec	73.0	73.1	73.4	73.3	72.8	73.1	72.8	73.4	74.5	73.9	70.0	67.9	67.9	69.0	70.5	75.0	75.1	75.0	74.4	73.9	73.7	73.2	73.3	73.0	72.7	75.1
18-Dec	72.8	72.6	72.5	72.7	72.7	72.9	73.4	72.2	71.9	71.9	72.3	72.5	73.0	73.4	74.0	74.6	74.1	73.9	74.8	75.4	75.5	75.4	75.9	75.4	73.6	75.9
19-Dec	75.4	76.0	75.9	75.6	75.9	75.9	76.4	76.6	75.8	75.5	71.5	72.1	72.2	73.5	79.0	81.2	78.4	76.6	76.8	76.0	75.9	76.1	75.6	75.4	75.8	81.2
20-Dec	75.4	75.9	76.3	76.9	77.6	77.9	78.6	79.5	80.6	81.5	83.7	80.8	77.7	81.1	80.9	81.4	82.6	83.4	82.7	83.4	84.7	84.2	84.6	83.5	80.6	84.7
21-Dec	84.4	83.9	82.9	82.3	81.7	81.5	81.5	82.3	82.1	82.5	82.9	82.0	80.0	78.6	81.3	82.4	84.8	85.2	85.4	85.1	85.2	84.8	84.7	84.6	83.0	85.4
22-Dec	84.7	85.2	85.6	86.3	87.1	87.0	87.2	88.7	89.9	89.0	88.1	91.7	89.9	90.5	91.4	91.7	92.4	93.9	93.7	93.6	93.0	92.4	91.0	89.7	89.7	93.9
23-Dec	89.4	89.3	89.0	88.6	87.9	89.0	89.2	89.8	88.7	89.5	88.5	87.5	85.6	83.8	87.2	90.2	92.3	93.2	94.0	93.9	94.7	86.8	84.8	86.1	89.1	94.7
24-Dec	87.4	86.6	83.7	88.7	86.3	89.7	92.0	92.0	92.4	93.0	91.9	89.4	91.1	90.1	90.6	91.6	93.0	93.3	93.4	95.4	95.1	95.4	95.2	94.0	91.3	95.4
25-Dec	92.8	92.3	91.8	92.1	91.0	93.4	92.0	92.0	93.5	86.8	80.9	78.5	75.2	74.6	76.5	77.9	83.1	88.7	92.2	91.5	93.6	94.4	93.8	93.0	88.0	94.4
26-Dec	92.0	91.8	91.6	91.3	91.0	91.0	92.3	92.1	91.6	90.9	89.3	85.4	80.1	73.3	76.1	84.0	90.4	91.4	90.3	90.4	90.4	89.8	89.9	89.9	88.6	92.3
27-Dec	90.6	90.6	90.4	90.6	90.6	90.5	90.2	90.1	90.0	89.8	89.9	90.2	90.0	89.7	90.7	90.0	91.1	92.5	92.4	91.7	91.3	92.4	92.9	93.1	90.9	93.1
28-Dec	93.0	93.1	93.1	93.1	93.0	92.9	93.0	92.9	93.0	92.9	92.4	91.4	89.5	88.0	90.1	91.2	92.5	93.5	93.0	91.6	90.1	90.3	91.8	92.6	92.0	93.5
29-Dec	90.9	90.2	91.3	91.9	91.9	91.9	92.1	91.9	91.5	91.2	90.1	88.5	86.2	84.3	85.5	89.8	90.9	90.9	90.6	89.9	87.4	87.9	86.5	88.4	89.7	92.1
30-Dec	88.5	85.8	82.4	83.1	84.4	83.2	80.9	80.5	79.6	78.5	76.0	76.7	79.3	75.6	73.6	78.4	77.4	76.7	75.6	75.6	75.8	74.8	76.5	77.5	79.0	88.5
31-Dec	79.0	79.4	80.3	82.3	85.1	86.1	85.9	85.4	84.7	83.8	81.9	77.7	75.3	74.8	73.3	79.4	83.2	84.2	83.6	82.8	83.7	83.3	83.0	82.3	81.7	86.1
85.1 85.0 85.1 85.3 85.1 85.2 85.0 84.8 84.8 84.2 82.9 81.5 79.7 79.0 80.5 83.0 84.1 84.8 85.0 85.2 85.5 85.6 85.5 85.3																						Diurnal Average				
97.4 98.0 98.6 99.1 98.6 97.3 97.4 97.8 98.1 97.9 97.4 94.7 91.1 90.9 92.1 96.3 97.0 96.5 98.6 99.0 99.9 100.0 100.0 98.9																						Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Fort McKay South - December 2024





Maximum Speed: 17 km/h on Dec 4 20:00	Maximum Daily Speed Average: 11.4 km/h on Dec 14	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 24 17:00	Minimum Daily Speed Average: 0.6 km/h on Dec 1	Hours of Data: 661
Maximum Diurnal Speed Average: 2.2 km/h at hour 24	Minimum Diurnal Speed Average: 0.5 km/h at hour 8	Hours of Missing Data: 83
Monthly Average Velocity: 1.1 km/h 232.5 deg	Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 5 Q ₃ = 9 P ₉₀ = 12 P ₉₉ = 15	Percent Operational Time: 88.8

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	NNE6	N5	NW2	WNW1	W3	WSW2	WNW0	WSW2	WSW2	UO	UO	ESE2	SSE4	SSE3	S1	SE0	WSW1	UO	UO	UO	NNE2	N4	NW2	NW1	NNW0.6	NNE6	
2-Dec	NNE4	N4	N5	N5	N5	NNW4	NNW4	N4	N3	N3	NNE2	NNE2	NE2	NNE1	UO	NE2	UO	NNE2	SE1	SSE4	S9	S6	SW2	WSW5	N1.2	S9	
3-Dec	SSW2	N1	N7	NNW8	NNE11	N11	NNW12	NNW11	NNW11	N12	N13	NNW12	NW10	NW12	NW11	WNW10	WNW11	WNW11	WNW7	NW5	NW4	SW2	WSW3	WSW4	NNW7.3	N13	
4-Dec	SW2	NW2	NW1	NW1	S2	SW2	SE1	S1	SE2	S6	S10	SSE12	SSE13	S13	S14	S15	S15	S17	S17	S12	S11	S13	S11	S7.7	S17		
5-Dec	S13	S13	S5	S5	S3	S1	SSW2	UO	WSW1	SW2	S4	SSE4	SSE5	SE2	UO	UO	S2	SSW4	SSW4	S2	SW2	S5	S5	SSW7	S4.1	S13	
6-Dec	S6	S9	S9	S11	S8	S7	SSE4	S3	S2	SSW2	WNW1	SW7	WSW6	SSW4	S4	SW6	WNW1	S5	S7	SE1	WSW1	S4	SSW5	SW2	SSW4.3	S11	
7-Dec	SW5	SW2	SW4	SW6	SW6	SW7	SW7	SSW5	SW7	SSW8	SSW5	SSE5	S4	S7	W1	SW2	WNW1	UO	NNW2	N5	N7	N11	NNE7	N1	SW2.1	N11	
8-Dec	N6	N9	NNW6	N7	N9	N13	N13	NNE10	NNE8	N10	N11	N8	N8	NNE5	NE4	E2	UO	UO	SE3	S5	S4	UO	S1	UO	N5.6	N13	
9-Dec	S3	S1	SSW3	SSW2	UO	UO	UO	SSE2	UO	N6	NNE7	NNE7	N9	N14	N14	N13	N15	N13	N8	NW4	N6	N7	NNW6	NNW7	N6.1	NNE15	
10-Dec	W2	WSW3	WSW1	WSW3	WNW2	W1	W2	WNW1	UO	SSW0	S1	SE0	ESE4	SSE5	S2	SW1	S1	SSW1	NNW0	WNW0	UO	UO	S2	ESE1	SSW0.9	SSE5	
11-Dec	SE2	SE3	SE3	SE5	ESE3	ESE3	ESE3	ESE4	E3	SE4	SE3	SE3	SSE6	SSE5	S5	WSW3	WSW2	WNW1	WSW2	WSW1	SSW1	N1	WSW1	UO	SE2.1	SSE6	
12-Dec	N1	E2	S4	SSE11	SSE11	SSE9	SSE9	SSE12	SSE10	SSE10	SSE9	SSE10	SSE13	SSE14	SSE11	SSE11	S14	S14	S13	S12	S11	S11	S10	S9	SSE9.8	SSE14	
13-Dec	S9	S9	S8	S12	S10	S7	SSW4	S6	S6	S7	NNW3	SSW4	S6	SSE6	S3	S4	WSW2	WNW2	NW2	NNW3	N6	N7	N4	N5	S2.9	S12	
14-Dec	NNE9	NNE10	NNE10	NNE11	NNE12	N12	N11	N12	N11	N11	N11	N12	N10	N9	N9	N10	N12	N15	N13	N14	N14	N14	N12	N11	N11.4	N15	
15-Dec	N11	N10	N10	N12	N12	N12	N13	N13	N13	NNE13	N13	NNE13	NNE10	NNE13	NNE12	NNE13	NNE12	NNE10	NNE10	NNE9	NNE9	NNE7	NNE5	NE4	N10.7	N13	
16-Dec	ENE3	E2	UO	UO	UO	UO	N4	NW4	WNW5	WNW6	W7	WSW8	W8	W11	W8	W7	WNW9	W9	W8	W8	W8	W8	W12	W12	W6.6	W12	
17-Dec	W13	W11	W10	W10	W8	W7	WNW4	WNW3	WNW2	WNW2	WSW1	SW4	SSE4	SSE2	SSE6	SSW3	SW3	SW2	WSW3	SW2	NW1	WSW2	SW2	SW2	WSW3.6	W13	
18-Dec	WSW2	UO	WSW2	UO	WNW0	NW1	UO	UO	UO	UO	UO	UO	NE2	SE1	SSE1	UO	WSW2	W2	UO	UO	SSE2	SSE1	S3	SSE3	---	SSE3	
19-Dec	S5	S5	SSE7	SSE7	SSE8	SSE9	S3	SW2	WSW2	WNW1	SE1	SE1	SSE4	NNE1	WNW1	NE2	WSW2	WNW1	NW1	UO	UO	UO	UO	W1	S2.4	SSE9	
20-Dec	WNW1	N2	UO	WNW1	NNE2	NNW2	NNW2	N2	N2	NNW3	SSE11	SSE13	S16	S13	SSE16	S10	S8	S5	SSW6	S4	S2	SSW5	SW5	S3	S4.2	S16	
21-Dec	SSW5	S5	WSW2	SW2	SW1	WSW1	SW2	WSW1	SW2	UO	ENE0	S2	SE3	SE2	NE2	NNW2	NNE3	NW4	NW1	NNE1	N4	WNW2	W2	NW1	WSW0.6	S5	
22-Dec	UO	SSW1	SE1	S5	S4	SSW7	S9	S9	SSW11	S11	S11	S12	S12	SSE15	S13	S12	S15	S13	S11	S11	S9	S9	SSW7	S10	S9.4	SSE15	
23-Dec	SSW7	S5	S4	S2	SSE2	SSW3	S7	SSW7	SSW6	SSW6	S7	S8	S10	S10	S12	S9	S6	SSE6	S3	SSW4	SW9	SW11	WSW11	WSW12	SSW6.3	S12	
24-Dec	WSW10	WSW5	SW7	S6	SSW7	SSE6	S8	S7	S4	SSW5	S4	S3	NNE4	NNW2	NNW4	E1	WNW0	S5	SSW3	SW1	SSW4	SW1	WSW2	WSW1	SSW2.9	WSW10	
25-Dec	WSW1	NW2	WNW2	WSW4	W3	SW7	SW3	N1	WSW5	WSW11	SW9	WSW10	SW8	SW9	SW8	SSW8	SSW9	S6	S8	S5	SSW3	SSW2	WSW3	SW3	SW4.8	WSW11	
26-Dec	SSW2	SSW3	WSW1	WSW2	W1	SSW2	SSW2	S1	SSW3	SSE2	SSE3	SSE5	SSE7	S9	SSE7	S6	S4	SSW4	SSW4	S2	W1	SSW1	SW2	S4	S3.0	S9	
27-Dec	S3	S4	S3	S2	UO	SSW3	SSW1	UO	SW2	S2	S4	UO	NW1	NW1	S1	S5	NE1	N1	S1	SSW3	UO	N3	UO	UO	SSW1.6	S5	
28-Dec	UO	NNW1	NNW2	UO	UO	UO	UO	UO	UO	UO	UO	NW2	NW3	NW3	N3	NNE3	UO	UO	NNW3	NNE4	N7	N6	NNE4	UO	UO	---	N7
29-Dec	NNE2	N3	UO	UO	S4	SSE2	ENE1	UO	UO	UO	UO	UO	UO	UO	UO	NNE2	NNE3	UO	UO	WSW2	WSW2	WNW3	W4	WNW5	WNW5	---	WNW5
30-Dec	WNW6	WNW4	WNW6	WNW8	W6	W6	WNW7	WNW8	WNW10	WNW10	WNW11	WNW10	WNW9	WNW9	NW10	NW7	NW8	NW9	NW10	NW6	WNW5	NW5	NW4	WNW5	WNW7.3	WNW11	
31-Dec	W6	W6	W6	W4	UO	N2	UO	N3	NNW1	W1	W2	UO	WNW5	NW6	NW8	N5	NNE4	UO	UO	UO	UO	UO	UO	UO	---	NW8	

WSW1.6	WSW1.0	WSW1.3	WSW1.5	SW0.6	WSW0.8	W0.7	WNW0.5	W1.2	W0.9	WSW0.7	SSW1.3	S1.7	S1.5	SSW1.1	SSW1.3	WSW1.3	WSW1.5	SW1.5	SW1.1	WSW0.9	W1.0	WSW1.9	WSW2.2	Diurnal Average	
W13	S13	W10	N12	NNE12	N13	N13	N13	N13	N13	NNE13	N13	NNE13	S16	SSE15	SSE16	S14	NNE15	S15	S17	S17	N14	N14	S13	W12	Diurnal Maximum

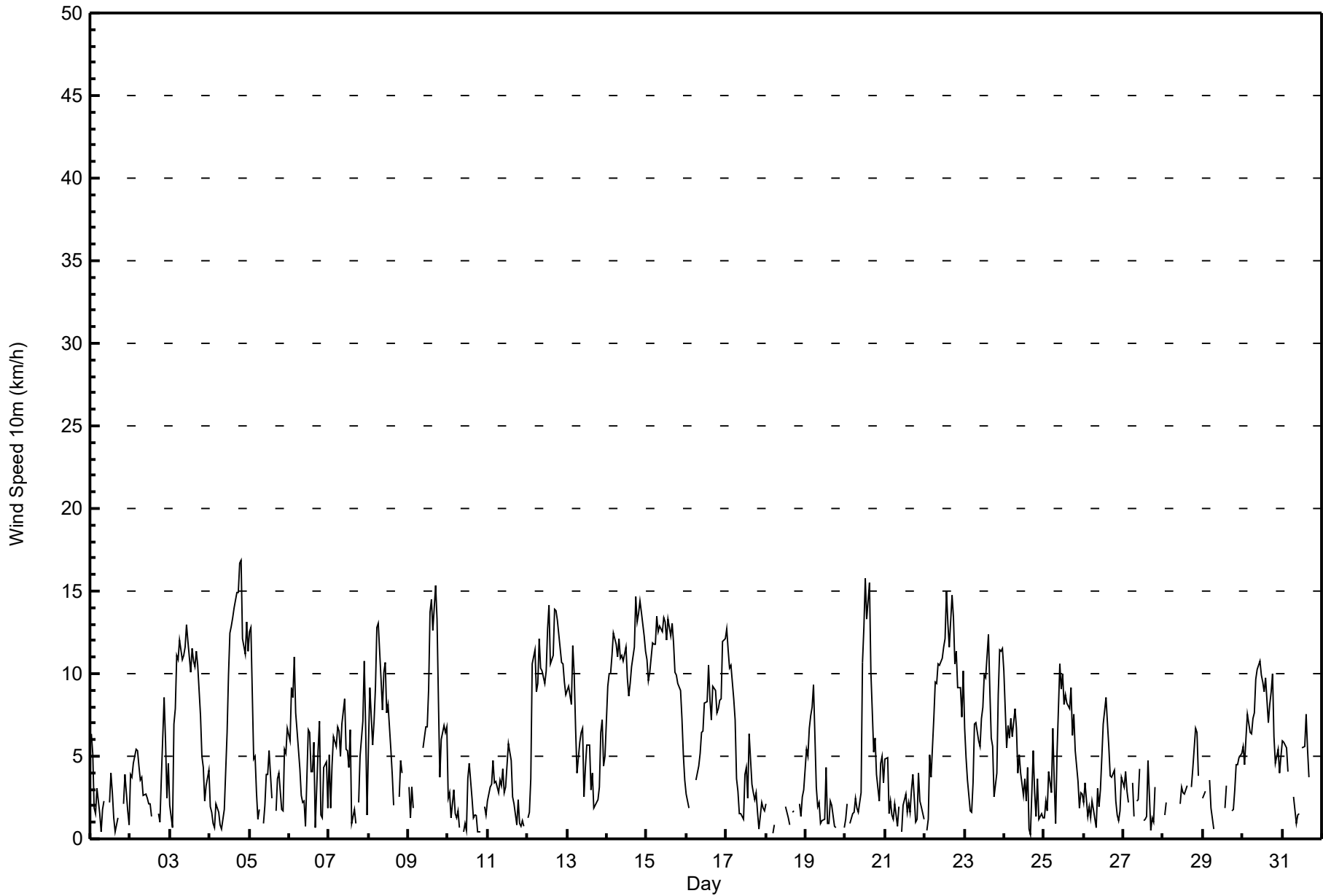
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Fort McKay South - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 5 03:00 Minimum Value: 0 km/h on Dec 28 03:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4														Hours in Service: 744 Hours of Data: 661 Hours of Missing Data: 83 Hours of Calibration: 0 Percent Operational Time: 88.8											
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	1	1	1	1	1	2	1	UO	UO	1	1	1	1	1	1	UO	UO	UO	1	1	1	1	2
2-Dec	1	1	1	1	1	1	2	2	1	1	1	1	1	1	UO	1	UO	1	2	4	1	1	2	2	4
3-Dec	2	2	2	3	3	3	3	3	3	3	5	4	3	4	3	3	4	3	2	2	3	1	1	1	5
4-Dec	1	1	1	1	1	2	1	1	1	2	3	2	3	3	3	3	3	4	3	4	3	3	3	2	4
5-Dec	3	3	5	3	1	1	1	UO	1	2	1	1	1	2	UO	UO	1	1	2	2	2	2	2	2	5
6-Dec	1	2	1	3	2	2	2	2	2	2	2	3	3	2	2	2	2	1	1	3	2	1	2	2	3
7-Dec	2	2	2	2	1	2	1	1	1	2	1	1	1	2	1	2	2	UO	2	2	1	3	3	1	3
8-Dec	3	2	1	1	3	3	3	3	2	3	3	2	2	1	1	1	UO	UO	1	1	1	UO	1	UO	3
9-Dec	1	1	3	2	UO	UO	UO	2	UO	2	2	2	2	3	4	3	4	3	3	1	3	1	1	1	4
10-Dec	1	1	1	1	2	1	2	2	UO	1	1	1	1	1	1	1	1	1	1	1	UO	UO	1	1	2
11-Dec	2	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	UO	2
12-Dec	1	1	3	2	3	2	2	2	2	3	2	2	3	3	3	3	3	2	2	2	2	2	2	2	3
13-Dec	1	2	1	2	2	2	1	1	1	2	2	2	3	1	1	2	2	1	1	2	1	2	1	2	3
14-Dec	2	2	2	2	3	2	2	2	2	2	2	3	2	2	2	2	2	3	3	3	3	3	2	3	3
15-Dec	3	2	3	3	3	3	3	3	3	3	3	4	3	3	3	4	3	3	2	3	2	2	1	1	4
16-Dec	1	1	UO	UO	UO	UO	1	1	2	2	2	3	3	4	3	3	3	3	2	2	2	2	4	3	4
17-Dec	4	4	3	3	4	3	2	2	2	2	3	2	1	1	1	1	1	1	1	1	1	2	1	2	4
18-Dec	1	UO	1	UO	1	1	UO	UO	UO	UO	UO	UO	1	1	1	UO	1	2	UO	UO	1	1	1	1	2
19-Dec	1	1	1	1	2	2	2	1	1	1	2	1	2	1	1	2	1	1	1	UO	UO	UO	UO	UO	2
20-Dec	1	1	UO	1	1	1	1	1	1	1	4	3	4	3	3	4	2	2	2	1	1	1	1	1	4
21-Dec	2	2	1	1	1	1	1	1	1	UO	1	1	1	1	1	2	1	1	2	1	1	1	1	1	2
22-Dec	UO	1	1	1	1	3	2	2	2	2	3	3	2	3	3	2	3	3	2	3	2	2	2	2	3
23-Dec	2	1	1	1	1	2	2	1	2	2	1	1	2	2	2	2	2	2	1	3	2	4	4	4	4
24-Dec	5	3	3	2	3	2	2	2	1	3	1	2	1	2	2	2	2	3	3	2	1	2	1	1	5
25-Dec	1	2	2	1	1	1	2	2	4	4	3	4	3	2	2	2	2	1	2	1	2	1	1	1	4
26-Dec	2	2	2	1	1	1	2	1	1	1	2	1	1	2	2	2	2	1	1	2	1	1	2	1	2
27-Dec	3	1	1	2	UO	1	1	UO	2	2	1	UO	1	2	2	1	1	1	2	1	UO	1	UO	UO	3
28-Dec	UO	1	0	UO	UO	UO	UO	UO	UO	UO	1	1	1	1	1	UO	UO	1	1	1	2	1	UO	UO	2
29-Dec	2	1	UO	UO	1	2	1	UO	UO	UO	UO	UO	UO	1	1	UO	UO	1	1	2	1	1	1	2	2
30-Dec	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	2	3	4	3	2	2	2	1	2	4
31-Dec	2	2	1	2	UO	2	UO	1	1	1	1	UO	2	2	2	2	1	UO	UO	UO	UO	UO	UO	UO	2
Diurnal Maximum																									
5 4 5 3 4 3 3 3 3 4 4 5 4 4 4 4 4 4 4 3 4 3 4 4 4																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Fort McKay South - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	378	57.19	57.19
6 - 11	210	31.77	88.96
12 - 19	73	11.04	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 661

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Fort McKay South - December 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	20	8	3	5	7	22	23	65	38	30	41	14	32	25	17	378
6 - 11	33	16	0	0	0	0	0	22	52	13	14	7	20	17	10	6	210
12 - 19	24	10	0	0	0	0	0	8	24	0	0	1	3	0	1	2	73
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	85	46	8	3	5	7	22	53	141	51	44	49	37	49	36	25	661

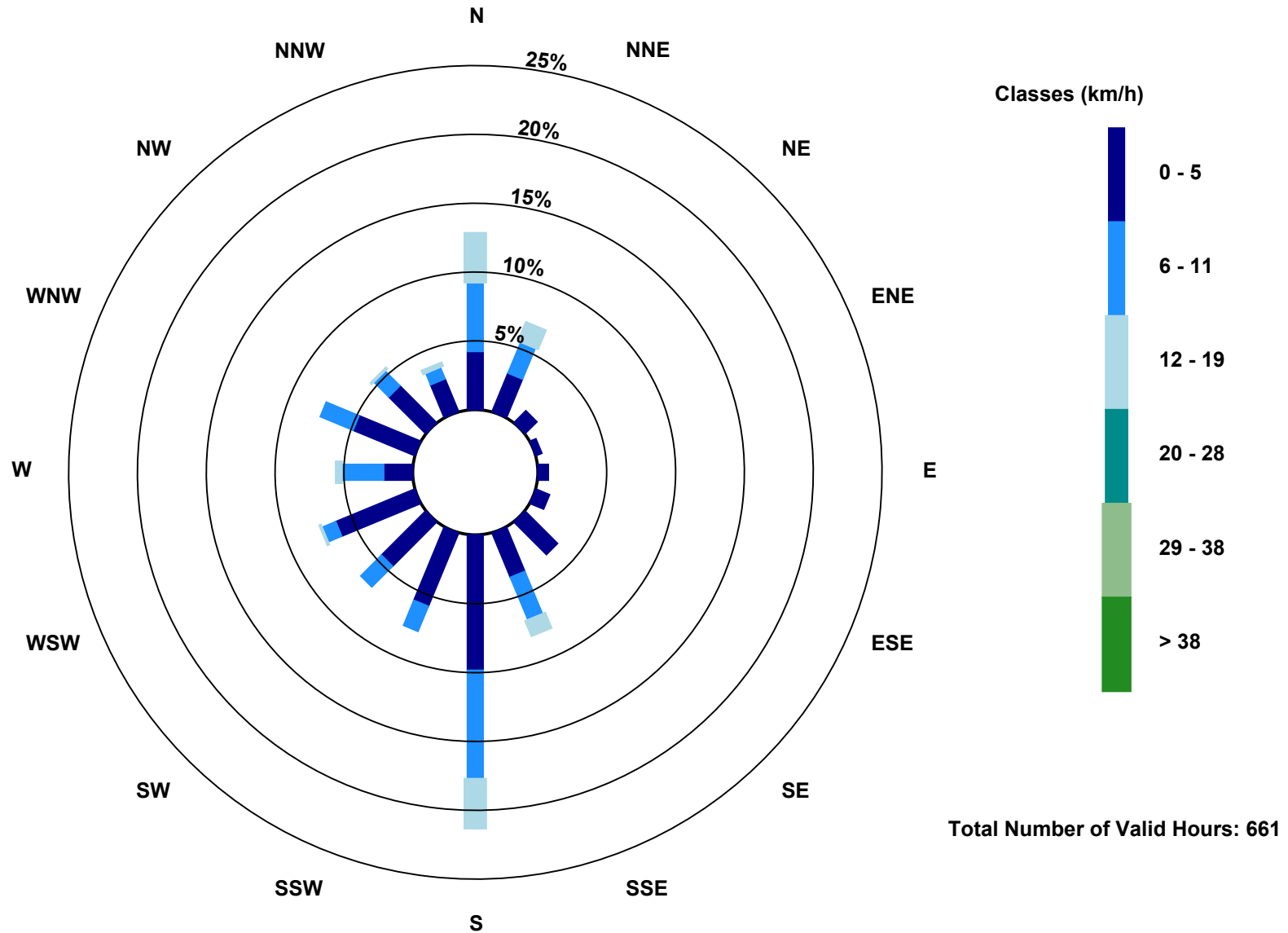
Total Number of Valid Hours: 661

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Fort McKay South - December 2024

Direction of Maximum Speed: 175 deg on Dec 4 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 7.0 deg on Dec 14	Hours of Data: 661
Direction of Minimum Speed: 301 deg on Dec 24 17:00	Hours of Missing Data: 83
Direction of Minimum Daily Speed Average: 0.6 deg on Dec 1	Percent Operational Time: 88.8
Monthly Average Direction: 232.5 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-Dec	22	10	324	290	279	258	302	248	239	UO	UO	119	162	166	172	133	253	UO	UO	UO	14	9	321	326	333.3	
2-Dec	15	8	351	359	351	346	346	5	359	10	18	29	38	12	UO	42	UO	14	130	167	172	174	235	241	1.7	
3-Dec	201	359	352	343	17	2	346	341	333	359	352	343	325	319	323	303	301	301	303	317	325	228	244	251	330.6	
4-Dec	223	307	308	322	182	229	138	189	142	145	177	173	168	168	175	179	182	179	174	175	185	171	176	184	177.2	
5-Dec	187	187	180	189	176	191	193	UO	251	219	190	168	168	145	UO	UO	174	203	197	176	232	187	175	193	186.2	
6-Dec	172	185	181	179	181	171	167	169	181	194	302	231	238	204	185	232	298	188	180	140	255	186	195	221	191.4	
7-Dec	235	233	215	220	219	225	229	213	223	210	203	164	182	172	275	224	287	UO	345	351	358	7	26	2	229.2	
8-Dec	1	3	346	1	2	5	3	17	18	5	7	8	8	27	48	97	UO	UO	135	179	184	UO	175	UO	10.5	
9-Dec	190	175	198	194	UO	UO	UO	154	UO	10	19	12	9	9	10	2	11	1	351	304	353	359	347	342	2.2	
10-Dec	278	257	247	257	283	259	260	284	UO	210	180	146	116	151	174	214	188	208	334	301	UO	UO	169	122	207.8	
11-Dec	128	131	126	124	114	108	120	113	100	133	145	143	149	166	169	257	248	289	240	245	209	4	244	UO	143.6	
12-Dec	0	83	180	168	162	168	166	168	162	155	157	159	156	161	161	167	174	176	176	172	169	173	177	174	166.7	
13-Dec	179	180	175	171	171	176	195	184	189	179	328	198	173	168	169	178	251	294	320	344	349	356	353	0	185.2	
14-Dec	15	16	12	14	12	9	5	8	7	5	7	11	0	1	4	8	6	9	7	5	7	4	360	359	7.0	
15-Dec	0	0	353	355	360	359	4	7	9	13	10	14	17	14	17	14	14	15	15	23	26	18	33	42	10.5	
16-Dec	65	92	UO	UO	UO	UO	358	309	298	291	274	253	259	279	271	269	282	279	265	261	261	263	266	263	272.9	
17-Dec	265	271	267	267	275	267	297	291	283	289	258	219	153	163	161	194	220	228	251	234	307	239	220	235	252.6	
18-Dec	247	UO	247	UO	289	316	UO	UO	UO	UO	UO	UO	39	143	147	UO	247	266	UO	UO	167	166	173	147	--	
19-Dec	173	172	156	162	159	160	171	217	252	283	145	145	153	23	289	43	250	296	320	UO	UO	UO	UO	277	168.8	
20-Dec	298	5	UO	303	15	348	346	3	355	338	165	154	171	175	168	174	180	190	199	186	175	204	224	187	177.6	
21-Dec	202	189	243	235	223	237	215	254	222	UO	60	177	124	142	51	345	13	311	311	31	7	300	280	311	250.1	
22-Dec	UO	195	127	181	170	198	186	183	192	175	186	184	171	168	183	170	187	185	185	182	176	176	200	188	181.7	
23-Dec	196	191	176	183	160	209	189	200	203	204	185	184	173	178	183	187	174	164	185	196	214	233	243	250	198.4	
24-Dec	249	238	219	171	201	163	176	169	177	192	177	191	17	329	342	87	301	180	195	225	209	232	242	246	201.5	
25-Dec	253	314	296	250	266	230	217	2	244	243	236	238	222	224	220	212	194	184	185	186	192	210	257	225	223.3	
26-Dec	205	196	238	247	270	194	196	186	197	165	154	151	167	171	168	183	187	193	200	169	260	198	215	190	184.5	
27-Dec	188	180	187	182	UO	193	199	UO	226	172	182	UO	319	323	180	176	46	355	185	200	UO	354	UO	UO	191.6	
28-Dec	UO	331	347	UO	UO	UO	UO	UO	UO	UO	UO	310	312	319	5	33	UO	UO	344	19	4	7	19	UO	UO	--
29-Dec	21	351	UO	UO	175	148	73	UO	UO	UO	UO	UO	UO	20	17	UO	UO	256	246	285	276	283	282	283	--	
30-Dec	300	297	300	283	273	280	282	286	291	292	295	300	301	296	311	314	309	311	315	316	297	309	306	290	298.3	
31-Dec	272	263	269	279	UO	349	UO	3	344	270	260	UO	301	306	319	8	15	UO	UO	UO	UO	UO	UO	UO	--	

241.6 244.3 252.3 227.5 230.1 241.5 275.4 291.8 265.0 273.1 247.0 200.4 180.2 189.1 198.4 212.4 237.6 240.2 224.4 217.2 257.1 262.8 242.7 239.2
 Diurnal Average

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



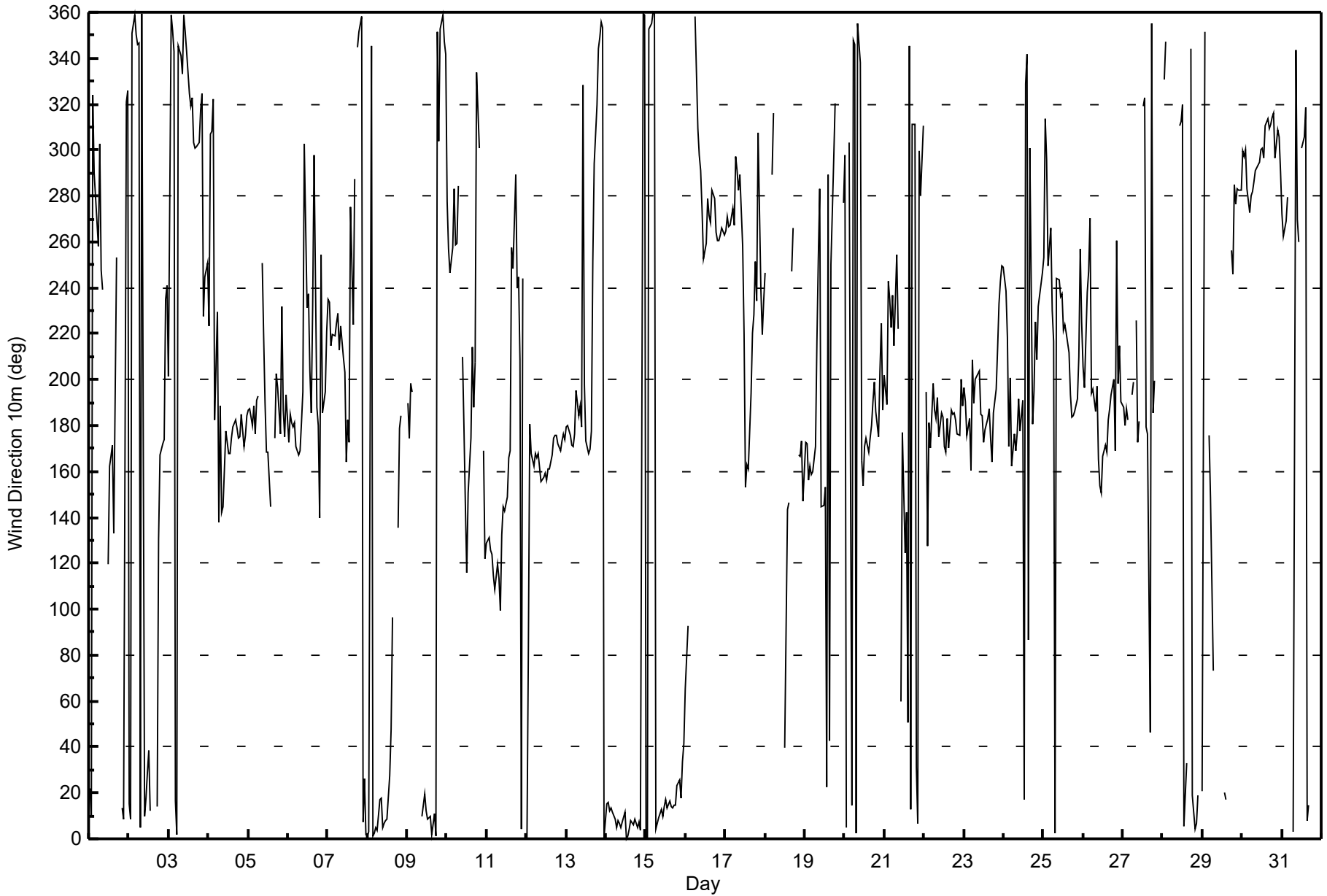
Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Fort McKay South - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 105 deg on Dec 6 17:00	Hours of Data: 661
Minimum Value: 9 deg on Dec 17 15:00	Hours of Missing Data: 83
Percentiles: P ₁ = 9 P ₁₀ = 12 Q ₁ = 15 Median = 22 Q ₃ = 42 P ₉₀ = 65 P ₉₉ = 91	Hours of Calibration: 0
	Percent Operational Time: 88.8

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	13	17	43	40	12	47	58	43	28	UO	UO	30	14	17	17	82	41	UO	UO	UO	23	22	37	57	82
2-Dec	14	14	21	14	13	17	28	17	26	22	24	17	26	30	UO	42	UO	44	81	77	10	15	38	26	81
3-Dec	70	77	19	19	16	16	16	17	18	19	24	18	24	23	19	21	22	20	20	21	58	46	39	19	77
4-Dec	56	60	76	70	53	58	62	88	50	49	20	11	12	12	12	11	12	12	11	12	15	13	12	10	88
5-Dec	12	11	92	36	26	83	53	UO	52	57	14	19	13	56	UO	UO	56	22	22	48	65	15	17	16	92
6-Dec	15	11	12	15	16	14	16	67	69	54	53	35	34	45	35	26	105	23	14	86	43	15	29	75	105
7-Dec	31	64	29	21	10	14	12	11	13	12	15	21	33	18	64	60	53	UO	73	23	11	15	18	84	84
8-Dec	28	16	14	14	16	16	17	17	17	15	17	17	18	18	25	31	UO	UO	17	14	15	UO	59	UO	59
9-Dec	16	73	30	53	UO	UO	UO	60	UO	18	19	17	14	15	16	16	16	16	17	16	31	11	12	14	73
10-Dec	37	26	53	17	55	64	22	90	UO	87	63	65	31	22	58	89	54	19	81	49	UO	UO	42	29	90
11-Dec	50	19	27	19	20	27	32	19	24	21	34	36	20	17	25	19	39	52	30	68	88	74	55	UO	88
12-Dec	50	60	35	12	13	15	14	12	14	12	12	12	11	11	12	13	10	11	11	10	11	9	10	11	60
13-Dec	10	11	11	9	9	9	16	10	13	13	69	28	12	16	24	26	43	39	43	17	13	16	19	14	69
14-Dec	13	15	15	14	14	15	16	15	15	16	16	16	17	14	15	14	15	16	15	15	15	15	16	14	17
15-Dec	15	15	16	16	15	16	16	16	16	17	15	15	17	16	15	17	16	17	17	16	17	18	22	22	22
16-Dec	37	44	UO	UO	UO	UO	22	22	23	26	30	25	30	28	29	26	27	24	19	13	18	21	21	19	44
17-Dec	21	23	21	22	30	34	57	66	69	78	95	52	31	50	9	18	14	17	23	31	59	16	22	54	95
18-Dec	32	UO	35	UO	43	52	UO	UO	UO	UO	UO	UO	15	56	66	UO	39	48	UO	UO	39	41	14	25	66
19-Dec	15	16	16	14	11	9	81	32	41	61	66	84	26	46	71	52	10	50	81	UO	UO	UO	UO	68	84
20-Dec	46	22	UO	60	21	31	24	42	41	26	19	12	11	13	12	15	11	13	16	16	54	19	13	38	60
21-Dec	14	23	52	29	56	59	47	81	44	UO	83	47	42	79	27	59	46	38	62	67	18	34	31	29	83
22-Dec	UO	75	60	16	13	18	11	12	14	10	14	14	14	11	12	10	14	12	11	12	11	10	15	11	75
23-Dec	16	15	27	86	78	64	26	16	18	23	10	10	10	11	9	10	19	12	50	41	22	24	26	24	86
24-Dec	41	43	40	16	33	16	17	27	24	60	38	55	27	58	36	105	97	34	77	82	39	73	79	48	105
25-Dec	64	51	39	32	33	17	56	88	76	26	32	28	26	24	23	19	11	14	12	18	51	67	45	47	88
26-Dec	86	29	69	34	59	27	47	86	21	54	47	21	13	11	14	14	18	27	22	59	53	54	65	30	86
27-Dec	74	14	17	68	UO	24	71	UO	51	66	20	UO	82	64	94	14	73	41	92	17	UO	16	UO	UO	94
28-Dec	UO	33	18	UO	UO	UO	UO	UO	UO	UO	21	21	29	39	22	UO	UO	30	20	14	12	19	UO	UO	39
29-Dec	18	24	UO	UO	9	77	80	UO	UO	UO	UO	UO	UO	22	16	UO	UO	41	19	19	21	22	25	28	80
30-Dec	24	31	24	26	24	25	25	26	27	24	26	25	25	27	25	24	20	20	18	23	28	22	19	31	31
31-Dec	26	21	23	44	UO	30	UO	15	26	32	35	UO	32	25	20	20	20	UO	UO	UO	UO	UO	UO	UO	44
	86	77	92	86	78	83	81	90	76	87	95	84	82	79	94	105	105	52	92	86	88	74	79	84	
	Diurnal Maximum																								

UO - Unstable Operation





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS14
ANZAC
DECEMBER 2024**

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
DECEMBER 2024

MONTHLY SUMMARY for
AMD SECTION III.B.1(c)

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	709	35	35	100	25.5	0	5.3	0
TRS(ppb) Average	707	37	37	100	1.5	0	0.6	0
THC(ppm) Average	591	32	153	83.74	3.8	-	2.7	-
NMHC(ppm) Average	591	32	153	83.74	0.727	-	0.256	-
CH4(ppm) Average	591	32	153	83.74	3.2	-	2.4	-
NO2(ppb) Average	708	36	36	100	28.7	0	11.9	-
NO(ppb) Average	708	36	36	100	13.3	-	2.7	-
NOX(ppb) Average	708	36	36	100	42	-	14.5	-
O3(ppb) Average	705	35	39	99.46	37.5	0	35.1	-
PM2.5(ug/m3) Average	743	1	1	100	23.3	0	10.7	0
AT 2m(C) Average	744	0	0	100	5.9	-	2.1	-
RH(%) Average	744	0	0	100	99.2	-	93.6	-
WS(km/h) Average	744	0	0	100	29	-	20	-
WD(deg) Average	744	0	0	100	-	-	-	-
Leaf Wetness (% of range) Average	744	0	0	100	75.6	-	13.4	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
DECEMBER 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	1.05	2	-	0	0.1	0.2	0.4	1	2.4	25.5
TRS(ppb) Average	707	0.25	0.2	-	0.1	0.1	0.2	0.2	0.3	0.4	1.5
THC(ppm) Average	591	2.15	0.2	-	1.9	2	2	2.1	2.2	2.3	3.8
NMHC (ppm) Average	591	0.019	0.077	-	0	0	0	0	0	0	0.727
CH4(ppm) Average	591	2.13	0.1	-	1.9	2	2	2.1	2.2	2.3	3.2
NO2(ppb) Average	708	3.7	3.2	-	0.2	0.8	1.4	3.1	5	7.2	28.7
NO(ppb) Average	708	0.54	1.2	-	0	0	0	0.1	0.5	1.4	13.3
NOX(ppb) Average	708	4.24	4	-	0.2	1	1.6	3.3	5.7	8.2	42
O3(ppb) Average	705	22.08	7	-	0.5	12.6	17.3	22.4	27	30.6	37.5
PM2.5(ug/m3) Average	743	4.14	3	-	0.3	1.3	2.2	3.1	5.6	8.2	23.3
Temperature 2 m (C) Average	744	-12.1	8.5	-	-32.1	-23.2	-19.2	-11.4	-7	0.3	5.9
Relative Humidity (%) Average	744	82.55	8.3	-	46.4	73.6	77.8	82.6	89.6	92.3	99.2
Wind Speed 20 m (km/h) Average	744	10.6	5	-	1	4	7	10	14	17	29
Wind Direction 20 m (deg) Average	744	218.1	-	-	-	-	-	-	-	-	-
Leaf Wetness (% of range) Average	744	1.44	5.3	-	0	0	0	0.3	1.2	3.2	75.6

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ANZAC (AMS14)
DECEMBER 2024

Parameter	OPERATIONAL NOTES			
	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	04 Dec 2024 14:00	04 Dec 2024 15:00	2	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	10 Dec 2024 04:00	12 Dec 2024 04:00	49	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	15 Dec 2024 03:00	16 Dec 2024 11:00	33	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	16 Dec 2024 12:00	16 Dec 2024 15:00	4	Maintenance - actuator replaced
THC/NMHC/CH4	30 Dec 2024 06:00	31 Dec 2024 09:00	28	Unstable Operation - excessive baseline drift
THC/NMHC/CH4	31 Dec 2024 10:00	31 Dec 2024 14:00	5	Maintenance - retention time adjusted
O3	01 Dec 2024 01:00	01 Dec 2024 01:00	1	Unstable Operation - excessive baseline drift
O3	01 Dec 2024 03:00	01 Dec 2024 05:00	3	Unstable Operation - excessive baseline drift

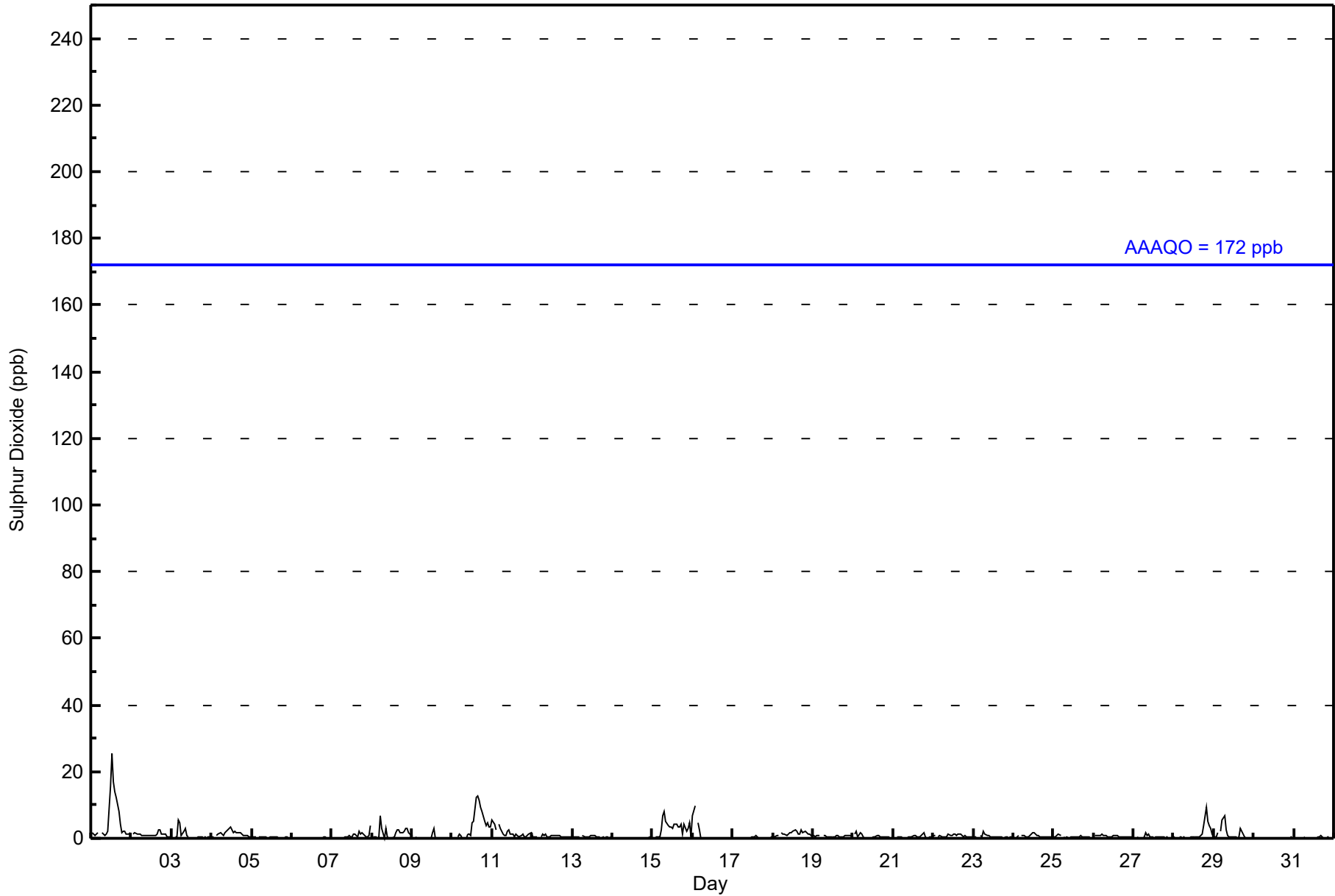


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 25.5 ppb on Dec 1 13:00		Maximum Daily Average: 5.3 ppb on Dec 1																	709							
Minimum Value: 0.0 ppb on Dec 6 01:00		Minimum Daily Average: 0.1 ppb on Dec 30																	35							
Maximum Diurnal Average: 1.7 ppb at hour 13		Minimum Diurnal Average: 0.6 ppb at hour 3																	35							
Monthly Average: 1.05 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.4 Q ₃ = 1.0 P ₉₀ = 2.4 P ₉₉ = 11.1																	100.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1.7	1.2	1.0	1.4	1.8	Z	1.7	1.2	1.0	1.2	2.3	15.8	25.5	16.9	14.1	12.4	8.2	4.3	1.6	2.1	2.0	1.5	1.3	1.6	5.3	25.5
2-Dec	Z	1.3	1.7	1.2	1.2	1.2	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.9	0.8	1.4	2.5	2.7	1.2	1.1	1.1	0.6	0.5	0.5	1.1	2.7
3-Dec	0.4	Z	0.3	0.3	5.3	4.7	1.0	1.9	2.9	1.0	0.5	C	C	C	C	0.2	0.3	0.5	0.3	0.2	0.2	0.2	0.3	0.5	1.1	5.3
4-Dec	0.3	0.5	Z	0.7	1.1	1.9	1.4	0.7	1.8	2.3	3.2	3.5	2.5	1.9	2.2	1.6	1.5	1.5	1.2	0.9	0.9	0.8	0.5	0.4	1.4	3.5
5-Dec	0.5	0.4	0.4	Z	0.5	0.4	0.3	0.4	0.2	0.2	0.2	0.3	0.3	0.5	0.3	0.3	0.0	0.1	0.1	0.2	0.4	0.3	0.1	0.0	0.3	0.5
6-Dec	0.0	0.0	0.0	0.0	Z	0.2	0.0	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.1	0.3
7-Dec	0.1	0.2	0.2	0.1	0.1	Z	0.2	0.2	0.3	0.5	1.0	0.6	0.3	1.2	1.2	0.5	2.3	1.2	1.9	1.1	0.4	0.3	1.0	3.8	0.8	3.8
8-Dec	Z	0.3	0.2	0.1	0.3	6.7	2.8	0.1	3.1	0.3	0.1	0.1	0.1	0.5	1.6	2.7	2.4	1.5	1.5	2.1	3.1	3.2	1.6	0.8	1.5	6.7
9-Dec	0.9	Z	0.3	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	1.5	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.1
10-Dec	0.0	0.0	Z	0.3	1.5	0.7	0.1	0.2	0.2	1.3	1.4	1.0	4.6	5.3	12.4	12.5	11.3	9.4	8.0	5.1	4.0	4.7	3.3	3.4	3.9	12.5
11-Dec	5.4	4.3	2.7	Z	4.4	3.1	1.4	0.8	0.9	2.0	2.5	1.3	1.3	0.3	1.2	0.8	0.3	1.0	1.3	0.3	0.6	0.9	1.1	1.8	1.7	5.4
12-Dec	0.5	0.3	0.3	0.4	Z	0.6	1.4	0.7	1.3	0.5	0.5	0.6	0.7	0.8	0.7	0.7	0.7	0.6	0.3	0.6	0.6	0.4	0.4	0.4	0.6	1.4
13-Dec	0.5	0.5	0.6	0.6	0.5	Z	0.7	0.6	0.6	0.3	0.6	0.7	0.9	0.7	0.4	0.4	0.3	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.5	0.9
14-Dec	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.1	0.3
15-Dec	0.2	Z	0.3	0.2	0.3	2.5	6.9	7.9	5.2	3.9	3.4	3.2	3.1	4.3	4.1	3.6	3.3	4.3	1.2	4.1	2.3	3.0	4.6	0.5	3.2	7.9
16-Dec	6.9	9.7	Z	4.6	2.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0	9.7
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	0.5	0.8	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.1	0.8
18-Dec	0.3	0.4	0.8	0.8	Z	1.9	1.4	1.1	0.9	1.4	1.8	1.8	2.1	2.4	2.0	1.4	1.5	2.4	1.6	2.3	1.8	1.3	1.2	0.9	1.5	2.4
19-Dec	0.8	0.6	0.9	1.0	0.9	Z	0.7	0.7	0.6	0.6	0.6	0.5	0.3	0.5	0.8	0.6	0.2	0.3	0.5	1.0	0.8	0.7	0.7	0.6	0.6	1.0
20-Dec	Z	1.3	1.9	0.6	1.5	1.5	0.5	0.2	0.1	0.1	0.1	0.2	0.3	0.5	0.6	0.7	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.6	1.9
21-Dec	0.1	Z	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.4	0.9	1.0	0.6	0.5	0.5	1.0	1.9	0.6	0.2	0.2	0.4	0.3	0.5	1.9
22-Dec	0.9	1.0	Z	0.5	0.9	0.4	0.3	0.4	0.6	1.3	0.9	1.0	1.1	1.3	0.7	1.1	1.1	1.0	0.5	0.9	0.6	0.5	0.6	0.5	0.8	1.3
23-Dec	0.4	0.3	0.3	Z	0.9	0.5	2.2	1.5	0.9	0.8	0.5	0.4	0.5	0.3	0.5	0.4	0.2	0.4	0.2	0.2	0.2	0.2	0.3	0.3	0.5	2.2
24-Dec	0.3	0.2	0.4	0.8	Z	0.8	0.8	0.4	0.5	0.4	0.8	1.8	1.8	1.5	0.9	0.6	0.4	0.4	0.5	0.6	0.5	0.4	0.3	0.5	0.7	1.8
25-Dec	0.4	0.6	0.7	1.4	0.9	Z	0.4	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.3	0.2	0.8	0.3	0.5	0.5	0.4	0.4	0.2	0.2	0.4	1.4
26-Dec	Z	0.8	0.7	1.0	1.0	1.1	0.9	0.9	0.6	0.4	0.5	0.6	0.7	0.7	0.7	0.6	0.6	0.5	0.4	0.3	0.4	0.5	0.4	0.3	0.6	1.1
27-Dec	0.2	Z	0.3	0.1	0.1	0.1	0.3	1.6	1.1	1.4	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.1	0.3	0.2	0.1	0.3	0.4	1.6
28-Dec	0.4	0.1	Z	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.5	0.3	0.2	0.2	0.4	0.4	0.9	1.4	3.8	9.2	5.1	3.8	2.8	1.3	1.4	9.2
29-Dec	0.5	0.4	1.6	Z	2.0	5.4	6.7	2.4	0.9	0.6	0.5	0.3	0.3	0.4	0.2	0.4	2.8	1.5	0.2	0.2	0.2	0.1	0.1	0.0	1.2	6.7
30-Dec	0.0	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2
31-Dec	0.1	0.2	0.2	0.1	0.2	Z	0.3	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.3	0.4	0.9	0.3	0.1	0.2	0.4	0.2	0.2	0.2	0.2	0.9
																								Diurnal Average		
																								Diurnal Maximum		
																								0.8 1.0 0.6 0.7 1.1 1.4 1.1 0.8 0.8 0.7 0.8 1.2 1.7 1.6 1.6 1.5 1.4 1.2 1.0 1.1 0.9 0.8 0.7 0.7 0.7		
																								6.9 9.7 2.7 4.6 5.3 6.7 6.9 7.9 5.2 3.9 3.4 15.8 25.5 16.9 14.1 12.5 11.3 9.4 8.0 9.2 5.1 4.7 4.6 3.8		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Anzac - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Anzac - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	701	98.87	98.87
11 - 20	7	0.99	99.86
21 - 60	1	0.14	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Anzac - December 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	8	6	3	8	13	55	158	69	38	11	17	15	49	138	86	27	701
11 - 20	0	0	0	0	0	1	0	1	0	0	1	0	0	1	1	2	7
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	1	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	8	6	3	8	13	56	158	70	38	11	18	15	50	139	87	29	709

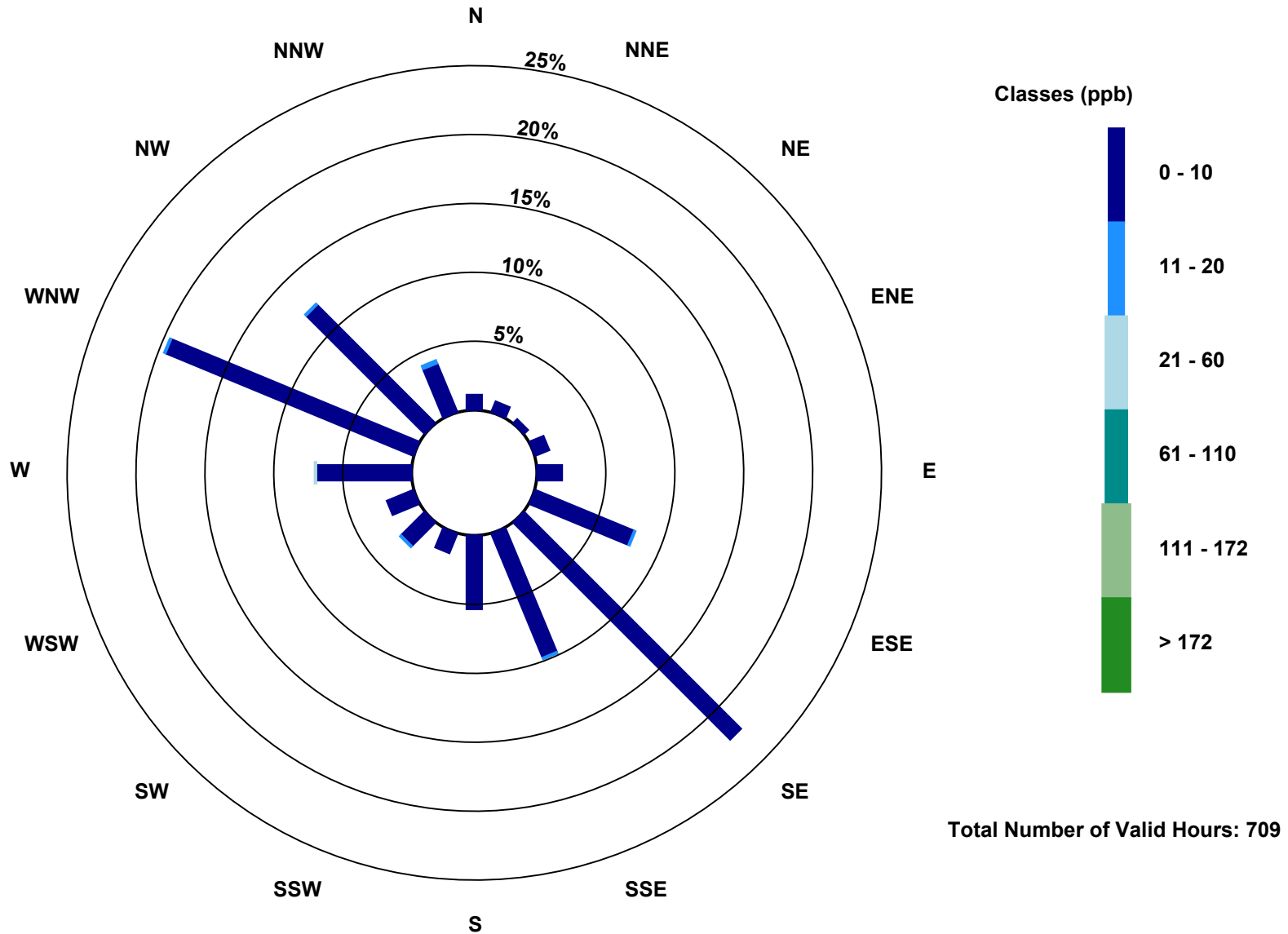
Total Number of Valid Hours: 709

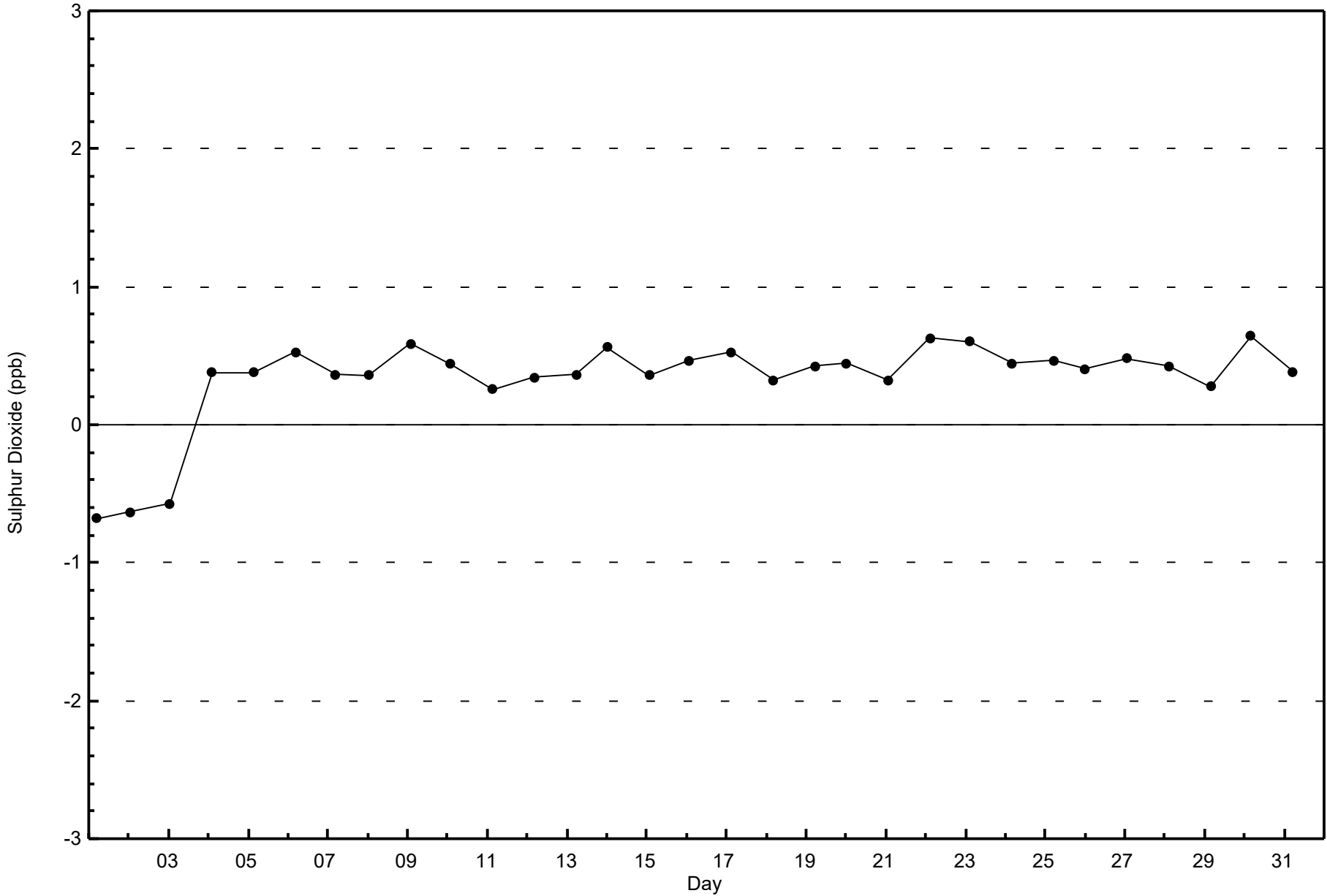
Total Number of Hours: 744

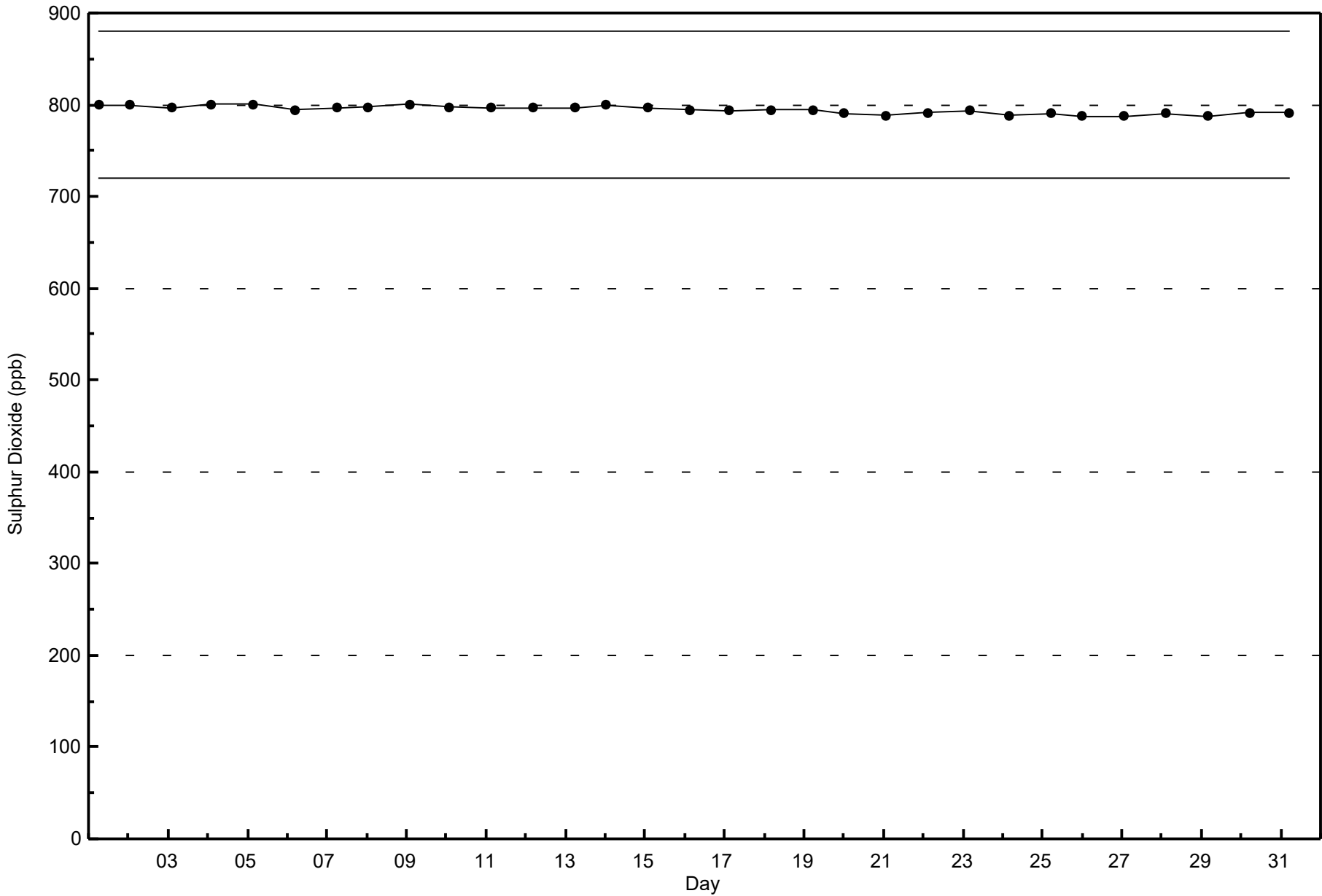


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Anzac









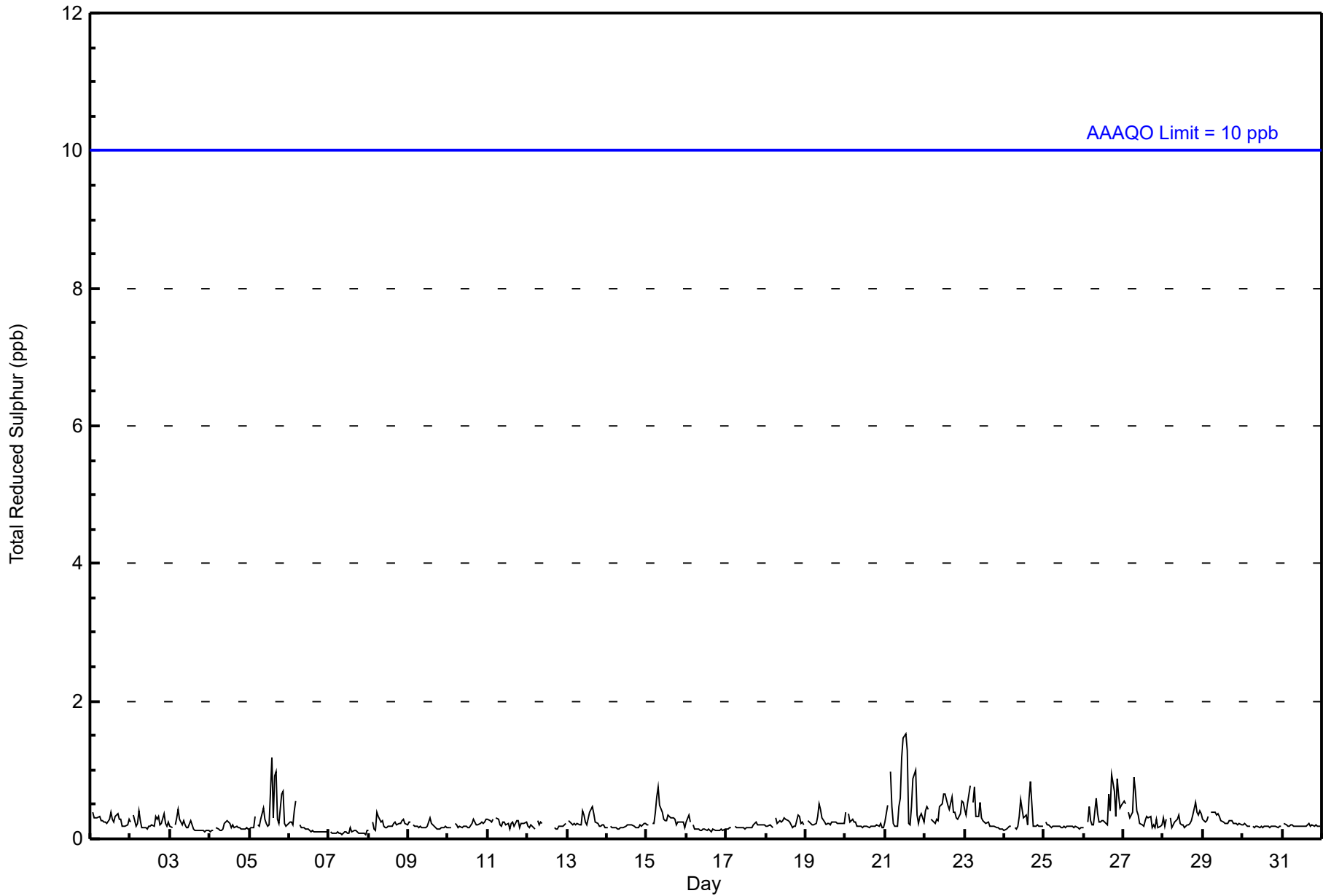
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Reduced Sulphur (TRS) - ppb

Anzac - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 1.5 ppb on Dec 21 13:00 Maximum Daily Average: 0.6 ppb on Dec 21		Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0																								
Minimum Value: 0.1 ppb on Dec 7 23:00 Maximum Diurnal Average: 0.3 ppb at hour 14 Monthly Average: 0.25 ppb		Minimum Daily Average: 0.1 ppb on Dec 7 Minimum Diurnal Average: 0.2 ppb at hour 22 Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.3 P ₉₀ = 0.4 P ₉₉ = 1.0																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.4
2-Dec	0.2	Z	0.3	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.4	0.2	0.2	0.3	0.2	0.4	0.2
3-Dec	0.2	0.2	Z	0.2	0.3	0.4	0.3	0.2	0.3	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	0.2	0.4
4-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.2
5-Dec	0.2	0.2	0.2	0.3	Z	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	1.2	0.3	0.9	1.0	0.3	0.2	0.7	0.7	0.2	0.2	0.2	1.2	0.4
6-Dec	0.3	0.2	0.2	0.4	0.5	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
7-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
8-Dec	0.1	Z	0.3	0.1	0.1	0.4	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	0.3	0.3	0.2	0.2	0.2	0.4
9-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3
10-Dec	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3
11-Dec	0.3	0.3	0.2	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3
12-Dec	0.2	0.2	0.2	0.2	0.1	Z	0.3	0.2	0.2	0.2	C	C	C	C	C	C	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	--	0.3
13-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.2	0.2	0.4	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.5
14-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15-Dec	0.2	0.2	Z	0.2	0.2	0.4	0.6	0.7	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.7
16-Dec	0.2	0.3	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
17-Dec	0.1	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.3
19-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.5	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	0.2	0.5
20-Dec	0.4	Z	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
21-Dec	0.3	0.5	Z	1.0	0.5	0.2	0.2	0.2	0.5	0.6	1.2	1.5	1.5	1.3	0.2	0.2	0.5	0.9	1.0	0.3	0.2	0.3	0.4	0.2	1.5	0.6
22-Dec	0.4	0.5	0.4	Z	0.3	0.3	0.2	0.3	0.3	0.5	0.5	0.7	0.6	0.6	0.5	0.4	0.6	0.4	0.4	0.3	0.3	0.4	0.6	0.5	0.5	0.7
23-Dec	0.4	0.3	0.5	0.8	Z	0.5	0.8	0.3	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.8	0.3
24-Dec	0.1	0.1	0.2	0.2	0.2	Z	0.2	0.1	0.2	0.3	0.6	0.3	0.3	0.3	0.2	0.6	0.8	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.8
25-Dec	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	0.1	0.2	0.2	0.2	0.2
26-Dec	0.2	Z	0.2	0.5	0.3	0.2	0.2	0.6	0.4	0.3	0.2	0.3	0.3	0.2	0.2	0.6	0.4	0.9	0.7	0.3	0.9	0.6	0.5	0.5	0.9	0.4
27-Dec	0.5	0.5	Z	0.4	0.3	0.4	0.9	0.7	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.9
28-Dec	0.3	0.2	0.3	Z	0.3	0.2	0.2	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5
29-Dec	0.3	0.2	0.3	0.3	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
30-Dec	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
31-Dec	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
																								Diurnal Average		
																								Diurnal Maximum		
																								0.2 0.2 0.2 0.3 0.2 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.2 0.3 0.3 0.3 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2		
																								0.5 0.5 0.5 1.0 0.5 0.5 0.9 0.7 0.5 0.6 1.2 1.5 1.5 1.3 0.5 0.9 1.0 0.9 1.0 0.7 0.9 0.6 0.6 0.5 0.5 0.5 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
Anzac - December 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
Anzac - December 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	8	5	4	9	13	58	152	67	38	13	18	15	50	139	85	33	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	8	5	4	9	13	58	152	67	38	13	18	15	50	139	85	33	707

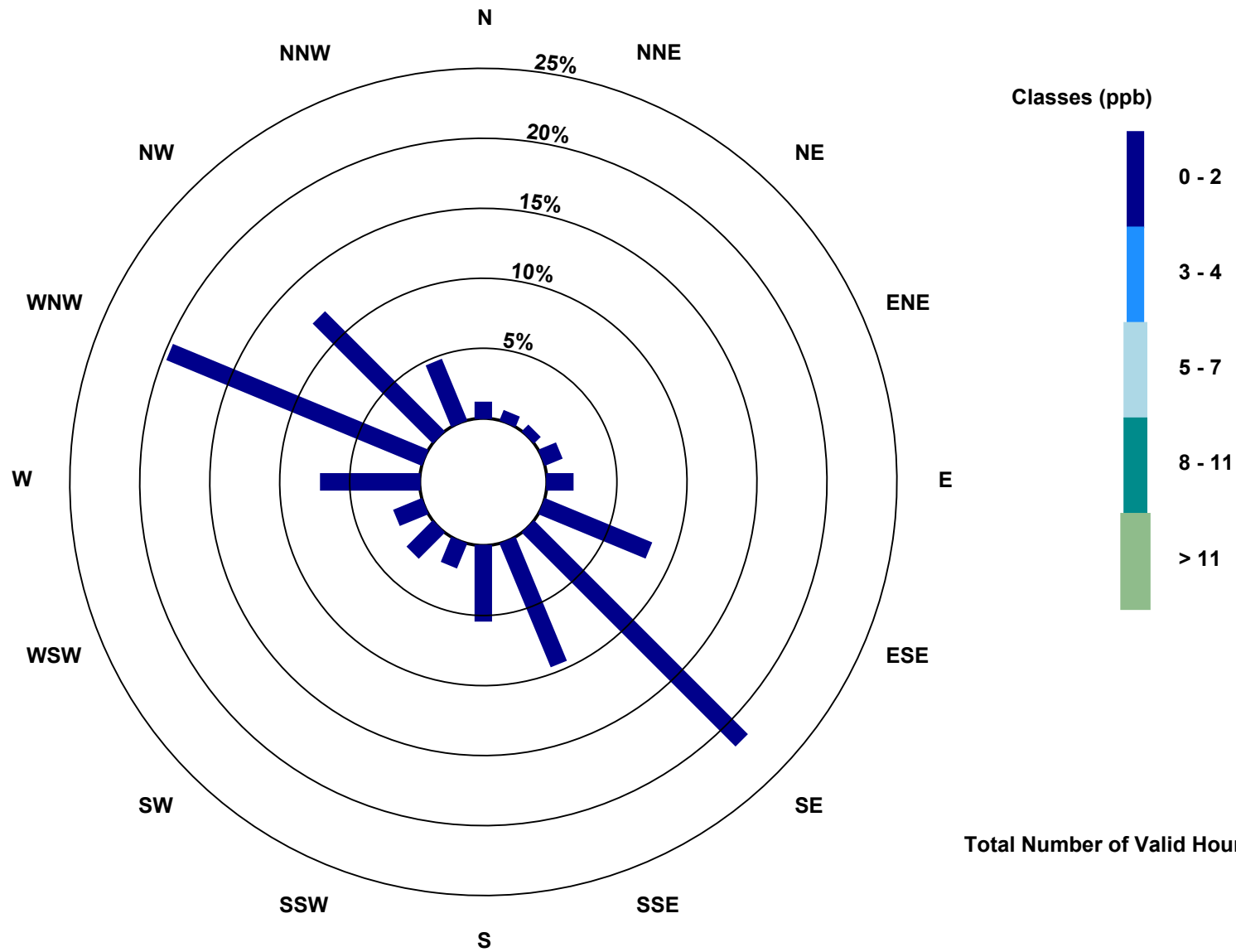
Total Number of Valid Hours: 707

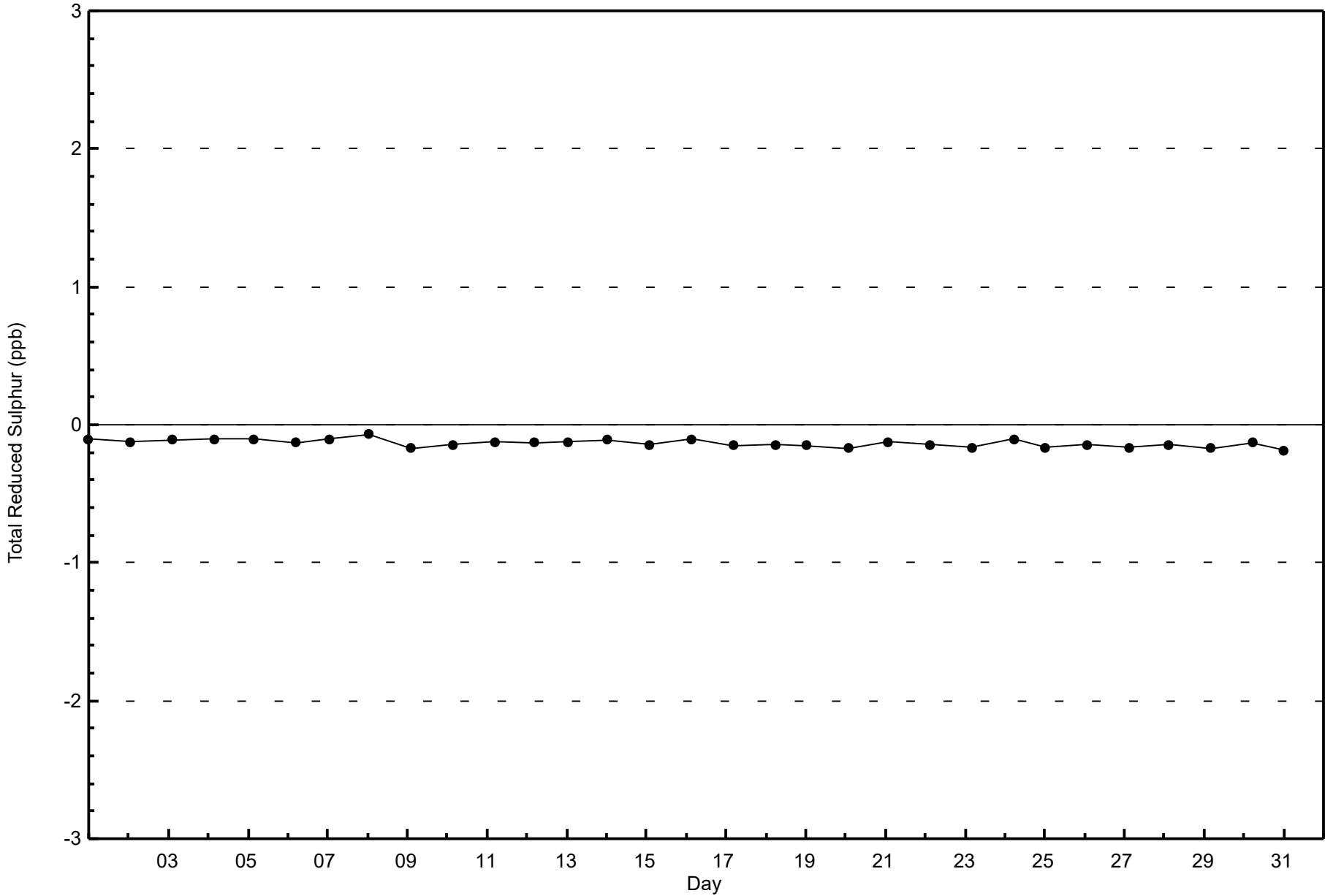
Total Number of Hours: 744

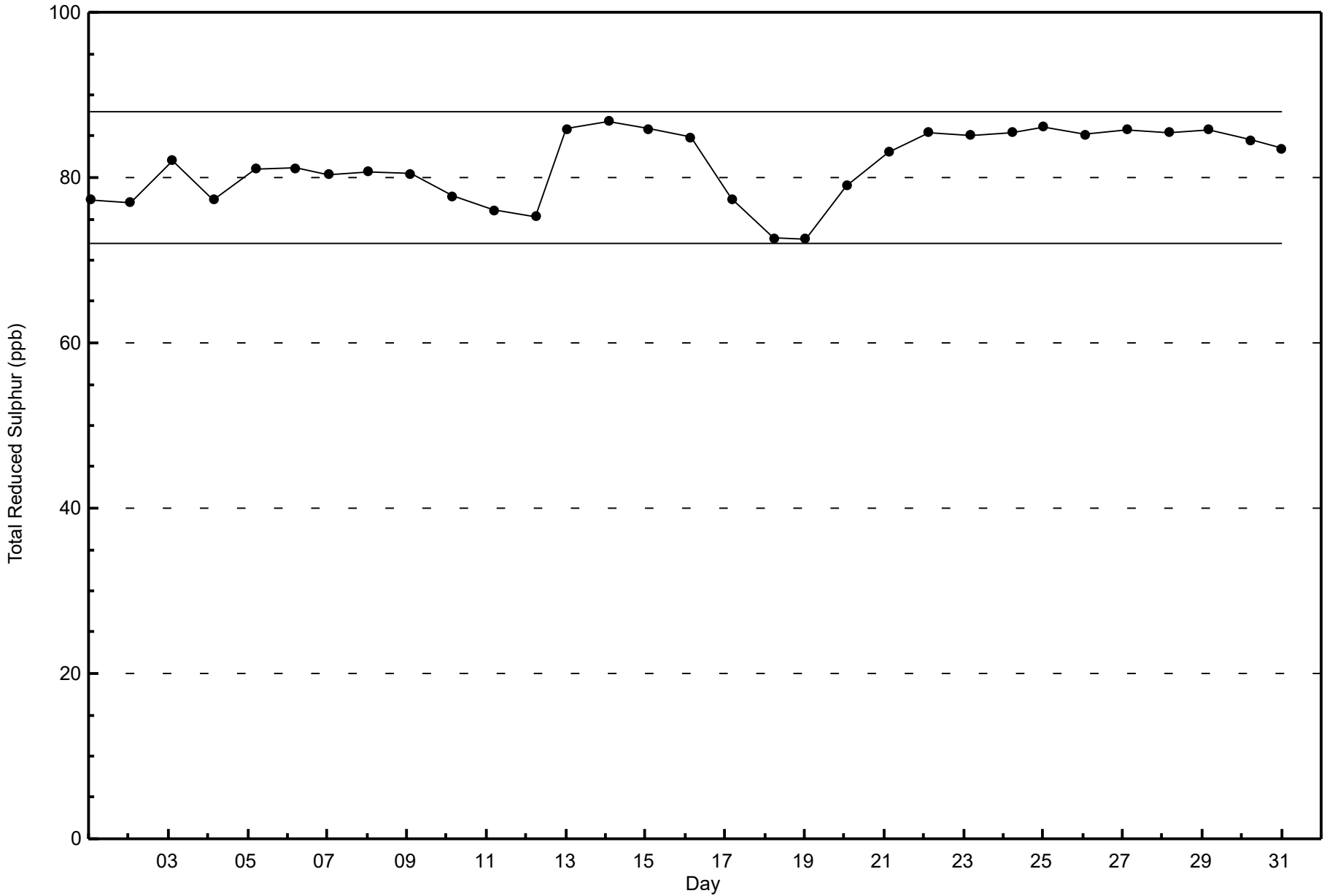


Wood Buffalo Environmental Association
 Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
 Anzac









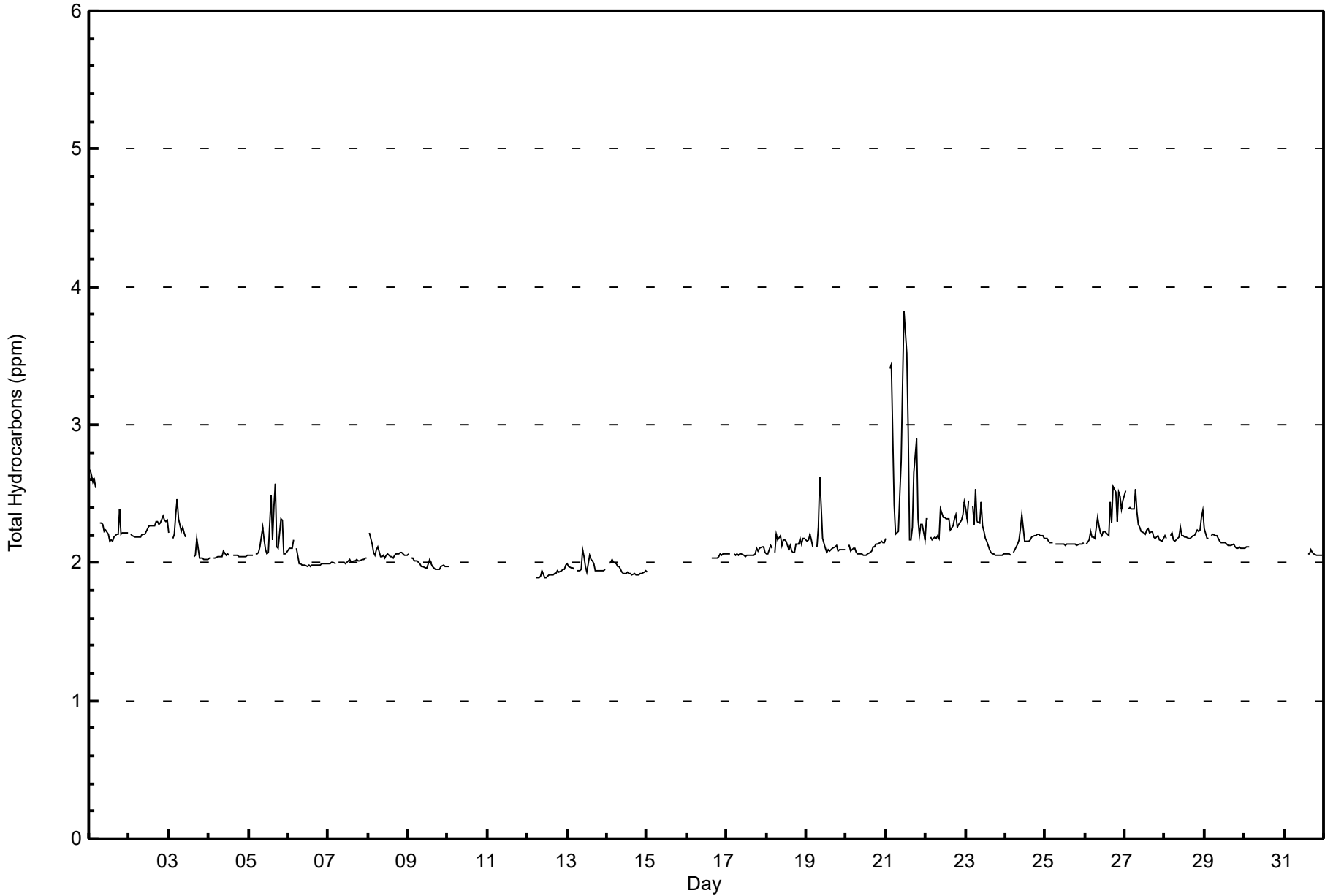
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Anzac - December 2024

Maximum Value: 3.8 ppm on Dec 21 12:00		Maximum Daily Average: 2.7 ppm on Dec 21		Hours in Service: 744																																												
Minimum Value: 1.9 ppm on Dec 12 06:00		Minimum Daily Average: 1.9 ppm on Dec 12		Hours of Data: 591																																												
Maximum Diurnal Average: 2.2 ppm at hour 3		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Missing Data: 153																																												
Monthly Average: 2.15 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 2.9		Hours of Calibration: 32																																												
				Percent Operational Time: 83.7																																												
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-Dec	2.7	2.6	2.6	2.6	2.5	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	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.7																						
2-Dec	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																					
3-Dec	2.2	Z	2.2	2.2	2.4	2.5	2.3	2.2	2.3	2.2	2.2	C	C	C	C	2.0	2.1	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.5																						
4-Dec	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	UO	UO	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1																						
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.3	2.2	2.1	2.1	2.1	2.5	2.2	2.4	2.6	2.1	2.1	2.3	2.3	2.1	2.1	2.1	2.2	2.6																						
6-Dec	2.1	2.1	2.1	2.2	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2																						
7-Dec	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																						
8-Dec	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.2																						
9-Dec	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	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																						
10-Dec	2.0	2.0	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.0																						
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--																						
12-Dec	UO	UO	UO	UO	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0																						
13-Dec	2.0	2.0	2.0	2.0	2.0	Z	1.9	1.9	2.0	2.1	2.0	2.0	1.9	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.1																						
14-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																						
15-Dec	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	1.9																						
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
17-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
18-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2	2.2																						
19-Dec	2.2	2.2	2.2	2.2	2.1	Z	2.1	2.3	2.6	2.4	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6																						
20-Dec	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	2.2	2.1	2.1	2.1	2.2																						
21-Dec	2.2	Z	3.4	3.4	2.9	2.4	2.2	2.2	2.5	2.7	3.3	3.8	3.5	3.0	2.2	2.2	2.3	2.7	2.9	2.3	2.2	2.3	2.3	2.2	3.8																							
22-Dec	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4																							
23-Dec	2.4	2.3	2.5	Z	2.4	2.3	2.5	2.3	2.3	2.4	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.5																							
24-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																							
25-Dec	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
26-Dec	Z	2.1	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	2.4	2.3	2.6	2.5	2.3	2.5	2.5	2.4	2.5	2.6																							
27-Dec	2.5	Z	2.4	2.4	2.4	2.4	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	2.2	2.2	2.5																							
28-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4																							
29-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
30-Dec	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1																						
31-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
																								2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average
																								2.7	2.6	3.4	3.4	2.9	2.5	2.5	2.4	2.6	2.7	3.3	3.8	3.5	3.0	2.3	2.4	2.6	2.7	2.9	2.3	2.5	2.5	2.4	2.5	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Anzac - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	162	27.41	27.41
2.1 - 3.0	424	71.74	99.15
3.1 - 10.0	5	0.85	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 591

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Anzac - December 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	3	3	2	3	4	12	16	20	6	1	2	3	27	29	20	11	162
2.1 - 3.0	5	2	1	4	9	37	115	48	29	10	16	12	23	55	44	14	424
3.1 - 10.0	0	1	0	0	0	0	0	1	3	0	0	0	0	0	0	0	5
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	8	6	3	7	13	49	131	69	38	11	18	15	50	84	64	25	591

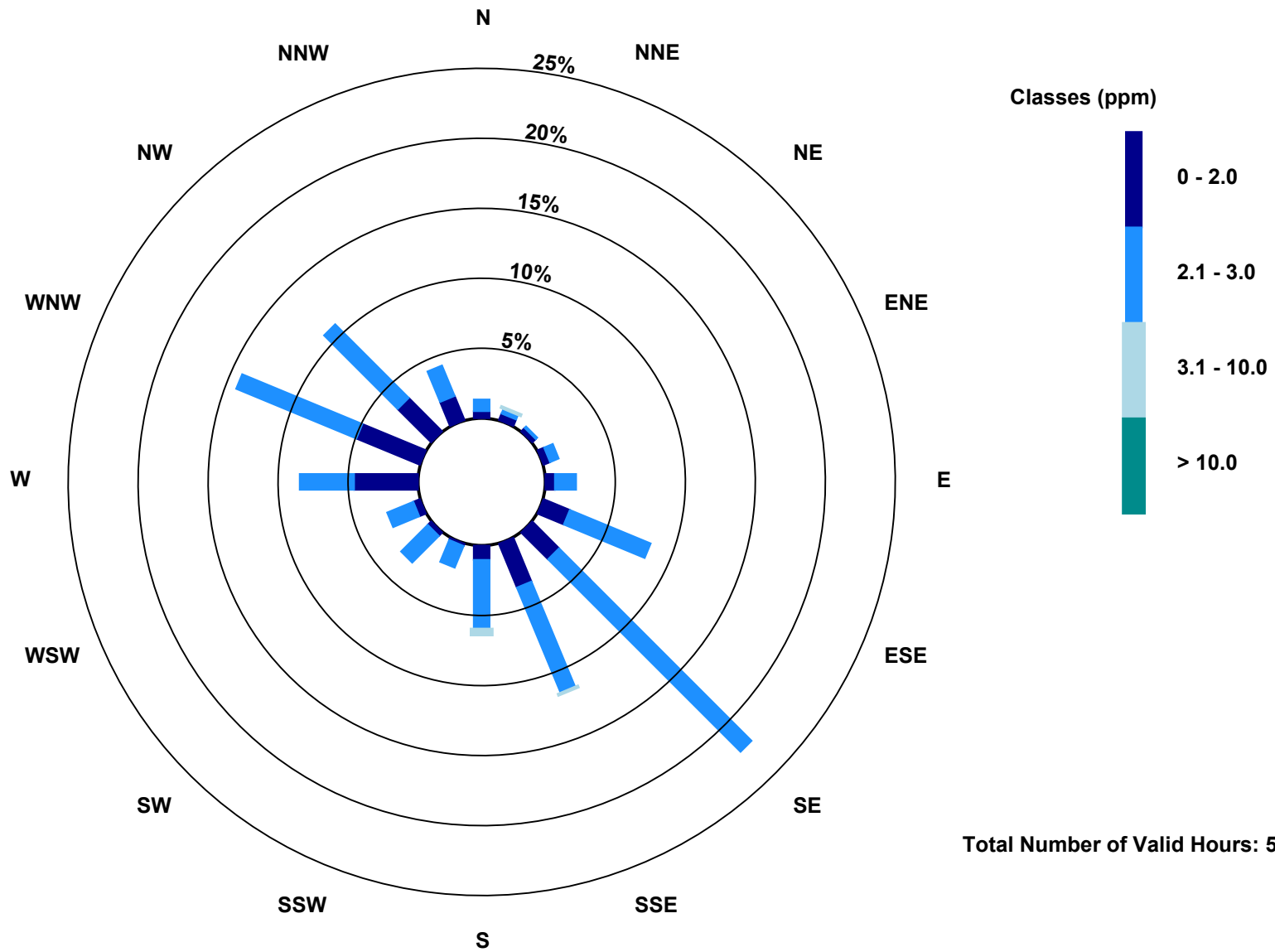
Total Number of Valid Hours: 591

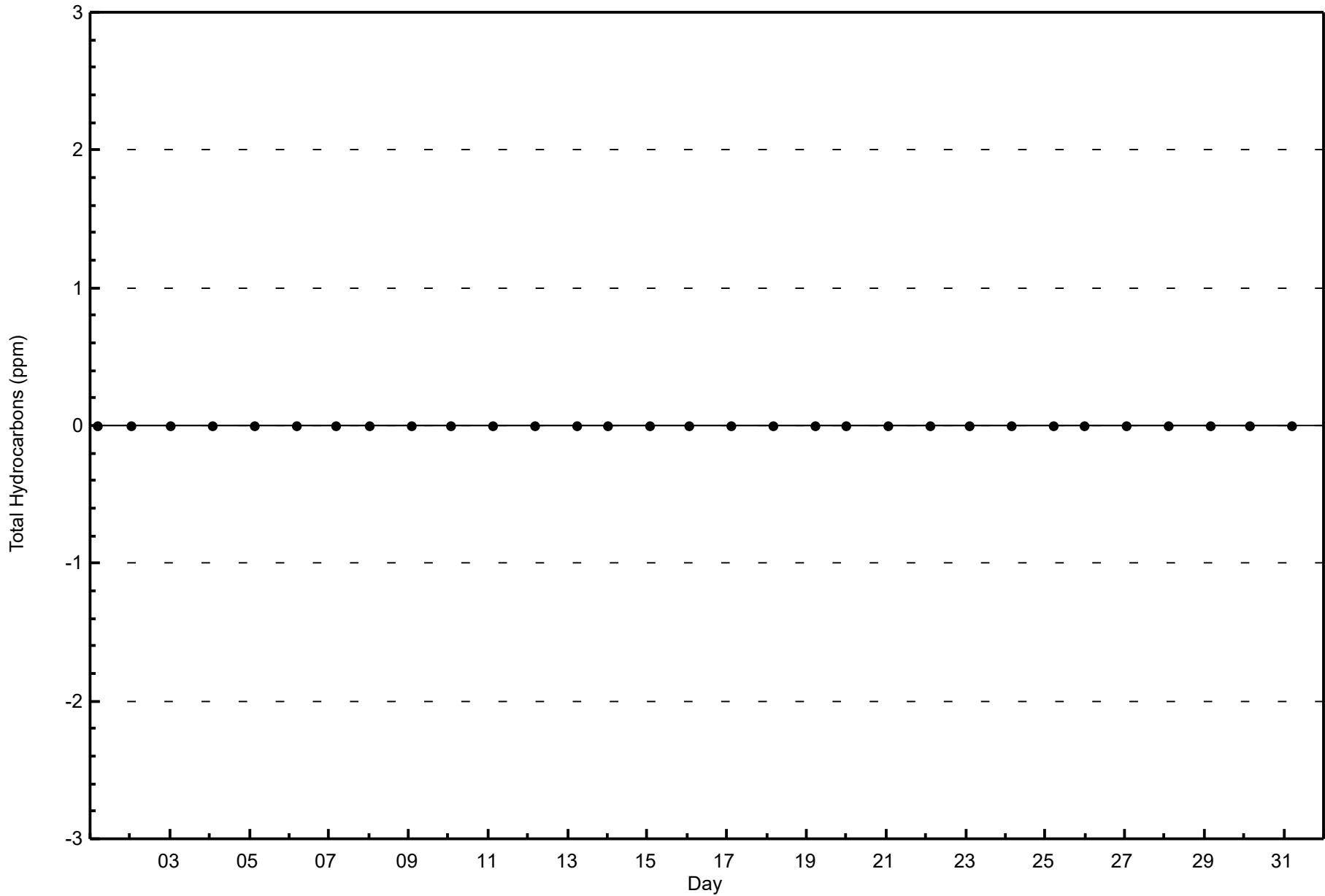
Total Number of Hours: 744

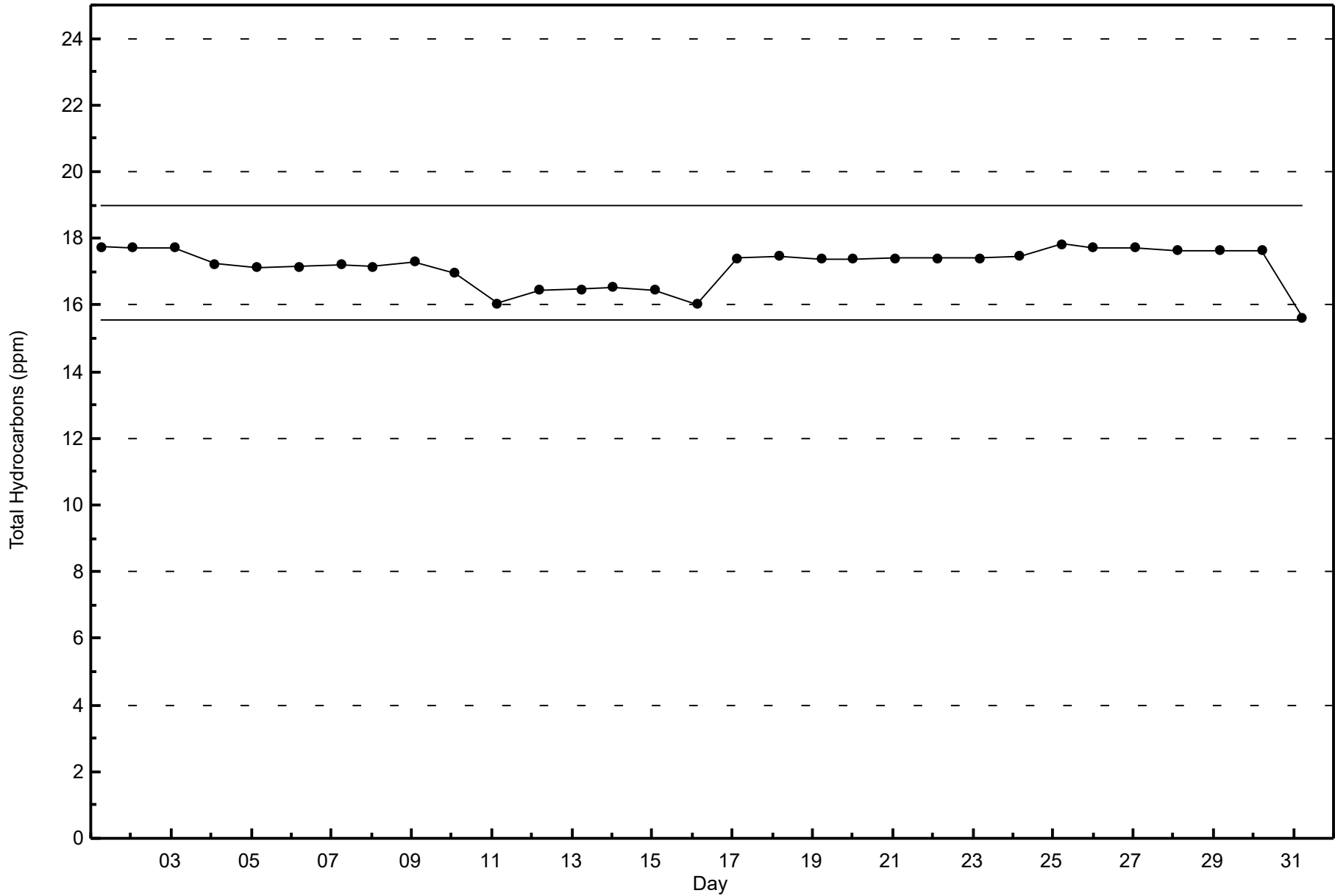


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Anzac





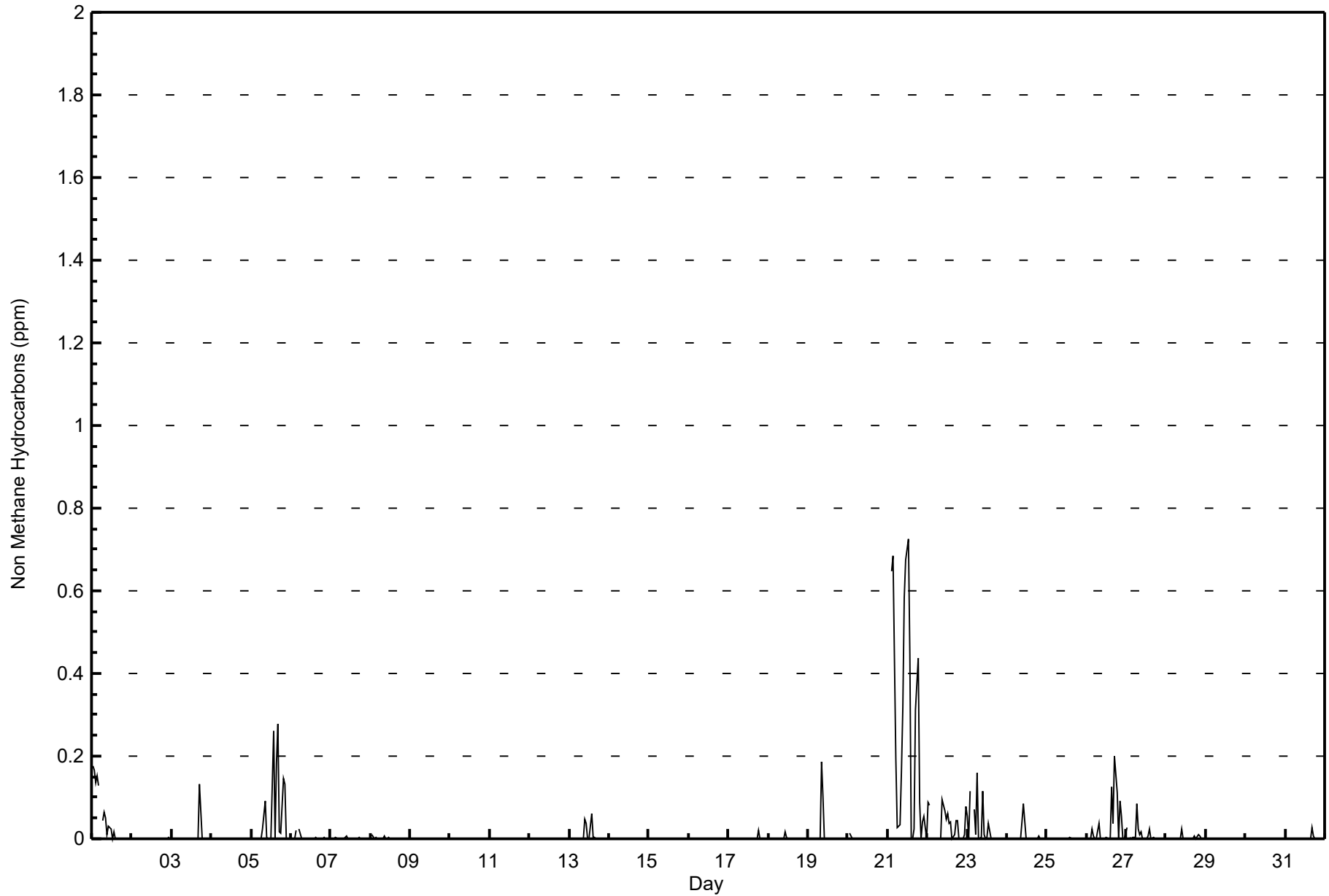




Summary of Hour Averages

Anzac - December 2024

Maximum Value: 0.727 ppm on Dec 21 13:00																				Maximum Daily Average: 0.256 ppm on Dec 21					Hours in Service:	744
Minimum Value: 0.000 ppm on Dec 1 13:00																				Minimum Daily Average: 0.000 ppm on Dec 4					Hours of Data:	591
Maximum Diurnal Average: 0.042 ppm at hour 4																				Minimum Diurnal Average: 0.003 ppm at hour 23					Hours of Missing Data:	153
Monthly Average: 0.019 ppm																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.0 P ₉₉ = 0.4					Hours of Calibration:	32
																									Percent Operational Time:	83.7
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-Dec	0.178	0.166	0.135	0.152	0.130	Z	0.044	0.064	0.050	0.011	0.031	0.023	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.044	0.178
2-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.003
3-Dec	0.000	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	0.131	0.000	0.000	0.000	0.000	0.000	0.007	0.131	
4-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	UO	UO	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.025	0.092	0.003	0.000	0.000	0.000	0.261	0.000	0.182	0.278	0.017	0.012	0.146	0.131	0.000	0.000	0.050	0.278	
6-Dec	0.000	0.000	0.000	0.021	Z	0.023	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	0.003	0.000	0.000	0.000	0.002	0.023	
7-Dec	0.000	0.000	0.000	0.004	0.000	Z	0.000	0.000	0.000	0.007	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	0.001	0.007	
8-Dec	Z	0.011	0.000	0.004	0.000	0.000	0.000	0.000	0.006	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	0.001	0.011	
9-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
10-Dec	0.000	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000
11-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	--
12-Dec	UO	UO	UO	UO	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.047	0.036	0.000	0.000	0.061	0.003	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.061	
14-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	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	--	0.000
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
17-Dec	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	0.020	0.000	0.000	0.000	0.000	0.000	0.001	0.020	
18-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.016	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.016	
19-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.002	0.186	0.102	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.186	
20-Dec	Z	0.014	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	0.001	0.014	
21-Dec	0.000	Z	0.648	0.684	0.437	0.194	0.026	0.035	0.163	0.320	0.582	0.675	0.727	0.447	0.000	0.000	0.024	0.312	0.437	0.090	0.000	0.040	0.054	0.256	0.727	
22-Dec	0.089	0.081	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.095	0.067	0.047	0.061	0.037	0.042	0.000	0.010	0.046	0.043	0.000	0.001	0.000	0.011	0.031	0.095	
23-Dec	0.055	0.000	0.116	Z	0.073	0.009	0.161	0.000	0.002	0.117	0.012	0.000	0.002	0.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.161	
24-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.039	0.085	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.006	0.085	
25-Dec	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	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	
26-Dec	Z	0.000	0.000	0.025	0.008	0.000	0.000	0.036	0.000	0.000	0.002	0.000	0.005	0.000	0.000	0.126	0.036	0.199	0.111	0.000	0.093	0.055	0.000	0.030	0.199	
27-Dec	0.026	Z	0.002	0.000	0.003	0.002	0.084	0.025	0.010	0.018	0.000	0.000	0.000	0.008	0.023	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.084	
28-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.009	0.006	0.000	0.000	0.002	0.024	
29-Dec	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	
30-Dec	0.000	0.000	0.000	0.000	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	0.000
31-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	0.000	0.000	0.026	0.008	0.000	0.000	0.000	0.000	0.000	--	0.026	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan																										
C - Calibration																										
M - Maintenance																										
UO - Unstable Operation																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Anzac - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	492	83.25	83.25
0.006 - 0.05	54	9.14	92.39
0.06 - 0.1	24	4.06	96.45
> 0.1	21	3.55	100.00

Total Number of Valid Hours: 591

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Anzac - December 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	8	5	3	4	12	37	106	48	29	9	15	14	49	70	58	25	492
0.006 - 0.05	0	0	0	0	0	8	12	12	3	1	3	1	1	9	4	0	54
0.06 - 0.1	0	0	0	1	1	2	10	4	2	0	0	0	0	3	1	0	24
> 0.1	0	1	0	2	0	2	3	5	4	1	0	0	0	2	1	0	21
Totals	8	6	3	7	13	49	131	69	38	11	18	15	50	84	64	25	591

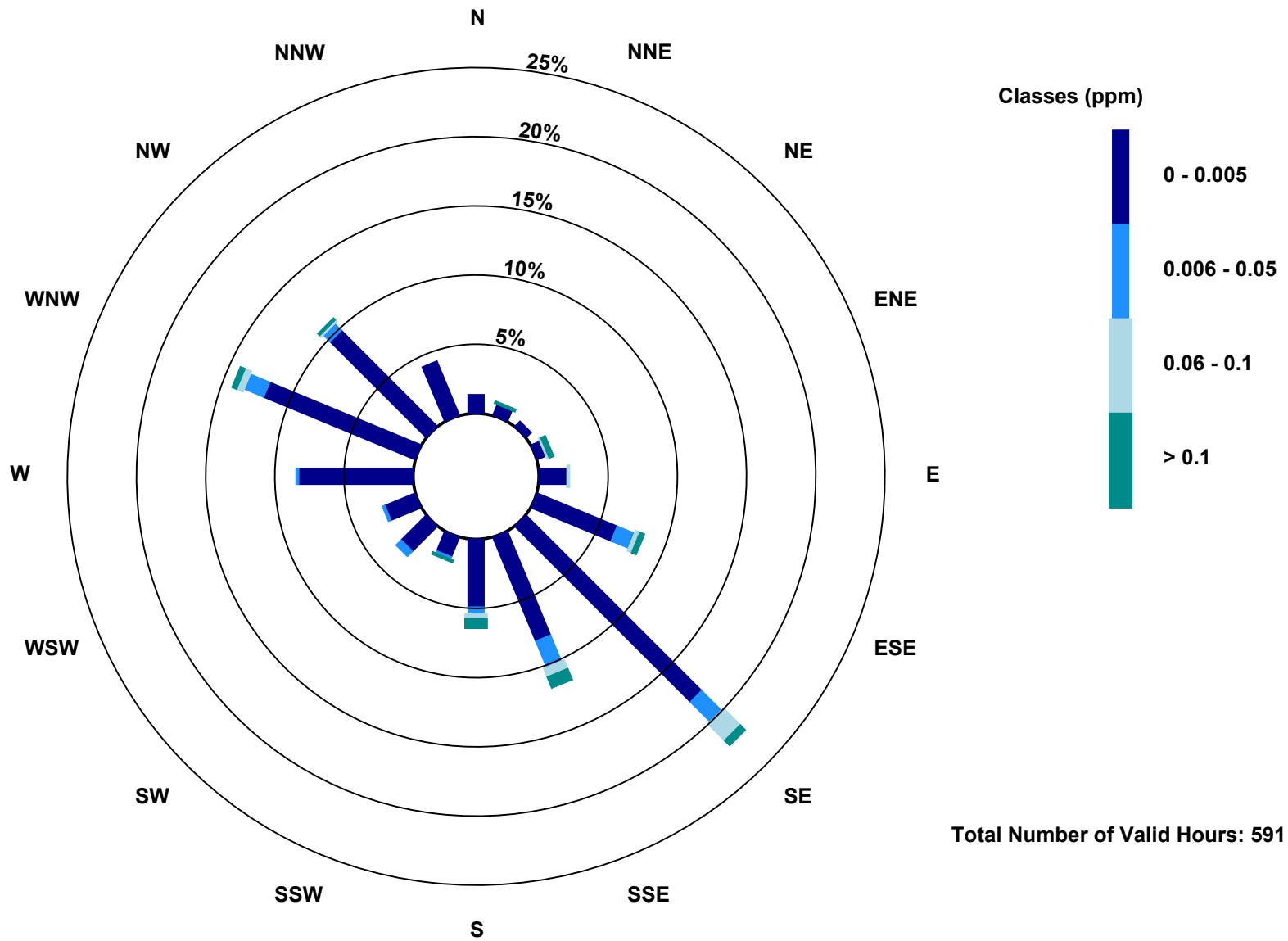
Total Number of Valid Hours: 591

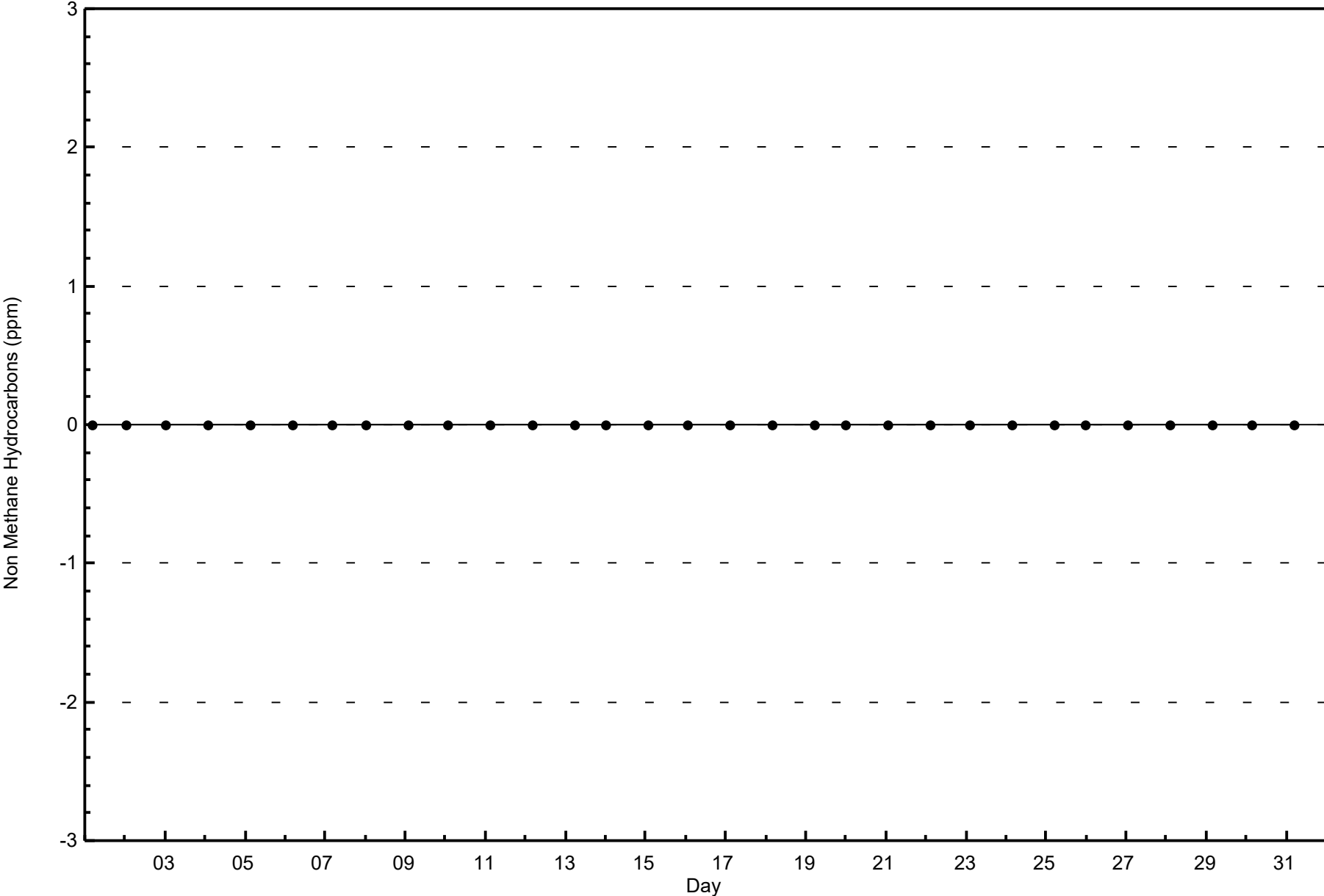
Total Number of Hours: 744

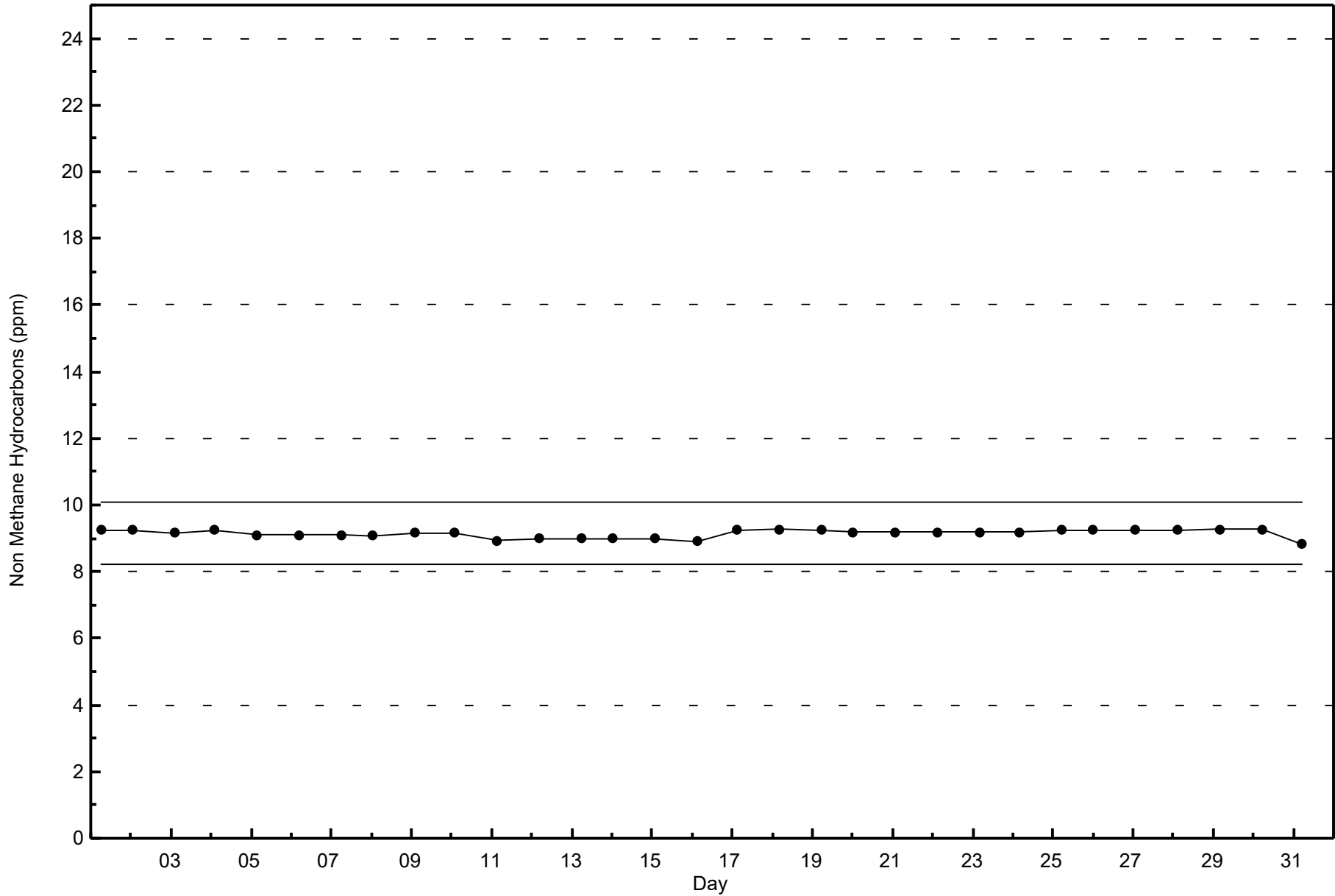


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Anzac









Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

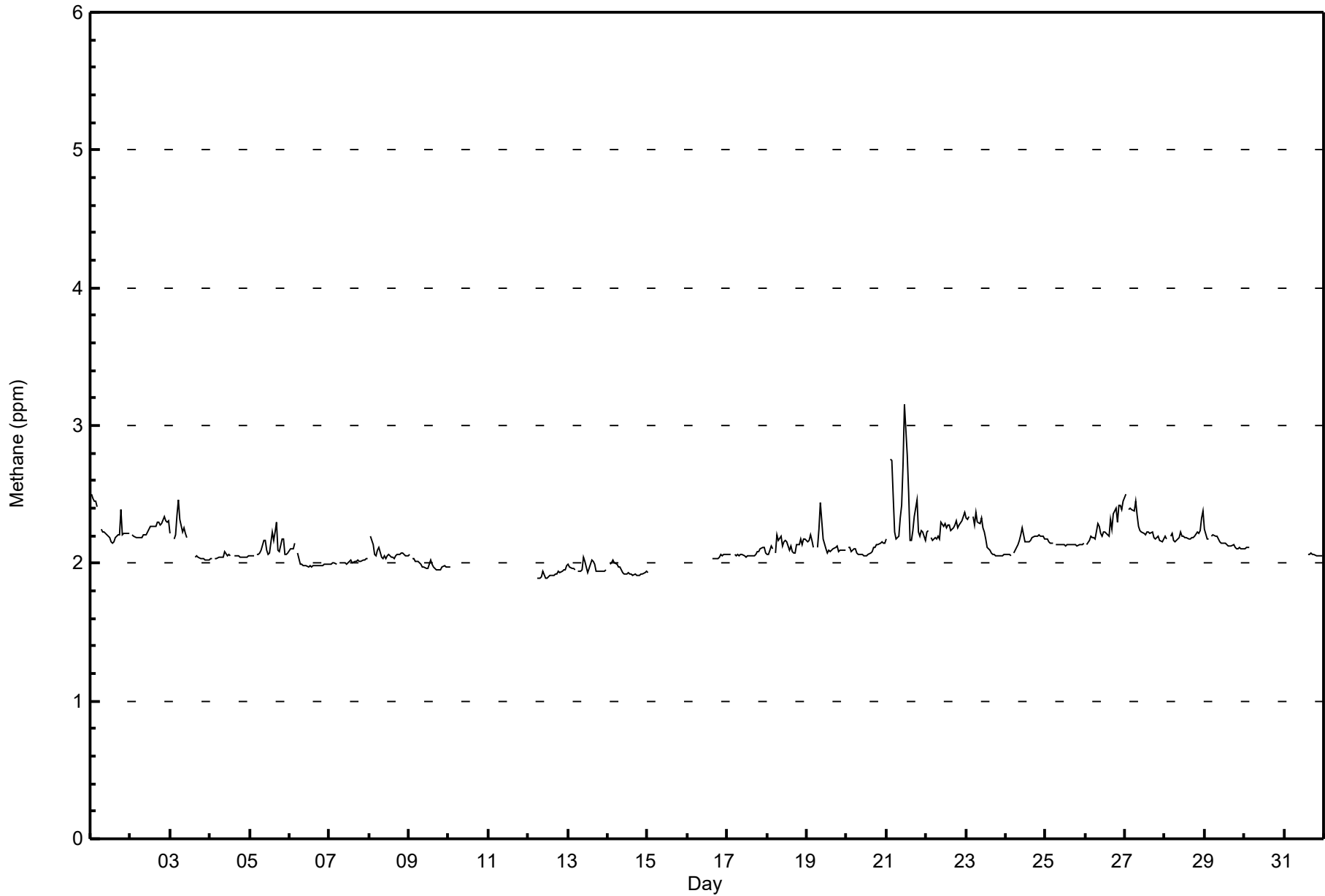
Anzac - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 3.2 ppm on Dec 21 12:00		Maximum Daily Average: 2.4 ppm on Dec 21																	591																														
Minimum Value: 1.9 ppm on Dec 12 06:00		Minimum Daily Average: 1.9 ppm on Dec 12																	153																														
Maximum Diurnal Average: 2.2 ppm at hour 3		Minimum Diurnal Average: 2.1 ppm at hour 16																	32																														
Monthly Average: 2.13 ppm		Percentiles: P ₁ = 1.9 P ₁₀ = 2.0 Q ₁ = 2.0 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.3 P ₉₉ = 2.5																	83.7																														
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-Dec	2.5	2.5	2.4	2.5	2.4	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.4	2.2	2.2	2.2	2.2	2.2	2.3	2.3																							
2-Dec	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																							
3-Dec	2.2	Z	2.2	2.2	2.4	2.5	2.3	2.2	2.3	2.2	2.2	C	C	C	C	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
4-Dec	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	UO	UO	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1																							
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1																							
6-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0																							
7-Dec	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																							
8-Dec	Z	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.2																							
9-Dec	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	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
10-Dec	2.0	2.0	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO																							
11-Dec	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																							
12-Dec	UO	UO	UO	UO	Z	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	2.0																							
13-Dec	2.0	2.0	2.0	2.0	2.0	Z	1.9	1.9	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																							
14-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0																							
15-Dec	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	1.9																							
16-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
17-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
18-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.2																							
19-Dec	2.2	2.2	2.2	2.2	2.1	Z	2.1	2.3	2.4	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																							
20-Dec	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	2.2	2.1	2.1	2.1	2.2																							
21-Dec	2.2	Z	2.8	2.8	2.5	2.2	2.2	2.2	2.3	2.4	2.7	3.2	2.8	2.5	2.2	2.2	2.2	2.3	2.5	2.2	2.2	2.2	2.2	2.2	2.2	3.2																							
22-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4																							
23-Dec	2.3	2.3	2.3	Z	2.3	2.3	2.4	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	2.1	2.1	2.1	2.1	2.4																							
24-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3																							
25-Dec	2.2	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
26-Dec	Z	2.1	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	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.5	2.5																							
27-Dec	2.5	Z	2.4	2.4	2.4	2.4	2.5	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	2.5																							
28-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4																							
29-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
30-Dec	2.1	2.1	2.1	2.1	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.1																							
31-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
																								2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average
																								2.5	2.5	2.8	2.8	2.5	2.5	2.5	2.3	2.4	2.4	2.7	3.2	2.8	2.5	2.3	2.3	2.3	2.4	2.5	2.3	2.4	2.4	2.4	2.5	2.5	Diurnal Maximum
Z - zerospan																								C - Calibration				M - Maintenance				UO - Unstable Operation																	



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Anzac - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Methane (CH₄) - ppm
Anzac - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	165	27.92	27.92
2.1 - 3.0	425	71.91	99.83
3.1 - 10.0	1	0.17	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 591

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Anzac - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	3	3	2	4	4	12	16	21	6	1	2	3	27	29	21	11	165
2.1 - 3.0	5	3	1	3	9	37	115	48	31	10	16	12	23	55	43	14	425
3.1 - 10.0	0	0	0	0	0	0	0	0	1	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	8	6	3	7	13	49	131	69	38	11	18	15	50	84	64	25	591

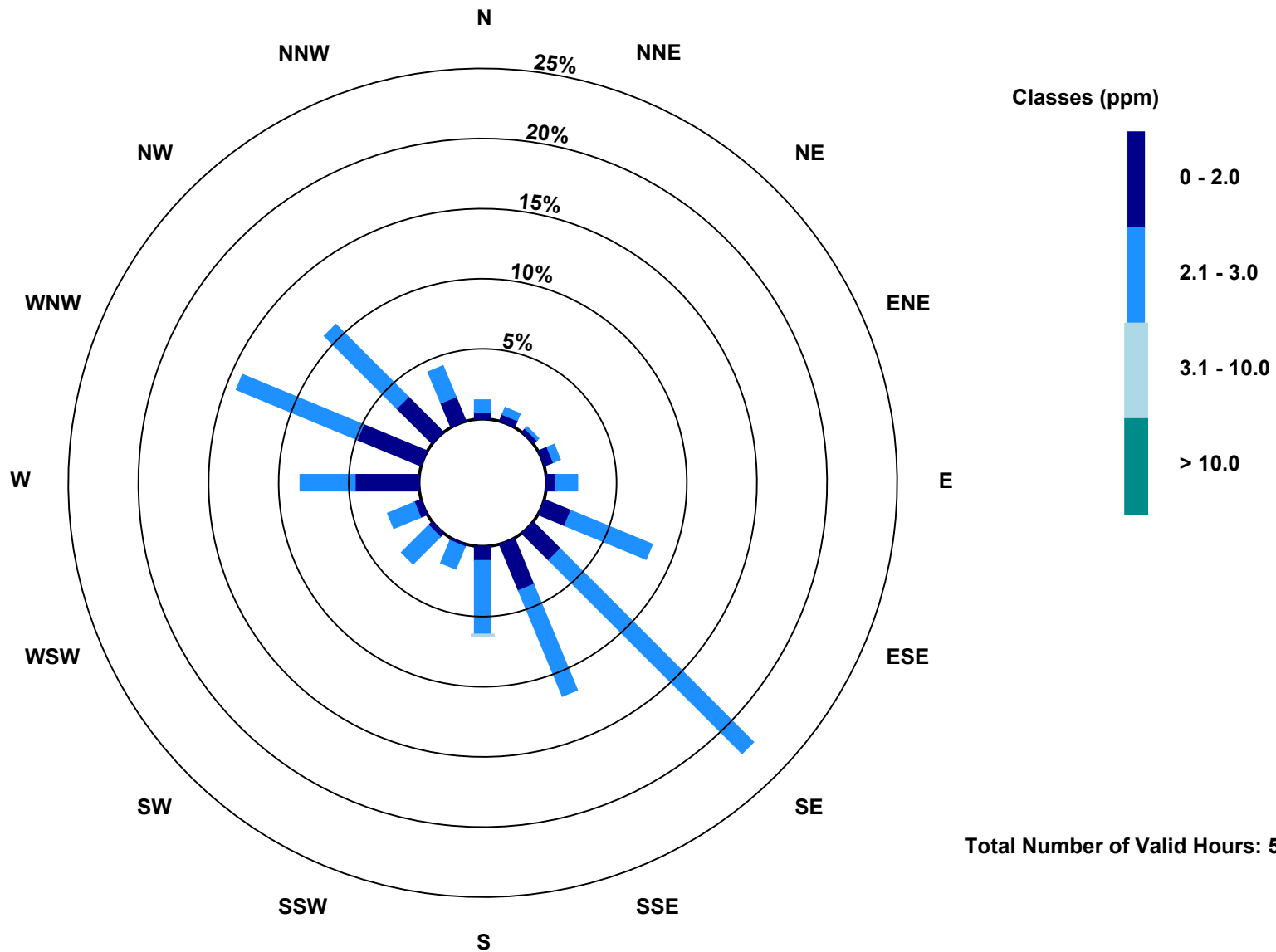
Total Number of Valid Hours: 591

Total Number of Hours: 744

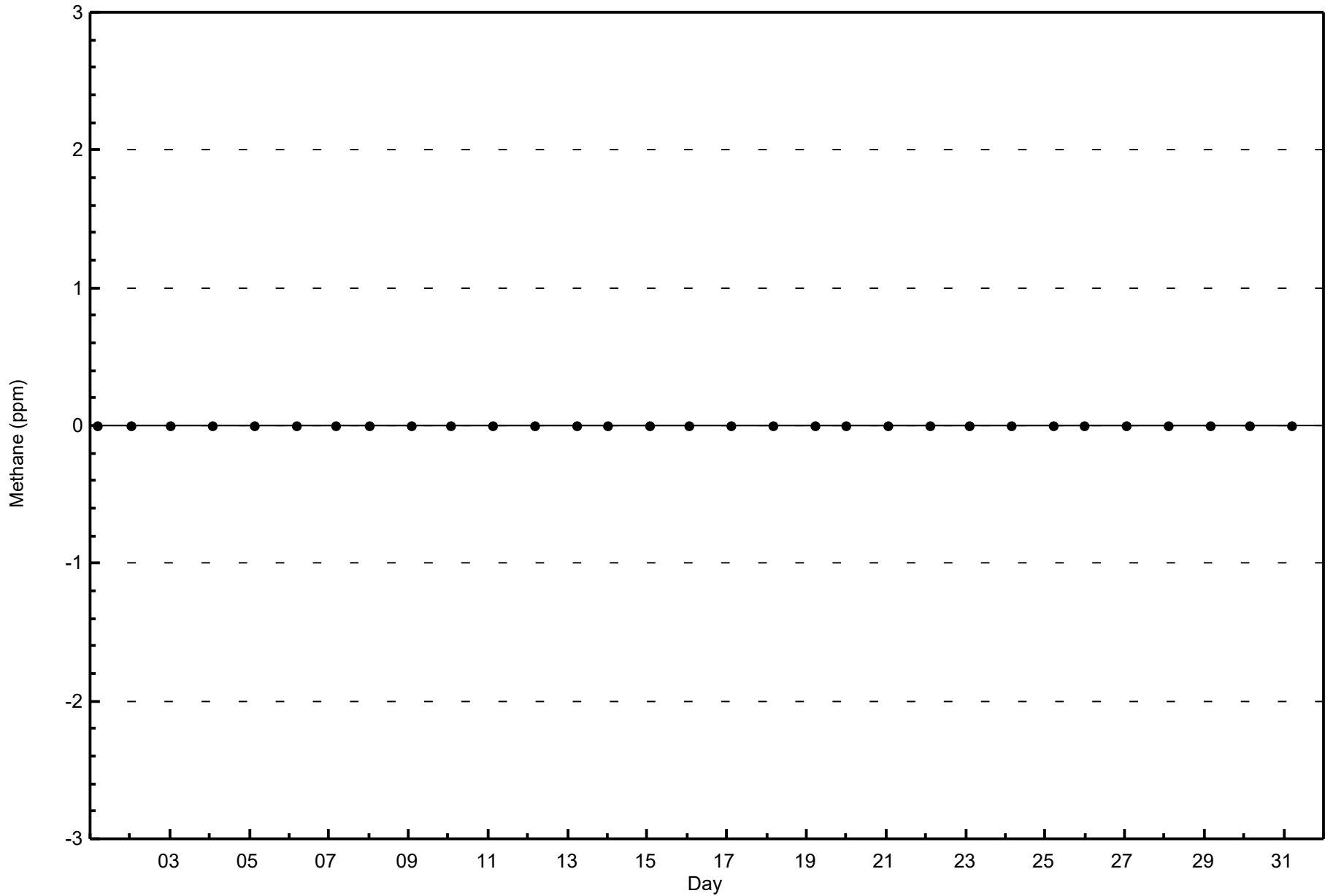


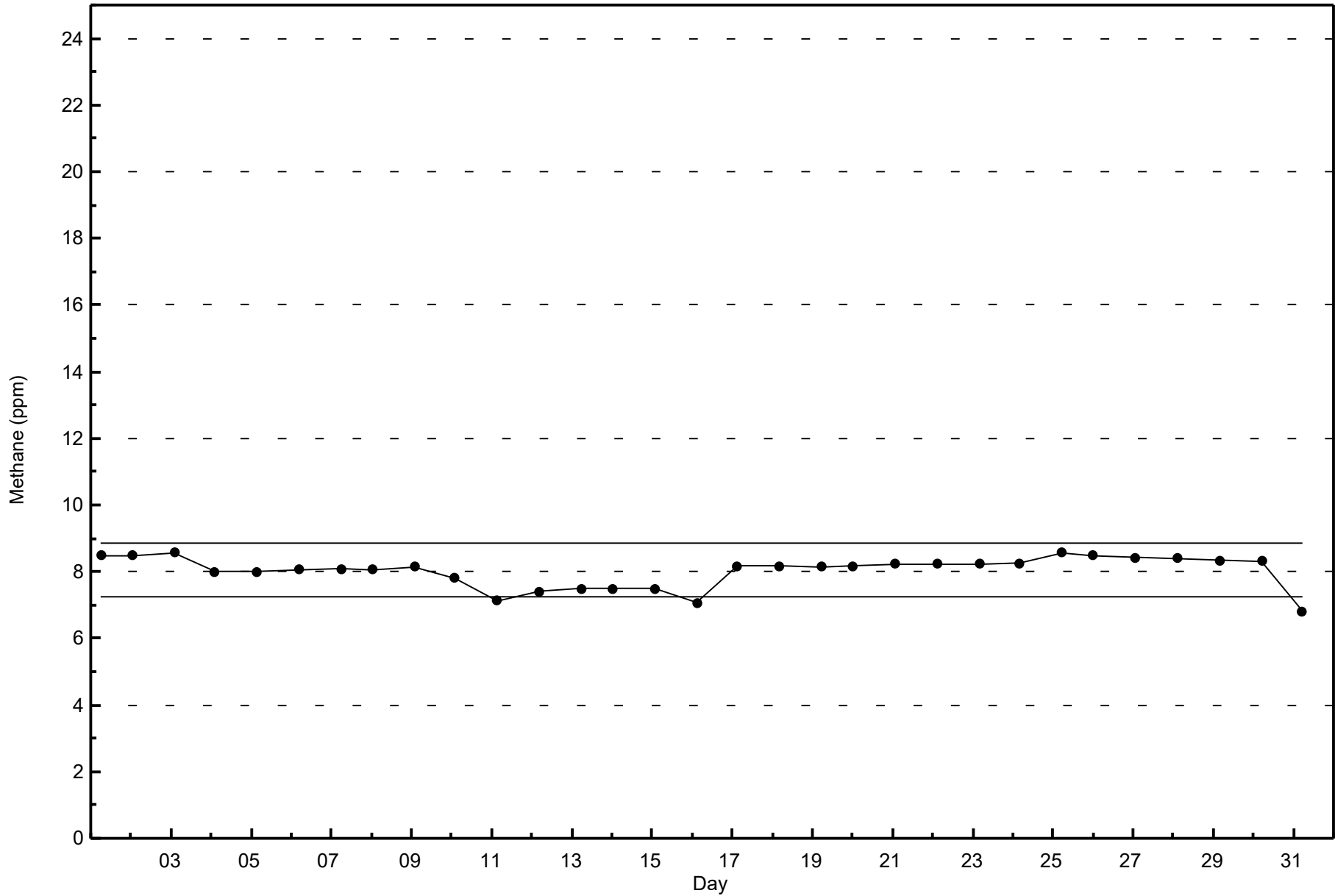
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Anzac



Total Number of Valid Hours: 591







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

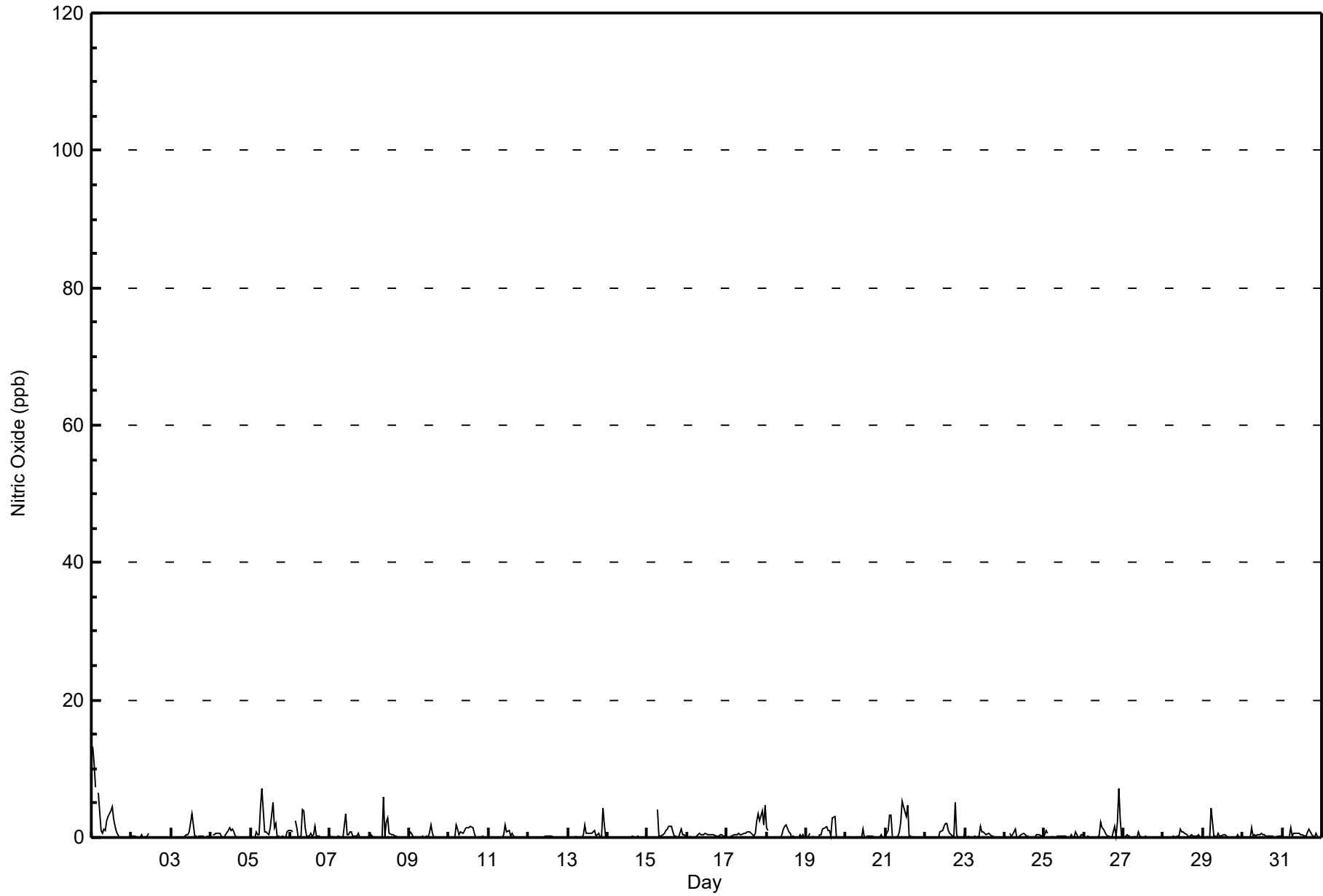
Anzac - December 2024

Maximum Value: 13.3 ppb on Dec 1 01:00																				Maximum Daily Average: 2.7 ppb on Dec 1					Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 2 08:00										Minimum Daily Average: 0.0 ppb on Dec 12										Hours of Data: 708																												
Maximum Diurnal Average: 1.1 ppb at hour 13										Minimum Diurnal Average: 0.2 ppb at hour 20										Hours of Missing Data: 36																												
Monthly Average: 0.54 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 = 5.3										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-Dec	13.3	10.7	7.4	Z	6.5	1.1	0.6	1.3	1.1	2.3	3.0	3.9	4.6	2.6	1.6	0.8	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	2.7	13.3																						
2-Dec	0.1	0.1	0.1	0.1	Z	0.0	0.3	0.0	0.0	0.2	0.5	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																						
3-Dec	0.0	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.1	0.3	0.4	0.8	3.5	1.8	0.2	0.2	0.0	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.4	3.5																						
4-Dec	Z	0.5	0.5	0.6	0.6	0.7	0.2	0.0	0.0	0.5	1.1	1.4	1.1	1.3	0.9	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.4																						
5-Dec	0.0	Z	0.0	0.8	0.5	0.4	4.2	7.1	0.8	0.8	0.5	0.5	1.4	5.1	1.3	2.0	0.1	0.2	0.0	0.1	0.0	0.1	0.8	1.1	1.2	7.1																						
6-Dec	1.0	0.7	Z	2.3	1.4	0.1	0.1	4.1	3.8	1.4	0.1	0.2	0.5	0.2	0.3	1.6	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.8	4.1																						
7-Dec	0.1	0.1	0.1	Z	0.1	0.2	0.1	0.0	0.0	3.6	0.4	0.5	0.9	0.8	0.2	0.3	0.2	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.4	3.6																						
8-Dec	0.0	0.5	0.1	0.1	Z	0.1	0.1	0.0	5.8	0.2	2.2	2.8	0.7	0.4	0.4	0.3	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.6	5.8																						
9-Dec	0.8	0.6	0.2	0.0	0.1	Z	0.1	0.0	0.3	0.1	0.1	0.1	0.8	1.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	1.9																						
10-Dec	Z	0.1	0.1	0.0	1.9	1.2	0.5	0.8	0.7	1.0	1.5	1.3	1.5	1.7	1.5	0.6	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.6	1.9																						
11-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.8	0.8	1.0	0.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8																						
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
13-Dec	0.0	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.5	1.8	0.7	0.5	0.6	0.5	0.7	1.0	0.2	0.6	0.0	0.3	4.2	1.9	0.1	0.6	4.2																						
14-Dec	0.0	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
15-Dec	0.0	0.0	0.0	0.0	0.0	Z	4.2	0.1	0.1	0.5	0.6	1.0	1.2	1.6	1.6	0.8	0.2	0.3	0.1	0.1	1.1	0.3	0.5	0.2	0.6	4.2																						
16-Dec	Z	0.1	0.1	0.1	0.0	0.1	0.3	0.7	0.4	0.5	0.4	0.6	0.4	0.3	0.4	0.3	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.7																						
17-Dec	0.2	Z	0.2	0.2	0.4	0.4	0.4	0.7	0.5	0.4	0.6	0.7	0.8	0.7	0.8	0.5	0.3	0.6	2.4	3.5	2.4	3.9	1.8	4.8	1.2	4.8																						
18-Dec	1.5	1.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2	1.7	1.9	0.8	0.6	0.1	0.1	0.0	0.0	0.0	0.4	0.0	0.5	0.0	0.5	1.9																						
19-Dec	0.0	0.1	0.6	Z	0.1	0.0	0.0	0.0	0.4	0.4	1.1	1.5	1.5	0.9	1.1	0.2	2.8	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	3.1																						
20-Dec	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.1	0.1	1.2																						
21-Dec	0.2	0.9	3.2	3.2	0.1	Z	0.0	0.2	0.8	2.3	5.4	4.4	3.1	4.6	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	1.3	5.4																						
22-Dec	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.7	1.0	1.6	2.0	2.0	1.1	0.6	0.2	0.1	5.0	0.3	0.0	0.0	0.0	0.0	0.7	5.0																						
23-Dec	1.0	Z	0.3	0.0	0.0	0.0	0.2	0.1	0.2	1.6	0.9	0.7	0.6	0.4	0.7	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.3	1.6																						
24-Dec	0.1	0.1	Z	0.5	0.2	0.4	1.3	0.1	0.0	0.1	0.3	0.6	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.4	0.2	0.2	0.3	1.3																						
25-Dec	0.4	1.1	0.6	Z	0.2	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.4	0.0	0.0	0.8	0.0	0.0	0.4	0.4	0.3	1.1																						
26-Dec	0.3	0.0	0.2	0.0	Z	0.0	0.0	0.0	0.0	0.3	2.2	1.5	1.2	0.5	0.2	0.2	0.0	0.0	1.7	0.1	2.3	7.2	2.7	0.0	0.9	7.2																						
27-Dec	0.0	0.2	0.5	0.1	0.3	Z	0.1	0.0	0.0	0.8	0.2	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8																						
28-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	1.1	0.8	0.8	0.6	0.3	0.1	0.1	0.3	0.2	0.3	0.1	0.3	0.1	0.1	0.3	1.1																						
29-Dec	0.7	Z	0.3	0.1	0.1	4.3	0.2	0.2	0.1	0.6	0.2	0.2	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.4	4.3																						
30-Dec	0.0	0.0	Z	0.0	0.0	1.5	0.2	0.4	0.3	0.3	0.4	0.6	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.5																						
31-Dec	0.1	0.1	0.1	Z	0.2	1.4	0.2	0.6	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.8	1.3	0.8	0.5	0.1	0.6	0.1	0.0	0.0	0.4	1.4																						
																								0.8	0.7	0.6	0.3	0.5	0.5	0.4	0.5	0.5	0.7	1.0	1.0	1.1	1.0	0.6	0.4	0.3	0.2	0.4	0.2	0.3	0.6	0.3	0.2	Diurnal Average
																								13.3	10.7	7.4	3.2	6.5	4.3	4.2	7.1	5.8	3.6	5.4	4.4	4.6	5.1	1.6	2.0	2.8	3.1	5.0	3.5	2.4	7.2	2.7	4.8	Diurnal Maximum
Z - zerospan C - Calibration																																																



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Anzac - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Anzac - December 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
Anzac - December 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	6	4	8	13	57	152	69	39	12	18	16	49	137	88	31	708
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	9	6	4	8	13	57	152	69	39	12	18	16	49	137	88	31	708

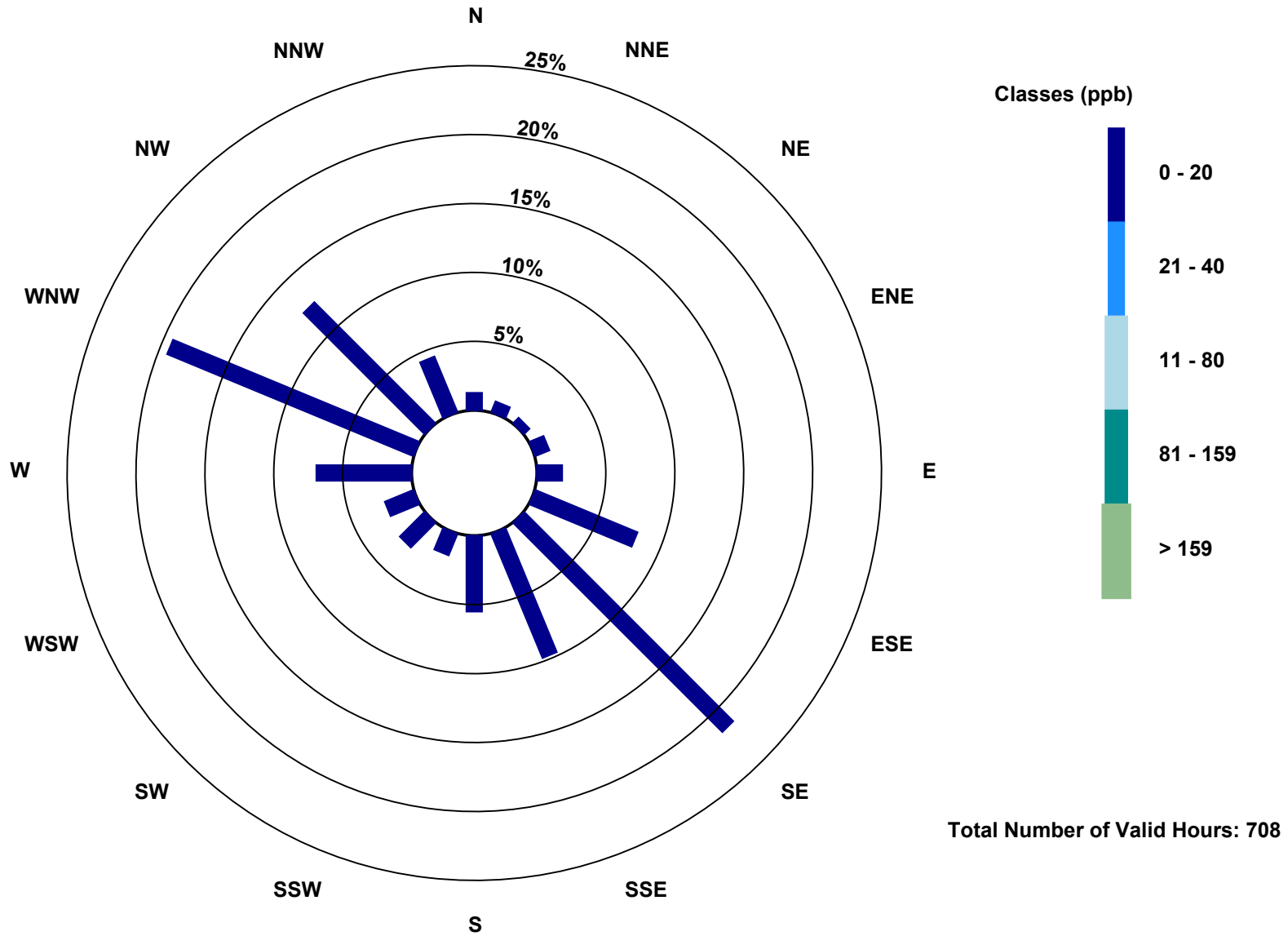
Total Number of Valid Hours: 708

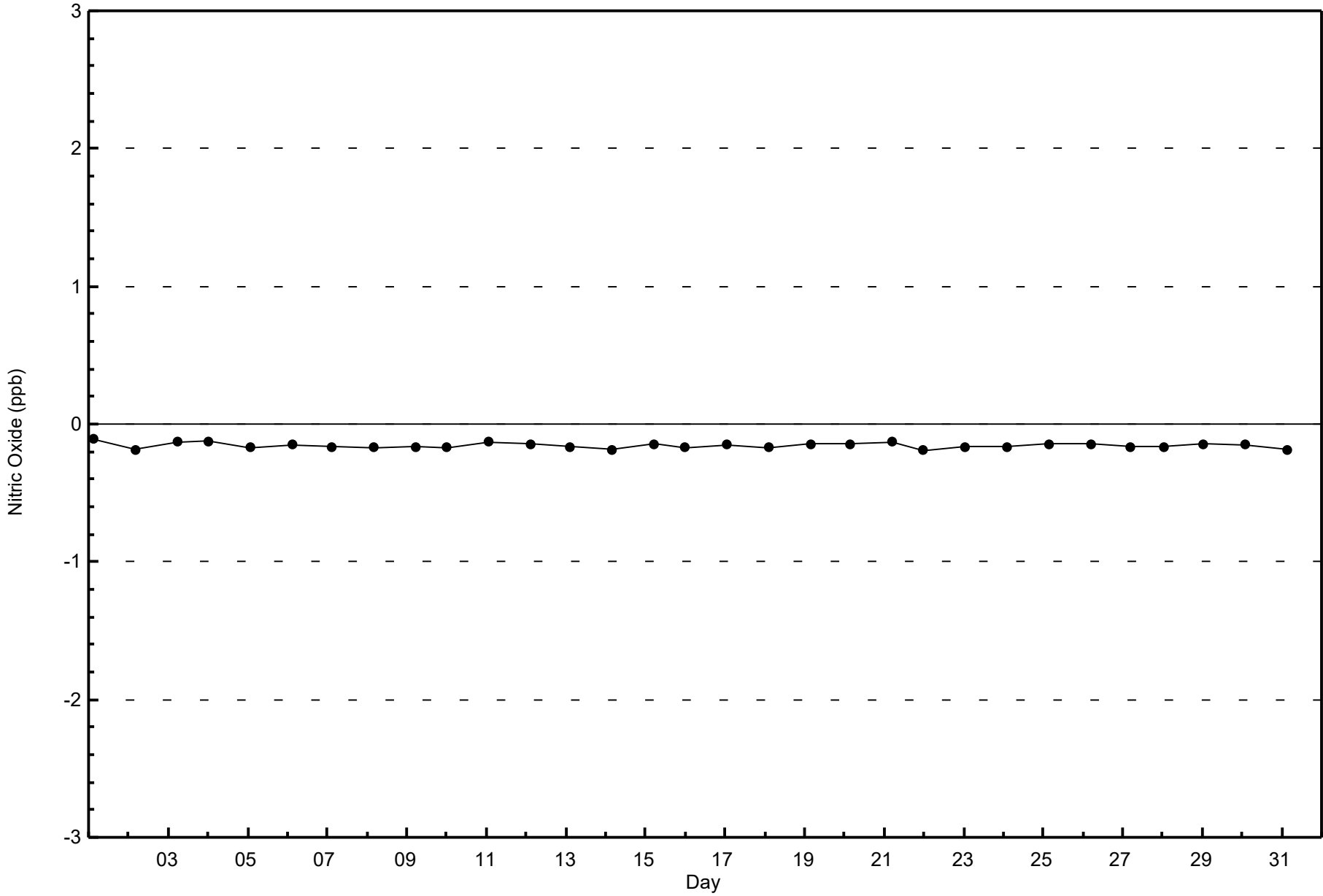
Total Number of Hours: 744

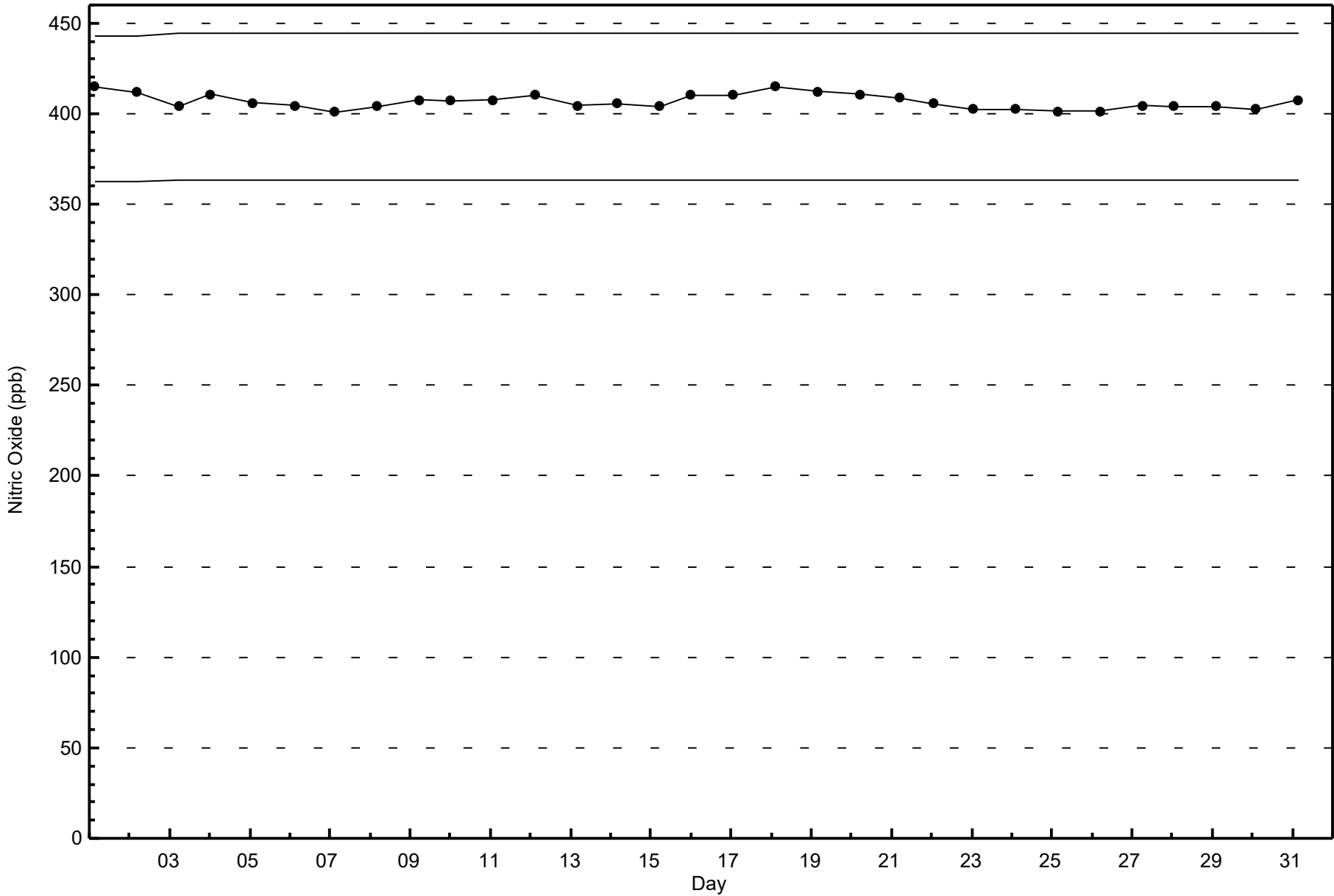


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Anzac









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

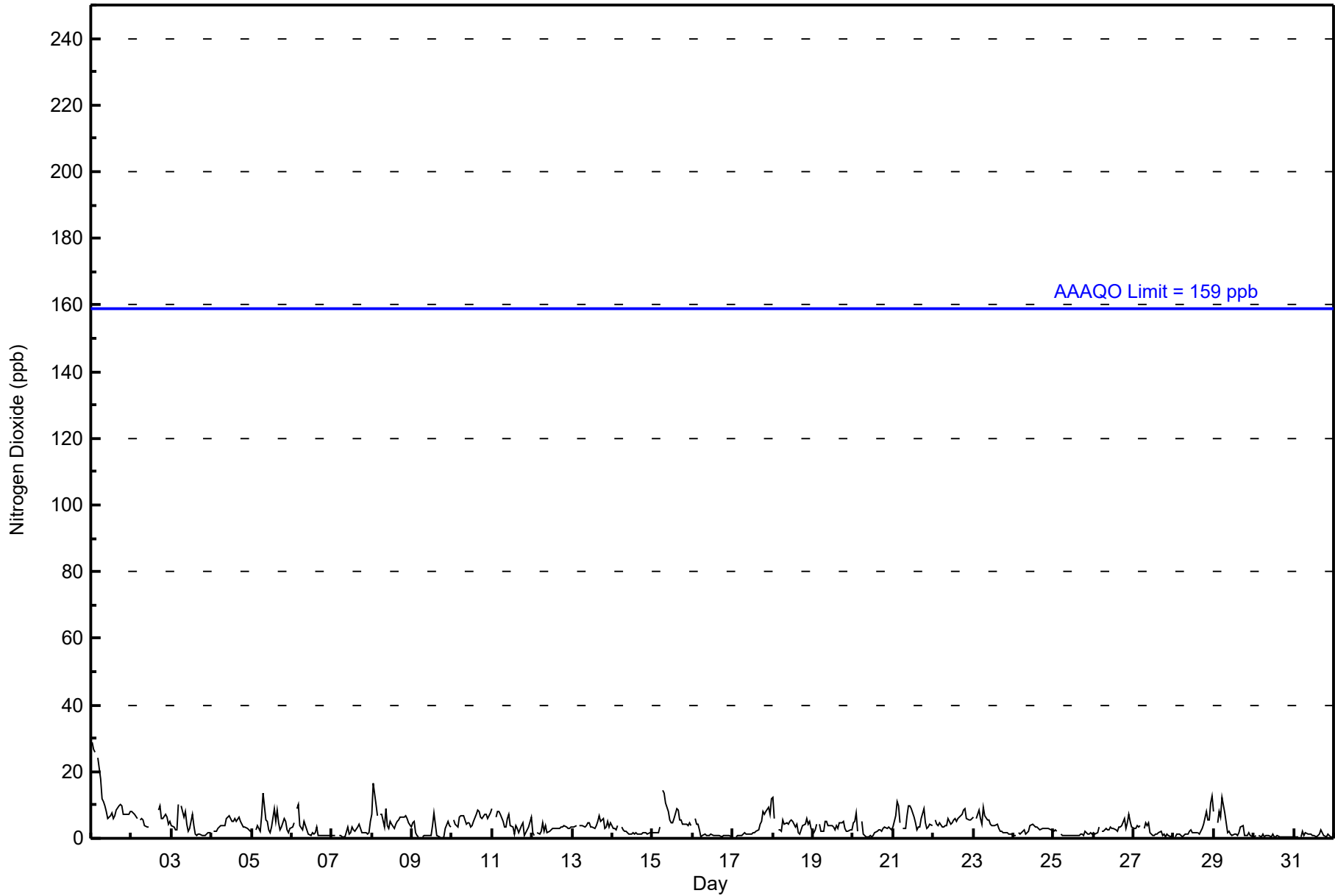
Anzac - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																		
Maximum Value: 28.7 ppb on Dec 1 01:00		Maximum Daily Average: 11.9 ppb on Dec 1				Hours of Data:		708																		
Minimum Value: 0.2 ppb on Dec 9 18:00		Minimum Daily Average: 0.6 ppb on Dec 30				Hours of Missing Data:		36																		
Maximum Diurnal Average: 4.8 ppb at hour 1		Minimum Diurnal Average: 3.0 ppb at hour 12				Hours of Calibration:		36																		
Monthly Average: 3.70 ppb		Percentiles: P ₁ = 0.5 P ₁₀ = 0.8 Q ₁ = 1.4 Median = 3.1 Q ₃ = 5.0 P ₉₀ = 7.2 P ₉₉ = 13.5				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-Dec	28.7	26.9	25.7	Z	24.3	17.8	11.9	11.0	9.8	7.9	6.0	6.7	7.6	6.1	6.9	8.6	9.9	10.2	9.8	7.4	7.1	7.3	7.1	8.0	11.9	28.7
2-Dec	8.1	7.5	7.0	5.9	Z	5.4	6.0	5.5	3.8	3.2	3.5	C	C	C	C	C	8.4	9.7	5.9	6.0	7.1	6.2	4.4	4.9	6.0	9.7
3-Dec	3.8	3.2	2.7	2.5	10.2	Z	9.8	6.2	8.0	4.4	2.1	2.9	7.4	3.7	1.2	0.9	1.1	1.3	1.0	1.0	0.8	1.1	1.5	1.7	3.4	10.2
4-Dec	Z	2.3	2.2	2.1	3.0	3.7	3.8	4.0	3.7	5.8	6.8	6.1	4.9	4.9	5.9	5.2	6.5	5.2	4.3	3.6	3.4	3.1	2.6	2.2	4.1	6.8
5-Dec	2.5	Z	2.7	3.7	2.8	2.1	6.8	13.5	5.5	5.1	2.4	1.5	3.5	9.1	5.0	8.4	4.5	2.7	3.2	5.9	5.1	2.5	1.5	3.1	4.5	13.5
6-Dec	3.4	4.5	Z	8.8	10.0	3.9	2.4	5.0	3.9	2.7	1.1	1.0	1.6	1.1	1.7	3.2	1.0	1.0	0.8	0.8	0.8	0.8	0.7	0.8	2.7	10.0
7-Dec	1.0	0.7	0.7	Z	0.9	0.8	0.5	0.5	0.5	3.4	1.2	1.7	3.4	2.6	2.1	3.4	4.4	2.8	1.6	1.7	1.6	1.2	1.7	5.2	1.9	5.2
8-Dec	7.1	16.6	10.2	6.6	Z	7.0	7.2	3.6	8.8	3.8	2.8	5.2	4.2	3.0	4.2	5.2	5.7	6.2	6.4	6.4	6.9	6.0	4.8	3.6	6.2	16.6
9-Dec	4.6	5.0	1.9	0.7	0.5	Z	0.6	0.7	1.0	0.7	0.8	0.7	4.0	7.8	4.2	1.0	0.3	0.2	0.2	0.5	3.0	4.9	3.7	3.5	2.2	7.8
10-Dec	Z	5.3	4.2	3.3	6.3	6.8	6.8	6.6	4.4	4.6	4.8	3.5	3.9	4.9	7.0	8.5	8.0	6.5	6.0	7.2	7.2	6.0	6.8	7.5	5.9	8.5
11-Dec	8.9	Z	6.2	7.9	8.2	7.2	5.0	3.2	3.3	5.9	7.2	3.8	3.4	1.3	3.9	2.9	1.8	3.9	4.7	1.0	1.8	2.5	3.3	6.3	4.5	8.9
12-Dec	1.5	1.0	Z	1.5	1.2	2.0	4.5	2.1	3.8	1.9	2.2	2.6	3.0	3.0	2.8	3.1	3.1	3.2	3.3	3.7	3.3	2.9	3.1	3.4	2.7	4.5
13-Dec	3.4	3.5	4.0	Z	3.8	3.8	4.0	3.6	3.7	4.5	4.6	3.4	3.2	3.1	3.8	5.2	6.8	5.0	5.8	3.1	3.4	4.9	3.5	4.8	4.1	6.8
14-Dec	3.1	3.1	2.7	4.0	Z	3.3	2.4	2.2	2.0	1.7	1.4	1.3	1.5	1.4	1.5	1.4	1.3	1.3	1.5	1.5	1.5	1.4	1.5	1.8	1.9	4.0
15-Dec	1.7	1.6	1.7	1.7	3.2	Z	14.4	13.4	10.5	8.2	5.3	4.8	4.6	6.1	9.0	8.6	5.6	5.7	4.3	4.1	4.2	4.0	4.6	3.9	5.7	14.4
16-Dec	Z	6.1	4.2	4.1	2.4	0.5	0.7	1.3	0.8	1.0	0.7	1.1	0.8	0.8	0.9	0.7	1.0	0.5	1.0	0.7	0.8	0.7	0.7	0.5	1.4	6.1
17-Dec	0.5	Z	0.6	0.8	0.9	0.9	1.1	1.7	1.3	1.3	1.4	1.3	1.8	1.7	2.3	2.4	4.1	5.0	7.9	7.0	8.1	9.2	7.4	11.8	3.5	11.8
18-Dec	12.2	6.1	Z	2.6	2.6	2.0	5.7	4.1	4.7	4.4	5.2	5.4	5.2	3.5	4.2	1.7	1.3	2.5	4.0	4.4	5.9	4.4	4.9	2.8	4.3	12.2
19-Dec	1.9	2.5	4.3	Z	4.1	2.1	2.2	4.9	5.0	3.7	3.7	3.8	3.3	2.7	3.8	3.1	4.5	4.5	5.2	2.8	2.1	2.3	2.4	2.5	3.4	5.2
20-Dec	4.7	4.9	7.5	2.1	Z	4.9	1.4	0.8	0.6	0.5	1.0	0.6	1.0	1.5	2.0	2.6	2.5	2.3	2.8	3.4	3.0	3.6	2.9	2.6	2.6	7.5
21-Dec	3.5	6.7	11.2	9.7	4.7	Z	3.0	3.0	6.6	9.9	9.6	8.9	6.4	4.5	2.4	3.4	3.6	5.8	8.7	4.6	2.8	3.5	4.1	3.8	5.7	11.2
22-Dec	Z	5.5	4.4	3.7	4.5	3.5	3.3	3.7	3.9	6.0	4.4	4.7	5.3	6.1	5.1	6.0	6.8	7.3	8.4	9.1	6.1	5.3	5.7	6.0	5.4	9.1
23-Dec	6.4	Z	6.1	8.4	5.8	4.3	9.4	6.7	5.4	5.5	4.1	3.7	3.7	3.7	4.2	2.8	2.3	2.2	1.7	1.6	1.6	1.4	1.2	1.1	4.1	9.4
24-Dec	1.0	1.0	Z	1.9	1.2	1.6	2.7	1.1	1.5	2.2	3.8	4.3	3.8	3.4	3.2	3.1	2.7	3.0	2.8	2.9	2.8	2.8	2.5	2.4	2.5	4.3
25-Dec	2.3	2.5	2.0	Z	1.1	1.0	1.0	0.9	0.9	1.0	1.0	0.9	1.0	0.8	0.8	0.8	1.4	1.4	1.0	2.1	1.1	1.2	1.6	1.4	1.3	2.5
26-Dec	1.9	1.2	1.8	3.2	Z	2.2	2.1	3.0	2.7	2.7	3.5	2.9	3.1	2.6	2.1	3.5	3.2	3.9	5.8	2.8	4.5	7.2	5.0	3.3	3.2	7.2
27-Dec	3.0	2.9	3.7	3.4	3.7	Z	2.9	4.7	3.8	4.6	1.5	1.0	1.0	1.3	1.4	1.5	2.3	0.7	1.1	0.6	1.2	0.7	0.6	1.2	2.1	4.7
28-Dec	Z	0.6	1.2	1.2	0.9	0.4	0.7	1.1	1.3	2.0	2.6	1.9	1.9	1.8	1.5	1.3	2.2	2.9	4.2	8.0	5.4	5.6	10.6	12.8	3.1	12.8
29-Dec	8.2	Z	4.8	7.9	6.4	12.3	7.5	4.5	1.8	2.0	1.2	0.8	1.1	1.1	0.9	1.8	3.4	3.9	1.0	0.9	0.8	1.8	0.7	0.5	3.3	12.3
30-Dec	0.5	0.7	Z	0.7	0.5	1.2	0.5	0.8	0.7	0.8	0.6	1.2	0.6	0.6	0.7	0.6	0.6	0.5	0.6	0.4	0.3	0.5	0.5	0.5	0.6	1.2
31-Dec	0.5	0.4	0.5	Z	0.6	2.2	1.0	1.6	1.4	1.2	1.1	0.8	0.8	0.6	0.7	1.1	2.7	1.8	1.0	0.6	1.2	0.9	0.6	0.6	1.0	2.7
4.8 4.7 4.8 3.9 4.4 4.0 4.2 4.0 3.7 3.6 3.1 3.0 3.2 3.2 3.2 3.4 3.6 3.6 3.7 3.4 3.4 3.4 3.3 3.7																								Diurnal Average		
28.7 26.9 25.7 9.7 24.3 17.8 14.4 13.5 10.5 9.9 9.6 8.9 7.6 9.1 9.0 8.6 9.9 10.2 9.8 9.1 8.1 9.2 10.6 12.8																								Diurnal Maximum		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Anzac - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Anzac - December 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
Anzac - December 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	6	4	8	13	57	152	69	39	12	18	16	49	134	87	31	704
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
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	9	6	4	8	13	57	152	69	39	12	18	16	49	137	88	31	708

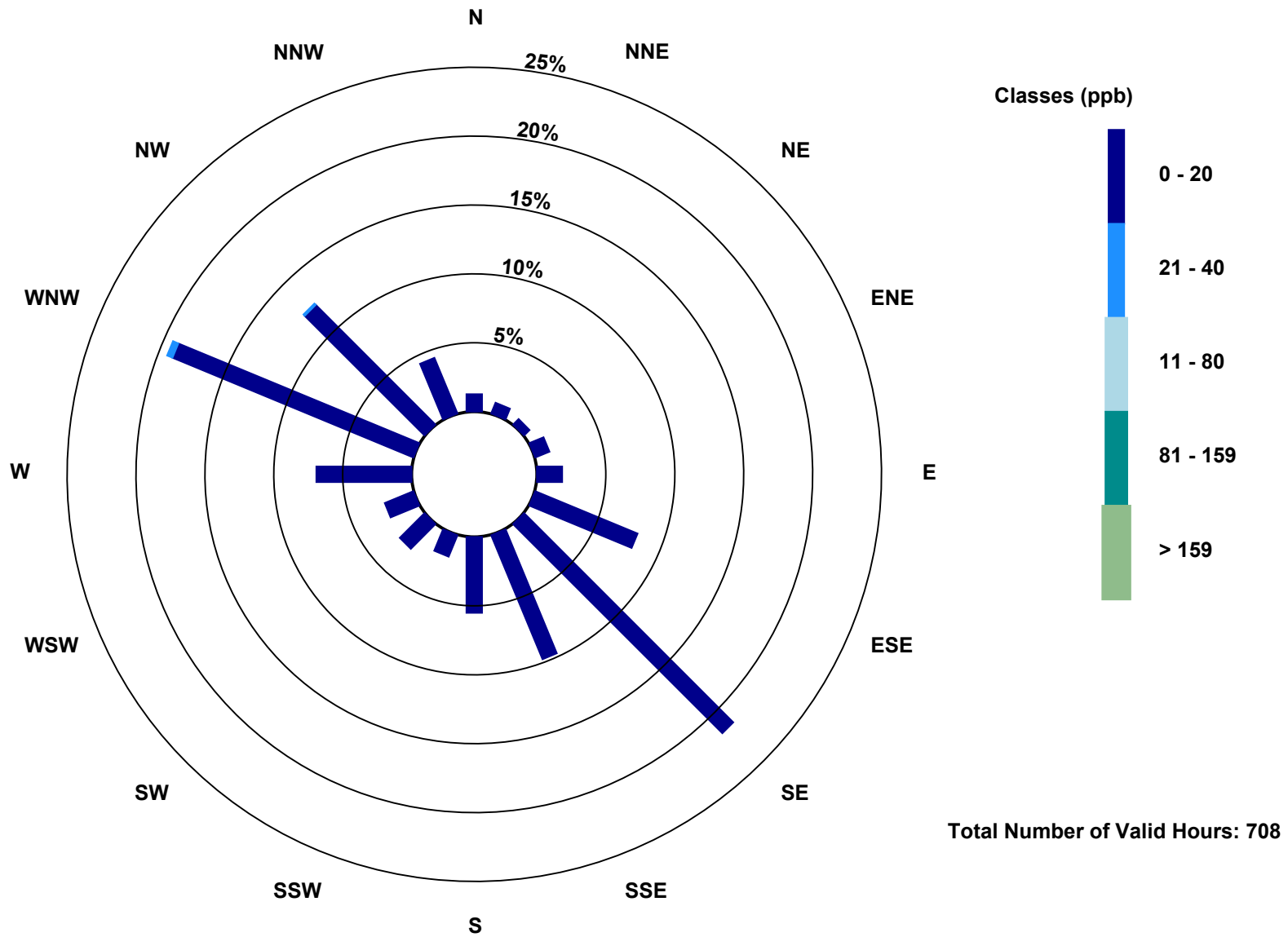
Total Number of Valid Hours: 708

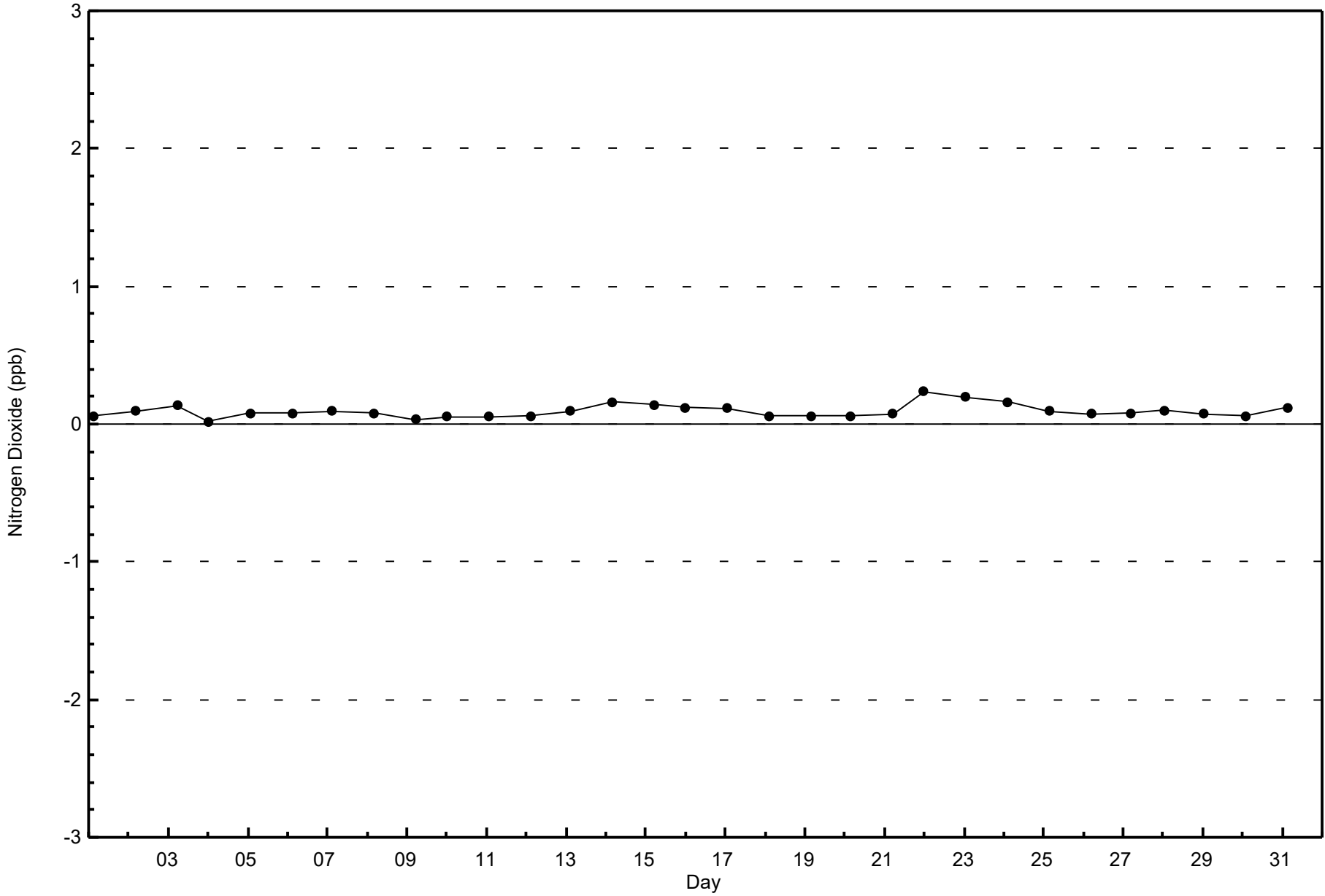
Total Number of Hours: 744

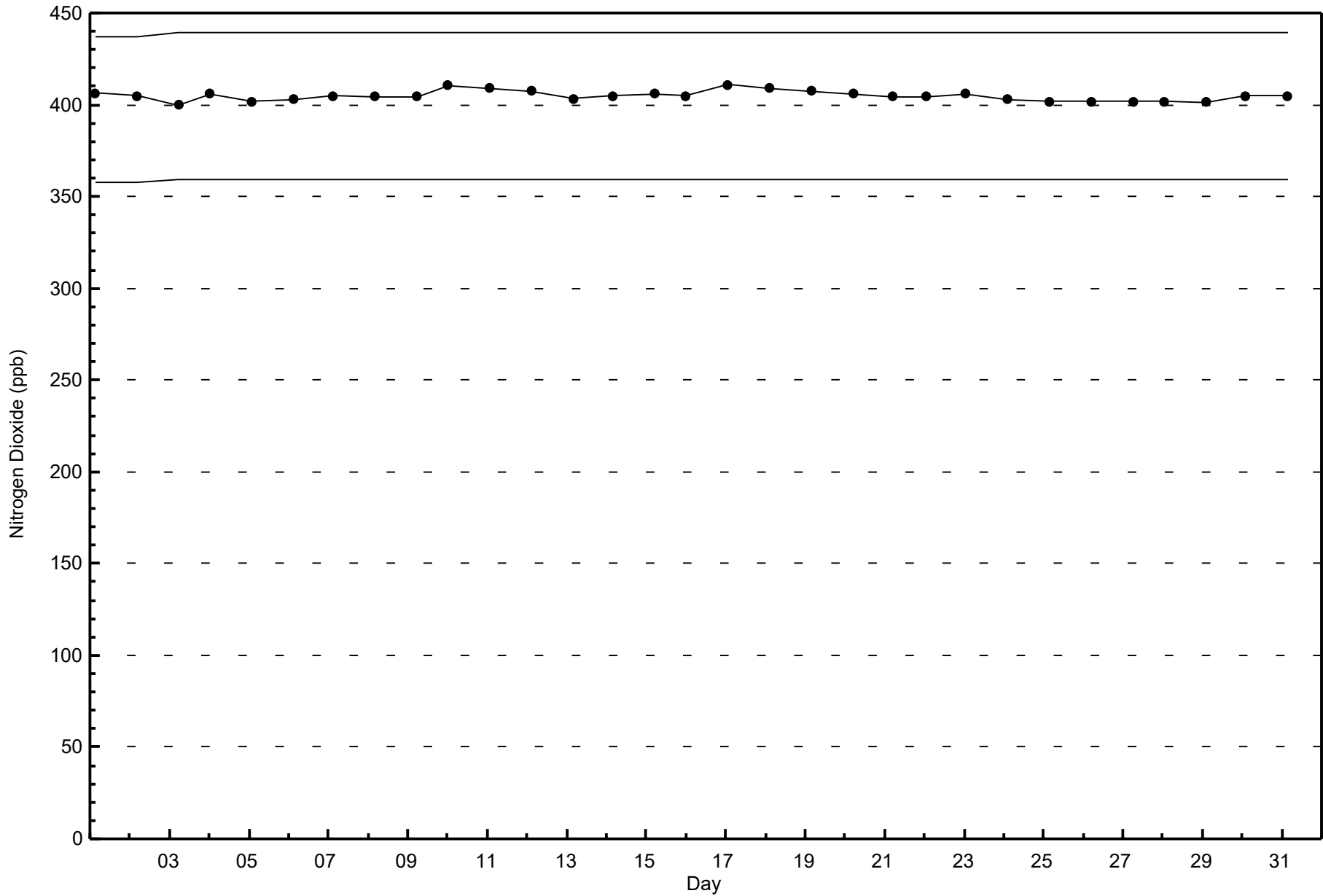


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Anzac









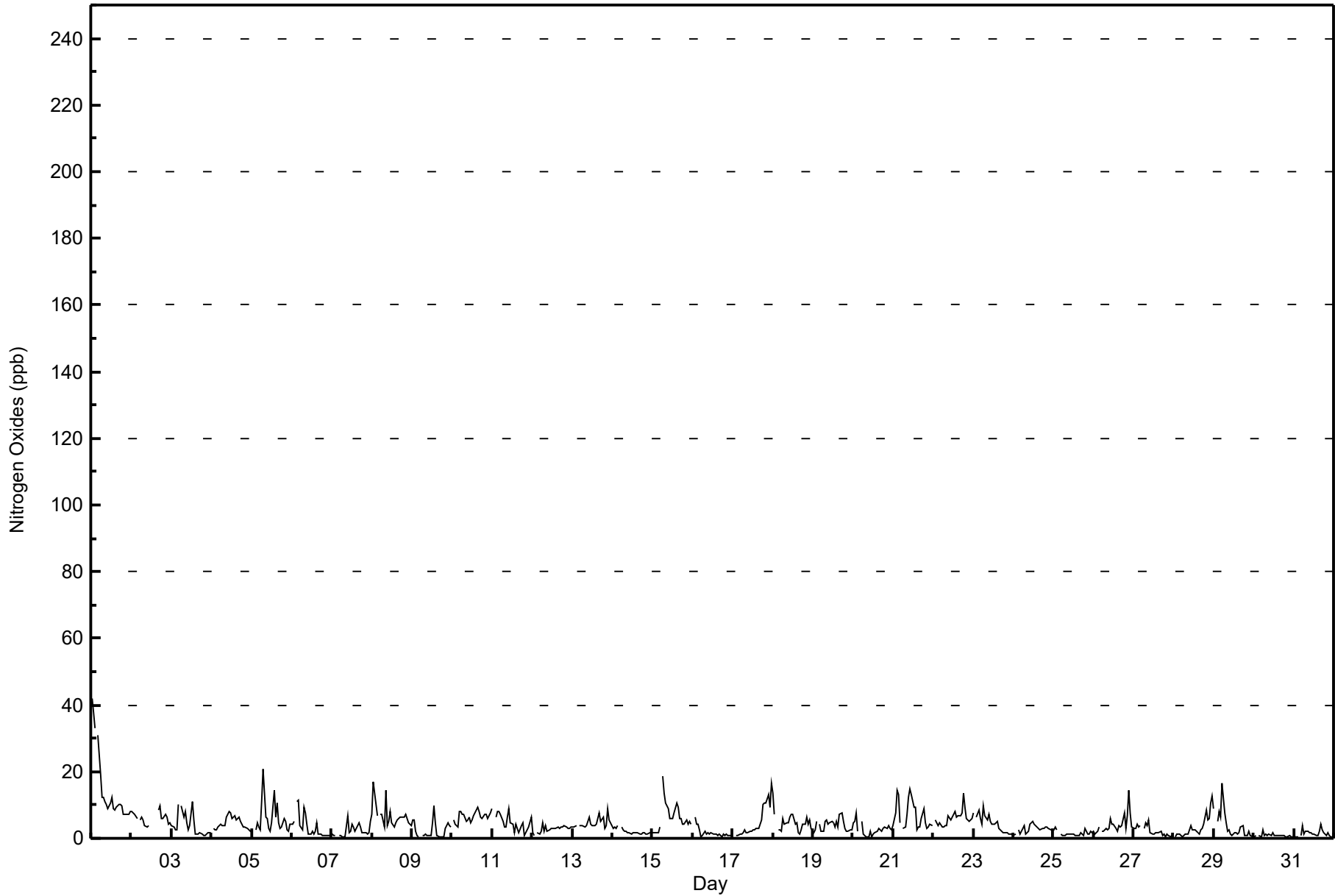
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

Anzac - December 2024

Maximum Value: 42.0 ppb on Dec 1 01:00																				Maximum Daily Average: 14.5 ppb on Dec 1					Hours in Service: 744																								
Minimum Value: 0.2 ppb on Dec 9 19:00																				Minimum Daily Average: 0.9 ppb on Dec 30					Hours of Data: 708																								
Maximum Diurnal Average: 5.5 ppb at hour 1																				Minimum Diurnal Average: 3.6 ppb at hour 23					Hours of Missing Data: 36																								
Monthly Average: 4.24 ppb																				Percentiles: P ₁ = 0.5 P ₁₀ = 1.0 Q ₁ = 1.6 Median = 3.3 Q ₃ = 5.7 P ₉₀ = 8.2 P ₉₉ = 17.1					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-Dec	42.0	37.6	33.1	Z	30.8	18.9	12.5	12.3	10.9	10.2	9.0	10.6	12.2	8.7	8.5	9.4	10.0	10.2	9.9	7.4	7.1	7.3	7.1	8.1	14.5	42.0																							
2-Dec	8.2	7.6	7.1	6.0	Z	5.4	6.3	5.5	3.8	3.4	4.0	C	C	C	C	C	8.4	9.7	5.9	6.0	7.1	6.2	4.4	4.9	6.1	9.7																							
3-Dec	3.8	3.2	2.7	2.5	10.3	Z	9.9	6.2	8.1	4.7	2.5	3.7	10.9	5.5	1.4	1.1	1.1	1.5	1.2	1.1	0.8	1.2	1.6	1.8	3.8	10.9																							
4-Dec	Z	2.8	2.7	2.7	3.6	4.4	4.0	4.0	3.7	6.3	7.9	7.5	6.0	6.2	6.8	5.4	6.6	5.2	4.3	3.6	3.4	3.1	2.6	2.2	4.6	7.9																							
5-Dec	2.5	Z	2.7	4.5	3.3	2.5	11.0	20.6	6.3	5.9	2.9	2.0	4.9	14.2	6.3	10.4	4.6	2.9	3.2	6.0	5.1	2.6	2.3	4.2	5.7	20.6																							
6-Dec	4.4	5.2	Z	11.1	11.4	4.0	2.5	9.1	7.7	4.1	1.2	1.2	2.1	1.3	2.0	4.8	1.2	1.2	0.9	0.9	0.9	0.8	0.7	0.8	3.5	11.4																							
7-Dec	1.1	0.8	0.8	Z	1.0	1.0	0.6	0.5	0.5	7.0	1.6	2.2	4.3	3.4	2.3	3.7	4.6	3.4	1.7	1.8	1.7	1.2	1.7	5.2	2.3	7.0																							
8-Dec	7.1	17.1	10.3	6.7	Z	7.1	7.3	3.6	14.6	4.0	5.0	8.0	4.9	3.4	4.6	5.5	5.9	6.2	6.5	6.4	7.0	6.0	4.8	3.6	6.8	17.1																							
9-Dec	5.4	5.6	2.1	0.7	0.6	Z	0.7	0.7	1.3	0.8	0.9	0.8	4.8	9.7	4.7	1.0	0.3	0.2	0.2	0.5	3.0	4.9	3.8	3.6	2.4	9.7																							
10-Dec	Z	5.4	4.3	3.3	8.2	8.0	7.3	7.4	5.1	5.6	6.3	4.8	5.4	6.6	8.5	9.1	8.1	6.5	6.0	7.2	7.4	6.0	6.8	7.5	6.6	9.1																							
11-Dec	8.9	Z	6.2	7.9	8.2	7.2	5.0	3.2	3.3	6.4	9.0	4.6	4.4	1.5	4.4	3.0	1.8	3.9	4.7	1.0	1.8	2.5	3.3	6.3	4.7	9.0																							
12-Dec	1.5	1.0	Z	1.5	1.2	2.0	4.5	2.1	3.8	1.9	2.3	2.8	3.1	3.2	3.0	3.2	3.1	3.2	3.3	3.7	3.3	2.9	3.1	3.4	2.7	4.5																							
13-Dec	3.4	3.5	4.0	Z	3.9	3.9	4.0	3.6	3.7	5.0	6.4	4.1	3.7	3.7	4.3	5.9	7.8	5.2	6.4	3.1	3.7	9.1	5.4	4.9	4.7	9.1																							
14-Dec	3.1	3.2	2.8	4.0	Z	3.3	2.4	2.2	2.0	1.7	1.5	1.4	1.6	1.5	1.5	1.6	1.3	1.3	1.7	1.5	1.5	1.4	1.5	1.8	2.0	4.0																							
15-Dec	1.7	1.6	1.7	1.7	3.2	Z	18.6	13.5	10.6	8.7	5.9	5.8	5.8	7.7	10.6	9.4	5.8	6.0	4.4	4.2	5.3	4.3	5.1	4.1	6.3	18.6																							
16-Dec	Z	6.2	4.3	4.2	2.4	0.6	1.0	2.0	1.2	1.5	1.1	1.7	1.2	1.1	1.3	1.0	1.3	0.6	1.3	1.0	1.1	1.0	1.0	0.7	1.7	6.2																							
17-Dec	0.7	Z	0.8	1.0	1.3	1.3	1.5	2.4	1.8	1.7	2.0	2.0	2.6	2.4	3.1	2.9	4.4	5.6	10.3	10.5	10.5	13.1	9.2	16.6	4.7	16.6																							
18-Dec	13.7	7.1	Z	2.6	2.6	2.0	5.7	4.1	4.7	4.8	6.4	7.1	7.1	4.3	4.8	1.8	1.4	2.5	4.0	4.4	6.3	4.4	5.4	2.8	4.8	13.7																							
19-Dec	1.9	2.6	4.9	Z	4.2	2.1	2.2	4.9	5.4	4.1	4.8	5.3	4.8	3.6	4.9	3.3	7.3	7.6	5.2	2.8	2.1	2.3	2.4	2.5	4.0	7.6																							
20-Dec	4.7	4.9	7.6	2.1	Z	4.9	1.4	0.8	0.6	0.5	2.2	0.6	1.1	1.6	2.1	2.8	2.7	2.3	2.8	3.4	3.0	4.0	2.9	2.7	2.7	7.6																							
21-Dec	3.7	7.6	14.4	12.9	4.8	Z	3.0	3.2	7.4	12.2	15.0	13.3	9.5	9.1	2.7	3.5	3.6	5.9	8.8	4.6	2.8	3.6	4.2	3.9	7.0	15.0																							
22-Dec	Z	5.6	4.5	3.7	4.6	3.5	3.3	3.7	4.0	6.7	5.4	6.3	7.3	8.1	6.2	6.6	7.0	7.4	13.4	9.4	6.1	5.3	5.7	6.0	6.1	13.4																							
23-Dec	7.4	Z	6.4	8.4	5.8	4.3	9.6	6.8	5.6	7.1	5.0	4.4	4.3	4.1	4.9	3.1	2.5	2.3	1.8	1.7	1.7	1.4	1.3	1.1	4.4	9.6																							
24-Dec	1.1	1.1	Z	2.4	1.4	2.0	4.0	1.2	1.5	2.3	4.1	4.9	4.2	3.7	3.3	3.1	2.7	3.0	2.8	3.2	3.3	3.2	2.7	2.6	2.8	4.9																							
25-Dec	2.7	3.6	2.6	Z	1.3	1.0	1.0	0.9	1.1	1.2	1.2	1.1	1.2	1.0	0.9	0.9	1.8	1.4	1.0	2.9	1.1	1.2	2.0	1.8	1.5	3.6																							
26-Dec	2.2	1.2	2.0	3.2	Z	2.2	2.1	3.0	2.7	3.0	5.7	4.4	4.3	3.1	2.3	3.7	3.2	3.9	7.5	2.9	6.8	14.4	7.7	3.3	4.1	14.4																							
27-Dec	3.0	3.1	4.2	3.5	4.0	Z	3.0	4.7	3.8	5.4	1.7	1.1	1.1	1.6	1.5	1.5	2.3	0.7	1.1	0.6	1.2	0.7	0.6	1.2	2.2	5.4																							
28-Dec	Z	0.6	1.2	1.2	0.9	0.4	0.9	1.1	1.4	2.3	3.7	2.7	2.7	2.4	1.8	1.4	2.3	3.2	4.4	8.3	5.5	5.9	10.7	12.9	3.4	12.9																							
29-Dec	8.9	Z	5.1	8.0	6.5	16.6	7.7	4.7	1.9	2.6	1.4	1.0	1.6	1.5	1.1	1.9	3.4	3.9	1.0	0.9	0.9	2.3	0.7	0.5	3.7	16.6																							
30-Dec	0.5	0.7	Z	0.7	0.5	2.7	0.7	1.2	1.0	1.1	1.0	1.8	0.9	0.9	1.0	0.7	0.7	0.6	0.7	0.5	0.4	0.7	0.6	0.6	0.9	2.7																							
31-Dec	0.6	0.5	0.6	Z	0.8	3.6	1.2	2.2	2.0	1.8	1.6	1.2	1.2	0.9	1.0	1.9	4.0	2.6	1.5	0.7	1.8	1.0	0.6	0.6	1.5	4.0																							
																								5.5	5.4	5.3	4.3	4.9	4.4	4.7	4.6	4.2	4.3	4.2	3.9	4.3	4.2	3.7	3.8	3.9	3.9	4.1	3.6	3.7	4.0	3.6	3.9	Diurnal Average	
																								42.0	37.6	33.1	12.9	30.8	18.9	18.6	20.6	14.6	12.2	15.0	13.3	12.2	14.2	10.6	10.4	10.0	10.2	13.4	10.5	10.5	14.4	10.7	16.6	Diurnal Maximum	
Z - zerospan																								C - Calibration																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Anzac - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	703	99.29	99.29
21 - 40	4	0.56	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
Anzac - December 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	6	4	8	13	57	152	68	39	12	18	16	49	134	87	31	703
21 - 40	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	4
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	9	6	4	8	13	57	152	69	39	12	18	16	49	137	88	31	708

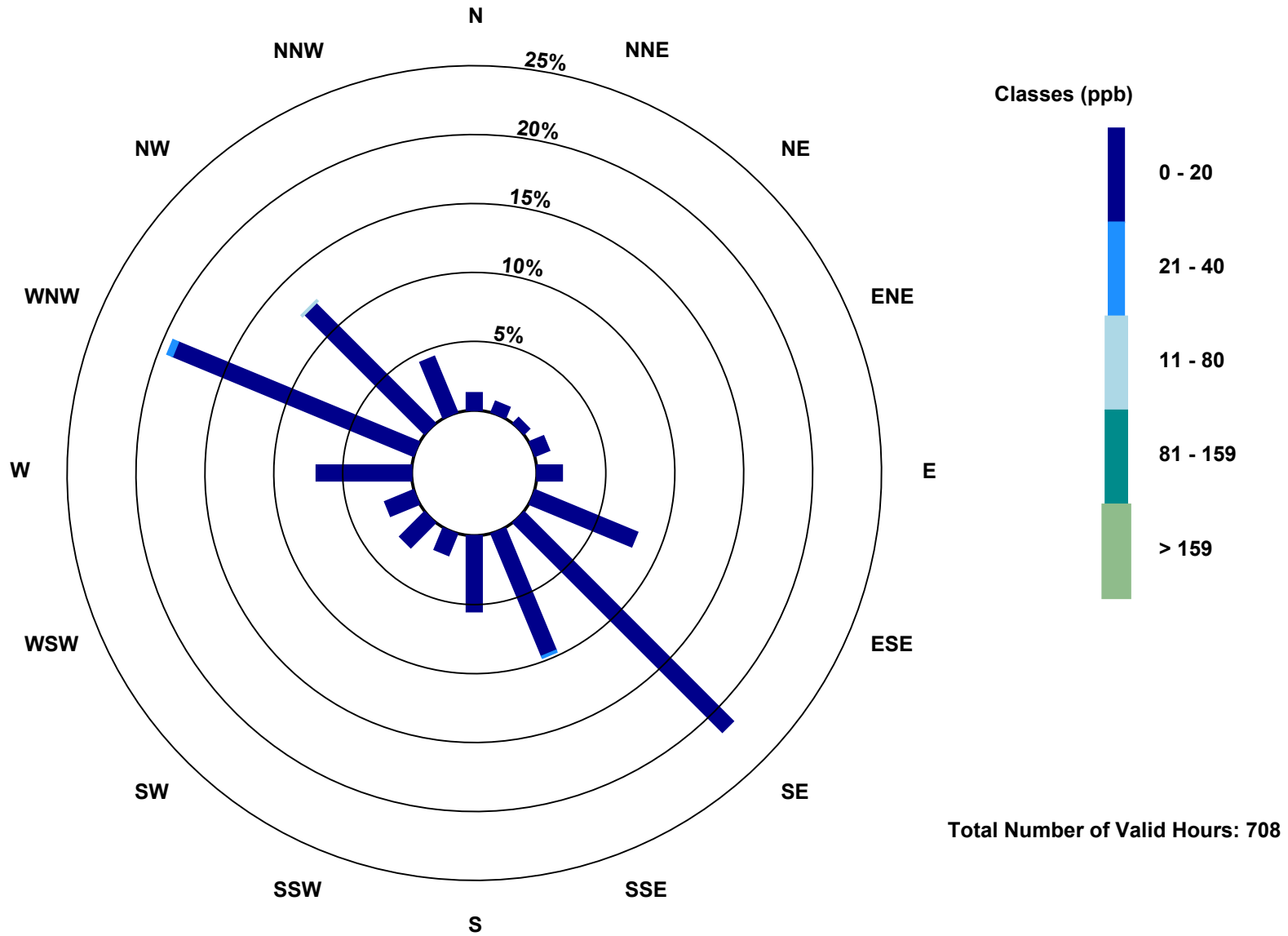
Total Number of Valid Hours: 708

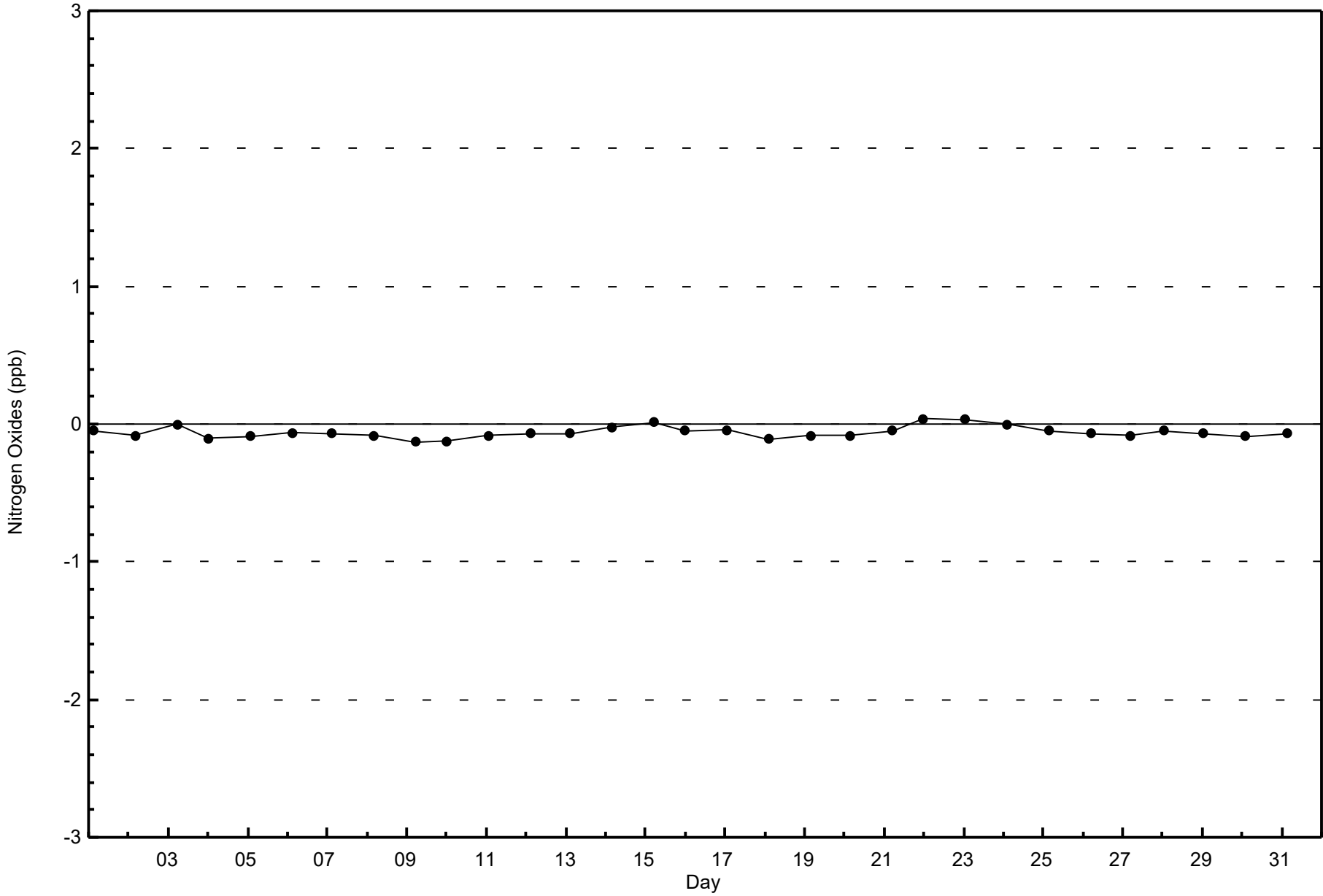
Total Number of Hours: 744

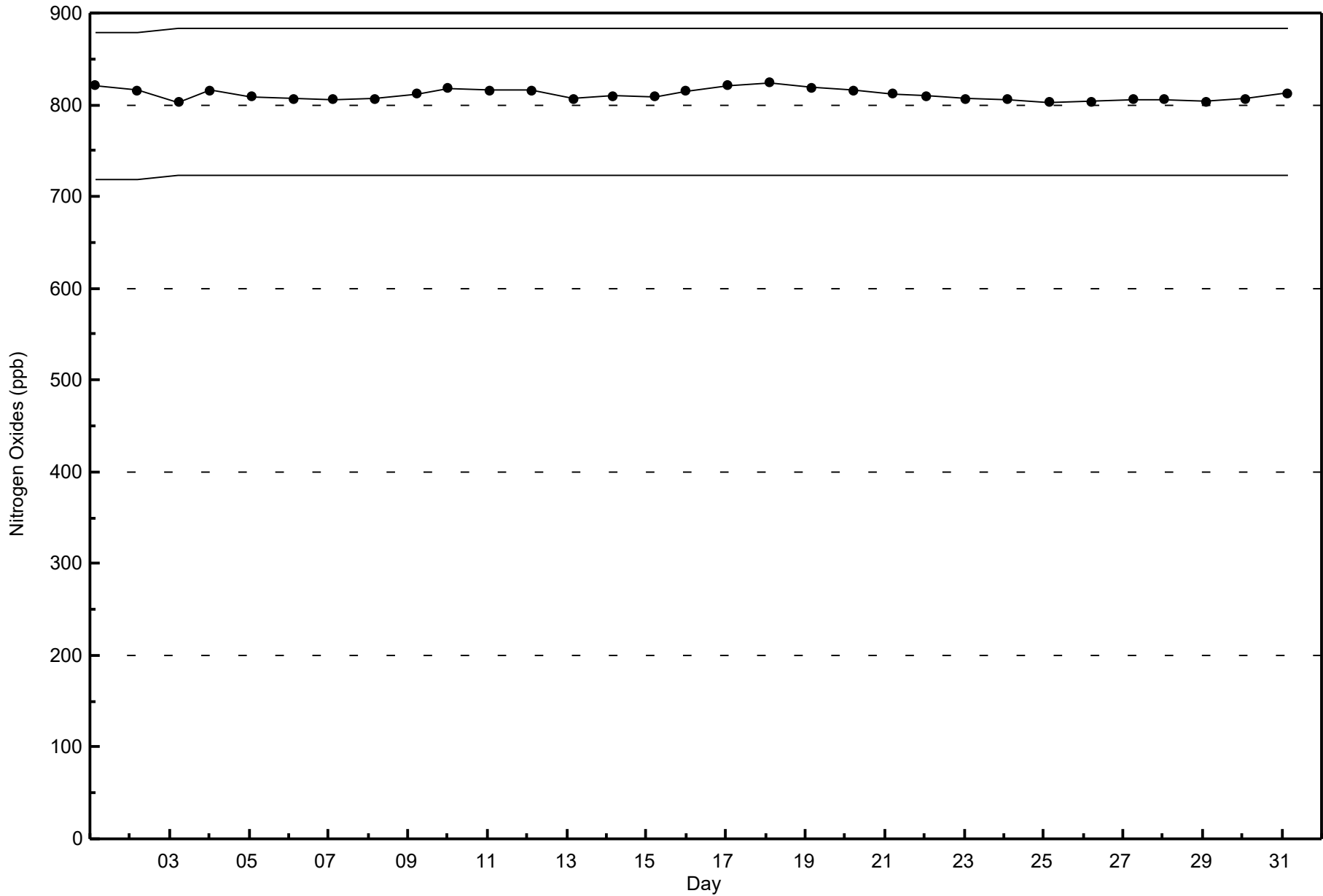


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Anzac









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

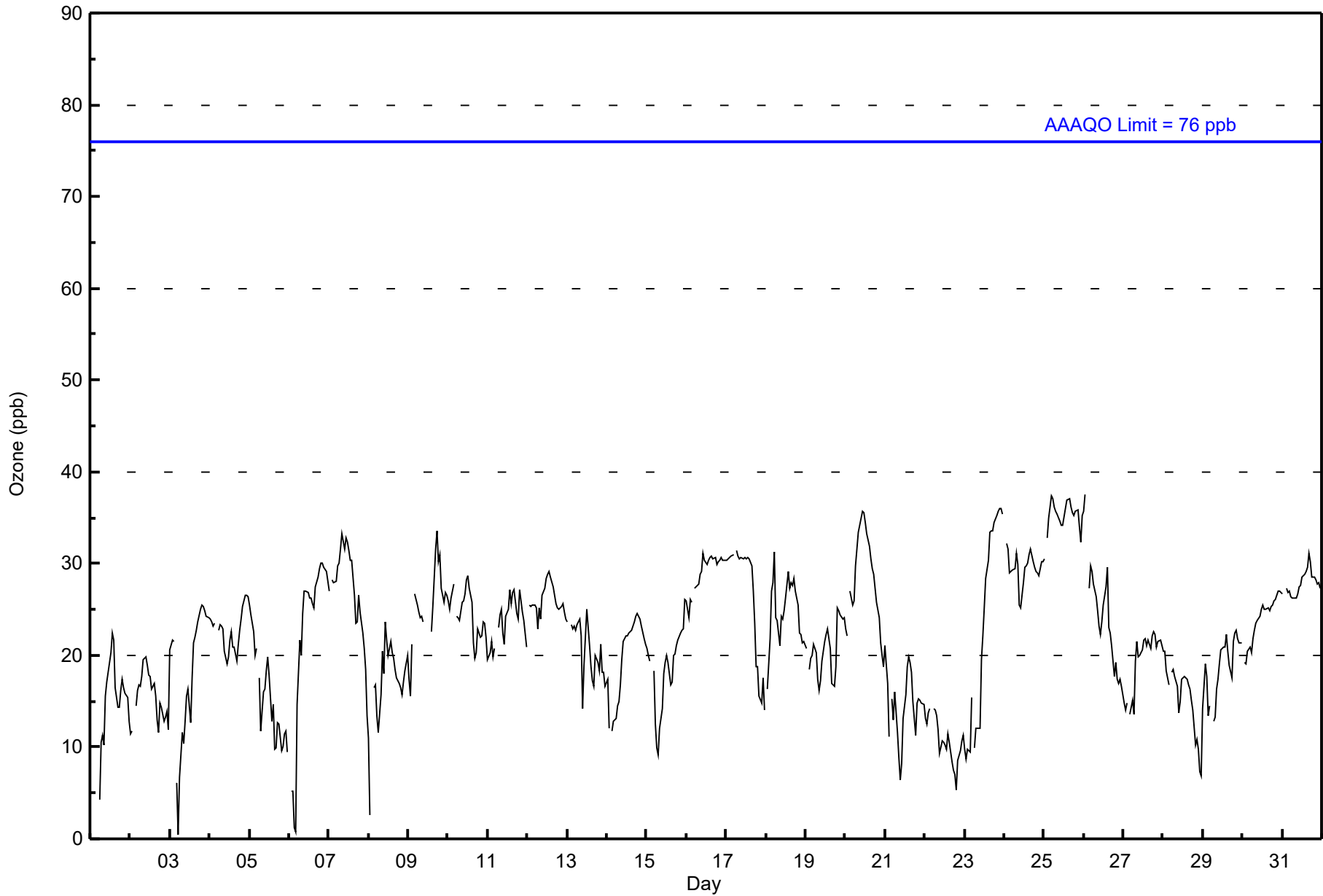
Anzac - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum				
Maximum Value: 37.5 ppb on Dec 26 02:00		Maximum Daily Average: 35.1 ppb on Dec 25		Hours of Data: 705																	Hours of Missing Data: 39		Hours of Calibration: 35				
Minimum Value: 0.5 ppb on Dec 3 06:00		Minimum Daily Average: 10.8 ppb on Dec 22		Hours of Calibration: 35																	Percent Operational Time: 99.5						
Maximum Diurnal Average: 24.2 ppb at hour 14		Minimum Diurnal Average: 19.3 ppb at hour 2		Percentiles: P ₁ = 5.4 P ₁₀ = 12.6 Q ₁ = 17.3 Median = 22.4 Q ₃ = 27.0 P ₉₀ = 30.6 P ₉₉ = 36.0																							
Monthly Average: 22.08 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-Dec	UO	Z	UO	UO	UO	4.2	10.5	11.3	10.2	15.5	17.2	19.2	20.2	22.5	21.7	16.5	14.3	14.4	16.1	17.4	16.5	15.9	15.4	12.8	15.4	22.5	
2-Dec	11.5	11.7	Z	14.4	16.2	16.7	16.6	17.7	19.5	19.9	18.9	17.8	17.7	16.4	17.0	15.6	12.9	11.5	14.8	14.3	12.8	13.3	14.0	11.9	15.4	19.9	
3-Dec	20.6	21.7	21.4	Z	6.1	0.5	6.8	11.6	10.4	12.8	15.6	16.4	12.6	17.6	21.3	21.9	22.8	23.7	25.0	25.5	25.4	24.9	24.3	24.1	18.0	25.5	
4-Dec	24.0	23.7	23.1	Z	22.8	23.3	23.1	22.9	20.5	19.1	19.9	21.7	22.6	20.9	20.9	19.3	21.2	22.7	24.0	25.4	26.5	26.5	26.4	22.8	26.5	26.4	
5-Dec	25.5	24.5	22.6	20.1	20.8	Z	17.5	11.7	16.0	16.3	18.3	19.9	17.9	12.9	14.7	9.8	10.0	12.6	12.6	9.6	10.1	11.4	11.8	9.4	15.5	25.5	
6-Dec	Z	5.2	5.3	1.3	0.8	14.6	21.7	20.0	24.6	27.0	27.1	26.8	26.2	26.3	25.7	25.2	27.5	28.5	29.4	30.0	30.1	29.6	29.1	28.1	22.2	30.1	
7-Dec	27.1	Z	28.2	27.9	28.0	29.8	30.1	31.6	33.3	31.6	32.9	32.4	31.4	30.4	30.3	26.6	23.5	23.7	26.5	24.7	22.5	20.7	18.5	13.4	27.2	33.3	
8-Dec	11.0	2.6	Z	16.5	16.8	13.4	11.7	15.8	20.4	18.0	23.6	21.6	20.0	21.5	20.2	19.7	18.5	17.5	16.9	16.4	15.7	17.1	18.4	19.9	17.1	23.6	
9-Dec	17.5	15.5	21.2	Z	26.7	25.5	24.7	24.1	24.2	23.6	C	C	C	C	22.6	25.4	31.5	33.5	30.3	30.9	27.3	25.8	26.8	26.6	25.5	33.5	
10-Dec	25.9	25.0	26.3	27.8	Z	24.3	24.1	23.8	25.7	26.0	26.7	28.2	28.7	27.3	25.8	21.4	19.7	20.4	22.9	22.0	22.1	23.6	23.4	22.0	24.5	28.7	
11-Dec	19.5	20.3	21.5	19.9	20.8	Z	23.1	24.5	25.0	22.5	21.1	24.3	25.0	27.2	25.6	26.8	27.1	24.6	23.9	27.2	25.9	24.8	23.8	20.8	23.7	27.2	
12-Dec	Z	25.5	25.2	25.4	25.5	25.2	22.9	25.2	24.0	26.6	27.3	28.3	28.8	29.1	28.5	27.5	26.5	25.6	25.1	25.0	25.4	25.6	24.7	23.9	26.0	29.1	
13-Dec	23.7	Z	23.4	22.9	23.2	22.7	23.3	24.0	22.2	14.2	18.9	22.0	25.1	21.1	18.7	17.2	16.6	20.0	19.2	18.3	21.2	18.2	18.1	16.6	20.5	25.1	
14-Dec	17.4	12.0	Z	11.8	12.8	13.2	14.4	15.0	16.7	19.5	21.5	22.2	22.4	22.4	22.5	22.8	23.6	24.3	24.6	24.3	23.9	23.2	21.9	21.2	19.7	24.6	
15-Dec	20.8	20.0	19.3	Z	18.2	12.5	9.9	9.2	12.1	14.2	18.0	19.2	20.0	19.2	16.7	17.1	20.0	20.2	21.1	21.7	22.4	22.7	22.9	26.1	18.4	26.1	
16-Dec	25.9	24.1	26.1	25.7	Z	27.3	27.5	27.7	28.8	29.1	31.1	30.3	30.0	30.4	30.7	30.8	30.5	30.6	29.9	30.2	30.4	30.6	30.4	30.3	29.1	31.1	
17-Dec	30.4	30.4	30.7	30.8	30.9	Z	31.5	30.8	30.5	30.7	30.5	30.6	30.5	30.7	30.4	29.8	27.0	23.5	18.8	18.8	15.6	14.7	17.6	14.0	26.5	31.5	
18-Dec	Z	16.4	21.8	27.0	27.9	31.2	24.2	23.8	21.1	24.2	24.0	24.9	26.2	29.2	27.4	28.0	27.6	28.3	27.1	25.5	22.4	22.2	21.4	21.6	24.9	31.2	
19-Dec	20.7	Z	18.5	19.6	20.0	21.3	20.3	17.4	16.2	17.2	19.3	21.5	22.3	22.9	21.8	20.7	16.9	16.6	18.8	25.1	24.9	24.5	23.9	24.1	20.6	25.1	
20-Dec	22.9	22.1	Z	26.9	25.5	25.9	29.8	31.6	33.4	35.0	35.6	35.5	34.4	33.3	31.8	30.5	29.4	28.9	27.3	25.8	24.0	21.3	19.9	18.8	28.3	35.6	
21-Dec	21.0	16.9	11.1	Z	15.3	13.0	16.0	11.6	8.9	6.5	8.3	13.0	15.7	18.8	19.9	19.2	18.2	15.0	11.2	14.8	15.2	15.0	14.7	14.6	14.5	21.0	
22-Dec	13.1	12.6	13.7	14.2	Z	14.2	14.1	13.4	11.9	9.3	10.6	10.6	10.2	9.7	11.4	10.4	8.4	7.4	7.0	5.4	8.6	9.6	10.6	11.2	10.8	14.2	
23-Dec	9.8	8.7	9.8	9.5	15.3	Z	10.0	12.1	12.1	12.1	19.5	22.1	25.2	28.4	30.4	33.4	33.5	33.6	34.4	35.2	35.8	35.9	36.0	35.4	23.4	36.0	
24-Dec	Z	32.2	31.6	29.1	29.2	29.3	29.4	31.1	29.9	25.5	25.2	27.9	29.6	29.8	30.1	30.9	31.6	30.2	29.5	29.1	29.0	28.6	30.2	30.2	29.5	32.2	
25-Dec	30.6	Z	32.8	35.0	37.3	37.1	36.1	35.8	35.4	34.7	34.2	34.2	35.0	36.0	36.9	37.1	36.2	35.5	35.3	35.8	35.9	34.0	32.3	35.3	35.1	37.3	
26-Dec	35.7	37.5	Z	27.3	29.8	29.1	27.8	26.4	24.9	23.1	22.3	23.6	25.5	27.5	29.5	23.0	22.4	21.1	17.8	19.2	17.4	16.9	17.3	16.7	24.4	37.5	
27-Dec	14.8	14.1	14.9	Z	13.6	15.1	13.6	19.3	21.5	19.8	20.0	20.6	21.7	21.9	21.1	21.7	20.7	22.1	22.5	22.3	20.9	21.5	21.7	21.0	19.4	22.5	
28-Dec	20.5	20.5	18.4	16.8	Z	18.2	18.4	17.8	16.6	13.8	14.9	17.3	17.6	17.6	17.4	16.8	16.3	15.1	14.0	10.2	10.9	9.8	7.3	6.8	15.3	20.5	
29-Dec	14.2	19.0	17.7	13.5	14.4	Z	12.9	13.2	16.4	17.4	19.1	20.6	20.9	20.9	22.2	20.5	18.9	17.5	21.5	22.4	22.8	21.8	21.3	21.3	18.7	22.8	
30-Dec	Z	19.2	19.0	20.5	20.9	20.4	21.7	22.7	23.5	23.8	24.3	25.0	25.4	25.0	25.0	25.1	24.8	25.3	25.5	25.9	26.1	27.0	27.0	26.8	23.9	27.0	
31-Dec	26.7	Z	27.3	26.8	27.0	26.4	26.3	26.2	26.3	26.6	27.4	27.6	28.5	28.9	29.1	29.5	31.1	30.2	28.6	28.5	28.2	27.8	27.8	27.4	27.8	31.1	
		21.2	19.3	21.2	21.4	20.9	20.5	20.6	21.0	21.4	21.2	22.4	23.5	23.9	24.2	24.1	23.3	22.8	22.7	22.6	22.8	22.4	22.1	21.9	21.3	Diurnal Average	
		35.7	37.5	32.8	35.0	37.3	37.1	36.1	35.8	35.4	35.0	35.6	35.5	35.0	36.0	36.9	37.1	36.2	35.5	35.3	35.8	35.9	35.9	36.0	35.4	Diurnal Maximum	
Z - zerospan		C - Calibration				UO - Unstable Operation																					
Alberta Ambient Air Quality Objectives (AAAQO):		1-hr		76 ppb																							



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Anzac - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Anzac - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	272	38.58	38.58
21 - 50	433	61.42	100.00
51 - 82	0	0.00	100.00
> 83	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Ozone (O₃) - ppb
Anzac - December 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	6	3	6	8	24	75	30	11	6	3	3	7	33	32	23	272
21 - 50	6	0	0	3	5	32	83	39	26	7	17	12	42	103	51	7	433
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	8	6	3	9	13	56	158	69	37	13	20	15	49	136	83	30	705

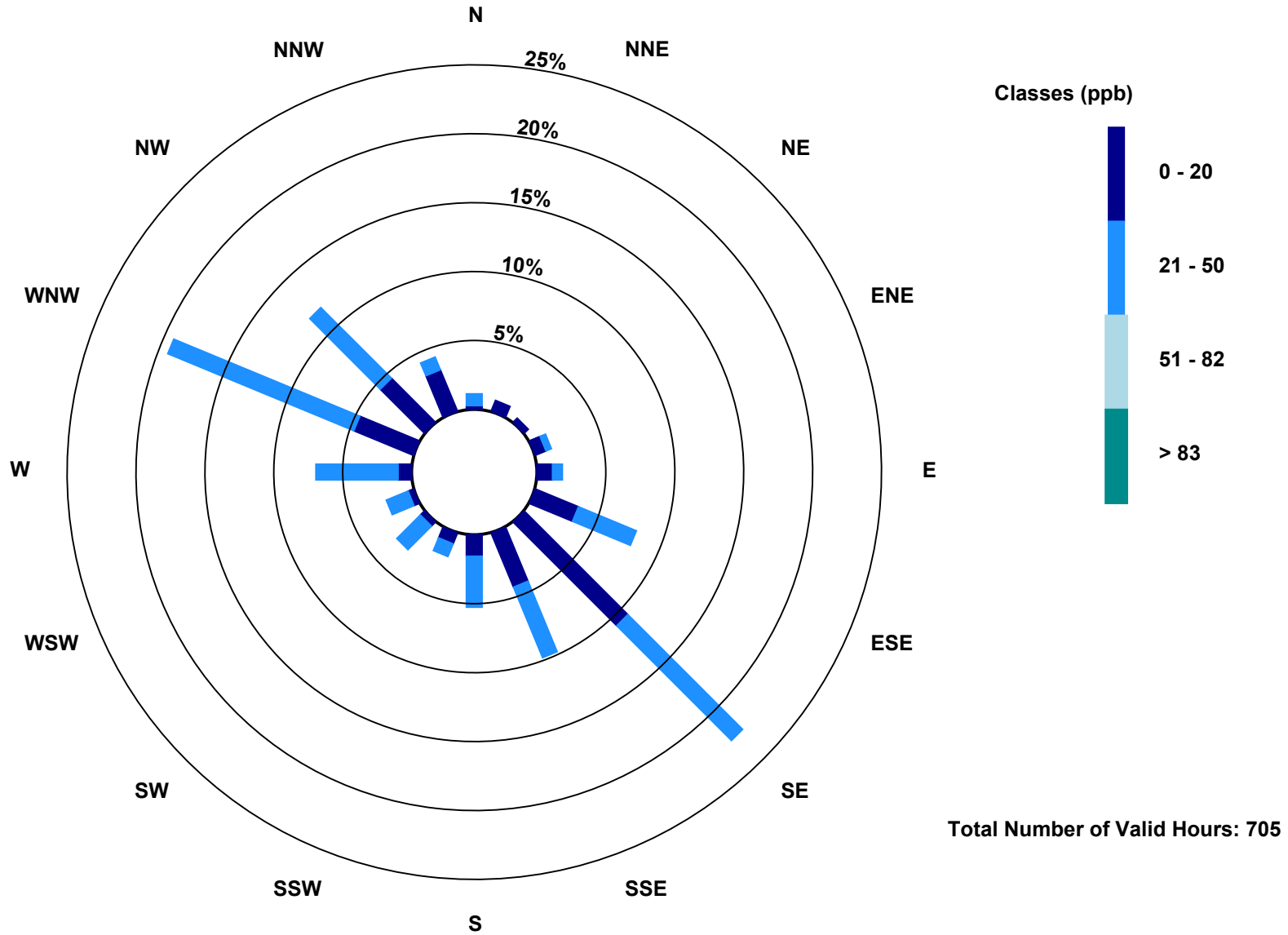
Total Number of Valid Hours: 705

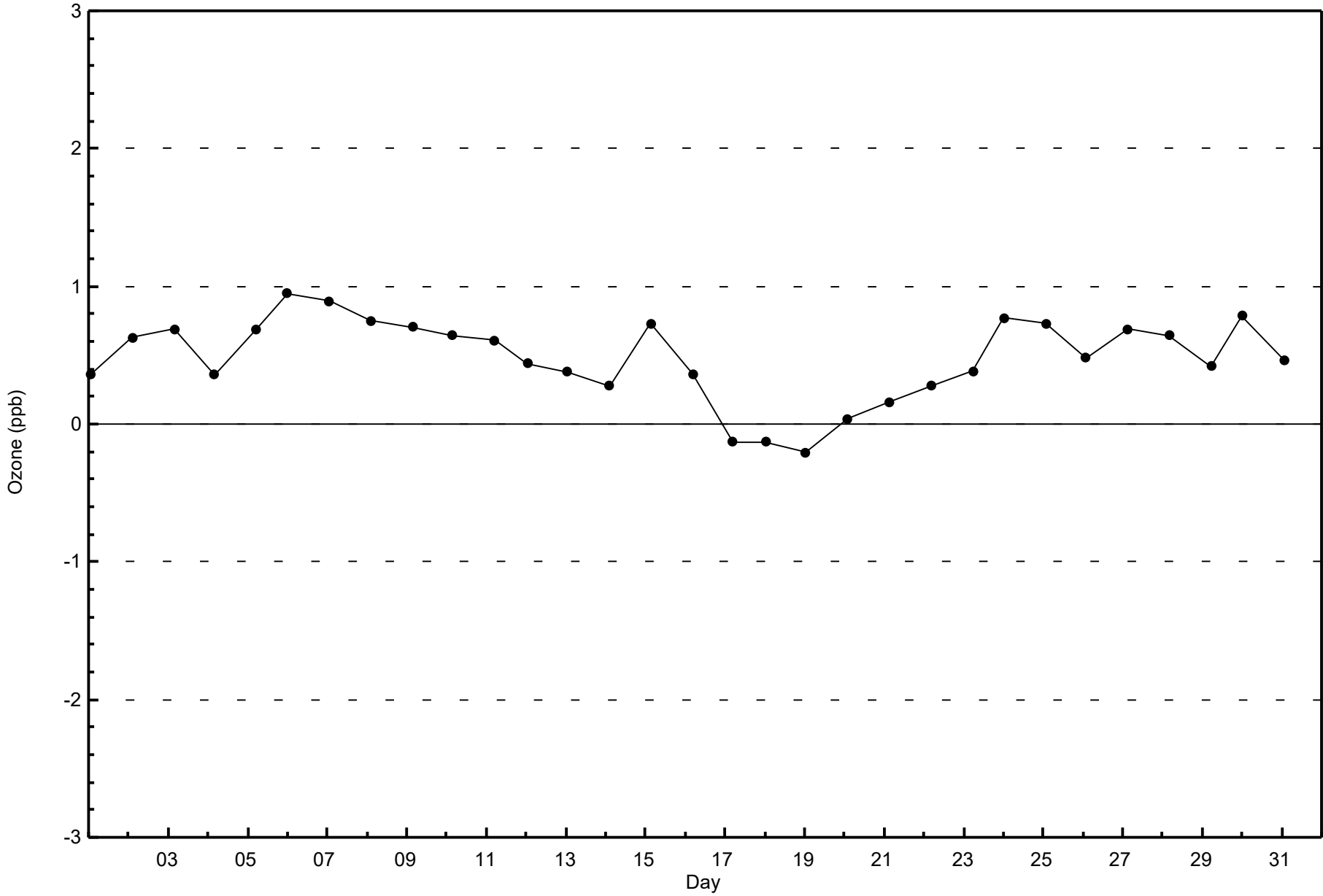
Total Number of Hours: 744

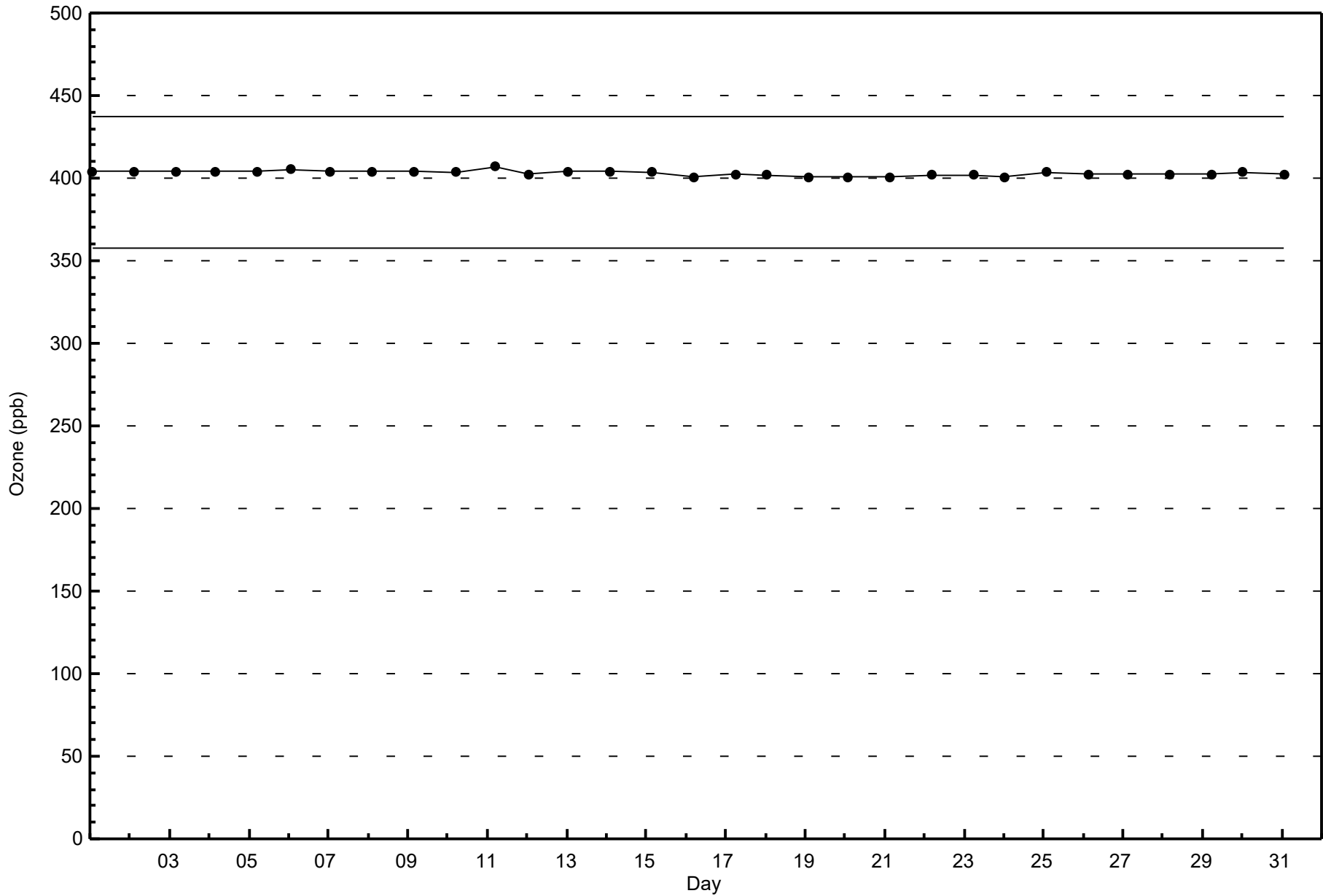


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Anzac









Wood Buffalo Environmental Association

Summary of Hour Averages

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

Anzac - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744																												
Maximum Value: 23.3 µg/m ³ on Dec 23 04:00		Maximum Daily Average: 10.7 µg/m ³ on Dec 22		Hours of Data: 743														743																														
Minimum Value: 0.3 µg/m ³ on Dec 25 16:00		Minimum Daily Average: 1.1 µg/m ³ on Dec 25		Hours of Missing Data: 1														1																														
Maximum Diurnal Average: 5.0 µg/m ³ at hour 23		Minimum Diurnal Average: 3.7 µg/m ³ at hour 11		Hours of Calibration: 1														1																														
Monthly Average: 4.14 µg/m ³		Percentiles: P ₁ = 0.6 P ₁₀ = 1.3 Q ₁ = 2.2 Median = 3.1 Q ₃ = 5.6 P ₉₀ = 8.2 P ₉₉ = 13.6		Percent Operational Time: 100.0														100.0																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	4.5	4.3	3.7	4.0	3.9	3.7	3.5	3.9	4.2	5.6	3.4	3.9	4.6	3.8	3.7	4.0	3.8	3.5	3.2	3.2	3.1	3.1	3.0	2.9	3.8	5.6																						
2-Dec	2.9	2.7	2.7	2.5	2.5	2.6	2.6	2.8	3.2	3.6	4.8	6.6	8.6	9.2	9.4	9.2	10.4	9.4	8.3	8.0	8.0	8.4	9.6	8.5	6.1	10.4																						
3-Dec	7.6	6.1	5.2	5.5	8.0	8.1	6.4	6.0	6.2	5.9	5.6	5.1	4.7	4.6	4.2	4.2	3.8	3.3	2.9	2.8	2.9	3.0	2.7	2.8	4.9	8.1																						
4-Dec	2.7	2.7	2.7	2.6	2.7	2.9	3.0	2.9	3.1	3.2	3.2	3.0	2.8	2.7	2.7	2.6	2.4	2.3	2.2	2.2	2.2	2.6	3.1	3.9	2.8	3.9																						
5-Dec	4.6	5.0	4.9	4.7	4.9	5.1	5.0	5.6	6.5	6.4	4.9	5.9	10.8	9.2	7.1	7.9	7.2	7.1	7.4	8.8	8.3	6.4	7.0	8.0	6.6	10.8																						
6-Dec	7.9	7.2	6.0	6.2	5.6	4.1	2.8	2.5	1.8	1.6	1.4	1.2	1.2	1.1	1.3	1.1	0.9	1.0	0.9	0.8	0.9	1.2	1.2	1.2	2.5	7.9																						
7-Dec	1.0	1.1	1.2	1.4	1.5	1.4	1.4	1.6	1.1	1.3	1.0	1.0	0.8	1.8	2.0	3.0	1.9	1.7	2.2	2.5	2.6	2.6	2.9	4.3	1.8	4.3																						
8-Dec	4.9	5.7	6.3	4.8	4.0	7.4	5.9	4.5	4.2	4.0	2.5	2.9	2.7	2.3	2.5	2.9	3.3	3.4	3.4	3.2	3.8	3.2	2.6	2.1	3.9	7.4																						
9-Dec	2.3	2.7	2.2	2.2	1.1	2.3	2.6	2.7	3.1	3.2	3.9	5.6	5.8	5.4	1.9	1.3	1.2	1.3	1.5	1.5	1.9	2.6	2.7	2.6	2.6	5.8																						
10-Dec	2.7	3.0	3.0	3.1	3.5	3.3	3.2	3.4	3.7	3.9	6.1	2.7	3.6	3.7	4.5	4.8	5.2	4.6	4.4	3.9	3.8	3.7	3.5	3.7	3.8	6.1																						
11-Dec	3.9	3.7	3.5	3.6	3.4	3.1	3.0	2.7	2.6	2.7	2.6	2.6	2.6	2.6	2.5	2.5	2.6	2.7	2.6	2.3	2.4	2.5	2.5	2.6	2.8	3.9																						
12-Dec	2.4	2.4	2.4	2.5	2.4	2.4	2.9	2.6	2.8	2.8	2.9	2.9	3.1	3.4	3.6	C	4.0	4.5	5.3	6.4	6.5	6.2	5.9	6.2	3.8	6.5																						
13-Dec	6.9	7.5	8.1	8.1	7.6	9.2	7.9	10.2	11.6	8.9	9.0	8.2	7.3	7.2	7.0	6.7	7.1	7.1	7.6	7.3	7.4	7.4	8.2	8.9	8.0	11.6																						
14-Dec	8.8	8.8	8.7	9.8	11.5	9.5	7.3	7.2	6.8	6.2	5.6	5.4	5.5	5.5	5.8	5.6	5.4	5.7	6.0	6.6	7.1	7.5	7.0	7.4	7.1	11.5																						
15-Dec	7.1	7.2	8.6	8.7	7.8	6.9	9.1	10.0	7.4	6.7	5.4	5.2	5.2	5.1	4.5	4.1	3.8	4.4	4.1	3.9	3.8	3.5	3.4	3.1	5.8	10.0																						
16-Dec	3.5	3.7	3.3	3.2	2.9	2.7	3.4	3.0	3.1	3.3	3.1	3.2	3.1	3.0	2.9	3.1	3.2	3.0	2.9	2.9	2.4	2.2	2.1	2.1	3.0	3.7																						
17-Dec	2.2	1.8	1.8	1.8	2.1	2.0	2.0	2.1	2.4	1.7	1.9	2.5	3.0	3.2	3.4	3.8	4.0	3.2	14.2	4.5	7.5	5.8	16.2	5.8	4.1	16.2																						
18-Dec	7.0	3.5	3.1	3.7	3.2	3.4	3.7	3.7	3.6	4.5	4.4	4.3	4.2	4.2	4.1	3.7	3.7	3.5	3.4	4.3	4.4	3.9	3.7	3.3	3.9	7.0																						
19-Dec	3.2	3.1	3.3	4.9	4.2	3.3	3.2	3.5	3.7	3.7	4.1	3.3	2.9	2.9	3.1	2.9	2.7	3.4	3.0	2.9	3.2	3.3	3.5	4.0	3.4	4.9																						
20-Dec	5.6	4.0	3.0	2.6	2.5	2.5	2.5	2.4	2.5	2.5	2.2	2.2	2.4	2.5	2.5	2.6	4.0	5.2	6.4	6.9	7.0	7.1	6.7	6.6	3.9	7.1																						
21-Dec	7.2	7.7	7.7	7.1	6.7	6.8	7.2	6.8	7.1	7.5	8.6	9.6	9.2	7.6	6.7	6.7	7.1	7.1	7.0	7.3	7.5	10.0	11.3	11.5	7.9	11.5																						
22-Dec	10.9	11.0	9.3	8.8	11.2	12.3	11.0	10.2	9.9	9.1	9.1	9.7	12.8	15.0	12.5	11.5	12.0	11.4	11.4	10.8	9.5	9.4	8.9	9.1	10.7	15.0																						
23-Dec	9.1	12.8	19.4	23.3	18.5	11.7	8.5	7.2	6.7	6.9	6.0	5.5	4.5	3.3	2.3	1.8	1.5	1.4	1.1	1.0	1.2	1.0	1.1	1.2	6.6	23.3																						
24-Dec	1.2	1.0	0.8	0.8	0.8	1.0	0.9	0.8	0.9	1.2	1.8	2.1	1.8	1.7	1.3	1.4	2.4	2.4	1.8	4.0	3.5	3.5	16.8	7.9	2.6	16.8																						
25-Dec	3.3	2.5	1.9	1.7	1.2	1.4	1.5	1.1	1.0	0.8	0.6	0.4	0.4	0.6	0.3	0.3	1.5	1.5	0.3	0.8	0.8	0.6	0.6	1.0	1.1	3.3																						
26-Dec	1.0	0.6	0.7	0.9	0.9	0.8	0.8	1.3	1.0	0.9	0.8	1.8	2.6	2.8	2.5	2.5	2.2	1.7	1.8	1.7	8.6	9.8	6.5	3.0	2.4	9.8																						
27-Dec	3.0	2.6	2.8	3.1	2.2	2.5	2.6	2.8	2.8	2.6	2.3	2.2	2.1	2.5	2.4	2.3	2.3	1.9	2.1	1.8	1.8	1.7	1.7	1.9	2.3	3.1																						
28-Dec	2.1	1.9	2.0	1.7	1.8	1.5	1.5	1.5	1.6	2.2	2.1	2.1	1.8	1.8	1.7	2.0	2.5	2.7	3.2	4.6	4.5	4.1	4.3	3.9	2.5	4.6																						
29-Dec	3.0	2.6	2.7	3.6	3.2	3.7	3.5	3.0	1.7	1.2	1.3	1.0	1.3	1.4	1.5	1.4	2.8	3.0	1.6	1.2	1.2	1.4	1.6	1.5	2.1	3.7																						
30-Dec	1.5	1.6	1.7	1.8	2.0	2.0	1.9	1.7	1.5	1.4	1.2	2.0	1.3	1.4	2.3	2.3	2.3	2.5	2.3	2.3	2.4	2.2	2.5	2.3	1.9	2.5																						
31-Dec	2.1	2.1	2.1	2.0	2.1	2.3	2.2	2.3	2.4	2.6	2.8	2.7	2.7	2.6	2.7	5.9	17.5	8.6	3.4	2.9	3.4	3.0	2.7	2.7	3.6	17.5																						
																								4.4	4.3	4.3	4.5	4.4	4.3	4.0	3.9	3.9	3.8	3.7	3.8	4.1	4.0	3.7	3.8	4.3	4.0	4.1	4.0	4.3	4.3	5.0	4.4	Diurnal Average
																								10.9	12.8	19.4	23.3	18.5	12.3	11.0	10.2	11.6	9.1	9.1	9.7	12.8	15.0	12.5	11.5	17.5	11.4	14.2	10.8	9.5	10.0	16.8	11.5	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}) - $\mu\text{g}/\text{m}^3$
Anzac - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	550	74.02	74.02
6 - 15	187	25.17	99.19
16 - 25	6	0.81	100.00
26 - 80	0	0.00	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - µg/m³
Anzac - December 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	8	2	1	3	6	32	117	37	18	11	15	14	47	136	77	26	550
6 - 15	1	4	3	6	7	26	44	35	21	2	4	1	4	9	13	7	187
16 - 25	0	0	0	0	0	0	3	0	0	0	1	1	0	0	1	0	6
26 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	9	6	4	9	13	58	164	72	39	13	20	16	51	145	91	33	743

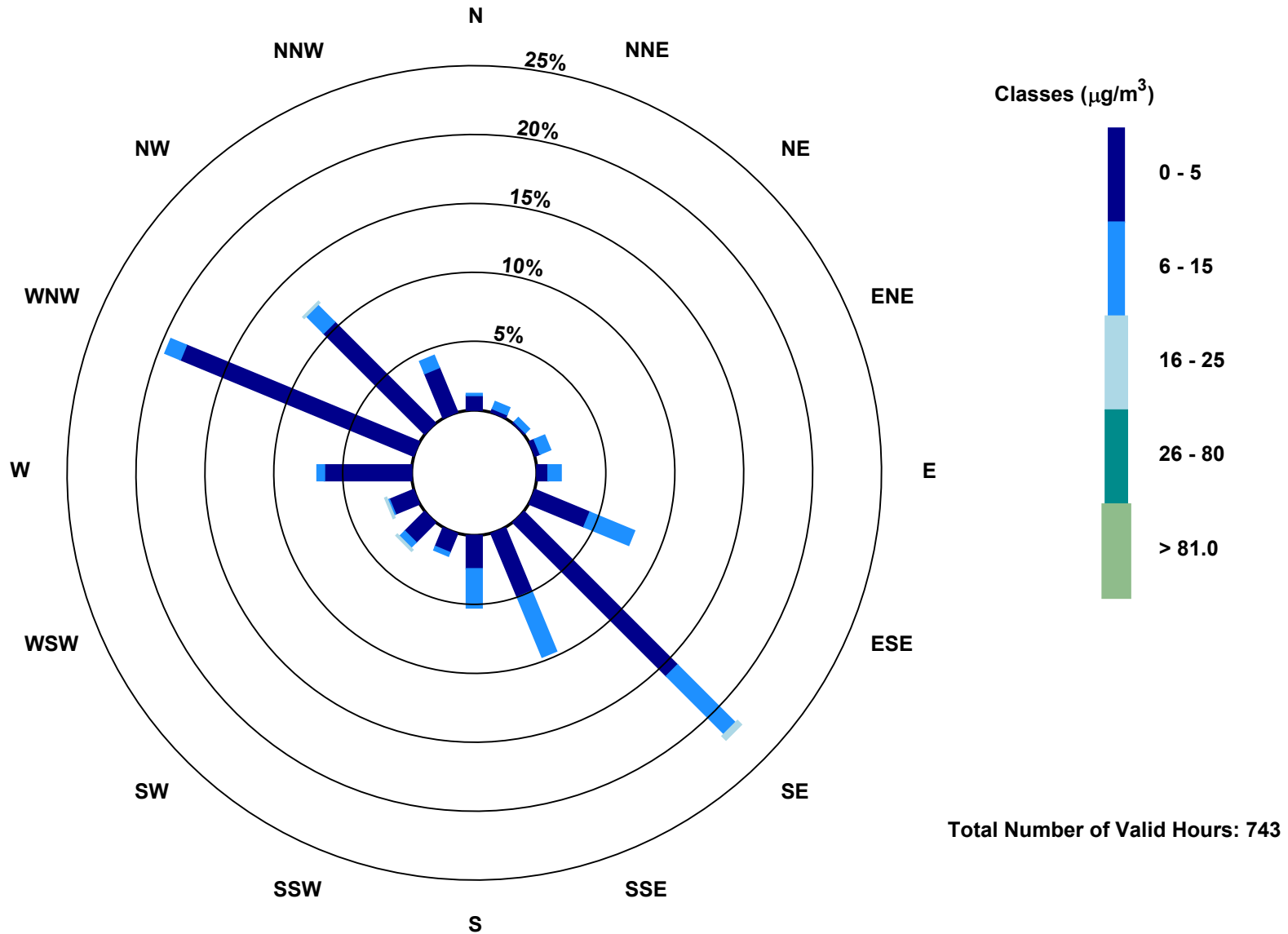
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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

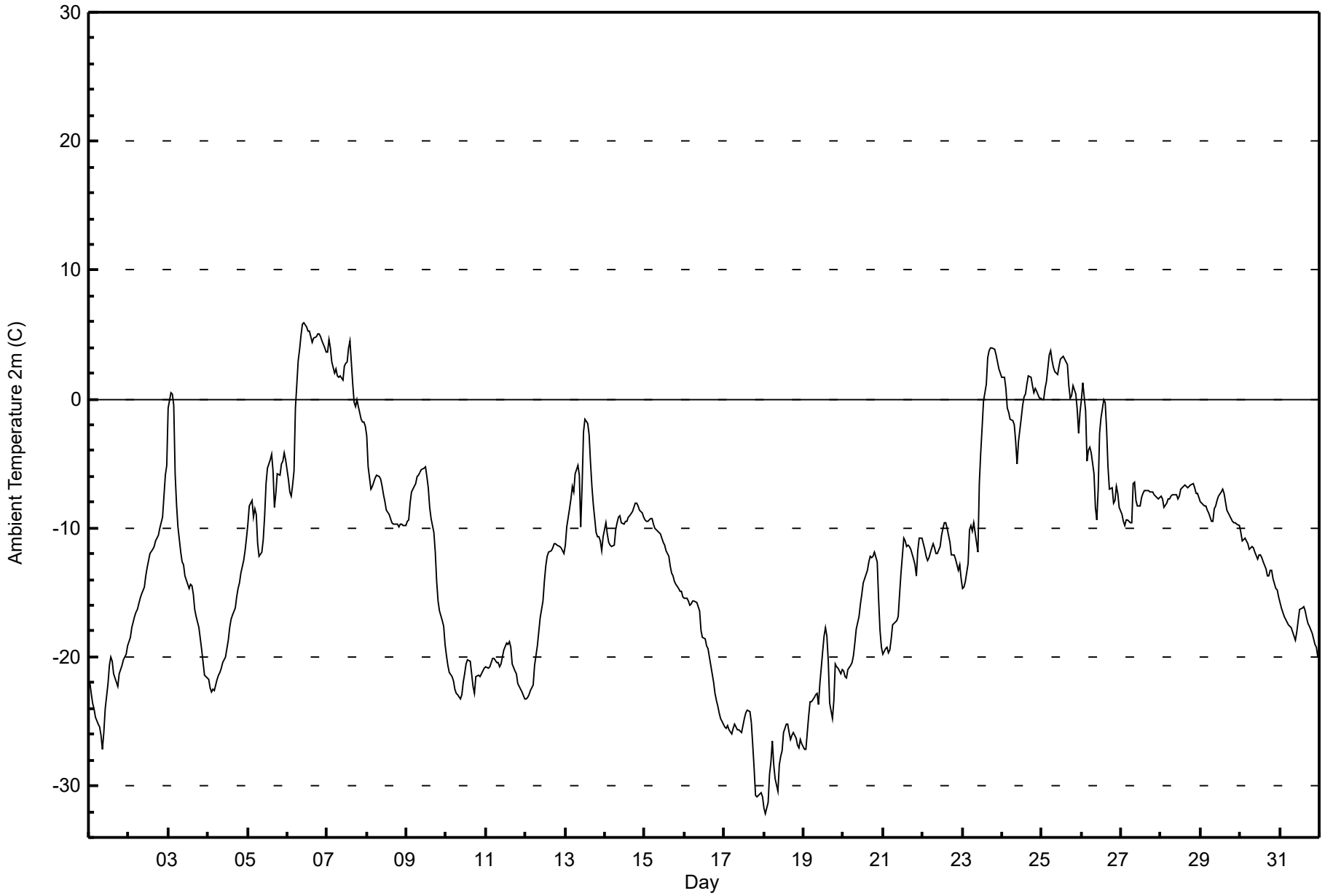




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Anzac - December 2024

Maximum Value: 5.9 C on Dec 6 11:00 Maximum Daily Average: 2.1 C on Dec 6 Minimum Value: -32.1 C on Dec 18 02:00 Minimum Daily Average: -27.7 C on Dec 18 Maximum Diurnal Average: -10.2 C at hour 14 Minimum Diurnal Average: -13.0 C at hour 3 Monthly Average: -12.10 C Percentiles: P ₁ = -30.5 P ₁₀ = -23.2 Q ₁ = -19.2 Median = -11.4 Q ₃ = -7.0 P ₉₀ = 0.3 P ₉₉ = 4.9																								Hours in Service:	744	
																								Hours of Data:	744	
																								Hours of Missing Data:	0	
																								Hours of Calibration:	0	
																								Percent Operational Time:	100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-21.9	-22.8	-23.6	-24.0	-24.7	-25.2	-25.5	-26.1	-27.2	-25.9	-24.0	-22.1	-20.6	-20.0	-20.3	-21.3	-22.0	-22.3	-21.3	-21.0	-20.7	-20.2	-19.8	-19.2	-22.6	-19.2
2-Dec	-18.9	-18.5	-17.8	-16.9	-16.5	-16.3	-15.9	-15.5	-15.1	-14.5	-13.7	-13.1	-12.5	-12.0	-11.6	-11.4	-11.0	-10.7	-10.6	-10.0	-9.2	-7.5	-5.9	-5.2	-12.9	-5.2
3-Dec	-0.7	0.5	0.4	-0.5	-5.8	-8.1	-9.9	-11.9	-12.6	-12.8	-13.7	-14.0	-14.7	-14.4	-14.4	-15.1	-16.3	-16.8	-17.7	-18.6	-19.4	-20.5	-21.4	-21.7	-12.5	0.5
4-Dec	-21.8	-22.4	-22.8	-22.5	-22.6	-21.7	-21.4	-21.2	-20.8	-20.4	-20.0	-19.4	-18.7	-17.7	-17.1	-16.8	-16.2	-15.4	-14.7	-14.3	-13.6	-12.6	-11.7	-10.8	-18.2	-10.8
5-Dec	-9.7	-8.3	-7.9	-9.1	-8.5	-8.9	-11.2	-12.1	-11.9	-10.9	-9.0	-6.6	-5.3	-4.7	-4.3	-5.6	-8.4	-7.3	-5.8	-5.9	-5.1	-4.8	-4.2	-4.8	-7.5	-4.2
6-Dec	-6.2	-7.2	-7.6	-6.7	-5.6	-0.7	3.0	3.9	4.9	5.8	5.9	5.6	5.3	5.2	4.8	4.4	4.7	4.8	5.1	5.0	4.8	4.5	3.9	3.7	2.1	5.9
7-Dec	3.6	4.6	3.9	2.9	2.0	2.3	1.8	1.7	1.8	1.5	2.6	2.8	2.9	4.0	4.5	1.2	-0.3	-0.6	-0.1	-0.6	-1.5	-1.8	-1.7	-2.1	1.5	4.6
8-Dec	-2.8	-5.2	-7.0	-6.8	-6.5	-6.1	-5.9	-6.0	-6.2	-6.8	-7.5	-8.0	-8.6	-9.0	-9.3	-9.6	-9.7	-9.7	-9.7	-9.9	-9.7	-9.6	-9.8	-9.8	-7.9	-2.8
9-Dec	-9.5	-9.3	-8.1	-7.2	-7.0	-6.5	-6.0	-5.9	-5.6	-5.5	-5.3	-5.3	-6.0	-6.9	-8.4	-9.3	-10.4	-11.9	-14.1	-15.7	-16.4	-17.1	-17.7	-19.0	-9.8	-5.3
10-Dec	-20.0	-20.7	-21.2	-21.6	-21.9	-22.5	-22.9	-22.9	-23.3	-22.9	-21.9	-21.3	-20.6	-20.3	-20.3	-21.3	-22.3	-22.8	-21.6	-21.4	-21.5	-21.3	-21.1	-20.9	-21.6	-20.0
11-Dec	-20.7	-20.8	-20.7	-20.4	-20.1	-20.1	-20.5	-20.5	-20.7	-20.5	-20.0	-19.5	-18.9	-19.0	-18.8	-19.2	-20.6	-21.1	-21.3	-22.1	-22.3	-22.5	-22.7	-23.3	-20.7	-18.8
12-Dec	-23.2	-23.2	-22.9	-22.6	-22.1	-20.6	-19.9	-19.2	-18.1	-16.9	-15.6	-14.1	-13.0	-12.2	-11.9	-11.8	-11.5	-11.2	-11.2	-11.4	-11.5	-11.6	-11.8	-11.9	-15.8	-11.2
13-Dec	-11.3	-9.9	-8.5	-7.7	-6.8	-7.2	-5.8	-5.1	-6.0	-10.0	-6.6	-2.5	-1.6	-1.9	-2.7	-4.9	-6.8	-8.2	-10.4	-10.7	-10.7	-11.1	-11.8	-10.6	-7.4	-1.6
14-Dec	-9.6	-10.5	-11.1	-11.4	-11.4	-11.3	-10.1	-9.6	-9.2	-9.1	-9.5	-9.7	-9.5	-9.4	-9.2	-9.0	-8.8	-8.4	-8.0	-8.1	-8.3	-8.6	-8.9	-9.1	-9.5	-8.0
15-Dec	-9.3	-9.5	-9.5	-9.3	-9.3	-9.7	-10.0	-10.1	-10.2	-10.4	-10.7	-11.1	-11.4	-11.8	-12.2	-13.0	-13.5	-13.7	-14.1	-14.4	-14.7	-14.9	-15.0	-15.4	-11.8	-9.3
16-Dec	-15.5	-15.4	-15.7	-15.9	-15.9	-15.6	-15.7	-15.8	-16.1	-16.4	-18.0	-18.5	-18.6	-19.1	-19.4	-20.0	-20.7	-22.0	-22.9	-23.4	-23.8	-24.3	-24.8	-25.2	-19.1	-15.4
17-Dec	-25.4	-25.6	-25.3	-25.6	-25.9	-25.6	-25.2	-25.4	-25.6	-25.7	-25.8	-25.3	-24.8	-24.3	-24.1	-24.3	-25.1	-26.8	-28.7	-30.7	-30.9	-30.6	-30.6	-30.9	-26.6	-24.1
18-Dec	-31.7	-32.1	-31.3	-29.1	-28.2	-26.5	-28.4	-29.5	-30.4	-28.3	-27.7	-27.3	-25.9	-25.2	-25.2	-25.9	-26.4	-26.1	-25.8	-26.3	-26.9	-27.0	-26.4	-26.7	-27.7	-25.2
19-Dec	-27.2	-27.1	-25.9	-24.5	-23.5	-23.5	-23.2	-23.0	-22.8	-23.7	-22.1	-19.6	-18.4	-17.8	-18.4	-20.3	-23.6	-24.8	-23.4	-20.6	-20.8	-20.8	-21.3	-21.0	-22.4	-17.8
20-Dec	-21.1	-21.6	-21.7	-21.0	-20.7	-20.5	-19.9	-19.0	-17.8	-16.9	-15.9	-15.1	-14.3	-13.9	-13.3	-12.7	-12.2	-12.3	-12.1	-11.9	-12.6	-15.6	-17.9	-19.2	-16.6	-11.9
21-Dec	-19.8	-19.4	-19.2	-19.7	-19.4	-18.6	-17.5	-17.3	-17.2	-16.9	-15.1	-13.5	-10.8	-11.0	-11.5	-11.3	-11.5	-11.7	-12.4	-12.9	-13.7	-11.8	-10.7	-10.8	-14.7	-10.7
22-Dec	-11.2	-11.7	-12.2	-12.5	-12.3	-11.6	-11.3	-11.6	-12.0	-12.0	-11.4	-10.6	-10.1	-9.6	-9.6	-10.1	-11.1	-12.1	-12.0	-12.1	-12.4	-13.3	-12.9	-13.9	-11.7	-9.6
23-Dec	-14.7	-14.5	-14.2	-12.7	-10.2	-9.8	-10.3	-9.6	-11.1	-11.9	-6.6	-4.2	-2.2	-0.2	1.1	3.2	3.8	4.0	3.9	3.9	3.5	2.8	2.3	2.0	-4.2	4.0
24-Dec	1.7	1.7	0.8	-0.7	-1.0	-1.6	-1.7	-2.0	-3.3	-5.0	-3.3	-1.5	-0.4	0.1	0.4	1.2	1.8	1.7	1.0	0.5	0.8	0.6	0.1	0.0	-0.3	1.8
25-Dec	0.0	-0.1	0.8	1.4	3.4	3.7	3.0	2.5	2.2	2.0	2.5	3.1	3.2	3.3	3.1	2.7	1.1	0.1	0.2	1.1	0.3	-0.8	-2.6	-1.0	1.5	3.7
26-Dec	-0.1	1.2	-1.0	-4.8	-4.0	-3.7	-4.2	-5.8	-8.4	-9.4	-7.0	-2.7	-1.5	-0.1	-0.2	-2.4	-5.2	-7.0	-6.9	-8.1	-7.9	-6.8	-7.3	-8.4	-4.6	1.2
27-Dec	-8.9	-9.5	-9.8	-9.3	-9.3	-9.6	-9.6	-6.5	-6.5	-7.8	-8.3	-8.3	-7.6	-7.3	-7.1	-7.1	-7.1	-7.3	-7.2	-7.3	-7.4	-7.5	-7.8	-7.7	-8.0	-6.5
28-Dec	-7.5	-7.7	-8.4	-8.0	-7.7	-7.7	-7.5	-7.4	-7.4	-7.4	-7.7	-7.5	-7.0	-6.9	-6.7	-6.8	-6.9	-6.7	-6.7	-6.6	-6.9	-7.4	-7.3	-7.6	-7.3	-6.6
29-Dec	-8.0	-8.2	-8.2	-8.3	-8.6	-8.9	-9.5	-9.5	-8.5	-8.3	-7.9	-7.5	-7.3	-7.0	-7.3	-7.9	-8.6	-9.1	-9.2	-9.5	-9.6	-9.6	-9.7	-9.8	-8.6	-7.0
30-Dec	-10.3	-11.0	-10.9	-10.8	-11.2	-11.7	-11.5	-11.4	-11.5	-11.9	-12.4	-12.0	-12.1	-12.3	-12.6	-13.2	-13.7	-13.7	-13.3	-13.3	-14.0	-14.7	-14.8	-15.3	-12.5	-10.3
31-Dec	-15.7	-16.2	-16.8	-17.1	-17.3	-17.5	-17.7	-17.7	-18.3	-18.7	-18.0	-17.2	-16.3	-16.2	-16.1	-16.4	-16.9	-17.4	-17.6	-18.2	-18.6	-19.0	-19.2	-20.0	-17.5	-15.7
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Anzac - December 2024**

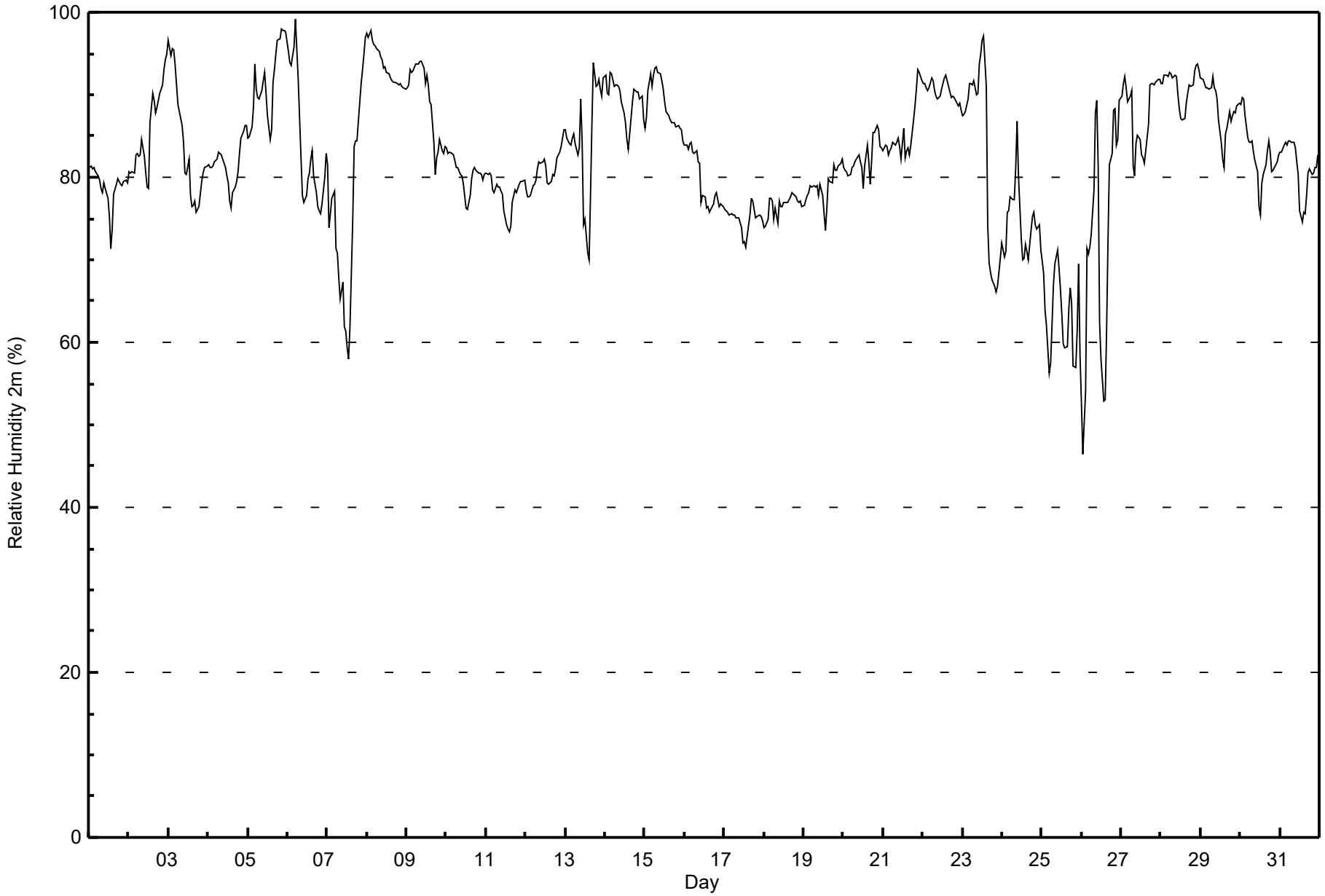
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	166	22.31	22.31
-20 - 0	498	66.94	89.25
0 - 10	80	10.75	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 99.2 % on Dec 6 06:00																						Maximum Daily Average: 93.6 % on Dec 8																						Hours in Service: 744		
Minimum Value: 46.4 % on Dec 26 02:00																						Minimum Daily Average: 63.5 % on Dec 25																						Hours of Data: 744		
Maximum Diurnal Average: 84.2 % at hour 4																						Minimum Diurnal Average: 78.4 % at hour 14																						Hours of Missing Data: 0		
Monthly Average: 82.55 %																						Percentiles: P ₁ = 57.3 P ₁₀ = 73.6 Q ₁ = 77.8 Median = 82.6 Q ₃ = 89.6 P ₉₀ = 92.3 P ₉₉ = 97.1																						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-Dec	81.2	81.4	81.1	81.3	80.7	80.2	79.7	78.7	78.1	79.3	78.7	77.5	75.3	71.4	73.7	78.0	79.1	79.8	79.5	79.1	79.0	79.4	79.7	79.3	78.8	81.4																				
2-Dec	80.6	80.5	80.7	80.5	82.8	82.9	82.6	82.7	84.5	82.6	80.4	78.8	78.7	86.6	90.1	89.3	87.8	88.4	89.3	90.2	91.2	93.1	94.3	95.0	85.6	95.0																				
3-Dec	96.6	94.7	95.7	95.4	93.5	91.2	88.9	87.1	86.3	84.3	80.4	80.3	82.2	77.8	76.5	76.6	77.2	75.8	76.4	77.9	79.4	80.4	81.3	81.3	84.0	96.6																				
4-Dec	81.5	81.2	81.2	81.4	81.9	82.2	83.0	82.9	82.8	82.3	81.2	80.1	79.4	77.1	76.3	78.1	78.8	79.6	80.6	82.9	84.8	85.6	86.2	86.3	81.6	86.3																				
5-Dec	84.7	84.9	86.1	88.4	93.7	90.7	89.6	89.6	90.5	91.7	92.7	90.3	87.5	84.6	85.8	91.4	93.0	94.9	96.5	96.7	98.0	97.7	97.8	97.6	91.4	98.0																				
6-Dec	95.3	93.8	93.5	94.8	95.7	99.2	91.9	87.1	82.3	77.8	77.0	77.9	79.8	80.5	82.2	83.3	80.2	78.2	76.5	75.9	75.6	76.8	80.0	82.9	84.1	99.2																				
7-Dec	81.6	73.9	75.7	77.5	78.3	71.4	70.9	67.7	65.2	67.3	61.9	61.4	59.3	57.9	61.8	74.9	83.7	84.4	84.5	86.7	91.3	93.1	95.0	96.9	75.9	96.9																				
8-Dec	97.5	96.9	97.7	96.6	96.2	96.0	95.7	95.2	94.5	94.2	93.3	93.3	92.8	92.5	92.1	91.7	91.5	91.5	91.4	91.3	91.4	91.0	90.9	90.7	93.6	97.7																				
9-Dec	90.9	91.1	93.0	92.8	92.9	93.7	93.7	93.8	94.1	94.1	93.3	91.3	92.4	91.2	89.2	88.8	84.2	80.4	82.4	83.1	84.6	83.2	82.8	83.7	89.2	94.1																				
10-Dec	83.6	82.9	83.0	82.8	82.7	82.1	81.2	81.2	80.4	80.2	79.4	77.9	76.3	76.0	77.8	79.8	80.9	81.2	80.8	80.6	80.4	80.3	79.7	80.3	80.5	83.6																				
11-Dec	80.5	80.4	80.4	80.2	78.6	78.2	79.2	78.8	78.8	78.4	78.0	75.9	74.3	73.7	73.3	74.1	76.9	78.5	78.1	78.6	79.2	79.4	79.5	79.7	78.0	80.5																				
12-Dec	78.5	77.7	77.6	77.9	79.0	79.2	79.7	81.1	81.9	81.8	81.8	82.2	81.3	79.2	79.2	79.6	80.4	80.2	81.0	82.4	83.0	83.7	84.7	85.8	80.8	85.8																				
13-Dec	85.7	84.8	84.1	83.9	84.7	85.3	84.0	82.6	83.6	89.5	84.4	74.3	74.9	70.9	70.1	77.8	86.4	93.8	91.0	91.2	91.8	90.8	89.8	92.0	84.5	93.8																				
14-Dec	92.4	90.1	90.0	92.7	92.6	91.0	91.3	91.2	91.0	90.5	89.2	87.8	86.7	84.6	83.5	85.3	89.1	90.6	90.6	90.4	90.3	89.5	89.9	86.9	89.5	92.7																				
15-Dec	86.0	87.2	90.5	92.6	91.1	92.4	93.2	93.5	92.7	92.5	91.7	90.7	89.2	87.9	87.5	86.9	86.6	86.5	86.6	86.1	86.3	86.0	85.8	84.5	88.9	93.5																				
16-Dec	83.9	83.8	83.4	84.0	84.2	83.0	82.9	83.2	81.9	81.7	77.0	77.8	77.5	76.3	76.4	75.8	76.1	76.7	77.8	78.1	77.2	76.4	76.9	76.4	79.5	84.2																				
17-Dec	76.1	75.9	75.7	75.3	75.7	75.4	75.5	75.2	75.2	75.1	73.8	72.1	72.2	71.5	72.9	75.4	77.5	77.1	76.1	75.1	75.2	75.4	75.2	74.8	75.0	77.5																				
18-Dec	73.9	74.1	75.0	77.5	77.5	77.1	74.9	76.3	74.4	77.1	76.4	76.5	76.9	76.9	77.0	77.3	77.6	78.1	78.0	77.6	77.2	76.9	77.2	76.4	76.6	78.1																				
19-Dec	76.6	77.3	77.9	78.1	79.0	78.8	79.0	78.8	78.9	77.9	79.2	77.8	75.5	73.5	76.3	79.8	79.5	79.3	81.5	80.9	80.9	81.4	81.8	82.2	78.8	82.2																				
20-Dec	81.2	80.8	80.6	80.1	80.4	81.2	81.4	81.8	82.2	82.6	81.9	81.1	78.7	81.4	83.9	81.9	79.1	82.0	85.4	85.5	86.2	85.8	83.7	83.6	82.2	86.2																				
21-Dec	83.2	83.9	83.8	82.7	83.2	83.5	84.3	83.8	84.3	84.8	83.8	82.1	85.9	82.3	83.2	83.5	82.8	83.9	87.0	88.7	90.7	93.0	92.7	91.7	85.4	93.0																				
22-Dec	91.3	91.4	90.8	90.6	90.8	92.0	91.7	90.5	89.9	89.6	89.9	90.7	91.4	92.0	92.4	91.7	90.4	89.7	89.8	89.7	89.3	88.7	89.0	88.1	90.5	92.4																				
23-Dec	87.5	87.6	88.0	89.4	91.4	91.3	91.1	91.8	90.1	90.2	93.7	95.0	96.7	97.1	91.1	74.3	69.6	68.5	67.2	66.8	66.1	66.8	68.5	70.2	82.9	97.1																				
24-Dec	72.0	70.4	70.9	75.7	75.9	77.6	77.3	77.3	81.0	86.8	80.2	72.6	70.0	70.1	71.8	71.0	70.0	73.5	75.2	75.8	74.2	73.8	74.2	71.3	74.5	86.8																				
25-Dec	69.8	68.2	63.9	62.0	56.3	57.4	62.2	67.0	69.6	71.1	68.9	66.5	63.4	59.9	59.3	59.5	64.1	66.7	64.8	57.2	56.9	61.4	69.5	58.5	63.5	71.1																				
26-Dec	52.6	46.4	54.1	71.3	70.7	71.6	73.1	78.5	87.7	89.3	81.2	62.4	57.9	52.8	53.0	61.4	72.2	81.5	82.9	88.2	88.3	83.9	84.5	89.4	72.3	89.4																				
27-Dec	89.9	91.4	92.3	90.8	89.2	89.9	90.5	81.3	80.2	84.1	85.1	84.5	82.8	82.4	81.7	83.3	86.5	91.2	91.4	91.3	91.2	91.5	91.8	91.9	87.8	92.3																				
28-Dec	91.3	91.3	92.3	92.3	92.2	92.7	92.5	92.1	92.3	92.2	90.1	88.4	87.2	87.0	87.2	88.9	90.1	91.2	91.1	91.2	92.9	93.6	93.7	93.1	91.1	93.7																				
29-Dec	92.0	91.9	91.3	90.8	90.9	90.7	90.8	92.2	90.8	90.4	89.5	87.0	84.2	82.2	81.2	85.2	85.9	87.9	86.8	87.4	87.9	87.7	88.7	89.0	88.4	92.2																				
30-Dec	88.8	89.7	89.5	87.5	84.7	84.2	84.2	84.4	83.1	82.1	80.6	76.4	75.4	79.3	80.4	81.5	83.2	84.5	83.1	80.7	80.9	81.6	81.8	82.7	82.9	89.7																				
31-Dec	83.1	83.1	83.9	84.3	83.9	84.3	84.5	84.3	84.3	83.5	81.8	80.4	76.0	74.6	75.7	75.6	77.8	80.5	80.9	80.3	80.5	81.2	81.2	82.6	81.2	84.5																				
																						83.5	82.9	83.3	84.2	84.2	84.1	83.9	83.6	83.6	84.0	82.5	80.3	79.4	78.4	78.8	80.1	81.2	82.5	82.7	82.8	83.3	83.5	84.1	84.0	Diurnal Average
																						97.5	96.9	97.7	96.6	96.2	99.2	95.7	95.2	94.5	94.2	93.7	95.0	96.7	97.1	92.4	91.7	93.0	94.9	96.5	96.7	98.0	97.7	97.8	97.6	Diurnal Maximum





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Anzac - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	16	2.15	2.15
60 - 80	242	32.53	34.68
80 - 100	486	65.32	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Leaf Wetness (LW) - %

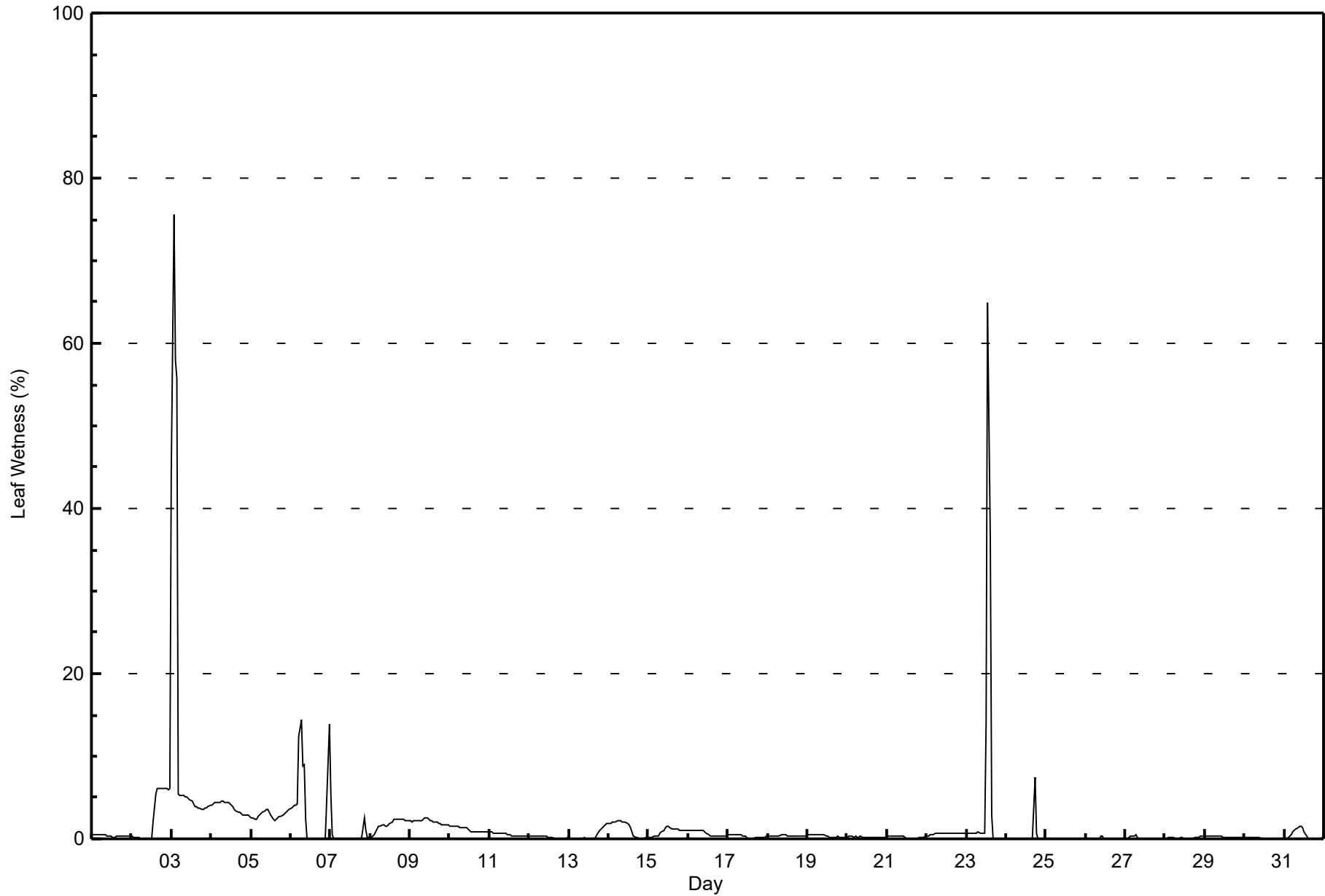
Anzac - December 2024

Maximum Value: 75.6 % on Dec 3 02:00 Maximum Daily Average: 13.4 % on Dec 3																				Hours in Service: 744 Hours of Data: 744 Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0						
Minimum Value: 0.0 % on Dec 2 11:00 Minimum Daily Average: 0.0 % on Dec 25 Maximum Diurnal Average: 3.2 % at hour 2 Minimum Diurnal Average: 0.8 % at hour 17 Monthly Average: 1.44 % Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.3 Q ₃ = 1.2 P ₉₀ = 3.2 P ₉₉ = 14.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	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	0.4	0.5
2-Dec	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	2.0	5.5	6.1	6.1	6.1	6.1	6.0	6.0	6.0	6.0	6.1	2.6	6.1
3-Dec	44.2	75.6	58.0	55.7	5.4	5.3	5.2	5.2	5.1	5.1	4.9	4.7	4.5	4.2	3.9	3.8	3.8	3.7	3.6	3.6	3.7	3.8	3.9	4.0	13.4	75.6
4-Dec	4.1	4.2	4.3	4.4	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.3	4.1	3.9	3.6	3.4	3.3	3.2	3.0	2.9	2.9	2.9	2.8	2.7	3.8	4.5
5-Dec	2.6	2.5	2.4	2.4	2.7	3.0	3.1	3.3	3.4	3.5	3.5	3.3	2.8	2.4	2.2	2.4	2.6	2.7	2.7	2.9	3.1	3.2	3.4	3.6	2.9	3.6
6-Dec	3.8	3.9	4.0	4.1	4.2	12.3	14.4	8.8	9.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	13.8	3.7	14.4
7-Dec	5.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	2.5	1.0	0.1	0.1	0.4	5.4	
8-Dec	0.1	0.2	0.6	0.9	1.1	1.4	1.6	1.7	1.6	1.6	1.5	1.7	1.8	2.1	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.2	1.7	2.4	
9-Dec	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.5	2.5	2.5	2.4	2.3	2.2	2.1	2.0	2.0	1.9	1.8	1.8	1.7	1.7	1.6	1.6	2.1	2.5
10-Dec	1.6	1.6	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.2	1.0	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.1	1.6	
11-Dec	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.8
12-Dec	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4
13-Dec	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	1.2	1.4	1.6	1.7	1.8	0.4	1.8	
14-Dec	1.8	1.9	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.0	1.9	1.7	1.3	0.9	0.4	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	1.2	2.1
15-Dec	0.1	0.1	0.2	0.3	0.3	0.4	0.4	0.6	0.8	0.9	1.3	1.5	1.5	1.3	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.9	1.5
16-Dec	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.8	0.7	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.7	1.1	
17-Dec	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.5
18-Dec	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
19-Dec	0.4	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.4	0.6
20-Dec	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3
21-Dec	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.4	
22-Dec	0.3	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.7
23-Dec	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.7	0.7	0.8	0.7	14.1	64.9	36.3	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	64.9
24-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.7	0.0	0.0	0.0	0.0	0.3	7.4	
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
27-Dec	0.0	0.0	0.2	0.3	0.4	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	0.0	0.1	0.5	
28-Dec	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.1	0.3
29-Dec	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.1	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
30-Dec	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
31-Dec	0.0	0.0	0.2	0.4	0.6	0.8	1.0	1.2	1.3	1.5	1.5	1.3	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.5	
2.3 3.2 2.6 2.6 1.0 1.3 1.4 1.2 1.2 1.0 0.9 0.9 1.2 2.8 2.0 0.9 0.8 1.1 0.8 0.8 0.9 0.9 1.2 1.4																								Diurnal Average		
44.2 75.6 58.0 55.7 5.4 12.3 14.4 8.8 9.0 5.1 4.9 4.7 14.1 64.9 36.3 6.1 6.1 7.4 6.1 6.0 6.0 6.0 6.0 9.1 13.8																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Leaf Wetness (LW) - %
Anzac - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Leaf Wetness (LW) - %
Anzac - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	374	50.27	50.27
0.4 - 0.5	88	11.83	62.10
0.6 - 0.7	48	6.45	68.55
0.8 - 1.4	64	8.60	77.15
1.5 - 10	155	20.83	97.98
> 10	10	1.34	99.33

Total Number of Valid Hours: 744

Total Number of Hours: 744



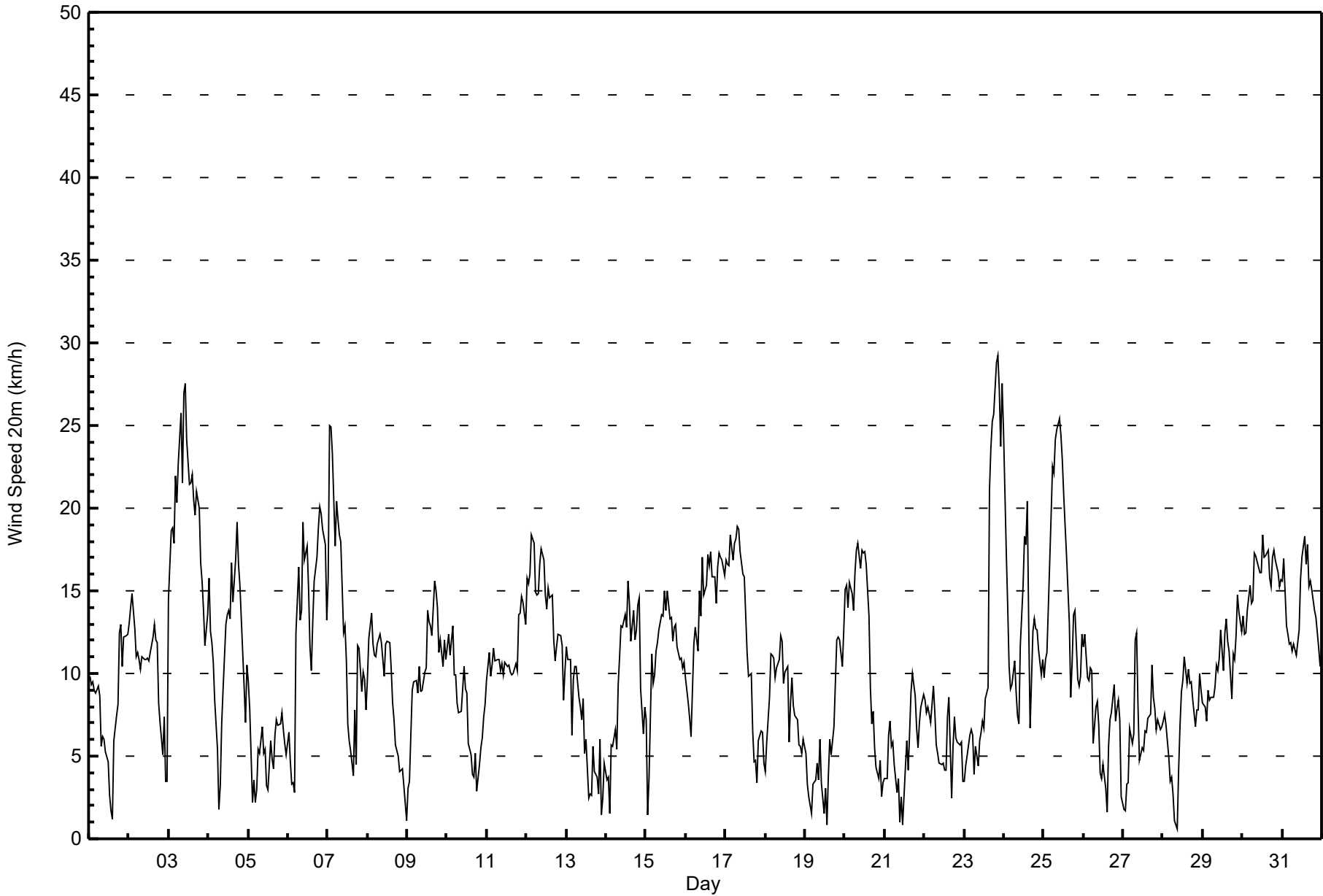
Maximum Speed: 29 km/h on Dec 23 21:00 Minimum Speed Value: 1 km/h on Dec 28 09:00 Maximum Diurnal Speed Average: 3.7 km/h at hour 2 Monthly Average Velocity: 2.7 km/h 251.6 deg		Maximum Daily Speed Average: 19.3 km/h on Dec 3 Minimum Daily Speed Average: 1.7 km/h on Dec 1 Minimum Diurnal Speed Average: 1.7 km/h at hour 15 Percentiles: $P_1 = 1$ $P_{10} = 4$ $Q_1 = 7$ Median = 10 $Q_3 = 14$ $P_{90} = 17$ $P_{99} = 26$		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-Dec	NW10	WNW9	WNW10	WNW9	WNW9	WNW9	WNW9	WNW6	WNW6	W6	WNW5	WNW5	W3	SW2	SSE1	ESE6	SE7	SE8	SE12	SE13	SE10	SE12	SE12	SE12	SW1.7	SE13																						
2-Dec	SE13	SE14	SE15	SE13	SE11	SE11	SE11	SE10	SSE11	SE11	SE11	SE11	SE11	SE11	SE12	SE13	SE12	SE12	ESE8	ESE7	SE5	SSE7	S3	NNE3	SE9.9	SE15																						
3-Dec	WNW14	WNW19	WNW19	NW18	NNW22	NNW20	NNW23	NNW26	NNW22	NW27	NW28	NNW24	NNW21	NW22	NW22	NW20	NW20	NW21	NW20	NW17	NW16	WNW14	WNW12	WNW14	NW19.3	NW28																						
4-Dec	WNW16	WNW13	WNW12	WNW11	WNW8	WNW5	NW2	SE3	SE7	SE9	SE13	SE14	SE14	SE13	SE17	SE14	SE17	SE19	SSE17	SSE15	SSE13	SSE9	SSE7	SSE11	SSE6.5	SE19																						
5-Dec	S9	SSW8	SE2	ESE4	N2	N3	SE5	SSE5	SSE7	SE5	E5	ESE3	SSE3	SSE6	SE5	ESE4	ENE6	ESE7	SE7	SE7	ESE8	E7	ESE6	SE5	SE4.2	S9																						
6-Dec	SSE6	S5	SW3	SSW3	SW3	WSW12	W16	W13	W14	W19	W17	W18	W15	W12	W10	W13	W16	W17	W19	W20	W20	W19	W18	W13	W12.5	W20																						
7-Dec	W16	W25	W25	W23	WNW18	W20	W19	W18	WNW18	WNW12	W13	W11	WNW7	SW6	SW5	WSW4	WSW8	WNW4	WNW12	WNW12	NW9	NW10	NNW10	NNW8	WNW12.3	W25																						
8-Dec	NNW10	NW12	NW14	NW12	NW11	NW11	NW12	NW12	NW12	NNW11	NNW10	NW12	NNW12	NW12	NNW10	NW8	NW7	NNW6	NNW5	NNW4	NW4	NNW4	NNE3	ESE1	NW8.7	NW14																						
9-Dec	SSW3	SSW3	WNW6	WNW9	WNW9	WNW10	WNW9	WNW10	WNW9	NW9	NW10	NW10	NNW14	NNW13	N13	N12	NNW16	NNW15	NNW14	NNW11	NW12	NW10	NW12	NW11	NW9.3	NNW16																						
10-Dec	NW12	NW12	NW11	NW13	NNW10	NNW10	NW8	WNW8	WNW8	WNW9	WNW10	WNW9	NW9	WNW6	NW5	NNW4	NNW4	ENE5	ESE3	SE5	SSE6	SE6	SE7	SE8	NW4.4	NW13																						
11-Dec	SE10	SE11	SE10	SE10	SE11	SE11	SE11	SE11	ESE10	SE11	SE10	SE11	ESE10	ESE11	SE10	ESE10	ESE10	ESE11	SE10	SE14	SE14	SE15	SE14	SE13	SE11.1	SE15																						
12-Dec	SE16	SE15	SE16	SE18	SE18	SE15	SE15	SE15	SE17	SE18	SE17	SE15	SE14	SE15	SSE15	SSE15	SSE12	SSE11	SSE12	SSE12	SSE12	SSE12	SE8	SSE10	SE14.1	SE18																						
13-Dec	SSE12	SSE11	SSE11	SSE6	S10	S10	S10	S9	S8	SSE7	S8	SSE5	S6	ENE2	ENE3	WNW3	W6	WSW4	SSW4	NNE3	N6	E1	NE2	NNW5	SSE4.0	SSE12																						
14-Dec	NE4	SSE4	NE2	NNE6	ENE6	ENE7	E5	E9	ESE11	ESE13	ESE13	ESE14	ESE14	ESE14	ESE12	E14	ESE12	ESE13	ESE14	ESE15	SE9	SE6	SE8	ESE9.2	ESE16																							
15-Dec	SE7	SE1	NW4	NW11	NW9	NW10	WNW11	WNW12	WNW13	WNW14	NW13	NW15	NW14	NW15	NW13	NW13	NW12	WNW13	NW13	WNW12	WNW11	NW11	WNW10	NW11	NW10.4	NW15																						
16-Dec	WNW10	WNW8	NW7	NW6	NW9	WNW12	WNW13	WNW11	WNW15	WNW13	WNW17	WNW15	WNW15	WNW17	WNW17	WNW17	WNW17	WNW16	WNW16	WNW14	WNW16	WNW17	WNW17	WNW16	WNW13.8	WNW17																						
17-Dec	WNW17	WNW17	W17	WNW18	WNW17	WNW18	WNW18	WNW19	WNW19	WNW17	WNW16	WNW16	WNW14	WNW11	WNW10	WNW10	WNW6	WSW5	SW5	W3	W6	W7	WSW6	S5	WNW11.8	WNW19																						
18-Dec	SSE4	SSE6	SSE9	SSE11	SSE11	SE11	SE10	SE10	ESE11	SE12	SE12	SE9	SE10	SE10	ESE6	E8	E10	ESE8	ESE7	SE7	SE6	SE6	S5	SSE6	SE8.1	SE12																						
19-Dec	SSE5	S3	S3	NNW2	N2	ENE3	SE4	SSE5	SSW4	S6	SSW3	N2	NW3	W1	NW4	ENE6	ESE5	SE7	SE9	SE12	SE12	SE12	SE10	SE13	SE4.0	SE13																						
20-Dec	SE15	SE15	ESE14	SE16	ESE15	SE14	SE16	SE17	SE18	SE16	SSE17	SE17	SSE17	SSE17	SSE13	SSE9	S7	S8	S6	S4	S4	S5	SE3	ESE3	SE11.4	SE18																						
21-Dec	SE4	SE4	SSE6	S7	SSE6	SSE6	SE5	SSE3	S4	SSE1	S3	S1	NNE4	ENE6	E4	SE6	ESE9	SE10	SE9	E7	E5	SE7	ESE8	ESE9	SE4.6	SE10																						
22-Dec	SE8	SE8	SE8	SE8	SE7	SSE9	SE8	ESE6	ESE5	SE5	SE4	SE5	SSE4	SE4	SE7	SE9	SE2	ESE6	SSE7	SSE6	SE6	SE6	SSE6	SE4	SE6.0	SSE9																						
23-Dec	ESE3	SE4	SE5	SE6	SE7	SE6	ESE4	SE6	SSE4	S6	S6	S7	SSW7	SW8	WSW9	WSW21	WSW24	WSW25	W26	W29	W29	W27	W24	W28	WSW9.9	W29																						
24-Dec	W25	W17	W14	SW10	SW9	SW9	SW11	SSE9	SE7	SSE7	ESE12	SE15	SE18	SE18	SSE20	SSE13	S7	S13	SSE13	S13	SW13	SW11	SW10	SW11	SSW8.4	W25																						
25-Dec	SW10	WSW11	SW11	SW14	WSW20	WSW23	W22	W24	W25	W25	W24	W23	W21	W19	WSW17	WSW13	SSW9	SSW11	SW14	SW14	SW10	SSW9	S10	SSW12	WSW15.0	W25																						
26-Dec	SSW12	S12	SE10	SE10	SE10	S10	SE6	SSE8	S8	S7	S4	S4	S5	N3	E2	SE6	SE7	SE8	SSE9	SE7	SSE8	SSE8	SSE7	SE3	SSE6.5	S12																						
27-Dec	NW2	N2	NNE3	SSE3	SE7	SE6	SE6	SE12	ESE12	SSE8	NE5	E5	ESE5	SSE7	ESE6	ESE7	ESE8	ESE11	SE9	SE8	ESE7	ESE7	ESE7	SE7	ESE5.8	ESE12																						
28-Dec	SE7	SE8	ESE7	SE5	ESE3	ESE4	SE3	SSE1	NW1	WNW4	NW7	WNW9	WNW10	WNW11	NW9	NW10	WNW9	WNW10	WNW8	WNW7	WNW8	WNW8	NW10	WNW9	WNW3.9	WNW11																						
29-Dec	NW8	WNW8	NW7	NNW9	NW8	NW9	WNW9	WNW9	WNW11	WNW10	WNW11	WNW13	NW10	NW12	NW13	NNW12	NW11	NW9	NW11	NW11	NW12	NW15	NW14	NW13	NW10.4	NW15																						
30-Dec	WNW13	WNW12	WNW12	WNW14	WNW15	WNW14	WNW14	WNW17	WNW17	WNW17	WNW17	WNW16	WNW16	WNW18	WNW17	WNW17	WNW17	WNW16	WNW15	WNW17	WNW17	WNW17	WNW16	WNW15	WNW16	WNW15.8	WNW18																					
31-Dec	WNW16	WNW17	NW13	WNW12	WNW12	WNW11	WNW12	WNW11	WNW12	WNW13	WNW16	WNW17	NW18	WNW17	NW18	NW15	WNW16	NW15	NW14	NW13	NW12	NW12	NW10	WNW13.8	NW18																							
WSW3.2																								WSW3.7	WSW2.9	W2.6	W2.3	WSW3.3	WSW3.3	WSW2.7	WSW2.8	WSW3.4	W3.1	W2.9	W2.7	W2.3	W1.7	W1.7	W1.8	SW2.2	SW2.9	SW3.1	WSW3.0	WSW2.9	WSW2.5	WSW2.4	Diurnal Average	
W25																								W25	W25	W23	NNW22	WSW23	NNW23	NNW26	W25	NW27	NW28	NNW24	NNW21	NW22	NW22	WSW21	WSW24	WSW25	W26	W29	W29	W27	W24	W28	Diurnal Maximum	
All monthly, daily, and diurnal averages have been calculated using vector methods																																																



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 20m (WS20) - km/h
Anzac - December 2024

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 20m (WS20) - km/h
Anzac - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	131	17.61	17.61
6 - 11	311	41.80	59.41
12 - 19	261	35.08	94.49
20 - 28	39	5.24	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 20m (WS20) - km/h
Anzac - December 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	6	5	4	4	7	13	22	17	15	6	5	3	3	6	8	7	131
6 - 11	1	1	0	5	5	30	83	38	21	5	11	5	6	52	36	12	311
12 - 19	2	0	0	0	1	15	59	17	3	2	4	3	22	87	39	7	261
20 - 28	0	0	0	0	0	0	0	1	0	0	0	5	18	0	8	7	39
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	9	6	4	9	13	58	164	73	39	13	20	16	51	145	91	33	744

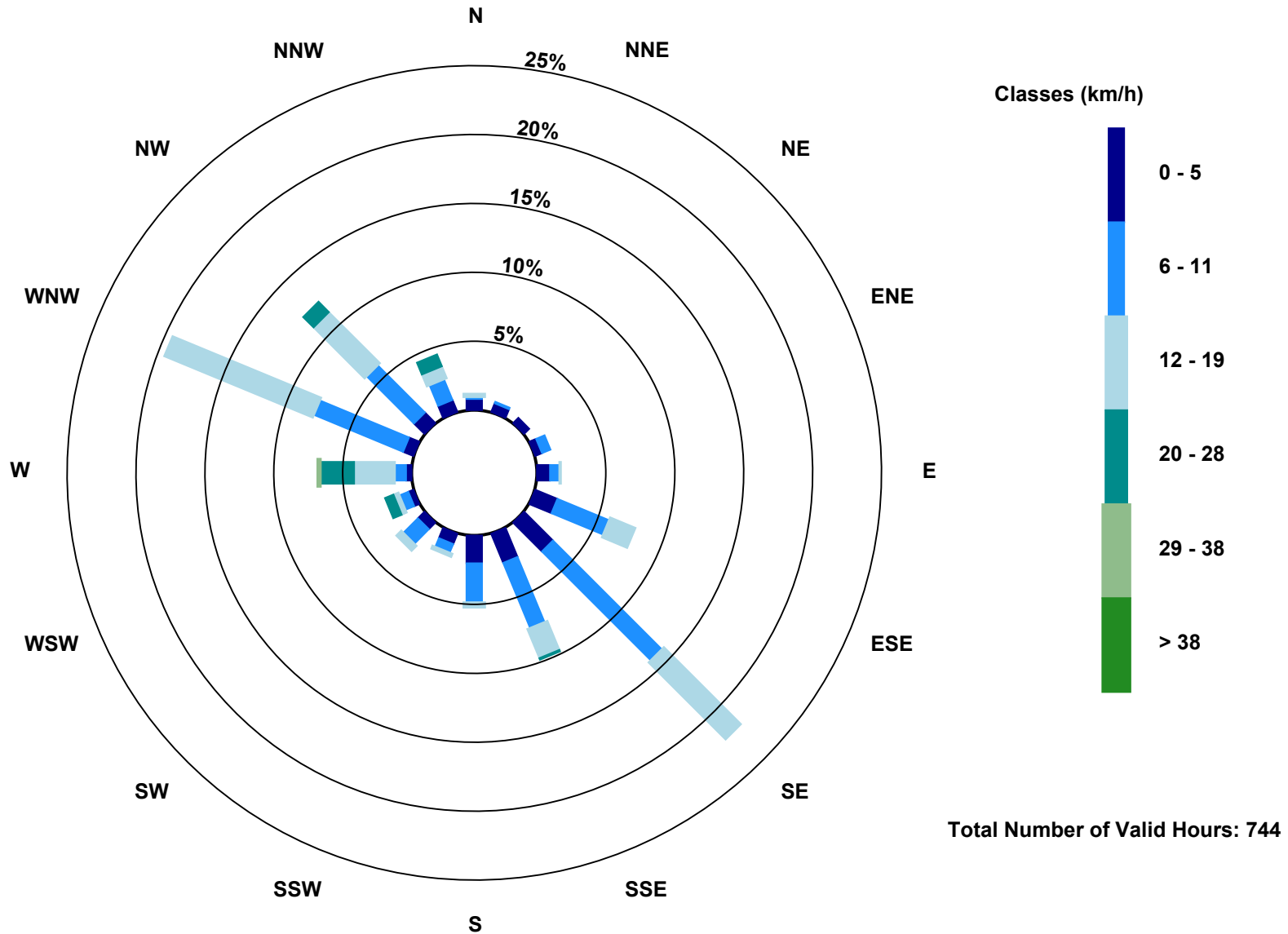
Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20m (WD20) - deg

Anzac - December 2024

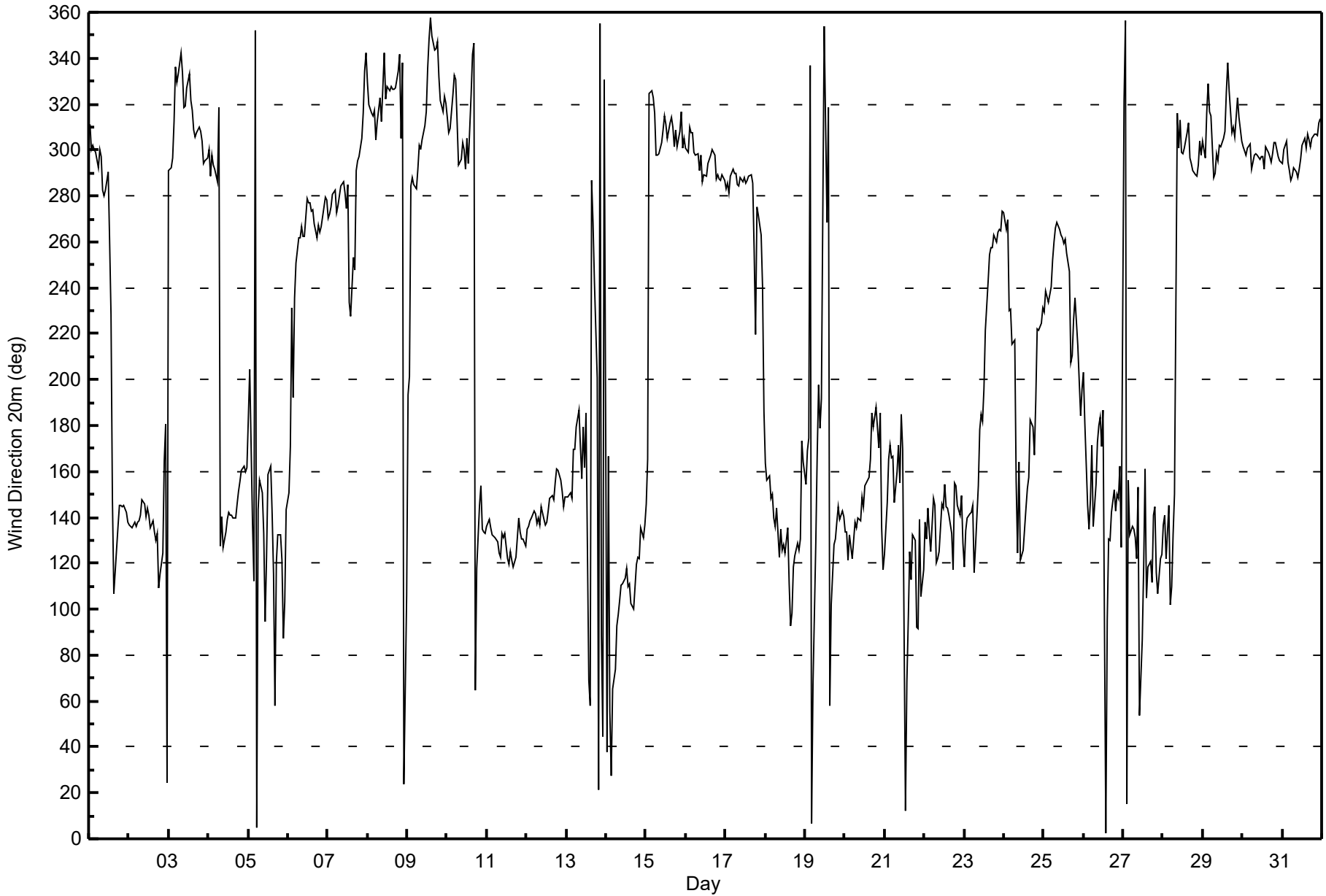
Direction of Maximum Speed: 264 deg on Dec 23 21:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 316.2 deg on Dec 3																						Hours of Data: 744			
Direction of Minimum Speed: 316 deg on Dec 28 09:00											Direction of Minimum Daily Speed Average: 1.7 deg on Dec 1											Hours of Missing Data: 0			
Monthly Average Direction: 251.6 deg																						Percent Operational Time: 100.0			
Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	311	300	302	300	299	292	300	297	282	280	282	291	260	229	149	107	126	136	145	145	145	145	142	138	216.8
2-Dec	137	136	136	138	136	138	139	141	148	146	141	144	141	135	139	134	130	133	109	115	124	165	180	25	136.7
3-Dec	291	293	296	312	336	329	333	342	334	318	319	327	333	322	318	309	306	308	310	308	304	294	295	296	316.2
4-Dec	300	288	297	294	291	286	319	128	140	127	134	139	142	141	141	140	140	146	151	156	160	163	160	162	158.3
5-Dec	183	204	137	112	352	5	143	157	151	133	94	123	158	162	142	116	58	120	132	121	87	103	143	132.3	
6-Dec	151	171	231	192	236	251	261	262	267	262	262	279	277	277	273	274	268	262	267	264	267	271	279	278	265.1
7-Dec	271	272	275	281	283	273	276	280	284	286	281	275	285	233	227	253	248	291	295	297	305	316	334	342	281.8
8-Dec	329	320	316	315	317	305	312	323	312	327	342	322	328	326	328	326	326	327	334	342	305	338	24	106	323.3
9-Dec	193	202	284	288	285	283	292	302	300	304	311	317	335	348	357	350	344	344	347	332	321	316	324	321	321.4
10-Dec	314	308	309	324	332	331	312	293	296	303	300	292	305	294	324	342	347	64	117	145	154	135	133	133	312.6
11-Dec	136	139	135	133	132	131	129	125	122	133	131	133	122	120	125	121	118	123	131	139	134	131	130	127	129.5
12-Dec	135	136	138	140	143	142	137	140	137	145	139	137	138	143	148	149	148	155	161	161	156	151	145	149	143.8
13-Dec	149	149	151	149	170	170	180	187	171	157	179	162	186	69	58	287	269	243	201	22	355	89	45	331	167.5
14-Dec	38	166	55	27	65	74	93	97	104	110	111	113	118	110	111	102	100	110	120	123	122	136	131	137	109.3
15-Dec	146	165	324	326	323	316	298	298	298	303	308	315	311	305	312	314	310	302	309	302	308	317	301	305	307.9
16-Dec	301	299	310	307	307	299	298	298	291	298	286	289	289	294	296	297	300	298	287	289	288	287	289	287	293.8
17-Dec	283	285	281	289	292	290	290	285	285	288	286	288	285	287	289	289	285	256	220	275	272	263	240	186	282.6
18-Dec	164	156	158	149	150	140	136	144	123	135	126	128	125	135	111	92	98	118	123	129	125	130	173	164	133.5
19-Dec	154	169	175	337	7	67	129	167	198	179	192	354	311	268	319	58	102	128	131	138	144	139	143	140	139.8
20-Dec	134	133	122	132	122	130	138	135	140	138	149	145	154	155	158	165	186	179	183	188	170	185	136	117	144.6
21-Dec	124	146	165	171	166	167	146	160	171	155	185	170	12	68	95	125	113	133	130	92	92	139	106	117	129.0
22-Dec	138	130	144	134	125	148	145	120	122	125	146	144	154	145	144	141	133	117	155	154	145	141	149	129	139.4
23-Dec	119	135	140	142	142	145	116	128	154	178	185	182	196	222	243	254	257	257	263	260	264	265	265	273	245.0
24-Dec	273	265	270	230	231	215	217	156	125	164	121	126	135	144	152	157	183	179	167	191	222	221	224	231	192.0
25-Dec	229	239	236	234	240	252	260	266	268	265	263	262	259	261	255	247	207	210	227	235	215	200	184	196	246.1
26-Dec	203	181	145	135	148	172	136	154	173	180	184	171	187	3	95	130	130	142	152	143	150	148	162	127	157.1
27-Dec	322	357	15	156	133	136	135	131	122	153	54	87	119	161	105	118	121	112	141	145	116	106	122	124	122.9
28-Dec	137	141	122	145	102	110	133	150	316	301	313	299	299	301	308	312	297	294	291	290	288	293	304	298	295.2
29-Dec	304	297	316	329	317	315	288	290	298	295	302	301	305	308	325	338	326	308	310	306	314	323	314	304	310.4
30-Dec	302	300	298	301	302	292	295	298	298	298	296	297	297	292	301	299	297	295	298	303	303	297	295	295	297.9
31-Dec	294	300	304	295	291	287	289	292	290	288	292	296	302	305	301	307	304	301	305	307	307	307	312	314	299.9
242.9 242.6 255.9 260.1 263.7 254.4 256.1 253.8 251.4 252.5 260.9 267.5 267.6 263.5 266.8 273.8 267.6 226.9 229.6 232.7 243.6 239.4 246.4 241.8																									
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 20m (WD20) - deg
Anzac - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 96 deg on Dec 14 03:00 Minimum Value: 5 deg on Dec 21 06:00 Percentiles: P ₁ = 9 P ₁₀ = 12 Q ₁ = 13 Median = 15 Q ₃ = 17 P ₉₀ = 28 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-Dec	12	11	11	12	13	12	12	13	14	15	18	20	37	41	60	18	11	12	11	12	13	12	14	15	60
2-Dec	14	14	14	15	15	13	14	13	12	13	14	14	15	15	15	14	14	15	16	18	14	13	43	41	43
3-Dec	23	16	16	22	13	13	13	14	14	13	12	16	13	13	12	14	14	13	13	13	11	11	12	23	
4-Dec	10	12	12	12	13	16	54	31	16	15	14	13	15	15	15	14	13	14	13	12	13	16	16	54	
5-Dec	22	23	79	59	84	63	23	17	17	19	13	42	31	21	20	25	12	20	23	32	21	17	22	24	84
6-Dec	12	22	28	34	54	16	12	12	18	18	18	19	17	18	17	14	17	15	16	15	15	16	15	19	54
7-Dec	16	16	16	15	16	16	17	17	16	17	16	13	12	21	26	53	26	55	15	13	15	11	12	15	55
8-Dec	13	13	13	13	15	14	14	15	15	14	17	13	14	14	14	15	14	14	14	16	18	23	40	55	55
9-Dec	17	21	22	16	17	15	18	15	17	14	14	14	14	16	15	14	13	15	14	13	12	14	12	11	22
10-Dec	11	13	12	13	12	11	11	12	10	11	12	15	15	23	20	26	26	13	33	21	14	14	17	16	33
11-Dec	13	13	13	15	14	16	14	17	15	14	15	15	15	14	14	13	10	13	17	13	14	13	14	15	17
12-Dec	12	13	13	13	12	14	14	14	14	13	13	15	14	13	13	13	13	12	11	11	12	12	12	11	15
13-Dec	11	12	11	22	19	13	10	11	15	9	9	11	17	81	52	65	32	43	30	70	17	66	32	24	81
14-Dec	33	19	96	13	15	14	21	13	14	14	16	14	15	14	15	17	15	17	17	15	14	24	24	15	96
15-Dec	16	73	16	22	20	14	14	14	15	14	13	13	14	14	14	14	12	13	13	14	14	12	14	14	73
16-Dec	13	15	15	15	18	17	15	16	16	16	15	15	17	16	15	16	15	15	15	13	15	15	15	15	18
17-Dec	15	15	14	14	15	14	13	13	13	14	14	13	14	13	16	14	14	16	9	33	12	14	18	18	33
18-Dec	18	19	10	9	10	11	12	10	10	11	13	14	15	14	23	11	9	12	13	16	19	17	14	11	23
19-Dec	16	31	29	44	66	30	21	20	21	6	76	71	56	93	33	16	23	15	14	11	11	13	13	15	93
20-Dec	13	16	15	15	15	16	15	14	13	14	14	14	14	13	12	17	17	10	17	20	22	15	53	28	53
21-Dec	23	20	14	9	6	5	22	37	30	66	33	83	28	20	26	19	20	16	12	31	37	13	19	15	83
22-Dec	14	15	12	19	18	12	14	25	18	18	16	18	16	15	13	14	68	19	11	11	20	10	10	17	68
23-Dec	22	16	13	10	13	15	45	23	17	10	10	9	12	13	24	14	14	14	16	16	17	17	17	18	45
24-Dec	17	15	14	15	15	11	17	17	20	23	13	19	13	14	11	35	34	19	15	14	26	16	11	11	35
25-Dec	10	12	12	14	15	14	17	16	16	16	16	16	16	15	15	19	15	15	16	18	16	19	14	13	19
26-Dec	12	18	13	19	13	22	29	18	8	14	21	16	51	25	71	18	11	13	9	12	11	11	9	53	71
27-Dec	61	66	40	72	13	15	36	13	16	32	42	29	29	24	32	15	20	14	16	15	17	16	16	14	72
28-Dec	14	13	11	15	42	18	52	57	71	17	13	14	14	12	14	16	15	14	13	14	15	13	13	12	71
29-Dec	13	16	13	12	16	13	13	14	14	14	15	13	18	17	17	14	12	14	13	13	12	13	13	14	18
30-Dec	12	13	13	13	13	14	15	14	14	15	14	16	16	15	14	14	13	14	14	14	14	13	14	13	16
31-Dec	14	13	13	13	13	13	14	13	13	14	14	14	15	14	13	14	13	13	13	13	13	12	12	11	15
	61	73	96	72	84	63	54	57	71	66	76	83	56	93	71	65	68	55	33	70	37	66	53	55	
Diurnal Maximum																									





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS17
WAPASU
DECEMBER 2024**

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
DECEMBER 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	23.7	0	4.5	0
H2S (ppb) Average	708	36	36	100	1.2	0	0.3	0
THC (ppm) Average	709	35	35	100	3.4	-	2.5	-
O3 (ppb) Average	708	36	36	100	40.2	0	36.6	-
NO2 (ppb) Average	709	35	35	100	28.2	0	8.9	-
NO (ppb) Average	709	35	35	100	27.3	-	3	-
NOX (ppb) Average	709	35	35	100	50.2	-	9.6	-
PM2.5 (ug/m3) Average	742	2	2	100	16.9	0	9.6	0
Temperature 2 m (C) Average	744	0	0	100	2.7	-	0.7	-
Relative Humidity (%) Average	739	0	5	99.33	100	-	98.9	-
Wind Speed 10 m (km/h) Average	675	0	69	90.73	21	-	17	-
Wind Direction 10 m (deg) Average	675	0	69	90.73	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.7	-	6.8	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
DECEMBER 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	1.06	2.5	-	0	0	0	0.2	0.7	3.1	23.7
H2S (ppb) Average	708	0.17	0.2	-	0	0	0.1	0.1	0.2	0.4	1.2
THC (ppm) Average	709	2.35	0.1	-	2.2	2.3	2.3	2.3	2.4	2.4	3.4
O3 (ppb) Average	708	26.49	7.2	-	4.5	17	22	26.6	32.1	35.7	40.2
NO2 (ppb) Average	709	5.07	4.5	-	0.2	0.8	1.7	3.5	7.5	10.9	28.2
NO (ppb) Average	709	0.45	1.9	-	0	0	0	0	0.2	0.9	27.3
NOX (ppb) Average	709	5.51	5.5	-	0.2	0.8	1.8	3.6	8.2	11.3	50.2
PM2.5 (ug/m3) Average	742	3.59	2.7	-	0.3	1.4	1.9	2.8	4.1	7.4	16.9
Temperature 2 m (C) Average	744	-12.38	8.1	-	-30.9	-23.8	-18.9	-11.6	-6	-1.6	2.7
Relative Humidity (%) Average	739	86.37	6.9	-	65.6	77.6	80.7	86.5	92.2	94.6	100
Wind Speed 10 m (km/h) Average	675	8.2	4	-	0	3	5	8	11	15	21
Wind Direction 10 m (deg) Average	675	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	24.65	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WAPASU (AMS17)
NOVEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Relative Humidity	06 Dec 2024 07:00	06 Dec 2024 11:00	5	Sensor operated out of range
Wind Speed, Wind Direction	07 Dec 2024 06:00	07 Dec 2024 12:00	7	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	07 Dec 2024 20:00	09 Dec 2024 13:00	42	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	09 Dec 2024 14:00	09 Dec 2024 16:00	3	Maintenance - de-ice sensor
Wind Speed, Wind Direction	10 Dec 2024 13:00	11 Dec 2024 04:00	16	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	16 Dec 2024 10:00	16 Dec 2024 10:00	1	Flat line in sensor output signal - Sensor frozen



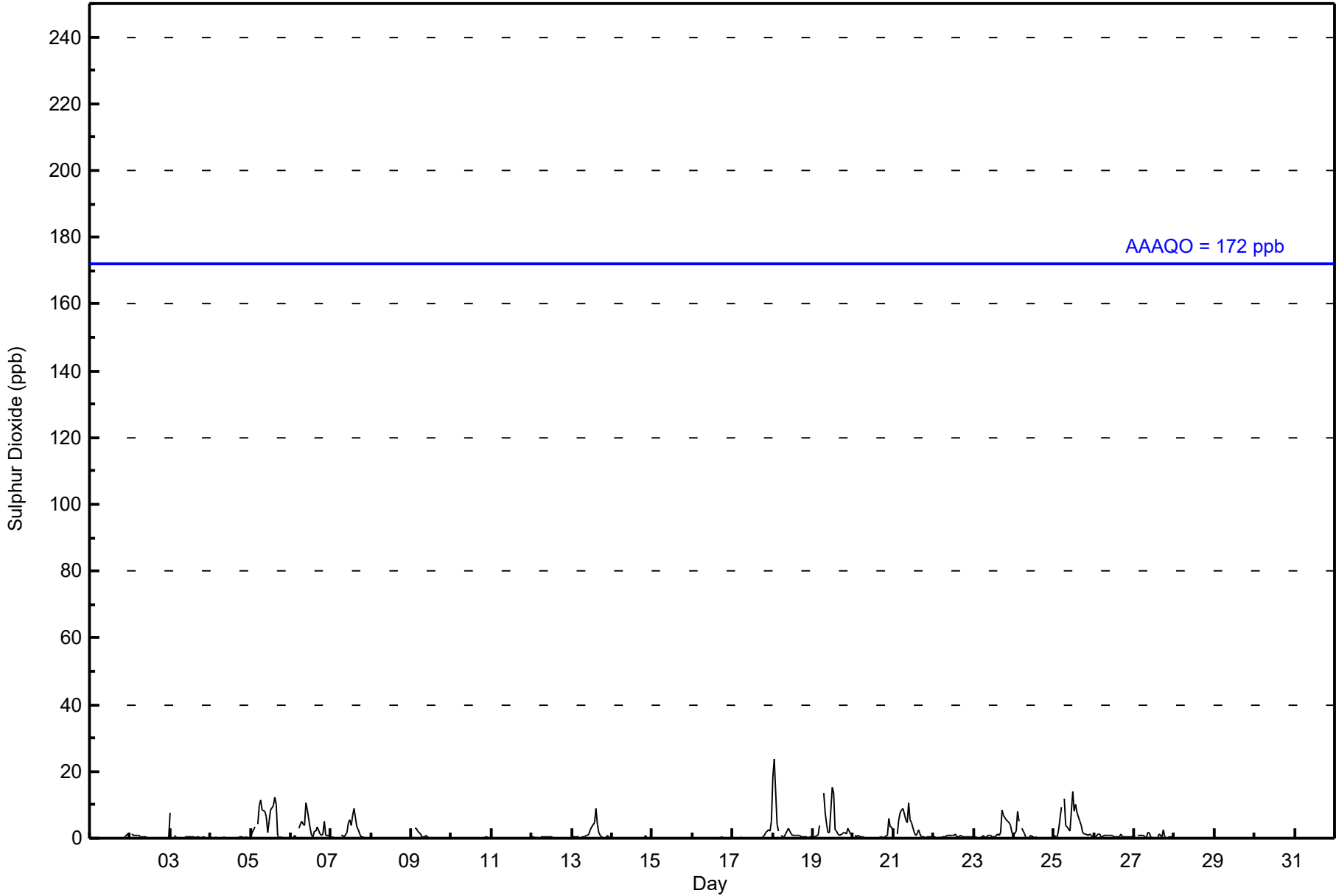
Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Wapasu - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 23.7 ppb on Dec 18 02:00		Maximum Daily Average: 4.5 ppb on Dec 5																	Hours of Data: 709																														
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.0 ppb on Dec 28																	Hours of Missing Data: 35																														
Maximum Diurnal Average: 1.9 ppb at hour 7		Minimum Diurnal Average: 0.4 ppb at hour 20																	Hours of Calibration: 35																														
Monthly Average: 1.06 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.7 P ₉₀ = 3.1 P ₉₉ = 11.9																	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-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.3	1.4	1.3	0.2	1.4																								
2-Dec	Z	1.1	0.9	0.7	0.7	0.8	0.5	0.3	0.3	0.2	0.2	C	C	C	C	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.3	1.1																							
3-Dec	7.6	Z	0.8	0.3	0.1	0.1	0.2	0.1	0.2	0.4	0.5	0.4	0.5	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	7.6																							
4-Dec	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.3																							
5-Dec	0.2	1.6	3.5	Z	4.4	9.9	11.6	8.4	8.2	6.2	1.6	5.1	8.3	9.9	12.4	10.2	1.0	0.1	0.2	0.0	0.0	0.0	0.1	0.0	4.5	12.4																							
6-Dec	0.0	0.0	0.9	0.6	Z	2.8	5.1	4.2	4.0	10.6	8.3	3.0	0.7	0.2	2.0	2.2	3.2	1.5	0.8	1.3	5.0	1.0	0.8	0.4	2.6	10.6																							
7-Dec	0.1	0.2	0.0	0.0	0.0	Z	1.0	0.9	0.6	1.9	4.8	5.6	3.7	6.9	8.9	3.3	2.5	1.2	0.3	0.4	0.2	0.0	0.0	0.0	1.8	8.9																							
8-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
9-Dec	0.0	Z	2.9	2.8	2.3	1.1	0.6	0.4	0.5	0.7	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	0.5	2.9																							
10-Dec	0.0	0.1	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.2	0.3	0.1	0.1	0.1	0.3																							
11-Dec	0.1	0.1	0.0	Z	0.1	0.0	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
12-Dec	0.2	0.2	0.2	0.4	Z	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.4																							
13-Dec	0.2	0.3	0.3	0.4	0.3	Z	0.3	0.3	0.7	0.9	1.2	2.5	3.3	4.6	9.0	4.2	1.8	0.9	0.2	0.1	0.1	0.9	0.6	0.1	1.4	9.0																							
14-Dec	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	0.8	0.0	0.0	0.0	0.0	0.8																							
15-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																							
16-Dec	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2																							
17-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.4	0.8	1.7	2.5	2.3	5.1	0.6	5.1																							
18-Dec	18.1	23.7	4.0	1.9	Z	0.8	0.4	0.5	2.1	3.0	2.3	1.2	1.0	0.7	0.7	0.9	0.7	0.3	0.3	0.3	0.3	0.2	0.4	0.4	2.8	23.7																							
19-Dec	0.3	0.5	0.7	0.7	3.9	Z	13.5	7.5	4.1	1.8	1.6	15.3	13.4	2.6	2.0	1.2	0.9	1.1	1.6	1.6	1.1	3.0	1.5	0.7	3.5	15.3																							
20-Dec	Z	0.9	0.6	0.7	0.4	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.3	1.0	5.8	3.6	3.3	0.8	5.8																							
21-Dec	1.1	Z	1.4	5.5	7.8	8.3	8.7	5.3	4.8	10.7	5.5	4.7	1.6	0.9	1.1	2.6	1.1	0.3	0.4	0.2	0.4	0.5	0.4	0.3	3.2	10.7																							
22-Dec	0.3	0.3	Z	0.4	0.2	0.2	0.2	0.4	0.6	0.7	0.7	0.6	0.7	1.1	0.5	0.5	0.8	0.6	0.6	0.3	0.2	0.3	0.4	0.3	0.5	1.1																							
23-Dec	0.2	0.3	0.3	Z	0.2	0.4	0.8	0.1	0.8	1.1	0.8	0.5	0.3	0.4	1.1	0.7	1.7	8.3	6.6	5.5	5.2	4.9	3.6	1.8	2.0	8.3																							
24-Dec	1.0	2.2	8.1	4.9	Z	2.9	1.2	0.2	0.0	0.0	0.6	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.5	1.0	8.1																							
25-Dec	0.7	0.4	0.5	2.4	9.4	Z	11.9	4.0	3.5	2.2	8.2	14.0	8.0	10.1	7.7	5.0	3.8	1.9	1.1	1.1	1.0	1.3	0.8	0.6	4.3	14.0																							
26-Dec	Z	0.5	1.1	1.2	0.4	0.6	0.9	0.8	0.6	0.8	0.8	0.9	0.6	0.6	0.5	0.5	1.1	0.6	0.3	0.5	0.3	0.3	0.3	0.4	0.6	1.2																							
27-Dec	0.7	Z	0.8	0.8	0.9	0.6	0.4	0.2	1.5	1.5	0.4	0.1	0.1	0.1	0.2	1.5	0.3	2.6	0.4	0.0	0.0	0.3	0.4	0.0	0.6	2.6																							
28-Dec	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-Dec	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																							
30-Dec	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	0.1	0.1	0.0	0.0	0.1																						
31-Dec	0.0	0.1	0.1	0.1	0.0	Z	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
																								1.2	1.3	1.1	0.9	1.2	1.2	1.9	1.1	1.1	1.4	1.2	1.8	1.4	1.3	1.6	1.1	0.7	0.7	0.5	0.4	0.6	0.7	0.6	0.5	Diurnal Average	
																								18.1	23.7	8.1	5.5	9.4	9.9	13.5	8.4	8.2	10.7	8.3	15.3	13.4	10.1	12.4	10.2	3.8	8.3	6.6	5.5	5.2	5.8	3.6	5.1	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
Wapasu - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	698	98.45	98.45
11 - 20	10	1.41	99.86
21 - 60	1	0.14	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Wapasu - December 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	26	17	12	6	32	167	105	36	28	11	8	9	24	86	633
11 - 20	0	0	0	0	1	0	0	5	0	1	3	0	0	0	0	0	10
21 - 60	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	55	11	26	17	13	6	32	173	105	37	31	11	8	9	24	86	644

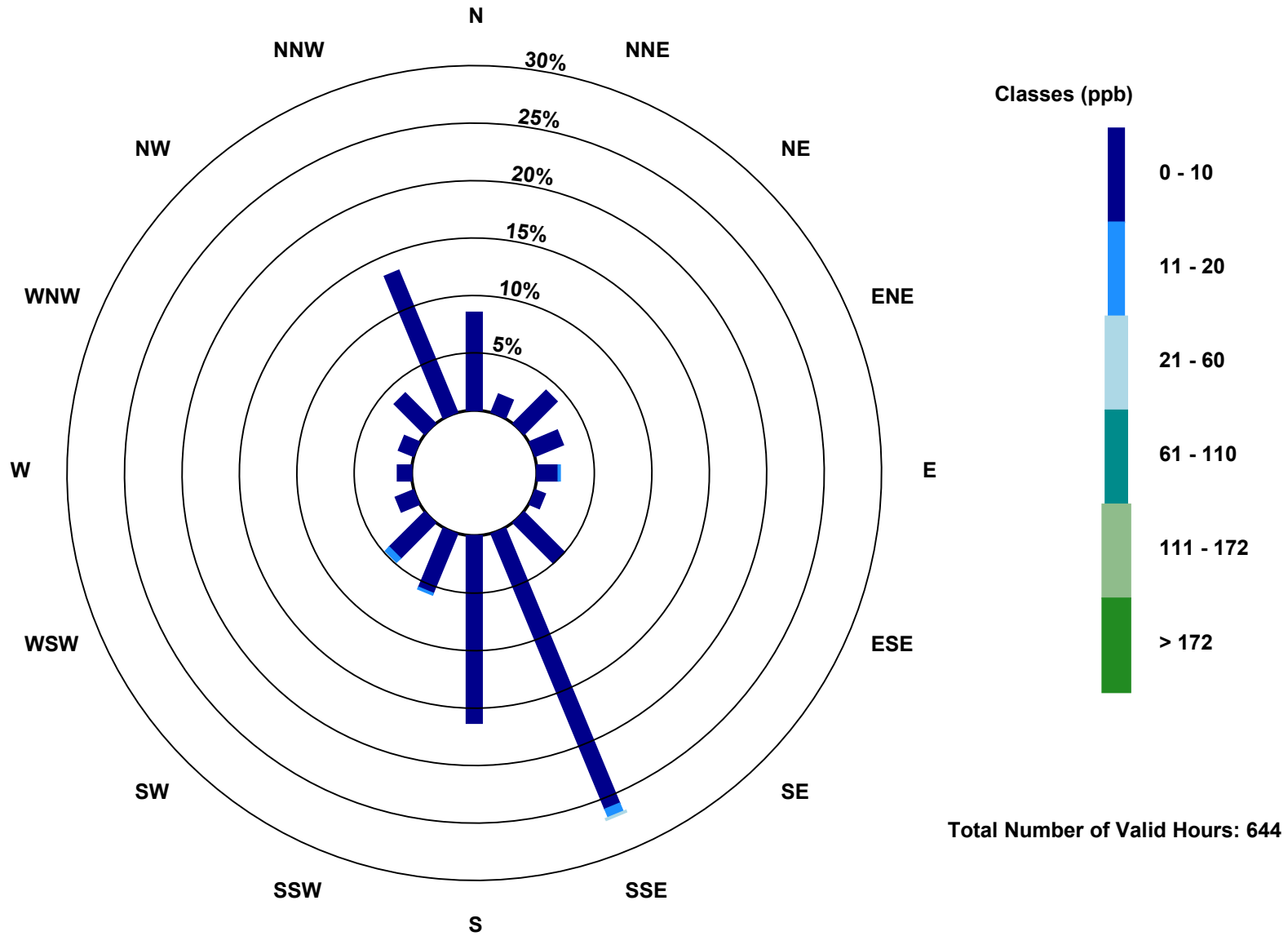
Total Number of Valid Hours: 644

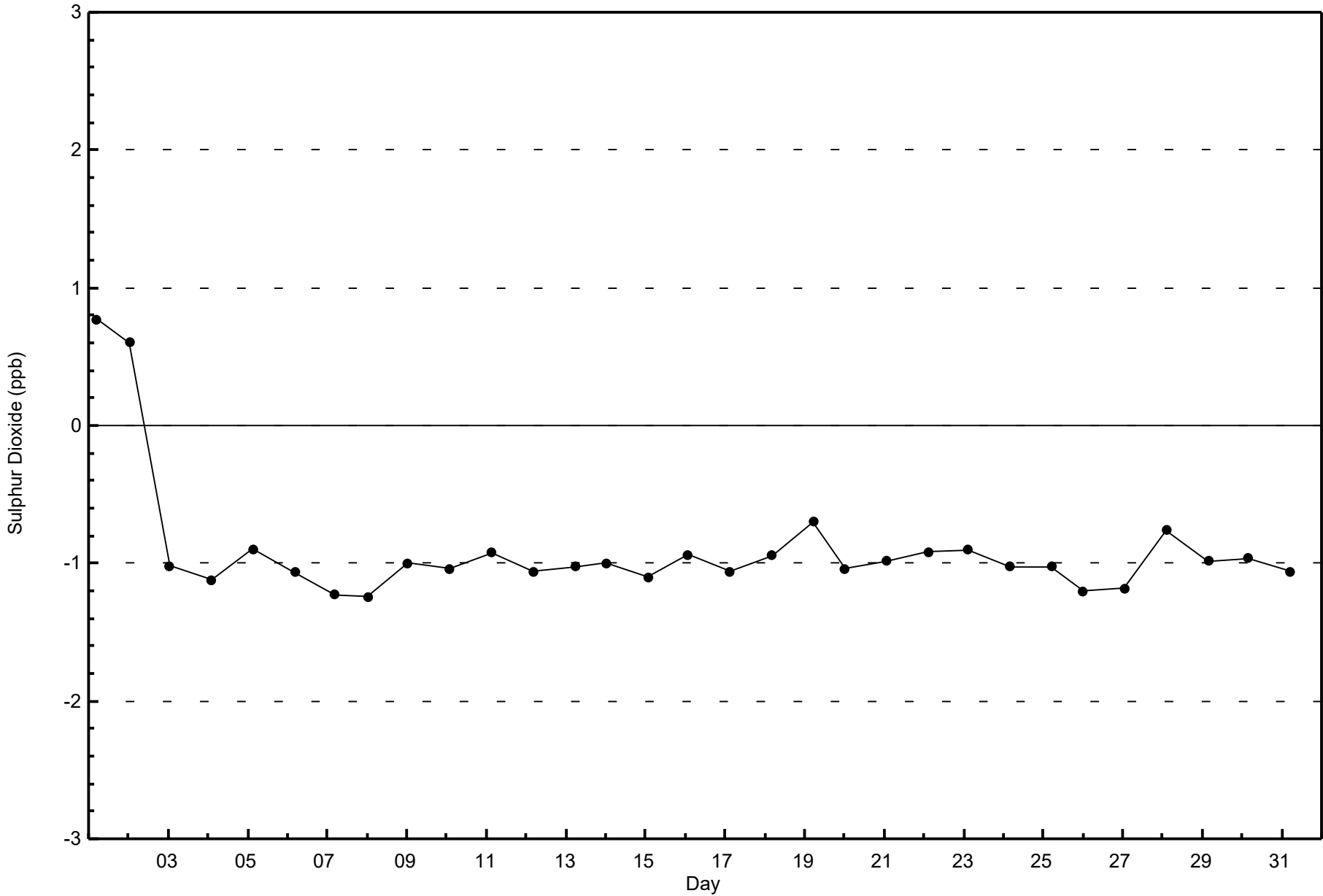
Total Number of Hours: 744

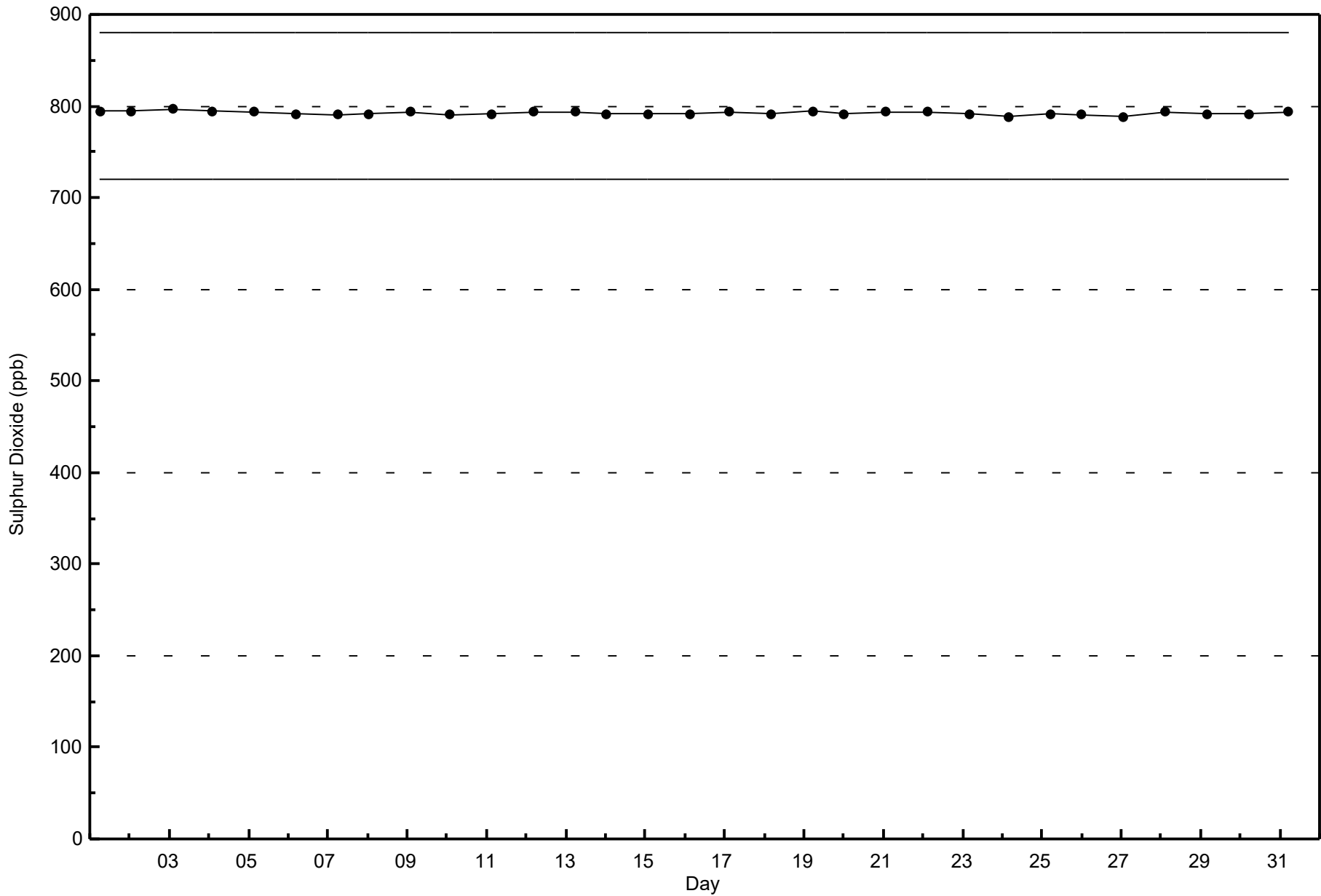


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Wapasu









Wood Buffalo Environmental Association

Summary of Hour Averages

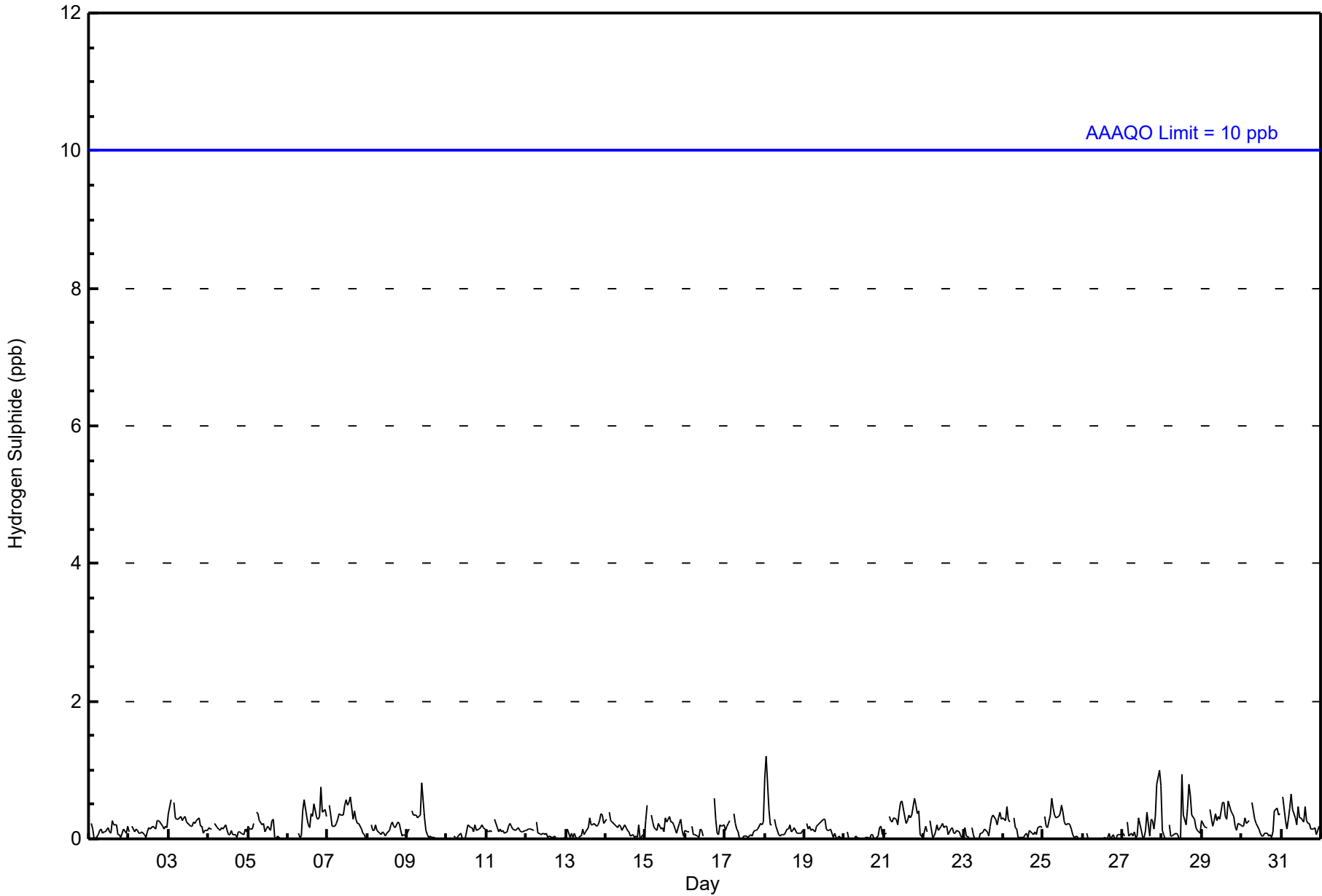
Hydrogen Sulphide (H₂S) - ppb

Wapasu - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 1.2 ppb on Dec 18 02:00	Maximum Daily Average: 0.3 ppb on Dec 7		Hours of Data:	708
Minimum Value: 0.0 ppb on Dec 1 04:00	Minimum Daily Average: 0.0 ppb on Dec 26		Hours of Missing Data:	36
Maximum Diurnal Average: 0.2 ppb at hour 2	Minimum Diurnal Average: 0.1 ppb at hour 20		Hours of Calibration:	36
Monthly Average: 0.17 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.4 P ₉₉ = 0.8		Percent Operational Time:	100.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	Z	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.3																						
2-Dec	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.3																						
3-Dec	0.4	0.6	Z	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.6																						
4-Dec	0.2	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
5-Dec	0.2	0.1	0.1	0.2	Z	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
6-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.4	0.6	0.3	0.2	0.2	0.4	0.3	0.5	0.3	0.3	0.3	0.8	0.4	0.4	0.3	0.3	0.8																						
7-Dec	Z	0.5	0.4	0.2	0.2	0.2	0.3	0.4	0.3	0.4	0.5	0.6	0.5	0.5	0.6	0.3	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.3	0.6																						
8-Dec	0.0	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.2																						
9-Dec	0.1	0.1	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.8	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8																						
10-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2																						
11-Dec	0.1	0.1	0.1	0.1	Z	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3																						
12-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
13-Dec	Z	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.3	0.2	0.1	0.4																						
14-Dec	0.3	Z	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.1	0.4																						
15-Dec	0.3	0.5	Z	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.2	0.1	0.3	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.1	0.0	0.2	0.5																						
16-Dec	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	C	C	C	C	C	0.6	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.6																						
17-Dec	0.1	0.2	0.2	0.3	Z	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.4																						
18-Dec	0.9	1.2	0.4	0.2	0.2	Z	0.3	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	1.2																						
19-Dec	Z	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.1	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3																						
20-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.1	0.0	0.2																						
21-Dec	0.1	0.1	Z	0.3	0.3	0.2	0.3	0.3	0.2	0.4	0.5	0.5	0.3	0.2	0.3	0.3	0.3	0.4	0.6	0.5	0.4	0.4	0.1	0.0	0.3	0.6																						
22-Dec	0.1	0.2	0.1	Z	0.3	0.0	0.0	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.3																						
23-Dec	0.1	0.2	0.0	0.0	Z	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.1	0.1	0.4																						
24-Dec	0.3	0.3	0.5	0.3	0.2	Z	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.5																						
25-Dec	Z	0.3	0.2	0.2	0.4	0.6	0.5	0.3	0.3	0.3	0.4	0.5	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.6																						
26-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1																						
27-Dec	0.1	0.0	Z	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.4	0.0	0.3	0.3	0.1	0.3	0.8	1.0	0.8	0.2	1.0																						
28-Dec	0.1	0.1	0.0	Z	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.9	0.4	0.2	0.5	0.8	0.6	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.9																						
29-Dec	0.3	0.2	0.2	0.2	Z	0.4	0.2	0.3	0.4	0.3	0.3	0.3	0.5	0.5	0.3	0.3	0.6	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.3	0.6																						
30-Dec	0.2	0.2	0.3	0.2	0.3	Z	0.5	0.4	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.4	0.5	0.4	0.4	0.2	0.5																						
31-Dec	Z	0.6	0.3	0.1	0.3	0.4	0.7	0.4	0.3	0.2	0.5	0.3	0.3	0.2	0.5	0.3	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3	0.7																						
																								0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	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	0.1	Diurnal Average
																								0.9	1.2	0.5	0.5	0.4	0.6	0.7	0.4	0.4	0.8	0.6	0.6	0.9	0.5	0.6	0.5	0.8	0.6	0.6	0.5	0.8	0.8	1.0	0.8	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Wapasu - December 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
Wapasu - December 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	58	9	26	18	13	6	30	176	106	37	32	11	7	6	22	84	641
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	58	9	26	18	13	6	30	176	106	37	32	11	7	6	22	84	641

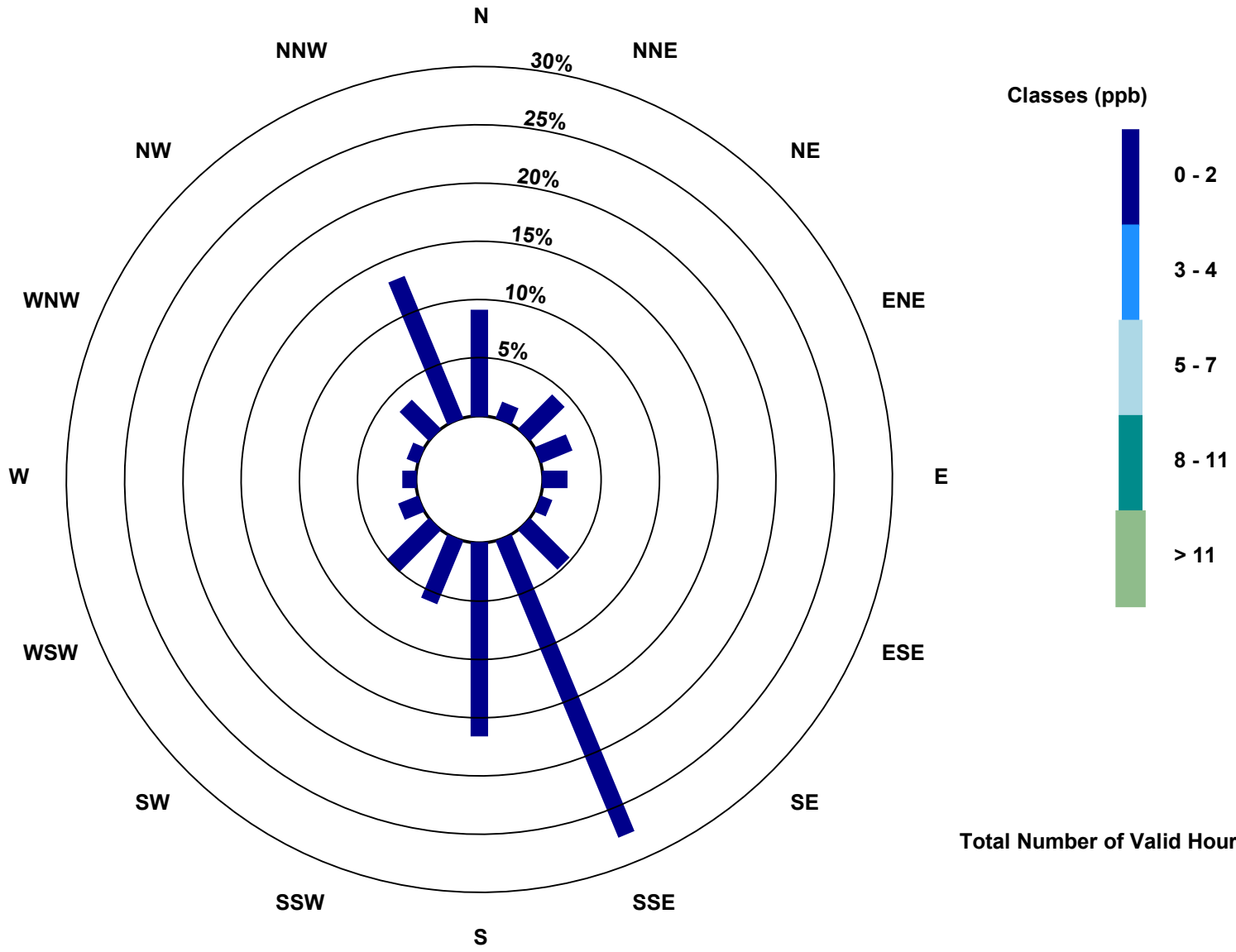
Total Number of Valid Hours: 641

Total Number of Hours: 744

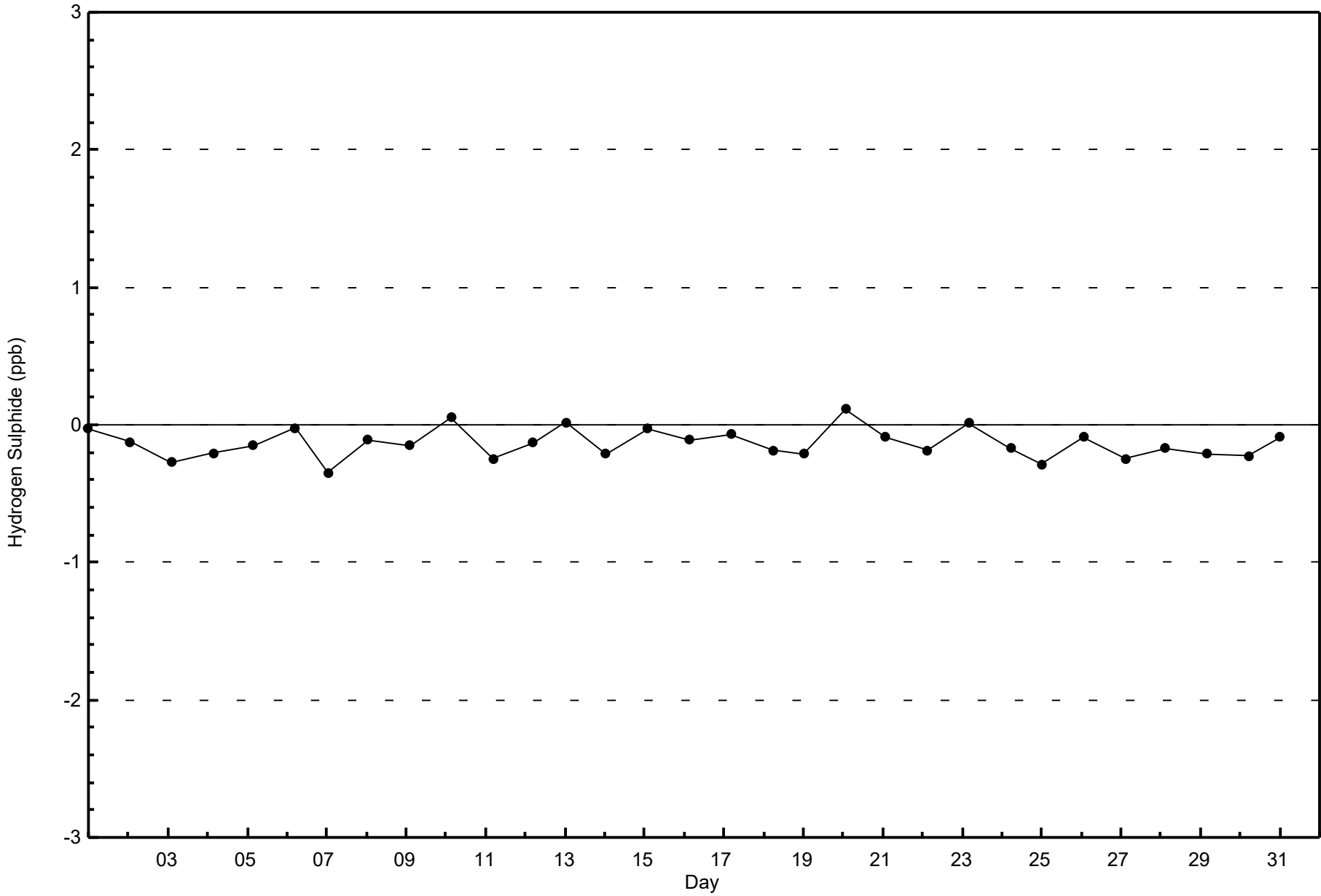


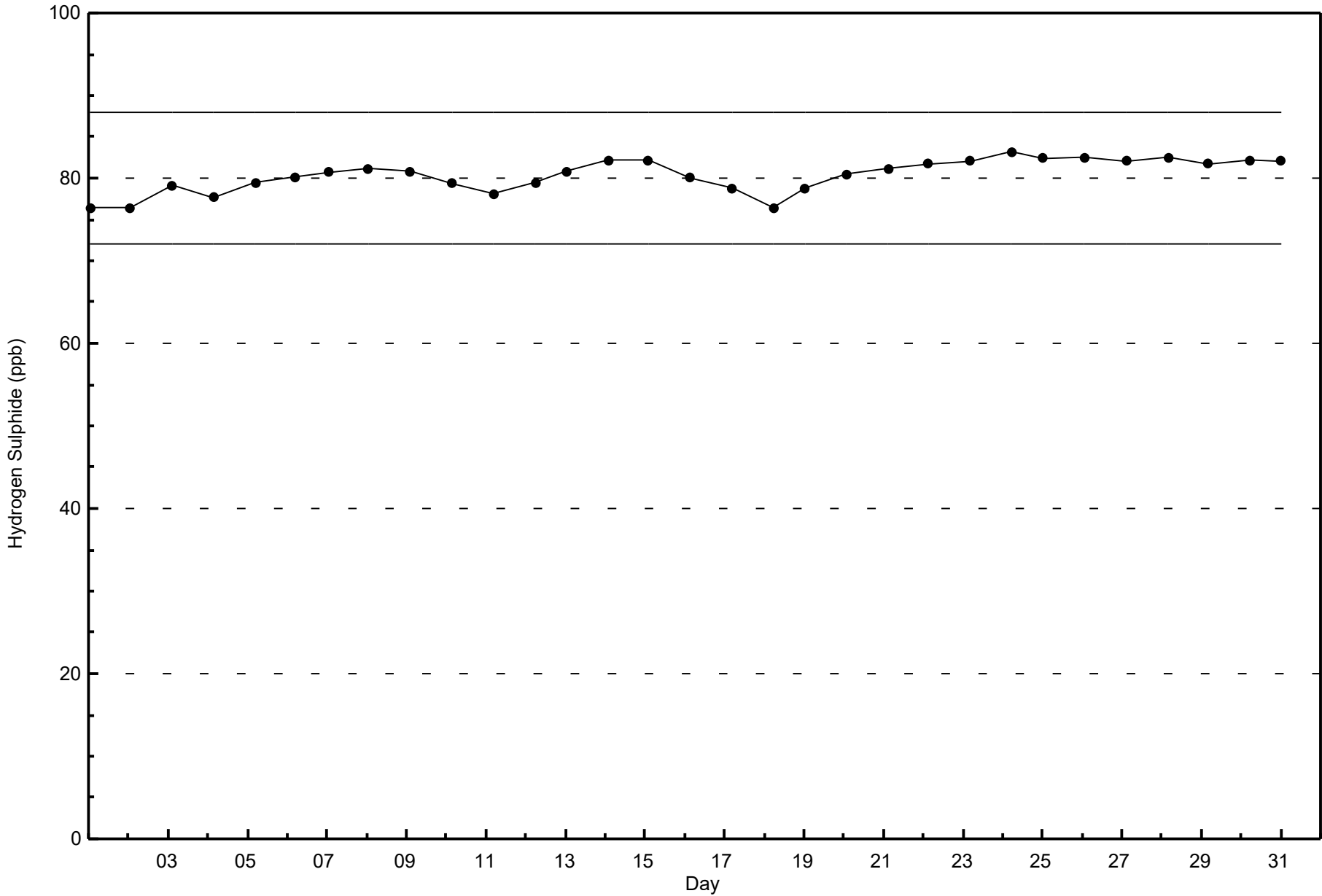
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Wapasu



Total Number of Valid Hours: 641







Wood Buffalo Environmental Association
Summary of Hour Averages

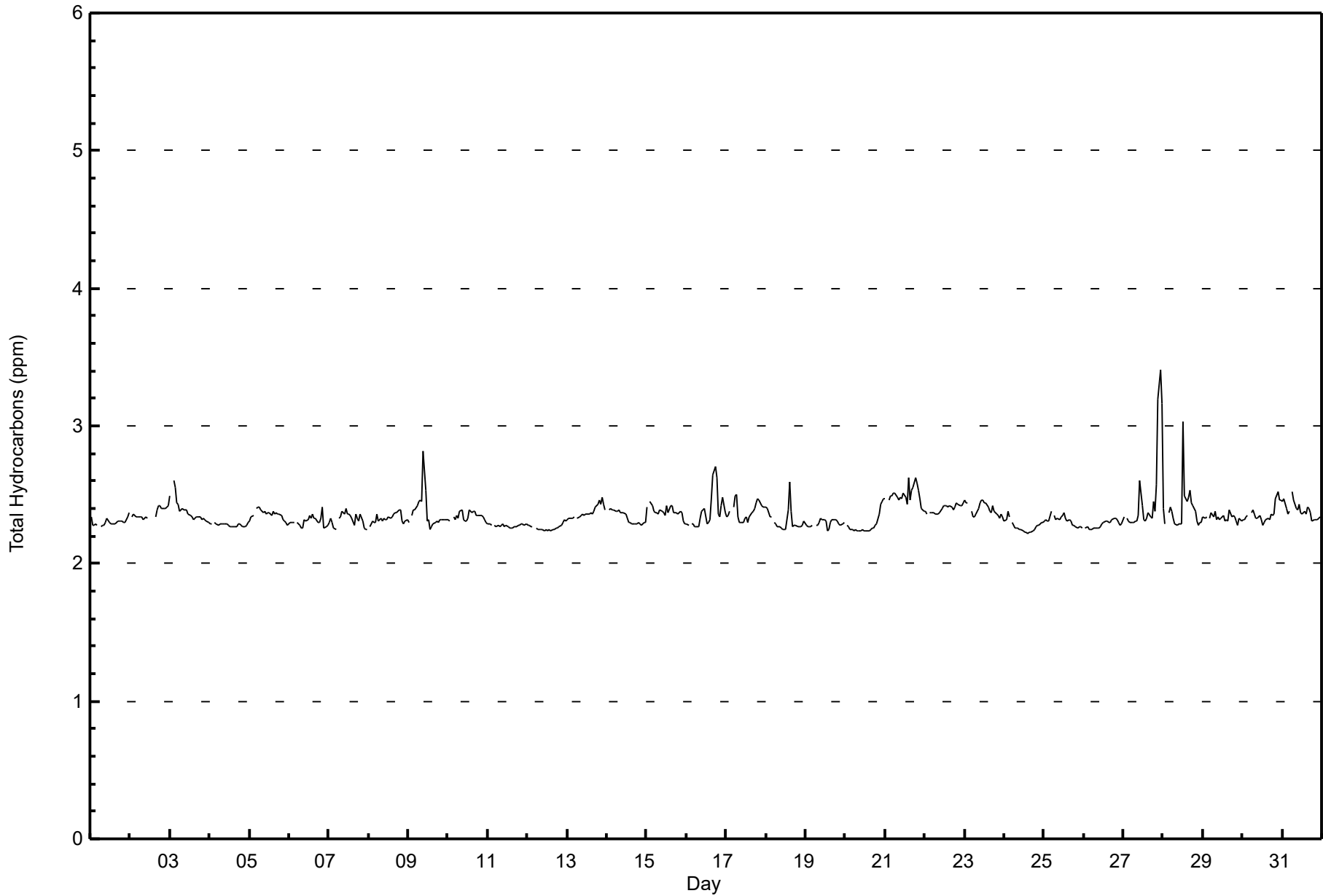
Total Hydrocarbons (THC) - ppm
Wapasu - December 2024

Maximum Value: 3.4 ppm on Dec 27 23:00		Maximum Daily Average: 2.5 ppm on Dec 21		Hours in Service: 744																						
Minimum Value: 2.2 ppm on Dec 24 15:00		Minimum Daily Average: 2.3 ppm on Dec 12		Hours of Data: 709																						
Maximum Diurnal Average: 2.4 ppm at hour 23		Minimum Diurnal Average: 2.3 ppm at hour 2		Hours of Missing Data: 35																						
Monthly Average: 2.35 ppm		Percentiles: P ₁ = 2.2 P ₁₀ = 2.3 Q ₁ = 2.3 Median = 2.3 Q ₃ = 2.4 P ₉₀ = 2.4 P ₉₉ = 2.6		Hours of Calibration: 35																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	
2-Dec	Z	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	C	C	C	C	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
3-Dec	2.5	Z	2.6	2.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6
4-Dec	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
5-Dec	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4
6-Dec	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	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.4
7-Dec	2.3	2.3	2.3	2.3	2.2	Z	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.2	2.3	2.4
8-Dec	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4
9-Dec	2.3	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.8	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	2.4	2.8
10-Dec	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4
11-Dec	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
12-Dec	2.3	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
13-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.4	2.4	2.4	2.5
14-Dec	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
15-Dec	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4
16-Dec	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.5	2.6	2.7	2.6	2.4	2.3	2.4	2.5	2.4	2.4	2.7
17-Dec	2.3	2.4	2.4	Z	2.4	2.5	2.5	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.5
18-Dec	2.4	2.4	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.4	2.6	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.6
19-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
20-Dec	Z	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4	2.4	2.5	2.5	2.3	2.5
21-Dec	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.6	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.4	2.4	2.4	2.6
22-Dec	2.4	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	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
23-Dec	2.5	2.4	2.4	Z	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.4	2.5
24-Dec	2.3	2.3	2.4	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	2.4
25-Dec	2.3	2.3	2.3	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
26-Dec	Z	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
27-Dec	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.6	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.5	2.4	2.6	3.2	3.4	3.2	2.5	3.4
28-Dec	2.4	2.3	Z	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	3.0	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.4	3.0
29-Dec	2.3	2.3	2.3	Z	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
30-Dec	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.4	2.5
31-Dec	2.4	2.5	2.4	2.4	2.4	Z	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5
																								Diurnal Average		
																								Diurnal Maximum		
																								2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.3 2.4 2.3 2.3 2.3 2.4 2.4 2.4 2.3 2.3 2.4 2.4 2.4		
																								2.5 2.5 2.6 2.6 2.5 2.5 2.5 2.5 2.5 2.8 2.6 2.5 3.0 2.5 2.6 2.5 2.6 2.7 2.6 2.6 2.6 3.2 3.4 3.2		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Wapasu - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	706	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: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Wapasu - December 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	55	11	25	16	13	6	32	173	105	37	31	11	8	9	24	85	641
3.1 - 10.0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	3
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	55	11	26	17	13	6	32	173	105	37	31	11	8	9	24	86	644

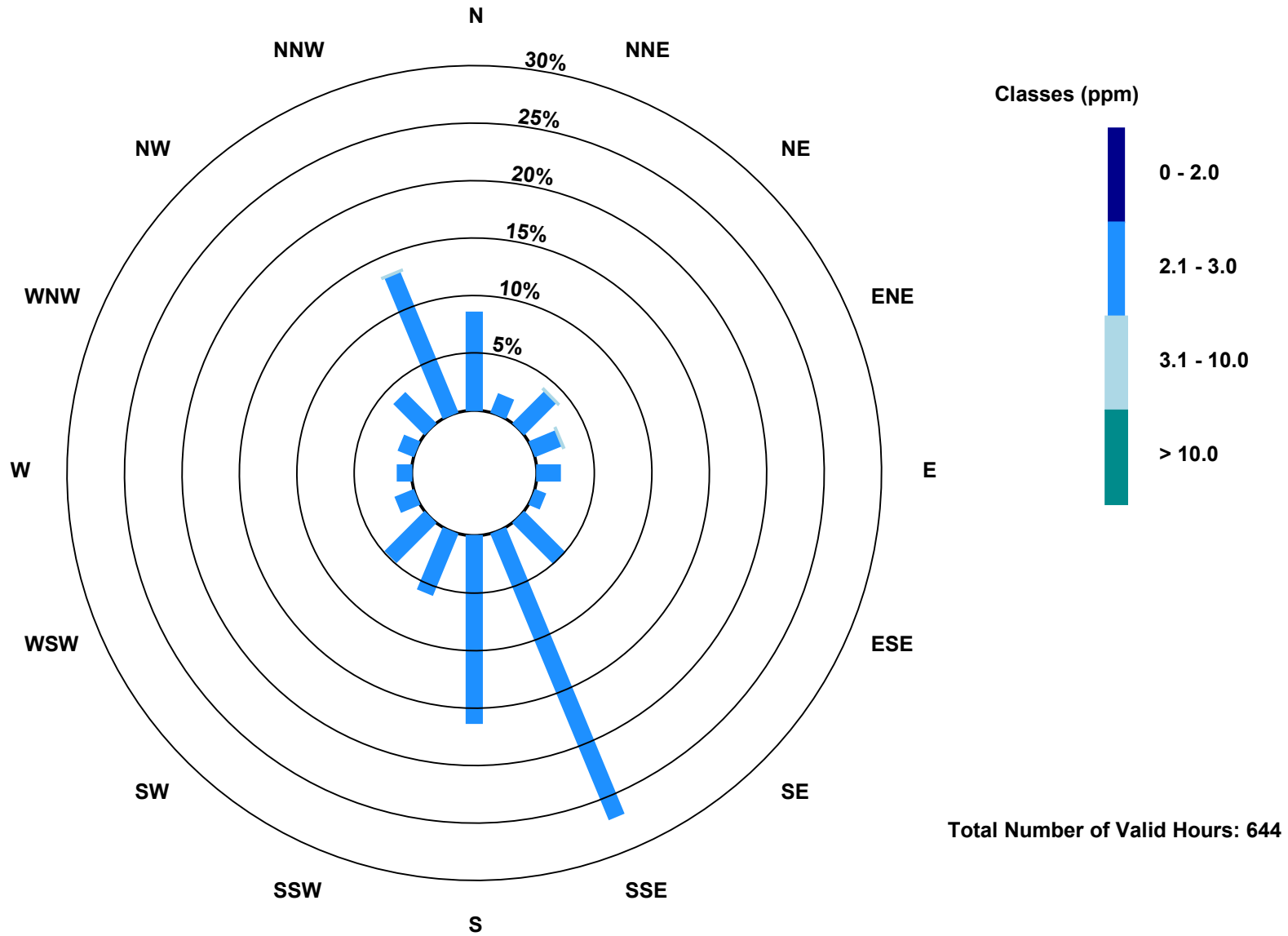
Total Number of Valid Hours: 644

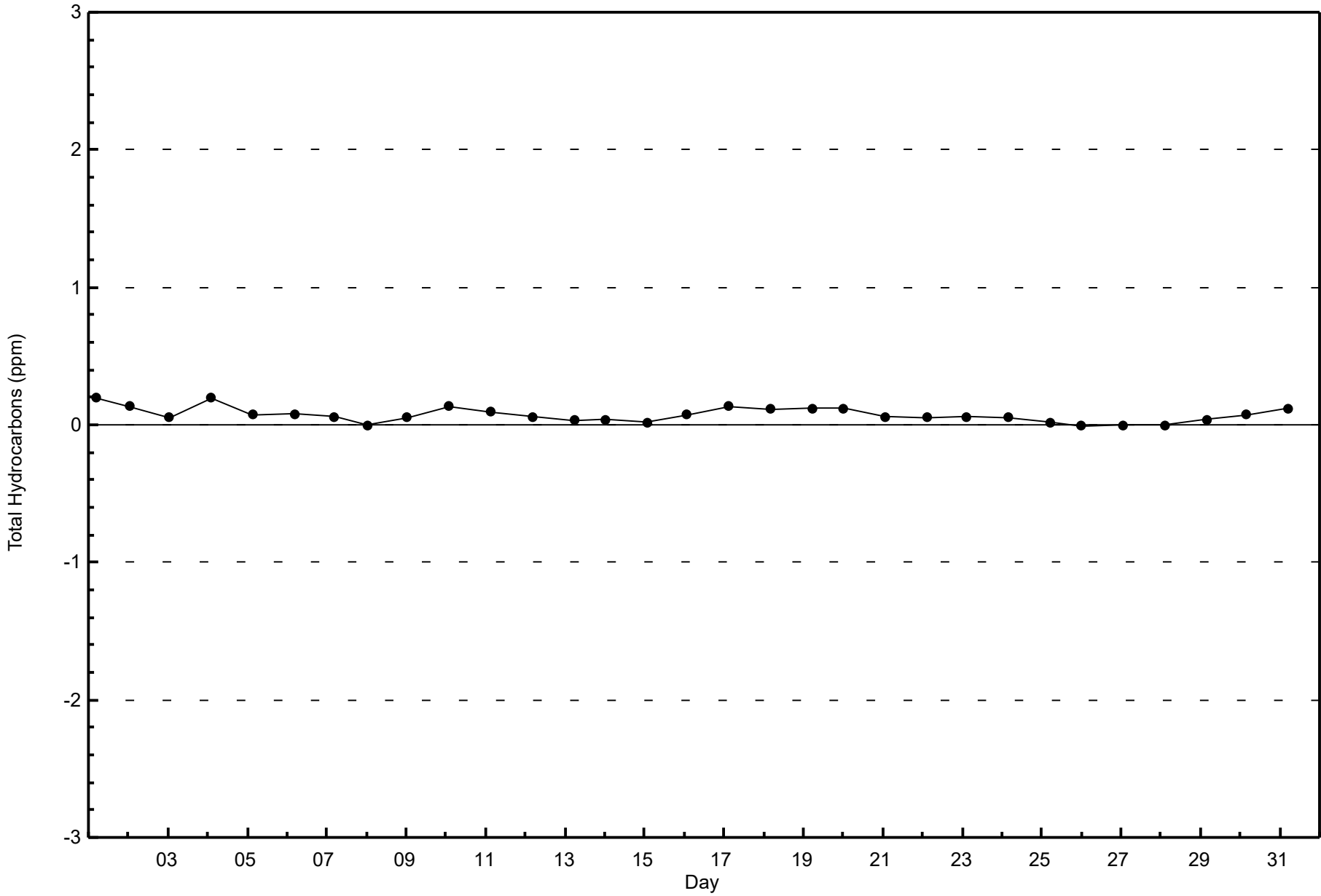
Total Number of Hours: 744

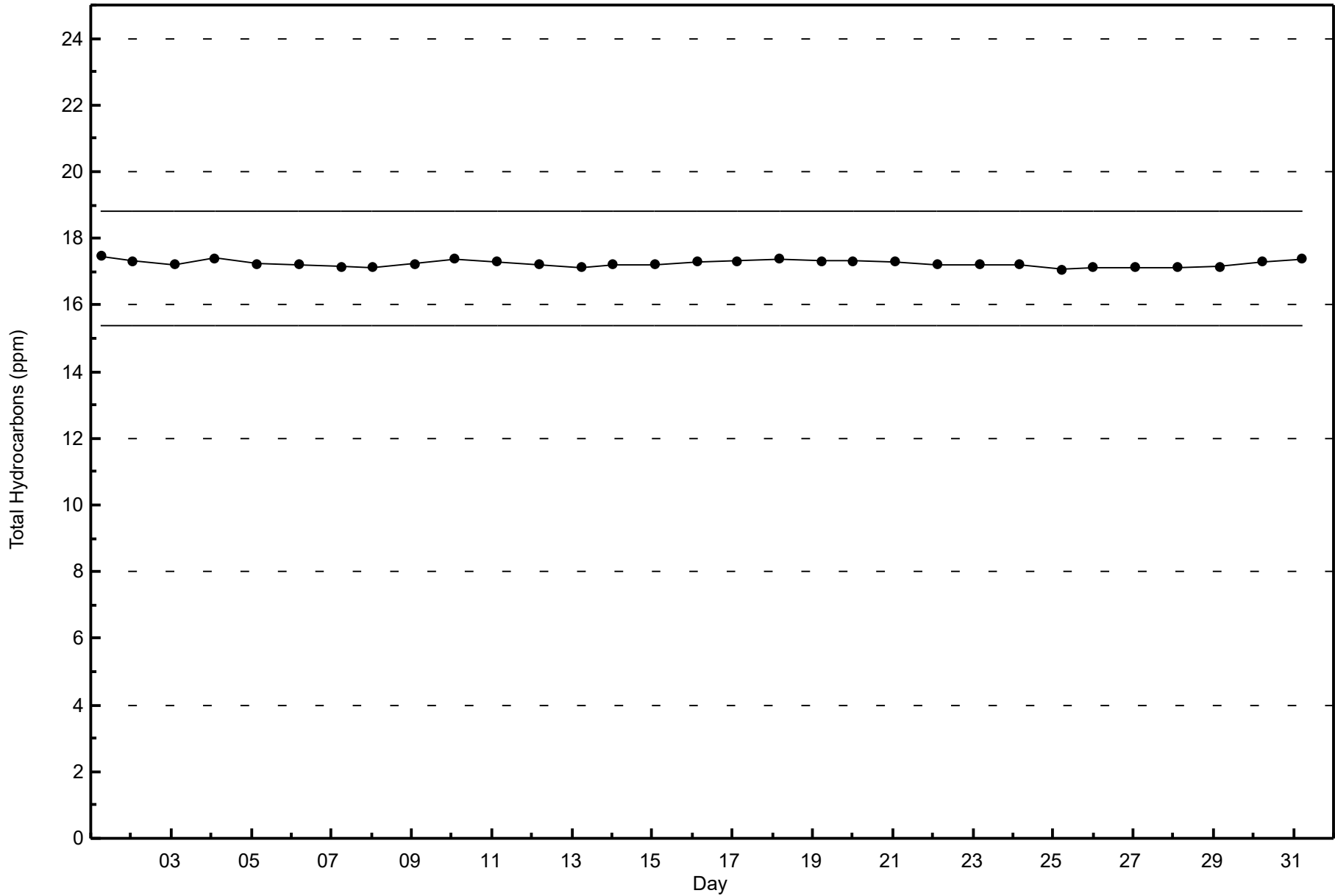


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Wapasu









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Wapasu - December 2024

Number of Exceedences (AAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.2 ppb on Dec 24 13:00	Maximum Daily Average: 36.6 ppb on Dec 11		Hours of Data:	708
Minimum Value: 4.5 ppb on Dec 27 23:00	Minimum Daily Average: 17.6 ppb on Dec 21		Hours of Missing Data:	36
Maximum Diurnal Average: 29.3 ppb at hour 14	Minimum Diurnal Average: 25.0 ppb at hour 19		Hours of Calibration:	36
Monthly Average: 26.49 ppb	Percentiles: P ₁ = 9.3 P ₁₀ = 17.0 Q ₁ = 22.0 Median = 26.6 Q ₃ = 32.1 P ₉₀ = 35.7 P ₉₉ = 39.4		Percent Operational Time:	100.0

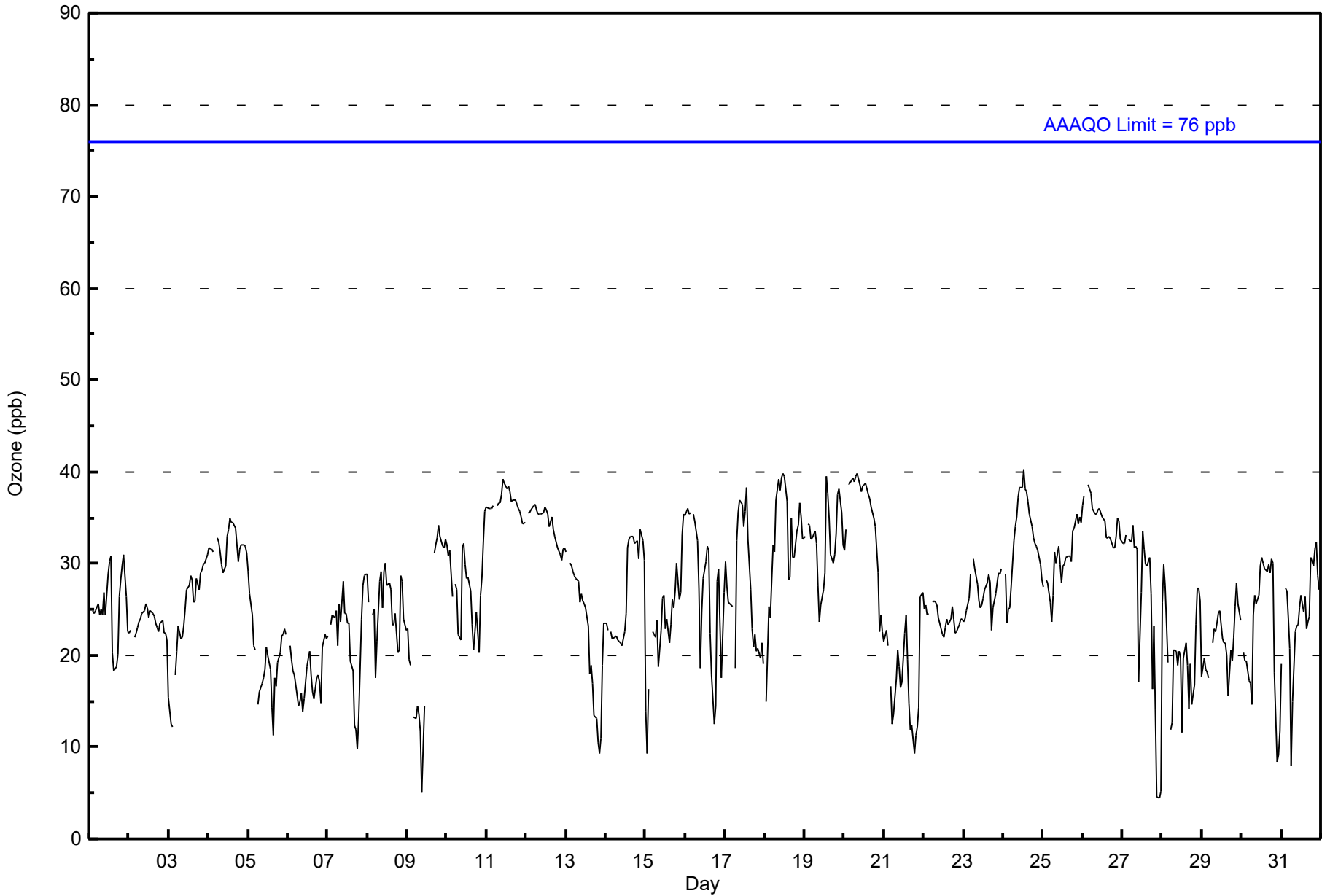
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	18.6	Z	24.9	24.6	24.9	25.6	24.5	25.1	24.4	26.8	24.4	28.8	30.2	30.8	20.2	18.3	18.7	20.2	26.4	28.3	29.7	31.0	26.4	22.5	25.0	31.0																						
2-Dec	22.5	22.7	Z	22.0	22.4	23.1	23.6	23.9	24.5	24.9	25.6	25.2	24.1	24.8	24.6	24.3	23.4	23.0	22.6	23.5	23.8	22.5	22.5	21.7	23.5	25.6																						
3-Dec	15.4	12.6	12.2	Z	17.9	20.5	23.2	21.7	22.0	23.2	25.0	27.1	27.6	28.7	28.2	25.8	25.9	28.3	27.1	28.9	29.2	30.0	30.1	30.9	24.4	30.9																						
4-Dec	31.7	31.6	31.6	31.2	Z	32.8	32.4	31.2	29.9	28.9	29.7	33.0	33.7	34.9	34.5	34.5	33.8	32.1	30.3	31.6	32.1	32.0	31.9	31.0	32.0	34.9																						
5-Dec	29.1	26.7	24.4	21.0	20.5	Z	14.7	16.0	16.9	17.5	18.4	20.9	20.0	18.5	14.3	11.2	17.5	16.6	19.2	20.3	22.1	22.3	22.9	22.3	19.7	29.1																						
6-Dec	Z	21.0	19.5	18.3	17.9	16.8	14.4	14.9	15.8	13.9	15.2	18.8	19.6	20.4	17.8	16.1	15.2	17.6	17.8	17.1	14.8	20.8	22.3	21.8	17.7	22.3																						
7-Dec	22.1	Z	23.3	24.4	24.1	24.8	21.1	25.7	23.6	28.1	24.6	24.5	23.5	23.5	19.4	18.2	12.4	12.0	9.8	13.2	24.0	27.7	28.7	28.9	22.1	28.9																						
8-Dec	28.8	25.7	Z	24.4	25.0	17.5	21.6	28.0	29.1	25.2	29.1	30.1	27.6	28.0	27.2	23.3	23.4	24.6	20.3	20.6	28.7	28.1	24.0	22.8	25.4	30.1																						
9-Dec	22.9	19.5	19.0	Z	13.3	13.2	14.5	13.6	11.7	5.0	14.5	C	C	C	C	C	31.1	32.1	32.8	34.1	32.9	31.9	31.7	32.7	22.6	34.1																						
10-Dec	32.0	30.7	31.4	26.4	Z	27.8	27.2	22.2	21.7	31.7	32.2	29.9	28.4	28.6	27.0	23.3	20.5	22.5	24.7	20.3	26.6	28.5	32.3	35.7	27.5	35.7																						
11-Dec	36.2	36.0	35.9	36.0	36.3	Z	36.3	36.5	36.6	37.5	39.2	38.7	38.2	38.5	37.8	36.8	36.9	37.0	36.5	35.9	35.8	35.1	34.4	34.5	36.6	39.2																						
12-Dec	Z	35.5	35.5	35.9	36.3	36.5	35.9	35.5	35.4	35.4	35.5	36.1	35.9	35.4	34.0	35.1	33.7	33.0	32.3	31.8	30.9	30.4	31.6	31.7	34.3	36.5																						
13-Dec	31.3	Z	30.0	29.8	29.1	28.7	28.4	28.0	25.8	26.7	26.0	25.7	25.2	23.2	18.0	18.9	17.0	13.4	13.1	10.6	9.3	10.9	18.9	23.5	22.2	31.3																						
14-Dec	23.5	22.7	Z	22.6	21.8	22.0	22.1	21.7	21.5	21.3	21.1	22.6	24.5	31.7	32.7	32.9	32.9	32.3	32.3	32.5	30.6	33.6	32.5	30.3	27.0	33.6																						
15-Dec	13.8	9.3	16.3	Z	22.6	22.3	22.0	23.8	18.8	22.7	26.3	26.6	22.9	23.9	21.4	23.4	26.1	25.2	27.0	30.0	26.1	26.9	33.1	35.3	23.7	35.3																						
16-Dec	35.2	36.1	35.4	35.5	Z	35.4	34.7	32.6	27.3	18.6	24.7	28.3	30.2	31.8	31.4	22.3	17.8	12.5	14.5	28.1	29.5	23.5	17.5	26.9	27.4	36.1																						
17-Dec	30.1	27.5	25.8	25.7	25.4	Z	18.6	32.4	35.5	36.9	36.5	34.0	35.7	38.3	32.7	27.2	22.8	20.8	22.3	20.4	20.7	19.7	21.3	19.0	27.4	38.3																						
18-Dec	Z	15.0	25.4	24.1	28.3	32.0	31.3	37.0	39.1	38.0	39.4	39.7	39.5	36.7	28.3	28.6	34.9	30.7	30.7	33.5	34.1	36.6	35.1	32.7	32.6	39.7																						
19-Dec	33.0	Z	34.4	34.2	32.7	32.8	33.6	32.2	27.7	23.6	25.5	27.1	29.0	39.5	37.7	35.0	31.0	30.1	31.0	33.2	37.5	38.2	35.6	32.1	32.5	39.5																						
20-Dec	31.3	33.7	Z	38.6	39.1	39.4	38.9	39.5	39.9	38.6	37.8	38.4	38.6	38.8	37.5	37.0	36.2	35.5	34.9	34.0	29.1	22.6	24.4	22.6	35.1	39.9																						
21-Dec	21.5	22.8	21.1	Z	16.6	12.5	13.6	17.4	20.6	18.8	16.4	17.1	22.5	24.4	19.5	14.8	11.8	12.3	9.3	11.3	12.2	14.4	26.4	26.9	17.6	26.9																						
22-Dec	25.0	25.4	24.4	24.6	Z	25.8	26.0	25.7	25.5	24.1	22.9	22.3	22.0	23.0	24.0	23.4	23.9	25.3	24.0	22.4	22.5	23.4	24.0	24.0	24.1	26.0																						
23-Dec	23.6	23.9	24.9	26.2	28.8	Z	30.5	29.5	27.8	26.0	25.2	25.5	26.3	27.1	27.9	28.8	27.9	22.8	25.1	26.7	27.9	29.0	28.8	29.4	26.9	30.5																						
24-Dec	Z	28.8	23.5	25.0	25.2	27.5	32.5	34.0	35.1	37.2	38.3	38.4	40.2	38.2	37.8	36.8	35.4	33.9	32.7	32.2	31.9	31.5	29.9	28.2	32.8	40.2																						
25-Dec	27.4	Z	28.2	27.9	25.8	23.6	26.6	31.3	30.1	31.8	29.9	27.9	29.7	29.9	30.7	30.8	30.8	30.2	33.6	33.9	35.4	34.3	35.1	34.5	30.4	35.4																						
26-Dec	36.3	37.4	Z	38.5	38.1	37.6	36.0	35.3	35.4	35.9	36.0	35.5	35.1	34.6	32.8	32.8	32.9	32.6	31.7	31.7	32.9	35.0	34.7	32.7	34.9	38.5																						
27-Dec	32.2	32.1	33.1	Z	32.7	32.4	34.2	31.7	31.8	31.6	17.1	26.9	33.5	31.6	29.9	29.8	30.6	26.7	16.3	23.1	14.1	4.6	4.5	5.2	25.5	34.2																						
28-Dec	25.8	30.0	27.6	19.2	Z	11.9	12.7	20.6	20.4	18.9	20.4	19.9	11.5	19.7	21.3	19.0	14.2	19.1	14.6	16.8	23.4	27.4	27.3	25.9	20.3	30.0																						
29-Dec	17.7	19.7	18.5	18.2	17.5	Z	21.3	22.9	22.6	23.6	24.6	24.8	21.9	21.4	21.3	19.9	15.5	20.6	19.4	22.0	25.4	28.0	25.6	23.9	21.6	28.0																						
30-Dec	Z	20.3	19.4	19.4	17.2	17.0	14.7	24.4	26.6	25.7	26.5	29.7	30.6	30.0	29.5	29.1	29.9	29.0	30.5	30.1	18.2	8.4	9.2	11.8	22.9	30.6																						
31-Dec	19.1	Z	27.3	27.0	24.1	20.8	7.9	14.9	22.6	23.2	23.4	25.2	26.6	24.6	26.4	22.8	23.7	24.3	30.6	29.7	31.6	32.3	28.7	27.1	24.5	32.3																						
																								26.4	25.9	25.9	27.0	25.5	25.4	25.0	26.8	26.6	26.5	26.8	28.3	28.5	29.3	27.5	26.0	25.4	25.0	25.0	26.1	26.6	26.5	26.8	26.7	Diurnal Average
																								36.3	37.4	35.9	38.6	39.1	39.4	38.9	39.5	39.9	38.6	39.4	39.7	40.2	39.5	37.8	37.0	36.9	37.0	36.5	35.9	37.5	38.2	35.6	35.7	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Ozone (O₃) - ppb
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Wapasu - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	139	19.63	19.63
21 - 50	569	80.37	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
Wapasu - December 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	2	4	5	5	1	6	20	14	10	8	3	3	3	4	24	125
21 - 50	43	9	20	13	8	5	25	155	92	28	23	8	6	5	18	63	521
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	56	11	24	18	13	6	31	175	106	38	31	11	9	8	22	87	646

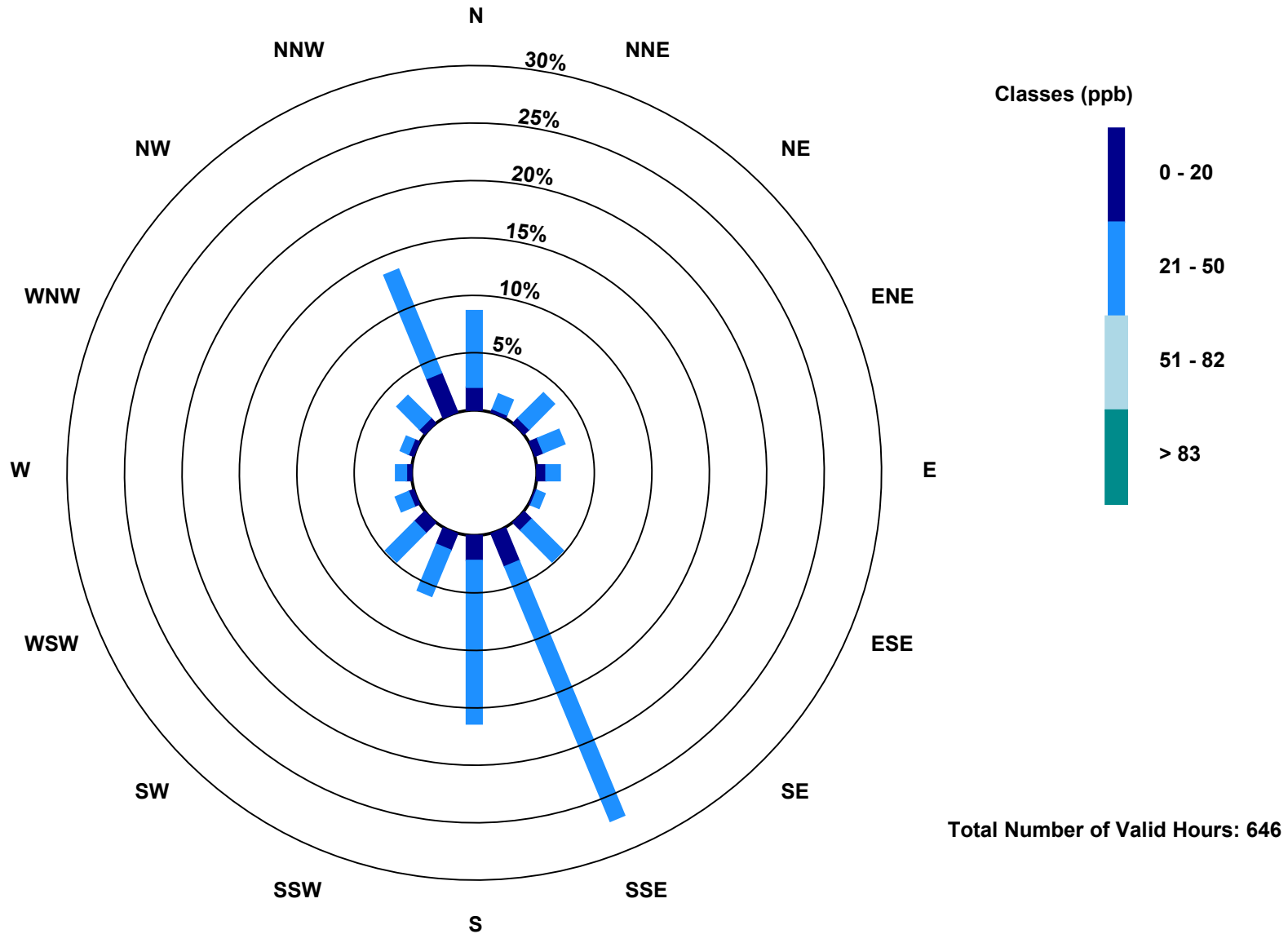
Total Number of Valid Hours: 646

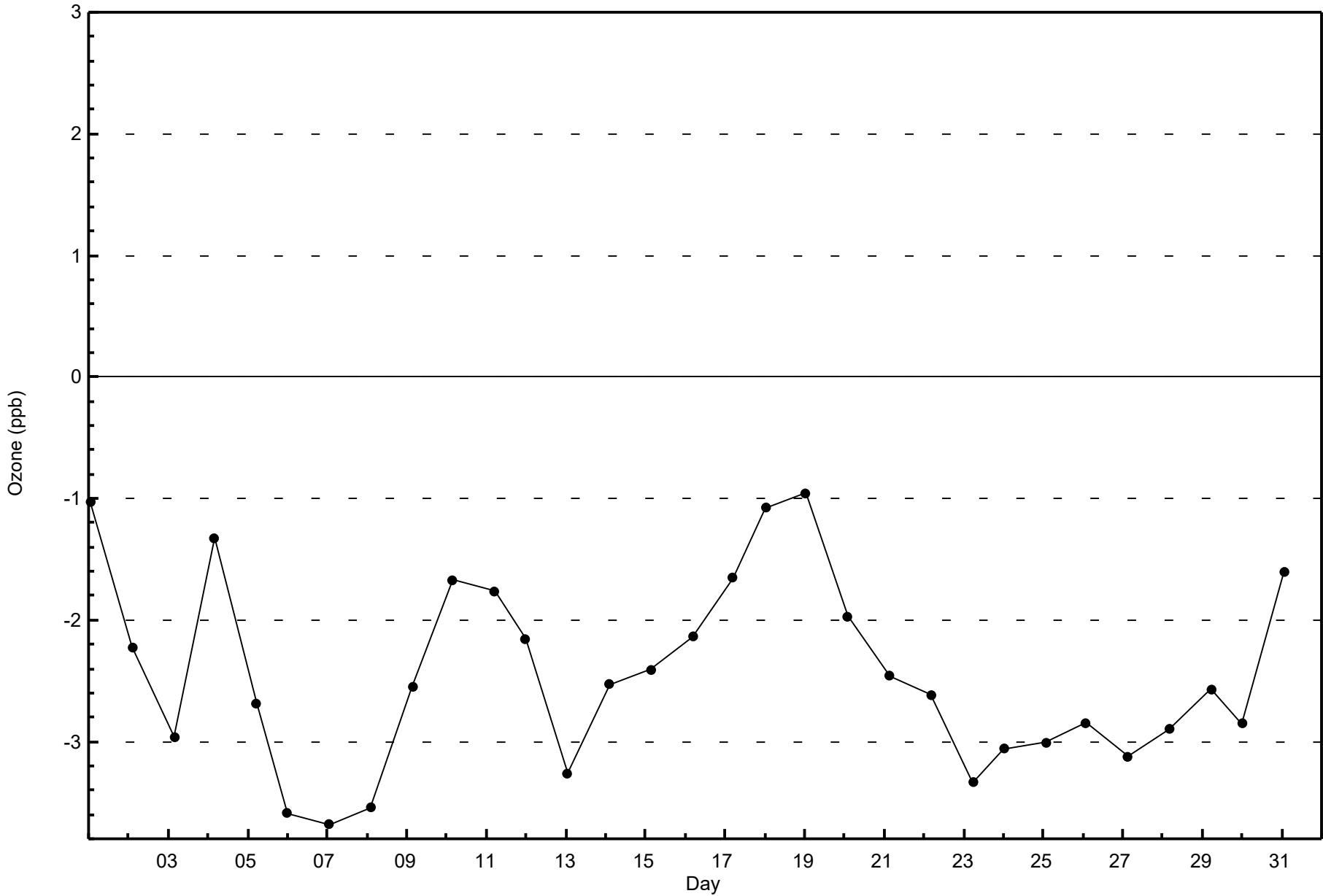
Total Number of Hours: 744

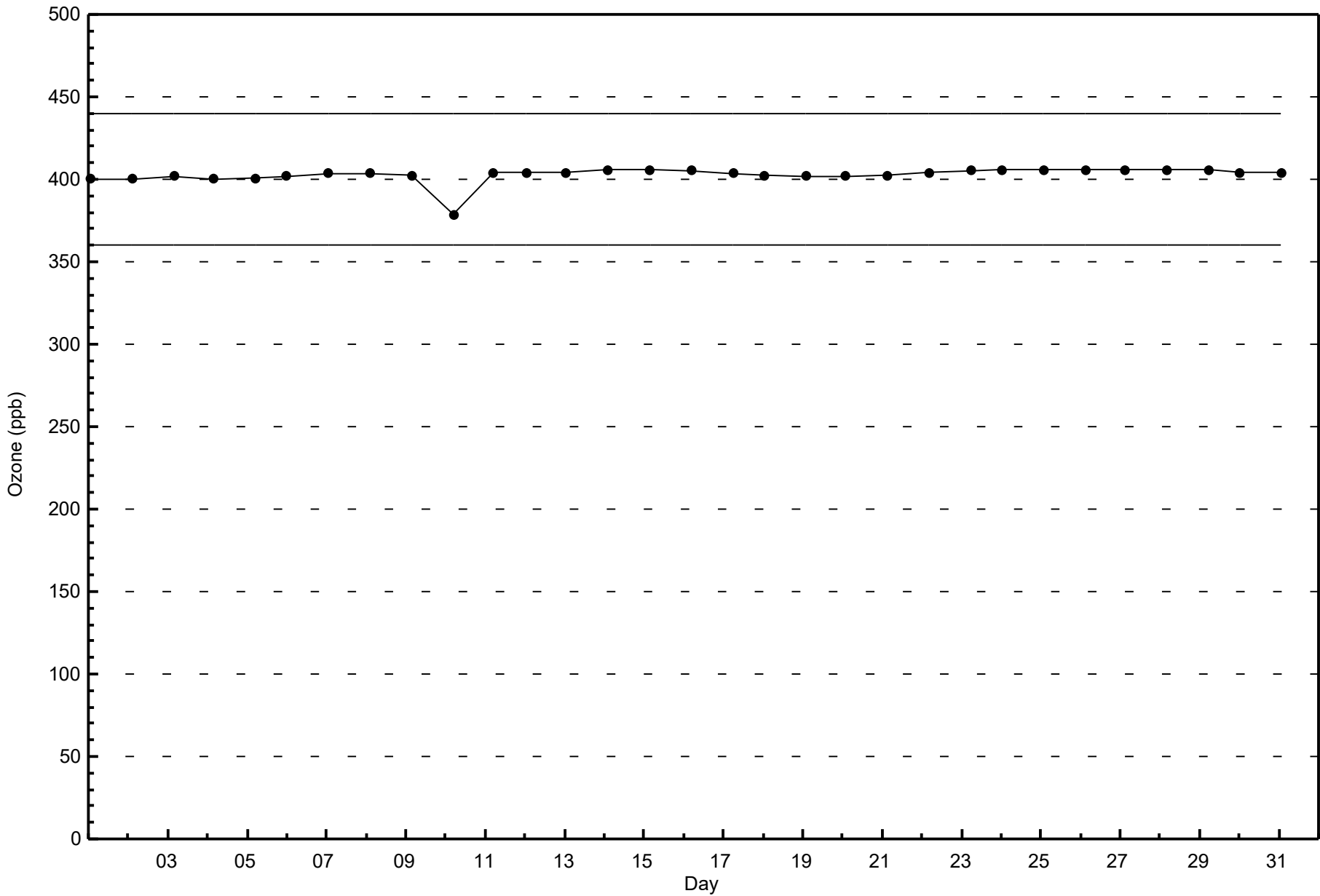


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Wapasu







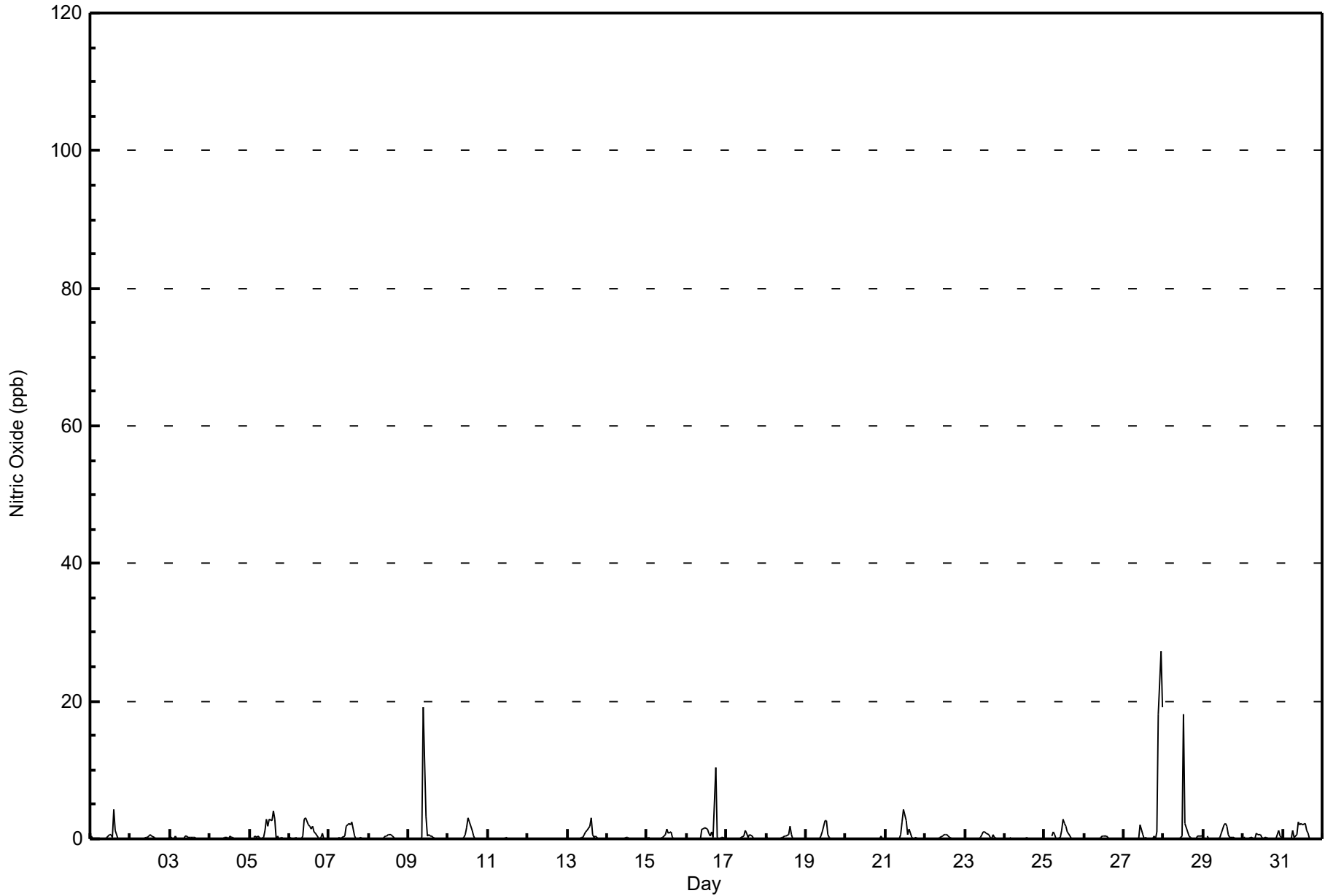


Maximum Value: 27.3 ppb on Dec 27 23:00		Maximum Daily Average: 3.0 ppb on Dec 27		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 3 18:00		Minimum Daily Average: 0.0 ppb on Dec 20		Hours of Data: 709																							
Maximum Diurnal Average: 1.7 ppb at hour 13		Minimum Diurnal Average: 0.0 ppb at hour 8		Hours of Missing Data: 35																							
Monthly Average: 0.45 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.9 P ₉₉ = 4.3		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.4	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.5	0.2	4.3	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	4.3	
2-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.6	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
3-Dec	0.4	0.1	0.0	0.4	0.1	Z	0.0	0.0	0.1	0.3	0.4	0.2	0.2	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
4-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.4	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
5-Dec	0.1	Z	0.1	0.4	0.3	0.3	0.2	0.1	0.2	1.1	2.8	1.9	2.8	2.7	4.1	2.9	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.1	0.9	4.1	
6-Dec	0.2	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.5	2.9	3.0	2.0	1.8	1.5	1.8	1.0	0.8	0.3	0.1	0.1	0.7	0.1	0.1	0.0	0.8	3.0	
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.1	0.4	1.8	2.1	2.2	2.1	2.5	0.5	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.5	2.5	
8-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.2	0.3	0.5	0.7	0.6	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	19.1	3.3	0.5	0.6	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	19.1	
10-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	1.7	3.0	2.5	1.1	0.4	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	3.0	
11-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.6	1.0	1.3	1.9	3.1	0.6	0.2	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.4	3.1	
14-Dec	0.0	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	0.0	0.0	0.0	0.0	0.1	
15-Dec	0.1	0.2	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.4	0.7	1.4	0.8	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.4	
16-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	1.4	1.6	1.3	0.7	0.5	0.9	0.2	10.4	0.1	0.0	0.0	0.2	0.1	0.0	0.8	10.4	
17-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.4	1.3	0.8	0.2	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	1.3	
18-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.3	0.6	1.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8	
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.5	1.1	2.6	2.7	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.7	
20-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.4	
21-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.6	2.5	4.3	2.7	0.6	1.4	0.8	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.6	4.3	
22-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5	0.7	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	
23-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.6	0.9	0.9	0.8	0.6	0.2	0.0	0.6	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.9	
24-Dec	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
25-Dec	0.0	0.0	0.0	Z	0.4	0.9	0.6	0.0	0.0	0.2	1.2	2.8	2.2	1.8	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.8	
26-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
27-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	2.0	0.7	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.1	1.0	18.1	27.3	19.1	3.0	27.3	
28-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	18.1	2.3	1.0	0.5	0.2	0.1	0.1	0.1	0.4	0.4	0.5	0.5	1.1	18.1	
29-Dec	0.6	Z	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.9	2.1	2.2	1.8	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.4	2.2	
30-Dec	0.2	0.1	Z	0.1	0.2	0.1	0.1	0.0	0.8	0.6	0.7	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	1.2	0.4	0.3	0.2	1.2	
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	1.3	0.1	0.5	2.5	2.1	2.3	2.0	2.3	1.1	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.5	
		0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	1.0	0.9	1.0	1.7	0.9	1.0	0.4	0.1	0.4	0.1	0.0	0.1	0.7	0.9	0.7	Diurnal Average	
		0.6	0.2	0.4	0.4	0.4	0.9	1.3	0.1	0.8	19.1	3.3	4.3	18.1	2.7	4.3	2.9	0.8	10.4	0.3	0.2	1.0	18.1	27.3	19.1	Diurnal Maximum	
Z - zerospan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Wapasu - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Wapasu - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	708	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Wapasu - December 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	11	24	18	13	6	28	175	106	36	31	12	8	9	24	87	642
21 - 40	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	11	25	18	13	6	28	175	106	36	31	12	8	9	24	87	643

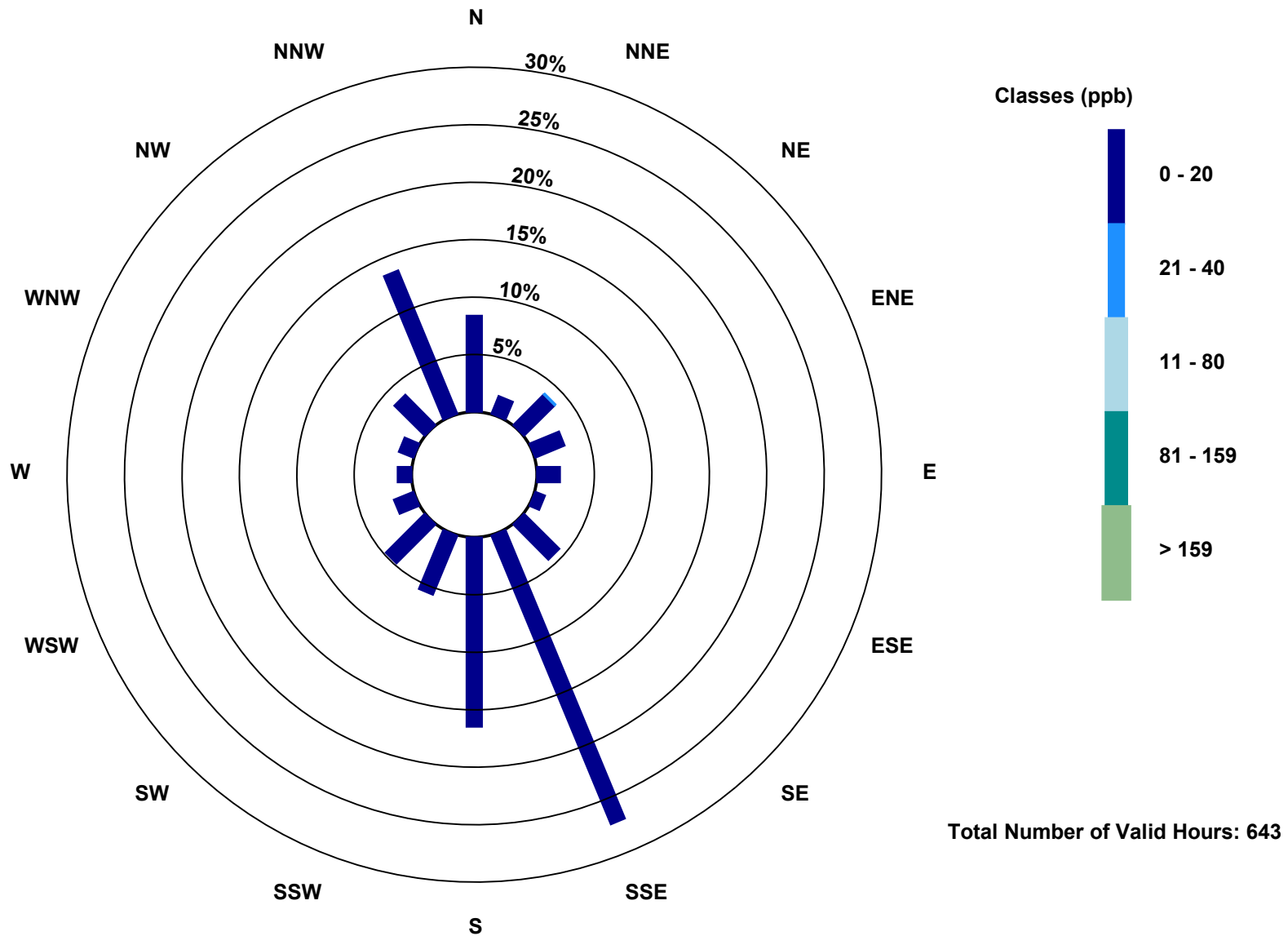
Total Number of Valid Hours: 643

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

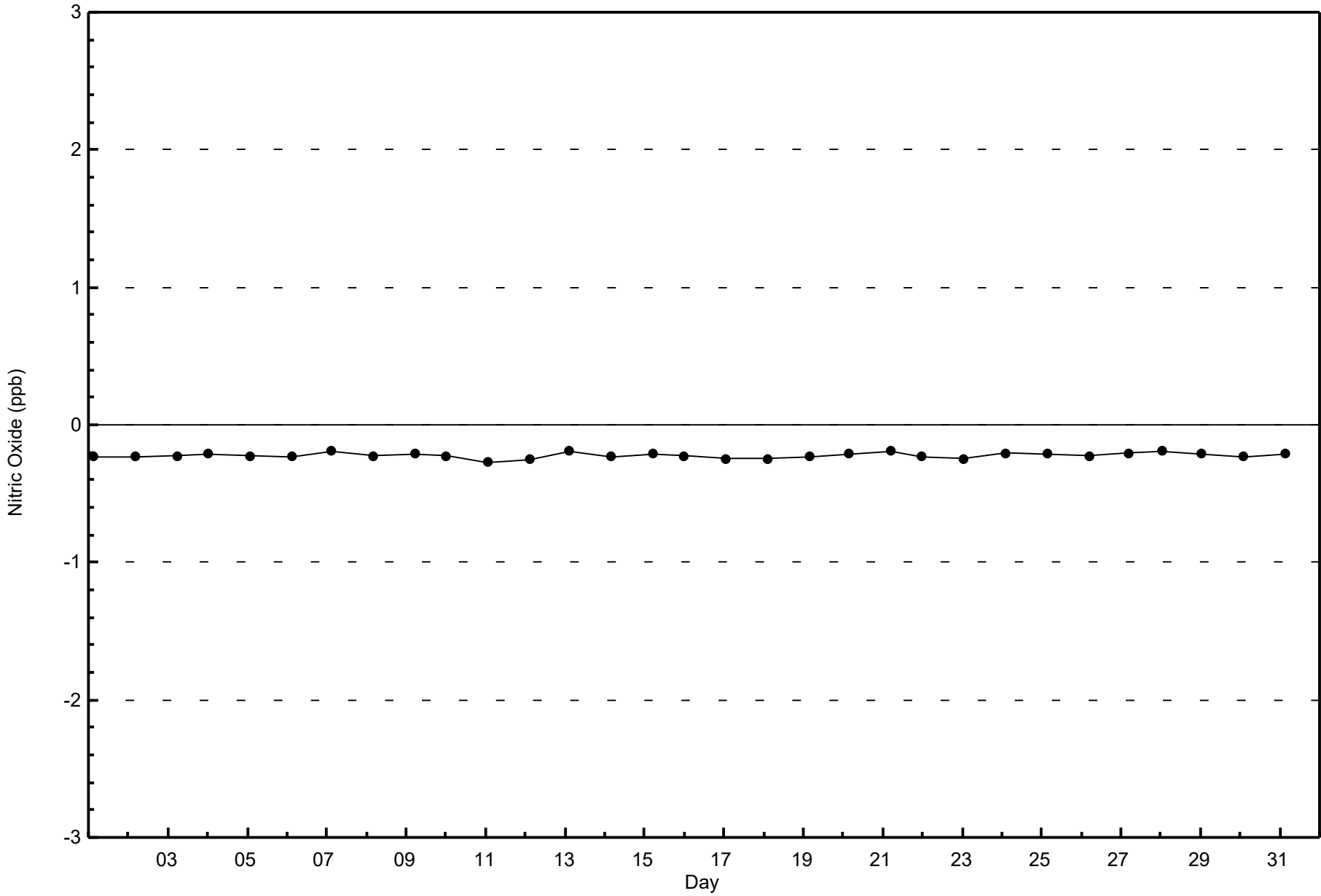
Nitric Oxide (NO) - ppb
Wapasu

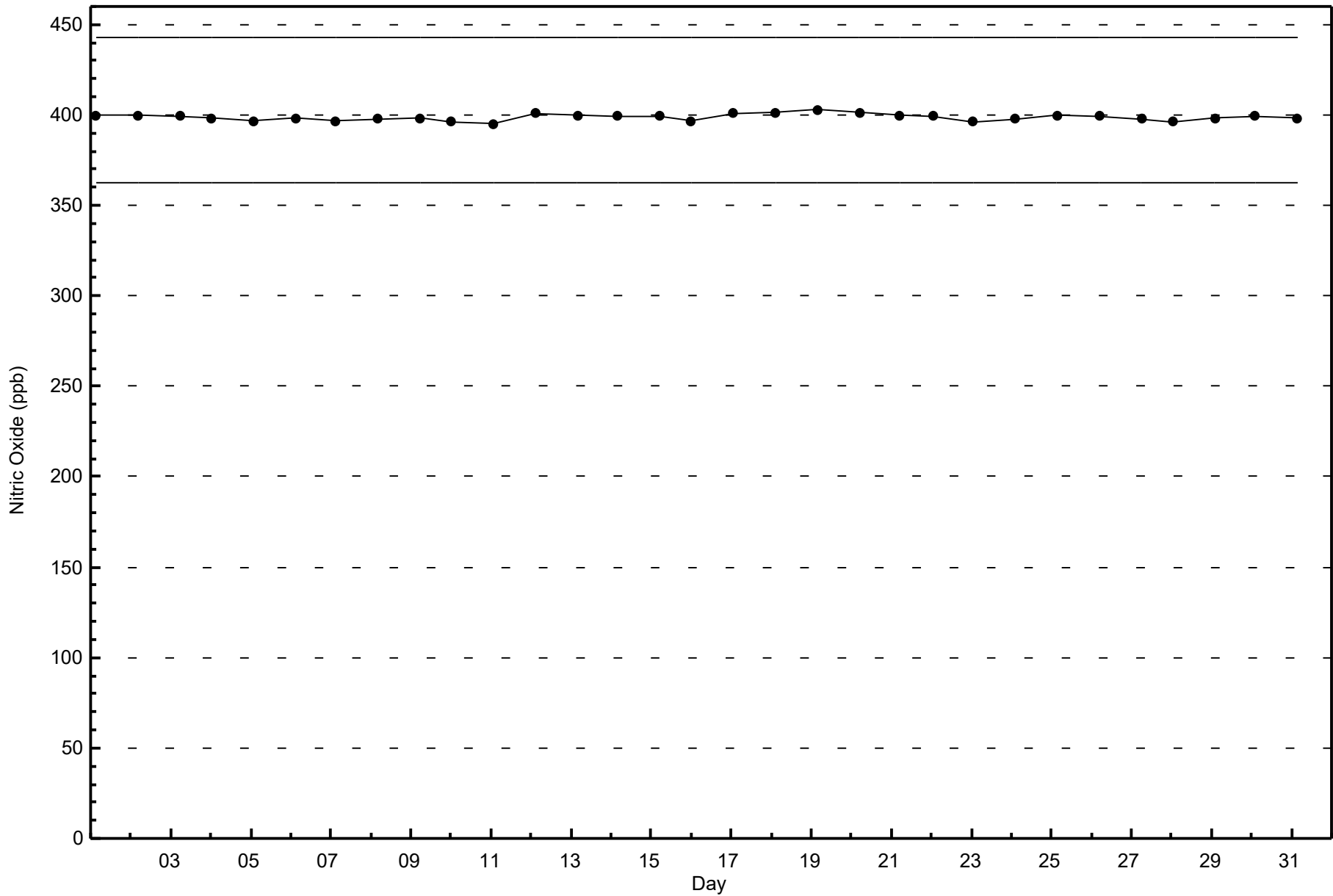




Wood Buffalo Environmental Association
Zero Responses

Nitric Oxide (NO) - ppb
Wapasu - December 2024







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Wapasu - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 28.2 ppb on Dec 16 18:00	Maximum Daily Average: 8.9 ppb on Dec 31		Hours of Data:	709
Minimum Value: 0.2 ppb on Dec 4 06:00	Minimum Daily Average: 0.5 ppb on Dec 11		Hours of Missing Data:	35
Maximum Diurnal Average: 6.7 ppb at hour 18	Minimum Diurnal Average: 3.9 ppb at hour 12		Hours of Calibration:	35
Monthly Average: 5.07 ppb	Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.7 Median = 3.5 Q ₃ = 7.5 P ₉₀ = 10.9 P ₉₉ = 21.6		Percent Operational Time:	100.0

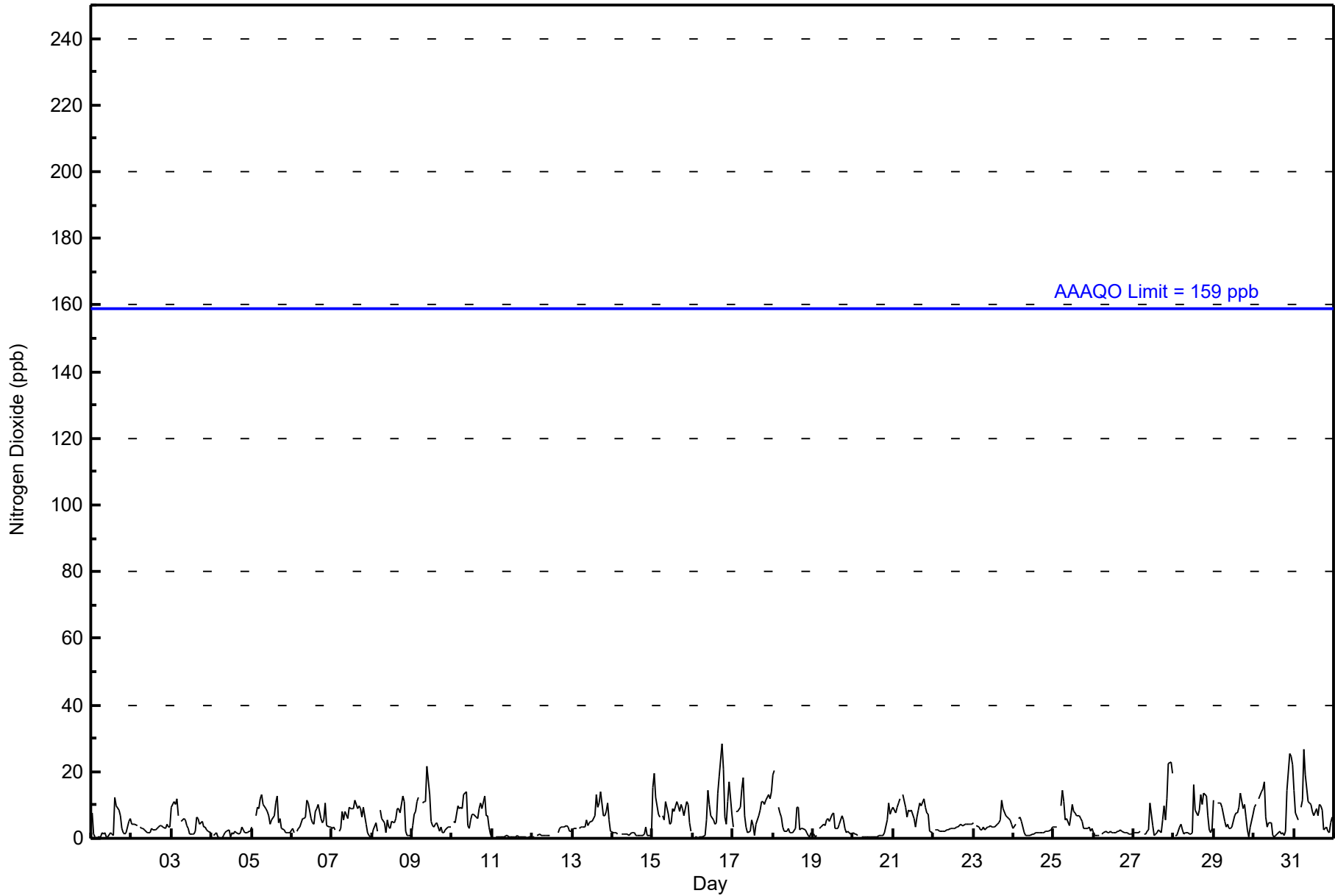
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	7.7	1.1	0.5	Z	0.4	0.3	1.9	1.3	1.8	0.4	0.5	1.5	1.3	0.8	12.2	9.8	8.4	6.7	2.9	1.8	1.3	1.7	5.0	5.8	3.3	12.2
2-Dec	4.4	4.2	4.4	4.0	Z	3.5	3.1	2.8	2.6	1.9	1.7	1.8	3.1	2.5	2.6	2.9	3.5	4.0	3.7	3.2	3.0	4.2	3.6	3.5	3.2	4.4
3-Dec	9.4	10.9	10.1	11.7	6.8	Z	5.0	6.1	5.3	3.8	2.9	1.2	1.1	1.1	2.0	6.3	6.0	4.2	5.1	3.5	3.5	2.6	2.1	1.7	4.9	11.7
4-Dec	Z	0.7	1.2	1.9	0.4	0.2	0.8	1.7	2.3	2.6	0.5	1.8	1.3	2.0	1.7	1.4	1.6	3.2	2.5	1.7	1.8	2.0	2.2	1.6	3.2	1.6
5-Dec	3.4	Z	6.6	9.2	8.7	12.0	13.0	10.2	9.0	8.1	6.9	4.4	5.4	6.8	10.6	12.8	4.6	6.1	3.1	2.6	1.7	1.6	1.6	1.8	6.5	13.0
6-Dec	3.0	1.6	Z	2.3	2.8	3.4	5.8	5.8	6.5	11.5	10.7	5.8	4.7	4.2	7.9	8.9	10.1	6.0	4.7	5.3	10.4	4.0	3.5	3.3	5.7	11.5
7-Dec	3.1	3.2	2.4	Z	2.3	2.8	8.0	5.7	8.0	6.1	9.3	8.7	8.9	9.0	11.5	8.8	9.7	8.8	6.5	9.4	4.3	1.5	0.7	0.3	6.0	11.5
8-Dec	0.3	2.4	4.8	2.1	Z	8.4	5.9	4.8	1.9	5.3	3.6	2.8	5.1	4.8	6.1	9.0	8.7	7.8	12.5	11.0	2.1	0.8	0.7	1.0	4.9	12.5
9-Dec	3.8	7.0	8.0	10.9	12.2	Z	10.6	11.1	11.0	21.7	13.0	4.9	3.9	3.5	4.1	4.5	2.2	3.3	1.8	1.5	2.5	3.2	3.6	3.4	6.6	21.7
10-Dec	Z	5.1	4.6	9.7	8.8	9.5	9.0	13.0	13.9	3.8	2.9	5.3	7.1	7.2	6.5	6.0	8.7	10.6	8.9	12.7	6.8	6.7	3.4	1.2	7.5	13.9
11-Dec	0.6	Z	0.4	0.3	0.4	0.3	0.3	0.5	0.9	0.8	0.6	0.6	0.5	0.4	0.4	0.7	0.4	0.6	0.5	0.5	0.4	0.2	0.4	0.4	0.5	0.9
12-Dec	0.4	0.5	Z	1.0	1.1	0.9	0.9	0.9	0.8	0.7	0.7	C	C	C	C	1.6	3.0	3.2	3.6	3.6	3.8	3.5	2.3	2.2	1.8	3.8
13-Dec	2.6	2.9	3.0	Z	3.0	3.3	3.3	3.6	5.4	4.0	4.6	4.9	5.0	6.8	13.1	9.2	10.7	13.9	6.8	6.9	8.2	10.5	5.6	2.3	6.1	13.9
14-Dec	1.7	1.8	1.5	1.4	Z	1.2	1.1	1.1	1.1	1.1	1.0	1.5	1.6	1.5	0.9	0.8	0.7	0.7	0.7	1.1	3.6	0.7	0.7	0.8	1.2	3.6
15-Dec	15.2	19.3	12.1	7.0	6.4	Z	6.9	5.7	10.9	7.3	4.2	4.5	9.0	8.2	11.2	9.6	7.9	10.0	8.8	6.9	11.0	10.3	4.5	2.3	8.7	19.3
16-Dec	Z	0.3	0.3	0.2	0.3	0.3	0.6	0.7	5.7	14.2	10.2	6.8	5.6	4.4	4.8	13.7	18.5	28.2	20.7	6.4	4.4	10.9	16.9	7.0	7.9	28.2
17-Dec	3.6	Z	8.2	8.0	9.3	15.0	18.1	6.7	3.5	1.9	2.2	5.6	3.7	1.0	4.1	6.8	8.4	11.1	10.9	10.1	11.5	13.0	11.7	14.1	8.2	18.1
18-Dec	19.0	20.3	Z	9.3	7.8	6.4	3.5	2.2	2.3	2.8	1.7	1.7	1.6	2.9	9.4	9.5	2.7	3.0	2.9	2.4	1.6	1.0	0.4	1.6	5.0	20.3
19-Dec	1.3	0.5	0.7	Z	2.8	3.6	4.1	3.8	5.5	6.0	5.0	7.2	7.5	2.8	2.9	2.9	4.3	6.8	5.5	3.1	1.6	2.0	1.3	1.3	3.6	7.5
20-Dec	1.6	1.4	1.2	1.0	Z	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.6	0.5	0.7	0.9	1.0	1.0	1.6	5.3	10.6	7.1	8.3	2.0	10.6
21-Dec	9.2	7.5	9.4	10.8	11.7	Z	13.0	9.3	6.5	8.5	8.1	8.3	6.0	3.4	6.3	8.4	10.7	9.9	11.7	9.3	7.8	7.0	2.2	1.9	8.1	13.0
22-Dec	Z	2.4	2.6	2.4	2.1	2.1	2.0	2.3	2.4	2.6	2.8	3.0	2.9	3.0	3.3	3.5	4.3	3.9	3.9	4.1	4.3	4.1	4.3	4.3	3.2	4.3
23-Dec	4.5	Z	3.8	3.2	2.7	2.5	3.3	2.7	3.3	3.6	3.8	3.6	3.3	3.4	4.4	4.6	5.5	11.6	8.8	6.9	6.2	5.8	5.3	4.1	4.6	11.6
24-Dec	3.0	4.1	Z	6.1	6.2	5.2	1.7	0.9	0.8	0.9	0.9	1.1	1.1	1.5	1.6	1.5	1.6	1.8	1.9	2.0	2.1	2.0	2.4	3.4	2.3	6.2
25-Dec	3.6	3.6	3.6	Z	9.6	14.6	11.0	5.5	5.8	3.8	6.7	10.2	8.1	7.7	6.8	6.8	6.1	5.0	3.1	3.1	3.0	3.3	2.0	2.9	5.9	14.6
26-Dec	1.6	0.9	1.0	1.0	Z	1.3	1.8	2.0	1.6	1.7	2.0	1.9	1.9	1.9	2.1	2.1	2.6	2.2	1.8	1.9	1.8	1.3	1.1	1.3	1.7	2.6
27-Dec	1.8	1.7	1.5	1.6	2.0	Z	1.4	1.4	2.0	2.6	10.8	3.9	1.0	1.4	1.9	2.7	1.7	5.7	9.9	5.7	11.9	22.3	22.9	19.7	6.0	22.9
28-Dec	Z	0.7	0.9	3.3	4.2	2.5	1.4	1.9	1.9	1.2	1.1	1.8	16.1	8.4	6.6	8.3	13.3	10.3	13.4	12.8	6.7	2.4	1.9	2.8	5.4	16.1
29-Dec	11.3	Z	10.4	10.4	10.6	9.4	5.2	3.5	4.2	3.0	2.8	3.2	6.8	7.7	7.6	9.3	13.4	8.9	10.2	6.4	2.6	0.5	3.3	7.1	6.9	13.4
30-Dec	9.3	10.2	Z	11.7	14.0	14.7	16.8	6.4	3.4	4.7	4.6	0.9	0.6	0.8	1.4	2.0	1.2	1.7	0.9	2.2	14.6	25.4	24.4	22.2	8.4	25.4
31-Dec	14.6	7.7	5.3	Z	9.4	11.3	26.5	18.9	11.0	10.5	10.2	8.1	6.8	8.8	6.6	10.3	9.6	8.5	2.7	3.4	2.1	1.6	4.7	6.2	8.9	26.5
	5.4	4.7	4.2	5.2	5.6	5.2	6.0	4.6	4.6	4.7	4.5	3.9	4.4	3.9	5.4	6.0	6.2	6.7	5.9	5.0	4.9	5.4	4.9	4.5		Diurnal Average
	19.0	20.3	12.1	11.7	14.0	15.0	26.5	18.9	13.9	21.7	13.0	10.2	16.1	9.0	13.1	13.7	18.5	28.2	20.7	12.8	14.6	25.4	24.4	22.2		Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Wapasu - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	700	98.73	98.73
21 - 40	9	1.27	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Wapasu - December 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	53	11	24	18	13	6	28	175	106	36	31	12	7	8	24	83	635
21 - 40	1	0	1	0	0	0	0	0	0	0	0	0	1	1	0	4	8
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	11	25	18	13	6	28	175	106	36	31	12	8	9	24	87	643

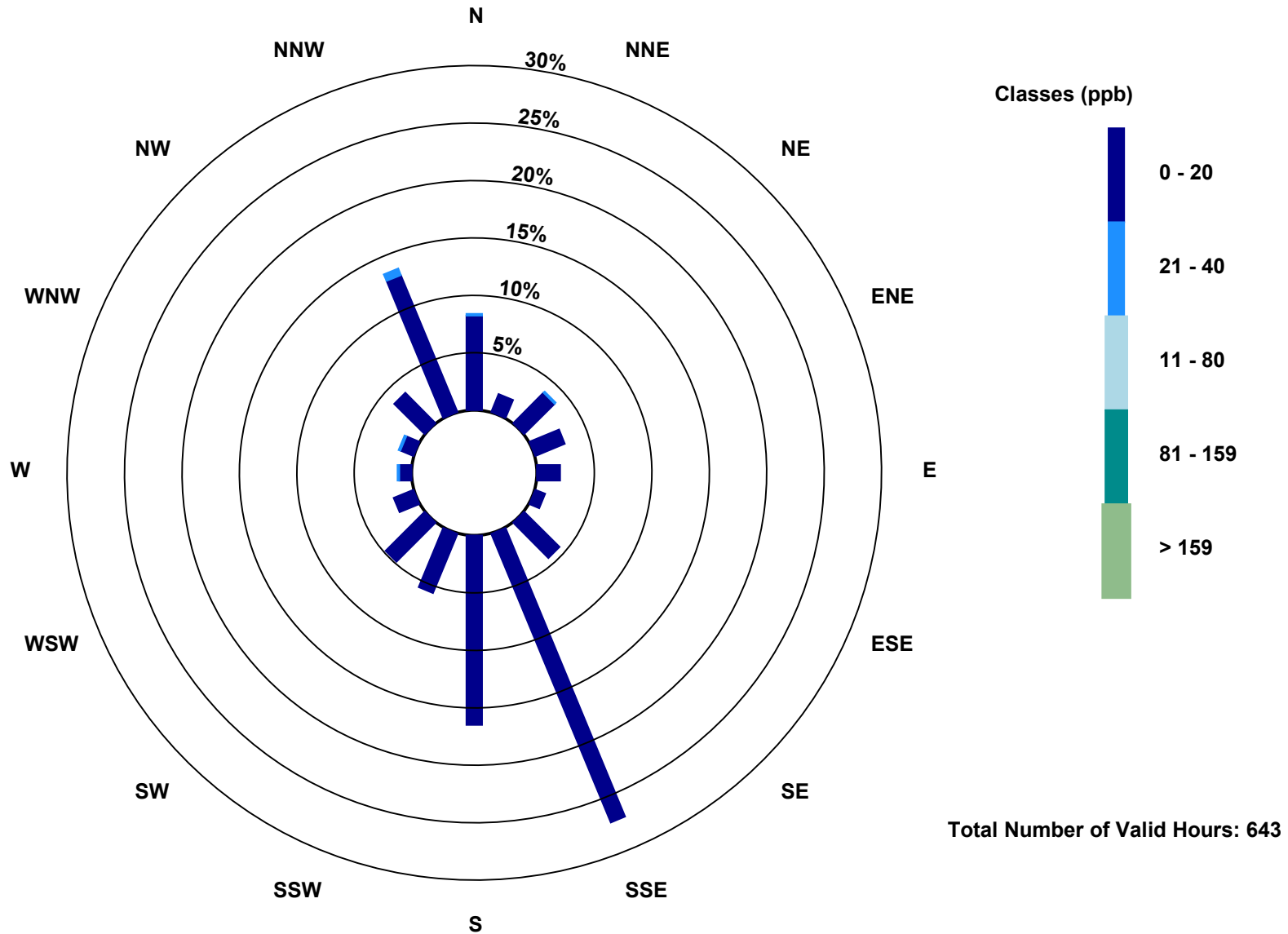
Total Number of Valid Hours: 643

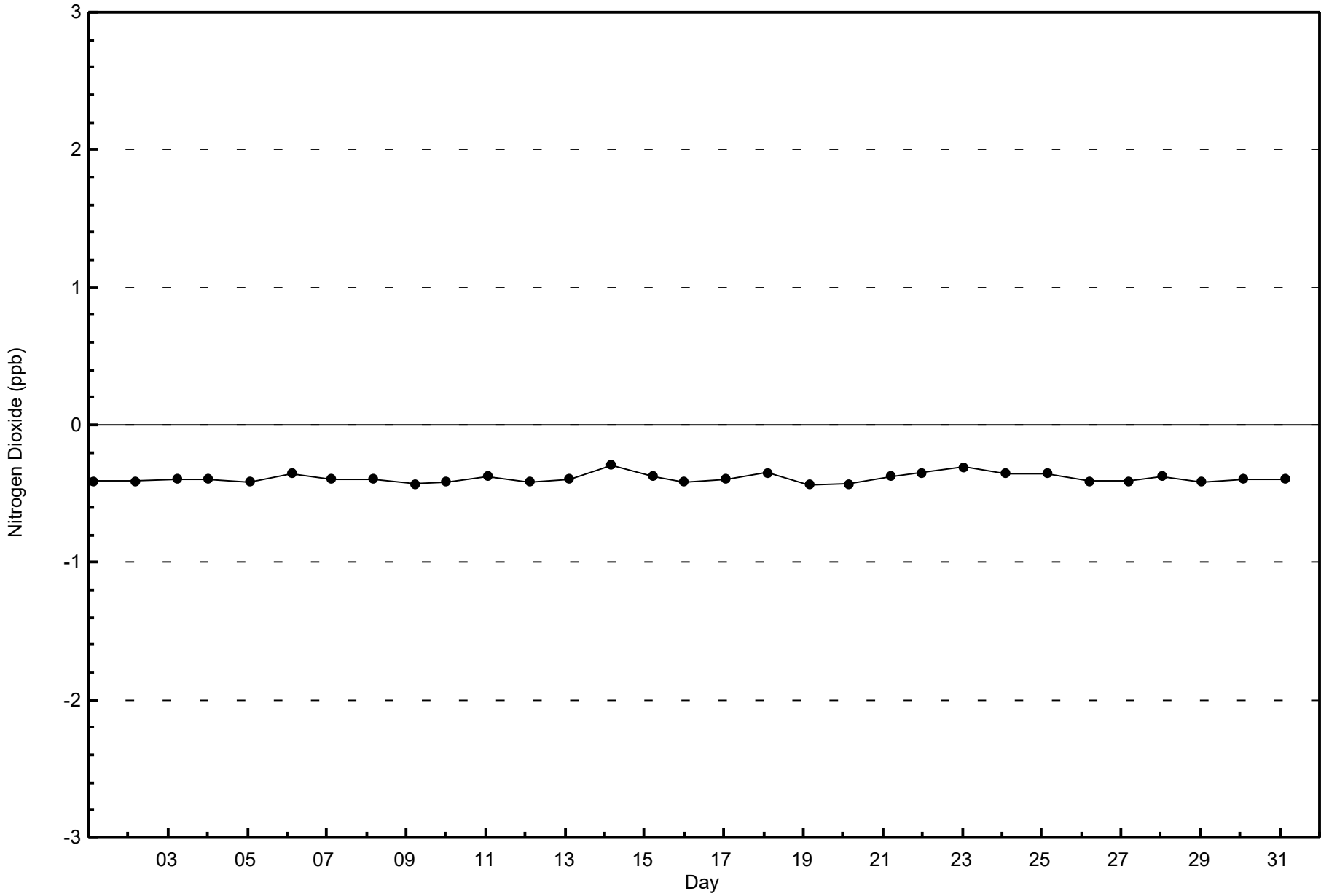
Total Number of Hours: 744

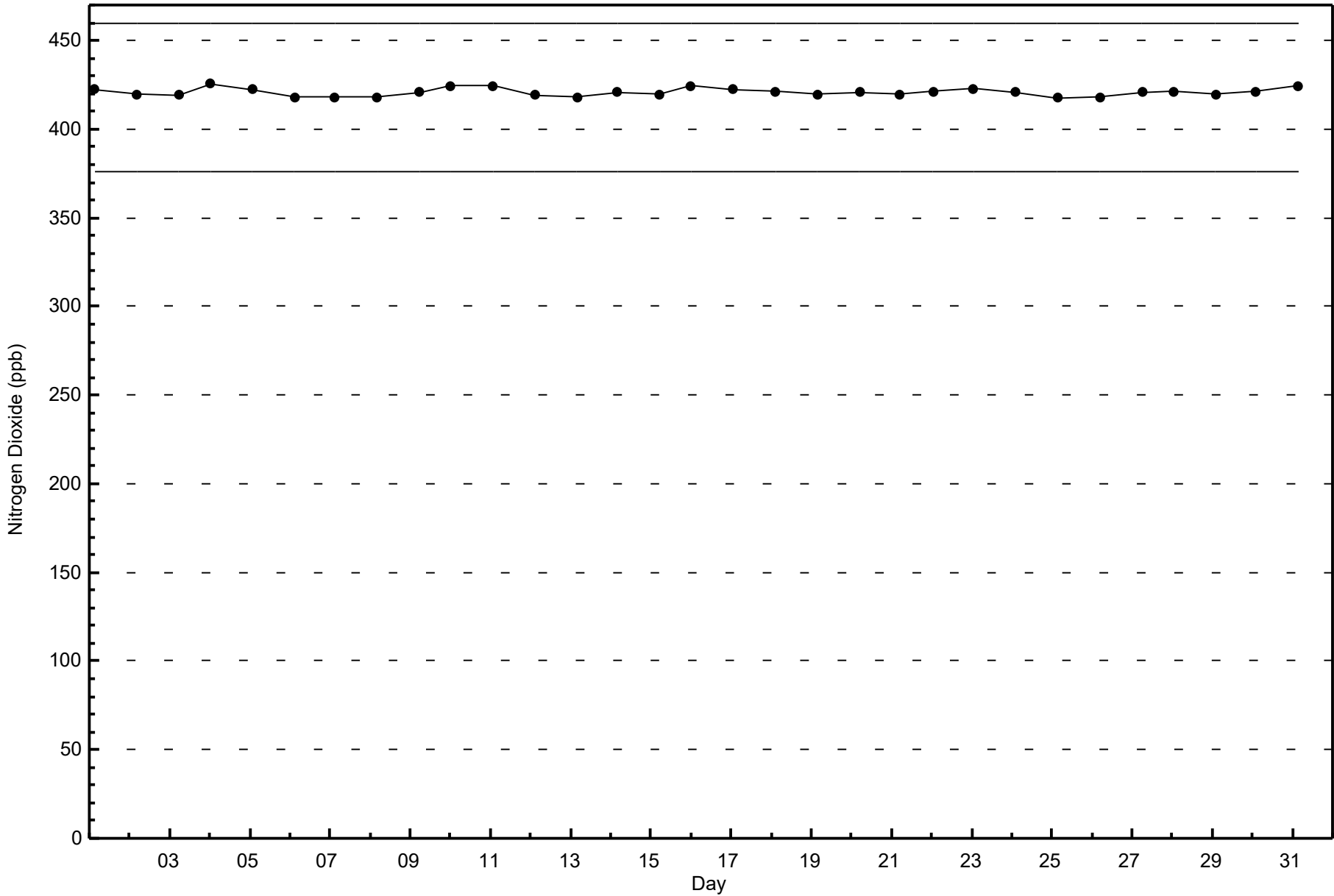


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Wapasu









Wood Buffalo Environmental Association
Summary of Hour Averages

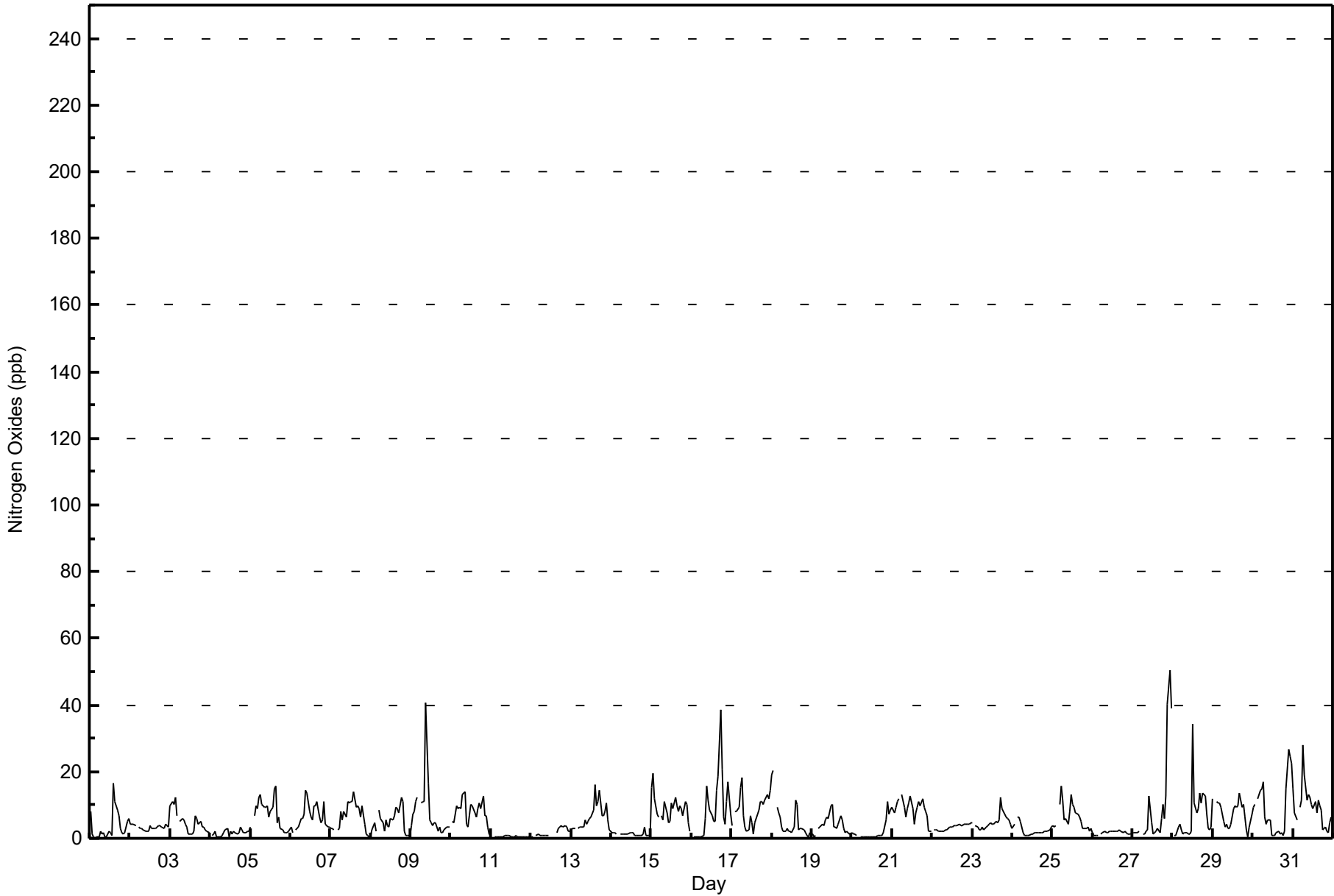
Nitrogen Oxides (NO_x) - ppb
Wapasu - December 2024

Maximum Value: 50.2 ppb on Dec 27 23:00																					Maximum Daily Average: 9.6 ppb on Dec 31					Hours in Service: 744	
Minimum Value: 0.2 ppb on Dec 4 07:00																					Minimum Daily Average: 0.5 ppb on Dec 11					Hours of Data: 709	
Maximum Diurnal Average: 7.1 ppb at hour 18																					Minimum Diurnal Average: 4.2 ppb at hour 3					Hours of Missing Data: 35	
Monthly Average: 5.51 ppb																					Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.8 Median = 3.6 Q ₃ = 8.2 P ₉₀ = 11.3 P ₉₉ = 26.5					Hours of Calibration: 35	
																										Percent Operational Time: 100.0	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	8.1	1.1	0.5	Z	0.4	0.3	1.9	1.3	1.8	0.4	0.6	2.1	1.8	1.0	16.5	10.9	8.5	6.7	2.9	1.8	1.3	1.7	5.0	5.8	3.6	16.5	
2-Dec	4.4	4.2	4.4	4.0	Z	3.5	3.1	2.8	2.6	2.1	2.0	2.2	3.7	2.8	2.8	3.0	3.5	4.0	3.7	3.2	3.0	4.2	3.6	3.5	3.3	4.4	
3-Dec	9.8	11.0	10.1	12.1	6.9	Z	5.0	6.1	5.4	4.1	3.3	1.4	1.3	1.2	2.2	6.6	6.0	4.2	5.1	3.5	3.5	2.6	2.1	1.7	5.0	12.1	
4-Dec	Z	0.7	1.2	1.9	0.4	0.2	0.8	1.7	2.4	2.9	0.5	2.2	1.5	2.1	1.7	1.4	1.6	3.3	2.5	1.7	1.8	2.0	2.2	1.6	3.3		
5-Dec	3.5	Z	6.7	9.6	9.0	12.3	13.2	10.3	9.2	9.2	9.7	6.3	8.2	9.5	14.7	15.7	4.7	6.5	3.2	2.7	1.7	1.6	1.6	1.9	7.4	15.7	
6-Dec	3.2	1.6	Z	2.4	2.9	3.5	5.9	5.9	7.0	14.4	13.7	7.8	6.5	5.7	9.7	9.9	10.9	6.3	4.8	5.4	11.1	4.1	3.6	3.3	6.5	14.4	
7-Dec	3.1	3.2	2.4	Z	2.3	2.8	8.1	5.7	8.1	6.5	11.1	10.8	11.1	11.1	14.0	9.3	9.8	8.8	6.5	9.6	4.3	1.5	0.7	0.3	6.6	14.0	
8-Dec	0.3	2.4	4.8	2.1	Z	8.5	5.9	4.8	1.9	5.5	3.9	3.3	5.8	5.4	6.6	9.3	8.7	7.8	12.5	11.0	2.1	0.8	0.7	1.0	5.0	12.5	
9-Dec	3.8	7.0	8.0	10.9	12.2	Z	10.6	11.1	11.1	40.8	16.3	5.4	4.5	3.8	4.5	4.7	2.2	3.3	1.8	1.5	2.5	3.2	3.6	3.4	7.7	40.8	
10-Dec	Z	5.1	4.6	9.7	8.8	9.5	9.0	13.0	14.0	4.1	3.4	7.0	10.1	9.7	7.6	6.4	8.8	10.7	9.0	12.8	6.8	6.7	3.4	1.2	7.9	14.0	
11-Dec	0.6	Z	0.4	0.3	0.4	0.3	0.3	0.5	0.9	0.8	0.7	0.7	0.6	0.4	0.4	0.7	0.4	0.6	0.5	0.5	0.4	0.2	0.4	0.4	0.5	0.9	
12-Dec	0.4	0.5	Z	1.0	1.1	0.9	0.9	0.9	0.8	0.8	0.8	C	C	C	C	1.6	3.0	3.2	3.6	3.6	3.8	3.5	2.3	2.2	1.8	3.8	
13-Dec	2.6	2.9	3.0	Z	3.0	3.3	3.3	3.6	5.5	4.2	5.2	5.9	6.3	8.7	16.2	9.8	10.9	14.2	6.8	6.9	8.2	10.6	5.6	2.3	6.5	16.2	
14-Dec	1.7	1.8	1.5	1.4	Z	1.2	1.1	1.1	1.1	1.1	1.1	1.6	1.7	1.6	0.9	0.8	0.7	0.7	0.7	1.1	3.6	0.7	0.7	0.8	1.2	3.6	
15-Dec	15.3	19.5	12.1	7.0	6.4	Z	6.9	5.7	11.0	7.5	4.6	5.2	10.4	9.0	12.1	9.8	7.9	10.0	8.8	6.9	11.0	10.3	4.5	2.3	8.9	19.5	
16-Dec	Z	0.3	0.3	0.2	0.3	0.3	0.6	0.7	5.8	15.6	11.6	8.4	6.9	5.1	5.3	14.6	18.7	38.6	20.8	6.4	4.4	11.1	17.0	7.0	8.7	38.6	
17-Dec	3.6	Z	8.2	8.0	9.3	15.1	18.2	6.7	3.5	2.0	2.6	6.9	4.5	1.2	4.8	7.2	8.4	11.1	10.9	10.1	11.5	13.1	11.8	14.2	8.4	18.2	
18-Dec	19.1	20.4	Z	9.3	7.8	6.4	3.5	2.2	2.3	2.9	1.9	2.1	1.9	3.5	11.2	10.1	2.7	3.0	2.9	2.4	1.6	1.0	0.4	1.6	5.2	20.4	
19-Dec	1.3	0.5	0.7	Z	2.8	3.6	4.1	3.8	5.5	6.5	6.1	9.8	10.2	3.3	3.2	3.0	4.3	6.8	5.5	3.1	1.6	2.0	1.3	1.3	3.9	10.2	
20-Dec	1.6	1.4	1.2	1.0	Z	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.5	0.7	0.9	1.0	1.0	1.6	5.3	11.0	7.2	8.3	2.1	11.0
21-Dec	9.2	7.5	9.4	10.8	11.7	Z	13.0	9.3	6.5	9.1	10.6	12.6	8.7	4.0	7.7	9.2	10.9	9.9	11.8	9.4	7.9	7.0	2.2	1.9	8.7	13.0	
22-Dec	Z	2.4	2.6	2.4	2.1	2.1	2.0	2.3	2.4	2.7	3.2	3.5	3.6	3.7	3.7	3.6	4.3	3.9	3.9	4.1	4.3	4.1	4.3	4.4	3.3	4.4	
23-Dec	4.5	Z	3.8	3.2	2.7	2.5	3.4	2.7	3.3	3.8	4.4	4.5	4.2	4.2	5.0	4.8	5.5	12.2	9.0	7.0	6.3	5.9	5.4	4.1	4.9	12.2	
24-Dec	3.0	4.2	Z	6.2	6.2	5.2	1.7	0.9	0.8	0.9	1.0	1.2	1.2	1.6	1.7	1.5	1.6	1.8	1.9	2.0	2.1	2.0	2.4	3.4	2.4	6.2	
25-Dec	3.6	3.6	3.6	Z	10.0	15.5	11.6	5.5	5.8	4.0	7.9	13.0	10.3	9.5	7.7	7.1	6.2	5.0	3.1	3.1	3.0	3.3	2.0	2.9	6.4	15.5	
26-Dec	1.6	0.9	1.0	1.0	Z	1.3	1.8	2.0	1.6	1.8	2.2	2.2	2.3	2.2	2.3	2.2	2.6	2.2	1.8	1.9	1.8	1.3	1.1	1.3	1.8	2.6	
27-Dec	1.8	1.7	1.5	1.6	2.0	Z	1.4	1.4	2.0	2.6	12.8	4.6	1.1	1.5	2.0	2.8	1.7	5.8	10.2	5.8	12.9	40.4	50.2	38.8	9.0	50.2	
28-Dec	Z	0.7	0.9	3.3	4.2	2.5	1.4	1.9	1.9	1.3	1.3	2.2	34.2	10.7	7.6	8.8	13.5	10.4	13.5	12.9	7.1	2.8	2.4	3.3	6.5	34.2	
29-Dec	11.9	Z	10.8	10.5	10.7	9.4	5.2	3.5	4.2	3.1	3.0	4.1	8.9	9.9	9.4	9.9	13.6	9.1	10.3	6.4	2.6	0.5	3.4	7.2	7.3	13.6	
30-Dec	9.5	10.3	Z	11.8	14.2	14.8	16.9	6.4	4.2	5.3	5.3	1.0	0.7	1.0	1.6	2.1	1.2	1.7	0.9	2.2	14.7	26.6	24.8	22.5	8.7	26.6	
31-Dec	14.6	7.7	5.3	Z	9.4	11.3	27.8	19.0	11.5	13.0	12.3	10.4	8.8	11.1	7.7	11.2	9.7	8.5	2.7	3.4	2.1	1.6	4.7	6.2	9.6	27.8	
																								Diurnal Average			
																								Diurnal Maximum			
5.5 4.7 4.2 5.3 5.7 5.3 6.1 4.6 4.6 5.8 5.4 4.9 6.1 4.8 6.4 6.4 6.2 7.1 5.9 5.0 5.0 6.0 5.8 5.2																											
19.1 20.4 12.1 12.1 14.2 15.5 27.8 19.0 14.0 40.8 16.3 13.0 34.2 11.1 16.5 15.7 18.7 38.6 20.8 12.9 14.7 40.4 50.2 38.8																											
Z - zerospan C - Calibration																											



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Wapasu - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	698	98.45	98.45
21 - 40	9	1.27	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: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Wapasu - December 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	53	11	24	17	13	6	28	175	106	36	31	12	7	8	23	83	633
21 - 40	1	0	0	1	0	0	0	0	0	0	0	0	1	1	1	4	9
11 - 80	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	54	11	25	18	13	6	28	175	106	36	31	12	8	9	24	87	643

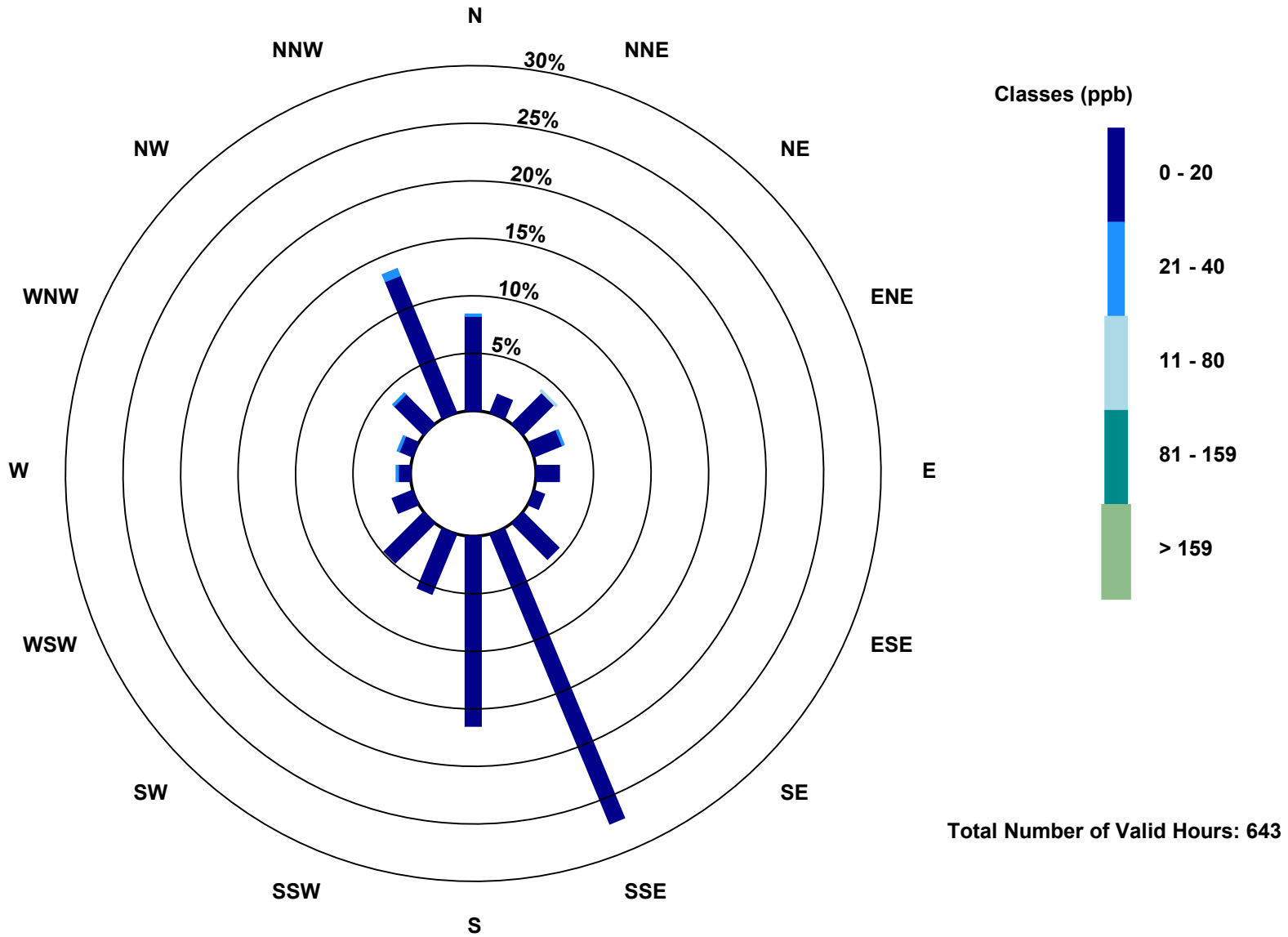
Total Number of Valid Hours: 643

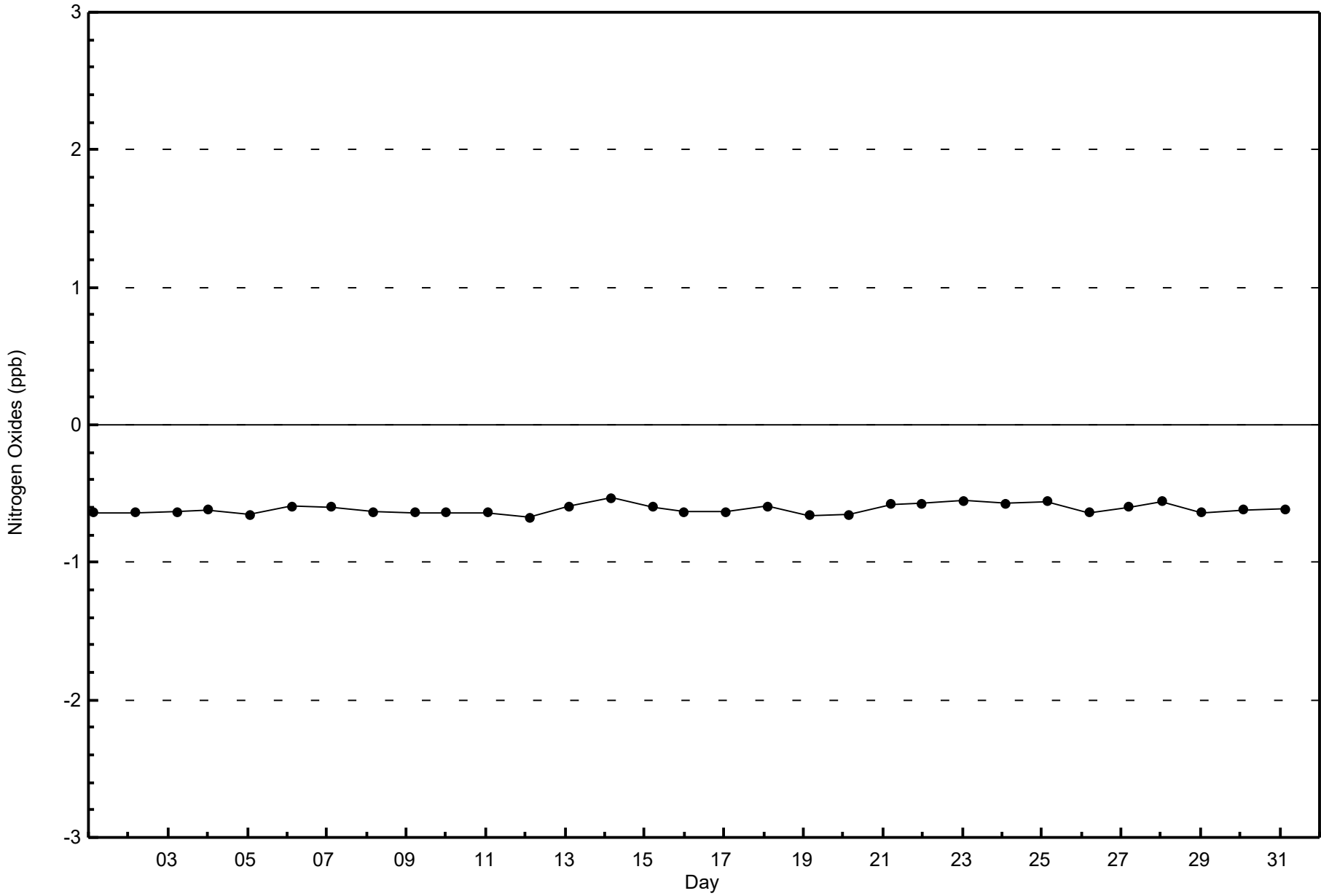
Total Number of Hours: 744

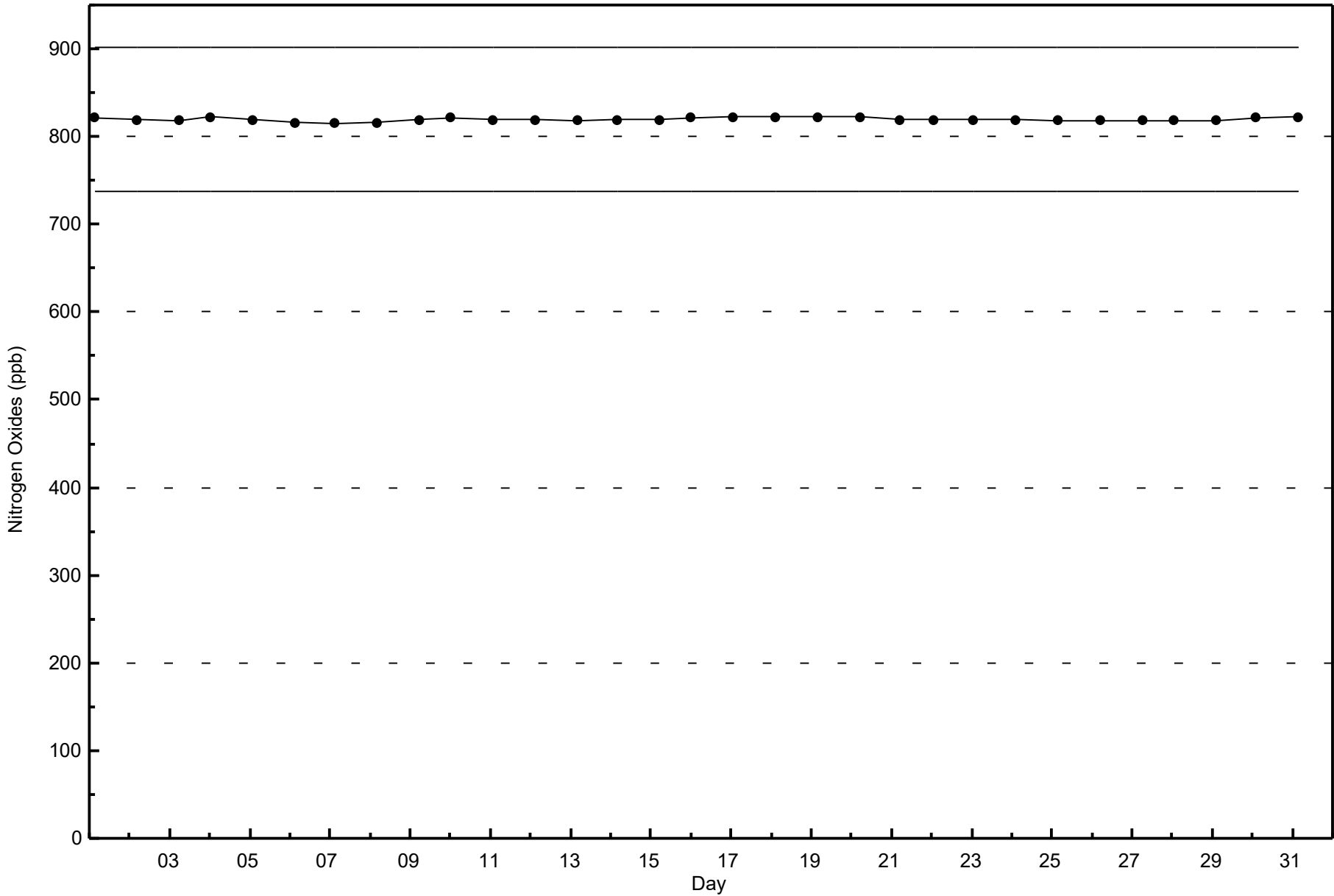


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Wapasu









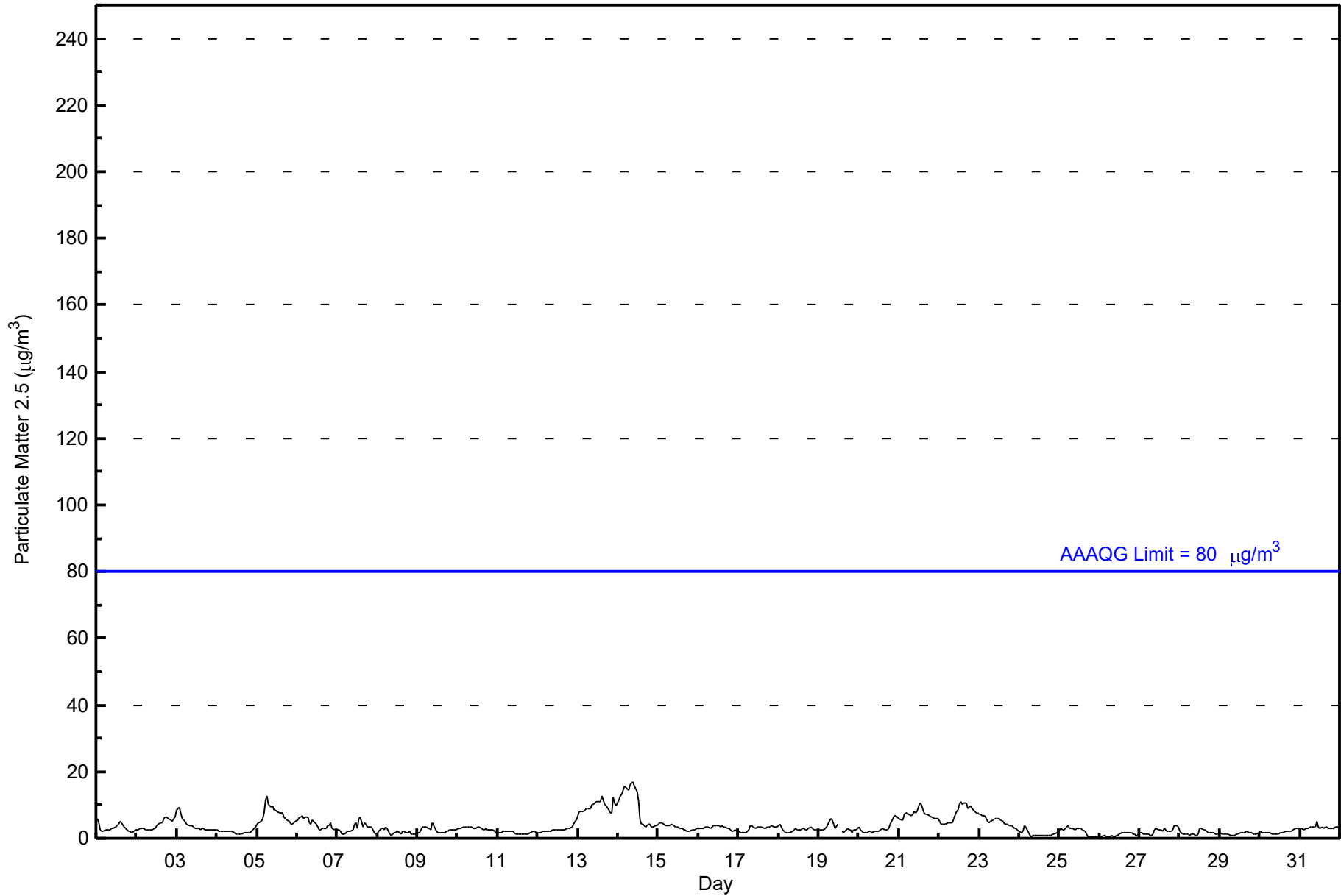
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Wapasu - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum																											
Maximum Value: 16.9 µg/m ³ on Dec 14 10:00		Maximum Daily Average: 9.6 µg/m ³ on Dec 13		Hours of Data: 742																																													
Minimum Value: 0.3 µg/m ³ on Dec 25 19:00		Minimum Daily Average: 1.0 µg/m ³ on Dec 26		Hours of Missing Data: 2																																													
Maximum Diurnal Average: 3.9 µg/m ³ at hour 11		Minimum Diurnal Average: 3.2 µg/m ³ at hour 21		Hours of Calibration: 2																																													
Monthly Average: 3.59 µg/m ³		Percentiles: P ₁ = 0.5 P ₁₀ = 1.4 Q ₁ = 1.9 Median = 2.8 Q ₃ = 4.1 P ₉₀ = 7.4 P ₉₉ = 14.2		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-Dec	5.9	4.8	2.5	2.1	2.1	2.4	2.6	2.7	2.7	2.8	2.8	3.4	3.8	4.2	5.3	4.6	3.3	2.9	2.4	2.3	2.1	1.9	2.3	2.7	3.1	5.9																							
2-Dec	2.5	2.7	2.8	2.9	2.8	2.7	2.7	2.6	2.6	2.7	2.9	3.0	3.7	4.3	4.6	4.9	5.8	6.3	6.4	6.0	5.4	5.2	5.7	6.4	4.1	6.4																							
3-Dec	8.5	9.4	7.4	6.0	5.5	5.2	4.4	3.9	3.9	3.6	3.4	3.1	3.0	2.8	2.7	2.8	2.8	2.7	2.6	2.6	2.5	2.4	2.4	4.0	9.4																								
4-Dec	2.4	2.3	2.3	2.2	2.1	2.1	2.2	2.2	2.2	1.9	1.8	1.4	1.4	1.4	1.4	1.6	1.6	1.7	1.7	1.9	2.4	3.0	3.5	2.0	3.5																								
5-Dec	4.1	4.6	5.1	6.0	7.4	11.5	12.6	10.1	9.2	9.7	8.3	8.4	7.9	7.8	7.8	7.6	6.5	6.1	5.6	5.0	4.2	4.1	4.6	4.9	7.0	12.6																							
6-Dec	5.6	6.3	6.5	6.6	5.8	6.5	6.4	4.8	4.2	5.4	5.0	4.4	3.6	2.7	2.3	3.0	3.1	3.2	3.9	3.6	4.8	3.1	2.5	2.5	4.4	6.6																							
7-Dec	2.4	2.4	1.9	1.4	1.4	1.5	2.0	2.1	2.3	2.7	4.2	4.8	3.1	6.1	6.3	3.2	4.6	4.1	3.2	3.3	3.3	2.6	1.5	1.1	3.0	6.3																							
8-Dec	1.5	2.2	2.8	2.9	2.6	3.6	3.0	1.5	0.7	1.2	1.5	1.5	2.0	1.7	1.2	2.1	2.2	1.5	1.7	1.9	1.5	1.3	1.3	1.3	1.9	3.6																							
9-Dec	1.6	1.8	2.7	3.3	3.2	3.2	3.1	2.9	2.7	4.5	3.2	2.0	1.7	1.7	1.7	1.7	1.7	2.0	2.0	2.5	2.6	2.6	2.7	2.7	2.5	4.5																							
10-Dec	2.9	3.0	3.0	3.3	3.2	3.2	3.2	3.3	3.5	3.0	3.0	3.2	3.3	3.2	2.9	2.6	2.5	2.8	2.7	2.6	2.5	2.6	2.2	1.5	2.9	3.5																							
11-Dec	1.7	1.8	1.8	2.0	1.9	1.9	2.1	2.1	2.0	1.9	1.5	1.4	1.5	1.4	1.2	1.2	1.2	1.4	1.4	1.7	1.8	1.9	2.0	1.9	1.7	2.1																							
12-Dec	1.8	1.7	1.7	2.3	2.2	2.1	2.0	2.1	2.3	2.4	2.5	2.5	2.7	2.6	2.6	2.6	2.7	2.8	2.9	3.0	3.4	4.1	4.9	5.7	2.7	5.7																							
13-Dec	6.8	8.0	8.1	8.2	8.5	9.0	8.8	8.8	10.0	10.1	10.5	11.2	11.0	11.0	12.7	11.4	10.1	9.8	8.6	7.7	7.7	12.4	10.7	9.7	9.6	12.7																							
14-Dec	11.2	12.5	13.0	14.6	15.6	14.7	14.4	15.9	16.5	16.9	15.8	13.8	10.9	5.3	4.3	4.4	3.4	3.6	4.0	4.0	3.6	3.3	3.6	3.6	9.6	16.9																							
15-Dec	4.1	4.8	4.5	4.4	3.8	3.7	3.7	3.7	4.1	3.9	3.5	3.3	3.2	3.0	2.8	2.7	2.4	2.3	2.1	2.2	2.5	2.6	2.6	2.8	3.3	4.8																							
16-Dec	2.9	2.9	2.9	3.1	3.4	3.3	3.3	3.2	3.4	3.8	4.0	3.8	3.6	3.6	3.7	3.5	3.2	3.0	2.8	2.3	2.3	2.3	2.4	2.2	3.1	4.0																							
17-Dec	1.9	1.8	1.9	1.8	1.9	2.2	2.4	3.9	3.7	3.3	3.1	3.3	3.6	3.4	3.3	3.1	2.9	3.2	3.4	3.4	3.8	3.4	3.3	3.5	3.0	3.9																							
18-Dec	3.7	4.4	2.6	2.1	1.8	1.8	1.5	1.6	2.3	2.7	2.8	2.6	2.6	2.7	3.1	2.9	2.6	2.5	2.9	3.2	3.0	2.6	2.5	2.5	2.6	4.4																							
19-Dec	2.3	2.6	2.7	2.7	2.9	3.3	5.1	6.1	5.4	4.1	3.1	4.1	C	C	2.0	1.8	2.0	2.8	2.7	2.7	1.8	2.7	2.7	2.9	3.1	6.1																							
20-Dec	3.2	2.5	2.1	1.7	1.8	1.7	2.2	2.3	1.9	2.1	2.2	2.0	2.0	2.5	2.8	2.6	2.6	2.7	3.1	4.2	5.9	6.6	6.8	6.4	3.1	6.8																							
21-Dec	5.8	5.6	5.7	7.2	7.4	7.5	7.2	6.9	7.0	8.2	7.6	8.1	10.5	10.0	9.1	7.6	7.3	7.3	6.7	6.5	6.2	5.9	5.8	5.8	7.2	10.5																							
22-Dec	5.2	4.3	4.2	4.3	4.4	4.6	4.6	4.6	4.7	6.1	8.2	8.6	10.3	10.9	10.3	10.6	10.6	9.0	9.3	9.6	8.9	8.1	7.7	7.5	7.4	10.9																							
23-Dec	7.4	7.0	7.0	6.7	5.8	5.0	4.6	5.2	5.6	5.7	5.9	5.9	5.9	5.4	5.0	4.4	4.2	4.1	3.7	3.9	3.3	3.1	3.0	2.4	5.0	7.4																							
24-Dec	1.9	1.6	2.2	3.9	3.6	2.5	1.0	0.6	0.7	0.9	0.7	0.7	0.7	0.9	0.8	0.9	0.9	1.0	1.0	1.2	1.4	1.8	2.3	1.4	3.9	3.9																							
25-Dec	2.6	2.8	2.8	2.7	3.5	3.8	3.1	2.8	2.9	2.4	2.9	3.0	2.8	3.0	2.6	2.1	1.2	0.6	0.3	0.4	0.3	0.3	0.3	0.5	2.1	3.8																							
26-Dec	0.5	0.6	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.8	1.4	1.7	1.6	1.6	1.5	1.6	1.6	1.6	1.4	1.2	0.8	0.9	1.0	1.7																							
27-Dec	1.8	1.7	1.4	1.2	1.2	1.1	1.0	1.0	1.4	2.7	3.2	2.6	2.7	2.4	2.2	2.8	2.1	2.0	2.2	2.1	2.3	3.7	4.0	3.5	2.2	4.0																							
28-Dec	2.0	1.6	1.4	1.5	1.4	1.1	1.0	1.1	1.1	1.0	0.9	1.1	3.1	2.9	2.5	2.4	2.3	1.6	1.8	1.7	1.6	1.5	1.4	1.4	1.6	3.1																							
29-Dec	1.7	1.4	1.3	1.4	1.3	1.4	1.0	0.9	1.0	1.0	1.2	1.3	1.5	1.6	1.7	1.7	2.3	1.8	1.8	1.7	1.5	1.2	1.4	1.8	1.5	2.3																							
30-Dec	1.9	1.9	1.8	1.6	1.6	1.6	1.6	1.3	1.2	1.3	1.3	1.2	1.5	1.7	1.8	2.0	2.2	2.1	2.0	2.0	2.6	3.0	3.0	3.0	1.9	3.0																							
31-Dec	2.9	2.8	2.7	2.8	2.9	2.9	3.5	3.4	3.3	3.2	4.9	3.4	3.1	3.2	3.1	3.3	3.3	3.2	3.1	3.1	3.2	3.3	3.3	3.5	3.2	4.9																							
																								3.6	3.7	3.5	3.7	3.7	3.8	3.8	3.7	3.7	3.9	3.9	3.9	3.9	3.8	3.7	3.5	3.4	3.3	3.2	3.2	3.3	3.3	3.3	Diurnal Average		
																								11.2	12.5	13.0	14.6	15.6	14.7	14.4	15.9	16.5	16.9	15.8	13.8	11.0	11.0	12.7	11.4	10.6	9.8	9.3	9.6	8.9	12.4	10.7	9.7	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}) - $\mu\text{g}/\text{m}^3$
Wapasu - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	614	82.75	82.75
6 - 15	123	16.58	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}) - μg/m³
Wapasu - December 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	57	6	13	17	9	6	28	158	58	26	28	11	7	9	23	89	545
6 - 15	1	4	10	1	3	0	4	26	52	13	4	1	2	0	1	1	123
16 - 25	0	2	3	0	0	0	0	0	0	0	0	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	58	12	26	18	12	6	32	184	110	39	32	12	9	9	24	90	673

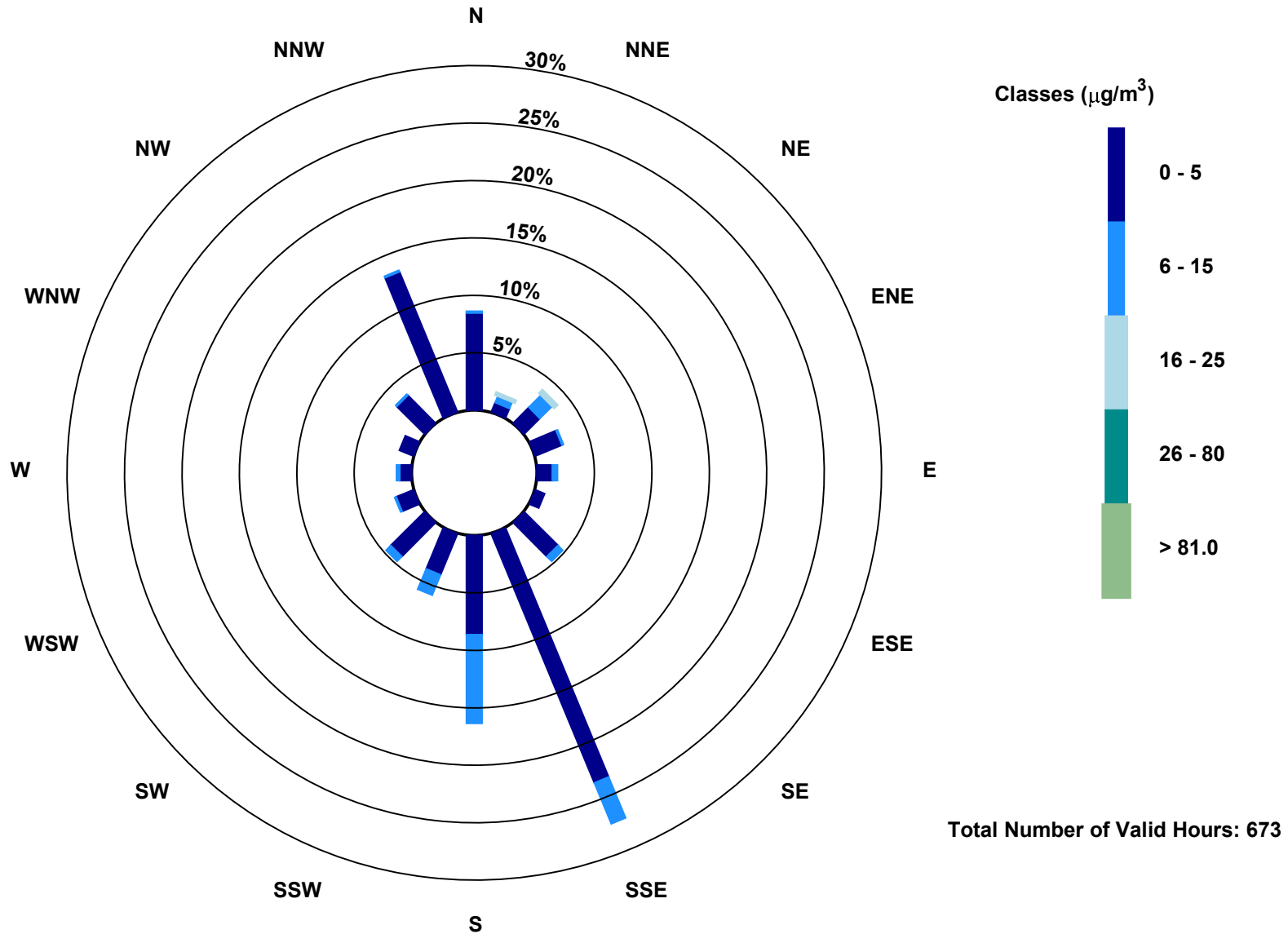
Total Number of Valid Hours: 673

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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

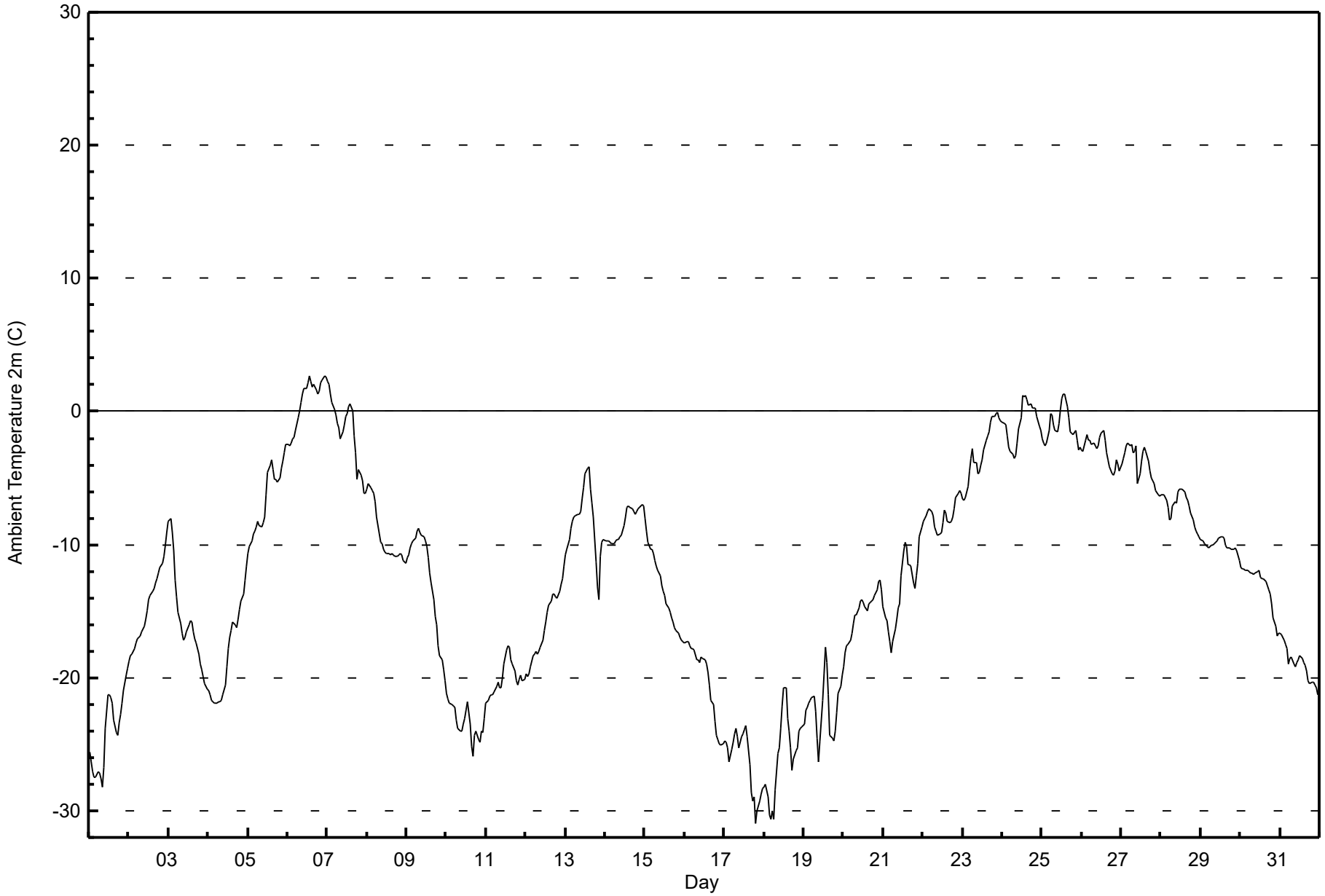




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Wapasu - December 2024

Maximum Value: 2.7 C on Dec 6 14:00		Maximum Daily Average: 0.7 C on Dec 6		Hours in Service:	744																																											
Minimum Value: -30.9 C on Dec 17 20:00		Minimum Daily Average: -26.3 C on Dec 17		Hours of Data:	744																																											
Maximum Diurnal Average: -10.8 C at hour 14		Minimum Diurnal Average: -13.1 C at hour 20		Hours of Missing Data:	0																																											
Monthly Average: -12.38 C		Percentiles: P ₁ = -29.1 P ₁₀ = -23.8 Q ₁ = -18.9 Median = -11.6 Q ₃ = -6.0 P ₉₀ = -1.6 P ₉₉ = 2.1		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-Dec	-25.6	-26.3	-27.0	-27.5	-27.4	-27.0	-27.2	-27.5	-28.3	-26.7	-23.8	-21.3	-21.3	-21.5	-21.9	-23.2	-24.1	-24.3	-23.4	-22.8	-21.9	-21.0	-19.8	-19.3	-24.2	-19.3																						
2-Dec	-18.8	-18.4	-18.3	-17.8	-17.3	-17.1	-17.0	-16.9	-16.5	-16.1	-15.6	-14.9	-14.1	-13.8	-13.5	-13.3	-12.9	-12.5	-12.1	-11.7	-11.4	-10.8	-10.0	-9.1	-14.6	-9.1																						
3-Dec	-8.2	-8.1	-9.1	-10.5	-12.7	-13.9	-15.1	-16.0	-16.6	-17.2	-17.0	-16.5	-16.0	-15.8	-15.8	-16.5	-17.1	-17.4	-18.3	-19.0	-19.4	-19.9	-20.4	-20.8	-15.7	-8.1																						
4-Dec	-20.9	-21.2	-21.7	-21.9	-21.9	-21.9	-21.8	-21.8	-21.7	-21.3	-20.5	-19.2	-17.8	-17.0	-16.4	-15.8	-16.1	-16.3	-15.6	-14.8	-14.3	-13.7	-12.6	-11.7	-18.2	-11.7																						
5-Dec	-10.6	-10.2	-9.7	-9.2	-8.9	-8.7	-8.3	-8.6	-8.6	-8.4	-7.9	-6.2	-4.6	-4.0	-3.6	-4.4	-5.1	-5.1	-5.3	-5.0	-4.3	-3.8	-3.1	-2.5	-6.5	-2.5																						
6-Dec	-2.5	-2.6	-2.3	-2.1	-2.0	-1.4	-0.5	0.1	0.7	1.3	1.7	1.7	2.1	2.7	2.3	1.8	2.0	1.7	1.3	1.5	2.1	2.3	2.6	2.5	0.7	2.7																						
7-Dec	2.3	2.1	1.3	0.7	0.1	-0.3	-0.9	-1.2	-2.1	-1.6	-1.0	-0.4	-0.2	0.4	0.6	0.0	-1.8	-3.1	-5.1	-4.4	-4.8	-5.2	-6.2	-6.1	-1.5	2.3																						
8-Dec	-5.8	-5.5	-5.7	-5.9	-6.2	-6.8	-7.9	-9.2	-9.8	-9.9	-10.3	-10.5	-10.6	-10.7	-10.7	-10.7	-10.8	-10.9	-10.9	-10.8	-10.7	-10.8	-11.2	-11.4	-9.3	-5.5																						
9-Dec	-11.0	-10.7	-10.2	-9.9	-9.7	-9.5	-9.0	-8.8	-9.1	-9.3	-9.5	-9.7	-10.2	-11.0	-12.1	-12.9	-14.2	-15.4	-16.0	-17.6	-18.4	-18.6	-19.3	-20.2	-12.6	-8.8																						
10-Dec	-21.2	-21.6	-22.0	-22.0	-22.1	-22.2	-23.2	-23.8	-24.0	-24.0	-23.5	-23.0	-22.5	-21.8	-23.4	-25.2	-25.9	-24.3	-24.0	-24.6	-24.9	-24.0	-24.1	-23.1	-23.4	-21.2																						
11-Dec	-21.9	-21.7	-21.4	-21.3	-21.3	-21.0	-20.7	-20.3	-20.7	-20.8	-20.0	-18.9	-18.0	-17.6	-17.7	-18.7	-19.0	-19.5	-20.2	-20.5	-20.2	-19.8	-20.2	-20.2	-20.1	-17.6																						
12-Dec	-19.7	-19.9	-19.7	-19.2	-18.3	-18.2	-18.0	-18.2	-18.0	-17.7	-17.2	-16.5	-15.8	-15.1	-14.6	-14.2	-13.7	-13.7	-13.9	-14.0	-13.5	-13.0	-12.6	-11.7	-16.1	-11.7																						
13-Dec	-10.8	-10.3	-9.6	-8.8	-8.3	-7.9	-7.9	-7.8	-7.7	-7.5	-6.6	-5.8	-4.6	-4.3	-4.1	-5.8	-6.9	-7.9	-11.3	-13.1	-14.1	-10.9	-9.8	-9.6	-8.4	-4.1																						
14-Dec	-9.7	-9.8	-9.7	-9.8	-9.9	-9.9	-9.7	-9.6	-9.6	-9.4	-9.3	-8.5	-8.0	-7.2	-7.1	-7.2	-7.3	-7.5	-7.7	-7.6	-7.3	-7.2	-7.0	-7.1	-8.5	-7.0																						
15-Dec	-8.1	-8.9	-9.8	-10.4	-10.4	-10.7	-11.1	-11.7	-11.9	-12.3	-13.1	-13.5	-13.8	-14.5	-14.8	-15.1	-15.5	-15.8	-16.2	-16.4	-16.7	-16.9	-17.2	-17.2	-13.4	-8.1																						
16-Dec	-17.4	-17.3	-17.3	-17.6	-17.8	-17.9	-18.0	-18.6	-18.7	-18.9	-18.5	-18.6	-18.7	-19.0	-19.6	-20.6	-21.7	-22.0	-23.3	-24.3	-24.6	-25.0	-25.1	-25.0	-20.2	-17.3																						
17-Dec	-24.8	-24.8	-25.3	-26.3	-25.4	-24.8	-24.3	-23.8	-24.4	-25.2	-24.5	-24.2	-23.9	-23.6	-24.5	-26.6	-28.7	-29.3	-29.0	-30.9	-30.0	-29.3	-28.7	-28.3	-26.3	-23.6																						
18-Dec	-28.2	-28.0	-28.9	-30.3	-30.6	-30.0	-30.7	-28.4	-25.7	-25.3	-23.8	-22.1	-20.8	-20.7	-23.1	-24.0	-25.2	-27.0	-26.2	-25.5	-25.3	-24.0	-23.8	-23.6	-25.9	-20.7																						
19-Dec	-23.5	-22.4	-22.2	-22.0	-21.7	-21.5	-21.4	-22.5	-24.5	-26.3	-24.7	-21.7	-19.7	-17.7	-18.8	-21.3	-24.3	-24.6	-24.8	-24.0	-22.6	-21.2	-20.6	-19.9	-22.3	-17.7																						
20-Dec	-19.2	-18.2	-17.6	-17.5	-17.1	-16.7	-16.0	-15.2	-15.3	-14.7	-14.2	-14.1	-14.4	-14.6	-14.9	-14.5	-14.3	-14.2	-14.1	-13.8	-13.4	-12.8	-12.7	-13.4	-15.1	-12.7																						
21-Dec	-14.6	-15.5	-15.7	-16.6	-17.3	-18.1	-17.3	-16.4	-15.7	-14.7	-14.4	-12.3	-10.5	-9.8	-10.2	-11.5	-11.6	-11.6	-12.9	-13.3	-12.3	-11.4	-9.4	-8.6	-13.4	-8.6																						
22-Dec	-8.3	-8.0	-7.8	-7.5	-7.3	-7.5	-7.8	-8.7	-9.0	-9.3	-9.2	-9.1	-8.3	-7.4	-7.6	-8.3	-8.4	-8.3	-7.9	-7.3	-6.4	-6.2	-5.9	-6.2	-7.8	-5.9																						
23-Dec	-6.6	-6.7	-6.5	-5.6	-4.5	-3.5	-2.8	-3.8	-3.9	-4.7	-4.5	-4.0	-3.6	-2.9	-2.1	-1.9	-1.6	-0.8	-0.4	-0.4	-0.1	-0.4	-0.6	-3.0	-0.1																							
24-Dec	-0.8	-0.9	-1.0	-1.9	-2.7	-3.0	-3.3	-3.6	-3.3	-2.4	-1.3	-0.5	1.2	1.1	1.2	0.9	0.5	0.6	0.3	0.2	0.3	0.4	-1.1	-1.4	-0.9	1.2																						
25-Dec	-2.0	-2.4	-2.6	-2.4	-1.4	-0.2	-0.3	-1.0	-1.4	-1.5	-0.9	0.1	1.0	1.3	1.3	0.4	-0.5	-1.6	-1.6	-1.8	-1.4	-2.2	-2.9	-2.7	-1.1	1.3																						
26-Dec	-2.9	-3.0	-2.2	-1.7	-2.2	-2.2	-2.5	-2.4	-2.6	-2.8	-2.5	-2.0	-1.7	-1.4	-2.2	-3.1	-3.6	-4.1	-4.6	-4.8	-4.5	-3.7	-3.9	-4.5	-3.0	-1.4																						
27-Dec	-3.9	-3.5	-3.1	-2.5	-2.4	-2.5	-2.5	-3.1	-3.0	-2.5	-5.4	-4.6	-3.8	-3.0	-2.6	-3.0	-3.7	-4.5	-5.0	-5.2	-5.5	-6.0	-6.2	-6.4	-3.9	-2.4																						
28-Dec	-6.2	-6.3	-6.3	-6.7	-7.2	-8.2	-8.0	-7.1	-6.8	-6.9	-6.1	-5.8	-5.9	-5.8	-6.0	-6.5	-6.6	-7.1	-7.7	-8.2	-8.7	-9.0	-9.2	-9.4	-7.2	-5.8																						
29-Dec	-9.6	-9.7	-10.0	-10.0	-10.1	-10.2	-10.0	-10.1	-9.9	-9.9	-9.7	-9.5	-9.4	-9.4	-9.5	-10.0	-10.3	-10.3	-10.3	-10.4	-10.3	-10.2	-10.4	-11.2	-10.0	-9.4																						
30-Dec	-11.7	-11.8	-11.8	-11.9	-11.9	-12.0	-12.2	-12.1	-12.2	-12.1	-12.0	-12.0	-12.4	-12.6	-12.6	-12.8	-13.1	-13.4	-13.7	-14.5	-15.6	-16.1	-16.8	-16.7	-13.1	-11.7																						
31-Dec	-16.7	-16.8	-17.2	-17.5	-17.8	-18.9	-18.5	-18.5	-18.9	-19.2	-18.9	-18.7	-18.4	-18.5	-18.9	-19.1	-19.5	-20.2	-20.4	-20.3	-20.3	-20.6	-20.7	-21.3	-19.0	-16.7																						
																								-12.6	-12.5	-12.6	-12.7	-12.7	-12.7	-12.7	-12.8	-12.9	-12.8	-12.4	-11.7	-11.1	-10.8	-11.1	-11.7	-12.3	-12.6	-12.9	-13.1	-12.9	-12.6	-12.5	-12.5	Diurnal Average
																								2.3	2.1	1.3	0.7	0.1	-0.2	-0.3	0.1	0.7	1.3	1.7	1.7	2.1	2.7	2.3	1.8	2.0	1.7	1.3	1.5	2.1	2.3	2.6	2.5	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Wapasu - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	159	21.37	21.37
-20 - 0	546	73.39	94.76
0 - 10	39	5.24	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

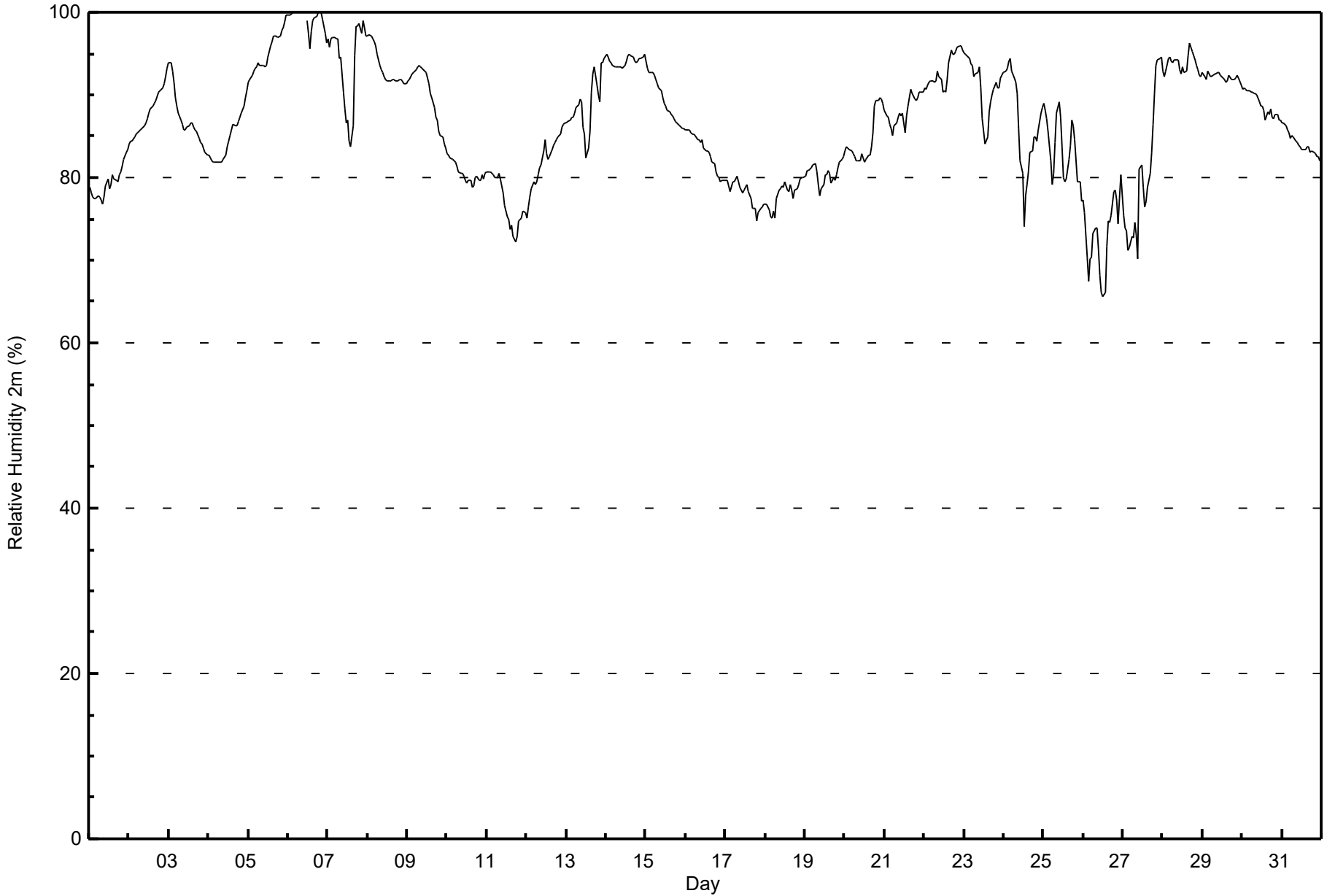
Relative Humidity 2m (RH2) - %
Wapasu - December 2024

Maximum Value: 100.0 % on Dec 6 04:00		Maximum Daily Average: 98.9 % on Dec 6		Hours in Service: 744																							
Minimum Value: 65.6 % on Dec 26 13:00		Minimum Daily Average: 73.0 % on Dec 26		Hours of Data: 739																							
Maximum Diurnal Average: 87.6 % at hour 24		Minimum Diurnal Average: 84.6 % at hour 14		Hours of Missing Data: 5																							
Monthly Average: 86.37 %		Percentiles: P ₁ = 70.3 P ₁₀ = 77.6 Q ₁ = 80.7 Median = 86.5 Q ₃ = 92.2 P ₉₀ = 94.6 P ₉₉ = 99.7		Hours of Calibration: 0																							
				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-Dec	78.7	78.2	77.7	77.4	77.5	77.7	77.6	77.2	76.7	77.6	79.0	79.8	78.6	79.1	80.3	79.8	79.6	79.5	80.3	80.7	81.4	82.2	83.1	83.5	79.3	83.5	
2-Dec	84.0	84.4	84.5	85.0	85.2	85.4	85.5	85.7	86.0	86.3	86.6	87.1	87.9	88.2	88.6	89.0	89.4	89.8	90.3	90.5	90.8	91.3	92.1	93.2	87.8	93.2	
3-Dec	93.9	93.9	92.9	91.6	89.7	88.7	87.8	87.0	86.4	85.8	85.8	86.0	86.3	86.5	86.7	86.1	85.8	85.6	84.8	84.3	84.0	83.6	83.1	82.7	87.0	93.9	
4-Dec	82.7	82.3	82.0	81.9	81.8	81.8	81.8	81.8	81.9	82.2	82.7	83.8	84.4	85.1	85.8	86.5	86.3	86.2	86.8	87.3	87.8	88.6	89.7	90.5	84.7	90.5	
5-Dec	91.4	91.9	92.4	92.9	93.2	93.5	93.9	93.5	93.6	93.5	93.3	93.6	94.5	95.9	96.4	97.2	97.1	97.0	97.2	97.8	98.2	98.9	99.6	95.2	99.6		
6-Dec	99.7	99.6	99.9	100.0	100.0	100.0	OR	OR	OR	OR	OR	98.9	97.5	95.6	97.7	99.0	99.4	99.5	100.0	100.0	100.0	99.2	97.5	96.3	98.9	100.0	
7-Dec	96.8	95.8	96.9	96.9	96.9	96.8	96.8	94.4	94.6	90.3	88.2	86.6	86.9	84.4	83.7	86.2	94.7	98.3	98.3	98.6	97.5	99.0	98.1	97.1	93.9	99.0	
8-Dec	97.1	97.2	97.1	96.8	96.4	95.9	94.9	93.6	93.0	92.8	92.2	91.9	91.8	91.7	91.7	91.9	91.9	91.8	91.7	91.8	91.9	91.8	91.4	91.3	93.3	97.2	
9-Dec	91.6	91.8	92.3	92.5	92.7	93.0	93.4	93.6	93.3	93.2	92.9	92.6	92.1	91.4	90.2	89.7	88.5	87.3	87.0	85.6	85.1	84.8	84.1	83.5	90.1	93.6	
10-Dec	82.9	82.7	82.4	82.2	82.0	81.9	81.3	80.7	80.6	80.6	80.3	79.7	79.3	79.7	79.7	78.9	78.9	80.0	80.2	79.6	79.7	80.3	79.9	80.5	80.6	82.9	
11-Dec	80.7	80.7	80.7	80.5	80.3	80.0	80.1	80.4	79.9	79.0	78.2	76.6	75.3	75.0	73.7	74.2	72.8	72.2	72.9	74.7	74.9	75.1	75.9	75.7	77.1	80.7	
12-Dec	75.1	76.5	77.6	78.7	79.5	79.2	79.6	80.3	81.2	81.6	83.3	84.5	82.9	82.2	82.6	83.3	83.9	84.2	84.5	84.9	85.2	86.1	86.5	86.6	82.1	86.6	
13-Dec	86.5	86.9	87.0	87.3	87.3	87.8	88.6	88.9	89.5	89.2	86.1	85.3	82.3	83.5	85.6	90.3	92.6	93.4	91.2	90.0	89.1	93.9	93.9	94.4	88.8	94.4	
14-Dec	94.9	94.6	94.1	93.8	93.5	93.4	93.3	93.3	93.4	93.3	93.3	93.6	94.0	94.8	94.9	94.8	94.6	94.1	93.8	94.1	94.3	94.4	94.6	94.9	94.1	94.9	
15-Dec	94.0	93.3	92.7	92.6	92.7	92.4	91.8	91.3	90.9	90.4	89.6	89.0	88.6	88.1	87.9	87.7	87.5	87.1	86.8	86.6	86.3	86.0	85.9	85.9	89.4	94.0	
16-Dec	85.7	85.8	85.7	85.3	85.2	85.2	85.0	84.7	84.6	84.3	84.5	83.6	83.3	83.2	83.0	82.6	81.9	81.8	80.7	80.1	80.0	79.5	79.7	79.6	83.1	85.8	
17-Dec	79.7	79.6	79.0	78.4	79.4	79.5	79.9	80.2	79.5	78.8	78.2	78.4	78.8	79.2	78.3	77.4	76.2	76.2	76.3	74.7	75.8	76.2	76.5	76.7	78.0	80.2	
18-Dec	76.8	76.8	76.1	75.2	75.2	75.9	75.0	77.5	78.6	78.7	78.9	78.8	79.4	78.5	78.4	79.2	78.5	77.5	78.5	78.6	79.1	79.8	79.9	80.0	77.9	80.0	
19-Dec	80.2	80.8	80.9	81.1	81.3	81.5	81.7	80.6	79.2	77.8	78.6	79.1	80.4	80.4	80.9	80.5	79.4	79.9	79.7	80.4	81.1	81.9	82.2	82.6	80.5	82.6	
20-Dec	83.2	83.8	83.6	83.4	83.3	82.9	82.5	82.0	82.0	82.0	82.9	82.4	81.8	82.2	82.8	82.8	83.7	85.4	88.6	89.3	89.4	89.7	89.6	88.9	84.5	89.7	
21-Dec	88.1	87.5	87.3	86.5	85.9	85.1	86.3	86.7	87.2	87.8	87.4	87.8	85.4	87.5	88.6	89.7	90.7	90.2	89.6	89.3	89.7	90.3	90.3	90.3	88.1	90.7	
22-Dec	90.8	90.8	91.3	91.6	91.7	91.7	91.5	91.6	92.9	92.3	91.8	90.3	90.5	90.3	91.9	93.8	95.5	94.8	94.9	95.3	95.8	95.9	96.0	95.5	92.8	96.0	
23-Dec	95.1	94.9	94.7	94.5	93.8	93.6	92.2	92.5	92.7	93.3	90.9	87.1	85.6	84.1	85.0	88.0	89.2	90.0	90.7	91.5	90.9	90.9	92.1	92.4	91.1	95.1	
24-Dec	92.7	92.9	93.2	94.0	94.4	92.9	92.1	91.6	90.2	86.0	82.1	80.5	74.1	77.7	79.2	80.6	83.0	83.3	84.9	84.9	84.3	85.8	87.9	88.4	86.5	94.4	
25-Dec	89.1	88.2	87.1	85.5	82.1	79.2	80.4	84.2	87.8	89.1	87.2	83.7	80.1	79.5	79.8	82.1	84.0	86.9	86.2	84.6	79.5	79.4	79.5	77.2	83.4	89.1	
26-Dec	77.4	75.8	70.3	67.4	70.2	70.4	73.2	74.0	73.9	71.3	68.2	66.1	65.6	66.2	71.7	74.8	74.6	75.4	78.3	78.5	77.3	74.5	77.5	80.3	73.0	80.3	
27-Dec	75.5	73.9	73.6	71.3	71.5	72.9	72.7	74.6	73.0	70.2	81.0	81.5	78.8	76.5	77.1	78.8	80.6	83.0	86.5	90.3	93.6	94.2	94.4	94.5	80.0	94.5	
28-Dec	92.8	92.2	92.9	94.3	94.5	94.0	94.0	94.2	94.2	94.2	93.1	92.6	93.3	92.7	92.8	94.8	96.2	95.7	95.2	94.2	93.5	93.0	92.4	92.1	93.7	96.2	
29-Dec	92.8	92.2	91.9	92.8	92.5	92.3	92.4	92.5	92.6	92.7	92.7	92.4	92.1	91.9	91.4	91.7	92.3	91.9	91.8	91.9	92.0	92.3	92.0	91.2	92.2	92.8	
30-Dec	90.7	90.8	90.6	90.5	90.4	90.3	90.3	90.2	90.2	90.1	89.2	88.7	88.7	88.2	86.9	88.1	87.7	88.4	87.3	87.1	87.6	87.6	87.0	86.9	88.9	90.8	
31-Dec	86.6	86.7	86.2	85.7	85.4	84.7	85.2	85.0	84.4	84.2	84.0	83.7	83.4	83.4	83.5	83.7	83.7	83.1	83.2	83.0	82.9	82.6	82.5	82.0	84.1	86.7	
		87.3	87.2	86.9	86.7	86.6	86.4	86.0	86.1	85.6	85.4	85.3	84.6	84.6	85.1	85.9	86.5	86.8	87.0	87.1	87.0	87.4	87.5	87.6	Diurnal Average		
		99.7	99.6	99.9	100.0	100.0	100.0	96.8	94.4	94.6	94.2	93.3	98.9	97.5	95.9	97.7	99.0	99.4	99.5	100.0	100.0	100.0	99.2	98.9	99.6	Diurnal Maximum	
OR - Out of Range																											



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Wapasu - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	154	20.84	20.84
80 - 100	579	78.35	99.19

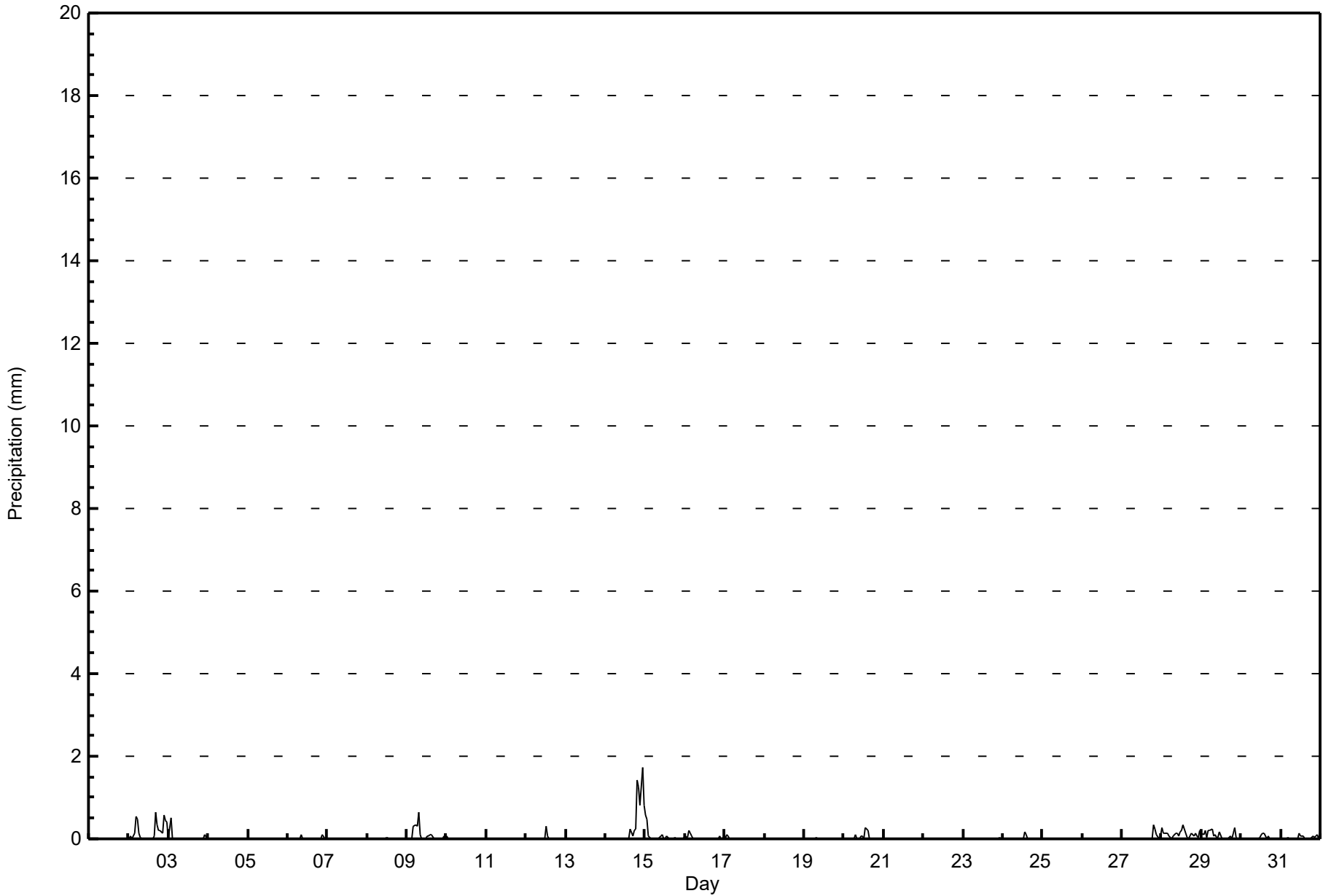
Total Number of Valid Hours: 739

Total Number of Hours: 744



Wood Buffalo Environmental Association
Hourly Averages

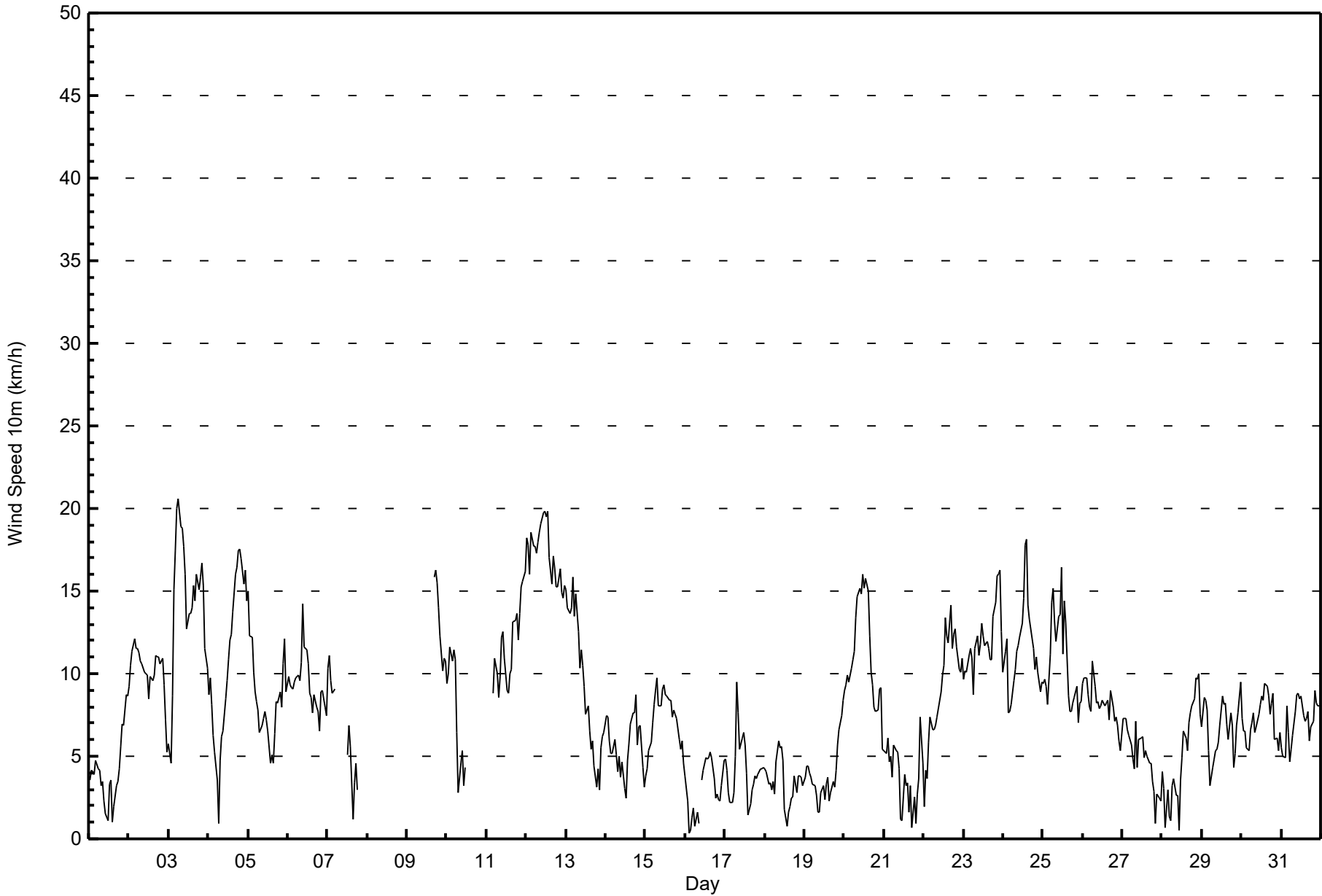
Precipitation (PC) - mm
Wapasu - December 2024





Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Wapasu - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Wapasu - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	211	31.26	31.26
6 - 11	329	48.74	80.00
12 - 19	129	19.11	99.11
20 - 28	6	0.89	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 675

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Wapasu - December 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	21	12	11	5	20	45	14	5	2	8	9	9	14	13	211
6 - 11	34	2	6	6	2	1	11	84	67	26	13	4	0	0	10	63	329
12 - 19	10	0	0	0	0	0	1	51	29	8	17	0	0	0	0	13	129
20 - 28	1	0	0	0	0	0	0	4	0	0	0	0	0	0	0	1	6
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	58	12	27	18	13	6	32	184	110	39	32	12	9	9	24	90	675

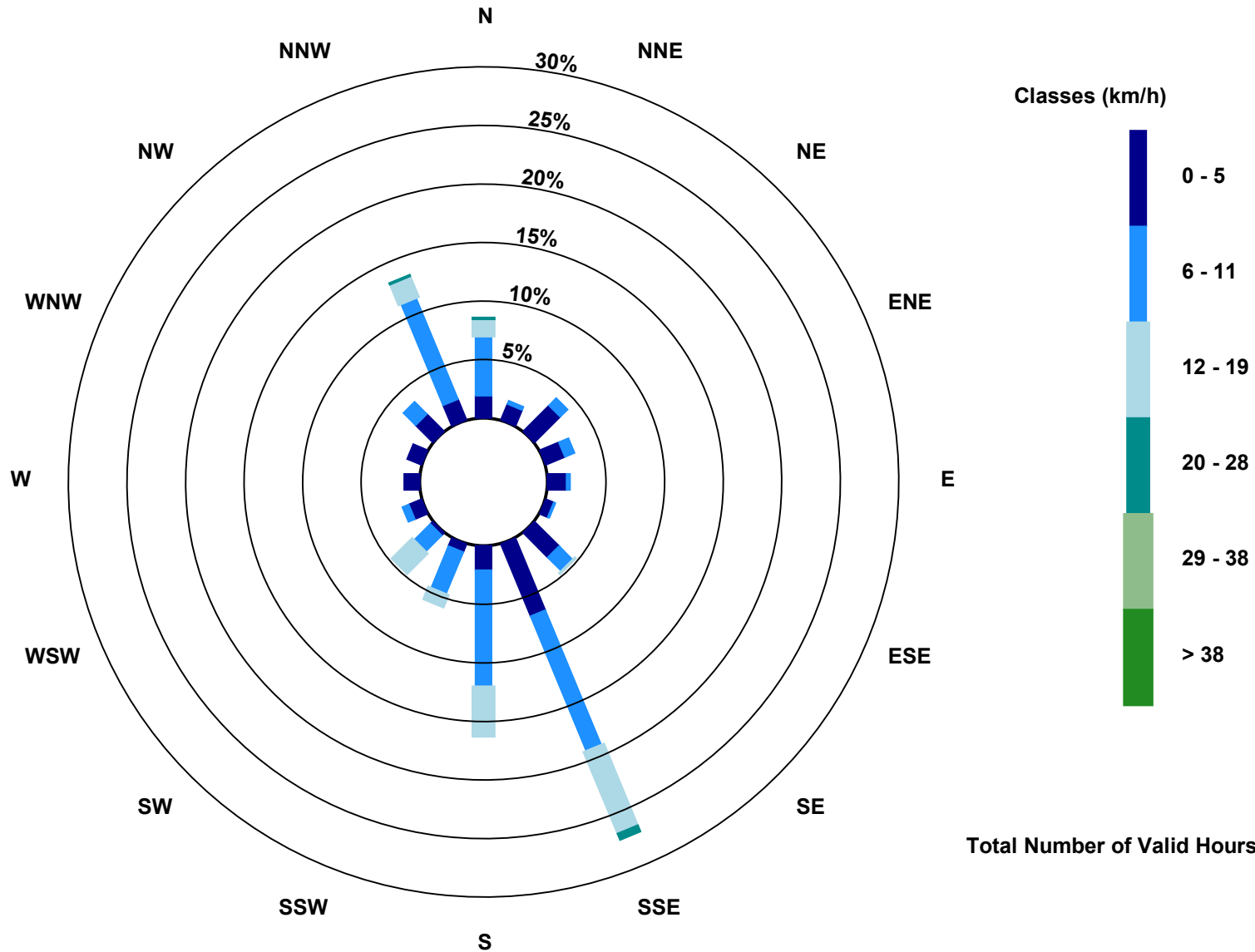
Total Number of Valid Hours: 675

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 675



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Wapasu - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 3 06:00 Minimum Value: 0 km/h on Dec 1 10:00 Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6																	Hours in Service: 744 Hours of Data: 675 Hours of Missing Data: 69 Hours of Calibration: 0 Percent Operational Time: 90.7									
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-Dec	1	1	1	1	1	1	1	1	1	0	1	1	2	1	1	1	0	1	1	1	2	2	2	2	2	2
2-Dec	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	3
3-Dec	2	2	3	4	6	6	6	5	5	4	4	4	4	3	3	4	3	5	5	5	5	4	3	3	6	
4-Dec	3	3	3	2	2	2	1	1	2	2	3	3	4	4	4	4	4	5	6	6	6	5	6	5	6	
5-Dec	5	5	4	3	3	2	3	2	2	2	2	2	2	2	1	1	2	2	3	3	2	3	3	3	5	
6-Dec	3	3	3	3	3	3	3	3	3	4	3	3	3	2	3	2	3	2	2	2	3	2	3	2	4	
7-Dec	2	3	3	2	2	UO	UO	UO	UO	UO	UO	UO	UO	4	2	1	2	2	1	1	UO	UO	UO	UO	4	
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--	
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	4	5	5	5	4	3	3	3	5	
10-Dec	2	2	3	2	3	2	2	2	2	2	1	1	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	3	
11-Dec	UO	UO	UO	UO	4	3	3	2	2	3	3	3	3	3	3	2	3	3	3	3	4	4	4	4	4	
12-Dec	5	4	5	5	5	5	5	5	5	5	5	6	6	6	5	5	5	5	5	5	5	5	5	5	6	
13-Dec	5	5	5	5	5	5	5	4	4	4	3	3	2	3	2	1	1	1	1	1	1	2	2	2	5	
14-Dec	2	2	2	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	3	2	2	2	3	1	3	
15-Dec	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	
16-Dec	1	2	1	1	1	1	1	1	1	UO	1	1	1	2	2	2	2	1	1	1	1	1	1	1	2	
17-Dec	2	1	1	1	1	1	2	3	3	2	2	2	1	2	1	1	0	0	1	1	1	1	1	1	3	
18-Dec	1	1	1	1	0	1	1	1	1	1	1	1	2	1	1	1	0	0	1	1	1	1	1	1	2	
19-Dec	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	
20-Dec	2	2	3	3	3	3	3	4	4	4	4	5	5	5	4	4	3	3	3	2	2	3	3	2	5	
21-Dec	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	1	1	2	2	1	2	
22-Dec	1	1	1	2	2	2	2	2	2	3	3	3	3	5	4	4	4	4	4	4	4	3	3	3	5	
23-Dec	3	3	3	3	3	3	3	4	4	3	4	4	4	4	4	3	3	4	3	3	4	4	4	3	4	
24-Dec	3	3	4	2	2	2	3	3	3	3	4	3	4	5	6	5	4	5	4	3	3	3	3	3	6	
25-Dec	2	3	3	2	3	4	4	3	3	3	3	3	5	3	4	4	3	2	2	3	3	2	2	2	5	
26-Dec	3	2	2	2	2	2	3	3	2	2	3	2	3	3	3	2	2	3	2	1	1	1	1	2	3	
27-Dec	2	2	1	1	1	1	1	2	2	2	2	2	2	1	2	1	2	2	2	1	1	1	1	1	2	
28-Dec	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	2	2	3	3	3	2	3	
29-Dec	2	2	2	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	
30-Dec	2	1	2	1	1	2	2	2	1	1	2	2	3	2	3	3	2	2	2	2	1	1	2	1	3	
31-Dec	1	1	2	2	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	2	3	3	3	
Diurnal Maximum																										
M - Maintenance UO - Unstable Operation																										



Wood Buffalo Environmental Association
Summary of Hour Averages

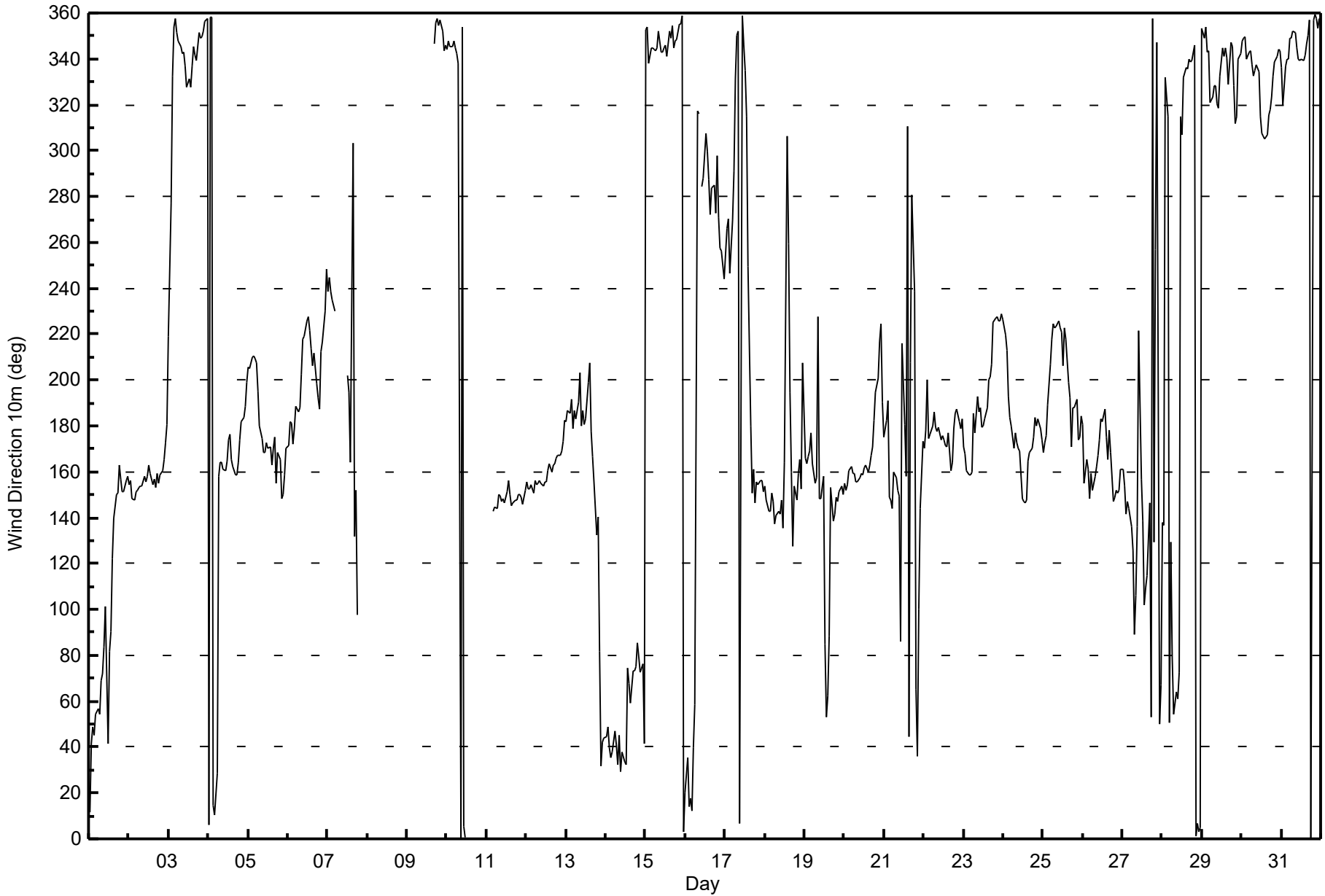
Wind Direction 10m (WD10) - deg
Wapasu - December 2024

Direction of Maximum Speed: 348 deg on Dec 3 07:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 159.6 deg on Dec 12	Hours of Data: 675
Direction of Minimum Speed: 14 deg on Dec 16 03:00	Direction of Minimum Daily Speed Average: 1.0 deg on Dec 17
Direction of Minimum Speed: 14 deg on Dec 16 03:00	Hours of Missing Data: 69
Monthly Average Direction: 174.7 deg	Percent Operational Time: 90.7

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	12	42	49	45	55	57	54	69	72	84	101	41	82	90	122	140	150	150	163	157	151	151	156	158	110.3
2-Dec	154	156	148	148	151	152	153	154	154	158	155	158	163	159	155	157	153	159	155	159	161	165	172	180	156.6
3-Dec	219	277	332	354	358	352	348	346	342	343	337	328	332	328	337	346	342	339	351	349	350	352	357	358	343.3
4-Dec	6	358	358	14	10	29	158	164	164	161	160	165	174	177	166	162	158	158	164	174	182	183	189	199	168.4
5-Dec	206	205	210	211	209	207	195	180	175	169	168	173	170	171	163	170	175	155	168	165	148	150	159	170	180.3
6-Dec	171	182	181	172	179	188	186	188	203	218	219	226	227	221	214	206	211	198	192	187	213	216	230	248	203.5
7-Dec	239	245	239	235	230	UO	UO	UO	UO	UO	UO	UO	UO	202	195	164	303	132	152	98	UO	UO	UO	UO	--
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	347	356	358	355	357	352	343	346	--
10-Dec	344	348	346	346	348	345	342	338	0	354	6	0	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
11-Dec	UO	UO	UO	UO	143	144	144	150	150	147	149	146	151	156	150	145	147	148	147	150	150	149	146	152	148.2
12-Dec	156	152	153	154	151	156	154	155	156	155	154	156	156	160	164	160	163	163	166	167	167	169	174	182	159.6
13-Dec	182	187	186	191	178	187	183	191	203	180	187	180	183	199	207	177	166	156	132	140	82	32	42	44	179.7
14-Dec	44	49	40	35	38	47	41	32	45	29	38	34	32	74	68	59	73	73	75	85	79	72	76	41	56.4
15-Dec	353	354	338	345	345	344	344	345	352	343	343	345	346	341	352	349	354	345	348	349	355	355	359	3	347.8
16-Dec	20	35	14	18	13	39	59	318	316	UO	284	288	308	300	287	272	284	285	273	298	271	258	256	244	293.5
17-Dec	255	266	270	246	270	291	331	350	352	7	359	346	335	315	249	180	151	161	146	156	154	156	152	311.2	
18-Dec	153	147	143	143	151	147	137	141	143	141	147	135	164	307	259	195	160	128	154	148	159	165	153	208	151.9
19-Dec	166	164	167	169	177	164	155	157	228	148	148	158	85	53	62	88	153	139	142	149	147	151	154	150	148.4
20-Dec	155	152	155	160	162	159	160	156	155	157	159	159	162	163	160	163	167	171	182	195	201	217	225	191	166.7
21-Dec	175	183	191	149	148	144	160	157	152	149	86	216	180	158	310	45	208	281	238	65	36	100	144	173	161.1
22-Dec	170	178	200	175	177	180	186	179	178	179	174	176	174	171	171	177	160	164	179	185	188	182	179	183	176.7
23-Dec	171	168	161	159	158	160	185	177	193	186	188	180	180	183	188	200	201	207	225	227	228	226	226	229	194.5
24-Dec	227	220	213	193	183	180	170	177	173	170	169	148	147	146	148	165	169	170	175	184	180	183	179	174	173.7
25-Dec	168	172	175	189	207	218	224	223	223	226	222	221	206	222	218	199	192	171	188	188	192	174	175	184	203.8
26-Dec	180	155	165	161	148	159	152	158	162	167	174	183	182	187	175	165	178	168	147	149	152	151	152	161	164.0
27-Dec	161	154	141	147	144	136	125	89	106	136	222	157	138	102	109	115	146	53	357	129	257	347	50	67	129.8
28-Dec	138	137	332	315	50	129	79	54	64	61	73	315	307	332	336	336	340	338	339	346	1	7	3	5	356.1
29-Dec	353	349	354	343	344	321	324	328	328	320	319	332	345	341	345	341	329	347	345	328	312	315	340	342	337.3
30-Dec	348	349	349	340	343	343	337	333	335	337	334	315	307	306	305	307	316	318	323	333	339	341	344	343	329.2
31-Dec	336	320	337	340	340	349	349	352	351	345	340	339	340	339	342	347	350	357	0	357	360	358	353	358	347.1

181.2	179.6	182.2	173.0	164.8	164.8	168.1	167.3	168.1	172.2	181.2	183.0	182.4	183.5	178.0	173.2	170.6	160.1	166.4	175.0	175.6	174.0	175.6	184.9	
Diurnal Average																								

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Wapasu - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 94 deg on Dec 18 14:00 Minimum Value: 9 deg on Dec 17 22:00 Percentiles: P ₁ = 11 P ₁₀ = 16 Q ₁ = 18 Median = 22 Q ₃ = 27 P ₉₀ = 30 P ₉₉ = 69																			Hours in Service: 744 Hours of Data: 675 Hours of Missing Data: 69 Hours of Calibration: 0 Percent Operational Time: 90.7						
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-Dec	30	20	15	19	17	18	17	12	11	11	18	56	27	28	75	18	14	14	20	20	19	20	20	20	75
2-Dec	21	20	19	19	20	20	20	19	19	22	21	22	25	23	21	23	20	26	21	25	25	23	28	30	30
3-Dec	27	43	21	22	25	23	20	20	19	18	19	19	20	18	18	18	17	17	23	21	21	21	23	26	43
4-Dec	27	25	29	31	30	34	70	28	26	22	23	26	29	28	26	25	23	24	24	29	29	30	30	29	70
5-Dec	26	31	22	24	22	24	29	24	24	18	24	25	24	28	22	16	23	18	31	28	21	19	19	28	31
6-Dec	28	31	27	26	27	29	27	28	28	21	22	17	17	17	23	25	24	24	24	29	22	21	28	24	31
7-Dec	16	18	17	17	14	UO	UO	UO	UO	UO	UO	UO	UO	24	25	18	75	54	12	31	UO	UO	UO	UO	75
8-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	M	22	25	26	25	27	23	19	19	27
10-Dec	17	18	17	17	18	16	17	24	33	23	30	27	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	33
11-Dec	UO	UO	UO	UO	20	19	18	19	17	17	18	19	20	20	19	17	18	17	17	19	18	18	18	18	20
12-Dec	19	18	21	19	20	20	22	20	20	20	20	20	20	22	24	23	24	24	24	24	25	26	28	29	29
13-Dec	29	30	29	30	28	32	29	33	33	30	29	28	30	27	22	22	19	27	21	16	23	23	26	26	33
14-Dec	22	23	27	29	28	24	26	30	24	34	25	49	51	39	23	26	26	25	26	30	25	26	30	31	51
15-Dec	19	17	13	19	16	17	16	17	21	22	17	19	17	16	20	19	23	17	21	19	25	23	25	27	27
16-Dec	29	33	15	17	22	30	30	24	28	UO	25	28	26	28	28	30	29	30	35	33	34	30	33	22	35
17-Dec	28	33	41	36	37	26	23	22	23	30	25	23	20	27	29	27	11	17	14	12	10	9	10	11	41
18-Dec	11	12	16	19	10	9	13	11	13	16	19	21	65	94	29	30	18	21	12	14	13	18	18	28	94
19-Dec	25	23	22	22	23	20	21	19	52	56	23	20	37	29	21	30	19	17	16	14	15	18	20	19	56
20-Dec	19	19	20	22	22	22	24	21	20	21	22	22	24	23	23	25	24	27	30	29	27	24	17	27	30
21-Dec	22	21	27	12	16	26	14	14	14	11	50	65	35	37	42	69	44	88	51	89	37	37	24	32	89
22-Dec	40	30	26	26	27	31	28	28	28	27	26	30	28	27	30	29	23	25	29	28	29	30	30	31	40
23-Dec	27	25	21	21	21	19	37	29	28	30	31	30	30	31	28	32	30	26	17	15	16	17	16	18	37
24-Dec	21	18	23	26	27	25	26	27	25	23	25	19	17	19	26	25	27	29	27	27	28	28	28	27	29
25-Dec	22	25	25	27	24	21	18	17	17	15	17	17	23	18	21	27	27	21	28	27	29	24	23	27	29
26-Dec	28	17	19	18	14	21	19	24	23	24	28	29	29	28	28	18	20	24	14	12	12	11	15	25	29
27-Dec	18	21	11	14	10	13	18	28	21	67	36	23	21	17	26	18	48	26	36	43	67	17	19	23	67
28-Dec	32	30	74	16	59	55	11	19	21	13	56	20	25	21	17	15	15	18	16	17	27	29	27	26	74
29-Dec	22	19	21	17	17	20	19	18	17	20	21	17	17	17	19	16	18	19	17	18	23	21	21	17	23
30-Dec	18	18	19	17	18	16	14	18	14	15	16	24	25	24	23	24	21	19	20	15	14	16	17	15	25
31-Dec	18	20	22	17	16	18	19	18	20	17	16	16	17	18	16	18	19	24	26	22	25	27	22	24	27
Diurnal Maximum																									
M - Maintenance UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS18 STONY MOUNTAIN DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
 DECEMBER 2024

MONTHLY SUMMARY for
 AMD SECTION III.B.1(c)

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	709	35	35	100	5.8	0	2.2	0
TRS(ppb) Average	707	37	37	100	0.7	0	0.5	0
THC(ppm) Average	709	35	35	100	2.4	-	2.3	-
NMHC(ppm) Average	709	35	35	100	0.103	-	0.078	-
CH4(ppm) Average	709	35	35	100	2.3	-	2.2	-
O3 (ppb) Average	710	34	34	100	35.3	0	32.5	-
NO2 (ppb) Average	707	37	37	100	13	0	6.8	-
NO (ppb) Average	707	37	37	100	3.9	-	1.8	-
NOX (ppb) Average	707	37	37	100	14.7	-	8.6	-
PM2.5 (ug/m3) Average	742	2	2	100	31	0	12.1	0
CO(ppm) Average	709	35	35	100	0.3	0	0.2	0
CO2(ppm) Average	709	35	35	100	461.5	0	455.5	0
Temperature 2 m (C) Average	744	0	0	100	5.8	-	3.8	-
Relative Humidity (%) Average	744	0	0	100	99.4	-	94.7	-
Wind Speed 10 m (km/h) Average	402	0	342	54.03	15	-	12	-
Wind Speed 20 m (km/h) Average	732	0	12	98.39	23	-	18	-
Wind Direction 10 m (deg) Average	402	0	342	54.03	-	-	0	-
Wind Direction 20 m (deg) Average	732	0	12	98.39	-	-	0	-
Precipitation (mm) Total	743	0	1	99.87	0.6	-	5.4	-
Leaf Wetness (% of range) Average	743	0	1	99.87	66.4	-	9.1	-
Global Solar Radiation (W/m2) Average	744	0	0	100	199.6	-	24.8	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
 DECEMBER 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	0.7	-	0	0	0.1	0.3	0.6	1.3	5.8
TRS (ppb) Average	707	0.41	0.1	-	0.3	0.3	0.4	0.4	0.4	0.5	0.7
THC (ppm) Average	709	2.12	0.1	-	2	2	2.1	2.1	2.2	2.2	2.4
NMHC(ppm) Average	709	0.029	0.027	-	0	0	0	0	0	0.1	0.103
CH4(ppm) Average	709	2.09	0.1	-	2	2	2.1	2.1	2.1	2.2	2.3
O3 (ppb) Average	710	25.25	5.6	-	8.8	17.7	20.9	26.4	29.5	32	35.3
NO2 (ppb) Average	707	2.08	1.9	-	0	0.1	0.6	1.6	3.1	4.7	13
NO (ppb) Average	707	0.34	0.5	-	0	0	0	0.1	0.6	1	3.9
NOX (ppb) Average	707	2.42	2.2	-	0	0.3	0.8	1.9	3.5	5.2	14.7
PM2.5 (ug/m3) Average	742	4.55	3.9	-	0.4	1.5	2.2	3.1	5.8	9	31
CO(ppm) Average	709	0.18	0	-	0.1	0.1	0.2	0.2	0.2	0.2	0.3
CO2(ppm) Average	709	442.13	5.2	-	432.9	436.3	438	441.1	445.7	448.9	461.5
Temperature 2 m (C) Average	744	-11.13	8	-	-29.3	-22.1	-17.5	-9.7	-5.4	-1.4	5.8
Relative Humidity (%) Average	744	83.13	7.5	-	56.3	74	78	82.3	89.8	92.8	99.4
Wind Speed 10 m (km/h) Average	402	7.3	4	-	1	3	4	7	10	12	15
Wind Speed 20 m (km/h) Average	732	11.4	5	-	1	5	8	11	15	18	23
Wind Direction 10 m (deg) Average	402	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	732	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	743	-	-	16.83	-	-	-	-	-	-	-
Surface Wetness (% of range) Average	743	3.88	3.9	-	1.8	2.3	2.6	3	4.2	5.6	66.4
Global Solar Radiation (W/m2) Average	744	12.32	28.8	-	0	0	0	0.1	8.9	39.1	199.6

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - STONY MOUNTAIN (AMS18)
DECEMBER 2024

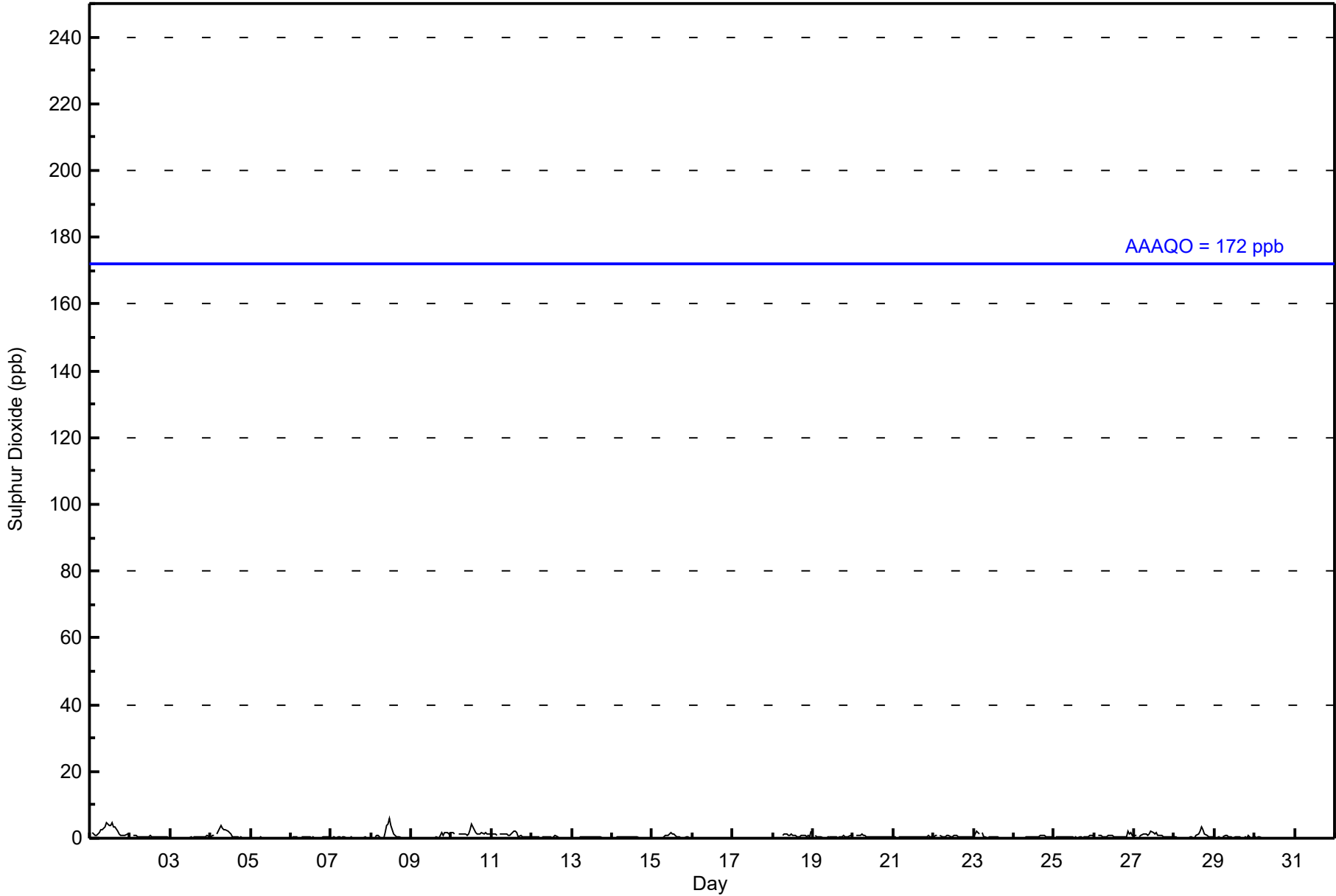
MONTHLY SUMMARY

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction 10m	03 Dec 2024 09:00	17 Dec 2024 12:00	340	Sensor Failure - wind speed sensor failure
Wind Speed, Wind Direction 10m	17 Dec 2024 13:00	17 Dec 2024 14:00	2	Maintenance - wind speed sensor replaced
Wind Speed, Wind Direction 20m	02 Dec 2024 21:00	03 Dec 2024 01:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	05 Dec 2024 18:00	05 Dec 2024 22:00	5	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	18 Dec 2024 20:00	18 Dec 2024 21:00	2	Flat line in sensor output signal - Sensor frozen
Precipitation Collector	11 Dec 2024 14:00	11 Dec 2024 14:00	1	Maintenance - field testing
Surface Leaf Wetness	03 Dec 2024 04:00	03 Dec 2024 04:00	1	Sensor operated out of range



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Stony Mountain - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Stony Mountain - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	709	100.00	100.00
11 - 20	0	0.00	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Stony Mountain - December 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	12	2	6	17	8	10	32	40	61	147	54	44	63	50	109	42	697
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	12	2	6	17	8	10	32	40	61	147	54	44	63	50	109	42	697

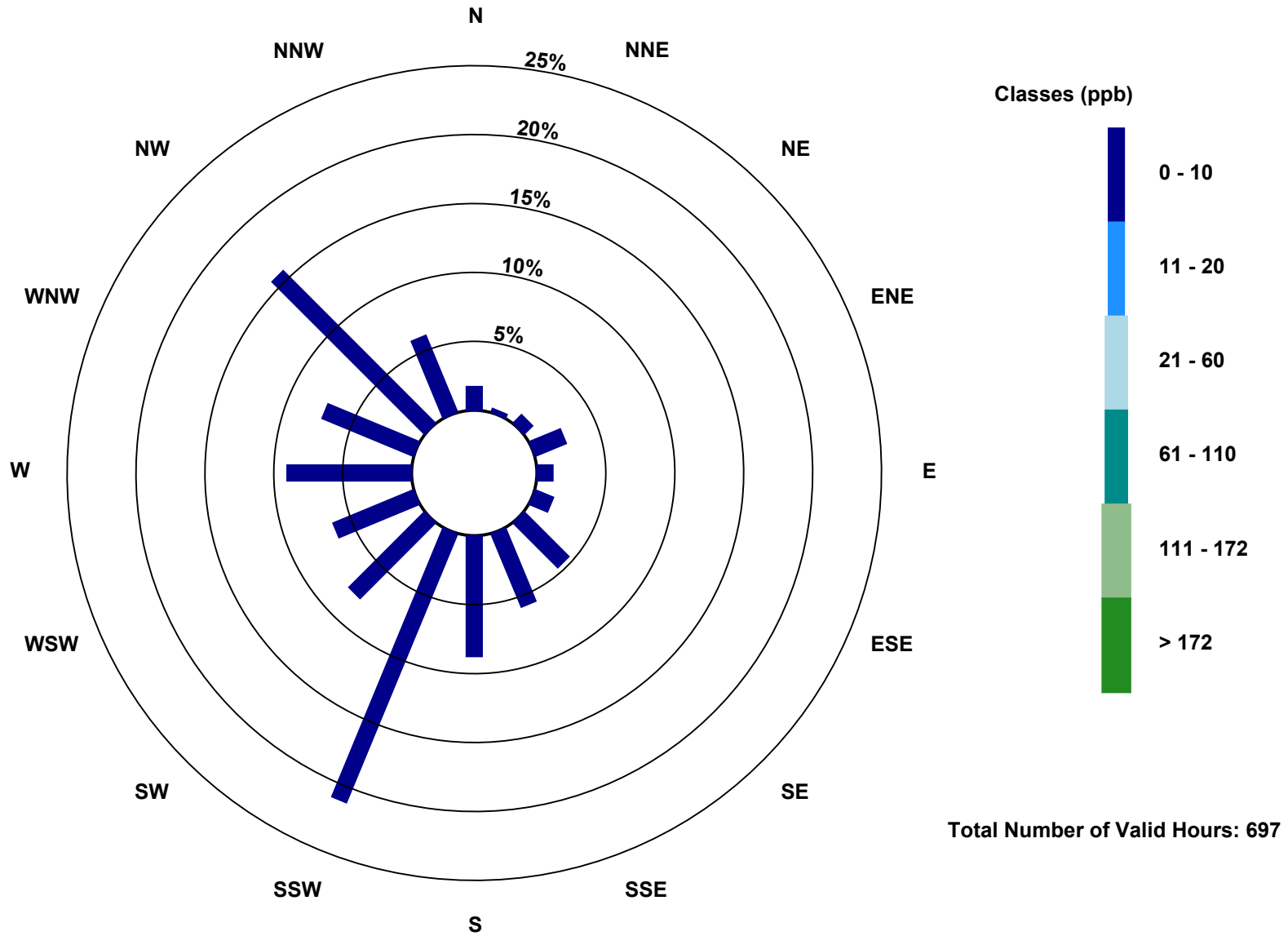
Total Number of Valid Hours: 697

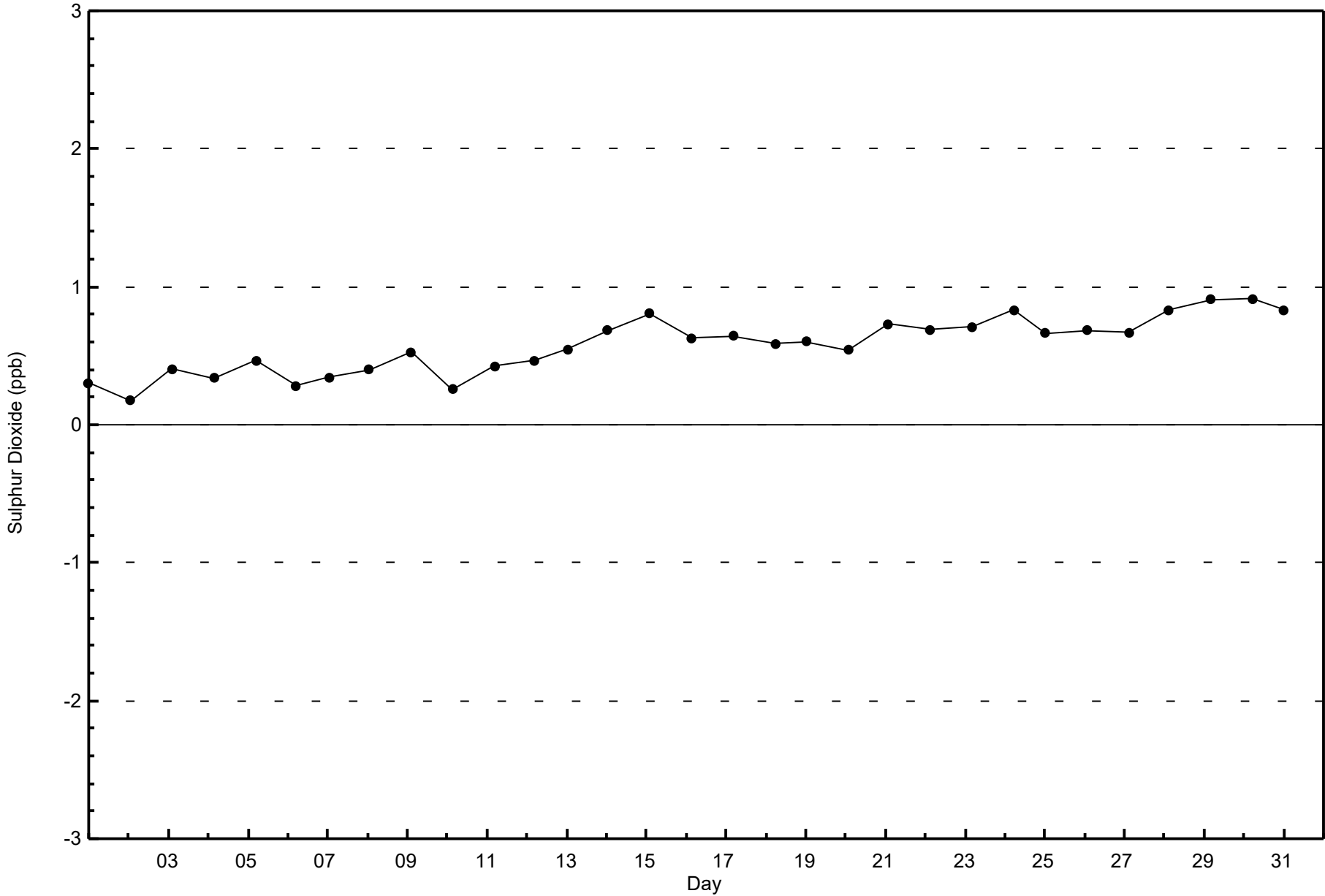
Total Number of Hours: 744

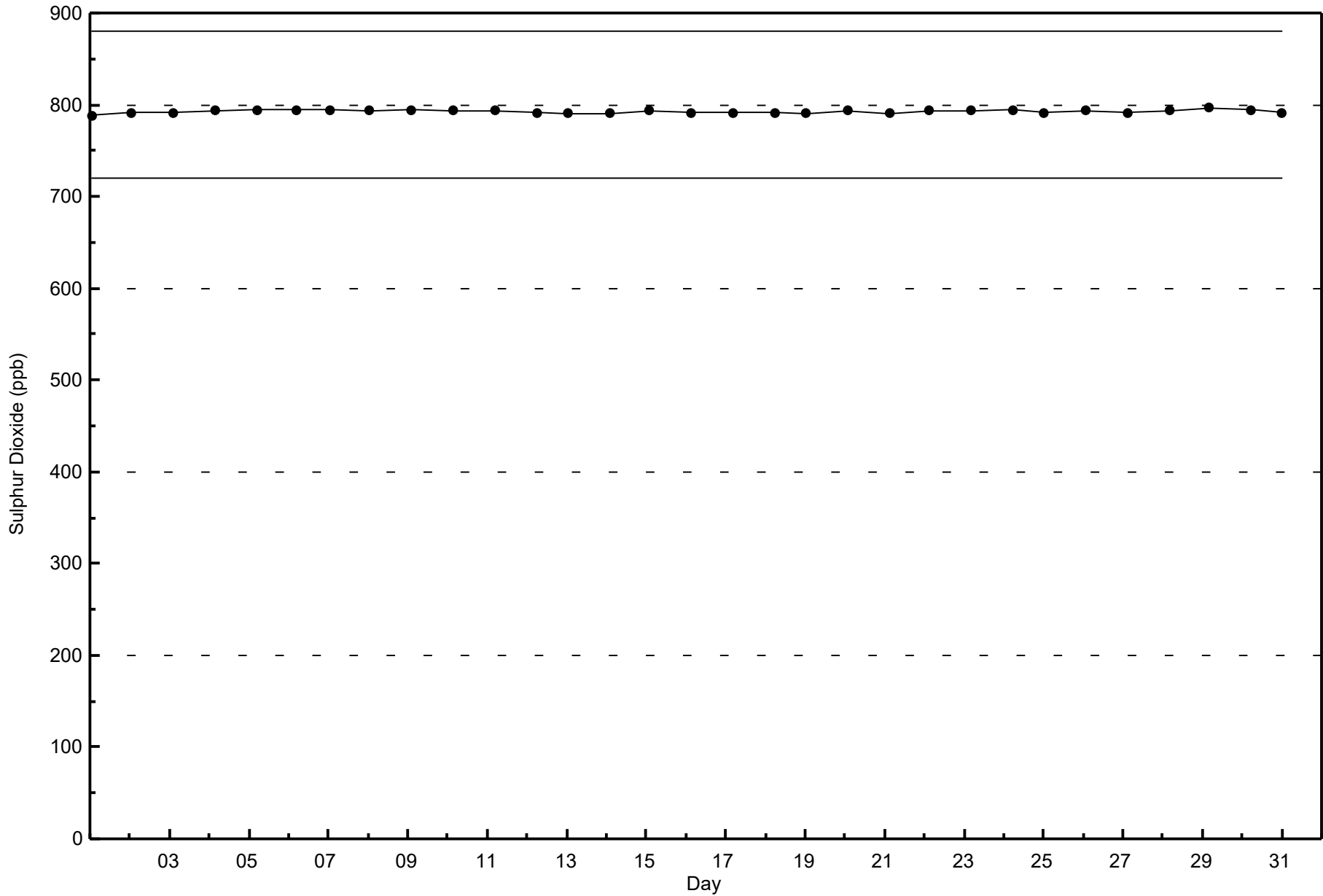


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Stony Mountain

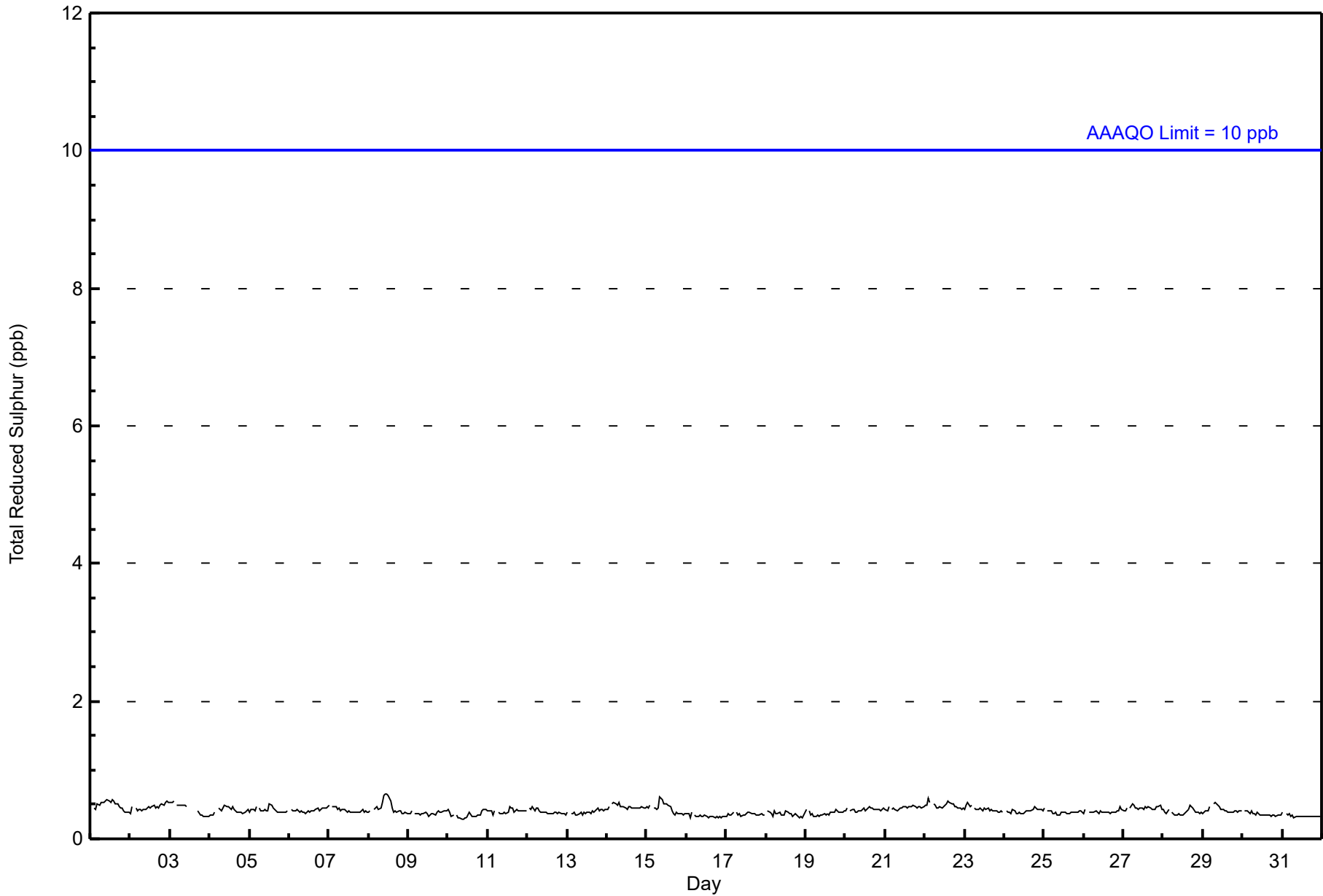








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 0.7 ppb on Dec 8 12:00		Maximum Daily Average: 0.5 ppb on Dec 22														Hours of Data:		707									
Minimum Value: 0.3 ppb on Dec 10 10:00		Minimum Daily Average: 0.3 ppb on Dec 31														Hours of Missing Data:		37									
Maximum Diurnal Average: 0.4 ppb at hour 5		Minimum Diurnal Average: 0.4 ppb at hour 20														Hours of Calibration:		37									
Monthly Average: 0.41 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.3 Q ₁ = 0.4 Median = 0.4 Q ₃ = 0.4 P ₉₀ = 0.5 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-Dec	0.4	Z	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.6	
2-Dec	0.4	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	
3-Dec	0.5	0.5	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.5	0.5	C	C	C	C	C	C	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	--	0.5
4-Dec	0.3	0.3	0.3	0.4	Z	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
5-Dec	0.4	0.4	0.4	0.4	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
6-Dec	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	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.4	0.5
7-Dec	0.5	Z	0.5	0.5	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
8-Dec	0.4	0.4	Z	0.4	0.5	0.5	0.4	0.5	0.5	0.6	0.7	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	0.7
9-Dec	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
10-Dec	0.4	0.4	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11-Dec	0.4	0.4	0.4	0.3	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
12-Dec	Z	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4
13-Dec	0.4	Z	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
14-Dec	0.4	0.5	Z	0.4	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	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5
15-Dec	0.5	0.5	0.5	Z	0.4	0.5	0.4	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.6	
16-Dec	0.4	0.4	0.3	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
17-Dec	0.3	0.4	0.3	0.3	0.4	Z	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.4	0.4
18-Dec	Z	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4
19-Dec	0.4	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
20-Dec	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	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
21-Dec	0.4	0.4	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.5	0.5	0.5
22-Dec	0.5	0.5	0.6	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6
23-Dec	0.4	0.5	0.5	0.5	0.5	Z	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
24-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5
25-Dec	0.5	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
26-Dec	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	0.5	0.4	0.4	0.5
27-Dec	0.4	0.4	0.5	Z	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.4	0.5
28-Dec	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
29-Dec	0.4	0.4	0.4	0.4	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
30-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
31-Dec	0.4	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
0.4																								Diurnal Average			
0.5																								Diurnal Maximum			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Stony Mountain - December 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



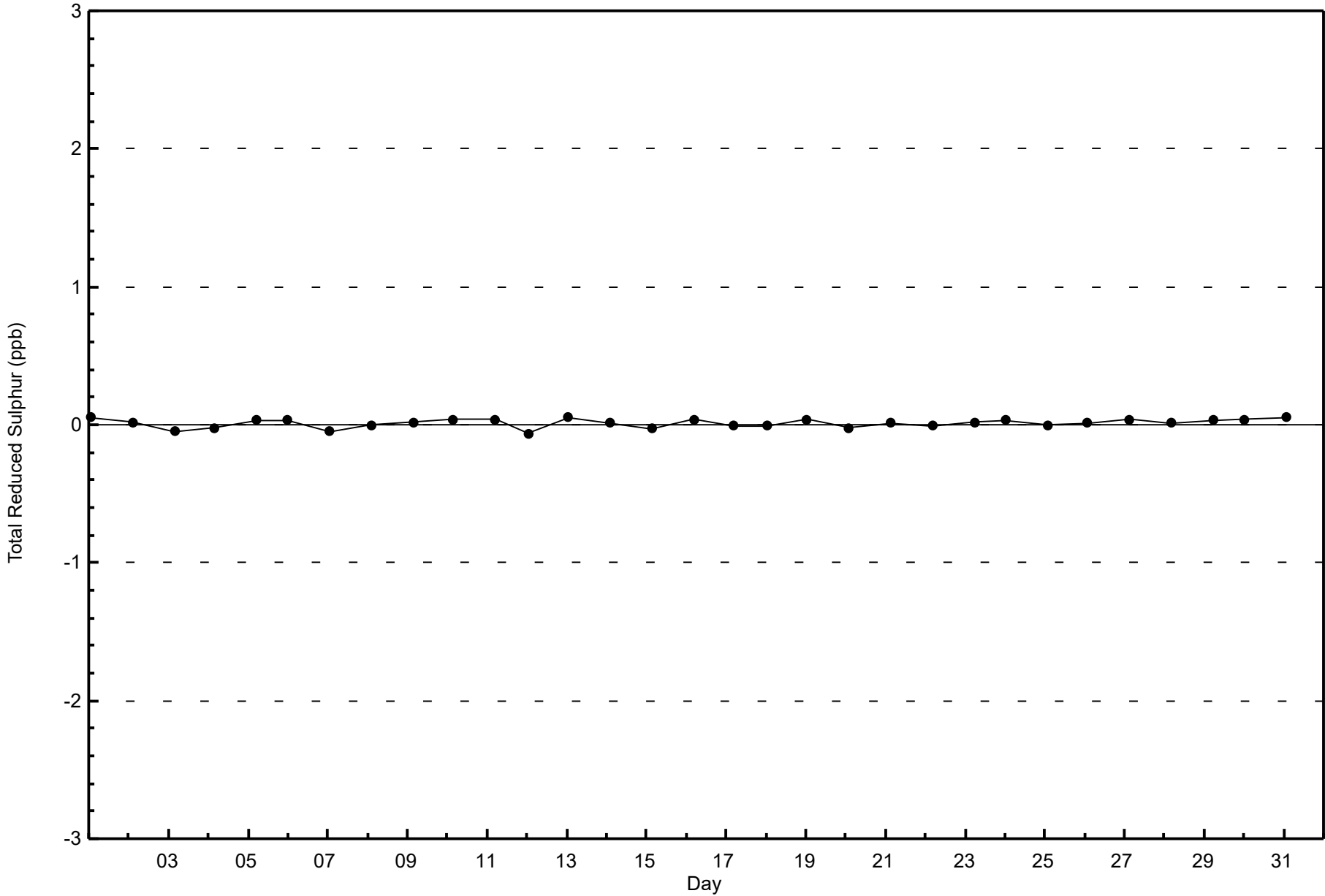
**Wood Buffalo Environmental Association
Frequency Distribution**

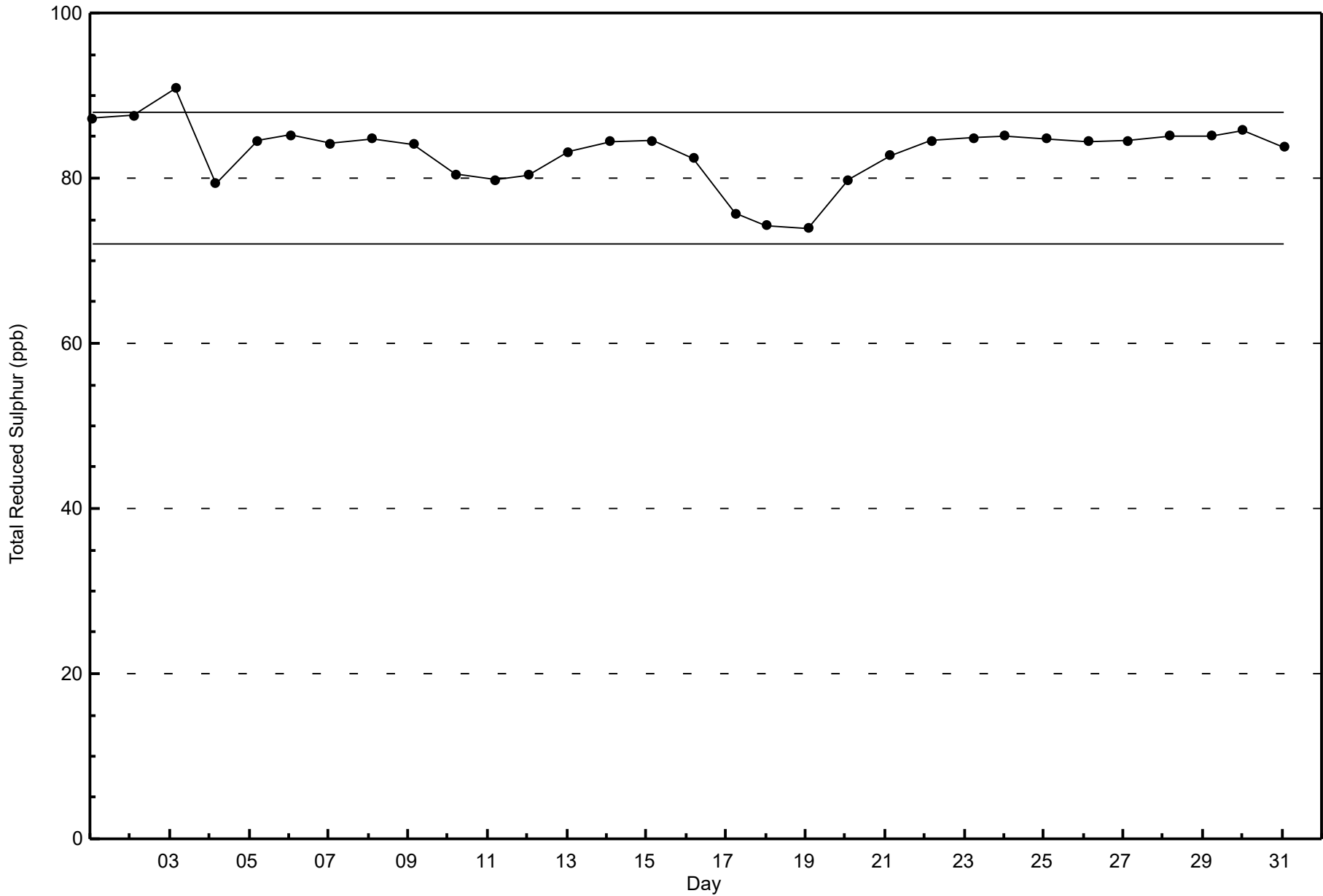
**Total Reduced Sulphur (TRS) - ppb
Stony Mountain - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	11	4	6	17	9	9	31	41	61	149	55	45	61	51	107	38	695
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	11	4	6	17	9	9	31	41	61	149	55	45	61	51	107	38	695

Total Number of Valid Hours: 695

Total Number of Hours: 744



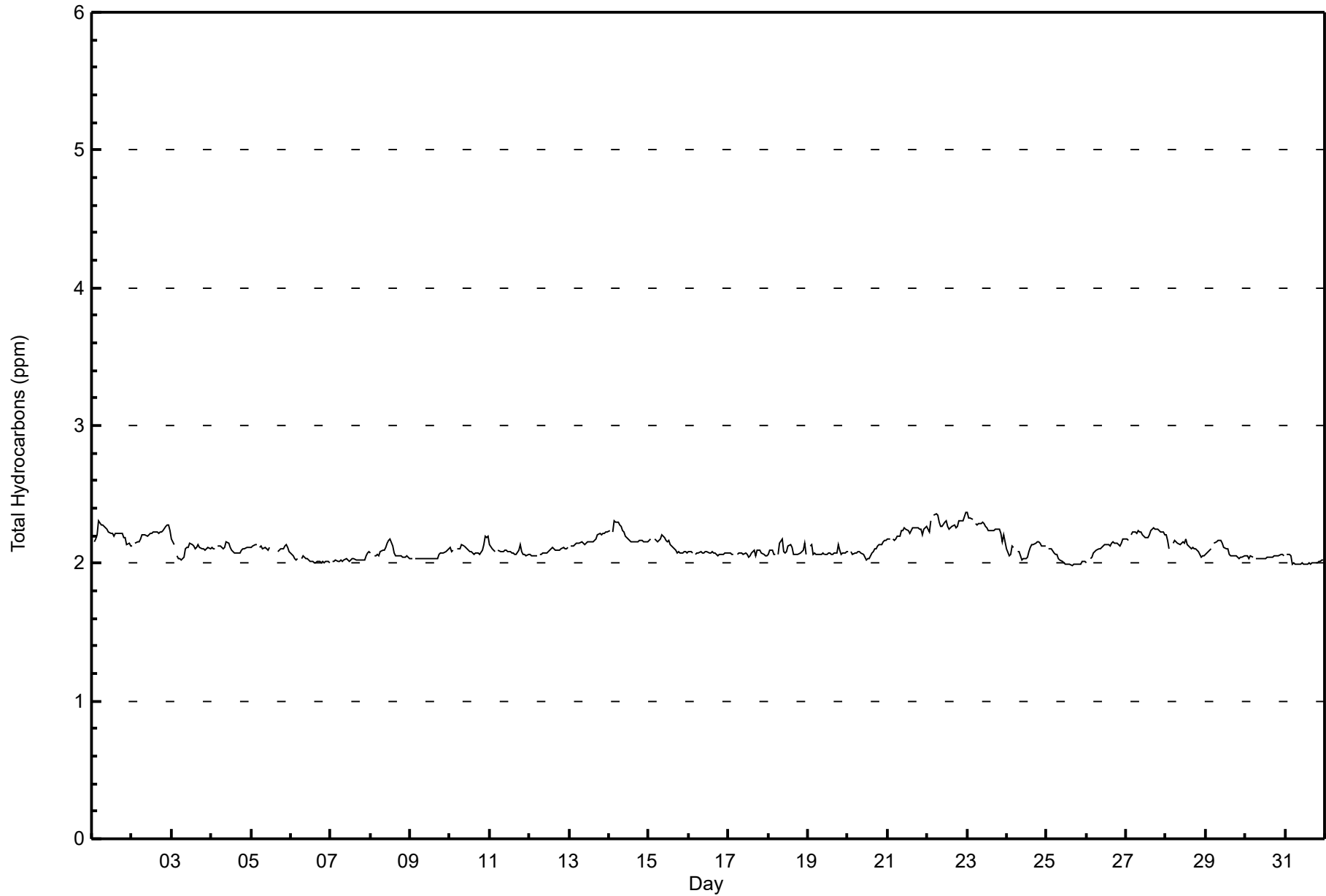




Wood Buffalo Environmental Association
Summary of Hour Averages

Total Hydrocarbons (THC) - ppm
Stony Mountain - December 2024

Maximum Value: 2.4 ppm on Dec 23 00:00		Maximum Daily Average: 2.3 ppm on Dec 22		Hours in Service: 744																						
Minimum Value: 2.0 ppm on Dec 25 16:00		Minimum Daily Average: 2.0 ppm on Dec 31		Hours of Data: 709																						
Maximum Diurnal Average: 2.1 ppm at hour 6		Minimum Diurnal Average: 2.1 ppm at hour 15		Hours of Missing Data: 35																						
Monthly Average: 2.12 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.2 P ₉₀ = 2.2 P ₉₉ = 2.3		Hours of Calibration: 35																						
				Percent Operational Time: 100.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3
2-Dec	2.1	Z	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	2.3	2.3	2.3	2.2	2.2	2.3
3-Dec	2.2	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
4-Dec	2.1	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2
5-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
6-Dec	2.1	2.1	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	2.1
7-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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
8-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.2
9-Dec	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	2.1	2.0	2.1
10-Dec	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
11-Dec	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
12-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
13-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14-Dec	2.2	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
15-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
16-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
17-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.2
19-Dec	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
20-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2
21-Dec	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.2	2.3
22-Dec	2.2	2.2	2.3	Z	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4
23-Dec	2.4	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	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4
24-Dec	2.1	2.1	2.1	2.1	2.1	Z	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	2.2	2.1	2.1	2.1	2.1	2.1	2.2
25-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
26-Dec	2.0	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	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2
27-Dec	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	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3
28-Dec	2.2	2.2	2.1	Z	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.2
29-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.2
30-Dec	2.1	2.1	2.0	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1
31-Dec	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Stony Mountain - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	133	18.76	18.76
2.1 - 3.0	576	81.24	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
Stony Mountain - December 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	0	0	0	0	0	0	3	9	13	14	8	26	13	38	8	133
2.1 - 3.0	11	2	6	17	8	10	32	37	52	134	40	36	37	37	71	34	564
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	12	2	6	17	8	10	32	40	61	147	54	44	63	50	109	42	697

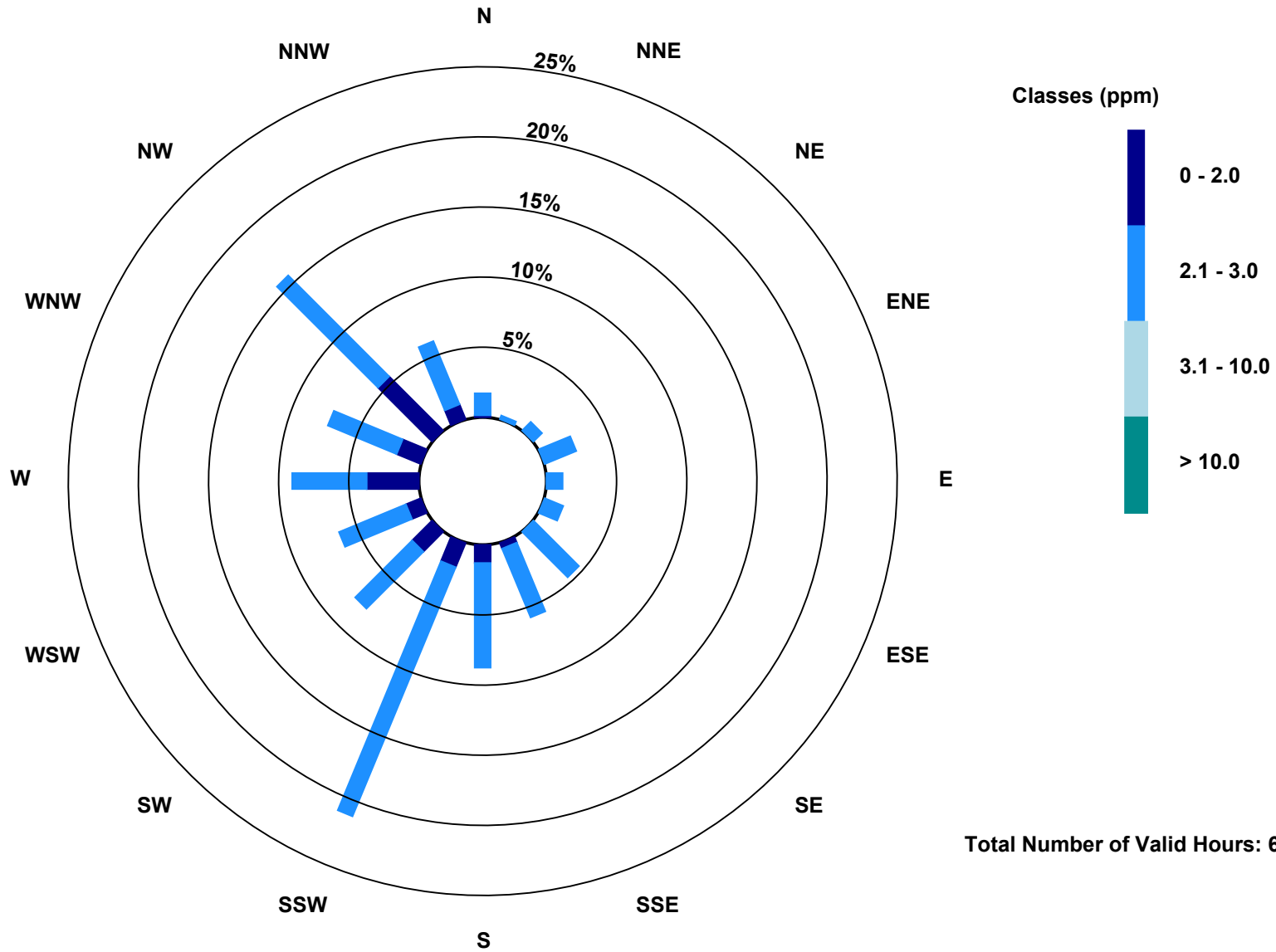
Total Number of Valid Hours: 697

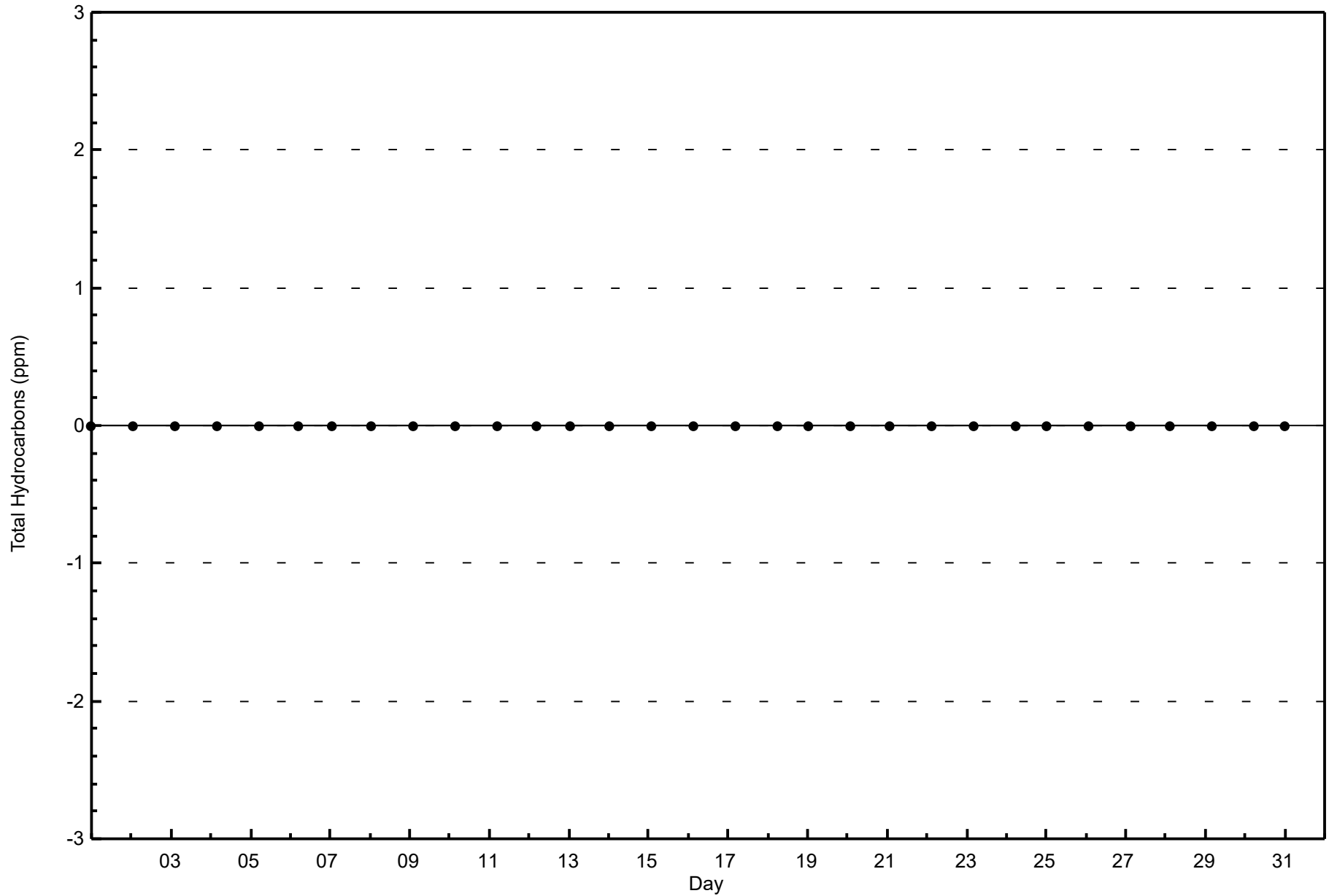
Total Number of Hours: 744

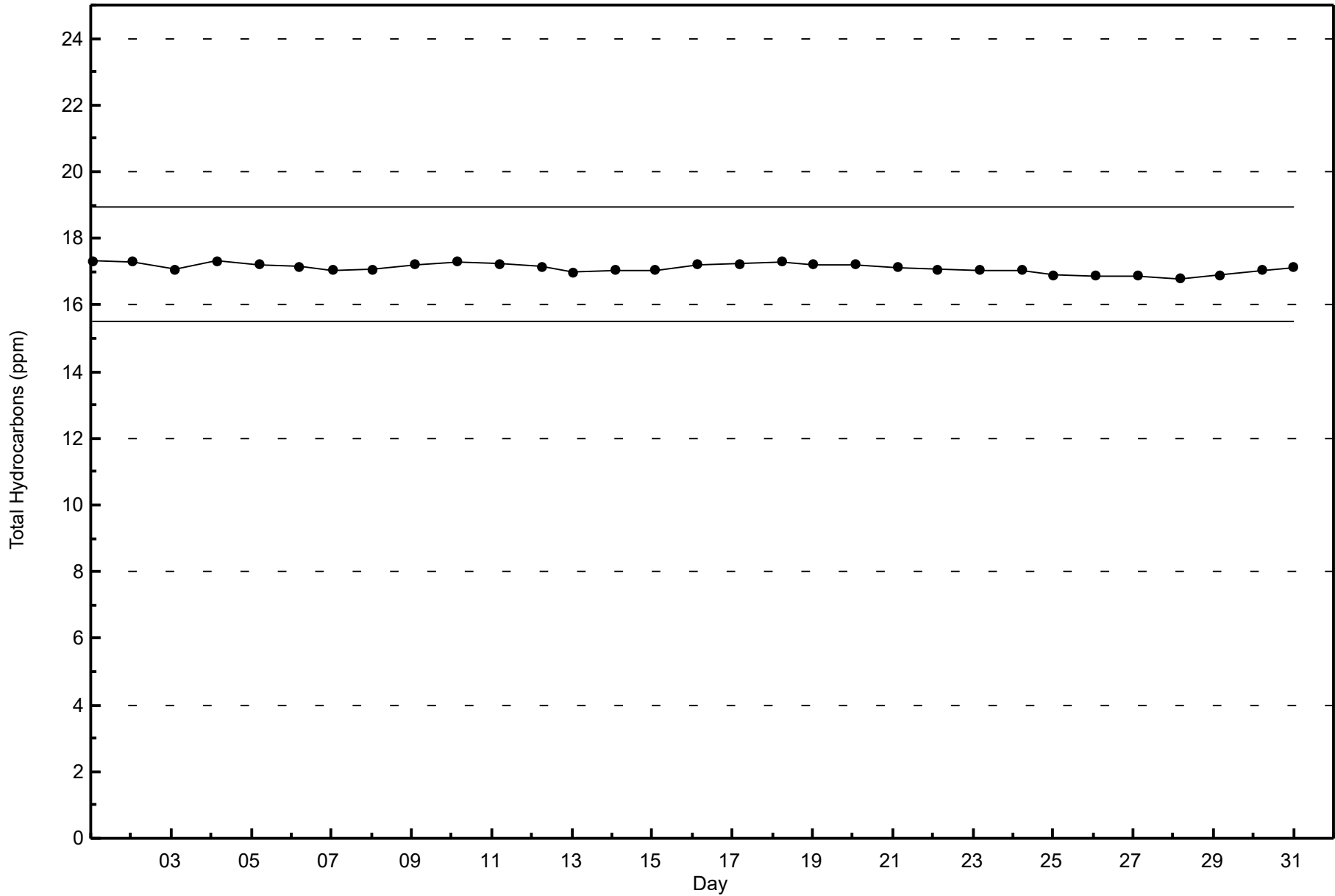


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Stony Mountain





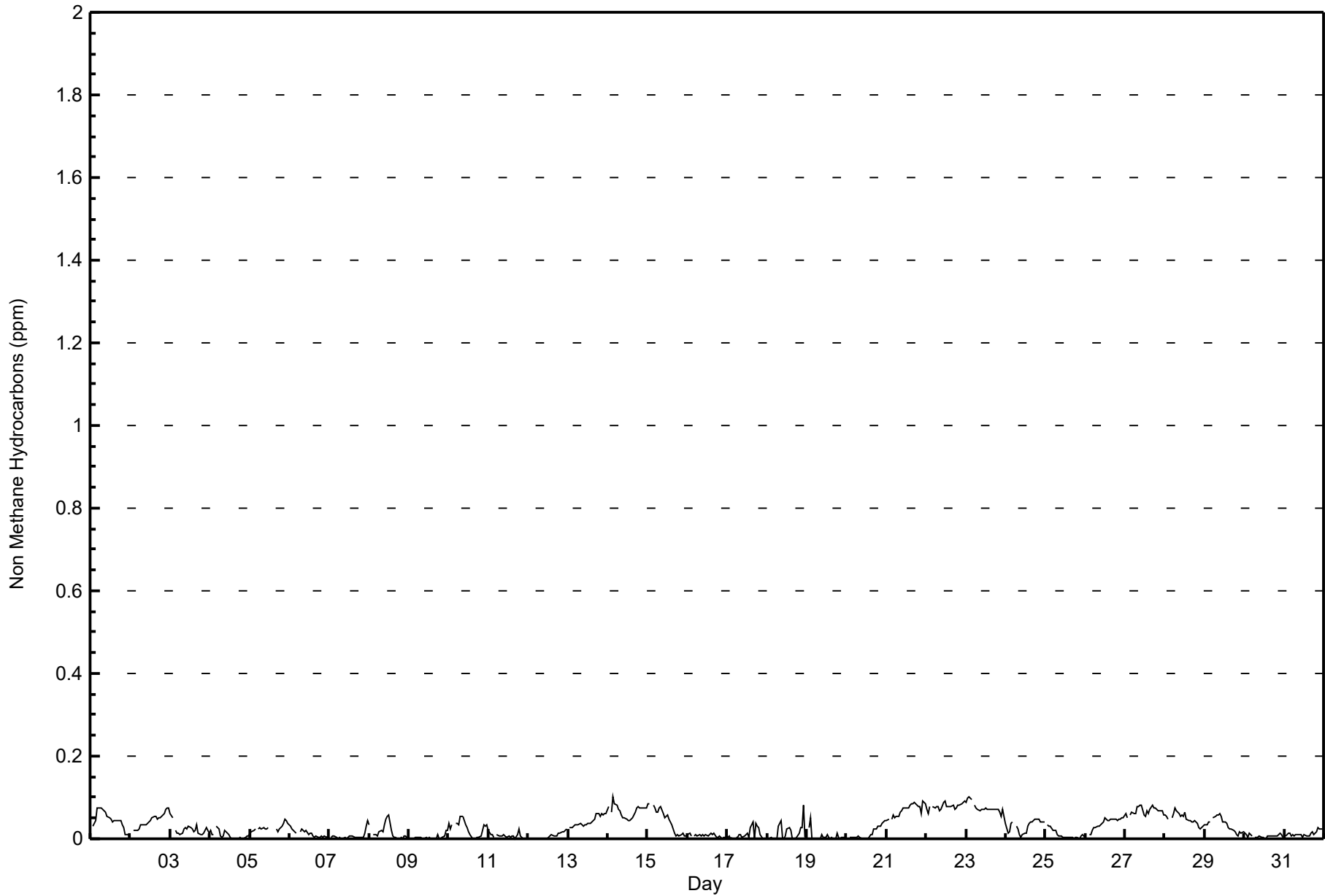




Summary of Hour Averages

Stony Mountain - December 2024

Maximum Value: 0.103 ppm on Dec 14 04:00		Maximum Daily Average: 0.078 ppm on Dec 22		Hours in Service:	744																					
Minimum Value: 0.000 ppm on Dec 9 09:00		Minimum Daily Average: 0.004 ppm on Dec 9		Hours of Data:	709																					
Maximum Diurnal Average: 0.033 ppm at hour 23		Minimum Diurnal Average: 0.026 ppm at hour 3		Hours of Missing Data:	35																					
Monthly Average: 0.029 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 = 0.1		Hours of Calibration:	35																					
				Percent Operational Time:	100.0																					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.032	0.037	0.044	0.074	0.074	0.074	0.072	0.068	0.065	0.054	0.050	0.046	0.041	0.044	0.044	0.043	0.045	0.044	0.033	0.026	0.012	0.012	0.007	0.045	0.074
2-Dec	0.005	Z	0.020	0.019	0.021	0.024	0.035	0.033	0.035	0.034	0.038	0.041	0.045	0.050	0.053	0.053	0.048	0.050	0.051	0.056	0.061	0.070	0.075	0.075	0.043	0.075
3-Dec	0.063	0.052	Z	0.019	0.015	0.015	0.011	0.014	0.025	0.026	0.023	0.031	0.028	0.025	0.018	0.020	0.033	0.012	0.012	0.010	0.015	0.019	0.027	0.014	0.023	0.063
4-Dec	0.020	0.011	0.009	Z	0.030	0.023	0.005	0.003	0.006	0.019	0.015	0.009	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.001	0.003	0.008	0.008	0.030
5-Dec	0.012	0.017	0.021	0.025	Z	0.023	0.028	0.022	0.026	0.023	0.024	0.027	C	C	C	C	0.024	0.018	0.023	0.030	0.036	0.046	0.044	0.036	0.027	0.046
6-Dec	0.031	0.025	0.022	0.018	0.014	Z	0.017	0.024	0.019	0.017	0.020	0.011	0.012	0.014	0.006	0.005	0.004	0.006	0.004	0.006	0.004	0.005	0.004	0.005	0.013	0.031
7-Dec	Z	0.004	0.007	0.006	0.003	0.001	0.003	0.002	0.001	0.003	0.001	0.003	0.008	0.007	0.006	0.003	0.005	0.004	0.004	0.003	0.005	0.015	0.031	0.045	0.007	0.045
8-Dec	0.035	Z	0.009	0.010	0.012	0.008	0.016	0.021	0.018	0.035	0.048	0.055	0.057	0.021	0.007	0.004	0.005	0.001	0.001	0.002	0.002	0.006	0.008	0.001	0.017	0.057
9-Dec	0.001	0.002	Z	0.001	0.003	0.002	0.002	0.002	0.000	0.000	0.004	0.002	0.003	0.002	0.000	0.001	0.001	0.009	0.001	0.001	0.004	0.008	0.020	0.021	0.004	0.021
10-Dec	0.036	0.025	0.032	Z	0.038	0.039	0.034	0.053	0.054	0.045	0.033	0.026	0.017	0.010	0.000	0.000	0.000	0.002	0.004	0.008	0.021	0.034	0.029	0.033	0.025	0.054
11-Dec	0.020	0.010	0.011	0.005	Z	0.010	0.005	0.008	0.008	0.010	0.008	0.004	0.005	0.004	0.007	0.005	0.000	0.011	0.025	0.006	0.003	0.001	0.001	0.000	0.007	0.025
12-Dec	0.001	0.000	0.000	0.001	0.000	Z	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.006	0.010	0.005	0.006	0.007	0.013	0.015	0.018	0.016	0.020	0.025	0.007	0.025
13-Dec	Z	0.028	0.027	0.029	0.032	0.034	0.035	0.037	0.034	0.031	0.033	0.035	0.037	0.039	0.039	0.043	0.047	0.061	0.060	0.055	0.059	0.058	0.059	0.062	0.042	0.062
14-Dec	0.080	Z	0.066	0.103	0.084	0.081	0.072	0.068	0.057	0.052	0.050	0.047	0.046	0.045	0.048	0.051	0.063	0.074	0.078	0.076	0.074	0.074	0.075	0.075	0.067	0.103
15-Dec	0.085	0.085	Z	0.082	0.074	0.066	0.066	0.074	0.077	0.060	0.051	0.053	0.058	0.047	0.033	0.023	0.014	0.006	0.010	0.007	0.010	0.012	0.006	0.007	0.044	0.085
16-Dec	0.009	0.013	0.006	Z	0.006	0.009	0.007	0.010	0.007	0.009	0.008	0.009	0.008	0.010	0.015	0.010	0.014	0.003	0.002	0.007	0.004	0.001	0.004	0.004	0.008	0.015
17-Dec	0.004	0.006	0.000	0.003	Z	0.003	0.003	0.009	0.009	0.003	0.005	0.010	0.013	0.005	0.028	0.041	0.001	0.036	0.032	0.028	0.010	0.002	0.001	0.000	0.011	0.041
18-Dec	0.000	0.001	0.002	0.001	0.000	Z	0.000	0.029	0.043	0.002	0.001	0.008	0.025	0.028	0.021	0.000	0.000	0.000	0.005	0.013	0.028	0.027	0.081	0.002	0.014	0.081
19-Dec	Z	0.028	0.050	0.000	0.000	0.000	0.000	0.000	0.001	0.010	0.005	0.003	0.009	0.003	0.001	0.002	0.001	0.001	0.015	0.004	0.001	0.002	0.002	0.004	0.006	0.050
20-Dec	0.001	Z	0.005	0.002	0.003	0.002	0.003	0.005	0.003	0.001	0.001	0.000	0.001	0.001	0.011	0.012	0.023	0.024	0.025	0.030	0.032	0.038	0.041	0.045	0.013	0.045
21-Dec	0.045	0.048	Z	0.048	0.057	0.050	0.054	0.054	0.066	0.067	0.074	0.075	0.073	0.075	0.080	0.086	0.083	0.087	0.080	0.079	0.080	0.061	0.091	0.086	0.069	0.091
22-Dec	0.072	0.062	0.077	Z	0.077	0.075	0.080	0.076	0.069	0.072	0.087	0.090	0.077	0.076	0.077	0.077	0.080	0.072	0.073	0.080	0.083	0.085	0.088	0.092	0.078	0.092
23-Dec	0.089	0.097	0.101	0.096	Z	0.080	0.075	0.071	0.069	0.073	0.072	0.073	0.075	0.072	0.072	0.071	0.071	0.071	0.070	0.071	0.066	0.054	0.070	0.054	0.074	0.101
24-Dec	0.038	0.015	0.019	0.039	0.040	Z	0.031	0.024	0.011	0.005	0.011	0.012	0.013	0.029	0.036	0.041	0.042	0.047	0.048	0.047	0.046	0.042	0.039	0.040	0.031	0.048
25-Dec	Z	0.035	0.032	0.029	0.021	0.020	0.021	0.010	0.007	0.007	0.003	0.004	0.003	0.002	0.002	0.002	0.002	0.001	0.002	0.004	0.001	0.007	0.009	0.006	0.010	0.035
26-Dec	0.002	Z	0.011	0.010	0.019	0.026	0.026	0.030	0.032	0.034	0.036	0.042	0.049	0.046	0.045	0.048	0.048	0.047	0.048	0.043	0.049	0.048	0.052	0.050	0.037	0.052
27-Dec	0.061	0.051	Z	0.058	0.064	0.061	0.060	0.079	0.078	0.082	0.081	0.057	0.054	0.068	0.061	0.071	0.083	0.074	0.075	0.072	0.069	0.068	0.069	0.058	0.068	0.083
28-Dec	0.058	0.055	0.048	Z	0.050	0.062	0.076	0.067	0.062	0.056	0.056	0.053	0.064	0.048	0.045	0.044	0.041	0.041	0.044	0.039	0.027	0.024	0.028	0.030	0.049	0.076
29-Dec	0.033	0.034	0.040	0.040	Z	0.050	0.056	0.057	0.057	0.061	0.053	0.041	0.042	0.037	0.026	0.024	0.023	0.021	0.018	0.010	0.007	0.018	0.013	0.018	0.034	0.061
30-Dec	0.014	0.009	0.005	0.014	0.006	Z	0.004	0.003	0.004	0.005	0.004	0.003	0.001	0.002	0.006	0.006	0.007	0.008	0.006	0.008	0.007	0.013	0.009	0.005	0.006	0.014
31-Dec	Z	0.008	0.014	0.013	0.008	0.010	0.007	0.010	0.009	0.009	0.009	0.004	0.010	0.008	0.007	0.007	0.014	0.017	0.012	0.017	0.026	0.023	0.023	0.025	0.013	0.026
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan		C - Calibration																								





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	179	25.25	25.25
0.006 - 0.05	388	54.72	79.97
0.06 - 0.1	142	20.03	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain - December 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	5	0	2	1	2	5	18	27	21	13	12	15	26	6	18	8	179
0.006 - 0.05	4	1	1	7	3	3	13	13	32	82	29	26	33	32	72	30	381
0.06 - 0.1	3	1	3	9	3	2	1	0	8	52	13	3	4	12	19	4	137
> 0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	12	2	6	17	8	10	32	40	61	147	54	44	63	50	109	42	697

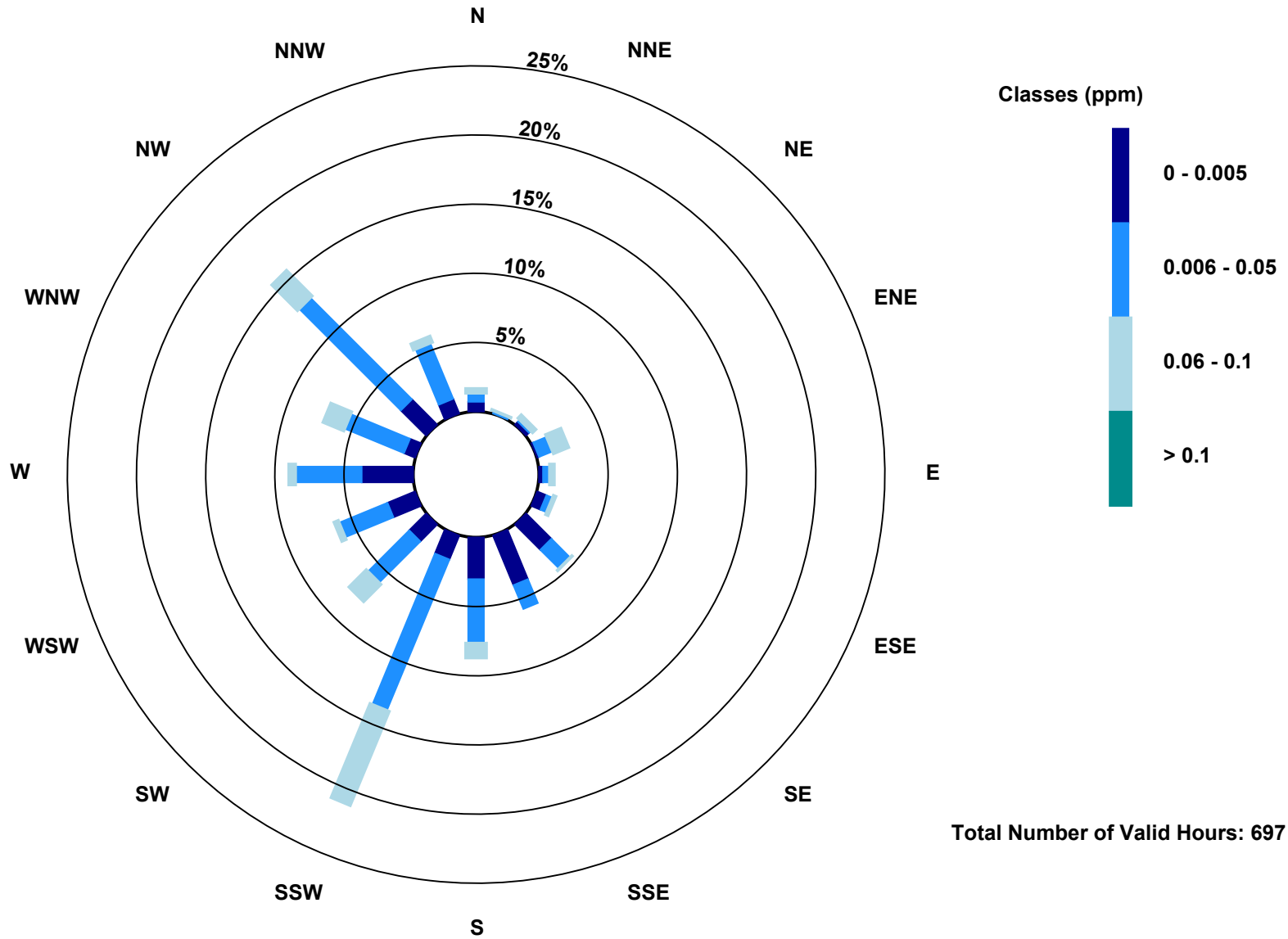
Total Number of Valid Hours: 697

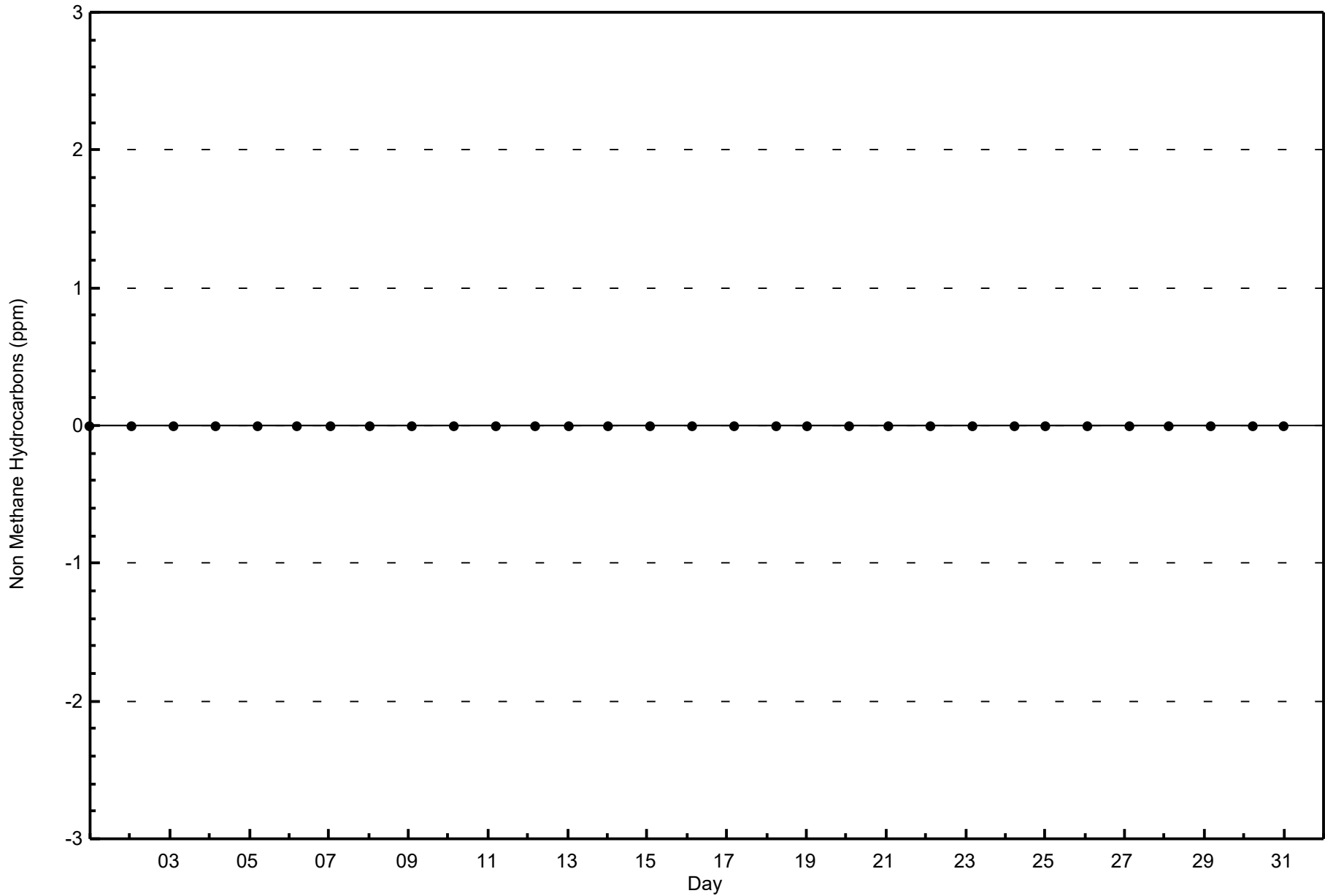
Total Number of Hours: 744

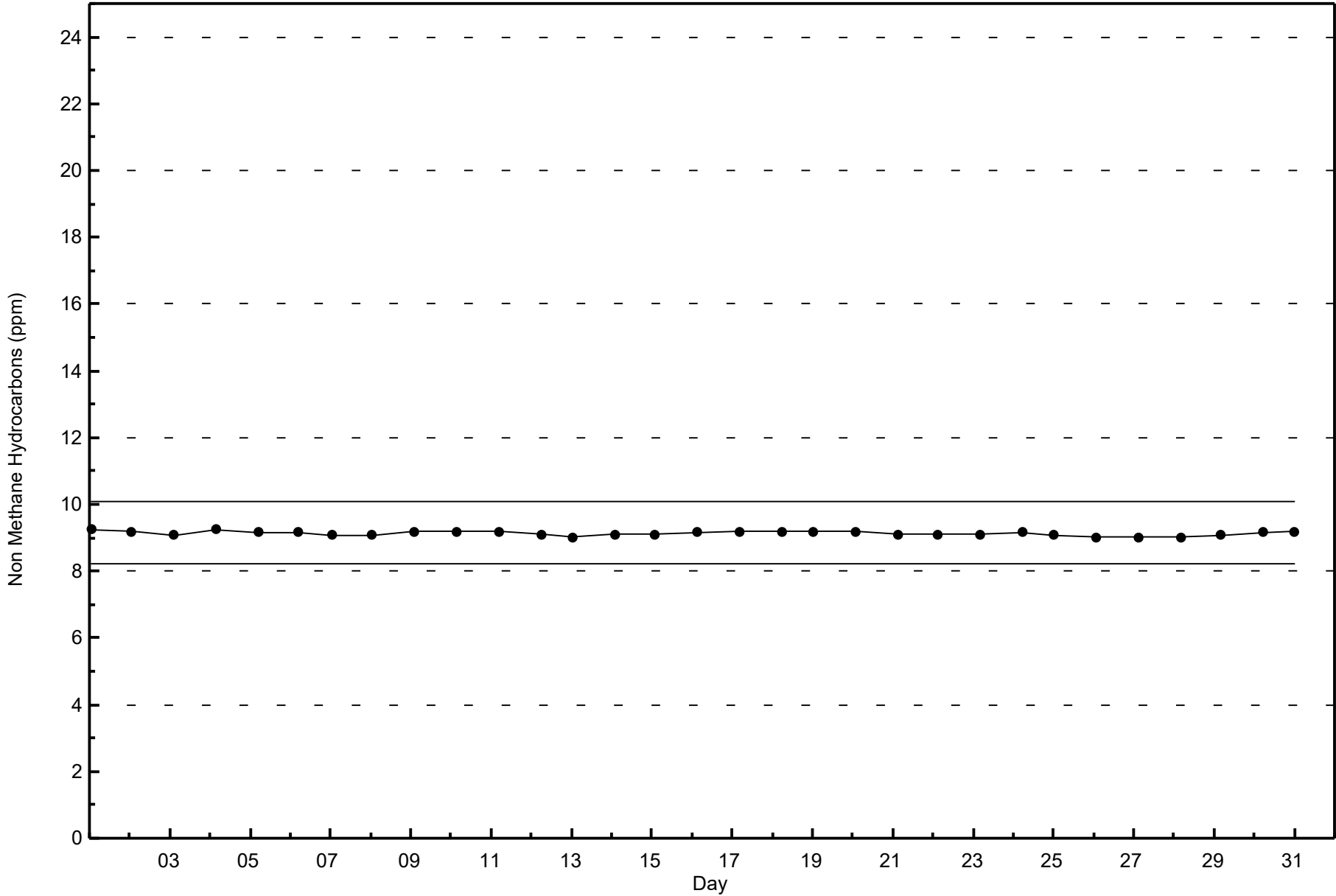


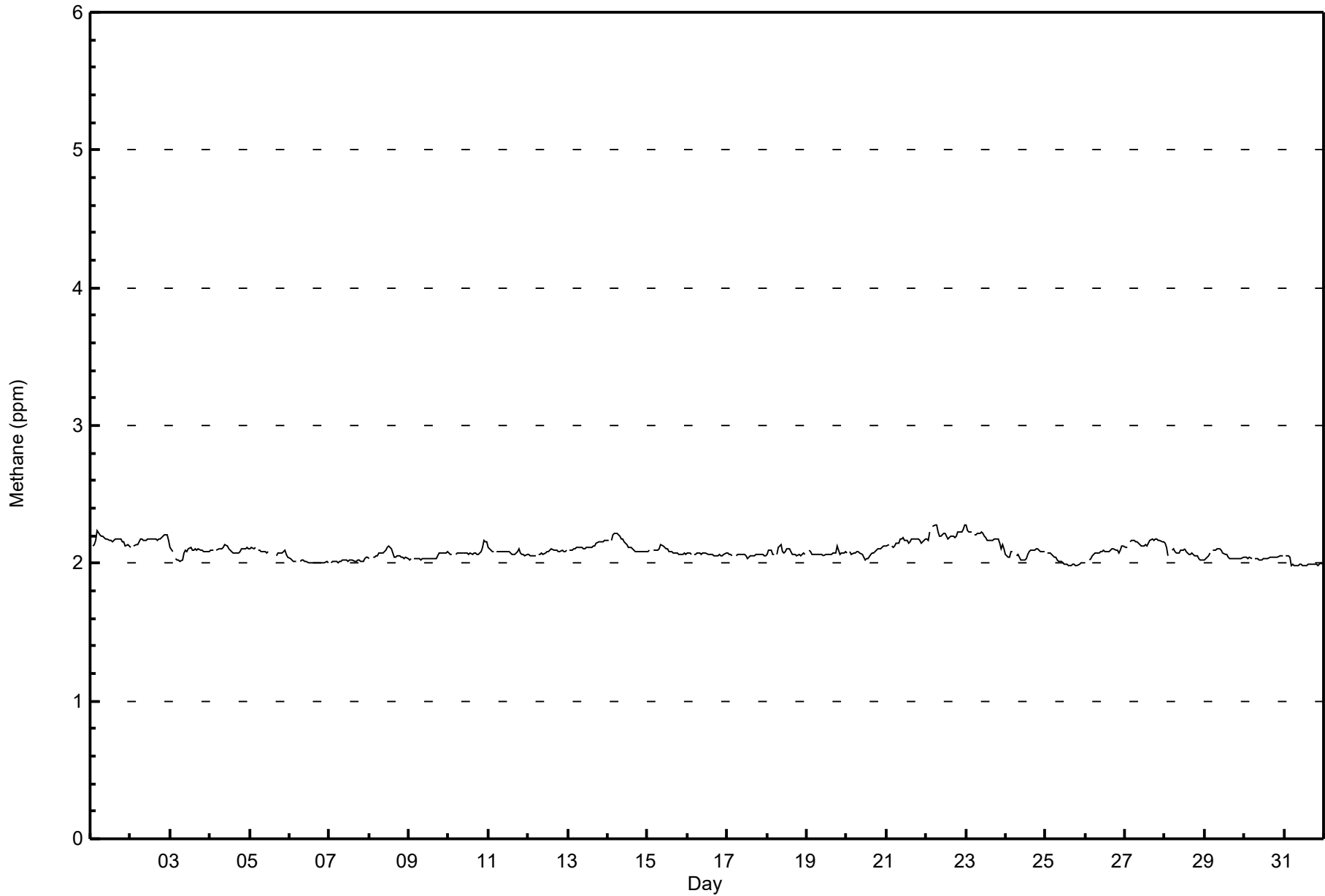
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Stony Mountain











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Stony Mountain - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	172	24.26	24.26
2.1 - 3.0	537	75.74	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



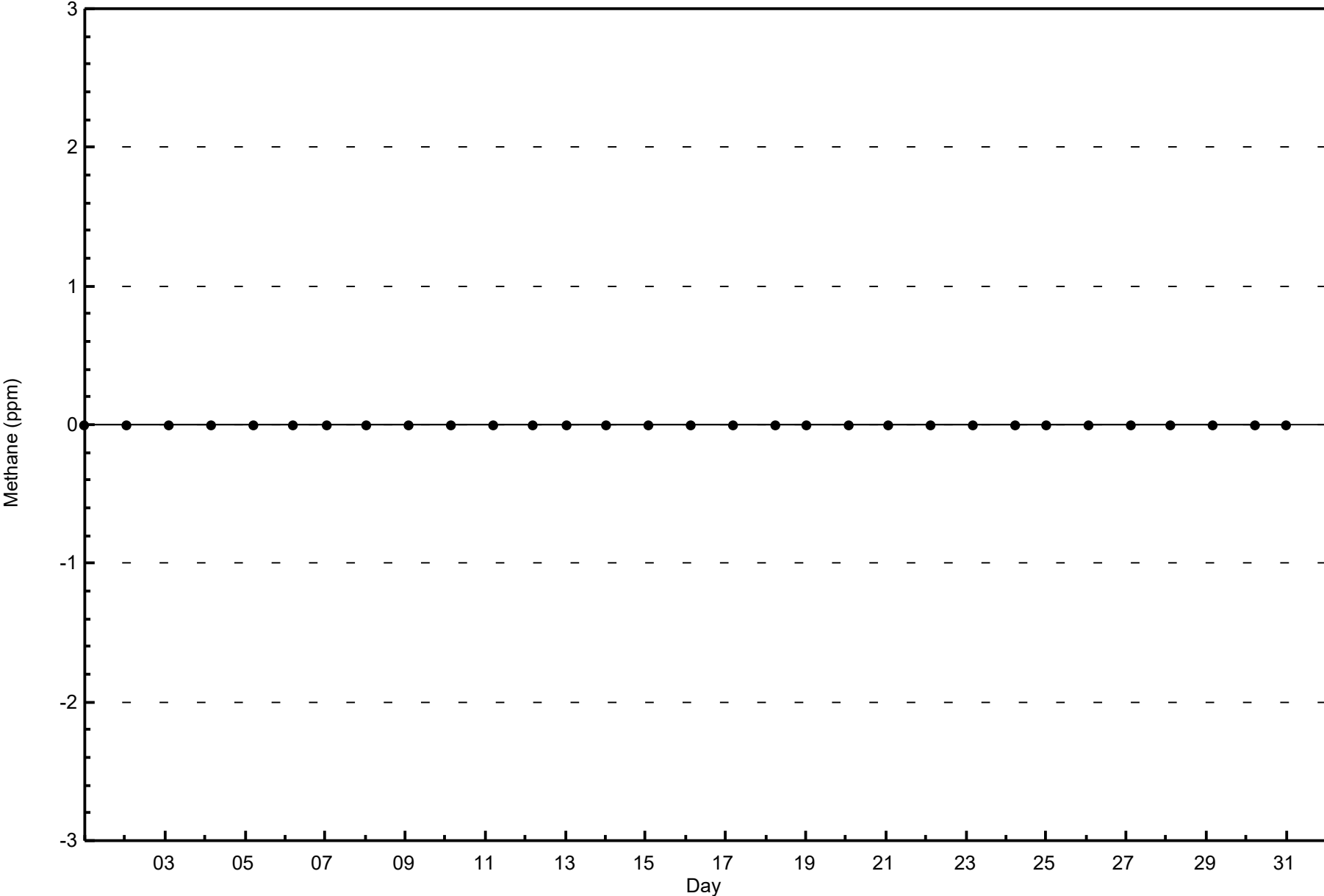
**Wood Buffalo Environmental Association
Frequency Distribution**

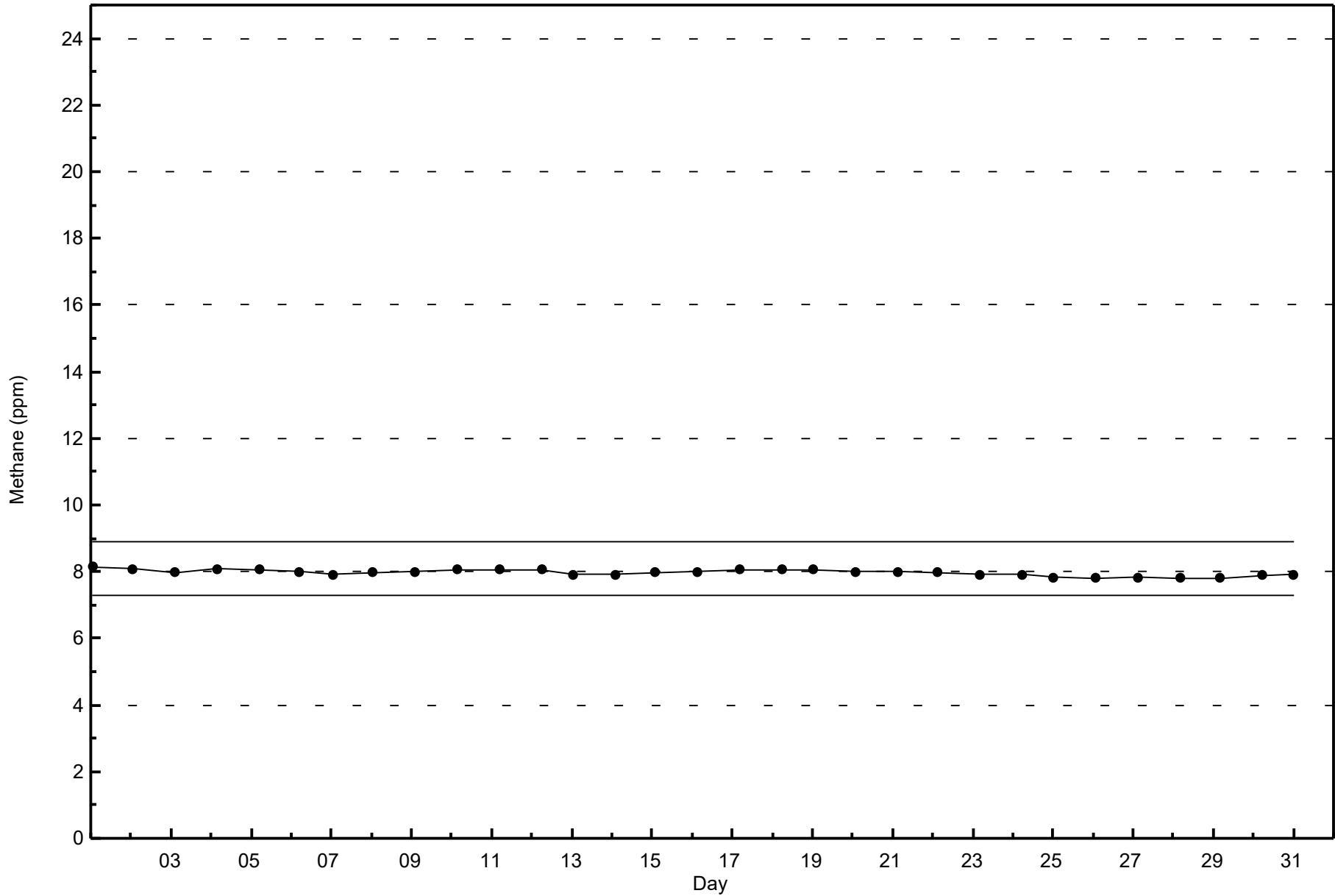
**Methane (CH₄) - ppm
Stony Mountain - December 2024**

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	0	0	0	0	0	0	3	10	16	15	11	31	18	54	13	172
2.1 - 3.0	11	2	6	17	8	10	32	37	51	131	39	33	32	32	55	29	525
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	12	2	6	17	8	10	32	40	61	147	54	44	63	50	109	42	697

Total Number of Valid Hours: 697

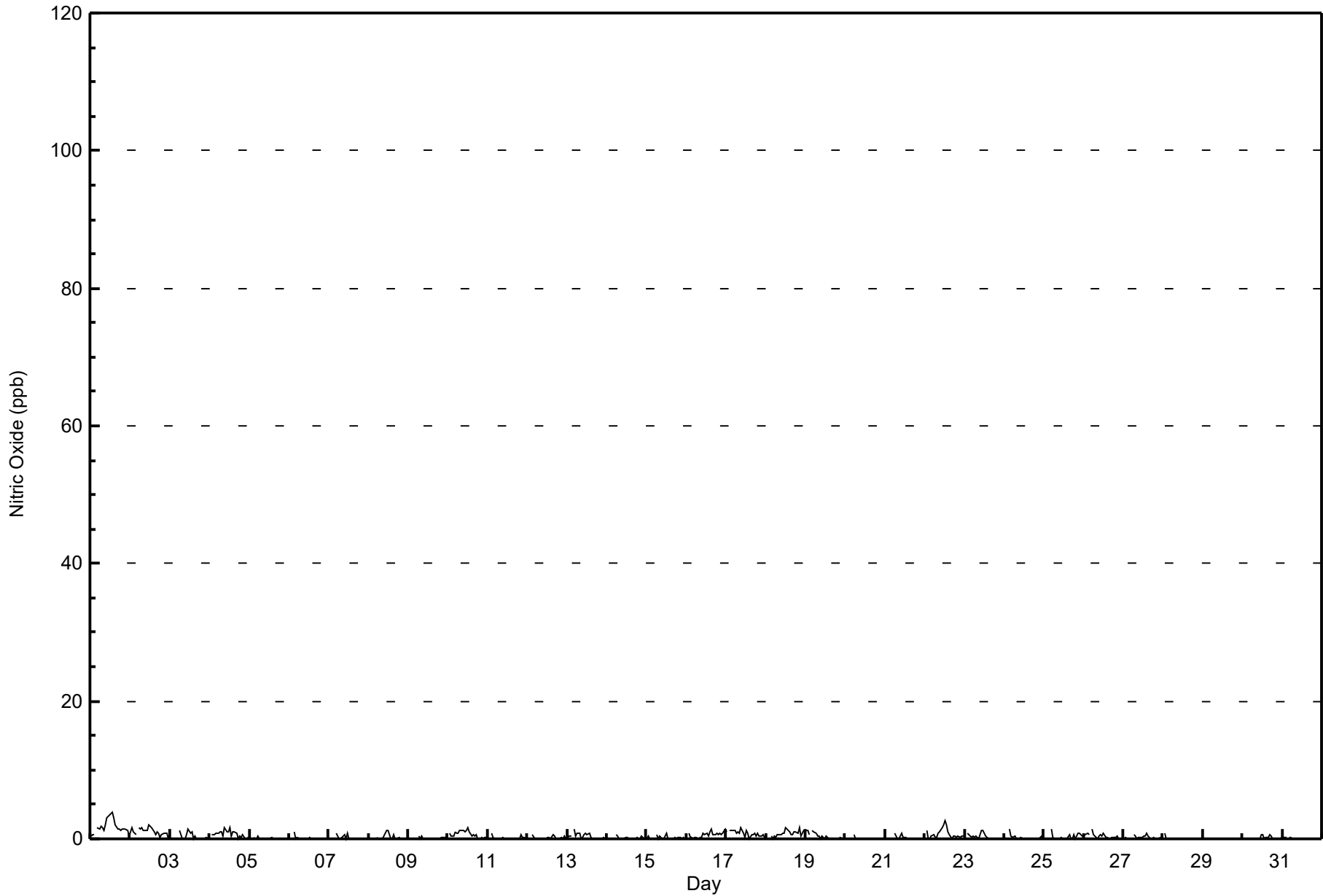
Total Number of Hours: 744







Maximum Value: 3.9 ppb on Dec 1 14:00																				Maximum Daily Average: 1.8 ppb on Dec 1					Hours in Service:	744
Minimum Value: 0.0 ppb on Dec 3 00:00																				Minimum Daily Average: 0.0 ppb on Dec 29					Hours of Data:	707
Maximum Diurnal Average: 0.7 ppb at hour 13																				Minimum Diurnal Average: 0.1 ppb at hour 24					Hours of Missing Data:	37
Monthly Average: 0.34 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.6 P ₉₀ = 1.0 P ₉₉ = 2.1					Hours of Calibration:	37
																									Percent Operational Time:	100.0
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.4	0.6	0.6	Z	1.7	1.5	1.8	1.7	1.3	2.0	3.0	3.4	3.6	3.9	3.1	2.1	1.5	1.4	1.3	1.4	1.3	1.4	1.2	0.5	1.8	3.9
2-Dec	1.0	1.6	1.0	0.5	Z	1.6	1.4	1.6	1.2	1.1	1.1	2.1	1.9	1.6	1.1	0.6	1.0	0.8	0.2	0.7	0.8	0.8	0.9	0.0	1.1	2.1
3-Dec	0.0	0.0	0.0	0.0	0.0	Z	1.1	0.0	0.0	0.1	0.6	1.4	0.8	1.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	1.4
4-Dec	Z	0.5	0.6	0.5	0.8	0.8	1.1	1.0	0.3	1.6	1.0	1.0	1.6	0.4	1.0	1.0	0.7	0.0	0.5	0.2	0.6	0.0	0.0	0.1	0.7	1.6
5-Dec	0.3	Z	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
6-Dec	0.0	0.0	Z	1.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
7-Dec	0.0	0.0	0.0	Z	0.7	0.5	0.1	0.0	0.2	0.7	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	0.0	0.1	0.8
8-Dec	0.0	0.0	0.0	0.0	Z	0.3	0.0	0.0	0.1	0.5	0.8	1.1	1.2	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	1.2
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.2	0.1	0.5
10-Dec	Z	0.9	0.5	0.4	1.0	0.8	0.7	1.3	1.3	1.2	1.0	1.3	1.6	1.0	0.4	0.6	0.4	0.6	0.0	0.0	0.2	0.0	0.2	0.1	0.7	1.6
11-Dec	0.0	Z	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.1	0.0	0.1	0.7
12-Dec	0.0	0.0	Z	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.6	0.3	0.0	0.0	0.0	0.2	0.0	0.5	0.0	0.1	0.6
13-Dec	0.1	0.4	0.4	Z	1.4	0.4	0.7	0.7	0.0	0.2	0.6	0.8	0.6	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	1.4
14-Dec	0.0	0.0	0.0	0.0	Z	0.7	0.3	0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.4	0.0	0.0	0.1	0.7
15-Dec	0.0	0.5	0.0	0.0	0.0	Z	0.7	0.0	0.5	0.0	0.0	0.4	0.9	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.2	0.0	0.1	0.0	0.2	0.9
16-Dec	Z	0.8	0.3	0.1	0.0	0.2	0.2	0.0	0.2	0.2	0.7	0.6	0.8	0.5	1.0	1.3	0.6	0.6	0.8	0.7	0.9	0.7	0.7	1.4	0.6	1.4
17-Dec	1.1	Z	1.3	1.2	1.3	1.1	0.7	1.0	0.8	1.6	0.8	0.3	1.2	0.8	0.0	0.5	0.6	0.8	0.5	0.8	0.4	0.4	0.6	0.3	0.8	1.6
18-Dec	0.1	0.1	Z	0.5	0.0	0.5	0.2	0.6	0.6	0.5	0.8	0.8	1.6	1.3	0.9	0.6	0.6	0.9	1.0	0.8	1.5	0.4	0.8	1.2	0.7	1.6
19-Dec	1.3	1.3	0.6	Z	1.2	1.1	0.9	0.5	0.4	0.1	0.4	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4	1.3
20-Dec	0.0	0.0	0.0	0.0	Z	0.7	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	--	0.7
21-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.9	0.0	0.0	0.4	0.9	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
22-Dec	Z	1.2	0.0	0.0	0.3	0.6	0.2	0.2	0.7	1.0	1.5	2.0	2.7	2.0	1.1	0.7	0.0	0.3	0.4	0.2	0.4	0.2	0.4	0.3	0.7	2.7
23-Dec	0.4	Z	0.7	0.3	0.3	0.3	0.2	0.4	0.1	0.5	1.2	1.2	0.8	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.2
24-Dec	0.2	0.1	Z	1.4	0.4	0.2	0.3	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	0.3	0.0	0.1	1.4
25-Dec	0.0	0.0	0.0	Z	1.5	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.6	0.0	0.0	0.5	0.0	0.7	0.8	0.6	0.3	0.2	1.5
26-Dec	0.4	0.7	0.8	0.7	Z	1.5	0.6	0.2	0.0	0.4	0.7	0.4	0.7	0.3	0.3	0.1	0.0	0.2	0.2	0.2	0.5	0.0	0.0	0.0	0.4	1.5
27-Dec	0.0	0.3	0.0	0.0	0.1	Z	0.5	0.3	0.0	0.1	0.2	0.3	0.5	0.3	0.9	0.4	0.1	0.0	0.2	0.0	0.1	0.1	0.2	0.0	0.2	0.9
28-Dec	Z	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
29-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.5	0.7	0.0	0.2	0.3	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
31-Dec	0.3	0.2	0.2	Z	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
																								Diurnal Average		
																								Diurnal Maximum		
0.2 0.4 0.3 0.3 0.4 0.5 0.4 0.3 0.3 0.4 0.5 0.6 0.7 0.5 0.3 0.3 0.2 0.2 0.2 0.2 0.3 0.2 0.2 0.1																										
1.3 1.6 1.3 1.4 1.7 1.6 1.8 1.7 1.3 2.0 3.0 3.4 3.6 3.9 3.1 2.1 1.5 1.4 1.3 1.4 1.5 1.4 1.2 1.4																										
Z - zerospan C - Calibration																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Stony Mountain - December 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 - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695
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	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695

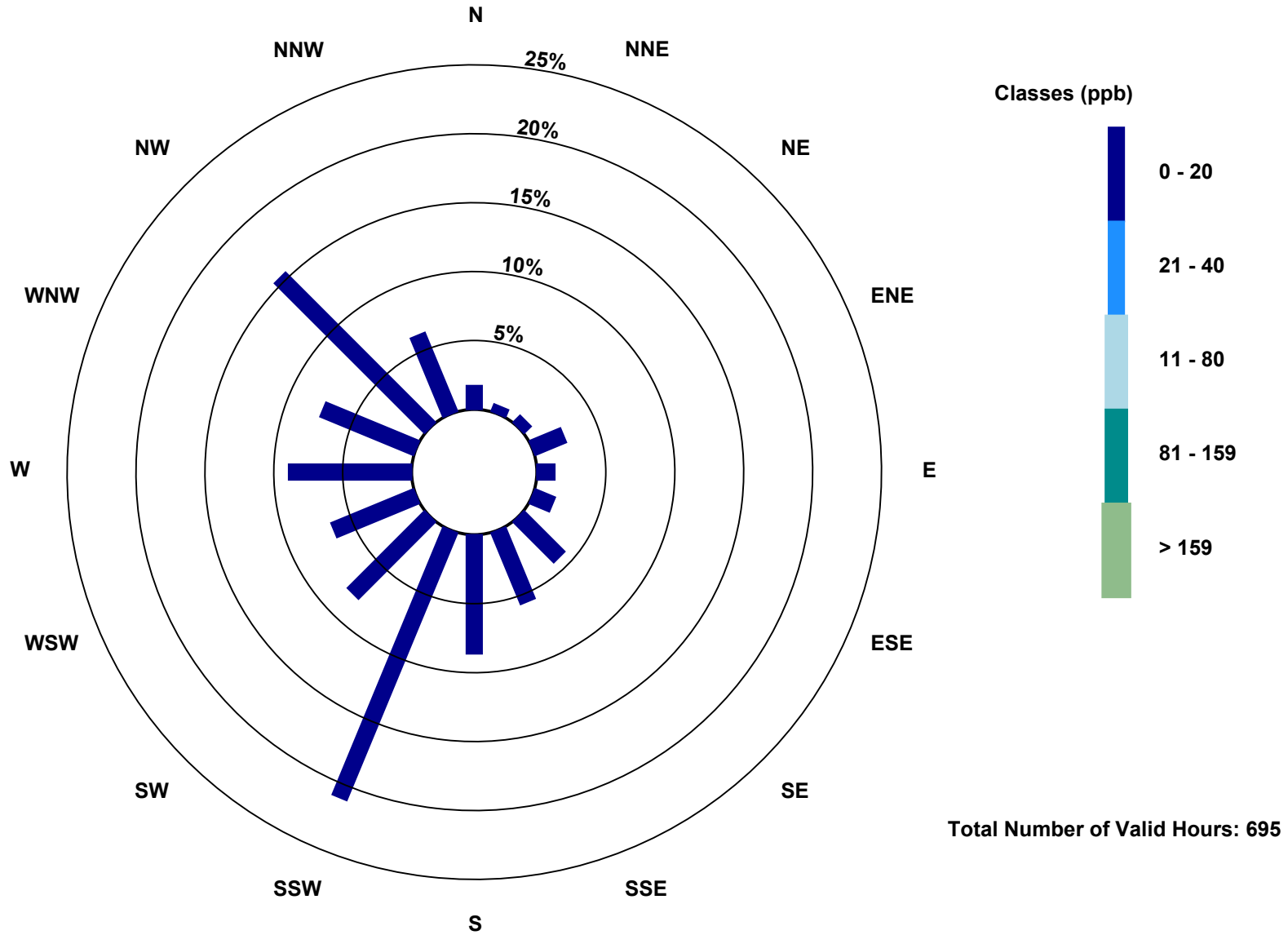
Total Number of Valid Hours: 695

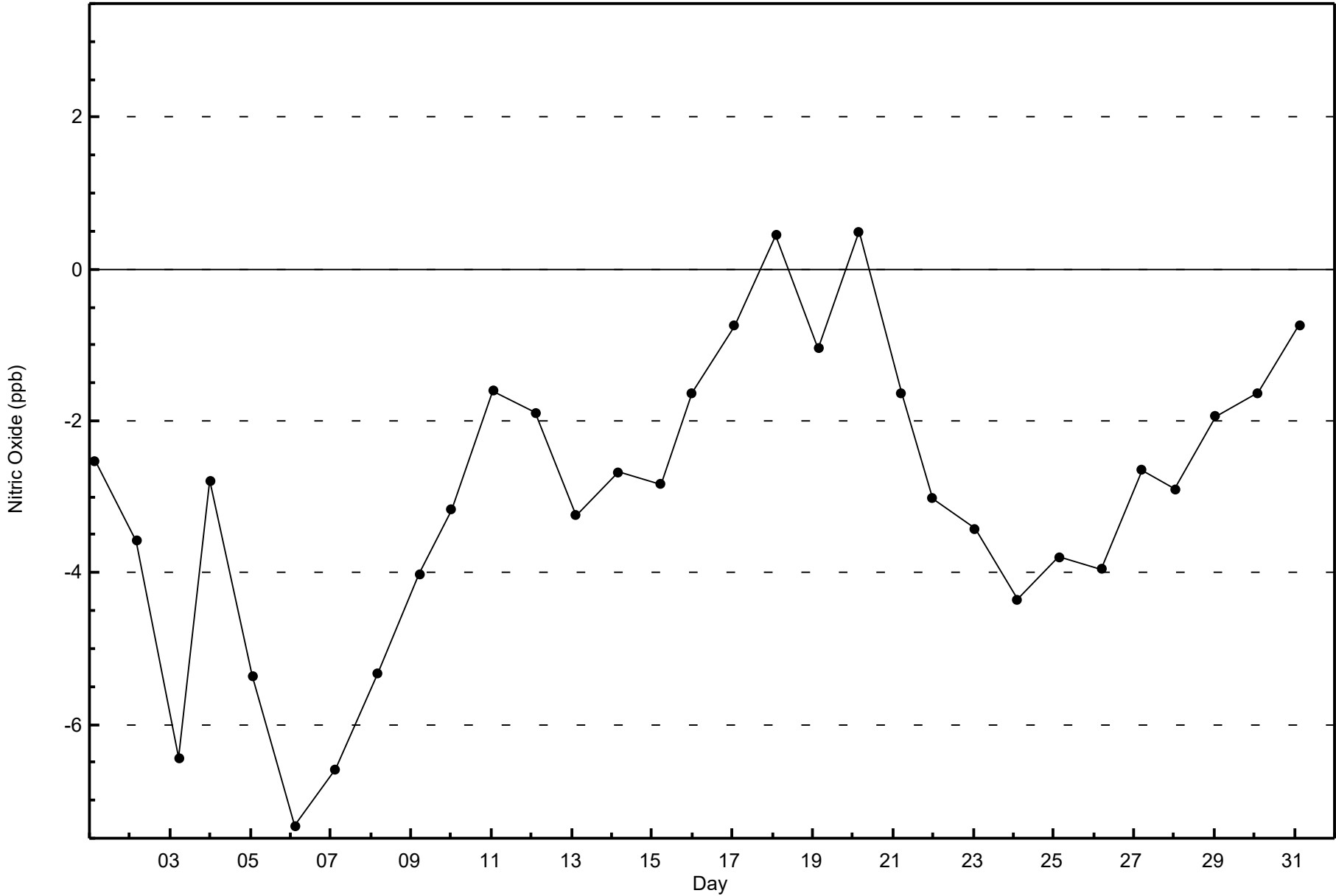
Total Number of Hours: 744

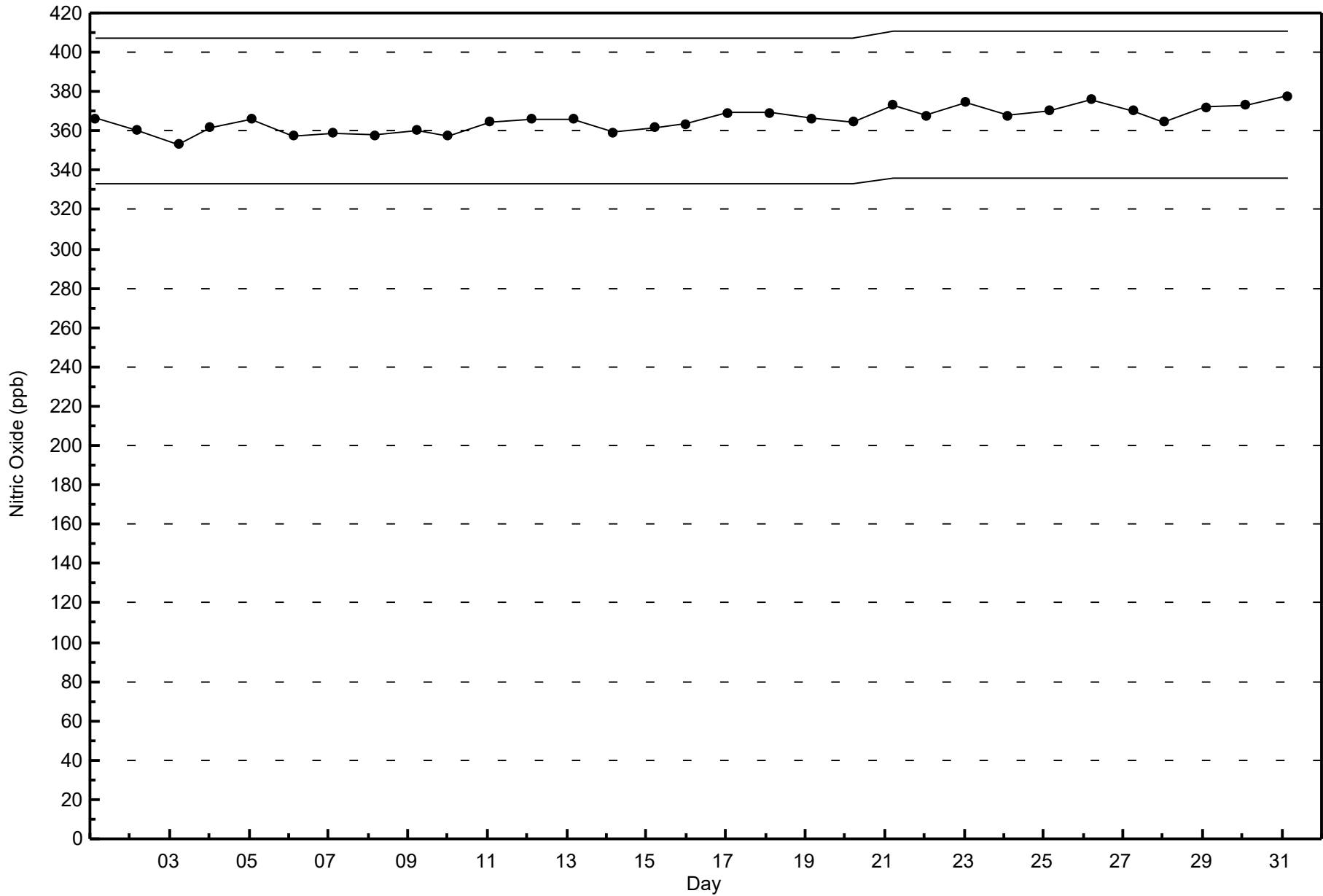


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Stony Mountain









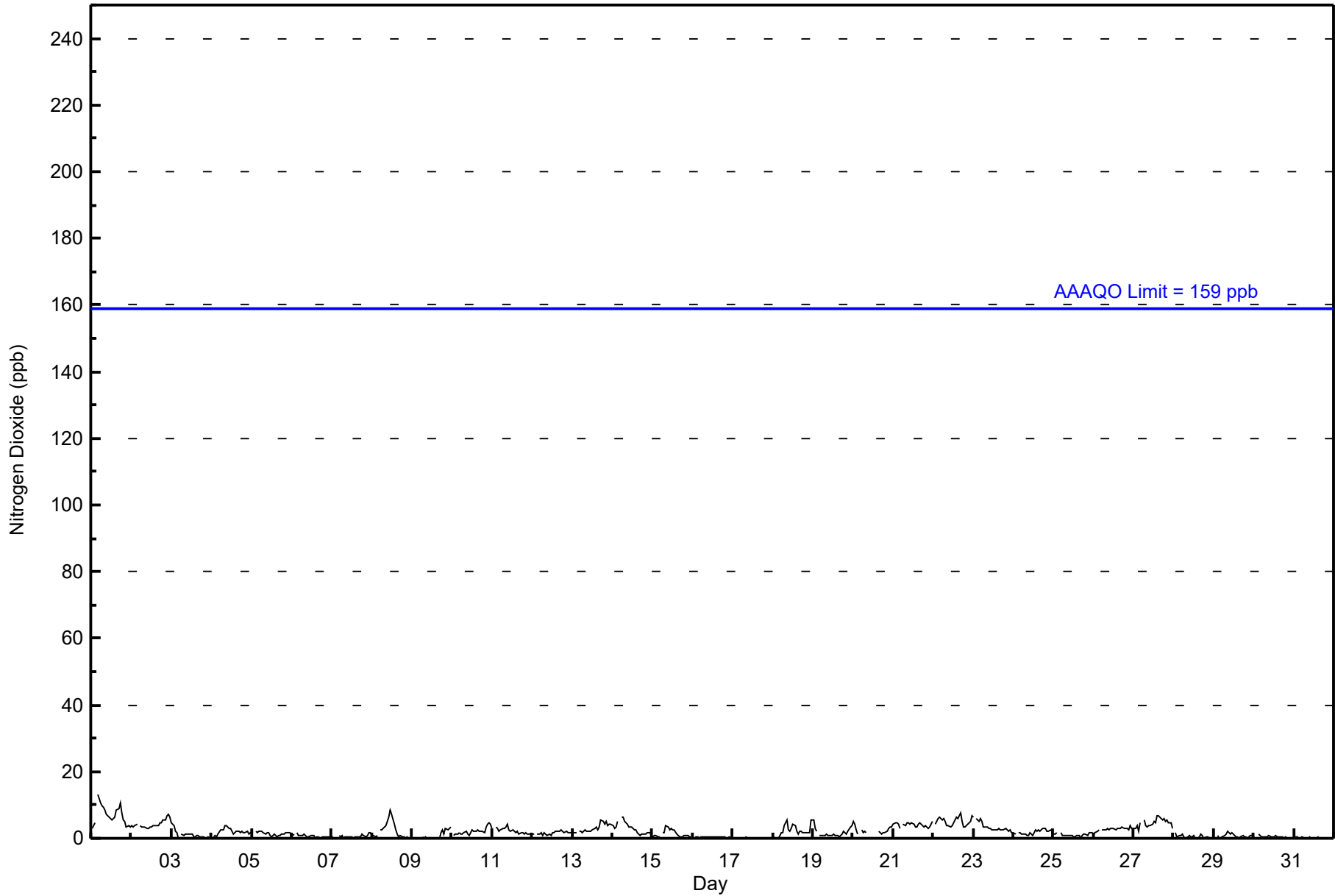
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Stony Mountain - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 13.0 ppb on Dec 1 05:00		Maximum Daily Average: 6.8 ppb on Dec 1														Hours of Data:		707								
Minimum Value: 0.0 ppb on Dec 3 21:00		Minimum Daily Average: 0.1 ppb on Dec 17														Hours of Missing Data:		37								
Maximum Diurnal Average: 2.3 ppb at hour 9		Minimum Diurnal Average: 1.8 ppb at hour 2														Hours of Calibration:		37								
Monthly Average: 2.08 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.6 Median = 1.6 Q ₃ = 3.1 P ₉₀ = 4.7 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-Dec	2.8	3.8	4.7	Z	13.0	10.6	9.7	9.2	8.6	7.4	6.6	5.9	5.3	5.8	6.4	8.5	9.1	10.5	7.6	5.7	4.9	3.5	3.7	3.2	6.8	13.0
2-Dec	3.8	3.6	3.7	4.3	Z	3.9	3.3	3.5	3.5	3.1	3.1	3.3	3.3	3.8	3.9	4.0	3.8	4.5	4.7	5.3	5.7	6.8	7.2	6.3	4.3	7.2
3-Dec	4.7	3.7	2.2	1.6	0.1	Z	1.1	0.7	1.1	1.3	1.4	1.3	1.1	0.6	0.5	0.7	0.7	0.6	0.6	0.3	0.0	0.0	0.5	0.1	1.1	4.7
4-Dec	Z	0.6	0.8	0.3	1.1	2.4	2.4	2.6	4.0	3.7	3.0	3.0	2.0	1.2	1.8	2.3	2.2	1.6	2.0	1.9	1.9	2.0	1.3	1.8	2.0	4.0
5-Dec	1.3	Z	2.2	1.9	2.2	2.3	2.0	1.8	1.2	1.5	1.5	0.7	0.6	1.3	1.0	0.4	0.9	1.0	1.1	1.1	1.7	1.7	1.9	1.9	1.4	2.3
6-Dec	0.9	1.1	Z	1.6	1.0	1.0	1.0	1.1	0.8	0.4	0.4	0.9	0.9	0.8	0.0	0.3	0.6	0.2	0.6	0.6	0.5	0.3	0.6	0.4	0.7	1.6
7-Dec	0.3	0.0	0.0	Z	0.8	0.6	0.7	0.0	0.6	0.4	0.3	0.6	0.3	0.0	0.4	0.6	0.3	0.5	1.3	1.0	0.5	0.9	1.5	1.7	0.6	1.7
8-Dec	0.9	1.0	0.6	1.0	Z	2.4	2.7	3.3	3.7	5.0	6.4	8.4	7.0	4.3	2.5	1.2	0.4	0.7	0.6	0.3	0.0	0.3	0.1	0.1	2.3	8.4
9-Dec	0.1	0.0	0.0	0.0	0.0	Z	0.4	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.4	1.1	2.8	2.7	3.1	3.5	0.8	3.5
10-Dec	Z	0.9	1.1	1.1	1.5	1.4	1.4	1.5	2.0	1.1	1.0	1.5	2.7	2.3	2.3	2.6	2.1	2.0	2.1	1.8	3.3	4.3	4.5	4.1	2.1	4.5
11-Dec	2.9	Z	3.3	2.8	2.3	2.5	2.9	2.9	3.3	4.3	2.5	2.2	2.4	2.2	1.7	2.3	1.2	1.5	1.8	1.3	1.6	1.3	1.4	1.1	2.2	4.3
12-Dec	1.4	1.3	Z	1.2	1.1	1.6	0.8	1.6	1.2	1.0	1.1	0.7	1.5	1.6	2.3	2.2	2.2	2.4	2.2	1.9	2.0	1.6	1.7	1.5	1.6	2.4
13-Dec	1.5	1.6	1.7	Z	2.0	2.0	1.9	2.5	2.3	2.3	2.1	2.3	2.4	3.0	3.2	2.7	3.3	5.5	5.1	4.2	5.0	3.8	4.3	4.2	3.0	5.5
14-Dec	3.7	2.8	3.5	5.0	Z	6.4	6.4	5.2	4.6	4.4	3.5	3.3	3.0	2.7	2.7	1.7	0.7	1.3	1.4	1.4	1.4	1.8	1.9	0.7	3.0	6.4
15-Dec	0.6	0.7	0.7	0.5	0.6	Z	1.7	1.7	3.8	3.5	2.5	3.0	2.7	2.4	1.4	0.8	0.6	0.5	0.3	0.7	0.8	0.7	0.4	0.4	1.3	3.8
16-Dec	Z	0.5	0.4	0.6	0.0	0.4	0.5	0.4	0.3	0.6	0.5	0.3	0.3	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.3	0.2	0.3	0.6
17-Dec	0.0	Z	0.2	0.2	0.1	0.0	0.1	0.0	0.4	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.4
18-Dec	0.1	0.4	Z	0.2	0.9	1.6	1.8	3.8	5.5	2.6	2.2	2.8	4.2	3.8	2.1	1.3	2.1	2.3	1.9	1.9	1.7	1.6	1.5	5.3	2.2	5.5
19-Dec	5.6	3.1	2.2	Z	1.0	1.0	0.9	0.9	1.1	0.9	0.9	0.8	1.2	0.9	0.7	1.0	0.4	1.1	2.0	1.6	1.3	2.3	3.2	4.0	1.7	5.6
20-Dec	5.0	4.3	2.6	1.2	Z	2.4	1.7	2.1	1.7	C	C	C	C	C	C	2.2	1.9	1.1	1.6	1.9	2.0	3.0	3.3	3.5	--	5.0
21-Dec	4.3	4.8	4.5	4.1	3.1	Z	4.1	4.0	4.5	4.6	4.4	4.5	4.2	3.6	3.3	4.2	4.6	4.3	3.6	3.7	3.6	2.9	3.6	5.2	4.1	5.2
22-Dec	Z	4.2	5.0	5.8	6.5	5.7	5.9	5.1	3.9	3.7	3.5	3.7	4.8	5.3	6.2	6.1	7.8	5.2	3.5	3.6	3.9	4.5	5.2	6.9	5.0	7.8
23-Dec	6.5	Z	6.0	4.9	6.1	4.9	3.4	3.2	3.2	3.1	2.8	2.6	2.5	2.4	2.6	2.8	2.7	2.5	2.7	2.8	2.4	2.0	2.5	1.8	3.3	6.5
24-Dec	1.8	1.3	Z	1.8	1.7	1.3	1.2	1.2	0.9	0.9	1.5	1.0	1.9	2.5	2.1	2.5	2.3	2.8	3.1	2.8	2.2	2.0	2.4	1.9	1.9	3.1
25-Dec	1.1	1.4	1.5	Z	1.5	1.0	0.9	1.0	0.7	0.7	0.9	0.7	0.5	0.3	0.7	0.7	0.1	0.8	1.1	1.1	1.0	1.8	1.9	1.6	1.0	1.9
26-Dec	1.4	1.7	2.1	2.5	Z	2.6	2.7	2.7	2.8	2.7	2.9	3.1	3.1	2.6	2.8	3.1	2.9	3.3	2.8	2.8	2.9	2.7	3.7	2.9	2.7	3.7
27-Dec	3.1	3.0	4.0	2.3	4.6	Z	5.3	3.8	3.5	3.7	4.0	4.2	4.9	4.7	6.6	6.6	5.8	5.5	5.8	5.0	5.5	4.7	4.5	2.8	4.5	6.6
28-Dec	Z	1.7	0.6	1.0	1.0	1.4	0.6	0.2	0.4	0.7	0.3	0.4	0.7	0.2	0.0	0.6	1.3	0.8	0.0	0.5	0.5	0.0	0.0	0.0	0.6	1.7
29-Dec	0.0	Z	1.0	0.2	0.1	0.3	0.9	1.4	2.1	1.7	1.3	1.5	0.9	0.6	0.4	0.1	0.4	0.7	0.6	0.4	0.2	0.4	0.8	0.7	0.7	2.1
30-Dec	0.1	0.2	Z	1.4	0.6	0.5	0.6	0.4	0.5	0.7	0.6	0.5	0.5	0.7	0.5	0.6	0.5	0.5	0.2	0.4	0.0	0.2	0.1	0.0	0.4	1.4
31-Dec	0.3	0.3	0.4	Z	0.5	0.5	0.2	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
2.1 1.8 2.1 1.9 2.1 2.3 2.2 2.2 2.3 2.2 2.1 2.1 2.2 2.0 2.0 2.0 2.0 2.0 2.1 2.0 1.9 1.9 1.9 2.2 2.2																								Diurnal Average		
6.5 4.8 6.0 5.8 13.0 10.6 9.7 9.2 8.6 7.4 6.6 8.4 7.0 5.8 6.6 8.5 9.1 10.5 7.6 5.7 5.7 6.8 7.2 6.9																								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
Stony Mountain - December 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 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695
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	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695

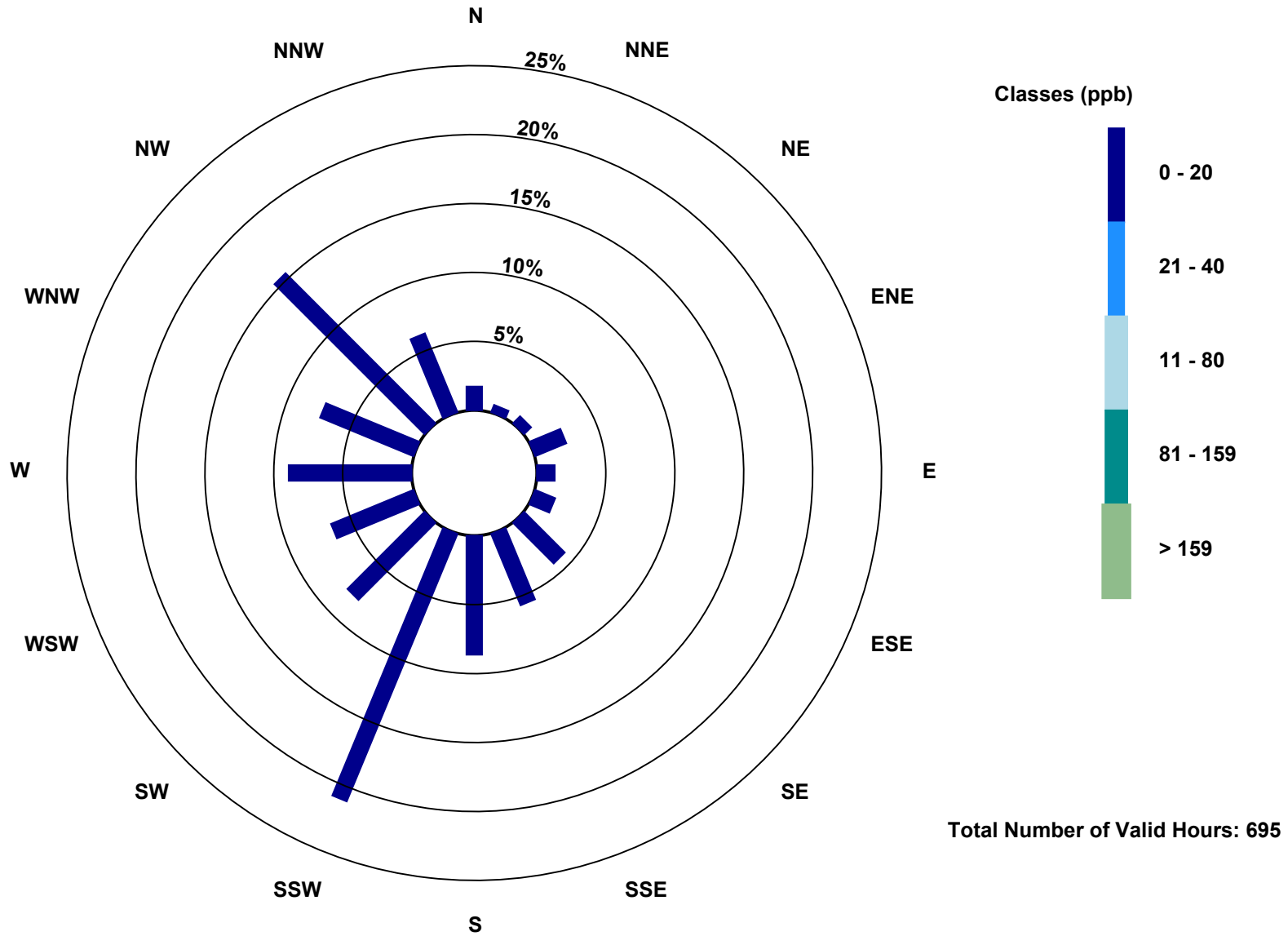
Total Number of Valid Hours: 695

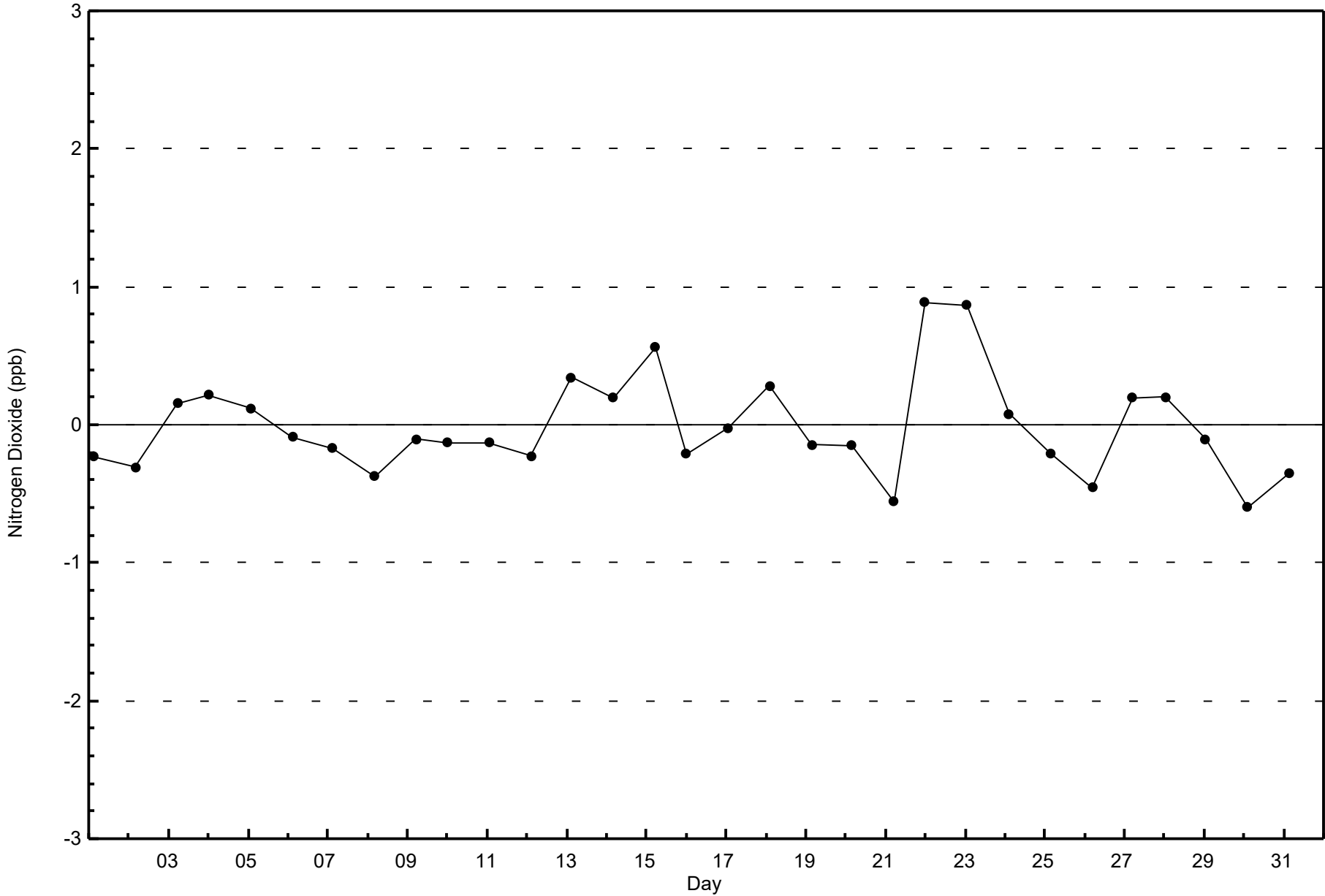
Total Number of Hours: 744

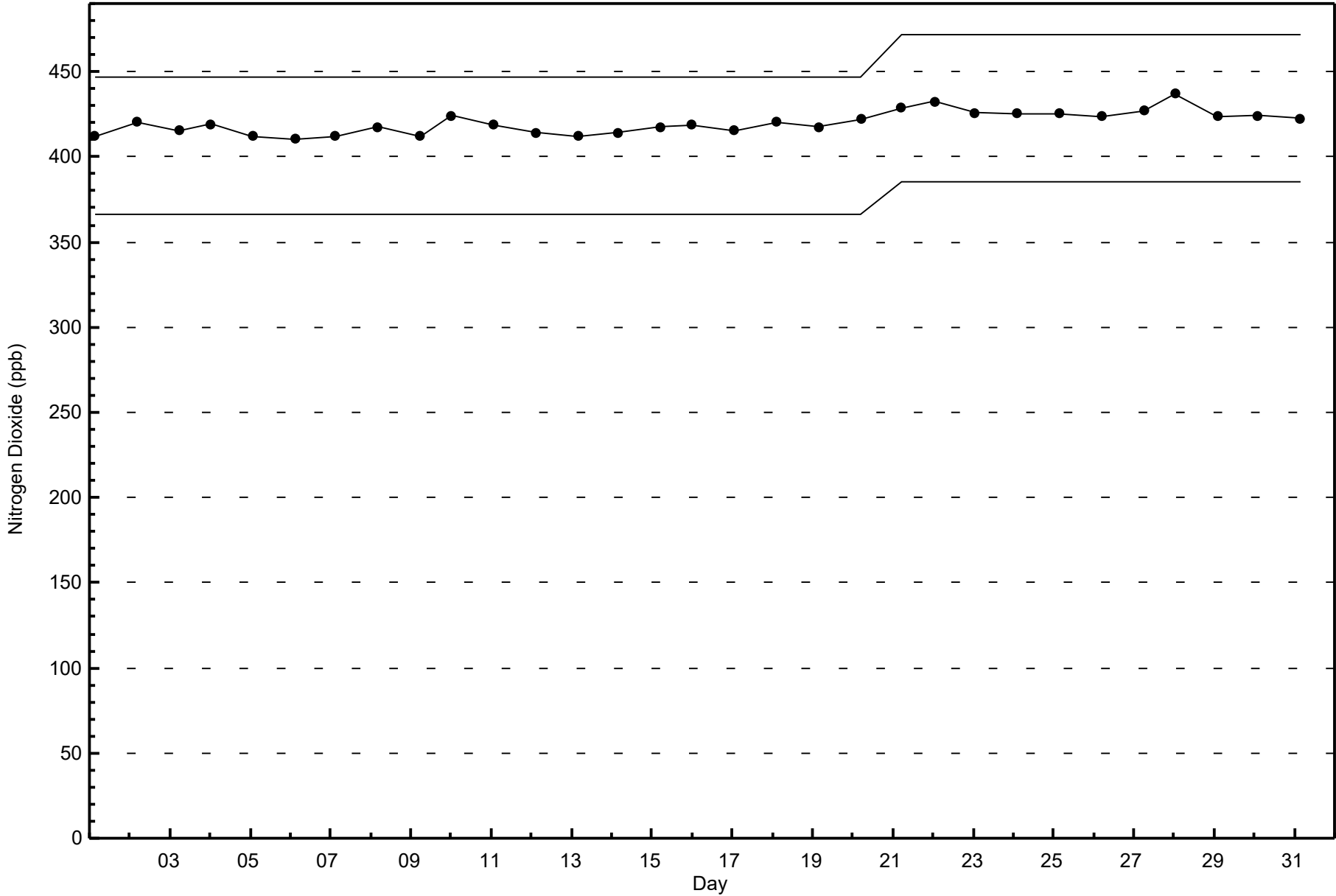


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Stony Mountain









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

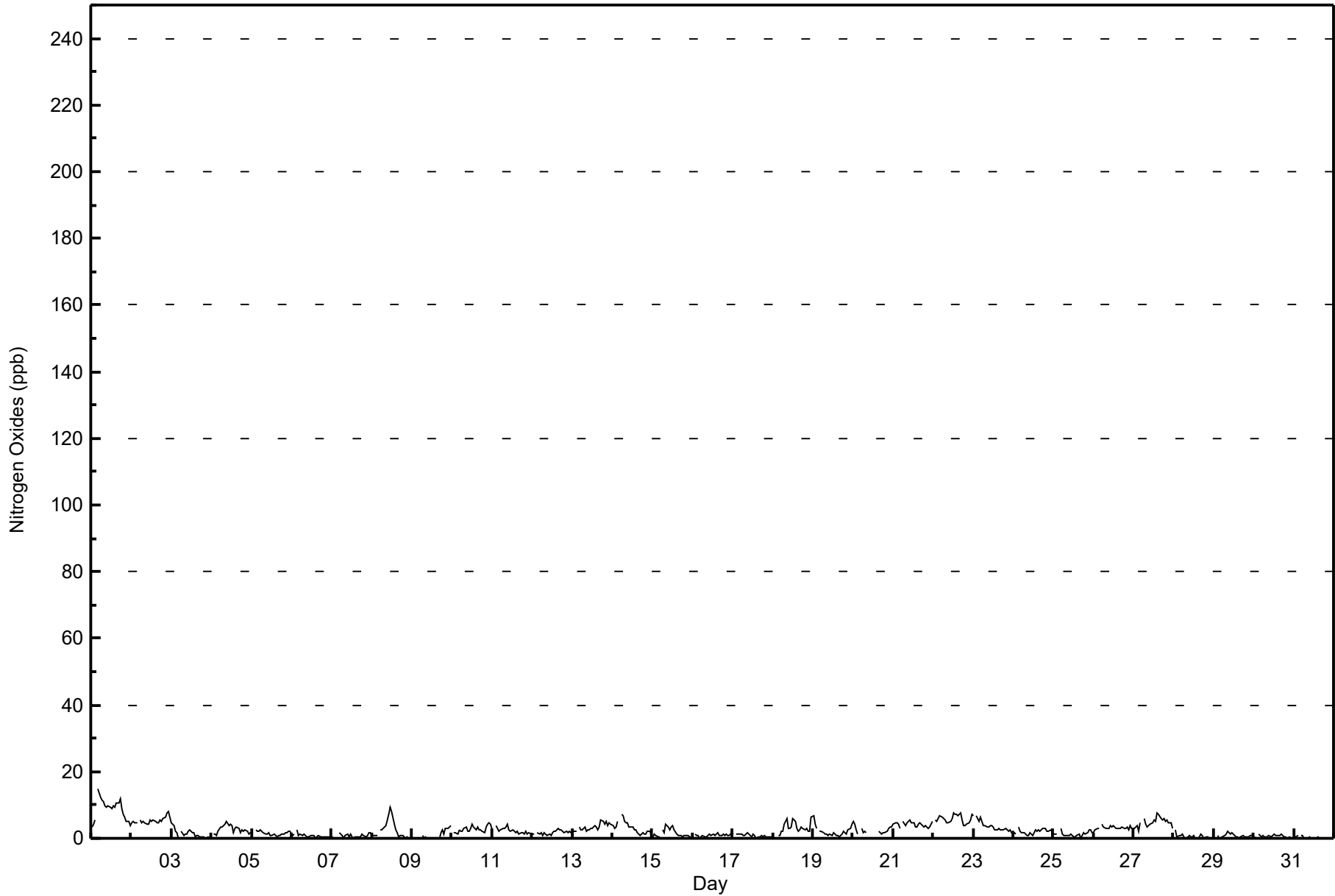
Stony Mountain - December 2024

Maximum Value: 14.7 ppb on Dec 1 05:00																				Maximum Daily Average: 8.6 ppb on Dec 1					Hours in Service: 744								
Minimum Value: 0.0 ppb on Dec 3 22:00																				Minimum Daily Average: 0.2 ppb on Dec 31					Hours of Data: 707								
Maximum Diurnal Average: 2.9 ppb at hour 13																				Minimum Diurnal Average: 2.0 ppb at hour 20					Hours of Missing Data: 37								
Monthly Average: 2.42 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.3 Q ₁ = 0.8 Median = 1.9 Q ₃ = 3.5 P ₉₀ = 5.2 P ₉₉ = 9.9					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-Dec	3.2	4.4	5.3	Z	14.7	12.1	11.5	10.9	9.9	9.4	9.6	9.3	8.9	9.7	9.5	10.6	10.6	11.9	8.9	7.1	6.2	4.9	4.9	3.7	8.6	14.7							
2-Dec	4.8	5.2	4.7	4.8	Z	5.5	4.7	5.1	4.7	4.2	4.2	5.4	5.2	5.4	5.0	4.6	4.8	5.3	4.9	6.0	6.5	7.6	8.1	6.3	5.3	8.1							
3-Dec	4.7	3.7	2.2	1.6	0.1	Z	2.2	0.7	1.1	1.4	2.0	2.7	1.9	1.6	0.6	1.1	0.7	0.6	0.6	0.3	0.0	0.0	0.6	0.1	1.3	4.7							
4-Dec	Z	1.1	1.4	0.8	1.9	3.2	3.5	3.6	4.3	5.3	4.0	4.0	3.6	1.6	2.8	3.3	2.9	1.6	2.5	2.1	2.5	2.0	1.3	1.9	2.7	5.3							
5-Dec	1.6	Z	2.4	1.9	2.2	2.6	2.0	1.8	1.2	1.5	1.6	0.7	0.6	1.5	1.0	0.4	0.9	1.0	1.1	1.1	1.7	1.7	1.9	1.9	1.5	2.6							
6-Dec	0.9	1.1	Z	2.6	1.0	1.1	1.0	1.2	0.8	0.4	0.4	0.9	1.0	0.8	0.0	0.3	0.7	0.2	0.6	0.6	0.5	0.3	0.6	0.4	0.8	2.6							
7-Dec	0.3	0.0	0.0	Z	1.5	1.1	0.8	0.0	0.8	1.1	0.3	1.4	0.3	0.0	0.4	0.6	0.3	0.5	1.3	1.0	0.5	0.9	1.5	1.7	0.7	1.7							
8-Dec	0.9	1.0	0.6	1.0	Z	2.7	2.7	3.3	3.8	5.5	7.2	9.5	8.2	4.3	2.5	1.8	0.4	0.7	0.8	0.3	0.0	0.3	0.1	0.1	2.5	9.5							
9-Dec	0.1	0.0	0.0	0.0	0.0	Z	0.9	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.4	1.1	2.9	3.0	3.4	3.7	0.9	3.7							
10-Dec	Z	1.8	1.6	1.5	2.5	2.2	2.1	2.8	3.3	2.3	2.0	2.8	4.3	3.3	2.7	3.2	2.5	2.6	2.1	1.8	3.5	4.3	4.7	4.2	2.8	4.7							
11-Dec	2.9	Z	4.0	3.1	2.3	2.5	2.9	2.9	3.3	4.4	2.5	2.2	2.5	2.2	1.7	2.3	1.2	1.5	1.8	1.3	2.3	1.4	1.5	1.1	2.3	4.4							
12-Dec	1.4	1.3	Z	1.8	1.1	1.6	0.8	1.6	1.2	1.0	1.1	0.7	1.7	1.9	2.3	2.8	2.5	2.4	2.2	1.9	2.2	1.6	2.2	1.5	1.7	2.8							
13-Dec	1.6	2.0	2.1	Z	3.4	2.4	2.6	3.2	2.3	2.5	2.7	3.1	3.0	3.8	3.3	2.7	3.3	5.5	5.1	4.2	5.0	3.8	4.6	4.2	3.3	5.5							
14-Dec	3.7	2.8	3.5	5.0	Z	7.1	6.7	5.2	4.6	4.5	3.5	3.4	3.3	2.7	2.7	1.7	0.7	1.3	1.6	1.4	1.4	2.2	1.9	0.7	3.1	7.1							
15-Dec	0.6	1.2	0.7	0.5	0.6	Z	2.4	1.7	4.3	3.5	2.5	3.4	3.6	2.5	1.4	0.8	0.7	0.7	0.3	0.9	1.0	0.7	0.5	0.4	1.5	4.3							
16-Dec	Z	1.3	0.7	0.7	0.0	0.6	0.7	0.4	0.5	0.8	1.2	0.9	1.1	0.9	1.3	1.7	1.0	0.9	1.1	1.0	1.1	0.8	1.0	1.6	0.9	1.7							
17-Dec	1.1	Z	1.5	1.4	1.4	1.1	0.8	1.0	1.2	1.7	1.0	0.3	1.2	1.0	0.0	0.5	0.6	0.8	0.6	0.8	0.5	0.4	0.6	0.4	0.9	1.7							
18-Dec	0.2	0.5	Z	0.7	0.9	2.1	2.0	4.4	6.1	3.1	3.0	3.6	5.8	5.1	3.0	1.9	2.7	3.2	2.9	2.7	3.2	2.0	2.3	6.5	3.0	6.5							
19-Dec	6.9	4.4	2.8	Z	2.2	2.1	1.8	1.4	1.5	1.0	1.3	0.8	1.5	1.1	0.7	1.0	0.4	1.1	2.0	1.6	1.3	2.4	3.2	4.0	2.0	6.9							
20-Dec	5.0	4.3	2.6	1.2	Z	3.1	1.7	2.1	1.7	C	C	C	C	C	C	2.2	1.9	1.1	1.6	1.9	2.0	3.0	3.3	3.5	--	5.0							
21-Dec	4.3	4.8	4.5	4.1	3.1	Z	5.0	4.0	4.5	5.0	5.3	4.7	4.5	3.6	3.3	4.2	4.6	4.3	3.6	3.7	3.6	2.9	3.6	5.2	4.2	5.3							
22-Dec	Z	5.4	5.0	5.8	6.8	6.3	6.1	5.3	4.6	4.7	5.0	5.7	7.5	7.3	7.3	6.8	7.8	5.5	3.9	3.8	4.3	4.7	5.6	7.2	5.7	7.8							
23-Dec	6.9	Z	6.7	5.2	6.4	5.2	3.6	3.6	3.3	3.6	4.0	3.8	3.3	2.7	2.6	2.9	2.7	2.5	2.7	2.8	2.4	2.0	2.5	1.8	3.6	6.9							
24-Dec	2.0	1.4	Z	3.2	2.1	1.5	1.5	1.2	0.9	0.9	1.6	1.0	1.9	2.5	2.1	2.5	2.3	2.8	3.1	2.8	2.2	2.0	2.7	1.9	2.0	3.2							
25-Dec	1.1	1.4	1.5	Z	3.0	1.2	0.9	1.0	0.7	0.7	1.1	0.8	0.5	0.3	0.7	1.3	0.1	0.8	1.6	1.1	1.7	2.6	2.5	1.9	1.2	3.0							
26-Dec	1.8	2.4	2.9	3.2	Z	4.1	3.3	2.9	2.8	3.1	3.6	3.5	3.8	2.9	3.1	3.2	2.9	3.5	3.0	3.0	3.4	2.7	3.7	2.9	3.1	4.1							
27-Dec	3.1	3.3	4.0	2.3	4.7	Z	5.8	4.1	3.5	3.8	4.2	4.5	5.4	5.0	7.5	7.0	5.9	5.5	6.0	5.0	5.6	4.8	4.7	2.8	4.7	7.5							
28-Dec	Z	2.5	0.6	1.0	1.0	1.4	0.6	0.2	0.4	0.7	0.3	0.4	0.7	0.2	0.0	0.6	1.3	0.8	0.0	0.5	0.5	0.0	0.0	0.0	0.6	2.5							
29-Dec	0.0	Z	1.0	0.2	0.1	0.3	0.9	1.4	2.1	1.7	1.3	1.5	0.9	0.6	0.4	0.1	0.4	0.7	0.6	0.4	0.2	0.4	0.8	0.7	0.7	2.1							
30-Dec	0.1	0.2	Z	1.4	0.6	0.6	0.6	0.4	0.5	0.8	0.6	1.0	1.2	0.7	0.7	0.9	1.1	1.0	0.2	0.4	0.0	0.2	0.1	0.0	0.6	1.4							
31-Dec	0.6	0.5	0.6	Z	0.7	0.8	0.2	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8							
																								Diurnal Average									
																								Diurnal Maximum									
Z - zerospan C - Calibration																																	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Stony Mountain - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Stony Mountain - December 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 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695
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	12	4	5	17	9	11	29	39	60	146	55	45	62	51	107	43	695

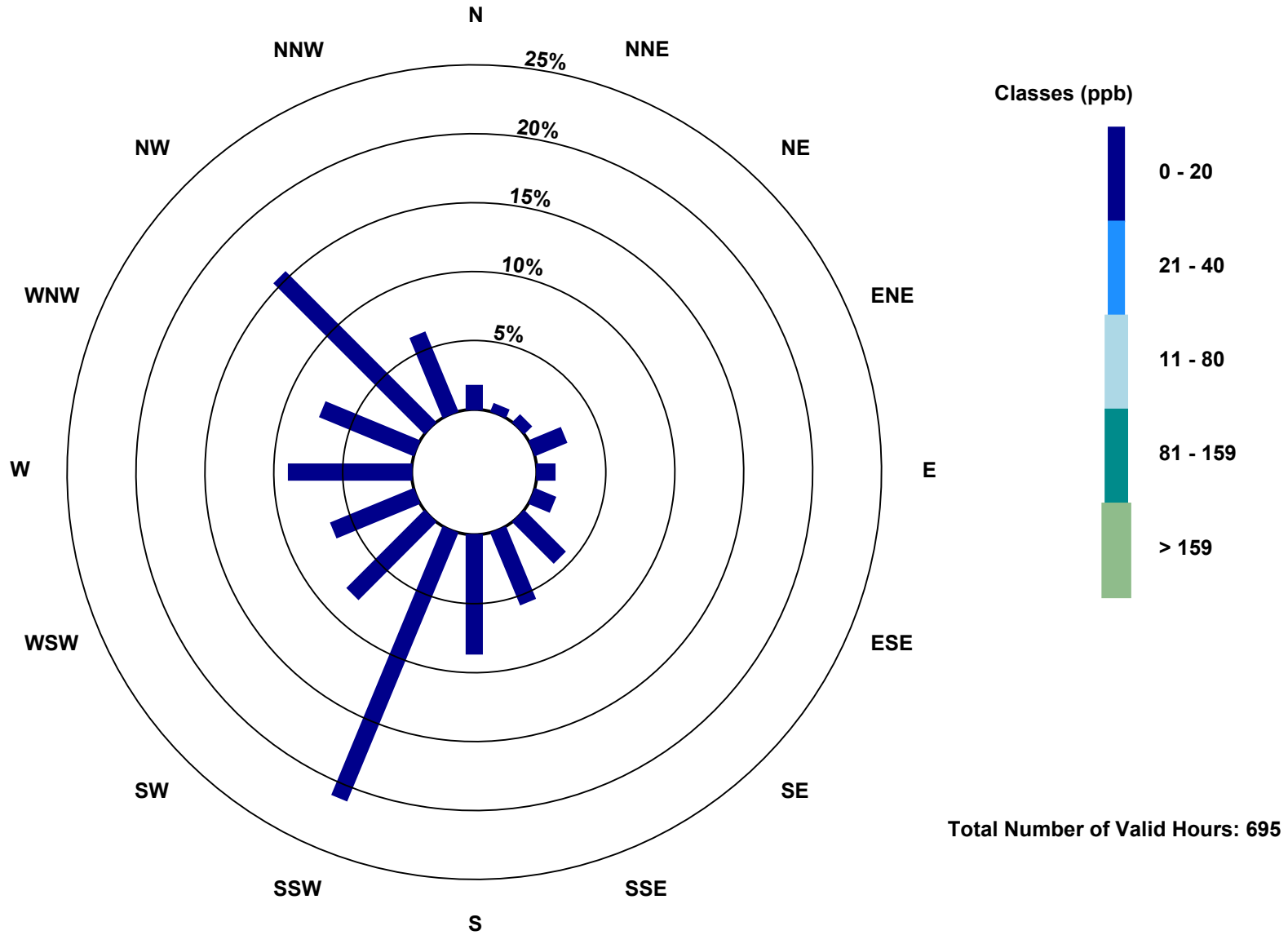
Total Number of Valid Hours: 695

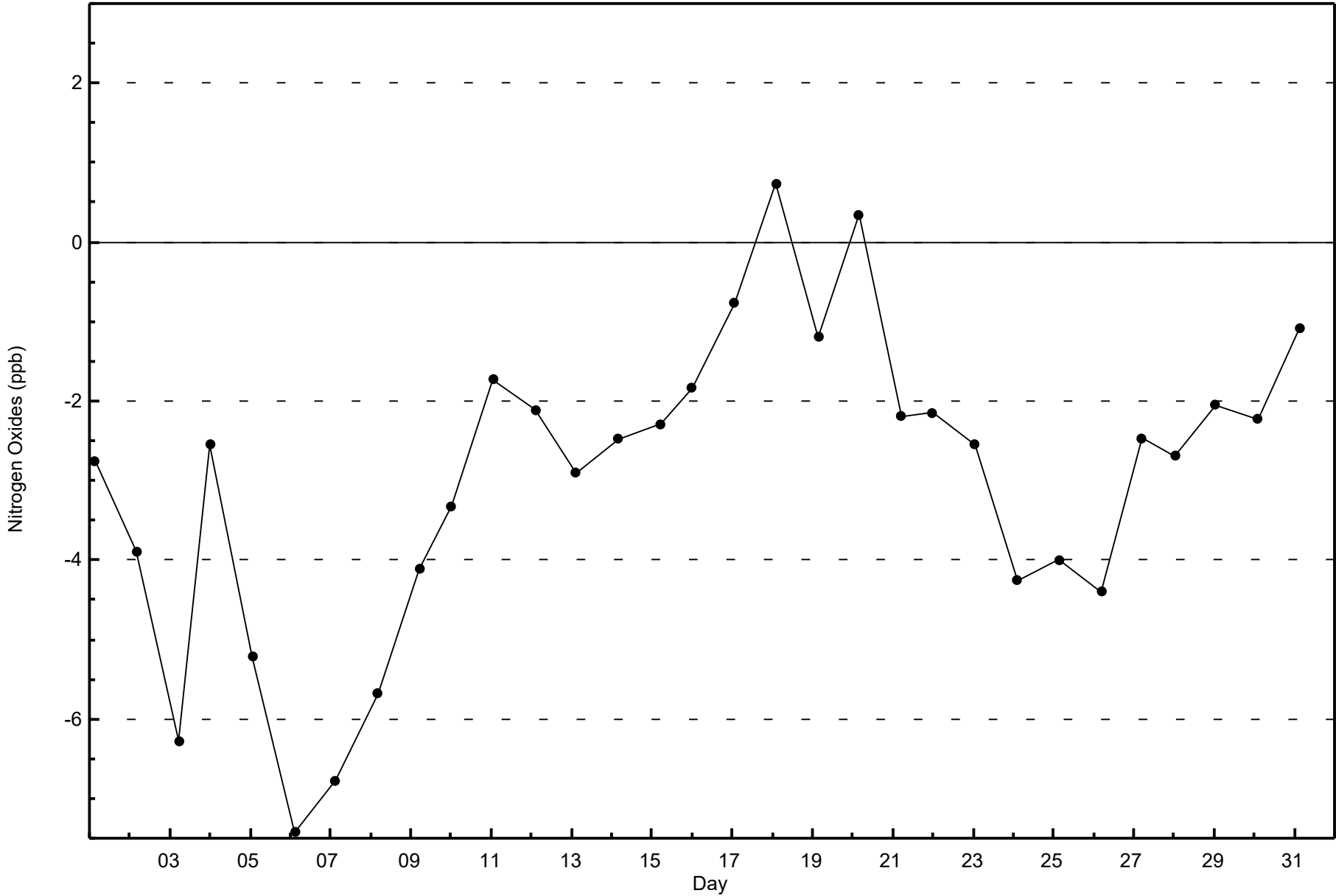
Total Number of Hours: 744

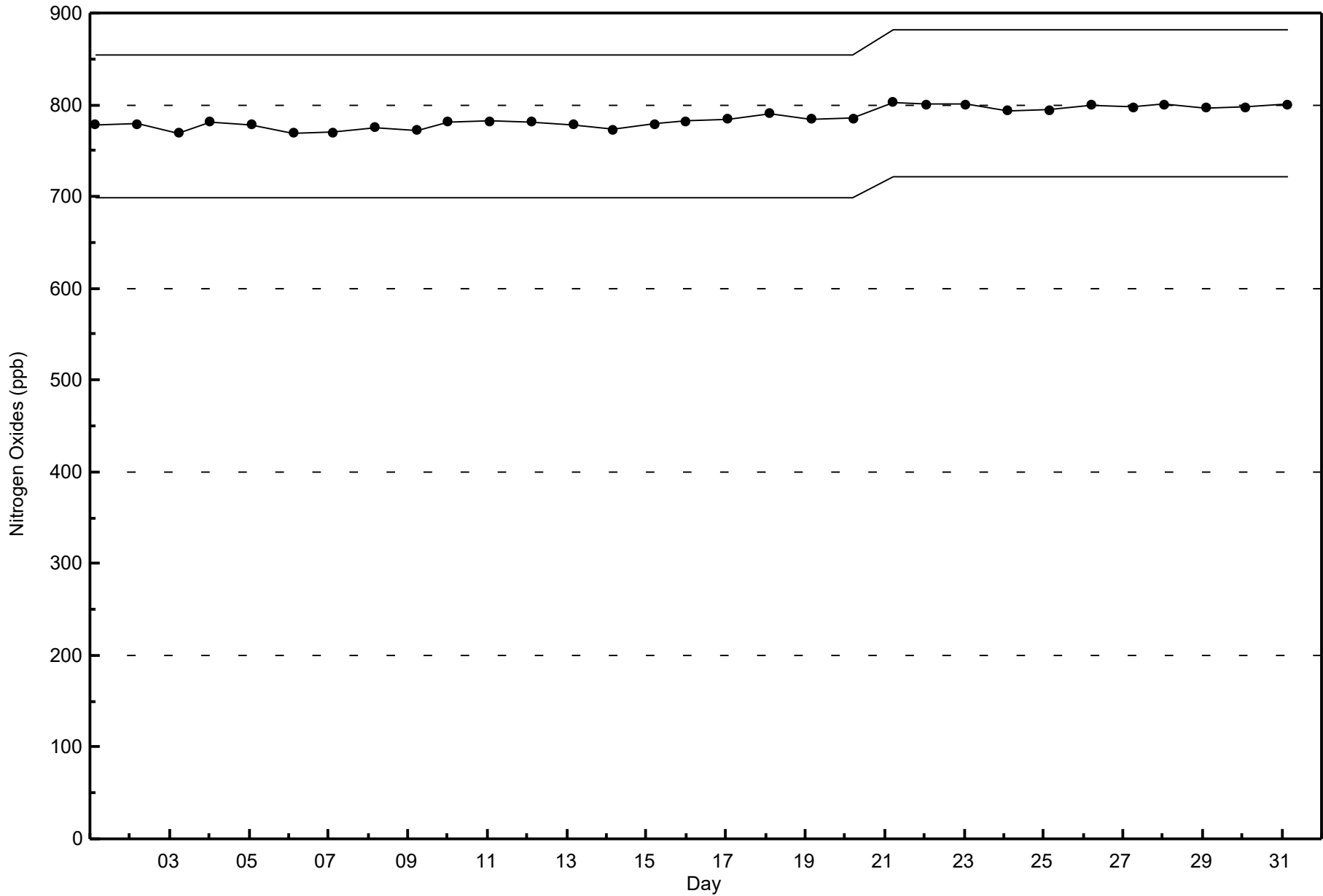


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Stony Mountain





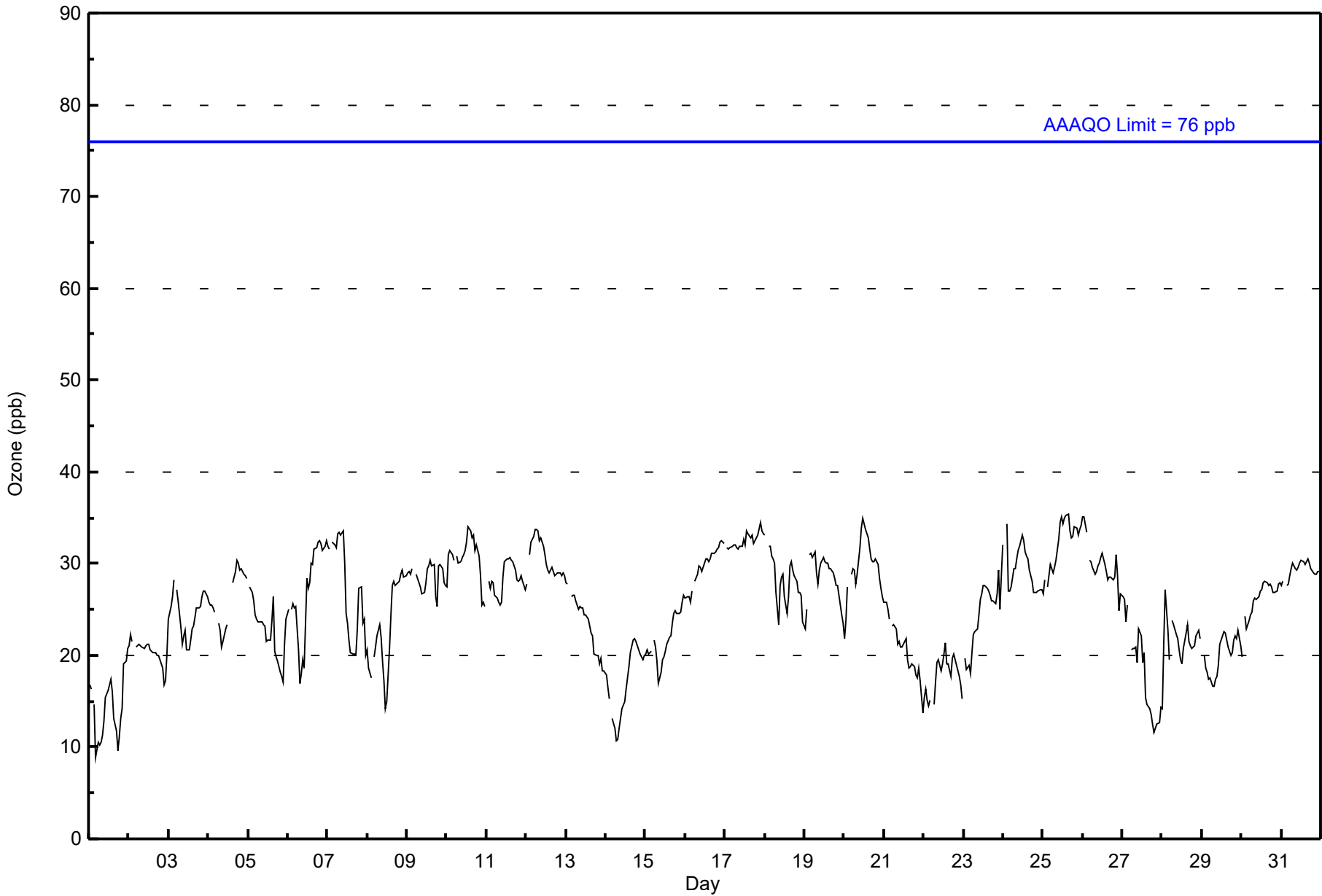




Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.3 ppb on Dec 25 16:00	Maximum Daily Average: 32.5 ppb on Dec 17		Hours of Data:	710
Minimum Value: 8.8 ppb on Dec 1 05:00	Minimum Daily Average: 14.2 ppb on Dec 1		Hours of Missing Data:	34
Maximum Diurnal Average: 26.0 ppb at hour 16	Minimum Diurnal Average: 24.3 ppb at hour 9		Hours of Calibration:	34
Monthly Average: 25.25 ppb	Percentiles: P ₁ = 11.1 P ₁₀ = 17.7 Q ₁ = 20.9 Median = 26.4 Q ₃ = 29.5 P ₉₀ = 32.0 P ₉₉ = 34.5		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-Dec	16.8	16.4	Z	14.7	8.8	10.5	10.2	10.6	11.2	12.8	15.4	16.2	16.8	17.3	16.0	13.1	11.7	9.6	11.1	13.1	14.1	19.1	19.4	20.7	14.2	20.7																							
2-Dec	21.0	22.2	21.6	Z	20.9	21.1	21.2	21.0	20.8	20.8	21.1	21.1	21.2	20.7	20.2	20.3	20.3	20.0	19.9	19.5	18.7	16.9	17.2	20.1	20.3	22.2																							
3-Dec	23.9	25.3	26.4	28.2	Z	27.1	25.9	23.0	21.2	22.0	22.8	20.6	21.6	22.9	23.2	24.1	25.1	25.2	25.3	26.4	27.0	26.9	26.4	24.4	28.2																								
4-Dec	25.7	25.5	25.5	25.2	24.7	Z	23.5	22.8	20.8	21.4	22.9	23.3	C	C	C	27.9	29.2	30.3	30.0	29.4	29.4	28.8	28.7	28.4	26.2	30.3																							
5-Dec	Z	27.4	26.8	25.9	24.4	Z	23.9	23.6	23.7	23.4	23.2	21.6	21.7	21.7	23.8	26.4	20.4	19.8	19.4	18.2	17.7	17.1	21.2	23.9	22.6	27.4																							
6-Dec	25.0	Z	25.0	25.6	25.2	25.3	20.5	17.0	18.1	19.5	18.6	28.4	27.4	27.9	30.1	29.9	31.5	31.7	32.4	32.5	32.2	31.5	31.9	32.6	26.9	32.6																							
7-Dec	31.9	31.6	Z	32.3	32.0	31.8	33.3	33.4	33.1	33.6	30.0	24.6	23.4	21.6	20.3	20.1	20.2	20.1	22.9	27.2	27.5	23.6	23.9	19.9	26.9	33.6																							
8-Dec	20.6	18.6	17.6	Z	19.8	20.9	22.1	23.4	22.0	19.3	17.3	14.2	14.9	20.8	24.4	27.6	28.0	27.6	28.0	28.0	28.9	29.4	28.5	28.7	23.1	29.4																							
9-Dec	28.9	29.1	28.8	29.4	Z	28.9	28.3	27.9	27.5	26.7	26.9	28.0	29.4	29.7	30.4	29.8	29.9	26.4	25.4	29.8	29.8	29.5	27.9	27.7	28.5	30.4																							
10-Dec	27.5	31.0	31.4	30.9	30.4	Z	30.8	30.1	30.2	30.6	30.9	31.5	32.4	34.0	33.6	32.9	33.2	31.5	32.0	30.8	28.7	25.5	25.8	25.3	30.5	34.0																							
11-Dec	Z	28.0	27.4	28.0	27.9	26.5	26.2	25.7	25.5	25.8	28.6	30.1	30.6	30.5	30.6	30.3	30.2	29.3	28.3	28.1	28.2	28.7	28.1	27.2	28.3	30.6																							
12-Dec	27.7	Z	30.9	32.3	33.0	33.7	33.7	33.6	32.5	32.9	31.8	30.9	30.0	29.3	29.0	29.6	29.1	28.7	28.8	28.9	28.9	28.7	28.9	28.7	30.5	33.7																							
13-Dec	27.9	27.8	Z	26.4	26.5	26.5	25.9	25.1	25.3	25.2	25.1	24.4	24.3	23.9	23.1	22.5	22.1	20.1	20.0	19.0	19.6	18.3	18.3	23.4	27.9																								
14-Dec	17.9	16.4	15.2	Z	13.1	12.0	10.6	10.9	12.1	13.2	14.3	15.0	16.4	17.6	18.8	20.3	21.7	21.9	21.5	21.1	20.6	20.1	19.6	20.0	17.0	21.9																							
15-Dec	20.2	20.6	20.2	20.4	Z	21.6	20.9	19.4	16.9	18.2	19.5	19.8	20.4	21.2	22.0	22.1	23.5	24.5	24.9	24.6	24.5	24.8	25.8	26.5	21.8	26.5																							
16-Dec	26.2	26.4	26.4	25.7	27.0	Z	28.1	28.8	29.8	29.5	29.1	29.5	30.4	30.4	30.2	30.5	31.1	31.2	31.3	31.6	31.7	32.3	32.5	32.3	29.7	32.5																							
17-Dec	Z	31.8	31.6	31.8	31.8	32.1	32.1	31.7	31.6	31.9	32.0	32.6	32.0	33.6	33.3	32.7	33.1	32.2	32.5	32.7	33.1	34.5	33.6	33.3	32.5	34.5																							
18-Dec	33.1	Z	31.8	31.9	30.8	30.5	30.1	26.8	23.3	27.6	28.5	28.8	26.4	24.5	26.5	29.7	30.3	29.3	28.6	28.0	26.9	26.8	26.6	23.6	28.3	33.1																							
19-Dec	22.9	25.1	Z	31.0	31.1	30.7	31.3	29.0	27.8	29.3	30.0	30.6	30.2	30.0	30.1	29.4	29.5	28.9	28.3	27.6	27.6	26.6	24.5	23.4	28.5	31.3																							
20-Dec	21.8	23.8	27.4	Z	28.9	29.4	29.3	27.8	28.8	31.8	33.9	34.9	34.3	33.7	32.8	31.6	30.5	30.3	30.3	30.5	29.9	28.4	27.3	26.5	29.7	34.9																							
21-Dec	25.8	25.7	25.0	23.9	Z	23.2	23.3	22.9	21.2	21.5	21.0	21.0	21.6	21.8	19.6	18.7	18.8	19.0	18.8	17.8	17.5	18.5	17.2	13.8	20.8	25.8																							
22-Dec	15.4	16.4	15.1	14.4	15.2	Z	14.7	17.2	19.2	19.6	18.3	19.0	20.1	21.3	19.0	19.1	17.7	19.7	20.1	19.5	18.9	17.7	16.7	15.3	17.8	21.3																							
23-Dec	Z	19.7	18.5	18.9	18.1	20.4	22.2	22.5	22.9	24.4	26.0	26.7	27.5	27.6	27.3	27.1	26.5	25.9	25.9	25.7	26.6	29.3	25.1	28.7	24.5	29.3																							
24-Dec	32.1	Z	34.3	27.1	26.9	27.5	29.5	29.5	30.5	31.5	32.0	33.1	32.5	31.3	30.8	30.5	29.3	28.1	26.8	26.8	26.8	27.0	27.1	27.2	29.5	34.3																							
25-Dec	26.6	28.2	Z	27.5	29.9	29.4	28.9	29.6	30.4	32.7	34.5	35.1	34.2	35.0	35.2	35.3	33.5	32.8	32.9	34.0	33.9	33.0	33.7	34.2	32.2	35.3																							
26-Dec	35.1	35.1	33.3	Z	30.3	30.1	29.5	28.8	29.2	29.8	30.0	30.7	31.1	29.9	29.2	28.3	28.5	28.5	28.2	28.5	30.9	28.6	24.9	26.7	29.8	35.1																							
27-Dec	26.5	26.0	23.6	25.5	Z	20.6	20.7	20.8	20.9	19.3	22.8	22.1	19.3	20.3	15.4	14.6	14.2	13.6	12.5	11.6	12.0	12.5	12.6	14.4	18.3	26.5																							
28-Dec	14.1	21.3	27.2	22.8	19.5	Z	23.9	23.4	22.2	21.8	20.6	19.5	19.0	20.8	22.4	23.3	21.4	21.0	20.7	21.1	22.2	22.3	22.7	21.8	21.5	27.2																							
29-Dec	Z	20.0	18.6	18.1	17.4	17.5	16.7	16.7	17.3	17.8	19.0	21.2	22.2	22.6	22.5	21.7	20.9	20.0	20.2	21.7	22.1	21.8	22.7	21.0	20.0	22.7																							
30-Dec	19.8	Z	24.3	22.9	23.8	24.4	24.7	25.9	26.2	26.1	26.4	27.0	27.2	27.9	28.1	27.9	27.6	27.7	27.5	26.9	26.9	26.9	27.7	28.0	26.2	28.1																							
31-Dec	27.7	28.0	Z	27.6	27.8	28.6	29.5	30.1	29.4	29.2	29.6	30.0	30.3	30.2	29.9	30.3	30.6	30.1	29.4	29.0	28.8	28.8	29.1	29.2	29.3	30.6																							
																								24.7	24.9	25.4	25.7	24.8	25.2	24.9	24.5	24.3	24.8	25.2	25.5	25.6	26.0	25.9	26.0	25.8	25.3	25.3	25.5	25.5	25.3	25.0	25.0	Diurnal Average	
																								35.1	35.1	34.3	32.3	33.0	33.7	33.7	33.6	33.1	33.6	34.5	35.1	34.3	35.0	35.2	35.3	33.5	32.8	32.9	34.0	33.9	34.5	33.7	34.2	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Stony Mountain - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	155	21.83	21.83
21 - 50	555	78.17	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
Stony Mountain - December 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	2	10	4	2	1	4	14	47	10	3	4	9	24	10	146
21 - 50	10	4	4	6	5	7	31	35	46	101	46	43	58	40	84	32	552
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	12	4	6	16	9	9	32	39	60	148	56	46	62	49	108	42	698

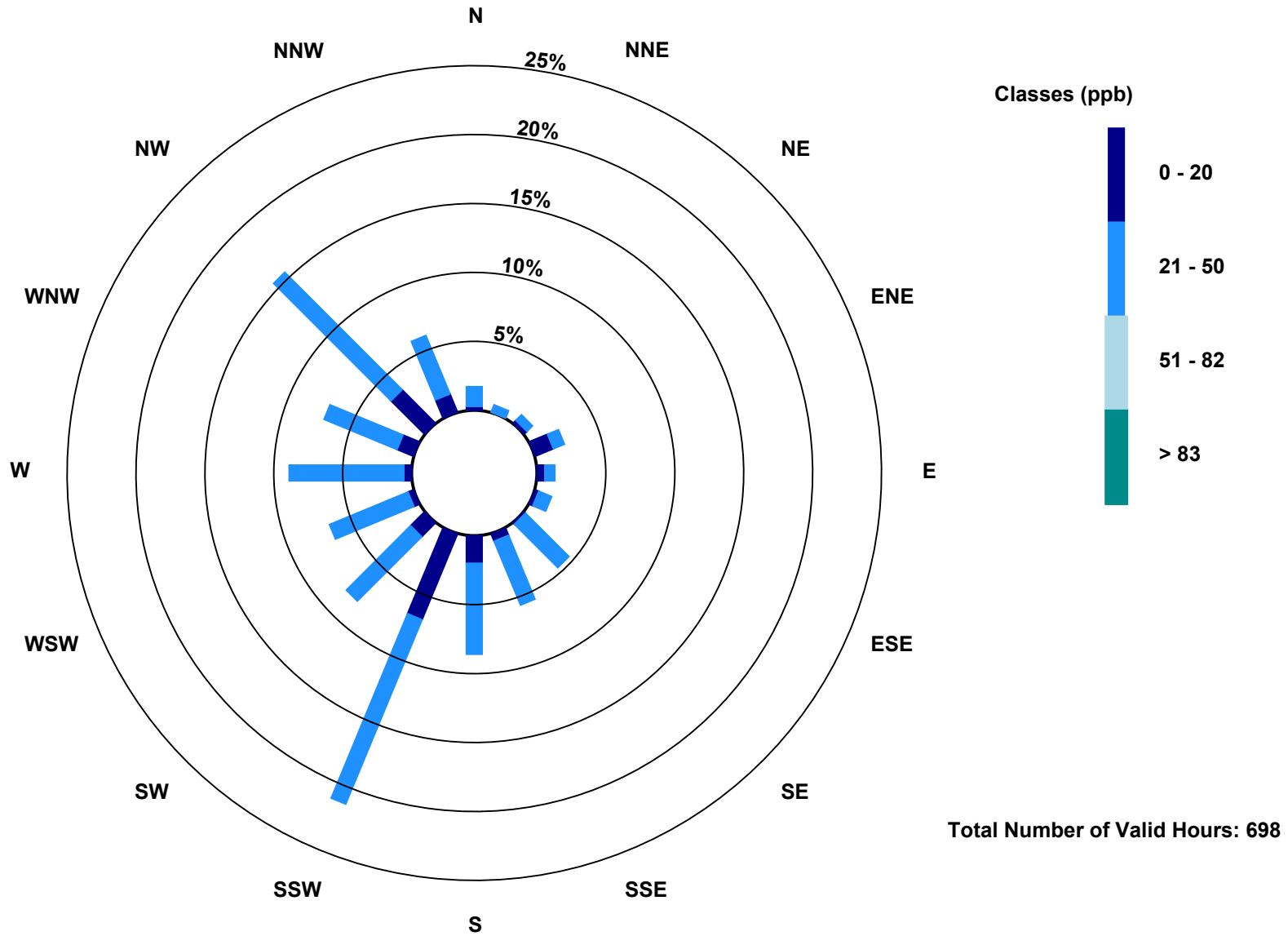
Total Number of Valid Hours: 698

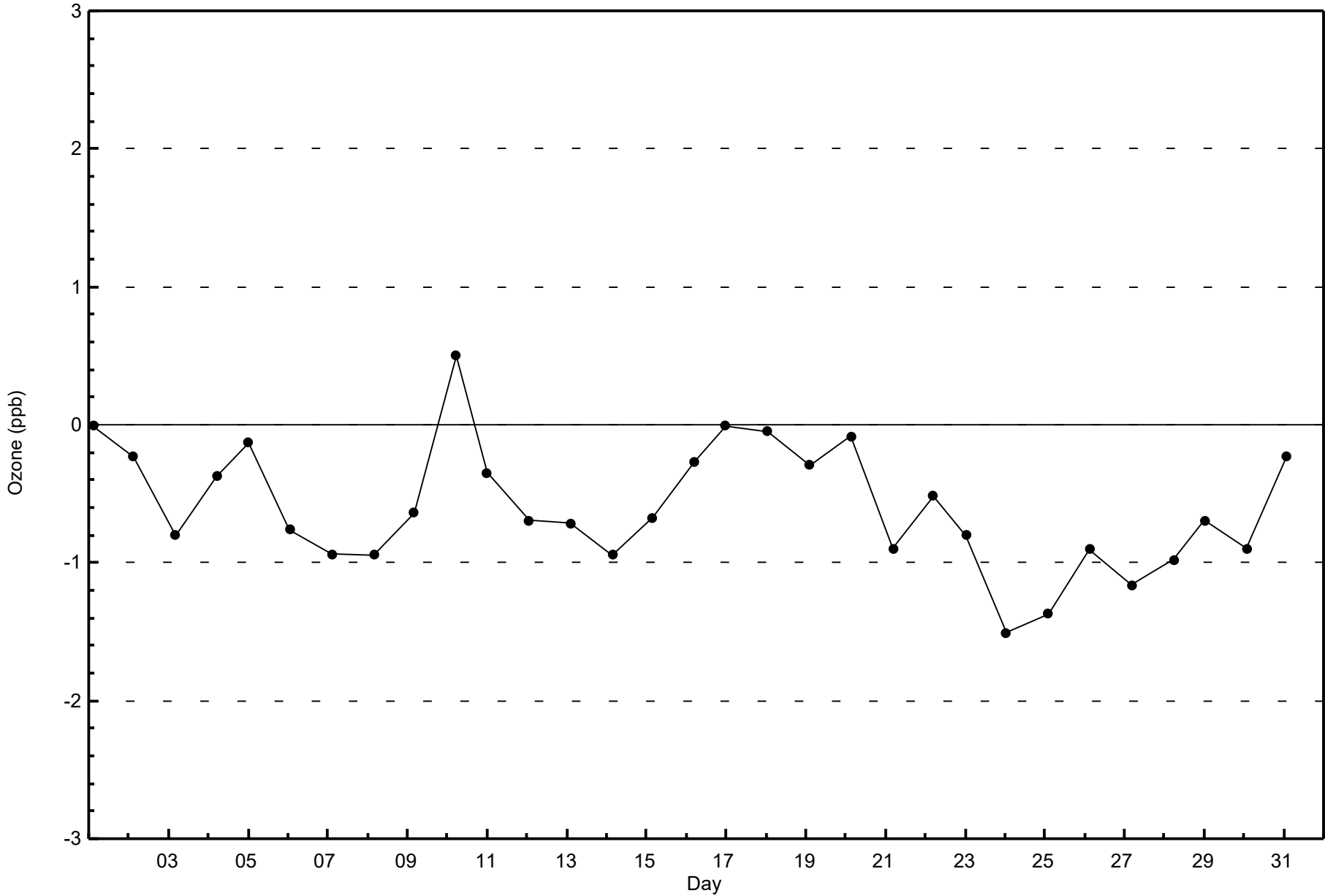
Total Number of Hours: 744

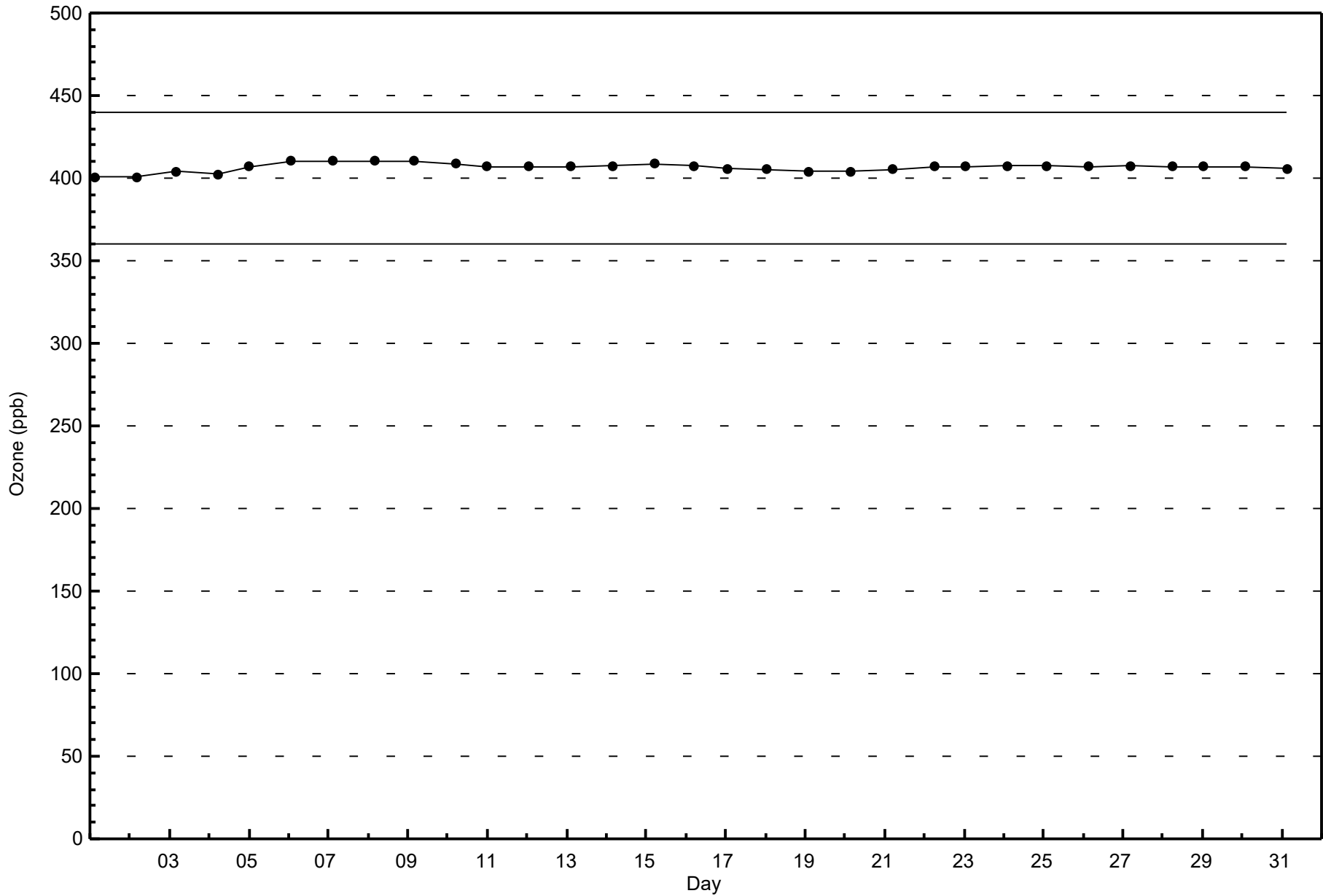


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Stony Mountain









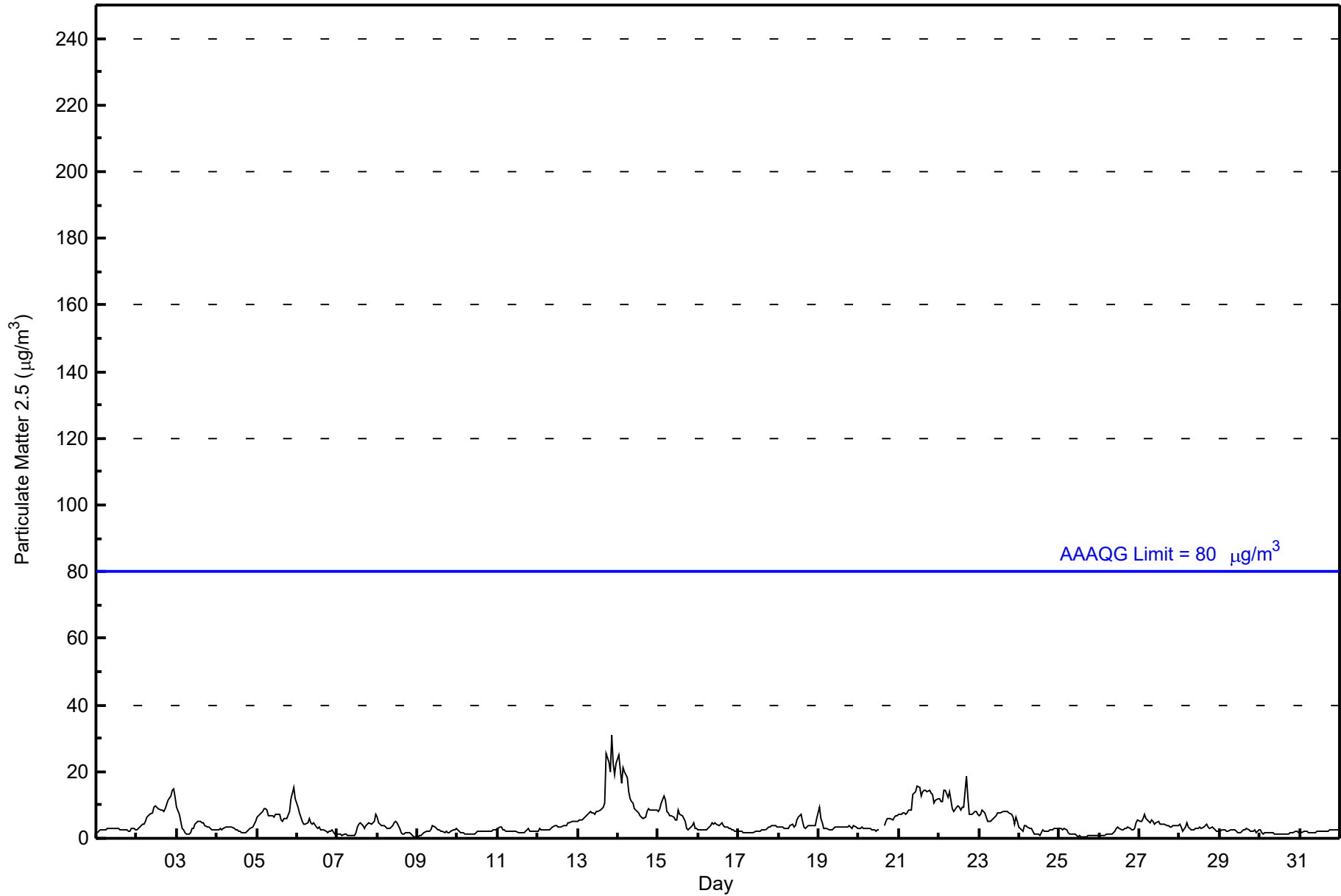
Summary of Hour Averages

Stony Mountain - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 31.0 µg/m ³ on Dec 13 21:00	Maximum Daily Average: 12.1 µg/m ³ on Dec 13		Hours of Data:	742
Minimum Value: 0.4 µg/m ³ on Dec 25 16:00	Minimum Daily Average: 1.3 µg/m ³ on Dec 25		Hours of Missing Data:	2
Maximum Diurnal Average: 5.2 µg/m ³ at hour 21	Minimum Diurnal Average: 4.1 µg/m ³ at hour 8		Hours of Calibration:	2
Monthly Average: 4.55 µg/m ³	Percentiles: P ₁ = 0.6 P ₁₀ = 1.5 Q ₁ = 2.2 Median = 3.1 Q ₃ = 5.8 P ₉₀ = 9.0 P ₉₉ = 20.4		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-Dec	1.8	2.0	2.4	2.5	2.6	2.7	3.0	3.1	3.1	3.1	3.1	3.0	2.8	2.8	2.7	2.6	2.6	2.5	2.4	2.2	2.2	2.8	2.9	2.5	2.7	3.1																						
2-Dec	2.5	2.8	3.5	4.1	4.2	5.0	6.5	6.9	7.3	7.8	9.1	9.6	9.4	9.0	8.3	8.3	8.1	9.0	10.2	11.6	12.8	14.3	14.7	12.4	8.2	14.7																						
3-Dec	9.4	7.1	5.2	3.0	2.3	1.7	1.2	1.2	1.6	2.9	3.1	4.2	4.9	5.2	4.9	4.8	4.5	3.9	3.5	3.2	2.8	2.7	2.6	2.7	3.7	9.4																						
4-Dec	2.7	2.7	2.9	2.7	2.9	3.5	3.3	3.3	3.2	2.8	2.7	2.4	2.0	2.0	1.8	1.7	1.7	2.2	2.5	2.9	3.6	4.3	5.3	2.9	5.3																							
5-Dec	6.2	6.9	7.5	7.9	9.0	9.1	8.6	6.8	6.7	6.8	6.2	7.3	7.1	7.2	5.6	5.2	6.0	5.7	5.8	7.9	12.1	13.6	15.4	11.7	8.0	15.4																						
6-Dec	9.4	7.5	6.3	5.0	4.4	4.2	4.8	5.9	4.8	4.4	4.7	3.2	3.1	3.5	2.6	2.5	2.7	1.9	1.8	2.1	2.3	2.3	1.3	1.2	3.8	9.4																						
7-Dec	1.3	1.2	1.1	1.0	1.2	1.3	1.0	1.0	0.9	1.0	1.0	1.6	3.5	4.4	4.8	3.7	3.1	3.9	4.3	4.7	4.3	4.8	4.9	7.0	2.8	7.0																						
8-Dec	6.6	4.5	3.9	3.9	3.8	3.2	3.2	3.1	3.5	4.0	4.6	5.0	4.8	2.9	1.8	1.2	1.3	1.5	1.6	1.6	1.3	0.6	0.6	0.5	2.9	6.6																						
9-Dec	0.5	0.8	0.9	1.2	1.6	2.2	2.2	2.2	2.7	3.7	3.4	3.1	2.6	2.4	1.9	2.2	1.8	2.1	1.6	1.6	2.3	2.4	2.5	2.9	2.1	3.7																						
10-Dec	2.7	1.9	1.5	1.5	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.8	2.0	2.2	2.0	2.1	2.3	2.1	2.3	2.2	2.3	2.3	2.4	2.6	1.9	2.7																						
11-Dec	2.9	3.4	3.2	2.5	2.4	2.3	2.3	2.2	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.8	1.9	2.7	2.9	2.0	2.1	2.2	2.1	2.1	2.3	3.4																						
12-Dec	2.2	2.8	2.7	2.3	2.4	2.6	2.6	2.7	2.9	3.2	3.6	3.7	3.6	3.6	3.4	3.7	3.9	3.9	4.5	4.7	5.0	5.2	5.2	5.2	3.6	5.2																						
13-Dec	5.2	5.5	5.7	6.0	6.3	6.9	7.3	7.9	7.6	7.4	7.3	8.0	8.1	8.5	9.0	9.2	10.4	25.4	22.7	20.0	31.0	22.4	19.3	22.6	12.1	31.0																						
14-Dec	24.9	20.7	16.5	21.1	19.9	18.4	14.1	12.0	11.1	10.5	8.9	8.2	7.5	6.8	6.3	5.8	6.5	7.9	8.9	8.7	8.6	8.6	8.4	8.4	11.6	24.9																						
15-Dec	8.2	9.0	10.6	12.6	11.4	8.2	7.5	6.9	6.6	6.2	5.5	5.6	8.5	7.1	6.8	5.9	5.1	3.0	2.7	2.9	3.9	4.7	3.0	2.9	6.4	12.6																						
16-Dec	2.7	2.7	2.7	2.8	2.7	2.6	3.0	3.7	4.7	4.4	4.8	4.1	3.7	4.3	4.5	3.7	3.5	3.2	3.0	2.9	2.6	2.4	2.3	2.2	3.3	4.8																						
17-Dec	2.2	2.0	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.1	2.2	2.3	2.4	2.5	2.7	2.9	3.4	3.5	3.6	4.0	3.6	3.4	2.5	4.0																						
18-Dec	3.4	3.4	3.3	3.1	3.1	3.1	3.1	4.0	4.3	3.4	4.0	5.6	6.5	7.3	5.1	3.3	3.2	3.5	3.7	3.7	3.7	3.7	3.6	5.8	4.0	7.3																						
19-Dec	9.1	6.1	4.5	2.9	2.8	2.8	2.6	2.7	2.7	3.1	3.6	3.3	3.5	3.4	3.4	3.4	3.5	3.6	3.8	3.5	3.2	3.7	3.4	3.0	3.6	9.1																						
20-Dec	2.9	3.0	3.5	3.0	2.8	2.8	2.9	2.9	2.7	2.4	2.3	2.3	2.5	C	C	3.9	5.0	5.8	6.0	5.8	5.7	6.2	6.6	7.0	4.0	7.0																						
21-Dec	7.0	7.4	7.8	7.7	7.2	7.8	8.5	8.6	13.2	13.4	14.2	15.5	15.4	12.8	13.9	14.6	14.5	14.0	14.3	13.7	13.2	10.7	11.5	11.9	11.6	15.5																						
22-Dec	12.0	11.2	10.8	14.4	14.3	12.3	13.8	11.4	8.8	7.8	9.4	9.7	9.4	8.5	9.4	9.3	18.7	12.5	7.1	7.1	7.4	8.0	7.9	7.3	10.4	18.7																						
23-Dec	6.9	7.3	8.6	7.7	6.4	4.9	5.0	5.2	5.8	6.2	6.8	7.5	7.5	7.7	8.1	7.8	7.9	8.1	7.6	7.2	6.3	4.3	6.2	5.1	6.8	8.6																						
24-Dec	3.6	2.4	2.3	3.8	3.9	3.3	3.0	2.8	2.2	1.3	1.3	1.1	0.9	1.8	2.4	2.3	2.2	2.2	2.4	2.6	2.7	2.8	3.0	3.0	2.5	3.9																						
25-Dec	3.1	2.9	2.7	2.9	2.6	1.8	1.5	1.3	1.4	1.2	0.9	0.6	0.7	0.5	0.5	0.4	0.5	0.7	0.8	0.7	0.7	0.8	0.9	0.7	1.3	3.1																						
26-Dec	0.6	0.7	0.8	0.9	1.1	1.3	1.4	1.4	1.9	2.3	2.8	3.2	2.9	2.3	2.4	2.8	3.0	3.3	2.9	2.5	2.4	2.8	4.7	5.3	2.3	5.3																						
27-Dec	5.0	5.1	5.9	7.1	6.1	5.3	4.6	5.3	5.1	4.4	4.9	5.0	4.3	4.3	4.1	4.3	3.8	3.6	3.4	3.2	3.9	3.6	3.7	3.9	4.6	7.1																						
28-Dec	4.0	3.5	2.2	3.3	4.5	3.5	2.8	2.6	2.5	2.9	2.8	3.0	3.4	3.1	3.4	3.9	4.3	3.3	2.9	3.3	2.9	2.5	2.3	2.0	3.1	4.5																						
29-Dec	2.3	2.5	2.5	2.5	2.3	2.2	2.6	2.7	2.7	2.6	2.2	1.8	1.7	1.9	2.4	2.7	3.0	2.7	2.2	1.9	2.1	2.3	1.8	2.6	2.3	3.0																						
30-Dec	2.6	1.9	1.4	1.6	1.7	1.7	1.8	1.6	1.5	1.4	1.3	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.6	1.8	1.9	2.0	2.1	1.9	1.6	2.6																						
31-Dec	1.9	1.8	2.1	2.1	2.0	1.9	1.7	1.7	1.8	1.9	2.1	2.2	2.2	2.2	2.2	2.1	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.1	2.4																						
																								5.0	4.6	4.4	4.7	4.5	4.2	4.2	4.1	4.1	4.1	4.3	4.4	4.5	4.4	4.3	4.2	4.6	4.9	4.7	4.6	5.2	5.0	5.0	5.1	Diurnal Average
																								24.9	20.7	16.5	21.1	19.9	18.4	14.1	12.0	13.2	13.4	14.2	15.5	15.4	12.8	13.9	14.6	18.7	25.4	22.7	20.0	31.0	22.4	19.3	22.6	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}) - $\mu\text{g}/\text{m}^3$
Stony Mountain - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	549	73.99	73.99
6 - 15	179	24.12	98.11
16 - 25	13	1.75	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Stony Mountain - December 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	10	3	3	1	4	11	32	41	55	66	34	37	55	46	107	42	547
6 - 15	2	1	2	14	4	0	0	1	7	80	22	10	10	8	6	2	169
16 - 25	0	0	1	2	1	0	1	0	1	5	1	1	0	0	0	0	13
26 - 80	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	12	4	6	17	9	11	33	42	63	152	57	48	65	54	113	44	730

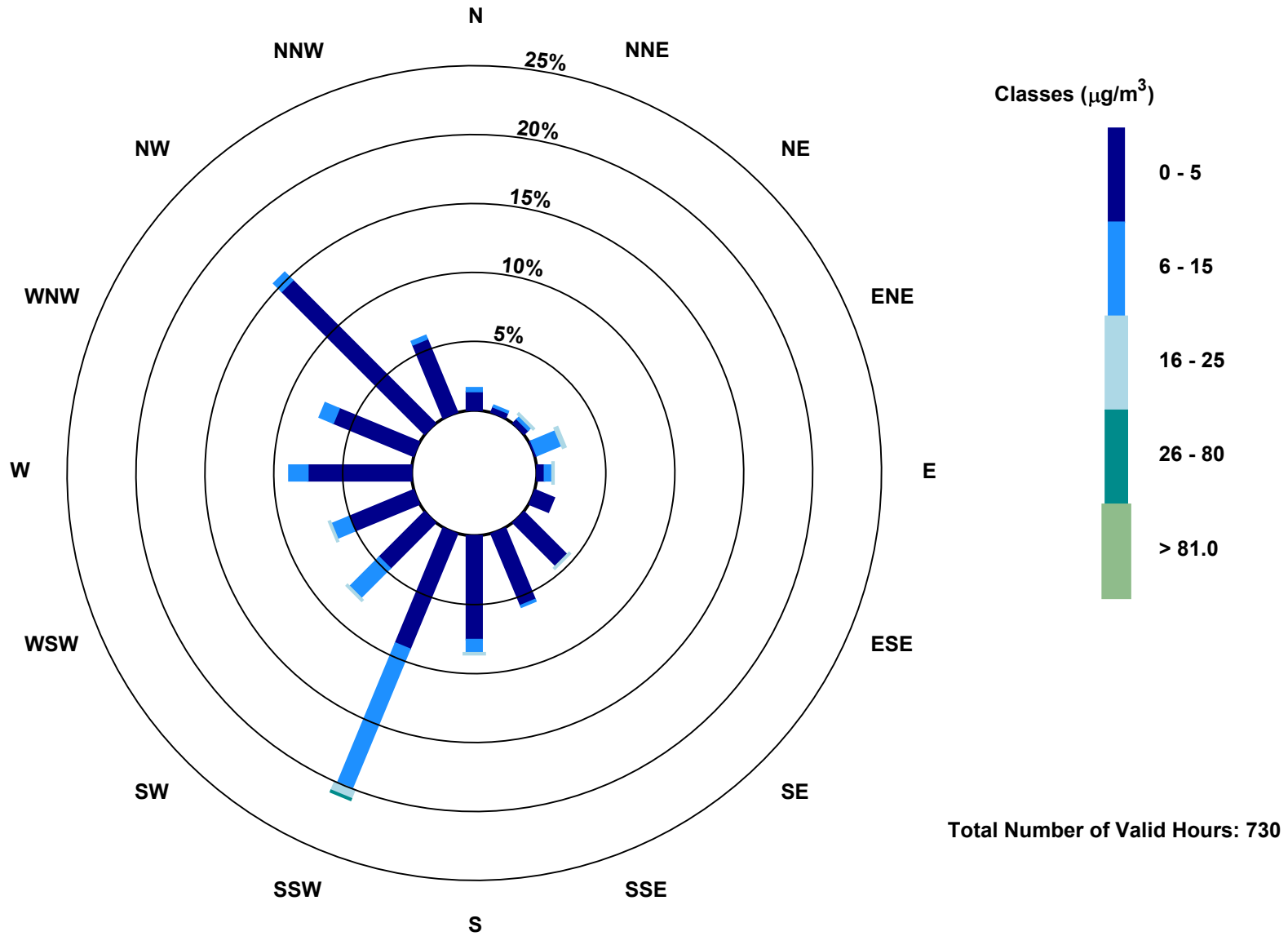
Total Number of Valid Hours: 730

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Averages

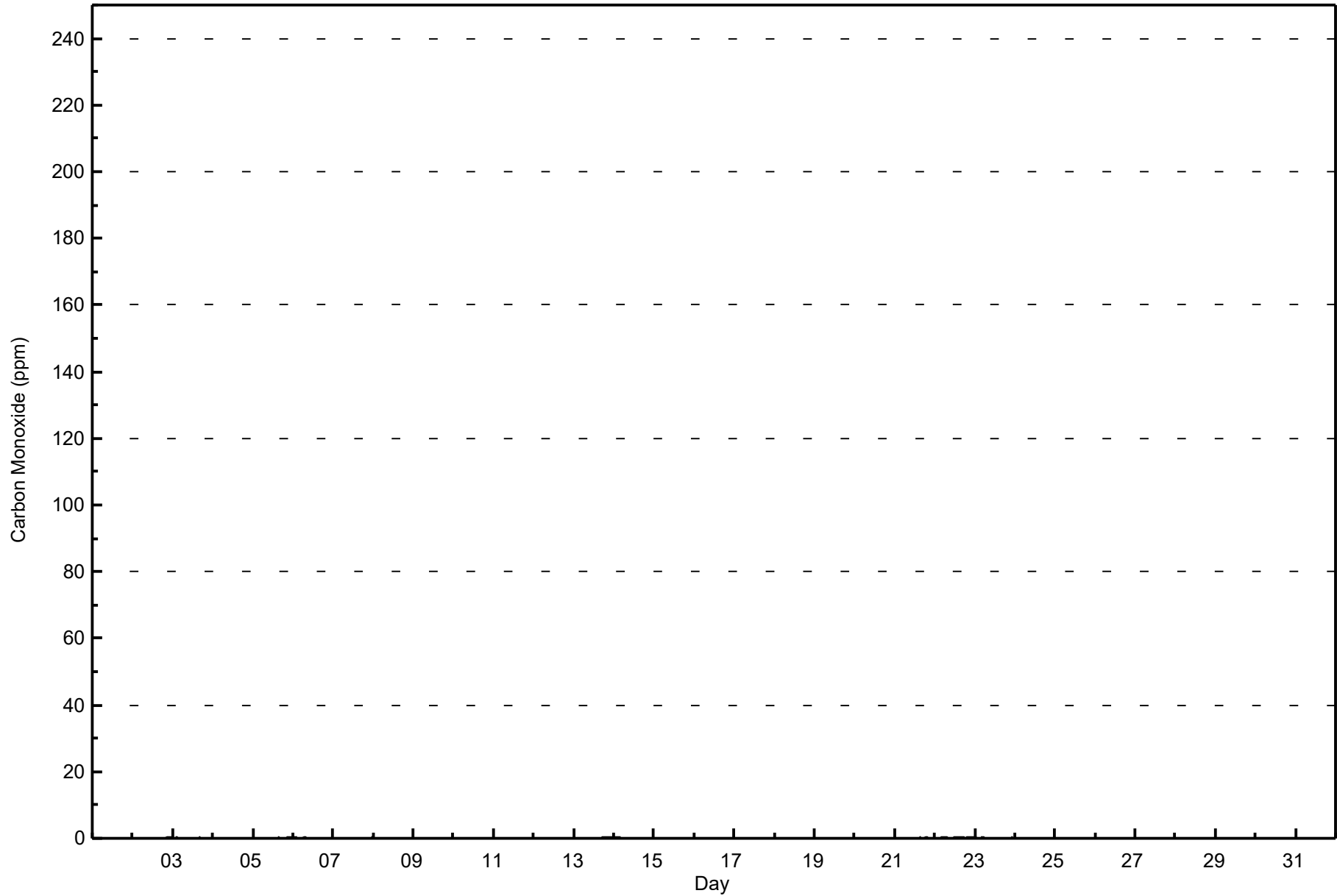
Carbon Monoxide (CO) - ppm
Stony Mountain - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0		Hours in Service: 744																									
Maximum Value: 0.3 ppm on Dec 22 17:00		Maximum Daily Average: 0.2 ppm on Dec 22																									
Minimum Value: 0.1 ppm on Dec 17 17:00		Hours of Data: 709																									
Maximum Diurnal Average: 0.2 ppm at hour 2		Hours of Missing Data: 35																									
Monthly Average: 0.18 ppm		Hours of Calibration: 35																									
		Percent Operational Time: 100.0																									
		Minimum Daily Average: 0.1 ppm on Dec 17																									
		Minimum Diurnal Average: 0.2 ppm at hour 9																									
		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.2 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-Dec	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
2-Dec	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
3-Dec	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
4-Dec	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
5-Dec	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	0.3	0.3	0.2	0.3
6-Dec	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
7-Dec	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
8-Dec	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
9-Dec	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
10-Dec	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
11-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
12-Dec	0.1	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
13-Dec	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	0.3	0.2	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.2
14-Dec	0.3	0.3	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
15-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
16-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2
17-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	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
18-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
19-Dec	0.2	0.2	0.2	0.2	Z	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	0.2	0.2	0.2	0.2	0.2
20-Dec	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
21-Dec	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
22-Dec	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	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3
23-Dec	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
24-Dec	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
25-Dec	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
26-Dec	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
27-Dec	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
28-Dec	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
29-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2
30-Dec	0.1	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
31-Dec	0.1	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2
																								Diurnal Average			
																								Diurnal Maximum			
																								0.2			
																								0.3			
Z - zerospan C - Calibration																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 13 ppm																											



Wood Buffalo Environmental Association
Hourly Averages

Carbon Monoxide (CO) - ppm
Stony Mountain - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Monoxide (CO) - ppm
Stony Mountain - December 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 - December 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	12	4	6	16	9	11	30	41	63	147	54	46	56	53	107	43	698
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	12	4	6	16	9	11	30	41	63	147	54	46	56	53	107	43	698

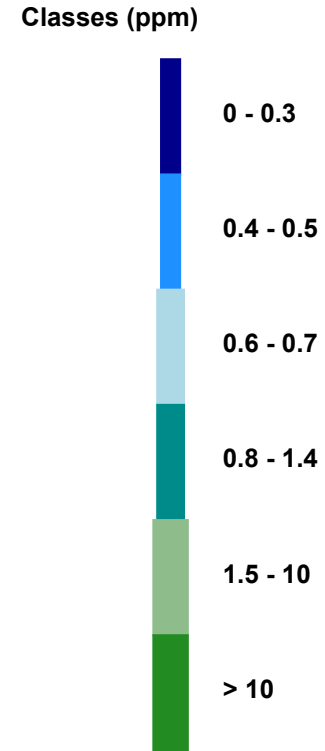
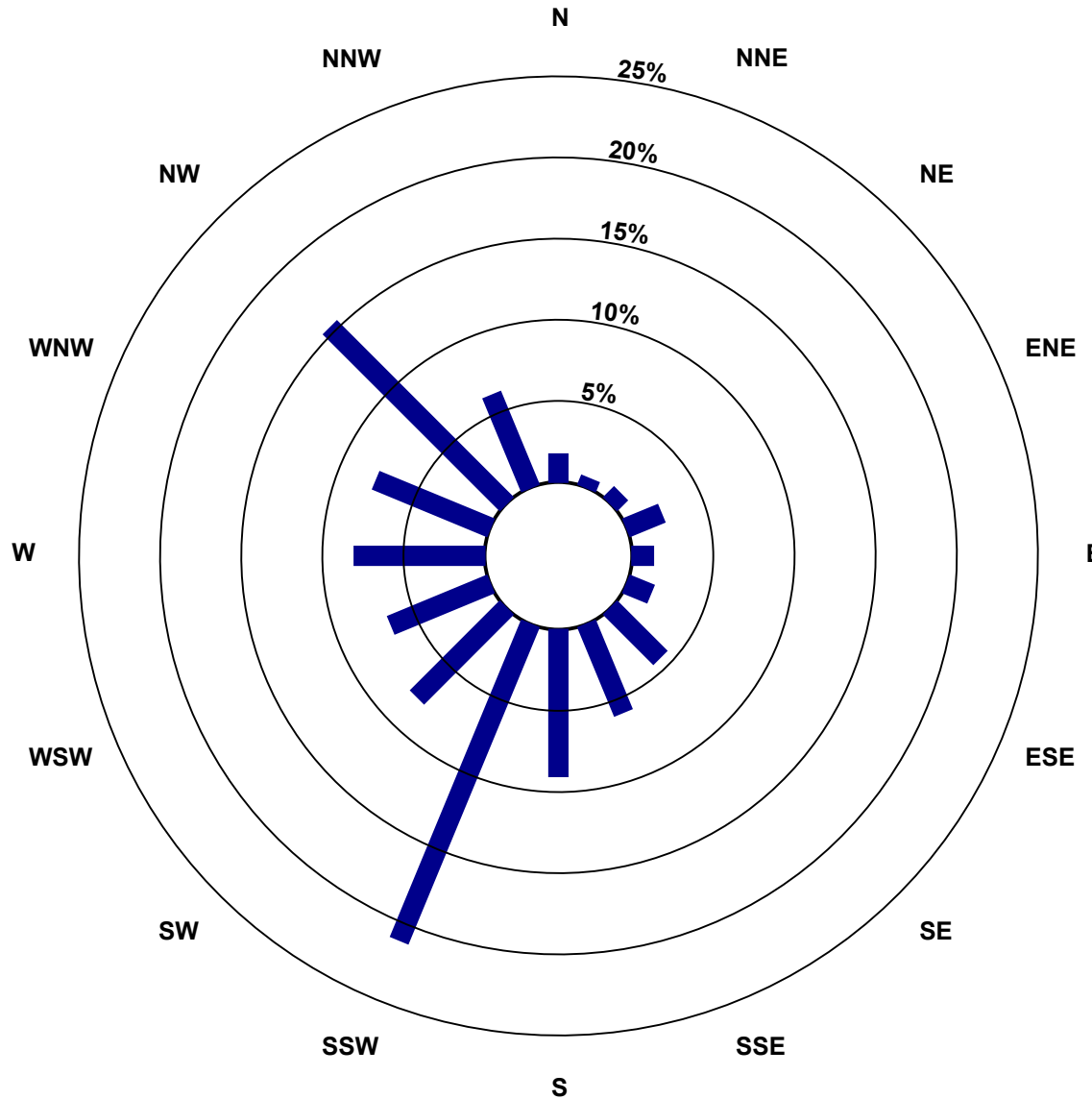
Total Number of Valid Hours: 698

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Carbon Monoxide (CO) - ppm
Stony Mountain



Total Number of Valid Hours: 698



Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 461.5 ppm on Dec 27 23:00	Maximum Daily Average: 455.5 ppm on Dec 27		Hours of Data:	709
Minimum Value: 432.9 ppm on Dec 17 22:00	Minimum Daily Average: 434.8 ppm on Dec 17		Hours of Missing Data:	35
Maximum Diurnal Average: 443.0 ppm at hour 14	Minimum Diurnal Average: 441.4 ppm at hour 3		Hours of Calibration:	35
Monthly Average: 442.13 ppm	Percentiles: P ₁ = 433.7 P ₁₀ = 436.3 Q ₁ = 438.0 Median = 441.1 Q ₃ = 445.7 P ₉₀ = 448.9 P ₉₉ = 458.2		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-Dec	442.2	442.7	442.3	441.4	441.9	Z	444.3	444.5	444.4	444.1	443.1	443.2	444.0	447.2	447.5	450.4	448.0	445.2	445.9	445.1	445.2	442.4	441.9	440.1	444.2	450.4
2-Dec	Z	440.7	440.7	442.0	440.5	440.7	441.9	442.5	443.0	443.4	443.7	444.2	444.5	445.0	445.2	445.0	444.9	445.3	445.8	446.6	447.2	448.8	448.7	446.3	444.2	448.8
3-Dec	442.7	Z	438.6	435.6	434.8	434.8	435.0	437.0	440.4	441.4	441.4	443.1	445.4	446.4	445.3	441.6	442.7	440.4	439.6	438.9	437.6	436.8	436.9	436.7	439.7	446.4
4-Dec	437.2	437.1	Z	437.4	438.0	438.9	438.1	438.5	440.4	441.2	440.3	440.1	442.7	442.0	439.6	439.5	438.2	436.7	437.0	436.9	437.2	437.6	437.5	437.8	438.7	442.7
5-Dec	438.0	438.4	438.9	Z	440.2	440.0	440.1	439.2	438.9	438.6	438.1	440.0	443.9	446.1	440.0	436.0	438.8	439.8	439.9	441.0	442.1	442.6	439.6	437.0	439.9	446.1
6-Dec	436.0	435.6	435.4	435.1	Z	435.0	436.9	438.6	437.8	437.1	437.3	434.4	434.8	435.3	435.0	435.4	435.3	435.7	435.7	436.1	436.4	436.8	437.0	437.1	436.1	438.6
7-Dec	437.3	437.5	437.3	437.1	437.4	Z	437.4	437.5	437.7	437.8	439.2	440.7	440.8	441.4	441.7	441.3	441.2	442.2	442.1	440.9	441.0	443.0	442.5	445.0	440.0	445.0
8-Dec	Z	445.5	447.0	445.9	445.1	443.7	442.4	442.3	444.8	446.9	447.8	448.6	446.3	442.8	441.1	439.4	439.1	438.8	438.1	437.9	437.6	437.7	437.7	437.5	442.3	448.6
9-Dec	437.3	Z	437.0	436.6	436.4	436.7	436.8	437.0	437.1	437.3	437.5	437.1	436.5	436.4	436.3	436.4	436.1	437.9	438.5	436.6	436.9	436.7	436.9	437.6	436.9	438.5
10-Dec	437.4	435.6	Z	435.9	436.0	436.0	436.0	436.5	436.1	435.7	435.9	435.9	436.9	435.5	434.8	434.9	434.6	436.5	435.6	436.2	438.0	439.8	441.5	442.9	436.7	442.9
11-Dec	441.1	439.5	439.6	Z	439.5	440.6	441.5	442.2	441.9	443.5	440.3	439.0	439.3	441.0	441.0	440.1	437.0	437.4	437.6	437.4	437.7	438.3	438.9	439.4	439.7	443.5
12-Dec	439.3	439.2	438.0	437.4	Z	437.2	437.1	437.9	438.1	438.0	438.5	438.7	439.4	440.1	441.6	439.9	439.8	440.2	440.3	440.7	440.9	440.9	440.5	440.5	439.3	441.6
13-Dec	440.8	441.2	441.4	441.9	441.9	Z	443.2	443.7	443.5	443.3	443.3	444.0	444.4	444.7	444.9	445.0	445.5	448.5	447.9	447.6	448.3	447.2	447.8	448.2	444.7	448.5
14-Dec	Z	449.1	449.1	451.6	451.4	451.4	451.8	452.4	451.9	451.9	451.5	451.5	450.8	450.9	449.8	447.9	446.1	445.7	446.0	446.5	446.7	447.1	446.3	445.8	449.3	452.4
15-Dec	445.1	Z	445.1	445.0	444.4	445.0	445.2	446.3	445.3	445.0	445.2	445.1	444.7	443.3	441.6	440.6	439.8	439.7	439.9	440.4	440.2	438.9	438.6	443.0	443.0	446.3
16-Dec	438.4	438.2	Z	438.5	437.8	437.2	437.7	437.4	437.0	436.9	436.9	436.8	436.7	436.8	436.9	436.7	436.2	435.8	435.7	435.5	435.3	435.1	435.1	435.0	436.7	438.5
17-Dec	434.9	435.2	434.9	Z	434.8	434.7	434.3	434.3	434.3	434.1	434.2	433.8	436.9	439.6	441.1	435.5	433.3	433.6	433.6	433.6	433.3	432.9	433.4	433.4	434.8	441.1
18-Dec	433.8	434.2	434.7	434.9	Z	437.3	439.5	442.2	444.1	440.9	440.3	439.9	Z	Z	Z	Z	438.2	438.2	438.4	438.7	439.5	439.1	439.4	449.9	439.1	449.9
19-Dec	450.5	443.0	440.5	436.4	436.0	Z	435.7	436.8	437.4	436.6	436.6	436.3	436.6	436.3	436.2	436.7	436.7	437.4	438.8	438.4	437.4	438.2	440.7	442.8	438.3	450.5
20-Dec	Z	443.7	440.5	439.0	440.5	440.1	439.3	440.3	439.9	438.5	439.3	441.0	441.6	442.2	439.5	440.0	440.3	440.4	440.3	440.4	441.1	442.1	442.3	443.1	440.7	443.7
21-Dec	443.4	Z	443.8	443.4	442.8	443.7	444.4	444.8	446.3	445.8	446.2	446.2	446.0	445.0	446.8	447.3	447.3	447.1	447.3	447.3	447.3	446.5	447.2	448.8	445.9	448.8
22-Dec	447.6	447.2	Z	449.5	449.2	448.6	450.0	448.8	447.8	447.9	448.8	449.0	450.0	449.5	451.0	450.2	450.2	448.5	446.8	446.9	447.2	447.4	447.7	447.8	448.6	451.0
23-Dec	447.0	447.9	449.3	Z	450.7	448.7	443.9	443.6	443.5	443.3	443.1	443.6	442.9	443.2	443.0	442.8	443.3	443.5	443.4	444.3	444.2	442.3	445.8	443.5	444.6	450.7
24-Dec	440.4	437.4	437.8	442.4	Z	442.0	440.9	441.1	440.4	439.4	439.3	439.0	440.1	441.7	441.6	441.5	443.2	443.9	445.7	445.7	445.0	444.0	442.4	443.0	441.7	445.7
25-Dec	443.0	443.1	442.6	442.7	442.5	Z	443.8	441.3	441.2	439.4	439.5	440.1	440.8	441.0	438.7	437.7	438.3	438.6	439.0	439.2	439.1	440.2	440.7	441.3	440.6	443.8
26-Dec	Z	441.0	441.6	443.7	445.1	445.1	446.4	447.1	447.3	447.6	447.9	446.5	444.5	445.5	444.2	444.7	445.4	446.4	445.1	444.6	447.6	447.8	449.9	445.8	445.7	449.9
27-Dec	445.8	Z	448.7	448.0	451.5	454.8	456.8	455.3	455.3	458.3	457.4	456.1	452.6	454.0	454.2	456.0	455.9	456.4	458.4	459.5	459.9	461.0	461.5	459.2	455.5	461.5
28-Dec	459.3	453.6	Z	451.0	453.9	453.6	451.1	448.9	447.8	449.4	450.8	449.7	448.8	449.4	449.9	450.6	452.5	452.0	450.8	449.9	449.0	448.6	446.4	444.9	450.5	459.3
29-Dec	446.1	447.4	448.6	Z	451.6	451.9	449.4	449.5	448.9	449.5	447.5	447.3	447.6	447.8	448.0	448.4	446.3	446.1	447.4	447.3	447.8	447.9	447.7	446.5	448.1	451.9
30-Dec	446.2	443.6	442.3	444.3	Z	442.2	442.0	442.6	442.8	443.0	443.2	440.0	440.8	439.9	438.8	438.9	439.8	439.6	438.7	439.7	440.4	440.8	439.3	437.9	441.2	446.2
31-Dec	439.1	439.4	439.9	440.3	440.5	Z	440.4	438.4	437.1	438.1	438.3	436.5	437.5	438.4	436.7	437.2	438.1	438.9	439.4	440.0	440.5	440.6	440.2	440.3	438.9	440.6

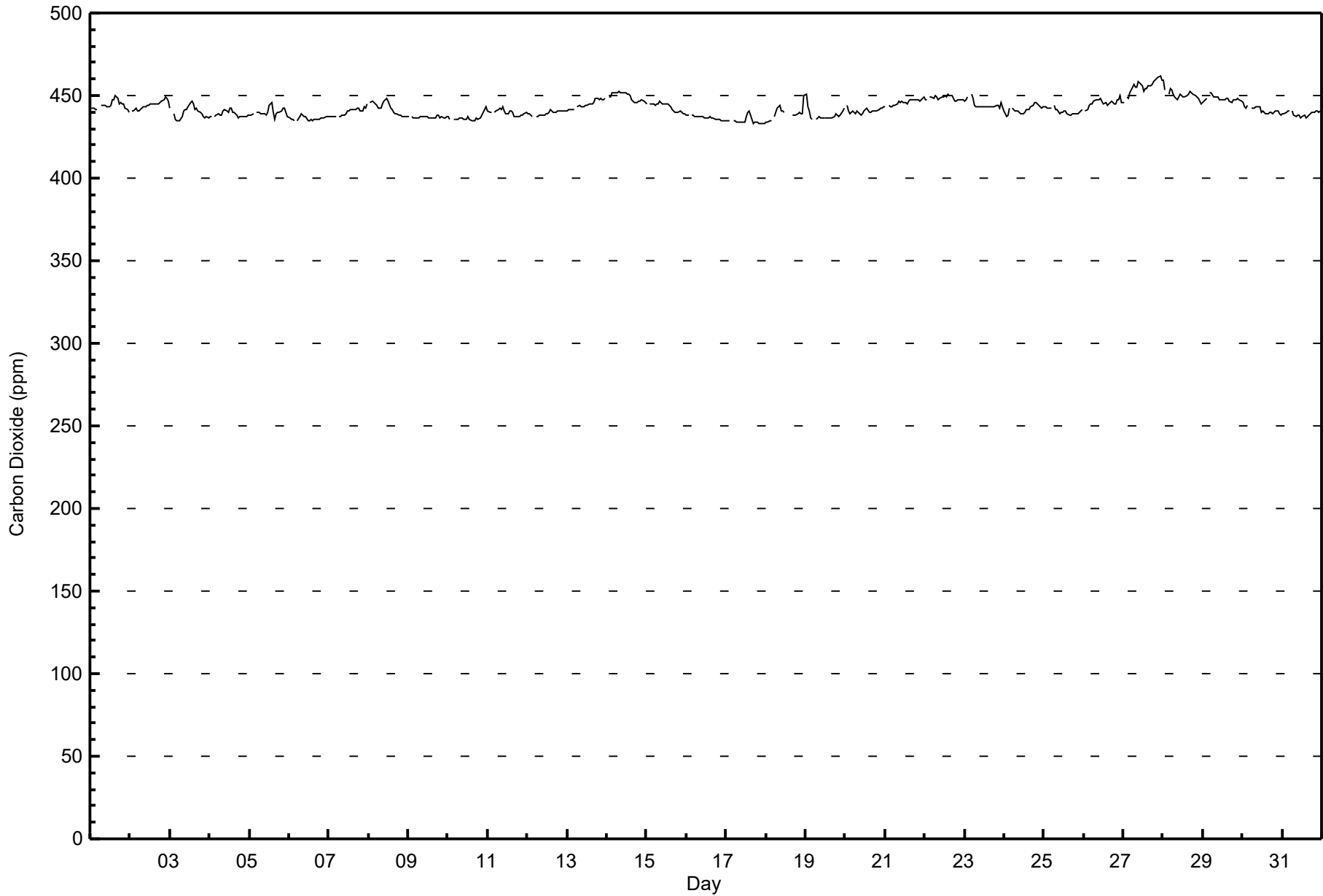
441.9	441.4	441.4	441.4	442.5	442.4	442.0	442.2	442.4	442.4	442.3	442.2	442.6	443.0	442.5	442.0	441.7	441.8	441.9	441.9	442.2	442.3	442.3	442.4	Diurnal Average	
459.3	453.6	449.3	451.6	453.9	454.8	456.8	455.3	455.3	458.3	457.4	456.1	452.6	454.0	454.2	456.0	455.9	456.4	458.4	459.5	459.9	461.0	461.5	459.2	Diurnal Maximum	

Z - zerospan C - Calibration



Wood Buffalo Environmental Association
Hourly Averages

Carbon Dioxide (CO₂) - ppm
Stony Mountain - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Stony Mountain - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
400 - 420	0	0.00	0.00
420 - 440	324	45.70	45.70
440 - 460	383	54.02	99.72
460 - 480	2	0.28	100.00
480 - 500	0	0.00	100.00
> 500	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Carbon Dioxide (CO₂) - ppm
Stony Mountain - December 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	6	1	2	2	1	4	23	26	25	26	18	41	50	22	58	15	320
440 - 460	4	3	3	15	8	7	8	14	37	119	37	5	11	28	49	27	375
460 - 480	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
480 - 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	4	5	17	9	11	31	40	62	147	55	46	61	50	107	42	697

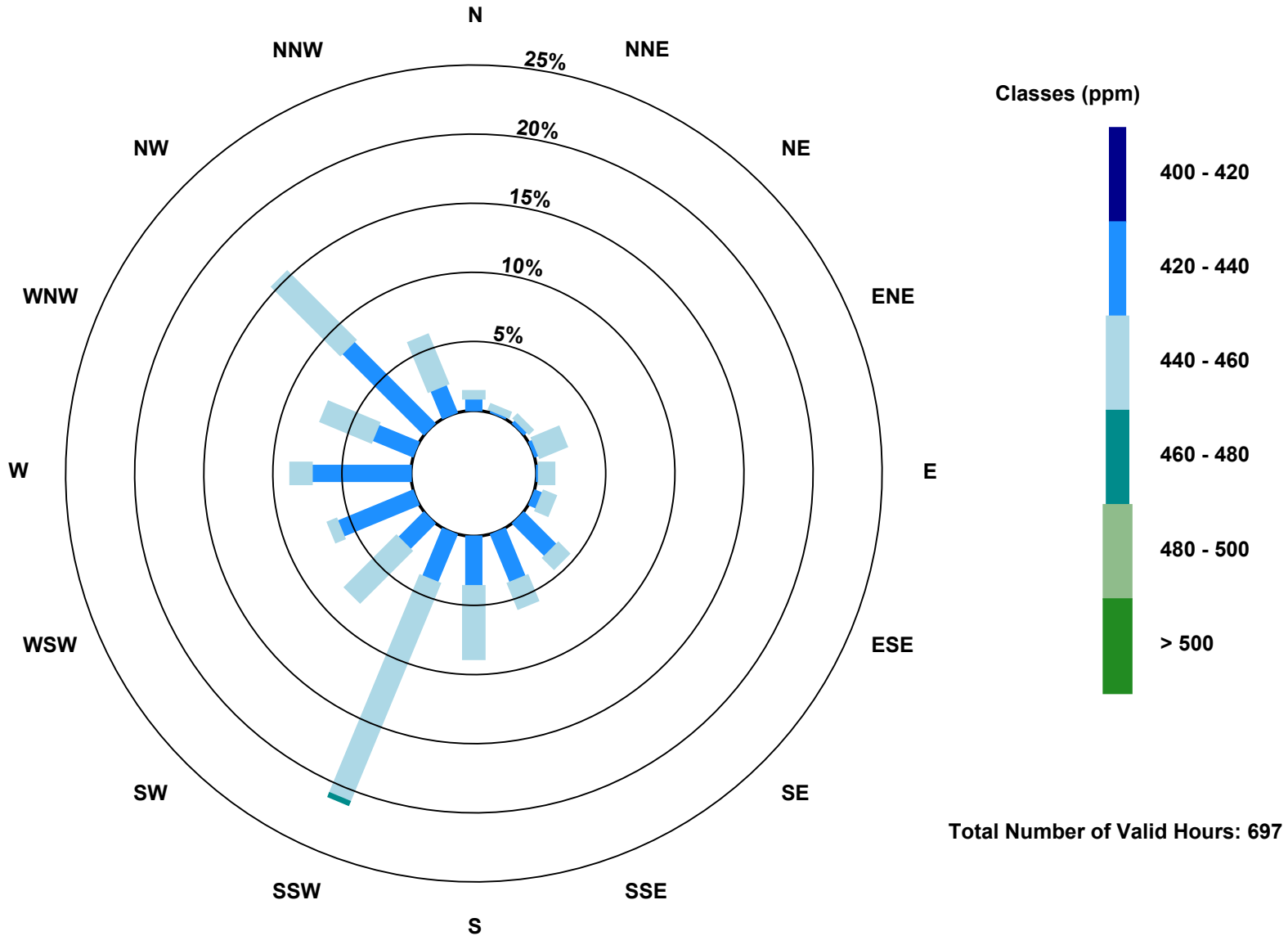
Total Number of Valid Hours: 697

Total Number of Hours: 744



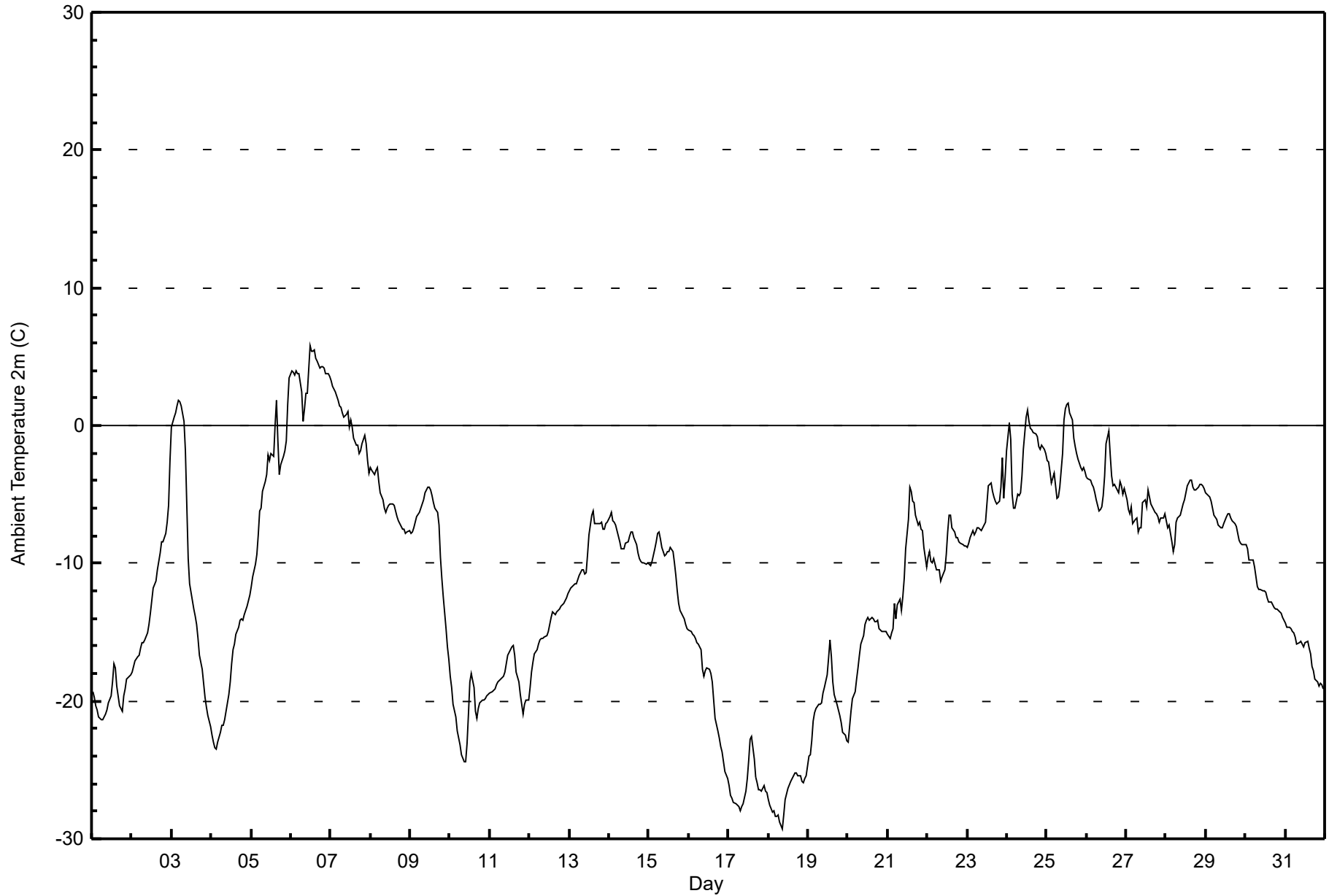
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Carbon Dioxide (CO₂) - ppm
Stony Mountain





Maximum Value: 5.8 C on Dec 6 12:00		Maximum Daily Average: 3.8 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -29.3 C on Dec 18 09:00		Minimum Daily Average: -26.8 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -9.4 C at hour 14		Minimum Diurnal Average: -11.8 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -11.13 C		Percentiles: P ₁ = -28.0 P ₁₀ = -22.1 Q ₁ = -17.5 Median = -9.7 Q ₃ = -5.4 P ₉₀ = -1.4 P ₉₉ = 4.2		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-Dec	-19.3	-19.8	-20.3	-20.7	-21.1	-21.3	-21.3	-21.1	-21.0	-20.6	-20.2	-19.6	-18.6	-17.3	-17.6	-18.9	-20.3	-20.5	-20.7	-19.7	-19.1	-18.4	-18.2	-18.1	-19.7	-17.3																						
2-Dec	-17.9	-17.5	-17.1	-16.8	-16.7	-16.1	-15.7	-15.8	-15.6	-15.1	-14.5	-13.6	-12.7	-11.8	-11.3	-10.5	-9.8	-9.3	-8.5	-8.4	-7.9	-7.0	-5.8	-2.6	-12.4	-2.6																						
3-Dec	-0.1	0.6	0.9	1.4	1.9	1.8	1.4	0.3	-1.8	-5.8	-9.7	-11.5	-12.7	-13.3	-13.8	-14.4	-15.5	-16.7	-17.7	-18.7	-19.7	-20.4	-21.1	-21.8	-9.4	1.9																						
4-Dec	-22.5	-23.0	-23.4	-23.5	-23.0	-22.3	-21.8	-21.4	-20.7	-19.5	-18.6	-17.3	-16.3	-15.9	-15.2	-14.6	-14.2	-14.0	-14.1	-13.7	-13.1	-12.7	-12.3	-12.3	-18.1	-12.3																						
5-Dec	-11.7	-10.9	-10.1	-9.4	-7.9	-6.3	-6.0	-4.7	-4.0	-3.5	-2.1	-2.5	-2.1	-2.2	0.0	1.8	-1.1	-3.6	-2.9	-2.3	-1.8	-1.1	1.5	3.4	-3.7	3.4																						
6-Dec	4.0	3.9	3.7	4.0	3.7	3.8	2.4	0.3	1.3	2.3	2.4	5.8	5.4	5.4	5.5	4.8	4.7	4.2	4.2	4.3	4.1	3.8	3.8	3.6	3.8	5.8																						
7-Dec	3.3	2.9	2.6	2.5	1.9	1.4	1.3	0.9	0.6	0.9	1.0	-0.1	0.4	-0.1	-0.9	-1.4	-1.4	-2.0	-1.8	-1.3	-0.7	-1.3	-2.5	-3.4	0.1	3.3																						
8-Dec	-3.0	-3.3	-3.5	-3.3	-3.0	-4.0	-4.9	-5.4	-6.0	-6.3	-6.0	-5.8	-5.7	-5.7	-5.8	-6.2	-6.6	-6.9	-7.3	-7.6	-7.6	-7.8	-7.7	-7.6	-5.7	-3.0																						
9-Dec	-7.9	-7.7	-7.5	-7.1	-6.6	-6.3	-6.0	-5.7	-5.4	-4.9	-4.5	-4.5	-4.7	-5.1	-5.6	-6.0	-6.3	-7.2	-9.6	-11.1	-12.4	-14.7	-16.1	-17.0	-7.9	-4.5																						
10-Dec	-18.2	-19.0	-20.2	-21.2	-22.1	-22.7	-23.1	-23.9	-24.4	-24.4	-23.0	-20.9	-18.6	-18.0	-19.0	-20.7	-21.3	-20.6	-20.2	-20.0	-19.9	-19.8	-19.6	-19.6	-20.9	-18.0																						
11-Dec	-19.4	-19.4	-19.2	-19.1	-18.8	-18.6	-18.4	-18.3	-18.2	-17.9	-17.3	-16.7	-16.3	-16.0	-16.0	-16.7	-17.9	-18.7	-19.5	-20.3	-21.0	-20.2	-20.0	-19.9	-18.5	-16.0																						
12-Dec	-19.0	-17.9	-17.2	-16.6	-16.2	-15.8	-15.6	-15.5	-15.4	-15.4	-15.3	-14.9	-14.4	-13.9	-13.5	-13.7	-13.5	-13.5	-13.3	-13.2	-12.9	-12.7	-12.5	-12.2	-14.8	-12.2																						
13-Dec	-12.0	-11.8	-11.6	-11.5	-11.5	-11.2	-10.9	-10.5	-10.5	-10.7	-10.6	-9.3	-7.9	-6.5	-6.3	-7.1	-7.1	-7.2	-7.1	-7.0	-7.6	-7.5	-7.1	-7.0	-9.1	-6.3																						
14-Dec	-6.6	-6.3	-6.9	-7.1	-7.2	-8.1	-8.4	-8.9	-8.9	-8.9	-8.6	-8.5	-8.1	-7.7	-7.7	-8.2	-8.7	-9.2	-9.6	-9.8	-10.0	-10.0	-10.1	-10.0	-8.5	-6.3																						
15-Dec	-10.0	-10.2	-9.9	-9.0	-8.5	-7.8	-7.7	-8.3	-8.9	-9.5	-9.4	-9.2	-9.1	-8.8	-9.2	-10.0	-10.9	-12.0	-12.9	-13.5	-13.8	-14.0	-14.4	-14.7	-10.5	-7.7																						
16-Dec	-14.8	-15.0	-15.2	-15.3	-15.5	-15.8	-15.9	-16.3	-17.7	-18.2	-17.8	-17.6	-17.7	-18.0	-18.6	-19.9	-21.2	-22.2	-22.7	-23.3	-23.7	-24.4	-25.1	-25.7	-19.1	-14.8																						
17-Dec	-26.1	-26.8	-27.1	-27.4	-27.5	-27.5	-27.7	-28.0	-27.6	-27.4	-26.5	-25.6	-24.3	-22.7	-22.6	-24.2	-25.5	-26.0	-26.5	-26.5	-26.6	-26.1	-26.6	-26.6	-26.2	-22.6																						
18-Dec	-27.2	-27.6	-28.0	-28.0	-28.4	-28.3	-28.3	-28.8	-29.3	-28.3	-27.1	-26.7	-26.3	-25.9	-25.6	-25.4	-25.2	-25.3	-25.5	-25.4	-25.9	-25.9	-25.6	-25.4	-26.8	-25.2																						
19-Dec	-24.0	-23.9	-22.9	-21.4	-20.8	-20.6	-20.3	-20.2	-20.2	-19.4	-19.0	-18.1	-16.9	-15.5	-16.8	-18.7	-19.5	-20.2	-20.7	-21.1	-21.5	-22.2	-22.4	-22.9	-20.4	-15.5																						
20-Dec	-23.0	-21.9	-20.7	-19.8	-19.3	-18.4	-17.5	-16.6	-15.8	-15.3	-14.4	-14.2	-13.9	-14.1	-13.9	-14.1	-14.2	-14.3	-14.1	-14.7	-15.0	-14.9	-15.0	-15.0	-16.3	-13.9																						
21-Dec	-15.2	-15.4	-15.1	-14.7	-12.9	-14.0	-13.0	-12.6	-13.4	-12.4	-11.1	-9.0	-6.9	-4.4	-4.8	-5.5	-5.5	-6.6	-7.3	-7.0	-7.6	-7.6	-8.9	-10.3	-10.0	-4.4																						
22-Dec	-9.6	-9.1	-9.9	-10.0	-9.7	-10.5	-10.5	-10.5	-11.2	-11.0	-10.5	-9.4	-7.7	-6.6	-6.5	-7.4	-7.8	-8.1	-8.2	-8.5	-8.5	-8.6	-8.7	-8.7	-9.0	-6.5																						
23-Dec	-8.8	-8.6	-8.2	-7.7	-8.0	-7.7	-7.4	-7.5	-7.6	-7.5	-7.2	-7.0	-5.7	-4.4	-4.2	-4.8	-5.2	-5.5	-5.7	-5.5	-4.5	-2.4	-5.3	-3.7	-6.2	-2.4																						
24-Dec	-1.9	0.2	-1.0	-5.0	-6.0	-6.0	-5.0	-5.1	-4.8	-3.6	-1.7	0.6	1.1	0.3	-0.2	-0.3	-0.5	-0.6	-0.8	-1.5	-1.7	-1.4	-1.7	-2.0	-2.0	1.1																						
25-Dec	-2.5	-2.6	-3.4	-4.1	-3.5	-4.3	-5.3	-5.2	-4.4	-2.1	0.4	1.3	1.6	1.6	0.9	0.4	-0.9	-1.6	-2.0	-2.5	-3.1	-3.3	-3.1	-3.4	-2.1	1.6																						
26-Dec	-3.8	-3.9	-4.0	-4.3	-4.4	-4.9	-5.4	-6.2	-6.1	-5.9	-5.1	-3.7	-1.3	-0.4	-2.2	-3.7	-4.4	-4.3	-4.7	-4.9	-4.1	-4.4	-5.0	-4.5	-4.2	-0.4																						
27-Dec	-5.4	-6.1	-6.4	-5.9	-7.1	-6.8	-6.7	-7.7	-7.4	-7.4	-5.6	-5.3	-5.9	-4.7	-5.1	-5.7	-6.1	-6.3	-6.4	-6.6	-7.0	-6.7	-6.7	-6.4	-6.3	-4.7																						
28-Dec	-6.9	-7.4	-7.2	-8.5	-9.1	-8.7	-7.0	-6.8	-6.5	-6.1	-5.7	-5.4	-4.9	-4.4	-4.0	-4.0	-4.5	-4.7	-4.7	-4.5	-4.3	-4.2	-4.3	-4.6	-5.8	-4.0																						
29-Dec	-4.9	-5.1	-5.2	-5.4	-6.0	-6.5	-6.9	-7.2	-7.4	-7.5	-7.4	-7.1	-6.6	-6.4	-6.4	-6.7	-6.9	-7.1	-7.3	-7.8	-8.4	-8.6	-8.6	-8.6	-6.9	-4.9																						
30-Dec	-8.6	-9.0	-9.8	-9.8	-9.8	-10.3	-10.9	-11.7	-11.9	-11.9	-12.0	-12.0	-12.1	-12.5	-12.9	-12.8	-13.0	-13.2	-13.3	-13.3	-13.5	-13.6	-13.9	-14.1	-11.9	-8.6																						
31-Dec	-14.4	-14.6	-14.7	-14.7	-14.9	-15.1	-15.4	-15.8	-15.7	-15.6	-15.9	-16.1	-15.8	-15.6	-16.1	-16.6	-17.4	-17.8	-18.4	-18.7	-18.9	-18.8	-18.8	-19.1	-16.5	-14.4																						
																								-11.5	-11.5	-11.6	-11.6	-11.6	-11.6	-11.5	-11.8	-11.8	-11.6	-11.1	-10.5	-9.9	-9.4	-9.5	-10.0	-10.6	-11.0	-11.3	-11.4	-11.5	-11.5	-11.7	-11.6	Diurnal Average
																								4.0	3.9	3.7	4.0	3.7	3.8	2.4	0.9	1.3	2.3	2.4	5.8	5.4	5.4	5.5	4.8	4.7	4.2	4.2	4.3	4.1	3.8	3.8	3.6	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Stony Mountain - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	117	15.73	15.73
-20 - 0	570	76.61	92.34
0 - 10	57	7.66	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

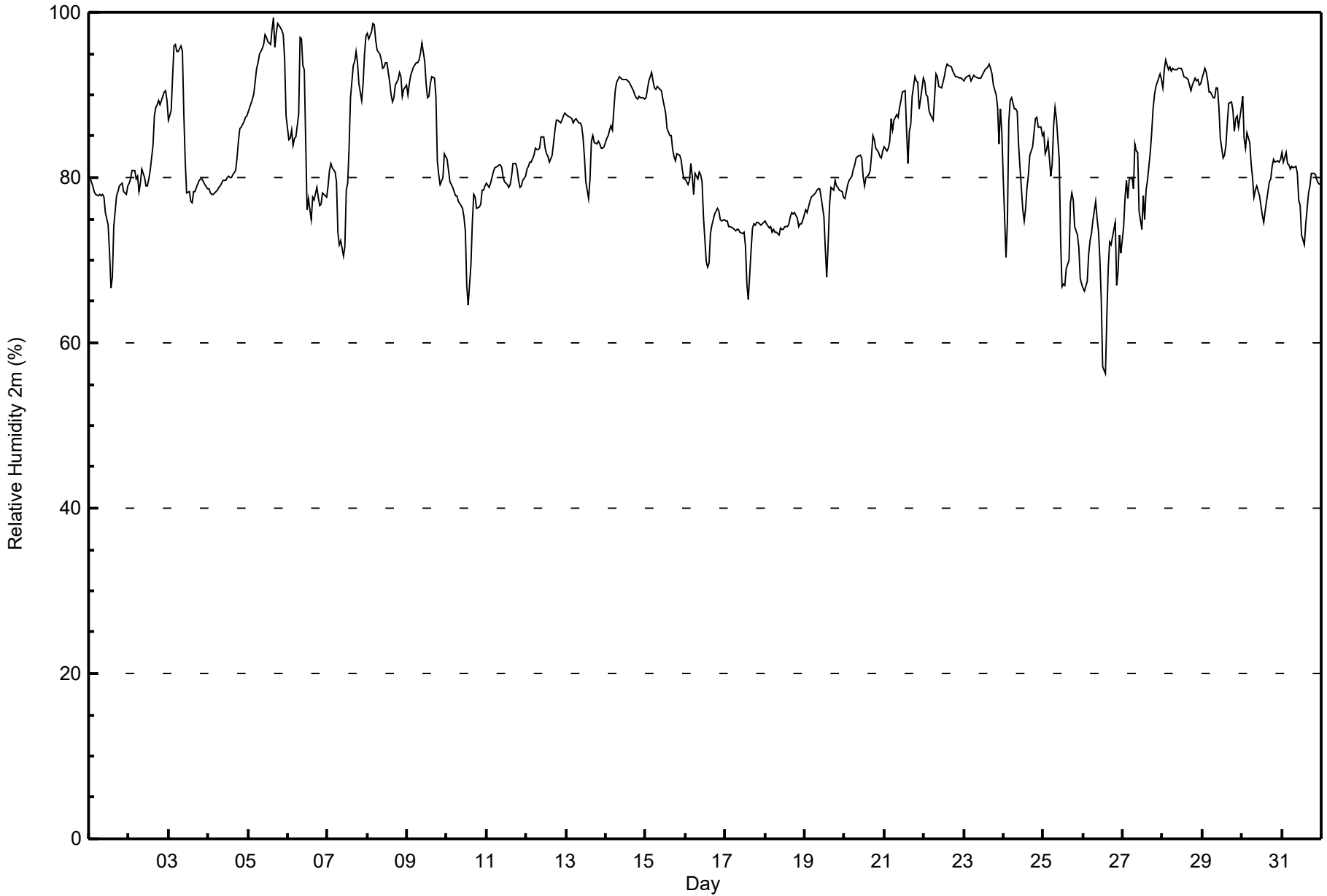
Relative Humidity 2m (RH2) - %
Stony Mountain - December 2024

Maximum Value: 99.4 % on Dec 5 16:00																								Hours in Service: 744			
Maximum Daily Average: 94.7 % on Dec 5																								Hours of Data: 744			
Minimum Value: 56.3 % on Dec 26 14:00																								Hours of Missing Data: 0			
Minimum Daily Average: 69.6 % on Dec 26																								Hours of Calibration: 0			
Maximum Diurnal Average: 85.1 % at hour 9																								Percent Operational Time: 100.0			
Minimum Diurnal Average: 79.0 % at hour 14																											
Monthly Average: 83.13 %																											
Percentiles: P ₁ = 66.6 P ₁₀ = 74.0 Q ₁ = 78.0 Median = 82.3 Q ₃ = 89.8 P ₉₀ = 92.8 P ₉₉ = 97.6																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	80.0	79.5	78.9	78.3	77.9	77.8	77.9	77.9	78.0	77.7	75.8	74.2	70.9	66.6	68.0	74.1	77.8	78.4	78.9	79.1	79.4	78.2	77.9	79.0	76.8	80.0	
2-Dec	79.3	79.8	80.8	80.9	79.7	80.1	78.3	79.4	80.9	80.0	78.9	78.9	79.9	80.8	83.9	87.5	88.6	88.9	89.4	88.8	89.8	90.4	90.5	89.2	83.5	90.5	
3-Dec	87.0	88.2	92.2	96.0	96.1	95.3	95.3	95.9	95.3	87.8	82.1	78.1	78.3	77.1	76.9	78.3	78.2	78.8	79.7	79.9	79.8	79.5	79.2	78.7	84.7	96.1	
4-Dec	78.6	78.2	78.0	77.9	78.2	78.4	78.9	78.9	79.4	79.7	79.6	80.0	80.2	79.9	80.0	80.3	80.8	82.4	84.4	85.9	86.1	86.7	87.2	87.5	81.1	87.5	
5-Dec	87.9	88.5	89.4	90.1	91.7	93.2	93.8	95.0	95.6	96.1	97.2	96.9	96.5	96.2	97.9	99.4	95.8	97.5	98.6	98.1	97.8	97.3	94.3	87.5	94.7	99.4	
6-Dec	84.5	84.8	85.8	84.0	84.7	85.0	87.7	96.9	96.8	93.5	93.0	76.0	77.4	76.0	74.9	77.6	77.3	78.8	77.6	76.6	76.7	78.1	77.8	77.7	82.5	96.9	
7-Dec	79.1	80.9	81.6	81.1	80.6	79.5	73.5	71.8	72.4	70.5	71.7	78.4	79.3	83.5	89.6	93.6	94.2	95.3	93.9	91.4	89.4	91.4	94.9	97.1	83.9	97.1	
8-Dec	97.4	96.9	97.7	98.6	98.5	96.6	95.5	94.9	94.3	93.2	93.5	93.9	91.5	89.9	89.2	89.7	91.3	91.9	92.8	92.1	89.8	90.6	91.2	93.5	98.6		
9-Dec	90.0	91.4	92.3	92.9	93.4	93.9	93.9	94.2	95.2	96.4	94.0	91.3	89.6	89.8	91.4	92.2	92.0	89.8	82.1	80.3	79.2	80.0	82.9	82.5	89.6	96.4	
10-Dec	82.1	80.9	79.6	78.9	78.2	77.9	77.8	77.1	76.6	76.3	75.2	73.5	67.0	64.6	69.5	74.6	77.9	77.7	76.3	76.4	76.8	78.4	78.4	79.0	76.3	82.1	
11-Dec	79.3	78.9	79.4	80.1	80.6	81.1	81.3	81.5	81.6	81.2	79.9	79.5	79.2	78.9	79.1	80.2	81.7	81.7	81.0	79.7	78.8	79.0	79.7	80.1	80.1	81.7	
12-Dec	81.1	81.4	81.8	81.9	82.7	83.6	83.5	83.3	83.5	85.0	84.9	83.5	82.8	82.5	81.8	82.8	84.3	85.8	86.9	86.9	86.7	87.0	87.4	87.8	84.1	87.8	
13-Dec	87.6	87.5	87.2	87.1	86.7	86.9	87.1	86.6	86.7	86.2	84.9	82.6	79.4	77.5	79.8	84.4	85.0	84.3	84.1	84.4	84.1	83.6	83.6	83.8	84.6	87.6	
14-Dec	84.8	85.0	85.8	86.3	85.7	90.4	91.5	91.8	92.3	92.1	91.9	91.9	91.8	91.8	91.4	91.2	90.6	90.0	89.7	89.6	89.8	89.6	89.6	89.5	89.7	92.3	
15-Dec	89.7	90.6	91.7	92.8	91.7	90.8	90.7	91.0	90.9	90.5	89.5	88.6	87.8	86.0	85.0	85.0	83.3	82.5	82.0	82.9	82.8	82.1	80.9	79.8	87.0	92.8	
16-Dec	79.8	79.1	79.7	81.8	80.2	78.0	80.5	79.8	80.7	80.3	79.6	75.2	69.8	69.2	69.6	73.2	74.3	75.6	76.0	76.4	76.0	74.9	74.8	74.9	76.6	81.8	
17-Dec	74.8	74.8	74.1	74.0	74.0	73.8	73.5	73.8	73.7	73.4	73.2	73.4	71.7	67.1	65.3	71.2	73.9	74.4	74.2	74.6	74.6	74.2	74.4	74.6	73.2	74.8	
18-Dec	74.8	74.3	73.9	74.1	73.4	73.7	73.3	73.3	73.1	73.9	73.8	73.7	74.1	74.1	74.4	75.3	75.8	75.6	75.7	75.1	74.0	74.3	74.4	74.9	74.3	75.8	
19-Dec	76.1	75.7	76.5	77.1	77.6	77.9	78.2	78.4	78.7	78.7	77.7	75.2	71.3	68.0	71.8	76.6	78.9	78.5	79.7	79.1	78.8	78.5	78.4	77.6	76.9	79.7	
20-Dec	77.5	78.3	79.2	79.7	80.2	80.9	81.6	82.3	82.5	82.7	82.3	80.1	78.9	79.9	80.4	80.9	82.7	85.2	84.5	83.6	83.1	82.6	82.4	83.3	81.4	85.2	
21-Dec	83.7	83.2	83.6	84.3	87.2	85.8	87.0	87.6	87.3	88.4	89.3	90.3	90.5	85.7	81.8	85.6	86.4	89.8	92.2	91.7	91.6	88.3	89.5	92.0	87.6	92.2	
22-Dec	91.4	89.9	89.9	88.1	87.6	87.0	89.6	92.6	92.1	91.0	90.9	91.6	92.3	93.3	93.7	93.6	93.4	92.9	92.5	92.3	92.1	92.1	92.0	91.9	91.4	93.7	
23-Dec	91.7	92.1	92.3	92.3	91.7	92.1	92.3	92.2	92.0	92.1	92.1	92.3	92.7	93.1	93.4	93.7	93.3	92.6	91.2	90.0	88.4	84.0	88.2	85.6	91.3	93.7	
24-Dec	80.0	70.4	74.6	86.7	89.4	89.7	88.3	88.3	87.9	83.9	81.2	76.2	74.7	76.4	78.8	80.3	82.7	83.8	85.4	87.2	87.2	86.0	86.1	85.0	82.9	89.7	
25-Dec	85.4	82.8	83.4	84.5	80.1	81.6	86.3	88.5	87.1	82.3	72.4	66.8	67.1	67.0	69.0	69.9	76.9	78.2	77.3	74.0	73.1	71.5	67.8	67.1	76.7	88.5	
26-Dec	66.6	66.3	67.4	70.7	72.3	73.2	74.7	77.1	75.1	73.5	70.1	65.3	57.1	56.3	63.2	69.2	72.3	71.8	73.7	74.7	66.9	68.6	73.1	70.8	69.6	77.1	
27-Dec	74.1	77.6	79.7	77.4	79.8	80.0	78.6	84.1	83.2	83.0	75.9	73.8	77.8	74.9	78.4	79.7	83.0	85.4	88.3	90.0	91.1	91.6	92.6	91.9	82.2	92.6	
28-Dec	90.8	93.0	94.3	93.1	93.4	92.8	93.2	93.0	93.1	93.2	93.2	93.2	93.2	92.8	92.2	92.0	91.9	91.1	90.5	91.2	92.0	91.7	91.8	91.2	91.3	92.3	94.3
29-Dec	92.1	93.2	92.7	91.8	90.4	90.3	89.7	89.7	90.9	90.8	88.4	84.7	82.4	82.7	83.9	86.5	89.0	89.2	88.2	85.6	87.2	87.5	86.0	88.5	88.4	93.2	
30-Dec	89.9	84.8	83.5	85.4	84.2	81.7	80.0	77.6	78.5	79.1	77.9	76.5	75.5	74.6	76.0	78.3	79.5	79.9	81.4	82.1	81.9	82.0	81.8	82.2	80.6	89.9	
31-Dec	83.0	81.8	83.0	81.8	81.5	81.1	81.4	81.1	81.3	80.5	77.3	76.7	73.0	71.9	74.4	76.3	78.2	79.0	80.4	80.5	80.4	79.7	79.3	79.2	79.3	83.0	
83.2 82.9 83.5 84.2 84.2 84.2 84.3 85.0 85.1 84.3 82.8 81.1 79.9 79.0 80.2 82.3 83.5 84.0 84.1 83.9 83.5 83.2 83.5 83.2																								Diurnal Average			
97.4 96.9 97.7 98.6 98.5 96.6 95.5 96.9 96.8 96.4 97.2 96.9 96.5 96.2 97.9 99.4 95.8 97.5 98.6 98.1 97.8 97.3 94.9 97.1																								Diurnal Maximum			



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Stony Mountain - December 2024



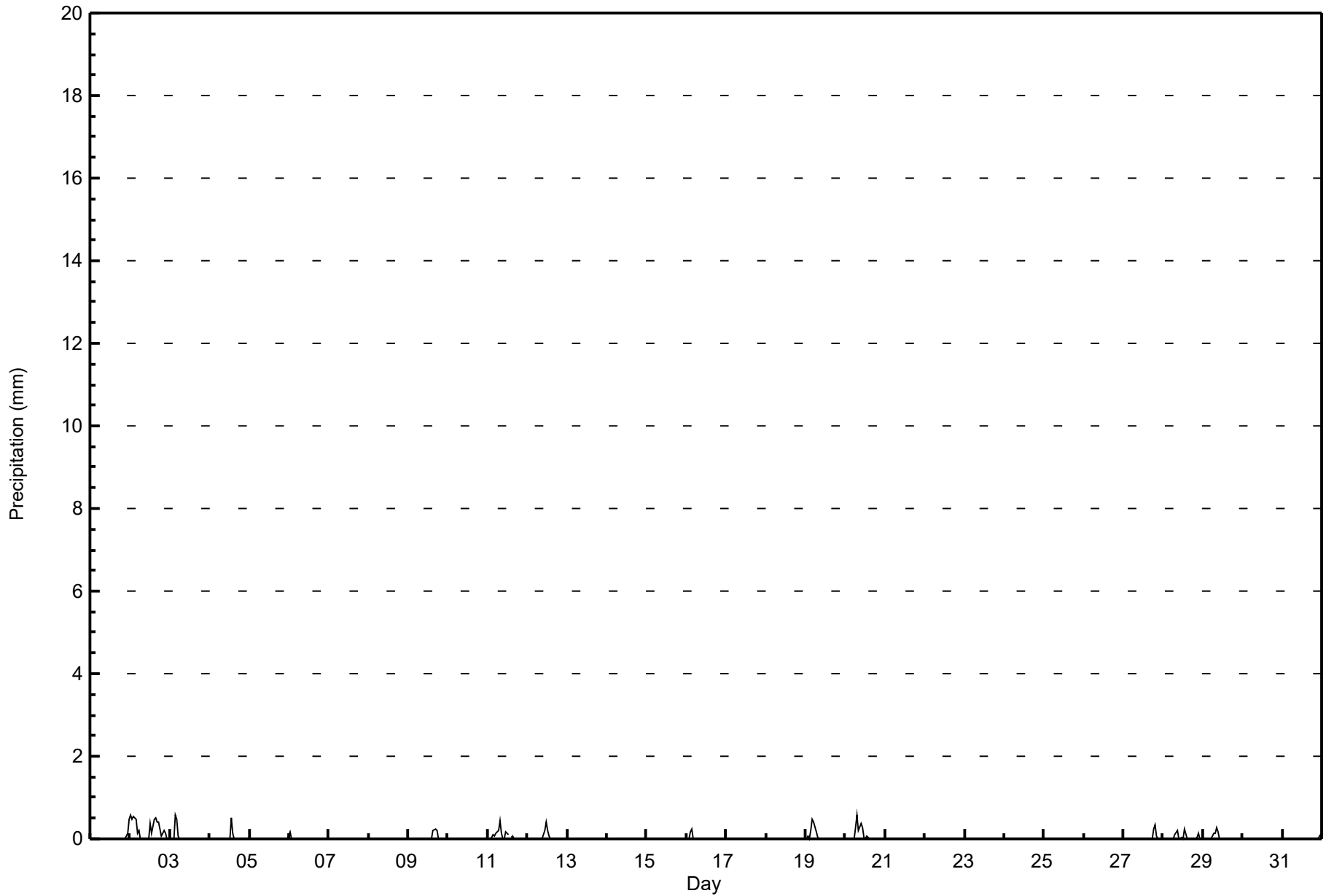


Maximum Value: 0.6 mm on Dec 2 01:00		Maximum Daily Total: 5.4 mm on Dec 2		Hours in Service: 744																							
Minimum Value: 0.0 mm on Dec 1 01:00		Minimum Daily Total: 0.0 mm on Dec 5		Hours of Data: 743																							
Maximum Diurnal Total: 1.6 mm at hour 4		Minimum Diurnal Total: 0.2 mm at hour 23		Hours of Missing Data: 1																							
Monthly Total: 16.83 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 = 0.5		Hours of Calibration: 0																							
				Percent Operational Time: 99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.5		
2-Dec	0.6	0.5	0.5	0.5	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.5	0.5	0.4	0.4	0.2	0.1	0.2	0.1	0.0	0.0	5.4	0.6		
3-Dec	0.0	0.0	0.0	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.6		
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5		
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2		
7-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2		
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.1	0.0	0.0	0.2	0.1	M	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.4		
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.4		
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	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	0.4	0.2		
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.1	0.0	0.2	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.5		
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.2	0.4	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.6		
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.1	0.0	0.0	0.0	0.7	0.4		
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.8	0.3		
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3		
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
		0.8	0.5	0.8	1.6	1.2	0.8	0.8	1.3	0.8	0.5	0.5	0.7	0.7	1.0	0.7	0.8	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.6	Diurnal Average	
		0.6	0.5	0.5	0.6	0.5	0.4	0.3	0.6	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.4	0.2	0.4	0.2	0.1	0.1	0.5	Diurnal Maximum	
M - Maintenance																											



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Stony Mountain - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Stony Mountain - December 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	724	97.44	97.44
0.4 - 0.5	16	2.15	99.60
0.6 - 0.7	3	0.40	100.00
0.8 - 1.4	0	0.00	100.00
1.5 - 10	0	0.00	100.00
> 10	0	0.00	100.00

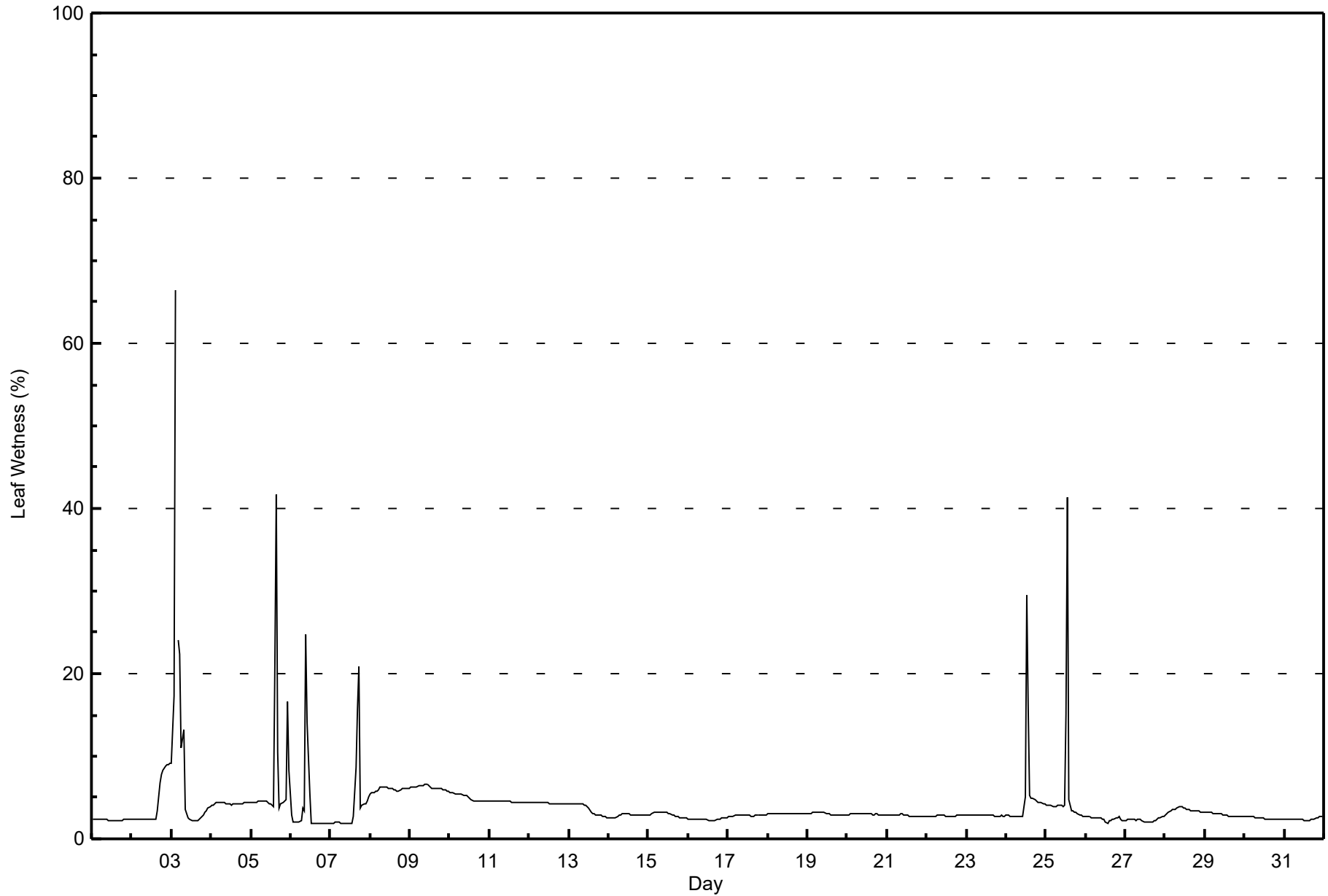
Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Hourly Averages

Leaf Wetness (LW) - %
Stony Mountain - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Leaf Wetness (LW) - %
Stony Mountain - December 2024

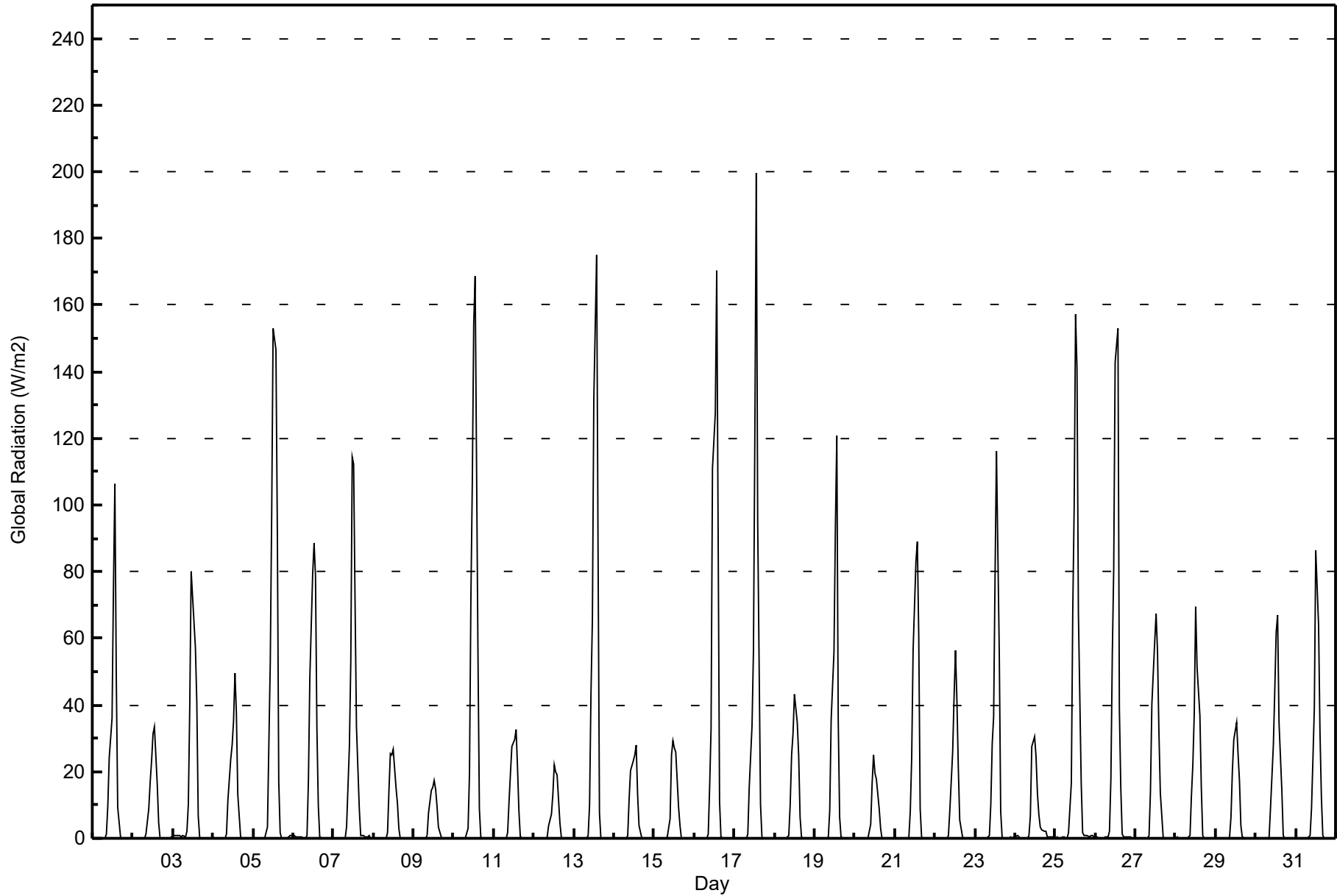
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 0.3	0	0.00	0.00
0.4 - 0.5	0	0.00	0.00
0.6 - 0.7	0	0.00	0.00
0.8 - 1.4	0	0.00	0.00
1.5 - 10	725	97.58	97.58
> 10	18	2.42	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Maximum Value: 199.6 W/m2 on Dec 17 14:00 Maximum Daily Average: 24.8 W/m2 on Dec 5																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 0.0 W/m2 on Dec 1 01:00 Minimum Daily Average: 3.5 W/m2 on Dec 9 Maximum Diurnal Average: 76.9 W/m2 at hour 14 Minimum Diurnal Average: 0.1 W/m2 at hour 6 Monthly Average: 12.32 W/m2 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 8.9 P ₉₀ = 39.1 P ₉₉ = 150.1																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	9.9	24.4	35.9	75.3	106.6	48.5	9.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	106.6
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	8.9	17.1	23.3	31.2	33.7	16.3	4.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.7	33.7
3-Dec	0.8	0.9	0.8	0.8	0.8	0.6	0.7	0.5	2.0	10.0	39.6	80.0	65.0	57.1	40.6	6.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	12.8	80.0	
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	11.3	23.9	27.9	35.0	49.5	37.9	12.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	8.3	49.5	
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.3	28.4	52.8	97.6	152.8	146.5	92.4	16.8	1.5	0.1	0.1	0.2	0.2	0.6	0.8	0.9	24.8	152.8
6-Dec	0.8	0.5	0.6	0.5	0.4	0.2	0.2	0.2	0.9	17.3	48.4	79.1	88.5	78.9	32.8	9.7	0.6	0.2	0.1	0.1	0.2	0.1	0.1	0.0	15.0	88.5
7-Dec	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	3.6	27.5	53.2	114.3	112.5	71.2	33.5	8.9	1.0	0.7	0.6	0.6	0.3	0.7	0.1	0.1	17.9	114.3
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	14.4	25.4	24.8	26.6	15.1	10.6	3.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	26.6
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	7.8	14.3	15.4	17.5	14.9	9.7	3.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	3.5	17.5
10-Dec	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	2.8	19.7	72.0	107.0	154.2	168.7	55.5	9.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.6	168.7
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	11.1	19.4	27.7	29.7	32.4	21.1	7.9	0.4	0.0	0.1	0.0	0.1	0.0	0.0	0.0	6.3	32.4
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.7	7.4	13.3	22.2	20.1	18.9	4.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	22.2
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	10.1	43.5	65.7	131.9	175.0	86.4	7.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7	175.0
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	12.0	20.4	23.3	25.2	28.0	12.9	3.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	28.0
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	6.1	25.0	29.1	27.0	25.8	9.5	4.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	29.1
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	15.7	32.9	111.2	127.5	170.4	91.7	10.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4	170.4
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	15.5	33.9	56.5	122.0	199.6	94.9	10.1	0.6	0.0	0.0	0.0	0.1	0.1	0.1	0.2	22.3	199.6
18-Dec	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.9	10.1	25.2	31.2	43.3	34.8	25.1	6.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	43.3
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.3	35.4	56.0	93.0	120.8	35.8	6.5	0.4	0.2	0.0	0.1	0.1	0.0	0.0	0.0	14.9	120.8
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	4.2	16.4	24.9	19.5	17.6	8.9	3.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	24.9
21-Dec	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.5	8.1	24.3	56.6	83.0	88.8	60.5	8.8	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	13.8	88.8
22-Dec	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	8.6	25.8	42.5	56.4	41.4	21.1	5.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.5	56.4
23-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	10.0	28.5	36.6	78.5	116.2	55.5	7.8	0.5	0.0	0.0	0.1	0.2	0.2	0.0	0.3	14.0	116.2
24-Dec	0.4	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.7	6.9	27.6	30.5	24.7	13.6	7.3	3.5	2.4	2.3	2.2	0.6	0.6	0.6	0.3	0.3	5.2	30.5
25-Dec	0.1	0.2	0.1	0.1	0.4	0.2	0.1	0.1	1.6	16.7	67.7	99.0	157.4	141.1	67.9	16.6	1.9	0.8	0.8	0.7	0.6	0.6	0.7	0.6	24.0	157.4
26-Dec	0.3	0.3	0.1	0.0	0.1	0.1	0.4	0.4	2.3	17.7	55.0	80.8	142.7	152.9	39.1	15.2	1.1	0.3	0.4	0.5	0.5	0.5	0.1	0.2	21.3	152.9
27-Dec	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.9	14.1	40.2	58.7	67.3	56.0	31.9	13.6	0.6	0.0	0.0	0.0	0.1	0.1	0.1	0.1	11.8	67.3
28-Dec	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	1.0	12.6	22.1	37.1	69.7	51.2	36.7	15.3	0.8	0.1	0.1	0.1	0.2	0.1	0.2	0.1	10.3	69.7
29-Dec	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.6	6.5	20.5	29.6	34.5	25.4	17.3	4.0	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.0	5.8	34.5
30-Dec	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6	9.5	28.1	44.4	61.9	67.1	34.6	14.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.9	67.1
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	9.0	23.6	38.9	86.3	63.8	31.6	12.3	0.9	0.0	0.0	0.1	0.1	0.0	0.0	0.0	11.2	86.3
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Global Radiation (GR) - W/m2
Stony Mountain - December 2024**

Concentration Ranges (W/m2)	Number of Hours	%	Cumulative %
0 - 20	612	82.26	82.26
21 - 100	111	14.92	97.18
101 - 300	21	2.82	100.00
301 - 600	0	0.00	100.00
601 - 900	0	0.00	100.00
> 900	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

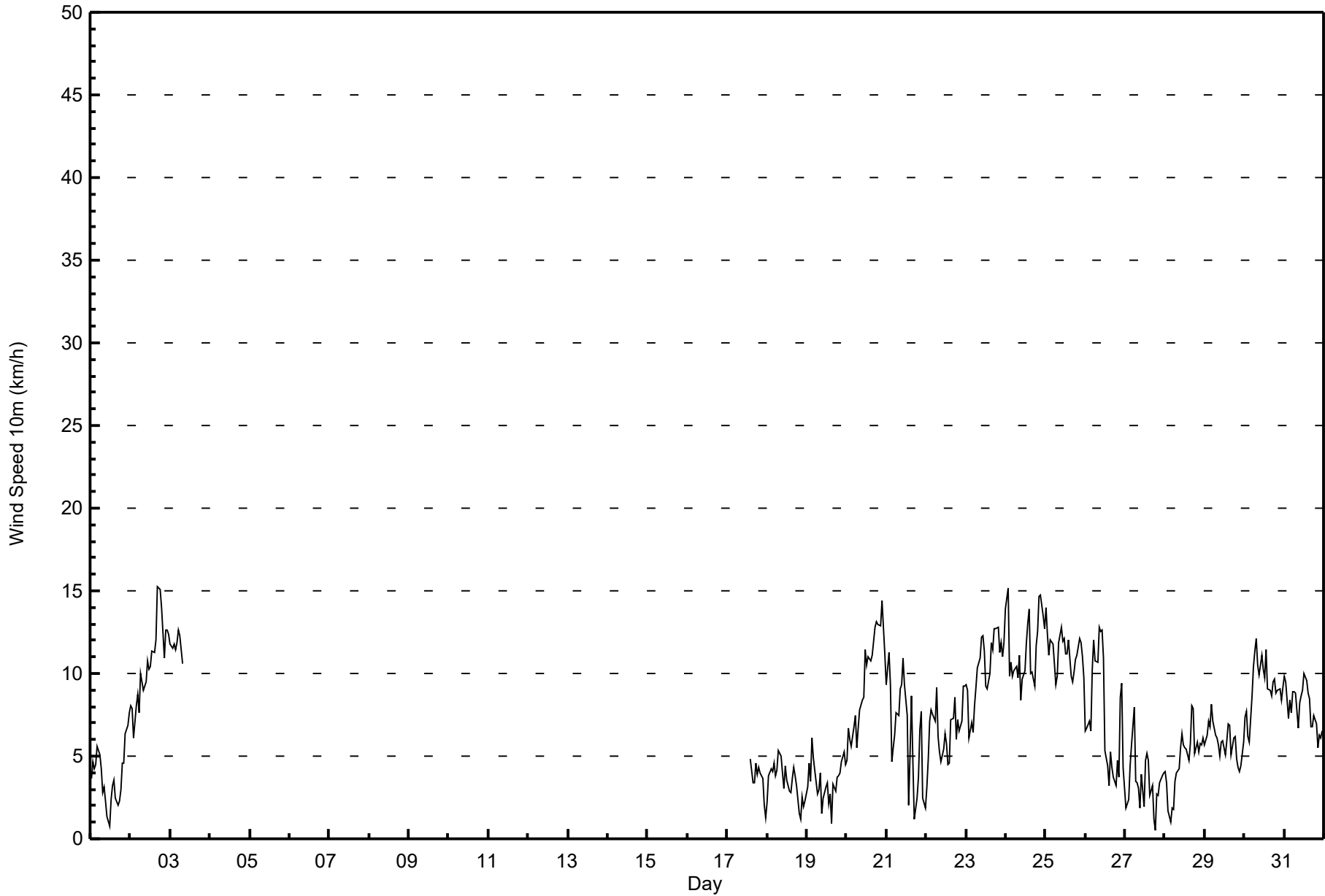
Stony Mountain - December 2024

Maximum Speed: 15 km/h on Dec 2 17:00	Maximum Daily Speed Average: 11.0 km/h on Dec 25	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 27 19:00	Minimum Daily Speed Average: 0.6 km/h on Dec 27	Hours of Data: 402
Maximum Diurnal Speed Average: 6.0 km/h at hour 22	Minimum Diurnal Speed Average: 3.4 km/h at hour 8	Hours of Missing Data: 342
Monthly Average Velocity: 4.3 km/h 222.2 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 4 Median = 7 Q ₃ = 10 P ₉₀ = 12 P ₉₉ = 15	Percent Operational Time: 54.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NW4	NW5	NW4	NW4	NW6	NW5	NW4	NW3	NW3	NNW2	NW1	SSE1	SSE2	SSE3	SSW4	S2	S2	S2	SSE3	SSE5	SE5	S6	S7	SSE8	SW1.1	SSE8
2-Dec	SSE8	SSE8	SSE6	S8	S9	SSW8	SSW10	SSW10	SSW9	SSW9	SSW11	SSW10	SSW10	SSW11	SSW11	SSW12	SSW15	SSW15	SSW15	SSW14	SSW11	SSW13	SSW13	SW12	SSW10.5	SSW15
3-Dec	WSW12	WSW12	W12	WNW11	WNW12	WNW13	WNW12	NW11	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	WNW13
4-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
5-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
6-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
7-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
8-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
9-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
10-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
11-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
12-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
13-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
14-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
15-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
16-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	---	---
17-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	WNW5	W3	W3	WNW5	WNW4	WNW4	WSW4	SW4	SW2	S1	---	WNW5
18-Dec	SE2	SE4	SSE4	SE4	SE5	SSE4	SE4	ESE5	ESE5	E4	E3	ENE4	NE4	NNW3	N3	N4	NNE4	N4	N3	NW2	WNW1	NW3	NW2	SSE2	E1.4	ESE5
19-Dec	S3	SSW5	SSW3	SSW6	SW5	SW4	SW3	SSW3	SSW4	W2	WSW2	WSW3	NW3	SSE2	S3	ESE1	S3	SSE3	SE4	SSE4	SSE4	SSE5	SSE5	SSE4	S2.8	SSW6
20-Dec	SE5	SE7	SE6	SE6	ESE7	SE7	SE5	SE7	SE8	SE8	SSE9	SSE11	S11	S11	SSW11	SSW11	SSW12	SSW13	SSW13	SSW13	SSW13	SSW14	SSW13	SSW11	S8.2	SSW14
21-Dec	SSW9	SSW11	SSW9	SW5	SW6	SSW6	SSW8	SSW7	SSW9	SSW9	SSW11	SSW9	SSW7	SW2	SSW5	SSW9	SSW5	WSW1	SSE2	S4	SSW7	SW8	NNW2	ENE2	SSW6.0	SSW11
22-Dec	S3	S5	S7	SSW8	SSW8	SSW7	SSW9	SSW6	SSW5	SSW5	SSW5	SSW6	SSW6	SW4	SSW5	S7	S7	S9	SSW6	SSW7	SSW6	S7	SSW9	SSW9	SSW6.5	SSW9
23-Dec	SSW9	SSW9	SSW6	S7	S6	SSW8	S9	SSW10	SSW11	SSW12	SSW11	SSW9	SSW9	SSW10	SSW12	SSW11	SSW13	SSW13	SW13	SW11	SW12	SSW11	SW12	SSW10.2	SW13	
24-Dec	WSW14	WSW15	SW10	SSW11	SSW10	SSW10	S10	S11	S8	SSE10	S10	S12	SSE13	S14	S10	S10	S9	S12	S13	SSW15	SSW15	SSW14	SSW13	SSW10.5	WSW15	
25-Dec	SSW14	SSW12	SSW11	SSW12	SW12	SSW11	SSW9	SSW10	SSW12	SW13	WSW12	WSW12	SW11	SW11	SW12	SSW10	SSW10	SSW10	SSW11	SSW11	SSW12	SSW12	SSW11	S10	SSW11.0	SSW14
26-Dec	S7	S7	S7	S7	S10	SSW12	SSW11	S11	SSW13	SSW13	SSW13	SSW11	SW5	S4	SSW3	S5	S4	S4	S3	SSE5	S4	SSW9	SSW9	SW4	SSW7.3	SSW13
27-Dec	NW2	NE2	N2	N4	S6	S8	WNW3	NNW3	WNW3	W2	NW4	ENE2	SSE5	NW5	ESE5	NNW3	NW3	S1	NNW1	ESE3	SSW3	SSW3	SSW4	SSW4	WSW0.6	S8
28-Dec	SSW4	W3	NW2	NE1	SSE2	WNW2	WNW4	NW4	WNW4	NW6	NW6	NW6	NW6	NW5	WNW5	WNW6	W8	WNW8	WNW5	W6	W5	W6	WNW6	WNW6	WNW4.3	W8
29-Dec	NW6	WNW6	NW7	WNW7	WNW8	WNW7	WNW6	WNW6	NW6	NW5	WNW6	WNW6	NW5	WNW6	WNW7	NW7	NW5	NW6	NW6	NNW5	NNW4	NNW4	NW4	NW6	NW5.7	WNW8
30-Dec	NW7	NW8	NW6	NW6	NW9	NW10	NW11	NW12	NW10	NW10	NW11	NW10	NW10	NW11	NW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	NW8	NW9	NW9.3	NW12
31-Dec	NW10	NW9	NW7	NW8	NW8	NW9	NW9	NW9	NW7	NW8	NW9	NW9	NW10	NW10	NW9	NW8	NW7	WNW7	WNW7	NW7	NW6	NW6	NW6	NW7	NW7.9	NW10

SW4.3 SW4.1 SW3.5 SW3.5 SW4.3 SW4.5 SW4.2 SW3.4 SW4.3 SW4.0 SW4.4 SW4.1 SW4.0 SW3.7 SW4.1 SW4.1 SW4.3 SW4.3 SW4.2SSW4.5SSW4.9 SW6.0 SW5.3 SW4.7	Diurnal Average
SSW14WSW15 W12 SSW12WNW12WNW13WNW12 NW12 SSW13 SW13 SSW13WSW12 S12 SSE13 S14 SSW12 SSW15 SSW15 SSW15 SSW14 SSW15 SSW15 SSW14 SSW13	Diurnal Maximum

M - Maintenance AF - Analyzer Failure
 All monthly, daily, and diurnal averages have been calculated using vector methods





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Stony Mountain - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	147	36.57	36.57
6 - 11	199	49.50	86.07
12 - 19	56	13.93	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: 402

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Stony Mountain - December 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	1	3	3	2	5	9	19	17	17	10	4	6	12	24	9	147
6 - 11	0	0	0	0	0	1	7	8	27	72	6	0	3	22	53	0	199
12 - 19	0	0	0	0	0	0	0	1	4	34	6	6	1	3	1	0	56
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	6	1	3	3	2	6	16	28	48	123	22	10	10	37	78	9	402

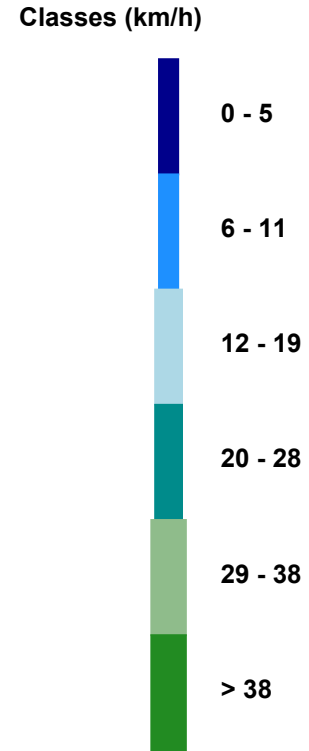
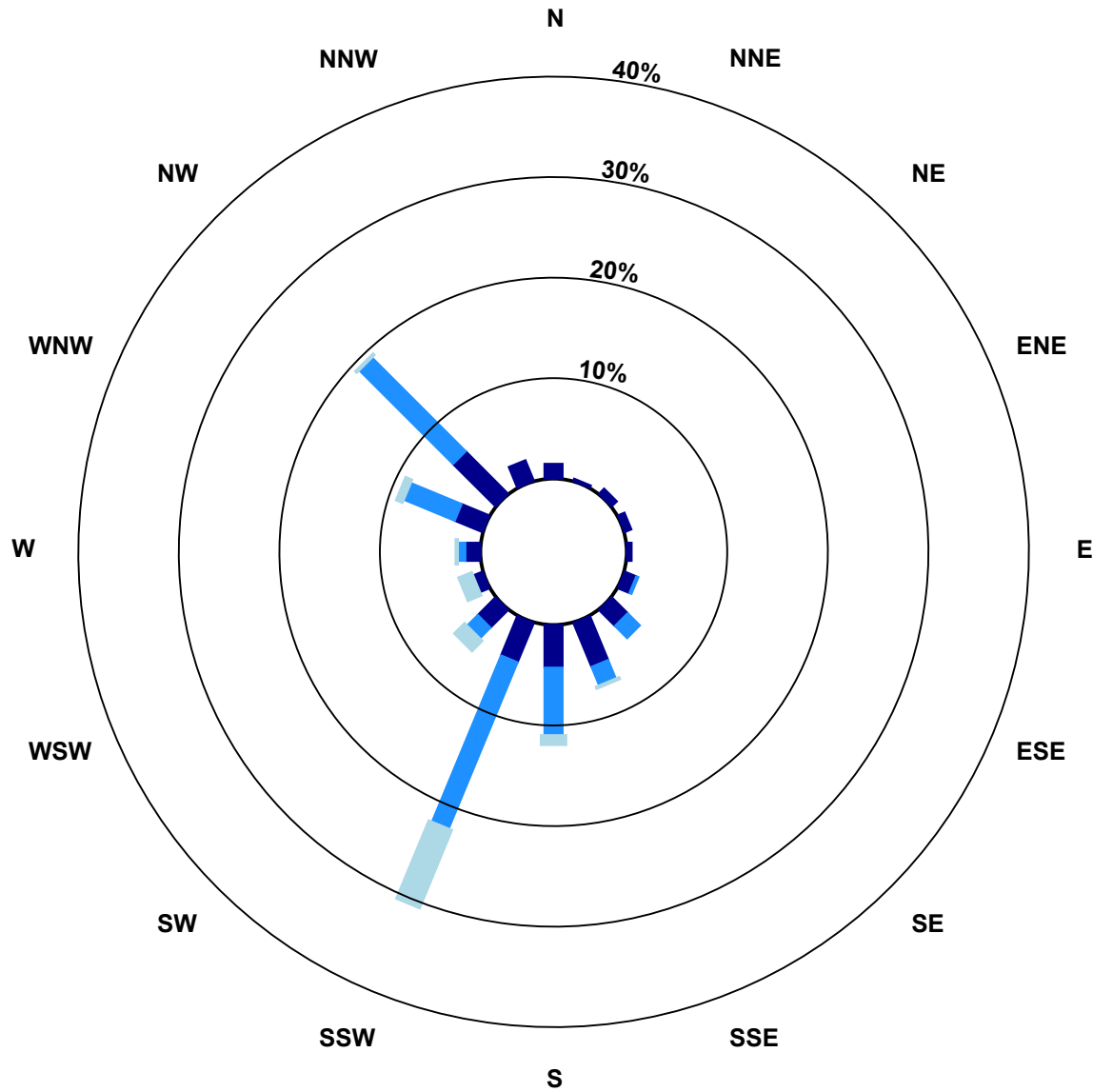
Total Number of Valid Hours: 402

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Stony Mountain



Total Number of Valid Hours: 402



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Stony Mountain - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6 km/h on Dec 24 02:00	Hours of Data: 402
Minimum Value: 1 km/h on Dec 18 14:00	Hours of Missing Data: 342
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5	Hours of Calibration: 0
	Percent Operational Time: 54.0

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

M - Maintenance AF - Analyzer Failure



Wood Buffalo Environmental Association
Summary of Hour Averages

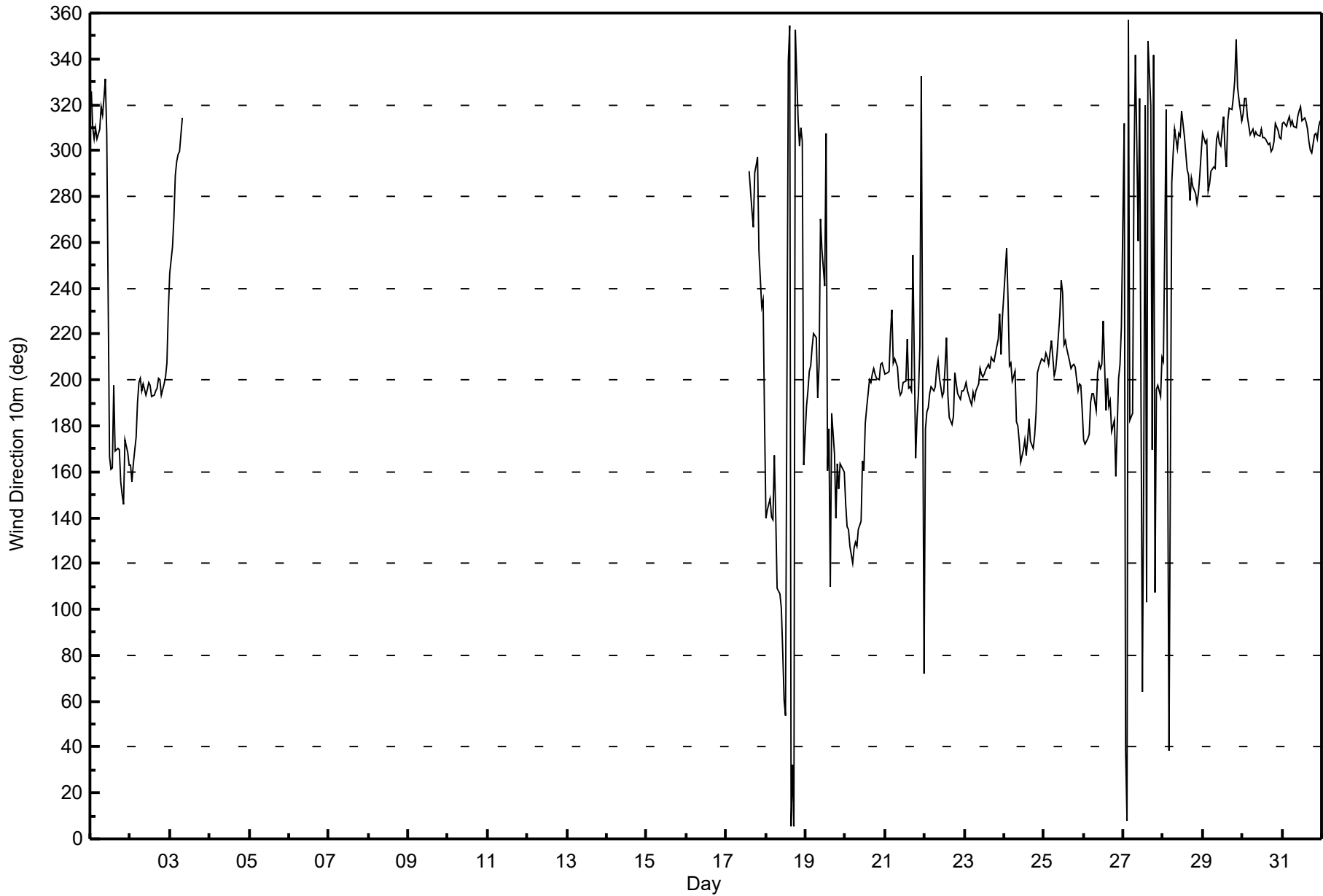
Wind Direction 10m (WD10) - deg
Stony Mountain - December 2024

Direction of Maximum Speed: 196 deg on Dec 2 17:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 210.7 deg on Dec 25	Hours of Data: 402
Direction of Minimum Speed: 342 deg on Dec 27 19:00	Hours of Missing Data: 342
Direction of Minimum Daily Speed Average: 0.6 deg on Dec 27	Percent Operational Time: 54.0
Monthly Average Direction: 222.2 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-Dec	326	310	305	310	305	309	319	315	323	331	307	166	161	162	198	169	170	169	156	150	146	174	169	163	223.3	
2-Dec	163	156	164	175	191	199	201	195	198	193	196	199	198	193	194	195	196	201	200	193	198	201	208	230	195.3	
3-Dec	246	258	271	289	295	298	300	314	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
4-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
5-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
6-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
7-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
8-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
9-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
10-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
11-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
12-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
13-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
14-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
15-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
16-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--	
17-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	291	274	267	290	293	297	256	232	235	183	--
18-Dec	140	143	148	140	139	167	141	109	107	101	82	61	54	339	355	5	32	6	353	313	302	310	304	163	88.4	
19-Dec	188	195	204	206	214	220	219	192	207	270	257	241	308	160	179	110	186	168	140	163	153	164	161	160	190.9	
20-Dec	146	136	135	128	120	127	130	128	135	138	165	160	181	188	200	199	203	205	203	201	200	207	207	205	178.8	
21-Dec	202	203	204	221	231	208	210	206	197	194	194	199	200	218	197	197	195	255	166	184	194	215	333	72	202.3	
22-Dec	179	186	188	194	197	195	197	205	209	201	193	194	206	218	193	184	180	184	203	198	194	191	195	196	194.8	
23-Dec	197	199	195	191	189	195	191	195	198	205	203	201	202	204	207	205	210	209	208	215	218	229	211	228	205.6	
24-Dec	237	257	235	206	208	199	204	182	180	173	164	170	174	167	174	183	173	170	176	185	203	206	209	209	194.6	
25-Dec	208	212	210	207	217	210	202	205	211	229	243	238	215	217	214	208	205	206	207	206	195	198	198	187	210.7	
26-Dec	174	172	175	177	190	194	194	187	203	207	205	207	226	187	201	188	191	177	183	158	179	201	207	223	194.1	
27-Dec	312	39	8	357	183	185	293	342	303	261	322	64	167	320	103	348	320	170	342	108	196	198	193	210	247.5	
28-Dec	208	260	318	38	160	286	299	309	301	307	306	317	312	306	292	289	279	288	285	281	277	281	289	299	291.3	
29-Dec	308	303	304	283	286	291	293	292	305	308	303	302	315	301	293	313	319	318	323	331	348	327	322	313	306.4	
30-Dec	316	323	323	315	307	308	310	306	308	307	306	309	306	306	305	303	303	300	301	304	312	309	306	305	307.6	
31-Dec	312	312	311	313	315	311	313	311	310	315	317	319	313	315	313	309	304	300	299	307	307	305	311	313	311.0	

224.4 229.2 227.1 225.0 225.2 226.6 233.2 227.7 215.9 221.2 226.3 219.2 220.6 227.8 220.6 222.7 219.8 223.0 219.8 213.0 213.3 218.4 218.4 221.6
 Diurnal Average

M - Maintenance AF - Analyzer Failure
 All monthly, daily, and diurnal averages have been calculated using vector methods





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Stony Mountain - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Dec 1 12:00 Minimum Value: 15 deg on Dec 26 20:00 Percentiles: P ₁ = 16 P ₁₀ = 19 Q ₁ = 22 Median = 24 Q ₃ = 28 P ₉₀ = 40 P ₉₉ = 79																								Hours in Service: 744 Hours of Data: 402 Hours of Missing Data: 342 Hours of Calibration: 0 Percent Operational Time: 54.0																							
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-Dec	34	23	28	25	19	22	25	29	28	42	69	100	58	56	40	31	35	26	24	26	29	31	31	31	100																						
2-Dec	32	32	31	29	29	30	28	28	27	29	27	27	27	26	26	23	22	22	22	22	26	24	23	31	32																						
3-Dec	33	34	28	24	24	26	25	24	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	34																							
4-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
5-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
6-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
7-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
8-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
9-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
10-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
11-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
12-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
13-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
14-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
15-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
16-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	--																							
17-Dec	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	AF	M	M	27	23	19	22	27	20	27	30	44	86																						
18-Dec	47	16	22	25	16	17	16	19	16	21	21	21	25	28	27	23	19	24	24	29	75	22	15	61	75																						
19-Dec	18	25	23	19	23	28	33	31	28	62	50	45	30	67	35	61	21	23	23	24	22	25	23	24	67																						
20-Dec	22	19	22	20	19	23	23	23	23	24	31	32	33	32	28	28	27	26	23	23	22	22	23	22	33																						
21-Dec	24	27	20	35	46	17	16	17	16	19	18	21	21	47	22	19	35	71	40	50	31	31	51	52	71																						
22-Dec	32	16	18	17	17	23	18	23	28	27	24	23	24	33	28	19	18	22	42	29	27	25	24	24	42																						
23-Dec	23	22	26	23	24	23	24	24	24	25	24	22	25	25	21	21	23	22	21	21	26	27	19	24	27																						
24-Dec	28	30	30	22	18	19	21	22	20	25	26	31	26	28	24	57	30	26	22	23	22	22	20	20	57																						
25-Dec	19	21	21	19	21	19	17	17	19	28	33	29	24	26	24	25	22	20	20	20	20	21	19	21	33																						
26-Dec	21	22	24	20	21	20	19	20	20	20	20	22	34	27	31	19	21	29	45	15	25	20	28	34	45																						
27-Dec	69	48	47	27	79	18	50	22	56	60	29	70	32	37	25	42	16	64	83	33	31	20	17	20	83																						
28-Dec	25	44	82	46	27	74	19	15	20	19	17	18	22	24	27	26	25	22	25	23	24	26	25	23	82																						
29-Dec	23	20	22	27	24	23	28	25	27	23	26	25	27	26	29	26	25	23	26	27	31	26	25	24	31																						
30-Dec	25	27	26	23	22	23	24	24	25	22	22	26	25	24	27	24	26	25	25	26	23	24	24	25	27																						
31-Dec	25	24	21	25	25	23	24	26	26	24	23	26	22	22	22	27	22	21	22	19	18	20	20	17	27																						
Diurnal Maximum																								69	48	82	46	79	74	50	31	56	62	69	100	58	67	40	61	35	71	83	50	75	31	51	86
M - Maintenance AF - Analyzer Failure																																															



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Speed 20m (WS20) - km/h
Stony Mountain - December 2024

Maximum Speed: 23 km/h on Dec 24 02:00	Maximum Daily Speed Average: 16.2 km/h on Dec 24	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 27 19:00	Minimum Daily Speed Average: 1.0 km/h on Dec 27	Hours of Data: 732
Maximum Diurnal Speed Average: 7.1 km/h at hour 22	Minimum Diurnal Speed Average: 4.9 km/h at hour 14	Hours of Missing Data: 12
Monthly Average Velocity: 5.9 km/h 237.2 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 8 Median = 11 Q ₃ = 15 P ₉₀ = 18 P ₉₉ = 21	Percent Operational Time: 98.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NNW7	NW8	NW7	NW8	NW9	NW8	NW7	NW5	NNW5	NNW4	NW2	S1	SSE3	SSE4	SSW5	S5	S5	SSW5	S7	SSE8	SSE7	S10	S11	S13	SW1.9	S13
2-Dec	S14	SSE13	S10	S12	SSW13	SSW11	SSW13	SSW13	SSW13	SSW13	SSW15	SSW14	SSW15	SSW16	SSW16	SSW17	SSW22	SSW21	SSW21	SSW19	UO	UO	UO	UO	SSW14.8	SSW22
3-Dec	UO	W17	W18	WNW18	WNW19	NW20	NW20	NW20	NNW18	NNW21	NNW21	NNW19	NNW19	NNW17	NNW16	NNW15	NW17	NW19	NNW14	NNW13	NNW12	NW13	NW11	NW12	NW15.9	NNW21
4-Dec	NW13	WNW12	WNW13	NW11	NW8	NNW4	NE3	SE5	SE7	SSE6	SSE5	SE5	SSE7	SSE12	S14	SSE14	S15	S18	S17	S16	SSW14	SSW17	SSW19	SSW17	SSW6.9	SSW19
5-Dec	SSW17	SW16	SW20	SW17	SW14	SW10	SW10	WSW9	W11	W11	WSW12	WSW9	SW8	SW9	WSW13	WSW17	WSW13	UO	UO	UO	UO	UO	WSW17	W21	WSW12.6	W21
6-Dec	W22	W20	W20	W21	W18	WSW17	SW13	SSW13	SW15	SW15	SW14	W19	WSW16	WSW17	W16	WSW14	W15	W13	W15	W16	W17	W17	W17	WNW17	WSW15.8	W22
7-Dec	WNW14	WNW14	WNW16	W18	W17	W18	W17	W17	W14	W11	WSW10	SW12	SSW10	SSW10	SSW13	SSW14	SW14	SW14	SW13	WSW10	SW10	SW7	NNW4	NW8	WSW10.7	W18
8-Dec	NW8	NNW9	NNW7	NNW10	NNW9	NNW11	NNW11	NNW11	NNW12	NNW9	NW9	NW10	NNW10	NNW10	NW12	NW13	NW12	NNW10	NNW10	NNW9	NNW10	NNW7	NW5	W6	NNW9.3	NW13
9-Dec	W8	WNW10	WNW9	W9	WNW9	WNW10	W9	W8	WSW7	W9	WNW9	NW11	NW11	NW12	NW14	NNW11	NNW9	N13	N13	N14	NNW13	N11	NNW9	NNW12	NW9.0	N14
10-Dec	NW11	NW11	NW11	NW11	NW10	NW10	NW10	NW9	NW9	NW10	NW9	NW7	NW5	NNE4	E4	SSE3	SSE4	SSE5	S4	S4	SE6	SSE5	SE7	SE6	NW3.4	NW11
11-Dec	ESE7	SE6	SE7	SE6	ESE7	ESE8	ESE7	ESE8	SE10	SE9	SE10	SE9	ESE9	ESE10	SE9	SE8	SE9	SE10	SE12	SSE12	SSE12	SSE12	SSE11	SSE11	SE8.8	SSE12
12-Dec	SSE12	SSE11	SSE12	SSE13	SSE14	S14	S12	S14	S15	S16	S18	S16	S16	S14	S16	S15	S13	S13	SSW16	SSW19	SSW18	SSW16	SSW14	SSW17	S14.5	SSW19
13-Dec	SSW17	SSW18	SSW17	SSW18	SSW16	SSW18	SSW17	SSW19	SSW21	SSW20	SSW20	SSW16	SSW16	SSW15	SSW14	SW14	SW14	SSW15	SW14	SSW11	SSW14	SSW12	SSW11	SSW12	SSW15.7	SSW21
14-Dec	WSW4	E2	SE6	ENE3	NE7	ENE9	E9	E10	ENE12	ENE9	E10	ENE11	ENE11	ENE11	ENE13	ENE13	ENE14	ENE12	ENE11	ENE11	E9	ENE5	NE5	N4	ENE8.0	ENE14
15-Dec	NW5	NW2	WNW6	W10	WNW11	WNW9	NW10	NW10	WNW10	W10	W9	WNW10	WNW11	WNW9	WNW10	W11	W12	W12	WNW15	WNW13	WNW11	WSW8	WSW9	W10	WNW9.2	WNW15
16-Dec	W11	W11	W10	W9	W11	W11	WSW9	WSW11	SW11	SW11	SW13	WSW13	WSW13	WSW12	WSW11	WSW11	W11	WSW12	WSW13	WSW13	W14	W17	W17	W15	WSW11.6	W17
17-Dec	W13	WSW10	SW11	WSW11	WSW13	WSW16	WSW12	W12	W12	WSW13	W12	W9	W7	W8	W6	WSW6	WSW6	WSW8	W8	W8	SW7	SSW7	SW5	S2	WSW8.9	WSW16
18-Dec	ESE6	ESE8	SE8	SE8	SE9	SSE9	SE9	E9	E8	E6	ENE5	ENE6	NE4	NNW3	N4	N5	NE5	N5	N4	UO	UO	WNW3	WNW2	SSE5	E3.6	SE9
19-Dec	S5	SSW7	SSW6	SSW8	SW7	SW6	SW4	SSW4	SSW6	WNW3	W4	WSW4	NW4	SSE3	S4	SE3	S6	SSE7	SE9	SSE10	SSE9	SSE11	SSE11	SSE10	S5.1	SSE11
20-Dec	SSE10	SE12	SE10	SE10	SE10	SE12	SE9	SE11	SE12	SE13	SSE14	SSE17	S15	S16	SSW15	SSW15	SSW16	SSW17	SSW18	SSW17	SSW18	SSW20	SSW18	SSW16	S12.3	SSW20
21-Dec	SSW13	SSW16	SSW14	WSW9	WSW10	WSW10	SW13	SW12	SSW13	SSW14	SSW15	SSW13	SSW10	SW3	SSW7	SSW12	SSW8	WSW3	S5	SSW7	SSW12	SW12	NNW3	ENE5	SSW8.9	SSW16
22-Dec	S6	S8	SSW12	SSW13	SSW12	SSW12	SSW15	SSW10	SW8	SSW6	SSW7	SSW9	SSW7	SW6	SSW6	S9	S9	S11	SSW7	SSW9	SSW8	SSW9	SSW11	SSW11	SSW9.1	SSW15
23-Dec	SSW11	SSW11	SSW8	SSW9	SSW9	SSW10	SSW11	SSW13	SSW13	SSW14	SSW15	SSW15	SSW13	SSW14	SSW16	SSW18	SW18	SW19	SW19	SW19	SW18	SW18	SW17	SW19	SSW14.1	SW19
24-Dec	WSW21	WSW23	WSW15	SSW16	SSW15	SSW16	SSW16	S16	S19	S16	S18	S17	S19	S21	S22	S16	S16	S15	S18	S18	SSW20	SSW20	SSW19	SW18	SSW16.2	WSW23
25-Dec	SSW20	SW18	SW18	SSW18	SSW15	SSW16	SSW16	SW17	SW19	WSW18	WSW17	SW15	SW16	SW16	SSW14	SSW14	SSW15	SSW16	SSW17	SSW18	SSW18	SSW18	SSW17	S16	SSW16.2	SSW20
26-Dec	S13	S13	S13	S11	SSW15	SSW17	SSW16	S16	SSW18	SSW18	SSW17	SSW15	SW8	SSW6	SSW5	SSW8	SSW8	S7	S7	SSE10	SSE7	SSW13	SSW14	SW8	SSW11.3	SSW18
27-Dec	W4	NNW2	NNE6	N9	S8	S13	WNW5	NNE6	NW6	W4	NW7	NE3	S6	NW8	ESE6	N4	NW5	SSW2	NW1	ESE3	SSW4	SSW6	SSW7	SW6	WSW1.0	S13
28-Dec	SW7	W7	WNW5	NNE2	S3	WNW4	WNW6	WNW7	WNW8	NW9	NW11	NW10	NW9	NW8	WNW7	WNW9	W11	WNW11	WNW8	WNW9	W8	WNW8	WNW8	WNW10	WNW7.0	W11
29-Dec	NW9	NW10	NW11	WNW9	WNW11	WNW10	WNW9	WNW9	NW9	NW8	NW9	WNW9	NW8	WNW9	WNW10	NW11	NW9	NW10	NNW11	NNW10	N8	NNW8	NW8	NW10	NW9.0	WNW11
30-Dec	NW12	NW14	NW11	NW10	NW14	NW17	NW18	NW20	NW17	NW15	NW17	NW17	NW15	NW17	NW14	NW14	NW14	WNW14	WNW14	NW14	NW15	NW14	NW13	NW14	NW14.7	NW20
31-Dec	NW16	NW15	NW12	NW14	NW12	NW14	NW14	NW14	NW10	NW14	NW15	NW15	NW16	NW15	NW14	NW13	NW11	WNW11	WNW12	NW12	NW10	NW10	NW10	NW11	NW12.9	NW16

WSW6.1WSW6.1WSW6.1WSW6.1WSW6.3WSW6.5WSW5.9WSW5.1WSW5.6WSW5.9WSW6.0WSW5.3WSW5.0WSW4.9	WS5.3	WS5.8	WS6.1	WS5.9	WS5.9	WS6.1	WS6.1	SW7.1	SW6.6	WSW6.5	Diurnal Average													
W22WSW23	W20	W21	WNW19	WNW20	NW20	NW20	SSW21	NNW21	NNW21	W19	NNW19	S21	S22	SSW18	SSW22	SSW21	SSW21	SSW19	SSW20	SSW20	SSW19	W21	Diurnal Maximum	

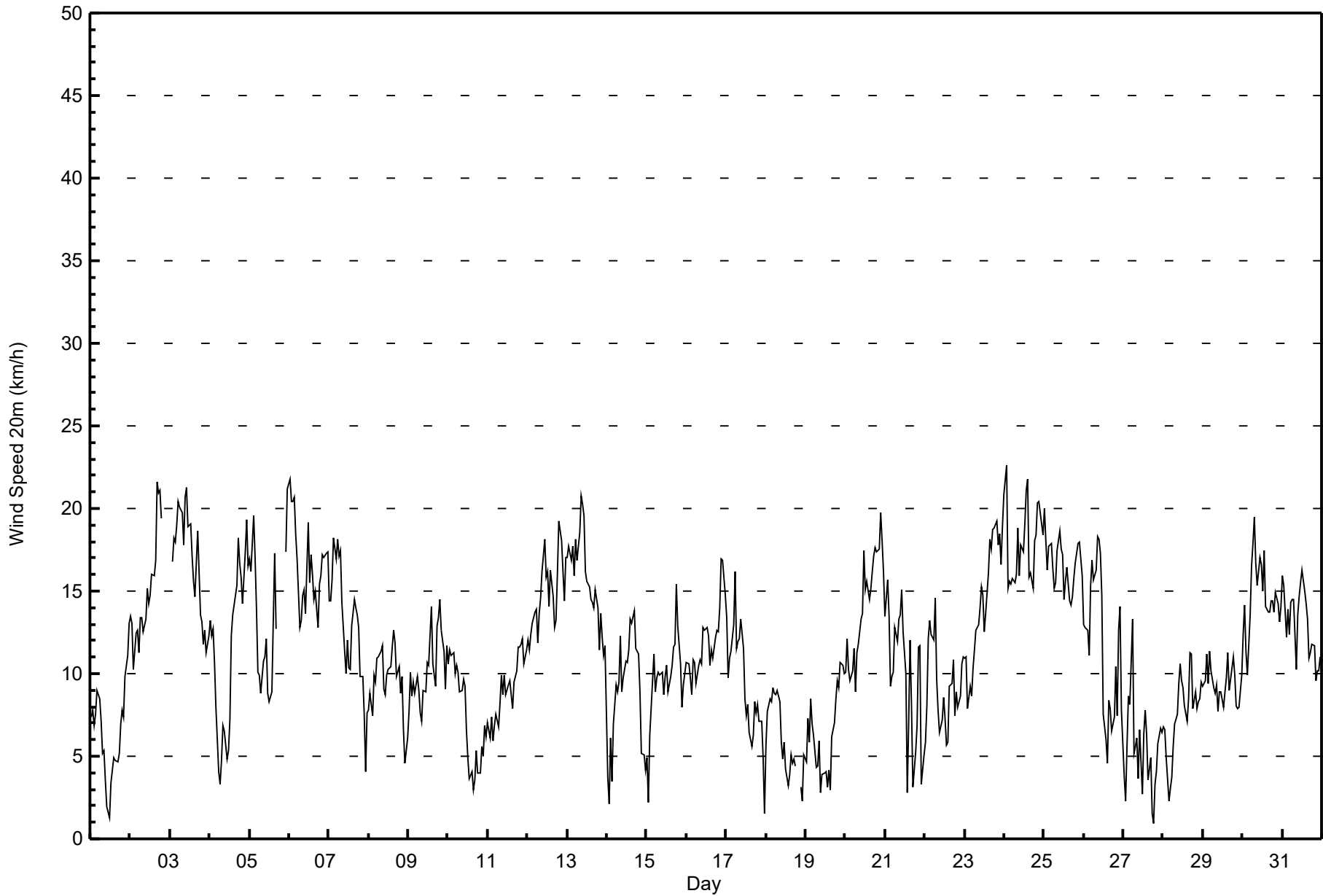
UO - Unstable Operation
 All monthly, daily, and diurnal averages have been calculated using vector methods



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 20m (WS20) - km/h
Stony Mountain - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 8 km/h on Dec 24 16:00																	Hours in Service: 744 Hours of Data: 732 Hours of Missing Data: 12 Hours of Calibration: 0 Percent Operational Time: 98.4								
Minimum Value: 1 km/h on Dec 18 14:00																									
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-Dec	2	2	2	2	2	2	2	1	1	1	1	1	1	2	1	1	1	1	2	2	2	3	4	4	4
2-Dec	4	4	3	4	4	4	5	4	4	4	5	4	4	5	5	5	6	6	6	5	UO	UO	UO	UO	6
3-Dec	UO	6	5	5	6	6	6	6	6	7	7	6	6	6	5	4	5	5	4	4	3	3	2	2	7
4-Dec	2	2	3	2	2	1	2	1	2	2	1	1	2	4	4	4	4	5	5	4	4	5	5	5	5
5-Dec	5	5	5	4	4	3	3	3	4	4	4	3	2	2	5	5	4	UO	UO	UO	UO	UO	5	6	6
6-Dec	6	6	6	6	6	5	4	2	3	4	3	6	4	5	5	4	4	4	4	5	5	5	5	5	6
7-Dec	4	4	4	5	4	5	5	5	4	3	2	3	2	2	3	3	3	3	2	3	2	2	1	3	5
8-Dec	1	2	2	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	3	3	3	2	1	2	4
9-Dec	2	3	2	2	3	3	3	3	2	3	3	3	4	4	4	4	3	4	5	5	4	3	3	3	5
10-Dec	4	3	2	2	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	2	4
11-Dec	2	2	1	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	3	1	2	3
12-Dec	2	2	3	3	4	4	4	4	4	4	5	5	5	5	5	4	4	4	5	6	6	5	5	5	6
13-Dec	5	5	6	5	6	5	5	5	5	5	5	4	4	4	3	3	3	3	3	2	3	3	2	2	6
14-Dec	3	2	2	2	1	2	2	2	3	2	2	2	2	3	4	3	4	3	3	3	3	2	2	1	4
15-Dec	1	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	4	3	4	3	4	2	3	3	4
16-Dec	3	3	3	3	4	3	3	3	4	3	4	4	4	4	4	3	3	4	4	4	4	5	5	5	5
17-Dec	4	3	3	3	4	4	3	3	3	4	3	3	2	2	2	1	1	2	1	1	1	2	1	2	4
18-Dec	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2	1	UO	UO	2	2	2	2
19-Dec	1	1	2	2	2	2	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	2	2	2	2
20-Dec	2	2	2	2	2	3	2	3	3	4	4	5	4	5	4	5	5	5	5	5	4	5	4	4	5
21-Dec	3	4	3	2	2	2	2	2	2	3	3	3	3	1	2	2	2	2	2	3	3	5	2	1	5
22-Dec	1	2	2	2	2	4	3	3	2	1	2	2	2	1	2	2	2	2	3	2	2	2	3	2	4
23-Dec	3	2	2	2	2	2	2	3	3	3	4	3	3	3	4	4	4	4	4	4	4	5	3	4	5
24-Dec	6	8	4	4	3	3	3	3	4	3	4	5	6	5	5	8	5	4	4	4	5	5	4	4	8
25-Dec	4	4	4	4	4	3	3	3	3	5	5	5	4	5	5	4	3	3	3	3	4	4	3	3	5
26-Dec	2	2	2	2	4	4	3	3	4	4	4	5	3	2	2	2	2	2	3	2	1	3	5	2	5
27-Dec	2	1	1	2	4	2	2	2	2	2	2	3	1	3	2	1	1	2	1	1	1	1	1	1	4
28-Dec	2	3	3	1	1	2	1	1	2	2	2	2	2	2	2	3	3	3	2	2	2	2	3	3	3
29-Dec	2	3	3	3	3	3	3	3	3	2	3	3	2	3	3	4	3	3	4	3	3	2	2	3	4
30-Dec	4	4	4	3	4	5	5	6	5	4	5	5	5	5	4	4	5	4	4	4	5	5	4	5	6
31-Dec	5	4	4	4	4	4	4	4	3	4	5	5	5	4	4	4	3	3	3	3	2	2	2	2	5
Diurnal Maximum																									
6 8 6 6 6 6 6 6 6 6 7 7 6 6 6 5 8 6 6 6 6 6 5 5 6																									
UO - Unstable Operation																									





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 20m (WS20) - km/h
Stony Mountain - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	79	10.79	10.79
6 - 11	307	41.94	52.73
12 - 19	320	43.72	96.45
20 - 28	26	3.55	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 732

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 20m (WS20) - km/h
Stony Mountain - December 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	5	4	2	1	3	11	8	6	3	3	3	6	9	7	79
6 - 11	3	2	1	8	7	10	25	18	15	38	17	21	29	34	56	23	307
12 - 19	3	0	0	5	0	0	5	13	39	99	36	22	28	13	45	12	320
20 - 28	0	0	0	0	0	0	0	0	2	10	1	2	5	1	3	2	26
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	12	4	6	17	9	11	33	42	64	153	57	48	65	54	113	44	732

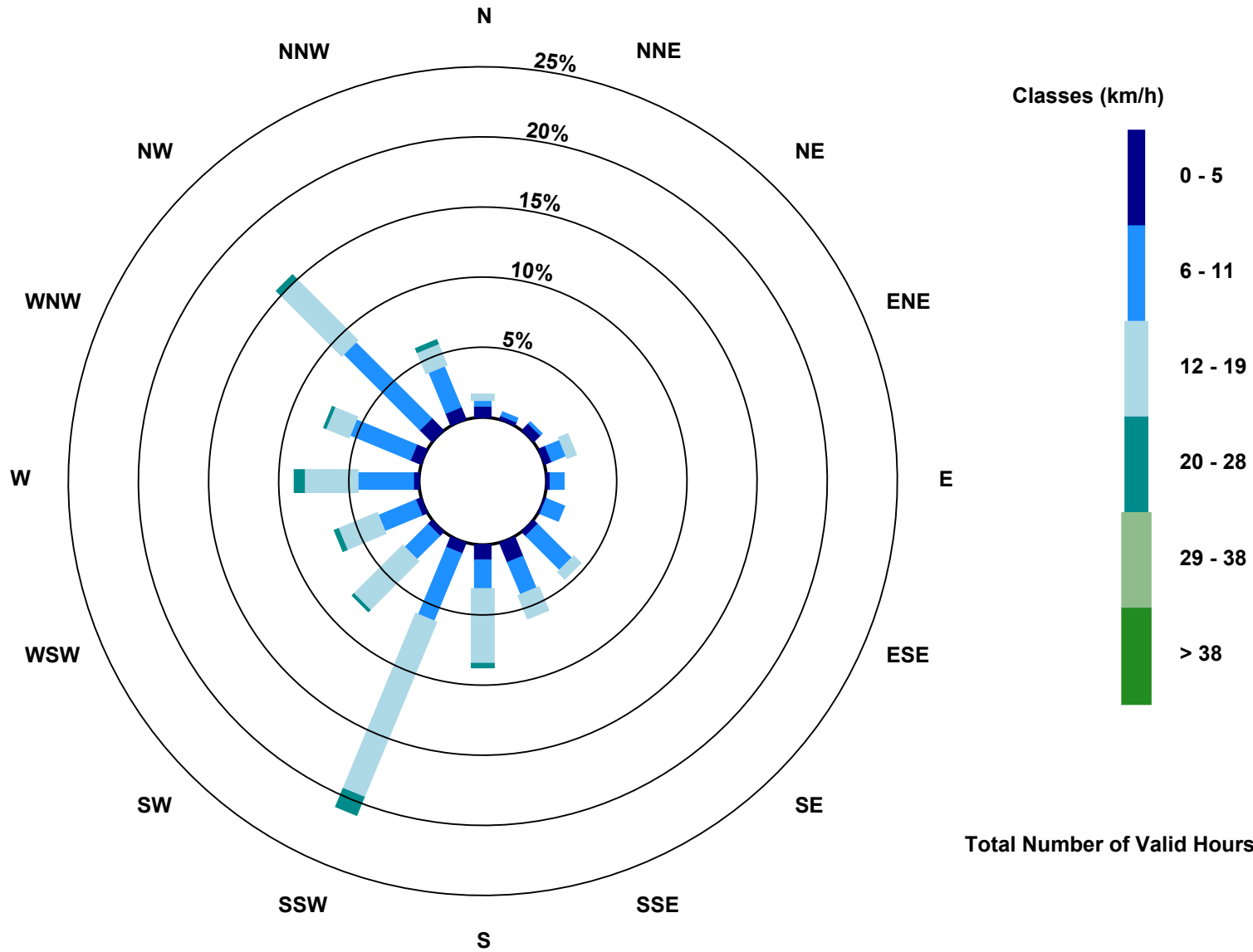
Total Number of Valid Hours: 732

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 20m (WS20) - km/h
Stony Mountain



Total Number of Valid Hours: 732



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 20m (WD20) - deg
Stony Mountain - December 2024

Direction of Maximum Speed: 258 deg on Dec 24 02:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 196.1 deg on Dec 24		Hours of Data:	732
Direction of Minimum Speed: 320 deg on Dec 27 19:00		Hours of Missing Data:	12
Direction of Minimum Daily Speed Average: 1.0 deg on Dec 27		Percent Operational Time:	98.4
Monthly Average Direction: 237.2 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-Dec	331	318	314	316	309	315	324	326	327	334	325	185	156	161	197	176	181	192	170	164	159	177	175	173	230.8
2-Dec	173	166	174	183	194	201	204	202	202	200	204	202	204	199	199	200	204	210	210	204	UO	UO	UO	UO	198.2
3-Dec	UO	264	277	294	300	304	305	320	330	332	335	331	331	336	339	329	322	322	327	330	328	320	310	308	317.3
4-Dec	310	302	298	306	321	335	46	145	146	159	157	139	164	164	170	168	174	179	187	187	198	199	202	203	196.0
5-Dec	208	216	216	218	229	229	231	238	263	269	250	239	223	219	248	258	240	UO	UO	UO	UO	UO	253	266	237.6
6-Dec	270	274	268	267	266	258	235	209	219	224	226	259	242	254	259	254	261	262	262	267	269	268	277	284	257.8
7-Dec	288	284	282	277	275	276	278	278	267	267	237	217	211	204	203	209	217	214	220	240	234	224	334	315	252.6
8-Dec	323	347	343	340	346	336	333	343	332	337	325	326	330	331	324	324	317	328	341	337	332	328	304	279	330.7
9-Dec	277	303	286	276	286	292	276	280	258	259	290	310	315	307	324	334	333	349	354	355	346	351	345	337	315.1
10-Dec	324	325	321	319	313	310	309	309	310	307	310	323	317	12	85	158	165	155	169	169	139	152	127	131	312.9
11-Dec	122	132	126	128	121	120	109	116	131	141	136	134	121	122	126	124	125	128	139	149	147	157	148	152	133.3
12-Dec	156	164	161	164	167	172	169	169	173	175	176	173	174	175	184	190	186	190	192	193	196	195	195	197	179.7
13-Dec	194	200	202	198	208	199	203	209	208	211	211	210	212	211	214	215	212	221	213	203	207	201	201	201	207.2
14-Dec	240	93	144	76	46	76	90	87	62	72	84	64	72	71	69	69	75	73	66	73	92	59	36	351	72.6
15-Dec	324	323	285	279	296	294	317	310	294	278	277	293	296	288	286	280	273	274	287	297	290	256	250	265	286.4
16-Dec	260	263	270	269	270	274	257	250	234	233	231	244	255	253	253	256	259	240	240	252	266	273	267	277	256.5
17-Dec	270	253	236	240	239	246	244	264	269	258	267	264	272	266	260	243	237	256	269	268	231	211	216	172	252.4
18-Dec	109	121	136	130	127	150	127	100	98	90	75	61	55	346	354	4	36	10	358	UO	UO	288	301	155	96.7
19-Dec	187	198	209	211	217	219	225	205	210	282	267	250	314	160	174	135	177	165	146	167	155	168	166	167	187.5
20-Dec	156	142	140	133	129	133	136	134	143	144	165	162	181	185	201	199	202	207	205	204	205	210	211	211	179.2
21-Dec	209	206	211	255	241	238	224	221	203	202	202	204	202	230	201	203	200	251	171	193	197	216	346	72	210.9
22-Dec	174	181	196	199	203	203	206	213	215	211	199	202	208	224	200	190	186	190	210	203	197	196	201	200	200.2
23-Dec	201	203	201	198	198	200	196	199	203	208	209	207	209	212	212	212	216	217	217	222	228	236	218	235	213.0
24-Dec	240	258	241	213	213	203	205	185	182	176	169	169	174	170	174	183	175	174	179	188	203	206	215	216	196.1
25-Dec	212	216	214	212	223	213	210	209	214	233	245	243	220	222	219	211	208	211	211	210	199	201	201	190	214.6
26-Dec	179	175	179	181	193	195	197	191	206	210	208	210	225	194	206	192	194	170	171	151	166	202	209	226	194.3
27-Dec	259	346	22	7	176	189	286	25	322	278	325	46	172	318	104	352	321	193	320	113	199	200	196	215	258.7
28-Dec	223	264	289	12	174	282	294	303	298	307	306	318	316	307	292	288	277	289	286	285	279	282	289	301	291.5
29-Dec	309	304	304	283	287	292	290	292	306	308	305	301	317	303	295	317	324	319	327	334	349	334	326	318	309.7
30-Dec	320	325	326	318	309	311	313	309	310	309	310	314	309	308	309	308	305	301	303	305	316	313	311	309	311.1
31-Dec	314	318	316	318	320	316	316	315	312	319	320	322	317	316	317	310	305	300	298	307	308	309	311	317	313.9

241.5 246.1 243.3 246.3 245.4 243.3 244.8 240.6 236.3 239.3 238.9 240.6 237.2 238.4 231.5 233.2 229.5 229.9 229.7 226.3 226.7 229.1 232.6 239.6
 Diurnal Average

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



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 20m (WD20) - deg
Stony Mountain - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 90 deg on Dec 1 12:00	Hours of Data: 732
Minimum Value: 7 deg on Dec 18 05:00	Hours of Missing Data: 12
Percentiles: P ₁ = 10 P ₁₀ = 14 Q ₁ = 16 Median = 19 Q ₃ = 22 P ₉₀ = 27 P ₉₉ = 63	Hours of Calibration: 0
	Percent Operational Time: 98.4

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	20	18	20	19	15	17	17	21	17	23	53	90	44	50	30	21	26	14	11	16	20	20	22	19	90
2-Dec	20	18	20	21	23	24	23	22	22	23	20	22	21	20	20	19	17	19	17	18	UO	UO	UO	UO	24
3-Dec	UO	24	21	19	19	20	20	20	24	23	19	21	20	20	20	17	17	17	17	16	14	14	13	24	
4-Dec	13	14	14	14	14	17	32	31	17	20	25	18	21	18	19	18	19	21	21	20	20	19	20	32	
5-Dec	22	22	18	18	23	24	23	28	26	24	25	26	26	22	23	24	24	UO	UO	UO	UO	UO	19	20	28
6-Dec	20	19	20	21	21	20	27	14	16	17	17	24	22	23	21	20	20	21	20	21	21	21	20	27	
7-Dec	19	19	19	20	20	19	21	19	19	20	20	16	13	13	15	17	16	15	12	19	16	15	39	16	39
8-Dec	15	26	27	25	29	23	22	27	20	20	19	20	20	22	22	20	20	22	25	21	21	19	20	20	29
9-Dec	21	18	21	20	19	22	21	23	23	24	22	22	22	21	19	22	19	25	22	27	28	27	25	22	28
10-Dec	20	18	15	15	14	14	13	12	10	11	15	20	23	49	20	32	13	13	32	20	17	19	13	16	49
11-Dec	18	19	16	19	16	17	18	15	14	14	16	18	16	18	18	17	13	11	12	11	11	14	12	11	19
12-Dec	14	15	16	18	17	19	20	21	20	18	19	20	20	23	22	23	24	22	22	23	21	21	23	20	24
13-Dec	19	21	21	20	24	19	19	18	17	17	16	19	16	15	14	15	14	13	15	17	15	16	14	13	24
14-Dec	62	69	15	36	21	12	14	19	14	14	16	14	16	15	16	16	17	17	15	15	22	27	40	27	69
15-Dec	24	87	37	21	21	25	26	26	27	26	30	26	25	32	31	26	28	25	25	25	30	27	25	26	87
16-Dec	26	26	27	24	26	23	27	25	23	24	26	28	28	29	26	25	26	24	24	25	27	25	24	25	29
17-Dec	25	25	22	22	22	21	26	23	20	23	24	27	26	25	27	19	14	19	25	17	22	17	23	76	76
18-Dec	23	8	13	13	7	8	10	11	9	14	15	15	20	31	25	20	15	24	20	UO	UO	54	50	11	54
19-Dec	11	14	14	13	19	19	21	25	20	47	37	31	27	53	27	42	13	16	12	11	11	12	13	13	53
20-Dec	11	12	14	12	14	15	14	15	16	15	20	19	23	23	23	22	22	20	20	18	18	17	18	16	23
21-Dec	17	19	15	21	34	16	12	15	11	13	14	16	17	43	20	14	24	47	23	47	20	23	59	34	59
22-Dec	30	12	12	11	12	14	12	17	21	19	18	17	19	26	22	14	13	17	34	22	22	20	19	18	34
23-Dec	19	17	19	17	16	17	19	18	19	19	19	17	19	18	15	15	16	16	16	16	18	18	14	16	19
24-Dec	20	22	22	18	14	14	15	14	12	13	15	19	17	17	16	47	20	16	16	16	17	16	15	14	47
25-Dec	14	15	15	14	16	13	12	12	14	20	23	22	20	20	20	19	16	15	15	15	14	15	14	14	23
26-Dec	12	13	14	12	15	15	14	13	15	15	15	17	26	22	27	14	10	29	32	10	19	16	21	21	32
27-Dec	59	63	41	24	75	11	56	42	49	55	20	68	27	38	20	39	15	60	85	47	26	10	11	12	85
28-Dec	16	22	28	39	39	62	15	14	15	16	15	15	18	18	21	19	19	18	19	19	20	20	20	18	62
29-Dec	19	18	19	23	20	20	21	19	20	18	20	21	21	20	22	21	18	19	19	21	23	21	19	18	23
30-Dec	19	20	19	18	18	19	19	20	20	18	19	20	21	20	21	20	20	20	20	20	19	21	20	19	21
31-Dec	20	19	18	19	20	18	20	19	21	19	20	21	19	18	18	21	18	17	18	16	15	17	16	16	21
	62	87	41	39	75	62	56	42	49	55	53	90	44	53	31	47	28	60	85	47	30	54	59	76	

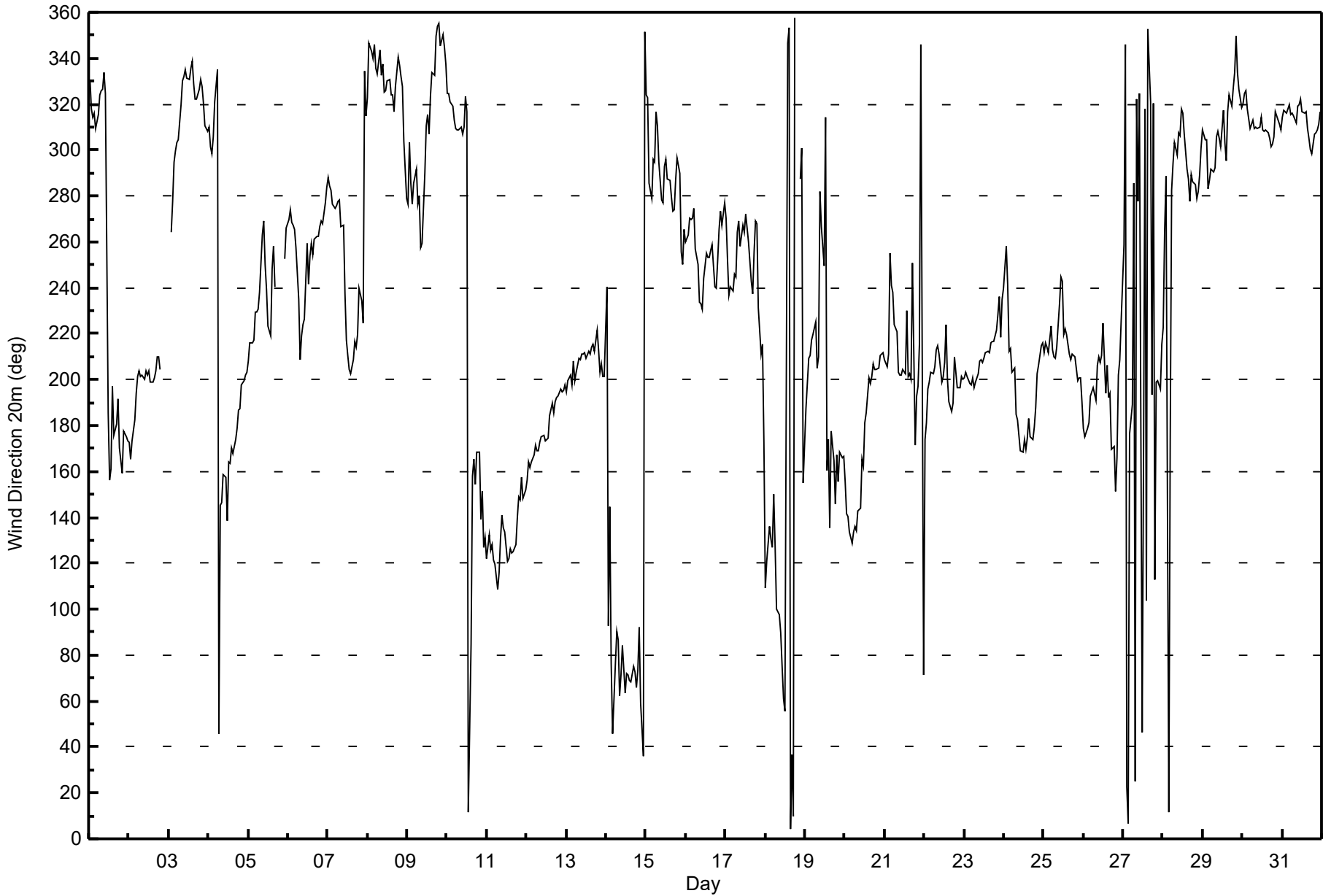
Diurnal Maximum

UO - Unstable Operation



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 20m (WD20) - deg
Stony Mountain - December 2024





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS19 FIREBAG DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
DECEMBER 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	35.5	0	6.5	0
H2S (ppb) Average	707	36	37	99.87	1.4	0	0.3	0
THC (ppm) Average	688	34	56	97.04	2.6	-	2.4	-
NO2 (ppb) Average	708	36	36	100	42	0	18.2	-
NO (ppb) Average	708	36	36	100	35.4	-	9.5	-
NOX (ppb) Average	708	36	36	100	77.4	-	27.7	-
Temperature 2 m (C) Average	744	0	0	100	2.1	-	0.3	-
Relative Humidity (%) Average	744	0	0	100	97.6	-	96.4	-
Wind Speed 10 m (km/h) Average	740	0	4	99.46	34	-	21	-
Wind Direction 10 m (deg) Average	740	0	4	99.46	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
 DECEMBER 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	1.32	3.1	-	0	0	0.1	0.3	0.9	3.6	35.5
H2S (ppb) Average	707	0.14	0.1	-	0	0	0.1	0.1	0.2	0.3	1.4
THC (ppm) Average	688	2.31	0.1	-	2.1	2.2	2.3	2.3	2.3	2.4	2.6
NO2 (ppb) Average	708	5	5.4	-	0.1	0.3	1.6	3.6	6.1	11.2	42
NO (ppb) Average	708	1.38	3.1	-	0	0	0	0.5	1.5	3.3	35.4
NOX (ppb) Average	708	6.38	7.9	-	0.1	0.3	1.8	4.6	8.1	13	77.4
Temperature 2 m (C) Average	744	-12.76	8	-	-29.8	-23.5	-19.5	-11.7	-6.2	-2.2	2.1
Relative Humidity (%) Average	744	83.3	7	-	63.7	74.2	77.9	83.5	89	91.9	97.6
Wind Speed 10 m (km/h) Average	740	10.5	6	-	1	3	6	10	15	18	34
Wind Direction 10 m (deg) Average	740	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FIREBAG (AMS19)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	17 Dec 2024 14:00	17 Dec 2024 14:00	1	Maintenance - manifold blower adjusted
THC	08 Dec 2024 18:00	09 Dec 2024 12:00	19	Unstable Operation - flatline in analyzer output signal
THC	09 Dec 2024 13:00	09 Dec 2024 14:00	2	Maintenance - analyzer rebooted
Wind Speed, Wind Direction	09 Dec 2024 00:00	09 Dec 2024 01:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	10 Dec 2024 17:00	10 Dec 2024 17:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	18 Dec 2024 01:00	18 Dec 2024 01:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Firebag - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 35.5 ppb on Dec 18 01:00	Maximum Daily Average: 6.5 ppb on Dec 19		Hours of Data:	708
Minimum Value: 0.0 ppb on Dec 1 04:00	Minimum Daily Average: 0.0 ppb on Dec 30		Hours of Missing Data:	36
Maximum Diurnal Average: 2.3 ppb at hour 12	Minimum Diurnal Average: 0.5 ppb at hour 19		Hours of Calibration:	35
Monthly Average: 1.32 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.9 P ₉₀ = 3.6 P ₉₉ = 14.7		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-Dec	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.8	0.8	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.9	1.3	0.2	1.3	
2-Dec	1.3	Z	1.3	1.1	1.0	0.9	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.5	1.3	
3-Dec	4.5	11.7	Z	0.7	0.2	0.2	0.2	0.2	0.2	0.5	0.4	0.4	0.4	0.4	0.3	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.9	11.7	
4-Dec	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	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.1	0.3	
5-Dec	0.2	0.3	0.9	3.3	Z	10.2	14.0	10.6	11.4	9.7	4.9	9.9	9.2	8.4	11.4	5.7	1.3	0.3	0.2	0.2	0.2	0.1	0.2	0.1	4.9	14.0	
6-Dec	0.1	0.1	0.1	0.3	0.2	Z	2.8	1.9	2.4	6.8	6.3	3.8	2.4	0.7	0.5	1.1	1.5	1.4	1.9	3.1	6.8	2.0	0.7	0.6	2.1	6.8	
7-Dec	Z	0.5	0.3	0.1	0.1	0.1	0.5	0.4	0.5	2.3	6.2	6.5	4.1	9.5	13.4	1.0	5.1	3.1	0.8	1.1	0.3	0.2	0.1	0.2	2.5	13.4	
8-Dec	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.2	
9-Dec	0.0	0.8	Z	6.5	3.5	1.9	1.3	0.8	0.8	1.4	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.8	6.5	
10-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.6	0.2	0.1	0.6	
11-Dec	0.1	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	
12-Dec	0.1	0.1	0.2	0.3	0.5	Z	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.5
13-Dec	Z	0.5	0.5	0.6	0.4	0.4	0.4	0.5	0.5	0.4	0.5	1.3	2.0	2.5	3.1	2.6	1.6	0.7	0.4	1.4	1.1	2.2	3.2	1.8	1.2	3.2	
14-Dec	0.5	Z	0.4	0.4	0.2	0.1	0.1	0.3	0.6	6.3	5.4	4.0	6.7	1.7	0.4	0.1	0.2	0.3	0.2	1.9	3.7	0.5	0.7	7.7	1.8	7.7	
15-Dec	2.2	16.9	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	0.8	16.9	
16-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	C	C	C	0.4	0.3	0.2	0.1	0.1	0.0	0.1	0.4	0.1	0.4	
17-Dec	0.7	0.3	0.1	0.2	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	M	0.0	0.0	0.1	0.1	0.8	2.2	3.1	2.9	5.6	11.2	1.3	11.2	
18-Dec	35.5	20.1	2.8	3.9	3.8	Z	0.8	0.7	1.5	2.2	2.3	1.9	1.6	1.8	1.6	1.1	1.1	0.9	0.7	0.6	0.5	0.6	0.8	0.7	3.8	35.5	
19-Dec	Z	0.9	1.1	1.5	1.7	5.0	13.1	10.7	16.5	21.0	9.8	22.7	16.4	3.8	2.9	2.1	1.8	1.9	3.9	1.8	2.3	5.2	2.0	0.8	6.5	22.7	
20-Dec	0.8	Z	0.9	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.5	2.1	3.3	3.1	0.6	3.3	
21-Dec	0.6	1.0	Z	10.5	12.2	13.2	12.1	6.7	3.6	11.3	14.7	8.5	2.4	0.8	0.7	0.7	1.6	1.3	0.4	0.5	0.6	0.6	0.5	0.6	4.6	14.7	
22-Dec	0.6	0.7	0.9	Z	0.7	0.7	0.8	1.2	1.4	1.5	1.2	1.1	1.2	1.6	0.7	0.8	0.9	0.8	0.9	0.5	0.5	0.5	0.7	0.7	0.9	1.6	
23-Dec	0.6	0.5	0.4	0.5	Z	0.8	0.5	0.5	1.5	1.6	1.0	0.7	0.5	0.4	0.3	0.3	0.7	2.4	1.7	3.9	5.6	5.4	4.0	2.5	1.6	5.6	
24-Dec	1.5	0.6	3.7	5.8	5.4	Z	0.5	0.5	0.1	0.2	0.8	0.5	0.4	0.5	0.4	0.2	0.2	0.3	0.3	0.5	0.4	0.4	0.5	0.5	1.1	5.8	
25-Dec	Z	0.2	0.3	1.3	4.1	3.0	3.3	2.7	4.4	3.4	5.5	7.2	3.7	5.1	4.6	2.4	1.9	0.6	0.2	0.2	0.1	0.4	0.4	0.2	2.4	7.2	
26-Dec	0.2	Z	1.1	0.7	0.4	0.8	1.1	0.9	0.8	0.8	0.8	1.0	0.7	0.6	0.5	0.4	0.5	0.4	0.4	0.9	0.8	0.4	0.6	0.9	0.7	1.1	
27-Dec	1.0	0.9	Z	0.9	0.8	0.8	0.8	0.8	1.1	0.9	0.5	0.4	0.3	0.4	0.4	0.5	2.6	1.0	1.6	0.1	0.2	0.1	0.1	0.1	0.7	2.6	
28-Dec	0.1	0.0	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.2	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.4	
29-Dec	0.0	0.0	0.1	0.0	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
30-Dec	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	
31-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	

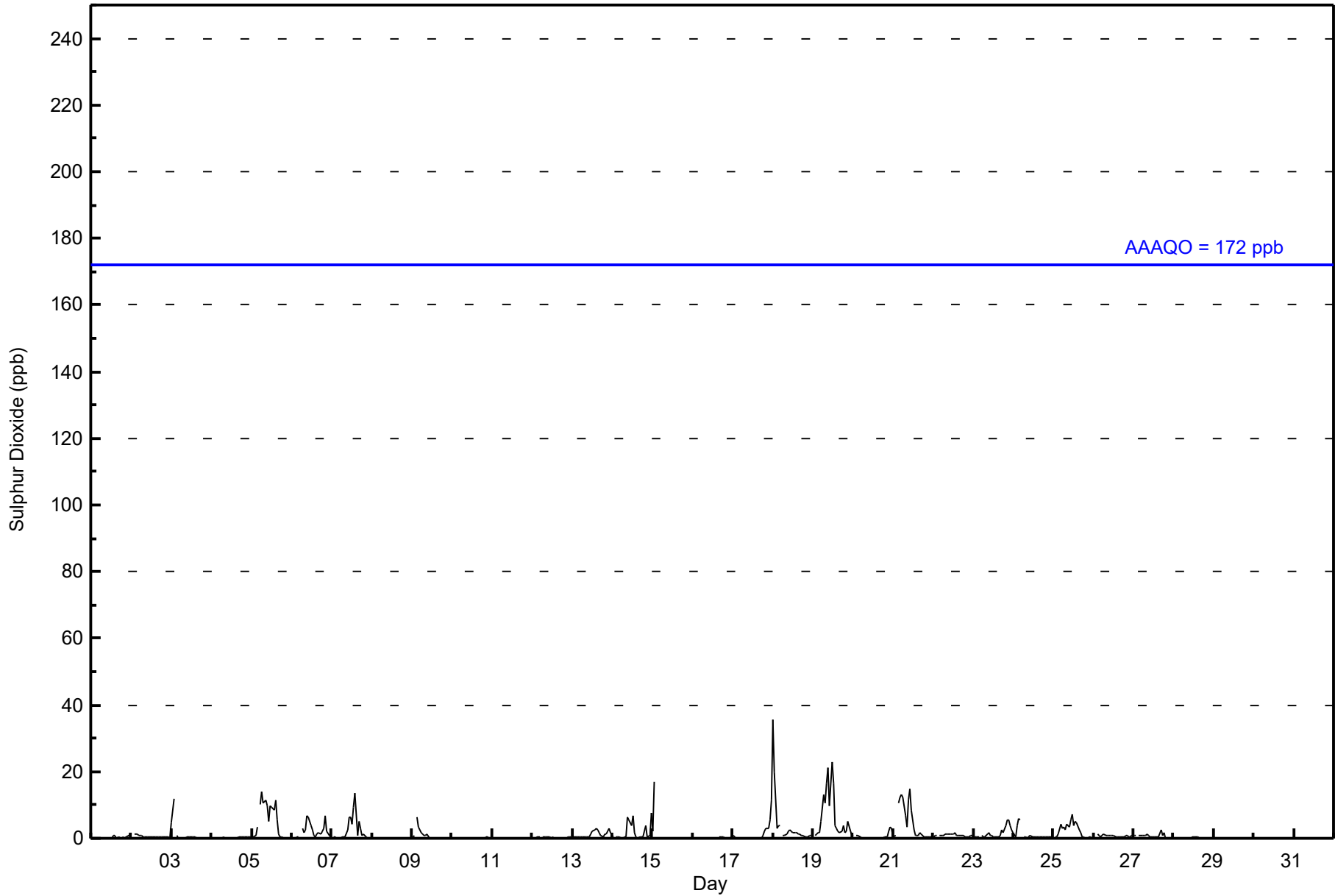
2.0	2.2	0.6	1.5	1.4	1.5	1.7	1.3	1.6	2.3	2.0	2.3	1.8	1.4	1.4	0.7	0.7	0.6	0.5	0.7	0.9	0.8	0.8	1.1	Diurnal Average	
35.5	20.1	3.7	10.5	12.2	13.2	14.0	10.7	16.5	21.0	14.7	22.7	16.4	9.5	13.4	5.7	5.1	3.1	3.9	3.9	6.8	5.4	5.6	11.2	Diurnal Maximum	

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
Firebag - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Firebag - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	687	97.03	97.03
11 - 20	18	2.54	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
Firebag - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	79	16	14	12	14	16	25	93	107	60	72	34	12	14	19	97	684
11 - 20	0	0	1	0	0	1	1	1	2	3	7	1	1	0	0	0	18
21 - 60	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	79	16	15	12	14	17	26	94	109	63	80	36	13	14	19	97	704

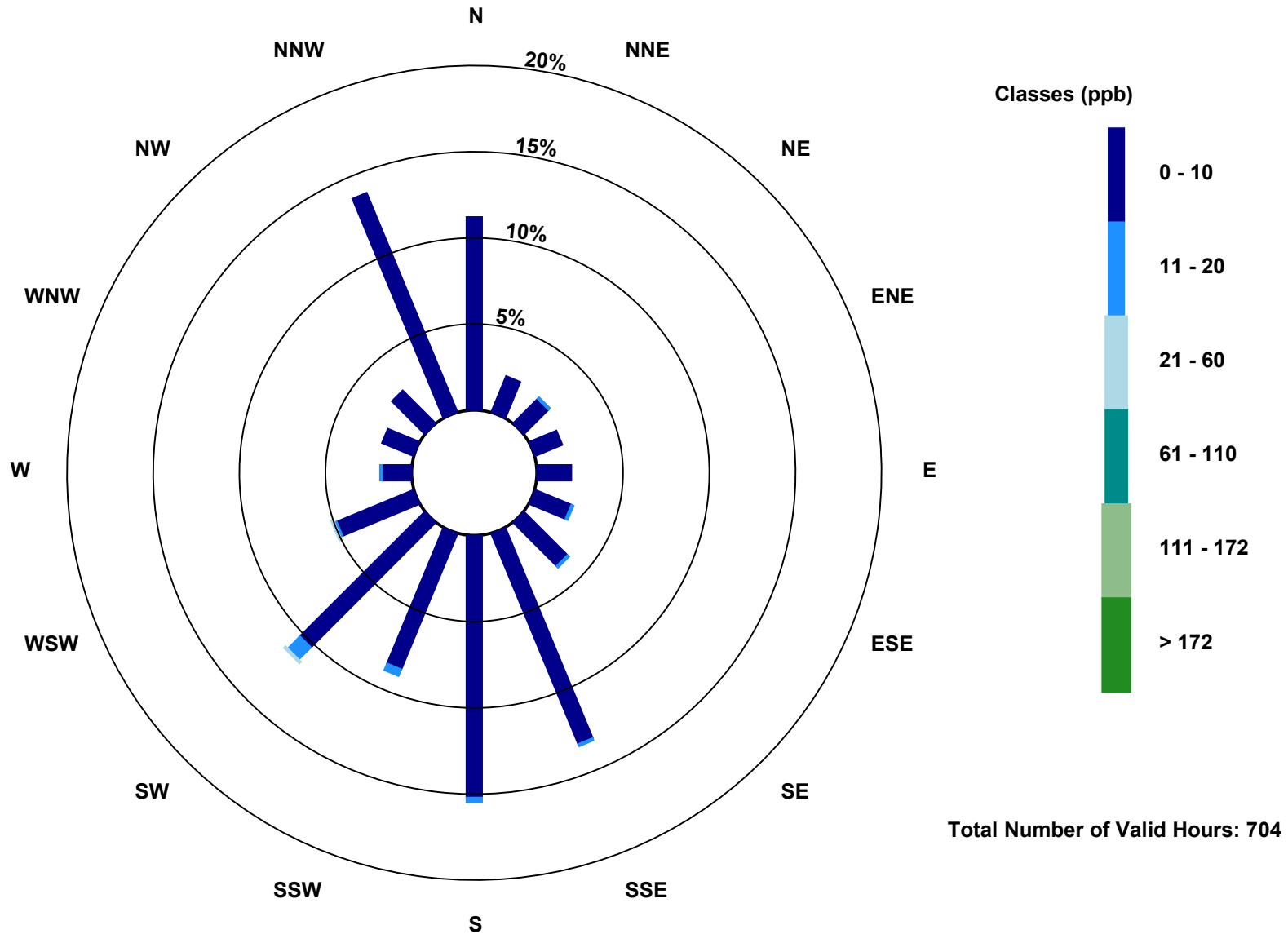
Total Number of Valid Hours: 704

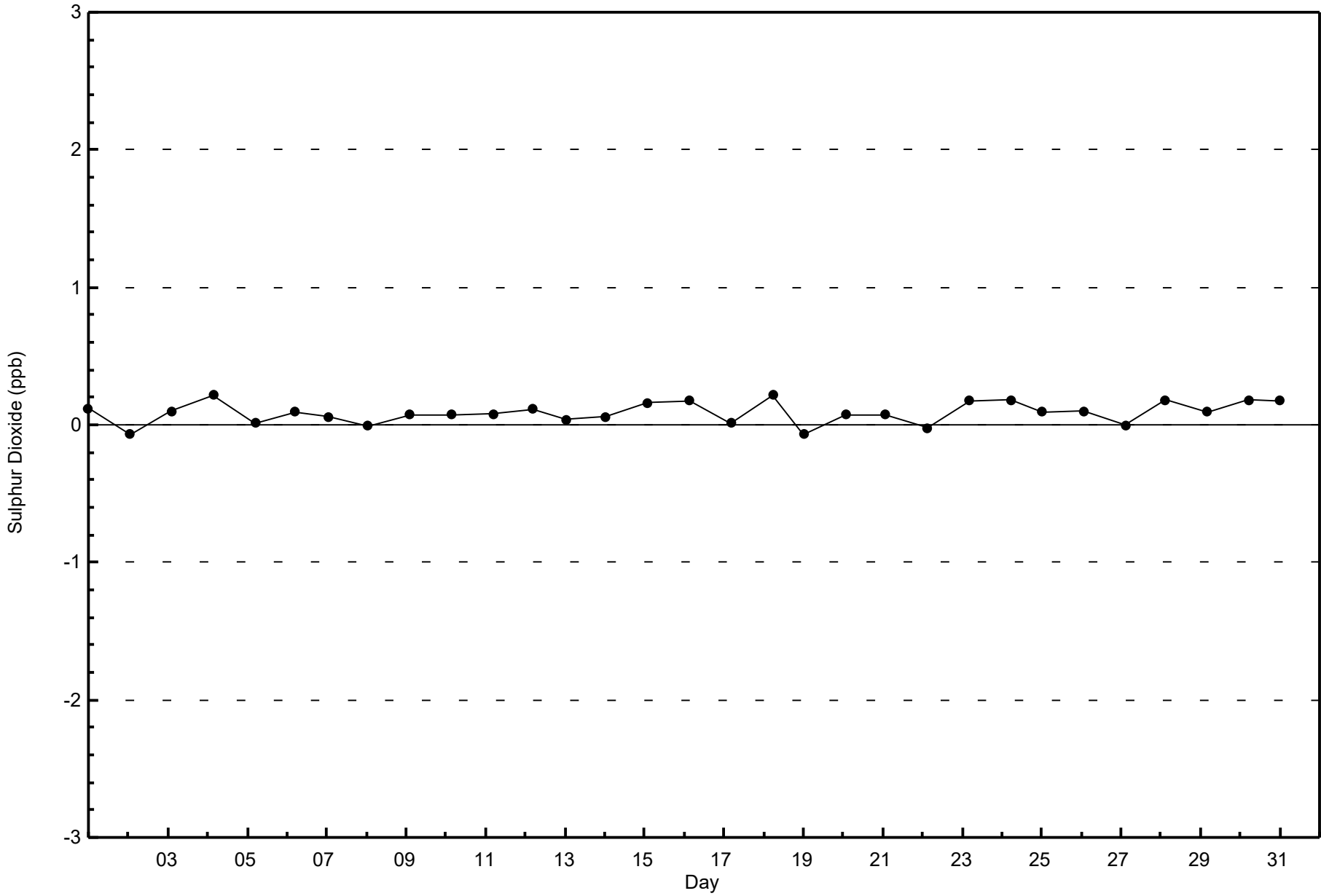
Total Number of Hours: 744

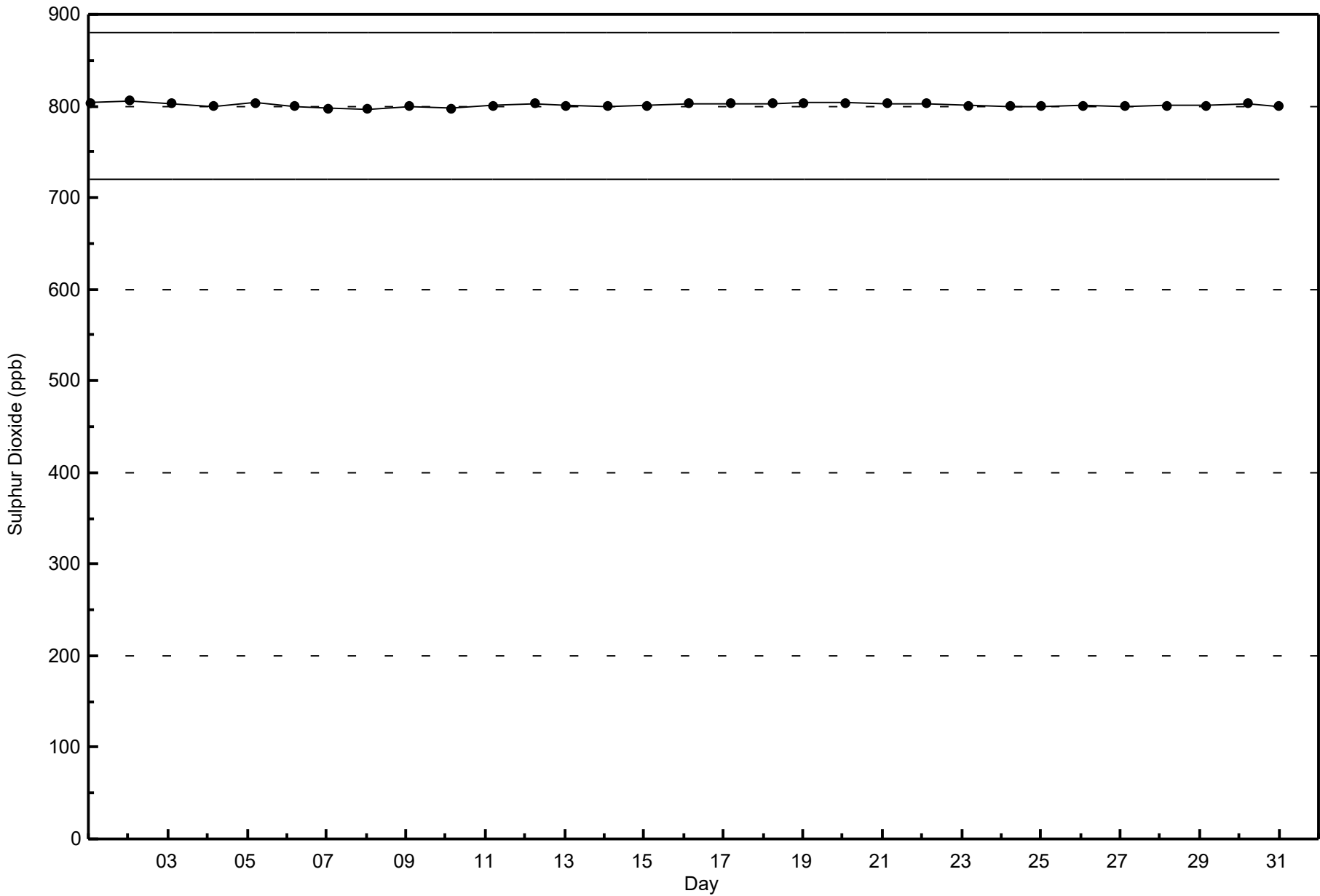


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Firebag



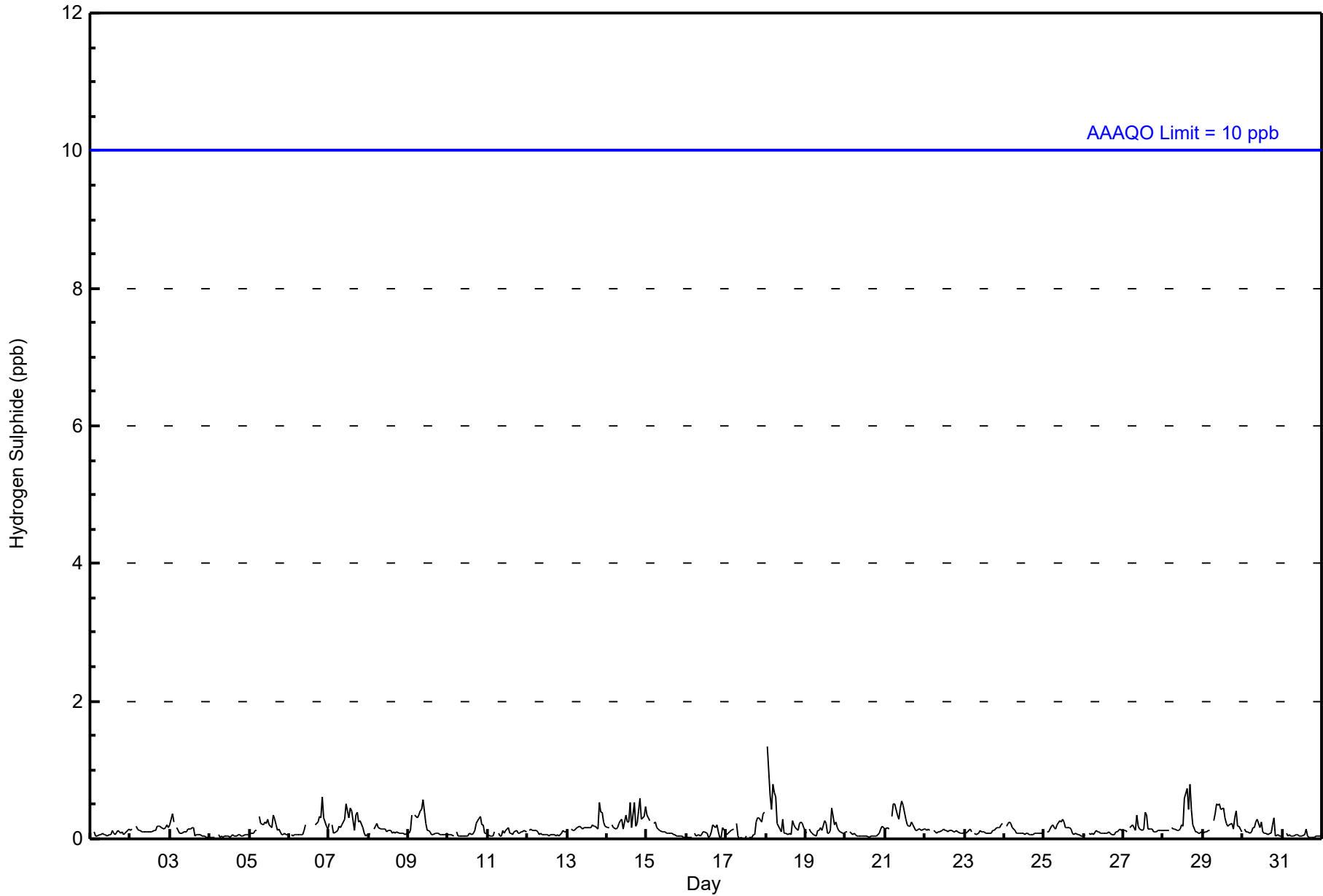






Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Firebag - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Firebag - December 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
Firebag - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	80	14	16	12	14	17	27	94	108	64	81	30	13	16	21	97	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	80	14	16	12	14	17	27	94	108	64	81	30	13	16	21	97	704

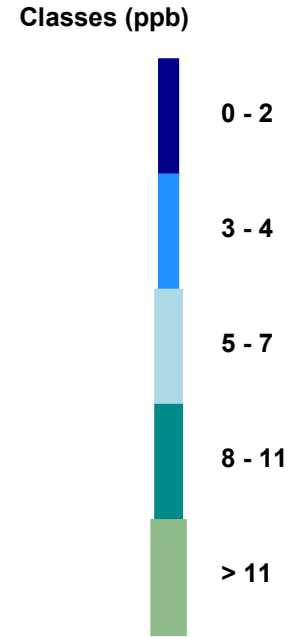
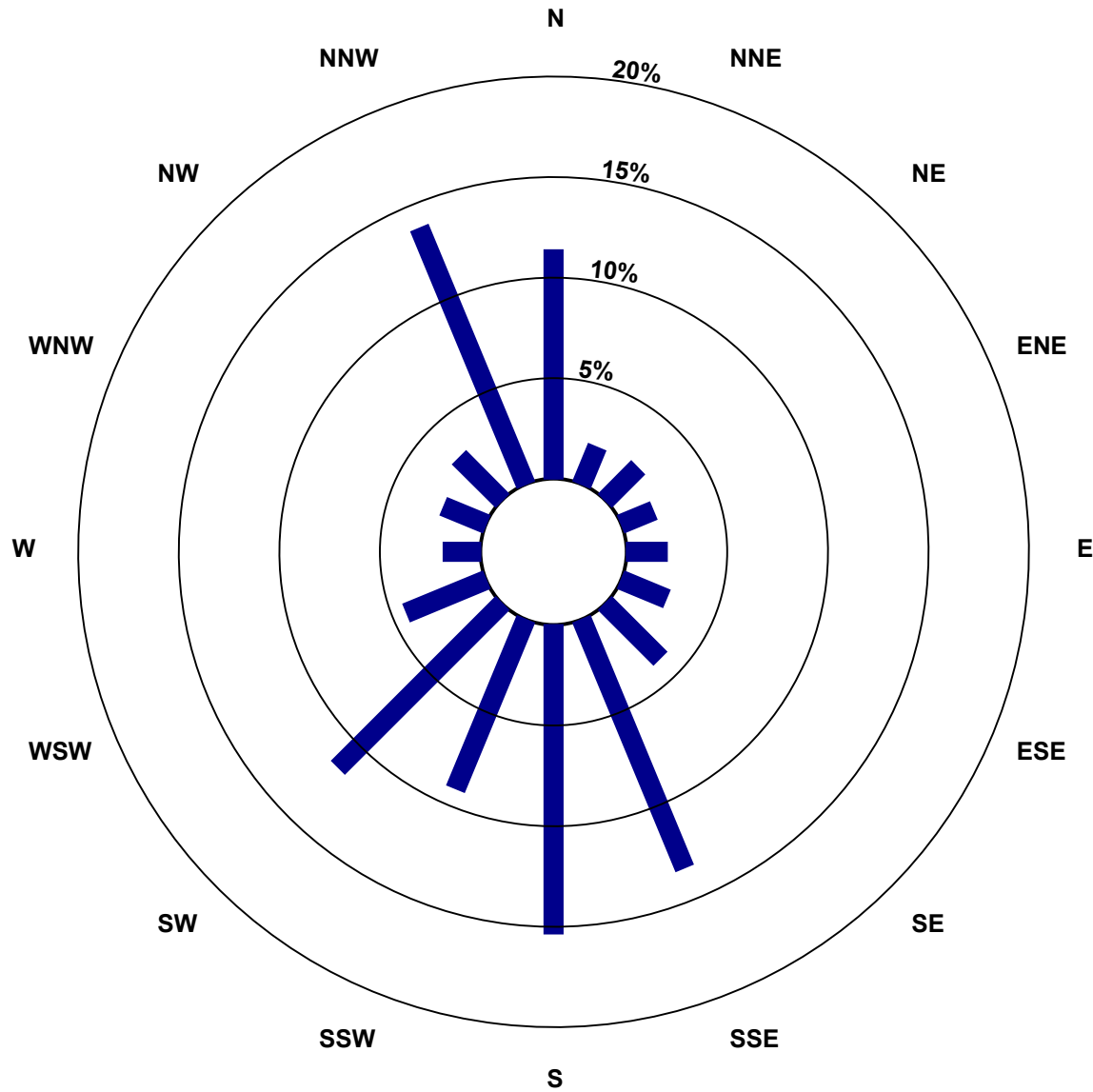
Total Number of Valid Hours: 704

Total Number of Hours: 744

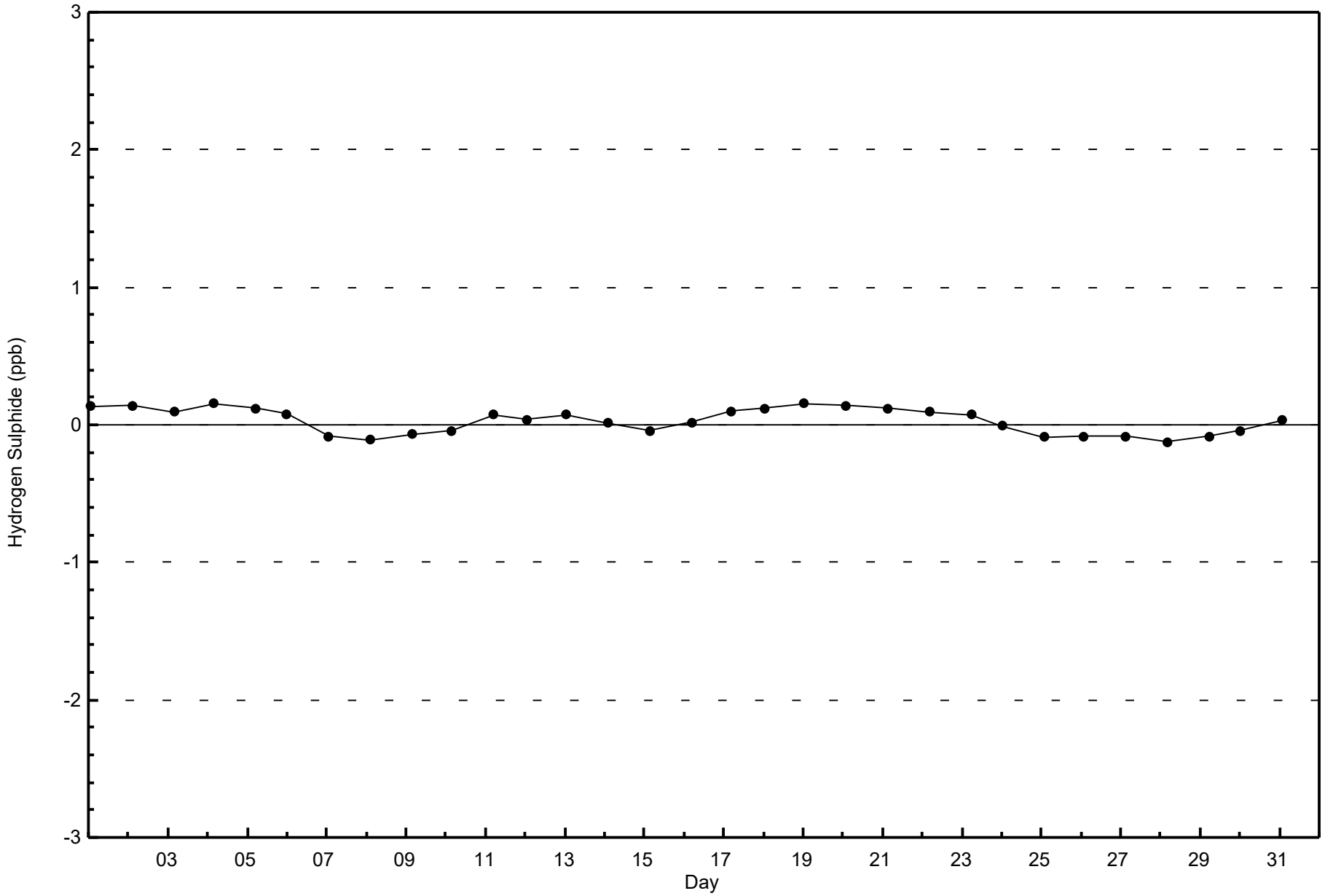


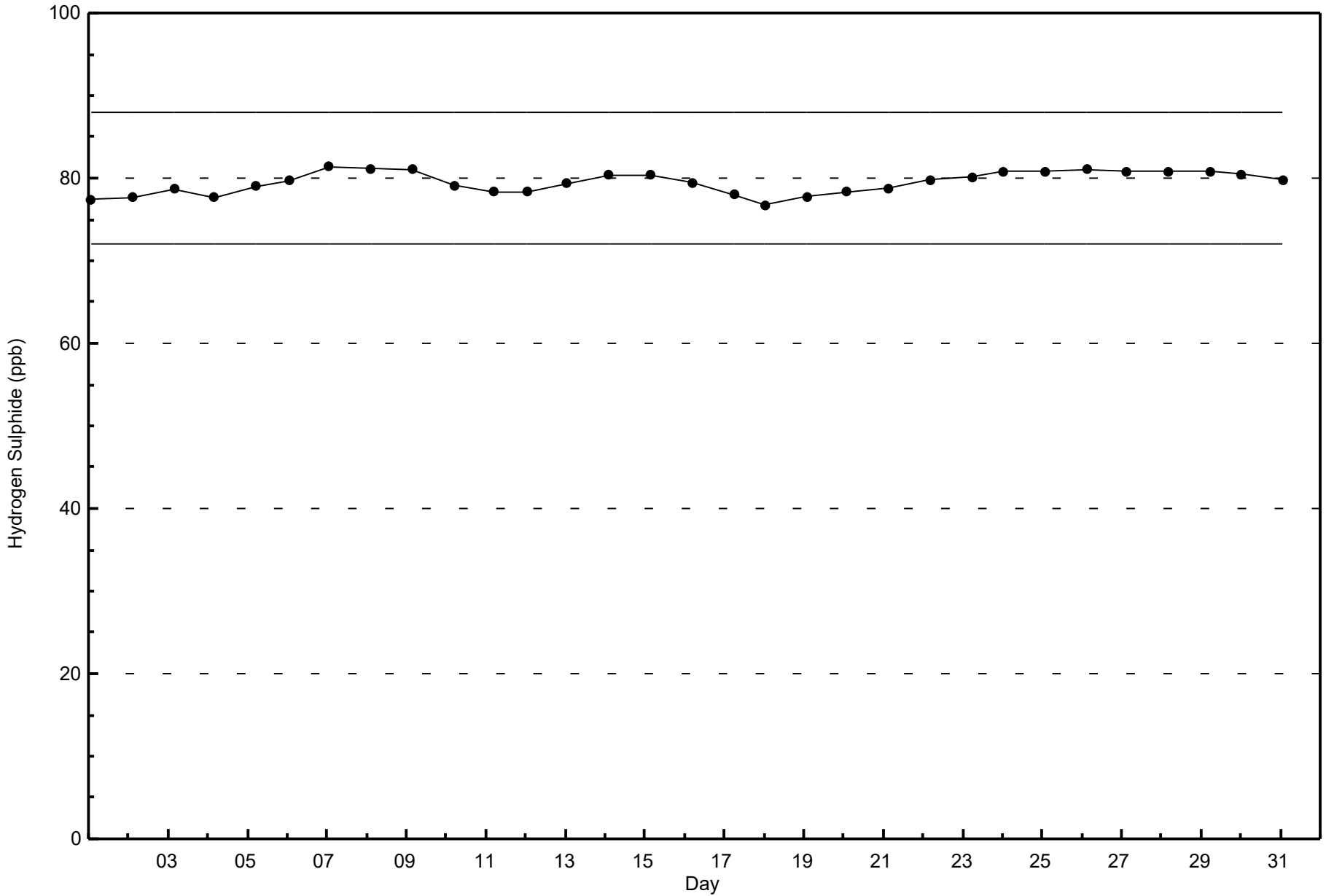
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Firebag



Total Number of Valid Hours: 704







Wood Buffalo Environmental Association
Summary of Hour Averages

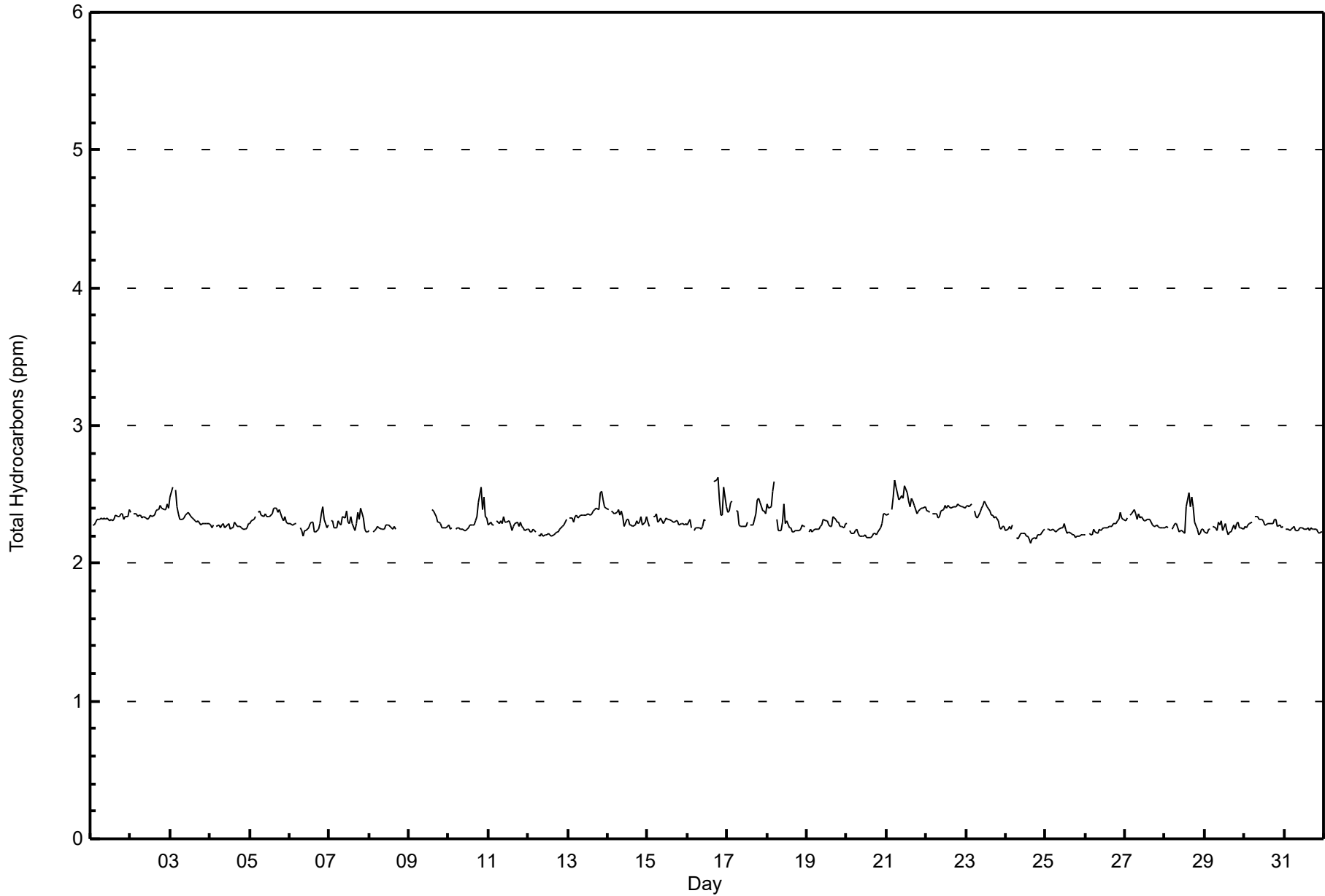
Total Hydrocarbons (THC) - ppm
Firebag - December 2024

Maximum Value: 2.6 ppm on Dec 16 19:00		Maximum Daily Average: 2.4 ppm on Dec 21		Hours in Service: 744																						
Minimum Value: 2.1 ppm on Dec 24 16:00		Minimum Daily Average: 2.2 ppm on Dec 24		Hours of Data: 688																						
Maximum Diurnal Average: 2.3 ppm at hour 20		Minimum Diurnal Average: 2.3 ppm at hour 8		Hours of Missing Data: 56																						
Monthly Average: 2.31 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 = 2.6		Hours of Calibration: 34																						
				Percent Operational Time: 97.0																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.3	2.4	
2-Dec	2.4	Z	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
3-Dec	2.5	2.6	Z	2.5	2.4	2.4	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	2.6	
4-Dec	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	
5-Dec	2.3	2.3	2.3	2.3	Z	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	
6-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.4	
7-Dec	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3	2.4	2.3	2.4	2.3	2.2	2.2	2.2	2.2	2.4	
8-Dec	2.2	Z	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.2	2.3	2.2	UO	UO	UO	UO	UO	UO	2.3	
9-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	M	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
10-Dec	2.3	2.2	2.3	Z	2.2	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.5	2.4	2.5	2.3	2.3	2.5	
11-Dec	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.3	
12-Dec	2.2	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	
13-Dec	Z	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.5	
14-Dec	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
15-Dec	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	2.3	2.3	2.3	2.4	
16-Dec	2.3	2.3	2.3	Z	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.3	C	C	C	C	2.6	2.6	2.6	2.5	2.3	2.3	2.6	2.4	2.6	
17-Dec	2.4	2.4	2.4	2.5	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	M	2.3	2.3	2.3	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.5	
18-Dec	2.4	2.4	2.4	2.5	2.6	Z	2.3	2.2	2.2	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.6	
19-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
20-Dec	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	2.3	2.3	2.4	2.4	2.4	
21-Dec	2.3	2.4	Z	2.4	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.6	
22-Dec	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
23-Dec	2.4	2.4	2.4	2.4	Z	2.4	2.3	2.3	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.5	
24-Dec	2.2	2.2	2.3	2.3	2.3	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	
25-Dec	Z	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
26-Dec	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	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.4	
27-Dec	2.3	2.3	Z	2.3	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	
28-Dec	2.3	2.3	2.3	Z	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.5	2.4	2.5	2.4	2.3	2.2	2.2	2.2	2.3	2.3	2.5	
29-Dec	2.2	2.2	2.2	2.2	Z	2.3	2.3	2.2	2.3	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.3	
30-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
31-Dec	Z	2.3	2.2	2.2	2.2	2.3	2.3	2.2	2.2	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Firebag - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Firebag - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	688	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: 688

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Firebag - December 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	74	16	15	12	14	17	26	94	109	63	77	35	11	14	18	91	686
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	74	16	15	12	14	17	26	94	109	63	77	35	11	14	18	91	686

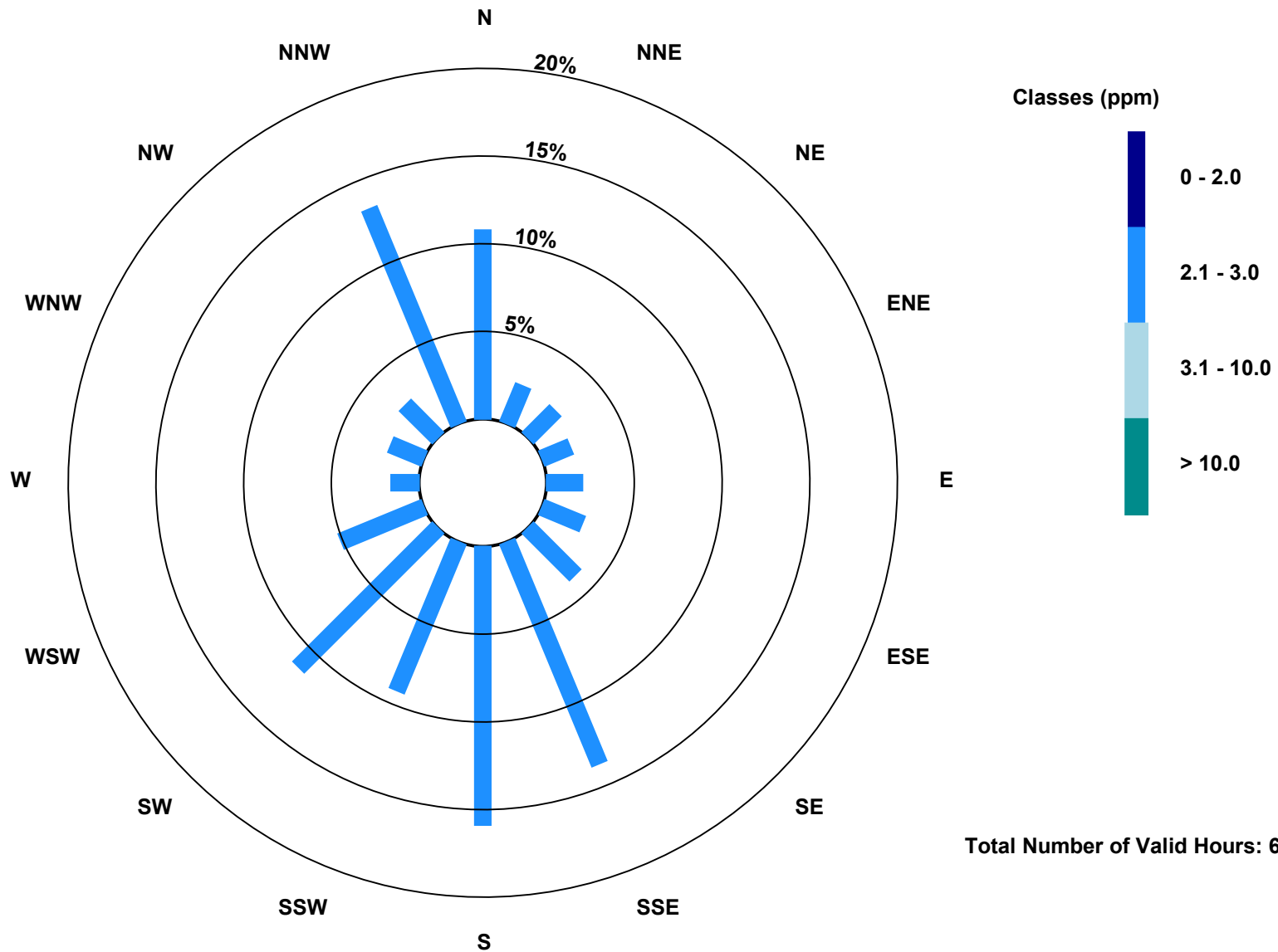
Total Number of Valid Hours: 686

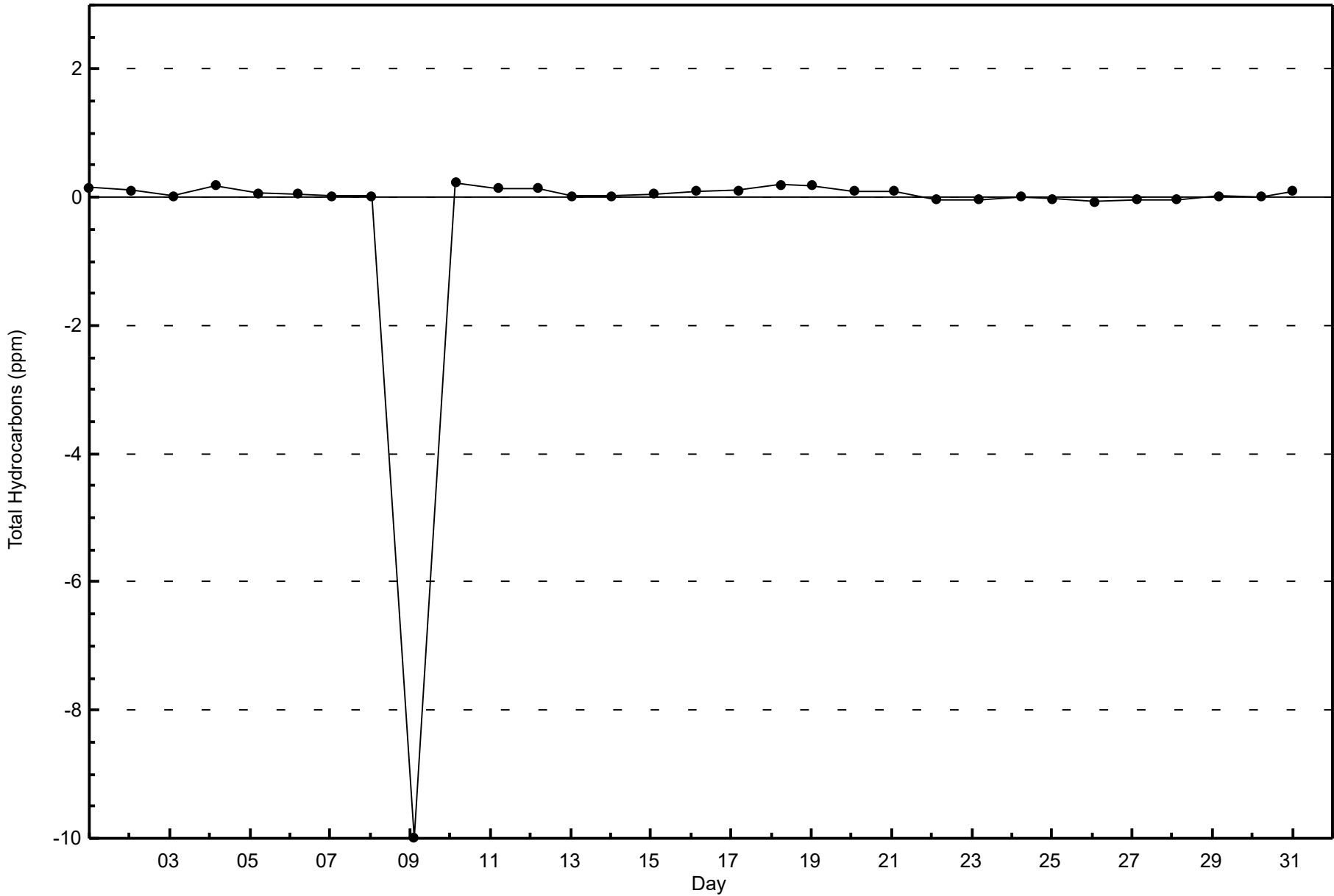
Total Number of Hours: 744

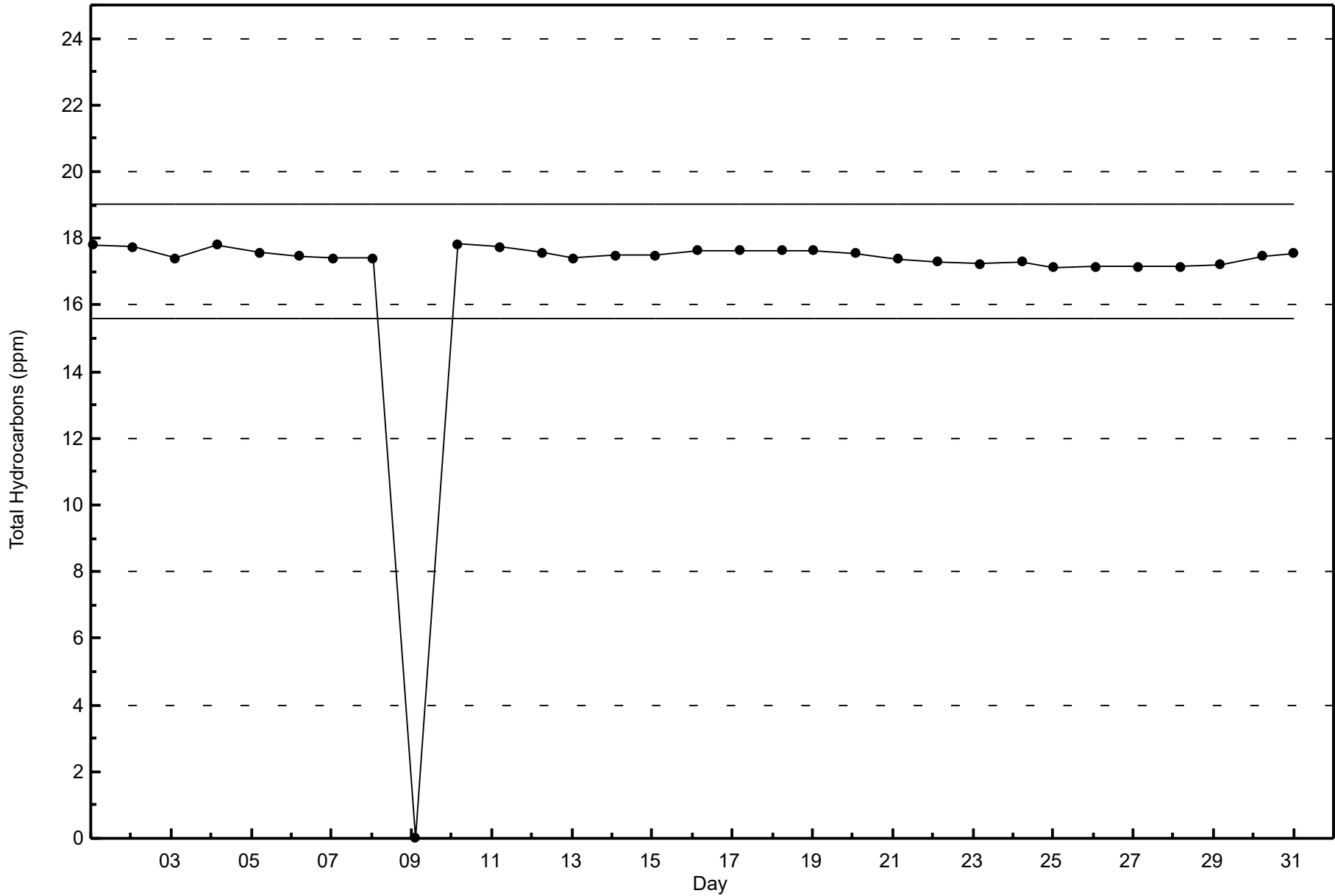


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Firebag







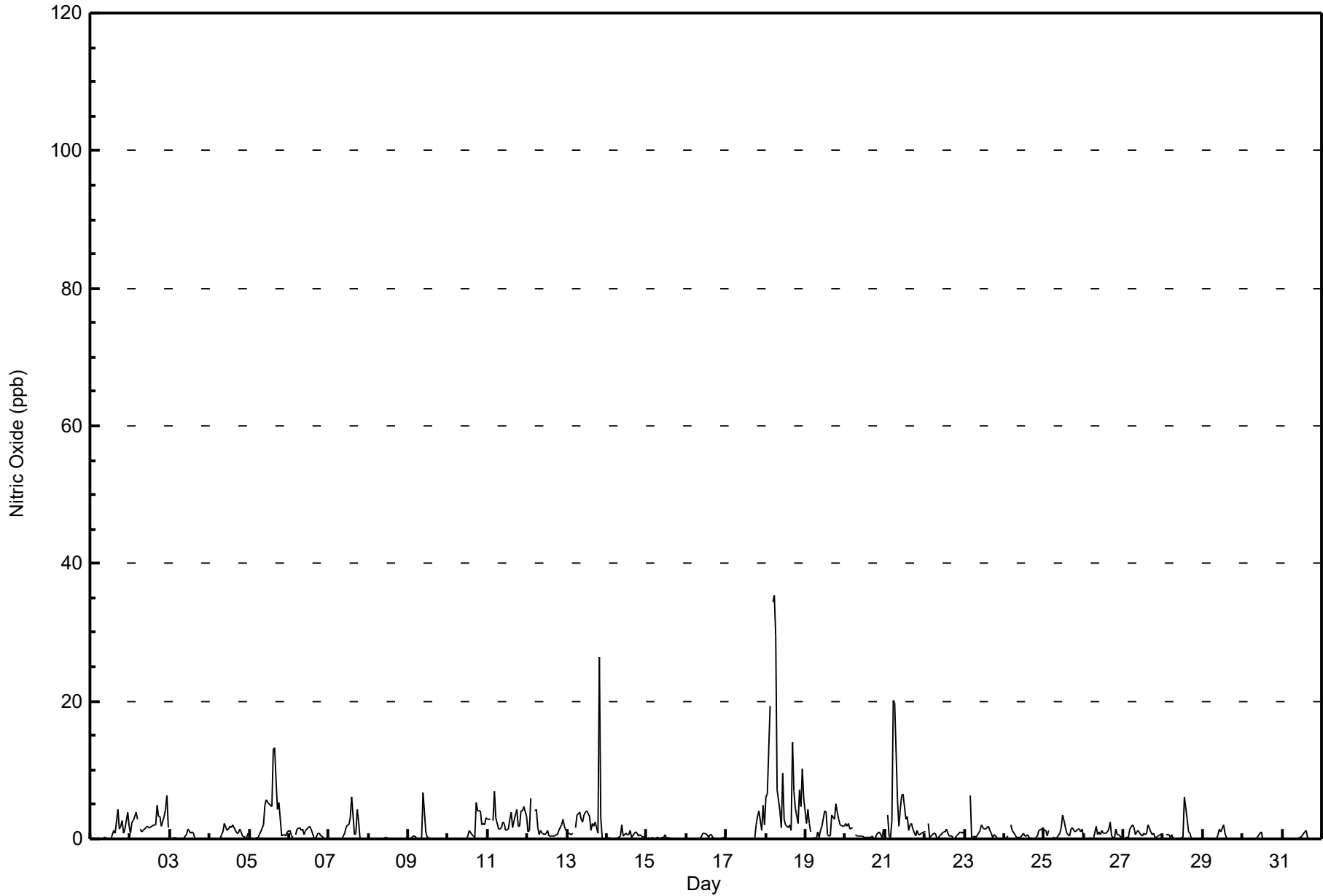


Maximum Value: 35.4 ppb on Dec 18 06:00																					Maximum Daily Average: 9.5 ppb on Dec 18					Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 1 04:00																					Minimum Daily Average: 0.0 ppb on Dec 8					Hours of Data: 708																							
Maximum Diurnal Average: 2.8 ppb at hour 6																					Minimum Diurnal Average: 0.7 ppb at hour 9					Hours of Missing Data: 36																							
Monthly Average: 1.38 ppb																					Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.5 Q ₃ = 1.5 P ₉₀ = 3.3 P ₉₉ = 14.0					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-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.7	1.2	0.8	4.3	1.5	1.8	2.6	0.8	1.3	3.8	1.7	0.9	4.3																							
2-Dec	0.9	2.5	2.7	3.8	2.9	Z	1.4	1.0	1.2	1.6	1.8	1.7	1.7	1.9	2.1	2.1	4.8	3.2	3.3	1.9	3.3	4.3	6.2	1.7	2.5	6.2																							
3-Dec	Z	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.6	1.3	0.9	0.9	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3																							
4-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.6	0.9	2.2	1.1	1.3	1.8	1.7	2.1	1.6	0.8	0.8	1.5	0.9	0.3	0.1	0.2	0.8	0.8	2.2																							
5-Dec	0.7	0.6	Z	0.1	0.1	0.1	0.5	1.1	2.0	4.9	5.7	5.3	5.0	4.7	12.9	13.3	8.4	4.4	5.2	0.5	0.7	0.7	0.4	0.9	3.4	13.3																							
6-Dec	1.2	0.5	0.3	Z	0.7	1.5	1.7	1.2	1.4	0.7	1.2	1.6	1.9	1.4	0.7	0.3	0.1	0.9	0.9	0.5	0.5	0.1	0.0	0.0	0.8	1.9																							
7-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.8	1.6	2.0	2.0	3.0	6.1	0.5	0.8	4.2	2.4	0.0	0.0	0.0	0.0	0.0	1.0	6.1																							
8-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
9-Dec	Z	0.1	0.3	0.4	0.4	0.1	0.0	0.1	0.2	6.7	0.9	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	0.4	6.7																							
10-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.2	0.6	0.3	0.2	5.2	4.2	4.0	2.0	2.3	2.1	3.0	1.1	5.2																							
11-Dec	2.9	2.9	Z	2.7	6.9	3.0	1.5	1.5	1.6	2.4	2.2	1.2	1.4	2.9	3.9	1.6	2.6	4.3	1.9	1.7	4.1	4.1	4.6	3.3	2.8	6.9																							
12-Dec	1.0	1.2	5.9	Z	4.0	4.3	1.7	0.7	1.3	0.9	0.6	0.8	1.1	0.3	0.5	0.3	0.5	0.5	0.6	1.3	2.1	2.9	1.9	1.3	1.5	5.9																							
13-Dec	0.9	0.9	0.7	0.9	Z	1.7	3.5	4.0	2.9	2.5	3.4	3.8	4.1	3.3	1.3	2.2	1.9	2.5	0.8	26.5	3.1	0.2	0.0	0.0	3.1	26.5																							
14-Dec	0.0	0.1	0.0	0.0	0.0	Z	0.1	0.2	0.4	2.1	0.4	0.8	0.6	0.6	1.2	0.2	0.7	1.0	0.8	0.4	0.7	0.3	0.3	0.4	0.5	2.1																							
15-Dec	Z	0.3	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.7	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	0.7																							
16-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.9	0.8	0.7	0.2	0.6	0.5	0.2	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.9																							
17-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	C	C	C	C	C	0.0	0.0	2.0	3.2	4.1	1.3	4.9	2.1	1.0	4.9																							
18-Dec	6.1	6.6	19.4	Z	34.4	35.4	29.5	7.1	4.1	1.6	9.5	2.8	2.1	1.7	2.1	1.2	14.1	6.9	4.5	2.2	7.1	4.6	10.2	5.8	9.5	35.4																							
19-Dec	2.2	4.3	2.1	1.0	Z	0.2	0.0	0.9	0.2	1.2	1.9	4.0	3.8	0.7	0.5	0.5	3.5	2.8	5.0	3.8	2.8	2.0	1.9	1.8	2.1	5.0																							
20-Dec	2.3	1.8	2.2	1.4	1.6	Z	0.7	0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.1	0.2	0.4	0.1	0.1	0.5	1.1	0.6	0.2	1.4	0.7	2.3																							
21-Dec	Z	3.6	0.5	0.2	2.6	20.0	19.7	5.7	1.8	4.3	6.2	6.6	2.8	3.2	1.3	2.1	2.3	1.4	0.4	1.2	0.5	0.7	0.8	1.1	3.9	20.0																							
22-Dec	0.9	Z	2.3	0.2	0.5	0.8	0.9	0.2	0.1	0.3	0.8	1.1	0.9	1.3	0.8	0.3	0.4	0.1	0.1	0.3	0.6	1.0	0.8	1.1	0.7	2.3																							
23-Dec	0.6	0.7	Z	6.3	0.1	0.2	0.4	0.1	0.8	1.2	2.0	1.7	1.4	1.4	1.7	1.2	0.7	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.9	6.3																							
24-Dec	0.0	0.1	0.4	Z	2.0	1.2	0.7	0.1	0.1	0.3	0.2	0.9	0.3	0.3	0.5	0.2	0.0	0.0	0.0	0.2	0.5	1.1	1.5	1.7	0.5	2.0																							
25-Dec	1.2	1.3	0.5	1.2	Z	0.2	0.2	0.0	0.2	0.9	1.7	3.5	2.6	1.6	0.8	0.4	1.4	1.6	1.1	1.0	1.4	1.4	1.0	1.3	1.2	3.5																							
26-Dec	0.0	0.0	0.0	0.0	0.2	Z	0.0	1.9	0.6	1.0	0.6	1.2	0.7	0.9	1.1	1.5	2.5	0.4	0.1	1.4	0.6	0.6	0.4	0.3	0.7	2.5																							
27-Dec	Z	0.2	0.2	0.2	1.4	2.0	1.6	0.7	0.9	1.1	0.9	0.4	0.8	0.5	0.8	2.0	1.1	0.7	0.7	0.2	0.3	0.4	0.5	0.6	0.8	2.0																							
28-Dec	0.4	Z	0.6	0.7	0.2	0.5	0.0	0.0	0.0	0.0	0.1	0.2	0.2	6.0	2.8	1.0	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.6	6.0																							
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.4	1.1	2.0	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.0																							
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9																							
31-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.3	1.1	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.2																							
																								0.8	1.1	1.5	0.8	2.3	2.8	2.1	0.9	0.7	1.3	1.5	1.6	1.3	1.4	1.6	1.2	1.7	1.4	1.2	1.8	1.2	1.0	1.4	1.0	Diurnal Average	
																								6.1	6.6	19.4	6.3	34.4	35.4	29.5	7.1	4.1	6.7	9.5	6.6	5.0	6.0	12.9	13.3	14.1	6.9	5.2	26.5	7.1	4.6	10.2	5.8	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Firebag - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Firebag - December 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

Nitric Oxide (NO) - ppb
Firebag - December 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	16	15	12	13	17	25	90	112	62	79	35	13	15	21	97	701
21 - 40	0	0	0	0	0	0	0	3	0	0	1	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	79	16	15	12	13	17	25	93	112	62	80	35	13	15	21	97	705

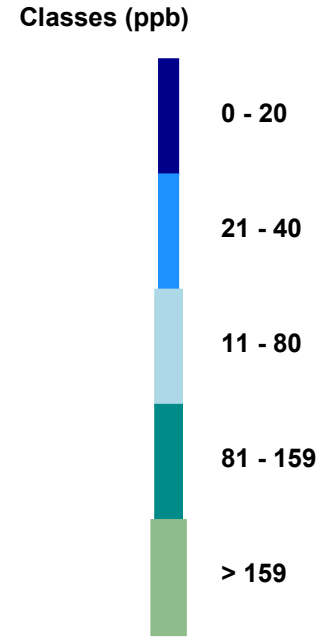
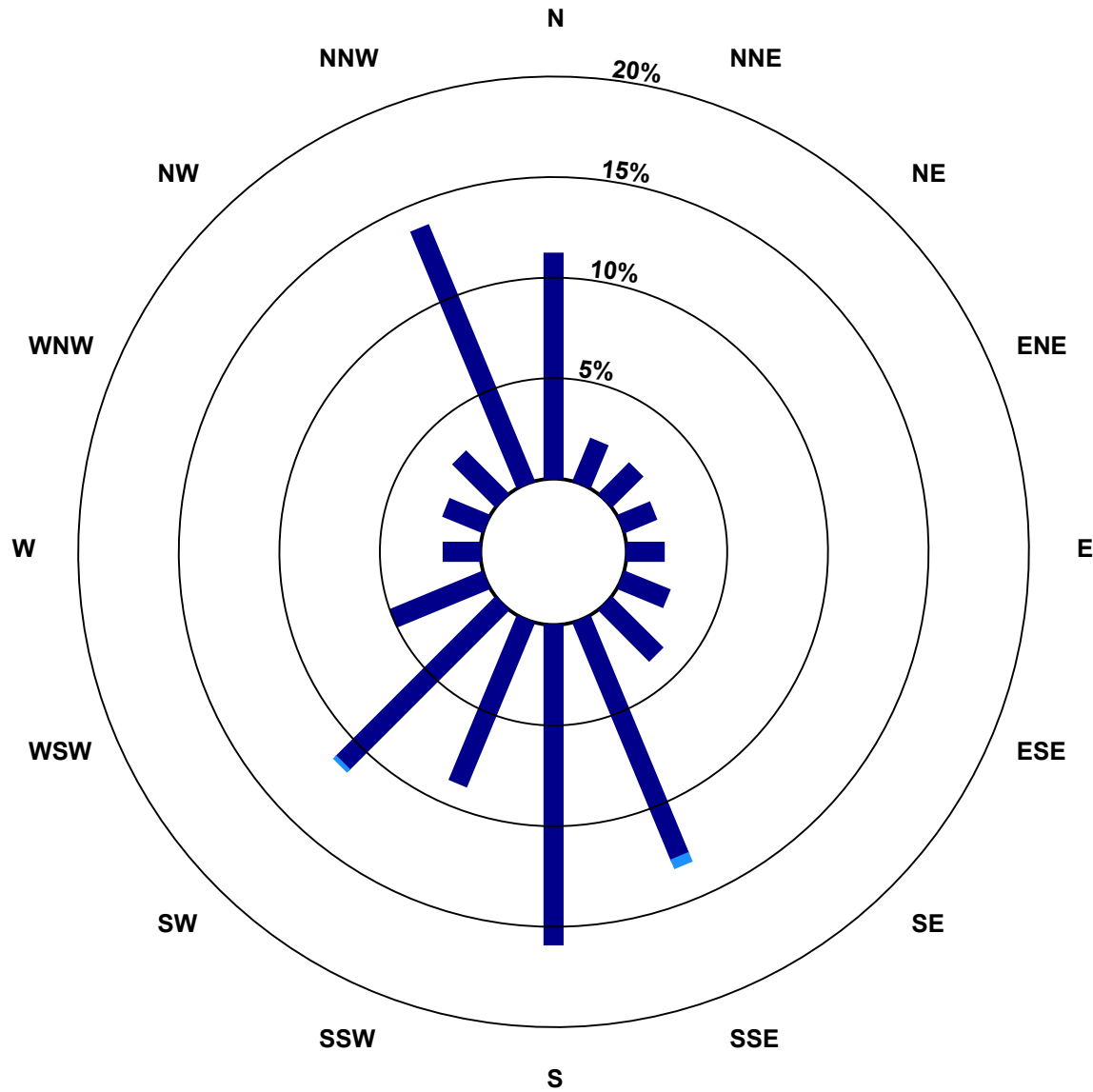
Total Number of Valid Hours: 705

Total Number of Hours: 744

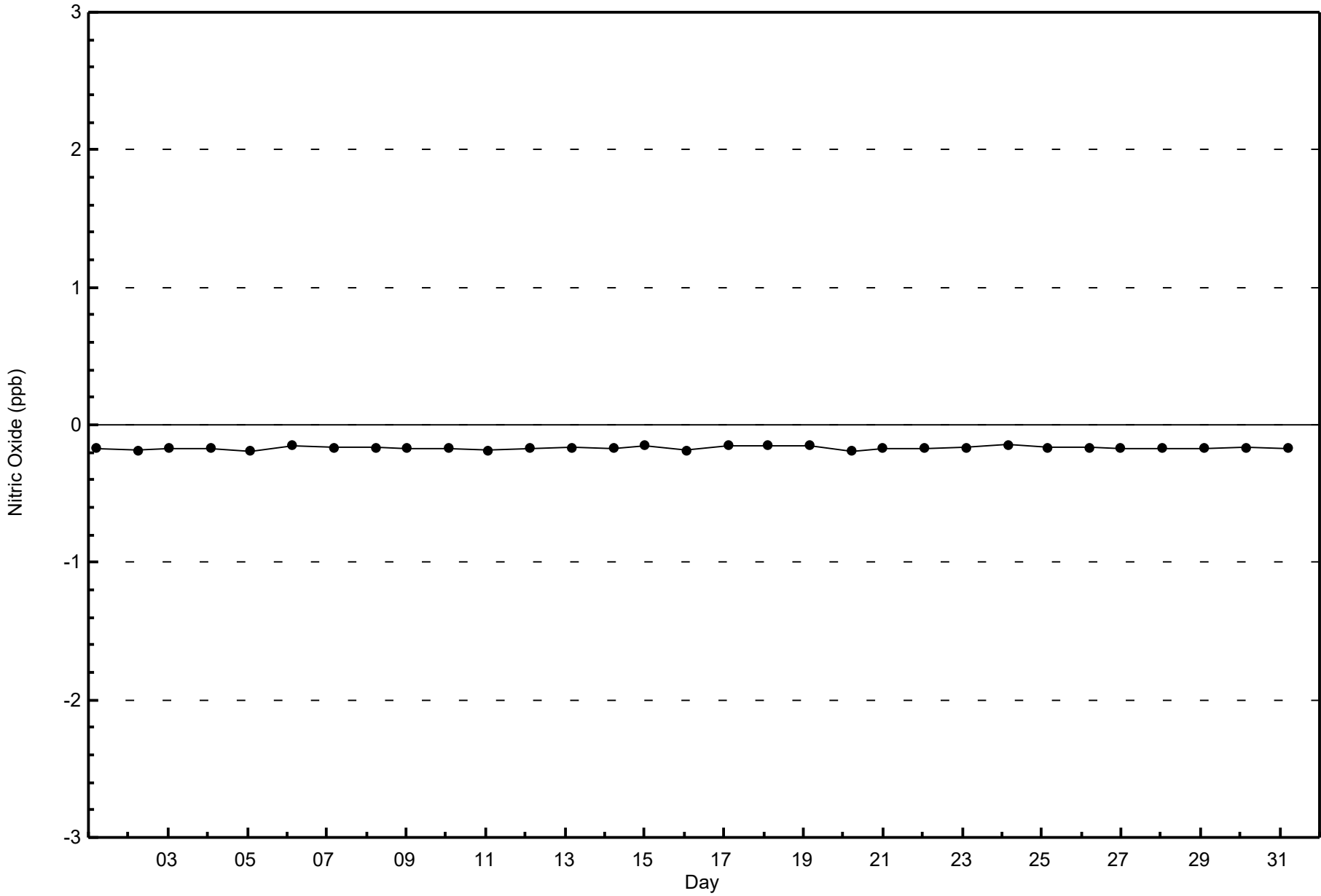


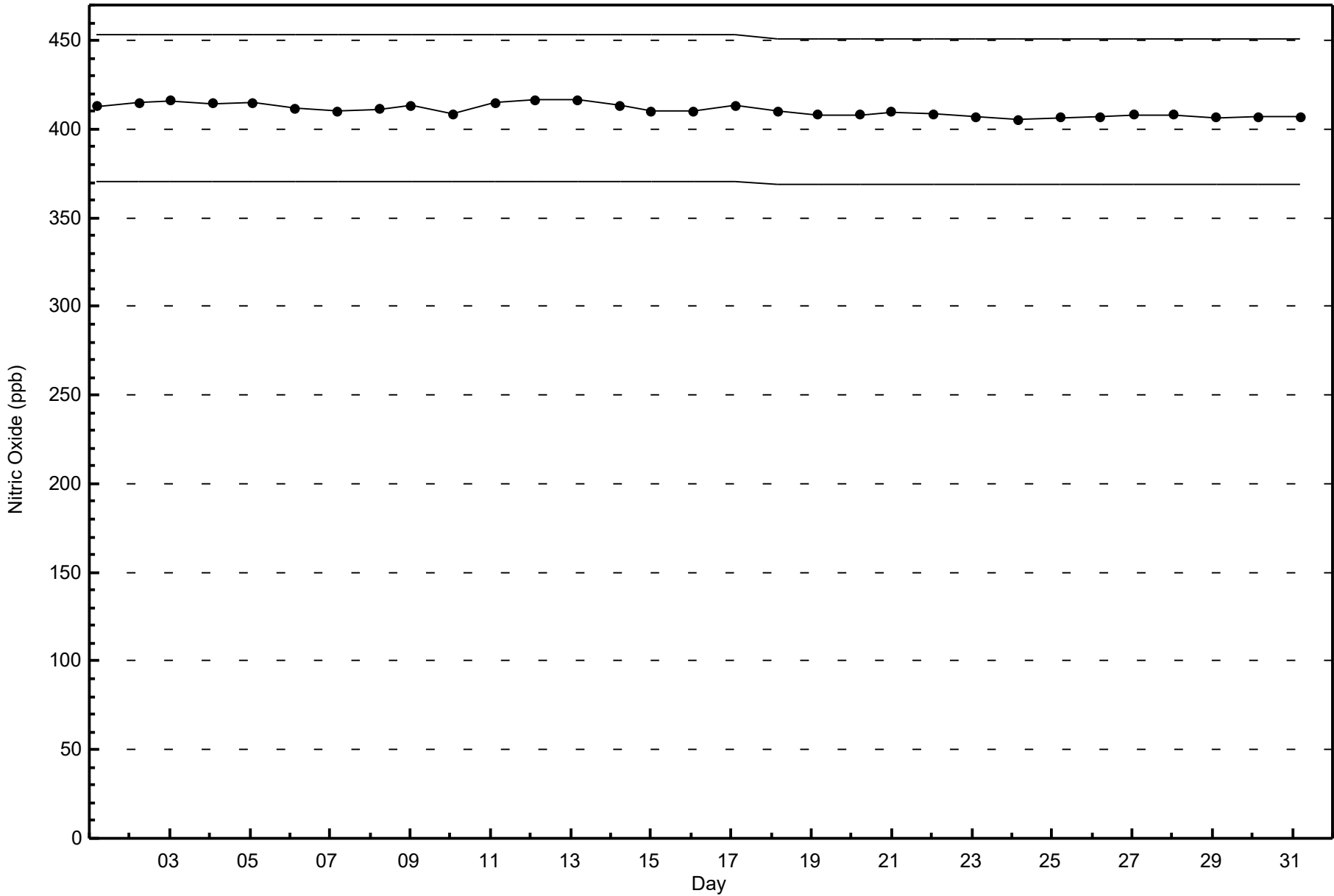
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Firebag



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Firebag - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 42.0 ppb on Dec 18 06:00	Maximum Daily Average: 18.2 ppb on Dec 18		Hours of Data:	708
Minimum Value: 0.1 ppb on Dec 9 19:00	Minimum Daily Average: 0.4 ppb on Dec 8		Hours of Missing Data:	36
Maximum Diurnal Average: 7.1 ppb at hour 6	Minimum Diurnal Average: 3.1 ppb at hour 13		Hours of Calibration:	36
Monthly Average: 5.00 ppb	Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 1.6 Median = 3.6 Q ₃ = 6.1 P ₉₀ = 11.2 P ₉₉ = 25.6		Percent Operational Time:	100.0

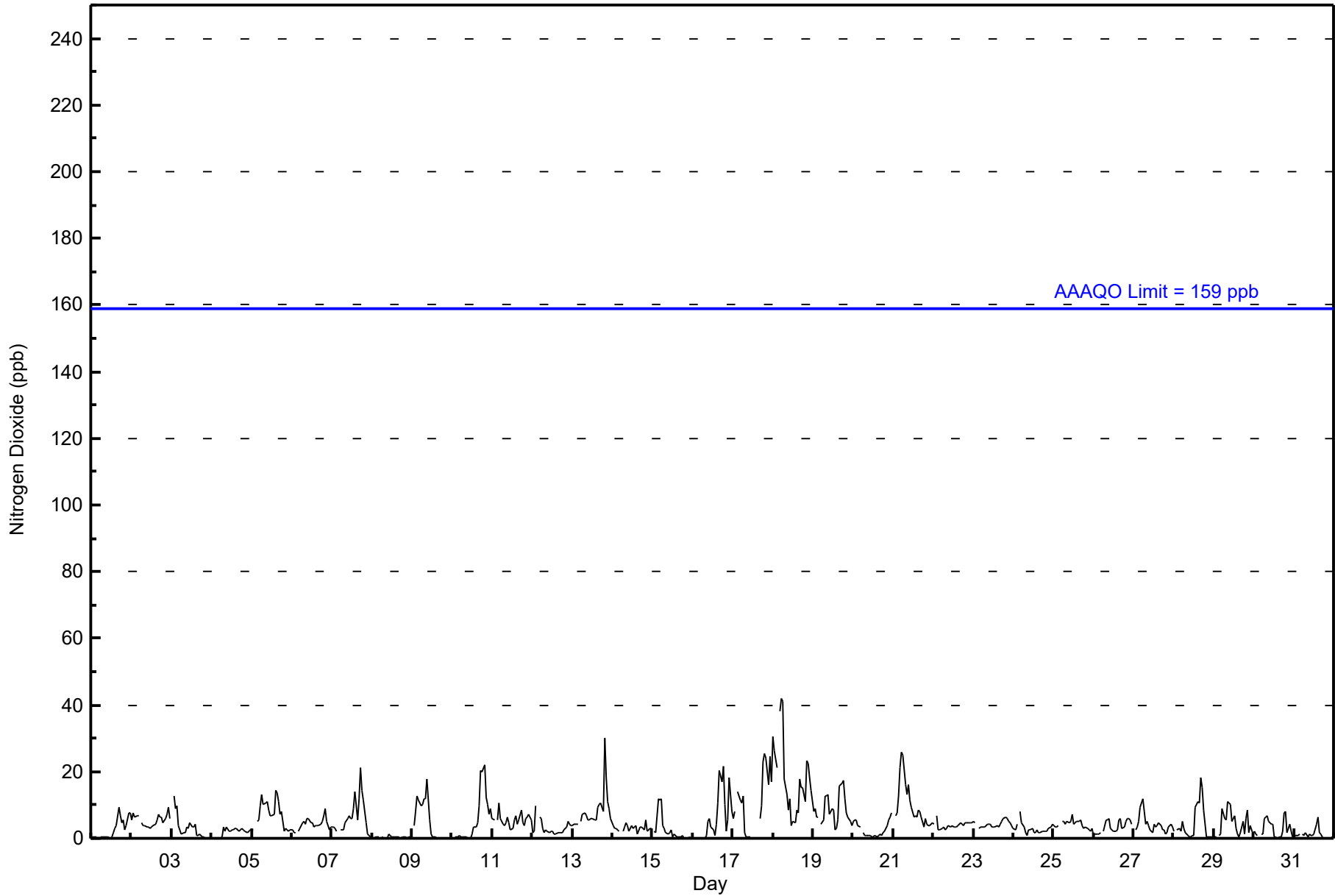
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.4	0.5	0.3	0.2	0.3	1.8	3.0	4.0	9.3	6.6	4.7	5.6	2.5	3.9	7.8	7.6	2.6	9.3
2-Dec	5.5	7.5	6.5	6.8	6.6	Z	4.7	3.9	3.7	3.6	3.2	3.1	3.2	3.9	4.4	5.4	7.0	6.4	6.3	4.6	6.1	7.2	9.5	5.9	5.4	9.5
3-Dec	Z	12.7	9.0	9.9	4.0	2.6	1.4	1.5	1.5	3.3	3.0	4.5	3.2	3.6	4.3	0.9	0.9	1.3	0.4	0.3	0.2	0.2	0.2	0.2	3.0	12.7
4-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.3	3.6	2.3	3.4	2.2	2.2	2.4	2.4	3.0	3.1	2.3	2.5	3.0	2.4	2.0	1.9	2.0	2.5	1.9	3.6
5-Dec	2.5	2.5	Z	5.2	5.3	9.8	13.0	10.3	10.8	11.2	8.6	6.9	6.6	7.3	14.3	13.6	11.1	7.0	7.9	2.3	2.8	2.6	2.0	2.4	7.2	14.3
6-Dec	2.7	1.9	1.7	Z	2.1	2.9	4.7	5.1	4.1	5.8	5.9	4.8	4.7	3.6	3.9	3.8	3.8	4.4	5.1	6.7	8.7	5.0	2.7	3.5	4.2	8.7
7-Dec	3.6	3.5	2.9	2.3	Z	2.4	2.7	2.6	4.8	6.1	6.6	5.8	6.0	8.8	13.9	5.3	12.0	21.0	14.6	11.3	4.8	1.3	0.9	0.4	6.2	21.0
8-Dec	0.2	0.2	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.2	1.4	0.8	0.4	0.3	0.3	0.4	0.3	0.2	0.4	0.6	0.4	0.2	0.3	0.6	0.4	1.4
9-Dec	Z	3.7	8.1	12.7	11.4	9.7	10.2	11.7	11.9	17.6	5.6	1.3	0.6	0.6	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	4.6	17.6
10-Dec	0.1	Z	0.3	0.4	0.8	0.5	0.6	0.3	0.3	0.2	0.2	0.2	1.2	3.5	3.3	4.5	9.6	20.3	20.0	22.2	12.4	10.0	7.4	8.9	5.5	22.2
11-Dec	6.0	5.7	Z	5.3	10.4	5.9	4.1	3.9	4.7	6.3	4.7	2.7	2.9	5.4	6.6	4.1	5.7	8.6	4.5	3.8	6.0	6.5	7.4	5.3	5.5	10.4
12-Dec	1.9	2.3	9.6	Z	6.4	5.8	3.0	1.9	2.5	2.1	1.6	2.0	2.2	1.1	1.4	1.6	1.6	1.5	1.7	2.5	3.6	4.9	4.1	4.0	3.0	9.6
13-Dec	4.0	4.4	4.2	4.4	Z	5.2	7.0	7.8	6.6	5.4	5.6	5.9	6.0	5.7	5.3	9.3	10.3	10.7	7.9	30.1	18.2	11.2	8.7	6.1	8.3	30.1
14-Dec	3.7	3.1	3.0	2.7	2.2	Z	2.2	3.3	4.5	3.7	2.2	3.9	2.8	3.2	3.7	1.3	3.4	3.4	2.9	2.6	5.3	2.2	3.1	3.0	3.1	5.3
15-Dec	Z	2.3	1.5	11.7	11.5	11.9	4.0	3.0	1.7	1.2	1.8	2.4	0.4	1.2	0.5	0.3	0.4	0.4	0.8	0.2	0.2	0.2	0.3	0.2	2.5	11.9
16-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.7	4.9	6.0	3.6	2.6	1.0	4.1	10.4	20.4	17.0	21.5	10.0	2.3	5.5	18.3	7.9	6.0	21.5
17-Dec	5.9	8.0	Z	14.0	11.6	10.8	12.5	1.8	0.3	0.4	0.3	C	C	C	C	C	5.9	9.6	22.8	25.6	24.3	15.9	24.4	16.8	11.7	25.6
18-Dec	30.6	26.4	21.2	Z	38.1	42.0	41.0	18.0	13.2	8.5	11.8	3.8	5.2	4.6	8.3	7.8	18.0	15.2	15.1	10.9	23.4	22.4	18.4	14.3	18.2	42.0
19-Dec	7.9	8.7	6.4	6.5	Z	4.2	5.6	12.6	12.6	13.0	7.4	8.9	8.4	2.5	2.9	5.3	15.5	16.4	17.2	11.7	7.6	6.2	5.1	3.8	8.5	17.2
20-Dec	5.1	5.3	5.7	3.7	3.4	Z	1.5	1.0	0.9	0.9	0.8	0.6	0.6	0.7	0.5	0.7	1.1	0.9	1.5	2.1	3.9	5.6	6.2	7.7	2.6	7.7
21-Dec	Z	6.6	7.5	12.8	21.3	25.9	24.9	16.2	13.0	16.1	11.4	9.5	6.3	6.9	6.3	8.3	7.9	6.4	3.6	6.1	4.3	3.9	3.9	4.8	10.2	25.9
22-Dec	4.2	Z	6.9	2.7	2.6	3.1	3.2	2.5	3.0	3.9	3.4	3.8	3.3	3.4	3.5	3.9	4.8	4.1	4.0	4.5	4.7	4.7	4.7	4.7	3.9	6.9
23-Dec	4.9	4.5	Z	3.0	3.2	3.6	3.5	3.2	4.2	4.4	4.1	3.6	3.3	3.2	3.8	3.6	4.1	5.2	5.9	6.4	5.9	5.1	4.6	3.9	4.2	6.4
24-Dec	3.0	2.4	4.2	Z	8.0	4.8	3.5	1.9	0.9	2.7	2.5	2.9	1.8	1.9	2.5	1.8	1.8	2.0	2.0	2.2	2.3	2.8	3.3	4.1	2.8	8.0
25-Dec	3.8	3.6	3.2	4.0	Z	5.1	5.0	4.4	5.1	4.6	5.1	7.1	4.4	4.6	4.9	4.9	5.3	3.9	3.1	3.3	2.9	2.6	2.3	2.9	4.2	7.1
26-Dec	1.0	1.1	1.3	1.1	1.7	Z	2.2	5.3	5.3	5.8	2.9	2.4	2.0	2.2	2.4	5.3	5.8	3.1	3.3	4.9	5.9	6.0	5.6	4.4	3.5	6.0
27-Dec	Z	2.7	3.2	4.9	9.5	11.8	8.0	4.2	4.9	3.7	2.6	1.9	4.1	3.3	3.8	4.7	3.7	2.6	2.5	1.3	1.9	3.5	4.2	3.6	4.2	11.8
28-Dec	2.1	Z	2.7	3.0	2.1	5.1	3.0	1.8	0.7	0.4	0.5	0.9	0.9	9.5	11.2	10.7	18.2	15.2	8.3	0.5	0.3	0.3	0.3	0.3	4.3	18.2
29-Dec	0.3	0.4	Z	0.9	1.1	9.0	6.0	5.7	11.0	10.8	10.2	4.9	6.7	2.9	1.3	0.6	1.8	4.9	1.1	5.9	8.3	1.6	3.9	1.1	4.4	11.0
30-Dec	2.0	1.4	0.8	Z	1.1	1.4	5.8	6.5	6.7	5.1	4.2	4.2	0.4	0.3	0.2	0.3	0.4	2.0	7.5	8.1	1.7	4.2	2.3	0.3	2.9	8.1
31-Dec	0.3	1.0	0.7	1.3	Z	1.2	1.0	1.8	0.6	1.2	0.9	1.0	1.3	4.3	6.2	1.7	1.2	0.4	0.2	0.2	0.2	0.2	0.2	0.3	1.2	6.2
	3.9	4.7	4.3	4.6	6.6	7.1	6.0	4.7	4.6	5.1	4.1	3.5	3.1	3.5	4.3	4.3	6.3	6.6	6.4	6.4	5.6	4.8	5.3	4.2	Diurnal Average	
	30.6	26.4	21.2	14.0	38.1	42.0	41.0	18.0	13.2	17.6	11.8	9.5	8.4	9.5	14.3	13.6	20.4	21.0	22.8	30.1	24.3	22.4	24.4	16.8	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Firebag - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Firebag - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	689	97.32	97.32
21 - 40	17	2.40	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 Dioxide (NO₂) - ppb
Firebag - December 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	16	15	12	13	17	23	90	109	58	76	34	13	14	21	97	687
21 - 40	0	0	0	0	0	0	2	1	3	4	4	1	0	1	0	0	16
11 - 80	0	0	0	0	0	0	0	2	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	79	16	15	12	13	17	25	93	112	62	80	35	13	15	21	97	705

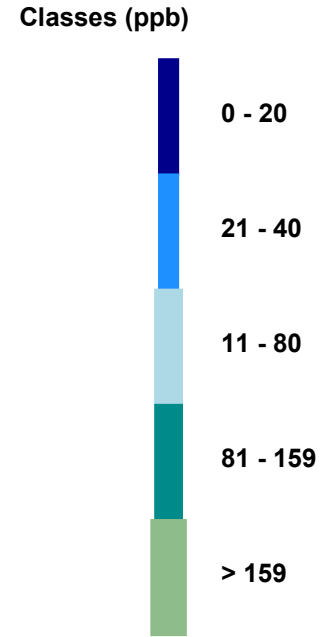
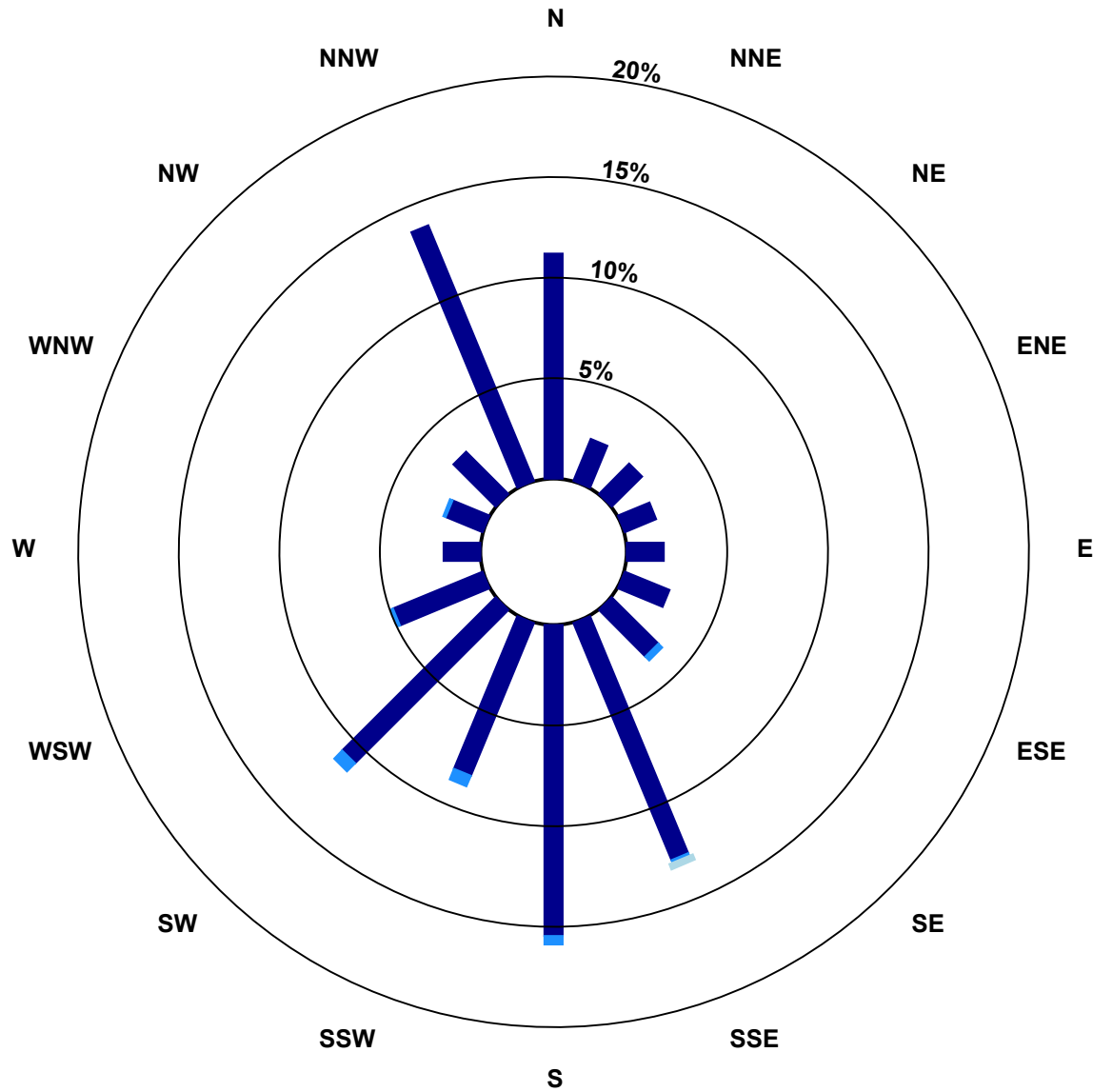
Total Number of Valid Hours: 705

Total Number of Hours: 744

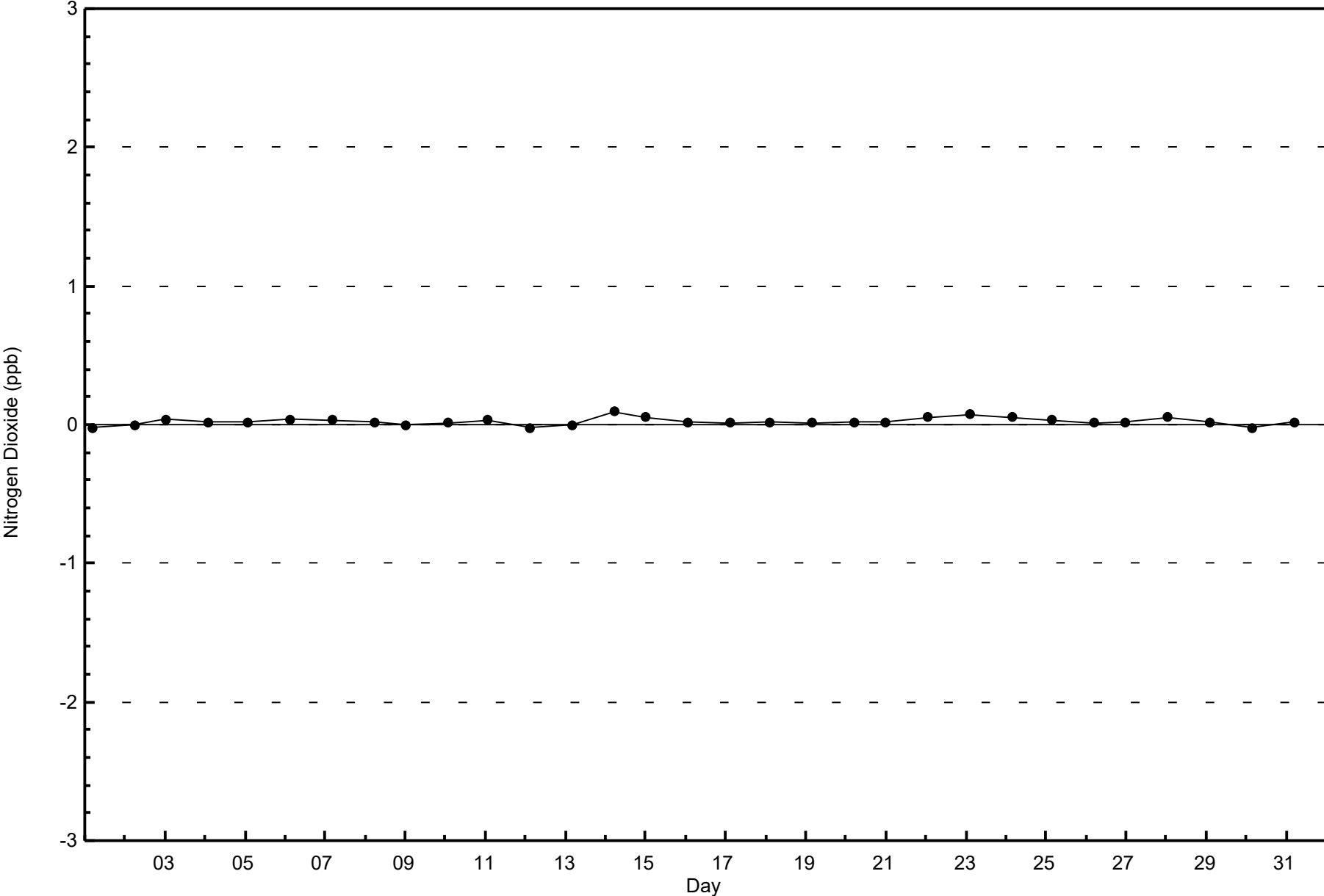


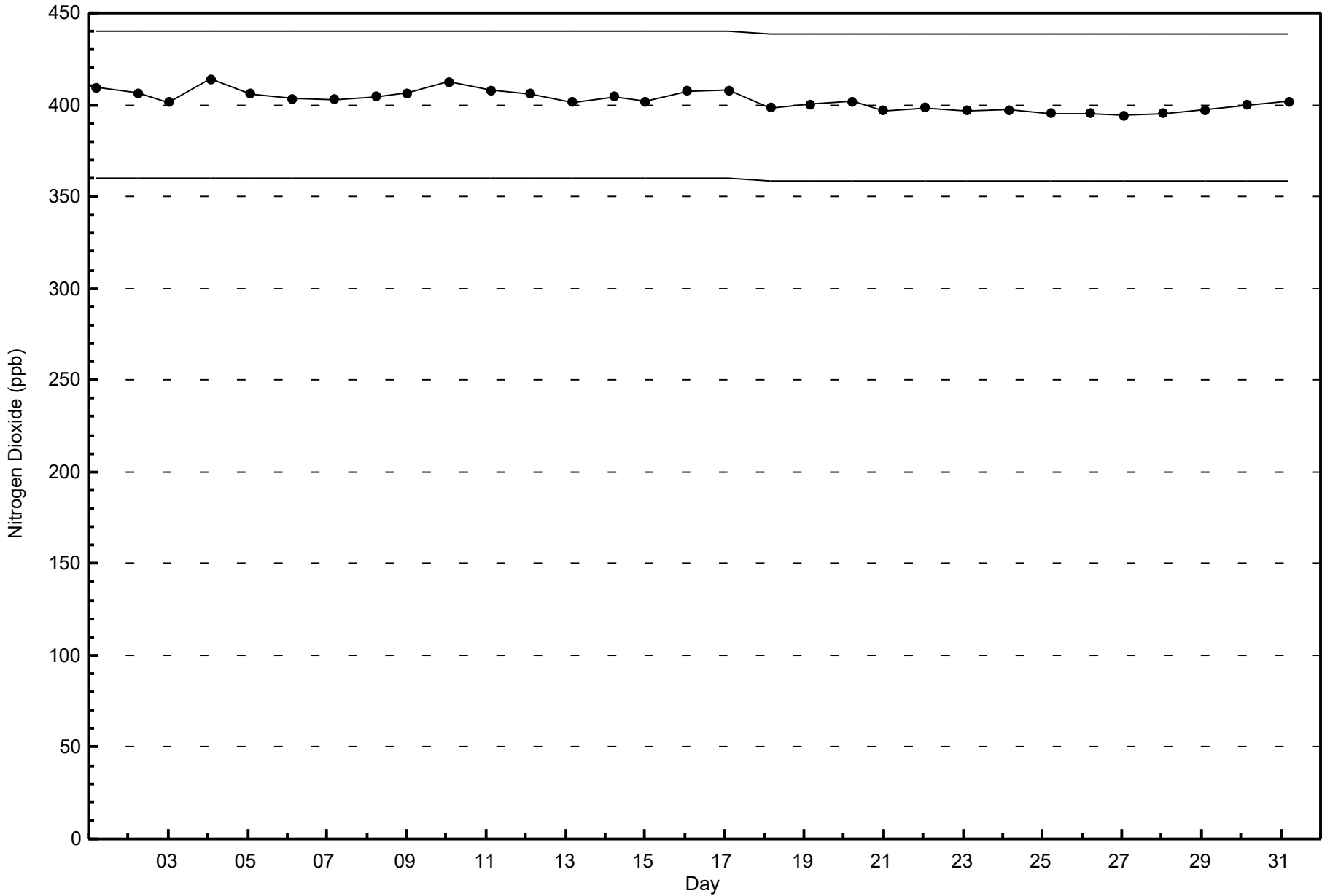
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Firebag



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association
Summary of Hour Averages

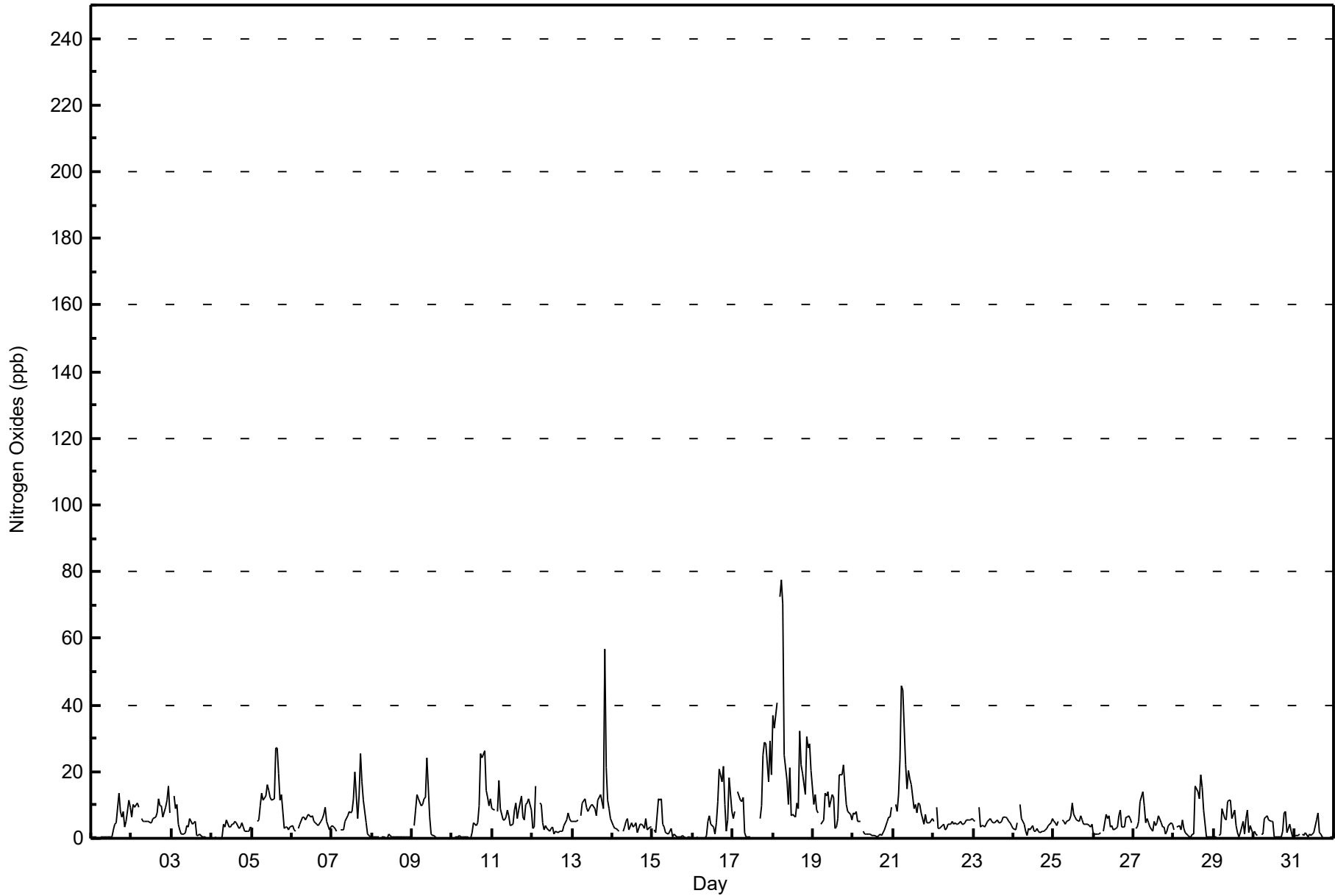
Nitrogen Oxides (NO_x) - ppb
Firebag - December 2024

Maximum Value: 77.4 ppb on Dec 18 06:00																					Maximum Daily Average: 27.7 ppb on Dec 18					Hours in Service: 744																							
Minimum Value: 0.1 ppb on Dec 9 20:00											Minimum Daily Average: 0.4 ppb on Dec 8					Hours of Data: 708																																	
Maximum Diurnal Average: 9.9 ppb at hour 6											Minimum Diurnal Average: 4.5 ppb at hour 13					Hours of Missing Data: 36																																	
Monthly Average: 6.38 ppb											Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 1.8 Median = 4.6 Q ₃ = 8.1 P ₉₀ = 13.0 P ₉₉ = 36.4					Hours of Calibration: 36																																	
																					Percent Operational Time: 100.0																												
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.5	0.6	0.3	0.2	0.4	2.5	4.2	4.8	13.6	8.1	6.5	8.2	3.3	5.2	11.6	9.3	3.5	13.6																							
2-Dec	6.4	10.0	9.2	10.6	9.5	Z	6.1	4.9	4.9	5.2	5.0	4.8	4.9	5.8	6.5	7.5	11.8	9.6	9.6	6.5	9.4	11.5	15.7	7.6	8.0	15.7																							
3-Dec	Z	12.8	9.1	10.1	4.0	2.6	1.4	1.5	1.5	3.7	3.6	5.8	4.1	4.5	5.1	0.9	0.9	1.3	0.4	0.3	0.2	0.2	0.2	0.2	3.2	12.8																							
4-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.3	4.2	3.2	5.6	3.3	3.5	4.2	4.1	5.1	4.7	3.1	3.3	4.5	3.3	2.3	2.0	2.2	3.3	2.7	5.6																							
5-Dec	3.2	3.1	Z	5.3	5.4	9.9	13.5	11.4	12.8	16.1	14.3	12.2	11.6	12.0	27.2	26.9	19.5	11.4	13.1	2.8	3.5	3.3	2.4	3.3	10.6	27.2																							
6-Dec	3.9	2.4	2.0	Z	2.8	4.4	6.4	6.3	5.5	6.5	7.1	6.4	6.6	5.0	4.6	4.1	3.9	5.3	6.0	7.2	9.2	5.1	2.7	3.5	5.1	9.2																							
7-Dec	3.6	3.5	2.9	2.3	Z	2.4	2.7	2.6	4.9	6.9	8.2	7.8	8.0	11.8	20.0	5.8	12.8	25.2	17.0	11.3	4.8	1.3	0.9	0.4	7.3	25.2																							
8-Dec	0.2	0.2	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.2	1.5	0.9	0.5	0.3	0.3	0.4	0.3	0.2	0.4	0.6	0.4	0.2	0.3	0.6	0.4	1.5																							
9-Dec	Z	3.8	8.4	13.1	11.8	9.8	10.2	11.8	12.1	24.3	6.5	1.5	0.7	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	5.1	24.3																							
10-Dec	0.1	Z	0.3	0.4	0.8	0.5	0.6	0.3	0.3	0.2	0.2	0.2	1.7	4.7	3.9	4.8	9.8	25.5	24.2	26.2	14.4	12.3	9.5	11.9	6.6	26.2																							
11-Dec	8.9	8.6	Z	8.0	17.3	8.9	5.6	5.4	6.3	8.7	6.9	3.9	4.3	8.3	10.5	5.7	8.3	12.9	6.4	5.5	10.1	10.6	12.0	8.6	8.3	17.3																							
12-Dec	2.9	3.5	15.5	Z	10.4	10.1	4.7	2.6	3.8	3.0	2.2	2.8	3.3	1.4	1.9	1.9	2.1	2.0	2.3	3.8	5.7	7.8	6.0	5.3	4.6	15.5																							
13-Dec	4.9	5.3	4.9	5.3	Z	6.9	10.5	11.8	9.5	7.9	9.0	9.7	10.1	9.0	6.6	11.5	12.2	13.2	8.7	56.6	21.3	11.4	8.7	6.1	11.4	56.6																							
14-Dec	3.7	3.2	3.0	2.7	2.2	Z	2.3	3.5	4.9	5.8	2.6	4.7	3.4	3.8	4.9	1.5	4.1	4.4	3.7	3.0	6.0	2.5	3.4	3.4	3.6	6.0																							
15-Dec	Z	2.6	1.5	11.8	11.6	12.0	4.1	3.2	1.8	1.4	2.1	3.1	0.5	1.3	0.5	0.3	0.4	0.4	0.8	0.2	0.2	0.2	0.3	0.2	2.6	12.0																							
16-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.7	5.2	6.9	4.4	3.3	1.2	4.7	10.9	20.6	17.0	21.6	10.0	2.3	5.6	18.4	7.9	6.2	21.6																							
17-Dec	5.9	8.0	Z	14.1	11.6	10.8	12.5	1.8	0.3	0.5	0.3	C	C	C	C	C	5.9	9.6	24.8	28.8	28.4	17.2	29.3	18.9	12.7	29.3																							
18-Dec	36.7	33.0	40.6	Z	72.5	77.4	70.5	25.1	17.3	10.1	21.3	6.6	7.3	6.3	10.4	9.0	32.1	22.1	19.6	13.1	30.5	27.0	28.6	20.1	27.7	77.4																							
19-Dec	10.1	13.0	8.5	7.5	Z	4.4	5.6	13.5	12.8	14.2	9.3	12.9	12.2	3.2	3.4	5.8	19.0	19.2	22.2	15.5	10.4	8.2	7.0	5.6	10.6	22.2																							
20-Dec	7.4	7.1	7.9	5.1	5.0	Z	2.2	1.3	1.2	1.3	1.1	0.8	0.8	1.0	0.6	0.9	1.5	1.0	1.6	2.6	5.0	6.2	6.4	9.1	3.4	9.1																							
21-Dec	Z	10.2	8.0	13.0	23.9	45.9	44.6	21.9	14.8	20.4	17.6	16.1	9.1	10.1	7.6	10.4	10.2	7.8	4.0	7.3	4.8	4.6	4.7	5.9	14.0	45.9																							
22-Dec	5.1	Z	9.2	2.9	3.1	3.9	4.1	2.7	3.1	4.2	4.2	4.9	4.2	4.7	4.3	4.2	5.2	4.2	4.1	4.8	5.3	5.7	5.5	5.8	4.6	9.2																							
23-Dec	5.5	5.2	Z	9.3	3.3	3.8	3.9	3.3	5.0	5.6	6.1	5.3	4.7	4.6	5.5	4.8	4.8	5.3	6.5	6.5	5.9	5.1	4.6	3.9	5.1	9.3																							
24-Dec	3.0	2.5	4.6	Z	10.0	6.0	4.2	2.0	1.0	3.0	2.7	3.8	2.1	2.2	3.0	2.0	1.8	2.0	2.0	2.4	2.8	3.9	4.8	5.8	3.4	10.0																							
25-Dec	5.0	4.9	3.7	5.2	Z	5.3	5.2	4.4	5.3	5.5	6.8	10.6	7.0	6.2	5.7	5.3	6.7	5.5	4.2	4.3	4.3	4.0	3.3	4.2	5.3	10.6																							
26-Dec	1.0	1.1	1.3	1.1	1.9	Z	2.2	7.2	5.9	6.8	3.5	3.6	2.7	3.1	3.5	6.8	8.3	3.5	3.4	6.3	6.5	6.6	6.0	4.7	4.2	8.3																							
27-Dec	Z	2.9	3.4	5.1	10.9	13.8	9.6	4.9	5.8	4.8	3.5	2.3	4.9	3.8	4.6	6.7	4.8	3.3	3.2	1.5	2.2	3.9	4.7	4.2	5.0	13.8																							
28-Dec	2.5	Z	3.3	3.7	2.3	5.6	3.0	1.8	0.7	0.4	0.6	1.1	1.1	15.5	14.0	11.7	18.9	15.3	8.4	0.5	0.3	0.3	0.3	0.3	4.9	18.9																							
29-Dec	0.3	0.4	Z	0.9	1.1	9.0	6.0	5.7	11.1	11.4	11.6	6.0	8.7	3.6	1.5	0.6	1.8	4.9	1.1	5.9	8.3	1.6	3.9	1.1	4.6	11.6																							
30-Dec	2.0	1.4	0.8	Z	1.1	1.4	5.8	6.5	6.7	5.4	5.0	5.1	0.4	0.3	0.2	0.3	0.4	2.0	7.5	8.1	1.7	4.2	2.3	0.3	3.0	8.1																							
31-Dec	0.3	1.0	0.7	1.3	Z	1.2	1.0	1.8	0.6	1.3	1.0	1.2	1.6	5.4	7.4	1.8	1.2	0.4	0.2	0.2	0.2	0.2	0.2	0.3	1.3	7.4																							
																								4.7	5.8	5.8	5.4	8.9	9.9	8.1	5.6	5.3	6.3	5.6	5.1	4.5	4.9	5.9	5.4	7.9	7.9	7.7	8.2	6.8	5.7	6.7	5.2	Diurnal Average	
																								36.7	33.0	40.6	14.1	72.5	77.4	70.5	25.1	17.3	24.3	21.3	16.1	12.2	15.5	27.2	26.9	32.1	25.5	24.8	56.6	30.5	27.0	29.3	20.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Firebag - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Firebag - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	675	95.34	95.34
21 - 40	26	3.67	99.01
41 - 80	7	0.99	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Firebag - December 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	78	16	15	12	12	17	22	84	105	58	76	34	13	13	21	97	673
21 - 40	1	0	0	0	1	0	2	6	6	3	3	1	0	2	0	0	25
11 - 80	0	0	0	0	0	0	1	3	1	1	1	0	0	0	0	0	7
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	79	16	15	12	13	17	25	93	112	62	80	35	13	15	21	97	705

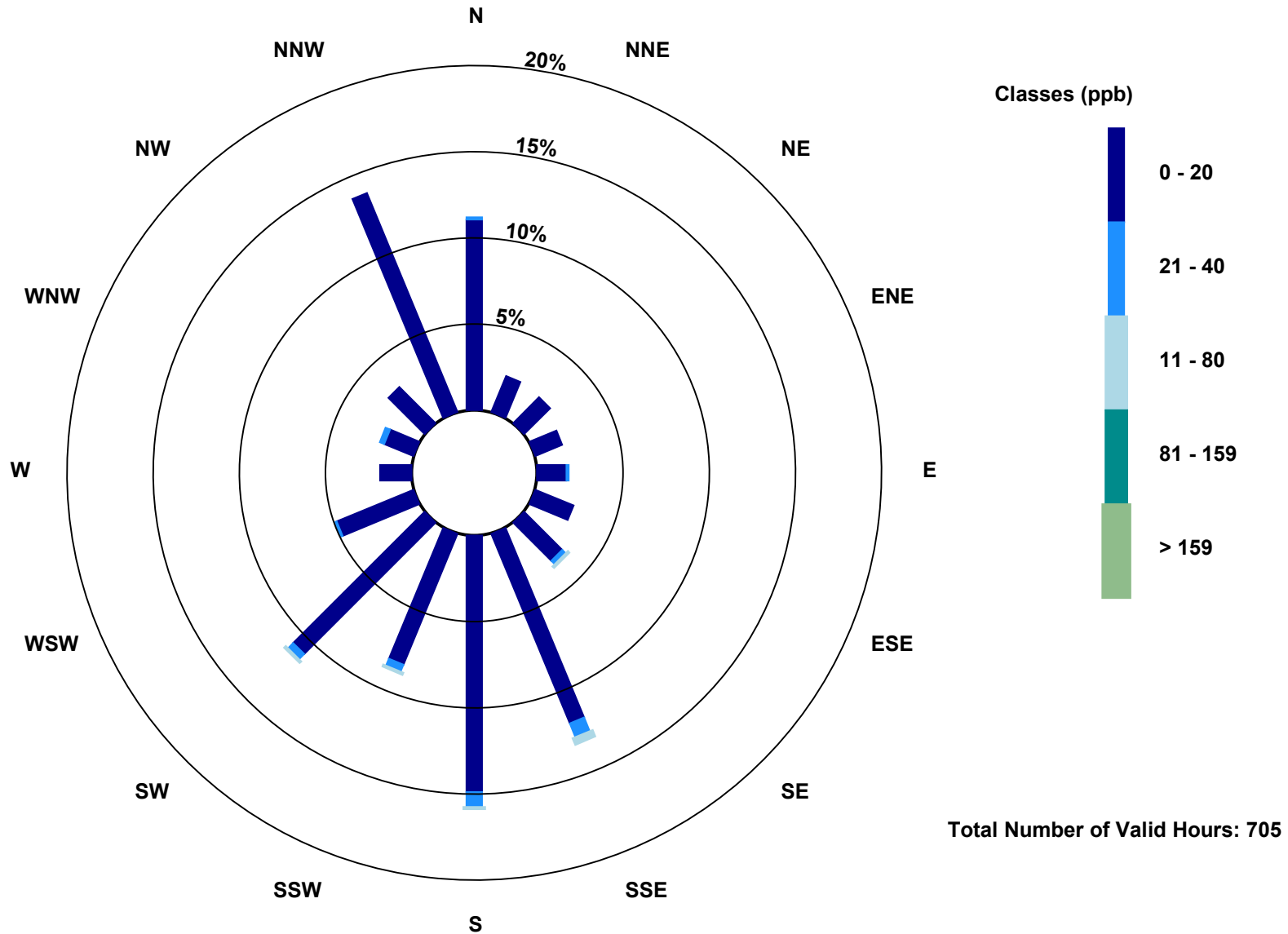
Total Number of Valid Hours: 705

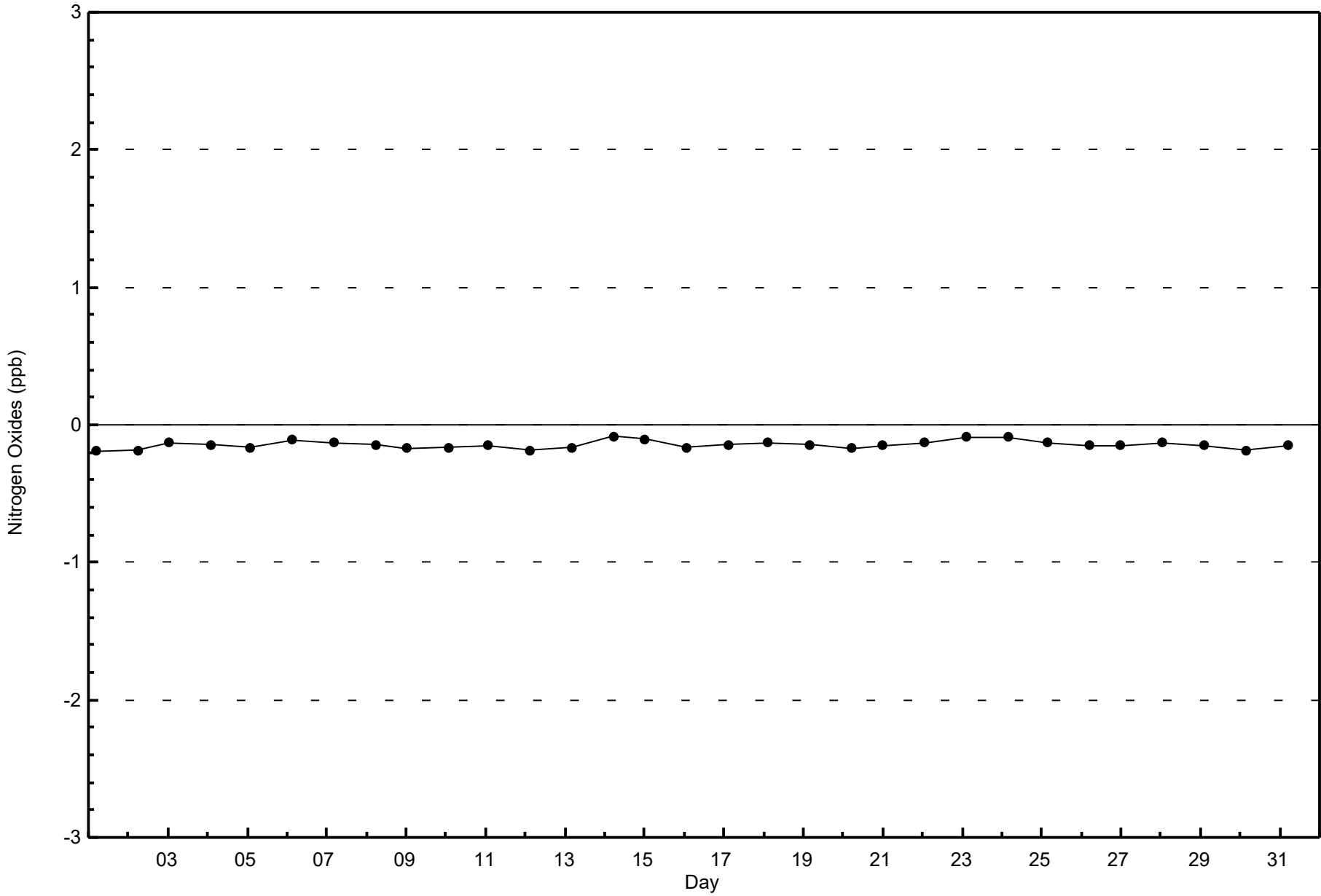
Total Number of Hours: 744

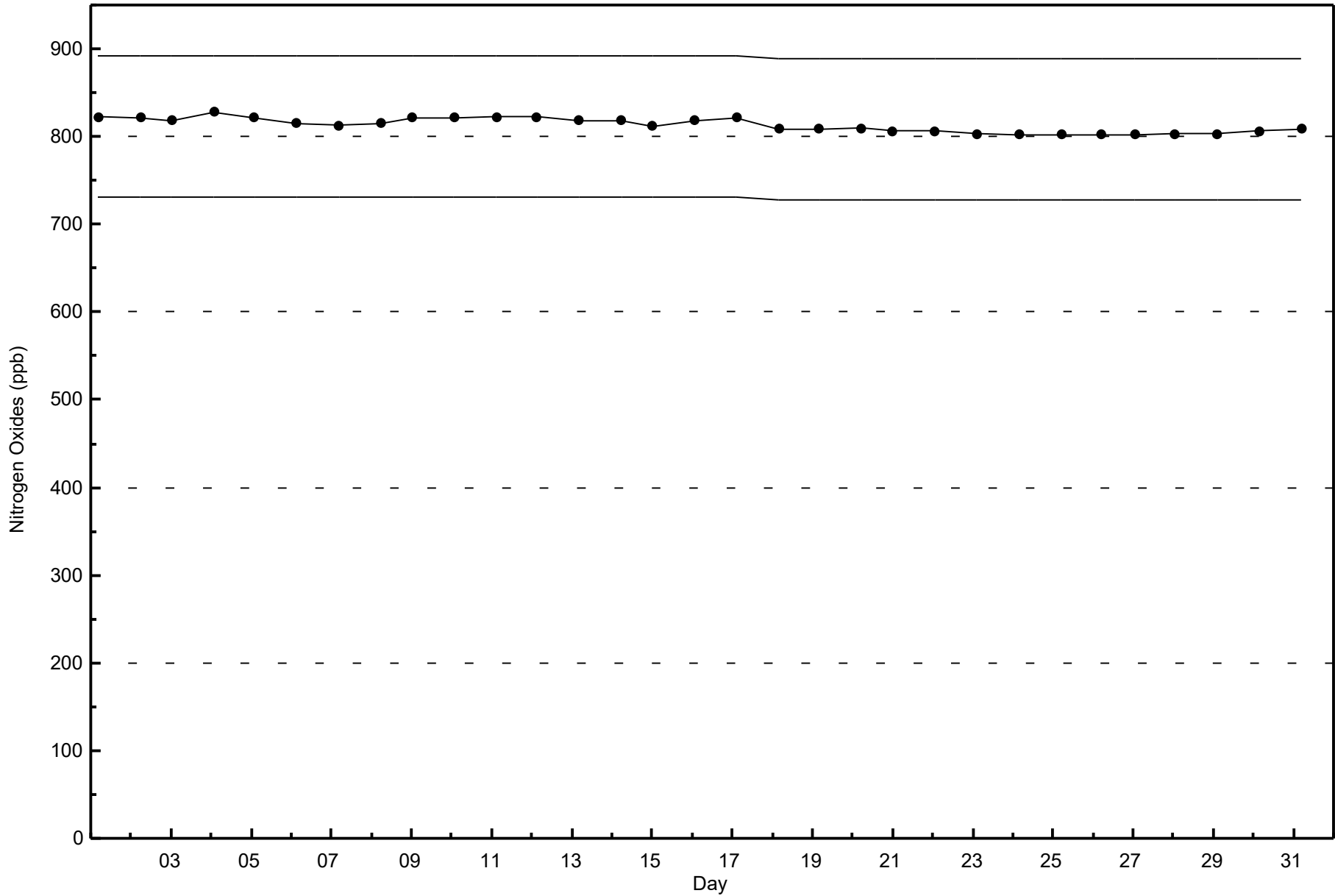


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Firebag

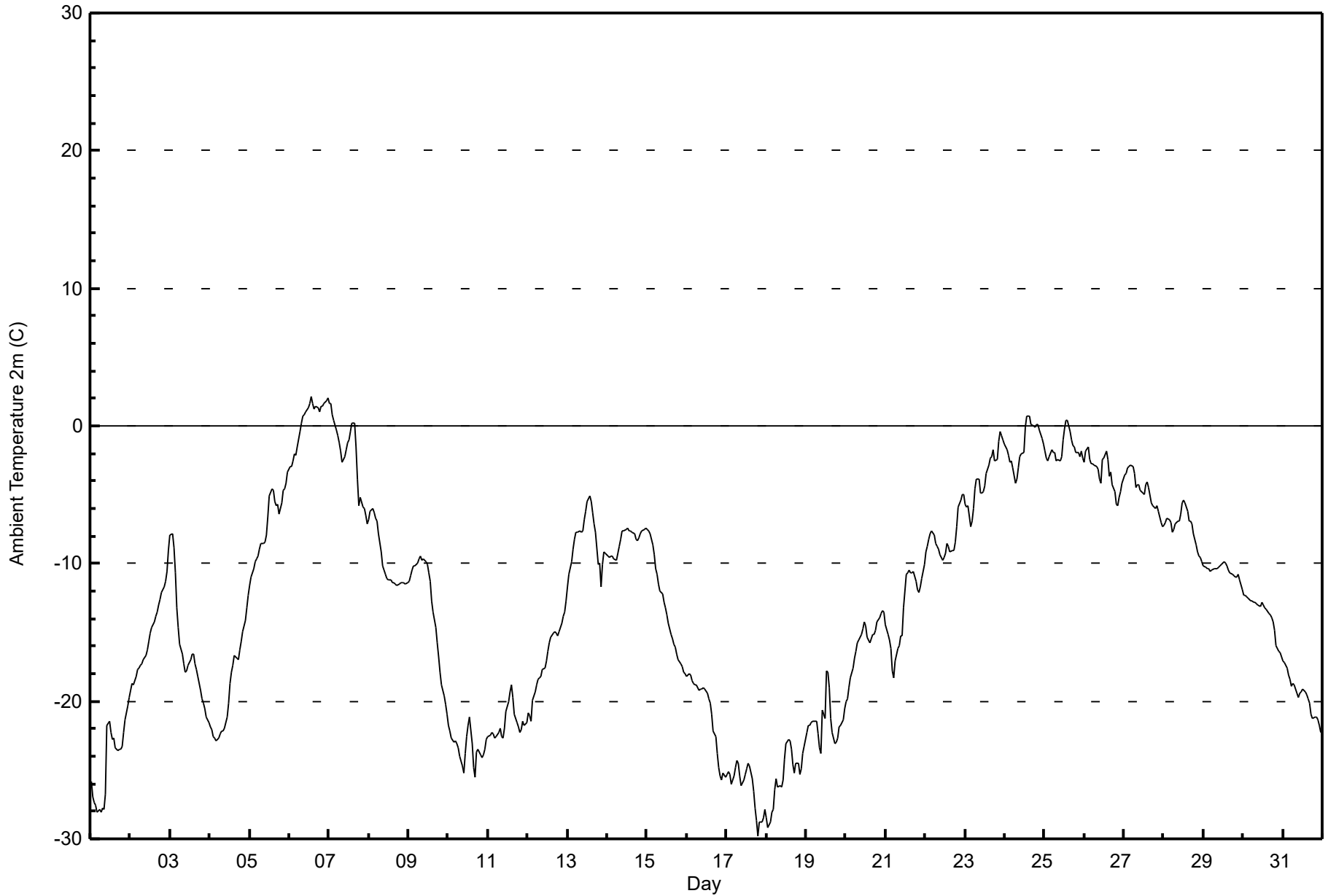








Maximum Value: 2.1 C on Dec 6 14:00		Maximum Daily Average: 0.3 C on Dec 6		Hours in Service: 744																																													
Minimum Value: -29.8 C on Dec 17 20:00		Minimum Daily Average: -26.2 C on Dec 17		Hours of Data: 744																																													
Maximum Diurnal Average: -11.5 C at hour 14		Minimum Diurnal Average: -13.3 C at hour 20		Hours of Missing Data: 0																																													
Monthly Average: -12.76 C		Percentiles: P ₁ = -28.3 P ₁₀ = -23.5 Q ₁ = -19.5 Median = -11.7 Q ₃ = -6.2 P ₉₀ = -2.2 P ₉₉ = 1.5		Hours of Calibration: 0																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	-25.8	-27.0	-27.4	-27.6	-28.0	-27.9	-28.1	-27.8	-27.8	-26.8	-21.7	-21.5	-22.2	-22.8	-22.7	-23.4	-23.6	-23.4	-23.5	-23.3	-22.3	-21.4	-20.4	-19.8	-24.4	-19.8																							
2-Dec	-19.2	-18.7	-18.8	-18.2	-17.7	-17.6	-17.3	-17.2	-17.0	-16.6	-16.3	-15.7	-15.1	-14.6	-14.2	-13.9	-13.5	-13.0	-12.6	-12.1	-11.7	-11.3	-10.6	-9.1	-15.1	-9.1																							
3-Dec	-8.0	-7.9	-8.9	-10.6	-13.2	-14.6	-15.8	-16.5	-17.3	-17.9	-17.8	-17.4	-17.0	-16.6	-16.6	-17.3	-17.7	-18.2	-19.2	-19.9	-20.1	-20.6	-21.1	-21.6	-16.3	-7.9																							
4-Dec	-21.9	-22.1	-22.6	-22.7	-22.9	-22.7	-22.4	-22.2	-22.2	-22.0	-21.2	-20.1	-18.7	-17.9	-17.4	-16.7	-16.9	-16.9	-16.3	-15.6	-15.0	-14.1	-13.2	-12.3	-19.0	-12.3																							
5-Dec	-11.6	-11.0	-10.4	-9.9	-9.7	-9.4	-9.0	-8.6	-8.6	-8.4	-8.0	-6.6	-5.0	-4.5	-4.7	-5.5	-5.8	-5.7	-6.4	-5.6	-4.6	-4.5	-4.2	-3.3	-7.1	-3.3																							
6-Dec	-3.0	-2.9	-2.6	-2.1	-2.2	-1.6	-0.4	0.2	0.7	0.8	1.1	1.3	1.7	2.1	1.6	1.2	1.4	1.3	1.0	1.4	1.5	1.6	1.9	2.1	0.3	2.1																							
7-Dec	1.7	1.6	0.8	0.4	-0.3	-0.7	-1.2	-1.8	-2.6	-2.2	-1.7	-1.2	-1.1	-0.4	0.2	0.2	-1.5	-3.9	-5.8	-5.2	-5.9	-6.0	-6.6	-7.1	-2.1	1.7																							
8-Dec	-6.9	-6.2	-6.0	-6.3	-6.7	-6.9	-7.8	-9.2	-10.2	-10.5	-10.8	-11.1	-11.2	-11.2	-11.4	-11.4	-11.5	-11.6	-11.5	-11.4	-11.4	-11.3	-11.4	-11.4	-9.8	-6.0																							
9-Dec	-11.3	-10.9	-10.4	-10.2	-10.1	-9.9	-9.6	-9.4	-9.8	-9.6	-9.9	-10.0	-10.7	-11.2	-12.7	-13.6	-14.7	-15.8	-16.8	-17.9	-18.8	-19.6	-20.3	-21.0	-13.1	-9.4																							
10-Dec	-21.8	-22.2	-22.7	-22.9	-22.9	-23.1	-23.4	-24.0	-24.7	-25.3	-23.8	-22.6	-21.7	-21.1	-23.1	-24.8	-25.5	-23.6	-23.5	-23.9	-24.1	-23.9	-23.5	-22.8	-23.4	-21.1																							
11-Dec	-22.6	-22.5	-22.2	-22.4	-22.7	-22.6	-22.3	-22.0	-22.6	-22.7	-21.9	-20.8	-20.1	-19.3	-18.8	-19.7	-20.9	-21.5	-21.9	-22.3	-22.1	-21.4	-21.8	-21.5	-21.6	-18.8																							
12-Dec	-20.8	-21.1	-21.5	-19.9	-19.3	-18.8	-18.4	-18.3	-18.2	-17.7	-17.6	-17.0	-16.4	-15.7	-15.4	-15.0	-15.0	-15.0	-15.3	-15.0	-14.4	-13.9	-13.5	-12.7	-16.9	-12.7																							
13-Dec	-11.7	-10.8	-9.8	-9.0	-8.2	-7.8	-7.7	-7.7	-7.7	-7.6	-6.9	-6.2	-5.5	-5.1	-5.5	-6.3	-7.1	-7.8	-10.1	-9.9	-11.7	-10.1	-9.2	-9.3	-8.3	-5.1																							
14-Dec	-9.5	-9.5	-9.4	-9.5	-9.7	-9.8	-9.3	-8.7	-8.2	-7.6	-7.6	-7.5	-7.5	-7.6	-7.7	-7.8	-7.9	-8.3	-8.3	-8.1	-7.8	-7.7	-7.5	-7.4	-8.3	-7.4																							
15-Dec	-7.5	-7.6	-7.8	-8.7	-9.4	-10.4	-10.8	-11.5	-12.0	-12.2	-12.8	-13.2	-13.7	-14.3	-15.1	-15.5	-15.9	-16.1	-16.6	-17.0	-17.3	-17.5	-17.9	-18.0	-13.3	-7.5																							
16-Dec	-18.2	-18.0	-18.1	-18.5	-18.7	-18.8	-18.8	-19.2	-19.1	-19.1	-19.0	-19.1	-19.4	-19.8	-20.1	-21.0	-22.2	-22.6	-23.8	-24.9	-25.5	-25.7	-25.2	-25.5	-20.8	-18.0																							
17-Dec	-25.4	-25.2	-25.3	-26.0	-25.5	-24.8	-24.3	-24.5	-25.5	-26.1	-25.8	-25.3	-24.9	-24.5	-24.7	-25.6	-26.6	-27.8	-28.7	-29.8	-28.8	-28.8	-28.4	-27.9	-26.2	-24.3																							
18-Dec	-28.5	-29.2	-28.8	-28.1	-27.9	-26.4	-25.6	-26.2	-26.1	-26.3	-25.8	-24.2	-23.0	-22.8	-22.9	-23.5	-24.6	-25.2	-24.5	-24.5	-25.3	-24.9	-23.8	-23.3	-25.5	-22.8																							
19-Dec	-22.3	-21.8	-21.7	-21.5	-21.4	-21.5	-21.5	-22.4	-23.4	-23.8	-20.7	-21.2	-17.8	-17.9	-19.0	-21.2	-22.3	-23.1	-23.0	-22.7	-21.9	-21.8	-21.3	-20.5	-21.5	-17.8																							
20-Dec	-20.0	-19.8	-19.0	-18.3	-17.6	-16.9	-16.4	-15.8	-15.6	-15.2	-14.7	-14.2	-14.6	-15.4	-15.8	-15.5	-15.2	-15.1	-14.8	-14.2	-13.9	-13.7	-13.4	-13.5	-15.8	-13.4																							
21-Dec	-14.5	-15.2	-15.6	-16.2	-17.8	-18.3	-17.1	-16.1	-16.0	-15.2	-15.3	-13.2	-10.7	-10.7	-10.5	-10.7	-10.6	-10.6	-11.3	-11.9	-12.1	-11.7	-11.1	-10.0	-13.4	-10.0																							
22-Dec	-9.1	-8.8	-8.3	-7.9	-7.6	-8.0	-8.6	-8.7	-9.0	-9.4	-9.8	-9.6	-9.2	-8.6	-8.7	-9.1	-9.0	-9.1	-8.4	-7.3	-5.9	-5.4	-5.0	-5.0	-8.1	-5.0																							
23-Dec	-5.7	-5.9	-5.8	-7.3	-6.9	-6.0	-4.6	-3.9	-3.9	-4.8	-4.9	-4.8	-4.3	-3.5	-2.8	-2.3	-2.2	-1.8	-2.5	-2.4	-1.1	-0.4	-0.7	-1.0	-3.7	-0.4																							
24-Dec	-1.4	-1.7	-2.2	-2.6	-2.6	-3.1	-4.2	-3.8	-3.1	-2.2	-2.0	-2.0	-0.1	0.7	0.7	0.1	0.0	-0.1	0.1	0.1	-0.3	-0.9	-1.3	-1.3	0.7	-1.3																							
25-Dec	-1.8	-2.3	-2.6	-2.2	-1.7	-1.9	-2.0	-2.5	-2.5	-2.5	-2.2	-1.0	-0.2	0.4	0.4	0.4	-0.4	-1.0	-1.4	-1.5	-2.0	-1.9	-2.2	-1.8	-2.3	-1.6	0.4																						
26-Dec	-2.6	-1.8	-1.5	-2.5	-2.7	-2.7	-2.9	-2.9	-3.2	-3.9	-4.1	-2.5	-2.4	-1.8	-2.4	-3.6	-3.3	-4.2	-4.8	-5.7	-5.8	-5.2	-4.7	-4.1	-3.4	-1.5																							
27-Dec	-3.5	-3.5	-3.0	-3.0	-2.8	-3.0	-3.5	-4.5	-4.3	-4.2	-4.7	-4.9	-5.0	-4.3	-4.1	-4.5	-5.6	-5.8	-5.9	-6.0	-5.8	-6.2	-7.0	-7.3	-4.7	-2.8																							
28-Dec	-7.2	-7.0	-6.8	-6.8	-7.0	-7.7	-7.6	-7.1	-7.0	-6.9	-6.4	-5.6	-5.4	-5.6	-6.2	-6.9	-6.9	-7.1	-7.8	-8.6	-9.1	-9.5	-9.6	-9.9	-7.3	-5.4																							
29-Dec	-10.2	-10.3	-10.4	-10.4	-10.6	-10.5	-10.4	-10.4	-10.4	-10.3	-10.2	-10.1	-9.9	-10.0	-10.2	-10.5	-10.7	-10.8	-10.9	-11.0	-10.9	-10.8	-11.2	-11.9	-10.5	-9.9																							
30-Dec	-12.3	-12.3	-12.4	-12.5	-12.7	-12.7	-12.8	-12.8	-12.9	-13.1	-13.1	-12.8	-13.0	-13.3	-13.3	-13.6	-13.7	-13.9	-14.2	-14.8	-16.0	-16.3	-16.4	-16.8	-13.7	-12.3																							
31-Dec	-17.1	-17.2	-17.6	-18.1	-18.4	-18.9	-18.8	-18.9	-19.4	-19.7	-19.5	-19.3	-19.1	-19.3	-19.5	-19.8	-20.2	-21.0	-21.3	-21.1	-21.2	-21.4	-21.7	-22.3	-19.6	-17.1																							
																								-12.9	-12.9	-12.9	-13.0	-13.1	-13.1	-13.0	-13.0	-13.2	-13.2	-12.7	-12.2	-11.7	-11.5	-11.7	-12.2	-12.6	-12.9	-13.2	-13.3	-13.3	-13.1	-12.9	-12.8	Diurnal Average	
																								1.7	1.6	0.8	0.4	-0.3	-0.7	-0.4	0.2	0.7	0.8	1.1	1.3	1.7	2.1	1.6	1.2	1.4	1.3	1.0	1.4	1.5	1.6	1.9	2.1	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Firebag - December 2024

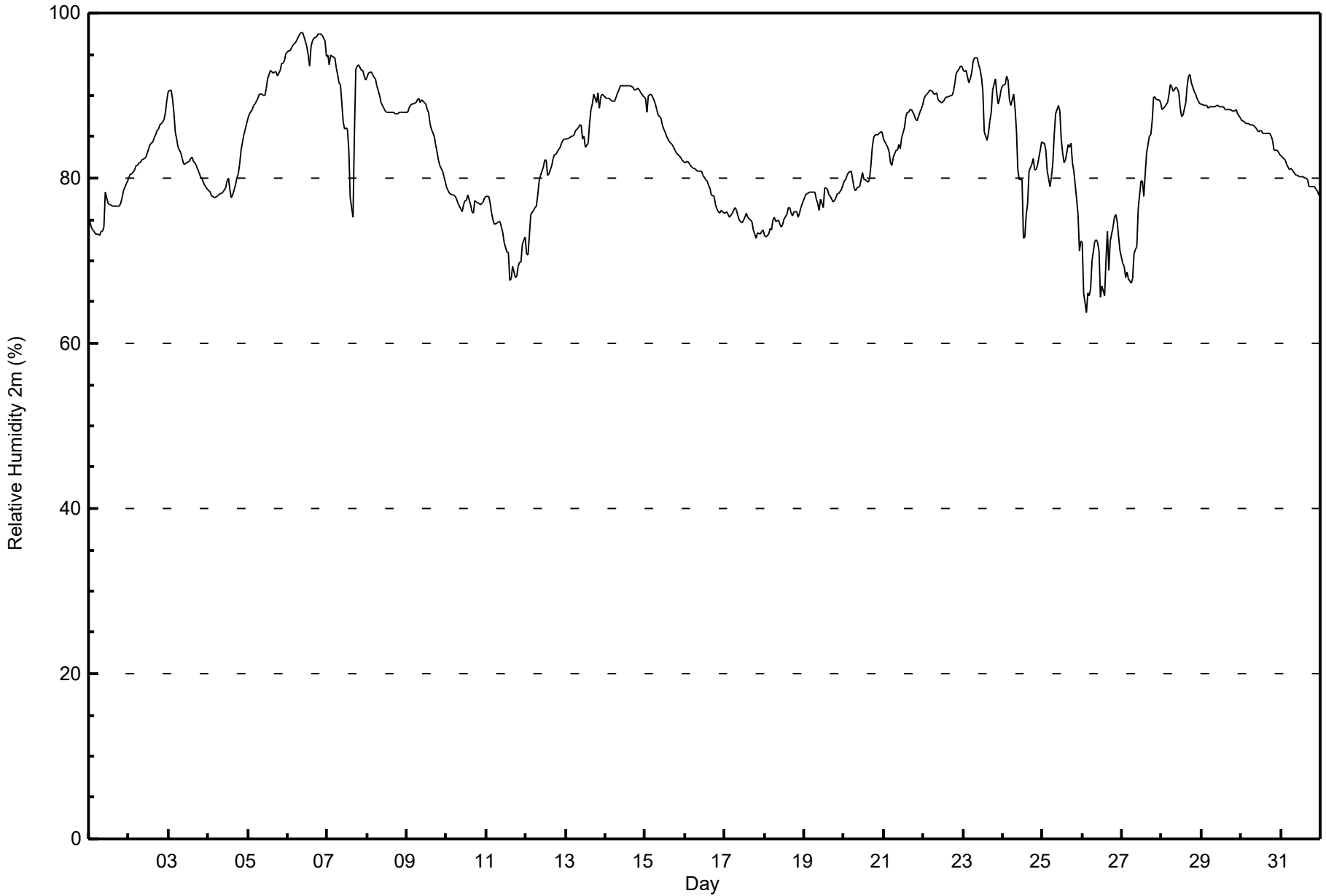
Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	176	23.66	23.66
-20 - 0	536	72.04	95.70
0 - 10	32	4.30	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 97.6 % on Dec 6 09:00 Maximum Daily Average: 96.4 % on Dec 6																						Hours in Service: 744 Hours of Data: 744																										
Minimum Value: 63.7 % on Dec 26 03:00 Minimum Daily Average: 70.2 % on Dec 26 Maximum Diurnal Average: 83.9 % at hour 20 Minimum Diurnal Average: 82.2 % at hour 14 Monthly Average: 83.30 % Percentiles: P ₁ = 67.1 P ₁₀ = 74.2 Q ₁ = 77.9 Median = 83.5 Q ₃ = 89.0 P ₉₀ = 91.9 P ₉₉ = 97.2																						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-Dec	74.8	74.1	73.8	73.6	73.2	73.3	73.1	73.5	73.6	74.1	78.3	76.9	76.8	76.8	76.6	76.5	76.6	76.7	76.6	76.9	77.7	78.5	79.3	79.7	75.9	79.7																						
2-Dec	80.2	80.6	80.5	81.1	81.5	81.6	81.8	81.9	82.2	82.4	82.6	83.1	83.6	84.0	84.5	85.0	85.3	85.7	86.0	86.4	86.7	87.2	87.9	89.5	83.8	89.5																						
3-Dec	90.5	90.7	89.6	87.9	85.7	84.7	83.7	83.1	82.4	81.8	81.7	81.9	82.1	82.3	82.5	82.1	81.9	81.6	80.7	80.2	79.9	79.5	79.1	78.7	83.1	90.7																						
4-Dec	78.5	78.3	77.8	77.7	77.5	77.7	77.9	78.1	78.1	78.3	78.8	79.6	79.9	78.6	77.6	78.0	79.2	80.0	80.6	81.7	83.4	85.2	85.9	86.7	79.8	86.7																						
5-Dec	87.3	87.8	88.4	88.8	89.1	89.3	89.7	90.1	90.1	90.1	90.1	90.8	92.1	93.0	92.9	92.7	92.8	92.9	92.3	93.1	93.8	94.0	94.3	95.0	91.3	95.0																						
6-Dec	95.4	95.5	95.8	96.2	96.2	96.5	97.1	97.5	97.6	97.6	97.2	96.0	94.9	93.6	95.9	96.7	97.0	97.1	97.5	97.5	97.5	97.3	96.6	94.8	96.4	97.6																						
7-Dec	95.0	93.8	94.9	94.8	94.6	93.3	92.5	91.5	91.4	86.8	86.0	86.1	85.9	83.3	77.6	75.2	85.4	93.1	93.6	93.8	93.1	93.0	92.4	91.9	90.0	95.0																						
8-Dec	92.2	92.7	92.9	92.6	92.3	92.1	91.2	90.1	89.1	88.9	88.5	88.2	88.0	88.0	88.0	88.0	87.9	87.8	87.9	88.0	87.9	88.0	87.9	87.9	89.4	92.9																						
9-Dec	88.0	88.4	88.8	89.0	89.0	89.2	89.5	89.7	89.2	89.4	89.1	89.0	88.4	87.9	86.6	86.0	85.1	84.0	83.2	82.2	81.5	80.8	80.2	79.6	86.4	89.7																						
10-Dec	78.9	78.6	78.2	77.9	77.9	77.7	77.4	76.9	76.3	75.9	76.7	77.3	77.3	77.9	76.8	76.0	75.7	77.2	77.2	76.9	76.7	76.9	77.2	77.7	77.2	78.9																						
11-Dec	77.8	77.8	77.0	75.7	74.9	74.5	74.6	74.8	74.7	74.1	73.5	72.1	71.1	71.0	67.7	67.8	69.4	67.9	68.1	69.3	69.8	69.9	72.0	72.9	72.4	77.8																						
12-Dec	70.8	70.6	73.1	75.6	76.2	76.5	76.6	77.9	79.6	80.3	81.3	82.2	82.3	80.3	80.5	81.5	82.5	82.8	82.9	83.2	83.7	84.3	84.5	84.7	79.7	84.7																						
13-Dec	84.7	84.7	84.9	85.1	85.1	85.2	85.8	86.1	86.4	86.4	84.8	85.1	83.8	84.3	86.6	88.3	89.0	90.2	89.1	90.4	88.4	89.8	90.2	90.0	86.8	90.4																						
14-Dec	89.7	89.7	89.7	89.6	89.4	89.3	89.8	90.3	90.7	91.2	91.1	91.2	91.3	91.2	91.2	91.1	91.0	90.7	90.7	90.8	90.9	90.6	90.1	89.9	90.4	91.3																						
15-Dec	89.6	88.0	89.9	90.1	89.9	89.5	89.0	88.3	87.6	87.4	86.5	86.0	85.5	85.1	84.5	84.3	84.0	83.7	83.3	83.0	82.8	82.6	82.2	82.1	86.0	90.1																						
16-Dec	81.8	82.0	81.9	81.5	81.3	81.2	81.2	80.8	80.9	80.8	80.9	80.3	79.8	79.6	79.2	78.9	78.0	77.8	76.9	76.2	75.9	75.8	76.2	75.7	79.3	82.0																						
17-Dec	75.7	75.9	75.6	75.2	75.8	76.1	76.4	76.2	75.4	74.9	74.7	75.0	75.3	75.7	75.3	74.9	74.7	73.8	73.1	72.7	73.4	73.2	73.5	73.8	74.8	76.4																						
18-Dec	73.1	72.9	73.2	73.9	73.8	75.0	75.2	74.7	74.9	74.5	74.1	74.4	75.0	75.5	76.5	76.4	75.8	75.4	76.0	75.9	75.2	75.8	76.5	77.0	75.0	77.0																						
19-Dec	77.8	78.1	78.1	78.3	78.4	78.3	78.3	77.4	76.9	76.1	77.5	76.5	78.8	78.9	78.6	78.0	77.8	77.1	77.3	77.6	78.1	78.2	78.6	79.2	77.9	79.2																						
20-Dec	79.6	79.8	80.4	80.7	80.9	79.8	78.8	78.5	78.8	78.9	79.9	80.7	79.9	79.9	79.5	79.9	81.6	83.7	84.9	85.2	85.3	85.4	85.6	85.5	81.4	85.6																						
21-Dec	84.7	84.1	83.8	83.2	81.8	81.5	82.6	83.4	83.4	84.0	83.6	85.0	86.2	87.5	88.0	88.0	88.2	88.3	87.6	87.1	87.0	87.4	87.9	88.8	85.6	88.8																						
22-Dec	89.6	89.9	90.2	90.3	90.7	90.5	90.3	90.3	90.3	89.6	89.1	89.2	89.3	89.7	89.9	89.8	90.0	89.9	90.5	91.6	92.7	93.2	93.6	93.6	90.6	93.6																						
23-Dec	93.1	92.9	93.0	91.6	92.1	92.8	94.0	94.6	94.7	93.8	93.2	92.3	90.5	85.5	84.5	85.4	86.9	88.0	90.6	92.0	89.0	89.7	90.7	90.9	90.9	94.7																						
24-Dec	91.2	91.4	92.3	91.9	89.6	88.9	90.2	88.4	85.8	81.0	79.9	79.8	72.8	73.0	75.6	76.9	80.8	81.8	82.4	81.1	81.0	81.5	83.4	84.3	83.5	92.3																						
25-Dec	84.2	84.2	83.4	80.8	79.0	80.1	81.9	85.3	87.8	88.9	88.1	84.8	83.0	81.9	82.3	84.0	83.7	84.2	81.9	80.9	77.5	75.6	71.2	72.3	82.0	88.9																						
26-Dec	72.2	66.1	63.7	66.1	65.8	66.6	70.0	72.4	72.5	72.2	71.2	65.6	66.9	65.8	70.1	73.5	68.8	72.3	74.1	75.3	75.6	74.7	72.9	71.2	70.2	75.6																						
27-Dec	69.6	69.3	68.0	68.7	67.9	67.3	67.8	70.8	71.3	71.6	76.2	79.7	79.7	77.8	80.4	83.0	85.0	85.2	87.0	89.9	89.9	89.5	89.5	89.1	78.1	89.9																						
28-Dec	88.3	88.5	88.6	89.2	90.1	91.4	91.0	90.5	91.1	90.8	90.3	88.6	87.4	87.6	89.1	91.2	92.4	92.5	91.6	90.5	90.2	89.6	89.2	88.9	89.9	92.5																						
29-Dec	89.0	88.9	88.8	88.9	88.5	88.7	88.7	88.7	88.7	88.8	88.8	88.7	88.7	88.6	88.4	88.4	88.3	88.3	88.2	88.1	88.2	88.3	87.9	87.3	88.5	89.0																						
30-Dec	87.0	86.9	86.8	86.7	86.6	86.5	86.4	86.4	86.3	86.1	85.6	85.8	85.8	85.5	85.5	85.5	85.5	85.4	85.0	84.6	83.5	83.4	83.2	82.9	85.5	87.0																						
31-Dec	82.6	82.5	82.2	81.7	81.4	81.0	81.2	81.0	80.5	80.3	80.3	80.2	80.1	80.1	80.0	80.0	79.8	79.1	78.9	79.1	78.9	78.7	78.4	78.0	80.2	82.6																						
																								83.6	83.4	83.4	83.4	83.1	83.1	83.3	83.5	83.5	83.1	83.2	83.0	82.6	82.2	82.3	82.7	83.2	83.7	83.7	83.9	83.8	83.8	83.8	83.8	Diurnal Average
																								95.4	95.5	95.8	96.2	96.2	96.5	97.1	97.5	97.6	97.6	97.2	96.0	94.9	93.6	95.9	96.7	97.0	97.1	97.5	97.5	97.5	97.3	96.6	95.0	Diurnal Maximum





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Firebag - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	261	35.08	35.08
80 - 100	483	64.92	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

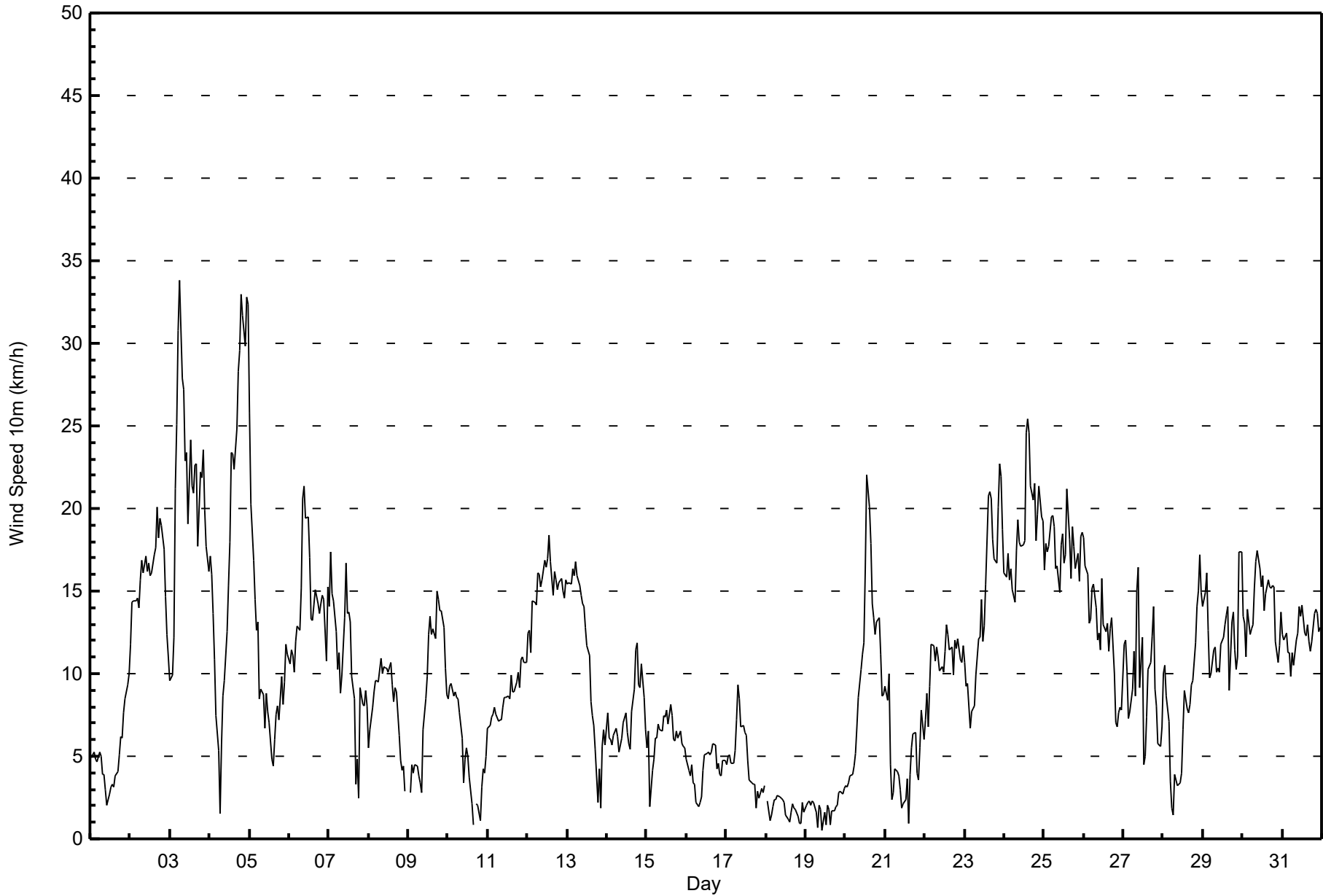


Maximum Speed: 34 km/h on Dec 3 07:00	Maximum Daily Speed Average: 20.5 km/h on Dec 3	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 19 11:00	Minimum Daily Speed Average: 1.3 km/h on Dec 19	Hours of Data: 740
Maximum Diurnal Speed Average: 3.8 km/h at hour 17	Minimum Diurnal Speed Average: 2.1 km/h at hour 7	Hours of Missing Data: 4
Monthly Average Velocity: 3.1 km/h 222.1 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 6 Median = 10 Q ₃ = 15 P ₉₀ = 18 P ₉₉ = 29	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-Dec	N5	NNE5	NNE5	NNE5	NE5	NE5	NE5	NNE4	ENE4	ENE3	ENE2	NNE3	ENE3	E3	SSE3	S4	SSE4	SSE5	S6	S6	SSE8	SSE8	S9	S10	ESE2.1	S10	
2-Dec	SSE12	S14	SSE14	SSE14	SSE15	SSE14	SSE16	S17	S16	S17	S16	S17	S16	S16	SSE17	S18	SSE20	S18	SSE19	SSE19	S18	S15	S12	SSW11	S15.8	SSE20	
3-Dec	WSW10	W10	NNW12	N21	N25	NNW31	NNW34	NNW28	NNW27	NNW23	NNW23	NNW19	NNW24	NNW21	NNW21	NNW23	NNW23	NNW18	N22	NNW22	N24	N20	N18	N16	NNW20.5	NNW34	
4-Dec	N17	N16	N14	N11	NNE7	NNE5	NE2	S6	S9	S10	S13	SSE15	S18	S23	S22	S25	S28	S30	S33	SSW32	SSW30	SSW33	SW32	S12.4	S33		
5-Dec	SW26	SW20	SW17	WSW14	WSW13	WSW13	SW9	SW9	SW9	SSW7	SSW9	SSW8	SSW7	SSW5	SSE4	SSE6	SSW8	S8	SSE7	S10	SSE8	SE10	SSE12	S11	SSW9.0	SW26	
6-Dec	S11	SSW11	SSW11	SSW10	SSW12	SW13	SW13	SW15	SW21	WSW21	WSW19	WSW20	WSW17	WSW13	WSW13	WSW14	WSW15	SW14	SW14	SW14	SW15	WSW14	WSW11	W15	SW13.6	WSW21	
7-Dec	W14	W17	W15	W14	W13	W10	W11	W9	WSW10	WSW13	SW17	WSW14	SW14	SW13	SW10	SW8	WNNW3	SSW5	NE2	NNE9	NE8	NE8	NNE9	NNE8	WSW6.9	W17	
8-Dec	NNE6	N7	N8	N9	N10	N10	N10	N11	N10	N10	NNW10	N10	NNW10	NNW11	N9	NNW8	NNW9	NNW9	NNW6	NNW5	N4	N4	NNW3	UO	N8.1	N11	
9-Dec	UO	SW3	SW5	SW4	SW4	WSW4	W4	W3	NW3	N7	N8	N10	NNW12	NNW13	N12	N13	N12	N15	N14	N14	N14	N13	N10	N9	NNW7.4	N15	
10-Dec	N8	NNW9	NNW9	NNW9	N9	N9	N9	N8	N6	NNW3	NNW5	N6	NW5	WNNW4	NNW2	NW1	UO	S2	SE2	SE1	SE3	SE4	SSE4	SSE5	N3.4	NNW9	
11-Dec	SSE7	SSE7	SSE7	SSE8	SSE8	SSE8	SE7	SSE7	SE7	SSE8	SSE9	SE9	SE9	SSE8	SSE10	SSE9	SSE9	SSE9	SSE10	SE9	SSE11	SSE11	SSE11	SSE11	SSE8.6	SSE11	
12-Dec	S12	S13	SSE11	SSE14	SSE14	SSE14	SSE16	S16	SSE15	S16	S17	S16	S17	S18	S17	S15	S16	S16	S15	S15	S16	S15	S15	S16	S15.1	S18	
13-Dec	SSW15	SSW16	SSW15	SSW16	SSW16	SSW17	SW16	SSW15	SW15	SW14	SW14	SW13	SW12	SW11	SW8	SW7	SW7	SW5	WSW2	SW4	E2	NE6	NE7	NE6	SSW9.1	SSW17	
14-Dec	NE8	ENE6	ENE6	ENE6	NE6	ENE7	ENE6	ENE5	E6	ESE6	ESE7	ESE8	ESE6	E6	E5	ENE8	E9	E11	E12	ESE9	E9	E11	E9	ESE7	E7.0	E12	
15-Dec	E6	ESE7	NE2	NNW4	N5	NNW6	NNW6	NNW7	N7	N7	N7	N7	N8	NNW7	N8	N7	N6	NNW6	NNW7	N6	N6	N6	N6	N5	N5.5	N8	
16-Dec	N5	N4	NNE4	N4	N3	NNE3	N2	N2	NW2	WNNW3	WNNW4	NW5	NW5	NW5	WNNW5	WNNW5	WNNW6	WNNW6	WNNW4	NW5	WNNW4	WNNW4	WNNW5	WNNW5	NW3.6	WNNW6	
17-Dec	W5	WNNW5	WNNW5	WNNW5	NW5	NW5	NNW7	N9	N8	N7	N7	NNW6	NNW6	NW5	NW4	W3	WSW3	WSW3	SW2	WSW3	SW2	SW3	SW3	SW3	NW3.4	N9	
18-Dec	UO	SSW2	SE1	SE1	SSE2	SSE2	SSE2	SSE3	SSE3	SE2	SSE2	SE2	SSE1	SE1	SSW1	SSW2	S2	SSE2	SSE2	S1	S1	S1	S2	S2	SSE1.7	SSE3	
19-Dec	S2	S2	SSW2	SSW2	SW2	SW2	SW2	SW1	WSW2	WSW2	WSW1	SW2	NE1	NE2	ENE2	E1	SE2	SSE2	SSE2	SSE2	SSE2	SSE3	S3	S3	S3	S1.3	S3
20-Dec	SSE3	SSE3	SSE3	SSE4	SSE4	SSE4	SSE5	SSE7	SSE9	SSE10	SSE11	SSE12	S16	S22	S20	S18	S14	S13	S12	SSW13	SW13	SW11	SW9	SW9	S9.5	S22	
21-Dec	SW9	SW8	SW10	SW4	SSW2	S3	SSW4	S4	S4	S3	SE2	SSE2	S2	SSE4	SSE1	SSE4	SSE6	SSE6	S6	SSE4	ESE4	SE6	SE8	SSE6	S3.8	SW10	
22-Dec	SSE7	SSE9	SSE7	S9	S12	S12	S11	S12	S11	S10	S10	S10	S11	S13	S12	S11	S12	S10	S12	SSW12	SSW12	SSW11	SSW11	SSW12	S10.3	S13	
23-Dec	SSW11	SSW9	SSW9	S7	S8	S8	S8	S10	SSW12	SSW12	SW14	SSW12	SSW13	SSW15	SW21	SW21	SW21	WSW18	SW17	WSW17	WSW20	WSW23	WSW22	W19	SW13.3	WSW23	
24-Dec	WSW16	WSW16	SW17	SSW16	SW16	SSW15	SSW14	SSW17	SSW19	SSW18	S18	SSE18	SSE18	SSE25	SSE25	S25	SSW21	S20	S21	SSW18	SSW20	SW21	SW19	SW19	SSW17.0	SSE25	
25-Dec	SW16	SSW18	SSW17	SW18	SW19	SW20	WSW19	WSW16	WSW16	SW15	SW18	SW18	SW17	SW17	WSW21	SW18	SW16	SW19	SW18	SW16	SW17	SW16	SW18	SW19	SW17.4	WSW21	
26-Dec	SSW18	SSW17	SSW16	S13	S13	S15	S15	S14	S12	S12	S11	SSW16	SSW13	SSW13	SSW13	SSW11	SW13	SSW13	SSW10	S7	SSE7	SSE8	SSE8	SSE8	SSW11.9	SSW18	
27-Dec	S12	S12	S10	SSE7	SSE8	SE9	SE11	ESE9	ESE15	ESE16	S9	S12	SSE4	E5	ESE7	ESE10	ESE11	ESE12	SE14	SSE9	SSE8	SE6	ESE6	SE7	SE8.5	ESE16	
28-Dec	SE10	SE11	SE9	SE7	S3	S2	ENE1	NE4	NNE3	NNE3	NNE3	NNW4	NW7	NNW9	NNW8	NNW8	NNW8	NNW8	NNW9	NNW10	NNW12	N14	N15	N17	N15	N4.5	N17
29-Dec	N14	N15	N16	NNW13	NNW10	NNW10	NNW11	NNW12	NNW10	NNW10	NW10	NNW12	NNW12	NNW13	NNW14	N14	NNW9	NNW13	NNW14	NNW11	NW10	NW11	NNW17	NNW17	NNW12.3	NNW17	
30-Dec	NNW13	NNW13	NNW11	NNW14	NNW12	NNW13	NNW13	NNW15	NNW17	NNW17	NNW16	NNW15	NW16	NW14	NW15	NW16	NW15	NW15	NW15	NNW15	NNW12	NNW11	N12	N14	NNW13.8	NNW17	
31-Dec	NNW12	NNW12	NNW12	NNW11	NNW11	NNW10	NNW11	NNW11	N12	NNW12	NNW14	NNW14	NNW14	NNW14	NNW12	NNW12	NNW13	NNW12	N11	N12	N14	N14	N14	N13	N13	NNW12.3	NNW14

SW3.7	SW3.6	SW2.9	SW2.2	SW2.3	SW2.4	SW2.1	SW2.4	SW2.8	SW3.1	SW3.6	SW3.6	SW3.6	SW3.7	SW3.5	SW3.6	SSW3.8	SSW3.7	SSW3.3	SW3.3	SW3.2	SW2.8	SW2.7	SW3.5	Diurnal Average
SW26	SW20	SSW17	N21	N25	NNW31	NNW34	NNW28	NNW27	NNW23	NNW23	WSW20	NNW24	SSE25	SSE25	S25	S25	S28	S30	S33	SSW32	SSW30	SSW33	SW32	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Firebag - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	178	24.05	24.05
6 - 11	251	33.92	57.97
12 - 19	259	35.00	92.97
20 - 28	44	5.95	98.92
29 - 38	8	1.08	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 10m (WS10) - km/h
Firebag - December 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	11	9	7	5	1	11	32	20	9	17	9	3	14	12	7	178
6 - 11	38	5	7	6	8	13	15	43	29	17	15	3	4	2	4	42	251
12 - 19	29	0	0	0	1	3	1	20	53	35	43	19	7	0	7	41	259
20 - 28	5	0	0	0	0	0	0	3	10	2	8	6	0	0	0	10	44
29 - 38	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	2	8
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	83	16	16	13	14	17	27	98	114	66	84	37	14	16	23	102	740

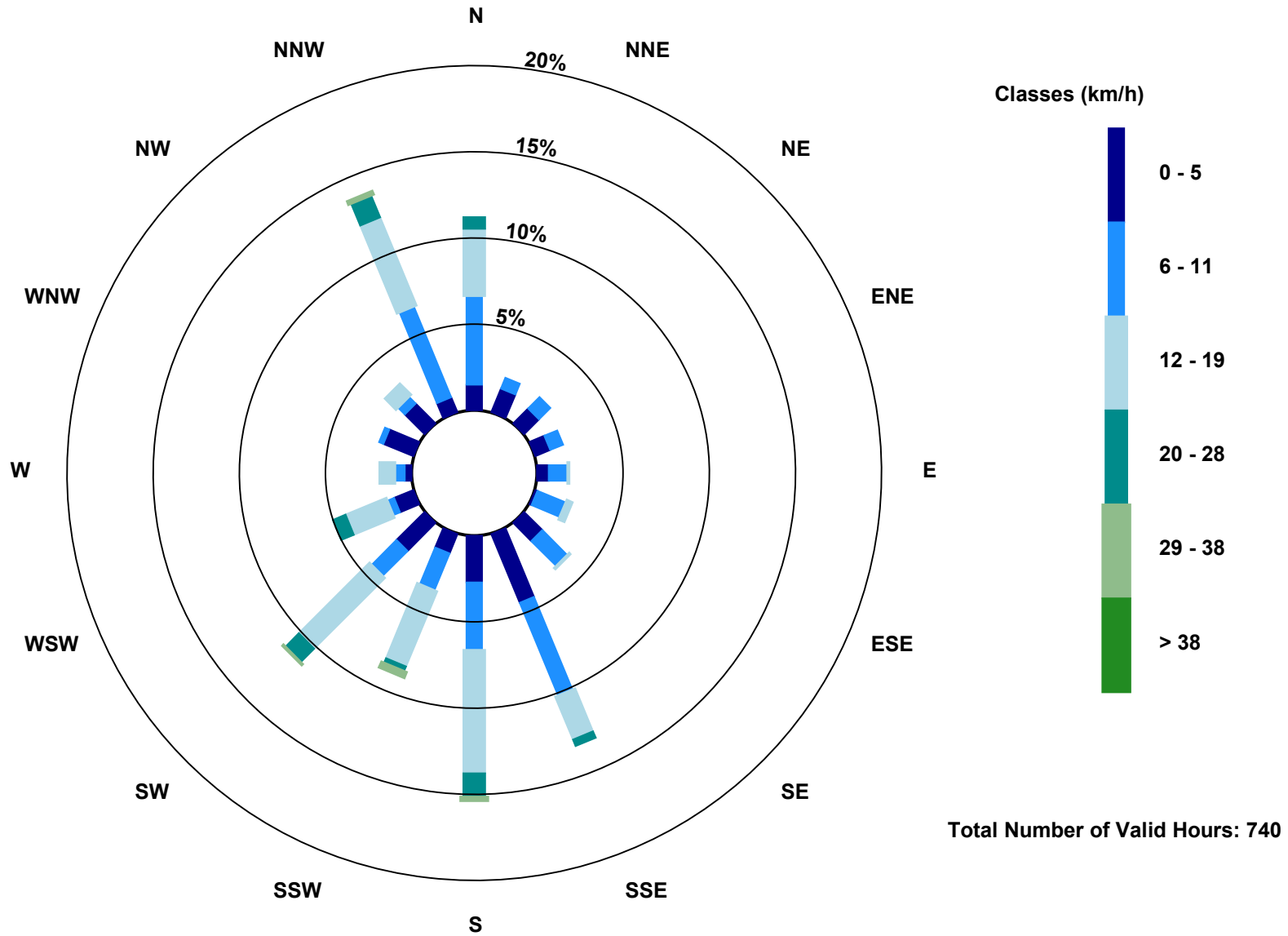
Total Number of Valid Hours: 740

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Firebag - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 9 km/h on Dec 3 06:00 Minimum Value: 0 km/h on Dec 19 02:00 Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 3 P ₉₉ = 6																	Hours in Service: 744 Hours of Data: 740 Hours of Missing Data: 4 Hours of Calibration: 0 Percent Operational Time: 99.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	0	0	1	1	1	1	1	1	2	2
2-Dec	2	2	3	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	3	2	3	2	3
3-Dec	2	2	3	5	7	9	8	7	7	6	6	5	7	5	5	6	6	4	6	5	5	5	3	3	9
4-Dec	3	4	3	3	2	2	1	2	1	1	2	2	3	3	3	4	4	5	5	5	4	5	5	5	5
5-Dec	6	5	4	3	3	2	2	1	1	1	1	1	1	1	1	2	1	2	2	1	2	3	2	6	
6-Dec	2	2	1	3	2	2	2	3	3	4	3	3	3	3	2	2	3	2	2	3	2	2	2	3	4
7-Dec	3	3	3	3	2	2	2	3	2	4	2	2	2	2	2	2	2	1	3	2	1	1	2	2	4
8-Dec	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	UO	2
9-Dec	UO	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	3	3	3	3	2	2	3
10-Dec	2	2	2	2	2	1	2	1	1	1	1	1	1	1	1	1	UO	1	0	1	1	1	1	1	2
11-Dec	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2
12-Dec	1	2	2	2	2	2	2	3	3	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	3
13-Dec	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	1	1	2	1	1	3
14-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	2	1	3
15-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	2
16-Dec	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2
17-Dec	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	0	1	1	1	1	1	2	1	2
18-Dec	UO	1	1	1	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	1	0	1	1
19-Dec	0	0	0	0	0	0	1	1	0	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	1
20-Dec	0	1	1	1	1	1	1	1	2	2	2	2	4	4	3	3	2	2	2	2	2	2	2	1	4
21-Dec	1	2	2	2	1	2	1	1	1	0	0	1	1	1	1	2	1	2	2	1	1	1	2	1	2
22-Dec	1	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2	2	1	2	2	2	1	1	2	2
23-Dec	2	1	1	1	1	1	1	1	2	2	2	2	4	3	3	3	3	3	3	4	3	4	4	4	4
24-Dec	3	2	3	2	2	2	2	2	3	3	3	2	4	4	5	4	4	4	4	3	3	3	3	2	5
25-Dec	2	2	3	3	3	3	3	3	3	3	3	3	3	3	4	3	2	3	3	3	2	2	2	3	4
26-Dec	3	2	2	1	2	2	2	3	1	2	1	2	3	4	2	2	2	3	3	2	1	2	2	3	4
27-Dec	2	2	1	2	1	2	2	3	2	2	3	2	2	1	3	2	2	3	4	3	1	1	1	2	4
28-Dec	2	2	2	2	1	1	1	1	1	1	2	1	1	2	2	2	2	2	2	2	3	3	3	3	3
29-Dec	3	3	3	3	2	2	2	2	2	2	2	2	2	3	3	3	2	4	3	2	2	2	4	4	4
30-Dec	3	3	3	3	2	3	3	3	3	3	3	4	3	3	3	4	3	3	4	4	3	2	3	3	4
31-Dec	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	3	2	2	2	3	3	3	2	3	3
Diurnal Maximum																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

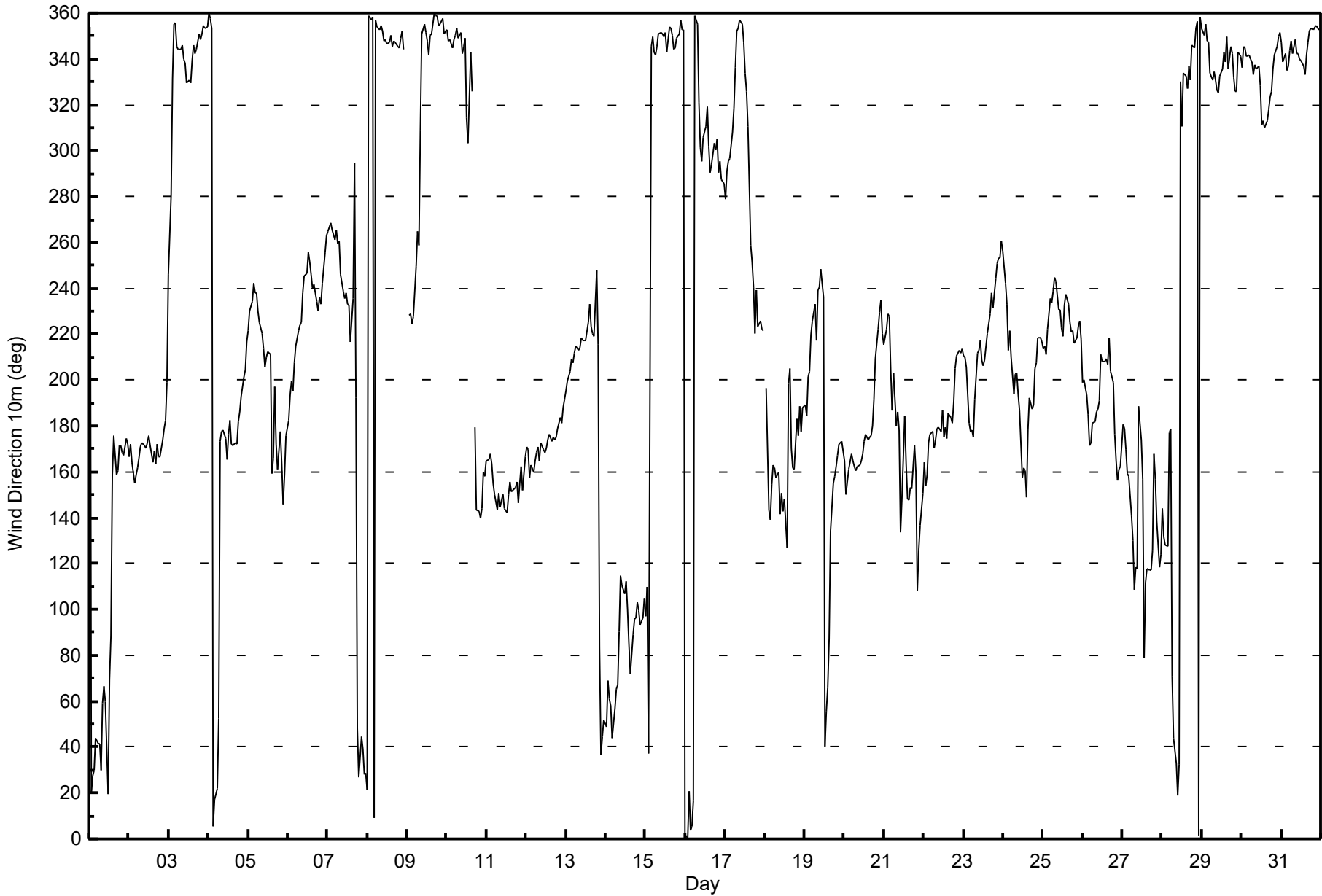
Wind Direction 10m (WD10) - deg
Firebag - December 2024

Direction of Maximum Speed: 344 deg on Dec 3 07:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 342.3 deg on Dec 3	Hours of Data: 740
Direction of Minimum Speed: 248 deg on Dec 19 11:00	Hours of Missing Data: 4
Direction of Minimum Daily Speed Average: 1.3 deg on Dec 19	Percent Operational Time: 99.5
Monthly Average Direction: 222.1 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-Dec	354	20	27	30	44	42	42	30	59	67	60	20	70	89	159	176	159	161	171	172	168	167	175	172	115.4
2-Dec	167	172	164	155	158	161	166	171	172	171	170	172	176	171	164	169	163	172	167	166	174	179	182	199	169.7
3-Dec	246	281	331	355	356	345	344	344	346	340	338	329	330	329	339	346	343	344	351	348	351	355	353	354	342.3
4-Dec	360	357	353	5	17	22	53	173	177	178	174	165	176	183	172	172	172	182	186	193	202	204	217	185.9	
5-Dec	222	230	235	242	238	238	230	225	221	213	206	210	213	211	159	166	197	172	161	178	163	146	159	176	207.6
6-Dec	182	194	200	196	207	215	222	224	225	238	245	246	256	252	246	240	242	234	230	236	233	242	256	263	232.7
7-Dec	265	267	268	266	261	265	259	260	246	239	235	238	233	233	216	235	294	192	48	27	44	39	28	29	258.5
8-Dec	21	359	357	358	9	357	354	353	355	352	348	349	347	347	350	346	348	347	345	345	349	352	344	UC	352.6
9-Dec	UC	228	229	225	228	249	265	259	309	351	355	351	348	342	350	351	360	359	359	354	355	358	351	352	344.4
10-Dec	352	348	348	345	349	350	354	349	351	343	346	349	314	303	343	326	UC	179	143	143	140	144	160	158	348.9
11-Dec	165	165	168	164	155	150	143	150	145	148	150	144	142	150	156	151	152	153	156	146	155	162	152	166	153.8
12-Dec	171	169	158	163	160	165	168	171	165	173	169	169	170	174	177	173	175	174	175	179	184	181	188	191	172.8
13-Dec	195	200	204	209	207	212	215	213	214	218	217	217	225	233	224	220	219	248	215	84	37	44	52	211.9	
14-Dec	49	69	61	58	44	57	65	67	90	115	111	107	112	100	85	72	89	96	96	103	99	93	96	105	86.9
15-Dec	97	110	37	345	350	343	342	346	351	351	351	349	351	343	354	354	350	344	345	349	351	357	353	353	354.6
16-Dec	1	0	21	3	5	16	359	355	321	301	295	305	311	319	302	291	294	303	300	305	291	295	287	286	317.0
17-Dec	279	291	295	297	308	318	336	352	354	357	355	347	334	326	311	259	251	240	220	239	223	226	222	221	311.6
18-Dec	UC	197	144	139	154	163	162	157	160	142	151	143	149	127	198	205	170	162	161	183	176	189	177	188	163.7
19-Dec	189	184	201	204	220	226	233	217	239	240	248	236	40	56	66	87	134	155	158	162	167	172	173	169	183.8
20-Dec	165	150	155	161	168	165	162	160	163	163	165	168	173	176	174	175	176	180	191	209	222	229	235	220	182.3
21-Dec	216	222	229	228	204	187	203	180	186	178	134	148	184	163	148	147	153	152	171	160	108	126	137	151	177.1
22-Dec	164	154	159	173	176	177	170	174	179	179	178	186	175	180	174	186	183	181	190	205	211	213	211	213	184.0
23-Dec	211	210	206	181	177	178	175	191	211	213	217	209	207	209	220	225	229	238	231	244	251	253	253	260	224.3
24-Dec	256	242	233	213	221	210	194	202	203	194	187	157	162	160	149	178	192	187	189	205	207	218	218	217	197.6
25-Dec	214	215	211	222	236	233	239	244	243	231	230	223	219	233	238	233	225	221	222	216	219	223	226	218	226.5
26-Dec	199	200	194	185	171	173	181	182	186	187	191	211	208	208	209	207	218	204	199	176	165	156	161	162	191.4
27-Dec	181	179	169	159	158	141	130	109	119	118	189	174	157	79	112	118	117	117	126	168	157	138	119	124	140.1
28-Dec	144	132	128	127	177	179	71	44	33	19	32	330	311	334	333	327	337	331	346	345	353	356	1	358	0.1
29-Dec	353	350	355	348	347	333	330	334	331	327	325	332	336	343	339	350	336	346	342	332	326	326	343	341	339.6
30-Dec	336	345	345	341	342	340	339	333	337	335	337	328	311	313	310	313	318	323	326	335	342	346	350	351	332.4
31-Dec	347	339	342	335	337	343	348	343	349	343	342	340	339	337	333	342	347	352	353	353	354	354	353	353	345.0

222.9 224.9 230.5 232.5 229.7 234.1 234.6 231.7 223.6 220.4 226.6 223.2 229.8 222.1 213.9 215.9 212.4 203.1 200.8 217.4 217.8 223.5 227.8 231.6
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Firebag - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 86 deg on Dec 10 16:00 Minimum Value: 6 deg on Dec 1 10:00 Percentiles: P ₁ = 7 P ₁₀ = 8 Q ₁ = 9 Median = 12 Q ₃ = 14 P ₉₀ = 17 P ₉₉ = 58																	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-Dec	12	11	11	12	10	9	12	17	7	6	13	28	18	25	16	8	13	9	10	11	9	11	10	9	28																						
2-Dec	9	9	11	11	11	10	9	8	8	9	10	9	9	8	9	10	8	9	9	9	8	9	10	10	11																						
3-Dec	17	24	15	14	15	13	13	13	14	14	13	14	14	13	16	13	13	14	16	14	15	13	13	24																							
4-Dec	14	15	13	16	17	17	62	20	10	9	9	8	9	9	9	9	9	9	8	9	8	9	9	62																							
5-Dec	11	15	11	11	10	10	13	10	9	10	9	11	14	11	22	13	16	16	17	13	17	12	10	22																							
6-Dec	10	10	8	9	11	9	9	9	9	11	10	10	11	12	11	12	11	11	11	14	10	10	13	14																							
7-Dec	13	13	12	12	13	12	11	12	13	10	9	9	9	9	7	35	55	21	64	8	11	13	13	64																							
8-Dec	17	14	14	15	15	16	16	14	14	13	16	15	14	14	14	14	14	13	15	16	14	14	42	42																							
9-Dec	UO	15	14	19	12	11	19	20	48	15	15	15	15	13	14	15	15	17	16	16	16	17	14	48																							
10-Dec	16	13	14	14	16	15	14	13	14	24	14	14	23	35	42	86	UO	21	22	59	23	14	17	86																							
11-Dec	11	10	10	12	13	14	13	13	12	12	12	11	10	11	11	10	11	9	10	10	9	10	9	14																							
12-Dec	8	8	10	9	9	11	9	9	9	9	8	9	9	9	8	9	8	8	8	8	8	8	8	11																							
13-Dec	9	8	8	8	9	8	8	8	8	8	8	9	8	14	11	10	10	15	25	16	66	16	11	66																							
14-Dec	9	13	9	10	10	8	10	13	14	12	11	12	11	12	11	11	12	9	10	14	11	9	10	15																							
15-Dec	13	8	35	17	11	12	12	13	12	13	12	13	13	13	13	12	12	12	12	14	15	13	14	35																							
16-Dec	12	16	17	13	14	13	22	24	27	22	19	17	18	14	17	19	19	16	15	14	17	17	18	27																							
17-Dec	16	17	17	16	20	15	14	13	13	13	14	14	12	17	21	12	7	8	11	8	8	7	39	39																							
18-Dec	UO	17	16	15	10	9	10	9	10	12	11	12	11	29	18	8	13	13	12	34	9	9	11	34																							
19-Dec	8	13	13	10	9	9	14	56	12	10	57	25	70	9	11	20	22	17	12	13	10	9	10	70																							
20-Dec	9	14	12	10	9	10	10	10	10	9	9	9	10	10	9	10	9	11	9	9	10	11	12	14																							
21-Dec	8	7	8	15	24	35	16	10	12	11	13	52	37	16	72	26	15	13	20	31	20	17	13	72																							
22-Dec	13	13	11	9	9	9	9	9	8	8	10	8	8	9	9	8	9	9	8	9	8	8	7	13																							
23-Dec	8	8	7	9	8	10	9	10	9	8	8	9	8	10	9	10	9	10	9	11	10	11	11	12																							
24-Dec	10	10	11	8	8	10	7	8	7	9	9	12	10	10	11	13	10	11	12	9	10	9	8	13																							
25-Dec	7	8	8	11	9	9	10	11	13	11	11	9	10	11	10	9	8	9	9	9	9	9	9	13																							
26-Dec	8	8	8	8	8	13	10	21	14	7	15	8	8	9	8	7	8	8	12	14	16	14	12	24																							
27-Dec	14	9	12	10	15	10	10	14	9	9	40	14	39	25	34	11	12	10	13	19	9	21	14	40																							
28-Dec	12	13	14	28	27	45	73	16	13	13	38	15	14	11	11	10	12	11	13	12	13	14	15	73																							
29-Dec	13	12	13	14	11	11	11	12	12	12	13	13	12	12	12	12	14	15	13	12	12	13	12	15																							
30-Dec	11	12	12	11	12	11	12	12	11	11	11	13	13	13	13	13	12	11	11	13	11	12	12	13																							
31-Dec	12	11	12	11	11	13	12	12	12	11	12	11	12	12	11	12	12	11	11	12	13	12	12	13																							
Diurnal Maximum																								17	24	35	28	27	45	73	56	48	24	57	52	70	35	72	86	55	21	64	59	66	21	42	24
UO - Unstable Operation																																															



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS20 MACKAY RIVER DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)
DECEMBER 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	33.3	0	8.6	0
H2S (ppb) Average	708	36	36	100	3.7	0	0.9	0
THC (ppm) Average	678	33	66	95.56	4.1	-	2.9	-
NO2 (ppb) Average	709	35	35	100	25.4	0	12.6	-
NO (ppb) Average	709	35	35	100	67.1	-	10	-
NOX (ppb) Average	709	35	35	100	92.5	-	19.4	-
Temperature 2 m (C) Average	744	0	0	100	4.6	-	1.3	-
Relative Humidity (%) Average	744	0	0	100	99	-	94.3	-
Wind Speed 10 m (km/h) Average	723	0	21	97.18	15	-	10	-
Wind Direction 10 m (deg) Average	723	0	21	97.18	-	-	-	-
Precipitation (mm) Total	744	0	0	100	1.5	-	7.2	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MACKAY RIVER (AMS20)
DECEMBER 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	1.16	3.4	-	0	0	0	0.2	0.5	2.8	33.3
H2S (ppb) Average	708	0.19	0.3	-	0	0	0.1	0.1	0.2	0.4	3.7
THC (ppm) Average	678	2.48	0.2	-	2.2	2.3	2.4	2.4	2.5	2.6	4.1
NO2 (ppb) Average	709	2.99	4	-	0.1	0.3	0.6	1.5	3.5	7.5	25.4
NO (ppb) Average	709	0.56	3.9	-	0	0	0	0	0.1	0.4	67.1
NOX (ppb) Average	709	3.54	6.9	-	0.1	0.3	0.6	1.6	3.7	7.8	92.5
Temperature 2 m (C) Average	744	-12.64	8.5	-	-35.2	-25.4	-19.1	-10.9	-7.1	-2.2	4.6
Relative Humidity (%) Average	744	84.99	6.9	-	68.7	75.6	79.4	85.8	91	92.5	99
Wind Speed 10 m (km/h) Average	723	5.6	3	-	0	2	3	6	8	9	15
Wind Direction 10 m (deg) Average	723	-	-	-	-	-	-	-	-	-	-
Precipitation (mm) Total	744	-	-	24.62	-	-	-	-	-	-	-

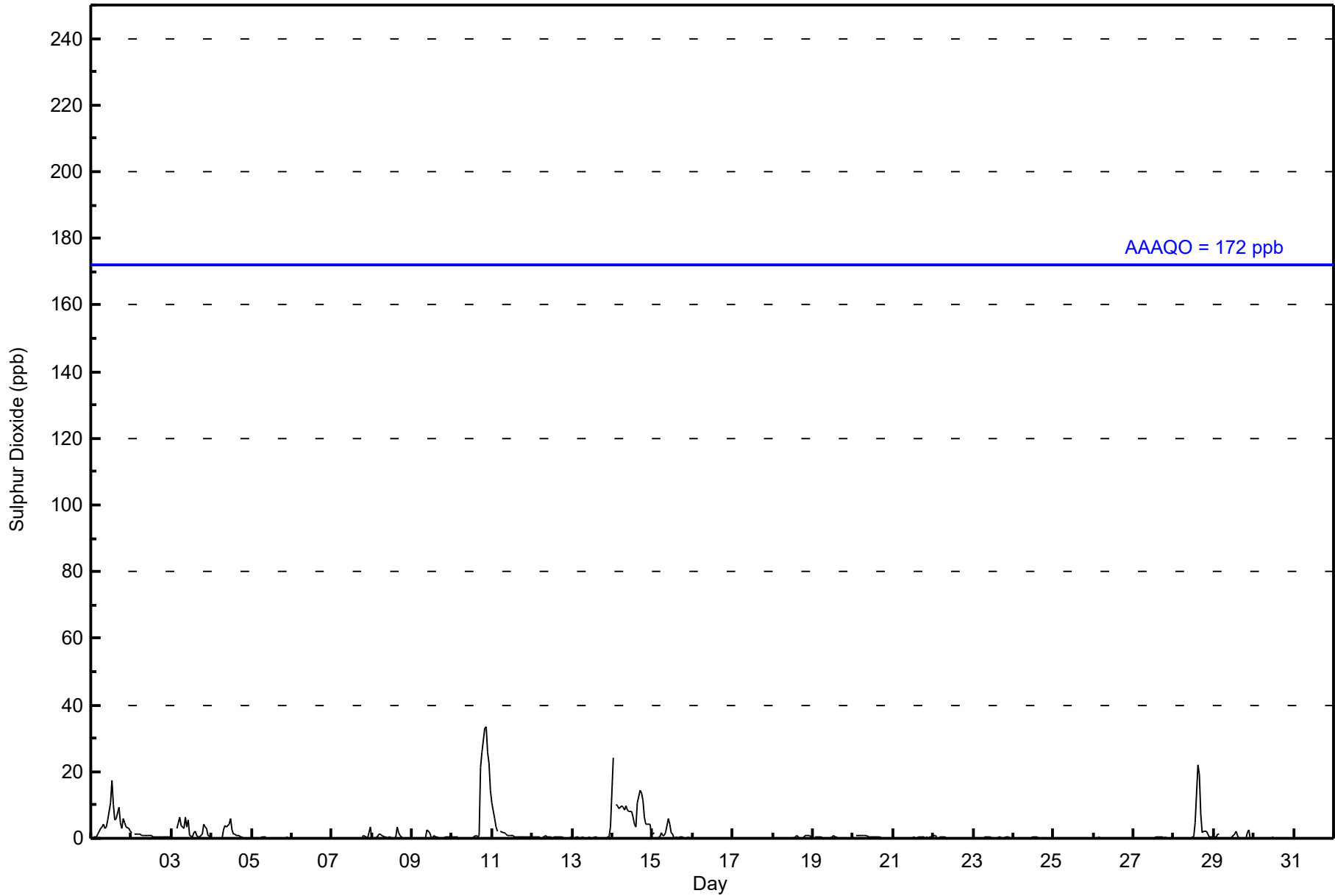
WOOD BUFFALO ENVIRONMENTAL ASSOCIATION -MACKAY RIVER (AMS20)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	11 Dec 2024 06:00	12 Dec 2024 06:00	25	Unstable Operation - AMD non compliance
THC/NMHC/CH4	12 Dec 2024 07:00	12 Dec 2024 07:00	1	Maintenance - verify daily QA response
THC/NMHC/CH4	12 Dec 2024 08:00	12 Dec 2024 11:00	4	Unstable Operation - AMD non compliance
THC/NMHC/CH4	12 Dec 2024 12:00	12 Dec 2024 14:00	3	Maintenance - replaced sample pump
Wind Speed, Wind Direction	01 Dec 2024 01:00	01 Dec 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	05 Dec 2024 22:00	05 Dec 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	08 Dec 2024 19:00	08 Dec 2024 19:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	15 Dec 2024 17:00	15 Dec 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	15 Dec 2024 23:00	15 Dec 2024 23:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 09:00	18 Dec 2024 11:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 10:00	21 Dec 2024 11:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 21:00	21 Dec 2024 21:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	22 Dec 2024 03:00	22 Dec 2024 03:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Dec 2024 12:00	27 Dec 2024 12:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 00:00	28 Dec 2024 01:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 03:00	28 Dec 2024 07:00	5	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 18:00	28 Dec 2024 18:00	1	Flat line in sensor output signal



Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744					
Maximum Value: 33.3 ppb on Dec 10 21:00		Maximum Daily Average: 8.6 ppb on Dec 14																			Hours of Data:	710					
Minimum Value: 0.0 ppb on Dec 4 05:00		Minimum Daily Average: 0.0 ppb on Dec 31																			Hours of Missing Data:	34					
Maximum Diurnal Average: 1.8 ppb at hour 20		Minimum Diurnal Average: 0.5 ppb at hour 2																			Hours of Calibration:	34					
Monthly Average: 1.16 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 2.8 P ₉₉ = 20.8																			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-Dec	Z	0.5	0.5	0.5	1.2	3.0	3.6	4.1	2.8	3.2	5.6	10.6	17.3	10.1	5.6	5.8	9.4	4.7	2.8	5.8	4.6	3.4	2.8	2.0	4.8	17.3	
2-Dec	1.8	Z	1.3	1.2	1.2	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.2	0.7	1.8	
3-Dec	0.2	0.2	Z	3.1	4.7	6.4	4.0	3.0	6.3	3.6	5.4	0.6	0.5	1.7	2.0	0.9	0.3	0.2	1.1	4.2	3.4	2.9	0.8	0.4	2.4	6.4	
4-Dec	0.2	0.0	0.0	Z	0.0	0.0	0.1	2.4	3.6	3.3	4.1	5.8	2.7	1.2	1.1	1.1	0.8	0.5	0.2	0.2	0.1	0.1	0.1	0.1	1.2	5.8	
5-Dec	0.0	0.1	0.1	0.1	Z	0.2	0.2	0.3	0.3	C	C	C	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.3	
6-Dec	0.1	0.1	0.2	0.1	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.2	
7-Dec	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.9	0.5	0.1	1.9	3.5	0.4	3.5	
8-Dec	0.2	Z	0.4	0.5	1.3	1.2	0.7	0.6	0.5	0.2	0.4	0.5	0.1	0.0	0.3	3.2	1.8	0.9	0.1	0.0	0.0	0.1	0.0	0.1	0.6	3.2	
9-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	2.6	1.6	0.3	0.2	0.8	0.4	0.5	0.1	0.2	0.2	0.1	0.2	0.4	0.5	0.7	0.4	2.6	
10-Dec	0.6	0.5	0.5	0.3	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.7	0.3	0.7	21.0	26.0	32.9	33.3	25.9	22.4	14.4	7.8	33.3	
11-Dec	10.6	5.9	3.5	2.2	Z	2.1	1.6	1.7	1.4	0.9	0.8	0.7	0.6	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.2	0.3	0.2	0.4	1.6	10.6	
12-Dec	0.5	0.5	0.5	0.4	0.4	Z	0.4	0.5	0.7	0.6	0.4	0.3	0.2	0.3	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.3	0.4	0.7	
13-Dec	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.3	3.2	0.3	3.2	
14-Dec	24.0	Z	10.1	9.7	9.0	9.8	9.2	8.4	9.7	8.6	8.3	8.2	6.4	4.3	3.3	10.5	14.5	13.4	11.4	6.2	4.2	4.1	4.0	1.3	8.6	24.0	
15-Dec	1.5	1.8	Z	0.4	0.6	1.8	1.0	1.0	1.7	5.9	4.0	1.7	1.2	0.2	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	1.1	5.9	
16-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
17-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
18-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.8	0.5	0.1	0.0	0.0	0.7	0.8	1.0	0.8	0.5	0.3	1.0	
19-Dec	Z	0.3	0.3	0.3	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.7	0.6	0.3	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.5	0.2	0.7	
20-Dec	0.6	Z	0.8	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.5	0.6	0.6	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.5	0.9	
21-Dec	0.1	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.3	0.1	0.3	
22-Dec	0.8	0.7	0.6	Z	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.8	
23-Dec	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.4	0.4	0.5	0.3	0.2	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.5	
24-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.3	0.4	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.4	
25-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	Z	0.0	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.4	0.4	0.4	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.4	
28-Dec	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.6	4.5	22.1	19.1	7.2	1.9	2.2	2.2	1.3	0.5	0.4	0.3	2.8	22.1	
29-Dec	0.5	0.3	1.2	1.3	Z	0.1	0.2	0.2	0.2	0.1	0.2	0.5	1.2	2.0	0.7	0.2	0.2	0.1	0.1	0.2	1.7	2.7	0.2	0.2	0.6	2.7	
30-Dec	0.1	0.1	0.1	0.0	0.2	Z	0.1	0.1	0.0	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	
31-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		1.7	0.5	0.8	0.8	0.9	1.1	0.8	0.8	1.0	1.1	1.1	1.1	1.1	1.0	1.3	1.5	1.2	1.5	1.5	1.8	1.7	1.4	1.2	0.9	Diurnal Average	
		24.0	5.9	10.1	9.7	9.0	9.8	9.2	8.4	9.7	8.6	8.3	10.6	17.3	10.1	22.1	19.1	14.5	21.0	26.0	32.9	33.3	25.9	22.4	14.4	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
Mackay River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	694	97.75	97.75
11 - 20	8	1.13	98.87
21 - 60	8	1.13	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
Mackay River - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	11	17	30	4	3	48	69	59	98	71	28	28	56	90	42	21	675
11 - 20	0	0	3	0	0	2	1	1	0	0	0	0	1	0	0	0	8
21 - 60	0	0	1	0	0	2	3	1	0	0	1	0	0	0	0	0	8
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	11	17	34	4	3	52	73	61	98	71	29	28	57	90	42	21	691

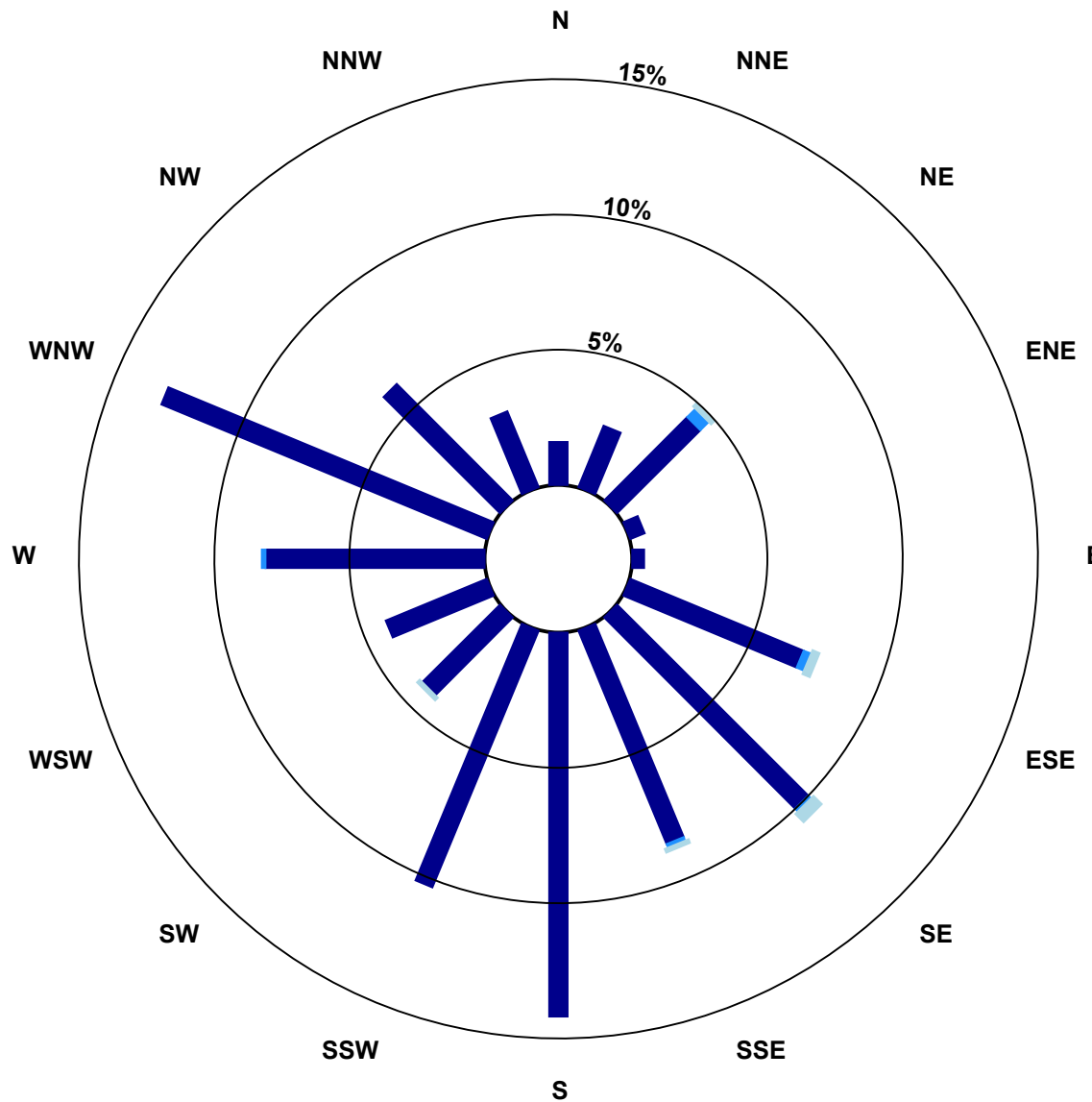
Total Number of Valid Hours: 691

Total Number of Hours: 744

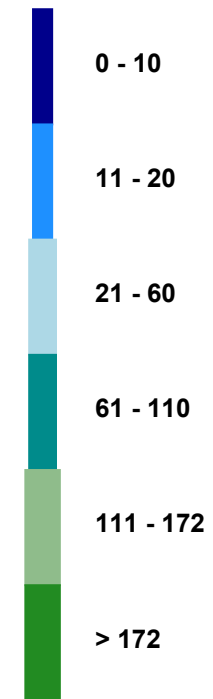


Wood Buffalo Environmental Association
Wind Rose Dec 2024

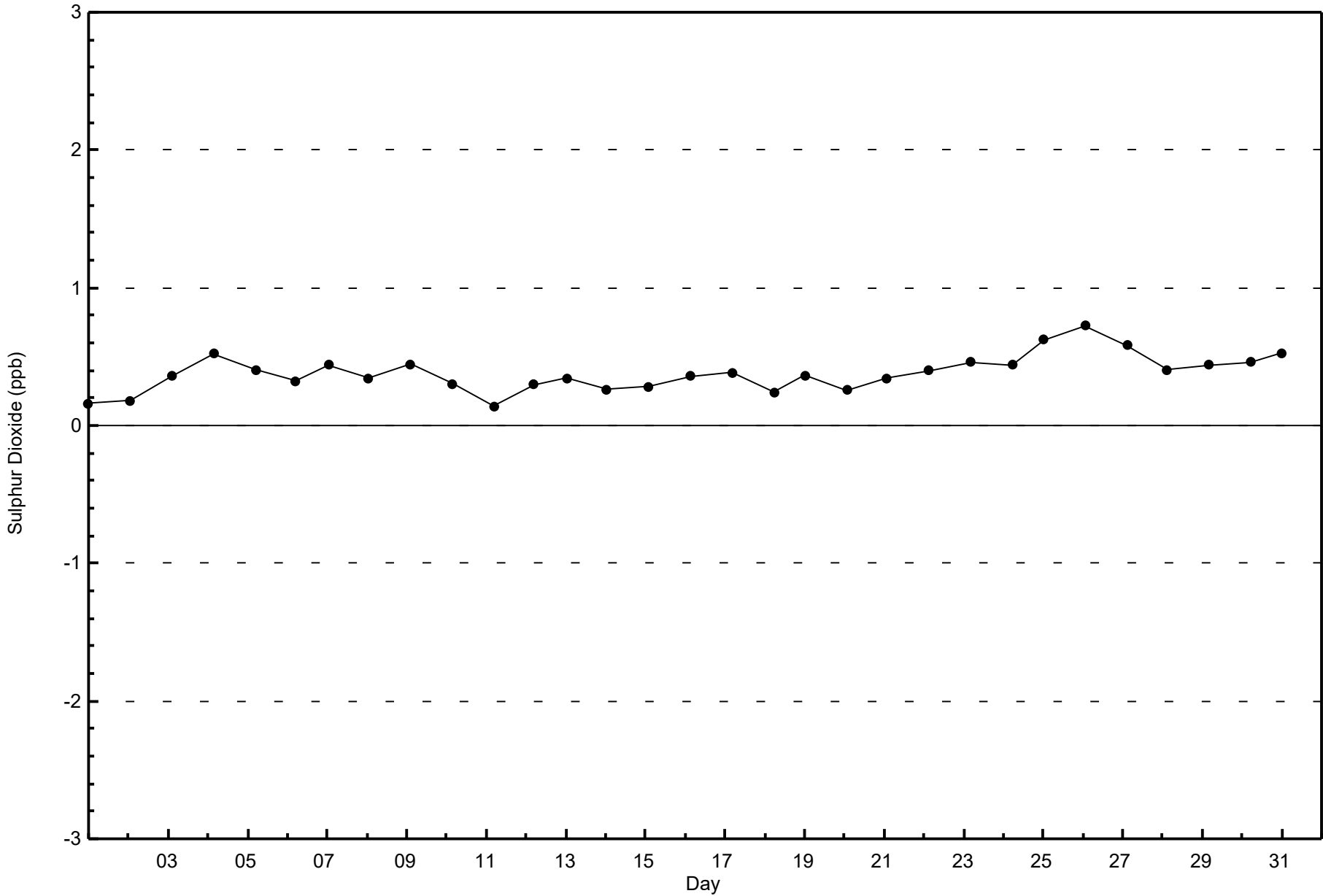
Sulphur Dioxide (SO₂) - ppb
Mackay River



Classes (ppb)



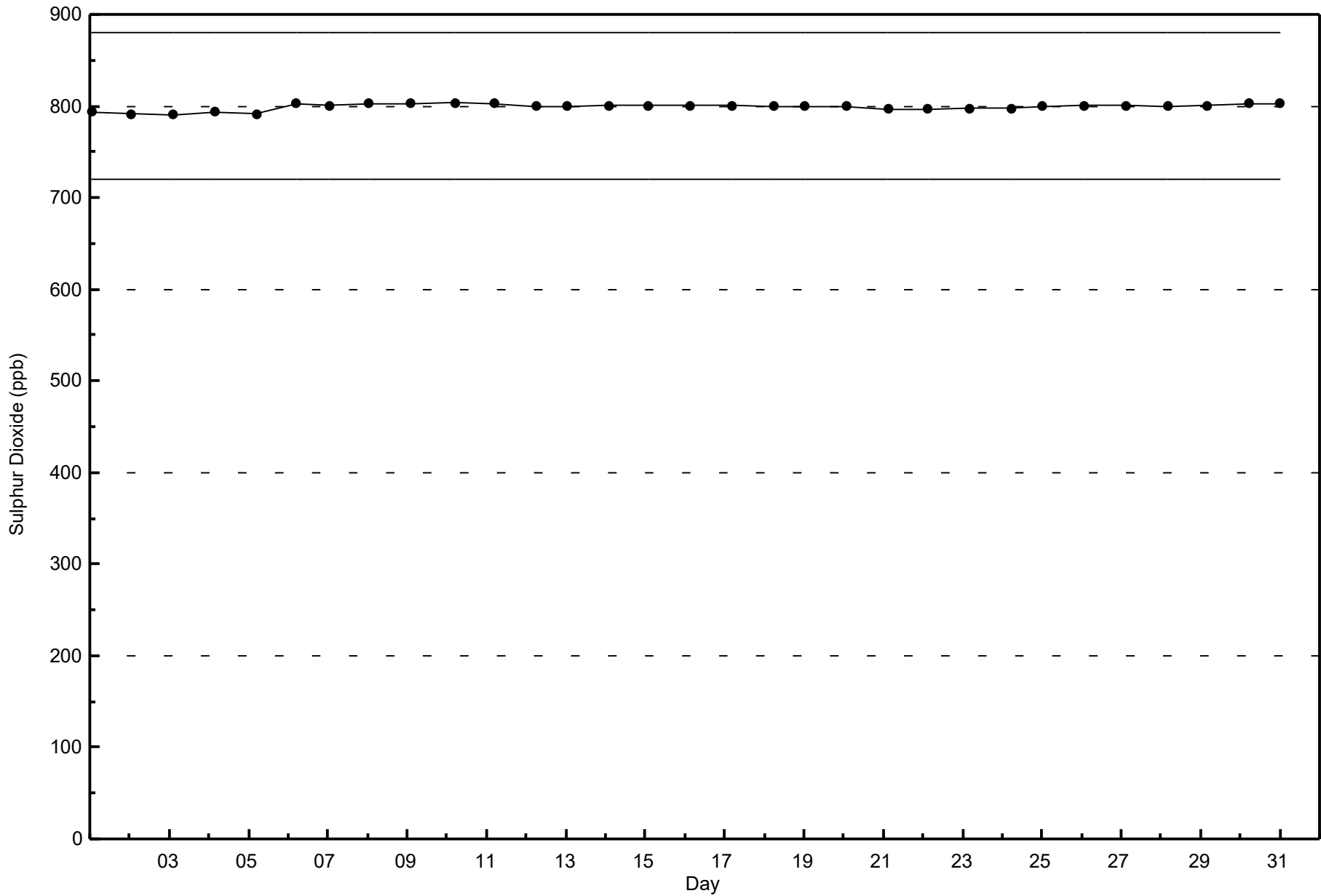
Total Number of Valid Hours: 691

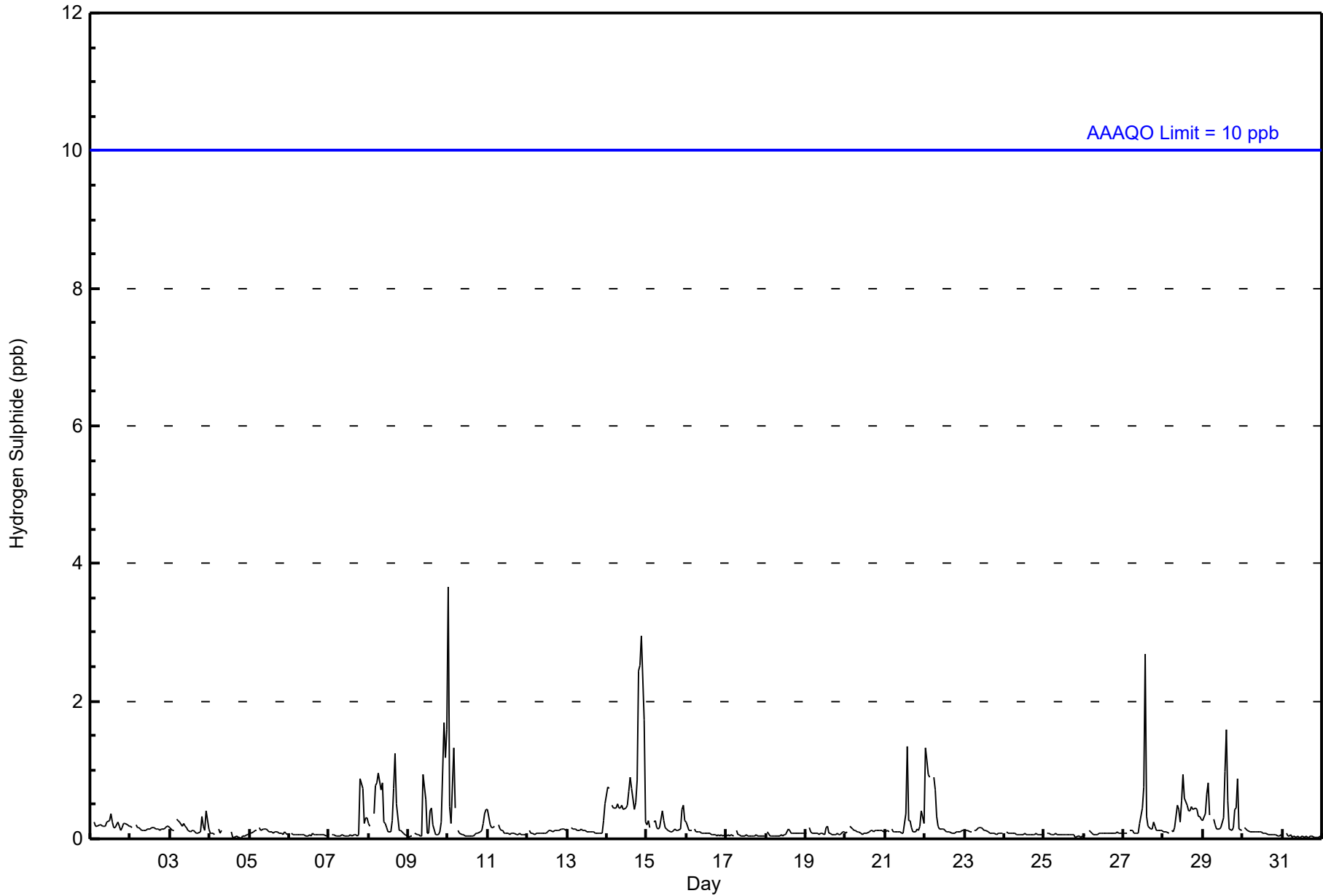




Wood Buffalo Environmental Association
Span Responses

Sulphur Dioxide (SO₂) - ppb
Mackay River - December 2024







Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Mackay River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	704	99.44	99.44
3 - 4	4	0.56	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 - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	12	16	33	4	3	52	67	63	102	69	29	28	57	90	38	21	684
3 - 4	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	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	12	17	34	4	3	52	67	63	102	69	29	28	57	90	40	21	688

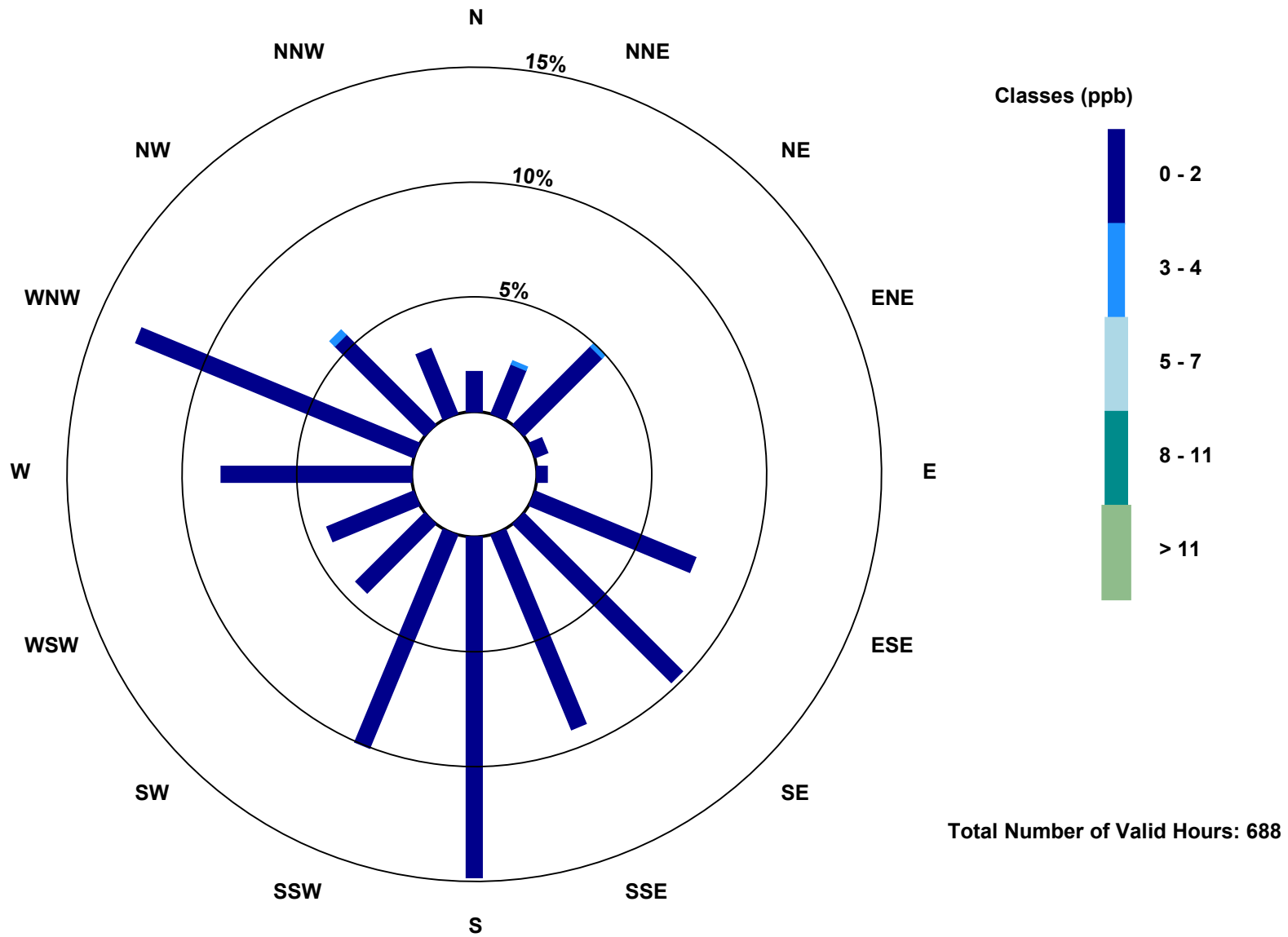
Total Number of Valid Hours: 688

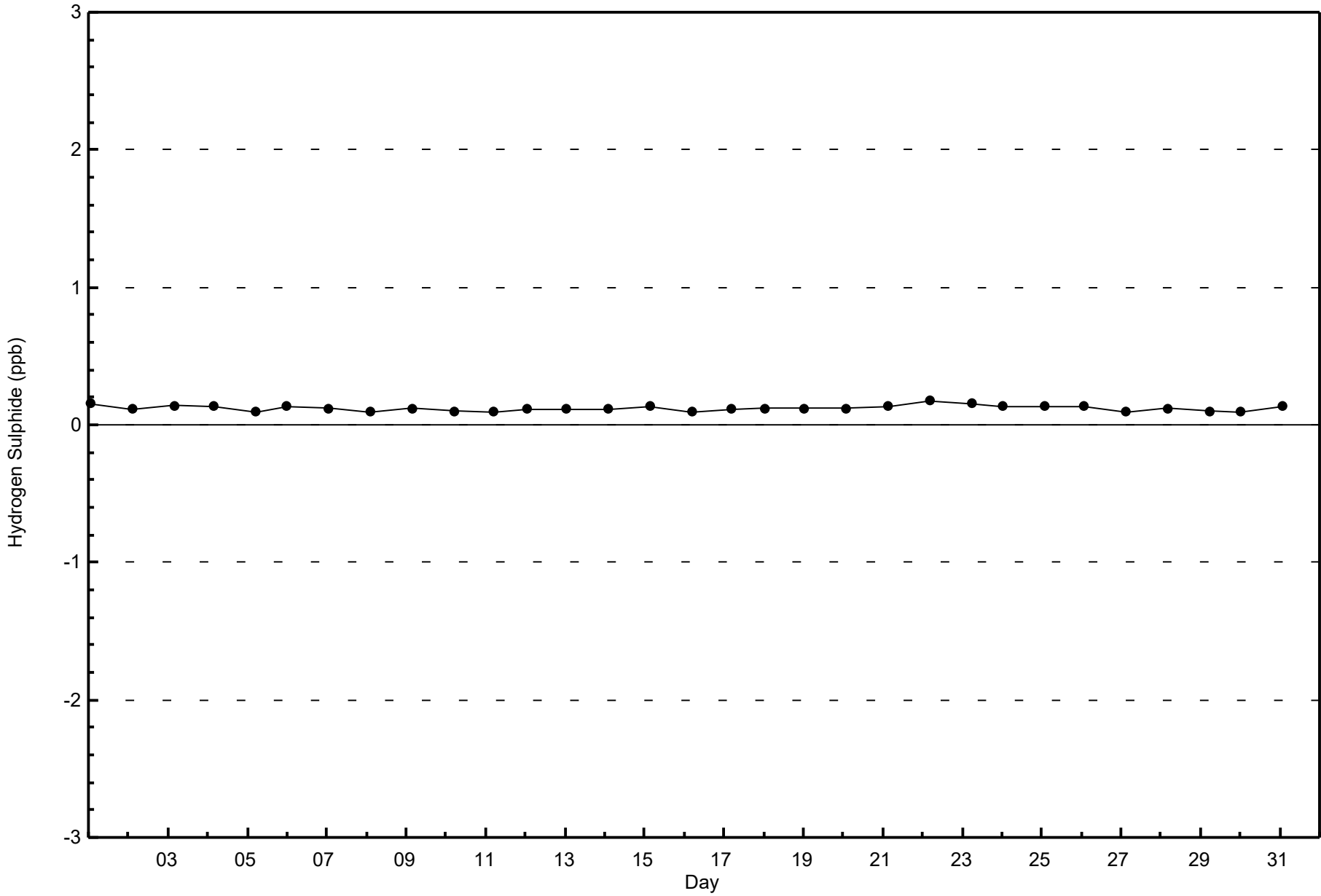
Total Number of Hours: 744

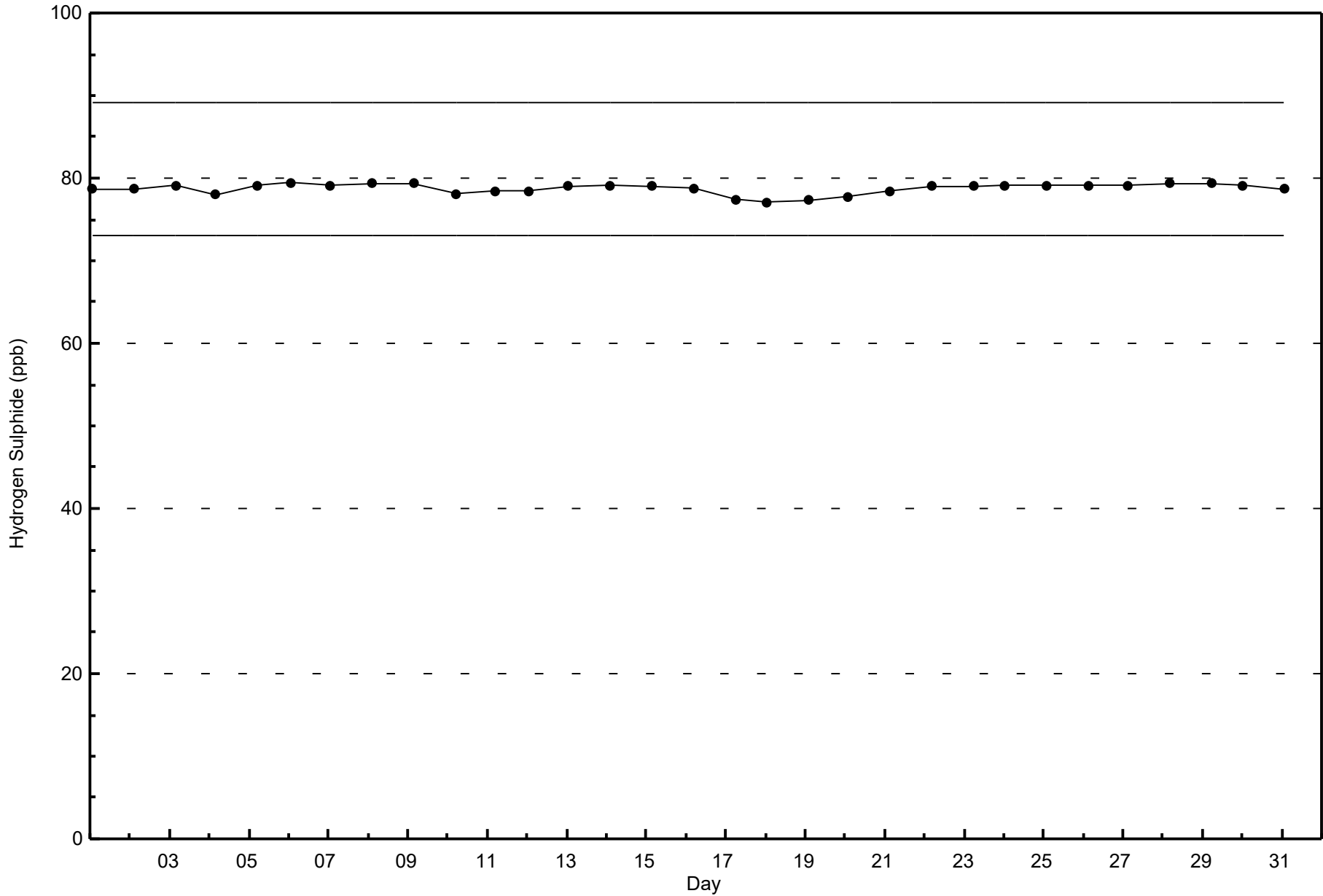


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Mackay River









Wood Buffalo Environmental Association
Summary of Hour Averages

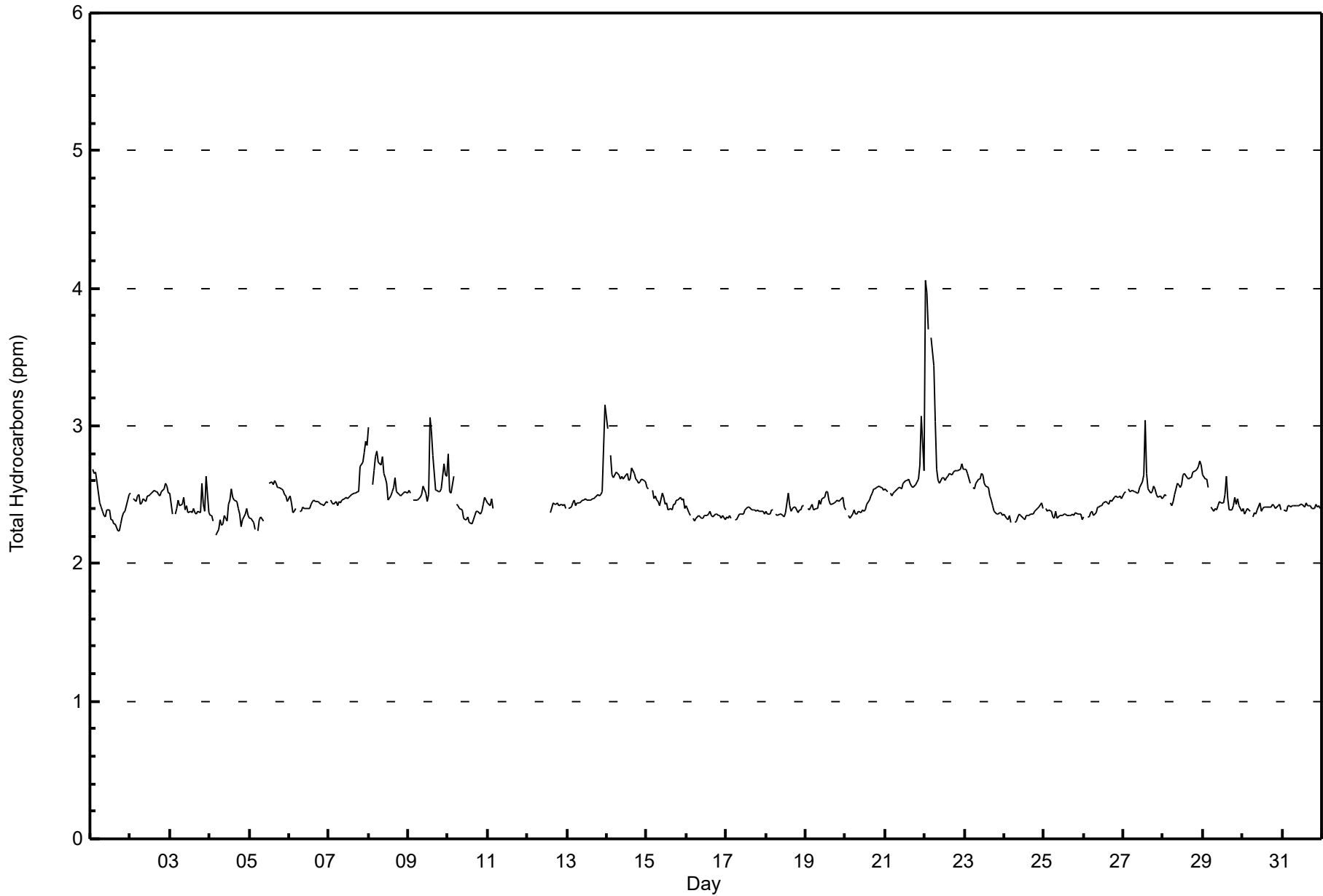
Total Hydrocarbons (THC) - ppm
Mackay River - December 2024

Maximum Value: 4.1 ppm on Dec 22 01:00		Maximum Daily Average: 2.9 ppm on Dec 22		Hours in Service: 744																						
Minimum Value: 2.2 ppm on Dec 4 05:00		Minimum Daily Average: 2.3 ppm on Dec 16		Hours of Data: 678																						
Maximum Diurnal Average: 2.6 ppm at hour 1		Minimum Diurnal Average: 2.4 ppm at hour 8		Hours of Missing Data: 66																						
Monthly Average: 2.48 ppm		Percentiles: P ₁ = 2.3 P ₁₀ = 2.3 Q ₁ = 2.4 Median = 2.4 Q ₃ = 2.5 P ₉₀ = 2.6 P ₉₉ = 3.1		Hours of Calibration: 33																						
				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-Dec	Z	2.7	2.7	2.7	2.6	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.3	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.5	2.4	2.7	
2-Dec	2.5	Z	2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.5	2.5	2.6	
3-Dec	2.5	2.4	Z	2.4	2.4	2.5	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.6	2.4	2.4	2.6	2.4	2.4	2.6	
4-Dec	2.4	2.4	2.3	Z	2.2	2.2	2.3	2.3	2.3	2.4	2.3	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.5	
5-Dec	2.3	2.3	2.3	2.3	Z	2.2	2.3	2.3	2.3	C	C	C	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.6	
6-Dec	2.5	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.5	
7-Dec	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	2.8	2.9	2.9	2.9	2.9	
8-Dec	3.0	Z	2.6	2.7	2.8	2.8	2.7	2.7	2.8	2.7	2.6	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	3.0	
9-Dec	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.5	2.5	2.5	3.1	3.0	2.8	2.5	2.5	2.5	2.5	2.5	2.7	2.6	2.6	3.1	
10-Dec	2.8	2.5	2.5	2.6	Z	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.8	
11-Dec	2.4	2.4	2.5	2.4	Z	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	2.5	
12-Dec	UO	UO	UO	UO	UO	UO	M	UO	UO	UO	UO	M	M	M	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	
13-Dec	Z	2.4	2.4	2.4	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.8	3.1	2.5	3.1	
14-Dec	3.0	Z	2.8	2.6	2.6	2.7	2.7	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.7	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.0
15-Dec	2.6	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.4	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.6	
16-Dec	2.4	2.4	2.3	Z	2.3	2.3	2.3	2.4	2.3	2.3	2.3	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	2.4	2.4
17-Dec	2.3	2.3	2.4	2.3	Z	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
18-Dec	2.4	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5
19-Dec	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.5	2.5	2.4	2.5	2.5	2.4	2.5	2.5
20-Dec	2.4	Z	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.5	2.6	2.6
21-Dec	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.6	2.6	2.6	2.7	3.1	2.7	2.6	3.1
22-Dec	4.1	4.0	3.7	Z	3.6	3.4	3.0	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.9	4.1
23-Dec	2.7	2.7	2.7	2.6	Z	2.6	2.5	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.5	2.7
24-Dec	2.4	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
25-Dec	Z	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4
26-Dec	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	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.5
27-Dec	2.5	2.5	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	3.0	2.7	2.5	2.5	2.5	2.6	2.5	2.5	2.5	2.5	2.5	2.6	3.0
28-Dec	2.5	2.5	2.5	Z	2.4	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.6	2.7
29-Dec	2.6	2.6	2.6	2.5	Z	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.4	2.5	2.6	2.5	2.4	2.4	2.4	2.5	2.4	2.5	2.4	2.4	2.5	2.6
30-Dec	2.4	2.4	2.4	2.4	2.4	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	2.4	2.4	2.4	2.4	2.4	2.4
31-Dec	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance UO - Unstable Operation																										



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Mackay River - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	670	98.82	98.82
3.1 - 10.0	8	1.18	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 678

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Mackay River - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2.1 - 3.0	11	15	33	4	2	33	64	59	95	71	29	28	57	90	42	19	652
3.1 - 10.0	0	2	1	0	0	0	0	0	2	0	0	0	0	0	0	2	7
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	11	17	34	4	2	33	64	59	97	71	29	28	57	90	42	21	659

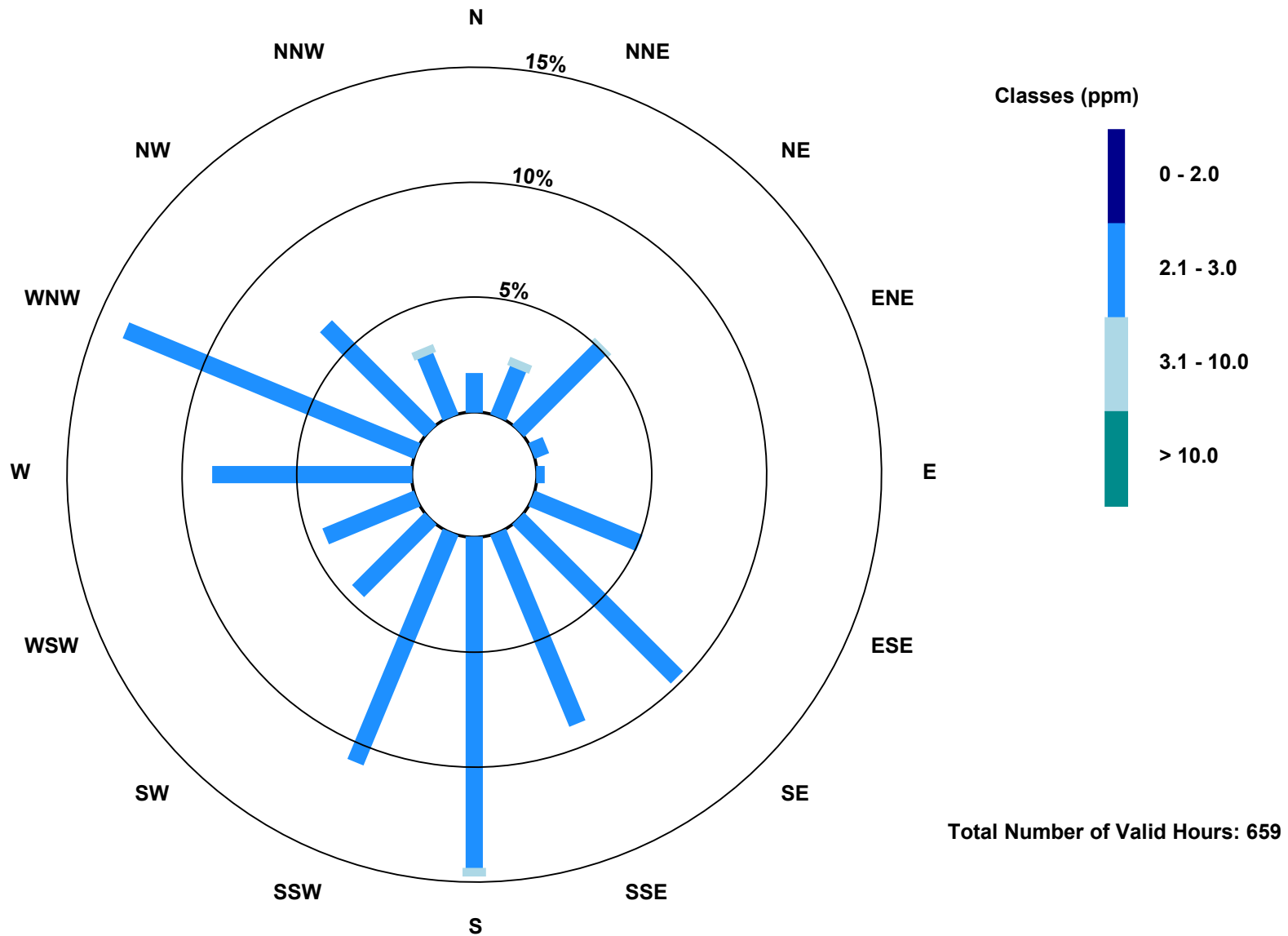
Total Number of Valid Hours: 659

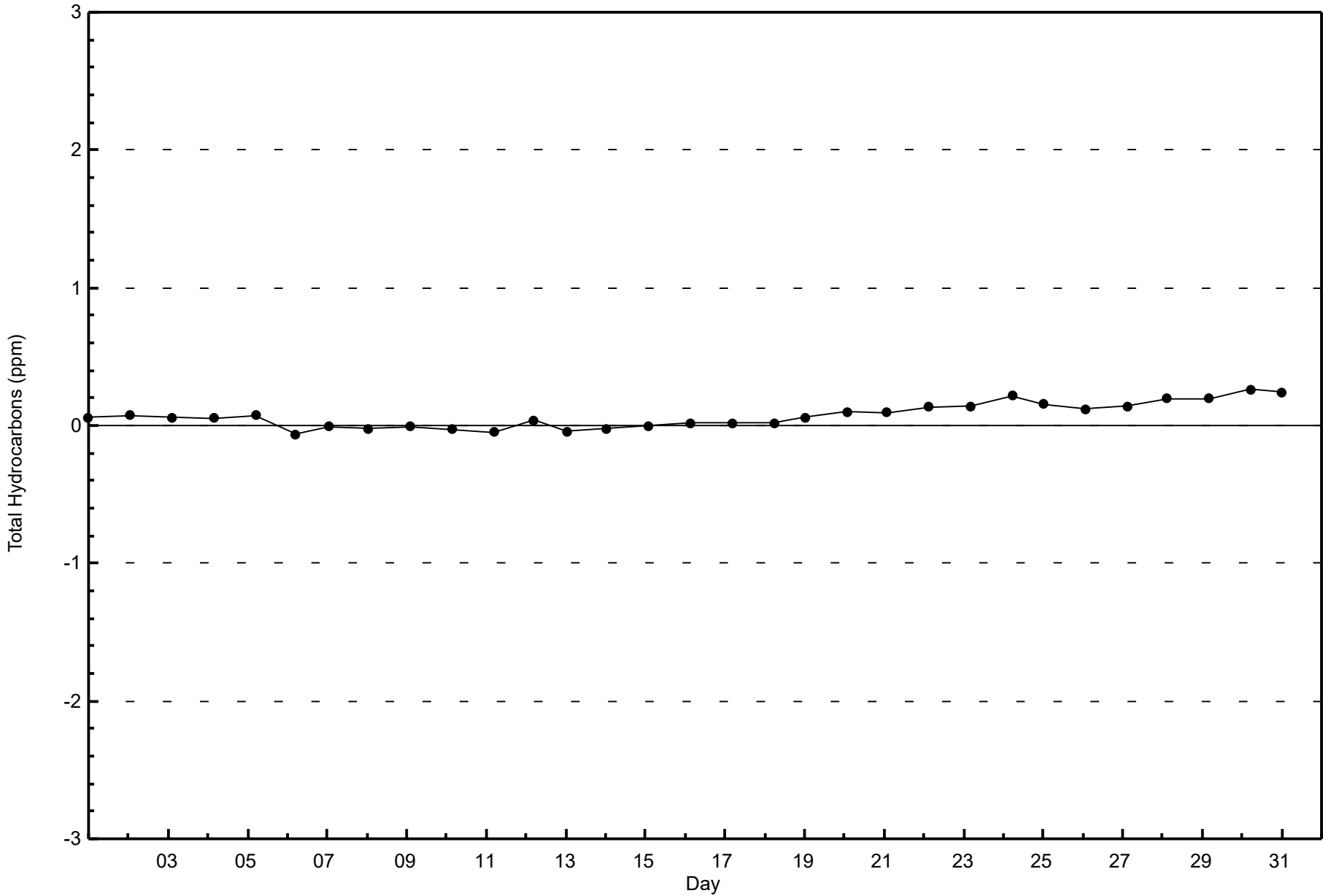
Total Number of Hours: 744

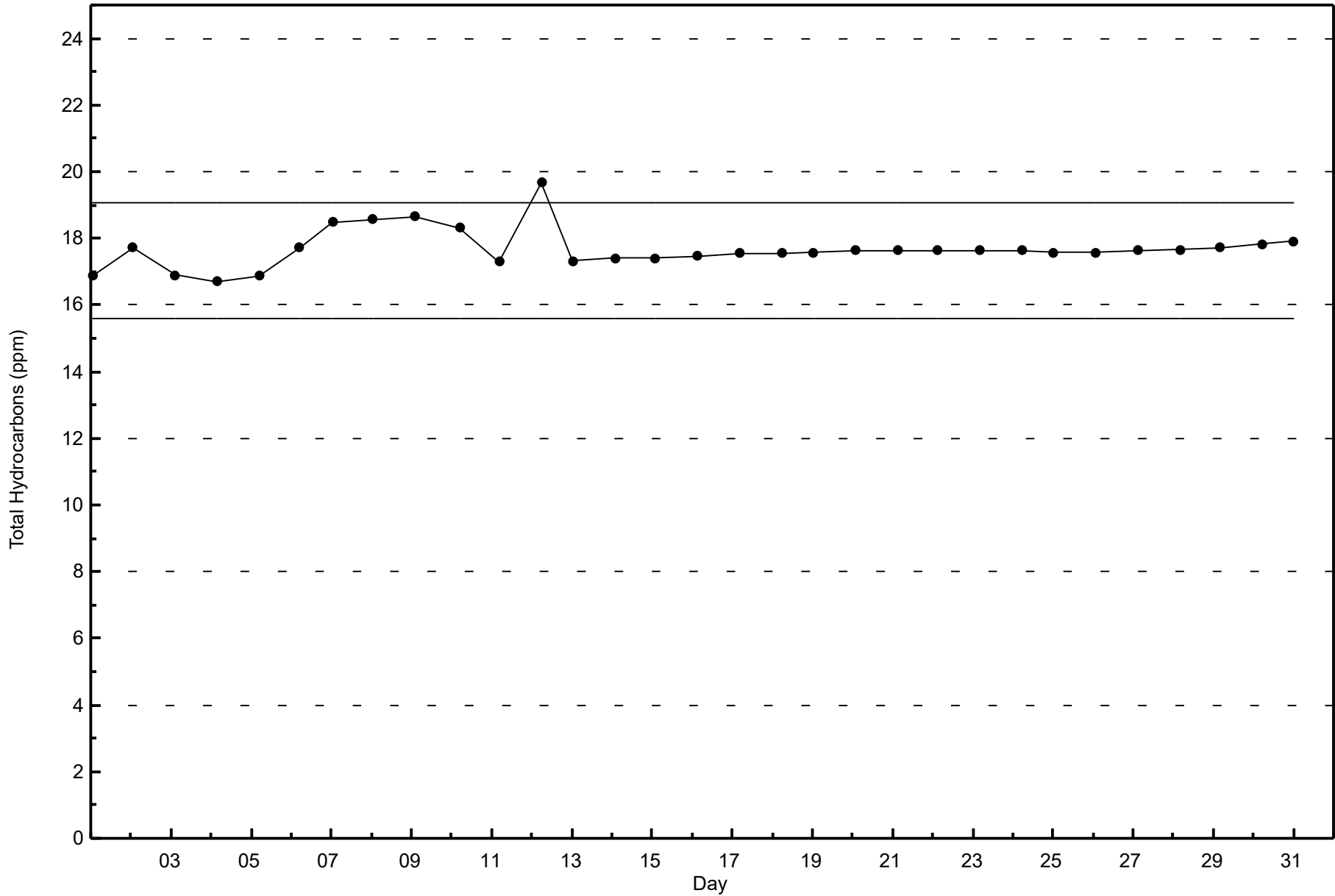


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Mackay River









Wood Buffalo Environmental Association
Summary of Hour Averages

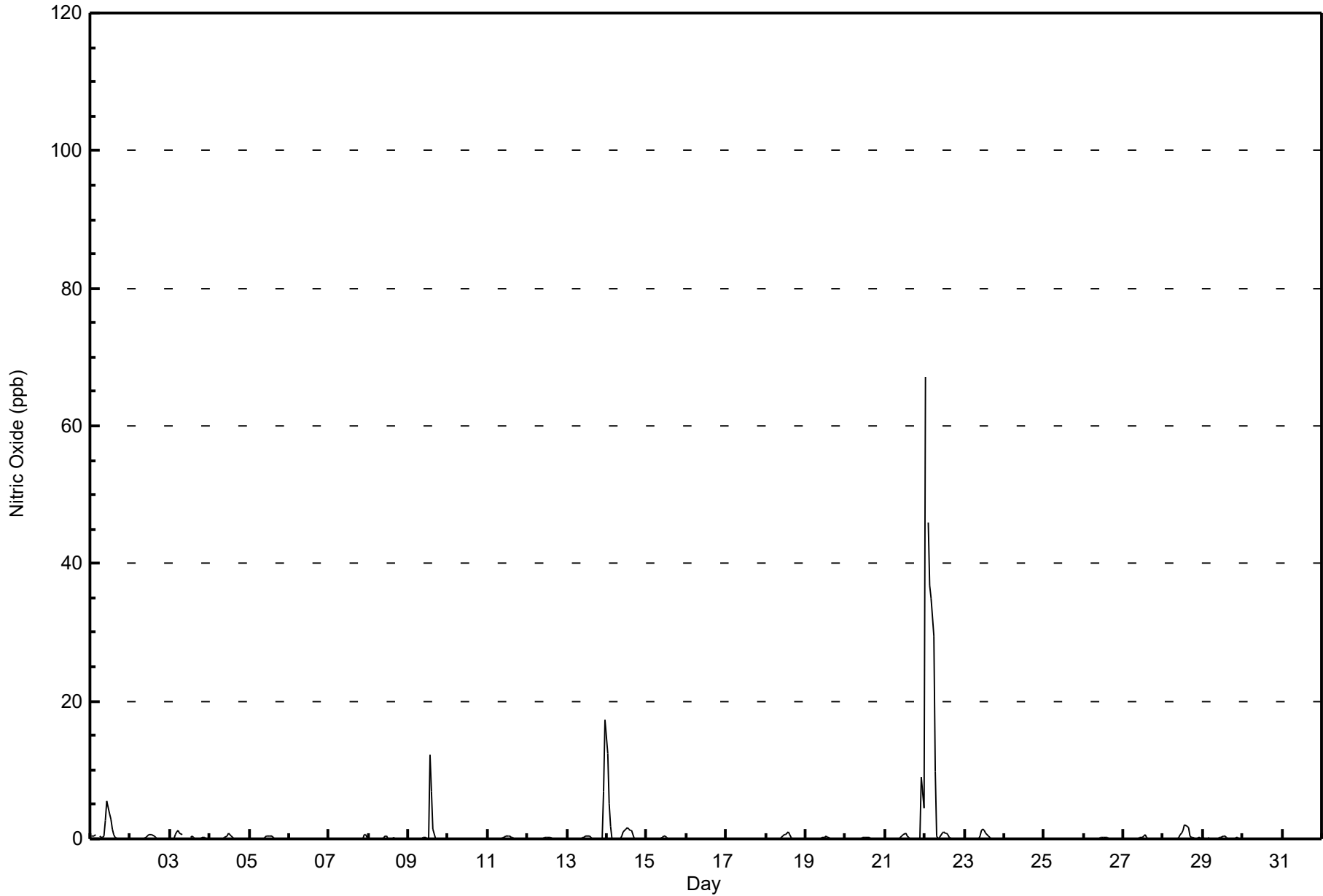
Nitric Oxide (NO) - ppb
Mackay River - December 2024

Maximum Value: 67.1 ppb on Dec 22 01:00																								Hours in Service: 744		
Maximum Daily Average: 10.0 ppb on Dec 22																								Hours of Data: 709		
Minimum Value: 0.0 ppb on Dec 3 17:00																								Hours of Missing Data: 35		
Minimum Daily Average: 0.0 ppb on Dec 31																								Hours of Calibration: 35		
Maximum Diurnal Average: 3.1 ppb at hour 1																								Percent Operational Time: 100.0		
Minimum Diurnal Average: 0.0 ppb at hour 18																										
Monthly Average: 0.56 ppb																										
Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.4 P ₉₉ = 12.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.4	0.4	0.4	0.5	Z	0.3	0.2	0.1	0.4	2.7	5.5	3.6	2.9	1.4	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.5
2-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.3	0.5	0.7	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
3-Dec	Z	0.0	0.0	0.6	1.0	1.2	0.8	0.6	C	C	C	C	0.2	0.4	0.3	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.3	1.2
4-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.9	0.7	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
5-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.5	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.5
6-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
7-Dec	0.0	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.5	0.6	0.2	0.1	0.6
8-Dec	0.1	0.0	0.0	0.0	0.1	Z	0.1	0.0	0.1	0.3	0.4	0.3	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
9-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	12.2	6.9	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	12.2
10-Dec	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	0.1	0.0	0.1
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
12-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
13-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	17.4	1.2
14-Dec	12.4	5.1	1.8	0.1	0.0	Z	0.0	0.0	0.1	0.4	1.0	1.4	1.6	1.4	1.1	1.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.2	12.4
15-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	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	0.1	0.4
16-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
18-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.6	0.6	1.1	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
19-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
20-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	9.0	4.5	0.7	9.0
22-Dec	67.1	Z	46.0	36.7	35.0	29.6	9.9	0.4	0.0	0.2	0.8	1.0	0.9	0.8	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	67.1
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	1.3	1.2	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
25-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
26-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
27-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
28-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.5	0.9	1.2	2.0	1.8	1.6	0.5	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.4	2.0
29-Dec	0.1	0.0	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.1	0.5
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
31-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.1 0.2 1.9 1.5 1.5 1.2 0.4 0.0 0.0 0.2 0.5 0.5 0.5 0.8 0.5 0.2 0.0 0.0 0.0 0.0 0.0 0.0 0.6 0.7																								Diurnal Average		
67.1 5.1 46.0 36.7 35.0 29.6 9.9 0.6 0.4 2.7 5.5 3.6 2.9 12.2 6.9 1.6 0.5 0.2 0.2 0.3 0.2 0.5 9.0 17.4																								Diurnal Maximum		
Z - zerospan C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Mackay River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.29	99.29
21 - 40	3	0.42	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: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Mackay River - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	15	34	4	3	52	71	63	101	70	28	27	57	88	39	20	684
21 - 40	1	0	0	0	0	0	0	0	2	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	1	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	13	15	34	4	3	52	71	63	103	70	28	27	57	88	39	21	688

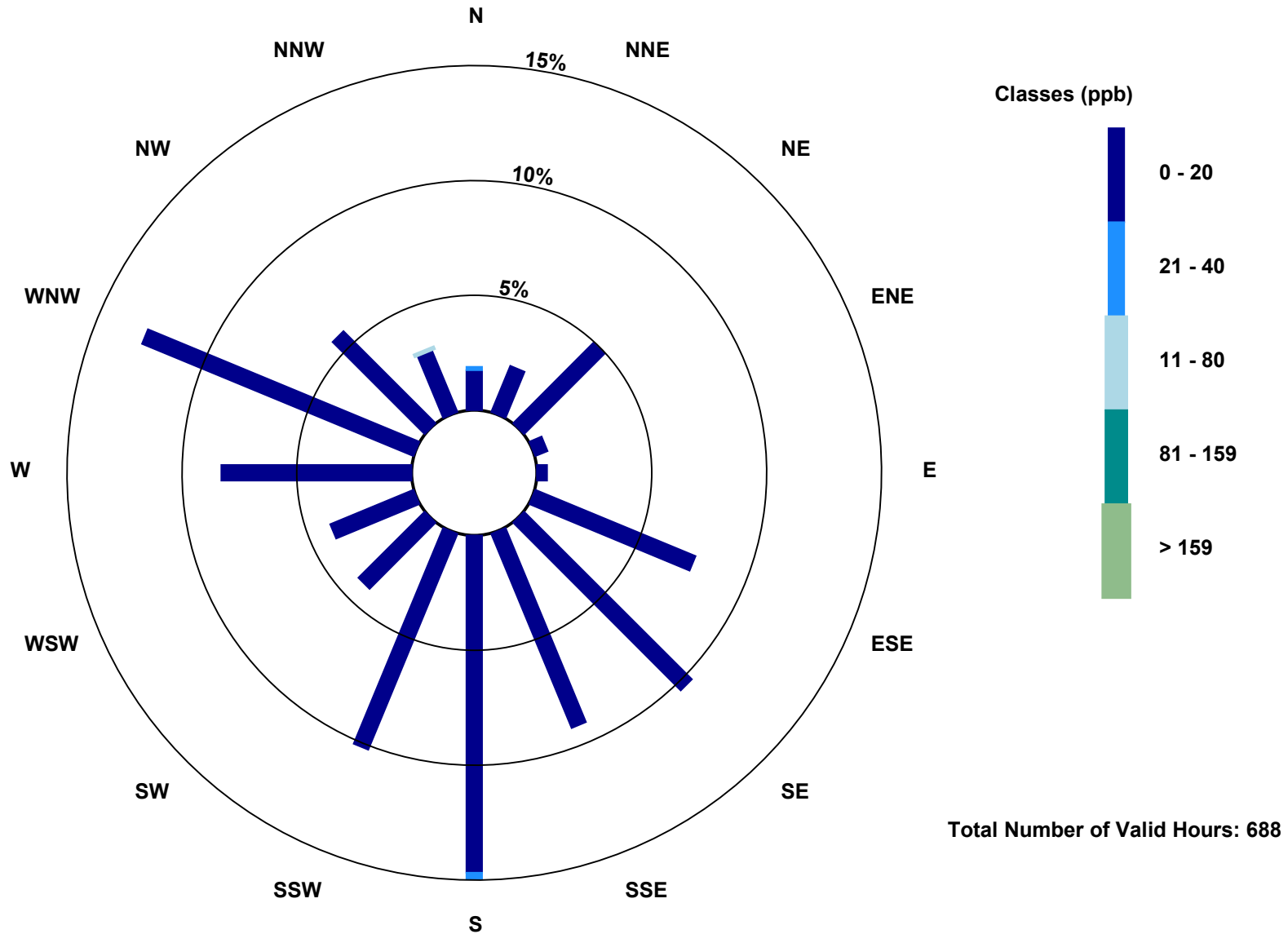
Total Number of Valid Hours: 688

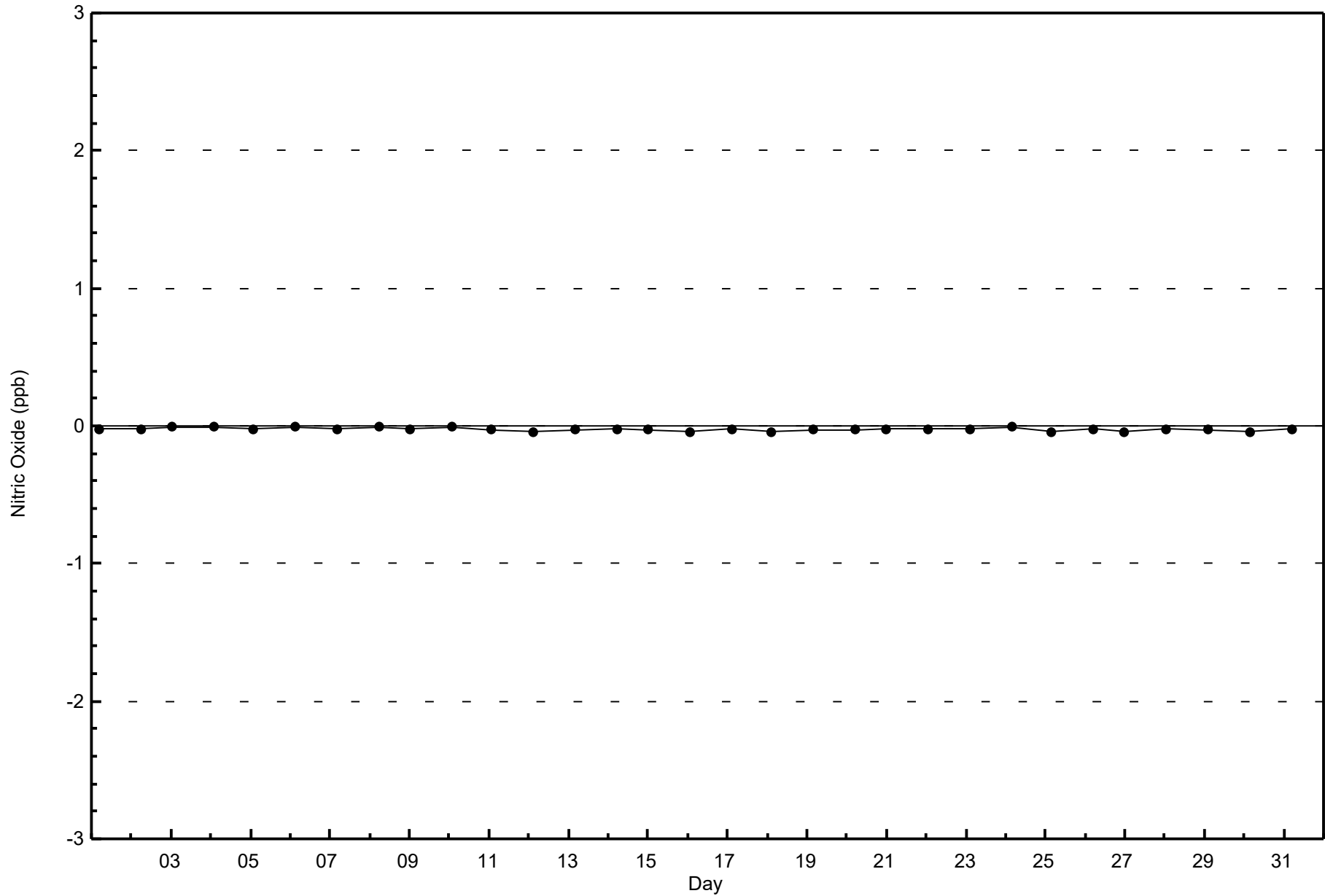
Total Number of Hours: 744

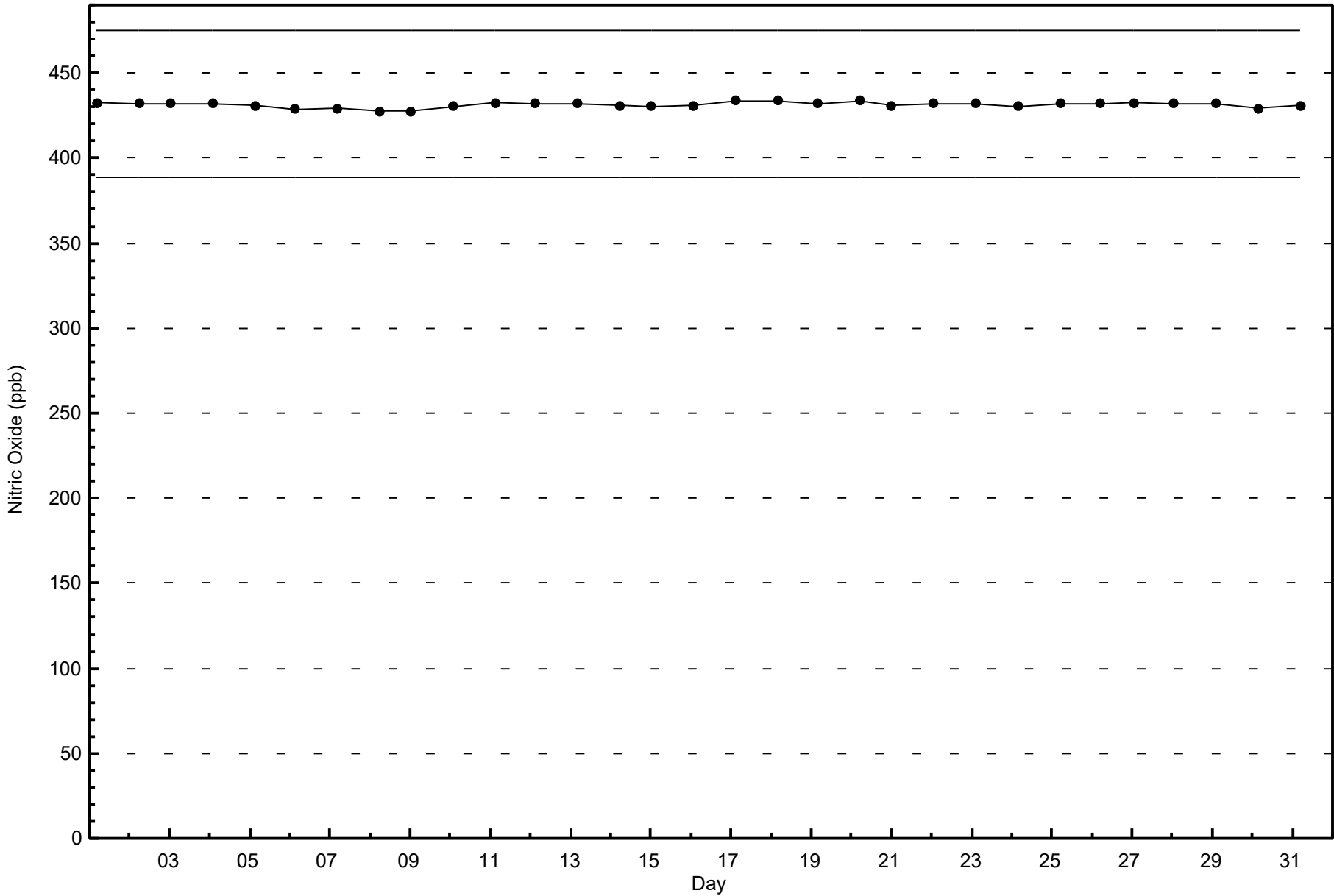


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Mackay River









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Mackay River - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 25.4 ppb on Dec 22 01:00	Maximum Daily Average: 12.6 ppb on Dec 14		Hours of Data:	709
Minimum Value: 0.1 ppb on Dec 10 11:00	Minimum Daily Average: 0.3 ppb on Dec 30		Hours of Missing Data:	35
Maximum Diurnal Average: 5.2 ppb at hour 1	Minimum Diurnal Average: 1.9 ppb at hour 13		Hours of Calibration:	35
Monthly Average: 2.99 ppb	Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.6 Median = 1.5 Q ₃ = 3.5 P ₉₀ = 7.5 P ₉₉ = 21.3		Percent Operational Time:	100.0

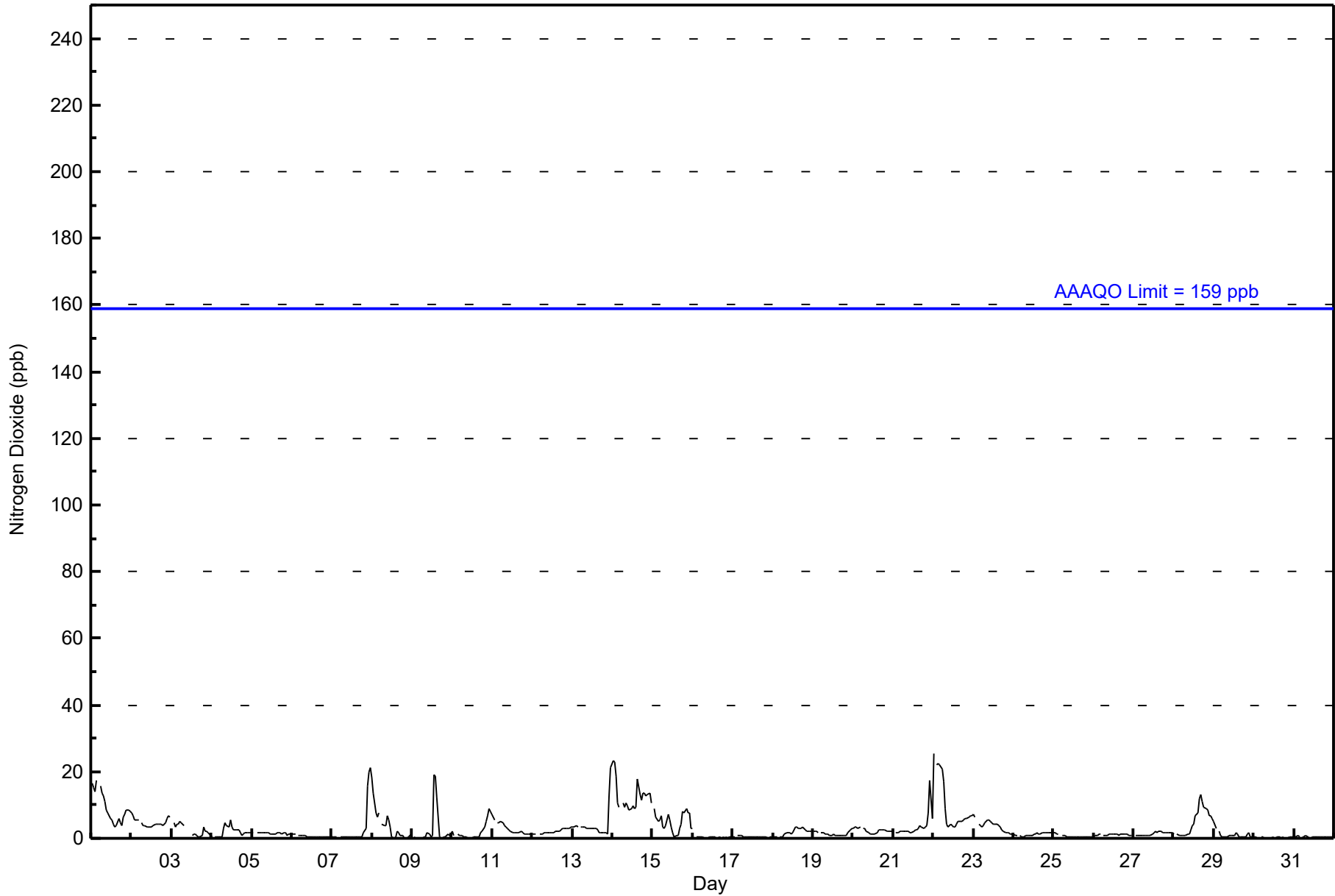
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	16.7	15.1	14.1	17.4	Z	15.6	13.5	12.5	10.9	8.6	7.8	6.0	5.7	4.4	3.5	3.7	6.0	4.5	3.9	6.2	7.2	8.3	8.5	8.1	9.1	17.4																							
2-Dec	7.5	6.7	5.7	5.3	5.3	Z	4.8	4.0	3.7	3.3	3.3	3.4	3.5	3.9	4.3	4.3	4.3	4.2	4.1	4.0	4.6	6.1	6.6	6.5	4.8	7.5																							
3-Dec	Z	4.5	3.5	4.1	4.3	5.1	4.6	3.7	C	C	C	C	0.7	1.1	1.3	1.0	0.6	0.4	0.9	3.2	2.3	2.1	1.6	0.9	2.4	5.1																							
4-Dec	0.4	Z	0.3	0.3	0.3	0.3	0.3	3.1	4.8	3.8	3.6	5.4	3.6	2.6	2.7	2.7	1.8	1.0	1.2	1.5	1.6	1.6	1.6	1.6	2.0	5.4																							
5-Dec	1.6	1.6	Z	1.7	1.7	1.7	1.7	1.6	1.5	1.5	1.5	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.5	1.0	1.1	1.3	1.5	1.7																							
6-Dec	1.1	1.1	1.1	Z	1.0	0.8	0.8	0.8	0.7	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.6	0.6	0.6	0.7	1.1																							
7-Dec	0.6	0.5	0.4	0.3	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6	1.6	2.9	15.5	20.0	21.3	3.0	21.3																							
8-Dec	18.1	13.4	7.7	6.4	7.7	Z	4.3	3.8	4.0	6.9	5.4	3.5	0.3	0.2	0.6	2.3	1.9	1.0	0.7	0.2	0.2	0.2	0.4	1.2	3.9	18.1																							
9-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	1.7	1.3	0.5	0.9	18.9	18.5	12.2	0.5	0.2	0.2	0.3	0.3	1.2	0.8	1.3	2.6	18.9																							
10-Dec	2.0	0.9	Z	1.2	0.7	0.7	0.8	0.4	0.3	0.2	0.1	0.2	0.2	0.3	0.6	0.6	0.4	1.8	2.1	3.2	4.9	6.6	9.0	7.9	2.0	9.0																							
11-Dec	7.3	5.3	Z	4.6	4.8	5.0	4.5	3.9	3.3	2.8	2.5	2.3	1.8	1.9	1.8	1.8	1.8	2.1	1.6	1.1	1.1	1.3	1.3	1.4	2.8	7.3																							
12-Dec	1.4	1.4	1.4	Z	1.3	1.3	1.4	1.9	1.8	1.7	1.6	1.6	1.6	1.8	2.1	2.2	2.3	2.4	2.8	2.9	2.9	2.9	3.0	3.4	2.0	3.4																							
13-Dec	3.6	3.6	3.7	3.5	Z	3.4	3.3	3.2	3.1	3.0	2.9	2.8	2.8	2.9	2.8	2.5	1.9	1.7	1.6	1.7	1.5	1.4	12.7	21.3	4.0	21.3																							
14-Dec	23.4	22.9	18.7	10.7	9.4	Z	10.6	9.2	10.6	9.9	8.5	8.9	9.9	9.1	9.5	17.7	13.3	11.5	13.5	13.4	12.8	13.2	13.4	10.5	12.6	23.4																							
15-Dec	Z	9.0	6.5	4.9	5.4	6.6	3.3	3.1	3.7	7.2	5.7	3.3	1.7	0.5	0.7	0.8	3.1	4.1	8.1	7.6	8.7	7.8	7.8	3.1	4.9	9.0																							
16-Dec	3.1	Z	0.5	0.3	0.3	0.3	0.6	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.2	0.3	0.2	0.4	0.2	0.3	0.3	0.4	3.1																							
17-Dec	0.3	0.3	Z	0.7	0.8	0.8	0.4	0.5	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.8																							
18-Dec	0.3	0.3	0.3	Z	0.5	0.5	0.6	1.1	1.7	1.7	1.5	1.4	1.7	3.3	3.3	3.0	2.8	2.9	3.3	2.5	2.0	2.0	2.1	2.0	1.8	3.3																							
19-Dec	2.0	2.0	2.0	1.9	Z	1.8	1.6	1.4	1.3	1.2	1.0	0.8	1.2	1.0	0.9	0.8	0.8	0.8	0.8	0.9	0.9	1.5	2.4	2.8	1.4	2.8																							
20-Dec	2.9	3.2	3.2	3.1	3.2	Z	3.1	2.9	2.1	1.5	1.3	1.4	1.4	1.4	1.9	2.4	2.5	2.5	2.5	2.4	2.3	2.1	2.2	2.1	2.3	3.2																							
21-Dec	Z	1.9	1.9	1.8	2.0	2.1	2.1	2.3	2.3	2.0	1.7	1.8	2.3	2.7	2.6	2.9	3.8	3.2	2.9	3.6	4.0	7.5	17.3	6.1	3.5	17.3																							
22-Dec	25.4	Z	22.1	22.4	22.0	20.7	17.1	8.8	4.1	3.4	4.3	3.8	3.2	3.4	4.4	5.0	4.9	5.2	5.7	5.8	5.9	6.3	6.6	6.8	9.4	25.4																							
23-Dec	7.0	6.4	Z	4.2	3.9	3.4	3.7	4.7	5.6	5.6	5.2	4.6	4.2	4.2	3.8	3.3	2.6	2.0	1.8	1.7	1.6	1.4	1.2	3.8	7.0																								
24-Dec	1.1	0.9	0.8	Z	0.8	0.6	0.6	0.7	0.9	1.0	1.0	0.9	1.1	1.4	1.7	1.4	1.4	1.5	1.6	1.7	1.8	1.8	1.8	1.8	1.2	1.8																							
25-Dec	1.7	1.6	1.4	1.2	Z	0.9	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.6	0.7	1.7																							
26-Dec	0.6	0.7	0.8	1.2	1.1	Z	1.0	0.9	0.9	1.2	1.3	1.2	1.2	1.2	1.2	1.0	1.1	1.2	1.1	1.1	1.3	1.0	0.8	0.8	1.0	1.3																							
27-Dec	Z	0.7	0.8	0.9	0.9	1.0	1.0	0.9	0.8	0.7	0.8	1.1	1.5	2.3	1.7	2.3	2.2	1.9	1.7	1.8	1.8	1.7	1.7	1.5	1.4	2.3																							
28-Dec	1.3	Z	1.1	0.9	0.9	0.8	0.8	0.9	1.1	1.2	2.6	3.7	4.4	6.6	7.6	12.0	13.2	10.9	9.5	9.1	8.5	6.8	6.6	5.8	5.1	13.2																							
29-Dec	4.9	3.1	Z	2.3	0.9	0.5	0.6	0.6	0.5	0.7	0.9	0.7	0.9	1.5	1.4	0.6	0.3	0.3	0.3	0.5	1.1	1.6	0.3	0.3	1.1	4.9																							
30-Dec	0.3	0.3	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.3	0.5																							
31-Dec	0.5	0.5	0.7	0.5	Z	0.4	0.3	0.7	0.3	0.2	0.2	0.4	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7																							
																								5.2	4.0	4.0	3.9	3.2	2.9	2.9	2.6	2.4	2.4	2.3	2.1	1.9	2.6	2.7	2.9	2.6	2.3	2.4	2.6	2.8	3.4	4.3	4.0	Diurnal Average	
																								25.4	22.9	22.1	22.4	22.0	20.7	17.1	12.5	10.9	9.9	8.5	8.9	9.9	18.9	18.5	17.7	13.3	11.5	13.5	13.4	12.8	15.5	20.0	21.3	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Mackay River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	700	98.73	98.73
21 - 40	9	1.27	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Mackay River - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	14	31	4	3	52	71	63	101	70	28	27	57	88	39	20	680
21 - 40	1	1	3	0	0	0	0	0	2	0	0	0	0	0	0	1	8
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	13	15	34	4	3	52	71	63	103	70	28	27	57	88	39	21	688

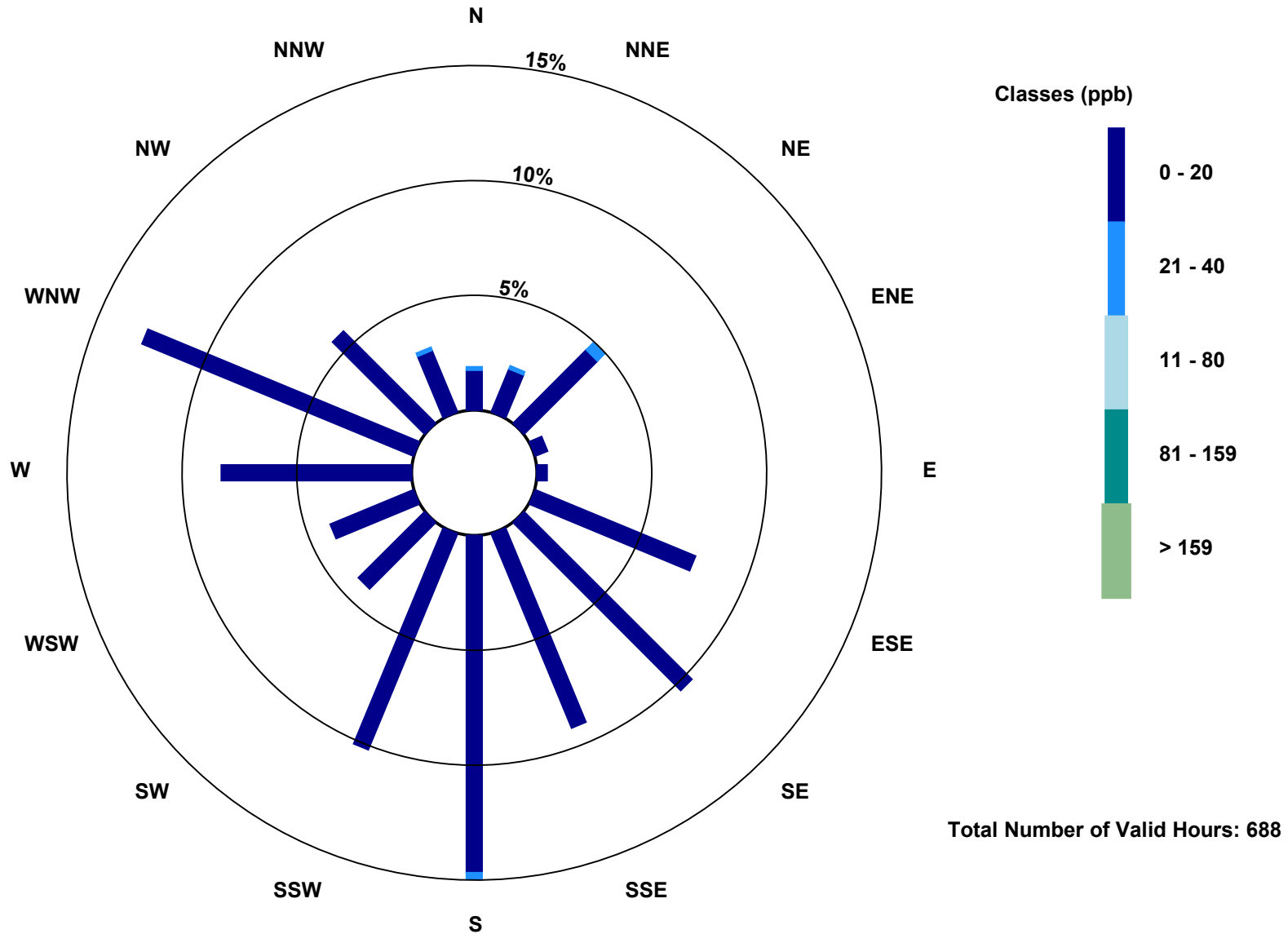
Total Number of Valid Hours: 688

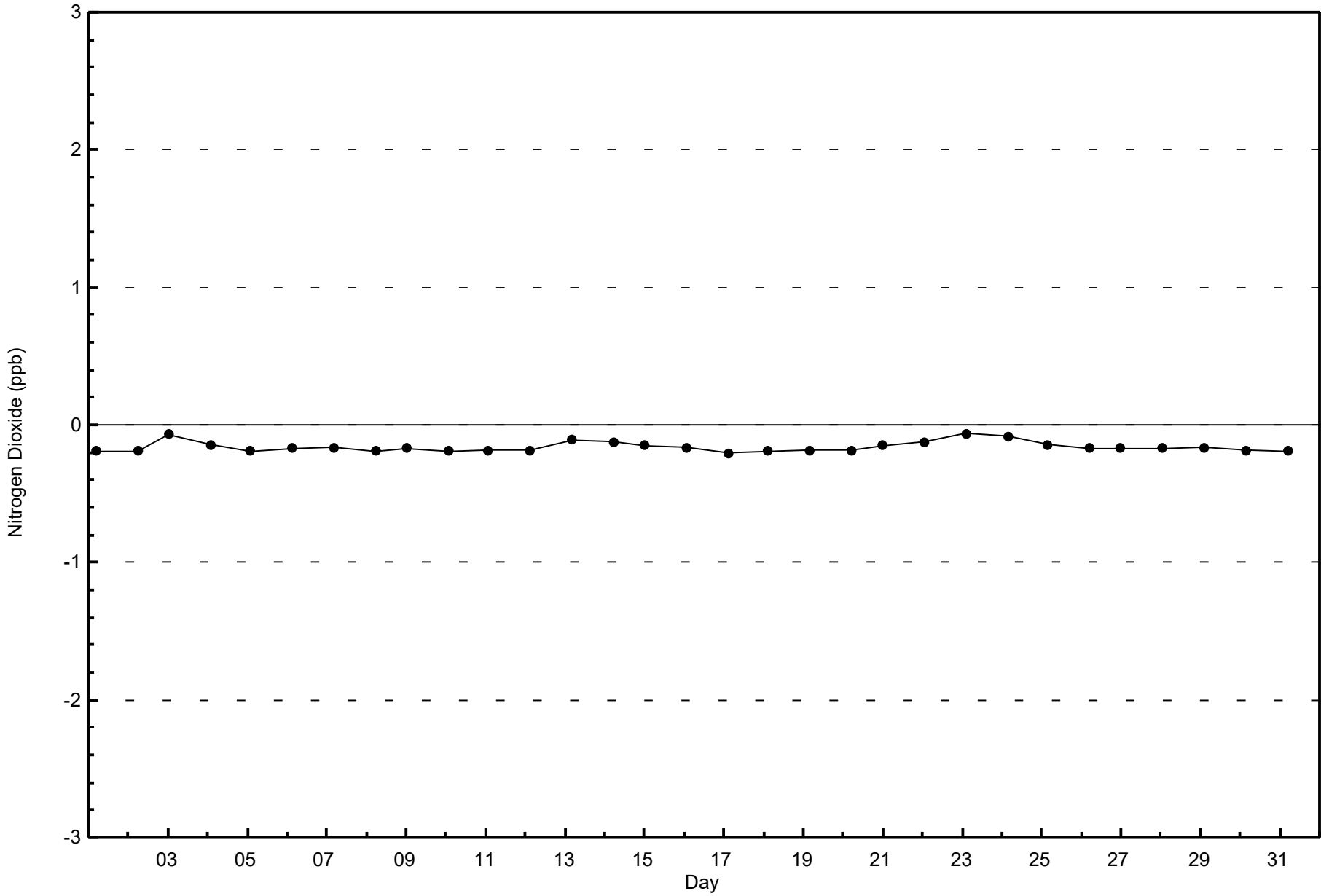
Total Number of Hours: 744

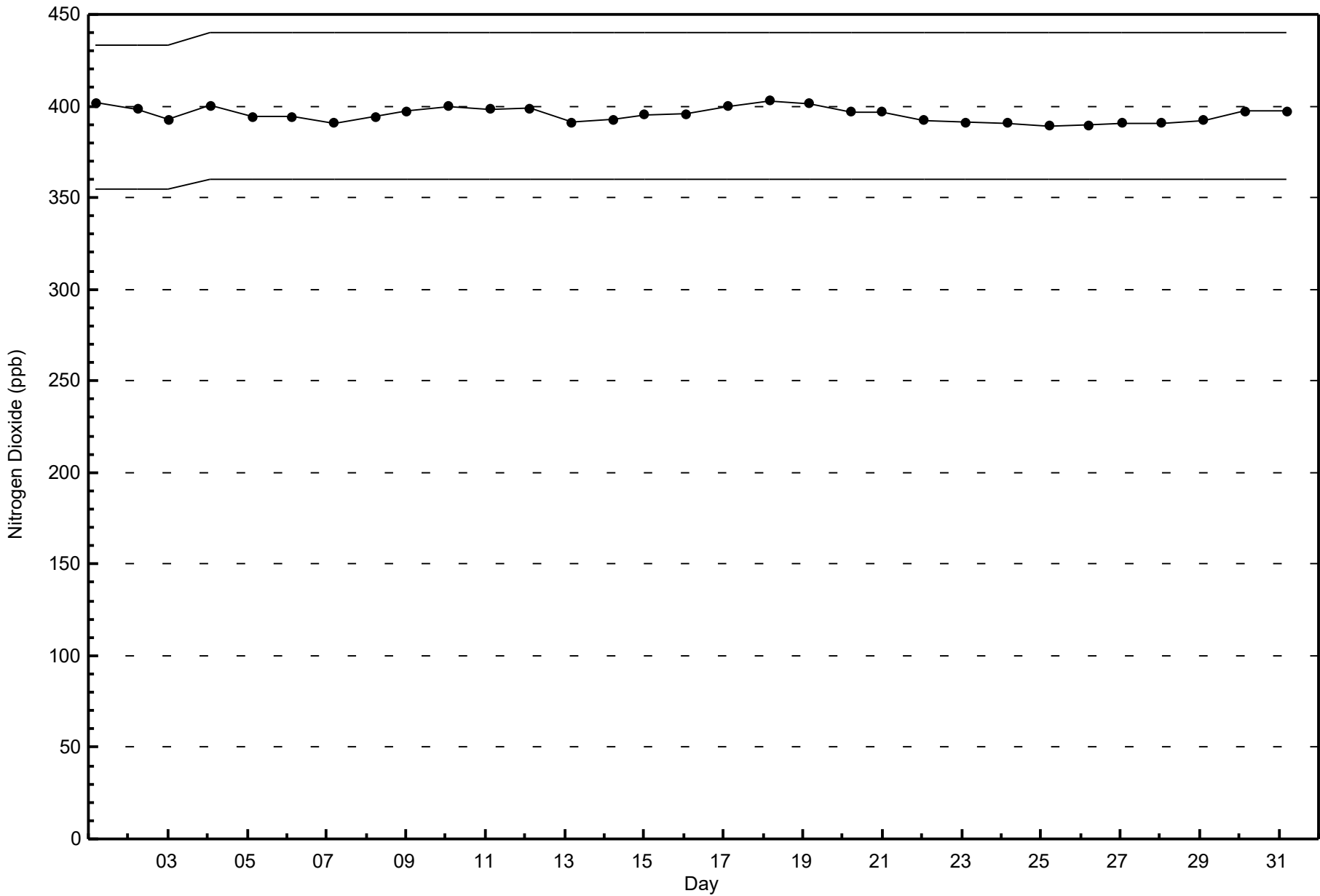


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Mackay River









Wood Buffalo Environmental Association
Summary of Hour Averages

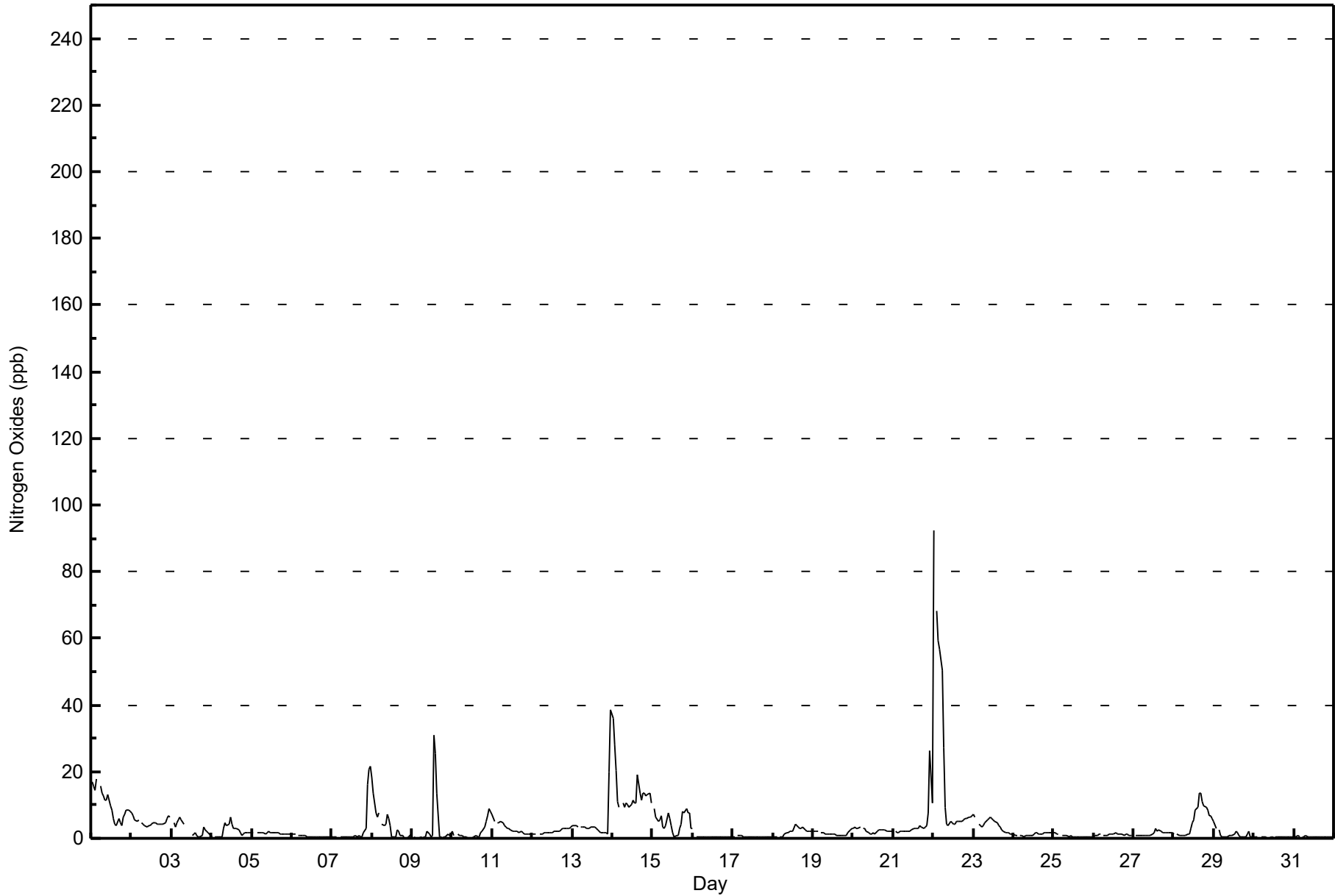
Nitrogen Oxides (NO_x) - ppb
Mackay River - December 2024

Maximum Value: 92.5 ppb on Dec 22 01:00		Maximum Daily Average: 19.4 ppb on Dec 22		Hours in Service: 744																																													
Minimum Value: 0.1 ppb on Dec 10 11:00		Minimum Daily Average: 0.3 ppb on Dec 30		Hours of Data: 709																																													
Maximum Diurnal Average: 8.3 ppb at hour 1		Minimum Diurnal Average: 2.4 ppb at hour 18		Hours of Missing Data: 35																																													
Monthly Average: 3.54 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.3 Q ₁ = 0.6 Median = 1.6 Q ₃ = 3.7 P ₉₀ = 7.8 P ₉₉ = 30.8		Hours of Calibration: 35																																													
				Percent Operational Time: 100.0																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	17.1	15.5	14.5	17.9	Z	15.9	13.7	12.6	11.3	11.3	13.3	9.6	8.6	5.8	4.1	3.9	6.0	4.5	3.9	6.2	7.2	8.3	8.5	8.1	9.9	17.9																							
2-Dec	7.5	6.7	5.7	5.3	5.3	Z	4.8	4.0	3.7	3.5	3.6	3.9	4.2	4.5	4.6	4.4	4.3	4.2	4.1	4.0	4.6	6.1	6.6	6.5	4.9	7.5																							
3-Dec	Z	4.5	3.5	4.7	5.3	6.3	5.4	4.3	C	C	C	C	0.9	1.5	1.6	1.0	0.6	0.4	0.9	3.5	2.5	2.2	1.6	0.9	2.7	6.3																							
4-Dec	0.4	Z	0.3	0.3	0.3	0.3	0.3	3.1	4.8	4.0	4.0	6.3	4.3	3.0	2.9	2.8	2.7	1.8	1.0	1.2	1.5	1.6	1.6	1.6	2.2	6.3																							
5-Dec	1.6	1.6	Z	1.7	1.7	1.7	1.7	1.6	1.5	1.7	2.0	1.8	1.8	1.8	1.7	1.6	1.5	1.5	1.4	1.5	1.5	1.1	1.1	1.3	1.6	2.0																							
6-Dec	1.1	1.1	1.1	Z	1.0	0.8	0.8	0.8	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	1.1																							
7-Dec	0.6	0.5	0.5	0.4	Z	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.5	0.5	0.7	0.6	0.6	0.6	0.6	1.7	3.0	16.0	20.6	21.5	3.1	21.5																							
8-Dec	18.2	13.4	7.7	6.4	7.8	Z	4.4	3.8	4.1	7.2	5.8	3.8	0.3	0.2	0.6	2.5	2.0	1.0	0.7	0.2	0.2	0.2	0.4	1.2	4.0	18.2																							
9-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.4	2.0	1.5	0.5	0.9	31.1	25.4	13.7	0.5	0.2	0.2	0.3	0.3	1.2	0.8	1.3	3.6	31.1																							
10-Dec	2.0	0.9	Z	1.2	0.7	0.7	0.8	0.4	0.3	0.2	0.1	0.2	0.2	0.3	0.7	0.6	0.4	1.8	2.1	3.2	4.9	6.6	9.0	8.0	2.0	9.0																							
11-Dec	7.3	5.3	Z	4.6	4.8	5.0	4.5	3.9	3.3	2.9	2.8	2.7	2.2	2.3	2.1	1.9	1.8	2.1	1.6	1.1	1.1	1.3	1.3	1.4	2.9	7.3																							
12-Dec	1.4	1.4	1.4	Z	1.3	1.3	1.4	1.9	1.8	1.8	1.7	1.8	1.8	2.0	2.3	2.3	2.3	2.4	2.8	2.9	2.9	2.9	3.0	3.4	2.1	3.4																							
13-Dec	3.6	3.6	3.7	3.5	Z	3.4	3.3	3.2	3.1	3.1	3.2	3.2	3.3	3.3	3.0	2.6	1.9	1.7	1.6	1.7	1.5	1.4	19.7	38.7	5.1	38.7																							
14-Dec	35.8	28.0	20.5	10.8	9.4	Z	10.6	9.2	10.7	10.3	9.5	10.3	11.5	10.5	10.6	19.0	13.4	11.5	13.5	13.4	12.8	13.3	13.5	10.6	13.9	35.8																							
15-Dec	Z	9.0	6.5	4.9	5.4	6.6	3.3	3.1	3.7	7.4	6.1	3.7	1.9	0.5	0.8	0.8	3.1	4.1	8.1	7.6	8.7	7.8	7.8	3.1	5.0	9.0																							
16-Dec	3.1	Z	0.5	0.3	0.3	0.3	0.6	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.5	0.2	0.3	0.2	0.4	0.2	0.3	0.3	0.4	3.1																							
17-Dec	0.3	0.3	Z	0.7	0.8	0.8	0.4	0.5	0.4	0.3	0.4	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.8																							
18-Dec	0.3	0.3	0.3	Z	0.5	0.5	0.6	1.1	1.7	1.9	1.9	2.0	2.3	4.4	3.8	3.2	2.8	2.9	3.3	2.5	2.0	2.0	2.1	2.0	1.9	4.4																							
19-Dec	2.0	2.0	2.0	1.9	Z	1.8	1.6	1.4	1.3	1.3	1.2	1.1	1.5	1.3	1.0	0.9	0.8	0.8	0.8	0.9	0.9	1.5	2.4	2.8	1.4	2.8																							
20-Dec	2.9	3.2	3.2	3.1	3.2	Z	3.1	2.9	2.1	1.5	1.4	1.5	1.5	1.5	2.0	2.4	2.5	2.5	2.5	2.4	2.3	2.1	2.2	2.1	2.3	3.2																							
21-Dec	Z	1.9	1.9	1.8	2.0	2.1	2.1	2.3	2.3	2.1	2.1	2.4	3.0	3.2	2.9	3.0	3.8	3.2	2.9	3.6	4.0	7.5	26.3	10.6	4.2	26.3																							
22-Dec	92.5	Z	68.1	59.1	57.0	50.3	27.0	9.2	4.1	3.6	5.1	4.8	4.1	4.2	5.0	5.3	4.9	5.2	5.7	5.8	5.9	6.3	6.6	6.8	19.4	92.5																							
23-Dec	7.0	6.4	Z	4.2	3.9	3.4	3.7	4.7	5.6	6.0	6.3	5.9	5.4	5.0	4.6	3.9	3.3	2.6	2.0	1.8	1.7	1.6	1.4	1.2	4.0	7.0																							
24-Dec	1.1	0.9	0.8	Z	0.8	0.6	0.6	0.7	0.9	1.0	1.0	0.9	1.1	1.5	1.7	1.4	1.4	1.5	1.6	1.7	1.8	1.8	1.8	1.8	1.2	1.8																							
25-Dec	1.7	1.6	1.4	1.2	Z	0.9	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.6	0.5	0.6	0.7	1.7																							
26-Dec	0.6	0.7	0.8	1.2	1.1	Z	1.0	0.9	0.9	1.2	1.4	1.5	1.5	1.5	1.4	1.1	1.1	1.2	1.1	1.1	1.3	1.0	0.8	0.8	1.1	1.5																							
27-Dec	Z	0.8	0.8	0.9	0.9	1.0	1.0	0.9	0.8	0.8	1.0	1.4	1.9	2.8	1.9	2.4	2.2	1.9	1.7	1.8	1.8	1.7	1.7	1.5	1.5	2.8																							
28-Dec	1.3	Z	1.1	0.9	0.9	0.9	0.8	0.9	1.1	1.3	3.1	4.6	5.6	8.6	9.4	13.6	13.7	11.1	9.7	9.2	8.6	6.9	6.7	5.9	5.5	13.7																							
29-Dec	5.0	3.1	Z	2.5	0.9	0.5	0.6	0.6	0.5	0.7	1.0	0.9	1.2	2.0	1.6	0.7	0.3	0.3	0.3	0.5	1.3	1.9	0.3	0.3	1.2	5.0																							
30-Dec	0.3	0.3	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.5	0.3	0.5																						
31-Dec	0.5	0.5	0.7	0.5	Z	0.4	0.3	0.7	0.3	0.2	0.2	0.4	0.3	0.3	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.7																							
																								8.3	4.2	5.9	5.4	4.6	4.1	3.2	2.6	2.4	2.6	2.7	2.6	2.4	3.4	3.2	2.6	2.4	2.5	2.6	2.8	3.4	4.8	4.7	Diurnal Average		
																								92.5	28.0	68.1	59.1	57.0	50.3	27.0	12.6	11.3	11.3	13.3	10.3	11.5	31.1	25.4	19.0	13.7	11.5	13.5	13.4	12.8	16.0	26.3	38.7	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Mackay River - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Mackay River - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	695	98.03	98.03
21 - 40	9	1.27	99.29
41 - 80	4	0.56	99.86
81 - 159	1	0.14	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
Mackay River - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	12	10	31	4	3	52	71	63	101	69	28	27	57	88	39	20	675
21 - 40	0	5	3	0	0	0	0	0	0	1	0	0	0	0	0	0	9
11 - 80	1	0	0	0	0	0	0	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	1	1
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	13	15	34	4	3	52	71	63	103	70	28	27	57	88	39	21	688

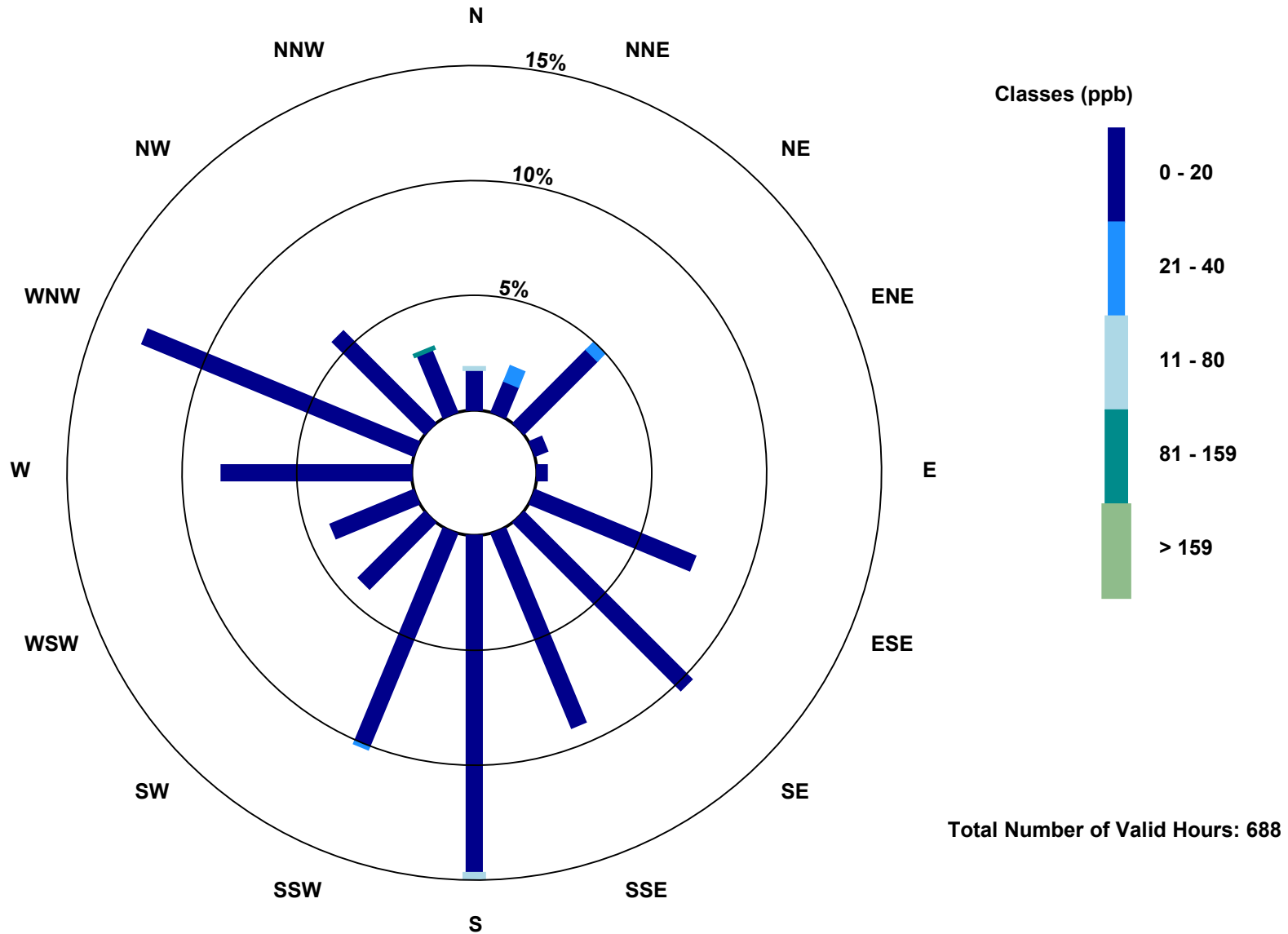
Total Number of Valid Hours: 688

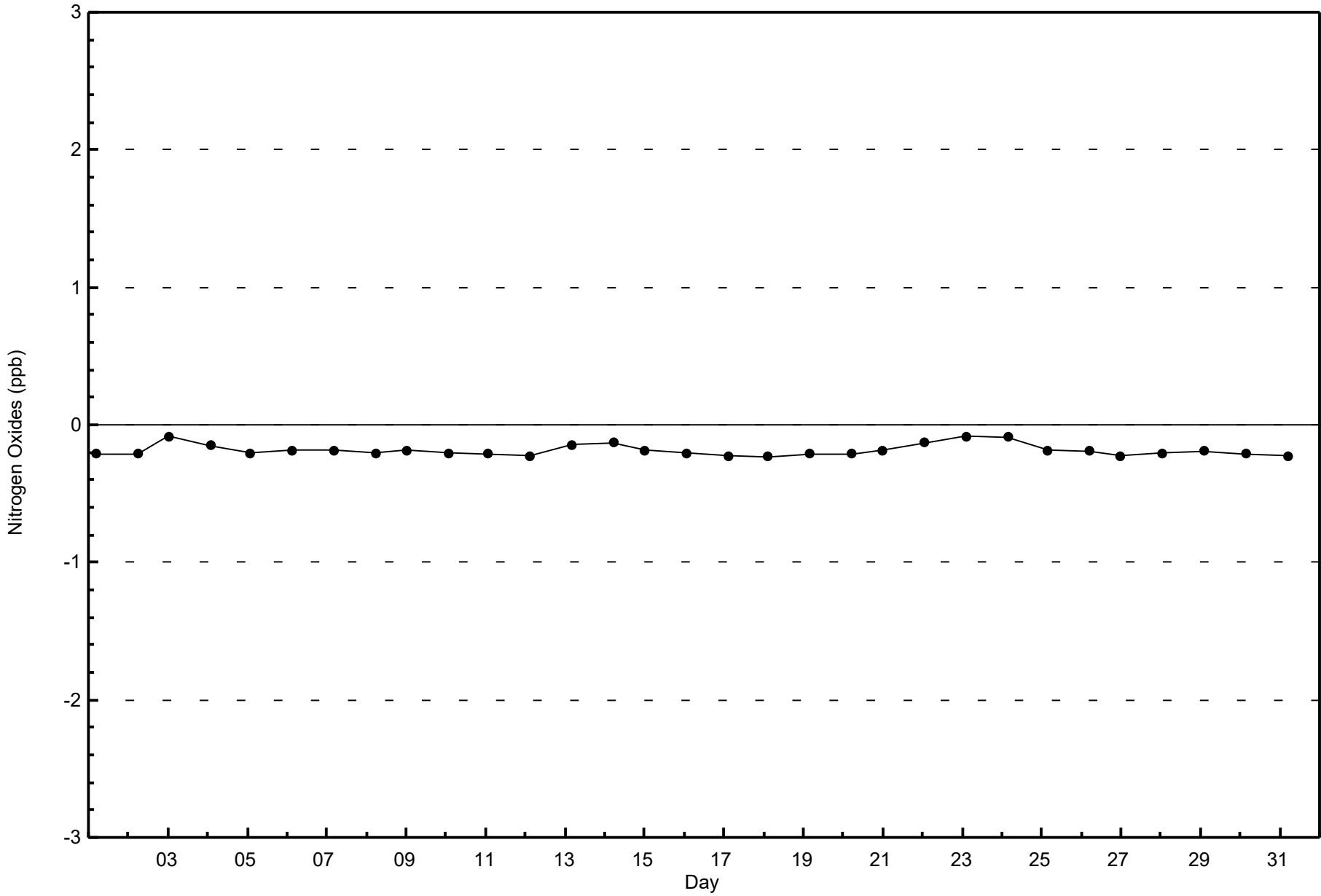
Total Number of Hours: 744

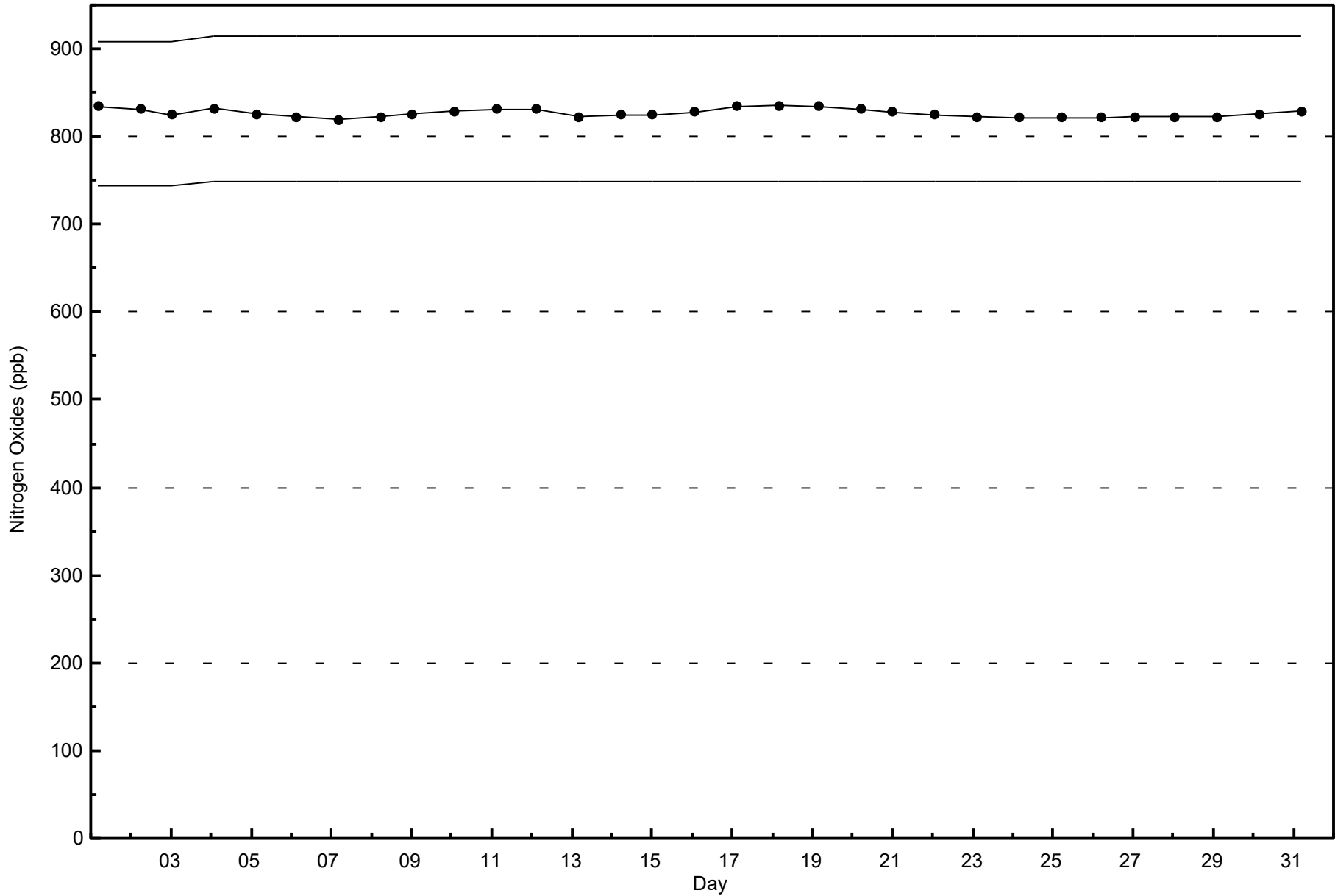


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Mackay River





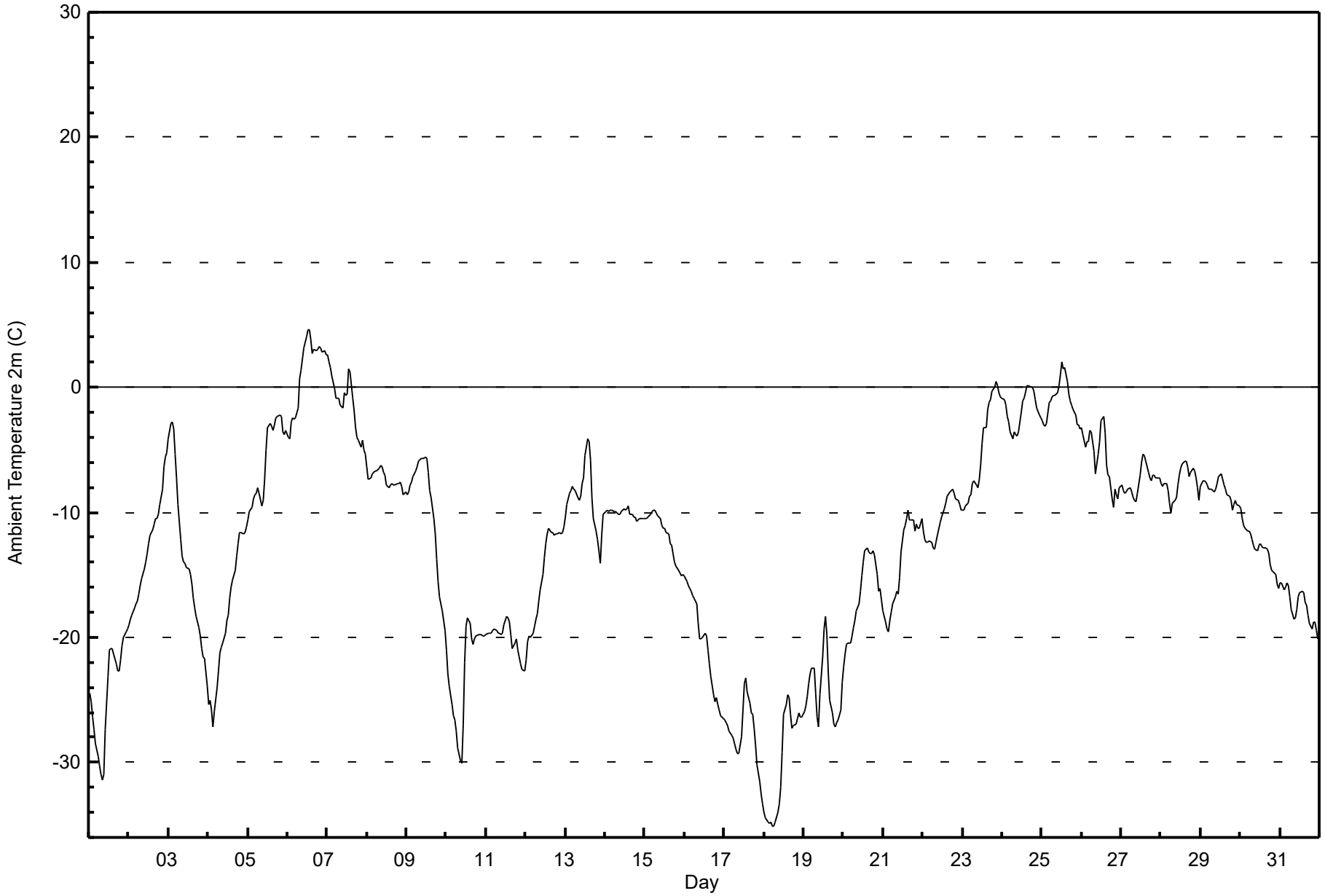




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Mackay River - December 2024

Maximum Value: 4.6 C on Dec 6 13:00		Maximum Daily Average: 1.3 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -35.2 C on Dec 18 06:00		Minimum Daily Average: -30.0 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.5 C at hour 14		Minimum Diurnal Average: -13.9 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -12.64 C		Percentiles: P ₁ = -34.0 P ₁₀ = -25.4 Q ₁ = -19.1 Median = -10.9 Q ₃ = -7.1 P ₉₀ = -2.2 P ₉₉ = 3.1		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-Dec	-24.5	-25.2	-26.4	-27.4	-28.5	-29.5	-30.3	-31.0	-31.4	-30.9	-27.4	-23.1	-21.0	-20.9	-20.9	-21.4	-22.1	-22.7	-22.7	-21.7	-20.7	-20.0	-19.5	-19.4	-24.5	-19.4																						
2-Dec	-19.0	-18.6	-18.2	-17.7	-17.3	-17.1	-16.6	-15.9	-15.3	-14.6	-14.0	-13.3	-12.5	-11.8	-11.4	-10.9	-10.6	-10.5	-10.2	-9.4	-8.1	-6.4	-5.6	-5.2	-12.9	-5.2																						
3-Dec	-4.1	-2.9	-2.8	-3.3	-5.3	-7.2	-9.4	-12.1	-13.6	-13.9	-14.1	-14.5	-14.5	-14.9	-15.8	-16.8	-17.6	-18.3	-19.2	-19.9	-20.8	-21.5	-21.7	-24.0	-13.7	-2.8																						
4-Dec	-25.4	-25.0	-25.9	-27.2	-25.9	-24.0	-22.7	-21.3	-20.8	-20.4	-19.7	-18.7	-18.2	-16.9	-16.0	-15.4	-14.6	-13.5	-12.6	-11.6	-11.7	-11.8	-11.6	-11.1	-18.4	-11.1																						
5-Dec	-10.6	-10.0	-9.6	-8.9	-8.6	-8.5	-8.1	-8.4	-9.5	-9.0	-7.3	-5.0	-3.2	-2.8	-3.1	-3.4	-3.0	-2.4	-2.3	-2.3	-2.3	-3.6	-3.8	-3.4	-5.8	-2.3																						
6-Dec	-4.1	-4.1	-2.7	-2.5	-2.5	-2.4	-1.6	0.7	1.3	2.3	3.1	4.1	4.6	4.6	3.8	2.6	3.0	2.9	3.1	3.3	3.2	2.9	2.9	2.6	1.3	4.6																						
7-Dec	2.6	2.1	1.6	0.9	-0.1	-0.8	-0.9	-0.9	-1.4	-1.6	-0.4	-0.6	-0.5	1.4	1.2	-0.8	-1.9	-3.2	-4.0	-4.3	-4.8	-4.3	-5.0	-5.4	-1.3	2.6																						
8-Dec	-6.4	-7.3	-7.2	-6.9	-6.8	-6.7	-6.7	-6.5	-6.3	-6.3	-6.8	-7.0	-7.8	-8.0	-7.8	-7.7	-7.8	-7.8	-7.7	-7.7	-7.6	-7.9	-8.6	-8.4	-7.3	-6.3																						
9-Dec	-8.6	-8.4	-7.8	-7.6	-7.2	-6.7	-6.4	-5.9	-5.8	-5.7	-5.6	-5.5	-5.7	-6.8	-8.2	-8.9	-10.5	-11.7	-13.7	-15.6	-16.8	-17.9	-18.7	-19.4	-9.8	-5.5																						
10-Dec	-21.0	-23.0	-24.0	-25.4	-26.2	-26.6	-27.4	-28.8	-29.8	-30.0	-26.9	-22.0	-19.1	-18.4	-18.9	-20.2	-20.6	-20.2	-19.9	-19.8	-19.8	-19.8	-19.9	-19.9	-22.8	-18.4																						
11-Dec	-19.7	-19.6	-19.7	-19.7	-19.4	-19.3	-19.4	-19.7	-19.7	-19.7	-19.6	-19.0	-18.3	-18.5	-18.8	-19.8	-20.9	-20.5	-20.1	-21.0	-21.6	-22.1	-22.6	-22.7	-20.1	-18.3																						
12-Dec	-21.7	-20.3	-19.8	-20.0	-19.6	-19.1	-18.6	-18.1	-17.1	-16.3	-15.0	-13.7	-12.5	-11.7	-11.3	-11.6	-11.6	-11.8	-11.7	-11.8	-11.6	-11.7	-11.6	-11.2	-15.0	-11.2																						
13-Dec	-10.3	-9.3	-8.5	-8.2	-8.0	-8.2	-8.3	-8.8	-9.1	-8.7	-7.7	-7.3	-5.5	-4.2	-4.3	-5.8	-8.8	-10.5	-11.5	-12.1	-13.1	-14.1	-11.8	-10.1	-8.9	-4.2																						
14-Dec	-9.9	-9.8	-9.9	-9.9	-9.8	-9.9	-10.0	-10.1	-10.1	-10.1	-9.9	-9.7	-9.8	-9.7	-9.5	-10.1	-10.1	-10.4	-10.4	-10.7	-10.6	-10.5	-10.5	-10.5	-10.1	-9.5																						
15-Dec	-10.5	-10.4	-10.4	-10.1	-9.9	-9.8	-9.8	-10.0	-10.2	-10.5	-11.1	-11.3	-11.3	-11.6	-11.8	-12.5	-12.7	-13.3	-13.9	-14.3	-14.6	-14.8	-15.0	-15.0	-11.9	-9.8																						
16-Dec	-15.1	-15.5	-15.8	-16.1	-16.4	-16.6	-16.9	-17.4	-18.9	-20.1	-20.2	-20.0	-19.6	-19.9	-21.0	-22.1	-23.2	-24.6	-25.1	-24.8	-25.3	-25.8	-26.2	-26.4	-20.5	-15.1																						
17-Dec	-26.6	-26.8	-27.0	-27.5	-27.8	-28.1	-28.5	-29.0	-29.3	-29.3	-27.9	-25.8	-23.7	-23.3	-24.4	-25.2	-26.0	-26.1	-27.3	-28.6	-30.2	-31.5	-32.5	-33.3	-27.7	-23.3																						
18-Dec	-33.9	-34.4	-34.8	-34.9	-34.8	-35.2	-35.1	-34.8	-34.0	-33.3	-32.0	-29.2	-26.1	-25.3	-24.6	-24.8	-26.1	-27.3	-27.1	-26.9	-26.5	-26.1	-26.4	-26.3	-30.0	-24.6																						
19-Dec	-25.9	-25.5	-24.7	-23.7	-22.9	-22.5	-22.4	-24.5	-26.4	-27.2	-24.6	-21.6	-19.3	-18.4	-19.8	-22.8	-25.0	-26.1	-26.9	-27.2	-26.8	-26.6	-25.8	-23.6	-24.2	-18.4																						
20-Dec	-22.3	-21.3	-20.6	-20.4	-20.5	-19.9	-19.2	-18.6	-17.9	-17.3	-16.4	-15.1	-14.0	-13.1	-12.8	-13.1	-13.3	-13.3	-13.1	-13.4	-14.9	-16.3	-16.1	-17.0	-16.7	-12.8																						
21-Dec	-17.9	-18.8	-19.3	-19.6	-18.7	-18.0	-17.3	-16.7	-16.4	-16.5	-15.2	-13.2	-11.4	-11.1	-10.5	-9.8	-10.6	-10.6	-10.6	-11.5	-11.0	-11.3	-11.2	-10.5	-14.1	-9.8																						
22-Dec	-11.6	-12.2	-12.3	-12.4	-12.3	-12.4	-12.8	-12.9	-12.4	-11.8	-10.9	-10.4	-10.0	-9.8	-9.3	-8.7	-8.4	-8.3	-8.2	-8.5	-8.9	-9.1	-9.4	-9.8	-10.5	-8.2																						
23-Dec	-9.8	-9.8	-9.5	-9.2	-8.7	-8.6	-7.7	-7.5	-7.8	-8.0	-7.4	-6.2	-4.5	-3.2	-3.2	-1.7	-1.2	-1.0	-0.3	0.0	0.4	0.1	-0.4	-0.7	-4.8	0.4																						
24-Dec	-0.9	-0.9	-1.4	-2.3	-2.8	-3.6	-4.1	-3.6	-3.8	-3.9	-3.6	-2.0	-1.1	-0.8	-0.5	0.1	0.2	0.0	0.0	-0.4	-1.0	-1.6	-2.2	-2.4	-1.8	0.2																						
25-Dec	-2.7	-3.0	-3.2	-2.9	-1.2	-1.0	-0.7	-0.7	-0.7	-0.4	0.2	1.0	2.0	1.5	1.6	0.4	-0.5	-1.1	-1.5	-1.7	-2.2	-3.0	-3.0	-3.3	-1.1	2.0																						
26-Dec	-3.2	-3.8	-4.8	-4.4	-4.4	-3.4	-3.6	-5.2	-6.9	-6.2	-5.4	-4.4	-2.7	-2.4	-3.7	-6.2	-7.0	-7.1	-8.9	-9.6	-8.2	-8.6	-9.0	-8.0	-5.7	-2.4																						
27-Dec	-7.9	-8.3	-8.4	-8.4	-8.2	-8.1	-8.4	-8.8	-9.1	-9.2	-8.4	-7.0	-6.0	-5.3	-5.4	-5.9	-6.8	-7.3	-7.4	-7.1	-7.1	-7.2	-7.3	-7.2	-7.5	-5.3																						
28-Dec	-7.7	-7.9	-7.7	-7.7	-8.3	-9.2	-10.0	-9.3	-9.1	-8.8	-7.8	-7.0	-6.5	-6.2	-5.9	-5.9	-6.4	-7.2	-6.8	-6.5	-6.7	-7.3	-8.1	-9.0	-7.6	-5.9																						
29-Dec	-7.9	-7.5	-7.5	-7.6	-7.8	-8.1	-8.1	-8.3	-8.3	-8.2	-7.7	-7.1	-7.0	-7.4	-7.8	-8.2	-8.6	-8.7	-9.1	-9.8	-9.4	-9.0	-9.3	-9.5	-8.2	-7.0																						
30-Dec	-9.8	-10.5	-11.0	-11.3	-11.5	-11.5	-11.7	-12.2	-12.6	-12.9	-13.1	-12.6	-12.5	-12.8	-12.9	-12.9	-13.0	-13.3	-14.1	-14.6	-14.7	-15.0	-15.8	-16.1	-12.9	-9.8																						
31-Dec	-15.7	-15.7	-16.2	-15.9	-15.6	-15.9	-16.7	-17.8	-18.6	-18.4	-17.8	-16.8	-16.4	-16.3	-16.5	-17.2	-17.4	-18.2	-18.9	-19.3	-18.8	-18.8	-19.5	-20.1	-17.4	-15.6																						
																								-13.3	-13.3	-13.4	-13.5	-13.4	-13.5	-13.5	-13.7	-13.9	-13.8	-12.9	-11.7	-10.8	-10.5	-10.6	-11.2	-11.7	-12.1	-12.3	-12.5	-12.7	-12.9	-13.1	-13.1	Diurnal Average
																								2.6	2.1	1.6	0.9	-0.1	-0.8	-0.7	0.7	1.3	2.3	3.1	4.1	4.6	4.6	3.8	2.6	3.0	2.9	3.1	3.3	3.2	2.9	2.9	2.6	Diurnal Maximum





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Mackay River - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	149	20.03	20.03
-20 - 0	560	75.27	95.30
0 - 10	35	4.70	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

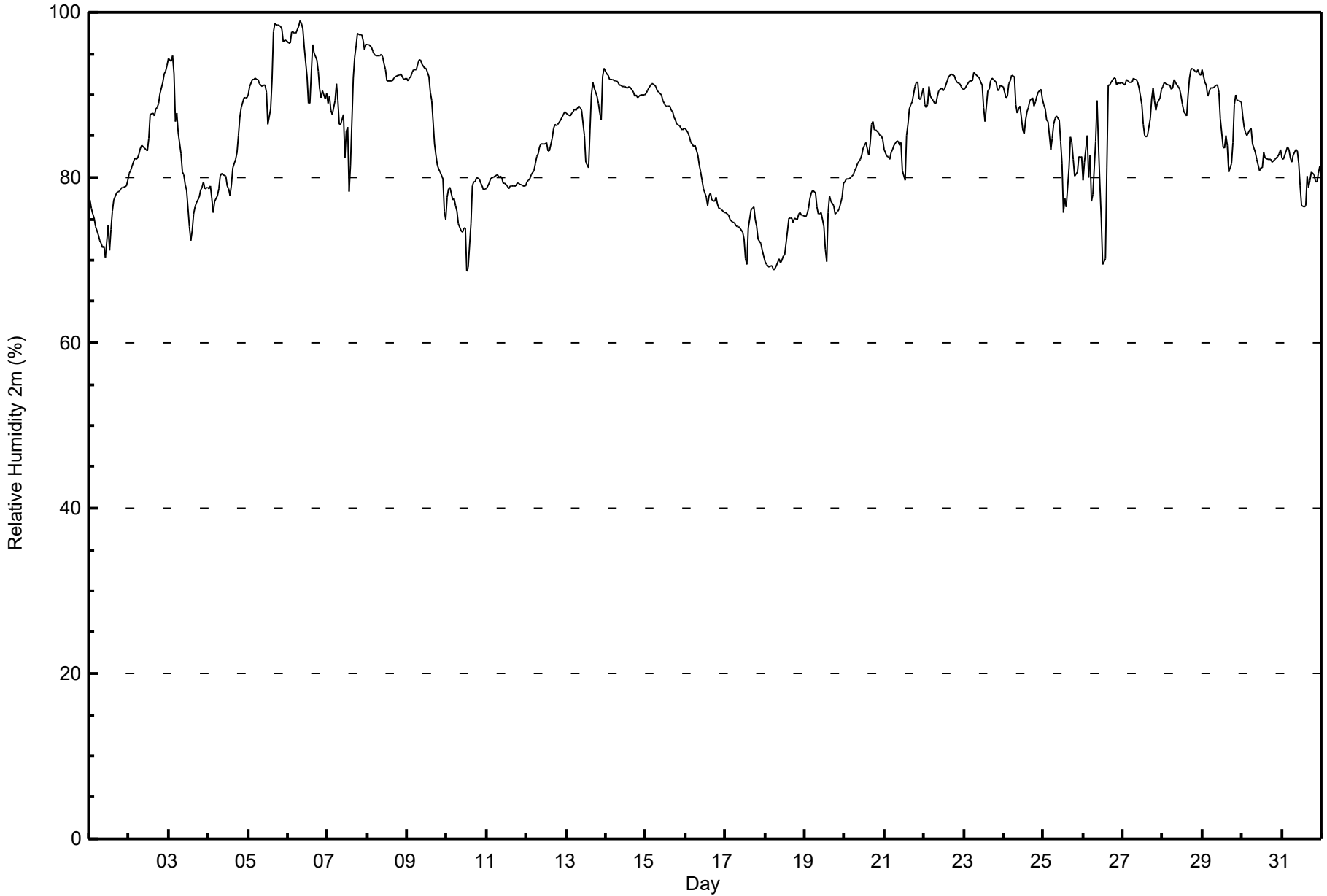
Relative Humidity 2m (RH2) - %
Mackay River - December 2024

Maximum Value: 99.0 % on Dec 6 08:00																						Maximum Daily Average: 94.3 % on Dec 6																						Hours in Service: 744			
Minimum Value: 68.7 % on Dec 10 13:00																						Minimum Daily Average: 72.1 % on Dec 18																						Hours of Data: 744			
Maximum Diurnal Average: 85.9 % at hour 24																						Minimum Diurnal Average: 81.5 % at hour 13																						Hours of Missing Data: 0			
Monthly Average: 84.99 %																						Percentiles: P ₁ = 69.4 P ₁₀ = 75.6 Q ₁ = 79.4 Median = 85.8 Q ₃ = 91.0 P ₉₀ = 92.5 P ₉₉ = 98.0																						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-Dec	77.3	76.4	75.5	75.1	74.0	73.0	72.3	72.1	71.6	71.7	70.4	74.2	71.2	73.7	75.9	77.3	78.2	78.4	78.4	78.7	78.8	78.8	79.1	79.6	75.5	79.6																					
2-Dec	80.5	80.8	81.3	82.4	82.1	82.4	82.9	83.6	83.9	83.6	83.4	83.3	84.7	87.6	87.7	87.5	88.2	88.5	89.1	90.1	91.6	92.6	92.9	93.5	86.0	93.5																					
3-Dec	94.4	94.1	94.7	92.6	86.8	87.8	85.4	82.8	80.6	80.3	79.1	78.5	74.0	72.3	73.6	75.5	76.4	76.9	77.7	78.4	78.9	79.4	78.6	78.9	81.6	94.7																					
4-Dec	78.7	79.0	77.4	75.7	77.1	77.8	78.7	80.2	80.6	80.4	80.1	79.0	78.7	77.8	79.2	81.2	82.1	83.1	85.0	87.3	88.5	89.7	89.7	89.7	81.5	89.7																					
5-Dec	90.0	91.0	91.8	91.9	92.0	91.9	91.9	91.4	91.1	91.2	91.1	90.4	86.4	88.3	91.9	97.6	98.6	98.6	98.5	98.3	97.9	96.5	96.6	96.6	93.4	98.6																					
6-Dec	96.3	96.3	97.7	97.6	97.5	97.5	98.2	99.0	98.7	98.0	95.7	92.2	89.0	89.0	92.5	96.2	95.1	94.2	92.9	90.6	89.6	90.4	89.5	90.1	94.3	99.0																					
7-Dec	89.0	89.8	88.1	87.6	89.4	91.3	89.3	86.5	86.5	87.6	82.3	85.6	86.0	78.3	81.5	92.0	94.6	95.9	97.5	97.3	97.3	96.7	95.4	96.1	90.1	97.5																					
8-Dec	96.1	96.1	95.7	95.2	94.9	94.7	94.7	94.8	95.0	94.6	93.8	93.1	91.7	91.7	91.7	91.7	92.0	92.2	92.5	92.4	92.5	92.2	91.9	92.0	93.5	96.1																					
9-Dec	91.8	92.0	92.3	92.7	93.1	93.1	93.8	94.3	94.2	93.7	93.3	93.2	92.7	92.2	90.3	89.4	84.1	82.7	81.5	80.9	80.6	79.8	75.9	74.9	88.4	94.3																					
10-Dec	77.6	78.6	78.8	77.2	77.5	76.6	75.8	74.4	73.6	73.4	74.0	74.0	68.7	69.2	74.3	79.0	79.5	79.5	80.1	79.9	79.3	79.0	78.5	78.6	76.5	80.1																					
11-Dec	78.7	79.3	79.9	79.9	80.1	80.1	80.3	80.0	80.1	80.0	79.3	79.3	79.0	78.6	78.9	78.9	79.0	79.0	79.3	79.4	79.2	79.1	79.0	79.0	79.4	80.3																					
12-Dec	79.5	79.7	79.9	80.4	80.9	81.7	82.6	82.9	83.7	84.1	84.1	84.0	84.2	83.3	83.2	84.8	85.9	86.5	86.2	86.5	86.9	87.4	87.6	87.9	83.9	87.9																					
13-Dec	87.9	87.6	87.5	87.8	88.0	88.4	88.2	88.6	88.5	88.2	86.7	85.1	81.9	81.2	85.7	90.0	91.6	90.9	89.8	89.0	87.7	87.0	92.1	93.2	88.0	93.2																					
14-Dec	92.6	92.3	91.9	91.9	91.9	91.6	91.6	91.6	91.2	91.1	91.1	91.0	90.9	90.9	91.0	90.8	90.3	89.9	90.0	89.7	89.9	90.0	90.0	90.0	91.0	92.6																					
15-Dec	90.1	90.5	90.9	91.3	91.4	91.2	91.0	90.5	90.3	90.0	89.3	89.0	88.7	88.6	88.6	88.1	87.9	87.3	87.0	86.5	86.3	86.0	85.8	86.0	88.8	91.4																					
16-Dec	85.9	85.4	84.9	84.3	84.1	83.8	84.0	82.7	81.5	80.6	79.7	78.7	77.6	76.6	77.8	78.1	77.2	77.1	77.5	76.8	76.3	76.2	76.0	75.8	79.9	85.9																					
17-Dec	75.7	75.6	75.4	75.0	74.7	74.6	74.3	74.0	74.0	73.8	73.4	72.5	70.1	69.5	73.8	76.0	76.2	76.4	74.9	74.1	72.6	72.1	71.2	70.4	73.8	76.4																					
18-Dec	69.9	69.6	69.1	69.2	69.3	68.8	69.0	69.2	70.2	69.7	69.9	70.5	70.6	73.6	75.0	75.1	75.2	74.5	75.1	74.9	75.6	75.8	75.4	75.4	72.1	75.8																					
19-Dec	75.3	75.5	76.3	77.5	78.1	78.6	78.2	76.4	75.6	75.6	75.8	74.1	71.4	69.8	75.7	77.8	77.1	76.6	75.6	75.7	76.0	76.4	77.6	79.3	76.1	79.3																					
20-Dec	79.4	79.9	79.9	79.9	80.1	80.4	80.9	81.2	81.7	82.2	82.7	83.6	83.9	84.3	82.8	84.0	86.4	86.8	85.8	85.7	85.4	85.1	85.0	84.6	83.0	86.8																					
21-Dec	83.4	82.6	82.5	82.3	83.1	83.5	83.9	84.4	84.4	84.0	84.2	80.9	79.6	85.0	86.5	88.2	88.9	89.2	91.0	91.6	91.4	89.6	89.4	90.9	85.9	91.6																					
22-Dec	88.7	88.5	88.8	91.0	89.9	89.3	88.9	89.0	89.8	90.6	90.8	90.5	90.6	91.3	91.7	92.2	92.5	92.4	92.4	91.9	91.5	91.3	90.9	90.7	90.6	92.5																					
23-Dec	90.7	90.8	91.2	91.6	91.8	91.8	92.7	92.6	92.3	92.0	91.5	91.2	88.5	86.7	90.6	90.8	91.6	92.1	91.9	91.6	90.5	90.7	91.1	91.0	91.1	92.7																					
24-Dec	91.0	89.6	89.8	91.4	91.7	92.5	92.2	88.7	87.8	88.3	88.7	85.7	85.3	86.9	88.0	88.5	89.3	89.7	88.7	89.1	89.9	90.3	90.6	89.5	89.3	92.5																					
25-Dec	88.8	88.2	86.9	86.8	83.5	84.8	86.5	87.1	87.5	86.9	84.4	81.6	75.8	77.4	76.5	81.2	85.0	84.3	82.3	80.2	80.7	82.6	82.4	82.5	83.5	88.8																					
26-Dec	79.7	81.8	85.1	80.1	82.7	77.1	78.0	84.5	89.3	84.0	79.4	75.1	69.6	70.2	81.2	91.2	91.2	91.6	92.1	92.0	91.2	91.5	91.3	91.5	84.2	92.1																					
27-Dec	91.4	91.2	91.8	91.7	91.5	91.5	92.1	91.9	91.9	91.6	90.9	88.8	86.4	85.1	85.0	85.1	87.1	89.4	90.9	89.4	88.2	89.0	89.7	90.7	89.7	92.1																					
28-Dec	91.0	91.6	91.4	91.2	91.1	90.7	90.8	91.9	91.2	91.0	90.7	89.8	88.8	88.0	87.4	90.1	92.1	93.0	93.2	92.9	92.8	93.0	92.5	92.3	91.2	93.2																					
29-Dec	93.1	91.6	91.2	89.9	90.3	90.8	90.8	91.0	91.3	91.1	90.3	87.2	83.7	83.5	85.1	84.0	80.6	81.8	84.2	88.9	90.1	89.3	89.3	89.2	88.2	93.1																					
30-Dec	87.5	86.2	85.4	85.1	85.7	85.9	84.0	83.5	83.0	82.3	80.9	81.2	81.2	83.1	82.4	82.3	82.3	82.3	81.9	82.0	82.2	82.5	82.8	83.3	83.3	87.5																					
31-Dec	82.3	82.3	83.3	83.7	83.4	82.3	81.9	82.7	83.5	83.2	81.8	79.0	76.5	76.5	76.7	80.1	78.8	79.6	80.6	80.4	79.4	79.5	80.5	81.3	80.8	83.7																					
																						85.6	85.6	85.7	85.5	85.4	85.3	85.3	85.3	85.3	85.0	84.2	83.3	81.5	81.6	83.3	85.3	85.6	85.8	85.9	85.9	85.8	85.8	85.9	Diurnal Average		
																						96.3	96.3	97.7	97.6	97.5	97.5	98.2	99.0	98.7	98.0	95.7	93.2	92.7	92.2	92.5	97.6	98.6	98.6	98.5	98.3	97.9	96.7	96.6	96.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Mackay River - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	207	27.82	27.82
80 - 100	537	72.18	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744

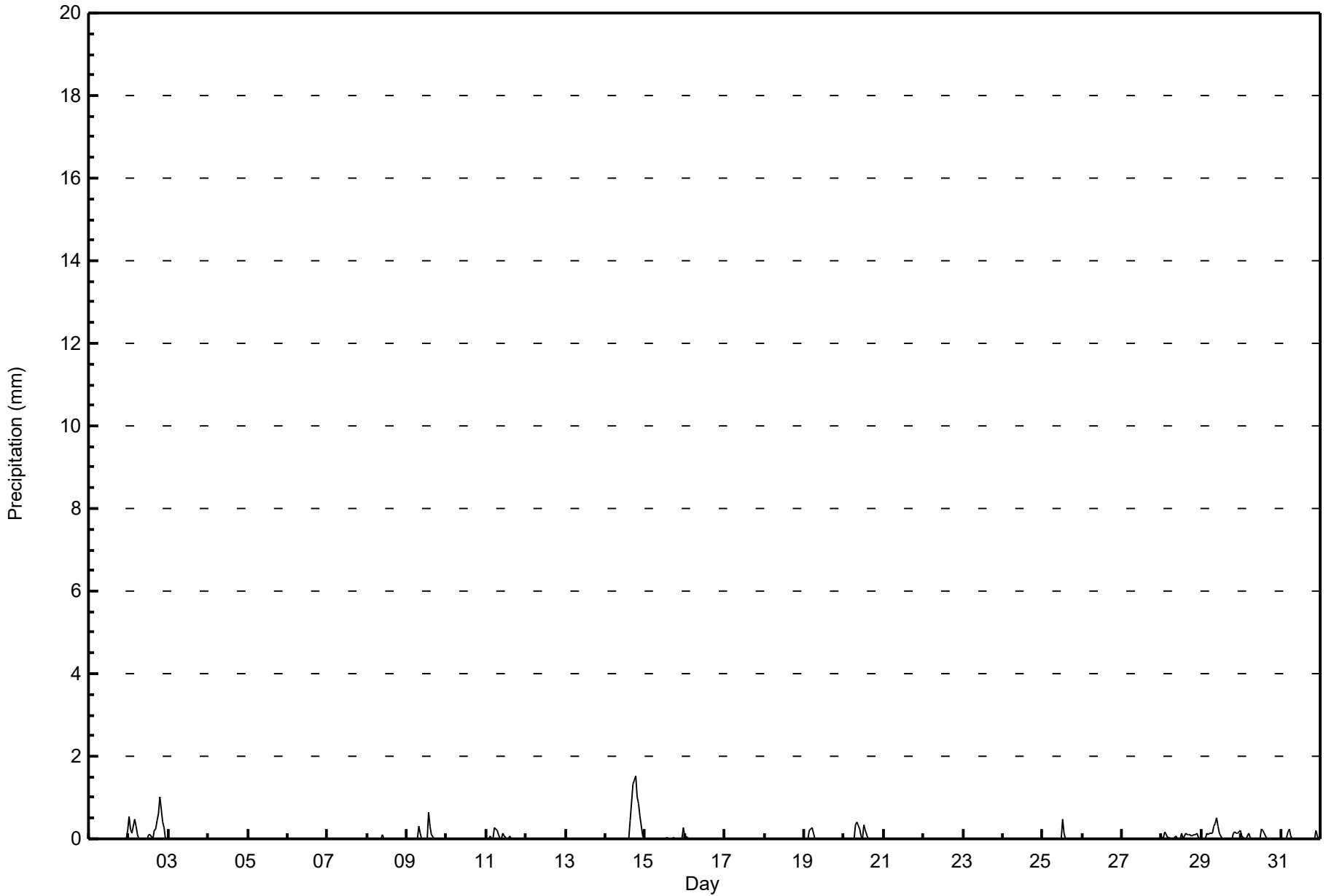


Maximum Value: 1.5 mm on Dec 14 19:00		Maximum Daily Total: 7.2 mm on Dec 14		Hours in Service: 744																							
Minimum Value: 0.0 mm on Dec 1 01:00		Minimum Daily Total: 0.0 mm on Dec 4		Hours of Data: 744																							
Maximum Diurnal Total: 2.3 mm at hour 20		Minimum Diurnal Total: 0.2 mm at hour 12		Hours of Missing Data: 0																							
Monthly Total: 24.62 mm		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 = 0.6		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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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		
2-Dec	0.6	0.3	0.1	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.3	0.4	0.6	1.0	0.4	0.3	0.0	0.0	5.2	1.0	
3-Dec	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
4-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
9-Dec	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	0.7	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.7	
10-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.1	0.0	0.0	0.3	0.2	0.1	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	0.9	0.3	
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.3	1.4	1.5	1.0	0.9	0.5	0.1	0.0	7.2	1.5		
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.3	0.3	
16-Dec	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	0.1	0.1	0.1	
17-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.3	
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.2	0.1	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.4	0.4	
21-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.5	
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	
28-Dec	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.4	0.2	0.2	
29-Dec	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.3	0.4	0.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	2.9	0.5	0.5		
30-Dec	0.1	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.3	0.3	0.3	
31-Dec	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.8	0.2	0.2	0.2	
		0.8	0.4	0.4	1.0	1.0	1.0	0.4	1.0	1.0	0.9	0.5	0.2	1.3	1.4	0.6	0.8	1.7	2.0	2.2	2.3	1.6	1.3	0.3	0.7	Diurnal Average	
		0.6	0.3	0.2	0.5	0.3	0.3	0.2	0.3	0.4	0.5	0.3	0.1	0.5	0.7	0.3	0.4	1.3	1.4	1.5	1.0	0.9	0.5	0.2	0.3	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Precipitation (PC) - mm
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Precipitation (PC) - mm
Mackay River - December 2024

Concentration Ranges (mm)	Number of Hours	%	Cumulative %
0 - 0.3	726	97.58	97.58
0.4 - 0.5	9	1.21	98.79
0.6 - 0.7	3	0.40	99.19
0.8 - 1.4	5	0.67	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



Maximum Speed: 15 km/h on Dec 3 05:00	Maximum Daily Speed Average: 10.0 km/h on Dec 3	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 1 02:00	Minimum Daily Speed Average: 1.1 km/h on Dec 18	Hours of Data: 723
Maximum Diurnal Speed Average: 2.3 km/h at hour 21	Minimum Diurnal Speed Average: 1.5 km/h at hour 4	Hours of Missing Data: 21
Monthly Average Velocity: 1.9 km/h 214.7 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 3 Median = 6 Q ₃ = 8 P ₉₀ = 9 P ₉₉ = 13	Percent Operational Time: 97.2

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	UO	N0	NE1	ESE1	SE1	SSE1	SE1	SSE1	SSE2	SSE2	SSE3	SE4	SSE5	SSE4	SSE3	ESE4	SE4	ESE4	ESE5	SE6	ESE6	SE7	ESE7	ESE7	SE3.3	SE7
2-Dec	ESE7	SE8	SE7	ESE6	ESE6	SE6	SE5	SE4	SSE4	SSE5	SSE5	S6	SSE6	S6	SSE6	SSE5	SE4	SE4	SSE4	S4	S6	SSW7	SSW6	SW6	SSE4.8	SE8
3-Dec	WSW6	W7	WNW8	NW10	NW15	NW14	NW14	NW13	NW13WNW13	NW12WNW13WNW13	NW12WNW12WNW11WNW12WNW12	WNW9	WNW9	WNW6	NW7	NW6	WSW2								NW10.0	NW15
4-Dec	SW3	WSW3	W2	SSE1	SSE2	SSE3	SE4	SE6	SE7	SE6	SE6	SE7	SE8	SSE8	SSE8	SE8	SE8	SSE7	S8	SSW11	SSW14	SSW13	SSW13	SSW11	S5.9	SSW14
5-Dec	SSW10	SSW8	SSW8	SSW6	SSW6	SSW8	SSW8	S5	SE4	S5	S6	S5	S6	SSW6	S7	SSW7	S5	S5	S5	S6	S4	UO	S5	S5	S5.8	SSW10
6-Dec	SSW5	SSW4	WSW5	SSW3	S5	S5	SSW5	SSW8	SW8	WSW8	WSW9WSW10	WSW8	W6	W4	W5	WSW5	WSW6	WSW6	WSW8	W8	W9	WSW9	WSW6		WSW5.8	WSW10
7-Dec	WSW8	W8	W10	W10	W8	W8	W8	W8	WSW6	SSW5	SSW6	S6	S8	SSW5	SW5	SSW5	WSW2	W4	NW3	NNW4	NNE6	NNE5	NNE6		WSW4.0	W10
8-Dec	NNE5	N4	NNW5	NW4	NW3	NW3	NW4	NW3	NW4	N3	N4	N5	NNW6	NNW5	NW5	NW5	NW4	WNW2	UO	SW1	SW1	W2	WNW2	WNW2	NNW3.1	NNW6
9-Dec	W1	WSW2	W3	W3	W3	W2	WNW3	WNW3	WNW3	NW6	NW5	WNW5	WNW6	NNE4	NNE5	N6	NNW9	NNW8	NNW6	NW6	NNW6	NW6	NW7	NW6	NW4.1	NNW9
10-Dec	NW4	WNW3	WNW3	NW1	W3	WNW2	SE1	SSE2	SSE2	SSE1	WNW1	W1	SSE1	ESE2	SSE1	SSE1	SE3	SSE3	SE3	SE4	SE4	ESE5	ESE6	ESE6	SE1.1	ESE6
11-Dec	ESE5	ESE5	ESE5	ESE6	ESE6	ESE6	ESE5	ESE7	ESE6	ESE7	ESE8	ESE6	E5	ESE7	ESE7	ESE4	ESE5	ESE8	ESE8	SE7	ESE7	ESE7	ESE7	ESE6	ESE6.3	ESE8
12-Dec	ESE7	ESE7	SE7	SE7	SE6	SE7	SE6	SE6	SE7	SE6	SE5	SSE7	SSE7	S8	S8	S6	S5	S7	S9	S8	S8	S8	S8	S8	SSE6.3	S9
13-Dec	S11	S12	SSW8	SSW10	S11	S8	SSW11	SSW9	SSW10	SSW9	S8	SSW7	SSW7	SW5	SSW5	S4	SSE4	SSE3	SSE4	SE2	SE2	ENE1	NE4	NE5	S5.7	S12
14-Dec	NE6	NE6	NE7	NE7	NE7	NE6	NE6	NE7	NE6	NE6	NE6	NE6	NE6	NE6	NE7	NE8	NE10	NE11	NE7	NE9	NE7	NNE5	NNE6	NNE5	NE6.7	NE11
15-Dec	NNE5	N4	NNW5	NW4	NNW6	NNW6	NNW5	N6	N5	NNE5	NNE7	NNE5	NNW1	WNW3	WNW1	W1	UO	NE1	NE1	NE1	NE2	ENE1	UO	WSW2	N3.0	NNE7
16-Dec	WNW4	W4	WNW5	WNW6	WNW5	WNW5	WNW4	W6	W5	W5	W5	W5	W6	WNW9	WNW8	WNW6	WNW6	W4	W5	W6	W7	W6	W6	W6	WNW5.6	WNW9
17-Dec	W6	W6	W6	W6	W6	W6	W5	W3	W3	W4	WNW4	W3	WSW3	WSW4	WSW4	WSW1	S2	SSW3	SSW3	SSW1	SSE2	S2	SE2	SE2	WSW2.9	W6
18-Dec	SE2	SE2	SE2	SE3	SE2	SE2	ESE4	ESE1	UO	UO	UO	NE1	NE1	NW2	ESE2	E1	NNE2	NW2	SSE2	SE2	S0	SSW3	SW2	SW1	SE1.1	ESE4
19-Dec	S1	SSW2	S2	SW2	SW2	S4	SSW1	SSE2	S2	S3	WSW3	W2	NNW2	SW3	SW1	SE1	SE2	SE3	SE3	SE3	SE2	SE3	ESE4	ESE5	S1.6	ESE5
20-Dec	SE6	ESE7	SE6	ESE7	ESE8	ESE8	ESE8	ESE8	ESE8	SE8	SE7	SE8	SSE7	S8	SSW10	SSW8	SSW7	SSW7	SSW7	S6	S4	S5	SSW6	S6	SSE5.7	SSW10
21-Dec	SSE4	SSE2	S3	S2	SSE4	SSE4	SSE3	S3	S1	UO	UO	S1	NE2	NE2	NE1	E3	SE3	SE4	NE3	N4	UO	N3	NNE1	SE2	SE1.4	N4
22-Dec	NNW3	NNW3	UO	N2	S1	S3	SSW3	SSE3	SSE2	SSE3	S6	S7	S6	S7	SSW5	S4	S6	S7	S8	S8	S7	S8	S7	S6	S4.3	S8
23-Dec	S6	S7	SSE8	SSE7	SSE7	SSW5	S7	SSW7	S8	S8	S9	SSW10	SSW11	SSW9	SSW9	SSW10	SSW9	SSW10	SW9	SW9	SW10	SW9	SW8	WSW7	SSW7.7	SSW11
24-Dec	WSW8	SW8	SSW7	S7	S8	S6	S8	S9	S9	S8	ESE8	SE9	SE10	SE9	SE7	S5	S6	S8	SSW11	SSW11	SSW9	SSW11	S12	SSW11	S7.4	S12
25-Dec	S10	S10	S9	S8	SSW9	SW8	SW9	SW10	SW9	WSW9	SW9	SW9	SW10	SW9	SW8	SSW7	S7	S8	SSW9	S9	SSW10	S9	S11	SSW11	SSW8.7	SSW11
26-Dec	S10	SSE6	SSE5	SE6	SSE4	S5	S5	S5	S6	S8	S6	S4	S5	S6	S4	SSE4	SSE3	SE5	SE3	SSE4	SE3	SSE2	SSE3	SSE3	S4.5	S10
27-Dec	SE3	ESE3	SSE3	SE4	SE4	SE5	ENE1	SW1	SSE0	SSE1	SE2	UO	SSW0	NW3	NE0	SE6	SSW2	NW2	ENE2	ESE4	SE6	SE3	SE1	UO	SE1.8	SE6
28-Dec	UO	NNE1	UO	UO	UO	UO	UO	W1	WNW2	NW1	NW2	WNW3	NW4	NNW3	SW1	W2	NNW2	UO	N2	NNE2	NNW1	W1	WNW1	WSW2	---	NW4
29-Dec	WNW4	WNW5	WNW6	NW7	WNW6	WNW6	W4	W3	W3	W3	W5	WNW6	WNW6	NW7	NW7	NW9	NNW9	NNW8	NNW5	WNW2	WNW6	NW8	WNW7	WNW8	WNW5.4	NNW9
30-Dec	WNW10	WNW9	WNW9	WNW9	WNW8	WNW8	WNW11	WNW10	WNW10	WNW8	WNW10	WNW7	WNW8	WNW7	WNW8	WNW8	WNW7	WNW8	WNW9	WNW8	WNW7	WNW6	WNW7	WNW5	WNW8.3	WNW11
31-Dec	W6	WNW5	W4	WNW5	WNW6	WNW8	WNW8	WNW5	W4	W5	W6	WNW9	WNW9	WNW8	WNW8	WNW7	WNW9	WNW8	WNW8	WNW7	WNW8	WNW8	WNW6	WNW5	WNW6.7	WNW9

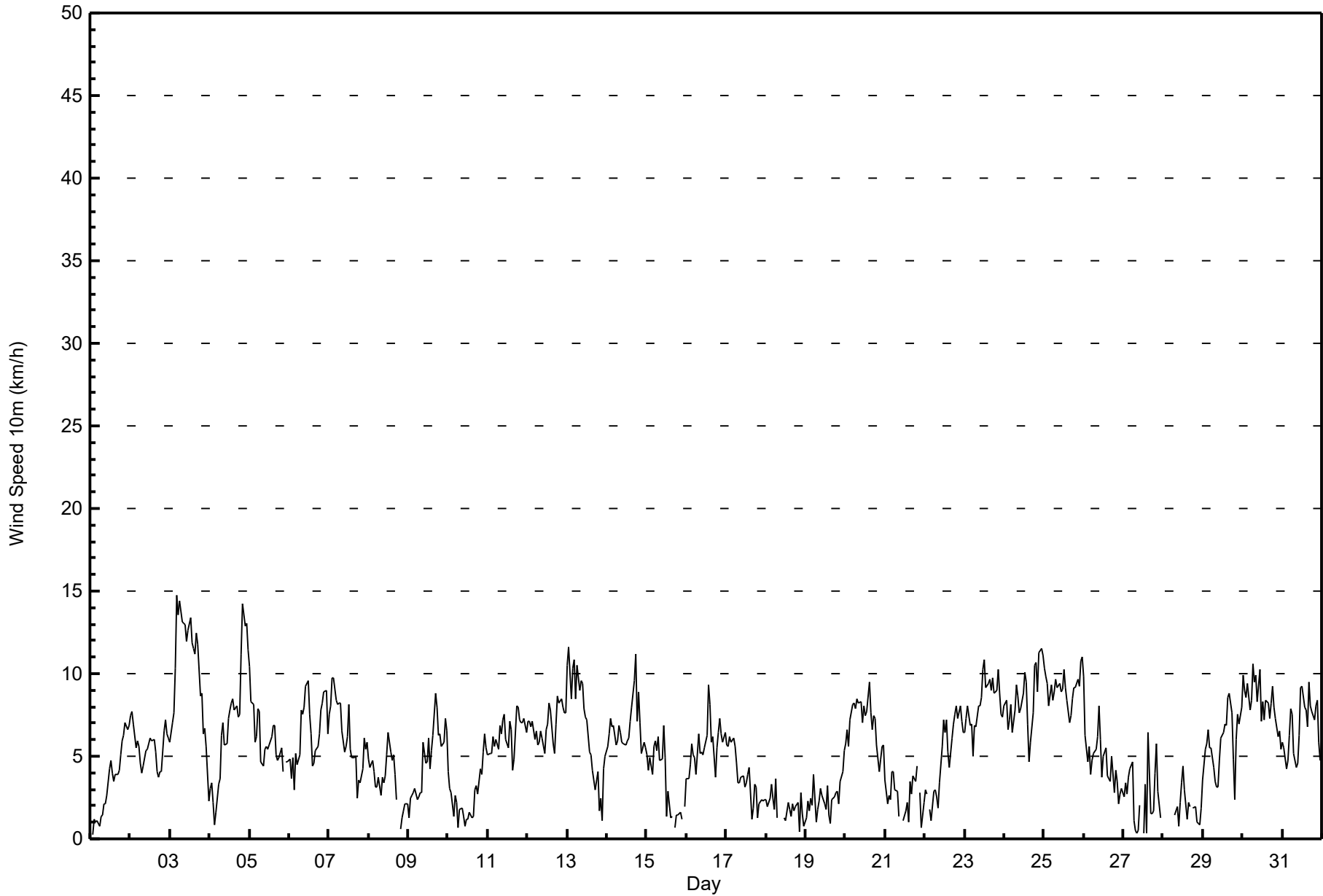
SSW2.2 SW1.9 SW1.9 SW1.5 SW1.7 SW1.7 SW1.7 SW1.8SSW2.0SSW2.2 SW1.8 SW2.0 SW2.1 SW2.2 SW2.2 SW1.7 SW1.5SSW1.7SSW2.1SSW2.0SSW2.3 SW2.2SSW2.2SSW2.3	Diurnal Average
SSW11 S12 W10 NW10 NW15 NW14 NW14 NW13 NW13WNW13 NW12WNW13WNW13 NW12WNW12WNW11WNW12WNW12 SSW11 SSW11 SSW14 SSW13 SSW13 SSW11	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Mackay River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Mackay River - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	345	47.72	47.72
6 - 11	360	49.79	97.51
12 - 19	18	2.49	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: 723

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Mackay River - December 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	13	14	4	3	20	43	52	38	20	13	13	35	32	21	13	345
6 - 11	2	4	21	0	0	34	33	13	66	50	16	16	25	57	14	9	360
12 - 19	0	0	0	0	0	0	0	0	2	3	0	0	0	6	7	0	18
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	13	17	35	4	3	54	76	65	106	73	29	29	60	95	42	22	723

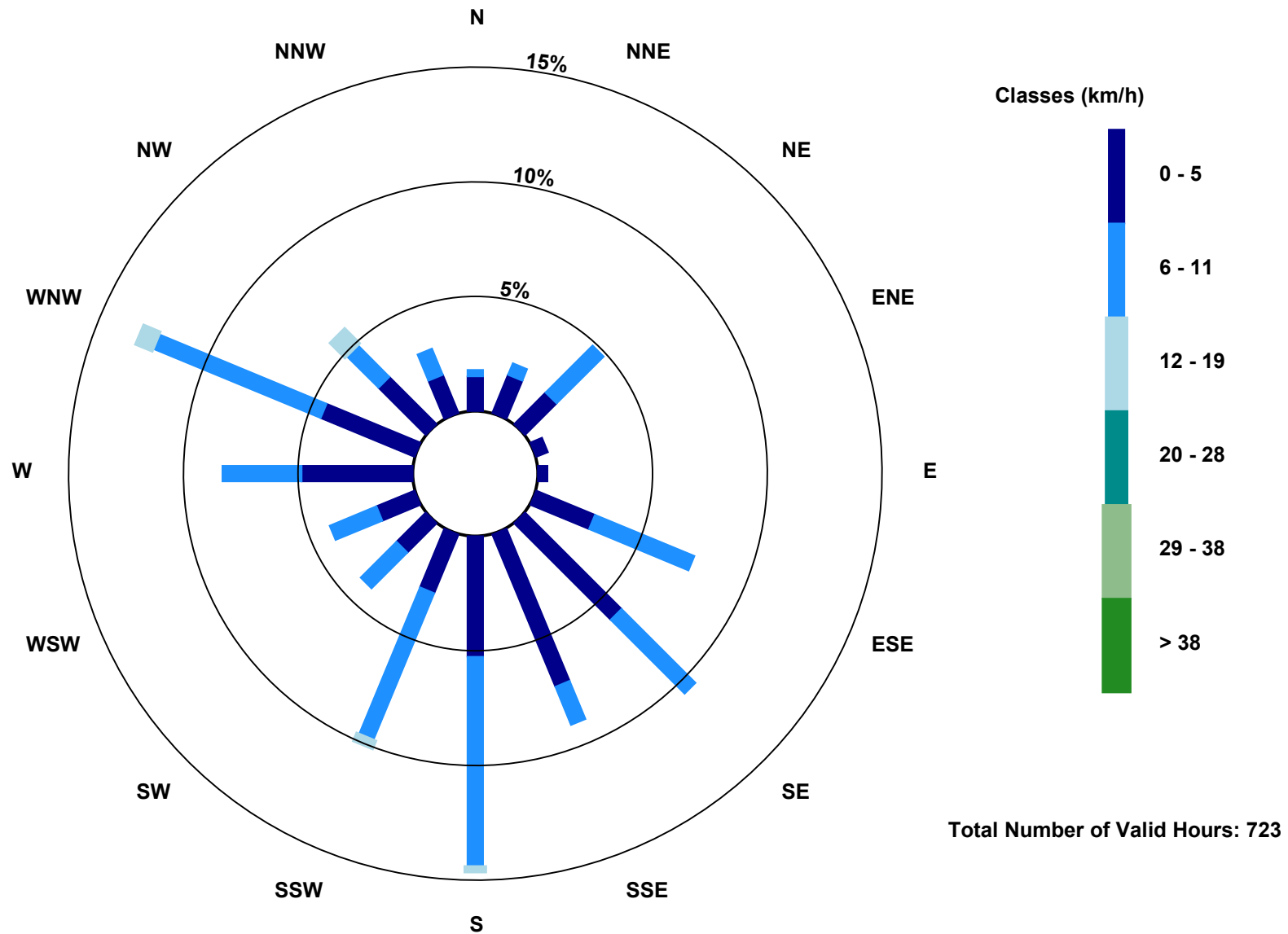
Total Number of Valid Hours: 723

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Mackay River





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Mackay River - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 4 21:00 Minimum Value: 0 km/h on Dec 10 09:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 723 Hours of Missing Data: 21 Hours of Calibration: 0 Percent Operational Time: 97.2								
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-Dec	UO	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	
2-Dec	2	2	2	1	1	1	1	1	1	1	2	2	2	2	2	2	1	1	1	1	2	2	2	2	
3-Dec	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	2	2	2	3	1	
4-Dec	1	1	1	1	1	1	1	2	2	2	2	2	3	3	2	3	2	3	2	4	5	4	4	4	
5-Dec	4	3	3	2	2	2	2	2	1	1	1	1	2	2	2	2	1	2	2	2	2	UO	1	1	
6-Dec	1	1	2	1	1	1	2	2	3	3	4	4	3	3	2	2	2	2	3	4	3	4	4	3	
7-Dec	3	3	4	4	3	3	3	3	2	2	2	1	2	2	2	1	1	2	1	1	2	2	2	2	
8-Dec	2	2	1	1	1	1	1	1	1	1	1	1	2	2	1	2	1	1	UO	1	1	1	1	1	
9-Dec	1	1	1	1	1	1	1	1	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	
10-Dec	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	
11-Dec	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
12-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	3	3	2	3	3	2	2	
13-Dec	3	3	3	3	3	3	3	2	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1	2	
14-Dec	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	4	3	3	3	2	2	1	
15-Dec	2	1	1	1	2	2	2	2	2	2	2	2	1	1	1	1	UO	1	1	1	1	1	UO	1	
16-Dec	2	2	2	2	2	1	2	2	2	2	2	2	2	3	3	2	2	1	2	3	3	2	2	3	
17-Dec	2	2	2	2	2	2	2	2	1	1	2	2	1	2	2	1	1	1	1	1	0	1	1	0	
18-Dec	1	1	1	1	1	1	1	2	UO	UO	UO	1	1	1	1	1	1	1	1	1	1	1	1	1	
19-Dec	1	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	1	0	1	1	1	1	2	1	
20-Dec	1	2	1	2	2	2	2	2	2	2	3	2	2	3	2	2	2	2	2	2	1	2	2	2	
21-Dec	1	1	1	1	1	1	1	1	1	UO	UO	1	1	2	1	2	2	3	2	2	UO	1	1	1	
22-Dec	1	1	UO	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	
23-Dec	2	2	2	2	2	1	2	2	2	2	2	3	3	2	3	3	2	3	2	3	4	3	3	3	
24-Dec	3	3	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	3	3	2	3	3	2	
25-Dec	2	2	2	2	3	3	3	3	3	3	4	3	3	4	3	3	2	2	2	2	2	3	3	4	
26-Dec	3	2	1	1	1	2	2	1	2	2	2	1	2	2	1	1	2	1	1	1	2	1	1	1	
27-Dec	1	1	1	1	1	2	2	1	1	2	1	UO	1	2	1	2	1	1	1	1	2	1	1	UO	
28-Dec	UO	1	UO	UO	UO	UO	UO	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	
29-Dec	2	2	2	2	2	1	2	1	1	1	2	2	2	2	2	2	2	2	2	1	3	2	2	2	
30-Dec	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	
31-Dec	2	2	2	2	2	3	3	2	1	2	2	3	3	3	3	2	3	3	2	2	2	3	2	1	
Diurnal Maximum																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

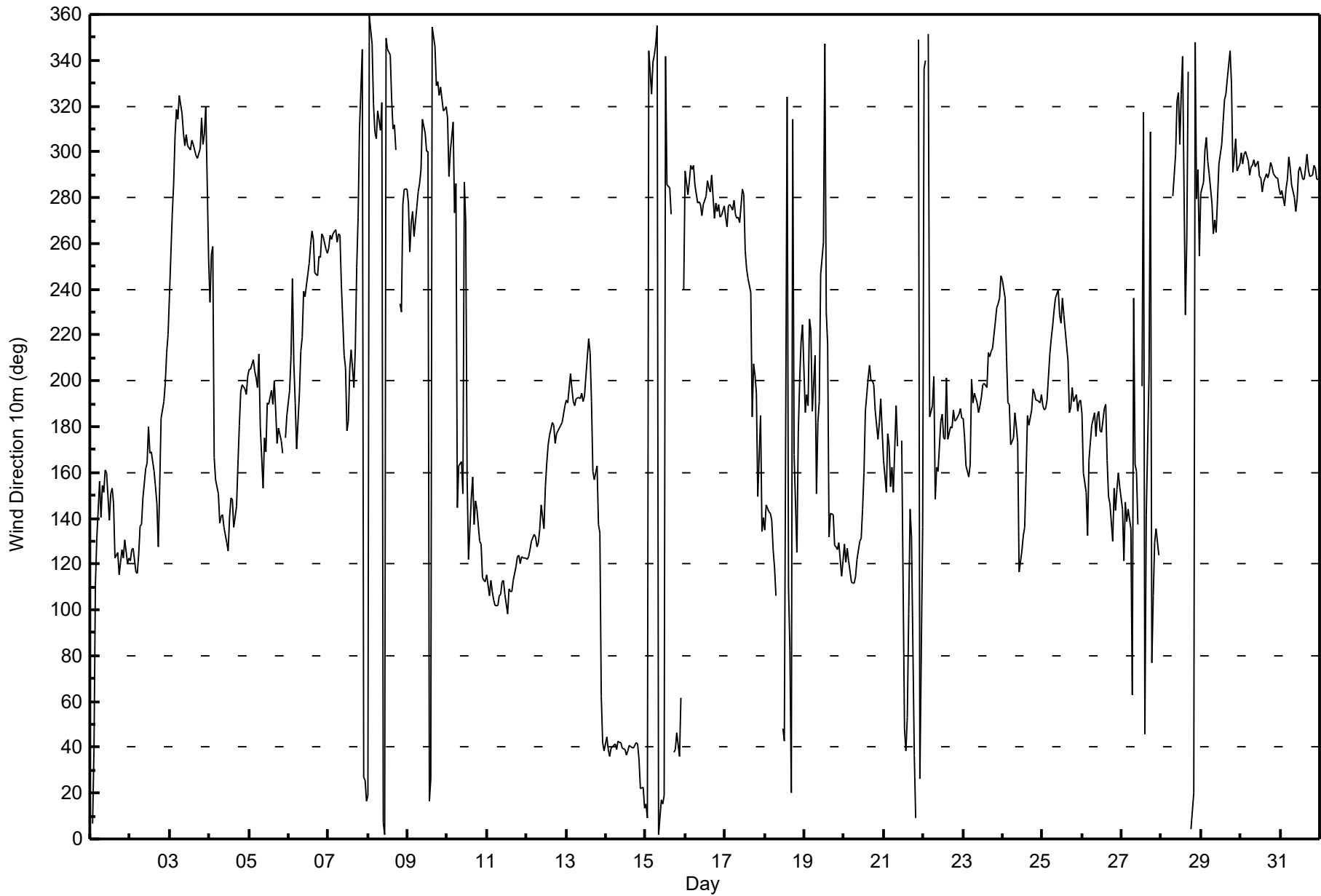
Wind Direction 10m (WD10) - deg
Mackay River - December 2024

Direction of Maximum Speed: 318 deg on Dec 3 05:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 304.4 deg on Dec 3	Hours of Data: 723
Direction of Minimum Speed: 7 deg on Dec 1 02:00	Hours of Missing Data: 21
Direction of Minimum Daily Speed Average: 1.1 deg on Dec 18	Percent Operational Time: 97.2
Monthly Average Direction: 214.7 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-Dec	UO	7	40	111	131	156	140	155	151	161	160	139	151	153	147	123	125	115	121	126	123	131	120	122	131.3
2-Dec	121	126	127	116	116	125	137	137	149	162	164	180	168	169	160	154	146	128	154	184	191	199	212	220	156.1
3-Dec	237	273	286	307	318	314	324	317	308	302	308	303	301	305	303	301	298	297	301	315	303	308	320	254	304.4
4-Dec	234	255	259	167	157	151	138	141	141	136	129	126	140	149	148	136	145	164	181	195	199	196	194	202	169.3
5-Dec	205	205	210	204	201	197	212	180	153	175	169	191	190	196	190	200	187	173	179	174	169	UO	175	185	190.8
6-Dec	196	211	245	207	190	170	194	213	219	239	237	247	251	259	265	262	247	246	255	254	264	263	258	255	239.8
7-Dec	258	264	262	264	266	260	264	263	242	211	205	178	182	205	214	197	214	249	271	310	345	27	26	17	250.6
8-Dec	19	359	347	321	309	306	318	309	322	7	2	350	345	342	322	310	312	301	UO	234	230	277	284	283	329.5
9-Dec	278	256	269	274	263	276	283	286	292	314	308	300	300	17	26	355	346	329	331	325	328	318	319	320	319.0
10-Dec	315	289	300	313	273	286	145	163	165	151	287	270	158	122	149	158	137	148	144	130	129	114	113	112	141.9
11-Dec	116	106	113	108	104	102	102	106	107	112	113	107	98	109	108	108	113	119	123	124	120	123	122	122	112.6
12-Dec	122	123	126	130	133	132	128	129	135	146	135	154	164	172	176	182	181	172	177	178	181	182	185	189	157.3
13-Dec	191	190	203	196	191	189	192	193	192	195	191	193	202	218	212	191	160	157	163	137	134	62	42	38	189.1
14-Dec	45	39	36	40	40	42	39	43	42	42	40	39	37	38	41	40	40	41	42	42	35	22	22	13	38.0
15-Dec	15	9	344	325	339	342	347	355	2	17	15	19	342	286	284	273	UO	38	39	46	36	61	UO	240	355.5
16-Dec	292	281	287	294	292	294	286	278	278	277	272	277	281	287	285	282	290	271	278	274	277	272	272	277	281.3
17-Dec	272	267	276	277	275	279	273	271	271	269	284	281	257	249	245	239	184	208	202	195	149	185	135	140	256.1
18-Dec	135	146	143	142	139	126	119	106	UO	UO	UO	48	43	324	110	83	20	314	168	125	177	201	217	225	131.9
19-Dec	186	194	189	227	222	186	211	151	182	191	247	261	347	230	216	132	142	142	128	127	126	130	115	121	168.8
20-Dec	129	121	127	121	112	112	112	115	122	130	131	144	160	187	201	207	200	200	198	187	174	182	193	178	154.0
21-Dec	165	151	177	172	154	162	151	189	171	UO	UO	174	48	38	53	99	144	132	36	9	UO	349	26	136	129.8
22-Dec	336	340	UO	352	185	189	202	148	162	161	182	185	175	175	202	174	180	179	187	183	183	185	188	184	183.4
23-Dec	184	175	163	158	164	201	190	195	190	186	189	193	198	199	197	212	211	213	214	226	232	234	236	246	201.5
24-Dec	244	236	210	191	190	172	175	186	180	173	116	126	132	136	159	185	181	188	196	195	192	192	190	194	181.3
25-Dec	189	188	188	191	212	218	224	231	236	240	229	225	236	229	222	209	186	188	197	191	194	187	191	192	207.9
26-Dec	186	160	151	132	165	173	181	186	176	185	187	178	177	188	190	165	150	146	130	153	143	153	160	154	168.8
27-Dec	144	122	147	139	144	136	63	236	163	161	137	UO	197	317	46	142	203	309	77	106	129	135	124	UO	133.6
28-Dec	UO	30	UO	UO	UO	UO	UO	281	299	322	326	303	325	341	229	262	335	UO	4	20	348	279	292	254	--
29-Dec	282	287	301	306	296	290	278	264	270	265	279	294	303	313	323	325	332	344	329	291	298	306	292	295	303.0
30-Dec	299	295	299	300	296	290	294	294	297	293	296	289	289	282	287	290	289	291	295	293	290	289	288	284	292.6
31-Dec	281	283	276	284	288	298	293	285	280	274	280	292	294	288	288	293	299	292	289	290	294	293	288	288	289.2

210.7 214.8 224.1 219.7 219.1 217.4 222.9 216.5 210.3 208.6 213.9 216.9 221.5 225.5 220.4 218.5 220.4 207.0 207.0 203.4 208.1 214.1 209.3 208.7
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Mackay River - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 100 deg on Dec 27 13:00	Hours of Data: 723
Minimum Value: 10 deg on Dec 26 18:00	Hours of Missing Data: 21
Percentiles: P ₁ = 15 P ₁₀ = 18 Q ₁ = 21 Median = 25 Q ₃ = 32 P ₉₀ = 46 P ₉₉ = 89	Hours of Calibration: 0
	Percent Operational Time: 97.2

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-Dec	UO	70	43	32	60	64	45	39	24	27	29	29	27	33	29	18	15	16	17	22	18	21	20	20	70
2-Dec	18	20	23	18	17	20	24	25	25	28	26	25	25	28	27	27	29	21	26	25	23	23	27	27	29
3-Dec	43	44	35	24	19	22	20	21	22	23	22	22	24	25	24	23	23	25	24	19	22	19	23	34	44
4-Dec	42	55	44	82	30	18	26	23	25	28	24	22	24	25	22	25	29	22	26	25	23	21	24	82	
5-Dec	27	23	25	25	23	21	24	27	19	17	20	21	23	20	18	24	21	24	33	29	33	UO	21	23	33
6-Dec	17	28	33	49	23	17	25	21	26	37	38	43	49	47	40	38	43	42	47	49	48	41	46	50	50
7-Dec	49	45	45	42	38	43	42	42	41	22	24	16	20	30	25	17	18	39	29	24	33	24	27	24	49
8-Dec	27	30	25	22	23	25	19	20	19	37	27	23	22	24	19	23	19	19	UO	95	40	24	20	22	95
9-Dec	20	33	36	36	33	31	25	28	24	22	24	24	26	27	24	26	22	21	18	19	21	16	18	16	36
10-Dec	17	18	26	45	21	16	89	39	29	39	34	37	53	46	70	51	26	35	37	23	28	21	18	19	89
11-Dec	19	20	18	17	22	23	24	21	20	21	18	21	28	19	19	25	25	18	18	17	16	17	17	18	28
12-Dec	17	18	21	21	22	22	23	23	24	28	28	28	27	25	25	24	25	26	26	25	24	23	23	21	28
13-Dec	21	22	28	22	21	22	20	19	18	19	21	21	21	27	21	20	22	28	21	45	38	50	21	25	50
14-Dec	23	23	21	23	25	27	28	22	24	25	22	21	24	23	24	25	25	24	30	23	24	24	26	21	30
15-Dec	22	26	20	20	24	22	26	24	26	30	24	26	70	38	49	31	UO	96	23	31	22	36	UO	30	96
16-Dec	29	30	31	28	28	25	29	38	37	36	49	47	41	34	36	30	26	34	28	34	34	41	46	41	49
17-Dec	40	41	40	37	40	40	39	52	55	55	60	50	48	51	55	90	73	30	23	71	24	36	24	19	90
18-Dec	21	34	22	16	28	33	18	58	UO	UO	UO	37	21	26	72	45	15	37	54	32	91	49	50	57	91
19-Dec	53	25	59	38	53	26	68	30	33	30	37	53	39	26	84	53	26	21	16	21	36	22	22	14	84
20-Dec	17	18	18	18	15	16	16	18	20	22	23	25	26	25	25	27	25	22	22	22	19	18	17	17	27
21-Dec	24	28	32	24	23	23	23	25	57	UO	UO	77	37	40	87	61	68	49	33	20	UO	30	70	54	87
22-Dec	22	20	UO	19	68	22	19	36	32	25	29	22	26	27	26	26	29	23	22	20	20	21	22	24	68
23-Dec	27	21	22	24	27	29	24	24	19	20	20	19	18	20	19	23	23	23	30	35	35	37	48	48	
24-Dec	43	41	24	18	17	26	20	19	18	25	18	16	18	21	31	36	32	22	21	22	18	16	16	17	43
25-Dec	16	15	16	19	24	22	25	33	37	40	32	30	34	30	29	21	17	16	21	17	16	15	17	18	40
26-Dec	19	21	20	18	25	27	21	16	16	15	22	29	20	20	18	19	40	10	30	21	46	46	26	20	46
27-Dec	21	14	43	16	11	16	76	94	89	96	49	UO	100	36	83	22	52	46	32	19	20	31	55	UO	100
28-Dec	UO	16	UO	UO	UO	UO	UO	13	22	44	23	30	22	29	19	30	25	UO	21	20	25	35	42	22	44
29-Dec	28	27	26	22	26	24	32	40	39	35	38	28	24	25	20	20	22	24	18	24	30	23	26	24	40
30-Dec	24	24	23	23	26	26	26	28	25	25	25	39	33	33	34	28	30	26	26	29	30	30	26	29	39
31-Dec	32	30	32	33	29	25	26	23	24	31	36	27	25	29	27	25	22	24	24	24	24	25	25	22	36
Diurnal Maximum																									
53 70 59 82 68 64 89 94 89 96 60 77 100 51 87 90 73 96 54 95 91 50 70 57																									

UO - Unstable Operation



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS21
CONKLIN
DECEMBER 2024**

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)
 DECEMBER 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	6	0	2.1	0
TRS(ppb) Average	707	37	37	100	0.6	0	0.3	0
THC(ppm) Average	709	35	35	100	2.6	-	2.3	-
NMHC(ppm) Average	709	35	35	100	0.385	-	0.053	-
CH4(ppm) Average	709	35	35	100	2.4	-	2.3	-
O3 (ppb) Average	709	35	35	100	38.4	0	33.3	-
NO2 (ppb) Average	708	36	36	100	11	0	6.4	-
NO (ppb) Average	708	36	36	100	15.6	-	3	-
NOX (ppb) Average	708	36	36	100	26.2	-	9.1	-
PM2.5 (ug/m3) Average	743	1	1	100	40.2	0	16.6	0
Temperature 2 m (C) Average	744	0	0	100	6.3	-	3.7	-
Relative Humidity (%) Average	744	0	0	100	97.7	-	91.1	-
Wind Speed 10 m (km/h) Average	741	0	3	99.6	21	-	11	-
Wind Direction 10 m (deg) Average	741	0	3	99.6	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS21)
 DECEMBER 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	0.45	0.7	-	0	0	0.1	0.3	0.5	1	6
TRS (ppb) Average	707	0.26	0.1	-	0.1	0.2	0.2	0.3	0.3	0.3	0.6
THC (ppm) Average	709	2.11	0.1	-	2	2	2.1	2.1	2.1	2.2	2.6
NMHC(ppm) Average	709	0.006	0.021	-	0	0	0	0	0	0	0.385
CH4(ppm) Average	709	2.1	0.1	-	2	2	2.1	2.1	2.1	2.2	2.4
O3 (ppb) Average	709	23.06	8.1	-	0.2	11.4	18.6	23.9	29.6	32.5	38.4
NO2 (ppb) Average	708	3.06	2.1	-	0.2	0.8	1.5	2.6	4.1	5.9	11
NO (ppb) Average	708	0.51	1.4	-	0	0	0	0.1	0.4	1	15.6
NOX (ppb) Average	708	3.56	2.9	-	0.2	0.8	1.7	2.9	4.7	7	26.2
PM2.5 (ug/m3) Average	743	5.96	4.8	-	0.5	1.9	2.8	4.3	8.1	12.1	40.2
Temperature 2 m (C) Average	744	-11.42	8.2	-	-35	-23.2	-16.9	-10.7	-5.5	-1.7	6.3
Relative Humidity (%) Average	744	81.96	6.8	-	57.2	74	77.5	81.2	87.3	90.8	97.7
Wind Speed 10 m (km/h) Average	741	6.2	4	-	0	2	3	6	9	11	21
Wind Direction 10 m (deg) Average	741	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - CONKLIN (AMS 21)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	14 Dec 2024 06:00	14 Dec 2024 06:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	27 Dec 2024 18:00	27 Dec 2024 18:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	27 Dec 2024 22:00	27 Dec 2024 22:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Conklin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum					
Maximum Value: 6.0 ppb on Dec 8 12:00		Maximum Daily Average: 2.1 ppb on Dec 1		Hours of Data: 709														0.6		1.1							
Minimum Value: 0.0 ppb on Dec 5 21:00		Minimum Daily Average: 0.0 ppb on Dec 16		Hours of Missing Data: 35														0.2		0.5							
Maximum Diurnal Average: 0.9 ppb at hour 12		Minimum Diurnal Average: 0.3 ppb at hour 6		Hours of Calibration: 35														0.2		0.3							
Monthly Average: 0.45 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.5 P ₉₀ = 1.0 P ₉₉ = 4.0		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-Dec	0.1	Z	1.2	0.9	0.8	1.0	1.8	2.3	2.6	3.4	4.9	5.3	4.1	4.2	4.5	3.3	1.3	0.8	0.8	0.8	1.0	1.3	1.0	1.0	2.1	5.3	
2-Dec	1.1	1.0	Z	0.6	0.6	0.7	0.6	0.6	0.6	0.6	0.8	0.8	0.8	0.7	0.6	0.4	0.4	0.4	0.5	0.5	0.6	0.5	0.5	0.4	0.6	1.1	
3-Dec	0.3	0.3	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.3	0.5	0.5	0.5	0.2	0.5	
4-Dec	0.3	0.4	0.4	0.4	Z	0.2	2.1	2.5	2.9	3.6	3.5	3.1	2.0	1.2	0.9	0.7	0.5	0.4	0.3	0.3	0.4	0.5	0.5	0.3	1.2	3.6	
5-Dec	0.3	0.2	0.3	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.3	
6-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.3	
7-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.0	0.2	
8-Dec	0.1	0.2	Z	0.8	0.9	0.5	0.2	0.3	1.0	3.6	4.8	6.0	4.6	1.8	0.8	0.4	1.0	1.1	0.6	0.3	0.3	0.3	0.3	0.2	1.3	6.0	
9-Dec	0.2	0.2	0.2	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.4	1.1	0.5	1.4	1.5	1.2	0.8	0.4	1.5
10-Dec	0.4	0.8	0.7	0.7	Z	0.6	0.4	0.1	0.1	0.1	0.7	1.9	3.1	2.8	2.4	0.9	0.5	0.7	1.0	1.2	1.3	2.4	2.3	2.4	1.2	3.1	
11-Dec	1.4	1.7	1.3	1.3	1.2	Z	1.1	1.1	1.1	1.2	0.8	1.0	1.2	1.0	1.1	0.6	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.8	1.7	
12-Dec	Z	0.5	1.2	1.2	0.6	0.5	0.6	0.7	0.4	0.4	C	C	C	C	0.1	0.1	0.0	0.1	0.3	0.1	0.1	0.4	0.5	0.4	0.4	1.2	
13-Dec	0.5	Z	0.2	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8	0.8	0.6	0.5	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.8	
14-Dec	0.4	0.4	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.5	0.3	0.2	0.2	0.2	0.3	0.1	0.3	0.2	0.1	0.3	0.5	
15-Dec	0.1	0.1	0.1	Z	0.0	0.1	0.2	0.3	0.4	0.7	1.3	2.0	1.4	1.6	1.3	0.5	0.5	0.4	0.2	0.4	0.4	0.3	0.1	0.0	0.5	2.0	
16-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
17-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
18-Dec	Z	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	0.2	0.3	0.7	1.1	0.9	0.8	0.5	0.6	1.0	0.5	0.3	1.1	
19-Dec	0.6	Z	0.3	0.4	0.3	0.3	0.2	0.2	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	0.0	0.2	0.6	
20-Dec	0.0	0.0	Z	0.7	0.6	0.9	1.1	1.5	0.7	1.0	0.9	0.4	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.6	0.6	0.6	0.5	1.5	
21-Dec	0.5	0.5	0.5	Z	0.5	0.5	0.4	0.5	0.4	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.4	0.2	0.2	0.3	0.4	0.3	0.2	0.4	0.6	
22-Dec	0.3	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.6	0.6	0.5	0.6	1.8	0.8	0.5	0.3	0.3	0.3	0.2	0.4	1.8	
23-Dec	0.2	0.3	0.9	0.4	0.2	Z	0.1	0.3	0.6	0.3	0.5	0.4	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.3	0.9		
24-Dec	Z	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.6	0.4	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.6	
25-Dec	0.1	Z	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.7	0.3	0.2	0.1	0.7	
26-Dec	0.1	0.0	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.4	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.4	
27-Dec	0.1	0.1	0.0	Z	0.2	0.3	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.6	0.6	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.6	
28-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.9	1.5	2.3	2.4	1.5	0.9	0.6	0.4	0.3	0.3	0.5	2.4		
29-Dec	0.3	0.2	0.3	0.3	0.2	Z	0.7	0.7	0.5	0.4	0.5	0.5	0.3	0.4	0.4	0.4	0.4	0.3	0.4	0.8	0.8	0.8	1.0	0.5	0.5	1.0	
30-Dec	Z	0.3	0.2	0.2	0.4	0.3	0.5	0.6	0.2	0.3	0.3	0.4	0.4	0.3	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.3	0.6	
31-Dec	0.2	Z	0.3	0.2	0.1	0.2	0.1	0.4	0.3	0.3	0.1	0.3	0.5	0.7	0.4	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.7	
																								Diurnal Average		Diurnal Maximum	
																								0.3		1.4	
																								0.3		1.7	
																								0.3		1.3	
																								0.4		1.3	
																								0.3		1.2	
																								0.3		1.0	
																								0.4		2.1	
																								0.4		2.5	
																								0.4		2.9	
																								0.6		3.6	
																								0.7		4.9	
																								0.9		6.0	
																								0.8		4.6	
																								0.7		4.2	
																								0.6		4.5	
																								0.4		3.3	
																								0.4		2.3	
																								0.4		2.4	
																								0.3		1.5	
																								0.3		1.2	
																								0.3		1.4	
																								0.4		2.4	
																								0.4		2.3	
																								0.3		2.4	

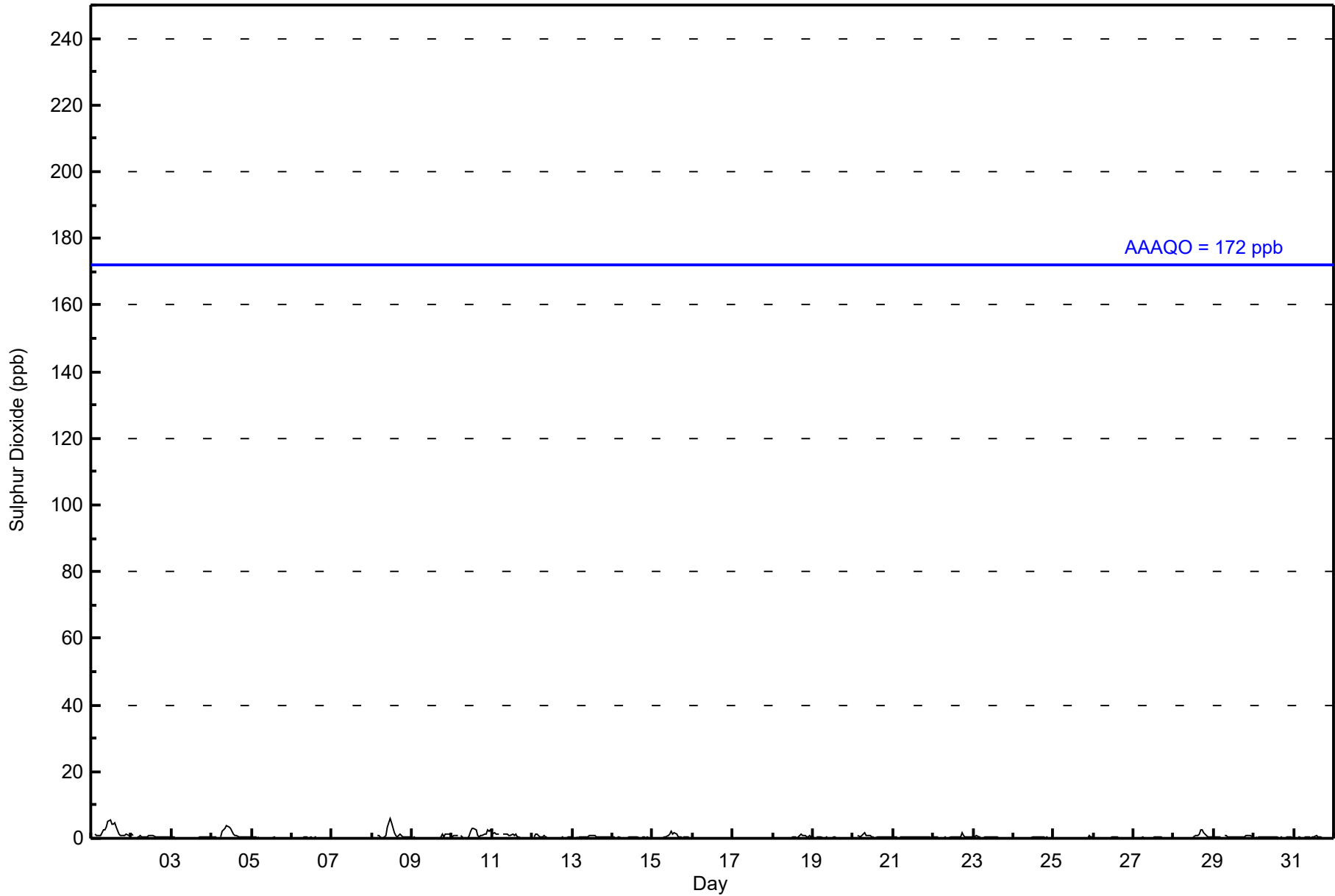
Z - zerospan C - Calibration

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Conklin - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Conklin - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	709	100.00	100.00
11 - 20	0	0.00	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Conklin - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	19	3	5	9	3	36	36	54	69	92	90	18	23	54	124	71	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	19	3	5	9	3	36	36	54	69	92	90	18	23	54	124	71	706

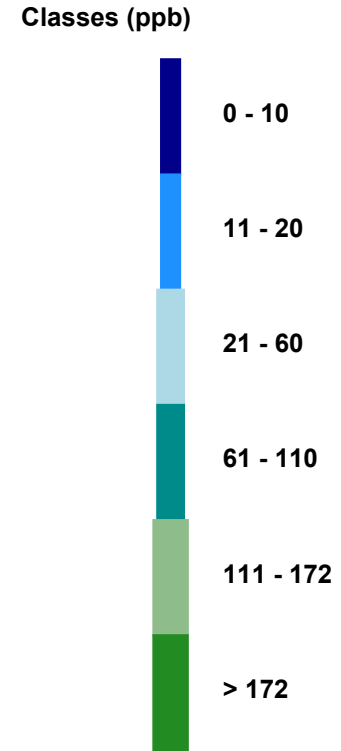
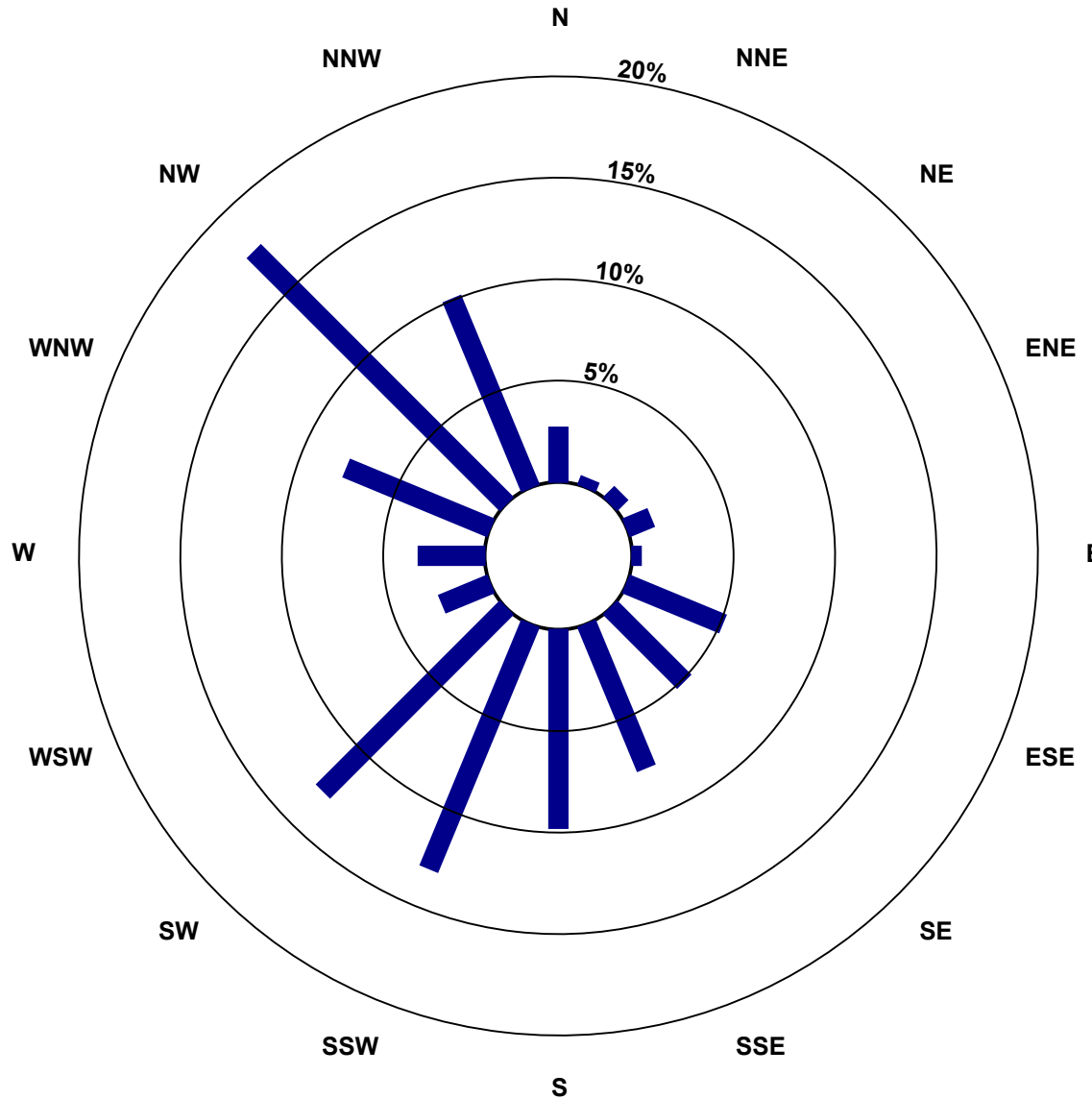
Total Number of Valid Hours: 706

Total Number of Hours: 744

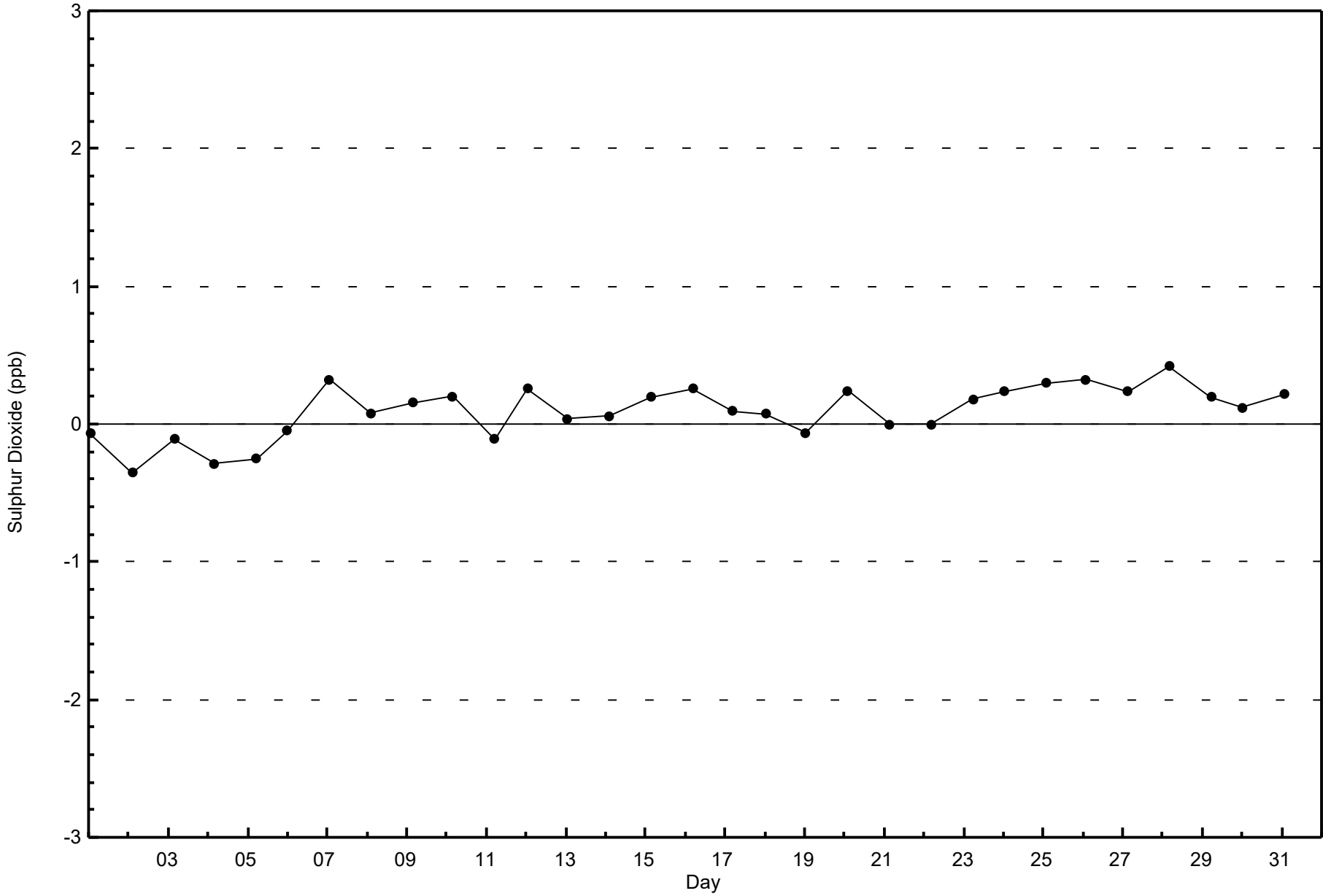


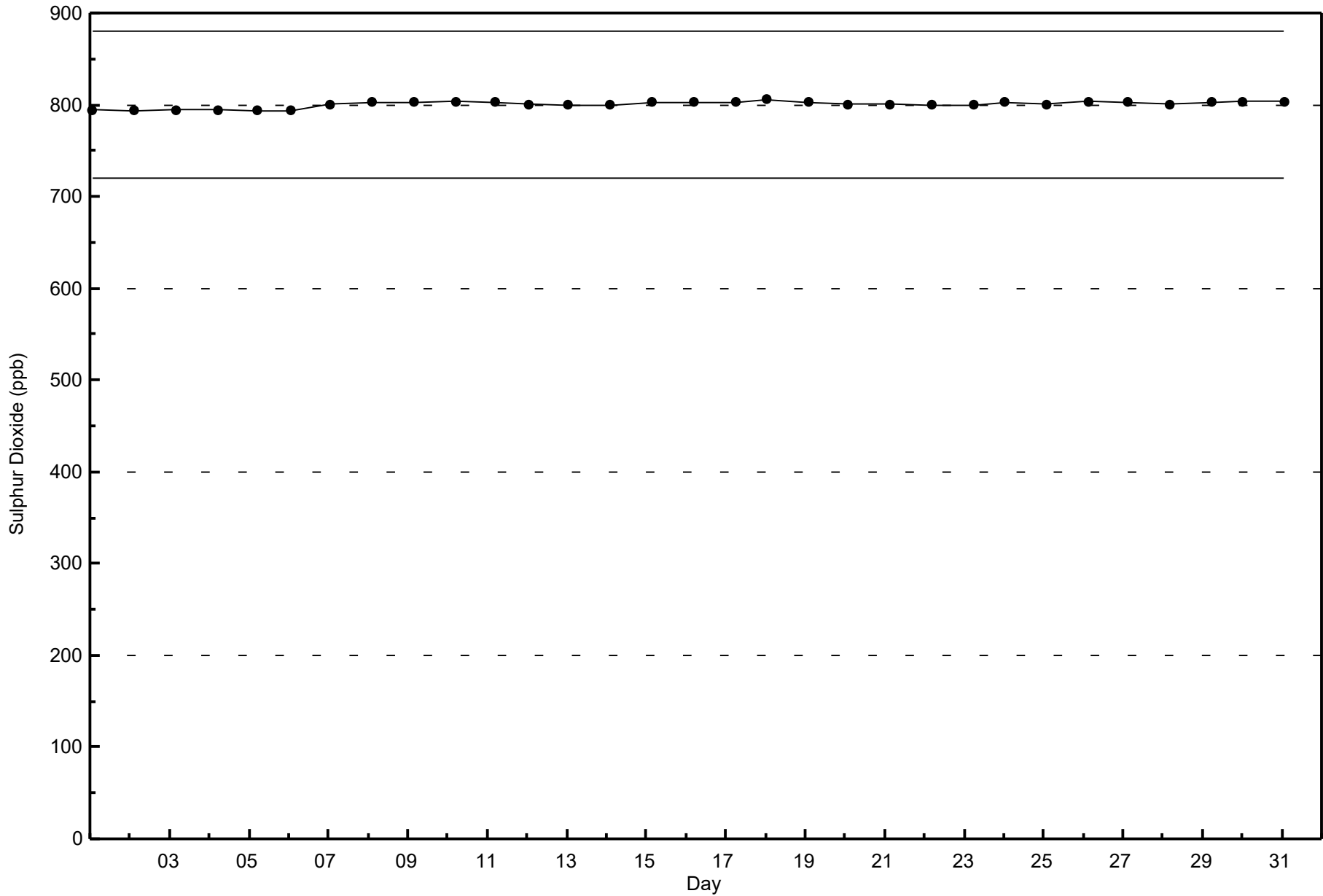
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Conklin



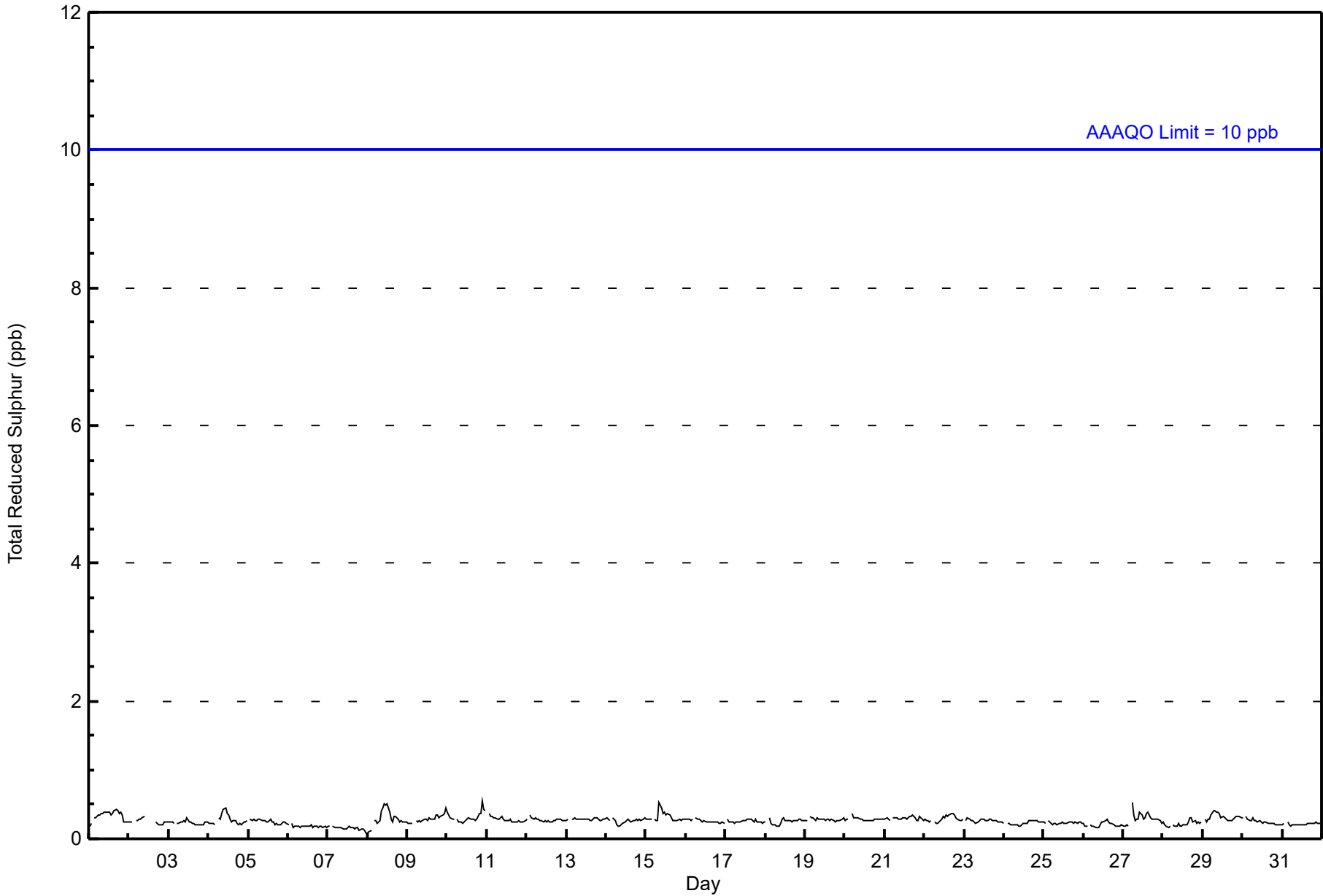
Total Number of Valid Hours: 706







Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.6 ppb on Dec 10 22:00 Maximum Daily Average: 0.3 ppb on Dec 1		Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0																								
Minimum Value: 0.1 ppb on Dec 8 01:00 Maximum Diurnal Average: 0.3 ppb at hour 12 Monthly Average: 0.26 ppb		Minimum Daily Average: 0.2 ppb on Dec 7 Minimum Diurnal Average: 0.2 ppb at hour 1 Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.3 P ₉₀ = 0.3 P ₉₉ = 0.5																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.2	0.2	Z	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.3	0.4	
2-Dec	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.3	0.3	C	C	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	--	0.3
3-Dec	0.3	0.3	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	0.2	0.2	0.2	0.2	0.2	0.3
4-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4
5-Dec	Z	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
6-Dec	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
7-Dec	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	0.1	0.1	0.1	0.1	0.1	0.1	0.2
8-Dec	0.1	0.1	0.1	Z	0.3	0.3	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.4	0.3	0.2	0.3	0.3	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.5
9-Dec	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.3	0.5
10-Dec	0.4	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.6	0.4	0.4	0.3	0.6
11-Dec	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.3	0.3	0.3	0.4
12-Dec	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
13-Dec	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
14-Dec	0.3	0.3	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
15-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5
16-Dec	0.3	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
17-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.3
18-Dec	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
19-Dec	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3
20-Dec	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
21-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
22-Dec	0.3	0.3	0.3	0.2	0.3	Z	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
23-Dec	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3
24-Dec	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3
25-Dec	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
26-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
27-Dec	0.2	0.2	0.2	0.2	Z	0.5	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.5
28-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3
29-Dec	Z	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
30-Dec	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
31-Dec	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
																								Diurnal Average		
																								Diurnal Maximum		
																								0.2 0.3		
																								0.4 0.4 0.3 0.3 0.4 0.5 0.4 0.4 0.5 0.5 0.5 0.5 0.5 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.4 0.6 0.4 0.5		
Z - zerospan C - Calibration																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Conklin - December 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
Conklin - December 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	20	3	5	9	3	35	38	57	67	86	93	16	24	56	120	72	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	20	3	5	9	3	35	38	57	67	86	93	16	24	56	120	72	704

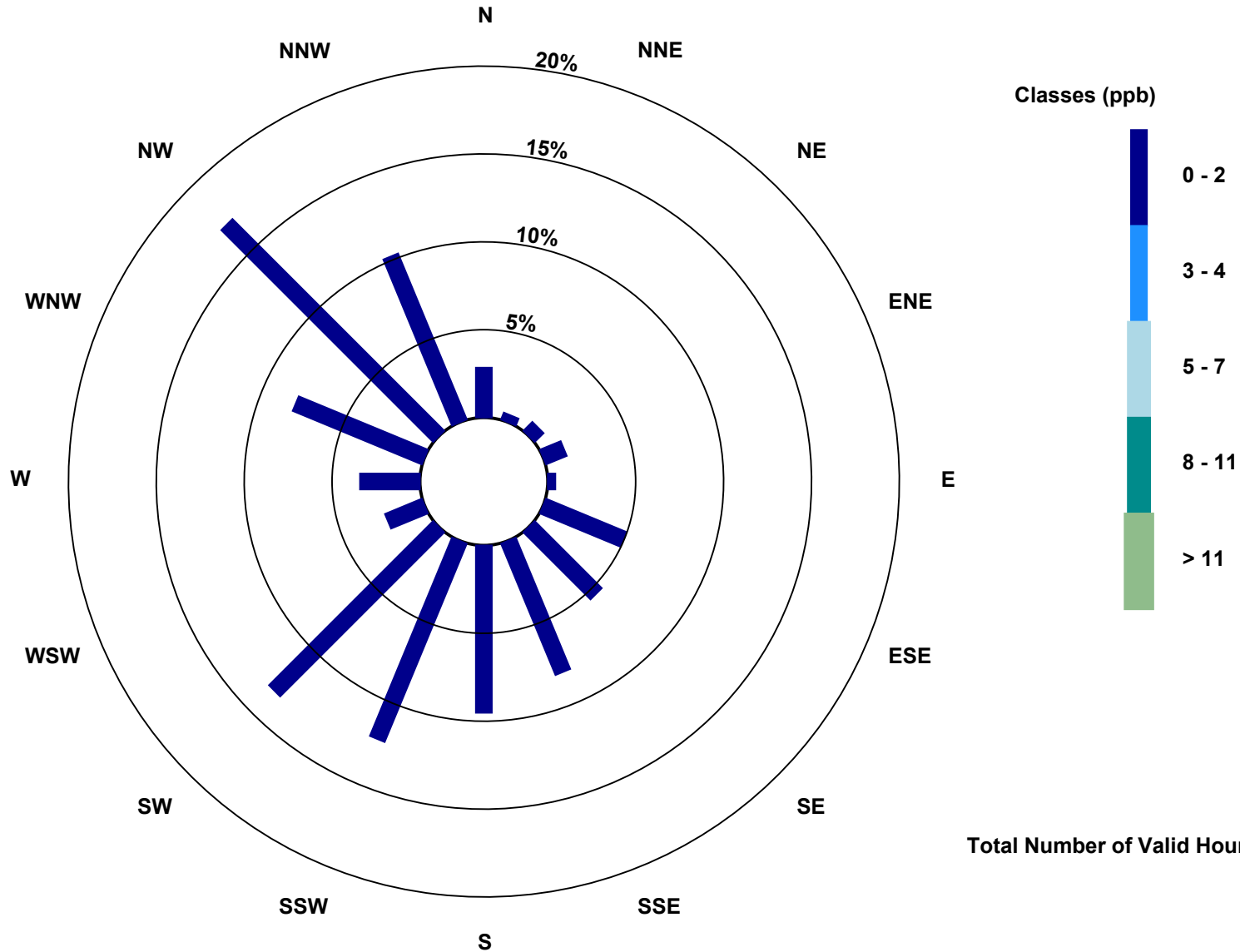
Total Number of Valid Hours: 704

Total Number of Hours: 744

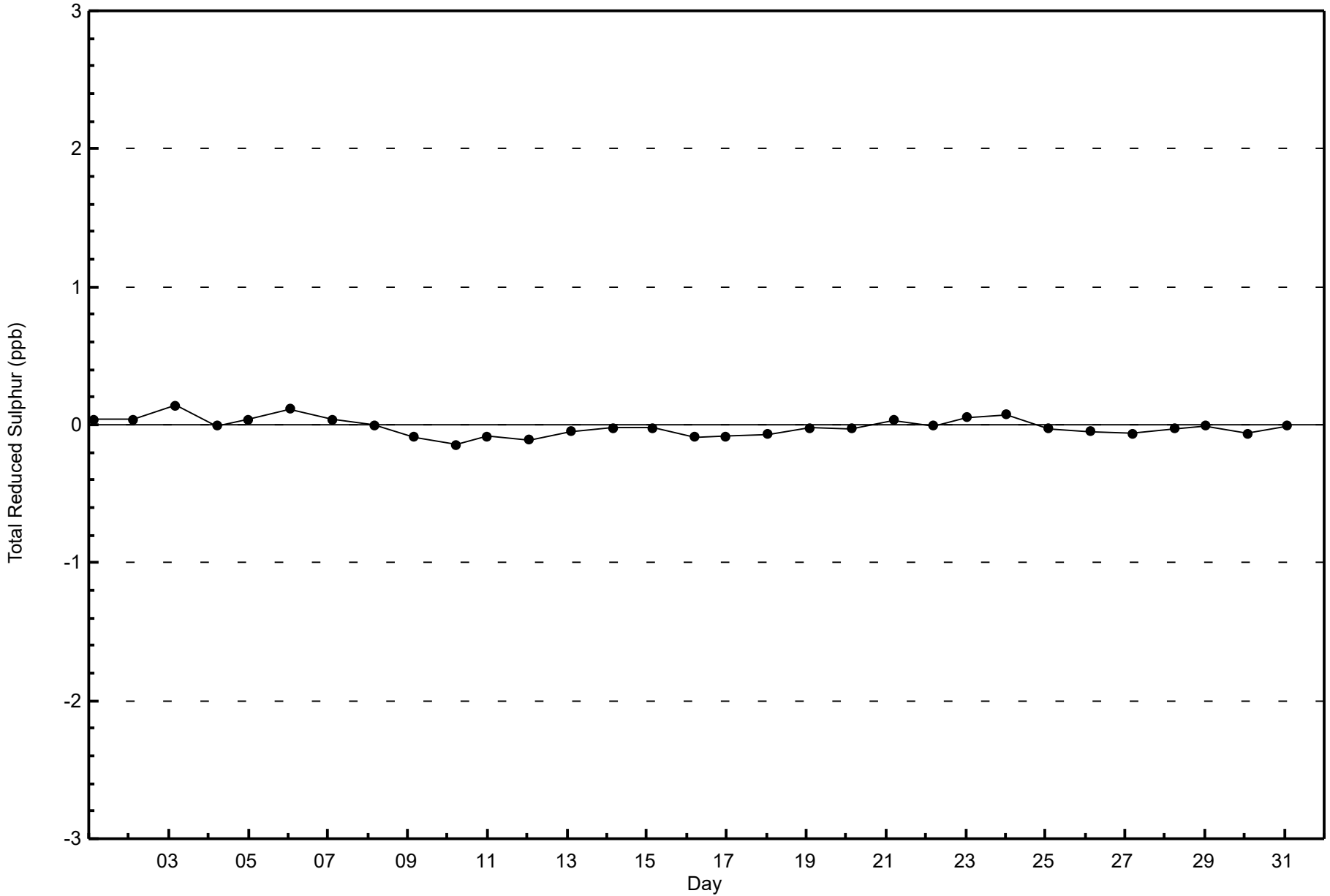


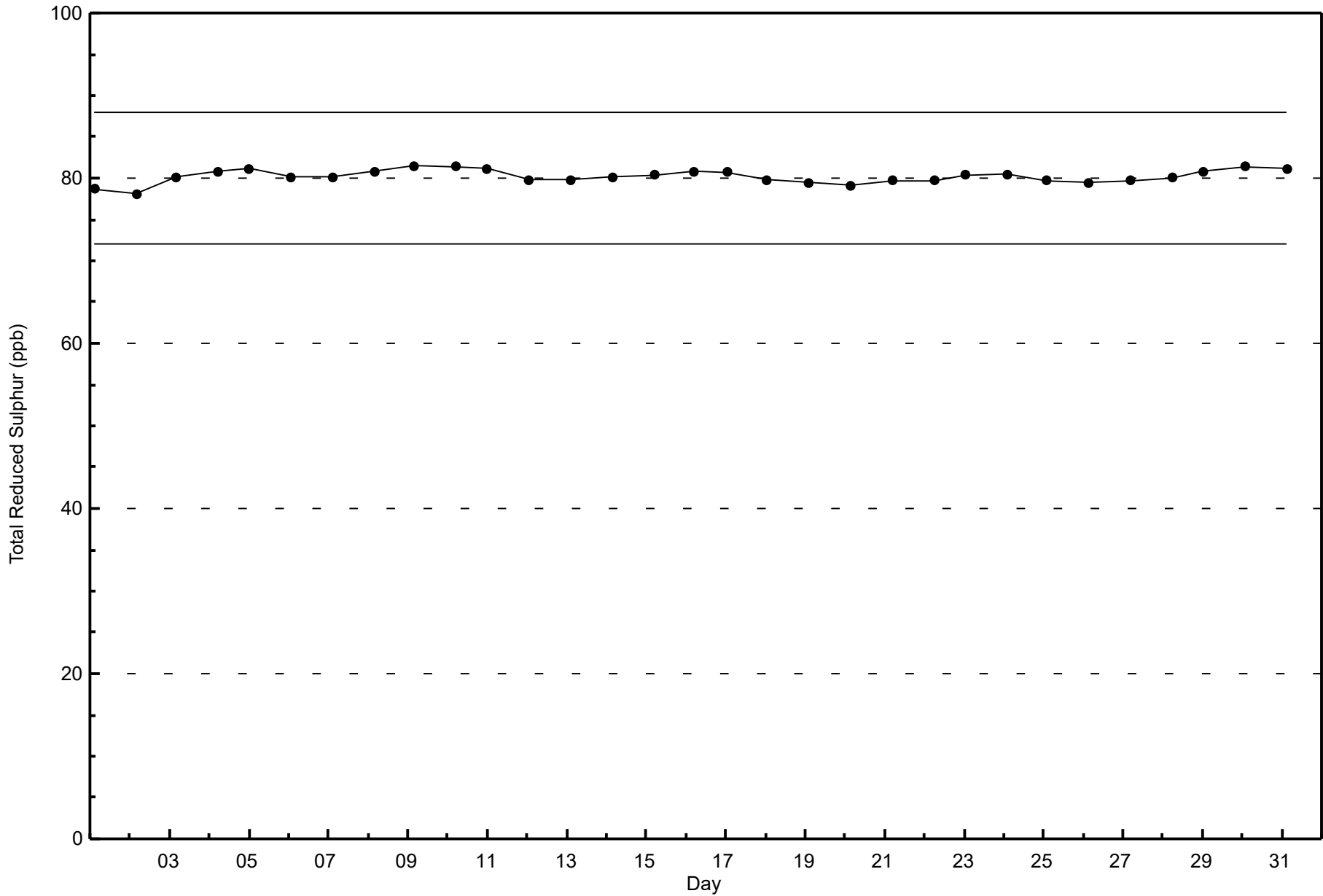
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Conklin



Total Number of Valid Hours: 704







Wood Buffalo Environmental Association
Summary of Hour Averages

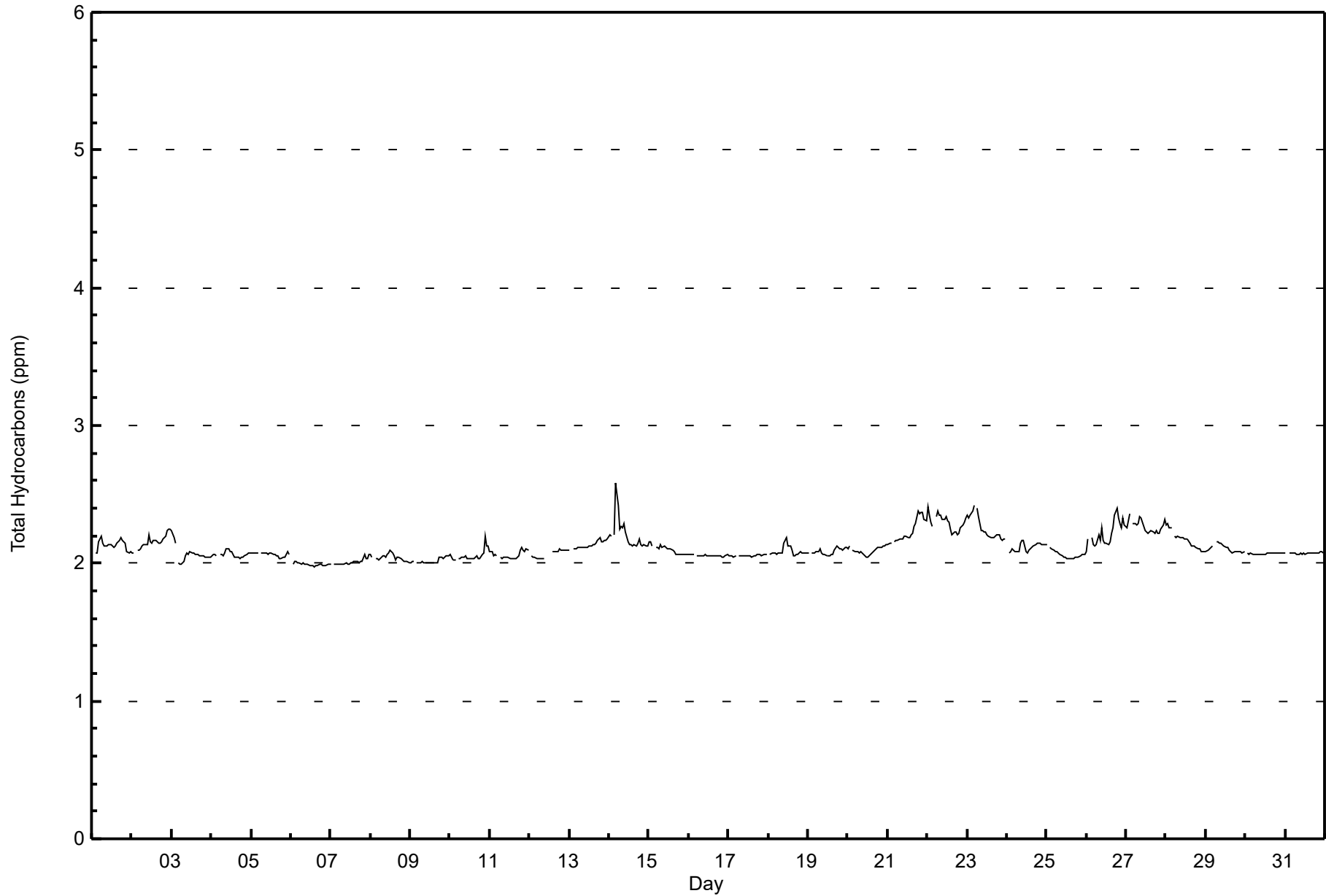
Total Hydrocarbons (THC) - ppm
Conklin - December 2024

Maximum Value: 2.6 ppm on Dec 14 05:00		Maximum Daily Average: 2.3 ppm on Dec 22		Hours in Service: 744																							
Minimum Value: 2.0 ppm on Dec 6 15:00		Minimum Daily Average: 2.0 ppm on Dec 6		Hours of Data: 709																							
Maximum Diurnal Average: 2.1 ppm at hour 1		Minimum Diurnal Average: 2.1 ppm at hour 16		Hours of Missing Data: 35																							
Monthly Average: 2.11 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.4		Hours of Calibration: 35																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
2-Dec	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	2.2	2.2	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2
3-Dec	2.2	2.2	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2
4-Dec	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	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
5-Dec	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	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1
6-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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
8-Dec	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
9-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1
10-Dec	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2
11-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-Dec	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
13-Dec	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2
14-Dec	2.2	2.2	Z	2.2	2.6	2.4	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.2
15-Dec	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16-Dec	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	2.0	2.0	2.1	2.1	2.1	2.1	2.1
17-Dec	2.1	2.1	2.1	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
19-Dec	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
20-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	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-Dec	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.2	2.4	2.4
22-Dec	2.4	2.3	2.3	2.3	Z	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	2.2	2.3	2.3	2.3	2.3	2.3	2.3
23-Dec	2.3	2.3	2.3	2.4	2.4	Z	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.4
24-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
25-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
26-Dec	2.1	2.2	Z	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.4
27-Dec	2.3	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.4
28-Dec	2.3	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3
29-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
30-Dec	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
31-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
																								Diurnal Average			
																								Diurnal Maximum			
Z - zerospan C - Calibration																											



Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Conklin - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Conklin - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	147	20.73	20.73
2.1 - 3.0	562	79.27	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Conklin - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	4	0	0	1	1	10	3	9	11	15	25	5	10	14	22	17	147
2.1 - 3.0	15	3	5	8	2	26	33	45	58	77	65	13	13	40	102	54	559
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	19	3	5	9	3	36	36	54	69	92	90	18	23	54	124	71	706

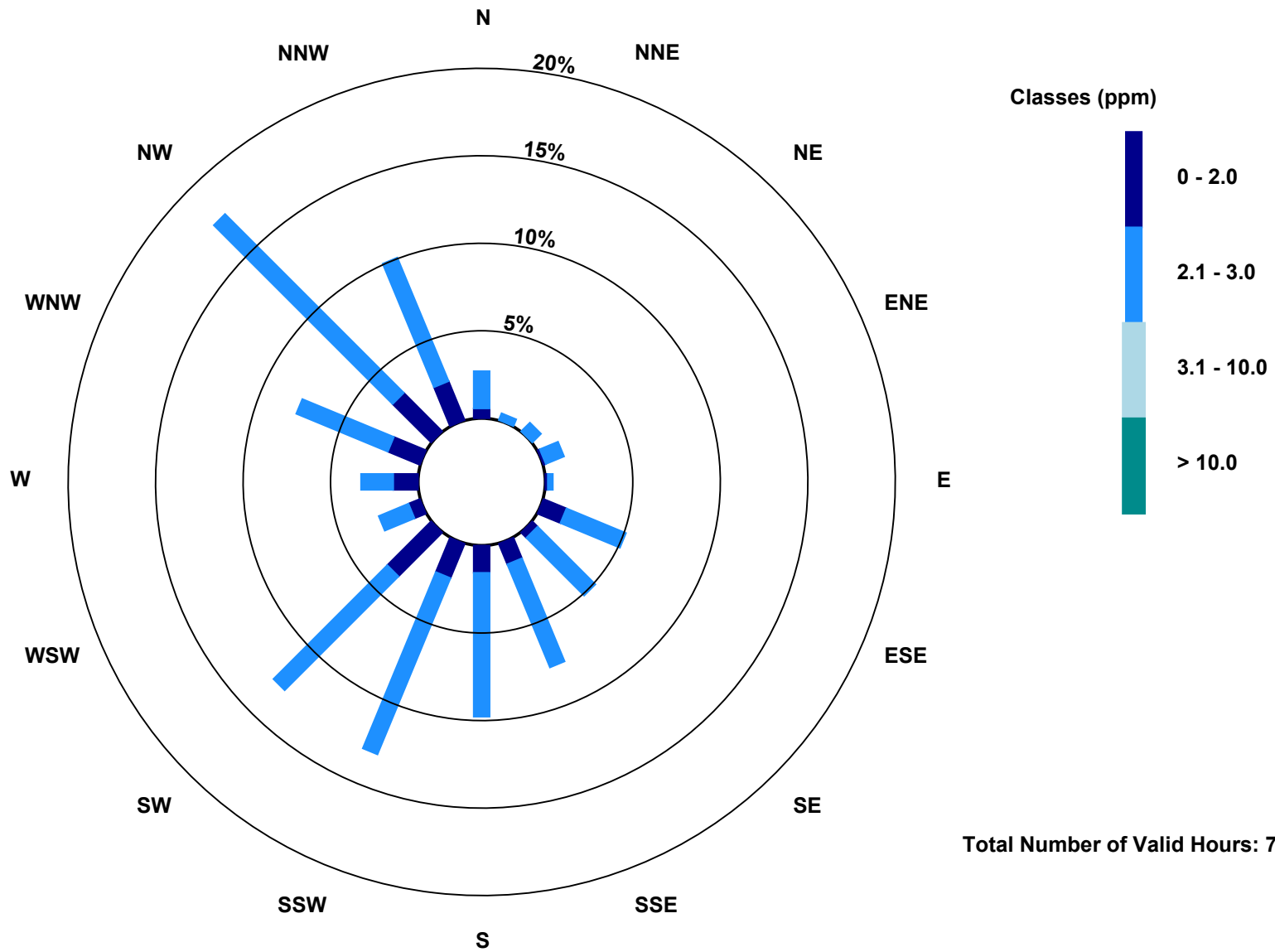
Total Number of Valid Hours: 706

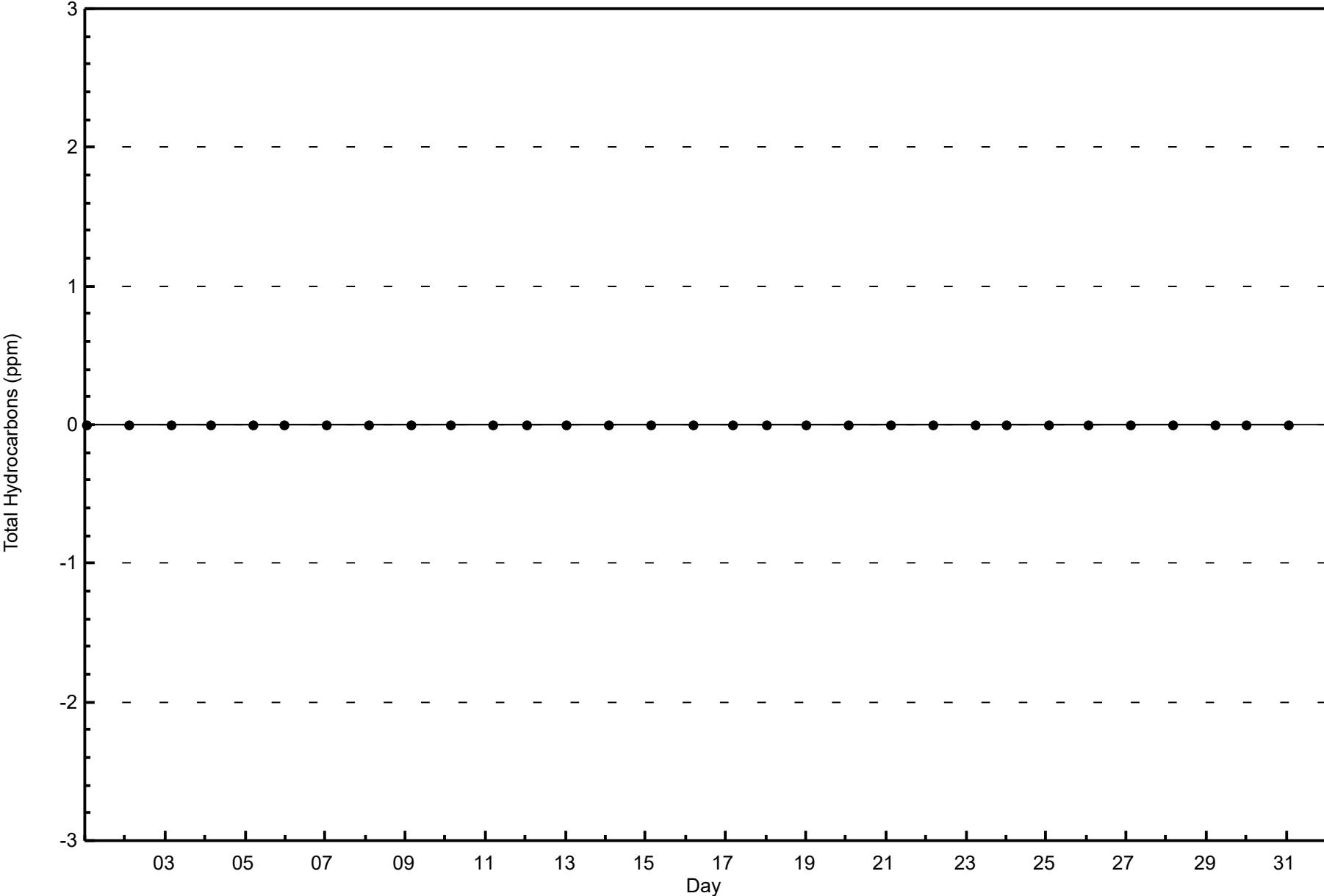
Total Number of Hours: 744

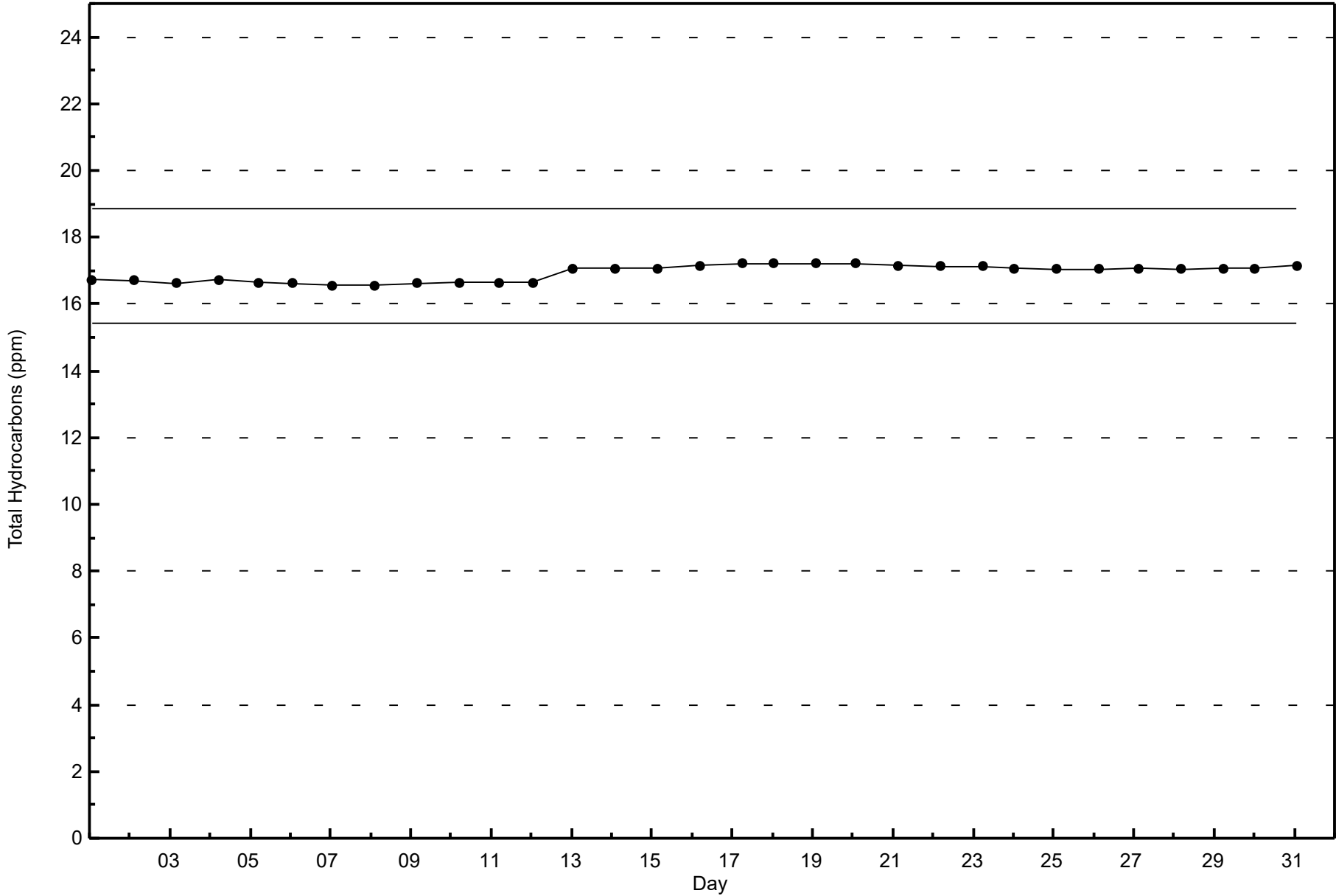


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Conklin





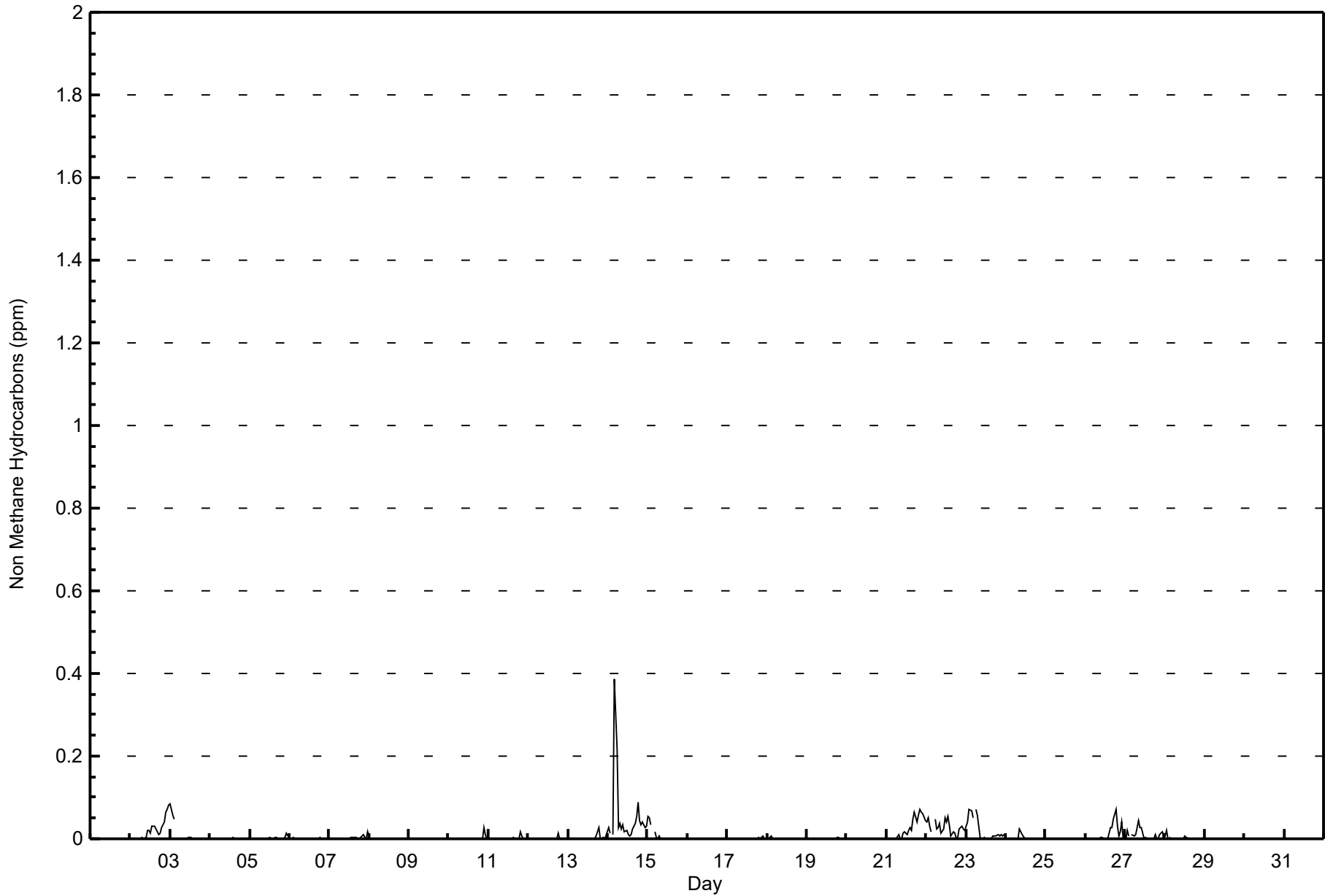




Summary of Hour Averages

Conklin - December 2024

Maximum Value: 0.385 ppm on Dec 14 05:00 Maximum Daily Average: 0.053 ppm on Dec 14																				Hours in Service:	744											
Minimum Value: 0.000 ppm on Dec 1 01:00 Minimum Daily Average: 0.000 ppm on Dec 9																				Hours of Data:	709											
Maximum Diurnal Average: 0.018 ppm at hour 5 Minimum Diurnal Average: 0.003 ppm at hour 13																				Hours of Missing Data:	35											
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 = 0.1																				Hours of Calibration:	35											
																				Percent Operational Time:	100.0											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24								
1-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	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
2-Dec	0.000	0.000	Z	0.000	0.001	0.000	0.001	0.004	0.001	0.004	0.020	0.021	0.013	0.030	0.029	0.024	0.017	0.010	0.015	0.026	0.040	0.063	0.070	0.082	0.020	0.082	0.009	0.084	0.000	0.004		
3-Dec	0.084	0.058	0.046	Z	0.000	0.000	0.000	0.001	0.000	0.002	0.001	0.003	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
4-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.002	0.001	0.001	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5-Dec	0.000	0.000	0.000	0.000	0.001	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.002	0.005	0.000	0.000	0.000	0.000	0.004	0.013	0.008	0.002	0.013	0.000	0.004	0.000	0.000	0.000	0.000
6-Dec	Z	0.000	0.002	0.000	0.000	0.002	0.000	0.002	0.001	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.000	0.000	0.000	0.000	0.000	0.000
7-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.002	0.005	0.004	0.002	0.000	0.001	0.002	0.010	0.002	0.001	0.017	0.002	0.017	0.000	0.001	0.000	0.000	0.000	0.000
8-Dec	0.000	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9-Dec	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
10-Dec	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	0.002	0.000	0.028	0.010	0.001	0.002	0.000	0.000	0.000	0.000	0.000	0.000
11-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.018	0.005	0.000	0.001	0.002	0.001	0.018	0.000	0.000	0.000	0.000	0.000	0.000
12-Dec	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	0.013	0.000	0.000	0.000	0.000	0.001	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13-Dec	0.001	Z	0.000	0.000	0.001	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.006	0.027	0.001	0.000	0.003	0.001	0.007	0.002	0.027	0.000	0.000	0.000	0.000	0.000	0.000
14-Dec	0.027	0.012	Z	0.011	0.385	0.216	0.028	0.037	0.023	0.035	0.018	0.020	0.011	0.007	0.011	0.025	0.036	0.054	0.087	0.043	0.034	0.039	0.026	0.030	0.053	0.385	0.007	0.007	0.000	0.000	0.000	0.000
15-Dec	0.054	0.050	0.033	Z	0.015	0.005	0.001	0.007	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	0.000	0.000	0.007	0.054	0.000	0.000	0.000	0.000	0.000	0.000
16-Dec	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
17-Dec	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	0.001	0.003	0.001	0.006	0.000	0.001	0.001	0.006	0.000	0.000	0.000	0.000	0.000	0.000
18-Dec	Z	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19-Dec	0.000	Z	0.000	0.000	0.000	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	0.004	0.005	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
20-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	0.000	0.000	Z	0.002	0.000	0.000	0.009	0.000	0.001	0.012	0.015	0.010	0.020	0.028	0.019	0.047	0.064	0.040	0.056	0.071	0.064	0.062	0.043	0.024	0.071	0.000	0.000	0.000	0.000	0.000	0.000
22-Dec	0.041	0.049	0.031	0.017	Z	0.048	0.024	0.026	0.038	0.015	0.025	0.050	0.040	0.053	0.035	0.005	0.016	0.012	0.001	0.003	0.023	0.029	0.025	0.020	0.027	0.053	0.000	0.000	0.000	0.000	0.000	0.000
23-Dec	0.032	0.040	0.071	0.069	0.052	Z	0.071	0.056	0.002	0.001	0.000	0.004	0.002	0.001	0.001	0.002	0.006	0.008	0.008	0.011	0.007	0.009	0.007	0.009	0.020	0.071	0.000	0.000	0.000	0.000	0.000	0.000
24-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.015	0.010	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.022	0.000	0.000	0.000	0.000	0.000	0.000
25-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.001	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.000	0.014	0.028	0.029	0.046	0.073	0.032	0.008	0.015	0.040	0.005	0.013	0.073	0.000	0.000	0.000	0.000	0.000	0.000
27-Dec	0.002	0.022	0.005	Z	0.009	0.008	0.009	0.026	0.043	0.027	0.028	0.000	0.004	0.000	0.000	0.000	0.000	0.001	0.011	0.001	0.000	0.009	0.016	0.010	0.010	0.043	0.000	0.000	0.000	0.000	0.000	0.000
28-Dec	0.006	0.020	0.001	0.002	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.020	0.000	0.000	0.000	0.000	0.000	0.000
29-Dec	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
30-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
																								Diurnal Average								
																								Diurnal Maximum								
Z - zerospan C - Calibration																																





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Conklin - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	575	81.10	81.10
0.006 - 0.05	116	16.36	97.46
0.06 - 0.1	16	2.26	99.72
> 0.1	2	0.28	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Conklin - December 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	12	1	2	3	2	31	19	41	49	74	71	15	22	54	118	60	574
0.006 - 0.05	5	2	2	6	1	5	15	9	18	17	16	2	1	0	6	10	115
0.06 - 0.1	1	0	1	0	0	0	2	4	2	1	3	1	0	0	0	1	16
> 0.1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals	19	3	5	9	3	36	36	54	69	92	90	18	23	54	124	71	706

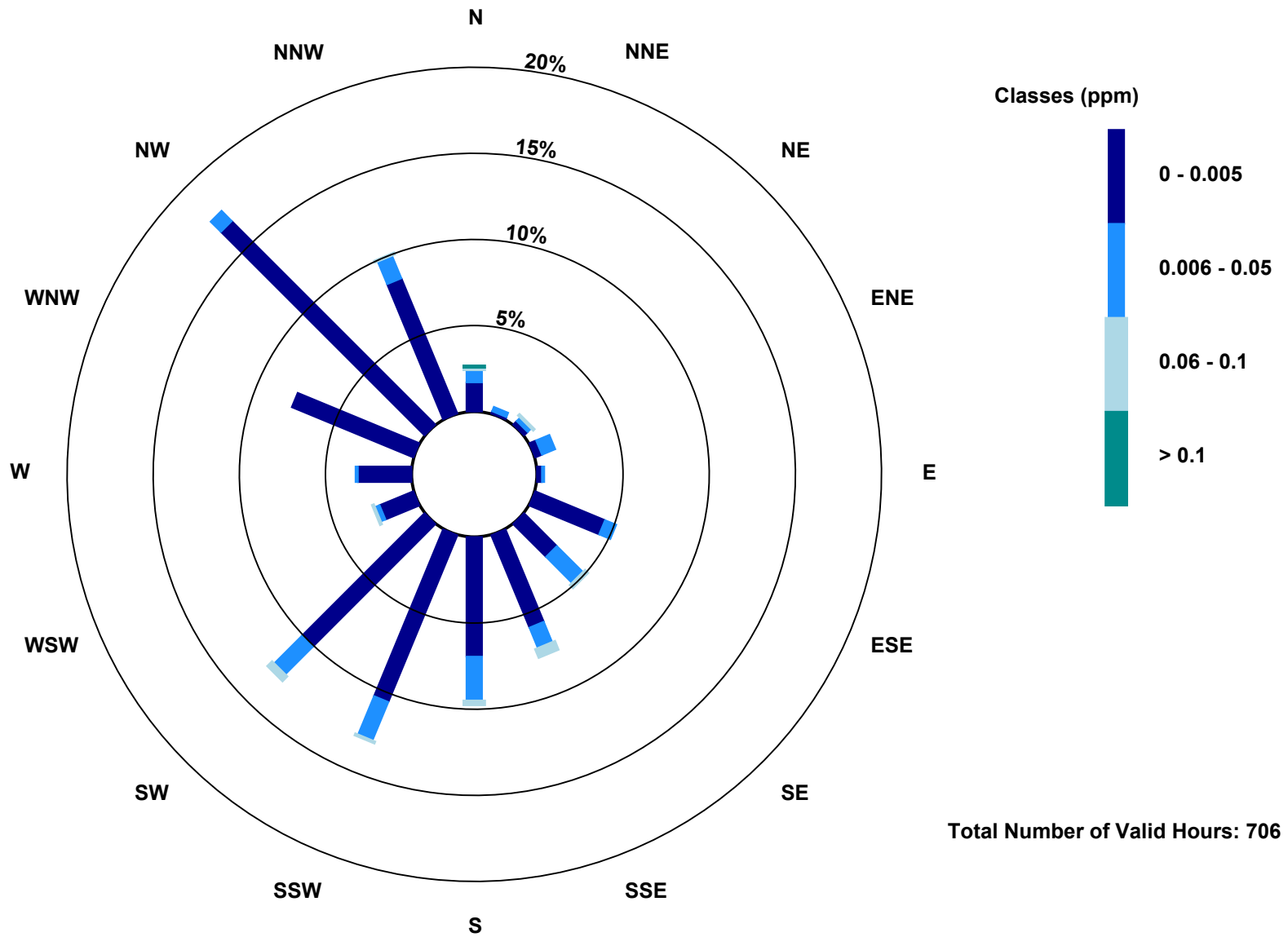
Total Number of Valid Hours: 706

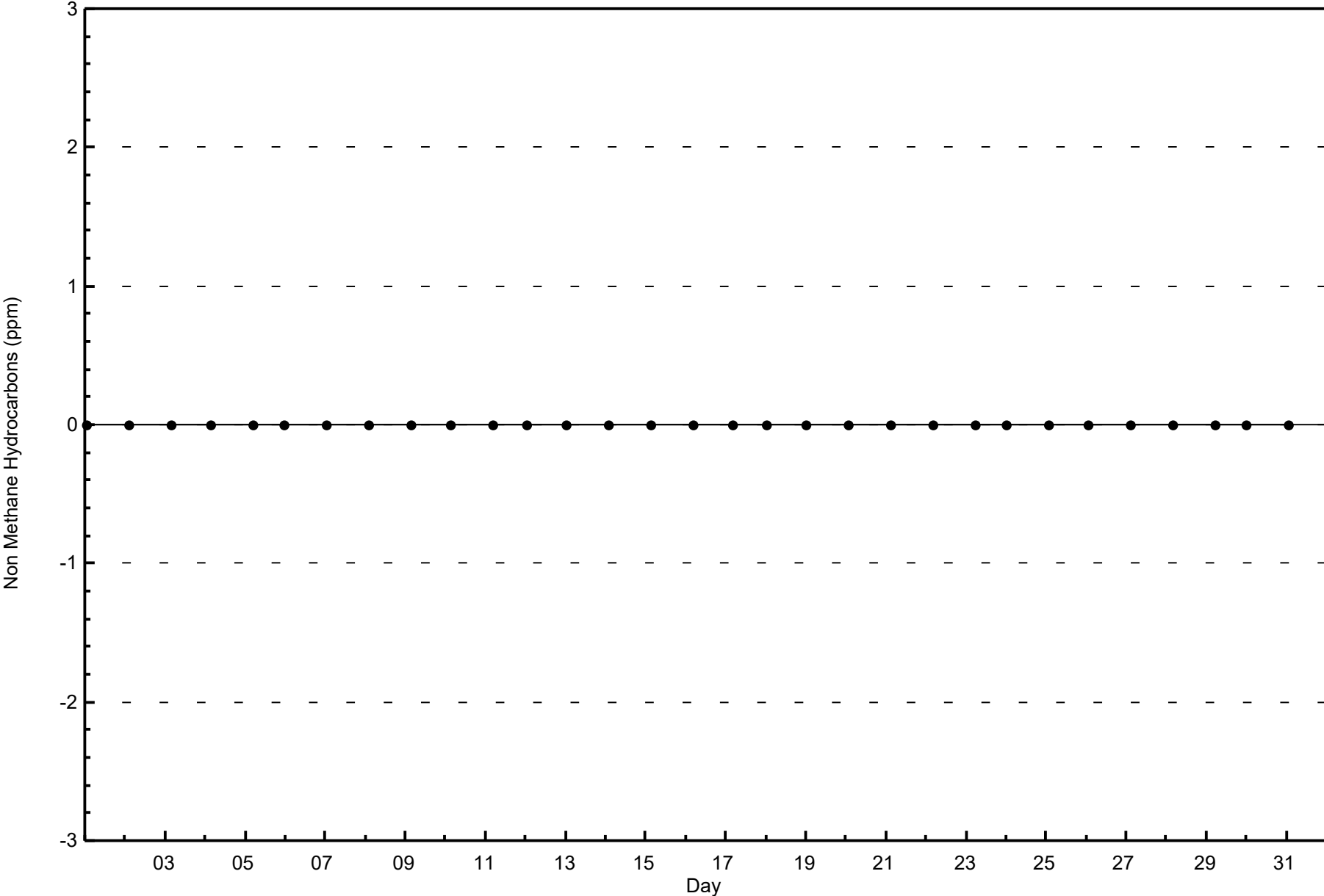
Total Number of Hours: 744

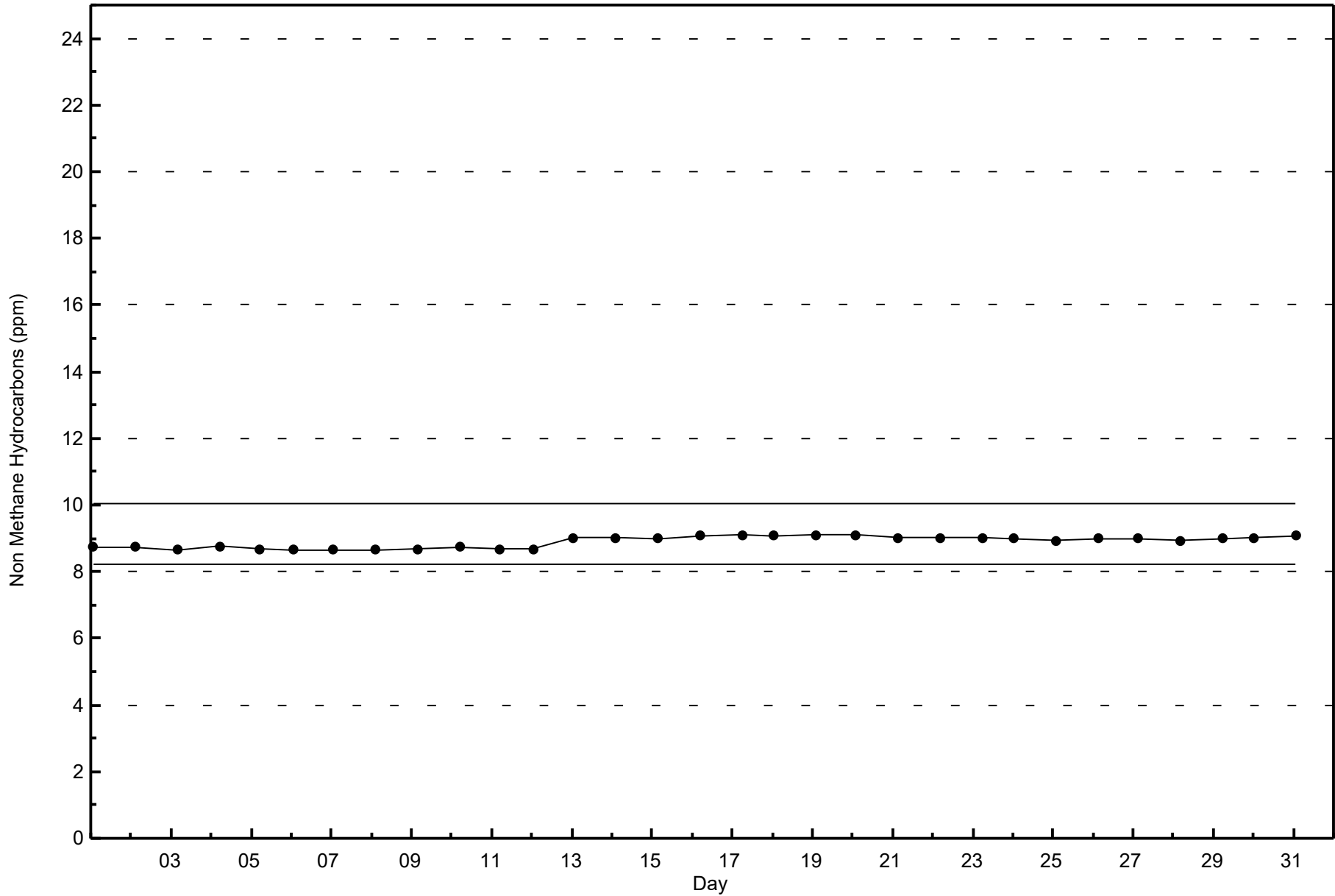


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Conklin









Wood Buffalo Environmental Association

Summary of Hour Averages

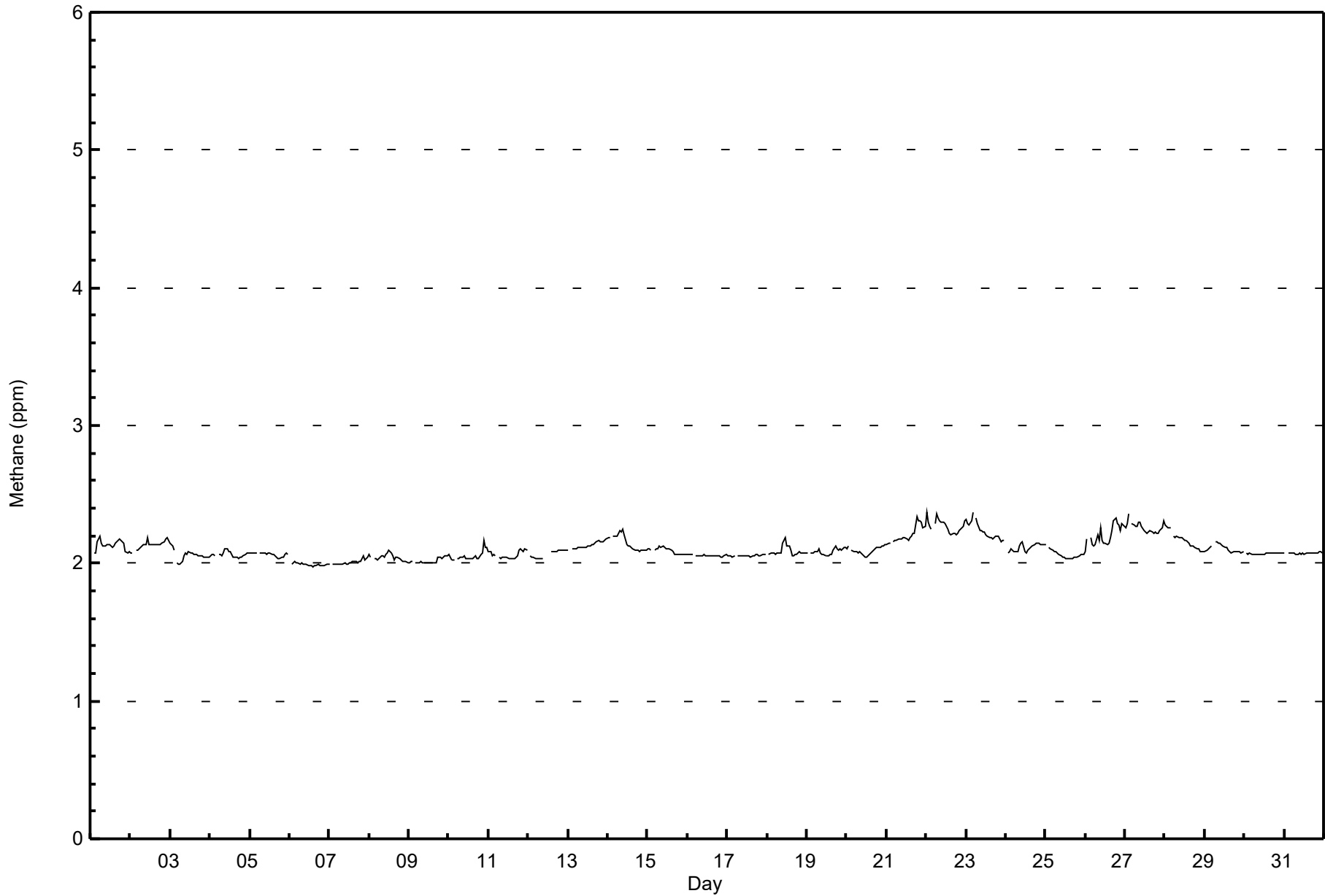
Methane (CH₄) - ppm Conklin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																										
Maximum Value: 2.4 ppm on Dec 23 05:00		Maximum Daily Average: 2.3 ppm on Dec 22		Hours of Data:		709		Hours of Missing Data: 35																																										
Minimum Value: 2.0 ppm on Dec 6 15:00		Minimum Daily Average: 2.0 ppm on Dec 6		Hours of Calibration:		35		Percent Operational Time: 100.0																																										
Maximum Diurnal Average: 2.1 ppm at hour 1		Minimum Diurnal Average: 2.1 ppm at hour 16		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.1 P ₉₀ = 2.2 P ₉₉ = 2.3																																														
Monthly Average: 2.10 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-Dec	2.1	Z	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
2-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.2																							
3-Dec	2.2	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.1	2.1	2.2																							
4-Dec	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	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
5-Dec	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1																							
6-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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-Dec	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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																							
8-Dec	2.1	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1																							
9-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.1																							
10-Dec	2.1	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2																							
11-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
12-Dec	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	C	C	C	C	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
13-Dec	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	2.2	2.2	2.2	2.2	2.2	2.2	2.2																							
14-Dec	2.2	2.2	Z	2.2	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
15-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
16-Dec	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	2.0	2.0	2.1	2.1	2.1	2.1	2.1																							
17-Dec	2.1	2.1	2.1	2.0	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
18-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
19-Dec	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																							
20-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.1	2.1	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-Dec	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3																							
22-Dec	2.4	2.3	2.3	2.3	Z	2.3	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	2.2	2.3	2.3	2.3	2.3	2.4																							
23-Dec	2.3	2.3	2.3	2.3	2.4	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	2.4																							
24-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
25-Dec	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
26-Dec	2.1	2.2	Z	2.2	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.2	2.3	2.3																							
27-Dec	2.3	2.3	2.4	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.4																							
28-Dec	2.3	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
29-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
30-Dec	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																							
31-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	Diurnal Average	
																								2.4	2.3	2.4	2.3	2.4	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	Diurnal Maximum
Z - zerspan																								C - Calibration																										



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Conklin - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Conklin - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	149	21.02	21.02
2.1 - 3.0	560	78.98	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Conklin - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	4	0	0	1	1	10	3	9	11	16	25	5	10	14	22	18	149
2.1 - 3.0	15	3	5	8	2	26	33	45	58	76	65	13	13	40	102	53	557
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	19	3	5	9	3	36	36	54	69	92	90	18	23	54	124	71	706

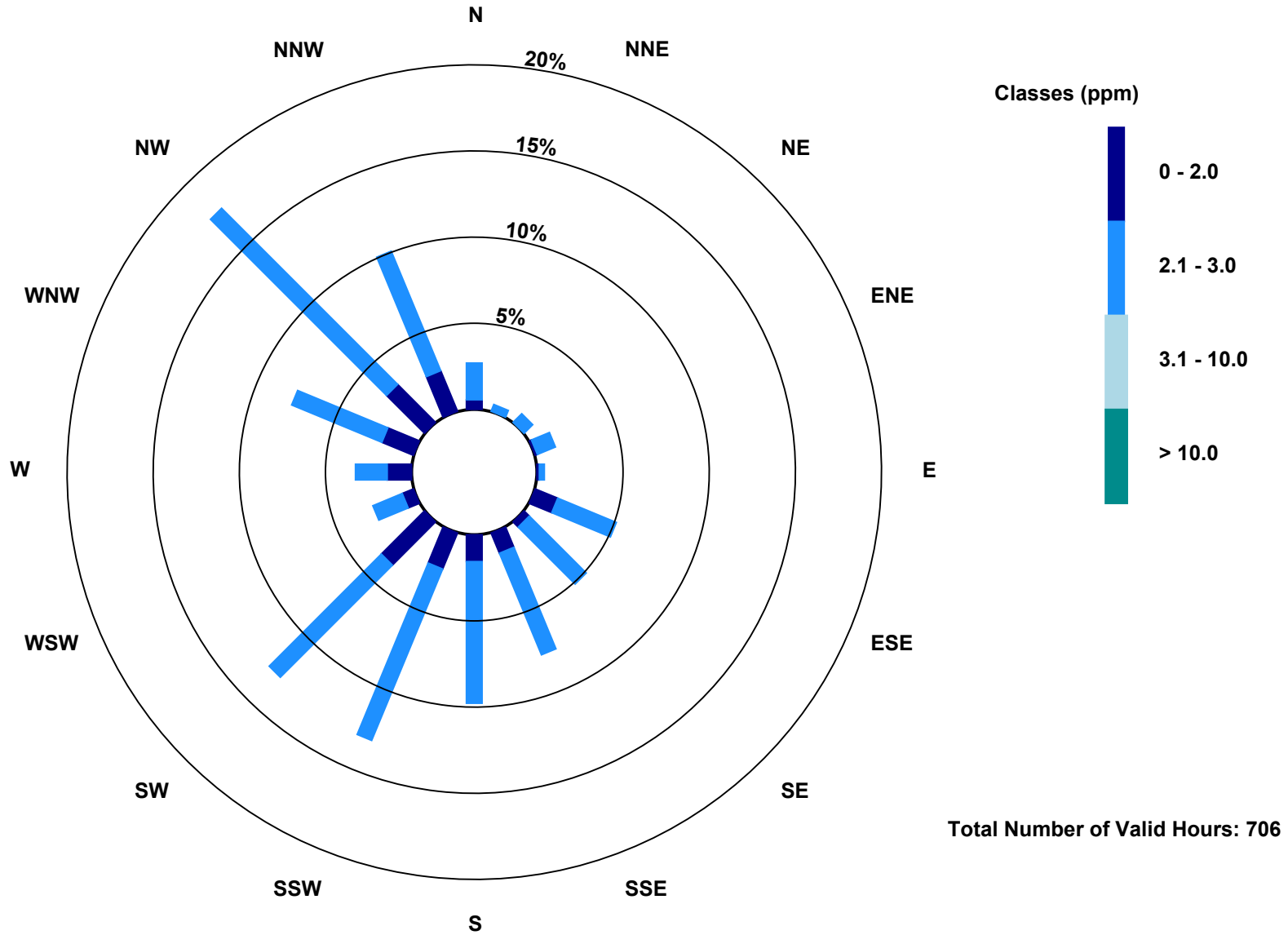
Total Number of Valid Hours: 706

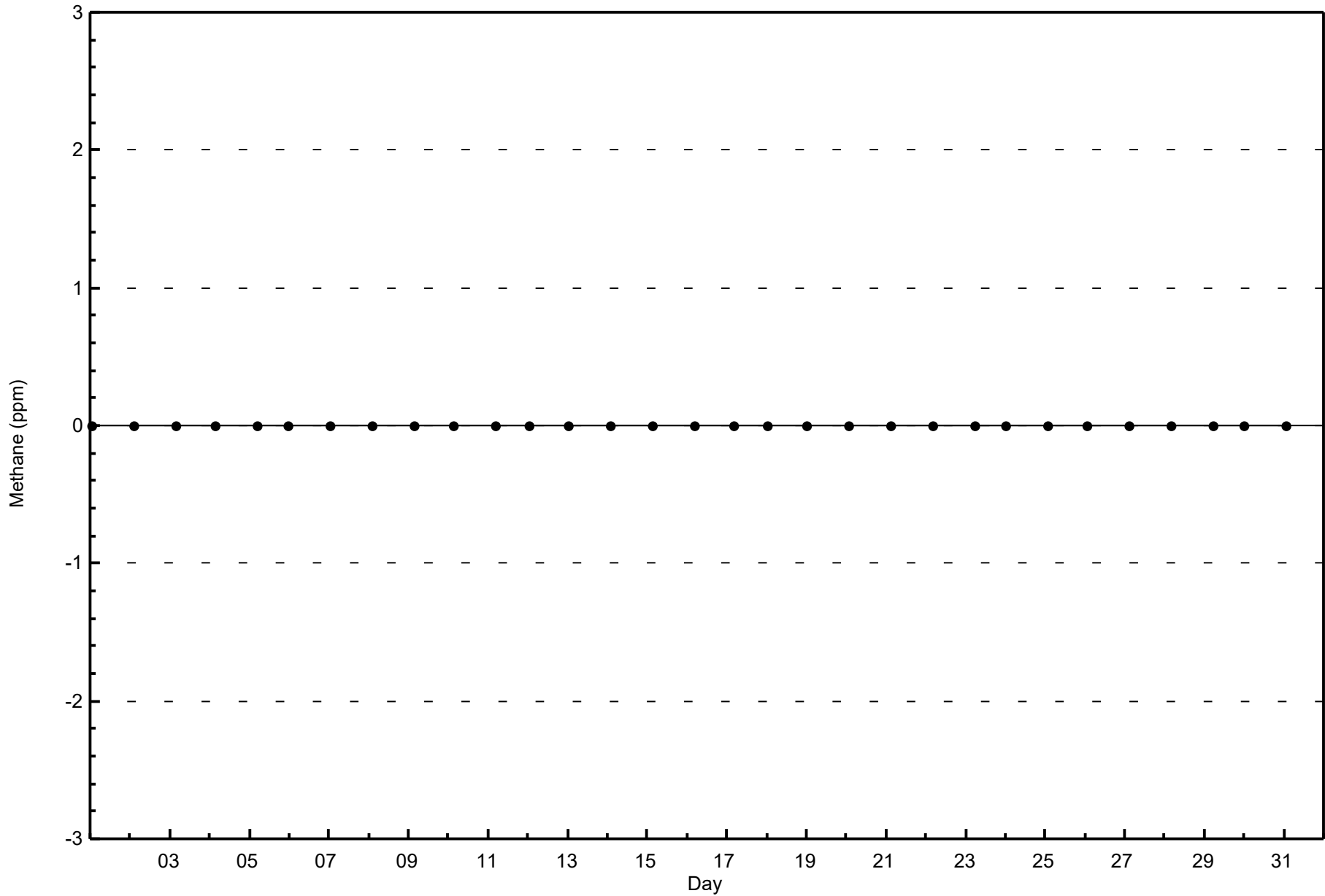
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Conklin

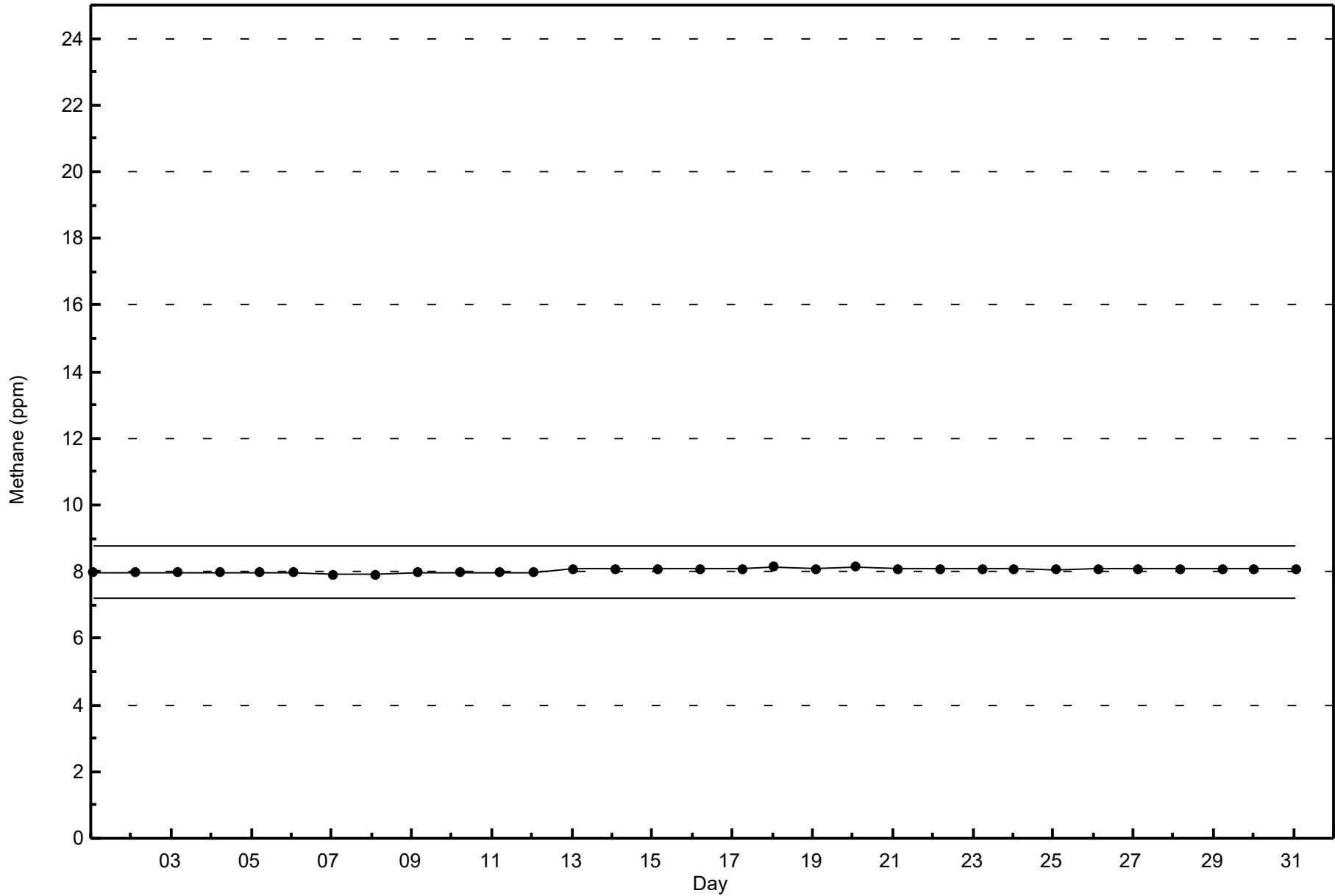






Wood Buffalo Environmental Association
Span Responses

Methane (CH₄) - ppm
Conklin - December 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

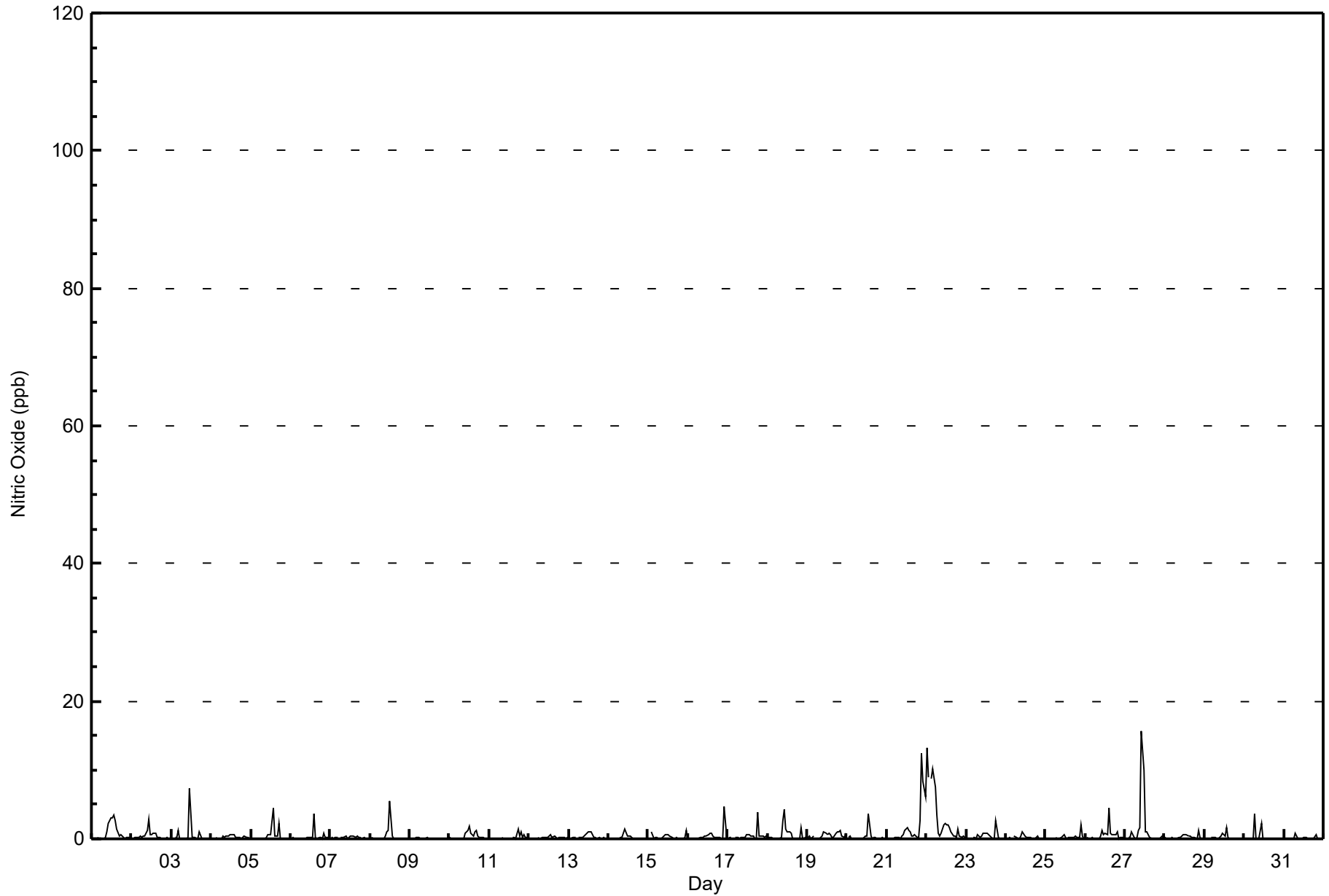
Nitric Oxide (NO) - ppb
Conklin - December 2024

Maximum Value: 15.6 ppb on Dec 27 11:00		Maximum Daily Average: 3.0 ppb on Dec 22		Hours in Service: 744																							
Minimum Value: 0.0 ppb on Dec 1 01:00		Minimum Daily Average: 0.1 ppb on Dec 9		Hours of Data: 708																							
Maximum Diurnal Average: 1.4 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 3		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 = 8.4		Hours of Calibration: 36																							
				Percent Operational Time: 100.0																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.0	0.0	0.2	Z	0.0	0.0	0.2	1.0	2.2	3.1	3.1	3.5	2.7	1.5	0.4	0.7	0.4	0.1	0.1	0.3	0.2	0.1	0.9	3.5	
2-Dec	Z	0.1	0.1	0.2	0.2	0.3	0.1	0.3	0.4	1.3	2.8	0.6	0.7	0.8	0.8	0.2	0.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.4	2.8	
3-Dec	0.1	Z	0.1	0.1	1.3	0.0	0.0	0.0	0.1	0.1	0.2	7.3	0.2	0.1	0.1	0.1	0.0	1.1	0.0	0.0	0.0	0.0	0.1	0.0	0.5	7.3	
4-Dec	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.4	0.2	0.3	0.5	0.7	0.6	0.7	0.5	0.3	0.1	0.3	0.1	0.2	0.3	0.2	0.1	0.1	0.3	0.7	
5-Dec	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.5	0.5	4.5	0.4	0.4	0.4	2.3	0.0	0.1	0.0	0.0	0.0	0.0	0.4	4.5	
6-Dec	0.1	0.1	0.0	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	3.7	0.2	0.0	0.1	0.1	0.0	0.8	0.1	0.1	0.1	0.3	3.7	
7-Dec	0.1	0.1	0.1	0.2	0.2	Z	0.1	0.2	0.1	0.4	0.1	0.2	0.4	0.3	0.3	0.2	0.3	0.2	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.4	
8-Dec	Z	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.0	1.3	5.6	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.6	
9-Dec	0.1	Z	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.3	
10-Dec	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.7	0.9	1.3	1.8	0.9	0.3	1.1	1.1	0.4	0.1	0.3	0.1	0.1	0.0	0.1	0.4	1.8	
11-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	C	C	C	C	C	0.3	0.2	0.0	1.4	0.4	0.9	0.2	0.5	0.3	0.2	0.3	1.4	
12-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.2	0.3	0.2	0.2	0.4	0.5	0.2	0.4	0.3	0.1	0.2	0.2	0.3	0.2	0.0	0.1	0.2	0.5	
13-Dec	0.2	0.1	0.1	0.3	0.1	Z	0.1	0.2	0.2	0.4	0.5	0.8	1.0	1.0	0.6	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	1.0	
14-Dec	Z	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.8	1.4	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	0.2	1.4	
15-Dec	0.0	Z	1.0	0.0	0.1	0.1	0.0	0.1	0.0	0.3	0.7	0.5	0.5	0.5	0.2	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	1.1	0.3	1.1	
16-Dec	0.0	0.1	Z	0.1	0.1	0.0	0.0	0.2	0.2	0.3	0.4	0.5	0.5	0.8	0.8	0.4	0.2	0.3	0.3	0.3	0.1	0.0	4.7	0.0	0.4	4.7	
17-Dec	0.0	0.2	0.1	Z	0.2	0.1	0.2	0.1	0.2	0.3	0.2	0.5	0.6	0.6	0.5	0.3	0.1	0.1	3.9	0.3	0.4	0.5	0.2	0.4	0.4	3.9	
18-Dec	0.3	0.2	0.1	0.1	Z	0.1	0.0	0.0	0.1	2.7	4.2	1.4	1.0	1.0	0.7	0.1	0.0	0.0	0.1	0.1	1.6	0.3	0.0	0.1	0.6	4.2	
19-Dec	0.2	0.3	0.1	0.2	0.3	Z	0.0	0.1	0.2	0.4	1.1	0.8	0.6	0.7	0.5	0.2	0.3	0.7	1.0	0.9	1.2	0.4	0.2	0.9	0.5	1.2	
20-Dec	Z	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.4	0.3	3.7	0.3	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.3	3.7	
21-Dec	0.0	Z	0.0	0.0	0.1	0.3	0.2	0.1	0.1	0.3	0.7	1.2	1.6	1.2	1.1	0.4	0.4	0.6	0.3	0.1	2.7	12.5	8.4	6.1	1.7	12.5	
22-Dec	13.2	8.9	Z	8.7	10.3	7.6	3.6	0.8	0.4	0.9	2.0	2.2	2.0	2.0	1.7	0.9	0.4	0.3	0.2	1.4	0.3	0.3	0.5	0.1	3.0	13.2	
23-Dec	0.2	0.1	0.0	Z	0.2	0.2	0.1	0.5	0.1	0.4	0.8	0.9	0.9	0.7	0.5	0.1	0.0	0.1	2.7	0.2	0.0	0.0	0.0	0.0	0.4	2.7	
24-Dec	0.0	0.1	0.2	0.0	Z	0.3	0.2	0.1	0.0	0.3	0.9	0.4	0.3	0.2	0.1	0.2	0.0	0.1	0.1	0.4	0.1	0.0	0.0	0.1	0.2	0.9	
25-Dec	0.0	0.0	0.1	0.0	0.0	Z	0.2	0.1	0.0	0.1	0.5	0.6	0.2	0.1	0.1	0.1	0.2	0.2	0.5	0.2	0.3	2.1	0.4	0.0	0.3	2.1	
26-Dec	Z	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	1.3	0.7	0.8	0.7	4.5	0.8	0.6	0.5	0.6	1.0	0.1	0.1	0.2	0.3	0.6	4.5	
27-Dec	0.1	Z	0.2	0.1	0.9	0.1	0.0	0.2	1.3	1.6	15.6	9.9	1.0	1.1	0.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	1.5	15.6	
28-Dec	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.3	0.5	0.6	0.6	0.6	0.4	0.3	0.2	0.2	0.2	0.0	1.1	0.2	0.0	0.0	0.3	1.1	
29-Dec	0.0	0.0	0.0	Z	0.2	0.3	0.3	0.0	0.0	0.1	0.4	0.8	0.4	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	
30-Dec	0.0	0.0	0.0	0.0	Z	0.0	3.7	0.0	0.0	0.0	2.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.7	
31-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.9	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.1	0.9	
		0.6	0.4	0.1	0.4	0.6	0.4	0.3	0.1	0.2	0.5	1.4	1.3	0.9	1.0	0.7	0.3	0.2	0.3	0.4	0.3	0.3	0.6	0.5	0.3	Diurnal Average	
		13.2	8.9	1.0	8.7	10.3	7.6	3.7	0.9	1.3	2.7	15.6	9.9	5.6	4.5	4.5	1.5	1.1	2.3	3.9	1.4	2.7	12.5	8.4	6.1	Diurnal Maximum	
Z - zerspan		C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Conklin - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Conklin - December 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
Conklin - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	20	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	705
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	705

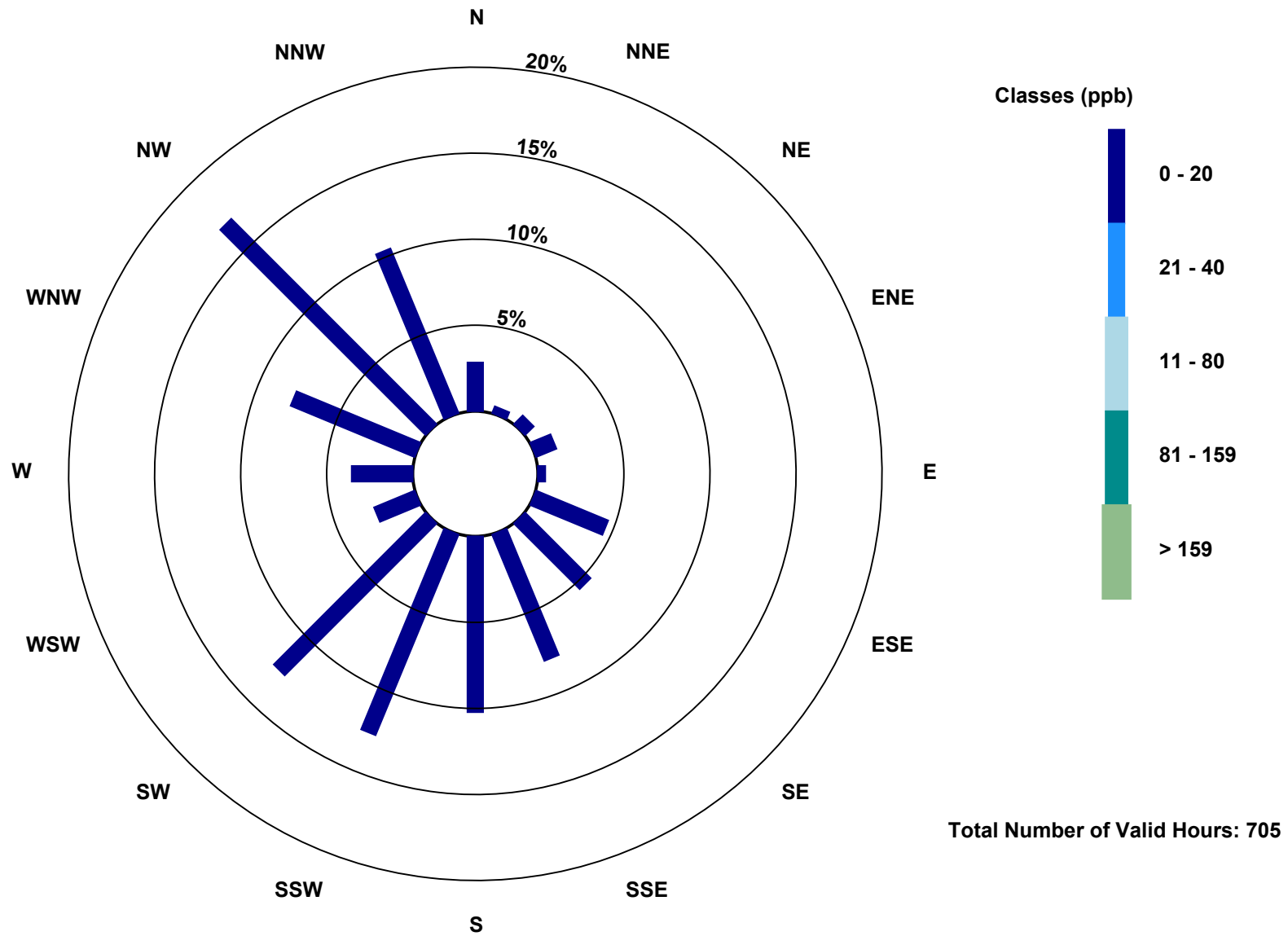
Total Number of Valid Hours: 705

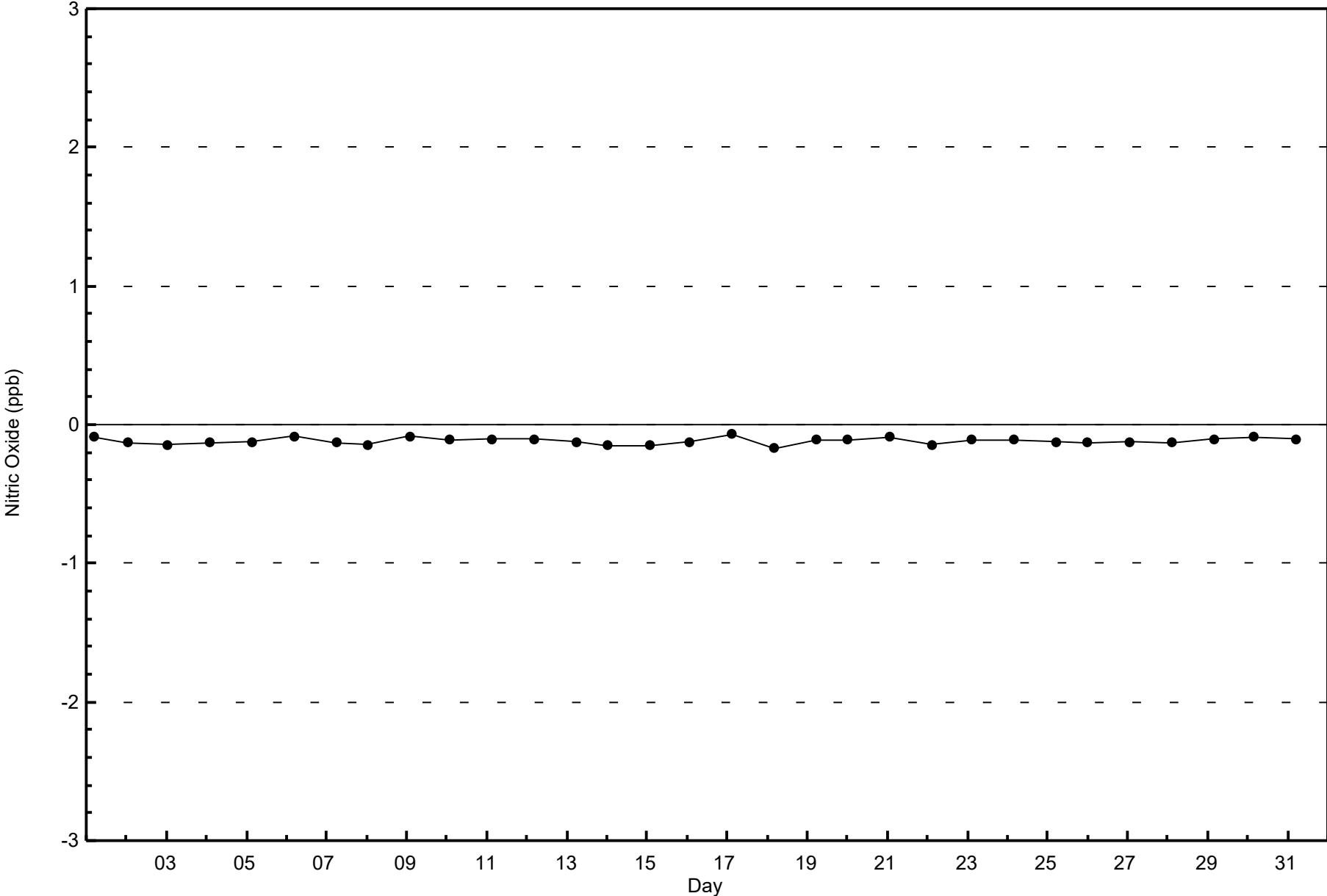
Total Number of Hours: 744

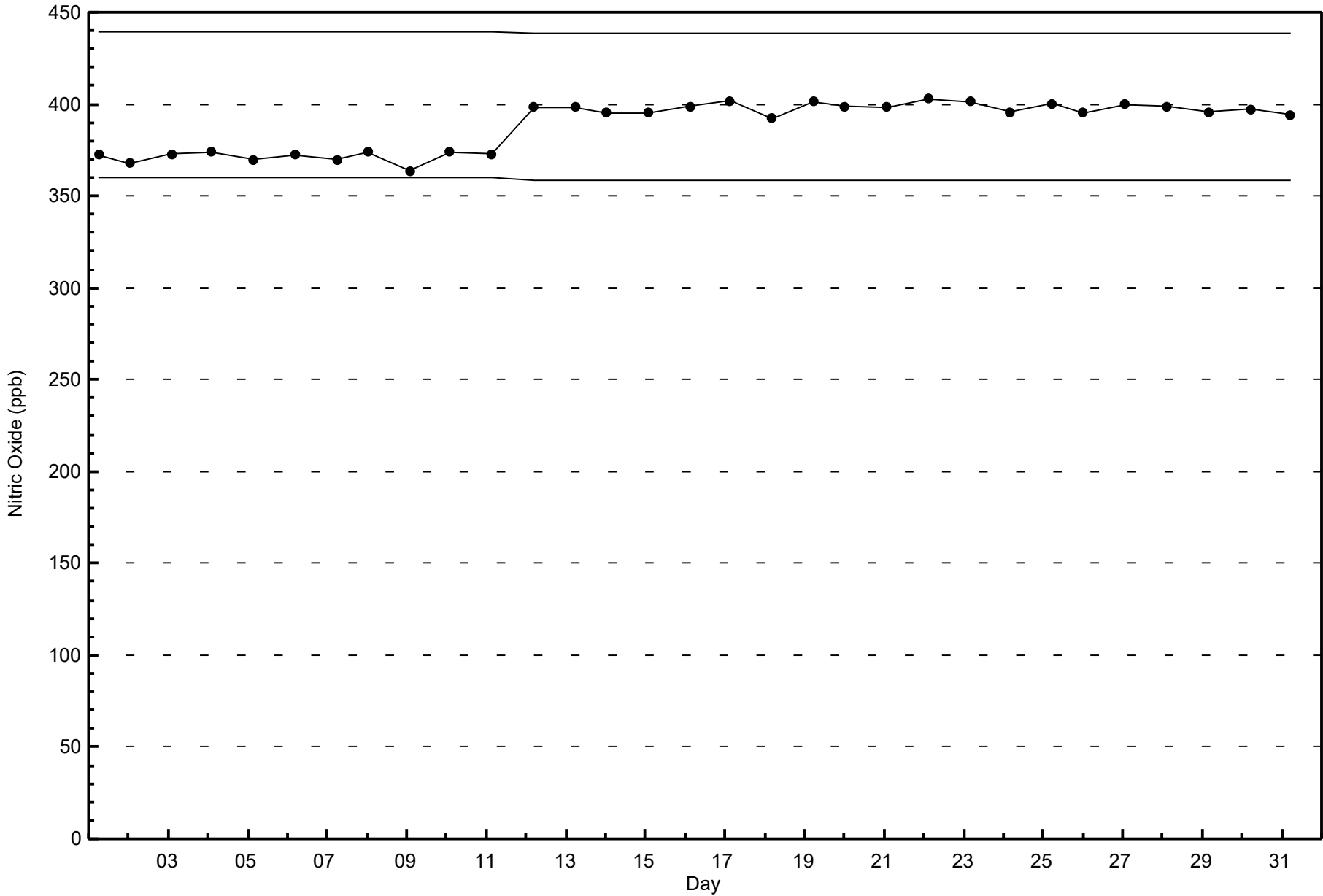


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Conklin









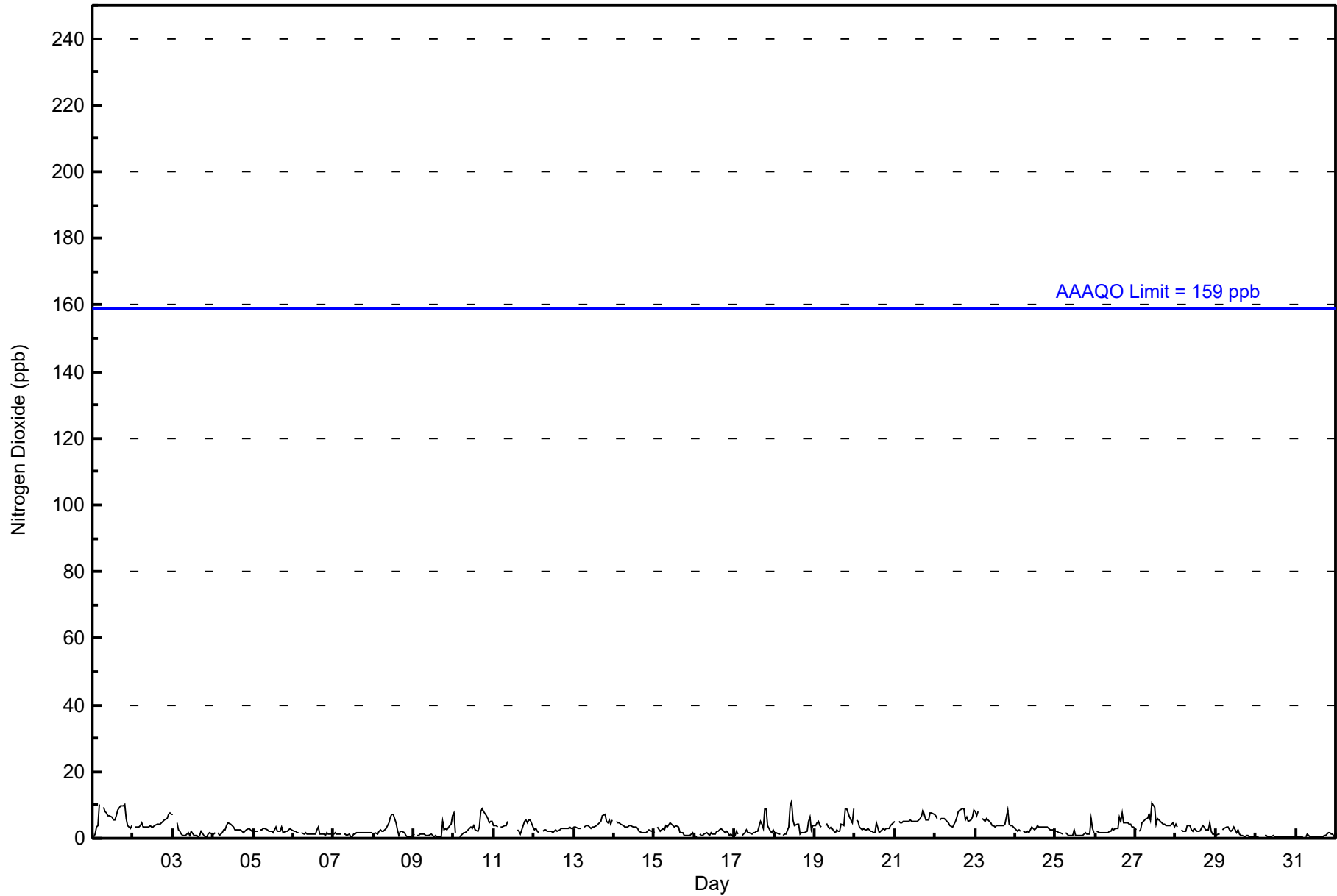
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Conklin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 11.0 ppb on Dec 18 11:00		Maximum Daily Average: 6.4 ppb on Dec 1																	Hours of Data: 708																														
Minimum Value: 0.2 ppb on Dec 30 03:00		Minimum Daily Average: 0.4 ppb on Dec 30																	Hours of Missing Data: 36																														
Maximum Diurnal Average: 3.7 ppb at hour 20		Minimum Diurnal Average: 2.3 ppb at hour 4																	Hours of Calibration: 36																														
Monthly Average: 3.06 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.5 Median = 2.6 Q ₃ = 4.1 P ₉₀ = 5.9 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-Dec	0.5	1.2	3.6	3.9	10.2	Z	9.4	8.1	7.5	6.9	6.6	6.5	5.3	5.4	6.6	8.6	9.7	9.8	9.8	10.0	6.1	3.7	3.0	3.7	6.4	10.2																							
2-Dec	Z	3.4	3.2	3.4	4.0	4.5	3.5	3.5	3.5	3.3	3.7	3.6	3.5	3.7	4.2	4.2	4.3	4.7	4.9	5.3	6.0	7.2	7.6	7.4	4.5	7.6																							
3-Dec	7.0	Z	4.6	2.5	2.3	1.3	1.0	0.8	1.4	1.7	1.0	2.3	1.0	0.8	0.7	0.6	0.7	2.0	0.9	0.6	0.5	1.4	1.8	1.3	1.7	7.0																							
4-Dec	1.3	1.7	Z	1.6	0.8	1.5	2.5	2.7	3.8	4.8	4.4	4.0	3.4	2.5	2.7	2.7	2.5	2.3	1.8	2.2	2.7	2.8	2.7	2.0	2.6	4.8																							
5-Dec	1.9	2.0	2.2	Z	2.6	2.7	2.8	2.8	2.7	2.3	2.3	2.0	1.9	3.2	2.2	2.3	2.2	3.5	1.7	2.0	2.2	2.6	2.9	2.7	2.4	3.5																							
6-Dec	2.3	2.3	1.8	1.5	Z	1.5	1.2	1.5	1.3	1.2	1.4	1.3	1.1	1.1	2.7	3.6	1.4	1.2	1.1	1.0	1.6	1.4	1.3	1.3	1.6	3.6																							
7-Dec	1.4	1.6	1.3	1.2	1.2	Z	1.3	1.1	0.9	1.4	0.5	0.6	1.2	1.4	1.5	1.8	1.6	1.7	1.7	1.6	1.8	1.6	1.5	1.7	1.4	1.8																							
8-Dec	Z	1.6	1.3	2.3	2.7	2.2	2.1	3.0	3.8	4.5	6.4	7.4	7.4	4.6	2.6	1.0	2.2	2.2	1.9	0.9	0.3	0.3	0.5	0.9	2.7	7.4																							
9-Dec	1.2	Z	1.0	0.7	1.2	1.2	1.1	1.0	0.7	0.9	1.4	0.8	0.4	1.0	0.3	0.4	0.4	4.9	2.5	2.8	2.6	3.8	4.2	6.7	1.8	6.7																							
10-Dec	7.7	1.9	Z	0.4	0.8	1.3	1.5	1.7	2.6	2.9	3.3	3.1	3.8	2.7	2.1	3.4	8.1	9.0	7.9	6.6	5.8	4.8	5.2	4.9	4.0	9.0																							
11-Dec	3.8	3.8	3.2	Z	3.2	3.3	3.7	3.7	5.0	C	C	C	C	C	2.6	2.0	1.3	3.9	5.1	5.7	4.6	5.6	5.4	3.5	3.9	5.7																							
12-Dec	2.5	2.9	2.3	1.9	Z	2.1	2.4	2.5	2.2	2.3	2.1	1.8	2.0	2.5	2.2	2.7	2.9	3.0	3.0	2.8	2.9	3.2	3.0	2.9	2.5	3.2																							
13-Dec	3.4	3.3	3.0	2.9	2.9	Z	3.3	3.8	3.8	3.6	3.0	3.3	3.4	3.8	4.2	4.5	4.9	6.7	7.1	5.2	4.6	5.4	4.4	5.6	4.2	7.1																							
14-Dec	Z	5.1	4.6	4.5	4.1	3.8	3.6	3.4	3.5	3.8	3.9	3.5	3.5	3.3	2.9	2.1	1.7	1.8	1.9	1.9	2.2	2.5	2.1	2.0	3.1	5.1																							
15-Dec	1.8	Z	3.2	2.2	2.6	3.0	2.5	3.7	3.6	4.7	4.4	3.7	3.6	3.7	3.2	1.7	1.5	1.6	0.9	1.0	0.7	1.0	1.1	1.7	2.5	4.7																							
16-Dec	0.7	0.6	Z	1.1	0.8	0.8	1.1	1.5	1.4	1.0	1.5	1.2	1.3	2.1	2.3	2.6	2.8	2.3	1.6	2.3	1.6	0.7	1.4	0.4	1.4	2.8																							
17-Dec	0.9	2.3	1.2	Z	1.0	1.3	1.7	2.4	1.6	1.6	1.3	1.8	1.8	2.0	2.0	5.0	4.1	3.1	8.7	9.1	4.0	2.1	1.7	2.4	2.7	9.1																							
18-Dec	1.8	1.7	1.3	1.3	Z	0.8	1.3	1.4	3.3	9.7	11.0	5.5	3.7	4.4	4.2	1.3	1.6	1.9	1.6	2.2	5.0	6.4	2.5	3.8	3.4	11.0																							
19-Dec	3.8	4.8	4.9	4.0	3.5	Z	4.0	4.2	3.2	3.1	3.6	2.1	1.9	2.4	2.2	2.0	4.2	4.0	8.7	9.0	7.8	6.2	4.7	9.1	4.5	9.1																							
20-Dec	Z	5.7	5.2	3.3	2.6	2.9	2.4	2.5	2.8	2.2	2.0	1.6	1.7	4.5	1.8	2.0	2.6	2.8	2.7	2.8	2.9	3.8	4.1	4.7	3.0	5.7																							
21-Dec	4.9	Z	4.9	4.7	4.5	5.1	5.1	5.1	5.2	5.3	5.0	4.9	5.2	5.2	5.4	5.9	6.9	8.4	5.7	5.5	5.7	7.8	7.8	7.0	5.7	8.4																							
22-Dec	6.9	5.8	Z	5.4	6.0	6.1	5.3	5.0	4.8	3.9	3.6	4.3	5.1	6.2	7.9	8.3	8.9	8.8	5.6	6.3	5.1	5.7	6.4	8.3	6.1	8.9																							
23-Dec	8.1	6.6	7.9	Z	6.1	5.4	5.0	5.9	5.1	4.6	3.9	3.9	3.6	3.7	3.8	3.9	3.9	4.0	4.4	8.5	4.1	3.7	3.7	3.6	4.9	8.5																							
24-Dec	3.0	2.0	2.5	2.1	Z	2.2	1.7	2.0	1.5	2.6	3.6	2.6	3.0	3.7	3.4	3.4	3.2	3.3	3.4	3.5	3.1	2.7	2.6	2.5	2.8	3.7																							
25-Dec	2.3	2.0	1.8	1.7	1.4	Z	1.5	1.1	0.9	1.0	1.0	2.5	0.8	0.8	0.8	0.8	1.0	1.4	1.7	1.4	1.4	5.9	3.1	1.9	1.7	5.9																							
26-Dec	Z	2.0	1.9	1.6	1.6	1.7	1.7	1.9	2.0	2.2	3.1	2.7	2.8	3.1	6.5	5.2	7.8	4.6	4.6	4.7	4.3	4.2	3.4	3.4	3.3	7.8																							
27-Dec	2.6	Z	2.3	2.4	4.8	5.7	6.1	5.9	7.2	5.6	10.6	9.5	4.4	6.1	5.4	4.9	4.4	4.3	3.8	3.8	4.0	3.7	4.5	3.2	5.0	10.6																							
28-Dec	4.2	3.3	Z	2.5	2.1	2.1	2.1	3.7	3.9	2.7	2.2	2.9	2.4	2.1	2.2	3.1	3.7	3.2	2.7	2.6	4.6	2.1	1.3	1.2	2.7	4.6																							
29-Dec	1.0	1.2	1.3	Z	2.4	3.1	3.3	3.5	2.6	2.2	2.4	3.2	1.8	2.4	1.4	0.8	0.8	0.6	0.7	0.7	0.5	0.5	0.4	0.4	1.6	3.5																							
30-Dec	0.4	0.3	0.2	0.2	Z	0.7	0.8	0.6	0.3	0.3	0.8	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.8																							
31-Dec	0.3	0.3	0.4	0.4	0.3	Z	0.4	1.2	0.5	0.4	0.3	0.4	0.6	0.6	0.6	0.6	0.6	0.8	1.0	1.5	1.6	1.4	1.1	0.5	0.7	1.6																							
																								2.9	2.7	2.7	2.3	2.9	2.7	2.8	2.9	3.0	3.1	3.3	3.1	2.7	3.0	2.9	3.0	3.3	3.6	3.5	3.7	3.2	3.4	3.1	3.3	Diurnal Average	
																								8.1	6.6	7.9	5.4	10.2	6.1	9.4	8.1	7.5	9.7	11.0	9.5	7.4	6.2	7.9	8.6	9.7	9.8	9.8	10.0	7.8	7.8	7.8	9.1	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																																																	





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Conklin - December 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
Conklin - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	20	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	705
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	705

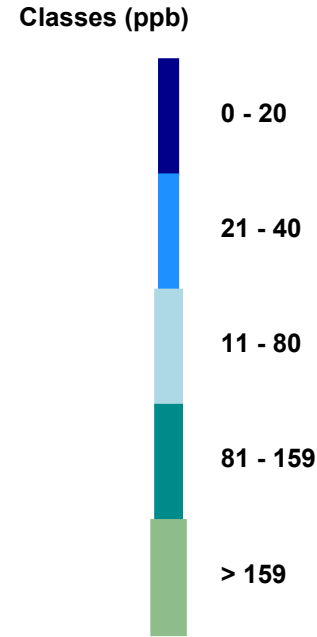
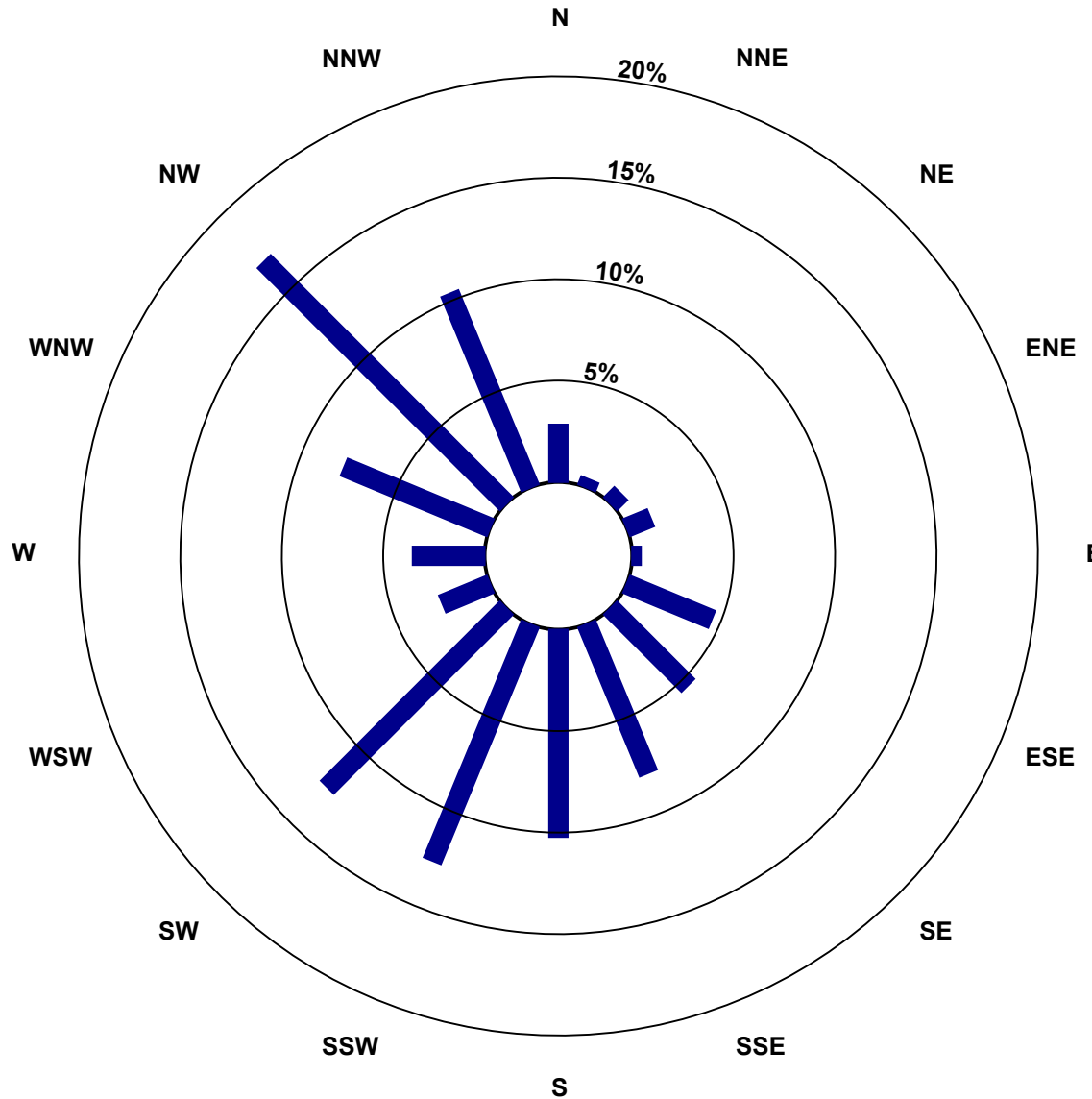
Total Number of Valid Hours: 705

Total Number of Hours: 744

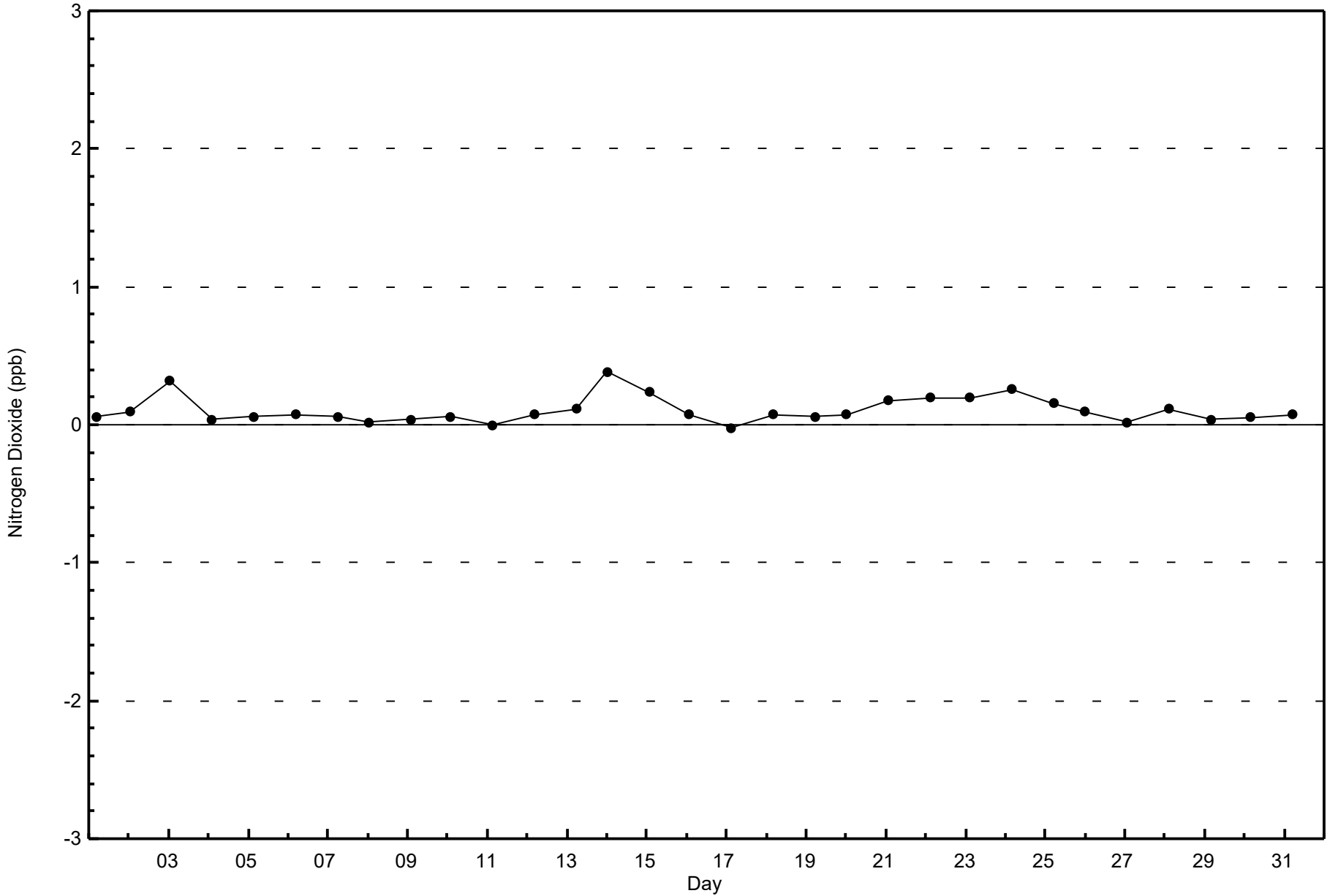


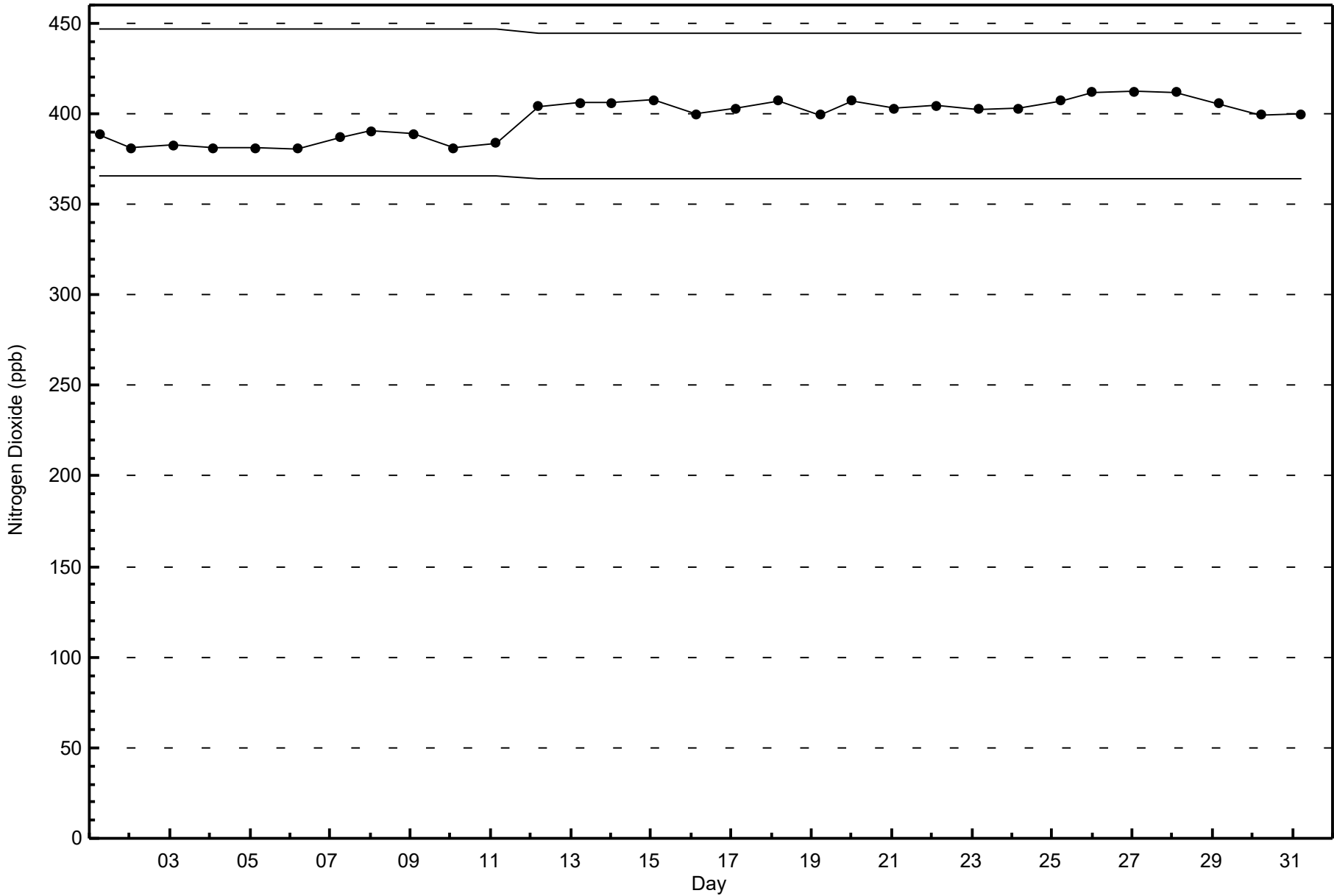
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Conklin



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association
Summary of Hour Averages

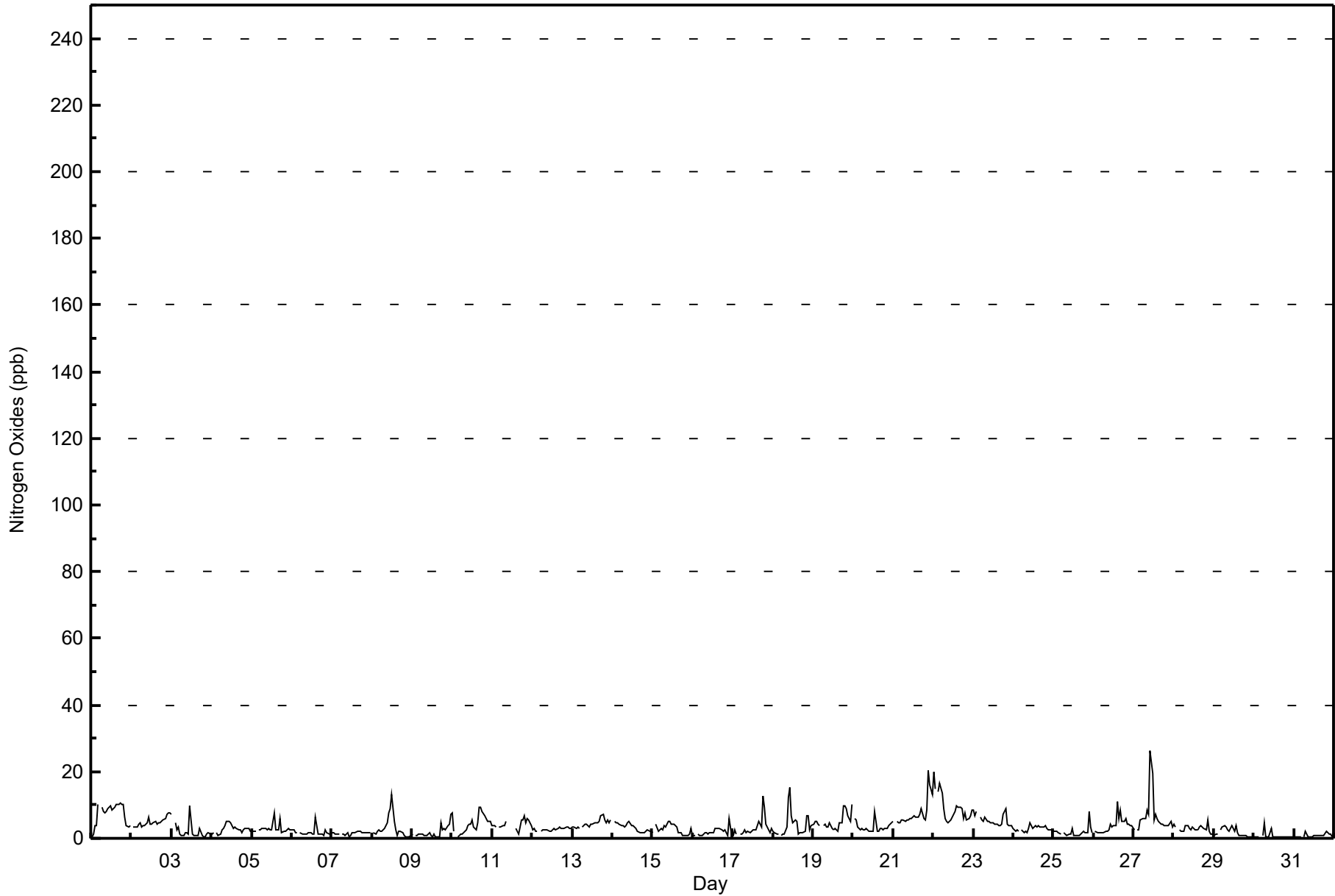
Nitrogen Oxides (NO_x) - ppb
Conklin - December 2024

Maximum Value: 26.2 ppb on Dec 27 11:00		Maximum Daily Average: 9.1 ppb on Dec 22		Hours in Service: 744																																													
Minimum Value: 0.2 ppb on Dec 30 03:00		Minimum Daily Average: 0.7 ppb on Dec 30		Hours of Data: 708																																													
Maximum Diurnal Average: 4.8 ppb at hour 11		Minimum Diurnal Average: 2.7 ppb at hour 4		Hours of Missing Data: 36																																													
Monthly Average: 3.56 ppb		Percentiles: P ₁ = 0.3 P ₁₀ = 0.8 Q ₁ = 1.7 Median = 2.9 Q ₃ = 4.7 P ₉₀ = 7.0 P ₉₉ = 14.7		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-Dec	0.5	1.2	3.6	3.9	10.4	Z	9.4	8.1	7.7	7.9	8.8	9.6	8.4	8.9	9.3	10.1	10.1	10.5	10.2	10.1	6.2	4.0	3.2	3.8	7.2	10.5																							
2-Dec	Z	3.5	3.3	3.6	4.2	4.8	3.6	3.8	3.9	4.6	6.5	4.2	4.2	4.5	5.0	4.4	4.6	4.8	5.0	5.4	6.1	7.4	7.7	7.5	4.9	7.7																							
3-Dec	7.1	Z	4.7	2.6	3.6	1.3	1.0	0.8	1.5	1.8	1.2	9.6	1.2	0.9	0.8	0.7	0.7	3.1	0.9	0.6	0.5	1.4	1.9	1.3	2.1	9.6																							
4-Dec	1.3	1.7	Z	1.7	0.8	1.5	2.6	3.1	4.0	5.1	4.9	4.7	4.0	3.2	3.2	3.0	2.6	2.6	1.9	2.4	3.0	3.0	2.8	2.1	2.8	5.1																							
5-Dec	2.0	2.0	2.2	Z	2.6	2.7	2.8	2.8	2.8	2.6	2.9	2.5	2.4	7.7	2.6	2.7	2.6	5.8	1.7	2.1	2.2	2.6	2.9	2.7	2.9	7.7																							
6-Dec	2.4	2.4	1.8	1.6	Z	1.6	1.2	1.5	1.3	1.2	1.6	1.5	1.3	1.3	6.4	3.8	1.4	1.3	1.2	1.0	2.4	1.5	1.4	1.4	1.8	6.4																							
7-Dec	1.5	1.7	1.4	1.4	1.4	Z	1.4	1.3	1.0	1.8	0.6	0.8	1.6	1.7	1.8	2.0	1.9	1.9	1.9	1.6	1.9	1.7	1.6	1.8	1.5	2.0																							
8-Dec	Z	1.8	1.3	2.3	2.7	2.2	2.1	3.0	3.8	4.8	7.4	8.7	13.0	5.0	2.7	1.0	2.2	2.2	1.9	0.9	0.3	0.3	0.5	0.9	3.1	13.0																							
9-Dec	1.3	Z	1.0	0.8	1.3	1.3	1.2	1.1	0.7	1.0	1.5	0.8	0.4	1.1	0.3	0.4	0.4	4.9	2.5	2.8	2.6	3.8	4.2	7.0	1.8	7.0																							
10-Dec	7.8	1.9	Z	0.4	0.8	1.3	1.5	1.7	2.7	3.6	4.2	4.4	5.6	3.6	2.4	4.5	9.2	9.4	8.0	6.9	5.9	4.9	5.2	5.0	4.4	9.4																							
11-Dec	3.8	3.8	3.2	Z	3.2	3.3	3.7	3.7	5.2	C	C	C	C	C	2.9	2.2	1.3	5.3	5.5	6.6	4.8	6.1	5.7	3.7	4.1	6.6																							
12-Dec	2.5	2.9	2.3	1.9	Z	2.2	2.4	2.5	2.4	2.6	2.3	2.0	2.4	3.0	2.4	3.1	3.2	3.1	3.2	3.0	3.2	3.4	3.0	3.0	2.7	3.4																							
13-Dec	3.6	3.4	3.1	3.2	3.0	Z	3.4	4.0	4.0	4.0	3.5	4.1	4.4	4.8	4.8	4.7	5.0	6.8	7.3	5.3	4.7	5.5	4.5	5.7	4.5	7.3																							
14-Dec	Z	5.2	4.6	4.5	4.2	3.9	3.7	3.5	3.8	4.6	5.3	3.9	3.9	3.6	3.1	2.2	1.7	1.8	1.9	1.9	2.2	2.5	2.1	2.0	3.3	5.3																							
15-Dec	1.8	Z	4.2	2.2	2.7	3.1	2.5	3.8	3.6	5.0	5.1	4.2	4.1	4.2	3.4	1.8	1.5	1.7	1.0	1.0	0.7	1.1	1.2	2.8	2.7	5.1																							
16-Dec	0.7	0.7	Z	1.2	0.9	0.8	1.1	1.7	1.6	1.3	1.9	1.7	1.8	2.9	3.1	3.0	3.0	2.6	1.9	2.6	1.7	0.7	6.1	0.4	1.9	6.1																							
17-Dec	0.9	2.5	1.3	Z	1.2	1.4	1.9	2.5	1.8	1.9	1.5	2.3	2.4	2.6	2.5	5.3	4.2	3.2	12.6	9.4	4.4	2.6	1.9	2.8	3.2	12.6																							
18-Dec	2.1	1.9	1.4	1.4	Z	0.9	1.3	1.4	3.4	12.4	15.2	6.9	4.7	5.4	4.9	1.4	1.6	1.9	1.7	2.3	6.6	6.7	2.5	3.9	4.0	15.2																							
19-Dec	4.0	5.1	5.0	4.2	3.8	Z	4.0	4.3	3.4	3.5	4.7	2.9	2.5	3.1	2.7	2.2	4.5	4.7	9.7	9.9	9.0	6.6	4.9	10.0	5.0	10.0																							
20-Dec	Z	5.9	5.5	3.4	2.6	2.9	2.5	2.5	2.9	2.3	2.2	2.0	2.0	8.2	2.1	2.1	2.8	2.9	2.7	2.9	3.0	3.9	4.1	4.7	3.3	8.2																							
21-Dec	4.9	Z	4.9	4.7	4.6	5.4	5.3	5.2	5.3	5.6	5.7	6.1	6.8	6.4	6.5	6.3	7.3	9.0	6.0	5.6	8.4	20.3	16.2	13.1	7.4	20.3																							
22-Dec	20.1	14.7	Z	14.1	16.3	13.7	8.9	5.8	5.2	4.8	5.6	6.5	7.1	8.2	9.6	9.2	9.3	9.1	5.8	7.7	5.4	6.0	6.9	8.4	9.1	20.1																							
23-Dec	8.3	6.7	7.9	Z	6.3	5.6	5.1	6.4	5.2	5.0	4.7	4.8	4.5	4.4	4.3	4.0	3.9	4.1	7.1	8.7	4.1	3.7	3.7	3.6	5.3	8.7																							
24-Dec	3.0	2.1	2.7	2.1	Z	2.5	1.9	2.1	1.5	2.9	4.5	3.0	3.3	3.9	3.5	3.6	3.2	3.4	3.5	3.9	3.2	2.7	2.6	2.6	2.9	4.5																							
25-Dec	2.3	2.0	1.9	1.7	1.4	Z	1.7	1.2	0.9	1.1	1.5	3.1	1.0	0.9	0.9	0.9	1.2	1.6	2.2	1.6	1.7	8.0	3.5	1.9	1.9	8.0																							
26-Dec	Z	2.2	1.9	1.6	1.7	1.7	1.7	1.9	2.0	2.6	4.4	3.4	3.6	3.8	11.0	6.0	8.4	5.1	5.2	5.7	4.4	4.3	3.6	3.7	3.9	11.0																							
27-Dec	2.7	Z	2.5	2.5	5.7	5.8	6.1	6.1	8.5	7.2	26.2	19.4	5.4	7.2	6.0	5.2	4.4	4.3	3.8	3.8	4.0	3.7	5.0	3.3	6.5	26.2																							
28-Dec	4.4	3.4	Z	2.6	2.2	2.2	2.2	3.7	4.0	3.0	2.7	3.5	3.0	2.7	2.6	3.4	3.9	3.4	2.9	2.6	5.7	2.3	1.3	1.2	3.0	5.7																							
29-Dec	1.0	1.2	1.3	Z	2.6	3.4	3.6	3.5	2.6	2.3	2.8	4.0	2.2	4.0	1.5	0.8	0.8	0.6	0.7	0.7	0.5	0.5	0.4	0.4	1.8	4.0																							
30-Dec	0.4	0.3	0.2	0.2	Z	0.7	4.5	0.6	0.3	0.3	3.0	0.5	0.5	0.5	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.7	4.5																							
31-Dec	0.3	0.3	0.4	0.4	0.3	Z	0.4	2.1	0.5	0.4	0.3	0.5	0.7	0.7	0.7	0.7	0.6	0.8	1.0	2.2	1.7	1.4	1.1	0.5	0.8	2.2																							
																								3.5	3.1	2.8	2.7	3.5	3.0	3.1	3.1	3.1	3.6	4.8	4.4	3.6	3.9	3.7	3.3	3.5	3.9	3.9	3.9	3.6	4.0	3.6	3.6	Diurnal Average	
																								20.1	14.7	7.9	14.1	16.3	13.7	9.4	8.1	8.5	12.4	26.2	19.4	13.0	8.9	11.0	10.1	10.1	10.5	12.6	10.1	9.0	20.3	16.2	13.1	Diurnal Maximum	
Z - zerospan																								C - Calibration																									



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Conklin - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Conklin - December 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**

**Nitrogen Oxides (NO_x) - ppb
Conklin - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	19	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	704
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	20	3	5	9	3	32	38	56	72	89	88	18	25	55	119	73	705

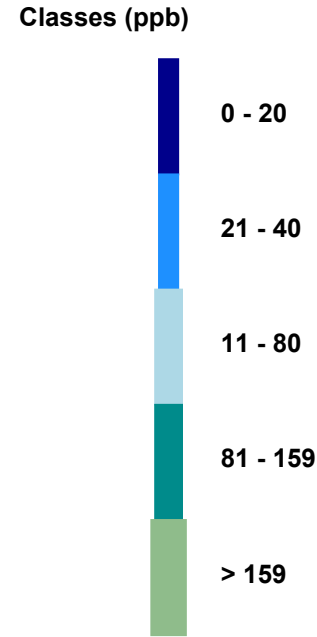
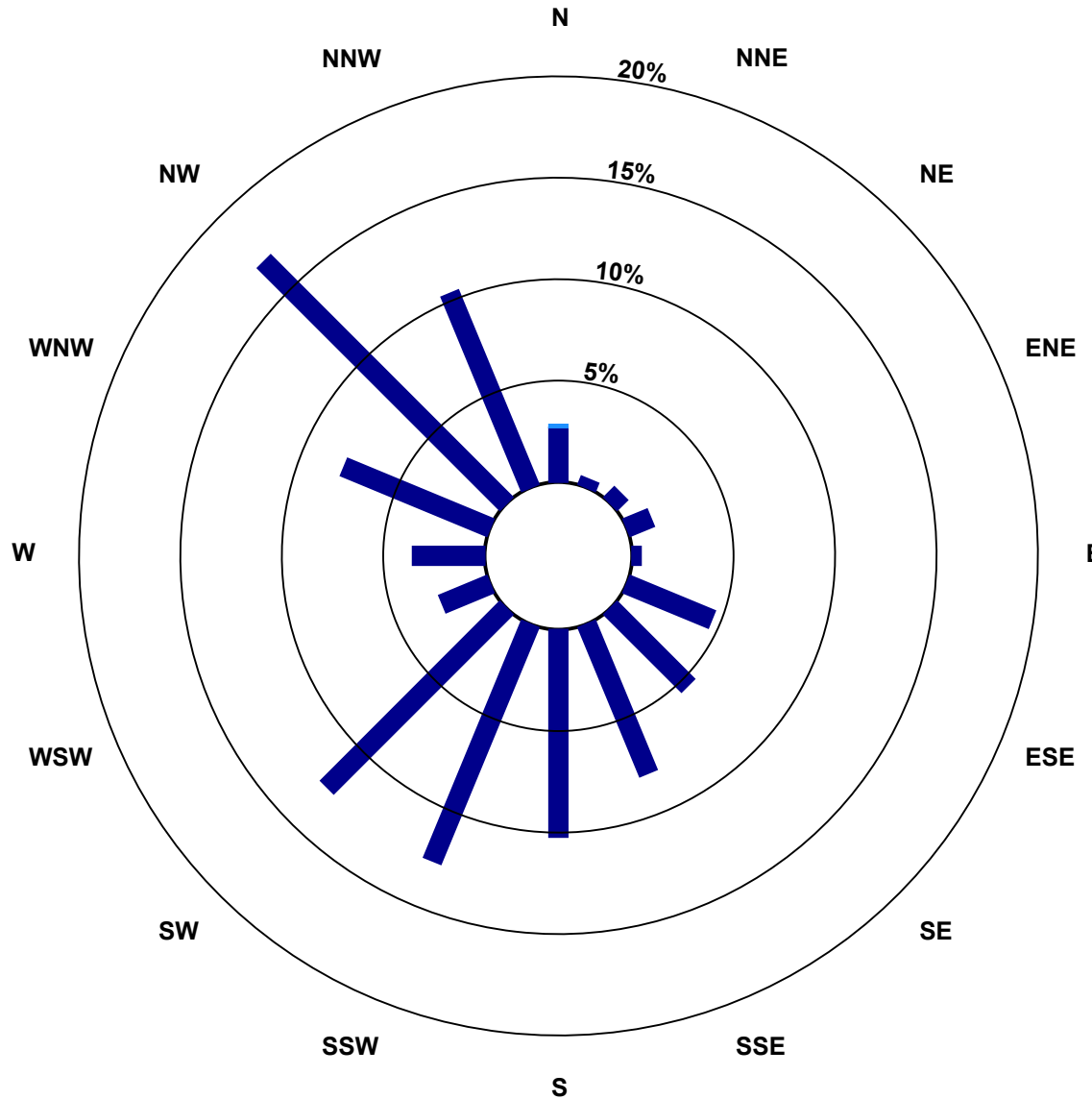
Total Number of Valid Hours: 705

Total Number of Hours: 744

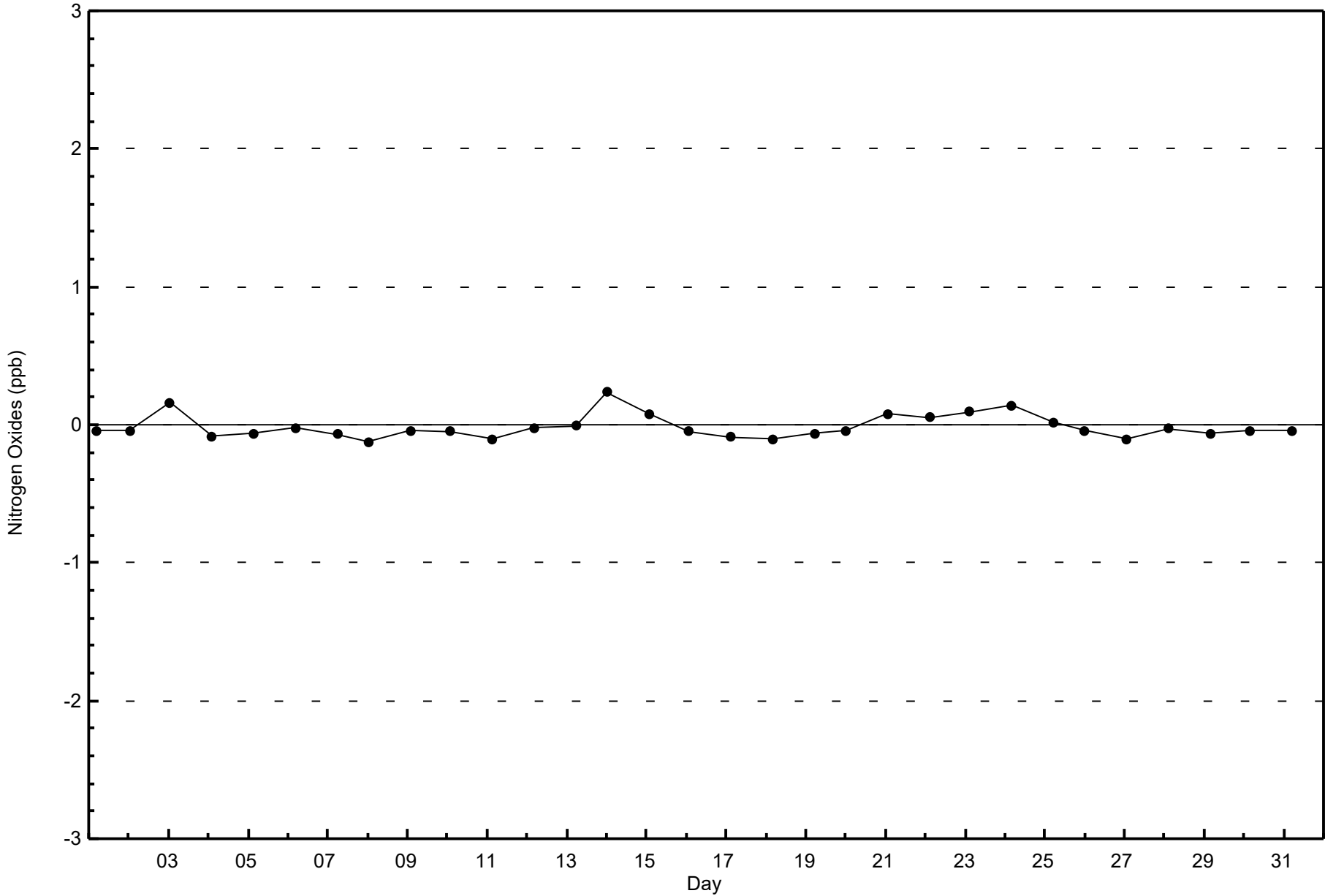


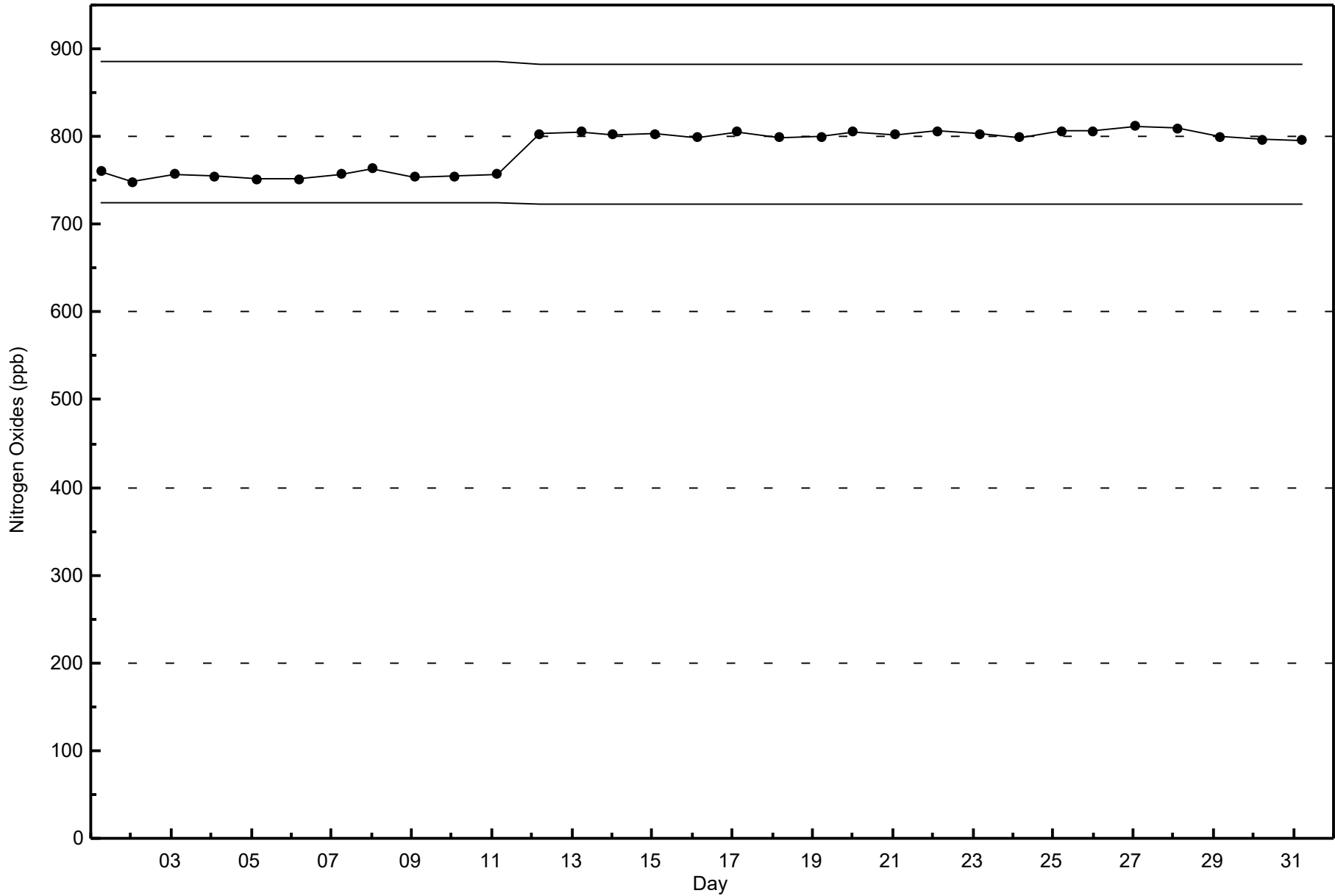
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Conklin



Total Number of Valid Hours: 705







Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

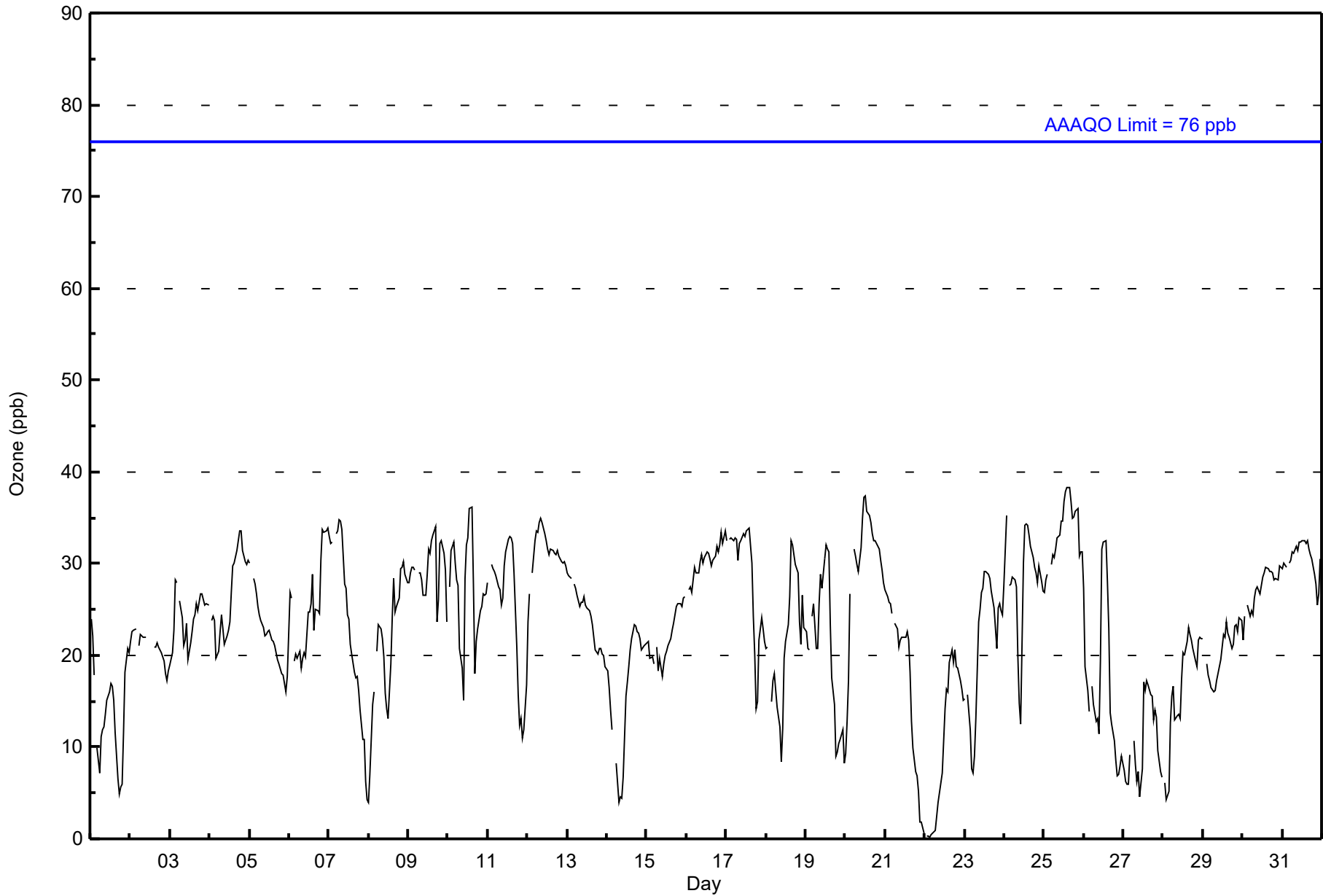
Conklin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 38.4 ppb on Dec 25 16:00		Maximum Daily Average: 33.3 ppb on Dec 25																	709							
Minimum Value: 0.2 ppb on Dec 22 04:00		Minimum Daily Average: 10.5 ppb on Dec 27																	35							
Maximum Diurnal Average: 26.8 ppb at hour 15		Minimum Diurnal Average: 21.0 ppb at hour 4																	35							
Monthly Average: 23.06 ppb		Percentiles: P ₁ = 1.8 P ₁₀ = 11.4 Q ₁ = 18.6 Median = 23.9 Q ₃ = 29.6 P ₉₀ = 32.5 P ₉₉ = 36.1																	100.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	23.9	22.1	17.8	Z	10.0	7.2	11.1	11.9	12.2	13.5	15.0	16.0	17.0	16.6	15.1	11.6	6.6	4.9	5.6	5.9	11.6	18.1	20.8	20.3	13.7	23.9
2-Dec	21.5	22.6	22.7	22.9	Z	21.1	22.2	22.1	21.9	22.0	C	C	C	C	20.8	20.9	21.3	20.9	20.7	20.3	19.4	17.9	17.3	18.3	20.9	22.9
3-Dec	18.9	20.3	22.7	28.2	27.9	Z	25.9	24.1	21.0	21.7	23.5	19.6	21.4	22.6	23.9	24.4	25.6	24.8	26.7	26.6	26.1	25.5	25.6	25.5	24.0	28.2
4-Dec	Z	23.8	24.2	23.9	19.6	20.4	22.5	24.4	22.9	21.2	22.1	22.7	23.7	26.9	29.7	30.1	31.4	32.5	33.5	33.6	31.5	30.3	29.9	30.4	26.6	33.6
5-Dec	30.0	Z	28.4	27.7	26.6	25.3	24.3	23.8	23.1	22.1	22.2	22.6	22.7	21.6	21.6	21.1	20.3	19.6	19.0	17.9	17.9	16.9	16.0	17.7	22.1	30.0
6-Dec	26.9	26.2	Z	19.4	20.2	19.6	20.4	18.6	19.7	20.2	19.8	24.6	24.7	25.6	28.8	22.7	25.0	24.9	24.5	30.4	33.7	33.4	33.5	33.8	25.1	33.8
7-Dec	33.0	32.2	32.3	Z	33.2	33.5	34.7	34.7	33.8	27.8	27.3	24.3	24.0	21.3	20.2	18.2	17.5	17.7	16.1	14.1	10.8	10.9	6.3	4.2	23.0	34.7
8-Dec	3.9	7.1	14.7	16.1	Z	20.5	23.4	22.8	21.8	19.8	15.9	14.2	13.1	19.0	24.1	28.3	24.7	25.3	26.3	29.4	29.6	30.2	28.9	27.9	21.2	30.2
9-Dec	28.0	29.0	29.5	29.6	29.4	Z	29.1	29.0	28.2	26.6	26.5	28.9	31.6	31.1	32.6	33.2	34.0	23.6	26.1	32.2	32.4	31.1	29.4	23.7	29.3	34.0
10-Dec	Z	27.5	31.4	32.3	30.0	28.2	27.7	20.7	18.6	15.1	28.4	32.1	32.7	35.9	36.1	27.8	18.1	21.5	22.9	24.9	25.4	26.7	26.6	26.7	26.8	36.1
11-Dec	27.9	Z	29.9	29.4	29.1	28.7	27.4	27.2	25.5	26.2	29.7	31.2	32.6	32.9	32.7	32.2	28.9	20.9	15.6	12.4	13.1	10.9	12.0	16.7	24.9	32.9
12-Dec	23.6	26.7	Z	28.9	32.5	33.5	33.5	34.5	34.9	34.4	33.3	32.5	31.6	31.0	31.5	31.4	31.1	31.0	31.4	30.8	30.2	30.1	30.2	29.7	31.2	34.9
13-Dec	28.9	28.6	28.4	Z	27.8	27.3	26.6	25.4	25.8	25.7	26.4	25.5	25.2	24.8	24.3	23.4	22.0	20.6	20.1	20.7	20.8	20.1	19.9	18.8	24.2	28.9
14-Dec	18.4	16.5	14.0	11.8	Z	8.2	6.1	4.0	4.5	4.4	6.7	15.6	17.0	18.8	20.6	21.9	23.3	23.3	22.7	22.4	21.8	20.6	21.0	21.2	15.9	23.3
15-Dec	21.3	21.5	19.7	19.8	19.1	Z	20.9	18.4	19.7	17.7	19.0	20.0	20.5	21.0	21.8	22.8	23.5	24.4	25.3	25.6	25.6	25.3	26.2	26.4	22.0	26.4
16-Dec	Z	27.2	27.5	26.8	28.2	29.6	29.0	29.0	30.2	31.0	30.0	30.7	31.3	31.1	30.6	29.8	30.3	30.8	31.9	31.3	32.1	33.4	32.2	33.5	30.3	33.5
17-Dec	32.5	Z	32.6	32.9	32.4	32.8	32.6	30.4	32.2	32.4	33.2	32.9	33.5	33.8	33.9	30.0	24.2	20.1	14.2	15.0	21.6	24.1	22.9	21.6	28.3	33.9
18-Dec	20.8	20.8	Z	14.9	17.2	18.0	16.1	14.3	12.2	8.4	12.0	19.6	21.6	23.3	26.3	32.5	32.0	31.0	29.9	29.0	23.7	21.2	26.6	23.0	21.5	32.5
19-Dec	22.6	20.7	20.6	Z	24.3	25.6	20.7	20.7	25.6	28.8	27.2	30.5	32.1	31.6	31.3	23.3	17.5	14.6	9.0	9.5	10.3	10.8	11.8	8.2	20.8	32.1
20-Dec	9.3	12.8	17.2	26.7	Z	31.6	30.9	29.9	29.2	31.8	34.9	37.2	37.4	35.7	35.2	34.5	33.3	32.4	32.5	32.3	31.6	30.4	29.4	27.9	29.7	37.4
21-Dec	27.2	26.4	25.8	25.6	24.6	Z	23.6	22.8	20.9	21.7	22.0	22.0	22.6	21.6	18.2	12.8	9.9	7.4	6.8	5.1	1.8	1.8	0.6	17.1	27.2	
22-Dec	Z	0.4	0.3	0.2	0.5	0.8	0.9	2.4	3.9	5.1	7.1	10.6	14.2	16.4	16.0	19.2	20.6	19.3	20.5	18.8	18.7	17.2	16.3	15.1	10.6	20.6
23-Dec	15.2	Z	15.7	11.9	7.7	7.2	9.0	13.1	23.7	25.0	26.8	27.3	29.1	29.1	28.9	28.4	27.1	26.1	25.1	20.7	25.2	25.7	24.9	24.3	21.6	29.1
24-Dec	27.6	35.2	Z	27.5	27.7	28.5	28.2	27.4	20.0	14.8	12.5	30.0	34.2	34.4	34.1	33.1	31.9	30.6	29.6	28.9	28.0	29.7	28.0	27.0	28.2	35.2
25-Dec	26.8	28.2	28.8	Z	29.9	31.0	30.7	31.6	32.8	33.1	34.6	34.6	36.7	37.9	38.3	38.4	36.8	34.9	35.1	35.7	35.9	30.8	31.3	31.3	33.3	38.4
26-Dec	27.2	18.7	16.1	13.9	Z	16.6	14.7	12.8	13.1	11.4	19.4	31.6	32.3	32.5	28.1	22.8	13.7	12.5	10.7	8.5	6.9	7.0	8.0	8.9	16.9	32.5
27-Dec	7.5	6.3	6.0	5.9	9.2	Z	10.7	8.1	6.3	7.3	4.6	7.7	17.1	16.2	17.2	16.8	15.8	15.6	12.9	14.0	13.3	9.6	7.3	6.7	10.5	17.2
28-Dec	Z	6.1	4.3	5.1	12.6	15.5	16.7	13.0	13.4	13.6	13.2	17.3	20.2	19.9	21.4	23.0	22.3	21.6	20.8	19.4	18.7	21.7	22.0	21.8	16.7	23.0
29-Dec	21.8	Z	19.0	17.9	17.3	16.4	16.1	16.2	17.3	18.1	18.7	19.5	22.3	21.9	23.7	22.5	22.0	20.8	21.3	23.2	23.3	22.6	24.1	23.9	20.4	24.1
30-Dec	21.7	24.2	Z	25.4	24.3	24.9	24.5	26.2	27.1	27.5	26.6	27.6	28.5	28.9	29.6	29.4	29.1	29.1	28.9	28.2	28.4	28.3	29.7	29.6	27.3	29.7
31-Dec	29.5	30.0	29.6	Z	30.1	30.3	31.3	31.1	31.8	31.5	32.4	32.4	32.5	32.4	32.1	32.5	31.6	30.9	30.4	28.8	27.8	25.5	26.7	30.6	30.5	32.5
22.9 21.6 21.5 21.0 22.7 22.4 22.3 21.6 21.7 21.3 22.4 24.7 26.1 26.6 26.8 25.9 24.3 23.1 22.5 22.5 22.6 22.2 22.1 21.8																								Diurnal Average		
33.0 35.2 32.6 32.9 33.2 33.5 34.7 34.7 34.9 34.4 34.9 37.2 37.4 37.9 38.3 38.4 36.8 34.9 35.1 35.7 35.9 33.4 33.5 33.8																								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
Conklin - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Conklin - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	228	32.16	32.16
21 - 50	481	67.84	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
Conklin - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	8	3	1	4	1	12	24	32	26	22	21	3	2	12	24	30	225
21 - 50	11	0	4	5	2	25	10	26	44	64	70	15	24	42	97	42	481
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	19	3	5	9	3	37	34	58	70	86	91	18	26	54	121	72	706

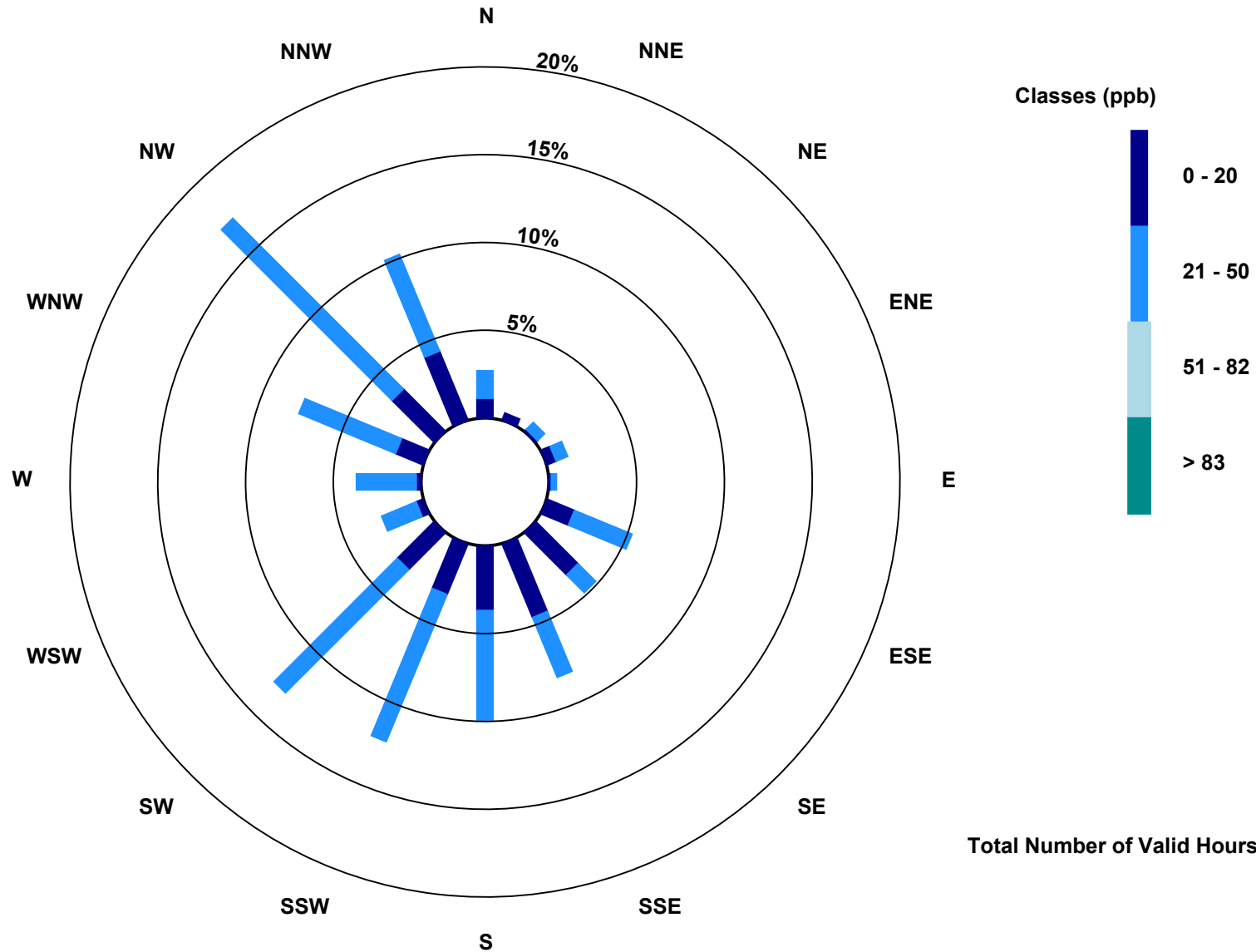
Total Number of Valid Hours: 706

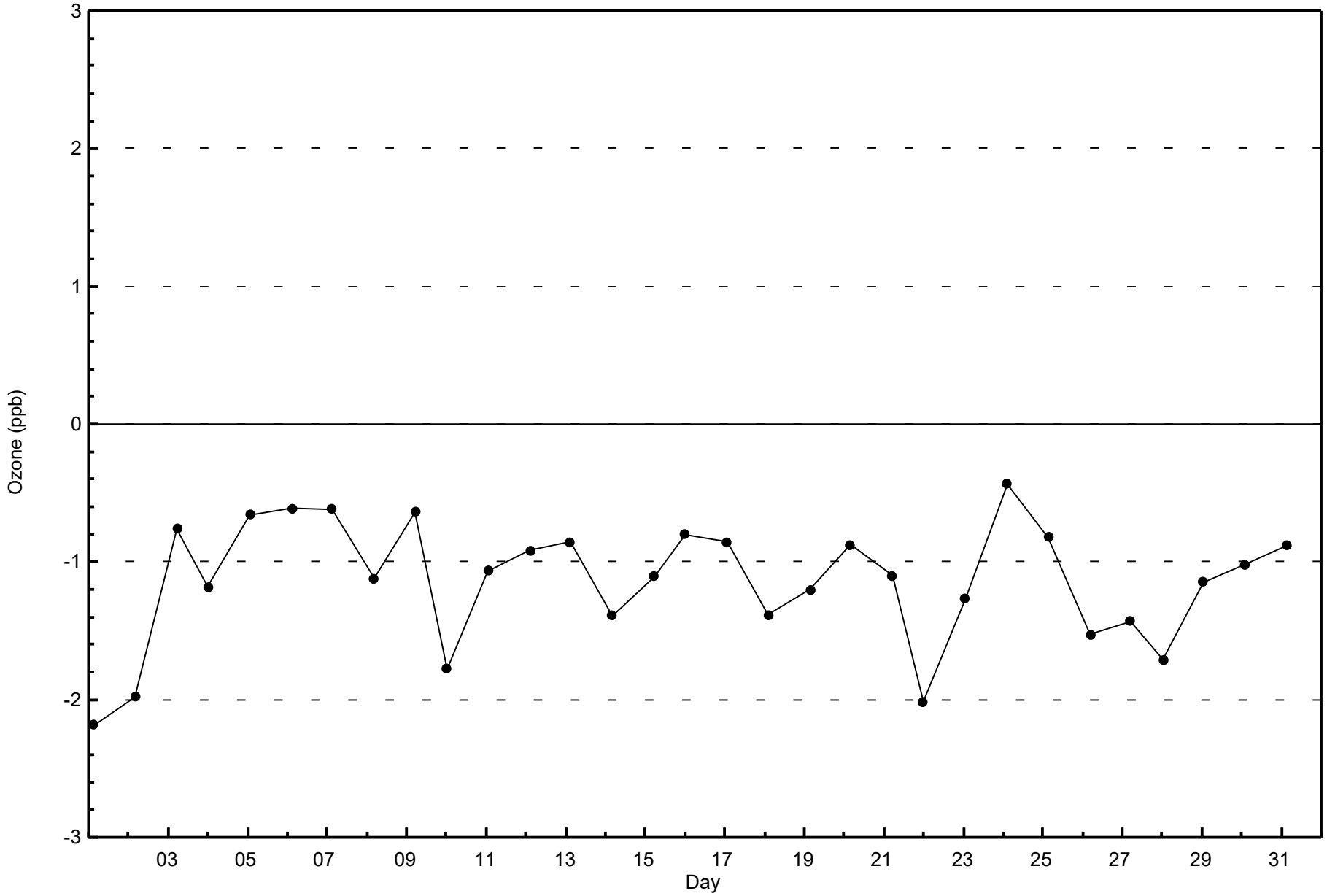
Total Number of Hours: 744

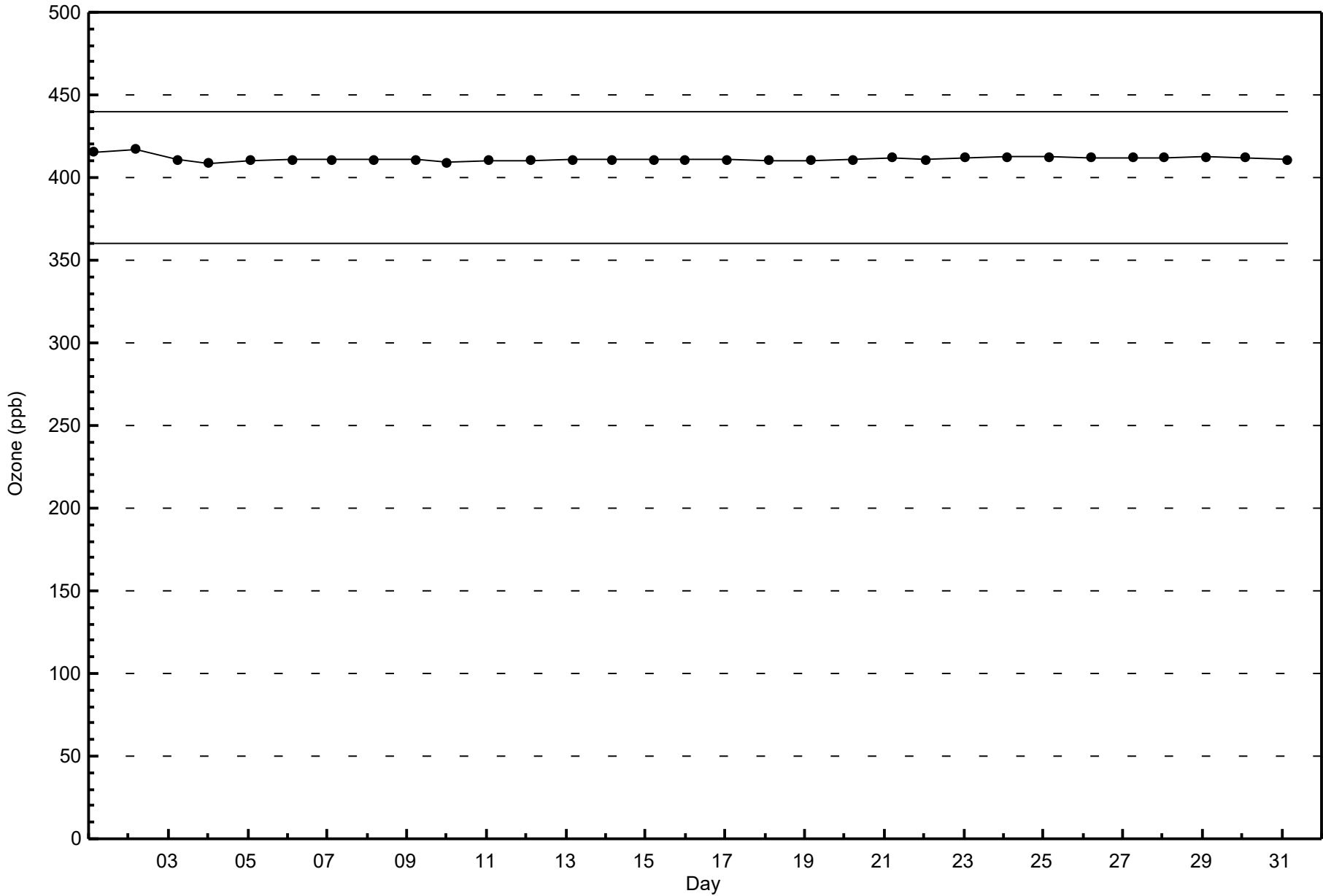


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Conklin









Summary of Hour Averages

Conklin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																												
Maximum Value: 40.2 µg/m ³ on Dec 21 20:00		Maximum Daily Average: 16.6 µg/m ³ on Dec 21														Hours of Data:		743																														
Minimum Value: 0.5 µg/m ³ on Dec 25 15:00		Minimum Daily Average: 2.0 µg/m ³ on Dec 30														Hours of Missing Data:		1																														
Maximum Diurnal Average: 7.7 µg/m ³ at hour 24		Minimum Diurnal Average: 4.8 µg/m ³ at hour 14														Hours of Calibration:		1																														
Monthly Average: 5.96 µg/m ³		Percentiles: P ₁ = 0.9 P ₁₀ = 1.9 Q ₁ = 2.8 Median = 4.3 Q ₃ = 8.1 P ₉₀ = 12.1 P ₉₉ = 23.1														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-Dec	3.2	2.9	2.3	2.5	2.7	2.8	4.2	4.3	3.5	5.4	3.3	3.3	3.2	3.1	3.0	3.8	4.0	16.0	15.3	4.9	2.8	2.6	3.2	3.1	4.4	16.0																						
2-Dec	3.6	3.0	3.3	4.3	5.3	5.0	6.2	7.0	7.7	8.9	9.7	10.4	10.0	9.5	8.9	9.6	10.2	9.8	10.3	12.1	12.5	15.2	14.9	14.4	8.8	15.2																						
3-Dec	13.0	11.2	8.9	3.2	2.3	1.8	1.4	1.1	1.9	3.1	3.3	6.9	5.3	5.5	6.6	6.0	9.7	4.8	6.0	6.2	3.1	2.8	2.9	4.1	5.0	13.0																						
4-Dec	6.5	10.9	18.3	9.3	3.3	3.8	3.6	4.9	5.6	3.3	3.1	3.0	2.8	2.5	3.4	4.2	2.6	2.1	2.8	3.8	5.7	5.2	5.0	5.4	5.1	18.3																						
5-Dec	6.6	7.1	8.0	8.2	9.5	10.8	10.8	10.9	10.6	10.7	10.2	10.5	8.9	8.2	8.5	9.0	10.9	8.9	7.2	8.2	12.6	14.6	16.6	16.5	10.2	16.6																						
6-Dec	8.2	7.0	9.0	8.3	7.4	7.4	6.1	8.4	5.1	5.2	5.1	3.9	3.8	4.1	2.8	3.5	3.5	3.2	4.6	2.5	1.8	1.6	1.2	1.2	4.8	9.0																						
7-Dec	1.3	1.1	1.0	1.0	1.1	1.1	1.0	0.9	1.0	6.0	1.7	2.1	5.2	5.0	5.6	8.2	6.5	3.8	4.9	4.8	10.0	5.5	6.4	5.3	3.8	10.0																						
8-Dec	4.4	5.2	5.8	4.9	4.3	3.7	3.1	3.5	3.7	4.1	5.2	5.7	5.0	3.1	2.1	1.4	3.2	3.1	3.1	1.2	8.1	5.4	5.5	0.8	4.0	8.1																						
9-Dec	0.6	0.7	0.8	1.1	1.6	2.1	2.4	2.2	3.0	3.7	4.0	3.4	2.8	2.5	2.1	2.2	5.0	2.3	2.7	2.4	2.5	2.9	3.1	3.7	2.5	5.0																						
10-Dec	2.8	2.5	2.9	2.2	2.0	1.6	1.3	3.7	4.2	5.8	2.4	1.5	2.0	3.3	2.5	3.4	4.4	3.4	3.0	9.1	2.9	2.8	3.7	3.4	3.2	9.1																						
11-Dec	3.3	3.7	2.9	2.5	2.5	2.4	2.5	2.3	2.2	2.1	2.1	2.1	C	1.9	2.0	2.3	2.0	3.1	4.4	2.3	3.5	3.4	6.4	5.8	2.9	6.4																						
12-Dec	3.5	3.9	2.5	2.3	2.6	2.7	2.7	2.7	2.9	3.0	3.5	3.8	3.6	3.7	4.6	4.1	4.3	5.5	11.9	9.2	5.3	6.0	8.7	6.0	4.5	11.9																						
13-Dec	5.8	8.3	6.5	6.4	6.9	8.1	9.9	9.5	12.9	9.4	9.5	8.3	9.2	10.4	10.4	10.5	11.8	20.8	30.3	15.3	12.5	20.7	13.1	23.9	12.1	30.3																						
14-Dec	25.7	22.8	17.0	16.3	17.9	16.1	14.6	12.3	12.8	12.4	12.9	8.9	7.5	7.0	6.9	6.6	7.3	8.5	9.2	9.2	9.5	8.8	11.6	13.1	12.3	25.7																						
15-Dec	18.0	11.0	9.6	10.7	11.7	9.3	8.4	8.6	6.3	6.3	5.7	5.8	5.7	6.0	7.0	5.1	6.9	7.4	3.1	4.4	4.2	3.8	3.5	3.1	7.1	18.0																						
16-Dec	3.0	2.8	2.6	2.7	2.7	3.1	2.9	3.1	4.5	4.1	4.8	4.2	3.9	4.0	4.6	4.2	3.7	3.4	3.1	3.0	2.7	2.5	2.4	2.2	3.3	4.8																						
17-Dec	2.2	2.1	2.0	1.9	6.8	1.8	1.8	1.9	1.9	1.9	2.7	2.3	2.9	2.5	2.6	4.3	5.3	3.7	4.9	4.1	3.0	2.9	4.2	18.4	3.7	18.4																						
18-Dec	5.6	9.2	4.7	5.9	5.0	3.4	9.9	5.8	6.4	5.4	5.8	5.2	5.4	4.6	4.0	3.3	6.0	4.9	4.8	7.2	5.7	4.0	7.5	8.3	5.7	9.9																						
19-Dec	4.0	4.6	22.3	4.6	4.2	8.4	5.3	10.4	5.2	3.0	3.1	4.2	3.4	3.8	9.4	3.6	4.2	7.9	9.5	15.9	13.7	6.4	3.8	19.9	7.5	22.3																						
20-Dec	3.5	5.5	7.8	3.8	3.0	2.9	3.1	3.2	3.0	2.8	2.5	2.4	2.6	2.8	3.5	4.6	6.0	7.3	6.9	6.3	5.9	6.7	6.8	7.1	4.6	7.8																						
21-Dec	7.5	7.6	8.4	9.1	9.9	10.3	18.3	15.6	16.0	14.3	15.8	16.6	16.6	15.4	17.5	14.5	13.5	14.3	16.0	40.2	32.2	24.5	29.5	15.7	16.6	40.2																						
22-Dec	12.5	11.0	10.2	9.5	11.9	14.3	9.3	14.9	11.4	10.8	9.7	12.0	12.4	12.9	11.3	13.4	22.3	16.8	8.3	7.4	10.7	12.4	11.7	12.3	12.1	22.3																						
23-Dec	11.3	8.9	12.1	13.6	8.6	10.1	6.7	6.5	6.1	6.5	7.0	8.1	8.0	7.9	8.5	7.9	7.9	8.4	8.7	8.6	7.6	6.7	7.0	7.5	8.3	13.6																						
24-Dec	5.9	3.3	4.6	4.6	4.7	7.6	4.8	5.8	3.0	3.1	3.1	1.7	0.9	1.9	3.2	3.3	3.9	2.3	2.6	2.9	3.1	4.8	3.4	2.9	3.6	7.6																						
25-Dec	3.1	2.8	2.9	2.7	2.4	1.7	2.4	3.1	1.4	1.3	1.2	0.8	0.8	0.6	0.5	1.2	5.2	3.1	6.8	2.6	5.4	3.5	3.3	3.6	2.6	6.8																						
26-Dec	6.2	3.3	1.3	4.9	8.0	3.8	5.9	3.5	3.4	4.8	11.3	3.2	3.2	2.9	3.8	10.6	8.1	15.5	23.3	11.0	3.7	3.8	13.3	10.7	7.1	23.3																						
27-Dec	6.5	12.0	14.4	13.1	8.8	5.4	4.2	4.5	11.0	8.1	22.9	5.8	10.8	4.9	5.0	3.8	3.4	4.4	3.7	3.9	5.6	6.1	5.8	7.0	7.5	22.9																						
28-Dec	4.5	5.5	5.4	4.7	6.4	6.4	5.0	4.4	5.2	5.8	4.5	3.3	3.0	3.3	3.4	3.9	4.3	3.9	3.0	3.0	3.2	2.7	2.4	2.3	4.1	6.4																						
29-Dec	2.6	2.8	2.6	2.5	2.5	2.2	2.5	2.8	2.7	3.2	2.6	1.9	2.3	2.1	2.5	2.9	3.7	2.6	2.3	2.7	5.3	2.7	1.7	6.3	2.8	6.3																						
30-Dec	3.3	1.9	3.9	6.1	1.7	1.7	1.9	1.7	1.6	1.5	1.5	1.2	1.1	1.2	1.6	1.4	1.3	1.3	1.5	1.8	1.9	2.0	2.4	1.9	2.0	6.1																						
31-Dec	2.5	2.4	2.4	2.1	2.0	1.9	1.9	1.9	1.7	1.9	2.0	2.5	2.4	2.9	2.6	2.5	2.3	2.5	2.4	2.6	2.4	2.2	2.3	2.4	2.3	2.9																						
																								6.1	6.0	6.7	5.6	5.5	5.3	5.3	5.5	5.4	5.4	5.9	5.0	5.2	4.8	5.2	5.3	6.2	6.6	7.3	7.1	6.7	6.3	6.9	7.7	Diurnal Average
																								25.7	22.8	22.3	16.3	17.9	16.1	18.3	15.6	16.0	14.3	22.9	16.6	16.6	15.4	17.5	14.5	22.3	20.8	30.3	40.2	32.2	24.5	29.5	23.9	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}) - $\mu\text{g}/\text{m}^3$
Conklin - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	451	60.70	60.70
6 - 15	256	34.45	95.15
16 - 25	31	4.17	99.33
26 - 80	5	0.67	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Conklin - December 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	13	2	2	3	2	31	16	34	41	33	32	10	23	53	105	50	450
6 - 15	4	1	3	6	1	6	22	18	26	52	57	8	3	4	22	22	255
16 - 25	3	0	0	0	0	0	1	6	5	7	5	0	0	0	1	2	30
26 - 80	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	1	5
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	3	5	9	3	37	39	59	73	94	94	18	26	57	128	75	740

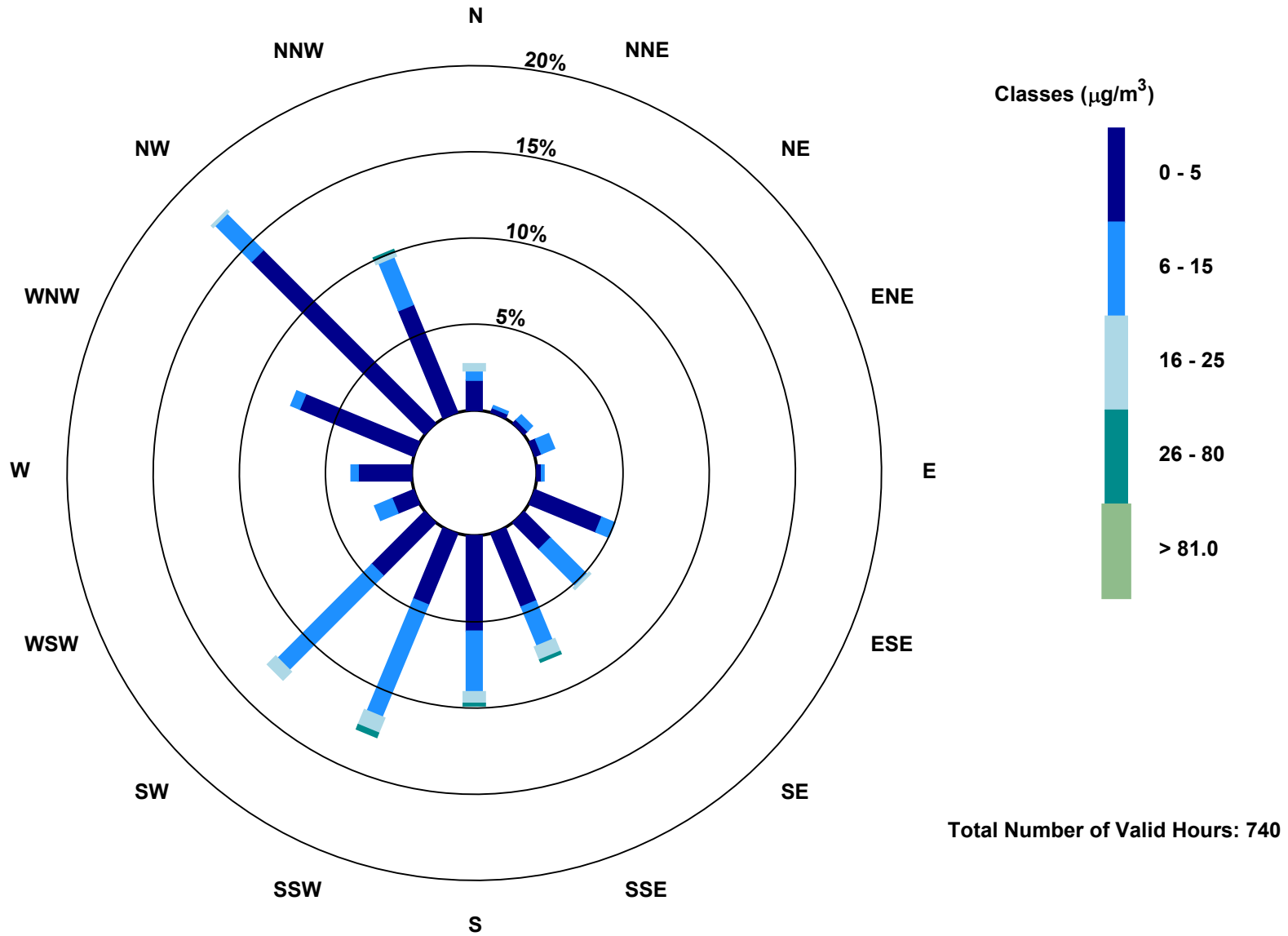
Total Number of Valid Hours: 740

Total Number of Hours: 744



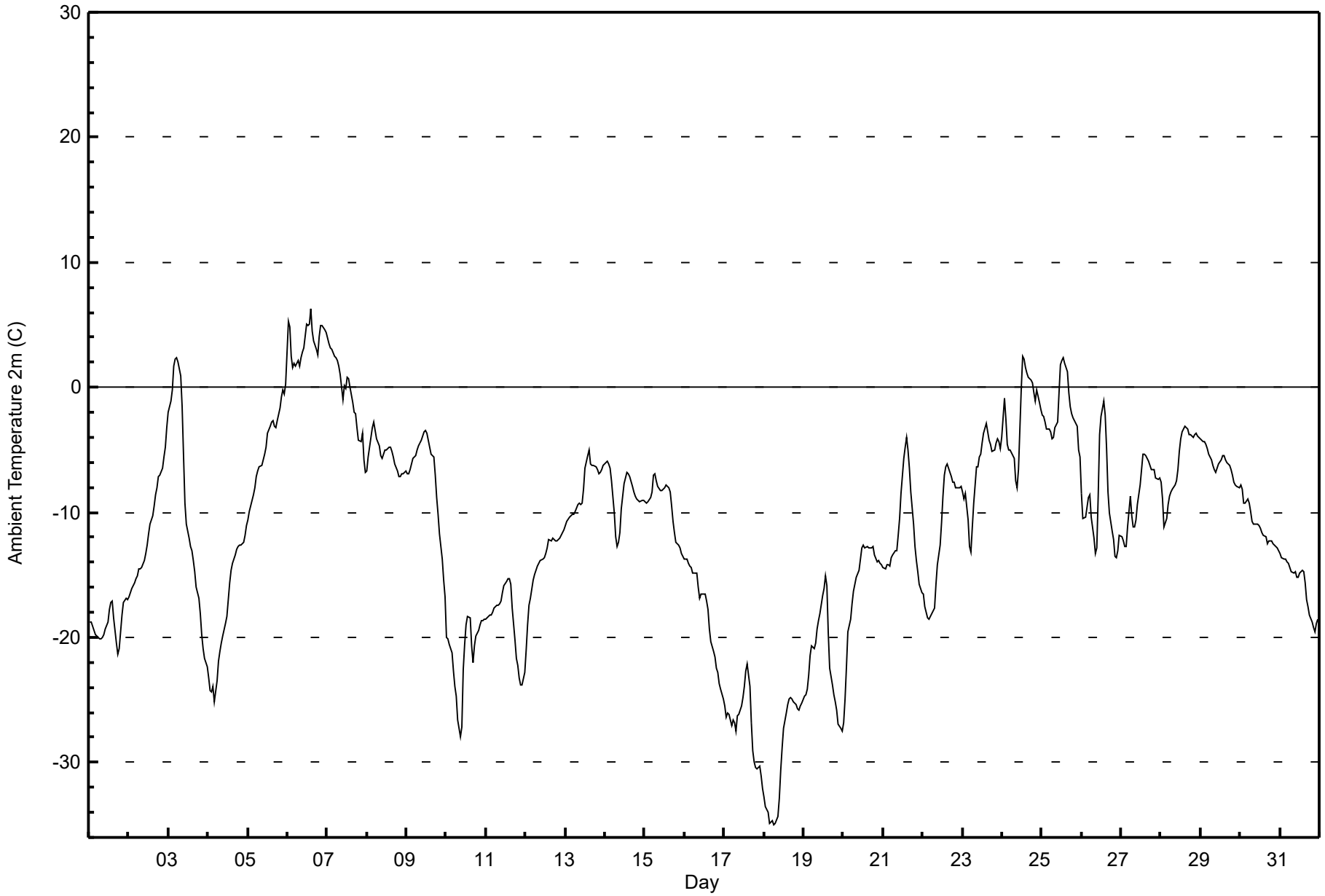
Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Value: 6.3 C on Dec 6 15:00 Maximum Daily Average: 3.7 C on Dec 6																								Hours in Service:	744	
Minimum Value: -35.0 C on Dec 18 07:00 Minimum Daily Average: -29.5 C on Dec 18																								Hours of Data:	744	
Maximum Diurnal Average: -8.8 C at hour 15 Minimum Diurnal Average: -12.4 C at hour 3																								Hours of Missing Data:	0	
Monthly Average: -11.42 C Percentiles: P ₁ = -33.2 P ₁₀ = -23.2 Q ₁ = -16.9 Median = -10.7 Q ₃ = -5.5 P ₉₀ = -1.7 P ₉₉ = 4.7																								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-Dec	-18.8	-18.8	-19.1	-19.4	-19.8	-20.0	-20.1	-20.1	-20.0	-19.7	-19.3	-18.8	-17.8	-17.2	-17.1	-18.4	-20.5	-21.4	-20.8	-19.5	-18.2	-17.2	-16.9	-16.9	-19.0	-16.9
2-Dec	-16.7	-16.4	-16.1	-15.7	-15.3	-15.1	-14.5	-14.5	-14.4	-13.8	-13.3	-12.6	-11.8	-10.9	-10.2	-9.5	-8.6	-8.0	-7.1	-7.0	-6.5	-5.6	-4.8	-3.2	-11.3	-3.2
3-Dec	-1.9	-1.1	-0.2	1.7	2.2	2.3	2.0	1.0	-1.5	-5.5	-9.2	-10.9	-12.1	-12.8	-13.1	-13.9	-14.8	-16.0	-16.9	-18.1	-19.7	-20.9	-21.6	-22.4	-9.3	2.3
4-Dec	-23.3	-24.3	-24.4	-23.9	-25.2	-23.4	-21.9	-21.1	-20.4	-19.9	-18.9	-18.3	-17.0	-15.6	-14.6	-14.0	-13.4	-13.0	-12.7	-12.6	-12.7	-12.4	-11.8	-11.0	-17.7	-11.0
5-Dec	-10.6	-10.0	-9.1	-8.6	-8.0	-7.2	-6.7	-6.4	-6.3	-5.8	-5.3	-4.8	-3.7	-3.2	-2.7	-2.7	-3.1	-3.2	-2.7	-1.7	-0.8	-0.2	-0.5	0.3	-4.7	0.3
6-Dec	5.3	4.8	2.5	1.6	2.0	1.7	2.1	1.7	2.4	2.8	3.2	5.0	4.9	5.1	6.3	4.5	3.7	3.0	2.6	4.0	5.0	4.9	4.6	4.4	3.7	6.3
7-Dec	3.9	3.5	3.1	3.1	2.4	2.4	2.2	1.7	1.0	-1.0	0.1	-0.1	0.8	0.7	0.0	-1.2	-2.0	-2.1	-3.2	-4.2	-4.4	-3.6	-5.8	-6.8	-0.4	3.9
8-Dec	-6.7	-5.6	-4.0	-3.2	-2.8	-3.4	-4.2	-4.6	-5.4	-5.7	-5.4	-5.0	-4.8	-4.8	-5.2	-5.6	-6.1	-6.7	-7.1	-7.1	-7.0	-6.9	-6.7	-5.4	-2.8	-5.4
9-Dec	-6.9	-6.9	-6.6	-6.1	-5.7	-5.4	-5.0	-4.7	-4.5	-4.3	-3.6	-3.4	-3.7	-4.2	-4.8	-5.3	-5.6	-7.1	-8.8	-10.1	-11.8	-13.7	-15.4	-16.8	-7.1	-3.4
10-Dec	-20.0	-20.1	-20.6	-21.3	-22.7	-24.0	-24.7	-26.7	-28.0	-27.1	-22.6	-20.6	-19.0	-18.4	-18.5	-20.6	-22.0	-20.7	-19.9	-19.4	-19.0	-18.7	-18.7	-18.5	-21.3	-18.4
11-Dec	-18.5	-18.4	-18.3	-18.2	-18.0	-17.7	-17.4	-17.4	-17.3	-17.1	-16.5	-15.8	-15.5	-15.3	-15.3	-15.8	-17.6	-20.3	-21.7	-22.3	-23.2	-23.8	-23.8	-22.8	-18.7	-15.3
12-Dec	-21.0	-19.0	-17.5	-16.8	-15.5	-15.0	-14.6	-14.3	-14.1	-13.9	-13.8	-13.6	-13.2	-12.8	-12.2	-12.3	-12.1	-12.2	-12.3	-12.2	-12.0	-11.8	-11.6	-11.4	-14.0	-11.4
13-Dec	-11.0	-10.8	-10.4	-10.2	-10.2	-10.2	-9.9	-9.3	-9.2	-9.4	-9.3	-8.1	-6.5	-5.5	-5.0	-6.2	-6.2	-6.3	-6.4	-6.6	-6.9	-6.8	-6.6	-6.2	-8.1	-5.0
14-Dec	-6.1	-5.9	-6.1	-6.5	-7.5	-10.1	-11.9	-12.7	-12.4	-11.6	-9.7	-7.7	-7.2	-6.8	-6.9	-7.2	-8.0	-8.4	-8.7	-8.9	-9.1	-9.1	-9.1	-9.1	-8.6	-5.9
15-Dec	-9.2	-9.3	-9.2	-8.8	-8.4	-7.0	-7.0	-7.5	-7.9	-8.2	-8.3	-8.1	-8.0	-7.8	-8.0	-8.4	-9.5	-10.7	-11.6	-12.4	-12.6	-12.9	-13.3	-13.5	-9.5	-7.0
16-Dec	-13.7	-13.8	-14.1	-14.3	-14.5	-14.8	-14.8	-14.9	-15.9	-16.8	-16.5	-16.5	-16.5	-17.1	-17.7	-19.3	-20.4	-21.1	-21.6	-22.5	-22.8	-23.6	-24.1	-24.9	-18.0	-13.7
17-Dec	-25.5	-26.3	-26.1	-26.1	-27.0	-26.6	-26.8	-27.5	-26.3	-26.2	-25.5	-24.8	-23.9	-22.7	-22.1	-23.9	-26.9	-29.0	-30.0	-30.5	-30.5	-30.3	-31.1	-32.1	-27.0	-22.1
18-Dec	-32.7	-33.6	-34.0	-34.9	-34.8	-34.7	-35.0	-34.9	-34.4	-32.8	-30.6	-28.9	-27.3	-26.0	-25.4	-24.9	-24.8	-24.9	-25.2	-25.4	-25.7	-25.8	-25.5	-25.2	-29.5	-24.8
19-Dec	-24.7	-24.6	-24.1	-23.0	-21.5	-20.7	-20.9	-20.5	-19.4	-18.7	-18.1	-16.6	-16.1	-15.1	-15.9	-19.7	-22.5	-23.8	-24.6	-25.1	-25.8	-26.9	-27.2	-27.5	-21.8	-15.1
20-Dec	-26.8	-24.9	-22.4	-19.6	-18.6	-17.4	-16.3	-15.7	-15.2	-14.6	-13.7	-12.8	-12.6	-12.9	-12.7	-12.8	-12.9	-12.9	-12.7	-13.4	-14.0	-13.9	-14.0	-14.2	-15.7	-12.6
21-Dec	-14.4	-14.5	-14.2	-14.1	-14.3	-13.6	-13.4	-13.1	-13.1	-11.8	-10.5	-8.5	-5.6	-4.8	-4.0	-5.1	-6.4	-8.3	-10.9	-12.7	-13.8	-14.8	-15.7	-16.4	-11.4	-4.0
22-Dec	-16.5	-17.5	-18.0	-18.4	-18.6	-18.1	-17.9	-17.7	-15.8	-14.1	-12.7	-10.8	-8.7	-7.0	-6.4	-6.1	-6.8	-7.1	-7.5	-7.6	-8.0	-8.1	-8.0	-8.0	-11.9	-6.1
23-Dec	-8.3	-8.9	-8.5	-10.6	-12.8	-13.2	-11.1	-9.3	-6.3	-6.4	-5.5	-5.3	-4.4	-3.7	-2.9	-3.6	-4.2	-4.6	-5.1	-5.1	-4.5	-4.2	-4.4	-4.9	-6.6	-2.9
24-Dec	-4.0	-0.9	-2.6	-4.6	-5.0	-5.0	-5.4	-5.7	-7.5	-8.1	-6.6	-0.1	2.5	2.3	1.6	1.2	0.8	0.6	0.4	-0.5	-1.0	-0.2	-1.2	-1.8	-2.1	2.5
25-Dec	-2.2	-2.3	-2.8	-3.4	-3.4	-3.5	-4.1	-4.0	-3.2	-2.7	-0.5	1.8	2.1	2.4	1.9	1.2	0.4	-1.6	-2.1	-2.5	-2.9	-3.1	-5.0	-5.6	-1.9	2.4
26-Dec	-8.5	-10.4	-10.4	-9.6	-8.8	-8.6	-10.4	-12.1	-13.3	-12.9	-8.7	-3.8	-2.4	-1.0	-2.2	-4.9	-8.4	-10.1	-11.4	-12.2	-13.5	-13.7	-13.1	-11.9	-9.3	-1.0
27-Dec	-11.9	-12.3	-12.7	-12.7	-11.2	-8.7	-10.3	-11.2	-11.2	-10.6	-9.3	-7.8	-6.6	-5.4	-5.3	-5.5	-5.9	-6.2	-6.5	-6.6	-6.6	-7.2	-7.3	-7.3	-8.6	-5.3
28-Dec	-7.6	-8.9	-11.2	-10.5	-9.4	-8.7	-8.4	-8.2	-7.9	-7.4	-6.6	-5.1	-4.1	-3.5	-3.1	-3.2	-3.4	-3.8	-3.8	-4.0	-3.8	-3.7	-3.9	-4.0	-6.0	-3.1
29-Dec	-4.2	-4.4	-4.4	-4.6	-4.9	-5.4	-5.8	-6.3	-6.6	-6.7	-6.4	-6.1	-5.8	-5.4	-5.4	-5.7	-6.1	-6.3	-6.6	-7.1	-7.6	-7.8	-7.9	-8.1	-6.1	-4.2
30-Dec	-7.9	-8.2	-9.2	-9.3	-9.0	-9.2	-10.0	-10.8	-10.9	-10.9	-10.9	-11.0	-11.3	-11.6	-11.9	-12.0	-12.5	-12.3	-12.2	-12.3	-12.5	-12.7	-12.9	-13.1	-11.0	-7.9
31-Dec	-13.3	-13.6	-13.7	-13.7	-13.9	-14.1	-14.4	-14.8	-14.9	-14.8	-15.2	-15.2	-14.8	-14.7	-14.8	-15.6	-17.0	-17.6	-18.2	-18.7	-19.2	-19.5	-18.9	-18.5	-15.8	-13.3
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Conklin - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	115	15.46	15.46
-20 - 0	574	77.15	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

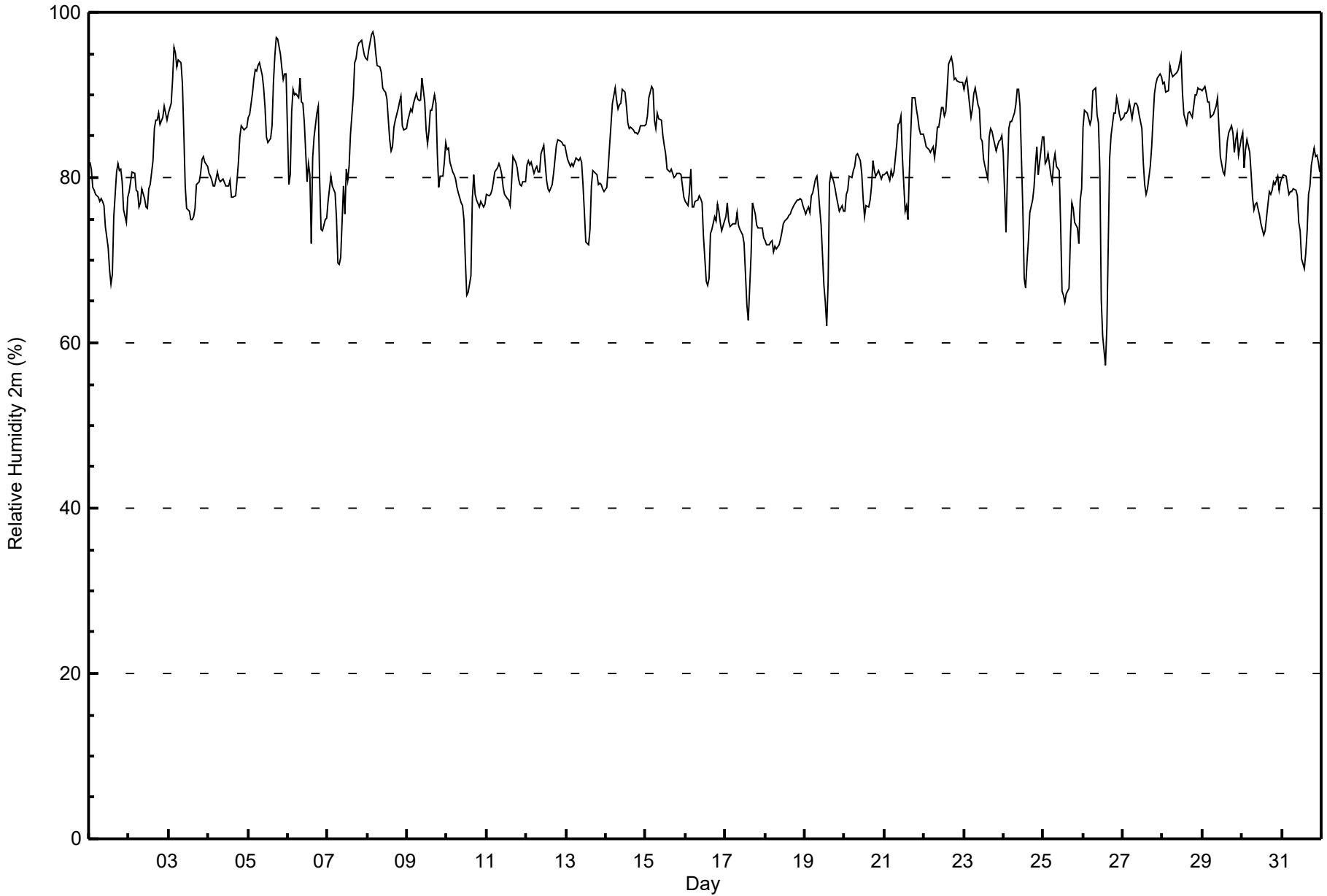
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity 2m (RH2) - %
Conklin - December 2024

Maximum Value: 97.7 % on Dec 8 04:00 Maximum Daily Average: 91.1 % on Dec 5																						Hours in Service: 744 Hours of Data: 744																										
Minimum Value: 57.2 % on Dec 26 14:00 Minimum Daily Average: 73.2 % on Dec 17 Maximum Diurnal Average: 84.0 % at hour 4 Minimum Diurnal Average: 75.7 % at hour 14 Monthly Average: 81.96 % Percentiles: P ₁ = 65.1 P ₁₀ = 74.0 Q ₁ = 77.5 Median = 81.2 Q ₃ = 87.3 P ₉₀ = 90.8 P ₉₉ = 95.7																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	81.8	80.9	78.8	78.5	77.9	77.6	77.1	77.4	77.2	76.6	74.1	71.6	68.8	67.2	68.3	75.2	80.6	81.7	80.9	81.0	79.6	76.0	74.6	77.7	76.7	81.8																						
2-Dec	78.4	79.5	80.6	80.5	78.4	78.3	76.4	77.0	78.6	77.4	76.5	76.2	78.6	79.1	82.0	85.9	87.0	86.9	87.7	86.5	87.4	88.6	87.8	87.0	81.8	88.6																						
3-Dec	87.8	89.0	91.9	95.7	95.0	93.3	94.2	93.8	91.3	85.5	79.0	76.3	75.9	74.9	74.8	75.3	76.3	79.2	79.4	80.5	82.2	82.5	81.8	81.4	84.0	95.7																						
4-Dec	80.5	80.2	79.6	78.9	79.0	80.6	79.8	79.5	79.6	79.8	79.0	79.0	79.7	77.6	77.6	77.8	79.6	81.9	84.9	86.3	85.8	86.0	86.1	86.1	80.7	86.3																						
5-Dec	87.3	87.7	90.2	91.9	93.1	92.8	93.6	93.9	92.4	90.9	88.5	85.0	84.2	84.8	86.2	91.5	94.7	97.0	96.9	94.9	93.3	91.9	92.6	92.5	91.1	97.0																						
6-Dec	79.2	80.4	88.0	90.7	89.9	90.1	89.7	92.0	89.2	89.0	86.8	79.4	81.7	80.4	72.0	82.4	84.9	87.8	88.6	79.4	73.7	73.6	74.8	75.1	83.3	92.0																						
7-Dec	77.1	78.6	80.1	79.0	78.1	75.1	69.6	69.5	70.3	79.0	75.7	81.1	79.6	81.4	85.3	89.9	94.0	94.4	95.7	96.2	96.7	95.6	94.8	94.4	83.8	96.7																						
8-Dec	94.2	95.5	97.2	97.7	97.0	95.0	93.6	93.4	92.7	90.9	90.5	90.4	89.5	84.6	83.2	83.7	86.2	87.0	88.3	89.2	89.8	86.3	85.7	86.0	90.3	97.7																						
9-Dec	87.0	87.6	88.2	88.0	89.1	90.2	89.6	89.3	89.3	92.1	89.1	85.8	84.0	85.6	88.2	88.2	90.1	88.9	82.9	78.9	80.1	80.1	81.9	84.2	86.6	92.1																						
10-Dec	83.3	83.6	81.9	80.7	80.4	79.9	78.8	78.2	77.0	76.6	75.0	70.1	65.8	66.1	68.2	77.5	80.4	78.0	77.3	76.5	77.0	76.8	76.4	76.8	76.7	83.6																						
11-Dec	77.9	77.9	77.9	78.4	79.6	80.7	81.2	81.8	81.2	80.4	78.8	77.9	77.4	77.3	76.6	79.4	82.5	81.9	81.2	79.8	79.1	79.0	79.5	79.5	79.4	82.5																						
12-Dec	81.5	82.0	81.4	81.8	80.4	81.1	81.4	80.6	80.6	82.9	83.9	81.6	79.6	78.6	78.3	79.2	80.5	82.2	83.9	84.6	84.5	84.3	83.9	83.9	81.8	84.6																						
13-Dec	83.1	82.2	81.4	81.7	81.4	81.8	82.4	82.1	82.4	81.8	79.1	75.8	72.3	71.9	73.7	79.0	80.9	80.7	80.4	79.2	79.3	79.2	78.6	78.4	79.5	83.1																						
14-Dec	78.8	81.2	83.9	86.5	88.9	90.9	89.4	88.2	88.8	89.0	90.7	90.3	88.6	86.6	86.0	86.2	85.7	85.5	85.3	85.5	86.2	86.2	86.2	86.3	86.7	90.9																						
15-Dec	86.5	87.5	89.6	91.0	90.7	87.0	86.0	87.8	87.1	87.0	85.0	83.9	82.9	81.1	80.8	81.1	80.5	80.0	80.2	80.6	80.5	80.4	79.0	77.7	83.9	91.0																						
16-Dec	77.1	76.6	78.2	80.9	76.5	76.4	77.2	77.2	77.9	77.5	76.9	72.8	67.5	66.9	67.8	73.2	73.8	75.2	74.8	76.8	75.9	74.6	73.6	74.7	75.0	80.9																						
17-Dec	75.3	77.0	74.7	74.1	74.3	74.4	74.4	75.8	74.2	73.7	73.0	72.0	68.3	64.6	62.7	70.7	76.9	76.3	75.6	74.2	73.9	73.8	73.9	72.7	73.2	77.0																						
18-Dec	72.3	71.9	71.9	72.1	72.3	71.1	71.7	71.4	71.8	72.5	73.4	74.4	74.7	75.1	75.4	75.6	76.2	76.5	76.8	77.2	77.3	77.5	77.3	76.7	74.3	77.5																						
19-Dec	75.6	76.0	76.5	75.8	77.8	78.2	79.9	80.2	78.5	76.3	74.2	66.9	64.9	62.0	67.2	79.4	80.5	79.4	78.6	77.6	76.7	76.0	76.6	76.0	75.4	80.5																						
20-Dec	75.9	78.0	78.5	80.1	80.0	80.8	81.3	82.8	83.0	82.1	80.5	77.5	75.3	76.6	76.5	77.3	78.9	82.0	80.8	80.2	80.9	80.3	79.8	80.3	79.6	83.0																						
21-Dec	80.4	80.7	80.1	79.7	80.9	80.2	80.7	84.1	86.4	86.6	87.4	82.5	76.0	76.7	75.0	80.7	85.4	89.7	89.6	88.4	87.3	86.0	85.3	85.3	83.1	89.7																						
22-Dec	84.5	83.8	83.6	83.4	83.1	83.8	82.4	83.9	86.1	86.1	88.4	88.5	87.5	88.0	90.8	93.7	94.6	93.8	91.9	92.0	91.7	91.5	91.5	91.5	88.2	94.6																						
23-Dec	90.8	91.5	92.0	88.9	87.4	88.3	90.1	90.9	88.7	88.3	84.8	84.3	82.2	81.4	79.8	84.9	85.9	85.5	84.7	83.2	83.9	84.5	84.5	85.1	86.3	92.0																						
24-Dec	83.1	73.4	80.2	85.9	86.8	86.8	87.8	88.8	90.6	90.7	88.6	76.3	67.9	66.6	69.8	72.4	75.8	77.3	78.8	81.5	83.8	80.3	83.5	84.9	80.9	90.7																						
25-Dec	84.9	81.7	82.0	82.8	80.3	79.5	81.8	82.9	81.3	80.8	74.3	66.2	65.7	64.9	65.9	66.7	72.9	76.9	76.2	74.5	74.0	72.0	77.3	78.7	76.0	84.9																						
26-Dec	86.2	88.1	87.8	87.1	86.4	87.1	90.6	90.9	87.6	86.7	81.1	65.2	60.9	57.2	61.8	71.8	82.3	85.2	87.7	87.7	89.6	88.9	87.6	87.0	82.2	90.9																						
27-Dec	87.3	87.8	87.9	88.1	89.1	87.1	88.3	89.0	89.0	88.6	87.6	85.9	81.9	79.1	78.0	78.6	81.4	83.7	87.1	90.1	91.4	92.0	92.5	92.2	86.8	92.5																						
28-Dec	91.4	91.6	90.4	90.5	93.5	92.7	92.3	92.3	92.6	93.0	93.8	94.7	90.2	87.6	86.4	87.7	88.0	87.7	87.4	90.0	89.9	90.9	90.7	90.8	90.7	94.7																						
29-Dec	90.5	90.9	90.2	89.1	89.2	87.3	87.6	88.2	88.7	89.6	86.1	82.5	80.7	80.3	81.9	84.5	85.5	86.3	85.4	83.1	84.6	85.5	82.7	84.7	86.0	90.9																						
30-Dec	85.5	81.2	83.4	84.6	83.0	80.5	77.6	76.0	76.8	76.9	75.5	74.3	73.7	73.1	73.5	76.7	78.3	77.9	78.5	79.4	79.2	80.1	78.5	79.5	78.5	85.5																						
31-Dec	80.0	80.3	80.2	79.0	78.0	78.2	78.3	78.7	78.5	77.9	74.5	73.6	70.2	68.9	70.9	73.6	77.9	79.0	81.5	83.6	82.5	82.7	81.9	80.7	77.9	83.6																						
																								82.7	82.7	83.5	84.0	83.8	83.4	83.4	83.8	83.5	83.4	81.7	78.8	76.6	75.7	76.3	80.0	82.5	83.3	83.4	83.1	83.1	82.7	82.6	82.8	Diurnal Average
																								94.2	95.5	97.2	97.7	97.0	95.0	94.2	93.9	92.7	93.0	93.8	94.7	90.2	88.0	90.8	93.7	94.7	97.0	96.9	96.2	96.7	95.6	94.8	94.4	Diurnal Maximum



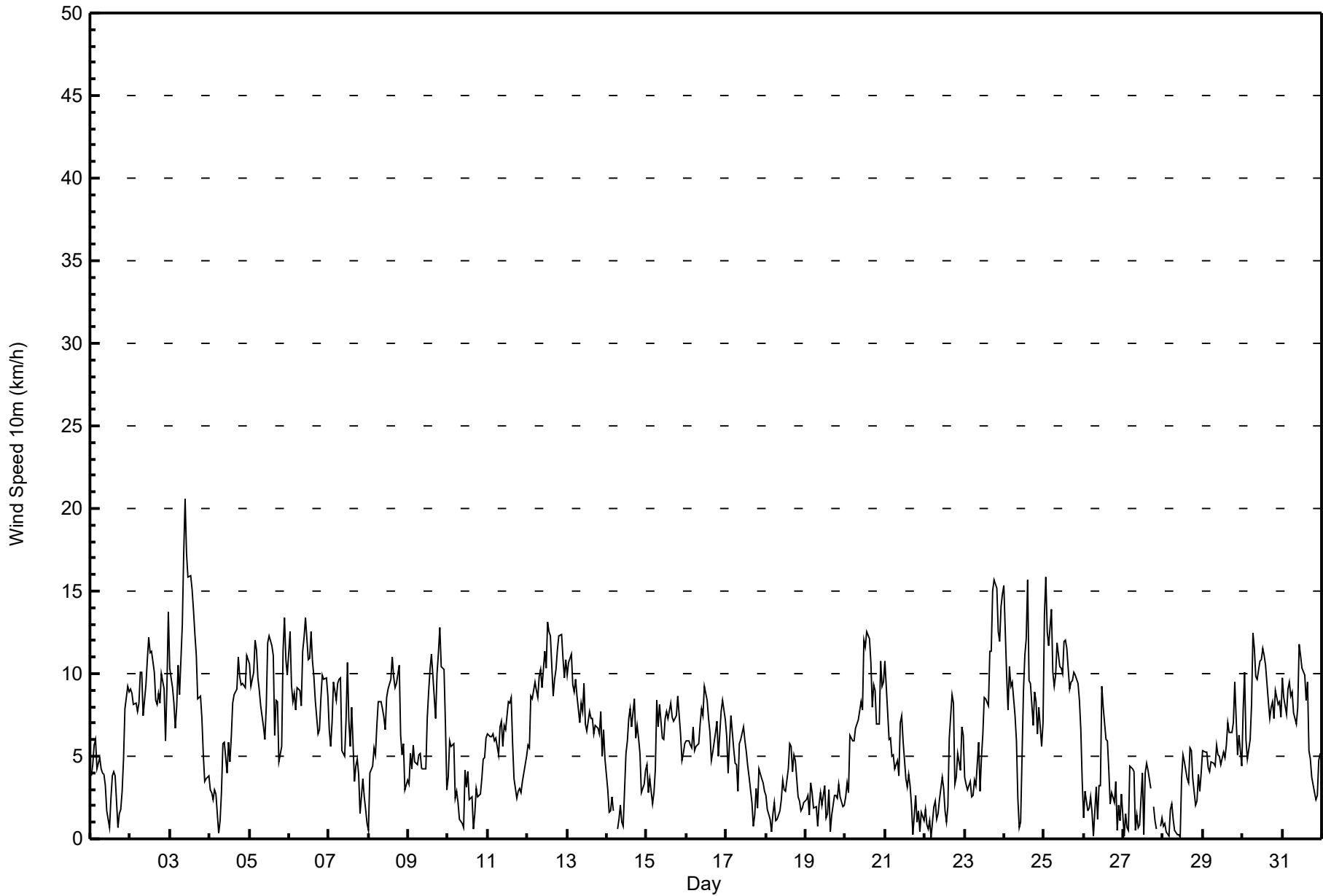


Maximum Speed: 21 km/h on Dec 3 10:00	Maximum Daily Speed Average: 10.2 km/h on Dec 25	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 28 11:00	Minimum Daily Speed Average: 0.3 km/h on Dec 1	Hours of Data: 741
Maximum Diurnal Speed Average: 3.3 km/h at hour 24	Minimum Diurnal Speed Average: 2.0 km/h at hour 8	Hours of Missing Data: 3
Monthly Average Velocity: 2.6 km/h 242.4 deg	Percentiles: P ₁ = 0 P ₁₀ = 2 Q ₁ = 3 Median = 6 Q ₃ = 9 P ₉₀ = 11 P ₉₉ = 16	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-Dec	N4	NNW4	NW6	NW6	NW4	NW5	NW4	NW4	NW4	NNW3	NNW2	SSW1	SE2	SE4	ESE4	ESE4	S1	SSE1	SSE2	ESE3	ESE5	SSE8	S9	SSE9	SSW0.3	S9
2-Dec	SSE9	SSE9	SSE8	SSE8	SSW8	S8	SSW10	SSW10	SSW7	SSW9	SSW11	SSW12	SSW11	SSW11	SSW10	S8	S8	SSW9	SW8	SSW10	SW9	SSW6	SW9	SSW14	SSW8.8	WSW14
3-Dec	SW10	SW9	WSW8	WNW7	NW8	NW11	NW9	NW13	NNW17	NNW21	NNW17	NW16	NNW16	NNW15	NNW14	NNW12	NW11	NW8	NW9	NNW7	NW5	NW3	NW4	NW4	NNW9.4	NNW21
4-Dec	NW3	NW3	NW2	NNW3	N3	WSW0	NE1	SE3	SE6	ESE4	ESE6	ESE5	SE6	S8	SSE9	SSE9	S11	S10	S9	S9	S9	S9	S11	SSW11	S4.4	S11
5-Dec	SSW11	SW9	SW10	SW12	SW11	SW10	SW9	SW8	SW7	SSW6	SW8	SW12	SW12	SW12	SSW11	SSW6	SSW8	SSW8	S5	SSW6	SW11	SW13	SW11	SW10	SSW9.3	SW13
6-Dec	W13	W9	SW8	SSW9	SW8	SW9	SW9	SW8	SW11	SW12	SW13	WSW11	SW11	WSW13	WSW11	SW10	SW8	SW6	SW7	WSW9	W10	W10	NNW10	WNW9	WSW8.9	SW13
7-Dec	WNW7	WNW6	WNW7	WNW10	WNW8	W9	WNW10	WNW10	SW5	SSW5	SW7	SW11	SSW7	SSW6	SSW8	SSW3	SSW4	S5	S4	N2	SSE4	SE3	NNW2	NNW1	WSW4.1	SW11
8-Dec	W1	NNW4	NW4	NNW5	NNW5	NNW7	NNW8	NNW8	NNW8	NW7	NW7	NW9	NNW9	NNW10	NNW11	NW10	NNW9	NNW9	NNW10	NNW6	NNW5	NW6	NW3	WSW4	NNW6.7	NNW11
9-Dec	W3	NW5	WNW4	W6	W5	WNW4	W5	W5	SW4	SW4	W4	NW7	NW9	NNW10	NNW11	NNW10	NW7	N10	N11	NNW13	N10	N10	NNW7	NNW3	NW5.7	NNW13
10-Dec	NNW4	NW6	NW6	NW6	NNW2	NW3	NNW2	SSE1	SSW1	WNW1	NW4	WNW3	W4	NNW2	ENE3	S1	S2	S3	SSW3	SSE3	ESE4	SE5	ESE5	SE6	WNW0.5	SE6
11-Dec	ESE6	SE6	ESE6	ESE6	ESE6	ESE6	E5	ESE7	ESE7	ESE6	ESE7	ESE7	ESE8	ESE8	ESE9	ESE6	ESE4	SSE2	SSE3	SE3	SSE3	SSE3	SE4	SE5	ESE5.4	ESE9
12-Dec	SE6	ESE6	SE9	SE9	SSE10	SSE9	SSE9	SSE10	SSE10	S9	S11	S10	S13	S13	S12	S9	S10	S10	S11	S12	S12	S11	S10	SSW11	S9.4	S13
13-Dec	S10	SSW11	SSW11	S9	SSW9	SSW10	S9	SSW7	SSW8	SSW8	SSW9	SW7	SW7	SW8	SW7	SW7	SW6	SSW7	SSW7	SW6	WSW8	SW5	SSW7	SW5	SSW7.5	SSW11
14-Dec	SSW3	SSE2	SE2	NNW3	N2	UO	NW1	NNW1	N2	NW1	NNE1	NE5	ENE6	ENE7	ENE8	ENE7	ENE8	NE6	NE7	ENE6	E5	N3	N3	NNW4	NE3.1	ENE8
15-Dec	NNW4	NW3	NW4	NW2	NW3	NW4	NNW8	NNW7	NNW8	NW6	NNW6	NW7	NW8	NW7	NW8	NW7	NNW7	NNW7	NW7	NW9	NW6	WNW5	WNW5	WNW6	NW5.9	WNW9
16-Dec	NW6	WNW6	NW6	NW6	NW7	NW5	NW6	WNW6	W7	W8	WNW7	WNW9	W8	WNW7	WNW6	WNW5	WNW5	W6	W7	WNW5	NW6	NW8	NW8	NW7	WNW6.4	WNW9
17-Dec	NW6	WNW4	W6	W7	WSW5	W5	WNW4	WNW3	WNW6	WNW6	NW7	WNW6	WNW5	WNW4	WNW4	WNW2	SSW1	S1	S3	S2	SSW4	S4	SSE3	SSE3	W3.0	W7
18-Dec	SSE3	S2	SSW1	WNW0	SSW2	SSW2	SW1	NNW1	NNW2	NNW2	NNW4	NNW3	NNW3	NNW4	N6	N6	N4	N5	N5	NNW3	NNW2	NNW2	NW2	SSW2	NNW1.7	N6
19-Dec	SSW2	SSE3	S1	S3	S3	SW2	NNW2	WSW1	SSW2	WSW3	W2	WSW3	WNW1	SSW2	SSE3	NE0	S1	SSE3	SSE3	SSE2	SSE3	SSE3	SSE2	SSE2	S1.6	S3
20-Dec	S3	SE3	SSE3	ESE6	ESE6	ESE6	SE7	ESE7	SE7	SE8	SSE8	SSE12	S12	S13	SSW12	SSW11	SSW8	SSW9	SW9	SW7	SSW7	SSW11	SW9	SW10	S6.3	S13
21-Dec	SW11	SSW8	SW6	SW6	SSW5	SSW5	SSW4	SSW5	S4	SW7	SSW7	SW6	SSW4	SW3	SSW4	SE3	ESE2	SSE0	S3	S1	SSE2	N0	NNW2	SSE1	SSW3.6	SW11
22-Dec	SE2	NNW1	NNW1	NNW1	NNW0	SE2	SE2	SE1	SE2	SE2	SE4	ESE3	ESE2	SW1	WSW2	S6	S9	S8	SSW3	SW4	SSE5	S4	SSW7	S6	S2.6	S9
23-Dec	S4	SE3	SSE3	SE3	SSE3	SE3	SE4	SSE3	S6	SW3	SSW5	SW6	WSW9	SW8	SW8	SW11	SW11	SW15	SW16	SW15	SW13	SW12	SW14	SW15	SW7.1	SW16
24-Dec	SW15	WSW10	SSW8	SSW10	SSW9	SSW10	S7	S6	SSE2	SE1	ESE1	SSE9	SSE11	S12	S16	SSW10	SSE9	SSE7	SSE9	S8	S6	SW8	SSW6	SW7	S7.4	S16
25-Dec	SSW14	SW16	SW13	SW12	SW14	SW10	SSW9	SW10	SW12	SW10	SW10	SW10	SW12	SW12	SW11	SW9	SSW9	SSW10	SSW10	SSW10	SSW9	SSW8	SSW7	S4	SW10.2	SW16
26-Dec	SW1	SSE3	SSE2	SSE2	SE3	ENE2	NNW0	SSE3	SE1	ESE3	SE3	WSW9	SW8	SW6	SSW6	S4	S2	SSE3	S2	SE3	W1	S2	SE1	SSE3	S2.2	WSW9
27-Dec	S0	SSE2	SSW1	ESE1	S4	SSE4	NNW4	NNE1	S1	S1	N1	ESE4	ESE0	N4	ENE5	NNW4	NNW3	UO	N2	E1	W1	UO	SE1	S1	ENE0.4	ENE5
28-Dec	S1	SW1	NNW0	WNW0	SSW2	S2	SSW1	N0	SSW0	SSW0	NNE0	NNW4	NW5	WNW5	W4	WNW3	W6	WNW5	WNW4	WNW2	WNW2	W4	W3	NW4	WNW2.0	W6
29-Dec	NW5	NW5	NW5	NW4	WNW4	WNW5	WNW5	NW4	NW6	NW5	NW5	WNW5	NW5	WNW5	NW6	NW7	NW6	NW6	NNW7	NNW9	NNW7	NW5	NW6	NW4	NW5.4	NNW9
30-Dec	NW8	NNW10	NNW6	NW5	NW6	NW8	NW12	NW12	NW10	NW10	NW11	NW11	NW12	NW11	NW11	NW8	NW7	NW8	NW8	NW7	NW9	NW8	NW8	NW7	NW8.8	NW12
31-Dec	NW10	NW9	NW8	NW9	NW10	NW9	NW9	NW8	NW7	NW8	NW12	NW11	NW10	NW10	NW8	NW10	NW5	NW5	NW4	WNW3	WNW2	NW3	NW5	NW5	NW7.4	NW12

WSW3.0	WSW2.5	WSW2.5	WSW2.4	WSW2.7	WSW2.6	W2.2	WSW2.0	WSW2.1	WSW2.3	WSW2.8	WSW3.2	WSW3.2	WSW3.0	WSW2.8	WSW2.3	SW2.4	SW2.8	WSW2.5	WSW2.3	SW2.6	SW3.0	WSW3.0	SW3.3	Diurnal Average
SW15	SW16	SW13	SW12	SW14	NW11	NW12	NW13	NNW17	NNW21	NNW17	NW16	NNW16	NNW15	S16	NNW12	SW11	SW15	SW16	SW15	SW13	SW13	SW14	SW15	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Conklin - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	327	44.13	44.13
6 - 11	362	48.85	92.98
12 - 19	51	6.88	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: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Conklin - December 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	15	3	3	3	3	17	29	39	33	30	13	7	13	34	43	42	327
6 - 11	5	0	2	6	0	21	10	19	31	61	59	9	12	23	79	25	362
12 - 19	0	0	0	0	0	0	0	1	9	3	22	2	1	0	6	7	51
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	20	3	5	9	3	38	39	59	73	94	94	18	26	57	128	75	741

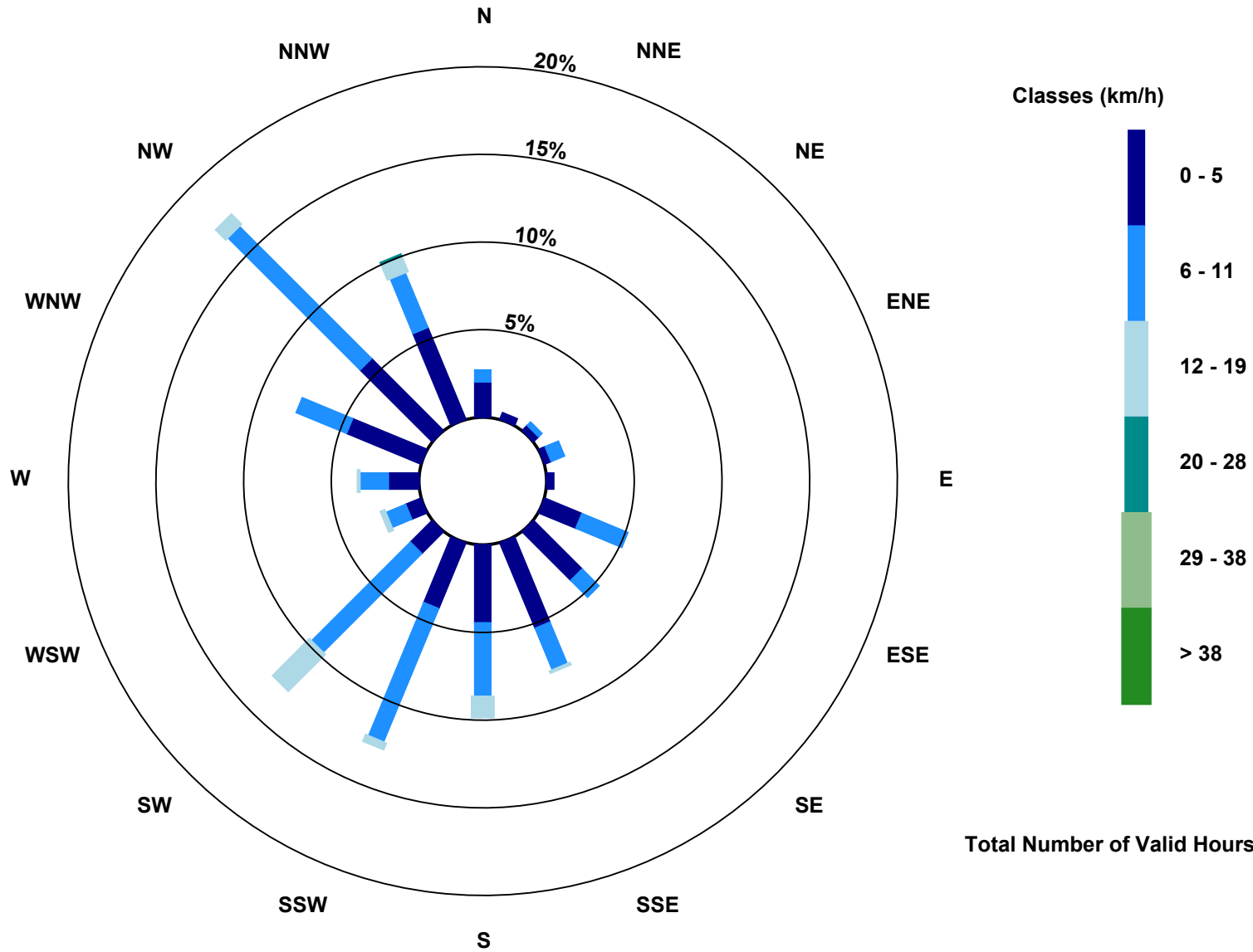
Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



Total Number of Valid Hours: 741



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Conklin - December 2024

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



Wood Buffalo Environmental Association
Summary of Hour Averages

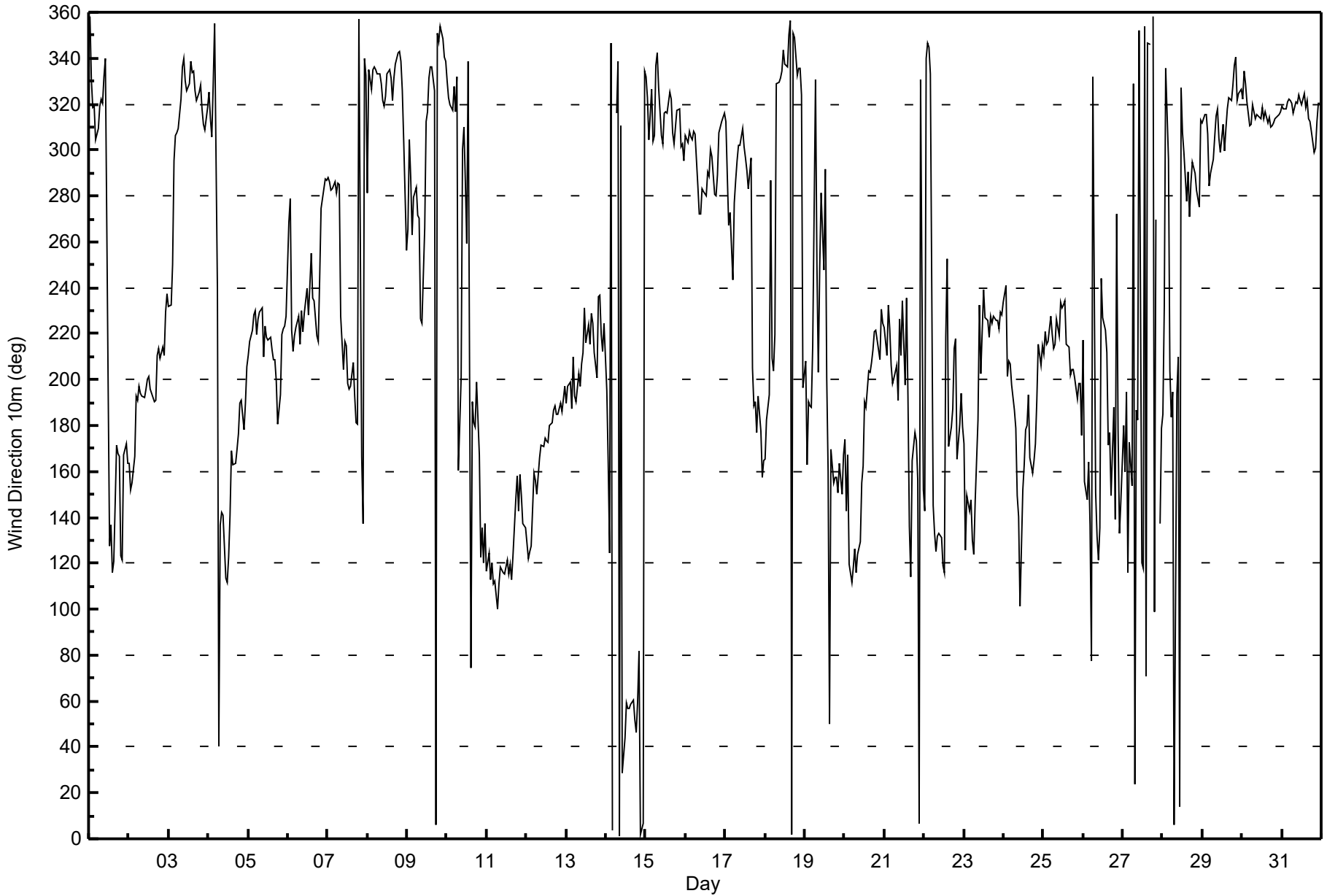
Wind Direction 10m (WD10) - deg
Conklin - December 2024

Direction of Maximum Speed: 340 deg on Dec 3 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 215.7 deg on Dec 25	Hours of Data: 741
Direction of Minimum Speed: 14 deg on Dec 28 11:00	Hours of Missing Data: 3
Direction of Minimum Daily Speed Average: 0.3 deg on Dec 1	Percent Operational Time: 99.6
Monthly Average Direction: 242.4 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-Dec	358	331	319	319	304	309	319	322	320	332	340	197	128	136	116	121	172	168	167	123	121	167	172	164	205.1
2-Dec	164	152	155	166	193	191	197	194	193	192	196	200	202	196	192	190	191	211	214	209	214	211	229	238	196.7
3-Dec	232	232	250	296	307	308	309	322	336	340	330	326	329	339	334	334	326	322	325	328	318	311	309	318	319.1
4-Dec	325	313	305	329	355	239	40	136	142	141	113	112	123	141	169	163	163	170	176	190	191	178	190	205	169.8
5-Dec	211	217	221	228	230	219	226	229	231	210	224	218	217	218	213	209	209	199	181	193	220	222	223	228	218.2
6-Dec	268	279	221	213	219	223	228	215	230	221	229	240	228	241	255	235	234	219	217	244	275	279	287	287	241.5
7-Dec	288	286	283	283	286	281	286	285	227	205	217	215	199	196	197	207	193	181	181	357	167	138	340	333	243.7
8-Dec	281	335	326	335	336	335	333	333	329	322	319	323	333	335	331	322	331	338	343	343	339	326	304	256	329.8
9-Dec	266	304	288	263	279	284	271	270	226	224	266	312	317	331	336	336	326	6	351	347	354	349	341	339	321.5
10-Dec	330	323	320	317	328	317	332	161	201	300	310	286	259	339	75	190	181	179	199	167	123	135	120	137	289.7
11-Dec	117	125	113	120	111	112	100	111	118	117	116	115	121	115	119	113	123	148	158	143	158	149	137	135	121.1
12-Dec	129	122	125	128	159	156	150	158	166	171	171	175	173	173	180	181	187	188	185	185	190	186	191	197	171.2
13-Dec	190	197	199	188	210	193	190	203	197	207	212	231	216	224	216	229	224	211	201	236	237	220	212	224	209.1
14-Dec	196	163	125	346	3	UO	316	338	1	311	29	44	59	57	57	58	60	52	46	60	82	2	7	334	47.2
15-Dec	332	323	304	326	304	306	337	342	327	306	303	316	317	316	325	322	307	303	310	317	318	301	303	295	315.9
16-Dec	307	303	308	306	304	308	307	285	272	272	283	282	280	291	289	300	297	281	280	289	307	310	312	316	294.6
17-Dec	312	290	267	273	244	277	287	295	302	302	309	301	297	291	283	296	205	188	190	177	193	178	157	165	273.9
18-Dec	165	183	193	287	209	204	220	329	329	331	334	344	337	336	350	357	2	351	349	333	336	335	324	197	334.9
19-Dec	208	163	191	189	188	215	331	250	203	249	281	248	292	201	160	50	169	155	158	158	151	164	150	167	189.0
20-Dec	174	143	167	120	112	118	126	116	124	129	155	162	190	188	204	203	208	213	221	221	213	209	231	224	181.8
21-Dec	223	211	233	222	206	198	201	206	191	226	210	234	198	235	193	136	114	164	177	173	156	7	331	152	208.8
22-Dec	143	340	347	344	333	145	133	125	132	133	131	119	116	219	253	171	179	187	213	218	166	181	194	180	173.6
23-Dec	172	126	149	143	148	130	124	147	183	233	203	221	239	227	226	219	228	224	227	226	226	222	229	228	216.2
24-Dec	234	241	201	208	207	198	187	179	150	140	102	152	163	178	180	194	166	160	165	172	191	215	206	215	190.5
25-Dec	211	221	216	217	228	219	213	215	226	219	234	231	232	234	215	214	202	204	201	192	199	198	176		215.7
26-Dec	217	156	148	164	137	77	332	151	132	121	135	244	227	222	212	172	177	150	188	139	272	178	133	147	183.1
27-Dec	180	160	195	116	173	154	329	24	186	182	352	120	118	354	71	347	346	UO	358	99	269	UO	137	179	73.6
28-Dec	185	232	336	296	204	184	195	6	194	210	14	327	307	299	278	291	271	285	295	290	282	279	275	313	284.4
29-Dec	312	315	316	307	285	290	296	306	315	318	305	299	311	299	310	318	323	321	329	337	340	322	324	326	315.7
30-Dec	322	334	329	321	311	311	320	317	313	315	314	314	318	313	317	312	314	310	310	312	313	315	315	317	316.3
31-Dec	319	318	318	321	322	322	321	316	321	320	324	322	320	325	319	321	314	312	308	299	301	312	320	321	319.2

240.7 247.7 241.2 244.8 240.7 240.0 262.5 252.2 246.8 249.3 252.4 250.2 247.3 250.5 239.3 247.4 235.2 230.2 237.3 237.5 231.1 230.8 238.2 232.0
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Conklin - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 101 deg on Dec 27 11:00		Hours in Service: 744 Hours of Data: 741 Hours of Missing Data: 3 Hours of Calibration: 0 Percent Operational Time: 99.6																							
Minimum Value: 11 deg on Dec 19 19:00																									
Percentiles: P ₁ = 13 P ₁₀ = 17 Q ₁ = 20 Median = 24 Q ₃ = 34 P ₉₀ = 61 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-Dec	23	27	20	18	32	24	24	21	26	30	61	85	61	42	24	24	89	54	23	33	21	22	21	16	89
2-Dec	15	17	17	18	22	21	20	19	22	21	20	19	20	19	20	25	25	29	24	21	45	32	21	45	
3-Dec	22	19	29	31	28	26	25	18	19	18	18	17	19	18	19	20	18	17	15	15	16	22	18	20	31
4-Dec	20	25	45	44	28	87	76	46	24	22	33	18	25	32	20	19	17	19	22	20	22	20	22	22	87
5-Dec	22	27	30	24	22	20	21	19	16	15	19	17	16	18	15	21	23	27	52	48	22	19	21	29	52
6-Dec	30	33	31	27	30	20	18	26	19	20	19	22	19	20	28	16	15	18	18	30	33	29	29	31	33
7-Dec	31	34	29	29	29	29	29	30	49	16	22	19	23	24	16	55	61	24	26	80	26	37	53	95	95
8-Dec	79	19	18	21	16	16	16	18	18	18	23	22	20	19	19	18	22	18	16	19	17	20	35	25	79
9-Dec	33	33	34	29	32	32	28	35	20	25	45	27	24	20	19	17	17	27	18	19	17	17	17	26	45
10-Dec	20	13	16	16	29	23	35	62	63	74	28	44	43	62	54	94	55	21	29	25	29	24	19	16	94
11-Dec	19	20	18	19	16	20	26	16	18	16	18	20	17	16	16	17	18	22	20	18	22	16	15	11	26
12-Dec	13	13	13	13	16	17	15	15	18	18	17	17	18	18	19	19	22	22	20	21	21	22	23	22	23
13-Dec	24	26	20	23	27	24	22	31	25	24	22	23	28	25	24	25	46	22	26	33	26	33	28	28	46
14-Dec	40	56	81	26	43	UO	73	91	64	67	93	30	38	33	33	34	32	39	30	45	47	50	22	93	
15-Dec	20	38	33	70	39	34	20	17	21	26	32	22	21	25	18	19	23	28	25	23	22	30	31	32	70
16-Dec	25	27	25	30	30	32	25	31	29	27	33	31	33	35	37	30	25	27	30	31	27	24	25	19	37
17-Dec	21	27	20	26	28	43	36	51	36	37	30	33	33	37	44	43	68	17	27	55	22	20	19	23	68
18-Dec	29	45	68	77	59	20	78	55	58	23	21	28	48	26	18	18	24	20	24	18	20	29	28	43	78
19-Dec	25	23	46	25	34	74	24	73	32	44	48	43	79	71	29	83	28	17	11	23	15	28	52	31	83
20-Dec	24	22	32	23	17	17	15	15	15	12	20	20	24	24	22	23	29	24	29	27	26	20	21	20	32
21-Dec	20	29	30	24	29	33	35	30	38	26	28	35	41	44	22	20	59	86	68	89	72	87	77	61	89
22-Dec	43	91	76	34	85	52	37	61	42	27	14	13	38	66	60	19	18	21	61	47	25	29	24	25	91
23-Dec	39	36	47	22	14	25	56	66	30	76	52	35	27	28	30	22	23	20	18	19	21	20	19	18	76
24-Dec	16	31	25	21	24	18	18	23	35	66	101	30	20	21	15	63	37	20	23	23	40	49	65	48	101
25-Dec	18	19	20	19	18	19	18	18	18	21	26	23	20	20	19	20	17	13	15	17	15	15	12	49	49
26-Dec	69	25	41	35	49	84	91	39	84	50	52	22	22	22	22	26	56	36	58	18	82	43	74	36	91
27-Dec	95	77	89	91	82	31	66	76	65	96	101	57	92	46	35	21	23	UO	23	59	90	UO	53	42	101
28-Dec	77	80	83	82	36	29	32	55	86	88	90	22	28	34	40	39	25	34	32	35	39	30	34	24	90
29-Dec	23	22	25	27	29	38	32	26	20	19	31	34	29	32	26	20	18	18	19	17	19	18	18	18	38
30-Dec	19	18	17	18	23	24	19	21	22	21	23	23	19	23	23	24	21	23	25	24	24	22	22	22	25
31-Dec	19	21	20	18	18	19	18	22	20	20	16	21	22	21	24	17	19	19	25	31	21	24	14	14	31
95 91 89 91 85 87 91 91 86 96 101 85 92 71 60 94 89 86 68 89 90 87 77 95																									
Diurnal Maximum																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

**AMS22
JANVIER
DECEMBER 2024**

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)
 DECEMBER 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2(ppb) Average	708	35	36	99.87	8.7	0	2.2	0
TRS(ppb) Average	708	36	36	100	0.5	0	0.3	0
THC(ppm) Average	705	35	39	99.46	2.3	-	2.2	-
NMHC(ppm) Average	705	35	39	99.46	0.004	-	0	-
CH4(ppm) Average	705	35	39	99.46	2.3	-	2.2	-
O3 (ppb) Average	709	34	35	99.87	40.3	0	34.6	-
NO2 (ppb) Average	707	36	37	99.87	21.5	0	11	-
NO (ppb) Average	707	36	37	99.87	20	-	3.3	-
NOX (ppb) Average	707	36	37	99.87	37.7	-	14.2	-
PM2.5 (ug/m3) Average	742	2	2	100	40.4	0	15.6	0
Temperature 2 m (C) Average	744	0	0	100	7.2	-	2.2	-
Relative Humidity (%) Average	744	0	0	100	99.2	-	94	-
Wind Speed 10 m (km/h) Average	734	0	10	98.66	15	-	10	-
Wind Speed 20 m (km/h) Average	655	0	89	88.04	19	-	13	-
Wind Direction 10 m (deg) Average	734	0	10	98.66	-	-	-	-
Wind Direction 20 m (deg) Average	655	0	89	88.04	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)
 DECEMBER 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	0.48	0.9	-	0	0	0.1	0.2	0.5	1.1	8.7
TRS (ppb) Average	708	0.2	0.1	-	0.1	0.1	0.2	0.2	0.2	0.3	0.5
THC (ppm) Average	705	2.08	0.1	-	2	2	2	2.1	2.1	2.2	2.3
NMHC(ppm) Average	705	0	0	-	0	0	0	0	0	0	0.004
CH4(ppm) Average	705	2.08	0.1	-	2	2	2	2.1	2.1	2.2	2.3
O3 (ppb) Average	709	24.44	7	-	3.9	14.2	19.6	24.9	29.9	33.2	40.3
NO2 (ppb) Average	707	2.68	2.5	-	0	0.4	0.9	2.2	3.8	5.4	21.5
NO (ppb) Average	707	0.4	1.2	-	0	0	0	0.1	0.4	0.9	20
NOX (ppb) Average	707	3.08	3.3	-	0	0.5	1.1	2.4	4.1	5.9	37.7
PM2.5 (ug/m3) Average	742	4.92	4.7	-	0.5	1.6	2.5	3.3	6.1	9.6	40.4
Temperature 2 m (C) Average	744	-11.61	8.2	-	-34	-23.6	-17.6	-10	-5.9	-2.1	7.2
Relative Humidity (%) Average	744	82.9	7.6	-	60.6	73.8	77.9	81.9	89.1	93.4	99.2
Wind Speed 10 m (km/h) Average	734	5.5	3	-	0	1	3	5	8	11	15
Wind Speed 20 m (km/h) Average	655	7.3	4	-	0	2	4	7	10	13	19
Wind Direction 10 m (deg) Average	734	-	-	-	-	-	-	-	-	-	-
Wind Direction 20 m (deg) Average	655	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JANVIER (AMS22)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
NO2, O3, SO2, THC/NMHC/CH4	20 Dec 2024 16:00	20 Dec 2024 16:00	1	Maintenance - sample manifold cleaned
THC/NMHC/CH4	23 Dec 2024 13:00	23 Dec 2024 15:00	3	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction 10m	04 Dec 2024 04:00	04 Dec 2024 11:00	8	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	12 Dec 2024 00:00	12 Dec 2024 00:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 10m	29 Dec 2024 07:00	29 Dec 2024 07:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction 20m	02 Dec 2024 23:00	29 Dec 2024 07:00	89	Flat line in sensor output signal - Sensor frozen

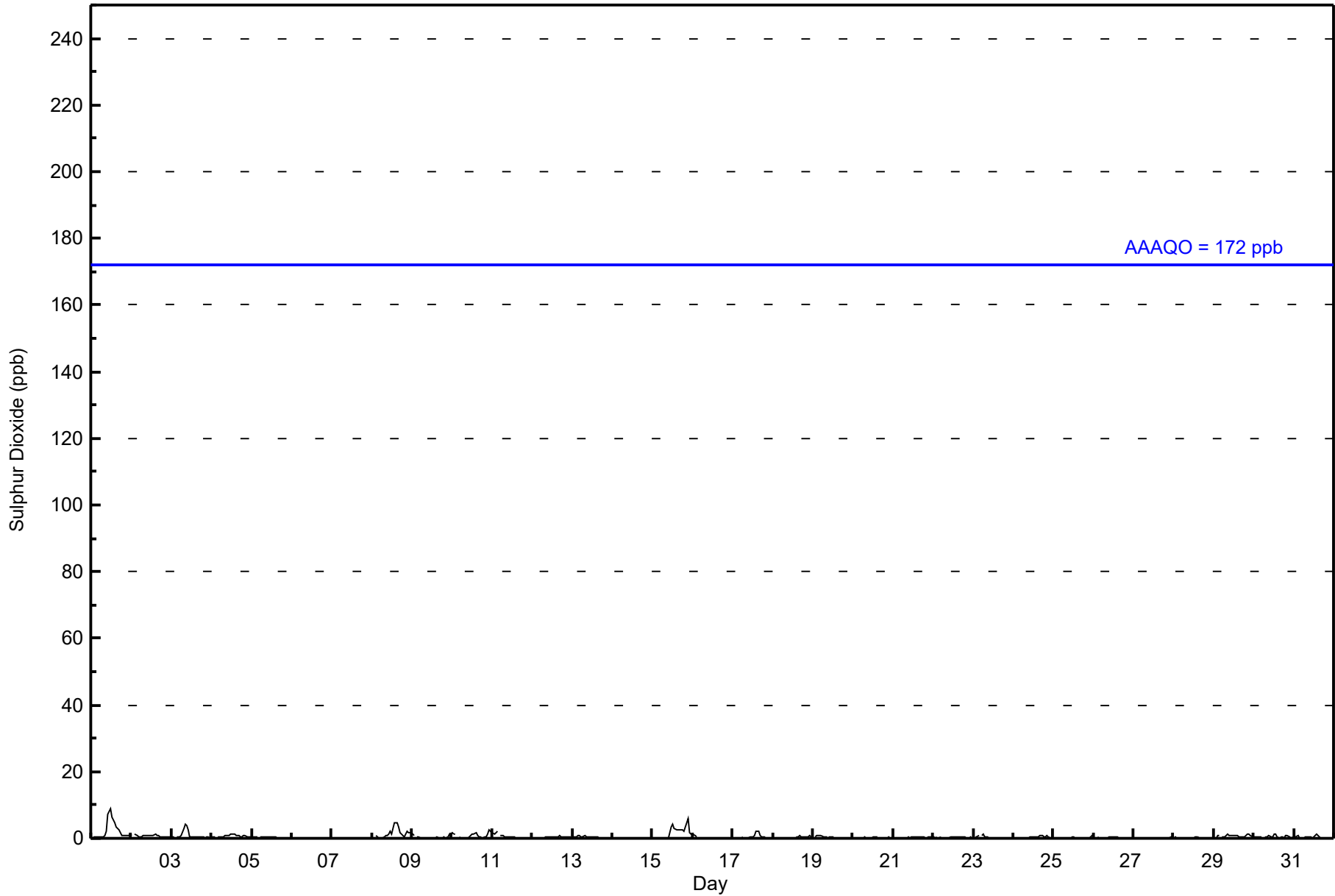


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744							
Maximum Value: 8.7 ppb on Dec 1 12:00		Maximum Daily Average: 2.2 ppb on Dec 1		Hours of Data:														708									
Minimum Value: 0.0 ppb on Dec 5 22:00		Minimum Daily Average: 0.0 ppb on Dec 6		Hours of Missing Data:														36									
Maximum Diurnal Average: 0.8 ppb at hour 14		Minimum Diurnal Average: 0.2 ppb at hour 5		Hours of Calibration:														35									
Monthly Average: 0.48 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.2 Q ₃ = 0.5 P ₉₀ = 1.1 P ₉₉ = 4.7		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-Dec	Z	0.5	0.3	0.4	0.4	0.4	0.3	0.3	0.9	2.1	7.2	8.7	6.2	5.5	4.5	3.3	2.4	1.6	1.0	0.9	1.0	0.8	0.8	1.1	2.2	8.7	
2-Dec	1.0	Z	1.1	0.9	0.6	0.6	0.6	0.7	0.7	0.9	0.8	0.9	0.8	0.8	1.1	0.9	0.7	0.6	0.4	0.4	0.4	0.4	0.4	0.4	0.7	1.1	
3-Dec	0.3	0.3	Z	0.3	0.2	0.2	0.6	3.0	4.1	3.9	2.3	0.4	0.3	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.9	4.1	
4-Dec	0.3	0.4	0.4	Z	0.4	0.2	0.5	0.6	0.9	0.9	1.0	1.1	1.3	1.3	1.2	1.1	0.9	0.5	0.5	0.7	0.7	0.5	0.3	0.4	0.7	1.3	
5-Dec	0.4	0.3	0.3	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4	
6-Dec	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	
7-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
8-Dec	0.1	Z	0.9	0.5	0.2	0.1	0.1	0.4	0.9	0.7	1.4	2.2	1.1	4.6	4.8	4.7	3.2	1.8	1.0	0.6	1.4	2.2	1.5	1.6	1.6	4.8	
9-Dec	1.1	0.9	Z	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.6	0.1	0.1	0.2	0.3	0.2	0.6	1.4	1.4	0.4	1.4	
10-Dec	1.5	1.2	1.1	Z	0.4	0.1	0.1	0.0	0.0	0.1	0.3	0.7	1.4	1.4	1.6	0.7	0.3	0.4	0.2	0.6	0.4	1.4	2.3	2.1	0.8	2.3	
11-Dec	1.6	1.5	1.7	2.0	Z	0.9	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.5	2.0	
12-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.4	0.6	0.6	0.4	0.4	0.3	0.3	0.6	1.0	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.4	1.0	
13-Dec	Z	0.4	0.5	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.4	0.7	
14-Dec	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
15-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	3.5	4.3	2.8	2.6	2.7	2.6	2.7	2.3	2.0	4.7	6.0	1.7	1.1	1.8	6.0	
16-Dec	1.3	1.0	0.5	Z	0.1	0.1	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	1.3	
17-Dec	0.1	0.1	0.2	0.2	Z	0.3	0.1	0.1	0.2	0.2	0.2	0.4	0.4	0.8	2.3	2.1	0.8	0.5	0.3	0.3	0.2	0.1	0.0	0.0	0.4	2.3	
18-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.6	0.8	0.5	0.6	0.5	0.5	0.5	0.6	0.5	0.2	0.8	
19-Dec	Z	0.6	0.7	0.8	0.9	0.7	0.5	0.3	0.2	0.2	0.3	0.4	0.4	C	C	C	C	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.3	0.9	
20-Dec	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.4	0.4	0.5	M	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.5	
21-Dec	0.0	0.1	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.3	0.2	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	0.2	0.3	0.3
22-Dec	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.1	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.6	0.5	0.1	0.2	0.2	0.1	0.3	0.6	
23-Dec	0.2	0.1	0.2	0.7	Z	1.0	1.3	0.6	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.3	1.3	
24-Dec	0.0	0.1	0.2	0.1	0.0	Z	0.1	0.0	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.8	0.8	0.8	0.5	0.3	0.8	0.4	0.1	0.0	0.3	0.8	
25-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.6	0.7	0.1	0.7	
26-Dec	0.6	Z	0.3	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.4	0.4	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
27-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.3	0.1	0.3	
28-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.3
29-Dec	0.1	0.1	0.9	0.9	Z	0.5	0.4	0.7	1.2	0.8	0.8	1.0	0.9	0.8	0.9	0.6	0.3	0.2	0.3	1.0	1.4	1.3	0.7	0.3	0.7	1.4	
30-Dec	0.3	0.4	0.3	0.3	0.2	Z	0.2	0.3	0.6	0.8	0.5	0.3	1.1	1.1	0.5	0.2	0.2	0.2	0.1	0.7	0.6	0.3	0.0	0.6	0.4	1.1	
31-Dec	Z	0.4	0.9	0.1	0.1	0.0	0.0	0.5	0.3	0.5	0.3	0.1	0.6	1.2	0.9	0.4	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.3	1.2	
																								Diurnal Average			
																								Diurnal Maximum			
0.4 0.3 0.4 0.3 0.2 0.3 0.2 0.3 0.4 0.5 0.7 0.8 0.7 0.8 0.8 0.7 0.6 0.4 0.3 0.3 0.5 0.5 0.4 0.4																											
1.6 1.5 1.7 2.0 0.9 1.0 1.3 3.0 4.1 3.9 7.2 8.7 6.2 5.5 4.8 4.7 3.2 2.7 2.3 2.0 4.7 6.0 2.3 2.1																											
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
Janvier - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Janvier - December 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
Janvier - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	39	52	17	20	22	15	6	13	36	128	117	27	29	42	45	17	625
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	39	52	17	20	22	15	6	13	36	128	117	27	29	42	45	17	625

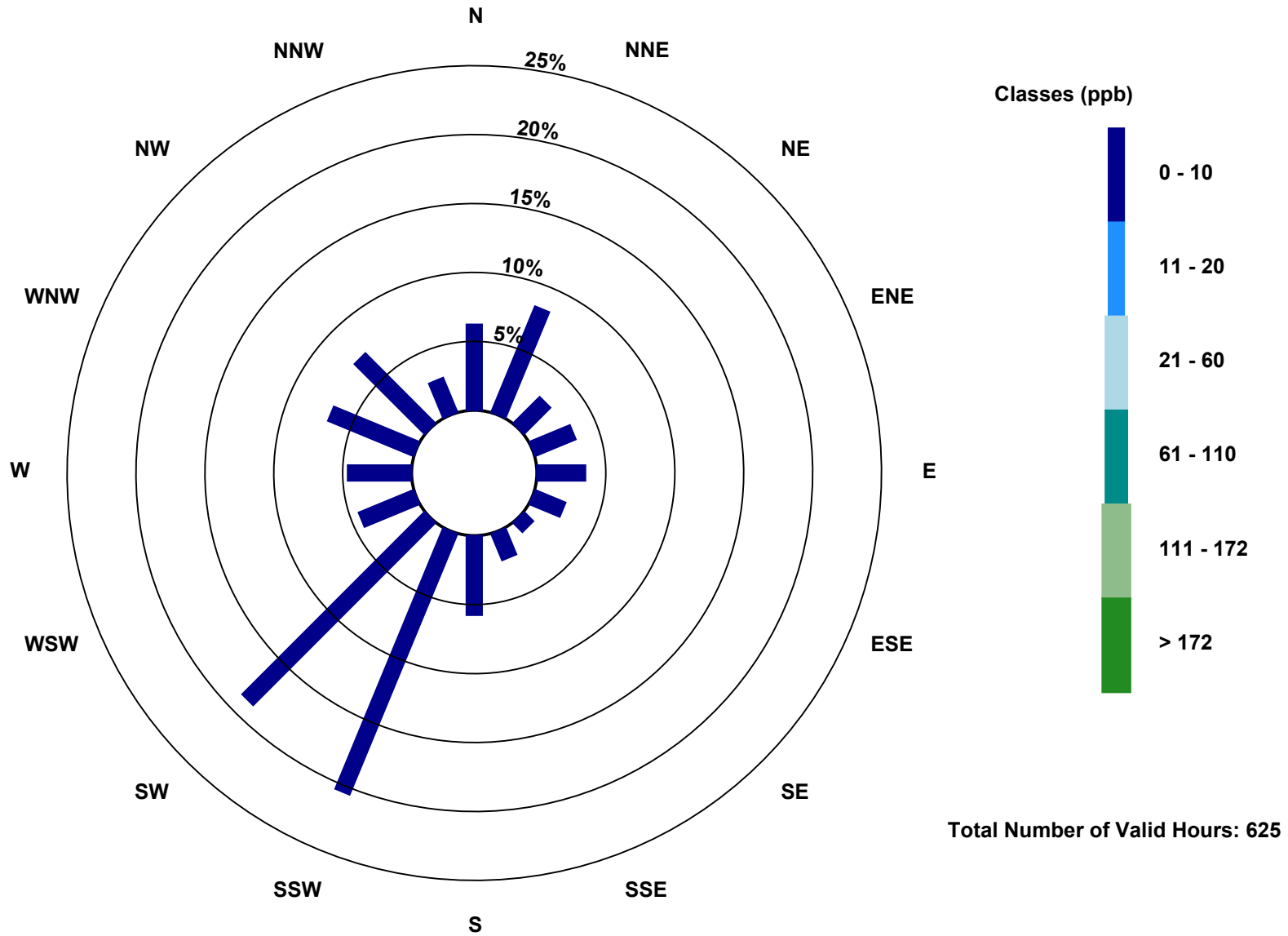
Total Number of Valid Hours: 625

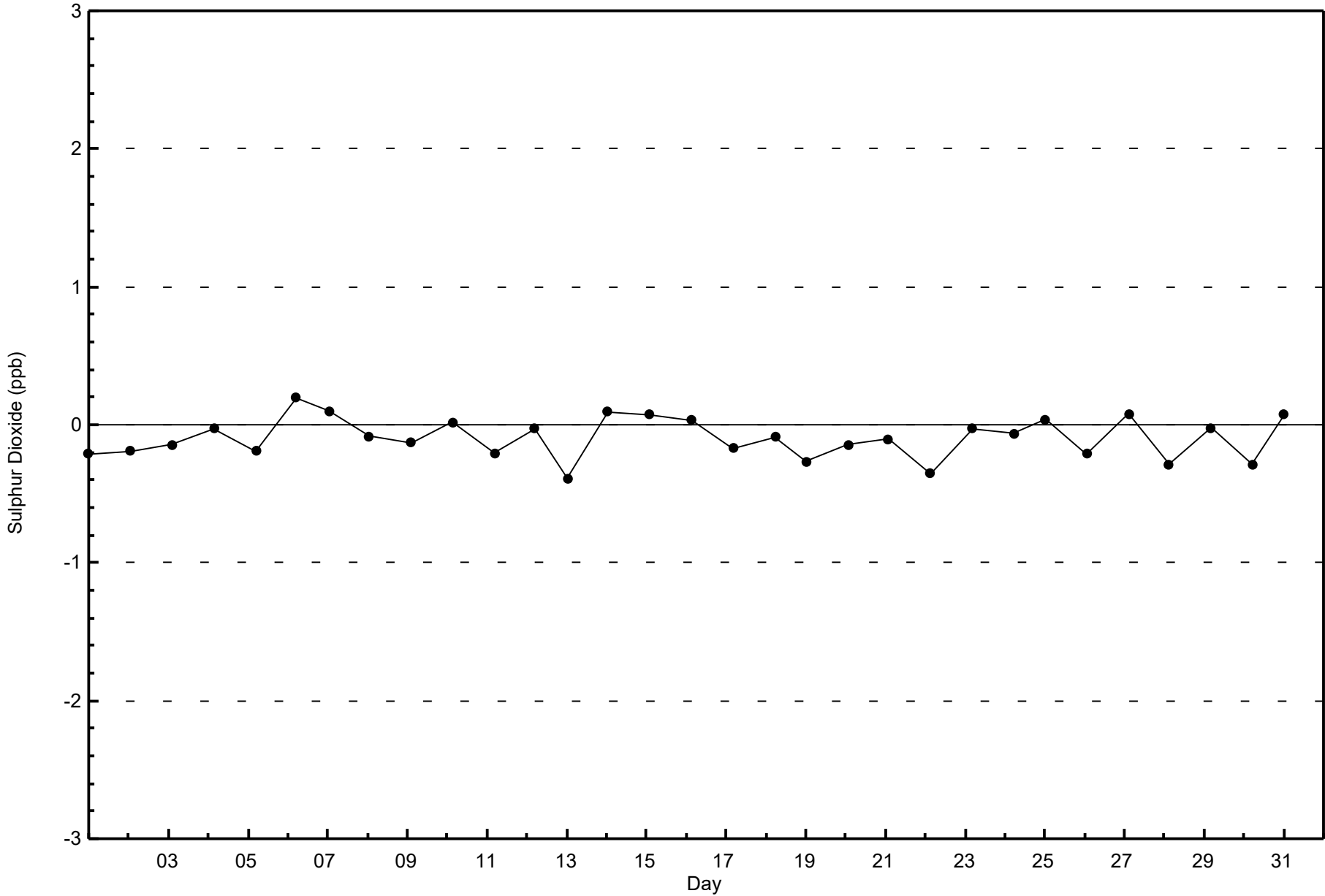
Total Number of Hours: 744

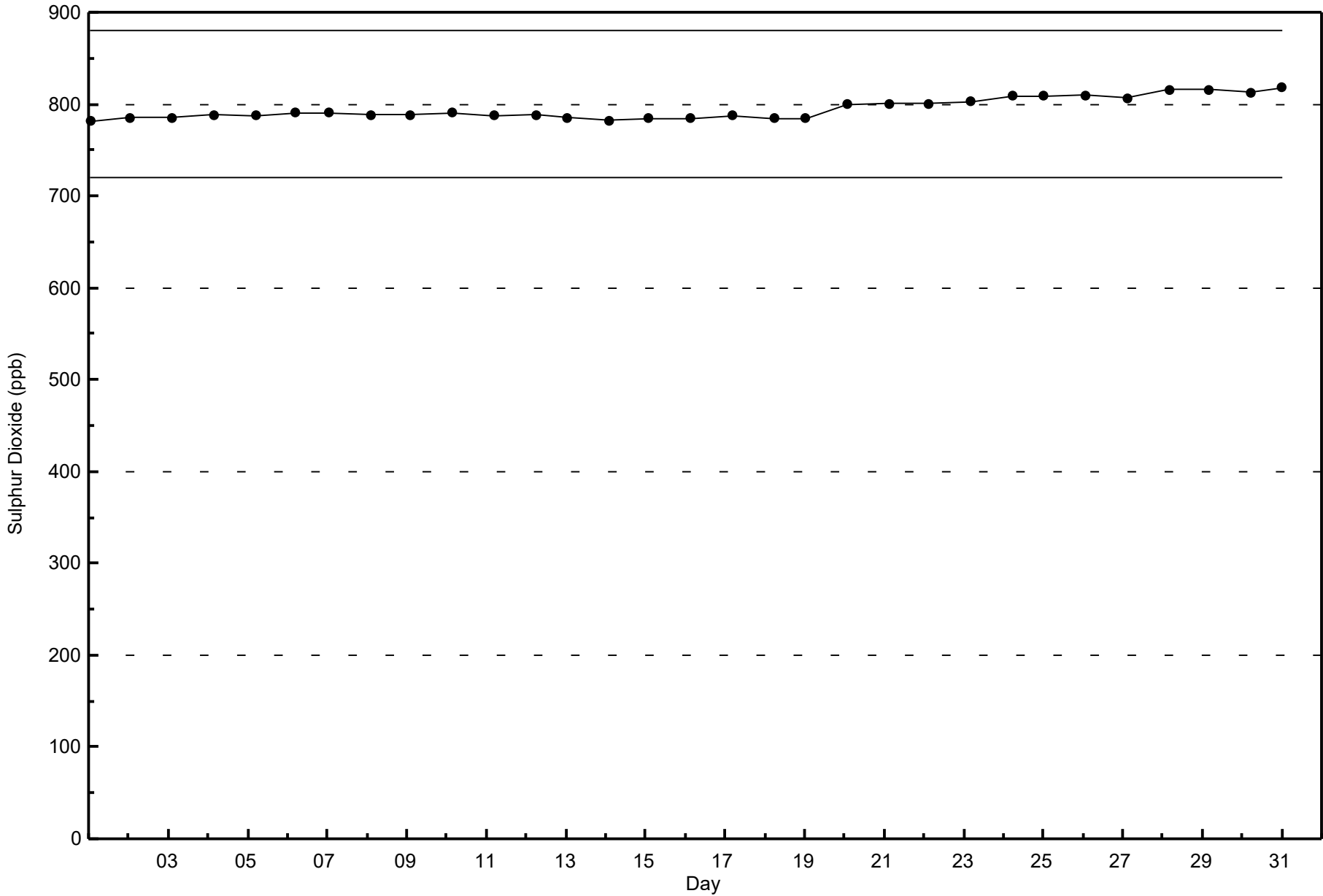


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Janvier

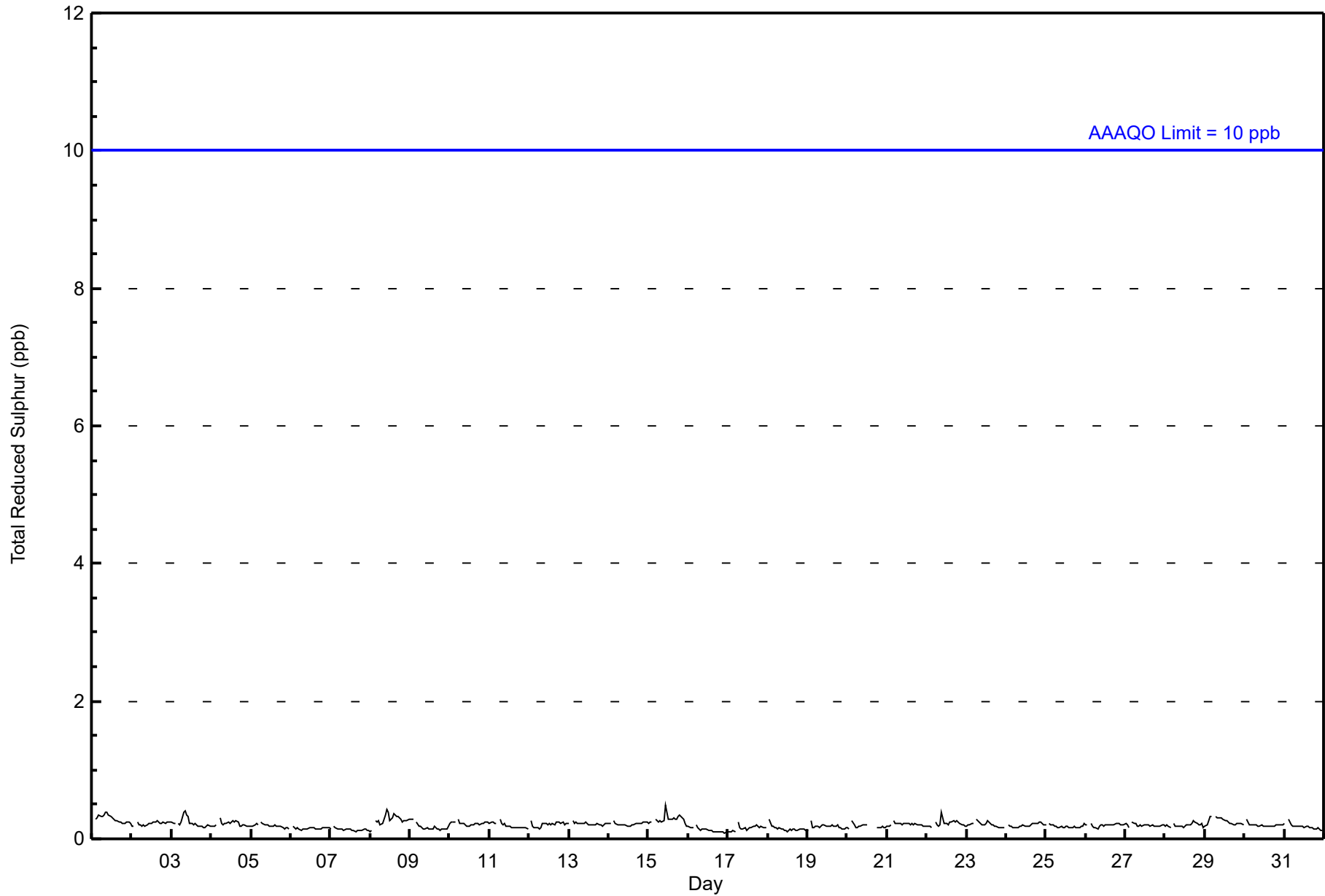








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744					
Maximum Value: 0.5 ppb on Dec 15 11:00		Maximum Daily Average: 0.3 ppb on Dec 15																Hours of Data:		708							
Minimum Value: 0.1 ppb on Dec 16 23:00		Minimum Daily Average: 0.1 ppb on Dec 16																Hours of Missing Data:		36							
Maximum Diurnal Average: 0.2 ppb at hour 11		Minimum Diurnal Average: 0.2 ppb at hour 24																Hours of Calibration:		36							
Monthly Average: 0.20 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.2 Q ₃ = 0.2 P ₉₀ = 0.3 P ₉₉ = 0.4																Percent Operational Time:		100.0							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.1	Z	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4
2-Dec	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3
3-Dec	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.4	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
4-Dec	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
5-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.3
6-Dec	Z	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2
7-Dec	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
8-Dec	0.1	0.1	Z	0.3	0.2	0.3	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4
9-Dec	0.3	0.3	0.3	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3
10-Dec	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
11-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.3
12-Dec	Z	0.3	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
13-Dec	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
14-Dec	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
15-Dec	0.2	0.2	0.2	Z	0.3	0.3	0.2	0.3	0.3	0.3	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.5	
16-Dec	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
17-Dec	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	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
18-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
19-Dec	0.1	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	0.1	0.1	0.2	0.2	0.3
20-Dec	0.2	0.1	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	C	C	C	C	C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
21-Dec	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
22-Dec	0.2	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.4	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	0.2	0.2	0.2	0.4
23-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
24-Dec	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
25-Dec	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
26-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
27-Dec	0.2	0.2	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
28-Dec	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	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
29-Dec	0.2	0.2	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
30-Dec	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
31-Dec	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.3	
																								Diurnal Average		0.2	
																								Diurnal Maximum		0.3	
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
Janvier - December 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



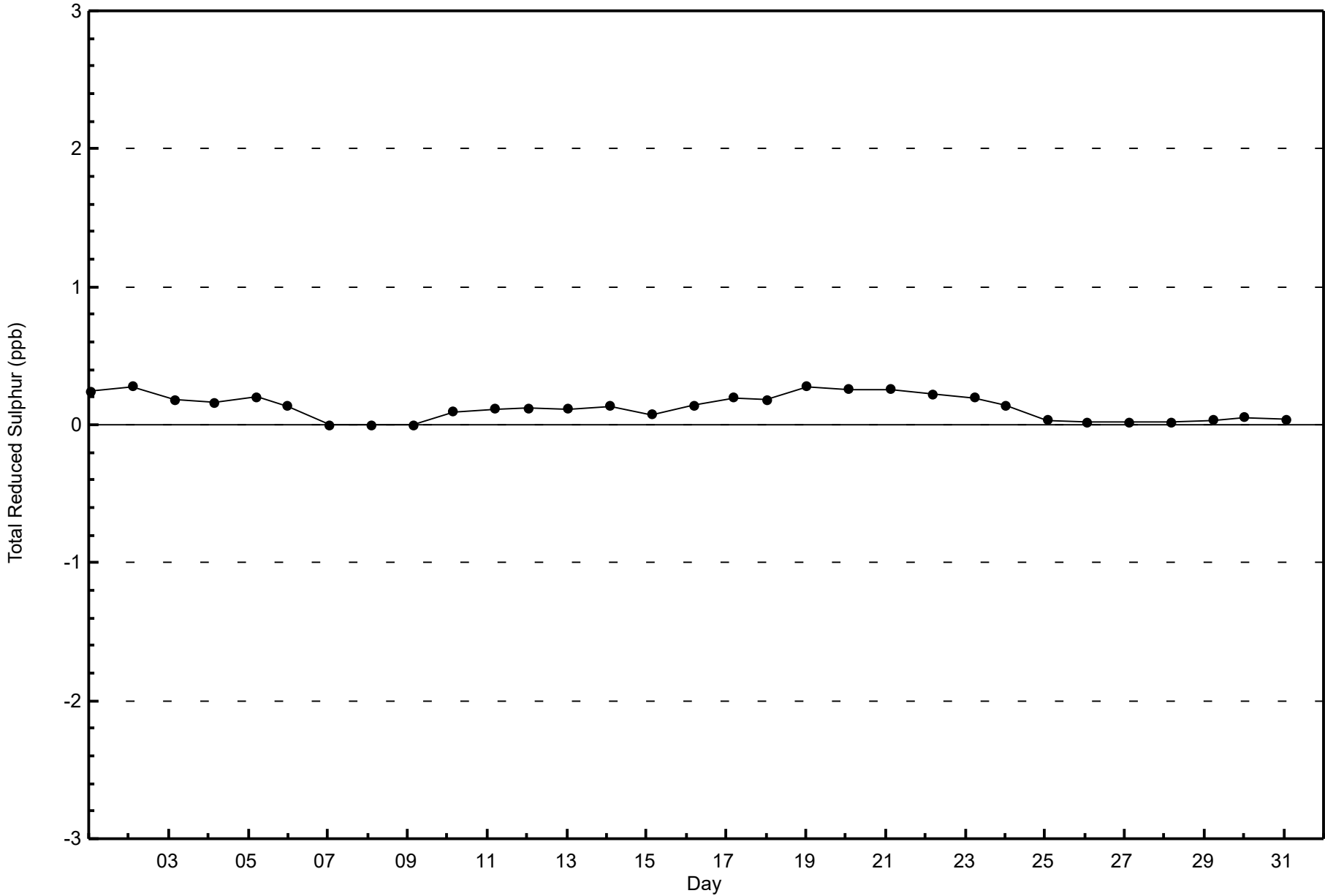
**Wood Buffalo Environmental Association
Frequency Distribution**

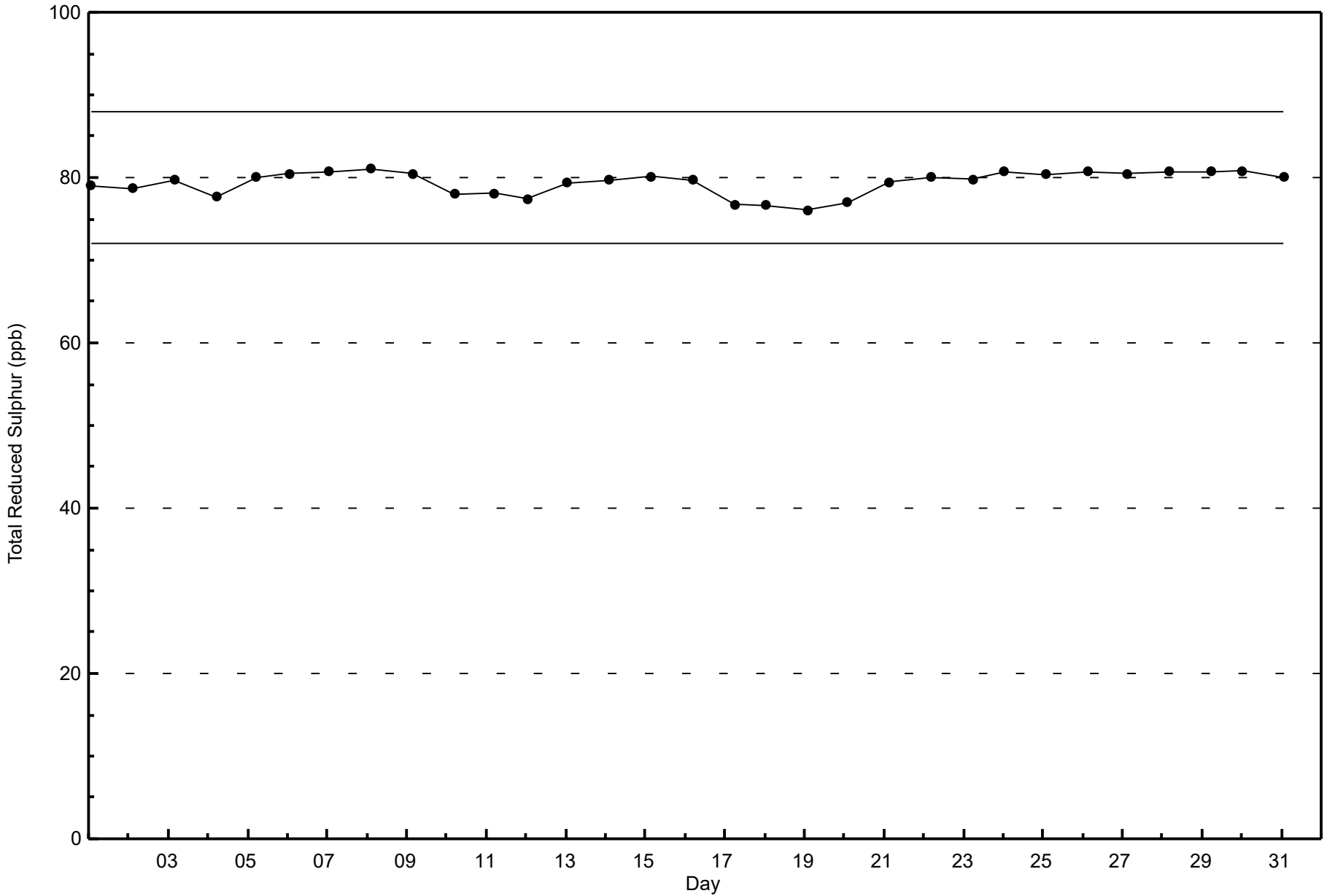
**Total Reduced Sulphur (TRS) - ppb
Janvier - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	40	50	15	19	24	16	7	15	36	129	110	26	31	43	45	18	624
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	40	50	15	19	24	16	7	15	36	129	110	26	31	43	45	18	624

Total Number of Valid Hours: 624

Total Number of Hours: 744







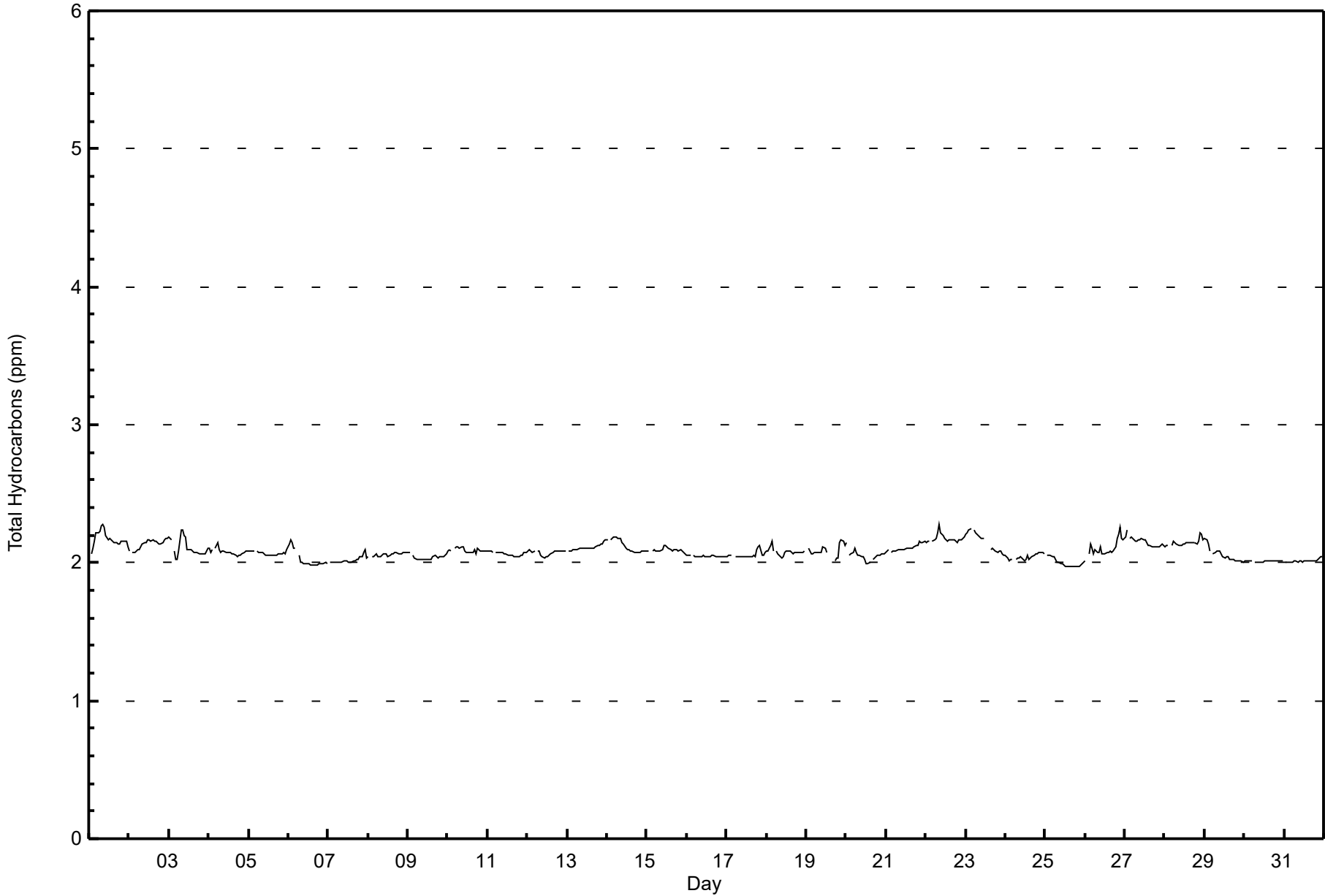
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Janvier - December 2024

Maximum Value: 2.3 ppm on Dec 22 09:00																				Maximum Daily Average: 2.2 ppm on Dec 22					Hours in Service:	744		
Minimum Value: 2.0 ppm on Dec 25 17:00																				Minimum Daily Average: 2.0 ppm on Dec 25					Hours of Data:	705		
Maximum Diurnal Average: 2.1 ppm at hour 1																				Minimum Diurnal Average: 2.1 ppm at hour 15					Hours of Missing Data:	39		
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 = 2.2					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-Dec	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.3
2-Dec	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	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2
3-Dec	2.2	2.2	Z	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
4-Dec	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	2.1
5-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
6-Dec	2.1	2.2	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
7-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.1	2.1
8-Dec	2.0	Z	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9-Dec	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1
10-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
11-Dec	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	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1
12-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	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-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.2	2.2
14-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
15-Dec	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
16-Dec	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
17-Dec	2.0	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	2.1	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
19-Dec	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	C	C	C	C	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.2	2.2	
20-Dec	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	M	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21-Dec	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	2.1	2.2	2.1	2.2	2.2	2.2
22-Dec	2.1	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.3
23-Dec	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2
24-Dec	2.1	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
25-Dec	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
26-Dec	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.2	2.3	2.3
27-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
28-Dec	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2
29-Dec	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
30-Dec	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
31-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.1																								Diurnal Average				
2.2																								Diurnal Maximum				
Z - zerospan C - Calibration M - Maintenance																												





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Janvier - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	215	30.50	30.50
2.1 - 3.0	490	69.50	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Janvier - December 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	5	1	2	3	1	1	2	8	21	49	13	24	31	32	8	214
2.1 - 3.0	26	47	16	18	19	14	5	11	28	107	65	14	5	11	13	9	408
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	39	52	17	20	22	15	6	13	36	128	114	27	29	42	45	17	622

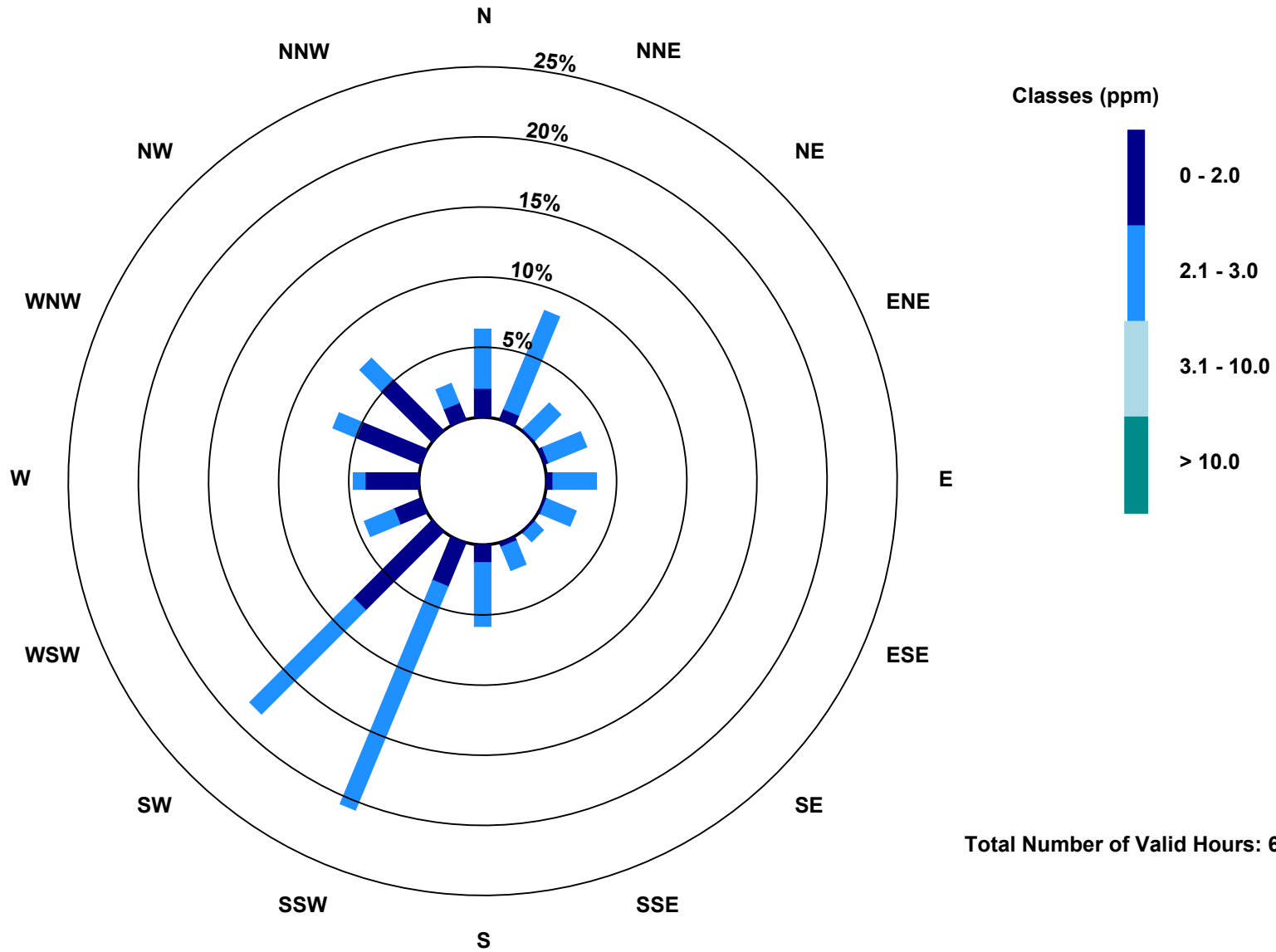
Total Number of Valid Hours: 622

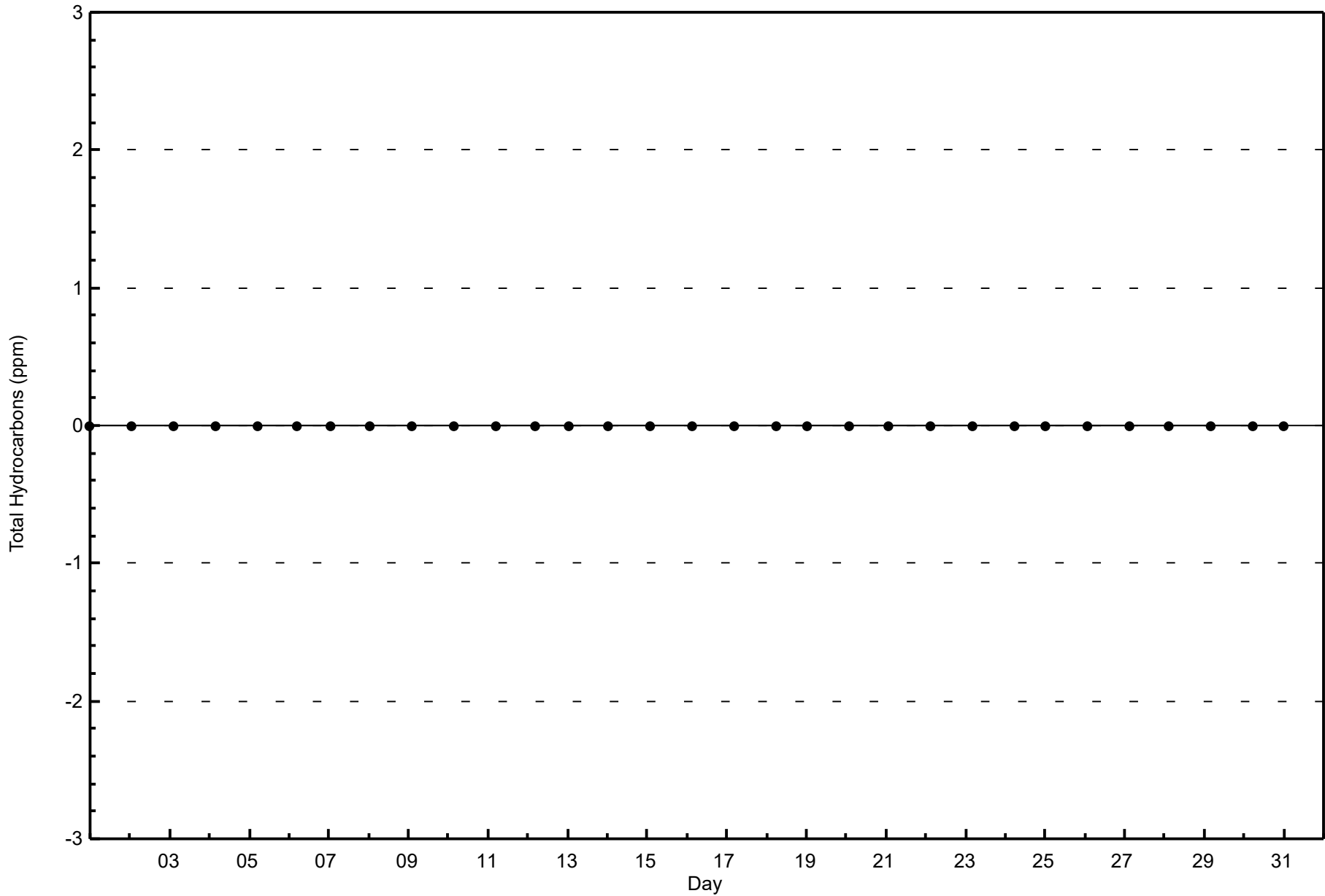
Total Number of Hours: 744

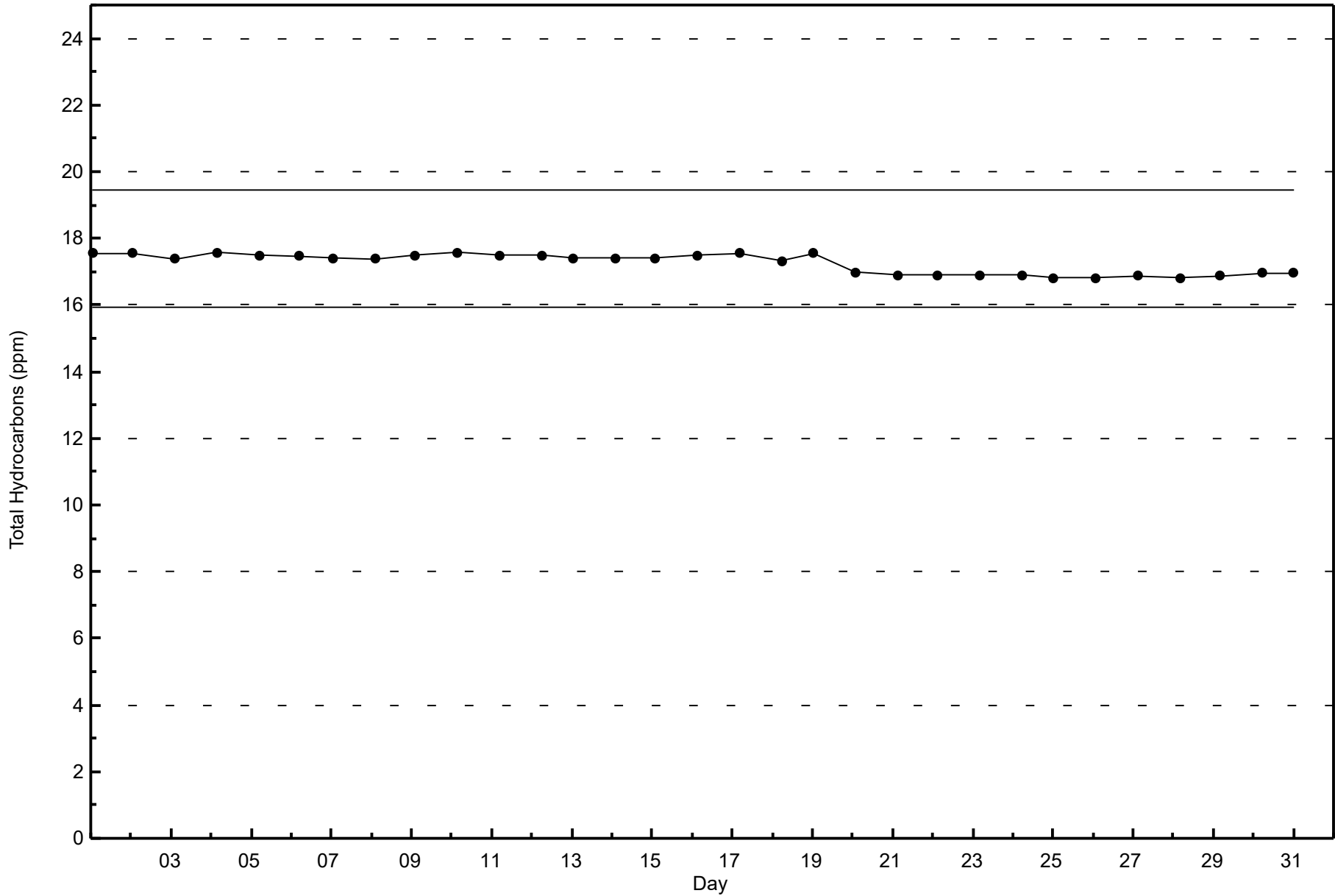


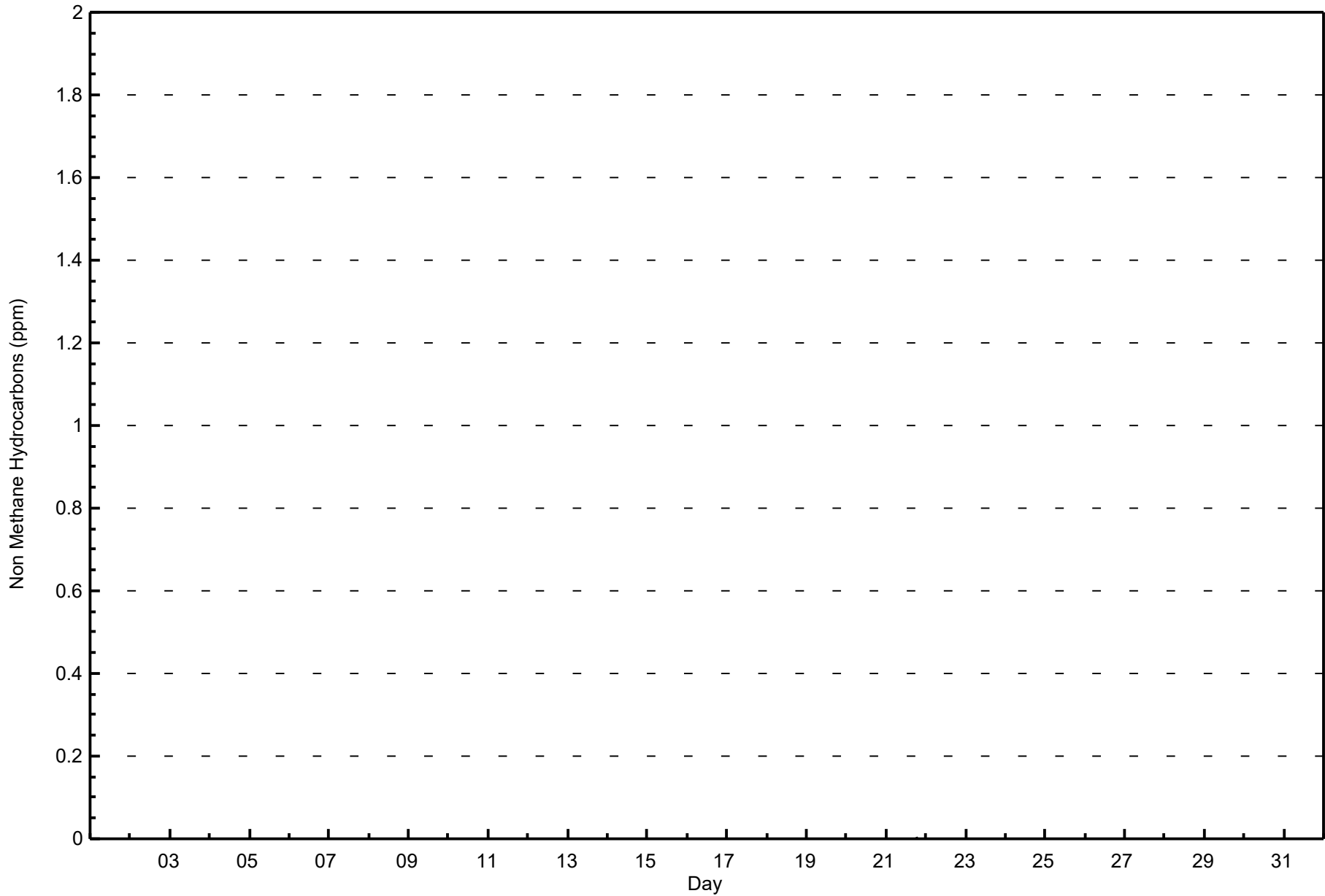
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Janvier











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Janvier - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	705	100.00	100.00
0.006 - 0.05	0	0.00	100.00
0.06 - 0.1	0	0.00	100.00
> 0.1	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



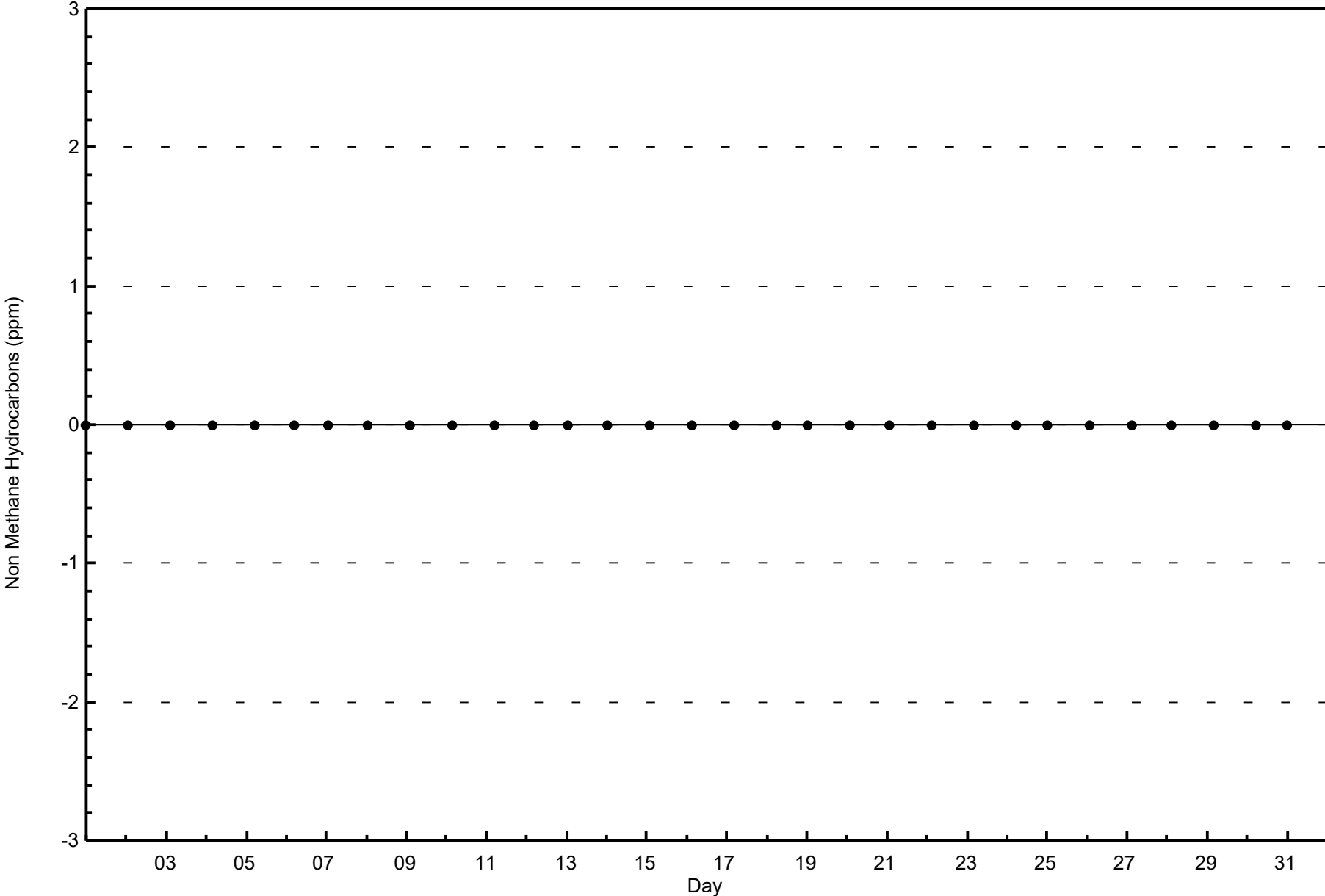
**Wood Buffalo Environmental Association
Frequency Distribution**

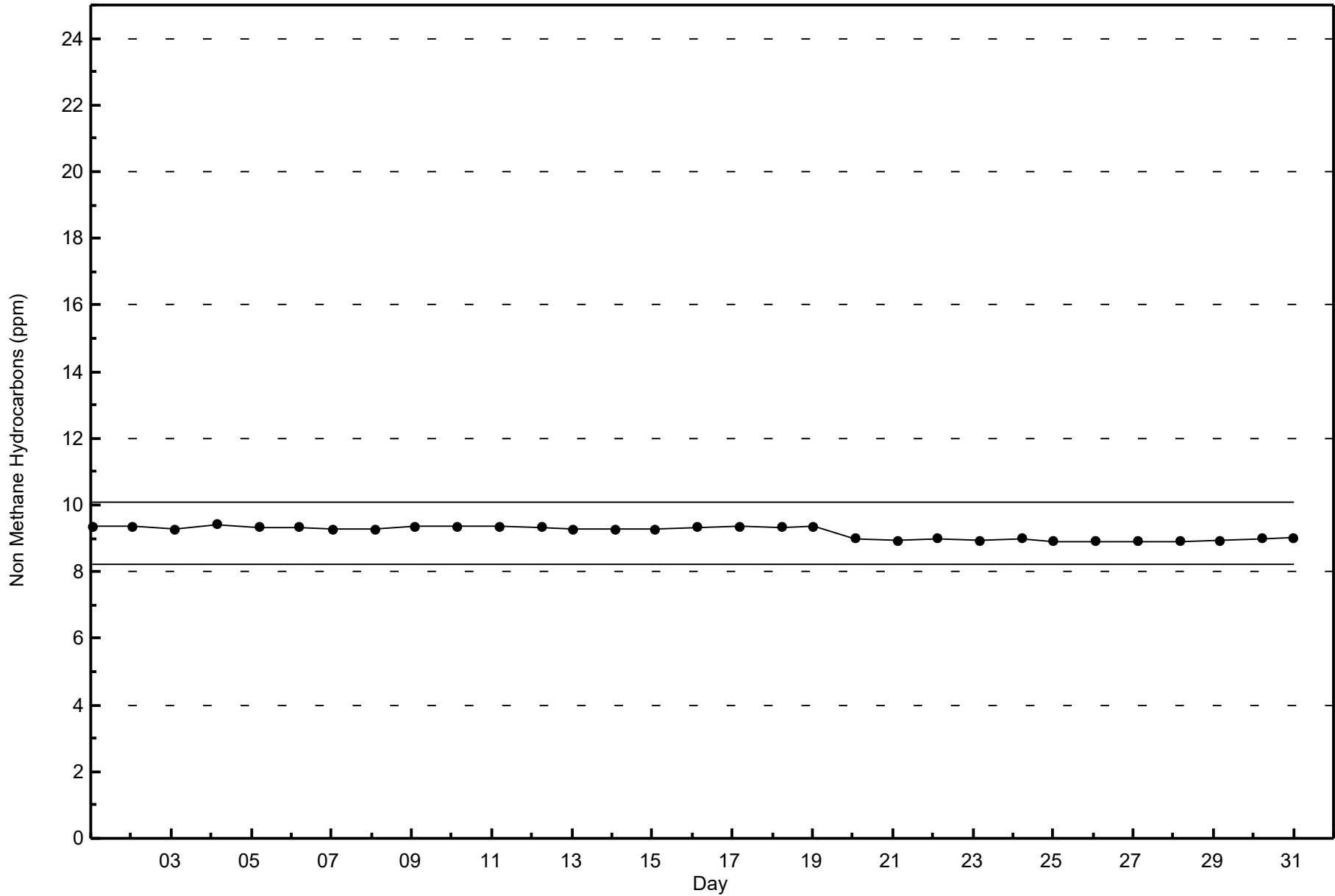
**Non Methane Hydrocarbons (NMHC) - ppm
Janvier - December 2024**

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	39	52	17	20	22	15	6	13	36	128	114	27	29	42	45	17	622
0.006 - 0.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.06 - 0.1	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	39	52	17	20	22	15	6	13	36	128	114	27	29	42	45	17	622

Total Number of Valid Hours: 622

Total Number of Hours: 744







Wood Buffalo Environmental Association

Summary of Hour Averages

Methane (CH₄) - ppm

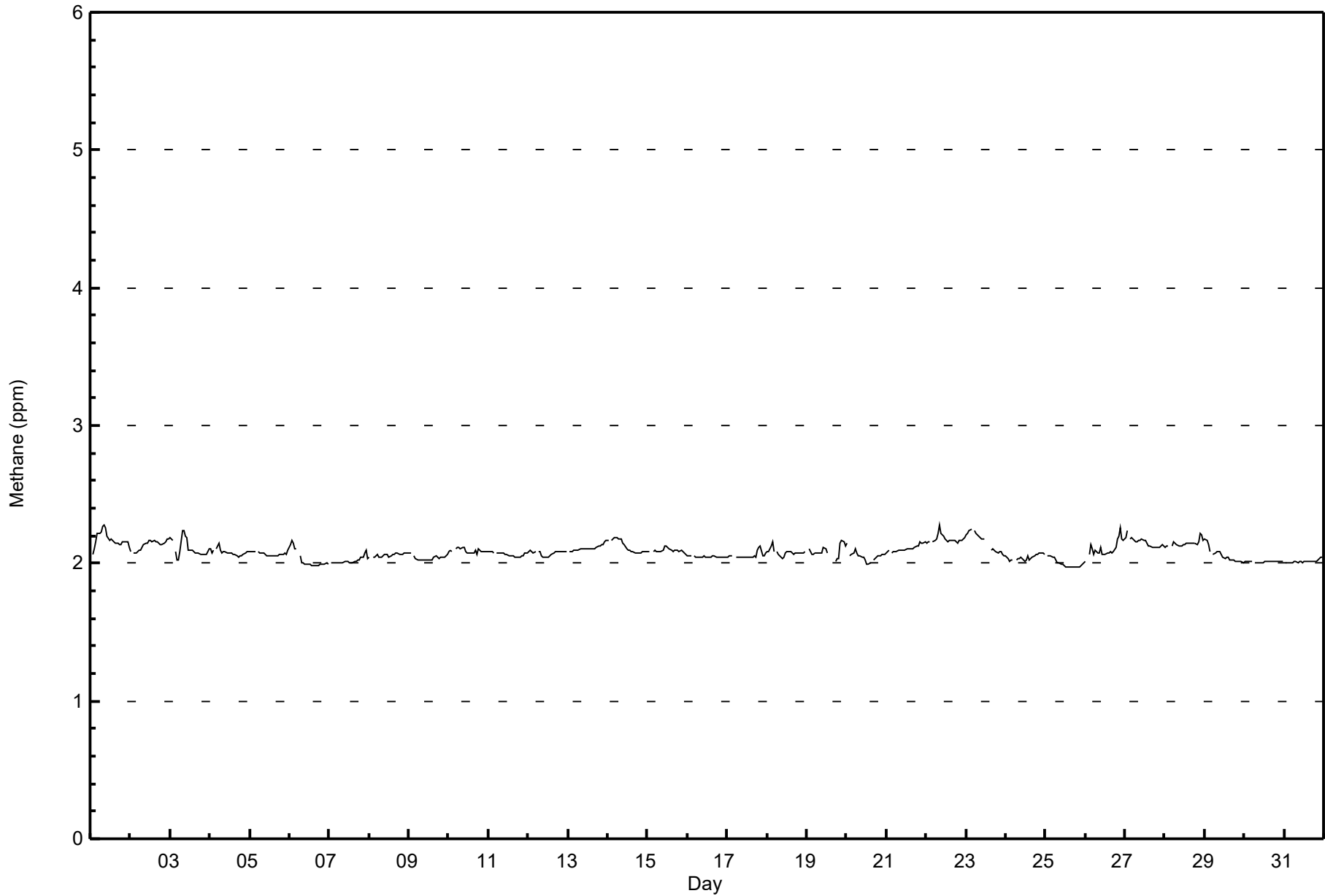
Janvier - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744						
Maximum Value: 2.3 ppm on Dec 22 09:00		Maximum Daily Average: 2.2 ppm on Dec 22		Hours of Data:														705								
Minimum Value: 2.0 ppm on Dec 25 17:00		Minimum Daily Average: 2.0 ppm on Dec 25		Hours of Missing Data:														39								
Maximum Diurnal Average: 2.1 ppm at hour 1		Minimum Diurnal Average: 2.1 ppm at hour 15		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 = 2.2		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-Dec	Z	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2	2.3
2-Dec	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	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2
3-Dec	2.2	2.2	Z	2.1	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
4-Dec	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
5-Dec	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
6-Dec	2.1	2.2	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2
7-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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
8-Dec	2.0	Z	2.0	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
9-Dec	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.1
10-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
11-Dec	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	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1
12-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.1	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-Dec	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	2.2	2.2	2.1	2.2
14-Dec	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
15-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
16-Dec	2.1	2.1	2.1	Z	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
17-Dec	2.0	2.1	2.1	2.1	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
18-Dec	2.1	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
19-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	C	C	C	C	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.1	2.2	
20-Dec	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	M	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
21-Dec	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	2.1	2.2	2.1	2.2
22-Dec	2.1	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.2	2.2	2.2	2.2	2.3
23-Dec	2.2	2.2	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	M	M	M	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2
24-Dec	2.1	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0
25-Dec	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
26-Dec	2.0	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.3	2.2	2.2	2.1	2.3
27-Dec	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	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2
28-Dec	2.1	2.1	2.1	Z	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.1	2.2
29-Dec	2.2	2.2	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1
30-Dec	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
31-Dec	Z	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
2.1																								Diurnal Average		
2.2																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Methane (CH₄) - ppm
Janvier - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Janvier - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	215	30.50	30.50
2.1 - 3.0	490	69.50	100.00
3.1 - 10.0	0	0.00	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Janvier - December 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	5	1	2	3	1	1	2	8	21	49	13	24	31	32	8	214
2.1 - 3.0	26	47	16	18	19	14	5	11	28	107	65	14	5	11	13	9	408
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	39	52	17	20	22	15	6	13	36	128	114	27	29	42	45	17	622

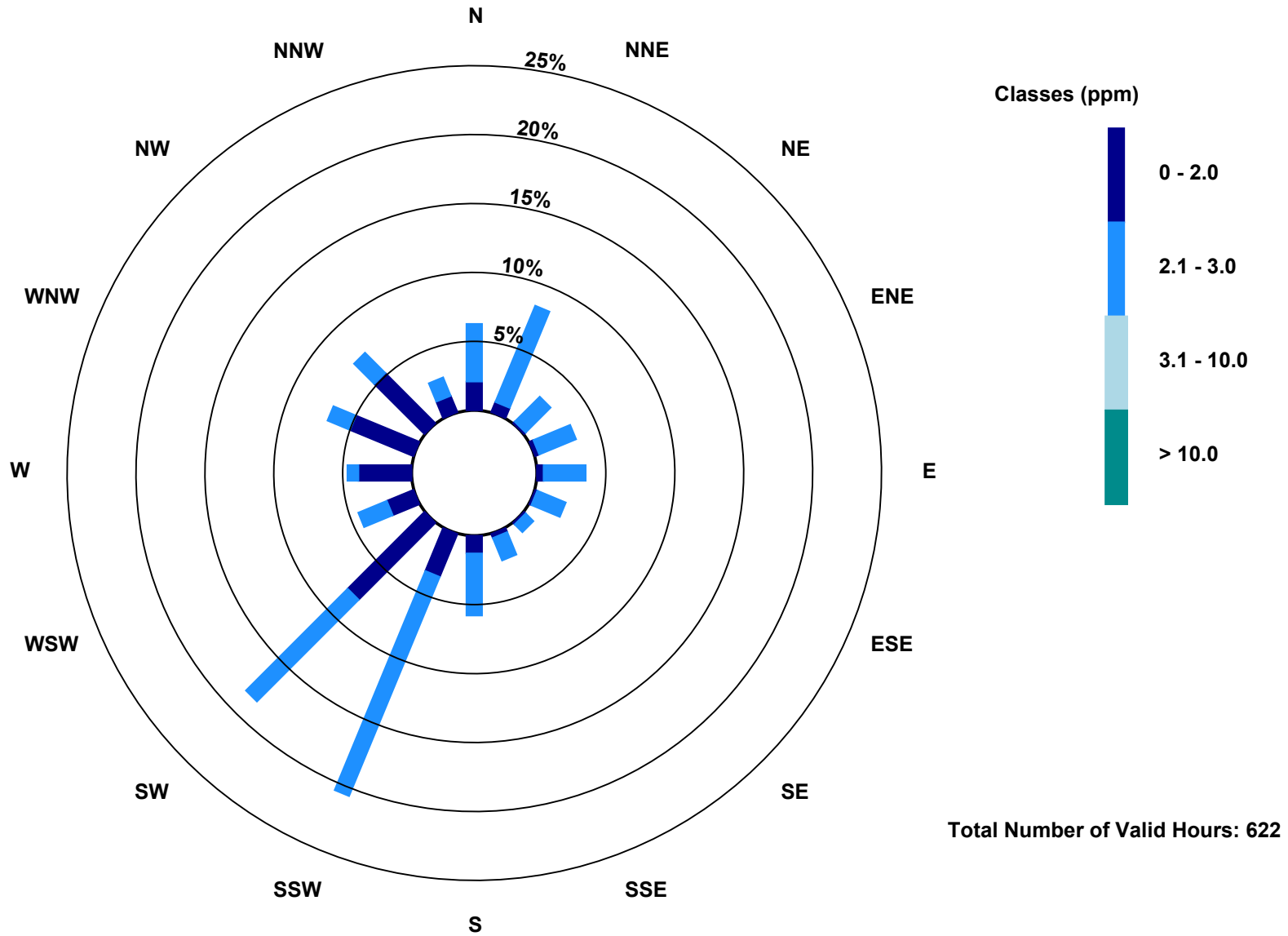
Total Number of Valid Hours: 622

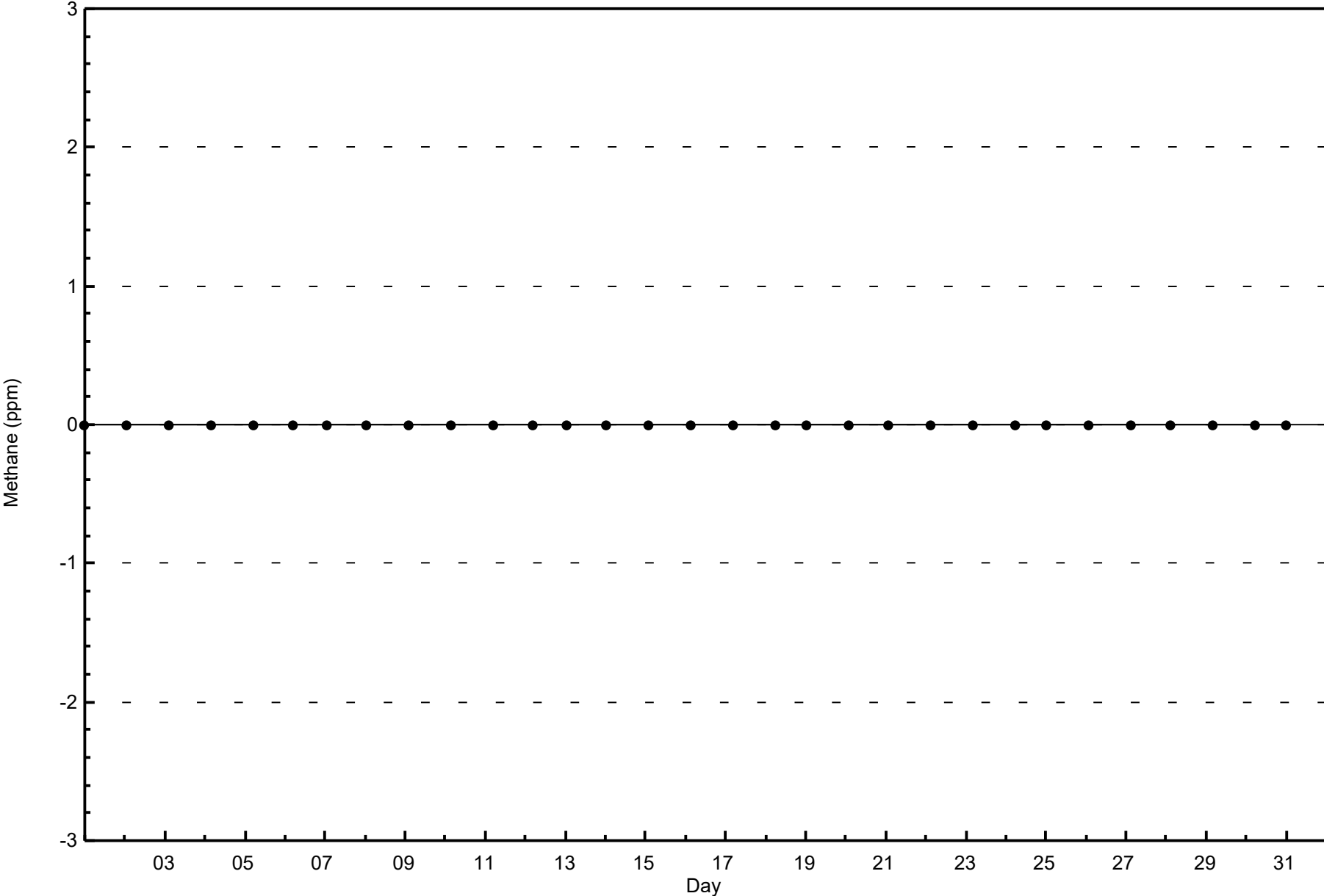
Total Number of Hours: 744

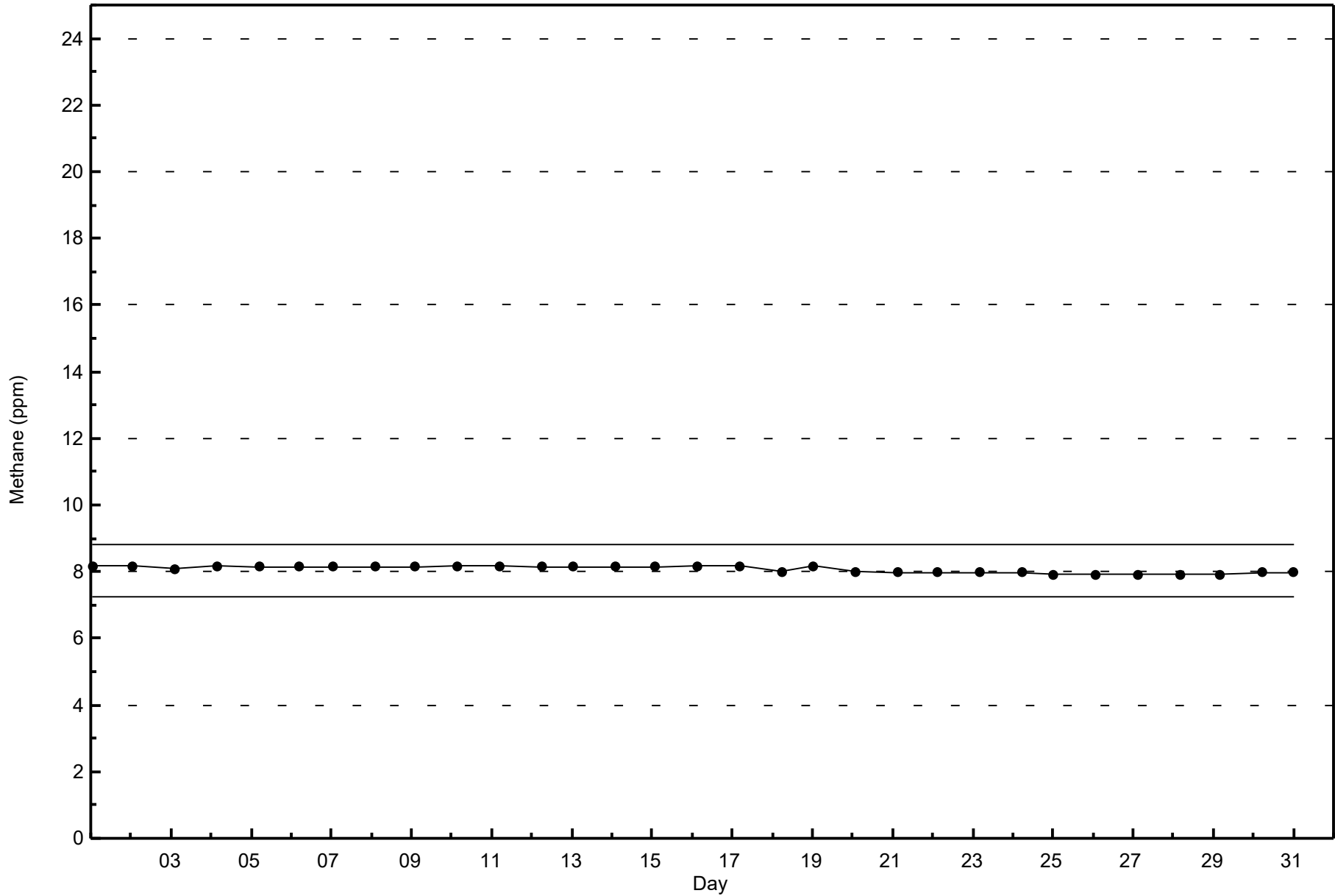


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Janvier







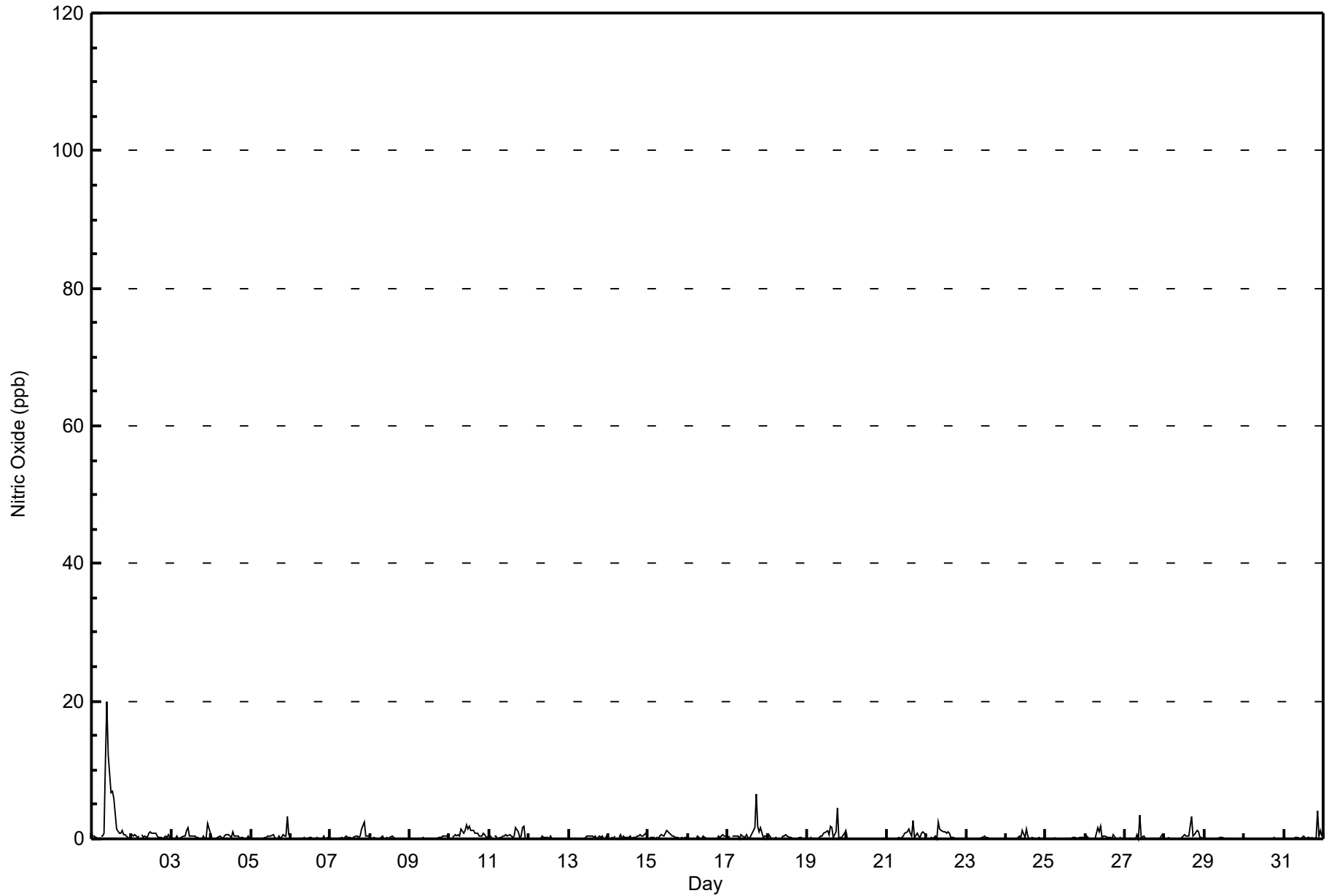


Maximum Value: 20.0 ppb on Dec 1 10:00		Maximum Daily Average: 3.3 ppb on Dec 1		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Dec 3 02:00		Minimum Daily Average: 0.0 ppb on Dec 30		Hours of Data: 707																						
Maximum Diurnal Average: 1.1 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 3		Hours of Missing Data: 37																						
Monthly Average: 0.40 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 0.9 P ₉₉ = 4.5		Hours of Calibration: 36																						
				Percent Operational Time: 99.9																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.4	0.4	0.3	0.3	Z	0.4	0.5	0.9	11.2	20.0	12.1	6.7	6.8	5.9	3.7	1.4	0.7	0.8	1.2	0.6	0.7	0.4	0.0	0.4	3.3	20.0
2-Dec	0.5	0.4	0.5	0.2	0.3	Z	0.5	0.3	0.5	0.2	0.8	1.0	0.8	0.8	0.9	0.3	0.2	0.2	0.3	0.1	0.4	0.2	0.6	0.1	0.4	1.0
3-Dec	Z	0.0	0.1	0.4	0.1	0.0	0.3	0.3	0.3	1.2	1.6	0.4	0.5	0.5	0.5	0.2	0.3	0.0	0.1	0.4	0.0	0.2	2.2	0.8	0.4	2.2
4-Dec	0.1	Z	0.1	0.0	0.3	0.4	0.2	0.0	0.4	0.6	0.6	0.3	0.1	1.1	0.4	0.4	0.3	0.0	0.2	0.2	0.0	0.0	0.4	0.0	0.3	1.1
5-Dec	0.0	0.2	Z	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.5	0.4	0.3	0.6	0.3	0.0	0.0	0.5	0.0	0.7	0.4	0.4	3.2	0.7	0.4	3.2
6-Dec	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.4	0.0	0.2	0.0	0.1	0.4
7-Dec	0.1	0.1	0.0	0.0	Z	0.1	0.0	0.2	0.0	0.4	0.1	0.2	0.1	0.1	0.2	0.4	0.4	0.3	0.4	1.4	2.5	0.4	0.3	0.3	0.4	2.5
8-Dec	0.3	0.0	0.2	0.1	0.0	Z	0.0	0.3	0.0	0.0	0.3	0.0	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
9-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	0.4	0.5	0.6	0.1	0.6
10-Dec	0.4	Z	0.3	0.6	0.4	0.6	0.4	1.5	0.8	1.3	2.0	1.4	1.9	1.2	1.2	0.9	0.7	0.9	0.3	0.3	0.8	0.6	0.3	0.2	0.8	2.0
11-Dec	0.5	0.3	Z	0.4	0.3	0.1	0.2	0.3	0.4	0.4	0.7	0.4	0.5	0.4	0.3	0.5	1.6	1.0	0.3	0.4	1.6	1.8	0.0	0.0	0.5	1.8
12-Dec	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.4	0.2	0.2	0.1	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
13-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.5	0.3	0.4	0.2	0.4	0.0	0.5	0.3	0.3	0.0	0.0	0.3	0.2	0.5
14-Dec	0.0	0.0	0.3	0.0	0.4	Z	0.1	0.6	0.0	0.3	0.3	0.1	0.1	0.3	0.1	0.2	0.2	0.3	0.4	0.7	0.3	0.5	0.8	0.5	0.3	0.8
15-Dec	Z	0.2	0.2	0.2	0.0	0.2	0.0	0.4	0.5	0.4	0.9	1.2	1.0	0.9	0.4	0.3	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.3	1.2
16-Dec	0.0	Z	0.0	0.0	0.1	0.0	0.3	0.1	0.0	0.3	0.2	0.2	C	C	C	C	C	0.1	0.3	0.2	0.4	0.6	0.4	0.4	0.2	0.6
17-Dec	0.1	0.4	Z	0.4	0.3	0.4	0.4	0.1	0.6	0.4	0.1	0.5	0.2	0.0	0.4	1.1	1.5	6.6	1.8	0.9	1.6	0.2	0.3	0.4	0.8	6.6
18-Dec	0.0	0.5	0.0	Z	0.0	0.2	0.0	0.0	0.0	0.4	0.4	0.5	0.4	0.2	0.2	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.1	0.5
19-Dec	0.0	0.0	0.3	0.1	Z	0.0	0.0	0.2	0.5	0.3	0.7	1.0	1.1	0.6	1.7	1.5	0.1	1.0	4.5	0.0	0.2	0.2	0.7	1.2	0.7	4.5
20-Dec	0.1	0.0	0.1	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
21-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.4	0.8	1.0	1.5	0.8	0.4	2.7	0.2	0.8	0.5	0.2	0.8	0.9	0.6	0.5	2.7
22-Dec	0.4	Z	0.1	0.2	0.0	0.5	0.0	2.4	1.4	1.2	1.1	1.1	0.9	0.9	0.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.4
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.3	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.2	1.2	0.2	1.3	0.4	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2	1.3
25-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.1	0.1	0.1	0.2	0.1	0.2
26-Dec	0.0	0.4	0.0	0.0	0.0	Z	0.0	1.6	1.1	1.8	0.3	0.5	0.4	0.3	0.2	0.2	0.0	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.3	1.8
27-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	3.4	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.0	0.2	3.4
28-Dec	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.6	0.5	0.5	1.8	3.3	0.4	0.6	1.2	0.9	0.1	0.2	0.0	0.5	3.3
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2
31-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.4	0.0	0.1	0.1	0.0	0.1	0.1	0.2	4.1	0.4	1.1	0.3	0.3	4.1
																								Diurnal Average		
																								Diurnal Maximum		
																								0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.3 0.6 1.1 0.8 0.6 0.7 0.6 0.4 0.4 0.4 0.4 0.4 0.3 0.5 0.2 0.4 0.2		
																								0.5 0.5 0.5 0.6 0.4 0.6 0.5 2.4 11.2 20.0 12.1 6.7 6.8 5.9 3.7 1.8 3.3 6.6 4.5 1.4 4.1 1.8 3.2 1.2		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Janvier - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Janvier - December 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
Janvier - December 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	38	51	17	19	26	15	6	15	34	129	115	28	25	41	46	18	623
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	38	51	17	19	26	15	6	15	34	129	115	28	25	41	46	18	623

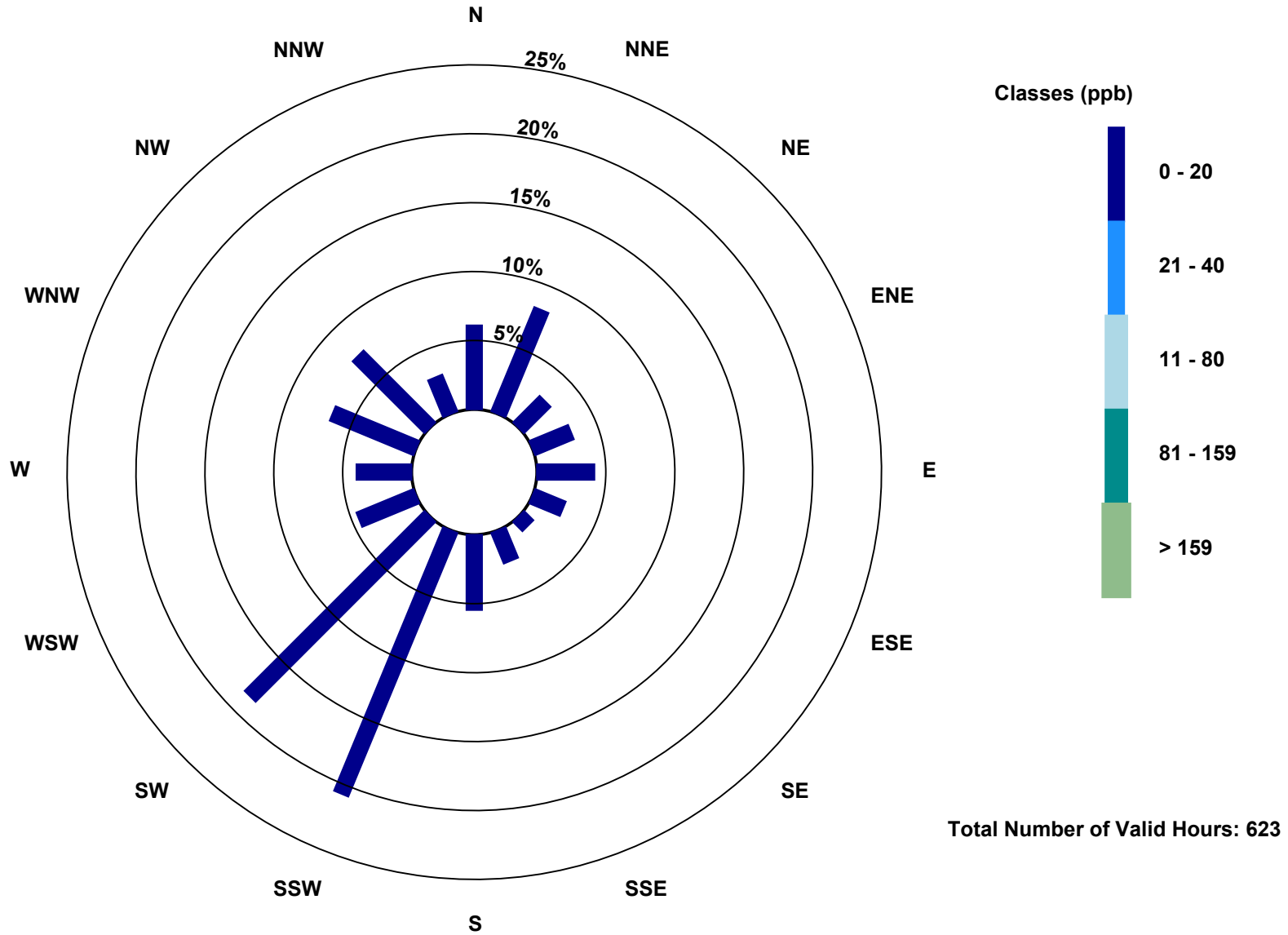
Total Number of Valid Hours: 623

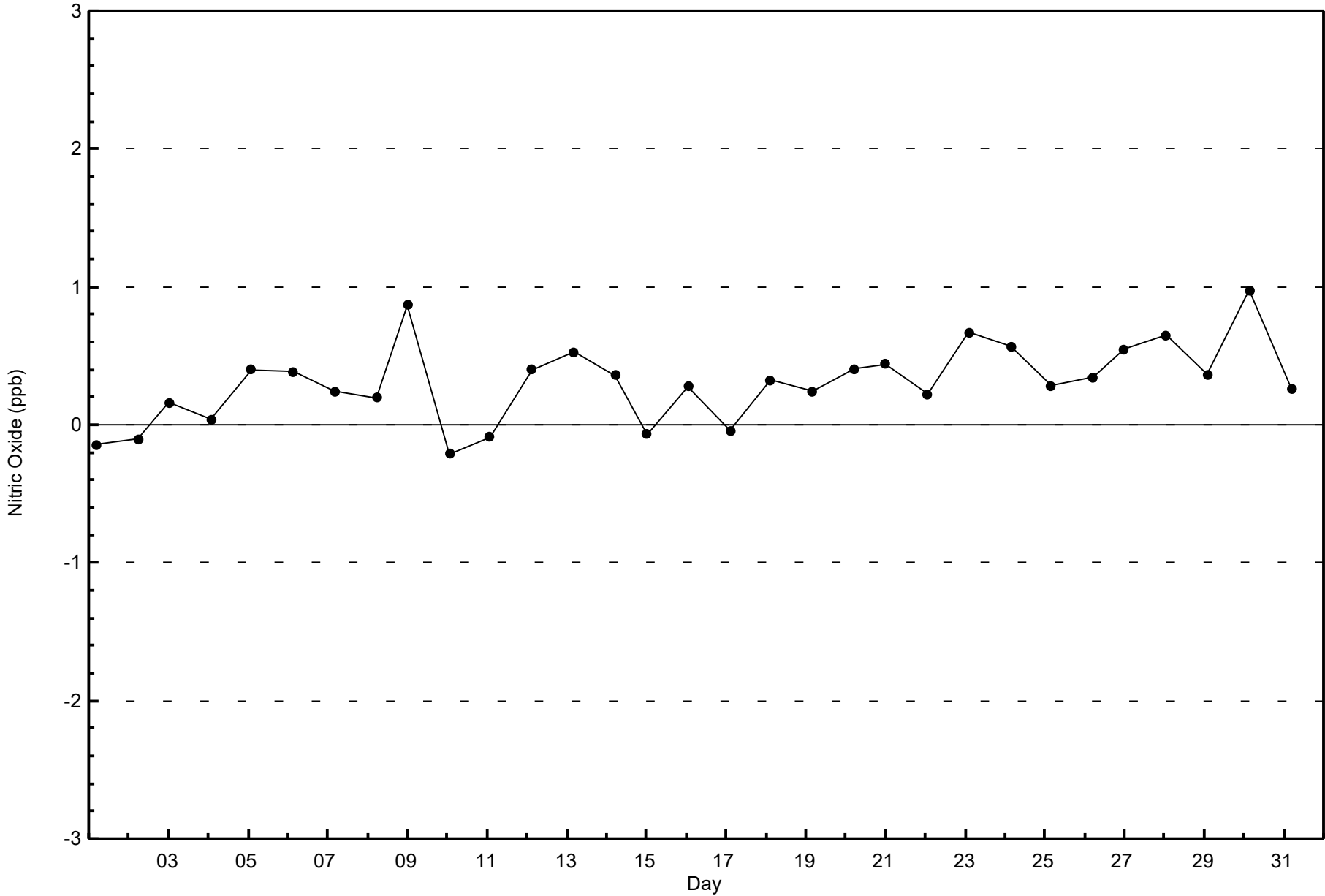
Total Number of Hours: 744

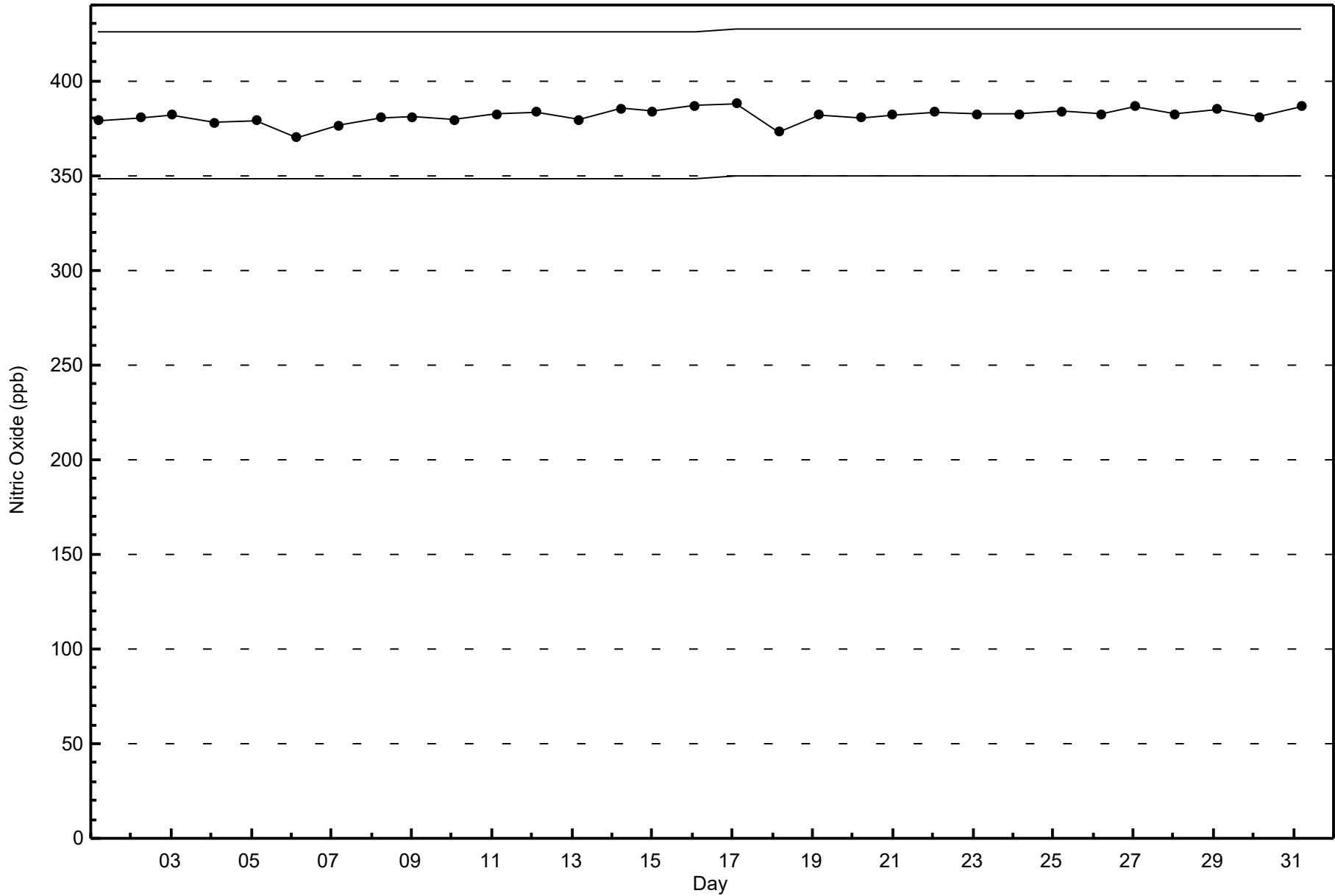


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Janvier









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

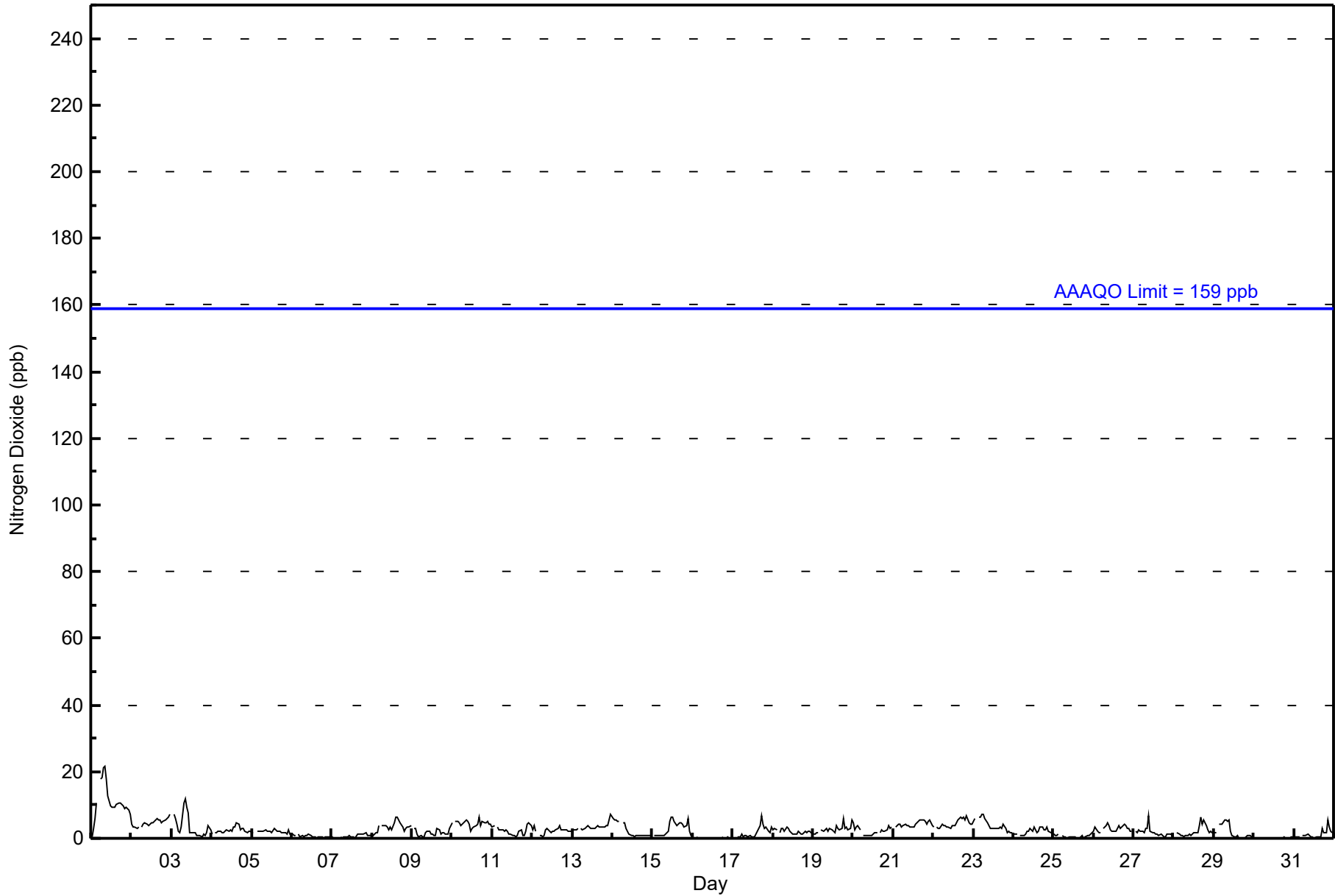
Janvier - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum			
Maximum Value: 21.5 ppb on Dec 1 09:00		Maximum Daily Average: 11.0 ppb on Dec 1		Hours of Data: 707																	Hours of Missing Data: 37		Hours of Calibration: 36		Percent Operational Time: 99.9	
Minimum Value: 0.0 ppb on Dec 16 07:00		Minimum Daily Average: 0.1 ppb on Dec 30		Hours of Missing Data: 37																	Hours of Calibration: 36		Percent Operational Time: 99.9			
Maximum Diurnal Average: 3.4 ppb at hour 9		Minimum Diurnal Average: 2.1 ppb at hour 1		Hours of Calibration: 36																	Hours of Calibration: 36		Percent Operational Time: 99.9			
Monthly Average: 2.68 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.4 Q ₁ = 0.9 Median = 2.2 Q ₃ = 3.8 P ₉₀ = 5.4 P ₉₉ = 10.8		Hours of Calibration: 36																	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-Dec	0.5	3.0	6.1	10.7	Z	17.8	18.3	21.1	21.5	17.7	12.6	9.8	9.2	9.3	9.5	10.2	10.5	10.8	10.0	9.8	9.1	9.2	8.4	7.0	11.0	21.5
2-Dec	4.2	3.5	3.6	3.1	3.3	Z	3.6	4.2	4.5	4.4	4.0	4.2	4.5	4.7	5.5	5.9	5.7	5.3	4.6	4.9	5.6	6.1	6.5	7.1	4.7	7.1
3-Dec	Z	7.2	6.1	4.4	2.3	1.9	3.3	10.8	11.7	9.3	7.7	1.7	1.5	1.5	1.6	0.9	0.8	0.9	0.6	1.1	0.8	1.7	3.7	2.4	3.6	11.7
4-Dec	1.1	Z	1.9	1.8	2.1	2.3	1.6	1.7	2.3	2.4	2.3	2.4	2.2	3.3	3.4	4.5	4.4	2.7	2.9	3.1	2.3	1.8	2.0	2.1	2.5	4.5
5-Dec	1.8	1.6	Z	2.0	2.3	2.1	2.1	2.2	2.7	2.3	2.3	2.1	1.9	2.8	2.4	2.0	2.1	2.2	1.5	1.7	1.5	1.4	2.5	1.3	2.0	2.8
6-Dec	1.4	1.0	0.9	Z	1.4	0.6	0.7	0.6	0.9	0.8	1.2	0.8	0.6	0.3	0.4	0.2	0.6	0.5	0.6	0.1	0.3	0.3	0.3	0.5	0.7	1.4
7-Dec	0.4	0.1	0.1	0.1	Z	0.4	0.2	0.3	0.5	0.6	1.0	0.5	0.5	0.6	0.2	1.1	1.1	1.1	1.1	1.3	1.7	1.0	1.0	0.9	0.7	1.7
8-Dec	1.3	0.8	1.6	1.9	3.8	Z	3.8	3.9	4.0	3.3	2.7	3.6	2.7	4.6	6.3	6.4	5.5	4.5	3.3	2.2	2.8	3.2	3.4	3.8	3.5	6.4
9-Dec	Z	3.0	2.9	1.2	0.4	0.9	0.4	0.4	1.8	2.0	2.0	1.2	1.2	0.9	0.8	2.8	2.5	1.2	1.6	1.7	1.4	1.4	2.8	3.8	1.7	3.8
10-Dec	4.7	Z	5.2	5.0	4.5	4.0	4.2	4.7	5.6	5.2	4.3	2.3	3.1	3.5	3.9	4.4	6.4	4.0	5.1	4.8	4.7	5.0	4.4	4.2	4.5	6.4
11-Dec	3.6	3.7	Z	3.6	2.7	2.4	2.5	2.3	2.6	2.1	1.4	1.4	1.0	1.0	0.6	0.8	2.1	2.5	0.9	0.9	2.3	4.2	4.5	3.7	2.3	4.5
12-Dec	2.5	3.8	2.1	Z	1.0	0.8	0.5	0.8	2.7	2.9	2.3	1.7	2.3	2.3	2.6	3.1	4.0	2.6	2.5	2.4	2.6	2.1	2.1	2.2	2.3	4.0
13-Dec	2.2	2.5	2.6	2.8	Z	3.0	2.7	2.9	3.3	3.7	3.3	3.1	2.9	3.1	3.4	4.0	3.6	3.4	3.6	3.6	3.8	4.0	5.6	7.0	3.5	7.0
14-Dec	6.1	5.6	5.4	4.9	5.0	Z	4.6	4.7	3.0	2.0	1.1	0.7	0.8	0.6	0.8	0.7	0.8	0.8	0.9	0.8	0.9	1.0	0.9	0.9	2.3	6.1
15-Dec	Z	1.0	0.7	0.7	0.8	0.8	1.0	1.0	1.3	2.3	5.2	6.3	6.3	4.9	3.9	4.3	4.7	4.6	4.3	3.4	3.9	5.8	2.2	0.8	3.1	6.3
16-Dec	0.4	Z	0.6	0.2	0.2	0.2	0.0	0.1	0.1	0.2	0.0	0.0	C	C	C	C	C	0.3	0.2	0.1	0.2	0.4	0.0	0.1	0.2	0.6
17-Dec	0.2	0.1	Z	0.5	0.5	1.1	0.4	0.8	0.8	0.6	0.7	0.6	0.3	0.6	1.1	3.1	4.0	6.7	4.3	2.9	3.6	2.3	1.7	3.4	1.8	6.7
18-Dec	2.5	2.8	2.5	Z	1.8	3.1	2.8	2.3	3.4	3.0	2.0	1.7	1.3	1.1	1.2	2.1	1.9	1.3	1.3	2.1	1.9	2.0	2.0	1.7	2.1	3.4
19-Dec	1.4	1.2	1.5	1.5	Z	2.5	2.3	2.4	2.8	2.0	2.8	2.6	2.1	1.8	3.8	3.1	2.6	2.8	5.8	2.9	3.3	2.4	2.9	5.7	2.7	5.8
20-Dec	4.5	2.7	3.2	3.8	2.6	Z	1.0	0.8	0.8	1.0	0.8	1.0	1.2	1.7	1.6	M	1.9	2.6	2.3	2.2	2.6	3.8	3.0	3.5	2.2	4.5
21-Dec	Z	3.2	3.8	4.1	4.3	3.5	4.0	4.3	3.9	3.9	3.6	3.6	3.5	4.2	4.6	5.1	5.6	5.7	5.7	4.9	4.1	5.0	5.4	4.0	4.3	5.7
22-Dec	3.5	Z	3.6	3.0	2.9	4.2	3.8	3.8	3.4	3.2	2.9	3.7	3.8	4.0	4.8	5.6	6.2	6.0	6.3	5.6	6.6	4.7	4.2	4.1	4.3	6.6
23-Dec	5.2	5.9	Z	6.5	6.4	7.3	7.4	5.9	4.8	3.8	2.8	2.8	3.0	3.1	2.9	3.1	3.6	3.1	4.3	2.8	1.9	2.1	1.9	1.7	4.0	7.4
24-Dec	1.2	1.4	1.2	Z	0.8	0.8	0.8	1.4	2.2	2.2	3.1	2.0	3.4	2.4	1.7	2.2	3.5	3.2	2.5	2.5	3.5	2.1	1.5	1.3	2.0	3.5
25-Dec	1.2	0.9	0.8	1.1	Z	1.0	0.6	0.3	0.2	0.4	0.3	0.5	0.4	0.4	0.2	0.0	0.4	0.8	0.2	0.3	0.7	0.7	1.4	1.5	0.6	1.5
26-Dec	2.1	3.2	2.0	1.5	1.9	Z	3.1	3.9	4.7	3.9	2.4	2.2	2.0	2.3	2.8	3.8	3.0	3.5	4.1	3.8	3.1	2.9	2.3	2.2	2.9	4.7
27-Dec	Z	2.1	1.8	2.5	2.3	2.0	1.9	2.8	3.0	6.6	2.3	1.8	1.6	1.3	1.1	0.9	1.1	0.8	0.4	0.5	1.2	1.3	1.1	0.6	1.8	6.6
28-Dec	0.3	Z	1.5	1.1	0.9	0.8	0.6	0.7	1.0	1.2	1.0	1.2	1.5	1.7	1.8	3.8	6.2	4.4	5.3	3.8	2.7	1.9	2.1	1.5	2.0	6.2
29-Dec	1.7	1.8	Z	4.4	4.3	4.3	5.7	5.5	5.0	5.7	2.0	1.0	0.5	0.6	0.7	0.0	0.0	0.0	0.0	0.4	0.9	0.8	0.7	0.0	2.0	5.7
30-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.1	0.2	0.4	0.5	0.1	0.6
31-Dec	0.2	0.3	0.3	0.4	Z	0.7	0.7	1.0	1.1	0.7	0.5	0.4	0.1	0.4	0.4	0.6	0.5	3.0	1.7	1.6	5.5	3.3	2.3	1.5	1.2	5.5
2.1 2.4 2.4 2.8 2.3 2.6 2.7 3.1 3.4 3.2 2.6 2.2 2.2 2.3 2.5 2.9 3.2 2.9 2.9 2.5 2.8 2.7 2.7 2.6																								Diurnal Average		
6.1 7.2 6.1 10.7 6.4 17.8 18.3 21.1 21.5 17.7 12.6 9.8 9.2 9.3 9.5 10.2 10.5 10.8 10.0 9.8 9.1 9.2 8.4 7.1																								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
Janvier - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Janvier - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	705	99.72	99.72
21 - 40	2	0.28	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Janvier - December 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	38	50	17	18	26	15	6	15	34	129	115	28	25	41	46	18	621
21 - 40	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	38	51	17	19	26	15	6	15	34	129	115	28	25	41	46	18	623

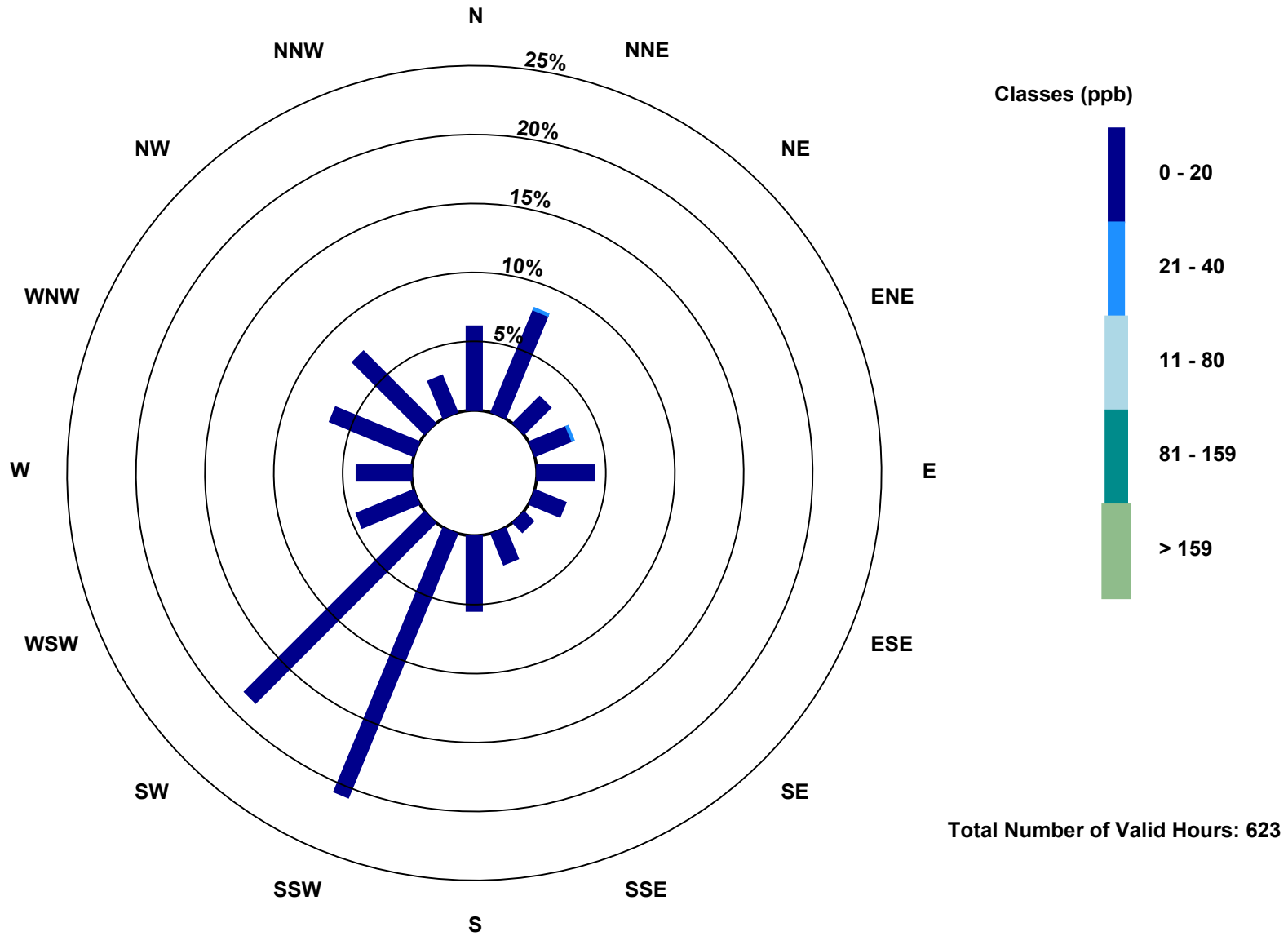
Total Number of Valid Hours: 623

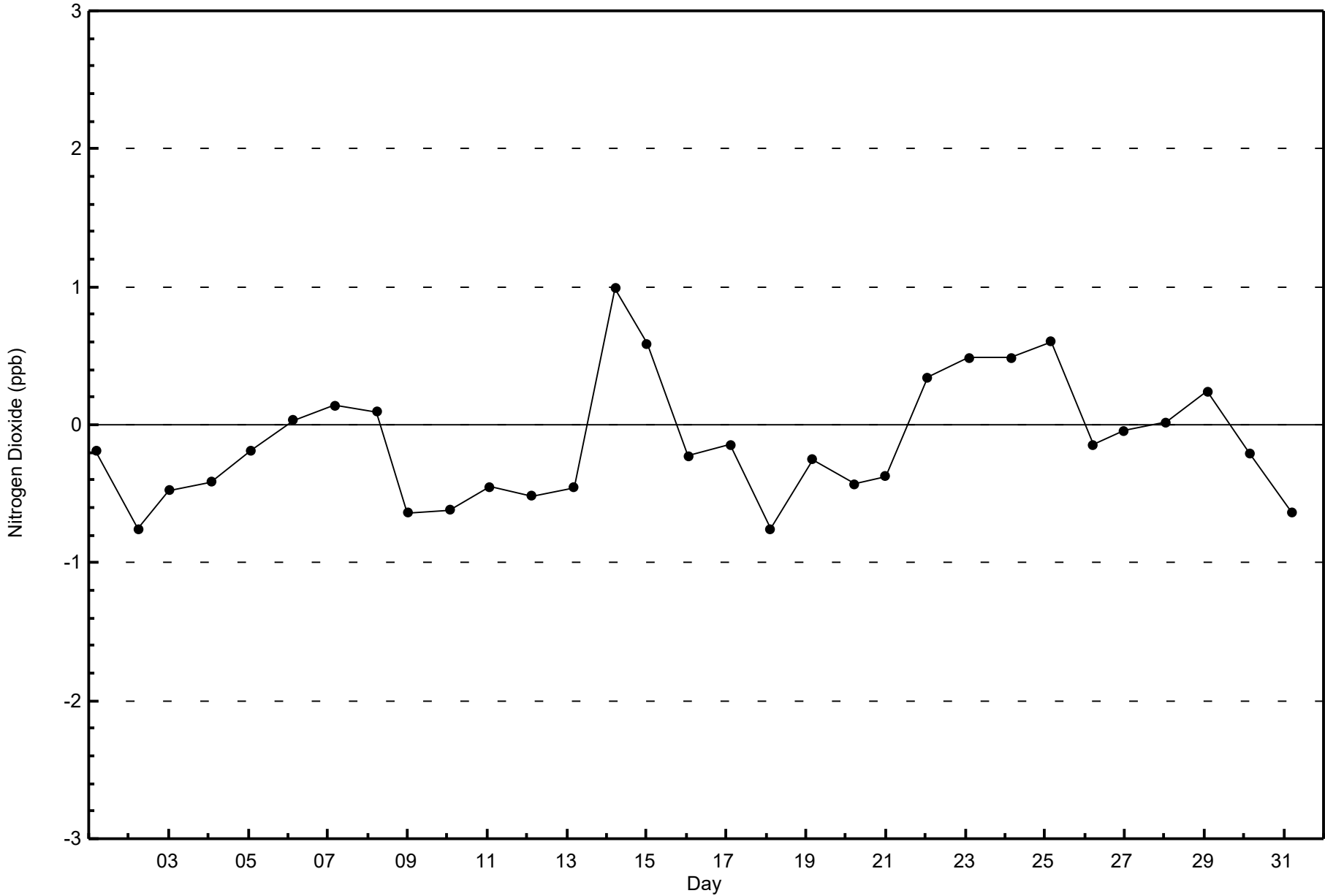
Total Number of Hours: 744

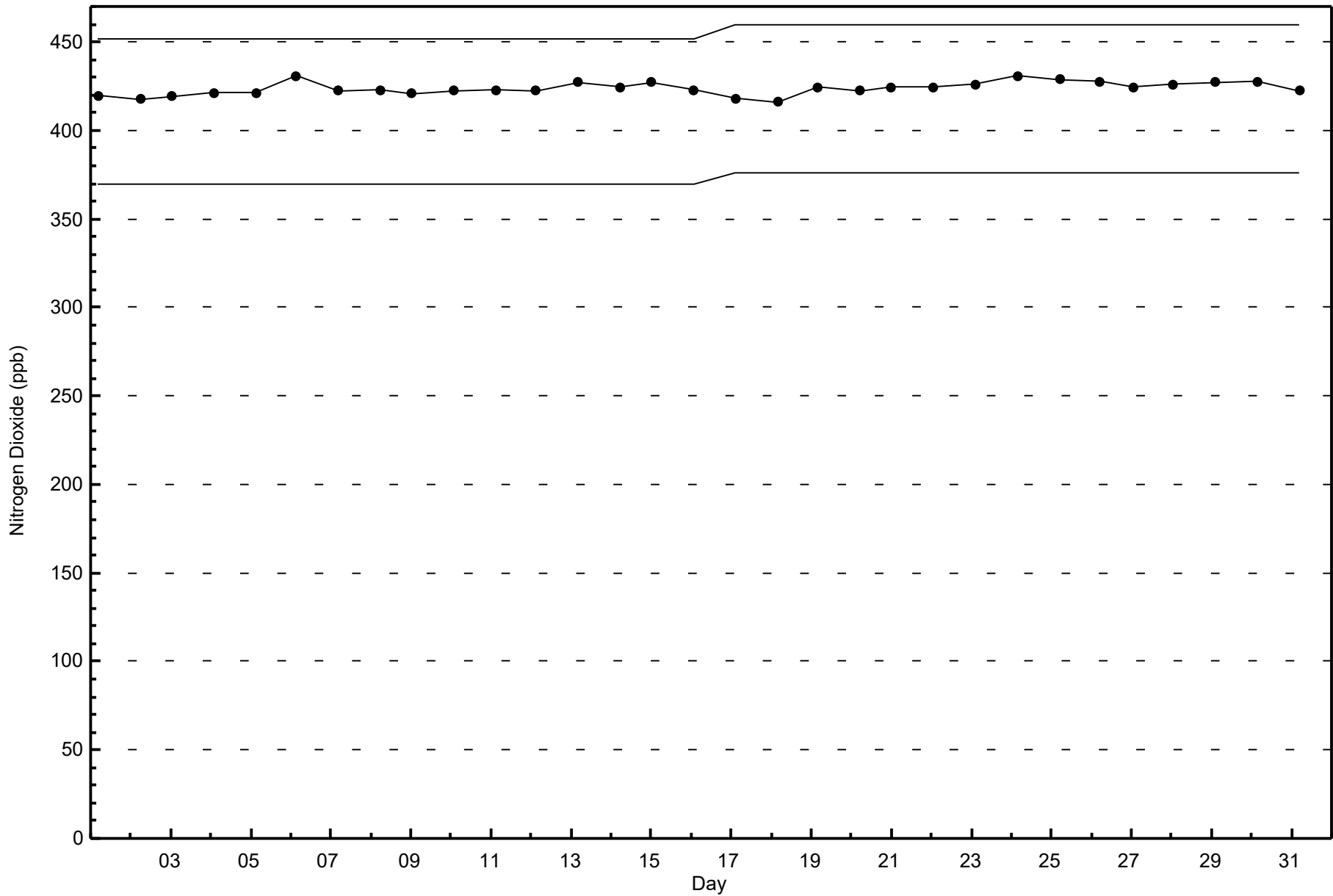


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Janvier



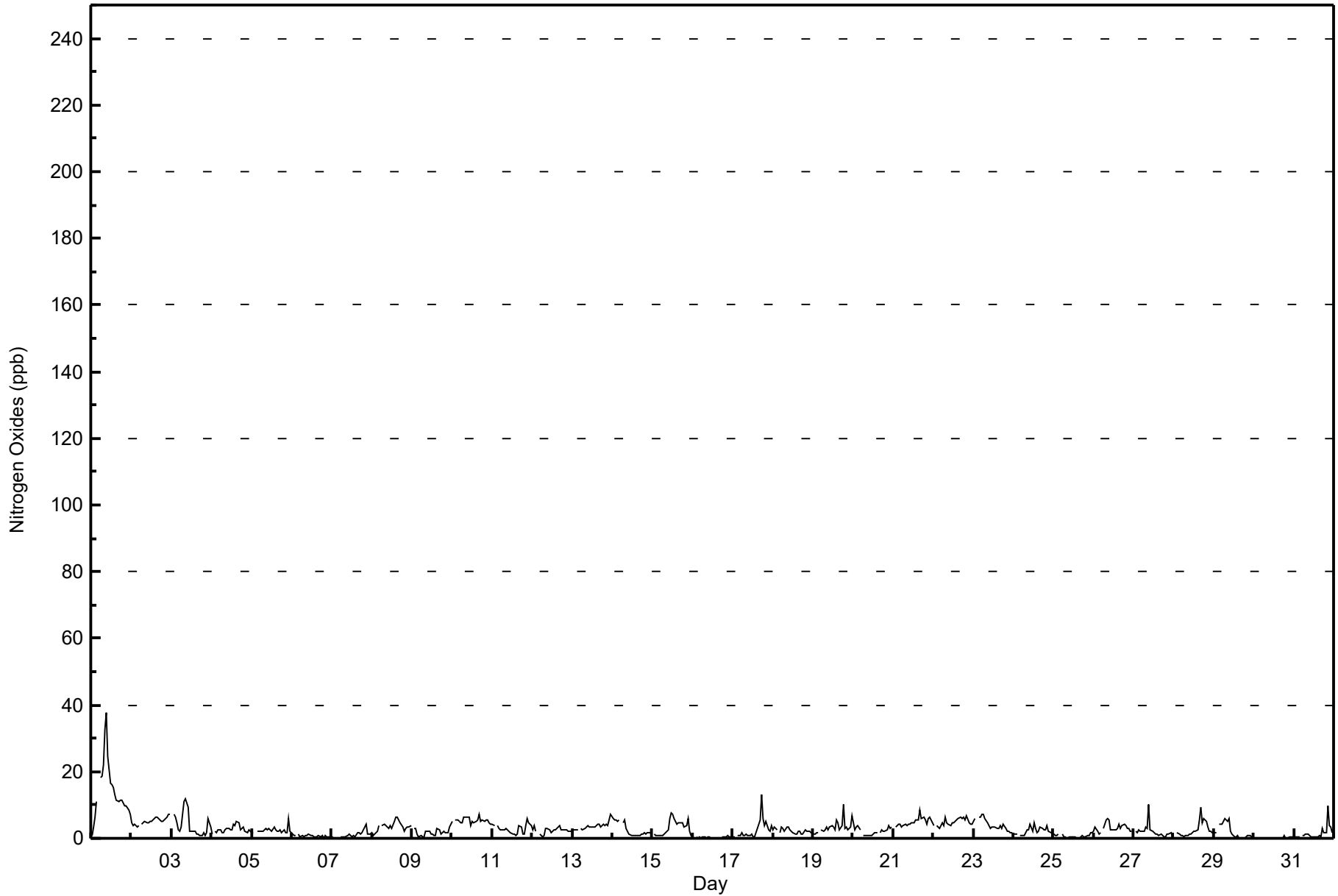






Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Janvier - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Janvier - December 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 Oxides (NO_x) - ppb
Janvier - December 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	38	50	16	17	26	15	6	15	34	129	115	28	25	41	46	18	619
21 - 40	0	1	1	2	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	38	51	17	19	26	15	6	15	34	129	115	28	25	41	46	18	623

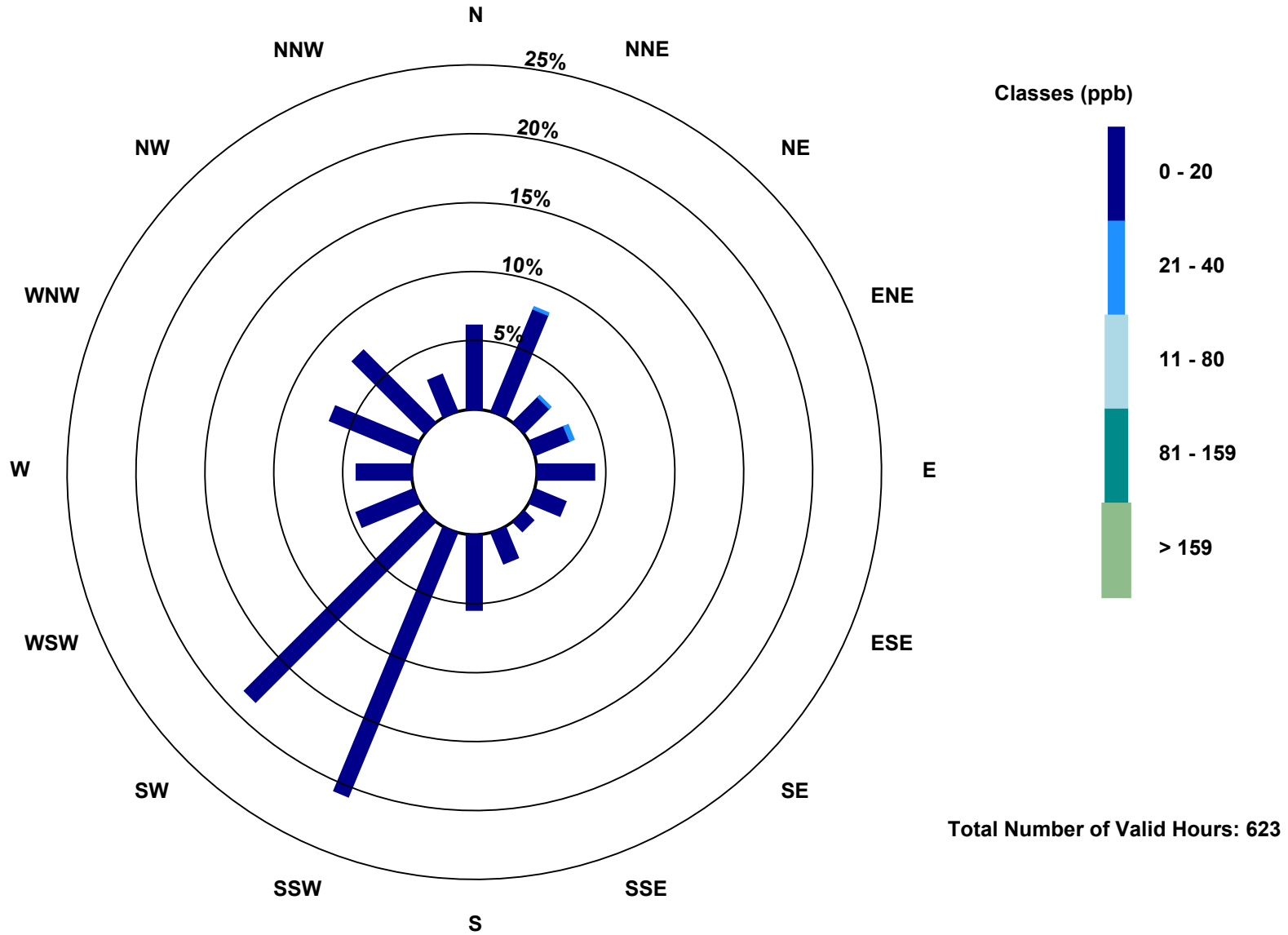
Total Number of Valid Hours: 623

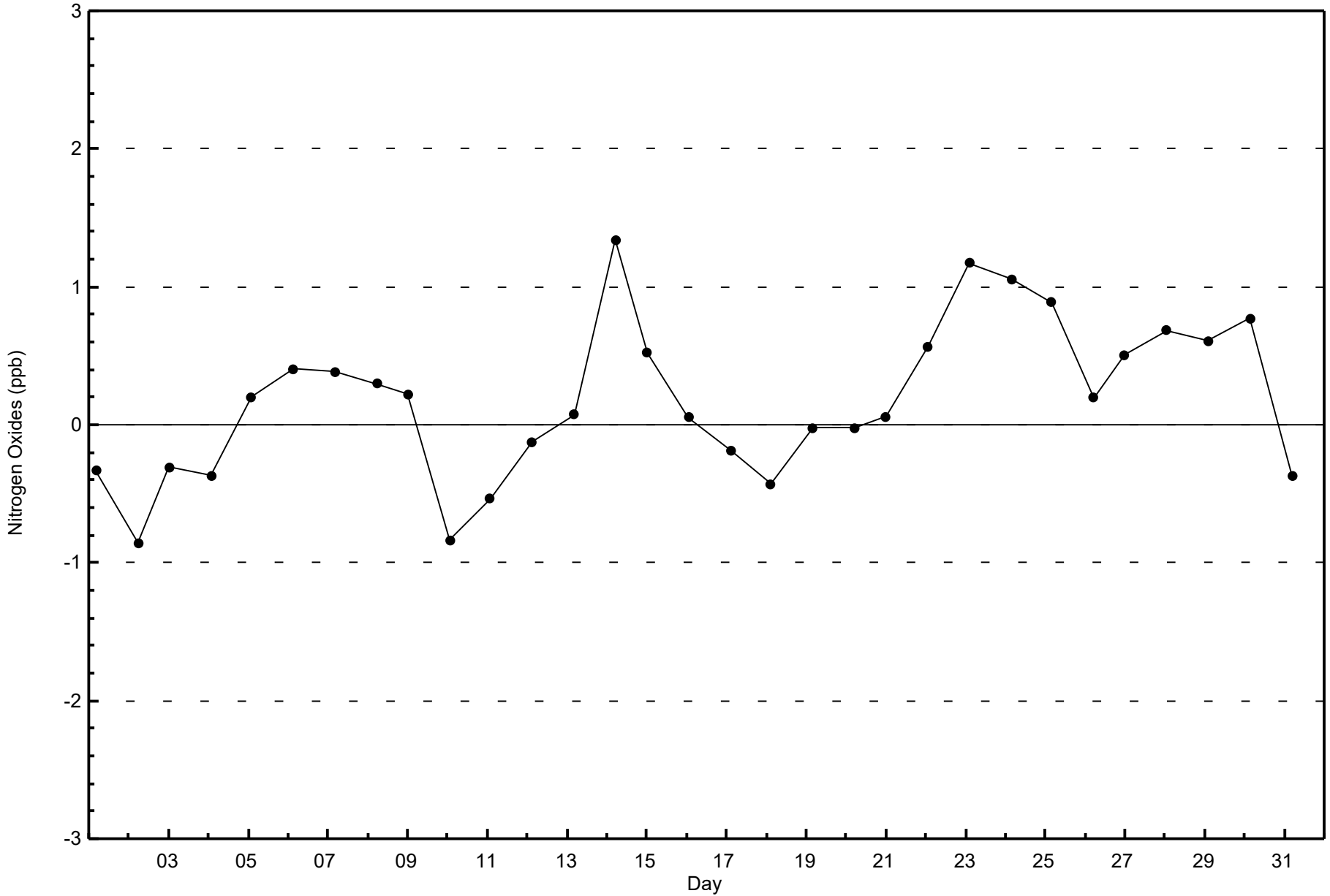
Total Number of Hours: 744

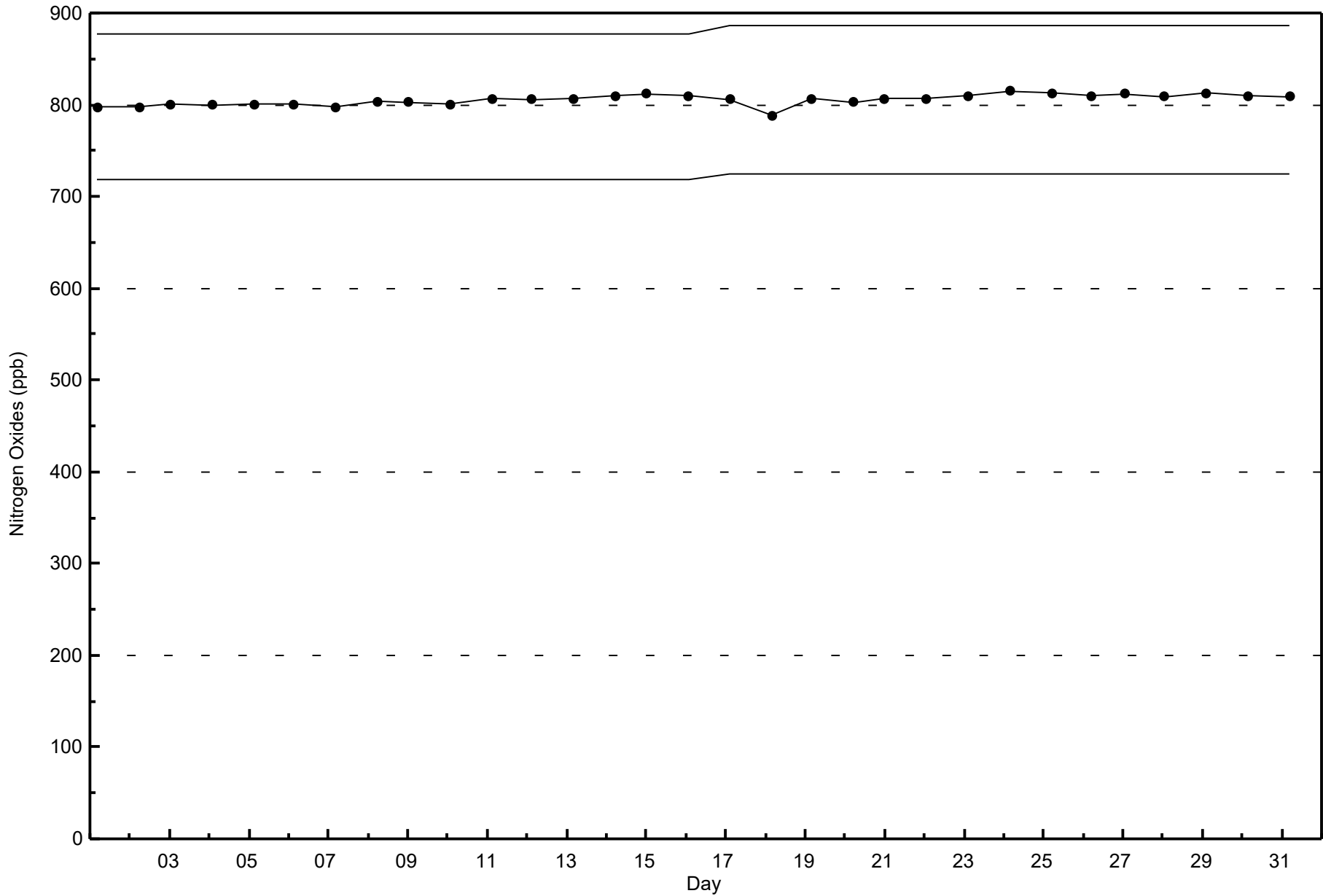


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Janvier









Wood Buffalo Environmental Association

Summary of Hour Averages

Ozone (O₃) - ppb

Janvier - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 40.3 ppb on Dec 9 19:00	Maximum Daily Average: 34.6 ppb on Dec 25		Hours of Data:	709
Minimum Value: 3.9 ppb on Dec 1 08:00	Minimum Daily Average: 11.5 ppb on Dec 28		Hours of Missing Data:	35
Maximum Diurnal Average: 27.8 ppb at hour 15	Minimum Diurnal Average: 21.2 ppb at hour 3		Hours of Calibration:	34
Monthly Average: 24.44 ppb	Percentiles: P ₁ = 8.4 P ₁₀ = 14.2 Q ₁ = 19.6 Median = 24.9 Q ₃ = 29.9 P ₉₀ = 33.2 P ₉₉ = 37.5		Percent Operational Time:	99.9

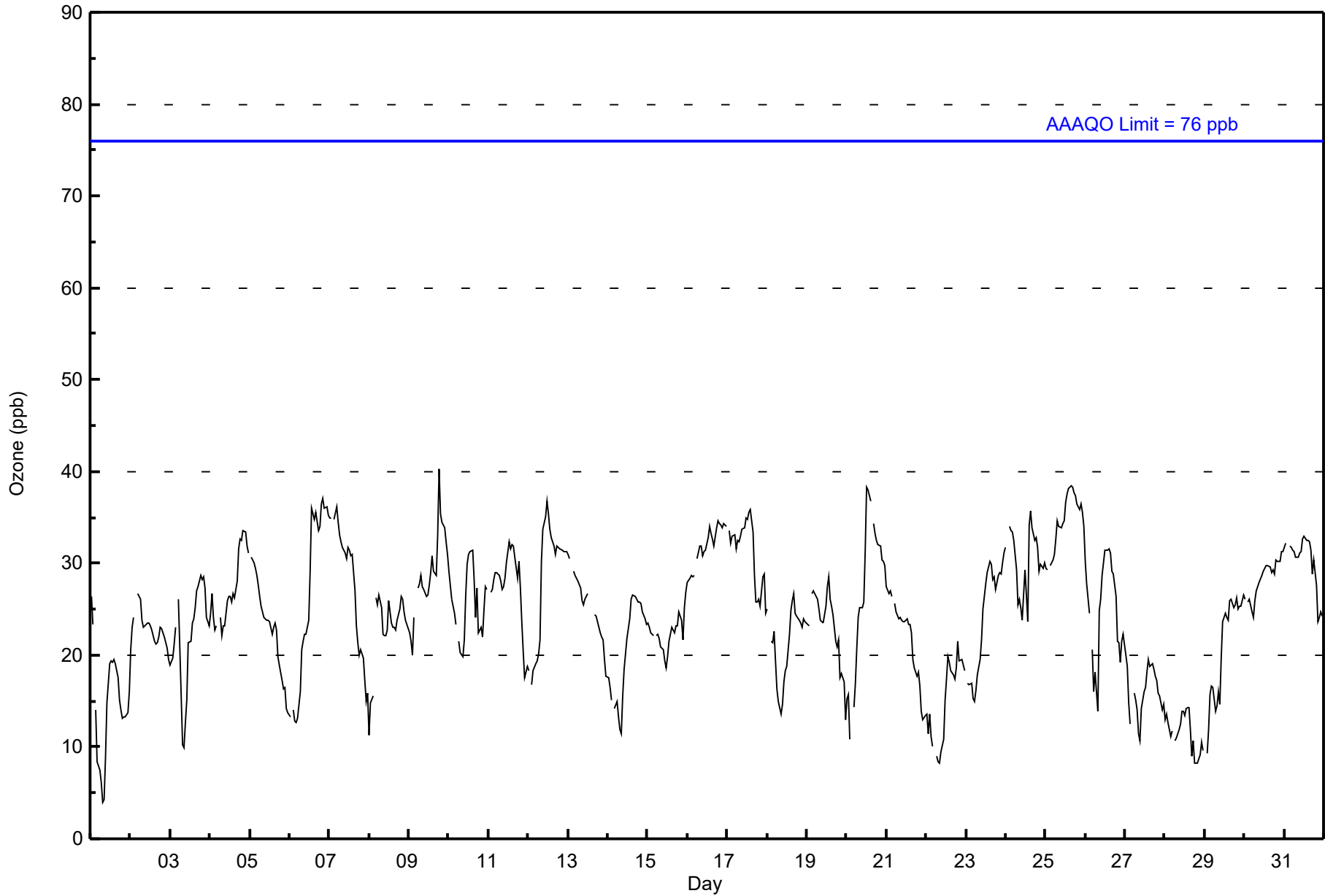
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	26.4	23.4	Z	14.0	8.4	7.5	6.2	3.9	4.2	8.8	14.7	19.1	19.4	19.2	19.5	19.1	17.5	15.1	14.0	13.2	13.2	13.3	13.8	15.9	14.3	26.4																						
2-Dec	20.6	23.1	24.1	Z	26.7	26.4	26.1	23.8	23.0	23.3	23.5	23.4	23.2	22.8	21.5	21.2	21.4	22.0	23.1	22.9	22.0	21.4	20.8	19.5	22.9	26.7																						
3-Dec	19.0	19.7	21.3	23.0	Z	26.0	20.9	10.3	9.9	12.7	15.1	21.3	21.5	23.5	24.0	25.2	27.0	27.5	28.7	28.2	28.6	27.3	24.1	23.2	22.1	28.7																						
4-Dec	24.6	26.7	24.1	22.8	23.3	Z	24.0	22.2	23.2	23.1	25.9	26.4	26.5	25.7	26.7	26.3	28.1	31.7	32.6	32.4	33.5	33.4	31.8	31.2	27.2	33.5																						
5-Dec	Z	30.7	30.1	29.4	28.7	27.7	26.4	25.2	24.2	24.0	23.8	23.8	23.6	22.3	23.1	23.5	22.7	19.8	18.8	17.3	16.4	16.4	14.2	13.8	22.9	30.7																						
6-Dec	13.3	Z	14.1	12.8	12.7	13.1	16.0	20.7	21.5	22.3	22.2	23.8	29.1	36.0	35.4	34.7	35.6	33.5	34.0	36.5	37.0	36.0	36.2	35.3	26.6	37.0																						
7-Dec	35.0	34.9	Z	34.8	36.1	34.4	33.2	32.3	31.7	31.1	30.6	31.8	31.5	30.8	31.0	27.1	23.1	21.3	20.0	20.5	19.6	17.2	15.0	15.8	27.8	36.1																						
8-Dec	11.3	14.8	15.6	Z	26.2	25.4	26.5	25.2	22.2	22.2	22.1	22.8	25.9	23.5	23.0	23.0	22.8	23.8	25.0	26.4	26.1	24.7	23.8	22.8	22.8	26.5																						
9-Dec	22.4	21.5	20.0	24.2	Z	27.3	27.8	28.6	27.4	27.2	26.4	26.5	27.6	29.0	30.8	29.1	28.7	33.1	40.3	35.4	34.5	33.8	32.4	31.0	28.9	40.3																						
10-Dec	29.1	27.6	26.1	24.6	23.3	Z	21.5	20.4	19.8	21.7	26.5	29.9	31.0	31.3	31.4	28.3	24.1	27.4	22.4	23.1	22.0	24.9	27.5	27.2	25.7	31.4																						
11-Dec	Z	26.8	27.2	28.2	29.0	29.0	28.7	28.1	27.1	27.5	28.3	30.1	32.3	31.6	32.0	31.8	30.6	28.4	30.2	27.3	23.7	20.5	17.6	18.8	27.6	32.3																						
12-Dec	18.3	Z	16.8	18.3	19.0	19.4	20.1	21.6	30.1	33.8	35.2	36.8	35.4	33.7	32.7	31.9	31.0	31.9	31.8	31.6	31.4	31.3	31.2	31.2	28.5	36.8																						
13-Dec	30.9	30.5	Z	29.2	28.7	28.3	28.0	27.3	25.9	25.4	26.1	26.3	26.7	C	C	C	24.4	24.2	23.0	22.4	21.9	21.6	19.6	17.7	25.4	30.9																						
14-Dec	17.6	16.5	15.0	Z	14.2	14.9	13.2	11.8	11.5	15.6	18.5	21.9	22.9	24.0	26.2	26.6	26.5	26.0	25.8	25.8	25.6	24.7	23.9	23.3	20.5	26.6																						
15-Dec	23.5	23.0	22.4	22.1	Z	22.1	22.3	21.8	21.0	20.6	19.4	18.6	19.8	21.6	23.0	22.8	22.5	23.2	23.2	24.6	23.8	21.6	25.1	26.8	22.4	26.8																						
16-Dec	28.0	28.4	28.6	28.5	28.7	Z	30.6	31.9	31.9	30.9	31.2	31.5	32.8	33.9	33.2	32.7	31.9	33.9	34.7	34.3	34.1	33.9	34.4	34.1	31.9	34.7																						
17-Dec	Z	33.6	32.2	33.0	33.2	31.6	32.5	32.3	33.0	33.8	33.9	35.0	34.8	35.6	35.9	33.4	28.7	25.7	25.8	26.1	25.3	28.6	28.8	24.6	31.2	35.9																						
18-Dec	25.0	Z	21.5	21.4	22.6	19.4	16.4	14.9	13.6	14.6	17.0	18.3	18.8	22.3	24.8	25.9	26.8	24.5	24.3	23.8	23.6	23.0	23.9	23.6	21.3	26.8																						
19-Dec	23.3	23.2	Z	26.8	27.1	26.8	26.1	25.1	23.7	23.7	23.5	25.3	27.5	28.5	26.1	25.4	24.4	21.5	20.9	21.7	17.5	18.0	17.1	12.9	23.3	28.5																						
20-Dec	15.2	15.8	10.9	Z	14.3	16.9	20.7	24.2	25.2	25.2	25.8	31.2	38.3	38.0	36.8	M	34.4	33.2	32.5	32.0	31.9	30.4	30.2	29.7	26.9	38.3																						
21-Dec	27.5	26.7	27.0	26.4	Z	25.6	24.7	24.0	24.1	23.8	23.6	23.6	23.9	23.3	23.3	22.4	19.6	18.6	17.8	18.2	16.7	13.9	13.0	13.4	21.8	27.5																						
22-Dec	13.6	11.4	13.5	11.2	10.0	Z	9.1	8.5	8.3	9.5	10.8	15.2	17.5	19.8	19.2	18.3	17.8	17.4	18.6	21.6	19.4	19.6	19.0	18.4	15.1	21.6																						
23-Dec	Z	17.0	16.7	17.0	15.3	15.0	16.1	17.9	19.5	21.7	25.0	26.4	27.8	29.0	30.1	29.8	28.3	28.5	27.2	28.7	29.0	28.8	30.1	31.1	24.2	31.1																						
24-Dec	31.8	Z	34.1	33.5	33.5	32.6	29.2	25.5	26.0	25.2	23.8	29.2	26.6	23.6	34.2	35.7	33.9	32.5	32.8	31.7	29.1	29.9	29.5	30.0	30.2	35.7																						
25-Dec	29.4	29.2	Z	29.7	30.4	31.0	32.7	34.6	34.0	33.9	34.3	34.6	36.6	37.5	38.2	38.5	38.3	37.7	37.3	36.5	35.9	36.4	35.6	34.1	34.6	38.5																						
26-Dec	30.2	27.7	24.6	Z	20.6	16.0	18.2	13.9	24.9	26.1	28.7	30.1	31.4	31.4	31.5	31.1	29.1	28.8	26.3	21.5	21.4	19.3	21.5	22.3	25.1	31.5																						
27-Dec	20.0	18.8	14.8	12.5	Z	15.8	15.1	14.1	11.4	10.7	14.2	16.0	16.4	18.1	19.5	18.7	19.1	18.5	17.7	17.3	15.8	15.5	14.1	14.7	16.0	20.0																						
28-Dec	13.0	13.6	12.7	11.1	11.7	Z	10.6	11.1	11.9	12.5	13.9	13.9	13.4	14.2	14.3	11.9	9.0	10.7	8.3	8.2	8.8	9.1	10.5	9.6	11.5	14.3																						
29-Dec	Z	9.3	11.9	15.7	16.6	16.5	13.9	14.5	16.0	14.6	19.7	23.7	24.5	24.1	23.7	25.9	26.2	25.2	25.5	26.3	25.1	25.4	25.3	26.6	20.7	26.6																						
30-Dec	26.1	Z	25.8	26.1	24.6	24.1	26.0	27.1	27.4	28.0	28.6	29.1	29.4	29.8	29.8	29.6	29.0	29.3	28.8	30.3	30.1	30.2	31.3	31.3	28.3	31.3																						
31-Dec	31.7	32.2	Z	31.9	31.7	31.5	31.3	30.7	30.6	31.2	31.3	32.6	32.9	32.5	32.5	32.3	31.4	28.8	30.4	27.7	23.6	24.1	24.7	24.3	30.1	32.9																						
																								23.3	23.3	21.2	23.4	22.9	23.3	22.4	21.7	22.1	22.7	24.0	25.8	26.7	27.2	27.8	27.0	26.2	25.9	25.9	25.6	24.7	24.3	24.1	23.7	Diurnal Average
																								35.0	34.9	34.1	34.8	36.1	34.4	33.2	34.6	34.0	33.9	35.2	36.8	38.3	38.0	38.2	38.5	38.3	37.7	40.3	36.5	37.0	36.4	36.2	35.3	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
Janvier - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ozone (O₃) - ppb
Janvier - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	191	26.94	26.94
21 - 50	518	73.06	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
Janvier - December 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	30	11	7	10	9	5	3	11	33	15	7	2	4	5	5	163
21 - 50	31	18	7	13	16	6	2	12	25	96	97	19	29	36	40	14	461
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	37	48	18	20	26	15	7	15	36	129	112	26	31	40	45	19	624

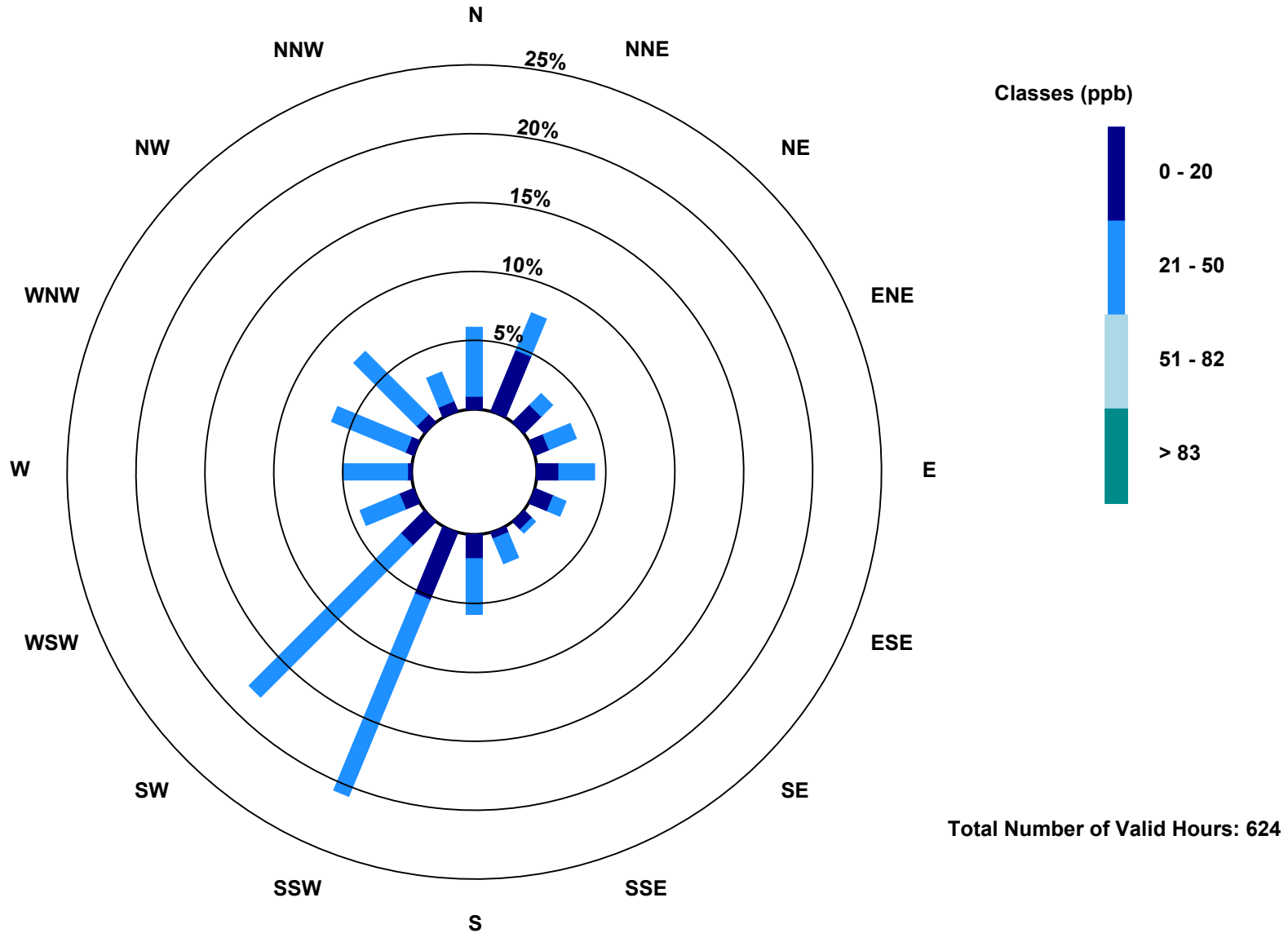
Total Number of Valid Hours: 624

Total Number of Hours: 744

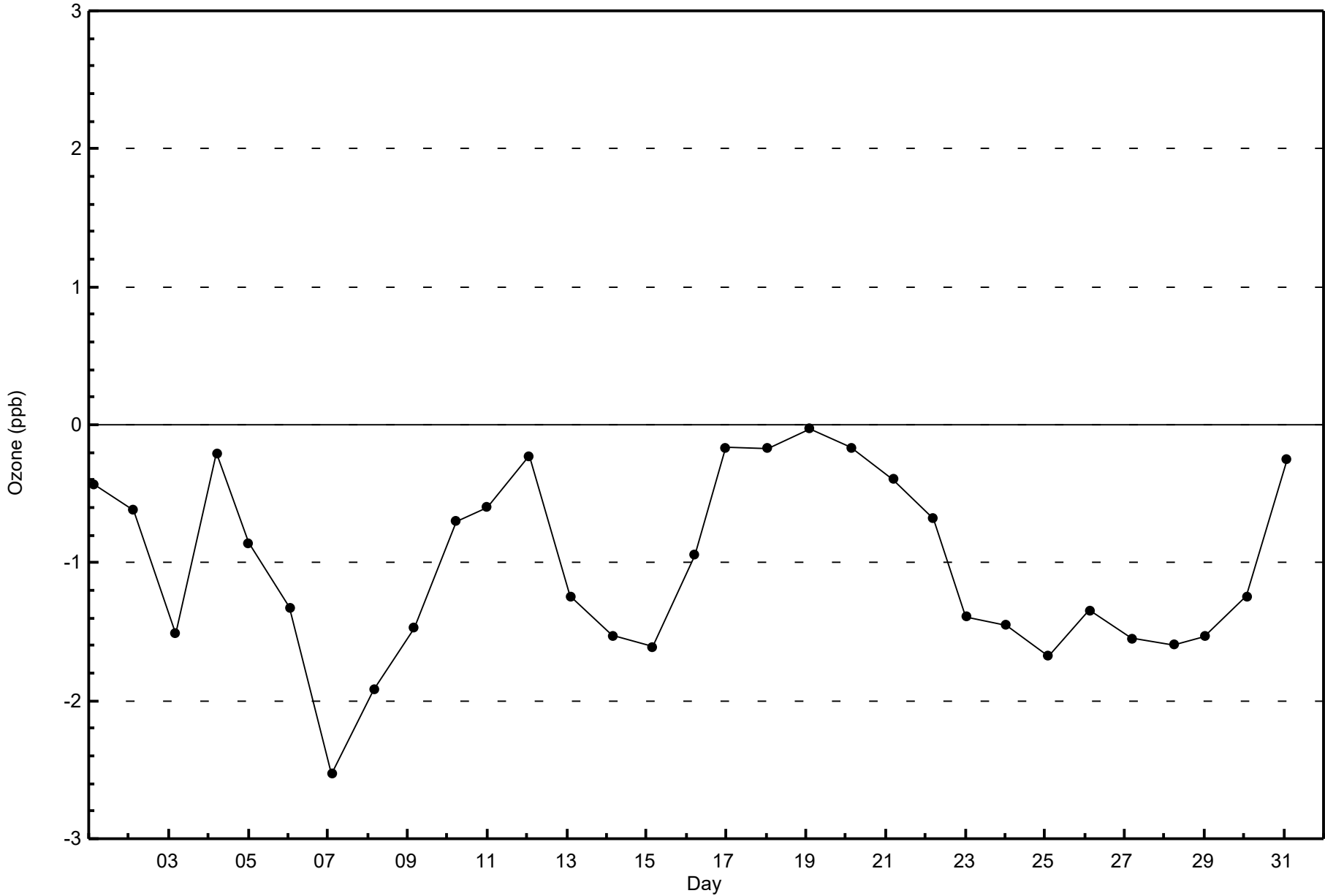


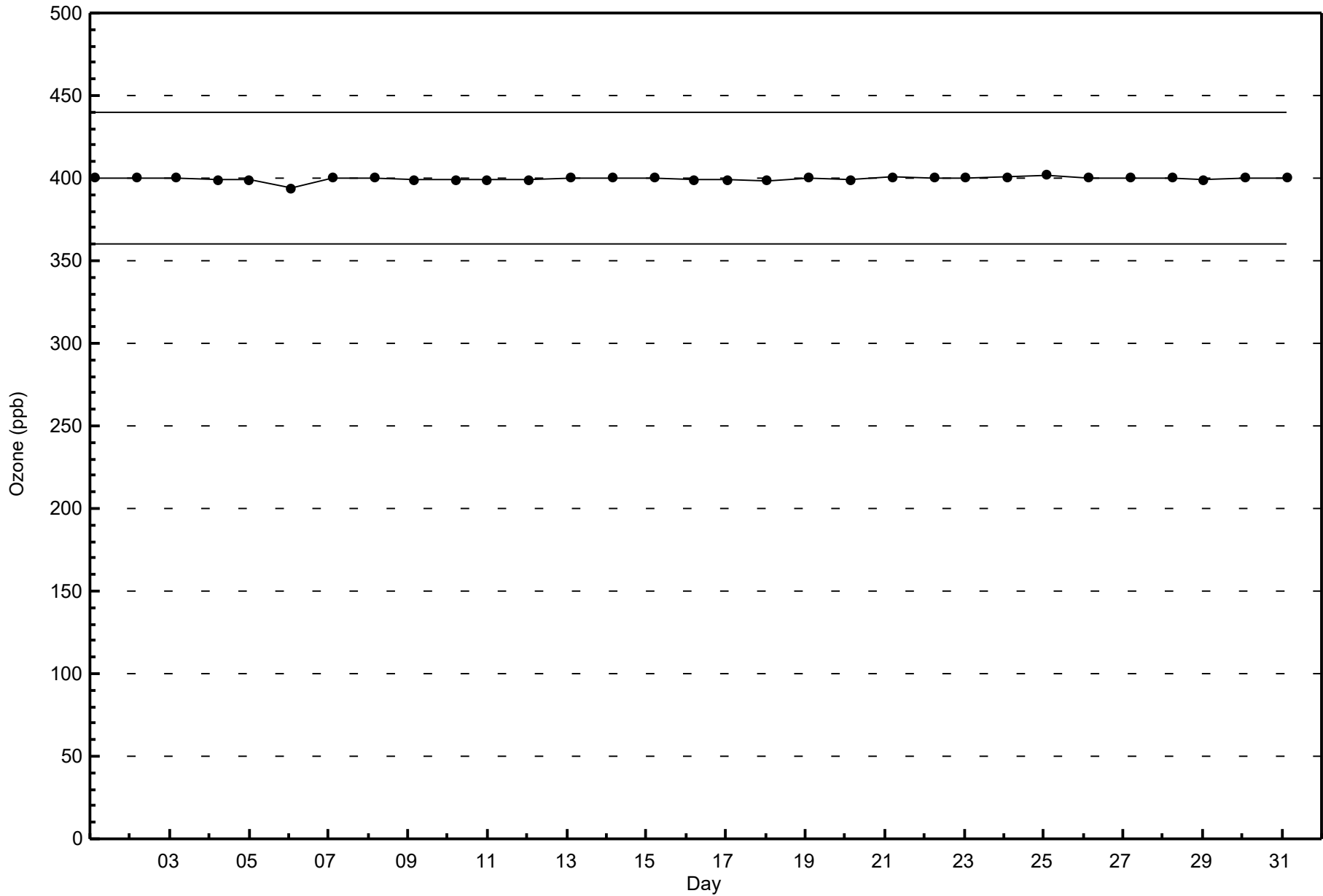
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Ozone (O₃) - ppb
Janvier



Total Number of Valid Hours: 624







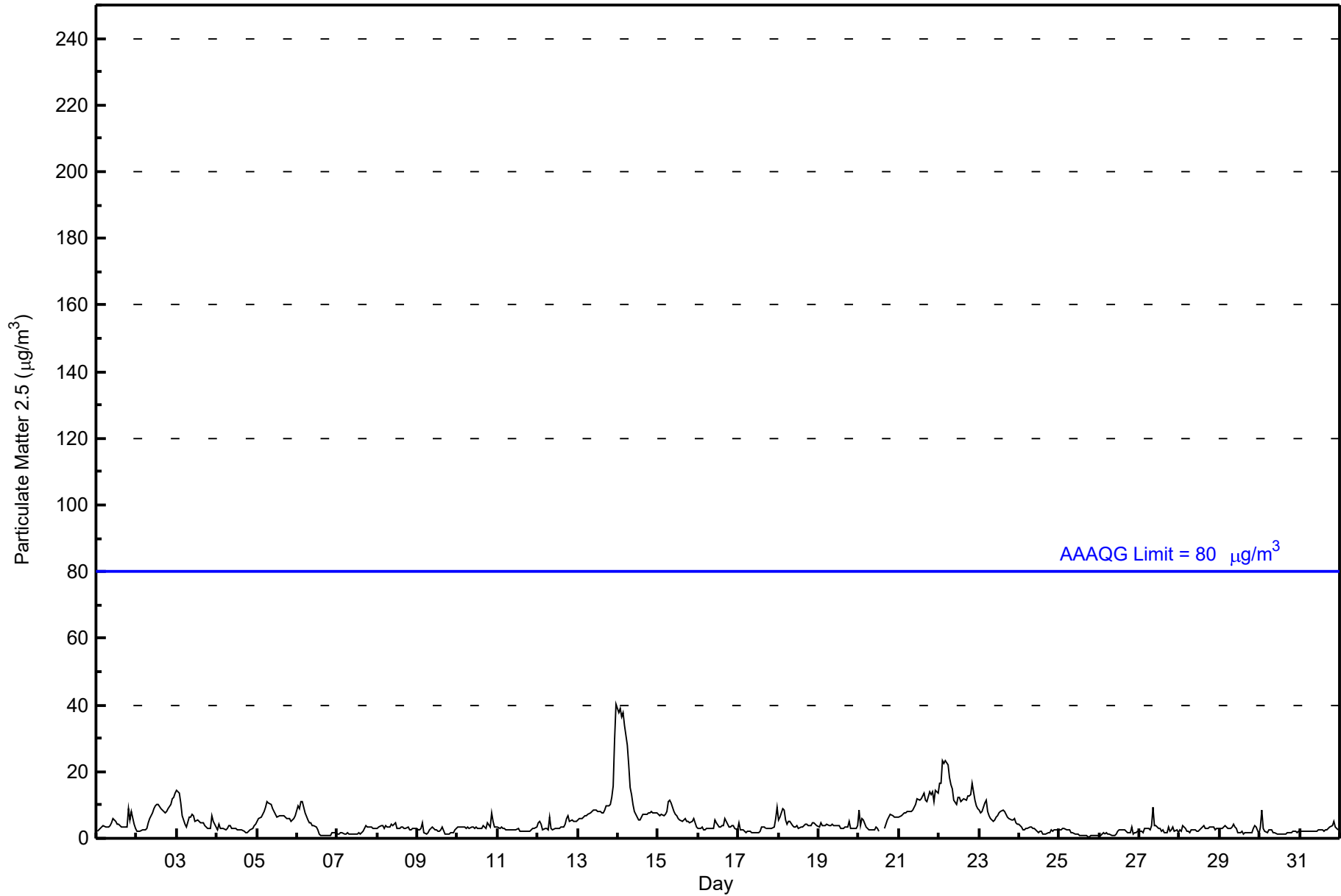
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Janvier - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														742																												
Maximum Value: 40.4 µg/m ³ on Dec 14 00:00		Maximum Daily Average: 15.6 µg/m ³ on Dec 14		Hours of Data: 742														2																														
Minimum Value: 0.5 µg/m ³ on Dec 25 19:00		Minimum Daily Average: 1.5 µg/m ³ on Dec 25		Hours of Missing Data: 2														2																														
Maximum Diurnal Average: 6.1 µg/m ³ at hour 3		Minimum Diurnal Average: 4.1 µg/m ³ at hour 14		Hours of Calibration: 2														100.0																														
Monthly Average: 4.92 µg/m ³		Percentiles: P ₁ = 0.7 P ₁₀ = 1.6 Q ₁ = 2.5 Median = 3.3 Q ₃ = 6.1 P ₉₀ = 9.6 P ₉₉ = 26.1																																														
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-Dec	2.3	2.7	2.9	3.4	3.6	3.5	3.6	3.4	3.8	4.5	5.9	5.1	4.3	4.1	3.8	3.5	3.4	3.5	3.4	9.0	5.6	8.1	4.2	3.2	4.2	9.0																						
2-Dec	2.3	2.1	2.3	2.6	2.7	2.8	3.1	4.5	6.1	7.6	8.7	9.8	10.2	10.2	8.9	8.6	8.3	7.7	8.1	9.0	10.3	12.0	12.4	13.5	7.2	13.5																						
3-Dec	14.2	13.6	10.8	6.6	5.7	4.1	3.2	6.3	6.5	7.0	6.6	4.9	5.6	4.9	4.6	4.6	3.9	3.2	3.0	2.8	7.0	5.3	3.3	5.9	14.2																							
4-Dec	2.5	4.0	2.9	2.8	2.8	2.7	2.8	3.6	3.6	3.1	3.0	2.9	2.7	2.7	2.5	2.4	2.1	1.9	1.8	2.0	2.4	3.0	3.7	4.3	2.9	4.3																						
5-Dec	5.2	6.1	6.6	7.4	8.0	9.5	11.1	10.8	10.1	8.7	7.8	7.0	6.6	6.8	6.6	6.9	6.8	6.3	6.0	5.9	5.2	5.4	6.0	6.9	7.2	11.1																						
6-Dec	9.7	8.9	11.2	10.9	9.4	7.8	5.6	4.6	4.6	4.0	3.7	3.5	2.6	1.3	0.8	0.8	1.0	0.7	0.7	0.8	0.9	1.6	1.6	1.8	4.1	11.2																						
7-Dec	1.2	1.3	1.5	1.6	1.2	1.5	1.5	1.3	1.1	1.4	1.2	1.1	1.2	1.7	1.2	2.2	3.0	3.7	3.5	3.3	3.4	2.9	3.0	3.1	2.0	3.7																						
8-Dec	3.1	3.2	3.7	3.7	3.1	3.9	3.2	3.4	4.2	4.0	4.3	4.6	2.9	2.9	3.4	3.4	3.1	3.0	3.5	2.5	2.5	2.9	2.8	2.8	3.3	4.6																						
9-Dec	2.6	2.6	2.8	4.8	1.7	1.3	1.6	2.5	2.8	3.3	2.5	2.4	2.3	2.2	2.5	3.5	1.4	1.1	1.2	1.3	1.5	1.7	2.5	2.9	2.3	4.8																						
10-Dec	3.2	3.4	3.4	3.4	3.2	3.1	3.2	3.2	3.3	3.3	2.8	3.5	3.0	3.0	2.9	3.7	3.2	2.8	4.6	3.6	7.6	5.2	3.5	3.3	3.6	7.6																						
11-Dec	3.3	3.2	3.2	3.2	2.8	2.7	2.7	2.7	2.7	2.6	2.6	2.7	3.0	2.2	2.1	2.1	2.1	2.2	2.1	2.3	2.5	2.8	3.1	3.6	2.7	3.6																						
12-Dec	4.5	5.1	4.2	2.7	3.1	2.9	2.5	6.4	3.1	2.6	2.8	2.8	2.9	3.1	3.2	3.6	4.1	5.8	6.8	5.2	5.4	5.3	5.0	5.2	4.1	6.8																						
13-Dec	5.5	5.7	5.8	6.1	6.9	6.9	7.4	7.8	8.2	8.4	8.6	8.5	8.0	8.0	7.7	7.8	8.6	9.8	9.8	10.0	12.2	15.9	29.7	40.4	10.6	40.4																						
14-Dec	37.9	38.9	36.3	37.8	33.7	27.9	22.2	15.3	13.3	10.1	8.1	6.2	5.5	5.3	6.5	7.3	7.2	7.4	7.6	7.7	8.0	7.8	7.7	7.7	15.6	38.9																						
15-Dec	7.2	6.9	7.1	6.9	7.2	7.9	11.0	11.3	10.6	8.0	7.2	6.8	6.0	5.4	5.3	5.4	6.1	5.2	5.2	4.6	5.0	5.8	4.6	3.2	6.7	11.3																						
16-Dec	3.1	3.1	3.4	2.7	2.7	2.8	2.9	2.9	3.0	3.2	5.4	4.7	3.2	3.3	3.6	3.9	5.8	4.2	3.6	3.4	3.7	3.7	3.0	2.4	3.5	5.8																						
17-Dec	4.6	2.5	2.6	2.7	1.8	2.2	2.2	2.2	1.8	1.6	1.6	1.7	1.8	2.2	3.4	3.4	3.1	3.0	2.8	2.8	3.1	3.3	5.7	9.2	3.0	9.2																						
18-Dec	5.6	6.2	8.9	8.4	5.7	4.2	4.9	5.1	3.9	3.3	3.3	3.7	3.2	3.3	3.5	3.8	4.3	4.4	3.8	3.9	4.7	4.7	4.4	3.6	4.6	8.9																						
19-Dec	3.5	4.6	3.8	3.7	4.0	4.3	4.0	3.8	4.1	3.7	3.8	3.7	3.8	3.2	3.0	3.2	3.2	3.6	5.1	3.1	3.0	3.0	3.1	3.6	3.7	5.1																						
20-Dec	8.5	3.8	6.1	5.4	3.3	2.9	2.4	2.4	2.6	2.5	3.5	3.0	2.1	C	C	3.1	4.4	5.4	6.5	7.2	6.6	6.5	6.1	6.3	4.6	8.5																						
21-Dec	6.4	6.6	7.2	7.5	7.7	8.1	8.1	8.1	8.3	9.4	10.3	11.8	11.6	11.8	12.8	13.6	11.3	11.0	13.9	13.3	14.0	11.0	14.6	13.7	10.5	14.6																						
22-Dec	16.5	16.6	23.5	22.3	23.2	22.0	18.4	15.9	14.9	11.4	10.2	12.4	12.5	11.2	11.5	12.1	11.5	12.6	12.6	13.0	16.4	11.3	9.6	8.8	14.6	23.5																						
23-Dec	8.3	7.8	8.0	10.5	11.3	8.1	6.8	6.0	5.3	5.4	6.2	6.9	7.7	8.1	8.5	8.0	7.2	6.5	5.9	5.4	5.6	6.0	4.8	4.4	7.0	11.3																						
24-Dec	4.1	3.3	2.7	2.7	3.0	3.2	3.3	3.3	3.0	2.9	2.6	1.8	2.0	2.3	1.3	1.1	1.4	1.8	1.7	2.6	2.1	2.6	2.5	2.5	2.5	4.1																						
25-Dec	2.7	2.8	2.8	2.8	2.7	2.7	2.6	1.8	1.5	1.3	1.4	1.2	0.7	0.9	0.8	0.9	1.0	0.6	0.5	0.9	1.0	0.7	0.7	0.7	1.5	2.8																						
26-Dec	0.9	0.7	1.9	1.5	1.5	1.4	1.4	0.9	0.9	1.0	1.5	2.0	2.5	2.6	2.6	2.6	2.1	1.8	1.8	3.2	1.4	1.8	1.7	2.0	1.7	3.2																						
27-Dec	2.1	2.1	1.7	3.0	3.1	2.9	2.4	3.9	9.5	4.0	3.7	3.1	2.8	2.2	2.4	1.8	1.8	3.2	2.2	2.3	3.2	2.2	2.5	1.7	2.9	9.5																						
28-Dec	2.7	2.2	3.6	3.0	2.0	2.3	1.6	2.4	2.5	2.5	2.0	2.3	2.6	2.9	4.0	2.9	3.1	3.1	3.4	3.6	3.2	2.7	2.8	2.9	2.8	4.0																						
29-Dec	2.8	3.0	3.3	3.7	3.2	2.8	2.9	3.2	4.1	3.4	3.1	1.9	1.9	2.2	1.4	1.5	1.6	1.6	1.5	1.8	2.8	3.9	3.3	1.3	2.6	4.1																						
30-Dec	3.5	8.6	3.1	2.1	1.7	2.5	2.6	2.4	1.6	1.5	1.3	1.2	1.1	1.3	1.4	1.4	1.5	1.7	1.8	1.9	2.0	2.0	1.9	1.9	2.2	8.6																						
31-Dec	2.0	2.0	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.4	2.3	2.3	2.4	2.4	3.0	3.5	3.7	5.1	3.4	2.8	2.5	2.6	5.1																						
																								5.9	5.9	6.1	6.1	5.6	5.3	5.0	5.0	4.9	4.5	4.5	4.4	4.2	4.1	4.2	4.2	4.2	4.3	4.5	4.6	4.9	5.0	5.3	5.6	Diurnal Average
																								37.9	38.9	36.3	37.8	33.7	27.9	22.2	15.9	14.9	11.4	10.3	12.4	12.5	11.8	12.8	13.6	11.5	12.6	13.9	13.3	16.4	15.9	29.7	40.4	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}) - $\mu\text{g}/\text{m}^3$
Janvier - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	534	71.97	71.97
6 - 15	189	25.47	97.44
16 - 25	11	1.48	98.92
26 - 80	8	1.08	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Janvier - December 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	37	36	10	16	25	16	6	15	29	65	78	26	30	39	41	18	487
6 - 15	2	14	7	4	1	0	0	1	9	64	37	2	1	5	6	1	154
16 - 25	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
26 - 80	1	2	1	0	0	0	1	0	0	1	2	0	0	0	0	0	8
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	40	53	18	20	26	16	7	16	38	133	117	28	31	44	47	19	653

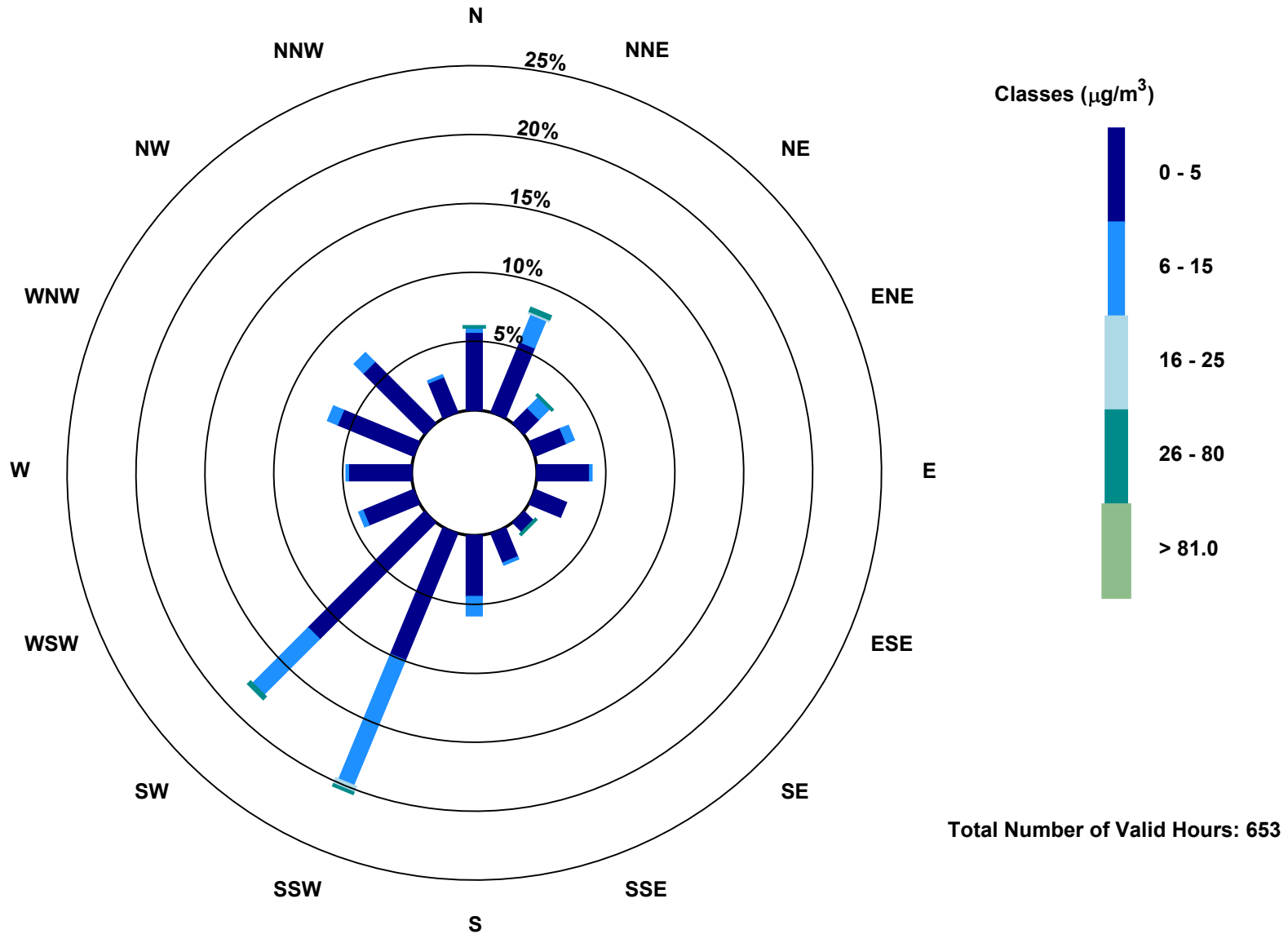
Total Number of Valid Hours: 653

Total Number of Hours: 744



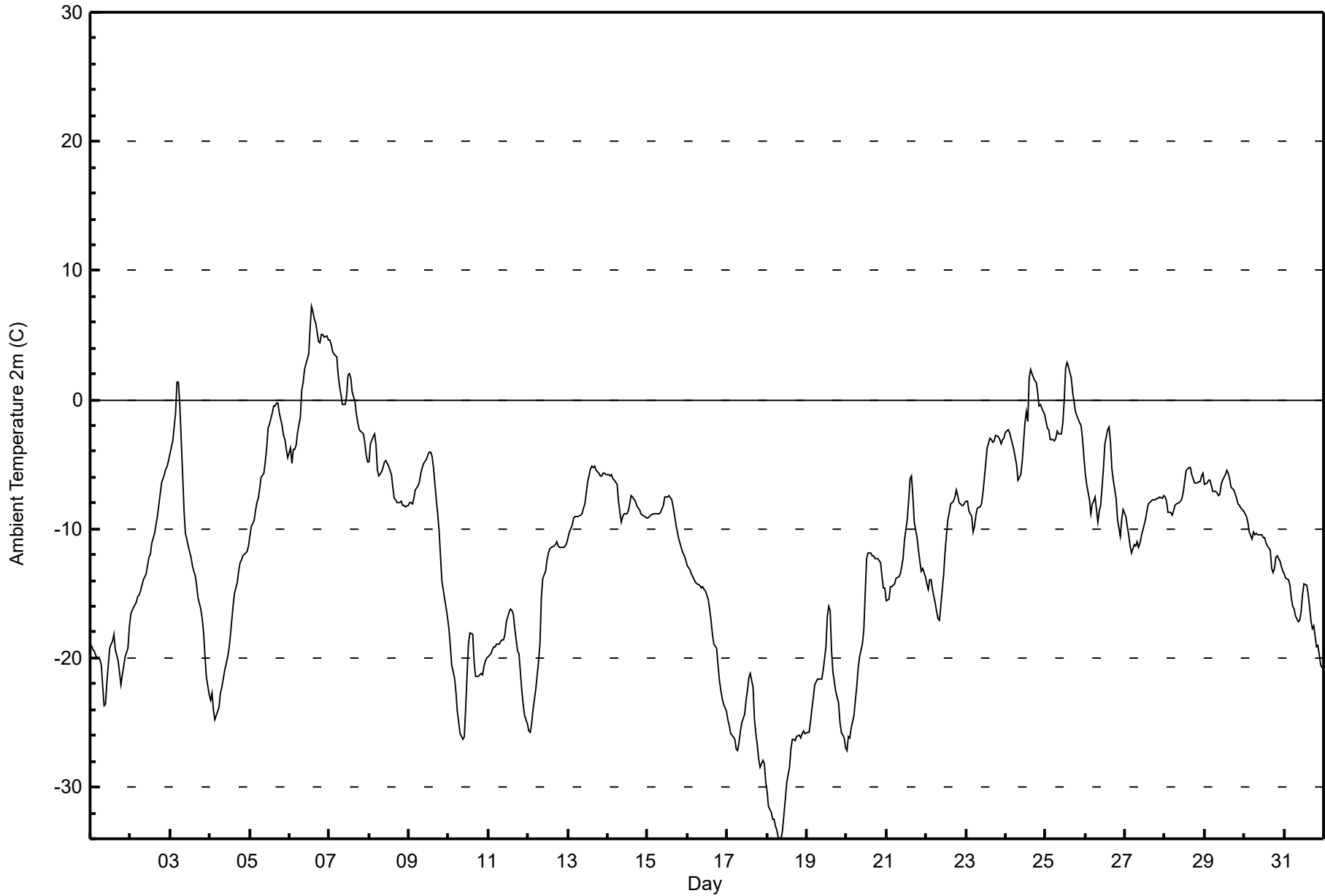
Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Maximum Value: 7.2 C on Dec 6 14:00 Maximum Daily Average: 2.2 C on Dec 6																								Hours in Service:	744	
Minimum Value: -34.0 C on Dec 18 09:00 Minimum Daily Average: -29.5 C on Dec 18																								Hours of Data:	744	
Maximum Diurnal Average: -9.1 C at hour 15 Minimum Diurnal Average: -12.8 C at hour 8																								Hours of Missing Data:	0	
Monthly Average: -11.61 C Percentiles: P ₁ = -32.1 P ₁₀ = -23.6 Q ₁ = -17.6 Median = -10.0 Q ₃ = -5.9 P ₉₀ = -2.1 P ₉₉ = 4.9																								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-Dec	-19.0	-19.3	-19.5	-19.7	-20.0	-20.1	-20.6	-22.2	-23.7	-23.5	-21.9	-19.2	-18.9	-18.7	-18.2	-19.4	-20.2	-21.1	-22.1	-21.4	-20.7	-19.9	-19.3	-17.6	-20.3	-17.6
2-Dec	-16.7	-16.3	-16.1	-15.7	-15.3	-15.1	-14.9	-14.4	-13.9	-13.5	-12.9	-12.2	-11.9	-11.1	-10.3	-9.8	-9.1	-8.2	-7.3	-6.4	-5.8	-5.4	-5.1	-4.7	-11.3	-4.7
3-Dec	-4.2	-3.2	-2.1	-1.0	1.3	1.3	-0.4	-5.7	-8.5	-10.4	-10.8	-11.3	-12.2	-12.9	-13.3	-13.6	-14.3	-15.3	-16.3	-17.0	-18.1	-19.9	-21.5	-22.8	-10.5	1.3
4-Dec	-23.3	-22.7	-24.0	-24.7	-24.4	-23.8	-22.7	-22.3	-21.6	-20.9	-20.0	-19.3	-18.4	-17.2	-16.0	-15.0	-14.1	-13.2	-12.7	-12.4	-12.1	-11.9	-11.7	-11.3	-18.2	-11.3
5-Dec	-10.6	-9.8	-9.3	-8.7	-8.0	-7.6	-6.9	-6.0	-5.7	-4.8	-3.7	-2.2	-1.9	-1.1	-0.5	-0.4	-0.3	-0.3	-1.0	-2.0	-2.8	-3.1	-3.8	-4.5	-4.4	-0.3
6-Dec	-3.7	-5.0	-3.9	-3.8	-3.5	-2.6	-1.4	0.7	1.4	2.4	2.8	3.5	5.6	7.2	6.7	6.3	5.9	4.5	4.4	5.0	5.1	4.8	5.0	4.7	2.2	7.2
7-Dec	4.6	4.3	3.7	3.5	3.3	1.9	1.1	0.4	-0.3	-0.4	0.2	1.9	2.0	1.6	0.6	-0.2	-1.1	-1.8	-2.3	-2.5	-2.7	-3.4	-4.3	-4.8	0.2	4.6
8-Dec	-4.8	-3.4	-2.9	-2.6	-3.5	-5.4	-5.9	-5.6	-5.3	-4.9	-4.7	-4.9	-5.1	-5.8	-6.8	-7.6	-7.8	-8.0	-7.9	-7.9	-8.2	-8.2	-8.3	-8.2	-6.0	-2.6
9-Dec	-8.0	-8.0	-8.1	-7.6	-7.0	-6.7	-6.3	-5.7	-5.2	-4.9	-4.6	-4.2	-4.1	-4.1	-4.4	-5.2	-7.8	-8.9	-10.2	-12.1	-14.1	-15.5	-16.1	-16.9	-8.1	-4.1
10-Dec	-17.8	-19.0	-20.6	-21.5	-22.6	-24.2	-25.0	-25.8	-26.3	-26.1	-23.8	-21.2	-18.8	-18.1	-18.2	-20.3	-21.4	-21.4	-21.4	-21.2	-21.3	-20.7	-20.2	-20.0	-21.5	-17.8
11-Dec	-19.9	-19.7	-19.4	-19.2	-19.1	-18.9	-18.9	-18.7	-18.6	-18.6	-18.2	-17.2	-16.4	-16.2	-16.4	-16.7	-17.8	-19.4	-19.7	-21.0	-22.5	-23.6	-24.4	-25.1	-19.4	-16.2
12-Dec	-25.7	-25.7	-25.1	-24.0	-22.4	-21.3	-20.2	-18.9	-15.2	-13.9	-13.3	-12.4	-11.9	-11.6	-11.4	-11.3	-11.3	-11.0	-11.3	-11.4	-11.4	-11.4	-11.1	-11.1	-15.6	-11.0
13-Dec	-10.7	-10.2	-9.7	-9.2	-9.0	-9.1	-9.0	-8.9	-8.8	-8.4	-8.1	-7.2	-6.3	-5.3	-5.1	-5.3	-5.2	-5.5	-5.7	-5.9	-5.9	-5.7	-5.7	-5.8	-7.3	-5.1
14-Dec	-5.8	-5.9	-5.8	-6.1	-6.2	-6.5	-7.9	-8.7	-9.4	-9.0	-8.9	-8.8	-8.6	-8.0	-7.4	-7.5	-7.9	-8.2	-8.4	-8.5	-8.9	-8.9	-9.0	-9.2	-7.9	-5.8
15-Dec	-9.2	-9.1	-9.0	-8.8	-8.8	-8.8	-8.8	-8.8	-8.8	-8.2	-7.6	-7.6	-7.6	-7.4	-7.7	-8.3	-8.9	-9.7	-10.2	-10.8	-11.5	-11.9	-12.1	-12.4	-9.2	-7.4
16-Dec	-12.8	-13.1	-13.5	-13.7	-13.9	-14.1	-14.2	-14.4	-14.6	-14.5	-14.7	-14.8	-15.4	-16.3	-17.1	-18.2	-18.9	-19.3	-20.5	-21.7	-22.5	-23.1	-23.6	-24.1	-17.0	-12.8
17-Dec	-24.8	-25.2	-25.9	-25.9	-26.3	-27.1	-27.1	-26.5	-25.7	-25.0	-24.4	-23.2	-22.6	-21.5	-21.2	-22.3	-24.8	-25.9	-26.8	-27.8	-28.4	-28.0	-28.2	-29.5	-25.6	-21.2
18-Dec	-30.4	-31.5	-32.0	-32.5	-32.5	-33.0	-33.3	-33.9	-34.0	-33.3	-32.2	-30.9	-29.7	-28.4	-27.0	-26.4	-26.2	-26.4	-26.0	-26.0	-26.2	-25.9	-25.6	-25.8	-29.5	-25.6
19-Dec	-25.8	-25.7	-24.9	-23.9	-23.1	-22.0	-21.7	-21.6	-21.6	-21.6	-21.0	-19.2	-16.8	-16.0	-16.4	-19.5	-21.1	-22.6	-23.0	-23.5	-25.0	-25.7	-26.2	-27.0	-22.3	-16.0
20-Dec	-27.2	-26.1	-26.2	-25.4	-24.4	-23.3	-22.1	-20.8	-19.8	-18.9	-17.8	-15.0	-12.3	-11.9	-11.9	-12.1	-12.1	-12.3	-12.4	-12.3	-12.6	-13.7	-14.6	-14.6	-17.5	-11.9
21-Dec	-15.6	-15.5	-14.5	-14.5	-14.3	-14.3	-13.9	-13.7	-13.5	-13.0	-12.3	-10.9	-9.3	-7.8	-6.2	-5.9	-7.4	-9.5	-10.7	-11.6	-12.5	-13.3	-13.1	-13.7	-11.9	-5.9
22-Dec	-14.3	-14.7	-14.0	-14.0	-14.7	-15.8	-16.4	-17.0	-17.1	-15.9	-13.5	-11.8	-10.4	-9.3	-8.7	-8.1	-7.9	-7.5	-7.0	-7.4	-8.0	-8.2	-8.2	-8.0	-11.6	-7.0
23-Dec	-7.8	-7.9	-8.6	-9.1	-10.2	-9.9	-8.9	-8.4	-8.3	-8.1	-7.2	-6.1	-4.9	-3.7	-3.0	-3.1	-3.3	-3.1	-2.8	-2.8	-3.0	-3.4	-3.1	-2.9	-5.8	-2.8
24-Dec	-2.6	-2.3	-2.5	-3.0	-3.4	-3.8	-5.1	-6.2	-6.0	-5.8	-4.9	-1.8	-0.9	-1.7	1.7	2.4	2.0	1.5	1.3	0.6	-0.5	-0.4	-0.9	-1.2	-1.8	2.4
25-Dec	-1.7	-2.2	-2.4	-3.1	-3.1	-3.2	-3.0	-2.5	-2.7	-2.6	-1.8	0.0	2.4	2.9	2.6	1.7	0.6	-0.2	-0.9	-1.3	-1.8	-2.0	-3.0	-4.4	-1.3	2.9
26-Dec	-5.7	-6.5	-7.7	-8.8	-8.1	-7.8	-7.6	-9.4	-8.6	-8.2	-6.8	-5.3	-3.4	-2.3	-2.1	-3.3	-5.3	-6.3	-7.6	-9.3	-9.9	-10.6	-9.3	-8.5	-7.0	-2.1
27-Dec	-9.1	-9.8	-10.4	-11.4	-11.9	-11.3	-11.3	-11.0	-11.5	-11.1	-10.6	-9.7	-9.3	-8.6	-8.1	-7.9	-7.7	-7.8	-7.8	-7.7	-7.6	-7.5	-7.6	-7.4	-9.3	-7.4
28-Dec	-7.5	-7.8	-8.8	-8.7	-9.0	-8.6	-8.2	-8.0	-8.0	-7.9	-7.6	-7.1	-6.2	-5.5	-5.2	-5.3	-5.8	-6.1	-6.5	-6.4	-6.3	-6.3	-5.9	-5.7	-7.0	-5.2
29-Dec	-6.5	-6.5	-6.3	-6.3	-6.6	-7.1	-7.1	-7.2	-7.4	-7.3	-6.6	-6.2	-5.8	-5.4	-5.7	-6.1	-6.8	-7.0	-7.3	-7.7	-8.1	-8.2	-8.4	-8.7	-6.9	-5.4
30-Dec	-8.8	-9.1	-9.4	-10.3	-10.8	-10.2	-10.4	-10.4	-10.4	-10.4	-10.4	-10.6	-10.7	-11.1	-11.4	-11.7	-13.1	-13.4	-13.0	-12.1	-12.1	-12.5	-13.0	-13.3	-11.2	-8.8
31-Dec	-13.5	-13.8	-14.0	-14.3	-15.3	-16.0	-16.2	-16.8	-17.2	-17.1	-16.5	-15.1	-14.3	-14.4	-15.0	-16.0	-17.1	-17.8	-17.5	-19.1	-19.0	-19.8	-20.6	-20.7	-16.6	-13.5
																								Diurnal Average		
																								Diurnal Maximum		





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Janvier - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	138	18.55	18.55
-20 - 0	563	75.67	94.22
0 - 10	43	5.78	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 2m (RH2) - %

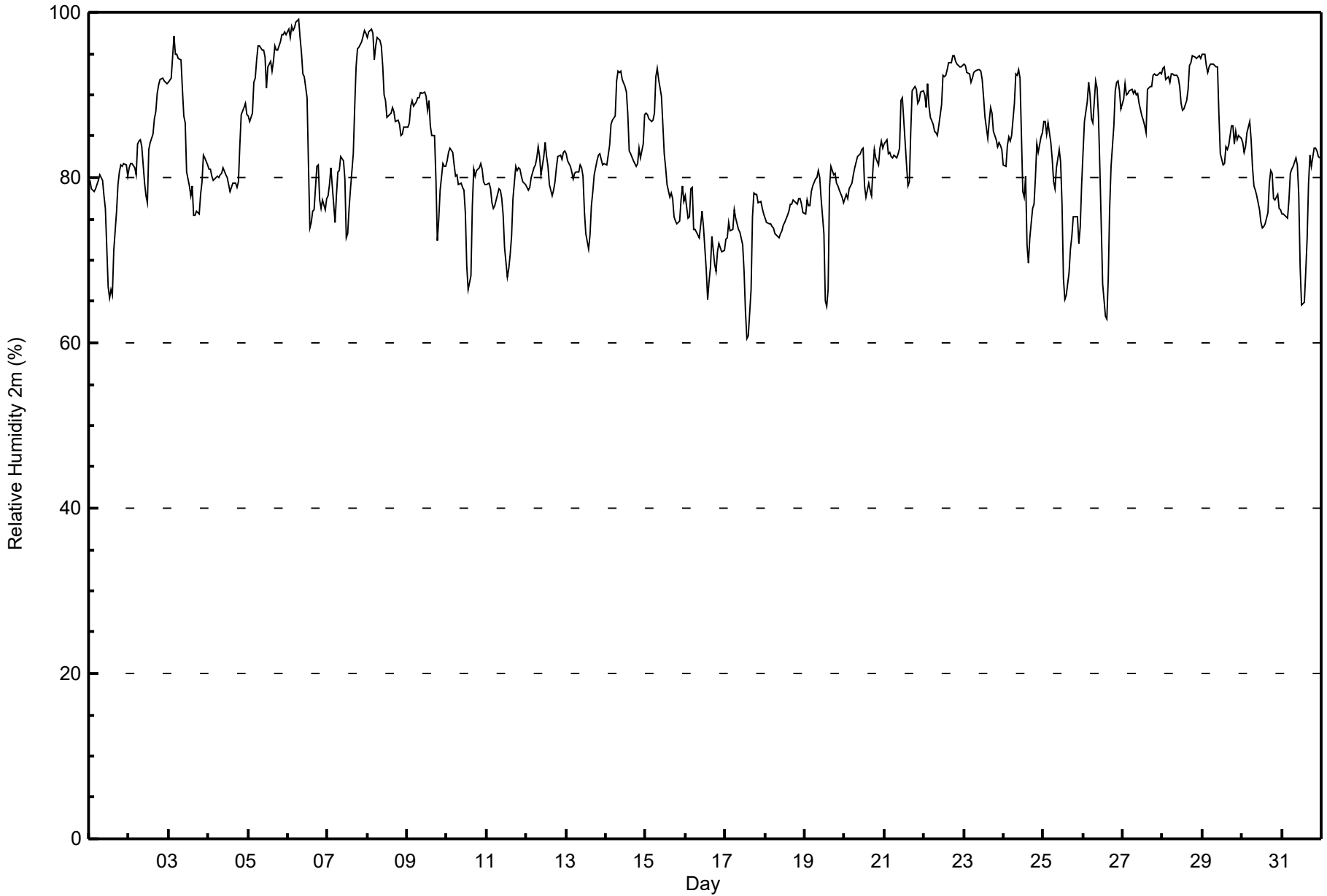
Janvier - December 2024

Maximum Value: 99.2 % on Dec 6 07:00 Maximum Daily Average: 94.0 % on Dec 5																						Hours in Service: 744 Hours of Data: 744				
Minimum Value: 60.6 % on Dec 17 14:00 Minimum Daily Average: 72.5 % on Dec 16 Maximum Diurnal Average: 85.5 % at hour 8 Minimum Diurnal Average: 77.1 % at hour 15 Monthly Average: 82.90 % Percentiles: P₁ = 65.0 P₁₀ = 73.8 Q₁ = 77.9 Median = 81.9 Q₃ = 89.1 P₉₀ = 93.4 P₉₉ = 97.7																						Hours of Missing Data: 0 Hours of Calibration: 0 Percent Operational Time: 100.0				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	79.7	78.6	78.4	78.3	78.7	79.7	80.3	80.0	79.6	77.8	76.3	66.7	65.4	66.4	65.8	71.1	75.9	79.1	80.6	81.6	81.4	81.7	81.5	80.2	76.9	81.7
2-Dec	81.3	81.7	81.7	81.2	80.3	84.0	84.5	84.6	83.7	79.3	77.7	77.0	83.4	84.2	85.3	87.1	88.0	90.1	91.2	91.8	92.0	91.7	91.6	91.4	85.2	92.0
3-Dec	91.5	92.0	94.5	97.2	94.9	95.0	94.4	94.2	90.7	87.4	86.6	80.7	79.0	77.8	79.1	75.4	75.5	75.9	75.7	78.0	79.4	82.7	82.4	81.5	85.1	97.2
4-Dec	81.0	81.1	80.1	79.7	79.8	80.1	80.0	80.4	80.6	81.1	80.4	80.0	79.2	78.4	78.8	79.3	79.3	78.8	79.4	83.9	87.7	88.5	89.0	87.6	81.4	89.0
5-Dec	87.4	86.7	87.7	91.5	92.1	94.3	95.9	95.9	95.5	95.5	94.6	90.8	93.5	94.1	92.9	94.1	96.0	95.5	95.4	96.5	97.3	97.4	97.6	97.4	94.0	97.6
6-Dec	98.0	97.0	98.3	97.9	98.2	98.8	99.2	96.9	95.1	92.6	92.2	89.7	81.5	73.9	74.5	75.9	76.0	81.3	81.5	77.3	76.3	77.2	76.1	77.5	86.8	99.2
7-Dec	77.8	79.2	81.2	78.9	74.5	77.9	80.7	80.9	82.5	82.0	79.8	72.7	73.2	76.3	78.7	82.9	88.4	93.3	95.6	95.8	96.5	97.1	97.8	97.5	84.2	97.8
8-Dec	96.9	97.6	98.0	97.4	94.2	95.9	97.0	96.5	95.9	93.6	90.0	89.3	87.4	87.6	87.8	88.5	87.9	86.8	87.0	86.4	85.1	85.2	86.0	86.2	91.0	98.0
9-Dec	86.1	86.6	88.6	89.3	88.6	89.2	89.7	89.7	90.3	90.3	90.4	89.8	88.1	89.3	86.3	85.0	85.1	79.8	72.4	74.9	78.5	81.6	81.4	81.4	85.5	90.4
10-Dec	82.0	83.1	83.5	83.0	81.6	80.1	80.3	79.2	79.4	78.9	78.4	75.7	69.2	66.5	68.2	76.6	81.1	80.2	80.9	81.2	81.7	81.1	79.5	79.2	78.8	83.5
11-Dec	79.1	79.4	78.7	77.0	76.3	76.6	77.9	78.6	78.5	77.4	75.4	71.6	67.9	69.1	70.7	72.9	77.4	81.4	80.9	81.1	81.1	80.2	79.4	79.1	77.0	81.4
12-Dec	78.7	78.5	78.9	80.0	81.1	81.6	82.3	83.8	82.5	80.4	82.6	84.3	82.6	81.3	79.1	77.8	78.5	79.5	81.2	82.6	82.7	82.3	83.0	83.2	81.2	84.3
13-Dec	82.9	82.1	81.3	80.7	79.8	80.4	80.6	80.7	81.6	81.1	80.2	75.8	73.2	71.4	73.1	76.6	78.3	80.4	82.0	82.8	83.0	82.2	81.6	81.6	79.7	83.0
14-Dec	81.5	82.8	84.0	86.4	87.0	87.5	91.7	93.0	92.6	92.8	91.8	91.0	90.3	87.7	83.3	82.9	82.0	81.7	81.3	81.8	83.5	82.4	84.1	87.7	86.3	93.0
15-Dec	87.8	87.6	87.2	86.8	87.0	87.7	92.2	93.2	91.9	89.9	86.5	83.0	81.2	79.1	77.7	78.1	77.4	75.2	74.7	74.3	74.8	77.2	78.9	77.2	82.8	93.2
16-Dec	77.9	75.1	75.2	78.6	78.8	73.7	73.6	73.0	72.7	74.2	75.9	74.1	68.8	65.2	67.5	69.2	72.9	69.4	68.7	71.0	72.0	71.5	71.1	71.1	72.5	78.8
17-Dec	72.5	72.7	74.6	73.5	73.8	76.1	75.0	74.4	73.7	73.3	71.9	68.6	63.7	60.6	60.8	66.5	75.3	78.1	77.9	78.0	77.0	77.0	76.3	75.6	72.8	78.1
18-Dec	75.1	74.6	74.5	74.4	74.2	73.9	73.3	73.0	72.8	73.2	73.5	74.2	74.5	75.3	76.0	76.8	76.8	77.3	77.2	76.8	77.4	77.4	76.8	75.8	75.2	77.4
19-Dec	75.5	77.3	76.6	76.5	78.4	79.1	79.8	80.1	80.9	79.9	77.4	73.3	65.0	64.4	66.4	78.9	81.3	80.4	80.5	79.4	79.0	78.4	77.7	77.0	76.8	81.3
20-Dec	77.4	78.0	77.4	78.7	79.3	80.3	81.2	81.9	82.5	83.0	83.4	83.6	79.0	77.6	79.4	78.4	77.7	81.1	83.3	82.4	81.5	83.5	84.4	83.6	80.8	84.4
21-Dec	84.1	84.5	82.9	83.1	82.5	82.4	82.6	82.3	82.9	83.5	89.4	89.6	84.3	81.5	79.0	79.5	85.7	90.5	91.1	90.7	89.0	89.3	90.4	90.5	85.5	91.1
22-Dec	90.0	88.5	91.3	88.7	87.3	86.4	85.7	85.5	85.0	86.2	88.8	92.4	92.2	92.4	93.0	93.9	93.9	94.7	94.7	94.1	93.7	93.4	93.4	93.6	90.8	94.7
23-Dec	93.8	93.6	92.8	92.6	91.6	92.1	92.7	92.8	93.0	93.0	92.9	91.8	89.7	87.3	84.8	86.8	88.5	87.7	85.7	84.6	83.8	84.2	83.9	83.4	89.3	93.8
24-Dec	81.5	81.4	83.8	84.9	84.4	85.0	89.0	92.5	92.3	93.0	92.1	78.3	77.6	80.2	71.8	69.7	72.7	76.2	76.8	80.0	84.0	83.1	84.9	85.4	82.5	93.0
25-Dec	86.8	86.8	85.2	86.6	84.3	82.2	79.5	78.6	81.2	83.4	81.9	76.8	67.8	65.2	65.8	68.5	71.3	72.9	75.2	75.3	75.3	72.1	74.1	79.2	77.3	86.8
26-Dec	83.1	86.7	89.1	91.6	90.0	87.1	86.7	91.7	90.8	87.5	81.2	74.2	67.1	63.2	62.9	67.8	76.3	81.3	86.2	90.5	91.6	91.7	90.4	88.4	83.2	91.7
27-Dec	89.5	91.3	89.9	90.1	90.5	90.7	90.2	90.4	90.0	90.1	89.1	87.5	86.9	86.3	85.5	90.7	91.0	91.0	92.5	92.5	92.4	92.4	92.7	92.5	90.2	92.7
28-Dec	93.2	93.4	91.9	92.2	91.6	92.5	92.6	92.4	92.4	92.1	91.0	89.0	88.2	88.3	89.3	90.8	93.5	94.0	94.7	94.6	94.4	94.6	94.8	94.5	92.3	94.8
29-Dec	95.0	94.8	93.6	92.7	93.5	93.7	93.8	93.6	93.4	93.4	87.6	82.9	81.5	81.7	83.7	83.3	83.9	86.2	86.3	84.0	85.6	84.6	85.2	84.8	88.3	95.0
30-Dec	84.2	83.1	83.7	85.4	86.7	84.7	81.3	79.0	78.4	77.9	76.0	74.7	74.0	74.1	74.5	75.8	79.3	80.9	80.6	77.5	77.3	77.9	76.3	76.1	79.1	86.7
31-Dec	75.6	75.7	75.3	75.1	77.3	80.5	81.1	81.4	82.4	81.5	77.9	69.2	64.6	65.0	68.6	72.7	79.4	82.6	81.4	83.5	83.5	83.3	82.6	82.3	77.6	83.5
84.1 84.2 84.5 84.8 84.5 84.8 85.3 85.5 85.3 84.7 83.6 80.6 78.1 77.1 77.1 79.1 81.5 82.7 83.0 83.4 83.8 84.0 84.0 83.9																						Diurnal Average				
98.0 97.6 98.3 97.9 98.2 98.8 99.2 96.9 95.9 95.5 94.6 92.4 93.5 94.1 93.0 94.1 96.0 95.5 95.6 96.5 97.3 97.4 97.8 97.5																						Diurnal Maximum				



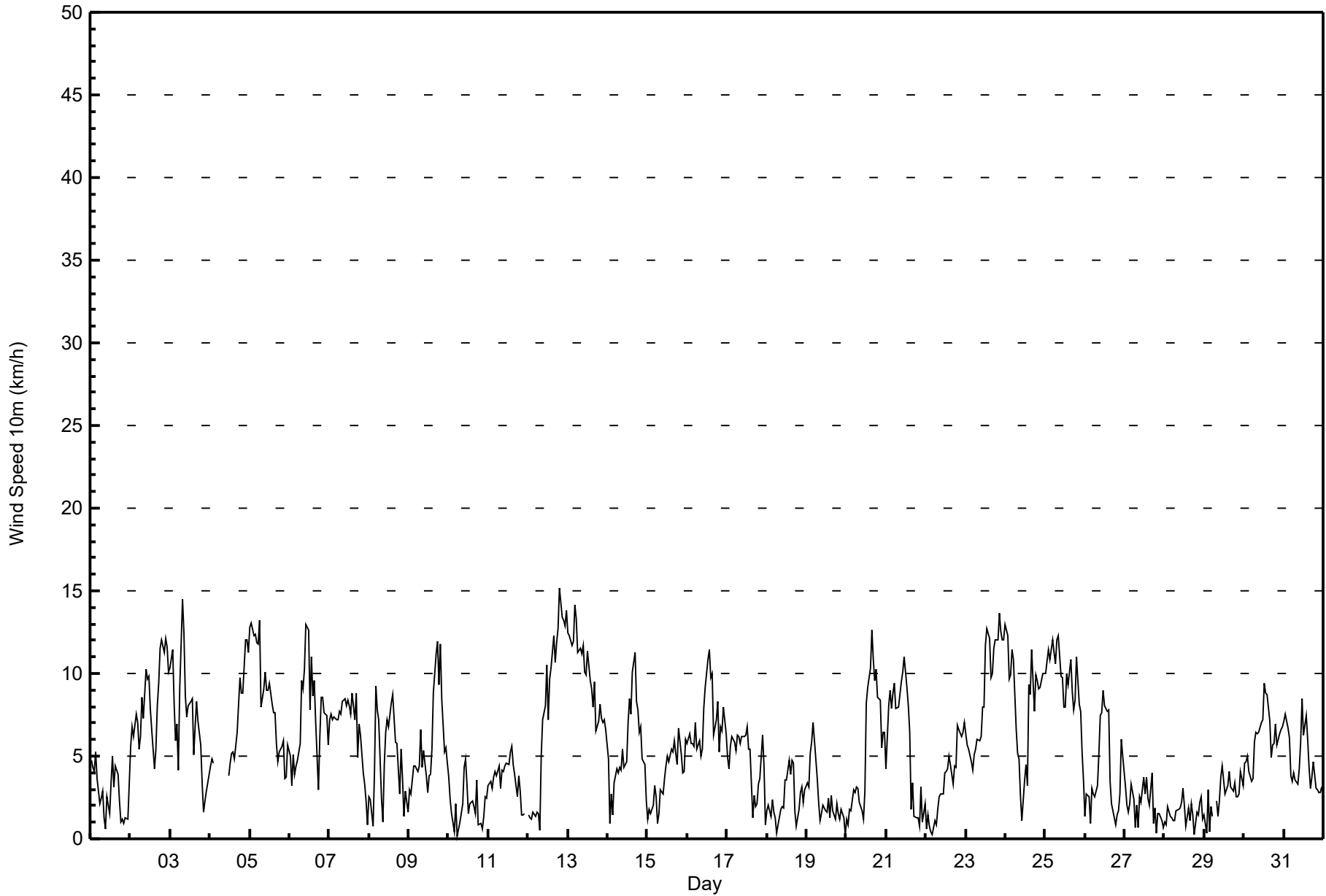
Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Janvier - December 2024





Maximum Speed: 15 km/h on Dec 12 20:00 Minimum Speed Value: 0 km/h on Dec 10 06:00 Maximum Diurnal Speed Average: 3.6 km/h at hour 24 Monthly Average Velocity: 2.8 km/h 217.7 deg		Maximum Daily Speed Average: 9.9 km/h on Dec 13 Minimum Daily Speed Average: 0.6 km/h on Dec 10 Minimum Diurnal Speed Average: 1.7 km/h at hour 17 Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 3 Median = 5 Q ₃ = 8 P ₉₀ = 11 P ₉₉ = 13		Hours in Service: 744 Hours of Data: 734 Hours of Missing Data: 10 Percent Operational Time: 98.7																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	N5	N4	NNE4	NNE5	NNE4	NNE2	NE2	ENE3	NE1	SSE1	ENE3	ESE2	E3	ENE5	E3	E4	E4	ENE2	NNE1	WNW1	NNW1	W1	SE1	SE3	NE1.9	NNE5
2-Dec	SSE6	S7	SSE6	S8	S7	SSE5	SSE6	S9	S7	SSW10	SSW10	SSW10	SSW8	S7	SSE4	S5	SSW8	SSW9	SSW12	SW12	SSW11	SSW12	SSW12	SSW10	SSW8.0	SSW12
3-Dec	SW10	SW11	SSW8	SSW6	W7	WNW4	N9	NNE15	N12	N9	N7	N8	NW8	N9	N5	WNW7	WNW8	NW7	NW6	WNW3	NW2	WNW2	WSW3	SSW4	NW3.8	NNE15
4-Dec	SSW4	SW5	SSW5	UO	UO	UO	UO	UO	UO	UO	UO	SE4	S5	S5	S5	S6	S8	S10	S9	SSW9	SSW12	SSW12	SSW11	---	SSW12	
5-Dec	SSW13	SW13	SSW12	SW12	SW12	SSW12	SW13	SSW8	SSW9	SSW10	SSW9	SW9	SSW9	S8	S8	SSW8	S6	S5	S6	S6	S4	SSE4	S6	SSW8.3	SW13	
6-Dec	SSW5	SSW3	S5	S4	S4	S5	S6	SSW10	SSW9	SSW10	SW13	SW13	WSW8	WSW11	WSW9	WSW10	W7	S3	SSW6	SW9	WSW9	SW8	SW7	SW6	SW6.7	SW13
7-Dec	WSW7	WSW8	SW7	WSW7	WSW7	SW7	SW8	SSW8	SSW8	SSW8	SSW8	SW8	SSW8	SSW8	SSW9	SSW7	SSW9	SSW5	SSW7	SSW6	SSW4	SSW3	SW2	NNW1	SW6.3	SSW9
8-Dec	N3	N2	WNW1	N4	NNE9	N8	NNE7	N2	NW1	N4	N6	N7	N7	N8	N9	N7	N6	N6	NW3	NNE5	NNE4	ENE1	S3	SSE2	N4.3	NNE9
9-Dec	SE3	SSE3	SSW4	SW4	SSW4	SSW4	SSW4	SSW7	SW4	SSW5	SW4	W3	NW4	NNW4	NW5	N9	N11	N12	N9	N12	N8	N5	N6	N5	NNW2.1	N12
10-Dec	N4	N2	NNE2	NW0	SSE2	E0	ESE1	WSW1	SSW2	SSW4	SSW5	SSW3	SSW2	SW2	NE2	SSE2	SE2	ESE4	NW1	NE1	S1	ESE1	E3	ESE2	SSE0.6	SSW5
11-Dec	ESE3	ESE3	E3	ESE4	E4	ENE4	ENE4	ENE3	ENE4	NE4	ENE4	E5	E5	ENE5	ENE6	ENE4	NE4	ENE3	ENE4	ENE3	NE1	NE1	NNE2	UO	ENE3.4	ENE6
12-Dec	NNE1	NNE1	N1	N2	NNE1	N2	NNW2	SSW1	SSE5	S7	S8	S10	S7	S10	S10	S12	S11	SSW12	SSW13	SSW15	SSW13	SSW13	SSW13	SSW14	S6.8	SSW15
13-Dec	SSW12	SSW12	SSW12	SSW12	SSW14	SSW13	SSW11	SSW11	SSW11	SSW12	SSW10	SSW11	SSW10	SSW9	SSW8	SSW9	SW7	SSW7	SSW8	SSW7	SSW7	SSW7	SSW7	SSW7	SSW9.9	SSW14
14-Dec	S5	ESE1	NNE3	NNW1	NNE3	NNE4	N4	N4	N4	NNE5	N4	N5	NNE7	NNE8	NE8	NNE10	NE11	NE8	NE8	NE6	NE7	NE5	NNE5	NNW2	NNE4.8	NE11
15-Dec	WNW1	SW2	W1	E2	NNE3	NNE3	NW1	SSW2	SW3	WNW3	NW4	WNW4	WNW5	NNW5	N5	N5	N6	NNW5	NW5	WNW7	NW5	WNW4	W4	W6	NW2.8	WNW7
16-Dec	WNW6	WNW6	W6	W6	W6	W7	W5	W6	W5	W5	W8	W9	W11	W11	W10	W10	W6	WNW7	WNW8	WNW5	W7	W7	WNW8	W6	W7.1	W11
17-Dec	W5	WSW4	SSW6	SW6	SW6	SW5	SW6	SW6	SW6	WSW6	SW6	WSW6	WSW7	W5	W5	WNW1	SSE3	SSE2	S2	S3	S4	SSW6	S4	SSW1	SW4.0	WSW7
18-Dec	S2	SSE2	S1	S2	S2	S1	W0	NW1	NNE2	N2	NW2	N4	NNE4	NNE5	NNE4	NNE5	NNE5	NNW2	NNW1	ENE2	SW3	SSW3	S2	SSE3	NNE0.6	NNE5
19-Dec	SE3	S3	SSW5	SSW6	SSW7	SSW6	SW4	SSW2	W1	NNW1	E2	WSW2	SSE2	W2	NNW1	E3	ESE2	SSW1	SSE2	SE2	S1	SSE2	E1	SSW0	S1.7	SSW7
20-Dec	SSE1	E1	NNW2	NNW2	N3	N3	N3	NNE3	NNW2	NW2	W1	SE3	S8	S9	SSW10	SSW13	SSW11	SSW10	SSW10	SSW9	SSW8	SSW5	SSW6	S6	SSW3.8	SSW13
21-Dec	S4	S8	SSW9	SSW8	SSW9	SSW9	SSW8	SSW8	SSW9	SSW9	SSW10	SSW11	SSW9	SSW8	SSW6	WSW2	N3	NNE1	NNE1	ENE1	SSW1	NNE3	SSW1	SW2	SSW5.0	SSW11
22-Dec	NNW1	SW1	ENE1	WNW0	N0	SSW1	SSE1	S2	S3	S3	SSW3	SSW4	SSW4	SSW4	SSW5	SSW5	SSW3	SSW4	SSW4	SW7	SSW7	SSW6	SSW6	SSW7	SSW3.2	SSW7
23-Dec	SSW6	SSW6	SSW5	S5	SSW4	SSW5	SSW5	SSW6	SSW6	SSW6	SSW8	SSW8	SSW12	SSW13	SSW12	SSW10	SSW10	SSW12	SSW12	SSW12	SSW14	SSW13	SSW12	SSW12	SSW8.8	SSW14
24-Dec	SSW13	SSW12	SSW10	SSW10	SSW11	SSW11	SSW7	SSW5	SSW5	SSE3	NE1	SSE4	S5	SW3	S9	SSW9	S11	SSW8	S10	SSW10	SSW9	SSW9	SSW10	SSW10	SSW7.8	SSW13
25-Dec	SSW10	SSW11	SSW11	SSW11	SSW11	SSW11	SSW11	SSW12	SSW12	SSW10	SSW8	SSW8	SSW10	SSW9	SSW11	SSW9	SSW8	SSW8	SSW8	SSW11	SSW8	SSW8	SSW5	SSE4	SSW9.4	SSW12
26-Dec	SSE1	SE3	S3	E1	SSE3	S3	S3	SSW3	SSW5	SSW7	SSW8	SW9	SW8	SSW8	S8	S4	SSE2	SSE2	SSE1	S1	SSW2	S3	S6	S5	S3.7	SW9
27-Dec	S3	SSE2	NE2	NNE2	NNE3	SSW2	S1	E2	NNE1	N3	WSW2	NE4	N3	NNE4	N2	NNE2	E4	SSE1	NW2	SSW0	SSE1	ENE1	ESE1	SE1	NE0.7	E4
28-Dec	WNW1	SSW1	ESE2	SE1	ESE1	SW1	S1	SW2	SSW2	WSW2	SW2	WSW3	SW2	SW1	S2	SE1	NNE2	N1	WSW0	S2	S1	SSW2	SSW3	WNW1	SSW0.9	WSW3
29-Dec	N1	WSW0	NE3	NNW0	NE2	NNE1	UO	N2	SSW1	WSW2	WNW4	WNW4	WNW3	WNW3	NNE3	NNW4	NW3	N3	N3	N3	WNW3	WNW3	W4	WNW3	NW1.9	WNW4
30-Dec	WNW5	WNW5	W5	W4	WSW3	WNW4	WNW6	WNW6	WNW6	WNW6	WNW7	WNW7	WNW9	WNW9	WNW9	WNW7	W5	W6	W6	WNW7	WNW6	WNW6	WNW7	WNW7	WNW6.1	WNW9
31-Dec	WNW7	WNW8	WNW7	WNW6	WNW4	W3	W4	W4	W3	W4	WNW6	WNW8	WNW6	WNW7	WNW6	NW4	WNW3	W4	W5	SW3	SW3	WSW3	SW3	SSW3	W4.4	WNW8
SSW3.0 SW3.2SSW3.0 SW2.8 SW2.5SSW2.6 SW2.2SSW2.4 SW2.8 SW3.0 SW3.2 SW3.3 SW3.3 SW2.6 SW2.5 SW2.0SSW1.7 SW1.8 SW2.7 SW3.0 SW3.3SSW3.4SSW3.5SSW3.6																								Diurnal Average		
SSW13 SW13 SSW12 SW12 SSW14 SSW13 SW13 NNE15 NNE12 SSW12 SW13 SW13 SSW12 SSW13 SSW12 SSW13 S11 N12 SSW13 SSW15 SSW14 SSW13 SSW13 SSW14																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Janvier - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	406	55.31	55.31
6 - 11	278	37.87	93.19
12 - 19	50	6.81	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 734

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Janvier - December 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	38	39	12	19	17	14	12	29	47	57	21	14	25	28	15	19	406
6 - 11	20	6	5	1	0	0	0	3	32	122	22	12	19	33	3	0	278
12 - 19	2	2	0	0	0	0	0	0	1	38	7	0	0	0	0	0	50
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	60	47	17	20	17	14	12	32	80	217	50	26	44	61	18	19	734

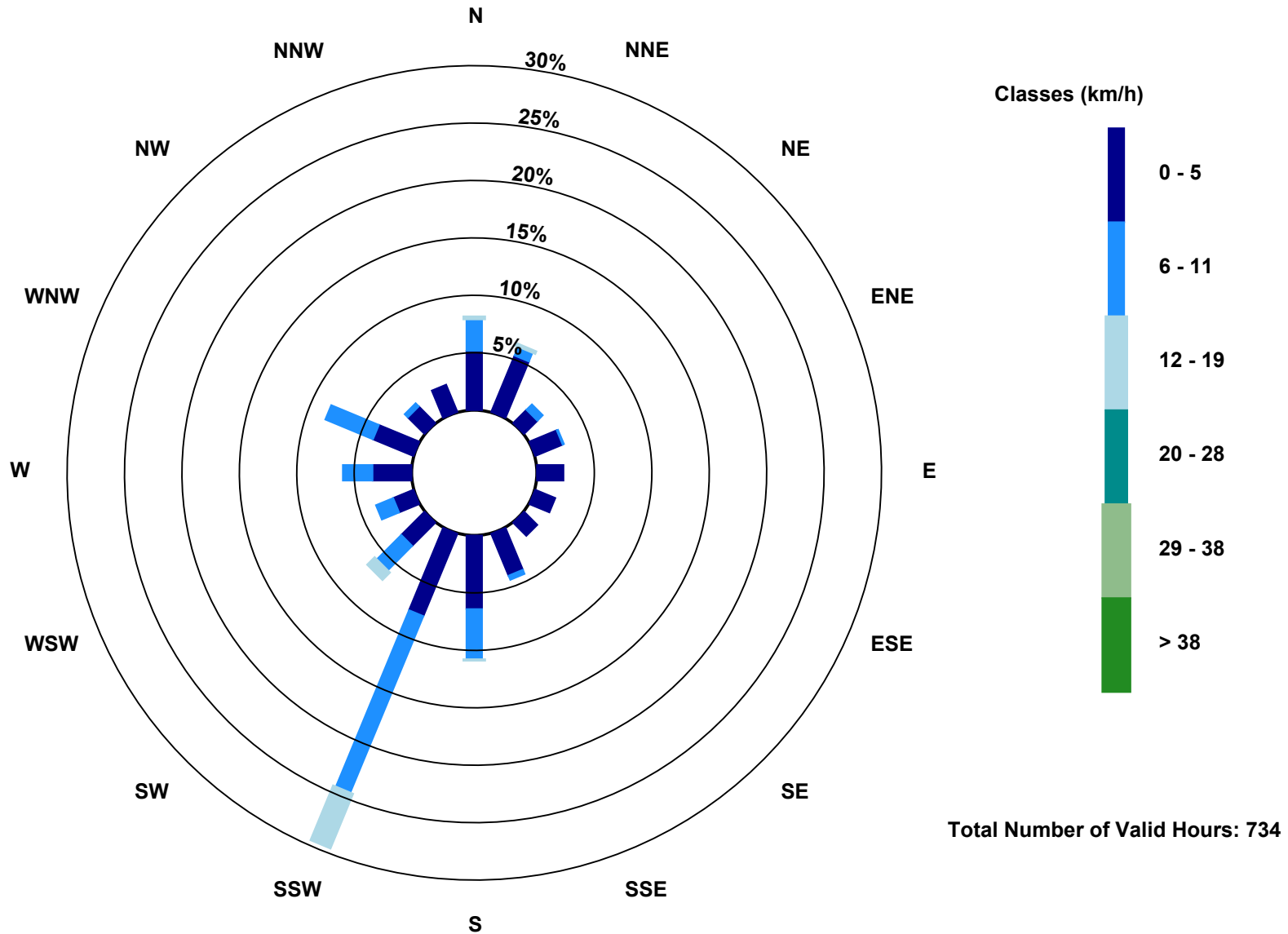
Total Number of Valid Hours: 734

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Janvier - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 3 07:00 Minimum Value: 0 km/h on Dec 21 18:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 734 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.7								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	2
2-Dec	2	2	2	2	3	2	2	2	3	3	3	3	2	2	1	2	2	3	4	4	3	3	4	3	4
3-Dec	3	3	2	1	3	2	6	4	5	3	3	4	4	3	2	3	4	3	3	2	1	1	1	1	6
4-Dec	1	1	1	UO	UO	UO	UO	UO	UO	UO	UO	1	1	2	2	2	2	3	3	3	4	4	3	4	4
5-Dec	4	5	4	4	4	4	4	2	2	2	3	3	2	2	2	2	2	1	1	2	2	1	1	1	5
6-Dec	1	1	1	1	1	1	2	2	2	3	4	4	3	4	3	3	3	2	3	3	3	3	3	3	4
7-Dec	3	3	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	3
8-Dec	1	1	1	2	3	3	3	1	1	2	3	3	2	3	3	3	2	2	1	2	1	1	1	1	3
9-Dec	1	1	1	1	1	1	1	2	1	1	1	2	2	2	3	5	4	5	4	4	3	2	3	2	5
10-Dec	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
11-Dec	1	1	1	1	1	2	1	1	1	1	1	1	1	2	2	1	1	2	1	1	1	1	1	UO	2
12-Dec	1	1	0	1	1	1	1	2	2	2	3	3	2	4	4	3	3	3	4	4	4	4	3	4	4
13-Dec	4	3	3	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	4
14-Dec	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	3	3	2	2	2	2	2	2	1	3
15-Dec	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	3	2	2	2	3	2	1	2	3
16-Dec	2	3	2	2	2	2	2	2	2	2	3	3	3	4	4	4	2	4	4	2	3	3	3	2	4
17-Dec	2	2	1	1	2	1	2	2	2	2	2	2	2	2	2	1	1	1	1	1	2	1	2	1	2
18-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19-Dec	1	1	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	2
20-Dec	1	1	1	1	1	1	1	1	1	1	1	2	3	3	4	4	4	3	3	2	3	1	2	2	4
21-Dec	1	3	2	2	2	2	2	2	2	3	3	3	3	2	2	1	1	0	1	1	1	1	1	1	3
22-Dec	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2
23-Dec	2	1	1	2	1	1	1	1	1	2	2	2	3	3	4	3	3	3	3	3	3	3	3	3	4
24-Dec	4	3	3	2	2	3	2	1	1	1	1	3	2	2	3	4	3	4	3	3	3	3	3	3	4
25-Dec	3	3	3	2	3	3	2	3	4	3	3	2	3	3	3	3	2	2	2	3	2	2	2	2	4
26-Dec	1	1	1	1	1	2	1	1	1	2	3	3	3	2	2	2	1	1	2	1	1	1	2	2	3
27-Dec	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
28-Dec	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
29-Dec	1	1	1	1	1	1	UO	1	1	1	1	2	1	1	1	2	2	1	2	1	1	1	1	1	2
30-Dec	1	2	2	1	1	2	3	3	3	3	3	3	4	3	3	2	2	2	2	3	2	3	3	3	4
31-Dec	3	3	3	2	2	1	2	1	2	1	3	3	3	3	3	2	2	1	1	1	1	1	1	1	3
4 5 4 4 4 4 6 4 5 3 4 4 4 4 4 5 4 5 4 4 4 4 4 4 4																								Diurnal Maximum	
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

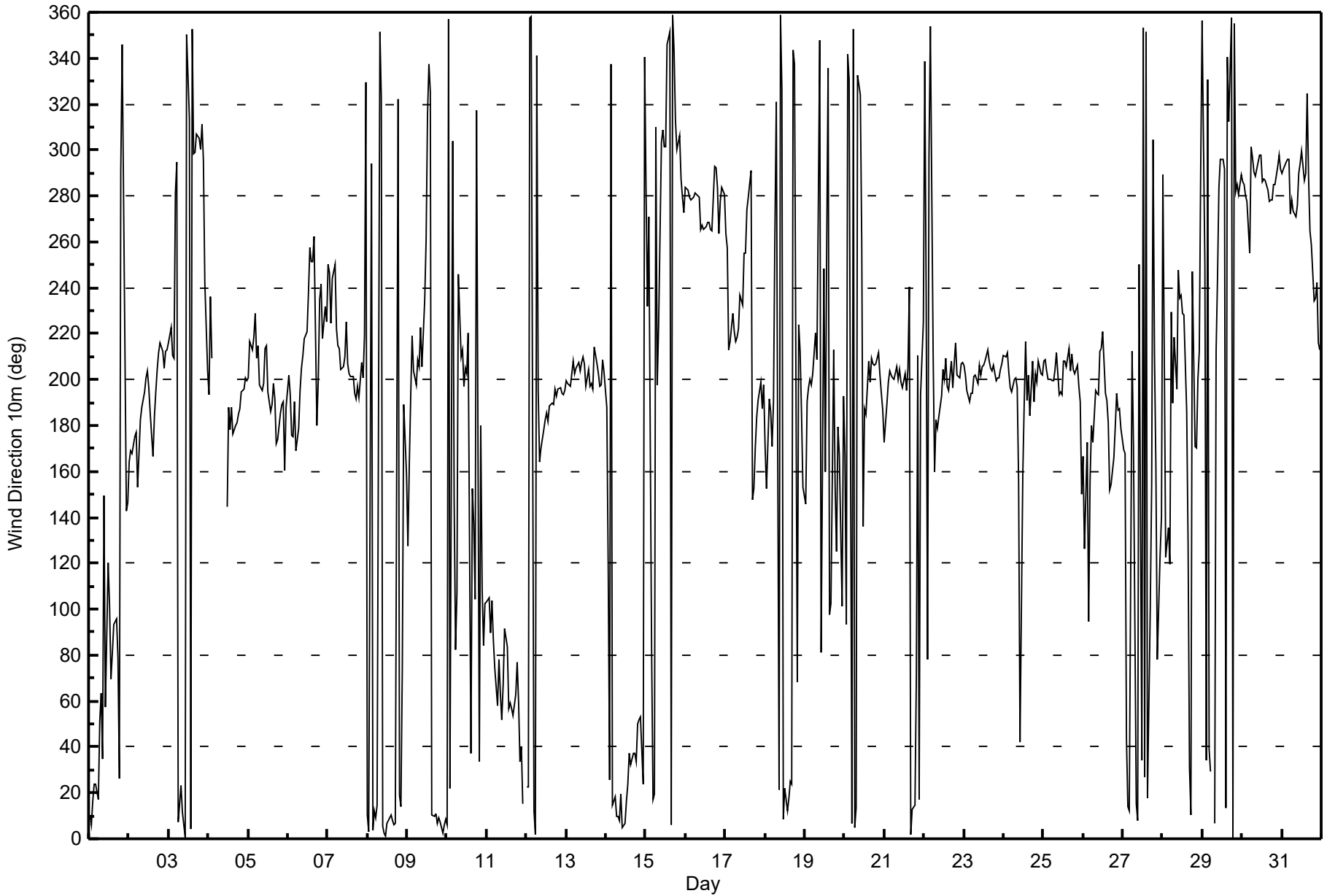
Wind Direction 10m (WD10) - deg
Janvier - December 2024

Direction of Maximum Speed: 196 deg on Dec 12 20:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 202.9 deg on Dec 13	Hours of Data: 734
Direction of Minimum Speed: 82 deg on Dec 10 06:00	Hours of Missing Data: 10
Direction of Minimum Daily Speed Average: 0.6 deg on Dec 10	Percent Operational Time: 98.7
Monthly Average Direction: 217.7 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-Dec	10	6	16	24	24	17	51	64	35	149	57	120	101	70	81	93	96	78	26	291	346	279	143	146	54.4
2-Dec	164	169	168	175	177	153	168	182	188	195	201	204	196	185	166	184	195	204	211	216	212	205	212	213	194.1
3-Dec	216	223	210	209	281	295	8	23	11	6	0	350	314	4	353	298	299	307	305	300	311	295	243	204	316.4
4-Dec	193	236	209	UO	UO	UO	UO	UO	UO	UO	UO	144	188	178	188	176	180	181	185	188	195	196	201	199	--
5-Dec	201	217	213	218	229	210	215	197	195	198	213	215	195	186	189	198	191	172	174	185	189	190	160	188	202.4
6-Dec	202	193	176	175	190	169	179	195	205	210	218	221	238	258	251	251	262	180	200	235	242	218	232	225	219.7
7-Dec	250	247	225	244	250	222	215	214	204	205	210	225	207	202	201	201	194	192	197	192	208	201	219	330	214.6
8-Dec	10	3	294	4	12	9	15	352	322	6	2	1	7	9	10	8	6	7	322	19	14	75	189	159	7.3
9-Dec	128	164	193	219	204	198	208	206	223	206	235	261	315	338	326	10	10	11	6	9	7	2	6	8	341.7
10-Dec	6	357	22	304	148	82	107	246	210	213	197	205	203	220	37	152	137	104	317	34	180	109	84	102	154.0
11-Dec	103	105	90	103	87	74	58	78	63	52	67	92	84	57	59	57	54	63	77	60	34	41	15	UO	70.7
12-Dec	23	23	358	358	12	2	341	195	164	170	178	183	186	182	189	190	189	196	193	196	196	194	194	195	189.7
13-Dec	200	199	197	203	208	202	205	208	204	207	210	207	197	204	197	198	196	214	207	203	197	198	209	203	202.9
14-Dec	188	118	26	337	15	18	10	10	8	20	5	7	17	24	37	32	37	37	34	50	52	53	24	341	28.3
15-Dec	283	232	271	81	17	20	310	198	224	303	309	302	301	346	351	6	359	344	313	300	307	287	279	273	316.1
16-Dec	284	283	280	278	279	279	281	280	279	266	267	265	267	268	268	265	265	293	292	284	263	278	284	281	275.2
17-Dec	264	257	213	217	229	221	217	218	222	237	232	255	255	274	280	291	148	153	170	184	191	199	187	198	227.0
18-Dec	171	153	191	186	171	190	263	321	21	359	326	8	22	12	17	25	24	343	337	68	224	212	185	153	23.4
19-Dec	146	190	197	200	198	203	220	208	275	348	81	248	160	259	336	98	103	213	154	125	180	167	101	193	188.3
20-Dec	167	93	342	331	7	353	5	13	333	324	260	136	187	185	208	199	210	207	206	207	212	202	194	187	204.5
21-Dec	173	190	199	204	202	201	200	206	200	205	199	196	202	195	205	240	2	13	15	71	210	17	194	225	200.5
22-Dec	338	236	78	297	354	210	160	183	179	184	193	204	200	209	197	195	208	197	207	216	202	201	207	208	202.3
23-Dec	206	202	195	190	194	194	202	202	198	206	202	206	207	208	213	208	205	204	206	200	201	201	204	207	203.6
24-Dec	210	210	212	203	197	195	200	201	196	155	42	159	190	216	191	202	184	208	190	202	199	208	203	202	199.5
25-Dec	208	209	204	200	200	199	200	205	212	194	194	193	208	208	206	213	204	211	205	203	206	197	191	150	202.6
26-Dec	166	127	173	94	156	180	173	195	194	194	213	214	221	194	191	181	152	154	166	179	194	187	187	179	190.1
27-Dec	170	168	43	14	12	212	171	94	16	8	250	34	354	27	351	18	100	154	305	211	162	78	123	140	47.1
28-Dec	289	210	122	136	120	230	190	218	196	248	236	237	229	228	186	128	31	11	247	171	170	200	212	292	205.5
29-Dec	356	249	34	331	39	29	UO	7	212	244	284	296	296	292	13	341	313	358	1	355	282	285	281	289	320.1
30-Dec	286	285	280	278	255	301	296	291	289	292	297	298	286	287	287	283	277	278	278	285	285	293	298	292	287.4
31-Dec	290	292	295	296	296	272	278	273	271	276	290	294	300	287	290	325	289	265	259	234	235	242	216	213	281.0

213.1 216.9 210.8 215.1 218.3 212.9 217.4 213.4 214.1 217.1 226.5 228.0 228.6 231.9 226.7 223.3 210.7 219.1 218.6 215.3 215.6 211.2 212.0 209.8
 Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Janvier - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 98 deg on Dec 10 06:00																	Hours in Service: 744 Hours of Data: 734 Hours of Missing Data: 10 Hours of Calibration: 0 Percent Operational Time: 98.7								
Minimum Value: 10 deg on Dec 26 10:00																									
Percentiles: P ₁ = 12 P ₁₀ = 16 Q ₁ = 19 Median = 24 Q ₃ = 39 P ₉₀ = 59 P ₉₉ = 84																									
Day	Hourly Period Ending At (MST)																							Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23		24
1-Dec	23	28	22	18	20	40	18	22	69	77	28	48	51	26	35	22	22	40	63	72	81	76	62	25	81
2-Dec	24	23	26	21	20	21	23	16	19	18	21	19	19	22	25	23	17	19	20	20	19	19	20	21	26
3-Dec	20	21	18	22	23	42	48	16	24	25	34	47	45	38	40	37	33	41	37	41	58	15	25	25	58
4-Dec	14	12	12	UO	UO	UO	UO	UO	UO	UO	UO	29	25	25	21	26	20	24	17	16	17	18	20	19	29
5-Dec	18	22	20	22	23	21	21	22	14	15	20	22	15	16	16	17	20	21	17	20	16	20	21	15	23
6-Dec	21	26	18	35	35	27	27	15	15	18	19	19	28	20	23	22	35	59	32	22	22	23	26	39	59
7-Dec	23	24	21	30	25	21	20	18	16	18	17	21	18	15	15	12	11	21	13	19	20	29	37	64	64
8-Dec	48	41	60	30	21	23	21	47	54	31	36	31	29	26	24	29	26	27	46	28	19	47	30	52	60
9-Dec	20	29	12	18	21	14	19	16	27	17	33	56	49	52	49	40	23	23	28	25	23	32	34	24	56
10-Dec	35	49	62	79	28	98	90	64	29	13	19	28	83	56	36	49	51	23	79	81	82	70	45	40	98
11-Dec	31	30	29	25	24	33	25	30	29	27	30	28	33	24	20	20	17	49	25	28	48	45	21	UO	49
12-Dec	49	43	47	44	66	49	50	96	26	22	20	18	21	20	19	18	17	17	17	17	18	17	16	16	96
13-Dec	19	17	17	20	19	20	19	20	18	21	21	22	16	21	16	14	14	19	19	16	14	17	17	18	22
14-Dec	29	83	31	57	26	22	16	15	20	17	23	36	18	16	21	16	14	17	17	21	29	29	27	50	83
15-Dec	72	52	60	51	22	38	76	25	27	48	46	44	41	52	43	33	38	54	52	30	47	29	23	21	76
16-Dec	25	25	21	23	19	22	21	22	21	21	22	23	20	21	22	20	21	40	30	27	20	24	21	24	40
17-Dec	26	32	18	17	19	19	19	18	20	19	22	24	23	29	19	77	24	28	34	39	13	12	16	71	77
18-Dec	68	44	68	22	36	22	85	27	16	41	42	24	18	20	21	18	21	39	72	76	29	20	26	23	85
19-Dec	17	18	18	19	16	18	24	25	61	61	44	72	70	51	60	31	47	56	33	20	60	40	62	93	93
20-Dec	48	68	40	46	24	32	23	23	40	42	59	46	27	25	21	17	20	20	20	19	22	15	13	22	68
21-Dec	23	15	14	15	15	16	13	16	14	16	15	15	20	14	24	76	28	54	69	48	82	29	69	40	82
22-Dec	80	32	66	72	91	52	69	30	20	19	18	24	19	24	19	16	30	14	22	24	19	17	22	19	91
23-Dec	21	18	15	22	15	14	17	17	15	22	19	21	18	17	17	17	15	17	15	16	15	16	17	17	22
24-Dec	17	17	17	16	14	14	13	16	21	49	79	81	65	64	19	26	20	35	36	17	15	20	15	14	81
25-Dec	16	17	15	15	14	14	13	15	18	17	17	20	21	21	20	21	17	18	15	15	17	16	23	36	36
26-Dec	82	46	38	78	33	41	42	31	18	10	24	20	22	17	14	22	82	37	75	59	48	23	10	31	82
27-Dec	34	71	62	55	28	81	85	57	80	51	51	45	56	27	41	42	28	65	23	79	26	53	38	45	85
28-Dec	24	27	17	30	43	56	46	24	24	19	25	20	32	97	41	44	39	32	68	32	36	18	15	61	97
29-Dec	33	68	21	69	39	39	UO	36	49	22	23	33	29	32	26	47	64	35	55	58	34	45	30	39	69
30-Dec	25	27	20	22	22	53	42	31	29	32	35	35	26	25	24	22	20	19	22	27	28	31	40	32	53
31-Dec	30	35	32	33	46	31	25	29	54	18	22	31	51	28	38	59	38	15	15	16	17	27	21	15	59
82 83 68 79 91 98 90 96 80 77 79 81 83 97 60 77 82 65 79 81 82 76 69 93																									
Diurnal Maximum																									
UO - Unstable Operation																									



Maximum Speed: 19 km/h on Dec 12 20:00	Maximum Daily Speed Average: 12.4 km/h on Dec 13	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 1 20:00	Minimum Daily Speed Average: 0.7 km/h on Dec 18	Hours of Data: 655
Maximum Diurnal Speed Average: 4.5 km/h at hour 21	Minimum Diurnal Speed Average: 1.9 km/h at hour 17	Hours of Missing Data: 89
Monthly Average Velocity: 3.5 km/h 234.6 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: 88.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NNE7	NNE6	NNE5	NNE6	NNE5	NNE3	ENE4	ENE5	NNE3	NE2	ENE3	ESE1	ESE4	E6	E4	E6	ESE6	E4	ENE3	NNW0	NNE1	SSW1	SE2	SSE5	ENE2.8	NNE7
2-Dec	S7	S8	S8	S9	S8	SSE7	S8	S10	SSW9	SSW12	SSW12	SSW12	SSW9	S7	S5	S7	SSW9	SSW12	SW15	SW16	SW14	SSW14	UO	UO	SSW9.4	SW16
3-Dec	UO	UO	UO	UO	UO	NNW11	NW7	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW11
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
5-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	---
6-Dec	UO	UO	S9	S7	SSW7	S8	SSW9	SSW12	SW12	SW14	SW18	SW17	WSW11	W15	W12	W13	W10	SW4	SW8	WSW12	WSW12	SW10	WSW10	WSW8	SW9.8	SW18
7-Dec	W10	WSW10	WSW10	WSW10	W10	WSW10	SW11	SW11	SW12	SW11	SW11	SW11	SW10	SW10	SW12	SW10	SSW11	SSW7	SSW10	SSW9	SW6	SSW5	SW5	NNW1	SW8.8	SW12
8-Dec	NNE5	N4	NNW2	N7	NNE12	N10	NNE9	N4	NW2	N6	N9	N9	N9	N11	N11	N10	N7	N7	NNW5	NNE6	NNE5	ENE2	SSW3	SSE2	N6.0	NNE12
9-Dec	SE4	SSE3	SSW5	SW7	SW6	SW6	SW6	SW9	SW6	SW7	WSW5	W4	NW6	NNW6	NNW8	N11	NNE15	NNE16	N12	N16	N11	N9	N9	N7	NNW3.4	NNE16
10-Dec	N7	NNW6	NNW5	NNW4	WSW2	NW2	N3	NNW3	WNW4	SW7	SW6	SW4	SW2	WSW2	NE2	S2	SSW3	E5	UO	ENE2	SSW1	E2	ESE3	ESE3	WNW0.8	WSW7
11-Dec	ESE4	ESE4	ESE4	ESE4	E5	E5	ENE5	E4	ENE5	ENE5	E5	E6	E5	ENE6	ENE7	ENE6	ENE6	E5	E5	E4	E4	E3	NE3	ENE2	E4.5	ENE7
12-Dec	NNE3	NNE3	E2	ENE2	E4	E2	ESE2	SSE5	SSE7	S9	S10	S13	S9	S12	SSW13	SSW15	SSW13	SSW15	SSW16	SSW19	SSW16	SSW16	SSW16	SSW17	SSW8.6	SSW19
13-Dec	SSW16	SSW15	SSW14	SSW15	SW17	SSW16	SSW14	SW15	SW14	SW14	SW13	SW12	SSW13	SW12	SSW11	SSW10	SSW12	SW9	SW10	SW11	SSW9	SSW9	SW10	SW9	SSW12.4	SW17
14-Dec	SSW6	SE2	NE4	N2	NNE5	NNE6	NNE7	NNE7	NNE7	NNE8	NNE6	NNE6	NNE8	NE10	NE9	NE12	NE13	NE10	NE9	ENE8	ENE8	ENE6	NE6	N3	NE6.1	NE13
15-Dec	NNW2	WSW2	WNW2	E2	NNE4	NNE3	NW1	SSW1	SW4	NW5	NW6	NW6	NW8	NNW7	NNW8	N7	N8	NNW8	NW7	NW10	NW8	NW5	WNW6	WNW8	NW4.5	NW10
16-Dec	WNW8	WNW9	WNW8	WNW8	WNW8	WNW10	WNW8	WNW8	WNW7	W7	W10	W12	W14	W14	W13	W13	W8	NW11	NW13	WNW8	W10	WNW10	WNW12	WNW10	WNW9.8	W14
17-Dec	WNW7	W6	SW8	SW9	WSW9	SW8	SW9	SW9	SW8	WSW8	WSW8	W7	W9	WNW7	WNW7	NW3	SSW3	W3	SW3	SSW6	SSW7	SW9	SSW7	SSW2	WSW6.0	SW9
18-Dec	S3	S5	SSW2	SSW5	S3	SSE2	SE1	UO	NE3	NNE4	N2	NNE4	NNE4	NNE5	NNE5	NE6	NNE6	N3	NNE1	ENE3	SW4	SW4	SSW3	S5	NE0.7	NNE6
19-Dec	SSE5	SSW5	SSW7	SSW7	SSW9	SSW8	SW5	SSW4	W2	N2	E2	WSW2	S2	W3	NNW1	E4	E4	SW1	WSW2	ESE1	S2	S3	ESE2	SE1	SSW2.2	SSW9
20-Dec	SSW1	ESE2	NE3	N2	NNE4	N4	N4	NNE4	N3	NNW2	W1	SE5	SSW10	SSW11	SW13	SSW15	SW14	SW12	SW13	SW11	SW11	SW8	SSW9	SSW9	SSW4.7	SSW15
21-Dec	S7	SSW11	SSW12	SW11	SW12	SSW12	SSW11	SW10	SSW12	SW12	SSW12	SSW13	SSW11	SSW9	SW8	WSW2	NNE5	NNE3	NNE3	NNE3	WNW1	NNE5	S1	SW4	SSW6.3	SSW13
22-Dec	UO	UO	UO	UO	UO	UO	UO	SSW1	SSW4	SSW4	SSW3	SSW4	SSW4	SW5	SSW5	SSW5	SSW4	SSW5	SW5	SW9	SSW9	SSW8	SW9	SW9	---	SW9
23-Dec	SW8	SSW8	SSW7	SSW7	SSW6	SSW7	SSW7	SW8	SSW8	SW9	SSW10	SW9	SW13	SW15	SW16	SW13	SW13	SW15	SW16	SSW15	SSW17	SW16	SW16	SW16	SW11.5	SSW17
24-Dec	SW17	SW17	SW13	SW13	SSW14	SSW14	SW9	SW8	SSW8	SSW5	S2	S7	SSW10	SSW7	SSW13	SSW12	S15	SW10	SSW13	SSW13	SSW12	SW12	SW13	SW13	SSW11.0	SW17
25-Dec	SW14	SW14	SSW15	SSW14	SSW15	SSW14	SSW14	SW16	SSW17	SSW13	SSW12	SSW11	SW11	SW13	SW12	SW15	SW12	SW11	SW11	SW14	SW11	SSW10	SSW8	SSE6	SSW12.4	SW17
26-Dec	S5	SSE5	SSE5	SSE3	SSE6	S6	S6	S7	SSW8	SSW10	SW10	SW12	SW10	SSW9	SSW10	SSW6	SSE4	SSW2	SSE1	S3	SSW4	S5	SSW9	S7	SSW5.9	SW12
27-Dec	S5	S4	UO	NNE4	NNE6	SW3	WSW3	E2	NE1	NNE4	WSW3	NE4	N4	NNE4	N3	NNE3	ESE5	SSE1	NW2	N0	UO	E3	ESE2	ESE1	NE0.9	NNE6
28-Dec	WNW2	UO	UO	UO	ENE1	WSW2	SW2	SW2	SSW2	WSW2	WSW3	WSW4	WSW2	WSW1	SSW2	SE2	NE3	NNE2	NNW1	SSW2	SSW3	SSW4	SW4	W3	SW1.4	SW4
29-Dec	NNE3	NW2	NE4	NNE1	NE3	NE2	UO	NNE3	SW2	W4	WNW6	NW7	NW4	NW4	N4	NNW6	NNW5	N4	N5	N4	NW4	NW4	WNW6	NW6	NNW3.2	NW7
30-Dec	NW8	WNW8	WNW8	WNW7	W6	NW6	NW10	NW10	NW10	NW10	NW11	NW11	WNW14	WNW13	WNW13	WNW10	WNW8	WNW10	WNW9	NW10	WNW9	NW10	NW10	NW10	NW9.5	WNW14
31-Dec	NW11	NW12	NW10	NW9	NW6	NW6	NW7	WNW7	WNW6	WNW7	NW9	NW13	NW10	WNW10	NW9	NNW8	NW6	WNW6	W7	W5	W5	WNW5	W4	W5	WNW7.5	NW13

SW3.0 SW3.4 SW3.6 SW3.4 SW3.0 SW3.0 SW3.1 SW3.8 SW4.1 SW4.1	SSW4.4 SSW4.5 SSW4.2 SSW3.7 SSW3.5 SSW2.6 SW1.9 SSW2.2 SSW3.5 SW3.6 SW4.5 SW4.1 SW4.1 SW3.7	Diurnal Average
SW17 SW17 SW15 SSW15 SW17 SSW16 SSW14 SW16 SW17 SW14 SW18 SW17	W14 SW15 SW16 SSW15 NNE15 NNE16 SW16 SSW19 SSW17 SSW16 SW16 SSW17	Diurnal Maximum

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

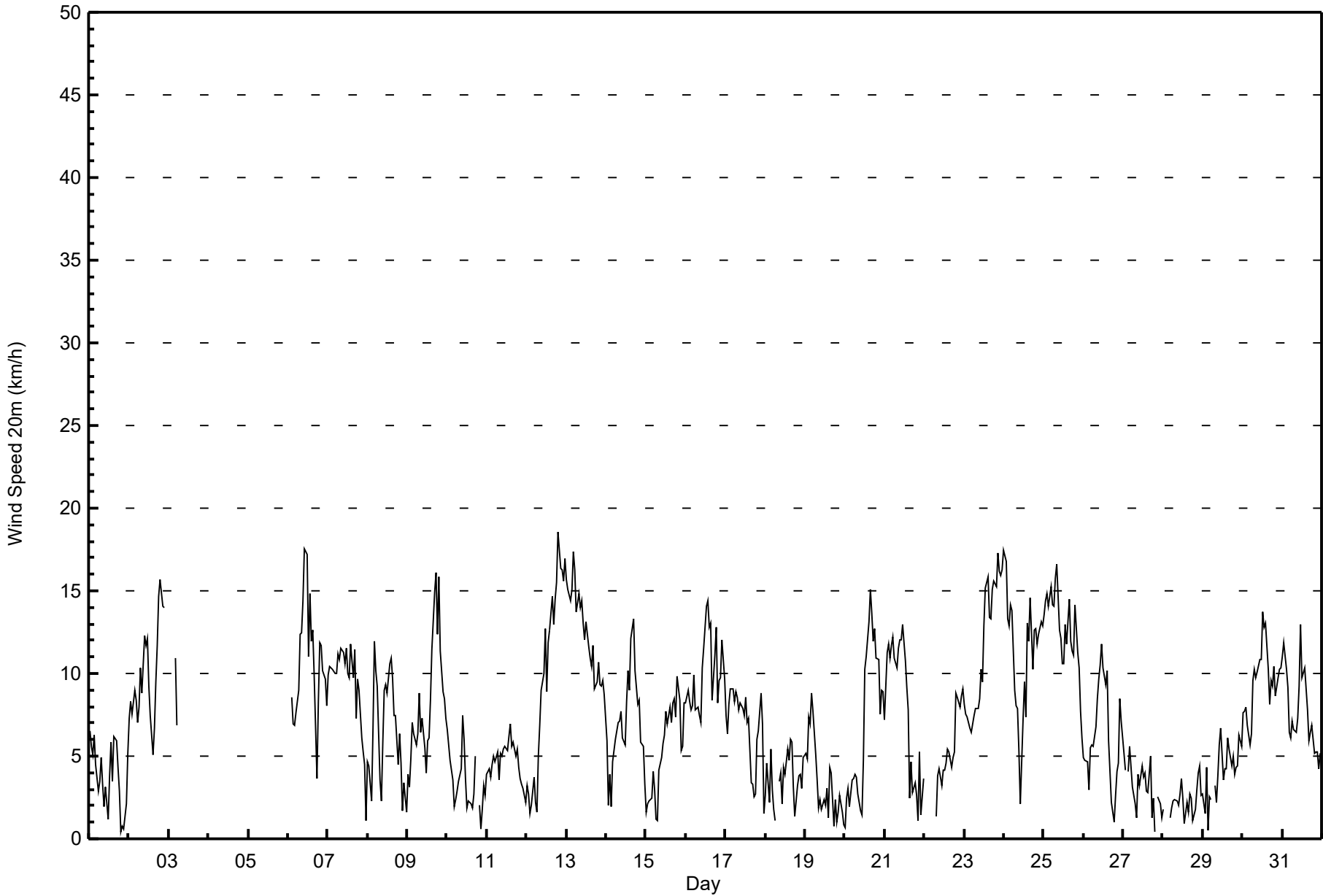


Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 6 km/h on Dec 9 18:00	Hours of Data: 655
Minimum Value: 1 km/h on Dec 28 22:00	Hours of Missing Data: 89
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5	Hours of Calibration: 0
	Percent Operational Time: 88.0

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

Diurnal Maximum

UO - Unstable Operation





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 20m (WS20) - km/h
Janvier - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	256	39.08	39.08
6 - 11	277	42.29	81.37
12 - 19	122	18.63	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: 655

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 20m (WS20) - km/h
Janvier - December 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	33	12	13	23	15	7	12	16	33	18	15	11	6	12	11	256
6 - 11	19	17	4	7	3	1	0	4	19	54	52	11	12	34	32	8	277
12 - 19	2	3	2	0	0	0	0	0	3	47	48	2	8	4	3	0	122
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	40	53	18	20	26	16	7	16	38	134	118	28	31	44	47	19	655

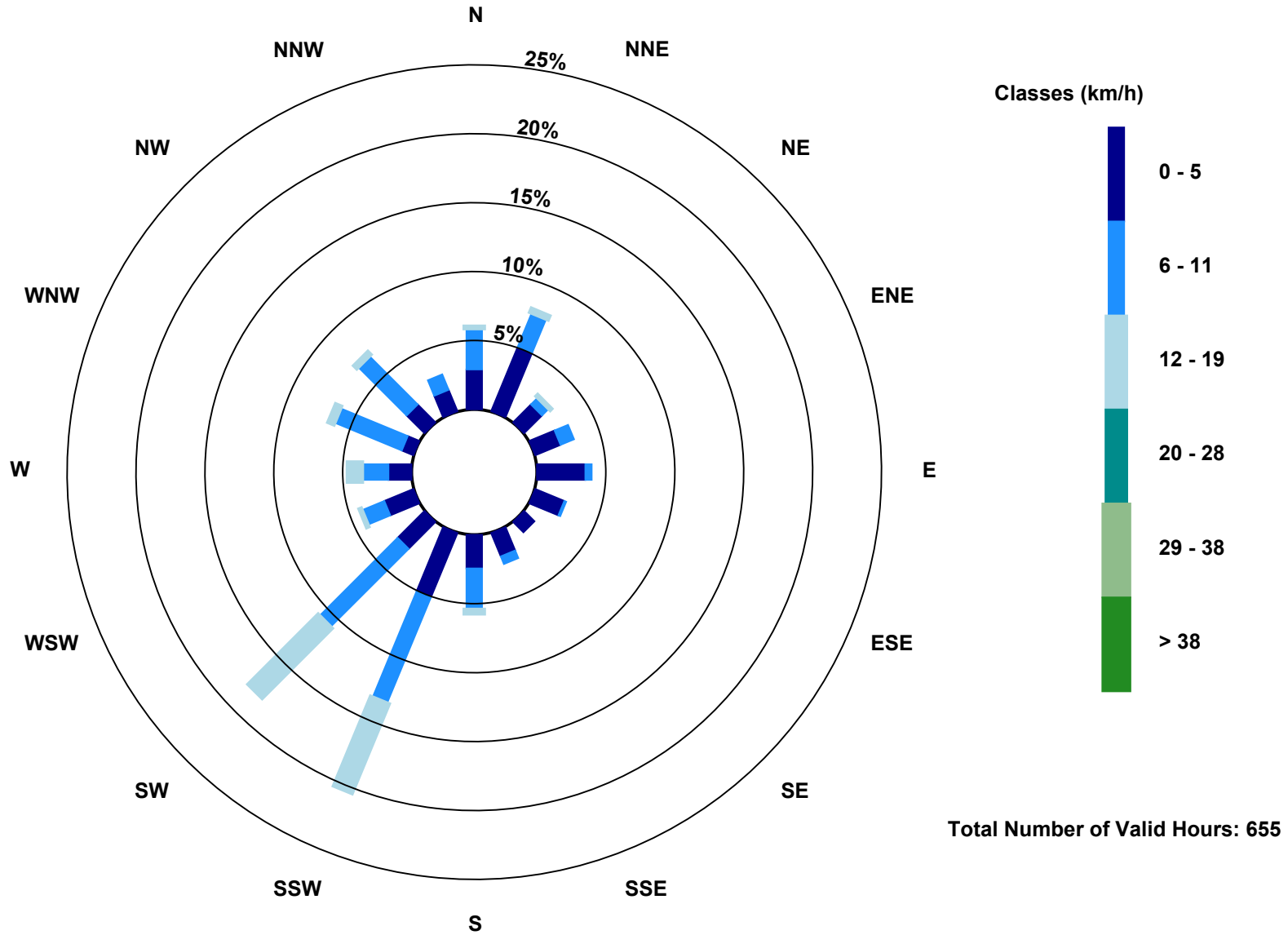
Total Number of Valid Hours: 655

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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





Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 20m (WD20) - deg

Janvier - December 2024

Direction of Maximum Speed: 204 deg on Dec 12 20:00		Hours in Service:	744
Direction of Maximum Daily Speed Average: 213.3 deg on Dec 13		Hours of Data:	655
Direction of Minimum Speed: 348 deg on Dec 1 20:00		Hours of Missing Data:	89
Direction of Minimum Daily Speed Average: 0.7 deg on Dec 18		Percent Operational Time:	88.0
Monthly Average Direction: 234.6 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-Dec	15	12	20	31	32	24	65	74	33	40	62	118	108	84	92	100	103	93	74	348	12	213	142	152	65.3
2-Dec	170	171	172	178	179	159	172	189	194	202	208	213	204	190	173	191	204	213	221	225	221	213	UO	UO	198.8
3-Dec	UO	UO	UO	UO	298	311	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
5-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-Dec	UO	UO	191	191	197	191	197	207	219	222	228	231	250	267	260	261	277	220	215	244	249	232	245	244	232.3
7-Dec	261	258	242	257	262	237	232	232	222	222	226	235	221	218	214	216	208	202	208	203	222	212	228	347	228.7
8-Dec	17	9	338	7	15	11	19	357	322	2	1	356	9	8	10	9	7	3	333	18	18	69	193	162	7.4
9-Dec	134	158	201	229	217	215	222	219	231	217	242	271	324	341	333	6	13	13	7	9	9	359	357	8	336.3
10-Dec	357	343	338	330	251	325	358	337	290	236	216	220	233	246	40	181	201	101	UO	70	194	101	102	103	300.8
11-Dec	110	113	102	110	100	87	72	88	76	70	80	100	93	71	72	72	76	83	93	90	87	93	40	69	85.2
12-Dec	24	32	81	60	97	82	108	158	167	174	182	189	190	189	195	196	197	205	202	204	205	202	202	203	192.3
13-Dec	208	207	207	211	218	212	213	215	214	218	221	217	208	216	208	211	208	225	220	215	210	210	220	215	213.3
14-Dec	201	129	53	5	20	30	20	21	25	29	16	13	24	35	47	42	47	47	44	63	68	68	34	350	38.8
15-Dec	303	238	286	82	25	28	311	196	236	314	323	318	315	343	346	359	353	343	323	313	320	305	292	283	323.8
16-Dec	298	297	292	291	291	291	296	289	293	276	279	273	275	279	277	274	278	309	309	301	277	296	295	295	288.1
17-Dec	283	278	231	233	241	235	229	229	233	244	244	264	261	287	290	312	204	259	227	202	207	216	203	203	242.1
18-Dec	180	182	194	201	178	152	135	UO	39	33	358	15	20	17	22	34	29	5	28	58	231	216	197	184	55.7
19-Dec	159	195	206	211	207	211	224	212	265	352	84	253	172	266	329	83	86	223	243	114	177	184	109	127	199.0
20-Dec	213	117	38	350	19	8	6	21	351	348	273	141	193	192	215	206	220	216	215	216	225	214	204	201	211.5
21-Dec	187	198	208	215	214	213	209	218	212	215	210	207	213	206	214	249	14	12	16	15	299	14	178	234	212.9
22-Dec	UO	UO	UO	UO	UO	UO	UO	193	198	204	201	212	209	221	206	200	210	211	221	225	212	212	215	215	--
23-Dec	216	209	203	201	202	206	210	214	210	218	213	216	216	217	222	220	218	217	218	212	213	214	218	219	214.7
24-Dec	223	222	225	218	211	204	215	214	211	194	174	173	195	201	196	207	190	218	197	211	212	217	216	215	209.2
25-Dec	220	222	216	213	212	211	213	218	223	208	208	209	222	220	219	224	219	225	220	215	219	212	206	164	215.5
26-Dec	180	148	164	158	162	177	171	191	205	210	223	223	228	206	203	200	166	194	164	175	202	188	202	190	196.8
27-Dec	180	182	UO	24	20	217	251	85	46	16	249	41	356	29	353	15	103	149	318	358	UO	92	121	121	45.0
28-Dec	301	UO	UO	UO	74	238	218	214	197	242	239	240	243	248	194	136	56	24	341	192	202	211	230	279	227.1
29-Dec	20	325	36	19	55	49	UO	21	226	265	301	313	307	305	9	345	333	355	350	349	306	309	299	316	331.2
30-Dec	305	303	298	300	279	314	316	306	306	306	311	312	301	302	302	297	295	295	296	304	302	308	313	308	303.8
31-Dec	306	309	311	313	316	307	304	302	300	295	307	307	313	300	305	330	320	293	271	273	266	284	278	274	302.1

234.0 230.0 226.9 230.0 232.3 228.1 228.7 225.1 229.1 232.5 238.9 240.6 243.2 248.9 245.1 243.2 229.9 249.8 241.3 234.7 233.0 226.9 230.9 229.0

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

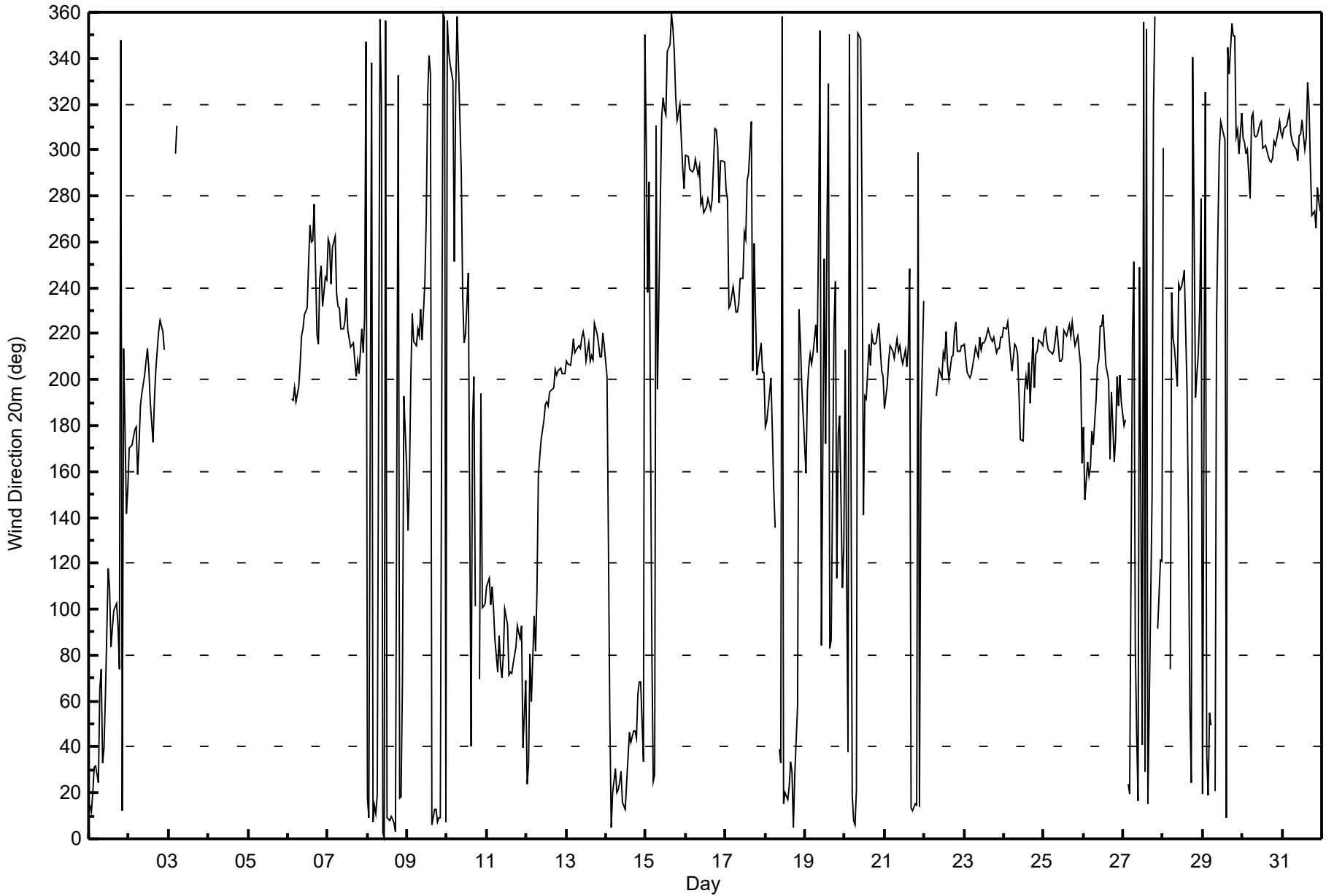
Wind Direction 20m (WD20) - deg

Janvier - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 86 deg on Dec 26 19:00	Hours of Data: 655
Minimum Value: 7 deg on Dec 22 08:00	Hours of Missing Data: 89
Percentiles: P ₁ = 10 P ₁₀ = 14 Q ₁ = 16 Median = 19 Q ₃ = 27 P ₉₀ = 46 P ₉₉ = 81	Hours of Calibration: 0
	Percent Operational Time: 88.0

Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	17	23	20	15	19	34	13	14	18	22	23	47	44	20	30	16	15	21	32	84	81	83	57	20	84
2-Dec	20	21	23	19	19	20	20	14	18	16	19	18	17	20	22	21	16	18	18	17	16	17	UO	UO	23
3-Dec	UO	UO	UO	UO	18	28	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	28
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
5-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
6-Dec	UO	UO	16	18	26	20	18	13	14	15	15	16	25	17	20	18	28	61	28	18	18	18	24	31	61
7-Dec	21	20	16	26	20	20	16	16	15	16	14	16	17	14	14	12	12	14	12	15	13	19	19	68	68
8-Dec	25	23	31	18	18	22	20	38	35	27	26	28	22	23	21	24	25	23	30	29	18	42	28	46	46
9-Dec	18	25	19	13	16	13	16	15	19	14	26	49	33	42	33	30	20	20	25	23	19	22	23	19	49
10-Dec	21	19	18	29	49	39	22	32	22	11	17	24	67	57	28	57	44	15	UO	75	77	70	29	39	77
11-Dec	24	26	26	23	22	27	21	26	26	24	24	24	28	19	16	19	14	18	19	17	20	17	20	25	28
12-Dec	11	24	28	36	19	48	62	25	23	22	18	17	18	19	19	16	16	17	15	15	16	15	14	14	62
13-Dec	17	16	17	19	18	18	18	17	16	18	18	20	18	20	15	13	14	16	16	16	14	15	16	16	20
14-Dec	26	45	26	40	19	13	12	11	10	14	17	32	15	13	21	14	13	15	15	20	25	27	23	41	45
15-Dec	69	52	39	41	21	30	67	50	23	32	33	30	28	37	32	26	29	34	36	24	29	31	22	17	69
16-Dec	21	19	17	17	16	17	18	19	18	18	19	20	18	19	20	18	19	26	21	22	16	20	16	16	26
17-Dec	19	26	16	14	14	14	15	14	18	15	21	22	21	28	16	49	53	28	25	18	10	11	12	53	53
18-Dec	51	21	80	8	27	28	55	UO	23	16	36	18	22	20	19	13	18	17	59	58	23	18	15	12	80
19-Dec	13	18	14	18	14	15	18	21	52	37	47	57	66	46	76	19	21	83	55	58	55	48	57	79	83
20-Dec	83	29	34	42	22	25	21	24	33	37	58	40	23	23	18	16	18	18	17	16	19	14	11	17	83
21-Dec	16	12	12	12	14	14	12	15	13	15	15	15	18	14	20	55	26	28	32	20	75	25	70	20	75
22-Dec	UO	UO	UO	UO	UO	UO	UO	7	9	8	18	23	20	22	18	14	20	14	21	21	16	17	19	17	23
23-Dec	18	16	13	15	10	12	15	16	14	17	17	18	17	15	15	14	15	14	15	14	16	14	15	14	18
24-Dec	15	16	15	15	13	13	12	12	14	37	67	43	23	30	15	22	17	31	31	15	14	17	15	13	67
25-Dec	14	15	14	14	13	13	12	14	16	16	16	19	18	18	17	17	16	15	14	14	15	15	17	20	20
26-Dec	35	15	18	64	22	20	16	23	12	10	18	17	18	17	12	13	62	55	86	54	17	27	9	25	86
27-Dec	25	63	UO	20	19	80	41	66	65	37	45	46	44	26	34	35	28	62	17	74	UO	36	33	31	80
28-Dec	12	UO	UO	UO	36	30	36	22	24	18	23	14	30	84	39	37	32	21	38	64	16	13	13	48	84
29-Dec	14	33	17	82	16	16	UO	29	52	19	17	24	25	25	25	32	34	26	34	39	21	25	22	23	82
30-Dec	17	19	15	15	17	35	29	22	19	23	23	26	20	19	19	17	15	14	15	21	19	20	26	22	35
31-Dec	22	21	23	23	28	17	15	18	25	12	17	22	33	22	27	32	21	15	13	16	15	29	25	12	33
	83	63	80	82	49	80	67	66	65	37	67	57	67	84	76	57	62	83	86	84	81	83	70	79	
	Diurnal Maximum																								

UO - Unstable Operation





WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS23 FORT HILLS DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)
DECEMBER 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	34.5	0	6.3	0
TRS(ppb) Average	708	35	36	99.87	2.2	0	1.2	0
THC(ppm) Average	706	36	38	99.73	7.4	-	3.2	-
NMHC(ppm) Average	706	36	38	99.73	0.563	-	0.183	-
CH4(ppm) Average	706	36	38	99.73	7	-	3	-
NO2 (ppb) Average	686	38	58	97.31	44.2	0	28.4	-
NO (ppb) Average	686	38	58	97.31	208.9	-	71.5	-
NOX (ppb) Average	686	38	58	97.31	253	-	97.8	-
PM2.5 (ug/m3) Average	743	1	1	100	187.5	4	31.8	1
Temperature 2 m (C) Average	744	0	0	100	3	-	0.5	-
Relative Humidity (%) Average	744	0	0	100	97.1	-	93.6	-
Wind Speed 10 m (km/h) Average	738	0	6	99.19	22	-	17	-
Wind Direction 10 m (deg) Average	738	0	6	99.19	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)
DECEMBER 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	1.34	3.2	-	0	0	0.1	0.3	1.3	3.1	34.5
TRS (ppb) Average	708	0.66	0.4	-	0.2	0.3	0.4	0.5	0.9	1.2	2.2
THC (ppm) Average	706	2.45	0.6	-	2	2	2.1	2.3	2.5	3.1	7.4
NMHC(ppm) Average	706	0.049	0.101	-	0	0	0	0	0	0.2	0.563
CH4(ppm) Average	706	2.4	0.5	-	2	2	2.1	2.2	2.5	2.9	7
NO2 (ppb) Average	686	17.01	10.1	-	0.3	2.4	9.3	16.9	24.5	30.5	44.2
NO (ppb) Average	686	19.5	35.1	-	0	0	0.4	4.2	20.3	59.9	208.9
NOX (ppb) Average	686	36.51	42.7	-	0.3	2.7	10.6	21.1	44.2	89	253
PM2.5 (ug/m3) Average	743	6.08	11.6	-	0.3	1.8	2.9	4	6.2	11.8	187.5
Temperature 2 m (C) Average	744	-12.92	8	-	-32	-24.7	-19.2	-11	-7.2	-3.2	3
Relative Humidity (%) Average	744	82.53	7.2	-	58.5	73.9	77.6	82.8	88.5	91.1	97.1
Wind Speed 10 m (km/h) Average	738	9.1	5	-	0	3	5	8	13	16	22
Wind Direction 10 m (deg) Average	738	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - FORT HILLS (AMS23)
 DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
TRS, NO2	17 Dec 2024 09:00	17 Dec 2024 09:00	1	Maintenance - sample manifold cleaned
NO2	12 Dec 2024 14:00	13 Dec 2024 08:00	19	Maintenance - replaced sample pump and charcoal
Wind Speed, Wind Direction	08 Dec 2024 17:00	08 Dec 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Dec 2024 12:00	11 Dec 2024 12:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 18:00	19 Dec 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 11:00	31 Dec 2024 11:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 13:00	31 Dec 2024 14:00	2	Flat line in sensor output signal



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Fort Hills - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 34.5 ppb on Dec 19 23:00	Maximum Daily Average: 6.3 ppb on Dec 19		Hours of Data:	708
Minimum Value: 0.0 ppb on Dec 4 08:00	Minimum Daily Average: 0.0 ppb on Dec 15		Hours of Missing Data:	36
Maximum Diurnal Average: 2.1 ppb at hour 22	Minimum Diurnal Average: 0.8 ppb at hour 12		Hours of Calibration:	36
Monthly Average: 1.34 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 1.3 P ₉₀ = 3.1 P ₉₉ = 15.9		Percent Operational Time:	100.0

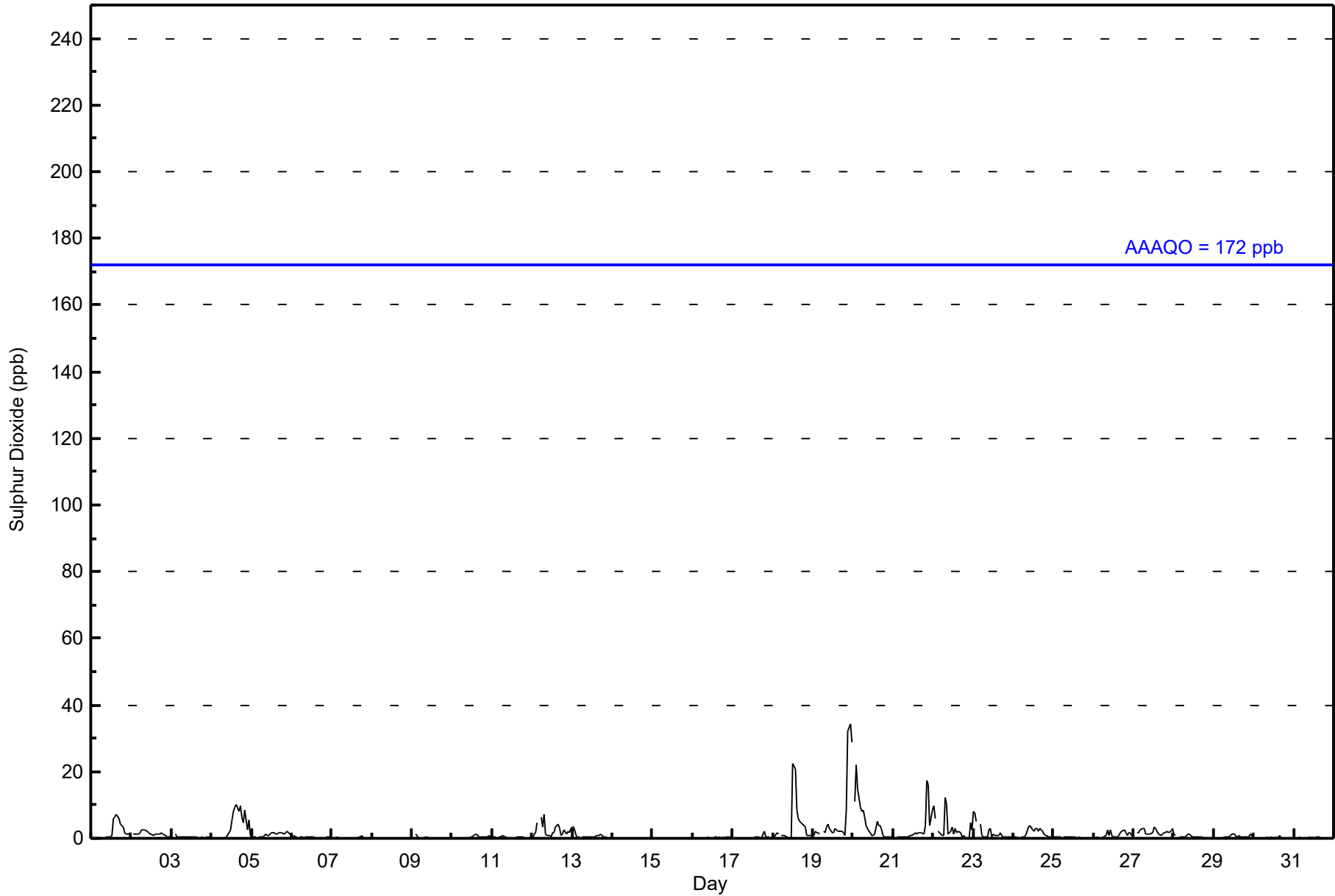
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.1	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.2	0.3	0.2	0.9	5.9	6.3	7.3	5.9	4.3	3.9	3.5	1.7	1.4	1.4	1.6	2.0	7.3
2-Dec	Z	1.3	1.2	1.3	1.4	1.9	2.5	2.6	2.5	2.2	1.6	1.3	1.2	0.9	1.4	1.2	1.1	1.4	1.6	1.2	0.9	0.6	0.4	0.4	1.4	2.6
3-Dec	0.4	Z	1.3	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.5	0.6	0.5	0.4	0.3	0.2	0.2	0.1	0.2	0.2	0.1	0.5	0.4	0.2	0.4	1.3
4-Dec	0.1	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.4	1.8	2.5	5.4	7.9	9.4	10.3	8.2	9.8	6.2	4.7	8.7	2.7	5.3	0.7	3.7	10.3
5-Dec	0.4	0.3	0.3	Z	0.2	0.3	0.2	0.4	1.4	1.0	0.9	1.3	1.9	1.5	1.2	1.5	1.5	1.8	1.8	1.4	1.9	2.0	1.9	1.1	1.1	2.0
6-Dec	0.6	0.8	0.4	0.3	Z	0.3	0.3	0.2	0.3	0.2	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.8
7-Dec	0.2	0.1	0.1	0.3	0.2	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.6	0.9	0.2	0.0	0.1	0.0	0.2	0.9
8-Dec	Z	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
9-Dec	0.0	Z	1.3	0.7	0.1	0.1	0.1	0.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.2	1.3
10-Dec	0.0	0.1	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.6	0.6	1.0	1.4	0.9	0.5	0.4	0.4	0.3	0.4	0.3	0.7	0.5	0.4	1.4
11-Dec	0.4	0.3	0.2	Z	0.4	0.6	0.7	0.5	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.7
12-Dec	0.0	1.2	1.9	4.8	Z	6.3	3.4	7.2	1.4	0.7	0.8	0.6	1.7	1.6	3.3	4.2	2.8	0.9	1.2	2.6	1.2	1.9	1.8	3.1	2.4	7.2
13-Dec	3.4	3.4	0.5	0.5	0.4	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	1.0	0.8	1.3	0.5	0.4	0.3	0.2	0.1	0.0	0.7	3.4
14-Dec	Z	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
15-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.4	0.3	0.0	0.3	0.0	0.3	0.1	0.5	0.4	0.2	0.1	0.1	0.5
17-Dec	0.0	0.1	0.1	Z	0.0	0.1	0.1	0.1	C	C	C	C	C	0.2	0.3	0.2	0.1	0.1	1.3	2.0	0.6	0.3	0.1	0.0	0.3	2.0
18-Dec	0.1	0.5	1.6	1.1	Z	0.9	0.9	0.7	0.3	0.1	0.0	0.1	22.4	20.8	8.3	5.8	5.0	4.7	4.0	3.2	1.0	0.7	0.7	0.7	3.6	22.4
19-Dec	0.8	2.1	1.7	1.7	1.4	Z	2.3	1.8	3.4	4.1	3.0	1.8	1.8	3.2	2.5	1.9	1.9	2.0	1.7	0.9	8.6	32.3	34.5	29.0	6.3	34.5
20-Dec	Z	10.9	22.1	14.8	9.3	8.1	8.5	6.4	3.9	2.3	1.7	0.9	0.7	1.2	5.2	3.6	3.6	2.5	0.8	0.6	0.5	0.4	0.4	0.3	4.7	22.1
21-Dec	0.3	Z	0.3	0.3	0.2	0.2	0.3	0.3	0.4	0.6	0.8	0.9	1.5	1.6	1.2	1.7	1.7	1.5	1.1	3.7	17.5	16.0	3.7	8.4	2.8	17.5
22-Dec	9.9	6.1	Z	1.9	1.7	0.9	1.0	12.2	10.4	1.2	2.1	3.3	1.3	2.8	1.8	2.0	1.7	0.6	0.7	0.2	0.1	0.2	4.7	2.4	3.0	12.2
23-Dec	7.9	7.6	5.0	Z	4.1	0.6	0.5	0.3	0.4	2.4	2.8	0.6	1.2	0.8	0.7	1.0	1.8	0.8	0.6	0.4	0.4	0.3	0.2	0.3	1.8	7.9
24-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.7	2.2	3.4	3.7	2.5	2.0	3.1	2.8	2.0	3.0	2.0	1.2	0.7	0.7	0.5	0.3	0.4	1.4	3.7
25-Dec	0.4	0.3	0.3	0.3	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4
26-Dec	Z	0.1	0.4	0.2	0.2	0.2	0.3	0.7	2.5	1.0	2.5	0.9	0.6	0.5	0.5	0.8	1.7	2.3	2.5	1.5	1.0	1.8	1.7	1.0	1.1	2.5
27-Dec	0.9	Z	1.9	1.6	2.4	3.0	3.0	1.3	1.2	1.1	1.2	1.8	3.2	3.1	2.1	1.5	0.7	1.3	1.8	1.6	2.1	1.6	2.0	2.8	1.9	3.2
28-Dec	1.4	1.0	Z	0.4	0.4	0.3	0.3	0.4	1.3	1.2	1.0	0.5	0.4	0.6	0.5	0.4	0.4	0.3	0.1	0.1	0.2	0.1	0.1	0.0	0.5	1.4
29-Dec	0.0	0.1	0.1	Z	0.1	0.1	0.3	0.4	0.5	0.3	0.7	1.1	1.1	0.4	0.5	0.7	0.6	0.3	0.3	0.3	0.4	0.6	1.3	0.5	0.5	1.3
30-Dec	0.1	0.0	0.0	0.2	Z	0.0	0.0	0.0	0.4	0.0	0.4	0.0	0.0	0.4	0.0	0.7	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.7
31-Dec	0.1	0.1	0.1	0.2	0.1	Z	0.1	0.2	0.1	0.2	0.2	0.3	0.1	0.2	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.4
1.1 1.4 1.6 1.2 0.9 1.0 0.9 1.2 1.2 0.8 0.9 0.8 1.7 1.9 1.7 1.6 1.4 1.3 1.1 1.0 1.6 2.1 2.0 1.7																								Diurnal Average		
9.9 10.9 22.1 14.8 9.3 8.1 8.5 12.2 10.4 4.1 3.7 3.3 22.4 20.8 9.4 10.3 8.2 9.8 6.2 4.7 17.5 32.3 34.5 29.0																								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
Fort Hills - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort Hills - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	697	98.45	98.45
11 - 20	5	0.71	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: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Fort Hills - December 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	94	33	9	7	8	15	78	142	126	56	11	18	17	21	22	34	691
11 - 20	1	0	0	0	0	1	0	0	2	0	1	0	0	0	0	0	5
21 - 60	0	0	0	0	0	1	2	2	1	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	95	33	9	7	8	17	80	144	129	56	12	18	17	21	22	34	702

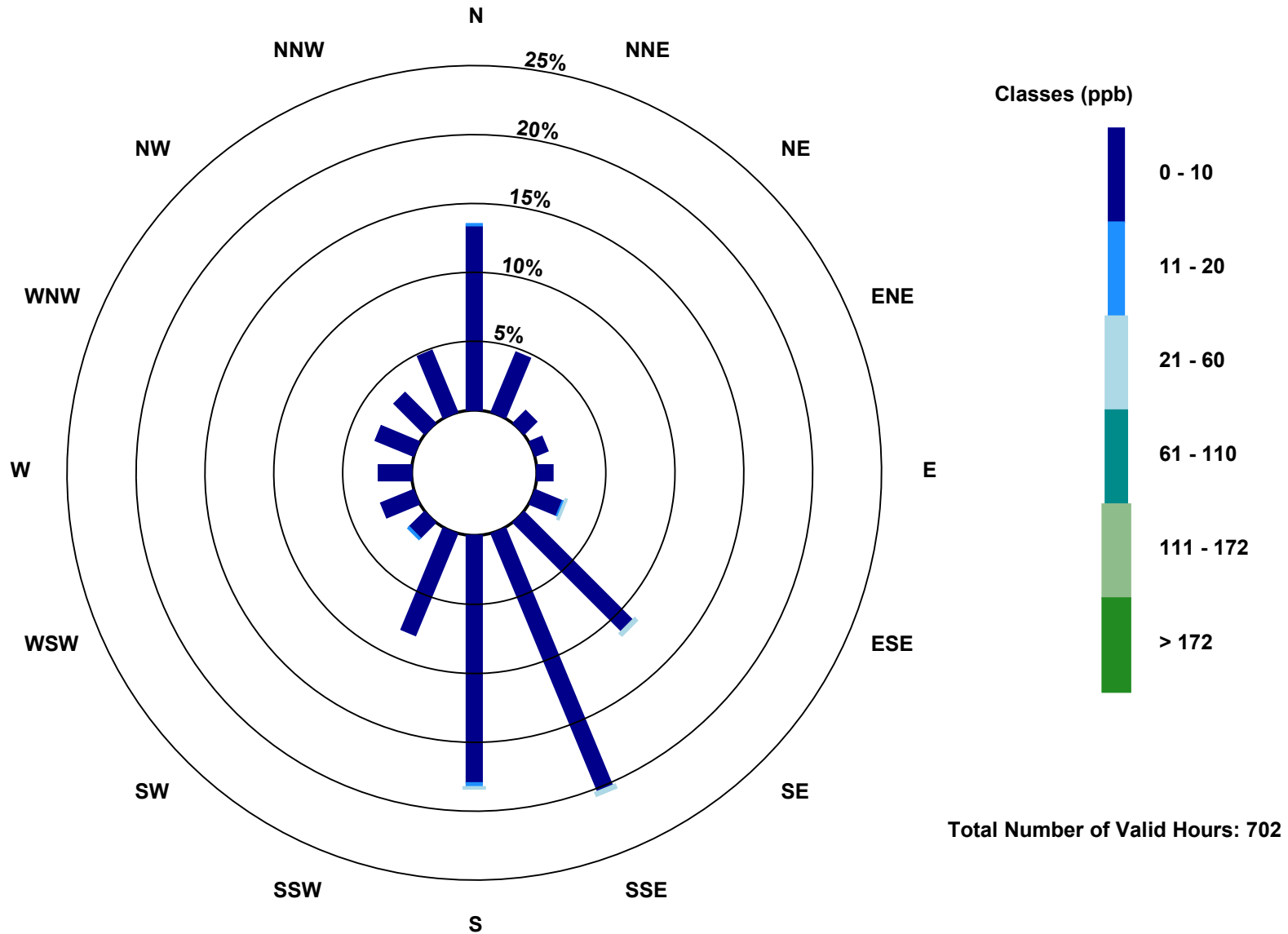
Total Number of Valid Hours: 702

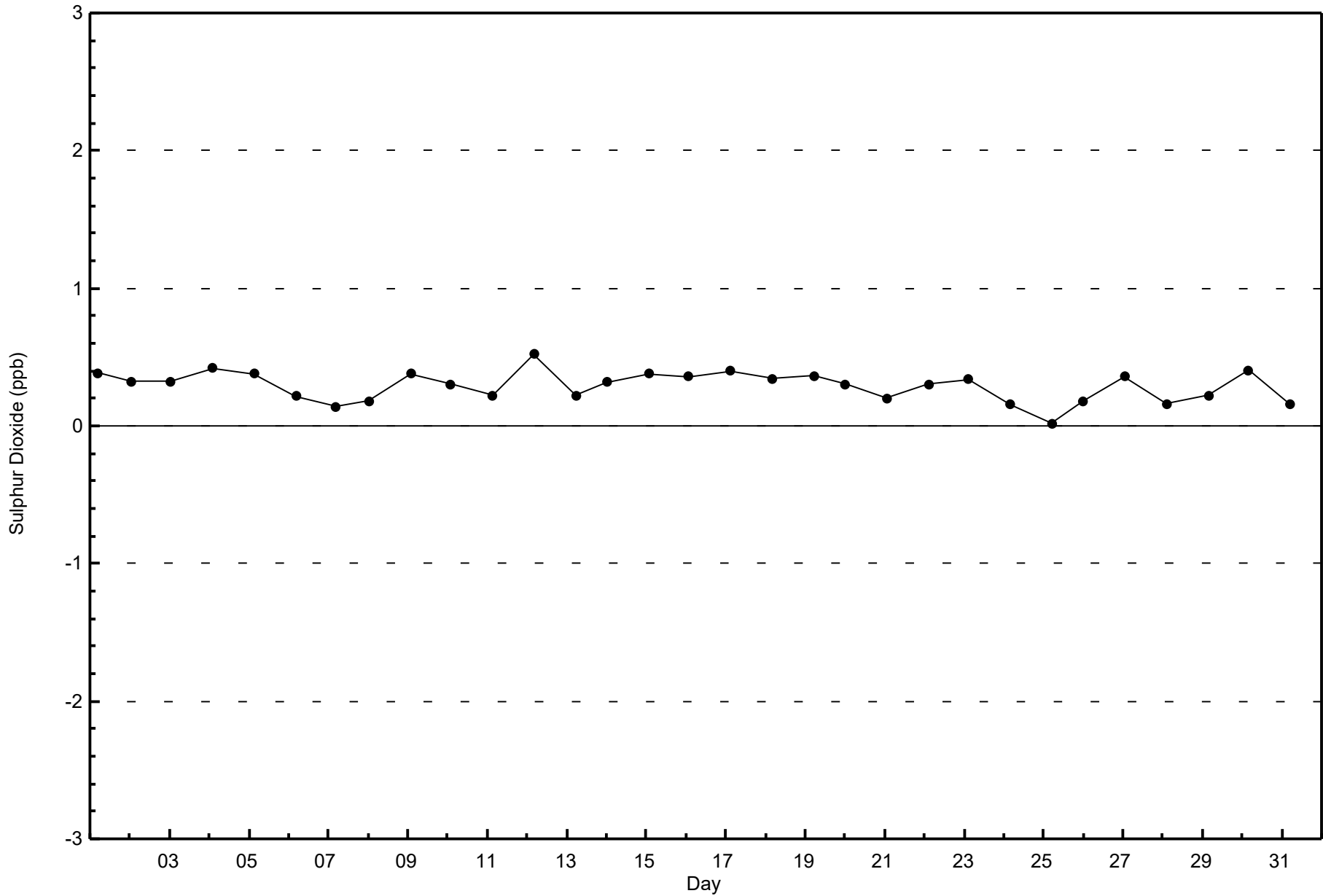
Total Number of Hours: 744

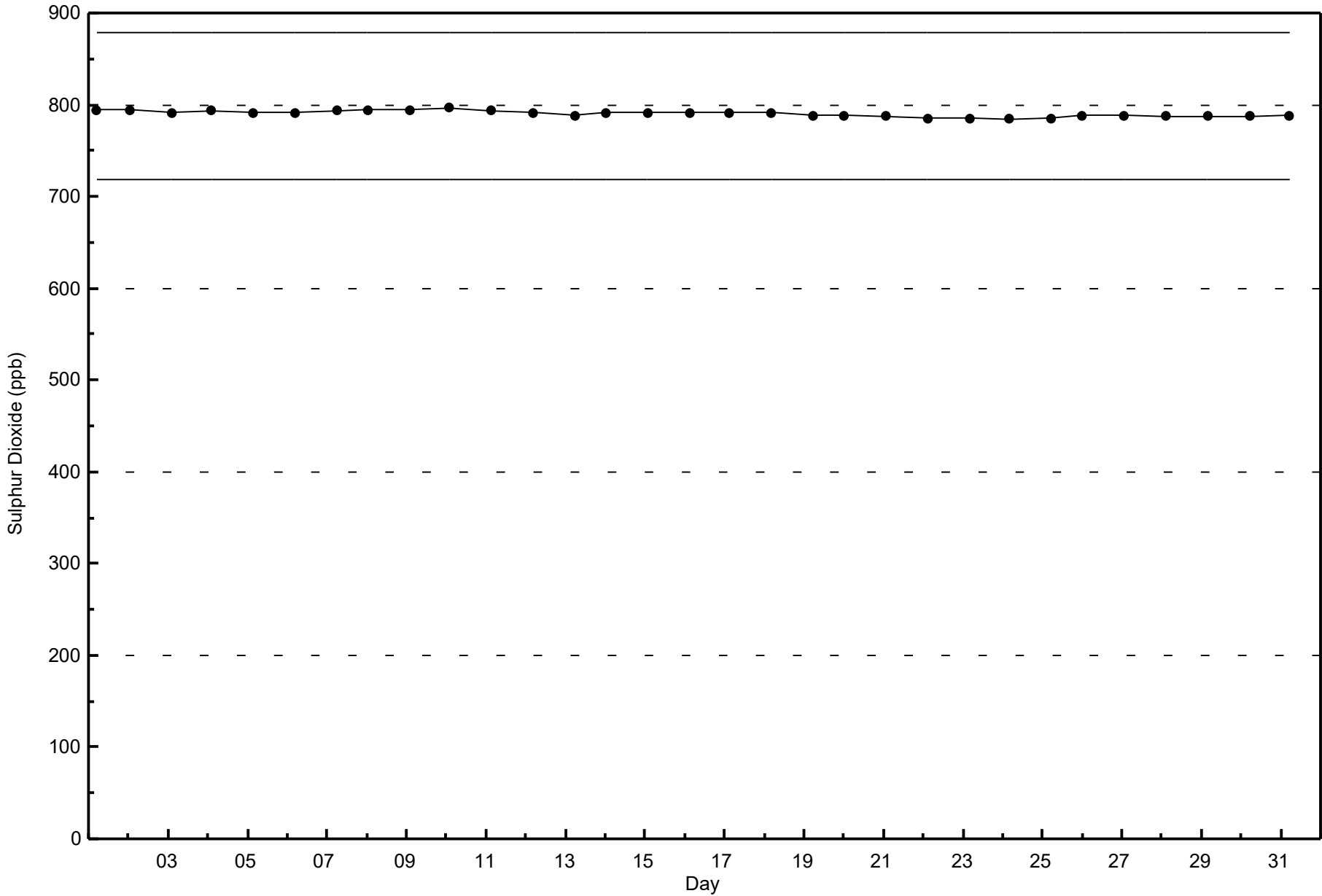


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Fort Hills

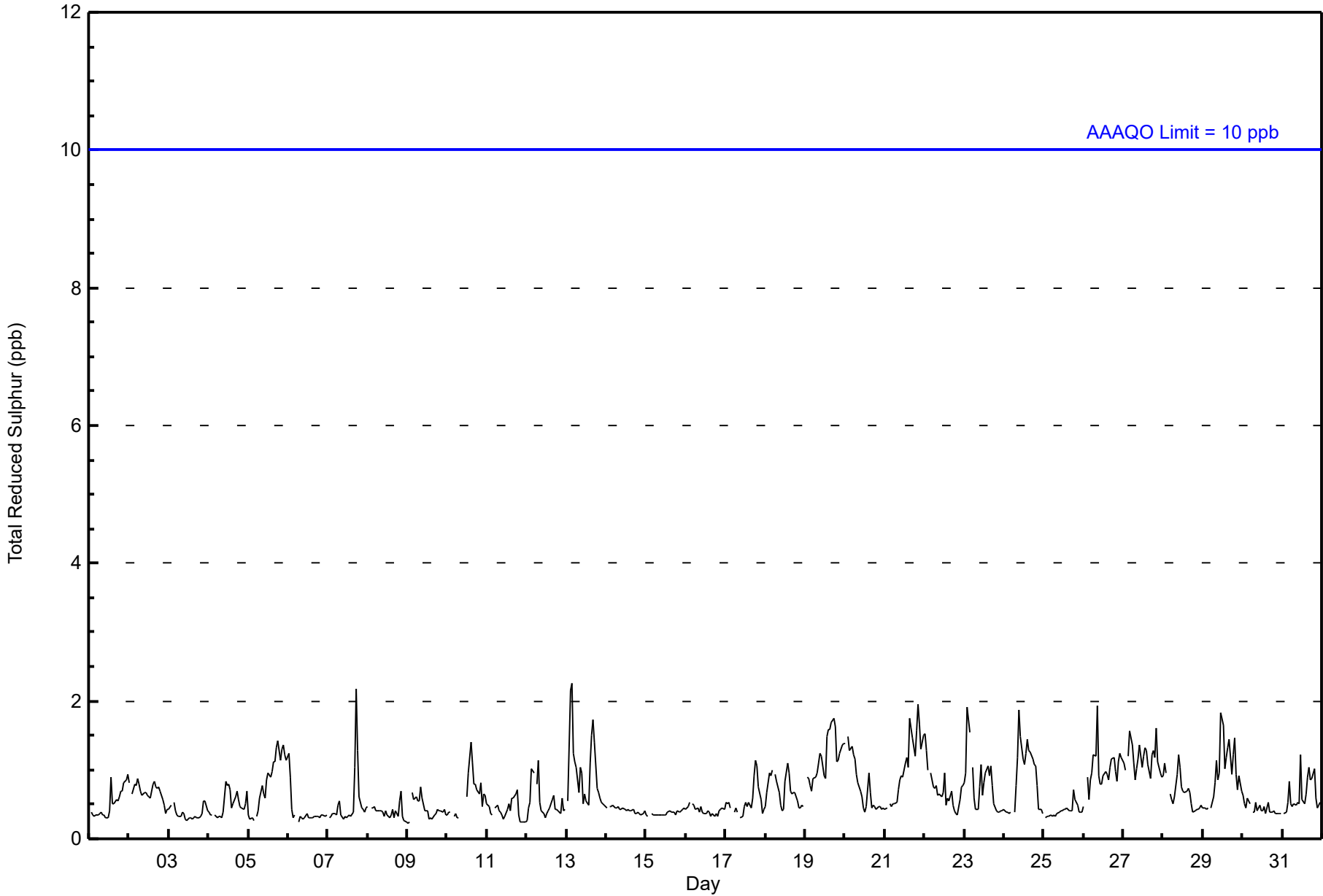








Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 2.2 ppb on Dec 13 04:00 Maximum Daily Average: 1.2 ppb on Dec 19																		Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 35 Percent Operational Time: 99.9								
Minimum Value: 0.2 ppb on Dec 9 01:00 Minimum Daily Average: 0.4 ppb on Dec 3 Maximum Diurnal Average: 0.8 ppb at hour 18 Minimum Diurnal Average: 0.6 ppb at hour 2 Monthly Average: 0.66 ppb Percentiles: P ₁ = 0.3 P ₁₀ = 0.3 Q ₁ = 0.4 Median = 0.5 Q ₃ = 0.9 P ₉₀ = 1.2 P ₉₉ = 1.8																										
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-Dec	Z	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.9	0.5	0.5	0.6	0.5	0.6	0.7	0.7	0.8	0.9	0.9	0.5	0.9
2-Dec	0.8	Z	0.7	0.8	0.8	0.9	0.8	0.7	0.6	0.7	0.7	0.6	0.6	0.6	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.5	0.4	0.4	0.7	0.9
3-Dec	0.4	0.5	Z	0.5	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.5
4-Dec	0.4	0.3	0.4	Z	0.3	0.3	0.3	0.3	0.3	0.4	0.8	0.8	0.7	0.4	0.5	0.6	0.7	0.6	0.5	0.4	0.4	0.5	0.7	0.5	0.8	0.5
5-Dec	0.3	0.3	0.3	0.3	Z	0.3	0.4	0.6	0.8	0.6	0.6	0.9	1.0	0.9	1.0	1.1	1.1	1.3	1.4	1.1	1.3	1.4	1.2	1.1	0.8	1.4
6-Dec	1.2	0.9	0.4	0.3	0.3	Z	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	1.2
7-Dec	Z	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.4	0.3	0.4	1.0	2.2	1.3	0.6	0.4	0.4	0.4	0.4	0.5	2.2
8-Dec	0.5	Z	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.3	0.5	0.7	0.3	0.3	0.2	0.4	0.7
9-Dec	0.2	0.2	Z	0.7	0.6	0.6	0.6	0.5	0.8	0.6	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.8
10-Dec	0.3	0.4	0.4	Z	0.3	0.4	0.3	0.3	C	C	C	C	0.6	1.0	1.4	1.1	0.8	0.8	0.7	0.7	0.8	0.5	0.7	0.6	0.6	1.4
11-Dec	0.5	0.5	0.4	0.4	Z	0.4	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.4	0.6	0.6	0.7	0.7	0.3	0.2	0.3	0.2	0.2	0.4	0.7
12-Dec	0.3	0.4	0.5	1.0	0.9	Z	0.8	1.1	0.5	0.4	0.4	0.3	0.4	0.4	0.4	0.6	0.6	0.4	0.4	0.4	0.4	0.6	0.4	0.4	0.5	1.1
13-Dec	Z	0.6	2.2	2.2	1.2	1.1	1.0	0.7	1.0	1.0	0.5	0.7	0.5	0.5	1.1	1.5	1.7	1.4	0.7	0.7	0.6	0.5	0.5	0.5	1.0	2.2
14-Dec	0.4	Z	0.5	0.5	0.5	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	0.3	0.4	0.4	0.4	0.5
15-Dec	0.4	0.3	Z	0.4	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.5
16-Dec	0.4	0.5	0.5	Z	0.5	0.5	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5
17-Dec	0.5	0.5	0.5	0.4	Z	0.4	0.4	0.4	M	0.3	0.3	0.5	0.5	0.5	0.5	0.4	0.6	0.9	1.1	1.1	0.7	0.6	0.4	0.4	0.5	1.1
18-Dec	0.5	0.7	1.0	0.9	1.0	Z	0.9	0.8	0.7	0.5	0.4	0.4	0.8	1.1	1.0	0.7	0.7	0.7	0.7	0.5	0.4	0.4	0.5	0.5	0.7	1.1
19-Dec	Z	0.9	0.9	0.8	0.7	0.9	0.9	1.0	1.1	1.2	1.2	0.9	0.9	1.5	1.6	1.6	1.7	1.7	1.6	1.1	1.1	1.2	1.4	1.4	1.2	1.7
20-Dec	1.4	Z	1.5	1.3	1.3	1.2	1.2	0.9	0.8	0.7	0.6	0.5	0.4	0.5	1.0	0.7	0.5	0.5	0.5	0.4	0.5	0.5	0.4	0.4	0.8	1.5
21-Dec	0.4	0.5	Z	0.5	0.5	0.5	0.5	0.5	0.7	0.9	0.9	0.9	1.1	1.2	1.0	1.7	1.6	1.5	1.2	1.6	1.9	1.7	1.3	1.5	1.0	1.9
22-Dec	1.5	1.3	1.0	Z	1.0	0.7	0.7	0.8	0.6	0.6	0.6	0.6	0.7	0.9	0.5	0.6	0.5	0.7	0.5	0.4	0.4	0.4	0.6	0.8	0.8	1.5
23-Dec	0.8	1.0	1.9	1.6	Z	1.0	0.6	0.4	0.4	0.7	1.1	0.6	0.8	1.0	1.1	0.9	1.1	0.8	0.5	0.4	0.4	0.4	0.4	0.4	0.8	1.9
24-Dec	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.8	1.2	1.9	1.5	1.2	1.1	1.2	1.4	1.3	1.3	1.2	1.1	1.1	0.8	0.4	0.4	0.4	0.9	1.9
25-Dec	Z	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.6	0.5	0.4	0.4	0.4	0.7
26-Dec	0.5	Z	0.9	0.6	0.9	1.0	1.2	1.2	1.9	0.9	0.8	0.8	0.9	1.0	0.9	0.8	1.0	1.2	1.2	1.0	0.8	1.1	1.2	1.2	1.0	1.9
27-Dec	1.1	1.0	Z	1.2	1.6	1.4	1.1	0.9	1.0	1.2	1.4	1.0	1.2	1.3	1.3	1.1	0.9	1.2	1.3	1.2	1.6	1.1	1.0	0.9	1.2	1.6
28-Dec	0.9	1.1	1.0	Z	0.6	0.6	0.5	0.6	0.9	1.2	1.0	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.5	0.7	1.2
29-Dec	0.5	0.5	0.4	0.5	Z	0.5	0.6	0.8	1.1	0.9	1.0	1.8	1.6	1.0	1.2	1.3	1.4	0.9	1.2	1.5	0.9	0.7	0.9	0.7	1.0	1.8
30-Dec	0.6	0.5	0.4	0.6	0.5	Z	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.5	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6
31-Dec	Z	0.4	0.4	0.5	0.8	0.5	0.5	0.5	0.5	0.5	0.5	1.2	0.6	0.5	0.7	0.9	1.0	0.9	0.9	1.0	0.6	0.4	0.5	0.5	0.6	1.2
																								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

Total Reduced Sulphur (TRS) - ppb
Fort Hills - December 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 - December 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	93	35	10	7	8	18	75	147	131	57	11	18	17	23	20	32	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	93	35	10	7	8	18	75	147	131	57	11	18	17	23	20	32	702

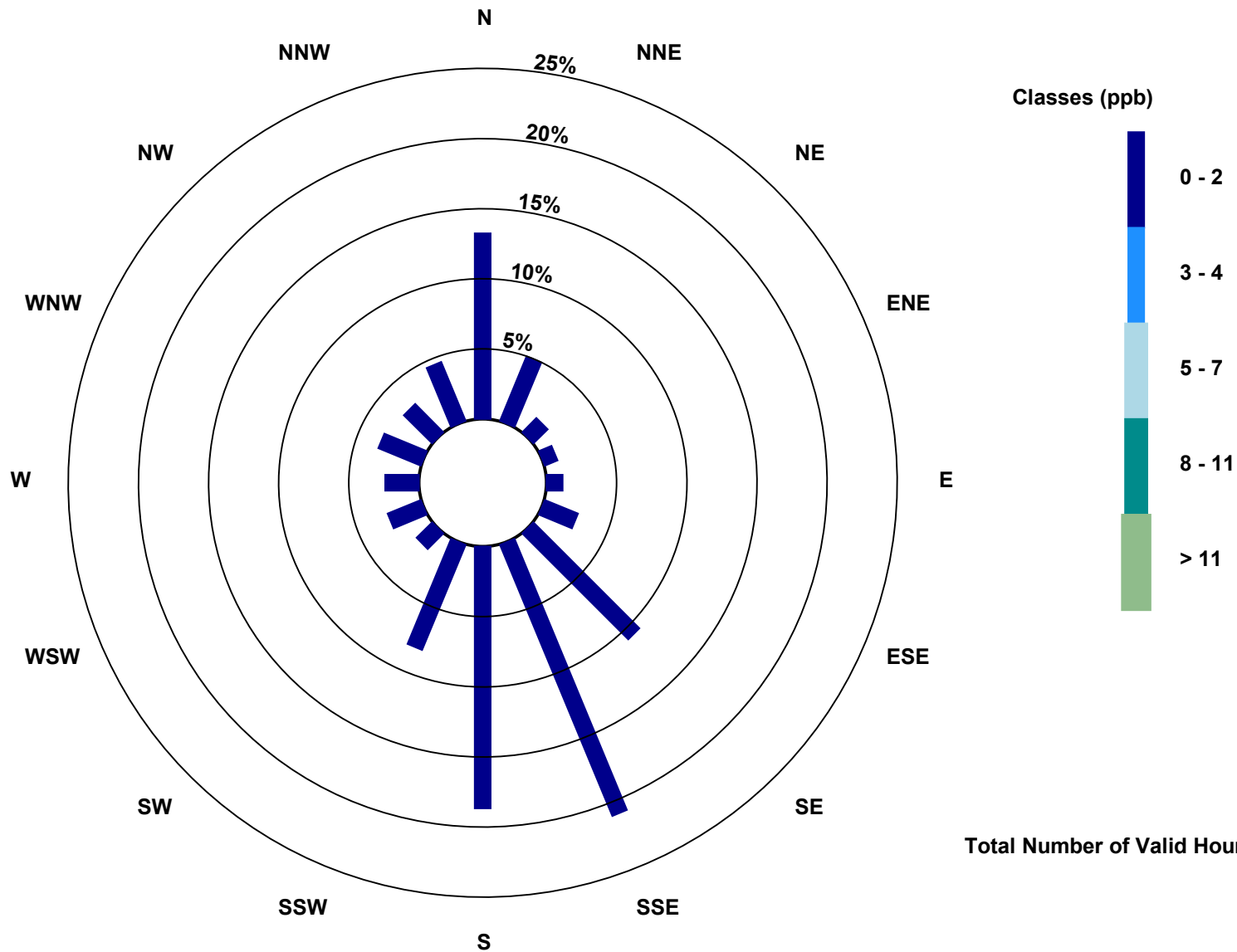
Total Number of Valid Hours: 702

Total Number of Hours: 744

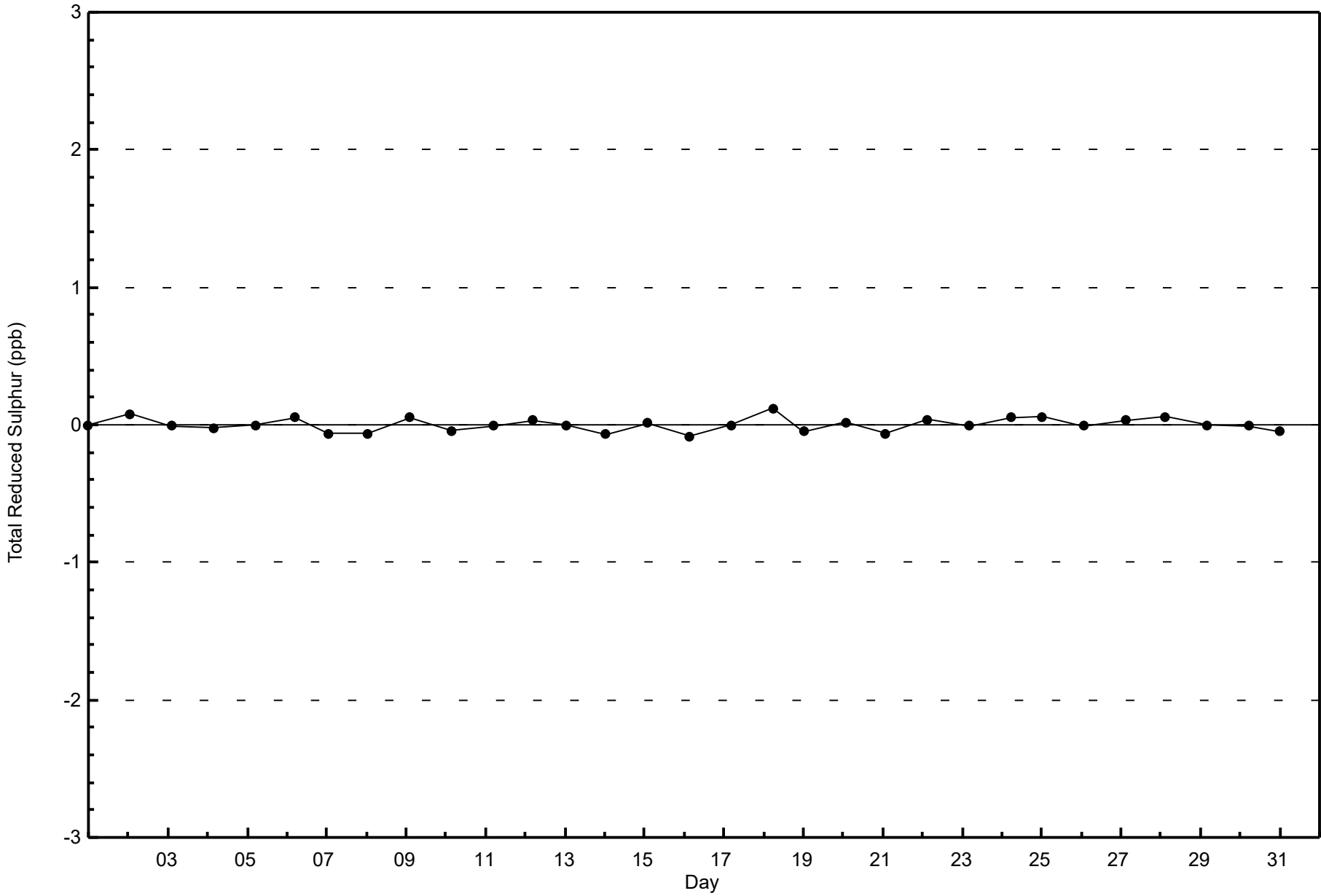


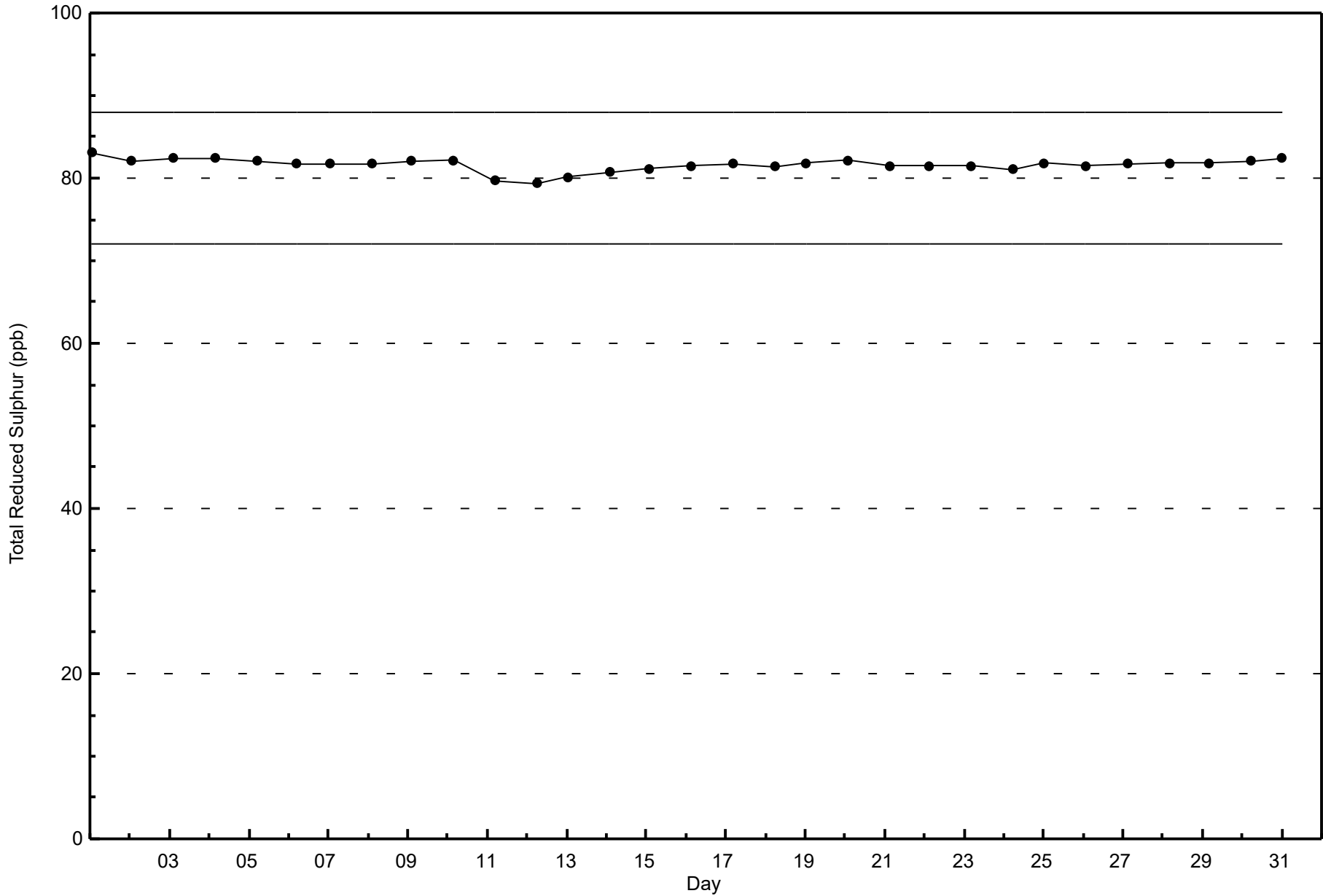
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Fort Hills



Total Number of Valid Hours: 702







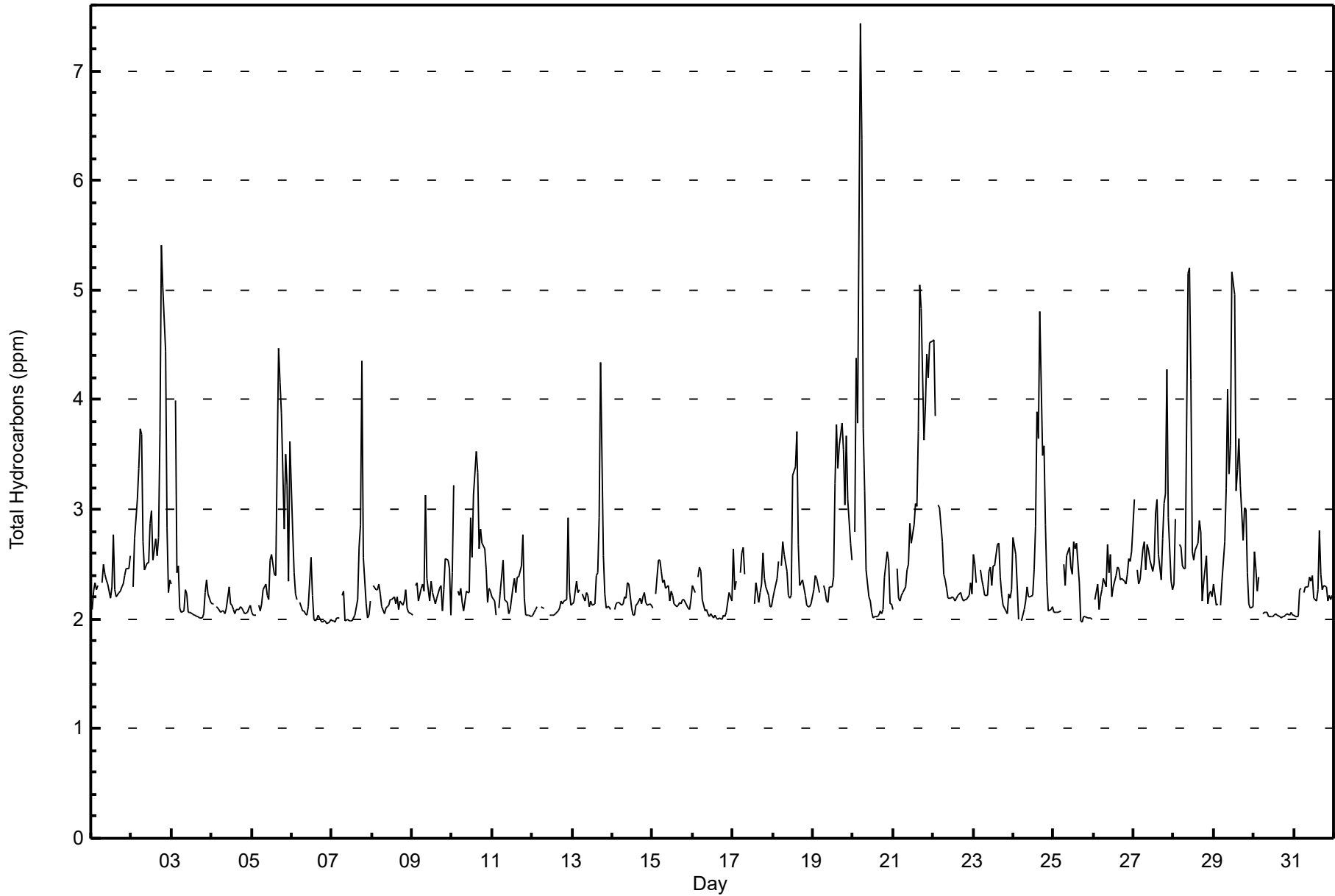
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Fort Hills - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																								
Maximum Value: 7.4 ppm on Dec 20 05:00		Maximum Daily Average: 3.2 ppm on Dec 21				Hours of Data:		706																																								
Minimum Value: 2.0 ppm on Dec 6 22:00		Minimum Daily Average: 2.1 ppm on Dec 4				Hours of Missing Data:		38																																								
Maximum Diurnal Average: 2.6 ppm at hour 19		Minimum Diurnal Average: 2.3 ppm at hour 23				Hours of Calibration:		36																																								
Monthly Average: 2.45 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.3 Q ₃ = 2.5 P ₉₀ = 3.1 P ₉₉ = 5.0				Percent Operational Time:		99.7																																								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	2.1	2.2	2.3	2.3	2.3	Z	2.3	2.5	2.4	2.4	2.3	2.2	2.3	2.8	2.3	2.2	2.2	2.3	2.3	2.3	2.4	2.5	2.5	2.6	2.3	2.8																						
2-Dec	Z	2.3	2.7	3.1	3.4	3.7	3.7	2.7	2.5	2.5	2.5	2.9	3.0	2.5	2.7	2.6	2.7	3.7	5.4	5.0	4.4	2.8	2.2	2.4	3.1	5.4																						
3-Dec	2.3	Z	4.0	2.4	2.5	2.1	2.1	2.1	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.2	2.2	2.2	2.2	4.0																						
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.3	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.3																						
5-Dec	2.1	2.0	2.0	Z	2.1	2.1	2.1	2.3	2.3	2.2	2.2	2.5	2.6	2.4	2.4	3.5	4.5	4.2	3.9	2.8	3.5	3.2	2.4	3.6	2.7	4.5																						
6-Dec	2.8	2.4	2.2	2.2	Z	2.2	2.1	2.1	2.0	2.0	2.1	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.8																						
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.2	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.7	2.9	4.4	2.6	2.1	2.0	2.0	2.2	2.2	4.4																						
8-Dec	Z	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.3	2.1	2.1	2.0	2.2	2.3																						
9-Dec	2.0	Z	2.3	2.3	2.2	2.3	2.3	2.3	3.1	2.4	2.2	2.3	2.2	2.2	2.1	2.2	2.3	2.3	2.1	2.3	2.6	2.5	2.5	2.0	2.3	3.1																						
10-Dec	2.4	3.2	Z	2.3	2.2	2.3	2.1	2.1	2.3	2.2	2.2	2.9	2.6	3.1	3.5	3.3	2.6	2.8	2.7	2.6	2.4	2.2	2.3	2.3	2.6	3.5																						
11-Dec	2.2	2.2	2.0	Z	2.1	2.3	2.5	2.2	2.2	2.2	2.1	2.1	2.3	2.4	2.2	2.4	2.4	2.5	2.8	2.2	2.0	2.0	2.0	2.0	2.2	2.8																						
12-Dec	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.1	M	M	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.2	2.9	2.2	2.1	2.1	2.9																						
13-Dec	2.1	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	2.4	2.4	2.9	4.3	2.6	2.2	2.1	2.1	2.1	2.1	2.3	4.3																						
14-Dec	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3																						
15-Dec	2.1	Z	2.2	2.5	2.5	2.4	2.3	2.4	2.3	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.5																						
16-Dec	2.3	2.2	Z	2.4	2.5	2.4	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.5																						
17-Dec	2.6	2.3	2.3	Z	2.4	2.6	2.7	2.4	C	C	C	C	C	2.1	2.3	2.2	2.2	2.3	2.6	2.4	2.3	2.2	2.1	2.1	2.3	2.7																						
18-Dec	2.2	2.3	2.4	2.5	Z	2.5	2.7	2.6	2.4	2.2	2.2	2.2	3.3	3.4	3.7	2.7	2.3	2.3	2.4	2.2	2.1	2.1	2.1	2.1	2.5	3.7																						
19-Dec	2.3	2.4	2.4	2.3	2.2	Z	2.3	2.3	2.2	2.2	2.3	2.3	2.4	3.2	3.8	3.4	3.6	3.8	3.5	3.0	3.7	3.1	2.7	2.5	2.8	3.8																						
20-Dec	Z	2.8	4.4	3.8	7.4	6.4	3.7	3.2	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.4	2.6	2.5	2.1	2.1	2.9	7.4																							
21-Dec	2.1	Z	2.5	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.9	2.7	2.9	3.1	3.0	3.7	5.1	4.8	3.6	3.9	4.4	4.2	4.5	4.5	3.2	5.1																						
22-Dec	4.5	3.9	Z	3.0	3.0	2.7	2.4	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.5	4.5																						
23-Dec	2.6	2.5	2.3	Z	2.5	2.4	2.3	2.2	2.2	2.4	2.5	2.3	2.5	2.5	2.7	2.7	2.4	2.2	2.1	2.1	2.0	2.2	2.2	2.3	2.3	2.7																						
24-Dec	2.7	2.6	2.3	2.0	Z	2.0	2.1	2.2	2.3	2.2	2.2	2.2	2.5	2.9	3.6	4.8	3.5	3.6	2.9	2.3	2.1	2.1	2.1	2.1	2.7	4.8																						
25-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.5	2.3	2.6	2.7	2.5	2.4	2.7	2.6	2.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.7																						
26-Dec	Z	2.2	2.3	2.1	2.2	2.3	2.4	2.3	2.7	2.4	2.6	2.2	2.3	2.4	2.5	2.5	2.4	2.4	2.3	2.3	2.4	2.6	2.5	2.6	2.4	2.7																						
27-Dec	3.1	Z	2.5	2.3	2.4	2.6	2.7	2.4	2.7	2.6	2.5	2.4	2.5	3.0	3.1	2.6	2.4	2.7	3.1	3.1	4.3	2.9	2.3	2.3	2.7	4.3																						
28-Dec	2.3	2.9	Z	2.7	2.6	2.5	2.5	2.5	5.2	5.2	4.2	2.6	2.5	2.6	2.7	2.9	2.8	2.2	2.3	2.6	2.1	2.2	2.3	2.2	2.8	5.2																						
29-Dec	2.3	2.1	2.1	Z	2.1	2.3	2.7	3.2	4.1	3.3	3.6	5.2	5.0	3.2	3.4	3.6	3.2	2.7	3.0	3.0	2.4	2.1	2.1	2.1	3.0	5.2																						
30-Dec	2.6	2.5	2.3	2.4	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.6																						
31-Dec	2.0	2.0	2.0	2.3	2.3	Z	2.2	2.3	2.3	2.4	2.3	2.4	2.2	2.2	2.3	2.8	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.8																						
																								2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.3	2.5	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.5	2.5	2.4	2.3	2.3	Diurnal Average
																								4.5	3.9	4.4	3.8	7.4	6.4	3.7	3.2	5.2	5.2	4.2	5.2	5.0	3.4	3.9	3.7	5.1	4.8	5.4	5.0	4.4	4.2	4.5	4.5	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort Hills - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	100	14.16	14.16
2.1 - 3.0	531	75.21	89.38
3.1 - 10.0	75	10.62	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Fort Hills - December 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	6	0	0	0	0	0	0	22	23	14	0	3	9	14	5	4	100
2.1 - 3.0	82	32	7	6	4	12	69	110	95	35	11	13	7	7	16	20	526
3.1 - 10.0	7	1	2	1	4	5	11	12	9	7	1	2	1	0	1	10	74
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	95	33	9	7	8	17	80	144	127	56	12	18	17	21	22	34	700

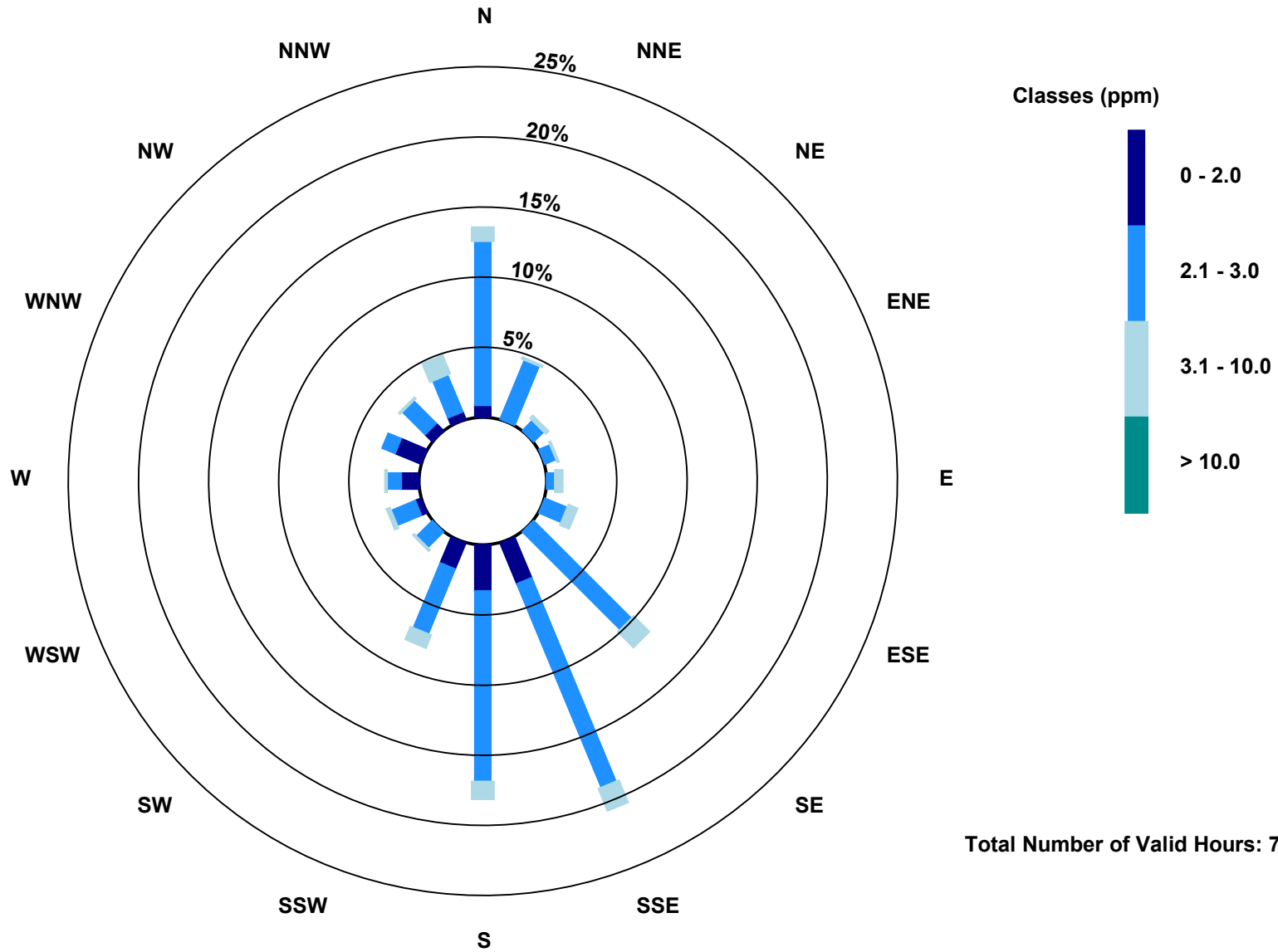
Total Number of Valid Hours: 700

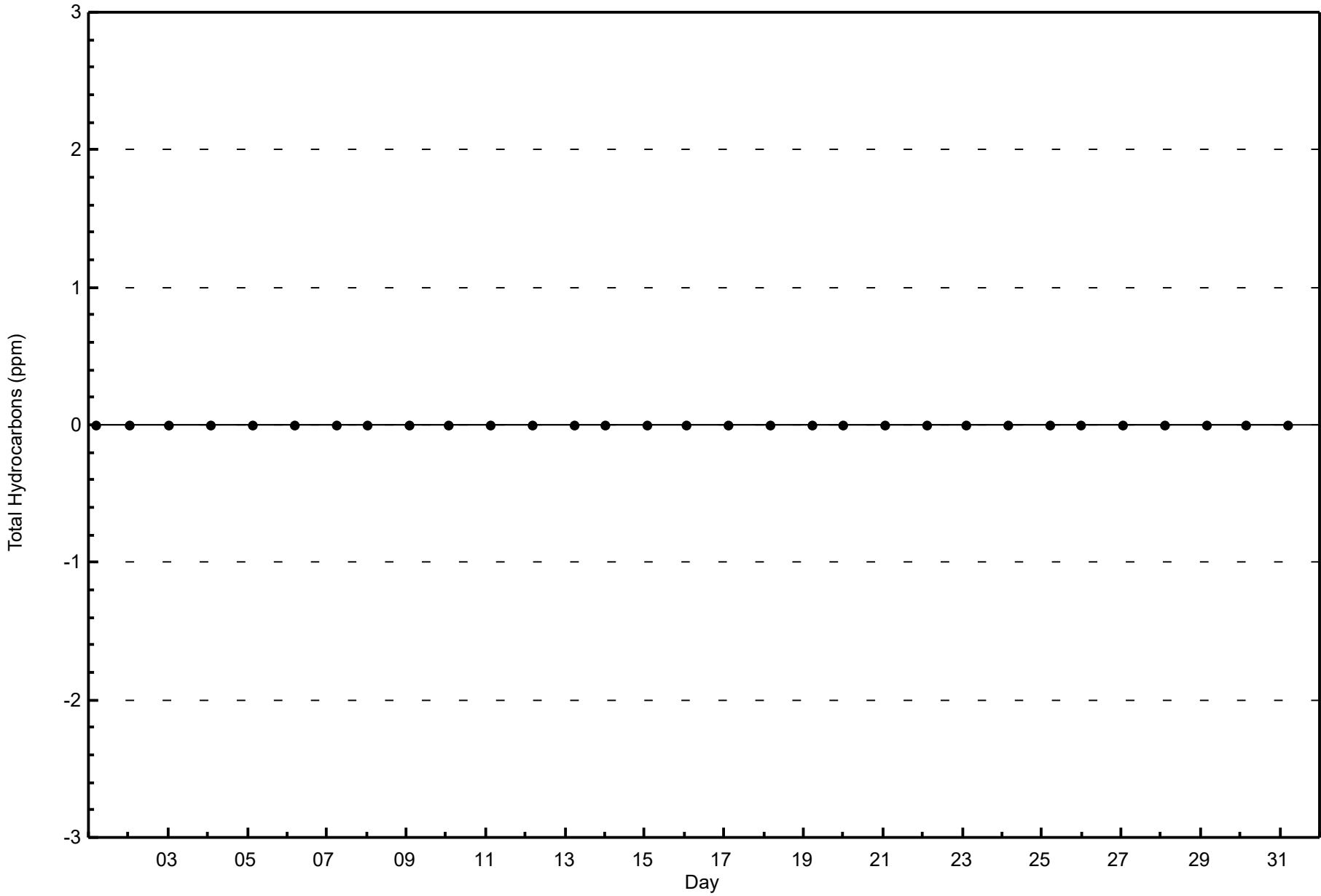
Total Number of Hours: 744

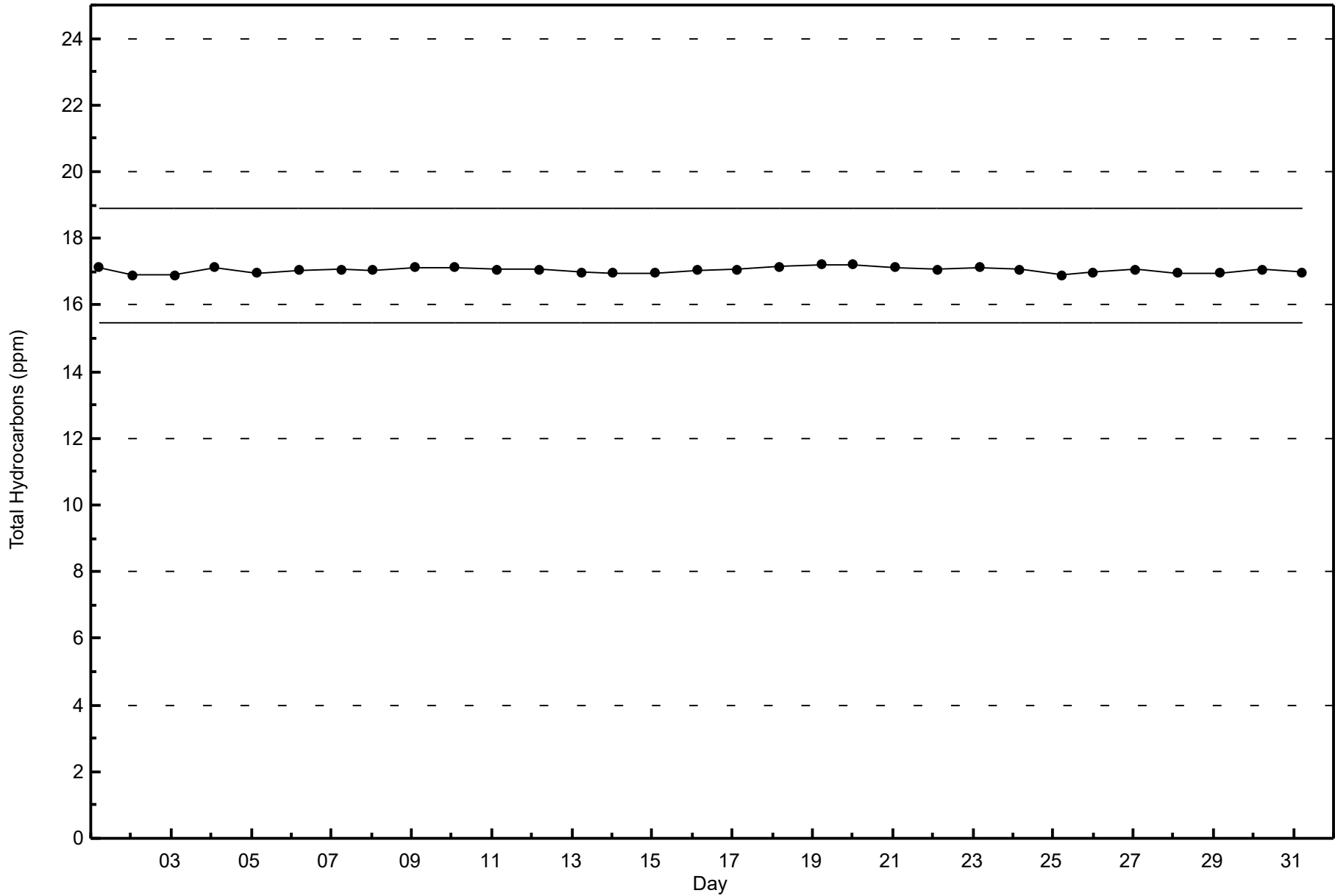


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Fort Hills





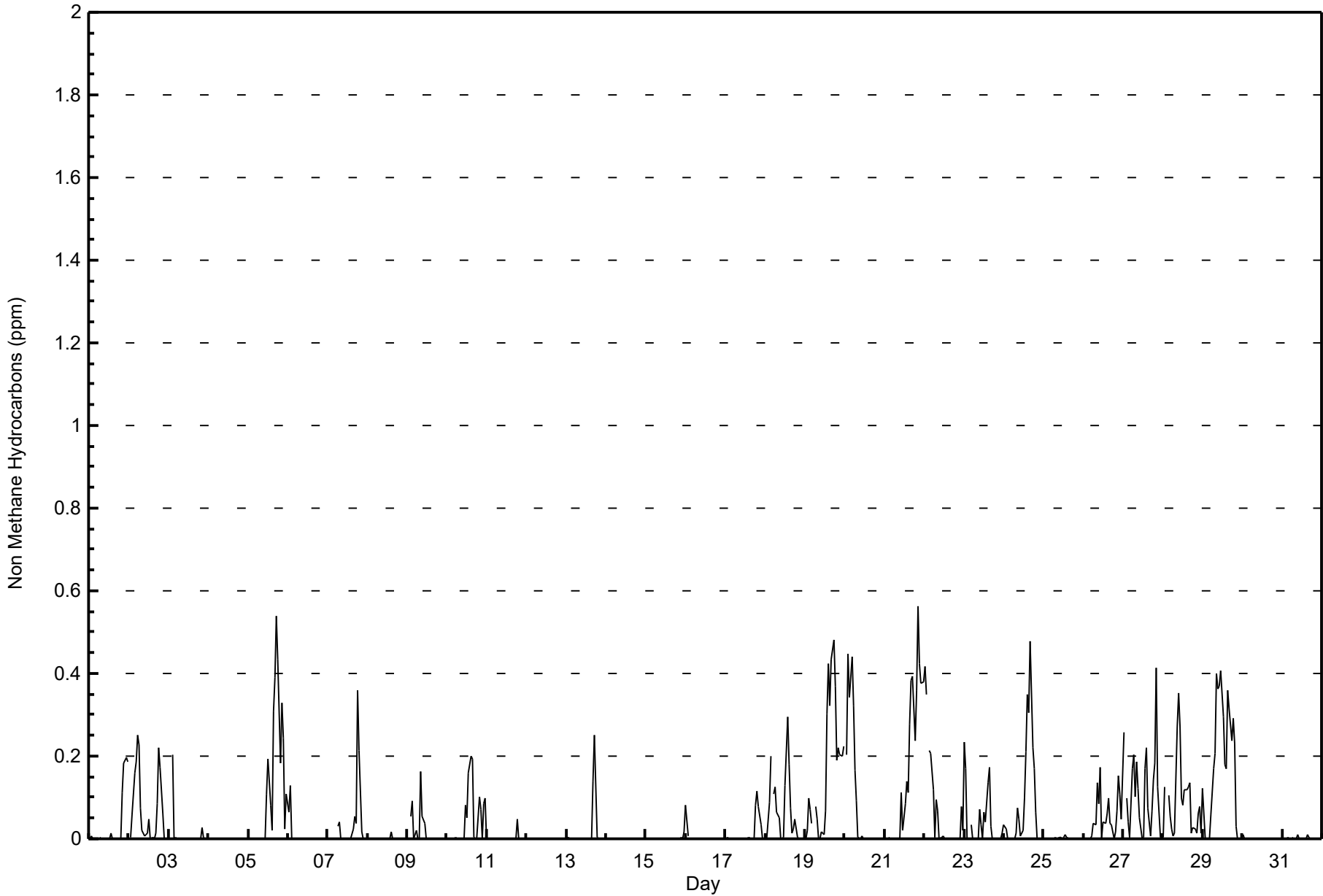




Summary of Hour Averages

Fort Hills - December 2024

Maximum Value: 0.563 ppm on Dec 21 21:00		Maximum Daily Average: 0.183 ppm on Dec 29		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Dec 1 01:00		Minimum Daily Average: 0.000 ppm on Dec 4		Hours of Data: 706																							
Maximum Diurnal Average: 0.079 ppm at hour 17		Minimum Diurnal Average: 0.026 ppm at hour 8		Hours of Missing Data: 38																							
Monthly Average: 0.049 ppm		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.0 P ₉₀ = 0.2 P ₉₉ = 0.4		Hours of Calibration: 36																							
				Percent Operational Time: 99.7																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.000	0.005	0.000	0.000	0.000	Z	0.003	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.112	0.184	0.196	0.186	0.030	0.196	
2-Dec	Z	0.002	0.056	0.159	0.188	0.252	0.226	0.074	0.022	0.007	0.009	0.012	0.047	0.000	0.004	0.000	0.013	0.084	0.220	0.173	0.060	0.000	0.000	0.000	0.070	0.252	
3-Dec	0.000	Z	0.204	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.003	0.000	0.000	0.010	0.204	
4-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.109	0.193	0.080	0.021	0.309	0.389	0.541	0.434	0.183	0.327	0.243	0.024	0.107	0.129	0.541	
6-Dec	0.066	0.130	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.130	
7-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.031	0.039	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.056	0.038	0.359	0.212	0.017	0.000	0.000	0.000	0.034	0.359	
8-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.017	
9-Dec	0.000	Z	0.054	0.091	0.000	0.020	0.000	0.000	0.163	0.054	0.036	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	0.018	0.163	
10-Dec	0.000	0.000	Z	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.081	0.051	0.160	0.201	0.195	0.004	0.000	0.000	0.102	0.072	0.000	0.084	0.100	0.046	0.201	
11-Dec	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	0.047	0.000	0.000	0.000	0.000	0.000	0.002	0.047	
12-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	M	M	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
13-Dec	0.000	0.004	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	0.138	0.251	0.002	0.000	0.000	0.000	0.000	0.000	0.017	0.251	
14-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	
15-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	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	0.018	0.001	0.018	
16-Dec	0.080	0.006	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.080	
17-Dec	0.000	0.002	0.000	Z	0.000	0.000	0.000	0.000	0.000	C	C	C	C	C	0.000	0.003	0.000	0.000	0.000	0.081	0.115	0.076	0.034	0.000	0.017	0.115	
18-Dec	0.000	0.000	0.087	0.202	Z	0.109	0.126	0.065	0.049	0.000	0.000	0.003	0.129	0.293	0.180	0.076	0.013	0.024	0.046	0.003	0.000	0.000	0.000	0.000	0.061	0.293	
19-Dec	0.000	0.020	0.099	0.072	0.037	Z	0.079	0.048	0.000	0.000	0.017	0.010	0.068	0.302	0.423	0.323	0.434	0.481	0.371	0.191	0.219	0.203	0.199	0.223	0.166	0.481	
20-Dec	Z	0.204	0.447	0.342	0.442	0.323	0.166	0.092	0.003	0.002	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.088	0.447	
21-Dec	0.000	Z	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.113	0.021	0.084	0.139	0.113	0.278	0.383	0.392	0.237	0.360	0.563	0.425	0.375	0.380	0.168	0.563	
22-Dec	0.419	0.349	Z	0.214	0.206	0.118	0.004	0.095	0.069	0.000	0.003	0.007	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.078	0.021	0.069	0.419	
23-Dec	0.234	0.171	0.000	Z	0.033	0.000	0.000	0.000	0.000	0.070	0.036	0.000	0.063	0.042	0.136	0.174	0.031	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.044	0.234	
24-Dec	0.035	0.025	0.000	0.000	Z	0.000	0.000	0.014	0.075	0.046	0.005	0.019	0.097	0.211	0.348	0.305	0.478	0.219	0.169	0.063	0.000	0.000	0.000	0.000	0.092	0.478	
25-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.004	0.000	0.003	0.002	0.000	0.003	0.009	0.003	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.009	
26-Dec	Z	0.000	0.002	0.000	0.002	0.008	0.039	0.035	0.137	0.085	0.172	0.001	0.040	0.036	0.060	0.097	0.039	0.033	0.000	0.017	0.068	0.152	0.108	0.047	0.051	0.172	
27-Dec	0.257	Z	0.098	0.040	0.005	0.171	0.205	0.102	0.185	0.121	0.049	0.000	0.004	0.168	0.219	0.075	0.007	0.069	0.143	0.182	0.412	0.124	0.004	0.000	0.115	0.412	
28-Dec	0.003	0.125	Z	0.105	0.053	0.022	0.005	0.015	0.272	0.354	0.271	0.099	0.081	0.118	0.120	0.126	0.135	0.015	0.028	0.025	0.014	0.060	0.079	0.014	0.093	0.354	
29-Dec	0.123	0.000	0.000	Z	0.000	0.058	0.171	0.207	0.402	0.362	0.369	0.407	0.295	0.179	0.171	0.358	0.316	0.236	0.290	0.230	0.032	0.000	0.000	0.000	0.183	0.407	
30-Dec	0.010	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	0.010	
31-Dec	0.000	0.000	0.000	0.004	0.000	Z	0.004	0.000	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.011	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.012	
		0.047	0.040	0.040	0.047	0.037	0.043	0.034	0.026	0.047	0.038	0.036	0.026	0.038	0.057	0.065	0.076	0.079	0.077	0.078	0.060	0.064	0.046	0.037	0.036	Diurnal Average	
		0.419	0.349	0.447	0.342	0.442	0.323	0.226	0.207	0.402	0.362	0.369	0.407	0.295	0.302	0.423	0.358	0.478	0.541	0.434	0.360	0.563	0.425	0.375	0.380	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills - December 2024**

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	467	66.15	66.15
0.006 - 0.05	73	10.34	76.49
0.06 - 0.1	72	10.20	86.69
> 0.1	94	13.31	100.00

Total Number of Valid Hours: 706
Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills - December 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	80	19	4	5	1	6	37	86	100	41	7	13	14	17	17	15	462
0.006 - 0.05	6	6	2	0	0	3	15	16	6	7	3	1	0	2	1	5	73
0.06 - 0.1	2	6	2	1	1	2	13	21	10	4	0	1	1	1	3	4	72
> 0.1	7	2	1	1	6	6	15	21	11	4	2	3	2	1	1	10	93
Totals	95	33	9	7	8	17	80	144	127	56	12	18	17	21	22	34	700

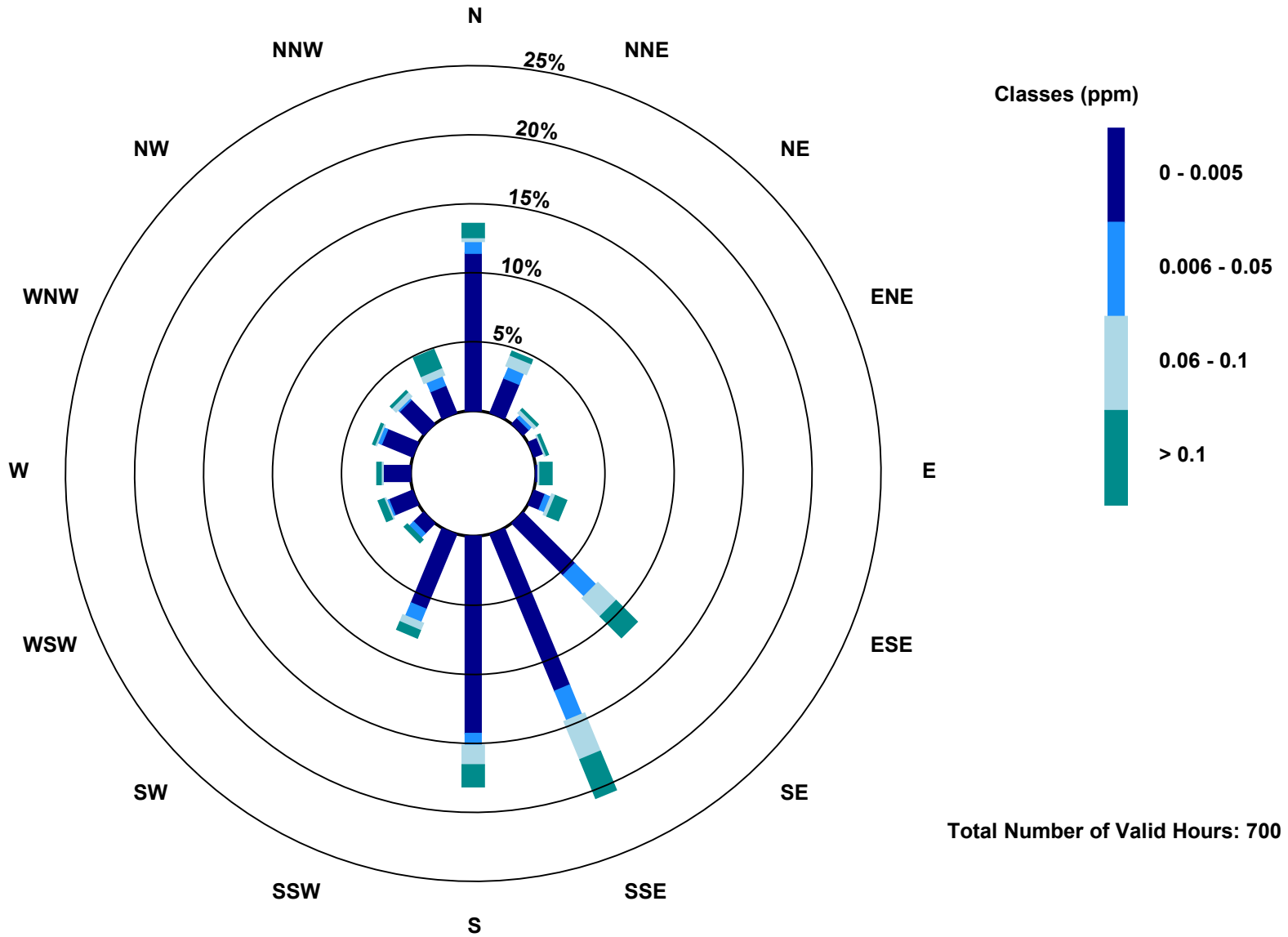
Total Number of Valid Hours: 700

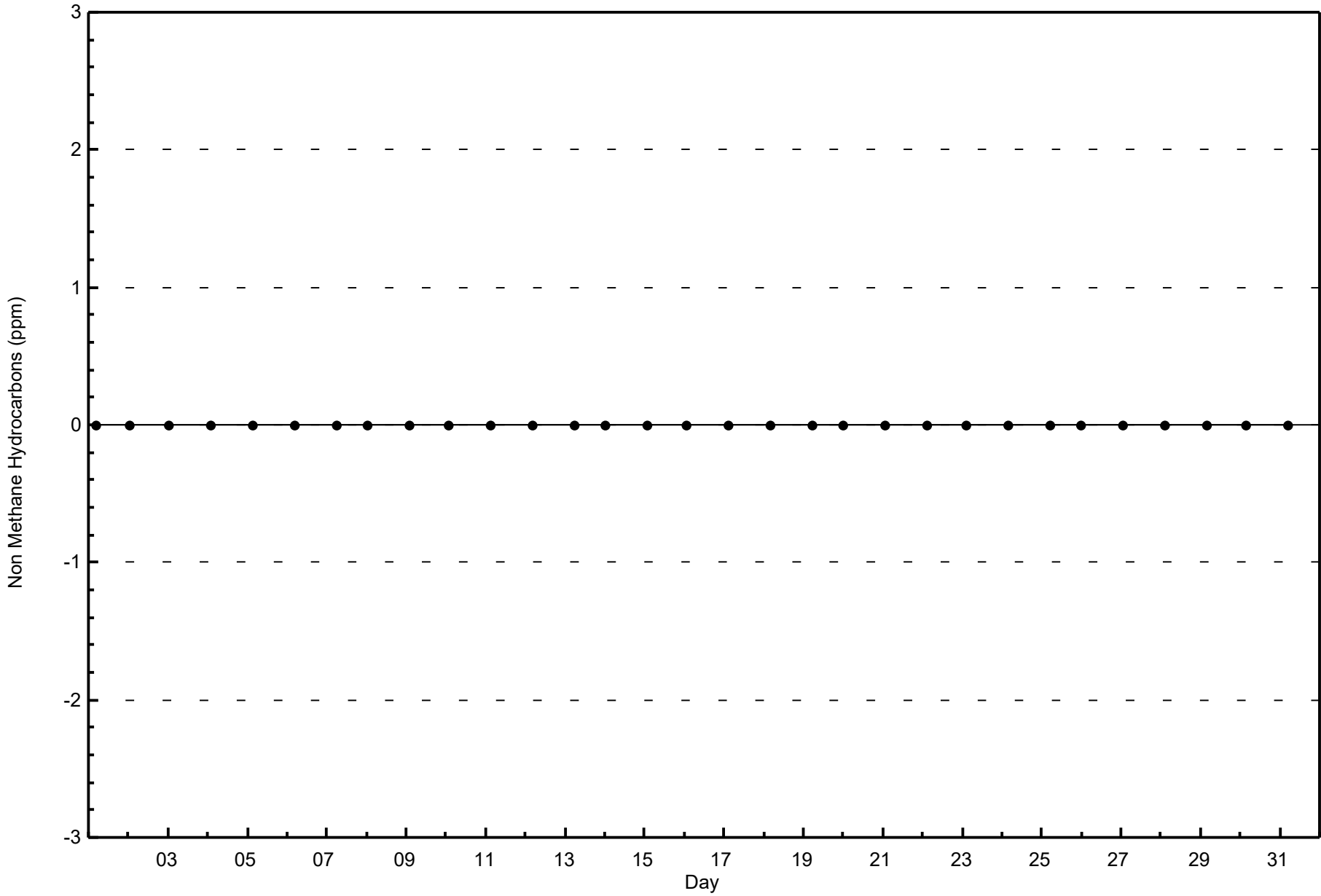
Total Number of Hours: 744

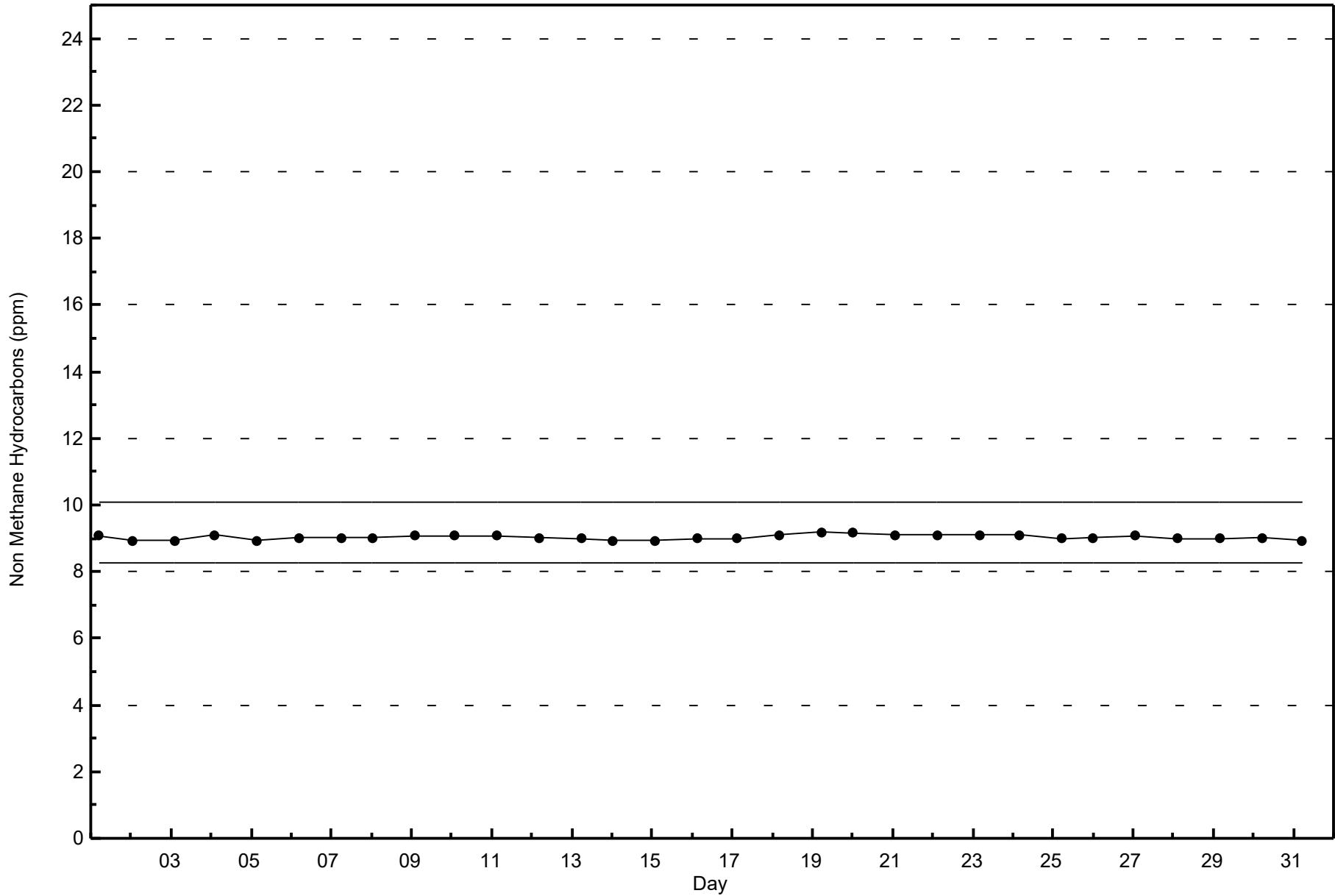


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Fort Hills



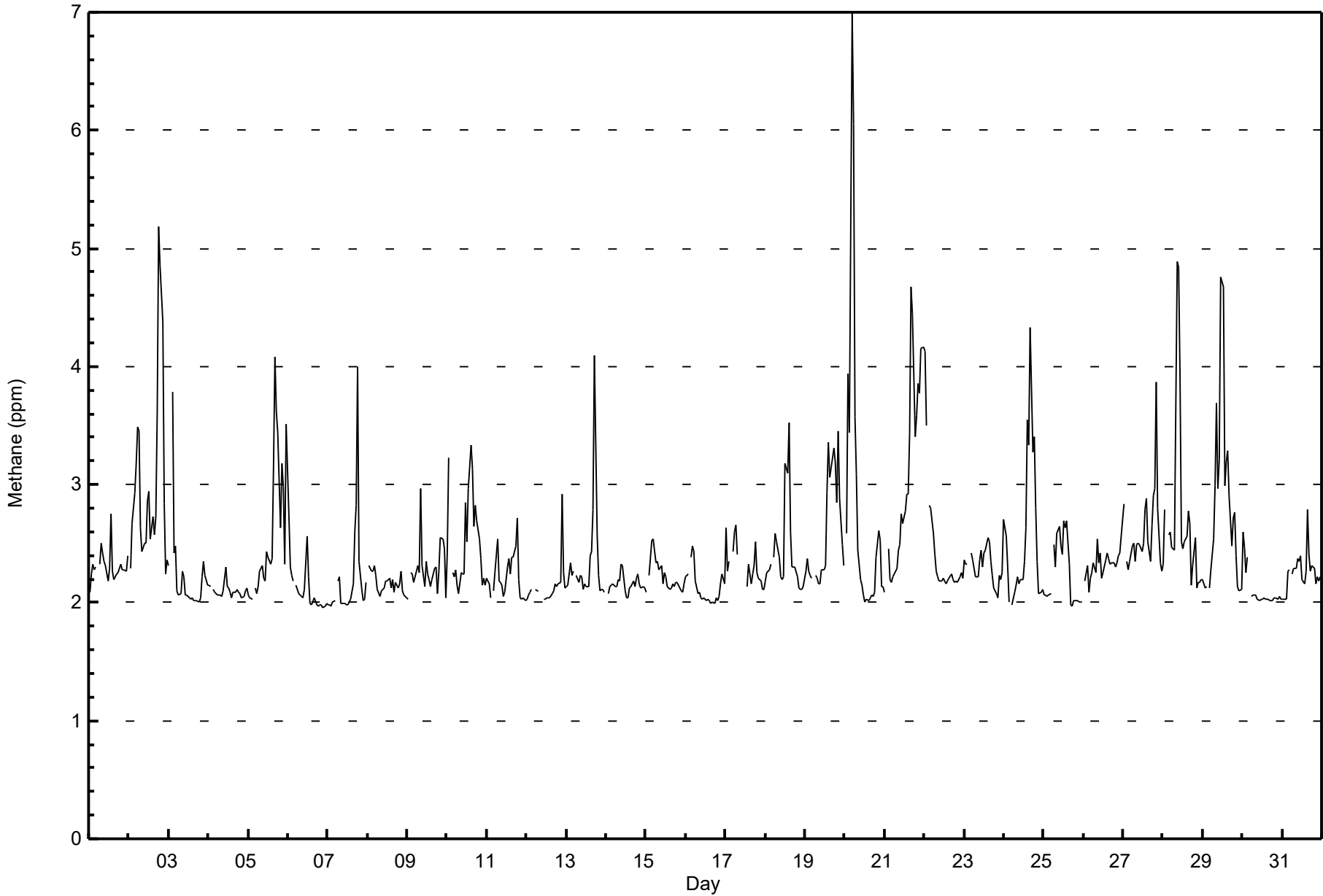






Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																Daily Average		Daily Maximum			
Maximum Value: 7.0 ppm on Dec 20 05:00		Maximum Daily Average: 3.0 ppm on Dec 21		Hours of Data: 706																Hours of Missing Data: 38		Hours of Calibration: 36					
Minimum Value: 2.0 ppm on Dec 6 22:00		Minimum Daily Average: 2.1 ppm on Dec 4		Hours of Calibration: 36																Percent Operational Time: 99.7							
Maximum Diurnal Average: 2.6 ppm at hour 19		Minimum Diurnal Average: 2.2 ppm at hour 23		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.2 Q ₃ = 2.5 P ₉₀ = 2.9 P ₉₉ = 4.7																							
Monthly Average: 2.40 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-Dec	2.1	2.2	2.3	2.3	2.3	Z	2.3	2.5	2.4	2.4	2.3	2.2	2.3	2.8	2.3	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.8	
2-Dec	Z	2.3	2.7	2.9	3.2	3.5	3.5	2.6	2.4	2.5	2.5	2.9	2.9	2.5	2.7	2.6	2.7	3.6	5.2	4.9	4.4	2.8	2.2	2.4	3.0	5.2	
3-Dec	2.3	Z	3.8	2.4	2.5	2.1	2.1	2.1	2.3	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.4	2.2	2.2	2.2	2.2	3.8	
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.3	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.3	
5-Dec	2.1	2.0	2.0	Z	2.1	2.1	2.1	2.3	2.3	2.2	2.2	2.4	2.4	2.3	2.4	3.2	4.1	3.6	3.4	2.6	3.2	3.0	2.3	3.5	2.6	4.1	
6-Dec	2.7	2.3	2.2	2.2	Z	2.2	2.1	2.1	2.1	2.0	2.1	2.6	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.7	
7-Dec	2.0	2.0	2.0	2.0	2.0	Z	2.2	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.6	2.8	4.0	2.3	2.1	2.0	2.0	2.2	2.2	4.0	
8-Dec	Z	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.1	2.2	2.1	2.2	2.1	2.2	2.3	2.1	2.1	2.0	2.2	2.3	
9-Dec	2.0	Z	2.3	2.2	2.2	2.3	2.3	2.3	3.0	2.3	2.1	2.3	2.2	2.2	2.1	2.2	2.3	2.3	2.1	2.3	2.6	2.5	2.5	2.0	2.3	3.0	
10-Dec	2.4	3.2	Z	2.3	2.2	2.3	2.1	2.1	2.3	2.2	2.2	2.8	2.5	3.0	3.3	3.1	2.6	2.8	2.7	2.5	2.4	2.2	2.2	2.2	2.5	3.3	
11-Dec	2.2	2.2	2.0	Z	2.1	2.3	2.5	2.2	2.2	2.2	2.1	2.1	2.3	2.4	2.2	2.4	2.4	2.5	2.7	2.2	2.0	2.0	2.0	2.0	2.2	2.7	
12-Dec	2.0	2.1	2.1	2.1	Z	2.1	2.1	2.1	M	M	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.2	2.1	2.2	2.2	2.9	2.2	2.1	2.1	2.9	
13-Dec	2.1	2.1	2.3	2.2	2.3	Z	2.2	2.2	2.2	2.2	2.1	2.2	2.1	2.1	2.4	2.4	2.8	4.1	2.6	2.2	2.1	2.1	2.1	2.1	2.3	4.1	
14-Dec	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.2	2.3	2.3	2.1	2.0	2.0	2.1	2.2	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.3
15-Dec	2.1	Z	2.2	2.5	2.5	2.4	2.3	2.4	2.3	2.3	2.2	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.2	2.2	2.5	
16-Dec	2.2	2.2	Z	2.4	2.5	2.4	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.5	
17-Dec	2.6	2.3	2.3	Z	2.4	2.6	2.7	2.4	C	C	C	C	C	2.1	2.3	2.2	2.2	2.3	2.5	2.3	2.2	2.2	2.1	2.1	2.3	2.7	
18-Dec	2.2	2.3	2.3	2.3	Z	2.4	2.6	2.5	2.4	2.2	2.2	2.2	3.2	3.1	3.5	2.6	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.4	3.5	
19-Dec	2.3	2.4	2.3	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.9	3.4	3.1	3.1	3.3	3.2	2.9	3.5	2.9	2.5	2.3	2.6	3.5	
20-Dec	Z	2.6	3.9	3.4	7.0	6.1	3.6	3.1	2.4	2.2	2.2	2.1	2.0	2.0	2.0	2.1	2.0	2.1	2.4	2.6	2.5	2.1	2.1	2.1	2.8	7.0	
21-Dec	2.1	Z	2.5	2.2	2.2	2.2	2.2	2.3	2.4	2.5	2.8	2.7	2.8	2.9	2.9	3.4	4.7	4.4	3.4	3.6	3.9	3.8	4.2	4.2	3.0	4.7	
22-Dec	4.1	3.5	Z	2.8	2.8	2.6	2.4	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.4	4.1	
23-Dec	2.4	2.3	2.3	Z	2.4	2.4	2.3	2.2	2.2	2.4	2.4	2.3	2.4	2.4	2.5	2.5	2.3	2.2	2.1	2.1	2.0	2.2	2.2	2.3	2.3	2.5	
24-Dec	2.7	2.6	2.3	2.0	Z	2.0	2.1	2.2	2.2	2.2	2.2	2.4	2.6	3.5	3.3	4.3	3.3	3.4	2.8	2.3	2.1	2.1	2.1	2.1	2.6	4.3	
25-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.5	2.3	2.6	2.7	2.5	2.4	2.7	2.6	2.7	2.3	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.2	2.7	
26-Dec	Z	2.2	2.3	2.1	2.2	2.3	2.3	2.3	2.5	2.3	2.4	2.2	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.6	2.3	2.6	
27-Dec	2.8	Z	2.4	2.3	2.4	2.5	2.5	2.3	2.5	2.5	2.5	2.4	2.5	2.8	2.9	2.5	2.3	2.7	2.9	3.0	3.9	2.8	2.3	2.3	2.6	3.9	
28-Dec	2.3	2.8	Z	2.6	2.6	2.5	2.5	2.4	4.9	4.8	3.9	2.5	2.5	2.5	2.6	2.8	2.7	2.1	2.3	2.5	2.1	2.2	2.2	2.2	2.7	4.9	
29-Dec	2.2	2.1	2.1	Z	2.1	2.3	2.5	3.0	3.7	3.0	3.2	4.8	4.7	3.0	3.2	3.3	2.9	2.5	2.7	2.8	2.4	2.1	2.1	2.1	2.8	4.8	
30-Dec	2.6	2.5	2.3	2.4	Z	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.1	2.6	
31-Dec	2.0	2.0	2.0	2.3	2.3	Z	2.2	2.3	2.3	2.4	2.3	2.4	2.2	2.2	2.3	2.8	2.4	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.8	
																								Diurnal Average		Diurnal Maximum	
																								2.3		4.1	
																								2.3		3.5	
																								2.4		3.9	
																								2.3		3.4	
																								2.5		7.0	
																								2.5		6.1	
																								2.4		3.6	
																								2.3		3.1	
																								2.4		4.9	
																								2.4		4.8	
																								2.3		3.9	
																								2.4		4.8	
																								2.4		4.7	
																								2.4		4.8	
																								2.4		4.7	
																								2.4		4.7	
																								2.5		3.4	
																								2.5		3.4	
																								2.5		4.7	
																								2.5		4.4	
																								2.6		5.2	
																								2.4		4.9	
																								2.4		4.4	
																								2.3		3.8	
																								2.2		4.2	
																								2.3		4.2	

Z - zerospan C - Calibration M - Maintenance





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Fort Hills - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	100	14.16	14.16
2.1 - 3.0	546	77.34	91.50
3.1 - 10.0	60	8.50	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Methane (CH₄) - ppm
Fort Hills - December 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	6	0	0	0	0	0	0	22	23	14	0	3	9	14	5	4	100
2.1 - 3.0	84	32	8	6	6	12	74	113	95	35	11	13	7	7	17	21	541
3.1 - 10.0	5	1	1	1	2	5	6	9	9	7	1	2	1	0	0	9	59
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	95	33	9	7	8	17	80	144	127	56	12	18	17	21	22	34	700

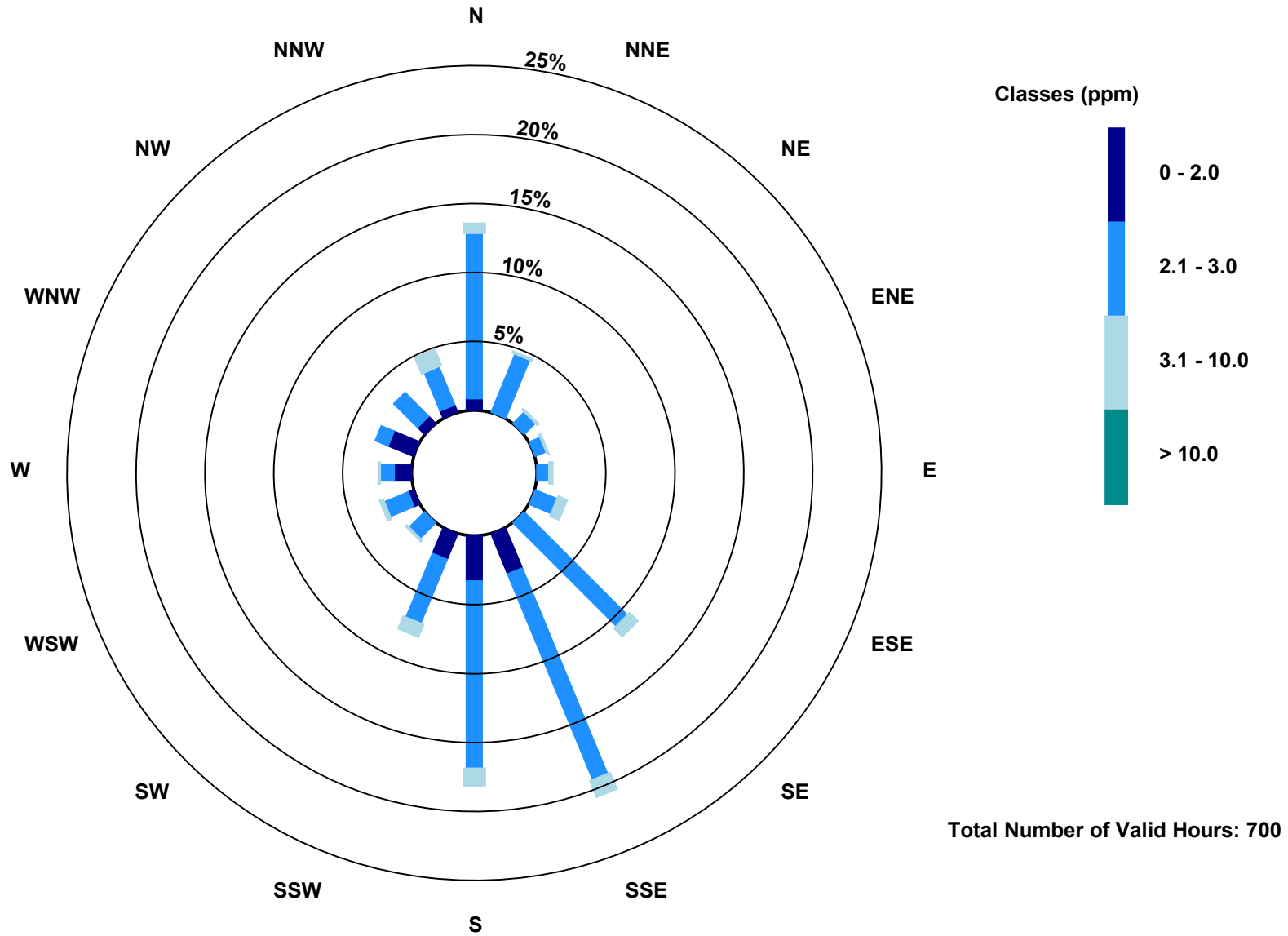
Total Number of Valid Hours: 700

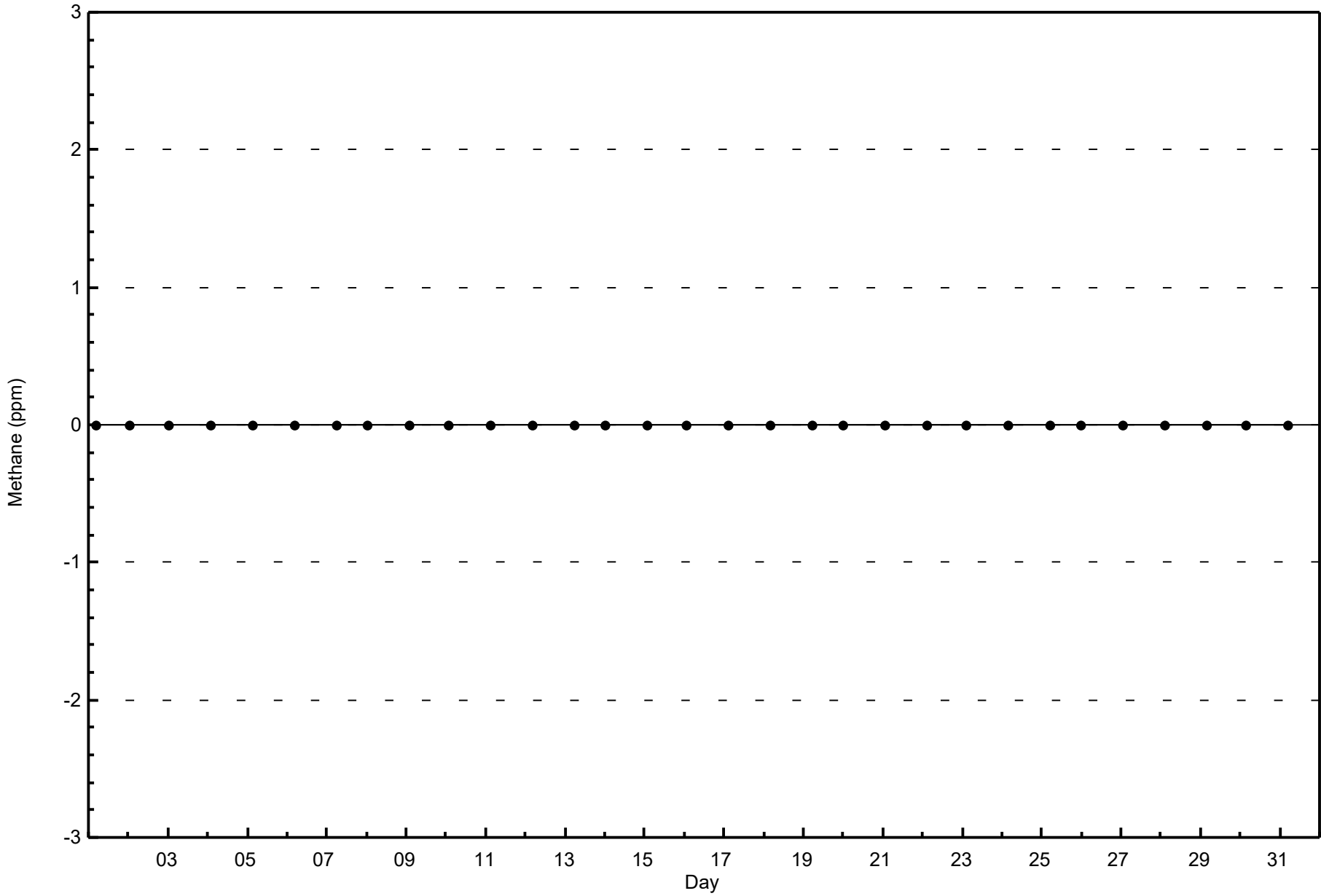
Total Number of Hours: 744

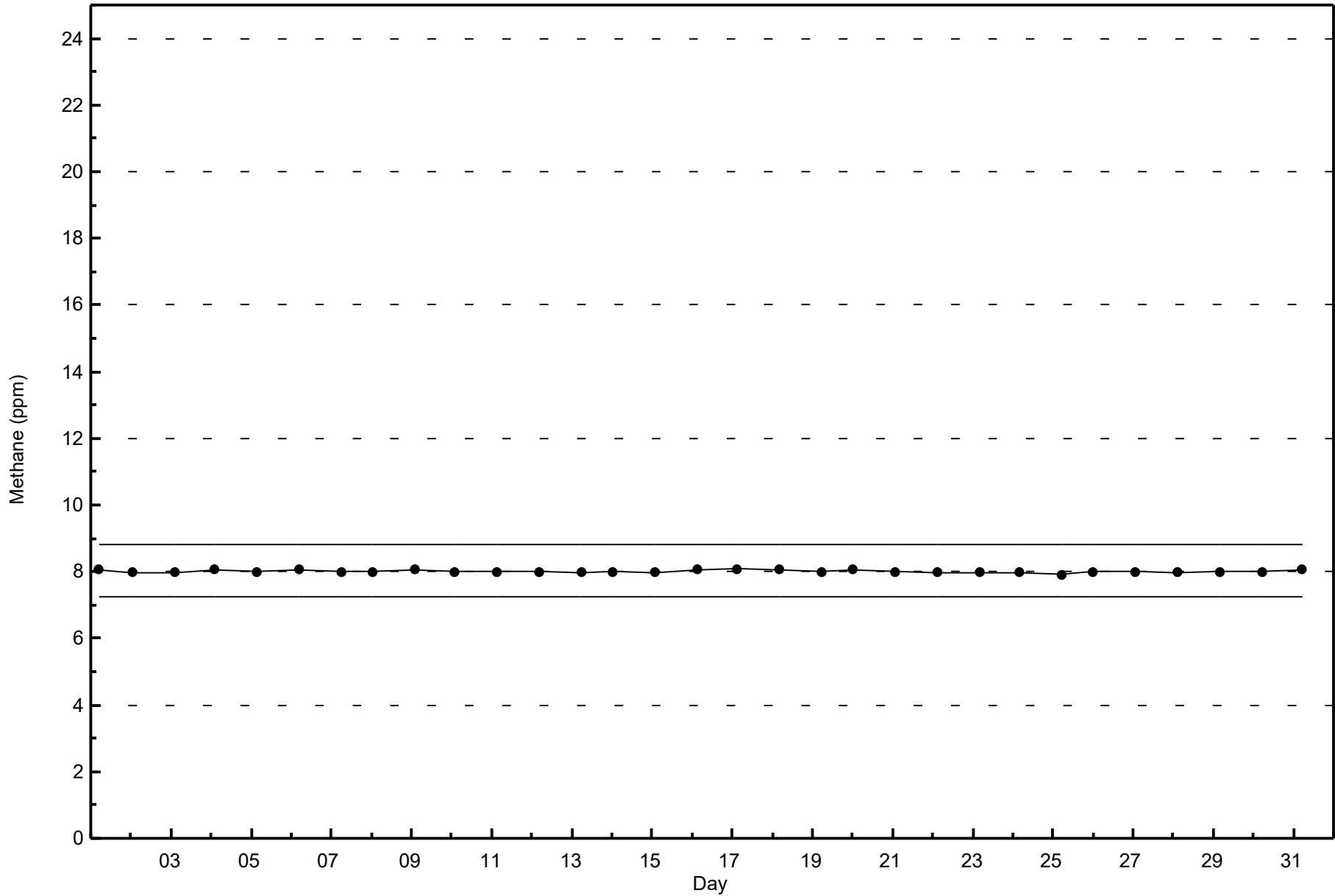


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Fort Hills









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

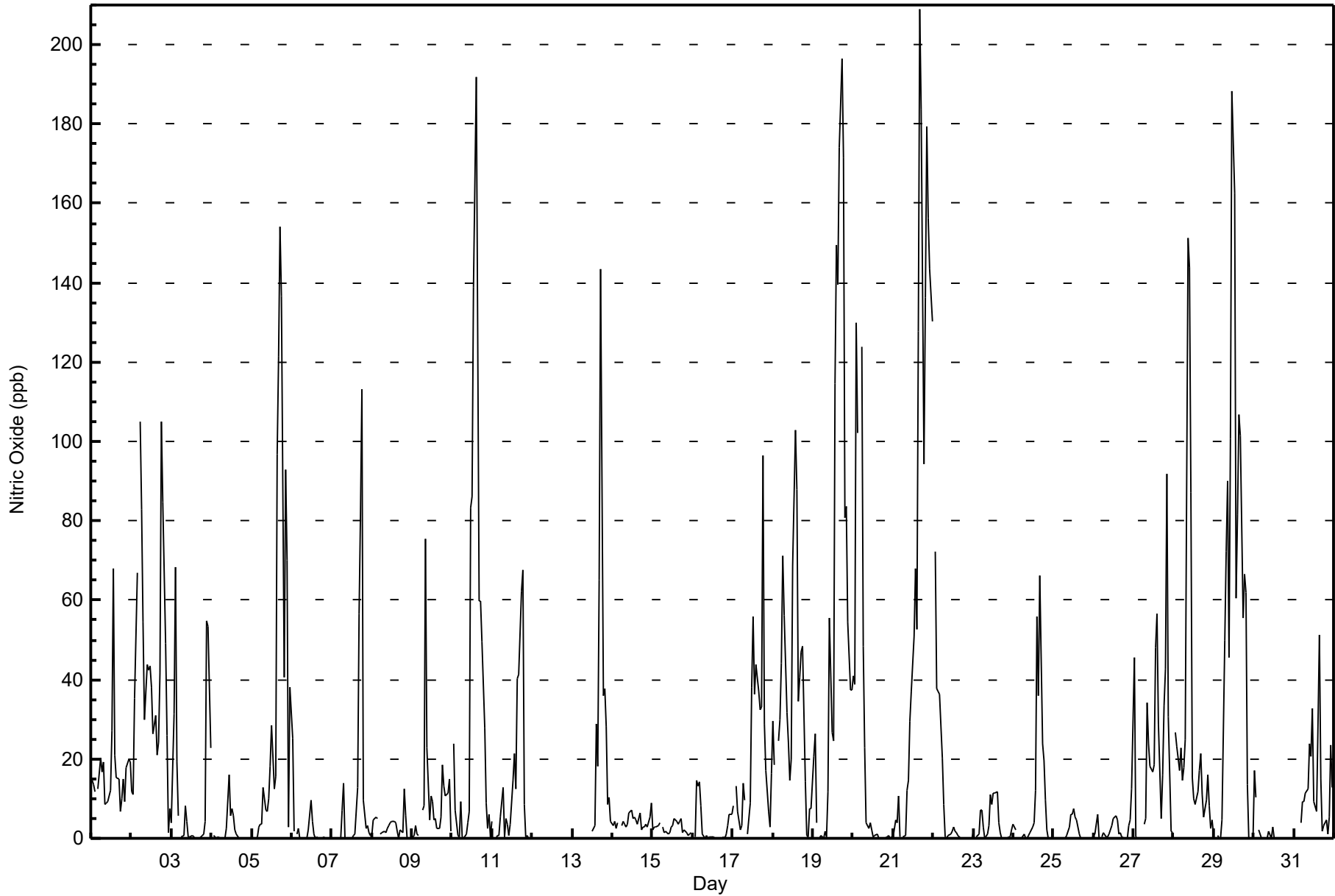
Fort Hills - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																744				
Maximum Value: 208.9 ppb on Dec 21 17:00				Maximum Daily Average: 71.5 ppb on Dec 21		Hours of Data: 686																686				
Minimum Value: 0.0 ppb on Dec 4 04:00				Minimum Daily Average: 1.5 ppb on Dec 25		Hours of Missing Data: 58																58				
Maximum Diurnal Average: 37.8 ppb at hour 18				Minimum Diurnal Average: 5.9 ppb at hour 5		Hours of Calibration: 38																38				
Monthly Average: 19.50 ppb				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.4 Median = 4.2 Q ₃ = 20.3 P ₉₀ = 59.9 P ₉₉ = 171.8		Percent Operational Time: 97.3																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-Dec	14.5	13.6	11.6	Z	12.3	20.4	16.9	19.2	8.5	8.8	9.2	12.0	27.1	68.0	21.0	15.2	14.9	6.8	10.1	15.0	9.2	17.7	20.1	19.2	17.0	68.0
2-Dec	11.8	10.9	35.2	67.1	Z	104.9	83.1	54.5	29.9	44.0	42.5	43.5	38.0	26.2	31.1	21.1	24.1	41.7	104.8	84.8	49.1	26.0	1.3	7.5	42.7	104.9
3-Dec	4.0	31.3	68.5	19.2	5.9	Z	0.4	0.5	8.1	4.2	0.2	0.5	0.7	0.3	0.1	0.2	0.1	0.2	0.6	1.2	4.2	54.8	53.4	22.9	12.2	68.5
4-Dec	Z	0.9	0.2	0.0	0.2	0.0	0.0	0.0	0.0	2.5	16.0	5.6	7.3	5.6	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	16.0
5-Dec	0.0	Z	0.0	0.2	3.0	3.6	3.6	12.9	7.0	6.9	10.1	18.2	28.7	12.3	15.7	96.7	121.5	154.0	136.7	40.6	92.9	70.1	2.7	38.0	38.1	154.0
6-Dec	25.2	2.0	Z	1.0	2.5	0.1	0.0	0.0	0.0	0.1	2.1	9.7	4.4	1.0	0.0	0.3	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	2.1	25.2
7-Dec	0.0	0.0	0.0	Z	0.0	0.1	7.1	13.9	0.1	0.0	0.0	0.0	0.7	1.2	12.9	56.7	81.8	113.2	9.6	2.6	3.3	1.4	0.6	13.3	113.2	
8-Dec	0.5	4.7	5.3	5.1	Z	1.0	1.4	1.6	1.5	2.5	3.3	4.0	4.1	4.1	3.9	1.6	0.1	2.2	1.3	12.5	5.6	0.0	0.0	0.0	2.9	12.5
9-Dec	0.2	0.5	3.4	1.1	0.7	Z	7.0	8.3	75.5	22.8	4.7	10.7	9.2	4.8	5.0	2.5	2.5	5.3	18.5	13.2	10.9	11.5	15.0	1.8	10.2	75.5
10-Dec	Z	24.0	7.0	0.8	0.4	9.4	0.3	0.0	1.1	3.9	6.7	83.2	86.3	138.8	191.7	126.2	59.9	59.9	49.5	27.8	9.0	2.4	6.2	0.5	38.9	191.7
11-Dec	4.2	Z	0.0	0.6	0.7	5.5	12.9	0.4	4.8	3.4	0.7	3.7	14.5	21.2	12.5	40.4	41.4	62.1	67.8	8.5	0.2	0.7	0.0	0.0	13.3	67.8
12-Dec	0.0	0.0	Z	0.2	0.0	0.0	0.2	0.1	0.1	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	--	0.2
13-Dec	M	M	M	M	M	M	M	M	C	C	C	C	1.7	3.1	28.7	18.1	65.3	143.5	35.9	37.8	28.0	8.5	10.4	4.1	--	143.5
14-Dec	3.3	4.4	2.3	3.7	Z	3.0	4.3	3.4	2.7	3.6	6.4	7.0	4.9	5.2	4.7	3.7	6.3	2.0	2.9	2.9	3.7	2.8	5.4	8.9	4.2	8.9
15-Dec	2.1	2.7	2.8	3.2	3.8	Z	2.7	1.4	1.9	1.0	1.5	2.8	3.1	4.8	4.3	3.7	4.3	4.9	1.3	2.0	1.5	0.8	0.9	1.6	2.6	4.9
16-Dec	Z	0.2	14.5	13.3	14.2	8.3	1.1	0.0	0.6	0.1	0.3	0.2	0.5	0.1	0.0	0.0	0.1	0.5	0.0	1.1	3.4	6.1	6.2	3.1	14.5	
17-Dec	8.3	Z	13.3	6.8	2.2	3.1	13.7	9.6	M	1.2	9.0	38.2	56.0	36.3	43.8	37.0	32.5	33.0	96.5	28.8	17.2	6.9	2.7	16.4	23.3	96.5
18-Dec	29.5	18.4	Z	24.5	29.9	44.2	71.3	56.3	31.7	24.0	14.7	20.1	68.8	102.9	87.9	34.4	40.5	46.9	48.5	14.1	0.6	0.4	7.4	7.6	35.9	102.9
19-Dec	20.7	26.3	3.8	Z	0.0	0.6	0.0	1.7	0.3	11.8	55.4	26.8	24.7	114.6	149.6	139.5	174.0	196.6	171.4	80.7	83.6	54.4	37.4	37.4	61.4	196.6
20-Dec	41.1	38.7	129.9	102.0	Z	123.8	48.5	22.8	4.0	2.4	4.0	2.3	0.4	0.7	1.1	0.1	0.0	0.0	0.0	0.4	0.8	0.0	0.2	22.7	129.9	
21-Dec	0.0	4.7	4.0	10.7	0.4	Z	0.4	0.6	12.0	14.6	29.5	36.9	50.9	67.9	52.6	127.7	208.9	183.8	94.2	136.4	179.3	156.1	143.3	130.2	71.5	208.9
22-Dec	Z	72.4	37.9	36.9	36.4	20.4	8.7	0.4	0.0	0.7	1.0	1.9	2.7	1.8	1.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	9.7	72.4	
23-Dec	1.8	Z	0.2	1.2	7.0	7.0	2.8	0.0	0.9	3.3	11.0	8.4	11.2	11.5	11.8	4.0	1.4	0.0	0.0	0.0	0.2	0.4	2.3	3.8	11.8	
24-Dec	3.4	2.1	Z	0.0	0.0	0.0	1.2	0.0	0.0	0.5	1.5	2.9	4.0	12.1	55.8	36.1	66.2	23.8	19.7	9.5	2.2	0.0	0.0	0.0	10.5	66.2
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.6	2.8	6.0	6.2	7.6	5.2	4.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	7.6
26-Dec	0.5	1.2	5.9	0.0	Z	0.4	1.4	0.3	0.4	1.2	2.1	3.1	5.1	5.6	4.8	1.2	1.5	0.3	0.0	0.0	0.0	3.3	4.6	12.5	2.4	12.5
27-Dec	45.6	0.5	0.1	0.0	0.0	Z	3.5	4.8	34.3	23.8	18.2	16.7	18.3	48.1	56.7	28.7	4.9	16.0	33.5	42.7	91.8	30.6	1.6	1.5	22.7	91.8
28-Dec	Z	26.6	23.1	17.0	22.9	14.8	17.6	25.0	151.3	143.8	87.1	15.2	9.9	8.6	11.9	17.2	21.2	10.9	5.2	9.7	16.0	8.3	2.3	4.6	29.1	151.3
29-Dec	1.1	Z	0.8	0.0	0.0	4.7	49.8	72.3	90.0	45.4	100.9	188.1	162.7	60.6	81.7	106.9	101.3	55.7	66.7	61.9	13.6	0.1	0.0	0.0	55.0	188.1
30-Dec	17.2	10.5	Z	2.0	0.0	0.1	0.0	0.2	0.0	1.8	0.0	3.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	1.5	17.2	
31-Dec	0.0	0.0	0.2	Z	4.0	9.4	9.4	11.4	12.4	23.8	20.7	32.7	9.2	6.8	28.5	51.1	14.9	1.7	3.1	4.6	1.1	5.3	23.6	12.7	12.5	51.1
9.4 11.9 14.8 12.7 5.9 15.4 12.3 10.7 16.5 14.0 16.0 20.8 22.1 26.0 30.5 31.0 35.5 37.8 36.1 21.5 20.8 15.6 11.5 11.2																								Diurnal Average		
45.6 72.4 129.9 102.0 36.4 123.8 83.1 72.3 151.3 143.8 100.9 188.1 162.7 138.8 191.7 139.5 208.9 196.6 171.4 136.4 179.3 156.1 143.3 130.2																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Fort Hills - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort Hills - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	516	75.22	75.22
21 - 40	66	9.62	84.84
41 - 80	53	7.73	92.57
81 - 159	41	5.98	98.54
> 159	9	1.31	99.85

Total Number of Valid Hours: 686

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Fort Hills - December 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	27	6	6	0	6	44	107	105	45	7	11	15	20	18	16	512
21 - 40	7	3	1	0	1	2	12	15	7	4	2	3	1	2	0	5	65
11 - 80	3	3	2	0	3	3	16	8	2	3	1	1	1	1	2	4	53
81 - 159	3	1	0	1	4	5	7	6	3	2	1	2	0	0	0	6	41
> 159	0	0	1	0	0	1	2	1	1	0	0	0	0	0	0	2	8
Totals	92	34	10	7	8	17	81	137	118	54	11	17	17	23	20	33	679

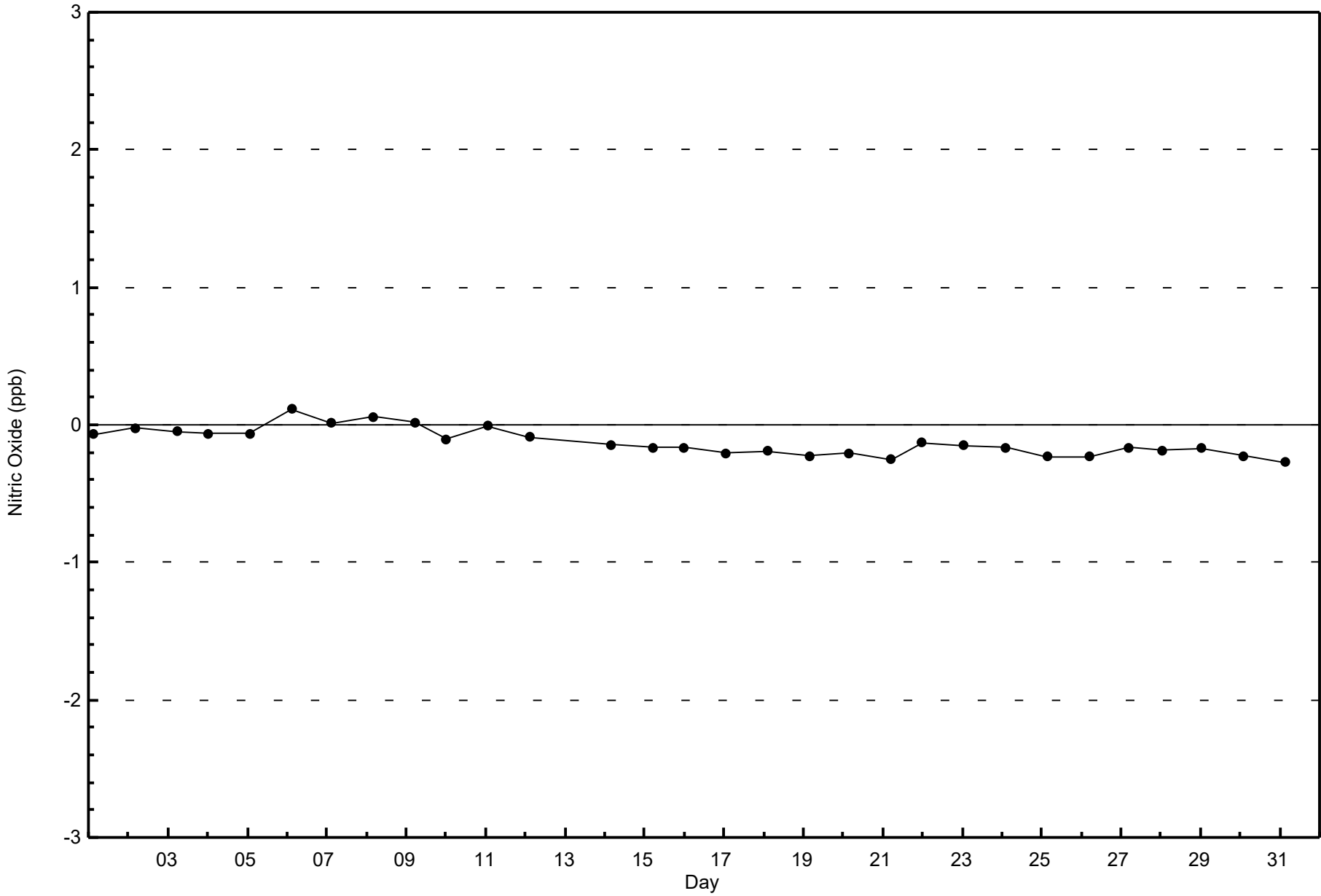
Total Number of Valid Hours: 680

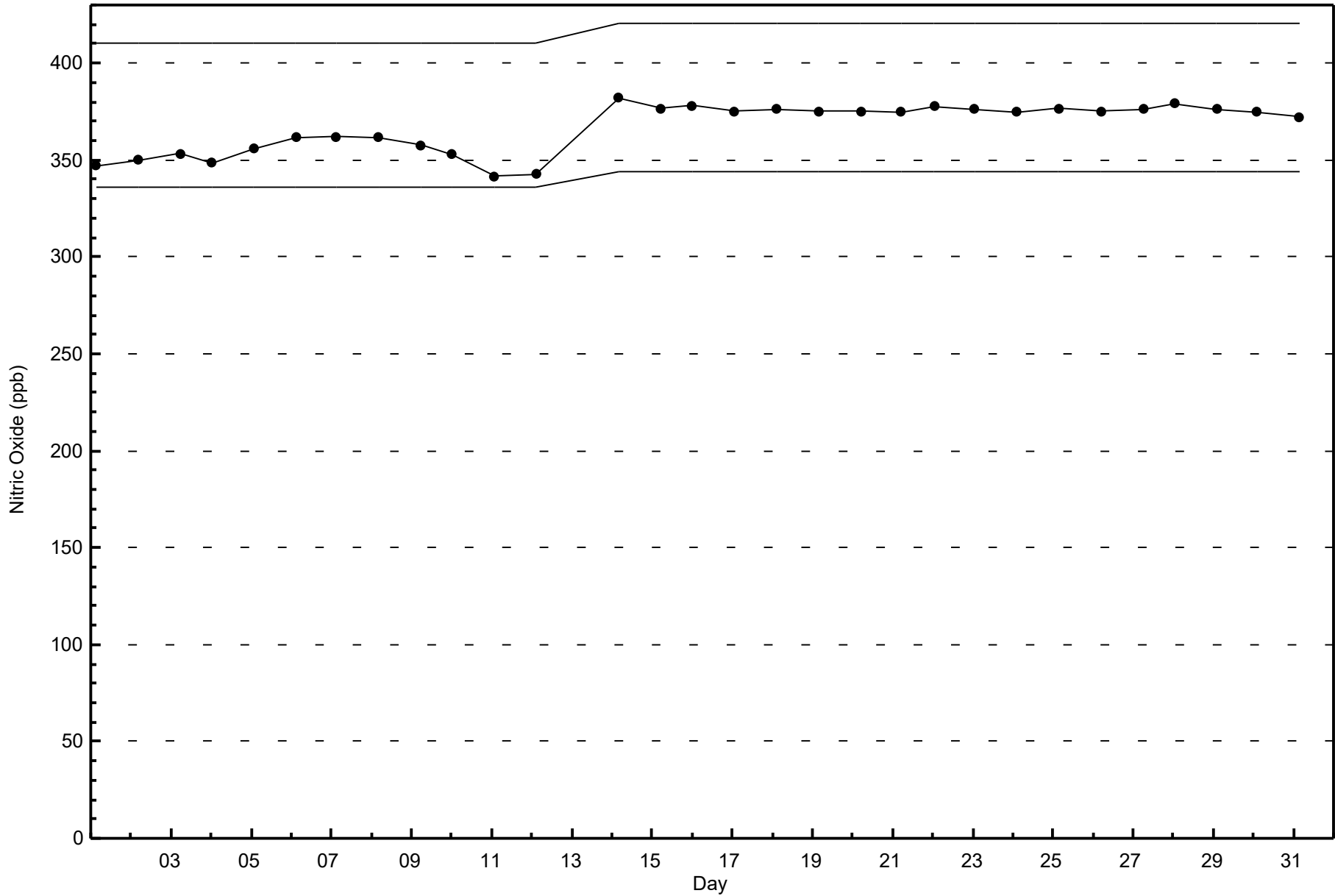
Total Number of Hours: 744



Wood Buffalo Environmental Association
Zero Responses

Nitric Oxide (NO) - ppb
Fort Hills - December 2024







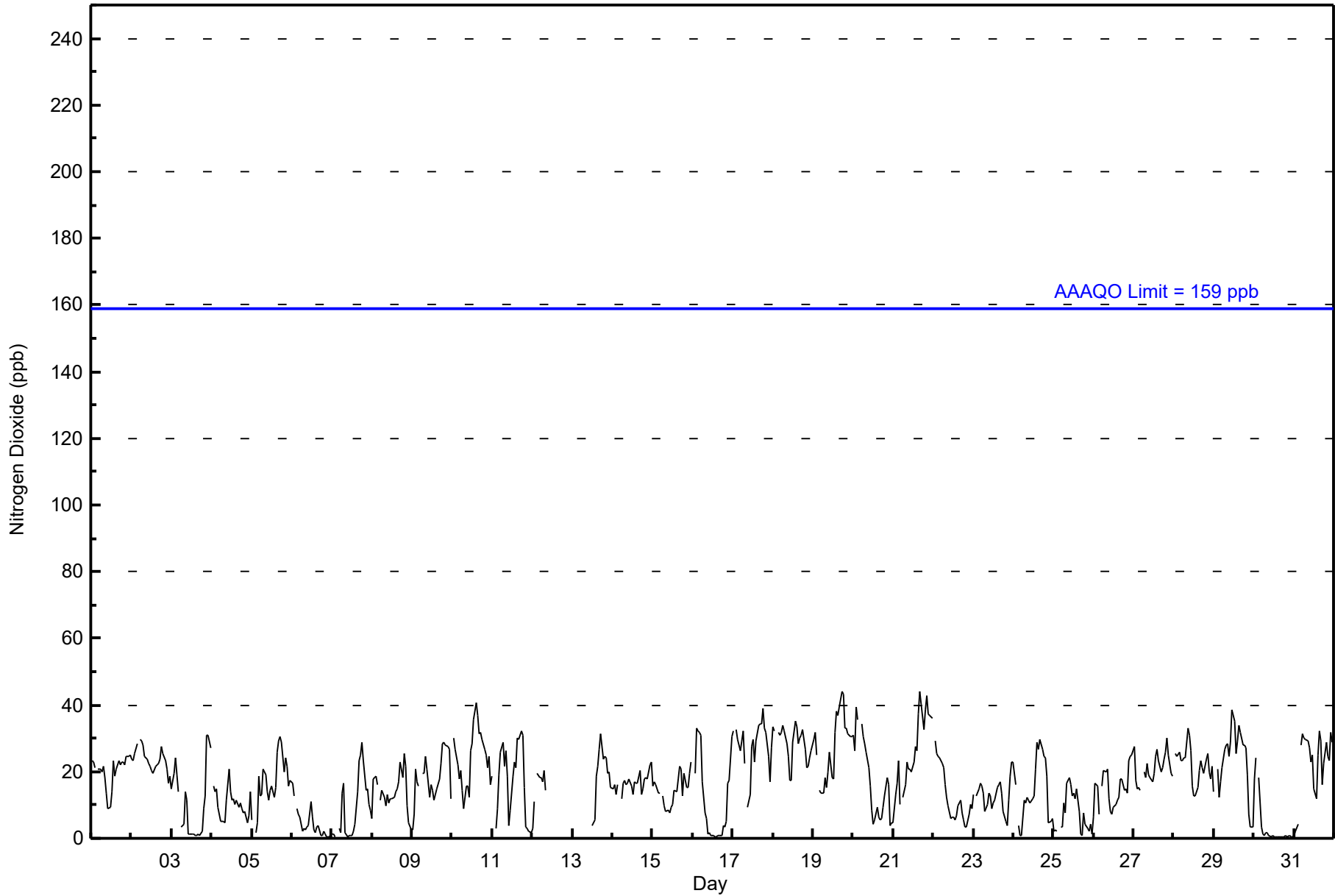
Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Fort Hills - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 44.2 ppb on Dec 19 18:00	Maximum Daily Average: 28.4 ppb on Dec 18		Hours of Data:	686
Minimum Value: 0.3 ppb on Dec 7 03:00	Minimum Daily Average: 3.4 ppb on Dec 30		Hours of Missing Data:	58
Maximum Diurnal Average: 20.5 ppb at hour 17	Minimum Diurnal Average: 13.0 ppb at hour 11		Hours of Calibration:	38
Monthly Average: 17.01 ppb	Percentiles: P ₁ = 0.5 P ₁₀ = 2.4 Q ₁ = 9.3 Median = 16.9 Q ₃ = 24.5 P ₉₀ = 30.5 P ₉₉ = 39.5		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-Dec	23.1	22.7	21.3	Z	20.6	20.6	19.9	21.4	18.3	13.4	8.8	9.3	13.9	23.2	18.7	20.6	23.5	22.2	22.7	22.7	21.9	24.7	24.6	24.9	20.1	24.9																							
2-Dec	23.9	23.4	25.4	28.6	Z	29.8	29.4	28.0	24.7	23.6	22.3	21.5	20.2	19.6	21.5	21.9	22.6	23.7	27.5	25.6	23.1	20.9	16.7	18.5	23.6	29.8																							
3-Dec	14.8	19.3	24.1	19.0	14.0	Z	3.3	4.2	14.1	11.3	1.3	1.3	1.3	1.1	0.9	1.0	1.1	0.7	2.2	8.7	12.6	31.0	30.9	27.0	10.7	31.0																							
4-Dec	Z	15.7	14.1	14.8	9.3	4.9	5.1	5.0	4.5	11.4	20.6	14.0	11.4	12.0	10.1	11.3	9.4	10.8	9.1	7.6	8.2	4.8	6.8	13.9	10.2	20.6																							
5-Dec	5.3	Z	1.5	4.7	18.5	12.6	13.2	20.8	19.0	14.1	11.6	14.3	15.6	12.2	15.3	26.0	29.3	30.6	28.7	20.0	24.0	21.7	15.7	17.3	17.0	30.6																							
6-Dec	16.6	12.5	Z	9.0	7.1	6.2	2.2	2.8	2.6	3.5	4.0	11.2	6.3	2.4	1.5	3.2	4.0	0.8	0.8	2.1	1.3	0.4	0.6	1.2	4.4	16.6																							
7-Dec	1.1	1.2	0.3	Z	2.9	1.6	13.4	16.5	1.6	0.6	0.8	0.9	0.9	2.2	4.4	13.8	23.5	25.1	28.9	23.4	14.2	14.9	10.3	8.5	9.2	28.9																							
8-Dec	5.9	17.8	18.6	15.9	Z	11.3	14.6	12.4	9.6	13.2	10.8	11.9	12.0	12.1	13.9	14.7	17.0	22.7	18.3	25.3	21.8	9.7	4.7	2.5	13.8	25.3																							
9-Dec	2.5	7.3	20.6	17.0	15.6	Z	19.7	19.5	24.4	20.6	12.1	16.0	14.4	11.4	13.2	14.8	17.9	22.6	28.4	28.7	28.1	27.6	26.5	11.7	18.3	28.7																							
10-Dec	Z	30.2	26.9	21.9	17.7	20.5	14.2	9.0	15.8	15.6	12.4	26.2	28.5	35.8	40.7	36.8	31.4	31.7	29.8	26.9	25.0	21.1	24.7	16.3	24.3	40.7																							
11-Dec	18.5	Z	2.9	9.1	19.2	25.7	28.9	21.6	26.3	18.5	3.8	8.6	18.8	23.0	21.3	30.0	29.6	32.0	31.0	15.1	3.4	3.1	2.0	1.9	17.1	32.0																							
12-Dec	3.0	11.2	Z	19.6	18.2	18.1	16.9	20.3	14.5	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	20.3																						
13-Dec	M	M	M	M	M	M	M	M	M	C	C	C	C	3.8	5.4	18.8	21.8	26.7	31.3	23.7	24.4	24.2	19.4	20.1	15.4	--	31.3																						
14-Dec	14.8	16.0	13.3	16.3	Z	11.8	16.4	17.3	15.9	16.6	17.9	15.7	13.2	16.8	16.4	16.5	20.3	13.2	14.8	17.9	18.2	17.6	22.0	22.9	16.6	22.9																							
15-Dec	15.8	17.1	16.0	13.7	13.5	Z	12.5	9.8	8.1	8.5	7.6	9.2	10.0	14.3	14.1	17.8	21.4	20.7	12.5	19.3	15.2	15.3	19.5	22.7	14.5	22.7																							
16-Dec	Z	19.4	32.9	32.1	31.8	30.8	16.9	7.8	6.1	1.3	1.6	1.0	0.8	0.5	0.5	0.8	0.9	0.7	3.7	3.2	5.0	16.4	17.3	30.5	11.4	32.9																							
17-Dec	32.3	Z	32.5	29.5	26.2	29.3	32.4	22.5	M	9.5	13.2	27.5	29.8	23.0	29.4	33.7	34.3	34.4	39.0	33.1	31.7	24.5	17.0	27.1	27.8	39.0																							
18-Dec	33.5	32.3	Z	31.6	30.9	31.6	33.9	32.4	28.2	24.7	17.5	17.4	28.7	35.1	33.6	28.6	30.2	31.1	32.5	26.6	21.0	21.7	24.3	26.2	28.4	35.1																							
19-Dec	29.7	31.9	25.2	Z	14.5	13.5	13.7	18.1	15.1	20.1	26.0	18.1	17.9	31.7	38.0	36.7	39.6	44.2	43.3	33.0	33.0	31.2	30.4	30.5	27.6	44.2																							
20-Dec	31.0	26.3	39.5	35.8	Z	34.2	30.3	28.6	25.8	21.3	15.7	8.5	4.2	5.4	9.2	6.2	5.4	6.1	9.3	12.6	18.1	16.1	3.7	4.7	17.3	39.5																							
21-Dec	4.6	13.2	16.7	23.2	10.3	Z	12.4	16.3	22.7	20.9	20.7	20.0	22.8	27.5	26.1	37.5	44.1	40.3	32.6	38.5	42.9	37.5	36.7	35.9	26.2	44.1																							
22-Dec	Z	29.2	25.3	24.7	24.3	22.6	21.0	16.3	12.1	9.9	5.8	6.2	6.3	5.6	6.6	9.6	11.3	7.6	5.5	3.6	3.4	7.2	10.0	9.0	12.3	29.2																							
23-Dec	13.2	Z	12.6	14.9	16.5	15.8	13.7	7.9	10.0	13.6	12.7	9.0	10.5	11.6	15.2	16.1	16.8	13.7	8.1	4.9	3.7	11.3	18.8	23.0	12.8	23.0																							
24-Dec	22.7	16.0	Z	3.7	1.0	0.9	11.6	10.4	12.1	11.4	10.4	11.9	12.5	20.8	28.9	26.8	29.7	26.6	24.6	24.0	18.5	4.6	5.2	6.0	14.8	29.7																							
25-Dec	2.3	2.7	2.2	Z	3.6	3.2	10.4	7.5	16.6	18.1	16.0	12.7	13.5	12.0	15.0	8.0	1.3	0.8	7.8	4.2	2.9	2.2	4.2	1.4	7.3	18.1																							
26-Dec	6.2	16.4	15.6	7.4	Z	15.5	20.3	20.1	20.8	12.0	8.1	7.3	9.3	10.3	11.6	12.1	17.8	17.7	14.2	14.7	13.6	23.1	24.5	25.2	14.9	25.2																							
27-Dec	27.5	17.2	14.8	15.2	14.4	Z	19.9	18.2	22.6	19.0	18.1	17.0	19.3	24.6	26.7	23.1	20.0	21.0	23.9	25.9	30.0	25.1	19.5	18.5	20.9	30.0																							
28-Dec	Z	25.3	24.6	25.7	23.3	Z	24.0	24.2	32.9	30.9	26.3	15.5	12.8	12.6	15.1	20.2	23.4	21.0	19.7	23.6	25.3	19.9	17.8	21.7	22.1	32.9																							
29-Dec	13.9	Z	20.7	12.2	17.1	21.0	26.6	28.0	28.3	24.6	28.9	38.4	35.3	25.4	29.3	33.9	31.7	28.1	28.0	27.3	19.0	7.3	3.4	3.6	23.1	38.4																							
30-Dec	17.7	24.0	Z	18.4	3.3	1.4	1.0	1.8	1.6	0.8	0.5	0.8	0.4	0.5	0.5	0.5	0.6	0.6	0.4	0.8	0.6	0.7	0.4	0.4	3.4	24.0																							
31-Dec	0.8	2.2	4.1	Z	27.8	31.3	30.2	29.7	29.2	27.1	22.8	25.2	14.7	11.8	25.0	32.3	29.2	16.1	22.3	28.7	24.5	23.1	31.9	28.8	22.6	32.3																							
																								15.2	18.0	18.1	18.6	16.1	17.5	17.6	16.6	16.7	15.0	13.0	13.7	13.6	15.0	17.4	19.2	20.5	19.9	19.8	19.1	17.8	16.8	16.3	16.6	Diurnal Average	
																								33.5	32.3	39.5	35.8	31.8	34.2	33.9	32.4	32.9	30.9	28.9	38.4	35.3	35.8	40.7	37.5	44.1	44.2	43.3	38.5	42.9	37.5	36.7	35.9	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Fort Hills - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	423	61.66	61.66
21 - 40	258	37.61	99.27
41 - 80	5	0.73	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 686

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Fort Hills - December 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	16	2	4	1	4	29	97	92	39	5	9	14	18	14	11	419
21 - 40	28	18	8	3	7	12	51	40	26	15	6	8	3	5	6	21	257
11 - 80	0	0	0	0	0	1	1	0	1	0	0	0	0	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	92	34	10	7	8	17	81	137	119	54	11	17	17	23	20	33	680

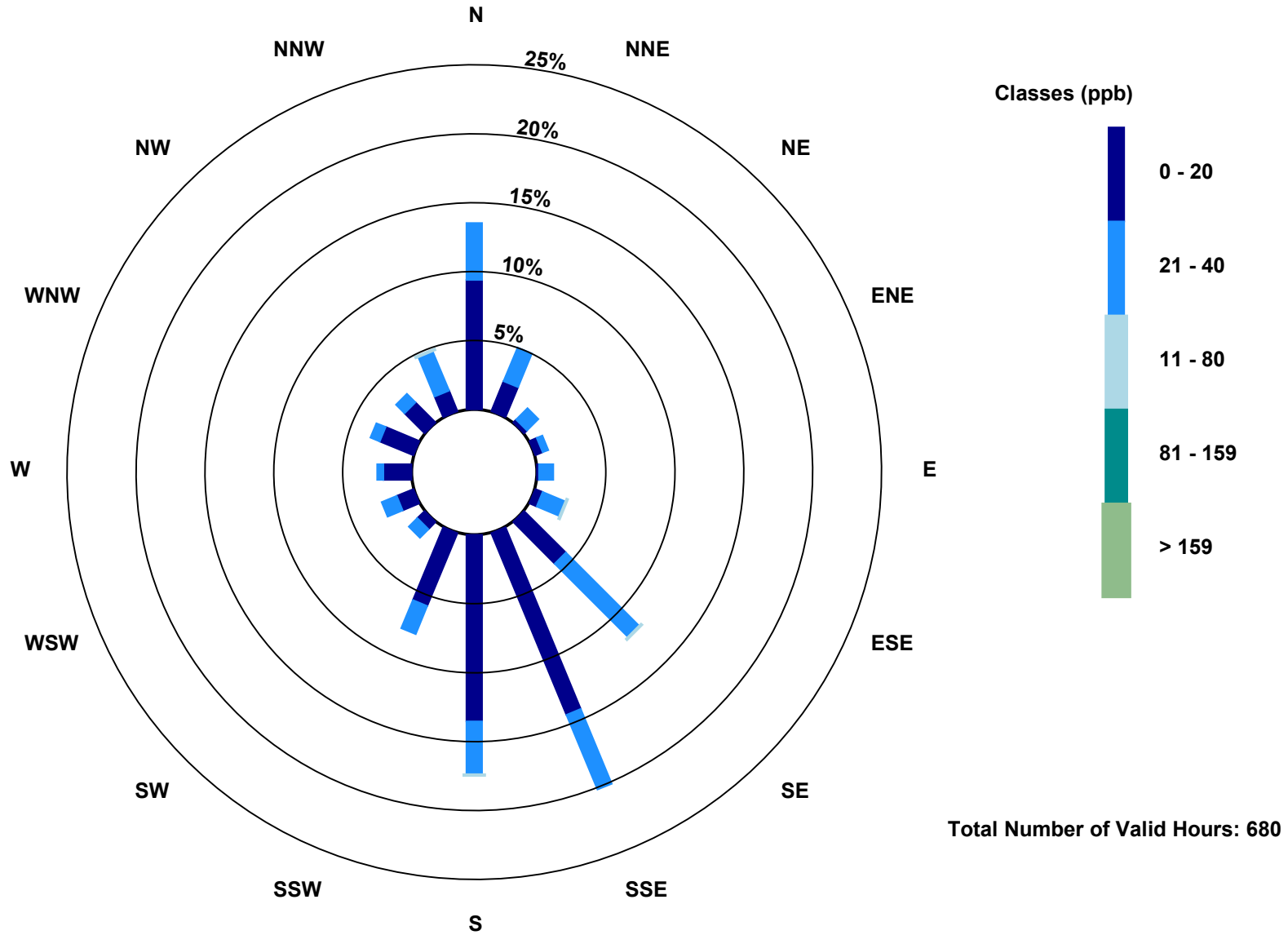
Total Number of Valid Hours: 680

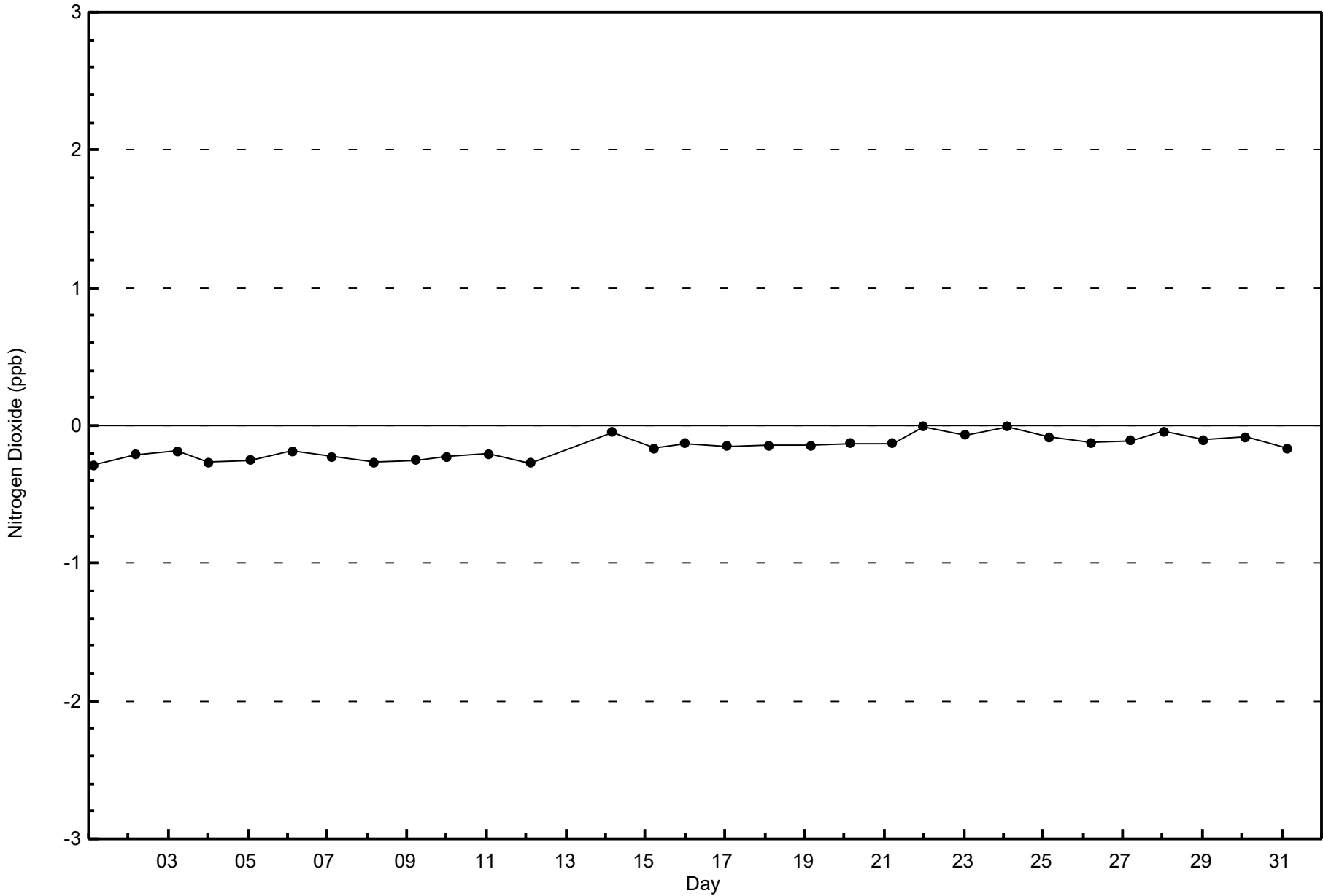
Total Number of Hours: 744

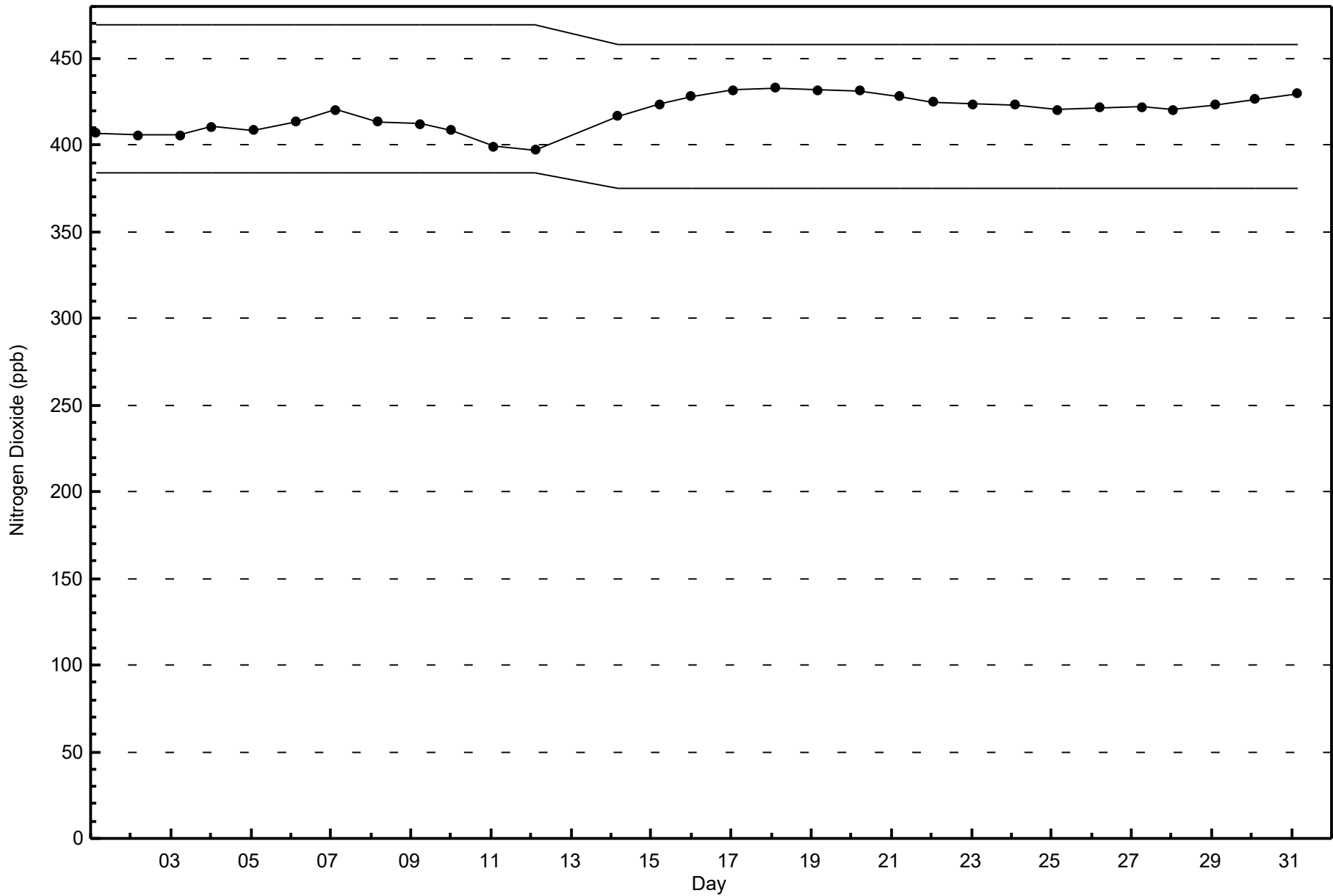


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Fort Hills









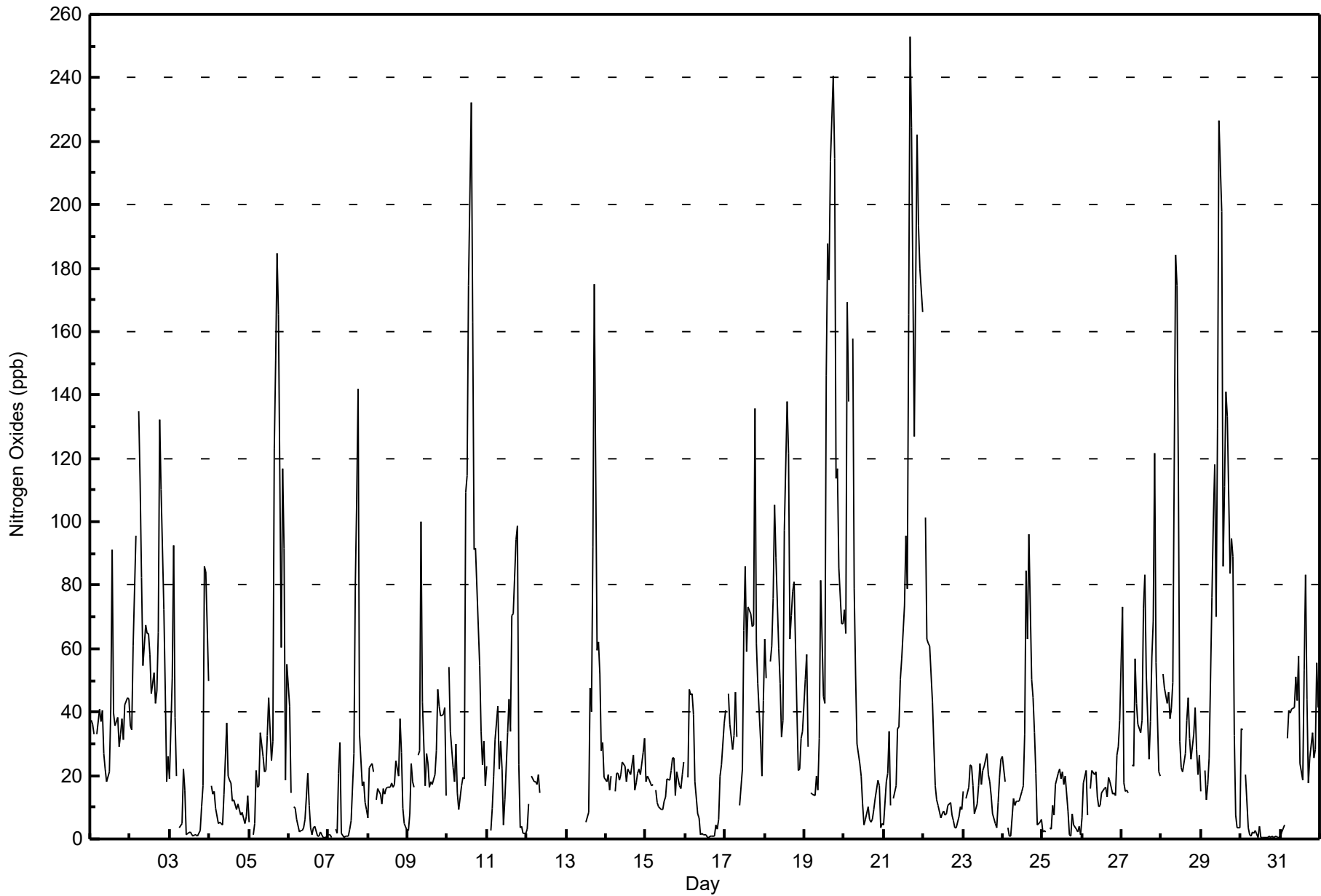
Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

Fort Hills - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																						Hours in Service: 744																											
Maximum Value: 253.0 ppb on Dec 21 17:00																						Hours of Data: 686																											
Minimum Value: 0.3 ppb on Dec 7 03:00																						Hours of Missing Data: 58																											
Maximum Diurnal Average: 57.7 ppb at hour 18																						Hours of Calibration: 38																											
Monthly Average: 36.51 ppb																						Percent Operational Time: 97.3																											
Minimum Daily Average: 4.9 ppb on Dec 30																																																	
Minimum Diurnal Average: 21.9 ppb at hour 5																																																	
Percentiles: P ₁ = 0.5 P ₁₀ = 2.7 Q ₁ = 10.6 Median = 21.1 Q ₃ = 44.2 P ₉₀ = 89.0 P ₉₉ = 213.8																																																	
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-Dec	37.6	36.3	32.9	Z	32.9	41.0	36.8	40.6	26.8	22.2	18.0	21.3	41.0	91.2	39.7	35.8	38.4	29.0	32.8	37.7	31.1	42.4	44.7	44.1	37.2	91.2																							
2-Dec	35.7	34.3	60.6	95.7	Z	134.7	112.5	82.5	54.6	67.6	64.8	65.0	58.2	45.8	52.6	43.0	46.7	65.4	132.3	110.4	72.2	46.9	18.0	26.0	66.3	134.7																							
3-Dec	18.8	50.6	92.6	38.2	19.9	Z	3.7	4.7	22.2	15.5	1.5	1.8	2.0	1.4	1.0	1.2	1.2	0.9	2.8	9.9	16.8	85.8	84.3	49.9	22.9	92.6																							
4-Dec	Z	16.6	14.3	14.8	9.5	4.9	5.1	5.0	4.5	13.9	36.6	19.6	18.7	17.6	12.1	12.3	9.4	10.8	9.1	7.6	8.2	4.8	6.8	13.9	12.0	36.6																							
5-Dec	5.3	Z	1.5	4.9	21.5	16.2	16.8	33.7	26.0	21.0	21.7	32.5	44.3	24.5	31.0	122.7	150.8	184.6	165.4	60.6	116.9	91.8	18.4	55.3	55.1	184.6																							
6-Dec	41.8	14.5	Z	10.0	9.6	6.3	2.2	2.8	2.6	3.6	6.1	20.9	10.7	3.4	1.5	3.5	4.0	0.8	0.8	2.4	1.3	0.4	0.6	1.2	6.6	41.8																							
7-Dec	1.1	1.2	0.3	Z	2.9	1.7	20.5	30.4	1.7	0.6	0.8	0.9	0.9	2.9	5.6	26.7	80.2	106.9	142.1	33.0	16.8	18.2	11.7	9.1	22.5	142.1																							
8-Dec	6.4	22.5	23.9	21.0	Z	12.3	16.0	14.0	11.1	15.7	14.1	15.9	16.1	16.2	17.8	16.3	17.1	24.9	19.6	37.8	27.4	9.7	4.7	2.5	16.7	37.8																							
9-Dec	2.7	7.8	24.0	18.1	16.3	Z	26.7	27.8	99.9	43.4	16.8	26.7	23.6	16.2	18.2	17.3	20.4	27.9	46.9	41.9	39.0	39.1	41.5	13.5	28.5	99.9																							
10-Dec	Z	54.2	33.9	22.7	18.1	29.9	14.5	9.0	16.9	19.5	19.1	109.4	114.8	174.6	232.4	163.1	91.3	91.6	79.3	54.7	34.0	23.5	30.9	16.8	63.2	232.4																							
11-Dec	22.7	Z	2.9	9.7	19.9	31.2	41.8	22.0	31.1	21.9	4.5	12.3	33.3	44.2	33.8	70.4	71.0	94.1	98.8	23.6	3.6	3.8	2.0	1.9	30.4	98.8																							
12-Dec	3.0	11.2	Z	19.8	18.2	18.1	17.1	20.4	14.6	C	C	C	C	M	M	M	M	M	M	M	M	M	M	M	M	--	20.4																						
13-Dec	M	M	M	M	M	M	M	M	M	C	C	C	C	5.5	8.5	47.5	39.9	92.0	174.8	59.6	62.2	52.2	27.9	30.5	19.5	--	174.8																						
14-Dec	18.1	20.4	15.6	20.0	Z	14.8	20.7	20.7	18.6	20.2	24.3	22.7	18.1	22.0	21.1	20.2	26.6	15.2	17.7	20.8	21.9	20.4	27.4	31.8	20.8	31.8																							
15-Dec	17.9	19.8	18.8	16.9	17.3	Z	15.2	11.2	10.0	9.5	9.1	12.0	13.1	19.1	18.4	21.5	25.7	25.6	13.8	21.3	16.7	16.1	20.4	24.3	17.1	25.7																							
16-Dec	Z	19.6	47.4	45.4	46.0	39.1	18.0	7.8	6.7	1.4	1.9	1.2	1.3	0.6	0.5	0.8	0.9	0.8	4.2	3.2	6.1	19.8	23.4	36.7	14.5	47.4																							
17-Dec	40.6	Z	45.8	36.3	28.4	32.4	46.1	32.1	M	10.7	22.2	65.7	85.8	59.3	73.2	70.7	66.8	67.4	135.5	61.9	48.9	31.4	19.7	43.5	51.1	135.5																							
18-Dec	63.0	50.7	Z	56.1	60.8	75.8	105.2	88.7	59.9	48.7	32.2	37.5	97.5	138.0	121.5	63.0	70.7	78.0	81.0	40.7	21.6	22.1	31.7	33.8	64.3	138.0																							
19-Dec	50.4	58.2	29.0	Z	14.5	14.1	13.7	19.8	15.4	31.9	81.4	44.9	42.6	146.3	187.6	176.2	213.6	240.8	214.7	113.7	116.6	85.6	67.8	67.9	89.0	240.8																							
20-Dec	72.1	65.0	169.4	137.8	Z	158.0	78.8	51.4	29.8	23.7	19.7	10.8	4.6	6.1	10.3	6.3	5.4	6.1	9.3	12.6	18.5	16.9	3.7	4.9	40.1	169.4																							
21-Dec	4.6	17.9	20.7	33.9	10.7	Z	12.8	16.9	34.7	35.5	50.2	56.9	73.7	95.4	78.7	165.2	253.0	224.1	126.8	174.9	222.2	193.6	180.0	166.1	97.8	253.0																							
22-Dec	Z	101.6	63.2	61.6	60.7	43.0	29.7	16.7	12.1	10.6	6.8	8.1	9.0	7.4	7.9	10.5	11.3	7.6	5.5	3.6	3.4	7.2	10.0	9.1	22.0	101.6																							
23-Dec	15.0	Z	12.8	16.1	23.5	22.8	16.5	7.9	10.9	16.9	23.7	17.4	21.7	23.1	27.0	20.1	18.2	13.7	8.1	4.9	3.7	11.5	19.2	25.3	16.5	27.0																							
24-Dec	26.1	18.1	Z	3.7	1.0	0.9	12.8	10.4	12.1	11.9	11.9	14.8	16.5	32.9	84.7	62.9	95.9	50.4	44.3	33.5	20.7	4.6	5.2	6.0	25.3	95.9																							
25-Dec	2.3	2.7	2.2	Z	3.6	3.2	10.5	7.5	17.2	20.9	22.0	18.9	21.1	17.2	19.7	8.9	1.3	0.8	7.8	4.2	2.9	2.2	4.2	1.4	8.8	22.0																							
26-Dec	6.7	17.6	21.5	7.4	Z	15.9	21.7	20.4	21.2	13.2	10.2	10.4	14.4	15.9	16.4	13.3	19.3	18.0	14.2	14.7	13.6	26.4	29.1	37.7	17.4	37.7																							
27-Dec	73.1	17.7	14.9	15.2	14.4	Z	23.4	23.0	56.9	42.8	36.3	33.7	37.6	72.7	83.4	51.8	24.9	37.0	57.4	68.6	121.8	55.7	21.1	20.0	43.6	121.8																							
28-Dec	Z	51.9	47.7	42.7	46.2	38.1	41.6	49.2	184.2	174.7	113.4	30.7	22.7	21.2	27.0	37.4	44.6	31.9	24.9	33.3	41.3	28.2	20.1	26.3	51.3	184.2																							
29-Dec	15.0	Z	21.5	12.2	17.1	25.7	76.4	100.3	118.3	70.0	129.8	226.5	198.0	86.0	111.0	140.8	133.0	83.8	94.7	89.2	32.6	7.4	3.4	3.6	78.1	226.5																							
30-Dec	34.9	34.5	Z	20.4	3.3	1.5	1.0	2.0	1.6	2.6	0.5	3.8	0.5	0.6	0.5	0.5	0.6	0.7	0.4	0.9	0.6	0.7	0.4	0.5	4.9	34.9																							
31-Dec	0.8	2.2	4.3	Z	31.8	40.7	39.6	41.1	41.6	50.9	43.5	57.9	23.9	18.6	53.5	83.4	44.1	17.8	25.4	33.3	25.6	28.4	55.5	41.5	35.0	83.4																							
																								24.6	29.9	32.9	31.2	21.9	32.9	29.9	27.3	33.2	29.0	29.1	34.5	35.7	41.0	47.8	50.2	55.9	57.7	55.8	40.6	38.6	32.4	27.9	27.8	Diurnal Average	
																								73.1	101.6	169.4	137.8	60.8	158.0	112.5	100.3	184.2	174.7	129.8	226.5	198.0	174.6	232.4	176.2	253.0	240.8	214.7	174.9	222.2	193.6	180.0	166.1	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Fort Hills - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	332	48.40	48.40
21 - 40	156	22.74	71.14
41 - 80	116	16.91	88.05
81 - 159	56	8.16	96.21
> 159	24	3.50	99.71

Total Number of Valid Hours: 686

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Fort Hills - December 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	12	2	1	0	1	15	74	85	33	3	7	13	17	12	10	329
21 - 40	28	12	2	5	0	5	24	32	16	11	4	4	1	2	6	3	155
11 - 80	14	7	3	0	3	3	26	18	12	7	3	3	2	4	1	9	115
81 - 159	3	3	2	1	4	5	11	9	4	2	1	2	1	0	1	7	56
> 159	3	0	1	0	1	3	3	4	2	1	0	1	0	0	0	4	23
Totals	92	34	10	7	8	17	79	137	119	54	11	17	17	23	20	33	678

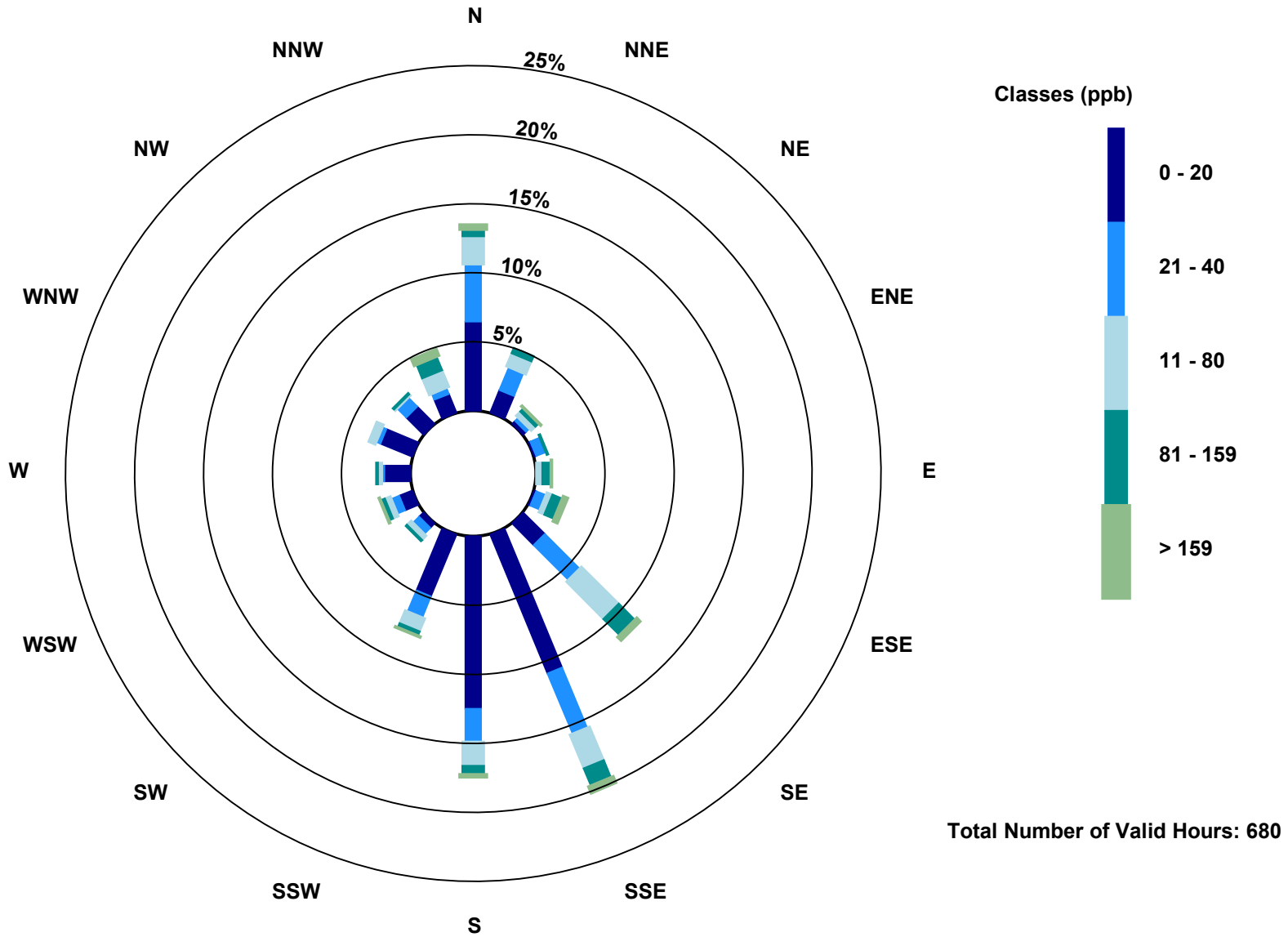
Total Number of Valid Hours: 680

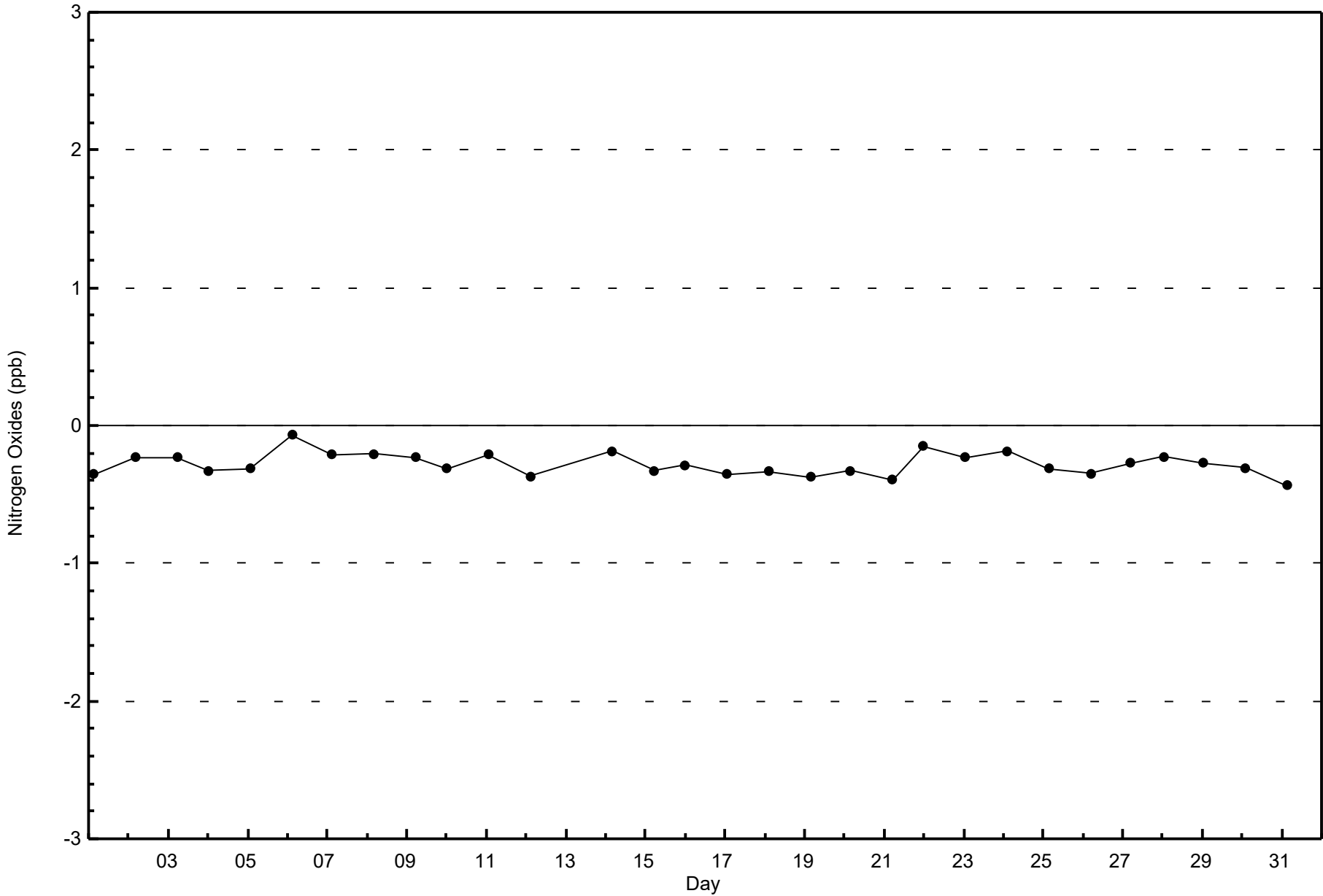
Total Number of Hours: 744

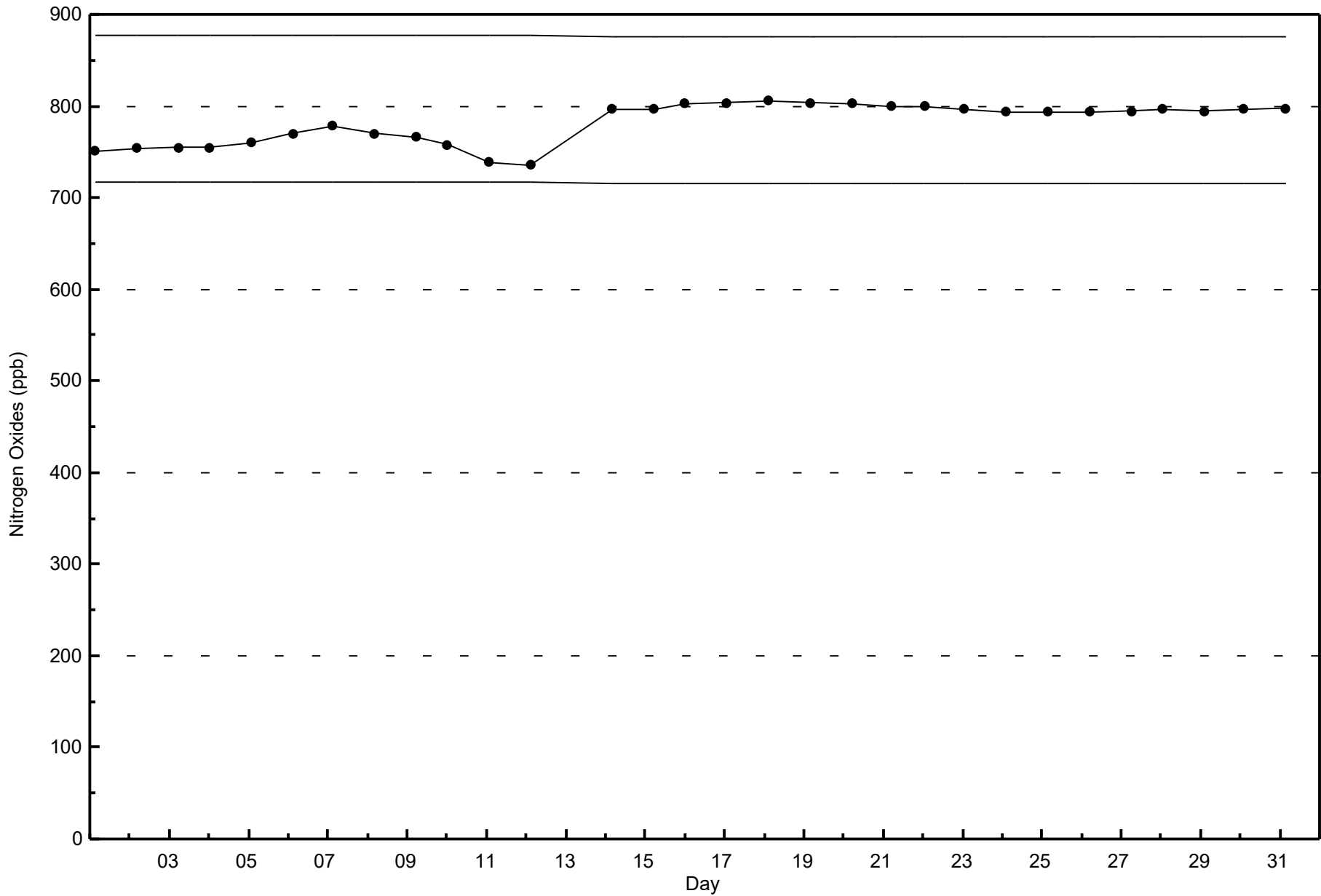


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Fort Hills





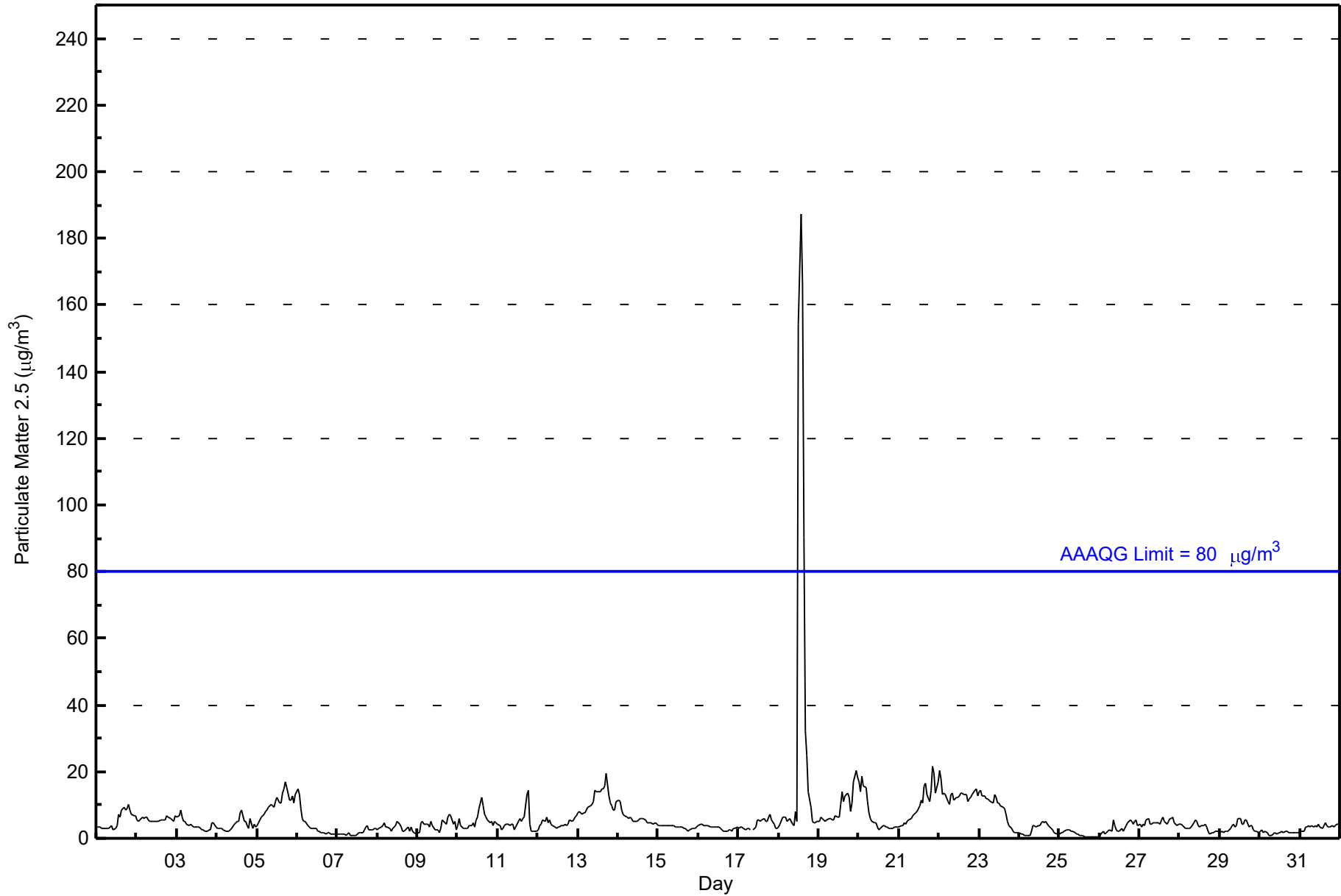




Summary of Hour Averages

Fort Hills - December 2024

Number of Exceedences (AAAQO):		1-hr: 4	24-hr: 1	Hours in Service: 744																	744																											
Maximum Value: 187.5 µg/m ³ on Dec 18 14:00		Maximum Daily Average: 31.8 µg/m ³ on Dec 18																	743																													
Minimum Value: 0.3 µg/m ³ on Dec 25 18:00		Minimum Daily Average: 1.2 µg/m ³ on Dec 25																	Hours of Missing Data: 1																													
Maximum Diurnal Average: 11.4 µg/m ³ at hour 14		Minimum Diurnal Average: 4.6 µg/m ³ at hour 7																	Hours of Calibration: 1																													
Monthly Average: 6.08 µg/m ³		Percentiles: P ₁ = 0.5 P ₁₀ = 1.8 Q ₁ = 2.9 Median = 4.0 Q ₃ = 6.2 P ₉₀ = 11.8 P ₉₉ = 20.2																	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-Dec	3.5	3.3	3.2	3.0	3.0	2.9	3.1	3.1	3.4	3.7	2.8	2.9	3.9	7.2	6.5	8.4	9.5	8.3	8.8	10.1	8.3	7.3	6.8	6.6	5.4	10.1																						
2-Dec	5.5	5.1	5.4	6.2	6.1	6.6	6.3	5.4	5.0	5.1	5.2	5.1	5.2	5.1	5.6	5.5	5.3	5.6	6.8	6.4	5.9	5.3	5.0	6.8	5.6	6.8																						
3-Dec	6.4	6.9	8.6	6.3	5.2	5.1	4.2	3.8	4.0	3.8	3.4	3.3	3.3	3.2	2.9	2.6	2.4	2.2	2.3	2.4	2.5	4.7	4.8	3.5	4.1	8.6																						
4-Dec	3.2	3.0	2.9	2.9	2.6	2.2	2.3	2.2	2.4	3.0	4.4	4.6	5.1	5.2	7.8	8.4	5.3	5.1	3.9	3.1	6.1	2.9	4.1	3.6	4.0	8.4																						
5-Dec	3.7	4.9	6.3	6.7	7.3	7.9	8.3	9.2	10.0	9.6	9.1	11.1	12.2	10.5	10.8	13.4	15.0	17.0	15.3	11.3	11.4	12.7	10.4	12.9	10.3	17.0																						
6-Dec	14.8	13.0	8.7	5.8	5.1	5.3	3.8	3.5	3.1	2.8	2.8	2.8	2.2	1.9	1.8	1.8	1.7	1.5	1.5	1.6	1.5	1.4	1.4	1.4	3.8	14.8																						
7-Dec	1.3	1.2	1.2	1.4	1.2	1.0	1.2	1.6	0.8	0.6	0.9	1.0	1.4	1.6	1.5	1.9	2.8	3.2	3.9	2.8	2.5	2.4	3.0	2.8	1.8	3.9																						
8-Dec	2.6	3.2	3.5	3.6	4.5	3.3	3.3	3.1	2.2	3.1	3.2	4.0	5.0	4.2	3.3	2.3	2.2	2.4	3.3	2.3	3.3	1.9	1.5	1.5	3.0	5.0																						
9-Dec	1.5	1.9	4.5	5.0	4.4	4.4	4.2	3.6	5.2	4.0	2.7	2.5	2.6	1.9	2.8	5.4	4.5	4.4	6.2	7.3	6.6	4.4	4.9	2.7	4.1	7.3																						
10-Dec	3.8	5.9	3.9	3.2	2.9	3.1	3.1	4.0	3.9	4.6	3.3	5.4	6.5	8.8	12.3	9.7	7.0	6.5	5.6	4.8	4.9	4.0	5.0	4.5	5.3	12.3																						
11-Dec	4.1	3.7	2.6	3.1	3.9	4.2	4.4	4.0	4.3	4.1	2.7	3.3	5.1	6.0	5.2	6.1	6.2	13.3	14.6	4.0	2.2	2.1	2.1	2.1	4.7	14.6																						
12-Dec	2.7	3.7	4.3	5.3	4.9	6.2	4.6	5.6	4.2	3.7	3.2	3.1	3.4	3.3	3.7	3.9	4.2	3.9	4.0	5.6	5.1	5.5	6.2	6.8	4.5	6.8																						
13-Dec	7.5	8.2	7.0	7.8	7.7	8.6	9.3	9.8	10.0	11.1	14.6	13.9	13.9	13.8	14.9	14.8	15.8	19.5	12.7	10.5	9.6	8.6	8.7	11.1	11.2	19.5																						
14-Dec	11.4	10.9	8.6	7.2	6.6	6.3	6.0	6.2	6.1	5.2	5.1	5.3	5.6	5.9	5.9	5.8	5.6	4.7	4.6	4.8	4.7	4.4	4.5	4.4	6.1	11.4																						
15-Dec	4.0	3.8	3.6	3.7	3.8	3.8	3.9	4.0	3.9	3.7	3.5	3.5	3.5	3.5	3.3	3.1	2.9	2.6	2.2	2.4	2.8	3.1	3.1	3.4	3.4	4.0																						
16-Dec	4.0	4.0	4.1	3.9	3.9	3.9	3.7	3.6	3.4	3.3	3.4	3.4	3.4	3.1	2.7	2.3	2.2	2.3	2.3	2.3	2.3	2.8	2.8	3.4	3.2	4.1																						
17-Dec	3.1	3.4	3.5	2.9	2.7	2.9	3.0	2.7	C	2.6	3.3	5.3	5.5	5.1	5.4	6.0	5.1	5.2	6.5	7.1	5.3	4.3	2.9	3.0	4.2	7.1																						
18-Dec	3.6	4.4	6.5	6.5	6.2	5.2	5.7	6.1	4.2	4.0	8.1	5.2	154.4	187.5	166.0	90.5	32.3	24.9	13.8	9.5	5.3	4.7	4.7	5.0	31.8	187.5																						
19-Dec	5.2	6.5	6.1	5.6	5.2	5.5	5.8	5.9	5.5	5.7	6.8	6.3	6.3	10.2	14.0	11.2	12.6	13.4	12.2	8.1	10.8	17.1	20.2	18.2	9.3	20.2																						
20-Dec	17.2	14.0	18.5	15.6	15.3	10.8	7.6	5.8	5.0	4.8	4.6	3.3	2.7	3.2	4.0	3.7	3.6	3.4	3.0	3.0	3.1	3.3	3.3	3.4	6.8	18.5																						
21-Dec	3.4	3.7	4.0	4.5	4.1	5.0	5.3	5.8	6.8	7.2	7.8	8.1	9.6	11.4	10.5	15.5	16.6	13.1	11.2	14.3	21.5	19.6	13.4	16.9	10.0	21.5																						
22-Dec	20.2	18.0	13.3	13.5	13.3	11.2	10.2	13.2	13.5	11.4	12.4	12.3	12.6	13.4	13.4	13.1	13.2	11.1	11.9	12.1	13.3	14.3	14.8	12.5	13.3	20.2																						
23-Dec	13.9	14.5	12.8	12.6	11.8	11.7	11.3	11.1	10.6	12.9	12.1	10.5	10.5	9.7	9.3	8.9	7.3	5.3	3.9	2.9	2.1	1.7	1.5	1.6	8.8	14.5																						
24-Dec	1.5	1.3	1.1	1.0	0.8	1.0	1.1	2.1	3.8	3.6	3.6	3.7	3.9	4.5	5.1	4.5	5.2	4.0	3.3	2.9	2.5	1.5	1.4	1.7	2.7	5.2																						
25-Dec	1.4	1.7	1.9	2.2	2.6	2.5	2.5	2.2	1.9	1.6	1.4	1.1	0.9	0.8	0.9	0.5	0.3	0.3	0.5	0.3	0.4	0.4	0.5	0.3	1.2	2.6																						
26-Dec	0.5	1.2	2.3	1.1	1.8	2.3	2.5	2.2	5.6	3.7	2.7	2.2	2.2	3.0	2.3	3.0	4.0	4.8	5.7	4.9	4.1	5.2	5.5	3.9	3.2	5.7																						
27-Dec	4.1	3.5	4.1	3.8	5.5	6.1	4.4	4.1	4.8	4.7	4.8	4.7	4.4	5.4	6.5	5.2	4.2	5.3	5.7	5.9	6.4	4.6	3.8	4.2	4.8	6.5																						
28-Dec	4.1	4.4	3.9	3.0	3.1	3.0	2.9	3.3	4.7	5.7	5.3	3.9	3.6	3.8	3.9	4.1	3.3	2.0	1.4	1.5	1.7	1.9	2.2	2.2	3.3	5.7																						
29-Dec	1.9	1.9	1.9	2.1	2.0	2.1	3.0	3.7	4.4	3.3	4.0	6.0	5.9	4.2	4.2	5.6	5.4	3.4	3.8	3.6	2.7	1.9	2.3	1.8	3.4	6.0																						
30-Dec	2.3	2.4	1.9	2.2	1.6	0.9	0.8	0.8	1.2	1.5	1.4	1.8	1.8	2.0	1.9	2.3	2.0	1.8	1.7	1.8	1.7	1.7	1.7	1.8	1.7	2.4																						
31-Dec	1.9	2.0	2.3	3.5	3.4	3.7	3.6	3.6	3.4	3.6	3.6	4.2	3.2	3.2	3.9	4.5	4.0	3.4	3.3	3.6	3.5	3.7	4.1	4.3	3.5	4.5																						
5.3																								5.3	5.2	5.0	4.9	4.8	4.6	4.7	4.9	4.8	4.9	5.0	10.0	11.4	11.0	8.8	6.8	6.6	6.0	5.3	5.3	5.2	5.1	5.1	Diurnal Average	
20.2																								18.0	18.5	15.6	15.3	11.7	11.3	13.2	13.5	12.9	14.6	13.9	154.4	187.5	166.0	90.5	32.3	24.9	15.3	14.3	21.5	19.6	20.2	18.2	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 - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	513	69.04	69.04
6 - 15	208	27.99	97.04
16 - 25	17	2.29	99.33
26 - 80	1	0.13	99.46
> 81.0	4	0.54	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



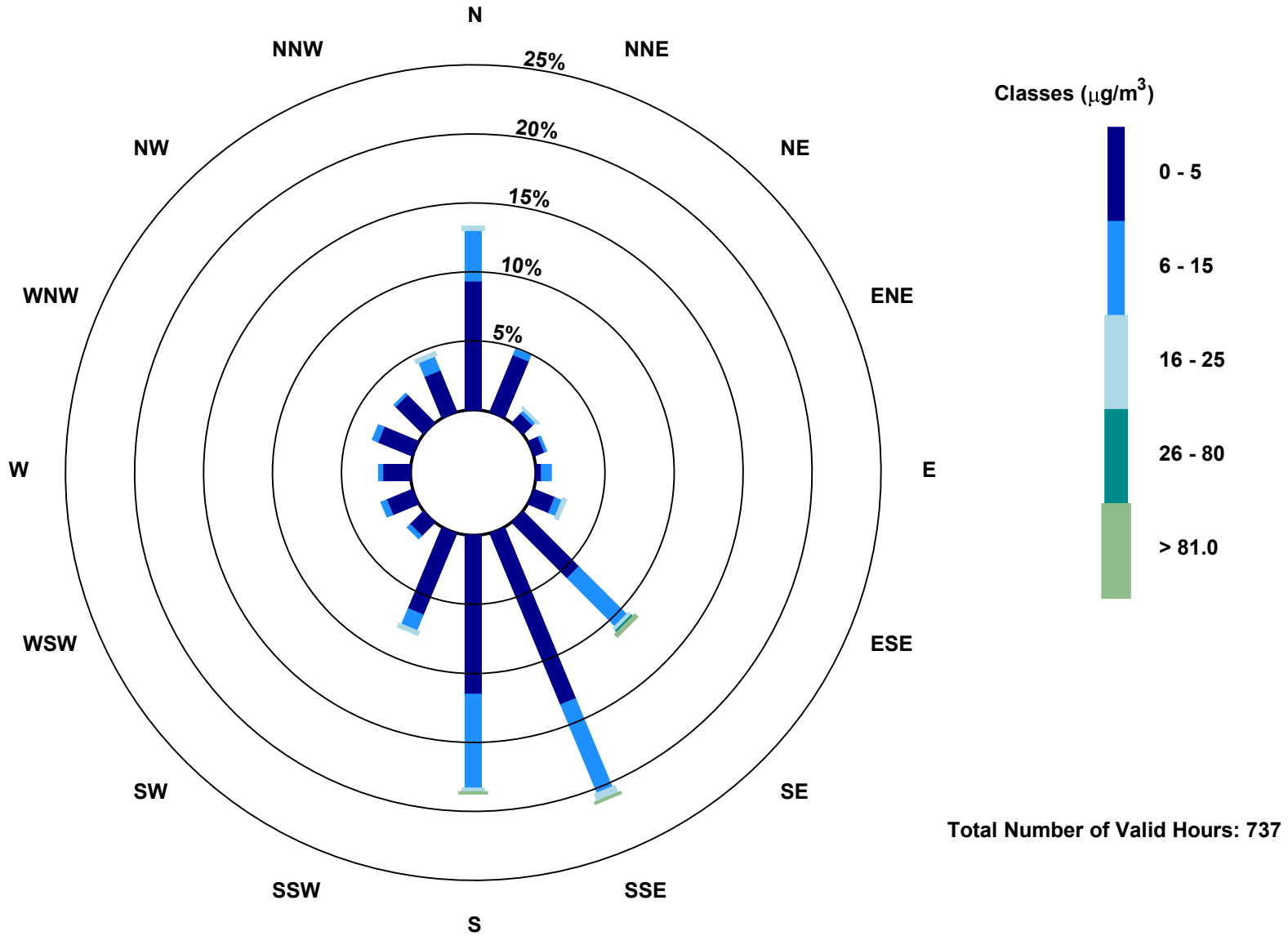
Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Fort Hills - December 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	69	33	7	6	3	12	42	99	85	47	10	15	15	20	21	24	508
6 - 15	27	3	2	1	5	4	36	51	50	9	2	3	2	3	1	8	207
16 - 25	2	0	1	0	0	2	2	4	2	2	0	0	0	0	0	2	17
26 - 80	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	2	1	1	0	0	0	0	0	0	0	4
Totals	98	36	10	7	8	18	83	155	138	58	12	18	17	23	22	34	737

Total Number of Valid Hours: 737

Total Number of Hours: 744





Wood Buffalo Environmental Association
Summary of Hour Averages

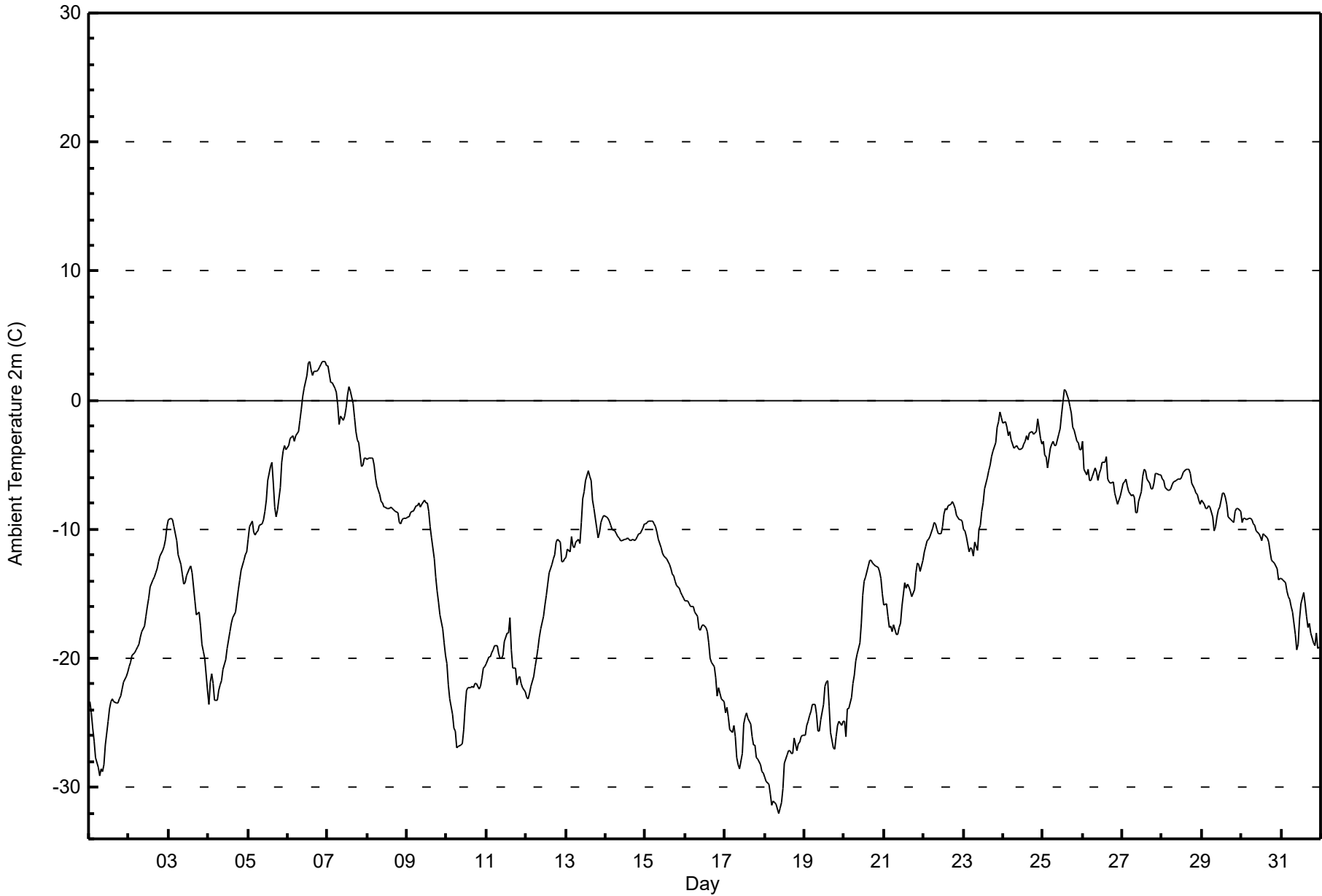
Ambient Temperature 2m (AT2) - C
Fort Hills - December 2024

Maximum Value: 3.0 C on Dec 6 22:00		Maximum Daily Average: 0.5 C on Dec 6		Hours in Service: 744																						
Minimum Value: -32.0 C on Dec 18 09:00		Minimum Daily Average: -28.8 C on Dec 18		Hours of Data: 744																						
Maximum Diurnal Average: -11.4 C at hour 15		Minimum Diurnal Average: -14.1 C at hour 9		Hours of Missing Data: 0																						
Monthly Average: -12.92 C		Percentiles: P ₁ = -30.3 P ₁₀ = -24.7 Q ₁ = -19.2 Median = -11.0 Q ₃ = -7.2 P ₉₀ = -3.2 P ₉₉ = 2.4		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-Dec	-23.3	-24.3	-25.4	-26.4	-27.7	-28.4	-29.1	-28.6	-28.8	-28.3	-26.7	-24.9	-23.9	-23.4	-23.2	-23.4	-23.5	-23.5	-23.2	-22.9	-22.4	-21.8	-21.4	-21.1	-24.8	-21.1
2-Dec	-20.7	-20.3	-19.7	-19.5	-19.4	-19.1	-18.9	-18.3	-17.9	-17.5	-16.8	-16.0	-15.3	-14.5	-14.0	-13.7	-13.4	-13.1	-12.6	-12.1	-11.7	-11.3	-10.8	-9.8	-15.7	-9.8
3-Dec	-9.3	-9.2	-9.3	-9.8	-10.4	-10.8	-12.0	-12.8	-13.5	-14.2	-14.2	-13.7	-13.0	-12.9	-13.4	-14.4	-15.5	-16.6	-16.4	-17.5	-18.9	-19.4	-20.0	-22.5	-14.2	-9.2
4-Dec	-23.6	-21.8	-21.2	-21.9	-23.3	-23.2	-22.5	-22.1	-21.8	-20.9	-20.1	-19.2	-18.6	-17.9	-17.3	-16.9	-16.4	-15.5	-14.7	-13.9	-13.2	-12.4	-12.0	-11.7	-18.4	-11.7
5-Dec	-10.8	-9.8	-9.4	-10.2	-10.5	-10.3	-10.1	-9.7	-9.5	-9.3	-8.6	-7.7	-6.3	-5.2	-4.8	-6.5	-8.3	-9.1	-8.5	-6.7	-4.9	-3.9	-3.5	-3.9	-7.8	-3.5
6-Dec	-3.5	-3.0	-2.9	-2.8	-3.2	-2.7	-2.4	-1.6	-0.7	0.3	1.0	1.9	2.9	3.0	2.3	1.9	2.2	2.2	2.4	2.5	2.8	3.0	3.0	2.7	0.5	3.0
7-Dec	2.6	2.0	1.4	1.3	1.0	0.6	-0.4	-1.9	-1.2	-1.5	-1.3	-0.6	0.4	1.1	0.7	-0.2	-1.3	-2.4	-3.1	-3.3	-5.1	-5.1	-4.5	-4.5	-1.1	2.6
8-Dec	-4.6	-4.4	-4.5	-4.5	-5.0	-6.0	-6.7	-7.3	-7.8	-8.0	-8.3	-8.3	-8.4	-8.4	-8.3	-8.4	-8.5	-8.6	-8.8	-9.5	-9.6	-9.2	-9.1	-9.1	-7.6	-4.4
9-Dec	-9.1	-9.0	-8.7	-8.7	-8.6	-8.2	-8.2	-8.0	-8.3	-8.0	-7.8	-7.9	-8.0	-8.6	-9.8	-10.6	-12.3	-13.7	-14.8	-15.6	-16.6	-17.7	-18.9	-19.8	-11.1	-7.8
10-Dec	-20.4	-22.1	-23.1	-24.4	-25.4	-25.7	-26.9	-26.8	-26.7	-26.6	-25.5	-23.8	-22.4	-22.3	-22.3	-22.2	-22.3	-22.0	-22.0	-22.4	-22.2	-21.6	-20.7	-20.6	-23.4	-20.4
11-Dec	-20.5	-20.0	-19.9	-19.6	-19.4	-19.1	-19.0	-19.7	-20.0	-20.0	-19.8	-18.7	-18.1	-18.1	-16.9	-19.3	-20.8	-20.8	-22.1	-21.6	-21.4	-22.0	-22.3	-22.7	-20.1	-16.9
12-Dec	-23.1	-23.2	-22.7	-22.1	-21.4	-20.7	-20.0	-19.3	-18.4	-17.7	-16.8	-15.9	-15.2	-14.2	-13.4	-12.7	-12.3	-12.0	-11.0	-10.8	-11.0	-12.5	-12.6	-12.3	-16.3	-10.8
13-Dec	-12.3	-11.5	-11.8	-10.6	-11.4	-11.5	-11.0	-10.8	-11.1	-9.5	-7.6	-7.1	-6.2	-5.5	-5.9	-6.3	-7.7	-8.4	-10.0	-10.7	-10.3	-9.4	-9.2	-9.0	-9.4	-5.5
14-Dec	-9.1	-9.2	-9.4	-9.7	-10.0	-10.2	-10.4	-10.5	-10.7	-10.9	-10.8	-10.8	-10.7	-10.8	-10.9	-10.8	-10.9	-10.7	-10.5	-10.4	-10.3	-9.9	-9.9	-9.6	-10.3	-9.1
15-Dec	-9.6	-9.5	-9.4	-9.3	-9.4	-9.6	-9.8	-10.3	-10.8	-11.4	-11.9	-12.1	-12.2	-12.3	-12.7	-13.1	-13.5	-13.6	-14.1	-14.3	-14.6	-14.9	-15.1	-15.4	-12.0	-9.3
16-Dec	-15.6	-15.5	-15.7	-16.0	-16.0	-16.0	-16.4	-16.7	-17.8	-17.8	-17.5	-17.4	-17.6	-18.0	-18.8	-20.0	-20.3	-20.6	-21.6	-22.9	-22.2	-22.8	-23.1	-23.4	-18.7	-15.5
17-Dec	-24.2	-23.8	-24.6	-25.5	-25.8	-25.2	-26.0	-27.7	-28.2	-28.6	-27.4	-25.1	-24.6	-24.2	-24.6	-25.1	-26.1	-26.8	-26.7	-27.7	-27.8	-28.2	-28.8	-29.0	-26.3	-23.8
18-Dec	-29.2	-29.5	-29.7	-30.5	-31.4	-31.1	-31.2	-31.3	-32.0	-31.6	-31.2	-30.1	-28.1	-27.4	-27.2	-27.2	-27.4	-27.4	-26.1	-27.1	-26.6	-26.5	-26.1	-26.0	-28.8	-26.0
19-Dec	-26.0	-25.2	-24.9	-24.5	-24.1	-23.6	-23.6	-24.4	-25.6	-25.6	-24.7	-23.6	-22.2	-21.9	-21.8	-23.7	-25.8	-26.9	-27.0	-26.1	-25.2	-24.9	-25.2	-24.8	-24.6	-21.8
20-Dec	-24.9	-26.1	-24.0	-23.9	-23.0	-22.0	-21.3	-20.2	-19.7	-18.9	-17.3	-15.1	-14.0	-13.7	-12.9	-12.4	-12.5	-12.6	-12.8	-12.8	-13.0	-13.3	-13.9	-15.1	-17.3	-12.4
21-Dec	-15.9	-15.8	-16.8	-17.6	-17.5	-17.9	-17.4	-18.1	-18.2	-17.7	-17.3	-16.0	-14.2	-14.6	-14.3	-14.4	-14.8	-15.2	-14.7	-13.4	-12.7	-12.7	-13.2	-12.4	-15.5	-12.4
22-Dec	-11.8	-11.4	-10.9	-10.7	-10.6	-10.0	-9.5	-9.6	-10.1	-10.3	-10.3	-9.8	-8.9	-8.4	-8.5	-8.2	-8.0	-7.9	-8.0	-8.4	-9.0	-9.3	-9.3	-9.4	-9.5	-7.9
23-Dec	-10.0	-10.1	-10.6	-11.8	-11.5	-11.5	-12.1	-11.0	-11.6	-10.0	-9.7	-8.6	-8.0	-6.8	-6.0	-5.5	-5.1	-4.4	-3.9	-3.3	-2.1	-1.6	-0.9	-1.3	-7.4	-0.9
24-Dec	-1.8	-1.7	-2.1	-2.8	-2.5	-3.1	-3.7	-3.6	-3.5	-3.7	-3.8	-3.8	-3.4	-3.1	-2.8	-3.1	-2.6	-2.5	-2.7	-2.5	-2.4	-1.5	-3.0	-3.5	-2.9	-1.5
25-Dec	-3.2	-4.3	-4.4	-5.2	-3.7	-3.4	-3.2	-3.5	-3.5	-2.7	-2.2	-1.1	-0.1	0.8	0.7	0.1	-0.5	-1.0	-2.1	-2.3	-3.2	-3.3	-3.8	-3.8	-2.5	0.8
26-Dec	-3.2	-5.4	-5.8	-5.3	-6.2	-6.3	-5.9	-5.3	-5.6	-6.3	-5.6	-5.3	-4.9	-4.9	-4.4	-6.1	-6.4	-6.4	-6.4	-7.3	-7.7	-8.0	-7.8	-7.4	-6.0	-3.2
27-Dec	-6.4	-6.3	-6.2	-6.6	-7.1	-7.4	-7.3	-7.5	-8.7	-8.7	-7.8	-7.1	-5.9	-5.4	-5.5	-6.2	-6.4	-6.8	-6.9	-6.4	-5.7	-5.7	-5.8	-5.8	-6.7	-5.4
28-Dec	-6.1	-6.3	-6.7	-7.0	-7.0	-6.9	-6.5	-6.3	-6.2	-6.1	-6.2	-6.1	-5.9	-5.6	-5.3	-5.4	-5.4	-5.7	-6.4	-6.9	-7.2	-7.3	-7.7	-8.1	-6.4	-5.3
29-Dec	-7.8	-8.0	-8.3	-8.4	-8.2	-8.3	-9.0	-10.1	-9.8	-9.1	-8.5	-8.3	-7.2	-7.3	-7.5	-8.1	-9.0	-9.2	-9.4	-9.4	-8.7	-8.4	-8.4	-8.6	-8.5	-7.2
30-Dec	-9.5	-9.1	-9.1	-9.3	-9.1	-9.1	-9.3	-9.6	-9.7	-10.1	-10.4	-10.6	-10.9	-10.3	-10.4	-10.7	-11.0	-11.8	-12.4	-12.5	-12.7	-13.0	-13.9	-13.9	-10.8	-9.1
31-Dec	-13.8	-13.9	-14.1	-14.8	-15.3	-15.5	-16.0	-16.4	-18.1	-19.3	-18.9	-17.0	-15.8	-14.9	-15.8	-16.7	-17.6	-17.3	-18.1	-18.8	-19.1	-18.1	-19.2	-19.2	-16.8	-13.8
	-13.1	-13.2	-13.2	-13.5	-13.6	-13.6	-13.7	-13.8	-14.1	-13.9	-13.4	-12.6	-11.8	-11.5	-11.4	-11.9	-12.4	-12.6	-12.7	-12.8	-12.7	-12.7	-12.8	-12.9		Diurnal Average
	2.6	2.0	1.4	1.3	1.0	0.6	-0.4	-1.6	-0.7	0.3	1.0	1.9	2.9	3.0	2.3	1.9	2.2	2.2	2.4	2.5	2.8	3.0	3.0	2.7		Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Fort Hills - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Fort Hills - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	168	22.58	22.58
-20 - 0	549	73.79	96.37
0 - 10	27	3.63	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



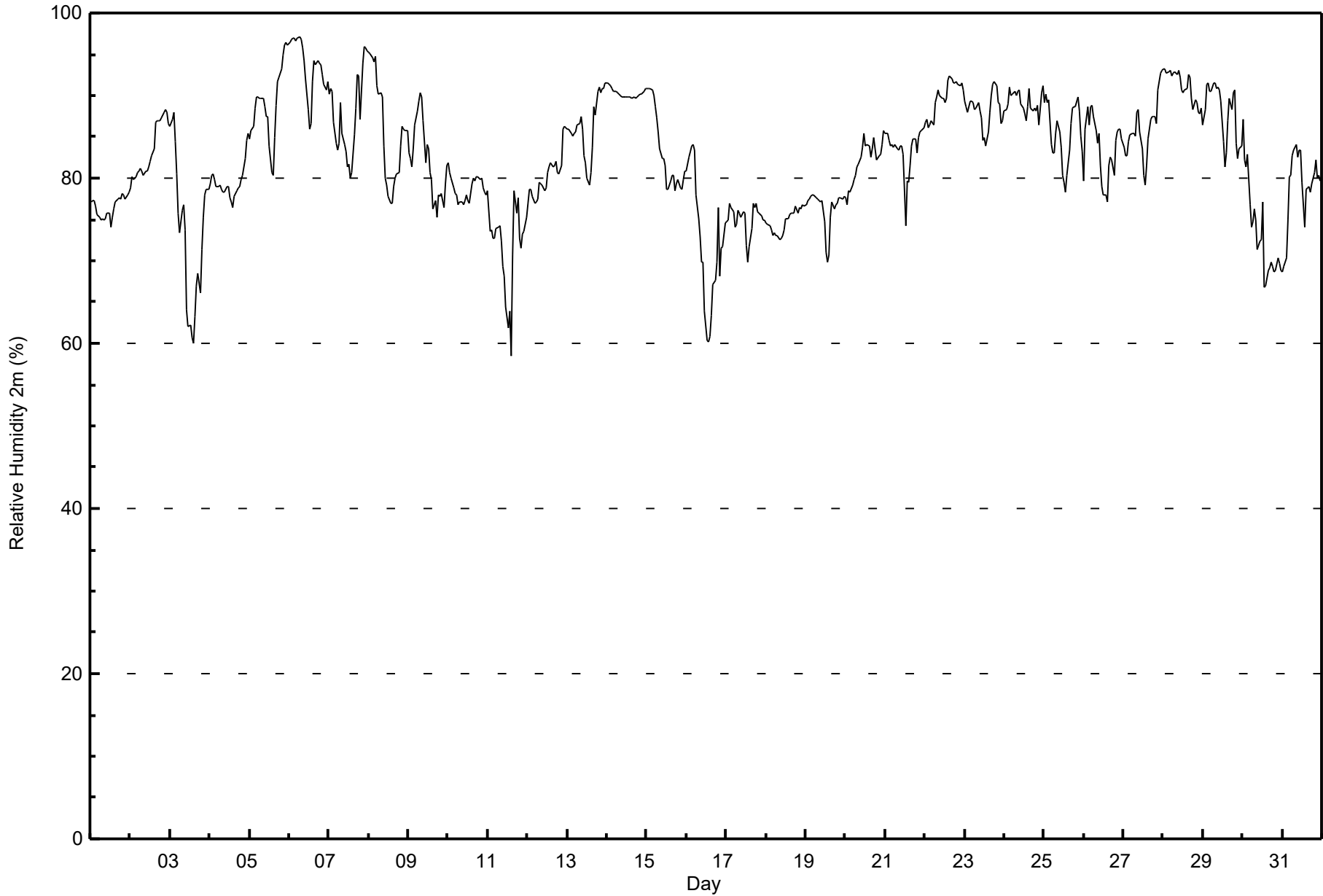
Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

Fort Hills - December 2024

Maximum Value: 97.1 % on Dec 6 07:00 Maximum Daily Average: 93.6 % on Dec 6																						Hours in Service: 744 Hours of Data: 744					
Minimum Value: 58.5 % on Dec 11 15:00 Minimum Daily Average: 71.7 % on Dec 11 Maximum Diurnal Average: 84.2 % at hour 4 Minimum Diurnal Average: 78.0 % at hour 14 Monthly Average: 82.53 % Percentiles: P ₁ = 62.2 P ₁₀ = 73.9 Q ₁ = 77.6 Median = 82.8 Q ₃ = 88.5 P ₉₀ = 91.1 P ₉₉ = 96.5																						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-Dec	77.2	77.3	77.2	76.6	75.6	75.2	74.8	75.0	75.0	75.1	75.8	75.8	74.0	75.3	76.3	77.1	77.4	77.6	77.4	78.1	78.0	77.4	77.9	78.2	76.5	78.2	
2-Dec	78.8	80.2	79.9	80.2	80.7	80.9	81.2	80.8	80.4	80.9	80.8	81.4	82.1	82.8	83.6	86.8	86.9	86.9	87.0	87.3	87.9	88.3	88.0	86.6	83.4	88.3	
3-Dec	86.2	87.1	88.0	84.4	80.5	75.8	73.4	76.1	76.7	73.8	64.0	62.1	62.2	60.8	59.9	63.3	67.0	68.5	66.1	71.4	75.3	77.9	78.6	78.6	73.2	88.0	
4-Dec	79.4	80.3	80.5	79.9	79.1	79.0	79.1	78.7	78.4	78.2	79.1	78.9	77.6	77.1	76.4	77.8	78.5	78.7	78.9	79.8	80.4	82.5	84.6	85.4	79.5	85.4	
5-Dec	84.7	85.7	86.3	88.5	89.8	89.8	89.8	89.6	89.6	89.7	88.7	87.4	87.5	83.8	80.6	80.3	84.9	88.9	91.7	92.2	93.3	95.0	96.2	96.5	96.1	89.0	96.5
6-Dec	96.4	96.8	96.9	97.0	96.7	97.0	97.1	96.9	95.8	94.2	92.1	88.4	85.9	86.7	91.7	94.2	93.7	94.2	93.9	93.7	92.5	91.3	90.7	91.7	93.6	97.1	
7-Dec	90.2	90.8	90.6	86.8	84.3	83.5	84.3	89.2	85.5	84.1	83.2	81.4	81.6	80.0	80.6	85.3	88.5	92.5	92.4	87.2	93.8	96.0	95.8	95.5	87.6	96.0	
8-Dec	95.2	95.1	94.6	94.1	94.8	91.1	90.1	90.4	89.9	83.9	80.0	79.1	77.8	76.9	76.9	78.9	80.0	80.6	80.7	83.8	86.3	85.9	85.8	85.7	85.7	95.2	
9-Dec	83.1	82.4	81.4	83.6	86.5	88.2	89.4	90.3	89.9	87.0	81.8	84.1	83.5	80.7	79.8	76.3	77.3	75.3	77.9	77.8	78.1	76.4	79.2	81.4	82.1	90.3	
10-Dec	81.9	80.6	80.1	78.8	78.1	77.9	76.7	77.1	77.1	76.8	77.3	77.9	77.3	76.9	79.4	80.0	79.7	80.1	80.2	79.8	80.0	78.8	78.3	77.9	78.7	81.9	
11-Dec	78.5	73.6	73.6	72.7	72.7	73.8	74.0	74.2	72.4	69.2	68.1	64.5	61.8	63.9	58.5	70.7	78.4	75.8	77.7	72.8	71.6	73.2	73.5	75.3	71.7	78.5	
12-Dec	76.9	78.7	78.7	77.9	77.0	77.0	77.4	79.5	79.3	79.1	78.5	78.9	80.7	81.3	81.9	81.3	81.4	82.0	80.7	80.6	81.5	85.9	86.3	86.0	80.4	86.3	
13-Dec	86.0	85.9	85.4	85.0	85.3	85.6	86.4	86.7	87.5	85.9	82.8	81.9	80.0	79.1	80.6	83.7	88.6	87.7	90.5	91.0	90.4	90.8	91.5	86.2	91.5		
14-Dec	91.5	91.4	91.1	90.9	90.6	90.4	90.3	90.1	90.0	89.8	89.8	89.8	89.8	89.9	89.9	89.7	89.8	89.7	89.9	90.1	90.2	90.2	90.6	90.8	90.3	91.5	
15-Dec	90.8	90.8	90.8	90.7	89.9	88.7	87.2	85.6	83.5	82.4	82.4	81.6	78.7	78.7	79.6	80.4	80.3	78.5	79.3	79.8	78.9	78.6	79.9	80.9	83.2	90.8	
16-Dec	80.8	82.6	83.2	83.9	84.1	83.4	78.0	75.1	72.8	69.9	69.9	63.8	60.3	60.2	60.9	63.5	67.1	67.6	69.8	76.5	68.1	71.5	71.8	74.5	72.5	84.1	
17-Dec	74.8	75.0	77.0	76.4	75.9	74.0	74.5	76.1	75.7	75.2	75.9	75.7	71.9	69.9	71.7	74.0	77.0	76.5	76.9	75.9	75.8	75.4	75.0	74.9	75.0	77.0	
18-Dec	74.6	74.5	74.3	73.7	73.1	73.4	73.1	73.1	72.5	72.8	73.0	73.7	75.1	75.2	75.7	75.8	75.7	75.7	76.6	75.8	76.4	76.4	76.8	76.7	74.7	76.8	
19-Dec	76.8	77.3	77.5	77.7	78.0	78.0	77.6	77.5	77.3	77.1	77.3	74.8	71.0	69.8	70.7	75.2	77.2	76.3	76.7	77.0	77.7	77.7	77.4	77.7	76.3	78.0	
20-Dec	77.6	76.7	78.5	78.4	79.2	79.9	80.4	81.3	81.7	82.5	83.8	85.5	83.9	84.0	83.9	82.6	83.5	85.0	83.6	82.2	82.8	82.8	84.1	85.7	82.1	85.7	
21-Dec	85.5	85.4	84.5	83.9	84.0	83.7	84.1	83.5	83.4	83.9	83.8	82.9	74.2	79.6	79.5	81.6	83.8	84.7	84.8	83.1	84.9	85.7	85.8	86.1	83.4	86.1	
22-Dec	86.8	87.2	86.1	86.4	87.0	86.4	89.1	89.8	90.6	90.0	89.6	89.6	89.2	89.7	91.8	92.3	92.0	91.6	91.5	91.6	91.4	91.2	91.6	90.8	89.7	92.3	
23-Dec	89.4	88.6	87.9	89.3	89.4	89.1	88.3	88.5	89.1	88.1	87.3	84.7	84.9	83.9	85.6	88.0	90.0	91.3	91.7	91.3	89.1	89.0	86.6	86.9	88.2	91.7	
24-Dec	88.1	88.4	89.0	91.0	90.0	90.1	90.6	90.0	90.5	90.6	89.1	88.5	87.7	86.9	88.7	90.8	88.4	88.1	88.5	88.2	88.8	86.4	90.4	91.3	89.2	91.3	
25-Dec	89.2	90.1	89.1	89.5	84.1	83.0	83.0	85.4	86.9	85.6	83.7	80.4	79.5	78.4	80.3	83.4	86.6	88.5	88.7	88.6	89.8	88.1	85.1	83.2	85.4	90.1	
26-Dec	79.6	85.9	88.6	86.4	88.6	88.8	87.4	85.8	84.3	85.4	81.5	79.0	77.9	78.0	77.1	81.5	82.5	82.1	80.4	84.5	85.6	86.0	85.9	84.8	83.6	88.8	
27-Dec	83.7	82.7	82.8	84.3	85.2	85.4	85.5	85.1	88.0	88.3	85.7	83.6	80.3	79.2	81.5	84.8	87.1	87.5	87.5	87.4	86.7	90.7	92.6	93.0	85.8	93.0	
28-Dec	93.3	93.2	92.8	92.9	93.1	92.3	92.8	92.9	92.5	93.0	92.2	90.7	90.4	90.6	90.8	92.5	92.2	89.6	88.3	89.6	89.1	88.0	87.8	88.5	91.2	93.3	
29-Dec	86.4	88.3	91.3	91.5	90.5	90.5	91.6	91.6	90.9	91.1	90.7	89.4	84.4	81.3	83.0	86.9	89.7	88.3	90.3	90.6	84.2	82.3	83.6	83.9	88.0	91.6	
30-Dec	87.2	82.3	81.3	82.8	76.7	74.0	74.8	76.2	74.9	71.4	72.4	72.6	77.1	66.8	67.0	68.7	69.2	69.9	69.4	68.6	68.8	70.4	69.7	68.9	73.4	87.2	
31-Dec	68.6	69.4	70.3	74.9	80.2	80.3	82.8	83.4	84.1	82.6	83.3	83.4	79.4	74.1	78.6	78.8	78.9	78.3	79.4	80.6	82.2	79.9	80.3	79.6	78.9	84.1	
83.8 84.0 84.2 84.2 83.9 83.4 83.4 83.7 83.4 82.5 81.4 80.4 78.8 78.0 78.8 81.0 82.5 82.6 82.9 83.2 83.3 83.6 83.9 84.1																								Diurnal Average			
96.4 96.8 96.9 97.0 96.7 97.0 97.1 96.9 95.8 94.2 92.2 90.7 90.4 90.6 91.8 94.2 93.7 94.2 93.9 93.7 95.0 96.2 96.5 96.1																								Diurnal Maximum			





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Fort Hills - December 2024

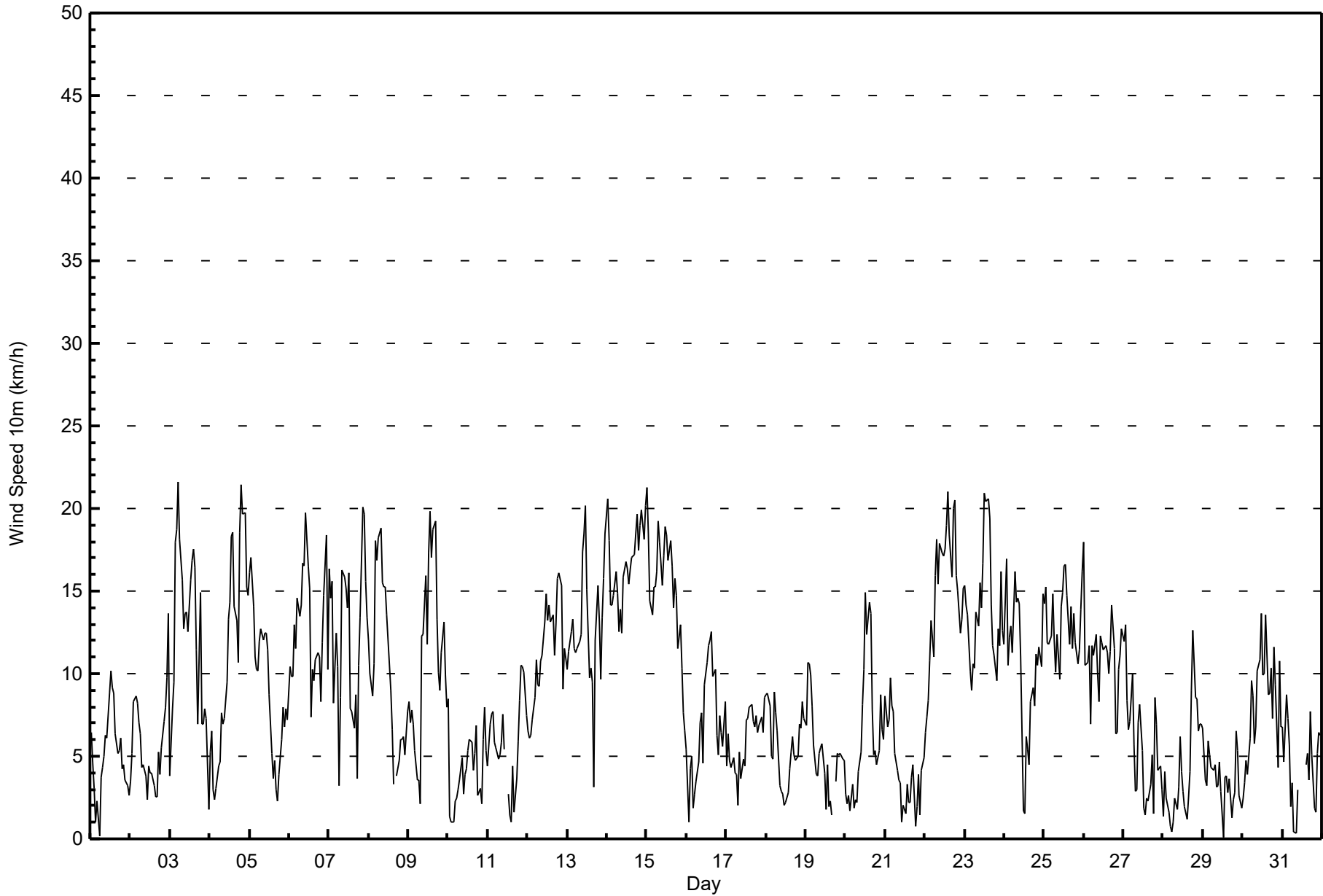
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	2	0.27	0.27
60 - 80	282	37.90	38.17
80 - 100	460	61.83	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 22 km/h on Dec 3 06:00		Maximum Daily Speed Average: 16.6 km/h on Dec 14		Hours in Service: 744																						
Minimum Speed Value: 0 km/h on Dec 29 13:00		Minimum Daily Speed Average: 1.0 km/h on Dec 29		Hours of Data: 738																						
Maximum Diurnal Speed Average: 3.5 km/h at hour 2		Minimum Diurnal Speed Average: 1.3 km/h at hour 18		Hours of Missing Data: 6																						
Monthly Average Velocity: 2.6 km/h 165.7 deg		Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 8 Q ₃ = 13 P ₉₀ = 16 P ₉₉ = 20		Percent Operational Time: 99.2																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	N6	NW5	WSW3	NW1	WSW2	NNE0	S4	S4	S5	S6	S6	SE9	SE10	SE9	SSE9	SSE6	SE5	SSE5	S6	S4	S4	SE4	W3	WNW3	SSE3.2	SE10
2-Dec	WNW4	NW5	N8	N9	N8	NNW7	NNW6	NNW4	NNW5	NW4	WNW2	SW4	SSW4	SSE4	WSW3	WSW3	SW3	SSW5	SW4	SSW5	SSW7	SSW8	S10	SE14	WSW1.4	SE14
3-Dec	S4	N8	N10	NNE18	N19	NNW22	NNW18	NNW16	N13	NNW14	NW14	NW13	NW16	NW17	NW18	NW16	NNW11	WNW7	NNW15	NNW7	NNW7	NNE8	NNE7	WSW2	NNW11.0	NNW22
4-Dec	SSW5	SSE6	SSE3	S2	SSE3	SSW4	S5	SSW8	S7	S7	S9	S13	S14	S18	S19	S14	S13	SSW11	S19	S21	S20	S20	S15	SSW15	S11.2	S21
5-Dec	S16	S17	S14	SSE11	SE10	SSE10	SE12	SE13	SE12	SSE12	SE12	SE11	SSE9	SE5	SE4	NNW5	ENE3	SSE2	S4	SSE6	SE8	SE7	S8	SSW7	SSE8.1	S17
6-Dec	SSE10	S10	S10	S13	SSE12	SSE15	SSE13	S14	SSW17	SSW17	SW20	SSW17	SSW15	S7	S10	S10	S11	S11	S11	SSE8	SSW12	SSW15	SSW18	SSW10	S12.1	SW20
7-Dec	SSW16	SSW15	SSW16	SSE8	S12	SSW10	SSE3	SE9	S16	SSW16	SSW15	SSW14	SSW16	S8	SSE8	ESE7	SE9	ESE4	NNE11	NNE13	N20	N20	N16	N13	S3.7	N20
8-Dec	N12	N10	N9	N11	N18	N17	N18	N19	NNE15	N15	NNE15	N14	N12	N9	NNE7	ENE3	UO	ENE4	ESE5	SSE6	SSW6	S6	S5	S8	NNE7.5	N19
9-Dec	SSE8	SE7	SE8	SSE7	SE5	ESE4	S4	ENE2	N12	NNE12	NNE16	N12	N17	N20	N17	N19	N19	N13	N10	N9	N11	N13	N10	N8	N7.8	N20
10-Dec	N9	W1	S1	N1	WNW2	NW2	WSW3	SSE4	S5	S3	SE4	SE4	SE5	SE6	SE6	SSE4	SE5	SE7	S3	WNW3	SSW2	SSE6	SSE8	SSE5	SSE2.4	N9
11-Dec	SE4	SSE7	SSE8	SSE8	SSE6	SE6	SSE5	SSE5	SE6	SSE8	S5	UO	ESE3	SE1	ESE1	NNW4	NNW2	E4	SSE6	SSE8	SSE11	SSE10	SSE10	S7	SSE5.1	SSE11
12-Dec	SSW6	S6	SSW6	S7	S9	S11	SSW9	S9	S11	S11	S13	S15	SSE13	SSE14	SSE13	SSE14	SSE11	SSE13	S16	S16	S15	SSW9	S12	S11	S11.1	S16
13-Dec	S10	S11	S13	S13	S12	S11	SSE12	SSE12	SSE12	SSE17	S18	SSE20	S15	SSE10	ESE10	ESE10	NE3	N12	N15	N13	N10	N13	NNE16	N18	SSE4.5	SSE20
14-Dec	N21	N18	N14	N14	N15	N16	N15	N13	N14	N12	N16	N17	N16	N15	N16	N17	N18	NNE20	N17	N19	N20	N18	N20	N20	N16.6	N21
15-Dec	N21	NNE18	N14	N14	N15	N15	N16	N19	N18	N15	N17	N19	N18	N17	N18	N17	NNE14	NNE16	N15	N11	NNE13	NNE10	NNE8	NNE7	N15.1	N21
16-Dec	NNE5	NE1	NNE4	NNW5	N2	S3	WSW4	W5	NW7	W8	W5	WNW9	NNW11	W12	W12	W13	W10	WNW10	WNW6	WSW5	WSW7	W6	SW6	SW8	W5.6	W13
17-Dec	SSW4	SW6	S5	SSE4	SSE5	S4	N4	SSW2	S5	S4	S5	SE4	ESE7	ESE7	SE8	SE8	SE7	SE7	SE7	SSE6	SE7	SSE7	SSE6	SE9	SSE4.9	SE9
18-Dec	SE9	SE9	SSE8	SSE5	SE5	SE9	SE8	SSE7	S3	SE3	SSE3	SSE2	S2	SE3	SSE4	SE5	SE6	SE5	SE5	SE5	S7	SSE7	SSE8	SSE7	SSE5.4	SE9
19-Dec	SSE7	SSE11	SSE11	SSE10	SSE8	SSE6	S4	SSW4	S5	SE6	SE6	SSE4	E2	E4	SSE2	ESE2	SSE1	UO	S3	S5	S5	SSE5	SSE5	SE5	SSE4.9	SSE11
20-Dec	SSE3	SW2	ESE3	S2	SSW3	SSE2	SE2	S2	SSW4	SSW5	S8	S10	SSE15	SSE12	SSE14	S14	S8	S5	S5	SSW4	S5	S9	S7	SSE6	S6.0	SSE15
21-Dec	S9	S7	SE7	SE10	SSE8	SSE8	SSE5	SSE4	SE4	SE3	N1	WNW2	ESE1	NNW3	NNE2	NNW2	NNW4	NNW4	WSW1	E2	ESE4	N1	WSW4	SSW5	SSE2.1	SE10
22-Dec	S6	SSW7	S8	S11	S13	S11	S16	S18	S15	SSE18	S17	S17	S18	S19	S21	S18	S16	S20	SSW21	SSW16	SSW15	S12	SSE13	SSE15	S14.9	S21
23-Dec	SSE15	SSE14	SSE14	SSE10	S9	S11	SSE10	S14	SSE13	SSE16	SSE14	SSE17	SSE21	SSE20	SSE21	SSE19	SE14	SE12	SE11	SE10	S13	SSW12	SSW16	SSW13	SSE13.3	SSE21
24-Dec	SSW12	SSW17	S11	SSE12	S13	SSE11	SSE16	SSE14	SSE15	SSE14	SSE11	SW2	NNW2	NNW6	NNW5	SSE5	SSE8	S9	SSE11	SSE10	S12	SSW10	SSE15	SSE15	SSE8.8	SSW17
25-Dec	SSE14	SSE15	SSE12	SE12	S12	S15	SSW12	S10	S12	SSW10	SSW14	SW15	SW17	SSW17	SSW15	S12	S14	S12	SSE14	S12	SSE11	SSE11	SSE14	SSE16	S12.0	SSW17
26-Dec	SSE18	SSE11	SSE11	SSE12	SSE7	SSE12	SSE11	SE12	SSE10	S8	S12	SSE12	SSE11	SSE12	SSE11	SE10	SE11	SE14	SSE12	S6	SSE6	SE10	SE11	SE13	SSE10.7	SSE18
27-Dec	SE12	SSE13	SE8	SSE7	SE7	SE10	SSE6	ENE3	SSE3	SSE7	SE8	SSE5	ENE2	E1	NW2	S2	SSW3	NW5	NE2	SE9	SE7	SSE4	SSE4	SSE3	SE4.6	SSE13
28-Dec	WSW1	SE4	SSE2	SSE2	NNW1	NNE0	NNW1	NNW2	N2	NNW3	NNW6	NW4	W3	WSW2	NNW1	NW3	NNE4	N9	N13	N9	N8	NNE7	NNE7	NNE7	N3.1	N13
29-Dec	NNE7	N4	SW3	SSW6	SE5	ESE4	E4	SE4	SSE3	SE3	ESE5	SE3	NE0	SSE4	ESE4	E3	E4	ESE1	W2	WSW3	WSW7	W5	W3	NNW2	SE1.0	NNE7
30-Dec	N2	NNW3	NW5	W4	WNW6	NW10	NW9	NW6	WNW7	WNW10	W11	WNW14	WSW10	W10	WNW14	W9	WNW9	WNW10	WSW7	WNW12	WNW9	NW4	NW11	WNW7	WNW7.7	WNW14
31-Dec	NNW7	NNW5	N9	NNE7	NE6	NE2	WNW3	N0	NNW0	NNW3	UO	SSW2	UO	UO	NNE4	NE5	NE4	NE8	ENE5	NE2	NNE2	NNE5	N6	NNE6	NNE3.6	N9
SSE2.9 SSE3.5 SSE3.2 SSE3.1 SSE2.4 SSE2.5 SSE2.2 SSE2.7 S2.8 S3.2 S3.4 S3.3 S3.3 SSE2.6 SSE2.4 SSE2.1 SSE2.0 SSE1.3 SSE1.6 SSE2.2 S2.3 SSE2.2 S2.5 SSE3.0																								Diurnal Average		
N21 NNE18 SSW16 NNE18 N19 NNW22 N18 N19 N18 SSE18 SW20 SSE20 SSE21 SSE20 S21 SSE19 N19 S20 SSW21 S21 N20 N20 SSW18 N20																								Diurnal Maximum		
UO - Unstable Operation																										
All monthly, daily, and diurnal averages have been calculated using vector methods																										





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Fort Hills - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	237	32.11	32.11
6 - 11	257	34.82	66.94
12 - 19	224	30.35	97.29
20 - 28	20	2.71	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Fort Hills - December 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	9	9	8	7	8	13	28	36	35	16	6	13	9	7	11	22	237
6 - 11	21	15	2	0	0	5	43	67	51	15	3	5	5	13	5	7	257
12 - 19	61	11	0	0	0	0	12	48	48	26	2	0	3	3	6	4	224
20 - 28	7	1	0	0	0	0	0	4	5	1	1	0	0	0	0	1	20
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	98	36	10	7	8	18	83	155	139	58	12	18	17	23	22	34	738

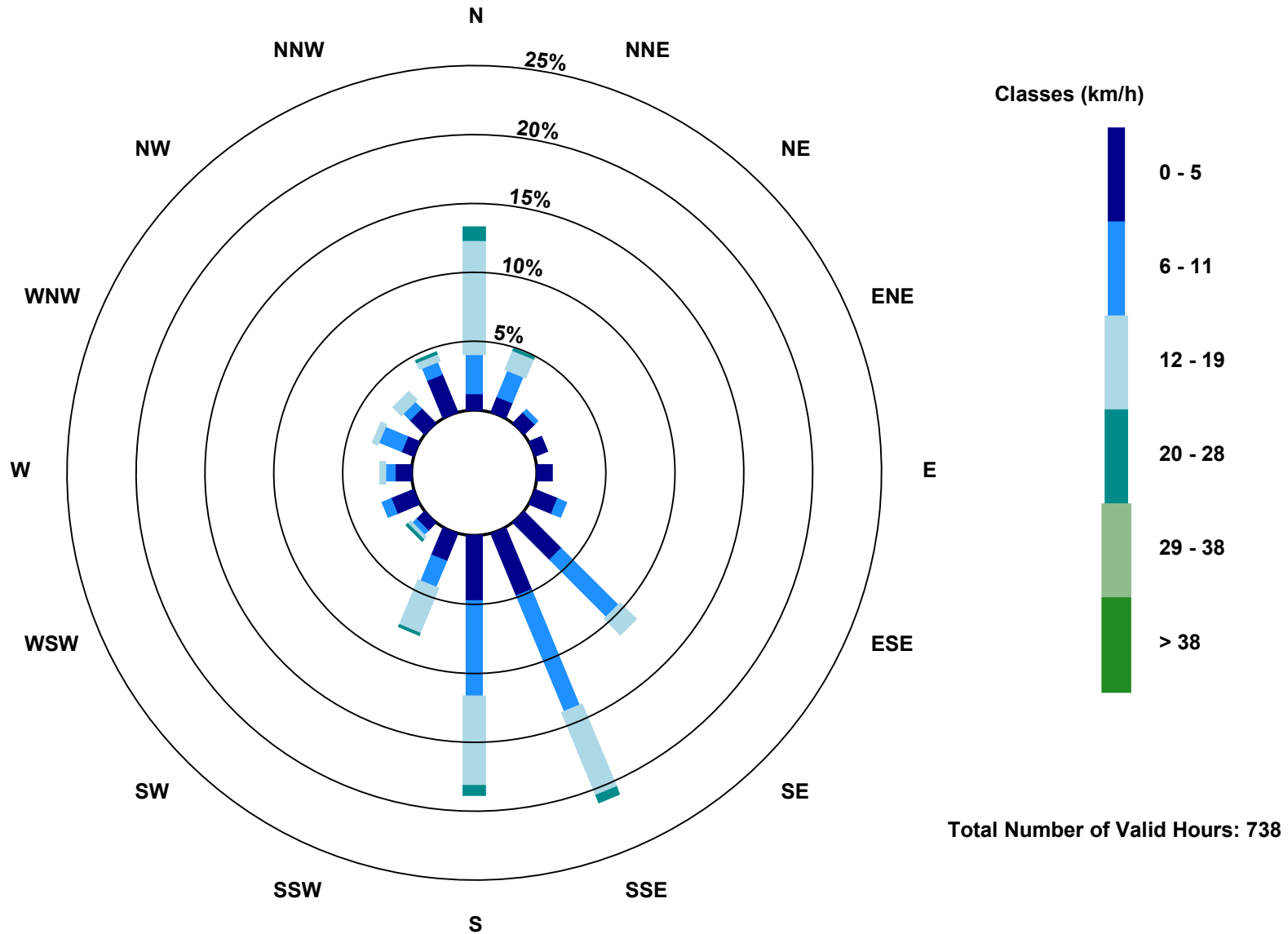
Total Number of Valid Hours: 738

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Fort Hills





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Fort Hills - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 7 21:00 Minimum Value: 0 km/h on Dec 29 13:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 738 Hours of Missing Data: 6 Hours of Calibration: 0 Percent Operational Time: 99.2								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
2-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3
3-Dec	4	2	3	3	3	4	4	3	3	4	5	3	4	5	4	4	3	2	4	3	2	2	1	1	5
4-Dec	1	2	2	1	1	1	1	2	1	1	2	2	2	3	3	2	2	2	4	3	3	3	2	3	4
5-Dec	3	3	4	1	2	2	1	2	1	1	1	1	1	1	1	1	2	1	2	3	3	2	2	1	4
6-Dec	1	2	2	2	2	2	2	3	3	3	3	2	3	2	1	2	1	2	3	3	2	2	2	4	4
7-Dec	2	1	2	4	4	4	3	3	4	2	2	3	4	2	1	2	1	3	2	2	6	5	3	3	6
8-Dec	2	2	2	3	4	4	3	3	3	3	3	2	2	2	1	1	UO	1	2	1	1	1	1	1	4
9-Dec	1	3	1	1	1	1	1	1	3	2	3	2	5	3	4	4	3	4	2	2	3	2	1	2	5
10-Dec	1	2	1	1	2	1	2	1	1	1	1	2	2	2	1	1	2	2	1	1	1	1	2	1	2
11-Dec	1	1	1	1	1	1	1	1	1	1	1	UO	1	1	1	2	2	1	1	3	1	1	2	1	3
12-Dec	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2
13-Dec	1	2	4	3	2	1	1	1	2	4	3	3	4	2	1	1	2	3	2	2	3	3	3	3	4
14-Dec	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	5	4	3	3	3	3	2	3	5
15-Dec	3	3	3	2	3	3	3	3	4	3	3	3	3	3	3	3	2	3	3	2	2	2	1	1	4
16-Dec	2	1	1	1	2	1	1	1	2	2	1	3	2	2	3	2	2	2	1	1	2	2	2	2	3
17-Dec	2	2	1	2	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2
18-Dec	1	1	2	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2
19-Dec	1	2	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	UO	1	1	1	1	1	1	2
20-Dec	1	1	1	2	1	1	1	1	1	1	3	2	3	2	2	3	2	1	1	1	1	1	1	1	3
21-Dec	3	2	1	1	2	1	1	1	1	1	1	1	1	1	2	2	2	2	2	1	2	2	1	1	3
22-Dec	1	1	2	1	2	2	3	2	2	2	2	3	2	4	3	2	2	3	3	2	2	2	2	2	4
23-Dec	2	2	3	2	1	2	3	1	2	2	3	3	2	2	2	2	3	1	1	1	2	6	3	3	6
24-Dec	2	4	3	2	3	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	1	2	4	4
25-Dec	2	1	2	1	3	3	2	3	2	2	2	2	2	2	3	1	2	3	2	2	1	2	2	2	3
26-Dec	4	1	2	1	3	1	1	2	2	1	2	1	2	2	3	1	2	3	4	2	2	1	1	1	4
27-Dec	2	2	2	2	2	1	1	1	2	1	1	3	2	2	2	1	1	1	2	1	1	1	1	1	3
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	1	2	1	1	2
29-Dec	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	2	1	1	2	1	2
30-Dec	1	1	2	2	1	2	2	1	2	2	2	3	2	2	2	3	3	3	1	3	3	2	2	1	3
31-Dec	1	1	2	1	1	1	1	1	1	1	UO	1	UO	UO	1	1	1	1	2	2	1	1	1	1	2
Diurnal Maximum																									
4 4 4 4 4 4 4 3 4 4 5 3 5 5 4 4 5 4 4 3 6 6 3 4																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

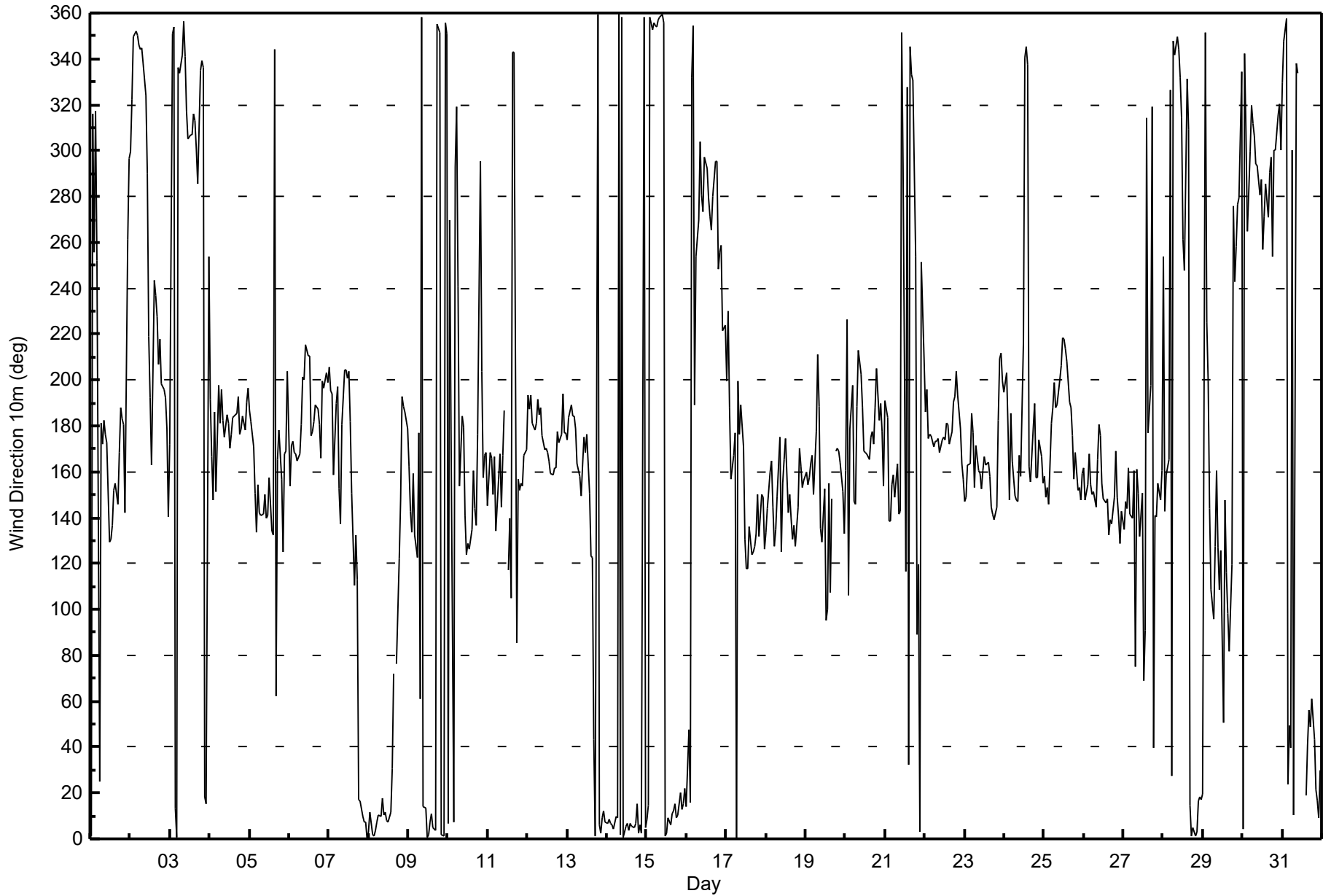
Fort Hills - December 2024

Direction of Maximum Speed: 336 deg on Dec 3 06:00																		Hours in Service: 744	
Direction of Maximum Daily Speed Average: 5.2 deg on Dec 14																		Hours of Data: 738	
Direction of Minimum Speed: 51 deg on Dec 29 13:00									Direction of Minimum Daily Speed Average: 1.0 deg on Dec 29									Hours of Missing Data: 6	
Monthly Average Direction: 165.7 deg																		Percent Operational Time: 99.2	

Day	Hourly Period Ending At (MST)																								Daily Average
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	316	255	317	252	25	181	172	182	176	173	129	131	136	152	155	146	168	188	183	181	142	261	297	165.1
2-Dec	300	322	350	352	351	346	344	345	338	324	290	219	192	163	243	237	228	207	218	198	196	192	179	140	256.1
3-Dec	172	351	354	13	0	336	334	342	356	341	318	305	307	307	316	313	301	285	335	339	337	18	15	254	333.1
4-Dec	192	167	148	186	151	198	181	196	183	175	185	181	170	176	184	184	186	193	177	179	184	178	191	196	182.1
5-Dec	187	182	171	151	134	154	142	141	141	150	140	141	157	134	132	344	62	165	178	157	125	168	169	204	155.0
6-Dec	154	172	173	169	168	165	168	181	201	200	215	210	210	176	177	182	189	188	180	166	200	197	203	199	187.9
7-Dec	206	195	194	159	190	197	153	137	180	205	204	201	204	182	151	110	132	113	17	16	10	7	7	0	179.9
8-Dec	3	11	2	1	4	8	11	10	18	10	12	8	7	11	30	72	UO	76	122	149	193	189	186	179	14.7
9-Dec	162	143	134	159	132	123	177	61	358	14	13	1	2	8	11	5	4	355	354	352	2	1	356	351	10.7
10-Dec	7	270	178	7	293	319	241	154	184	180	141	124	129	126	135	160	144	137	176	295	204	157	167	168	154.7
11-Dec	145	168	166	150	167	134	157	168	145	167	187	UO	117	140	105	343	343	86	157	152	155	154	167	169	156.0
12-Dec	193	187	193	181	178	181	192	185	188	176	170	170	168	164	159	159	162	162	178	173	177	194	177	177	174.8
13-Dec	174	183	189	184	184	179	163	158	149	163	175	168	176	151	123	123	43	1	360	6	2	9	12	7	148.8
14-Dec	6	9	7	6	4	10	9	360	2	358	1	5	7	3	6	6	5	6	15	3	6	2	358	5	5.2
15-Dec	9	15	358	353	355	354	354	357	358	359	355	1	3	9	6	11	12	16	9	11	20	13	15	22	4.8
16-Dec	14	48	16	332	355	189	254	269	304	280	273	297	292	279	271	265	280	295	295	248	256	259	221	224	279.2
17-Dec	200	230	188	157	167	177	0	200	176	189	171	131	117	118	136	124	125	128	133	150	132	150	149	126	147.1
18-Dec	134	144	160	165	145	128	135	149	175	125	155	166	175	142	150	140	130	137	128	145	170	162	153	156	147.1
19-Dec	160	155	157	163	167	150	178	211	189	135	129	152	95	100	155	107	148	UO	169	170	169	164	152	133	155.9
20-Dec	160	226	106	179	198	147	146	189	213	202	188	169	168	168	165	175	178	172	188	205	183	190	177	154	176.2
21-Dec	191	184	138	138	155	159	149	164	142	143	351	293	117	328	32	345	333	331	254	89	120	3	251	209	161.2
22-Dec	186	196	174	176	176	171	173	173	174	168	174	175	174	181	181	172	178	190	193	204	193	178	163	157	178.3
23-Dec	147	149	163	164	186	177	153	171	160	159	153	161	167	163	164	158	145	142	139	145	182	209	212	199	164.8
24-Dec	195	203	179	148	185	165	149	147	147	167	158	217	341	345	337	162	155	179	190	157	157	174	166	155	167.2
25-Dec	158	149	153	146	181	188	199	188	189	200	206	218	218	213	208	191	188	176	157	169	152	153	147	159	180.3
26-Dec	162	148	154	168	155	150	151	144	165	180	176	155	148	147	149	132	139	137	149	169	149	140	129	143	151.1
27-Dec	135	147	144	161	142	140	161	75	161	151	132	151	69	91	314	177	198	319	40	141	140	155	148	160	144.3
28-Dec	254	143	158	166	327	28	348	341	350	344	332	314	261	248	331	309	15	2	5	1	3	16	18	17	357.0
29-Dec	19	351	225	200	144	109	96	128	161	127	108	126	51	148	116	98	82	119	276	243	258	276	279	334	141.6
30-Dec	4	342	308	265	300	320	312	307	294	293	281	287	257	271	286	271	290	297	254	300	300	316	320	300	293.4
31-Dec	330	348	358	24	50	40	300	11	338	334	UO	200	UO	UO	19	41	56	49	61	43	21	17	9	30	18.9

158.3 166.0 162.3 150.2 159.9 156.7 157.7 157.2 170.7 178.4 183.1 186.3 182.7 168.1 167.1 155.3 152.1 148.0 155.1 165.2 170.0 166.1 170.7 159.9
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 10m (WD10) - deg
Fort Hills - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 100 deg on Dec 10 03:00		Hours in Service: 744 Hours of Data: 738 Hours of Missing Data: 6 Hours of Calibration: 0 Percent Operational Time: 99.2																							
Minimum Value: 4 deg on Dec 12 23:00																									
Percentiles: P ₁ = 6 P ₁₀ = 8 Q ₁ = 10 Median = 13 Q ₃ = 20 P ₉₀ = 37 P ₉₉ = 77																									
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	20	27	18	62	22	86	19	12	10	15	19	8	9	9	7	14	14	11	10	17	16	23	32	35	86
2-Dec	20	16	12	11	11	16	11	13	18	15	44	17	19	23	31	26	40	21	17	13	7	10	18	9	44
3-Dec	76	13	14	11	14	14	13	11	20	23	12	15	12	15	11	12	12	26	12	17	23	12	8	64	76
4-Dec	20	23	62	43	31	20	10	8	12	10	11	9	12	9	9	8	14	18	10	8	8	7	11	7	62
5-Dec	8	9	9	10	8	6	10	7	8	7	7	7	15	28	42	17	36	57	61	25	20	18	23	19	61
6-Dec	11	8	11	17	19	9	12	16	7	7	9	8	13	30	9	25	10	9	17	30	7	7	5	18	30
7-Dec	5	7	6	68	15	56	73	32	14	6	7	6	8	12	30	24	13	53	12	8	12	14	13	15	73
8-Dec	16	14	13	12	14	13	11	11	10	10	10	11	12	13	16	35	UO	27	29	23	7	10	13	9	35
9-Dec	12	16	9	18	23	25	20	56	13	15	10	13	14	12	12	12	14	14	12	18	13	12	11	13	56
10-Dec	7	79	100	33	38	54	63	33	19	21	36	24	17	16	12	37	38	15	46	20	53	11	15	13	100
11-Dec	21	10	10	13	15	20	22	15	18	9	12	UO	30	71	67	22	38	34	13	12	7	5	10	9	71
12-Dec	7	12	11	17	14	10	11	10	9	8	8	7	7	8	8	7	7	9	7	8	7	9	4	5	17
13-Dec	6	14	14	8	11	8	11	9	10	12	12	9	12	14	7	7	62	11	13	10	13	12	10	11	62
14-Dec	11	12	13	12	14	12	13	16	15	16	15	14	13	14	14	14	15	15	10	15	12	14	16	11	16
15-Dec	11	8	15	13	14	14	15	15	15	14	14	13	13	11	12	12	10	10	12	12	10	11	13	17	17
16-Dec	13	33	19	12	68	40	35	18	17	18	28	16	11	13	14	11	13	10	25	29	12	17	35	13	68
17-Dec	35	13	22	44	28	21	38	77	19	29	14	22	13	11	8	11	10	15	10	15	15	9	15	9	77
18-Dec	10	11	14	13	13	13	8	17	46	34	34	42	51	41	19	9	8	10	12	13	6	5	8	15	51
19-Dec	14	7	7	11	9	20	18	20	14	24	18	24	74	22	50	35	64	UO	33	6	11	11	15	11	74
20-Dec	46	31	27	68	21	42	49	55	19	15	15	14	11	11	8	10	10	11	16	12	18	10	7	14	68
21-Dec	22	29	21	12	20	19	9	26	20	30	71	35	61	22	44	62	27	52	92	31	22	75	19	26	92
22-Dec	10	9	14	7	8	9	10	7	8	7	7	9	8	10	7	8	9	9	9	7	9	10	6	13	14
23-Dec	8	10	8	20	9	10	14	10	12	14	18	13	6	8	7	6	10	9	10	14	17	35	10	11	35
24-Dec	16	9	12	15	18	17	8	11	9	12	18	77	46	19	21	56	26	18	30	15	14	9	15	12	77
25-Dec	10	9	9	9	23	14	11	11	10	16	9	10	9	9	11	8	10	15	13	8	8	8	8	10	23
26-Dec	10	14	10	9	19	10	15	7	9	6	8	10	13	9	16	12	10	9	10	24	16	11	9	5	24
27-Dec	12	9	6	7	12	7	14	36	59	11	8	34	57	61	60	76	48	20	62	8	9	20	8	42	76
28-Dec	44	15	25	48	19	13	29	19	19	13	11	14	28	44	16	24	24	12	13	12	11	13	10	10	48
29-Dec	11	34	27	25	37	31	21	14	14	33	16	17	30	21	18	31	16	61	47	31	14	7	27	29	61
30-Dec	59	27	17	48	16	10	11	10	13	12	12	12	17	17	11	22	12	11	17	19	16	20	9	11	59
31-Dec	17	20	12	19	13	74	30	82	82	21	UO	36	UO	UO	14	22	17	9	19	27	72	15	10	11	82
Diurnal Maximum																									
76 79 100 68 68 86 73 82 82 34 71 77 74 71 67 76 64 61 92 31 72 75 35 64																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS25 WASKŌW OHCI PIMÂTISIWIN DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMÂTISIWIN (AMS25)
 DECEMBER 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	45.2	0	7.5	0
H2S(ppb) Average	708	36	36	100	2.6	0	0.8	0
Temperature 2 m (C) Average	744	0	0	100	2.8	0	0	0
Relative Humidity (%) Average	744	0	0	100	100	-	98.2	-
Wind Speed 10 m (km/h) Average	677	0	67	90.99	13	0	8	0
Wind Direction 10 m (deg) Average	677	0	67	90.99	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)
 DECEMBER 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	0.93	2.7	-	0	0	0	0.2	0.7	2.2	45.2
H2S (ppb) Average	708	0.42	0.4	-	0	0.1	0.1	0.3	0.6	0.9	2.6
Temperature 2 m (C) Average	744	-13.27	8.1	-	-33.5	-25.1	-19.3	-11	-7.9	-4.1	2.8
Relative Humidity (%) Average	744	84.16	8.1	-	63.9	74	77.8	84	90.8	94.3	100
Wind Speed 10 m (km/h) Average	677	3.9	3	-	0	1	2	3	6	8	13
Wind Direction 10 m (deg) Average	677	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)

DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	01 Dec 2024 16:00	01 Dec 2024 16:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	01 Dec 2024 18:00	01 Dec 2024 20:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	02 Dec 2024 19:00	02 Dec 2024 21:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	08 Dec 2024 18:00	08 Dec 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	09 Dec 2024 06:00	09 Dec 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Dec 2024 09:00	10 Dec 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Dec 2024 18:00	10 Dec 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Dec 2024 20:00	10 Dec 2024 22:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	11 Dec 2024 00:00	11 Dec 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	12 Dec 2024 00:00	12 Dec 2024 00:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	16 Dec 2024 03:00	16 Dec 2024 04:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	17 Dec 2024 18:00	17 Dec 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 07:00	18 Dec 2024 07:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 09:00	18 Dec 2024 09:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 11:00	18 Dec 2024 12:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 19:00	18 Dec 2024 20:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 17:00	19 Dec 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 19:00	19 Dec 2024 19:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 21:00	20 Dec 2024 00:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 05:00	21 Dec 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 07:00	21 Dec 2024 08:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 10:00	21 Dec 2024 10:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	25 Dec 2024 01:00	25 Dec 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Dec 2024 08:00	27 Dec 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Dec 2024 12:00	27 Dec 2024 12:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Dec 2024 21:00	28 Dec 2024 06:00	10	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 08:00	28 Dec 2024 09:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 18:00	28 Dec 2024 18:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 01:00	29 Dec 2024 01:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 04:00	29 Dec 2024 04:00	1	Flat line in sensor output signal

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - WASKŌW OHCI PIMĀTISIWIN (AMS25)

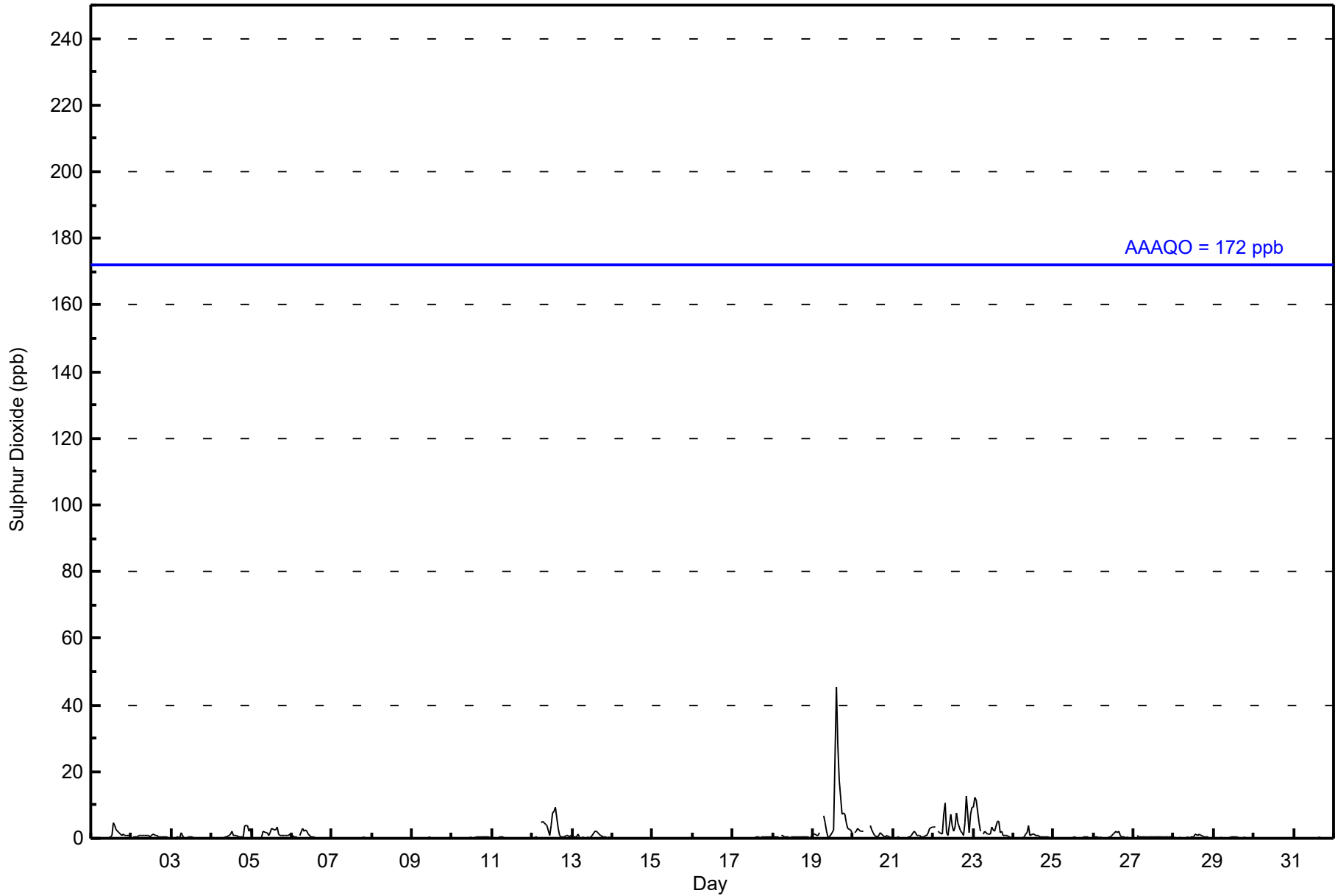
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
Wind Speed, Wind Direction	29 Dec 2024 08:00	29 Dec 2024 10:00	3	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 14:00	29 Dec 2024 14:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 18:00	29 Dec 2024 19:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 05:00	31 Dec 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 07:00	31 Dec 2024 08:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 20:00	01 Jan 2025 00:00	5	Flat line in sensor output signal



Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																											
Maximum Value: 45.2 ppb on Dec 19 15:00		Maximum Daily Average: 7.5 ppb on Dec 19		Hours of Data: 710																																													
Minimum Value: 0.0 ppb on Dec 1 03:00		Minimum Daily Average: 0.0 ppb on Dec 8		Hours of Missing Data: 34																																													
Maximum Diurnal Average: 2.7 ppb at hour 15		Minimum Diurnal Average: 0.4 ppb at hour 5		Hours of Calibration: 34																																													
Monthly Average: 0.93 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.7 P ₉₀ = 2.2 P ₉₉ = 10.6		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-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	0.9	4.7	3.8	2.7	1.7	1.1	1.0	1.1	0.8	0.8	0.9	0.8	0.9	0.9	0.6	4.7																					
2-Dec	Z	0.5	0.5	0.6	0.7	0.8	0.8	0.8	0.9	0.7	0.6	0.6	0.9	1.3	0.9	0.7	0.6	0.6	0.6	0.5	0.4	0.2	0.2	0.2	0.2	0.2	0.6	1.3																					
3-Dec	0.1	Z	0.2	0.5	0.2	0.2	1.9	0.2	0.1	0.2	0.3	0.4	0.3	0.2	0.1	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.9																						
4-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.9	1.2	2.1	0.9	0.7	0.6	0.5	0.4	0.5	3.8	3.6	2.2	3.0	3.0	3.0	0.9	3.8																						
5-Dec	0.5	0.1	0.1	Z	0.0	0.0	0.6	2.3	1.6	1.6	0.9	1.7	3.1	2.7	3.4	1.3	0.9	0.9	0.9	0.7	0.7	0.8	1.5	1.5	1.3	1.3	3.4																						
6-Dec	0.7	0.4	0.3	0.3	Z	1.1	3.0	2.0	2.4	1.9	1.2	0.5	0.5	0.3	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.7	3.0																						
7-Dec	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	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.3																						
8-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2																					
10-Dec	0.1	0.2	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.4	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.5	0.5																					
11-Dec	0.2	0.1	0.1	Z	0.2	0.3	0.4	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.4	0.4																					
12-Dec	0.0	0.0	0.4	0.6	Z	4.8	5.1	4.8	4.3	3.7	1.0	3.8	7.8	7.9	9.4	3.1	0.9	0.4	0.5	0.4	0.7	0.8	0.5	1.0	1.0	2.7	9.4																						
13-Dec	0.8	0.4	0.6	1.2	0.5	Z	0.2	0.1	0.1	0.2	0.2	0.5	1.0	2.2	2.2	1.7	1.1	0.7	0.3	0.4	0.3	0.2	0.2	0.0	0.7	2.2																							
14-Dec	Z	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	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																					
15-Dec	0.1	Z	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	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
17-Dec	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.2	0.6																						
18-Dec	0.5	0.6	0.6	0.6	Z	0.7	0.7	0.6	0.3	0.2	0.2	0.3	0.3	0.2	0.4	0.3	0.3	0.2	0.3	0.3	0.2	0.3	0.2	0.6	0.4	0.7																							
19-Dec	1.4	1.2	0.7	1.0	1.6	Z	6.6	4.5	2.3	0.6	0.5	1.6	2.4	24.3	45.2	27.8	17.2	7.1	7.6	7.2	4.5	3.0	2.7	1.7	7.5	45.2																							
20-Dec	Z	1.6	2.1	3.0	2.3	2.1	2.2	C	C	C	3.7	2.4	1.8	1.1	0.5	1.0	1.6	1.3	0.8	0.6	0.7	0.6	0.4	0.2	1.5	3.7																							
21-Dec	0.3	Z	0.4	0.4	0.2	0.2	0.1	0.2	0.2	0.2	0.3	1.0	2.1	1.5	1.0	0.9	0.7	0.5	0.6	0.7	1.0	1.7	3.0	3.2	0.9	3.2																							
22-Dec	3.5	3.4	Z	2.1	1.9	1.3	7.2	10.7	1.6	0.8	7.1	3.9	2.2	3.3	7.7	4.5	2.2	1.8	1.0	4.6	12.8	1.6	7.2	9.5	4.4	12.8																							
23-Dec	9.5	12.2	11.5	4.5	2.2	Z	1.4	2.0	1.5	1.4	1.4	3.2	2.4	2.1	5.2	4.9	1.8	2.0	0.9	0.8	1.0	0.4	0.2	0.1	3.2	12.2																							
24-Dec	0.1	0.0	0.1	0.1	Z	0.2	0.5	1.3	1.6	4.0	1.0	1.2	1.2	0.9	0.7	0.7	0.6	0.5	0.5	0.4	0.3	0.3	0.2	0.1	0.7	4.0																							
25-Dec	0.1	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.2	0.2	0.1	0.1	0.2	0.4																						
26-Dec	Z	0.2	0.2	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.5	0.9	1.3	1.9	1.8	1.9	0.7	0.3	0.3	0.2	0.4	0.2	0.1	0.1	0.5	1.9																							
27-Dec	0.2	Z	0.6	0.6	0.5	0.4	0.6	0.5	0.3	0.2	0.2	0.3	0.4	0.5	0.4	0.3	0.4	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.4	0.6																							
28-Dec	0.2	0.3	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.3	0.6	0.6	1.3	1.0	1.1	0.9	0.8	0.5	0.2	0.2	0.1	0.1	0.2	0.4	1.3																							
29-Dec	0.1	0.1	0.2	Z	0.2	0.1	0.1	0.2	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3																						
30-Dec	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1																						
31-Dec	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	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																						
																								0.7	0.8	0.7	0.6	0.4	0.5	1.0	1.0	0.6	0.6	0.7	0.8	1.1	1.9	2.7	1.8	1.1	0.7	0.6	0.7	1.0	0.5	0.7	0.8	Diurnal Average	
																								9.5	12.2	11.5	4.5	2.3	4.8	7.2	10.7	4.3	4.0	7.1	3.9	7.8	24.3	45.2	27.8	17.2	7.1	7.6	7.2	12.8	3.6	7.2	9.5	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	702	98.87	98.87
11 - 20	5	0.70	99.58
21 - 60	3	0.42	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 710

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	79	21	11	8	4	17	34	172	58	29	17	31	52	47	23	36	639
11 - 20	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
21 - 60	0	0	0	0	0	0	0	1	0	2	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	79	21	11	8	4	17	34	177	58	31	17	31	52	47	23	36	646

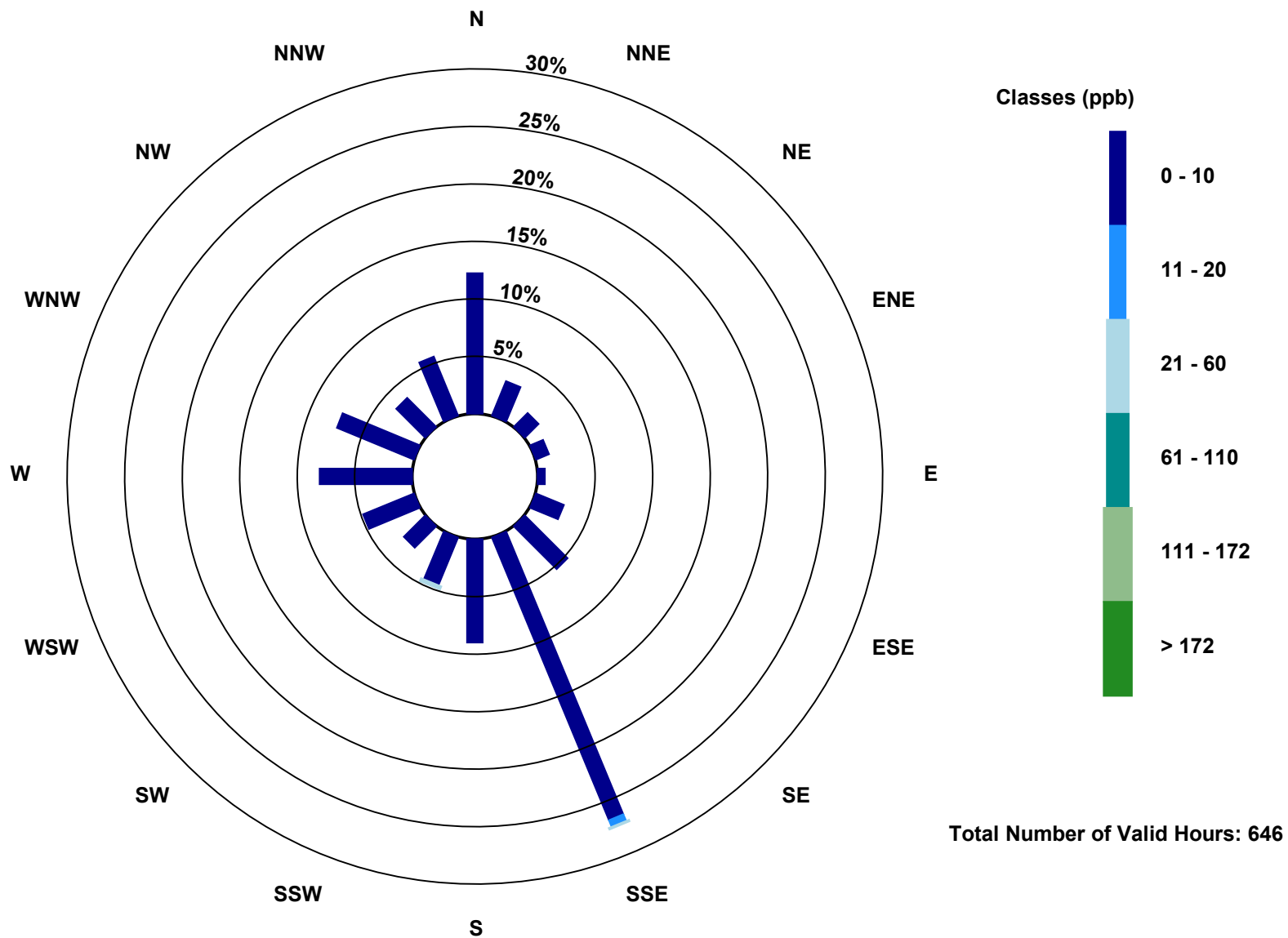
Total Number of Valid Hours: 646

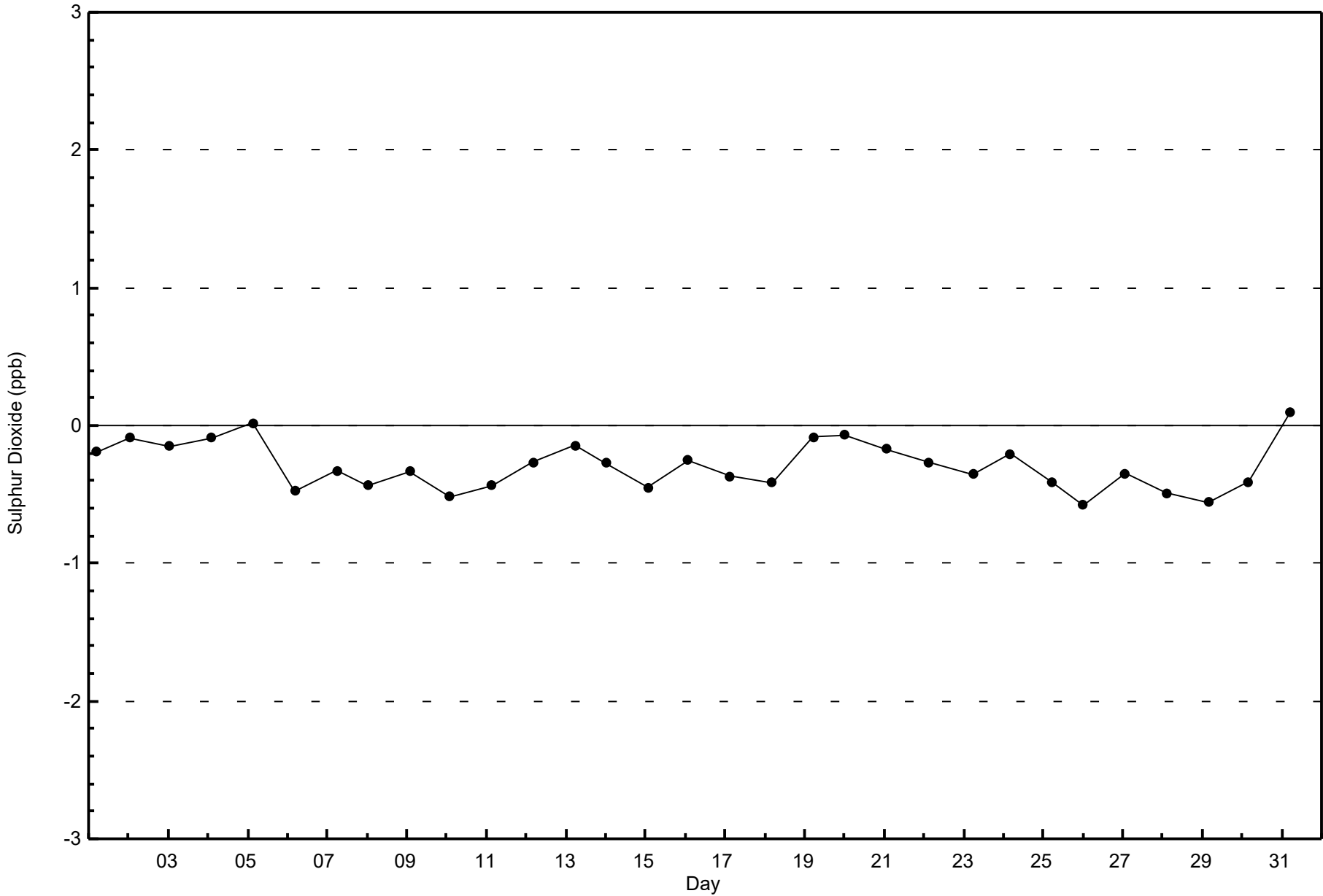
Total Number of Hours: 744

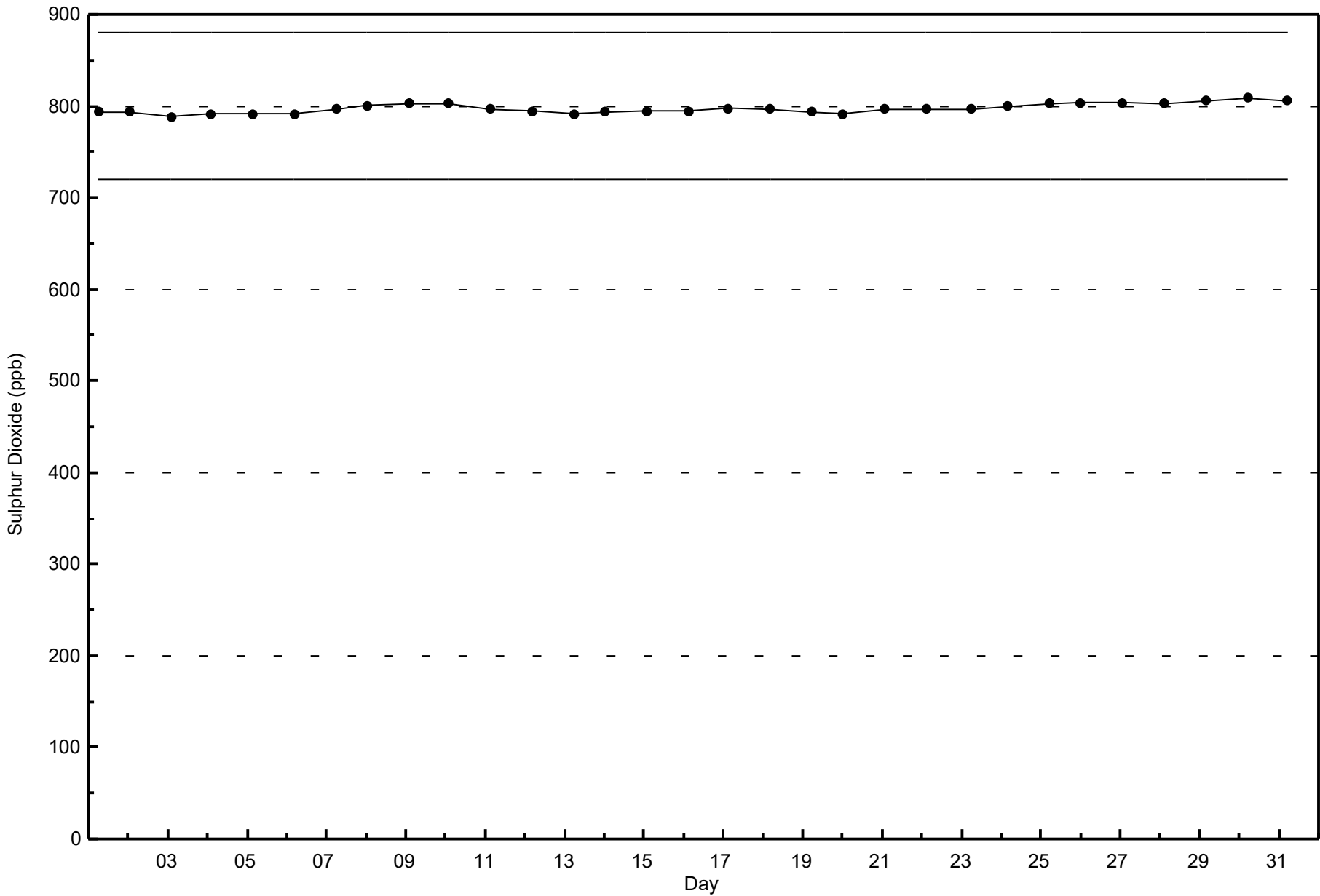


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Waskow ohci Pimatisiwin









Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H₂S) - ppb

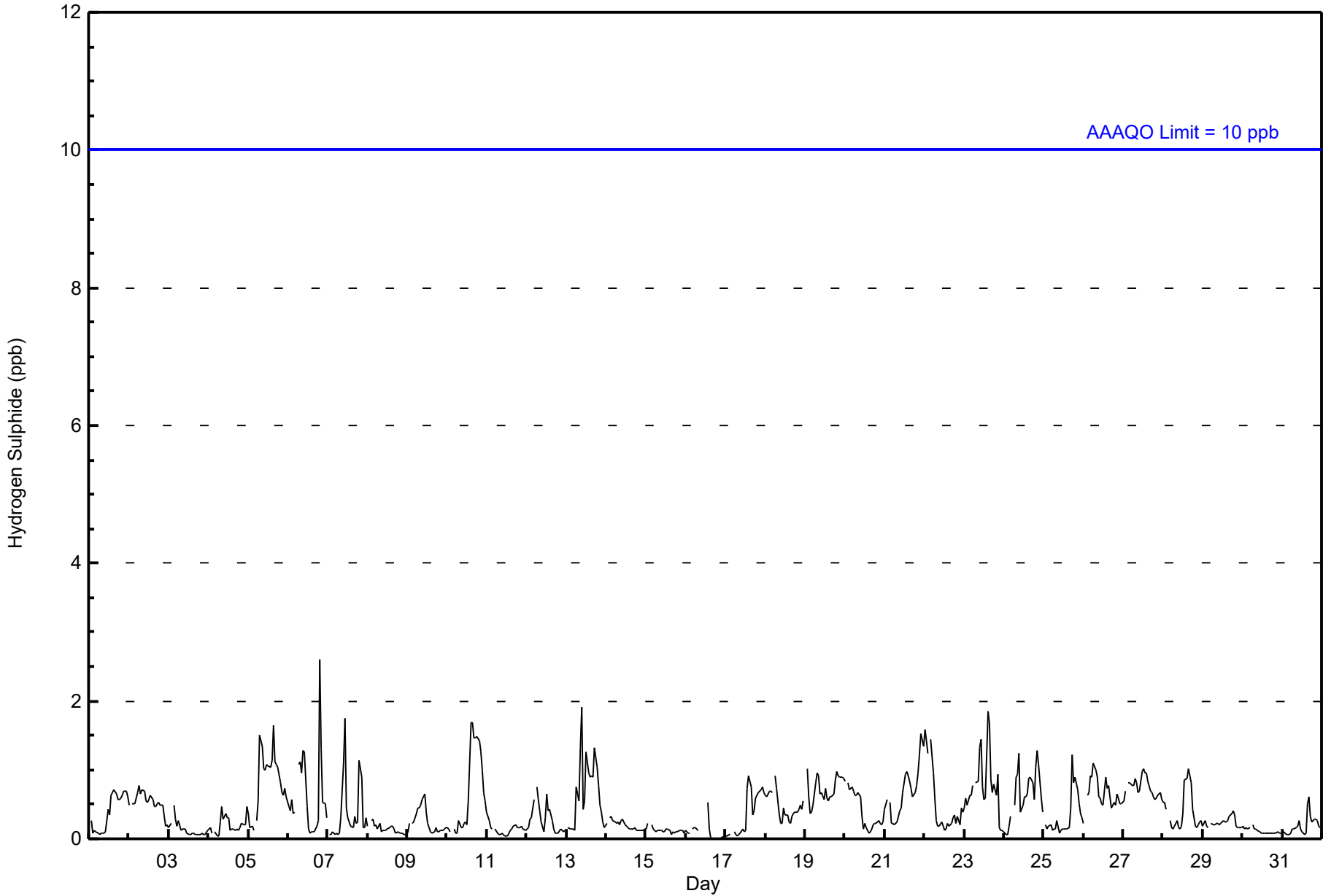
Waskow ohci Pimatisiwin - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 2.6 ppb on Dec 6 20:00		Maximum Daily Average: 0.8 ppb on Dec 5																	Hours of Data:	708																													
Minimum Value: 0.0 ppb on Dec 16 17:00		Minimum Daily Average: 0.1 ppb on Dec 16																	Hours of Missing Data:	36																													
Maximum Diurnal Average: 0.5 ppb at hour 20		Minimum Diurnal Average: 0.3 ppb at hour 6																	Hours of Calibration:	36																													
Monthly Average: 0.42 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.6 P ₉₀ = 0.9 P ₉₉ = 1.6																	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-Dec	Z	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.4	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.4	0.7																							
2-Dec	0.5	Z	0.5	0.5	0.6	0.7	0.8	0.7	0.7	0.7	0.5	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.3	0.2	0.2	0.5	0.8																							
3-Dec	0.2	0.2	Z	0.5	0.3	0.2	0.3	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	0.5																							
4-Dec	0.1	0.2	0.1	Z	0.1	0.0	0.0	0.2	0.5	0.3	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.5	0.2	0.5																							
5-Dec	0.4	0.2	0.2	0.1	Z	0.3	0.5	1.5	1.3	1.0	1.0	1.1	1.1	1.0	1.1	1.6	1.1	1.1	1.0	0.8	0.7	0.6	0.7	0.6	0.8	1.6																							
6-Dec	0.5	0.4	0.6	0.4	0.4	Z	1.1	1.1	1.0	1.3	1.3	0.5	0.1	0.1	0.1	0.1	0.1	0.2	0.3	2.6	1.3	0.5	0.5	0.3	0.6	2.6																							
7-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	1.1	1.8	0.4	0.3	0.2	0.2	0.2	0.3	0.2	0.3	1.1	0.9	0.2	0.2	0.3	0.4	1.8																							
8-Dec	0.2	Z	0.3	0.3	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																							
9-Dec	0.1	0.2	Z	0.2	0.2	0.4	0.4	0.4	0.5	0.6	0.6	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.6																							
10-Dec	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.6	1.7	1.7	1.5	1.5	1.5	1.4	1.3	1.0	0.7	0.6	0.7	1.7																							
11-Dec	0.4	0.3	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.4																							
12-Dec	0.2	0.2	0.3	0.3	0.6	Z	0.7	0.6	0.4	0.3	0.1	0.3	0.6	0.4	0.4	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.7																							
13-Dec	Z	0.2	0.1	0.1	0.1	0.1	0.8	0.5	1.3	1.9	0.4	0.6	1.3	0.9	0.9	0.9	0.9	1.3	1.0	0.8	0.5	0.4	0.3	0.2	0.7	1.9																							
14-Dec	0.2	Z	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3																							
15-Dec	0.2	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
16-Dec	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.1	C	C	C	C	C	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5																							
17-Dec	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.7	0.9	0.8	0.3	0.4	0.6	0.6	0.7	0.7	0.8	0.7	0.9																							
18-Dec	0.6	0.6	0.7	0.7	0.7	Z	0.9	0.7	0.3	0.2	0.2	0.5	0.3	0.3	0.2	0.2	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.6	0.5	0.9																							
19-Dec	Z	1.0	0.6	0.4	0.4	0.5	0.8	1.0	0.9	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.6	0.7	0.9	1.0	0.9	0.9	0.9	0.9	0.7	1.0																							
20-Dec	0.8	Z	0.8	0.7	0.7	0.7	0.6	0.6	0.7	0.6	0.3	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.4	0.8																							
21-Dec	0.4	0.6	Z	0.5	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.7	0.9	1.0	0.9	0.8	0.7	0.6	0.7	0.8	0.9	1.2	1.5	1.3	0.7	1.5																							
22-Dec	1.6	1.4	1.2	Z	1.4	1.0	0.6	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.3	0.2	0.4	0.5	1.6																							
23-Dec	0.4	0.6	0.5	0.6	0.6	0.8	Z	0.8	0.8	1.3	1.4	0.7	0.6	0.6	1.8	1.7	0.8	0.7	0.8	0.6	0.9	0.2	0.1	0.1	0.8	1.8																							
24-Dec	0.1	0.1	0.1	0.2	0.3	Z	0.5	0.9	0.9	1.2	0.4	0.5	0.6	0.6	0.7	0.9	0.9	0.8	0.6	1.0	1.3	1.1	0.6	0.4	0.6	1.3																							
25-Dec	Z	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	1.2	0.8	0.9	0.7	0.5	0.4	0.3	0.3	1.2																							
26-Dec	0.2	Z	0.6	0.7	0.9	0.9	1.1	1.0	0.9	0.6	0.6	0.5	0.5	0.9	0.7	0.8	0.6	0.4	0.5	0.5	0.6	0.6	0.5	0.5	0.7	1.1																							
27-Dec	0.6	0.7	Z	0.8	0.8	0.8	0.8	0.9	0.8	0.7	0.7	1.0	1.0	1.0	1.0	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.6	0.7	1.0																							
28-Dec	0.5	0.5	0.4	Z	0.3	0.2	0.1	0.2	0.3	0.2	0.1	0.2	0.4	0.9	0.9	1.0	0.9	0.8	0.4	0.2	0.2	0.2	0.2	0.3	0.4	1.0																							
29-Dec	0.2	0.3	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.4																							
30-Dec	0.2	0.1	0.2	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																							
31-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.5	0.6	0.3	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.6																							
																								0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.4	0.5	0.5	0.4	0.4	0.3	Diurnal Average		
																								1.6	1.4	1.2	0.8	1.4	1.0	1.1	1.5	1.3	1.9	1.8	1.1	1.3	1.0	1.8	1.7	1.5	1.5	1.5	2.6	1.3	1.2	1.5	1.3	Diurnal Maximum	
Z - zerospan C - Calibration																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	707	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: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin - December 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	82	19	12	8	4	17	32	177	58	33	16	31	49	47	24	34	643
3 - 4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	82	19	12	8	4	17	32	178	58	33	16	31	49	47	24	34	644

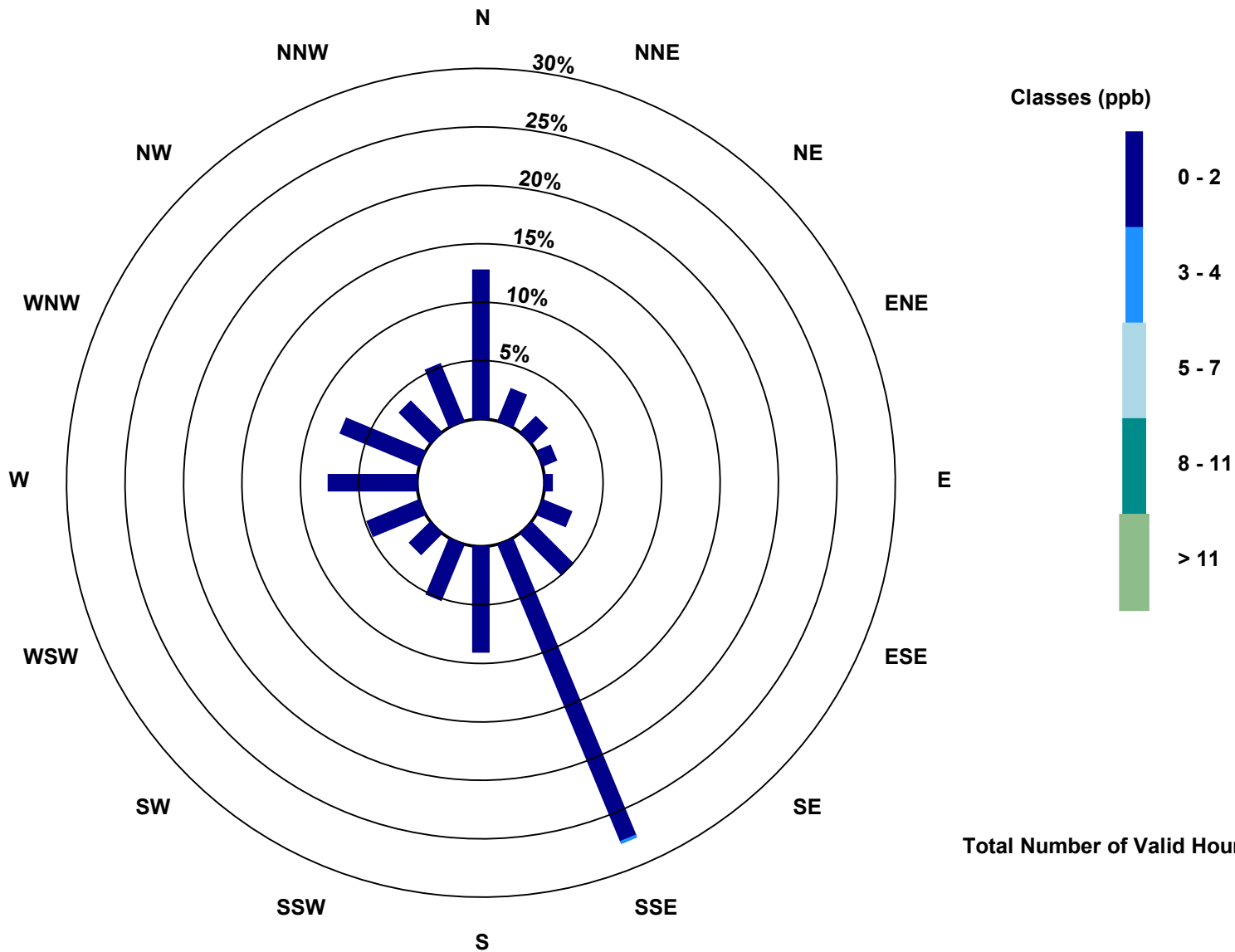
Total Number of Valid Hours: 644

Total Number of Hours: 744

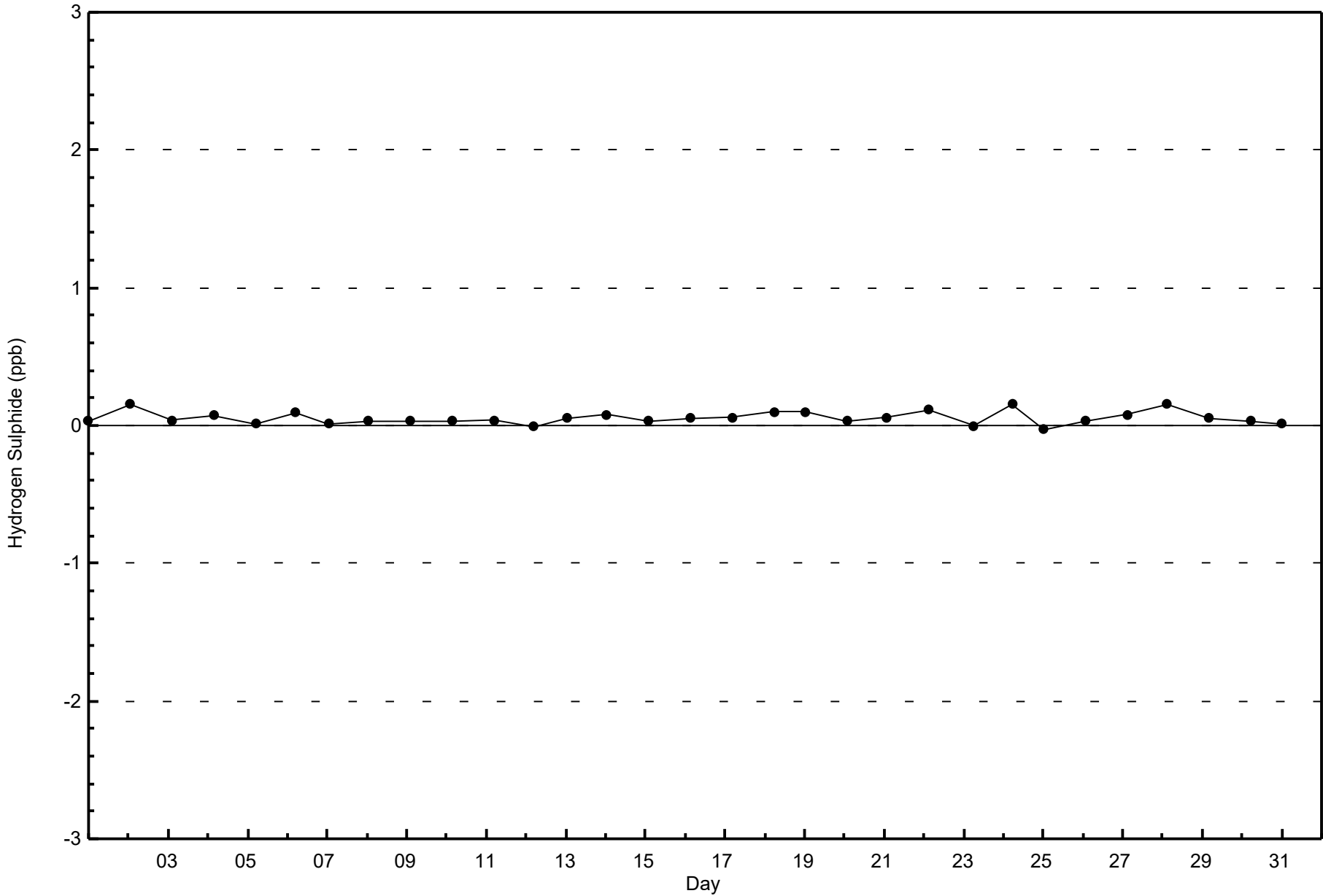


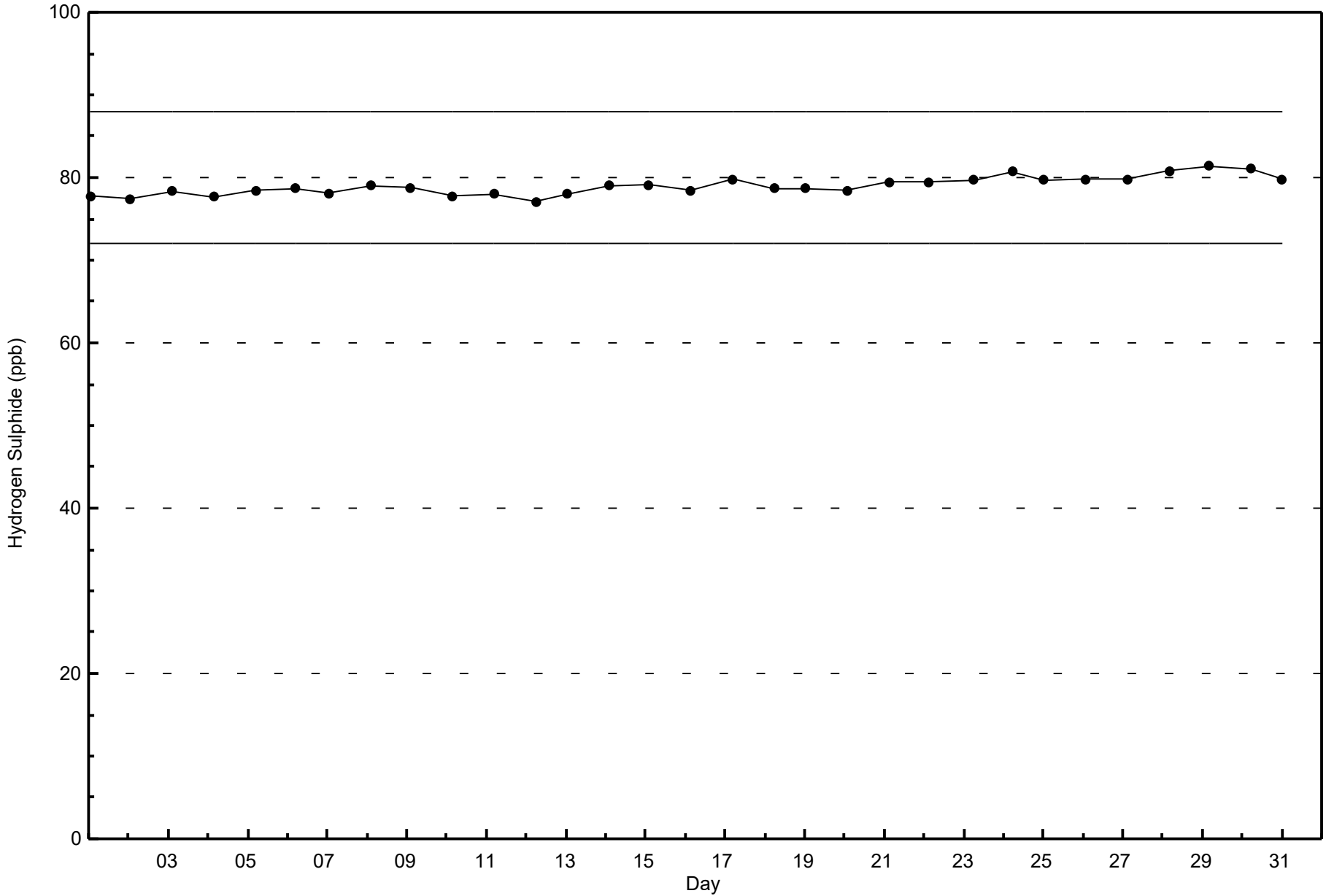
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Waskow ohci Pimatisiwin



Total Number of Valid Hours: 644







Wood Buffalo Environmental Association
Summary of Hour Averages

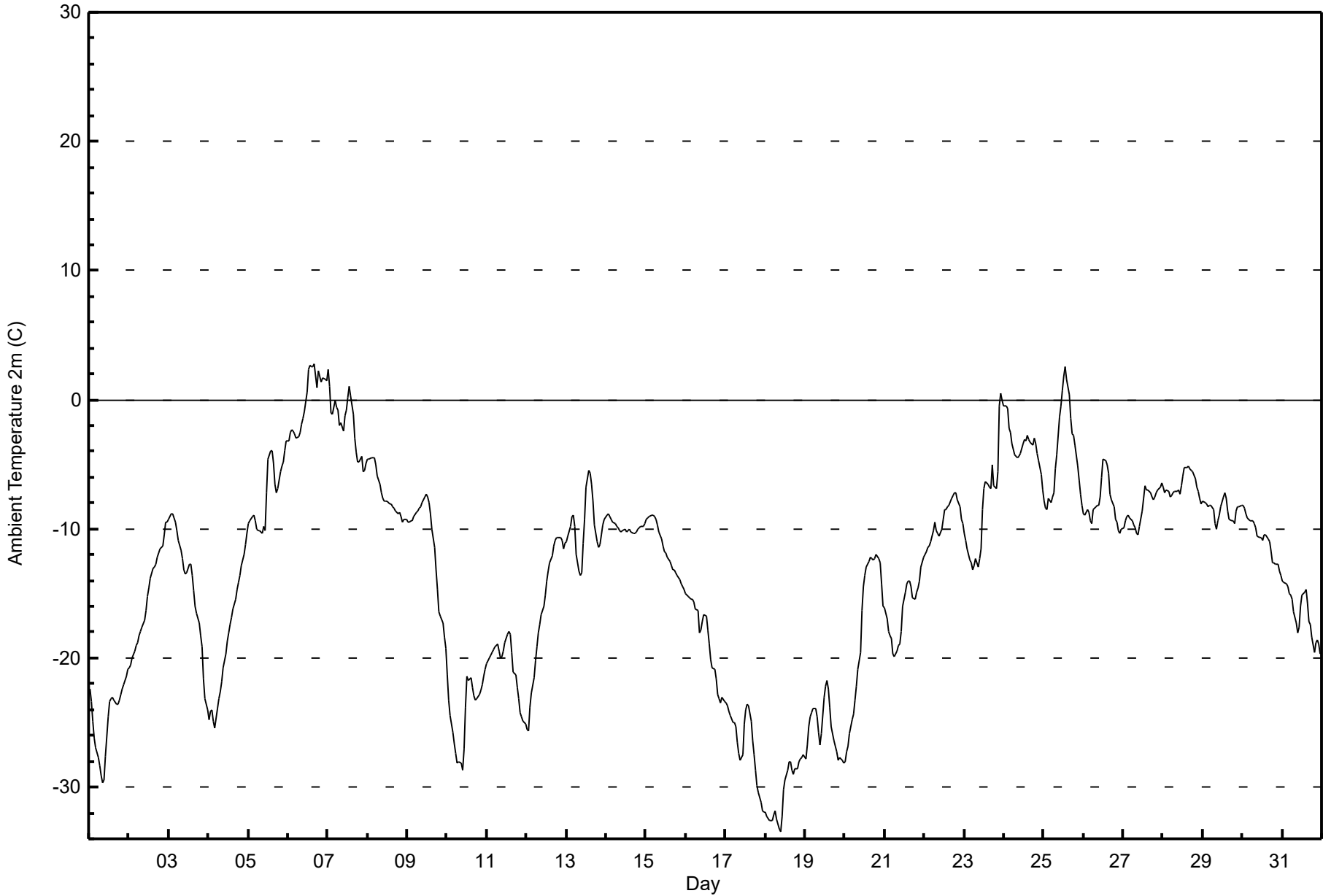
Ambient Temperature 2m (AT2) - C
Waskow ohci Pimatisiwin - December 2024

Maximum Value: 2.8 C on Dec 6 17:00 Maximum Daily Average: 0.0 C on Dec 6																						Hours in Service:	744			
Minimum Value: -33.5 C on Dec 18 10:00 Minimum Daily Average: -30.3 C on Dec 18																						Hours of Data:	744			
Maximum Diurnal Average: -11.2 C at hour 14 Minimum Diurnal Average: -14.5 C at hour 9																						Hours of Missing Data:	0			
Monthly Average: -13.27 C Percentiles: P ₁ = -32.2 P ₁₀ = -25.1 Q ₁ = -19.3 Median = -11.0 Q ₃ = -7.9 P ₉₀ = -4.1 P ₉₉ = 2.0																						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-Dec	-22.3	-23.4	-24.9	-26.1	-27.0	-27.7	-28.3	-29.1	-29.6	-29.4	-27.6	-24.5	-23.4	-23.1	-23.0	-23.3	-23.6	-23.6	-23.3	-22.9	-22.4	-22.1	-21.4	-20.9	-24.7	-20.9
2-Dec	-20.7	-20.5	-20.0	-19.4	-19.1	-18.8	-18.2	-17.9	-17.6	-17.1	-16.3	-15.2	-14.6	-13.8	-13.1	-13.0	-12.7	-12.2	-11.9	-11.5	-11.3	-10.5	-9.5	-9.5	-15.2	-9.5
3-Dec	-9.2	-8.8	-8.9	-9.1	-9.5	-10.1	-10.9	-11.7	-12.3	-13.1	-13.5	-13.4	-12.7	-12.7	-13.6	-14.8	-16.0	-16.6	-17.3	-18.2	-19.2	-21.6	-23.1	-24.0	-14.2	-8.8
4-Dec	-24.8	-24.1	-24.0	-24.9	-25.4	-23.9	-23.2	-22.6	-21.8	-20.8	-19.6	-18.7	-18.0	-17.4	-16.8	-16.2	-15.4	-14.7	-14.1	-13.6	-12.8	-12.0	-11.2	-10.3	-18.6	-10.3
5-Dec	-9.6	-9.4	-9.1	-9.0	-9.4	-10.0	-10.1	-10.2	-10.4	-9.8	-10.1	-7.2	-4.6	-3.9	-3.9	-5.0	-6.6	-7.2	-6.9	-5.6	-5.1	-4.8	-4.0	-3.2	-7.3	-3.2
6-Dec	-3.2	-2.5	-2.3	-2.4	-2.7	-3.0	-2.8	-2.5	-1.9	-1.4	-0.9	0.6	2.4	2.7	2.6	2.6	2.8	0.9	2.2	1.8	1.4	1.7	1.6	1.5	0.0	2.8
7-Dec	2.4	1.1	-1.1	-1.1	-0.1	-0.6	-0.8	-2.0	-1.8	-2.4	-1.2	-0.8	0.1	1.0	0.3	-1.1	-3.0	-4.0	-4.8	-4.8	-4.4	-5.5	-5.4	-4.9	-1.9	2.4
8-Dec	-4.6	-4.7	-4.5	-4.5	-4.5	-5.0	-5.9	-6.6	-7.2	-7.6	-7.9	-7.9	-7.9	-8.1	-8.1	-8.2	-8.4	-8.6	-8.9	-8.7	-9.1	-9.4	-9.3	-9.3	-7.3	-4.5
9-Dec	-9.4	-9.5	-9.4	-9.4	-9.1	-8.7	-8.6	-8.4	-8.3	-7.9	-7.5	-7.3	-7.5	-7.9	-8.8	-10.1	-11.5	-13.2	-14.7	-16.5	-16.8	-17.3	-18.4	-19.3	-11.1	-7.3
10-Dec	-21.3	-23.2	-24.5	-25.8	-26.7	-27.4	-28.1	-28.1	-28.2	-28.7	-27.1	-23.9	-21.4	-21.7	-21.5	-22.3	-22.9	-23.3	-23.1	-22.8	-22.5	-22.1	-21.4	-20.9	-24.1	-20.9
11-Dec	-20.4	-20.0	-19.7	-19.6	-19.3	-19.1	-18.9	-19.4	-20.0	-19.9	-19.5	-18.8	-18.1	-18.0	-18.2	-19.6	-21.1	-21.3	-22.3	-23.1	-24.2	-24.6	-24.9	-25.1	-20.6	-18.0
12-Dec	-25.6	-25.7	-23.8	-22.7	-21.5	-20.2	-19.2	-18.1	-17.4	-16.6	-16.0	-15.1	-14.1	-13.3	-12.6	-12.1	-11.3	-10.9	-10.6	-10.6	-10.7	-10.9	-11.5	-11.2	-15.9	-10.6
13-Dec	-11.0	-10.5	-9.8	-9.1	-8.9	-9.8	-12.0	-13.3	-13.6	-13.3	-11.1	-9.3	-6.7	-5.5	-5.7	-6.5	-7.9	-9.7	-11.0	-11.4	-11.2	-10.5	-9.7	-9.3	-9.9	-5.5
14-Dec	-9.0	-8.9	-9.0	-9.2	-9.5	-9.6	-9.8	-9.9	-10.1	-10.2	-10.1	-10.0	-10.2	-10.2	-10.0	-10.2	-10.3	-10.2	-10.2	-10.0	-10.0	-9.8	-9.9	-9.6	-9.8	-8.9
15-Dec	-9.3	-9.1	-9.1	-9.0	-8.9	-9.0	-9.3	-9.7	-10.2	-10.8	-11.4	-11.7	-11.9	-12.2	-12.5	-12.9	-13.2	-13.2	-13.4	-13.7	-13.9	-14.2	-14.5	-14.7	-11.6	-8.9
16-Dec	-15.0	-15.3	-15.4	-15.4	-15.5	-15.7	-16.2	-16.3	-18.1	-17.9	-17.2	-16.7	-16.7	-17.8	-18.9	-20.2	-20.7	-20.9	-21.6	-22.8	-23.1	-23.4	-23.0	-23.4	-18.6	-15.0
17-Dec	-23.5	-23.7	-24.2	-24.5	-25.0	-25.0	-25.4	-26.6	-27.3	-28.0	-27.5	-25.1	-24.0	-23.6	-23.7	-24.9	-26.4	-27.5	-28.6	-29.9	-30.4	-31.2	-31.8	-32.0	-26.6	-23.5
18-Dec	-32.0	-32.3	-32.5	-32.6	-32.6	-32.2	-31.8	-32.5	-33.3	-33.5	-32.2	-30.3	-29.5	-28.7	-28.1	-28.0	-28.6	-29.0	-28.5	-28.5	-28.1	-27.8	-27.7	-27.5	-30.3	-27.5
19-Dec	-27.8	-26.7	-25.4	-24.6	-24.2	-23.9	-24.0	-24.6	-25.8	-26.7	-25.9	-23.0	-22.2	-21.8	-22.4	-23.8	-25.3	-26.4	-26.9	-27.3	-28.0	-27.7	-27.9	-28.1	-25.4	-21.8
20-Dec	-28.0	-27.2	-26.9	-25.8	-24.8	-24.4	-23.3	-22.2	-20.8	-19.5	-16.3	-14.4	-13.6	-13.0	-12.5	-12.2	-12.3	-12.4	-12.3	-12.0	-12.3	-12.6	-14.3	-16.0	-17.9	-12.0
21-Dec	-16.1	-17.0	-18.0	-18.2	-18.5	-19.7	-19.9	-19.4	-19.1	-18.9	-18.0	-15.9	-14.9	-14.2	-14.0	-14.0	-14.5	-15.4	-15.5	-14.9	-14.6	-14.0	-12.9	-12.2	-16.2	-12.2
22-Dec	-11.9	-11.7	-11.5	-11.3	-11.0	-10.2	-9.5	-10.1	-10.4	-10.6	-10.0	-9.2	-8.5	-8.5	-8.3	-8.2	-7.6	-7.4	-7.2	-7.3	-7.8	-8.2	-9.3	-9.6	-9.4	-7.2
23-Dec	-10.4	-10.9	-11.6	-12.4	-12.7	-13.2	-12.8	-12.4	-13.0	-12.4	-11.6	-8.5	-6.9	-6.3	-6.5	-6.8	-6.9	-5.1	-6.7	-6.9	-5.5	-5.5	0.5	-0.1	-8.3	0.5
24-Dec	-0.4	-0.5	-0.7	-2.2	-2.5	-3.4	-4.2	-4.4	-4.5	-4.4	-4.2	-3.4	-3.1	-3.2	-2.8	-3.1	-3.3	-3.5	-3.0	-3.4	-4.2	-4.8	-5.8	-7.0	-3.4	-0.4
25-Dec	-7.8	-8.4	-8.5	-7.6	-8.0	-7.5	-7.2	-5.3	-4.3	-1.4	-0.4	0.7	1.8	2.5	1.6	0.4	-1.4	-2.7	-2.8	-3.6	-5.2	-6.3	-7.3	-8.2	-4.0	2.5
26-Dec	-8.8	-9.0	-8.5	-8.7	-9.3	-9.6	-8.5	-8.3	-8.2	-8.2	-7.6	-6.0	-4.6	-4.8	-5.1	-5.7	-7.4	-7.8	-8.3	-9.3	-9.4	-10.2	-10.3	-10.1	-8.1	-4.6
27-Dec	-9.9	-9.4	-9.1	-8.9	-9.2	-9.4	-9.7	-9.9	-10.3	-10.5	-9.8	-8.6	-7.7	-6.7	-7.0	-7.0	-7.2	-7.5	-7.7	-7.5	-7.2	-7.0	-6.8	-6.5	-8.4	-6.5
28-Dec	-6.8	-7.3	-7.0	-7.1	-7.5	-7.5	-7.2	-7.1	-7.1	-7.0	-7.4	-6.7	-5.9	-5.3	-5.3	-5.2	-5.4	-5.4	-5.5	-6.1	-6.7	-7.1	-7.6	-8.1	-6.6	-5.2
29-Dec	-7.9	-7.9	-8.1	-8.2	-8.2	-8.2	-8.6	-9.5	-10.0	-9.4	-8.9	-8.3	-7.5	-7.2	-7.7	-8.7	-9.3	-9.4	-9.4	-9.6	-8.7	-8.3	-8.3	-8.2	-8.6	-7.2
30-Dec	-8.2	-8.4	-8.8	-9.2	-9.4	-9.4	-9.4	-9.6	-9.9	-10.5	-10.7	-10.7	-10.9	-10.5	-10.5	-10.8	-11.0	-11.8	-12.6	-12.7	-12.7	-12.8	-13.3	-13.6	-10.7	-8.2
31-Dec	-14.0	-14.1	-14.3	-14.5	-15.0	-15.1	-15.5	-16.4	-17.3	-18.1	-17.7	-16.0	-15.2	-14.9	-14.7	-15.8	-17.1	-17.4	-18.4	-19.5	-18.8	-18.6	-18.9	-19.7	-16.5	-14.0
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Waskow ohci Pimatisiwin - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Waskow ohci Pimatisiwin - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	171	22.98	22.98
-20 - 0	549	73.79	96.77
0 - 10	24	3.23	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

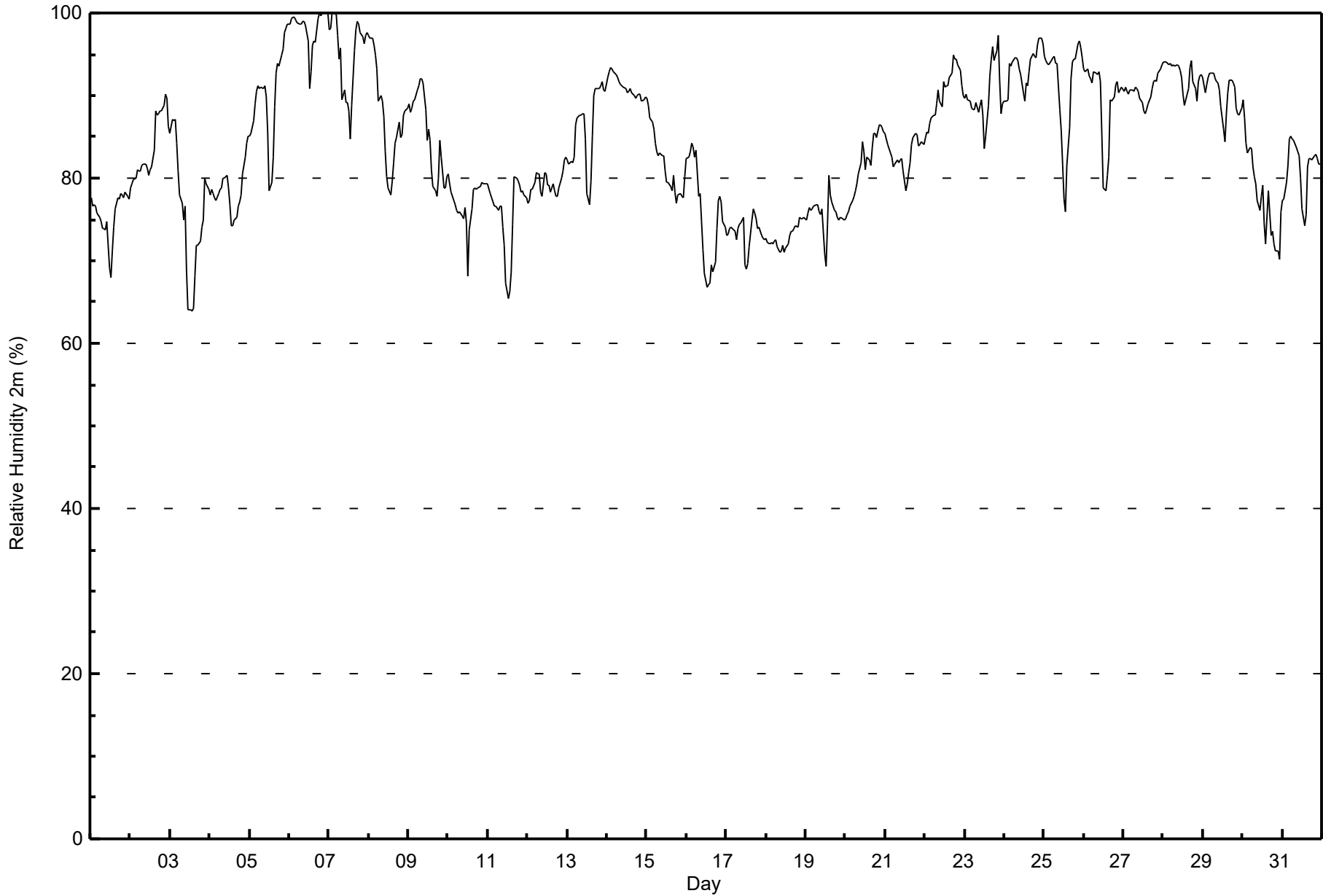
Relative Humidity 2m (RH2) - %
Waskow ohci Pimatisiwin - December 2024

Maximum Value: 100.0 % on Dec 6 21:00																						Hours in Service: 744				
Maximum Daily Average: 98.2 % on Dec 6																						Hours of Data: 744				
Minimum Value: 63.9 % on Dec 3 14:00																						Hours of Missing Data: 0				
Maximum Diurnal Average: 85.6 % at hour 22																						Hours of Calibration: 0				
Minimum Daily Average: 72.9 % on Dec 18																						Percent Operational Time: 100.0				
Minimum Diurnal Average: 79.0 % at hour 13																										
Monthly Average: 84.16 %																										
Percentiles: P ₁ = 67.2 P ₁₀ = 74.0 Q ₁ = 77.8 Median = 84.0 Q ₃ = 90.8 P ₉₀ = 94.3 P ₉₉ = 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-Dec	77.7	76.6	76.7	76.6	75.8	75.3	74.7	74.0	73.9	73.7	74.7	69.1	67.9	71.2	74.1	76.2	77.7	77.5	78.1	77.9	77.6	78.3	77.7	77.5	75.4	78.3
2-Dec	78.8	79.4	79.9	80.0	81.0	80.9	80.8	81.5	81.7	81.7	81.2	80.3	81.0	81.4	83.4	88.2	87.6	87.8	88.2	88.2	88.8	90.2	89.7	86.2	83.7	90.2
3-Dec	85.4	87.1	87.0	87.1	84.3	80.9	78.0	76.9	74.9	76.6	68.8	64.1	64.1	63.9	64.2	68.2	71.9	71.9	72.3	74.0	74.9	80.0	79.2	78.7	75.6	87.1
4-Dec	78.0	78.6	78.1	77.6	77.4	78.2	78.7	78.9	79.9	80.1	80.3	78.8	76.8	74.3	74.3	74.9	75.2	76.6	77.1	78.0	80.4	82.5	84.2	85.1	78.5	85.1
5-Dec	85.1	85.5	87.0	89.1	90.6	91.3	90.9	91.1	90.9	91.2	89.9	85.7	78.4	79.4	82.6	88.6	92.8	94.0	93.6	94.9	95.6	97.7	98.2	98.6	90.1	98.6
6-Dec	98.6	99.3	99.5	99.5	99.2	98.9	98.6	98.7	98.9	99.0	98.5	96.6	90.8	92.9	96.1	96.7	96.4	99.3	100.0	99.7	100.0	100.0	100.0	100.0	98.2	100.0
7-Dec	97.9	98.1	100.0	100.0	99.8	97.2	94.4	95.8	89.5	90.6	89.1	89.2	88.2	84.8	88.9	95.4	98.0	98.9	98.7	97.6	97.1	96.2	97.3	97.6	95.0	100.0
8-Dec	97.3	97.0	96.9	96.1	94.9	93.3	89.3	90.0	89.4	87.4	83.1	80.1	78.8	78.0	79.7	81.9	84.2	84.9	86.8	84.9	85.3	87.7	88.1	88.5	87.6	97.3
9-Dec	89.0	87.9	88.5	89.2	89.5	90.7	91.3	92.1	92.0	91.5	88.3	84.6	86.0	84.6	81.0	79.0	78.5	77.7	79.9	84.6	82.6	78.8	78.8	80.2	85.3	92.1
10-Dec	80.5	79.3	78.4	77.3	76.8	76.0	75.8	75.9	75.4	75.1	76.4	74.6	68.2	73.8	76.3	78.6	78.8	78.6	78.9	79.0	79.4	79.2	79.4	79.3	77.1	80.5
11-Dec	79.3	78.1	77.6	77.2	76.6	76.6	76.1	76.6	76.6	74.1	71.9	67.3	65.5	66.3	68.7	74.4	80.1	79.9	79.6	79.1	78.2	78.5	78.0	77.6	75.6	80.1
12-Dec	77.0	77.3	78.6	78.6	79.4	80.6	80.4	80.5	78.4	77.8	80.6	80.5	79.2	79.2	78.4	79.4	78.5	77.8	77.9	78.7	79.9	80.8	82.2	82.6	79.3	82.6
13-Dec	82.2	81.7	82.0	81.9	82.5	86.5	87.3	87.6	87.6	87.7	87.7	84.8	78.1	76.7	79.7	85.2	90.1	90.8	90.8	90.8	91.2	91.7	90.7	90.5	86.1	91.7
14-Dec	92.3	92.8	93.4	93.3	92.9	92.6	92.1	91.8	91.4	91.1	91.0	90.8	90.4	90.6	90.8	90.3	90.1	89.6	90.0	90.2	90.2	89.4	89.5	89.8	91.1	93.4
15-Dec	89.6	88.8	87.3	86.8	85.9	84.2	83.2	82.8	83.0	82.7	82.8	80.9	79.5	79.6	79.0	78.6	80.3	78.2	77.0	78.0	78.2	77.8	77.7	80.2	81.7	89.6
16-Dec	82.4	82.6	83.2	84.2	83.8	82.5	83.5	77.9	78.2	74.7	71.3	68.5	66.7	67.1	67.3	69.5	68.6	69.8	73.9	77.3	77.8	77.2	74.7	74.0	75.7	84.2
17-Dec	73.1	73.3	73.8	74.1	73.7	73.6	72.6	73.9	74.4	74.6	75.3	69.5	69.1	69.7	71.6	74.9	76.2	75.8	75.0	73.9	74.0	73.0	72.7	72.6	73.3	76.2
18-Dec	72.7	72.3	72.0	72.1	72.0	72.3	72.6	71.7	71.0	71.3	71.9	71.0	71.5	72.0	73.0	73.6	73.5	73.9	74.2	74.1	75.2	75.0	75.1	75.3	72.9	75.3
19-Dec	74.9	75.8	76.5	76.2	76.3	76.5	76.7	76.7	76.0	75.7	76.3	70.8	69.3	74.5	80.3	78.0	77.1	76.1	75.9	75.3	74.9	75.3	75.0	75.0	75.6	80.3
20-Dec	75.1	75.6	75.9	76.7	77.3	77.7	78.5	79.4	80.5	81.9	84.3	83.2	81.0	82.5	82.2	81.5	83.8	85.4	85.4	84.9	86.4	86.4	86.1	85.7	81.6	86.4
21-Dec	85.4	84.1	83.6	83.1	82.5	81.4	81.7	82.2	81.9	82.2	82.4	80.9	78.5	79.4	80.7	81.8	84.1	84.9	85.3	85.2	83.9	84.1	84.4	84.1	82.8	85.4
22-Dec	84.9	85.6	85.4	86.6	87.3	87.7	87.7	89.0	90.7	89.3	88.6	91.7	91.1	91.2	91.2	92.3	92.7	95.0	94.4	94.3	93.7	93.1	91.3	90.0	90.2	95.0
23-Dec	89.7	90.2	89.4	89.3	88.6	88.3	88.4	89.2	88.0	88.8	89.5	87.7	83.6	85.1	88.8	92.4	94.5	95.9	94.3	95.5	97.2	91.8	87.9	89.0	90.1	97.2
24-Dec	89.4	89.4	89.6	93.9	93.5	94.1	94.5	94.6	94.3	93.2	92.6	90.4	89.3	91.6	91.1	92.8	94.4	95.1	94.7	94.6	96.2	97.0	97.0	96.2	93.3	97.0
25-Dec	94.7	94.2	93.9	93.8	94.2	94.6	94.7	93.8	93.8	88.4	85.7	81.7	77.5	75.9	81.5	86.2	92.0	94.1	94.3	94.4	96.2	96.7	95.8	94.6	90.9	96.7
26-Dec	93.2	92.8	93.2	92.5	92.0	91.5	92.9	92.7	92.6	92.9	91.7	85.5	78.7	78.5	80.3	82.5	89.5	89.4	89.8	91.4	91.7	90.3	90.7	91.1	89.5	93.2
27-Dec	90.5	90.9	90.5	90.2	90.7	90.7	90.6	91.1	90.8	90.5	89.7	89.2	88.1	87.8	88.3	88.9	89.8	90.8	91.7	91.9	91.7	92.6	93.2	93.7	90.6	93.7
28-Dec	94.0	94.2	94.1	93.8	94.0	93.6	93.7	93.5	93.7	93.5	93.1	92.2	90.2	88.9	90.2	90.8	93.5	94.3	91.7	90.9	89.3	91.6	92.3	92.6	92.5	94.3
29-Dec	92.2	90.4	91.4	92.3	92.7	92.7	92.6	92.0	91.7	91.5	90.6	88.7	85.9	84.4	87.8	90.3	91.8	91.8	91.5	91.1	88.6	87.8	87.7	88.5	90.2	92.7
30-Dec	89.6	87.2	84.3	83.1	83.7	83.6	81.3	80.1	79.3	77.3	76.1	77.8	79.2	74.5	72.0	78.5	75.7	73.1	73.6	72.0	71.1	71.1	70.1	75.9	77.9	89.6
31-Dec	77.3	77.5	79.5	81.6	84.8	85.0	84.8	84.6	83.7	83.2	82.8	80.0	76.3	74.3	75.5	81.4	82.4	82.3	82.2	82.6	82.9	82.4	81.7	81.7	81.3	85.0
85.4 85.3 85.4 85.6 85.6 85.5 85.1 85.0 84.6 84.2 83.4 81.2 79.0 79.2 80.6 82.9 84.5 84.9 85.1 85.3 85.5 85.6 85.4 85.6																						Diurnal Average				
98.6 99.3 100.0 100.0 99.8 98.9 98.6 98.7 98.9 99.0 98.5 96.6 91.1 92.9 96.1 96.7 98.0 99.3 100.0 99.7 100.0 100.0 100.0 100.0																						Diurnal Maximum				



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Waskow ohci Pimatisiwin - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Waskow ohci Pimatisiwin - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	273	36.69	36.69
80 - 100	466	62.63	99.33

Total Number of Valid Hours: 744

Total Number of Hours: 744

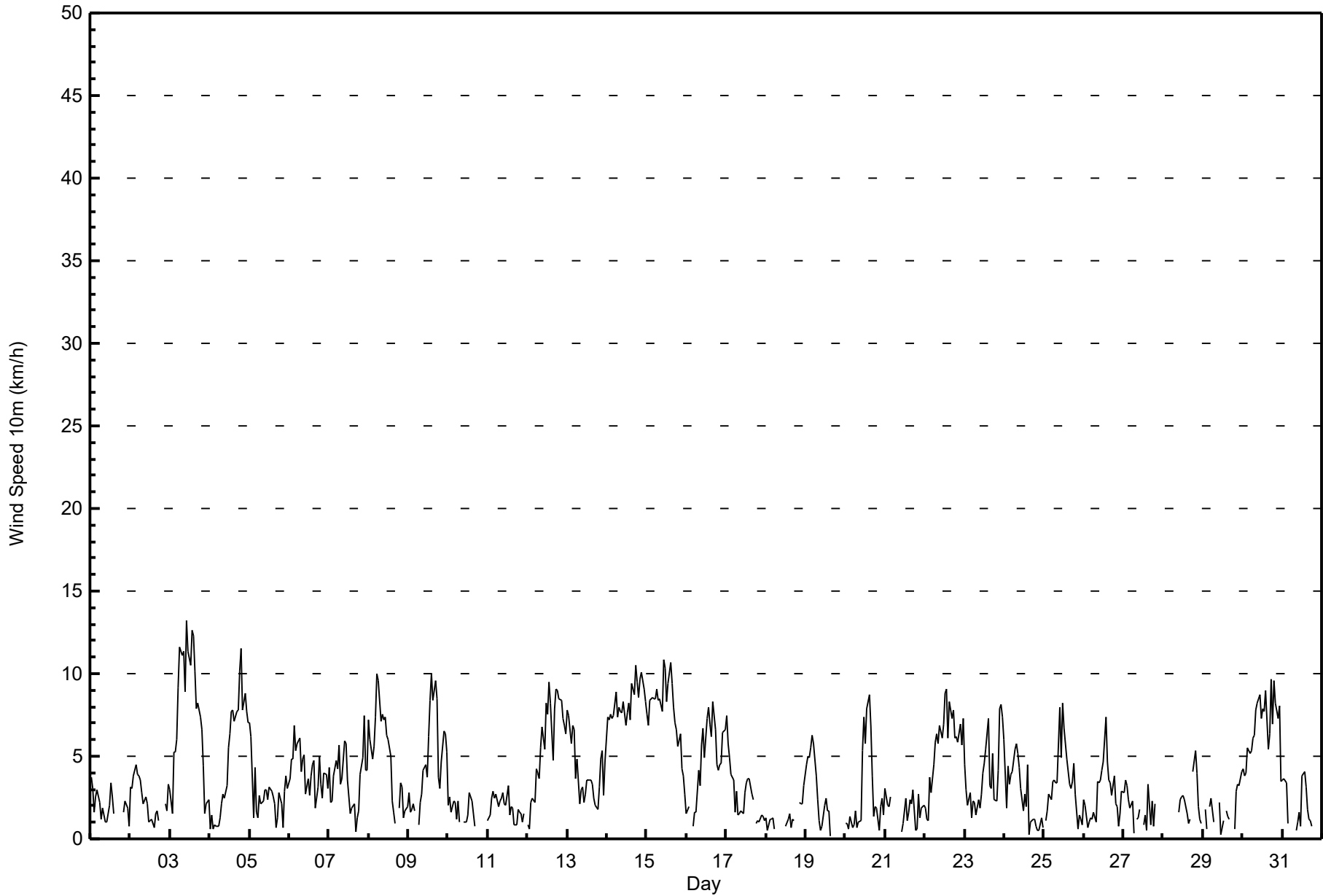


Maximum Speed: 13 km/h on Dec 3 11:00	Maximum Daily Speed Average: 8.2 km/h on Dec 14	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 19 16:00	Minimum Daily Speed Average: 0.4 km/h on Dec 1	Hours of Data: 677
Maximum Diurnal Speed Average: 1.0 km/h at hour 24	Minimum Diurnal Speed Average: 0.1 km/h at hour 6	Hours of Missing Data: 67
Monthly Average Velocity: 0.4 km/h 229.5 deg	Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 3 Q ₃ = 6 P ₉₀ = 8 P ₉₉ = 11	Percent Operational Time: 91.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	NNE4	N3	W2	WNW3	WSW3	W2	W1	WSW2	W1	SE1	ESE1	SE2	SSE3	SSE3	SSE2	UO	W1	UO	UO	UO	NNE2	N2	NW2	WNW1	WNW0.4	NNE4
2-Dec	N3	N3	NNW4	NNW4	NNW4	NNW4	N4	N3	N2	N3	NNW2	N1	ENE1	N1	ESE1	NE1	N2	NE1	UO	UO	UO	SSE2	SW2	S3	N1.6	NNW4
3-Dec	SSE3	NW2	NNW5	NNW5	NNE6	NNW9	NNW12	NW11	NNW11	NNW9	NW13	NW11	NW11	NW13	NW12	WNW10	W8	WNW8	WNW7	NW7	NW4	W2	SW2	WSW2	NW6.8	NW13
4-Dec	SSW1	NNW1	SSW1	SW1	S1	SW1	SE1	S2	SSE3	SSE2	S3	SSE6	SSE6	SSE8	SSE8	SSE7	SSE8	SSE8	SSE10	SSE12	SSE8	SSE9	SSE8	SSE7	SSE4.8	SSE12
5-Dec	SSE7	SSE6	SE1	SSE4	SE2	SSW1	SSE3	S2	S2	S3	SSE3	SE2	SSE3	SSE3	SSE3	SSW2	ENE1	S1	SSE3	SSE2	WSW1	SE3	SSE4	SSE3	SSE2.6	SSE7
6-Dec	SSE4	SSE5	SSE5	SSE7	SSE5	SSE6	SSE6	SSE4	S5	SSE5	SSE3	SSW4	SSE3	S4	SSW5	SW5	SW2	SSE3	S5	SSE3	SSE2	SSE4	S4	S3	S4.0	SSE7
7-Dec	SSW4	SSE2	SE2	S4	SSW5	SSW4	SSW6	S3	S4	SSW6	SSW6	SSE4	SSE3	S2	SSE2	SSE2	SW0	WSW1	NNW2	NNW4	N5	N7	NNE4	NNW4	SSW1.3	N7
8-Dec	N7	N6	NNW5	N6	N7	N10	N10	N7	N8	N7	N7	N6	N6	N5	NE2	E2	E1	UO	E2	SSE3	SSE3	SE1	SSE2	SSE2	N3.8	N10
9-Dec	SSE3	SE2	SSE2	SE2	SSE2	UO	SSW1	SE2	NNW3	N4	NNE5	NNE4	N6	N8	NNE10	N8	N10	N8	NNW4	NW3	N5	N7	N6	NNW5	N3.6	NNE10
10-Dec	WNW2	W3	W2	WSW2	WNW2	WSW1	W2	SSW1	UO	S1	SE1	SE1	SE1	SSE3	SSE2	SSW2	ESE1	UO	N0	UO	UO	UO	S2	UO	SW0.9	SSE3
11-Dec	SE1	S1	ESE2	ESE3	ESE2	ESE3	ESE2	ESE2	E2	ESE3	ESE2	ESE2	SSE3	S1	SSW2	W2	W1	SSE1	SSW2	WNW2	W2	NNW1	W2	UO	SE1.0	SSE3
12-Dec	NNW1	N1	S2	SSE2	SSE2	SE4	SSE4	SE4	SSE6	SSE7	SE5	SSE8	SSE8	SSE9	SSE8	SSE5	SSE8	SSE9	SSE9	SSE8	SSE8	SSE7	SSE7	SSE6	SSE5.7	SSE9
13-Dec	SSE8	SSE7	SSE6	SSE7	SSE7	S4	W5	WSW2	WSW3	W3	W2	SW3	SSW4	SSE4	SSE4	S3	S2	WNW2	WNW2	NW3	NNW5	NNW5	NNW3	NNW5	SSW1.6	SSE8
14-Dec	N7	NNE7	N8	N7	N7	N9	N7	N8	N8	N8	N8	N8	N8	N7	N9	N9	N9	N10	N9	N9	N10	N10	N9	N8	N8.2	N10
15-Dec	N8	N7	NNW8	N9	N9	N8	N9	N8	N8	N8	N11	N10	N8	N9	NNE11	NNE9	NNE8	N7	NNE7	NNE6	NNE6	NNE4	NE4	NE3	N7.6	N11
16-Dec	ENE2	ESE2	UO	UO	NE1	NNE2	NNW2	WNW4	WNW3	WNW6	W7	W5	W7	W8	W7	W6	W8	W7	W4	W4	WSW4	W5	WSW6	W7	W4.2	W8
17-Dec	W7	W6	W5	W4	W4	WSW2	WNW3	WSW1	WNW2	WSW2	SE2	SE3	SE3	SSE4	SSE4	SSE3	SSE2	UO	S1	SSW1	W1	S1	S1	S1	SW1.5	W7
18-Dec	S1	SSE1	S1	SSW1	WSW1	W1	UO	W1	UO	W1	UO	UO	ENE1	SE1	SSE2	SSW1	SSW1	WSW1	UO	UO	SE2	SSE2	SSE2	SSE3	S0.9	SSE3
19-Dec	SSE4	SSE5	SSE5	SSE5	SSE6	SSE6	SE4	SSE2	S1	WNW0	ESE1	SSE2	SE2	SSE2	SSW2	SSW0	UO	W1	UO	WSW1	UO	UO	UO	UO	SSE2.5	SSE6
20-Dec	WNW1	NNW1	W1	W1	NE1	NNE1	N2	NNW1	NE1	W1	SSE5	SSE7	SE6	SSE8	SSE9	SSE7	SSE4	S1	SW2	S2	SSW0	W2	WSW2	SSE1	SSE1.9	SSE9
21-Dec	S3	SSE2	S2	S3	UO	S1	UO	UO	SSW1	UO	NE0	S1	SE2	SE1	ENE2	NW2	N2	WNW3	W1	NE1	N3	W1	WSW2	WNW2	SW0.4	S3
22-Dec	WNW2	SSW1	SSE1	SSE4	SSE3	SSE4	SSE6	SSE6	S6	SSE7	SSE6	SSE7	SSE9	SSE9	SSE6	SSE8	SSE7	S8	S6	SSE6	SSE6	SSE7	SSE6	S7	SSE5.6	SSE9
23-Dec	SSE4	SSE3	SSE2	S3	S1	SSW2	SSE2	SSE1	SSE2	S2	SSE3	SSE4	SSE5	SSE5	SSE7	S3	S3	S5	S2	S2	SSE4	SW8	WSW8	WSW7	S3.2	WSW8
24-Dec	W6	SSW2	SSE4	SSE3	SSE4	SSE4	SSE5	SSE6	SSE5	SSE4	SSE3	WNW2	N3	NW2	NW5	SSW0	S1	S1	WSW1	SSE0	SE0	SW1	SW1	SW1	S1.5	W6
25-Dec	UO	SW1	WSW2	S3	SE2	SSE4	SE4	S3	WSW3	WSW8	WSW5	SW8	SSW7	SW6	SSW5	SSE3	SE3	SSE3	SSE5	S3	WNW1	WSW1	WNW1	S1	SSW2.7	SW8
26-Dec	S2	S2	WSW1	WSW1	SW1	SSE1	S2	S1	SSE3	SSE3	SSE4	SSE4	SSE5	SSE7	SSE5	SSE4	SSE3	SSE3	SSE4	S2	S2	W1	S2	SSE3	SSE2.6	SSE7
27-Dec	SE3	SSE4	SSE3	SSE2	SSE2	SSW0	UO	SSW1	S1	SSE2	UO	NW1	WNW1	ESE1	SSE3	WSW1	NNW2	SSE1	SSE2	UO	UO	UO	UO	UO	SSE1.3	SSE4
28-Dec	UO	UO	UO	UO	UO	UO	NW2	UO	UO	WNW2	NW2	NW3	NW3	NNW2	NNE2	WNW1	NNW1	UO	N4	N5	N4	NNW2	NE1	NNE1	---	N5
29-Dec	UO	NNW2	W1	UO	SE2	SE2	ESE1	UO	UO	UO	SE2	ENE0	NNW1	UO	NNW2	N1	NNW1	UO	UO	NW1	WNW3	WNW3	W3	WNW4	---	WNW4
30-Dec	WNW4	WNW4	WNW4	W6	WNW5	W5	WNW6	WNW6	WNW8	WNW8	W9	WNW7	WNW8	WNW8	WNW9	WNW5	WNW6	WNW10	WNW7	WNW10	WNW8	WNW7	NW8	W3	WNW6.7	WNW10
31-Dec	W4	W4	W3	NW1	UO	N2	UO	UO	NNE1	WSW1	W2	ENE1	NW4	WNW4	N3	NE2	ENE1	NE1	ESE1	UO	UO	UO	UO	UO	---	WNW4

SW0.6SSW0.3	SW0.4SSW0.6	S0.2	ENE0.1	WNW0.4	NNW0.4	W0.5	W0.7	W0.5	SSW0.6	S0.5	SSW0.8	S0.6	SSW0.6	SW0.4	WSW0.7	SSW0.6	SW0.4	NW0.5	NNW0.5	WSW0.9	SW1.0											Diurnal Average		
SSE8	SSE7	NNW8	N9	N9	N10	NNW12	NW11	NNW11	NNW9	NW13	NW11	NW11	NW13	NW12	WNW10	N10	N10	SSE10	SSE12	N10	N10	N9	N8											Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Waskow ohci Pimatisiwin - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	490	72.38	72.38
6 - 11	182	26.88	99.26
12 - 19	5	0.74	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: 677

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Waskow ohci Pimatisiwin - December 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	27	12	12	8	4	18	35	122	59	30	14	28	42	31	16	32	490
6 - 11	57	9	0	0	0	0	0	63	1	4	3	4	14	18	5	4	182
12 - 19	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	1	5
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	84	21	12	8	4	18	35	186	60	34	17	32	56	49	24	37	677

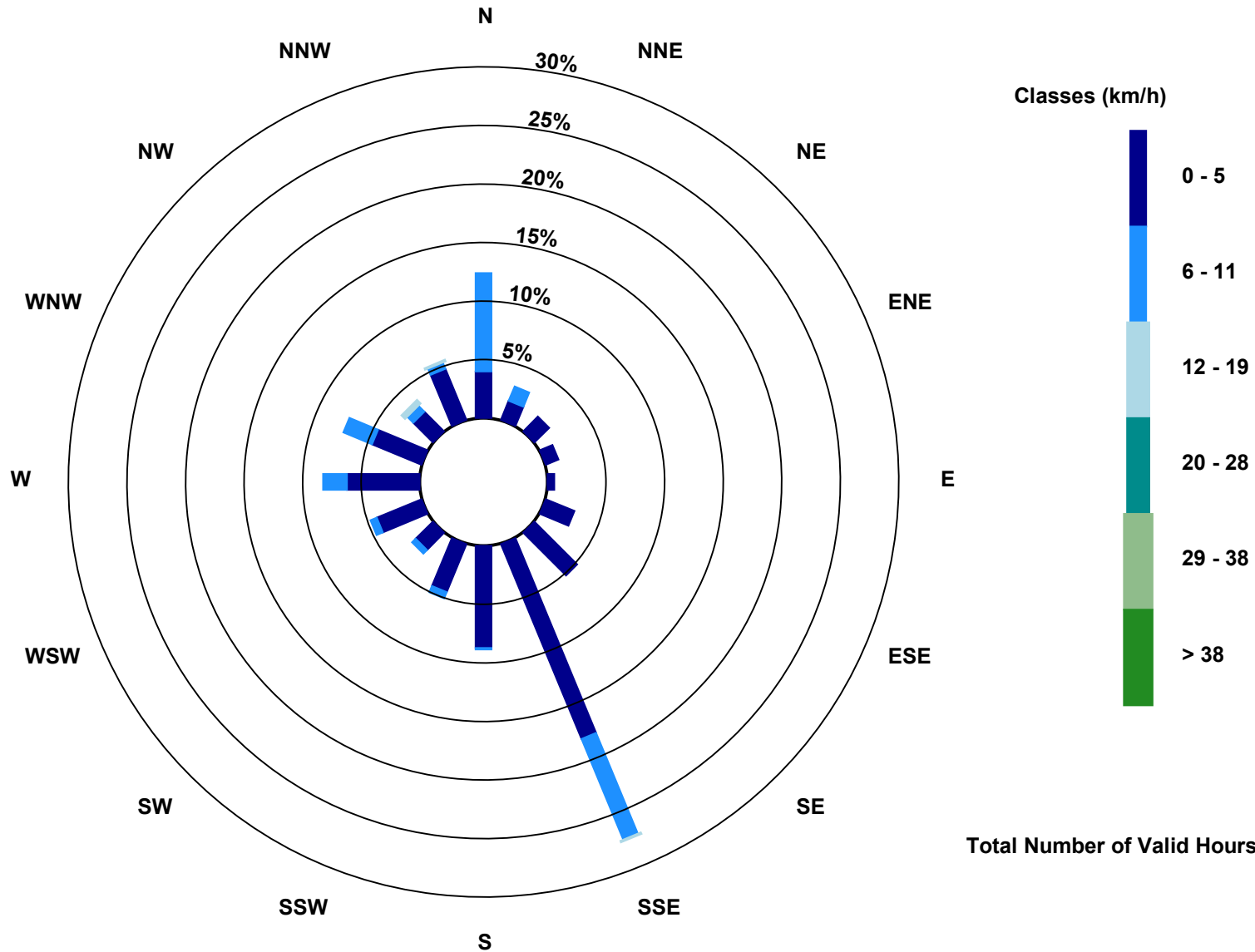
Total Number of Valid Hours: 677

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Waskow ohci Pimatisiwin





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Waskow ohci Pimatisiwin - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 3 11:00 Minimum Value: 1 km/h on Dec 1 05:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 1 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4														Hours in Service: 744 Hours of Data: 677 Hours of Missing Data: 67 Hours of Calibration: 0 Percent Operational Time: 91.0												
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	UO	UO	UO	1	1	1	1	1	1
2-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	UO	UO	UO	1	1	2	2
3-Dec	1	2	1	1	2	3	4	3	3	3	5	4	4	4	4	3	3	2	2	2	2	2	1	1	5	
4-Dec	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	3	3	3	3	4	3	3	3	2	4	
5-Dec	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
6-Dec	1	2	2	3	2	2	2	1	1	1	1	2	1	2	1	2	1	1	2	1	1	1	1	1	3	
7-Dec	2	1	1	1	1	1	2	2	1	2	2	1	1	1	1	1	1	1	1	1	1	3	2	1	3	
8-Dec	2	2	1	1	2	3	3	2	2	2	2	2	2	2	1	1	1	UO	1	1	1	1	1	1	3	
9-Dec	1	1	1	1	1	UO	1	1	2	1	2	1	2	3	3	3	4	3	2	1	2	2	2	1	4	
10-Dec	1	1	1	1	1	1	1	1	UO	1	1	1	1	1	1	1	1	UO	1	UO	UO	UO	1	UO	1	
11-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	UO	1	
12-Dec	1	1	2	1	1	1	2	1	2	2	2	3	2	3	3	2	3	3	3	3	3	2	2	2	3	
13-Dec	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	
14-Dec	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	3	4	3	3	3	3	3	3	4	
15-Dec	2	2	2	3	2	3	3	3	3	3	4	4	3	4	4	3	3	2	2	2	2	2	1	1	4	
16-Dec	1	1	UO	UO	1	1	1	2	1	2	3	2	3	3	3	3	3	3	1	1	1	2	2	2	3	
17-Dec	3	2	2	2	2	1	1	1	1	1	1	2	1	1	1	1	1	UO	1	1	1	1	1	1	3	
18-Dec	1	1	1	1	1	1	UO	1	UO	1	UO	UO	1	1	1	1	1	1	UO	UO	1	1	1	1	1	
19-Dec	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	UO	1	UO	1	UO	UO	UO	UO	2	
20-Dec	1	1	1	1	1	1	1	1	1	1	2	3	2	3	3	3	1	1	1	1	1	1	1	1	3	
21-Dec	1	1	1	1	UO	1	UO	UO	1	UO	1	1	1	1	1	2	1	1	2	1	1	1	1	1	2	
22-Dec	1	1	1	1	1	2	2	2	2	2	2	3	3	3	2	3	3	3	2	2	2	2	2	2	3	
23-Dec	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2	2	1	1	1	2	1	3	3	3	3	
24-Dec	3	2	2	1	1	1	1	2	2	2	1	1	1	2	1	1	1	2	1	1	1	1	1	1	3	
25-Dec	UO	1	2	1	1	1	1	2	3	3	3	4	3	2	2	1	1	1	1	1	1	1	1	1	4	
26-Dec	1	1	1	1	1	1	1	1	1	1	1	1	3	2	2	1	1	2	1	1	1	1	1	1	3	
27-Dec	1	1	1	1	1	1	1	1	UO	1	1	1	UO	1	1	1	1	1	1	1	UO	UO	UO	UO	1	
28-Dec	UO	UO	UO	UO	UO	UO	1	UO	UO	1	1	1	1	1	1	1	1	UO	1	1	2	1	1	1	2	
29-Dec	UO	1	1	UO	1	1	1	UO	UO	UO	1	1	1	UO	1	1	1	UO	UO	1	1	1	1	2	2	
30-Dec	1	1	1	2	2	2	2	2	3	3	3	3	3	3	2	3	3	3	2	4	3	2	3	1	4	
31-Dec	1	1	1	1	UO	1	UO	UO	1	1	1	1	2	1	1	1	1	1	1	UO	UO	UO	UO	UO	2	
Diurnal Maximum																										
3 2 2 3 3 3 4 3 3 3 5 4 4 4 4 3 4 4 3 4 3 3 3 3 3																										
UO - Unstable Operation																										



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

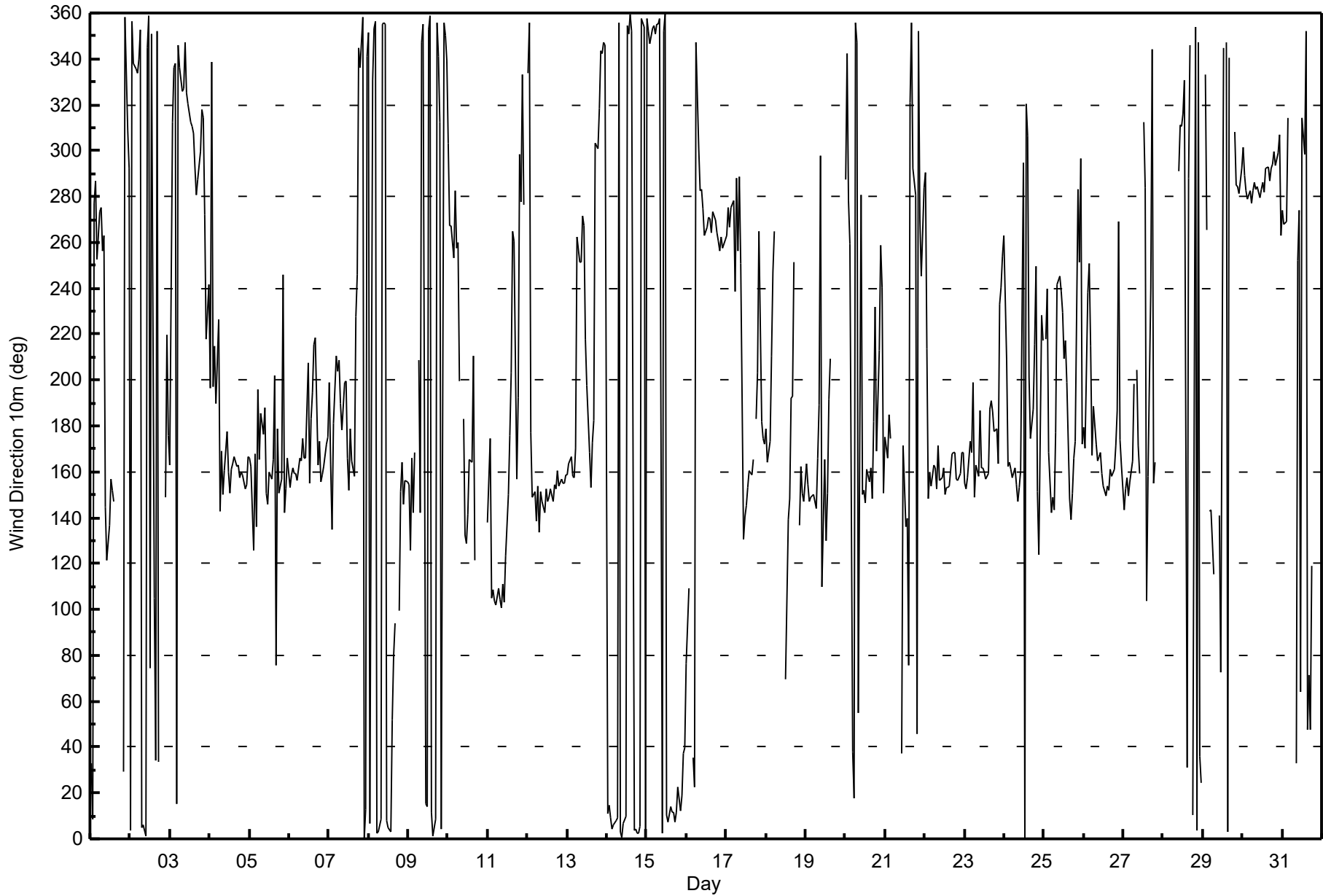
Waskow ohci Pimatisiwin - December 2024

Direction of Maximum Speed: 325 deg on Dec 3 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 2.5 deg on Dec 14	Hours of Data: 677
Direction of Minimum Speed: 209 deg on Dec 19 16:00	Hours of Missing Data: 67
Direction of Minimum Daily Speed Average: 0.4 deg on Dec 1	Percent Operational Time: 91.0
Monthly Average Direction: 229.5 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-Dec	33	8	277	287	253	274	275	256	263	144	121	137	157	152	147	UO	279	UO	UO	UO	30	358	309	293	282.7
2-Dec	4	356	338	336	334	340	352	5	6	1	345	359	74	351	105	34	352	34	UO	UO	UO	149	220	176	353.4
3-Dec	163	313	336	338	16	346	336	326	327	347	325	320	312	311	308	293	281	287	299	318	314	272	218	241	317.5
4-Dec	197	339	197	215	190	226	143	169	150	160	177	160	151	161	164	167	163	157	160	159	153	155	167	161.3	
5-Dec	166	162	125	168	136	196	165	186	176	188	151	146	160	157	165	202	75	179	151	157	246	142	153	166	163.0
6-Dec	153	158	161	159	160	156	166	165	175	166	166	207	155	183	195	216	219	163	173	156	158	162	172	175	170.1
7-Dec	199	163	135	181	211	204	209	190	178	199	199	166	152	178	165	158	227	246	345	336	358	0	13	341	200.9
8-Dec	351	7	331	353	356	2	3	8	355	355	355	8	5	3	52	80	94	UO	99	151	164	146	156	155	5.8
9-Dec	154	125	166	142	168	UO	209	142	347	355	15	14	353	359	12	1	8	356	341	312	4	356	350	339	1.5
10-Dec	303	267	267	253	283	258	260	200	UO	183	133	129	141	165	164	210	121	UO	2	UO	UO	UO	172	UO	218.8
11-Dec	138	174	105	109	104	102	109	104	101	111	103	123	150	176	203	265	261	157	192	298	278	333	277	UO	133.1
12-Dec	334	356	177	149	151	138	154	134	151	147	142	153	147	149	153	147	155	152	161	154	157	155	155	159	151.9
13-Dec	159	164	167	158	158	170	262	252	272	267	218	198	168	153	173	183	303	301	318	343	343	347	346	200.6	
14-Dec	11	15	9	4	6	8	9	356	3	1	7	10	354	351	360	352	3	4	2	2	5	358	354	1	2.5
15-Dec	358	352	346	353	354	351	355	355	357	2	352	360	10	7	14	12	12	8	12	22	12	19	37	39	3.3
16-Dec	77	109	UO	UO	36	22	347	301	283	283	275	263	267	271	270	264	274	270	264	260	256	262	257	261	271.1
17-Dec	263	275	267	275	278	239	288	257	289	251	130	140	145	153	160	159	165	UO	183	203	265	182	174	172	228.1
18-Dec	179	164	173	211	247	265	UO	266	UO	273	UO	UO	70	139	148	192	193	251	UO	UO	136	162	151	147	176.3
19-Dec	163	154	147	149	149	150	144	166	189	298	110	165	130	151	192	209	UO	268	UO	237	UO	UO	UO	UO	155.8
20-Dec	287	342	278	259	38	18	356	347	55	281	150	152	146	161	155	162	149	182	232	169	213	259	240	151	164.6
21-Dec	175	166	185	175	UO	190	UO	UO	211	UO	37	172	136	140	76	321	355	292	281	46	352	270	245	284	221.7
22-Dec	291	213	148	160	154	163	162	153	172	156	157	162	150	153	153	154	168	169	169	157	156	160	168	169	160.9
23-Dec	155	153	157	173	169	199	149	163	158	187	162	162	160	157	159	187	191	186	177	179	164	233	240	254	184.7
24-Dec	263	208	162	164	161	157	162	154	147	153	161	295	0	320	306	201	174	187	215	249	151	124	228	217	180.9
25-Dec	UO	218	240	169	142	149	143	177	242	246	238	229	209	217	199	148	139	151	166	173	283	251	297	172	199.5
26-Dec	179	170	238	251	215	167	189	172	165	167	168	159	153	150	154	152	161	158	161	171	186	269	174	163	165.5
27-Dec	143	152	157	150	156	165	199	UO	204	172	159	UO	312	284	103	158	240	344	155	164	UO	UO	UO	UO	163.1
28-Dec	UO	UO	UO	UO	UO	UO	322	UO	UO	291	311	310	316	331	31	288	346	UO	10	354	4	347	36	25	--
29-Dec	UO	333	266	UO	143	143	115	UO	UO	UO	141	73	344	UO	347	3	341	UO	UO	308	285	284	281	292	--
30-Dec	301	289	282	279	282	277	283	286	283	284	279	283	286	282	292	293	287	292	294	300	293	299	307	263	288.4
31-Dec	274	268	269	314	UO	8	UO	UO	33	252	274	64	314	299	352	47	71	48	119	UO	UO	UO	UO	UO	--

214.2 198.6 234.0 195.2 173.4 71.9 300.2 283.5 278.6 262.4 274.6 198.5 176.4 200.3 180.5 209.6 233.3 257.3 200.8 229.1 324.7 281.9 240.2 223.9
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 10m (WD10) - deg
Waskow ohci Pimatisiwin - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 106 deg on Dec 24 02:00 Minimum Value: 11 deg on Dec 10 02:00 Percentiles: P ₁ = 16 P ₁₀ = 20 Q ₁ = 23 Median = 30 Q ₃ = 48 P ₉₀ = 72 P ₉₉ = 96																	Hours in Service: 744 Hours of Data: 677 Hours of Missing Data: 67 Hours of Calibration: 0 Percent Operational Time: 91.0																														
Day	Hourly Period Ending At (MST)																								Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																							
1-Dec	23	24	60	21	12	27	50	22	56	69	50	36	31	28	19	UO	48	UO	UO	UO	25	37	37	70	70																						
2-Dec	22	25	26	20	18	21	23	24	26	27	36	25	34	52	71	36	46	57	UO	UO	UO	36	67	47	71																						
3-Dec	38	82	21	25	29	21	19	18	21	24	19	18	20	21	20	22	27	19	19	20	20	69	36	41	82																						
4-Dec	84	57	77	82	92	76	54	30	28	39	40	26	26	27	27	29	31	28	24	25	28	22	22	26	92																						
5-Dec	24	24	90	29	38	74	46	55	35	26	27	38	28	36	47	41	71	74	39	42	95	47	22	41	95																						
6-Dec	33	24	23	27	23	25	29	27	21	17	34	64	66	53	35	44	83	42	29	39	39	19	32	42	83																						
7-Dec	37	41	26	33	18	21	24	40	43	42	23	20	30	75	59	35	98	79	48	29	18	22	36	22	98																						
8-Dec	21	26	18	19	24	22	22	26	22	23	22	24	23	23	27	24	42	UO	19	22	26	39	14	46	46																						
9-Dec	25	35	63	52	35	UO	81	38	59	32	31	25	23	24	23	21	21	18	28	22	30	17	18	16	81																						
10-Dec	52	11	28	41	46	59	31	84	UO	70	39	51	57	30	46	69	62	UO	56	UO	UO	UO	35	UO	84																						
11-Dec	59	43	30	25	35	25	37	22	23	24	27	48	33	76	45	32	80	83	22	48	35	42	26	UO	83																						
12-Dec	46	45	54	52	56	22	24	33	30	25	29	27	26	23	24	24	23	23	24	22	24	21	21	22	56																						
13-Dec	21	23	21	20	19	40	11	50	28	26	56	59	47	39	29	18	57	61	47	20	20	20	53	18	61																						
14-Dec	22	23	23	24	23	22	23	21	23	22	22	23	22	18	20	20	22	26	25	22	22	22	20	22	26																						
15-Dec	20	19	20	21	21	22	23	21	20	24	21	23	24	24	23	23	22	26	27	25	24	31	26	31	31																						
16-Dec	18	27	UO	UO	29	30	27	23	23	29	32	36	33	32	31	31	29	34	18	16	22	24	27	27	36																						
17-Dec	26	31	35	49	57	86	50	76	76	53	42	30	34	27	21	18	16	UO	86	75	69	57	60	52	86																						
18-Dec	53	77	25	61	55	58	UO	47	UO	26	UO	UO	54	56	47	85	58	51	UO	UO	26	29	18	21	85																						
19-Dec	19	23	19	22	20	22	37	29	85	88	62	56	53	60	55	81	UO	31	UO	54	UO	UO	UO	UO	88																						
20-Dec	67	60	71	53	77	38	35	79	38	69	26	27	25	26	24	29	22	54	39	51	97	47	29	57	97																						
21-Dec	21	33	36	44	UO	93	UO	UO	68	UO	44	77	41	90	34	40	46	42	104	38	25	49	45	42	104																						
22-Dec	45	85	63	18	23	29	28	21	26	23	22	27	22	25	24	22	29	29	25	22	22	22	27	26	85																						
23-Dec	28	41	38	31	73	52	61	44	41	57	35	24	23	21	22	38	36	17	24	74	31	40	42	42	74																						
24-Dec	69	106	54	29	24	27	19	21	25	32	46	68	32	78	31	98	79	91	80	90	92	84	70	79	106																						
25-Dec	UO	81	64	37	18	17	24	72	81	44	82	50	42	48	44	32	33	20	18	35	85	57	87	100	100																						
26-Dec	52	50	87	41	57	72	68	49	22	23	29	38	25	21	32	29	26	46	27	35	52	75	49	24	87																						
27-Dec	25	26	28	46	65	31	93	UO	71	81	67	UO	94	83	97	26	78	33	87	38	UO	UO	UO	UO	97																						
28-Dec	UO	UO	UO	UO	UO	UO	22	UO	UO	32	22	23	26	43	26	53	23	UO	26	19	22	42	25	16	53																						
29-Dec	UO	32	74	UO	17	42	67	UO	UO	UO	28	73	47	UO	28	19	33	UO	UO	50	28	25	32	39	74																						
30-Dec	27	21	28	25	24	26	25	26	27	28	29	33	30	29	24	37	32	21	23	19	24	19	18	37	37																						
31-Dec	37	44	34	77	UO	23	UO	UO	47	58	20	61	42	29	37	21	36	25	71	UO	UO	UO	UO	UO	77																						
Diurnal Maximum																								84	106	90	82	92	93	93	84	85	88	82	77	94	90	97	98	98	91	104	90	97	84	87	100
UO - Unstable Operation																																															



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS27 JACKFISH 2/3 DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)
DECEMBER 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	706	35	38	99.6	13.8	0	1.6	0
H2S (ppb) Average	705	36	39	99.6	1.3	0	0.4	0
NO2 (ppb) Average	704	37	40	99.6	12.5	0	6.3	-
NO (ppb) Average	704	37	40	99.6	4.3	-	0.9	-
NOX (ppb) Average	704	37	40	99.6	14.8	-	6.7	-
Temperature 2 m (C) Average	741	0	3	99.6	4.5	-	2.8	-
Relative Humidity (%) Average	741	0	3	99.6	98.1	-	94.4	-
Wind Speed 10 m (km/h) Average	733	0	11	98.52	16	-	12	-
Wind Direction 10 m (deg) Average	733	0	11	98.52	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)
 DECEMBER 2024

MONTHLY SUMMARY FOR AIR QUALITY/ METEOROLOGICAL MONITORING MEASUREMENTS

Parameter	Number	Mean	StnDev	Total	Percentile						
					Min	P10	Q1	Median	Q3	P90	Max
SO2 (ppb) Average	706	0.68	1	-	0	0	0.2	0.4	0.7	1.7	13.8
H2S (ppb) Average	705	0.09	0.1	-	0	0	0	0.1	0.1	0.2	1.3
NO2 (ppb) Average	704	2.63	2.1	-	0	0.4	1	2.2	3.7	5.5	12.5
NO (ppb) Average	704	0.18	0.4	-	0	0	0	0	0.2	0.5	4.3
NOX (ppb) Average	704	2.8	2.3	-	0	0.5	1.1	2.4	3.8	5.7	14.8
Temperature 2 m (C) Average	741	-11.18	7.8	-	-29.2	-21.8	-17.5	-9.6	-5.4	-1.8	4.5
Relative Humidity (%) Average	741	84.42	6.5	-	59.3	76.3	80	83.6	90.5	93	98.1
Wind Speed 10 m (km/h) Average	733	6.9	3	-	0	3	5	7	9	12	16
Wind Direction 10 m (deg) Average	733	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 2/3 (AMS27)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	02 Dec 2024 10:00	02 Dec 2024 10:00	1	Maintenance - station logger/modem reset
ALL PARAMETERS	07 Dec 2024 11:00	07 Dec 2024 12:00	2	DAS Failure - data not recorded
Wind Speed, Wind Direction	02 Dec 2024 21:00	03 Dec 2024 04:00	8	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

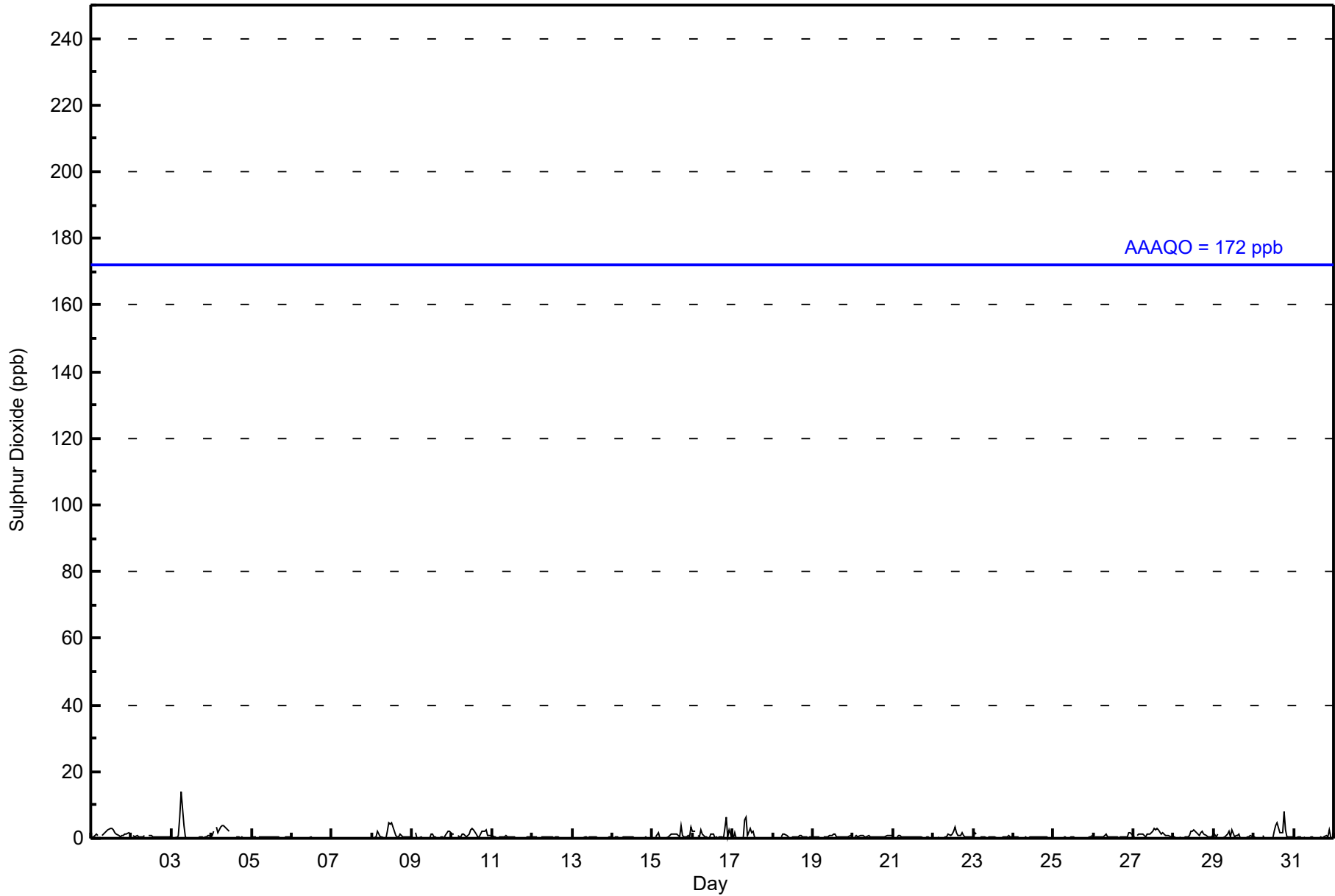
Jackfish 2/3 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 13.8 ppb on Dec 3 07:00		Maximum Daily Average: 1.6 ppb on Dec 4																	Hours of Data:	706																												
Minimum Value: 0.0 ppb on Dec 6 06:00		Minimum Daily Average: 0.0 ppb on Dec 7																	Hours of Missing Data:	38																												
Maximum Diurnal Average: 1.1 ppb at hour 13		Minimum Diurnal Average: 0.4 ppb at hour 17																	Hours of Calibration:	35																												
Monthly Average: 0.68 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.2 Median = 0.4 Q ₃ = 0.7 P ₉₀ = 1.7 P ₉₉ = 4.5																	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-Dec	0.2	0.2	0.9	1.3	0.9	Z	0.9	1.3	1.6	2.1	2.5	2.9	3.1	2.5	1.8	1.4	0.7	0.6	0.7	0.8	1.1	1.2	1.7	1.1	1.4	3.1																						
2-Dec	Z	0.9	0.6	0.8	0.6	0.5	0.3	0.5	0.7	M	0.9	0.9	0.7	0.6	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.9																						
3-Dec	0.9	Z	0.3	0.1	1.0	6.5	13.8	3.9	0.4	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.5	0.7	0.8	1.4	13.8																						
4-Dec	1.0	2.0	Z	3.4	1.5	3.6	4.0	3.6	3.3	3.1	2.1	C	C	C	C	0.6	0.3	0.1	0.3	0.0	0.1	0.2	0.2	0.2	1.6	4.0																						
5-Dec	0.2	0.3	0.3	Z	0.2	0.4	0.4	0.5	0.5	0.4	0.4	0.3	0.3	0.2	0.3	0.5	0.3	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.3	0.5																						
6-Dec	0.1	0.0	0.1	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2																						
7-Dec	0.0	0.0	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	DF	DF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
8-Dec	Z	0.1	0.6	2.0	1.1	0.6	0.4	0.0	0.1	2.0	4.5	4.4	4.5	2.1	0.7	0.4	0.3	1.3	0.5	0.3	0.3	0.2	0.2	0.4	1.2	4.5																						
9-Dec	0.3	Z	1.6	0.2	0.1	0.5	0.1	0.1	0.1	0.0	0.2	1.2	1.1	0.5	0.6	0.0	0.2	0.4	0.4	0.2	0.7	2.0	2.2	1.9	0.6	2.2																						
10-Dec	1.1	1.1	Z	0.6	0.5	0.6	1.2	1.5	0.5	0.8	1.2	2.6	3.1	2.4	1.4	0.5	0.3	1.1	2.2	2.0	2.4	1.0	0.9	0.9	1.3	3.1																						
11-Dec	0.7	0.5	0.5	Z	0.5	0.5	0.6	0.5	0.9	0.5	0.2	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.9																						
12-Dec	0.4	0.3	0.4	0.3	Z	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.2	0.3	0.5	0.2	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.3	0.5																						
13-Dec	0.1	0.0	0.1	0.1	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.5	0.6	0.4	0.3	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.6																						
14-Dec	Z	0.3	0.5	0.3	0.2	0.2	0.5	0.5	0.3	0.2	0.3	0.3	0.4	0.2	0.1	0.0	0.1	0.1	0.1	0.1	0.3	0.1	0.2	0.1	0.2	0.5																						
15-Dec	0.1	Z	0.4	1.6	0.1	0.1	0.0	0.1	0.2	0.5	1.0	1.4	1.4	1.2	1.3	0.8	0.5	3.6	0.7	0.4	0.6	0.7	0.4	3.4	0.9	3.6																						
16-Dec	2.1	2.2	Z	0.9	0.3	2.7	1.2	0.4	0.4	0.2	0.1	1.2	1.3	0.1	0.3	0.1	0.4	0.5	0.0	3.1	6.2	0.5	2.4	0.1	1.2	6.2																						
17-Dec	0.2	1.6	0.1	Z	0.0	0.0	0.0	5.6	6.6	0.9	2.9	1.7	2.3	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	6.6																						
18-Dec	0.0	0.0	0.0	0.0	Z	0.6	1.1	1.4	0.7	0.3	0.2	0.0	0.3	0.4	0.4	0.4	0.7	0.8	0.5	0.6	0.4	0.2	0.3	0.3	0.4	1.4																						
19-Dec	0.3	0.5	0.4	0.3	0.2	Z	0.3	0.2	0.3	0.5	0.8	0.8	1.1	1.1	0.4	0.3	0.3	0.3	0.4	0.3	0.5	0.6	0.8	0.7	0.5	1.1																						
20-Dec	Z	0.4	0.7	0.6	0.9	0.9	0.9	0.6	0.5	0.7	0.6	0.4	0.5	0.4	0.3	0.4	0.5	0.6	0.5	0.5	0.9	0.9	0.7	0.7	0.6	0.9																						
21-Dec	0.7	Z	0.6	0.8	0.8	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.4	0.3	0.3	0.3	0.2	0.1	0.3	0.3	0.2	0.1	0.4	0.8																						
22-Dec	0.1	0.1	Z	0.3	0.1	0.1	0.2	0.3	0.3	1.2	0.9	1.1	2.1	3.2	1.8	1.0	1.0	1.9	0.9	0.6	0.4	0.3	0.3	0.3	0.8	3.2																						
23-Dec	0.3	1.5	1.3	Z	0.4	0.3	0.4	0.4	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.3	0.3	0.5	0.7	0.6	0.4	0.4	1.5																						
24-Dec	0.6	0.4	0.5	0.3	Z	0.0	0.1	0.3	0.1	0.1	0.3	0.4	0.3	0.3	0.4	0.4	0.5	0.3	0.3	0.2	0.4	0.2	0.2	0.1	0.3	0.6																						
25-Dec	0.1	0.1	0.1	0.0	0.1	Z	0.3	0.5	0.0	0.1	0.3	0.6	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.5	0.6	0.2	0.6																						
26-Dec	Z	0.3	0.4	0.3	0.5	0.3	0.4	1.1	0.5	0.3	0.3	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.4	0.4	0.6	1.6	1.8	1.3	0.6	1.8																						
27-Dec	0.6	Z	1.0	1.3	1.2	1.3	0.7	0.5	1.4	1.1	1.5	2.1	2.9	2.6	2.9	2.5	1.4	1.6	1.2	0.8	0.7	0.6	0.6	0.4	1.4	2.9																						
28-Dec	0.3	0.3	Z	0.2	0.0	0.0	0.1	0.3	0.2	0.7	2.3	2.3	2.4	2.2	1.3	1.0	1.9	2.2	1.2	0.6	0.4	0.3	0.6	0.2	0.9	2.4																						
29-Dec	1.8	0.4	1.4	Z	0.1	0.1	0.4	0.8	1.1	1.9	0.6	2.7	0.6	0.9	0.7	1.1	0.2	0.2	0.2	0.2	0.5	0.5	0.7	0.4	0.8	2.7																						
30-Dec	0.2	0.2	0.0	0.1	Z	0.9	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.9	4.6	1.6	1.6	1.7	8.1	2.7	0.6	0.2	0.4	0.3	1.3	8.1																						
31-Dec	0.2	0.2	0.2	0.3	0.4	Z	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.4	0.2	0.4	0.7	0.3	2.6	0.4	0.2	0.4	2.6																						
																								0.5	0.5	0.5	0.6	0.5	0.9	1.0	0.8	0.7	0.6	0.9	1.0	1.1	0.9	0.7	0.5	0.4	0.6	0.7	0.5	0.6	0.5	0.6	0.5	Diurnal Average
																								2.1	2.2	1.6	3.4	1.5	6.5	13.8	5.6	6.6	3.1	4.5	4.4	4.5	3.9	4.6	2.5	1.9	3.6	8.1	3.1	6.2	2.6	2.4	3.4	Diurnal Maximum
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3 - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	705	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: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3 - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

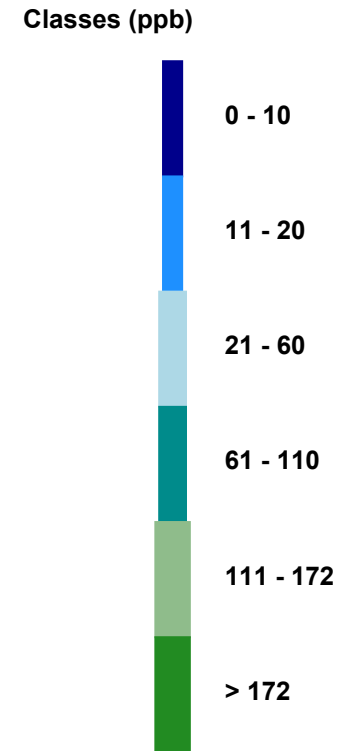
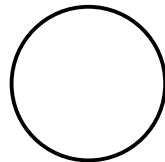
Total Number of Valid Hours: 0

Total Number of Hours: 744

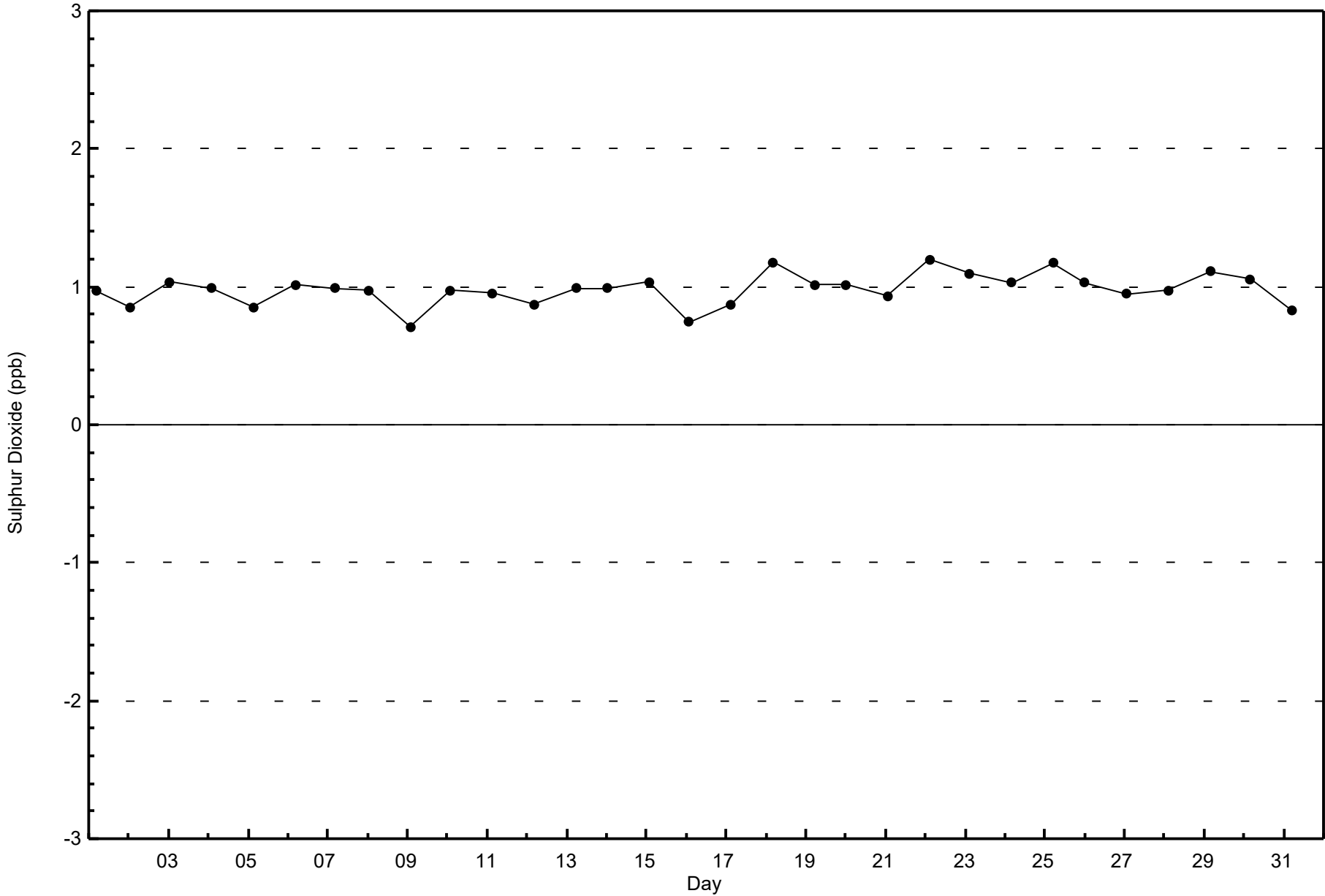


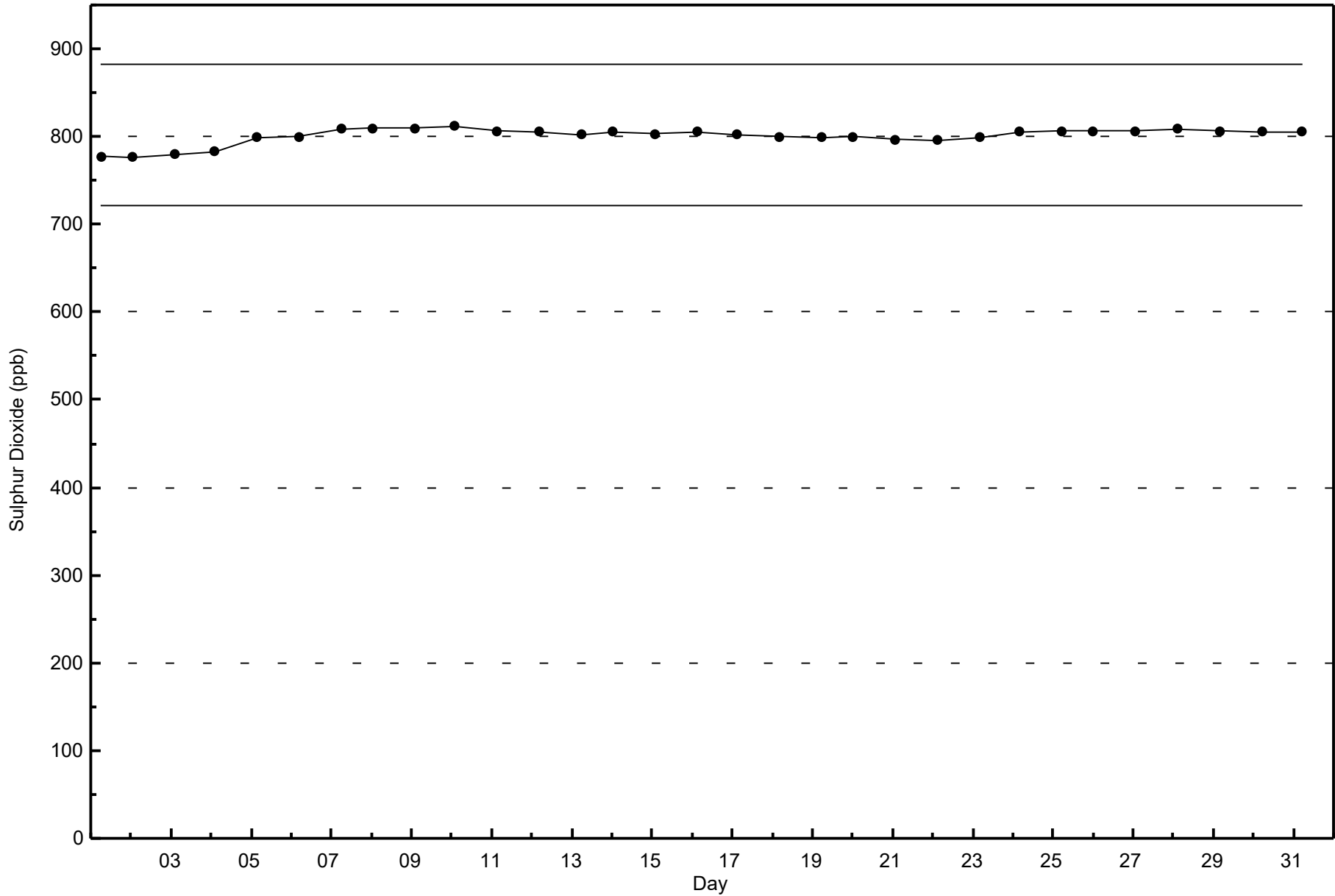
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Jackfish 2/3



Total Number of Valid Hours: 0







Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H2S) - ppb

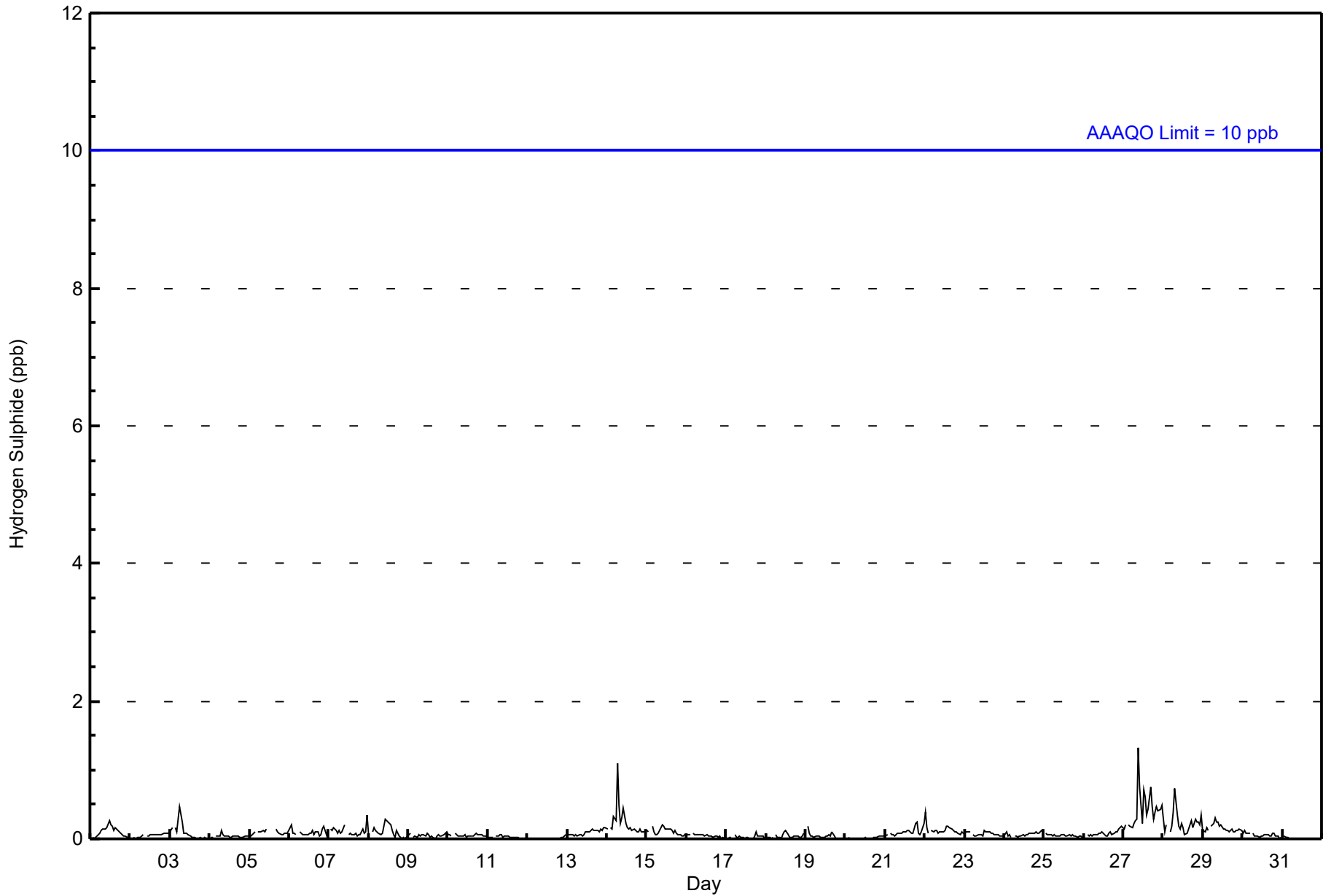
Jackfish 2/3 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744						
Maximum Value: 1.3 ppb on Dec 27 10:00		Maximum Daily Average: 0.4 ppb on Dec 27																	Hours of Data:	705								
Minimum Value: 0.0 ppb on Dec 4 01:00		Minimum Daily Average: 0.0 ppb on Dec 31																	Hours of Missing Data:	39								
Maximum Diurnal Average: 0.1 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 3																	Hours of Calibration:	36								
Monthly Average: 0.09 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 = 0.5																	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-Dec	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.3		
2-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	M	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	0.0	0.1		
3-Dec	0.1	0.2	Z	0.2	0.1	0.3	0.5	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5		
4-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1		
5-Dec	0.0	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	C	C	C	C	C	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1		
6-Dec	0.2	0.2	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	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2		
7-Dec	Z	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	DF	DF	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.3	
8-Dec	0.1	Z	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	
9-Dec	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	
10-Dec	0.1	0.1	0.0	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	
11-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
12-Dec	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	0.1	0.0	0.1	
13-Dec	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
14-Dec	0.1	Z	0.2	0.2	0.3	0.3	1.1	0.5	0.2	0.3	0.4	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	0.2	1.1
15-Dec	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.2	
16-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
17-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
18-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	
19-Dec	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	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
20-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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-Dec	0.0	0.1	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	
22-Dec	0.4	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
23-Dec	0.1	0.1	0.1	0.1	Z	0.1	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	0.0	0.0	0.0	0.0	0.1	0.1	
24-Dec	0.0	0.1	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
25-Dec	Z	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	
26-Dec	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	
27-Dec	0.1	0.2	Z	0.2	0.2	0.2	0.2	0.3	0.3	1.3	0.7	0.2	0.7	0.6	0.3	0.4	0.7	0.5	0.3	0.4	0.5	0.4	0.4	0.5	0.4	0.4	1.3	
28-Dec	0.3	0.1	0.2	Z	0.1	0.2	0.4	0.7	0.4	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.2	0.2	0.3	0.2	0.7		
29-Dec	0.1	0.1	0.2	0.1	Z	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
30-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
31-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
																								Diurnal Average				
																								Diurnal Maximum				
																								0.1 0.1				
																								0.4 0.2 0.2 0.2 0.3 0.3 1.1 0.7 0.4 1.3 0.7 0.3 0.7 0.6 0.3 0.4 0.7 0.5 0.3 0.4 0.5 0.4 0.4 0.5				
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
Hourly Averages

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3 - December 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
Jackfish 2/3 - December 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	20	11	14	17	3	1	20	31	76	114	102	60	46	40	85	58	698
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	11	14	17	3	1	20	31	76	114	102	60	46	40	85	58	698

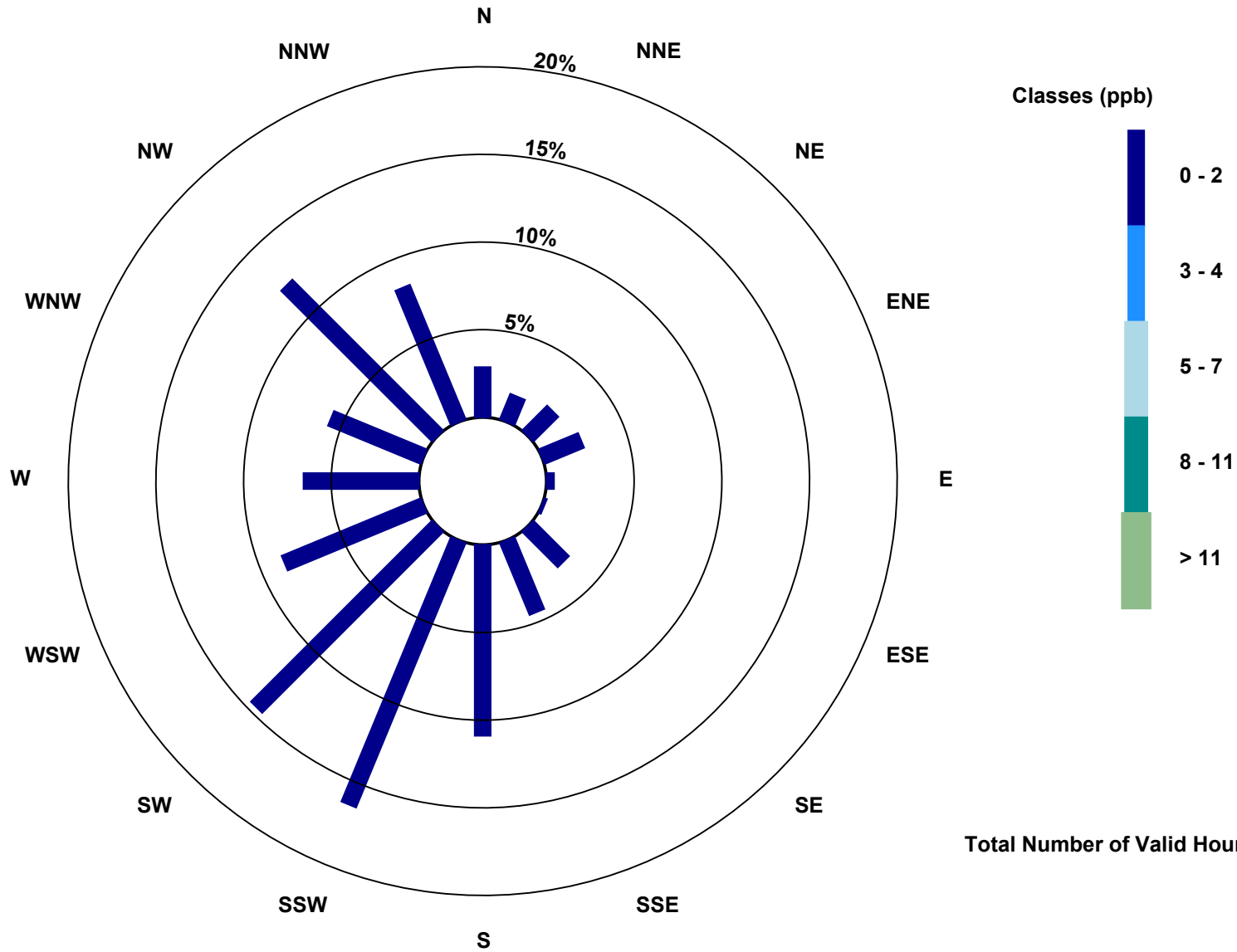
Total Number of Valid Hours: 698

Total Number of Hours: 744

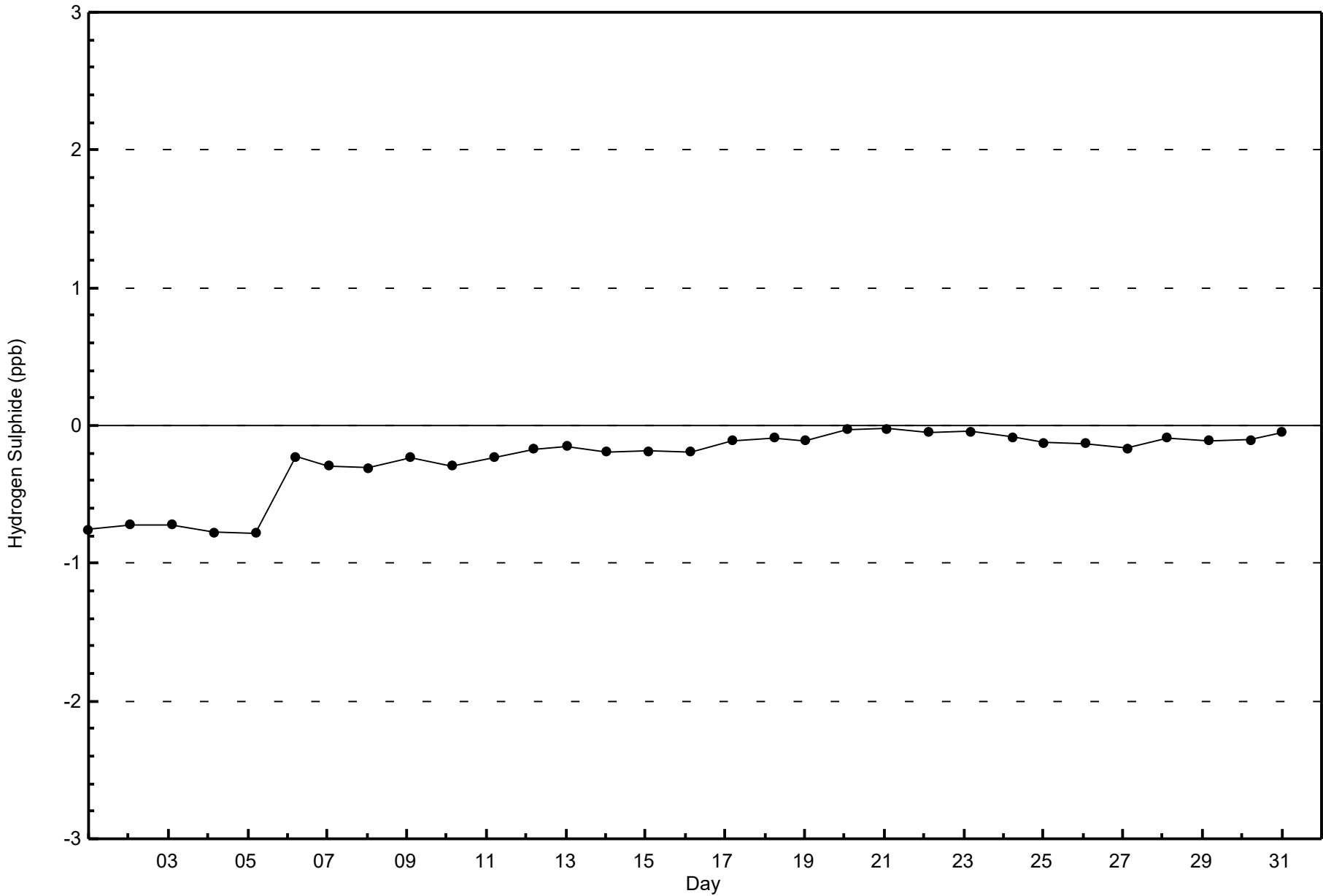


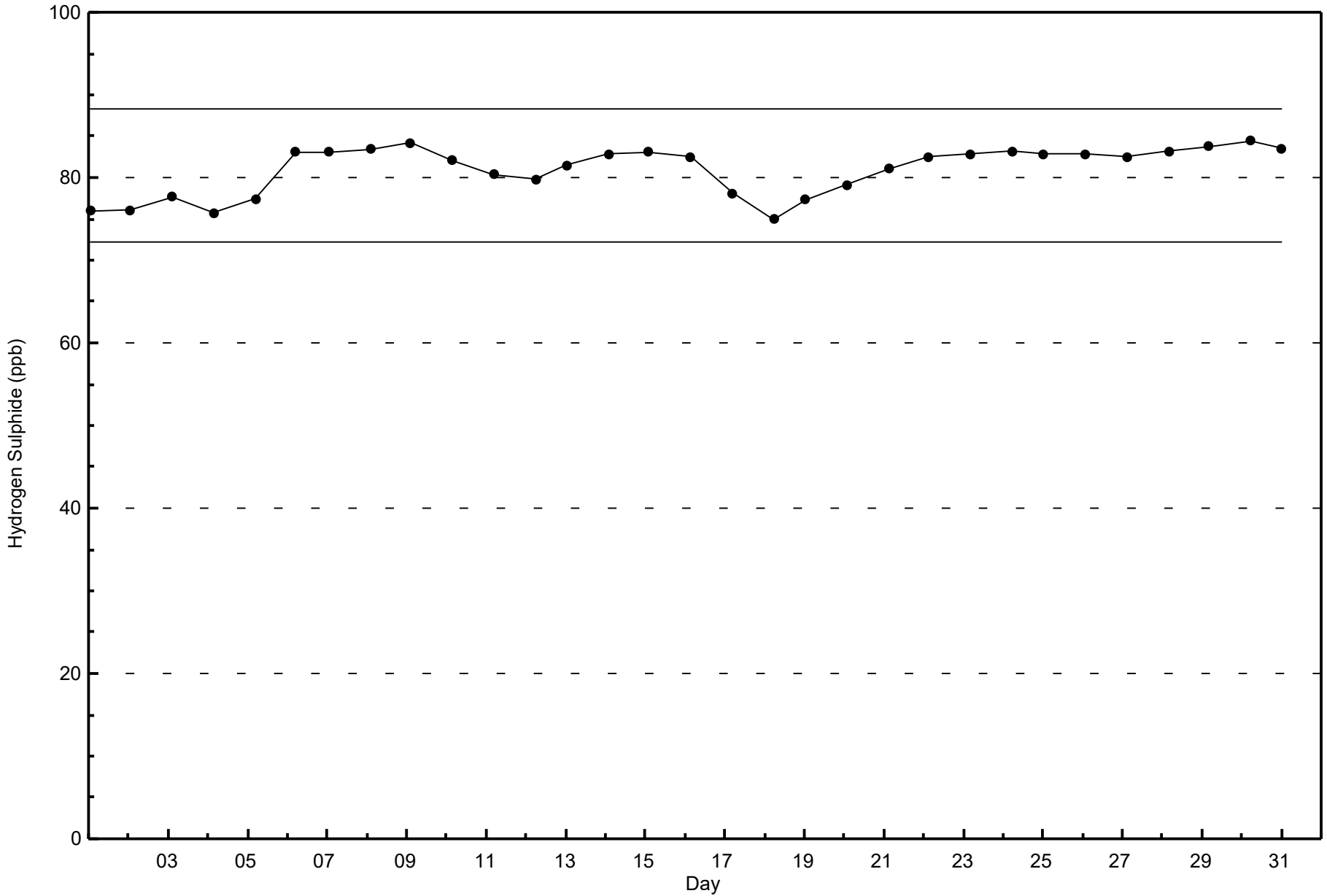
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Jackfish 2/3



Total Number of Valid Hours: 698







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitric Oxide (NO) - ppb

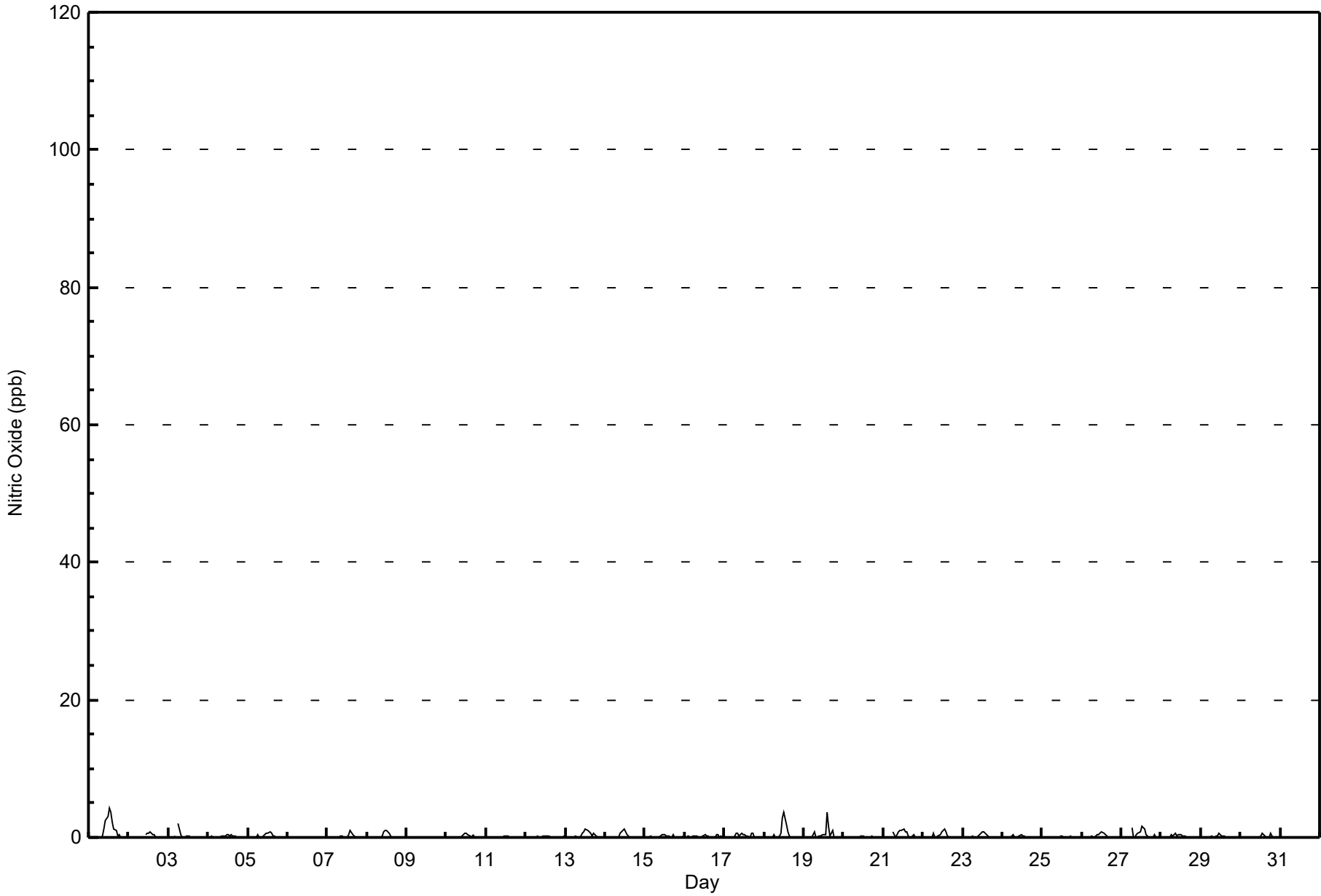
Jackfish 2/3 - December 2024

Maximum Value: 4.3 ppb on Dec 1 13:00																				Maximum Daily Average: 0.9 ppb on Dec 1					Hours in Service:	744
Minimum Value: 0.0 ppb on Dec 1 01:00																				Minimum Daily Average: 0.0 ppb on Dec 31					Hours of Data:	704
Maximum Diurnal Average: 0.7 ppb at hour 13																				Minimum Diurnal Average: 0.0 ppb at hour 22					Hours of Missing Data:	40
Monthly Average: 0.18 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.2 P ₉₀ = 0.5 P ₉₉ = 2.3					Hours of Calibration:	37
																									Percent Operational Time:	99.6
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	1.2	2.4	3.1	4.3	3.7	2.3	1.2	1.0	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.9	4.3
2-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	M	0.5	0.5	0.6	0.7	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
3-Dec	0.0	0.0	0.0	0.0	0.1	Z	1.9	0.4	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.9
4-Dec	Z	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.4	0.3	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
5-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.4	0.1	0.1	0.2	0.4	0.6	0.6	0.8	0.6	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
6-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	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	--	0.1
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.2	DF	DF	0.1	0.4	0.9	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.9
8-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.8	1.1	1.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	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	0.1
10-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.5	0.4	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
11-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
12-Dec	0.0	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.0	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	0.1	0.3
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.5	0.7	1.1	1.1	0.8	0.5	0.2	0.6	0.1	0.0	0.0	0.0	0.0	0.3	1.1
14-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.0	0.5	0.8	1.1	0.8	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.1
15-Dec	0.0	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.4	0.3	0.3	0.2	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.4
16-Dec	Z	0.2	0.2	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1	0.0	0.3	0.4	0.0	0.2	0.0	0.1	0.4
17-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.6	0.6	0.3	0.6	0.4	0.4	0.2	0.1	0.1	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.4	0.1	0.0	0.2	0.6	2.8	3.6	1.9	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.6
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.9	0.0	0.1	0.1	0.3	0.4	0.4	0.4	3.7	1.5	0.2	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	3.7
20-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
21-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.8	0.0	0.3	0.8	0.9	1.1	1.1	0.8	0.7	0.2	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.3	1.1
22-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.2	0.4	0.8	0.9	1.3	0.8	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	1.3
23-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.4	0.6	0.7	0.7	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.7
24-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	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	0.1	0.4
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
26-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.3	0.0	0.2	0.3	0.4	0.6	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8
27-Dec	0.0	0.0	0.0	0.0	0.0	Z	1.5	0.0	0.0	0.4	0.6	0.8	1.7	1.4	1.2	0.5	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.4	1.7
28-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.6	0.1	0.3	0.4	0.5	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
29-Dec	0.1	Z	0.1	0.0	0.0	0.0	0.3	0.0	0.1	0.2	0.3	0.6	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5	0.5	0.1	0.0	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.6
31-Dec	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																								Diurnal Average		
0.1																								Diurnal Maximum		
Z - zerospan			C - Calibration			M - Maintenance			DF - DAS Failure																	



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Jackfish 2/3 - December 2024

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

Total Number of Valid Hours: 704

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Jackfish 2/3 - December 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	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	21	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696

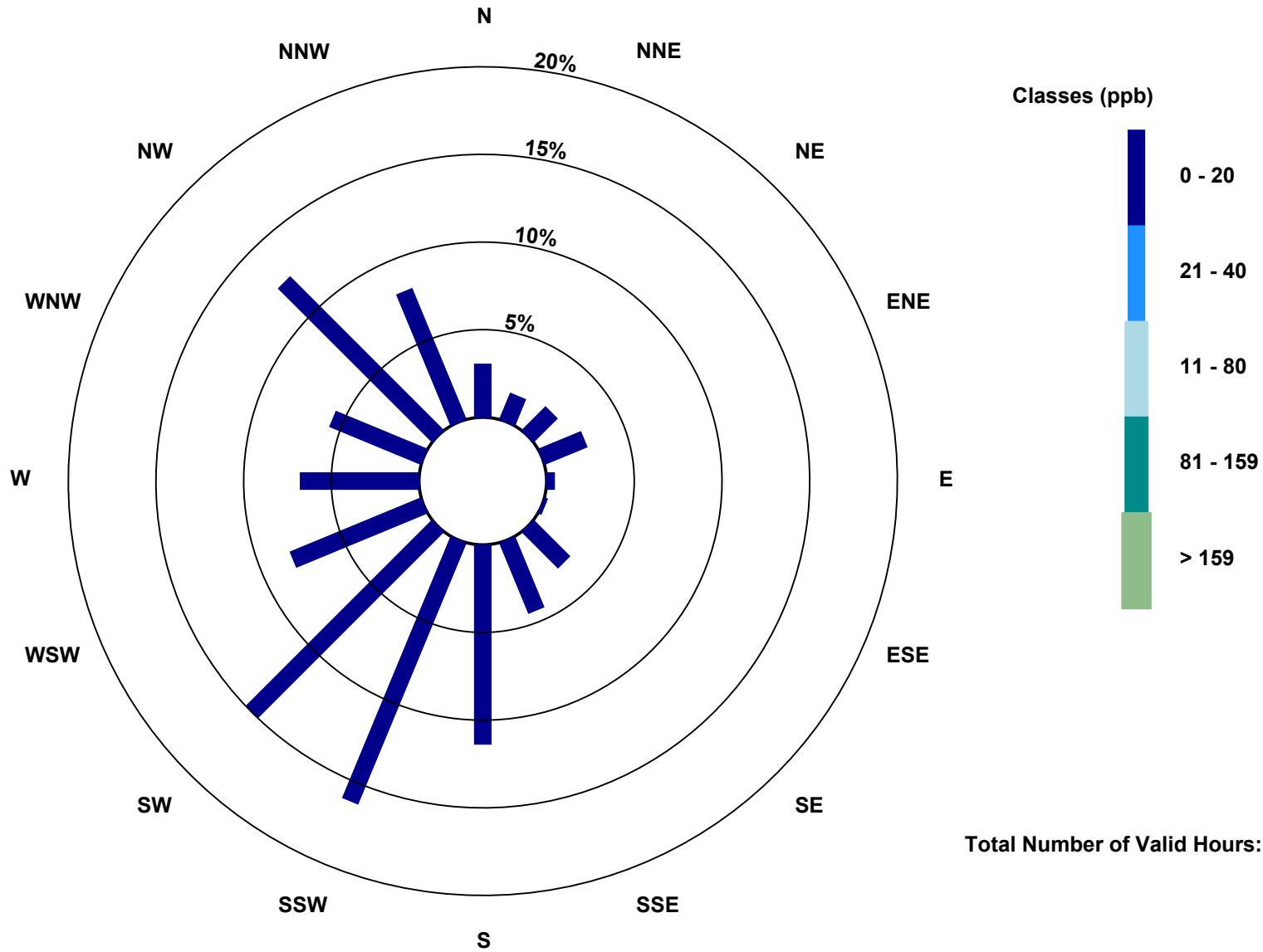
Total Number of Valid Hours: 696

Total Number of Hours: 744

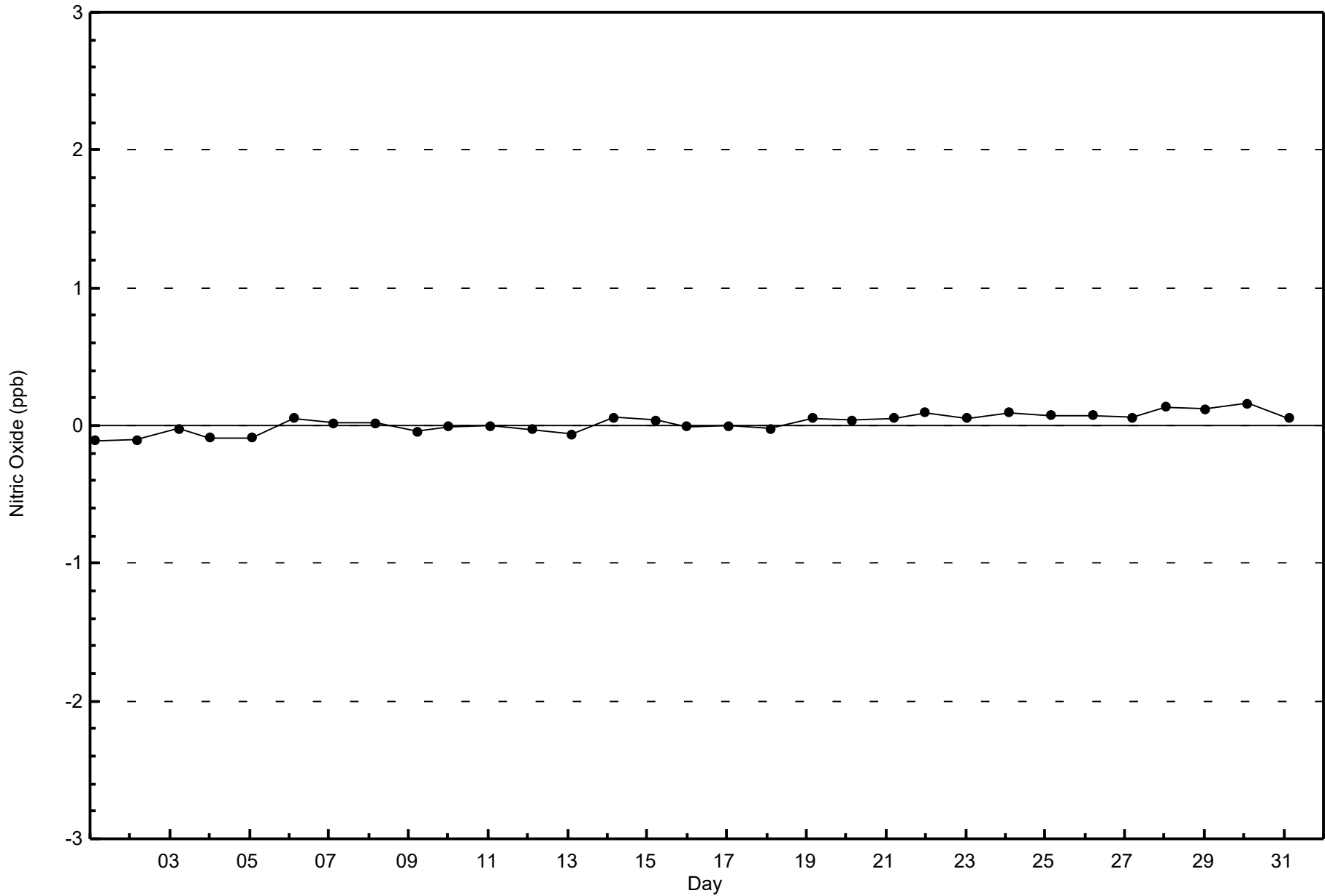


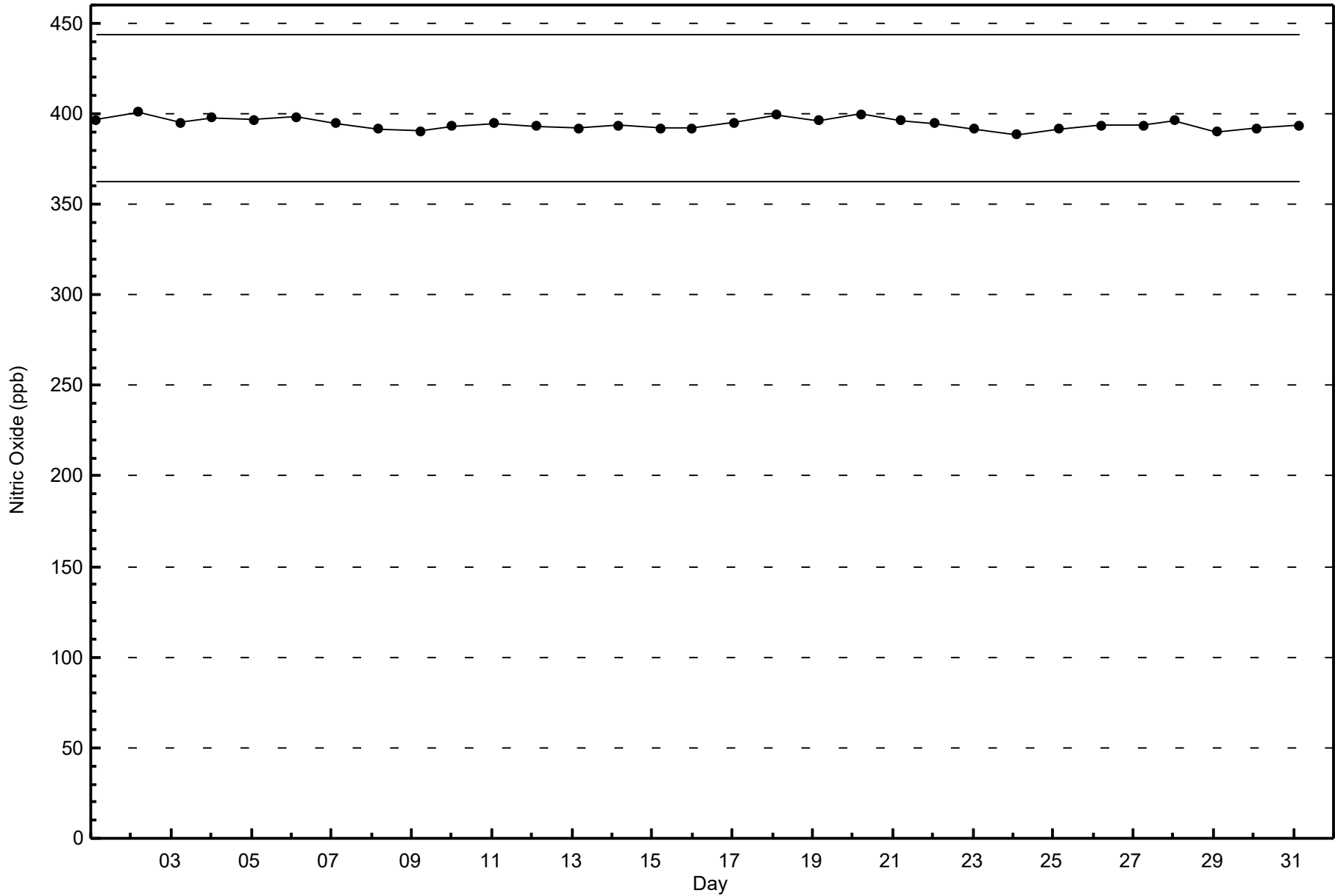
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Jackfish 2/3



Total Number of Valid Hours: 696







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

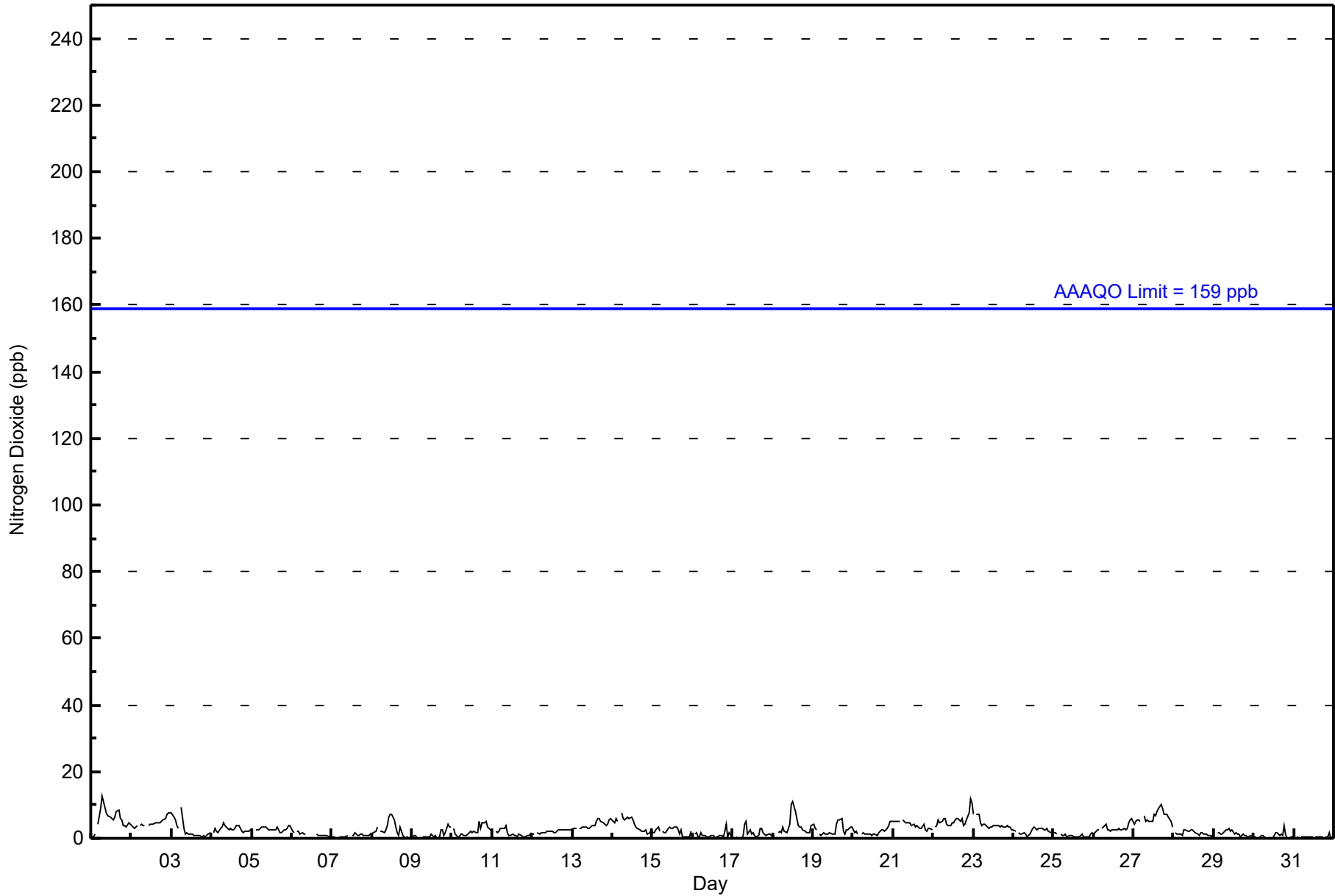
Jackfish 2/3 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 12.5 ppb on Dec 1 07:00		Maximum Daily Average: 6.3 ppb on Dec 27		Minimum Value: 0.0 ppb on Dec 9 01:00		Minimum Daily Average: 0.4 ppb on Dec 31		Hours of Data: 704																																									
Maximum Diurnal Average: 3.1 ppb at hour 7		Minimum Diurnal Average: 2.0 ppb at hour 5		Hours of Missing Data: 40		Hours of Calibration: 37		Percent Operational Time: 99.6																																									
Monthly Average: 2.63 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.4 Q ₁ = 1.0 Median = 2.2 Q ₃ = 3.7 P ₉₀ = 5.5 P ₉₉ = 9.5																																															
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-Dec	0.5	0.4	1.3	Z	4.2	8.8	12.5	10.9	9.2	7.7	6.7	6.3	6.0	5.7	6.2	8.1	8.3	5.8	5.6	3.8	3.7	3.5	4.8	4.4	5.8	12.5																							
2-Dec	3.7	3.2	3.1	3.8	Z	4.0	4.1	3.9	3.8	M	3.8	4.1	4.1	4.3	4.5	4.6	4.6	4.6	4.9	5.3	6.1	7.3	7.5	7.7	4.7	7.7																							
3-Dec	7.6	6.4	5.3	3.7	3.0	Z	9.5	3.0	1.4	1.5	1.4	1.3	1.3	1.0	1.0	0.8	0.8	0.8	0.6	0.7	0.5	0.7	1.1	1.6	2.4	9.5																							
4-Dec	Z	1.7	2.9	2.2	1.5	3.1	3.5	4.6	3.8	3.2	2.6	2.9	2.6	2.5	3.1	3.9	3.7	2.8	2.1	1.5	2.0	2.3	2.3	2.4	2.7	4.6																							
5-Dec	2.4	Z	2.4	2.6	2.7	2.9	3.3	3.3	3.2	3.0	2.6	2.4	2.6	2.7	2.5	3.2	2.5	1.7	1.8	2.4	2.5	2.9	3.8	3.7	2.7	3.8																							
6-Dec	2.1	1.8	Z	2.2	2.1	1.2	1.7	1.2	1.2	C	C	C	C	C	C	1.2	1.0	0.9	1.0	0.7	0.7	0.7	0.6	0.6	--	2.2																							
7-Dec	0.6	0.5	0.3	Z	0.4	0.3	0.6	0.4	0.6	0.7	DF	DF	0.7	1.0	1.5	0.8	0.8	1.1	1.1	0.9	1.0	0.8	0.7	1.1	0.8	1.5																							
8-Dec	1.4	1.6	2.0	3.6	Z	2.2	2.2	1.8	2.6	3.9	6.5	7.1	7.3	5.6	3.6	1.9	0.8	3.2	1.0	0.6	0.1	0.3	0.2	0.3	2.6	7.3																							
9-Dec	0.0	0.8	1.0	0.0	0.0	Z	0.4	0.4	0.4	0.4	0.6	1.3	1.0	0.6	0.7	0.2	0.3	2.5	2.6	0.9	1.6	4.1	3.4	3.6	1.2	4.1																							
10-Dec	Z	3.0	1.3	0.5	0.6	1.3	1.3	1.0	0.9	1.4	1.9	2.2	1.9	2.0	1.7	1.7	4.9	3.0	4.7	4.7	5.2	3.4	2.9	2.7	2.4	5.2																							
11-Dec	2.5	Z	2.1	1.8	2.3	3.1	2.8	2.9	3.8	1.7	1.0	1.0	1.1	1.0	0.9	0.5	1.1	0.8	0.6	0.3	0.3	0.8	1.0	1.2	1.5	3.8																							
12-Dec	1.3	1.4	Z	1.5	1.3	1.7	1.7	1.8	1.6	2.0	2.0	2.2	2.2	1.7	1.8	2.6	2.6	2.5	2.4	2.4	2.4	2.4	2.6	2.7	2.0	2.7																							
13-Dec	2.6	2.8	3.1	Z	3.1	3.1	3.4	3.4	3.3	3.0	3.0	3.4	4.0	4.0	4.9	5.8	5.8	4.9	4.7	4.3	3.7	4.1	5.6	5.8	4.0	5.8																							
14-Dec	5.0	4.6	5.9	5.2	Z	7.6	6.1	5.5	5.8	6.5	5.8	6.4	5.5	4.2	3.6	3.1	2.7	2.0	2.2	2.0	2.5	1.4	1.6	2.5	4.2	7.6																							
15-Dec	1.6	1.6	2.4	3.3	2.1	Z	2.0	1.5	1.7	3.1	3.5	3.1	3.1	3.4	3.2	2.6	1.3	2.5	0.6	0.4	0.5	0.6	0.3	2.0	2.0	3.5																							
16-Dec	Z	1.4	1.8	0.6	0.3	1.6	1.0	0.7	0.5	0.4	0.4	0.8	0.8	0.2	0.5	0.5	0.9	0.9	0.4	2.2	4.3	0.4	1.6	0.4	1.0	4.3																							
17-Dec	0.2	Z	0.4	0.1	0.1	0.1	0.8	4.1	4.9	1.3	2.6	1.3	1.5	0.9	0.6	0.8	2.8	2.9	1.5	1.1	0.9	1.1	1.1	0.9	1.4	4.9																							
18-Dec	0.4	1.0	Z	1.9	2.2	1.7	3.2	2.2	1.9	3.0	4.4	10.2	11.2	8.1	6.1	3.8	3.6	3.2	2.7	2.2	1.9	1.9	1.8	4.0	3.6	11.2																							
19-Dec	4.2	3.0	2.7	Z	1.3	0.9	1.9	1.1	1.2	1.2	1.5	1.4	1.4	1.3	4.3	5.3	5.4	5.8	2.0	1.3	2.6	2.6	3.2	3.3	2.6	5.8																							
20-Dec	2.5	1.8	2.0	1.4	Z	1.3	1.5	1.1	1.2	1.3	1.4	0.8	1.3	1.2	1.0	1.5	2.1	2.4	2.5	2.3	3.0	4.0	4.9	5.0	2.1	5.0																							
21-Dec	5.0	4.9	5.1	5.2	5.1	Z	5.5	4.7	4.6	4.6	4.6	3.9	4.1	3.6	4.0	3.6	3.1	2.8	4.2	2.4	2.2	3.1	3.0	2.7	4.0	5.5																							
22-Dec	Z	3.4	3.9	5.3	4.8	5.1	5.8	5.8	4.4	3.8	3.7	4.5	4.6	5.6	5.8	5.9	4.9	6.0	3.9	4.3	5.6	7.7	11.7	10.5	5.5	11.7																							
23-Dec	7.3	Z	7.4	7.2	4.7	3.9	4.4	4.1	3.2	3.1	3.2	3.3	3.7	3.8	3.7	3.8	3.6	3.8	3.5	3.6	3.7	3.6	3.2	2.6	4.1	7.4																							
24-Dec	2.5	2.0	Z	1.6	1.3	1.1	1.8	1.3	0.6	0.8	1.3	2.9	3.6	3.1	2.6	2.9	3.0	2.8	2.7	2.5	2.9	2.1	1.8	1.7	2.1	3.6																							
25-Dec	1.6	1.5	1.3	Z	1.2	1.0	1.0	1.2	0.6	0.7	0.7	1.0	0.6	0.5	0.4	0.6	0.8	1.2	0.4	0.3	0.4	0.5	1.4	1.5	0.9	1.6																							
26-Dec	1.2	1.8	2.6	2.7	Z	3.0	3.3	4.4	2.6	2.5	2.3	2.5	2.6	2.7	2.7	2.8	2.5	2.7	2.9	2.7	3.0	4.8	5.6	5.8	3.0	5.8																							
27-Dec	4.2	5.1	5.7	5.7	5.2	Z	6.6	4.9	5.6	5.2	5.1	5.1	7.0	6.6	8.1	8.8	10.3	9.0	7.4	7.0	7.3	6.3	5.0	3.6	6.3	10.3																							
28-Dec	Z	1.9	1.1	1.1	1.1	0.7	2.6	2.5	2.3	2.2	2.5	2.5	2.3	1.7	1.4	0.9	1.8	1.9	1.4	1.2	0.8	1.0	0.9	0.6	1.6	2.6																							
29-Dec	1.5	Z	1.6	1.5	1.1	1.3	2.0	2.5	2.5	3.0	2.1	2.7	1.4	1.5	1.4	1.3	0.6	1.1	1.0	0.9	0.4	0.6	0.7	0.5	1.4	3.0																							
30-Dec	0.4	0.4	Z	0.2	0.7	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.8	1.6	1.9	0.7	1.2	1.0	3.8	1.2	0.2	0.2	0.3	0.3	0.7	3.8																						
31-Dec	0.3	0.2	0.3	Z	0.5	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.5	0.3	0.2	0.5	0.3	1.7	0.2	0.4	0.4	1.7																							
																								2.4	2.2	2.7	2.6	2.0	2.4	3.1	2.8	2.6	2.5	2.7	3.0	3.0	2.7	2.8	2.7	2.8	2.8	2.5	2.1	2.3	2.5	2.7	2.8	Diurnal Average	
																								7.6	6.4	7.4	7.2	5.2	8.8	12.5	10.9	9.2	7.7	6.7	10.2	11.2	8.1	8.1	8.8	10.3	9.0	7.4	7.0	7.3	7.7	11.7	10.5	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
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3 - December 2024

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

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3 - December 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	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	21	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696

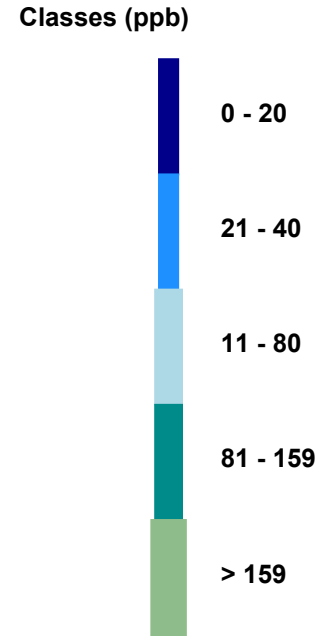
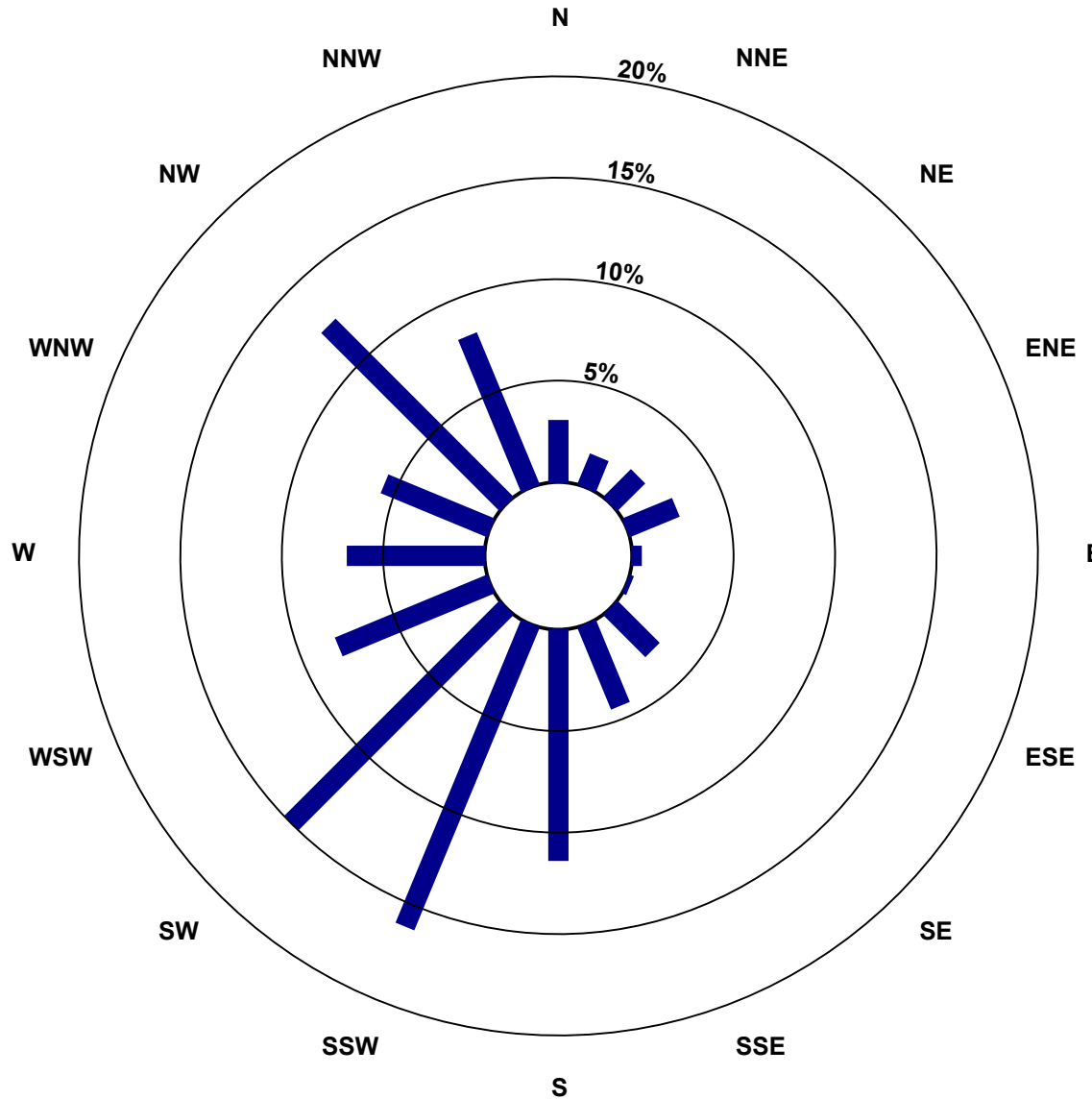
Total Number of Valid Hours: 696

Total Number of Hours: 744

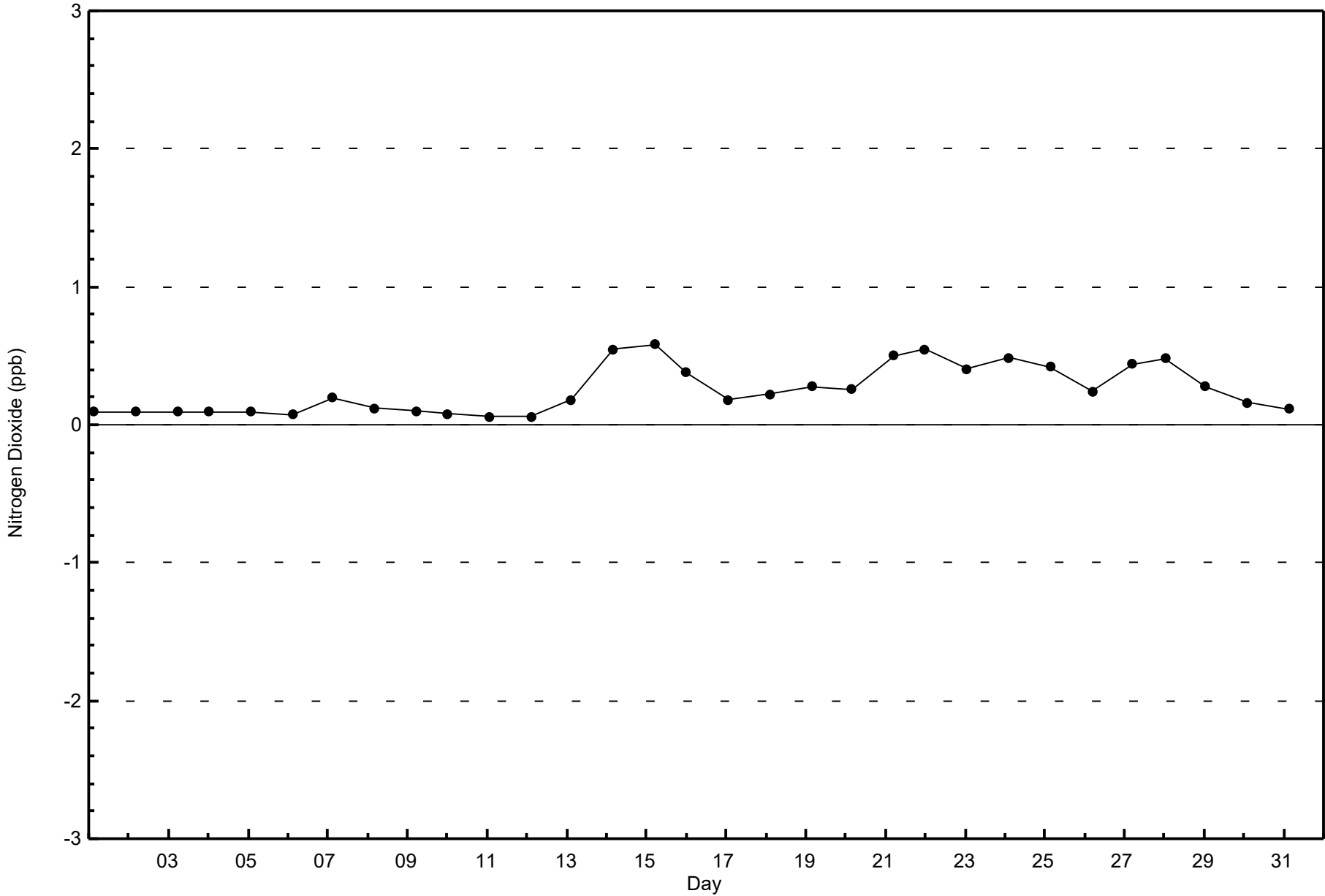


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3



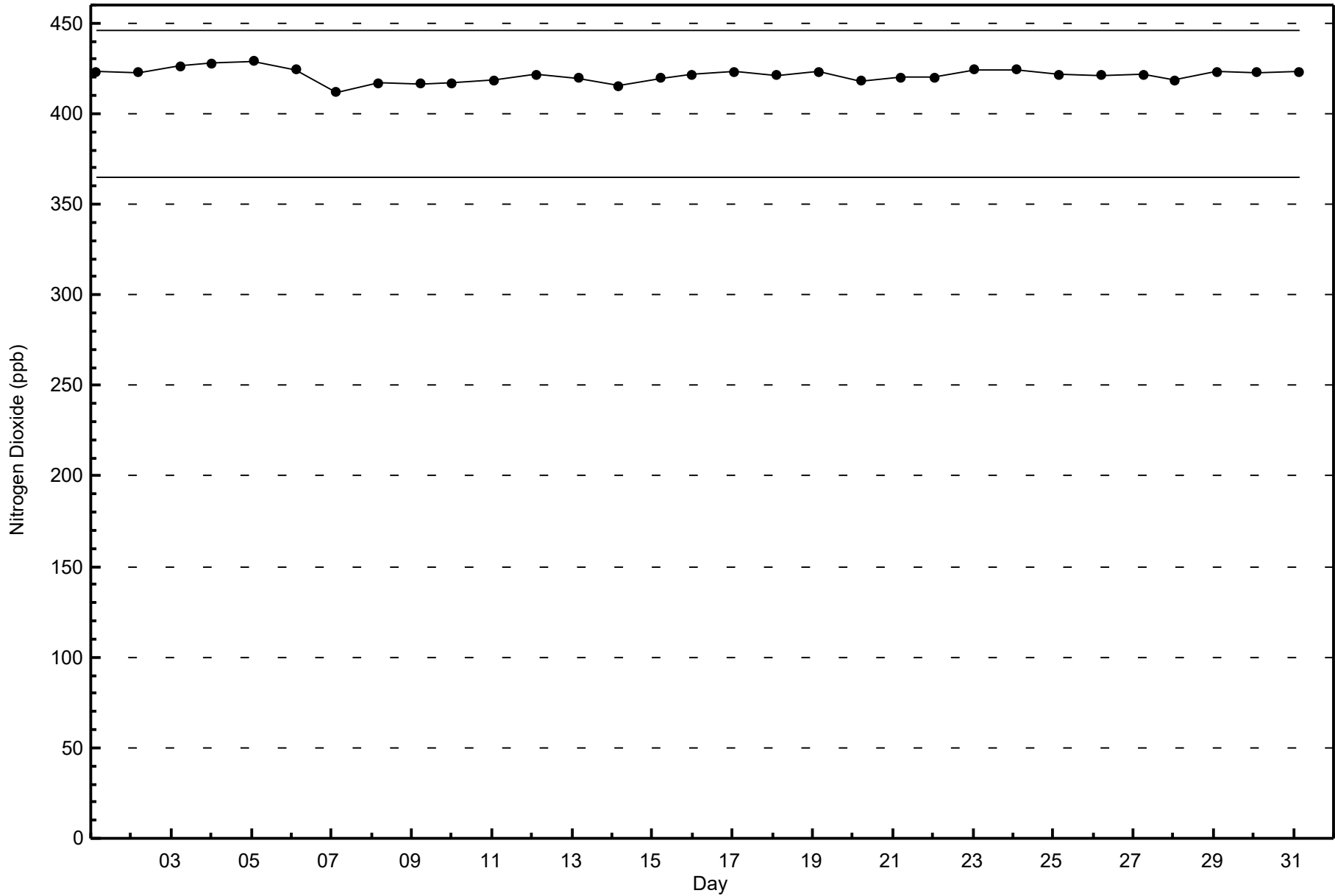
Total Number of Valid Hours: 696





Wood Buffalo Environmental Association
Span Responses

Nitrogen Dioxide (NO₂) - ppb
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

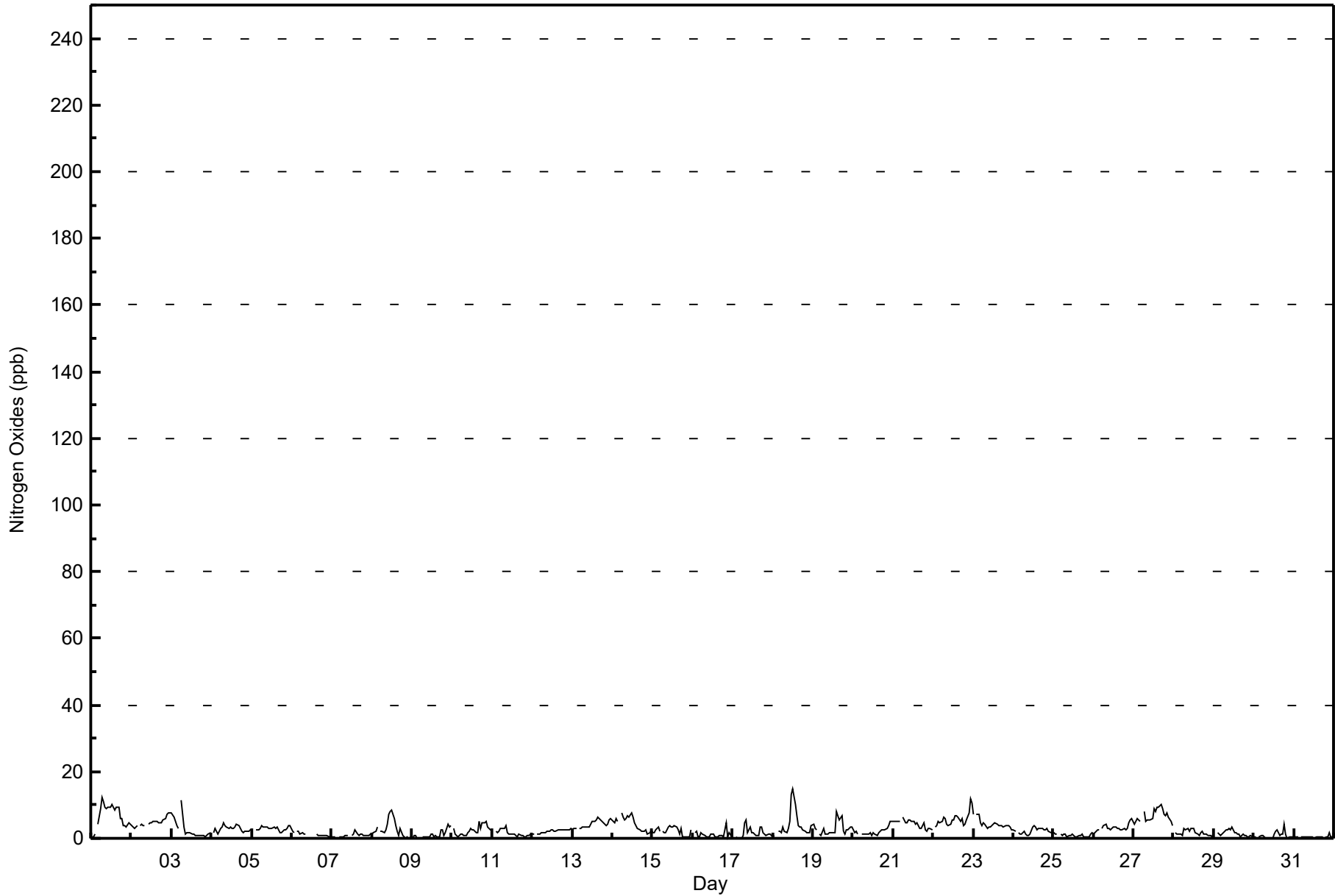
Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - December 2024

Maximum Value: 14.8 ppb on Dec 18 13:00																						Maximum Daily Average: 6.7 ppb on Dec 1																						Hours in Service: 744	
Minimum Value: 0.0 ppb on Dec 9 04:00																						Minimum Daily Average: 0.4 ppb on Dec 31																						Hours of Data: 704	
Maximum Diurnal Average: 3.7 ppb at hour 13																						Minimum Diurnal Average: 2.0 ppb at hour 5																						Hours of Missing Data: 40	
Monthly Average: 2.80 ppb																						Percentiles: P ₁ = 0.2 P ₁₀ = 0.5 Q ₁ = 1.1 Median = 2.4 Q ₃ = 3.8 P ₉₀ = 5.7 P ₉₉ = 10.4																						Hours of Calibration: 37	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																					
1-Dec	0.5	0.4	1.3	Z	4.2	8.8	12.5	10.9	9.4	8.9	9.1	9.4	10.3	9.4	8.5	9.3	9.3	6.0	5.9	3.8	3.7	3.5	4.8	4.4	6.7	12.5																			
2-Dec	3.7	3.2	3.1	3.8	Z	4.0	4.2	3.9	3.8	M	4.3	4.6	4.7	5.0	4.9	4.9	4.6	4.6	4.9	5.3	6.1	7.3	7.5	7.7	4.8	7.7																			
3-Dec	7.6	6.4	5.3	3.7	3.1	Z	11.4	3.4	1.4	1.5	1.5	1.5	1.5	1.1	1.0	0.8	0.8	0.8	0.6	0.7	0.5	0.7	1.1	1.6	2.5	11.4																			
4-Dec	Z	1.7	3.1	2.3	1.5	3.1	3.5	4.6	3.9	3.3	2.8	3.3	3.0	2.8	3.5	4.1	3.8	2.8	2.1	1.5	2.0	2.3	2.3	2.4	2.9	4.6																			
5-Dec	2.4	Z	2.4	2.6	2.7	2.9	3.7	3.4	3.3	3.2	3.0	3.0	3.2	3.5	3.1	3.4	2.6	1.8	1.8	2.4	2.5	2.9	3.8	3.7	2.9	3.8																			
6-Dec	2.1	1.8	Z	2.2	2.1	1.2	1.7	1.3	1.2	C	C	C	C	C	C	1.2	1.0	0.9	1.0	0.7	0.7	0.7	0.6	0.6	--	2.2																			
7-Dec	0.6	0.5	0.3	Z	0.4	0.3	0.6	0.4	0.8	0.9	DF	DF	0.8	1.4	2.4	1.2	1.0	1.1	1.1	0.9	1.0	0.8	0.7	1.1	0.9	2.4																			
8-Dec	1.4	1.6	2.0	3.6	Z	2.2	2.2	1.8	2.6	4.1	7.3	8.2	8.3	6.1	3.7	1.9	0.8	3.2	1.0	0.6	0.1	0.3	0.2	0.3	2.8	8.3																			
9-Dec	0.0	0.8	1.0	0.0	0.0	Z	0.5	0.5	0.4	0.4	0.6	1.4	1.1	0.6	0.7	0.2	0.3	2.5	2.6	0.9	1.6	4.1	3.4	3.6	1.2	4.1																			
10-Dec	Z	3.0	1.3	0.5	0.6	1.3	1.3	1.0	0.9	1.5	2.2	2.8	2.4	2.4	1.9	1.7	5.2	3.0	4.7	4.7	5.2	3.4	2.9	2.7	2.5	5.2																			
11-Dec	2.5	Z	2.1	1.8	2.3	3.1	2.8	2.9	3.9	1.8	1.1	1.2	1.3	1.1	1.0	0.5	1.1	0.8	0.6	0.3	0.3	0.9	1.0	1.2	1.5	3.9																			
12-Dec	1.3	1.5	Z	1.5	1.3	1.7	1.8	1.9	1.6	2.0	2.1	2.5	2.5	1.9	1.9	2.7	2.7	2.5	2.4	2.4	2.5	2.4	2.6	2.9	2.1	2.9																			
13-Dec	2.6	2.8	3.1	Z	3.1	3.1	3.5	3.4	3.3	3.2	3.5	4.1	5.1	5.1	5.7	6.3	6.0	5.5	4.8	4.3	3.7	4.1	5.6	5.8	4.3	6.3																			
14-Dec	5.0	4.6	5.9	5.2	Z	7.7	6.2	5.6	5.8	7.0	6.6	7.5	6.3	4.7	3.8	3.1	2.7	2.0	2.2	2.0	2.5	1.4	1.6	2.5	4.4	7.7																			
15-Dec	1.6	1.6	2.4	3.4	2.1	Z	2.0	1.5	1.7	3.2	3.8	3.5	3.4	3.7	3.4	2.6	1.3	2.8	0.6	0.4	0.5	0.6	0.3	2.3	2.1	3.8																			
16-Dec	Z	1.6	2.0	0.6	0.3	1.7	1.1	0.8	0.5	0.4	0.5	1.1	1.1	0.4	0.6	0.5	0.9	1.0	0.4	2.5	4.7	0.4	1.8	0.4	1.1	4.7																			
17-Dec	0.2	Z	0.4	0.1	0.1	0.1	0.9	4.7	5.5	1.6	3.2	1.7	1.9	1.1	0.7	0.9	3.4	3.5	1.5	1.1	0.9	1.1	1.1	0.9	1.6	5.5																			
18-Dec	0.4	1.0	Z	1.9	2.2	1.7	3.6	2.3	1.9	3.2	5.0	13.0	14.8	10.0	6.9	4.0	3.6	3.2	2.7	2.2	1.9	1.9	1.8	4.0	4.0	14.8																			
19-Dec	4.2	3.0	2.7	Z	1.3	0.9	2.8	1.1	1.3	1.3	1.8	1.8	1.8	1.7	8.0	6.8	5.6	6.8	2.1	1.3	2.6	2.6	3.2	3.3	3.0	8.0																			
20-Dec	2.5	1.8	2.0	1.4	Z	1.3	1.5	1.1	1.2	1.3	1.5	1.0	1.5	1.3	1.0	1.5	2.1	2.5	2.6	2.3	3.0	4.0	4.9	5.0	2.1	5.0																			
21-Dec	5.0	4.9	5.1	5.2	5.1	Z	6.3	4.7	4.9	5.4	5.5	5.0	5.2	4.4	4.7	3.8	3.1	2.8	4.7	2.4	2.2	3.1	3.0	2.7	4.3	6.3																			
22-Dec	Z	3.4	3.9	5.3	4.8	5.1	6.3	5.8	4.4	4.0	4.1	5.3	5.5	6.9	6.6	6.2	4.9	6.1	4.0	4.3	5.6	7.7	11.7	10.5	5.7	11.7																			
23-Dec	7.3	Z	7.4	7.2	4.7	3.9	4.5	4.1	3.2	3.2	3.6	3.9	4.4	4.5	4.2	4.0	3.7	3.9	3.5	3.6	3.7	3.6	3.2	2.6	4.3	7.4																			
24-Dec	2.5	2.0	Z	1.6	1.3	1.1	2.2	1.3	0.6	0.8	1.4	3.3	3.9	3.3	2.6	2.9	3.0	2.8	2.7	2.5	2.9	2.1	1.8	1.7	2.2	3.9																			
25-Dec	1.6	1.5	1.3	Z	1.2	1.0	1.1	1.2	0.6	0.7	0.8	1.2	0.7	0.6	0.5	0.7	0.8	1.4	0.4	0.3	0.4	0.5	1.4	1.5	0.9	1.6																			
26-Dec	1.2	1.8	2.6	2.7	Z	3.0	3.6	4.4	2.8	2.8	2.7	3.1	3.4	3.3	3.1	3.0	2.5	2.7	2.9	2.7	3.0	4.8	5.6	5.8	3.2	5.8																			
27-Dec	4.2	5.1	5.7	5.7	5.2	Z	8.1	4.9	5.6	5.6	5.7	5.9	8.7	8.0	9.3	9.3	10.4	9.0	7.4	7.0	7.6	6.3	5.0	3.6	6.7	10.4																			
28-Dec	Z	1.9	1.1	1.1	1.1	0.7	3.0	2.6	2.9	2.3	2.8	2.9	2.8	1.9	1.5	0.9	1.8	2.0	1.4	1.2	0.8	1.0	0.9	0.6	1.7	3.0																			
29-Dec	1.6	Z	1.7	1.5	1.1	1.3	2.3	2.5	2.6	3.2	2.4	3.3	1.6	1.7	1.5	1.3	0.6	1.1	1.0	0.9	0.4	0.6	0.7	0.5	1.5	3.3																			
30-Dec	0.4	0.4	Z	0.2	0.7	0.7	0.3	0.2	0.2	0.2	0.2	0.2	1.1	2.1	2.4	0.8	1.2	1.1	4.4	1.3	0.2	0.2	0.3	0.3	0.8	4.4																			
31-Dec	0.3	0.2	0.3	Z	0.5	0.6	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.5	0.3	0.2	0.5	0.3	1.7	0.2	0.4	0.4	1.7																			
2.4 2.2 2.7 2.6 2.0 2.4 3.4 2.9 2.7 2.7 3.1 3.7 3.7 3.3 3.3 2.9 2.9 2.9 2.5 2.2 2.4 2.5 2.7 2.8																								Diurnal Average																					
7.6 6.4 7.4 7.2 5.2 8.8 12.5 10.9 9.4 8.9 9.1 13.0 14.8 10.0 9.3 9.3 10.4 9.0 7.4 7.0 7.6 7.7 11.7 10.5																								Diurnal Maximum																					
Z - zerospan C - Calibration M - Maintenance DF - DAS Failure																																													



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - December 2024**

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

Total Number of Valid Hours: 704

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3 - December 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	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	21	11	13	18	3	1	20	30	79	112	104	56	47	39	86	56	696

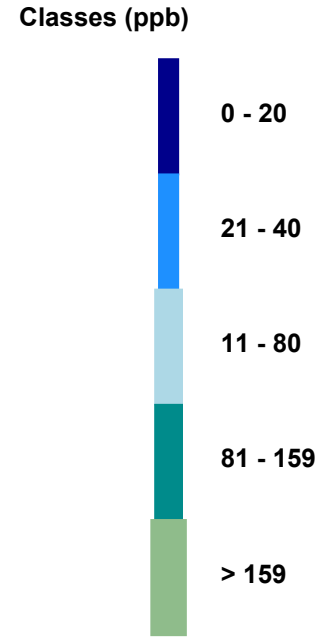
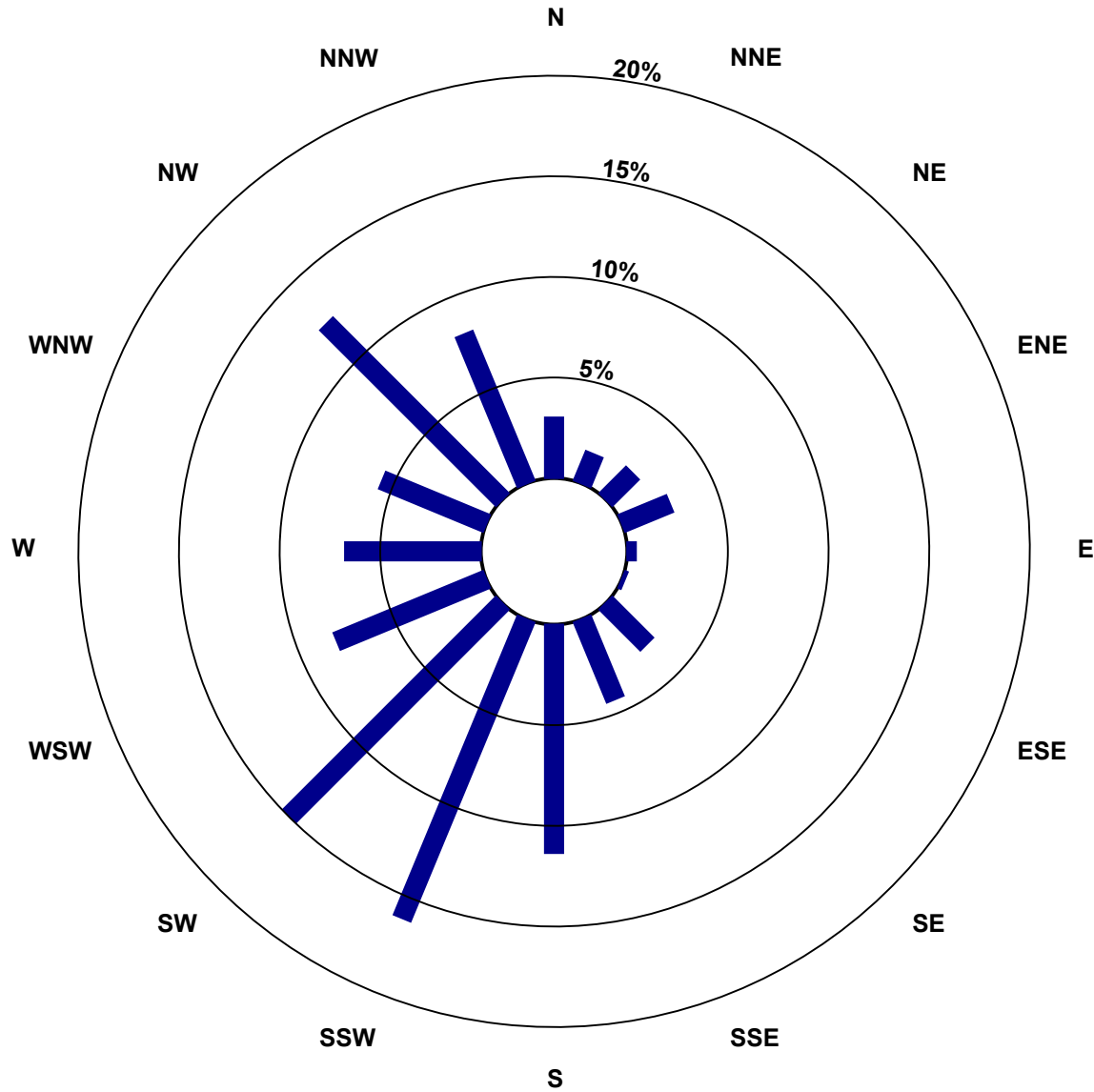
Total Number of Valid Hours: 696

Total Number of Hours: 744

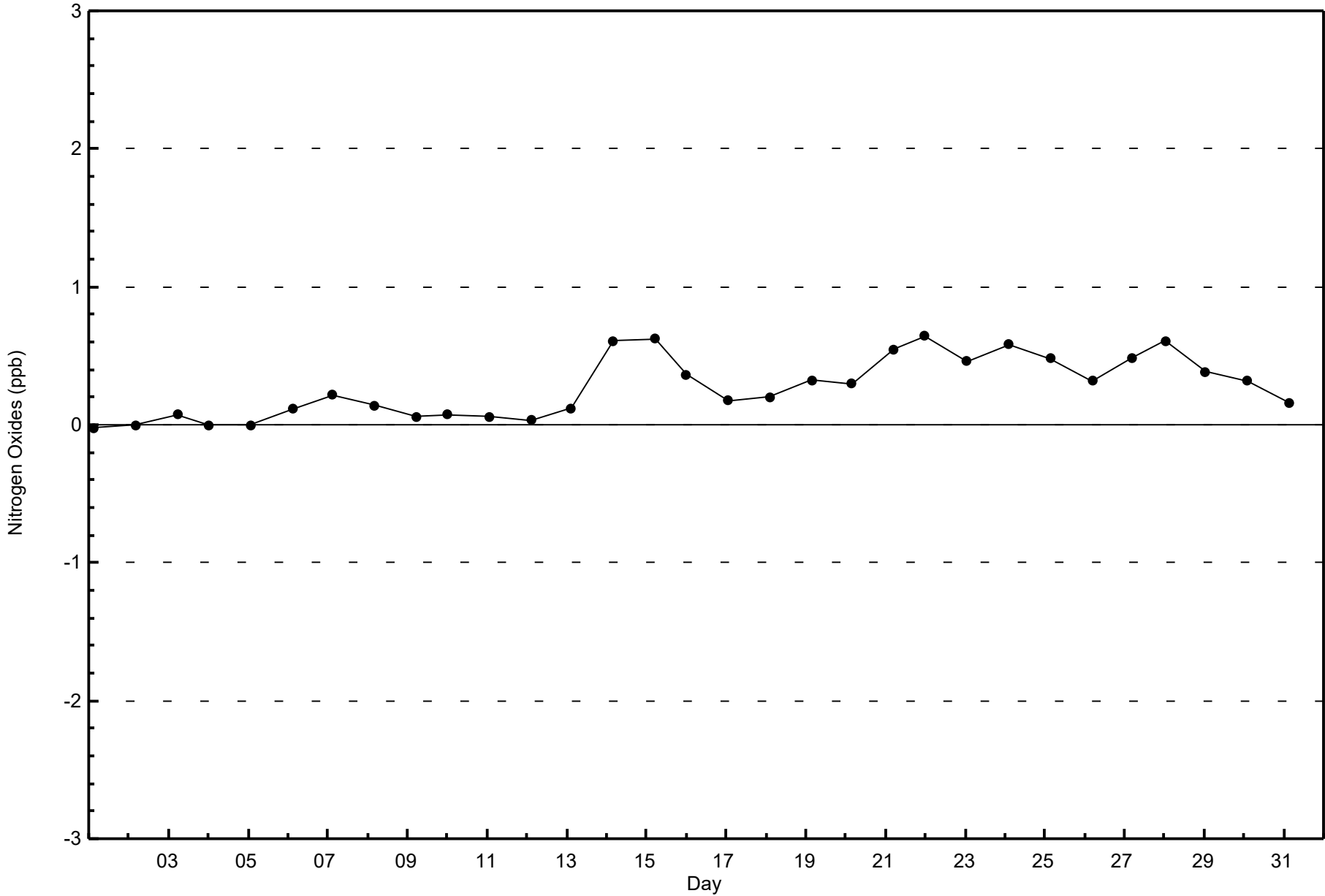


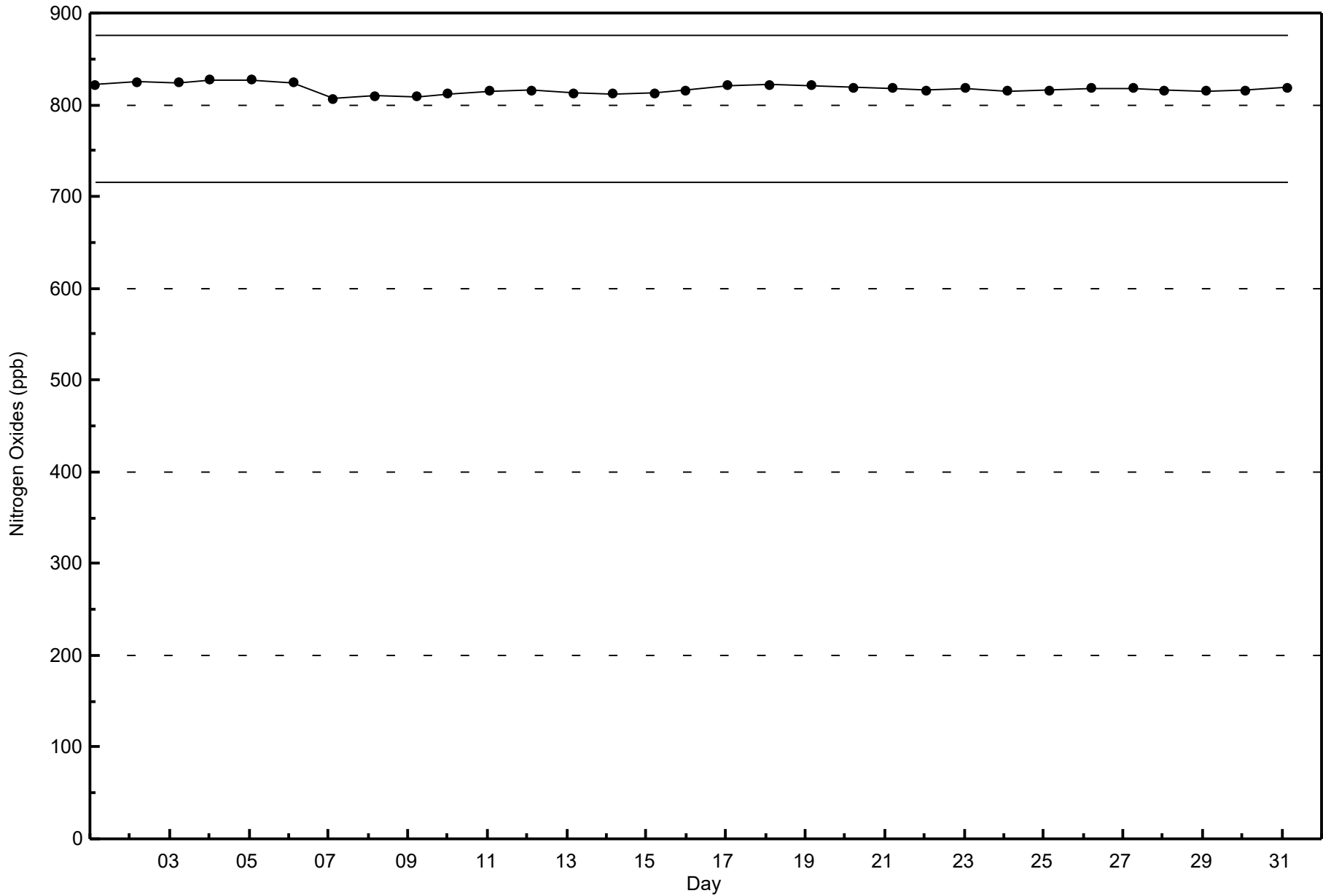
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Jackfish 2/3



Total Number of Valid Hours: 696







Wood Buffalo Environmental Association
Summary of Hour Averages

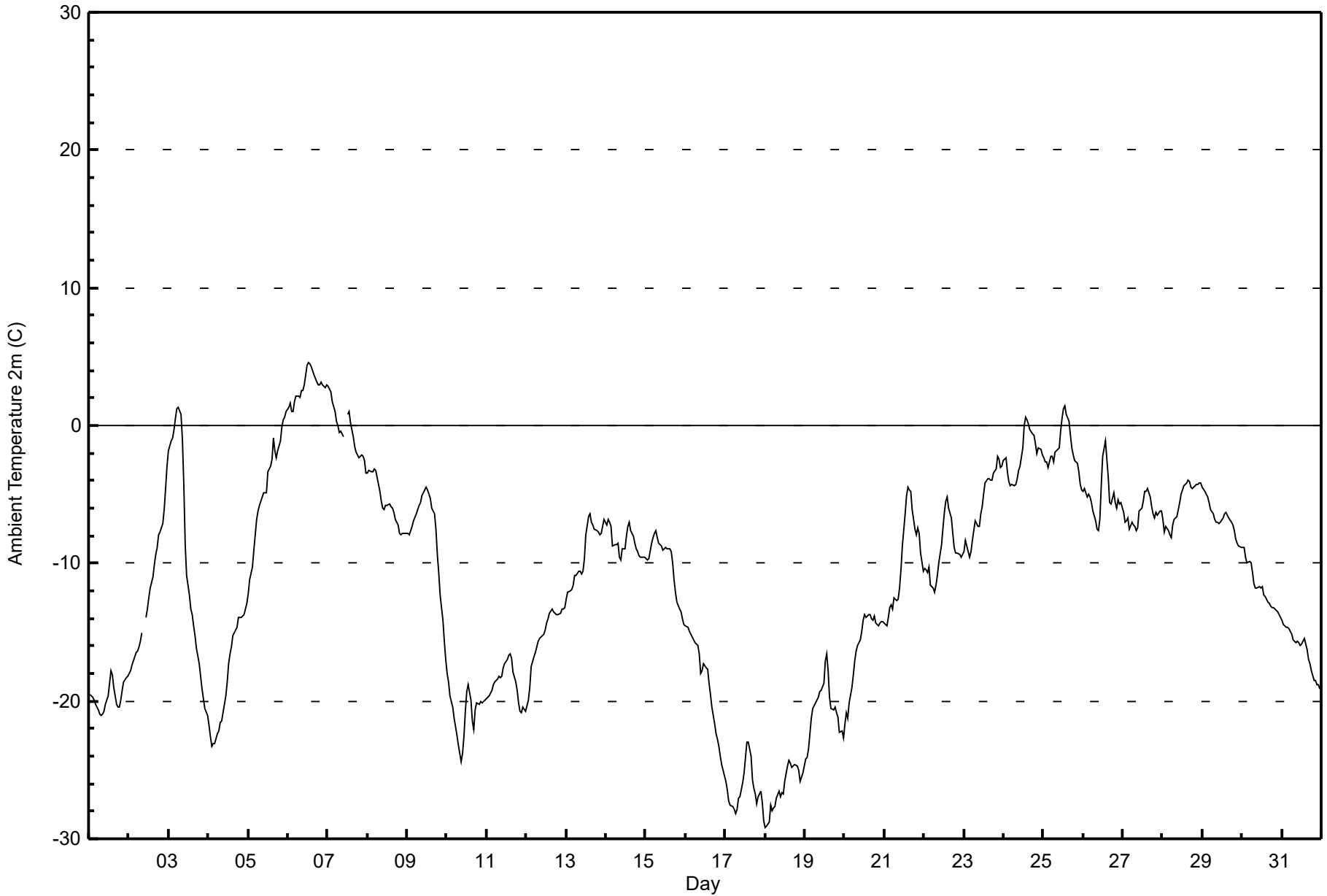
Ambient Temperature 2m (AT2) - C
Jackfish 2/3 - December 2024

Maximum Value: 4.5 C on Dec 6 13:00		Maximum Daily Average: 2.8 C on Dec 6		Hours in Service: 744																							
Minimum Value: -29.2 C on Dec 18 01:00		Minimum Daily Average: -26.4 C on Dec 17		Hours of Data: 741																							
Maximum Diurnal Average: -9.5 C at hour 14		Minimum Diurnal Average: -11.9 C at hour 3		Hours of Missing Data: 3																							
Monthly Average: -11.18 C		Percentiles: P ₁ = -27.8 P ₁₀ = -21.8 Q ₁ = -17.5 Median = -9.6 Q ₃ = -5.4 P ₉₀ = -1.8 P ₉₉ = 3.1		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-Dec	-19.6	-19.6	-19.7	-20.0	-20.3	-20.7	-21.0	-21.0	-20.9	-20.7	-20.2	-19.6	-18.7	-17.8	-18.2	-19.0	-20.2	-20.5	-20.5	-20.0	-19.2	-18.6	-18.3	-18.2	-19.7	-17.8	
2-Dec	-18.0	-17.8	-17.3	-16.7	-16.5	-16.4	-16.1	-15.7	-15.1	M	-14.0	-13.3	-12.5	-11.8	-11.0	-10.1	-9.4	-8.9	-7.9	-7.7	-7.1	-6.1	-4.6	-3.0	-12.0	-3.0	
3-Dec	-1.8	-1.1	-0.9	-0.3	0.5	1.2	1.3	0.9	-1.0	-4.3	-8.7	-10.9	-12.3	-13.3	-13.8	-14.5	-15.2	-16.2	-17.3	-18.2	-19.1	-19.8	-20.5	-21.0	-9.4	1.3	
4-Dec	-21.8	-22.6	-23.3	-23.1	-23.0	-22.4	-22.1	-21.5	-21.4	-20.8	-19.6	-18.6	-17.3	-16.6	-16.1	-15.3	-14.8	-14.6	-13.9	-13.9	-13.9	-13.7	-13.3	-12.9	-18.2	-12.9	
5-Dec	-12.2	-11.2	-10.3	-9.1	-8.0	-6.8	-6.2	-5.8	-5.2	-4.9	-4.9	-4.9	-3.4	-2.9	-2.4	-0.9	-1.8	-2.3	-1.8	-1.1	-0.1	0.4	0.6	1.0	-4.3	1.0	
6-Dec	1.4	1.6	1.1	1.0	1.7	2.1	2.2	2.0	2.5	2.6	3.0	4.4	4.5	4.5	4.3	3.9	3.7	3.1	3.0	3.0	3.1	2.9	2.8	2.9	2.8	4.5	
7-Dec	2.8	2.7	2.4	1.7	1.0	0.3	0.0	-0.5	-0.4	-0.8	DF	DF	0.8	1.0	0.2	-0.8	-1.5	-1.9	-2.1	-2.3	-2.2	-2.2	-2.6	-3.5	-0.4	2.8	
8-Dec	-3.5	-3.3	-3.4	-3.3	-3.2	-3.2	-3.8	-4.7	-5.5	-6.0	-6.1	-5.8	-5.8	-5.7	-5.9	-6.0	-6.3	-6.8	-7.2	-7.8	-7.9	-7.8	-7.9	-7.8	-5.6	-3.2	
9-Dec	-7.8	-7.9	-7.7	-7.3	-6.9	-6.4	-6.1	-5.8	-5.6	-5.1	-4.7	-4.5	-4.7	-4.9	-5.3	-6.0	-6.4	-7.6	-9.4	-10.6	-12.3	-14.2	-15.7	-17.0	-7.9	-4.5	
10-Dec	-18.0	-18.6	-19.6	-20.5	-21.3	-21.9	-22.5	-23.2	-24.4	-23.8	-22.6	-20.7	-19.4	-18.8	-19.9	-21.5	-22.1	-20.6	-20.2	-20.3	-20.0	-20.1	-20.1	-19.9	-20.8	-18.0	
11-Dec	-19.8	-19.7	-19.4	-19.2	-18.9	-18.6	-18.4	-18.2	-18.3	-18.2	-17.6	-17.3	-17.0	-16.6	-16.6	-16.9	-17.9	-18.6	-19.2	-20.2	-20.7	-20.9	-20.4	-20.8	-18.7	-16.6	
12-Dec	-20.4	-20.0	-19.1	-17.5	-16.8	-16.5	-16.1	-15.6	-15.4	-15.3	-15.2	-14.9	-14.4	-14.0	-13.6	-13.3	-13.5	-13.6	-13.7	-13.7	-13.6	-13.3	-13.4	-13.2	-15.3	-13.2	
13-Dec	-12.7	-12.1	-12.0	-11.9	-11.5	-10.9	-10.9	-10.5	-10.6	-10.7	-10.6	-9.6	-7.9	-6.6	-6.4	-7.0	-7.2	-7.5	-7.6	-7.7	-8.0	-7.9	-7.3	-6.8	-9.3	-6.4	
14-Dec	-7.2	-6.8	-7.0	-7.3	-8.8	-8.7	-8.6	-8.5	-9.5	-9.7	-9.0	-8.9	-8.0	-7.3	-7.0	-7.6	-8.1	-8.6	-8.9	-9.1	-9.5	-9.5	-9.6	-9.5	-8.4	-6.8	
15-Dec	-9.6	-9.8	-9.7	-8.5	-8.1	-7.8	-7.7	-8.2	-8.5	-8.7	-9.1	-8.9	-8.9	-9.0	-8.9	-9.2	-9.9	-11.2	-12.1	-12.8	-13.3	-13.6	-14.0	-14.4	-10.1	-7.7	
16-Dec	-14.5	-14.7	-14.9	-15.1	-15.3	-15.6	-15.7	-15.9	-16.6	-18.0	-17.8	-17.3	-17.6	-17.7	-18.7	-19.5	-20.5	-21.7	-22.3	-22.8	-23.2	-24.0	-24.7	-25.4	-18.7	-14.5	
17-Dec	-25.9	-26.4	-27.2	-27.5	-27.6	-27.9	-28.1	-27.8	-27.0	-26.9	-25.9	-25.2	-24.1	-23.0	-23.0	-24.0	-25.7	-26.3	-26.7	-27.4	-26.9	-26.5	-27.3	-28.7	-26.4	-23.0	
18-Dec	-29.2	-29.1	-28.7	-27.5	-27.9	-27.7	-27.6	-27.0	-26.6	-27.0	-26.7	-26.8	-25.8	-24.7	-24.3	-24.6	-24.8	-24.7	-24.6	-24.8	-25.1	-25.8	-25.5	-25.2	-26.3	-24.3	
19-Dec	-24.2	-24.1	-23.5	-22.3	-21.3	-20.6	-20.2	-20.0	-19.8	-19.3	-19.2	-18.7	-17.1	-16.6	-17.8	-19.8	-20.6	-20.7	-20.5	-20.9	-21.2	-22.3	-22.2	-22.7	-20.6	-16.6	
20-Dec	-21.7	-20.9	-21.2	-20.1	-19.0	-18.1	-17.0	-16.3	-16.0	-15.5	-14.9	-14.1	-13.8	-13.9	-13.7	-13.8	-14.0	-14.1	-13.9	-14.3	-14.5	-14.4	-14.2	-14.2	-16.0	-13.7	
21-Dec	-14.3	-14.5	-13.9	-13.2	-13.1	-13.3	-12.6	-12.7	-12.6	-11.8	-10.5	-8.7	-6.4	-5.1	-4.5	-4.6	-4.8	-6.1	-7.6	-7.9	-7.4	-7.8	-9.3	-10.6	-9.7	-4.5	
22-Dec	-10.4	-10.5	-10.7	-10.2	-11.6	-11.8	-12.1	-11.6	-10.8	-9.9	-8.7	-7.4	-6.3	-5.5	-5.2	-6.0	-6.7	-7.9	-8.9	-9.2	-9.3	-9.4	-9.6	-9.4	-9.1	-5.2	
23-Dec	-9.1	-8.3	-8.7	-9.6	-9.2	-8.3	-7.7	-6.9	-7.3	-7.4	-6.4	-5.9	-5.0	-4.2	-3.9	-3.9	-4.0	-3.9	-3.4	-3.2	-2.3	-2.4	-3.0	-3.0	-5.7	-2.3	
24-Dec	-2.5	-2.3	-3.3	-4.1	-4.4	-4.2	-4.3	-4.2	-3.9	-3.2	-3.0	-1.6	0.0	0.6	0.4	0.1	-0.3	-0.6	-0.7	-1.3	-2.0	-1.6	-1.7	-2.2	-2.1	0.6	
25-Dec	-2.4	-2.6	-2.7	-3.0	-2.2	-2.2	-2.6	-1.9	-1.9	-1.6	-0.4	0.5	1.2	1.5	0.8	0.3	-0.8	-1.7	-2.1	-2.5	-2.7	-3.3	-4.3	-4.7	-1.7	1.5	
26-Dec	-4.8	-4.6	-5.2	-5.0	-5.2	-5.6	-6.2	-6.9	-7.5	-7.6	-6.8	-4.4	-2.3	-1.2	-2.5	-3.8	-5.6	-5.7	-4.9	-5.5	-6.0	-5.4	-5.7	-5.6	-5.2	-1.2	
27-Dec	-6.3	-7.0	-6.9	-6.7	-7.5	-7.0	-7.2	-7.4	-7.6	-7.4	-6.2	-6.0	-5.5	-4.8	-4.7	-4.6	-5.2	-5.9	-6.5	-6.7	-6.3	-6.5	-6.2	-6.2	-6.4	-4.6	
28-Dec	-6.8	-7.7	-7.3	-7.6	-7.9	-8.1	-7.3	-6.8	-6.6	-6.1	-5.6	-5.0	-4.7	-4.4	-4.2	-3.9	-4.1	-4.5	-4.5	-4.4	-4.2	-4.2	-4.1	-4.1	-5.6	-3.9	
29-Dec	-4.5	-4.8	-4.9	-5.2	-5.5	-6.1	-6.4	-6.9	-7.0	-7.1	-7.2	-7.0	-6.7	-6.4	-6.3	-6.5	-6.8	-7.0	-7.2	-7.6	-8.2	-8.6	-8.7	-8.8	-6.7	-4.5	
30-Dec	-8.8	-8.8	-9.6	-10.0	-9.9	-9.9	-10.7	-11.5	-11.8	-11.8	-11.7	-11.8	-11.6	-12.3	-12.4	-12.8	-12.9	-13.1	-13.2	-13.2	-13.3	-13.5	-13.7	-14.0	-11.8	-8.8	
31-Dec	-14.2	-14.4	-14.6	-14.6	-14.8	-15.0	-15.1	-15.6	-15.8	-15.6	-15.8	-16.0	-15.9	-15.4	-15.8	-16.3	-17.0	-17.3	-17.8	-18.5	-18.5	-18.8	-18.8	-19.1	-16.3	-14.2	
																								Diurnal Average			
																								Diurnal Maximum			
M - Maintenance		DF - DAS Failure																									



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Jackfish 2/3 - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	119	16.06	16.06
-20 - 0	573	77.33	93.39
0 - 10	49	6.61	100.00
10 - 20	0	0.00	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

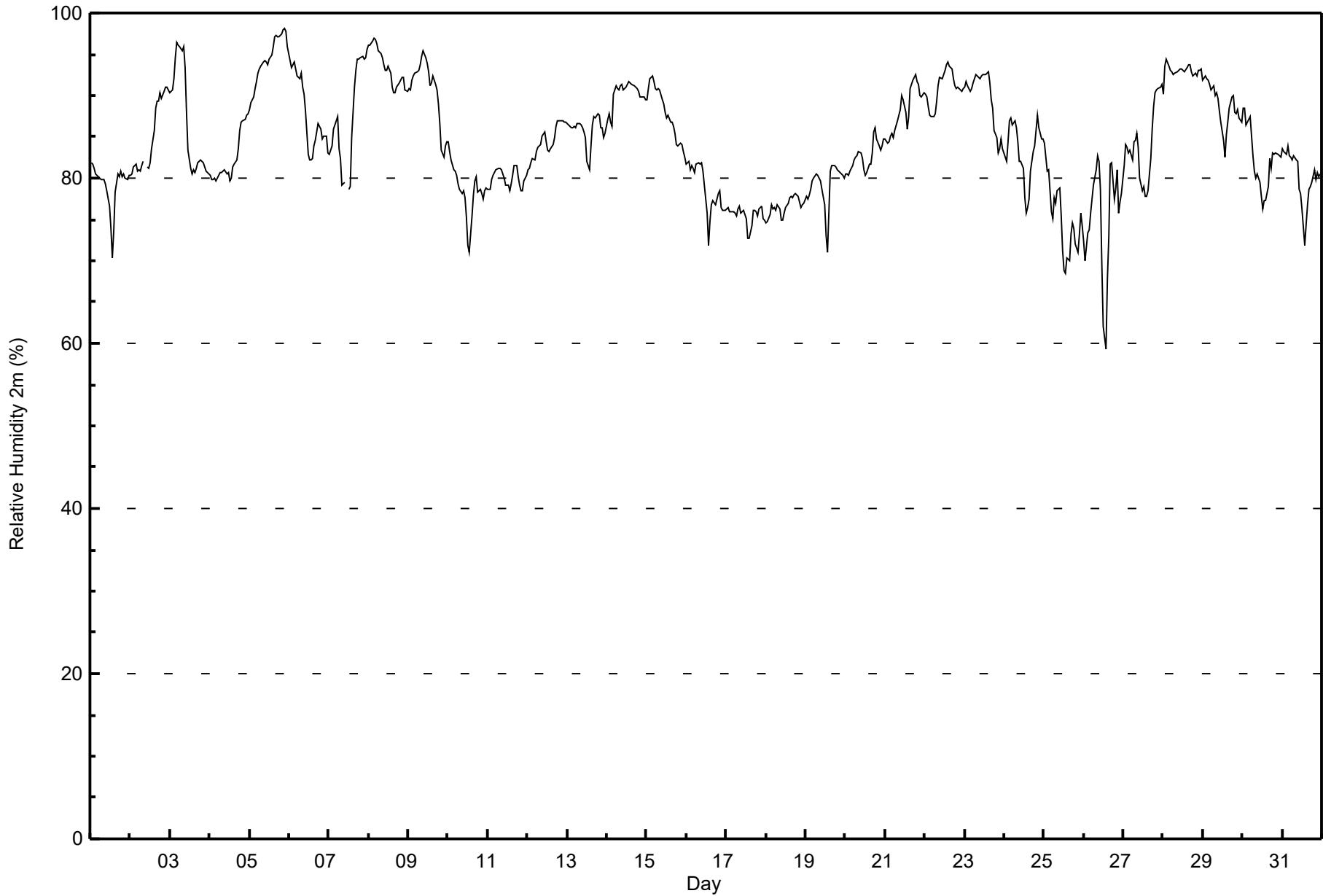
Relative Humidity 2m (RH2) - %
Jackfish 2/3 - December 2024

Maximum Value: 98.1 % on Dec 5 22:00 Maximum Daily Average: 94.4 % on Dec 5																						Hours in Service: 744 Hours of Data: 741				
Minimum Value: 59.3 % on Dec 26 14:00 Minimum Daily Average: 75.2 % on Dec 25 Maximum Diurnal Average: 85.5 % at hour 8 Minimum Diurnal Average: 80.6 % at hour 14 Monthly Average: 84.42 % Percentiles: P ₁ = 70.1 P ₁₀ = 76.3 Q ₁ = 80.0 Median = 83.6 Q ₃ = 90.5 P ₉₀ = 93.0 P ₉₉ = 97.0																						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-Dec	81.8	81.7	81.2	80.5	80.4	80.0	79.8	79.9	79.8	79.4	78.5	76.6	74.0	70.3	73.6	78.3	80.4	80.3	80.8	80.2	80.5	80.0	79.8	80.4	79.1	81.8
2-Dec	80.4	80.5	81.4	81.8	80.8	80.9	80.8	81.6	82.1	M	81.3	81.2	81.9	83.6	85.7	88.5	89.3	89.4	90.3	89.7	90.5	91.0	91.1	90.7	85.0	91.1
3-Dec	90.3	90.7	92.0	94.6	96.4	96.1	95.9	95.5	95.9	93.5	88.0	83.5	81.2	80.6	81.0	80.7	81.1	81.8	82.2	82.0	81.8	81.3	80.9	80.6	87.0	96.4
4-Dec	80.3	79.7	79.8	79.9	79.7	80.4	80.6	80.7	80.8	80.9	80.6	80.6	79.6	80.0	81.4	81.8	82.1	83.5	85.8	86.7	86.9	87.2	87.6	87.8	82.3	87.8
5-Dec	88.3	89.1	89.8	90.8	91.7	92.7	93.2	93.6	94.1	94.2	94.1	93.7	94.4	94.9	96.0	97.2	97.3	97.1	97.2	97.5	97.9	98.1	97.8	96.0	94.4	98.1
6-Dec	94.3	93.4	93.8	94.1	93.2	92.3	92.0	92.7	91.0	90.2	88.1	83.0	82.2	82.2	82.4	83.8	84.5	86.6	86.3	86.0	84.7	85.0	85.1	83.0	87.9	94.3
7-Dec	82.8	83.4	83.9	85.9	87.0	87.5	83.6	82.4	79.2	79.5	DF	DF	78.6	78.9	84.9	91.0	93.1	94.3	94.4	94.6	94.7	94.5	94.6	95.6	87.5	95.6
8-Dec	96.1	96.2	96.7	97.0	96.8	96.2	95.5	95.1	94.6	93.7	93.0	93.1	93.6	92.7	91.1	90.3	90.4	91.1	91.5	91.9	92.2	92.1	90.6	90.5	93.4	97.0
9-Dec	90.9	90.7	91.9	92.5	92.7	93.0	93.0	93.7	94.8	95.5	94.7	93.9	93.0	91.2	91.5	92.4	91.4	90.6	89.0	86.6	83.4	82.5	84.0	84.5	90.7	95.5
10-Dec	84.3	83.3	82.2	81.1	80.8	80.3	79.4	78.7	78.2	78.4	77.7	75.2	71.9	71.1	75.4	78.0	79.7	80.1	78.3	78.6	78.2	77.5	78.4	78.9	78.6	84.3
11-Dec	78.6	78.6	79.8	80.3	80.7	81.0	81.3	81.3	81.0	80.6	80.0	79.2	79.1	78.5	79.3	80.4	81.6	81.5	80.1	79.1	78.4	78.6	79.7	80.3	80.0	81.6
12-Dec	81.0	81.2	81.8	82.5	82.2	83.3	83.8	83.9	84.0	85.1	85.6	84.4	83.4	83.3	83.6	84.0	85.0	86.3	86.9	87.0	86.9	87.0	86.8	86.8	84.4	87.0
13-Dec	86.6	86.4	86.2	86.2	86.3	86.1	86.6	86.6	86.4	86.0	85.6	84.9	82.1	81.0	84.0	86.5	87.4	87.3	87.8	87.6	86.2	86.1	84.9	85.4	85.8	87.8
14-Dec	87.2	87.7	86.8	86.2	90.2	91.3	90.9	90.8	91.2	91.4	90.7	91.0	91.7	91.6	91.3	91.2	91.0	90.9	90.5	89.8	89.8	89.8	89.9	89.5	90.2	91.7
15-Dec	89.5	90.8	92.0	92.4	91.7	90.9	90.7	90.9	90.6	89.6	89.0	87.9	87.3	87.6	86.9	86.7	86.3	85.4	84.0	83.8	84.2	84.1	83.3	82.5	87.8	92.4
16-Dec	81.6	82.0	81.0	81.5	81.2	80.6	81.7	81.8	81.7	81.8	80.9	79.2	75.8	71.8	74.7	76.7	77.2	76.7	77.4	78.1	78.5	76.5	76.1	76.1	78.8	82.0
17-Dec	76.3	76.4	76.0	76.0	75.9	75.7	75.4	76.3	76.6	75.8	76.0	75.5	75.1	72.7	72.7	74.3	76.2	76.2	76.0	75.5	76.3	76.6	75.2	74.8	75.6	76.6
18-Dec	74.5	74.7	75.6	76.9	76.2	76.5	76.0	76.7	76.2	74.9	75.0	75.7	76.4	77.0	77.6	77.7	77.6	78.0	78.1	77.7	77.1	76.5	76.8	77.0	76.5	78.1
19-Dec	77.8	77.5	78.0	78.6	79.6	80.1	80.4	80.4	80.1	79.7	78.6	76.8	73.1	71.0	76.0	80.9	81.6	81.5	81.3	81.0	80.8	80.7	80.3	79.9	79.0	81.6
20-Dec	80.6	80.5	80.4	80.9	81.5	82.2	82.6	82.8	83.3	83.1	82.4	81.1	80.4	80.6	81.8	81.8	83.1	85.6	86.1	84.7	84.0	83.5	83.9	84.8	82.6	86.1
21-Dec	84.8	84.2	84.5	85.1	85.5	84.9	85.7	87.0	87.7	88.3	90.0	89.6	88.0	86.0	87.4	90.9	91.4	91.9	92.5	91.6	91.3	89.9	89.8	90.3	88.3	92.5
22-Dec	90.2	89.8	88.7	87.6	87.4	87.5	87.8	89.3	91.2	92.2	92.0	92.6	93.1	93.8	94.2	93.6	93.2	92.1	91.2	90.8	91.0	90.7	90.6	90.8	90.9	94.2
23-Dec	91.0	91.8	91.2	90.4	90.8	91.6	92.0	92.5	92.2	92.1	92.4	92.5	92.6	92.9	91.6	89.6	88.4	85.7	85.0	83.0	83.5	84.7	83.6	89.7	92.9	92.9
24-Dec	83.1	82.1	84.4	86.9	87.2	86.5	87.0	86.1	84.3	82.1	82.0	81.2	77.7	75.7	76.4	77.5	80.9	83.2	83.8	85.7	87.6	86.1	84.8	84.7	83.2	87.6
25-Dec	84.3	82.6	80.9	81.1	75.9	75.0	77.6	77.0	78.5	78.9	75.3	71.1	68.9	68.5	70.3	70.0	73.2	74.5	74.0	72.1	71.1	73.1	75.7	74.2	75.2	84.3
26-Dec	72.4	70.1	73.4	73.8	75.8	77.4	79.2	81.1	82.8	82.0	78.7	69.6	62.0	59.3	67.9	72.9	81.6	81.8	77.5	78.8	81.1	75.7	77.1	78.1	75.4	82.8
27-Dec	81.6	84.1	83.8	83.0	83.4	82.2	84.5	84.6	85.4	83.7	80.1	78.4	78.9	77.9	77.8	78.5	82.3	86.0	88.7	90.4	90.7	90.9	91.1	91.3	84.1	91.3
28-Dec	90.2	93.5	94.4	93.6	93.1	92.9	92.6	92.7	92.8	93.1	93.2	93.3	93.1	92.9	93.4	93.8	93.7	92.9	92.4	92.8	92.4	93.0	93.1	93.2	93.0	94.4
29-Dec	91.8	92.3	92.1	91.8	91.4	90.7	91.2	90.0	90.3	89.7	88.2	86.8	84.6	82.6	85.3	86.8	88.5	89.8	90.0	88.0	87.8	88.2	87.3	86.8	88.8	92.3
30-Dec	88.6	88.4	86.4	86.7	87.5	85.1	82.7	80.9	80.1	80.4	79.5	77.8	76.2	77.3	77.2	78.9	82.4	81.2	83.0	82.9	83.0	82.8	82.7	82.6	82.3	88.6
31-Dec	83.5	83.3	83.0	83.8	82.7	82.5	82.3	82.7	82.2	82.1	78.6	78.1	76.3	71.9	74.3	76.9	78.6	79.0	79.4	81.1	79.8	80.7	80.1	80.5	80.1	83.8
84.7 84.7 84.9 85.3 85.3 85.3 85.3 85.5 85.4 85.3 84.3 82.9 81.5 80.6 82.2 83.7 84.9 85.3 85.2 85.1 84.9 84.6 84.6 84.6																								Diurnal Average		
96.1 96.2 96.7 97.0 96.8 96.2 95.9 95.5 95.9 95.5 94.7 93.9 94.4 94.9 96.0 97.2 97.3 84.9 85.3 85.2 85.1 84.9 84.6 84.6 84.6																								Diurnal Maximum		
M - Maintenance DF - DAS Failure																										



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Jackfish 2/3 - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	1	0.13	0.14
60 - 80	184	24.83	24.97
80 - 100	556	75.03	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744

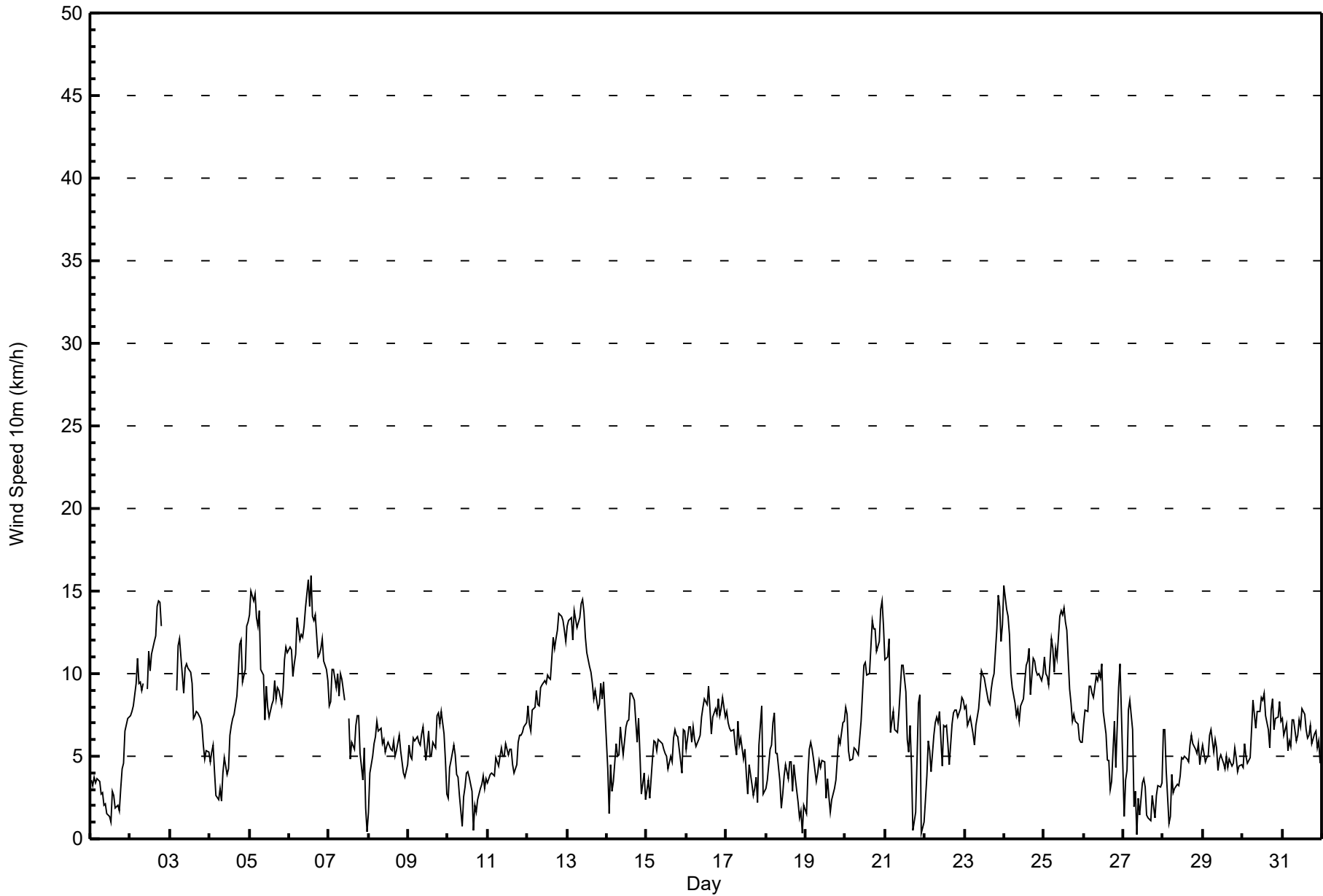


Maximum Speed: 16 km/h on Dec 6 14:00	Maximum Daily Speed Average: 12.1 km/h on Dec 6	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 27 09:00	Minimum Daily Speed Average: 0.7 km/h on Dec 27	Hours of Data: 733
Maximum Diurnal Speed Average: 5.0 km/h at hour 22	Minimum Diurnal Speed Average: 3.5 km/h at hour 16	Hours of Missing Data: 11
Monthly Average Velocity: 4.0 km/h 237.1 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 5 Median = 7 Q ₃ = 9 P ₉₀ = 12 P ₉₉ = 14	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-Dec	NNW4	NNW3	NNW4	NNW3	NNW4	NW3	N3	NNW3	NNW2	N2	NNE2	SSW1	S1	SSW3	SSW3	SE2	SSE2	SSW2	SSE3	S4	S5	SSW7	SSW7	SSW7	SW0.9	SSW7	
2-Dec	SSW7	S8	S8	SSW9	SSW11	SSW9	SSW10	SSW9	SW9	M	SSW9	SW11	SW10	SSW11	SSW12	SSW12	SSW14	SSW14	SW14	SSW13	UO	UO	UO	UO	SSW10.6	SSW14	
3-Dec	UO	UO	UO	UO	WNNW9	WNNW12	WNNW12	NW10	NNW9	NNW10	NNW11	NNW10	NNW10	NNW9	NNW7	NNW7	NNW8	NNW8	NNW7	NNW7	NNW6	NW5	NW5	NW5	NW8.1	WNNW12	
4-Dec	NW5	WNNW5	WNNW6	NW4	NNW3	N2	NE3	SE2	S4	S5	S4	SSW6	S7	S7	S8	S9	SSW10	SSW12	SSW12	SSW9	SSW10	SSW13	SW13	SSW5.0	SW13		
5-Dec	SW14	SW15	SW14	SW15	SW13	WSW13	WSW14	WSW10	WSW10	WSW7	SW9	SW8	SW7	SW8	SW8	WSW10	SW8	SW9	SW9	SW8	WSW9	WSW11	WSW12	WSW11	SW10.5	SW15	
6-Dec	WSW12	WSW11	SW10	SW11	WSW11	WSW13	WSW12	SW12	SW12	SW13	WSW14	WSW16	WSW14	WSW16	WSW13	WSW13	WSW14	WSW11	WSW11	WSW11	WSW12	WSW11	W10	W10	WSW12.1	WSW16	
7-Dec	W8	W8	W10	W10	W9	W10	W9	W10	WSW10	WSW8	DF	DF	SW7	SSW5	SSW6	S5	SW7	SSW7	SSW7	SSW5	SSW4	SSW6	WSW2	WNNW0	WSW6.2	W10	
8-Dec	NNE2	N4	N5	N6	N6	N7	N7	NNW7	NNW6	NNW6	NW5	NW6	NNW6	NNW5	NW5	NW6	NW5	NNW5	NNW6	NNW5	NNW5	NNW4	NW4	W4	NNW5.0	N7	
9-Dec	WSW6	WNNW5	WNNW5	W6	W6	W6	W6	W6	WSW6	WSW7	WSW5	WNNW6	WNNW7	NW5	NNW5	NNW6	NNW5	N7	N8	N7	N8	N6	N5	N3	NW4.3	N8	
10-Dec	NNW2	NNW4	NW5	NW6	NW5	NW4	NW4	NNW3	SW1	WNNW3	NW3	NNW4	NW4	N4	NE3	NNW1	S2	SSE2	SSE2	SSW3	S3	SSE4	SSE3	SE4	NW1.2	NW6	
11-Dec	SE3	SSE4	SE4	SSE4	SSE4	SSE5	SE4	SE5	SSE6	SSE5	SE5	SE6	SE5	SE5	SE5	SE4	SE4	SE4	SSE6	SSE6	SSE6	S6	S7	S7	SSE4.9	S7	
12-Dec	S8	S7	S6	S8	S8	S9	S8	S8	SSW9	S9	S10	S9	SSW10	SSW10	SSW10	SSW12	SSW12	SSW12	SSW13	SSW14	SSW13	SSW13	SSW13	SSW12	SSW9.9	SSW14	
13-Dec	SSW13	SSW13	SSW13	SSW12	SSW14	SW13	SSW13	SSW13	SSW14	SW14	SSW14	SSW12	SW11	SSW10	SSW10	SW9	SSW9	SW9	SW8	SSW8	SW9	SW9	SW10	SW8	SSW11.2	SW14	
14-Dec	S4	SE2	SSE4	SSE3	NE3	ENE6	E5	E5	ENE7	ENE6	ENE5	ENE7	ENE7	ENE7	ENE9	ENE9	ENE8	ENE7	NE6	NE7	ENE5	NE3	NE4	N2	ENE4.7	ENE9	
15-Dec	N3	NNW4	NW2	WNNW5	NW6	NNW5	NNW6	NNW6	NNW6	NW6	NW5	NW5	NNW4	NNW5	NNW5	NW6	WNNW7	NW6	NW6	NNW5	WNNW4	W7	WNNW7	NW5.0	W7		
16-Dec	WNNW5	WNNW7	WNNW7	WNNW6	WNNW7	WNNW6	W6	WNNW6	W6	W7	W8	W8	W8	W9	WNNW8	WNNW6	WNNW7	WNNW8	W8	WNNW8	NW7	NW8	NW9	NW7	WNNW7.0	W9	
17-Dec	NW8	WNNW7	W7	W6	W7	W6	W5	WNNW7	WNNW6	W6	WNNW5	WNNW5	WNNW4	NNW3	W5	W3	WSW3	WSW3	WSW4	WSW2	SW6	SW8	SSW3	S3	W4.3	SW8	
18-Dec	SSE3	S4	S5	S6	S7	S8	SSE5	SE5	ESE4	E2	NE3	NE4	NE4	NNE4	NE5	NNE5	NNE3	NE4	NNE4	NNE2	WSW1	NNE2	NNE0	SSW2	ESE1.4	S8	
19-Dec	SSW2	S4	S5	SSW6	SSW5	SW5	SW3	SW4	SW5	WSW4	WSW5	WSW5	SW2	WSW4	SW3	SE2	S2	SSE3	S4	S5	S6	S6	S7	S7	SSW3.8	S7	
20-Dec	S8	S8	S5	SSE5	SE5	SSE6	SSE5	SSE5	SSE5	SSE7	S9	S11	SSW11	SSW10	SW10	SW12	SW13	SW13	SW13	SW13	SW11	SW12	SW14	SW14	SSW8.3	SW14	
21-Dec	SW11	SW11	SW12	SW6	SSW7	SSW8	S7	SSW6	SSW8	SW9	SW10	SW11	SSW9	SSW6	SW5	SSW7	SSW4	SSW1	SE2	SSW5	SSW8	SW9	ENE0	NE1	SSW6.5	SW12	
22-Dec	SSE2	S4	S6	SSW5	S4	S6	SSW7	SSW7	SSW7	SW8	SW4	SW7	SW7	SW7	SW6	SW5	S7	SSW8	SSW8	SW8	SSW7	SW8	SSW9	SSW8	SSW6.2	SSW9	
23-Dec	SSW8	SSW8	S7	S7	S7	S6	S6	SSW7	SSW8	SSW9	SW10	SW10	SW9	SW8	SW8	SW9	SW10	SW10	WSW10	WSW13	WSW15	WSW14	SW12	SW13	SW8.8	WSW15	
24-Dec	WSW15	WSW14	SW13	SW12	SW10	SSW9	S8	S7	S8	SE9	S10	S11	S12	SSW9	S11	S11	SSW10	SSW10	SSW10	SSW10	SSW10	SSW10	SSW10	SSW10	SSW9.3	WSW15	
25-Dec	SW11	SW10	SW10	SW9	SW12	SW10	SW12	SW10	SW12	SW11	WSW13	WSW14	WSW14	WSW14	WSW14	WSW13	WSW13	SSW8	SSW7	SSW8	SSW7	SSW7	SSW6	S6	S6	SSW9.5	WSW14
26-Dec	S7	S8	S8	S9	S9	SSW9	SSW9	SSW10	SSW10	SSW10	SSW10	SW11	SW8	SW6	SW5	SSW5	S3	SSE4	S7	SSE4	S7	SSW9	SW11	SW8	SSW7.3	SW11	
27-Dec	SW1	ENE4	ENE4	NE8	S8	SSW7	SSW2	ENE3	N0	W2	N1	ENE3	WSW4	SSE3	SSW1	NNE1	NNW1	NE3	NE2	SE1	SSE3	SW3	SW3	SW3	SSE0.7	S8	
28-Dec	WSW7	WSW7	WSW4	N1	W1	WSW4	WSW3	WSW3	W3	WNNW3	WNNW4	NW5	NW5	NW5	W5	W5	W6	W6	W6	W5	W5	WSW6	W4	W5	W4.2	WSW7	
29-Dec	NW6	NW5	NW5	WNNW5	W6	W7	W5	W6	WNNW6	NW4	NW5	WNNW5	NW5	NW4	WNNW5	NW4	WNNW5	WNNW4	WNNW5	WNNW5	WNNW5	WNNW4	NW4	WNNW4	NW4.6	W7	
30-Dec	NNW4	NNW6	NNW5	NW5	NW5	NW7	NW8	NW8	NW7	NW8	NW8	NW9	NW8	NW9	NW7	NW7	NW6	NW8	WNNW8	NW7	NW7	NW7	NW8	NW7	NW6.9	NW9	
31-Dec	NW7	NW6	NW7	NW5	NW6	NW6	NW7	NW7	NW6	NW6	NW7	NW7	NW8	NW8	NW7	NW6	NW6	NW7	NW6	NW6	NW7	WNNW5	NW6	NW5	NW6.4	NW8	

SW4.1WSW4.0 SW4.2 SW3.9WSW4.3WSW4.4WSW3.7WSW3.7 SW3.8WSW4.2WSW4.0WSW4.1WSW4.3WSW3.8WSW3.8WSW3.5 SW3.7 SW3.5 SW3.9 SW4.0 SW4.2 SW5.0WSW4.6 SW4.3	Diurnal Average
WSW15 SW15 SW14 SW15 SSW14WSW13WSW14 SSW13 SSW14 SW14WSW14WSW16WSW14WSW16WSW13WSW13 SSW14 SSW14 SW14 SSW14WSW15WSW14 SW14 SW13	Diurnal Maximum

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





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Jackfish 2/3 - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	269	36.70	36.70
6 - 11	381	51.98	88.68
12 - 19	83	11.32	100.00
20 - 28	0	0.00	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 733

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Jackfish 2/3 - December 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	11	12	7	3	1	20	25	22	20	15	16	14	17	36	37	269
6 - 11	9	0	2	11	0	0	1	7	59	71	66	21	35	23	54	22	381
12 - 19	0	0	0	0	0	0	0	0	1	27	28	25	0	2	0	0	83
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	22	11	14	18	3	1	21	32	82	118	109	62	49	42	90	59	733

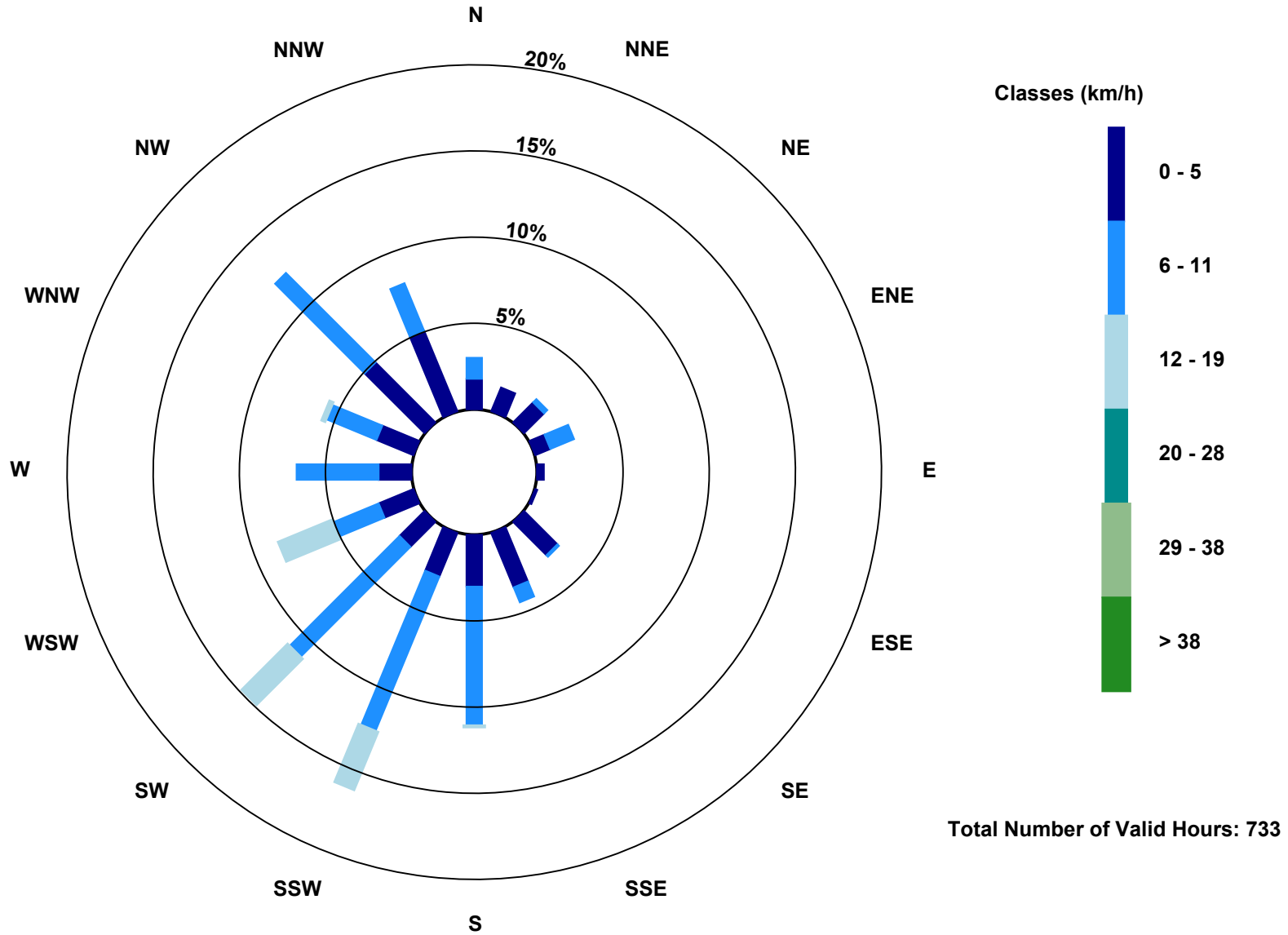
Total Number of Valid Hours: 733

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Jackfish 2/3





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Jackfish 2/3 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 3 07:00 Minimum Value: 1 km/h on Dec 22 01:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5								
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	3	3	3	3	3
2-Dec	3	3	3	3	3	3	3	3	3	M	3	3	3	3	3	3	4	4	3	4	UO	UO	UO	UO	4
3-Dec	UO	UO	UO	UO	5	5	5	5	4	5	5	4	5	4	3	3	4	4	3	3	2	2	2	2	5
4-Dec	2	2	2	2	1	1	1	1	2	2	2	2	3	3	3	3	3	4	4	4	3	3	3	3	4
5-Dec	3	4	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	4
6-Dec	3	2	2	3	4	3	3	3	3	3	4	4	4	4	3	3	4	3	3	3	3	3	3	3	4
7-Dec	3	3	3	3	3	2	3	2	2	2	DF	DF	2	1	1	1	2	1	1	2	2	1	2	1	3
8-Dec	2	2	2	2	3	3	3	3	2	2	2	2	2	3	3	3	2	3	2	2	1	1	2	2	3
9-Dec	2	2	2	2	2	2	2	2	2	2	2	2	3	2	2	3	2	3	3	3	3	2	2	1	3
10-Dec	1	2	2	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2
11-Dec	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	3	2	2	2	2	3
12-Dec	3	2	2	3	3	3	3	3	3	3	4	4	4	3	3	4	4	4	4	4	4	4	4	3	4
13-Dec	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	2	2	2	1	2	2	2	2	2	3
14-Dec	2	1	1	1	1	1	1	1	2	2	2	2	2	2	3	3	2	2	2	2	2	1	1	1	3
15-Dec	1	1	1	2	3	2	2	2	3	2	2	2	2	2	2	2	2	3	3	3	2	2	2	3	3
16-Dec	2	3	3	2	3	3	2	3	2	3	3	3	3	3	3	2	3	3	3	3	3	4	4	3	4
17-Dec	3	2	2	3	2	2	2	3	3	3	2	2	2	1	2	2	1	1	1	1	2	2	2	1	3
18-Dec	1	1	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	2
19-Dec	1	1	1	2	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2	2	2	2	3	3
20-Dec	3	3	2	2	2	2	2	2	2	3	3	4	4	4	3	3	4	4	3	3	4	3	3	3	4
21-Dec	2	2	2	3	2	2	1	1	2	2	2	2	2	2	2	1	2	1	1	2	2	3	1	1	3
22-Dec	1	1	1	2	1	1	2	1	2	2	1	2	2	2	1	1	2	1	2	2	2	2	2	2	2
23-Dec	2	2	1	1	2	2	1	1	1	2	2	2	2	2	2	2	2	2	3	3	4	3	3	3	4
24-Dec	4	3	3	2	2	2	2	2	2	2	3	3	4	4	4	4	4	3	3	3	2	2	2	2	4
25-Dec	2	2	2	2	3	3	3	3	3	4	4	4	4	4	4	3	2	2	2	2	2	2	2	2	4
26-Dec	2	3	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	3
27-Dec	2	1	1	2	2	3	1	2	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	3
28-Dec	1	2	1	1	2	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1	1	2	2
29-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30-Dec	2	2	2	2	2	3	4	4	3	3	3	4	4	4	3	3	3	4	3	3	3	3	3	3	4
31-Dec	3	3	3	2	3	2	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	2	2	2	3
Diurnal Maximum																								3	
M - Maintenance DF - DAS Failure UO - Unstable Operation																									



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

Jackfish 2/3 - December 2024

Direction of Maximum Speed: 250 deg on Dec 6 14:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 245.9 deg on Dec 6	Hours of Data: 733
Direction of Minimum Speed: 358 deg on Dec 27 09:00	Hours of Missing Data: 11
Direction of Minimum Daily Speed Average: 0.7 deg on Dec 27	Percent Operational Time: 98.5
Monthly Average Direction: 237.1 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-Dec	338	348	342	347	330	319	350	330	331	351	12	212	172	194	210	137	166	195	167	171	175	202	200	192	229.6
2-Dec	193	184	187	201	212	213	209	213	215	M	211	214	215	210	213	211	210	211	216	212	UO	UO	UO	UO	209.1
3-Dec	UO	UO	UO	UO	289	297	300	309	336	341	337	329	333	341	335	330	330	329	337	338	327	317	318	317	324.0
4-Dec	313	296	283	315	342	353	56	139	171	178	184	173	199	181	183	185	189	192	206	208	212	211	213	214	206.8
5-Dec	217	222	227	231	232	238	242	241	245	240	228	217	225	226	223	241	230	232	230	238	237	243	241		232.4
6-Dec	247	245	230	231	240	248	240	233	233	235	238	250	244	250	253	249	255	246	244	247	253	256	265	271	245.9
7-Dec	263	268	264	266	269	263	269	261	252	245	DF	DF	231	198	197	189	214	200	199	219	205	209	256	303	241.5
8-Dec	29	2	354	355	6	8	356	343	338	336	319	321	329	330	325	324	320	348	337	343	344	339	322	269	339.1
9-Dec	257	290	289	269	261	273	266	267	252	253	254	293	299	320	333	338	334	6	10	4	350	355	2	360	307.5
10-Dec	332	327	320	317	322	321	321	327	221	288	317	337	323	10	51	336	175	163	166	204	173	160	153	142	313.6
11-Dec	137	159	141	155	153	152	132	129	151	165	141	143	136	142	135	128	128	129	158	163	165	177	175	173	150.4
12-Dec	175	175	174	181	186	185	184	191	194	191	189	185	193	197	204	206	206	209	212	210	209	213	213	211	198.1
13-Dec	209	209	208	211	209	214	210	213	210	215	213	209	215	211	213	218	206	215	220	210	221	215	231	227	213.2
14-Dec	187	135	165	159	54	63	93	88	62	63	68	58	60	58	62	59	57	58	45	56	77	52	39	9	66.6
15-Dec	353	347	307	302	323	320	344	342	337	315	318	317	324	332	338	335	312	295	314	321	329	295	279	300	319.4
16-Dec	303	289	294	285	285	297	281	288	268	269	275	279	277	276	288	284	282	284	279	293	304	315	311	315	288.2
17-Dec	319	290	275	278	278	275	276	292	289	279	301	286	290	344	279	264	246	245	243	247	236	228	195	171	273.7
18-Dec	166	169	180	181	179	178	164	137	103	79	42	43	44	32	34	27	12	36	30	29	250	20	27	205	109.4
19-Dec	193	187	191	207	210	221	225	222	228	244	251	242	227	239	235	146	179	165	173	179	175	184	175	178	202.7
20-Dec	179	170	182	154	140	155	167	150	151	160	181	184	197	209	218	221	223	224	221	221	224	227	225	222	202.4
21-Dec	218	221	229	234	209	193	188	202	207	224	219	221	212	213	225	213	198	208	134	196	199	216	71	48	212.7
22-Dec	160	180	185	212	185	189	193	203	208	223	220	221	221	224	226	214	188	206	208	225	212	215	207	205	207.7
23-Dec	209	203	190	179	177	180	191	202	204	213	226	224	228	227	222	224	231	233	240	245	243	234	236		221.1
24-Dec	243	247	236	232	230	206	189	182	181	186	172	168	179	187	187	188	194	191	190	195	206	211	220	223	204.9
25-Dec	232	230	231	221	235	234	231	236	232	237	253	246	243	245	239	229	211	205	199	197	201	192	188	176	228.1
26-Dec	170	175	183	182	189	198	192	196	192	205	196	222	227	222	214	204	169	165	174	165	179	203	218	230	196.8
27-Dec	220	63	62	54	187	197	212	63	358	265	354	65	245	157	194	25	329	35	51	132	167	222	218	223	156.7
28-Dec	241	246	258	359	269	240	252	249	271	294	283	309	306	310	276	269	272	275	270	270	267	254	266	267	270.2
29-Dec	316	322	309	293	277	278	279	271	284	306	310	295	310	313	283	318	332	334	328	327	341	333	326	331	307.3
30-Dec	328	330	339	323	312	310	318	317	316	317	315	317	307	305	304	310	318	311	300	311	318	319	317	321	315.0
31-Dec	322	320	317	325	322	324	321	325	325	323	326	323	319	317	321	325	315	321	316	315	315	296	317	324	319.8

235.0 236.6 233.8 234.8 236.7 237.5 237.7 238.2 233.6 241.9 242.1 243.2 244.4 241.8 240.4 237.4 234.2 235.1 231.5 233.1 233.7 233.9 237.8 235.4

Diurnal Average

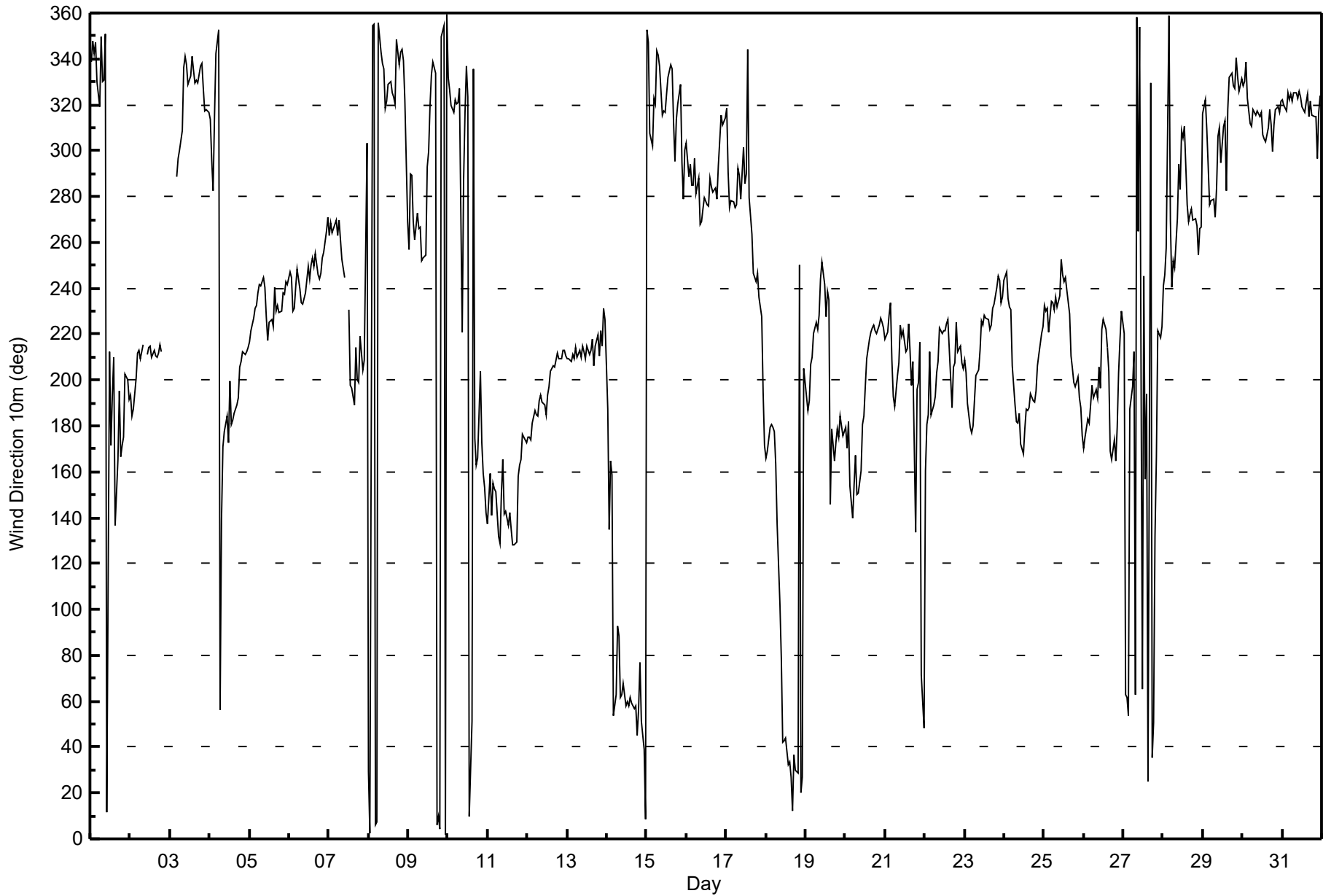
M - Maintenance DF - DAS Failure UO - Unstable Operation

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 10m (WD10) - deg
Jackfish 2/3 - December 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Jackfish 2/3 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 97 deg on Dec 10 09:00 Minimum Value: 10 deg on Dec 22 06:00 Percentiles: P ₁ = 13 P ₁₀ = 16 Q ₁ = 20 Median = 32 Q ₃ = 41 P ₉₀ = 48 P ₉₉ = 84																				Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5							
Day	Hourly Period Ending At (MST)																								Daily Maximum		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	44	43	45	51	44	52	55	45	62	55	60	82	82	55	47	59	45	42	39	36	43	35	33	40	82		
2-Dec	34	37	37	30	25	26	26	26	27	M	27	25	25	22	20	19	19	19	19	19	UO	UO	UO	UO	37		
3-Dec	UO	UO	UO	UO	28	34	35	40	44	45	45	42	48	48	48	44	40	39	37	37	40	42	37	35	48		
4-Dec	37	32	27	51	54	42	39	50	37	37	43	34	30	39	34	40	36	34	29	27	28	23	21	20	54		
5-Dec	21	20	20	18	19	20	18	21	20	23	21	21	22	21	19	16	17	17	18	16	17	19	17	18	23		
6-Dec	16	15	19	20	21	16	17	17	18	20	19	17	19	17	18	17	18	16	16	17	16	18	27	34	34		
7-Dec	31	32	26	25	27	20	28	18	16	13	DF	DF	16	20	16	21	21	16	14	66	30	18	74	84	84		
8-Dec	84	45	38	44	46	40	45	48	41	47	41	48	43	49	52	52	48	46	46	48	46	40	46	42	84		
9-Dec	23	40	39	29	27	35	31	33	22	22	30	37	40	50	45	47	47	45	46	45	43	37	44	38	50		
10-Dec	67	45	30	42	51	49	48	61	97	45	42	38	45	51	34	85	25	33	41	25	29	36	44	39	97		
11-Dec	52	38	39	42	39	36	38	35	38	41	45	36	41	42	38	36	27	41	42	40	41	32	31	34	52		
12-Dec	30	32	39	33	37	31	33	36	35	35	32	35	34	34	33	25	27	26	24	23	23	23	23	21	39		
13-Dec	20	20	20	21	18	19	19	19	16	17	17	17	16	17	16	16	15	12	13	13	14	14	14	13	21		
14-Dec	29	65	19	54	25	20	24	25	24	22	29	24	22	24	24	25	22	24	31	22	47	64	31	47	65		
15-Dec	38	43	54	37	42	38	48	43	44	45	44	44	46	44	45	46	40	37	42	34	43	42	36	40	54		
16-Dec	38	38	40	40	35	40	40	41	31	29	35	34	36	33	37	31	31	33	33	32	32	37	38	36	41		
17-Dec	39	30	29	35	36	36	29	31	37	35	46	40	39	44	45	32	27	17	14	32	13	16	48	21	48		
18-Dec	14	23	17	20	17	20	29	39	30	46	36	23	24	31	31	29	39	29	38	35	55	18	59	16	59		
19-Dec	59	16	16	20	20	22	17	22	20	25	24	24	55	35	29	42	22	32	28	21	23	30	31	35	59		
20-Dec	35	44	45	47	50	50	54	54	49	43	38	35	34	33	26	24	22	22	23	23	20	18	15	15	54		
21-Dec	15	15	14	22	19	13	13	15	14	15	16	16	15	19	20	16	44	87	58	16	17	19	94	77	94		
22-Dec	27	15	17	36	20	10	11	16	17	17	23	20	20	20	23	24	18	17	18	20	21	20	18	18	36		
23-Dec	18	16	15	17	21	24	24	20	16	18	18	19	17	16	17	18	18	19	18	18	17	17	19	18	24		
24-Dec	19	18	15	16	16	18	16	25	32	35	39	45	38	33	30	31	38	25	23	20	17	17	17	15	45		
25-Dec	15	16	17	20	19	19	21	19	21	20	21	18	18	18	19	22	21	22	19	21	22	22	24	30	30		
26-Dec	31	25	21	18	16	15	14	14	15	15	15	18	20	21	17	54	54	35	15	22	18	17	15	21	54		
27-Dec	93	16	19	19	22	19	60	50	94	55	88	72	44	41	63	80	49	35	27	60	24	23	20	16	94		
28-Dec	14	17	23	59	74	19	19	22	28	29	36	44	47	46	34	34	36	35	32	34	34	24	32	27	74		
29-Dec	40	42	39	41	33	32	34	33	36	37	40	42	47	48	41	48	46	47	41	38	43	37	52	45	52		
30-Dec	42	44	43	39	41	42	46	50	50	42	40	41	39	38	39	44	41	38	35	40	40	36	41	39	50		
31-Dec	39	47	45	42	40	37	42	40	38	50	46	46	37	39	42	44	40	39	36	39	38	38	38	36	50		
93 65 54 59 74 52 60 61 97 55 88 82 82 55 63 85 54 87 58 66 55 64 94 84																								Diurnal Maximum			
M - Maintenance																								DF - DAS Failure		UO - Unstable Operation	



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS29 SURMONT 2 DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT2 (AMS29)
DECEMBER 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	11.5	0	5	0
H2S (ppb) Average	684	39	60	97.18	0.8	0	0.3	0
THC(ppm) Average	705	35	39	99.46	2.8	-	2.5	-
NO2 (ppb) Average	695	39	49	98.66	23.5	0	11.6	-
NO (ppb) Average	695	39	49	98.66	6.9	-	1.1	-
NOX (ppb) Average	695	39	49	98.66	24	-	12.6	-
PM2.5 (ug/m3) Average	741	3	3	100	27.4	0	10.1	0
Temperature 2 m (C) Average	742	0	2	99.73	6.6	-	2.8	-
Relative Humidity (%) Average	742	0	2	99.73	99.4	-	94.7	-
Wind Speed 10 m (km/h) Average	708	0	36	95.16	16	-	9	-
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)
DECEMBER 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	0.9	1.6	-	0	0	0.1	0.3	0.8	2.2	11.5
H2S (ppb) Average	684	0.12	0.1	-	0	0	0.1	0.1	0.1	0.2	0.8
THC (ppm) Average	705	2.38	0.1	-	2.2	2.3	2.3	2.4	2.4	2.5	2.8
NO2 (ppb) Average	695	3.02	2.9	-	0.2	0.5	1	2.2	4.3	6.4	23.5
NO (ppb) Average	695	0.16	0.5	-	0	0	0	0	0.1	0.4	6.9
NOX (ppb) Average	695	3.18	3.1	-	0.2	0.5	1.1	2.3	4.4	6.7	24
PM2.5 (ug/m3) Average	741	4.15	3	-	0.3	1.4	2.5	3.2	5.3	7.8	27.4
Temperature 2 m (C) Average	742	-11.72	8.5	-	-32.4	-23.2	-18.7	-10.7	-6.4	0.5	6.6
Relative Humidity (%) Average	742	83.3	7.6	-	55.9	73.9	78	82.3	90.2	92.8	99.4
Wind Speed 10 m (km/h) Average	708	5	3	-	0	1	2	5	7	9	16
Wind Direction 10 m (deg) Average	708	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - SURMONT 2 (AMS29)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS (except PM2.5)	13 Dec 2024 12:00	13 Dec 2024 13:00	2	Maintenance - power distribution card repaired
H2S	04 Dec 2024 17:00	05 Dec 2024 11:00	19	Maintenance - stabilization post maintenance
THC	04 Dec 2024 12:00	04 Dec 2024 13:00	2	Maintenance - replaced support gas cylinder
NO2	19 Dec 2024 12:00	19 Dec 2024 16:00	5	Maintenance - calibration gas cylinder replaced
NO2	20 Dec 2024 16:00	20 Dec 2024 17:00	2	Maintenance - reinitiated daily QA check
Wind Speed, Wind Direction	03 Dec 2024 06:00	04 Dec 2024 13:00	32	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	04 Dec 2024 14:00	04 Dec 2024 14:00	1	Maintenance - tower lowered to de-ice sensor
Wind Speed, Wind Direction	14 Dec 2024 05:00	14 Dec 2024 05:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

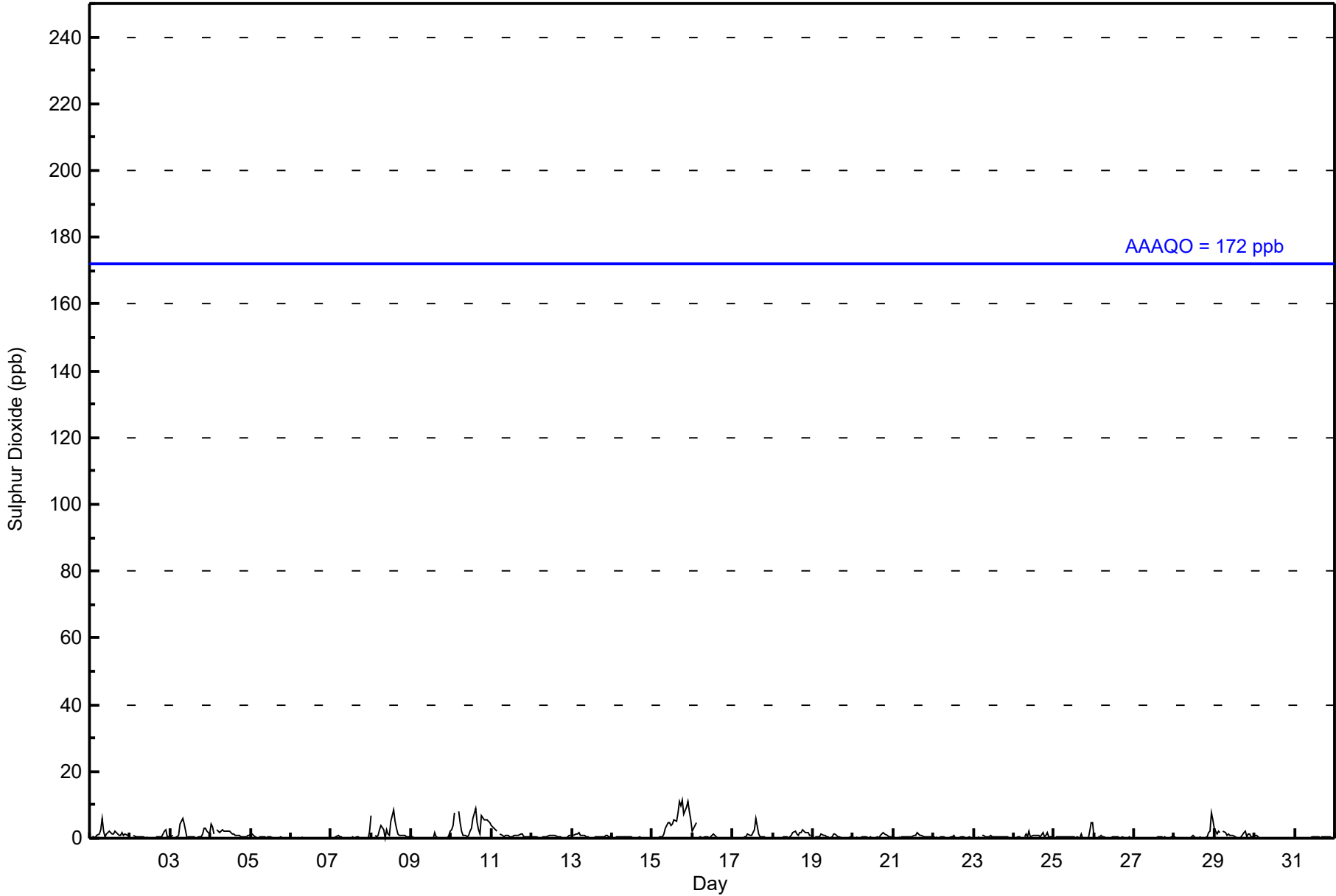
Surmont 2 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744						
Maximum Value: 11.5 ppb on Dec 15 19:00		Maximum Daily Average: 5.0 ppb on Dec 15																	Hours of Data: 707								
Minimum Value: 0.0 ppb on Dec 5 18:00		Minimum Daily Average: 0.1 ppb on Dec 6																	Hours of Missing Data: 37								
Maximum Diurnal Average: 1.3 ppb at hour 15		Minimum Diurnal Average: 0.4 ppb at hour 4																	Hours of Calibration: 35								
Monthly Average: 0.90 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.8 P ₉₀ = 2.2 P ₉₉ = 8.1																	Percent Operational Time: 99.7								
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	Z	0.2	0.2	0.2	0.6	1.1	2.4	5.8	2.2	0.6	1.2	2.3	1.5	1.1	1.4	2.2	1.2	0.8	1.0	1.7	1.0	1.1	1.0	0.7	1.4	5.8	
2-Dec	0.7	Z	0.7	0.6	0.6	0.6	0.6	0.5	0.4	0.2	0.3	C	C	C	C	0.4	0.5	0.5	0.4	0.5	2.2	2.4	0.5	0.4	0.7	2.4	
3-Dec	0.3	0.7	Z	0.3	0.2	1.0	4.2	5.8	4.4	2.1	0.2	0.3	0.5	0.4	0.3	0.2	0.2	0.3	0.3	1.1	2.9	2.8	1.9	1.2	1.4	5.8	
4-Dec	4.2	3.3	1.1	Z	2.4	1.7	2.0	2.4	2.0	1.9	2.1	2.2	1.8	1.3	1.1	1.0	1.0	0.7	0.5	0.4	0.3	0.4	1.0	1.0	1.6	4.2	
5-Dec	1.2	1.2	0.4	0.3	Z	0.3	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.0	0.1	0.2	0.0	0.0	0.3	0.1	0.1	0.1	0.0	0.1	0.3	1.2	
6-Dec	0.0	0.1	0.2	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	
7-Dec	Z	0.1	0.1	0.3	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.6	0.6	0.0	0.2	0.0	0.1	0.0	0.0	1.9	0.3	1.9	
8-Dec	6.8	Z	0.7	0.6	0.8	2.6	3.8	2.6	0.2	2.6	1.1	0.6	5.2	8.3	5.2	2.8	1.1	0.8	0.8	1.0	0.7	0.5	0.3	0.3	2.1	8.3	
9-Dec	0.5	0.2	Z	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.4	0.0	0.0	0.1	0.1	0.1	0.1	1.0	2.3	0.3	2.3	
10-Dec	2.3	3.8	7.8	Z	8.1	4.8	2.1	0.9	0.9	0.4	0.8	2.0	3.1	6.0	9.0	4.5	2.6	1.4	6.9	5.6	5.5	5.4	5.2	4.6	4.1	9.0	
11-Dec	3.7	3.0	2.4	2.0	Z	1.3	0.9	0.6	0.6	0.7	0.7	0.4	0.4	0.7	0.9	0.7	0.6	1.1	1.4	0.5	0.3	0.3	0.3	0.4	1.0	3.7	
12-Dec	0.3	0.2	0.4	0.4	0.2	Z	0.3	0.4	0.4	0.5	0.7	0.7	0.8	0.8	0.8	0.5	0.3	0.2	0.2	0.2	0.1	0.3	0.9	0.8	0.4	0.9	
13-Dec	Z	0.8	1.2	1.1	1.6	1.0	0.7	0.7	0.6	0.5	0.5	M	M	0.5	0.4	0.5	0.3	0.4	0.5	0.5	0.7	0.7	0.5	0.5	0.7	1.6	
14-Dec	0.4	Z	0.4	0.3	0.3	0.4	0.2	0.2	0.4	0.3	0.4	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.4	
15-Dec	0.2	0.0	Z	0.1	0.3	0.2	0.6	1.1	3.1	4.5	4.8	4.0	4.2	5.4	5.1	7.6	10.8	9.6	11.5	7.4	9.3	11.1	8.1	5.5	5.0	11.5	
16-Dec	2.1	4.0	4.8	Z	0.3	0.2	0.1	0.3	0.4	0.2	0.1	0.6	1.2	0.8	0.4	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.7	4.8	
17-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.2	0.3	0.6	1.2	0.7	0.8	1.7	2.3	6.0	1.3	0.5	0.3	0.3	0.4	0.1	0.1	0.1	0.0	0.7	6.0	
18-Dec	0.0	0.0	0.1	0.1	0.2	Z	0.2	0.3	0.3	0.0	0.4	0.9	1.8	2.2	1.5	1.0	1.8	1.8	2.4	1.7	1.8	1.7	0.8	0.7	0.9	2.4	
19-Dec	Z	0.3	0.3	0.4	0.6	1.1	1.0	0.7	0.3	0.4	0.0	0.5	1.3	1.2	0.7	0.4	0.3	0.1	0.1	0.1	0.0	0.1	0.2	0.4	0.5	1.3	
20-Dec	0.5	Z	0.4	0.1	0.2	0.5	0.4	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.3	0.2	0.9	1.1	1.9	1.5	0.7	0.4	0.3	0.3	0.5	1.9	
21-Dec	0.4	0.2	Z	0.4	0.1	0.3	0.2	0.4	0.3	0.3	0.3	0.4	0.7	1.0	1.5	1.1	0.8	0.9	0.5	0.4	0.4	0.3	0.4	0.3	0.5	1.5	
22-Dec	0.3	0.2	0.3	Z	0.3	0.3	0.4	0.2	0.1	0.2	0.2	0.5	0.9	0.1	0.1	0.2	0.3	0.3	0.2	0.1	0.0	0.2	0.2	0.1	0.2	0.9	
23-Dec	0.1	0.1	0.2	0.2	Z	0.7	0.4	0.4	0.3	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.2	0.2	0.2	0.0	0.3	0.7	0.7	
24-Dec	0.0	0.0	0.2	0.3	0.4	Z	0.3	1.2	0.6	2.0	0.4	1.0	0.7	0.8	0.7	0.9	0.5	1.6	0.5	0.7	1.7	0.6	0.3	0.3	0.7	2.0	
25-Dec	Z	0.3	0.4	0.3	0.3	0.3	0.5	0.4	0.3	0.4	0.4	0.3	0.3	0.1	0.3	0.1	1.4	0.0	0.1	0.0	0.0	2.3	4.8	4.5	0.8	4.8	
26-Dec	0.6	Z	0.3	0.3	0.7	0.6	0.5	0.2	0.1	0.1	0.1	0.2	0.5	0.4	0.4	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.7	
27-Dec	0.1	0.1	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.5	0.9	0.1	0.9	
28-Dec	0.3	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.0	0.0	0.3	0.7	0.6	0.2	0.2	0.3	0.1	0.2	0.1	0.2	1.7	2.0	7.4	5.3	0.9	7.4	
29-Dec	3.1	1.4	2.2	1.5	Z	2.1	1.9	1.1	1.2	0.8	0.7	0.9	0.2	0.2	0.1	0.2	0.3	1.8	2.1	0.6	1.2	1.3	0.3	0.2	1.1	3.1	
30-Dec	0.8	0.7	0.2	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	0.1	0.1	0.8	
31-Dec	Z	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	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
																								Diurnal Average			
																								Diurnal Maximum			
																								1.2 0.8 1.0 0.4 0.7 0.8 0.8 0.9 0.7 0.7 0.6 0.7 1.0 1.2 1.3 0.9 0.9 0.8 1.1 0.8 1.0 1.1 1.2 1.1 6.8 4.0 7.8 2.0 8.1 4.8 4.2 5.8 4.4 4.5 4.8 4.0 5.2 8.3 9.0 7.6 10.8 9.6 11.5 7.4 9.3 11.1 8.1 5.5			
Z - zerospan C - Calibration M - Maintenance																											
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																											



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Surmont 2 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Surmont 2 - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	704	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: 707

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Surmont 2 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	10	6	5	1	20	69	117	35	27	33	41	51	61	84	41	70	671
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	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	10	6	5	1	20	69	117	35	27	33	41	51	61	84	42	72	674

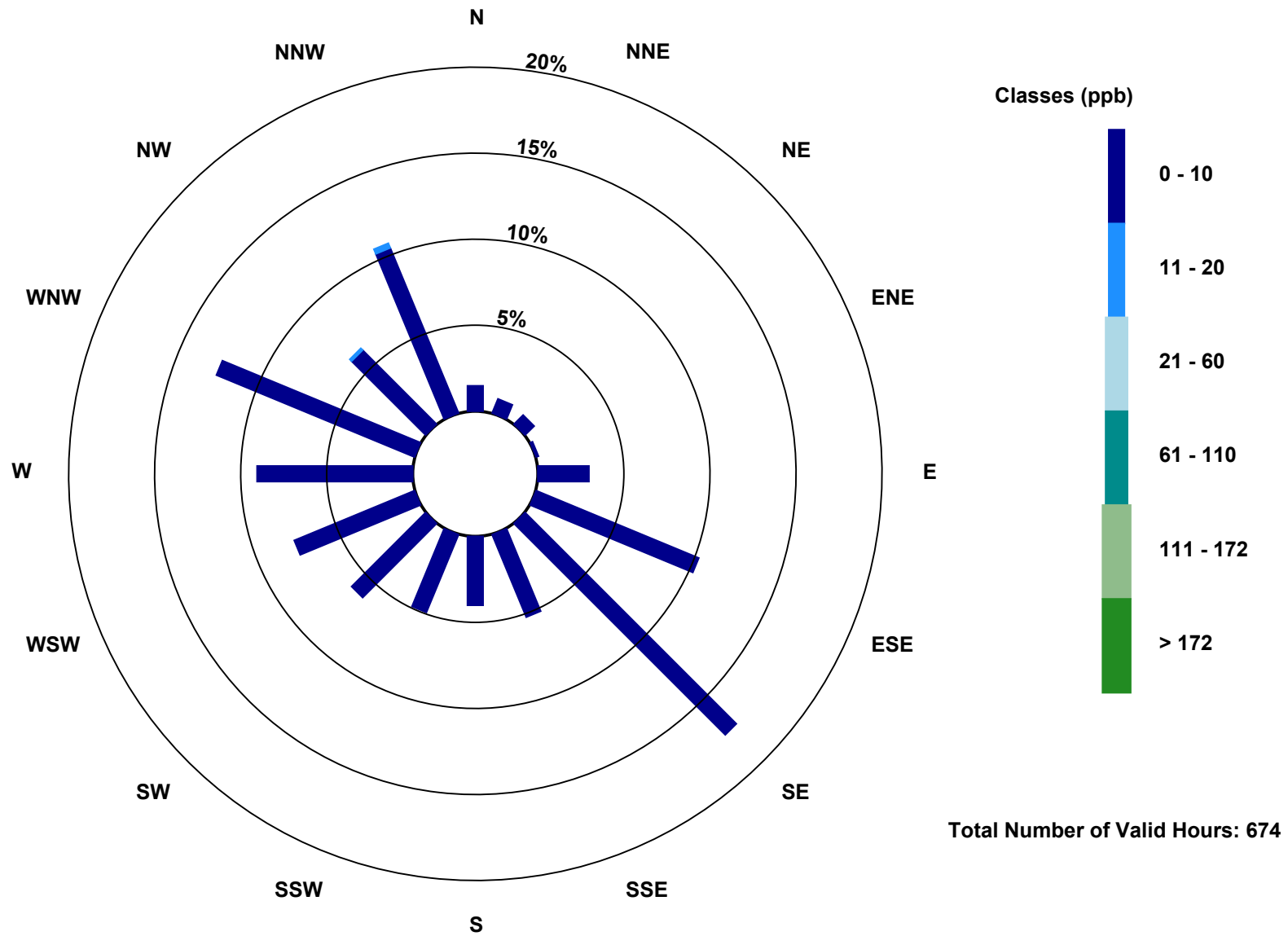
Total Number of Valid Hours: 674

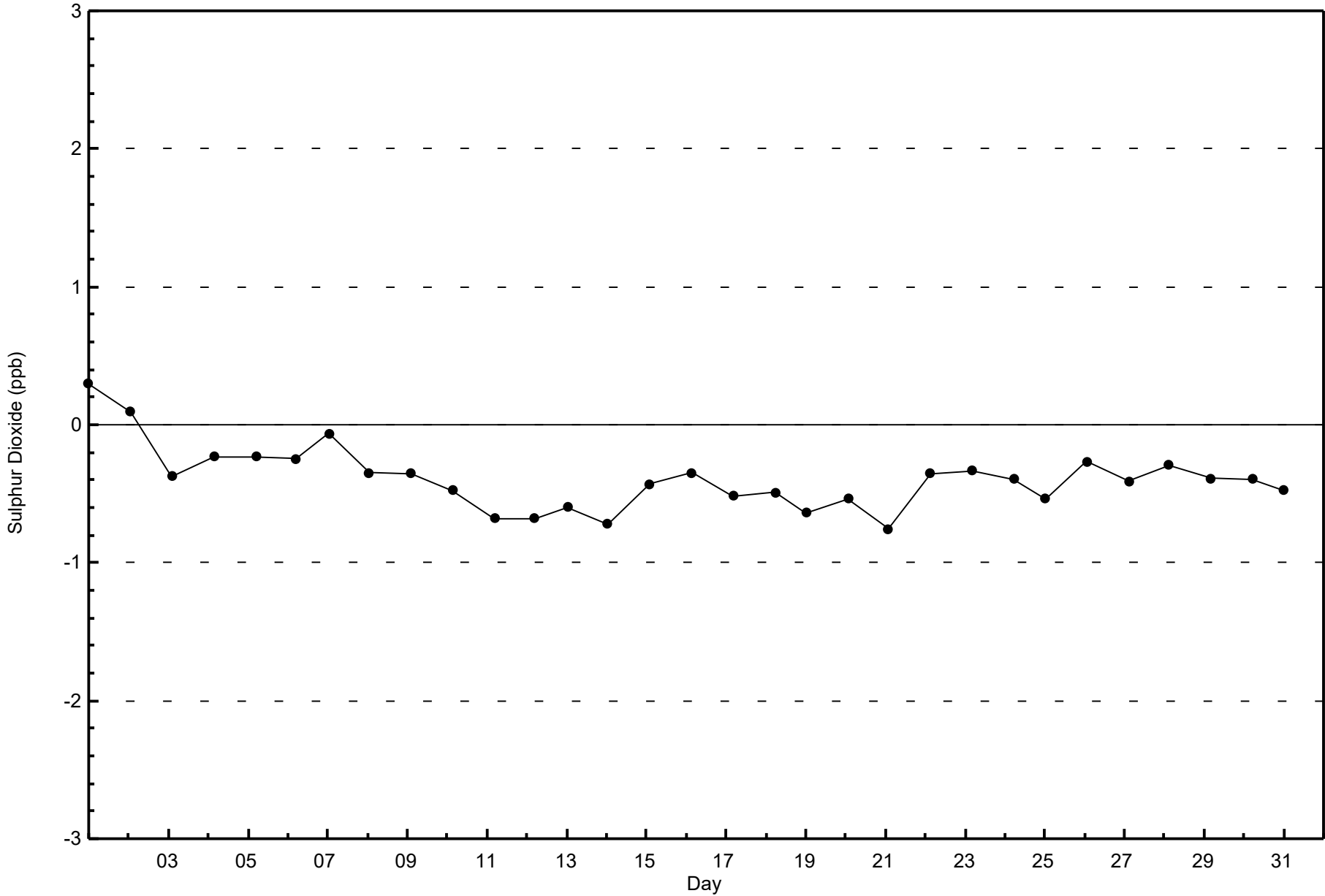
Total Number of Hours: 744

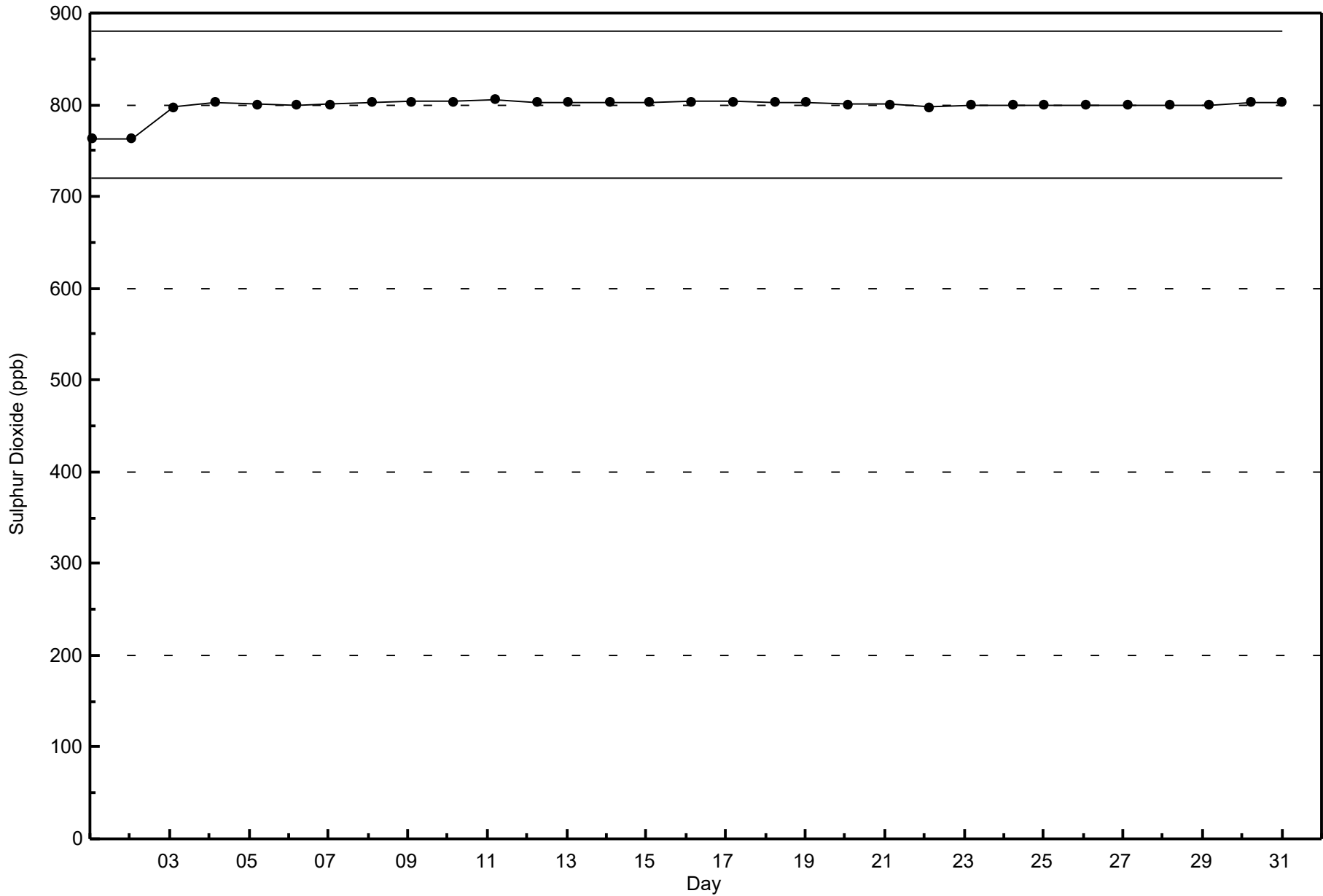


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Surmont 2

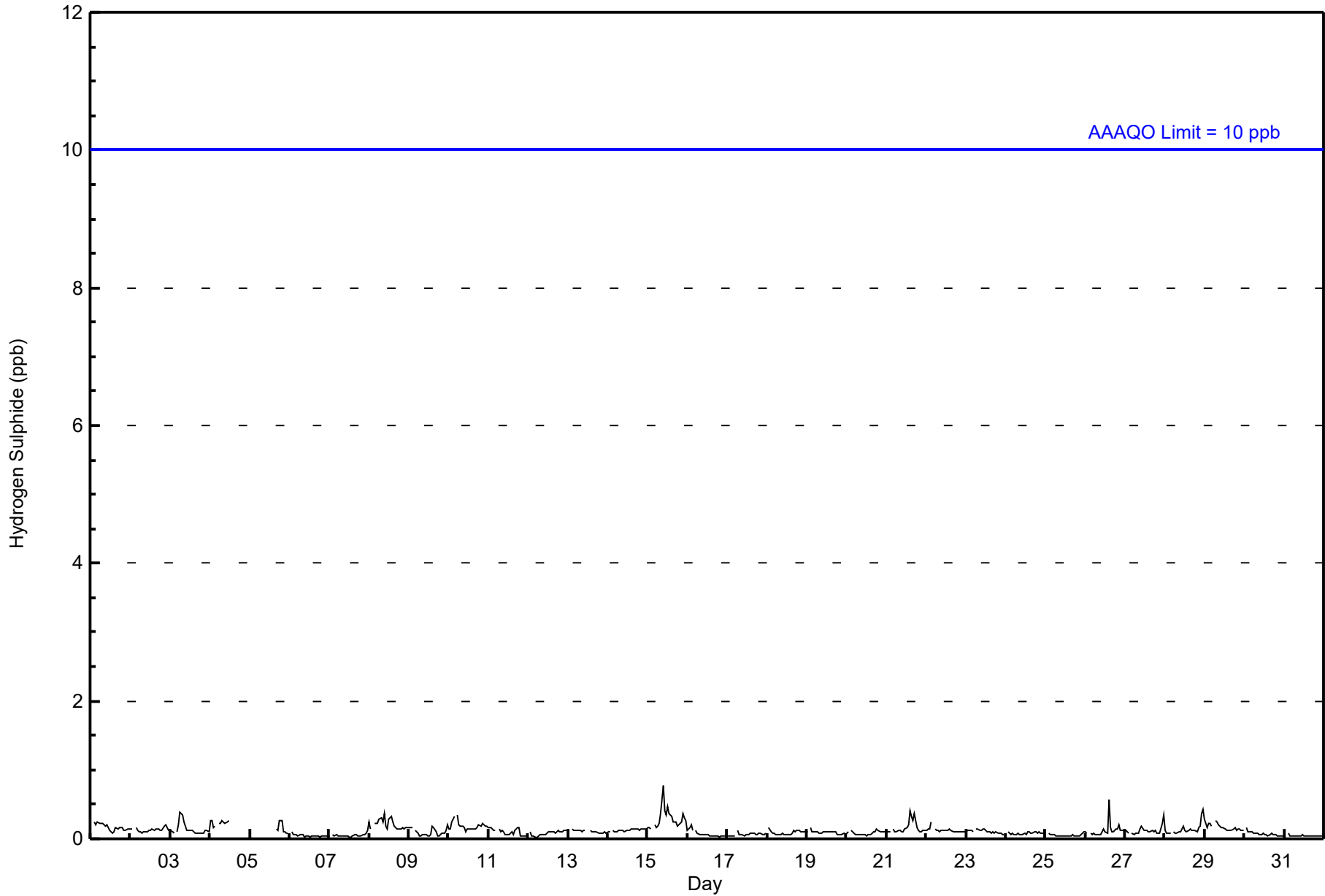








Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.8 ppb on Dec 15 10:00 Maximum Daily Average: 0.3 ppb on Dec 15		Hours in Service: 744 Hours of Data: 684 Hours of Missing Data: 60 Hours of Calibration: 39 Percent Operational Time: 97.2																									
Minimum Value: 0.0 ppb on Dec 12 06:00 Maximum Diurnal Average: 0.1 ppb at hour 15 Monthly Average: 0.12 ppb		Minimum Daily Average: 0.0 ppb on Dec 31 Minimum Diurnal Average: 0.1 ppb at hour 20 Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.1 P ₉₀ = 0.2 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-Dec	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.3
2-Dec	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2
3-Dec	0.1	0.1	0.1	Z	0.1	0.2	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
4-Dec	0.3	0.3	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.2	0.2	0.3	C	C	C	C	M	M	M	M	M	M	M	M	M	M	0.3
5-Dec	M	M	M	M	M	M	M	M	M	M	M	C	C	C	C	C	0.1	0.1	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.3
6-Dec	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
7-Dec	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
8-Dec	0.3	0.1	Z	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.4
9-Dec	0.2	0.2	0.2	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
10-Dec	0.2	0.1	0.2	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3
11-Dec	0.2	0.2	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12-Dec	Z	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13-Dec	0.1	Z	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
14-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
15-Dec	0.2	0.2	0.1	Z	0.2	0.2	0.2	0.2	0.4	0.8	0.4	0.3	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.3	0.3	0.3	0.8
16-Dec	0.1	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
17-Dec	0.0	0.1	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
18-Dec	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
19-Dec	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
20-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
21-Dec	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	0.4	0.3	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4
22-Dec	0.1	0.1	0.1	0.3	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
23-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
24-Dec	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
25-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
26-Dec	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	0.6	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.6
27-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.3
28-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.4	0.4	0.1	0.4
29-Dec	0.3	0.2	0.2	0.2	Z	0.2	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.3
30-Dec	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	0.0	0.0	0.0	0.0	0.1	0.2
31-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
																								Diurnal Average			
																								Diurnal Maximum			
0.1 0.3 0.3 0.3 0.3 0.2 0.3 0.4 0.3 0.4 0.8 0.4 0.3 0.5 0.4 0.6 0.3 0.3 0.4 0.3 0.3 0.2 0.4 0.4 0.4 0.4																											
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
Surmont 2 - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	684	100.00	100.00
3 - 4	0	0.00	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 684

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Surmont 2 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	11	6	4	1	20	69	114	32	22	29	39	50	61	83	40	72	653
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	11	6	4	1	20	69	114	32	22	29	39	50	61	83	40	72	653

Total Number of Valid Hours: 653

Total Number of Hours: 744

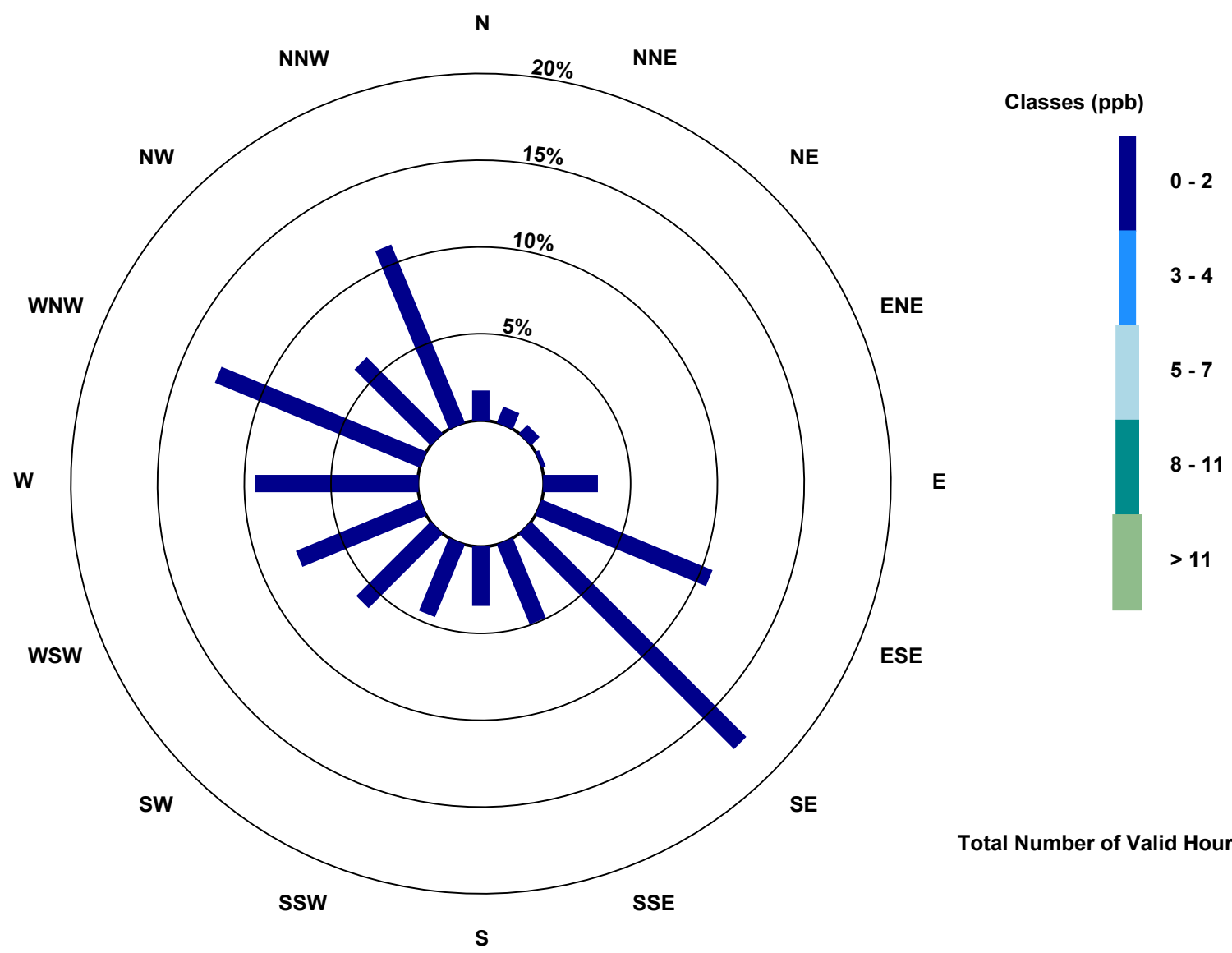


Wood Buffalo Environmental Association

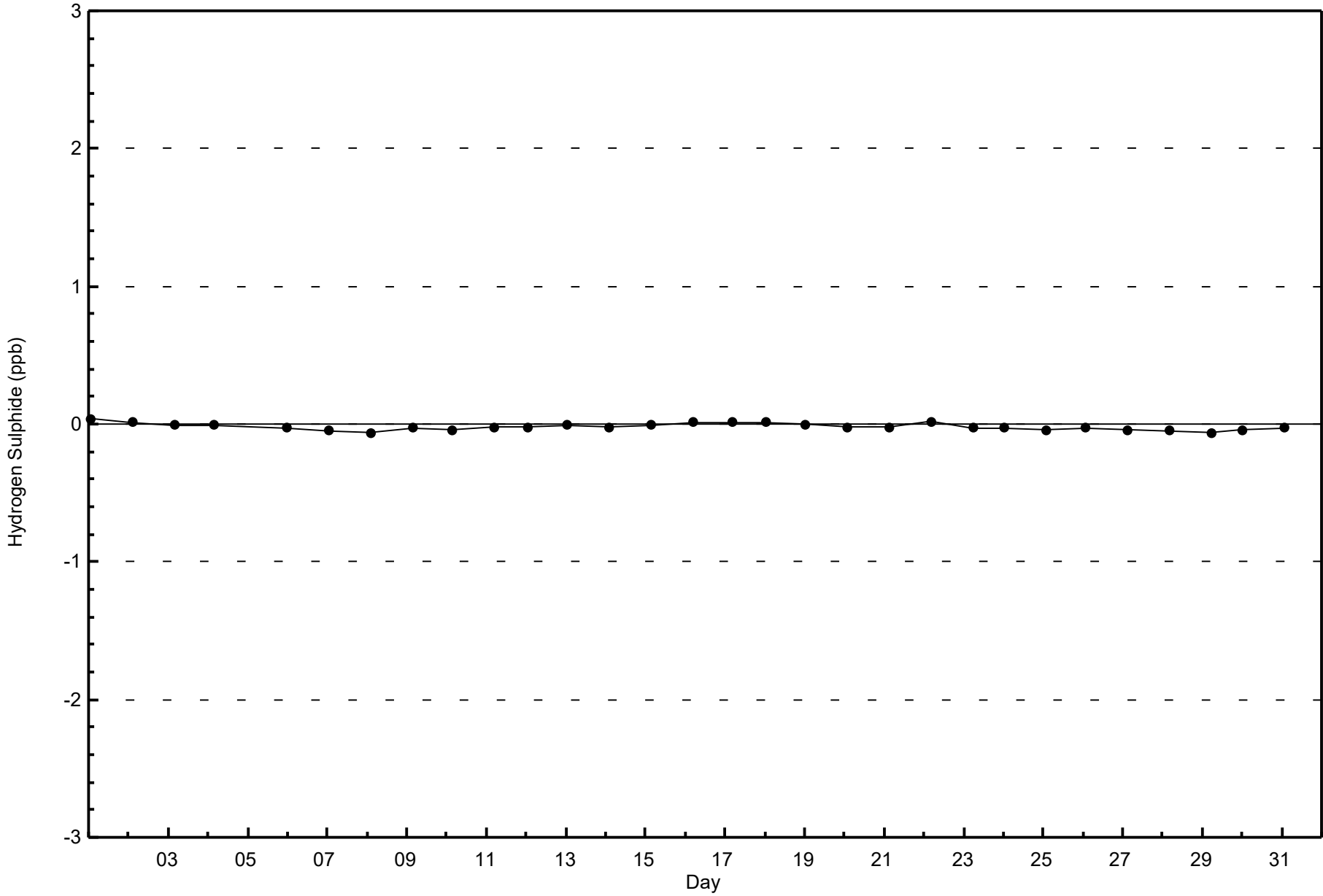
Wind Rose Dec 2024

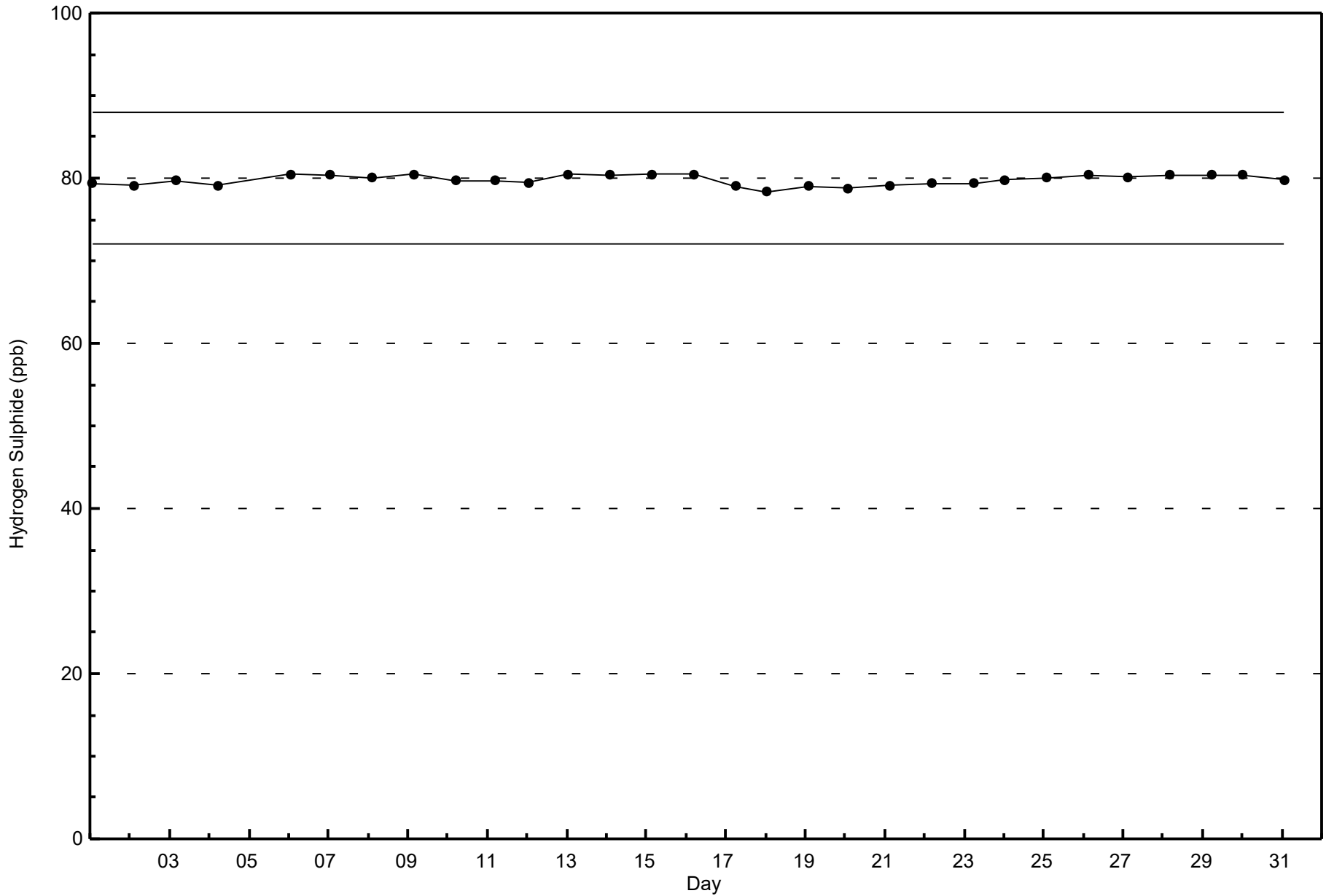
Hydrogen Sulphide (H₂S) - ppb

Surmont 2



Total Number of Valid Hours: 653







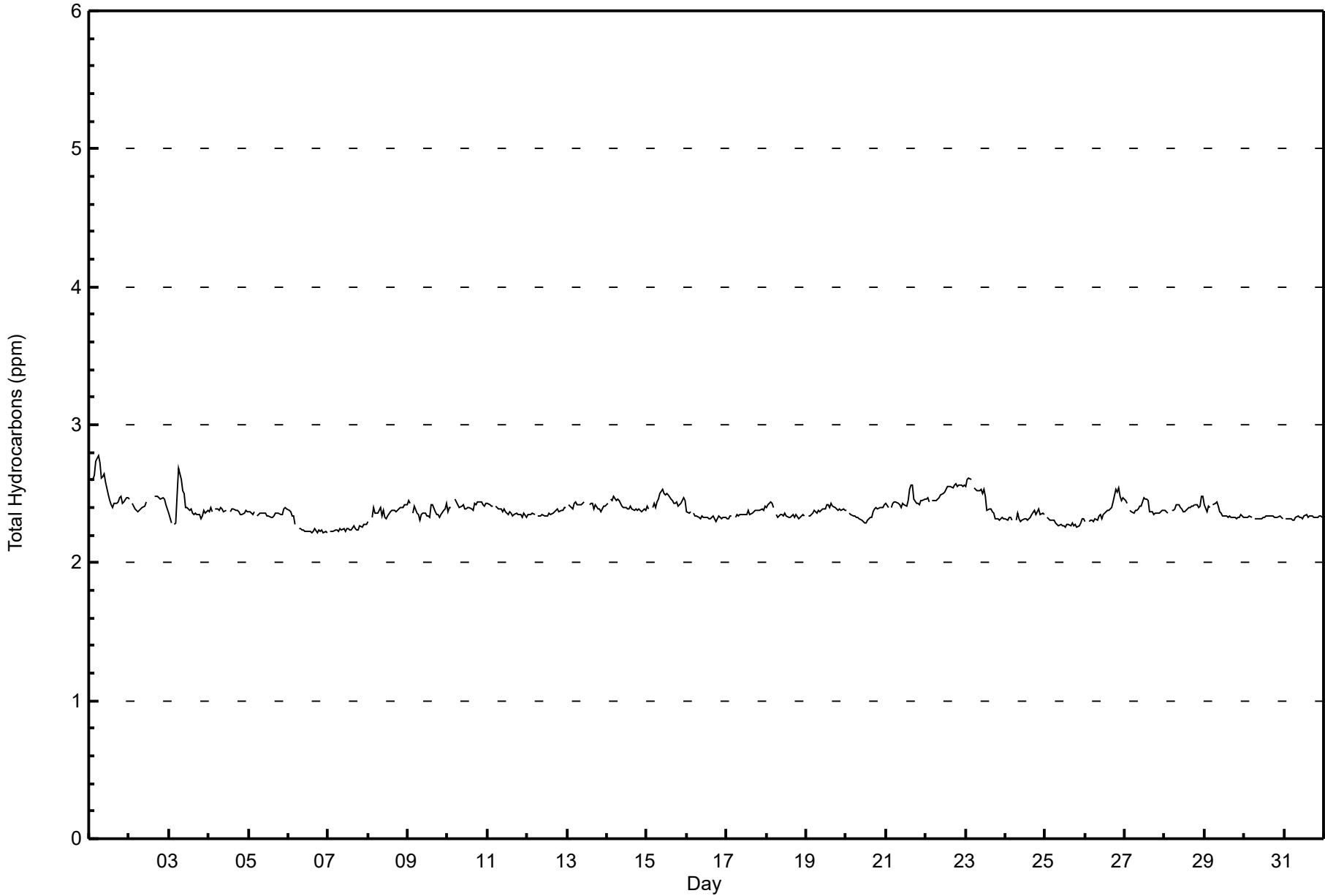
Wood Buffalo Environmental Association

Summary of Hour Averages

Total Hydrocarbons (THC) - ppm

Surmont 2 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														744						
Maximum Value: 2.8 ppm on Dec 1 06:00		Maximum Daily Average: 2.5 ppm on Dec 1		Hours of Data: 705														705								
Minimum Value: 2.2 ppm on Dec 7 00:00		Minimum Daily Average: 2.2 ppm on Dec 7		Hours of Missing Data: 39														39								
Maximum Diurnal Average: 2.4 ppm at hour 6		Minimum Diurnal Average: 2.4 ppm at hour 13		Hours of Calibration: 35														35								
Monthly Average: 2.38 ppm		Percentiles: P ₁ = 2.2 P ₁₀ = 2.3 Q ₁ = 2.3 Median = 2.4 Q ₃ = 2.4 P ₉₀ = 2.5 P ₉₉ = 2.6		Percent Operational Time: 99.5														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-Dec	Z	2.6	2.6	2.6	2.7	2.8	2.7	2.6	2.6	2.6	2.6	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.8
2-Dec	2.5	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	C	C	C	C	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.5	2.5
3-Dec	2.4	2.3	Z	2.3	2.3	2.5	2.7	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.7
4-Dec	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	M	M	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.4	2.4
5-Dec	2.4	2.4	2.4	2.4	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4
6-Dec	2.4	2.4	2.3	2.3	2.3	Z	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.4
7-Dec	Z	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
8-Dec	2.3	Z	2.3	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
9-Dec	2.5	2.4	Z	2.4	2.4	2.4	2.3	2.3	2.4	2.4	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.5
10-Dec	2.4	2.4	2.4	Z	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5
11-Dec	2.4	2.4	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.4	2.3	2.4	2.3	2.4	2.4
12-Dec	2.4	2.3	2.4	2.4	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
13-Dec	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	M	M	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
14-Dec	2.4	Z	2.5	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5
15-Dec	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5
16-Dec	2.4	2.4	2.4	Z	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4
17-Dec	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
18-Dec	2.4	2.4	2.4	2.4	2.4	Z	2.3	2.3	2.4	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4
19-Dec	Z	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
20-Dec	2.4	Z	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
21-Dec	2.4	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.5	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.6
22-Dec	2.5	2.5	2.4	Z	2.5	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.5	2.6	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
23-Dec	2.6	2.6	2.6	2.6	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.6
24-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.4	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.3	2.3	2.4
25-Dec	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
26-Dec	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
27-Dec	2.5	2.4	Z	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.5
28-Dec	2.4	2.4	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	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.4	2.5
29-Dec	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	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.4	2.4
30-Dec	2.3	2.3	2.3	2.3	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
31-Dec	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
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Surmont 2 - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	705	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: 705

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Surmont 2 - December 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	10	6	5	1	20	69	117	35	27	33	41	51	61	84	42	72	674
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	10	6	5	1	20	69	117	35	27	33	41	51	61	84	42	72	674

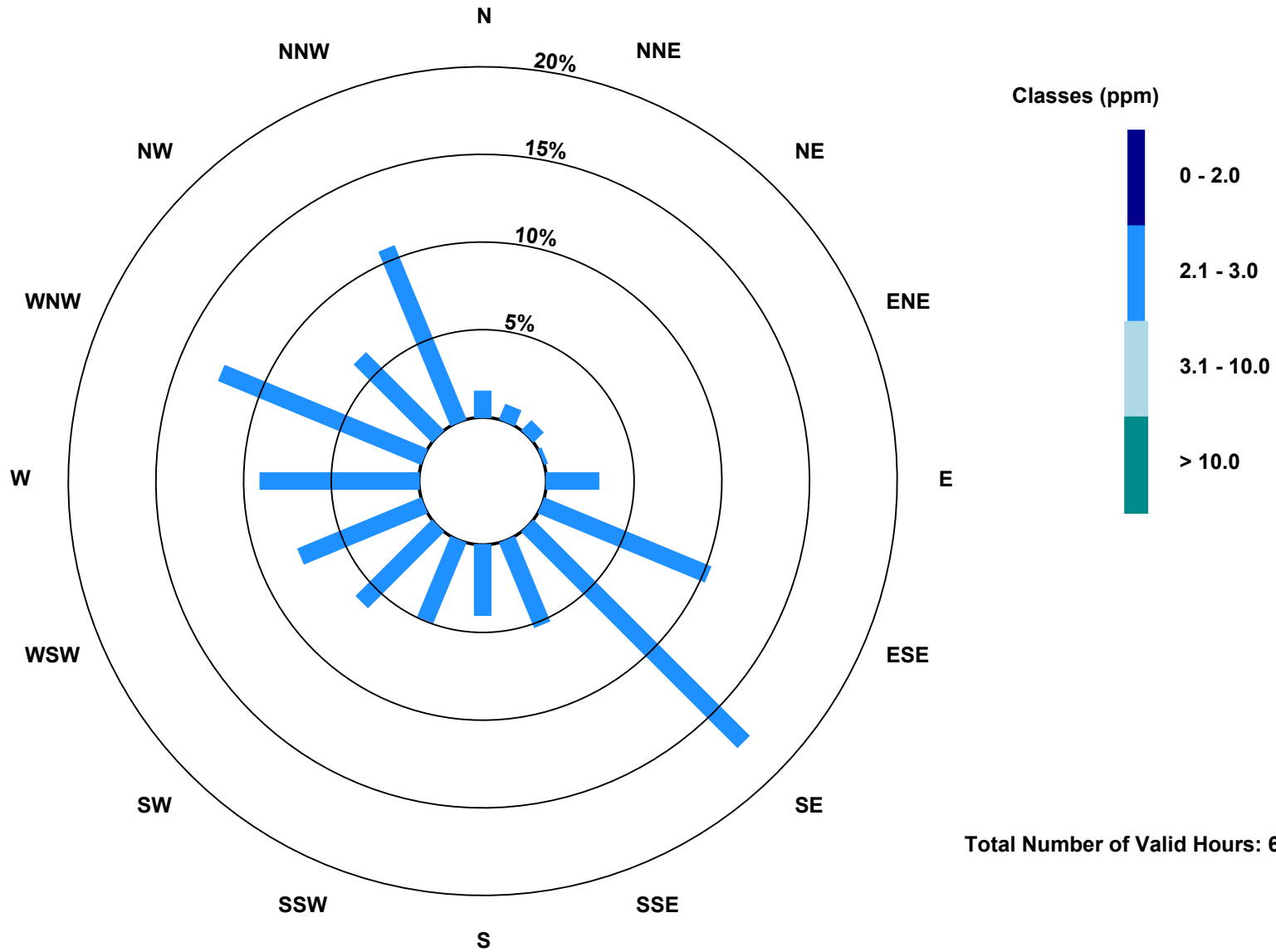
Total Number of Valid Hours: 674

Total Number of Hours: 744

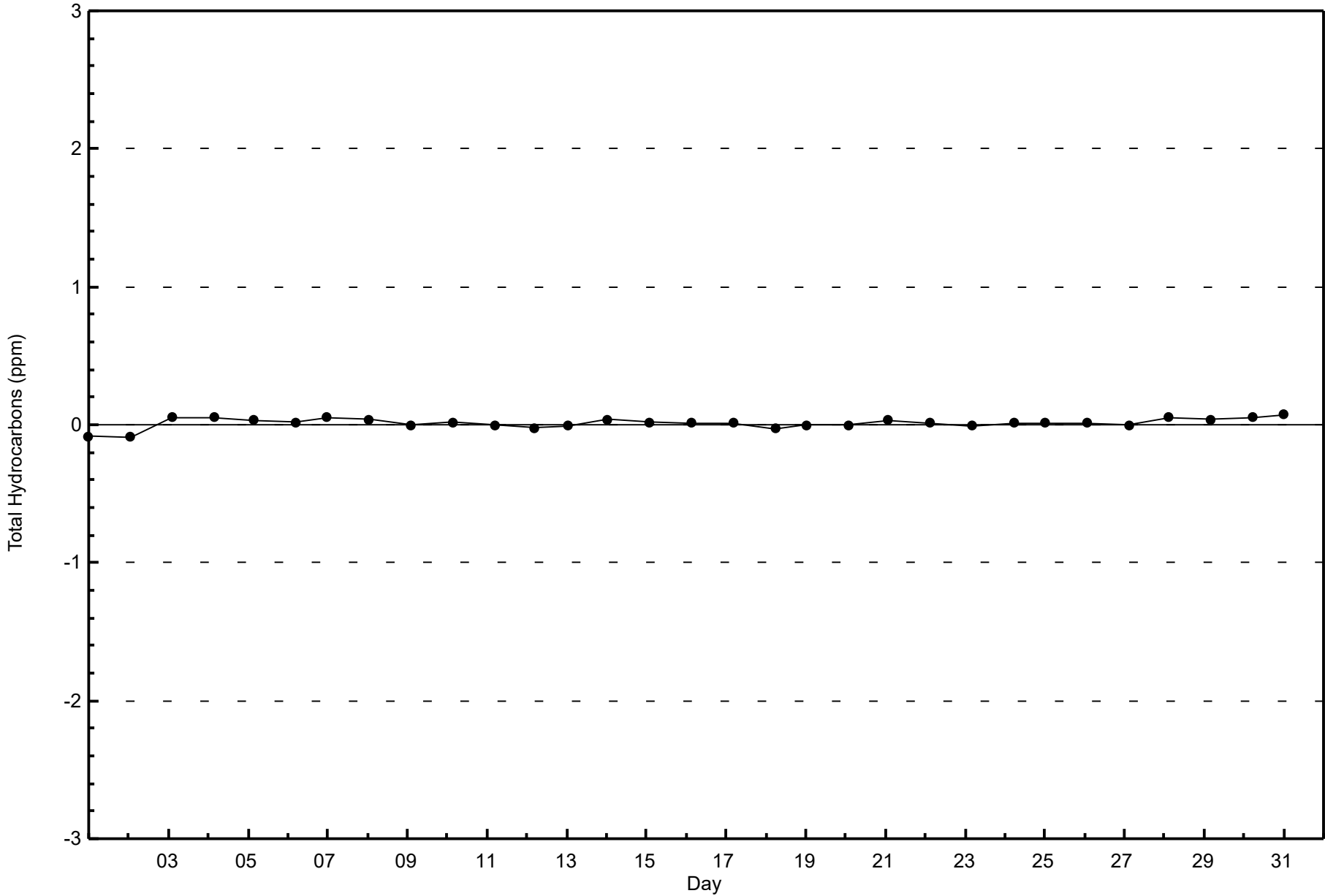


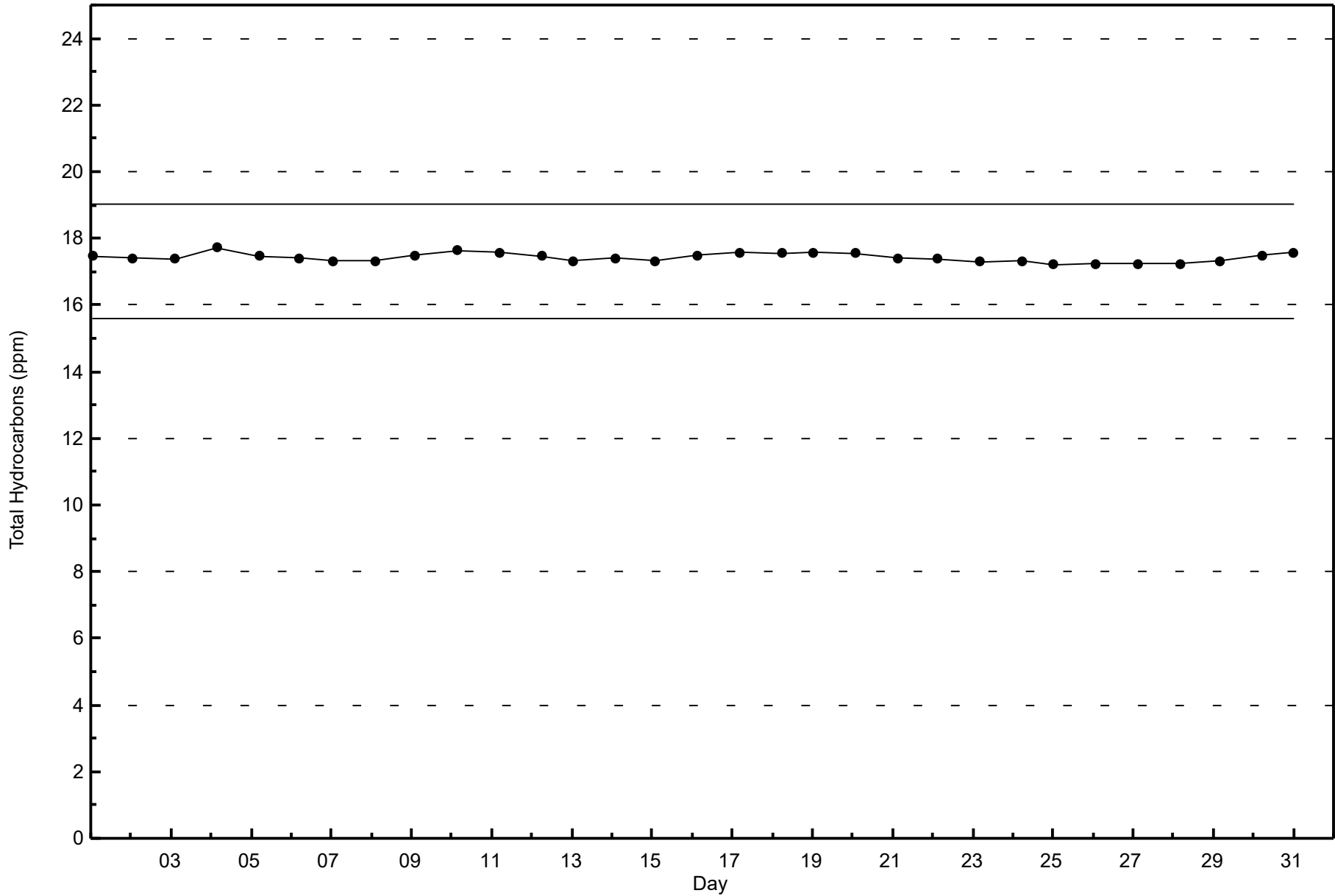
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Surmont 2



Total Number of Valid Hours: 674





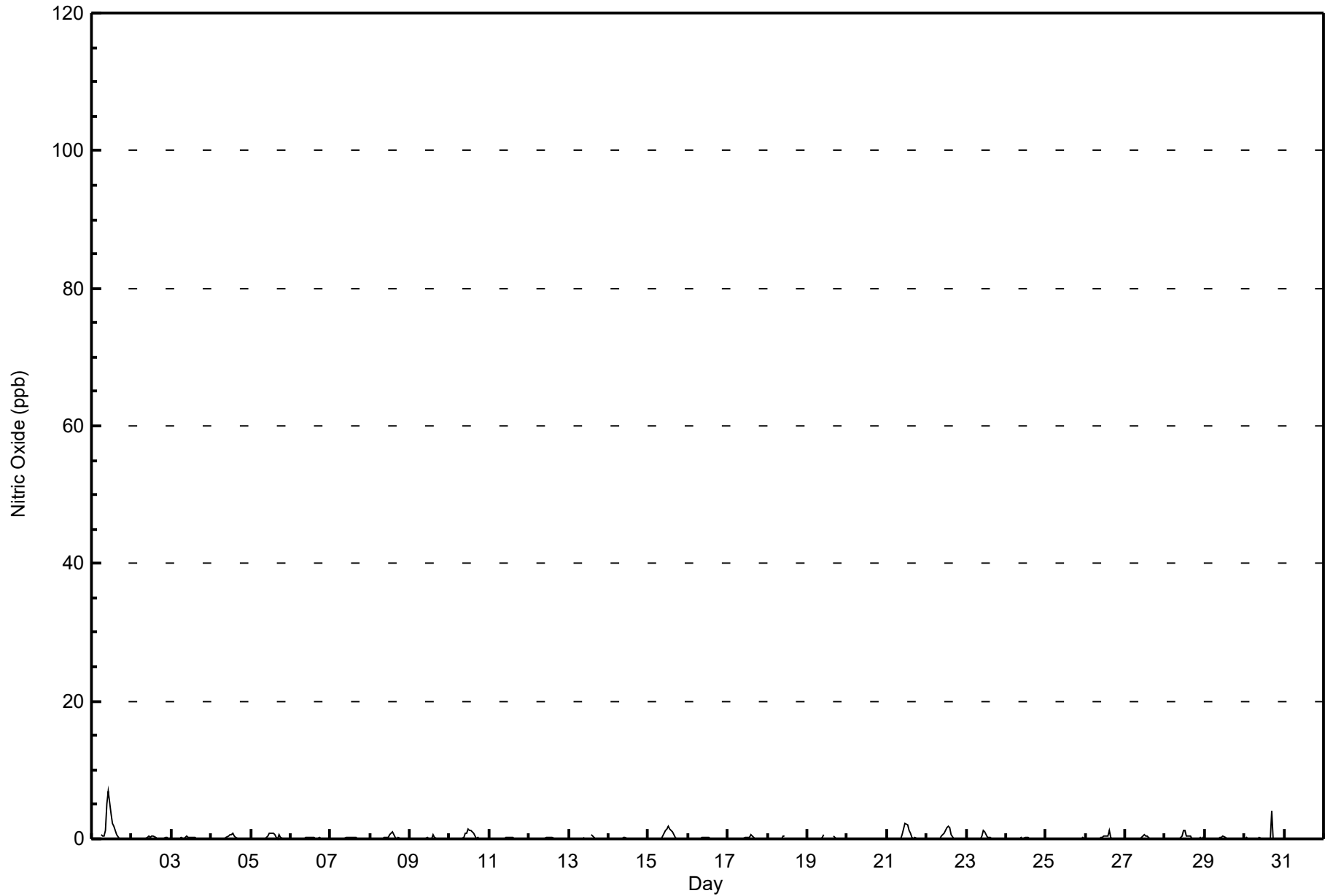


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744				
Maximum Value: 6.9 ppb on Dec 1 11:00		Maximum Daily Average: 1.1 ppb on Dec 1																Hours of Data:		695						
Minimum Value: 0.0 ppb on Dec 1 21:00		Minimum Daily Average: 0.0 ppb on Dec 31																Hours of Missing Data:		49						
Maximum Diurnal Average: 0.6 ppb at hour 12		Minimum Diurnal Average: 0.0 ppb at hour 4																Hours of Calibration:		39						
Monthly Average: 0.16 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.1 P ₉₀ = 0.4 P ₉₉ = 1.9																Percent Operational Time:		98.7						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.0	0.1	0.1	0.1	Z	0.5	0.3	0.3	1.2	5.1	6.9	3.7	2.3	1.7	1.1	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	6.9
2-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.4
3-Dec	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.5	0.3	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
4-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.7	0.7	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.8
5-Dec	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.8	0.9	0.8	0.5	0.2	0.1	0.6	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.9
6-Dec	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	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.2
7-Dec	0.1	0.1	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
8-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	0.2	0.2	0.6	1.0	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0
9-Dec	Z	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	0.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
10-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.9	1.4	1.3	1.2	0.9	0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.4
11-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
12-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2
13-Dec	0.0	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.2	M	M	M	0.6	0.4	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.6
14-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
15-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7	1.3	1.4	1.9	1.5	1.0	0.5	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.4	1.9
16-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3
17-Dec	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5
18-Dec	0.0	0.0	0.0	Z	0.0	0.1	0.1	0.1	0.1	0.3	0.5	C	C	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	--	0.5
19-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.7	M	M	M	M	M	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
20-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	M	M	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
21-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.5	2.2	2.0	1.3	0.8	0.2	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.4	2.2
22-Dec	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.8	1.1	1.5	1.9	1.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9
23-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.1	0.9	0.6	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.2	1.1
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3
25-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
26-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.4	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3
27-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.6	0.5	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6
28-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	1.2	1.2	0.3	0.3	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.1	0.1	1.2
29-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.4	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.4
30-Dec	0.0	0.1	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	4.1
31-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
0.0																								Diurnal Average		
0.1																								Diurnal Maximum		
Z - zerospan		C - Calibration				M - Maintenance																				



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Surmont 2 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Surmont 2 - December 2024

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

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitric Oxide (NO) - ppb
Surmont 2 - December 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	5	5	1	18	66	115	32	26	31	41	51	61	87	42	71	662
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	5	5	1	18	66	115	32	26	31	41	51	61	87	42	71	662

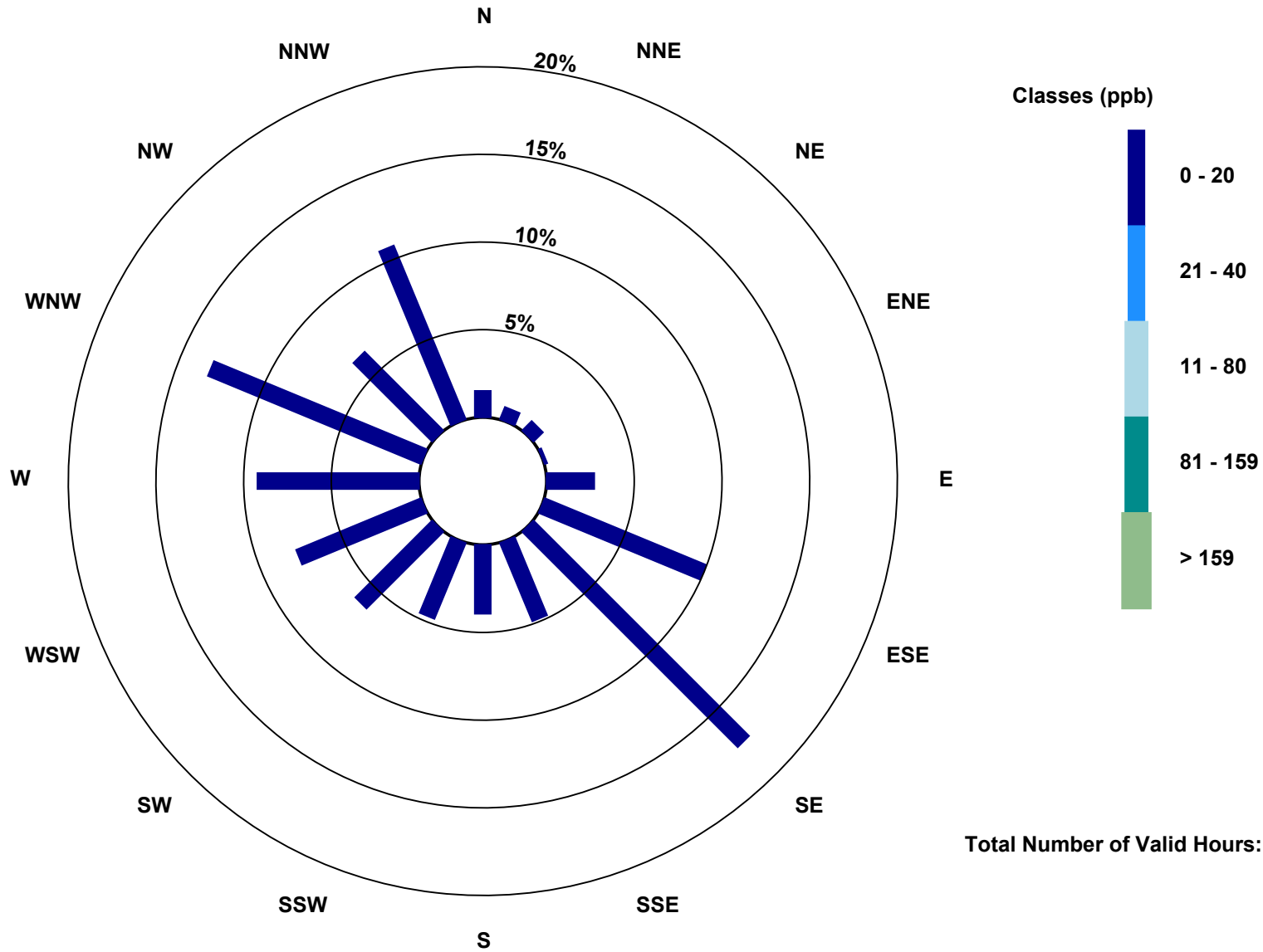
Total Number of Valid Hours: 662

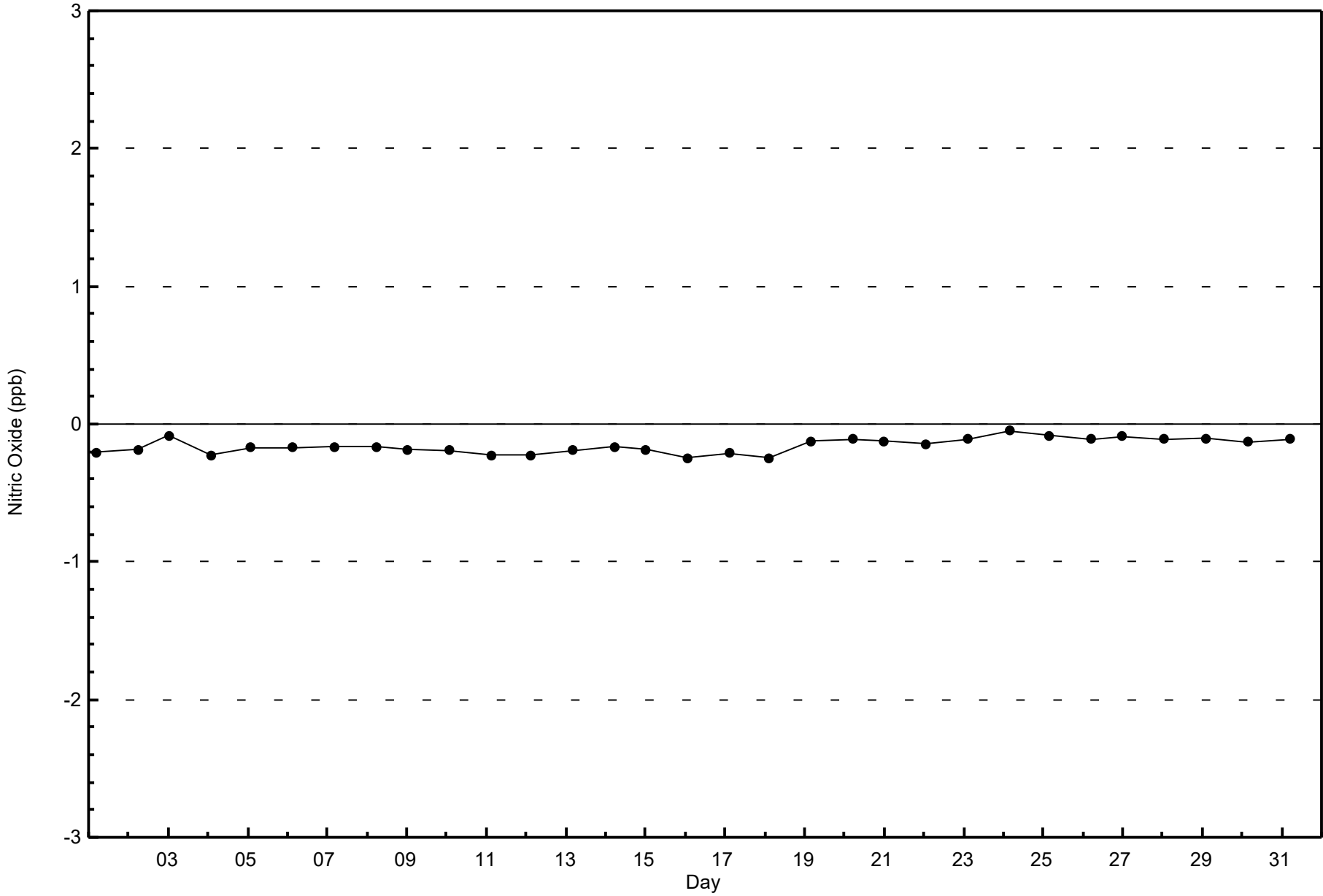
Total Number of Hours: 744

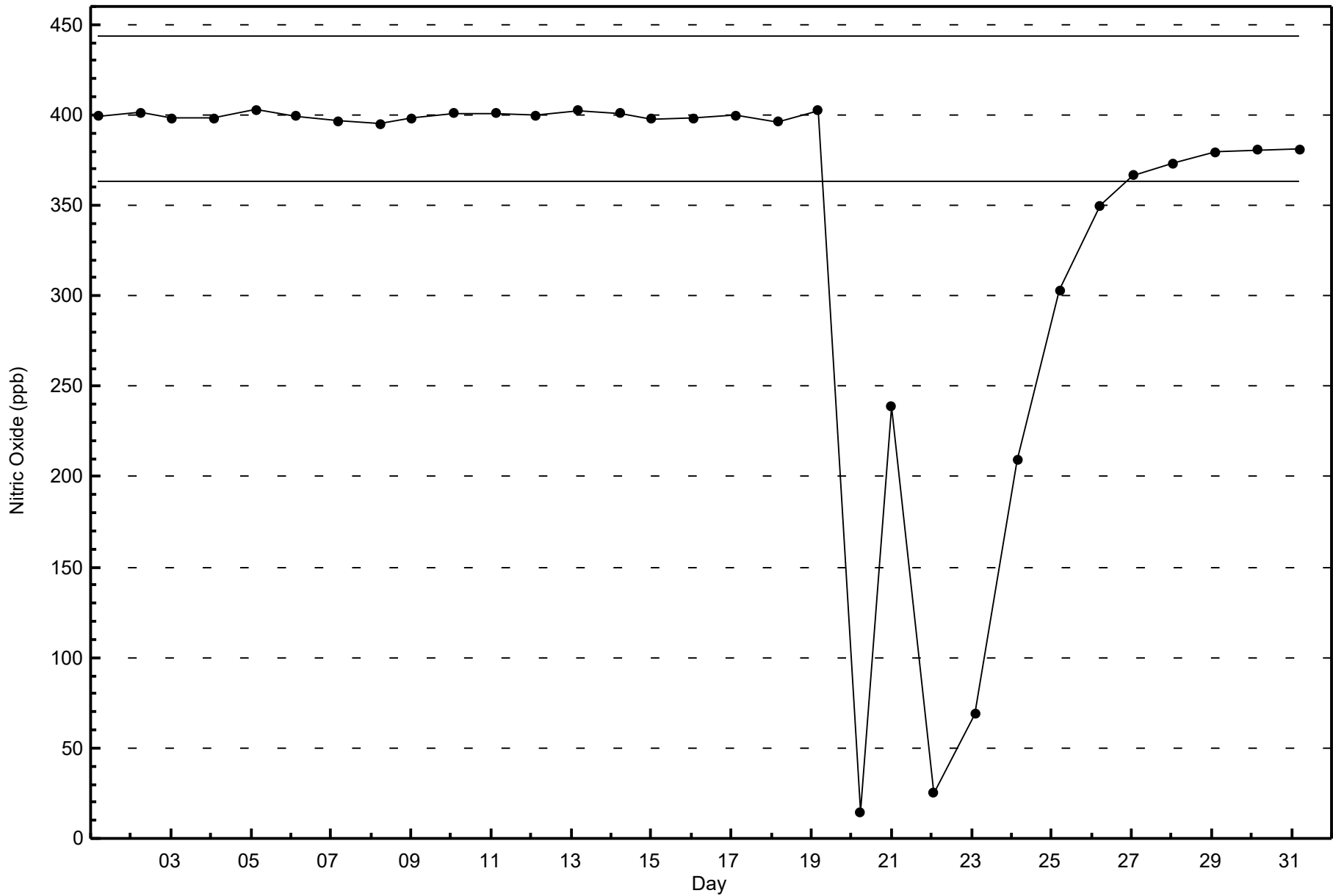


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Surmont 2









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

Surmont 2 - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 23.5 ppb on Dec 1 06:00	Maximum Daily Average: 11.6 ppb on Dec 1		Hours of Data:	695
Minimum Value: 0.2 ppb on Dec 30 13:00	Minimum Daily Average: 0.3 ppb on Dec 31		Hours of Missing Data:	49
Maximum Diurnal Average: 3.4 ppb at hour 1	Minimum Diurnal Average: 2.3 ppb at hour 12		Hours of Calibration:	39
Monthly Average: 3.02 ppb	Percentiles: P ₁ = 0.2 P ₁₀ = 0.5 Q ₁ = 1.0 Median = 2.2 Q ₃ = 4.3 P ₉₀ = 6.4 P ₉₉ = 13.2		Percent Operational Time:	98.7

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	13.0	16.6	18.3	17.6	Z	23.5	21.8	19.7	16.7	11.6	9.9	6.8	6.0	4.9	5.7	8.3	8.0	8.4	9.2	8.9	7.1	7.3	7.9	8.5	11.6	23.5
2-Dec	7.1	6.5	5.5	4.3	3.3	Z	2.9	3.0	3.3	3.4	3.3	3.4	3.6	3.7	3.8	4.1	4.1	4.3	4.3	4.9	7.9	8.4	5.3	4.8	4.6	8.4
3-Dec	Z	2.5	2.0	1.6	1.4	5.2	12.6	10.9	8.7	7.4	2.1	1.8	1.7	1.4	1.1	1.0	0.9	1.0	0.6	1.2	2.3	2.7	3.5	2.5	3.3	12.6
4-Dec	4.4	Z	4.1	4.2	5.0	4.5	4.8	4.8	4.9	3.8	4.3	4.3	4.7	4.7	4.5	4.4	4.8	5.0	4.2	3.8	3.1	3.0	4.3	4.5	4.4	5.0
5-Dec	4.1	4.0	Z	2.2	2.8	2.5	1.9	1.5	2.4	1.9	1.6	1.9	1.9	2.7	2.0	1.9	1.6	1.5	2.1	2.1	1.6	1.8	1.5	1.4	2.1	4.1
6-Dec	1.4	1.8	1.7	Z	1.0	1.1	1.0	1.0	0.8	1.6	1.0	1.0	0.6	0.6	0.6	0.5	0.5	0.8	1.5	1.1	0.7	0.7	0.7	0.7	1.0	1.8
7-Dec	0.6	1.2	0.6	0.6	Z	0.7	0.6	0.5	0.7	1.8	1.0	1.0	1.8	1.4	2.8	3.3	3.0	1.3	1.5	1.3	1.1	1.0	1.2	2.6	1.4	3.3
8-Dec	6.3	3.7	6.1	8.8	6.3	Z	6.4	6.4	3.0	4.4	3.1	1.9	5.4	7.4	6.9	5.7	3.9	4.3	5.2	4.8	5.1	4.1	3.4	3.8	5.1	8.8
9-Dec	Z	4.2	2.7	0.8	1.3	0.7	0.5	0.6	0.7	1.0	1.5	0.5	0.6	1.1	7.4	6.0	1.6	0.9	0.8	0.5	1.4	3.4	3.8	5.3	2.1	7.4
10-Dec	4.2	Z	6.8	8.7	8.6	7.8	5.8	5.7	6.5	6.6	3.7	4.1	4.0	4.7	5.6	8.5	7.6	9.0	8.0	7.3	7.6	6.6	5.5	5.6	6.5	9.0
11-Dec	5.3	4.8	Z	4.0	3.6	3.3	3.1	2.7	2.5	1.8	1.5	1.2	1.0	1.0	1.0	0.8	0.9	1.0	0.4	0.3	0.3	0.3	0.4	1.8	5.3	
12-Dec	0.4	0.3	0.4	Z	0.4	0.5	2.3	1.5	1.6	2.1	2.3	2.4	2.5	2.6	2.8	2.8	2.5	2.7	2.7	2.5	2.6	2.9	4.5	4.1	2.1	4.5
13-Dec	4.3	4.2	5.0	4.9	Z	4.6	4.1	4.3	4.2	3.8	M	M	M	3.6	3.4	3.0	2.9	2.7	4.9	2.7	2.2	2.2	2.2	1.8	3.6	5.0
14-Dec	1.6	1.8	1.9	1.6	1.3	Z	2.3	2.7	2.8	2.2	2.0	1.8	1.9	1.6	1.8	1.8	1.7	1.5	1.5	1.6	1.5	1.4	1.4	1.5	1.8	2.8
15-Dec	Z	1.5	1.6	1.7	2.2	2.4	3.7	4.6	7.3	10.8	9.1	7.5	7.6	8.2	8.7	10.2	11.7	10.3	7.2	8.7	10.6	9.4	7.3	7.1	11.7	
16-Dec	2.4	Z	4.5	0.8	0.5	0.4	0.4	0.5	0.9	1.0	0.7	0.7	0.8	0.5	0.5	0.6	0.6	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.8	4.5
17-Dec	0.4	0.3	Z	0.4	0.6	0.5	0.4	0.6	0.7	1.2	0.8	0.8	1.1	1.4	3.5	4.9	5.1	3.4	2.7	3.2	3.2	3.6	4.7	5.8	2.1	5.8
18-Dec	5.6	4.7	6.0	Z	3.0	1.8	1.1	1.0	2.0	2.9	2.1	C	C	C	C	C	C	C	C	1.1	2.3	3.1	1.9	1.4	--	6.0
19-Dec	1.6	1.7	1.7	1.7	Z	2.2	2.1	1.9	1.8	1.8	2.5	M	M	M	M	M	6.9	5.8	2.4	1.3	1.1	1.1	1.2	1.4	2.2	6.9
20-Dec	2.1	2.2	1.7	1.2	1.1	Z	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.9	1.5	M	M	3.7	5.6	4.4	2.8	2.4	2.1	2.4	1.8	5.6
21-Dec	Z	2.4	2.2	2.1	3.2	2.6	2.6	4.7	4.3	3.8	3.8	4.0	5.3	4.0	4.7	3.8	3.4	7.4	3.7	4.5	4.8	5.2	5.3	4.5	4.0	7.4
22-Dec	3.7	Z	3.6	3.1	2.7	3.4	3.6	3.3	3.4	3.3	3.7	4.5	4.7	4.0	4.6	5.1	5.0	5.3	4.6	4.8	5.3	5.1	4.5	4.0	4.1	5.3
23-Dec	4.6	5.7	Z	4.4	3.6	3.4	3.5	3.4	3.4	4.4	6.1	4.0	3.0	2.7	2.7	2.6	2.3	2.0	1.7	1.7	1.6	1.4	1.2	1.0	3.1	6.1
24-Dec	0.9	0.9	0.9	Z	1.0	0.9	0.9	6.0	3.4	4.8	1.1	2.0	2.0	2.8	3.4	3.7	3.0	5.0	2.5	3.0	4.7	2.7	2.1	1.8	2.6	6.0
25-Dec	1.6	1.5	1.2	1.1	Z	0.9	0.9	0.9	0.8	0.7	0.7	0.5	0.5	0.4	0.6	0.7	3.0	0.9	0.8	0.7	0.8	4.2	6.8	8.8	1.7	8.8
26-Dec	4.9	2.2	1.1	1.1	1.9	Z	1.7	1.4	1.4	1.4	1.5	1.8	1.9	2.1	6.6	2.7	2.6	4.1	5.7	4.8	4.5	2.7	2.1	1.9	2.7	6.6
27-Dec	Z	1.7	1.6	1.9	2.1	2.2	2.3	2.1	1.7	1.8	1.7	2.6	2.2	2.1	2.1	1.4	1.8	0.9	0.7	0.6	0.5	0.5	0.9	0.9	1.6	2.6
28-Dec	0.6	Z	0.5	0.5	0.4	0.4	0.7	0.7	1.2	1.2	1.2	2.6	2.3	1.0	1.3	3.1	2.4	3.1	3.0	2.4	2.8	4.1	9.4	11.0	2.4	11.0
29-Dec	6.3	3.4	Z	5.7	5.1	5.8	5.1	3.8	3.2	1.7	0.9	1.3	0.6	0.6	0.6	0.6	0.7	2.1	2.0	0.9	1.9	2.3	1.0	0.5	2.4	6.3
30-Dec	0.9	1.3	0.4	Z	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.3	0.3	3.2	0.4	0.3	0.2	0.2	0.3	0.4	0.4	0.5	3.2
31-Dec	0.5	0.4	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.5	0.5	0.3	0.5

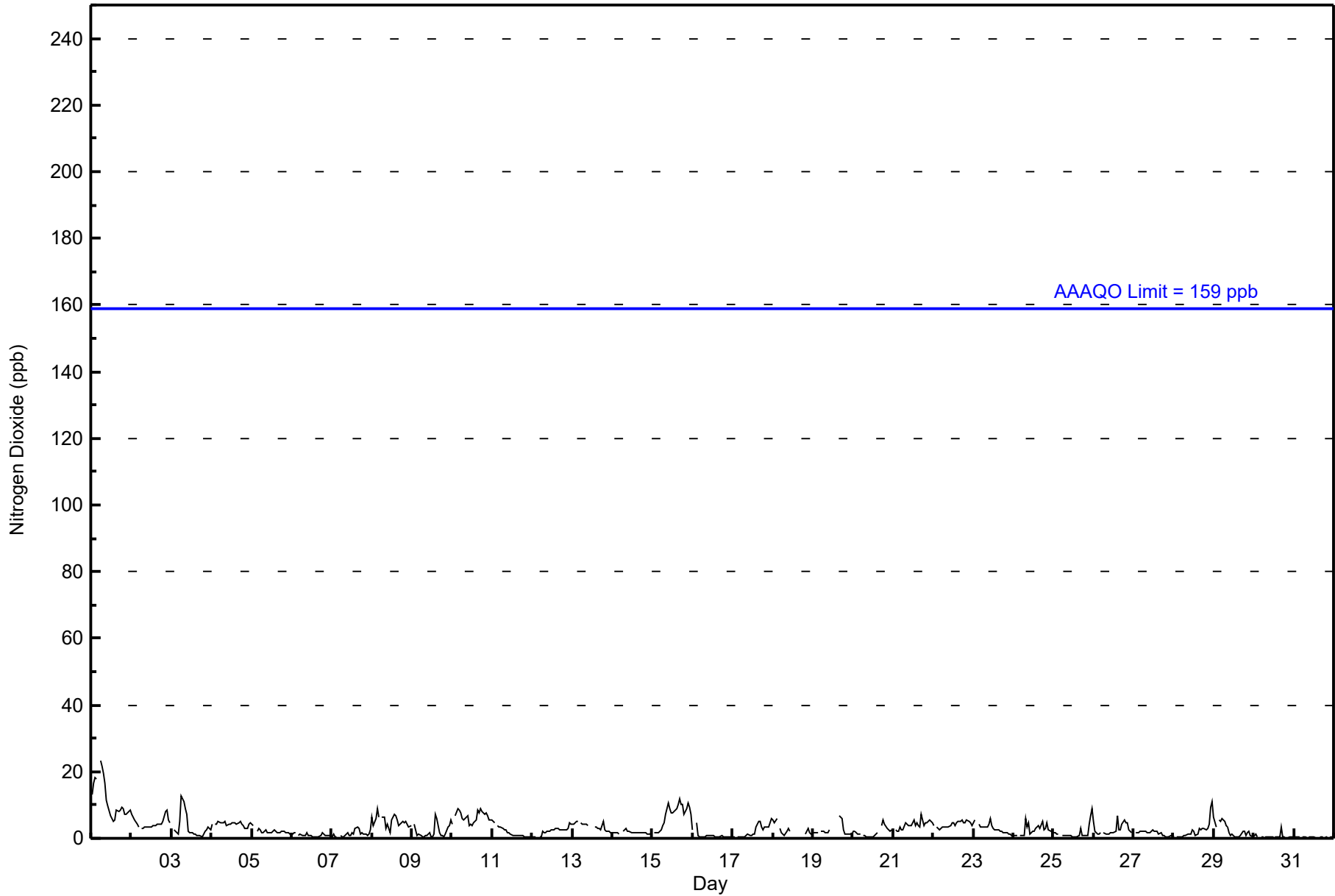
3.4	3.1	3.2	3.3	2.5	3.2	3.2	3.3	3.1	3.1	2.5	2.3	2.5	2.5	3.1	3.3	3.3	3.3	3.1	2.7	2.9	3.1	3.2	3.3	Diurnal Average	
13.0	16.6	18.3	17.6	8.6	23.5	21.8	19.7	16.7	11.6	9.9	7.5	7.6	8.2	8.7	10.2	11.7	10.3	10.3	8.9	8.7	10.6	9.4	11.0	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	693	99.71	99.71
21 - 40	2	0.29	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 695

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Surmont 2 - December 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	5	5	1	18	66	115	32	26	31	41	51	61	86	42	70	660
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	5	5	1	18	66	115	32	26	31	41	51	61	87	42	71	662

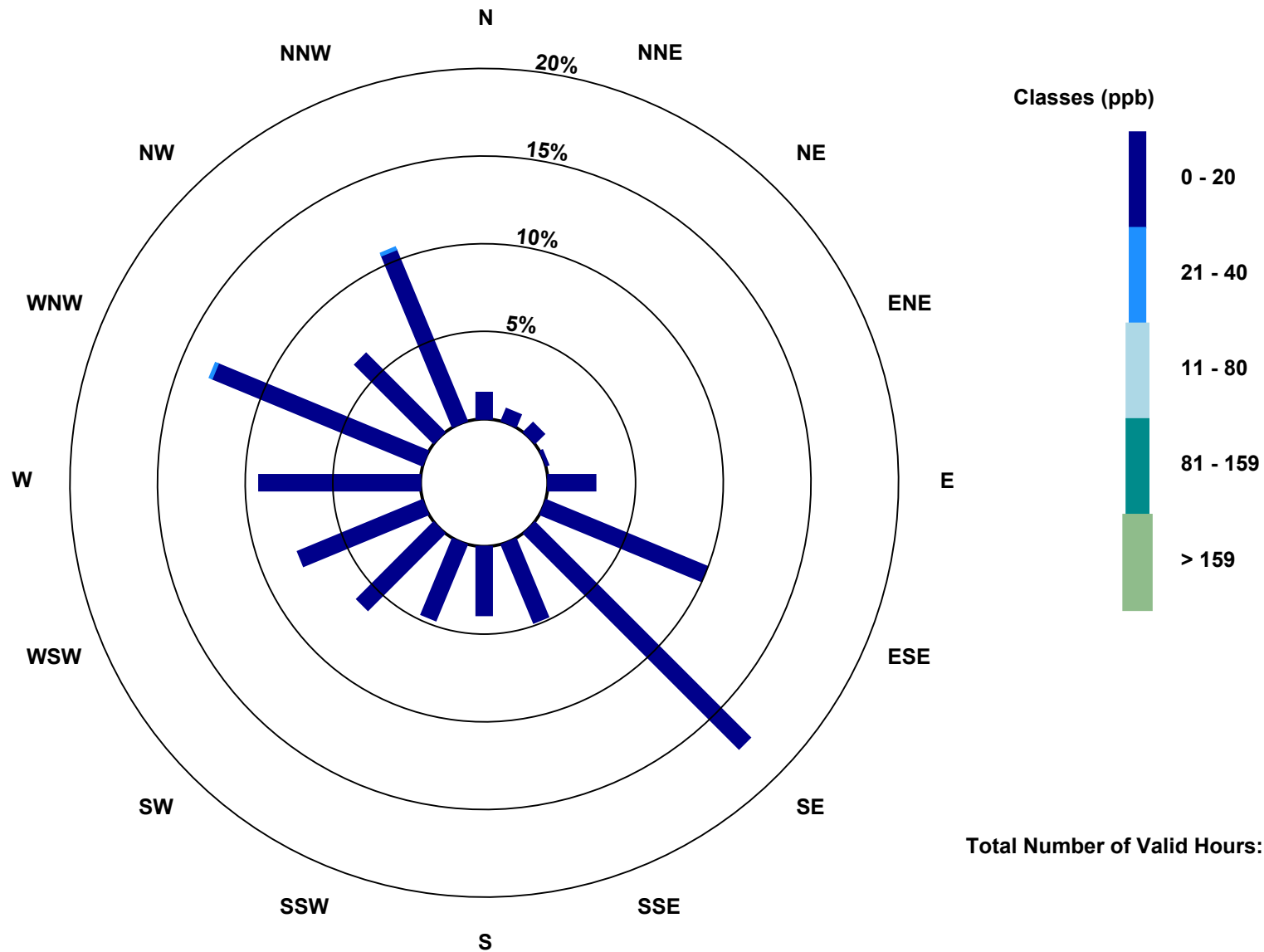
Total Number of Valid Hours: 662

Total Number of Hours: 744

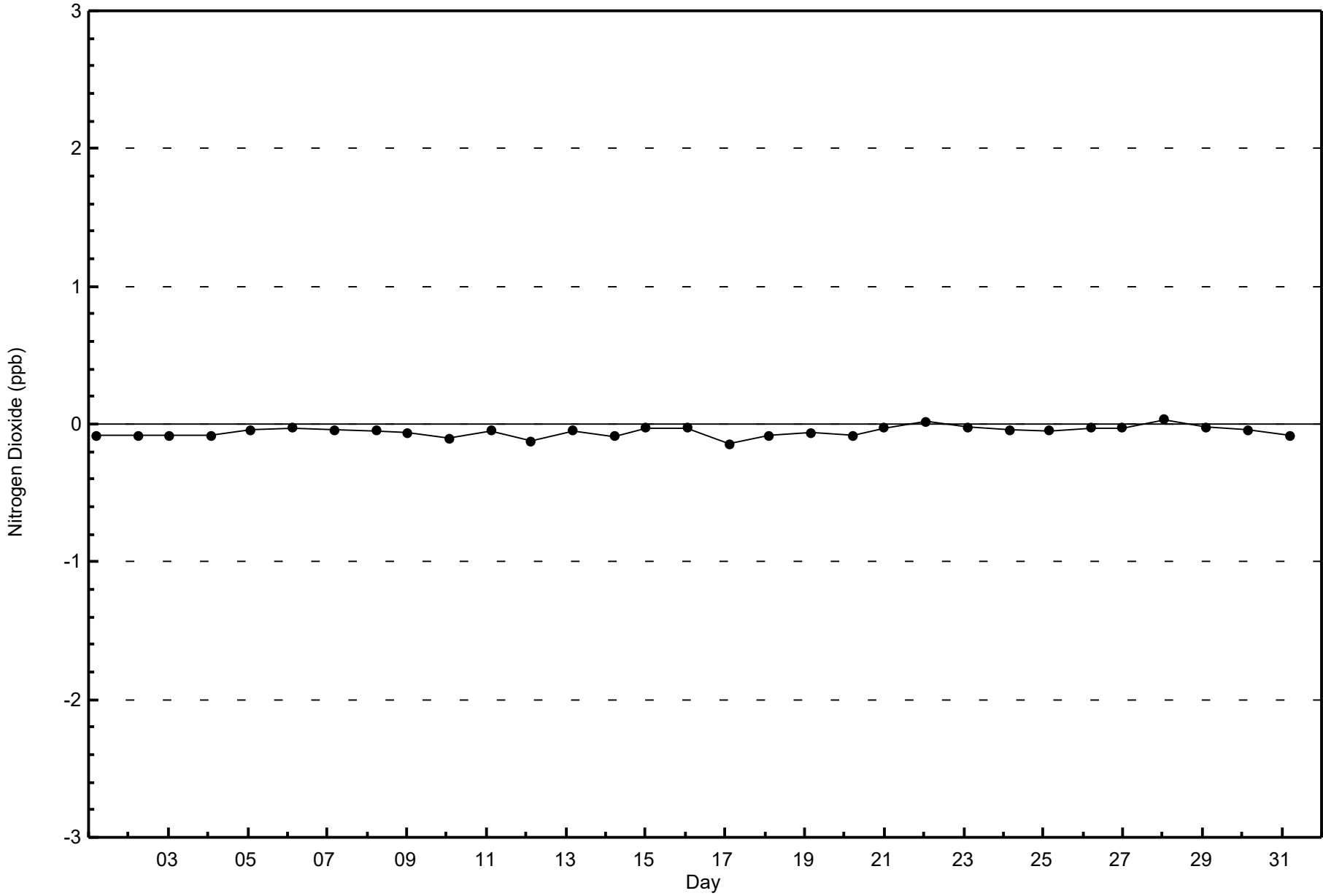


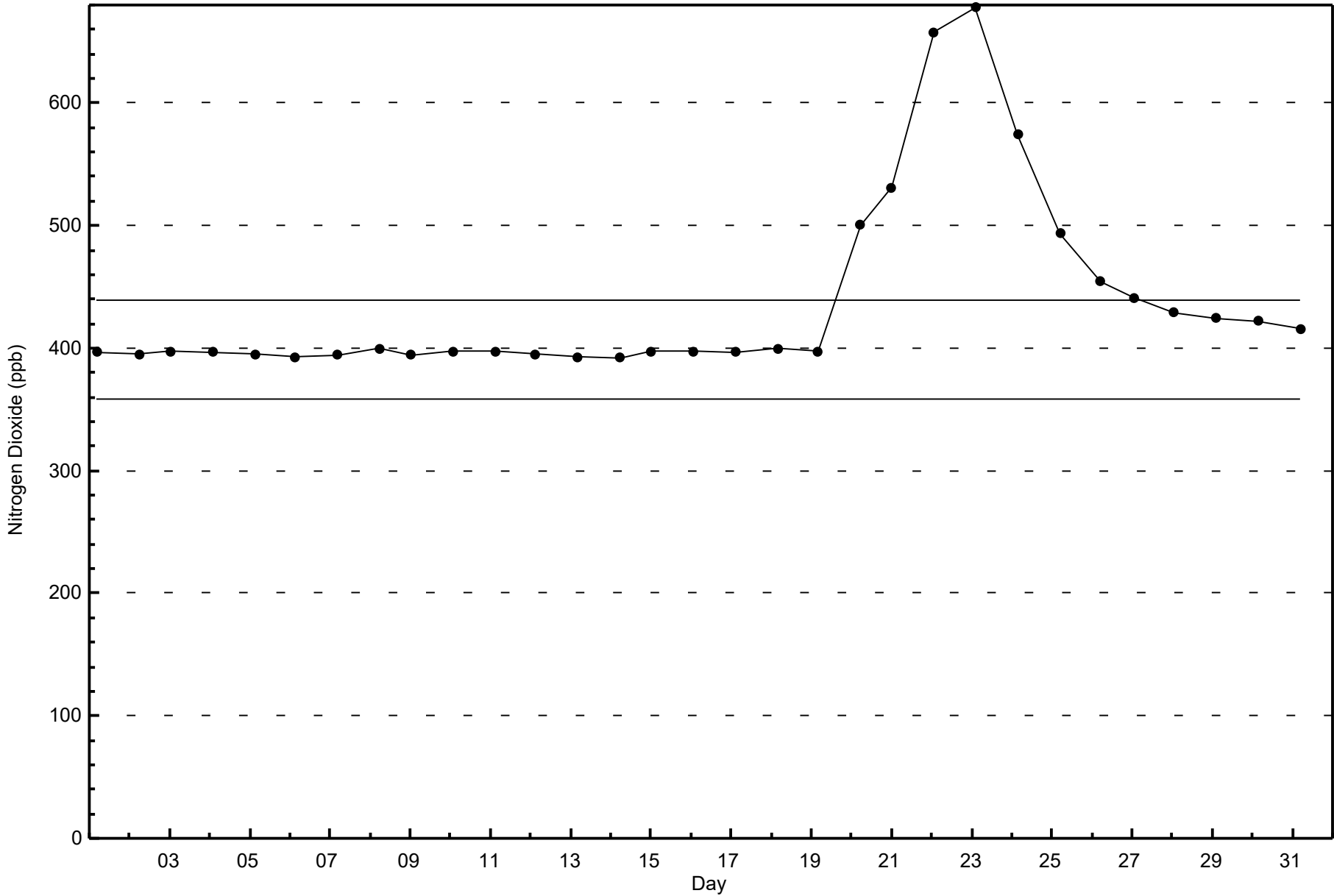
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Surmont 2



Total Number of Valid Hours: 662







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Oxides (NO_x) - ppb

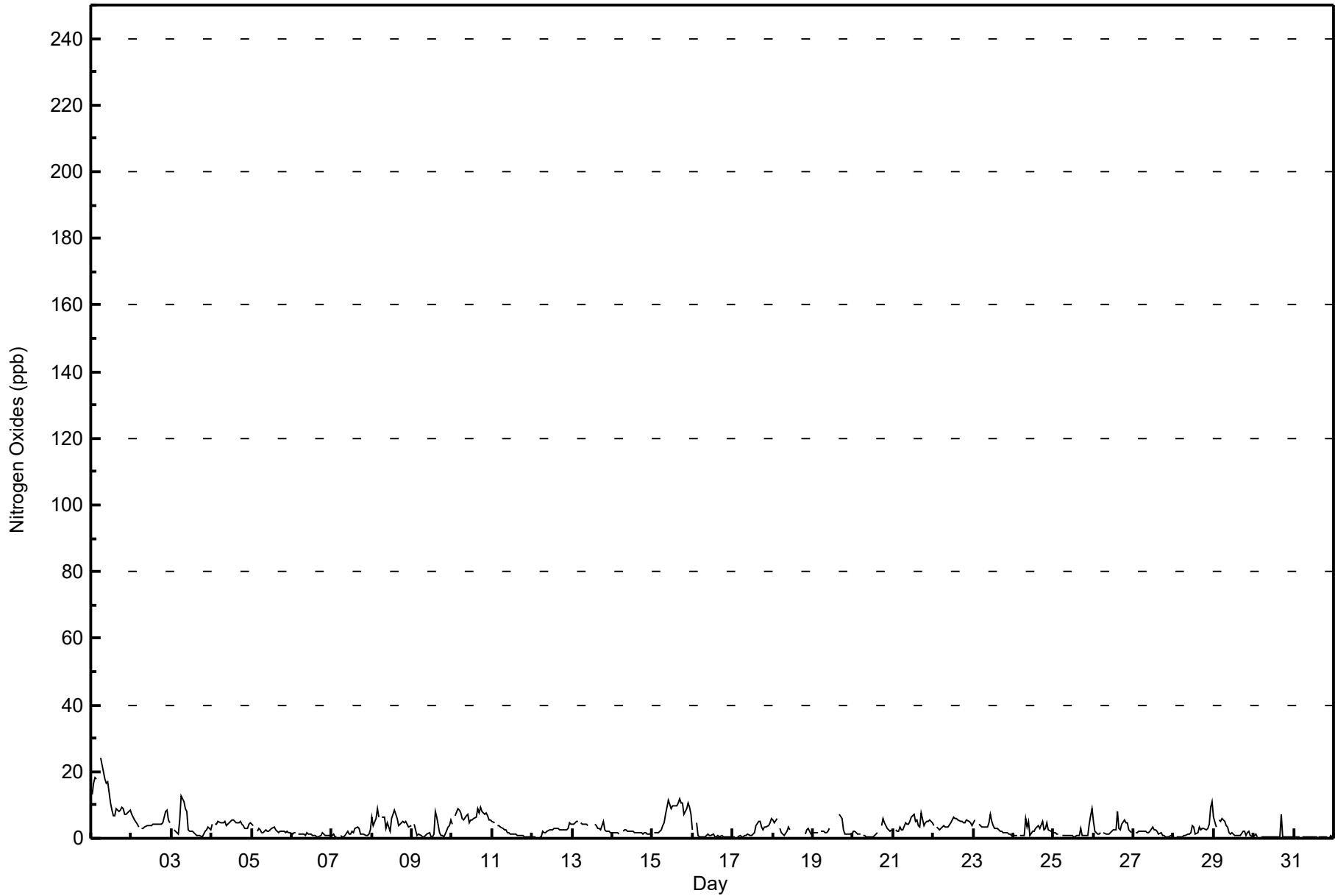
Surmont 2 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																											
Maximum Value: 24.0 ppb on Dec 1 06:00		Maximum Daily Average: 12.6 ppb on Dec 1																	Hours of Data:	695																													
Minimum Value: 0.2 ppb on Dec 31 21:00		Minimum Daily Average: 0.3 ppb on Dec 31																	Hours of Missing Data:	49																													
Maximum Diurnal Average: 3.5 ppb at hour 15		Minimum Diurnal Average: 2.5 ppb at hour 5																	Hours of Calibration:	39																													
Monthly Average: 3.18 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.5 Q ₁ = 1.1 Median = 2.3 Q ₃ = 4.4 P ₉₀ = 6.7 P ₉₉ = 16.7																	Percent Operational Time:	98.7																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	13.0	16.7	18.4	17.7	Z	24.0	22.1	20.0	17.9	16.7	16.8	10.5	8.3	6.6	6.8	9.0	8.0	8.4	9.2	8.9	7.1	7.3	7.9	8.5	12.6	24.0																							
2-Dec	7.1	6.5	5.5	4.3	3.3	Z	2.9	3.0	3.3	3.6	3.6	3.7	4.0	4.1	4.1	4.2	4.1	4.3	4.3	4.9	8.0	8.5	5.3	4.8	4.7	8.5																							
3-Dec	Z	2.5	2.0	1.6	1.4	5.3	12.7	11.0	8.8	7.9	2.4	2.0	1.9	1.6	1.2	1.0	0.9	1.0	0.6	1.2	2.3	2.7	3.5	2.5	3.4	12.7																							
4-Dec	4.4	Z	4.1	4.2	5.0	4.5	4.8	4.8	4.9	4.0	4.7	5.0	5.4	5.5	4.9	4.5	4.8	5.0	4.2	3.8	3.1	3.0	4.3	4.6	4.5	5.5																							
5-Dec	4.2	4.0	Z	2.2	2.8	2.5	1.9	1.5	2.4	2.2	2.0	2.7	2.8	3.5	2.5	2.1	1.7	2.1	2.3	2.2	1.7	1.9	1.6	1.5	2.4	4.2																							
6-Dec	1.5	1.9	1.8	Z	1.1	1.2	1.1	1.1	0.9	1.7	1.2	1.2	0.8	0.8	0.7	0.6	0.6	0.9	1.5	1.2	0.7	0.7	0.7	0.7	1.1	1.9																							
7-Dec	0.7	1.3	0.6	0.6	Z	0.8	0.6	0.5	0.7	1.9	1.1	1.1	2.0	1.6	3.1	3.4	3.1	1.3	1.5	1.3	1.1	1.0	1.2	2.6	1.4	3.4																							
8-Dec	6.3	3.7	6.1	8.8	6.3	Z	6.4	6.4	3.1	4.6	3.3	2.1	6.0	8.4	7.4	5.8	3.9	4.4	5.2	4.8	5.1	4.1	3.4	3.8	5.2	8.8																							
9-Dec	Z	4.2	2.7	0.8	1.3	0.7	0.5	0.6	0.7	1.1	1.6	0.6	0.6	1.2	8.1	6.2	1.6	0.9	0.8	0.5	1.4	3.4	3.8	5.3	2.1	8.1																							
10-Dec	4.2	Z	6.8	8.7	8.6	7.8	5.8	5.7	6.7	7.4	4.6	5.5	5.3	5.9	6.5	9.0	7.6	9.3	8.0	7.3	7.6	6.6	5.5	5.6	6.8	9.3																							
11-Dec	5.3	4.8	Z	4.0	3.6	3.3	3.1	2.7	2.5	1.9	1.7	1.4	1.2	1.2	1.1	1.0	0.8	0.9	1.0	0.4	0.3	0.3	0.3	0.4	1.9	5.3																							
12-Dec	0.4	0.3	0.4	Z	0.4	0.5	2.3	1.5	1.6	2.1	2.4	2.6	2.7	2.8	2.9	2.8	2.5	2.7	2.7	2.5	2.6	2.9	4.6	4.1	2.2	4.6																							
13-Dec	4.3	4.2	5.1	4.9	Z	4.6	4.1	4.3	4.2	4.0	M	M	M	4.2	3.8	3.1	2.9	2.7	5.0	2.7	2.2	2.2	2.2	1.8	3.6	5.1																							
14-Dec	1.6	1.8	1.9	1.6	1.3	Z	2.3	2.7	2.8	2.3	2.2	1.9	2.0	1.7	1.8	1.8	1.7	1.5	1.5	1.6	1.5	1.4	1.4	1.5	1.8	2.8																							
15-Dec	Z	1.5	1.6	1.7	2.2	2.4	3.7	4.6	7.4	11.5	10.4	8.9	9.5	9.7	9.7	10.7	11.8	10.4	10.4	7.3	8.7	10.7	9.5	7.3	7.5	11.8																							
16-Dec	2.4	Z	4.5	0.8	0.5	0.4	0.4	0.5	1.0	1.1	0.9	0.8	1.1	0.5	0.5	0.7	0.6	0.7	0.5	0.4	0.5	0.4	0.4	0.3	0.9	4.5																							
17-Dec	0.4	0.3	Z	0.4	0.7	0.5	0.4	0.7	0.7	1.3	0.9	1.0	1.3	1.7	4.0	5.2	5.1	3.4	2.7	3.2	3.2	3.6	4.7	5.8	2.2	5.8																							
18-Dec	5.6	4.7	6.0	Z	3.0	1.9	1.2	1.1	2.1	3.2	2.6	C	C	C	C	C	C	C	C	1.1	2.3	3.1	1.9	1.4	--	6.0																							
19-Dec	1.6	1.7	1.7	1.7	Z	2.2	2.1	1.9	1.8	2.0	3.2	M	M	M	M	M	M	7.3	5.8	2.4	1.3	1.1	1.1	1.2	1.4	2.3	7.3																						
20-Dec	2.1	2.2	1.7	1.2	1.1	Z	0.8	0.7	0.6	0.5	0.5	0.5	0.6	0.9	1.6	M	M	3.8	5.7	4.5	2.8	2.4	2.1	2.4	1.8	5.7																							
21-Dec	Z	2.4	2.2	2.1	3.2	2.6	2.6	4.7	4.4	4.3	5.3	6.2	7.3	5.3	5.5	4.0	3.5	7.5	3.7	4.6	4.9	5.2	5.4	4.6	4.4	7.5																							
22-Dec	3.8	Z	3.6	3.1	2.7	3.4	3.6	3.3	3.4	3.6	4.5	5.6	6.2	5.9	6.1	5.7	5.1	5.3	4.6	4.8	5.3	5.1	4.5	4.0	4.5	6.2																							
23-Dec	4.6	5.7	Z	4.4	3.6	3.4	3.5	3.4	3.4	4.7	7.2	4.9	3.6	3.0	2.9	2.7	2.3	2.0	1.8	1.8	1.7	1.4	1.2	1.0	3.2	7.2																							
24-Dec	0.9	0.9	0.9	Z	1.0	0.9	0.9	6.0	3.4	5.1	1.1	2.2	2.2	3.0	3.5	3.8	3.0	5.0	2.5	3.0	4.8	2.7	2.1	1.8	2.6	6.0																							
25-Dec	1.6	1.5	1.2	1.1	Z	0.9	0.9	0.9	0.8	0.8	0.8	0.6	0.6	0.5	0.7	0.8	3.1	0.9	0.8	0.7	0.8	4.3	6.9	8.9	1.7	8.9																							
26-Dec	4.9	2.2	1.1	1.1	1.9	Z	1.7	1.4	1.4	1.5	1.8	2.2	2.3	2.5	7.9	2.9	2.6	4.1	5.7	4.8	4.5	2.7	2.1	1.9	2.8	7.9																							
27-Dec	Z	1.7	1.6	1.9	2.1	2.2	2.3	2.1	1.7	1.9	2.0	3.2	2.7	2.4	2.3	1.4	1.8	0.9	0.7	0.6	0.5	0.5	0.9	0.9	1.7	3.2																							
28-Dec	0.6	Z	0.5	0.5	0.4	0.4	0.7	0.7	1.2	1.3	1.5	3.8	3.5	1.3	1.6	3.5	2.4	3.2	3.0	2.4	2.8	4.3	9.5	11.1	2.6	11.1																							
29-Dec	6.3	3.4	Z	5.7	5.1	5.8	5.1	3.8	3.2	1.8	1.1	1.7	0.7	0.7	0.7	0.7	0.7	2.2	2.0	0.9	1.9	2.3	1.0	0.6	2.5	6.3																							
30-Dec	0.9	1.4	0.4	Z	0.3	0.3	0.2	0.3	0.3	0.5	0.3	0.3	0.3	0.3	0.3	0.3	7.3	0.4	0.3	0.2	0.2	0.3	0.4	0.4	0.7	7.3																							
31-Dec	0.5	0.4	0.3	0.3	Z	0.3	0.3	0.3	0.2	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.6	0.5	0.3	0.6																							
																								3.4	3.2	3.2	3.3	2.5	3.2	3.3	3.3	3.1	3.4	3.1	2.9	3.0	3.0	3.5	3.5	3.5	3.4	3.2	2.8	2.9	3.1	3.2	3.3	Diurnal Average	
																								13.0	16.7	18.4	17.7	8.6	24.0	22.1	20.0	17.9	16.7	16.8	10.5	9.5	9.7	9.7	10.7	11.8	10.4	10.4	8.9	8.7	10.7	9.5	11.1	Diurnal Maximum	
Z - zerospan																								C - Calibration				M - Maintenance																					



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Surmont 2 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Oxides (NO_x) - ppb
Surmont 2 - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	693	99.71	99.71
21 - 40	2	0.29	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 695

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Surmont 2 - December 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	5	5	1	18	66	115	32	26	31	41	51	61	86	42	70	660
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	10	5	5	1	18	66	115	32	26	31	41	51	61	87	42	71	662

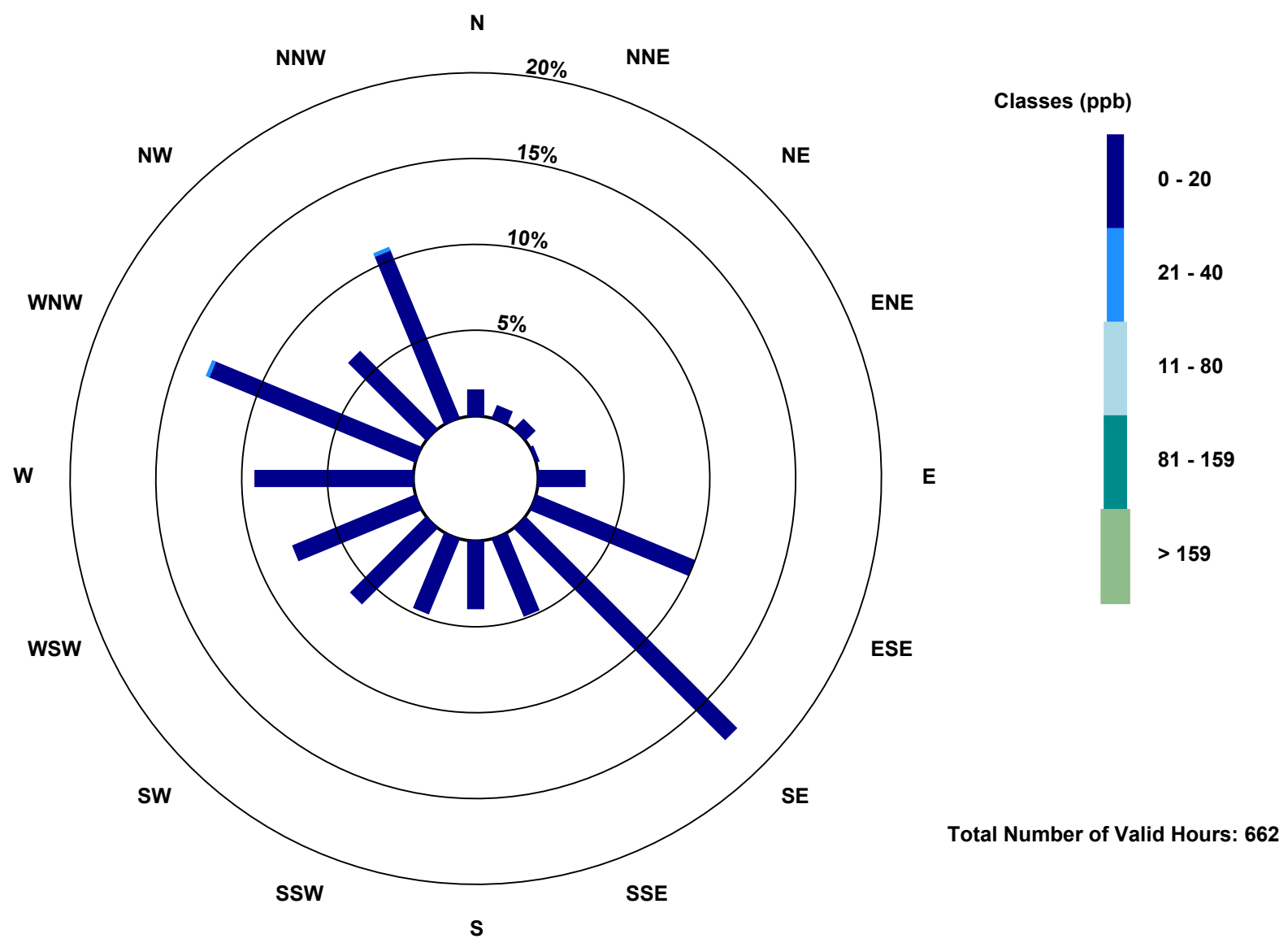
Total Number of Valid Hours: 662

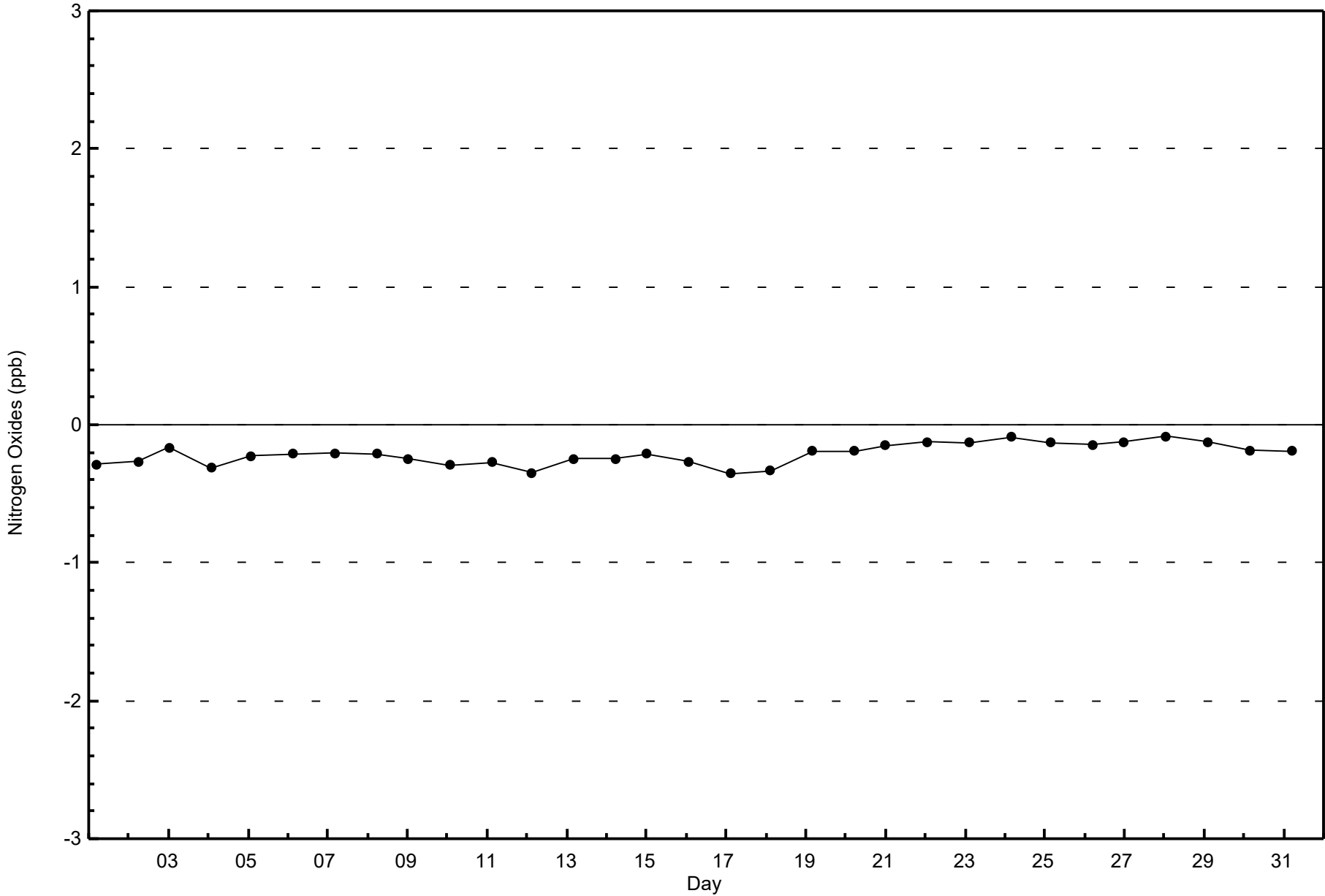
Total Number of Hours: 744

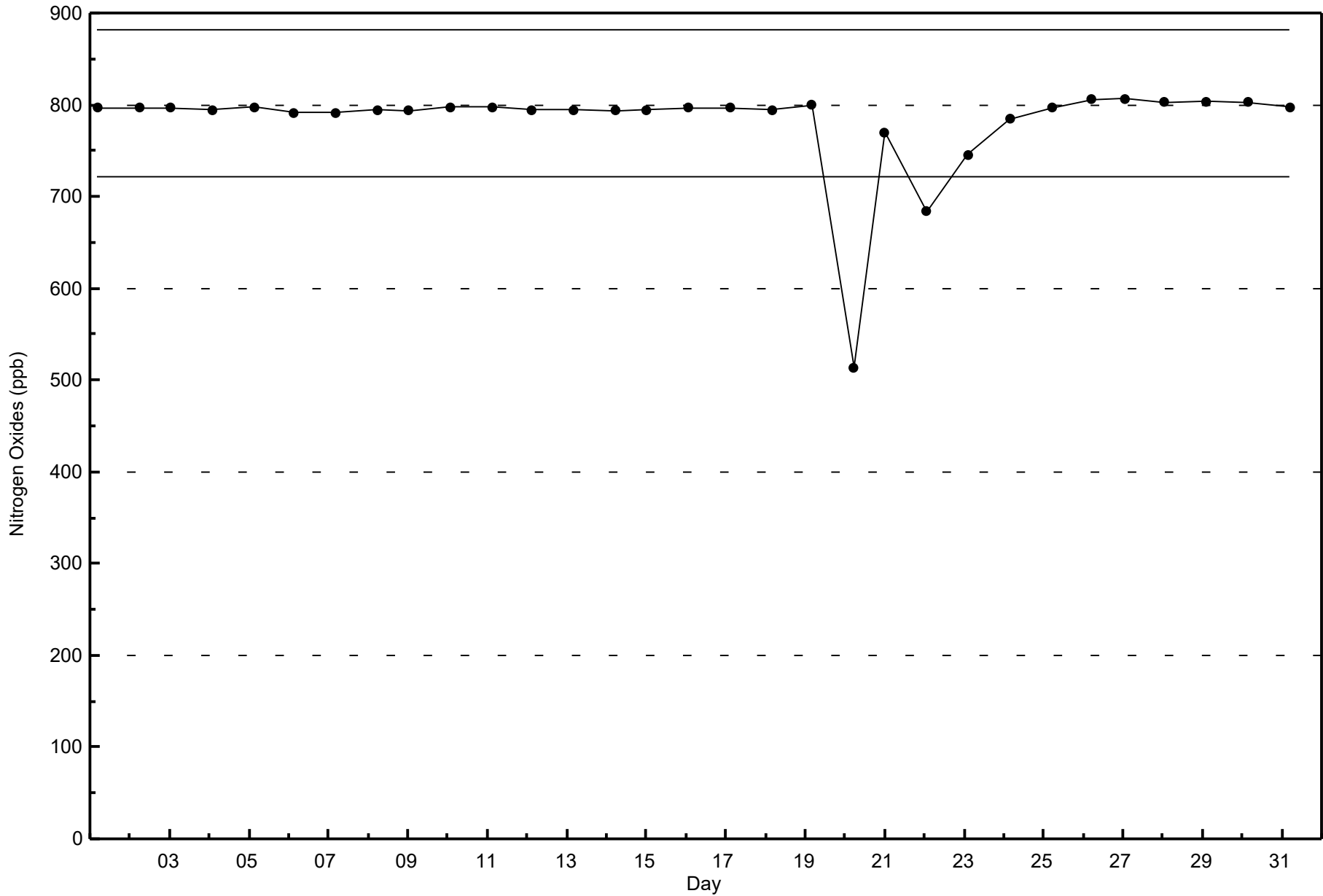


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Surmont 2









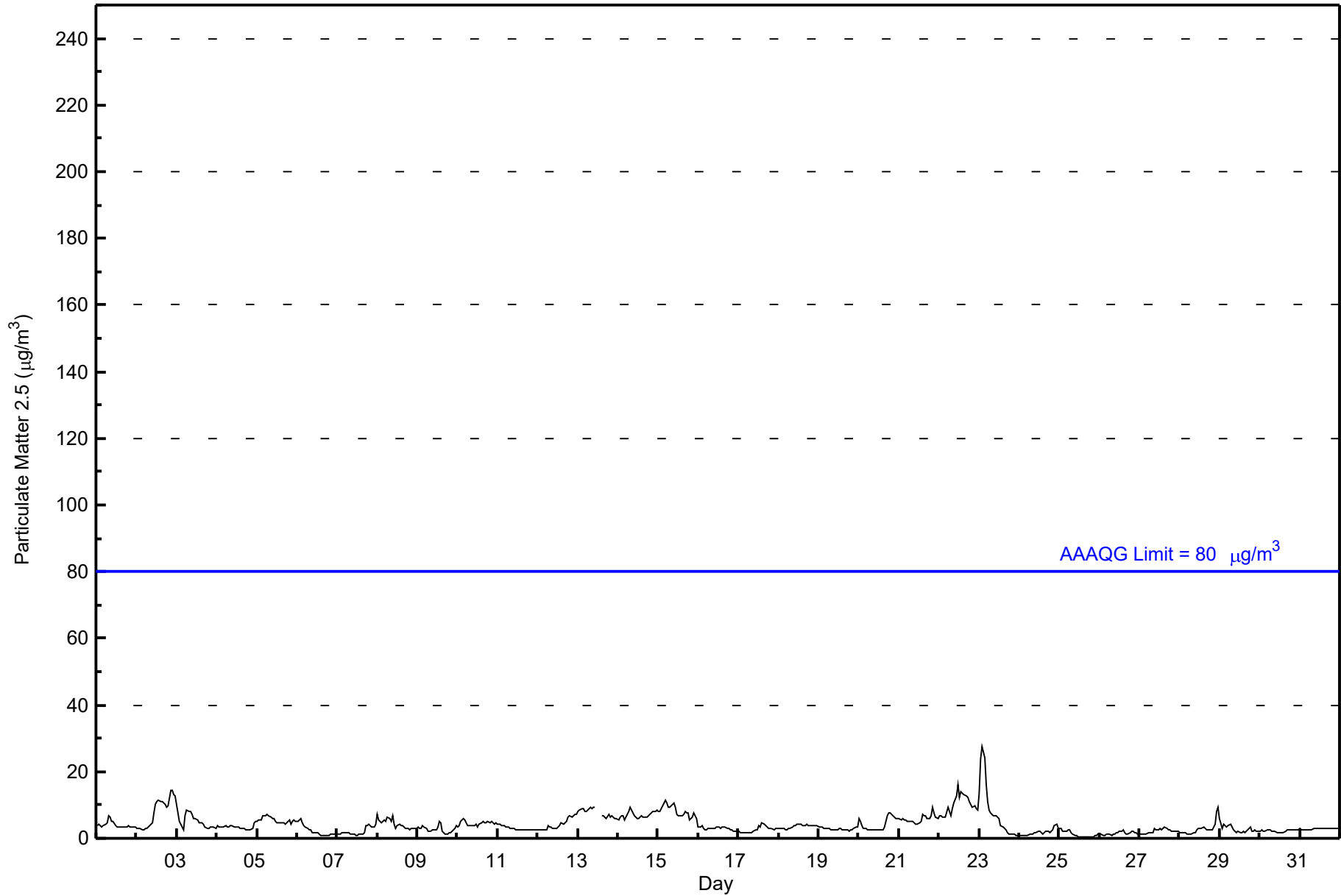
Wood Buffalo Environmental Association

Summary of Hour Averages

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

Surmont 2 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744														Daily Average		Daily Maximum																											
Maximum Value: 27.4 µg/m ³ on Dec 23 03:00		Maximum Daily Average: 10.1 µg/m ³ on Dec 22		Hours of Data: 741														Hours of Missing Data: 3		Hours of Calibration: 3																													
Minimum Value: 0.3 µg/m ³ on Dec 25 15:00		Minimum Daily Average: 1.2 µg/m ³ on Dec 25		Hours of Calibration: 3														Percent Operational Time: 100.0																															
Maximum Diurnal Average: 4.6 µg/m ³ at hour 3		Minimum Diurnal Average: 3.9 µg/m ³ at hour 13		Percentiles: P ₁ = 0.5 P ₁₀ = 1.4 Q ₁ = 2.5 Median = 3.2 Q ₃ = 5.3 P ₉₀ = 7.8 P ₉₉ = 13.9																																													
Monthly Average: 4.15 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-Dec	4.0	4.1	3.9	3.6	3.7	4.2	4.6	6.8	6.1	5.2	4.9	4.0	3.6	3.3	3.3	3.5	3.4	3.4	3.5	3.6	3.6	3.5	3.5	3.3	4.0	6.8																							
2-Dec	3.1	3.0	2.9	2.7	2.6	2.8	2.9	3.2	3.7	4.8	7.6	10.3	11.1	11.2	11.0	11.2	10.4	10.3	9.5	9.9	14.2	14.4	13.3	12.8	7.9	14.4																							
3-Dec	10.0	5.1	4.2	3.5	2.5	6.6	8.5	7.9	7.9	7.2	5.9	6.0	5.3	4.8	4.7	4.5	4.3	3.6	3.0	2.9	3.3	3.4	3.3	3.0	5.1	10.0																							
4-Dec	3.6	3.6	3.3	3.4	3.6	3.6	3.6	3.6	3.7	3.7	3.6	3.4	3.3	3.2	3.1	2.9	2.8	2.7	2.6	2.4	2.5	3.1	4.5	5.0	3.4	5.0																							
5-Dec	5.2	5.6	5.7	6.8	6.6	6.8	7.2	7.0	6.5	6.0	6.1	5.2	4.8	4.6	4.7	4.9	4.6	4.0	4.6	5.7	4.2	5.2	5.4	5.3	5.5	7.2																							
6-Dec	4.9	5.4	5.9	4.9	3.8	3.3	2.9	2.6	2.4	1.6	1.5	1.8	1.5	1.1	0.9	1.0	0.9	0.8	1.0	1.0	1.1	1.4	1.4	1.4	2.3	5.9																							
7-Dec	1.3	1.3	1.4	1.7	1.7	1.6	1.7	1.6	1.3	1.3	1.1	0.8	0.9	1.4	1.4	1.1	1.6	4.0	3.7	4.3	3.3	3.3	3.3	4.3	2.1	4.3																							
8-Dec	7.2	5.5	4.5	5.2	5.5	5.2	6.4	5.9	5.3	6.6	4.3	3.1	3.9	4.3	3.8	3.6	3.2	2.8	2.9	2.7	3.0	3.0	2.8	3.0	4.3	7.2																							
9-Dec	3.3	3.0	2.8	3.8	3.2	2.8	2.2	2.2	2.3	2.5	2.5	2.5	3.5	5.1	4.7	2.0	1.4	1.4	1.4	1.6	1.8	2.4	3.0	3.6	2.7	5.1																							
10-Dec	3.4	3.9	4.9	5.8	5.4	4.6	3.9	3.7	4.0	4.0	3.6	4.4	3.6	4.2	4.6	4.9	4.8	4.6	5.0	4.8	4.9	4.7	4.3	4.5	4.4	5.8																							
11-Dec	4.4	4.1	3.9	3.7	3.7	3.5	3.3	3.1	3.0	2.8	2.8	2.7	2.7	2.6	2.7	2.6	2.6	2.6	2.7	2.5	2.5	2.5	2.5	2.5	3.0	4.4																							
12-Dec	2.5	2.5	2.5	2.5	2.5	2.7	3.8	3.4	3.2	3.0	2.9	3.1	3.4	3.9	4.6	4.3	4.7	4.9	6.4	6.7	6.4	6.8	7.1	7.3	4.2	7.3																							
13-Dec	8.0	8.6	9.0	9.0	8.0	8.3	8.7	9.3	9.1	9.2	9.3	C	C	C	6.7	6.7	6.5	6.0	7.1	6.4	6.6	6.2	6.0	5.8	7.6	9.3																							
14-Dec	5.7	6.2	6.7	6.7	5.5	7.4	8.1	9.1	8.6	7.4	6.7	6.1	6.1	6.4	6.6	6.6	6.5	6.5	6.7	7.4	7.5	7.8	8.1	8.3	7.0	9.1																							
15-Dec	8.2	8.1	9.1	10.6	11.4	10.4	9.4	9.2	9.6	10.5	9.2	7.3	6.7	6.7	6.8	7.1	7.9	7.6	7.4	5.6	6.5	7.5	6.9	5.8	8.1	11.4																							
16-Dec	3.3	3.4	4.0	2.9	2.6	2.6	2.8	2.9	3.1	3.0	3.2	3.3	3.3	3.1	3.2	3.3	3.2	3.0	2.9	2.7	2.4	2.3	2.2	2.1	2.9	4.0																							
17-Dec	2.0	1.8	1.8	1.7	1.6	1.7	1.7	1.8	1.8	2.3	2.5	2.6	3.8	3.6	4.7	4.3	3.7	3.3	3.2	3.1	2.8	2.7	2.8	3.1	2.7	4.7																							
18-Dec	3.1	2.9	2.9	2.8	2.6	2.5	2.8	3.0	3.4	3.8	4.0	4.2	4.2	4.1	4.0	3.8	3.9	4.1	4.0	3.9	3.9	3.9	3.8	3.7	3.6	4.2																							
19-Dec	3.4	3.3	3.2	3.2	3.0	2.9	2.8	2.7	2.6	2.5	2.5	2.7	3.0	3.1	2.7	2.6	2.5	2.5	2.3	2.6	2.6	2.9	3.2	3.4	2.8	3.4																							
20-Dec	5.8	5.1	4.0	3.1	2.8	2.6	2.6	2.5	2.6	2.7	2.7	2.6	2.5	2.5	2.7	3.2	5.0	6.8	7.8	7.8	6.9	6.4	6.1	5.9	4.3	7.8																							
21-Dec	6.0	5.6	5.9	5.5	5.5	5.0	4.9	5.2	4.9	4.6	4.3	4.0	4.5	5.2	7.0	6.8	6.6	6.1	6.0	6.7	9.3	7.7	6.5	6.1	5.8	9.3																							
22-Dec	6.7	6.9	6.4	6.3	6.5	9.3	8.0	7.0	9.0	10.4	12.9	16.2	12.4	14.1	13.6	13.1	12.6	12.3	11.1	10.2	9.4	9.7	9.0	8.4	10.1	16.2																							
23-Dec	13.5	23.6	27.4	24.0	16.2	11.0	8.6	7.4	6.6	6.6	6.9	6.5	6.0	4.0	3.5	3.2	2.6	1.8	1.4	1.2	1.1	1.1	1.0	1.0	7.8	27.4																							
24-Dec	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.2	1.4	1.6	1.5	2.2	1.9	1.8	1.4	1.6	2.2	2.2	1.9	2.3	2.6	3.7	4.1	3.1	1.8	4.1																							
25-Dec	2.9	2.8	2.3	2.3	2.0	2.6	2.6	1.8	1.3	1.0	0.7	0.4	0.4	0.3	0.3	0.4	0.3	0.4	0.4	0.5	0.5	0.8	0.9	1.1	1.2	2.9																							
26-Dec	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.6	1.9	2.2	2.2	2.4	1.7	1.3	1.2	1.6	2.1	2.0	1.5	1.6	1.4	1.5	2.4																							
27-Dec	1.3	1.2	1.2	1.3	1.4	1.5	1.5	1.8	1.5	2.8	2.7	2.7	2.8	2.6	2.8	3.3	3.1	2.7	2.4	2.1	2.0	1.9	2.3	2.0	2.1	3.3																							
28-Dec	1.7	1.5	1.5	1.6	1.4	1.4	1.4	1.4	1.5	1.6	2.5	2.9	3.0	3.1	3.4	3.1	2.6	2.6	2.5	2.4	3.6	4.4	8.1	9.4	2.9	9.4																							
29-Dec	5.8	3.0	4.3	3.9	3.4	4.0	4.1	3.3	2.7	2.3	1.8	2.0	1.6	1.9	2.0	1.9	2.2	2.9	3.3	2.3	2.3	2.6	1.9	2.3	2.8	5.8																							
30-Dec	2.2	2.4	2.0	2.2	2.4	2.5	2.5	2.2	2.1	2.0	1.7	1.6	1.6	1.7	1.8	2.0	2.4	2.5	2.6	2.6	2.6	2.6	2.6	2.7	2.2	2.7																							
31-Dec	2.8	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	2.9	3.0	3.0	3.0	3.0	3.1	3.1	2.9	3.1																							
																								4.4	4.4	4.6	4.5	4.1	4.1	4.1	4.0	4.1	4.1	4.0	3.9	4.0	4.1	4.0	4.0	4.0	4.0	4.0	4.1	4.3	4.3	4.4	Diurnal Average		
																								13.5	23.6	27.4	24.0	16.2	11.0	9.4	9.3	9.6	10.5	12.9	16.2	12.4	14.1	13.6	13.1	12.6	12.3	11.1	10.2	14.2	14.4	13.3	12.8	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}) - $\mu\text{g}/\text{m}^3$
Surmont 2 - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	561	75.71	75.71
6 - 15	175	23.62	99.33
16 - 25	4	0.54	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 741

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Surmont 2 - December 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	10	4	3	1	8	54	83	20	14	21	33	49	60	85	38	52	535
6 - 15	1	2	2	0	12	18	40	15	13	11	10	5	5	4	5	24	167
16 - 25	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0	4
26 - 80	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	11	6	5	1	20	73	126	36	27	32	43	54	65	89	43	76	707

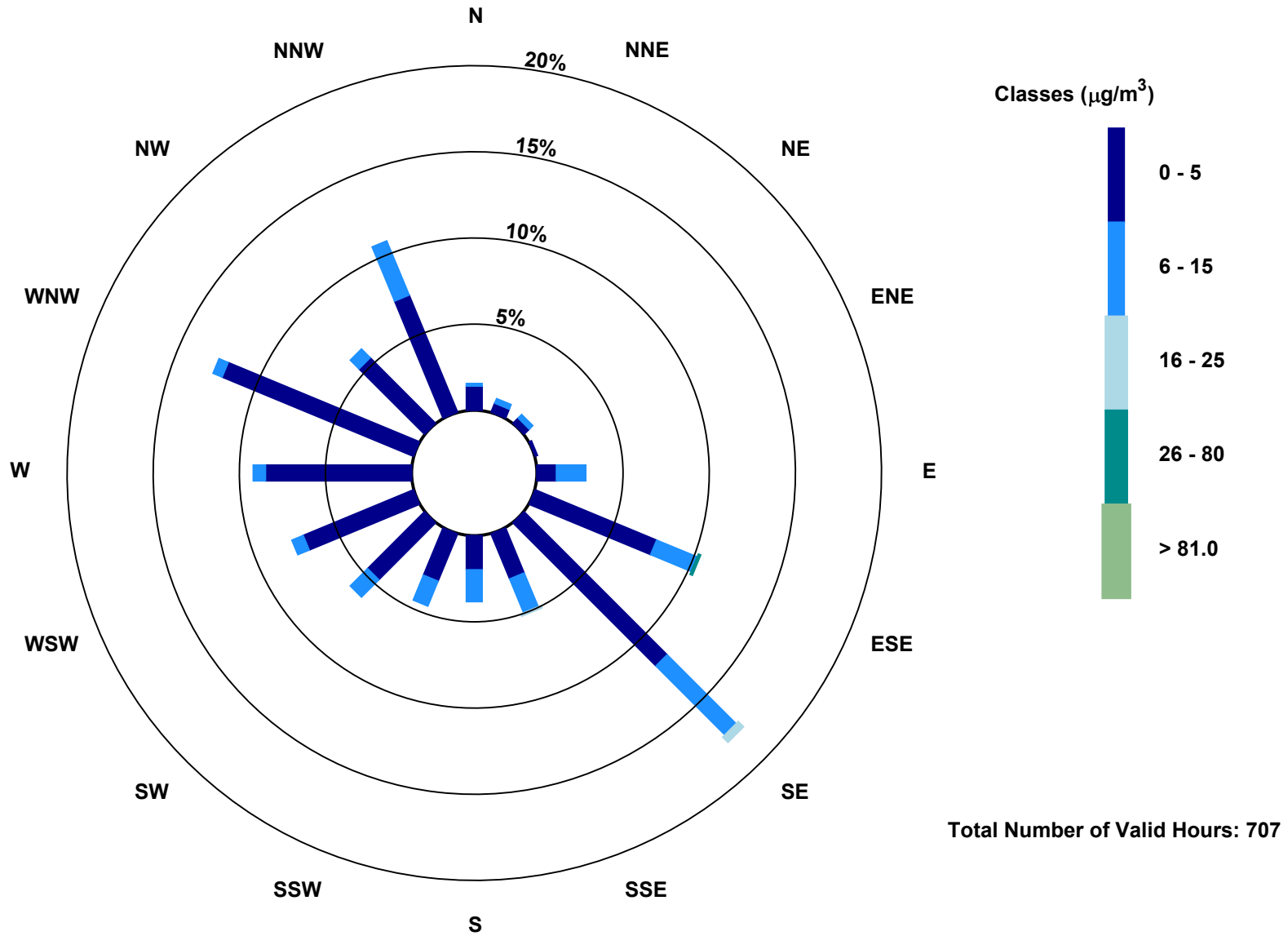
Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Particulate Matter 2.5 (PM_{2.5}) - $\mu\text{g}/\text{m}^3$
Surmont 2

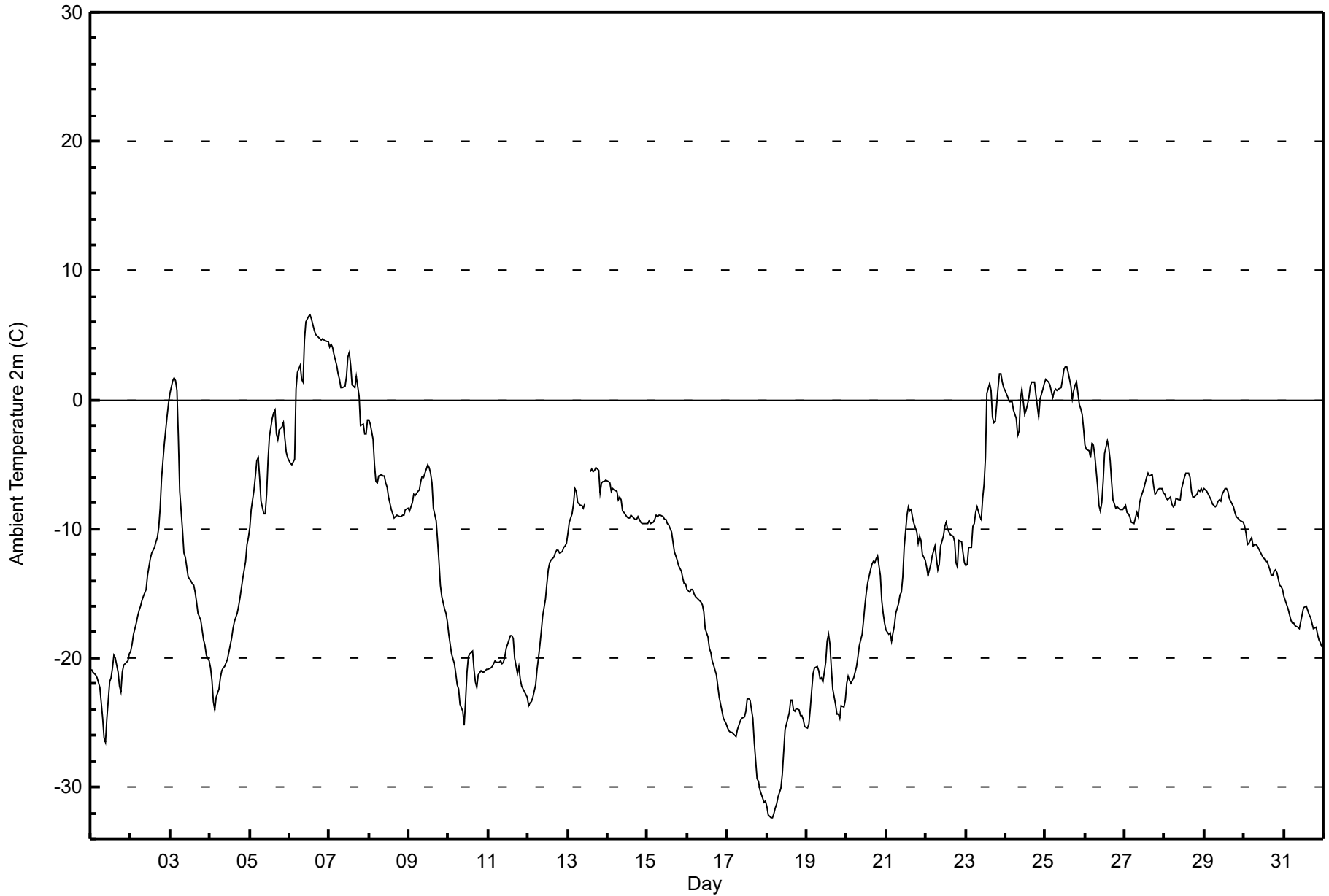




Wood Buffalo Environmental Association
Summary of Hour Averages

Ambient Temperature 2m (AT2) - C
Surmont 2 - December 2024

Maximum Value: 6.6 C on Dec 6 13:00 Maximum Daily Average: 2.8 C on Dec 6																								Hours in Service:	744	
Minimum Value: -32.4 C on Dec 18 03:00 Minimum Daily Average: -27.4 C on Dec 18																								Hours of Data:	742	
Maximum Diurnal Average: -10.1 C at hour 15 Minimum Diurnal Average: -12.6 C at hour 9																								Hours of Missing Data:	2	
Monthly Average: -11.72 C Percentiles: P ₁ = -31.1 P ₁₀ = -23.2 Q ₁ = -18.7 Median = -10.7 Q ₃ = -6.4 P ₉₀ = 0.5 P ₉₉ = 4.8																								Hours of Calibration:	0	
																								Percent Operational Time:	99.7	
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-20.9	-21.0	-21.3	-21.3	-21.5	-22.3	-23.4	-24.7	-26.1	-26.5	-24.7	-21.8	-21.5	-20.7	-19.8	-20.0	-21.1	-22.2	-22.6	-21.1	-20.6	-20.4	-20.2	-19.7	-21.9	-19.7
2-Dec	-19.4	-19.0	-18.1	-17.3	-16.8	-16.3	-16.0	-15.6	-15.2	-14.6	-13.6	-13.0	-12.4	-11.9	-11.4	-11.0	-10.6	-9.9	-8.4	-6.1	-3.5	-2.3	-1.2	-0.3	-11.8	-0.3
3-Dec	0.5	1.4	1.7	1.5	0.7	-2.8	-7.1	-10.2	-11.9	-12.2	-13.0	-13.7	-14.1	-14.3	-14.4	-14.9	-15.6	-16.6	-17.1	-17.9	-18.6	-19.1	-19.8	-20.2	-11.2	1.7
4-Dec	-20.8	-21.8	-23.3	-24.0	-23.1	-22.4	-21.6	-21.0	-20.7	-20.6	-20.1	-19.5	-19.0	-18.4	-17.7	-17.2	-16.6	-16.0	-15.3	-14.5	-13.9	-12.5	-11.3	-10.7	-18.4	-10.7
5-Dec	-9.9	-8.5	-7.0	-5.9	-4.8	-4.5	-6.0	-7.8	-8.9	-8.8	-7.4	-4.7	-2.8	-1.5	-1.0	-0.8	-2.7	-3.0	-2.3	-2.1	-1.8	-2.9	-4.0	-4.5	-4.7	-0.8
6-Dec	-5.0	-5.1	-4.8	-4.7	0.8	2.1	2.7	1.5	1.4	4.7	6.0	6.5	6.6	6.3	5.9	5.4	5.0	4.9	4.7	4.6	4.7	4.6	4.5	4.5	2.8	6.6
7-Dec	4.1	4.3	4.1	3.6	2.7	2.0	1.6	0.9	0.9	1.1	1.8	3.3	3.6	2.7	1.2	1.0	1.8	1.0	0.2	-2.0	-1.9	-2.7	-2.6	-1.5	1.3	4.3
8-Dec	-1.6	-1.9	-3.1	-5.0	-6.3	-6.4	-5.9	-5.8	-5.9	-6.0	-6.4	-6.8	-7.6	-8.5	-8.9	-9.1	-9.1	-8.9	-9.0	-9.0	-9.0	-8.9	-8.5	-8.5	-6.9	-1.6
9-Dec	-8.6	-8.2	-8.0	-7.3	-7.4	-7.1	-6.9	-6.4	-5.9	-6.0	-5.4	-5.0	-5.3	-5.7	-6.5	-8.4	-9.4	-10.9	-12.5	-14.3	-15.2	-16.2	-16.5	-17.2	-9.2	-5.0
10-Dec	-18.2	-18.9	-19.7	-20.5	-21.2	-22.1	-22.4	-23.5	-24.1	-25.2	-23.3	-21.1	-19.9	-19.7	-19.5	-20.9	-21.9	-22.3	-21.3	-21.0	-21.1	-21.1	-21.0	-20.9	-21.3	-18.2
11-Dec	-20.9	-20.8	-20.7	-20.4	-20.3	-20.3	-20.3	-20.3	-20.4	-20.4	-19.9	-19.3	-18.6	-18.3	-18.3	-18.5	-20.0	-21.2	-20.7	-21.6	-22.1	-22.4	-22.6	-23.0	-20.5	-18.3
12-Dec	-23.7	-23.5	-23.4	-23.0	-22.1	-20.9	-20.0	-19.1	-18.0	-16.8	-15.5	-14.2	-13.2	-12.7	-12.4	-12.2	-11.9	-11.6	-11.7	-11.9	-11.7	-11.5	-11.3	-11.1	-16.0	-11.1
13-Dec	-10.3	-9.5	-8.8	-8.1	-6.9	-7.1	-7.9	-8.1	-8.2	-8.4	-8.1	M	M	-5.6	-5.4	-5.6	-5.5	-5.3	-5.5	-7.2	-6.4	-6.3	-6.4	-6.3	-7.1	-5.3
14-Dec	-6.4	-6.5	-7.1	-6.9	-6.9	-7.1	-7.7	-7.6	-7.7	-8.6	-8.8	-9.1	-9.1	-9.2	-9.0	-9.0	-9.3	-9.2	-9.1	-9.3	-9.5	-9.6	-9.6	-9.6	-8.4	-6.4
15-Dec	-9.6	-9.4	-9.5	-9.4	-9.3	-8.9	-9.0	-9.0	-9.0	-9.0	-9.3	-9.3	-9.6	-9.7	-10.2	-11.0	-11.8	-12.1	-12.4	-12.8	-13.3	-13.9	-14.2	-14.2	-10.7	-8.9
16-Dec	-14.7	-14.9	-14.7	-14.7	-15.0	-15.2	-15.4	-15.6	-15.7	-15.8	-16.4	-17.7	-18.4	-19.2	-19.6	-20.2	-20.5	-21.3	-22.2	-23.1	-23.5	-24.1	-24.7	-25.2	-18.7	-14.7
17-Dec	-25.5	-25.7	-25.7	-25.8	-26.0	-26.1	-25.6	-25.2	-24.9	-24.7	-24.6	-24.2	-23.2	-23.2	-23.3	-24.6	-26.5	-27.9	-29.4	-29.5	-30.2	-30.9	-31.2	-31.1	-26.4	-23.2
18-Dec	-31.5	-32.2	-32.4	-32.4	-32.0	-31.6	-31.2	-30.8	-30.1	-29.0	-27.2	-25.6	-25.1	-24.3	-23.3	-23.2	-24.0	-24.2	-23.9	-24.0	-24.5	-24.4	-24.8	-25.4	-27.4	-23.2
19-Dec	-25.4	-25.1	-24.0	-22.5	-21.2	-20.7	-20.7	-21.0	-21.6	-21.5	-21.9	-20.3	-18.7	-18.2	-18.9	-20.7	-22.4	-23.5	-24.4	-24.3	-24.7	-23.7	-23.8	-23.2	-22.2	-18.2
20-Dec	-22.0	-21.4	-21.7	-22.0	-21.5	-21.1	-20.6	-19.9	-19.0	-18.2	-17.1	-15.9	-14.9	-14.2	-13.1	-12.7	-12.6	-12.6	-12.3	-12.1	-13.6	-15.5	-16.5	-17.3	-17.0	-12.1
21-Dec	-17.8	-18.2	-18.1	-18.7	-18.1	-17.5	-16.6	-15.8	-15.1	-14.9	-13.7	-11.4	-9.0	-8.3	-8.6	-8.5	-9.1	-9.6	-10.3	-11.1	-10.6	-10.9	-11.9	-12.4	-13.2	-8.3
22-Dec	-13.0	-13.6	-13.1	-12.7	-12.1	-11.3	-12.3	-13.1	-12.7	-11.4	-10.5	-9.8	-9.5	-10.0	-10.2	-10.5	-10.6	-11.0	-12.6	-12.9	-10.9	-11.0	-11.8	-12.7	-11.6	-9.5
23-Dec	-12.8	-12.7	-11.5	-11.4	-9.8	-9.6	-8.8	-8.3	-9.1	-9.2	-7.6	-6.5	-4.5	0.5	1.2	0.8	-1.4	-1.7	-1.7	0.9	2.1	2.0	1.4	1.0	-4.9	2.1
24-Dec	0.7	0.2	-0.2	-0.1	-0.2	-0.8	-1.4	-2.8	-2.4	0.1	0.9	-1.1	-0.8	-0.4	0.2	1.0	1.4	1.3	0.4	-0.5	-1.4	0.0	0.8	1.3	-0.2	1.4
25-Dec	1.6	1.4	1.3	1.1	0.2	0.6	0.8	0.7	0.8	0.9	1.6	2.3	2.5	2.6	2.1	1.0	0.1	0.7	1.1	1.4	-0.4	-0.7	-1.1	-2.2	0.9	2.6
26-Dec	-3.5	-3.8	-3.9	-4.5	-3.4	-3.6	-4.3	-6.7	-8.2	-8.6	-7.9	-6.3	-4.2	-3.2	-3.8	-4.7	-6.4	-7.7	-8.4	-8.2	-8.4	-8.6	-8.5	-8.5	-6.1	-3.2
27-Dec	-8.2	-8.7	-8.8	-9.1	-9.5	-9.6	-9.2	-8.7	-9.0	-7.9	-7.5	-6.9	-6.4	-6.0	-5.6	-5.9	-5.8	-6.7	-7.4	-7.2	-7.0	-6.9	-6.9	-7.2	-7.6	-5.6
28-Dec	-7.3	-7.6	-7.8	-7.5	-8.1	-8.3	-8.2	-7.6	-7.8	-7.7	-6.9	-6.5	-6.0	-5.7	-5.7	-6.0	-7.1	-7.5	-7.6	-7.3	-7.0	-7.1	-6.9	-7.1	-7.2	-5.7
29-Dec	-6.9	-7.1	-7.4	-7.6	-7.8	-8.1	-8.3	-8.2	-7.9	-7.8	-7.8	-7.3	-6.9	-6.9	-7.1	-7.6	-7.9	-8.3	-8.7	-9.1	-9.2	-9.3	-9.4	-9.5	-8.0	-6.9
30-Dec	-9.8	-10.4	-11.2	-11.1	-10.7	-11.3	-11.2	-11.2	-11.4	-11.5	-12.0	-12.2	-12.3	-12.5	-12.6	-13.2	-13.6	-13.6	-13.3	-13.2	-13.4	-14.3	-14.5	-14.7	-12.3	-9.8
31-Dec	-15.2	-15.5	-16.2	-16.7	-17.1	-17.3	-17.3	-17.5	-17.6	-17.8	-17.2	-16.7	-16.1	-16.0	-16.4	-16.7	-16.9	-17.2	-17.7	-17.6	-18.2	-18.6	-18.8	-19.1	-17.1	-15.2
																								Diurnal Average		
																								Diurnal Maximum		
M - Maintenance																										





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Surmont 2 - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	160	21.56	21.56
-20 - 0	498	67.12	88.68
0 - 10	84	11.32	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

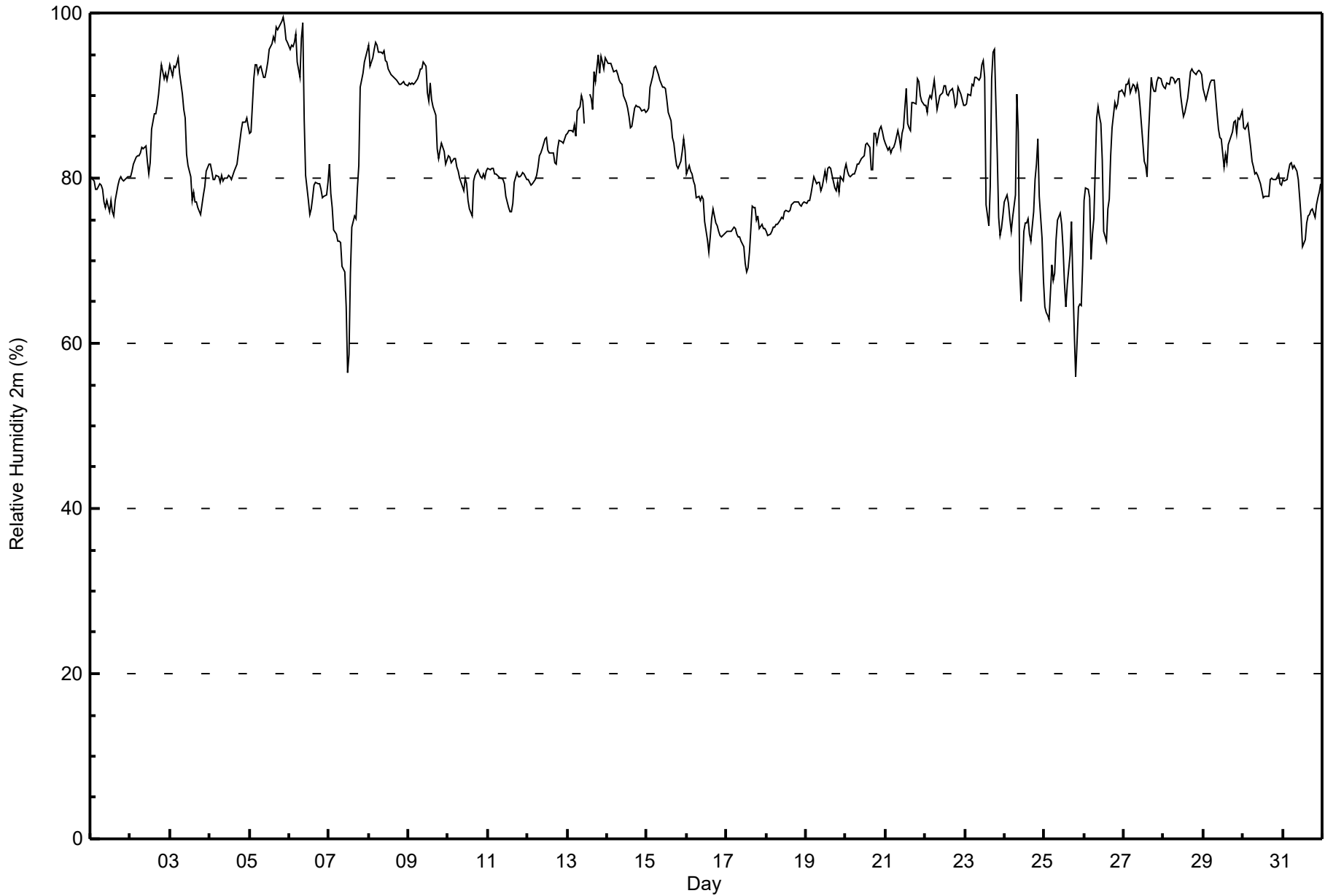
Surmont 2 - December 2024

Maximum Value: 99.4 % on Dec 5 21:00 Maximum Daily Average: 94.7 % on Dec 5																						Hours in Service:	744			
Minimum Value: 55.9 % on Dec 25 20:00 Minimum Daily Average: 67.5 % on Dec 25																						Hours of Data:	742			
Maximum Diurnal Average: 85.0 % at hour 8 Minimum Diurnal Average: 80.4 % at hour 14																						Hours of Missing Data:	2			
Monthly Average: 83.30 % Percentiles: P ₁ = 64.3 P ₁₀ = 73.9 Q ₁ = 78.0 Median = 82.3 Q ₃ = 90.2 P ₉₀ = 92.8 P ₉₉ = 97.3																						Hours of Calibration:	0			
																						Percent Operational Time:	99.7			
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	80.2	79.8	79.7	78.7	78.6	79.3	79.2	78.6	77.1	76.5	77.2	76.0	77.3	76.0	75.5	77.3	79.1	79.8	80.2	79.9	79.7	79.9	80.2	80.1	78.6	80.2
2-Dec	80.2	80.8	81.7	82.5	82.6	82.6	83.1	83.7	83.6	83.9	82.0	80.6	81.8	85.9	87.7	87.9	88.9	90.2	92.0	93.7	92.0	92.6	91.9	92.7	86.0	93.7
3-Dec	93.7	92.4	93.6	93.3	94.0	94.7	92.7	90.2	88.3	87.3	82.8	81.5	80.3	77.2	78.3	77.1	77.1	76.4	75.7	76.8	77.9	79.0	80.9	81.7	84.3	94.7
4-Dec	81.7	80.8	79.8	79.8	80.3	80.1	79.5	80.3	79.7	80.0	79.9	80.3	80.1	79.8	80.3	80.8	81.8	83.1	84.4	85.8	86.8	86.8	87.2	86.3	81.9	87.2
5-Dec	85.5	85.6	92.0	93.8	93.7	92.7	93.3	93.6	92.2	92.2	93.1	94.1	95.6	96.2	97.1	96.6	98.3	98.1	98.4	99.0	99.4	98.5	96.8	96.4	94.7	99.4
6-Dec	95.6	96.2	96.0	96.4	97.4	94.1	92.2	96.9	98.9	87.2	80.4	77.3	75.5	76.3	77.6	79.1	79.5	79.3	79.3	78.7	77.7	77.9	78.0	79.6	85.3	98.9
7-Dec	81.6	78.2	76.4	73.8	73.3	72.3	72.3	72.3	69.3	68.7	64.3	56.5	58.6	68.4	74.0	75.4	75.0	78.7	81.6	91.0	92.7	94.1	94.7	95.4	76.6	95.4
8-Dec	96.2	93.6	94.5	95.5	96.5	96.1	95.2	95.3	95.1	95.4	94.3	94.0	93.2	92.5	92.4	92.3	92.0	91.8	91.4	91.4	91.6	91.7	91.3	91.2	93.5	96.5
9-Dec	91.6	91.3	91.5	91.3	91.6	92.1	92.6	93.2	93.2	94.0	93.6	90.3	89.4	91.5	89.6	88.6	87.6	83.6	82.3	83.4	84.2	83.2	81.7	82.1	88.9	94.0
10-Dec	82.7	82.5	81.8	82.4	82.3	81.3	80.8	80.0	79.0	78.4	79.9	79.4	77.3	76.2	75.4	79.6	80.4	80.6	81.1	80.1	80.1	80.4	80.1	80.8	80.1	82.7
11-Dec	81.2	81.1	81.2	81.1	80.5	80.5	80.1	80.1	80.1	79.8	79.2	77.8	76.4	76.0	76.0	76.9	79.5	80.6	80.1	80.2	80.4	80.6	80.5	79.8	79.6	81.2
12-Dec	79.9	79.5	79.2	79.3	79.9	80.4	81.4	82.7	83.1	83.5	84.7	84.9	83.4	83.0	83.1	83.1	81.9	81.6	83.5	84.5	84.5	84.2	84.7	85.3	82.6	85.3
13-Dec	85.4	85.8	85.8	85.7	86.5	85.1	88.2	88.7	90.0	89.4	86.6	M	M	90.1	89.7	88.3	92.8	91.7	94.9	92.7	94.8	94.1	93.3	94.5	89.7	94.9
14-Dec	93.9	94.0	93.9	93.4	92.8	93.0	92.5	91.9	91.5	91.4	90.1	89.2	88.4	87.4	86.1	86.3	88.4	88.8	88.6	88.7	88.5	88.1	88.3	88.0	90.1	94.0
15-Dec	88.2	88.6	91.0	92.3	93.4	93.5	93.0	92.5	91.9	91.1	91.0	90.8	89.5	87.9	86.9	85.0	84.3	82.7	81.6	81.3	82.0	83.2	84.7	83.4	87.9	93.5
16-Dec	80.5	81.5	80.9	80.5	79.7	79.1	77.6	77.9	77.3	77.8	77.5	74.8	72.5	71.1	72.8	75.0	76.2	74.6	74.2	73.6	73.1	72.9	73.1	73.3	76.1	81.5
17-Dec	73.6	73.6	73.6	73.6	74.1	74.0	73.2	72.8	72.8	72.3	71.7	69.7	68.7	69.2	71.0	76.6	76.5	76.4	75.0	75.3	73.9	74.4	73.9	73.9	73.3	76.6
18-Dec	73.5	73.0	73.2	73.6	74.1	74.0	74.5	74.4	74.9	75.2	75.1	75.9	76.2	75.9	76.1	76.8	77.0	77.1	77.1	77.1	76.7	76.6	76.9	77.1	75.5	77.1
19-Dec	77.0	77.2	77.3	78.2	79.2	80.2	79.2	79.5	79.6	78.4	79.0	80.8	79.8	81.2	81.3	81.2	80.4	78.8	78.5	79.4	78.3	80.2	79.7	81.0	79.4	81.3
20-Dec	81.6	80.8	80.4	80.2	80.5	80.5	81.1	81.7	81.6	82.3	82.6	82.8	84.1	84.3	83.7	81.1	81.1	85.5	85.5	84.3	85.9	86.3	85.6	84.7	82.8	86.3
21-Dec	84.2	83.4	83.7	83.0	83.6	83.7	84.3	85.8	85.0	83.7	85.4	86.2	90.8	86.7	86.1	85.7	89.1	89.1	88.9	92.0	91.7	89.9	89.3	88.7	86.7	92.0
22-Dec	88.9	88.0	89.5	90.0	89.6	91.9	90.2	88.3	89.1	90.0	90.3	91.3	91.1	90.2	90.0	90.5	90.9	90.1	88.7	88.9	91.0	90.1	89.4	88.8	89.9	91.9
23-Dec	88.8	89.0	90.2	90.1	91.3	91.2	92.3	92.2	91.8	92.3	93.7	94.2	92.1	76.8	74.3	78.9	92.0	95.2	95.6	82.8	75.3	73.0	73.8	75.4	86.8	95.6
24-Dec	77.1	78.0	76.9	75.0	73.5	75.2	78.0	90.2	85.5	69.0	65.0	73.5	74.5	74.6	75.1	73.3	72.3	75.9	79.7	81.7	84.7	77.7	72.6	67.6	76.1	90.2
25-Dec	64.4	63.7	63.3	62.9	69.6	67.6	68.4	72.5	75.0	75.8	74.3	71.5	67.4	64.5	67.0	70.7	74.7	67.6	61.3	55.9	64.5	64.8	64.5	69.5	67.5	75.8
26-Dec	77.3	78.8	78.6	77.6	70.2	73.3	75.1	87.4	88.6	87.4	86.7	82.1	73.6	72.4	76.2	77.5	82.7	86.1	89.2	88.5	89.0	90.6	90.5	90.7	82.1	90.7
27-Dec	90.0	91.3	91.4	91.9	90.3	91.4	91.2	90.4	91.4	90.5	88.6	84.2	82.0	81.6	80.2	85.3	92.2	91.0	90.4	90.6	91.7	92.2	92.0	91.4	89.3	92.2
28-Dec	91.0	90.9	91.5	91.3	92.3	92.2	92.1	91.5	92.0	92.1	90.1	88.6	87.5	88.0	89.6	91.1	92.9	93.3	93.0	92.6	92.9	93.1	92.8	92.5	91.5	93.3
29-Dec	90.8	89.5	90.2	90.8	91.5	91.9	91.9	89.8	87.8	85.9	85.0	84.8	81.3	82.8	81.9	84.1	84.6	85.6	86.8	86.9	85.5	87.2	87.0	88.2	87.2	91.9
30-Dec	86.1	86.0	86.4	86.6	83.7	82.1	81.4	80.5	80.8	80.3	79.2	78.4	77.6	77.7	77.8	77.8	79.9	80.1	79.9	79.7	79.9	80.5	79.3	79.2	80.9	86.6
31-Dec	79.9	79.7	79.9	80.9	81.7	81.9	81.2	81.5	80.8	79.8	77.6	75.3	71.7	72.5	74.6	75.5	75.7	76.0	76.2	75.3	76.8	77.6	78.3	79.4	77.9	81.9
																						Diurnal Average				
																						Diurnal Maximum				
M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Surmont 2 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Surmont 2 - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	3	0.40	0.40
60 - 80	262	35.31	35.71
80 - 100	477	64.29	100.00

Total Number of Valid Hours: 742

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

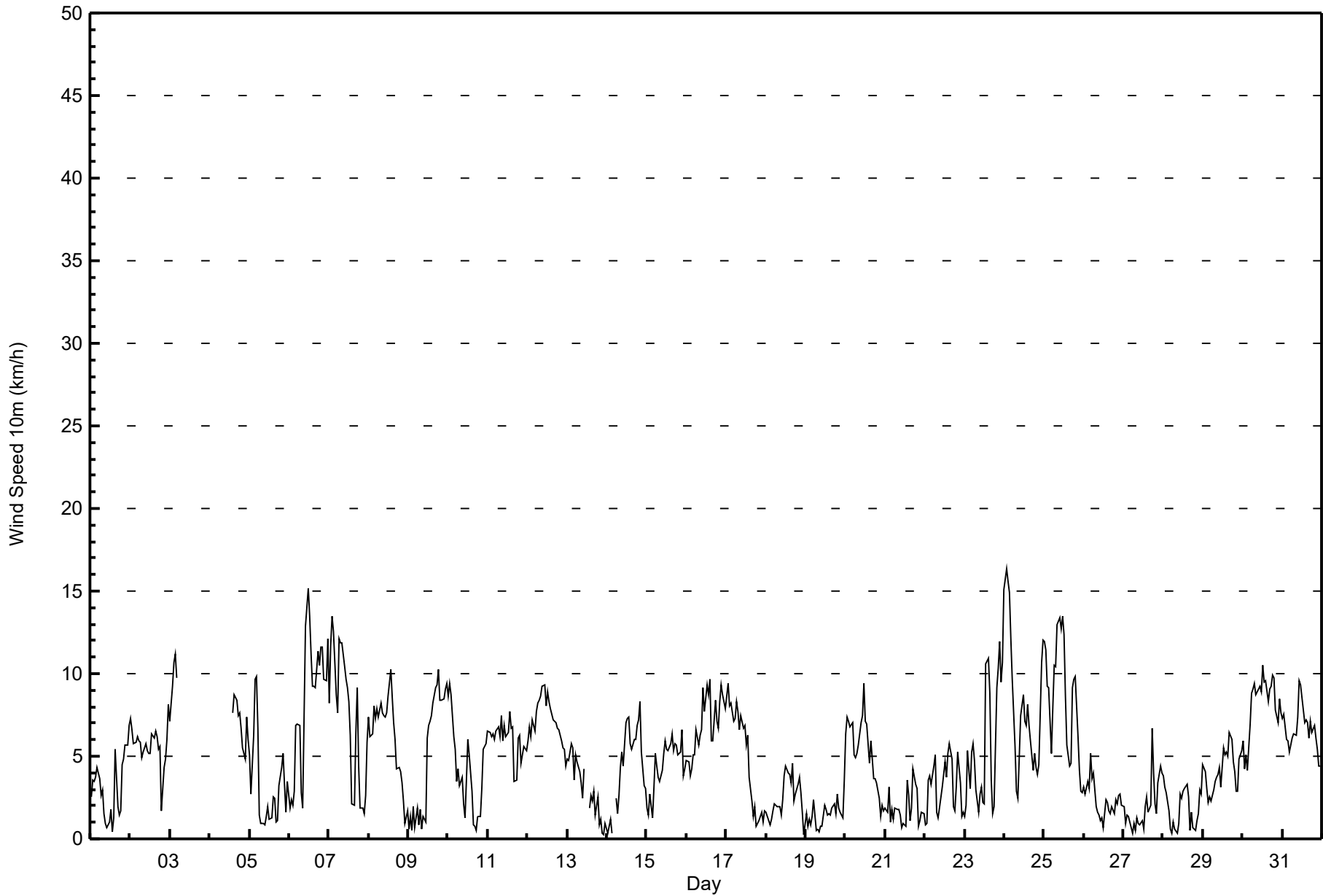
Surmont 2 - December 2024

Maximum Speed: 16 km/h on Dec 24 02:00	Maximum Daily Speed Average: 8.3 km/h on Dec 25	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 19 00:00	Minimum Daily Speed Average: 0.5 km/h on Dec 28	Hours of Data: 708
Maximum Diurnal Speed Average: 1.9 km/h at hour 3	Minimum Diurnal Speed Average: 0.4 km/h at hour 16	Hours of Missing Data: 36
Monthly Average Velocity: 1.3 km/h 261.1 deg	Percentiles: P ₁ = 0 P ₁₀ = 1 Q ₁ = 2 Median = 5 Q ₃ = 7 P ₉₀ = 9 P ₉₉ = 13	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-Dec	NNW3	NNW4	NNW3	NNW4	NNW4	NNW4	WNW3	W3	WSW2	SW1	ESE1	SSW1	S2	NW0	E1	ESE5	ESE2	SE1	SSE2	SE5	SE5	SE6	SE6	ESE7	ESE0.7	ESE7	
2-Dec	ESE7	SE7	SE6	SE6	SE6	SE6	SE6	SE5	SE5	SE6	SE5	SE5	SE5	SE6	SE6	SE6	ESE6	SE5	SE6	SSE2	SSW4	S5	WSW6	W8	SE4.5	W8	
3-Dec	WNW7	WNW9	WNW11	WNW11	NW10	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	WNW11	
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	SE9	
5-Dec	SSE5	S3	WSW6	W10	W10	WNW7	WNW1	SSW1	SSW1	SE1	ESE1	WNW2	SSE1	SW1	SW3	SW2	SW1	S1	SSE3	SE4	SE5	ESE3	S7	SW3	SW1.8	W10	
6-Dec	SSW2	SW2	SW2	W3	W7	W7	W7	NW3	SSW2	W7	W13	W15	W13	W11	WNW9	W9	WNW9	W11	W11	W12	W12	WNW10	WNW10	W12	W8.0	W15	
7-Dec	W8	W12	W13	W13	W9	W8	W12	W12	W12	W10	W10	W9	WSW8	WSW6	WSW2	S2	WSW6	WSW9	W4	NW2	WSW2	WSW2	NNW3	NNW6	W7.0	W13	
8-Dec	NNW7	NNW6	NNW6	NNW8	NNW7	NNW8	NNW7	NNW8	NNW8	NNW7	N7	NNW8	NNW9	NNW10	NNW9	NNW7	NNW6	N4	NNW4	NNW4	NNW3	WNW2	ENE1	NNE2	NNW6.1	NNW10	
9-Dec	N1	ESE1	W1	NW2	ESE1	WSW2	SSW1	W2	NE1	WNW1	NW1	NNW6	NNW7	NNW7	N7	N8	NNW9	NNW9	NNW10	N8	NNW8	NW8	NNW9	NNW9	NNW4.6	NNW10	
10-Dec	NNW9	NNW9	NW9	NNW6	NNW5	NW3	NW4	WNW3	W4	WNW2	WNW1	NW4	NNW6	NNW5	NNW3	W1	WSW1	WSW1	WNW1	SE1	ESE3	ESE5	ESE6	ESE6	NNW2.2	NNW9	
11-Dec	ESE6	SE6	ESE6	ESE6	ESE6	ESE7	SE7	ESE6	ESE7	ESE6	SE7	SE6	SE6	ESE8	ESE7	ESE7	ESE3	ESE4	ESE6	SE6	SE5	SE5	SE6	SE5	ESE6.0	ESE8	
12-Dec	SE6	SE7	SE6	SE7	SE7	SE8	ESE8	ESE8	SE9	SE9	SE9	SE8	SE9	SSE8	SE8	SE7	SSE7	SSE7	SSE7	SSE7	SSE7	SSE6	SSE6	SE5	SE4	SE7.1	SE9
13-Dec	SE5	SSE5	SSE6	ESE5	SSE4	SSE5	SE5	SE4	SE3	E2	ESE4	M	M	SSW2	S3	SE2	SSW3	S1	W3	SSW1	SW1	SSW0	SW0	WSW1	SSE2.3	SSE6	
14-Dec	S0	NW1	WSW1	NE0	UO	NNE2	E2	E3	E4	ESE5	E4	ESE7	ESE7	ESE7	E6	E5	E6	E6	ESE7	ESE7	ESE8	SE5	ESE3	SE3	ESE4.1	ESE8	
15-Dec	SE2	E1	NNW3	NE1	N3	NNW5	NNW4	NW4	NW3	NNW4	NNW5	NNW6	NNW5	NNW5	NNW6	NNW6	NNW5	NW6	NW6	NNW5	N5	NNW7	NNW4	NNW4	NNW4.1	NNW7	
16-Dec	NNW5	NNW5	NW4	WNW4	NW5	NW5	WNW7	WNW6	WNW6	WNW7	W9	W8	WNW9	WNW9	WNW10	WNW6	WNW6	WNW8	WNW7	WNW7	WNW8	WNW9	WNW9	WNW8	WNW6.7	WNW10	
17-Dec	WNW9	WNW9	WNW8	WNW8	WNW7	WNW7	WNW8	WNW8	WNW7	WNW7	WNW7	WNW7	NW6	WNW6	WNW4	W2	WSW1	SW2	SSW1	WSW1	SSW1	SW2	SW1	WSW2	WNW4.8	WNW9	
18-Dec	WSW2	SW1	S1	SSW1	SW2	SW2	WSW2	WSW2	WSW2	SSW1	ESE2	SE4	SE4	SE4	ESE4	ESE3	ESE5	SE2	ESE3	ESE3	SE4	ESE3	SE2	ESE0	SE1.7	ESE5	
19-Dec	SSE2	S1	ESE1	ESE1	E1	N2	NE0	SE1	SSW0	E1	SE1	SE2	SSE2	SSE1	SW2	SW1	SW2	SW2	SW1	WSW3	SW2	S2	S1	SE4	S0.9	SE4	
20-Dec	SE6	ESE7	SE7	SE7	ESE7	SE5	SE5	SSE5	SSE6	SE7	SE7	SE9	SE7	SE7	SSE5	SSE6	S5	SSW4	SW4	SSE3	SE2	SSE1	S2	SW2	SE4.8	SE9	
21-Dec	SSW2	S2	SW3	S1	SW2	SSW1	SSW2	SW2	SW2	SW1	SSW1	SSW1	N1	NNE4	NNE3	ESE1	ESE2	SE4	ESE3	SE3	S1	S1	SW2	S2	S0.9	SE4	
22-Dec	E1	E1	ESE4	SE4	ESE3	SE4	SE5	SE2	SSW1	SE2	ESE3	SE4	SE5	SE4	SE5	SE6	SE5	SSW2	SSW2	SSE3	SE5	SE3	SSE1	S2	SE3.0	SE6	
23-Dec	SW1	SSE2	ESE5	SE3	SE5	SE6	SE5	SE3	SE2	S3	SSE3	SSE2	SW2	WSW11	WSW11	WSW9	WSW4	SSW2	SW2	W9	W10	W12	W9	W11	WSW3.2	W12	
24-Dec	W15	W16	WSW16	WSW15	WSW12	WSW10	WSW6	SE3	SSE2	SE5	SE7	SE9	ESE7	ESE7	ESE8	SE7	SE6	S4	SE5	ESE4	ESE4	W4	WSW11	WSW12	SW4.2	W16	
25-Dec	WSW12	WSW11	WSW9	W9	W5	W8	W10	W10	W13	W13	W13	W13	W12	W12	W9	WSW6	WSW4	S5	WSW9	WSW10	W10	WSW6	WSW4	SSW3	SSE3	WSW8.3	W13
26-Dec	ESE3	ESE3	SE4	ESE3	SE5	SE4	SE4	SSE2	SSW2	SSW1	SSW1	SE1	WNW1	SE2	SSE2	SSW2	SW2	SW2	SW2	SW2	WSW2	WSW3	SW3	SW2	SSE1.6	SE5	
27-Dec	WSW2	SW1	WSW1	SW1	WSW1	S0	SW1	W1	S1	SE1	NNE1	N1	NNW1	NNE2	E3	SW2	E2	ESE7	SE4	SE2	E1	ESE3	ESE4	SE4	SE1.1	ESE7	
28-Dec	SE4	SE3	ESE3	ESE2	SSW1	WSW0	W1	E1	W0	WNW1	NW3	NNW2	NNW3	NNW3	NNW3	NE3	E0	WSW2	SW1	WSW1	W1	WNW1	NW3	WNW3	NW0.5	SE4	
29-Dec	NNW4	NNW4	NNW3	NNW2	N3	NNW2	WNW3	W3	W4	WNW4	WNW4	NW3	WNW6	NW5	NW5	NNW5	NW6	NNW6	NNW5	NW4	WNW3	NW3	NNW5	NW5	NW3.9	NW6	
30-Dec	NW6	WNW4	WNW5	NW4	NW7	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW9	WNW8.1	WNW11
31-Dec	WNW7	WNW8	WNW6	WNW6	W5	W6	W6	WNW6	WNW6	WNW7	WNW10	WNW9	WNW9	NW7	NW7	NW7	NW6	NW7	NW6	NW7	NW6	NW5	NW4	NW4	WNW6.5	WNW10	

W1.4	W1.6	WSW1.9	W1.8	W1.6	W1.6	WSW1.6	W1.4	WSW1.5	WSW1.3	W1.2	W1.4	W1.5	WNW1.3	WNW0.6	SSW0.4	SW0.7	WSW1.4	WSW1.0	WSW0.9	WSW0.9	WSW1.2	WSW1.4	W1.8	Diurnal Average	
W15	W16	WSW16	WSW15	WSW12	WSW10	W12	W12	W13	W13	W13	W15	W13	W11	WSW11	W9	WNW9	W11	W11	W12	W12	W12	WSW11	W12	Diurnal Maximum	

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Surmont 2 - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	411	58.05	58.05
6 - 11	272	38.42	96.47
12 - 19	25	3.53	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 10m (WS10) - km/h
Surmont 2 - December 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	5	1	17	41	74	26	25	33	43	31	14	22	25	41	411
6 - 11	4	0	0	0	3	32	52	10	2	0	0	18	31	67	18	35	272
12 - 19	0	0	0	0	0	0	0	0	0	0	0	5	20	0	0	0	25
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	11	6	5	1	20	73	126	36	27	33	43	54	65	89	43	76	708

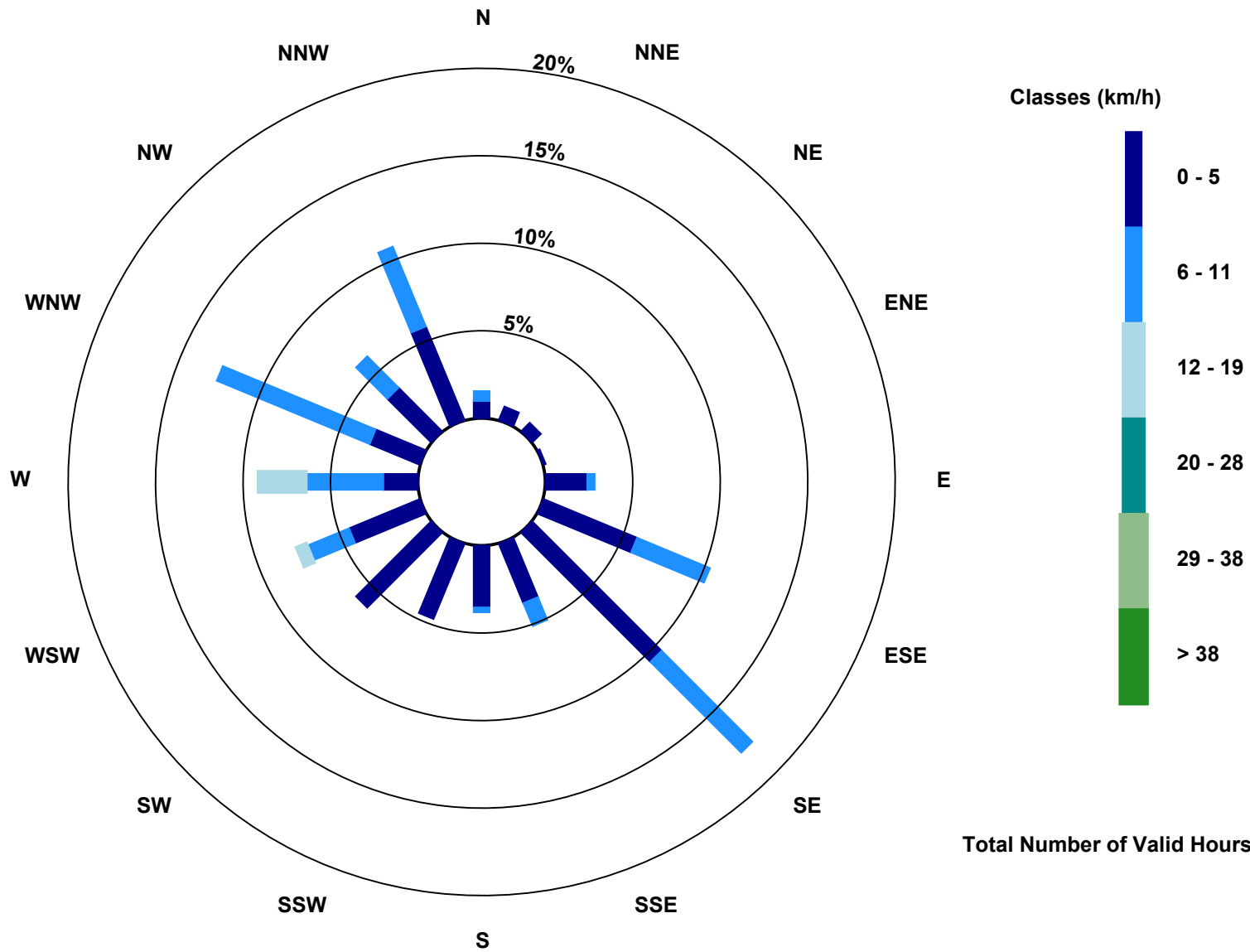
Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Surmont 2



Total Number of Valid Hours: 708



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Surmont 2 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 24 01:00	Hours in Service: 744 Hours of Data: 708 Hours of Missing Data: 36 Hours of Calibration: 0 Percent Operational Time: 95.2
Minimum Value: 0 km/h on Dec 18 06:00	
Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 3 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-Dec	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	2	1	2	2	
2-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	3	3	
3-Dec	2	4	4	4	4	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	2	3	3	3	2	2	2	2	3	3	
5-Dec	3	2	4	4	4	3	2	1	1	1	1	1	1	1	2	2	1	1	1	2	2	1	1	2	
6-Dec	1	1	1	2	3	2	2	1	2	3	5	5	5	4	4	3	3	3	4	4	3	4	4	4	
7-Dec	3	4	4	5	4	3	4	4	4	3	3	3	2	3	1	1	3	3	4	1	1	2	2	2	
8-Dec	3	2	3	3	3	3	3	3	3	4	3	3	4	4	3	3	3	2	2	2	1	1	1	1	
9-Dec	1	1	1	1	1	2	1	1	1	1	1	2	3	3	3	4	4	4	4	4	3	3	4	4	
10-Dec	4	4	4	2	3	1	2	1	1	1	1	2	2	2	1	1	1	1	1	1	1	2	2	2	
11-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	
12-Dec	2	2	2	2	3	2	3	2	3	3	4	3	4	3	3	3	3	3	3	3	2	2	2	2	
13-Dec	2	2	2	2	2	2	1	1	1	1	1	M	M	1	1	2	2	2	1	1	1	1	1	1	
14-Dec	1	1	1	1	UO	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	1	1	1	
15-Dec	1	1	2	2	1	2	2	1	1	2	2	2	2	2	2	2	3	2	3	2	3	2	2	2	
16-Dec	2	2	1	2	2	2	2	2	2	3	3	3	3	3	4	2	3	3	3	2	3	4	3	3	
17-Dec	3	3	2	3	2	2	3	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	
18-Dec	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
19-Dec	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
20-Dec	2	2	2	2	2	1	2	2	2	3	2	3	3	3	3	3	2	2	2	2	1	1	1	1	
21-Dec	1	1	2	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	2	2	1	1	1	
22-Dec	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	2	2	2	1	1	1	1	1	1	
23-Dec	1	1	1	2	2	2	2	1	1	1	1	1	3	3	3	3	2	1	1	5	4	4	4	4	
24-Dec	5	5	4	4	4	3	3	1	2	2	3	3	2	2	3	3	3	2	2	2	2	3	4	3	
25-Dec	3	3	3	3	3	3	4	4	4	4	5	5	4	4	3	2	2	4	4	4	2	2	2	2	
26-Dec	2	1	2	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
27-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	2	1	1	1	1	1	1	
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
29-Dec	2	1	1	1	1	1	1	1	1	1	2	1	2	2	2	2	3	2	2	2	1	1	2	2	
30-Dec	2	1	2	2	3	3	3	4	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	
31-Dec	3	3	2	2	2	2	2	2	2	2	3	3	3	3	3	3	2	3	2	3	2	2	2	2	
Diurnal Maximum																									
5 5 4 5 4 3 4 4 4 4 5 5 5 4 4 4 4 4 4 5 4 4 4 4 4																									

M - Maintenance UO - Unstable Operation



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

Surmont 2 - December 2024

Direction of Maximum Speed: 260 deg on Dec 24 02:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 257.5 deg on Dec 25	Hours of Data: 708
Direction of Minimum Speed: 116 deg on Dec 19 00:00	Direction of Minimum Daily Speed Average: 0.5 deg on Dec 28
Direction of Minimum Speed: 116 deg on Dec 19 00:00	Hours of Missing Data: 36
Monthly Average Direction: 261.1 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-Dec	328	337	333	338	336	327	301	274	246	223	115	206	175	320	91	120	117	127	160	134	129	125	125	122	111.0
2-Dec	122	126	131	129	126	129	131	131	136	131	142	136	132	129	132	126	121	135	127	157	209	191	242	268	140.4
3-Dec	284	288	290	293	307	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	--
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	128	132	136	138	130	131	137	159	188	184	--
5-Dec	167	178	242	264	280	285	295	193	210	136	113	299	167	218	227	233	232	183	159	138	136	123	157	234	222.1
6-Dec	209	224	231	260	268	281	267	310	198	273	268	271	275	277	294	273	284	263	277	275	273	283	287	270	273.3
7-Dec	279	263	269	278	279	280	267	278	265	267	272	265	254	249	245	185	256	251	278	312	252	252	345	339	269.9
8-Dec	343	343	340	336	339	333	334	331	328	342	352	329	335	342	334	340	331	350	346	342	336	293	76	25	338.0
9-Dec	355	117	278	307	114	255	213	276	54	286	309	343	335	336	353	357	348	348	345	357	332	325	337	331	339.4
10-Dec	337	332	316	329	329	322	320	284	265	290	286	323	347	345	346	281	238	243	298	134	116	117	121	122	331.2
11-Dec	121	125	122	120	123	117	126	118	116	123	125	126	124	117	117	118	123	122	121	131	129	129	127	130	122.7
12-Dec	135	130	135	132	138	127	123	122	129	132	139	136	142	149	145	140	150	158	164	163	157	156	143	145	140.4
13-Dec	132	160	163	120	151	165	136	137	134	79	107	M	M	195	182	124	211	187	278	210	221	206	230	244	151.6
14-Dec	174	325	251	40	UO	21	84	92	95	104	94	106	115	107	92	82	85	94	107	113	116	125	108	134	102.7
15-Dec	135	92	348	50	359	343	339	314	326	336	340	345	344	344	347	334	313	313	339	349	341	333	332	339.2	
16-Dec	342	335	313	297	305	307	300	298	294	301	281	277	289	290	290	284	300	290	287	283	288	293	288	295	294.3
17-Dec	294	289	283	291	294	290	287	298	286	297	292	294	313	289	288	259	238	232	202	257	206	224	225	241	287.0
18-Dec	238	219	188	211	233	234	241	248	243	195	121	129	128	135	120	109	113	134	121	122	129	117	124	116	144.3
19-Dec	157	189	120	119	100	4	43	127	192	101	143	130	150	165	215	228	232	227	219	243	226	173	189	143	177.3
20-Dec	132	123	124	127	120	133	146	155	148	141	132	132	140	138	156	165	190	192	227	167	142	159	186	218	144.8
21-Dec	203	181	228	172	215	210	202	231	230	225	196	211	350	19	33	108	123	135	107	143	188	186	220	180	174.1
22-Dec	93	90	128	134	118	141	131	127	209	127	103	133	131	133	131	127	138	197	202	152	136	144	155	184	136.2
23-Dec	225	160	120	128	138	145	138	125	137	177	152	156	234	255	256	256	241	202	216	273	274	271	279	271	237.9
24-Dec	264	260	253	250	252	248	238	139	168	143	139	136	123	119	120	135	143	170	144	122	105	259	251	254	213.8
25-Dec	252	255	257	269	268	260	259	267	266	264	264	264	263	264	256	241	189	253	256	261	258	241	209	152	257.5
26-Dec	117	116	132	104	134	136	141	160	196	208	193	137	283	124	151	210	221	217	222	232	240	238	231	228	167.1
27-Dec	241	235	240	236	238	186	214	266	172	137	27	8	347	22	82	223	88	114	133	132	100	111	112	130	126.4
28-Dec	129	128	122	122	205	251	264	87	259	291	321	345	333	329	345	34	85	254	223	258	277	295	305	295	325.8
29-Dec	335	345	346	346	352	330	296	280	280	292	302	307	300	307	307	335	320	330	333	316	301	309	329	325	317.5
30-Dec	317	298	285	305	316	295	298	302	301	296	296	296	291	290	291	291	290	291	294	300	307	296	295	299	296.8
31-Dec	295	302	297	289	279	281	278	283	283	285	293	297	301	318	313	309	308	305	306	315	313	318	325	320	300.1

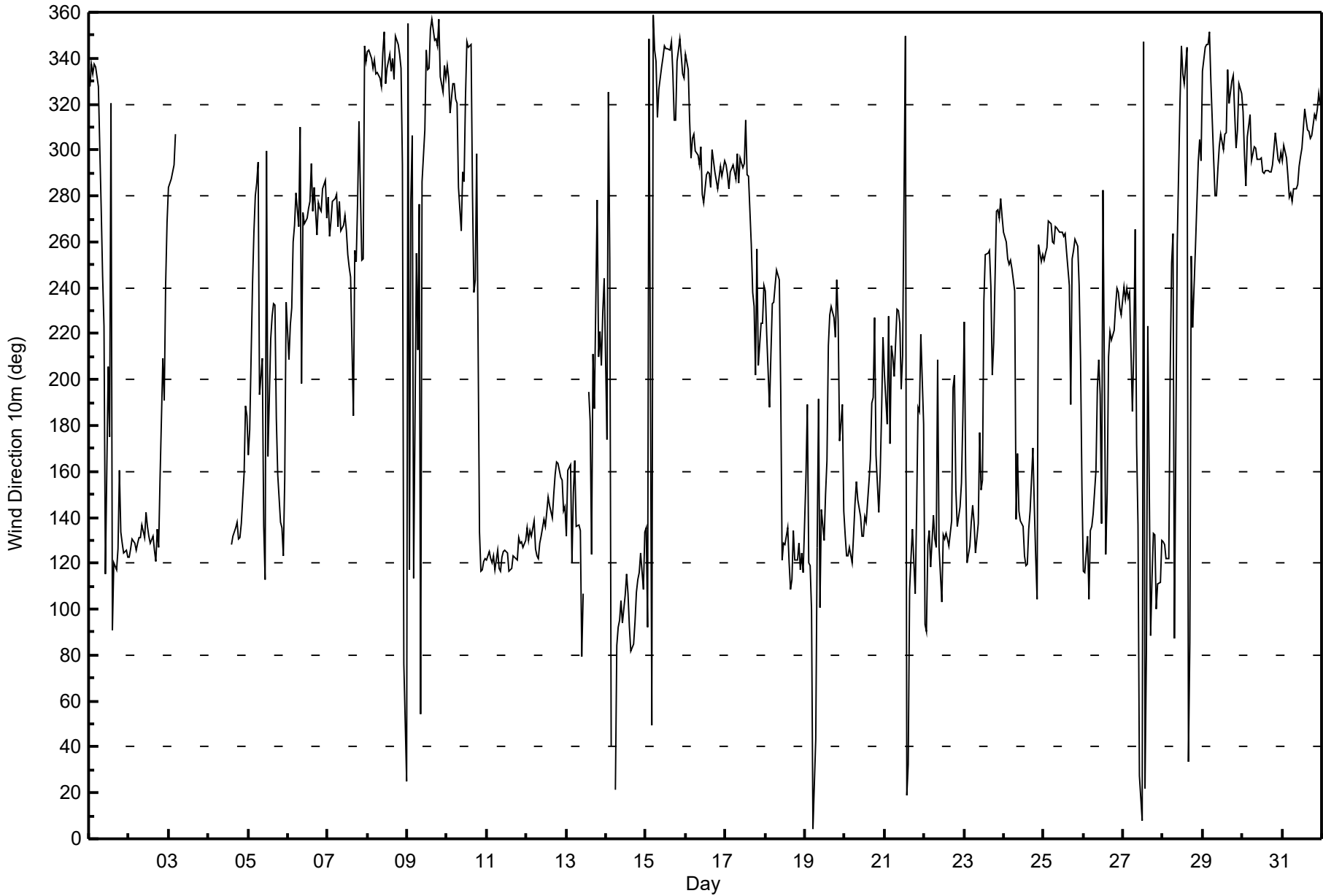
267.2 265.5 258.1 271.0 276.9 271.2 256.0 268.3 250.2 258.1 259.7 268.0 278.7 286.1 282.4 200.4 233.3 242.4 250.3 245.4 240.3 247.9 258.3 262.4

Diurnal Average

M - Maintenance

UO - Unstable Operation

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Surmont 2 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 99 deg on Dec 9 03:00	Hours of Data: 708
Minimum Value: 14 deg on Dec 18 07:00	Hours of Missing Data: 36
Percentiles: P ₁ = 18 P ₁₀ = 25 Q ₁ = 30 Median = 38 Q ₃ = 50 P ₉₀ = 70 P ₉₉ = 92	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-Dec	34	41	36	36	36	42	34	20	39	65	78	76	34	87	80	22	39	52	74	39	37	26	32	25	87
2-Dec	26	31	38	38	32	34	36	37	39	36	41	40	37	31	36	30	32	38	22	85	62	51	53	38	85
3-Dec	31	30	30	33	39	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	39
4-Dec	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	M	33	40	42	40	33	40	52	56	61	57	61
5-Dec	70	83	62	37	42	42	66	72	73	60	73	84	77	67	57	64	88	57	41	47	37	29	34	31	88
6-Dec	51	34	33	76	30	28	26	62	82	36	31	27	28	30	36	29	29	24	28	25	23	29	34	25	82
7-Dec	29	26	25	30	33	39	33	30	26	25	23	22	21	19	60	88	42	25	68	66	60	65	67	35	88
8-Dec	36	40	38	39	40	42	42	39	45	47	43	44	47	38	40	37	47	41	40	37	37	40	59	47	59
9-Dec	57	39	99	67	75	64	93	43	85	63	77	37	41	41	50	43	40	43	39	43	40	39	39	41	99
10-Dec	41	41	43	38	40	38	40	27	28	25	87	48	42	34	55	84	81	80	61	57	22	25	24	28	87
11-Dec	25	33	25	25	28	22	29	28	20	27	28	31	31	18	19	19	37	39	24	37	35	36	32	40	40
12-Dec	40	37	43	38	42	36	31	29	38	40	45	41	46	50	43	50	53	57	53	60	56	62	53	67	67
13-Dec	48	50	37	37	60	48	29	37	31	34	31	M	M	55	53	70	43	78	36	77	49	76	74	69	78
14-Dec	90	98	48	90	UO	45	62	35	22	19	24	18	19	20	26	27	30	25	23	17	18	33	29	34	98
15-Dec	76	37	59	86	60	40	39	44	44	40	44	37	36	32	39	34	46	43	45	43	42	36	45	39	86
16-Dec	35	34	39	35	43	40	30	33	29	35	29	28	29	29	30	28	34	31	25	29	32	31	30	34	43
17-Dec	28	25	24	28	28	28	27	28	27	27	31	31	47	28	33	19	40	38	62	91	50	58	66	35	91
18-Dec	27	47	47	29	22	14	14	16	25	46	28	40	38	39	25	21	15	28	33	18	22	19	55	89	89
19-Dec	23	75	34	56	43	42	81	70	83	71	59	46	38	56	58	61	25	28	26	16	51	68	81	55	83
20-Dec	41	32	30	30	23	37	43	48	46	42	35	32	51	49	61	54	54	86	57	52	35	67	51	42	86
21-Dec	47	38	33	45	38	32	34	53	26	36	68	62	67	44	47	40	37	44	33	44	95	66	53	43	95
22-Dec	42	76	37	44	29	34	35	46	72	32	29	32	28	36	27	30	42	67	51	30	24	24	50	35	76
23-Dec	45	53	24	48	34	32	27	48	79	29	28	35	87	20	22	27	51	92	92	53	32	28	35	29	92
24-Dec	26	24	21	18	18	23	67	43	80	61	45	38	35	34	38	51	60	66	55	52	54	78	20	18	80
25-Dec	18	20	22	24	40	34	26	36	29	25	28	29	25	37	62	71	58	39	38	29	31	73	93	88	93
26-Dec	40	35	47	51	39	51	31	50	48	32	65	63	88	49	39	39	56	24	41	29	26	21	31	37	88
27-Dec	45	79	43	59	61	96	77	81	76	81	76	86	87	59	49	67	47	15	34	54	32	19	19	30	96
28-Dec	29	35	32	47	59	91	80	75	93	47	43	37	37	43	36	29	80	42	63	71	32	36	36	29	93
29-Dec	37	39	44	43	39	38	32	25	27	32	32	49	39	36	37	44	47	39	41	46	34	40	42	41	49
30-Dec	38	35	29	45	42	33	36	38	34	34	32	33	30	30	27	28	28	27	28	32	38	34	28	32	45
31-Dec	33	33	34	31	25	28	25	27	28	26	29	33	36	45	44	38	37	37	35	39	39	37	42	41	45
	90	98	99	90	75	96	93	81	93	81	87	86	88	87	80	88	88	92	92	91	95	78	93	89	
	Diurnal Maximum																								

M - Maintenance UO - Unstable Operation



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS30 ELLS RIVER DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
 DECEMBER 2024

MONTHLY SUMMARY for
 AMD SECTION III.B.1(c)

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	709	35	35	100	30.8	0	3.8	0
TRS (ppb) Average	707	37	37	100	4.5	0	2	0
THC (ppm) Average	706	35	38	99.6	6.1	-	3.2	-
NMHC (ppm) Average	706	35	38	99.6	1.082	-	0.251	-
CH4 (ppm) Average	706	35	38	99.6	5.5	-	3	-
NO2 (ppb) Average	708	36	36	100	38.9	0	23.7	-
NO (ppb) Average	708	36	36	100	150.2	-	41.6	-
NOX (ppb) Average	708	36	36	100	186.3	-	61.2	-
PM2.5 (ug/m3) Average	743	1	1	100	26.3	0	14.4	0
Temperature 2 m (C) Average	744	0	0	100	3.1	-	0.4	-
Relative Humidity (%) Average	744	0	0	100	94.1	-	92	-
Wind Speed 10 m (km/h) Average	693	0	51	93.15	25	-	16	-
Wind Direction 10 m (deg) Average	693	0	51	93.15	-	-	-	-
Global Solar Radiation (W/m2) Average	744	0	0	100	209.2	-	33.9	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
DECEMBER 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	0.72	2.3	-	0	0	0	0.1	0.4	1.7	30.8
TRS (ppb) Average	707	0.62	0.5	-	0.3	0.4	0.4	0.4	0.7	1	4.5
THC (ppm) Average	706	2.33	0.5	-	2	2	2.1	2.2	2.4	2.7	6.1
NMHC(ppm) Average	706	0.062	0.132	-	0	0	0	0	0.1	0.2	1.082
CH4(ppm) Average	706	2.27	0.4	-	2	2	2.1	2.1	2.3	2.6	5.5
NO2 (ppb) Average	708	11.15	8.7	-	0.2	0.6	3	10.1	18.1	23	38.9
NO (ppb) Average	708	7.21	16.2	-	0	0	0.1	0.6	7.2	23.1	150.2
NOX (ppb) Average	708	18.36	22.7	-	0.2	0.7	3.4	11.4	25.3	44.1	186.3
PM2.5 (ug/m3) Average	743	4.61	3.7	-	0.2	1.5	2.2	3.3	5.5	10.2	26.3
Temperature 2 m (C) Average	744	-13.11	8.3	-	-34	-25.6	-19.3	-11.2	-7.4	-3.3	3.1
Relative Humidity (%) Average	744	79.84	7.9	-	58.7	69.4	73.3	80.2	86.7	89.5	94.1
Wind Speed 10 m (km/h) Average	693	7.8	5	-	0	2	4	7	11	14	25
Wind Direction 10 m (deg) Average	693	234.6	-	-	-	-	-	-	-	-	-
Global Solar Radiation (W/m2) Average	744	15.65	36.6	-	0	0	0	0	8.5	51.4	209.2

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - ELLS RIVER (AMS30)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
THC/NMHC/CH4	23 Dec 2024 12:00	23 Dec 2024 14:00	3	Maintenance - replaced support gas cylinder
Wind Speed, Wind Direction	01 Dec 2024 06:00	01 Dec 2024 06:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	01 Dec 2024 08:00	01 Dec 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	01 Dec 2024 18:00	01 Dec 2024 19:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	02 Dec 2024 11:00	02 Dec 2024 11:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	02 Dec 2024 14:00	02 Dec 2024 15:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	02 Dec 2024 17:00	02 Dec 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	05 Dec 2024 17:00	05 Dec 2024 17:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	10 Dec 2024 03:00	10 Dec 2024 04:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	16 Dec 2024 04:00	16 Dec 2024 04:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	18 Dec 2024 11:00	18 Dec 2024 12:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 14:00	19 Dec 2024 14:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 17:00	19 Dec 2024 20:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction	19 Dec 2024 22:00	19 Dec 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Dec 2024 03:00	20 Dec 2024 03:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	20 Dec 2024 05:00	20 Dec 2024 05:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 08:00	21 Dec 2024 08:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 13:00	21 Dec 2024 13:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	21 Dec 2024 22:00	21 Dec 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	27 Dec 2024 22:00	28 Dec 2024 01:00	4	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 03:00	28 Dec 2024 10:00	8	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 15:00	28 Dec 2024 15:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	28 Dec 2024 22:00	28 Dec 2024 22:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 08:00	29 Dec 2024 09:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 13:00	29 Dec 2024 14:00	2	Flat line in sensor output signal
Wind Speed, Wind Direction	29 Dec 2024 16:00	29 Dec 2024 16:00	1	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 06:00	31 Dec 2024 11:00	6	Flat line in sensor output signal
Wind Speed, Wind Direction	31 Dec 2024 22:00	31 Dec 2024 22:00	1	Flat line in sensor output signal

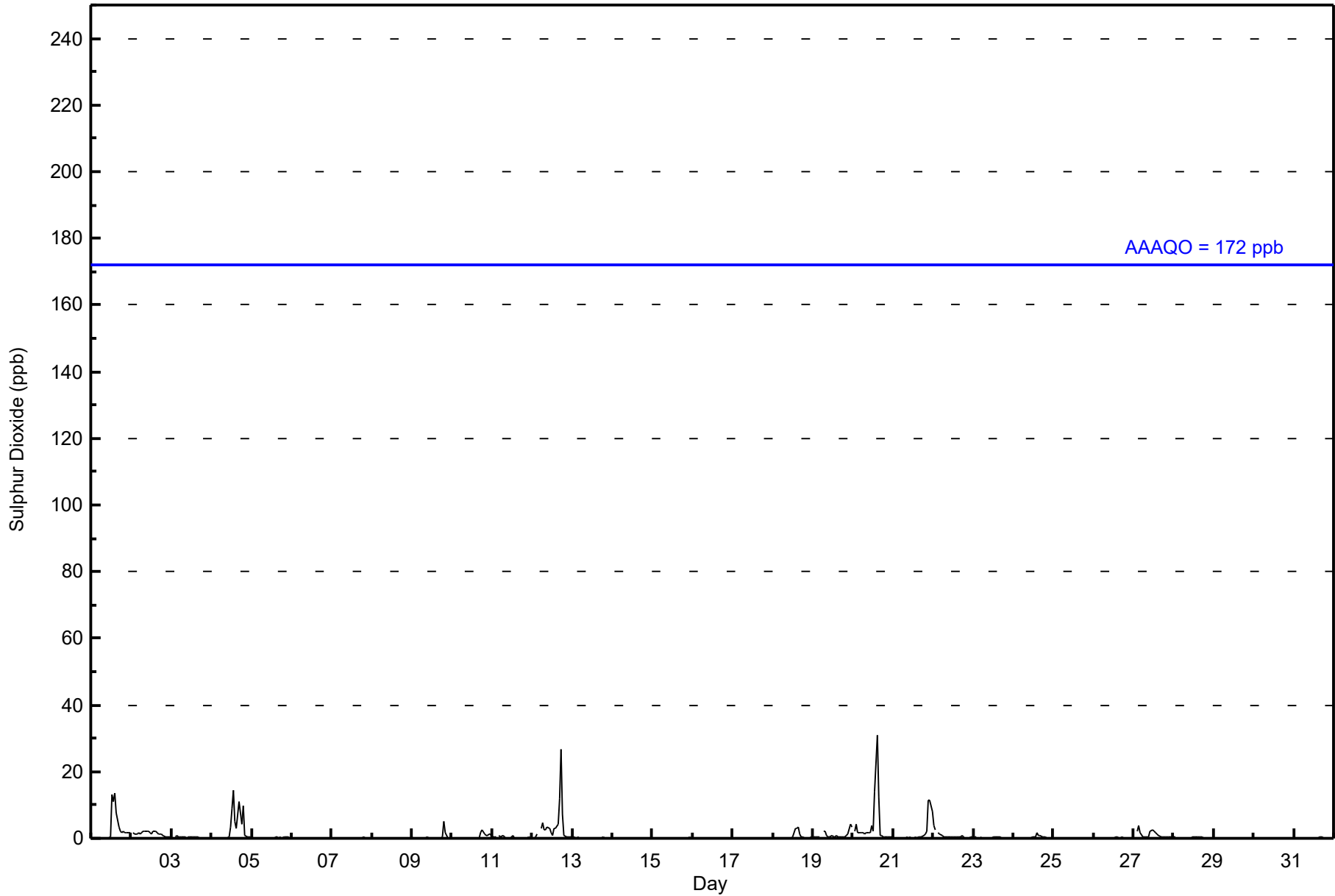


Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	Daily Average		Daily Maximum																									
Maximum Value: 30.8 ppb on Dec 20 15:00		Maximum Daily Average: 3.8 ppb on Dec 20		Hours of Data: 709																	Hours of Missing Data: 35		Hours of Calibration: 35																									
Minimum Value: 0.0 ppb on Dec 1 04:00		Minimum Daily Average: 0.0 ppb on Dec 30		Hours of Operational Time: 100.0																																												
Maximum Diurnal Average: 2.1 ppb at hour 15		Minimum Diurnal Average: 0.3 ppb at hour 1																																														
Monthly Average: 0.72 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.4 P ₉₀ = 1.7 P ₉₉ = 11.8																																														
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-Dec	0.1	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.1	0.2	0.6	13.2	11.2	13.6	7.7	3.3	2.1	1.7	2.1	1.7	1.6	1.8	1.8	2.7	13.6																						
2-Dec	Z	1.7	1.1	1.3	1.6	1.4	1.6	1.9	2.0	2.1	2.0	1.6	1.3	2.2	1.9	1.5	1.3	1.3	1.1	0.8	0.5	0.5	0.3	0.3	1.4	2.2																						
3-Dec	0.3	Z	0.6	0.9	0.4	0.4	0.3	0.2	0.2	0.2	0.5	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.3	0.9																							
4-Dec	0.1	0.0	Z	0.1	0.0	0.0	0.1	0.0	0.1	0.2	0.2	3.6	8.8	14.3	5.0	2.9	11.0	7.8	4.3	9.6	0.9	0.6	0.5	0.4	3.1	14.3																						
5-Dec	0.2	0.1	0.0	Z	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.3																						
6-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
7-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.1	0.0	0.0	0.0	0.0	0.4																						
8-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2																						
9-Dec	0.3	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.2	1.7	0.1	0.0	0.0	0.4	5.2																						
10-Dec	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	0.1	0.1	0.2	1.8	2.6	1.4	0.8	0.8	1.4	1.1	0.4	2.6																						
11-Dec	0.5	0.3	0.3	Z	0.7	0.6	0.6	0.4	0.2	0.1	0.1	0.1	0.7	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.3	0.7																						
12-Dec	0.0	0.1	0.4	1.1	Z	3.0	4.5	2.4	2.7	3.6	2.9	1.8	1.0	2.8	3.1	4.1	11.8	26.6	7.0	0.8	0.5	0.5	0.4	0.3	3.5	26.6																						
13-Dec	0.2	0.3	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.1	0.3																						
14-Dec	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
15-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2																						
16-Dec	0.2	0.2	Z	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																						
17-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
18-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.9	3.1	3.4	1.2	0.5	0.3	0.2	0.1	0.1	0.2	0.2	0.5	3.4																						
19-Dec	0.4	0.6	0.6	0.5	0.4	Z	2.1	2.0	0.7	0.3	0.6	0.7	0.6	0.6	0.9	0.6	0.4	0.3	0.3	0.4	1.0	1.3	4.3	3.2	1.0	4.3																						
20-Dec	Z	2.1	4.2	1.7	1.8	1.9	1.5	1.4	1.6	1.9	1.6	3.7	2.0	14.1	30.8	12.2	1.0	0.8	0.6	0.5	0.3	0.3	0.3	0.2	3.8	30.8																						
21-Dec	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.5	0.7	1.4	2.1	11.4	11.4	7.9	1.7	11.4																						
22-Dec	3.7	2.6	Z	1.7	1.1	0.7	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.4	0.3	0.3	0.3	0.7	0.4	0.1	0.2	0.2	0.2	0.3	0.7	3.7																						
23-Dec	0.3	0.3	0.3	Z	0.3	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.4	0.4	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.4																						
24-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.1	0.2	0.3	0.4	0.6	1.7	0.9	0.7	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.3	1.7																						
25-Dec	0.1	0.1	0.1	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	0.0	0.0	0.0	0.0	0.0	0.1																						
26-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.2	0.2	0.2	0.3	0.2	0.2	0.3	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.3																						
27-Dec	0.1	Z	2.1	4.0	1.7	0.5	0.4	0.3	0.3	0.3	2.3	2.5	1.9	1.6	1.2	0.7	0.5	0.6	0.5	0.5	0.5	0.4	0.4	0.3	1.0	4.0																						
28-Dec	0.4	0.3	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.5	0.5	0.4	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.5																						
29-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																						
30-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0																						
31-Dec	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	0.6	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.6																						
																								0.3	0.3	0.4	0.5	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.6	1.1	1.8	2.1	1.2	1.1	1.5	0.7	0.8	0.4	0.6	0.7	0.6	Diurnal Average
																								3.7	2.6	4.2	4.0	1.8	3.0	4.5	2.4	2.7	3.6	2.9	3.7	13.2	14.3	30.8	12.2	11.8	26.6	7.0	9.6	2.1	11.4	11.4	7.9	Diurnal Maximum
Z - zerospan C - Calibration																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Ells River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Ells River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	697	98.31	98.31
11 - 20	10	1.41	99.72
21 - 60	2	0.28	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 709

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Ells River - December 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	47	64	11	6	5	12	28	97	129	66	40	32	33	42	22	17	651
11 - 20	0	0	0	0	0	0	0	5	3	1	0	0	0	0	0	0	9
21 - 60	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	47	64	11	6	5	12	28	104	132	67	40	32	33	42	22	17	662

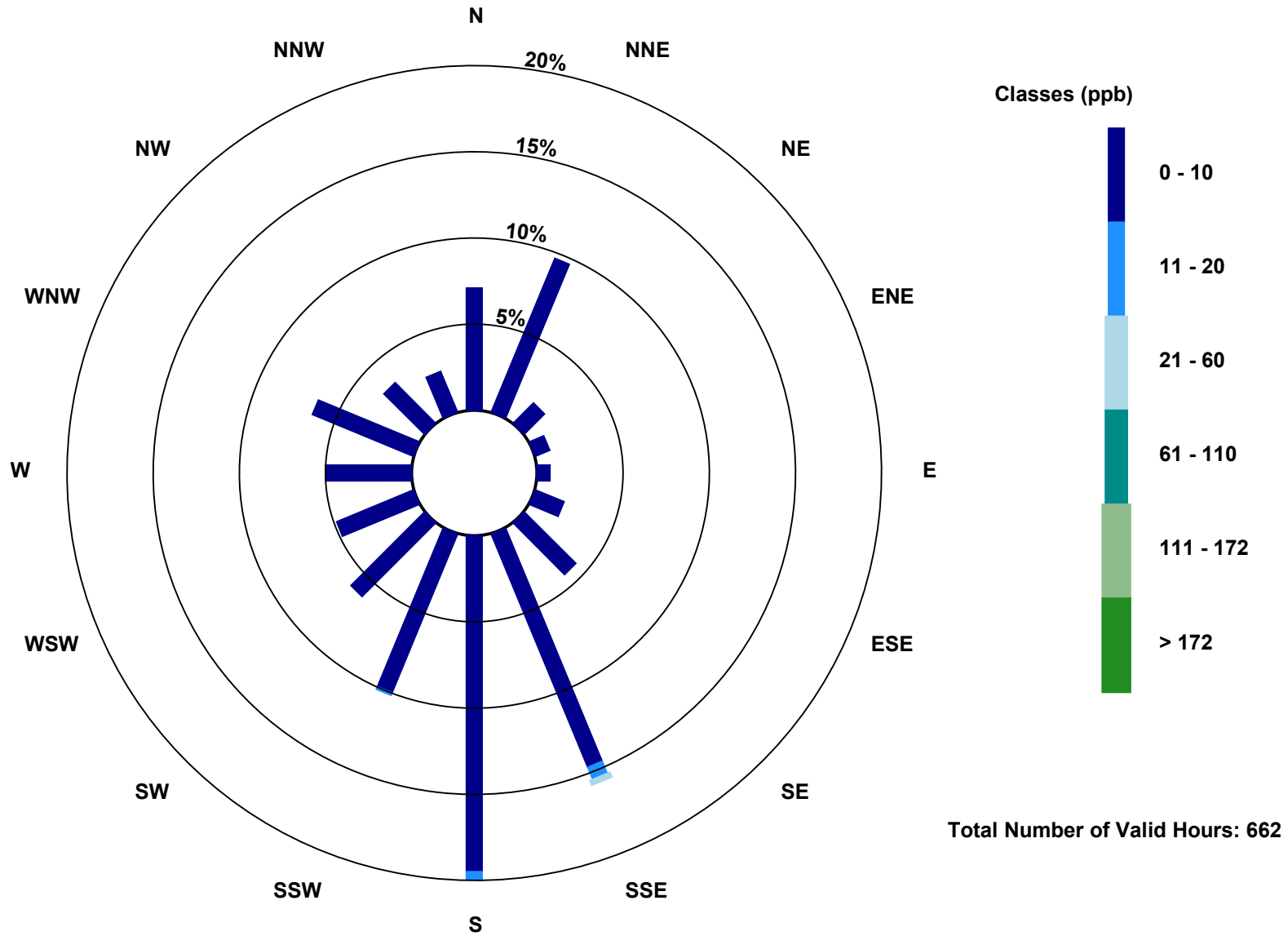
Total Number of Valid Hours: 662

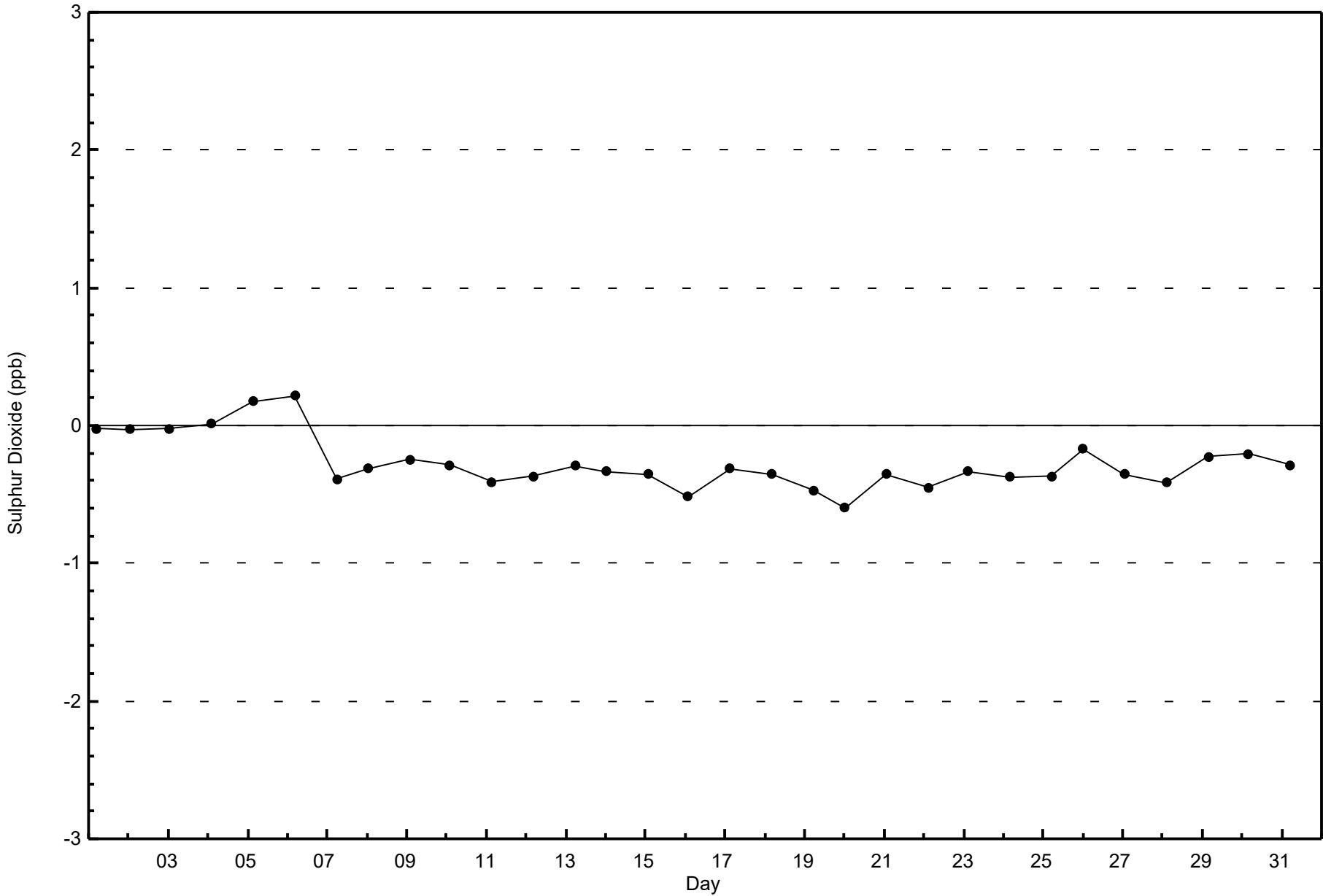
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Ells River

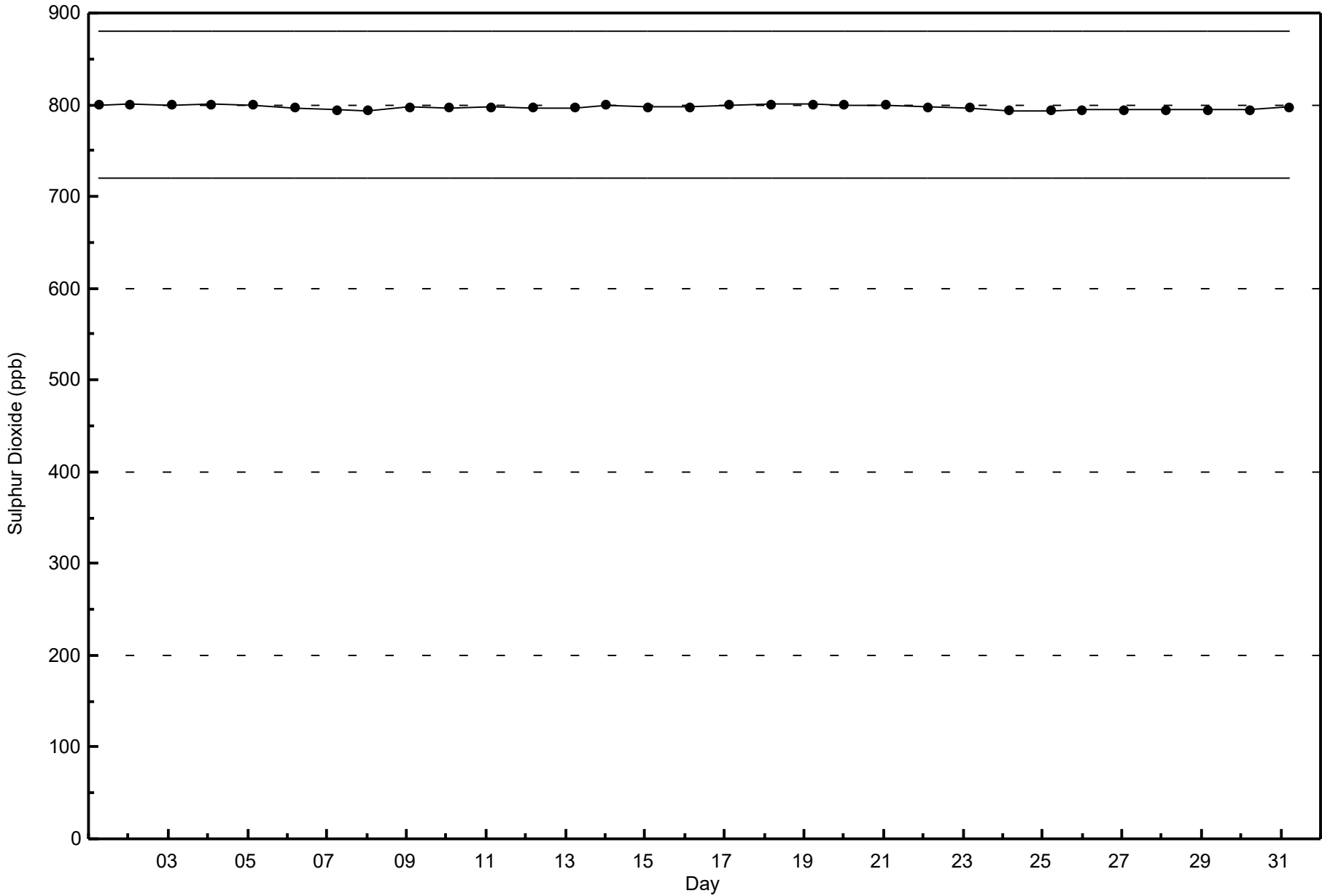






Wood Buffalo Environmental Association
Span Responses

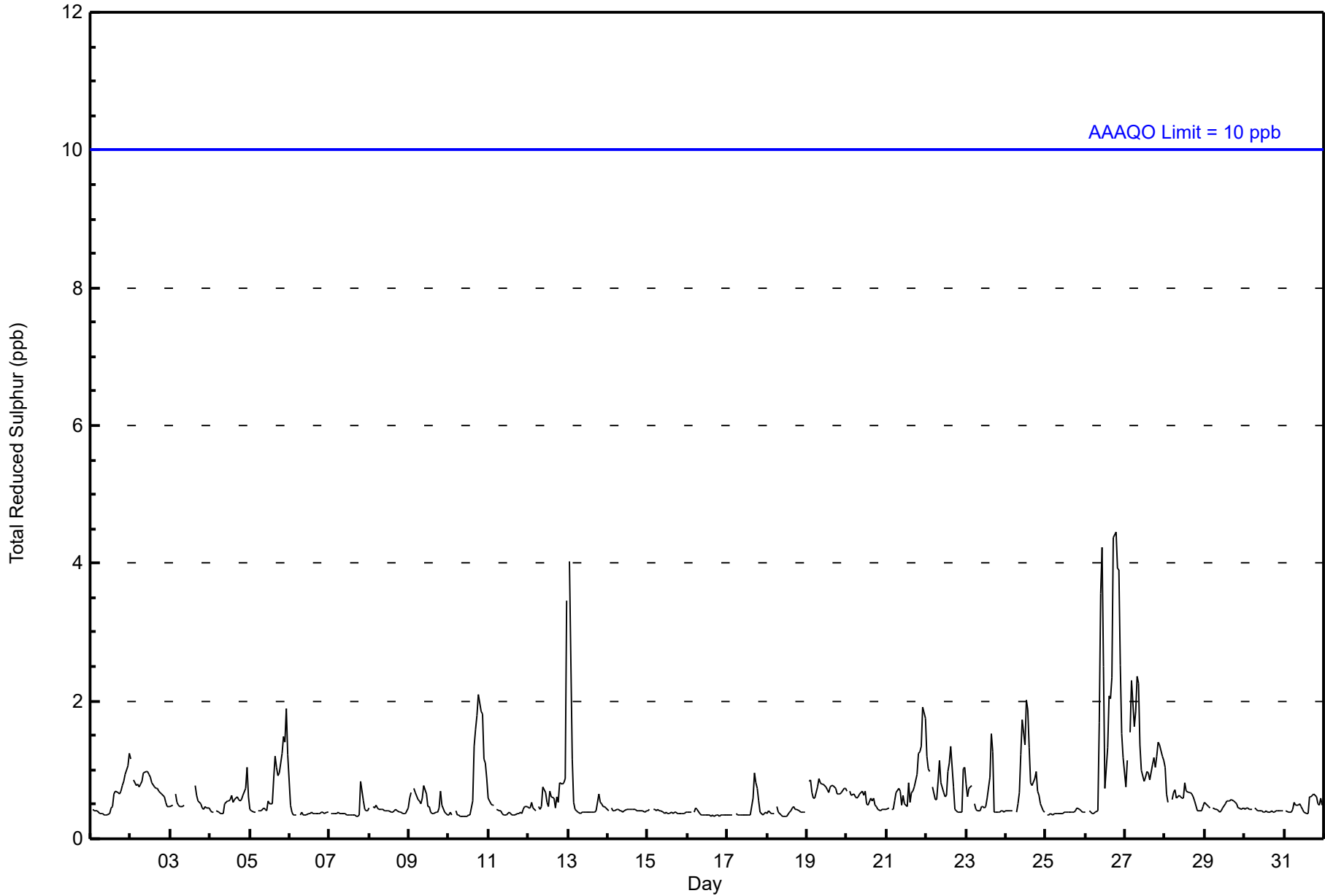
Sulphur Dioxide (SO₂) - ppb
Ells River - December 2024





Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																Daily Average		Daily Maximum			
Maximum Value: 4.5 ppb on Dec 26 19:00		Maximum Daily Average: 2.0 ppb on Dec 26		Hours of Data: 707																Hours of Missing Data: 37		Hours of Calibration: 37					
Minimum Value: 0.3 ppb on Dec 10 11:00		Minimum Daily Average: 0.4 ppb on Dec 16		Hours of Calibration: 37																Percent Operational Time: 100.0							
Maximum Diurnal Average: 0.7 ppb at hour 20		Minimum Diurnal Average: 0.5 ppb at hour 7		Percentiles: P ₁ = 0.3 P ₁₀ = 0.4 Q ₁ = 0.4 Median = 0.4 Q ₃ = 0.7 P ₉₀ = 1.0 P ₉₉ = 3.4																							
Monthly Average: 0.62 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-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.9	1.1	1.2	0.6	1.2	
2-Dec	1.2	Z	0.9	0.8	0.8	0.8	0.8	0.8	0.9	1.0	1.0	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.8	1.2	
3-Dec	0.5	0.5	Z	0.7	0.5	0.5	0.5	0.5	0.5	C	C	C	C	C	C	0.8	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.4	--	0.8	
4-Dec	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.6	0.7	1.0	0.6	0.5	1.0	
5-Dec	0.4	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.5	0.5	0.9	1.2	1.0	0.9	1.0	1.2	1.5	1.4	1.9	1.2	0.8	1.9
6-Dec	0.5	0.4	0.4	0.3	0.3	Z	0.3	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
7-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.3	0.3	0.3	0.3	0.8	0.5	0.4	0.4	0.4	0.4	0.4	0.8
8-Dec	0.4	Z	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5
9-Dec	0.6	0.7	Z	0.7	0.7	0.6	0.6	0.5	0.6	0.8	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.7	0.5	0.4	0.4	0.4	0.5	0.8
10-Dec	0.4	0.4	0.3	Z	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.5	1.3	1.6	1.8	2.1	1.9	1.8	1.2	1.1	0.9	0.8	2.1	
11-Dec	0.6	0.5	0.5	0.5	Z	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4	0.6	
12-Dec	0.4	0.4	0.5	0.5	0.4	Z	0.5	0.4	0.5	0.8	0.7	0.5	0.5	0.7	0.6	0.6	0.4	0.6	0.5	0.8	0.8	0.8	0.9	3.4	0.7	3.4	
13-Dec	Z	4.0	1.2	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.7	0.5	0.5	0.5	0.4	0.6	4.0	
14-Dec	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
15-Dec	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
16-Dec	0.4	0.4	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
17-Dec	0.3	0.3	0.4	0.4	Z	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.6	1.0	0.8	0.7	0.5	0.4	0.3	0.4	0.4	0.4	1.0	
18-Dec	0.4	0.4	0.4	0.4	0.4	Z	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	
19-Dec	Z	0.8	0.9	0.7	0.6	0.6	0.8	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7	0.9	
20-Dec	0.7	Z	0.7	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.5	0.5	0.6	0.5	0.6	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.6	0.7	
21-Dec	0.4	0.5	Z	0.4	0.4	0.5	0.7	0.7	0.7	0.5	0.6	0.5	0.5	0.8	0.5	0.7	0.7	0.8	0.9	1.2	1.3	1.3	1.9	1.8	0.8	1.9	
22-Dec	1.2	1.0	1.0	Z	0.8	0.6	0.6	0.8	1.1	0.8	0.7	0.6	0.6	1.0	1.1	1.3	0.8	0.4	0.4	0.4	0.4	0.4	1.0	1.0	0.8	1.3	
23-Dec	0.8	0.6	0.7	0.8	Z	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.5	0.6	0.9	1.5	1.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.6	1.5	
24-Dec	0.4	0.4	0.4	0.4	0.4	Z	0.4	0.5	0.7	1.2	1.7	1.4	2.0	1.9	1.3	0.8	0.8	0.9	1.0	0.7	0.6	0.5	0.4	0.4	0.8	2.0	
25-Dec	Z	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.5	
26-Dec	0.4	Z	0.4	0.4	0.4	0.4	0.4	0.4	1.7	3.6	4.2	2.5	0.7	1.3	2.1	2.0	2.3	4.4	4.5	3.9	3.9	2.5	1.5	1.2	2.0	4.5	
27-Dec	0.7	1.1	Z	1.5	2.3	1.6	1.9	2.4	2.3	1.4	1.0	0.8	0.9	1.0	1.0	0.8	1.1	1.2	1.0	1.2	1.4	1.4	1.2	1.1	1.3	2.4	
28-Dec	1.0	0.6	0.5	Z	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.4	0.4	0.4	0.5	0.6	1.0	
29-Dec	0.5	0.5	0.5	0.4	Z	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	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.6	
30-Dec	0.4	0.5	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	0.5	
31-Dec	Z	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.6	
																								Diurnal Average		Diurnal Maximum	
																								0.6		1.2	
																								0.6		4.0	
																								0.5		1.2	
																								0.5		1.5	
																								0.5		2.3	
																								0.5		1.6	
																								0.5		1.9	
																								0.5		2.4	
																								0.6		2.3	
																								0.6		3.6	
																								0.7		4.2	
																								0.6		2.5	
																								0.5		2.0	
																								0.6		1.9	
																								0.6		2.1	
																								0.7		2.0	
																								0.7		2.3	
																								0.7		4.4	
																								0.7		4.5	
																								0.7		3.9	
																								0.7		3.9	
																								0.6		2.5	
																								0.7		1.9	
																								0.7		3.4	

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

Total Reduced Sulphur (TRS) - ppb
Ells River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	697	98.59	98.59
3 - 4	10	1.41	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 707

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Reduced Sulphur (TRS) - ppb
Ells River - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	45	64	11	6	5	12	29	97	125	71	44	31	34	40	20	15	649
3 - 4	0	0	0	0	0	0	0	4	5	1	0	0	0	0	0	0	10
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	45	64	11	6	5	12	29	101	130	72	44	31	34	40	20	15	659

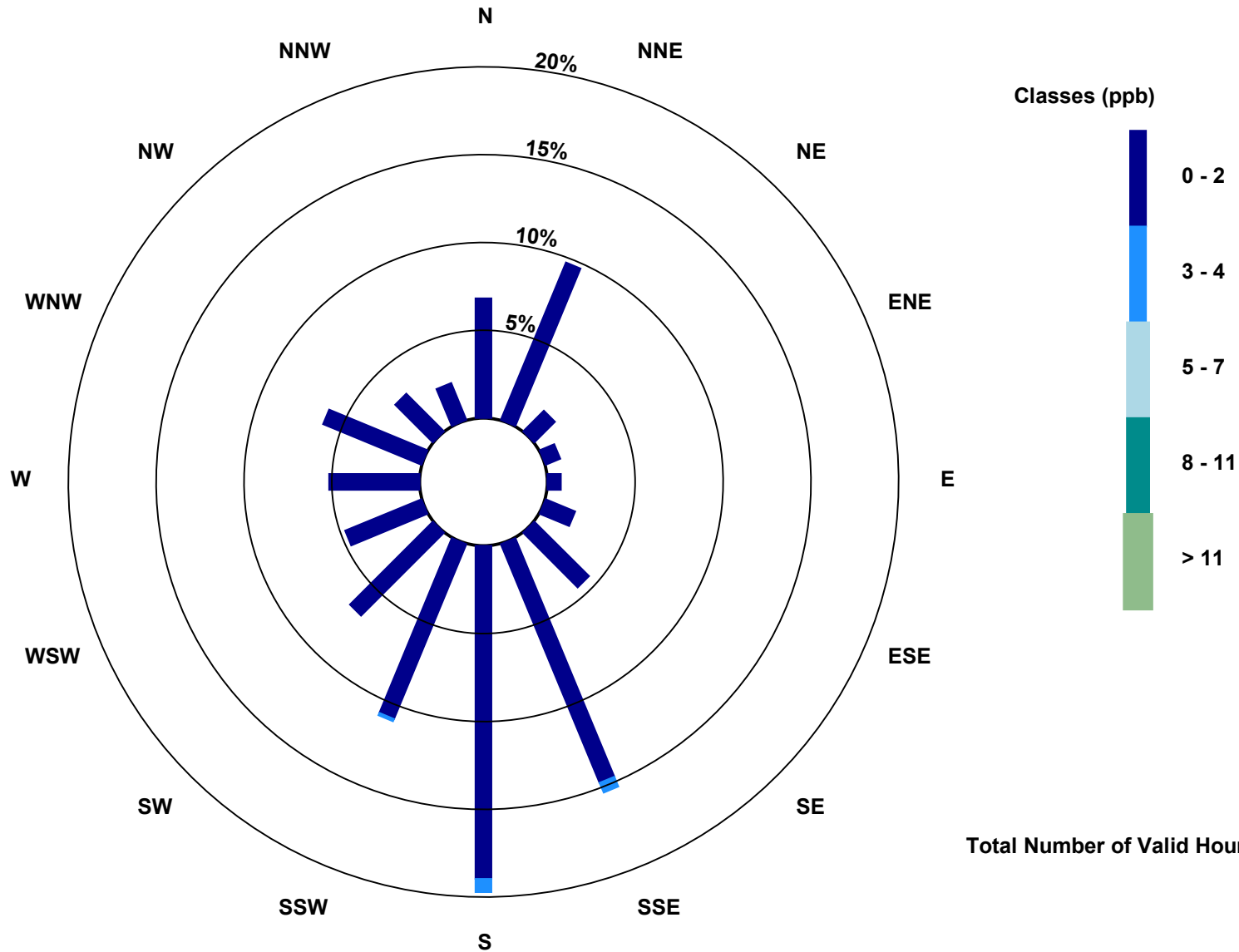
Total Number of Valid Hours: 659

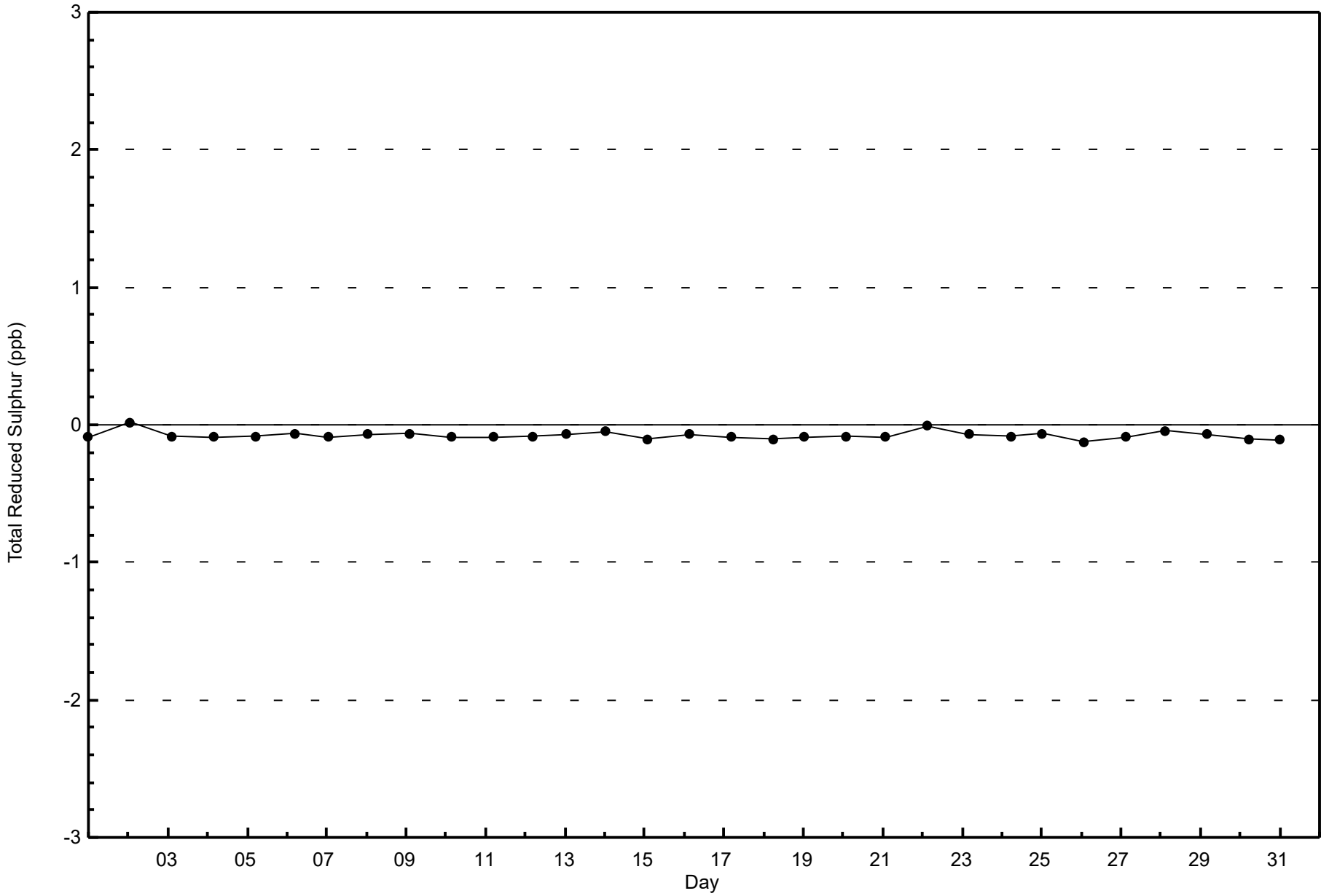
Total Number of Hours: 744

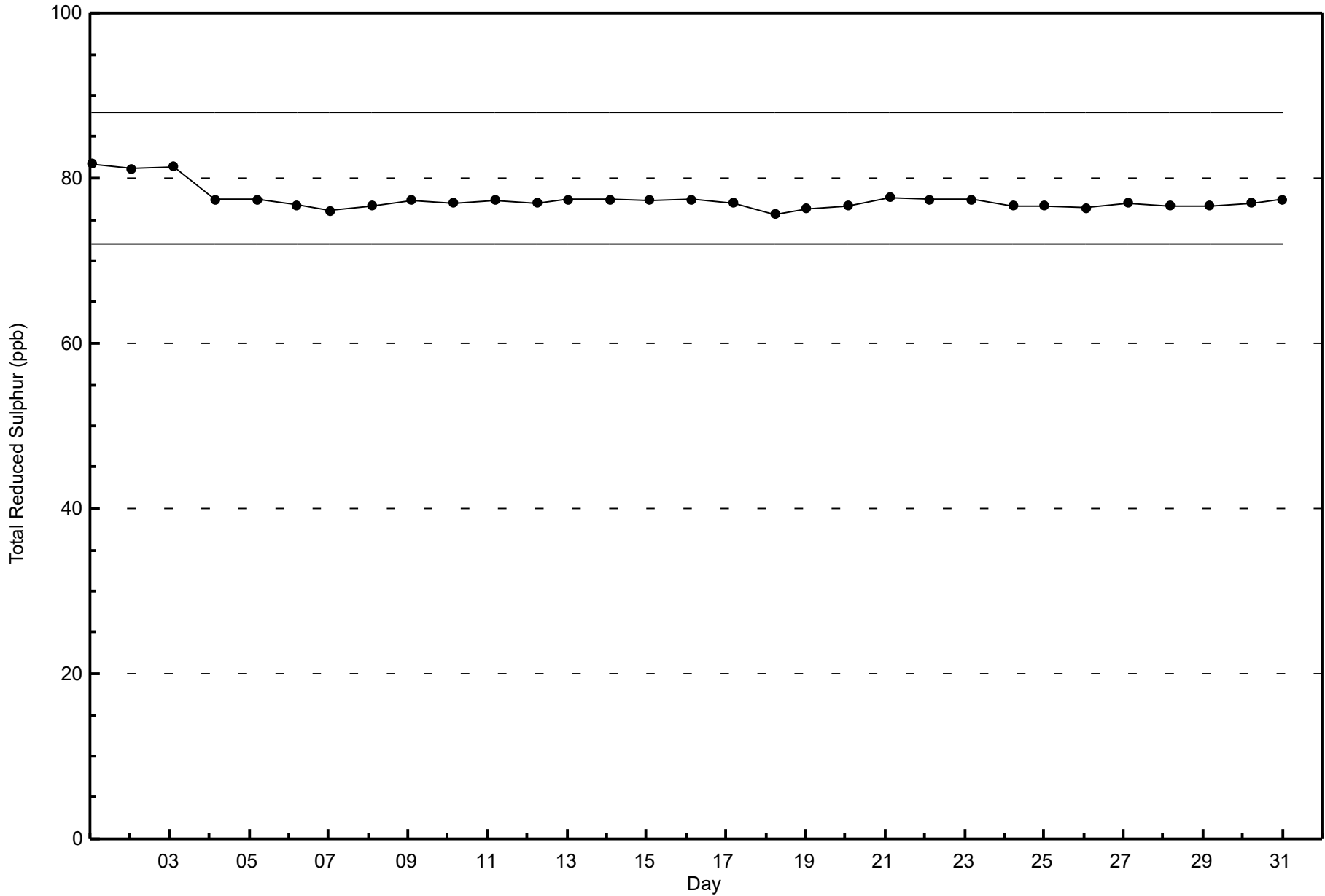


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Reduced Sulphur (TRS) - ppb
Ells River

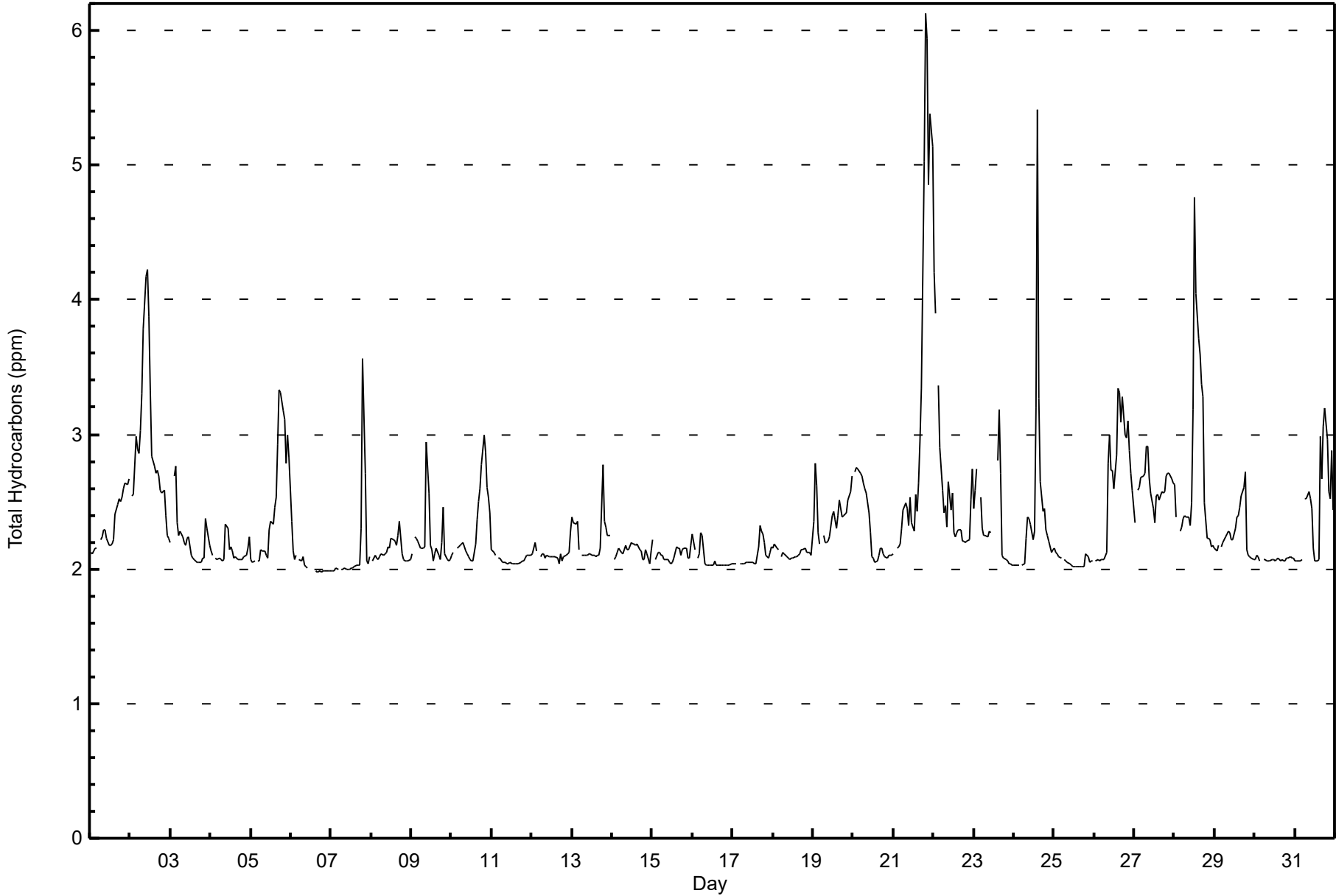








Maximum Value: 6.1 ppm on Dec 21 20:00		Maximum Daily Average: 3.2 ppm on Dec 21		Hours in Service: 744																																													
Minimum Value: 2.0 ppm on Dec 6 19:00		Minimum Daily Average: 2.0 ppm on Dec 6		Hours of Data: 706																																													
Maximum Diurnal Average: 2.5 ppm at hour 20		Minimum Diurnal Average: 2.2 ppm at hour 7		Hours of Missing Data: 38																																													
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 = 4.7		Hours of Calibration: 35																																													
				Percent Operational Time: 99.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.1	2.1	2.1	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.7	2.3	2.7																								
2-Dec	Z	2.5	2.6	3.0	2.9	2.9	3.0	3.3	3.8	4.2	4.2	3.9	3.3	2.8	2.8	2.7	2.7	2.7	2.6	2.6	2.6	2.4	2.3	2.2	3.0	4.2																							
3-Dec	2.2	Z	2.7	2.8	2.3	2.2	2.3	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.4	2.3	2.2	2.2	2.8																							
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3																							
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.4	2.3	2.5	2.5	2.9	3.3	3.3	3.2	3.1	2.8	3.0	2.8	2.5	3.3																							
6-Dec	2.4	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4																							
7-Dec	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	2.3	3.6	2.7	2.1	2.0	2.1	2.1	3.6																							
8-Dec	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	2.2	2.2	2.3	2.4	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.4																							
9-Dec	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.9	2.6	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.5	2.1	2.1	2.1	2.1	2.2	2.9																							
10-Dec	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.4	2.5	2.6	2.8	3.0	2.9	2.6	2.5	2.4	2.3	3.0																							
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
12-Dec	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.3																							
13-Dec	2.4	2.3	2.3	2.4	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	2.8	2.4	2.3	2.3	2.2	2.2	2.2	2.8																							
14-Dec	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	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	2.0	2.1	2.1	2.2																							
15-Dec	2.2	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	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.2	2.1	2.1	2.2	2.2																							
16-Dec	2.3	2.1	Z	2.1	2.1	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																							
17-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.3																							
18-Dec	2.2	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2																							
19-Dec	2.3	2.8	2.6	2.3	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.4	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.5	2.6	2.7	2.4	2.8																							
20-Dec	Z	2.7	2.7	2.7	2.7	2.7	2.6	2.6	2.6	2.4	2.3	2.1	2.1	2.0	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.7																							
21-Dec	2.1	Z	2.2	2.2	2.2	2.3	2.4	2.5	2.5	2.3	2.5	2.3	2.3	2.6	2.4	2.6	3.0	3.3	5.0	6.1	5.9	4.9	5.4	5.1	3.2	6.1																							
22-Dec	4.2	3.9	Z	3.4	2.9	2.6	2.4	2.5	2.3	2.6	2.4	2.6	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.5	2.7	2.6	4.2																							
23-Dec	2.5	2.6	2.7	Z	2.5	2.3	2.2	2.2	2.2	2.3	2.3	M	M	M	2.8	3.2	2.7	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.4	3.2																							
24-Dec	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.2	2.4	2.4	2.3	2.2	2.3	3.2	5.4	3.3	2.6	2.4	2.4	2.3	2.2	2.2	2.1	2.1	2.5	5.4																							
25-Dec	2.2	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
26-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.8	3.0	2.7	2.7	2.6	2.9	3.3	3.3	3.1	3.3	3.0	3.0	3.1	2.9	2.7	2.6	2.7	3.3																							
27-Dec	2.3	Z	2.6	2.6	2.7	2.7	2.7	2.9	2.9	2.7	2.6	2.4	2.3	2.5	2.6	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.6	2.6	2.9																							
28-Dec	2.6	2.4	Z	2.3	2.3	2.4	2.4	2.4	2.4	2.3	2.5	3.2	4.8	4.0	3.7	3.6	3.4	3.3	2.5	2.2	2.2	2.2	2.2	2.2	2.8	4.8																							
29-Dec	2.2	2.1	2.2	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.7	2.1	2.1	2.1	2.1	2.1	2.3	2.7																							
30-Dec	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																						
31-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.5	2.5	2.6	2.5	2.4	2.2	2.1	2.1	2.1	3.0	2.7	3.1	3.2	3.0	2.6	2.5	2.9	2.4	2.5	3.2																							
																								2.3	2.3	2.2	2.3	2.3	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.3	2.4	2.4	Diurnal Average	
																								4.2	3.9	2.7	3.4	2.9	2.9	3.0	3.3	3.8	4.2	4.2	3.9	4.8	4.0	5.4	3.6	3.4	3.3	5.0	6.1	5.9	4.9	5.4	5.1	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Ells River - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	98	13.88	13.88
2.1 - 3.0	569	80.59	94.48
3.1 - 10.0	39	5.52	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706
Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Total Hydrocarbons (THC) - ppm
Ells River - December 2024

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	2	4	0	2	1	3	5	7	15	14	19	13	6	6	1	0	98
2.1 - 3.0	43	58	11	2	4	8	23	90	111	50	19	16	24	36	14	16	525
3.1 - 10.0	2	2	0	2	0	1	0	7	3	3	2	3	3	0	7	1	36
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	47	64	11	6	5	12	28	104	129	67	40	32	33	42	22	17	659

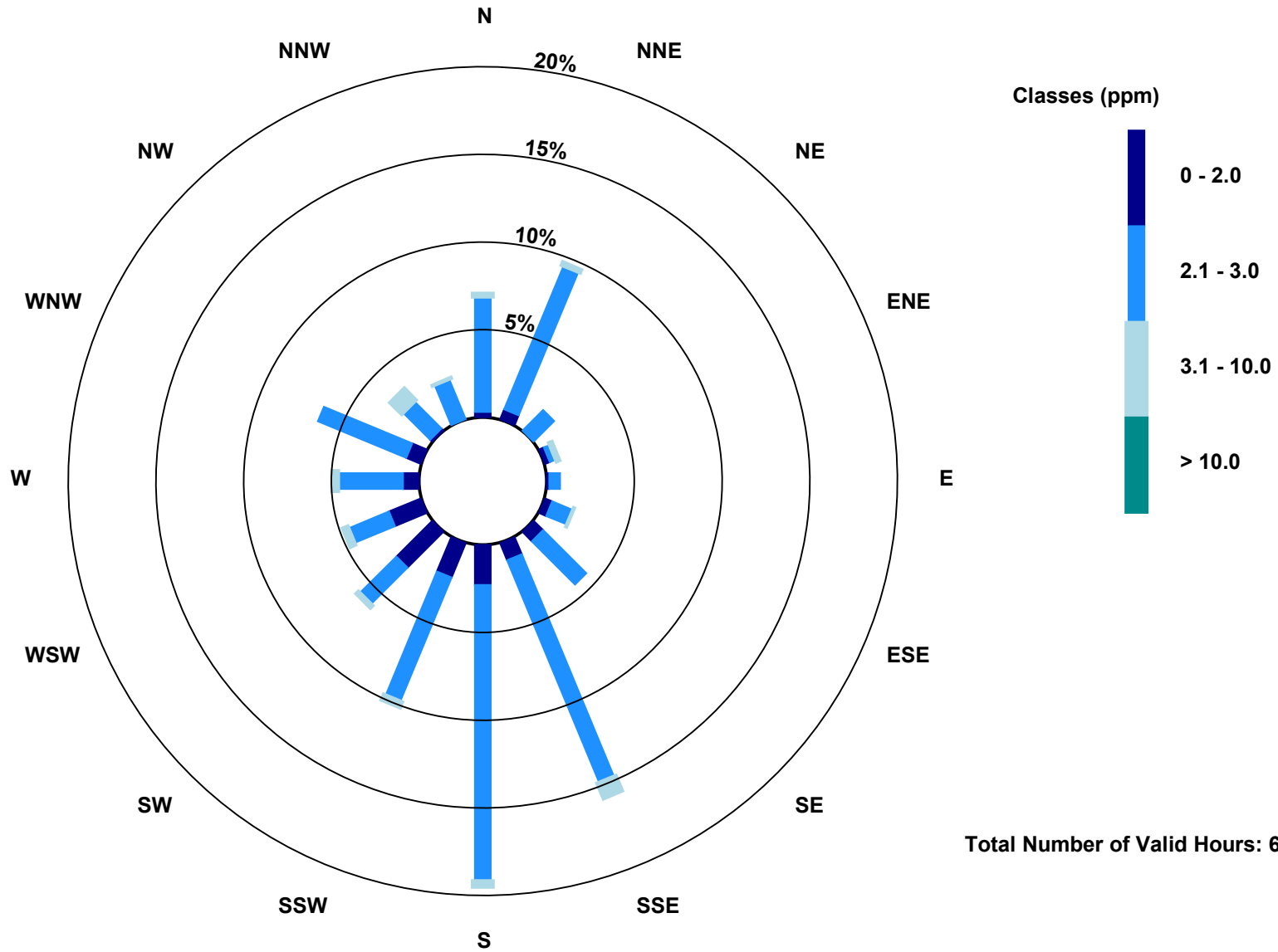
Total Number of Valid Hours: 659

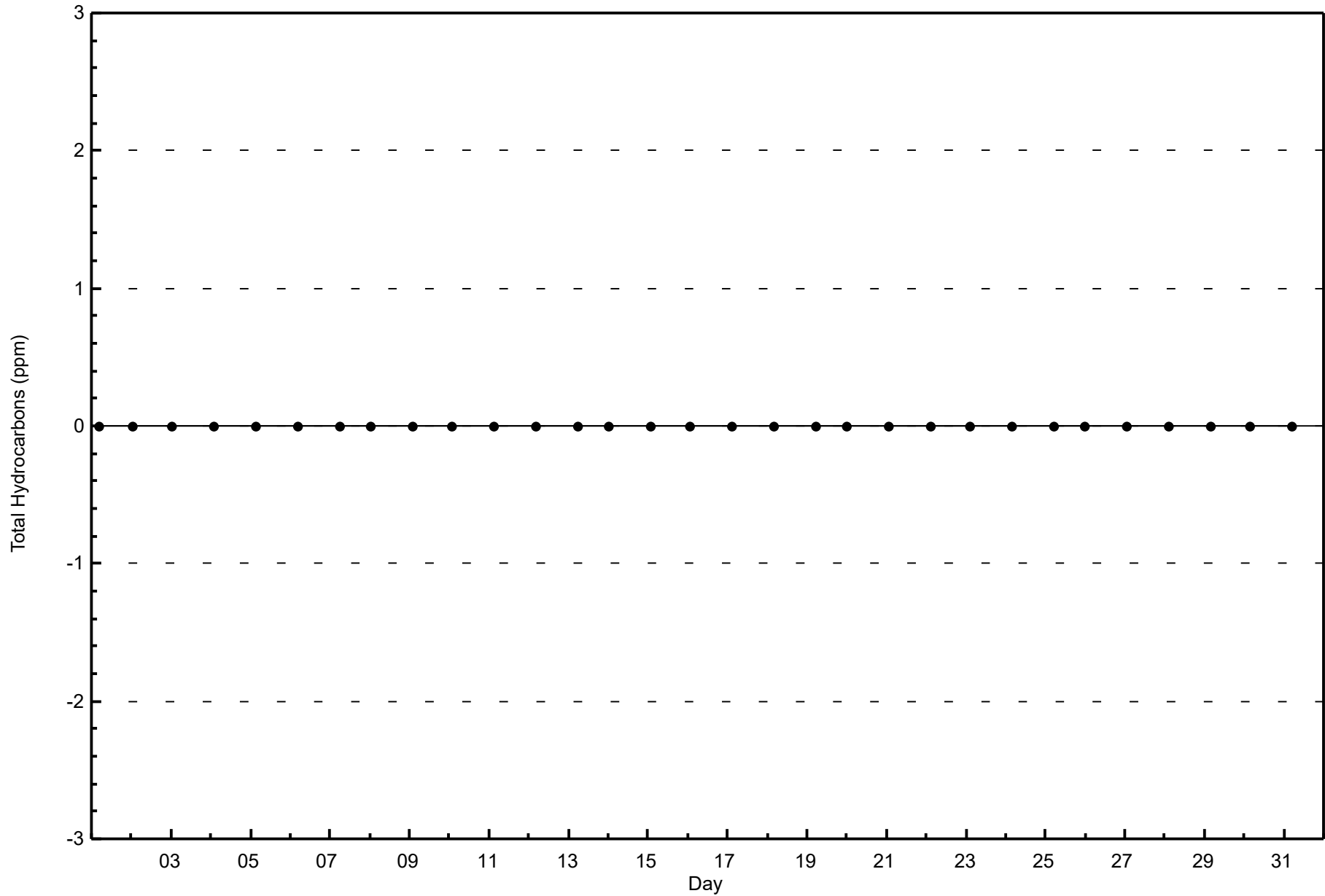
Total Number of Hours: 744

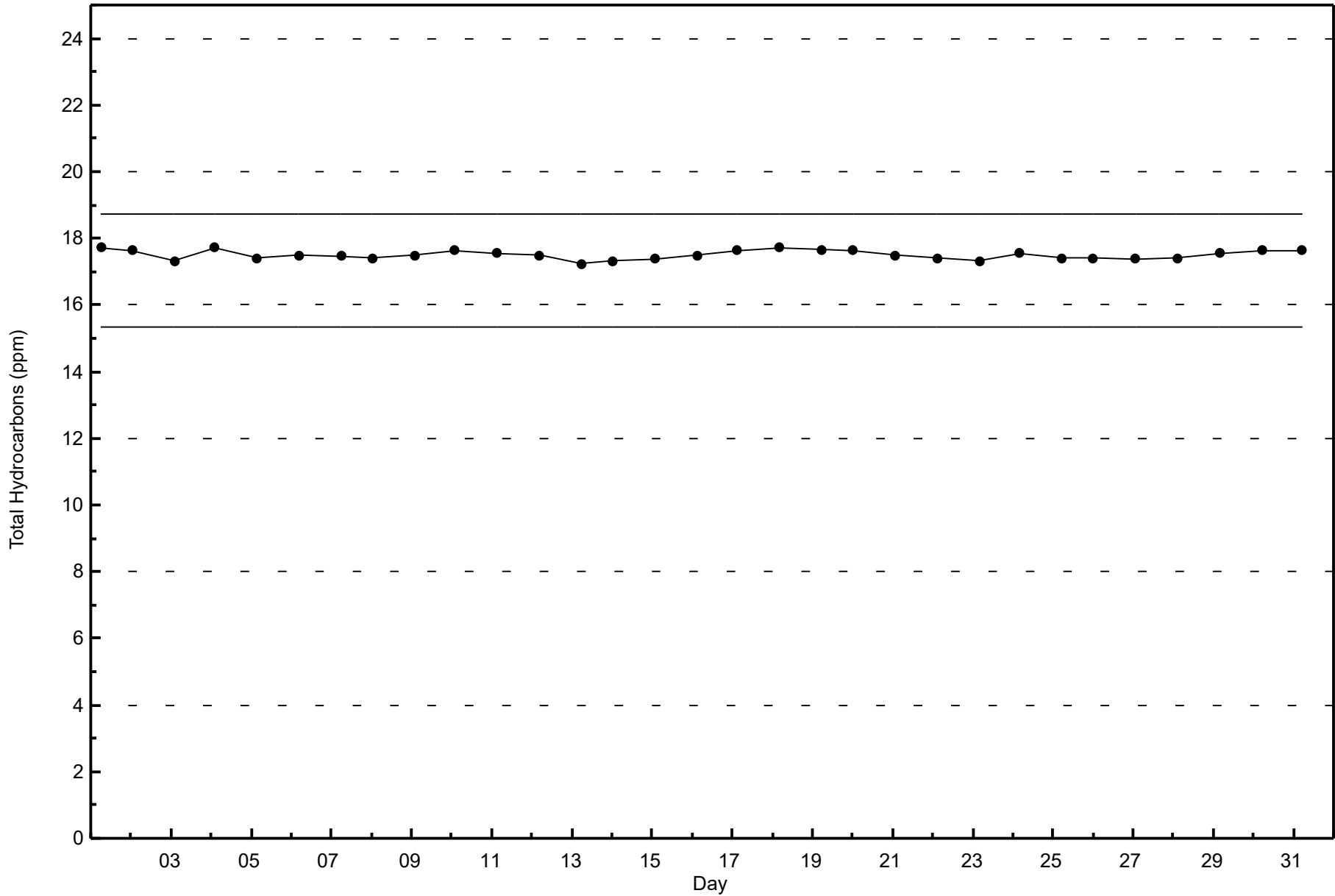


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Ells River





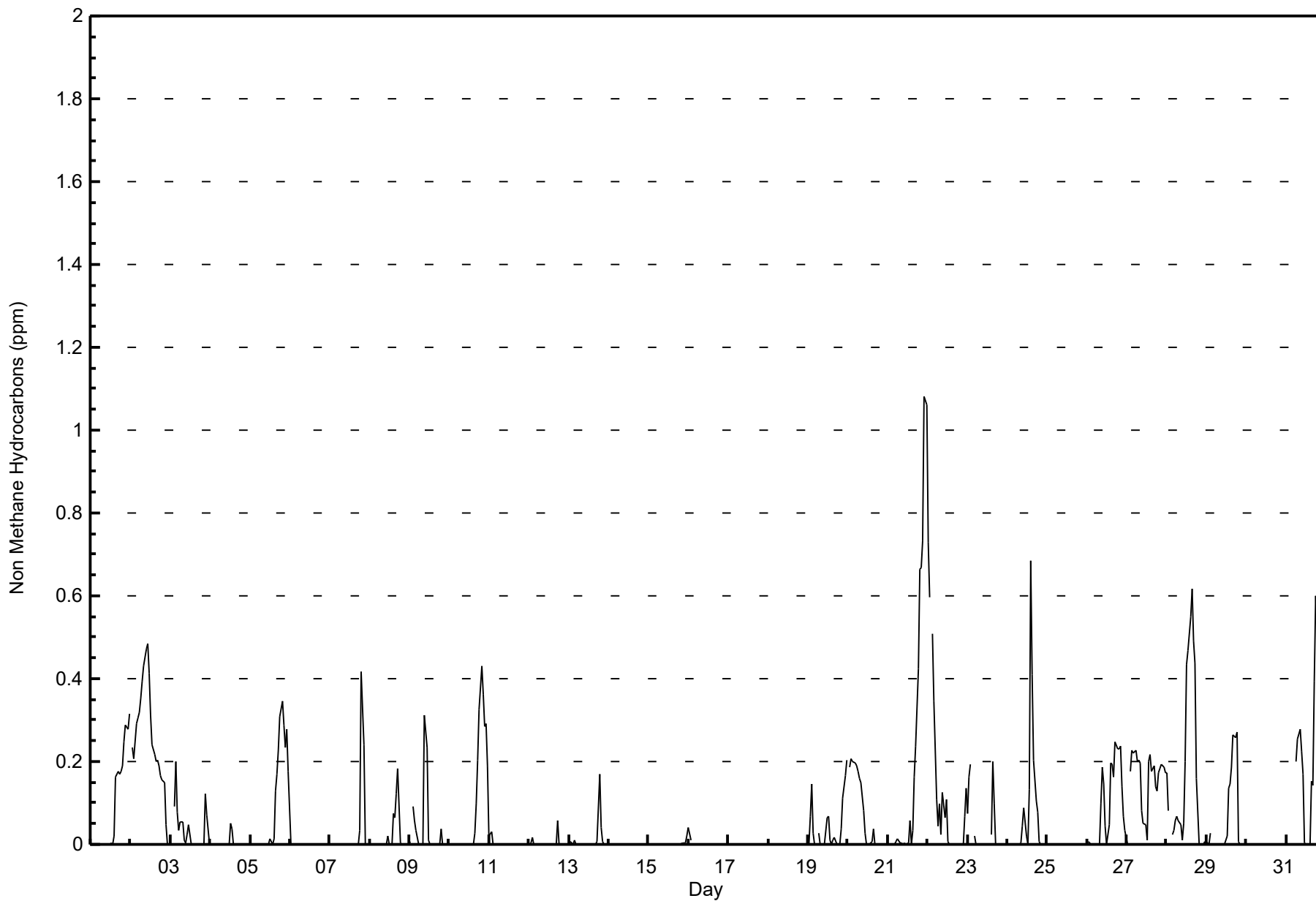




Summary of Hour Averages

Ells River - December 2024

Maximum Value: 1.082 ppm on Dec 21 23:00		Maximum Daily Average: 0.251 ppm on Dec 2		Hours in Service: 744																							
Minimum Value: 0.000 ppm on Dec 1 01:00		Minimum Daily Average: 0.000 ppm on Dec 6		Hours of Data: 706																							
Maximum Diurnal Average: 0.100 ppm at hour 20		Minimum Diurnal Average: 0.032 ppm at hour 13		Hours of Missing Data: 38																							
Monthly Average: 0.062 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 = 0.6		Hours of Calibration: 35																							
				Percent Operational Time: 99.6																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.019	0.162	0.177	0.169	0.175	0.190	0.246	0.288	0.279	0.316	0.088	0.316	
2-Dec	Z	0.235	0.205	0.292	0.305	0.317	0.352	0.395	0.429	0.471	0.485	0.413	0.310	0.239	0.218	0.201	0.202	0.190	0.165	0.155	0.149	0.048	0.000	0.000	0.251	0.485	
3-Dec	0.000	Z	0.090	0.199	0.076	0.034	0.055	0.055	0.010	0.004	0.022	0.049	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.121	0.070	0.000	0.034	0.199	
4-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004	0.052	
5-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.015	0.130	0.170	0.228	0.307	0.347	0.289	0.233	0.279	0.175	0.095	0.347	
6-Dec	0.000	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	0.000	0.000	0.000	0.000	0.000	0.000	
7-Dec	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	0.033	0.417	0.239	0.001	0.000	0.000	0.030	0.417	
8-Dec	Z	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.019	0.000	0.000	0.076	0.063	0.121	0.182	0.003	0.000	0.000	0.000	0.000	0.000	0.020	0.182	
9-Dec	0.008	Z	0.090	0.058	0.034	0.000	0.000	0.000	0.000	0.312	0.234	0.009	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038	0.000	0.000	0.000	0.034	0.312	
10-Dec	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.026	0.098	0.204	0.326	0.430	0.364	0.285	0.291	0.191	0.096	0.430	
11-Dec	0.021	0.029	0.001	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.029	
12-Dec	0.000	0.003	0.017	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.001	0.000	0.000	0.000	0.000	0.000	0.003	0.059	
13-Dec	0.000	0.006	0.000	0.010	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.170	0.039	0.006	0.000	0.000	0.000	0.010	0.170	
14-Dec	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
15-Dec	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.003	0.004	0.022	0.001	0.022	
16-Dec	0.041	0.011	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.041	
17-Dec	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
19-Dec	0.000	0.068	0.145	0.027	0.000	Z	0.027	0.000	0.000	0.000	0.000	0.064	0.069	0.010	0.000	0.009	0.017	0.000	0.000	0.000	0.038	0.112	0.165	0.203	0.041	0.203	
20-Dec	Z	0.187	0.207	0.200	0.196	0.191	0.176	0.160	0.149	0.080	0.026	0.000	0.000	0.000	0.008	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.070	0.207	
21-Dec	0.000	Z	0.000	0.000	0.000	0.005	0.015	0.004	0.004	0.000	0.004	0.000	0.003	0.059	0.000	0.034	0.162	0.236	0.424	0.663	0.669	0.733	1.082	1.062	0.224	1.082	
22-Dec	0.728	0.596	Z	0.508	0.346	0.107	0.043	0.098	0.024	0.127	0.064	0.110	0.005	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.068	0.136	0.129	0.728	
23-Dec	0.076	0.162	0.192	Z	0.019	0.000	0.000	0.000	0.000	0.000	0.000	M	M	M	0.024	0.199	0.098	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.038	0.199	
24-Dec	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.004	0.043	0.089	0.020	0.002	0.131	0.686	0.411	0.204	0.106	0.080	0.006	0.000	0.000	0.000	0.000	0.077	0.686	
25-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
26-Dec	Z	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.098	0.186	0.145	0.043	0.000	0.048	0.198	0.194	0.164	0.247	0.232	0.231	0.238	0.139	0.067	0.035	0.099	0.247	
27-Dec	0.000	Z	0.177	0.226	0.222	0.228	0.198	0.204	0.197	0.083	0.052	0.047	0.009	0.201	0.217	0.178	0.191	0.139	0.129	0.174	0.184	0.192	0.185	0.173	0.157	0.228	
28-Dec	0.173	0.080	Z	0.022	0.034	0.058	0.069	0.057	0.048	0.010	0.051	0.200	0.433	0.467	0.549	0.617	0.492	0.439	0.159	0.000	0.000	0.000	0.000	0.005	0.172	0.617	
29-Dec	0.006	0.000	0.027	Z	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.137	0.145	0.188	0.266	0.258	0.273	0.006	0.000	0.000	0.000	0.000	0.058	0.273	
30-Dec	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
31-Dec	0.000	0.000	0.000	0.000	0.000	Z	0.198	0.253	0.278	0.223	0.169	0.003	0.000	0.000	0.000	0.154	0.142	0.392	0.600	0.415	0.182	0.157	0.419	0.104	0.160	0.600	
		0.040	0.053	0.044	0.059	0.047	0.038	0.037	0.039	0.040	0.050	0.043	0.034	0.032	0.046	0.072	0.084	0.081	0.092	0.099	0.100	0.084	0.075	0.094	0.078	Diurnal Average	
		0.728	0.596	0.207	0.508	0.346	0.317	0.352	0.395	0.429	0.471	0.485	0.413	0.433	0.467	0.686	0.617	0.492	0.439	0.600	0.663	0.669	0.733	1.082	1.062	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																					





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Ells River - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 0.005	467	66.15	66.15
0.006 - 0.05	63	8.92	75.07
0.06 - 0.1	50	7.08	82.15
> 0.1	126	17.85	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Non Methane Hydrocarbons (NMHC) - ppm
Ells River - December 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	28	54	5	3	4	7	19	58	94	54	35	25	21	33	9	5	454
0.006 - 0.05	3	3	4	0	0	1	3	14	11	2	2	1	1	3	3	5	56
0.06 - 0.1	2	2	2	1	1	3	3	9	11	3	1	1	2	1	2	1	45
> 0.1	14	5	0	2	0	1	3	23	13	8	2	5	9	5	8	6	104
Totals	47	64	11	6	5	12	28	104	129	67	40	32	33	42	22	17	659

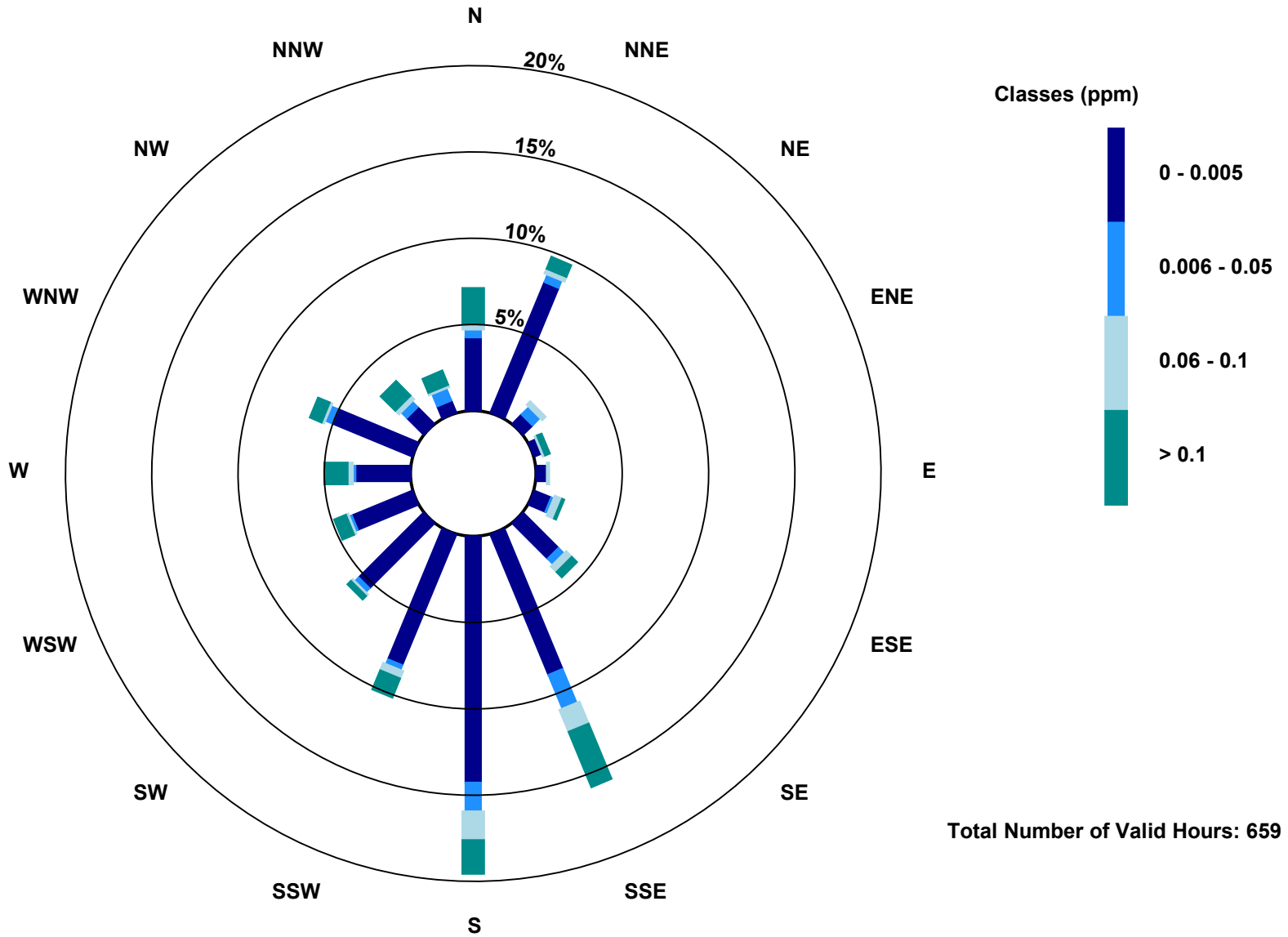
Total Number of Valid Hours: 659

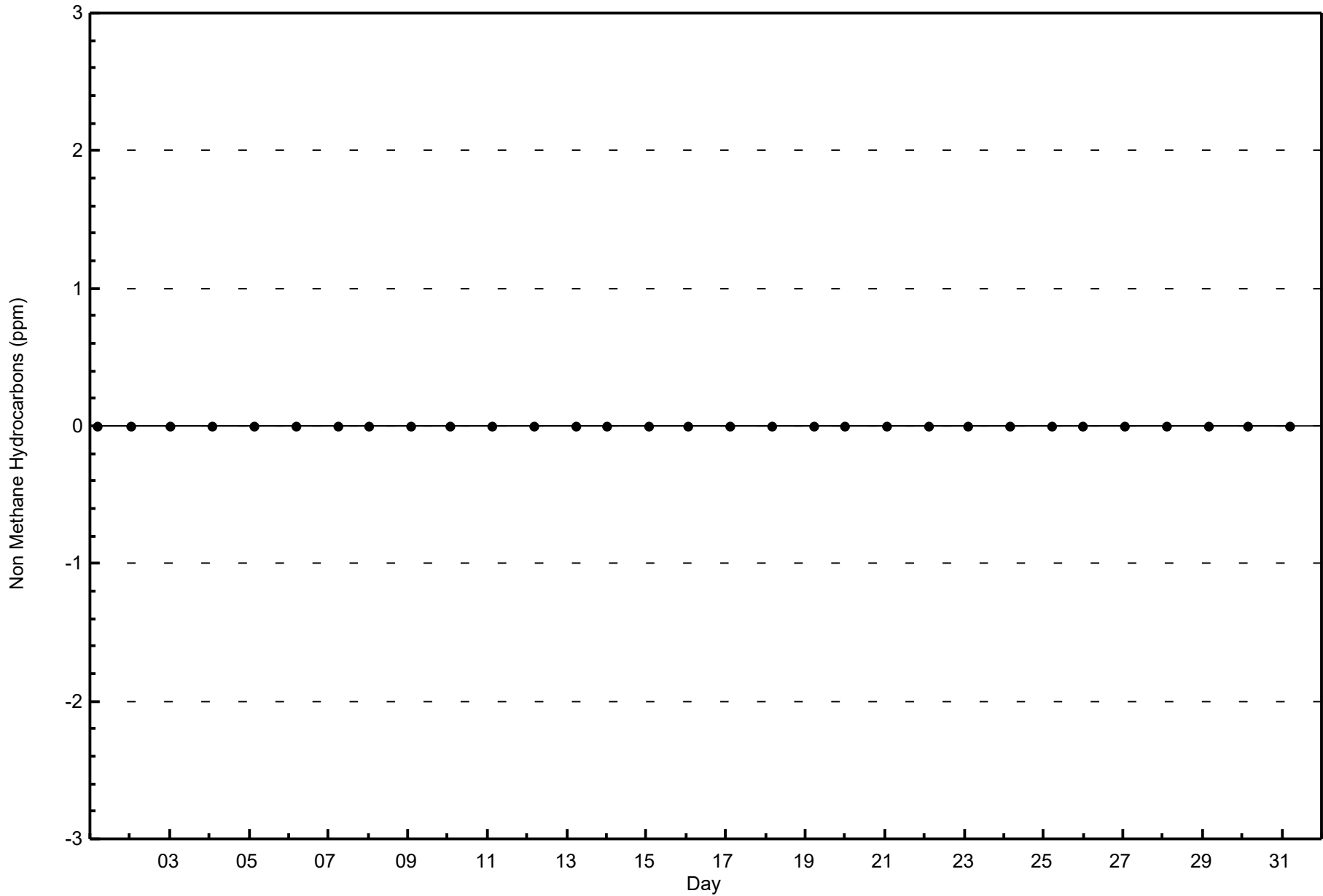
Total Number of Hours: 744

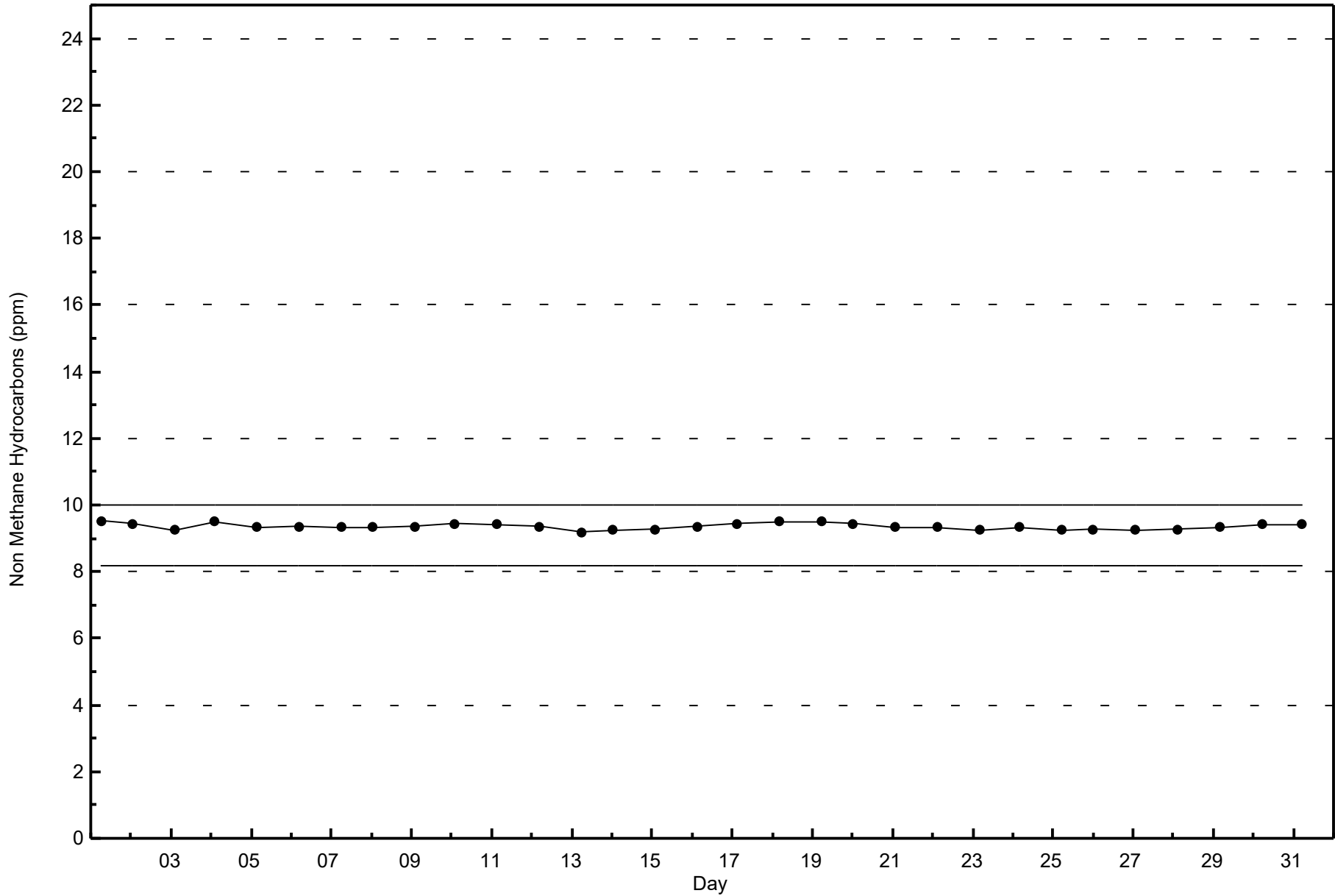


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Non Methane Hydrocarbons (NMHC) - ppm
Ells River

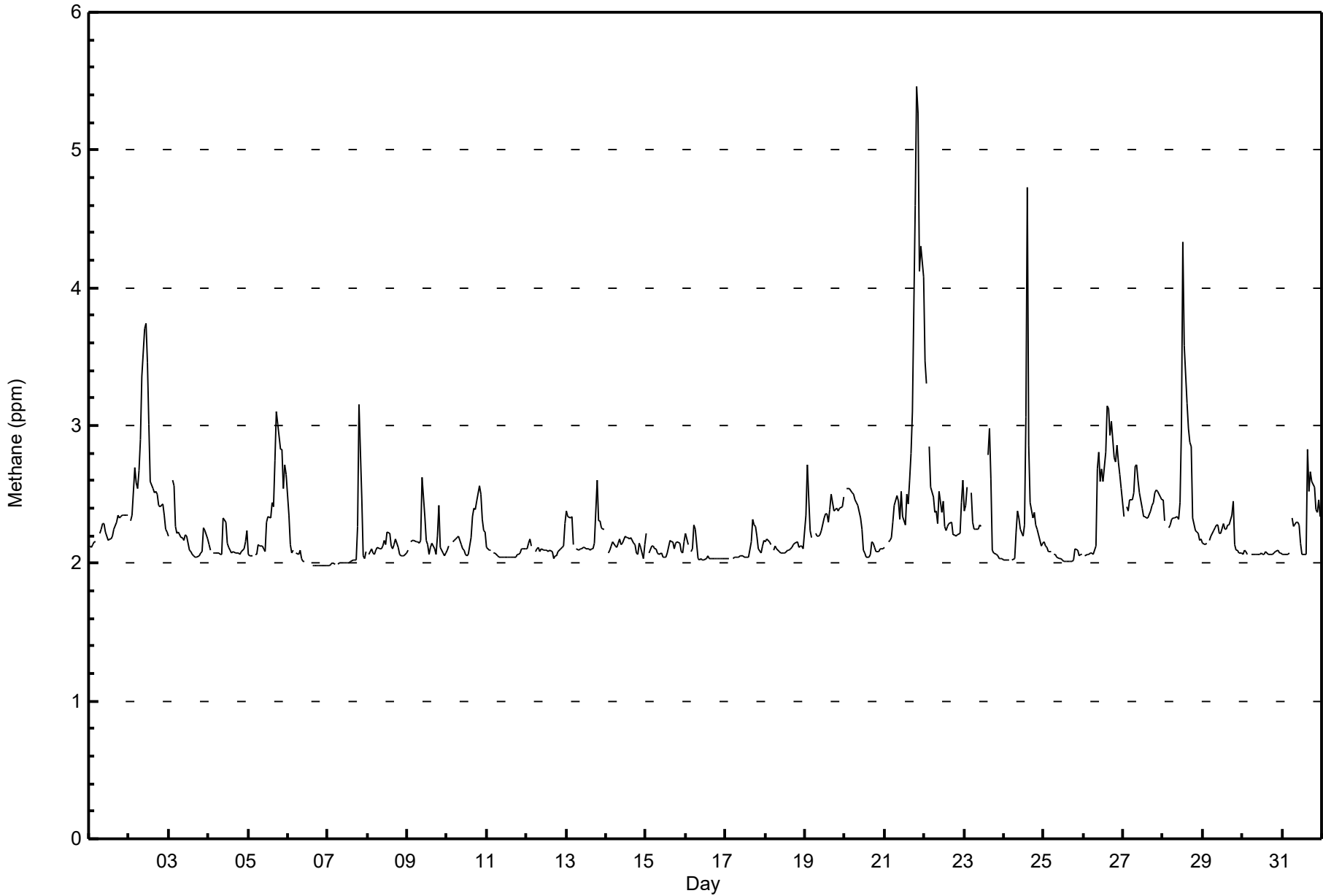








Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 5.5 ppm on Dec 21 20:00		Maximum Daily Average: 3.0 ppm on Dec 21				Hours of Data:		706																																									
Minimum Value: 2.0 ppm on Dec 6 19:00		Minimum Daily Average: 2.0 ppm on Dec 6				Hours of Missing Data:		38																																									
Maximum Diurnal Average: 2.4 ppm at hour 20		Minimum Diurnal Average: 2.2 ppm at hour 3				Hours of Calibration:		35																																									
Monthly Average: 2.27 ppm		Percentiles: P ₁ = 2.0 P ₁₀ = 2.0 Q ₁ = 2.1 Median = 2.1 Q ₃ = 2.3 P ₉₀ = 2.6 P ₉₉ = 4.1				Percent Operational Time:		99.6																																									
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.1	2.1	2.1	2.2	2.2	Z	2.2	2.2	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.2	2.4																							
2-Dec	Z	2.3	2.3	2.7	2.6	2.5	2.7	2.9	3.4	3.7	3.7	3.5	3.0	2.6	2.5	2.5	2.5	2.5	2.4	2.4	2.4	2.3	2.3	2.2	2.7	3.7																							
3-Dec	2.2	Z	2.6	2.6	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.3	2.2	2.2	2.2	2.6																							
4-Dec	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.1	2.3																							
5-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.3	2.3	2.4	2.4	2.7	3.1	3.0	2.8	2.8	2.5	2.7	2.6	2.4	3.1																							
6-Dec	2.4	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	C	C	C	C	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.4																							
7-Dec	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	2.3	3.2	2.5	2.1	2.0	2.1	2.1	3.2																							
8-Dec	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
9-Dec	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.2	2.6	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.1	2.2	2.4	2.1	2.1	2.1	2.1	2.2	2.6																							
10-Dec	2.1	2.1	Z	2.2	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.4	2.6	2.5	2.3	2.2	2.2	2.2	2.6																							
11-Dec	2.1	2.1	2.1	Z	2.1	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1																							
12-Dec	2.1	2.1	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.3	2.1	2.3																							
13-Dec	2.4	2.3	2.3	2.3	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.6	2.3	2.3	2.3	2.2	2.2	2.2	2.6																							
14-Dec	Z	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.2	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	2.0	2.1	2.1	2.2																							
15-Dec	2.2	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	2.2	2.2	2.2	2.2	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.2																							
16-Dec	2.2	2.1	Z	2.1	2.1	2.3	2.2	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.3																							
17-Dec	2.0	2.0	2.0	Z	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.0	2.0	2.0	2.0	2.2	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.2	2.1	2.3																							
18-Dec	2.2	2.2	2.2	2.1	Z	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.2																							
19-Dec	2.3	2.7	2.5	2.2	2.2	Z	2.2	2.2	2.2	2.2	2.2	2.3	2.4	2.4	2.3	2.4	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.4	2.7																							
20-Dec	Z	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.4	2.3	2.2	2.1	2.1	2.0	2.0	2.1	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.2	2.5																							
21-Dec	2.1	Z	2.2	2.2	2.2	2.3	2.4	2.5	2.4	2.3	2.5	2.3	2.3	2.5	2.4	2.6	2.8	3.1	4.6	5.5	5.3	4.1	4.3	4.1	3.0	5.5																							
22-Dec	3.5	3.3	Z	2.9	2.6	2.5	2.4	2.4	2.3	2.5	2.4	2.5	2.3	2.2	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.6	2.5	3.5																							
23-Dec	2.4	2.4	2.6	Z	2.5	2.3	2.2	2.2	2.2	2.3	2.3	M	M	M	2.8	3.0	2.6	2.1	2.1	2.1	2.0	2.0	2.0	2.3	3.0																								
24-Dec	2.0	2.0	2.0	2.0	Z	2.0	2.0	2.2	2.4	2.3	2.2	2.2	2.3	3.1	4.7	2.9	2.4	2.3	2.4	2.3	2.2	2.2	2.1	2.1	2.4	4.7																							
25-Dec	2.2	2.1	2.1	2.1	2.1	Z	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.2																							
26-Dec	Z	2.0	2.1	2.1	2.1	2.1	2.1	2.1	2.7	2.8	2.6	2.7	2.6	2.8	3.1	3.1	2.9	3.0	2.8	2.7	2.9	2.7	2.6	2.5	2.6	3.1																							
27-Dec	2.3	Z	2.4	2.4	2.5	2.5	2.5	2.7	2.7	2.6	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.7																							
28-Dec	2.5	2.3	Z	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	3.0	4.3	3.6	3.2	3.0	2.9	2.8	2.3	2.2	2.2	2.2	2.2	2.2	2.6	4.3																							
29-Dec	2.1	2.1	2.1	Z	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.2	2.2	2.3	2.3	2.4	2.4	2.1	2.1	2.1	2.1	2.1	2.2	2.4																							
30-Dec	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																							
31-Dec	2.1	2.1	2.1	2.1	2.1	Z	2.3	2.3	2.3	2.3	2.3	2.2	2.1	2.1	2.1	2.8	2.5	2.7	2.6	2.6	2.4	2.4	2.5	2.3	2.3	2.8																							
																								2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.3	2.3	2.3	2.3	Diurnal Average		
																								3.5	3.3	2.6	2.9	2.6	2.5	2.7	2.9	3.4	3.7	3.7	3.5	4.3	3.6	4.7	3.1	2.9	3.1	4.6	5.5	5.3	4.1	4.3	4.1	Diurnal Maximum	
Z - zerospan		C - Calibration				M - Maintenance																																											





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Methane (CH₄) - ppm
Ells River - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	100	14.16	14.16
2.1 - 3.0	584	82.72	96.88
3.1 - 10.0	22	3.12	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 706

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Methane (CH₄) - ppm
Ells River - December 2024**

Concentration Ranges (ppm)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2.0	2	4	0	2	1	3	5	8	16	14	19	13	6	6	1	0	100
2.1 - 3.0	43	60	11	3	4	9	23	95	112	51	19	16	25	36	16	17	540
3.1 - 10.0	2	0	0	1	0	0	0	1	1	2	2	3	2	0	5	0	19
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	47	64	11	6	5	12	28	104	129	67	40	32	33	42	22	17	659

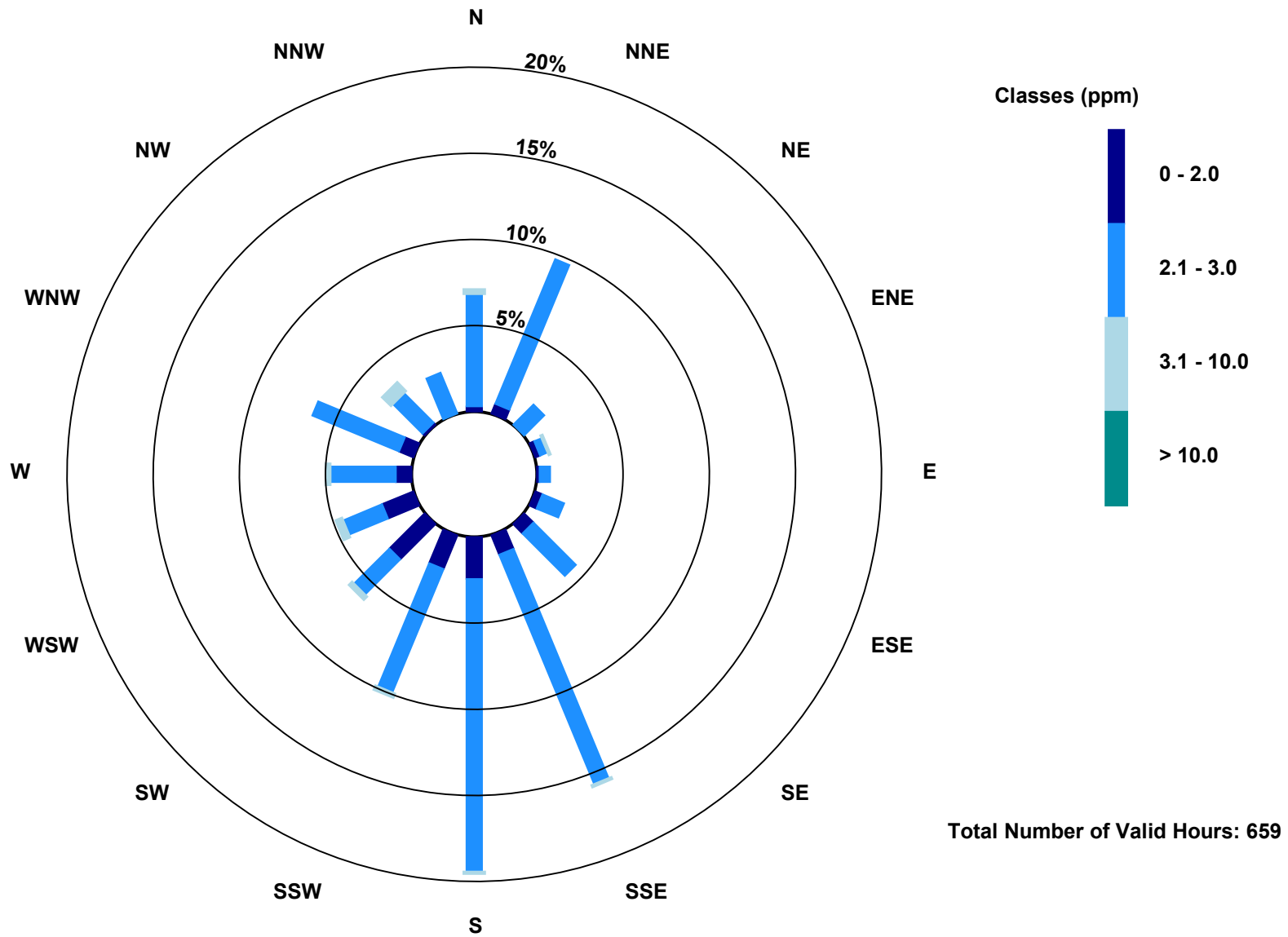
Total Number of Valid Hours: 659

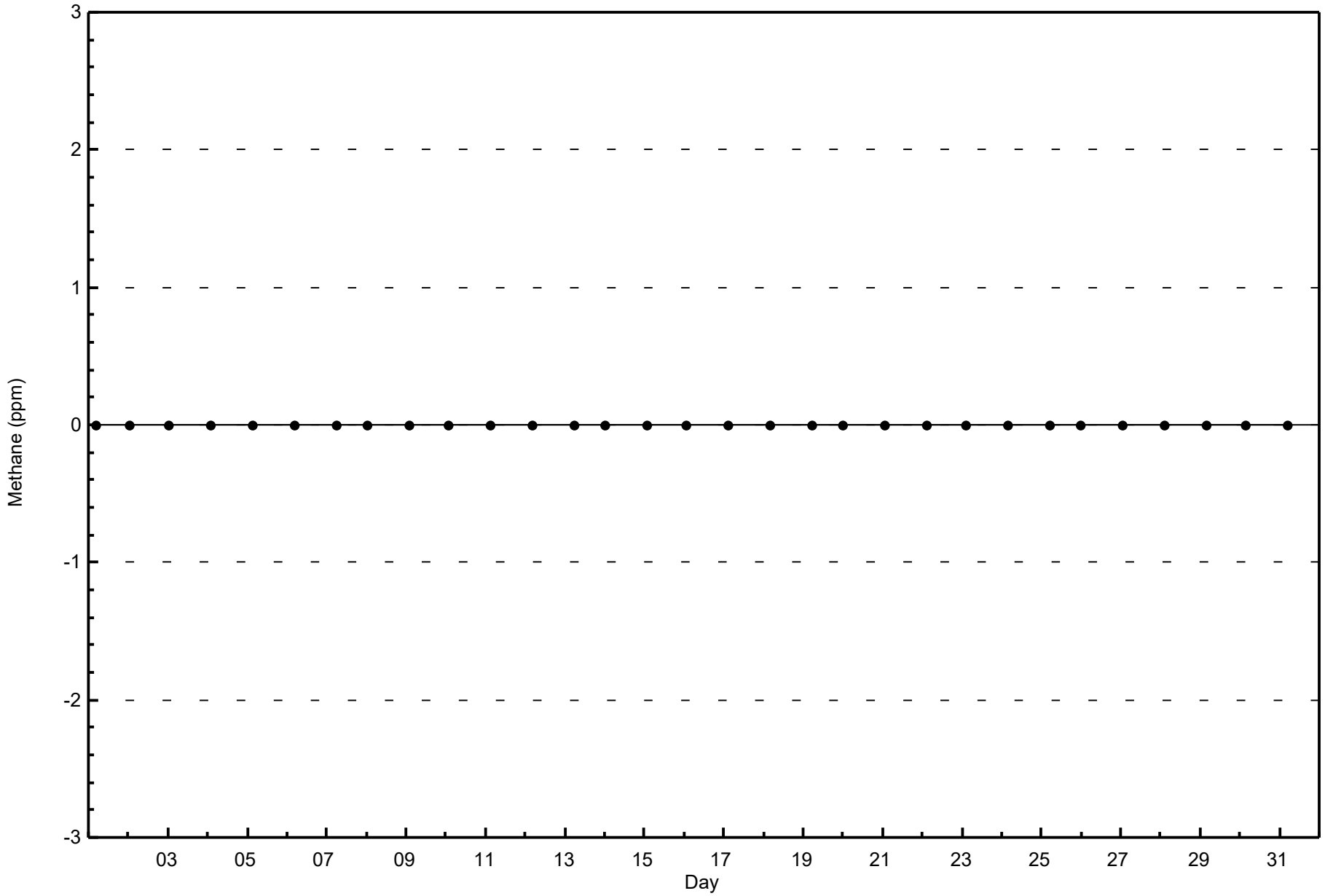
Total Number of Hours: 744

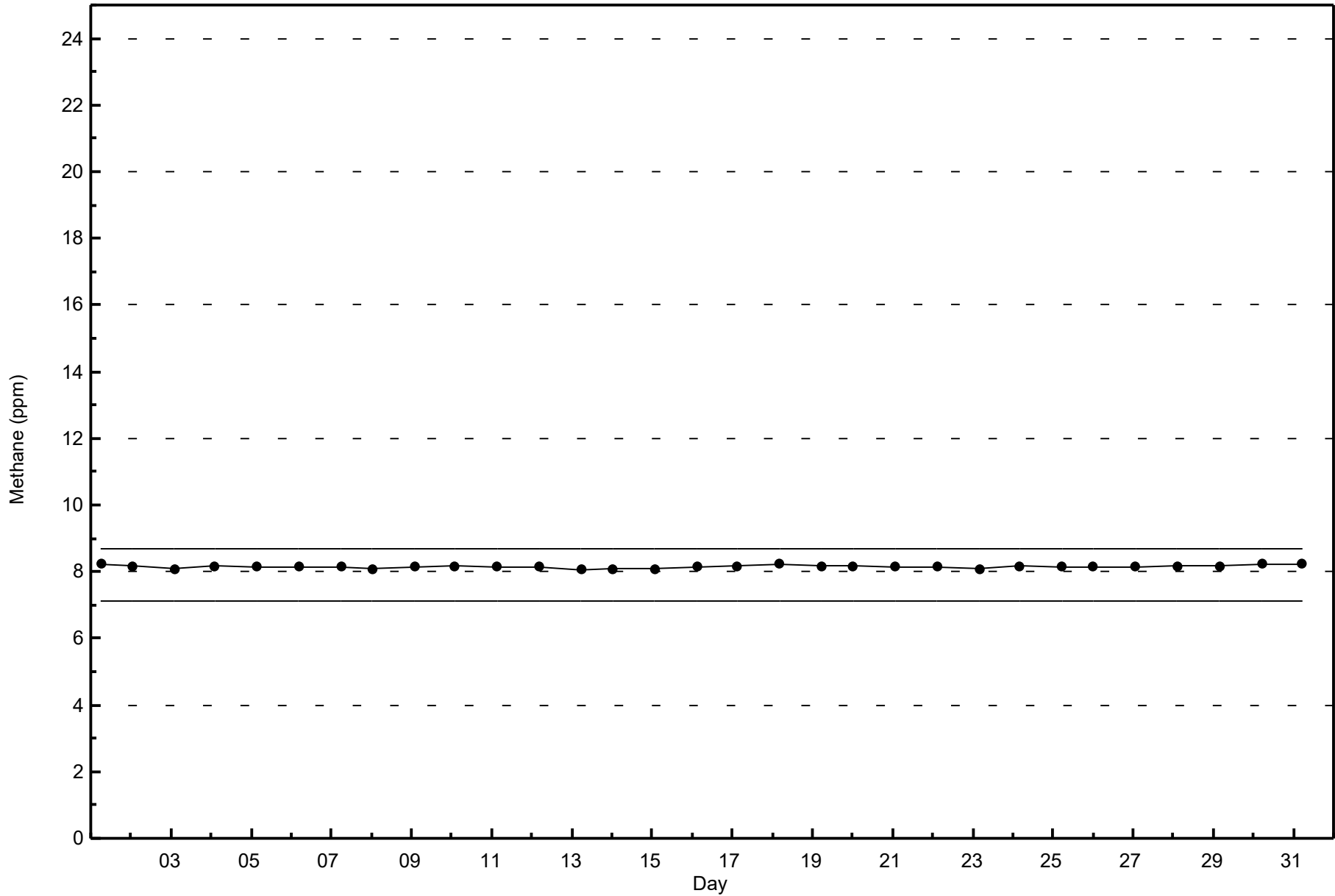


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Methane (CH₄) - ppm
Ells River







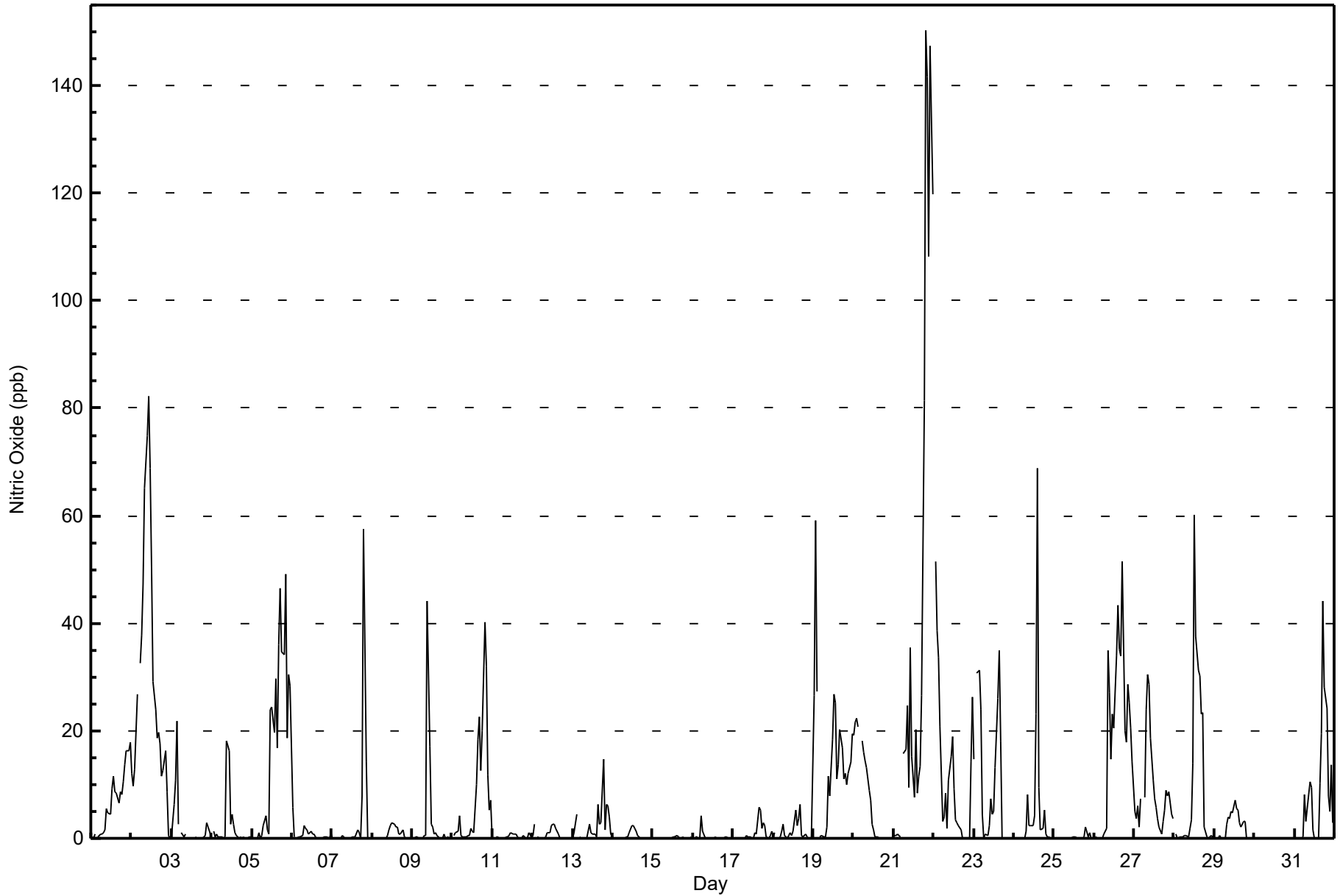


Maximum Value: 150.2 ppb on Dec 21 20:00																					Maximum Daily Average: 41.6 ppb on Dec 21					Hours in Service:	744																																																																																																														
Minimum Value: 0.0 ppb on Dec 5 03:00																					Minimum Daily Average: 0.0 ppb on Dec 30					Hours of Data:	708																																																																																																														
Maximum Diurnal Average: 12.2 ppb at hour 20																					Minimum Diurnal Average: 2.4 ppb at hour 5					Hours of Missing Data:	36																																																																																																														
Monthly Average: 7.21 ppb																					Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.6 Q ₃ = 7.2 P ₉₀ = 23.1 P ₉₉ = 74.3					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-Dec	0.2	0.1	0.7	Z	0.2	0.7	0.8	1.0	1.6	5.5	4.8	4.5	9.2	11.5	8.7	8.3	6.5	8.6	8.1	10.5	13.7	16.2	16.2	18.0	6.8	18.0																																																																																																															
2-Dec	12.2	9.8	12.9	26.9	Z	32.6	37.7	47.2	65.2	74.7	82.2	68.8	50.4	29.2	23.8	18.6	19.6	17.5	11.6	12.7	16.2	8.7	0.6	0.1	29.5	82.2																																																																																																															
3-Dec	0.1	6.4	10.7	21.8	2.6	Z	1.0	0.4	0.7	C	C	C	C	C	0.3	0.0	0.0	0.0	0.1	0.2	0.5	2.9	2.0	0.6	2.8	21.8																																																																																																															
4-Dec	Z	1.2	0.2	0.7	0.2	0.2	0.3	0.1	0.2	18.2	16.2	2.6	4.4	2.7	1.1	0.5	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.3	2.2	18.2																																																																																																															
5-Dec	0.1	Z	0.0	0.0	1.1	0.1	0.5	2.4	4.2	1.5	0.8	23.8	24.3	19.7	29.7	16.8	36.0	46.5	34.7	34.2	49.1	18.7	30.5	28.3	17.5	49.1																																																																																																															
6-Dec	5.8	0.2	Z	0.1	0.3	0.2	0.6	2.3	1.8	1.6	0.7	1.3	0.8	0.8	0.2	0.1	0.0	0.0	0.0	0.2	0.4	0.3	0.1	1.1	0.8	5.8																																																																																																															
7-Dec	0.0	0.1	0.0	Z	0.0	0.1	0.5	0.2	0.0	0.0	0.1	0.0	0.4	0.2	0.3	1.7	0.9	0.1	7.8	57.6	14.1	0.1	0.0	0.0	3.7	57.6																																																																																																															
8-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.4	1.6	2.3	2.9	2.5	2.1	2.2	0.7	0.8	1.4	0.2	0.0	0.0	0.1	0.0	0.7	2.9																																																																																																															
9-Dec	0.0	0.0	0.2	0.3	0.1	Z	0.1	0.4	0.5	44.2	17.0	2.6	2.1	0.7	1.2	0.5	0.1	0.1	0.1	0.9	0.1	0.2	0.0	0.0	3.1	44.2																																																																																																															
10-Dec	Z	0.6	1.1	1.2	4.2	0.6	0.2	0.2	0.3	0.6	0.6	1.9	1.4	1.0	9.9	18.4	22.5	12.6	20.1	40.1	32.0	11.9	5.4	7.0	8.4	40.1																																																																																																															
11-Dec	0.4	Z	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.6	1.0	0.8	0.9	0.8	0.2	0.0	0.1	0.4	0.2	0.0	0.1	1.1	0.3	0.3	1.1																																																																																																															
12-Dec	0.6	2.7	Z	0.3	0.0	0.0	0.0	0.0	0.2	1.1	1.0	2.3	2.6	2.7	1.9	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.7																																																																																																															
13-Dec	0.1	1.2	4.4	Z	0.3	0.1	0.0	0.0	0.0	1.3	2.6	1.1	0.8	0.7	0.3	6.2	2.6	2.9	14.7	1.5	6.4	6.0	3.9	0.9	2.5	14.7																																																																																																															
14-Dec	0.1	0.0	0.0	0.1	Z	0.1	0.1	0.1	0.2	0.4	1.1	2.5	2.3	1.7	1.4	0.5	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.5	2.5																																																																																																															
15-Dec	0.1	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.4	0.7	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.7																																																																																																															
16-Dec	Z	0.1	0.3	0.0	0.0	4.1	1.3	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.3	4.1																																																																																																															
17-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.4	0.1	0.0	1.1	0.8	5.7	5.3	1.8	2.9	2.3	0.1	0.1	0.4	1.4	1.0	5.7																																																																																																															
18-Dec	0.2	1.1	Z	0.1	0.3	1.4	2.7	0.6	0.1	0.4	1.0	0.6	1.3	5.3	2.4	3.6	6.4	0.6	0.2	0.7	0.2	0.0	0.0	0.0	1.3	6.4																																																																																																															
19-Dec	26.6	59.1	27.4	Z	0.2	0.5	0.3	0.2	2.1	11.4	7.8	18.3	26.9	25.2	11.1	13.6	20.2	16.8	10.9	12.2	10.1	12.2	14.2	19.4	15.1	59.1																																																																																																															
20-Dec	19.3	21.5	22.2	20.8	Z	18.0	15.9	14.6	13.2	9.1	7.1	2.5	1.6	0.3	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	22.2																																																																																																															
21-Dec	0.5	0.5	0.7	0.6	0.4	Z	15.7	16.5	24.7	9.4	35.5	15.1	7.7	20.3	8.4	11.7	13.4	26.5	81.4	150.2	141.6	108.1	147.4	119.9	41.6	150.2																																																																																																															
22-Dec	Z	51.5	38.5	33.8	20.7	3.2	3.9	8.3	1.8	10.7	15.1	19.0	9.1	3.4	2.9	2.4	1.7	0.0	0.0	0.0	0.0	0.0	14.1	26.3	11.6	51.5																																																																																																															
23-Dec	14.8	Z	30.7	31.4	23.8	4.5	0.1	0.7	0.5	2.4	7.4	4.4	5.0	13.1	26.0	34.9	18.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	34.9																																																																																																															
24-Dec	0.0	0.0	Z	0.1	0.1	0.1	0.1	1.4	8.3	2.4	2.4	2.4	4.3	23.2	68.9	9.3	1.6	1.9	5.3	0.8	0.3	0.2	0.1	0.1	5.8	68.9																																																																																																															
25-Dec	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.9	0.1	0.1	0.2	2.1																																																																																																															
26-Dec	0.0	0.2	0.1	0.1	Z	0.1	0.7	2.0	34.8	27.2	14.7	23.2	20.6	33.8	43.4	35.2	34.0	51.5	19.8	17.8	28.5	25.2	20.5	14.3	19.5	51.5																																																																																																															
27-Dec	5.0	3.6	6.0	2.2	7.3	Z	7.6	23.8	30.6	28.6	18.6	10.7	7.4	5.7	3.6	2.1	0.9	3.1	5.3	8.9	7.9	8.7	4.4	3.7	9.0	30.6																																																																																																															
28-Dec	Z	0.8	0.1	0.1	0.2	0.2	0.6	0.4	0.3	1.9	3.3	13.9	60.2	37.6	31.3	30.1	23.0	23.4	2.1	0.2	0.0	0.4	0.5	0.2	10.0	60.2																																																																																																															
29-Dec	0.0	Z	0.1	0.6	0.1	0.0	0.0	2.6	4.1	3.8	4.9	4.7	7.1	5.5	5.3	3.0	2.2	3.2	3.2	0.0	0.0	0.0	0.0	0.0	2.2	7.1																																																																																																															
30-Dec	0.0	0.0	Z	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1																																																																																																															
31-Dec	0.0	0.0	0.0	Z	0.0	0.2	8.2	3.2	8.2	10.6	9.4	1.7	0.1	0.0	0.1	10.1	19.5	44.1	28.2	24.1	7.9	5.0	13.8	2.8	8.6	44.1																																																																																																															
3.3																					6.2					6.0					5.7					2.4					2.6					3.2					4.2					6.6					8.9					8.6					7.7					8.5					8.3					9.3					7.6					7.6					8.5					8.4					12.2					10.6					7.3					8.9					7.9					Diurnal Average	
26.6																					59.1					38.5					33.8					23.8					32.6					37.7					47.2					65.2					74.7					82.2					68.8					60.2					37.6					68.9					35.2					36.0					51.5					81.4					150.2					141.6					108.1					147.4					119.9					Diurnal Maximum	
Z - zerospan																					C - Calibration																																																																																																																				



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Ells River - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Ells River - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	628	88.70	88.70
21 - 40	57	8.05	96.75
41 - 80	16	2.26	99.01
81 - 159	6	0.85	99.86
> 159	0	0.00	99.86

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Ells River - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	37	62	8	3	5	12	26	85	121	64	39	28	31	41	13	12	587
21 - 40	5	2	0	0	0	1	3	15	12	4	1	1	2	0	4	1	51
11 - 80	3	1	0	1	0	0	0	3	1	1	1	1	1	0	2	1	16
81 - 159	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	4
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	45	65	8	5	5	13	29	103	134	70	41	31	34	41	20	14	658

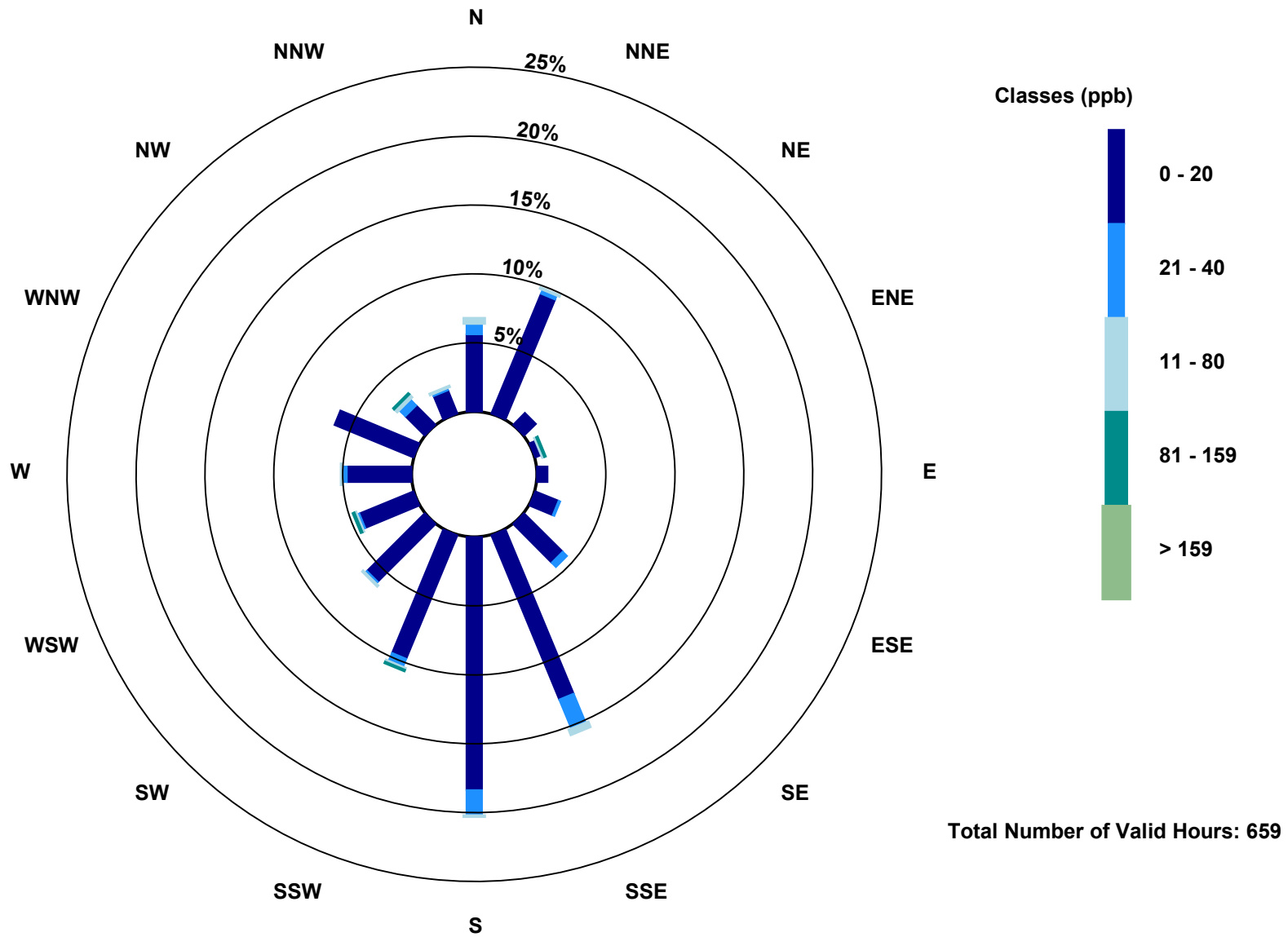
Total Number of Valid Hours: 659

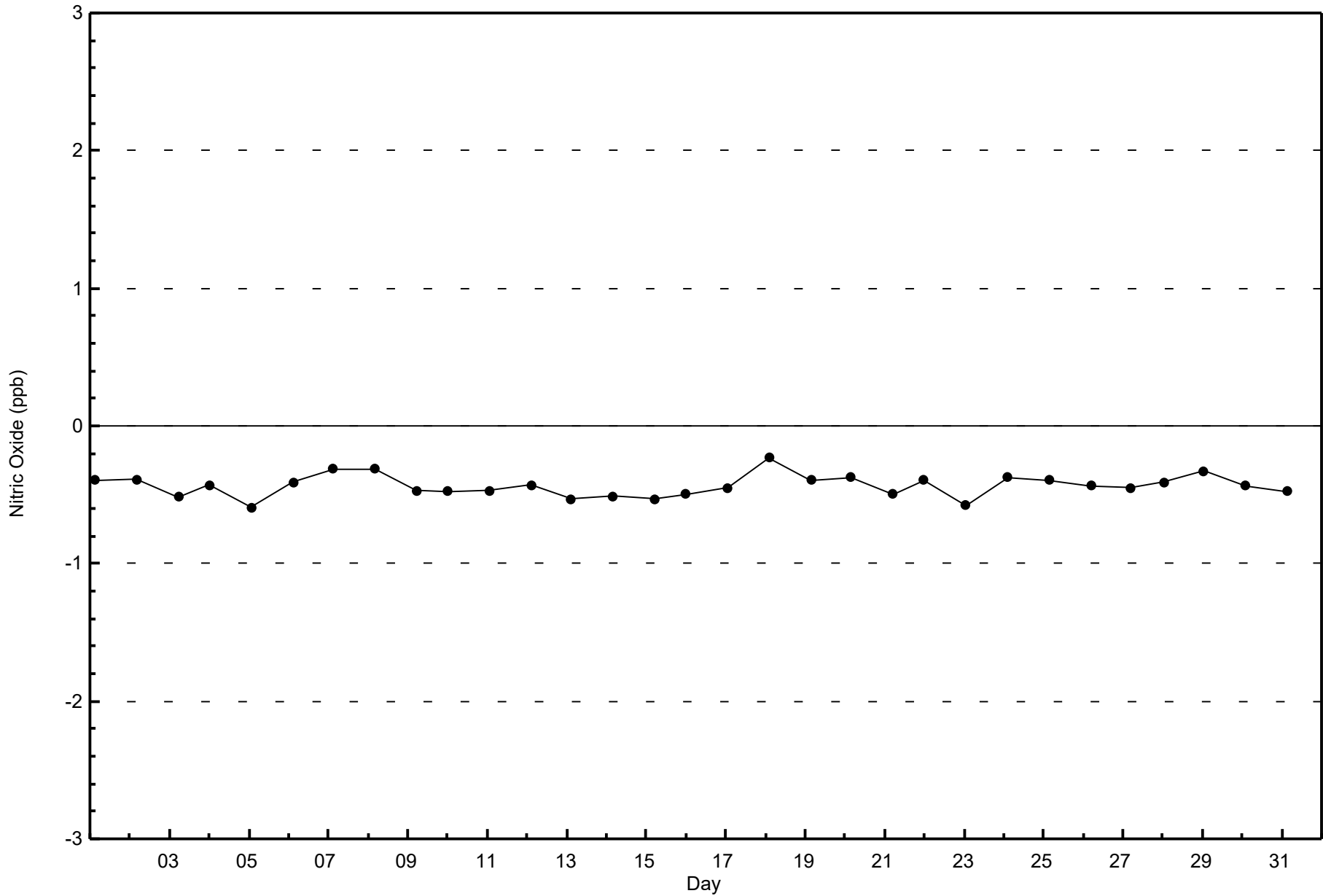
Total Number of Hours: 744

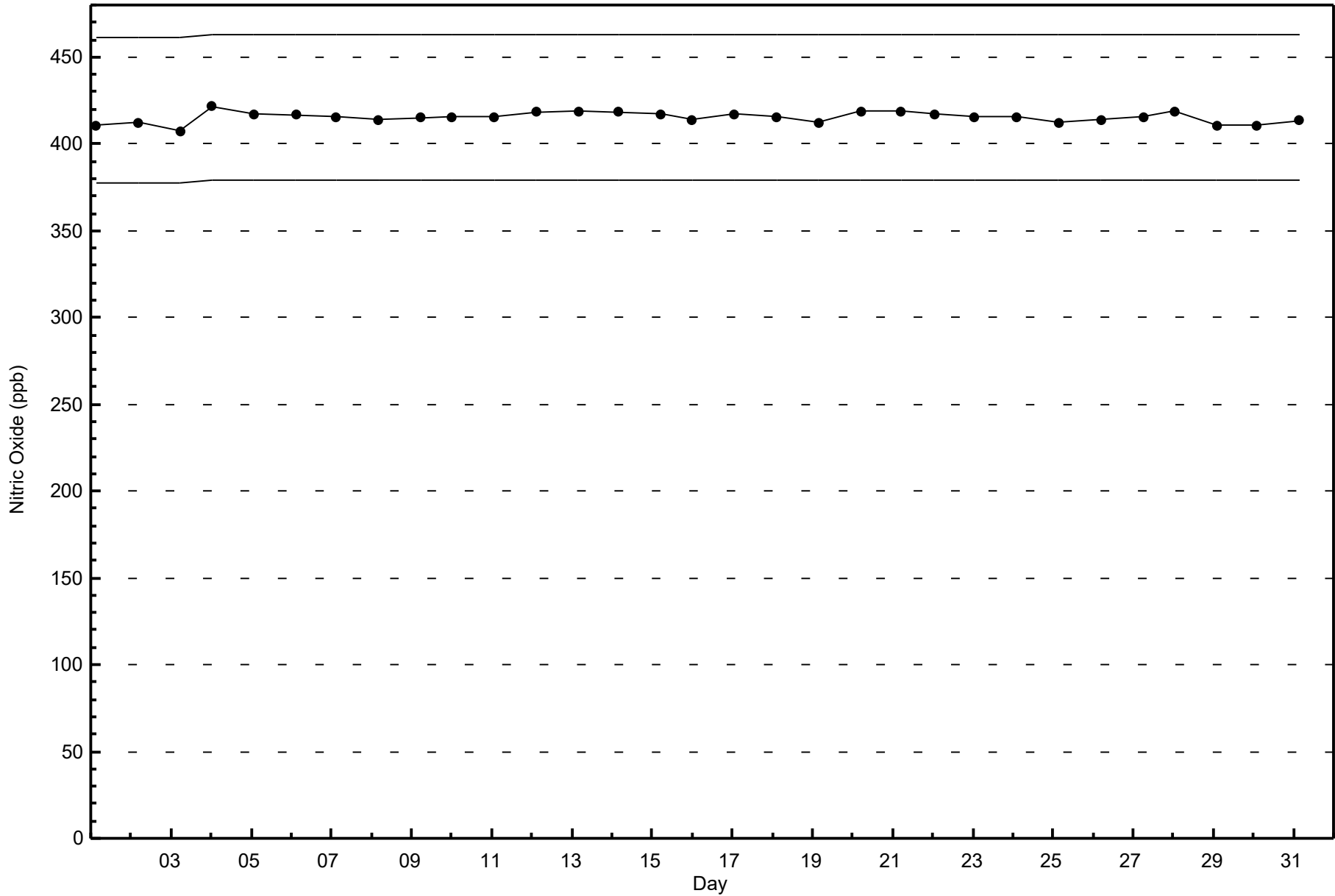


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Ells River









Wood Buffalo Environmental Association
Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb
Ells River - December 2024

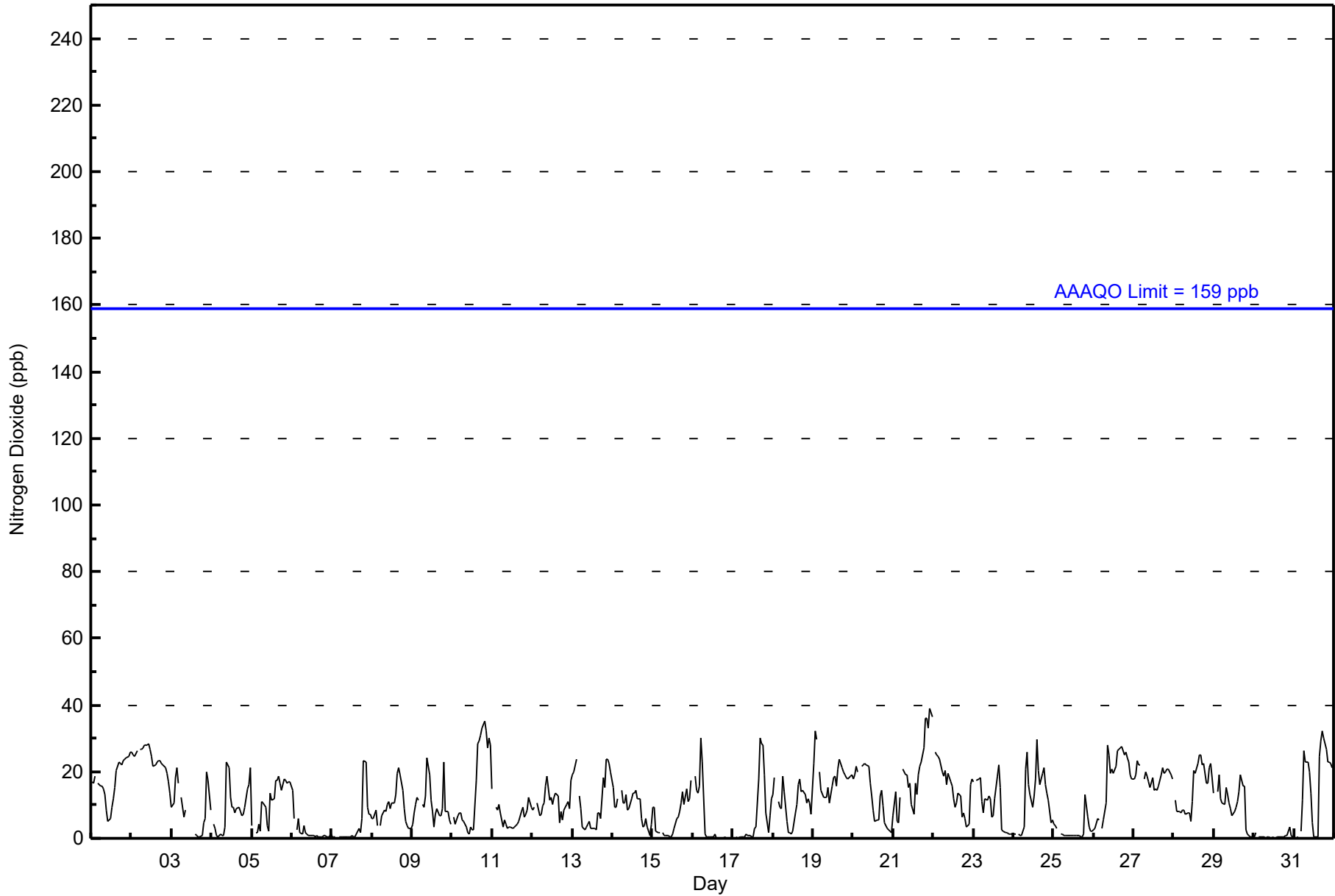
Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																									
Maximum Value: 38.9 ppb on Dec 21 23:00		Maximum Daily Average: 23.7 ppb on Dec 2		Hours of Data:		708		Hours of Missing Data: 36																																									
Minimum Value: 0.2 ppb on Dec 30 08:00		Minimum Daily Average: 0.6 ppb on Dec 30		Hours of Calibration: 36		Percent Operational Time: 100.0																																											
Maximum Diurnal Average: 14.3 ppb at hour 17		Minimum Diurnal Average: 8.0 ppb at hour 13		Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 3.0 Median = 10.1 Q ₃ = 18.1 P ₉₀ = 23.0 P ₉₉ = 32.3																																													
Monthly Average: 11.15 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-Dec	17.0	16.7	18.8	Z	16.5	15.7	15.7	15.0	13.3	8.5	5.1	5.8	9.4	11.9	15.4	20.4	22.7	22.6	22.2	23.1	23.6	24.3	24.7	25.9	17.1	25.9																							
2-Dec	25.7	25.1	24.6	26.1	Z	26.5	26.8	27.1	28.0	28.0	28.3	26.5	24.4	21.6	21.9	23.0	23.5	23.2	22.5	22.0	21.3	19.6	17.1	13.4	23.7	28.3																							
3-Dec	9.3	10.5	18.1	21.0	16.4	Z	12.3	6.2	8.5	C	C	C	C	C	1.3	0.8	0.6	0.6	0.8	4.7	6.0	20.1	17.2	8.6	9.1	21.0																							
4-Dec	Z	4.2	3.1	0.7	0.5	1.1	0.9	0.9	3.5	23.0	21.1	12.1	9.3	9.2	7.7	8.9	9.4	8.2	6.8	7.1	9.5	14.9	16.1	21.3	8.7	23.0																							
5-Dec	4.0	Z	1.7	1.7	4.3	2.2	11.0	10.5	9.3	3.7	2.3	13.7	11.4	11.9	17.2	17.2	18.7	16.6	14.3	17.6	17.4	16.4	16.9	16.8	11.2	18.7																							
6-Dec	14.2	6.0	Z	2.4	5.8	1.6	1.4	3.9	1.5	1.4	0.8	0.8	1.0	1.0	0.6	0.7	0.6	0.5	0.5	1.0	1.0	0.5	0.4	1.6	2.1	14.2																							
7-Dec	0.4	0.4	0.3	Z	0.5	0.3	0.6	0.4	0.3	0.4	0.3	0.3	0.7	0.5	0.6	2.3	2.8	1.5	5.9	23.3	23.0	9.4	7.3	7.1	3.9	23.3																							
8-Dec	5.8	6.0	8.5	3.7	Z	3.9	6.9	8.6	8.2	10.1	11.2	9.1	10.6	10.6	13.0	19.4	21.3	19.1	14.6	8.8	4.9	3.8	3.0	2.8	9.3	21.3																							
9-Dec	4.1	7.5	10.1	12.2	11.6	Z	10.2	9.2	12.5	24.0	19.0	11.6	8.2	3.3	7.1	9.1	6.8	6.8	8.8	22.9	8.1	7.9	5.4	4.1	10.0	24.0																							
10-Dec	Z	6.2	4.4	6.9	7.8	7.5	5.3	5.1	3.3	1.9	1.2	3.3	2.5	2.4	17.5	28.6	29.2	30.8	33.1	35.3	32.2	27.0	30.1	27.9	15.2	35.3																							
11-Dec	14.7	Z	9.5	8.6	10.2	7.6	3.6	5.7	4.2	2.8	3.3	3.4	2.8	3.5	4.0	4.3	5.2	8.0	9.3	6.4	7.2	8.4	12.2	9.3	6.7	14.7																							
12-Dec	8.4	9.5	Z	10.7	6.8	7.1	9.7	10.4	15.7	18.7	11.6	12.3	10.2	12.1	13.7	12.8	4.5	7.9	5.7	8.6	10.2	10.9	8.9	17.4	10.6	18.7																							
13-Dec	18.9	19.8	23.6	Z	12.6	9.0	3.6	2.6	3.3	4.2	5.1	2.9	2.8	2.8	2.5	7.7	7.6	5.9	18.2	15.2	23.6	23.6	22.3	19.8	11.2	23.6																							
14-Dec	15.1	9.5	9.2	11.7	Z	14.2	10.6	10.5	13.1	8.3	8.8	11.7	13.5	13.5	14.3	11.8	11.7	6.1	3.2	3.8	6.1	3.5	0.8	4.2	9.4	15.1																							
15-Dec	9.2	9.2	2.3	1.9	1.9	Z	1.7	0.7	0.8	0.9	0.6	0.5	1.2	2.9	5.8	6.3	8.0	10.7	14.1	10.1	14.8	10.9	11.9	17.5	6.3	17.5																							
16-Dec	Z	18.6	14.2	13.6	15.7	30.0	23.0	1.1	0.3	0.3	0.3	0.3	0.6	1.2	0.2	0.2	0.2	0.2	0.2	0.5	0.2	0.2	0.2	0.2	5.3	30.0																							
17-Dec	0.2	Z	0.3	0.2	0.3	0.6	0.3	0.3	1.2	0.8	0.9	0.5	0.3	3.0	3.3	18.0	30.2	28.3	27.8	18.9	7.5	1.6	6.6	12.0	7.1	30.2																							
18-Dec	13.1	18.3	Z	11.2	9.5	8.8	18.8	14.0	5.2	1.5	1.8	1.1	2.0	7.5	10.1	16.2	17.6	14.0	14.5	13.1	10.5	11.7	10.5	7.3	10.4	18.8																							
19-Dec	22.4	32.0	29.7	Z	19.8	14.6	12.3	12.4	12.1	15.3	10.8	15.6	18.2	18.6	15.8	20.9	23.9	21.1	20.0	19.0	18.2	17.7	18.5	18.9	18.6	32.0																							
20-Dec	18.0	19.1	21.6	20.1	Z	21.8	21.9	22.3	22.2	21.6	16.4	12.5	8.3	5.1	5.5	5.7	12.8	14.5	9.8	4.6	2.9	2.4	2.0	1.9	12.7	22.3																							
21-Dec	6.7	13.8	5.0	4.8	12.3	Z	20.6	19.0	19.1	15.4	16.6	10.2	7.0	16.7	13.1	18.9	21.5	22.7	27.1	36.1	36.0	33.1	38.9	36.3	19.6	38.9																							
22-Dec	Z	25.8	24.8	24.6	23.6	19.8	18.7	20.3	16.3	19.3	17.1	15.7	11.8	9.3	10.5	13.7	12.5	6.3	7.6	5.8	3.4	4.3	16.0	18.0	15.0	25.8																							
23-Dec	16.9	Z	17.4	17.9	18.4	11.1	7.8	11.7	11.5	12.8	12.0	6.5	6.8	11.9	18.8	21.9	15.4	2.7	2.2	1.9	1.6	1.4	1.3	1.3	10.1	21.9																							
24-Dec	1.2	1.1	Z	1.1	1.0	0.9	3.2	20.6	25.7	16.2	13.0	9.5	12.5	17.9	29.8	20.3	16.1	19.7	21.3	16.2	13.7	11.4	4.7	5.3	12.3	29.8																							
25-Dec	4.2	3.7	3.1	Z	1.4	1.2	1.0	0.9	0.7	0.8	0.8	0.8	0.7	0.7	0.8	0.7	0.6	0.6	1.3	13.1	6.4	3.3	2.2	2.2	2.2	2.2	13.1																						
26-Dec	2.6	3.0	6.0	5.4	Z	3.1	5.3	10.7	27.8	25.1	19.6	20.9	19.5	21.8	26.4	26.5	27.1	27.7	25.1	25.7	24.3	23.0	19.2	17.7	18.0	27.8																							
27-Dec	17.7	19.0	23.3	22.0	21.9	Z	17.6	19.9	18.8	17.1	15.3	18.1	14.4	14.7	14.6	15.5	19.2	21.2	19.3	20.0	20.7	20.8	19.0	18.0	18.6	23.3																							
28-Dec	Z	11.3	8.1	8.1	7.5	8.5	8.3	7.2	7.6	7.7	5.2	11.2	20.3	19.5	22.3	25.0	24.8	22.0	22.4	16.5	16.6	21.0	22.4	18.4	14.9	25.0																							
29-Dec	13.5	Z	14.0	19.1	12.0	10.7	10.2	15.1	13.0	10.5	9.0	6.7	8.1	9.3	11.1	14.0	19.0	15.5	15.7	2.6	1.1	1.0	0.6	0.4	10.1	19.1																							
30-Dec	0.4	1.5	Z	0.3	0.4	0.3	0.4	0.2	0.3	0.3	0.2	0.4	0.2	0.2	0.6	0.3	0.3	0.4	0.4	0.9	0.9	3.5	0.8	0.5	0.6	3.5																							
31-Dec	0.3	0.2	0.3	Z	2.2	11.3	26.3	22.8	22.8	19.9	13.7	4.7	0.3	0.3	0.4	24.5	29.2	32.3	30.1	26.8	22.9	22.8	22.3	21.1	15.5	32.3																							
																								10.2	11.5	11.6	10.2	9.3	9.2	10.2	10.2	10.6	10.7	9.0	8.3	8.0	8.8	10.5	13.4	14.3	13.5	13.7	13.9	12.8	12.3	12.2	12.2	Diurnal Average	
																								25.7	32.0	29.7	26.1	23.6	30.0	26.8	27.1	28.0	28.0	28.3	26.5	24.4	21.8	29.8	28.6	30.2	32.3	33.1	36.1	36.0	33.1	38.9	36.3	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Ells River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Ells River - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	586	82.77	82.77
21 - 40	122	17.23	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
Ells River - December 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	59	7	3	4	11	27	75	123	66	39	29	27	35	12	9	554
21 - 40	17	6	1	2	1	2	2	28	11	4	2	3	7	6	8	5	105
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	65	8	5	5	13	29	103	134	70	41	32	34	41	20	14	659

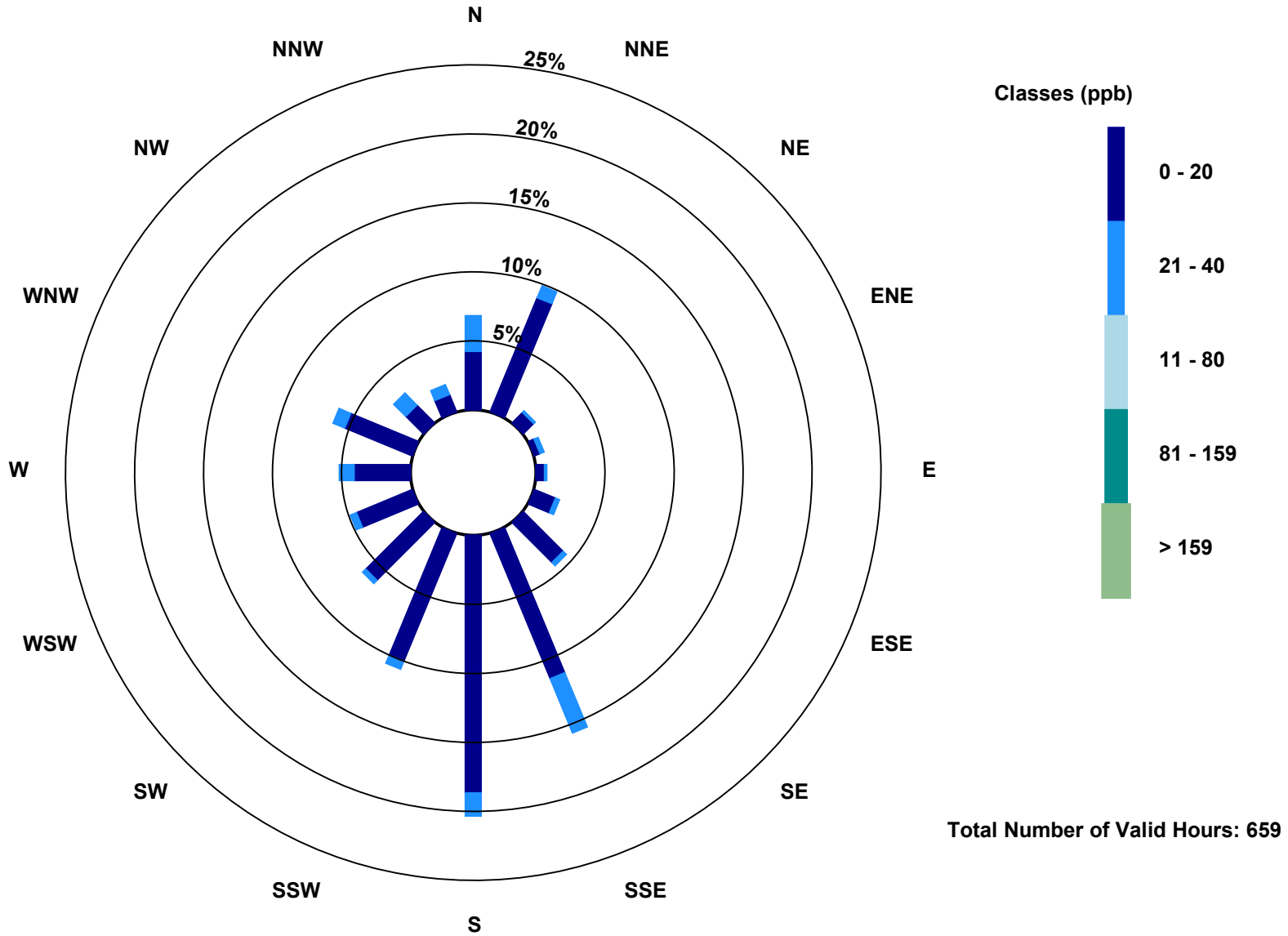
Total Number of Valid Hours: 659

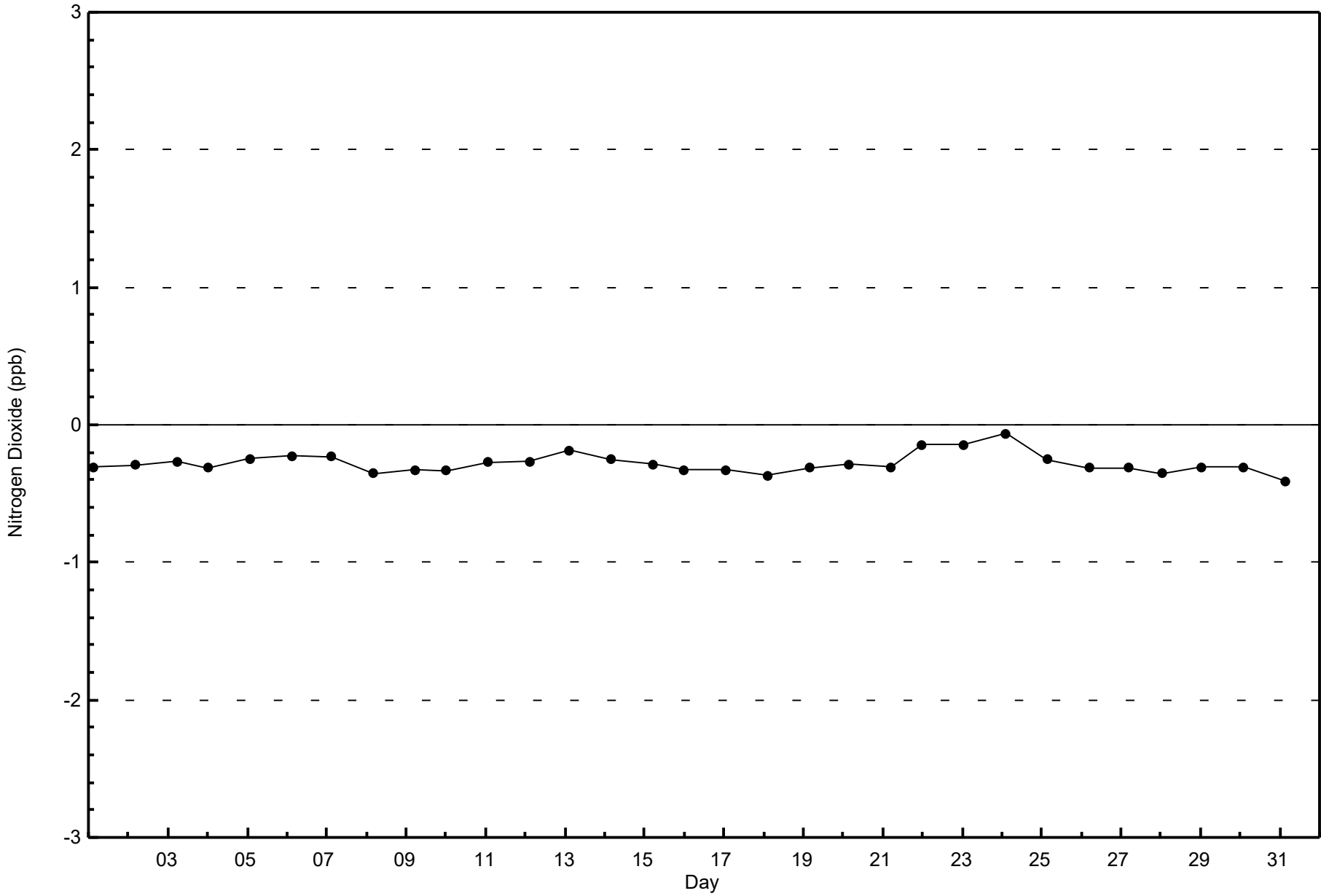
Total Number of Hours: 744

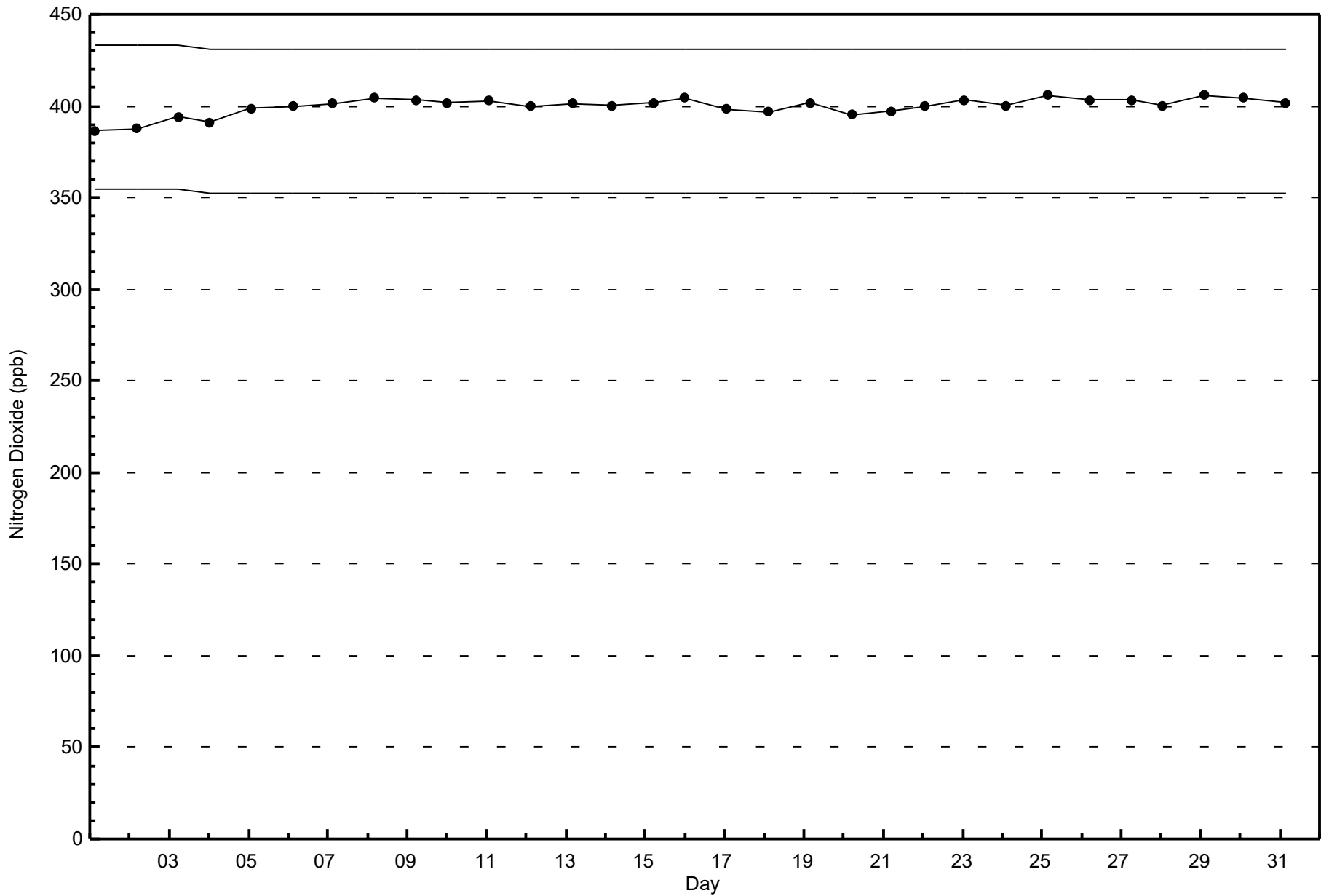


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Ells River









Wood Buffalo Environmental Association
Summary of Hour Averages

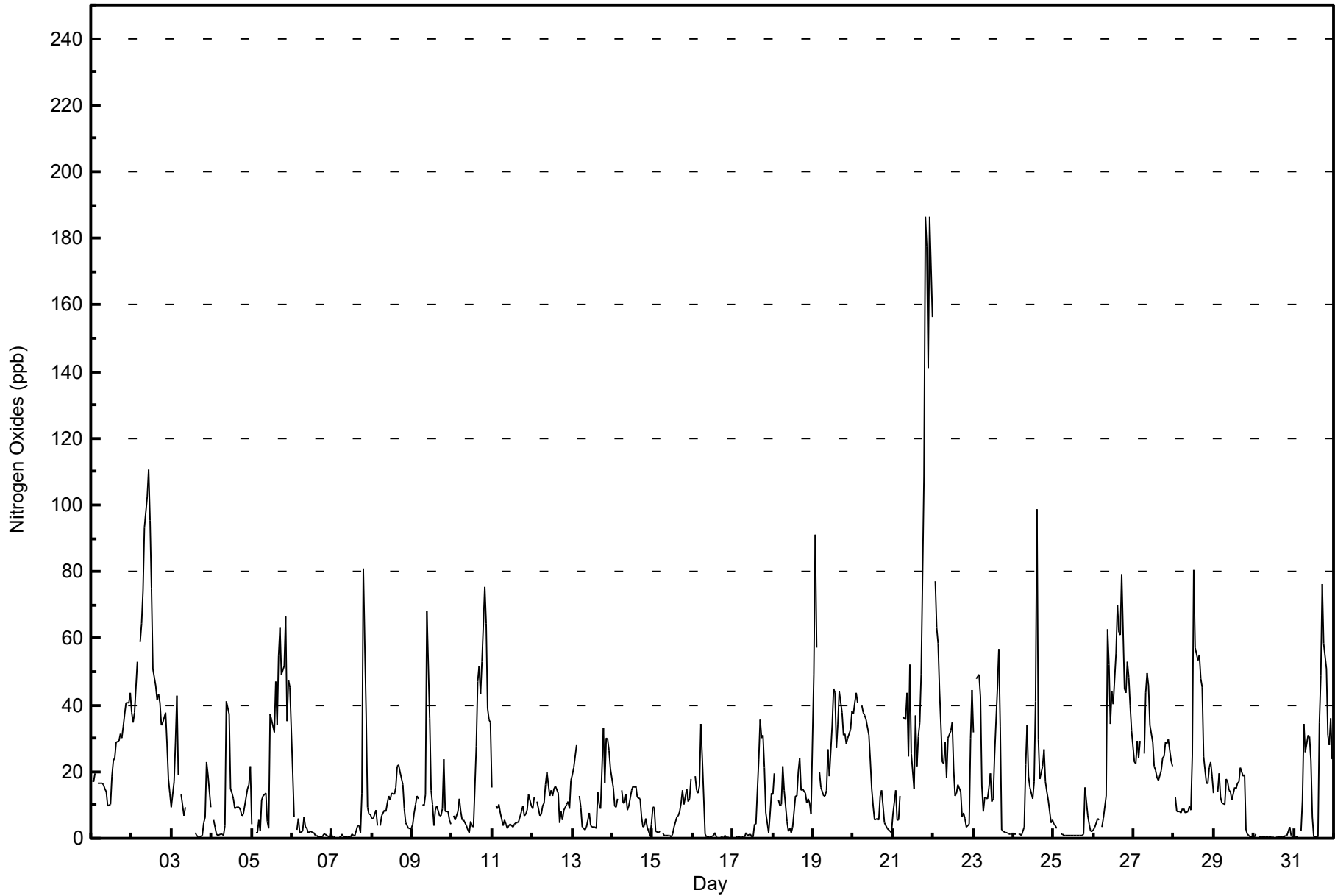
Nitrogen Oxides (NO_x) - ppb
Ells River - December 2024

Maximum Value: 186.3 ppb on Dec 21 20:00																				Maximum Daily Average: 61.2 ppb on Dec 21					Hours in Service:	744
Minimum Value: 0.2 ppb on Dec 17 00:00																				Minimum Daily Average: 0.6 ppb on Dec 30					Hours of Data:	708
Maximum Diurnal Average: 26.1 ppb at hour 20																				Minimum Diurnal Average: 11.7 ppb at hour 5					Hours of Missing Data:	36
Monthly Average: 18.36 ppb																				Percentiles: P ₁ = 0.2 P ₁₀ = 0.7 Q ₁ = 3.4 Median = 11.4 Q ₃ = 25.3 P ₉₀ = 44.1 P ₉₉ = 102.4					Hours of Calibration:	36
																									Percent Operational Time:	100.0
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	17.2	16.8	19.5	Z	16.7	16.4	16.5	16.0	14.9	14.0	9.9	10.3	18.6	23.4	24.1	28.7	29.2	31.2	30.3	33.6	37.3	40.5	40.9	43.9	23.9	43.9
2-Dec	37.9	34.9	37.5	53.0	Z	59.1	64.5	74.3	93.2	102.7	110.5	95.3	74.8	50.8	45.7	41.6	43.1	40.7	34.1	34.7	37.5	28.3	17.7	13.5	53.3	110.5
3-Dec	9.4	16.9	28.8	42.8	19.0	Z	13.3	6.6	9.2	C	C	C	C	C	1.6	0.8	0.6	0.6	0.9	4.9	6.5	23.0	19.2	9.2	11.9	42.8
4-Dec	Z	5.4	3.3	1.4	0.7	1.3	1.2	1.0	3.7	41.2	37.3	14.7	13.7	11.9	8.8	9.4	9.5	8.3	6.9	7.3	9.6	15.0	16.3	21.6	10.9	41.2
5-Dec	4.1	Z	1.7	1.7	5.4	2.3	11.5	12.9	13.5	5.2	3.1	37.5	35.7	31.6	46.9	34.0	54.7	63.1	49.0	51.8	66.5	35.1	47.4	45.1	28.7	66.5
6-Dec	20.0	6.2	Z	2.5	6.1	1.8	2.0	6.2	3.3	3.0	1.5	2.1	1.8	1.8	0.8	0.8	0.6	0.5	0.5	1.2	1.4	0.8	0.5	2.7	3.0	20.0
7-Dec	0.4	0.5	0.3	Z	0.5	0.4	1.1	0.6	0.3	0.4	0.4	0.3	1.1	0.7	0.9	4.0	3.7	1.6	13.7	80.9	37.1	9.5	7.3	7.1	7.5	80.9
8-Dec	5.8	6.0	8.5	3.7	Z	3.9	6.9	8.6	8.2	10.5	12.8	11.4	13.5	13.1	15.1	21.6	22.0	19.9	16.0	9.0	4.9	3.8	3.1	2.8	10.0	22.0
9-Dec	4.1	7.5	10.3	12.5	11.7	Z	10.3	9.6	13.0	68.2	36.0	14.2	10.3	4.0	8.3	9.6	6.9	6.9	8.9	23.8	8.2	8.1	5.4	4.1	13.1	68.2
10-Dec	Z	6.8	5.5	8.1	12.0	8.1	5.5	5.3	3.6	2.5	1.8	5.2	3.9	3.4	27.4	47.0	51.7	43.4	53.2	75.4	64.2	38.9	35.5	34.9	23.6	75.4
11-Dec	15.1	Z	9.7	8.8	10.3	7.6	3.6	5.7	4.3	3.0	3.9	4.4	3.6	4.4	4.8	4.5	5.2	8.1	9.7	6.6	7.2	8.5	13.3	9.6	7.0	15.1
12-Dec	9.0	12.2	Z	11.0	6.8	7.1	9.7	10.4	15.9	19.8	12.6	14.6	12.8	14.8	15.6	13.5	4.5	7.9	5.7	8.6	10.2	10.9	8.9	17.4	11.3	19.8
13-Dec	19.0	21.0	28.0	Z	12.9	9.1	3.6	2.6	3.3	5.5	7.7	4.0	3.6	3.5	2.8	13.9	10.2	8.8	32.9	16.7	30.0	29.6	26.2	20.7	13.7	32.9
14-Dec	15.2	9.5	9.2	11.8	Z	14.3	10.7	10.6	13.3	8.7	9.9	14.2	15.8	15.2	15.7	12.3	11.8	6.2	3.3	3.8	6.1	3.5	0.8	4.2	9.8	15.8
15-Dec	9.3	9.3	2.3	1.9	1.9	Z	1.7	0.7	0.8	0.9	0.7	0.6	1.4	3.3	6.5	6.6	8.1	10.8	14.2	10.2	14.9	11.0	12.0	17.7	6.4	17.7
16-Dec	Z	18.7	14.5	13.6	15.7	34.1	24.3	1.1	0.3	0.3	0.3	0.3	0.7	1.5	0.2	0.2	0.2	0.2	0.2	0.8	0.4	0.2	0.2	0.2	5.6	34.1
17-Dec	0.2	Z	0.3	0.2	0.3	0.6	0.3	0.3	1.7	1.1	1.3	0.6	0.3	4.1	4.1	23.7	35.5	30.1	30.7	21.2	7.6	1.7	7.0	13.4	8.1	35.5
18-Dec	13.3	19.4	Z	11.3	9.8	10.2	21.5	14.6	5.3	1.9	2.8	1.7	3.3	12.8	12.5	19.8	24.0	14.6	14.7	13.8	10.7	11.7	10.5	7.3	11.6	24.0
19-Dec	49.0	91.1	57.1	Z	20.0	15.1	12.6	12.6	14.2	26.7	18.6	33.9	45.1	43.8	26.9	34.5	44.1	37.9	30.9	31.2	28.3	29.9	32.7	38.3	33.7	91.1
20-Dec	37.3	40.6	43.8	40.9	Z	39.8	37.8	36.9	35.4	30.7	23.5	15.0	9.9	5.4	5.8	5.7	12.9	14.5	9.8	4.6	2.9	2.4	2.0	1.9	20.0	43.8
21-Dec	7.2	14.3	5.7	5.4	12.7	Z	36.3	35.5	43.8	24.8	52.1	25.3	14.7	37.0	21.5	30.6	34.9	49.2	108.5	186.3	177.6	141.2	186.3	156.2	61.2	186.3
22-Dec	Z	77.3	63.3	58.4	44.3	23.0	22.6	28.6	18.1	30.0	32.2	34.7	20.9	12.7	13.4	16.1	14.2	6.3	7.6	5.8	3.4	4.3	30.1	44.3	26.6	77.3
23-Dec	31.7	Z	48.1	49.3	42.2	15.6	7.9	12.4	12.0	15.2	19.4	10.9	11.8	25.0	44.8	56.8	33.4	2.7	2.2	1.9	1.6	1.4	1.3	1.3	19.5	56.8
24-Dec	1.2	1.1	Z	1.2	1.1	1.0	3.3	22.0	34.0	18.6	15.4	11.9	16.8	41.1	98.7	29.6	17.7	21.6	26.6	17.0	14.0	11.6	4.8	5.4	18.1	98.7
25-Dec	4.3	3.7	3.1	Z	1.4	1.2	1.0	0.9	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.7	0.7	1.4	15.2	6.7	4.2	2.3	2.3	2.4	15.2
26-Dec	2.6	3.2	6.1	5.5	Z	3.2	6.0	12.7	62.6	52.3	34.3	44.1	40.1	55.6	69.8	61.7	61.1	79.2	44.9	43.5	52.8	48.2	39.7	32.0	37.4	79.2
27-Dec	22.7	22.6	29.3	24.2	29.2	Z	25.2	43.7	49.4	45.7	33.9	28.8	21.8	20.4	18.2	17.6	20.1	24.3	24.6	28.9	28.6	29.5	23.4	21.7	27.6	49.4
28-Dec	Z	12.1	8.2	8.2	7.7	8.7	8.9	7.6	7.9	9.6	8.5	25.1	80.5	57.1	53.6	55.1	47.8	45.4	24.5	16.7	16.6	21.4	22.9	18.6	24.9	80.5
29-Dec	13.5	Z	14.1	19.7	12.1	10.7	10.2	17.7	17.1	14.3	13.9	11.4	15.2	14.8	16.4	17.0	21.2	18.7	18.9	2.6	1.1	1.0	0.6	0.4	12.3	21.2
30-Dec	0.4	1.5	Z	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.2	0.4	0.2	0.2	0.6	0.3	0.3	0.4	0.4	0.9	0.9	3.5	0.8	0.5	0.6	3.5
31-Dec	0.3	0.2	0.3	Z	2.2	11.5	34.5	26.0	31.0	30.5	23.1	6.4	0.4	0.3	0.5	34.6	48.7	76.4	58.3	50.9	30.8	27.8	36.1	23.9	24.1	76.4
																				13.5 17.7 17.6 15.9 11.7 11.8 13.4 14.3 17.2 19.6 17.6 16.0 16.4 17.2 19.8 21.0 21.9 21.9 22.0 26.1 23.4 19.6 21.1 20.1					Diurnal Average	
																				49.0 91.1 63.3 58.4 44.3 59.1 64.5 74.3 93.2 102.7 110.5 95.3 80.5 57.1 98.7 61.7 61.1 79.2 108.5 186.3 177.6 141.2 186.3 156.2					Diurnal Maximum	
Z - zerospan																				C - Calibration						



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Ells River - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Ells River - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	492	69.49	69.49
21 - 40	126	17.80	87.29
41 - 80	76	10.73	98.02
81 - 159	9	1.27	99.29
> 159	3	0.42	99.72

Total Number of Valid Hours: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Ells River - December 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	23	55	6	3	4	11	20	59	94	58	37	26	23	34	10	7	470
21 - 40	14	6	1	0	1	1	6	23	28	6	2	2	7	5	3	4	109
11 - 80	6	4	1	1	0	1	3	20	12	5	2	1	3	2	4	3	68
81 - 159	1	0	0	0	0	0	0	1	0	0	0	2	1	0	2	0	7
> 159	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	3
Totals	44	65	8	5	5	13	29	103	134	70	41	31	34	41	20	14	657

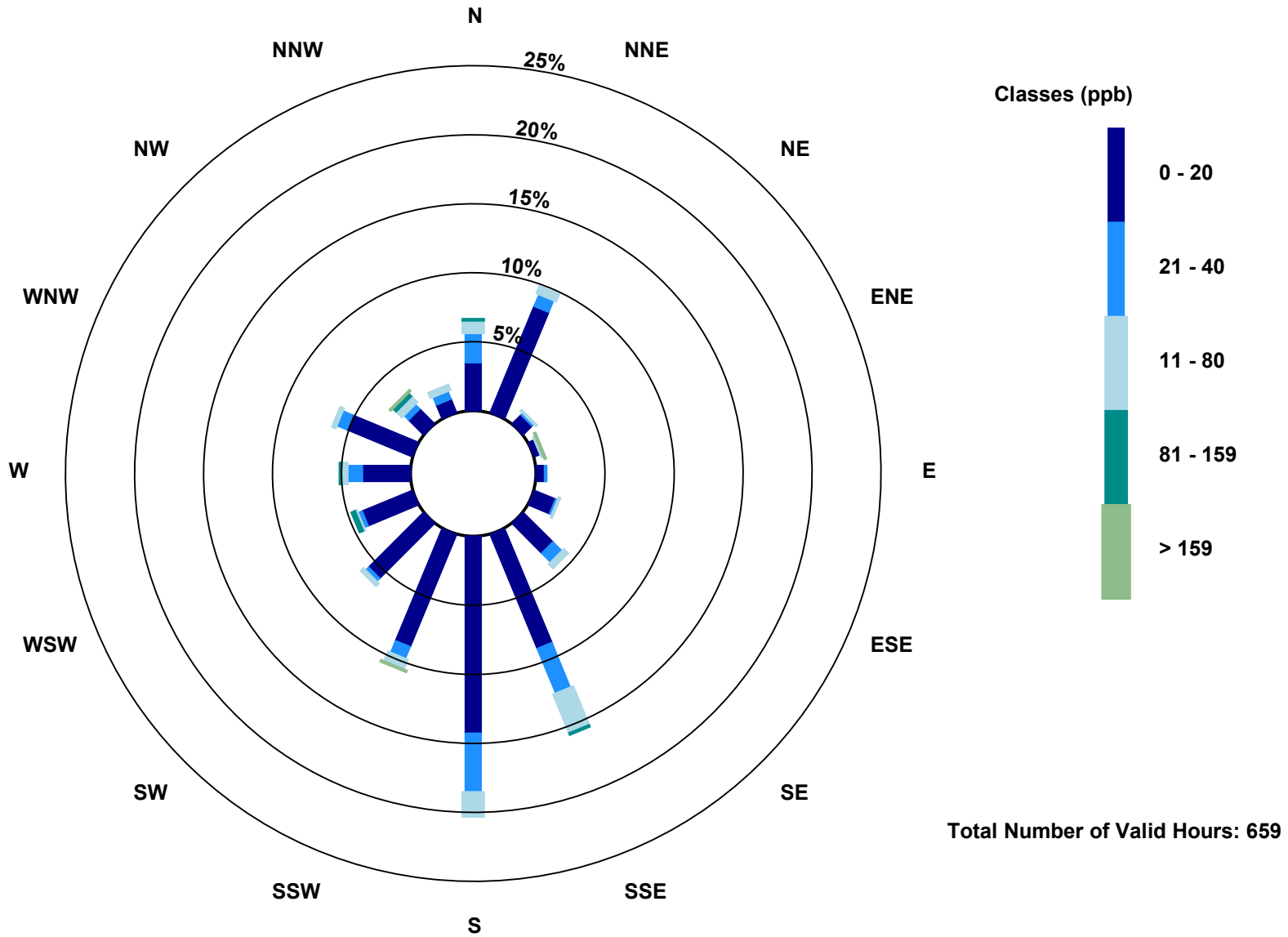
Total Number of Valid Hours: 659

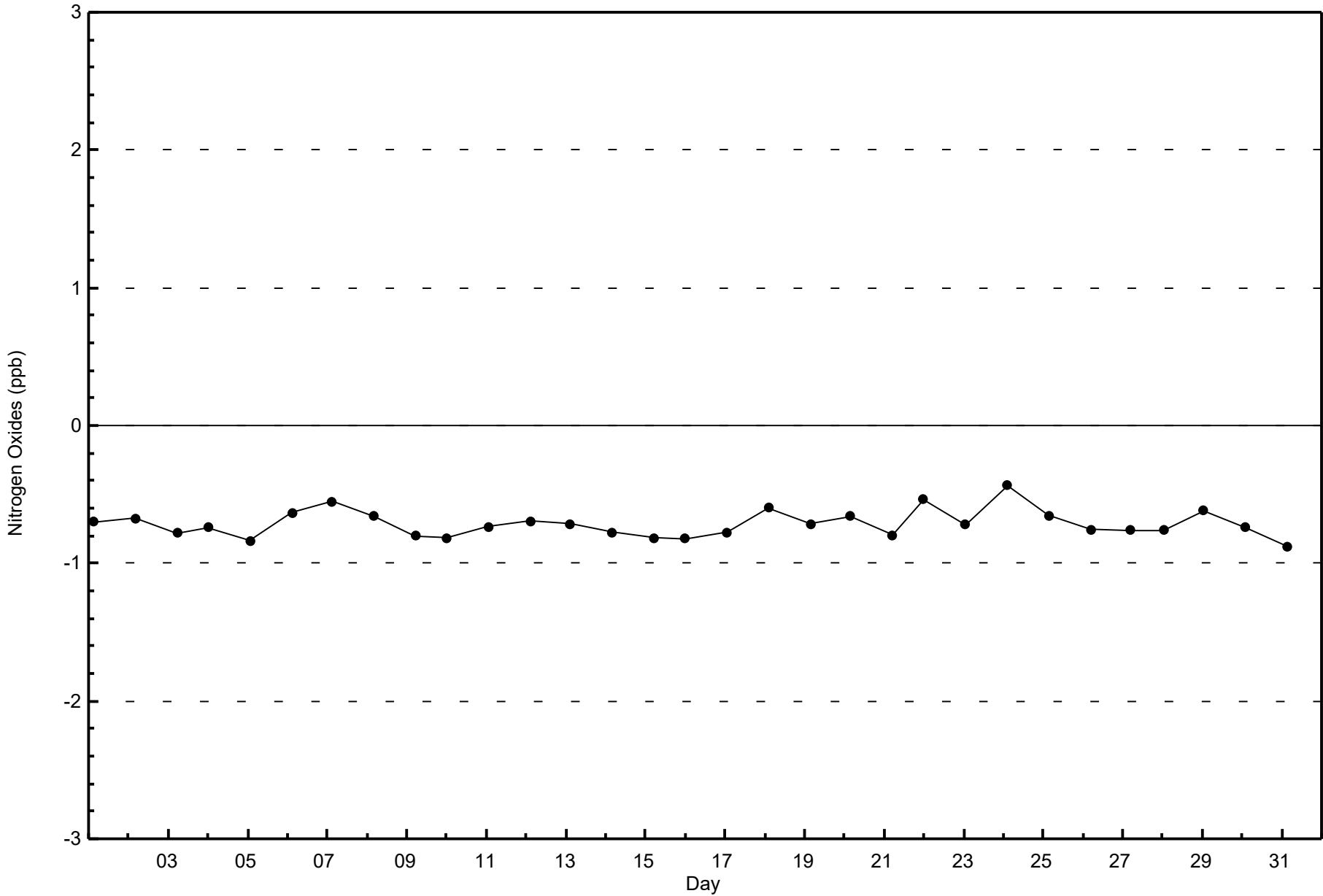
Total Number of Hours: 744

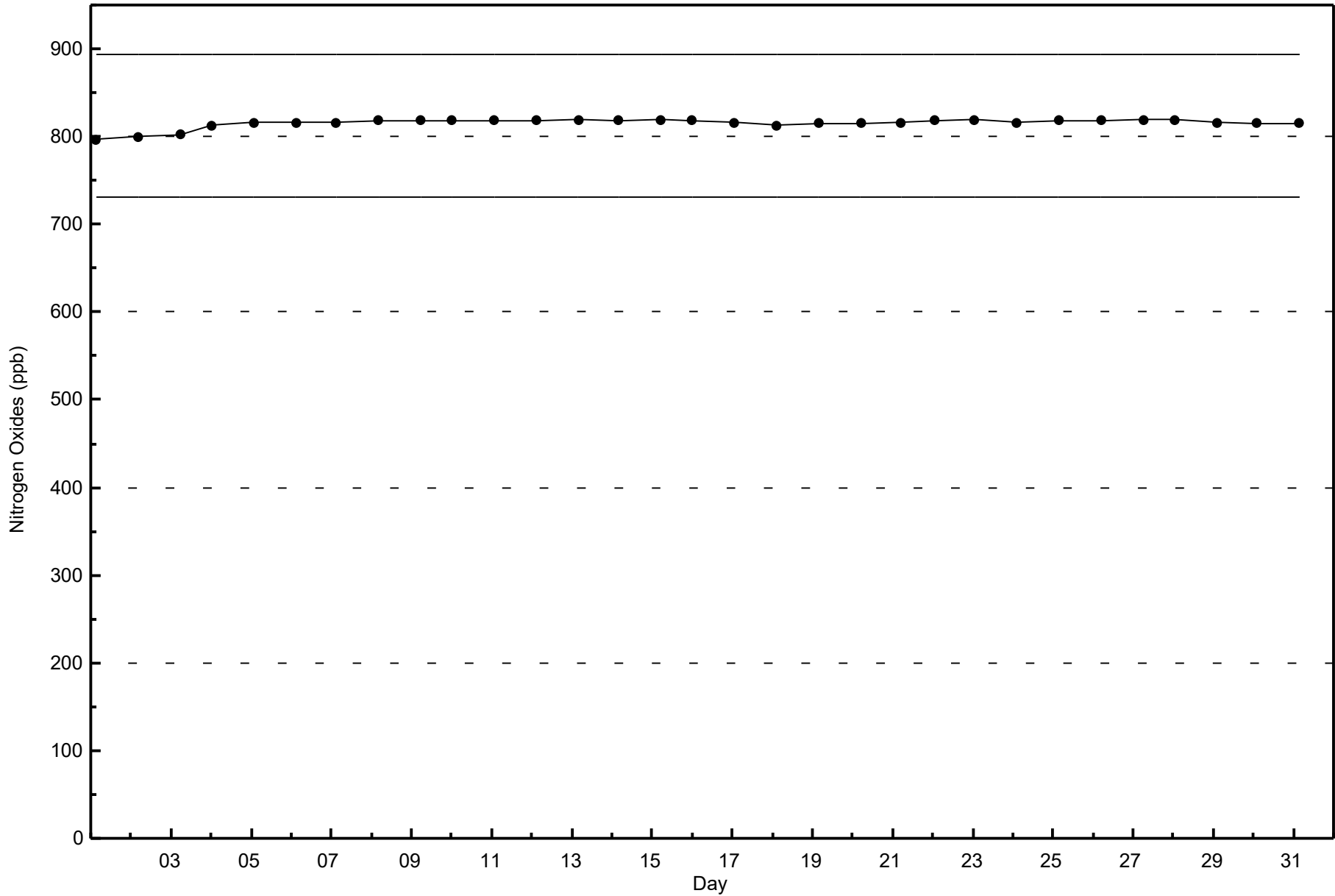


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Ells River





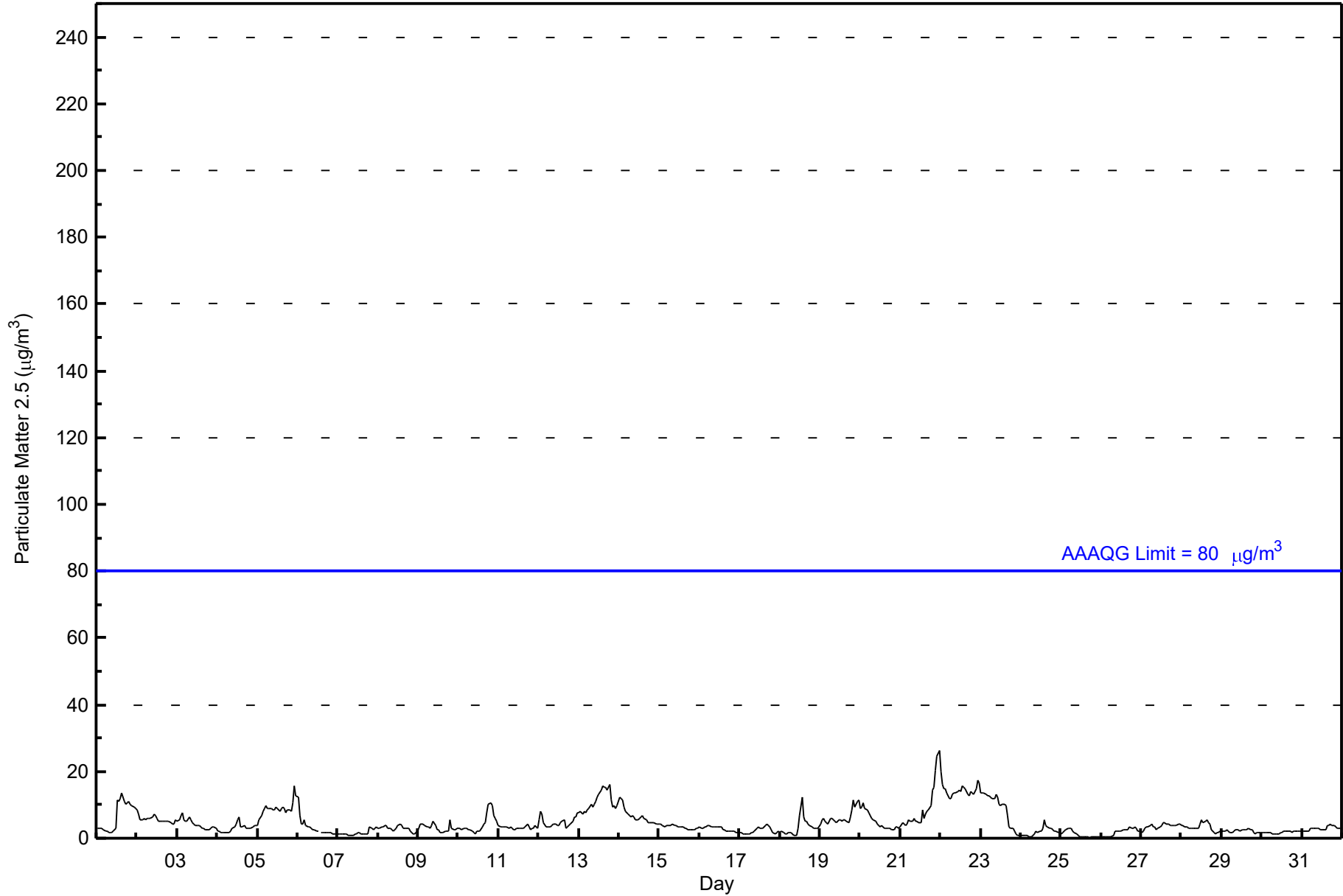




Summary of Hour Averages

Ells River - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:																744																											
Maximum Value: 26.3 µg/m ³ on Dec 22 00:00		Maximum Daily Average: 14.4 µg/m ³ on Dec 22																Hours of Data:		743																													
Minimum Value: 0.2 µg/m ³ on Dec 25 18:00		Minimum Daily Average: 1.1 µg/m ³ on Dec 25																Hours of Missing Data:		1																													
Maximum Diurnal Average: 5.3 µg/m ³ at hour 14		Minimum Diurnal Average: 4.1 µg/m ³ at hour 11																Hours of Calibration:		1																													
Monthly Average: 4.61 µg/m ³		Percentiles: P ₁ = 0.3 P ₁₀ = 1.5 Q ₁ = 2.2 Median = 3.3 Q ₃ = 5.5 P ₉₀ = 10.2 P ₉₉ = 15.9																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-Dec	3.1	3.1	3.0	2.9	2.3	2.1	2.0	1.7	1.6	1.6	2.1	3.0	11.5	11.1	11.9	13.4	10.9	10.2	10.5	10.9	10.3	9.7	9.4	9.1	6.6	13.4																							
2-Dec	8.3	7.1	5.7	5.5	5.8	5.6	5.9	6.1	6.1	6.5	7.4	6.9	5.7	5.1	5.0	5.1	5.1	4.9	5.0	5.1	4.9	4.4	4.4	5.4	5.7	8.3																							
3-Dec	5.3	5.5	6.7	7.8	5.7	5.2	5.1	6.2	5.5	4.6	4.2	4.0	3.7	3.7	3.3	2.9	2.8	2.6	2.6	2.7	2.8	3.4	3.3	2.9	4.3	7.8																							
4-Dec	2.2	2.1	1.9	1.9	1.9	1.5	1.7	1.9	2.2	2.9	3.2	4.1	5.4	6.3	3.6	3.3	3.7	3.1	2.9	3.0	2.9	3.4	3.7	3.7	3.0	6.3																							
5-Dec	3.7	5.4	6.9	7.9	9.1	9.6	8.8	9.1	9.0	8.4	8.3	9.1	8.8	7.9	9.0	9.4	8.9	7.8	8.5	8.7	8.0	10.6	15.7	12.9	8.8	15.7																							
6-Dec	12.1	6.6	4.1	4.3	5.4	3.7	3.5	3.3	2.9	2.7	2.7	2.3	2.1	C	1.8	1.6	1.6	1.5	1.6	1.6	1.5	1.4	1.4	3.1	12.1																								
7-Dec	1.3	1.2	1.2	1.3	1.3	1.2	1.0	0.9	0.6	0.9	1.2	1.4	1.6	1.5	1.4	1.5	1.4	1.3	1.4	3.3	2.8	2.4	3.0	3.3	1.6	3.3																							
8-Dec	3.0	2.8	3.4	3.3	3.8	3.9	3.1	2.9	2.7	2.2	2.5	2.9	3.6	4.3	3.9	2.8	2.8	3.1	2.9	2.1	1.6	1.4	1.4	2.2	2.9	4.3																							
9-Dec	3.1	4.1	4.2	4.2	3.7	3.2	3.3	3.0	3.6	4.9	4.0	2.6	2.4	1.6	1.5	1.7	2.0	2.0	2.1	5.7	3.1	2.7	2.7	2.9	3.1	5.7																							
10-Dec	2.8	3.0	2.6	3.1	2.9	2.9	2.6	2.6	2.3	1.6	1.3	2.2	2.1	2.1	3.6	4.2	4.6	7.6	10.2	10.5	9.5	6.7	5.9	5.2	4.3	10.5																							
11-Dec	3.9	3.4	3.6	3.4	3.5	3.3	2.9	3.2	2.8	2.6	2.7	2.9	3.1	2.9	3.0	2.9	3.3	4.4	3.5	2.7	3.0	3.0	3.8	3.1	3.2	4.4																							
12-Dec	5.7	8.2	7.3	4.6	3.3	3.4	3.4	3.2	3.6	4.3	4.1	3.9	3.8	4.6	4.9	5.4	3.1	3.4	3.7	4.4	5.2	6.2	6.3	7.5	4.7	8.2																							
13-Dec	7.6	8.1	7.2	7.9	7.8	8.4	8.7	10.1	9.2	10.2	11.1	12.3	13.0	14.2	15.8	15.4	15.1	14.3	16.0	11.3	9.2	9.6	9.1	9.9	10.9	16.0																							
14-Dec	12.3	12.1	11.6	9.3	7.9	7.3	6.8	6.5	6.7	6.4	5.5	5.7	5.9	6.2	6.6	5.9	5.5	4.8	4.6	4.7	4.7	4.5	4.3	4.3	6.7	12.3																							
15-Dec	4.2	4.1	3.7	3.5	3.7	3.7	3.8	4.0	4.0	3.8	3.7	3.5	3.4	3.4	3.3	3.1	3.0	2.7	2.7	2.4	2.6	2.8	2.9	3.1	3.4	4.2																							
16-Dec	3.4	3.2	3.0	3.3	3.3	3.8	3.7	3.5	3.4	3.4	3.3	3.4	3.5	3.2	2.7	2.4	2.2	2.1	2.1	2.1	2.0	2.0	1.9	1.7	2.9	3.8																							
17-Dec	1.6	1.6	1.5	1.4	1.3	1.4	1.3	1.6	1.8	2.3	2.9	3.2	3.0	2.8	2.9	3.6	4.3	4.0	3.5	2.7	1.7	1.3	1.5	2.0	2.3	4.3																							
18-Dec	1.7	1.9	1.7	1.3	1.2	1.5	1.9	1.6	1.0	1.0	0.9	3.0	6.8	12.5	6.3	4.9	4.9	4.2	3.8	3.3	3.1	3.1	3.0	3.0	3.2	12.5																							
19-Dec	4.1	5.5	5.9	5.1	4.5	4.3	5.8	5.8	5.4	5.0	4.7	5.5	5.7	5.1	5.5	5.6	5.2	4.5	6.2	8.5	11.6	9.3	11.2	11.6	6.3	11.6																							
20-Dec	8.8	9.2	10.8	9.0	8.3	7.5	6.6	6.1	5.6	5.2	4.4	3.9	3.3	3.8	2.8	2.8	2.9	3.1	3.0	2.7	2.7	3.3	3.2	3.0	5.1	10.8																							
21-Dec	3.4	4.5	4.1	4.0	4.3	5.5	5.2	5.3	5.8	5.0	5.0	4.9	4.9	8.3	6.0	7.4	7.9	8.5	9.8	14.3	15.4	20.5	24.5	26.3	8.8	26.3																							
22-Dec	20.1	15.9	14.8	14.6	13.5	11.8	11.9	13.1	13.7	13.4	13.9	14.3	13.9	15.9	15.2	14.7	13.1	12.7	14.2	13.8	13.3	15.0	17.2	16.7	14.4	20.1																							
23-Dec	13.5	13.5	13.6	13.1	12.6	12.6	12.4	12.0	12.0	13.2	12.3	10.1	9.6	10.1	10.3	9.8	6.8	3.4	3.0	2.8	2.2	1.3	1.0	0.9	8.8	13.6																							
24-Dec	0.9	0.9	0.9	0.8	1.0	0.6	0.6	1.0	1.3	2.0	1.9	2.2	2.2	2.8	5.6	4.0	3.3	3.0	2.8	2.5	2.2	2.0	1.5	1.5	2.0	5.6																							
25-Dec	1.5	1.6	2.0	2.7	3.0	3.0	2.9	2.3	1.6	1.1	0.8	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.2	0.5	0.4	0.3	0.4	0.3	1.1	3.0																							
26-Dec	0.3	0.3	0.4	0.5	0.4	0.4	0.5	0.8	2.2	2.3	1.9	2.0	2.0	2.3	2.7	2.7	2.7	3.3	3.0	3.0	3.2	2.8	1.9	1.9	1.8	3.3																							
27-Dec	1.6	2.0	2.8	3.2	3.4	3.7	4.3	3.5	3.5	2.6	2.9	3.5	3.7	4.6	4.8	4.2	4.4	3.8	3.7	3.7	3.9	4.0	4.1	4.0	3.6	4.8																							
28-Dec	3.9	3.6	3.2	3.3	3.0	3.1	3.2	2.9	2.9	3.0	3.0	4.2	5.3	4.7	5.1	5.3	4.6	4.2	2.7	1.6	1.4	1.7	1.8	2.0	3.3	5.3																							
29-Dec	2.2	2.2	2.1	2.3	2.0	1.7	1.5	2.3	2.3	2.5	2.3	2.0	2.4	2.7	2.6	2.7	3.1	2.6	2.6	1.8	1.5	1.5	1.5	1.7	2.2	3.1																							
30-Dec	1.9	1.9	1.8	1.7	1.8	1.6	1.4	1.3	1.3	1.2	1.4	1.7	1.9	2.1	2.0	2.1	2.2	2.1	1.9	1.9	2.0	2.1	2.1	2.1	1.8	2.2																							
31-Dec	2.1	2.1	2.2	2.1	2.2	2.8	3.2	2.9	3.0	2.9	2.8	2.7	2.6	2.6	2.7	3.7	3.9	4.3	3.9	3.7	3.3	3.2	3.0	3.1	3.0	4.3																							
																								4.8	4.7	4.6	4.5	4.3	4.2	4.2	4.2	4.2	4.1	4.3	4.8	5.3	5.0	5.0	4.7	4.5	4.7	4.8	4.6	4.7	5.1	5.1	Diurnal Average		
																								20.1	15.9	14.8	14.6	13.5	12.6	12.4	13.1	13.7	13.4	13.9	14.3	13.9	15.9	15.8	15.4	15.1	14.3	16.0	14.3	15.4	20.5	24.5	26.3	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}) - $\mu\text{g}/\text{m}^3$
Ells River - December 2024

Concentration Ranges ($\mu\text{g}/\text{m}^3$)	Number of Hours	%	Cumulative %
0 - 5	557	74.97	74.97
6 - 15	175	23.55	98.52
16 - 25	10	1.35	99.87
26 - 80	1	0.13	100.00
> 81.0	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Particulate Matter 2.5 (PM_{2.5}) - μg/m³
Ells River - December 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	29	45	11	5	5	13	27	76	91	56	37	28	28	35	18	12	516
6 - 15	19	22	0	1	0	0	3	30	43	16	5	4	7	7	5	4	166
16 - 25	0	0	0	0	0	0	0	0	4	2	2	0	0	0	0	1	9
26 - 80	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
> 81.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	48	67	11	6	5	13	30	106	138	74	44	33	35	42	23	17	692

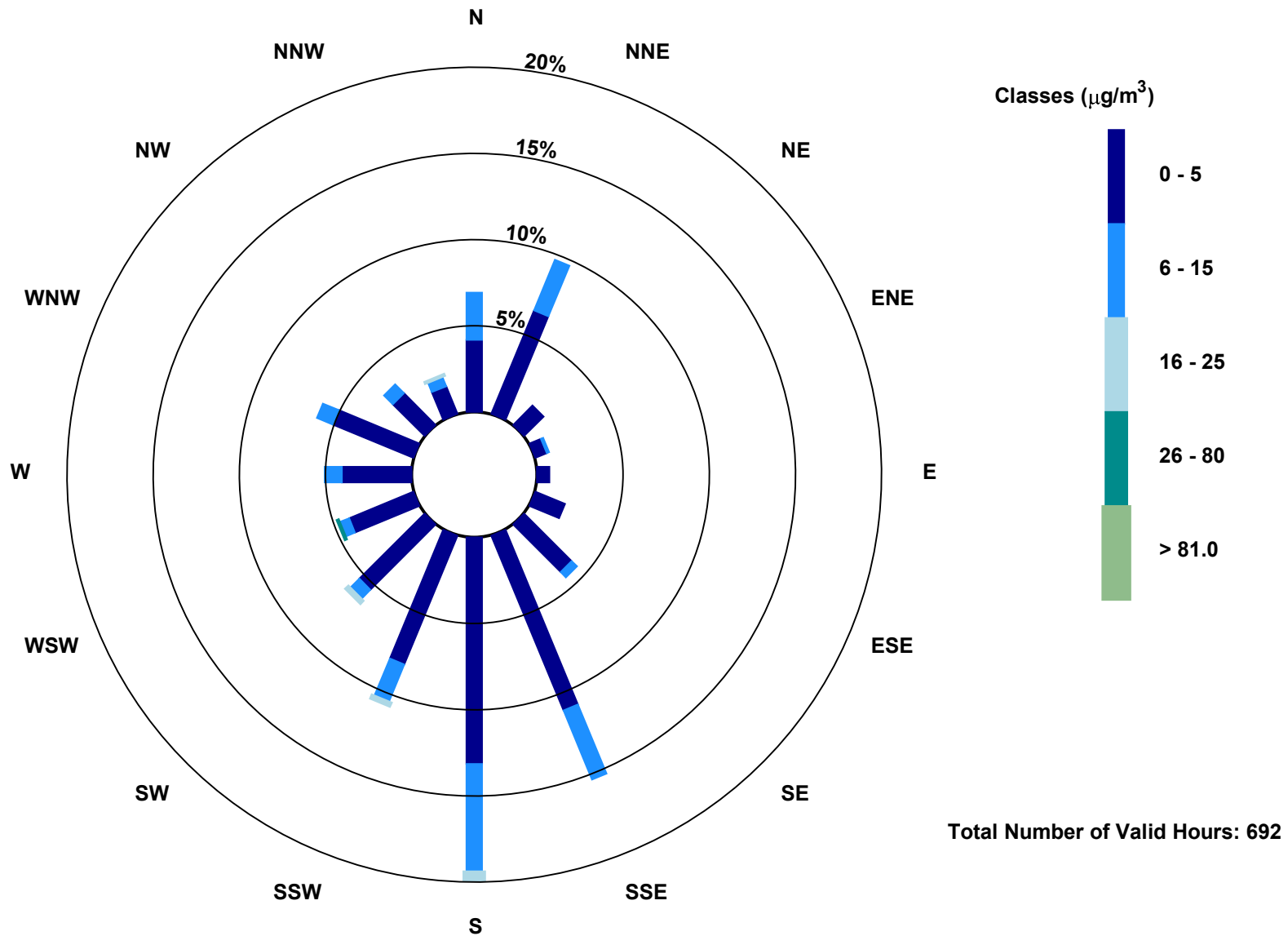
Total Number of Valid Hours: 692

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

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



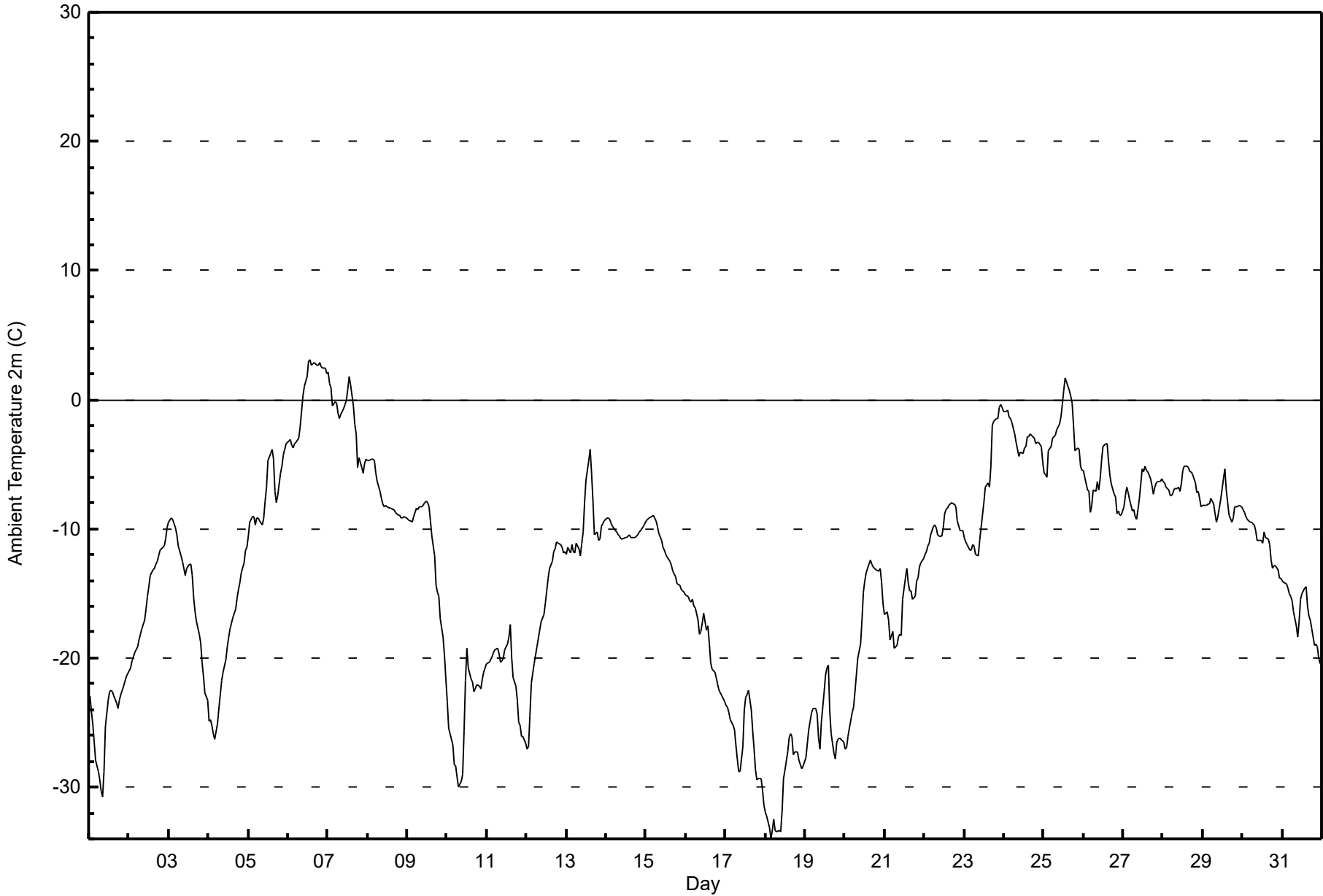


Maximum Value: 3.1 C on Dec 6 14:00		Maximum Daily Average: 0.4 C on Dec 6		Hours in Service: 744																																												
Minimum Value: -34.0 C on Dec 18 04:00		Minimum Daily Average: -30.1 C on Dec 18		Hours of Data: 744																																												
Maximum Diurnal Average: -10.9 C at hour 14		Minimum Diurnal Average: -14.3 C at hour 9		Hours of Missing Data: 0																																												
Monthly Average: -13.11 C		Percentiles: P ₁ = -32.4 P ₁₀ = -25.6 Q ₁ = -19.3 Median = -11.2 Q ₃ = -7.4 P ₉₀ = -3.3 P ₉₉ = 2.6		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-Dec	-23.0	-24.2	-25.1	-26.5	-27.9	-28.8	-29.5	-30.3	-30.7	-28.8	-25.3	-23.2	-22.6	-22.5	-22.6	-22.9	-23.5	-24.0	-23.3	-22.8	-22.5	-22.1	-21.4	-21.2	-24.8	-21.2																						
2-Dec	-21.0	-20.8	-20.2	-19.6	-19.3	-19.1	-18.6	-18.2	-17.7	-17.0	-16.2	-15.2	-14.5	-13.6	-13.1	-13.0	-12.8	-12.5	-12.1	-11.7	-11.5	-11.3	-10.7	-9.9	-15.4	-9.9																						
3-Dec	-9.5	-9.1	-9.3	-9.6	-10.0	-10.4	-11.4	-12.1	-12.5	-13.0	-13.7	-13.1	-12.7	-12.8	-13.6	-15.4	-16.5	-17.2	-18.2	-18.8	-20.3	-21.5	-22.7	-23.3	-14.4	-9.1																						
4-Dec	-24.9	-24.8	-25.2	-25.9	-26.3	-25.1	-23.9	-22.8	-21.8	-21.1	-20.1	-19.1	-18.3	-17.8	-17.3	-16.9	-16.2	-15.3	-14.7	-14.1	-13.4	-12.7	-11.7	-11.4	-19.2	-11.4																						
5-Dec	-10.5	-9.5	-9.0	-9.1	-9.7	-9.1	-9.1	-9.4	-9.7	-9.2	-7.8	-6.8	-4.7	-4.2	-3.9	-4.6	-7.1	-8.0	-7.5	-5.7	-5.1	-4.3	-3.8	-3.4	-7.1	-3.4																						
6-Dec	-3.2	-3.1	-3.5	-3.7	-3.4	-3.3	-3.0	-2.1	-0.9	0.3	1.0	1.8	3.0	3.1	2.7	2.7	2.9	2.7	2.7	2.9	2.6	2.4	2.5	2.1	0.4	3.1																						
7-Dec	2.1	1.3	0.9	-0.4	-0.2	-0.2	-1.0	-1.5	-1.1	-0.6	-0.4	-0.1	0.8	1.8	1.1	-0.4	-1.9	-2.6	-5.3	-4.5	-5.3	-5.7	-5.0	-4.6	-1.4	2.1																						
8-Dec	-4.7	-4.7	-4.6	-4.6	-4.7	-5.6	-6.4	-7.1	-7.6	-8.1	-8.3	-8.2	-8.3	-8.4	-8.4	-8.5	-8.5	-8.8	-8.9	-8.9	-9.2	-9.1	-9.0	-9.1	-7.5	-4.6																						
9-Dec	-9.3	-9.3	-9.4	-9.5	-9.0	-8.4	-8.5	-8.3	-8.3	-8.3	-8.0	-7.9	-7.9	-8.2	-9.3	-10.6	-12.1	-14.4	-15.0	-15.3	-16.9	-18.4	-19.8	-21.6	-11.4	-7.9																						
10-Dec	-23.4	-25.4	-25.8	-26.8	-28.3	-28.4	-29.2	-30.0	-29.5	-29.0	-25.6	-21.7	-19.3	-20.7	-21.7	-21.9	-22.6	-22.4	-22.1	-22.1	-22.4	-21.7	-21.1	-20.7	-24.2	-19.3																						
11-Dec	-20.5	-20.3	-20.1	-19.9	-19.6	-19.4	-19.3	-19.7	-20.3	-20.2	-20.0	-19.3	-18.9	-18.4	-17.4	-20.0	-21.6	-22.2	-23.3	-24.9	-25.3	-26.1	-26.1	-26.6	-21.2	-17.4																						
12-Dec	-27.0	-26.8	-24.5	-21.9	-20.5	-19.8	-19.2	-18.5	-17.8	-17.2	-16.6	-15.8	-14.8	-13.8	-13.0	-12.5	-11.8	-11.6	-11.1	-11.1	-11.2	-11.5	-11.9	-11.8	-16.3	-11.1																						
13-Dec	-11.9	-11.4	-11.8	-11.2	-11.8	-11.9	-11.1	-11.5	-12.1	-11.1	-10.2	-7.9	-6.3	-4.8	-3.8	-5.7	-7.8	-10.4	-10.3	-10.9	-10.8	-9.9	-9.6	-9.4	-9.7	-3.8																						
14-Dec	-9.1	-9.2	-9.3	-9.5	-9.8	-10.1	-10.3	-10.4	-10.6	-10.7	-10.8	-10.7	-10.6	-10.4	-10.7	-10.7	-10.7	-10.5	-10.4	-10.3	-10.1	-9.8	-9.5	-10.2	-9.1	-10.2																						
15-Dec	-9.4	-9.3	-9.2	-9.0	-9.0	-9.2	-9.4	-9.8	-10.3	-10.8	-11.5	-11.7	-11.9	-12.2	-12.5	-12.9	-13.3	-13.5	-13.7	-14.2	-14.3	-14.7	-14.8	-14.9	-11.7	-9.0																						
16-Dec	-15.1	-15.2	-15.5	-15.6	-15.4	-15.9	-16.1	-17.0	-18.1	-17.9	-17.3	-16.5	-17.9	-17.5	-18.8	-20.3	-20.9	-21.1	-21.5	-22.0	-22.5	-22.7	-22.9	-23.3	-18.6	-15.1																						
17-Dec	-23.7	-23.8	-24.3	-24.7	-25.2	-25.6	-26.7	-27.8	-28.8	-28.8	-26.8	-24.0	-23.1	-22.8	-22.5	-24.0	-25.6	-27.1	-28.7	-29.4	-29.4	-29.3	-30.2	-31.4	-26.4	-22.5																						
18-Dec	-31.9	-32.2	-33.2	-34.0	-33.4	-32.4	-33.4	-33.4	-33.4	-33.5	-31.8	-29.3	-28.7	-27.3	-26.2	-25.9	-26.1	-27.5	-27.3	-27.3	-27.9	-28.2	-28.6	-28.3	-30.1	-25.9																						
19-Dec	-27.7	-26.6	-25.6	-24.9	-24.3	-23.9	-23.9	-24.3	-26.2	-27.0	-25.0	-22.6	-21.3	-20.8	-20.6	-24.2	-25.8	-27.4	-27.8	-26.5	-26.3	-26.2	-26.4	-26.5	-25.1	-20.6																						
20-Dec	-27.0	-26.9	-26.0	-25.5	-24.3	-23.8	-22.6	-21.3	-20.0	-19.0	-17.0	-14.9	-14.0	-13.4	-12.7	-12.4	-12.7	-13.0	-13.1	-13.2	-13.2	-13.1	-14.1	-15.7	-17.9	-12.4																						
21-Dec	-16.7	-16.4	-17.1	-18.6	-18.3	-18.0	-19.3	-19.0	-18.4	-18.2	-18.3	-15.4	-13.8	-13.1	-14.1	-14.8	-14.8	-15.4	-15.3	-14.1	-13.8	-13.0	-12.7	-12.3	-15.9	-12.3																						
22-Dec	-12.0	-11.7	-11.3	-11.2	-10.5	-9.8	-9.8	-10.0	-10.5	-10.6	-10.5	-9.9	-8.8	-8.6	-8.4	-8.2	-8.0	-8.0	-8.1	-8.3	-9.4	-10.2	-10.2	-10.1	-9.8	-8.0																						
23-Dec	-10.7	-11.0	-11.2	-11.7	-11.7	-11.3	-11.3	-12.0	-12.0	-10.9	-9.9	-9.0	-7.9	-6.8	-6.4	-6.8	-5.1	-2.0	-1.6	-1.5	-1.5	-0.6	-0.4	-0.6	-7.2	-0.4																						
24-Dec	-0.9	-1.0	-0.8	-1.3	-1.4	-1.8	-2.7	-3.3	-3.9	-4.4	-4.1	-4.1	-3.7	-3.7	-2.9	-2.9	-2.7	-2.9	-2.9	-3.4	-3.3	-3.3	-3.6	-4.8	-2.9	-0.8																						
25-Dec	-5.7	-5.8	-6.0	-4.0	-3.6	-3.0	-2.9	-2.8	-2.3	-1.9	-1.3	-0.4	0.7	1.7	1.3	0.7	0.3	0.2	-2.0	-3.9	-3.7	-3.8	-5.2	-5.5	-2.5	1.7																						
26-Dec	-5.5	-6.0	-7.0	-7.1	-8.7	-8.2	-7.0	-7.0	-6.4	-6.9	-6.1	-4.7	-3.6	-3.4	-3.4	-4.8	-5.9	-6.6	-7.3	-7.5	-8.9	-8.6	-9.0	-8.9	-6.6	-3.4																						
27-Dec	-8.3	-7.5	-6.8	-7.2	-7.8	-8.7	-8.5	-9.1	-9.3	-8.5	-7.6	-5.4	-5.6	-5.2	-5.5	-5.5	-6.1	-6.6	-7.3	-6.8	-6.4	-6.4	-6.3	-6.2	-7.0	-5.2																						
28-Dec	-6.4	-6.5	-6.7	-7.0	-7.4	-7.5	-7.2	-6.9	-6.9	-6.8	-7.1	-6.5	-5.5	-5.1	-5.1	-5.2	-5.6	-5.6	-5.8	-6.5	-7.2	-7.1	-7.7	-8.3	-6.6	-5.1																						
29-Dec	-8.2	-8.2	-8.2	-8.1	-8.1	-7.6	-8.0	-8.9	-9.5	-9.0	-8.4	-7.7	-6.2	-5.4	-7.0	-7.9	-8.9	-9.5	-9.2	-8.3	-8.3	-8.3	-8.2	-8.3	-8.1	-5.4																						
30-Dec	-8.5	-8.7	-9.0	-9.3	-9.5	-9.5	-9.5	-9.7	-10.1	-10.9	-10.9	-10.9	-11.1	-10.2	-10.6	-10.8	-11.3	-12.4	-13.1	-12.9	-12.8	-13.1	-13.8	-13.8	-10.9	-8.5																						
31-Dec	-14.0	-14.1	-14.3	-14.6	-15.0	-15.2	-15.5	-16.4	-17.6	-18.4	-17.2	-15.5	-15.0	-14.6	-14.4	-16.0	-16.7	-17.1	-17.7	-19.0	-18.9	-19.2	-20.0	-20.4	-16.5	-14.0																						
																								-13.8	-13.8	-13.8	-13.9	-14.0	-13.9	-14.0	-14.2	-14.3	-14.1	-13.3	-12.1	-11.4	-10.9	-11.0	-11.7	-12.2	-12.7	-13.0	-13.0	-13.2	-13.2	-13.4	-13.5	Diurnal Average
																								2.1	1.3	0.9	-0.4	-0.2	-0.2	-1.0	-1.5	-0.9	0.3	1.0	1.8	3.0	3.1	2.7	2.7	2.9	2.7	2.7	2.9	2.6	2.4	2.5	2.1	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Ells River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Ambient Temperature 2m (AT2) - C
Ells River - December 2024

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	177	23.79	23.79
-20 - 0	541	72.72	96.51
0 - 10	26	3.49	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 2m (RH2) - %

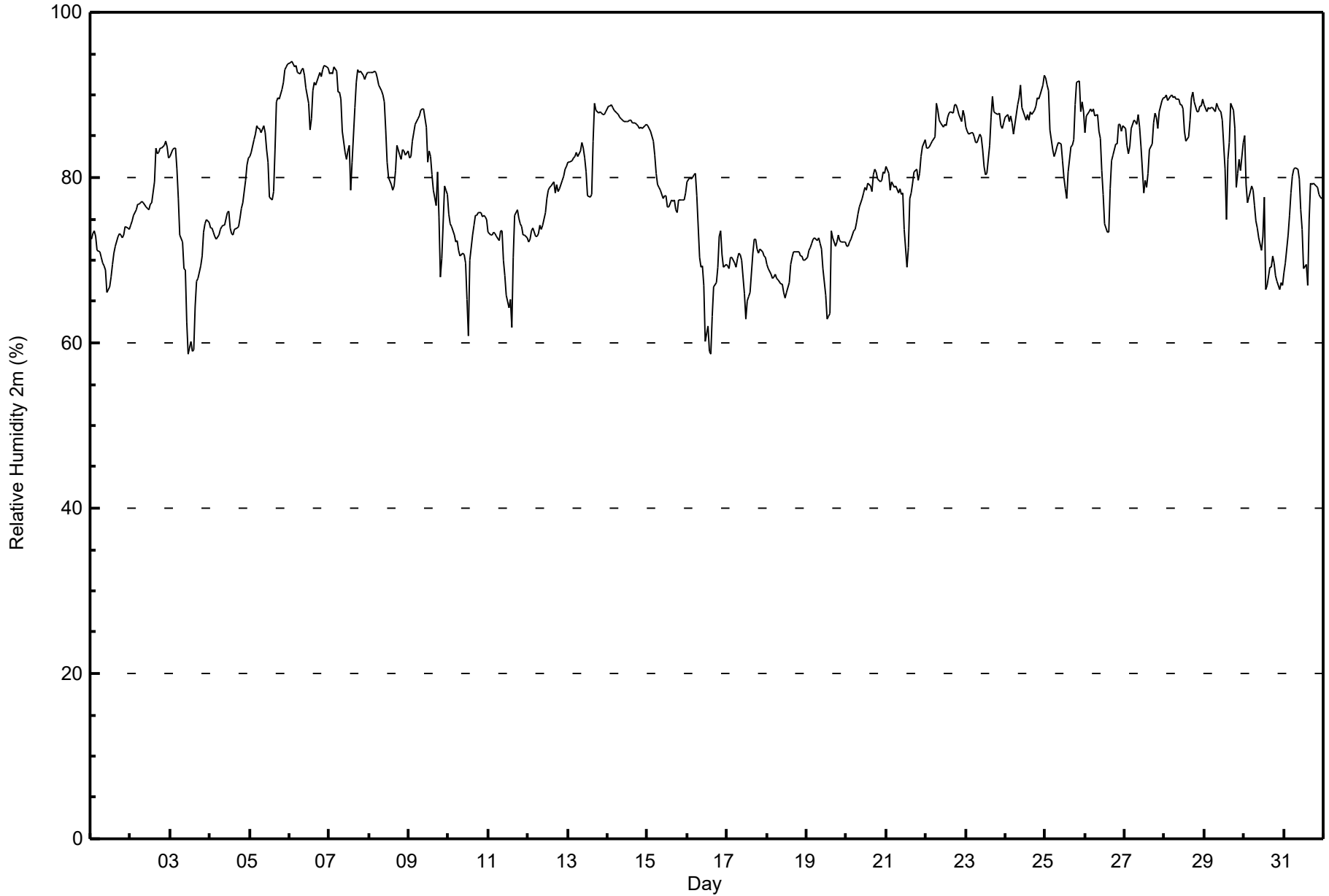
Ells River - December 2024

Maximum Value: 94.1 % on Dec 6 02:00 Maximum Daily Average: 92.0 % on Dec 6																						Hours in Service:	744																							
Minimum Value: 58.7 % on Dec 16 15:00 Minimum Daily Average: 68.8 % on Dec 18																						Hours of Data:	744																							
Maximum Diurnal Average: 81.6 % at hour 24 Minimum Diurnal Average: 75.0 % at hour 14																						Hours of Missing Data:	0																							
Monthly Average: 79.84 % Percentiles: P ₁ = 61.3 P ₁₀ = 69.4 Q ₁ = 73.3 Median = 80.2 Q ₃ = 86.7 P ₉₀ = 89.5 P ₉₉ = 93.4																						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-Dec	72.5	73.2	73.6	72.8	71.3	71.0	70.3	69.6	69.4	68.9	66.0	66.8	68.0	69.5	70.8	71.7	72.9	73.2	73.0	72.7	73.0	74.0	73.8	73.8	71.3	74.0																				
2-Dec	74.3	74.7	75.4	76.2	76.8	76.8	77.0	77.2	76.9	76.5	76.3	76.1	76.9	76.9	79.5	83.6	82.9	83.1	83.6	83.5	83.9	84.4	83.7	82.3	79.1	84.4																				
3-Dec	82.5	83.3	83.6	83.5	81.0	77.5	73.0	72.2	68.9	68.8	62.5	58.7	60.1	59.1	59.1	64.3	67.4	67.8	69.4	70.6	73.5	74.4	74.9	74.5	71.3	83.6																				
4-Dec	73.9	73.9	73.3	72.9	72.6	73.0	73.7	74.0	74.2	74.3	75.8	76.0	73.8	73.2	73.0	73.7	73.9	74.0	75.1	76.2	77.0	79.6	81.5	82.3	75.0	82.3																				
5-Dec	82.6	83.1	84.5	85.2	86.3	85.9	85.9	85.4	86.2	85.5	83.4	81.8	77.7	77.3	78.4	83.5	89.2	89.7	89.5	90.6	91.6	93.0	93.4	93.7	86.0	93.7																				
6-Dec	93.9	94.1	93.7	93.4	93.6	92.8	92.6	93.0	93.2	92.4	90.8	89.0	85.7	87.2	90.5	91.5	91.2	92.2	92.6	92.3	93.1	93.5	93.4	93.2	92.0	94.1																				
7-Dec	92.6	92.8	92.5	93.4	92.9	90.4	90.4	89.6	85.6	83.0	82.3	83.2	84.0	78.6	81.9	88.4	91.6	93.1	92.7	92.9	92.3	91.9	92.4	92.8	89.2	93.4																				
8-Dec	92.7	92.7	92.8	92.8	92.7	92.0	91.3	90.6	90.0	89.1	85.7	81.9	80.0	79.2	78.4	79.0	80.9	83.8	82.8	82.2	83.4	83.2	82.6	83.2	86.0	92.8																				
9-Dec	82.3	82.5	84.4	85.4	86.5	87.1	87.5	88.1	88.4	88.3	86.0	81.9	83.2	82.6	80.3	78.4	76.6	80.6	75.3	68.0	70.2	79.0	78.5	77.9	81.6	88.4																				
10-Dec	75.7	74.4	74.0	73.1	72.2	72.4	71.3	70.5	70.9	70.6	69.6	65.2	60.9	70.1	73.1	74.3	75.5	75.4	75.7	75.7	75.2	75.4	75.3	74.9	72.5	75.7																				
11-Dec	73.3	73.0	73.1	73.3	73.2	72.9	72.3	73.6	73.5	69.9	68.1	65.8	64.2	65.2	61.8	70.4	75.4	76.1	75.0	74.4	74.1	73.1	73.0	72.7	71.6	76.1																				
12-Dec	72.2	72.5	73.5	73.9	72.9	72.8	73.2	74.3	73.8	74.3	75.8	77.5	78.5	78.7	79.0	79.5	78.1	79.1	78.4	78.6	79.6	80.2	80.9	81.3	76.6	81.3																				
13-Dec	81.8	81.8	82.1	82.4	82.5	83.1	82.6	83.3	84.2	83.6	82.4	80.6	77.8	77.6	78.0	84.4	89.0	88.2	87.8	88.0	87.9	87.7	87.6	87.9	83.8	89.0																				
14-Dec	88.6	88.7	88.8	88.5	88.1	87.8	87.6	87.3	87.1	86.9	86.8	86.7	86.8	86.9	87.0	86.7	86.6	86.4	86.3	86.0	86.1	85.9	86.2	86.4	87.1	88.8																				
15-Dec	86.2	85.9	85.5	84.4	82.7	80.5	79.1	78.8	78.5	77.5	77.8	77.8	76.5	76.4	77.2	77.1	77.4	76.1	75.8	77.2	77.2	77.3	77.3	78.1	79.1	86.2																				
16-Dec	79.5	80.1	79.8	80.0	80.4	80.5	77.7	70.3	69.1	69.3	67.0	60.2	62.0	59.0	58.7	63.2	66.7	67.3	69.2	72.9	73.6	70.6	69.1	69.5	70.7	80.5																				
17-Dec	69.4	69.0	70.3	70.3	69.7	69.2	70.2	70.8	70.8	69.9	65.9	63.0	65.0	65.6	66.1	70.8	72.5	72.5	71.4	70.9	71.3	71.0	70.4	70.3	69.4	72.5																				
18-Dec	69.5	69.0	68.4	67.9	67.9	68.2	67.8	67.6	67.1	67.0	66.2	65.5	66.1	67.3	69.6	70.3	71.0	71.1	71.1	70.9	70.6	70.5	70.0	70.0	68.8	71.1																				
19-Dec	70.4	71.2	71.6	72.0	72.5	72.7	72.4	72.6	72.1	71.3	69.0	65.8	62.9	63.2	63.5	73.5	72.8	71.7	72.1	73.1	72.5	72.3	72.3	72.2	70.7	73.5																				
20-Dec	71.7	71.6	72.2	72.5	73.5	73.7	74.5	75.5	76.4	77.4	78.2	78.8	78.5	79.3	79.0	78.3	80.4	81.0	80.7	79.9	79.5	79.6	80.6	80.6	77.2	81.0																				
21-Dec	81.4	80.6	78.5	79.5	79.1	78.8	78.9	78.1	78.7	78.0	78.2	73.7	69.1	71.5	77.4	78.2	79.3	80.7	81.1	79.6	80.5	82.5	83.8	84.6	78.8	84.6																				
22-Dec	83.6	83.6	83.8	84.0	84.4	84.8	88.9	88.2	87.0	86.6	86.2	86.5	86.2	87.2	87.8	88.0	87.8	88.8	88.9	88.3	87.6	86.7	88.1	87.5	86.7	88.9																				
23-Dec	86.1	85.5	85.2	85.3	85.4	84.9	84.3	84.2	85.3	85.0	83.3	81.4	80.3	80.5	83.9	87.3	89.9	87.9	87.9	87.7	87.8	86.2	86.0	86.7	85.3	89.9																				
24-Dec	87.2	87.6	86.7	87.5	86.7	85.2	87.6	88.8	89.6	91.2	88.5	87.5	87.0	87.7	87.0	87.9	87.6	88.1	88.6	89.6	89.5	90.0	91.2	92.4	88.4	92.4																				
25-Dec	92.0	91.2	90.5	85.8	83.4	82.5	83.1	83.7	84.2	84.1	82.0	80.0	78.7	77.5	80.6	83.7	83.8	84.6	88.8	91.5	91.7	87.9	89.1	87.9	85.3	92.0																				
26-Dec	85.4	87.5	88.0	88.3	88.0	88.3	87.4	87.6	85.6	84.7	80.8	77.9	74.4	73.3	73.3	78.6	82.1	82.7	84.0	84.2	86.5	86.4	85.6	86.3	83.6	88.3																				
27-Dec	86.0	83.9	82.9	83.7	85.9	87.0	86.7	86.4	87.6	86.1	83.7	78.1	79.6	78.8	80.6	83.5	84.1	86.6	87.8	87.3	85.9	87.9	89.3	89.7	85.0	89.7																				
28-Dec	89.7	89.9	89.3	89.9	89.9	89.6	89.8	89.5	89.6	88.9	88.9	88.2	85.5	84.4	84.9	87.0	89.7	90.4	89.1	87.9	88.1	88.6	88.6	89.5	88.6	90.4																				
29-Dec	88.9	88.0	88.5	88.3	88.4	88.5	87.9	89.0	88.4	88.2	88.0	87.0	81.1	74.9	82.2	84.2	89.0	88.1	85.9	78.9	80.5	82.3	80.8	84.2	85.5	89.0																				
30-Dec	85.0	79.1	77.0	77.5	79.0	78.5	76.6	74.7	73.8	72.6	71.1	72.9	77.6	66.4	66.9	69.1	69.1	70.6	69.7	68.2	67.5	66.4	67.2	66.9	72.7	85.0																				
31-Dec	68.6	69.6	73.0	75.4	78.1	80.2	81.0	81.1	81.0	79.8	76.1	73.6	69.0	69.5	67.0	74.9	79.3	79.2	79.3	79.0	78.7	78.0	77.6	77.4	76.1	81.1																				
																						81.3	81.1	81.2	81.3	81.2	80.9	80.7	80.5	80.2	79.7	78.1	76.4	75.4	75.0	76.0	78.9	80.4	81.0	80.9	80.6	81.0	81.3	81.4	81.6	Diurnal Average
																						93.9	94.1	93.7	93.4	93.6	92.8	92.6	93.0	93.2	92.4	90.8	89.0	87.0	87.7	90.5	91.5	91.6	93.1	92.7	92.9	93.1	93.5	93.4	93.7	Diurnal Maximum



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Ells River - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Ells River - December 2024

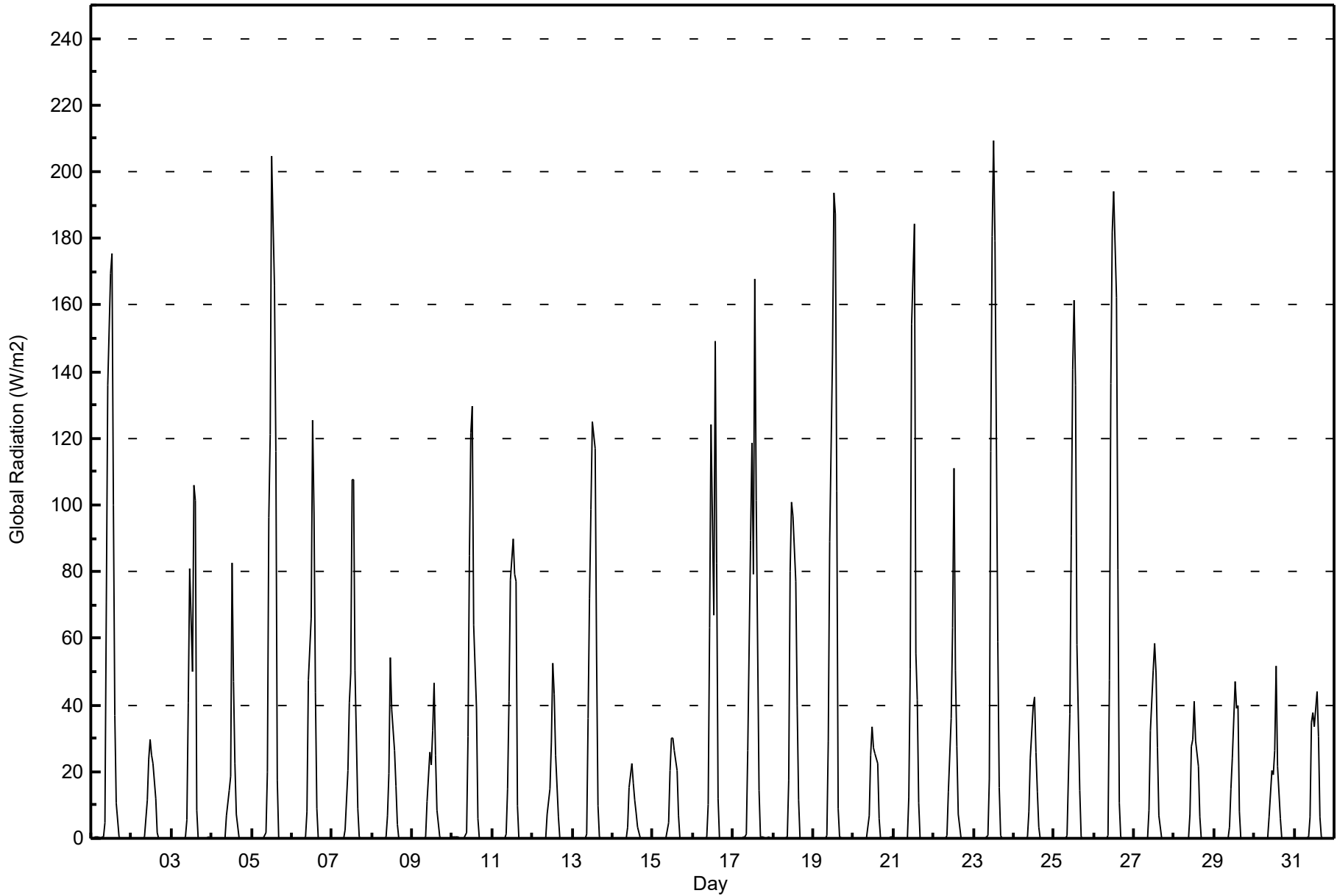
Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	5	0.67	0.67
60 - 80	362	48.66	49.33
80 - 100	377	50.67	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Value: 209.2 W/m2 on Dec 23 13:00		Maximum Daily Average: 33.9 W/m2 on Dec 26		Hours in Service: 744																						
Minimum Value: 0.0 W/m2 on Dec 1 01:00		Minimum Daily Average: 3.3 W/m2 on Dec 14		Hours of Data: 744																						
Maximum Diurnal Average: 92.1 W/m2 at hour 13		Minimum Diurnal Average: 0.0 W/m2 at hour 20		Hours of Missing Data: 0																						
Monthly Average: 15.65 W/m2		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 8.5 P ₉₀ = 51.4 P ₉₉ = 180.1		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-Dec	0.0	0.1	0.2	0.3	0.2	0.2	0.2	0.3	4.7	70.7	136.0	169.4	175.3	99.9	37.0	10.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4	175.3
2-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	11.4	23.8	29.6	24.9	22.5	11.9	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	29.6
3-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	5.4	40.7	81.1	50.1	105.8	101.3	8.4	0.1	0.0	0.0	0.0	0.1	0.1	0.2	0.1	16.4	105.8
4-Dec	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.2	6.7	14.6	18.6	82.6	46.9	22.6	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	82.6
5-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	19.9	96.3	121.1	204.5	165.9	116.0	17.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.9	204.5
6-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	8.0	47.4	66.0	125.6	97.3	43.8	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	125.6
7-Dec	0.0	0.1	0.0	0.0	0.0	0.2	0.2	0.2	2.5	20.5	40.8	49.4	107.4	107.7	50.6	9.1	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	16.2	107.7
8-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	6.9	19.6	54.1	38.4	26.4	15.6	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	54.1
9-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	10.9	26.0	22.1	32.0	46.6	24.8	8.5	0.2	0.1	0.0	0.1	0.0	0.1	0.1	0.2	7.2	46.6
10-Dec	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	1.6	30.3	84.7	121.8	129.8	63.9	39.2	6.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	129.8
11-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	14.6	41.0	77.3	90.0	79.2	77.0	9.9	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	16.3	90.0
12-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	7.1	14.9	28.8	52.4	43.3	25.0	6.6	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	7.4	52.4
13-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	36.0	72.2	98.9	124.8	116.9	54.9	9.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5	124.8
14-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	15.1	22.6	16.3	11.6	7.5	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	22.6
15-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	20.5	30.2	30.2	26.2	20.3	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	30.2
16-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	10.2	63.2	124.0	66.9	149.0	82.5	12.0	0.1	0.0	0.0	0.1	0.2	0.2	0.0	0.0	21.2	149.0
17-Dec	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.2	1.2	26.3	89.6	118.6	79.2	167.7	101.2	14.3	0.6	0.3	0.3	0.1	0.2	0.2	0.2	0.1	25.0	167.7
18-Dec	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.0	0.5	17.2	80.0	100.7	96.7	77.2	40.0	11.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	100.7
19-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	29.1	89.1	145.5	193.5	187.1	104.1	9.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	31.6	193.5
20-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	24.9	33.4	27.0	25.5	22.4	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2	6.1	33.4
21-Dec	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	12.3	51.0	154.1	184.3	55.5	41.6	10.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.2	184.3
22-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	13.9	35.9	63.1	110.8	50.4	27.4	7.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	12.9	110.8
23-Dec	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.7	17.8	116.3	180.6	209.2	179.4	59.0	15.3	0.8	0.1	0.1	0.1	0.1	0.0	0.1	0.1	32.5	209.2
24-Dec	0.1	0.0	0.0	0.2	0.1	0.2	0.1	0.0	0.4	8.1	24.3	39.6	42.5	25.8	14.2	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	6.6	42.5
25-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	37.3	90.9	140.7	161.3	136.1	58.1	14.3	0.5	0.2	0.1	0.0	0.0	0.0	0.0	0.0	26.7	161.3
26-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	47.4	136.6	181.9	194.0	162.1	80.6	10.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.9	194.0
27-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	8.6	32.2	50.3	58.5	49.6	27.2	6.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	58.5
28-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	27.4	29.7	40.9	29.1	21.7	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8	40.9
29-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	14.6	24.1	46.9	39.0	40.0	8.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.3	46.9
30-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4	20.2	19.0	26.3	51.6	21.6	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.3	51.6
31-Dec	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	6.3	34.9	37.9	33.3	44.2	30.3	6.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	44.2
																								Diurnal Average		
																								Diurnal Maximum		



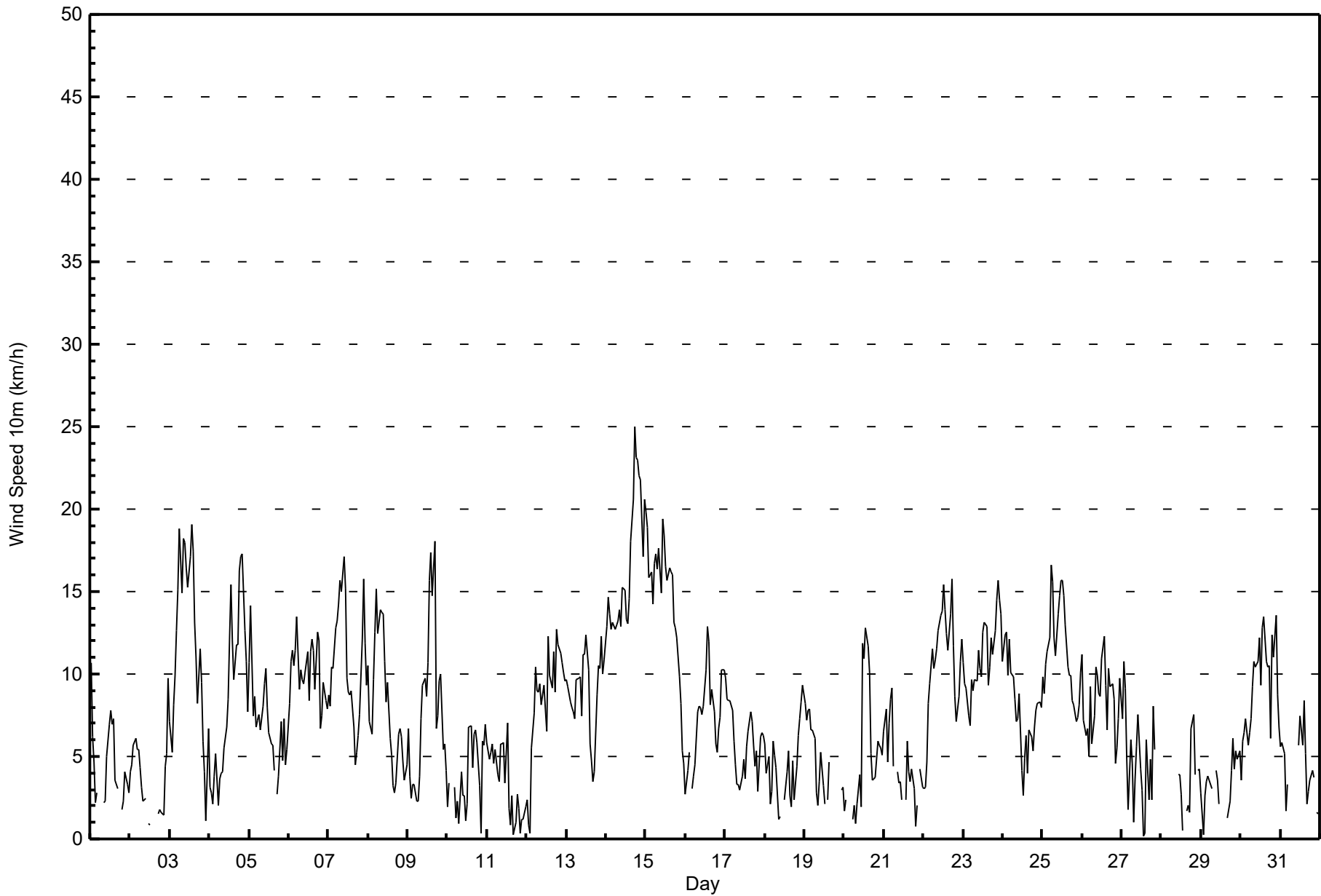


Maximum Speed: 25 km/h on Dec 14 18:00	Maximum Daily Speed Average: 16.5 km/h on Dec 14	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 27 14:00	Minimum Daily Speed Average: 0.8 km/h on Dec 1	Hours of Data: 693
Maximum Diurnal Speed Average: 2.6 km/h at hour 24	Minimum Diurnal Speed Average: 1.3 km/h at hour 20	Hours of Missing Data: 51
Monthly Average Velocity: 2.0 km/h 200.5 deg	Percentiles: P ₁ = 0 P ₁₀ = 2 Q ₁ = 4 Median = 7 Q ₃ = 11 P ₉₀ = 14 P ₉₉ = 20	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-Dec	NNE11	N6	NNW5	N2	WSW3	UO	WSW1	UO	S2	S2	SSW5	SSW7	SSE8	SSE7	S7	SSE4	SSE3	UO	UO	W2	W2	NNE4	WNW3	WNW3	SSW0.8	NNE11	
2-Dec	N4	N4	N6	N6	N5	N5	NNW4	NNW3	NW2	NW2	UO	N1	NNE1	UO	UO	NNW3	UO	W2	NW2	NW2	W1	WSW4	SSW5	SSE10	NNW1.8	SSE10	
3-Dec	S7	NW5	N8	N10	NNE13	NNW15	NNW19	NW15	NNW18	NNW18	NNW16	NW15	NW17	NW19	NNW17	NNW13	W11	WNW8	WNW11	NW10	W6	NW4	ESE1	SSW7	NW9.9	NW19	
4-Dec	SW3	S3	SW2	S4	S5	SSW2	S4	SSW4	S4	SSE5	SSE7	SSE8	SSE12	SSE15	SSE12	SSE10	S12	S12	SSE16	S17	S17	S13	S11	SSW8	S8.4	S17	
5-Dec	SSW11	SSW14	SSW7	S9	SE7	SSE7	S8	SSE4	SSE8	S9	S10	SSE8	S6	SSE6	SE6	S4	UO	SSW3	SSE4	SSE7	SSE5	S7	S5	SSW5	S6.7	SSW14	
6-Dec	S8	S11	S11	S11	S11	S13	S9	S10	SSW10	SSW9	SW10	SW11	SSW8	SW11	SSW12	SW11	SW9	SSW13	S12	SSE7	S7	SSE10	S8	SSE8	SSW9.6	S13	
7-Dec	S9	S8	S10	SSE10	S13	SSW13	S14	S16	SSW15	SSW17	SSW15	SSW10	SSW9	SSW9	S9	SSE7	S5	S5	NNW6	N8	N12	NNE16	NNE12	N9	S5.2	SSW17	
8-Dec	NNE10	NNE7	N6	NNE10	NNE13	NNE15	NNE12	NNE14	NNE14	NNE14	NNE11	NNE8	NNE9	NE6	ENE5	SE3	ESE3	SE3	SE6	SSE7	SSE6	SSE5	SSE4	S4	NE5.5	NNE15	
9-Dec	S7	SSE4	SSE2	SE3	SSE3	NE2	S2	SE4	N7	N9	NNE10	N9	N11	N16	NNE17	NNE15	NNE18	NNE7	NNW7	NNW10	N10	N5	NNW6	NNW4	NNE5.7	NNE18	
10-Dec	SW2	WSW3	UO	UO	W3	SSW1	SSW2	SW1	S4	SW3	WSW3	S1	ESE2	SE7	SE7	SSE4	SE6	SSE7	SSE6	SSE3	NO	SSE6	SSE6	SE7	SSE3.0	SE7	
11-Dec	SE6	SSE5	SE5	ESE6	ESE5	E5	E4	ENE3	E6	ESE6	ESE6	ESE3	SE7	SE2	ENE1	NW3	NO	SE1	SSE3	WNW2	NNE0	E1	S1	WNW2	ESE2.6	SE7	
12-Dec	WNW2	WNW1	W0	SSE6	SSE8	SSE10	SSE9	SSE9	SSE9	SSE8	SSE9	SSE8	SSE7	SE12	SSE10	SE9	SSE11	SSE9	S13	S12	S11	S11	S10	S10	SSE8.1	S13	
13-Dec	S10	S9	SSW8	SSW8	SW8	SW7	SSW10	SSW10	SSE10	SSE7	SSE11	S11	S12	SSW10	SSW6	SSE5	SSE3	WNW4	NNW9	N10	N10	N12	N10	N11	SSW3.1	S12	
14-Dec	NNE13	NNE15	NNE14	N13	NNE13	NNE13	N13	N13	NNE14	N13	NNE15	NNE15	NNE13	N13	NNE15	NNE18	NNE21	NNE25	N23	NNE23	NNE22	N22	N17	NNE21	NNE16.5	NNE25	
15-Dec	NNE20	N19	N16	N16	N14	N17	N17	N16	N18	N15	NNE19	NNE18	NNE17	NNE16	NNE16	NNE16	NNE16	N13	NNE13	NNE12	NNE10	NNE8	NE5	NE5	N14.4	NNE20	
16-Dec	NE3	ESE4	SE5	UO	NE3	N4	WNW5	WNW8	WNW8	W8	W8	WNW8	WNW10	WNW13	W12	WSW8	W9	W8	WSW6	WSW5	SW7	SW7	WSW10	WSW10	W5.4	WNW13	
17-Dec	WSW10	WSW8	WSW8	WSW8	WSW8	WSW6	WSW5	SW3	WSW3	WSW3	WSW4	SW5	SSW4	SE6	SE7	SE8	SSE7	S6	S4	SW5	SW3	S6	S6	S6	SSW4.6	WSW10	
18-Dec	S6	S4	S5	SSW2	S3	S6	S5	S4	W1	WSW1	UO	UO	WNW2	WSW4	WSW5	SW3	SSE2	S5	S2	S4	S6	S7	S8	S9	SSW4.0	S9	
19-Dec	SSE8	SSE7	SSE8	SSE8	SSE7	SE7	SE6	SSE3	SW2	SE4	SSE5	SE3	NNE2	UO	N2	NNE5	UO	UO	UO	UO	SSW5	UO	S3	S3	SSE3.7	SSE8	
20-Dec	W2	W2	UO	WSW2	UO	NNW1	W2	WNW1	SW2	W4	S2	SE12	SSE11	SSE13	SSE12	S10	SSW5	SSW4	SSW4	SW4	SW6	SW6	SSW5	SSW5	S3.9	SSE13	
21-Dec	S7	SW8	SSW5	SSE7	S9	S9	SSE4	UO	S4	S3	SE3	WNW2	UO	N2	NNE6	NNE4	N3	NW4	WSW3	NW1	ENE2	UO	SSW4	WSW3	SSW2.1	S9	
22-Dec	SW3	SW3	S5	S8	S9	S12	SSE10	S11	S11	SSE13	S14	S14	S15	S14	S12	S11	S14	SSW16	SSW12	SSW9	SSW7	SSW9	S11	S12	S10.3	SSW16	
23-Dec	S11	S9	S9	S7	SW7	SW10	SSW9	SSW10	S10	S11	S10	S10	S13	S13	S13	SSE9	S10	SSW12	SSW11	SSW13	SSW15	SW16	SW14	SW14	SSW10.3	SW16	
24-Dec	SW11	SW12	SW13	S10	SW12	SSW10	S10	S9	SSE7	S7	SSE9	NW4	NW3	NW5	W6	SSW4	SSE7	SSW6	WSW5	S7	S8	S8	S8	S8	SSW6.2	SW13	
25-Dec	SSE10	SSE9	S11	SSW11	SSW12	SSW17	SW16	SW12	SW11	SW14	WSW15	SW16	SW16	SW15	SW13	SSW10	SSW10	SSW10	S8	SSE8	SSE7	S7	SSE8	SSE10	SSW10.1	SSW17	
26-Dec	S11	S7	SSW6	SSW7	SSW5	S9	S6	SSE7	S10	SSE10	S9	SSE9	S11	SSE12	S9	SSE7	SSE10	S9	SSE9	S8	S5	SSW5	SSE7	SSE10	S8.1	SSE12	
27-Dec	S7	S11	SSE9	SSE5	SSE2	SE6	SSW5	N1	SSW4	SSW6	S8	SSE4	NE3	W0	SSW0	S6	SSW2	WNW5	SSE2	SSE8	S5	UO	UO	UO	S3.9	S11	
28-Dec	UO	ESE3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NNE8
29-Dec	NE3	NE0	SW3	SW3	S4	W4	NW3	UO	UO	SE4	SE4	ESE2	UO	UO	NE3	UO	NNW1	WSW2	WNW4	WNW6	WSW4	W5	W5	W5	WSW1.6	WNW6	
30-Dec	W4	WNW6	WNW6	W7	W6	WNW6	WNW7	WNW9	W11	W10	W11	WNW12	WNW9	WNW13	WNW13	WNW11	WNW10	WNW11	WNW6	WNW12	NW11	NW14	WNW9	WNW7	WNW9.0	NW14	
31-Dec	WSW6	W6	WSW5	ENE2	ESE3	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	UO	---	NW8

S2.3SSW2.2SSW2.4	S2.2SSW2.1SSW2.2SSW2.1SSW1.9SSW1.9SSW2.1SSW2.3SSW1.8SSW2.0SSW2.4SSW1.6	S1.4	S1.7SSW2.2SSW1.4SSW1.3SSW1.4SSW1.6SSW2.2SSW2.6	Diurnal Average																				
NNE20	NNE19	N16	N16	N14	N17	NNW19	N16	NNW18	NNW18	NNE19	NNE18	NW17	NW19	WNW17	NNE18	NNE21	NNE25	N23	NNE23	NNE22	N22	N17	NNE21	Diurnal Maximum

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





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Ells River - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	247	35.64	35.64
6 - 11	307	44.30	79.94
12 - 19	131	18.90	98.85
20 - 28	8	1.15	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 693

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Wind Speed 10m (WS10) - km/h
Ells River - December 2024

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	15	10	10	6	4	10	12	27	33	27	16	21	19	15	15	7	247
6 - 11	16	15	1	0	1	3	16	70	82	33	16	11	15	20	3	5	307
12 - 19	15	36	0	0	0	0	2	9	23	14	13	1	1	7	5	5	131
20 - 28	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
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	48	67	11	6	5	13	30	106	138	74	45	33	35	42	23	17	693

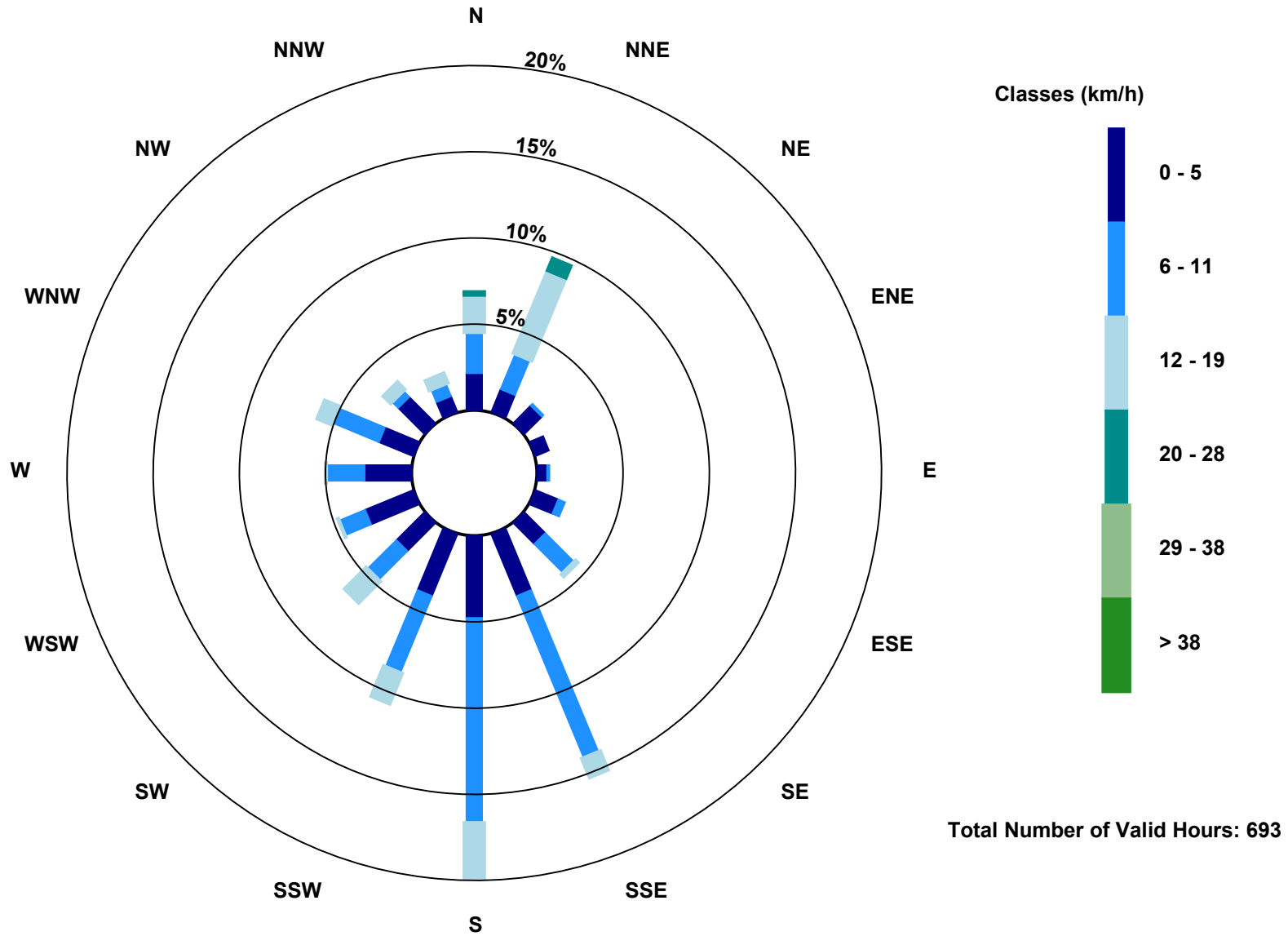
Total Number of Valid Hours: 693

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Ells River





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Ells River - December 2024

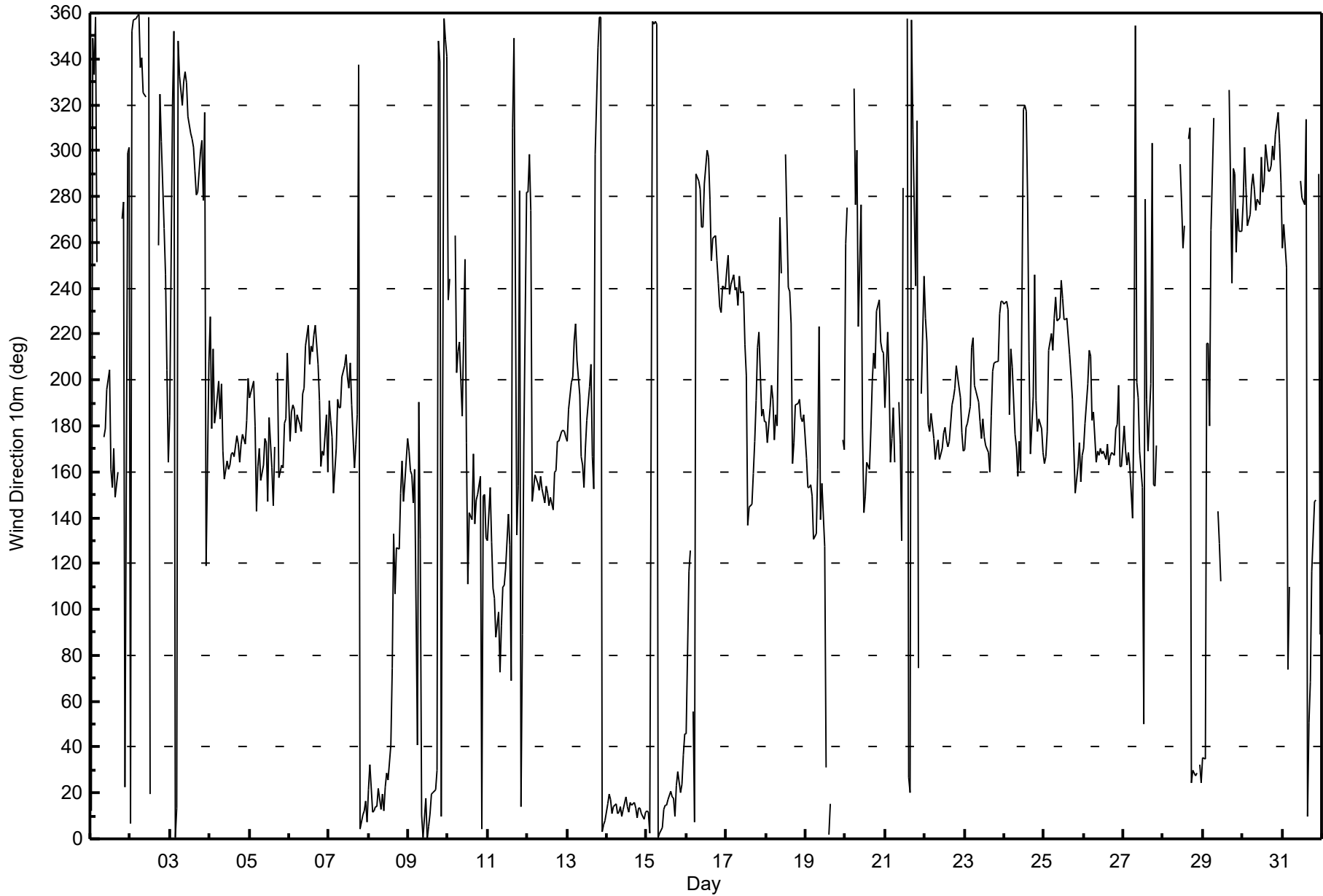
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 5 03:00 Minimum Value: 0 km/h on Dec 31 21:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 693 Hours of Missing Data: 51 Hours of Calibration: 0 Percent Operational Time: 93.2								
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-Dec	2	1	1	1	1	UO	1	UO	1	2	1	2	1	1	1	1	1	UO	UO	1	1	2	1	1	2
2-Dec	1	1	1	1	1	1	1	1	1	1	UO	1	1	UO	UO	1	UO	1	1	1	1	2	1	2	2
3-Dec	3	3	1	2	3	5	3	3	3	3	3	4	4	3	4	3	2	2	2	2	4	2	3	5	
4-Dec	2	2	2	1	2	1	1	1	1	1	1	2	2	3	2	2	3	2	4	3	3	2	2	4	
5-Dec	3	4	5	2	1	1	2	1	1	2	2	1	2	2	1	1	UO	2	2	1	3	2	1	1	5
6-Dec	1	3	3	3	3	3	2	2	2	2	2	3	2	3	2	3	2	2	2	2	1	1	1	2	3
7-Dec	1	1	1	2	1	2	2	2	2	3	3	2	3	2	2	1	2	3	1	4	4	3	2	4	
8-Dec	2	2	2	1	2	2	2	3	3	2	2	1	2	1	1	1	1	1	1	1	1	1	1	3	
9-Dec	1	2	2	1	1	1	2	1	2	3	3	3	3	4	3	3	4	3	4	3	3	2	1	2	4
10-Dec	1	1	UO	UO	2	1	1	1	2	2	2	1	2	1	1	1	1	1	1	2	1	2	1	1	2
11-Dec	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	2	1	1	2	2	1	2
12-Dec	1	1	1	2	2	2	2	2	2	1	1	1	2	2	2	1	2	3	3	3	2	2	1	2	3
13-Dec	1	2	2	2	1	1	2	1	1	2	2	2	2	2	2	1	3	2	2	2	2	2	2	1	3
14-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	5	4	3	3	5	2	3	5
15-Dec	3	3	2	2	3	3	3	3	3	3	3	3	3	2	3	3	3	2	2	2	2	1	1	1	3
16-Dec	2	1	1	UO	1	1	1	2	2	2	2	2	2	3	3	2	2	2	1	1	1	2	3	2	3
17-Dec	3	2	2	2	2	3	2	1	1	1	2	2	1	1	1	1	1	1	1	2	3	2	1	1	3
18-Dec	1	1	2	2	2	1	1	1	1	1	UO	UO	1	2	1	2	1	1	1	1	1	2	1	1	2
19-Dec	2	1	2	2	2	2	2	2	2	2	1	1	1	UO	2	2	UO	UO	UO	UO	2	UO	1	2	2
20-Dec	2	2	UO	1	UO	1	1	1	1	2	4	2	3	3	2	3	2	1	1	1	1	1	1	2	4
21-Dec	1	2	2	1	2	2	1	UO	3	2	1	1	UO	1	1	2	2	1	2	1	1	UO	1	1	3
22-Dec	1	1	1	2	2	2	2	2	2	3	3	3	3	3	2	2	3	4	2	2	1	1	2	2	4
23-Dec	2	1	2	1	1	3	2	2	2	2	2	2	2	2	2	1	2	3	2	3	3	4	4	4	4
24-Dec	3	3	4	2	3	3	1	1	1	1	1	2	2	2	2	2	2	1	3	3	2	2	1	2	4
25-Dec	1	2	1	3	3	4	4	4	3	4	4	4	4	4	3	3	2	2	1	1	1	2	1	2	4
26-Dec	3	1	2	1	1	1	1	1	1	1	1	2	2	3	2	1	2	3	2	3	2	2	2	2	3
27-Dec	2	2	1	3	1	2	2	1	2	2	4	3	1	1	2	1	2	1	4	2	1	UO	UO	UO	4
28-Dec	UO	1	UO	UO	UO	UO	UO	UO	UO	UO	1	1	1	1	UO	1	1	3	1	1	2	UO	1	1	3
29-Dec	1	1	1	0	1	1	1	UO	UO	1	1	1	UO	UO	1	UO	2	1	2	1	1	1	1	2	2
30-Dec	2	1	2	2	1	1	2	2	3	3	2	3	2	3	4	3	2	3	2	3	2	3	2	2	4
31-Dec	2	1	2	3	1	UO	UO	UO	UO	UO	UO	3	2	1	2	1	2	1	1	1	0	UO	1	1	3
Diurnal Maximum																									
3 4 5 3 3 5 4 4 3 4 4 4 4 4 4 4 4 5 4 3 4 5 4 4																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Ells River - December 2024

Direction of Maximum Speed: 13 deg on Dec 14 18:00																						Hours in Service: 744			
Direction of Maximum Daily Speed Average: 13.3 deg on Dec 14																						Hours of Data: 693			
Direction of Minimum Speed: 279 deg on Dec 27 14:00											Direction of Minimum Daily Speed Average: 0.8 deg on Dec 1											Hours of Missing Data: 51			
Monthly Average Direction: 200.5 deg																						Percent Operational Time: 93.2			
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-Dec	12	349	333	358	251	UO	237	UO	175	179	196	204	161	153	170	149	160	UO	UO	270	278	23	299	302	204.9
2-Dec	7	352	357	358	359	359	336	341	325	323	UO	358	20	UO	UO	332	UO	259	324	304	266	246	204	164	332.9
3-Dec	185	319	352	0	14	348	332	320	330	334	330	315	307	305	301	291	281	282	299	304	278	316	119	208	316.8
4-Dec	228	179	214	181	186	200	183	198	169	157	165	161	163	168	168	167	176	172	164	172	176	172	182	200	173.8
5-Dec	192	194	200	180	143	163	170	156	163	174	172	147	184	162	145	171	UO	203	157	163	162	181	183	212	173.8
6-Dec	173	186	189	188	177	185	181	177	194	196	214	224	207	215	212	220	224	207	191	162	169	167	185	160	193.3
7-Dec	191	182	175	151	170	192	188	188	202	206	211	202	197	207	189	162	172	185	337	4	10	12	16	7	190.5
8-Dec	21	32	11	12	14	14	22	13	20	12	22	28	25	41	74	133	107	127	127	151	165	147	156	175	34.8
9-Dec	169	160	159	146	161	41	190	131	11	1	18	0	6	11	20	20	22	30	348	339	10	358	348	341	14.3
10-Dec	235	244	UO	UO	263	203	212	217	184	219	253	173	111	142	139	168	137	147	150	158	5	149	150	131	162.1
11-Dec	130	153	129	109	105	88	99	72	93	110	111	118	141	128	69	310	349	132	154	282	14	89	171	282	115.5
12-Dec	282	298	274	147	158	157	155	152	158	153	147	154	151	145	149	144	160	161	173	173	178	178	178	175	161.1
13-Dec	173	188	199	201	217	225	209	193	167	163	153	170	183	197	207	166	153	298	345	358	358	3	6	8	193.9
14-Dec	15	20	17	11	14	15	11	11	14	10	13	19	14	11	16	15	16	13	9	13	13	11	9	12	13.3
15-Dec	12	11	3	356	355	356	355	1	2	5	13	15	15	17	21	18	18	10	23	29	20	24	37	46	10.9
16-Dec	46	116	126	UO	56	7	290	287	283	267	267	286	300	297	279	252	262	263	252	242	232	230	241	240	267.3
17-Dec	248	254	237	242	246	239	240	233	245	238	239	216	202	137	145	146	159	173	191	214	221	184	187	182	210.2
18-Dec	182	173	188	197	191	174	185	180	271	246	UO	UO	298	240	238	225	164	173	189	190	191	184	182	185	192.4
19-Dec	166	153	153	154	150	131	133	161	223	139	155	128	31	UO	2	15	UO	UO	UO	UO	193	UO	174	169	149.8
20-Dec	259	275	UO	238	UO	327	276	300	223	276	178	142	150	164	161	179	199	212	205	230	235	216	213	212	190.7
21-Dec	188	221	201	164	175	188	164	UO	190	172	130	284	UO	358	27	20	357	309	241	313	74	UO	194	246	192.7
22-Dec	227	217	180	178	186	175	166	170	174	165	170	177	179	174	171	173	189	192	196	206	201	192	177	169	180.2
23-Dec	169	179	181	189	214	218	198	195	191	182	174	183	175	171	169	160	184	204	207	208	208	229	234	234	195.4
24-Dec	233	234	231	185	214	206	176	171	158	173	160	318	320	317	278	208	168	193	246	191	177	183	179	169	200.6
25-Dec	164	166	178	213	220	213	227	236	226	227	244	235	226	226	227	211	202	192	170	151	162	173	156	167	207.4
26-Dec	171	181	198	213	211	183	186	164	169	167	170	168	169	165	172	163	167	169	167	179	180	198	162	162	174.1
27-Dec	180	169	163	168	162	140	192	355	199	192	169	153	50	279	192	169	199	303	155	154	171	UO	UO	UO	170.3
28-Dec	UO	123	UO	UO	UO	UO	UO	UO	UO	UO	294	277	257	267	UO	305	310	24	30	27	29	UO	32	24	--
29-Dec	36	35	216	216	180	266	314	UO	UO	143	129	112	UO	UO	51	UO	327	243	292	290	256	275	265	265	257.0
30-Dec	277	301	284	267	272	284	290	283	274	279	277	297	282	286	303	291	291	294	302	296	307	317	303	286	290.7
31-Dec	258	268	249	74	110	UO	UO	UO	UO	UO	UO	287	279	276	314	10	51	68	116	147	148	UO	290	89	--
187.0 199.7 200.1 187.8 192.3 199.1 211.2 208.6 208.8 204.9 192.2 212.0 204.5 204.1 204.1 185.6 188.3 209.3 203.1 208.5 205.3 213.7 199.1 193.3																									
Diurnal Average																									
UO - Unstable Operation																									
All monthly, daily, and diurnal averages have been calculated using vector methods																									





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Ells River - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0	Hours in Service: 744
Maximum Value: 100 deg on Dec 11 21:00	Hours of Data: 693
Minimum Value: 6 deg on Dec 26 09:00	Hours of Missing Data: 51
Percentiles: P ₁ = 7 P ₁₀ = 9 Q ₁ = 11 Median = 15 Q ₃ = 23 P ₉₀ = 45 P ₉₉ = 84	Hours of Calibration: 0
	Percent Operational Time: 93.2

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-Dec	8	13	30	31	12	UO	51	UO	39	55	17	17	19	12	17	19	24	UO	UO	59	34	18	16	33	59
2-Dec	14	18	17	10	11	17	12	17	30	26	UO	59	41	UO	UO	23	UO	55	45	20	24	18	37	13	59
3-Dec	22	37	11	17	11	16	11	13	11	10	10	14	12	12	10	14	15	14	14	10	20	31	91	37	91
4-Dec	50	47	67	27	20	58	16	16	20	14	17	13	14	12	12	13	17	13	11	12	12	11	14	16	67
5-Dec	12	14	50	17	16	12	15	17	13	10	12	12	22	27	13	31	UO	35	59	14	44	28	15	32	59
6-Dec	13	14	12	14	10	10	14	17	13	16	15	20	31	15	14	17	16	10	14	24	18	8	14	21	31
7-Dec	11	15	8	18	6	7	7	7	10	10	13	17	17	19	15	16	38	25	43	12	10	9	9	13	43
8-Dec	11	11	14	7	8	8	10	13	9	9	10	13	11	10	12	17	13	11	9	16	12	16	16	21	21
9-Dec	11	39	51	29	21	27	84	38	12	12	18	12	10	10	8	7	7	42	40	15	16	20	14	18	84
10-Dec	52	9	UO	UO	43	62	32	66	19	50	31	78	61	12	8	27	9	8	10	59	80	15	14	9	80
11-Dec	14	18	25	15	18	20	18	14	12	8	12	39	12	81	60	19	81	75	65	61	100	69	73	41	100
12-Dec	26	53	66	18	14	12	11	11	11	10	9	13	12	8	10	8	10	10	12	13	12	10	9	10	66
13-Dec	9	14	17	23	17	16	14	12	7	14	13	12	12	21	32	25	31	44	17	11	10	11	12	8	44
14-Dec	7	8	9	7	8	8	9	8	8	9	8	7	7	9	9	7	8	8	9	7	8	9	9	8	9
15-Dec	8	10	12	13	13	14	14	14	11	13	9	8	10	9	9	9	8	12	10	7	8	14	18	11	18
16-Dec	22	17	10	UO	13	26	18	15	17	18	18	23	12	17	18	20	18	19	19	24	17	17	17	18	26
17-Dec	20	18	18	17	15	41	18	45	24	34	34	35	32	19	14	7	8	12	11	33	65	14	8	6	65
18-Dec	8	22	19	49	71	15	10	14	56	45	UO	UO	24	47	16	22	49	12	59	14	10	12	6	9	71
19-Dec	13	10	11	14	11	13	15	64	40	46	17	31	20	UO	30	32	UO	UO	UO	UO	9	UO	18	24	64
20-Dec	68	65	UO	51	UO	54	56	42	36	42	82	9	18	13	11	15	21	31	22	20	12	14	12	19	82
21-Dec	14	16	25	12	9	12	18	UO	64	29	17	53	UO	53	24	37	38	39	49	71	33	UO	24	30	71
22-Dec	21	20	13	13	13	12	11	11	11	11	11	14	12	13	12	11	15	14	13	15	12	12	11	10	21
23-Dec	10	10	11	18	18	18	16	11	13	12	11	14	11	10	10	10	17	14	14	15	16	20	20	21	21
24-Dec	25	21	21	23	18	20	12	13	15	27	21	48	38	32	18	39	30	34	37	37	15	15	10	18	48
25-Dec	10	7	10	18	17	17	20	21	19	20	19	19	19	18	18	16	21	16	11	9	24	21	14	7	24
26-Dec	19	16	19	12	29	11	19	9	6	7	13	15	12	10	12	7	8	8	9	10	16	19	12	9	29
27-Dec	16	7	8	61	40	11	25	93	53	25	25	67	48	89	97	13	64	9	82	18	14	UO	UO	UO	97
28-Dec	UO	16	UO	UO	UO	UO	UO	UO	UO	UO	9	11	18	81	UO	25	32	90	10	13	11	UO	7	10	90
29-Dec	25	83	25	15	19	38	25	UO	UO	6	9	40	UO	UO	8	UO	54	17	27	14	17	15	20	26	83
30-Dec	28	15	20	16	16	12	14	17	17	19	16	13	15	13	13	15	13	14	32	10	13	10	13	18	32
31-Dec	17	17	24	94	23	UO	UO	UO	UO	UO	UO	18	16	18	16	11	42	14	27	13	10	UO	13	47	94
	68	83	67	94	71	62	84	93	64	55	82	78	61	89	97	39	81	90	82	71	100	69	91	47	

Diurnal Maximum

UO - Unstable Operation



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS33 MONDAY CREEK DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MONDAY CREEK (AMS33)
 DECEMBER 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	15.2	0	5.4	0
H2S (ppb) Average	707	37	37	100	0.6	0	0.2	0
NO2 (ppb) Average	700	37	44	99.06	20.3	0	6.6	-
NO (ppb) Average	700	37	44	99.06	7.9	-	1.7	-
NOX (ppb) Average	700	37	44	99.06	25.7	-	8	-
Temperature 2 m (C) Average	744	0	0	100	6.5	-	4.2	-
Relative Humidity (%) Average	744	0	0	100	99.2	-	93.1	-
Wind Speed 10 m (km/h) Average	731	0	13	98.25	23	-	15	-
Wind Direction 10 m (deg) Average	731	0	13	98.25	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MONDAY CREEK (AMS33)
 DECEMBER 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	0.91	1.6	-	0	0.1	0.2	0.5	1	1.8	15.2
H2S (ppb) Average	707	0.13	0.1	-	0	0.1	0.1	0.1	0.2	0.2	0.6
NO2 (ppb) Average	700	3.56	3	-	0.2	0.6	1.3	2.8	4.8	7.4	20.3
NO (ppb) Average	700	0.41	1	-	0	0	0	0	0.3	1.3	7.9
NOX (ppb) Average	700	3.97	3.7	-	0.2	0.6	1.4	2.9	5.5	8.8	25.7
Temperature 2 m (C) Average	744	-10.77	8.2	-	-32.7	-21.8	-16.7	-9.8	-4.9	0	6.5
Relative Humidity (%) Average	744	81.1	7.8	-	53.2	71.8	76.1	80.2	86.6	91.8	99.2
Wind Speed 10 m (km/h) Average	731	8.4	5	-	0	2	5	8	11	14	23
Wind Direction 10 m (deg) Average	731	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - MONDAY CREEK (AMS33)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
SO2	06 Dec 2024 12:00	06 Dec 2024 12:00	1	Maintenance - reinitiated daily QA check
NO2	06 Dec 2024 10:00	06 Dec 2024 15:00	6	Maintenance - reinitiated daily QA check
NO2	10 Dec 2024 14:00	10 Dec 2024 14:00	1	Maintenance - reinitiated daily QA check
Wind Speed, Wind Direction	02 Dec 2024 21:00	03 Dec 2024 04:00	8	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	21 Dec 2024 08:00	21 Dec 2024 08:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	27 Dec 2024 20:00	27 Dec 2024 21:00	2	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Dec 2024 00:00	28 Dec 2024 00:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	28 Dec 2024 08:00	28 Dec 2024 08:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

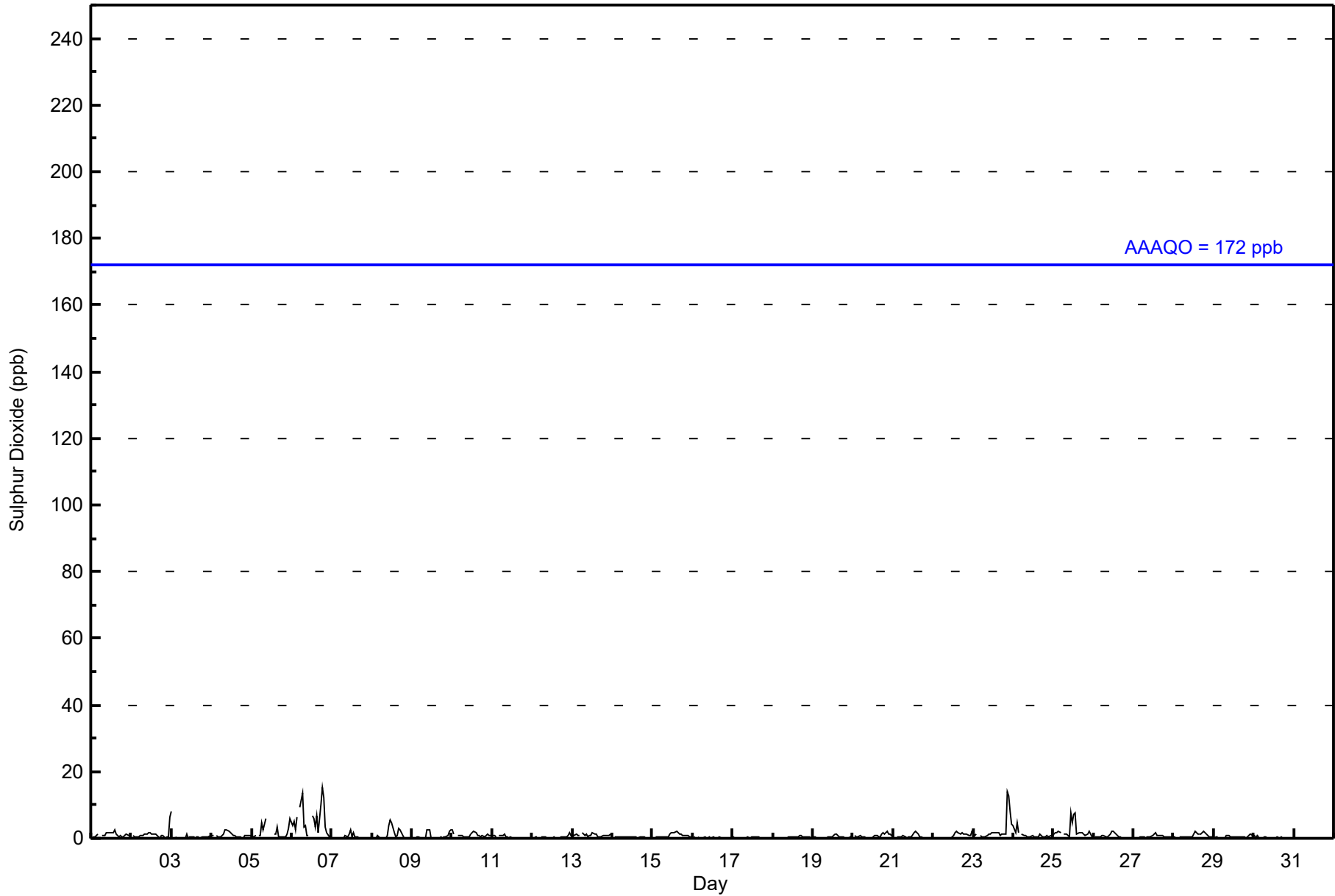
Sulphur Dioxide (SO₂) - ppb
Monday Creek - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																																											
Maximum Value: 15.2 ppb on Dec 6 19:00		Maximum Daily Average: 5.4 ppb on Dec 6														Hours of Data: 708																																	
Minimum Value: 0.0 ppb on Dec 3 04:00		Minimum Daily Average: 0.1 ppb on Dec 31														Hours of Missing Data: 36																																	
Maximum Diurnal Average: 1.4 ppb at hour 14		Minimum Diurnal Average: 0.5 ppb at hour 5														Hours of Calibration: 35																																	
Monthly Average: 0.91 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.5 Q ₃ = 1.0 P ₉₀ = 1.8 P ₉₉ = 7.9														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-Dec	0.1	0.5	0.4	0.7	1.2	Z	1.0	0.8	1.0	1.6	1.8	1.8	1.5	1.8	2.4	1.4	0.6	0.7	0.6	0.4	0.8	1.3	1.1	0.8	1.1	2.4																							
2-Dec	Z	0.7	0.5	0.3	0.4	0.6	0.8	1.0	1.5	1.4	1.6	1.5	1.3	1.4	1.2	0.9	0.5	0.0	0.7	0.7	0.1	0.3	0.6	6.3	1.1	6.3																							
3-Dec	7.9	Z	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.1	0.3	0.3	0.4	0.1	0.3	0.4	0.1	0.2	0.4	0.4	0.3	0.6	0.7	0.6	7.9																							
4-Dec	0.7	0.8	Z	0.8	0.6	0.3	1.0	1.1	2.4	2.6	1.9	1.6	1.2	0.9	0.7	0.3	0.4	0.3	0.1	0.2	0.8	0.8	0.8	0.7	0.9	2.6																							
5-Dec	0.5	0.3	0.7	Z	1.0	0.7	4.8	2.6	6.0	C	C	C	C	1.3	1.5	3.4	0.5	0.6	0.6	0.6	0.6	1.1	3.1	5.8	1.9	6.0																							
6-Dec	3.9	5.1	2.5	6.5	Z	9.5	13.6	3.5	3.9	1.0	0.7	M	6.7	6.1	3.6	6.7	1.8	10.2	15.2	12.4	3.4	1.7	0.3	0.1	5.4	15.2																							
7-Dec	0.1	0.0	0.1	0.0	0.0	Z	0.1	0.0	1.0	0.6	1.1	2.7	0.4	1.9	0.5	0.3	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4	2.7																							
8-Dec	Z	0.0	0.0	0.7	0.4	0.1	0.0	0.0	0.0	1.0	3.9	5.3	4.5	1.8	0.6	0.9	3.0	2.5	0.9	0.1	0.0	0.1	0.1	0.1	1.1	5.3																							
9-Dec	0.2	Z	0.2	0.3	0.2	0.1	0.1	0.0	0.2	2.6	2.5	0.2	0.1	0.1	0.0	0.1	0.0	0.3	0.2	0.3	0.5	1.0	2.0	2.6	0.6	2.6																							
10-Dec	2.4	1.3	Z	0.9	0.7	0.7	0.8	0.5	0.5	0.4	0.6	1.1	1.9	2.1	1.6	1.0	0.7	0.5	0.7	0.6	0.7	1.1	1.0	1.0	1.0	2.4																							
11-Dec	0.8	0.8	0.6	Z	0.7	0.8	1.0	1.1	0.5	0.3	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	1.1																							
12-Dec	0.2	0.2	0.3	0.3	Z	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.5	0.6	0.3	0.6	1.0	1.6	1.0	0.4	1.6																							
13-Dec	0.6	0.9	1.4	1.0	0.9	Z	1.5	0.9	1.2	0.6	0.8	0.7	1.5	1.3	1.2	0.6	0.6	0.6	0.8	0.8	0.8	0.9	0.9	1.1	0.9	1.5																							
14-Dec	Z	0.6	0.5	0.6	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.2	0.3	0.4	0.3	0.2	0.2	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.3	0.6																							
15-Dec	0.2	Z	0.2	0.2	0.2	0.3	0.3	0.3	0.5	0.6	1.1	1.9	1.7	1.9	2.2	1.8	1.4	1.3	0.8	0.8	1.0	0.9	0.4	0.3	0.9	2.2																							
16-Dec	0.2	0.3	Z	0.2	0.1	0.2	0.1	0.3	0.2	0.2	0.3	0.2	0.2	0.1	0.0	0.2	0.2	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2	0.3																							
17-Dec	0.2	0.1	0.1	Z	0.1	0.0	0.2	0.1	0.2	0.3	0.2	0.4	0.3	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.4																							
18-Dec	0.1	0.1	0.1	0.0	Z	0.0	0.1	0.2	0.0	0.3	0.5	0.5	0.6	0.5	0.3	0.4	0.7	0.8	0.6	0.4	0.5	0.3	0.3	0.2	0.3	0.8																							
19-Dec	0.4	0.4	0.0	0.1	0.1	Z	0.1	0.1	0.1	0.2	0.4	0.3	0.7	1.3	1.3	0.6	0.2	0.5	0.3	0.1	0.0	0.0	0.4	0.8	0.4	1.3																							
20-Dec	Z	0.8	0.4	0.5	0.7	0.6	0.4	0.3	0.0	0.0	0.0	0.2	0.3	0.7	0.7	0.2	0.4	1.2	1.7	1.5	2.0	1.3	1.1	0.9	0.7	2.0																							
21-Dec	0.8	Z	0.4	0.3	0.2	0.4	0.8	0.3	0.2	0.3	0.3	0.4	1.5	2.3	1.6	1.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.5	2.3																							
22-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	1.0	1.5	2.3	1.7	1.5	1.8	1.3	1.3	1.3	0.9	1.0	2.2	0.8	2.3																							
23-Dec	1.3	1.0	1.2	Z	0.7	0.5	0.5	0.6	1.0	1.5	1.4	1.7	1.7	1.5	1.8	1.7	1.0	1.2	1.4	1.3	14.0	12.7	7.8	4.4	2.7	14.0																							
24-Dec	3.9	1.6	4.7	1.5	Z	1.3	0.8	0.8	0.3	0.2	0.5	0.9	0.6	0.4	0.5	1.3	0.4	0.5	0.3	0.9	0.4	0.7	1.0	1.0	4.7																								
25-Dec	1.4	1.5	1.7	2.3	1.6	Z	1.3	1.1	1.5	0.5	7.7	4.5	7.3	7.6	1.1	1.5	1.8	1.8	1.3	1.0	1.1	2.0	1.1	0.6	2.3	7.7																							
26-Dec	Z	0.4	0.6	0.6	0.6	0.9	0.8	0.4	0.4	0.7	1.2	1.9	1.9	1.3	0.8	0.6	0.2	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.6	1.9																							
27-Dec	0.1	Z	0.1	0.0	0.3	0.5	0.2	0.2	0.2	0.4	0.5	0.7	1.2	1.8	1.0	1.0	0.9	0.6	0.5	0.4	0.5	0.4	0.5	0.5	0.5	1.8																							
28-Dec	0.4	0.5	Z	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	1.4	2.0	1.4	1.4	1.3	1.8	1.9	1.2	0.7	0.5	0.3	0.2	0.8	2.0																							
29-Dec	0.2	0.4	0.3	Z	0.1	0.1	0.1	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.4	0.3	0.5	0.4	0.3	0.2	0.3	0.9	1.2	1.0	0.5	1.2																							
30-Dec	0.6	0.2	0.8	0.6	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	0.1	0.0	0.2	0.1	0.0	0.1	0.0	0.2	0.8																							
31-Dec	0.1	0.0	0.1	0.1	0.0	Z	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2																							
																								1.0	0.7	0.7	0.7	0.5	0.8	1.0	0.6	0.8	0.7	1.0	1.1	1.4	1.4	1.0	1.0	0.7	0.9	1.0	0.8	1.0	1.0	0.9	1.1	Diurnal Average	
																								7.9	5.1	4.7	6.5	1.6	9.5	13.6	3.5	6.0	2.6	7.7	5.3	7.3	7.6	3.6	6.7	3.0	10.2	15.2	12.4	14.0	12.7	7.8	6.3	Diurnal Maximum	
Z - zerospan C - Calibration M - Maintenance																																																	
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Monday Creek - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Monday Creek - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	703	99.29	99.29
11 - 20	5	0.71	100.00
21 - 60	0	0.00	100.00
61 - 110	0	0.00	100.00
111 - 172	0	0.00	100.00
> 172	0	0.00	100.00

Total Number of Valid Hours: 708

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Monday Creek - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	20	16	14	24	15	26	65	42	49	90	36	31	50	92	79	42	691
11 - 20	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0	5
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	16	14	24	15	26	65	42	49	90	36	32	54	92	79	42	696

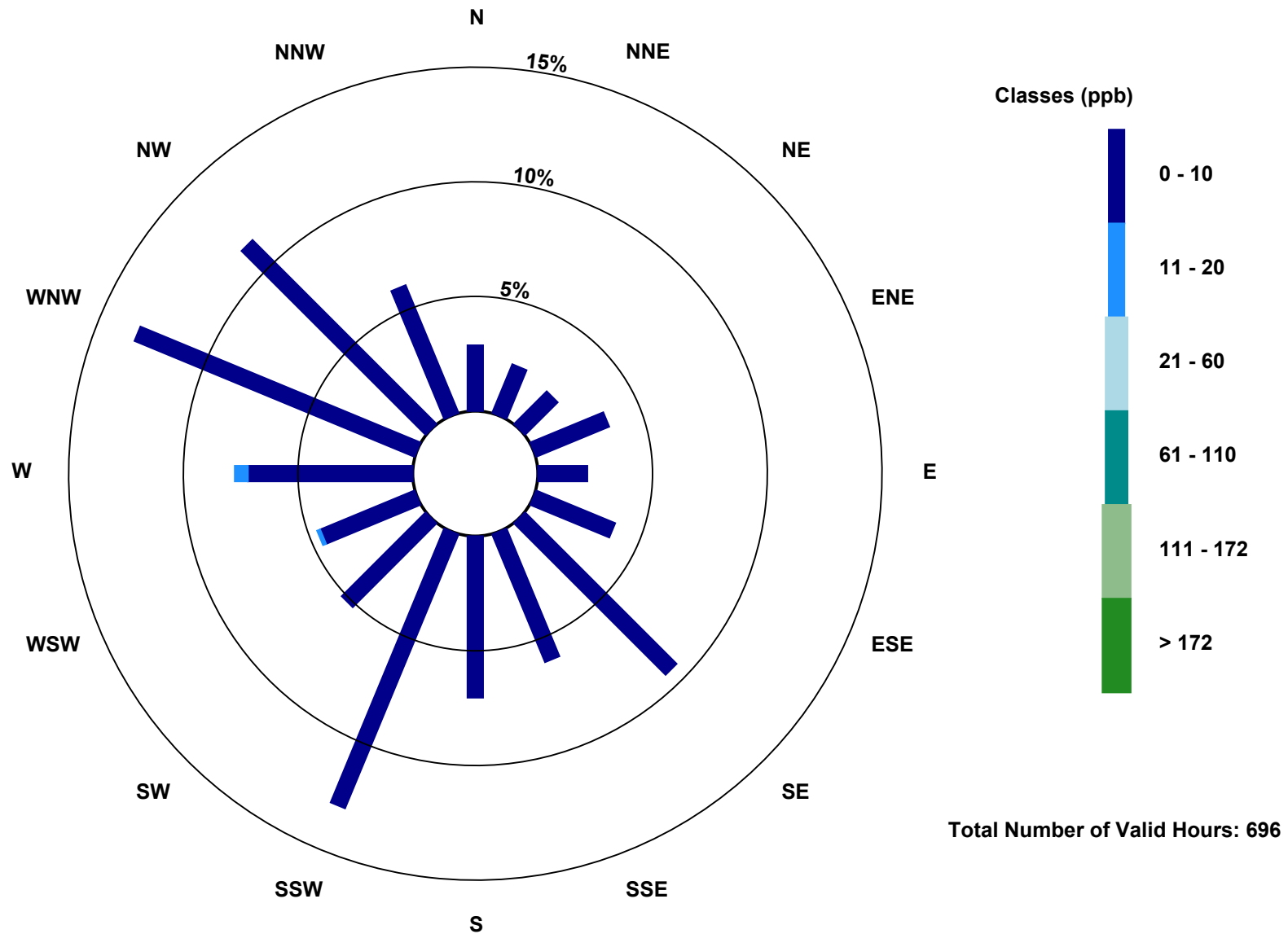
Total Number of Valid Hours: 696

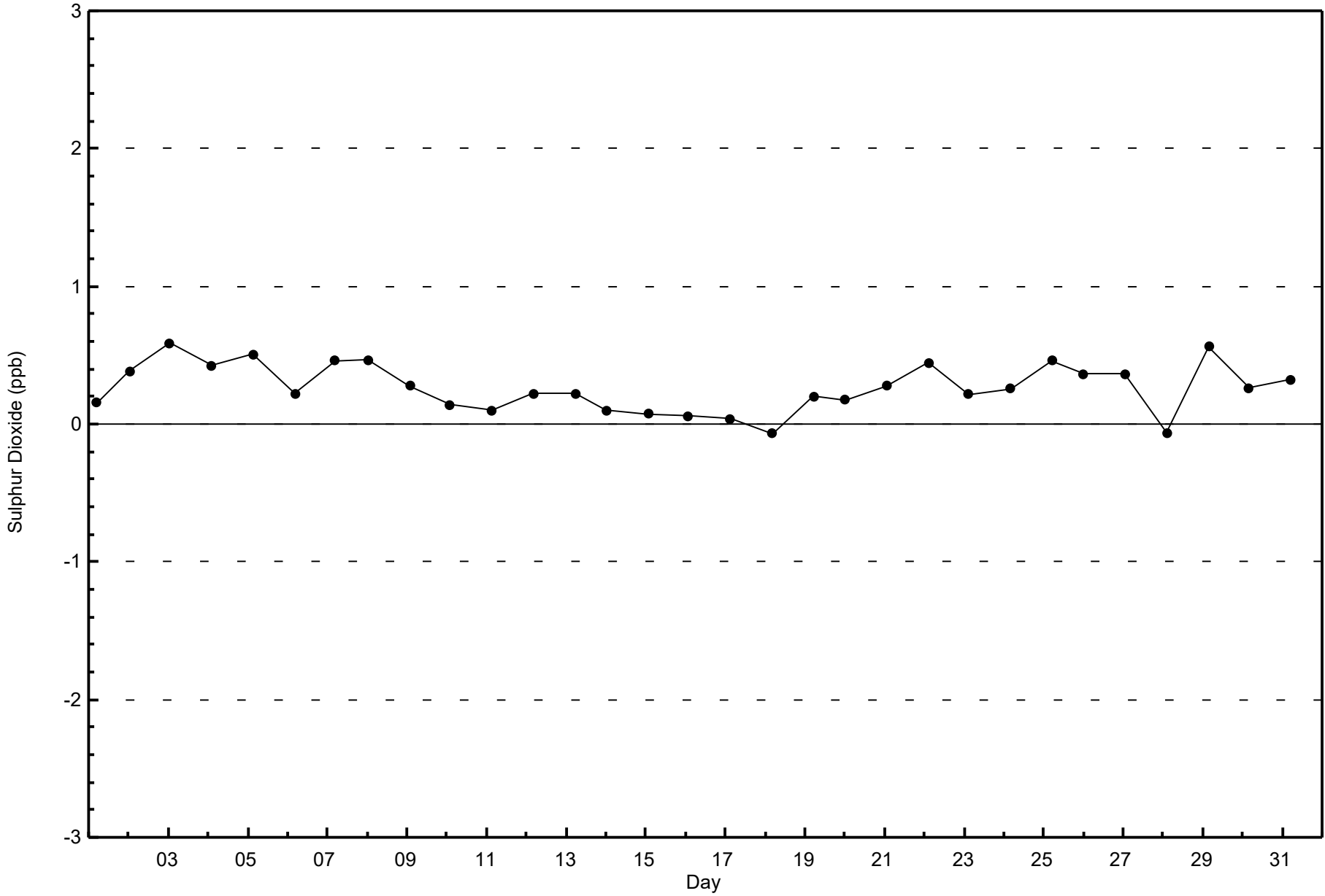
Total Number of Hours: 744

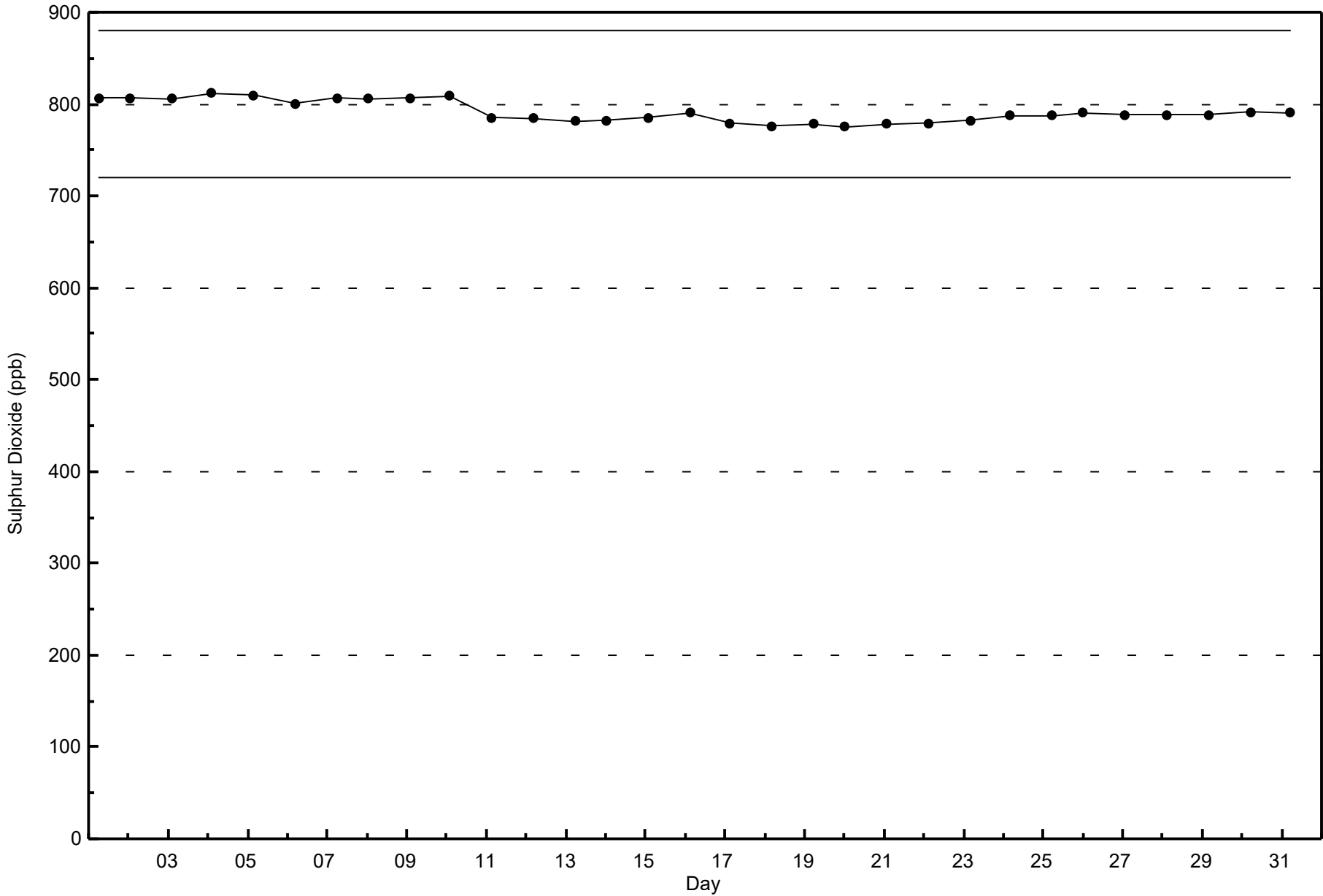


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Monday Creek







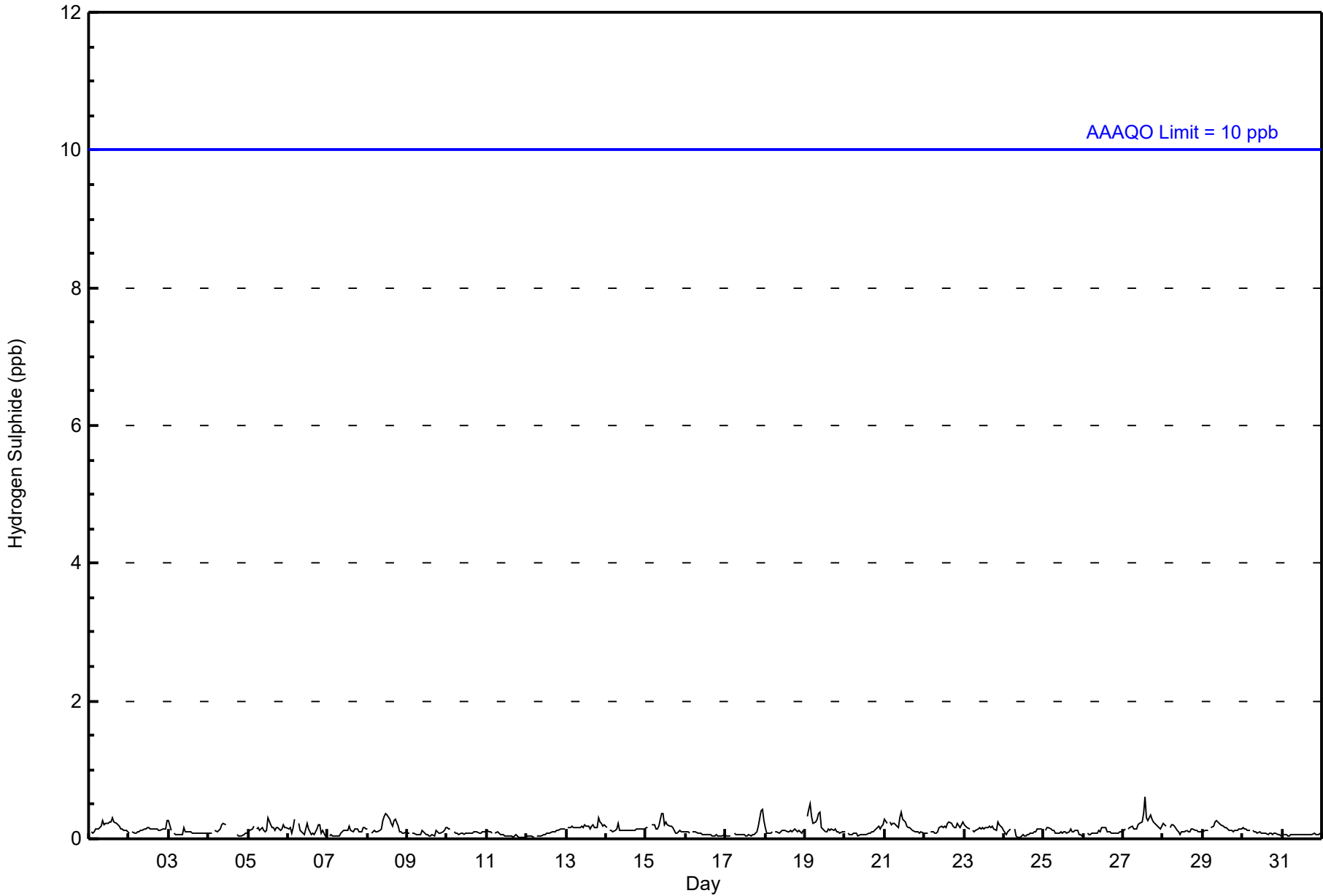


Wood Buffalo Environmental Association
Summary of Hour Averages

Hydrogen Sulphide (H₂S) - ppb
Monday Creek - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 0.6 ppb on Dec 27 14:00 Maximum Daily Average: 0.2 ppb on Dec 27		Hours in Service: 744 Hours of Data: 707 Hours of Missing Data: 37 Hours of Calibration: 37 Percent Operational Time: 100.0																									
Minimum Value: 0.0 ppb on Dec 11 21:00 Maximum Diurnal Average: 0.1 ppb at hour 10 Monthly Average: 0.13 ppb		Minimum Daily Average: 0.1 ppb on Dec 11 Minimum Diurnal Average: 0.1 ppb at hour 3 Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.2 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-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.3
2-Dec	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.3
3-Dec	0.3	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3
4-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	C	C	C	C	C	C	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	
5-Dec	0.1	0.1	0.1	0.2	Z	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	
6-Dec	0.1	0.2	0.1	0.2	0.3	Z	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.3	
7-Dec	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	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	
8-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
9-Dec	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	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	
10-Dec	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
11-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	
12-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
13-Dec	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	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.3	
14-Dec	0.2	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	0.1	0.1	0.1	0.2	0.2	
15-Dec	0.2	0.2	Z	0.2	0.2	0.2	0.1	0.1	0.2	0.4	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	
16-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	
17-Dec	0.0	0.0	0.0	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.4	0.4	0.3	0.1	0.4	
18-Dec	0.2	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
19-Dec	Z	0.3	0.4	0.5	0.3	0.2	0.2	0.3	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5	
20-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.1	0.2	
21-Dec	0.3	0.2	Z	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4	
22-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	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-Dec	0.2	0.2	0.2	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.3	0.2	0.2	0.2	0.2	0.3	
24-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
25-Dec	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
26-Dec	0.0	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
27-Dec	0.1	0.1	Z	0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.4	0.6	0.3	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	
28-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
29-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	
30-Dec	0.2	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	
31-Dec	Z	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
																								Diurnal Average			
																								Diurnal Maximum			
																								0.1 0.3			
																								0.3 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
Monday Creek - December 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
Monday Creek - December 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	19	16	14	23	14	26	66	38	46	90	38	37	56	90	77	45	695
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	19	16	14	23	14	26	66	38	46	90	38	37	56	90	77	45	695

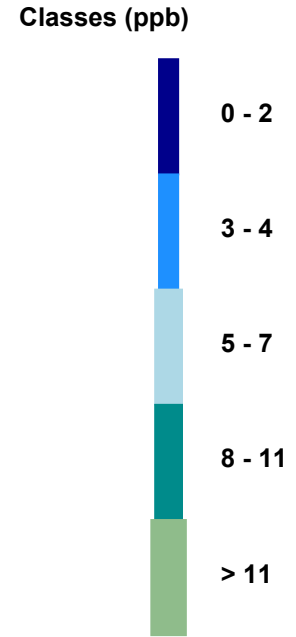
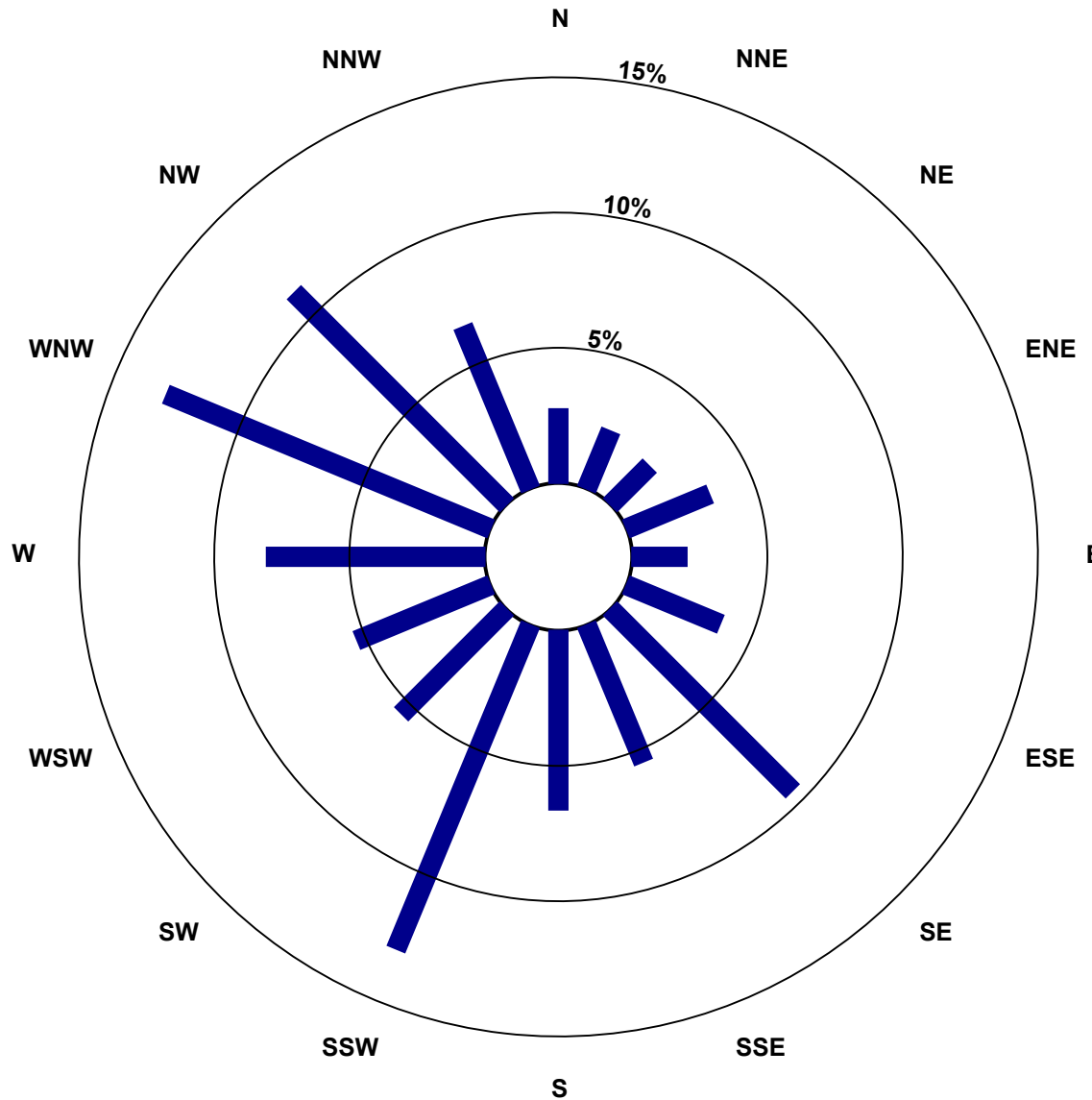
Total Number of Valid Hours: 695

Total Number of Hours: 744

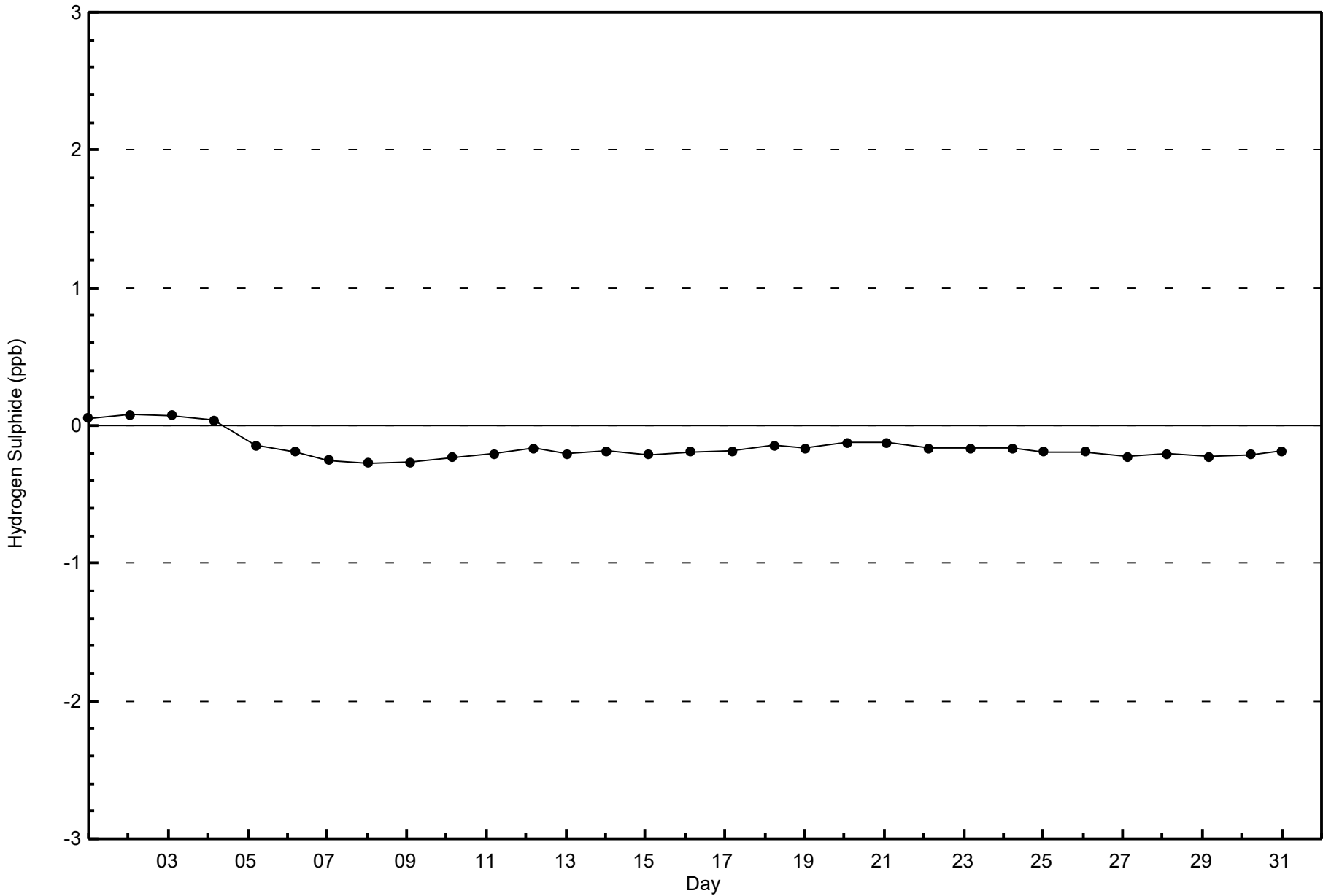


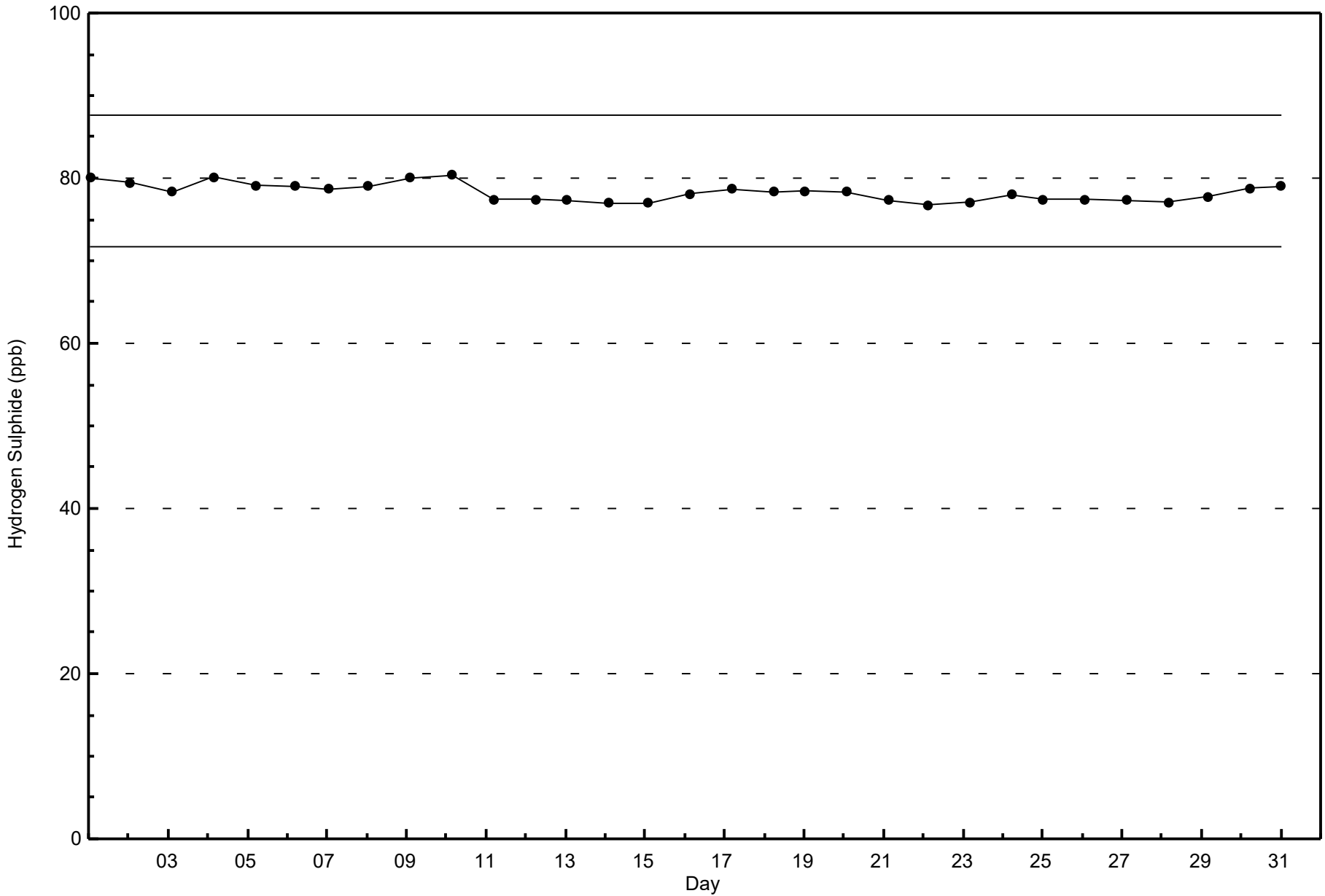
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Monday Creek



Total Number of Valid Hours: 695





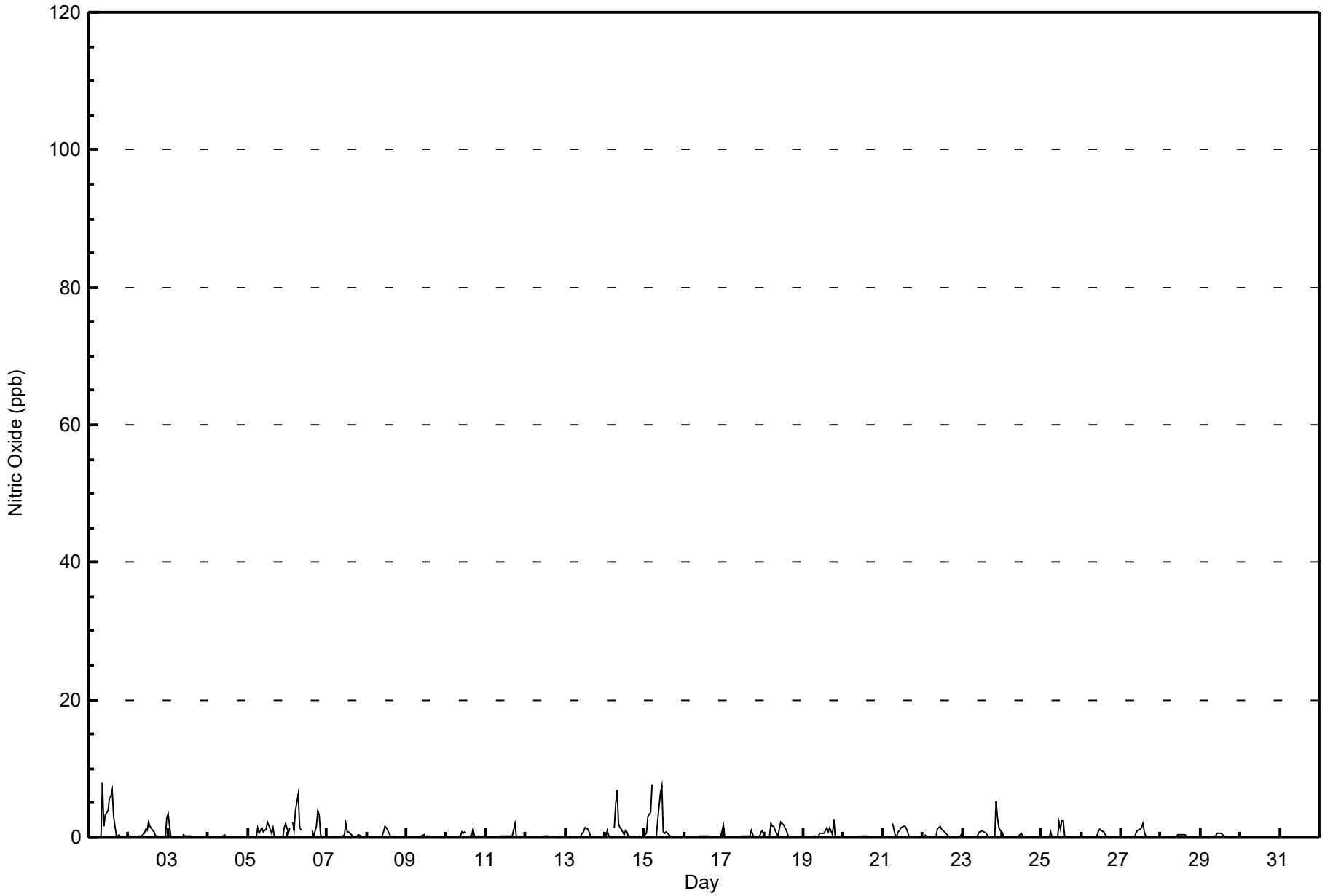


Maximum Value: 7.9 ppb on Dec 1 09:00																				Maximum Daily Average: 1.7 ppb on Dec 1					Hours in Service: 744				
Minimum Value: 0.0 ppb on Dec 1 01:00																				Minimum Daily Average: 0.0 ppb on Dec 30					Hours of Data: 700				
Maximum Diurnal Average: 1.0 ppb at hour 13																				Minimum Diurnal Average: 0.1 ppb at hour 22					Hours of Missing Data: 44				
Monthly Average: 0.41 ppb																				Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.0 Q ₃ = 0.3 P ₉₀ = 1.3 P ₉₉ = 5.9					Hours of Calibration: 37				
																				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-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.2	7.9	1.6	3.2	3.9	5.7	5.9	6.9	3.1	0.3	0.1	0.3	0.1	0.1	0.0	0.0	0.0	1.7	7.9			
2-Dec	0.0	0.1	0.0	0.0	Z	0.0	0.2	0.1	0.2	0.6	1.2	1.1	2.3	1.6	1.1	0.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0	2.9	0.6	2.9			
3-Dec	3.6	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.3	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.6			
4-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	C	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.3			
5-Dec	0.0	Z	0.0	0.0	0.0	0.1	1.4	0.5	1.5	0.8	0.9	1.2	2.3	1.3	0.7	1.5	0.1	0.0	0.0	0.0	0.0	0.0	1.5	2.0	0.7	2.3			
6-Dec	0.7	1.5	Z	2.2	0.9	3.8	6.3	1.7	1.0	M	M	M	M	M	M	1.0	0.2	1.7	3.9	3.4	0.5	0.1	0.0	0.0	--	6.3			
7-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.3	2.0	0.8	0.8	0.7	0.2	0.1	0.0	0.1	0.4	0.1	0.0	0.0	0.1	0.3	2.0			
8-Dec	0.2	0.1	0.0	0.0	Z	0.0	0.0	0.0	0.1	0.3	0.8	1.6	1.5	0.7	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.6			
9-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.1	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4			
10-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.6	0.8	0.6	M	0.4	0.2	1.2	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.2	1.2			
11-Dec	0.1	Z	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.2	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	2.1			
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3			
13-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.6	0.7	1.5	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	1.5			
14-Dec	0.1	1.1	0.1	0.1	Z	1.5	5.0	6.9	2.1	1.4	1.2	0.5	1.1	0.7	0.2	0.3	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	1.0	6.9			
15-Dec	0.4	0.6	3.0	3.7	7.7	Z	0.0	0.0	2.5	6.4	7.5	0.8	0.7	0.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	7.7			
16-Dec	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8	0.1	1.8			
17-Dec	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	0.3	0.1	1.1	0.4	0.1	0.1	0.0	0.2	0.8	1.1	0.2	1.1			
18-Dec	0.2	0.1	Z	0.1	2.1	1.6	1.5	1.0	0.2	1.3	2.2	2.1	1.8	1.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	2.2			
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.2	0.2	0.1	0.3	0.6	0.5	0.6	0.9	1.4	0.8	1.5	0.4	2.7	0.0	0.0	0.0	0.0	0.0	0.5	2.7			
20-Dec	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2			
21-Dec	0.0	0.0	0.0	0.1	0.0	Z	2.0	0.1	0.2	0.8	1.1	1.3	1.6	1.7	1.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.5	2.0			
22-Dec	Z	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.1	1.1	1.6	1.1	1.0	0.8	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	1.6			
23-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.9	0.9	0.8	0.6	0.2	0.0	0.0	0.0	0.0	5.4	2.9	1.5	1.0	0.7	5.4			
24-Dec	0.8	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.6	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	0.8			
25-Dec	0.0	0.0	0.0	Z	0.0	0.7	0.0	0.1	0.0	0.1	2.3	1.3	2.4	2.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4			
26-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.2	0.7	1.3	1.1	0.8	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3			
27-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.6	1.0	1.3	1.4	1.9	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9			
28-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	0.5	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5			
29-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.6	0.6	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6			
30-Dec	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			
31-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
																								Diurnal Average					
																								Diurnal Maximum					
																								Diurnal Average					
																								Diurnal Maximum					
Z - zerospan C - Calibration M - Maintenance																													



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Monday Creek - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Monday Creek - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	700	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: 700

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Monday Creek - December 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	18	16	13	24	15	28	66	37	47	86	38	34	55	90	77	43	687
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	18	16	13	24	15	28	66	37	47	86	38	34	55	90	77	43	687

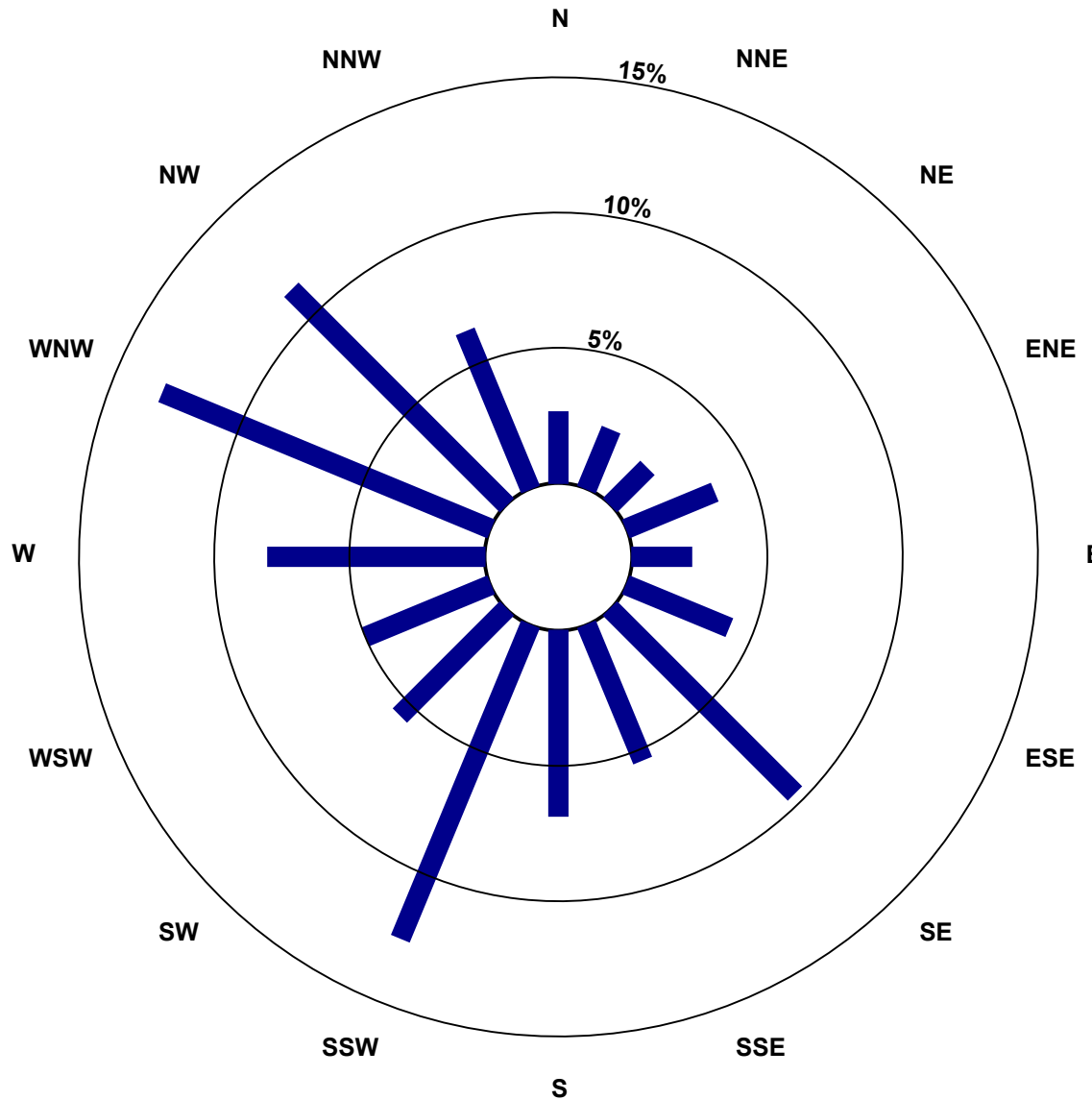
Total Number of Valid Hours: 687

Total Number of Hours: 744

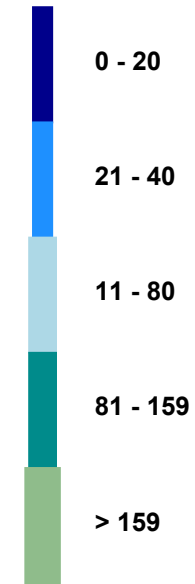


Wood Buffalo Environmental Association
Wind Rose Dec 2024

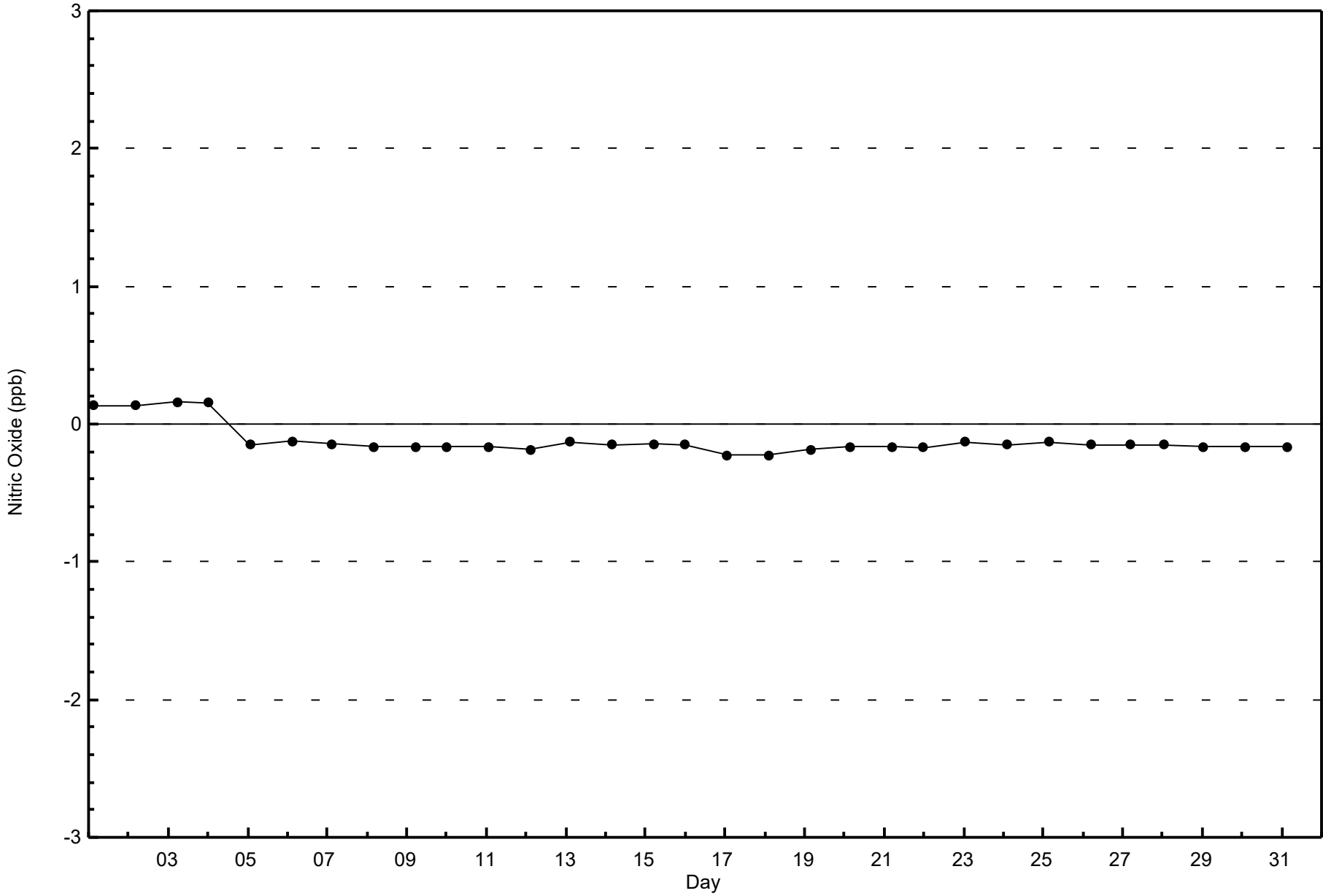
Nitric Oxide (NO) - ppb
Monday Creek

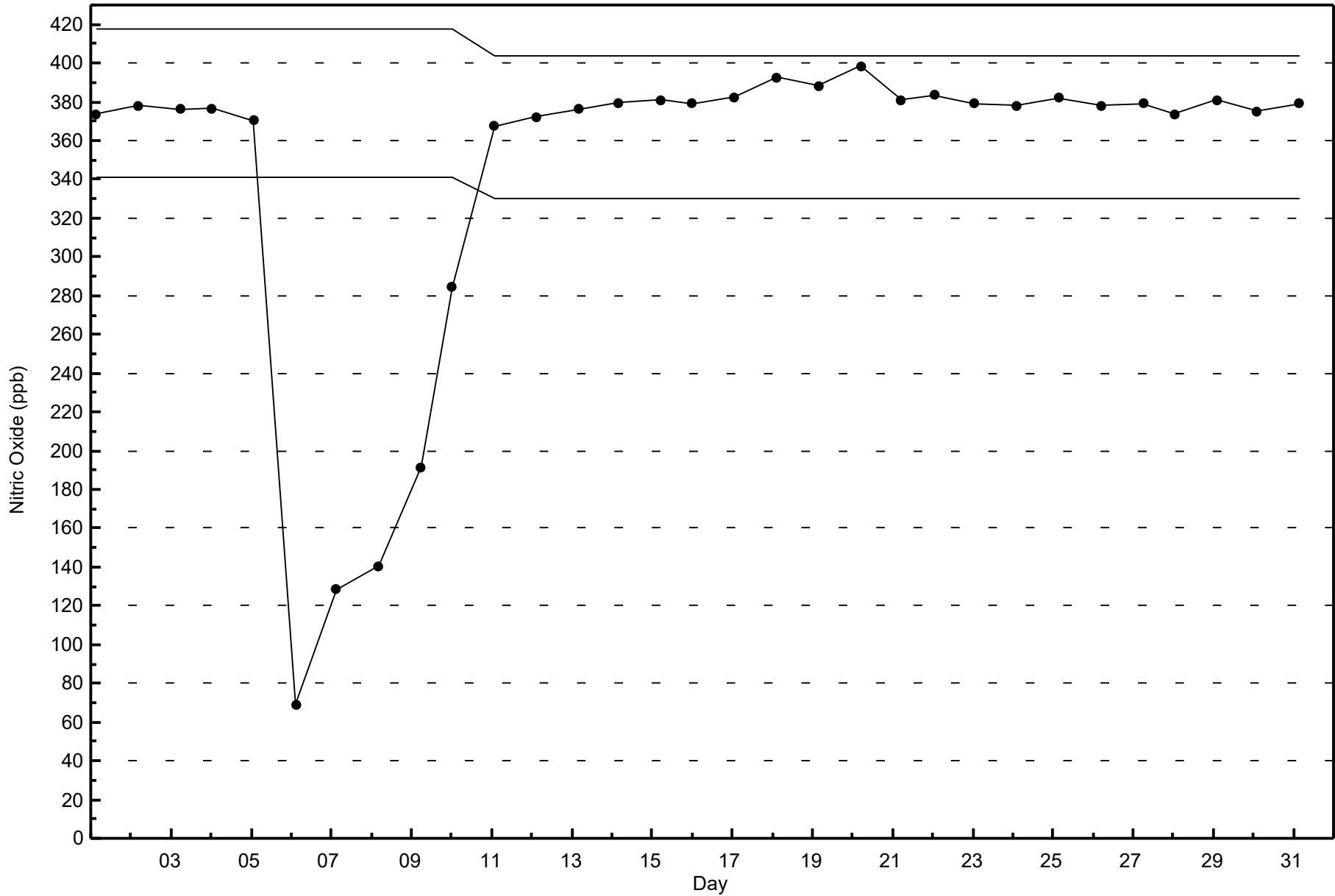


Classes (ppb)



Total Number of Valid Hours: 687







Wood Buffalo Environmental Association

Summary of Hour Averages

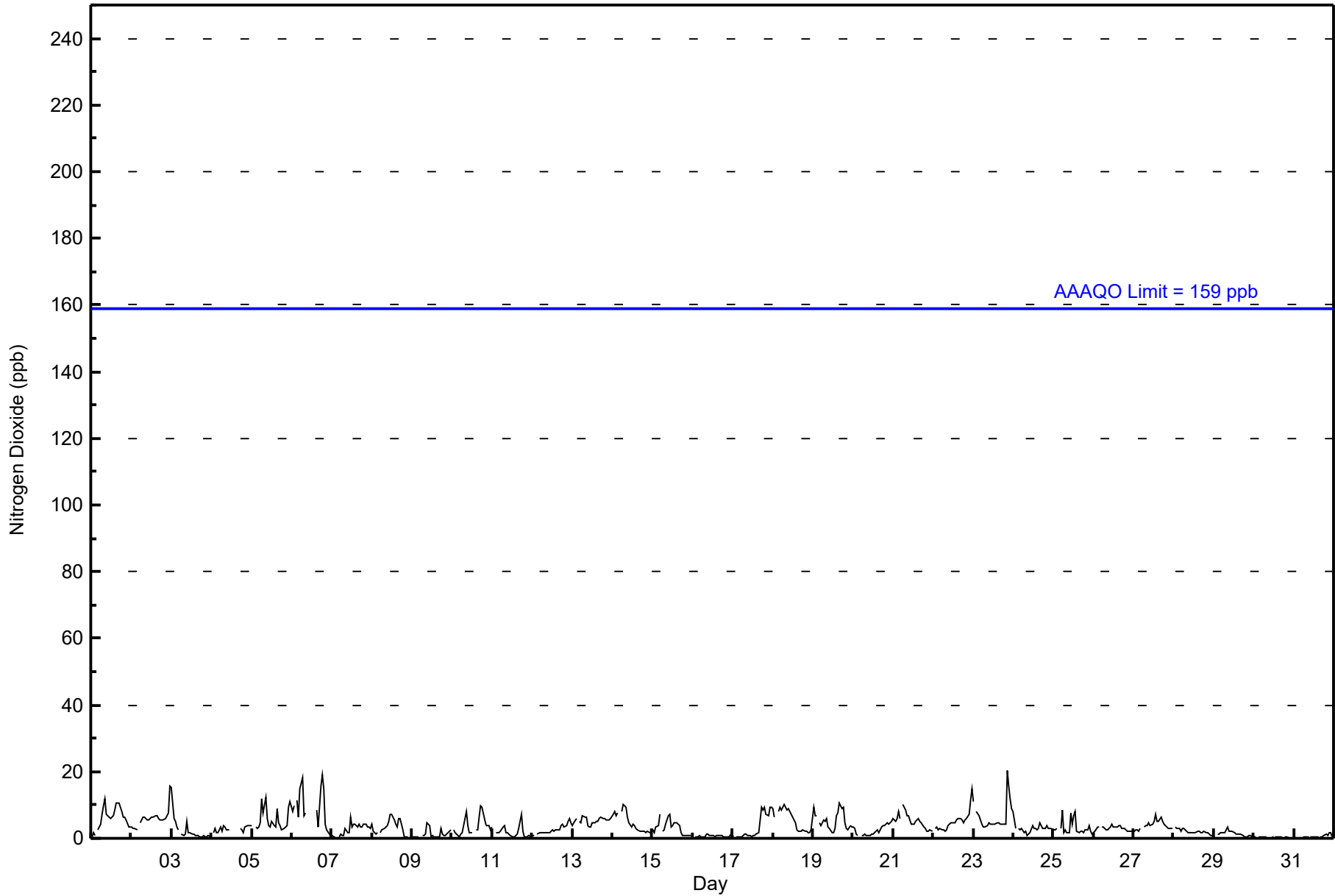
Nitrogen Dioxide (NO₂) - ppb Monday Creek - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service: 744																				
Maximum Value: 20.3 ppb on Dec 23 21:00		Maximum Daily Average: 6.6 ppb on Dec 23		Hours of Data: 700																						
Minimum Value: 0.2 ppb on Dec 8 23:00		Minimum Daily Average: 0.3 ppb on Dec 30		Hours of Missing Data: 44																						
Maximum Diurnal Average: 4.4 ppb at hour 18		Minimum Diurnal Average: 2.9 ppb at hour 3		Hours of Calibration: 37																						
Monthly Average: 3.56 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.3 Median = 2.8 Q ₃ = 4.8 P ₉₀ = 7.4 P ₉₉ = 14.8		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-Dec	0.5	1.7	0.9	Z	2.7	4.3	7.4	9.6	11.8	7.4	6.7	6.1	6.2	6.7	8.6	10.8	10.6	9.2	8.0	6.2	6.3	5.3	3.6	3.3	6.3	11.8
2-Dec	3.3	2.9	2.8	2.7	Z	4.6	5.5	6.4	6.2	5.7	5.6	5.8	6.3	6.3	6.9	6.6	6.1	5.6	5.4	5.5	5.9	6.9	7.6	15.8	5.9	15.8
3-Dec	15.3	6.1	5.1	3.6	2.4	Z	1.3	1.0	1.4	5.0	1.9	1.5	1.4	1.1	0.9	0.9	0.8	0.6	0.6	0.7	0.6	0.6	0.7	0.6	2.4	15.3
4-Dec	Z	1.9	2.8	1.7	1.5	3.2	2.1	3.8	3.4	2.7	2.6	C	C	C	C	C	C	3.1	2.5	1.7	3.6	4.0	3.9	4.0	--	4.0
5-Dec	3.9	Z	3.3	3.0	3.5	4.5	11.8	7.8	12.3	6.1	3.8	3.4	5.1	3.8	3.5	9.0	4.8	3.7	2.5	2.8	3.4	3.9	9.3	11.1	5.5	12.3
6-Dec	7.9	9.9	Z	11.4	6.5	14.8	18.4	6.8	7.8	M	M	M	M	M	M	8.5	3.3	15.5	19.2	14.8	4.3	2.6	1.1	0.8	--	19.2
7-Dec	1.0	0.6	0.6	Z	0.6	1.2	0.9	0.8	2.8	1.6	1.7	6.3	3.3	4.2	4.1	3.2	4.4	3.6	3.3	4.1	4.1	3.2	3.3	3.1	2.7	6.3
8-Dec	4.1	2.2	1.3	1.7	Z	1.9	2.4	2.8	3.3	3.8	5.0	7.4	7.4	5.3	4.4	3.2	5.8	5.9	2.6	0.5	0.6	0.3	0.2	0.3	3.1	7.4
9-Dec	0.6	0.5	0.3	0.5	0.4	Z	0.7	0.9	1.1	4.6	3.9	0.6	0.7	0.5	0.4	0.3	0.3	3.0	1.3	0.8	1.0	1.5	2.0	2.7	1.2	4.6
10-Dec	Z	2.6	1.5	0.9	0.6	1.2	1.9	3.7	8.1	3.7	1.8	1.8	1.6	M	2.4	2.7	6.2	9.8	9.2	5.5	3.9	3.7	3.9	2.6	3.6	9.8
11-Dec	3.3	Z	1.7	1.5	1.7	2.3	3.2	3.7	1.8	1.6	1.1	0.7	0.6	0.6	0.9	1.1	2.8	7.1	2.2	0.4	0.6	0.6	0.7	0.5	1.8	7.1
12-Dec	0.7	1.0	Z	1.3	1.6	1.6	1.5	1.7	1.7	1.9	1.8	2.1	2.4	2.3	2.5	2.4	2.7	4.0	4.2	3.5	3.9	4.9	5.9	4.6	2.6	5.9
13-Dec	3.9	4.7	6.1	Z	5.0	4.6	6.7	6.2	6.3	4.0	3.6	3.5	4.6	4.6	4.9	5.1	6.0	6.2	6.1	5.8	5.7	5.6	5.7	6.1	5.3	6.7
14-Dec	7.0	8.0	6.6	7.5	Z	7.9	10.2	9.9	9.4	6.4	4.7	3.3	4.3	3.7	2.8	2.7	2.3	2.0	2.3	2.1	1.8	2.1	1.5	1.8	4.8	10.2
15-Dec	2.7	1.9	3.2	4.0	7.0	Z	2.3	2.6	4.2	6.6	7.3	3.6	3.8	4.5	4.7	4.2	4.0	1.9	0.8	0.7	0.9	1.0	0.8	3.2	7.3	
16-Dec	Z	0.6	0.6	0.6	0.8	0.6	0.5	1.2	1.3	1.0	0.8	0.7	0.5	0.7	0.9	0.9	0.9	0.9	0.6	0.5	0.6	0.4	0.4	1.5	0.7	1.5
17-Dec	0.5	Z	0.5	0.3	0.5	0.5	0.8	1.1	1.2	0.8	0.8	0.6	0.9	0.9	1.4	1.6	5.3	9.5	8.6	9.2	7.2	6.9	9.3	9.4	3.4	9.5
18-Dec	9.1	6.3	Z	7.9	9.3	8.6	9.2	10.0	8.3	8.9	8.2	7.0	6.5	4.5	2.6	2.0	2.1	2.2	2.5	2.1	2.0	1.7	1.6	2.7	5.4	10.0
19-Dec	9.5	6.8	6.6	Z	4.6	4.0	5.4	5.0	5.8	3.6	3.0	1.7	1.7	3.0	6.9	7.6	10.8	9.1	9.5	4.6	2.8	2.4	3.8	3.5	5.3	10.8
20-Dec	3.2	3.0	1.3	0.9	Z	0.8	0.7	1.1	0.9	0.7	0.8	1.2	1.4	1.9	2.7	1.9	2.5	3.4	3.9	3.8	4.5	4.3	4.6	5.2	2.4	5.2
21-Dec	5.9	5.2	5.9	8.2	5.9	Z	10.2	8.6	6.8	6.8	5.4	4.4	4.4	5.1	5.3	6.0	5.2	4.7	3.6	2.9	2.3	2.1	2.6	2.2	5.2	10.2
22-Dec	Z	3.1	3.2	2.6	2.8	2.7	2.6	2.2	2.5	3.8	4.5	4.5	4.7	4.7	5.5	6.1	5.9	5.5	4.5	5.6	6.1	7.2	11.3	14.8	5.1	14.8
23-Dec	11.0	Z	7.9	6.6	5.3	4.1	3.5	3.6	4.0	4.6	4.3	4.3	4.2	4.3	4.8	4.8	4.2	4.3	4.2	4.2	20.3	15.7	12.0	8.8	6.6	20.3
24-Dec	8.1	3.1	Z	2.8	2.7	2.8	1.9	2.0	1.0	1.2	1.8	3.9	3.1	2.8	2.7	2.9	4.6	3.0	3.1	2.8	3.9	3.0	2.8	2.7	3.0	8.1
25-Dec	2.7	2.5	2.8	Z	2.8	8.4	1.8	2.6	1.7	1.7	7.6	4.1	6.8	8.1	2.1	1.5	2.3	2.2	1.8	2.5	2.5	3.7	2.0	1.3	3.3	8.4
26-Dec	1.6	2.2	3.3	3.6	Z	3.6	3.4	2.5	2.5	3.0	3.5	4.2	3.5	3.2	3.3	3.9	3.8	3.1	2.9	2.4	2.2	2.2	2.1	2.2	3.0	4.2
27-Dec	2.3	2.5	2.5	2.2	3.1	Z	3.6	3.8	3.8	4.8	3.9	4.4	5.0	7.3	5.0	5.2	6.2	4.9	4.3	3.9	3.5	3.0	2.9	2.9	4.0	7.3
28-Dec	Z	3.3	3.1	3.1	2.2	2.8	2.9	2.5	1.8	1.7	1.7	1.6	1.5	1.9	2.1	2.2	1.8	1.8	2.0	1.8	1.6	1.1	1.0	0.9	2.0	3.3
29-Dec	1.0	Z	1.2	1.2	1.5	1.7	1.8	2.6	3.2	2.3	2.3	2.0	1.9	1.4	1.4	1.2	1.1	0.8	0.6	0.5	0.6	0.9	1.0	0.6	1.4	3.2
30-Dec	0.4	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.4
31-Dec	0.3	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	1.0	1.1	0.8	1.7	1.9	0.4	0.5	1.9
4.2 3.2 2.9 3.2 2.9 3.6 4.0 3.8 4.1 3.6 3.4 3.2 3.3 3.4 3.2 3.6 3.9 4.4 4.0 3.3 3.5 3.3 3.5 3.8																								Diurnal Average		
15.3 9.9 7.9 11.4 9.3 14.8 18.4 10.0 12.3 8.9 8.2 7.4 7.4 8.1 8.6 10.8 10.8 15.5 19.2 14.8 20.3 15.7 12.0 15.8																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Monday Creek - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Monday Creek - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	700	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: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Monday Creek - December 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	18	16	13	24	15	28	66	37	47	86	38	34	55	90	77	43	687
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	18	16	13	24	15	28	66	37	47	86	38	34	55	90	77	43	687

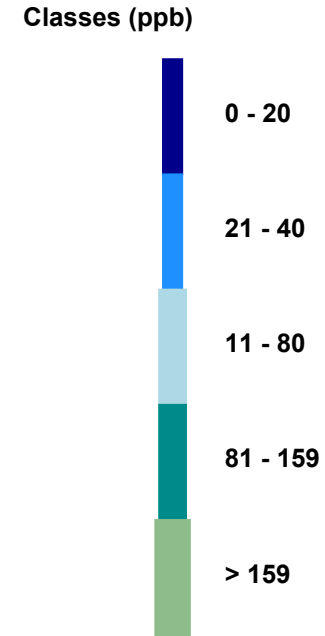
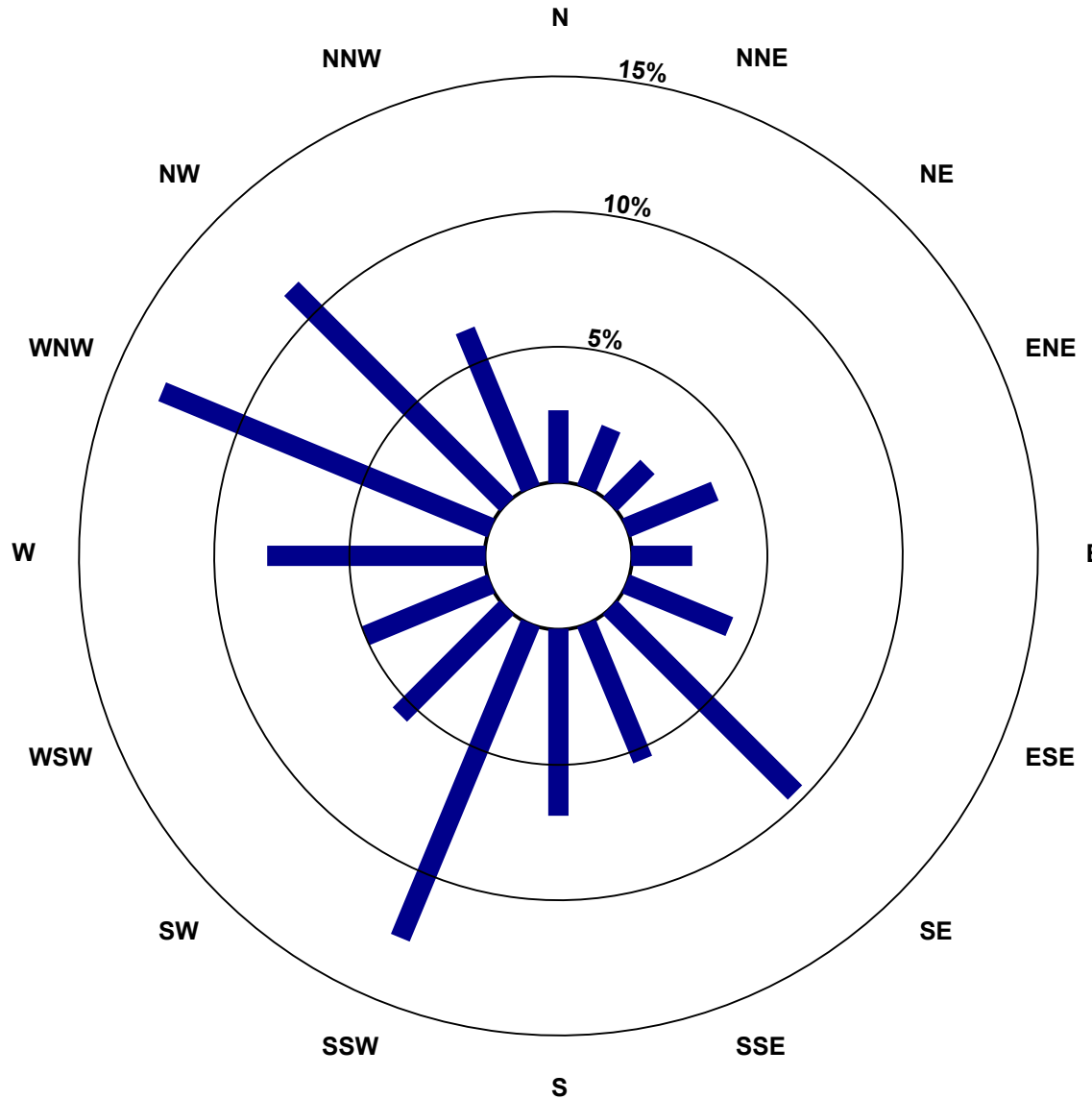
Total Number of Valid Hours: 687

Total Number of Hours: 744

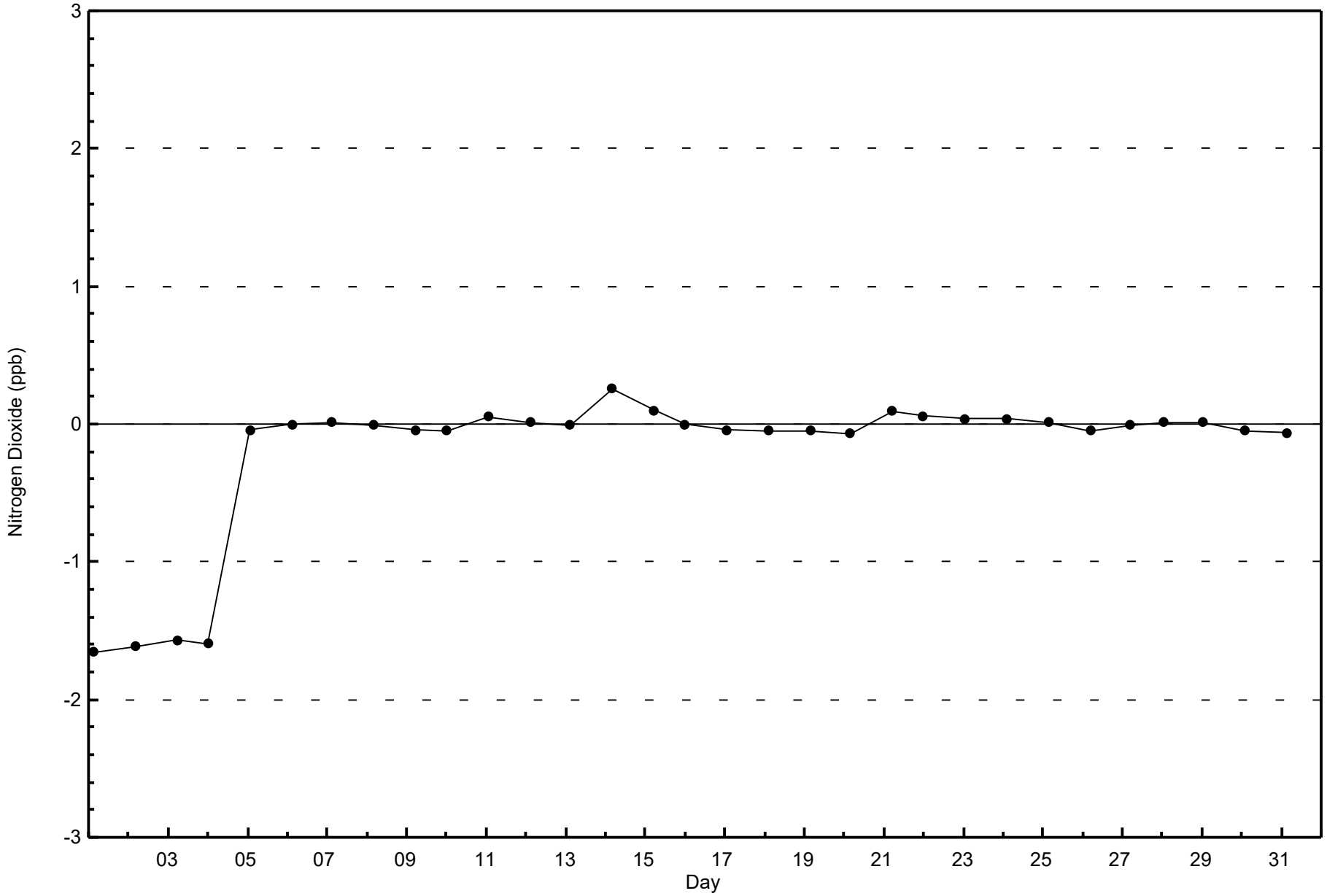


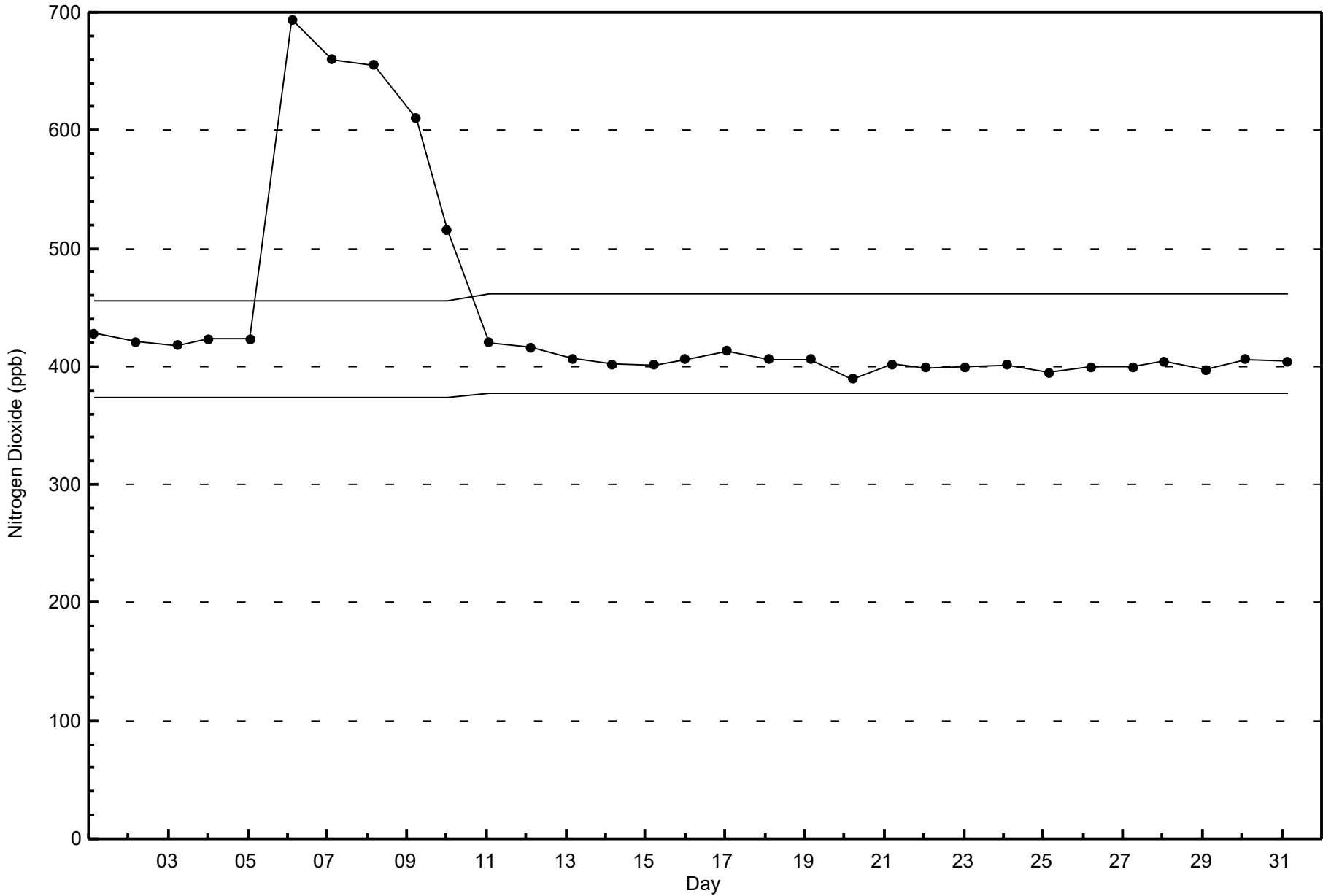
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Monday Creek



Total Number of Valid Hours: 687







Wood Buffalo Environmental Association
Summary of Hour Averages

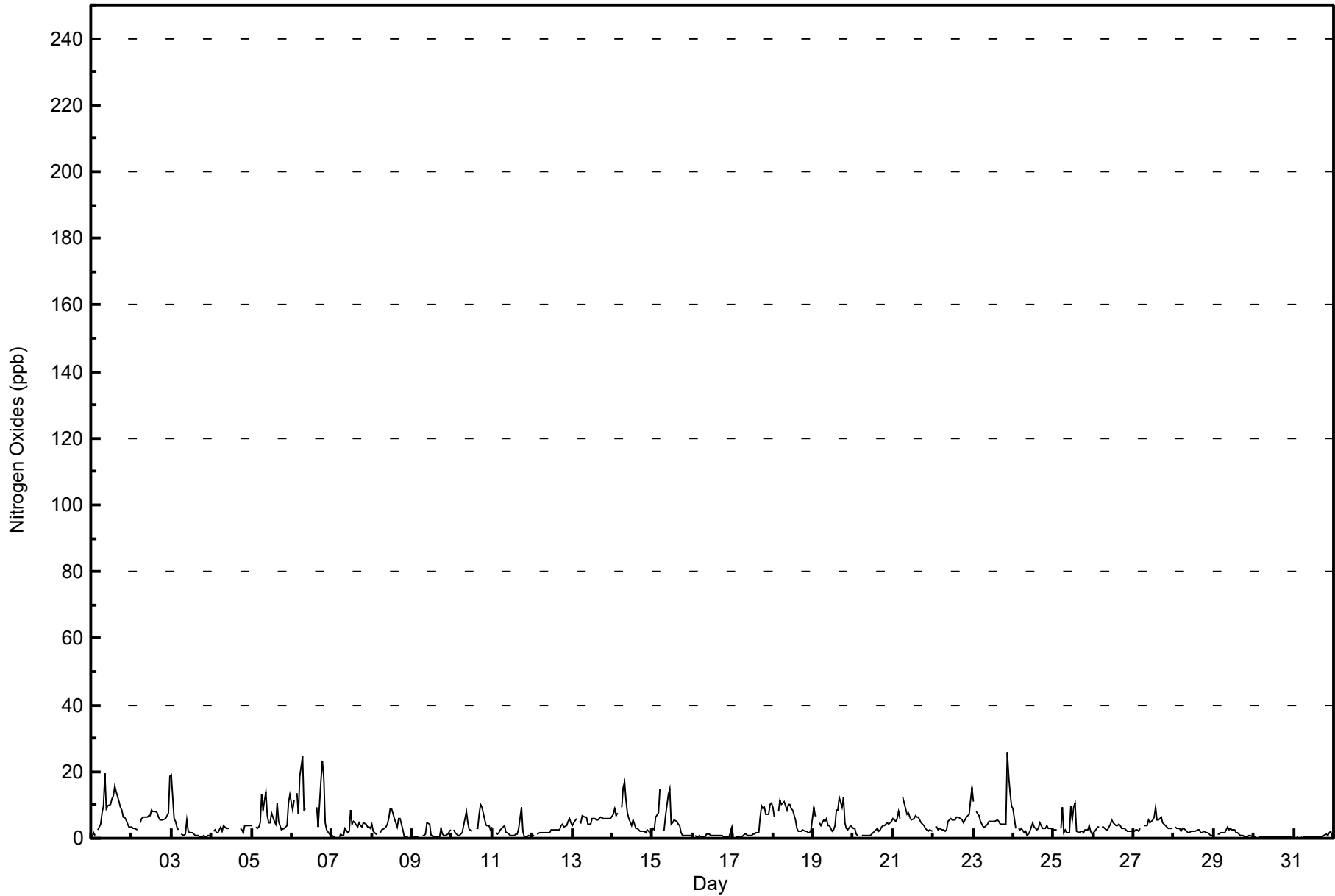
Nitrogen Oxides (NO_x) - ppb
Monday Creek - December 2024

Maximum Value: 25.7 ppb on Dec 23 21:00																				Maximum Daily Average: 8.0 ppb on Dec 1					Hours in Service: 744	
Minimum Value: 0.2 ppb on Dec 8 23:00										Minimum Daily Average: 0.3 ppb on Dec 30										Hours of Data: 700						
Maximum Diurnal Average: 4.6 ppb at hour 9										Minimum Diurnal Average: 3.0 ppb at hour 3										Hours of Missing Data: 44						
Monthly Average: 3.97 ppb										Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.4 Median = 2.9 Q ₃ = 5.5 P ₉₀ = 8.8 P ₉₉ = 18.6										Hours of Calibration: 37						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	0.5	1.7	0.9	Z	2.7	4.3	7.5	9.8	19.7	9.0	9.9	10.0	11.9	12.6	15.5	13.9	10.9	9.3	8.3	6.3	6.4	5.3	3.6	3.3	8.0	19.7
2-Dec	3.3	3.0	2.8	2.7	Z	4.6	5.7	6.5	6.4	6.3	6.8	6.9	8.6	7.9	8.0	7.4	6.3	5.7	5.4	5.5	5.9	6.9	7.6	18.7	6.5	18.7
3-Dec	18.9	6.1	5.1	3.6	2.4	Z	1.3	1.0	1.4	5.3	2.1	1.8	1.7	1.3	1.0	0.9	0.8	0.6	0.6	0.7	0.6	0.6	0.7	0.6	2.6	18.9
4-Dec	Z	1.9	2.8	1.7	1.5	3.2	2.1	3.8	3.4	2.9	2.9	C	C	C	C	C	C	3.1	2.5	1.7	3.6	4.0	3.9	4.0	--	4.0
5-Dec	3.9	Z	3.3	3.0	3.5	4.6	13.2	8.3	13.8	6.9	4.7	4.6	7.4	5.1	4.2	10.5	4.9	3.7	2.5	2.8	3.4	3.9	10.8	13.1	6.2	13.8
6-Dec	8.6	11.4	Z	13.6	7.4	18.6	24.7	8.5	8.8	M	M	M	M	M	M	9.5	3.5	17.2	23.1	18.2	4.8	2.7	1.1	0.8	--	24.7
7-Dec	1.0	0.6	0.6	Z	0.6	1.2	0.9	0.8	2.8	1.7	2.0	8.3	4.1	5.0	4.8	3.4	4.5	3.6	3.4	4.5	4.2	3.2	3.3	3.2	2.9	8.3
8-Dec	4.3	2.3	1.3	1.7	Z	1.9	2.4	2.8	3.4	4.1	5.8	9.0	8.9	6.0	4.6	3.3	5.9	5.9	2.6	0.5	0.6	0.3	0.2	0.3	3.4	9.0
9-Dec	0.6	0.5	0.3	0.5	0.4	Z	0.7	0.9	1.1	4.8	4.3	0.7	1.0	0.6	0.4	0.3	0.3	3.0	1.3	0.8	1.0	1.5	2.0	2.7	1.3	4.8
10-Dec	Z	2.6	1.5	0.9	0.6	1.2	1.9	3.7	8.2	4.5	2.4	2.6	2.2	M	2.8	2.9	7.4	10.0	9.2	5.7	3.9	3.7	3.9	2.6	3.8	10.0
11-Dec	3.4	Z	1.7	1.5	1.7	2.3	3.3	3.8	1.9	1.7	1.3	0.8	0.7	0.8	1.1	1.2	3.0	9.2	2.3	0.4	0.6	0.6	0.7	0.5	1.9	9.2
12-Dec	0.7	1.0	Z	1.3	1.6	1.6	1.5	1.7	1.7	1.9	1.9	2.3	2.7	2.6	2.7	2.5	2.7	4.0	4.2	3.5	3.9	4.9	5.9	4.6	2.7	5.9
13-Dec	3.9	4.7	6.1	Z	5.0	4.6	6.7	6.2	6.4	4.2	4.2	4.2	6.1	5.9	5.7	5.4	6.0	6.2	6.1	5.8	5.7	5.7	5.7	6.1	5.5	6.7
14-Dec	7.1	9.1	6.7	7.6	Z	9.4	15.2	16.8	11.5	7.8	5.9	3.8	5.4	4.4	3.0	3.0	2.3	2.0	2.3	2.1	1.9	2.3	1.5	1.8	5.8	16.8
15-Dec	3.1	2.5	6.2	7.7	14.7	Z	2.3	2.6	6.7	13.0	14.8	4.4	4.5	5.3	5.1	4.3	4.0	1.9	0.8	0.7	0.9	1.0	0.8	4.7	14.8	
16-Dec	Z	0.6	0.6	0.6	0.8	0.6	0.6	0.5	1.3	1.4	1.2	1.0	0.9	0.7	0.9	1.0	0.9	0.9	0.6	0.5	0.6	0.4	0.5	3.3	0.9	3.3
17-Dec	0.5	Z	0.5	0.3	0.5	0.5	0.8	1.1	1.2	0.8	0.9	0.8	1.1	1.2	1.7	1.7	6.4	9.9	8.7	9.3	7.2	7.1	10.1	10.5	3.6	10.5
18-Dec	9.3	6.4	Z	8.0	11.4	10.2	10.7	11.0	8.5	10.2	10.4	9.1	8.3	5.5	2.9	2.1	2.1	2.2	2.5	2.1	2.0	1.7	1.6	2.7	6.1	11.4
19-Dec	9.5	6.8	6.6	Z	4.6	4.0	5.6	5.2	5.9	3.9	3.6	2.2	2.3	3.9	8.3	8.4	12.3	9.5	12.2	4.6	2.8	2.4	3.8	3.5	5.7	12.3
20-Dec	3.2	3.0	1.3	0.9	Z	0.8	0.7	1.1	0.9	0.7	0.8	1.4	1.5	2.1	2.9	1.9	2.5	3.4	3.9	3.8	4.5	4.3	4.6	5.2	2.4	5.2
21-Dec	5.9	5.2	5.9	8.3	5.9	Z	12.2	8.7	7.0	7.6	6.5	5.7	6.0	6.8	6.5	6.5	5.3	4.7	3.6	2.9	2.3	2.1	2.7	2.3	5.7	12.2
22-Dec	Z	3.5	3.3	2.7	2.8	2.7	2.6	2.2	2.6	4.9	6.1	5.6	5.7	5.5	6.2	6.4	5.9	5.5	4.5	5.6	6.1	7.2	11.4	15.1	5.4	15.1
23-Dec	11.0	Z	7.9	6.6	5.3	4.1	3.5	3.6	4.0	5.0	5.0	5.2	5.1	5.1	5.4	5.0	4.2	4.3	4.2	4.2	25.7	18.6	13.5	9.8	7.2	25.7
24-Dec	8.9	3.1	Z	2.8	2.7	2.8	1.9	2.0	1.0	1.2	2.0	4.5	3.4	2.9	2.7	2.9	4.6	3.0	3.1	2.8	3.9	3.0	2.8	2.7	3.1	8.9
25-Dec	2.7	2.5	2.8	Z	2.8	9.1	1.8	2.7	1.7	1.8	9.9	5.4	9.2	10.5	2.3	1.5	2.3	2.2	1.8	2.5	2.5	3.7	2.0	1.3	3.7	10.5
26-Dec	1.6	2.2	3.3	3.6	Z	3.6	3.4	2.5	2.5	3.2	4.2	5.5	4.6	4.0	3.7	4.1	3.8	3.1	2.9	2.4	2.2	2.2	2.1	2.2	3.2	5.5
27-Dec	2.3	2.5	2.5	2.2	3.1	Z	3.6	3.8	3.9	5.4	4.9	5.7	6.4	9.2	5.7	5.5	6.2	4.9	4.3	3.9	3.5	3.0	2.9	2.9	4.3	9.2
28-Dec	Z	3.3	3.1	3.1	2.2	2.8	2.9	2.5	1.8	1.9	2.1	2.1	1.9	2.3	2.4	2.4	1.8	1.8	2.0	1.8	1.6	1.1	1.0	0.9	2.1	3.3
29-Dec	1.0	Z	1.2	1.2	1.5	1.7	1.8	2.7	3.4	2.5	2.9	2.6	2.5	1.8	1.6	1.2	1.1	0.8	0.6	0.5	0.6	0.9	1.0	0.6	1.5	3.4
30-Dec	0.4	0.3	Z	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.3	0.4	0.2	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.4
31-Dec	0.3	0.2	0.2	Z	0.2	0.2	0.3	0.3	0.3	0.2	0.3	0.4	0.3	0.3	0.3	0.2	0.3	0.3	1.0	1.1	0.8	1.7	1.9	0.4	0.5	1.9
4.4 3.3 3.0 3.5 3.3 3.9 4.6 4.1 4.6 4.2 4.3 4.0 4.3 4.3 3.9 4.0 4.1 4.6 4.2 3.5 3.7 3.4 3.7 4.1																								Diurnal Average		
18.9 11.4 7.9 13.6 14.7 18.6 24.7 16.8 19.7 13.0 14.8 10.0 11.9 12.6 15.5 13.9 12.3 17.2 23.1 18.2 25.7 18.6 13.5 18.7																								Diurnal Maximum		
Z - zerospan C - Calibration M - Maintenance																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Monday Creek - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Monday Creek - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	697	99.57	99.57
21 - 40	3	0.43	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 700

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Monday Creek - December 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	18	16	13	24	15	28	66	37	47	86	38	33	53	90	77	43	684
21 - 40	0	0	0	0	0	0	0	0	0	0	0	1	2	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	18	16	13	24	15	28	66	37	47	86	38	34	55	90	77	43	687

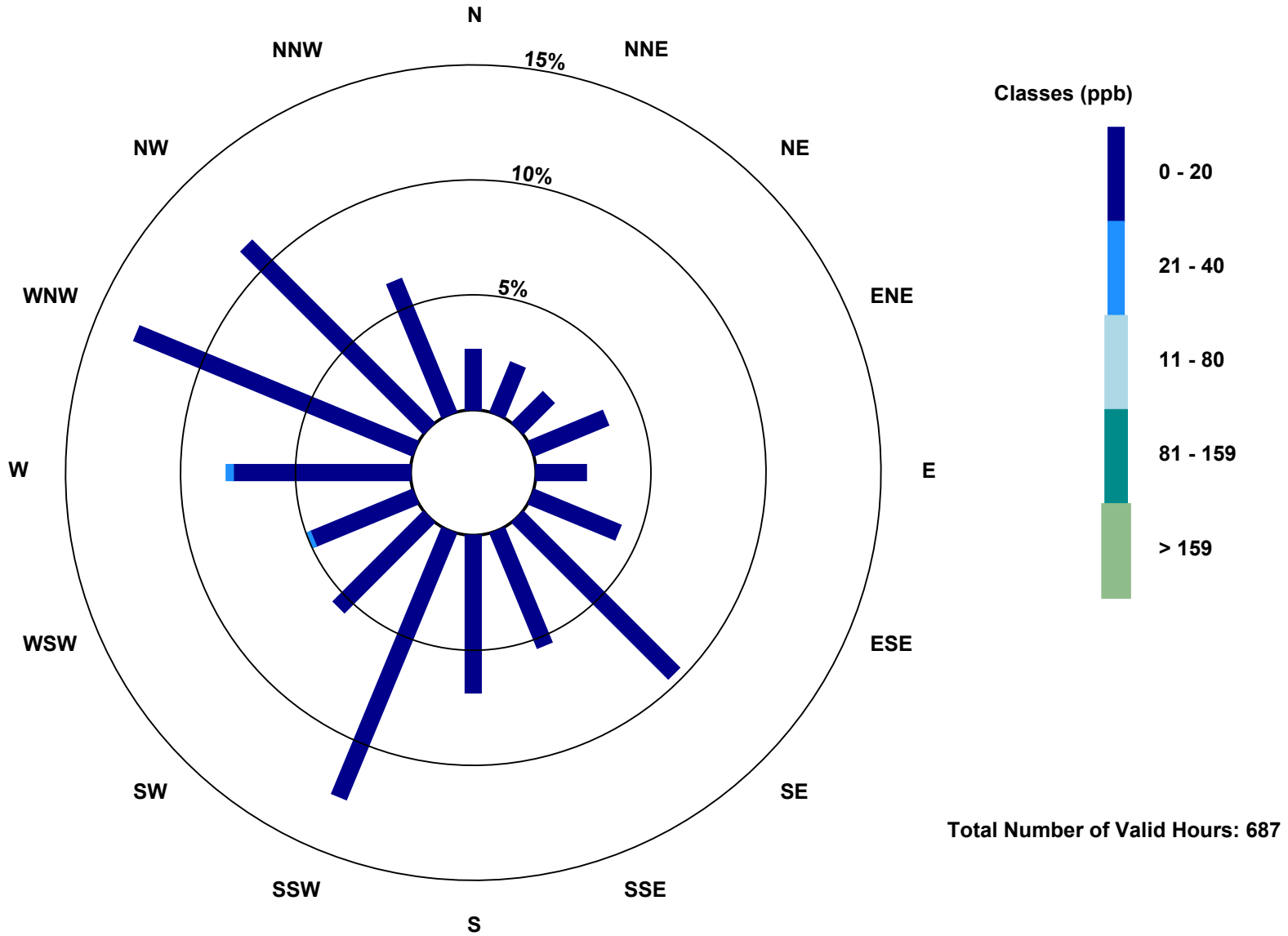
Total Number of Valid Hours: 687

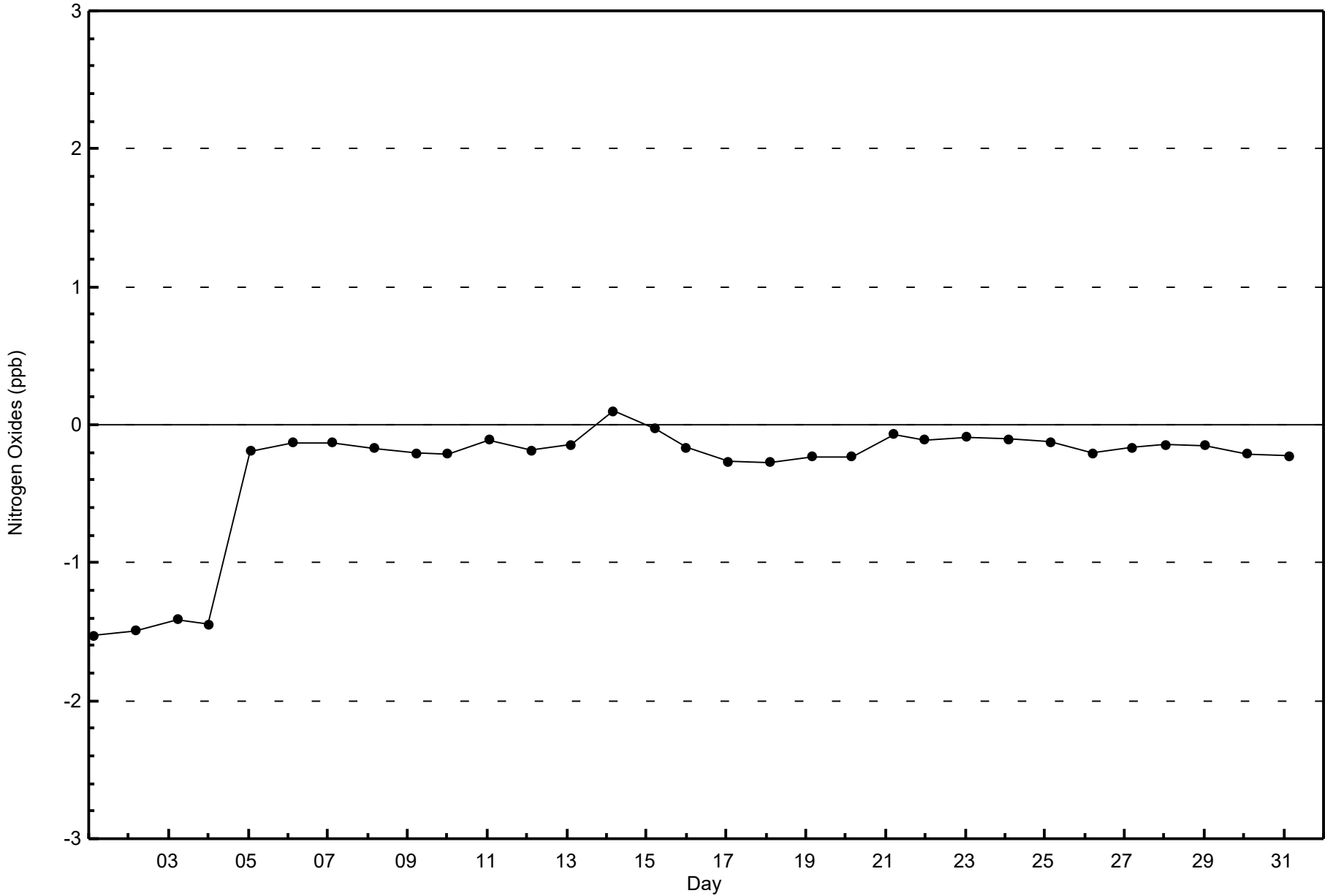
Total Number of Hours: 744

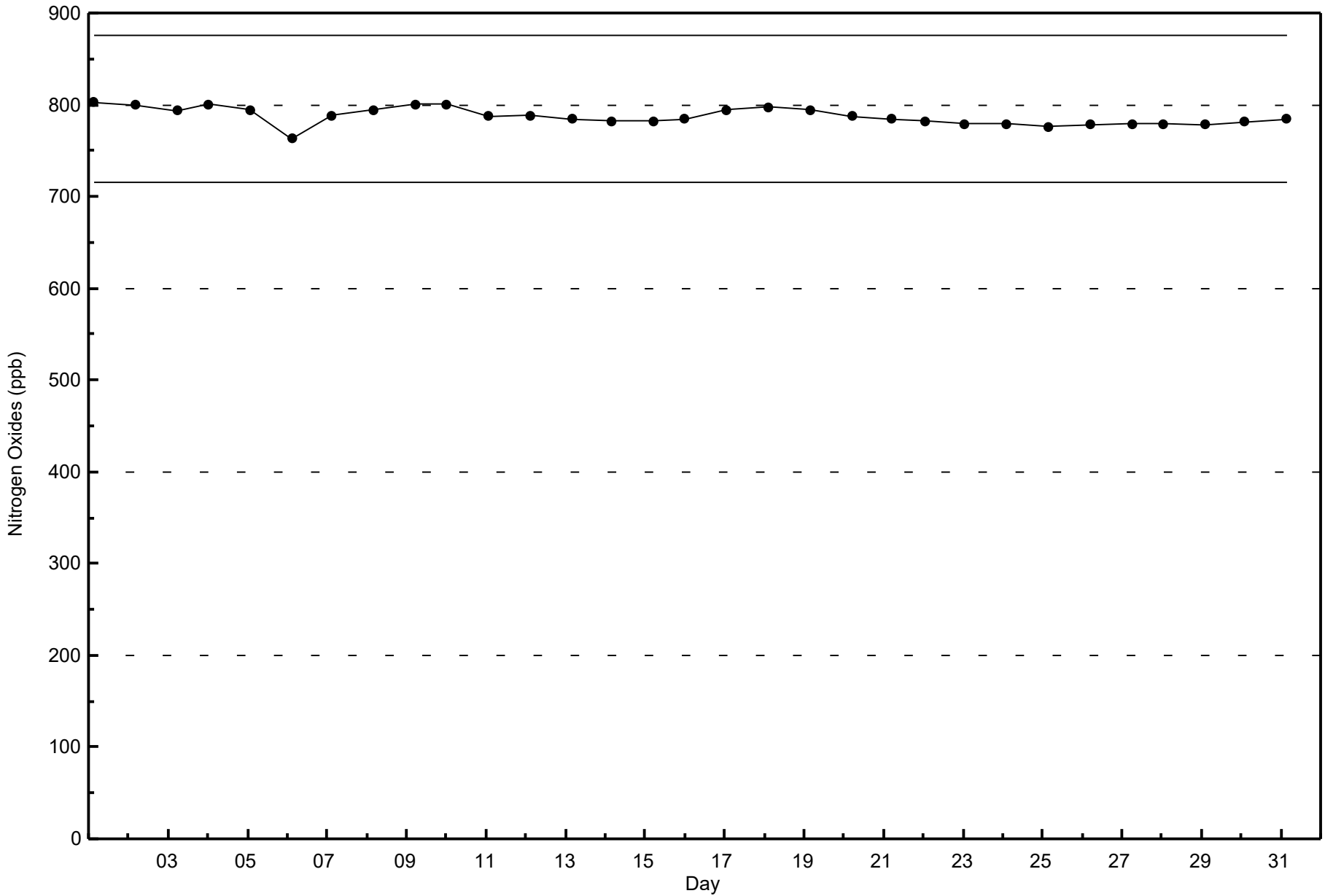


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Monday Creek







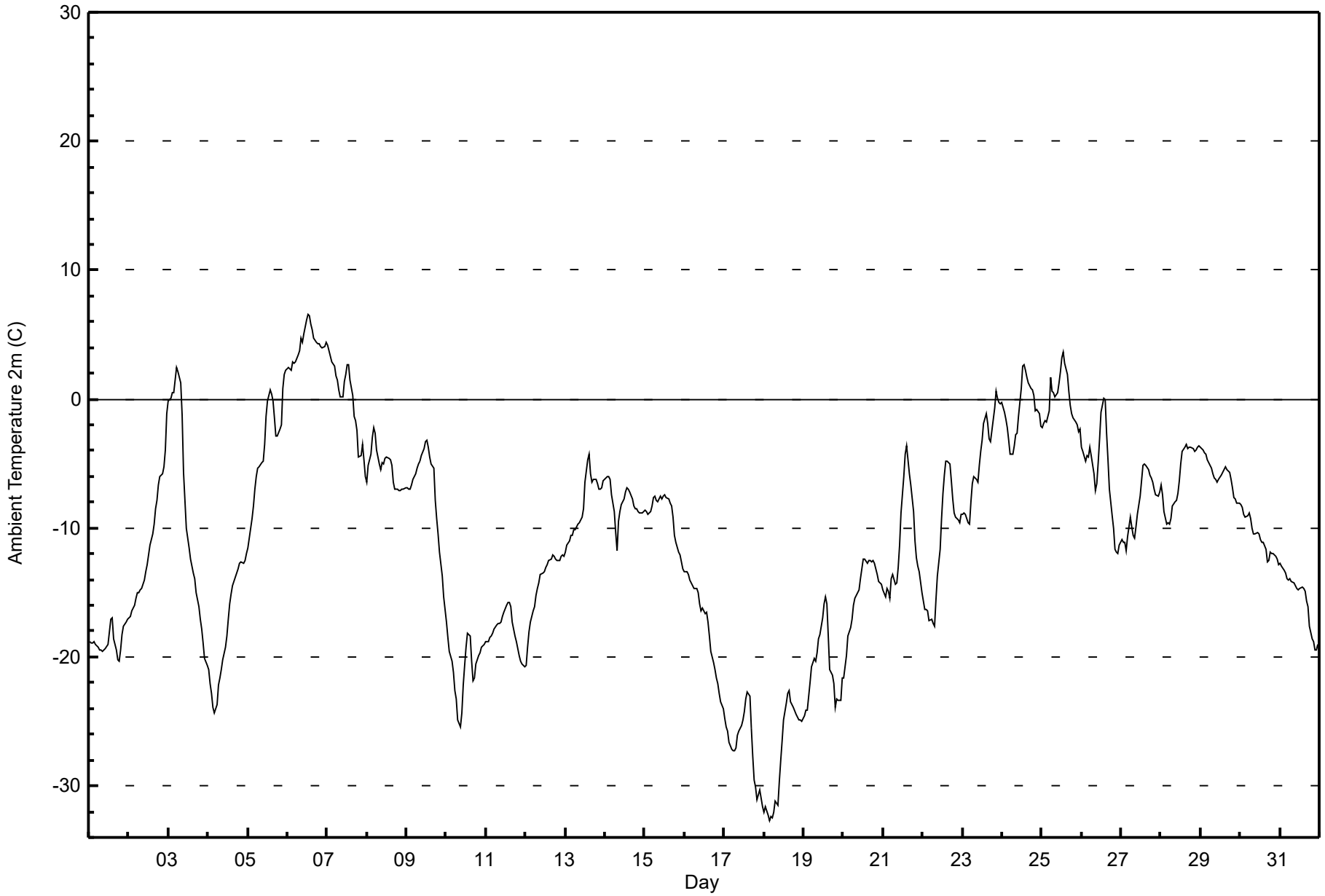


Maximum Value: 6.5 C on Dec 6 13:00 Maximum Daily Average: 4.2 C on Dec 6																						Hours in Service: 744				
Minimum Value: -32.7 C on Dec 18 04:00 Minimum Daily Average: -27.6 C on Dec 18																						Hours of Data: 744				
Maximum Diurnal Average: -8.3 C at hour 15 Minimum Diurnal Average: -11.8 C at hour 3																						Hours of Missing Data: 0				
Monthly Average: -10.77 C Percentiles: P ₁ = -31.6 P ₁₀ = -21.8 Q ₁ = -16.7 Median = -9.8 Q ₃ = -4.9 P ₉₀ = 0.0 P ₉₉ = 4.6																						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-Dec	-18.9	-18.9	-18.9	-18.8	-19.0	-19.3	-19.5	-19.5	-19.5	-19.3	-19.0	-18.0	-17.0	-17.0	-18.6	-19.4	-20.2	-20.3	-19.5	-18.3	-17.6	-17.3	-17.1	-18.8	-17.0	
2-Dec	-17.0	-16.8	-16.4	-16.0	-15.5	-15.0	-15.0	-14.8	-14.6	-14.0	-13.4	-12.8	-12.1	-11.3	-10.4	-9.7	-8.6	-7.8	-6.7	-6.0	-5.8	-5.2	-4.0	-1.1	-11.3	-1.1
3-Dec	-0.2	0.1	0.5	0.5	1.5	2.4	2.1	1.2	-1.2	-5.7	-7.9	-10.0	-11.5	-12.5	-13.0	-13.5	-14.0	-15.0	-16.1	-17.1	-17.8	-18.9	-20.1	-20.6	-8.6	2.4
4-Dec	-21.0	-22.1	-22.9	-23.9	-24.3	-23.6	-22.2	-21.6	-21.0	-20.2	-19.2	-18.4	-17.1	-15.9	-15.1	-14.4	-13.8	-13.5	-13.2	-12.7	-12.6	-12.7	-12.5	-12.0	-17.8	-12.0
5-Dec	-11.5	-10.8	-9.3	-8.3	-7.0	-6.0	-5.3	-5.3	-5.0	-4.8	-3.5	-1.4	-0.2	0.7	0.4	-0.2	-1.4	-2.8	-2.9	-2.3	-2.0	0.8	2.0	2.3	-3.5	2.3
6-Dec	2.4	2.3	2.2	2.9	2.7	2.8	3.4	3.7	4.8	4.4	5.0	6.2	6.5	6.5	5.8	5.4	4.7	4.4	4.3	4.3	4.1	4.0	4.1	4.4	4.2	6.5
7-Dec	4.1	3.7	3.3	2.9	2.6	1.8	1.5	0.7	0.2	0.2	1.3	1.9	2.7	2.6	1.5	0.3	-1.4	-1.7	-2.4	-4.4	-4.4	-3.5	-4.7	-6.0	0.1	4.1
8-Dec	-6.4	-5.1	-4.3	-3.0	-2.2	-2.6	-3.9	-5.1	-5.5	-5.0	-5.0	-4.7	-4.5	-4.6	-4.7	-5.1	-6.4	-7.0	-7.0	-7.1	-7.1	-7.0	-7.0	-6.9	-5.3	-2.2
9-Dec	-6.9	-7.0	-7.0	-6.6	-6.2	-5.8	-5.4	-5.1	-4.8	-4.4	-3.9	-3.3	-3.1	-3.7	-4.5	-5.0	-5.3	-7.9	-9.3	-10.4	-11.9	-13.8	-15.3	-16.3	-7.2	-3.1
10-Dec	-17.3	-18.5	-19.5	-20.4	-21.2	-22.6	-23.3	-24.9	-25.5	-24.3	-22.2	-20.6	-19.2	-18.1	-18.4	-20.3	-21.8	-21.6	-20.5	-19.9	-19.7	-19.3	-19.2	-19.1	-20.7	-17.3
11-Dec	-18.9	-18.8	-18.5	-18.4	-18.2	-17.9	-17.5	-17.5	-17.4	-17.3	-16.9	-16.5	-16.0	-15.8	-15.8	-16.2	-17.3	-18.4	-18.8	-19.4	-19.9	-20.3	-20.6	-20.8	-18.0	-15.8
12-Dec	-20.7	-19.2	-18.1	-17.3	-16.5	-16.1	-15.2	-14.7	-14.3	-13.6	-13.5	-13.4	-13.0	-12.8	-12.5	-12.4	-12.1	-12.2	-12.4	-12.5	-12.5	-12.2	-12.1	-12.2	-14.2	-12.1
13-Dec	-11.8	-11.4	-11.0	-10.6	-10.5	-10.2	-10.1	-9.7	-9.6	-9.4	-9.1	-8.5	-6.4	-4.7	-4.3	-5.8	-6.5	-6.2	-6.3	-6.5	-7.0	-7.0	-6.9	-6.3	-8.2	-4.3
14-Dec	-6.1	-6.0	-6.0	-6.2	-7.4	-8.7	-10.3	-11.8	-9.4	-8.7	-8.2	-7.8	-7.2	-6.9	-7.0	-7.2	-7.7	-8.3	-8.5	-8.6	-8.7	-8.8	-8.8	-8.7	-8.0	-6.0
15-Dec	-8.6	-8.7	-9.0	-8.8	-8.3	-7.6	-7.5	-7.8	-7.9	-7.6	-7.7	-7.5	-7.5	-6.6	-7.7	-8.1	-8.2	-9.1	-10.5	-11.1	-11.9	-12.1	-12.6	-13.2	-9.0	-7.5
16-Dec	-13.4	-13.4	-13.7	-14.1	-14.2	-14.5	-14.7	-14.7	-15.0	-15.9	-16.4	-16.2	-16.6	-16.5	-17.3	-18.4	-19.6	-20.4	-20.9	-21.6	-22.1	-22.8	-23.4	-24.1	-17.5	-13.4
17-Dec	-24.8	-25.4	-25.8	-26.6	-27.1	-27.3	-27.2	-27.0	-26.1	-25.7	-25.3	-24.8	-24.2	-23.3	-22.8	-23.0	-25.5	-27.8	-29.5	-30.1	-31.0	-30.3	-31.0	-31.6	-26.8	-22.8
18-Dec	-32.0	-31.7	-32.2	-32.7	-32.4	-32.5	-32.1	-31.2	-31.5	-29.7	-28.1	-26.5	-24.8	-23.6	-22.8	-22.7	-23.5	-23.7	-23.9	-24.4	-24.6	-24.9	-24.9	-24.9	-27.6	-22.7
19-Dec	-24.5	-24.1	-24.1	-23.0	-22.0	-20.8	-20.1	-20.3	-19.7	-18.6	-18.3	-16.9	-15.9	-15.3	-15.9	-18.4	-21.0	-21.4	-22.0	-23.9	-23.2	-23.4	-23.4	-21.7	-20.8	-15.3
20-Dec	-21.6	-20.8	-19.9	-18.4	-17.7	-17.1	-16.0	-15.4	-15.3	-14.9	-14.0	-13.2	-12.5	-12.4	-12.7	-12.6	-12.6	-12.7	-12.5	-12.7	-13.6	-14.1	-14.3	-14.3	-15.0	-12.4
21-Dec	-14.8	-15.3	-14.7	-15.0	-15.5	-13.9	-13.6	-14.3	-14.2	-13.0	-11.3	-8.8	-6.0	-4.2	-3.6	-4.7	-5.8	-6.6	-8.7	-11.0	-12.3	-12.9	-13.4	-15.0	-11.2	-3.6
22-Dec	-15.7	-16.3	-16.3	-16.4	-17.1	-17.1	-17.4	-17.6	-15.5	-13.7	-11.6	-9.3	-7.4	-5.9	-4.8	-4.8	-5.0	-6.4	-7.7	-8.8	-9.1	-9.4	-9.6	-8.9	-11.3	-4.8
23-Dec	-8.9	-8.8	-8.9	-9.6	-9.7	-8.0	-6.5	-6.0	-6.3	-6.4	-5.1	-4.1	-3.2	-1.9	-1.1	-1.9	-3.1	-3.4	-2.4	-0.7	0.6	0.0	-0.3	-0.3	-4.4	0.6
24-Dec	-0.3	-1.1	-1.5	-2.2	-3.2	-4.3	-4.3	-3.6	-2.8	-2.7	-1.4	0.8	2.6	2.6	2.3	1.7	1.2	0.8	0.7	0.2	-0.9	-0.8	-1.2	-2.2	-0.8	2.6
25-Dec	-2.3	-1.9	-1.6	-1.8	-1.0	1.7	0.6	0.5	0.2	0.5	1.3	2.1	3.2	3.6	2.7	1.9	0.6	-0.5	-1.2	-1.5	-1.7	-2.0	-2.6	-2.4	-0.1	3.6
26-Dec	-3.7	-4.1	-4.8	-4.4	-4.4	-3.7	-4.3	-5.8	-7.1	-6.6	-4.9	-3.0	-1.0	0.0	0.0	-2.7	-4.7	-7.0	-9.0	-10.0	-11.6	-11.9	-12.0	-11.3	-5.8	0.0
27-Dec	-10.9	-11.1	-11.2	-11.8	-10.7	-9.2	-10.0	-10.6	-10.8	-9.9	-9.0	-7.5	-6.3	-5.2	-5.0	-5.2	-5.5	-5.9	-6.1	-6.5	-7.0	-7.4	-7.6	-7.3	-8.2	-5.0
28-Dec	-6.7	-7.4	-8.8	-9.7	-9.6	-9.7	-9.2	-8.3	-8.0	-7.8	-7.3	-6.3	-5.0	-4.1	-3.7	-3.5	-3.8	-3.7	-3.8	-3.9	-4.0	-3.9	-3.7	-3.6	-6.1	-3.5
29-Dec	-3.7	-3.9	-4.2	-4.2	-4.7	-4.9	-5.4	-5.8	-6.1	-6.2	-6.4	-6.2	-5.9	-5.7	-5.4	-5.2	-5.4	-5.6	-6.2	-6.9	-7.6	-7.8	-8.0	-8.1	-5.8	-3.7
30-Dec	-8.2	-8.3	-9.0	-9.1	-9.1	-8.8	-9.2	-10.1	-10.4	-10.5	-10.4	-10.5	-10.9	-11.1	-11.1	-11.6	-12.6	-12.5	-11.9	-12.0	-12.0	-12.2	-12.4	-12.9	-10.7	-8.2
31-Dec	-12.8	-13.0	-13.3	-13.5	-13.9	-14.1	-13.9	-14.1	-14.3	-14.5	-14.7	-14.8	-14.7	-14.6	-14.7	-15.0	-15.7	-16.1	-17.6	-18.6	-18.9	-19.5	-19.4	-19.1	-15.4	-12.8
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Monday Creek - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Monday Creek - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	104	13.98	13.98
-20 - 0	563	75.67	89.65
0 - 10	77	10.35	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

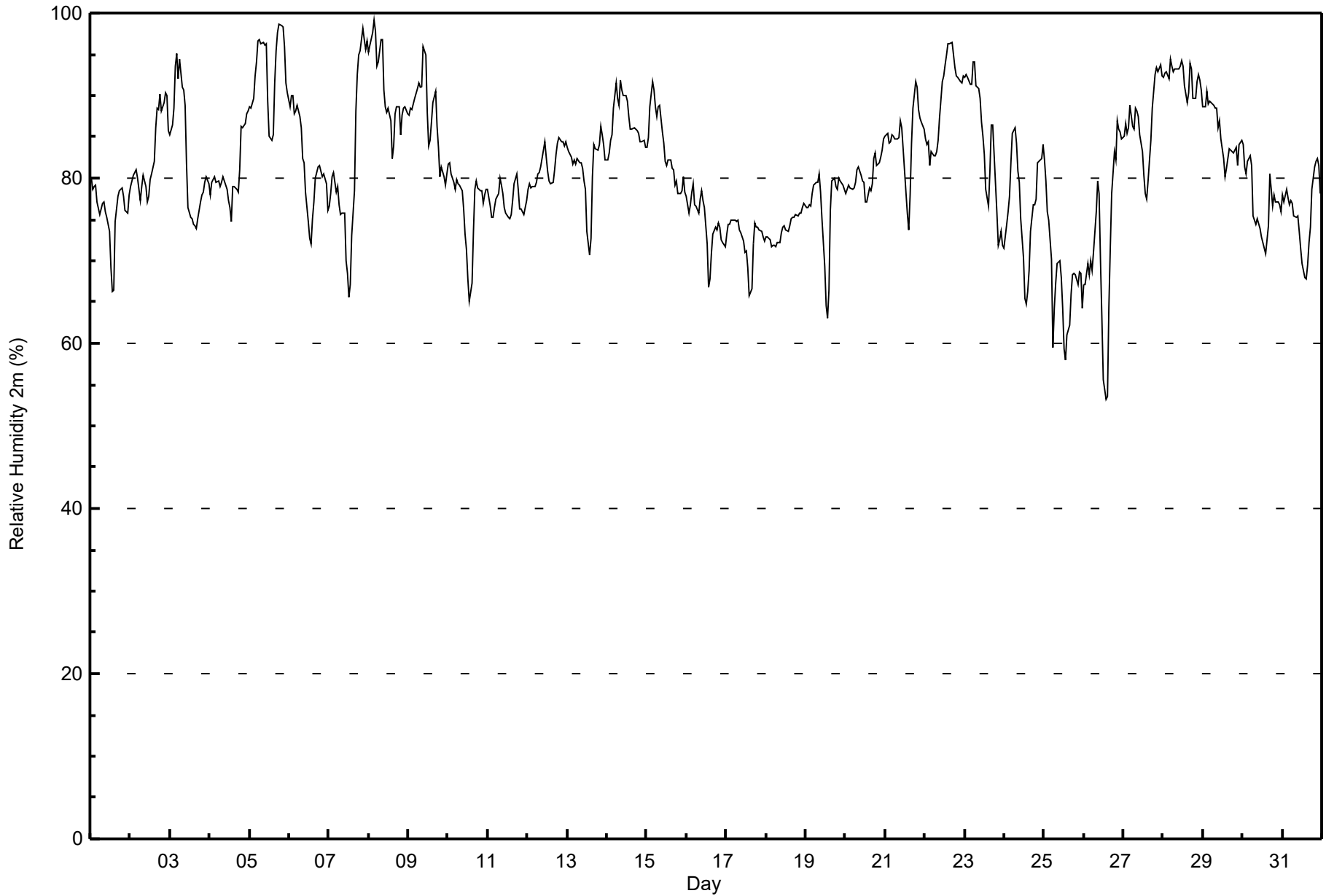
Relative Humidity 2m (RH2) - %
Monday Creek - December 2024

Maximum Value: 99.2 % on Dec 8 04:00																						Maximum Daily Average: 93.1 % on Dec 5																						Hours in Service: 744			
Minimum Value: 53.2 % on Dec 26 14:00																						Minimum Daily Average: 67.7 % on Dec 25																						Hours of Data: 744			
Maximum Diurnal Average: 83.0 % at hour 5																						Minimum Diurnal Average: 74.7 % at hour 14																						Hours of Missing Data: 0			
Monthly Average: 81.10 %																						Percentiles: P ₁ = 62.6 P ₁₀ = 71.8 Q ₁ = 76.1 Median = 80.2 Q ₃ = 86.6 P ₉₀ = 91.8 P ₉₉ = 97.3																						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-Dec	80.0	78.7	79.0	79.1	77.1	75.7	76.3	76.9	77.1	76.0	75.2	73.5	69.2	66.3	66.4	74.8	77.8	78.4	78.6	78.9	77.8	76.1	75.8	78.0	75.9	80.0																					
2-Dec	79.0	79.6	80.3	81.1	80.0	78.6	77.3	79.0	80.4	79.1	77.2	77.8	79.8	80.5	82.0	86.1	88.5	88.3	90.1	88.1	89.1	90.4	90.0	85.7	82.8	90.4																					
3-Dec	85.2	86.5	88.4	93.6	95.1	92.0	94.5	91.1	90.6	88.8	81.7	76.4	75.2	75.1	74.4	74.3	73.9	75.1	77.2	78.0	78.3	79.5	80.1	79.3	82.7	95.1																					
4-Dec	78.0	79.4	79.8	80.1	79.4	79.7	79.1	79.5	80.2	79.7	78.7	77.4	76.4	74.8	79.1	79.1	78.7	78.3	81.1	86.3	86.1	86.6	87.8	88.2	80.6	88.2																					
5-Dec	88.7	88.5	89.6	92.4	94.2	96.6	96.8	96.3	96.4	96.2	96.3	89.4	85.0	84.6	85.2	91.4	95.3	97.6	98.6	98.5	98.4	96.0	91.6	90.4	93.1	98.6																					
6-Dec	88.7	89.9	90.1	87.8	88.1	88.9	87.4	86.2	82.3	81.9	78.3	74.7	72.7	72.1	75.1	77.1	80.0	81.4	81.5	80.8	80.2	80.5	79.2	76.1	81.7	90.1																					
7-Dec	76.5	78.1	80.2	80.8	78.3	79.1	76.8	75.6	75.8	75.8	70.0	68.5	65.5	67.1	73.0	78.5	88.1	92.6	95.0	95.3	98.1	96.7	95.6	96.6	81.6	98.1																					
8-Dec	95.2	96.1	97.7	99.2	97.8	93.5	94.1	96.8	96.9	90.8	88.6	88.0	88.5	86.9	82.4	83.8	87.9	88.7	88.7	85.3	87.6	88.4	88.7	87.7	90.8	99.2																					
9-Dec	87.6	88.5	88.2	89.1	89.6	90.8	91.5	91.0	91.0	95.9	95.0	88.0	83.9	84.7	86.8	89.2	90.6	86.3	83.7	80.2	81.4	80.2	79.2	80.5	87.2	95.9																					
10-Dec	81.7	81.8	80.5	79.4	78.6	79.9	79.2	79.2	78.5	76.3	73.3	71.3	67.8	65.2	67.3	73.6	78.6	79.7	78.9	78.4	78.5	76.9	77.9	78.6	76.7	81.8																					
11-Dec	78.7	76.6	75.2	75.3	76.4	77.5	78.2	79.9	79.2	78.2	76.5	75.7	75.2	75.1	75.6	77.2	79.2	80.5	78.6	76.3	76.3	75.9	75.6	77.3	77.1	80.5																					
12-Dec	78.6	79.4	78.8	79.1	79.0	79.5	80.5	80.7	81.4	82.3	84.3	82.6	80.9	79.7	79.3	79.5	81.0	82.9	84.3	85.0	84.4	84.4	84.0	84.4	81.5	85.0																					
13-Dec	83.8	83.2	82.6	81.8	82.2	81.7	82.4	81.8	81.9	81.2	79.6	78.6	73.5	70.7	72.8	80.3	84.0	83.5	83.4	84.2	86.2	85.2	84.1	82.3	81.3	86.2																					
14-Dec	82.3	83.1	84.6	85.3	88.5	91.5	89.6	88.9	91.9	90.7	89.9	90.0	89.3	87.4	85.9	86.0	86.1	86.0	85.7	85.3	84.4	84.4	84.5	83.8	86.9	91.9																					
15-Dec	83.7	84.9	88.6	91.8	90.6	88.7	87.4	88.6	88.8	85.6	84.2	82.0	81.5	82.2	82.3	81.1	81.1	79.1	79.7	78.1	78.1	78.4	80.1	78.3	83.5	91.8																					
16-Dec	77.8	75.7	76.9	78.3	79.3	76.7	76.6	75.8	77.4	78.4	77.3	76.4	72.0	66.8	67.7	70.8	73.2	74.0	73.8	74.5	74.1	72.6	72.1	71.8	74.6	79.3																					
17-Dec	73.3	74.4	74.4	74.8	74.9	74.9	74.7	74.9	73.7	73.4	72.3	71.0	71.2	69.1	65.8	66.5	72.0	74.6	74.0	74.1	73.7	73.5	72.8	72.4	72.8	74.9																					
18-Dec	73.0	72.9	72.5	71.7	71.9	71.9	71.7	72.2	72.2	73.5	74.0	74.3	73.7	73.6	74.3	75.0	75.2	75.3	75.6	75.4	75.8	75.7	76.4	77.0	74.0	77.0																					
19-Dec	76.4	76.4	76.9	76.5	78.1	79.2	79.5	79.5	80.5	78.3	75.0	69.4	64.5	63.1	66.5	76.1	79.7	80.0	78.9	78.6	80.0	79.6	79.2	78.6	76.3	80.5																					
20-Dec	78.2	78.6	79.1	78.9	78.6	78.7	79.5	81.0	81.3	80.3	79.6	79.5	77.1	77.1	78.8	78.5	79.4	82.4	83.0	81.5	81.9	82.6	83.4	84.7	80.2	84.7																					
21-Dec	85.0	85.4	84.2	84.4	85.3	85.1	84.7	84.7	84.9	86.9	86.0	83.6	78.4	75.8	73.7	78.0	84.3	88.5	91.6	90.9	88.3	87.3	86.7	85.9	84.6	91.6																					
22-Dec	84.8	84.0	84.4	81.6	83.3	82.7	82.7	83.3	84.6	87.3	91.7	92.3	93.7	95.0	96.2	96.3	96.5	95.0	93.4	92.4	92.2	91.7	91.5	92.4	89.5	96.5																					
23-Dec	92.2	92.6	92.3	91.3	91.4	94.1	94.0	91.1	90.9	89.7	86.8	85.2	82.8	78.7	76.6	80.9	86.5	86.5	82.8	75.8	71.8	72.5	73.6	71.9	84.7	94.1																					
24-Dec	71.6	74.5	75.9	77.8	81.9	85.4	86.1	84.2	80.8	79.5	75.0	70.4	65.5	64.8	66.4	68.8	73.5	76.8	76.7	77.4	81.9	82.0	82.3	84.1	76.8	86.1																					
25-Dec	82.2	79.7	75.9	74.9	70.2	59.5	64.2	67.3	69.6	70.0	68.0	64.2	59.3	58.0	61.0	62.2	66.0	68.3	68.5	68.3	67.1	68.7	68.5	64.2	67.7	82.2																					
26-Dec	67.1	67.1	69.7	68.3	69.9	68.7	71.1	76.0	79.7	78.1	70.0	63.1	55.6	53.2	53.6	64.5	71.5	78.2	83.2	82.2	87.0	86.0	85.7	84.8	72.3	87.0																					
27-Dec	85.1	86.6	85.5	86.2	88.7	86.2	85.9	88.5	88.2	87.5	85.3	83.2	80.3	78.1	77.5	79.6	84.6	88.5	90.4	92.5	93.4	92.8	93.7	92.3	86.7	93.7																					
28-Dec	92.2	92.7	92.8	92.0	94.4	93.6	92.9	93.2	93.3	93.2	93.6	94.3	93.6	91.3	89.1	90.4	93.9	93.2	89.6	89.7	91.7	92.5	91.8	90.8	92.3	94.4																					
29-Dec	88.6	88.6	90.5	89.0	89.4	89.2	88.9	88.5	88.5	86.2	86.9	84.7	82.3	80.1	81.2	82.3	83.5	83.2	83.1	83.4	83.7	81.6	84.1	84.6	85.5	90.5																					
30-Dec	84.0	81.3	80.6	82.1	82.8	81.6	75.5	74.9	74.4	75.2	73.9	72.9	72.2	71.6	70.9	74.3	80.5	78.6	76.6	77.9	77.2	77.1	76.8	75.9	77.0	84.0																					
31-Dec	78.0	77.1	78.6	77.6	76.7	77.3	77.0	75.4	75.2	75.3	73.5	71.5	69.7	68.0	67.7	69.4	72.2	74.0	78.7	81.4	82.1	82.5	81.5	78.1	75.8	82.5																					
																						81.8	82.0	82.4	82.6	83.0	82.5	82.5	82.6	82.8	82.3	80.6	78.4	76.0	74.7	75.3	78.2	81.4	82.4	82.7	82.4	82.8	82.5	82.4	81.8	Diurnal Average	
																						95.2	96.1	97.7	99.2	97.8	96.6	96.8	96.8	96.9	96.2	96.3	94.3	93.7	95.0	96.2	96.3	96.5	97.6	98.6	98.5	98.4	96.7	95.6	96.6	Diurnal Maximum	



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Monday Creek - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Monday Creek - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	6	0.81	0.81
60 - 80	360	48.39	49.19
80 - 100	378	50.81	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Speed 10m (WS10) - km/h

Monday Creek - December 2024

Maximum Speed: 23 km/h on Dec 25 12:00	Maximum Daily Speed Average: 14.4 km/h on Dec 3	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 27 06:00	Minimum Daily Speed Average: 0.5 km/h on Dec 27	Hours of Data: 731
Maximum Diurnal Speed Average: 5.1 km/h at hour 13	Minimum Diurnal Speed Average: 2.3 km/h at hour 18	Hours of Missing Data: 13
Monthly Average Velocity: 3.4 km/h 261.3 deg	Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 5 Median = 8 Q ₃ = 11 P ₉₀ = 14 P ₉₉ = 20	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-Dec	N6	N5	N6	N5	NW7	NNW8	NNW6	NW5	NW6	NNW6	NE5	NE3	ENE3	NE4	NNW3	E6	SE7	SE5	SE5	SSE7	S8	SSW10	S9	NNE0.8	SSW10	
2-Dec	S9	SSE10	SSE9	S9	SSW9	SW11	SSW13	SSW11	SSW10	SSW10	SSW12	SSW13	SSW11	SSW12	SSW11	SSW10	SSW12	SSW12	SW12	SW14	UO	UO	UO	UO	SSW10.5	SW14
3-Dec	UO	UO	UO	UO	NNW16	NNW19	NW13	NW20	NNW20	N20	NW19	NW21	NW21	NNW17	NNW16	NNW16	NW16	NW14	NNW10	NW9	NW8	WNW8	WNW9	WNW7	NW14.4	NW21
4-Dec	NW7	WNW8	WNW7	WNW5	WNW3	WNW3	N1	SSE3	SSE5	SE7	SE5	SE6	S6	SSE8	S8	SSE9	S11	S15	S12	SSW13	SSW11	SSW11	SSW13	SSW13	SSW5.6	S15
5-Dec	SW13	SSW10	SW14	SW13	WSW14	WSW16	WSW13	WSW11	W11	WSW9	WSW9	WSW10	WSW8	WSW12	SW10	WSW8	SW6	SSW6	S5	SSE3	SW4	SSW8	WSW9	WSW10	WSW9.1	WSW16
6-Dec	W12	W11	SW11	WSW11	WSW12	W11	W13	WSW13	WSW13	SW15	WSW16	W19	WSW17	W19	W16	W16	W16	WSW13	WSW14	W16	W16	W15	W16	W15	WSW14.3	W19
7-Dec	W11	WNW9	W10	W15	W14	W15	W14	W9	WSW10	W8	W10	W10	WSW7	S4	SSW6	S3	SW7	S6	SSE4	E2	SSW4	ESE1	NE2	WNW1	W6.3	W15
8-Dec	W1	NNW4	NW5	NNW6	N8	N10	NNE16	NNE12	N7	NW10	NW9	NW10	NW11	NNW11	NNW14	N11	NNE11	NNE7	N10	NNW12	NNW10	NNW6	WNW5	WNW7	NNW7.9	NNE16
9-Dec	W5	W6	WNW9	W8	W8	WNW8	W9	W7	W6	W10	W10	WNW11	NW13	NNW12	NNW13	NNW13	NNW10	NNE18	NNE16	NNE14	NNE13	N10	NNW10	N7	NW7.3	NNE18
10-Dec	NNW7	NNW8	NNW7	NW9	NW7	WNW6	WNW6	WNW5	WNW3	WNW4	WNW7	WNW7	NW7	NNW6	NNE4	NW2	ESE1	SE2	SE4	SSE2	SE4	SE8	SE5	SE6	NW2.3	NW9
11-Dec	ESE7	SE7	SE7	SE8	SE7	SE9	ESE9	SE8	SE9	SE7	SE9	SE10	SE9	ESE10	ESE10	ESE8	ESE7	ESE8	SE8	SE8	SE6	SE8	SE8	SE8	SE7.9	ESE10
12-Dec	SE9	SSE7	SSE9	SSE9	SSE8	SE9	SSE10	SSE9	SSE9	S10	S14	S12	S13	S12	SSW14	SSW12	SSW13	SSW14	SSW13	SSW13	SSW12	SSW10	SSW10	SSW9	S10.2	SSW14
13-Dec	SSW10	SSW10	SSW9	SSW11	SSW10	SSW10	SSW9	SSW10	SSW10	SSW10	SSW9	SSW7	SSW7	SSW9	SSW9	SSW6	S6	S5	SSW6	SSW3	SSW3	SSE4	S4	SSE4	SSW7.4	SSW11
14-Dec	SE3	ESE5	SE5	ESE2	NE6	E6	E4	NE1	ENE10	ENE7	E6	ENE10	ENE12	ENE11	ENE12	ENE14	ENE16	ENE14	ENE10	ENE12	E10	E7	ENE7	NE4	ENE7.8	ENE16
15-Dec	NNW5	NNW5	WNW5	W5	WNW9	WNW7	N6	N7	NW10	NW12	NW12	NW11	NW10	NNW8	NNW11	NNW9	WNW14	WNW15	NW14	NNW11	NW9	WNW12	WNW14	NW9.0	WNW15	
16-Dec	WNW11	WNW12	WNW12	WNW12	WNW12	WNW12	WNW12	WNW9	W13	WNW15	WNW16	WNW17	WNW16	WNW17	WNW12	WNW12	WNW14	WNW15	WNW14	WNW15	WNW15	NW15	NW11	WNW13.2	WNW17	
17-Dec	WNW13	WNW13	W11	W10	W11	W9	W8	WNW11	WNW13	WNW14	WNW12	WNW14	WNW10	WNW8	WNW7	WNW6	WNW2	SSE1	SE1	SE1	S3	SSE2	ESE3	ESE3	WNW6.7	WNW14
18-Dec	SE3	SE3	ESE3	SE3	ESE2	E3	E3	ENE3	NNE1	NE1	NE2	NE4	NE3	NNE4	NNE5	NNE7	N6	N5	NNE6	N4	N4	NW4	WNW4	WSW3	NNE2.2	NNE7
19-Dec	SSE3	SE2	SSE3	SSE3	SSE3	SE1	NNE1	W1	SW1	WSW1	W4	W4	NW5	S3	S2	ENE5	ESE3	SE4	SE4	SSE5	SE6	SE5	SE7	SE9	SE2.1	SE9
20-Dec	SE7	ESE7	ESE6	SE8	SE9	SE10	SE8	SE8	SE9	SE10	S11	SSE12	SSW12	SSW14	SW13	SSW12	SW11	WSW13	SW12	SW12	SW10	SSW9	SSW5	SW4	S7.3	SSW14
21-Dec	SSW3	SSW5	SE2	ESE3	SSW5	SSW2	ESE5	UO	SSE2	WSW4	SSW3	SSE2	S5	SE2	NE2	SE1	ENE3	ENE3	E4	SE0	SE2	WNW1	ENE4	SSW2	SSE1.5	SSW5
22-Dec	E0	SE2	SE2	ENE2	ENE1	E2	ESE2	NNW1	E1	E2	ESE3	SSE4	SSE6	SSE4	SSW4	SSW4	S7	SSW6	S7	SW4	S5	SSW7	S7	SSW7	S2.9	S7
23-Dec	SSW5	SSE5	SE7	SE6	SSE4	S5	S8	SSW9	S7	SSW7	SW8	SW9	SW11	SW8	SSW8	SSW7	SSW7	SSW8	SW10	WSW15	W20	W21	WSW16	WSW18	SW7.8	W21
24-Dec	WSW19	W15	WSW10	SW12	SW5	S9	S6	SSE7	SSE6	SE7	SE10	SSE14	S17	S16	S13	S14	S10	S10	S10	SSW9	SSW8	S6	SSW5	SSW4	SSW8.2	WSW19
25-Dec	SSW7	SW10	SW7	SSW8	SW12	WSW19	SW18	SW15	SW16	WSW18	W22	W23	W21	WSW18	WSW18	SW13	SW10	SSW10	SW10	SSW8	SSW9	SSW8	SSW8	SSW7	SW12.1	W23
26-Dec	ESE6	ESE6	SE5	SE5	SSE4	SSW6	SSE6	S6	SSW5	S7	S5	SSW7	S4	S6	SSW3	ESE3	ESE4	SE5	SE3	ENE1	SSE3	NNW2	SW1	ENE1	SSE3.4	S7
27-Dec	E2	E1	E3	NE1	S6	SSW0	ENE2	SSW1	S2	NW2	NW3	SSE2	W5	ESE4	NE5	N4	NNW5	ENE4	SW1	UO	UO	NNW1	W1	UO	NE0.5	S6
28-Dec	SE2	NE1	SW2	SW1	W2	SSE1	WSW2	UO	W1	NNW2	WNW2	WNW6	WNW7	NW8	WNW8	WNW5	W6	W8	WNW10	WNW9	WNW5	W7	W9	WNW7	WNW4.3	WNW10
29-Dec	NW10	NW8	NW7	WNW7	WNW10	WNW10	WNW11	WNW12	WNW10	NW9	WNW11	WNW12	WNW10	WNW10	WNW10	NW9	NW7	NW9	NW10	NNW12	NNW9	NW6	NW6	NW7	NW8.9	WNW12
30-Dec	NNW9	NNW14	NW11	NW10	NW9	NW11	NW18	NW17	NW16	NW13	NW14	NW16	WNW18	NW18	NW19	NW17	NW9	NW11	NW13	NW12	NW13	NW12	NW14	NW10	NW13.4	NW19
31-Dec	NW12	NW13	NW9	NNW11	NNW11	NNW9	NW10	NW11	NW10	NW11	NNW15	NW15	NW14	NW12	NNW12	WNW14	NW10	NW8	WNW7	WNW6	WNW7	WNW7	WNW8	NW7	NW10.1	NNW15

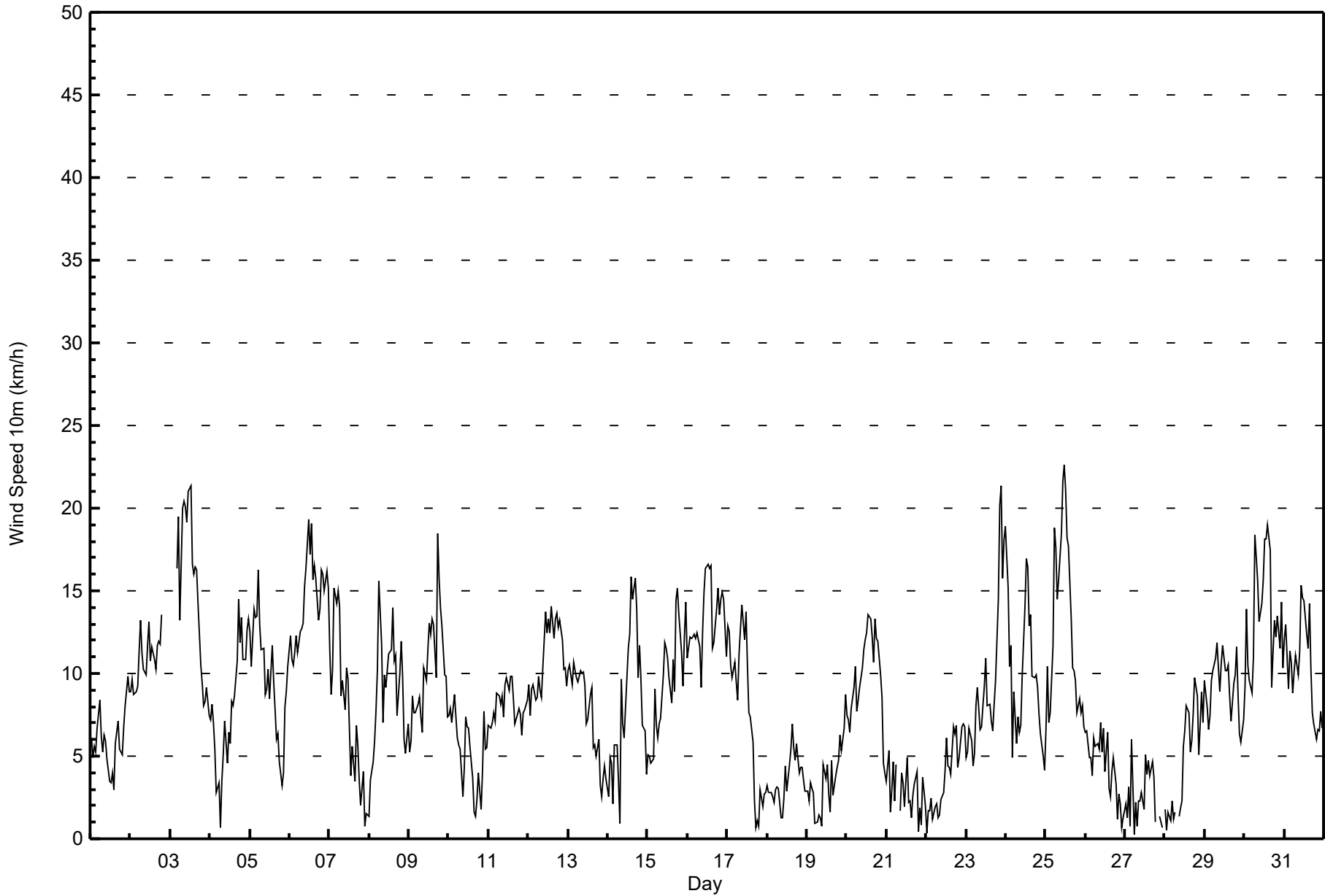
WSW2.8	W2.7	WSW2.6	WSW3.1	W3.8	W4.1	W3.2	W3.7	W3.1	W3.6	W4.7	W4.8	W5.1	W4.0	W3.8	W3.0	WSW2.3	WSW2.3	WSW2.7	W3.1	WSW3.1	WSW3.2	WSW3.5	WSW3.4	Diurnal Average	
WSW19	W15	SW14	W15	WNW16	WNW19	NW18	NW20	NNW20	N20	W22	W23	NW21	W19	NW19	NW17	NNW16	NNE18	NNE16	W16	W20	W21	W16	WSW18	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Monday Creek - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Monday Creek - December 2024**

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	209	28.59	28.59
6 - 11	340	46.51	75.10
12 - 19	172	23.53	98.63
20 - 28	10	1.37	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 731

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Monday Creek - December 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	13	12	11	17	32	24	14	19	9	4	10	16	6	9	209
6 - 11	12	4	1	5	5	12	38	17	26	55	15	13	26	44	44	23	340
12 - 19	0	6	0	7	0	0	0	2	10	18	15	21	18	35	27	13	172
20 - 28	1	0	0	0	0	0	0	0	0	0	0	0	5	0	3	1	10
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	20	16	14	24	16	29	70	43	50	92	39	38	59	95	80	46	731

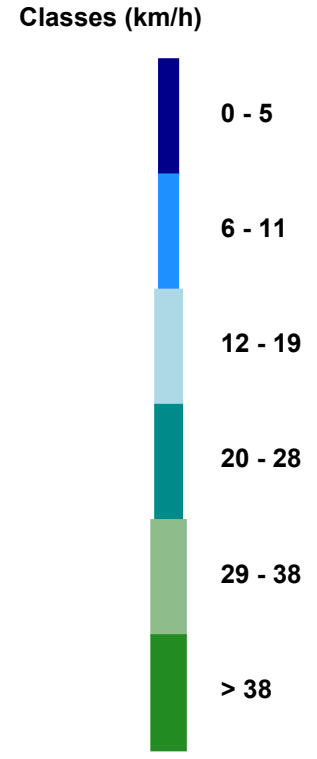
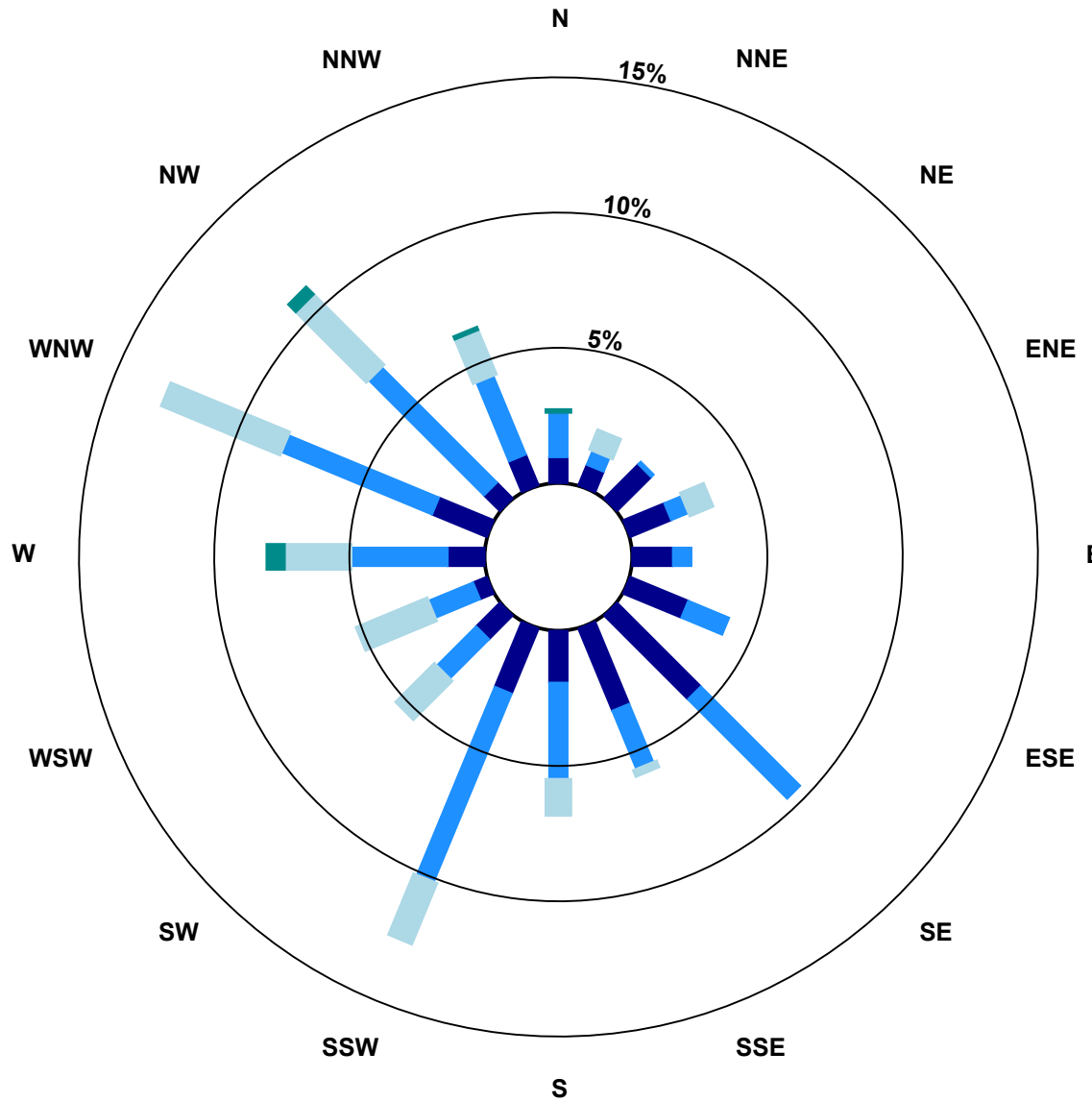
Total Number of Valid Hours: 731

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Monday Creek



Total Number of Valid Hours: 731



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Monday Creek - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 25 13:00 Minimum Value: 1 km/h on Dec 21 10:00 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: 731 Hours of Missing Data: 13 Hours of Calibration: 0 Percent Operational Time: 98.3							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	1	1	2	2	1	1	1	1	1	1	1	1	2	1	1	2	1	2	2	3	3		3
2-Dec	3	2	2	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	UO	UO	UO	UO	4
3-Dec	UO	UO	UO	UO	4	4	4	6	6	5	5	5	4	4	4	4	5	4	3	2	2	2	1	2	6
4-Dec	2	2	1	2	2	1	1	1	1	2	1	1	1	3	2	2	4	4	4	4	3	3	3	4	4
5-Dec	3	2	3	3	3	4	3	3	3	2	2	2	4	3	2	2	2	2	2	1	2	2	3	4	4
6-Dec	3	3	2	3	3	4	3	3	4	4	4	5	5	4	4	3	3	3	4	3	3	3	3	3	5
7-Dec	2	2	3	3	3	3	3	2	2	2	2	2	3	1	2	3	2	2	1	3	2	2	2	1	3
8-Dec	2	1	1	2	2	3	3	3	2	3	2	2	3	3	4	3	2	1	3	3	2	1	1	2	4
9-Dec	1	1	2	2	1	2	2	1	1	3	2	3	4	3	4	3	4	4	4	4	4	3	2	1	4
10-Dec	1	2	2	2	2	2	1	1	2	2	1	1	2	2	2	1	2	1	1	1	1	1	1	2	2
11-Dec	2	1	1	2	2	2	1	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	2	2	2
12-Dec	2	2	2	2	2	2	3	3	2	3	4	4	4	4	4	3	3	4	3	4	3	3	3	2	4
13-Dec	2	3	3	3	3	3	2	2	3	2	3	2	2	2	2	1	2	1	2	1	2	1	1	3	3
14-Dec	2	2	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	2	3	3	4	4	1	1	4
15-Dec	1	2	1	1	2	2	1	1	2	3	3	3	3	2	2	2	4	3	3	2	2	2	3	4	4
16-Dec	3	3	4	3	3	2	2	3	3	3	3	3	3	3	3	3	2	2	3	3	3	4	3	3	4
17-Dec	3	2	2	2	2	2	2	3	3	3	3	3	2	2	1	1	2	1	1	1	2	1	1	1	3
18-Dec	1	1	1	1	2	1	1	1	1	1	1	2	1	1	1	2	1	1	2	1	1	1	1	1	2
19-Dec	1	1	1	2	1	2	2	1	1	1	2	1	2	2	1	2	1	2	2	1	2	1	2	1	2
20-Dec	1	2	2	2	2	2	2	2	2	2	3	3	4	4	3	3	4	3	3	3	2	2	2	1	4
21-Dec	1	2	2	1	1	2	1	UO	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2
22-Dec	1	1	1	1	1	2	2	1	1	2	1	1	1	2	1	2	2	2	2	2	2	1	1	2	2
23-Dec	1	1	1	1	1	1	3	2	2	1	3	2	2	2	2	2	2	2	2	4	5	5	4	4	5
24-Dec	5	4	2	2	3	2	1	2	2	3	2	4	5	5	4	5	4	3	3	3	2	2	2	1	5
25-Dec	2	3	2	3	3	4	4	3	3	4	5	4	6	5	4	3	2	2	2	2	2	2	2	2	6
26-Dec	1	1	1	2	2	2	1	1	2	2	2	2	1	2	2	1	1	1	2	2	2	2	1	1	2
27-Dec	2	1	1	1	3	2	2	2	1	1	2	3	2	1	1	1	1	1	1	UO	UO	2	2	UO	3
28-Dec	2	1	2	1	1	1	2	UO	1	1	1	1	1	2	1	1	1	2	2	2	1	1	1	2	2
29-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2
30-Dec	2	3	3	3	2	4	5	4	4	4	4	5	5	5	5	4	2	4	4	3	3	3	3	3	5
31-Dec	3	3	3	3	3	2	3	3	3	3	4	4	3	3	3	4	2	2	1	1	1	1	1	1	4
Diurnal Maximum																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Monday Creek - December 2024

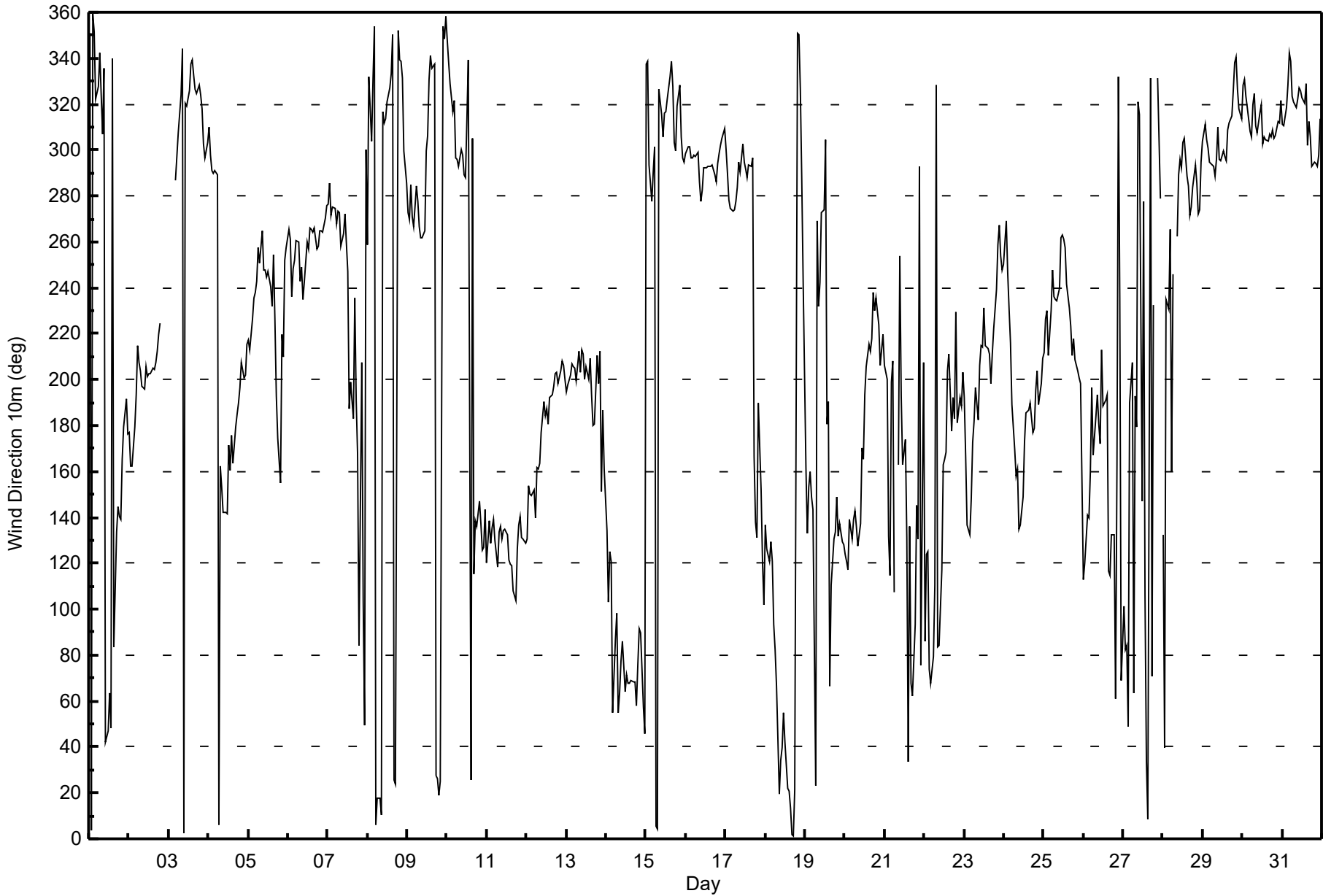
Direction of Maximum Speed: 263 deg on Dec 25 12:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 323.3 deg on Dec 3	Hours of Data: 731
Direction of Minimum Speed: 207 deg on Dec 27 06:00	Hours of Missing Data: 13
Direction of Minimum Daily Speed Average: 0.5 deg on Dec 27	Percent Operational Time: 98.3
Monthly Average Direction: 261.3 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-Dec	351	3	359	352	322	328	343	324	307	336	42	47	63	48	340	84	134	145	141	139	165	180	192	177	29.3
2-Dec	177	163	163	179	194	215	208	204	197	196	206	201	202	203	205	204	208	212	220	225	UO	UO	UO	UO	200.8
3-Dec	UO	UO	UO	UO	287	297	308	324	344	3	321	319	326	338	339	333	326	324	328	324	318	303	296	303	323.3
4-Dec	310	297	291	290	291	289	6	162	153	142	142	142	171	160	176	164	179	185	190	197	207	201	202	216	196.2
5-Dec	217	213	227	235	238	243	258	251	265	248	248	245	247	241	232	254	226	193	174	155	219	210	252	258	236.9
6-Dec	265	261	236	248	252	260	260	243	249	235	243	260	257	266	265	264	266	257	258	265	265	264	270	276	258.4
7-Dec	277	286	272	275	275	268	274	273	258	264	272	259	247	188	199	183	236	191	167	84	208	104	49	300	259.7
8-Dec	259	332	304	331	354	6	18	18	10	317	312	314	321	327	333	350	26	24	352	339	338	331	299	286	342.2
9-Dec	273	270	285	271	267	284	278	266	261	262	265	299	306	331	341	336	337	28	26	19	25	354	348	358	324.1
10-Dec	348	338	329	317	321	297	296	293	300	298	289	288	313	339	26	305	116	139	136	147	137	126	127	143	317.1
11-Dec	120	139	129	136	139	130	118	134	136	130	134	135	132	122	119	119	108	104	126	137	141	131	131	129	128.2
12-Dec	130	154	150	149	152	140	162	161	164	177	191	184	187	180	192	193	197	202	203	198	204	208	206	200	182.0
13-Dec	195	198	202	207	206	205	200	212	203	213	211	200	206	200	209	194	180	181	210	199	212	151	187	161	200.8
14-Dec	134	103	125	121	55	87	98	55	63	77	86	64	71	68	68	69	68	68	58	76	91	90	57	46	73.8
15-Dec	337	338	294	278	290	301	6	4	326	315	305	316	317	322	332	338	328	303	299	319	328	306	296	294	315.0
16-Dec	298	301	301	297	297	298	297	299	286	278	282	292	292	293	293	293	293	289	286	294	298	302	305	309	294.6
17-Dec	300	290	278	275	274	274	278	284	295	290	303	295	291	288	293	293	297	166	138	131	190	152	121	102	286.1
18-Dec	137	126	121	129	121	94	82	67	20	34	40	55	42	22	21	14	2	2	21	351	350	326	288	243	29.6
19-Dec	162	133	153	160	149	144	23	269	232	242	273	274	305	181	190	66	110	130	133	149	132	137	129	128	145.7
20-Dec	124	121	117	139	131	139	143	136	128	138	170	166	193	205	215	213	218	238	230	236	224	206	213	220	182.9
21-Dec	206	200	132	115	199	208	107	UO	163	254	193	163	174	131	34	136	68	62	93	145	131	293	76	207	152.7
22-Dec	86	124	125	74	68	80	110	328	84	84	117	163	165	168	204	211	178	192	183	229	181	193	188	203	175.2
23-Dec	192	166	137	132	148	173	182	196	182	206	215	214	231	215	213	211	199	211	222	239	259	267	254	248	221.0
24-Dec	250	269	247	231	216	189	170	158	161	135	137	149	173	185	186	187	190	177	179	195	204	189	199	209	193.0
25-Dec	212	227	230	211	230	247	236	235	234	240	262	263	261	257	242	232	223	210	218	209	204	201	198	156	235.4
26-Dec	113	120	141	140	160	196	167	184	193	181	172	213	188	191	194	116	115	132	132	61	163	332	235	69	162.4
27-Dec	101	82	84	49	190	207	63	193	180	321	316	147	278	106	34	8	331	71	232	UO	UO	331	279	UO	39.5
28-Dec	133	40	235	230	265	160	246	UO	262	289	296	292	303	305	289	285	271	275	284	294	286	272	274	295	283.4
29-Dec	304	311	305	301	295	294	293	289	296	310	296	295	299	297	296	309	312	315	326	338	341	326	318	313	306.3
30-Dec	328	331	323	319	308	306	320	325	310	308	316	320	303	306	305	304	307	306	309	305	306	313	312	322	312.5
31-Dec	311	311	319	328	343	338	323	321	319	322	327	326	323	320	329	302	312	306	293	294	294	293	298	314	317.2

258.0 264.6 250.3 251.2 259.0 261.9 268.9 267.7 263.5 263.2 264.3 266.8 267.1 264.3 271.3 274.7 255.7 243.1 249.3 262.9 257.4 253.7 256.5 254.4

Diurnal Average

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





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Monday Creek - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 97 deg on Dec 27 08:00																			Hours of Data: 731						
Minimum Value: 8 deg on Dec 1 17:00																			Hours of Missing Data: 13						
Percentiles: P ₁ = 9 P ₁₀ = 12 Q ₁ = 15 Median = 18 Q ₃ = 23 P ₉₀ = 45 P ₉₉ = 84																			Hours of Calibration: 0						
																			Percent Operational Time: 98.3						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	17	19	16	21	24	17	15	25	23	19	27	32	31	24	64	22	8	13	13	16	19	22	19	19	64
2-Dec	19	18	21	21	22	17	16	17	17	18	19	17	19	18	17	16	16	16	15	14	UO	UO	UO	UO	22
3-Dec	UO	UO	UO	UO	10	13	18	17	20	25	18	16	15	17	16	15	17	17	15	12	19	17	11	19	25
4-Dec	21	15	10	14	32	34	86	19	21	17	20	20	23	19	20	18	21	19	20	18	18	17	16	16	86
5-Dec	15	17	16	14	14	13	15	14	12	15	13	14	23	15	17	15	30	17	24	24	35	20	14	16	35
6-Dec	12	12	12	14	19	15	13	15	17	14	14	14	16	12	11	11	10	13	14	11	11	10	11	10	19
7-Dec	12	15	11	10	10	9	10	14	11	9	10	12	24	30	27	54	18	17	44	76	30	82	69	59	82
8-Dec	67	30	21	28	23	18	14	17	23	16	19	18	18	18	18	20	12	15	20	15	15	16	23	17	67
9-Dec	13	13	19	20	15	11	14	17	14	16	15	18	17	18	18	16	18	13	13	14	13	18	16	15	20
10-Dec	14	14	18	14	15	18	17	11	36	25	10	15	31	36	37	49	86	41	26	47	10	11	16	26	86
11-Dec	17	13	16	13	18	13	18	14	12	16	15	16	17	14	16	13	13	11	13	12	13	11	13	12	18
12-Dec	14	20	18	16	17	13	19	21	18	20	18	19	20	18	19	19	17	16	17	17	17	19	17	17	21
13-Dec	16	16	18	19	20	20	18	17	20	14	18	20	16	19	14	17	20	20	20	20	49	18	26	33	49
14-Dec	36	24	21	46	21	15	21	74	9	17	24	10	10	11	9	11	11	10	16	12	28	29	15	29	74
15-Dec	23	24	36	21	17	22	18	17	25	19	18	17	17	17	17	15	14	17	13	19	15	19	13	13	36
16-Dec	17	15	17	14	13	13	12	15	16	12	11	15	12	13	11	9	9	10	11	11	14	16	16	17	17
17-Dec	15	10	13	10	9	12	11	10	14	13	20	14	15	15	15	20	48	74	61	81	65	40	31	29	81
18-Dec	34	39	40	37	56	21	25	20	59	73	70	20	37	23	21	17	18	27	21	18	12	22	33	43	73
19-Dec	24	28	23	22	22	79	83	53	29	78	27	31	30	46	56	10	21	25	21	13	11	12	16	12	83
20-Dec	16	16	23	14	13	13	17	17	15	17	21	23	22	22	16	15	17	16	16	16	15	13	40	25	40
21-Dec	43	24	71	32	22	57	16	UO	38	10	22	73	24	52	54	66	57	40	25	84	62	74	23	57	84
22-Dec	66	43	55	47	52	44	45	64	62	45	28	26	17	27	26	36	18	17	18	24	27	15	17	20	66
23-Dec	19	17	12	10	16	18	19	18	18	17	23	15	15	17	16	22	22	19	18	16	15	11	17	15	23
24-Dec	15	12	16	13	47	18	34	17	23	24	12	18	21	21	21	37	39	30	25	22	18	21	35	36	47
25-Dec	17	14	20	22	24	15	13	15	13	14	14	11	14	15	14	16	14	16	14	13	19	16	19	29	29
26-Dec	17	18	19	31	46	29	20	19	25	23	24	20	32	24	68	25	22	29	40	78	54	36	88	65	88
27-Dec	54	45	33	73	24	85	66	97	66	54	70	87	36	47	19	35	22	22	65	UO	UO	25	84	UO	97
28-Dec	45	73	67	63	17	51	72	UO	78	55	46	20	23	19	13	13	10	10	11	10	20	9	12	22	78
29-Dec	18	20	20	20	12	12	12	10	13	20	15	12	16	16	14	19	21	18	14	17	14	14	23	20	23
30-Dec	15	14	15	17	18	18	16	16	17	18	17	18	17	17	16	15	17	17	17	17	17	18	18	18	18
31-Dec	19	18	20	16	15	13	16	16	17	17	15	16	20	21	17	16	18	20	9	13	12	10	16	19	21
67 73 71 73 56 85 86 97 78 78 70 87 37 52 68 66 86 74 65 84 65 82 88 65																									
Diurnal Maximum																									
UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS506 JACKFISH 1 DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)
 DECEMBER 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	708	35	36	99.87	10.7	0	4	0
H2S (ppb) Average	707	36	37	99.87	2	0	0.4	0
NO2 (ppb) Average	707	36	37	99.87	17.6	0	7.4	-
NO (ppb) Average	707	36	37	99.87	11.7	-	3.2	-
NOX (ppb) Average	707	36	37	99.87	29.3	-	10.1	-
Temperature 2 m (C) Average	743	0	1	99.87	4.4	-	2.4	-
Relative Humidity (%) Average	743	0	1	99.87	97.3	-	93.9	-
Wind Speed 10 m (km/h) Average	733	0	11	98.52	20	-	13	-
Wind Direction 10 m (deg) Average	733	0	11	98.52	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)
 DECEMBER 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	0.71	1.1	-	0	0.1	0.2	0.3	0.8	1.6	10.7
H2S (ppb) Average	707	0.17	0.1	-	0	0.1	0.1	0.1	0.2	0.3	2
NO2 (ppb) Average	707	3.84	2.7	-	0	0.9	1.8	3.3	5.5	7.4	17.6
NO (ppb) Average	707	0.7	1.2	-	0	0	0	0.2	0.8	2	11.7
NOX (ppb) Average	707	4.54	3.6	-	0	1	1.9	3.7	6.1	9.3	29.3
Temperature 2 m (C) Average	743	-10.96	7.8	-	-31.4	-21.8	-16.8	-9.4	-5	-1.5	4.4
Relative Humidity (%) Average	743	84.13	6.5	-	60.9	76.2	79.5	83.3	89.5	92.8	97.3
Wind Speed 10 m (km/h) Average	733	5.6	3	-	0	2	4	5	7	9	20
Wind Direction 10 m (deg) Average	733	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - JACKFISH 1 (AMS506)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	20 Dec 2024 15:00	20 Dec 2024 15:00	1	DAS Failure - data not recorded
Wind Speed, Wind Direction	02 Dec 2024 19:00	03 Dec 2024 04:00	10	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

Jackfish 1 - December 2024

Number of Exceedences (AAAQO):	1-hr: 0	24-hr: 0	Hours in Service:	744
Maximum Value: 10.7 ppb on Dec 30 16:00	Maximum Daily Average: 4.0 ppb on Dec 30		Hours of Data:	708
Minimum Value: 0.0 ppb on Dec 5 03:00	Minimum Daily Average: 0.1 ppb on Dec 5		Hours of Missing Data:	36
Maximum Diurnal Average: 1.2 ppb at hour 14	Minimum Diurnal Average: 0.4 ppb at hour 4		Hours of Calibration:	35
Monthly Average: 0.71 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.3 Q ₃ = 0.8 P ₉₀ = 1.6 P ₉₉ = 5.4		Percent Operational Time:	99.9

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	Z	0.4	0.3	0.9	1.1	0.7	0.6	0.8	1.1	1.4	1.6	1.9	3.3	3.1	1.3	0.7	0.2	0.3	0.3	0.3	1.0	1.1	0.7	0.6	1.0	3.3
2-Dec	0.7	Z	0.3	0.2	0.3	0.3	0.5	0.6	0.6	0.7	0.8	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.4	0.3	0.5	0.4	0.4	0.4	0.6	0.9
3-Dec	0.4	1.0	Z	0.5	0.2	2.5	3.8	2.7	0.3	0.1	0.2	0.1	0.1	C	C	C	C	0.2	0.0	0.2	0.3	1.0	3.4	3.8	1.1	3.8
4-Dec	1.8	1.0	0.9	Z	1.6	1.5	2.0	1.9	2.4	1.9	1.5	1.2	0.9	0.8	0.5	0.4	0.3	0.3	0.2	0.0	0.1	0.1	0.0	0.1	0.9	2.4
5-Dec	0.3	0.3	0.0	0.1	Z	0.0	0.1	0.1	0.0	0.2	0.2	0.2	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.3
6-Dec	0.2	0.5	0.1	0.1	0.2	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.2	0.3	0.1	0.2	0.7	1.1	1.4	0.5	0.3	1.4
7-Dec	Z	0.3	1.2	0.5	0.5	1.1	1.1	1.3	2.2	1.8	1.5	0.4	0.1	0.1	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.6	2.2
8-Dec	0.1	Z	0.4	1.5	0.8	0.2	0.0	0.0	0.0	0.8	2.7	3.9	4.0	2.4	0.7	0.3	0.9	1.7	1.2	0.4	0.2	0.2	0.6	0.4	1.0	4.0
9-Dec	0.2	0.2	Z	0.2	0.4	0.3	0.1	0.2	0.2	0.5	0.5	0.2	3.2	3.9	0.4	0.2	0.1	0.2	0.1	0.1	0.3	0.7	2.5	3.3	0.8	3.9
10-Dec	2.9	1.5	0.8	Z	0.6	1.6	2.4	1.6	1.5	1.0	1.8	1.6	3.4	3.6	2.2	1.3	1.0	0.8	0.7	0.9	1.1	0.9	0.9	1.0	1.5	3.6
11-Dec	1.0	0.8	0.8	0.7	Z	0.9	0.8	1.1	0.7	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.1	0.1	0.1	0.2	0.3	0.5	1.1
12-Dec	0.3	0.3	0.3	0.3	0.4	Z	0.4	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.4
13-Dec	Z	0.4	0.3	0.3	0.3	0.5	0.5	0.4	0.7	0.6	0.5	0.7	0.7	0.6	0.4	0.4	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.7
14-Dec	0.3	Z	0.3	0.2	0.3	0.2	0.1	0.1	0.3	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.3
15-Dec	0.1	0.0	Z	0.3	1.4	1.8	0.2	0.1	0.0	0.9	1.7	1.5	1.4	1.0	1.3	1.4	0.8	3.0	2.0	2.1	0.5	0.5	0.4	0.5	1.0	3.0
16-Dec	1.6	1.0	0.7	Z	0.3	1.1	0.4	0.1	0.1	0.3	0.3	0.1	0.2	0.3	0.2	0.2	0.0	0.1	0.1	1.2	2.4	2.8	4.4	4.6	1.0	4.6
17-Dec	3.3	1.5	0.2	0.1	Z	0.0	0.0	0.0	1.9	0.6	1.0	1.0	0.2	1.1	0.5	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.0	0.5	3.3
18-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.5	0.6	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.1	0.2	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.6
19-Dec	Z	0.4	0.4	0.3	0.2	0.1	0.1	0.2	0.2	0.3	0.3	1.0	1.1	3.4	1.6	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.5	0.5	3.4
20-Dec	0.4	Z	0.6	0.6	0.8	0.9	0.5	0.4	0.7	0.3	0.3	0.3	0.3	0.3	DF	0.2	0.2	0.4	0.4	0.4	0.5	0.7	0.6	0.5	0.5	0.9
21-Dec	0.6	0.4	Z	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.5	0.4	0.5	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.6
22-Dec	0.3	0.3	0.2	Z	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.7	1.0	0.7	0.8	0.8	0.5	0.5	0.2	0.2	0.5	0.3	0.4	1.0
23-Dec	0.4	0.7	0.4	0.3	Z	0.2	0.1	0.0	0.1	0.2	0.2	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.7
24-Dec	0.0	0.4	0.2	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.3	0.3	0.4	0.3	0.2	0.3	0.5	0.3	0.3	0.2	0.3	0.2	0.3	0.2	0.3	0.5
25-Dec	Z	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.8	0.8	0.4	0.2	0.2	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.2	0.2	0.2	0.8
26-Dec	0.1	Z	0.6	0.4	0.4	0.4	0.2	0.2	0.3	0.3	0.7	0.9	0.7	0.5	0.3	0.3	0.4	0.2	0.1	0.2	0.3	0.5	0.6	0.7	0.4	0.9
27-Dec	0.5	0.6	Z	0.9	0.6	0.6	0.4	0.7	0.5	0.7	1.1	1.0	1.1	1.4	2.0	1.7	0.9	1.0	0.5	0.4	0.2	0.1	0.2	0.2	0.8	2.0
28-Dec	0.2	0.2	0.1	Z	0.1	0.0	0.1	0.2	0.0	0.1	0.0	0.6	2.6	1.5	1.0	0.6	0.3	0.8	0.7	0.3	0.2	0.0	0.2	0.0	0.4	2.6
29-Dec	0.3	1.2	1.2	1.4	Z	0.6	0.2	0.3	0.7	0.7	1.6	1.5	1.0	1.6	0.6	0.9	1.1	0.3	0.1	0.1	0.3	0.6	0.4	0.8	0.8	1.6
30-Dec	0.2	0.0	0.1	0.0	1.4	Z	3.7	0.7	3.1	6.3	5.4	5.1	4.9	7.1	7.6	10.7	3.4	3.6	4.4	5.6	4.9	4.1	7.3	2.8	4.0	10.7
31-Dec	Z	2.6	2.5	0.8	0.4	0.4	0.8	0.9	1.2	0.6	1.9	5.4	0.7	0.5	0.4	0.6	2.7	3.8	3.2	1.4	0.6	0.4	0.8	1.5	1.5	5.4

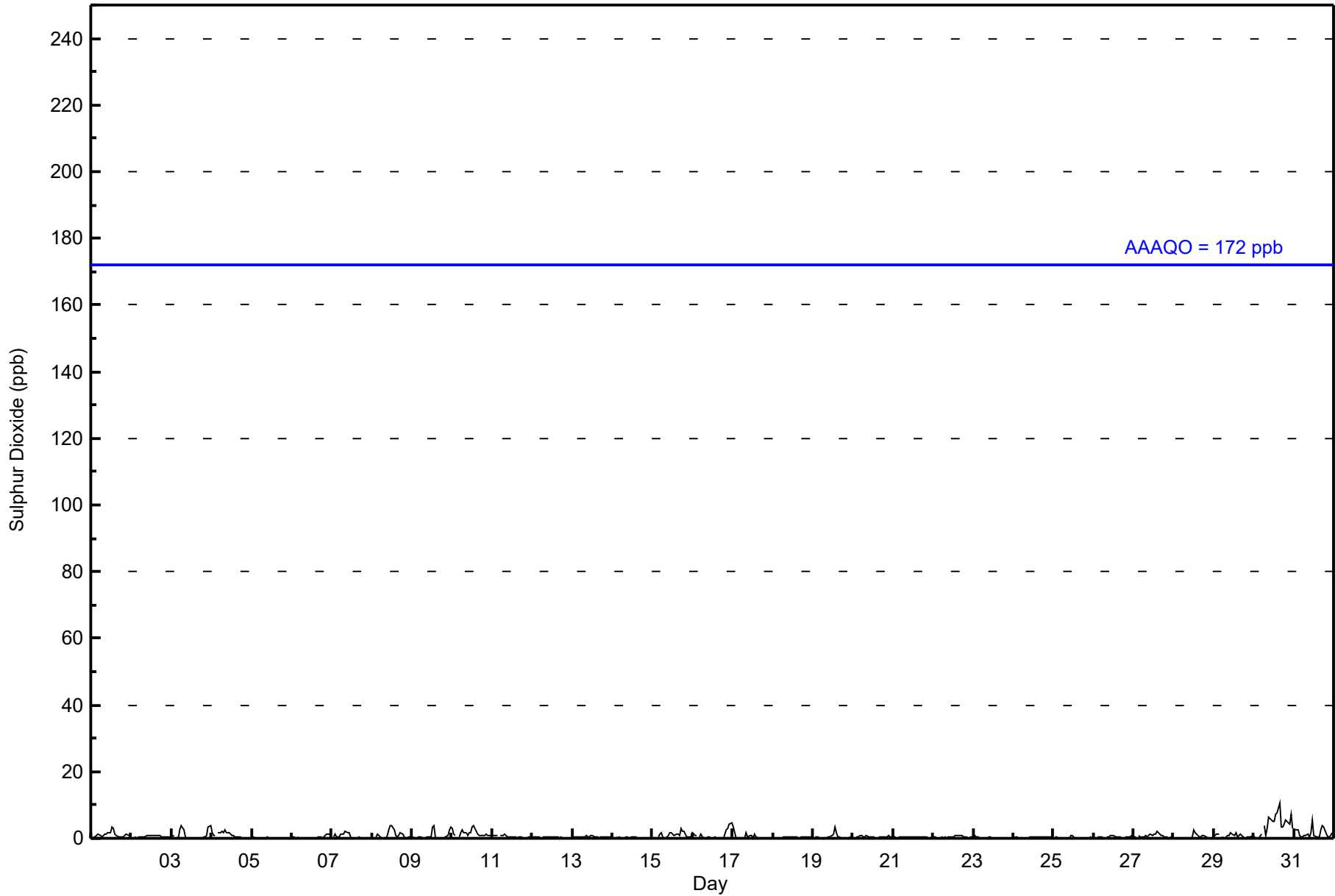
0.7	0.6	0.5	0.4	0.5	0.6	0.7	0.5	0.6	0.7	0.9	1.1	1.1	1.2	0.9	0.8	0.6	0.7	0.6	0.5	0.5	0.5	0.9	0.8	Diurnal Average	
3.3	2.6	2.5	1.5	1.6	2.5	3.8	2.7	3.1	6.3	5.4	5.4	4.9	7.1	7.6	10.7	3.4	3.8	4.4	5.6	4.9	4.1	7.3	4.6	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Jackfish 1 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Jackfish 1 - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	707	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: 708

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Jackfish 1 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	7	4	4	13	4	9	39	76	159	84	28	6	36	102	91	36	698
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	7	4	4	13	4	9	39	76	159	84	28	6	36	103	91	36	699

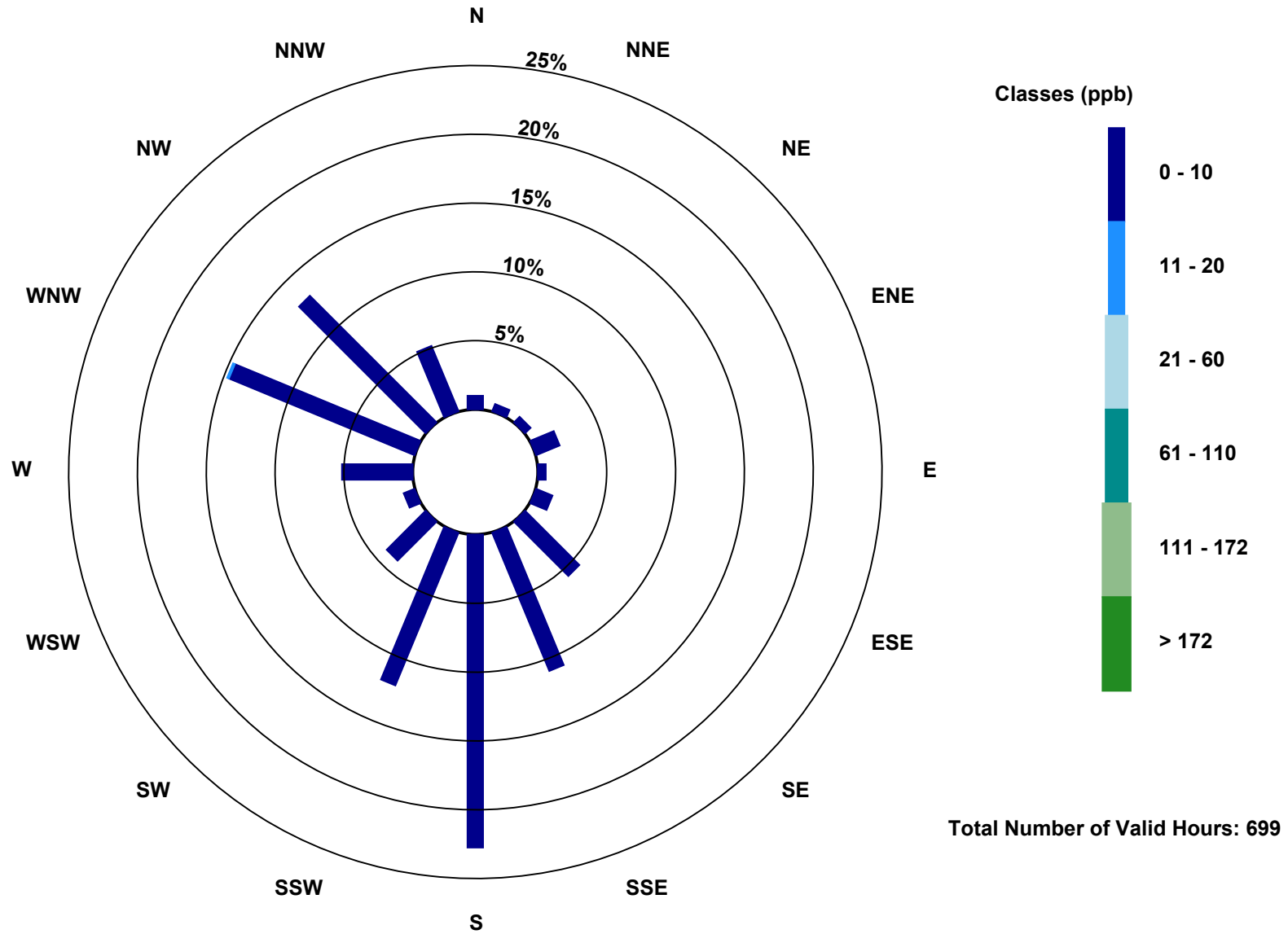
Total Number of Valid Hours: 699

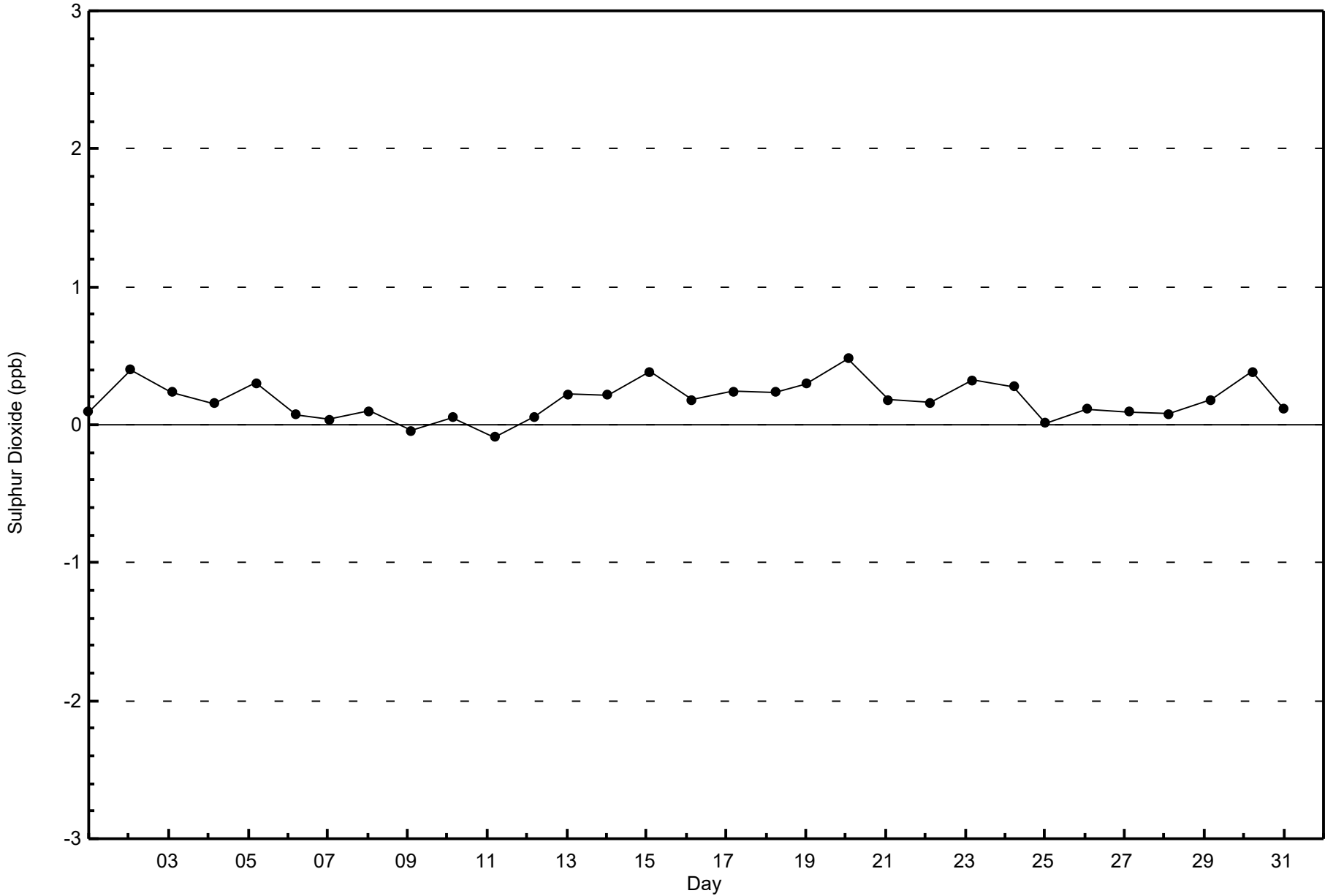
Total Number of Hours: 744

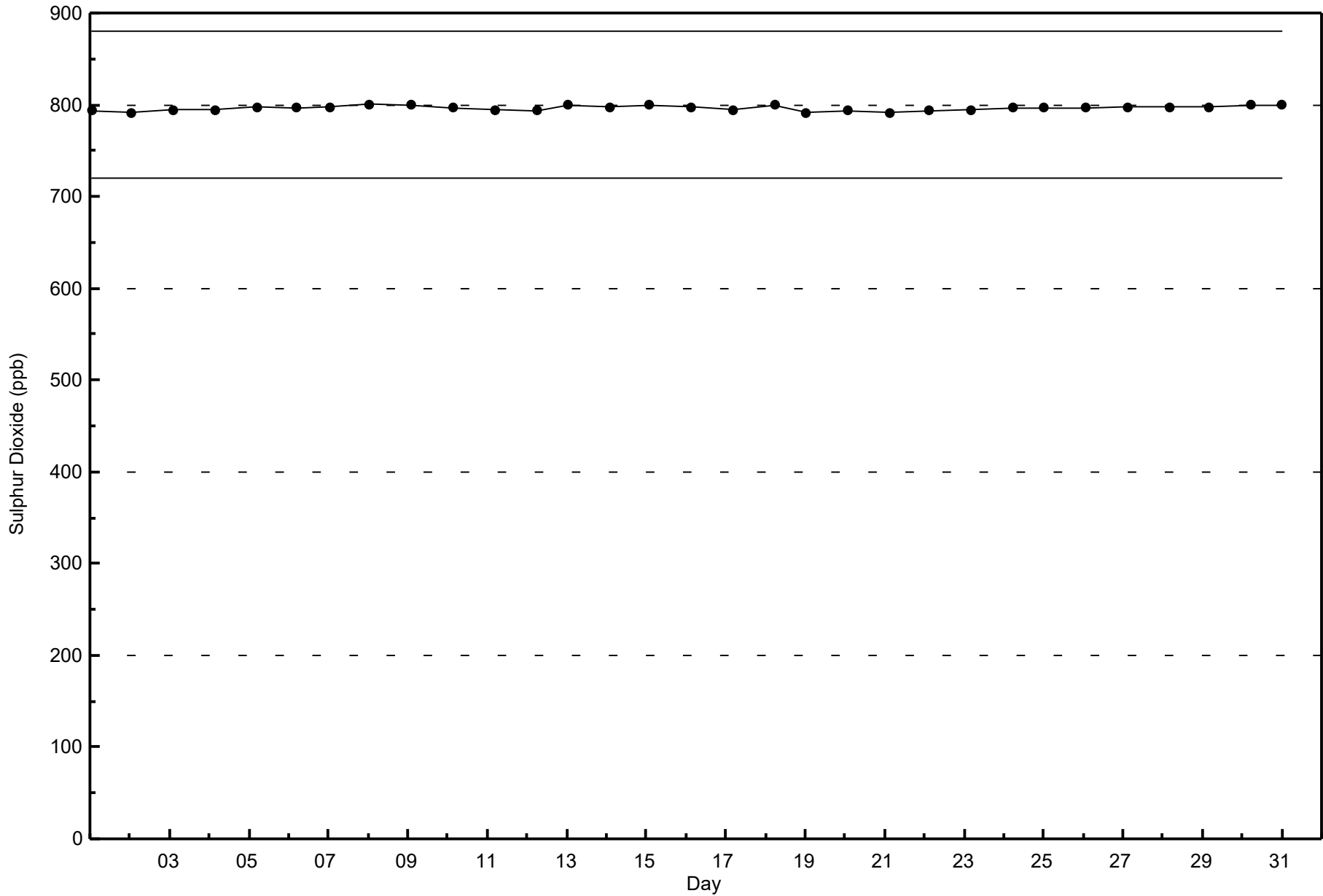


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Jackfish 1









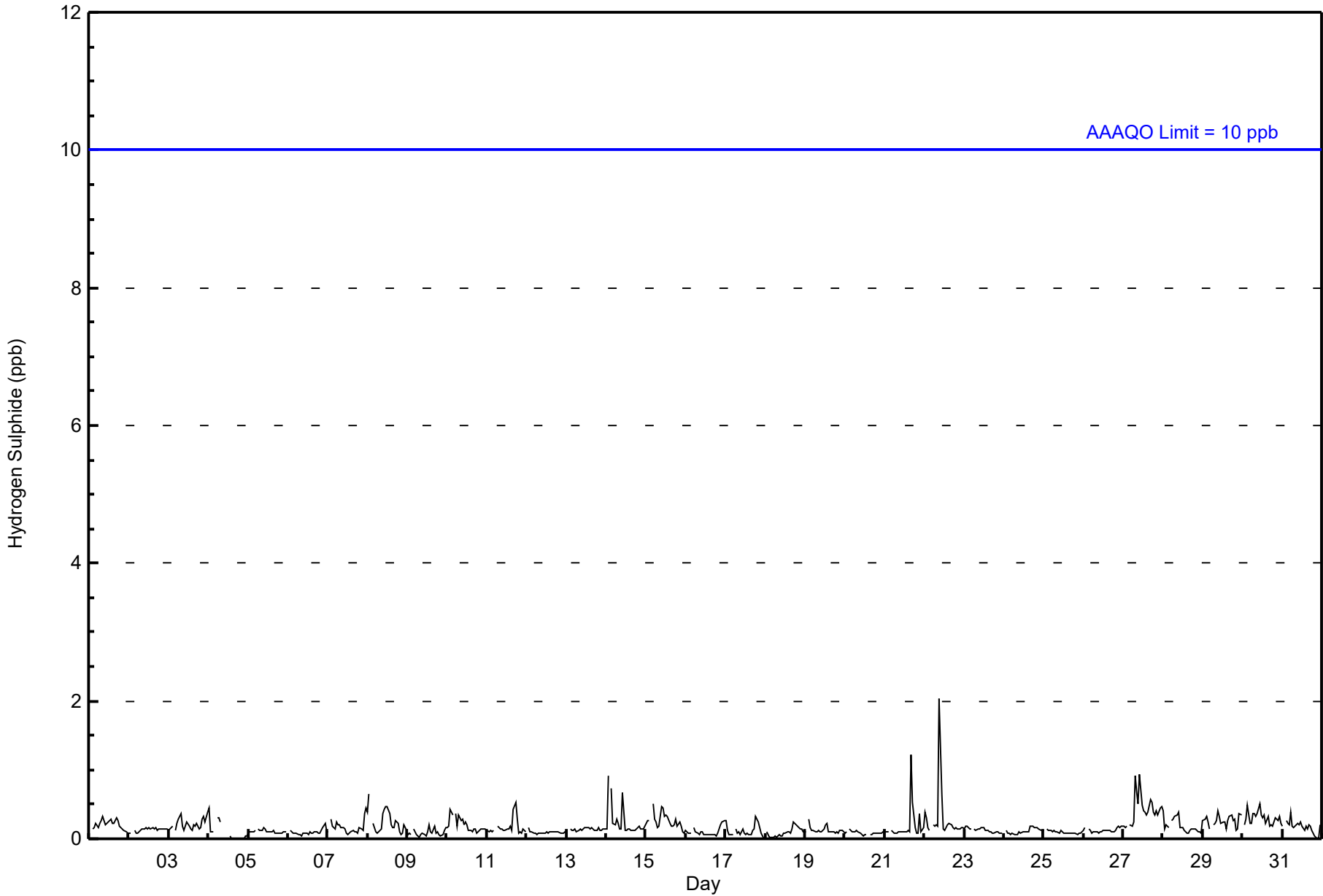
Wood Buffalo Environmental Association

Summary of Hour Averages

Hydrogen Sulphide (H2S) - ppb

Jackfish 1 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0																		Hours in Service:	744																										
Maximum Value: 2.0 ppb on Dec 22 10:00		Maximum Daily Average: 0.4 ppb on Dec 27																			Hours of Data:	707																										
Minimum Value: 0.0 ppb on Dec 4 15:00		Minimum Daily Average: 0.1 ppb on Dec 20																			Hours of Missing Data:	37																										
Maximum Diurnal Average: 0.2 ppb at hour 10		Minimum Diurnal Average: 0.1 ppb at hour 15																			Hours of Calibration:	36																										
Monthly Average: 0.17 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.1 Median = 0.1 Q ₃ = 0.2 P ₉₀ = 0.3 P ₉₉ = 0.7																			Percent Operational Time:	99.9																										
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	0.1	Z	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.3																						
2-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
3-Dec	0.1	0.2	0.2	Z	0.1	0.2	0.3	0.4	0.2	0.1	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.2	0.4	0.2	0.4																						
4-Dec	0.4	0.1	0.1	0.1	Z	0.3	0.3	0.3	0.2	C	C	C	C	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4																						
5-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
6-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2																						
7-Dec	0.1	Z	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.4	0.4	0.2	0.4																					
8-Dec	0.4	0.7	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.4	0.5	0.5	0.4	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.7																					
9-Dec	0.1	0.1	0.1	Z	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.2	0.2																					
10-Dec	0.2	0.2	0.4	0.3	Z	0.4	0.2	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.4																					
11-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.5																					
12-Dec	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																					
13-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.2																					
14-Dec	0.1	0.9	Z	0.1	0.2	0.2	0.3	0.2	0.1	0.2	0.7	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.9																					
15-Dec	0.2	0.3	0.3	Z	0.5	0.3	0.2	0.2	0.2	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.5																					
16-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.3	0.1	0.3																						
17-Dec	0.3	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.2	0.1	0.0	0.0	0.1	0.3																						
18-Dec	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	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2																						
19-Dec	0.1	Z	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3																						
20-Dec	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	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																					
21-Dec	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	1.2	0.5	0.2	0.1	0.1	0.4	0.1	0.2	0.2	0.2	1.2																						
22-Dec	0.4	0.3	0.2	0.1	Z	0.2	0.2	0.2	0.2	2.0	0.6	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.3	2.0																						
23-Dec	0.2	0.2	0.2	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	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2																						
24-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.2																						
25-Dec	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																						
26-Dec	0.1	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2																						
27-Dec	0.2	0.2	0.2	Z	0.2	0.2	0.2	0.9	0.7	0.5	0.9	0.5	0.4	0.4	0.4	0.6	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.4	0.4	0.9																						
28-Dec	0.4	0.1	0.2	0.2	Z	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.4																						
29-Dec	0.3	0.3	0.3	0.2	0.1	Z	0.2	0.2	0.3	0.4	0.3	0.2	0.2	0.2	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.4	0.4	0.3	0.4																					
30-Dec	Z	0.2	0.3	0.5	0.2	0.2	0.4	0.4	0.3	0.4	0.5	0.3	0.3	0.4	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.3	0.5																						
31-Dec	0.2	Z	0.3	0.2	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.4																						
																								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	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2	Diurnal Average	
																								0.4	0.9	0.4	0.7	0.5	0.4	0.4	0.9	0.7	2.0	0.9	0.5	0.5	0.4	0.4	1.2	0.5	0.4	0.3	0.4	0.4	0.4	0.5	Diurnal Maximum	
Z - zerospan C - Calibration DF - DAS Failure																																																
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 10 ppb 24-hr 3 ppb																																																





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Jackfish 1 - December 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
Jackfish 1 - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 2	7	4	4	12	4	10	39	74	157	85	26	6	34	107	94	35	698
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	7	4	4	12	4	10	39	74	157	85	26	6	34	107	94	35	698

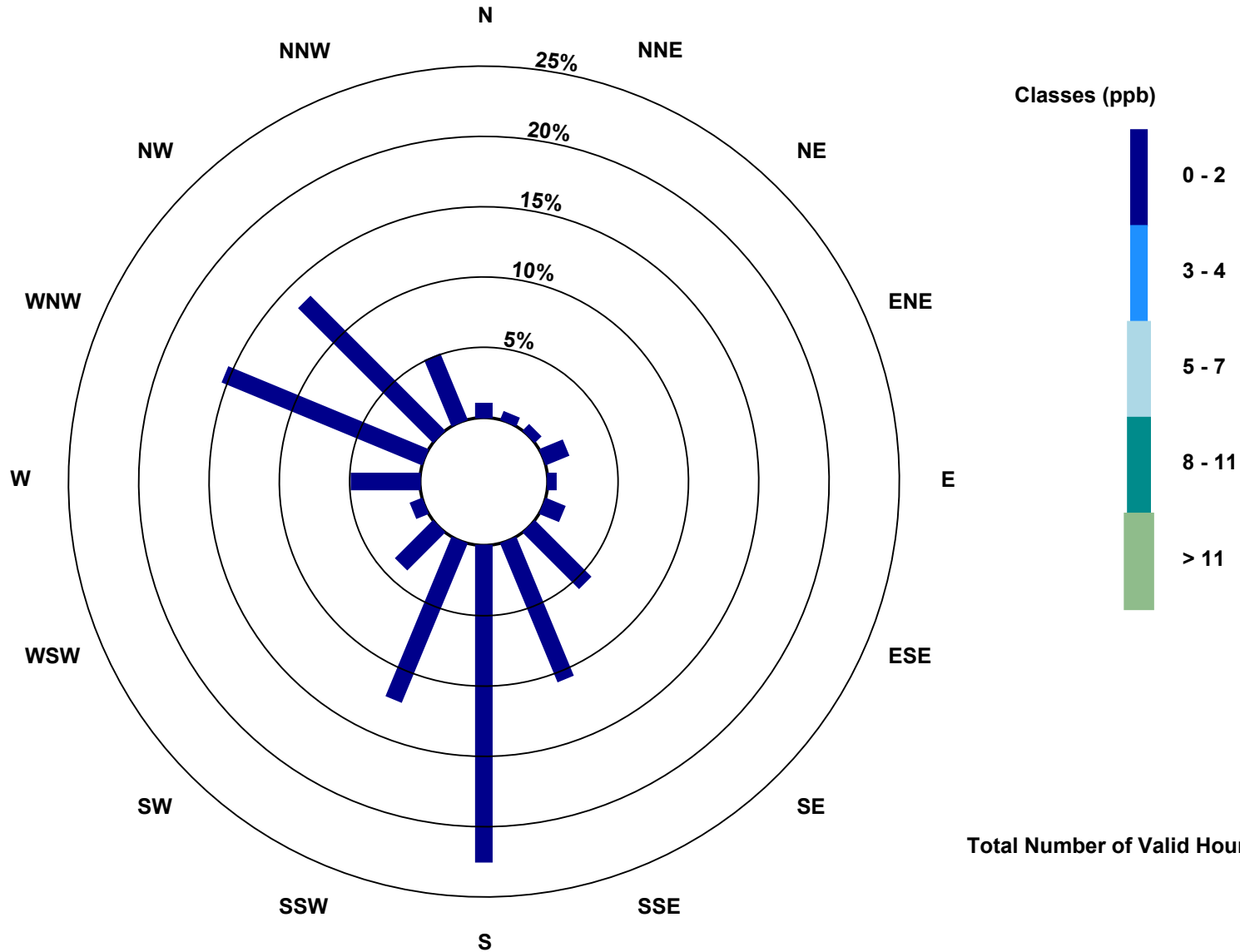
Total Number of Valid Hours: 698

Total Number of Hours: 744

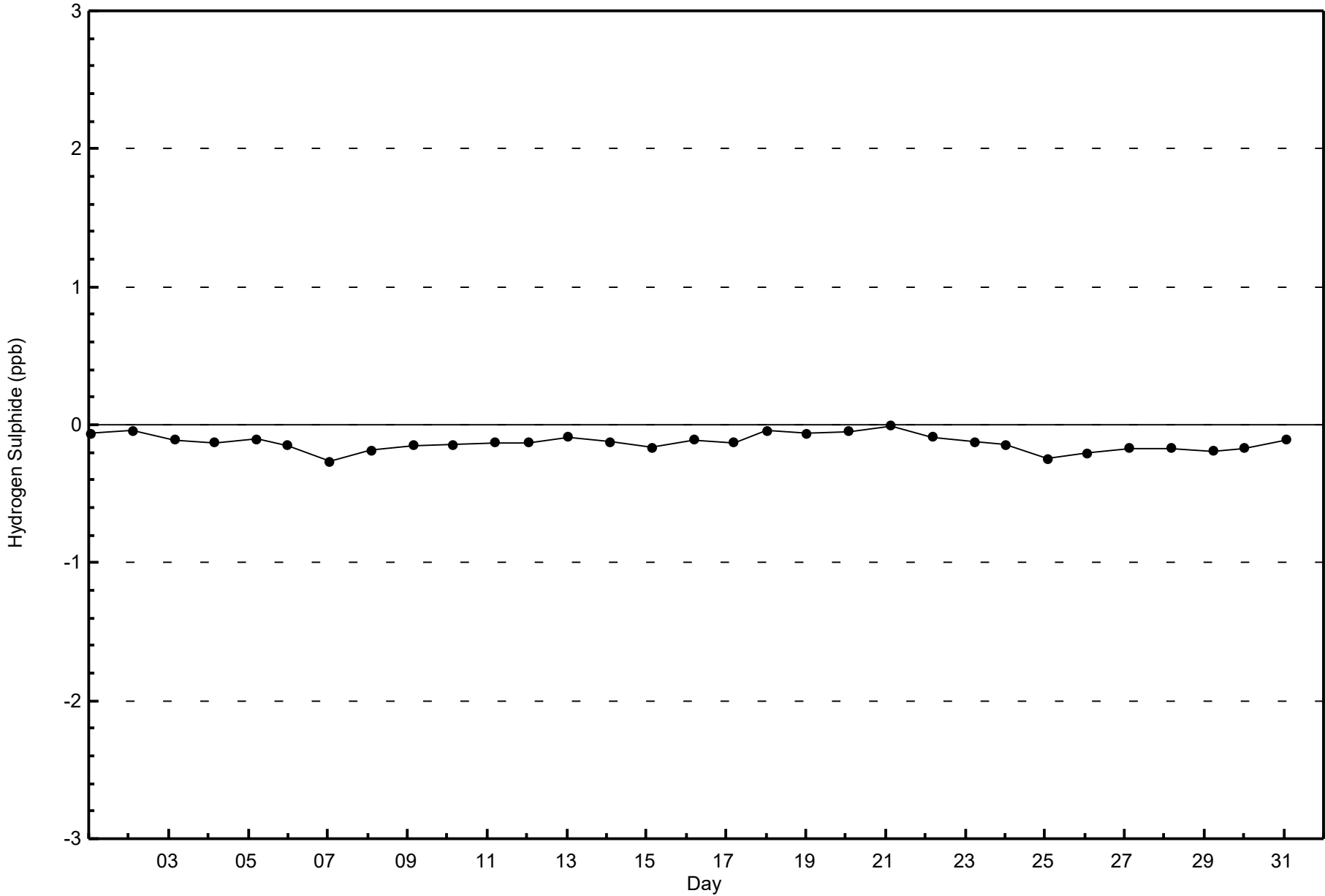


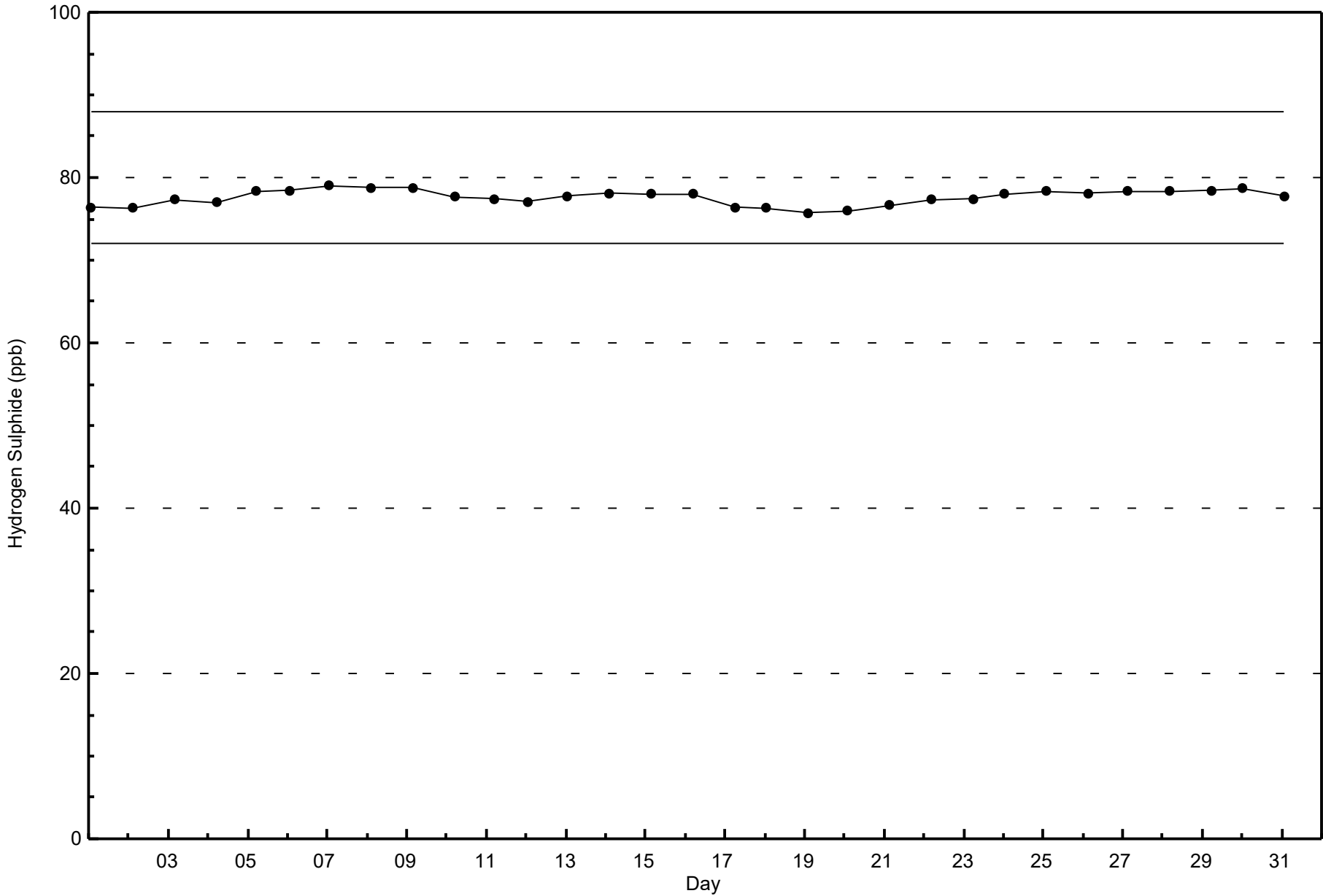
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Jackfish 1



Total Number of Valid Hours: 698







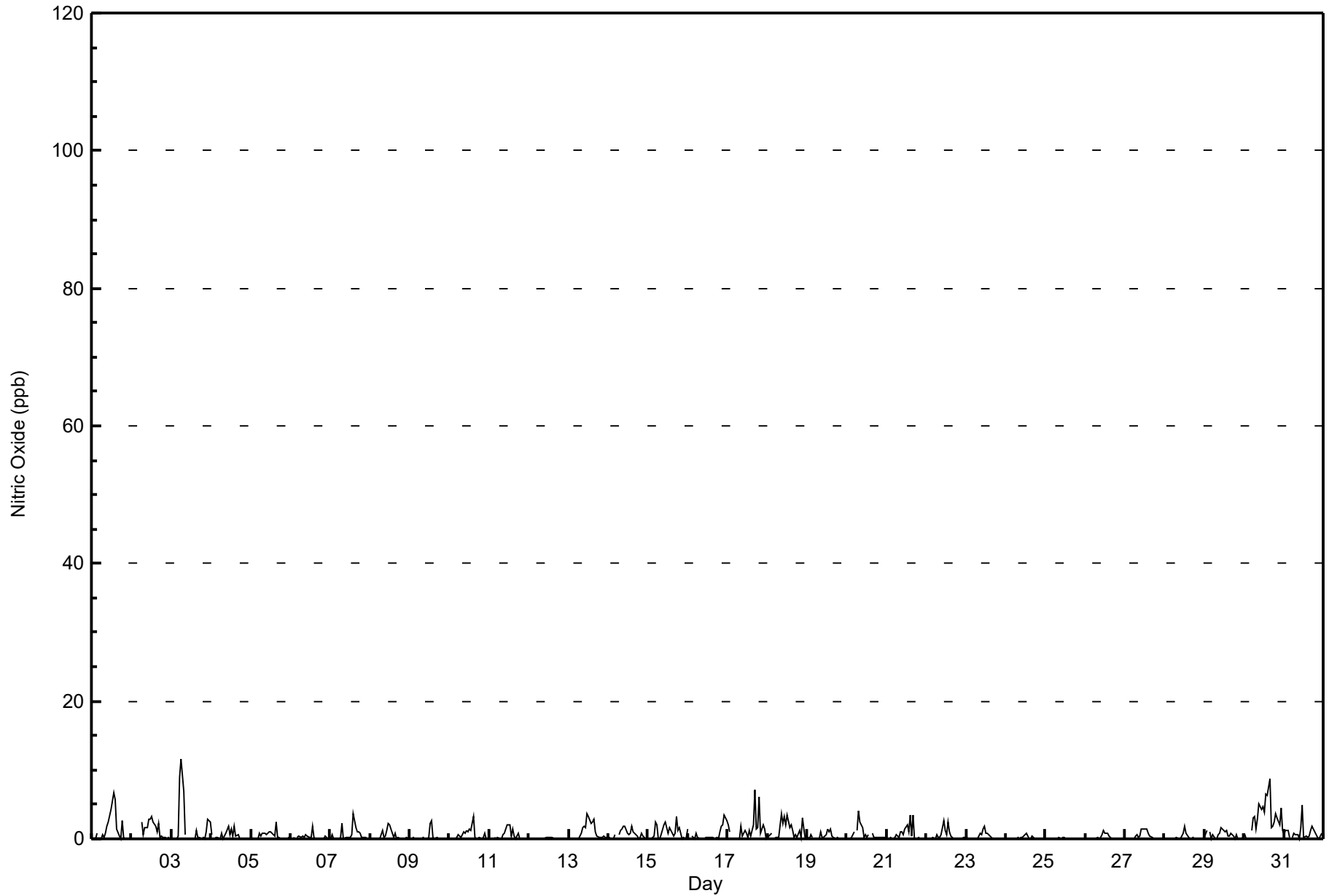
Maximum Value: 11.7 ppb on Dec 3 07:00		Maximum Daily Average: 3.2 ppb on Dec 30		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Dec 3 02:00		Minimum Daily Average: 0.0 ppb on Dec 25		Hours of Data: 707																						
Maximum Diurnal Average: 1.5 ppb at hour 12		Minimum Diurnal Average: 0.1 ppb at hour 4		Hours of Missing Data: 37																						
Monthly Average: 0.70 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.2 Q ₃ = 0.8 P ₉₀ = 2.0 P ₉₉ = 6.3		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-Dec	0.0	0.0	0.0	0.8	Z	0.1	0.6	0.2	0.7	1.9	2.5	4.3	5.4	6.8	5.7	1.4	0.4	0.1	2.6	0.1	0.1	0.0	0.0	0.0	1.5	6.8
2-Dec	0.0	0.0	0.0	0.0	0.0	Z	2.4	0.6	1.7	1.5	2.8	2.9	3.2	2.5	1.8	1.1	2.2	0.2	0.3	0.2	0.2	0.1	0.2	0.0	1.0	3.2
3-Dec	Z	0.0	0.0	0.0	0.4	8.9	11.7	6.9	0.6	C	C	C	C	C	0.0	1.2	0.1	0.2	0.0	0.2	0.1	1.1	2.9	2.5	2.0	11.7
4-Dec	0.7	Z	0.1	0.2	0.3	0.0	0.8	0.0	0.3	0.7	1.8	0.5	1.5	0.4	1.7	0.3	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.4	1.8
5-Dec	0.1	0.2	Z	0.0	0.0	0.7	0.5	0.8	0.8	0.6	0.9	1.0	0.9	0.7	0.4	2.5	0.2	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.5	2.5
6-Dec	0.1	0.0	0.2	Z	0.3	0.5	0.3	0.4	0.1	0.5	0.4	0.3	0.3	1.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.3	1.9
7-Dec	0.0	0.6	0.0	0.0	Z	0.1	0.2	2.2	0.0	0.1	0.2	0.2	0.3	0.5	3.7	1.6	0.9	1.1	0.7	0.1	0.2	0.2	0.1	0.1	0.6	3.7
8-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.1	1.3	0.1	0.5	1.2	2.3	2.0	0.7	0.3	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.3	0.1	0.4	2.3
9-Dec	Z	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1	2.2	2.7	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.7
10-Dec	0.1	Z	0.1	0.0	0.3	0.6	0.5	0.2	1.0	0.8	1.1	1.0	1.4	1.2	3.3	0.2	0.1	0.1	0.2	0.1	0.1	0.9	0.0	0.0	0.6	3.3
11-Dec	0.0	0.0	Z	0.1	0.0	0.2	0.1	0.1	0.6	0.8	1.5	2.1	2.0	0.5	1.5	0.4	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.1
12-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
13-Dec	0.0	0.0	0.0	0.1	Z	0.1	0.1	0.8	1.6	1.8	1.6	3.6	3.2	2.3	2.5	2.9	0.9	0.3	0.2	0.2	0.2	0.5	0.2	0.2	1.0	3.6
14-Dec	0.2	0.1	0.0	0.0	0.5	Z	0.5	1.3	1.4	1.8	1.9	0.9	0.7	0.8	1.9	1.1	0.5	0.5	0.1	0.2	0.7	0.3	0.0	0.1	0.7	1.9
15-Dec	Z	0.1	0.0	0.4	2.5	2.0	0.1	0.1	0.7	2.0	2.4	1.6	0.9	1.6	0.9	0.4	0.9	3.4	1.2	1.6	0.0	0.1	0.1	0.3	1.0	3.4
16-Dec	1.4	Z	0.5	0.3	0.0	0.8	0.2	0.0	0.0	0.1	0.1	0.2	0.3	0.2	0.2	0.2	0.0	0.1	0.1	1.0	1.9	2.1	3.4	2.6	0.7	3.4
17-Dec	2.1	1.0	Z	0.0	0.0	0.0	0.1	0.0	1.7	0.3	1.2	0.9	0.2	1.1	0.5	2.1	7.2	1.4	1.6	6.1	0.8	2.0	1.3	0.1	1.4	7.2
18-Dec	0.2	0.4	0.8	Z	0.0	0.2	0.1	0.1	3.8	2.3	3.2	2.0	3.5	1.7	2.1	1.2	0.2	0.5	0.2	1.2	0.1	3.1	1.4	0.0	1.2	3.8
19-Dec	0.2	0.0	0.6	0.1	Z	0.0	0.0	0.0	1.1	0.3	0.2	0.6	1.4	1.0	1.5	0.3	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.3	1.5
20-Dec	0.0	0.0	0.0	0.3	0.9	Z	1.2	4.1	2.5	1.6	0.1	0.6	0.2	0.6	DF	0.9	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.7	4.1
21-Dec	Z	0.1	0.1	0.1	0.1	0.2	0.5	0.1	1.0	1.1	0.6	1.4	2.0	0.9	3.4	0.4	3.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.7	3.6
22-Dec	0.0	Z	0.0	0.0	0.1	0.0	0.7	0.2	0.2	0.6	2.6	1.2	0.6	2.5	1.1	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.5	2.6
23-Dec	0.2	0.2	Z	0.0	0.0	0.0	0.0	0.0	0.7	0.6	1.4	1.9	0.8	0.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.9
24-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.1	0.0	0.1	0.2	0.5	0.7	0.4	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.7
25-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.2	0.0	0.2	0.2	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	0.2
26-Dec	0.0	0.0	0.0	0.0	0.0	Z	0.0	0.2	0.0	0.2	0.7	1.2	0.8	0.8	0.3	0.2	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	1.2
27-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.1	0.5	1.4	1.4	1.4	1.5	0.8	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.5
28-Dec	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.7	1.8	0.8	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.8
29-Dec	0.1	1.3	Z	1.0	0.0	0.6	0.0	0.0	0.6	0.8	1.7	1.4	1.1	1.3	0.4	0.5	0.9	0.4	0.0	0.6	0.1	0.1	0.0	0.2	0.6	1.7
30-Dec	0.6	0.0	0.0	Z	1.2	3.0	3.3	1.4	2.8	5.1	4.3	4.7	3.9	6.6	6.4	8.8	1.7	1.9	2.4	3.7	3.1	2.1	4.5	1.3	3.2	8.8
31-Dec	0.6	1.3	1.1	0.2	Z	0.2	0.7	0.5	0.5	0.1	1.6	4.9	0.2	0.3	0.3	0.4	1.1	1.8	1.5	0.6	0.2	0.0	0.3	0.9	0.8	4.9
																								Diurnal Average		
																								Diurnal Maximum		
																								0.3 2.1		
																								0.2 1.3		
																								0.1 1.1		
																								0.1 1.0		
																								0.3 2.5		
																								0.7 8.9		
																								0.8 11.7		
																								0.7 6.9		
																								0.8 3.8		
																								0.9 5.1		
																								1.3 4.3		
																								1.5 4.9		
																								1.4 5.4		
																								1.4 6.8		
																								1.4 6.4		
																								1.0 8.8		
																								0.7 7.2		
																								0.4 3.4		
																								0.4 2.6		
																								0.5 6.1		
																								0.3 3.1		
																								0.4 3.1		
																								0.5 4.5		
																								0.3 2.6		

Z - zerospan C - Calibration DF - DAS Failure



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Jackfish 1 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Jackfish 1 - December 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
Jackfish 1 - December 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	7	4	4	12	4	10	39	81	156	80	30	6	36	106	89	34	698
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	7	4	4	12	4	10	39	81	156	80	30	6	36	106	89	34	698

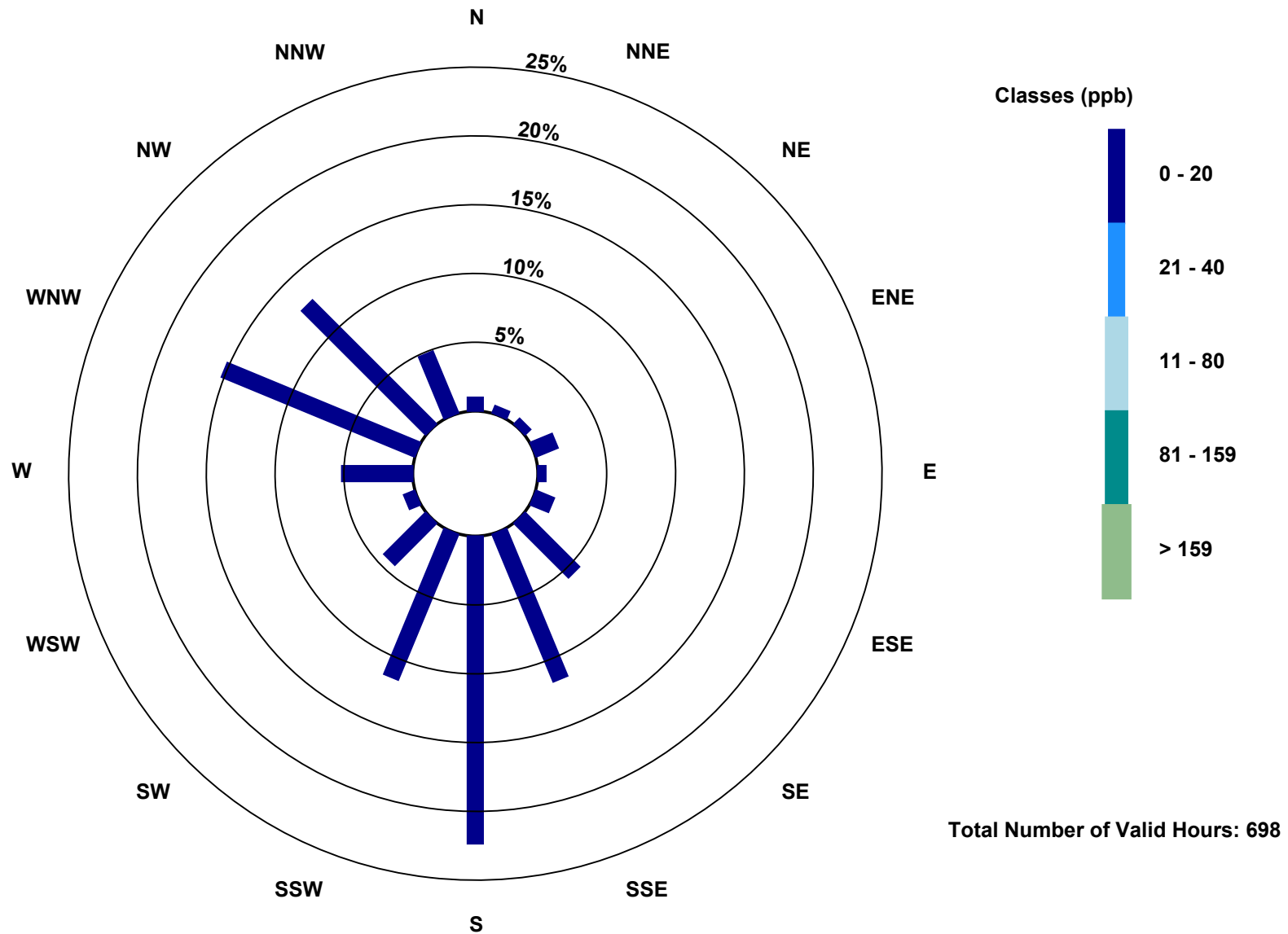
Total Number of Valid Hours: 698

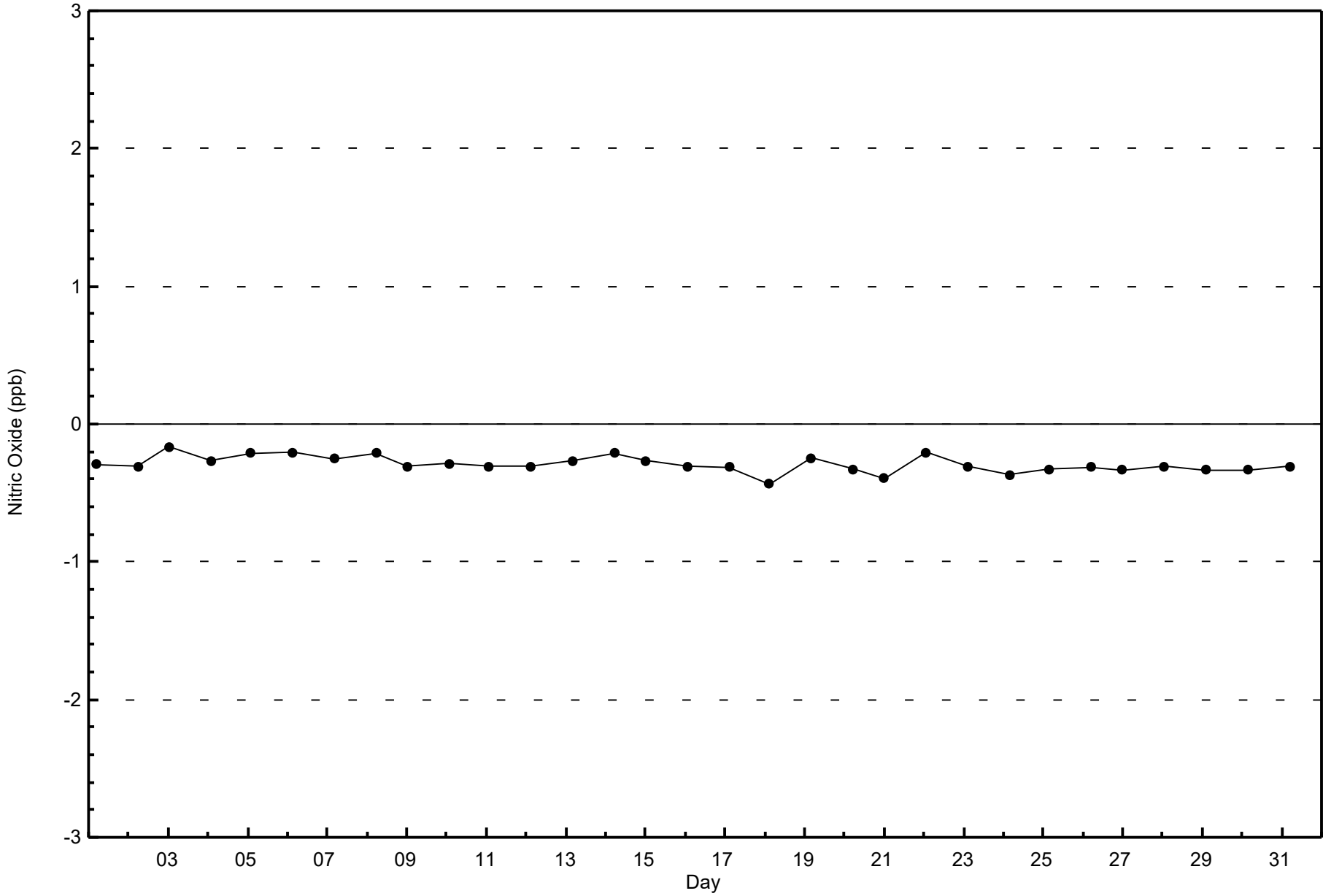
Total Number of Hours: 744

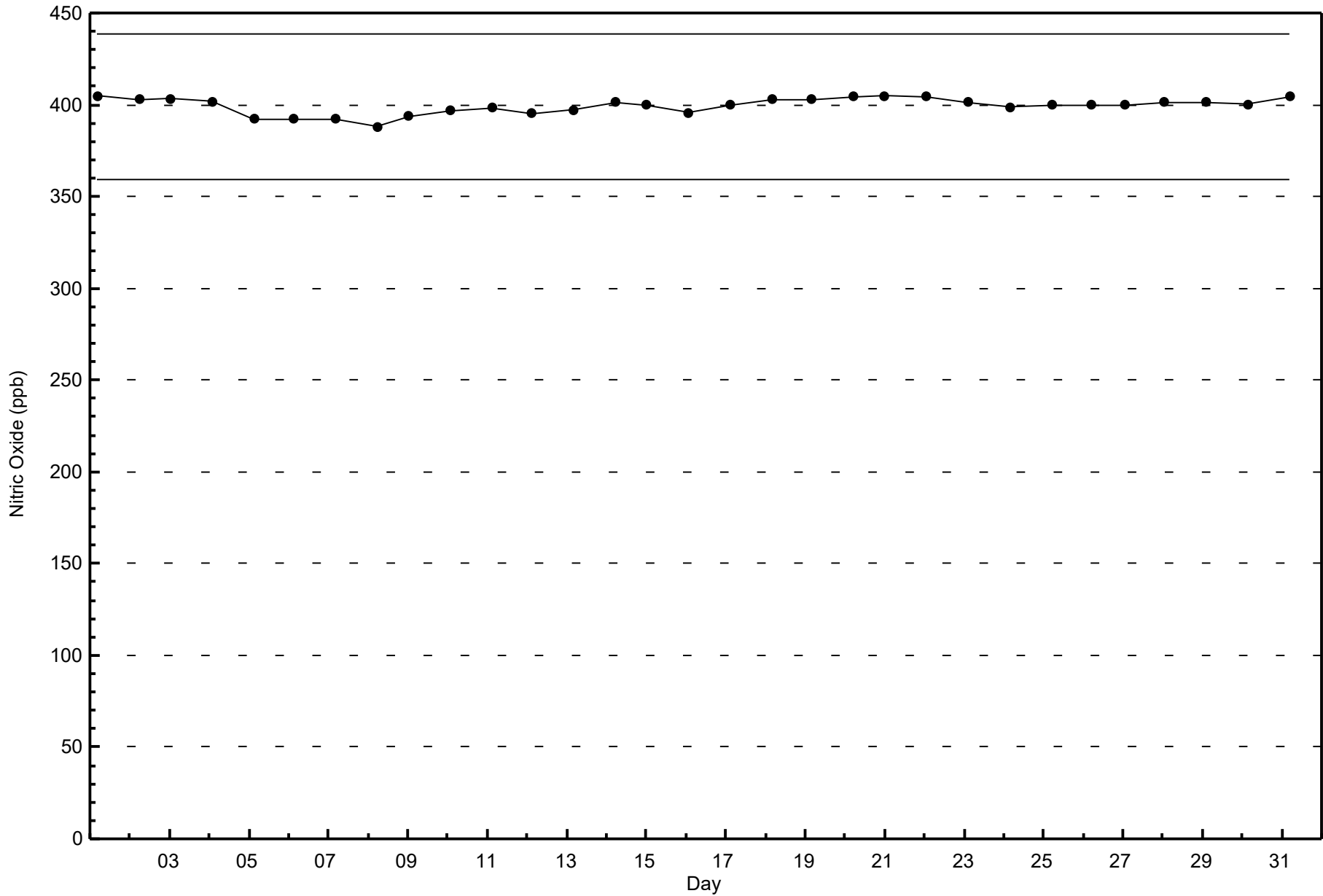


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Jackfish 1









Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

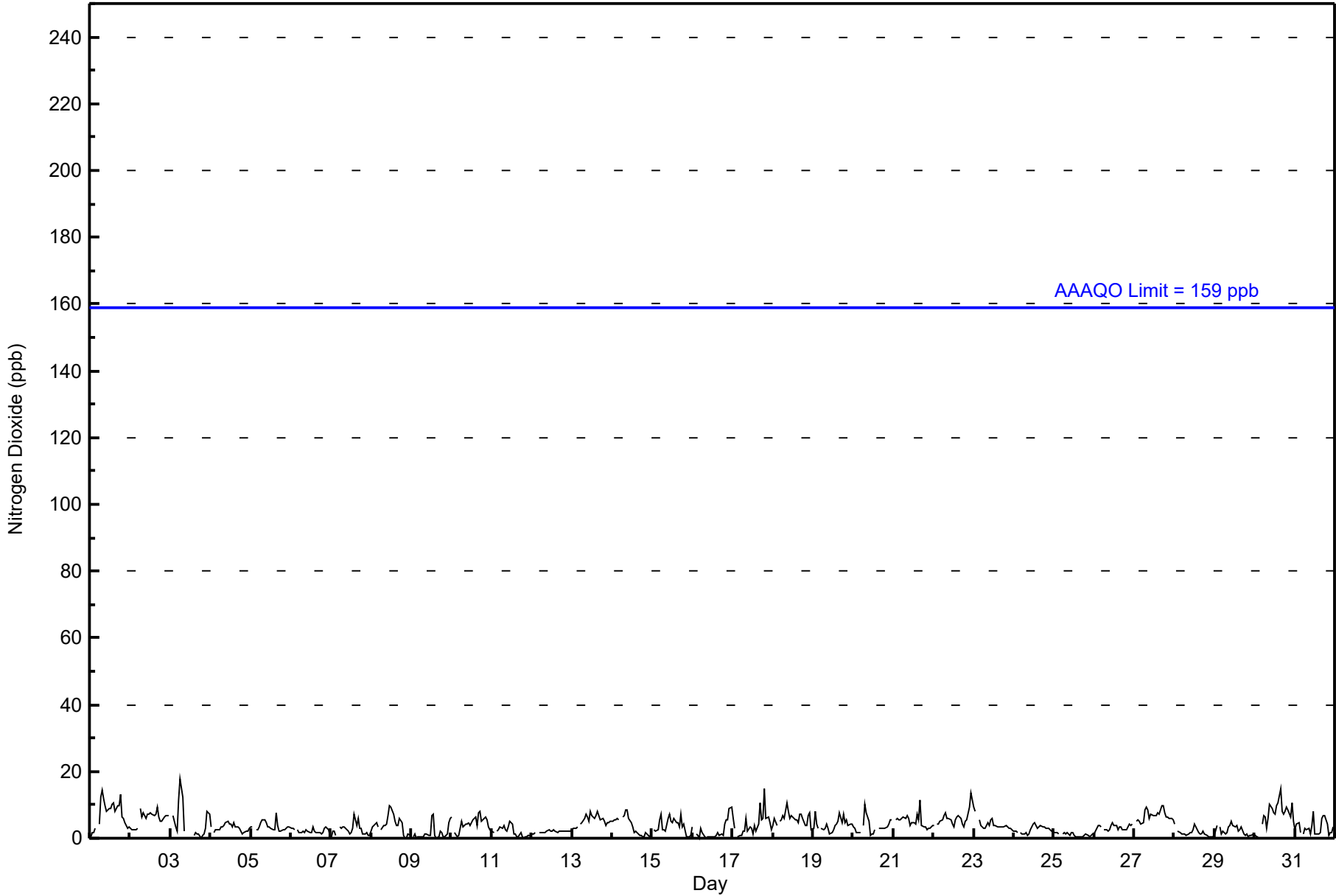
Jackfish 1 - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744					
Maximum Value: 17.6 ppb on Dec 3 07:00		Maximum Daily Average: 7.4 ppb on Dec 1																	707							
Minimum Value: 0.0 ppb on Dec 8 22:00		Minimum Daily Average: 1.1 ppb on Dec 25																	37							
Maximum Diurnal Average: 4.7 ppb at hour 17		Minimum Diurnal Average: 2.8 ppb at hour 4																	36							
Monthly Average: 3.84 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.9 Q ₁ = 1.8 Median = 3.3 Q ₃ = 5.5 P ₉₀ = 7.4 P ₉₉ = 12.3																	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-Dec	0.4	1.7	1.5	3.1	Z	4.4	12.3	14.5	12.0	9.7	8.0	8.9	8.8	10.3	10.4	8.0	9.8	9.9	13.0	6.3	5.9	4.5	3.1	3.3	7.4	14.5
2-Dec	3.0	2.7	2.6	2.4	2.8	Z	8.8	6.5	7.5	5.9	7.0	7.2	7.6	7.3	6.8	7.4	9.2	6.2	4.9	5.0	6.2	6.7	6.8	6.9	6.0	9.2
3-Dec	Z	6.6	5.1	3.2	2.2	11.5	17.6	12.3	2.2	C	C	C	C	C	0.9	1.9	1.2	1.2	0.2	0.9	1.3	2.9	7.9	7.0	4.8	17.6
4-Dec	3.2	Z	1.8	2.6	2.7	2.6	3.5	3.5	4.0	4.6	5.0	4.2	4.3	3.4	4.7	3.6	3.5	2.9	2.1	1.2	1.6	2.1	2.3	2.9	3.1	5.0
5-Dec	3.3	3.3	Z	2.6	2.7	3.5	4.6	5.4	5.7	4.8	3.4	3.3	3.0	2.7	2.5	7.6	3.7	2.3	2.0	2.5	2.7	3.1	3.3	3.6	3.5	7.6
6-Dec	3.1	3.0	2.4	Z	2.7	1.9	1.8	2.1	1.8	2.5	2.1	1.5	1.5	3.3	2.0	1.6	1.6	1.6	1.4	1.5	2.8	3.5	2.6	0.8	2.1	3.5
7-Dec	0.5	2.2	2.2	0.9	Z	3.3	3.0	3.5	3.5	2.7	2.0	1.4	1.5	2.8	7.1	4.0	5.8	3.1	3.0	1.4	1.4	1.6	1.0	0.9	2.6	7.1
8-Dec	2.3	3.4	4.2	4.6	3.3	Z	2.5	3.7	3.8	4.3	6.9	9.6	9.4	7.1	5.0	3.8	3.9	6.1	4.8	1.0	0.2	0.0	1.2	0.8	4.0	9.6
9-Dec	Z	0.5	1.3	0.2	0.3	0.5	0.6	0.5	1.3	1.2	0.9	0.9	6.6	7.2	0.7	0.2	0.4	2.2	1.6	0.4	0.4	1.2	4.8	5.8	1.7	7.2
10-Dec	6.3	Z	1.8	0.3	0.9	3.0	5.1	3.2	4.3	4.4	4.5	3.7	4.6	5.7	6.2	4.0	7.5	8.2	5.2	5.9	6.3	5.7	3.3	2.6	4.5	8.2
11-Dec	2.0	1.7	Z	2.1	2.6	3.5	2.9	4.0	2.6	2.2	3.6	5.0	4.2	1.1	1.4	0.6	0.5	1.6	0.3	0.2	0.3	0.6	1.0	1.0	2.0	5.0
12-Dec	1.2	1.4	1.6	Z	1.8	1.9	1.9	1.8	1.5	2.0	2.4	2.1	2.2	2.4	2.2	1.9	2.1	2.2	2.3	2.1	2.1	2.1	2.2	2.3	2.0	2.4
13-Dec	2.5	2.8	3.0	3.5	Z	4.3	4.8	5.9	7.2	6.3	5.2	7.9	6.9	5.8	6.7	7.9	6.9	5.3	5.8	5.1	3.8	4.7	4.6	4.9	5.3	7.9
14-Dec	5.1	5.5	5.7	5.9	5.6	Z	6.4	6.7	8.3	8.4	6.1	4.7	3.3	1.8	2.0	1.7	1.0	1.0	0.6	0.6	1.5	1.1	0.5	1.2	3.7	8.4
15-Dec	Z	2.5	2.1	2.6	5.6	7.2	2.6	2.6	2.0	5.9	7.3	5.1	4.5	6.1	4.7	4.8	3.4	7.4	3.6	4.2	0.4	0.4	0.4	0.7	3.7	7.4
16-Dec	3.4	Z	1.1	0.7	0.1	3.0	1.7	0.6	0.2	0.6	0.5	0.5	0.5	0.6	0.7	1.7	0.9	1.3	0.7	4.1	5.3	5.6	8.8	9.2	2.3	9.2
17-Dec	6.0	2.9	Z	0.6	0.8	0.8	2.2	2.0	5.9	2.2	3.4	3.1	1.1	3.7	2.2	4.1	10.6	5.4	5.9	14.7	6.1	6.4	4.8	2.4	4.2	14.7
18-Dec	3.7	5.8	3.9	Z	5.0	5.7	6.9	5.8	10.8	7.9	6.0	6.9	6.5	5.7	5.5	4.8	7.4	7.4	5.8	3.7	3.8	6.8	7.7	2.4	5.9	10.8
19-Dec	3.1	7.9	4.3	2.9	Z	2.8	2.4	3.0	4.1	3.0	1.4	1.8	2.6	3.7	4.1	4.9	7.6	4.5	7.1	4.8	5.5	3.8	4.2	4.3	4.1	7.9
20-Dec	3.4	2.8	1.6	1.5	1.9	Z	4.0	10.1	7.8	5.1	1.0	1.3	1.2	2.4	DF	3.0	2.8	2.9	2.8	3.0	3.6	4.4	5.3	5.6	3.5	10.1
21-Dec	Z	5.6	5.8	5.7	5.3	6.1	6.2	6.0	6.8	6.1	4.0	4.8	4.6	4.1	7.4	5.5	11.4	3.8	3.2	3.2	2.5	2.9	3.1	3.7	5.1	11.4
22-Dec	3.9	Z	4.3	4.2	5.1	5.5	6.8	7.7	5.9	5.8	5.3	4.3	3.4	5.4	6.2	6.9	6.0	4.1	3.4	4.9	5.4	9.4	13.7	11.4	6.0	13.7
23-Dec	9.4	8.0	Z	5.5	4.0	3.4	2.9	2.8	4.5	4.0	5.5	6.1	3.9	3.9	3.5	3.4	3.2	3.4	3.6	3.7	3.3	3.1	2.9	2.4	4.2	9.4
24-Dec	2.0	2.3	1.9	Z	1.8	1.2	1.4	1.5	0.7	1.1	2.6	4.2	4.5	3.9	2.9	3.2	3.9	3.3	3.3	3.0	2.9	3.1	2.3	2.0	2.6	4.5
25-Dec	1.9	1.8	1.6	1.4	Z	1.4	1.5	1.2	1.8	0.8	1.5	1.6	0.9	0.6	0.5	0.5	0.5	0.6	0.7	1.3	0.8	0.4	0.8	1.1	1.1	1.9
26-Dec	1.2	2.1	3.9	3.7	3.3	Z	2.5	2.7	2.2	2.5	3.8	4.6	3.7	3.9	2.7	3.2	3.3	2.5	2.4	2.6	3.3	4.3	4.0	4.1	3.2	4.6
27-Dec	Z	5.1	5.5	5.0	4.2	4.6	8.4	9.3	8.4	6.1	7.2	6.6	6.6	6.8	7.5	7.4	9.7	9.6	7.7	6.4	6.3	6.0	5.8	5.3	6.8	9.7
28-Dec	4.1	Z	2.3	1.8	1.4	1.2	1.1	0.9	1.3	1.7	1.5	2.5	4.4	3.2	1.6	1.1	1.3	2.1	1.3	0.9	0.5	0.4	0.5	0.3	1.6	4.4
29-Dec	0.9	3.8	Z	3.6	1.1	2.0	1.4	1.7	3.6	3.9	4.9	4.0	3.2	4.0	2.2	2.5	3.2	1.3	0.7	1.1	0.6	0.9	0.9	1.2	2.3	4.9
30-Dec	0.7	0.4	0.3	Z	4.3	6.7	6.5	2.9	6.1	10.1	8.8	7.6	7.1	9.6	10.8	14.7	8.0	7.3	7.9	9.3	8.5	6.4	10.4	4.9	6.9	14.7
31-Dec	2.5	4.2	4.6	1.6	Z	1.3	2.8	2.5	2.8	1.3	4.0	8.1	1.2	1.2	1.2	1.9	6.0	6.7	6.7	4.2	0.9	1.5	1.7	3.4	3.1	8.1
																								Diurnal Average		
																								Diurnal Maximum		
Z - zerospan C - Calibration DF - DAS Failure																										
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 159 ppb																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Dioxide (NO₂) - ppb
Jackfish 1 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Jackfish 1 - December 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
Jackfish 1 - December 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	7	4	4	12	4	10	39	81	156	80	30	6	36	106	89	34	698
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	7	4	4	12	4	10	39	81	156	80	30	6	36	106	89	34	698

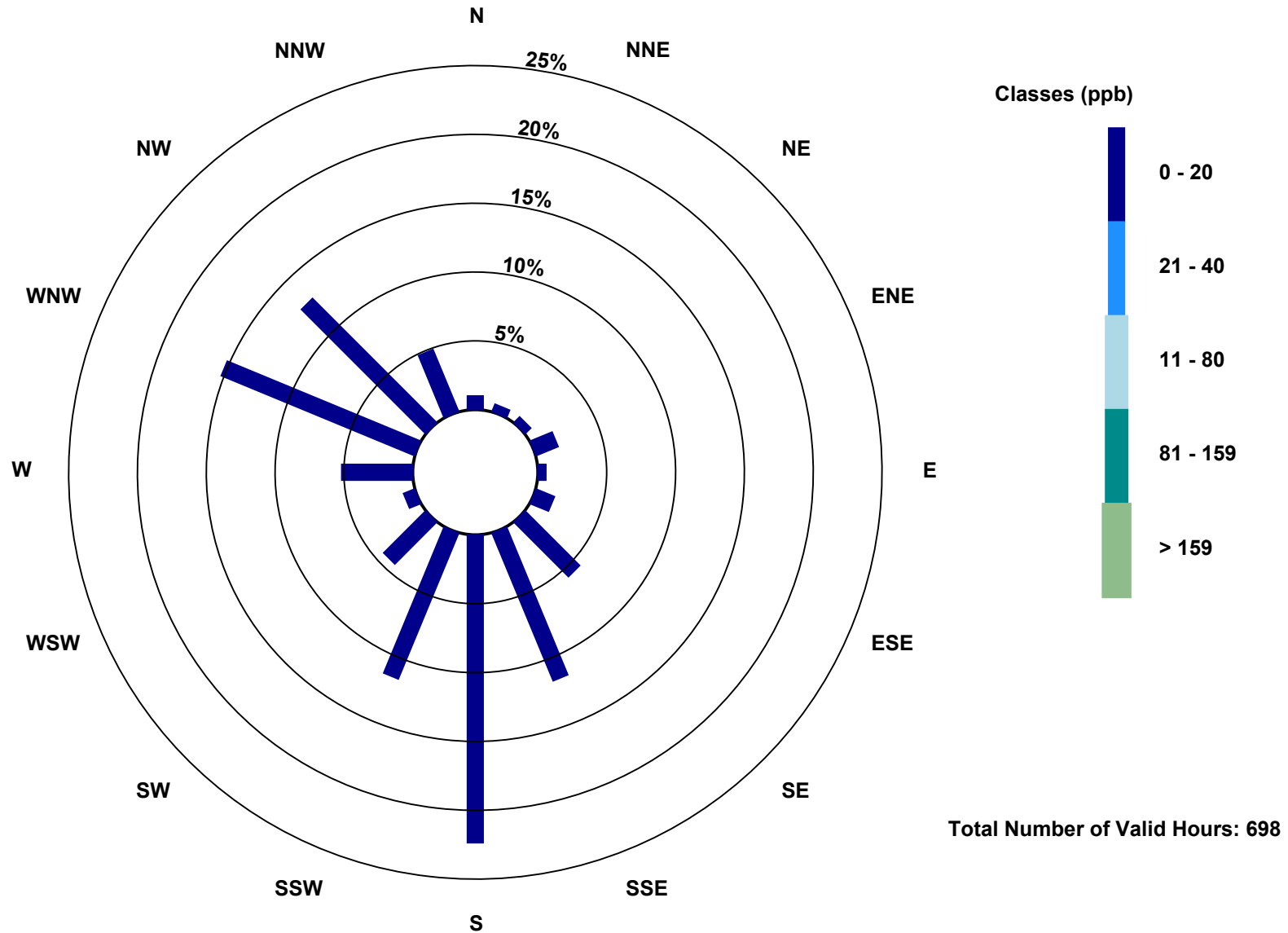
Total Number of Valid Hours: 698

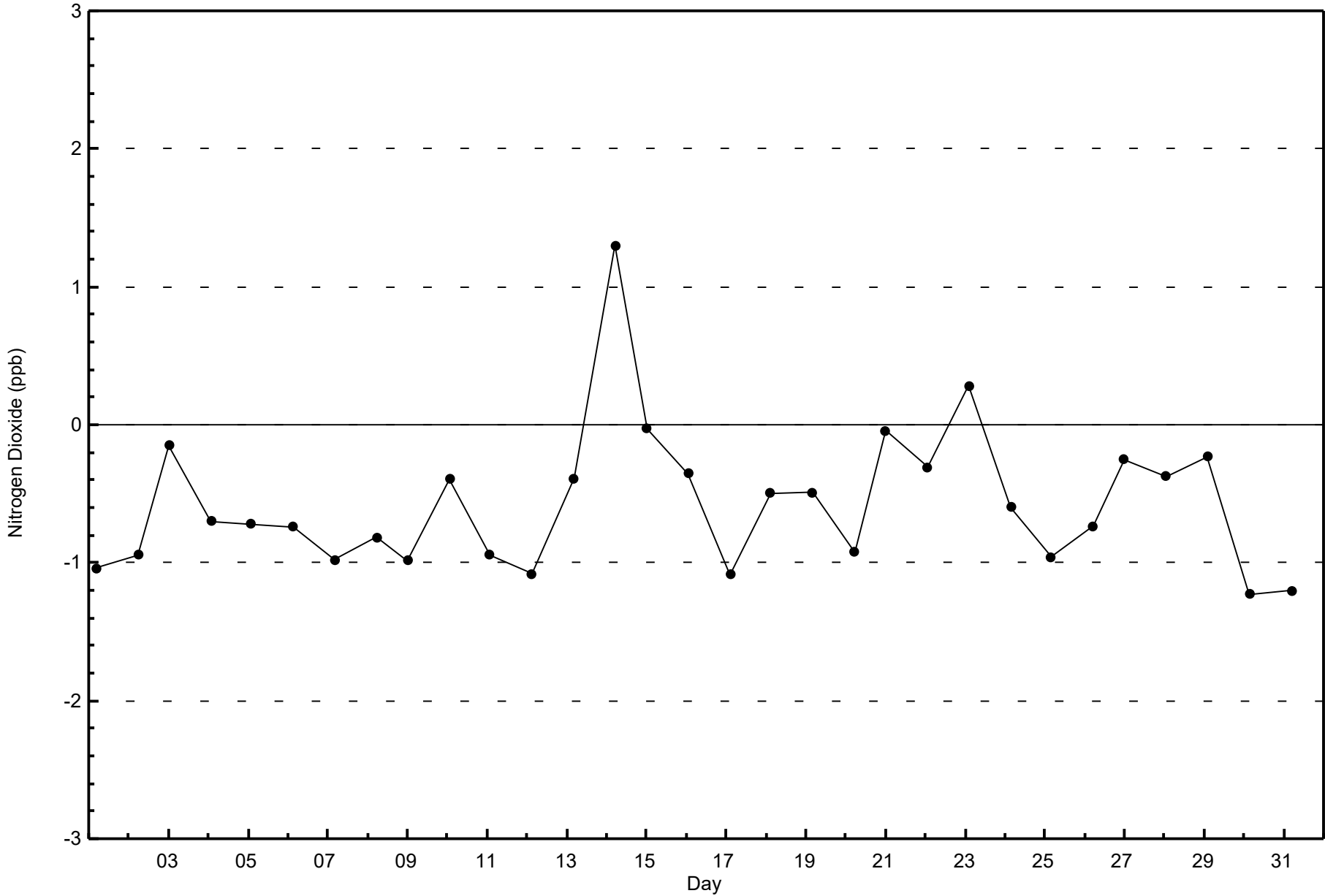
Total Number of Hours: 744

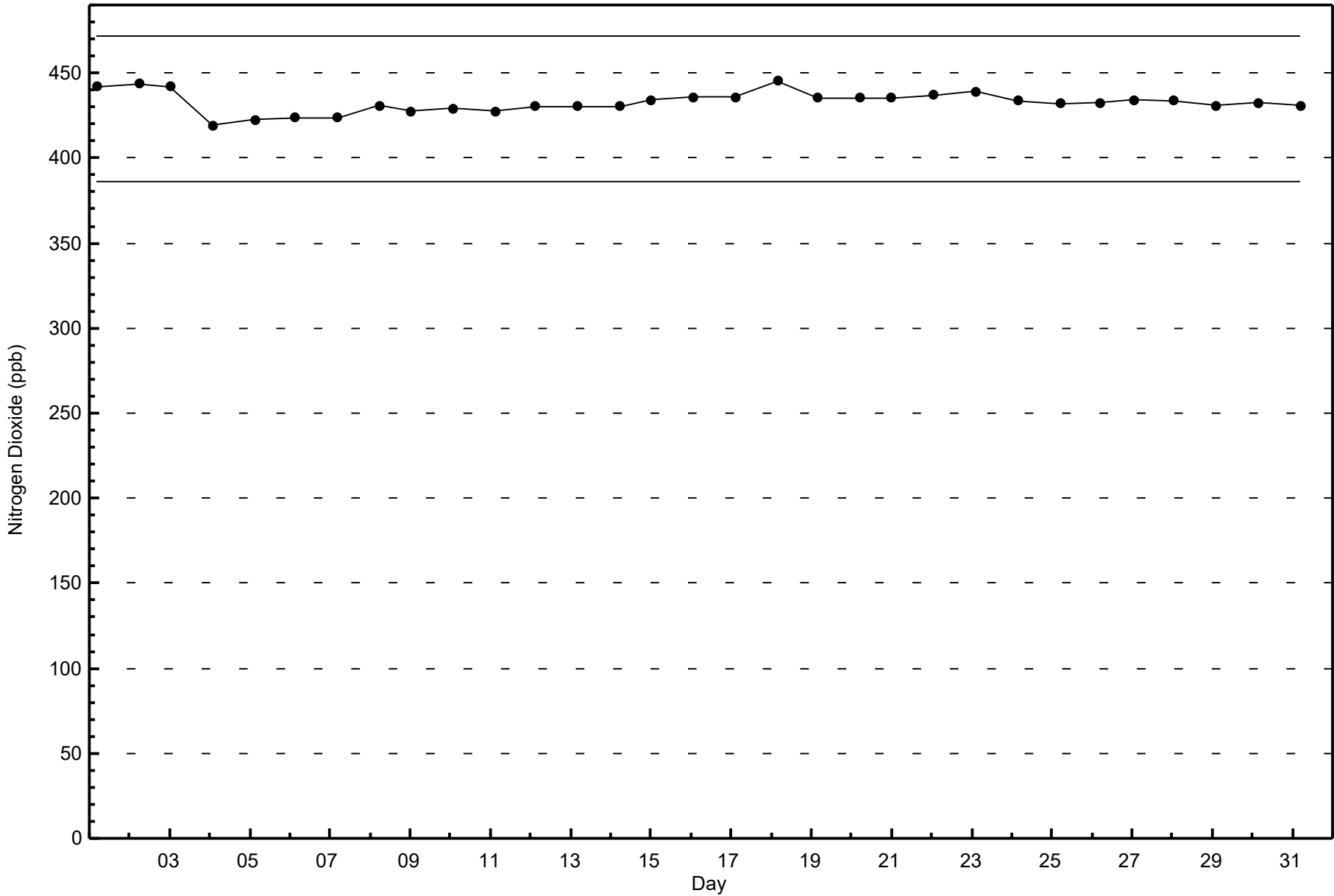


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Jackfish 1









Wood Buffalo Environmental Association
Summary of Hour Averages

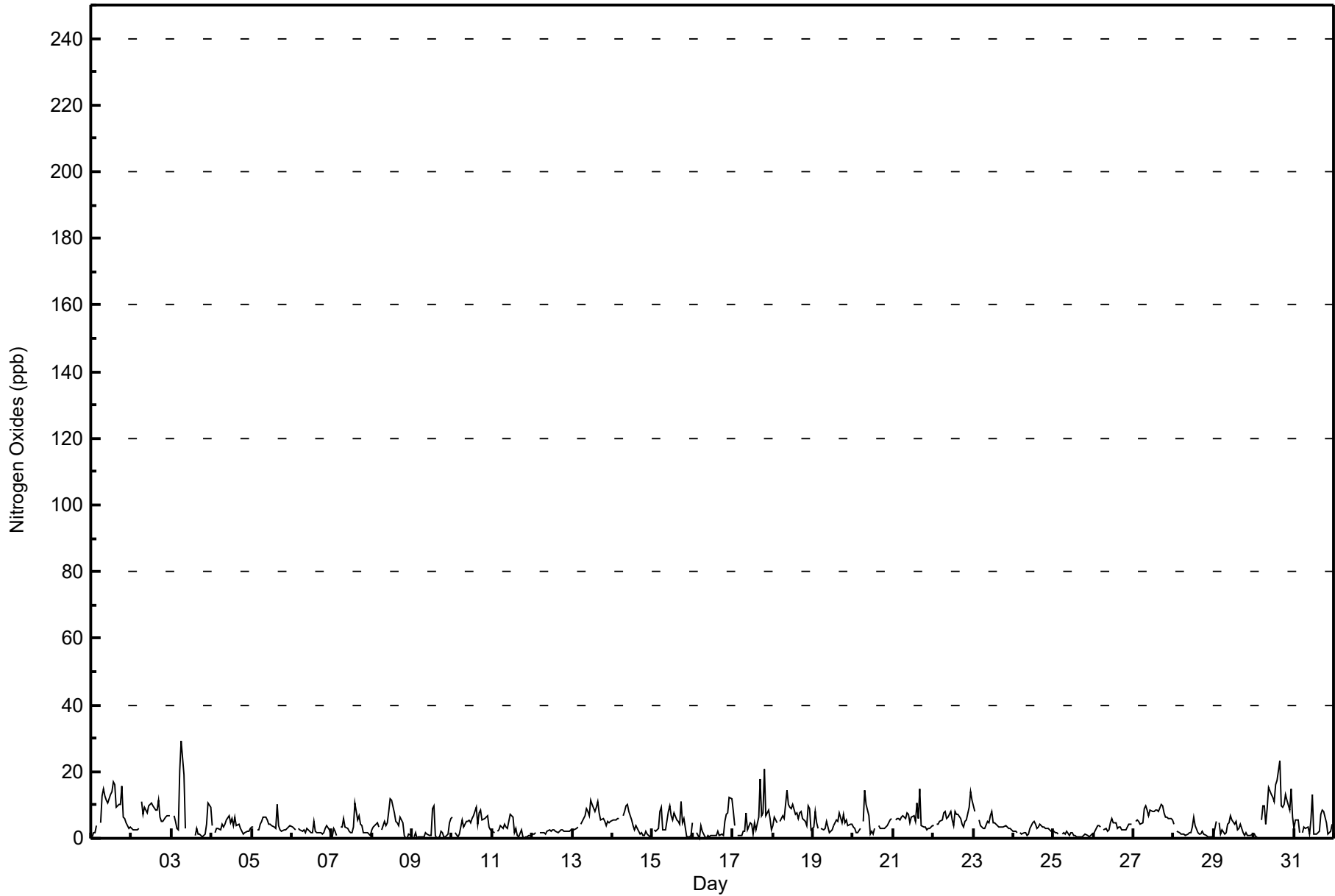
Nitrogen Oxides (NO_x) - ppb
Jackfish 1 - December 2024

Maximum Value: 29.3 ppb on Dec 3 07:00		Maximum Daily Average: 10.1 ppb on Dec 30		Hours in Service: 744																						
Minimum Value: 0.0 ppb on Dec 8 22:00		Minimum Daily Average: 1.1 ppb on Dec 25		Hours of Data: 707																						
Maximum Diurnal Average: 6.0 ppb at hour 12		Minimum Diurnal Average: 2.9 ppb at hour 4		Hours of Missing Data: 37																						
Monthly Average: 4.54 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 1.0 Q ₁ = 1.9 Median = 3.7 Q ₃ = 6.1 P ₉₀ = 9.3 P ₉₉ = 17.0		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-Dec	0.4	1.7	1.5	3.9	Z	4.5	12.9	14.7	12.7	11.6	10.5	13.2	14.2	17.1	16.1	9.4	10.2	10.0	15.6	6.4	6.0	4.5	3.1	3.3	8.8	17.1
2-Dec	3.0	2.7	2.6	2.4	2.8	Z	11.2	7.1	9.2	7.4	9.8	10.1	10.8	9.8	8.6	8.5	11.4	6.4	5.2	5.2	6.4	6.8	7.0	6.9	7.0	11.4
3-Dec	Z	6.6	5.1	3.2	2.6	20.4	29.3	19.2	2.8	C	C	C	C	C	0.9	3.1	1.3	1.4	0.2	1.1	1.4	4.0	10.8	9.5	6.8	29.3
4-Dec	3.9	Z	1.9	2.8	3.0	2.6	4.3	3.5	4.3	5.3	6.8	4.7	5.8	3.8	6.4	3.9	4.1	2.9	2.1	1.2	1.7	2.1	2.3	3.0	3.6	6.8
5-Dec	3.4	3.5	Z	2.6	2.7	4.2	5.1	6.2	6.5	5.4	4.3	4.3	3.9	3.4	2.9	10.1	3.9	2.5	2.1	2.5	2.7	3.1	3.4	3.8	4.0	10.1
6-Dec	3.2	3.0	2.6	Z	3.0	2.4	2.1	2.5	1.9	3.0	2.5	1.8	1.8	5.2	2.2	1.6	1.6	1.6	1.4	1.5	2.8	4.0	2.6	0.8	2.4	5.2
7-Dec	0.5	2.8	2.2	0.9	Z	3.4	3.2	5.7	3.5	2.8	2.2	1.6	1.8	3.3	10.8	5.6	6.7	4.2	3.7	1.5	1.6	1.8	1.1	1.0	3.1	10.8
8-Dec	2.3	3.4	4.2	4.6	3.3	Z	2.6	5.0	3.9	4.8	8.1	11.9	11.4	7.8	5.3	4.5	4.0	6.2	4.8	1.0	0.2	0.0	1.5	0.9	4.4	11.9
9-Dec	Z	0.5	1.5	0.2	0.3	0.5	0.6	0.5	1.5	1.2	1.0	1.0	8.8	9.9	1.0	0.2	0.6	2.2	1.6	0.4	0.4	1.2	4.8	5.8	2.0	9.9
10-Dec	6.4	Z	1.9	0.3	1.2	3.6	5.6	3.4	5.3	5.2	5.6	4.7	6.0	6.9	9.5	4.2	7.6	8.3	5.4	6.0	6.4	6.6	3.3	2.6	5.0	9.5
11-Dec	2.0	1.7	Z	2.2	2.6	3.7	3.0	4.1	3.2	3.0	5.1	7.1	6.2	1.6	2.9	1.0	0.5	2.4	0.3	0.2	0.3	0.6	1.0	1.0	2.4	7.1
12-Dec	1.2	1.4	1.6	Z	1.8	1.9	1.9	1.8	1.5	2.0	2.6	2.3	2.4	2.7	2.3	1.9	2.1	2.3	2.3	2.1	2.1	2.1	2.2	2.3	2.0	2.7
13-Dec	2.5	2.8	3.0	3.6	Z	4.4	4.9	6.7	8.8	8.1	6.8	11.5	10.1	8.1	9.2	10.8	7.8	5.6	6.0	5.3	4.0	5.2	4.8	5.1	6.3	11.5
14-Dec	5.3	5.6	5.7	5.9	6.1	Z	6.9	8.0	9.7	10.2	8.0	5.6	4.0	2.6	3.9	2.8	1.5	1.5	0.7	0.8	2.2	1.4	0.5	1.3	4.3	10.2
15-Dec	Z	2.6	2.1	3.0	8.1	9.2	2.7	2.7	2.7	7.9	9.7	6.7	5.4	7.7	5.6	5.2	4.3	10.8	4.8	5.8	0.4	0.5	0.5	1.0	4.8	10.8
16-Dec	4.8	Z	1.6	1.0	0.1	3.8	1.9	0.6	0.2	0.7	0.6	0.7	0.8	0.8	0.9	1.9	0.9	1.4	0.8	5.1	7.2	7.7	12.2	11.8	2.9	12.2
17-Dec	8.1	3.9	Z	0.6	0.8	0.8	2.3	2.0	7.6	2.5	4.6	4.0	1.3	4.8	2.7	6.2	17.8	6.8	7.5	20.8	6.9	8.4	6.1	2.5	5.6	20.8
18-Dec	3.9	6.2	4.7	Z	5.0	5.9	7.0	5.9	14.6	10.2	9.2	8.9	10.0	7.4	7.6	6.0	7.6	7.9	6.0	4.9	3.9	9.9	9.1	2.4	7.1	14.6
19-Dec	3.3	7.9	4.9	3.0	Z	2.8	2.4	3.0	5.2	3.3	1.6	2.4	4.0	4.7	5.6	5.2	7.8	4.5	7.3	4.8	5.5	3.8	4.2	4.4	4.4	7.9
20-Dec	3.4	2.8	1.6	1.8	2.8	Z	5.2	14.2	10.3	6.7	1.1	1.9	1.4	3.0	DF	3.9	3.1	3.1	3.0	3.2	3.8	4.6	5.5	5.7	4.2	14.2
21-Dec	Z	5.7	5.9	5.8	5.4	6.3	6.7	6.1	7.8	7.2	4.6	6.2	6.6	5.0	10.8	5.9	15.0	3.8	3.2	3.3	2.5	2.9	3.1	3.7	5.8	15.0
22-Dec	3.9	Z	4.3	4.2	5.2	5.5	7.5	7.9	6.1	6.4	7.9	5.5	4.0	7.9	7.3	7.4	6.0	4.1	3.4	5.0	5.4	9.4	13.9	11.5	6.5	13.9
23-Dec	9.6	8.2	Z	5.5	4.0	3.4	2.9	2.8	5.2	4.6	6.9	8.0	4.7	4.6	3.9	3.5	3.2	3.4	3.6	3.7	3.3	3.1	2.9	2.4	4.5	9.6
24-Dec	2.0	2.3	1.9	Z	1.8	1.2	1.5	1.6	0.7	1.2	2.8	4.7	5.2	4.3	3.0	3.3	4.2	3.3	3.3	3.0	2.9	3.1	2.3	2.0	2.7	5.2
25-Dec	1.9	1.8	1.6	1.4	Z	1.4	1.5	1.2	2.0	0.8	1.7	1.8	1.0	0.7	0.5	0.5	0.5	0.6	0.7	1.3	0.9	0.5	0.8	1.1	1.1	2.0
26-Dec	1.2	2.1	3.9	3.7	3.3	Z	2.5	2.9	2.2	2.7	4.5	5.8	4.5	4.7	3.0	3.4	3.3	2.5	2.4	2.6	3.4	4.4	4.0	4.1	3.4	5.8
27-Dec	Z	5.1	5.5	5.0	4.2	4.6	8.7	9.9	8.5	6.6	8.6	8.0	8.0	8.3	8.3	7.8	10.0	9.6	7.7	6.4	6.3	6.0	5.8	5.3	7.1	10.0
28-Dec	4.1	Z	2.3	1.8	1.4	1.2	1.1	1.0	1.3	1.8	1.8	3.2	6.2	4.0	1.8	1.1	1.3	2.2	1.3	0.9	0.5	0.4	0.5	0.3	1.8	6.2
29-Dec	1.0	5.1	Z	4.6	1.1	2.6	1.4	1.7	4.2	4.7	6.6	5.4	4.3	5.3	2.6	3.0	4.1	1.7	0.7	1.7	0.7	1.0	0.9	1.4	2.9	6.6
30-Dec	1.3	0.4	0.3	Z	5.5	9.7	9.8	4.3	8.9	15.2	13.1	12.3	11.0	16.2	17.2	23.5	9.7	9.2	10.3	13.0	11.6	8.5	14.9	6.2	10.1	23.5
31-Dec	3.1	5.5	5.7	1.8	Z	1.5	3.5	3.0	3.3	1.4	5.6	13.0	1.4	1.5	1.5	2.3	7.1	8.5	8.2	4.8	1.1	1.5	2.0	4.3	4.0	13.0
																								Diurnal Average		
																								Diurnal Maximum		
																								3.3 3.7 3.1 2.9 3.1 4.3 5.2 5.1 5.3 5.1 5.5 6.0 5.6 5.8 5.5 5.1 5.5 4.5 4.0 4.0 3.4 3.9 4.4 3.8		
																								9.6 8.2 5.9 5.9 8.1 20.4 29.3 19.2 14.6 15.2 13.1 13.2 14.2 17.1 17.2 23.5 17.8 10.8 15.6 20.8 11.6 9.9 14.9 11.8		
Z - zerospan C - Calibration DF - DAS Failure																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Jackfish 1 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Jackfish 1 - December 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**

**Nitrogen Oxides (NO_x) - ppb
Jackfish 1 - December 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	7	4	4	12	4	10	39	81	156	80	30	5	36	104	89	34	695
21 - 40	0	0	0	0	0	0	0	0	0	0	0	1	0	2	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	7	4	4	12	4	10	39	81	156	80	30	6	36	106	89	34	698

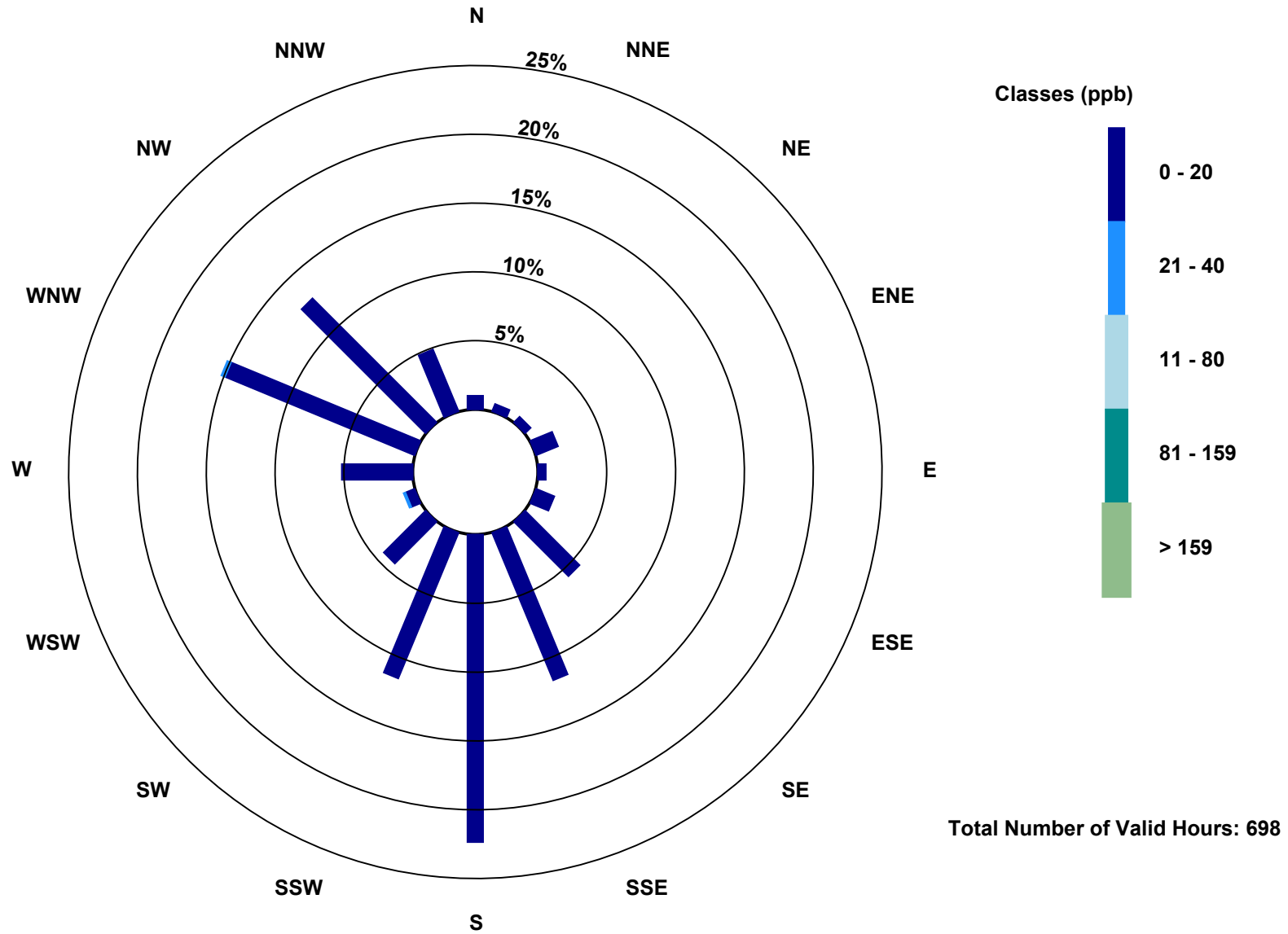
Total Number of Valid Hours: 698

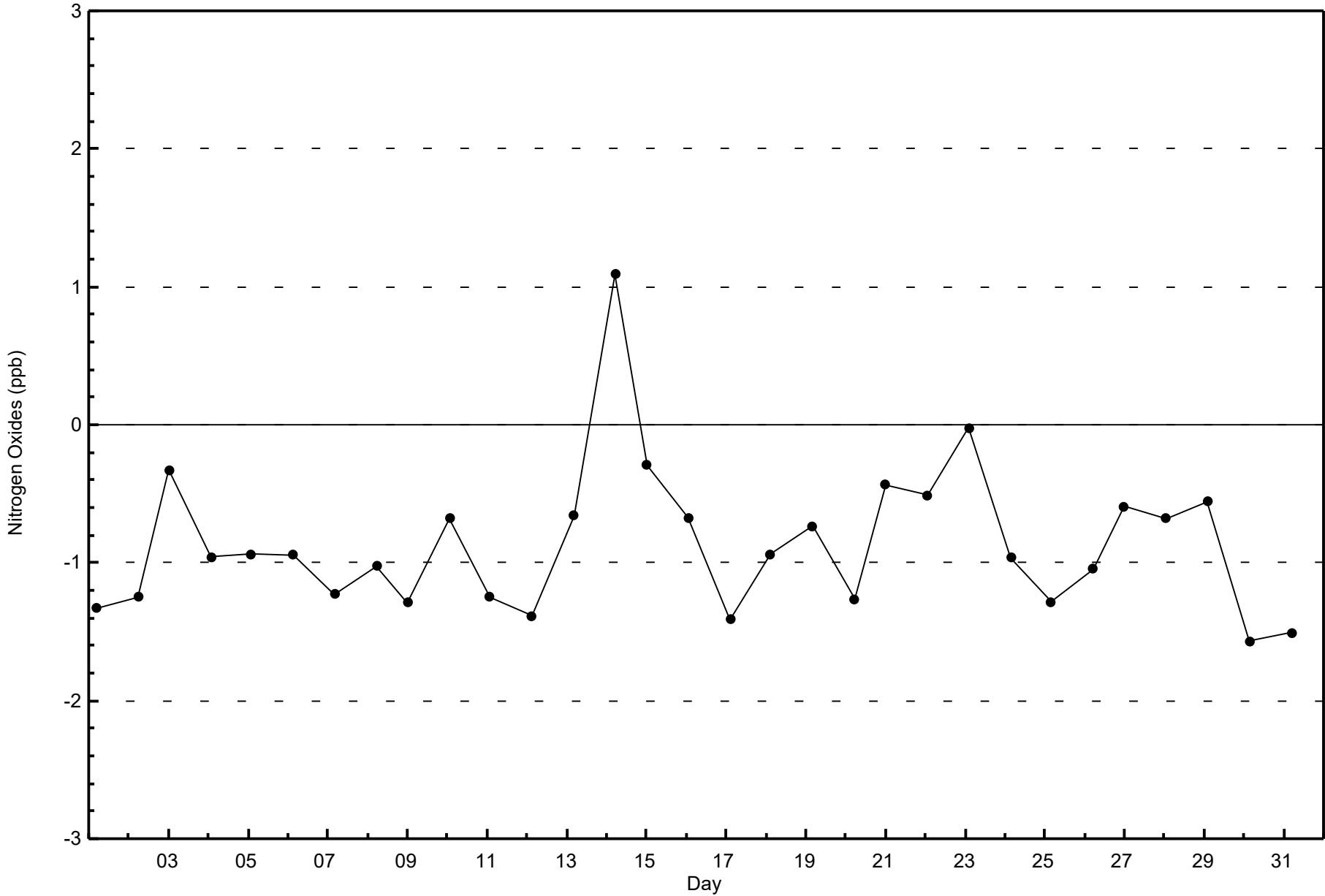
Total Number of Hours: 744

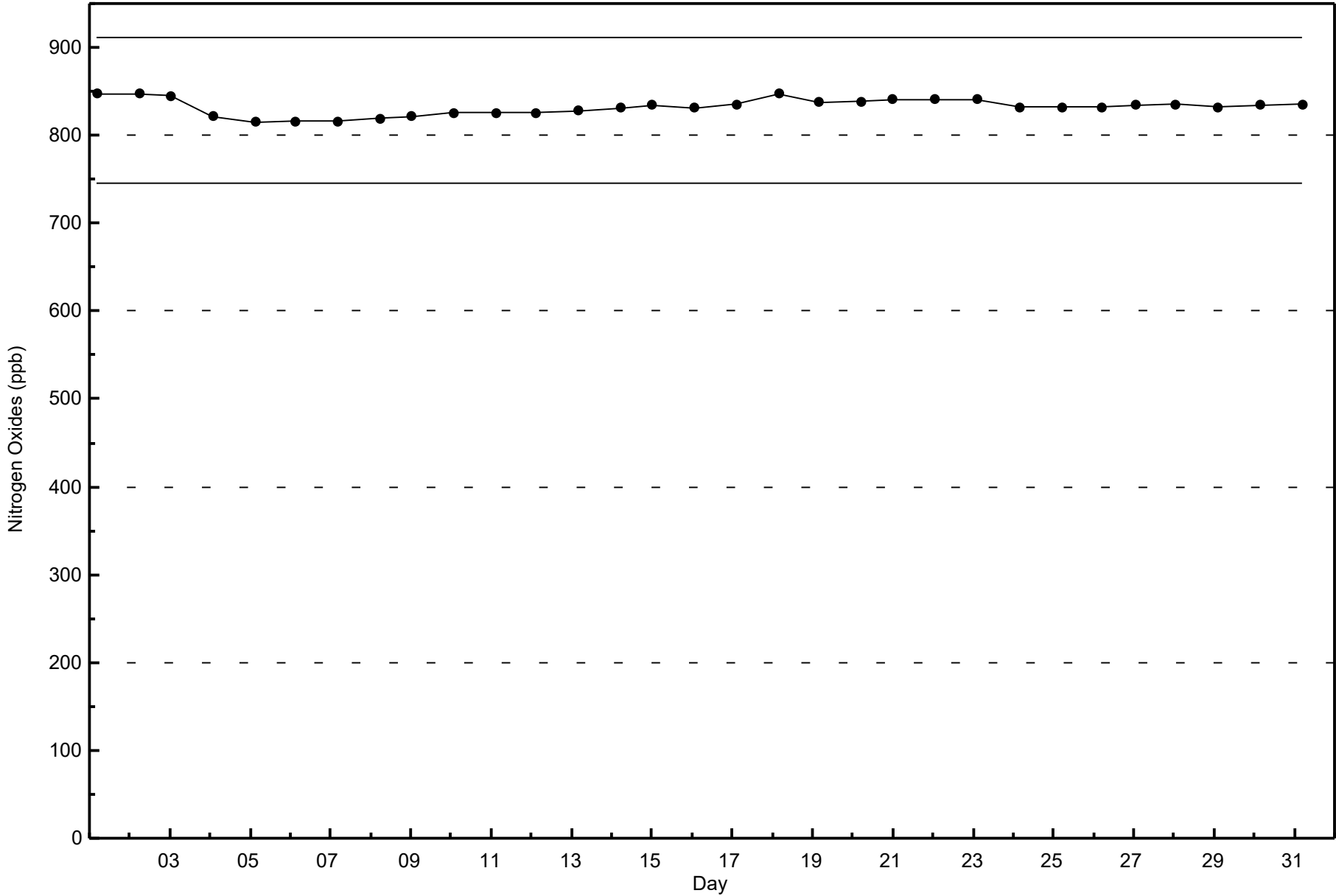


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Jackfish 1







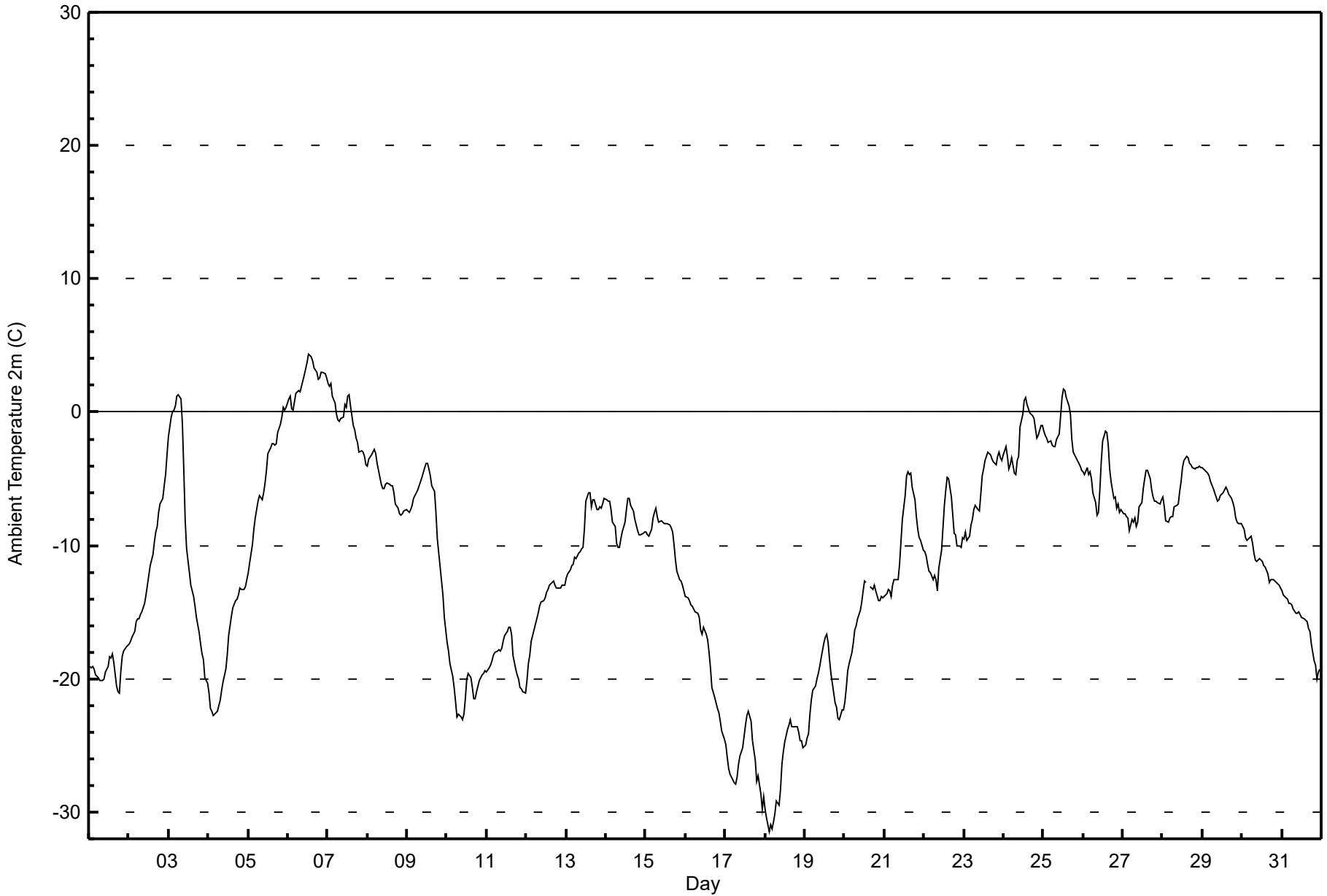


Maximum Value: 4.4 C on Dec 6 13:00 Maximum Daily Average: 2.4 C on Dec 6 Minimum Value: -31.4 C on Dec 18 03:00 Minimum Daily Average: -26.7 C on Dec 18 Maximum Diurnal Average: -9.0 C at hour 15 Minimum Diurnal Average: -11.7 C at hour 3 Monthly Average: -10.96 C Percentiles: P ₁ = -29.6 P ₁₀ = -21.8 Q ₁ = -16.8 Median = -9.4 Q ₃ = -5.0 P ₉₀ = -1.5 P ₉₉ = 3.0																								Hours in Service:	744																							
																								Hours of Data:	743																							
																								Hours of Missing Data:	1																							
																								Hours of Calibration:	0																							
																								Percent Operational Time:	99.9																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																								
1-Dec	-19.1	-19.1	-19.1	-19.3	-19.8	-19.9	-20.1	-20.2	-20.1	-20.0	-19.5	-19.0	-18.4	-18.4	-18.1	-18.8	-20.6	-21.0	-21.0	-19.5	-18.3	-17.9	-17.6	-17.5	-19.3	-17.5																						
2-Dec	-17.4	-17.2	-16.8	-16.4	-15.7	-15.5	-15.5	-15.2	-14.9	-14.4	-13.7	-13.0	-12.3	-11.5	-10.7	-9.8	-9.0	-8.5	-7.5	-6.9	-6.4	-5.6	-4.6	-3.2	-11.7	-3.2																						
3-Dec	-1.8	-0.4	0.0	0.1	0.5	1.2	1.3	1.0	-0.9	-4.3	-8.2	-10.2	-12.0	-13.0	-13.5	-13.8	-14.5	-15.4	-16.5	-17.4	-18.2	-18.6	-19.9	-20.4	-8.9	1.3																						
4-Dec	-21.1	-22.2	-22.4	-22.7	-22.7	-22.4	-22.0	-21.6	-20.9	-20.2	-19.3	-18.2	-16.8	-16.0	-15.2	-14.6	-14.2	-14.0	-13.7	-13.2	-13.3	-13.3	-13.1	-12.6	-17.7	-12.6																						
5-Dec	-12.1	-11.3	-9.9	-8.7	-7.9	-7.3	-6.7	-6.3	-6.6	-6.1	-5.3	-4.4	-3.1	-2.6	-2.3	-2.4	-2.4	-2.3	-1.6	-0.9	-0.3	0.3	0.2	0.4	-4.6	0.4																						
6-Dec	1.0	1.2	0.3	0.2	0.8	1.5	1.6	1.5	2.0	2.4	2.8	3.7	4.4	4.3	4.2	3.9	3.3	3.0	2.5	2.5	3.0	3.0	2.9	2.6	2.4	4.4																						
7-Dec	2.2	2.0	2.1	1.2	0.7	-0.1	-0.6	-0.7	-0.5	-0.4	0.6	0.3	1.2	1.3	0.4	-1.0	-1.3	-1.9	-2.3	-3.0	-2.9	-3.0	-3.3	-3.9	-0.5	2.2																						
8-Dec	-4.1	-3.5	-3.2	-3.0	-2.8	-3.1	-3.8	-4.8	-5.4	-5.7	-5.7	-5.4	-5.4	-5.5	-5.5	-5.5	-6.1	-6.8	-7.2	-7.6	-7.7	-7.6	-7.4	-7.3	-5.4	-2.8																						
9-Dec	-7.5	-7.5	-7.3	-7.0	-6.5	-6.1	-5.8	-5.5	-5.2	-4.9	-4.2	-3.8	-3.8	-4.3	-4.8	-5.5	-5.9	-7.6	-9.5	-10.5	-11.7	-13.7	-15.4	-16.4	-7.5	-3.8																						
10-Dec	-17.3	-18.0	-18.9	-19.8	-20.7	-21.7	-22.9	-22.6	-22.9	-23.1	-22.6	-21.5	-20.1	-19.6	-19.9	-20.7	-21.5	-21.5	-20.9	-20.1	-19.9	-19.7	-19.6	-19.4	-20.6	-17.3																						
11-Dec	-19.4	-19.2	-19.0	-18.7	-18.3	-18.1	-17.9	-17.9	-17.9	-17.8	-17.2	-16.8	-16.5	-16.2	-16.2	-16.6	-18.2	-19.3	-19.7	-20.0	-20.7	-20.7	-21.0	-21.1	-18.5	-16.2																						
12-Dec	-20.1	-18.8	-18.3	-17.2	-16.3	-15.9	-15.5	-15.1	-14.6	-14.3	-14.2	-13.9	-13.5	-13.3	-13.0	-12.8	-12.7	-12.9	-13.2	-13.2	-13.2	-12.9	-13.0	-13.0	-14.6	-12.7																						
13-Dec	-12.4	-12.1	-11.8	-11.5	-11.4	-10.9	-11.0	-10.6	-10.4	-10.3	-10.1	-8.8	-6.7	-6.1	-6.1	-7.1	-6.6	-6.6	-7.3	-7.3	-7.1	-7.2	-6.9	-6.5	-8.9	-6.1																						
14-Dec	-6.6	-6.6	-6.7	-7.3	-8.2	-8.6	-9.8	-10.1	-10.2	-9.5	-9.0	-8.3	-7.3	-6.5	-6.4	-7.0	-7.5	-8.0	-8.5	-8.9	-9.2	-9.2	-9.1	-9.0	-8.2	-6.4																						
15-Dec	-9.0	-9.2	-9.3	-8.8	-8.0	-7.5	-7.2	-7.8	-8.3	-8.1	-8.3	-8.4	-8.4	-8.4	-8.5	-8.7	-9.0	-9.9	-11.1	-12.0	-12.5	-12.7	-13.0	-13.4	-9.5	-7.2																						
16-Dec	-13.9	-13.9	-14.1	-14.4	-14.5	-14.8	-15.0	-15.1	-15.4	-16.3	-16.7	-16.2	-16.7	-17.0	-18.0	-19.1	-20.6	-21.4	-21.8	-22.2	-22.5	-23.2	-23.9	-24.6	-18.0	-13.9																						
17-Dec	-25.0	-25.9	-26.7	-27.2	-27.6	-27.8	-27.9	-27.3	-26.5	-25.9	-25.2	-24.4	-23.5	-22.8	-22.4	-23.2	-24.7	-25.4	-26.1	-27.6	-27.2	-28.7	-29.8	-28.9	-26.1	-22.4																						
18-Dec	-29.8	-30.5	-31.4	-30.9	-31.3	-30.8	-30.1	-29.1	-29.4	-28.3	-26.5	-25.5	-24.7	-23.8	-23.5	-23.1	-23.6	-23.6	-23.6	-23.6	-24.0	-24.7	-24.7	-25.2	-26.7	-23.1																						
19-Dec	-24.9	-24.4	-24.1	-22.6	-21.6	-20.9	-20.5	-20.1	-19.6	-19.1	-18.4	-17.3	-16.9	-16.7	-17.3	-18.6	-19.6	-21.1	-21.8	-22.2	-22.9	-23.1	-22.4	-22.4	-20.8	-16.7																						
20-Dec	-21.7	-20.7	-19.4	-18.9	-18.1	-17.3	-16.4	-16.0	-15.5	-14.9	-14.3	-13.4	-12.7	-12.8	DF	-13.1	-13.2	-13.3	-13.0	-13.4	-14.1	-14.1	-13.9	-13.9	-15.4	-12.7																						
21-Dec	-13.8	-13.6	-13.3	-13.4	-13.8	-13.0	-12.6	-12.5	-12.5	-11.4	-9.7	-8.0	-6.2	-4.8	-4.5	-4.7	-4.6	-5.6	-6.5	-7.9	-8.8	-9.4	-9.6	-10.3	-9.6	-4.5																						
22-Dec	-10.5	-10.7	-11.4	-11.9	-12.1	-12.6	-12.3	-12.6	-13.4	-11.7	-10.3	-8.6	-7.0	-5.8	-4.9	-5.0	-6.3	-7.8	-9.1	-9.2	-10.0	-10.0	-10.1	-9.4	-9.7	-4.9																						
23-Dec	-9.5	-9.0	-9.7	-9.3	-8.5	-8.1	-7.3	-6.9	-7.4	-7.4	-6.1	-4.8	-4.2	-3.6	-3.0	-3.1	-3.2	-3.5	-3.8	-3.9	-3.3	-3.0	-3.4	-3.6	-5.7	-3.0																						
24-Dec	-3.2	-2.5	-3.3	-4.2	-3.9	-3.4	-4.6	-4.7	-3.6	-3.3	-1.1	-0.2	0.9	1.1	0.6	0.2	0.0	-0.3	-0.5	-1.2	-1.9	-1.7	-1.0	-1.0	-1.8	1.1																						
25-Dec	-1.5	-1.8	-1.9	-2.2	-2.1	-2.5	-2.5	-2.6	-2.0	-1.7	-0.3	1.1	1.8	1.6	1.1	0.4	-0.1	-2.0	-3.0	-3.2	-3.7	-3.9	-4.0	-4.4	-1.6	1.8																						
26-Dec	-4.5	-4.7	-4.2	-4.7	-4.4	-4.9	-6.0	-6.8	-7.7	-7.5	-5.9	-3.7	-2.2	-1.4	-1.5	-2.5	-4.2	-5.2	-6.4	-6.4	-7.2	-6.9	-7.5	-7.3	-5.2	-1.4																						
27-Dec	-7.7	-7.6	-7.8	-8.0	-8.8	-8.1	-8.2	-7.9	-8.6	-8.3	-7.1	-6.8	-5.7	-5.0	-4.3	-4.3	-5.0	-5.8	-6.3	-6.7	-6.7	-6.8	-6.9	-6.6	-6.9	-4.3																						
28-Dec	-6.4	-7.1	-8.2	-8.2	-7.9	-7.8	-7.8	-7.1	-7.0	-6.8	-6.0	-5.2	-4.2	-3.7	-3.3	-3.4	-3.8	-4.0	-4.1	-4.2	-4.2	-4.2	-4.0	-4.2	-5.5	-3.3																						
29-Dec	-4.2	-4.4	-4.5	-4.6	-4.8	-5.2	-5.8	-6.1	-6.4	-6.6	-6.6	-6.3	-6.1	-5.8	-5.6	-5.9	-6.1	-6.5	-6.8	-7.2	-7.9	-8.3	-8.3	-8.4	-6.2	-4.2																						
30-Dec	-8.6	-8.7	-9.4	-9.6	-9.4	-9.4	-9.8	-10.6	-11.1	-11.1	-11.0	-11.1	-11.2	-11.5	-11.6	-12.1	-12.7	-12.5	-12.5	-12.6	-12.6	-12.8	-12.9	-13.2	-11.2	-8.6																						
31-Dec	-13.4	-13.7	-13.9	-14.0	-14.3	-14.4	-14.4	-14.8	-15.1	-15.1	-15.0	-15.2	-15.4	-15.5	-15.6	-15.7	-16.3	-16.5	-17.4	-18.6	-19.0	-20.0	-19.5	-19.3	-15.9	-13.4																						
																								-11.7	-11.7	-11.7	-11.7	-11.6	-11.5	-11.5	-11.5	-11.6	-11.4	-10.8	-10.1	-9.4	-9.1	-9.0	-9.5	-10.0	-10.6	-11.0	-11.2	-11.4	-11.6	-11.7	-11.7	Diurnal Average
																								2.2	2.0	2.1	1.2	0.8	1.5	1.6	1.5	2.0	2.4	2.8	3.7	4.4	4.3	4.2	3.9	3.3	3.0	2.5	2.5	3.0	3.0	2.9	2.6	Diurnal Maximum
DF - DAS Failure																																																



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Jackfish 1 - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Jackfish 1 - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	110	14.80	14.80
-20 - 0	581	78.20	93.00
0 - 10	52	7.00	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744



Wood Buffalo Environmental Association

Summary of Hour Averages

Relative Humidity 2m (RH2) - %

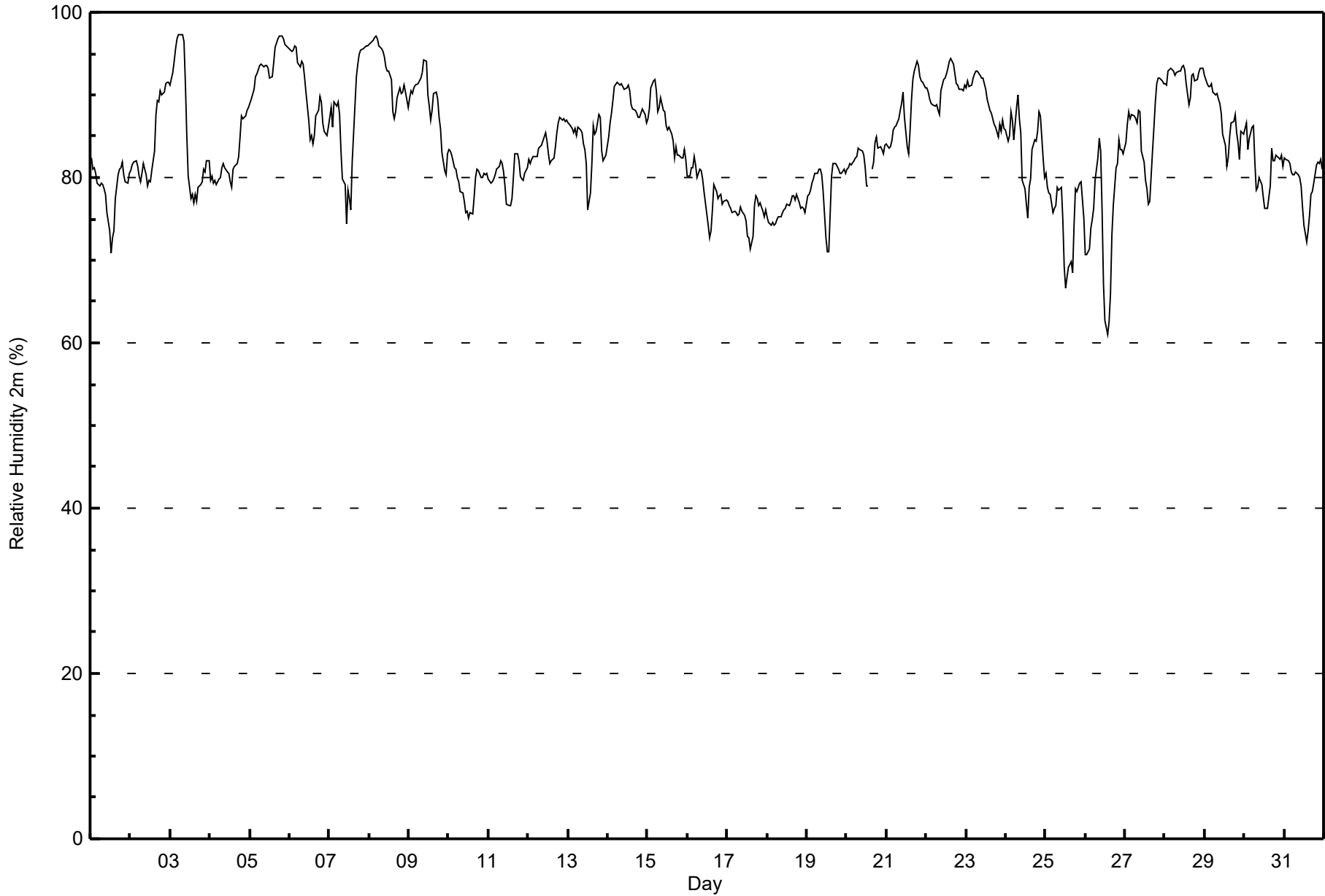
Jackfish 1 - December 2024

Maximum Value: 97.3 % on Dec 3 08:00																						Maximum Daily Average: 93.9 % on Dec 5				Hours in Service: 744																				
Minimum Value: 60.9 % on Dec 26 14:00																						Minimum Daily Average: 75.4 % on Dec 25				Hours of Data: 743																				
Maximum Diurnal Average: 85.6 % at hour 5																						Minimum Diurnal Average: 79.8 % at hour 14				Hours of Missing Data: 1																				
Monthly Average: 84.13 %																						Percentiles: P ₁ = 68.7 P ₁₀ = 76.2 Q ₁ = 79.5 Median = 83.3 Q ₃ = 89.5 P ₉₀ = 92.8 P ₉₉ = 96.8				Hours of Calibration: 0																				
																										Percent Operational Time: 99.9																				
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-Dec	82.4	81.1	81.1	80.5	79.3	79.0	79.3	79.2	78.7	77.9	75.7	73.6	70.8	72.7	73.6	77.4	80.4	81.1	81.2	81.9	80.3	79.4	79.3	80.5	78.6	82.4																				
2-Dec	80.8	81.5	81.8	82.0	81.4	80.2	79.4	80.6	81.8	80.3	79.0	79.7	79.5	80.9	83.2	87.6	89.3	89.1	90.5	90.0	90.3	91.3	91.6	91.6	84.3	91.6																				
3-Dec	91.1	92.7	94.1	95.6	96.8	97.2	97.3	97.3	96.5	91.3	85.1	80.2	77.5	78.0	77.0	78.0	77.1	78.9	79.2	79.5	81.0	80.7	82.0	82.0	86.1	97.3																				
4-Dec	79.7	80.1	79.3	79.6	79.1	79.8	80.0	81.2	81.7	81.3	80.7	80.5	79.5	78.7	81.0	81.3	81.6	82.5	84.9	87.4	87.1	87.5	88.1	88.5	82.1	88.5																				
5-Dec	88.9	89.5	90.7	92.2	92.6	93.0	93.5	93.7	93.5	93.6	93.6	92.1	92.2	93.9	95.7	96.4	96.8	97.2	97.1	96.8	96.1	95.9	95.8	93.9	97.2																					
6-Dec	95.4	95.3	95.3	95.9	95.8	94.0	93.3	94.1	93.7	92.2	90.3	87.0	84.6	85.2	84.1	85.0	87.5	88.1	89.9	89.1	86.6	85.6	85.1	86.1	90.0	95.9																				
7-Dec	87.4	88.4	86.1	89.2	88.6	89.2	87.6	83.3	79.9	79.1	74.4	78.6	77.5	76.1	81.8	88.9	92.1	93.7	94.9	95.3	95.6	95.7	96.0	96.0	87.3	96.0																				
8-Dec	96.2	96.2	96.6	96.9	97.1	96.8	96.0	95.6	95.3	94.5	93.5	92.9	93.0	91.9	88.0	87.2	88.0	89.7	90.8	90.2	90.3	91.2	90.4	88.5	92.8	97.1																				
9-Dec	89.7	90.5	90.1	90.8	91.2	91.3	91.7	92.0	92.7	94.3	94.1	90.0	88.6	86.9	88.1	90.1	90.4	89.5	87.3	85.9	83.0	80.8	80.3	82.9	88.8	94.3																				
10-Dec	83.4	83.3	82.8	81.2	81.0	80.0	79.5	78.4	78.1	77.2	75.8	76.0	75.0	75.7	75.6	77.6	80.1	81.1	80.8	80.1	80.0	80.5	80.4	80.5	79.3	83.4																				
11-Dec	79.8	79.2	79.5	79.9	80.4	81.0	81.4	82.1	81.7	80.7	78.9	76.8	76.7	76.7	77.5	80.0	82.8	82.9	82.1	80.2	79.8	79.6	80.5	81.1	80.1	82.9																				
12-Dec	82.2	81.7	82.2	82.6	82.5	82.6	83.5	83.7	83.9	84.5	85.4	84.5	82.9	81.7	82.0	82.4	83.8	85.4	86.7	87.3	87.0	87.1	86.7	87.0	84.1	87.3																				
13-Dec	86.6	86.4	86.0	85.5	85.9	85.1	86.0	85.7	85.3	84.0	83.3	81.7	76.2	78.1	81.7	86.2	85.3	85.7	87.6	87.3	83.3	82.1	82.3	82.7	84.2	87.6																				
14-Dec	84.9	86.7	87.7	89.4	91.1	91.5	91.3	91.1	91.4	90.9	90.7	90.8	91.2	90.6	88.8	88.4	88.1	87.9	87.3	87.3	87.9	88.3	87.6	86.7	89.1	91.5																				
15-Dec	87.1	88.4	90.9	91.7	91.8	90.5	88.0	88.5	89.6	88.1	87.9	86.2	85.7	86.1	85.3	84.4	82.4	83.7	82.7	82.7	82.4	82.3	83.4	82.2	86.3	91.8																				
16-Dec	80.2	80.2	81.2	81.1	82.6	81.5	80.1	81.1	80.8	79.8	78.3	77.0	74.3	72.7	73.6	76.1	79.1	78.2	77.5	77.8	77.9	76.7	77.1	77.3	78.4	82.6																				
17-Dec	77.2	76.7	76.2	75.8	76.0	75.7	75.4	75.7	76.4	76.0	75.4	74.8	72.9	72.8	71.4	72.8	76.7	77.8	77.4	76.5	77.0	75.9	75.2	76.2	75.6	77.8																				
18-Dec	75.3	74.6	74.2	74.5	74.3	74.4	75.0	75.3	75.2	75.7	76.1	76.3	76.8	76.6	77.1	77.8	77.8	77.2	78.0	77.0	76.4	76.5	76.3	75.7	76.0	78.0																				
19-Dec	77.7	78.0	78.5	79.3	79.8	80.5	80.5	81.1	81.0	80.4	78.3	72.6	71.0	71.0	75.5	80.2	81.8	81.7	81.4	81.0	80.5	80.5	80.9	80.5	78.9	81.8																				
20-Dec	81.0	81.2	81.8	81.6	82.0	82.4	82.6	83.5	83.4	83.2	82.6	81.1	79.0	79.0	DF	81.1	81.9	84.2	85.0	83.5	83.7	83.3	82.9	83.9	82.3	85.0																				
21-Dec	84.0	83.6	83.7	84.4	85.7	86.1	86.3	87.1	88.1	88.9	90.3	87.3	83.8	82.9	85.5	89.4	91.8	92.8	94.1	93.5	92.2	91.6	91.6	90.8	88.1	94.1																				
22-Dec	90.9	90.3	89.6	89.1	88.8	88.6	88.8	88.2	87.7	90.5	91.9	92.0	92.5	93.3	94.0	94.5	93.7	92.5	91.4	91.2	90.6	90.7	90.5	91.3	90.9	94.5																				
23-Dec	90.9	91.7	91.0	91.2	92.1	92.5	92.8	92.8	92.4	92.1	92.1	91.4	90.7	89.6	88.2	87.7	87.1	86.4	86.0	84.9	86.5	85.5	86.9	85.9	89.5	92.8																				
24-Dec	85.8	84.3	85.1	87.9	87.0	84.6	88.4	90.0	87.1	85.4	79.6	78.7	76.8	75.2	78.7	79.9	83.3	84.6	84.5	85.7	87.9	87.4	82.1	80.1	83.8	90.0																				
25-Dec	80.5	78.9	78.1	78.0	75.8	76.3	76.6	78.9	78.5	78.8	74.9	69.1	66.6	68.0	69.2	69.9	68.4	74.2	78.7	78.3	79.3	79.5	77.3	75.1	75.4	80.5																				
26-Dec	70.6	70.6	71.4	73.9	74.9	76.3	79.6	82.4	84.8	83.2	76.1	67.1	62.7	60.9	62.6	65.9	73.1	76.6	81.1	81.7	84.6	83.3	83.4	82.9	75.4	84.8																				
27-Dec	84.3	86.5	88.0	87.1	87.7	87.5	87.1	86.6	88.1	88.0	83.2	81.9	79.6	78.6	76.8	77.1	83.2	86.2	89.2	91.3	92.0	92.0	91.7	91.4	86.0	92.0																				
28-Dec	91.3	91.1	92.9	93.2	93.0	92.8	92.4	92.8	92.8	92.9	93.3	93.5	93.1	91.3	88.9	89.7	92.4	92.5	91.7	91.8	92.7	93.2	93.2	93.2	92.3	93.5																				
29-Dec	92.4	91.4	91.0	91.0	91.4	90.3	90.1	90.2	89.4	89.0	87.7	85.3	83.8	81.4	82.3	84.9	86.5	86.8	87.6	85.5	84.2	82.2	85.5	85.2	87.3	92.4																				
30-Dec	85.9	86.6	83.4	84.8	86.0	86.2	81.8	78.5	78.8	80.0	79.1	77.6	76.2	76.3	76.2	79.0	83.6	82.0	82.0	82.7	82.6	82.2	82.7	81.3	81.5	86.6																				
31-Dec	82.4	82.3	82.0	81.8	80.7	80.4	80.4	80.6	80.3	80.0	79.0	76.4	74.2	72.3	73.5	75.5	77.9	78.4	79.3	81.6	81.9	81.7	82.1	81.0	79.4	82.4																				
																						84.7	84.8	84.9	85.4	85.6	85.4	85.3	85.5	85.4	85.0	83.4	81.7	80.2	79.8	80.5	82.3	84.0	84.8	85.4	85.3	85.2	84.9	84.8	84.6	Diurnal Average
																						96.2	96.2	96.6	96.9	97.1	97.2	97.3	97.3	96.5	94.5	94.1	93.5	93.1	93.3	94.0	95.7	96.4	96.8	97.2	97.1	96.8	96.1	96.0	96.0	Diurnal Maximum
DF - DAS Failure																																														



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Jackfish 1 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Jackfish 1 - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	206	27.73	27.73
80 - 100	537	72.27	100.00

Total Number of Valid Hours: 743

Total Number of Hours: 744

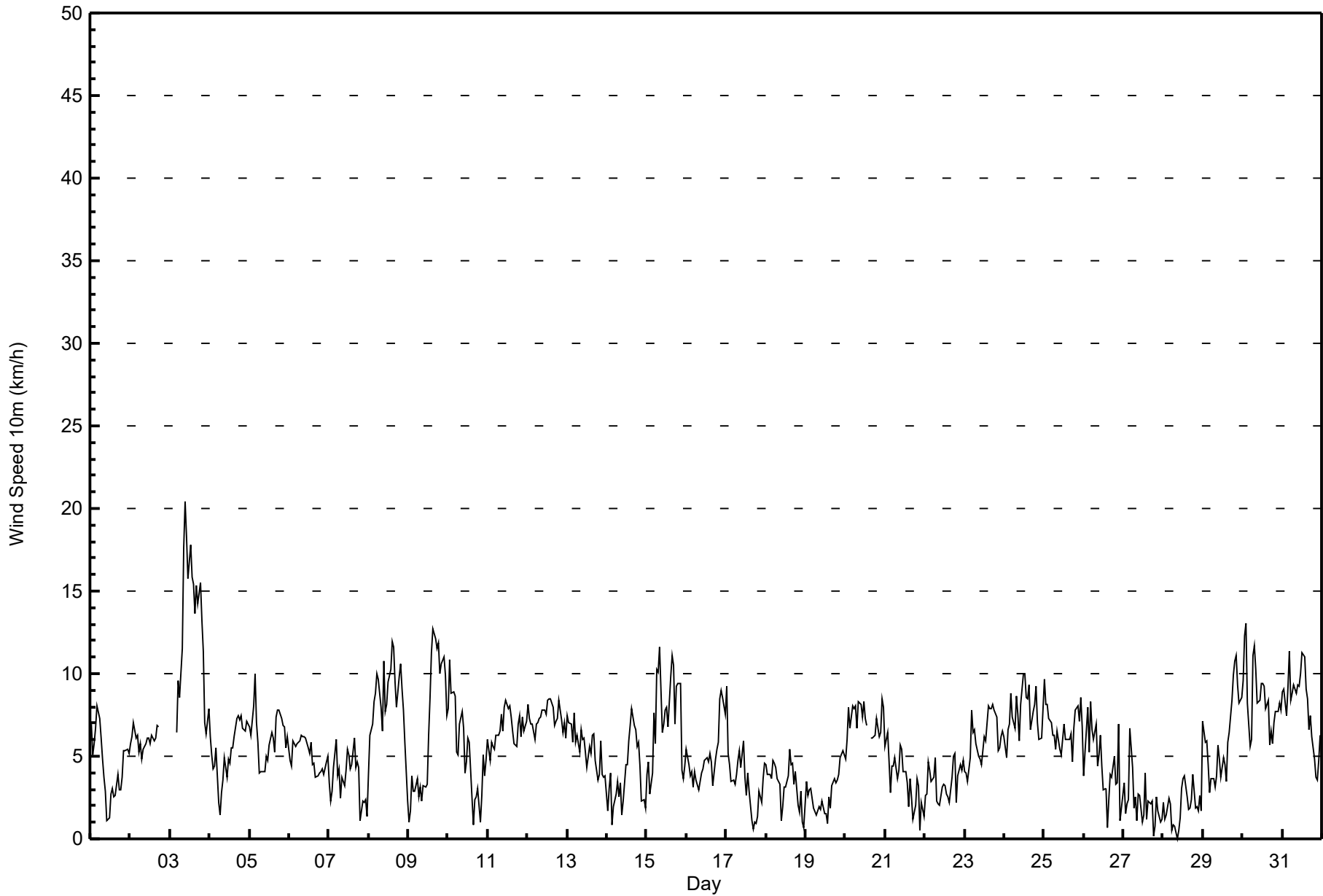


Maximum Speed: 20 km/h on Dec 3 10:00		Maximum Daily Speed Average: 12.9 km/h on Dec 3		Hours in Service: 744																							
Minimum Speed Value: 0 km/h on Dec 28 09:00		Minimum Daily Speed Average: 0.1 km/h on Dec 18		Hours of Data: 733																							
Maximum Diurnal Speed Average: 2.5 km/h at hour 5		Minimum Diurnal Speed Average: 1.7 km/h at hour 16		Hours of Missing Data: 11																							
Monthly Average Velocity: 2.0 km/h 237.4 deg		Percentiles: P ₁ = 1 P ₁₀ = 2 Q ₁ = 4 Median = 5 Q ₃ = 7 P ₉₀ = 9 P ₉₉ = 15		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-Dec	NW7	NNW5	NNW6	NNW7	NNW8	NNW7	NNW6	NW5	NW4	NW3	NNW1	SSE1	SE3	SE3	SSE3	SE3	SE4	SSE3	S3	SSE4	SSE5	SSE5	S5	SSE5	WNW0.6	NNW8	
2-Dec	SSE6	SSE6	SSE7	SSE6	S6	S5	S6	S5	S5	S6	S6	S6	S6	S6	S6	S6	S7	S7	UO	UO	UO	UO	UO	UO	S5.9	SSE7	
3-Dec	UO	UO	UO	UO	WNW6	WNW10	WNW9	NW12	NW18	NW20	NW18	NW16	NW18	NW16	NW15	NW14	NW15	NW14	NW16	NW13	NW11	WNW7	WNW6	WNW8	NW12.9	NW20	
4-Dec	WNW6	WNW5	WNW4	WNW4	NW5	WNW2	ENE1	SSE3	SSE4	SSE5	SSE4	SE5	SSE5	SSE6	SSE6	SSE6	SSE7	SSE7	S7	S7	S7	S7	S7	S7	S3.4	SSE7	
5-Dec	S7	S6	SSW8	SSW10	SSW7	SSW6	SSW4	S4	SSW4	S4	SSW5	S5	SSW6	SSW6	SSW6	SSW5	SSW7	SSW8	SSW8	SSW7	SSW7	SSW7	SSW6	SSW6	SSW6.2	SSW10	
6-Dec	SW5	SW4	SSW6	SSW6	SSW6	SW6	SSW6	SSW6	SSW6	SSW6	SSW6	SSW6	SSW5	SSW6	SW5	SW5	SW4	SW4	SSW4	SW4	WSW4	W4	WNW5	WNW5	SW4.7	SSW6	
7-Dec	WNW3	NW2	W3	W4	WNW6	W4	WNW4	WNW2	SW4	WSW3	WSW4	SW5	SSW5	S4	S4	S6	SSW4	S5	S4	S1	S2	SSW2	NNW2	WNW1	SW2.6	S6	
8-Dec	NW4	NW6	NW7	NW8	NW9	NNW10	NNW10	NNW8	NNW6	NW11	NW8	NW8	NW9	NW10	NW12	NW12	NNW9	NNW8	NNW10	NW11	NNW9	NNW8	NW6	WNW2	NW8.3	NW12	
9-Dec	W1	W2	WNW4	W3	WNW3	W4	W3	W3	W2	SW3	W3	WNW3	WNW6	NW9	NW11	NW13	NW12	N12	N12	N10	NNW11	NNW11	NNW10	NNW7	NW5.7	NW13	
10-Dec	NW8	NW11	NW9	NW9	NW9	WNW5	WNW5	NW7	NW8	NW7	NW4	NW5	NW6	NNW6	NNW2	NW1	SSE2	S3	SE3	SSW1	SSE3	SE5	SE4	SE5	NW3.1	NW11	
11-Dec	ESE6	SE5	SE6	SE6	SE5	SE6	ESE6	SE7	SE8	SE6	SE8	SE8	SE8	SE8	SE7	ESE7	SE6	SE6	SE7	SSE7	SSE6	SSE7	SE7	SSE7	SE6.6	SE8	
12-Dec	SSE8	SSE7	SSE7	SSE7	SSE6	SSE7	SSE7	SSE7	SSE7	SSE8	SSE8	SSE8	S8	S8	S8	S8	S7	S7	S7	S8	S7	S6	S7	S6	SSE7.3	S8	
13-Dec	S7	S7	S7	S6	S8	S6	S6	S5	S7	S6	S6	S5	S4	S6	S5	SSW6	SSW6	S5	S4	S4	SSW6	S4	S4	S4	S5.5	S8	
14-Dec	S2	SE3	SSE4	S1	N2	ENE3	SSE3	SE3	ENE3	NE1	E2	NE4	NE5	ENE6	ENE7	ENE8	ENE7	ENE7	ENE6	ENE6	E4	ENE2	NNE2	NNW2	ENE3.1	ENE8	
15-Dec	NW4	NNW5	WNW3	WNW4	NW8	WNW6	NNW10	NNW10	NW12	NW6	WNW7	NW8	NW8	NW7	NNW10	NW11	NW11	WNW7	NW9	NW9	WNW4	WNW4	WNW4	WNW4	NW7.1	NW12	
16-Dec	WNW5	WNW5	WNW4	WNW4	W3	WNW4	WNW4	W3	W3	W4	WNW4	WNW5	WNW5	WNW5	WNW5	WNW5	W3	WNW5	WNW5	WNW6	WNW8	WNW9	WNW9	WNW8	WNW5.0	WNW9	
17-Dec	WNW9	WNW5	WNW4	WNW3	W4	W3	WNW4	WNW5	WNW5	WNW4	WNW6	WNW4	WNW3	NW4	WNW3	W1	WNW1	SW1	SW1	WSW1	SW3	SSW2	S4	S5	W2.8	WNW9	
18-Dec	S5	S4	S4	S4	S5	S5	SSE4	SE4	SE3	E1	NNE2	NNE3	NNE3	NNW4	N5	N5	NW5	NNW3	NNW4	NW2	WNW2	NW3	WNW1	SW1	NNW0.1	N5	
19-Dec	SSE3	S3	S3	S3	S2	S2	SSE1	S2	S2	S2	SW2	W2	NNW2	SE1	SSE3	ESE2	SSE3	SSE4	SSE3	S4	S4	S5	SSE5	SSE5	S2.5	SSE5	
20-Dec	SSE5	SSE6	SSE8	SE7	SE8	SE8	SSE8	SE7	SE8	SE8	SSE7	SSE8	S7	S7	DF	S6	S6	SSW6	SSW6	SSW7	SSW6	SSW6	SSW8	SSW8	S6.4	SSW8	
21-Dec	S6	SSW6	S5	S3	S4	S4	S5	S4	S4	SSW6	SSW5	S4	SSE4	S3	S2	S4	SSE3	SE1	SE2	S4	S3	ESE0	ENE2	W1	S3.3	SSW6	
22-Dec	S3	SSW3	S5	S4	S3	S4	S5	SSW2	S2	SSE2	SSE3	S3	S3	S3	S3	SSW2	S4	S5	S5	SW2	S4	S5	SSW4	S5	S3.4	S5	
23-Dec	SSW4	S4	S3	S5	S8	S6	S7	S6	S5	S5	SSW4	SSW5	SSW6	SSW6	SSW8	SSW8	SSW8	SSW8	SSW8	SSW7	SW5	SSW6	SSW6	SW7	SSW5.9	SSW8	
24-Dec	SW6	SW5	SSW7	SSW7	SSW9	SSW7	S7	S9	SSE8	SSE6	SSE8	SSE10	SSE10	S9	SSE8	SSE9	S7	SSE8	SSE8	S9	S7	S6	SW6	SW8	S7.1	SSE10	
25-Dec	SW10	SW8	SSW8	SSW7	SSW7	SSW6	SSW6	SSW5	SSW7	SSW5	W5	W6	SW7	SW6	SSW6	SSW6	SSW6	S5	S7	S8	S8	S7	S9	S7	SSW6.2	SW10	
26-Dec	SSE4	SSE5	S8	SSE5	S8	S7	S6	S7	S4	S5	S6	S4	S3	S3	S1	SSE2	SSE4	SSE4	S5	S3	S3	S7	SE1	SE2	S4.5	S8	
27-Dec	SSE3	S2	ESE2	ENE2	S7	S4	WNW2	NNW3	SSW1	WNW3	NNW3	ESE1	WSW1	SE4	SE1	N2	NW2	NE2	E0	SSE1	SSE3	SW2	ESE1	SSE1	S0.6	S7	
28-Dec	S2	SSW1	SSE1	SSE2	SW2	SW0	SW1	W1	WSW0	WNW1	WNW1	WNW3	WNW4	WNW4	W3	W2	W2	W2	W4	W2	W2	W2	W3	W2	W1.5	W4	
29-Dec	NW7	NW6	NW6	WNW4	WNW3	WNW4	W4	W3	WNW4	NW6	WNW5	WNW4	NW5	WNW4	WNW3	NW6	WNW6	NW8	NW10	NW11	NW11	NNW9	NW8	NW9	NW5.9	NW11	
30-Dec	NW10	NW12	NW13	NW8	WNW6	WNW6	NW11	NW12	WNW10	WNW8	WNW8	NW9	WNW9	WNW9	WNW8	WNW8	WNW6	WNW7	WNW6	WNW7	WNW8	WNW8	WNW8	WNW8	NW8.4	NW13	
31-Dec	NW9	WNW9	WNW7	NW9	NW11	NW8	NW9	NW9	NW9	NW9	NW9	WNW9	WNW10	NW11	NW11	NW9	NW9	WNW7	WNW7	WNW6	WNW5	WNW4	WNW4	WNW5	NW6	NW8.0	NW11
WSW2.1WSW2.0 SW2.2 SW2.2 SW2.5 SW2.3 SW1.9WSW1.7WSW1.7WSW1.9WSW2.1WSW1.9WSW2.1WSW1.8WSW1.8WSW1.7WSW2.0 SW1.7WSW1.7WSW1.9WSW2.1 SW2.0 SW2.0 SW2.3																								Diurnal Average			
SW10 NW12 NW13 SSW10 NW11NNW10 NW11 NW12 NW18 NW20 NW18 NW16 NW18 NW16 NW15 NW14 NW15 NW14 NW16 NW13 NW11NNW11NNW10 NW9																								Diurnal Maximum			
DF - DAS Failure UO - Unstable Operation																											
All monthly, daily, and diurnal averages have been calculated using vector methods																											



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Jackfish 1 - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Jackfish 1 - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	367	50.07	50.07
6 - 11	343	46.79	96.86
12 - 19	22	3.00	99.86
20 - 28	1	0.14	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 733

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Jackfish 1 - December 2024**

Wind Speed Ranges (km/h)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 5	4	4	4	6	4	6	21	43	91	25	22	6	36	67	15	13	367
6 - 11	1	0	0	7	0	4	20	40	72	61	8	0	1	43	63	23	343
12 - 19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	22
20 - 28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	7	4	4	13	4	10	41	83	163	86	30	6	37	110	99	36	733

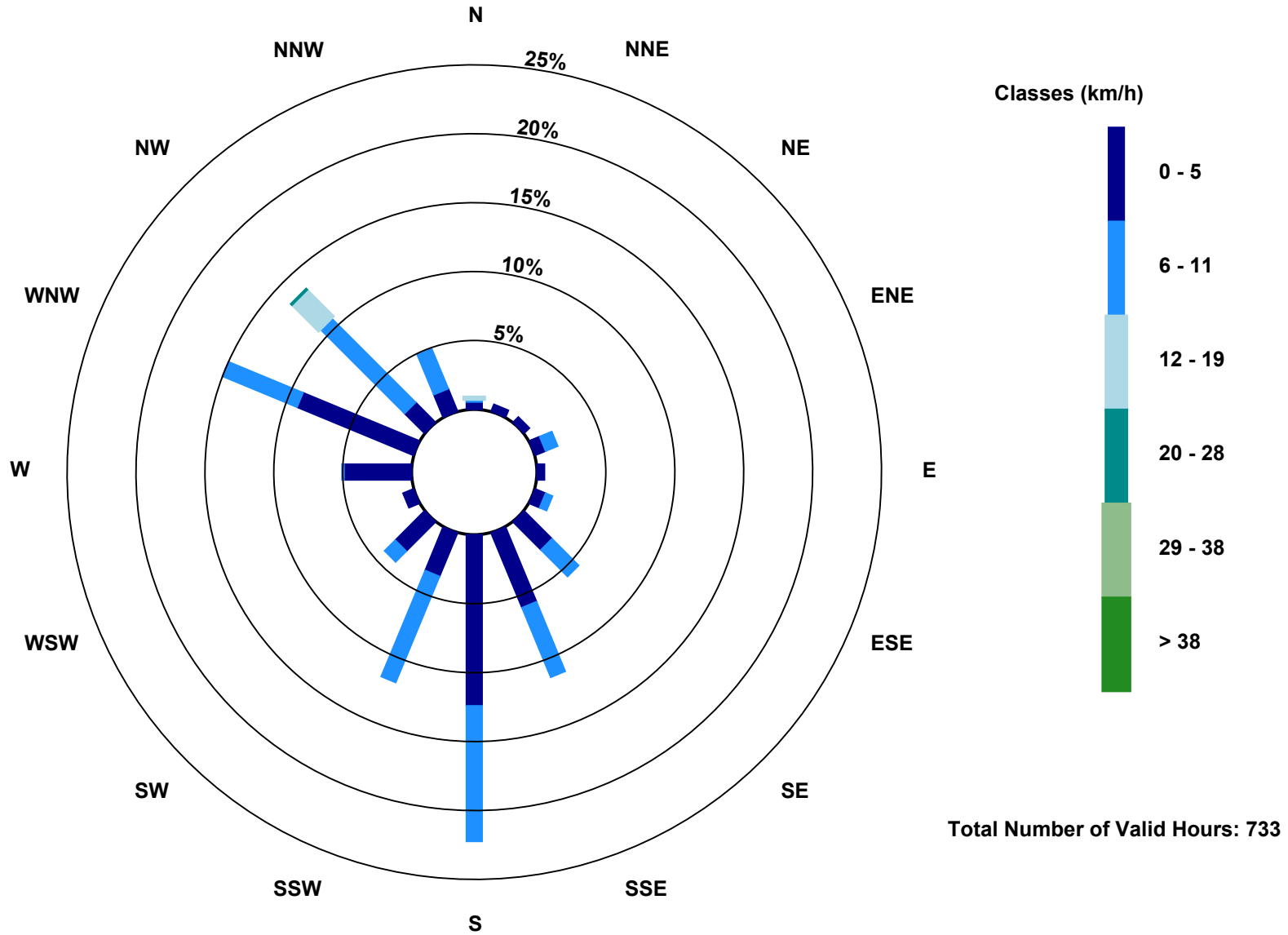
Total Number of Valid Hours: 733

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Jackfish 1





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Jackfish 1 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 5 km/h on Dec 3 10:00 Minimum Value: 1 km/h on Dec 1 18:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 2 P ₉₀ = 3 P ₉₉ = 4																	Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5									
Day	Hourly Period Ending At (MST)																								Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	1	1	1	2	2	2	1	1	1	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	2
2-Dec	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	UO	UO	UO	UO	UO	UO	UO	3
3-Dec	UO	UO	UO	UO	2	3	2	3	4	5	5	4	5	4	4	4	4	4	3	3	3	2	1	1	1	5
4-Dec	1	1	1	1	2	2	1	1	1	2	1	2	2	2	2	2	2	3	3	3	2	2	2	2	2	3
5-Dec	2	3	3	3	3	2	2	1	1	1	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	3
6-Dec	2	2	2	2	2	2	2	2	2	3	3	2	2	2	3	2	2	2	1	2	2	2	2	2	2	3
7-Dec	1	1	2	2	2	2	1	1	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1	1	1	2
8-Dec	3	2	1	2	2	2	3	2	2	2	2	2	3	3	3	3	3	2	2	2	2	2	2	2	2	3
9-Dec	1	1	2	1	1	1	1	1	1	1	1	1	2	3	3	3	2	4	4	3	4	3	3	2	2	4
10-Dec	1	2	2	2	3	1	1	2	2	3	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	3
11-Dec	2	1	1	1	1	2	1	1	2	2	2	2	2	2	2	1	1	1	1	2	2	2	1	1	1	2
12-Dec	2	2	2	2	2	2	2	3	2	3	3	3	3	3	3	3	3	3	3	3	2	2	3	2	2	3
13-Dec	2	2	2	2	3	2	2	2	2	2	2	2	2	2	1	2	2	2	1	1	2	1	1	1	1	3
14-Dec	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	2	3	2	2	2	2	1	1	1	3
15-Dec	1	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	3	2	2	4	2	2	1	1	1	4
16-Dec	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1	1	1	2	3	2	2	2	3
17-Dec	2	2	2	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
18-Dec	1	2	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2
19-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20-Dec	2	2	2	2	2	2	3	2	2	2	3	3	3	3	DF	2	2	3	3	3	3	2	3	3	3	3
21-Dec	3	2	2	1	1	1	1	1	1	2	3	2	1	1	1	1	2	2	1	2	2	1	2	1	1	3
22-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2	2	2	2	2
23-Dec	2	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	2	2	3	3	3
24-Dec	3	3	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3	3	2	2	2	3	3	3
25-Dec	3	3	2	3	3	3	3	2	3	3	3	3	3	3	3	2	2	1	2	2	2	2	2	3	3	3
26-Dec	1	1	2	1	2	2	2	2	1	2	2	2	1	1	1	1	1	1	1	2	2	2	2	1	2	2
27-Dec	2	1	1	1	2	2	1	2	2	1	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1	2
28-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29-Dec	2	1	1	2	1	1	1	1	1	1	1	1	2	1	1	2	1	2	2	2	2	2	2	2	2	2
30-Dec	2	3	3	2	1	2	3	3	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	3
31-Dec	2	2	2	3	3	2	2	2	2	2	3	3	3	4	2	2	2	2	1	1	1	1	1	1	1	4
																	Diurnal Maximum									
																	3 3 3 3 3 3 3 3 4 5 5 4 5 4 4 4 4 4 4 4 4 3 3 3									
DF - DAS Failure UO - Unstable Operation																										



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Jackfish 1 - December 2024

Direction of Maximum Speed: 322 deg on Dec 3 10:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 313.5 deg on Dec 3	Hours of Data: 733
Direction of Minimum Speed: 247 deg on Dec 28 09:00	Hours of Missing Data: 11
Direction of Minimum Daily Speed Average: 0.1 deg on Dec 18	Percent Operational Time: 98.5
Monthly Average Direction: 237.4 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-Dec	326	335	339	329	327	330	327	326	312	321	345	151	143	135	165	126	139	163	169	155	160	168	171	163	300.5
2-Dec	164	158	158	167	179	185	184	182	175	177	179	179	180	180	182	188	189	188	UO	UO	UO	UO	UO	UO	177.4
3-Dec	UO	UO	UO	UO	288	293	293	306	320	322	317	311	316	319	320	316	316	316	320	321	318	303	295	298	313.5
4-Dec	296	288	291	292	316	291	68	147	155	148	150	146	168	157	163	162	167	168	171	180	179	176	177	183	180.9
5-Dec	184	186	198	207	211	197	200	191	196	191	194	189	196	199	202	199	203	202	205	207	211	204	204	203	199.9
6-Dec	214	217	202	200	203	216	207	202	207	206	204	205	195	200	236	221	225	224	212	217	250	260	286	285	217.1
7-Dec	285	305	267	278	287	276	282	283	218	240	243	215	206	190	187	175	201	191	185	184	179	194	341	283	230.7
8-Dec	315	324	322	326	324	329	339	339	340	322	313	313	317	322	323	324	330	336	329	326	330	329	311	285	325.3
9-Dec	274	271	282	274	282	277	270	275	263	221	270	283	293	306	322	323	322	352	352	351	336	334	330	330	319.3
10-Dec	325	321	312	312	315	298	293	311	316	315	306	324	321	344	333	320	156	172	145	205	151	125	125	124	315.2
11-Dec	123	130	124	133	138	131	122	124	133	135	126	133	131	133	133	122	126	128	136	147	151	153	144	153	133.9
12-Dec	155	158	151	157	161	162	161	161	165	165	168	168	169	169	173	176	176	177	177	177	178	181	177	181	168.4
13-Dec	178	180	182	181	180	184	176	183	182	186	186	184	184	184	186	196	196	185	175	173	197	176	182	174	183.4
14-Dec	174	139	150	188	11	78	154	137	65	45	100	52	47	58	60	65	61	76	65	58	86	64	19	327	72.2
15-Dec	323	328	302	301	305	303	328	327	324	307	303	310	312	310	328	325	321	298	307	312	316	296	283	287	313.6
16-Dec	293	289	288	287	277	290	291	278	277	280	285	293	292	288	289	285	280	284	288	289	302	302	301	299	290.8
17-Dec	302	289	286	285	278	279	284	286	296	287	303	291	298	316	297	273	298	232	220	255	218	211	181	173	280.0
18-Dec	172	181	182	183	179	180	152	128	125	82	17	13	18	348	357	5	318	339	335	325	300	323	284	219	342.1
19-Dec	165	184	180	176	179	184	167	170	191	191	218	261	332	140	150	106	167	159	166	173	170	175	159	151	170.8
20-Dec	158	148	152	143	134	145	149	140	142	143	157	161	173	178	DF	189	190	197	202	199	196	202	206	202	168.8
21-Dec	191	194	169	189	180	188	174	177	180	196	196	184	164	175	170	173	167	133	138	184	183	102	72	260	179.7
22-Dec	186	196	181	182	185	180	179	210	182	165	163	175	173	185	188	192	172	178	176	224	181	181	193	189	182.6
23-Dec	199	191	174	178	171	169	170	180	182	189	200	198	207	203	205	205	206	204	200	204	215	202	204	214	195.3
24-Dec	232	223	207	208	205	208	178	173	165	156	163	154	161	170	166	168	172	163	167	171	181	189	215	216	181.2
25-Dec	216	219	208	203	201	196	203	194	197	207	264	277	222	220	201	196	192	173	175	177	175	178	176	171	199.9
26-Dec	150	158	172	164	174	175	174	176	175	178	173	177	191	171	188	164	167	153	175	180	184	177	144	144	171.5
27-Dec	165	171	108	60	179	183	302	329	192	283	327	109	245	135	128	350	321	38	81	168	168	235	117	166	173.1
28-Dec	181	210	148	160	218	232	226	264	247	303	296	295	302	297	280	276	271	276	279	275	273	274	277	271	267.7
29-Dec	312	304	305	294	282	285	278	276	289	306	299	295	305	301	284	306	303	315	325	322	326	327	321	317	309.1
30-Dec	321	326	322	312	295	298	304	308	301	302	302	304	302	300	295	299	298	296	294	299	301	303	301	303	305.1
31-Dec	307	303	302	311	322	314	307	306	308	314	306	303	315	313	313	307	301	303	299	296	291	295	293	304	307.3

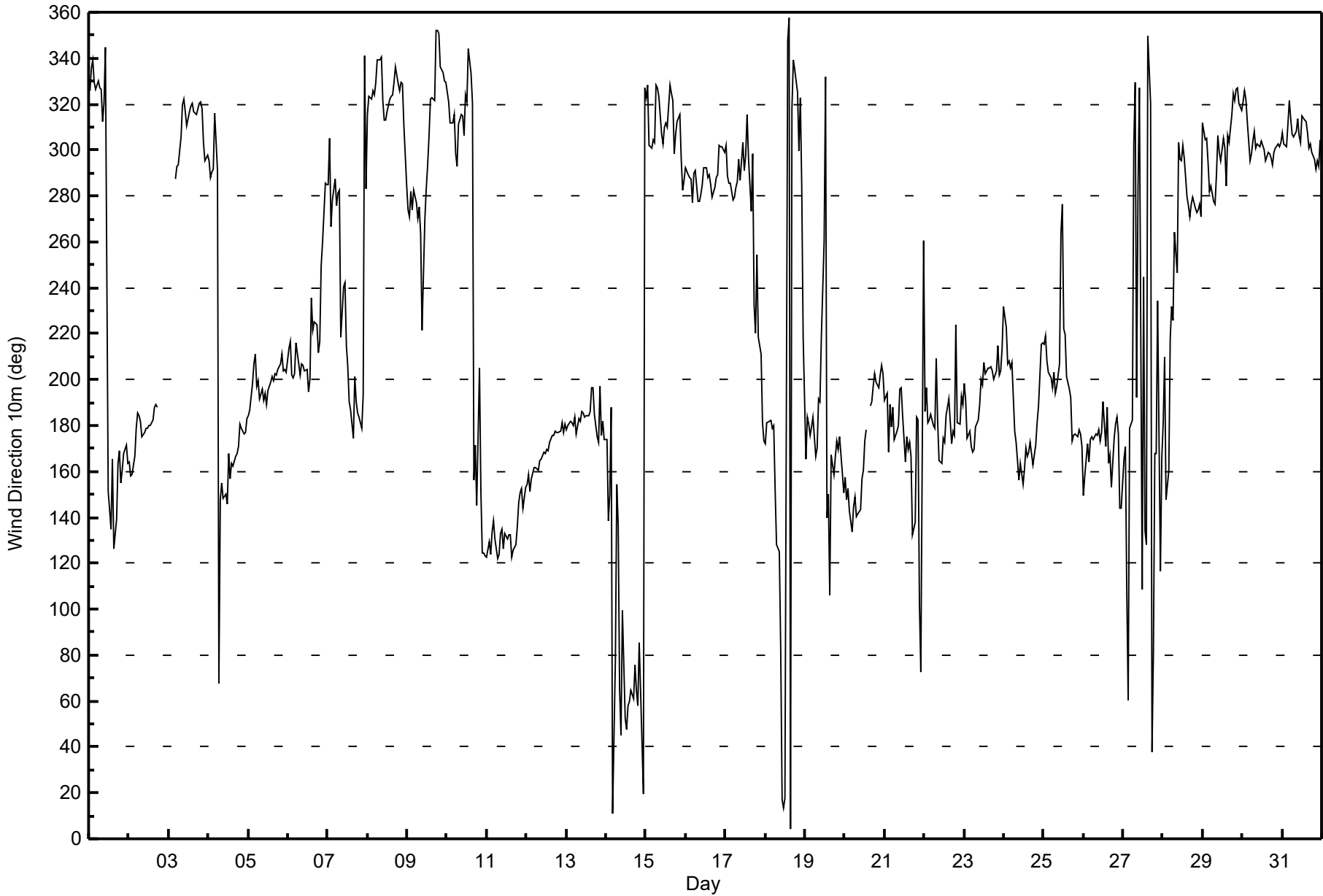
237.7 239.9 221.6 230.5 232.4 230.6 232.1 239.7 238.4 246.6 243.6 240.4 249.1 244.5 258.4 248.9 238.1 228.0 237.6 239.6 238.0 229.3 233.2 228.4
 Diurnal Average

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 10m (WD10) - deg
Jackfish 1 - December 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Jackfish 1 - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 99 deg on Dec 27 12:00 Minimum Value: 8 deg on Dec 18 05:00 Percentiles: P ₁ = 10 P ₁₀ = 13 Q ₁ = 16 Median = 23 Q ₃ = 33 P ₉₀ = 51 P ₉₉ = 82																			Hours in Service: 744 Hours of Data: 733 Hours of Missing Data: 11 Hours of Calibration: 0 Percent Operational Time: 98.5						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	14	19	16	17	13	15	15	17	19	34	71	80	39	35	37	22	17	14	12	21	21	27	27	28	80
2-Dec	28	20	21	25	31	36	31	33	30	29	29	32	30	31	34	28	30	31	UO	UO	UO	UO	UO	UO	36
3-Dec	UO	UO	UO	UO	17	16	15	13	13	15	14	13	13	14	14	13	12	12	12	11	11	16	13	10	17
4-Dec	15	13	14	15	24	30	53	31	25	23	32	24	27	21	23	23	22	24	28	31	26	28	27	53	
5-Dec	31	43	33	27	43	35	46	38	30	32	38	34	32	29	28	19	16	19	22	18	26	27	26	24	46
6-Dec	47	41	24	29	38	42	36	29	35	49	51	54	61	50	75	60	64	51	40	55	71	75	58	34	75
7-Dec	43	80	73	50	29	51	40	84	42	27	26	25	18	21	18	11	32	19	18	85	41	40	39	37	85
8-Dec	39	11	12	13	16	17	23	21	23	13	16	16	14	14	14	23	20	15	15	15	15	20	43	43	
9-Dec	37	30	30	44	47	30	44	42	53	45	54	34	17	18	14	13	12	28	24	24	20	18	14	12	54
10-Dec	10	9	13	12	13	16	16	12	10	19	19	22	17	27	41	70	54	22	22	40	21	15	21	20	70
11-Dec	17	19	16	16	17	17	16	16	14	15	17	17	16	17	17	14	10	12	14	13	14	12	14	11	19
12-Dec	12	16	15	18	23	22	21	22	23	24	24	25	25	26	25	29	32	31	28	25	28	29	25	25	32
13-Dec	23	23	24	28	24	27	26	30	30	30	28	30	40	24	25	18	17	28	21	20	34	41	35	25	41
14-Dec	64	27	18	85	41	35	18	40	26	70	36	32	32	29	29	28	30	27	30	35	55	74	44	66	85
15-Dec	20	23	54	39	15	17	14	15	12	18	13	15	15	16	13	13	16	16	15	18	14	24	24	22	54
16-Dec	21	22	28	30	34	30	26	36	35	38	39	31	28	39	24	22	29	21	21	18	15	14	14	19	39
17-Dec	14	24	31	38	30	23	13	14	16	27	20	34	40	29	31	58	57	44	65	52	28	30	21	14	65
18-Dec	14	13	10	11	8	9	11	44	18	65	33	32	32	30	23	23	16	37	26	26	39	16	19	41	65
19-Dec	15	14	19	23	22	39	16	25	39	47	47	72	74	96	20	36	15	11	10	11	11	8	13	9	96
20-Dec	15	17	17	20	16	18	18	16	17	17	22	22	30	32	DF	30	34	35	42	26	29	33	29	26	42
21-Dec	54	33	57	37	14	14	15	14	13	22	25	32	25	24	61	13	43	63	45	18	26	84	63	38	84
22-Dec	17	11	17	13	14	12	10	29	44	27	20	23	27	29	32	29	18	18	21	51	31	22	33	35	51
23-Dec	37	28	18	23	16	14	17	27	25	30	27	25	25	22	18	20	22	23	24	36	60	53	33	49	60
24-Dec	68	60	30	27	18	19	14	12	14	17	17	16	20	24	18	20	50	25	22	16	23	22	30	29	68
25-Dec	22	30	23	31	41	48	42	51	38	63	75	71	53	60	46	36	27	24	14	14	14	16	14	13	75
26-Dec	15	19	14	13	16	27	16	17	36	28	24	52	58	24	77	12	13	25	11	53	24	17	60	65	77
27-Dec	15	26	35	52	16	43	49	64	79	17	59	99	72	20	54	29	23	33	38	58	14	43	84	25	99
28-Dec	31	73	39	18	39	78	48	20	61	90	33	22	23	22	35	33	25	36	30	30	30	26	30	18	90
29-Dec	15	14	15	23	29	34	33	32	27	14	21	26	19	22	31	18	17	14	14	13	13	13	15	15	34
30-Dec	14	13	12	11	16	15	13	13	13	16	14	15	15	15	17	17	15	18	18	15	14	14	14	13	18
31-Dec	15	13	15	14	14	15	14	15	15	13	15	15	15	15	13	13	13	14	12	15	19	16	14	15	19
68 80 73 85 47 78 53 84 79 90 75 99 74 96 77 70 64 63 65 85 71 84 84 66																								Diurnal Maximum	
DF - DAS Failure UO - Unstable Operation																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS508 KIRBY NORTH DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS 508)
 DECEMBER 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	35	45	98.66	4.2	0	1.5	0
H2S (ppb) Average	696	39	48	98.79	0.4	0	0.2	0
THC (ppm) Average	699	35	45	98.66	3.2	-	2.6	-
NO2 (ppb) Average	697	37	47	98.66	16.9	0	6.2	-
NO (ppb) Average	697	37	47	98.66	37.6	-	8.9	-
NOX (ppb) Average	697	37	47	98.66	54.5	-	14.3	-
Temperature 2 m (C) Average	734	0	10	98.66	4.2	-	1.7	-
Relative Humidity (%) Average	734	0	10	98.66	98.9	-	94.5	-
Wind Speed 10 m (km/h) Average	722	0	22	97.04	22	-	17	-
Wind Direction 10 m (deg) Average	722	0	22	97.04	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS508)
 DECEMBER 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	0.48	0.7	-	0	0	0.1	0.3	0.5	1.2	4.2
H2S (ppb) Average	696	0.09	0.1	-	0	0	0.1	0.1	0.1	0.2	0.4
THC (ppm) Average	699	2.38	0.1	-	2.1	2.3	2.3	2.4	2.4	2.5	3.2
NO2 (ppb) Average	697	2.87	2.2	-	0.2	0.6	1.2	2.4	3.9	5.7	16.9
NO (ppb) Average	697	0.79	3.1	-	0	0	0	0.1	0.3	1.1	37.6
NOX (ppb) Average	697	3.65	4.5	-	0.2	0.7	1.4	2.6	4.5	7	54.5
Temperature 2 m (C) Average	734	-11.18	7.5	-	-29.6	-21.5	-17	-9.3	-5.5	-2.5	4.2
Relative Humidity (%) Average	734	85.45	6.8	-	66.7	76.9	80.4	85.2	91.1	93.9	98.9
Wind Speed 10 m (km/h) Average	722	10	4	-	1	5	7	10	13	15	22
Wind Direction 10 m (deg) Average	722	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - KIRBY NORTH (AMS508)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL PARAMETERS	11 Dec 2024 06:00	11 Dec 2024 10:00	5	Station power failure
ALL PARAMETERS	11 Dec 2024 13:00	11 Dec 2024 17:00	5	Station power failure
Wind Speed, Wind Direction	02 Dec 2024 20:00	03 Dec 2024 05:00	10	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	10 Dec 2024 10:00	10 Dec 2024 10:00	1	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	10 Dec 2024 12:00	10 Dec 2024 12:00	1	Flat line in sensor output signal - Sensor frozen



Wood Buffalo Environmental Association

Summary of Hour Averages

Sulphur Dioxide (SO₂) - ppb

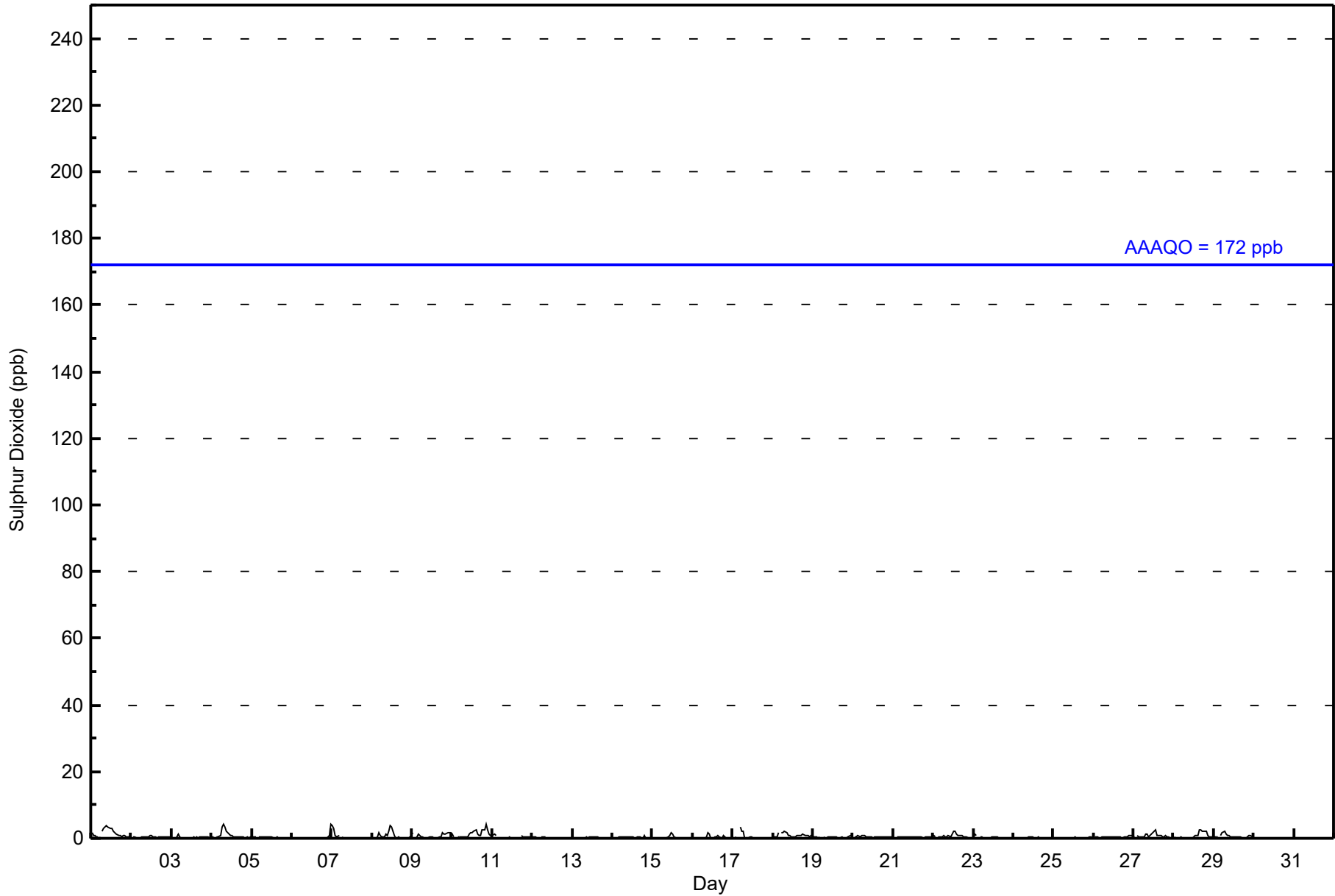
Kirby North - December 2024

Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:														744																													
Maximum Value: 4.2 ppb on Dec 7 00:00		Maximum Daily Average: 1.5 ppb on Dec 1														Hours of Data:		699																															
Minimum Value: 0.0 ppb on Dec 5 19:00		Minimum Daily Average: 0.0 ppb on Dec 31														Hours of Missing Data:		45																															
Maximum Diurnal Average: 0.7 ppb at hour 12		Minimum Diurnal Average: 0.3 ppb at hour 4														Hours of Calibration:		35																															
Monthly Average: 0.48 ppb		Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.1 Median = 0.3 Q ₃ = 0.5 P ₉₀ = 1.2 P ₉₉ = 3.4														Percent Operational Time:		98.7																															
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	1.6	0.6	0.7	0.6	0.4	Z	2.0	3.0	3.4	3.6	3.4	3.0	3.1	2.2	1.7	1.3	0.7	0.8	0.5	0.6	0.6	0.6	0.5	0.7	1.5	3.6																							
2-Dec	Z	0.6	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.9	0.7	0.4	0.2	0.2	0.3	0.3	0.4	0.4	0.5	0.6	0.5	0.4	0.4	0.9																							
3-Dec	0.3	Z	0.2	0.3	1.2	0.3	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.4	0.2	0.3	1.2																							
4-Dec	0.6	0.4	Z	0.5	0.5	0.7	3.2	4.2	3.4	2.3	1.4	0.9	0.8	0.6	0.5	0.5	0.4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	1.0	4.2																							
5-Dec	0.3	0.3	0.3	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.3																							
6-Dec	0.0	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	4.2	0.2	4.2																							
7-Dec	3.6	3.0	0.9	0.3	0.8	Z	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	0.2	0.1	0.4	3.6																								
8-Dec	Z	0.0	0.1	0.3	1.5	0.9	0.3	0.6	1.2	1.0	2.2	4.0	3.3	0.7	0.2	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	4.0																							
9-Dec	1.6	Z	0.1	0.6	1.2	0.4	0.6	0.1	0.1	0.0	0.4	0.4	0.3	0.2	0.1	0.2	0.2	0.4	1.9	1.4	1.4	1.7	1.5	1.5	0.7	1.9																							
10-Dec	1.2	0.6	Z	0.5	0.4	0.5	0.5	0.5	0.4	0.4	1.1	1.7	1.6	2.1	2.4	1.4	1.0	1.0	2.4	2.7	4.2	2.6	1.2	0.7	1.4	4.2																							
11-Dec	0.7	1.1	1.0	Z	1.0	PF	PF	PF	PF	PF	0.6	0.4	PF	PF	PF	PF	PF	0.7	0.6	0.4	0.5	0.5	0.4	0.4	--	1.1																							
12-Dec	0.3	0.4	0.3	0.2	Z	0.3	0.3	0.3	0.2	C	C	C	C	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.4																							
13-Dec	0.1	0.1	0.0	0.0	0.1	Z	0.1	0.2	0.2	0.1	0.3	0.5	0.5	0.3	0.3	0.3	0.2	0.2	0.1	0.0	0.2	0.1	0.1	0.2	0.2	0.5																							
14-Dec	Z	0.2	0.1	0.1	0.2	0.5	0.5	0.3	0.3	0.5	0.3	0.3	0.3	0.2	0.1	0.2	0.3	0.0	0.2	1.0	0.2	0.0	0.0	0.2	0.3	1.0																							
15-Dec	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	1.0	1.9	1.2	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9																							
16-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.1	0.4	1.8	1.4	0.2	0.0	0.5	0.5	0.6	0.3	0.2	0.6	0.2	0.1	0.1	0.1	0.1	0.3	1.8																							
17-Dec	0.1	0.1	0.2	Z	3.2	2.0	2.3	0.1	0.1	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.4	3.2																							
18-Dec	0.2	0.4	0.4	1.6	Z	1.8	1.6	2.3	1.6	0.9	0.7	0.5	0.5	0.4	0.8	0.7	0.7	0.8	1.4	0.8	0.7	0.7	0.6	0.7	0.9	2.3																							
19-Dec	0.3	0.3	0.3	0.2	0.3	Z	0.2	0.2	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.1	0.1	0.3	0.1	0.0	0.0	0.4	0.9	1.0	0.3	1.0																							
20-Dec	Z	0.4	0.5	0.6	0.5	0.8	0.9	0.7	0.5	0.5	0.4	0.2	0.2	0.3	0.3	0.3	0.5	0.4	0.3	0.3	0.4	0.5	0.4	0.5	0.5	0.9																							
21-Dec	0.5	Z	0.5	0.5	0.6	0.5	0.4	0.3	0.6	0.5	0.4	0.5	0.4	0.5	0.4	0.4	0.2	0.2	0.2	0.3	0.2	0.4	0.4	0.6	0.4	0.6																							
22-Dec	0.7	0.2	Z	0.3	0.3	0.6	0.6	0.3	0.4	0.7	0.6	1.2	1.9	2.3	1.2	0.9	0.8	0.9	0.6	0.4	0.3	0.2	0.1	0.2	0.7	2.3																							
23-Dec	0.3	1.2	1.0	Z	0.5	0.4	0.2	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.3	1.2																							
24-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.0	0.0	0.4	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.4																							
25-Dec	0.2	0.0	0.2	0.2	0.2	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.5	0.3	0.2	0.1	0.5																							
26-Dec	Z	0.2	0.2	0.2	0.1	0.3	0.2	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.2	0.3	0.3	0.2	0.7	0.8	0.7	0.3	0.8																							
27-Dec	0.5	Z	0.7	0.6	0.6	0.4	0.4	1.2	1.1	0.5	0.7	1.7	2.3	2.5	1.0	0.9	0.7	0.4	0.6	0.7	0.3	0.2	0.2	0.2	0.8	2.5																							
28-Dec	0.1	0.3	Z	0.2	0.2	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.3	0.7	1.0	2.3	2.4	2.1	2.0	2.2	0.7	0.5	0.4	0.5	0.7	2.4																							
29-Dec	0.3	0.3	0.3	Z	0.6	1.7	2.0	1.1	0.9	0.7	0.4	0.3	0.4	0.5	0.5	0.2	0.3	0.2	0.2	0.2	0.2	1.0	0.7	0.2	0.6	2.0																							
30-Dec	0.1	0.1	0.1	0.1	Z	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1																							
31-Dec	0.2	0.1	0.1	0.1	0.0	Z	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	0.1	0.1	0.0	0.2																							
																								0.5	0.4	0.3	0.3	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.5	Diurnal Average		
																								3.6	3.0	1.0	1.6	3.2	2.0	3.2	4.2	3.4	3.6	3.4	4.0	3.3	2.5	2.4	2.3	2.4	2.1	2.4	2.7	4.2	2.6	1.5	4.2	Diurnal Maximum	
Z - zerospan																								C - Calibration				PF - Power Failure																					
Alberta Ambient Air Quality Objectives (AAAQO): 1-hr 172 ppb 24-hr 48 ppb																																																	



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Kirby North - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Kirby North - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	699	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: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Sulphur Dioxide (SO₂) - ppb
Kirby North - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	24	17	17	13	9	7	13	45	131	154	27	20	3	43	97	68	688
11 - 20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21 - 60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61 - 110	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111 - 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	24	17	17	13	9	7	13	45	131	154	27	20	3	43	97	68	688

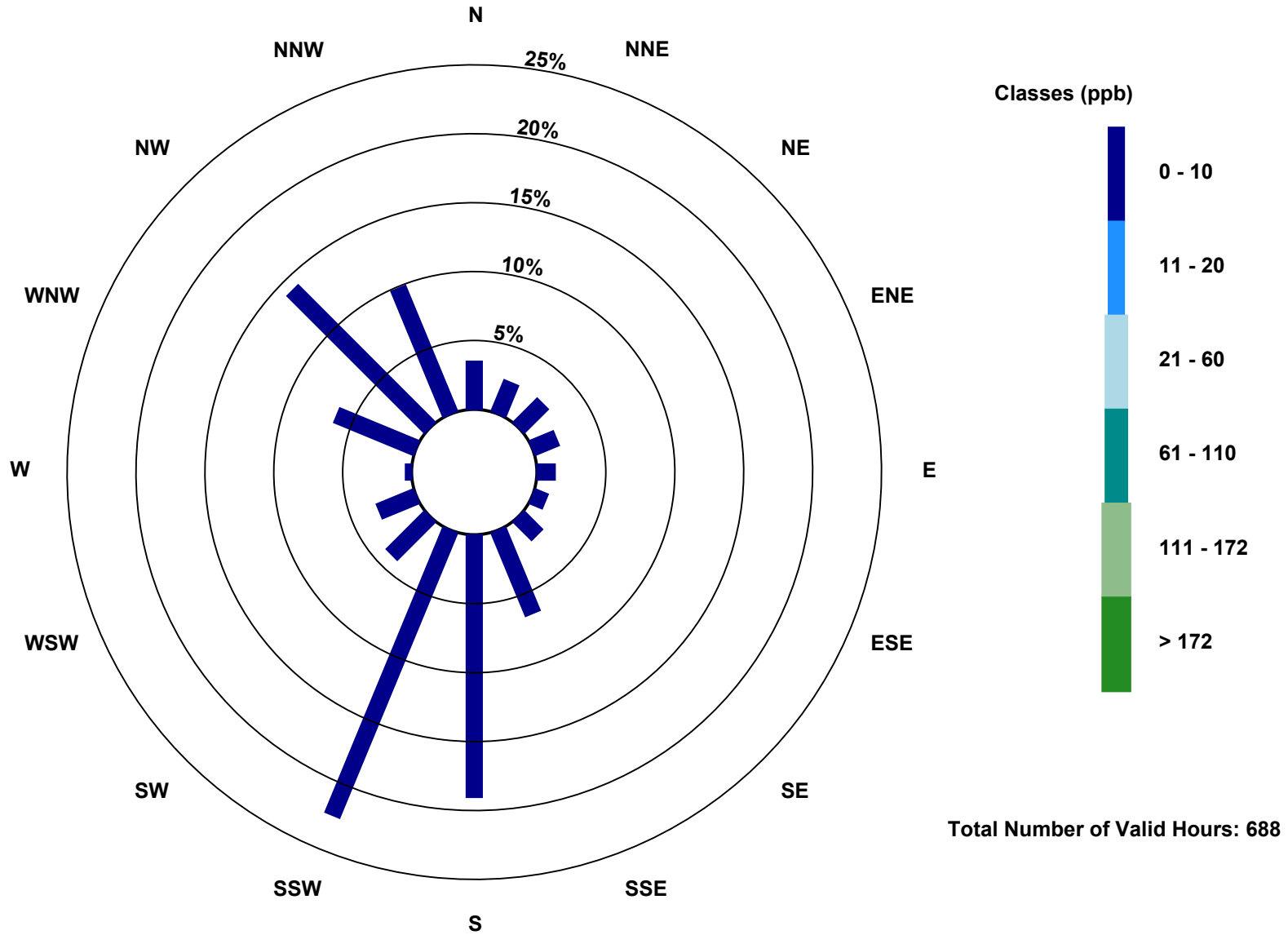
Total Number of Valid Hours: 688

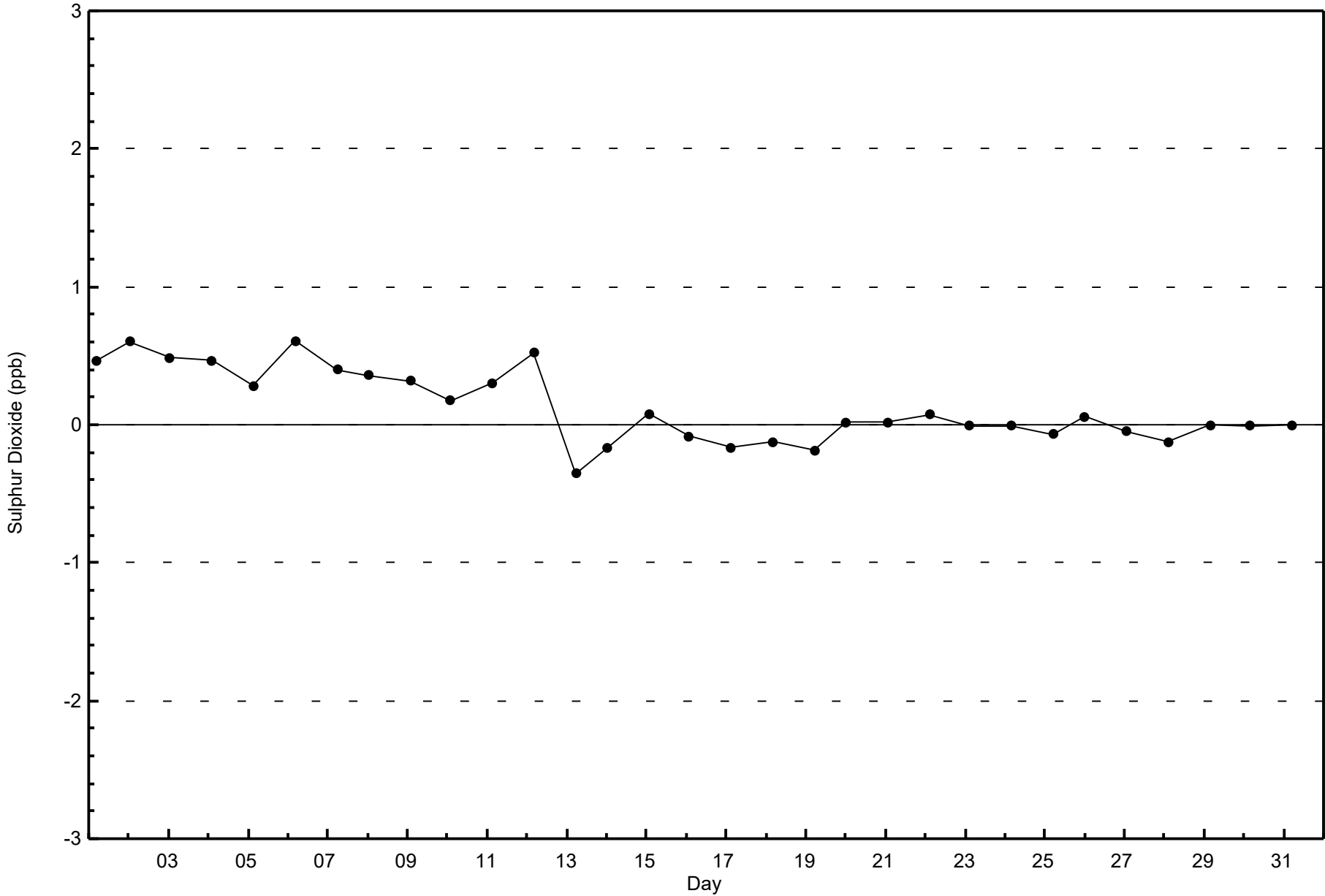
Total Number of Hours: 744

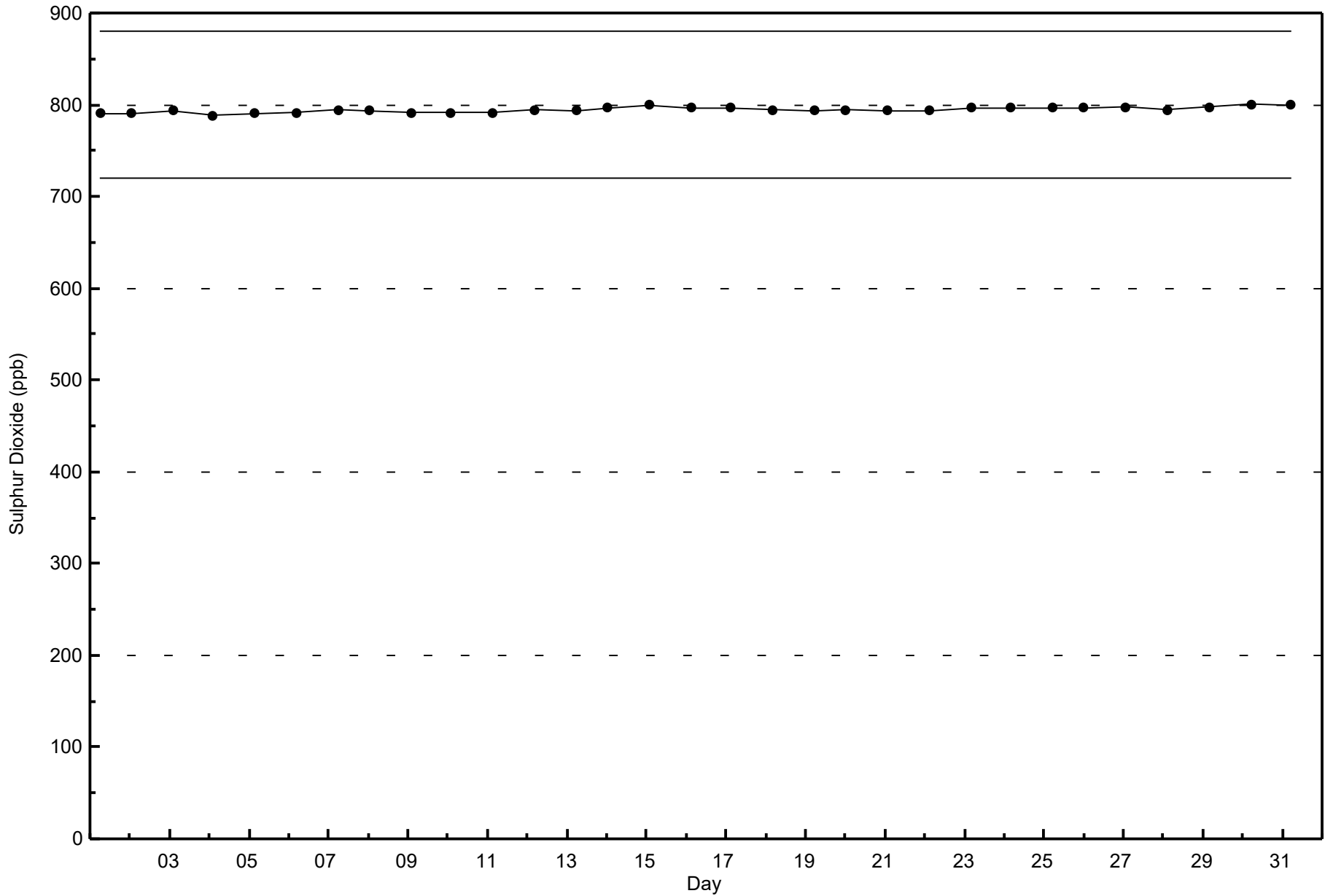


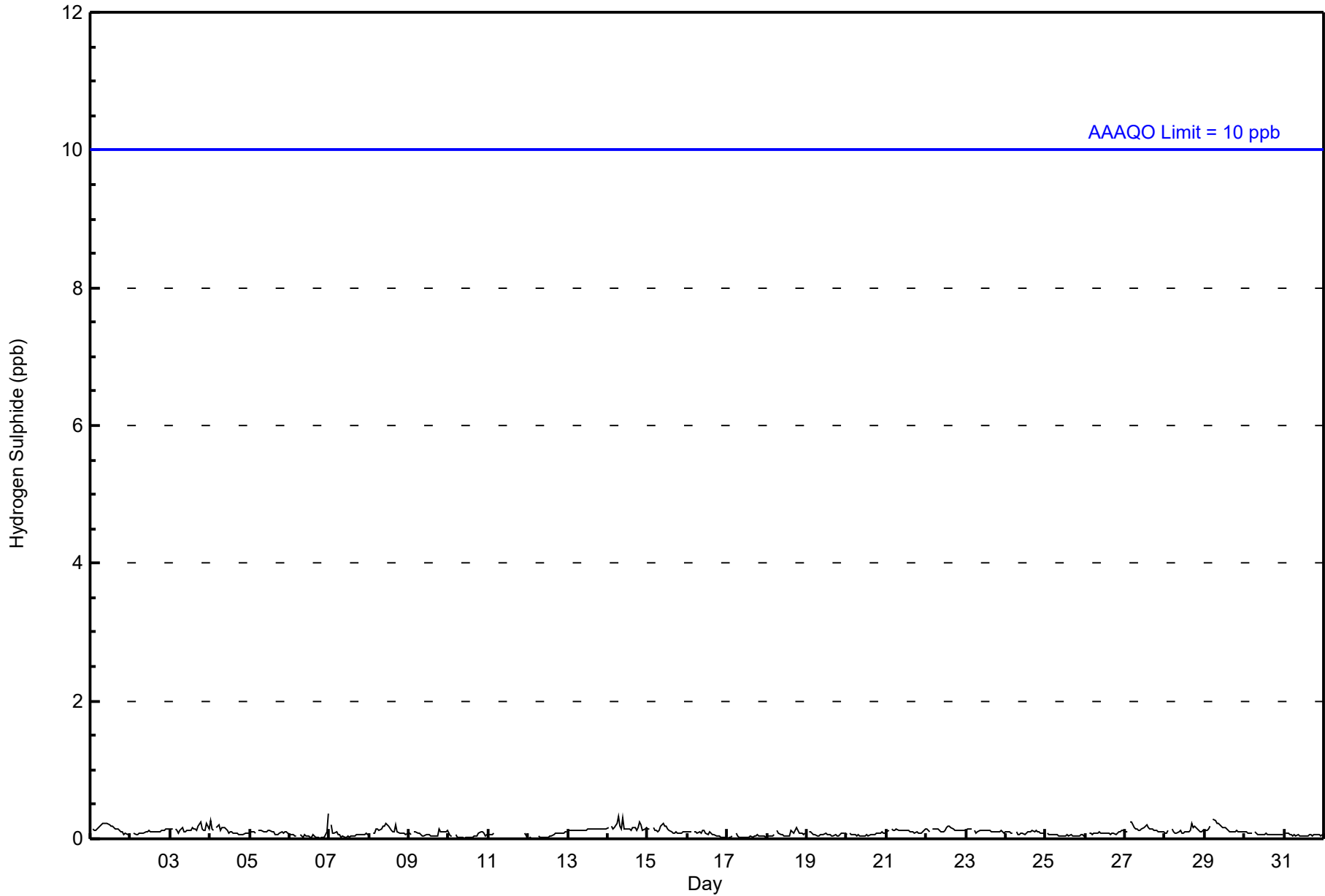
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Kirby North











Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Hydrogen Sulphide (H₂S) - ppb
Kirby North - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	696	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: 696

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Kirby North - December 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	25	17	17	13	9	7	12	40	132	155	28	22	3	41	98	66	685
3 - 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 - 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 - 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	25	17	17	13	9	7	12	40	132	155	28	22	3	41	98	66	685

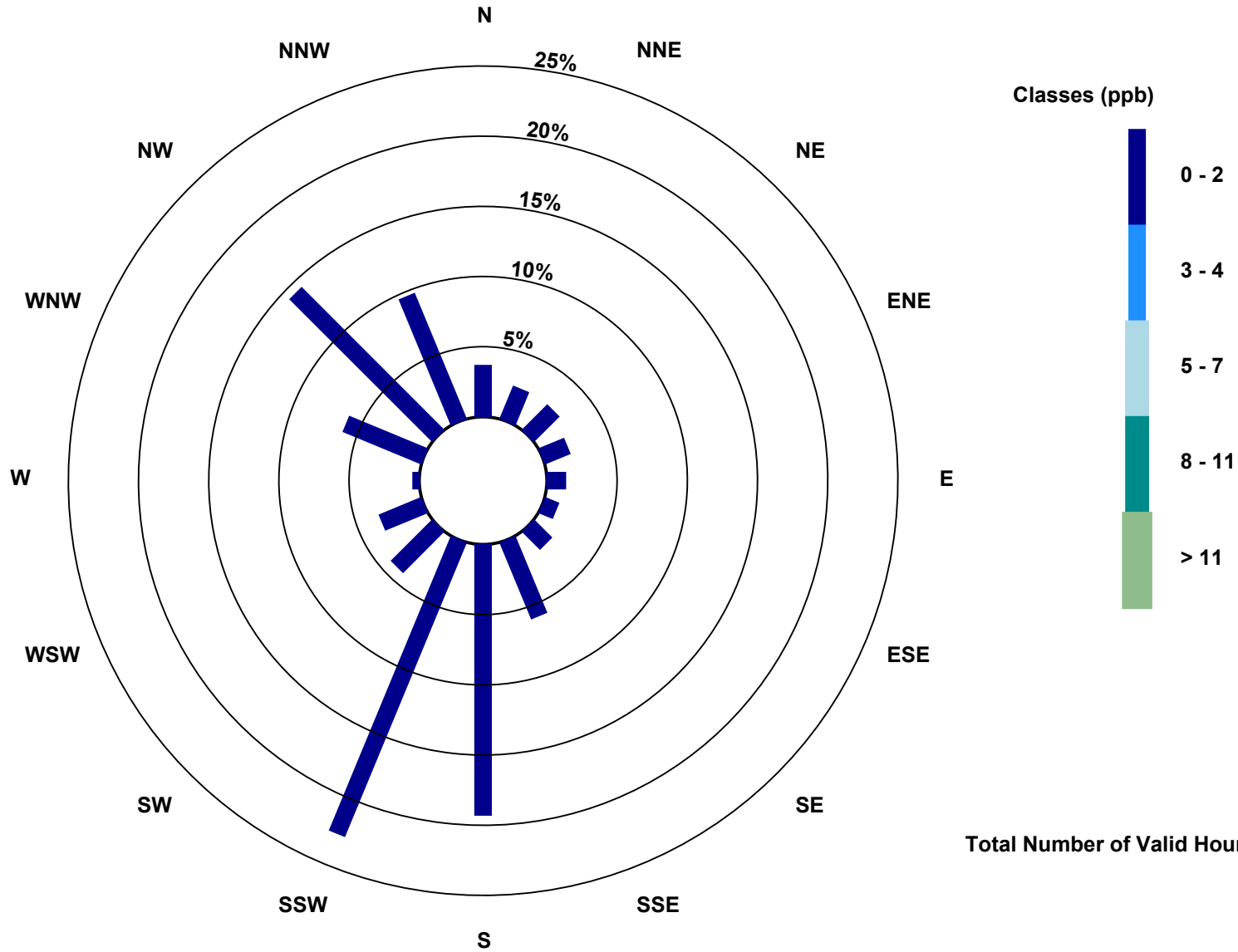
Total Number of Valid Hours: 685

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Kirby North

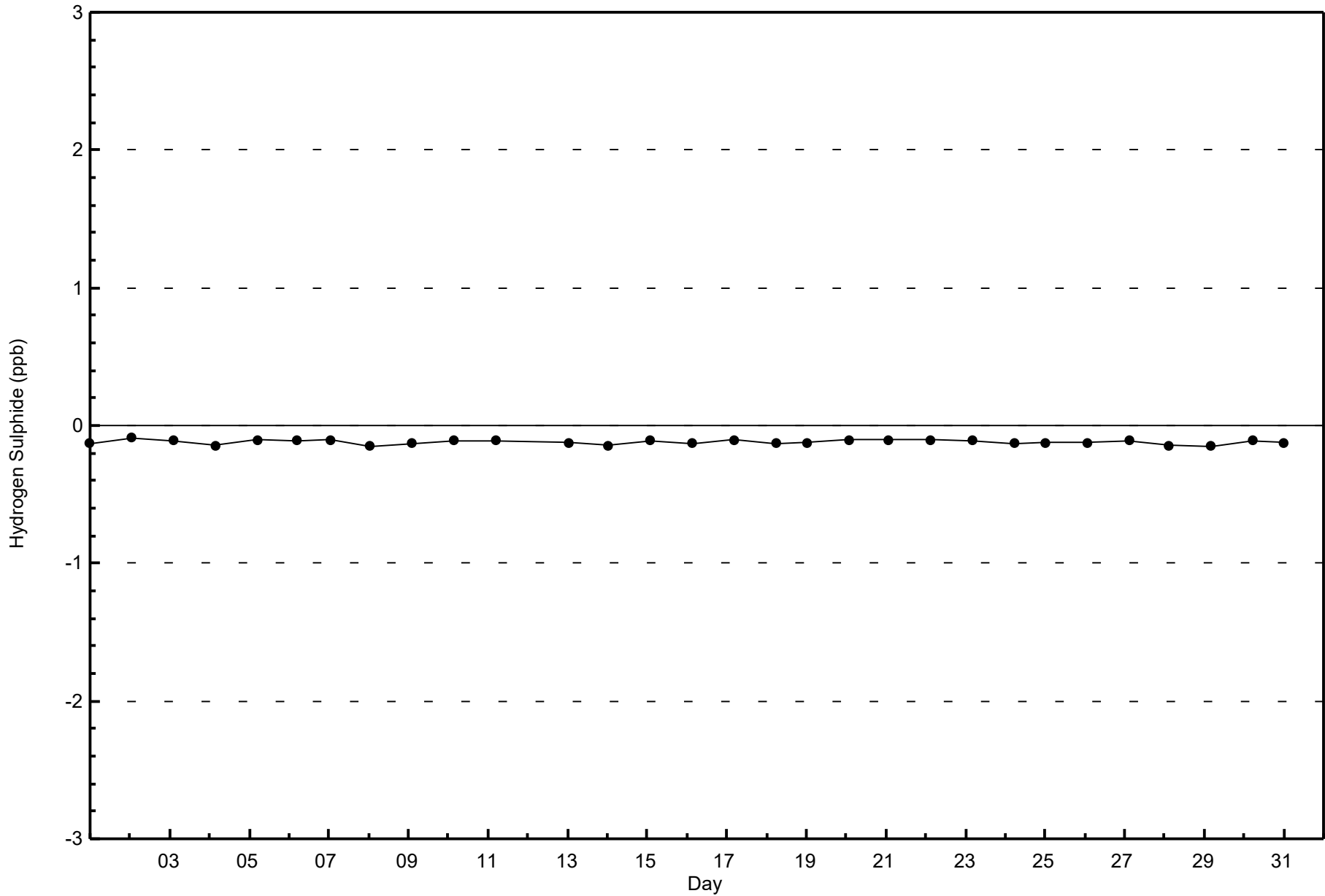


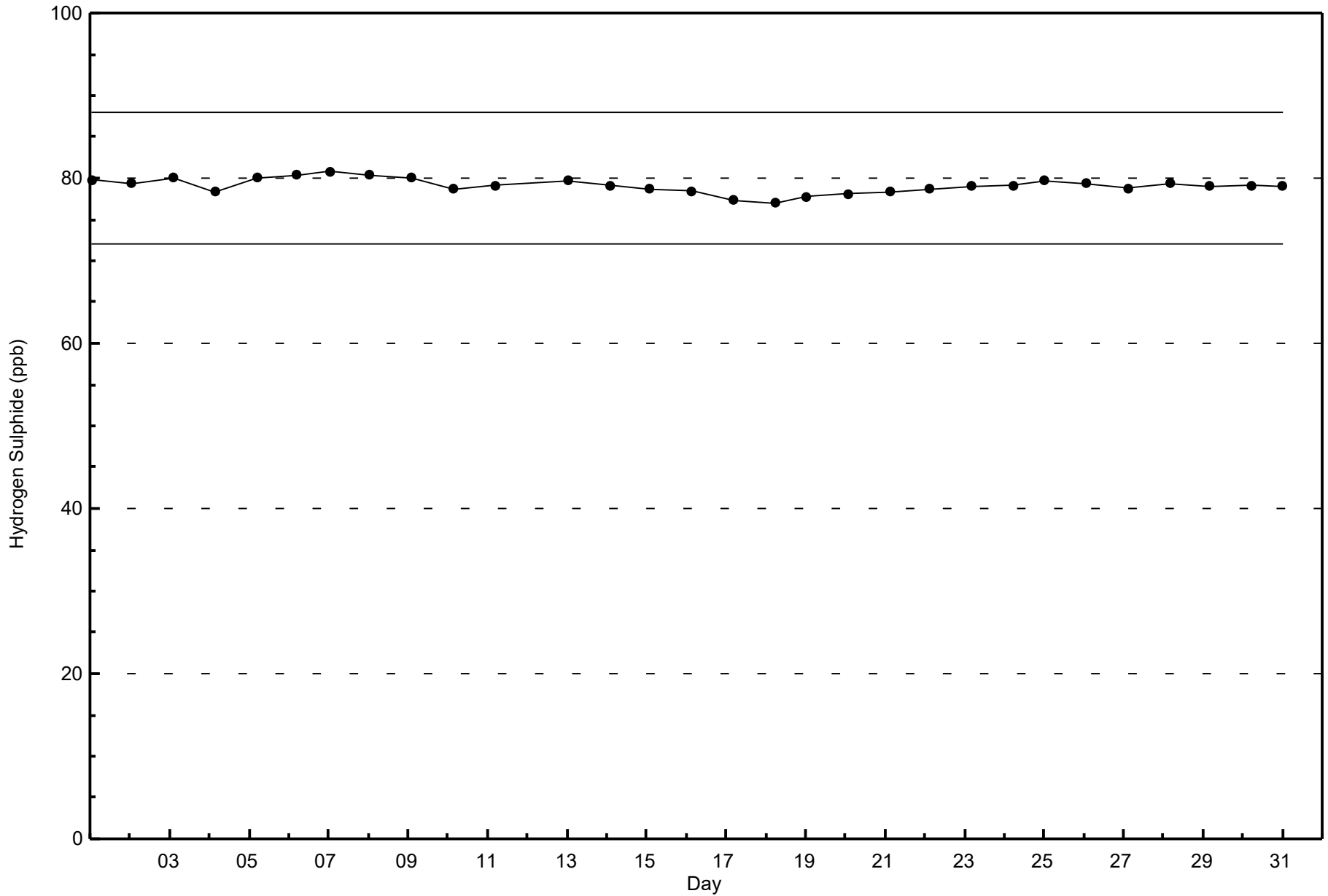
Total Number of Valid Hours: 685



Wood Buffalo Environmental Association
Zero Responses

Hydrogen Sulphide (H₂S) - ppb
Kirby North - December 2024

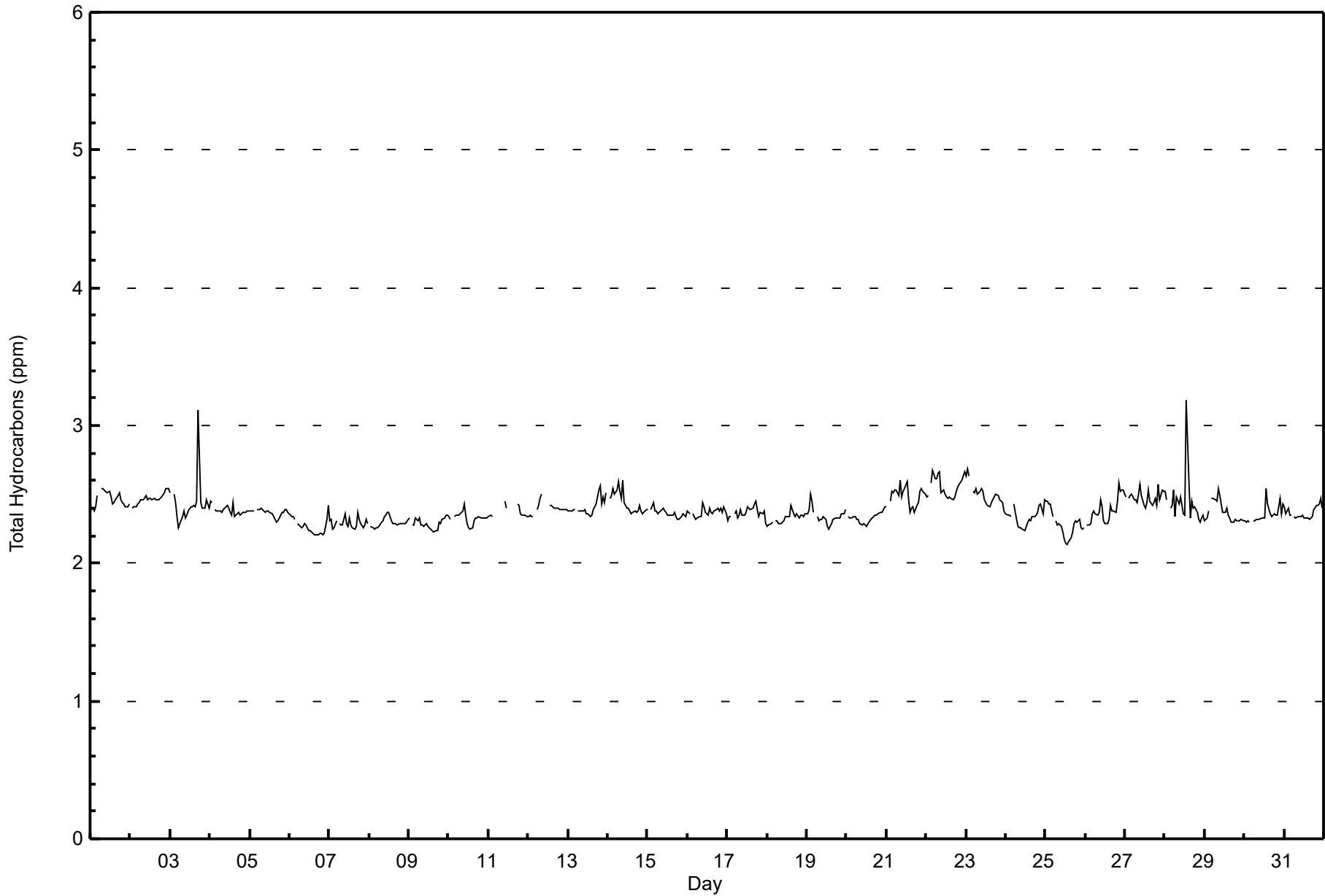






Wood Buffalo Environmental Association
Hourly Averages

Total Hydrocarbons (THC) - ppm
Kirby North - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Total Hydrocarbons (THC) - ppm
Kirby North - December 2024

Concentration Ranges (ppm)	Number of Hours	%	Cumulative %
0 - 2.0	0	0.00	0.00
2.1 - 3.0	697	99.71	99.71
3.1 - 10.0	2	0.29	100.00
> 10.0	0	0.00	100.00

Total Number of Valid Hours: 699

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Total Hydrocarbons (THC) - ppm
Kirby North - December 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	24	17	17	13	9	7	13	45	131	154	27	20	3	43	96	67	686
3.1 - 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
> 10.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	24	17	17	13	9	7	13	45	131	154	27	20	3	43	97	68	688

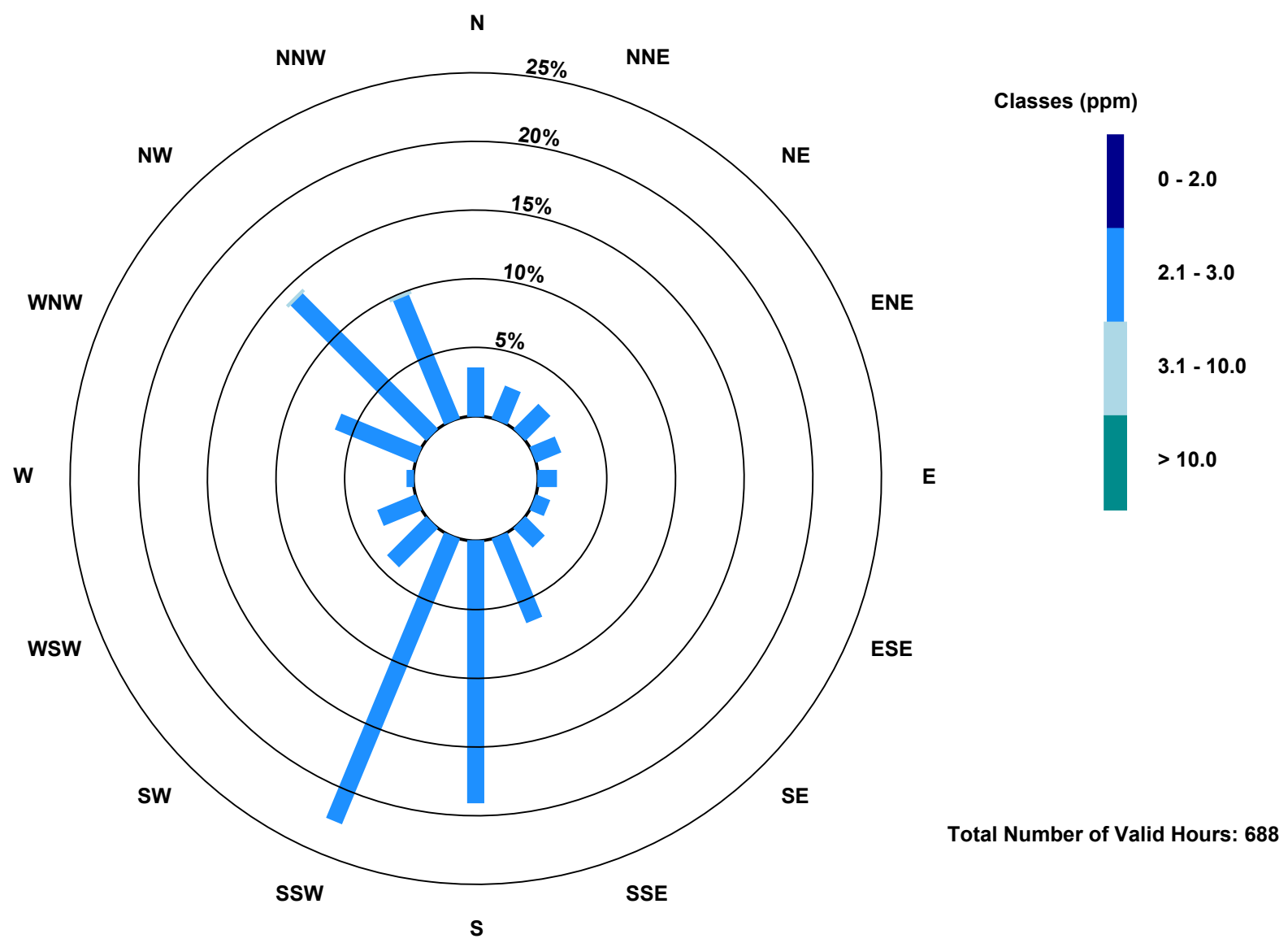
Total Number of Valid Hours: 688

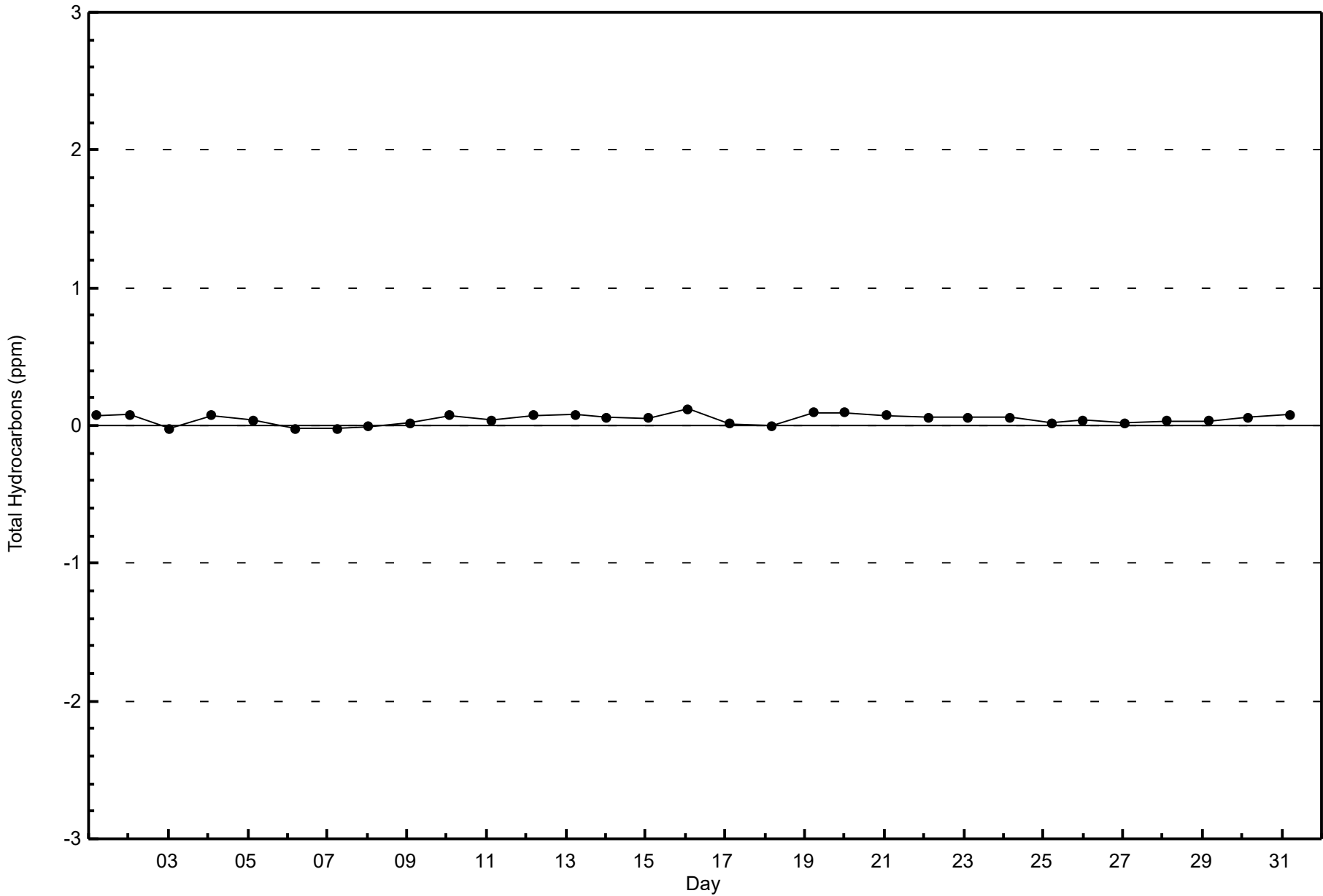
Total Number of Hours: 744

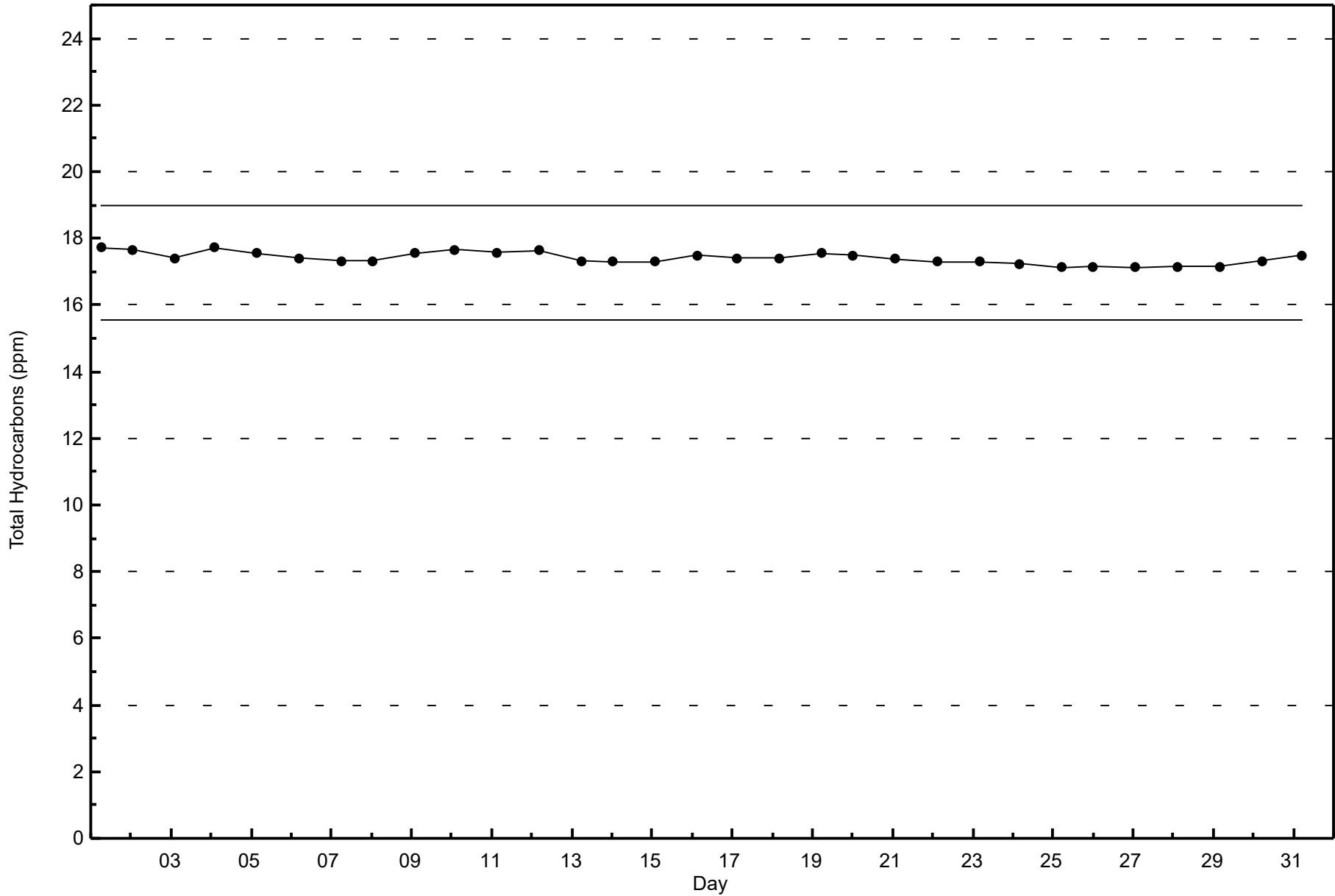


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Total Hydrocarbons (THC) - ppm
Kirby North







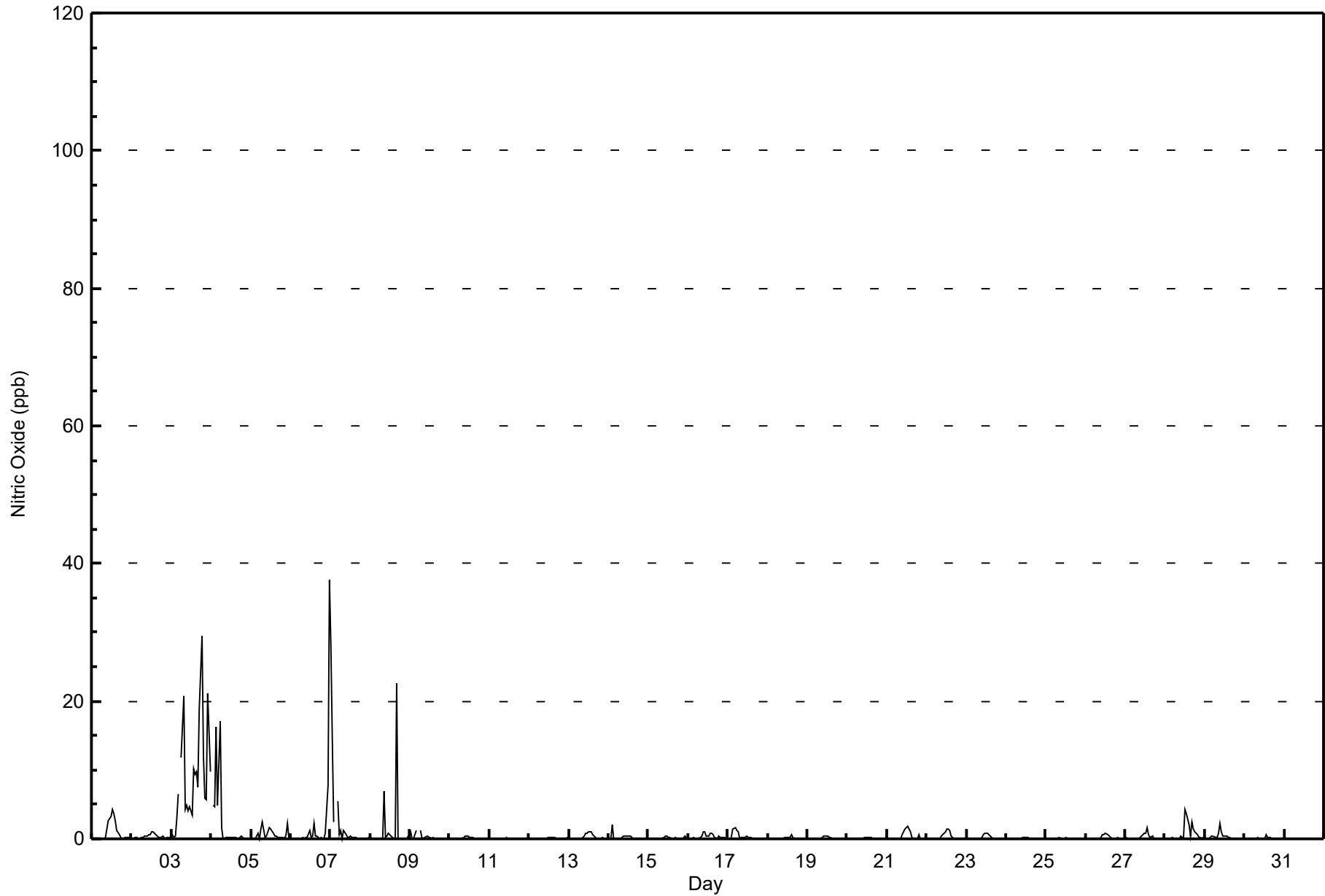


Maximum Value: 37.6 ppb on Dec 7 00:00																					Maximum Daily Average: 8.9 ppb on Dec 3					Hours in Service: 744	
Minimum Value: 0.0 ppb on Dec 8 06:00										Minimum Daily Average: 0.0 ppb on Dec 25											Hours of Data: 697						
Maximum Diurnal Average: 1.6 ppb at hour 24										Minimum Diurnal Average: 0.2 ppb at hour 21											Hours of Missing Data: 47						
Monthly Average: 0.79 ppb										Percentiles: P ₁ = 0.0 P ₁₀ = 0.0 Q ₁ = 0.0 Median = 0.1 Q ₃ = 0.3 P ₉₀ = 1.1 P ₉₉ = 17.2											Hours of Calibration: 37						
																						Percent Operational Time: 98.7					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.0	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.3	1.5	2.6	3.2	4.4	3.7	2.6	1.3	0.7	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.9	4.4	
2-Dec	0.1	0.0	0.3	0.1	Z	0.1	0.2	0.1	0.5	0.3	0.5	0.6	1.0	1.1	0.7	0.4	0.2	0.2	0.2	0.5	0.1	0.2	0.2	0.1	0.3	1.1	
3-Dec	0.9	0.2	0.4	3.1	6.6	Z	11.8	20.7	4.3	4.8	4.1	4.8	3.4	10.3	9.3	9.7	7.5	18.9	29.5	12.0	5.8	5.7	21.1	9.7	8.9	29.5	
4-Dec	Z	4.8	4.8	16.2	4.9	17.2	1.7	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.3	0.1	0.0	0.3	0.4	0.2	0.1	0.0	0.0	0.0	2.3	17.2	
5-Dec	0.0	Z	0.1	0.3	0.9	0.1	1.5	2.4	0.1	0.3	0.9	1.6	1.4	0.9	0.5	0.3	0.1	0.1	0.1	0.1	0.1	0.5	2.3	0.2	0.6	2.4	
6-Dec	0.0	0.1	Z	0.1	0.1	0.0	0.1	0.2	0.0	0.2	0.2	1.1	0.2	0.5	2.3	0.4	0.4	0.1	0.1	0.0	0.0	0.9	7.7	37.6	2.3	37.6	
7-Dec	28.2	14.9	2.4	Z	5.4	0.6	1.2	0.0	1.2	0.7	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	2.5	28.2	
8-Dec	0.1	0.0	0.0	0.0	Z	0.0	0.0	0.0	7.0	0.2	0.4	0.8	0.6	0.3	0.0	0.0	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.4	22.6	
9-Dec	1.0	0.1	0.0	0.5	1.1	Z	1.3	0.3	0.1	0.1	0.4	0.2	0.3	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.3	
10-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.4	0.3	0.3	0.2	0.2	C	C	C	C	C	C	0.0	0.0	0.0	--	0.5	
11-Dec	0.0	Z	0.0	0.0	0.0	PF	PF	PF	PF	PF	0.3	0.3	PF	PF	PF	PF	PF	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	0.3	
12-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.3	
13-Dec	0.1	0.1	0.0	Z	0.0	0.0	0.1	0.1	0.1	0.4	0.8	0.9	1.1	1.0	0.7	0.4	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	1.1	
14-Dec	0.0	0.1	2.0	0.0	Z	0.0	0.0	0.0	0.2	0.5	0.4	0.4	0.4	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.0	
15-Dec	0.0	0.0	0.1	0.1	0.0	Z	0.0	0.0	0.0	0.2	0.4	0.4	0.3	0.2	0.1	0.1	0.2	0.1	0.0	0.0	0.1	0.2	0.3	0.0	0.1	0.4	
16-Dec	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.4	1.1	1.0	0.3	0.4	0.7	0.8	0.5	0.2	0.1	0.3	0.1	0.1	0.1	0.3	0.0	0.3	1.1	
17-Dec	0.0	Z	0.1	1.5	1.5	1.3	1.0	0.1	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.3	1.5	
18-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.6	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	
19-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.4	0.4	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	
20-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	
21-Dec	0.1	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.6	0.9	1.4	1.7	1.3	1.0	0.3	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.4	1.7	
22-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	1.1	1.4	1.5	1.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	1.5	
23-Dec	0.0	Z	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.6	0.7	0.7	0.8	0.5	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.8	
24-Dec	0.0	0.1	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	
25-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	
26-Dec	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.0	0.3	0.6	0.6	0.7	0.5	0.3	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.7	
27-Dec	0.2	0.0	0.0	0.0	0.0	Z	0.0	0.1	0.0	0.3	0.5	0.9	0.9	1.7	0.6	0.2	0.5	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.3	1.7	
28-Dec	Z	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.4	0.2	0.2	4.3	3.6	2.0	0.4	2.5	1.4	0.9	0.7	0.3	0.1	0.1	0.2	0.8	4.3	
29-Dec	0.1	Z	0.1	0.1	0.3	0.4	0.2	0.3	0.9	2.2	0.9	0.4	0.5	0.5	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.2	
30-Dec	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.6	0.3	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.6	
31-Dec	0.1	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	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	
1.2 0.8 0.4 0.9 0.8 0.8 0.7 0.8 0.5 0.5 0.6 0.7 0.9 1.1 0.9 0.6 1.2 0.7 1.1 0.5 0.2 0.3 1.1 1.6																								Diurnal Average			
28.2 14.9 4.8 16.2 6.6 17.2 11.8 20.7 7.0 4.8 4.1 4.8 4.4 10.3 9.3 9.7 22.6 18.9 29.5 12.0 5.8 5.7 21.1 37.6																								Diurnal Maximum			
Z - zerospan			C - Calibration			PF - Power Failure																					



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Kirby North - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitric Oxide (NO) - ppb
Kirby North - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	691	99.14	99.14
21 - 40	6	0.86	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: 697

Total Number of Hours: 744



Wood Buffalo Environmental Association
Frequency Distribution

Nitric Oxide (NO) - ppb
Kirby North - December 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	25	16	17	13	9	7	7	45	135	152	29	20	2	41	97	64	679
21 - 40	1	0	0	0	0	0	0	0	0	0	0	0	1	1	2	1	6
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	26	16	17	13	9	7	7	45	135	152	29	20	3	42	99	65	685

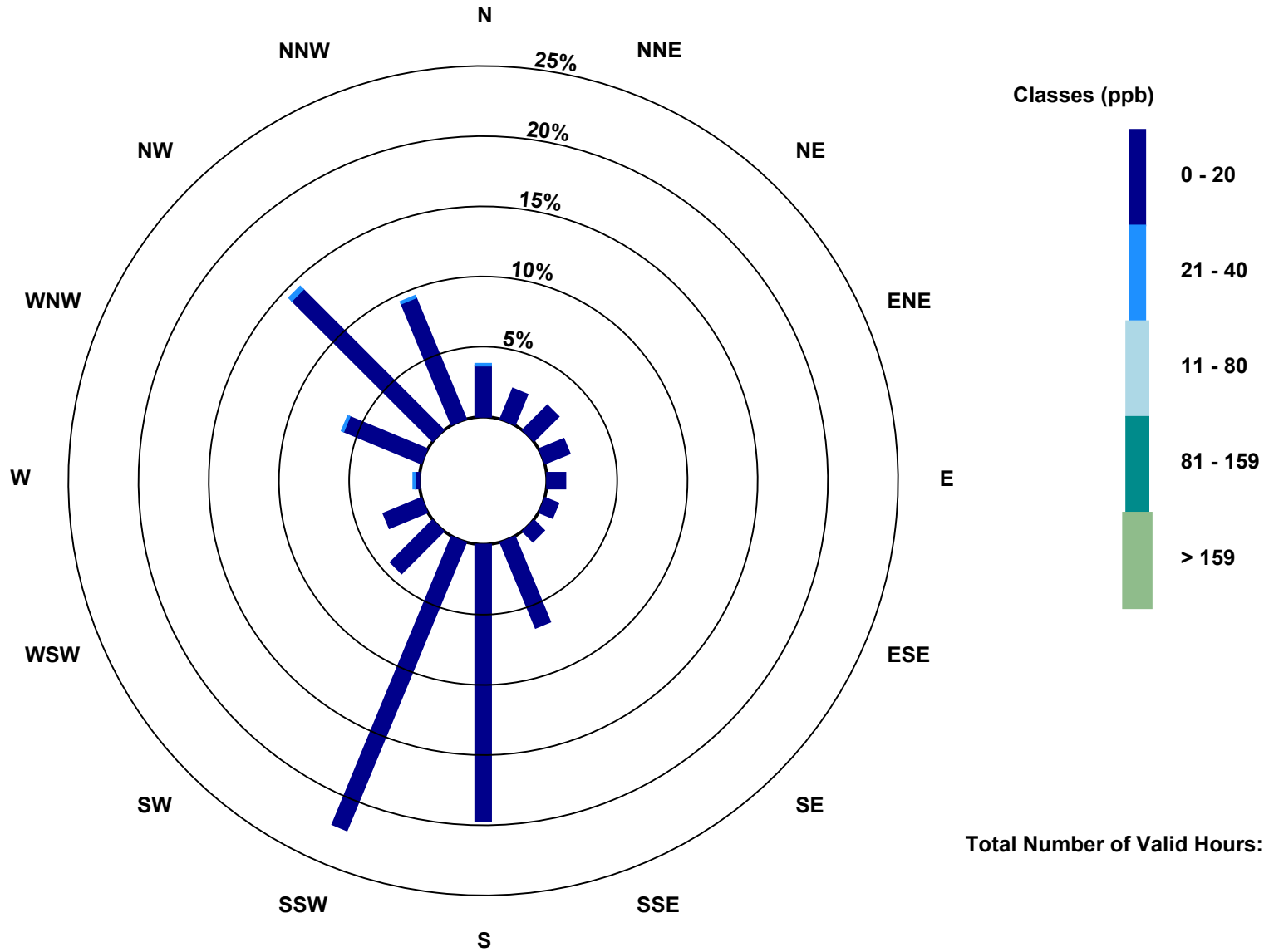
Total Number of Valid Hours: 685

Total Number of Hours: 744

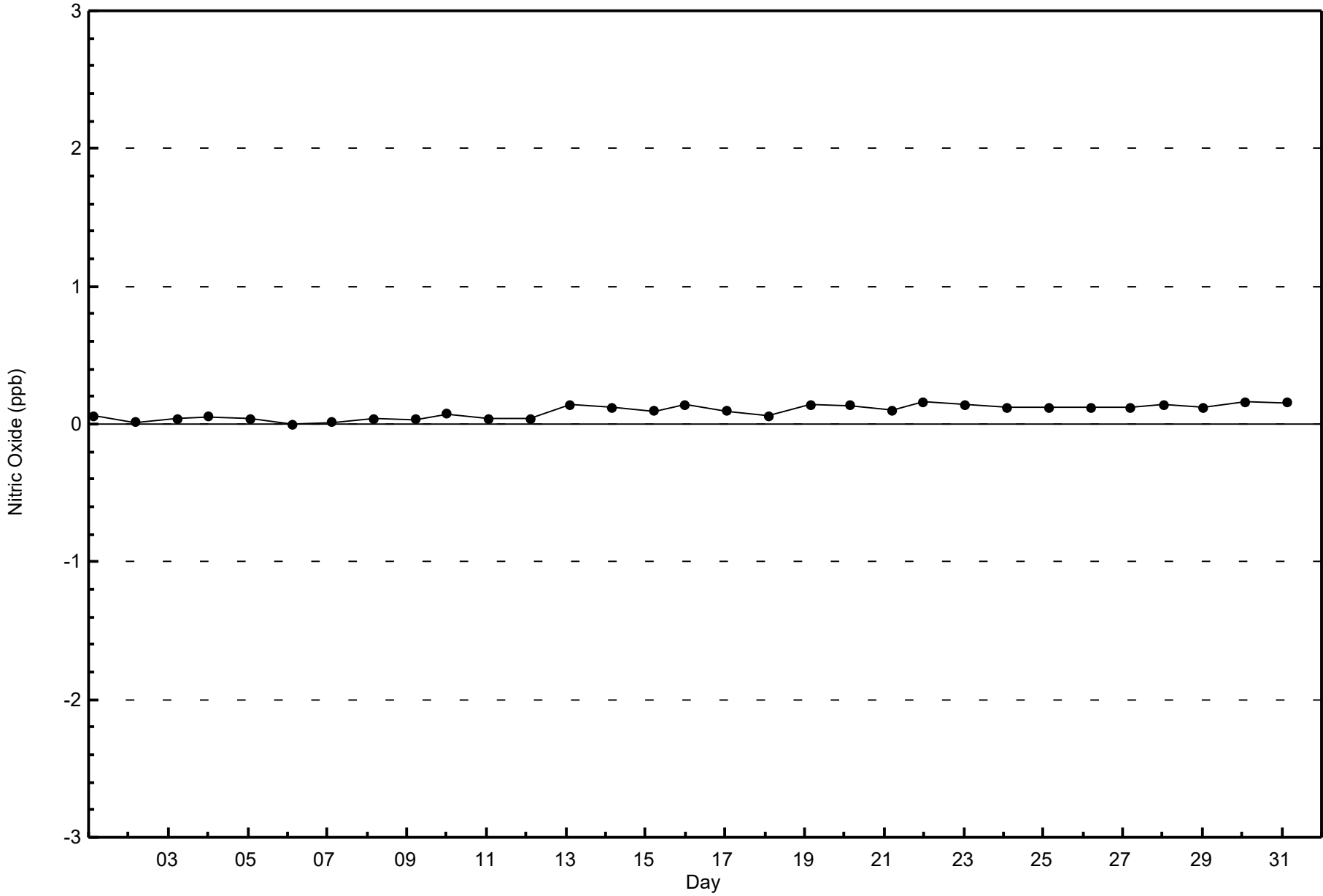


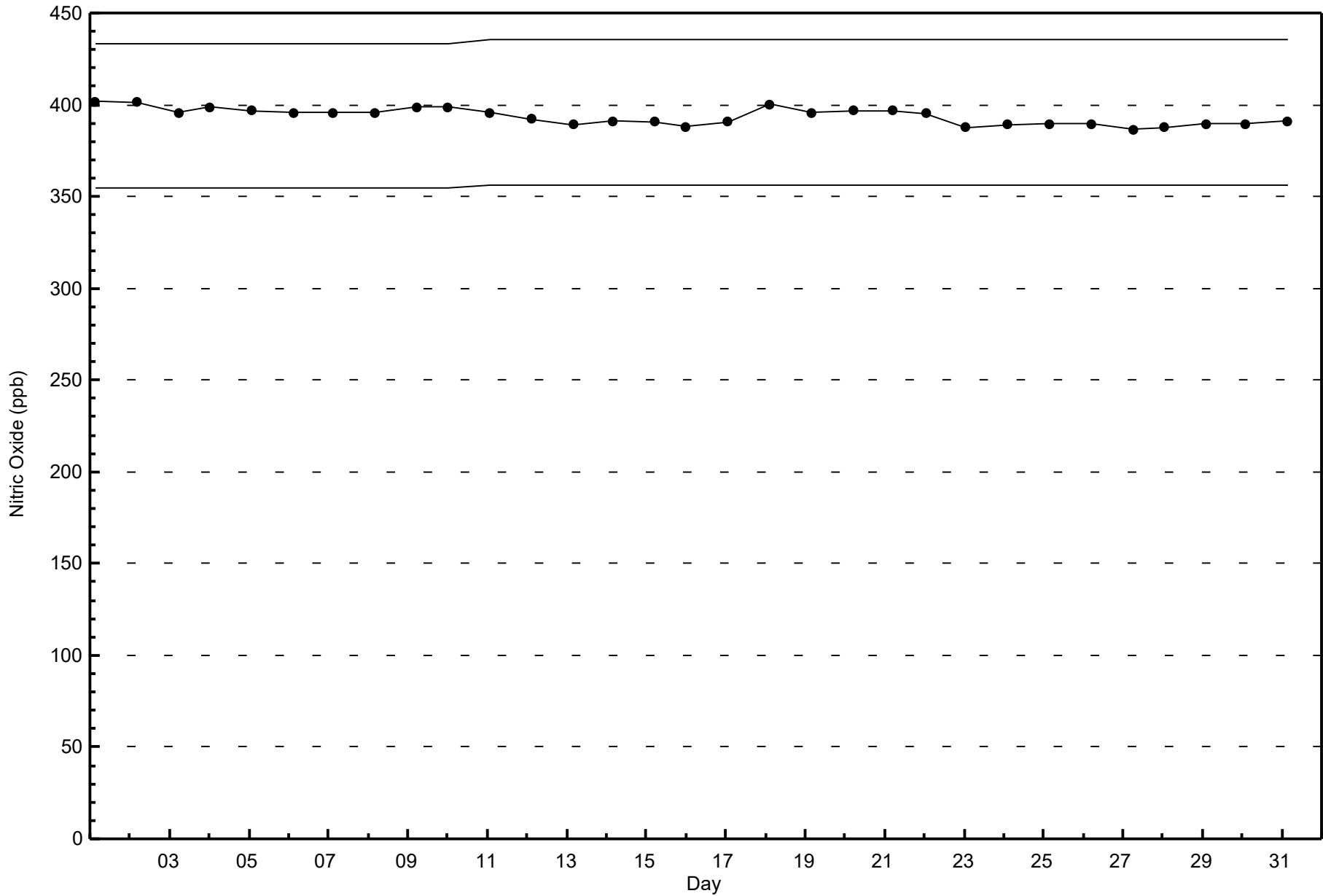
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Kirby North



Total Number of Valid Hours: 685







Wood Buffalo Environmental Association

Summary of Hour Averages

Nitrogen Dioxide (NO₂) - ppb

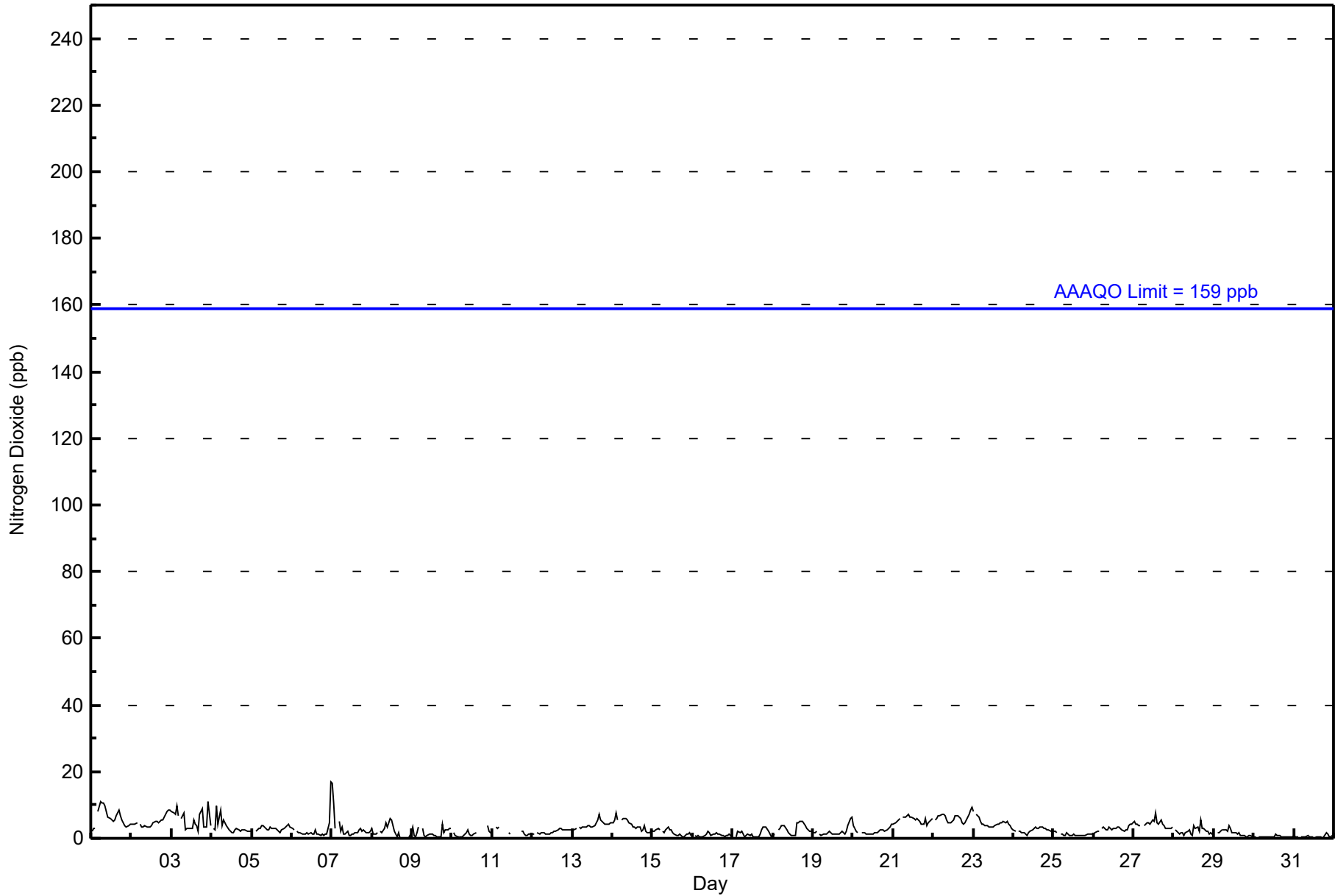
Kirby North - December 2024

Number of Exceedences (AAAQO):		1-hr: 0	24-hr: 0	Hours in Service: 744																	744																												
Maximum Value: 16.9 ppb on Dec 7 00:00		Maximum Daily Average: 6.2 ppb on Dec 22																	Hours of Data: 697																														
Minimum Value: 0.2 ppb on Dec 8 18:00		Minimum Daily Average: 0.5 ppb on Dec 31																	Hours of Missing Data: 47																														
Maximum Diurnal Average: 3.4 ppb at hour 24		Minimum Diurnal Average: 2.5 ppb at hour 12																	Hours of Calibration: 37																														
Monthly Average: 2.87 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.6 Q ₁ = 1.2 Median = 2.4 Q ₃ = 3.9 P ₉₀ = 5.7 P ₉₉ = 9.6																	Percent Operational Time: 98.7																														
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	2.3	2.8	3.1	Z	7.9	11.0	10.4	10.5	9.6	7.9	6.4	5.9	5.6	5.2	5.7	6.7	8.3	6.7	5.4	4.6	3.7	3.6	4.0	4.2	6.2	11.0																							
2-Dec	4.1	4.3	4.4	4.5	Z	4.2	3.6	3.6	3.7	3.3	3.3	3.6	3.9	4.7	5.0	4.9	4.8	5.1	5.3	5.7	7.1	7.9	8.3	8.4	4.9	8.4																							
3-Dec	8.2	7.7	7.0	9.6	6.7	Z	5.9	7.8	2.6	2.8	3.1	2.9	2.9	5.3	4.1	3.9	2.1	7.2	9.1	3.6	3.2	3.2	11.1	3.8	5.4	11.1																							
4-Dec	Z	2.9	2.7	9.6	4.2	8.6	3.9	5.3	4.7	3.7	2.7	2.0	1.8	1.9	2.4	2.9	2.7	2.3	2.7	2.6	2.4	2.3	2.2	2.1	3.4	9.6																							
5-Dec	2.0	Z	2.1	2.6	3.1	3.0	3.8	4.0	2.8	2.7	2.4	3.4	3.1	2.8	2.9	2.6	2.1	1.9	2.6	3.1	3.2	4.0	4.4	3.5	3.0	4.4																							
6-Dec	2.8	2.5	Z	2.0	1.6	1.5	1.2	1.4	1.3	1.6	1.3	1.5	1.2	1.4	2.4	1.4	1.3	1.0	1.2	1.0	1.3	1.3	4.6	16.9	2.3	16.9																							
7-Dec	16.4	10.8	2.8	Z	4.9	2.0	3.2	1.2	1.1	2.3	0.8	0.9	1.3	1.3	1.7	1.8	2.4	3.0	2.1	2.4	1.5	1.6	1.8	2.3	3.0	16.4																							
8-Dec	2.9	1.3	1.3	1.5	Z	2.2	1.9	2.9	4.5	3.3	4.5	6.0	5.5	2.2	1.1	0.5	1.6	0.2	0.2	0.2	0.2	0.2	0.2	1.8	2.0	6.0																							
9-Dec	3.2	0.7	0.6	1.6	3.3	Z	3.0	1.0	0.5	0.9	1.1	1.2	1.1	0.8	0.9	0.3	0.3	0.6	4.1	1.8	2.5	2.6	2.9	3.1	1.7	4.1																							
10-Dec	Z	1.5	0.7	0.5	0.5	0.5	0.5	0.9	1.6	2.7	1.2	1.0	0.8	1.1	1.6	C	C	C	C	C	C	3.9	2.0	1.6	--	3.9																							
11-Dec	1.7	Z	3.6	3.0	3.6	PF	PF	PF	PF	PF	1.8	1.1	PF	PF	PF	PF	PF	2.2	2.0	1.1	0.9	0.9	1.1	1.2	--	3.6																							
12-Dec	1.3	1.4	Z	1.6	1.4	1.5	1.6	1.7	1.3	1.4	1.4	1.6	1.9	2.2	2.3	2.6	2.8	2.8	2.7	2.6	2.5	2.5	2.6	2.7	2.0	2.8																							
13-Dec	2.6	2.7	3.1	Z	3.2	3.1	3.3	3.3	3.4	3.8	3.8	3.5	3.6	4.0	4.5	5.7	7.3	5.6	4.7	4.3	4.3	4.3	4.3	4.5	4.0	7.3																							
14-Dec	4.8	5.4	7.8	5.3	Z	5.3	5.9	5.8	5.9	5.7	4.6	4.2	3.6	3.2	2.9	3.5	3.3	2.3	2.5	3.7	2.2	1.6	1.6	2.4	4.1	7.8																							
15-Dec	2.2	2.3	2.4	2.9	2.4	Z	2.2	1.8	2.4	3.2	2.7	2.6	1.9	1.4	1.0	0.9	1.4	1.0	0.5	0.4	1.1	1.1	1.7	0.9	1.8	3.2																							
16-Dec	Z	0.7	0.6	0.9	0.6	0.6	0.5	1.0	1.2	2.0	1.7	0.8	1.1	1.3	1.5	1.4	1.2	0.8	0.8	0.6	0.9	0.8	1.2	0.4	1.0	2.0																							
17-Dec	0.2	Z	0.5	2.1	1.9	2.1	1.4	0.5	1.0	1.1	0.8	1.1	0.6	0.5	0.6	0.5	1.1	2.6	3.4	3.2	3.4	2.2	1.2	0.5	1.4	3.4																							
18-Dec	0.4	1.2	Z	2.4	3.1	3.9	4.0	3.7	2.6	1.6	1.2	1.0	1.0	1.0	4.7	4.7	5.0	5.1	5.1	3.8	2.9	2.6	2.3	2.2	2.8	5.1																							
19-Dec	1.8	1.9	2.2	Z	1.1	1.0	1.1	1.2	1.1	1.5	2.0	1.4	1.2	1.1	1.2	1.1	1.4	2.0	1.5	1.4	2.0	3.8	5.9	6.3	2.0	6.3																							
20-Dec	3.8	3.1	2.1	1.9	Z	1.8	1.7	1.5	1.4	1.3	1.4	1.2	1.3	1.5	1.6	2.1	2.4	2.5	2.4	2.3	2.7	3.0	3.4	4.3	2.2	4.3																							
21-Dec	4.4	4.7	5.1	5.5	5.9	Z	6.2	6.5	6.6	7.0	6.5	6.4	6.1	5.6	5.8	5.6	5.1	4.1	4.3	5.8	3.9	4.6	5.2	6.0	5.5	7.0																							
22-Dec	Z	5.6	5.9	6.6	6.9	7.2	7.3	6.9	5.7	4.8	4.7	5.0	5.6	6.6	6.6	6.6	5.8	4.7	4.2	4.7	5.6	7.3	8.6	9.3	6.2	9.3																							
23-Dec	7.9	Z	7.2	6.5	4.9	4.4	4.1	4.0	3.9	3.6	3.3	3.2	3.3	3.8	4.1	4.2	4.5	4.8	4.9	4.7	4.9	4.2	3.7	3.0	4.5	7.9																							
24-Dec	2.6	2.3	Z	2.1	2.0	1.9	1.7	1.2	1.0	1.7	2.3	2.5	3.0	3.3	3.1	3.1	3.3	3.2	3.0	2.9	2.7	2.6	2.3	2.3	2.4	3.3																							
25-Dec	2.1	2.0	1.7	Z	1.4	1.2	1.0	0.8	1.9	0.8	0.7	0.7	1.1	0.8	0.9	0.8	0.9	0.9	0.9	0.8	1.1	1.3	1.1	1.2	1.1	2.1																							
26-Dec	1.4	1.8	2.1	2.3	Z	2.8	3.2	2.4	2.6	3.4	3.1	2.5	2.8	2.8	3.2	3.4	3.1	2.7	2.3	2.6	2.7	3.7	4.3	4.4	2.9	4.4																							
27-Dec	5.1	4.3	4.2	3.9	3.8	Z	3.7	4.2	4.8	4.6	4.1	5.4	5.1	7.5	4.7	4.4	5.3	4.2	3.8	3.1	3.0	2.8	3.0	3.2	4.3	7.5																							
28-Dec	Z	2.4	2.2	1.3	1.9	1.5	1.0	1.9	2.3	2.6	1.1	1.0	3.8	2.8	3.4	2.0	5.7	3.0	2.9	2.0	2.1	1.2	1.5	1.2	2.2	5.7																							
29-Dec	0.9	Z	1.5	1.7	2.1	2.4	2.6	2.5	2.3	4.0	2.8	1.6	1.9	1.8	1.4	1.6	0.9	0.7	0.7	0.6	0.6	1.0	0.9	0.6	1.6	4.0																							
30-Dec	0.4	0.4	Z	0.3	0.3	0.3	0.3	0.4	0.5	0.5	0.4	0.3	0.3	1.3	0.9	0.8	0.5	0.5	0.5	0.6	0.3	0.5	0.5	0.6	0.5	1.3																							
31-Dec	0.7	0.5	0.4	Z	0.4	0.3	0.3	0.3	0.7	0.3	0.3	0.5	0.2	0.3	0.3	0.3	0.3	0.2	0.4	1.5	1.2	0.6	0.5	0.7	0.5	1.5																							
																								3.3	3.0	3.0	3.3	3.0	3.0	3.0	2.8	2.9	2.5	2.5	2.6	2.7	2.8	2.8	3.0	2.8	2.9	2.6	2.5	2.7	3.2	3.4	Diurnal Average		
																								16.4	10.8	7.8	9.6	7.9	11.0	10.4	10.5	9.6	7.9	6.5	6.4	6.1	7.5	6.6	6.7	8.3	7.2	9.1	5.8	7.1	7.9	11.1	16.9	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
Kirby North - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Kirby North - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	697	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: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Kirby North - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	26	16	17	13	9	7	7	45	135	152	29	20	3	42	99	65	685
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	26	16	17	13	9	7	7	45	135	152	29	20	3	42	99	65	685

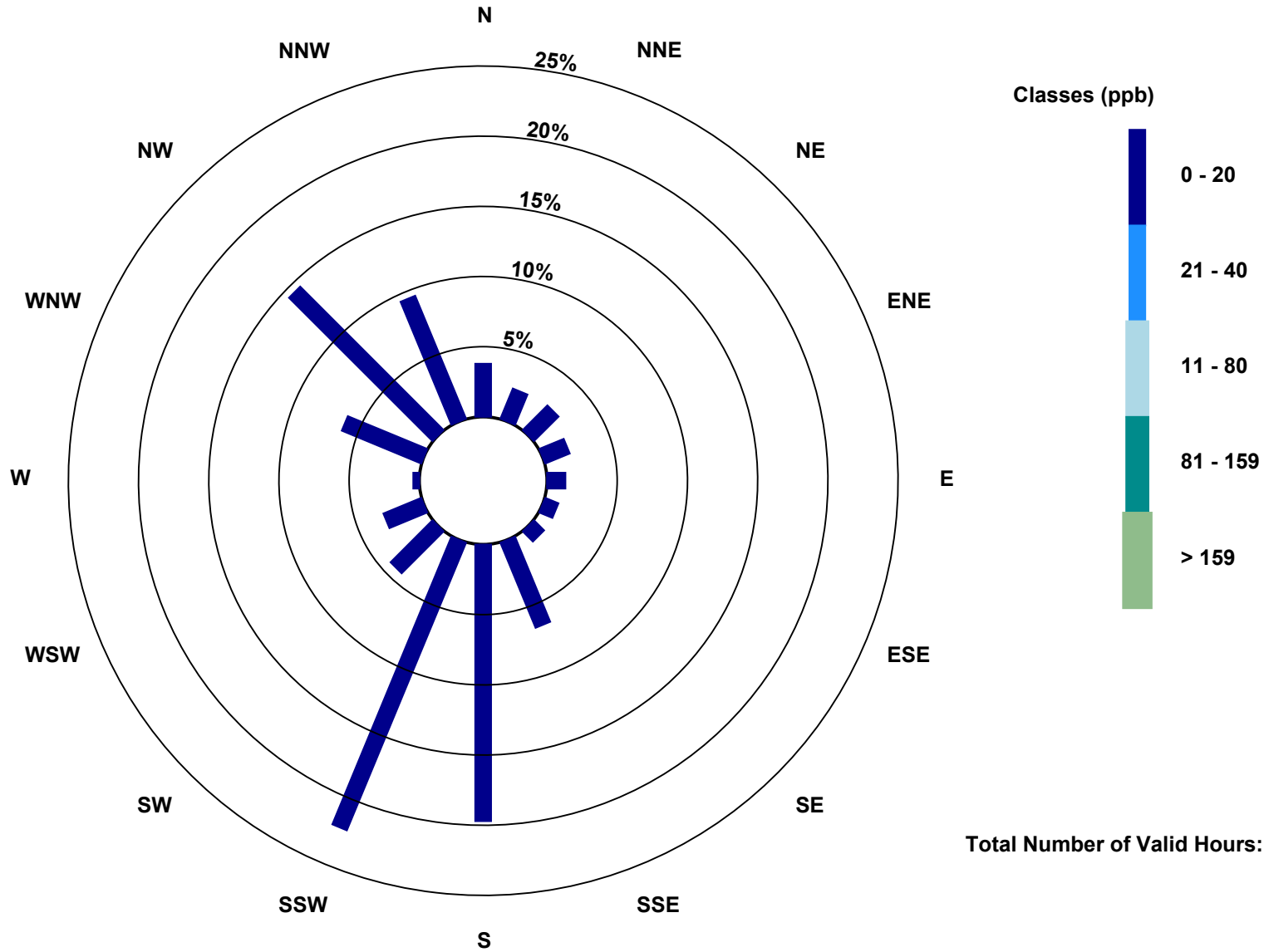
Total Number of Valid Hours: 685

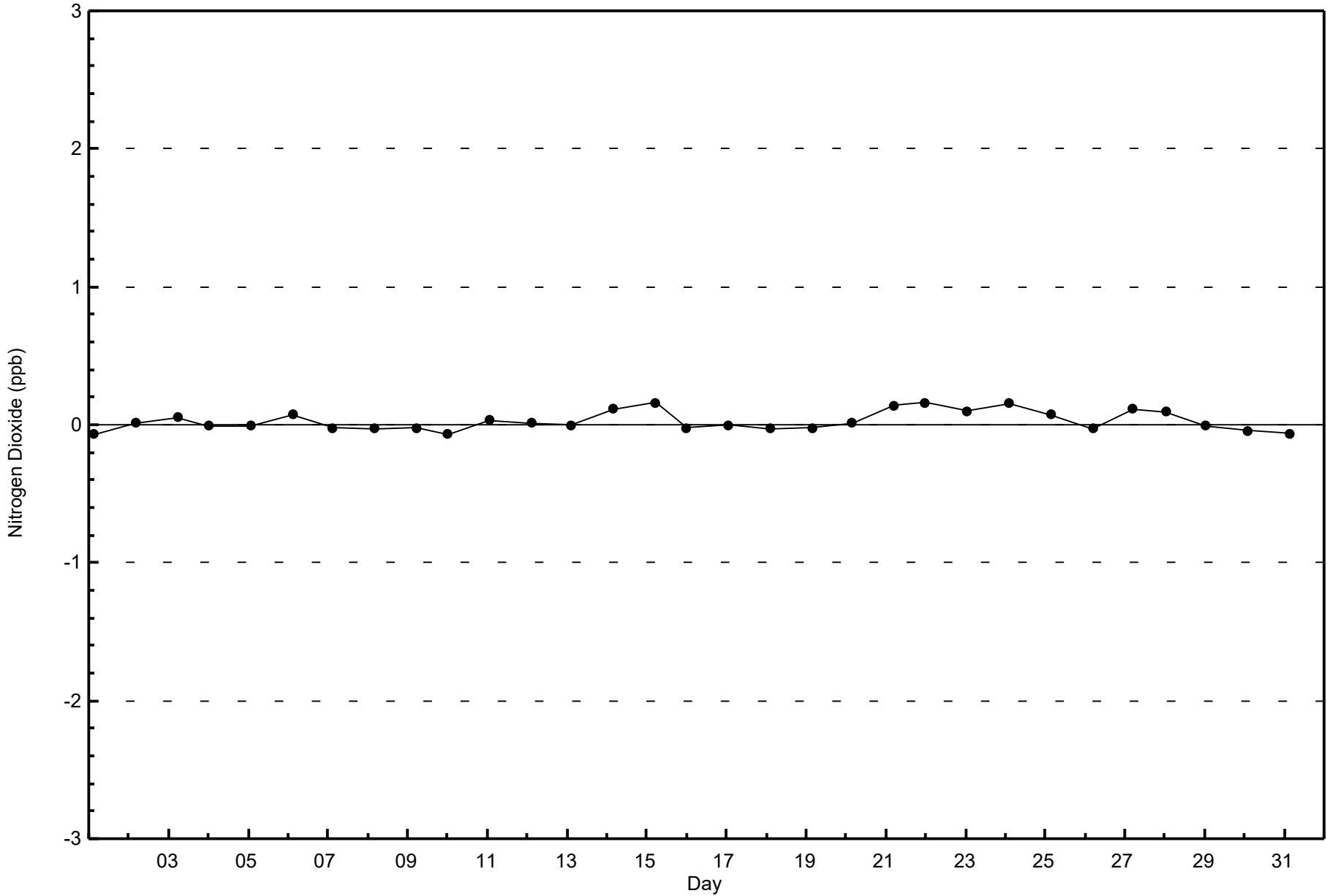
Total Number of Hours: 744

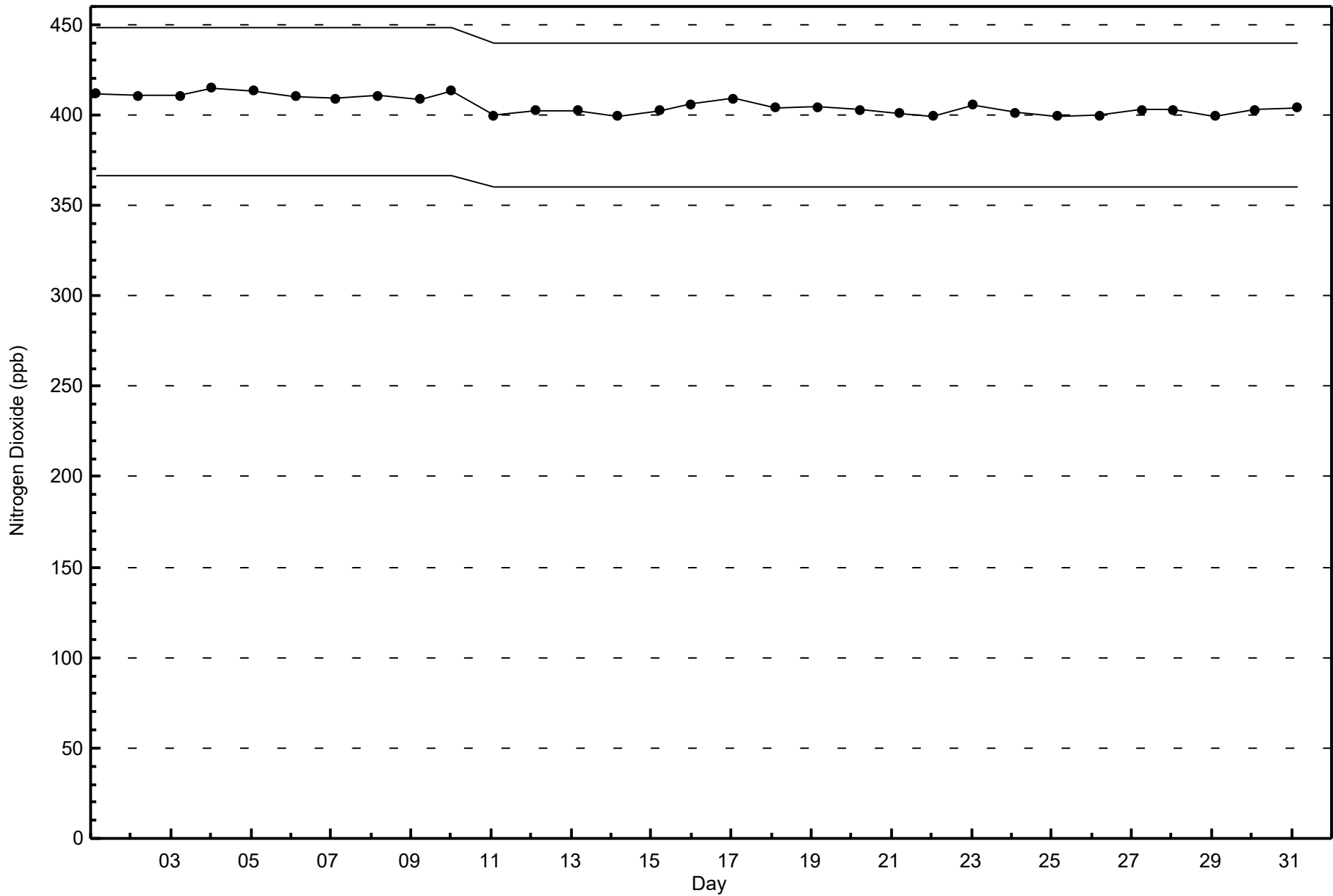


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Kirby North









Wood Buffalo Environmental Association
Summary of Hour Averages

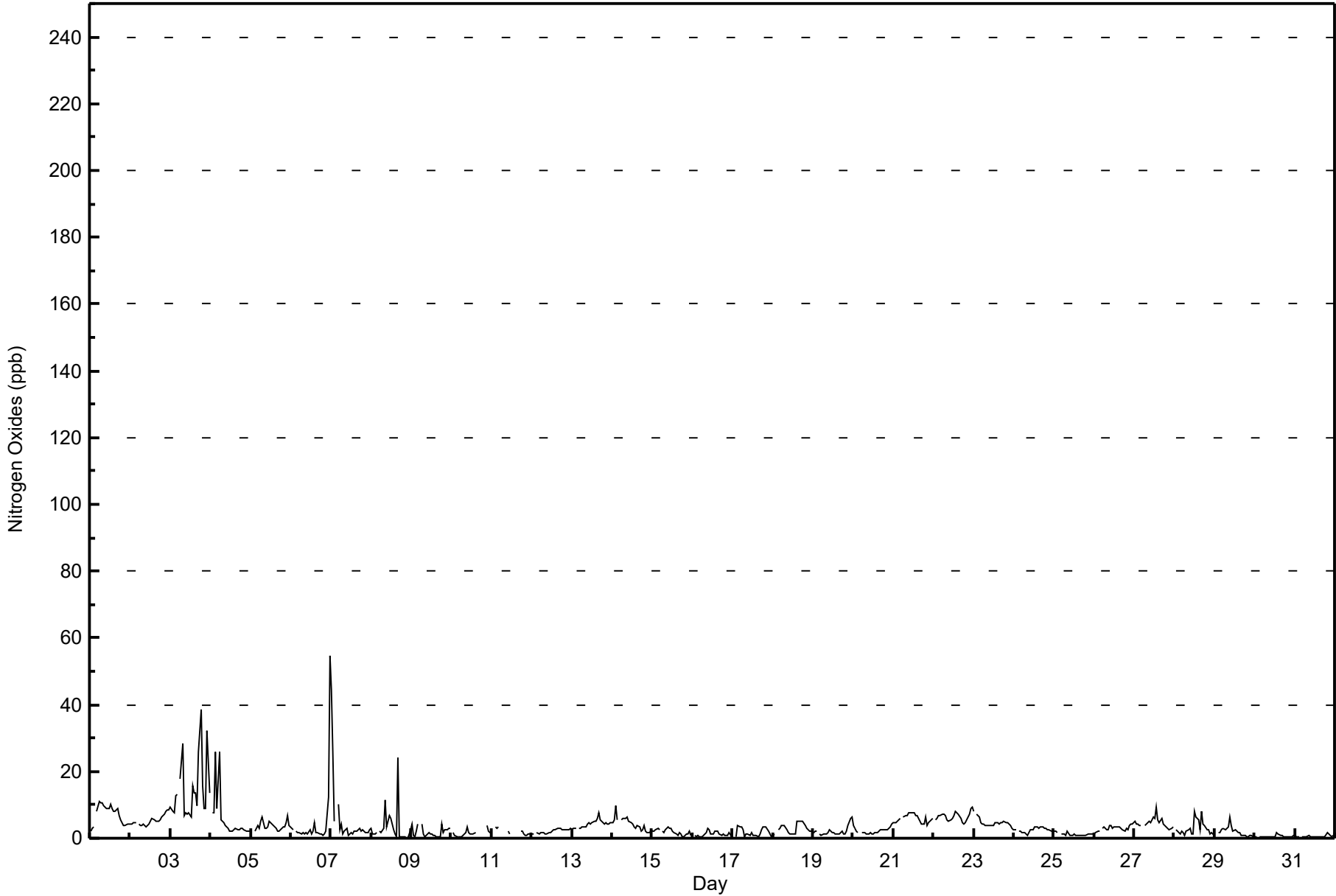
Nitrogen Oxides (NO_x) - ppb
Kirby North - December 2024

Maximum Value: 54.5 ppb on Dec 7 00:00		Maximum Daily Average: 14.3 ppb on Dec 3		Hours in Service: 744																						
Minimum Value: 0.2 ppb on Dec 8 23:00		Minimum Daily Average: 0.5 ppb on Dec 31		Hours of Data: 697																						
Maximum Diurnal Average: 5.0 ppb at hour 24		Minimum Diurnal Average: 2.8 ppb at hour 21		Hours of Missing Data: 47																						
Monthly Average: 3.65 ppb		Percentiles: P ₁ = 0.2 P ₁₀ = 0.7 Q ₁ = 1.4 Median = 2.6 Q ₃ = 4.5 P ₉₀ = 7.0 P ₉₉ = 25.8		Hours of Calibration: 37																						
				Percent Operational Time: 98.7																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	2.3	2.8	3.2	Z	7.9	11.0	10.4	10.5	9.9	9.4	9.0	9.1	10.0	8.9	8.3	8.0	9.0	6.8	5.4	4.6	3.8	3.7	4.1	4.4	7.1	11.0
2-Dec	4.2	4.3	4.7	4.6	Z	4.3	3.8	3.7	4.2	3.6	3.8	4.2	4.9	5.8	5.7	5.3	5.0	5.3	5.5	6.2	7.2	8.1	8.5	8.5	5.3	8.5
3-Dec	9.1	7.9	7.4	12.7	13.3	Z	17.7	28.5	6.9	7.6	7.2	7.7	6.3	15.6	13.4	13.6	9.6	26.1	38.6	15.6	9.0	8.9	32.2	13.5	14.3	38.6
4-Dec	Z	7.7	7.5	25.8	9.1	25.8	5.6	5.3	4.7	3.9	2.9	2.2	2.0	2.1	2.7	3.0	2.7	2.6	3.1	2.8	2.5	2.3	2.2	2.1	5.7	25.8
5-Dec	2.0	Z	2.2	2.9	4.0	3.1	5.3	6.4	2.9	3.0	3.3	5.0	4.5	3.7	3.4	2.9	2.2	2.0	2.7	3.2	3.3	4.5	6.7	3.7	3.6	6.7
6-Dec	2.8	2.6	Z	2.1	1.7	1.5	1.3	1.6	1.3	1.8	1.5	2.6	1.4	1.9	4.7	1.8	1.7	1.1	1.3	1.0	1.3	2.2	12.3	54.5	4.6	54.5
7-Dec	44.6	25.7	5.2	Z	10.3	2.6	4.4	1.2	2.3	3.0	1.0	1.1	1.6	1.5	2.0	1.9	2.5	3.1	2.1	2.4	1.5	1.6	1.8	2.5	5.5	44.6
8-Dec	3.0	1.3	1.3	1.5	Z	2.2	1.9	2.9	11.5	3.5	4.9	6.8	6.1	2.5	1.1	0.5	24.2	0.2	0.2	0.2	0.2	0.2	0.2	2.4	3.4	24.2
9-Dec	4.2	0.8	0.6	2.1	4.4	Z	4.3	1.3	0.6	1.0	1.5	1.4	1.4	0.9	1.1	0.3	0.3	0.6	4.1	1.8	2.5	2.6	2.9	3.1	1.9	4.4
10-Dec	Z	1.5	0.7	0.5	0.5	0.5	0.5	0.9	1.7	3.2	1.6	1.3	1.1	1.3	1.8	C	C	C	C	C	C	3.9	2.0	1.6	--	3.9
11-Dec	1.7	Z	3.6	3.0	3.6	PF	PF	PF	PF	PF	2.1	1.4	PF	PF	PF	PF	PF	2.2	2.0	1.1	0.9	0.9	1.1	1.2	--	3.6
12-Dec	1.3	1.4	Z	1.6	1.4	1.5	1.6	1.7	1.3	1.4	1.5	1.8	2.1	2.5	2.5	2.8	2.8	2.8	2.7	2.7	2.5	2.6	2.7	2.8	2.1	2.8
13-Dec	2.7	2.8	3.1	Z	3.2	3.1	3.4	3.4	3.5	4.2	4.6	4.4	4.7	5.0	5.2	6.1	7.6	5.6	4.7	4.3	4.5	4.3	4.3	4.5	4.3	7.6
14-Dec	4.8	5.5	9.8	5.3	Z	5.3	5.9	5.8	6.1	6.2	5.0	4.6	4.0	3.6	3.0	3.6	3.3	2.3	2.5	3.7	2.2	1.6	1.6	2.4	4.3	9.8
15-Dec	2.2	2.3	2.5	3.0	2.4	Z	2.2	1.8	2.4	3.4	3.1	3.0	2.2	1.6	1.1	1.0	1.6	1.1	0.5	0.4	1.2	1.3	2.0	0.9	1.9	3.4
16-Dec	Z	0.7	0.6	1.0	0.6	0.6	0.5	1.3	1.6	3.1	2.7	1.1	1.5	2.0	2.3	1.9	1.4	0.9	1.1	0.7	1.0	0.9	1.5	0.4	1.3	3.1
17-Dec	0.2	Z	0.6	3.6	3.4	3.4	2.4	0.6	1.2	1.3	1.0	1.5	0.8	0.7	0.8	0.6	1.2	2.7	3.5	3.2	3.5	2.2	1.2	0.5	1.8	3.6
18-Dec	0.4	1.2	Z	2.4	3.1	3.9	4.0	3.7	2.6	1.7	1.3	1.1	1.2	1.1	5.3	5.0	5.1	5.1	5.1	3.8	2.9	2.6	2.3	2.2	2.9	5.3
19-Dec	1.8	1.9	2.2	Z	1.1	1.0	1.1	1.2	1.1	1.7	2.5	1.8	1.6	1.4	1.3	1.2	1.4	2.0	1.5	1.4	2.0	3.8	5.9	6.3	2.1	6.3
20-Dec	3.8	3.1	2.1	1.9	Z	1.8	1.7	1.5	1.4	1.3	1.6	1.4	1.4	1.7	1.8	2.2	2.4	2.5	2.5	2.4	2.7	3.1	3.5	4.4	2.3	4.4
21-Dec	4.5	4.8	5.2	5.6	6.0	Z	6.3	6.6	6.7	7.6	7.4	7.8	7.8	6.9	6.8	5.9	5.1	4.1	4.3	6.4	3.9	4.6	5.2	6.0	5.9	7.8
22-Dec	Z	5.6	5.9	6.6	6.9	7.2	7.3	6.9	5.7	5.1	5.4	6.1	7.0	8.1	7.8	7.0	5.9	4.7	4.2	4.7	5.6	7.3	8.7	9.3	6.5	9.3
23-Dec	7.9	Z	7.3	6.5	4.9	4.4	4.1	4.0	3.9	3.9	3.9	3.9	4.0	4.6	4.6	4.4	4.5	4.8	5.0	4.8	4.9	4.3	3.7	3.1	4.7	7.9
24-Dec	2.6	2.4	Z	2.1	2.0	1.9	1.7	1.2	1.0	1.8	2.5	2.7	3.2	3.4	3.2	3.2	3.3	3.2	3.0	2.9	2.7	2.6	2.3	2.3	2.5	3.4
25-Dec	2.1	2.0	1.7	Z	1.4	1.2	1.1	0.8	2.1	0.8	0.8	0.8	1.3	0.8	1.0	0.8	0.9	0.9	0.9	0.8	1.1	1.3	1.1	1.2	1.2	2.1
26-Dec	1.4	1.8	2.1	2.3	Z	2.8	3.3	2.4	2.6	3.7	3.7	3.1	3.5	3.3	3.5	3.5	3.1	2.7	2.3	2.8	2.7	3.7	4.3	4.4	3.0	4.4
27-Dec	5.3	4.3	4.2	3.9	3.8	Z	3.7	4.3	4.8	4.9	4.6	6.3	6.0	9.2	5.3	4.6	5.8	4.2	3.9	3.2	3.0	2.8	3.0	3.2	4.5	9.2
28-Dec	Z	2.5	2.3	1.3	2.0	1.5	1.0	2.0	2.4	3.0	1.3	1.2	8.1	6.4	5.4	2.4	8.2	4.4	3.8	2.7	2.4	1.3	1.6	1.4	3.0	8.2
29-Dec	1.0	Z	1.6	1.8	2.4	2.8	2.8	2.8	3.2	6.2	3.7	2.0	2.4	2.3	1.6	1.8	0.9	0.7	0.7	0.6	0.6	1.0	0.9	0.6	1.9	6.2
30-Dec	0.4	0.4	Z	0.3	0.3	0.3	0.3	0.4	0.6	0.6	0.5	0.3	0.3	1.9	1.2	1.0	0.6	0.5	0.6	0.6	0.3	0.6	0.5	0.7	0.6	1.9
31-Dec	0.8	0.5	0.4	Z	0.4	0.3	0.3	0.3	0.7	0.4	0.3	0.6	0.2	0.4	0.3	0.3	0.4	0.2	0.4	1.6	1.3	0.6	0.5	0.7	0.5	1.6
																								Diurnal Average		
																								Diurnal Maximum		
4.5 3.8 3.4 4.2 3.8 3.8 3.7 3.8 3.4 3.4 3.1 3.2 3.4 3.7 3.6 3.3 4.2 3.5 3.9 3.1 2.8 3.0 4.2 5.0																										
44.6 25.7 9.8 25.8 13.3 25.8 17.7 28.5 11.5 9.4 9.0 9.1 10.0 15.6 13.4 13.6 24.2 26.1 38.6 15.6 9.0 8.9 32.2 54.5																										
Z - zerospan C - Calibration PF - Power Failure																										



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Kirby North - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Kirby North - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	687	98.57	98.57
21 - 40	8	1.15	99.71
41 - 80	2	0.29	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 697

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Kirby North - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	24	16	16	13	9	7	7	45	135	152	29	20	2	40	97	63	675
21 - 40	2	0	1	0	0	0	0	0	0	0	0	0	0	1	2	2	8
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	26	16	17	13	9	7	7	45	135	152	29	20	3	42	99	65	685

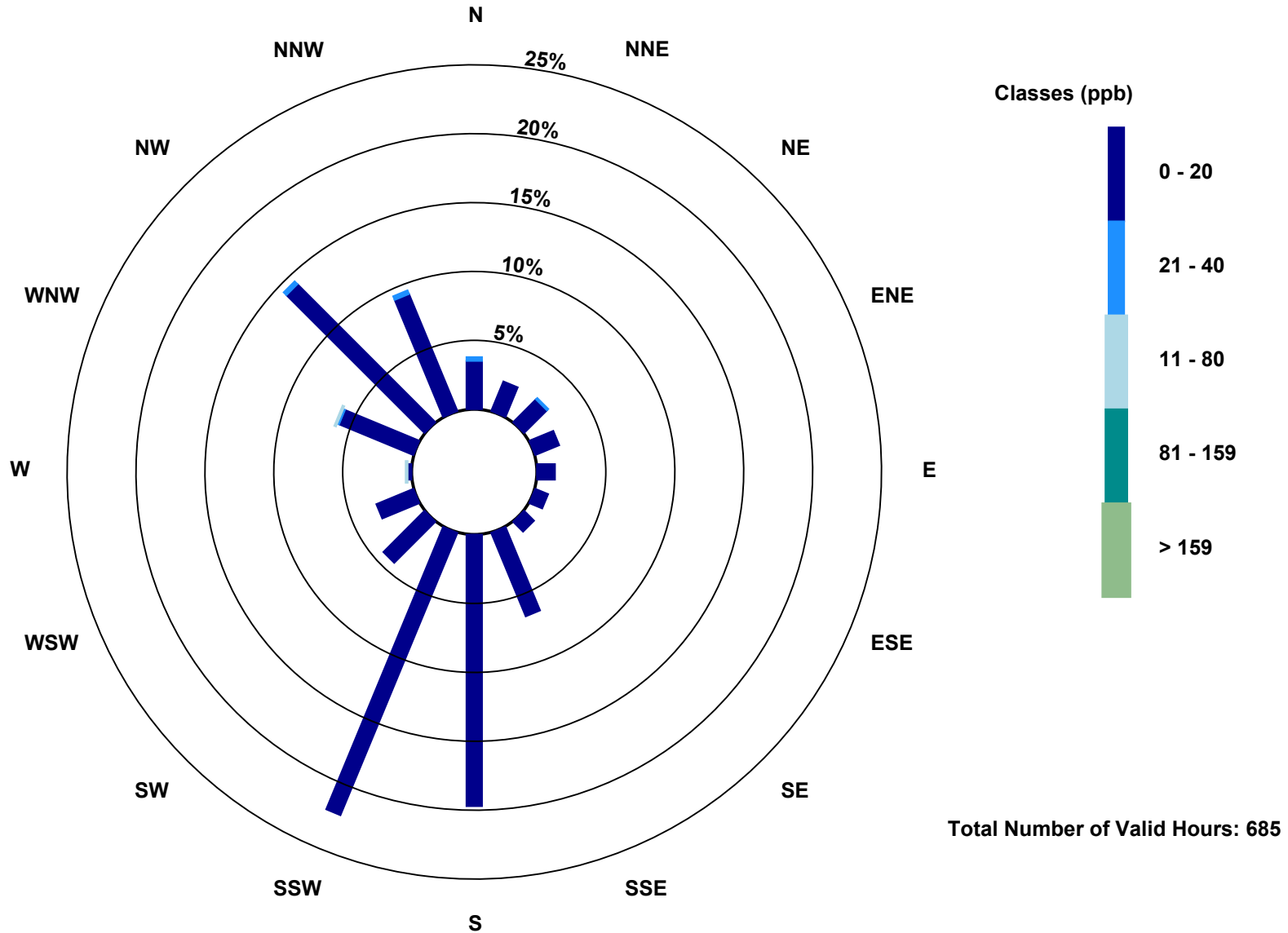
Total Number of Valid Hours: 685

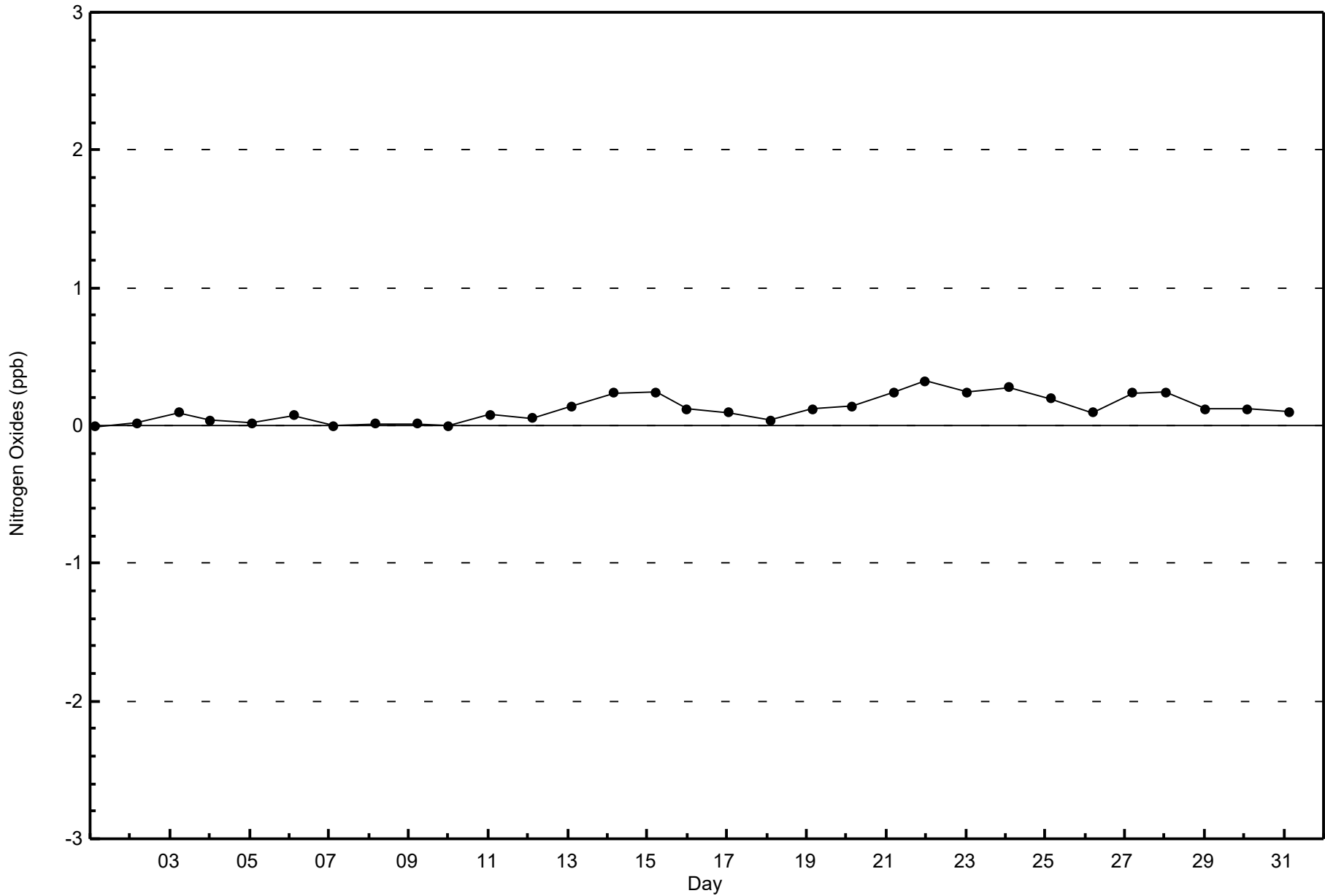
Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Kirby North

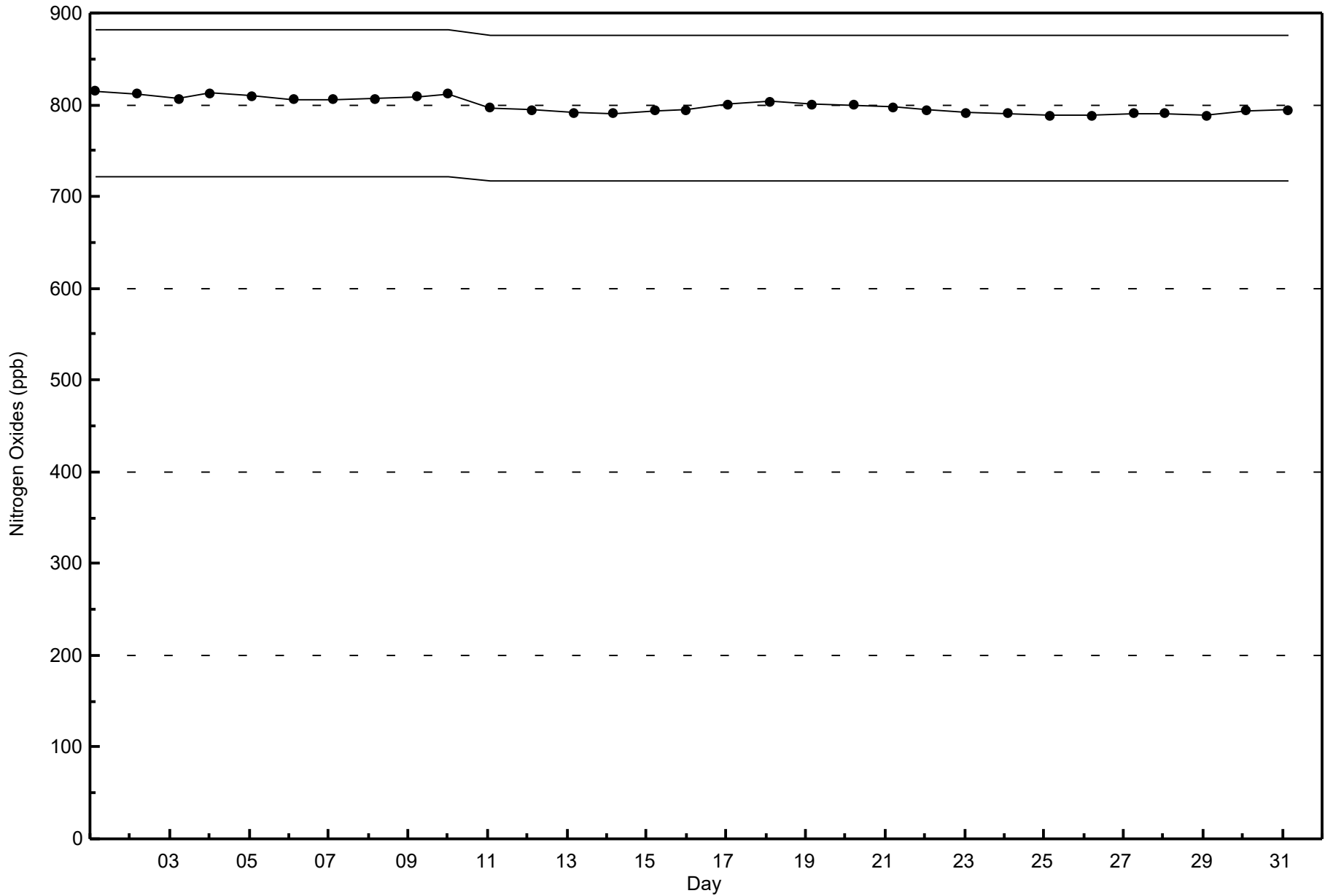






Wood Buffalo Environmental Association
Span Responses

Nitrogen Oxides (NO_x) - ppb
Kirby North - December 2024





Wood Buffalo Environmental Association
Summary of Hour Averages

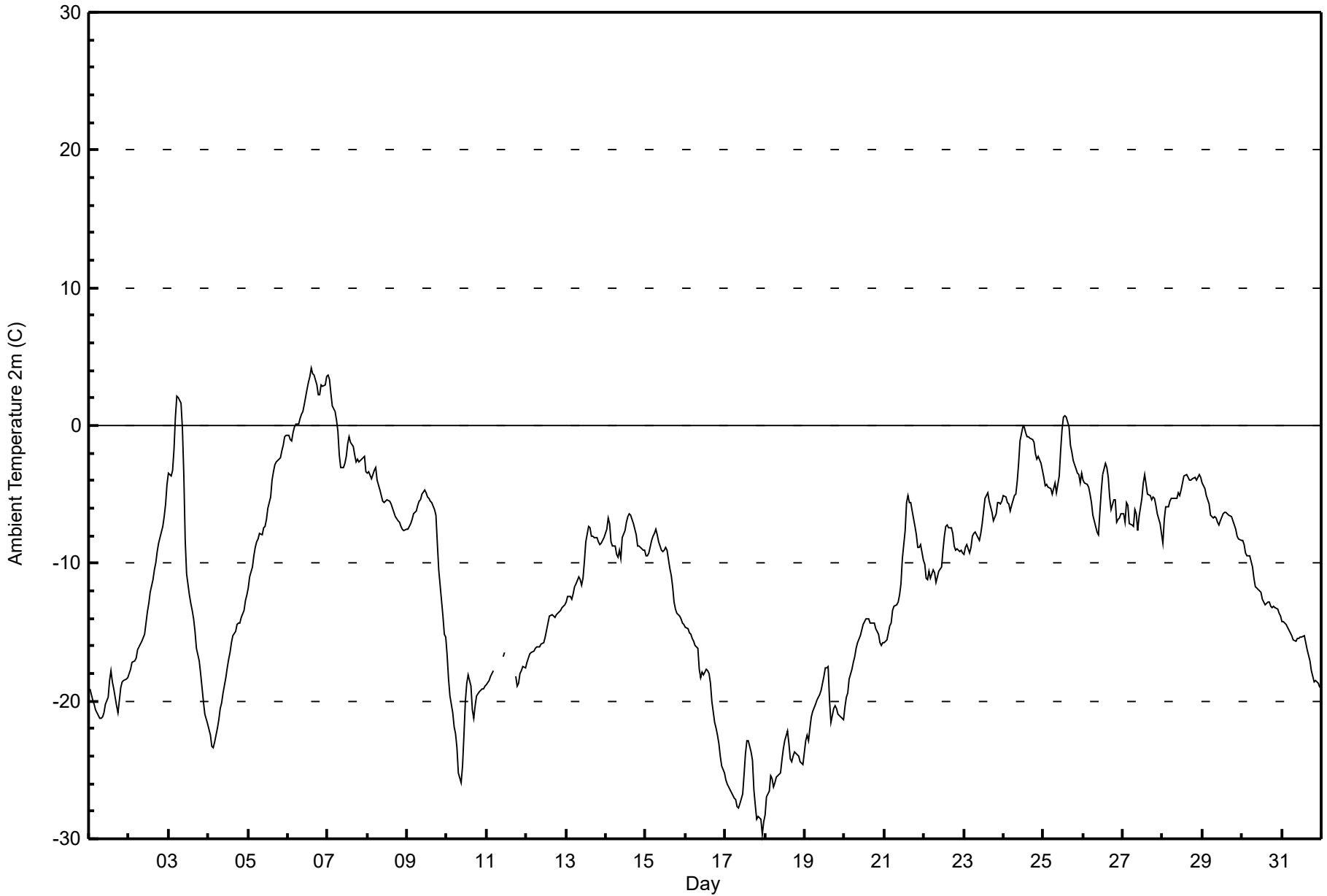
Ambient Temperature 2m (AT2) - C
Kirby North - December 2024

Maximum Value: 4.2 C on Dec 6 15:00		Maximum Daily Average: 1.7 C on Dec 6		Hours in Service: 744																						
Minimum Value: -29.6 C on Dec 17 23:00		Minimum Daily Average: -26.5 C on Dec 17		Hours of Data: 734																						
Maximum Diurnal Average: -9.5 C at hour 14		Minimum Diurnal Average: -11.9 C at hour 24		Hours of Missing Data: 10																						
Monthly Average: -11.18 C		Percentiles: P ₁ = -27.6 P ₁₀ = -21.5 Q ₁ = -17.0 Median = -9.3 Q ₃ = -5.5 P ₉₀ = -2.5 P ₉₉ = 3.1		Hours of Calibration: 0																						
				Percent Operational Time: 98.7																						
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24		
1-Dec	-19.2	-19.5	-19.9	-20.2	-20.7	-21.1	-21.3	-21.3	-21.1	-20.8	-20.3	-19.7	-18.5	-17.8	-18.6	-19.1	-20.3	-20.9	-19.9	-19.0	-18.6	-18.5	-18.4	-18.3	-19.7	-17.8
2-Dec	-18.0	-17.7	-17.2	-17.1	-16.9	-16.2	-16.1	-15.9	-15.6	-15.2	-14.4	-13.5	-12.9	-12.1	-11.2	-10.5	-10.0	-9.2	-8.5	-8.1	-7.4	-6.7	-5.7	-4.3	-12.5	-4.3
3-Dec	-3.5	-3.7	-3.2	-1.7	0.6	2.2	2.1	1.6	-0.2	-3.6	-8.3	-10.8	-12.3	-12.9	-13.4	-14.1	-14.9	-16.1	-17.1	-18.0	-19.0	-20.0	-20.9	-21.7	-9.5	2.2
4-Dec	-22.1	-22.4	-23.3	-23.4	-23.0	-22.0	-21.3	-20.6	-20.2	-19.4	-18.3	-17.6	-17.0	-16.5	-15.7	-15.3	-14.9	-14.4	-14.3	-13.9	-13.4	-12.7	-12.3	-17.8	-12.3	
5-Dec	-11.8	-11.0	-10.3	-9.4	-8.9	-8.4	-8.2	-7.8	-7.9	-7.4	-7.3	-6.8	-6.0	-5.2	-4.0	-3.4	-2.9	-2.6	-2.5	-2.4	-1.9	-1.5	-0.8	-0.7	-5.8	-0.7
6-Dec	-0.7	-1.0	-1.1	-0.5	-0.1	0.1	0.2	0.5	0.8	1.0	1.5	2.7	3.2	3.6	4.2	3.8	3.6	2.9	2.3	2.2	2.9	2.9	2.9	3.6	1.7	4.2
7-Dec	3.6	3.4	2.4	1.4	1.0	0.4	-0.4	-2.1	-3.0	-3.0	-2.7	-2.2	-1.3	-0.8	-1.2	-1.5	-2.1	-2.6	-2.5	-2.7	-2.5	-2.3	-2.2	-3.4	-1.1	3.6
8-Dec	-3.5	-3.4	-3.8	-3.6	-3.2	-3.1	-3.9	-4.7	-5.0	-5.4	-5.6	-5.4	-5.5	-5.7	-6.0	-6.4	-6.4	-6.6	-6.9	-7.1	-7.3	-7.5	-7.6	-7.5	-5.4	-3.1
9-Dec	-7.5	-7.3	-7.1	-6.8	-6.4	-6.2	-5.8	-5.5	-5.4	-4.9	-4.7	-4.9	-5.2	-5.3	-5.5	-5.6	-6.1	-6.5	-8.5	-10.4	-11.6	-13.8	-15.2	-15.3	-7.6	-4.7
10-Dec	-16.7	-18.4	-19.6	-20.9	-21.9	-22.3	-23.3	-25.2	-26.0	-24.7	-22.4	-20.0	-18.7	-18.1	-19.0	-20.6	-21.3	-20.3	-19.7	-19.3	-19.2	-19.2	-19.1	-18.9	-20.6	-16.7
11-Dec	-18.8	-18.6	-18.2	-18.0	-17.8	PF	PF	PF	PF	PF	-16.8	-16.4	PF	PF	PF	PF	PF	-18.2	-18.9	-18.8	-18.0	-17.8	-17.5	-17.6	--	-16.4
12-Dec	-17.2	-16.9	-16.5	-16.5	-16.4	-16.1	-16.1	-16.1	-16.0	-15.9	-15.7	-15.3	-14.9	-14.3	-13.8	-13.7	-13.8	-14.0	-13.8	-13.6	-13.4	-13.2	-13.1	-13.0	-15.0	-13.0
13-Dec	-12.8	-12.4	-12.5	-12.6	-12.2	-11.7	-11.4	-11.0	-11.1	-11.6	-11.1	-9.9	-8.4	-7.4	-7.4	-8.1	-8.0	-8.1	-8.2	-8.4	-8.7	-8.5	-8.3	-8.1	-9.9	-7.4
14-Dec	-7.6	-6.7	-7.1	-8.4	-8.8	-8.8	-9.3	-9.6	-9.1	-9.7	-8.1	-7.6	-7.0	-6.6	-6.4	-6.5	-7.1	-7.6	-7.9	-8.7	-8.8	-8.8	-9.0	-9.1	-8.1	-6.4
15-Dec	-9.4	-9.5	-9.3	-8.4	-8.0	-7.8	-7.5	-7.9	-8.5	-9.0	-9.2	-9.0	-8.9	-9.1	-10.4	-10.8	-11.7	-12.8	-13.3	-13.6	-13.8	-14.0	-14.4	-14.5	-10.4	-7.5
16-Dec	-14.6	-14.8	-15.0	-15.2	-15.5	-15.7	-15.9	-16.2	-17.6	-18.3	-17.9	-18.1	-17.7	-17.8	-18.0	-18.7	-20.1	-21.5	-22.0	-22.4	-23.1	-24.0	-24.7	-25.2	-18.8	-14.6
17-Dec	-25.8	-26.1	-26.3	-26.4	-26.8	-27.1	-27.1	-27.6	-27.8	-27.5	-26.8	-25.3	-23.8	-22.9	-22.9	-23.7	-24.3	-26.5	-27.5	-28.6	-28.3	-28.5	-29.6	-28.8	-26.5	-22.9
18-Dec	-28.2	-27.0	-26.5	-25.4	-25.6	-26.3	-25.9	-25.5	-25.4	-25.2	-24.3	-23.5	-22.8	-22.2	-23.1	-24.2	-24.5	-24.0	-23.7	-23.9	-24.0	-24.4	-24.5	-24.6	-24.8	-22.2
19-Dec	-22.9	-22.5	-22.9	-21.9	-21.2	-20.7	-20.3	-19.9	-19.8	-19.5	-19.3	-18.2	-17.6	-17.6	-17.5	-19.9	-21.6	-20.6	-20.4	-20.5	-21.0	-21.0	-21.2	-21.3	-20.4	-17.5
20-Dec	-20.4	-19.7	-19.4	-18.4	-17.7	-17.2	-16.8	-16.2	-15.7	-15.3	-14.9	-14.4	-14.3	-14.0	-14.1	-14.3	-14.3	-14.3	-14.4	-14.7	-15.2	-15.7	-15.9	-15.7	-16.0	-14.0
21-Dec	-15.7	-15.5	-15.1	-14.5	-14.3	-13.4	-13.2	-13.0	-12.8	-12.3	-11.4	-9.7	-7.7	-5.6	-5.1	-5.6	-5.6	-6.2	-7.4	-7.9	-8.9	-8.9	-8.6	-9.8	-10.3	-5.1
22-Dec	-10.1	-11.1	-11.2	-10.5	-11.1	-10.5	-10.6	-11.4	-11.0	-10.6	-10.3	-9.1	-8.1	-7.3	-7.2	-7.4	-7.5	-7.8	-8.7	-9.0	-8.9	-9.1	-9.0	-9.3	-9.5	-7.2
23-Dec	-9.3	-8.8	-8.7	-9.3	-8.8	-8.1	-7.8	-7.7	-8.2	-8.4	-7.9	-7.2	-6.2	-5.3	-4.9	-5.5	-5.9	-6.3	-6.9	-6.4	-5.6	-5.5	-5.7	-5.5	-7.1	-4.9
24-Dec	-5.1	-5.1	-5.6	-5.7	-6.2	-5.8	-5.1	-5.0	-4.1	-2.8	-1.1	-0.1	-0.2	-0.5	-0.8	-0.8	-0.9	-1.0	-1.2	-2.1	-2.5	-2.2	-2.7	-3.3	-2.9	-0.1
25-Dec	-3.8	-4.3	-4.3	-4.5	-4.6	-5.0	-4.5	-4.2	-4.9	-3.7	-1.9	-0.3	0.6	0.8	0.6	-0.1	-1.4	-1.9	-2.5	-2.8	-3.5	-3.5	-4.2	-3.5	-2.8	0.8
26-Dec	-3.9	-4.1	-4.3	-4.5	-5.0	-5.6	-6.5	-7.4	-7.7	-7.9	-6.3	-4.7	-3.5	-2.7	-3.0	-3.8	-5.2	-6.1	-5.3	-5.4	-7.0	-6.8	-6.7	-6.4	-5.4	-2.7
27-Dec	-6.4	-7.1	-5.6	-5.8	-7.2	-7.3	-7.4	-6.2	-6.4	-7.7	-6.6	-5.2	-4.1	-3.6	-4.2	-4.9	-5.1	-5.4	-5.2	-5.3	-5.8	-6.4	-7.1	-7.9	-6.0	-3.6
28-Dec	-8.5	-6.8	-5.9	-5.9	-5.5	-5.3	-5.3	-5.2	-5.3	-4.9	-5.1	-4.7	-4.2	-3.7	-3.6	-3.7	-4.0	-4.0	-3.8	-3.7	-3.9	-3.8	-3.5	-3.7	-4.8	-3.5
29-Dec	-4.2	-4.6	-5.1	-5.4	-5.7	-6.5	-6.7	-6.6	-6.7	-7.0	-7.2	-6.9	-6.5	-6.3	-6.3	-6.4	-6.5	-6.6	-6.9	-7.2	-7.5	-8.0	-8.2	-8.3	-6.6	-4.2
30-Dec	-8.3	-8.6	-9.3	-9.5	-9.5	-9.8	-10.3	-11.1	-11.7	-11.8	-12.0	-12.1	-12.6	-12.8	-13.0	-12.8	-12.8	-13.1	-13.2	-13.1	-13.2	-13.3	-13.6	-13.9	-11.7	-8.3
31-Dec	-14.2	-14.3	-14.5	-14.7	-14.8	-15.0	-15.2	-15.6	-15.7	-15.5	-15.4	-15.3	-15.4	-15.3	-15.8	-16.2	-16.7	-17.1	-17.8	-18.6	-18.5	-18.6	-18.7	-19.0	-16.2	-14.2
																								Diurnal Average		
																								Diurnal Maximum		
PF - Power Failure																										



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Kirby North - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Kirby North - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	105	14.31	14.31
-20 - 0	597	81.34	95.64
0 - 10	32	4.36	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 734

Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

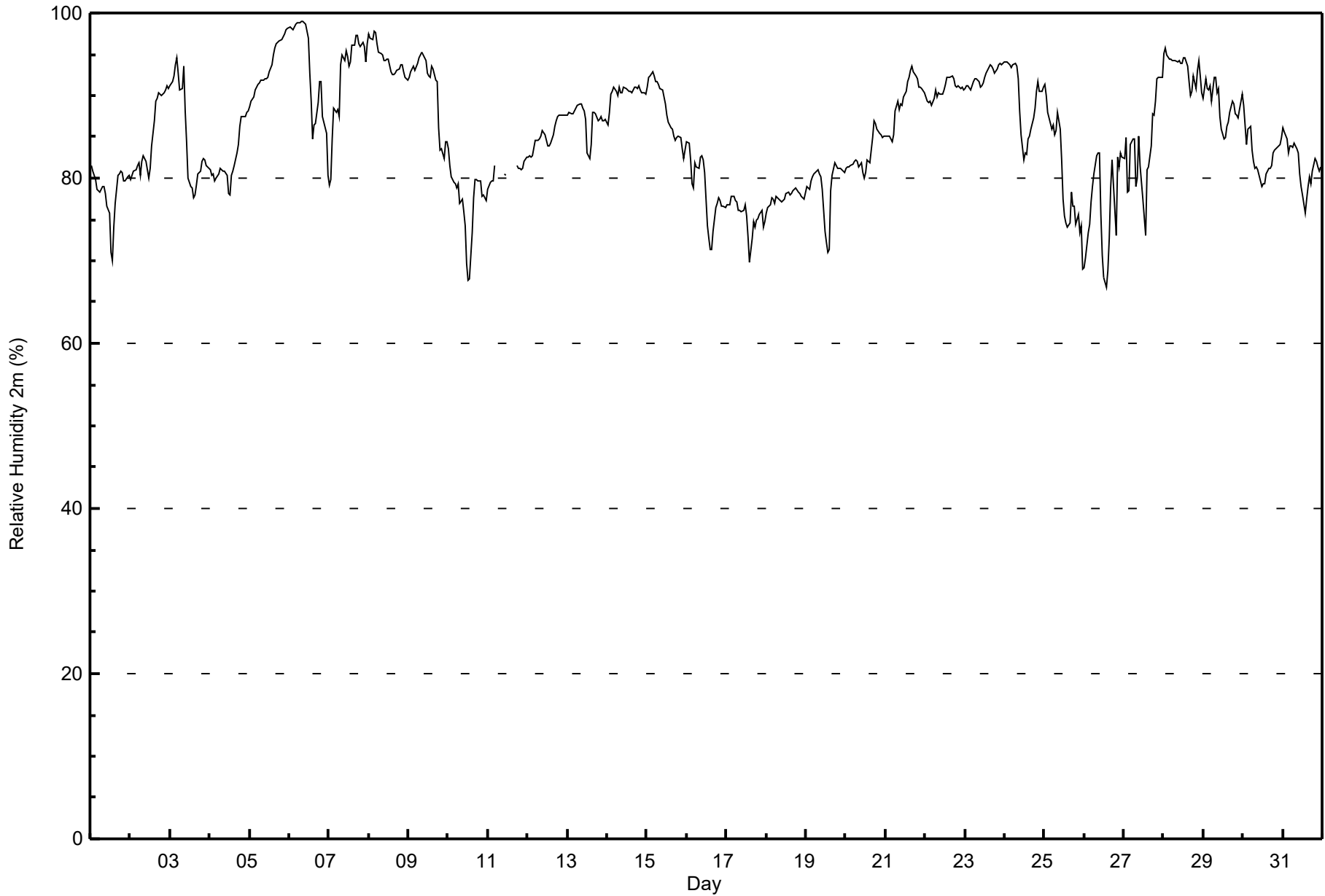
Relative Humidity 2m (RH2) - %
Kirby North - December 2024

Maximum Value: 98.9 % on Dec 6 08:00 Maximum Daily Average: 94.5 % on Dec 8																						Hours in Service:	744																							
Minimum Value: 66.7 % on Dec 26 14:00 Minimum Daily Average: 75.5 % on Dec 17																						Hours of Data:	734																							
Maximum Diurnal Average: 86.8 % at hour 9 Minimum Diurnal Average: 82.4 % at hour 14																						Hours of Missing Data:	10																							
Monthly Average: 85.45 % Percentiles: P ₁ = 69.7 P ₁₀ = 76.9 Q ₁ = 80.4 Median = 85.2 Q ₃ = 91.1 P ₉₀ = 93.9 P ₉₉ = 98.3																						Hours of Calibration:	0																							
																						Percent Operational Time:	98.7																							
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																						
1-Dec	81.5	80.9	80.4	79.8	78.7	78.4	78.6	79.0	79.0	78.2	76.5	75.7	71.1	70.0	74.1	77.0	80.4	80.5	80.9	80.7	79.7	79.7	80.1	80.3	78.4	81.5																				
2-Dec	79.8	80.3	80.9	80.9	81.5	81.9	80.3	82.1	82.8	82.0	81.1	80.0	81.2	83.9	86.9	89.4	89.6	90.3	90.2	90.1	90.3	90.7	91.2	90.8	84.9	91.2																				
3-Dec	91.2	91.7	92.4	93.7	94.6	92.6	90.6	90.9	93.5	88.2	84.5	80.0	79.0	78.9	77.6	77.9	79.2	80.6	80.9	82.0	82.5	82.2	81.5	81.1	85.3	94.6																				
4-Dec	81.0	80.4	80.4	79.6	80.0	80.5	81.1	81.0	80.8	80.8	80.4	78.2	77.9	80.3	80.8	81.5	83.1	84.1	86.2	87.4	87.4	87.5	88.0	88.2	82.4	88.2																				
5-Dec	88.7	89.4	89.9	90.7	91.1	91.4	91.6	91.9	91.8	92.1	92.0	92.2	92.9	93.8	95.0	95.7	96.2	96.5	96.6	96.8	97.2	97.5	98.0	98.2	93.6	98.2																				
6-Dec	98.3	98.1	98.0	98.4	98.6	98.7	98.8	98.9	98.9	98.8	98.6	97.0	92.7	89.3	84.7	86.5	86.6	89.1	91.7	91.6	87.4	86.8	85.4	80.3	93.0	98.9																				
7-Dec	79.1	79.9	84.8	88.4	88.0	88.2	87.5	93.7	94.9	94.3	95.4	94.8	93.5	94.1	96.0	96.2	97.3	97.2	96.2	96.0	96.5	96.0	94.1	96.3	92.4	97.3																				
8-Dec	97.5	96.9	96.8	97.8	97.6	96.3	95.3	95.1	95.0	94.2	94.2	94.5	94.4	92.8	92.6	92.5	92.7	93.1	93.3	93.7	93.8	92.9	92.1	91.8	94.5	97.8																				
9-Dec	92.2	93.0	93.3	93.6	93.0	93.9	94.6	95.0	95.3	95.0	94.3	92.8	92.3	92.3	93.6	93.2	91.8	91.6	86.1	83.3	83.5	82.4	84.5	84.4	91.0	95.3																				
10-Dec	83.5	81.5	80.1	79.5	79.3	78.9	79.3	76.9	77.4	76.0	74.3	69.6	67.7	67.8	73.5	77.7	79.9	79.8	79.7	79.7	77.7	78.0	77.6	77.3	77.2	83.5																				
11-Dec	78.7	79.5	79.6	79.6	81.6	PF	PF	PF	PF	PF	80.5	80.3	PF	PF	PF	PF	PF	81.6	81.2	81.2	81.1	81.1	82.0	82.5	--	82.5																				
12-Dec	82.5	82.7	82.6	82.8	84.7	84.6	84.5	84.7	85.1	85.8	85.3	84.5	83.9	83.9	84.2	85.3	86.2	87.0	87.4	87.6	87.7	87.7	87.6	87.7	85.2	87.7																				
13-Dec	87.7	87.9	87.8	87.8	88.2	88.5	88.8	89.1	88.9	88.4	88.2	87.2	83.1	82.4	84.1	88.0	88.0	87.8	86.9	87.1	87.5	87.0	86.9	87.1	87.3	89.1																				
14-Dec	86.4	88.0	90.1	90.4	91.0	90.6	90.0	91.1	90.4	90.3	91.1	90.8	90.7	90.4	90.5	90.3	91.0	91.0	90.8	91.2	90.7	90.3	90.3	90.2	90.3	91.2																				
15-Dec	91.0	92.1	92.5	92.8	92.3	91.7	91.7	91.3	90.9	90.7	89.9	89.1	87.7	86.9	86.0	86.0	85.1	84.6	85.0	85.1	85.0	83.5	82.4	83.5	88.2	92.8																				
16-Dec	84.3	84.3	82.2	79.3	78.8	81.9	81.3	81.2	82.5	82.7	82.2	80.7	74.2	72.8	71.3	71.3	73.6	76.4	77.0	77.6	77.2	76.6	76.6	76.5	78.4	84.3																				
17-Dec	76.8	76.8	76.8	77.8	77.9	77.3	77.1	76.1	76.1	75.9	76.2	76.8	75.5	72.9	69.8	72.7	74.8	74.0	74.9	75.2	75.5	76.2	74.1	74.7	75.5	77.9																				
18-Dec	75.8	76.4	76.8	77.7	77.4	77.0	77.9	77.6	77.4	77.1	77.2	77.4	78.1	78.4	77.9	78.1	78.4	78.6	78.8	78.2	78.1	77.8	77.6	77.5	77.6	78.8																				
19-Dec	79.1	78.9	78.7	79.6	80.2	80.6	80.8	81.0	80.4	80.2	78.7	73.6	72.2	71.0	71.4	78.4	80.4	81.9	81.5	81.2	81.2	81.2	80.9	80.7	78.9	81.9																				
20-Dec	81.2	81.3	81.4	81.5	81.7	82.1	82.2	82.0	81.4	81.8	80.7	79.9	80.7	82.3	81.9	83.3	85.0	86.9	86.6	86.0	85.5	85.2	85.0	85.0	82.9	86.9																				
21-Dec	85.0	85.1	85.1	84.7	84.4	85.3	88.2	89.3	88.3	88.9	88.9	89.9	90.6	91.7	92.1	93.0	93.5	93.0	92.3	92.1	91.0	91.1	90.9	90.3	89.4	93.5																				
22-Dec	89.8	89.3	89.1	89.3	88.9	89.7	90.7	89.9	90.3	90.1	90.2	90.8	91.4	92.1	92.3	92.3	92.3	92.0	91.2	91.1	91.1	90.9	91.0	90.7	90.7	92.3																				
23-Dec	90.8	91.2	91.2	90.7	91.2	91.8	92.0	92.0	91.6	91.1	91.3	91.6	92.1	92.8	93.5	93.8	93.6	93.3	92.7	93.3	93.8	93.9	93.8	93.8	92.4	93.9																				
24-Dec	94.1	94.1	93.8	93.7	93.4	93.7	94.0	93.6	92.0	88.1	85.2	82.1	83.0	82.9	84.7	85.1	86.0	87.3	88.4	90.6	91.7	90.4	90.5	91.1	89.6	94.1																				
25-Dec	91.3	90.0	87.9	87.2	86.0	86.5	85.3	85.8	88.0	85.9	82.2	77.4	75.4	74.6	74.0	74.5	78.4	76.7	76.6	74.4	75.6	73.5	74.2	69.0	80.4	91.3																				
26-Dec	69.1	70.3	73.4	74.4	77.1	79.1	80.6	82.7	83.1	83.1	75.7	70.6	68.0	66.7	68.8	72.6	78.8	82.2	76.0	73.0	82.5	81.4	83.1	82.5	76.4	83.1																				
27-Dec	82.4	84.9	78.3	78.5	84.1	84.8	84.8	79.1	80.1	85.1	81.5	77.5	75.3	73.0	81.0	81.4	83.9	87.9	87.7	89.3	92.1	92.2	92.2	92.2	83.7	92.2																				
28-Dec	95.1	95.7	95.0	94.3	94.5	94.3	94.2	94.2	94.1	94.2	93.9	94.0	94.5	94.6	93.5	91.8	89.9	90.5	92.3	90.8	93.0	94.2	92.4	90.4	93.4	95.7																				
29-Dec	89.7	92.0	90.9	90.8	91.2	89.4	92.3	92.2	90.3	90.8	87.5	85.9	84.8	85.0	86.3	86.8	87.9	89.3	88.9	87.8	87.7	87.4	88.4	90.1	88.9	92.3																				
30-Dec	88.9	86.4	84.1	85.9	86.2	83.4	82.1	81.1	81.4	81.0	79.7	79.0	79.3	79.3	80.6	81.2	81.2	81.5	83.1	83.4	83.5	83.9	84.0	85.0	82.7	88.9																				
31-Dec	86.1	85.6	84.8	83.1	83.9	84.0	83.8	84.2	83.6	83.0	80.5	79.1	78.0	75.8	77.4	79.0	80.1	79.3	80.9	82.4	82.0	81.4	80.8	81.3	81.7	86.1																				
																						85.8	85.9	85.8	85.9	86.3	86.6	86.7	86.7	86.8	86.5	85.1	83.6	82.7	82.4	83.2	84.4	85.5	86.0	85.9	85.8	86.1	85.8	85.7	85.5	Diurnal Average
																						98.3	98.1	98.0	98.4	98.6	98.7	98.8	98.9	98.9	98.8	98.6	97.0	94.5	94.6	96.0	96.2	97.3	97.2	96.6	96.8	97.2	97.5	98.0	98.2	Diurnal Maximum
PF - Power Failure																																														



Wood Buffalo Environmental Association
Hourly Averages

Relative Humidity 2m (RH2) - %
Kirby North - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Relative Humidity 2m (RH2) - %
Kirby North - December 2024**

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	0	0.00	0.00
60 - 80	170	23.16	23.16
80 - 100	564	76.84	100.00

Total Number of Valid Hours: 734

Total Number of Hours: 744



Maximum Speed: 22 km/h on Dec 3 11:00	Maximum Daily Speed Average: 16.8 km/h on Dec 2	Hours in Service: 744
Minimum Speed Value: 1 km/h on Dec 1 11:00	Minimum Daily Speed Average: 1.5 km/h on Dec 27	Hours of Data: 722
Maximum Diurnal Speed Average: 4.4 km/h at hour 15	Minimum Diurnal Speed Average: 2.9 km/h at hour 19	Hours of Missing Data: 22
Monthly Average Velocity: 3.7 km/h 231.5 deg	Percentiles: P ₁ = 2 P ₁₀ = 5 Q ₁ = 7 Median = 10 Q ₃ = 13 P ₉₀ = 15 P ₉₉ = 19	Percent Operational Time: 97.0

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	NNW7	NNW8	NNW9	NNW8	NNW7	N8	N6	N6	N7	NNE5	SSE1	S4	S4	SSW6	SW7	SSW5	SSW5	SSE5	SSE6	S8	S11	S11	S13	S14	SW1.5	S14	
2-Dec	S15	S13	S13	SSW15	SSW16	SSW17	SSW20	SSW19	SSW17	SSW17	SSW18	SSW20	SSW18	SSW17	SSW18	SSW16	SSW18	SSW18	SSW17	UO	UO	UO	UO	UO	SSW16.8	SSW20	
3-Dec	UO	UO	UO	UO	UO	NNW17	NW18	NW19	NNW17	NNW22	NNW22	NNW19	NNW19	N17	NNW16	NNW16	NNW14	NNW12	N12	NNW13	NNW9	NW10	NW11	NNW8	NNW14.8	NNW22	
4-Dec	NW6	WNW9	NNW8	N5	NE4	NE4	ENE6	ESE5	SSE6	S8	S8	S9	S10	S11	S12	S14	S15	S18	SSW16	SSW15	SSW13	SSW11	SSW13	SSW14	S6.8	S18	
5-Dec	SSW15	SSW18	SSW18	SW17	SW15	SW13	SW17	SSW11	SSW9	SSW9	SSW9	SSW11	SSW10	SSW9	SSW8	SSW7	SSW7	SSW7	SSW7	SSW7	SSW7	SSW7	SSW8	SSW9	SW8	SSW10.3	SSW18
6-Dec	SW7	SW7	SSW8	SSW8	SW8	SSW9	SSW10	SW13	SW15	SSW13	SSW15	SW15	SW14	SW15	WSW15	WSW16	WSW15	SW12	SW11	SW11	SW15	WSW14	WSW14	W14	SW11.8	WSW16	
7-Dec	WNW15	WNW15	WSW12	WSW11	WSW12	WSW11	WSW6	SSW5	S5	SSW8	SSW9	S9	S7	S8	S9	S7	S9	S9	S9	S6	S6	S5	W2	NNE5	SW6.2	WNW15	
8-Dec	N4	NNW7	N7	N9	N12	N12	N12	N14	N11	N11	NNW9	NNW10	NNW10	NNW11	NNW10	NNW11	NNW11	NNW13	NNW11	N9	NNW8	NW8	NNW5	WNW7	NNW9.4	N14	
9-Dec	WNW8	NW8	NW9	WNW9	W7	W6	WSW9	WSW8	SW7	SW7	WSW7	WNW12	WNW12	NW12	NW10	NNW10	NNW8	NNW9	NNE17	NNE16	N14	N10	NNE9	N7	NW6.7	NNE17	
10-Dec	NNW9	NNW9	NNW9	NNW8	NNW7	NNW6	NNW6	N4	NNW4	UO	N1	UO	NNW1	NNE6	NE4	NE2	SE3	SE4	SSE4	SE4	SE5	ESE5	ESE5	SE5	N2.2	NNW9	
11-Dec	SE5	SE6	SE7	SSE7	SSE7	PF	PF	PF	PF	PF	SSE9	SSE9	PF	PF	PF	PF	PF	SE7	SSE9	SSE11	SSE10	SSE11	SSE11	SSE10	----	SSE11	
12-Dec	S11	S11	S12	S14	S14	S12	S13	S15	S15	S14	S15	S15	S15	S16	S17	SSW16	SSW15	SSW14	SSW14	SSW18	SSW19	SSW17	SSW17	SSW16	S14.6	SSW19	
13-Dec	SSW17	SSW17	SSW16	SSW15	SSW16	SSW14	SSW14	SSW14	SSW14	SSW12	SSW13	SSW14	SSW12	SSW11	SSW12	SSW11	S10	S9	S8	S10	S10	S10	S9	S9	SSW12.3	SSW17	
14-Dec	SSE5	S2	SW3	NE2	NNE7	NE5	NE6	NE8	NE7	NNE7	ENE9	ENE10	ENE13	ENE13	ENE15	ENE13	ENE14	ENE10	ENE12	E8	ENE5	NE6	NNE5	ENE7.2	ENE15		
15-Dec	N6	N7	N5	NNW8	NNW11	NNW10	NNW11	NNW12	NNW11	NNW11	NNW11	NNW11	NNW11	NNW11	NNW12	NNW12	NNW13	NNW11	NNW11	NNW12	NNW12	NNW12	NNW12	NNW9	NNW9.9	NW13	
16-Dec	WNW12	NW11	NW11	NW13	NW12	WNW12	WNW12	WNW12	WNW13	WNW11	WNW13	WNW15	NW14	WNW13	WNW13	WNW14	NW13	NW12	WNW14	WNW14	NW14	NW14	NW15	NW15	NW12.8	WNW15	
17-Dec	NW13	NW12	WNW13	WNW14	WNW15	WNW11	NW8	NW9	WNW11	NW10	NW9	NW6	NW7	NW9	WNW4	WNW6	NW3	W2	NW1	SSW7	S7	SSE6	SSE6	WNW6.7	WNW15		
18-Dec	E5	SSE5	SSE7	SSE9	SSE10	SSE10	SSE8	ESE6	E5	ESE6	E6	ESE7	E7	ENE6	NE9	NNE10	NE9	NE9	NE8	NNE4	SE1	NNE3	NNE3	E2	E4.0	SSE10	
19-Dec	S6	S7	S7	SSW7	SSW6	SSW6	SSW5	SSW6	SW6	SW6	WSW5	WSW3	SSW5	SW6	SSW1	E3	SSE4	SSE7	SSE6	SSE7	SSE7	S9	SSE11	SSE11	S5.4	SSE11	
20-Dec	SSE13	SSE14	SSE12	SSE11	SSE13	SSE15	SSE12	SSE13	SSE15	SSE14	S15	S16	SSW15	SSW15	SSW19	SSW18	SSW19	SSW18	SSW19	SSW19	SSW19	SSW19	SSW15	SSW13	SSW11	S13.9	SSW19
21-Dec	S11	SSW12	S9	S8	S12	S7	S9	SSW10	S10	SSW10	S9	S8	S9	S6	SSW6	S7	S7	SSE4	E3	SSW5	S9	S9	S6	NE5	S7.4	SSW12	
22-Dec	SSE3	S5	S9	S10	S9	S10	S9	S8	S8	SSW8	SSW7	SSW6	S6	SSW6	SSW5	SSW6	S6	SSW6	SSW7	SSW8	SSW7	SSW7	SSW9	SSW7	S7.1	S10	
23-Dec	SSW7	S7	S6	S7	S7	S6	S6	SSW7	SSW7	SSW7	SSW9	SSW8	SSW9	SSW8	SSW10	SSW10	SSW9	SSW11	SSW11	SSW12	SSW13	SSW12	SSW12	SSW12	SSW8.7	SSW13	
24-Dec	SSW11	SSW10	SSW9	SSW10	S10	S10	S9	S11	S12	S13	SSE16	SSE20	S17	S18	S15	S16	S17	S13	S14	S13	S13	S12	SSW12	S12	S12.8	SSE20	
25-Dec	S12	S12	S12	S13	SSW13	SSW14	SSW14	SSW13	SSW11	SSW14	SSW13	SW13	SW13	SW13	SW13	SSW11	SSW10	S10	S10	S11	S11	S10	SSE10	SSE13	SSW11.5	SSW14	
26-Dec	S12	S11	S12	SSE12	S11	S11	S12	S13	S11	S11	S11	SSW13	SSW11	SSW9	SSW8	S7	S6	SE4	SE8	SW1	S6	S10	S9	S8	S9.2	S13	
27-Dec	S5	NE6	NE7	ENE4	S9	S6	NNE3	NNE3	SSW4	N2	NNE4	E4	ESE2	WNW2	S5	WSW5	SSW3	SSW3	NW2	SSE2	SSW4	S4	S5	SSW5	SSE1.5	S9	
28-Dec	SE2	SW2	WSW3	NW4	WNW5	NNW3	NNW4	NW5	WNW4	WNW6	NW6	NW6	NW7	NW8	NW10	WNW12	NW11	WNW10	WNW9	WNW10	WSW5	WSW6	NW8	WNW10	WNW5.9	WNW12	
29-Dec	NW10	NW10	NW12	NW11	WNW10	WNW14	NW9	NW8	NW11	NW10	NW11	NW9	NW8	NW10	NW9	NW10	NW9	NNW11	NNW11	NNW9	N9	N9	NNW7	NNW7	NW9.4	WNW14	
30-Dec	NNW12	NNW14	NNW12	NNW8	NW11	NW14	NW15	NW17	NW15	NW14	NW16	NW18	NW15	NW17	NW15	NW15	NW14	NW14	NW14	NW16	NW15	NW13	NW14	NW13	NW14.2	NW18	
31-Dec	NW15	NW13	NW13	NW13	NW12	NW11	NNW14	NNW15	NNW11	NW12	NW14	NW14	NNW14	NW13	NW15	NNW13	NW11	NW13	NW9	NW6	NW7	NW8	NW7	NW8	NW11.6	NW15	

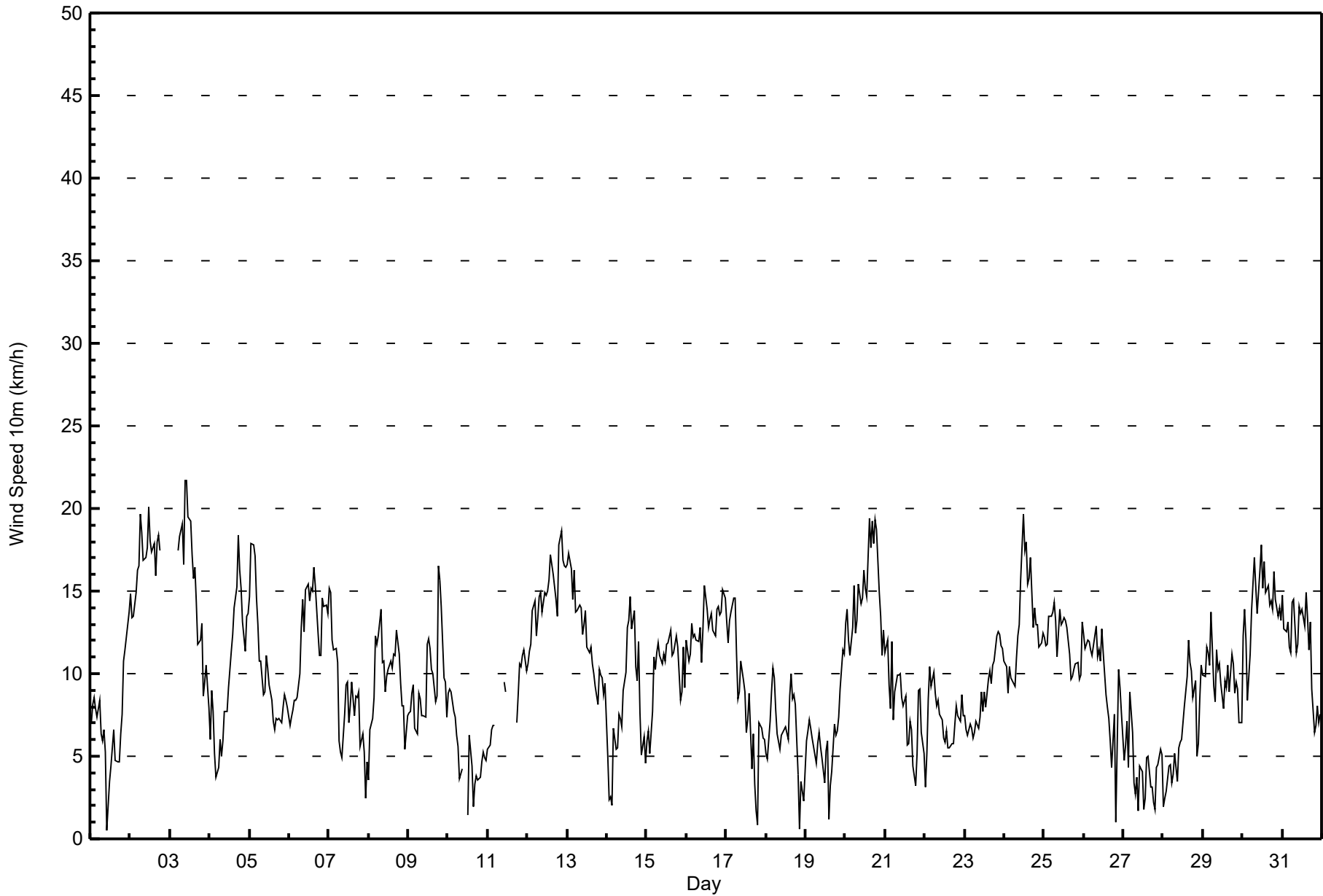
SW3.5 SW3.5 SW3.5 SW3.9 SW4.2	SSW4.2	SSW3.6	SSW3.4	SW3.5	SW3.9	SW3.9	SW4.3	SSW4.0	SSW4.1	SSW4.0	SW3.8	SW3.2	SW2.9	SW2.9	SW4.1	SW4.2	SW3.9	SW3.5	Diurnal Average								
SSW17	SSW18	SSW18	SW17	SSW16	NNW17	SSW20	NW19	SSW17	NNW22	NNW22	SSW20	NNW19	S18	SSW19	SSW18	SSW19	S18	SSW19	SSW19	SSW19	SSW17	SSW17	SSW16	Diurnal Maximum			

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Kirby North - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Kirby North - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	99	13.71	13.71
6 - 11	359	49.72	63.43
12 - 19	259	35.87	99.31
20 - 28	5	0.69	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 722

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Kirby North - December 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	9	7	2	6	4	9	9	10	14	2	6	1	4	4	6	99
6 - 11	14	6	10	6	3	3	4	27	84	71	14	8	1	15	50	43	359
12 - 19	7	2	1	5	0	0	0	12	47	71	13	8	1	25	48	19	259
20 - 28	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	2	5
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	27	17	18	13	9	7	13	49	141	158	29	22	3	44	102	70	722

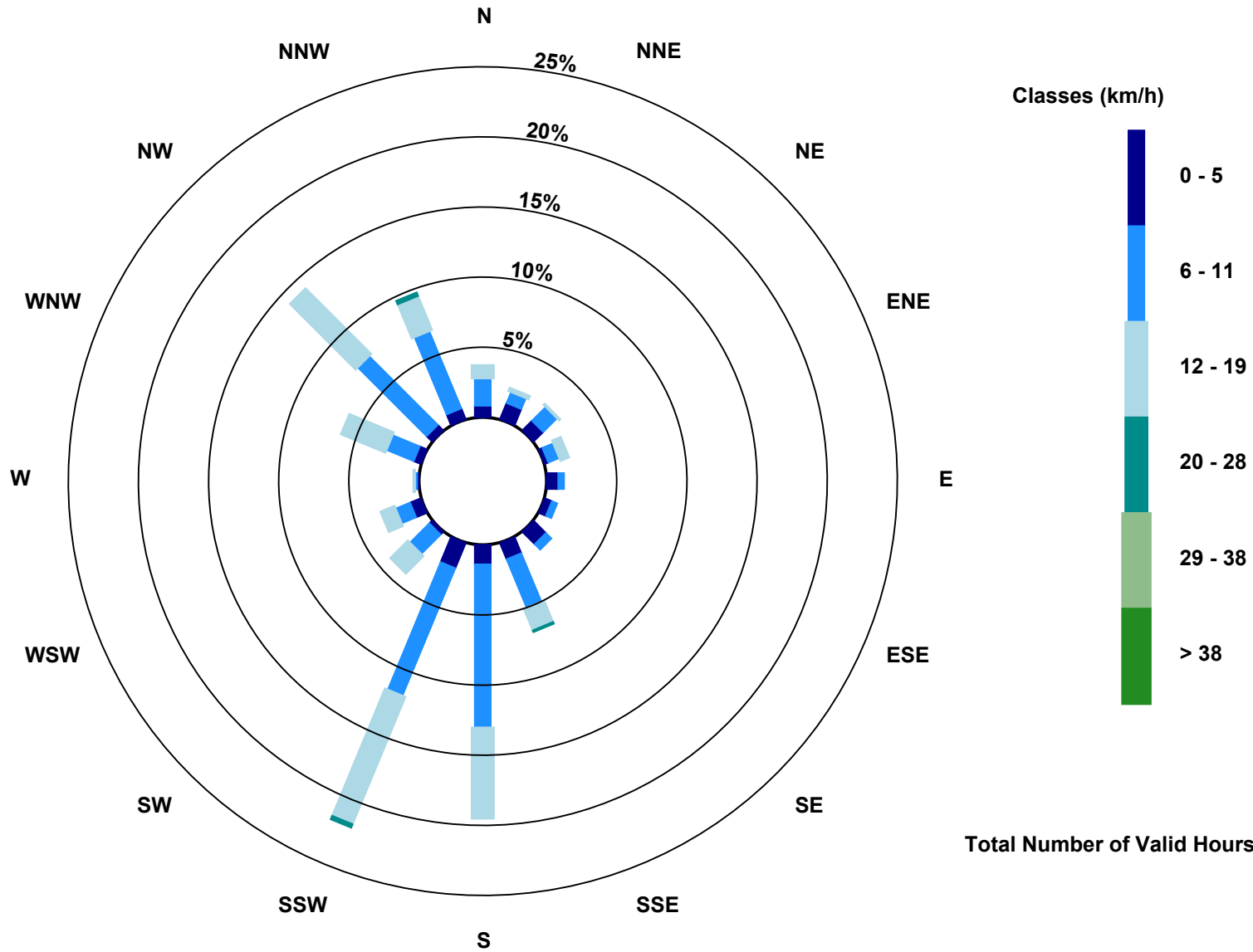
Total Number of Valid Hours: 722

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Kirby North



Total Number of Valid Hours: 722



Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Kirby North - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 6 km/h on Dec 3 11:00 Minimum Value: 1 km/h on Dec 1 17:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 2 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 5																	Hours in Service: 744 Hours of Data: 722 Hours of Missing Data: 22 Hours of Calibration: 0 Percent Operational Time: 97.0								
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-Dec	2	2	2	2	2	2	1	2	1	1	1	2	1	2	3	1	1	1	2	2	3	4	4	4	4
2-Dec	4	4	4	4	4	5	6	5	5	5	5	5	5	5	4	4	4	5	5	UO	UO	UO	UO	UO	6
3-Dec	UO	UO	UO	UO	UO	4	5	6	4	6	6	5	5	5	4	4	4	3	3	3	2	2	2	2	6
4-Dec	1	2	2	2	1	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	4	3	4	4	5
5-Dec	4	4	4	4	3	3	3	3	2	2	3	3	2	2	2	2	2	2	1	2	1	1	1	2	4
6-Dec	1	1	1	1	1	2	2	2	3	3	3	3	3	4	3	4	3	3	2	2	3	3	3	3	4
7-Dec	4	4	3	3	3	3	3	2	2	3	2	2	2	2	2	2	2	1	1	1	1	2	2	1	4
8-Dec	1	2	1	2	3	2	3	3	3	3	2	2	3	3	3	3	3	4	3	2	2	2	1	2	4
9-Dec	3	2	3	2	2	2	2	2	1	1	2	3	3	3	2	2	2	3	4	3	4	3	2	2	4
10-Dec	2	2	2	2	1	2	1	1	1	UO	2	UO	2	2	1	1	1	1	1	1	1	2	1	1	2
11-Dec	1	1	2	2	2	PF	PF	PF	PF	PF	3	3	PF	PF	PF	PF	PF	2	2	2	3	3	3	3	3
12-Dec	3	3	3	4	4	3	4	4	4	4	5	4	4	5	5	5	4	4	4	5	5	4	4	4	5
13-Dec	4	4	4	4	4	4	4	4	3	3	3	3	3	3	2	3	2	2	2	2	2	2	2	2	4
14-Dec	2	2	2	2	1	1	1	2	3	1	2	2	3	3	4	4	4	3	3	3	3	2	2	1	4
15-Dec	1	1	1	3	3	3	3	3	3	3	2	2	3	3	3	3	3	3	3	3	2	3	3	2	3
16-Dec	3	3	3	4	3	3	3	3	3	3	4	3	3	3	4	3	3	3	4	3	4	3	3	4	4
17-Dec	3	3	3	4	4	5	5	2	2	3	2	2	1	2	2	2	2	2	1	1	2	1	1	1	5
18-Dec	1	1	1	2	2	2	3	2	3	2	2	2	2	1	2	2	2	1	2	1	2	1	2	1	3
19-Dec	2	1	1	1	1	2	1	1	2	2	1	1	2	1	2	1	1	1	1	1	1	1	3	3	3
20-Dec	3	3	3	3	4	4	3	4	4	4	4	5	5	4	5	5	5	4	4	4	4	3	3	3	5
21-Dec	4	3	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	3	1	2	2	2	2	1	4
22-Dec	2	3	2	2	2	1	2	1	2	2	1	2	1	1	1	1	1	1	2	2	2	2	2	2	3
23-Dec	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	2	2	2	2	2	2	2	2	2	3
24-Dec	3	2	2	2	1	2	2	2	3	3	5	5	5	5	4	4	4	4	3	3	3	3	2	2	5
25-Dec	2	2	2	2	2	3	3	3	2	3	3	3	3	3	3	2	2	1	2	2	2	2	2	3	3
26-Dec	3	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	3	3	2	2	5	2	2	1	5
27-Dec	2	2	1	3	2	3	1	3	3	1	2	1	2	2	1	1	2	1	1	2	1	1	2	3	3
28-Dec	1	2	3	1	1	1	1	1	1	1	1	2	2	2	3	3	3	3	3	3	2	2	2	3	3
29-Dec	3	3	3	3	3	3	2	2	3	2	3	2	2	2	2	2	2	3	3	2	2	2	1	2	3
30-Dec	4	3	4	2	3	3	4	4	4	4	4	5	5	4	4	4	4	4	4	4	4	4	4	3	5
31-Dec	4	3	4	3	3	3	4	4	3	3	4	4	3	4	4	4	3	3	3	2	2	2	2	2	4
Diurnal Maximum																									
UO - Unstable Operation PF - Power Failure																									



Wood Buffalo Environmental Association

Summary of Hour Averages

Wind Direction 10m (WD10) - deg

Kirby North - December 2024

Direction of Maximum Speed: 338 deg on Dec 3 11:00	Hours in Service: 744
Direction of Maximum Daily Speed Average: 201.3 deg on Dec 2	Hours of Data: 722
Direction of Minimum Speed: 153 deg on Dec 1 11:00	Hours of Missing Data: 22
Direction of Minimum Daily Speed Average: 1.5 deg on Dec 27	Percent Operational Time: 97.0
Monthly Average Direction: 231.5 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-Dec	335	328	345	330	333	351	359	2	6	26	153	178	176	205	222	202	198	157	167	170	181	187	189	185	222.5
2-Dec	183	175	189	192	201	207	208	209	206	204	206	207	209	203	202	200	202	202	203	UO	UO	UO	UO	UO	201.3
3-Dec	UO	UO	UO	UO	UO	299	304	314	334	341	338	339	343	353	334	331	342	342	349	338	339	325	317	330	332.2
4-Dec	326	302	329	357	35	40	60	117	150	174	187	185	178	174	181	178	181	183	194	197	200	195	201	200	188.3
5-Dec	204	211	212	217	219	219	217	211	209	207	209	199	203	204	199	199	202	201	199	193	200	205	218	220	208.8
6-Dec	218	215	213	211	216	210	210	214	214	208	212	226	224	232	242	238	240	228	221	221	236	240	255	280	227.9
7-Dec	289	289	244	250	251	247	244	210	187	193	192	191	179	189	183	191	189	180	181	188	188	184	259	12	218.7
8-Dec	6	346	6	358	9	3	355	356	351	353	345	345	346	344	341	342	343	338	339	355	335	323	332	297	347.0
9-Dec	292	314	309	297	274	259	257	239	222	227	244	301	297	319	324	340	345	347	14	19	359	359	15	4	319.6
10-Dec	339	340	337	332	341	330	340	349	327	UO	357	UO	347	25	54	43	143	143	162	126	131	109	116	137	9.6
11-Dec	141	138	144	165	151	PF	PF	PF	PF	PF	152	152	PF	PF	PF	PF	PF	129	148	148	150	159	167	163	--
12-Dec	172	177	177	181	182	181	183	183	184	185	183	184	185	186	190	196	193	195	198	195	197	202	200	202	188.8
13-Dec	198	200	200	201	203	199	194	200	199	196	198	199	198	203	198	192	186	187	187	188	189	187	189	181	195.7
14-Dec	152	181	214	52	33	39	47	39	38	24	64	67	64	66	61	62	65	72	60	52	84	58	42	20	58.9
15-Dec	11	6	353	330	337	340	345	344	341	337	331	322	320	321	319	312	307	313	335	328	309	301	312	321	327.9
16-Dec	300	307	312	304	314	303	303	302	302	287	292	302	304	288	287	299	304	314	302	301	315	320	316	319	304.2
17-Dec	317	310	298	292	291	288	298	313	311	297	314	312	315	304	309	303	303	311	273	313	197	181	153	152	296.4
18-Dec	89	149	147	161	164	158	154	108	99	122	88	107	81	73	34	25	34	37	40	14	134	22	32	88	92.3
19-Dec	172	182	191	193	197	206	200	211	223	221	243	243	213	231	200	97	165	155	166	161	153	171	164	168	185.8
20-Dec	165	159	165	161	156	159	159	152	158	166	180	177	195	200	209	210	209	212	210	209	202	193	192	187	185.2
21-Dec	189	192	191	182	191	178	185	196	187	194	187	187	185	188	207	186	175	155	91	200	187	184	181	47	185.4
22-Dec	152	185	178	176	183	176	181	185	185	198	200	193	191	202	198	192	189	194	195	202	195	193	200	192	189.1
23-Dec	192	186	178	172	174	183	190	192	194	201	205	199	205	200	201	201	200	199	196	208	211	210	206	211	198.7
24-Dec	207	208	197	195	182	182	177	171	169	170	167	162	175	177	179	178	176	184	184	181	188	190	195	188	181.1
25-Dec	189	187	189	187	199	206	211	208	195	204	213	223	216	215	215	208	193	186	183	183	175	174	160	164	196.4
26-Dec	172	175	172	166	179	182	181	172	181	179	184	203	206	196	192	177	172	133	135	232	185	190	186	187	180.4
27-Dec	187	55	47	73	174	170	33	19	211	7	15	94	115	301	186	237	209	213	306	148	203	187	174	203	165.6
28-Dec	144	224	250	326	291	339	336	313	303	297	325	321	317	316	313	300	305	298	285	292	256	251	306	303	301.3
29-Dec	312	317	309	307	300	299	305	304	306	310	317	313	323	310	315	314	320	336	339	341	351	1	343	343	319.3
30-Dec	331	329	342	331	320	320	326	320	321	322	318	317	317	304	311	313	318	317	317	314	323	319	320	318	319.7
31-Dec	316	324	323	325	325	324	328	331	329	325	324	322	332	323	323	328	320	316	311	319	313	315	307	318	322.5

229.0 235.5 230.0 228.8 226.7 240.2 244.9 240.1 231.7 231.2 231.5 230.6 237.0 242.2 243.7 244.5 232.7 226.8 223.4 227.7 214.5 215.7 221.4 223.4
Diurnal Average

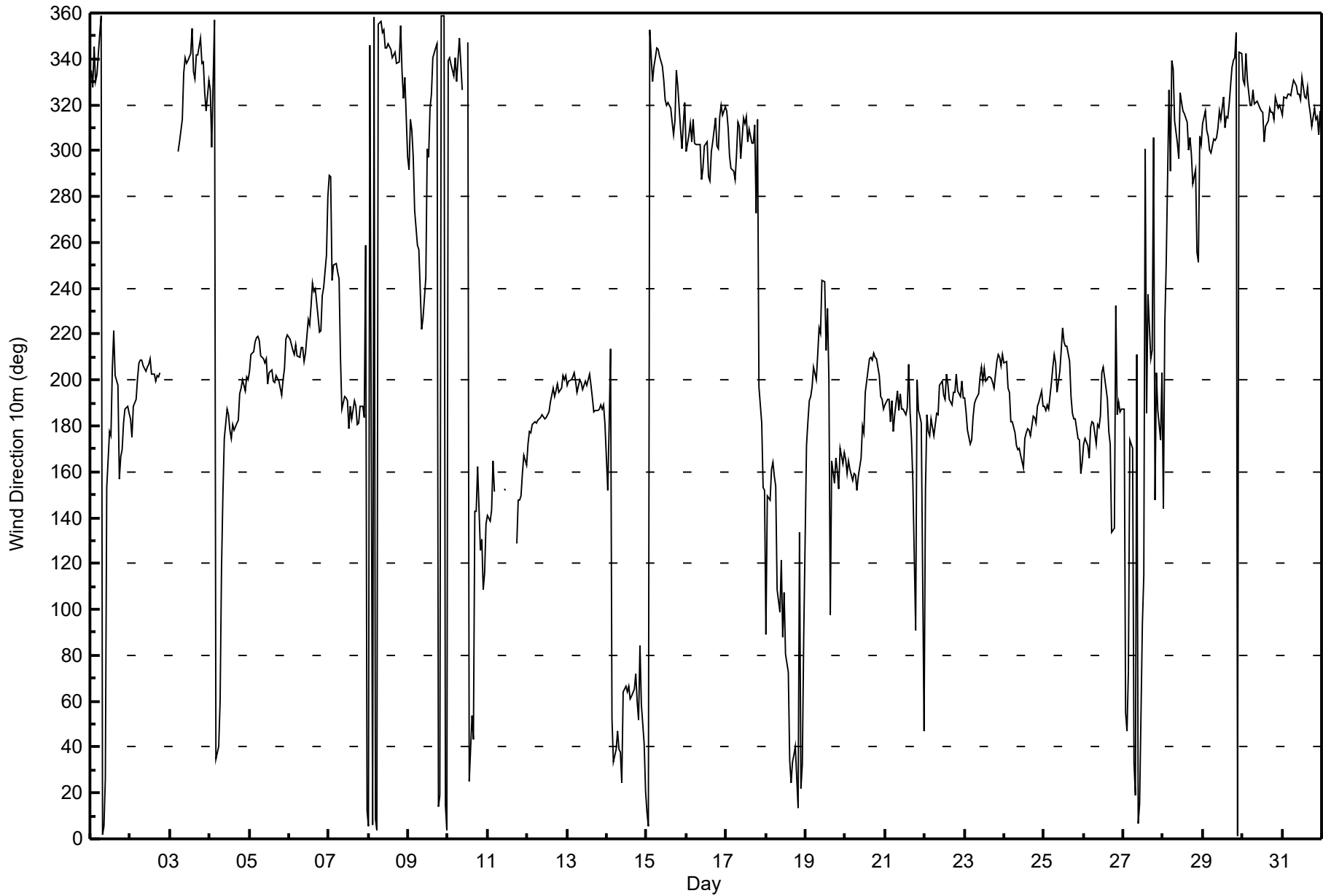
UO - Unstable Operation PF - Power Failure

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Direction 10m (WD10) - deg
Kirby North - December 2024





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Direction 10m (WD10) - deg
Kirby North - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 91 deg on Dec 26 20:00 Minimum Value: 9 deg on Dec 22 06:00 Percentiles: P ₁ = 11 P ₁₀ = 13 Q ₁ = 15 Median = 17 Q ₃ = 19 P ₉₀ = 23 P ₉₉ = 82																			Hours in Service: 744 Hours of Data: 722 Hours of Missing Data: 22 Hours of Calibration: 0 Percent Operational Time: 97.0						
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-Dec	17	15	15	12	16	16	16	18	14	20	85	43	36	34	26	21	16	15	21	23	19	21	20	19	85
2-Dec	18	19	19	19	19	18	17	17	18	18	18	17	17	18	18	18	18	17	17	UO	UO	UO	UO	UO	19
3-Dec	UO	UO	UO	UO	UO	16	16	17	19	18	16	16	18	18	15	15	18	16	16	13	14	13	13	19	19
4-Dec	23	15	17	20	16	15	18	22	27	19	18	19	20	19	18	19	19	19	21	20	20	20	19	19	27
5-Dec	20	16	15	15	17	16	23	28	18	17	22	22	19	16	20	20	19	18	19	19	15	14	13	16	28
6-Dec	16	13	13	14	15	14	14	13	14	15	14	13	12	15	12	12	12	17	17	16	12	12	15	17	17
7-Dec	15	16	16	15	17	17	29	57	24	21	13	16	17	23	16	22	14	11	11	12	12	36	88	16	88
8-Dec	14	14	13	14	14	15	14	15	18	16	17	16	17	19	18	17	16	16	16	16	19	15	16	16	19
9-Dec	18	18	18	17	26	23	18	14	13	13	30	15	15	19	17	16	15	15	13	12	17	18	11	16	30
10-Dec	13	13	13	14	14	14	17	24	17	UO	13	UO	19	22	15	33	27	20	24	22	25	15	17	16	33
11-Dec	19	17	19	19	17	PF	PF	PF	PF	PF	20	19	PF	PF	PF	PF	PF	15	15	14	16	20	17	16	20
12-Dec	20	20	19	19	18	18	18	17	19	19	20	20	20	19	18	19	18	20	22	19	19	19	18	18	22
13-Dec	19	18	19	19	18	18	18	18	17	17	16	16	19	18	16	17	17	17	14	15	16	15	19	14	19
14-Dec	47	78	63	76	10	19	20	19	31	17	15	18	17	16	17	15	16	18	14	23	23	18	22	78	
15-Dec	15	13	25	17	15	16	18	16	17	18	14	16	15	17	15	16	16	16	13	13	17	18	16	17	25
16-Dec	13	18	15	16	17	14	13	13	13	18	18	15	15	21	25	15	15	15	14	12	16	15	14	15	25
17-Dec	14	17	15	15	13	14	22	16	16	16	16	17	19	17	13	42	17	32	84	73	18	15	16	20	84
18-Dec	15	15	12	15	14	12	17	23	43	21	23	21	21	19	16	10	11	10	14	14	70	41	22	49	70
19-Dec	19	10	9	15	20	19	17	15	15	21	23	38	28	19	87	20	26	13	18	14	16	22	18	17	87
20-Dec	16	18	18	19	17	16	17	18	17	19	22	20	21	21	17	17	17	15	15	15	19	18	19	17	22
21-Dec	21	16	18	17	14	18	17	16	15	15	16	15	12	15	17	16	17	59	46	29	13	12	33	20	59
22-Dec	48	11	12	11	11	9	12	14	16	19	17	20	20	20	18	18	18	21	18	17	18	20	19	20	48
23-Dec	18	18	15	13	15	17	17	18	19	18	17	19	17	19	18	15	16	17	14	15	15	14	14	13	19
24-Dec	16	16	17	17	12	13	14	14	16	17	18	17	19	18	18	20	18	21	19	15	16	18	14	13	21
25-Dec	14	13	13	12	14	14	13	14	14	16	15	14	15	14	14	15	14	12	14	12	12	13	14	15	16
26-Dec	16	16	13	14	15	16	13	12	14	12	14	18	17	17	13	20	32	44	14	91	83	13	14	11	91
27-Dec	63	15	14	76	18	30	33	85	33	83	26	30	65	63	22	19	33	42	60	55	22	18	13	56	85
28-Dec	53	67	75	20	32	23	16	16	41	26	16	18	16	17	15	13	16	18	22	19	32	31	17	14	75
29-Dec	17	16	14	14	17	13	17	18	14	15	15	16	20	16	15	14	14	16	15	15	17	14	15	14	20
30-Dec	17	14	15	16	15	15	16	16	16	15	14	15	17	15	16	15	15	17	15	14	15	14	15	15	17
31-Dec	15	15	15	15	16	15	15	14	14	15	16	16	14	17	15	14	14	14	16	17	16	14	17	14	17
63 78 75 76 32 30 33 85 43 83 85 43 65 63 87 42 33 59 84 91 83 41 88 56																									
Diurnal Maximum																									
UO - Unstable Operation PF - Power Failure																									



WOOD BUFFALO ENVIRONMENTAL ASSOCIATION

CONTINUOUS AMBIENT AIR QUALITY
MONITORING PROGRAM
MONTHLY REPORT

AMS508 HANGINGSTONE EXPANSION DECEMBER 2024

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

January 31, 2025

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - HANGINGSTONE EXPANSION (AMS512)
DECEMBER 2024

MONTHLY SUMMARY

Parameter	Hours of Data	Hours of Calibration	Hours without Data	Operational Time	Maximum 1-Hour Value	1-Hour Exceedances	Maximum 24-Hour Value	24-Hour Exceedances
SO2 (ppb) Average	707	34	37	99.6	158.8	0	33.9	0
H2S (ppb) Average	705	36	39	99.6	2.5	0	0.8	0
NO2 (ppb) Average	705	36	39	99.6	21.2	0	12.1	-
NO (ppb) Average	705	36	39	99.6	9.5	-	1.9	-
NOX (ppb) Average	705	36	39	99.6	28.2	-	14	-
Temperature 2 m (C) Average	744	0	0	100	5.8	-	3.8	-
Relative Humidity (%) Average	744	0	0	100	98.5	-	95.1	-
Wind Speed 10 m (km/h) Average	732	0	12	98.39	25	-	16	-
Wind Direction 10 m (deg) Average	732	0	12	98.39	-	-	-	-

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

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - HANGINGSTONE EXPANSION (AMS512)
 DECEMBER 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	5.69	17.7	-	0	0.1	0.2	0.6	1.6	11.3	158.8
H2S (ppb) Average	705	0.2	0.3	-	0	0	0.1	0.1	0.2	0.4	2.5
NO2 (ppb) Average	705	3.33	3.4	-	0	0.2	1	2.5	4.6	6.9	21.2
NO (ppb) Average	705	0.41	1	-	0	0	0	0.1	0.4	1	9.5
NOX (ppb) Average	705	3.74	4	-	0	0.3	1.2	2.7	5	7.8	28.2
Temperature 2 m (C) Average	744	-10.44	8.6	-	-31.3	-22.4	-17.2	-9.3	-4	1	5.8
Relative Humidity (%) Average	744	82.93	9	-	45.3	72.9	78.9	83.1	90.2	93.5	98.5
Wind Speed 10 m (km/h) Average	732	8.8	4	-	0	3	6	8	12	15	25
Wind Direction 10 m (deg) Average	732	-	-	-	-	-	-	-	-	-	-

WOOD BUFFALO ENVIRONMENTAL ASSOCIATION - HANGINGSTONE EXPANSION (AMS512)
DECEMBER 2024

OPERATIONAL NOTES

Parameter	Period Start	Period End	Duration (Hours)	Notes
ALL GASEOUS ANALYZERS	17 Dec 2024 20:00	17 Dec 2024 22:00	3	Station power failure
Wind Speed, Wind Direction	08 Dec 2024 20:00	09 Dec 2024 06:00	11	Flat line in sensor output signal - Sensor frozen
Wind Speed, Wind Direction	18 Dec 2024 10:00	18 Dec 2024 10:00	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: 158.8 ppb on Dec 23 17:00	Maximum Daily Average: 33.9 ppb on Dec 23		Hours of Data:	707
Minimum Value: 0.0 ppb on Dec 8 22:00	Minimum Daily Average: 0.0 ppb on Dec 16		Hours of Missing Data:	37
Maximum Diurnal Average: 12.0 ppb at hour 5	Minimum Diurnal Average: 2.3 ppb at hour 1		Hours of Calibration:	34
Monthly Average: 5.69 ppb	Percentiles: P ₁ = 0.0 P ₁₀ = 0.1 Q ₁ = 0.2 Median = 0.6 Q ₃ = 1.6 P ₉₀ = 11.3 P ₉₉ = 92.8		Percent Operational Time:	99.6

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	0.6	Z	1.1	1.1	1.7	1.8	1.6	2.2	3.6	3.8	3.5	4.9	7.5	15.1	13.0	7.5	7.3	5.3	3.9	3.5	2.5	1.6	1.3	0.8	4.1	15.1	
2-Dec	0.7	0.7	Z	0.6	0.7	0.8	1.0	1.5	1.2	0.9	0.7	0.7	0.7	0.5	0.6	0.6	0.6	1.0	0.6	0.3	0.3	13.3	75.0	23.5	5.5	75.0	
3-Dec	0.7	0.3	0.1	Z	0.2	0.4	0.6	0.3	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.7	0.3	0.3	0.2	0.3	0.7	
4-Dec	0.2	0.3	0.3	0.2	Z	0.7	1.3	1.3	0.7	0.4	0.8	1.4	1.7	1.2	1.1	0.8	0.5	0.3	0.2	0.3	0.4	0.8	1.0	0.5	0.7	1.7	
5-Dec	0.2	0.3	6.1	58.4	79.7	33.5	Z	20.4	0.5	0.4	0.9	8.6	29.7	21.6	5.4	2.6	19.7	14.6	22.7	26.6	104.7	54.0	29.8	7.9	23.8	104.7	
6-Dec	Z	59.1	23.3	33.6	69.1	5.5	60.6	34.4	74.0	62.6	0.6	0.4	0.3	0.3	0.2	0.2	0.3	18.6	33.5	84.2	91.8	47.4	46.7	10.1	32.9	91.8	
7-Dec	28.2	Z	2.3	3.9	34.6	38.7	35.8	2.2	0.7	0.6	23.2	5.7	0.6	0.8	1.4	12.6	0.8	1.5	14.9	2.7	0.5	0.4	0.4	0.2	9.2	38.7	
8-Dec	4.9	2.0	Z	4.6	3.5	9.1	14.1	5.2	1.2	1.0	1.2	3.3	7.0	5.3	3.6	2.6	0.4	0.1	0.1	0.2	0.0	0.0	0.1	0.1	3.0	14.1	
9-Dec	0.1	0.1	0.1	Z	0.1	0.0	0.1	0.0	C	C	C	0.0	0.0	0.1	1.2	4.0	1.5	3.0	4.9	3.3	6.6	3.9	1.1	0.3	1.5	6.6	
10-Dec	0.3	0.3	0.6	0.4	Z	0.1	0.1	0.0	0.2	0.2	0.6	0.3	1.0	7.0	8.4	6.2	5.0	11.3	15.3	14.6	8.5	3.7	3.3	1.8	3.9	15.3	
11-Dec	2.2	2.6	1.6	1.3	1.2	Z	0.8	0.9	0.8	1.2	1.2	1.2	0.9	0.8	0.7	0.5	0.6	0.5	0.6	0.7	0.8	0.9	0.8	0.8	1.0	2.6	
12-Dec	Z	0.6	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.6	
13-Dec	0.4	Z	0.6	11.9	1.4	1.2	1.0	1.0	0.9	0.6	1.2	15.8	72.7	37.3	31.5	23.0	6.5	0.6	0.9	4.0	0.3	0.3	0.3	0.2	9.3	72.7	
14-Dec	0.1	0.4	Z	0.3	0.4	0.4	0.5	0.3	0.2	0.1	0.2	0.3	0.3	0.3	0.4	0.8	0.3	0.2	0.2	0.3	0.6	0.2	0.3	0.2	0.3	0.8	
15-Dec	0.3	0.6	0.4	Z	0.5	1.0	2.3	2.0	3.8	2.9	5.3	6.7	7.8	0.7	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.6	7.8	
16-Dec	0.1	0.1	0.1	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
17-Dec	0.0	0.0	0.0	0.0	0.0	Z	1.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.3	
18-Dec	Z	0.4	0.3	0.6	0.9	1.6	2.5	2.4	2.8	2.4	2.1	1.6	1.0	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.8	1.4	0.4	0.2	1.0	2.8	
19-Dec	0.7	Z	1.2	0.7	0.3	0.3	0.4	0.2	0.3	0.7	0.3	0.2	1.1	0.4	0.3	0.1	0.1	0.1	0.1	0.3	0.5	0.4	0.8	0.9	0.5	1.5	
20-Dec	1.2	0.7	Z	0.5	0.6	0.7	0.8	0.8	0.8	0.7	0.5	0.5	0.4	0.4	1.0	1.2	0.5	1.4	24.2	5.9	52.0	24.2	11.4	6.7	6.0	52.0	
21-Dec	7.4	4.9	4.4	Z	0.5	0.4	0.6	0.6	0.6	0.4	0.3	2.3	1.6	0.4	0.6	1.1	0.5	0.2	0.2	0.2	0.3	0.5	1.4	0.9	1.3	7.4	
22-Dec	1.1	0.9	0.6	0.7	Z	0.9	1.0	0.8	1.4	0.7	3.0	1.6	0.5	0.2	0.5	0.9	1.2	0.6	0.5	1.2	1.7	0.6	0.6	1.3	1.0	3.0	
23-Dec	0.5	1.0	1.0	0.9	0.4	Z	1.5	1.3	1.1	1.0	0.6	0.6	0.7	11.0	42.4	116.4	158.8	148.4	148.3	9.5	42.8	21.6	66.7	3.3	33.9	158.8	
24-Dec	Z	83.2	10.6	1.6	0.7	0.5	0.7	1.2	0.5	0.3	0.6	0.6	0.5	0.6	0.5	0.4	0.4	0.4	0.3	0.3	0.4	0.7	0.6	0.6	4.6	83.2	
25-Dec	0.6	Z	11.6	4.4	112.1	100.7	6.5	31.6	92.9	60.7	61.8	16.2	3.2	3.6	6.8	39.9	0.6	3.2	0.6	0.8	0.6	1.7	1.6	2.3	24.5	112.1	
26-Dec	1.7	0.6	Z	0.6	0.5	0.4	0.8	1.0	1.4	1.2	0.7	0.8	3.2	17.3	7.1	1.2	1.1	0.6	0.4	0.2	0.4	0.5	0.6	1.6	1.9	17.3	
27-Dec	1.4	1.1	0.7	Z	0.4	0.4	0.6	1.7	4.0	1.8	1.5	1.4	1.1	1.5	2.9	2.1	0.7	1.0	0.7	0.5	0.5	0.5	0.5	0.6	1.2	4.0	
28-Dec	0.5	0.3	0.5	0.4	Z	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.2	0.2	0.4	0.3	0.2	0.7	0.9	0.6	0.2	0.1	3.3	5.3	0.7	5.3	
29-Dec	5.5	1.6	0.4	0.3	0.6	Z	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.5	0.7	0.3	0.4	0.2	0.4	0.3	0.6	5.5	
30-Dec	Z	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.2
31-Dec	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	0.0	0.0	0.0	0.0	0.1	0.2	

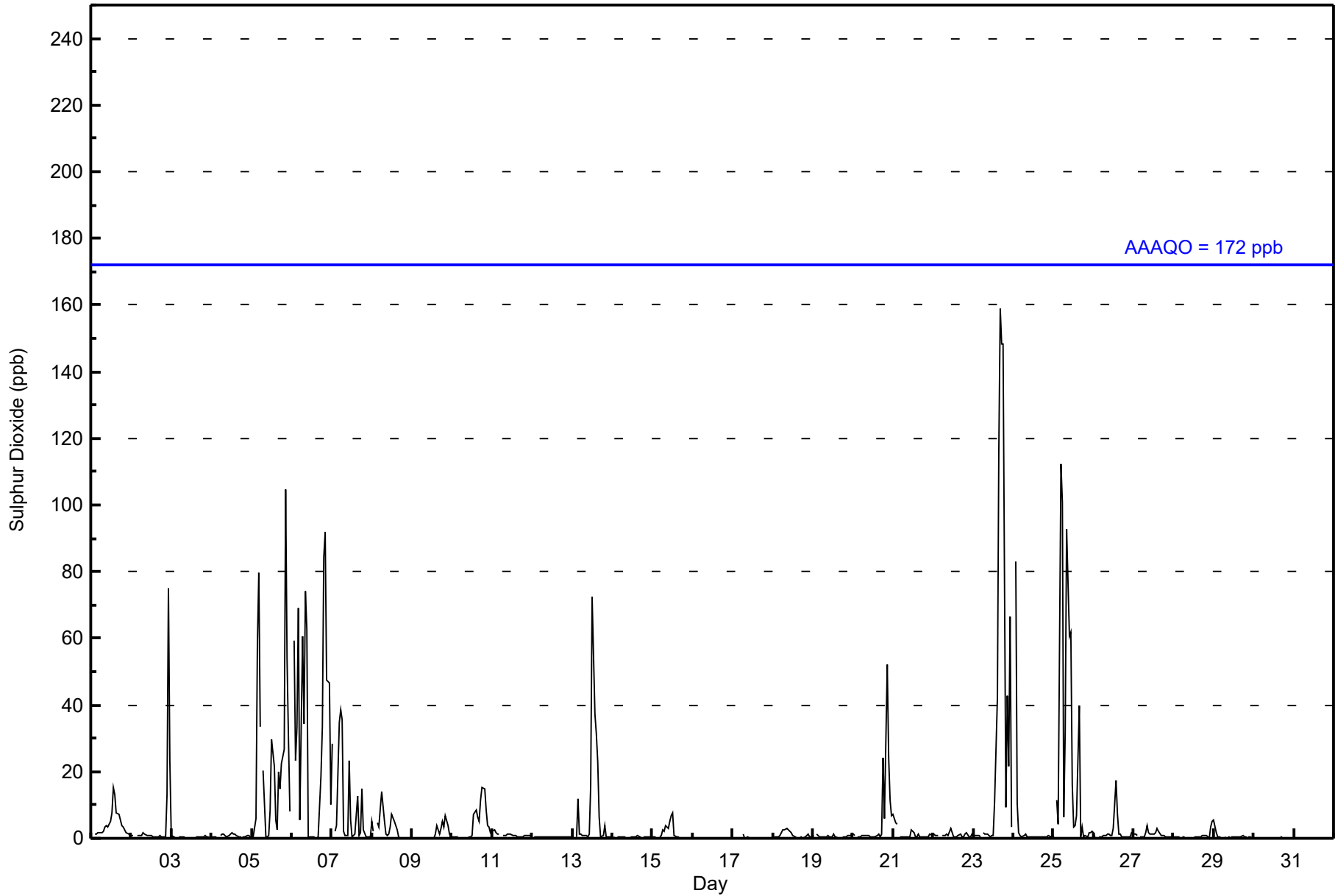
2.3	6.5	2.7	4.9	12.0	7.4	4.6	3.7	6.5	4.9	3.7	2.5	4.7	4.1	4.2	7.3	6.8	7.0	8.9	5.4	10.6	6.0	8.0	2.3	Diurnal Average	
28.2	83.2	23.3	58.4	112.1	100.7	60.6	34.4	92.9	62.6	61.8	16.2	72.7	37.3	42.4	116.4	158.8	148.4	148.3	84.2	104.7	54.0	75.0	23.5	Diurnal Maximum	

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



Wood Buffalo Environmental Association
Hourly Averages

Sulphur Dioxide (SO₂) - ppb
Hangingstone Expansion - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Sulphur Dioxide (SO₂) - ppb
Hangingstone Expansion - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 10	633	89.53	89.53
11 - 20	21	2.97	92.50
21 - 60	32	4.53	97.03
61 - 110	16	2.26	99.29
111 - 172	5	0.71	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
Hangingsstone Expansion - December 2024

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 10	14	13	8	5	16	13	30	72	101	74	33	41	45	70	63	24	622
11 - 20	0	0	0	1	0	2	1	1	0	2	10	3	0	0	1	0	21
21 - 60	0	0	0	0	0	0	0	0	0	1	16	15	0	0	0	0	32
61 - 110	0	0	0	0	0	0	0	0	0	0	6	10	0	0	0	0	16
111 - 172	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0	0	5
> 172	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	14	13	8	6	16	15	31	73	101	77	68	71	45	70	64	24	696

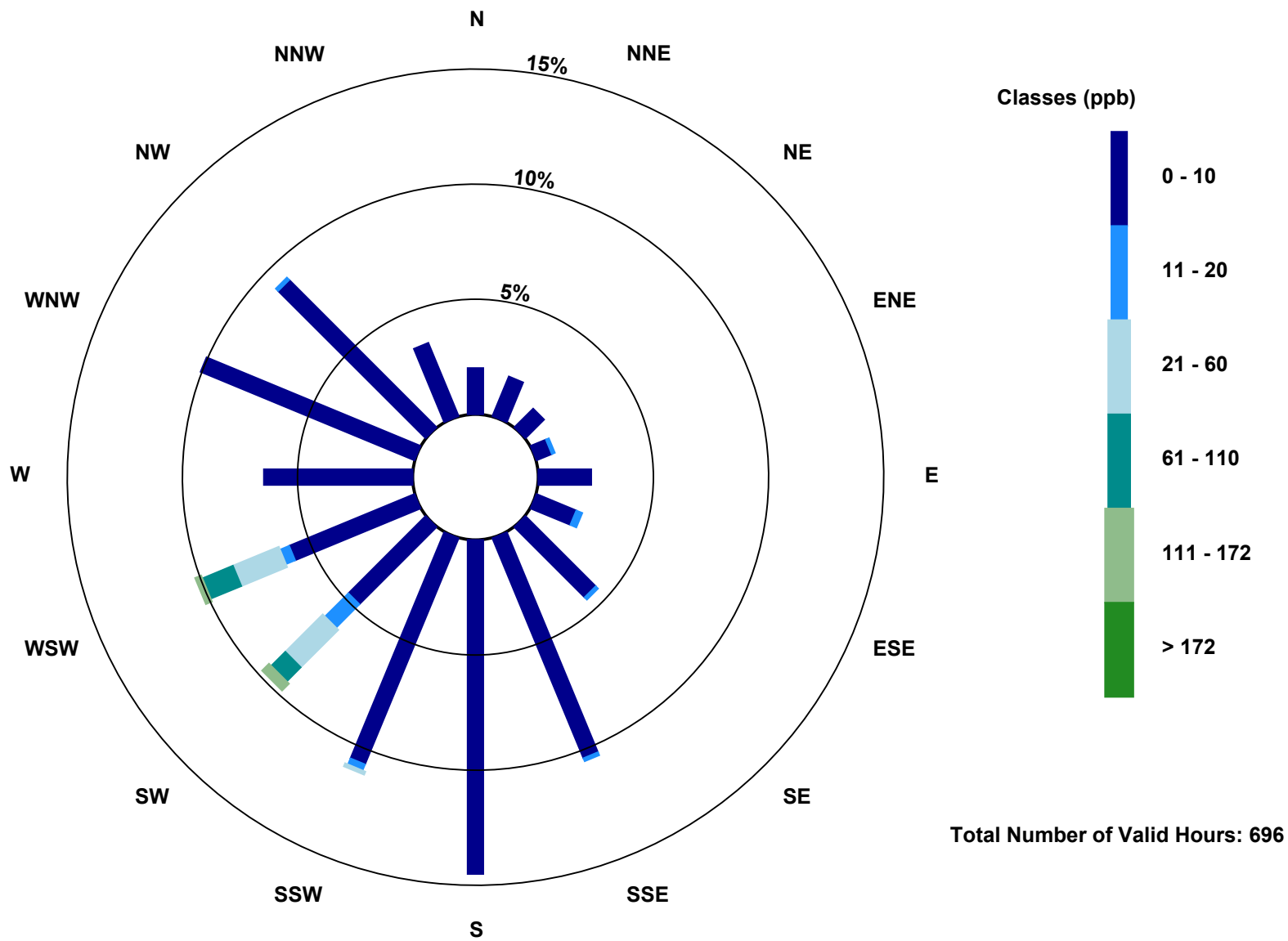
Total Number of Valid Hours: 696

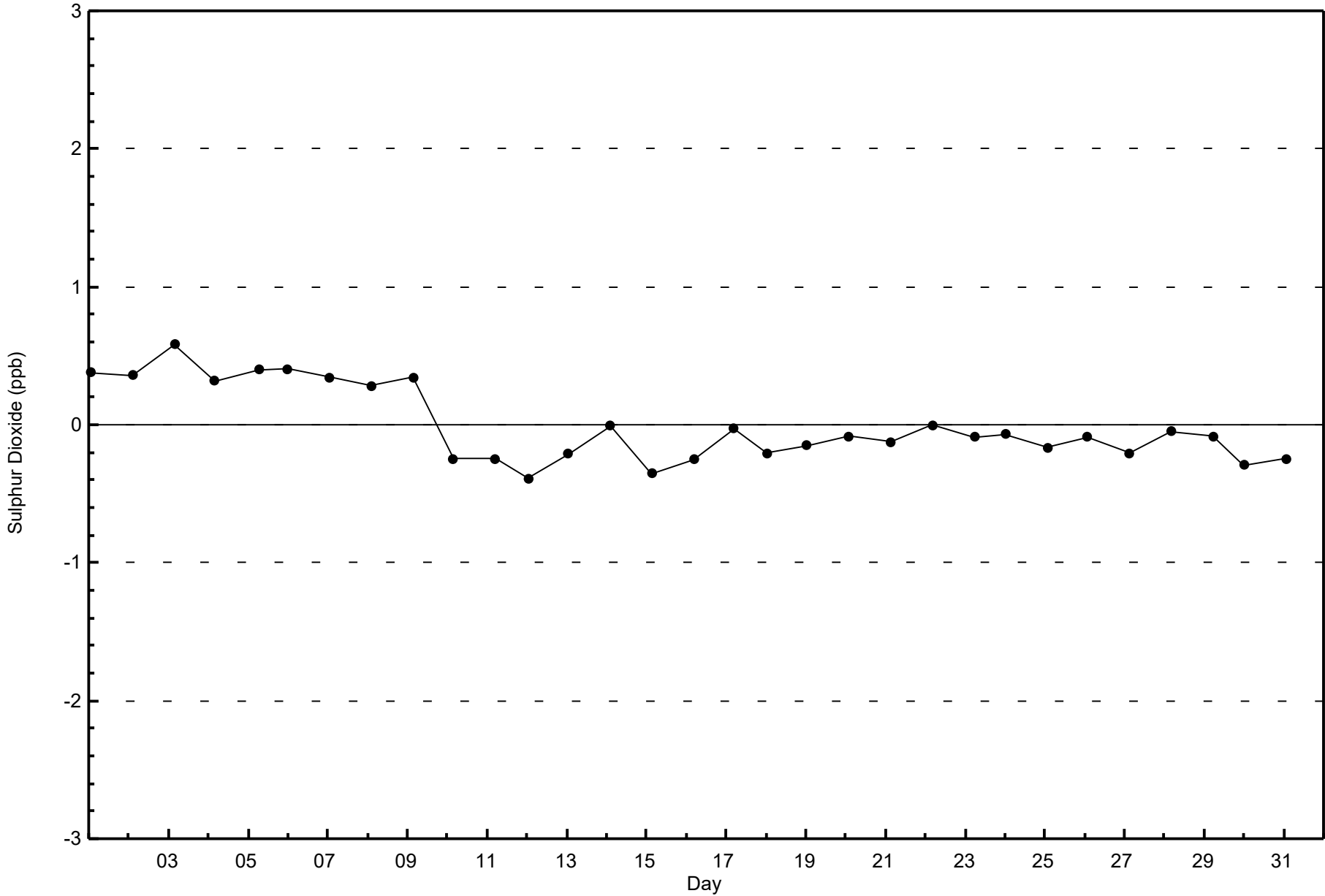
Total Number of Hours: 744

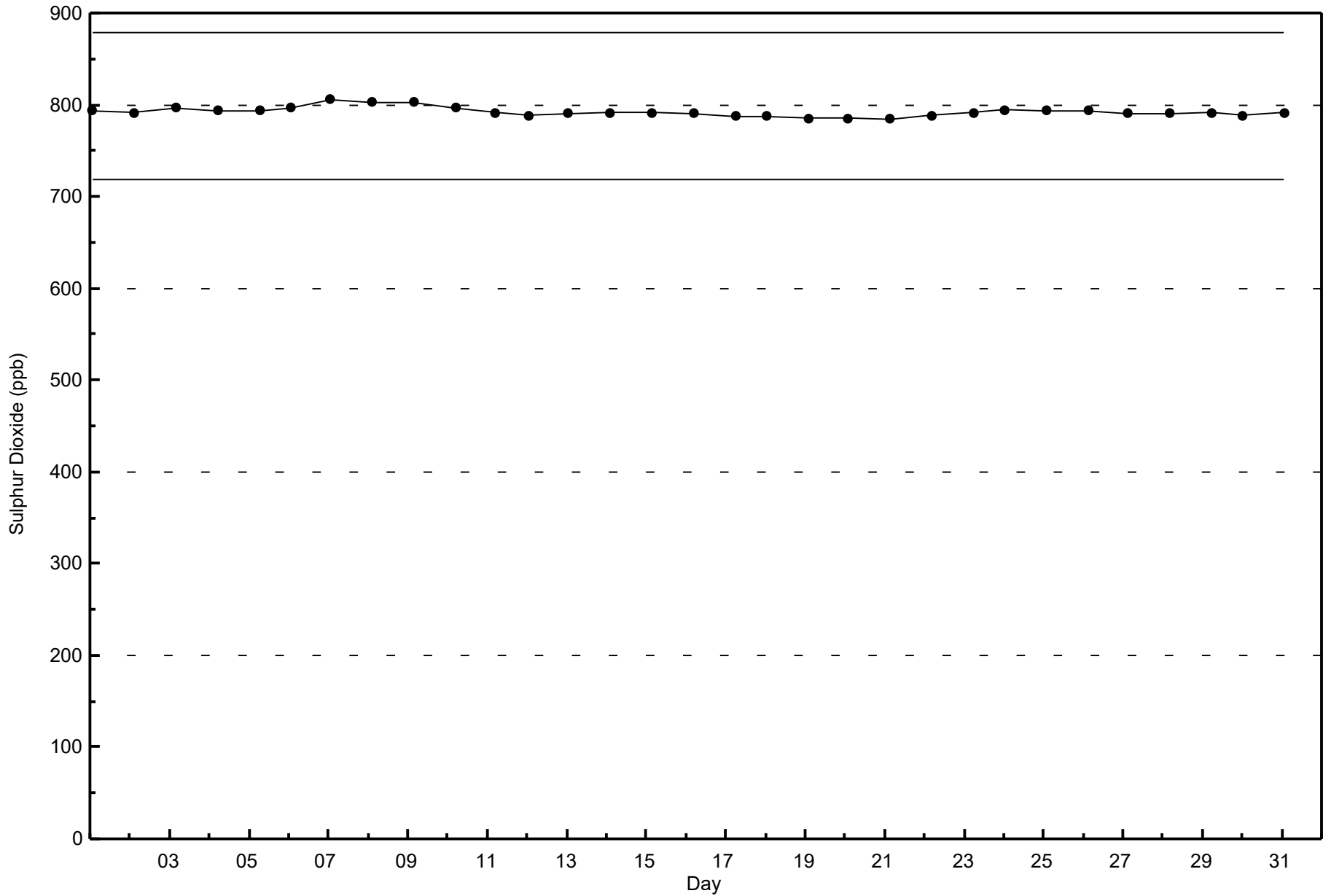


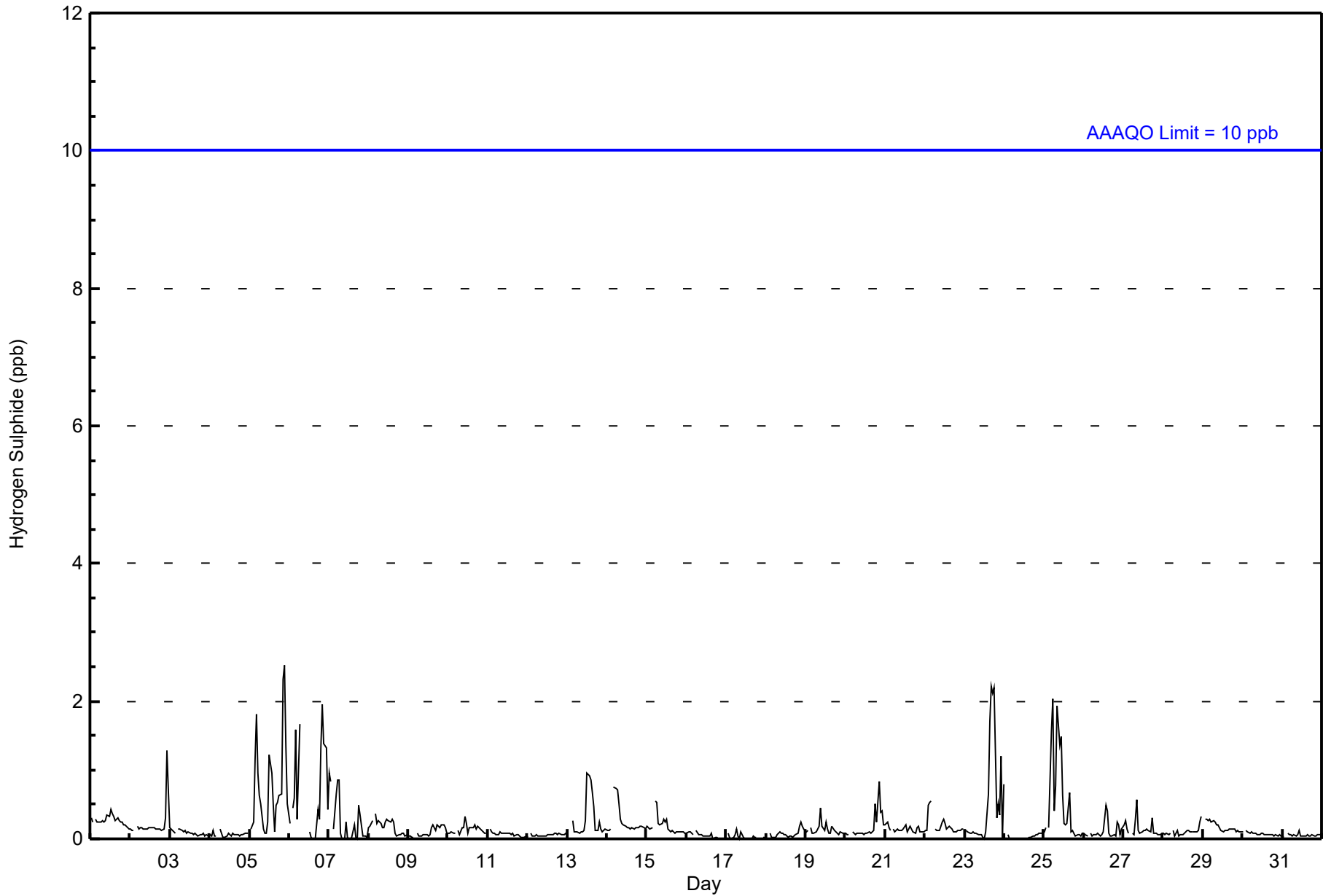
Wood Buffalo Environmental Association
Wind Rose Dec 2024

Sulphur Dioxide (SO₂) - ppb
Hangingstone Expansion











**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Hangingstone Expansion - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 2	704	99.86	99.86
3 - 4	1	0.14	100.00
5 - 7	0	0.00	100.00
8 - 11	0	0.00	100.00
> 11	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Hydrogen Sulphide (H₂S) - ppb
Hangingstone Expansion - December 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	14	8	6	16	15	34	70	101	76	67	67	44	73	64	24	693
3 - 4	0	0	0	0	0	0	0	0	0	0	0	1	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	14	14	8	6	16	15	34	70	101	76	67	68	44	73	64	24	694

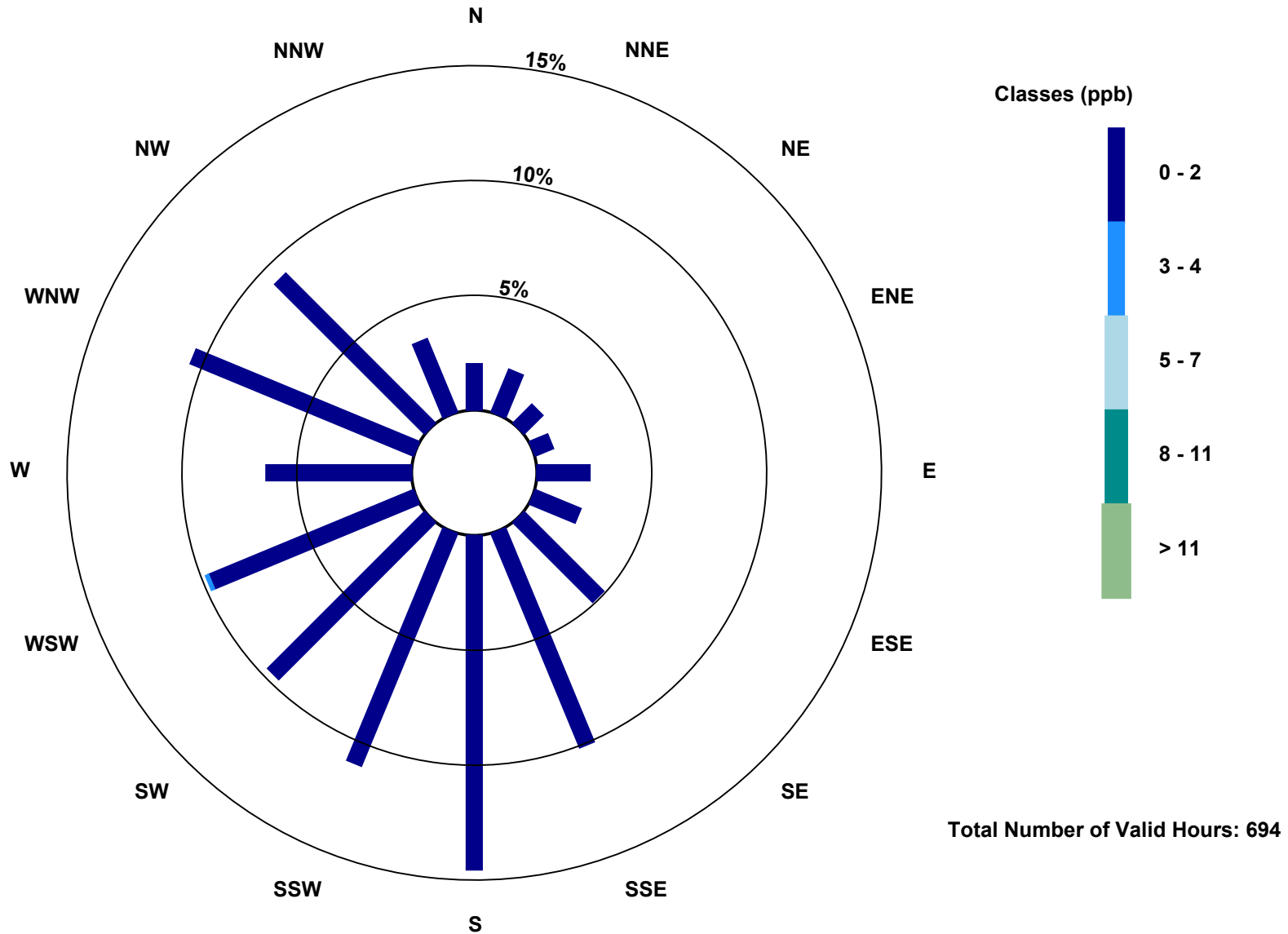
Total Number of Valid Hours: 694

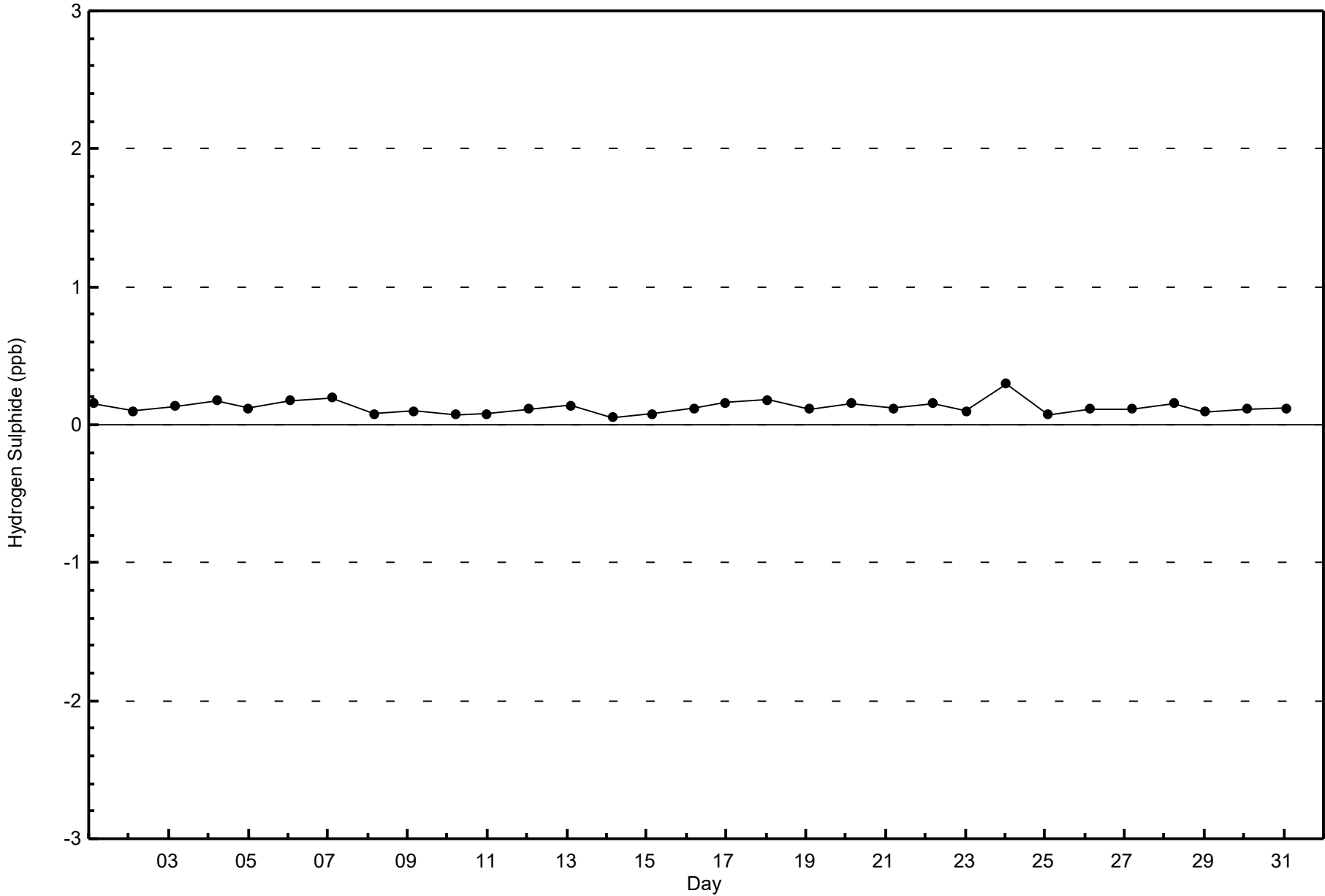
Total Number of Hours: 744

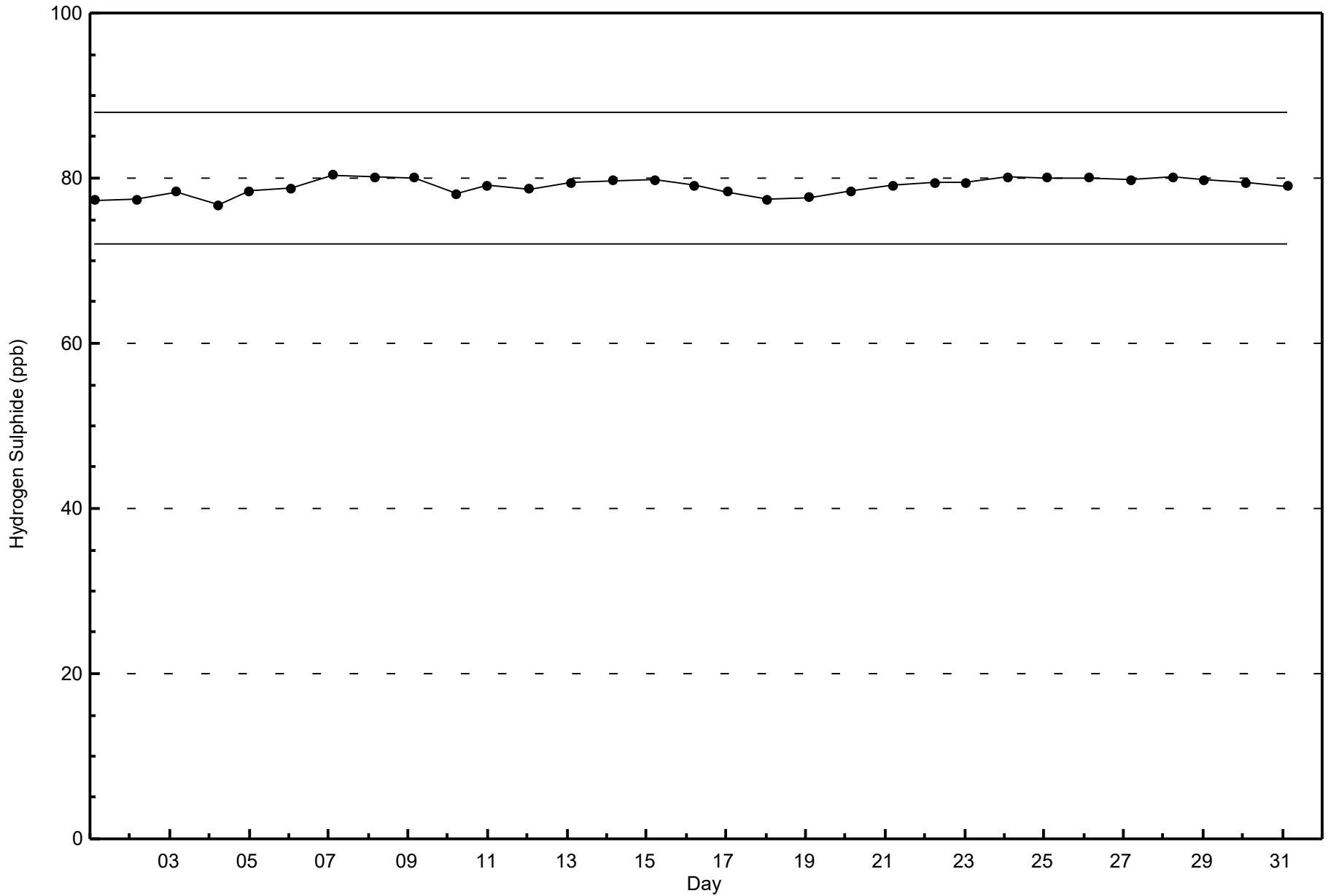


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Hydrogen Sulphide (H₂S) - ppb
Hangingstone Expansion







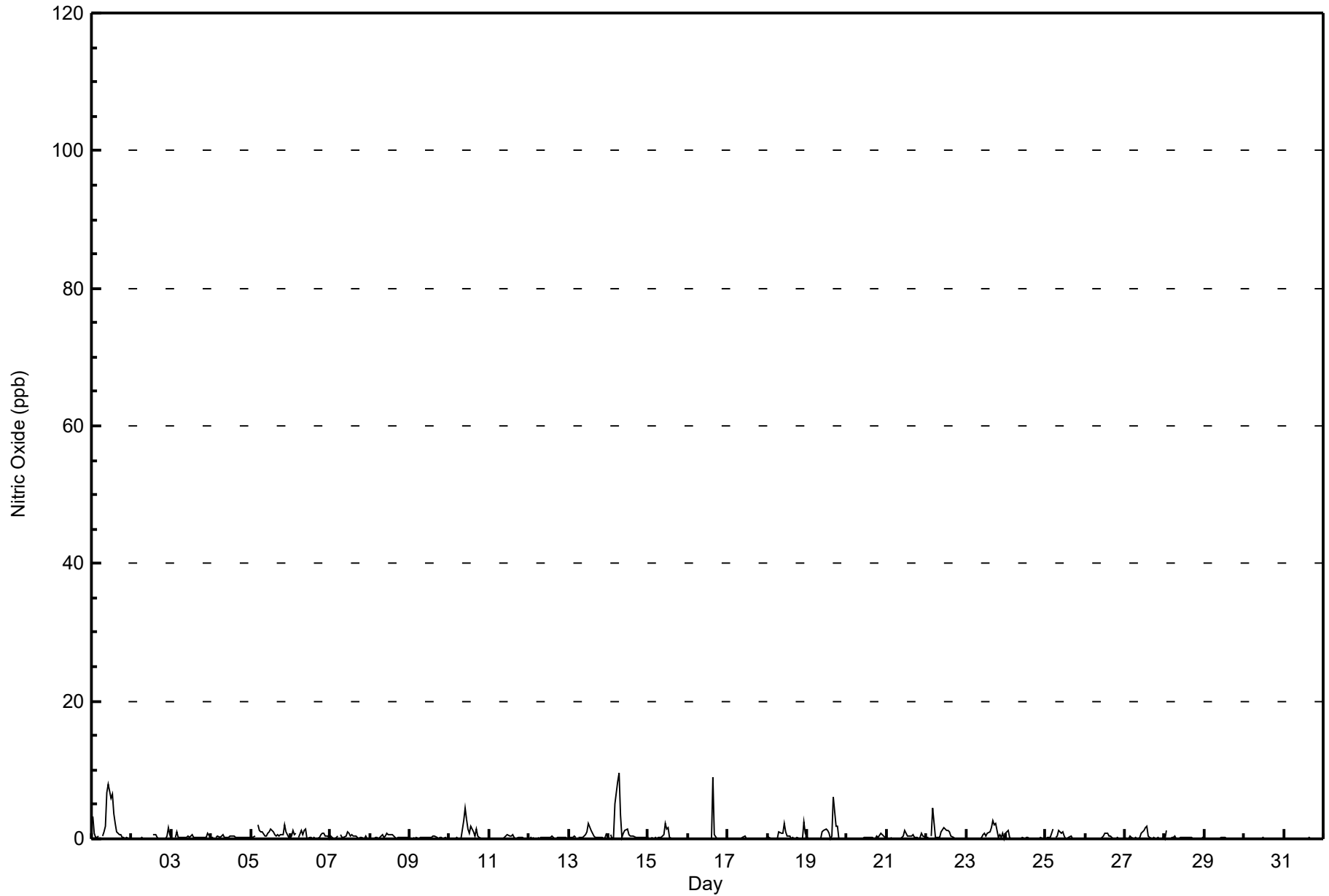


Maximum Value: 9.5 ppb on Dec 14 07:00		Maximum Daily Average: 1.9 ppb on Dec 1		Hours in Service: 744																																													
Minimum Value: 0.0 ppb on Dec 2 05:00		Minimum Daily Average: 0.0 ppb on Dec 30		Hours of Data: 705																																													
Maximum Diurnal Average: 0.9 ppb at hour 11		Minimum Diurnal Average: 0.1 ppb at hour 3		Hours of Missing Data: 39																																													
Monthly Average: 0.41 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 = 5.9		Hours of Calibration: 36																																													
				Percent Operational Time: 99.6																																													
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																									
1-Dec	3.3	0.8	0.3	0.3	0.4	Z	0.4	1.0	1.8	6.8	8.0	5.9	6.5	3.8	2.2	0.9	0.5	0.5	0.3	0.1	0.1	0.1	0.0	0.1	1.9	8.0																							
2-Dec	Z	0.0	0.0	0.0	0.0	0.1	0.2	0.1	C	C	C	C	C	0.5	0.5	0.2	0.0	0.1	0.0	0.1	0.1	0.3	1.7	0.6	0.3	1.7																							
3-Dec	0.1	Z	0.2	1.0	0.1	0.2	0.2	0.1	0.1	0.3	0.4	0.1	0.6	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.3	0.9	0.2	0.3	1.0																							
4-Dec	0.1	0.2	Z	0.2	0.3	0.2	0.3	0.5	0.3	0.2	0.3	0.4	0.4	0.4	0.4	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.5																							
5-Dec	0.1	0.2	0.4	Z	2.1	1.1	1.0	1.1	0.5	0.4	0.8	1.0	1.4	0.9	0.7	0.5	0.5	0.3	0.5	0.5	2.1	1.1	0.6	0.2	0.8	2.1																							
6-Dec	0.4	1.3	0.7	0.8	Z	0.2	1.2	0.6	1.2	1.3	0.1	0.1	0.2	0.0	0.3	0.0	0.1	0.2	0.5	0.9	0.9	0.4	0.4	0.1	0.5	1.3																							
7-Dec	0.4	0.2	0.1	0.1	0.4	Z	0.6	0.2	0.3	0.5	1.0	0.8	0.5	0.5	0.4	0.5	0.2	0.1	0.3	0.1	0.0	0.4	0.1	0.0	0.3	1.0																							
8-Dec	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.5	0.1	0.3	0.8	0.5	0.7	0.5	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.8																							
9-Dec	0.1	Z	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.3	0.5	0.4	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.2	0.5																							
10-Dec	0.0	0.0	Z	0.0	0.2	0.0	0.0	0.1	2.6	4.6	2.9	1.4	0.9	1.8	1.0	0.5	1.5	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.8	4.6																							
11-Dec	0.1	0.0	0.0	Z	0.0	0.1	0.1	0.0	0.1	0.2	0.4	0.5	0.4	0.4	0.6	0.3	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.6																							
12-Dec	0.1	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.3																							
13-Dec	0.1	0.2	0.1	0.4	0.1	Z	0.1	0.1	0.1	0.4	0.6	1.0	2.3	1.3	0.9	0.5	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.7	0.4	2.3																							
14-Dec	Z	0.7	0.1	0.1	5.1	8.3	9.5	3.5	0.3	0.9	1.1	1.5	0.6	0.3	0.3	0.2	0.1	0.2	0.2	0.1	0.2	0.2	0.1	0.1	1.5	9.5																							
15-Dec	0.1	Z	0.1	0.1	0.2	0.1	0.2	0.1	0.1	0.6	2.3	1.4	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.3																							
16-Dec	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	9.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	9.0																							
17-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	PF	PF	PF	0.0	0.1	0.0	0.3																						
18-Dec	0.5	0.3	0.1	0.0	Z	0.0	0.0	1.1	0.8	0.8	2.3	1.0	0.5	0.3	0.1	0.3	0.1	0.0	0.1	0.0	0.0	0.1	2.3	0.8	0.5	2.3																							
19-Dec	0.1	0.0	0.0	0.0	0.0	Z	0.0	0.0	0.1	1.1	1.2	1.4	1.2	0.9	0.1	0.4	6.1	1.8	1.9	0.0	0.0	0.0	0.0	0.0	0.7	6.1																							
20-Dec	Z	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.9	0.6	0.4	0.3	0.2	0.9																							
21-Dec	0.2	Z	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.4	1.3	0.5	0.5	0.4	0.4	0.7	0.2	0.2	0.1	0.1	0.9	0.5	0.2	0.3	1.3																							
22-Dec	0.2	0.2	Z	0.3	4.5	0.2	0.1	0.1	0.3	1.1	1.7	1.5	1.2	1.2	1.0	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.6	4.5																							
23-Dec	0.0	0.0	0.0	Z	0.0	0.0	0.1	0.0	0.0	0.2	0.5	0.7	0.5	0.7	0.9	1.7	2.5	2.0	2.2	0.1	0.6	0.2	0.7	0.1	0.6	2.5																							
24-Dec	0.9	1.2	0.2	0.0	Z	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.2	1.2																							
25-Dec	0.1	0.2	0.3	0.1	1.3	Z	0.2	0.4	1.2	0.9	1.0	0.4	0.1	0.1	0.1	0.5	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.3	1.3																							
26-Dec	Z	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.5	0.9	0.7	0.5	0.4	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.0	0.2	0.9																							
27-Dec	0.1	Z	0.1	0.4	0.3	0.0	0.2	0.0	0.0	0.2	0.8	1.2	1.7	1.8	0.4	0.2	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.4	0.4	1.8																							
28-Dec	0.1	1.3	Z	0.1	0.1	0.2	0.3	0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	1.3																							
29-Dec	0.1	0.1	0.0	Z	0.1	0.0	0.1	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2																							
30-Dec	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2																							
31-Dec	0.0	0.0	0.0	0.1	0.0	Z	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1																						
																								0.3	0.3	0.1	0.2	0.6	0.4	0.5	0.3	0.4	0.7	0.9	0.8	0.8	0.6	0.4	0.6	0.5	0.2	0.3	0.1	0.2	0.2	0.3	0.2	Diurnal Average	
																								3.3	1.3	0.7	1.0	5.1	8.3	9.5	3.5	2.6	6.8	8.0	5.9	6.5	3.8	2.2	9.0	6.1	2.0	2.2	0.9	2.1	1.1	2.3	0.8	Diurnal Maximum	
Z - zerospan			C - Calibration			PF - Power Failure																																											



Wood Buffalo Environmental Association
Hourly Averages

Nitric Oxide (NO) - ppb
Hangingsstone Expansion - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitric Oxide (NO) - ppb
Hangingstone Expansion - December 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
Hangingstone Expansion - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	14	8	5	15	14	34	74	98	74	66	72	44	72	65	24	694
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	15	14	8	5	15	14	34	74	98	74	66	72	44	72	65	24	694

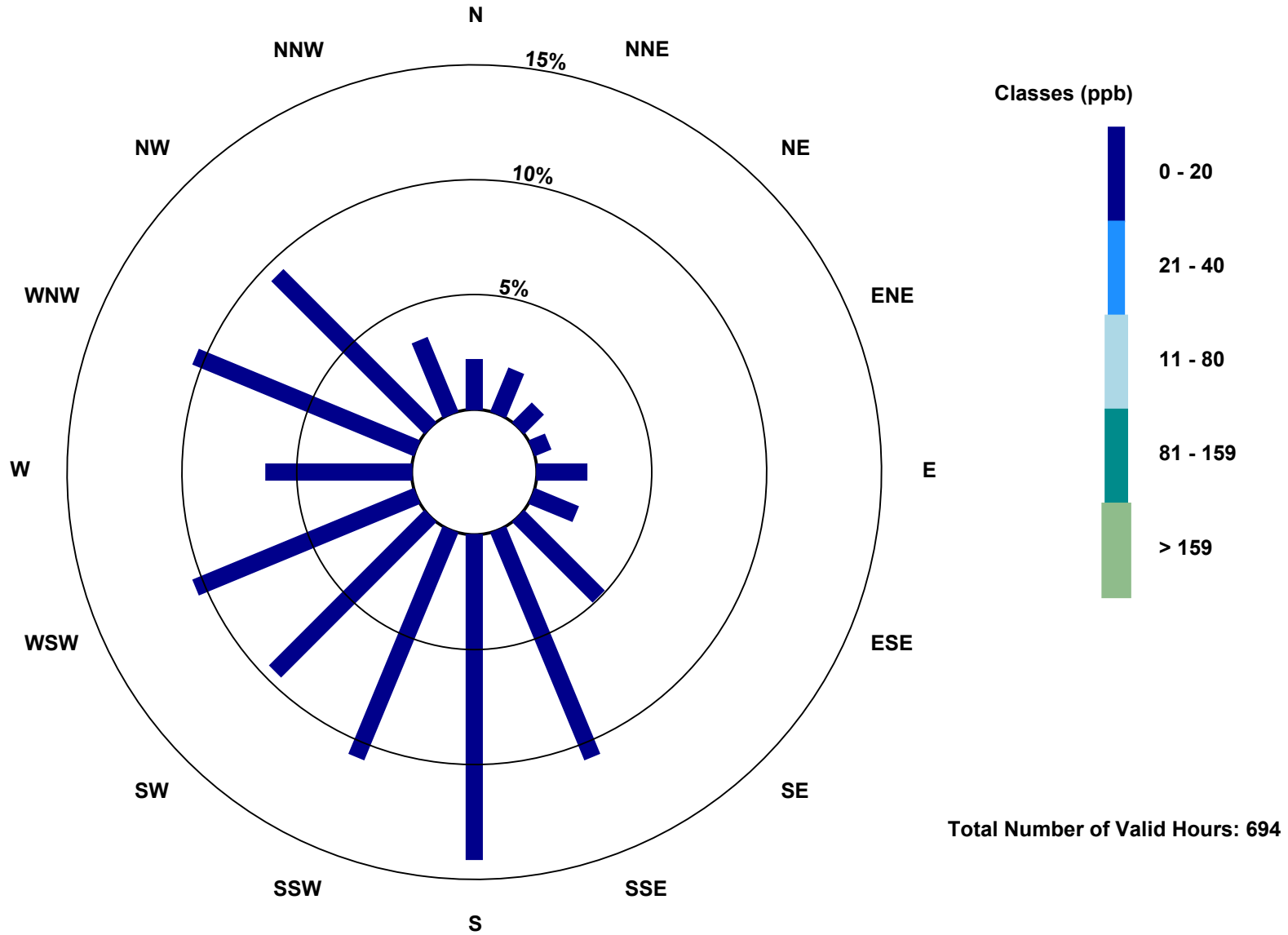
Total Number of Valid Hours: 694

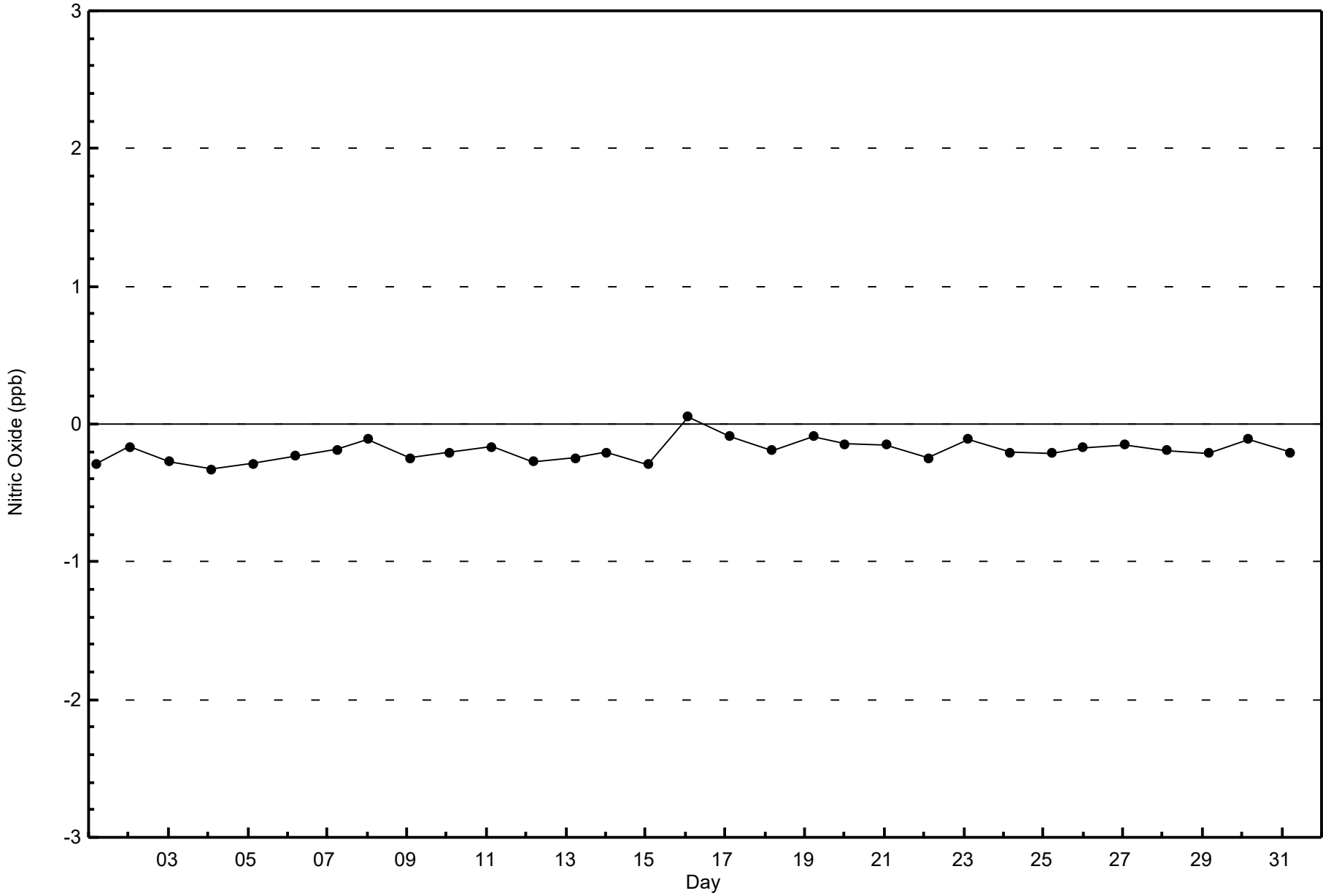
Total Number of Hours: 744

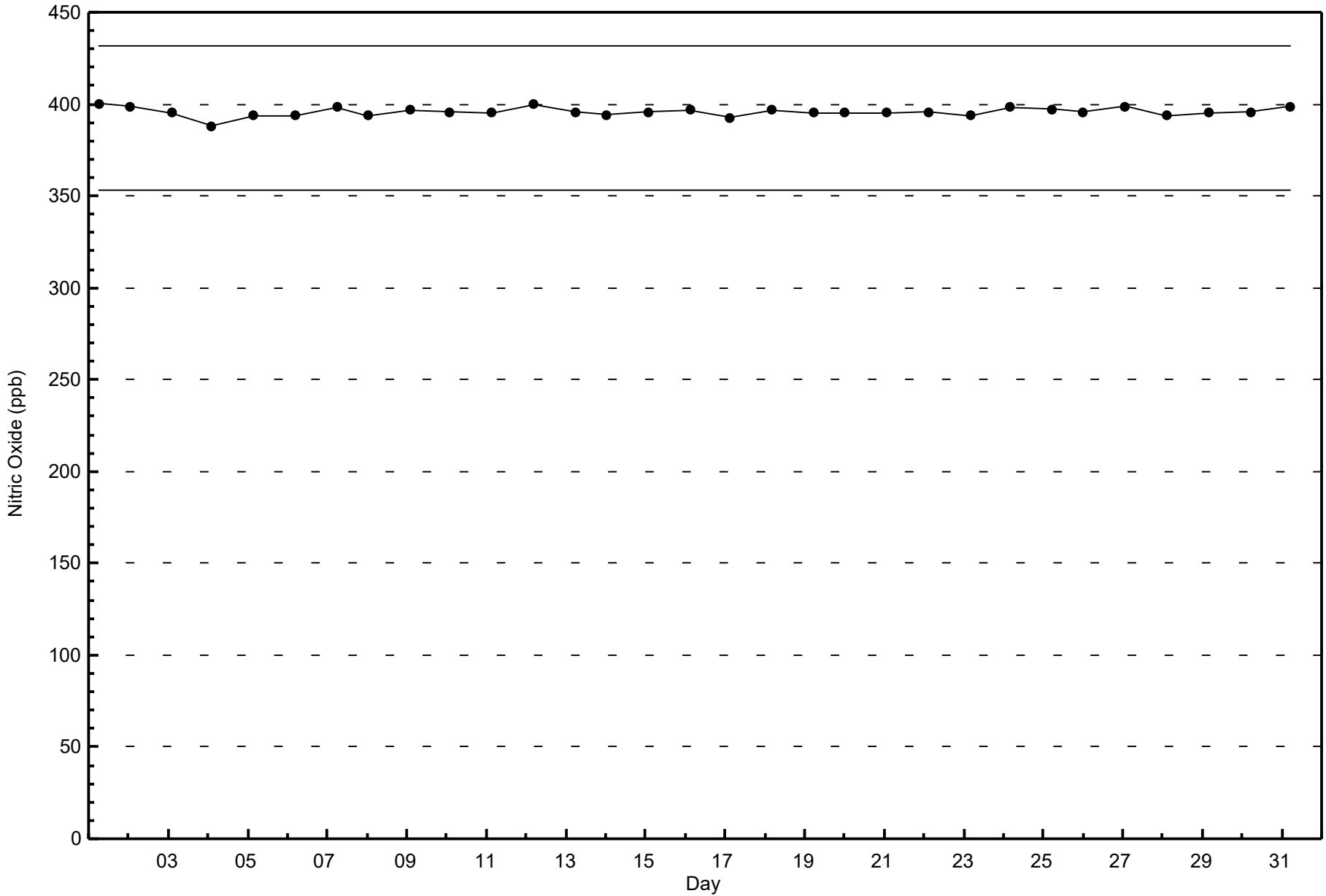


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitric Oxide (NO) - ppb
Hangingstone Expansion







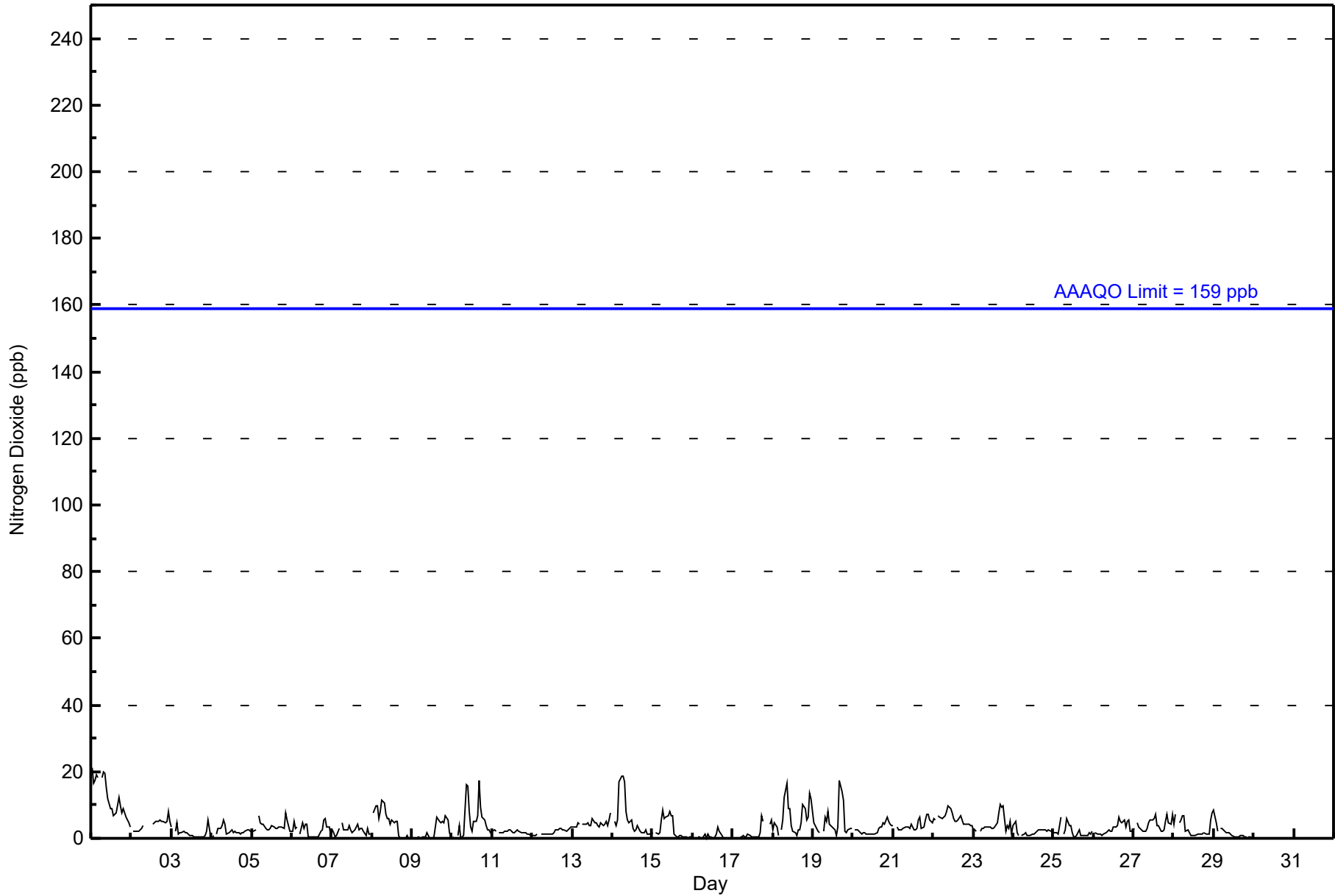


Number of Exceedences (AAAQO):		1-hr: 0		24-hr: 0		Hours in Service:		744																																											
Maximum Value: 21.2 ppb on Dec 1 01:00		Maximum Daily Average: 12.1 ppb on Dec 1				Hours of Data:		705																																											
Minimum Value: 0.0 ppb on Dec 16 01:00		Minimum Daily Average: 0.1 ppb on Dec 30				Hours of Missing Data:		39																																											
Maximum Diurnal Average: 4.5 ppb at hour 9		Minimum Diurnal Average: 2.4 ppb at hour 14				Hours of Calibration:		36																																											
Monthly Average: 3.33 ppb		Percentiles: P ₁ = 0.1 P ₁₀ = 0.2 Q ₁ = 1.0 Median = 2.5 Q ₃ = 4.6 P ₉₀ = 6.9 P ₉₉ = 18.1				Percent Operational Time:		99.6																																											
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24																											
1-Dec	21.2	16.5	17.5	19.1	18.4	Z	18.1	20.1	19.7	15.1	11.7	8.9	8.8	6.9	7.2	7.7	12.2	9.7	7.8	8.8	7.7	6.4	4.8	3.2	12.1	21.2																									
2-Dec	Z	2.2	2.1	2.0	2.0	2.4	3.0	3.9	C	C	C	C	C	4.2	5.1	5.0	4.9	5.3	5.0	5.0	4.8	5.2	7.9	5.1	4.2	7.9																									
3-Dec	3.3	Z	2.1	4.6	1.1	1.6	1.9	2.2	1.8	1.8	1.3	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.8	2.0	5.4	0.3	1.5	5.4																									
4-Dec	0.2	0.7	Z	1.2	2.8	2.8	3.9	5.5	4.1	1.2	1.5	2.0	2.4	1.9	2.0	1.6	1.5	1.4	1.5	1.8	2.0	2.5	2.6	2.3	2.1	5.5																									
5-Dec	2.1	2.0	2.7	Z	6.7	4.5	4.1	4.2	3.1	2.5	2.6	2.8	4.0	3.2	3.0	2.8	3.5	3.5	3.4	2.9	7.7	5.6	4.0	2.0	3.6	7.7																									
6-Dec	2.3	5.2	3.0	3.3	Z	1.3	4.5	2.8	4.4	4.4	0.5	0.5	0.3	0.3	0.3	0.3	0.3	2.1	2.6	5.4	6.0	3.5	3.3	1.0	2.5	6.0																									
7-Dec	2.6	1.9	0.6	0.7	2.8	Z	4.8	2.6	2.4	2.7	3.9	2.7	1.9	2.2	2.7	4.1	2.7	2.8	2.9	2.2	1.0	2.9	1.3	1.4	2.4	4.8																									
8-Dec	Z	7.8	9.7	9.7	6.1	7.9	11.5	10.4	7.0	6.0	5.8	4.2	5.4	4.7	5.1	5.1	1.0	0.1	0.2	0.2	0.2	0.7	0.2	0.1	4.7	11.5																									
9-Dec	0.6	Z	0.2	0.1	0.4	0.2	0.3	0.3	0.4	1.6	0.1	0.1	0.2	0.3	3.4	6.5	5.1	4.8	5.2	4.8	6.7	5.5	1.7	0.3	2.1	6.7																									
10-Dec	0.2	0.5	Z	0.8	3.7	0.2	0.6	0.8	16.0	15.5	8.1	3.5	2.3	5.0	5.2	6.8	17.2	9.3	6.3	5.6	3.9	2.4	2.6	1.8	5.1	17.2																									
11-Dec	2.3	2.7	2.2	Z	1.9	1.6	1.9	2.2	2.0	2.0	2.5	2.5	1.7	1.8	2.3	2.4	2.3	1.9	1.9	1.6	1.5	1.4	1.2	1.0	1.9	2.7																									
12-Dec	1.0	1.0	1.0	1.1	Z	1.3	1.3	1.3	1.3	1.4	1.4	1.3	1.4	1.9	2.4	2.7	2.8	2.9	2.6	2.5	2.2	2.5	2.8	3.4	1.9	3.4																									
13-Dec	3.2	3.3	3.6	4.5	4.3	Z	4.4	4.1	4.1	4.6	3.9	3.8	6.0	4.7	4.6	3.9	3.4	4.8	3.9	4.3	4.9	3.7	5.7	7.5	4.4	7.5																									
14-Dec	Z	5.2	3.8	5.6	17.0	18.6	18.7	16.9	8.2	5.6	4.5	5.3	3.1	2.3	2.7	4.0	2.1	1.7	1.5	1.8	2.5	1.3	1.4	1.4	5.9	18.7																									
15-Dec	1.5	Z	1.6	1.4	1.7	5.4	8.5	6.0	6.5	6.7	8.0	6.9	6.8	1.1	0.4	0.3	0.8	0.8	0.5	0.3	0.5	0.1	0.3	0.5	2.9	8.5																									
16-Dec	0.0	0.1	Z	0.3	0.3	0.2	0.2	1.3	0.2	1.2	0.5	0.4	0.2	0.5	1.1	3.6	2.0	0.8	0.2	0.2	0.1	0.0	0.2	0.2	0.6	3.6																									
17-Dec	0.2	0.2	0.2	Z	0.5	0.4	0.9	0.6	0.4	1.4	0.9	0.4	0.3	0.3	0.3	0.3	1.7	6.9	5.2	PF	PF	PF	4.2	5.4	1.5	6.9																									
18-Dec	2.6	4.7	3.2	0.9	Z	2.7	5.3	12.4	16.4	8.7	8.8	3.9	2.2	1.8	1.0	2.7	2.5	4.8	10.1	9.1	5.6	6.4	13.4	11.7	6.1	16.4																									
19-Dec	4.7	3.7	3.1	2.1	1.5	Z	2.2	6.2	4.9	7.9	4.2	3.6	2.8	2.6	0.9	3.3	17.2	13.9	11.5	2.1	1.8	2.5	3.0	3.1	4.7	17.2																									
20-Dec	Z	2.4	2.6	2.5	1.9	1.4	1.6	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.8	2.9	3.2	3.4	4.8	4.3	6.3	5.2	4.4	4.0	2.7	6.3																									
21-Dec	4.0	Z	3.5	2.7	2.7	2.6	2.9	3.3	3.3	3.2	3.1	4.1	2.4	2.6	2.8	5.6	6.4	3.1	3.2	5.4	7.0	7.0	5.7	4.7	4.0	7.0																									
22-Dec	5.8	5.4	Z	6.9	6.4	6.0	6.3	6.6	8.0	9.6	8.9	7.5	5.8	5.2	5.1	5.4	6.6	5.4	4.2	4.2	4.1	4.1	4.0	3.8	5.9	9.6																									
23-Dec	2.6	2.4	2.2	Z	2.2	2.9	3.1	3.5	3.5	3.4	3.2	3.0	2.8	3.4	4.5	7.7	10.1	9.4	9.7	2.3	4.0	2.8	5.0	1.3	4.1	10.1																									
24-Dec	4.0	5.0	1.7	1.0	Z	1.0	1.3	1.6	0.9	0.8	1.0	1.1	1.2	1.7	2.1	2.5	2.7	2.7	2.7	2.5	2.3	2.4	2.2	2.0	2.0	5.0																									
25-Dec	1.7	1.8	1.9	1.4	6.3	Z	1.4	2.5	5.8	3.8	3.9	1.5	0.6	0.6	0.8	2.7	0.8	1.0	1.0	1.0	1.0	1.5	1.4	2.1	2.0	6.3																									
26-Dec	Z	1.5	1.2	1.1	1.3	1.0	1.2	1.8	2.3	2.6	2.3	2.3	3.6	3.4	3.9	6.3	5.1	4.5	5.7	3.5	5.0	5.4	2.2	2.2	3.0	6.3																									
27-Dec	3.1	Z	4.6	3.6	2.8	2.1	2.2	2.2	3.0	4.5	5.7	5.6	6.0	7.0	3.9	3.9	2.3	2.1	2.6	5.0	7.1	4.6	4.2	7.4	4.2	7.4																									
28-Dec	4.1	7.4	Z	4.7	5.7	6.7	6.6	2.2	2.6	1.7	1.0	0.9	0.9	0.9	1.1	1.2	1.2	1.4	1.5	1.3	1.2	1.2	5.3	7.6	3.0	7.6																									
29-Dec	8.5	4.8	2.2	Z	3.0	2.8	2.1	1.5	1.6	1.7	1.4	1.0	0.6	0.5	0.5	0.5	0.7	0.8	0.4	0.5	0.2	0.4	0.3	0.1	1.6	8.5																									
30-Dec	0.2	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.2																								
31-Dec	0.2	0.2	0.2	0.1	0.2	Z	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2																								
																								3.2	3.4	3.0	3.1	4.0	3.1	4.0	4.2	4.5	4.1	3.4	2.7	2.5	2.4	2.5	3.3	4.0	3.6	3.5	3.0	3.3	3.0	3.3	2.8	Diurnal Average			
																								21.2	16.5	17.5	19.1	18.4	18.6	18.7	20.1	19.7	15.5	11.7	8.9	8.8	7.0	7.2	7.7	17.2	13.9	11.5	9.1	7.7	7.0	13.4	11.7	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
Hangingsstone Expansion - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Nitrogen Dioxide (NO₂) - ppb
Hangingstone Expansion - December 2024

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	704	99.86	99.86
21 - 40	1	0.14	100.00
11 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Dioxide (NO₂) - ppb
Hangingstone Expansion - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	14	8	5	15	14	34	74	98	74	66	72	44	71	65	24	693
21 - 40	0	0	0	0	0	0	0	0	0	0	0	0	0	1	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	15	14	8	5	15	14	34	74	98	74	66	72	44	72	65	24	694

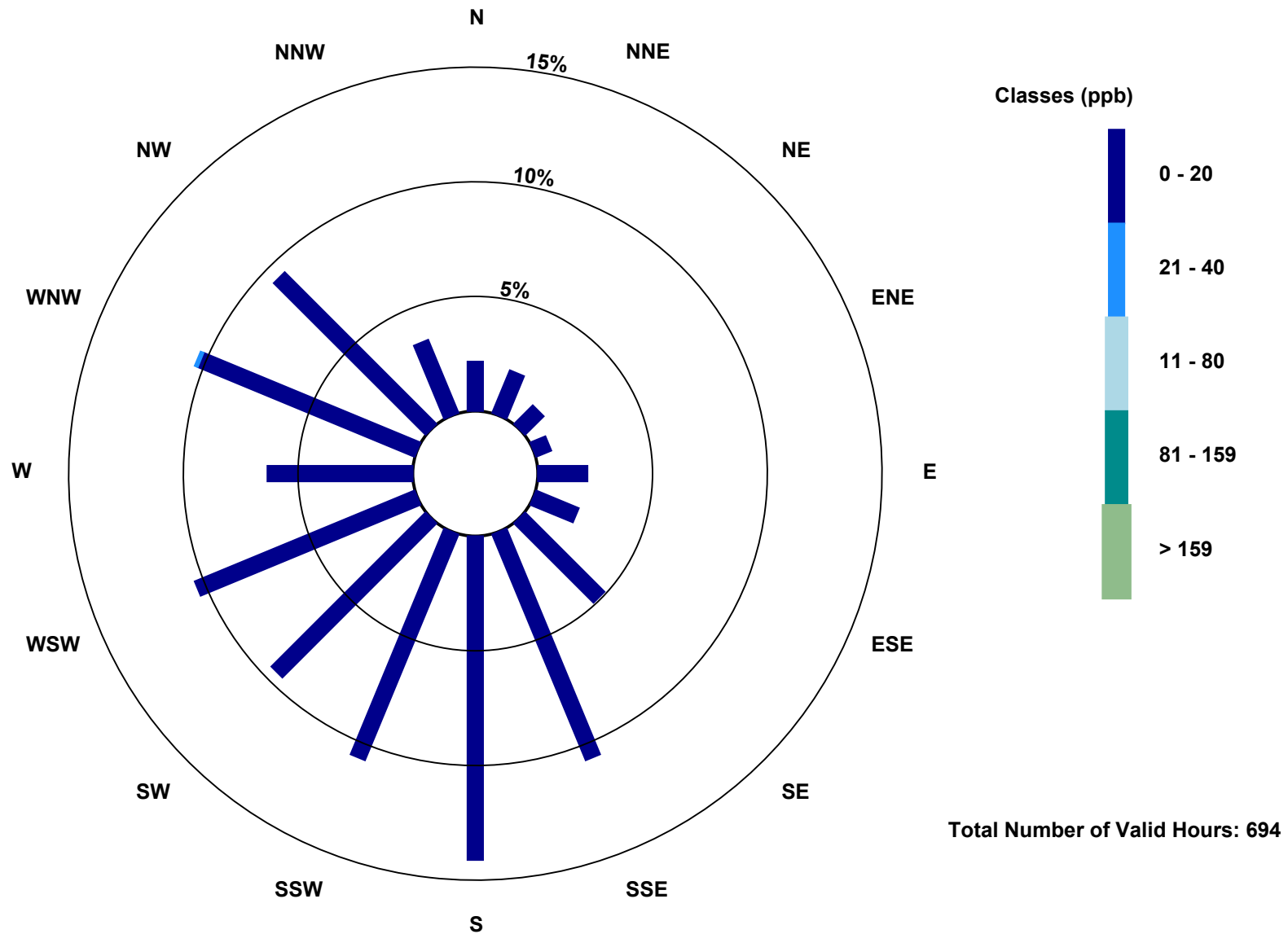
Total Number of Valid Hours: 694

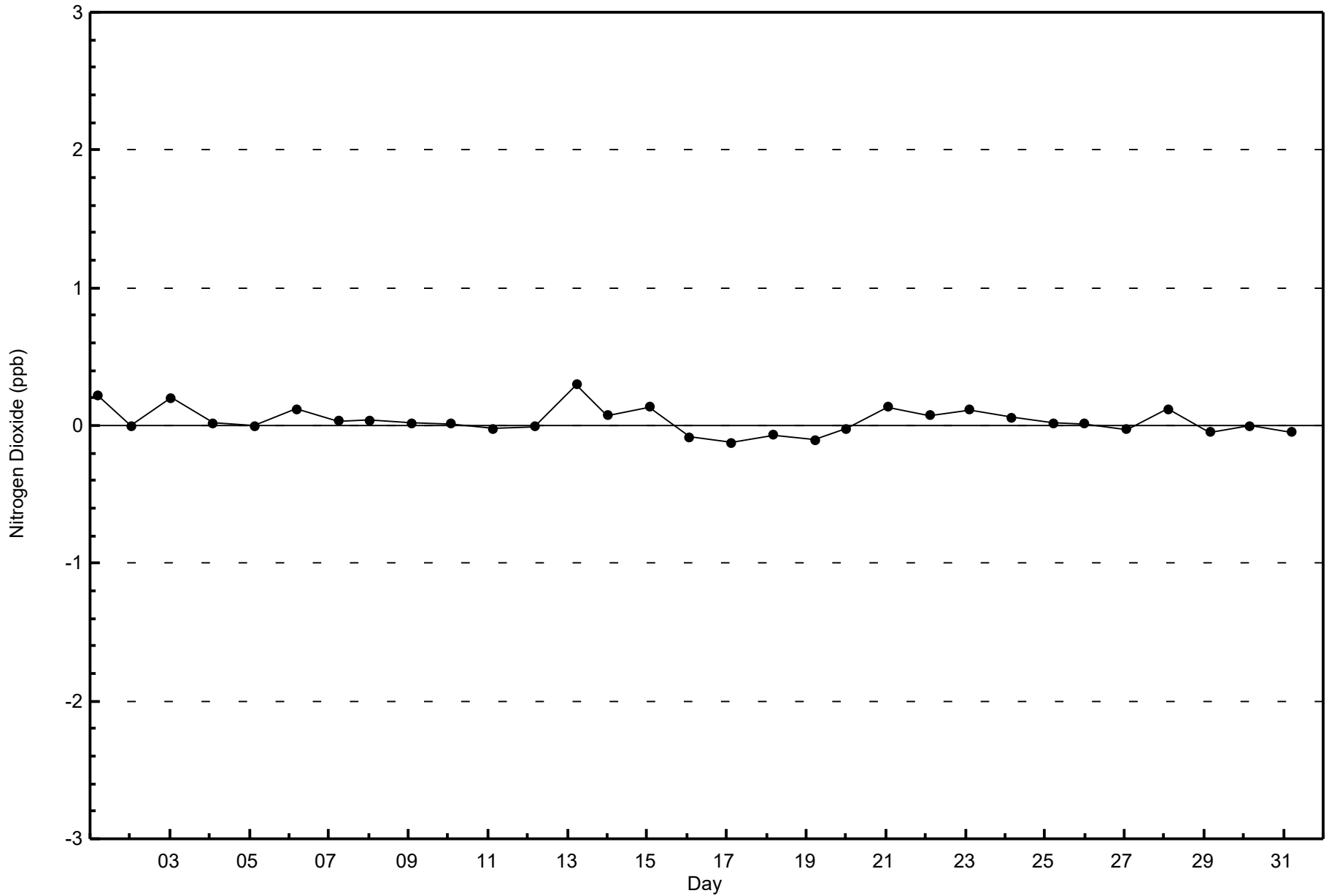
Total Number of Hours: 744

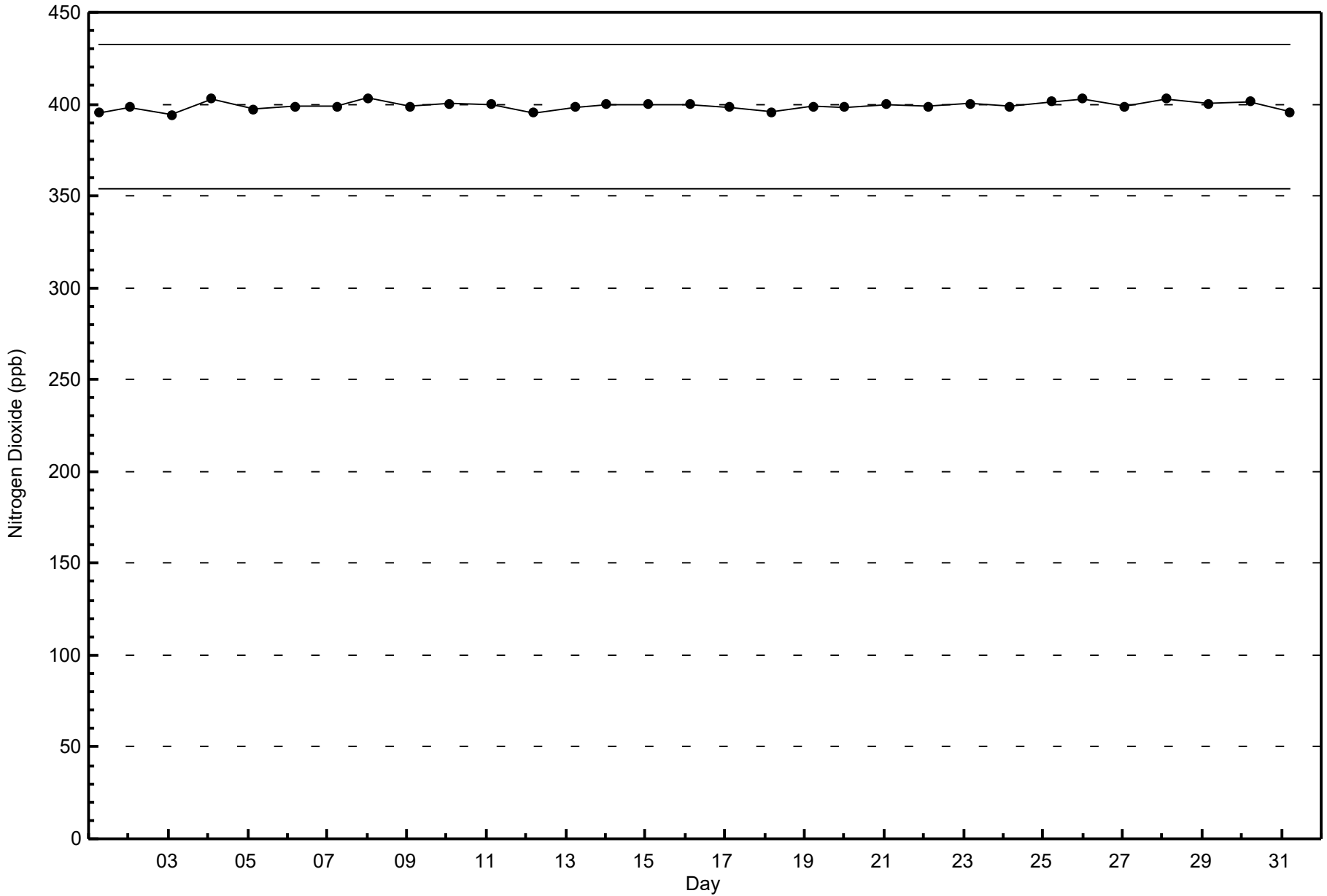


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Dioxide (NO₂) - ppb
Hangingstone Expansion







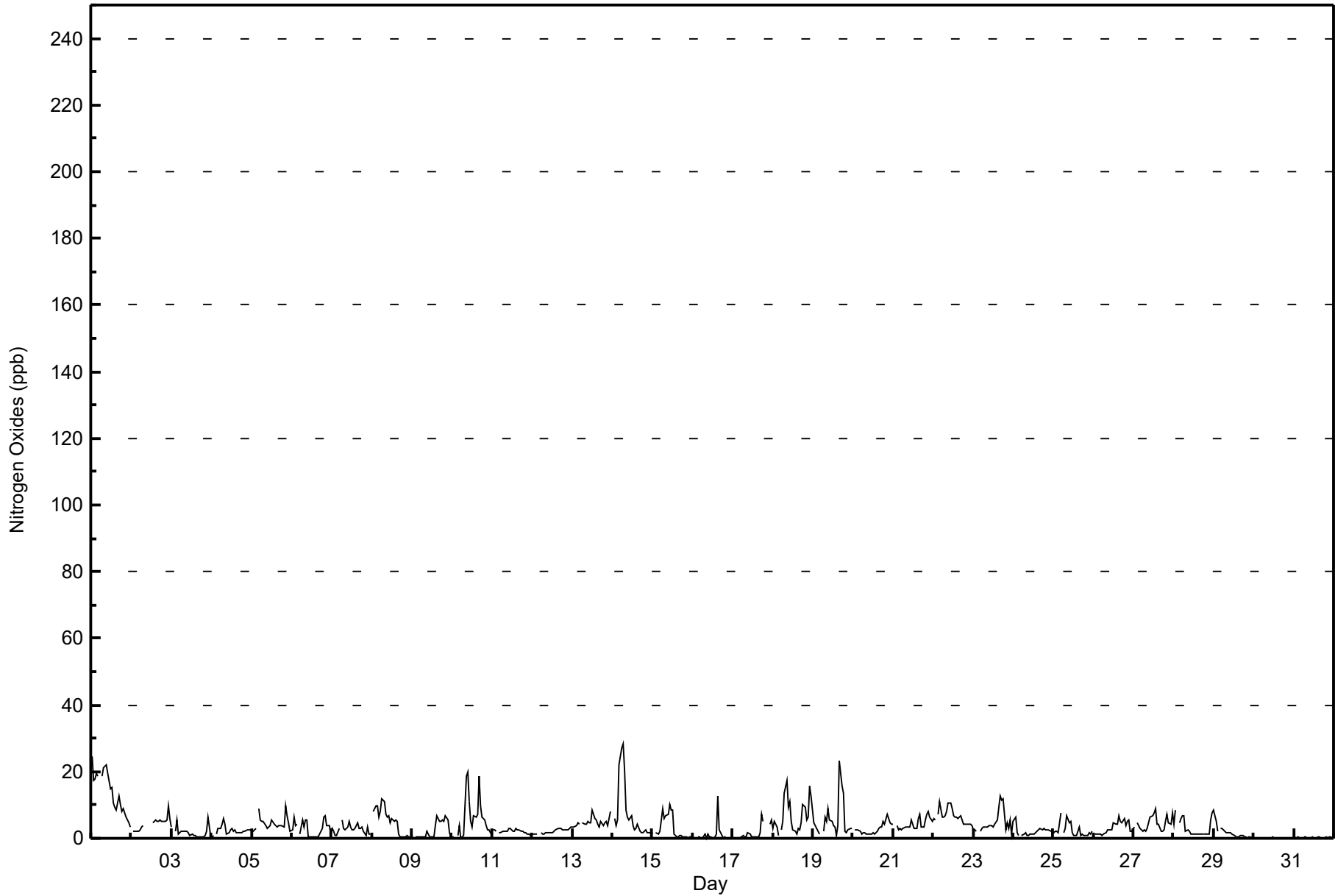


Maximum Value: 28.2 ppb on Dec 14 07:00																				Maximum Daily Average: 14.0 ppb on Dec 1					Hours in Service: 744					
Minimum Value: 0.0 ppb on Dec 16 22:00																				Minimum Daily Average: 0.1 ppb on Dec 30					Hours of Data: 705					
Maximum Diurnal Average: 4.9 ppb at hour 9																				Minimum Diurnal Average: 2.9 ppb at hour 15					Hours of Missing Data: 39					
Monthly Average: 3.74 ppb																				Percentiles: P ₁ = 0.1 P ₁₀ = 0.3 Q ₁ = 1.2 Median = 2.7 Q ₃ = 5.0 P ₉₀ = 7.8 P ₉₉ = 21.1					Hours of Calibration: 36					
																									Percent Operational Time: 99.6					
Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24						
1-Dec	24.5	17.3	17.8	19.4	18.8	Z	18.5	21.1	21.5	21.9	19.7	14.8	15.3	10.7	9.4	8.6	12.7	10.2	8.1	8.9	7.8	6.5	4.8	3.3	14.0	24.5				
2-Dec	Z	2.2	2.1	2.0	2.0	2.5	3.2	4.0	C	C	C	C	C	4.7	5.6	5.2	4.9	5.4	5.0	5.1	4.9	5.5	9.6	5.7	4.4	9.6				
3-Dec	3.4	Z	2.3	5.6	1.2	1.8	2.1	2.3	1.9	2.1	1.7	0.9	1.3	0.7	0.7	0.6	0.6	0.6	0.5	0.4	0.9	2.3	6.3	0.5	1.8	6.3				
4-Dec	0.3	0.9	Z	1.4	3.1	3.0	4.2	6.0	4.4	1.4	1.8	2.4	2.8	2.3	2.4	1.8	1.7	1.5	1.6	1.9	2.2	2.7	2.7	2.5	2.4	6.0				
5-Dec	2.2	2.2	3.1	Z	8.8	5.6	5.1	5.3	3.6	2.9	3.4	3.8	5.4	4.1	3.7	3.3	4.0	3.8	3.9	3.4	9.8	6.7	4.6	2.2	4.4	9.8				
6-Dec	2.7	6.5	3.7	4.1	Z	1.5	5.7	3.4	5.6	5.7	0.6	0.6	0.5	0.3	0.6	0.3	0.4	2.3	3.1	6.3	6.9	3.9	3.7	1.1	3.0	6.9				
7-Dec	3.0	2.1	0.7	0.8	3.2	Z	5.4	2.8	2.7	3.2	4.9	3.5	2.4	2.7	3.1	4.6	2.9	2.9	3.2	2.3	1.0	3.3	1.4	1.4	2.8	5.4				
8-Dec	Z	7.9	9.8	9.8	6.2	8.0	11.7	10.9	7.1	6.3	6.6	4.7	6.1	5.2	5.5	5.3	1.1	0.2	0.3	0.3	0.3	0.9	0.3	0.2	5.0	11.7				
9-Dec	0.7	Z	0.3	0.2	0.5	0.3	0.4	0.5	0.6	1.9	0.3	0.3	0.3	0.6	3.9	6.9	5.2	4.9	5.3	5.0	6.8	5.7	1.8	0.4	2.3	6.9				
10-Dec	0.2	0.5	Z	0.8	3.9	0.2	0.6	0.9	18.6	20.1	11.0	4.9	3.2	6.8	6.2	7.3	18.7	9.7	6.6	5.6	3.9	2.4	2.6	1.8	5.9	20.1				
11-Dec	2.4	2.7	2.2	Z	1.9	1.7	2.0	2.2	2.1	2.2	2.9	3.0	2.1	2.2	2.9	2.7	2.4	2.2	2.1	1.7	1.6	1.5	1.2	1.0	2.1	3.0				
12-Dec	1.1	1.1	1.1	1.2	Z	1.5	1.4	1.4	1.5	1.5	1.6	1.5	1.7	2.2	2.7	2.8	2.9	3.0	2.7	2.6	2.4	2.7	2.9	3.5	2.0	3.5				
13-Dec	3.3	3.5	3.7	4.9	4.4	Z	4.5	4.2	4.2	5.0	4.5	4.8	8.3	6.0	5.5	4.4	3.5	4.9	4.0	4.5	5.1	3.8	5.8	8.2	4.8	8.3				
14-Dec	Z	5.9	3.9	5.7	22.1	26.9	28.2	20.4	8.5	6.5	5.6	6.8	3.7	2.6	3.0	4.3	2.3	1.8	1.7	2.0	2.6	1.5	1.6	1.5	7.4	28.2				
15-Dec	1.6	Z	1.7	1.5	1.9	5.5	8.7	6.1	6.6	7.3	10.3	8.3	8.5	1.2	0.4	0.3	0.8	0.8	0.5	0.3	0.5	0.1	0.3	0.5	3.2	10.3				
16-Dec	0.0	0.1	Z	0.3	0.3	0.2	0.2	1.3	0.2	1.2	0.5	0.4	0.2	0.5	1.2	12.6	2.5	0.9	0.2	0.2	0.1	0.0	0.2	0.2	1.0	12.6				
17-Dec	0.2	0.2	0.2	Z	0.5	0.4	0.9	0.6	0.4	1.6	1.2	0.5	0.3	0.3	0.3	0.3	1.7	7.0	5.2	PF	PF	PF	4.2	5.5	1.6	7.0				
18-Dec	3.1	5.0	3.3	0.9	Z	2.7	5.3	13.5	17.2	9.5	11.1	4.9	2.7	2.1	1.1	3.0	2.6	4.8	10.2	9.1	5.6	6.5	15.7	12.5	6.6	17.2				
19-Dec	4.8	3.7	3.1	2.1	1.5	Z	2.2	6.2	5.0	9.0	5.4	5.0	4.0	3.5	1.0	3.7	23.3	15.7	13.4	2.1	1.8	2.5	3.0	3.1	5.4	23.3				
20-Dec	Z	2.4	2.6	2.5	1.9	1.4	1.6	1.5	1.4	1.4	1.4	1.4	1.5	1.4	1.9	3.0	3.3	3.5	5.1	4.4	7.2	5.8	4.8	4.3	2.9	7.2				
21-Dec	4.2	Z	3.7	2.7	2.8	2.7	2.9	3.4	3.4	3.3	3.5	5.4	2.9	3.1	3.2	6.0	7.1	3.3	3.4	5.5	7.1	7.9	6.2	4.9	4.3	7.9				
22-Dec	6.0	5.6	Z	7.2	10.9	6.2	6.4	6.7	8.3	10.7	10.6	9.0	7.0	6.4	6.1	5.9	6.8	5.5	4.3	4.2	4.1	4.1	4.1	3.8	6.5	10.9				
23-Dec	2.6	2.4	2.2	Z	2.2	2.9	3.2	3.5	3.5	3.6	3.7	3.7	3.3	4.1	5.4	9.4	12.6	11.4	11.9	2.4	4.6	3.0	5.7	1.4	4.7	12.6				
24-Dec	4.9	6.2	1.9	1.0	Z	1.0	1.4	1.6	1.0	0.9	1.1	1.2	1.4	1.8	2.2	2.5	2.8	2.7	2.8	2.5	2.4	2.5	2.3	2.1	2.2	6.2				
25-Dec	1.8	2.0	2.2	1.5	7.6	Z	1.6	2.9	7.0	4.7	4.9	1.9	0.7	0.7	0.9	3.2	0.8	1.1	1.0	1.0	1.0	1.5	1.5	2.2	2.3	7.6				
26-Dec	Z	1.5	1.2	1.2	1.3	1.0	1.2	1.8	2.3	2.7	2.6	2.8	4.5	4.1	4.4	6.7	5.2	4.6	5.8	3.8	5.0	5.4	2.2	2.2	3.2	6.7				
27-Dec	3.2	Z	4.7	4.0	3.1	2.1	2.4	2.2	3.0	4.7	6.5	6.8	7.7	8.8	4.3	4.1	2.3	2.2	2.6	5.0	7.3	4.7	4.3	7.8	4.5	8.8				
28-Dec	4.2	8.7	Z	4.8	5.8	6.9	6.9	2.2	2.7	2.0	1.2	1.1	1.1	1.1	1.2	1.3	1.3	1.4	1.5	1.3	1.2	1.2	5.4	7.7	3.1	8.7				
29-Dec	8.6	4.9	2.2	Z	3.1	2.8	2.2	1.5	1.6	1.8	1.6	1.2	0.8	0.6	0.5	0.5	0.7	0.8	0.4	0.5	0.2	0.4	0.3	0.1	1.6	8.6				
30-Dec	0.2	0.1	0.1	0.1	Z	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.1	0.4			
31-Dec	0.2	0.2	0.2	0.2	0.2	Z	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2	0.2	0.3			
																								Diurnal Average						
																								Diurnal Maximum						
Z - zerospan																								C - Calibration					PF - Power Failure	



Wood Buffalo Environmental Association
Hourly Averages

Nitrogen Oxides (NO_x) - ppb
Hangingsstone Expansion - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Hangingstone Expansion - December 2024**

Concentration Ranges (ppb)	Number of Hours	%	Cumulative %
0 - 20	697	98.87	98.87
21 - 40	8	1.13	100.00
41 - 80	0	0.00	100.00
81 - 159	0	0.00	100.00
> 159	0	0.00	100.00

Total Number of Valid Hours: 705

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Nitrogen Oxides (NO_x) - ppb
Hangingstone Expansion - December 2024**

Concentration Ranges (ppb)	Wind Direction																Totals
	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	
0 - 20	15	12	6	5	14	14	33	74	98	74	66	72	44	71	65	23	686
21 - 40	0	2	2	0	1	0	1	0	0	0	0	0	0	1	0	1	8
11 - 80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81 - 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	15	14	8	5	15	14	34	74	98	74	66	72	44	72	65	24	694

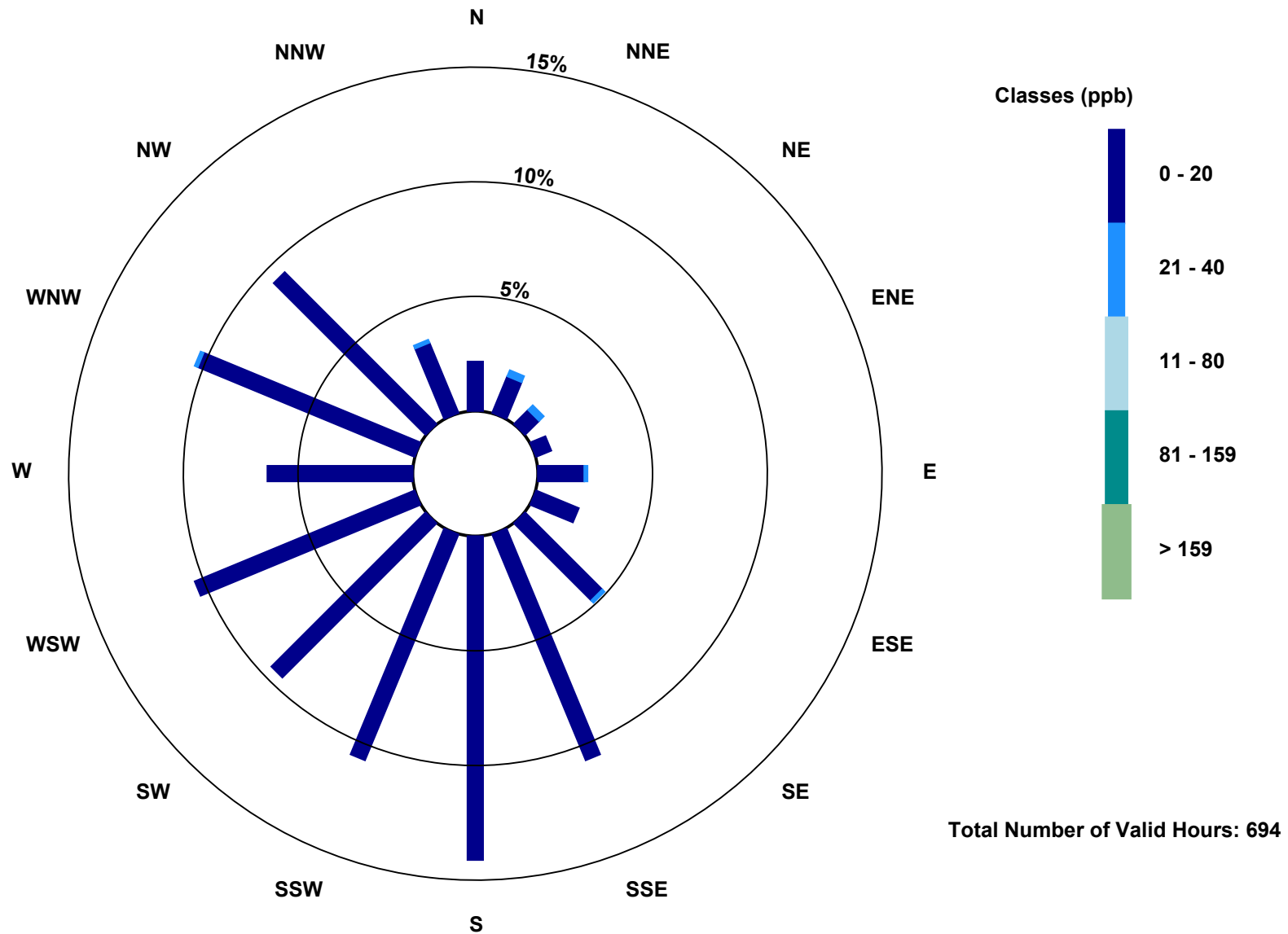
Total Number of Valid Hours: 694

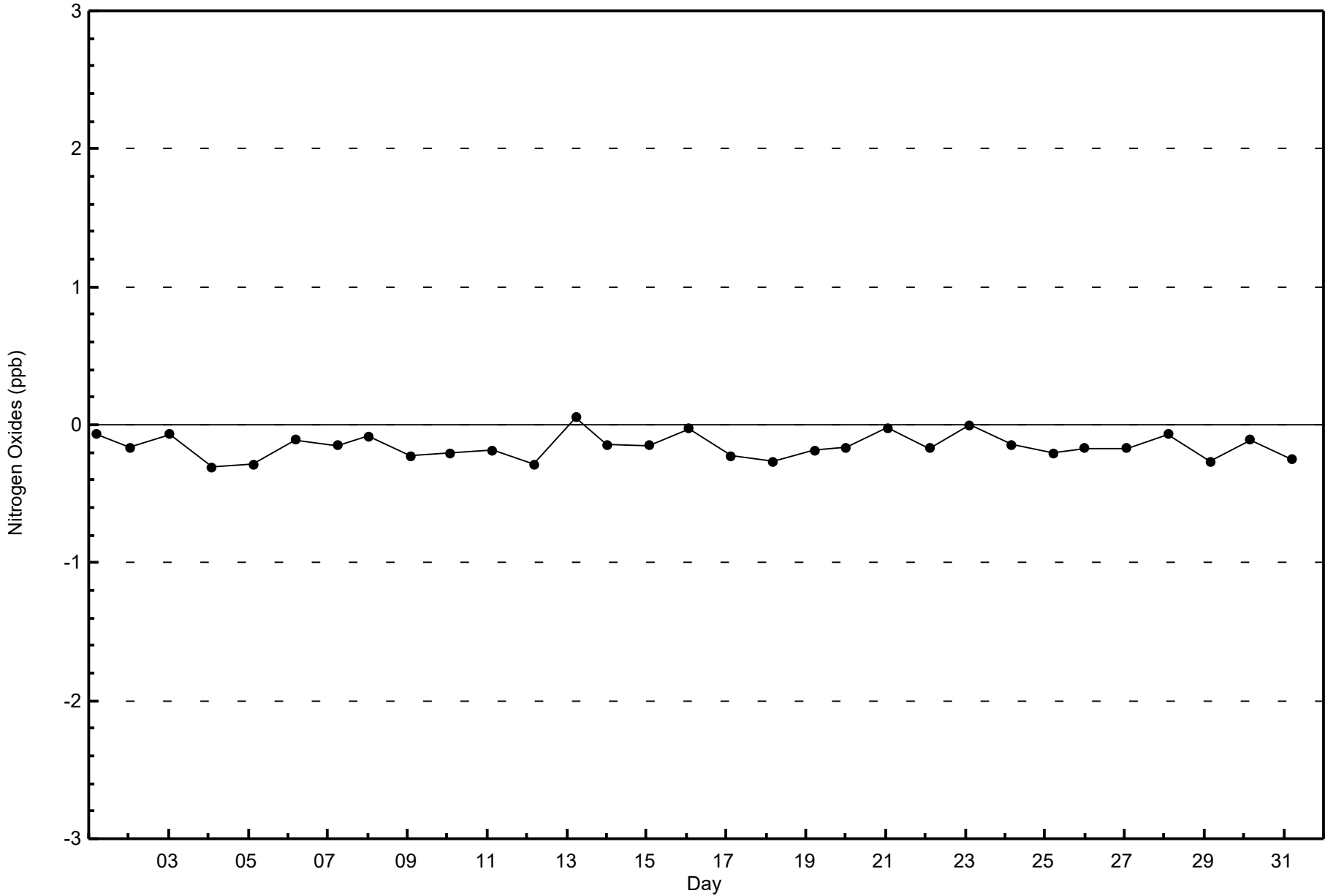
Total Number of Hours: 744

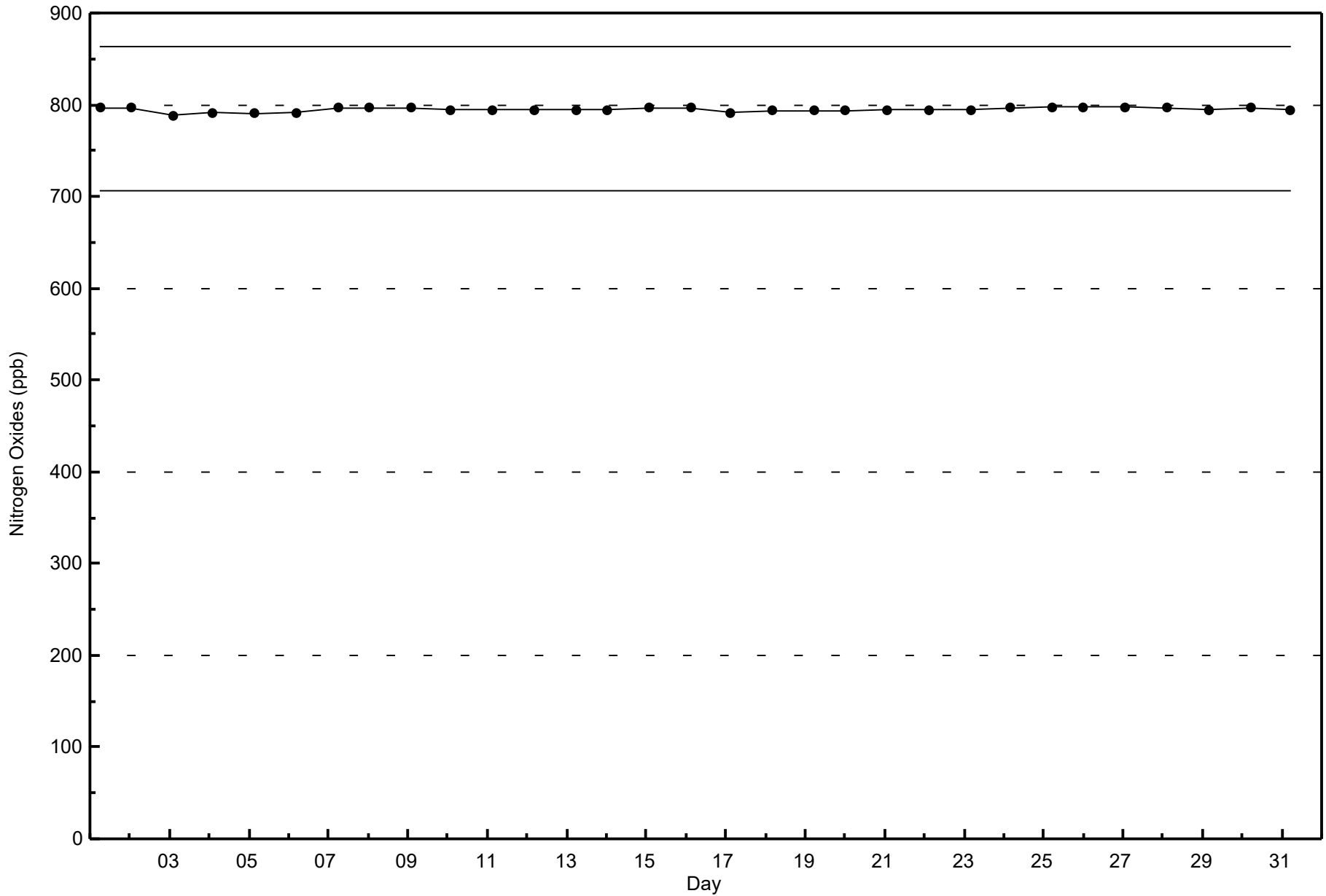


Wood Buffalo Environmental Association
Wind Rose Dec 2024

Nitrogen Oxides (NO_x) - ppb
Hangingstone Expansion







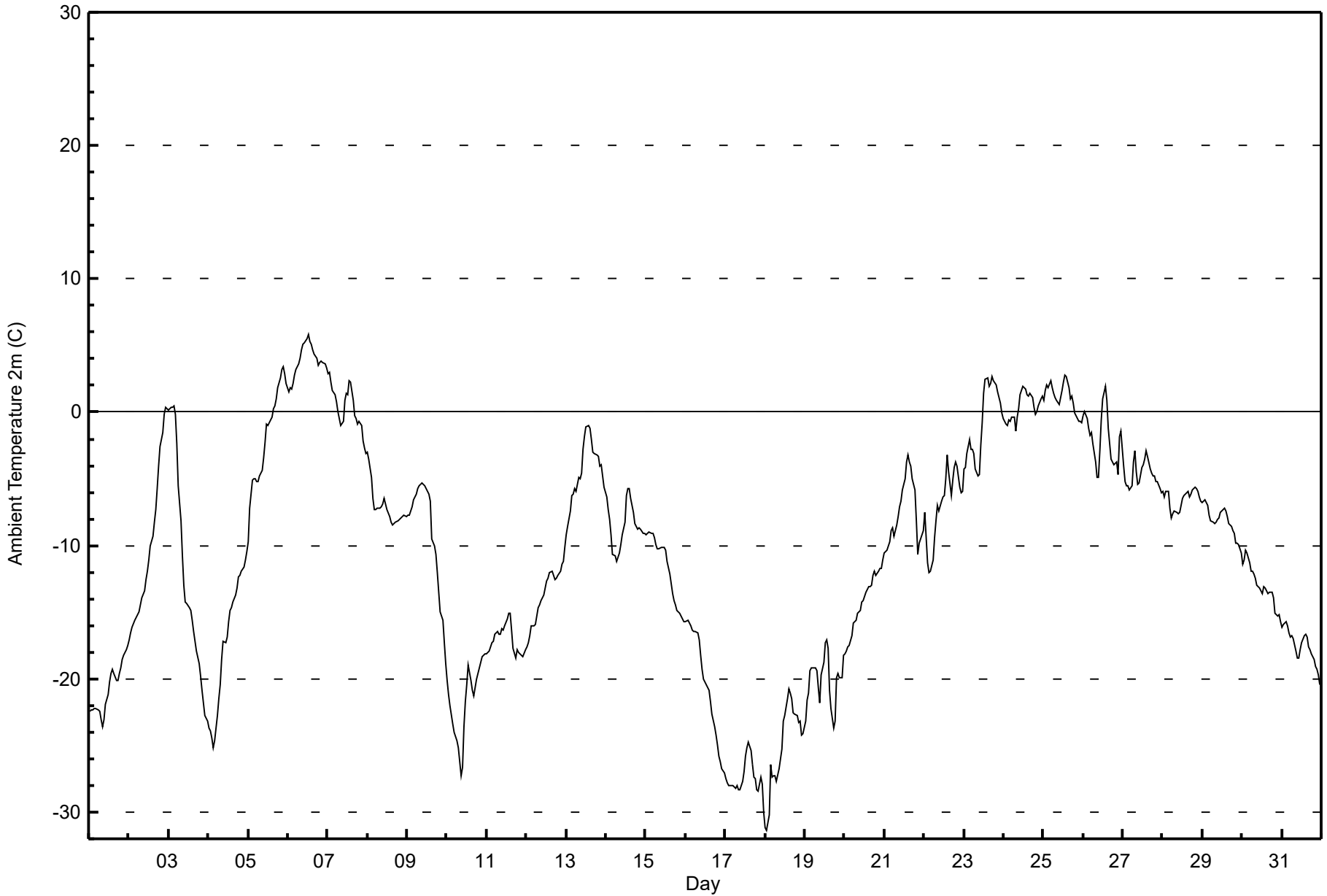


Maximum Value: 5.8 C on Dec 6 13:00 Maximum Daily Average: 3.8 C on Dec 6																								Hours in Service:	744	
Minimum Value: -31.3 C on Dec 18 02:00 Minimum Daily Average: -27.5 C on Dec 17																								Hours of Data:	744	
Maximum Diurnal Average: -8.9 C at hour 14 Minimum Diurnal Average: -11.2 C at hour 9																								Hours of Missing Data:	0	
Monthly Average: -10.44 C Percentiles: P ₁ = -28.2 P ₁₀ = -22.4 Q ₁ = -17.2 Median = -9.3 Q ₃ = -4.0 P ₉₀ = 1.0 P ₉₉ = 4.5																								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-Dec	-22.4	-22.3	-22.3	-22.2	-22.2	-22.3	-22.4	-23.1	-23.5	-23.0	-21.9	-21.1	-20.3	-19.6	-19.3	-19.6	-20.1	-20.2	-19.6	-19.1	-18.6	-18.3	-17.9	-17.5	-20.8	-17.5
2-Dec	-17.1	-16.5	-16.2	-15.6	-15.4	-15.2	-15.0	-14.5	-14.0	-13.4	-12.6	-11.9	-11.1	-10.0	-9.3	-8.3	-7.3	-5.7	-4.1	-2.5	-1.5	-0.2	0.4	0.3	-9.9	0.4
3-Dec	0.2	0.4	0.4	0.5	-0.1	-2.4	-5.6	-8.2	-10.8	-13.0	-14.2	-14.4	-14.6	-14.9	-15.6	-16.4	-17.2	-17.9	-18.8	-19.8	-20.9	-21.8	-22.8	-23.1	-12.1	0.5
4-Dec	-23.7	-24.0	-24.5	-25.2	-24.6	-22.8	-21.5	-20.5	-18.6	-17.1	-17.3	-16.8	-15.7	-14.9	-14.6	-14.3	-13.7	-13.2	-12.3	-12.2	-12.0	-11.6	-11.1	-10.5	-17.2	-10.5
5-Dec	-9.7	-7.2	-5.1	-5.0	-5.0	-5.2	-5.2	-4.8	-4.4	-3.5	-2.2	-0.9	-1.0	-0.6	-0.3	0.2	0.5	1.0	1.8	2.6	3.2	3.4	2.9	2.1	-1.8	3.4
6-Dec	1.5	1.9	1.7	2.1	2.7	3.2	3.7	4.0	4.7	5.1	5.2	5.5	5.8	5.3	5.0	4.7	4.3	4.0	3.5	3.7	3.8	3.8	3.6	3.3	3.8	5.8
7-Dec	2.9	3.0	2.2	1.6	1.3	0.8	0.1	-0.5	-1.0	-0.6	0.9	1.5	1.4	2.3	2.3	0.8	-0.2	-0.4	-0.9	-0.7	-1.0	-2.2	-2.7	-3.1	0.3	3.0
8-Dec	-3.0	-3.5	-4.8	-6.5	-7.3	-7.3	-7.2	-7.2	-7.1	-6.8	-6.5	-6.9	-7.3	-7.8	-8.2	-8.4	-8.3	-8.2	-8.1	-8.1	-7.9	-7.9	-7.7	-7.8	-7.1	-3.0
9-Dec	-7.7	-7.7	-7.4	-7.1	-6.6	-6.1	-5.7	-5.5	-5.4	-5.3	-5.5	-5.7	-5.9	-6.2	-6.7	-9.5	-10.0	-10.6	-12.0	-13.5	-15.0	-15.6	-17.2	-18.9	-9.0	-5.3
10-Dec	-20.2	-21.2	-22.1	-23.4	-24.0	-24.3	-24.7	-25.2	-27.3	-26.7	-23.6	-21.7	-20.5	-19.0	-20.1	-20.9	-21.2	-20.6	-20.0	-19.2	-18.8	-18.3	-18.2	-18.1	-21.6	-18.1
11-Dec	-18.1	-17.9	-17.6	-17.3	-17.2	-16.7	-16.5	-16.7	-16.6	-16.3	-16.3	-16.0	-15.5	-15.1	-15.1	-16.3	-17.7	-18.4	-17.8	-18.0	-18.1	-18.2	-18.4	-17.8	-17.1	-15.1
12-Dec	-17.6	-17.3	-16.7	-16.0	-16.0	-15.9	-15.3	-14.6	-14.4	-14.1	-13.7	-13.2	-12.7	-12.4	-12.0	-12.0	-12.3	-12.5	-12.5	-12.3	-11.9	-11.4	-11.2	-10.1	-13.7	-10.1
13-Dec	-9.2	-8.5	-7.4	-6.3	-6.2	-5.8	-5.9	-4.9	-5.0	-4.6	-2.8	-1.9	-1.1	-1.0	-1.2	-2.1	-3.0	-3.1	-3.2	-3.3	-4.0	-3.9	-4.8	-5.7	-4.4	-1.0
14-Dec	-6.3	-7.3	-8.0	-9.2	-10.7	-10.7	-11.2	-10.9	-10.6	-10.0	-9.2	-8.3	-6.2	-5.7	-5.7	-6.5	-7.5	-8.4	-8.6	-8.8	-8.7	-8.8	-9.1	-9.1	-8.6	-5.7
15-Dec	-9.2	-9.1	-9.0	-9.1	-9.1	-9.4	-10.0	-10.2	-10.2	-10.1	-10.2	-10.2	-10.4	-11.2	-12.1	-12.8	-13.6	-14.1	-14.5	-14.9	-15.1	-15.3	-15.5	-15.7	-11.7	-9.0
16-Dec	-15.7	-15.6	-15.8	-16.0	-16.3	-16.4	-16.5	-16.6	-17.0	-18.2	-19.3	-20.0	-20.5	-20.6	-20.9	-21.7	-22.7	-23.6	-24.3	-24.9	-25.8	-26.2	-26.7	-27.1	-20.3	-15.6
17-Dec	-27.4	-27.8	-28.0	-28.0	-28.0	-28.1	-28.2	-28.0	-28.3	-28.3	-27.7	-27.0	-25.8	-25.2	-24.7	-25.4	-26.4	-27.3	-27.5	-28.3	-28.4	-27.4	-27.9	-30.0	-27.5	-24.7
18-Dec	-31.1	-31.3	-30.2	-26.5	-27.4	-27.2	-27.2	-27.7	-26.8	-26.1	-25.3	-23.2	-22.8	-21.5	-20.8	-21.1	-21.5	-22.5	-22.7	-22.7	-23.3	-23.1	-24.2	-24.1	-25.0	-20.8
19-Dec	-23.2	-21.6	-21.1	-19.4	-19.2	-19.2	-19.2	-19.4	-20.6	-21.8	-19.7	-18.8	-17.3	-17.1	-17.7	-20.9	-22.3	-23.7	-23.2	-19.9	-19.6	-19.9	-19.9	-18.3	-20.1	-17.1
20-Dec	-18.1	-18.0	-17.6	-17.5	-16.8	-15.8	-15.7	-15.6	-15.1	-14.8	-14.3	-14.1	-13.8	-13.5	-13.1	-13.0	-13.0	-12.3	-11.9	-12.2	-11.9	-11.7	-11.7	-11.1	-14.3	-11.1
21-Dec	-10.5	-10.3	-10.1	-9.7	-8.9	-8.6	-9.3	-8.5	-7.8	-7.1	-6.7	-5.8	-5.0	-3.7	-3.2	-3.7	-4.0	-5.0	-5.8	-8.1	-10.7	-9.8	-9.5	-8.9	-7.5	-3.2
22-Dec	-7.6	-9.4	-11.3	-12.1	-11.9	-11.1	-9.4	-8.2	-7.0	-7.4	-6.7	-6.4	-6.3	-5.0	-3.3	-4.5	-6.3	-5.1	-4.2	-3.7	-4.0	-5.6	-6.1	-6.0	-7.0	-3.3
23-Dec	-4.3	-4.1	-3.1	-2.1	-2.7	-2.7	-3.1	-4.2	-4.8	-4.6	-2.5	-0.7	1.4	2.5	2.6	1.9	2.1	2.7	2.4	2.0	1.6	1.1	0.6	0.0	-0.8	2.7
24-Dec	-0.5	-0.9	-0.9	-0.6	-0.7	-0.4	-0.4	-1.4	-0.4	0.3	1.3	1.9	1.8	1.8	1.3	1.4	1.1	0.4	-0.1	0.1	0.5	1.0	1.2	0.4	1.9	
25-Dec	0.9	1.6	2.0	1.8	2.4	1.8	1.4	1.1	0.9	0.5	1.1	1.6	2.2	2.8	2.7	1.8	1.0	1.2	0.6	-0.1	-0.5	-0.7	-0.8	1.1	2.8	
26-Dec	-0.3	0.0	-0.4	-1.2	-1.8	-1.5	-2.4	-3.7	-4.8	-4.9	-2.9	-0.5	1.0	1.9	0.8	-1.2	-2.3	-3.5	-4.0	-3.9	-3.7	-4.7	-1.8	-1.4	-2.0	1.9
27-Dec	-4.1	-5.2	-5.6	-5.5	-5.8	-5.6	-3.7	-2.9	-4.5	-5.4	-5.3	-4.2	-4.0	-3.6	-2.8	-3.3	-4.3	-4.6	-4.8	-4.8	-5.2	-5.2	-5.8	-6.1	-4.7	-2.8
28-Dec	-6.0	-6.4	-5.9	-5.9	-7.2	-7.9	-7.6	-7.4	-7.5	-7.6	-7.5	-7.0	-6.4	-6.3	-6.0	-5.9	-6.4	-6.2	-5.9	-5.6	-5.8	-5.9	-6.4	-6.7	-6.6	-5.6
29-Dec	-6.8	-6.5	-6.7	-7.0	-7.8	-8.1	-8.2	-8.4	-8.2	-8.1	-7.9	-7.6	-7.3	-7.2	-7.4	-7.8	-8.3	-8.6	-8.8	-9.1	-9.9	-9.8	-9.9	-10.6	-8.2	-6.5
30-Dec	-11.4	-11.1	-10.4	-10.6	-11.3	-11.9	-12.0	-12.1	-12.4	-12.9	-13.2	-13.4	-13.6	-13.0	-13.2	-13.6	-13.5	-13.5	-13.5	-13.9	-15.0	-15.3	-15.2	-15.7	-13.0	-10.4
31-Dec	-16.1	-15.9	-15.7	-16.1	-16.5	-16.9	-16.8	-17.0	-18.0	-18.5	-18.4	-17.8	-17.2	-16.8	-16.7	-16.9	-17.6	-17.8	-18.2	-18.5	-19.0	-19.3	-19.7	-20.4	-17.6	-15.7
																								Diurnal Average		
																								Diurnal Maximum		



Wood Buffalo Environmental Association
Hourly Averages

Ambient Temperature 2m (AT2) - C
Hangingsstone Expansion - December 2024





**Wood Buffalo Environmental Association
Cumulative Frequency Distribution**

**Ambient Temperature 2m (AT2) - C
Hangingstone Expansion - December 2024**

Concentration Ranges (C)	Number of Hours	%	Cumulative %
-50 - -20	115	15.46	15.46
-20 - 0	529	71.10	86.56
0 - 10	100	13.44	100.00
10 - 20	0	0.00	100.00
> 20	0	0.00	100.00

Total Number of Valid Hours: 744

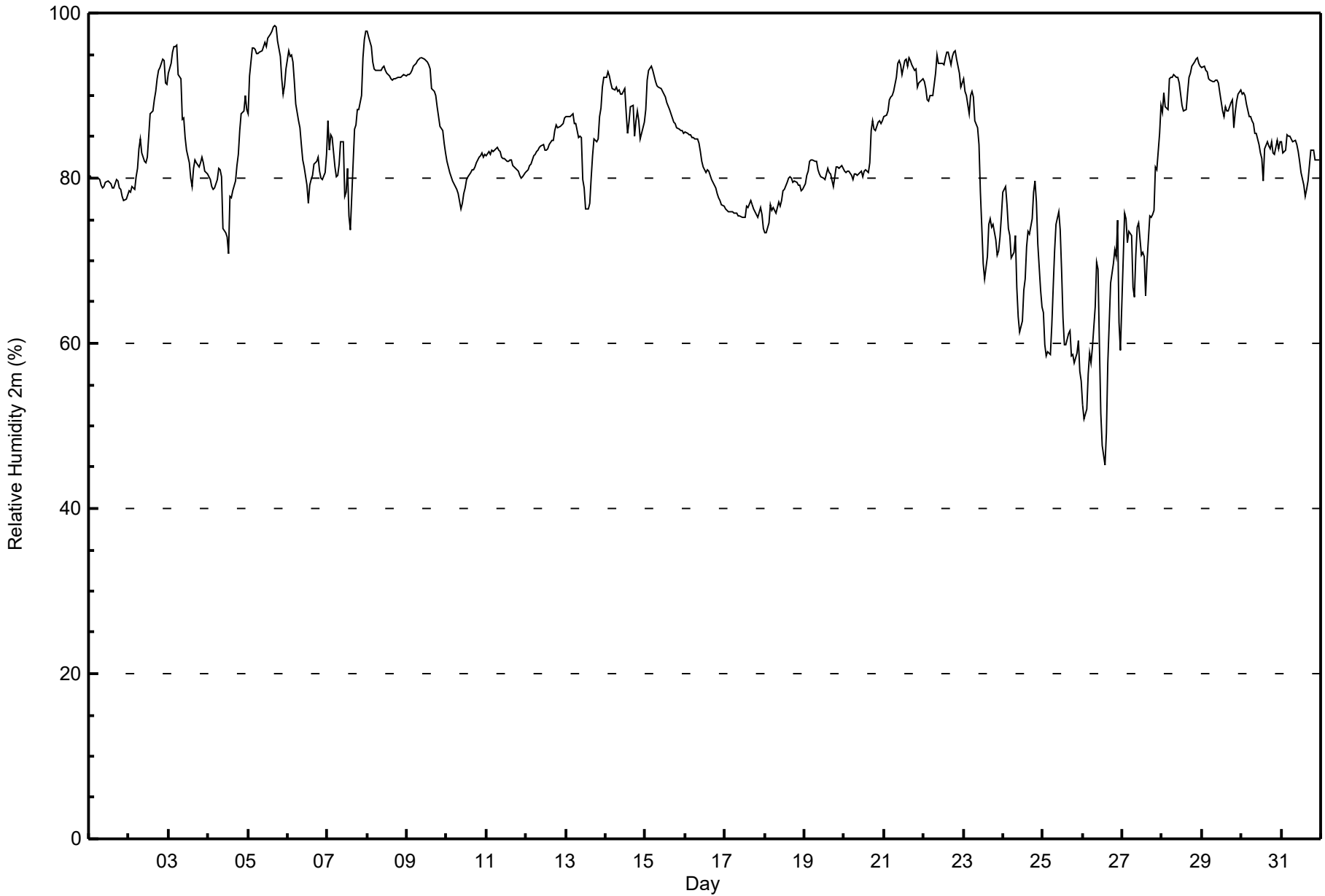
Total Number of Hours: 744



Wood Buffalo Environmental Association
Summary of Hour Averages

Relative Humidity 2m (RH2) - %
Hangingsstone Expansion - December 2024

Maximum Value: 98.5 % on Dec 5 17:00																						Maximum Daily Average: 95.1 % on Dec 5																						Hours in Service: 744			
Minimum Value: 45.3 % on Dec 26 14:00																						Minimum Daily Average: 60.0 % on Dec 26																						Hours of Data: 744			
Maximum Diurnal Average: 83.9 % at hour 9																						Minimum Diurnal Average: 80.4 % at hour 14																						Hours of Missing Data: 0			
Monthly Average: 82.93 %																						Percentiles: P ₁ = 55.7 P ₁₀ = 72.9 Q ₁ = 78.9 Median = 83.1 Q ₃ = 90.2 P ₉₀ = 93.5 P ₉₉ = 97.0																						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-Dec	80.3	80.0	80.0	80.0	80.0	80.0	79.8	79.1	78.8	79.0	79.4	79.7	79.4	79.3	78.9	78.7	79.9	79.7	78.9	78.6	77.8	77.3	77.5	77.9	79.2	80.3																					
2-Dec	78.5	78.4	78.9	78.6	80.2	81.1	83.6	84.8	83.1	82.0	81.9	82.5	85.1	87.7	88.1	89.6	90.6	92.1	93.0	93.4	94.5	94.3	91.5	91.4	86.0	94.5																					
3-Dec	92.8	93.9	95.2	95.9	96.0	96.1	92.6	92.0	87.1	87.4	84.9	83.3	81.9	80.0	79.0	81.2	82.2	81.8	81.4	81.8	82.5	81.8	80.9	80.5	86.3	96.1																					
4-Dec	80.1	79.9	79.0	78.6	78.8	79.9	81.2	81.0	80.1	73.9	73.4	72.9	70.8	77.8	77.6	78.6	79.6	81.5	82.9	85.8	87.9	88.1	89.9	88.3	80.3	89.9																					
5-Dec	87.8	92.4	95.8	95.8	95.5	95.0	95.0	95.3	95.5	96.0	96.4	95.9	97.0	97.5	97.8	98.3	98.5	98.2	96.6	94.7	92.0	90.2	91.2	93.3	95.1	98.5																					
6-Dec	95.5	94.7	95.0	94.0	91.6	89.0	87.0	86.0	84.1	82.3	81.3	79.2	76.9	79.1	79.9	80.4	81.6	82.0	82.6	80.9	80.1	79.8	80.7	82.8	84.4	95.5																					
7-Dec	87.0	83.4	85.3	84.9	81.3	80.1	80.3	81.6	84.4	84.5	77.8	78.2	81.1	75.4	73.8	81.9	85.9	86.4	88.3	88.3	90.0	94.6	96.8	97.8	84.5	97.8																					
8-Dec	97.8	97.0	95.9	94.0	93.2	93.1	93.1	93.1	93.1	93.3	93.6	93.1	92.7	92.3	92.0	91.9	92.0	92.0	92.1	92.2	92.3	92.3	92.5	92.4	93.2	97.8																					
9-Dec	92.5	92.5	92.7	93.1	93.5	93.9	94.3	94.4	94.6	94.7	94.4	94.2	94.0	93.7	93.2	90.8	90.5	89.9	88.7	87.5	86.2	85.8	84.3	83.1	91.3	94.7																					
10-Dec	82.1	81.3	80.7	79.6	79.3	78.9	78.7	78.2	76.4	77.0	78.2	78.8	79.9	80.2	80.7	81.1	81.0	81.4	81.9	82.5	82.8	83.0	82.5	82.8	80.4	83.0																					
11-Dec	82.7	83.3	82.9	83.4	83.3	83.4	83.8	83.4	83.2	82.5	82.3	82.4	82.0	82.1	82.2	82.2	81.5	81.2	81.1	80.9	80.3	80.0	80.1	80.7	82.1	83.8																					
12-Dec	80.9	81.0	81.5	81.6	82.7	82.9	83.1	83.5	83.7	83.9	84.1	83.4	83.3	83.6	84.0	84.6	84.5	85.7	86.4	86.1	86.4	86.5	86.7	87.3	84.1	87.3																					
13-Dec	87.4	87.5	87.5	87.6	87.7	86.6	86.5	84.9	85.1	84.9	79.8	78.9	76.2	76.3	77.0	80.0	82.7	84.7	84.4	84.7	87.5	88.5	91.0	92.3	84.6	92.3																					
14-Dec	92.3	92.9	92.3	91.5	90.8	90.8	91.1	90.5	90.7	90.2	90.1	90.9	88.0	85.4	86.7	88.6	88.9	85.1	86.9	88.2	86.9	84.8	86.1	86.8	89.0	92.9																					
15-Dec	88.2	91.9	93.0	93.6	93.0	92.3	91.6	91.1	90.9	90.9	90.5	90.2	89.8	89.1	88.4	87.9	87.3	86.9	86.5	86.2	86.0	85.8	85.7	85.5	89.3	93.6																					
16-Dec	85.5	85.5	85.3	85.2	84.9	84.8	84.8	84.8	84.3	83.2	82.0	81.4	80.8	81.0	80.9	80.4	79.8	79.1	78.7	78.1	77.6	77.2	76.8	76.5	81.6	85.5																					
17-Dec	76.3	76.0	75.9	75.9	75.9	75.7	75.7	75.8	75.4	75.4	75.2	75.3	75.3	76.6	76.5	77.2	76.7	76.2	76.0	75.6	75.2	76.4	75.5	73.9	75.8	77.2																					
18-Dec	73.4	73.4	74.5	76.8	76.1	76.4	76.1	75.8	77.1	76.6	77.3	78.5	78.7	79.4	79.9	80.1	80.1	79.4	79.6	79.5	79.1	79.1	78.5	78.6	77.7	80.1																					
19-Dec	79.3	80.3	80.9	82.0	82.2	82.3	82.1	82.1	81.0	80.5	80.2	80.1	79.9	80.5	81.1	80.6	80.5	79.0	80.2	81.3	81.4	81.1	81.6	81.2	80.9	82.3																					
20-Dec	80.9	80.7	80.9	80.8	80.4	79.9	80.5	80.5	80.4	80.8	80.8	80.2	80.8	81.0	80.7	81.8	85.7	87.0	86.0	85.7	86.8	87.0	86.6	87.0	82.6	87.0																					
21-Dec	87.4	87.7	88.1	89.6	89.9	90.0	90.6	92.3	93.9	94.3	93.7	92.5	94.2	94.3	93.6	94.6	94.2	93.8	93.1	93.2	90.9	91.5	91.6	92.0	92.0	94.6																					
22-Dec	91.7	90.8	89.5	89.4	90.1	89.9	91.4	92.7	95.0	93.9	94.0	93.9	93.8	94.6	95.2	95.2	93.7	94.7	95.2	95.4	94.5	92.7	91.0	91.5	92.9	95.4																					
23-Dec	92.0	90.5	90.0	87.8	89.9	90.4	89.9	87.0	86.2	84.1	78.3	74.0	69.7	67.8	70.5	74.5	75.1	74.0	74.4	72.5	70.7	71.1	72.8	75.4	79.5	92.0																					
24-Dec	78.2	78.9	76.8	73.9	73.0	70.3	71.1	73.0	66.7	63.1	61.4	62.7	66.4	67.8	71.8	73.6	73.3	75.1	78.3	79.7	77.1	72.0	66.5	64.5	71.5	79.7																					
25-Dec	63.7	59.8	58.4	58.9	58.7	62.2	66.8	71.1	74.3	76.0	73.8	68.8	63.1	59.9	59.8	61.2	61.5	58.5	58.6	57.6	58.8	60.3	56.5	55.3	62.7	76.0																					
26-Dec	52.6	50.8	52.0	56.3	58.8	57.7	59.5	64.4	69.9	69.0	59.8	51.6	47.6	45.3	49.1	57.6	62.4	67.4	69.6	71.3	70.4	74.9	62.5	59.2	60.0	74.9																					
27-Dec	70.1	75.7	75.1	72.2	73.5	73.1	66.8	65.6	70.7	74.1	74.6	70.6	71.0	70.5	65.8	69.9	75.4	75.2	75.5	76.2	81.3	81.1	85.4	88.8	74.1	88.8																					
28-Dec	88.0	90.4	88.6	88.4	92.1	92.2	92.2	92.6	92.3	92.2	91.5	90.2	88.8	88.1	88.3	90.3	92.2	92.8	93.6	94.1	94.5	94.5	93.9	93.6	91.5	94.5																					
29-Dec	93.4	93.5	93.1	92.9	92.0	91.8	91.7	91.7	91.9	91.9	91.5	90.4	88.2	87.5	88.6	88.1	88.2	89.2	89.4	86.2	88.0	89.4	90.2	90.6	90.4	93.5																					
30-Dec	90.2	90.3	90.0	88.9	87.5	87.4	87.0	86.7	85.4	85.5	84.1	83.0	82.4	79.6	83.5	84.5	84.0	83.5	84.3	83.0	82.9	84.6	83.6	84.3	85.3	90.3																					
31-Dec	84.4	83.0	83.5	85.3	85.0	85.0	84.7	84.4	84.5	84.1	83.2	82.1	80.7	79.1	77.8	78.7	79.6	81.5	83.4	83.3	82.2	82.3	82.3	82.1	82.6	85.3																					
																						83.7	83.8	83.8	83.8	83.8	83.6	83.6	83.8	83.9	83.4	82.2	81.3	80.6	80.4	80.7	82.1	82.9	83.1	83.5	83.4	83.4	83.5	83.0	83.1	Diurnal Average	
																						97.8	97.0	95.9	95.9	96.0	96.1	95.0	95.3	95.5	96.0	96.4	95.9	97.0	97.5	97.8	98.3	98.5	98.2	96.6	95.4	94.5	94.6	96.8	97.8	Diurnal Maximum	





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Relative Humidity 2m (RH2) - %
Hangingstone Expansion - December 2024

Concentration Ranges (%)	Number of Hours	%	Cumulative %
0 - 20	0	0.00	0.00
20 - 40	0	0.00	0.00
40 - 60	26	3.49	3.49
60 - 80	207	27.82	31.32
80 - 100	511	68.68	100.00

Total Number of Valid Hours: 744

Total Number of Hours: 744



Maximum Speed: 25 km/h on Dec 24 14:00	Maximum Daily Speed Average: 14.7 km/h on Dec 24	Hours in Service: 744
Minimum Speed Value: 0 km/h on Dec 18 11:00	Minimum Daily Speed Average: 1.2 km/h on Dec 10	Hours of Data: 732
Maximum Diurnal Speed Average: 5.0 km/h at hour 1	Minimum Diurnal Speed Average: 3.5 km/h at hour 17	Hours of Missing Data: 12
Monthly Average Velocity: 4.4 km/h 226.6 deg	Percentiles: P ₁ = 1 P ₁₀ = 3 Q ₁ = 6 Median = 8 Q ₃ = 12 P ₉₀ = 15 P ₉₉ = 21	Percent Operational Time: 98.4

Day	Hourly Period Ending At (MST)																								Daily Average	Daily Maximum	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24			
1-Dec	WNW5	NW6	NW5	NW4	NNW5	NW4	NNW3	NNE4	NNW2	E1	W1	N2	NE2	ENE1	ESE2	SE5	SE4	SE7	SSE11	SSE10	SSE13	SSE13	S11	S11	SSE2.0	SSE13	
2-Dec	S12	S13	S11	S13	S11	S9	S7	S6	S7	S8	SSW8	SSW7	S8	S7	S5	SSW7	SSW7	SSW9	SSW11	SSW11	SSW11	SW11	WSW13	WSW15	SSW8.9	WSW15	
3-Dec	WSW14	W15	W14	WNW18	NW20	NNW19	NNW21	NNW24	NW21	NW22	NW22	NW20	NW20	NW17	NW17	NW14	NW12	NW14	NW13	NNW11	NNW8	WNW6	W6	W6	NW14.5	NNW24	
4-Dec	WSW6	W6	WS5	SSW6	SSE4	SE6	SE4	SE7	SSE8	SSE8	SSE11	SSE14	S14	S16	S16	S18	S18	S18	SSW15	SSW15	SSW14	SSW15	SSW14	SSW14	S10.1	S18	
5-Dec	SSW13	SSW13	SW16	SW15	WSW13	SW12	SW13	SW12	SW12	SSW12	SSW10	SW9	SW9	WSW9	SW10	SW12	SW8	SSW7	SSW9	SW11	SW11	WSW13	WSW13	WSW12	SW11.2	SW16	
6-Dec	SW11	SW10	SW9	SW11	SW12	WSW14	WSW15	WSW15	WSW15	WSW16	WSW16	WSW16	W17	W14	W13	WSW13	WSW11	SW10	SW12	SW11	SW12	WSW14	WSW13	WSW13	WSW12.5	W17	
7-Dec	WSW12	WSW14	WSW13	WSW13	SW11	SW12	SW9	SSW9	SW10	SSW11	SW9	SSW9	SSW10	SSW10	SSW8	WSW7	SSW10	SSW9	SW8	WSW8	W6	WNW5	N7	NNE8	SW7.9	WSW14	
8-Dec	NE11	NNE11	N9	N7	N7	NNW7	NW6	WNW6	NW5	NW5	NNW6	N5	N7	N7	N7	NNW6	NW7	NW6	NW5	UO	UO	UO	UO	UO	NNW6.2	NNE11	
9-Dec	UO	UO	UO	UO	UO	UO	WSW6	WSW5	W4	WNW7	NW7	NW8	NW8	NW9	NNW8	NNE11	N7	NNE9	N10	NNE9	N9	N8	NNW6	NW6	NNW6.1	NNE11	
10-Dec	NW6	NW5	NW4	NW3	W5	W4	W4	WSW4	SW4	SSW4	SW3	WSW3	WNW2	E2	ESE3	W2	ESE3	ESE4	SSE1	SE2	SSE3	SSE3	SE5	SSE5	SW1.2	NW6	
11-Dec	SSE5	SSE3	SSE6	SSE4	SE5	SSE6	SSE5	SE6	SSE6	SSE7	SSE9	SSE7	SSE9	SSE7	SSE6	SSE6	SE7	SE9	SSE8	SSE8	SSE10	SSE7	SSE10	SSE10	SSE6.9	SSE10	
12-Dec	S8	S9	S11	S14	S12	S10	S10	SSE10	S8	S10	S10	S11	S10	S11	S10	S11	S12	S13	S13	S13	S14	S15	S13	S12	S11.3	S15	
13-Dec	S11	S13	S15	SSW11	SSW13	SSW14	S12	SSW13	SSW10	SSW10	SSW12	SW12	SW11	WSW11	WSW10	WSW10	SW7	SSW7	SSW9	SW7	SSW6	SSW5	SSE5	SE4	SSW9.3	S15	
14-Dec	E5	E6	NE5	NE8	NE7	NNE8	NE8	NNE7	NE8	NE6	NNE6	NNE6	E9	E11	E10	E14	ENE12	E14	E13	E11	ESE1	SE6	E5	SE3	ENE7.0	E14	
15-Dec	S6	W5	NW8	NW11	NW9	NW9	NW10	NW9	NW7	NW7	NNW6	NNW7	NNW7	NW8	WNW8	NW8	WNW7	WNW8	WNW7	WNW7	WNW5	WNW7	WNW6	WNW6	NW6.7	NW11	
16-Dec	W5	W6	WNW7	W7	WNW8	W6	W7	WNW6	WNW10	WNW9	W9	W9	W8	W9	WNW10	WNW9	WNW9	WNW6	W6	W6	W7	W7	W7	W7	W7.4	WNW10	
17-Dec	W6	W6	WSW6	WSW7	WSW7	WSW8	WSW7	WSW7	WSW7	WSW6	WSW5	W5	WSW3	W4	W5	W4	SW3	SSW5	SSW4	S5	S5	SSW5	SSE4	SE6	WSW4.7	WSW8	
18-Dec	SE6	SSE4	SSE4	S5	SSE2	S4	SSE3	ESE1	SE4	UO	ENE0	E5	ESE6	ESE4	ESE4	ESE4	ENE4	N1	SE2	SSE3	W3	W1	SSE3	SSE4	SE2.6	ESE6	
19-Dec	SSE4	WSW1	SW1	WSW4	W4	W3	SSW3	WSW2	WSW2	SW3	SSW3	SW3	SSW1	WSW3	NW2	NNE1	SE5	SE5	SSE6	SSE8	S4	SSE6	SSE5	SSE9	S2.6	SSE9	
20-Dec	SSE10	SSE11	SSE10	SSE11	SSE10	SSE11	SSE10	SSE11	SSE13	SSE15	SSE14	S13	S14	SSW12	SSW13	SSW12	SSW8	SSW10	SW10	SW11	SW9	SW9	SW11	SW10	S10.0	SSE15	
21-Dec	SW10	SW9	SSW9	SSW6	SSW7	SSW5	SSW5	SSW8	SSW7	SSW6	SSW8	SW7	SW4	SSE2	WSW1	NNE2	E4	S8	SSE7	NNW5	ESE3	SE8	SE7	SSE8	S4.7	SW10	
22-Dec	SSE9	NW1	ESE1	NW2	SE4	SSE6	S7	S5	S3	SSE3	SSW3	SW4	SW5	S5	SW2	SSW3	S5	S7	S6	S8	S8	S8	S9	S9	S4.6	S9	
23-Dec	S8	S10	S11	S12	S14	S17	S13	S13	S12	S10	SSW13	SSW12	SSW13	SW14	WSW16	SW15	SW16	WSW17	WSW17	WSW21	WSW20	WSW18	WSW16	WSW16	SW12.7	WSW21	
24-Dec	SW15	SW15	SW13	SW12	SSW11	SSW10	S11	S12	S13	S16	S23	SSE21	SSE24	SSE25	S22	S18	S15	S15	S17	S16	S14	SSW12	SSW11	SSW11	S14.7	SSE25	
25-Dec	SSW12	SW14	SW13	SW13	SW16	WSW16	WSW18	WSW18	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	WSW16	S10	S13	S13	S13	SW13.1	WSW18	
26-Dec	S14	S17	SSE17	SSE14	S12	S12	S10	S10	S10	S7	S7	SSW7	WSW6	SW5	SSE7	SE8	SE9	SE9	SE9	SSE5	ESE1	SSE12	SSW3	S8.6	SSE17		
27-Dec	NE1	ENE4	SE8	SE9	SSE8	SE8	SE8	SE8	SW5	S3	SE5	ESE1	N3	E2	E2	NW4	W4	WSW4	SW3	S2	SE2	SW3	ESE2	SSW2	SSE2.4	SE9	
28-Dec	SSW3	E0	SW2	NNE3	NNE2	SW1	W2	WSW4	SW3	W5	WNW6	W5	WNW6	NW7	WNW7	W5	WSW6	W5	WSW6	WNW6	WNW7	NW7	NW7	NNW5	WNW3.8	NW7	
29-Dec	WNW6	WNW8	WNW8	WNW8	WNW9	WNW8	WNW8	WNW7	WNW6	W6	WNW8	WNW9	NW9	NW9	NW9	NW10	NNW11	NNW9	NNW8	NNW9	NNW9	NW6	WNW7	NW9	NW9	NW7.9	NNW11
30-Dec	WNW7	WNW9	WNW12	NW14	NW14	WNW13	WNW13	WNW14	WNW15	WNW13	NW16	NW17	WNW13	WNW16	WNW14	WNW13	WNW16	WNW15	WNW14	WNW17	NW14	NW10	NW13	NW13	WNW13.3	NW17	
31-Dec	NW12	NW12	NW11	NW10	WNW9	WNW9	WNW11	WNW11	NW8	WNW7	WNW7	WNW12	WNW13	WNW12	NW12	NW11	NW11	WNW10	WNW9	WNW9	NW9	NW8	WNW7	WNW6	WNW9.8	WNW13	

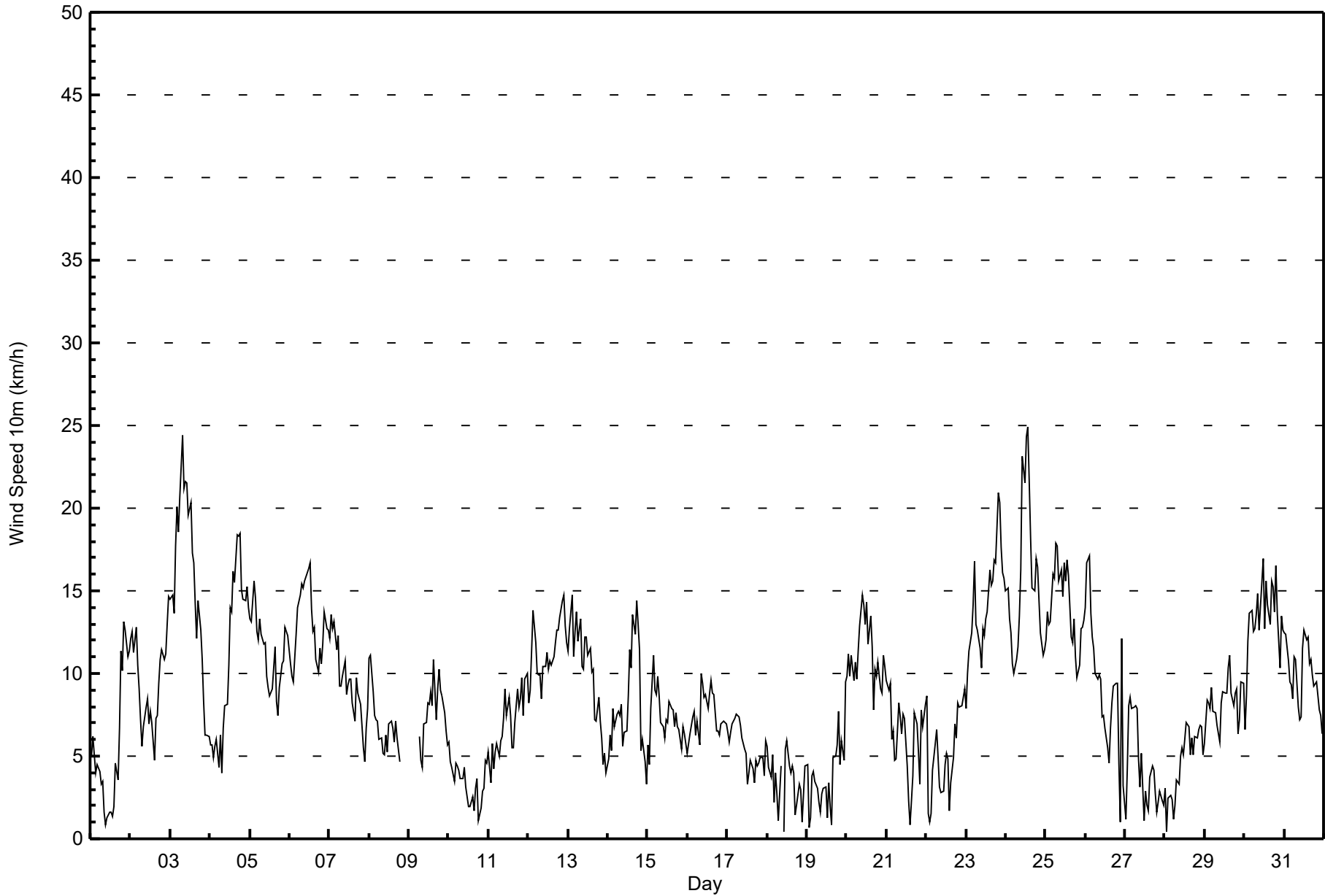
SW5.0 SW4.6 SW4.8 SW4.5 SW4.6 SW4.4 SW4.4 SW4.3 SW4.3 SW4.8 SW4.7	WSW4.6 WSW4.1 WSW4.2 WSW3.8 SW3.5 SW4.2 SSW4.6 SW4.7 SW4.7 SW5.0 SW5.0 SW4.9	Diurnal Average
SW15 S17 SSE17 WNW18 NW20 NNW19 NNW21 NNW24 NW21 NW22 SSE23 SSE21 SSE24 SSE25 S22 S18 S18 S18 S18	WSW21 WSW20 WSW18 WSW16 WSW16	Diurnal Maximum

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



Wood Buffalo Environmental Association
Hourly Averages

Wind Speed 10m (WS10) - km/h
Hangingsstone Expansion - December 2024





Wood Buffalo Environmental Association
Cumulative Frequency Distribution

Wind Speed 10m (WS10) - km/h
Hangingstone Expansion - December 2024

Wind Speed Ranges (km/h)	Number of Hours	%	Cumulative %
0 - 5	179	24.45	24.45
6 - 11	355	48.50	72.95
12 - 19	183	25.00	97.95
20 - 28	15	2.05	100.00
29 - 38	0	0.00	100.00
> 38	0	0.00	100.00

Total Number of Valid Hours: 732

Total Number of Hours: 744



**Wood Buffalo Environmental Association
Frequency Distribution**

**Wind Speed 10m (WS10) - km/h
Hangingstone Expansion - December 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	5	3	4	9	14	15	23	11	16	18	14	21	4	13	5	179
6 - 11	11	9	6	0	5	1	19	41	48	43	29	20	21	53	33	16	355
12 - 19	0	0	0	2	2	0	0	9	46	21	25	38	5	18	16	1	183
20 - 28	0	0	0	0	0	0	0	4	1	0	0	2	0	0	6	2	15
29 - 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
> 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	15	14	9	6	16	15	34	77	106	80	72	74	47	75	68	24	732

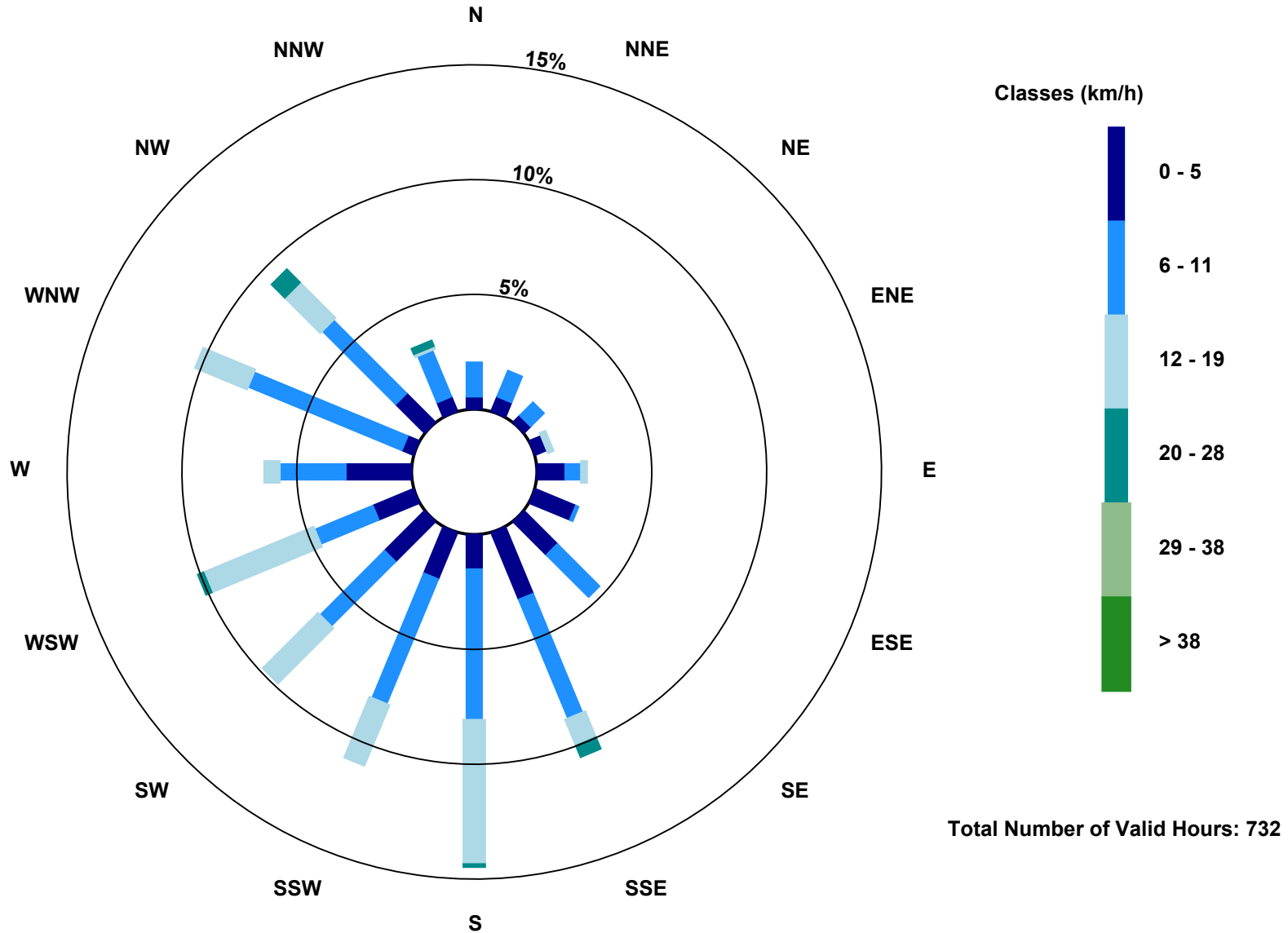
Total Number of Valid Hours: 732

Total Number of Hours: 744



Wood Buffalo Environmental Association
Wind Rose Dec 2024

Wind Speed 10m (WS10) - km/h
Hangingstone Expansion





Wood Buffalo Environmental Association
Summary of Hour Standard Deviations

Wind Speed 10m (WS10) - km/h
Hangingstone Expansion - December 2024

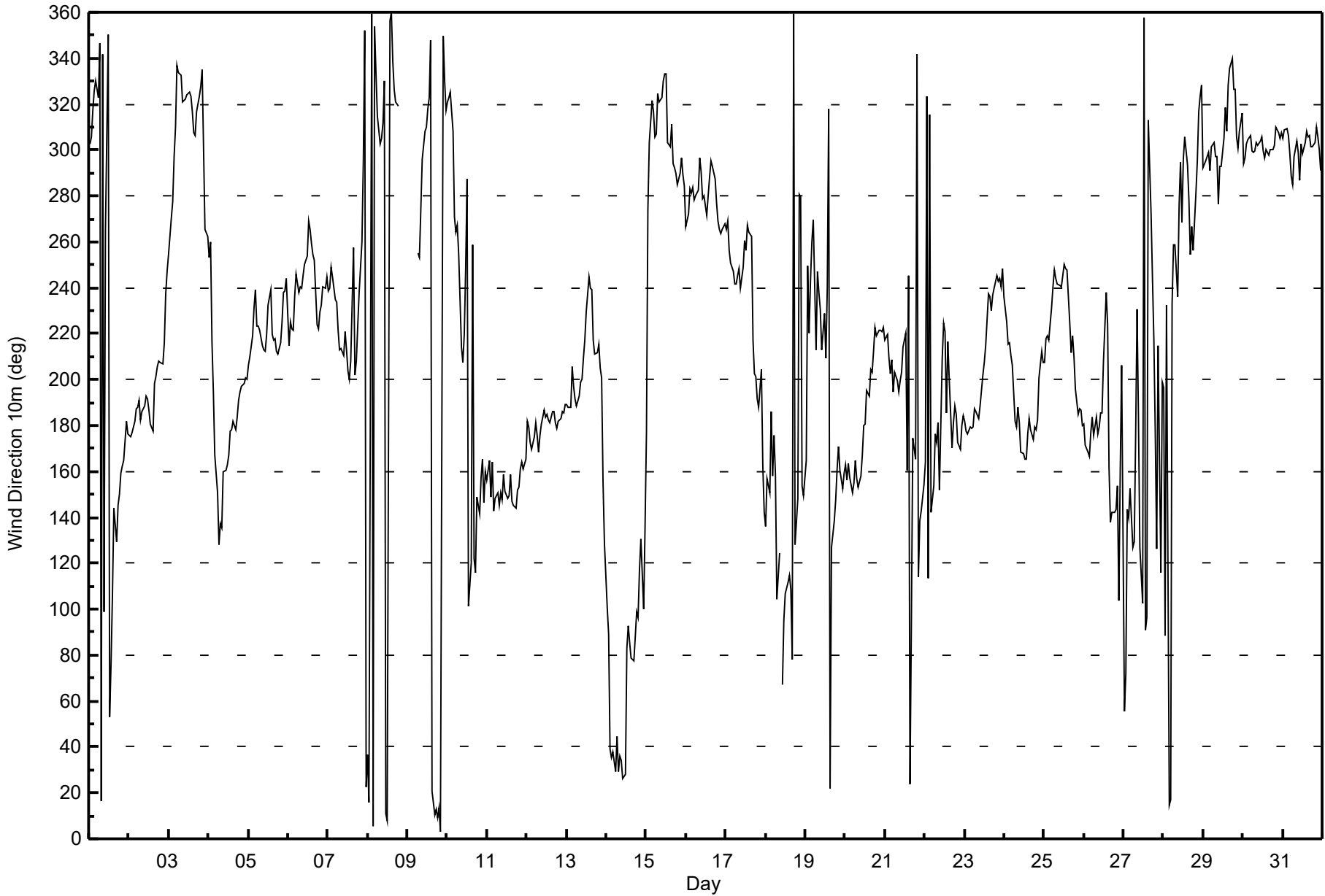
Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0 Maximum Value: 7 km/h on Dec 23 21:00 Minimum Value: 0 km/h on Dec 19 15:00 Percentiles: P ₁ = 1 P ₁₀ = 1 Q ₁ = 1 Median = 2 Q ₃ = 3 P ₉₀ = 4 P ₉₉ = 6																		Hours in Service: 744 Hours of Data: 732 Hours of Missing Data: 12 Hours of Calibration: 0 Percent Operational Time: 98.4							
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	2	3	4	4	4	3	4
2-Dec	3	3	3	3	3	2	2	1	2	2	3	2	2	2	2	2	2	3	3	4	3	3	4	4	4
3-Dec	4	4	3	5	5	4	5	6	5	5	5	5	4	4	3	3	3	3	2	2	1	1	1	1	
4-Dec	1	1	1	1	1	1	1	1	3	4	2	3	4	5	5	5	5	5	4	4	4	4	4	4	
5-Dec	4	4	5	5	4	4	4	4	3	3	3	3	3	3	3	3	3	2	3	3	3	4	4	4	
6-Dec	3	3	3	3	4	4	5	5	5	5	5	5	4	4	4	4	3	3	3	3	5	4	4	4	
7-Dec	4	4	4	4	4	4	3	3	3	3	3	3	2	2	3	2	2	2	3	2	2	1	2	2	
8-Dec	3	3	2	2	2	2	1	2	1	1	1	1	1	2	1	2	2	1	1	UO	UO	UO	UO	UO	
9-Dec	UO	UO	UO	UO	UO	UO	2	1	1	2	2	2	2	2	2	3	2	2	2	2	2	2	2	1	
10-Dec	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	
11-Dec	1	1	2	1	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	3	3	3	3	
12-Dec	3	3	5	4	4	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
13-Dec	3	3	4	4	3	3	3	3	2	2	3	4	3	3	3	4	3	2	2	2	1	1	1	1	
14-Dec	1	1	1	2	2	2	2	1	2	1	2	1	4	3	3	4	3	4	4	3	3	2	1	1	
15-Dec	1	2	1	3	3	2	2	2	1	2	1	2	2	2	2	2	1	2	2	2	1	1	2	2	
16-Dec	1	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2	2	2	3	
17-Dec	2	1	2	2	2	2	2	2	2	2	2	1	1	2	1	1	1	1	1	1	1	1	1	1	
18-Dec	1	1	2	2	1	2	2	1	2	UO	1	1	2	1	1	1	1	1	1	1	1	1	1	1	
19-Dec	1	2	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	2	2	2	2	2	2	
20-Dec	3	3	3	3	3	4	4	3	4	4	4	4	4	4	4	3	2	3	3	3	3	3	4	3	
21-Dec	3	2	3	1	1	2	2	2	1	1	2	2	2	2	1	1	1	2	2	1	1	1	1	1	
22-Dec	1	1	1	1	2	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1	2	
23-Dec	1	2	2	2	3	4	3	3	2	2	3	3	4	4	5	5	5	5	6	6	7	6	6	5	
24-Dec	5	5	4	4	3	3	2	2	4	5	6	6	6	6	6	4	3	3	4	3	3	4	3	3	
25-Dec	3	4	4	4	6	5	5	6	5	6	5	5	5	5	5	4	3	4	3	2	2	3	3	3	
26-Dec	3	4	4	3	3	3	2	2	2	1	2	2	3	3	2	1	1	1	0	1	2	2	2	3	
27-Dec	2	1	1	1	1	2	3	4	2	2	1	1	1	1	2	2	2	2	2	1	2	1	1	1	
28-Dec	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	2	1	1	1	1	
29-Dec	1	2	2	2	2	1	2	1	1	2	2	2	2	2	2	3	2	2	2	2	1	1	2	2	
30-Dec	1	1	3	3	3	3	3	3	4	4	4	4	3	4	3	4	3	4	3	4	4	2	3	3	
31-Dec	3	3	2	2	2	2	3	3	2	1	3	3	3	3	3	2	2	2	2	2	2	2	1	1	
Diurnal Maximum																									
UO - Unstable Operation																									



Wood Buffalo Environmental Association
Summary of Hour Averages

Wind Direction 10m (WD10) - deg
Hangingsstone Expansion - December 2024

Direction of Maximum Speed: 165 deg on Dec 24 14:00																				Hours in Service: 744					
Direction of Maximum Daily Speed Average: 186.9 deg on Dec 24																				Hours of Data: 732					
Direction of Minimum Speed: 67 deg on Dec 18 11:00										Direction of Minimum Daily Speed Average: 1.2 deg on Dec 10										Hours of Missing Data: 12					
Monthly Average Direction: 226.6 deg																				Percent Operational Time: 98.4					
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-Dec	303	306	317	326	330	323	346	17	342	99	265	350	53	76	106	144	129	145	150	159	162	165	182	177	168.2
2-Dec	176	175	177	182	187	188	191	182	186	189	193	192	187	180	177	198	201	206	208	207	207	216	238	247	197.3
3-Dec	255	270	278	297	310	337	334	332	321	322	322	324	325	323	317	308	306	316	324	328	335	301	265	262	313.7
4-Dec	253	260	217	195	167	151	128	137	135	160	160	163	167	177	178	182	178	184	191	194	191	198	201	200	183.4
5-Dec	206	210	219	231	239	223	224	221	215	213	212	220	232	239	220	217	218	212	211	216	225	238	238	244	223.0
6-Dec	215	225	222	222	236	246	238	240	240	245	250	254	269	266	259	254	252	224	222	229	232	241	240	245	241.9
7-Dec	239	240	249	244	235	234	222	213	214	211	221	213	204	200	208	258	202	208	224	238	260	295	352	23	229.6
8-Dec	37	16	360	5	354	334	315	303	305	312	330	11	8	356	360	339	326	321	319	UO	UO	UO	UO	UO	347.2
9-Dec	UO	UO	UO	UO	UO	UO	255	253	274	296	308	310	318	323	348	21	10	13	9	13	3	350	330	318	337.3
10-Dec	321	323	325	308	271	264	267	255	214	207	220	249	287	101	120	259	122	116	149	141	158	166	146	160	230.4
11-Dec	156	165	149	164	143	148	151	145	150	148	158	152	148	150	159	147	145	144	152	153	161	164	161	165	153.5
12-Dec	182	179	173	169	175	181	176	168	176	181	186	183	185	182	181	186	186	181	179	182	183	186	186	189	180.9
13-Dec	189	188	188	205	197	192	189	193	199	200	209	217	229	245	240	239	217	211	212	215	205	201	156	129	204.8
14-Dec	100	89	39	35	38	29	45	30	36	34	26	28	83	93	85	79	77	88	99	96	117	130	100	137	72.4
15-Dec	177	274	304	322	317	306	307	325	321	323	330	333	333	304	301	311	294	292	290	285	290	297	289	284	305.6
16-Dec	266	272	283	281	284	278	280	282	296	290	279	280	272	280	288	295	293	287	277	269	266	264	266	268	280.1
17-Dec	265	269	256	251	247	242	242	245	248	240	249	260	256	267	264	263	217	202	201	191	188	204	162	142	236.9
18-Dec	136	157	151	186	158	176	159	104	125	UO	67	95	107	112	115	109	78	359	128	148	281	280	154	150	133.7
19-Dec	165	250	220	243	260	270	213	247	238	231	213	229	209	241	318	22	127	139	148	161	171	161	152	159	185.3
20-Dec	163	156	163	157	151	155	165	157	153	158	167	180	181	195	193	205	203	213	223	219	222	222	221	222	183.4
21-Dec	217	219	209	203	209	195	203	199	194	199	203	214	220	160	245	24	94	175	165	342	114	139	143	154	190.3
22-Dec	164	324	113	315	142	154	176	173	181	152	209	225	221	186	217	200	170	181	188	185	173	170	180	184	180.5
23-Dec	182	177	176	179	179	179	188	186	183	189	195	202	208	215	238	236	230	237	240	245	243	244	240	248	214.8
24-Dec	236	225	215	216	211	206	182	179	188	181	169	168	165	165	176	183	178	174	180	178	183	201	213	208	186.9
25-Dec	207	218	219	217	231	240	248	244	242	241	240	245	250	248	248	225	212	219	210	196	185	187	186	180	225.8
26-Dec	181	171	168	166	177	184	176	183	176	179	186	186	207	238	224	162	138	142	142	144	154	104	160	206	172.3
27-Dec	55	72	143	140	153	127	129	176	231	183	127	103	358	91	96	313	272	244	217	176	126	215	116	199	153.4
28-Dec	197	88	232	15	17	233	259	258	236	276	295	268	296	306	293	278	255	267	257	282	296	316	324	328	285.8
29-Dec	292	296	297	299	291	302	303	297	297	277	293	293	305	319	308	328	336	340	327	327	306	301	308	316	307.7
30-Dec	294	296	303	304	306	300	299	300	303	302	304	306	300	297	300	298	300	300	300	302	310	308	305	308	302.1
31-Dec	305	308	309	307	298	288	285	297	304	299	287	303	299	303	308	306	306	302	302	303	310	306	300	291	301.6
213.8 225.6 223.0 229.8 232.3 228.3 230.5 232.0 229.7 227.3 230.1 237.2 236.4 238.9 243.4 242.0 222.4 215.4 213.5 217.6 217.6 221.6 218.9 219.5																									
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 10m (WD10) - deg
Hangingstone Expansion - December 2024

Number of Exceedences (AAAQO): 1-hr: 0 24-hr: 0																			Hours in Service: 744						
Maximum Value: 92 deg on Dec 26 22:00																			Hours of Data: 732						
Minimum Value: 6 deg on Dec 21 23:00																			Hours of Missing Data: 12						
Percentiles: P ₁ = 8 P ₁₀ = 13 Q ₁ = 15 Median = 19 Q ₃ = 24 P ₉₀ = 33 P ₉₉ = 79																			Hours of Calibration: 0						
																			Percent Operational Time: 98.4						
Day	Hourly Period Ending At (MST)																								Daily Maximum
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1-Dec	16	17	13	17	16	21	20	13	46	60	77	54	62	63	70	17	12	15	13	16	15	19	19	18	77
2-Dec	19	17	17	18	18	19	19	17	18	20	23	22	20	20	22	22	22	23	23	24	22	26	26	26	26
3-Dec	24	22	19	16	14	20	15	14	15	13	14	14	13	16	14	13	14	13	12	12	12	18	15	14	24
4-Dec	17	17	19	10	8	18	14	20	20	29	19	18	17	23	18	21	19	19	21	21	20	20	21	29	
5-Dec	22	24	24	27	26	25	25	24	24	21	23	26	27	26	27	24	26	22	23	25	24	26	27	28	28
6-Dec	23	24	26	25	27	26	25	25	26	25	23	25	22	23	22	25	23	25	25	27	26	26	25	24	27
7-Dec	26	25	23	23	26	24	26	23	23	20	25	23	22	21	41	40	19	23	25	24	24	23	24	15	41
8-Dec	18	17	17	19	21	24	16	18	16	15	19	16	17	17	17	15	14	13	UO	UO	UO	UO	UO	24	
9-Dec	UO	UO	UO	UO	UO	UO	24	22	19	19	14	15	14	14	33	15	16	18	17	16	17	18	16	13	33
10-Dec	13	13	12	11	13	11	12	13	13	10	21	29	47	59	32	50	19	18	70	39	26	32	19	21	70
11-Dec	19	22	19	27	24	24	19	18	19	19	16	17	16	15	20	15	14	14	14	16	16	24	16	22	27
12-Dec	30	22	23	18	27	23	19	20	22	22	22	20	19	19	19	19	18	17	18	16	17	17	18	19	30
13-Dec	18	17	17	32	18	18	19	16	17	20	24	26	25	24	24	27	29	16	17	21	21	24	11	24	32
14-Dec	39	26	28	15	17	14	13	12	9	16	12	14	32	17	20	16	16	16	16	40	19	18	41	41	
15-Dec	17	43	14	18	20	16	16	15	14	13	16	14	19	18	14	14	16	15	17	18	16	14	17	19	43
16-Dec	20	21	17	18	18	20	18	18	16	17	19	20	21	19	18	14	14	18	19	22	20	22	21	20	22
17-Dec	22	20	22	21	21	24	24	23	22	26	23	21	20	20	21	16	19	14	12	15	15	19	21	12	26
18-Dec	13	33	45	19	38	52	56	60	12	UO	87	14	14	21	21	19	25	73	58	38	38	73	32	12	87
19-Dec	19	86	59	25	25	25	27	30	47	21	33	40	79	34	46	63	15	6	12	14	20	17	29	15	86
20-Dec	15	14	18	15	19	18	24	21	18	17	18	21	19	24	20	22	25	26	26	25	26	26	29	25	29
21-Dec	22	21	21	17	19	27	26	16	15	20	18	25	39	53	86	50	40	20	23	28	54	7	6	7	86
22-Dec	6	56	78	80	45	14	10	18	27	41	35	31	27	26	59	37	15	13	20	13	12	10	13	15	80
23-Dec	14	13	13	14	15	15	17	15	15	16	18	21	24	24	25	25	25	25	25	24	24	24	25	24	25
24-Dec	27	24	24	24	22	22	18	17	17	17	16	16	14	15	17	14	15	15	14	16	22	21	22	22	27
25-Dec	21	25	24	25	26	27	23	25	25	25	26	24	24	23	23	27	23	24	23	18	14	16	16	16	27
26-Dec	16	16	15	16	21	15	16	15	12	11	16	16	25	28	27	11	10	6	6	10	50	92	9	59	92
27-Dec	87	30	11	7	12	19	30	41	45	45	13	79	34	61	78	37	23	29	28	75	33	41	46	40	87
28-Dec	22	90	34	43	55	36	42	18	22	22	16	22	18	20	15	20	20	20	21	20	13	18	11	13	90
29-Dec	16	15	14	14	15	14	13	15	14	20	16	16	16	14	15	14	14	14	13	13	13	12	13	12	20
30-Dec	14	12	13	14	14	15	14	15	13	14	14	15	14	15	14	13	14	15	14	13	13	13	13	12	15
31-Dec	13	13	14	12	12	14	16	14	13	14	21	14	15	14	15	14	13	13	13	13	12	12	12	13	21
87 90 78 80 55 52 56 60 47 60 87 79 79 63 86 63 40 73 70 75 54 92 46 59																									
Diurnal Maximum																									
UO - Unstable Operation																									

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

January 31, 2025
9:12:27 AM
Request # 4764426

Submitted by: EN6138
Submission Date: Jan 31, 2025 9:12:21 AM

File Type

Calibration Report

File Name

CAL-WBEA-202412.pdf

Total Number of Files: 1

*** End of Report ***

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

January 31, 2025
10:40:41 AM
Request # 4764508

Submitted by: EN6138
Submission Date: Jan 31, 2025 10:40:34 AM

File Type
Airshed Monitoring Report

File Name
WBEA-202412.pdf

Total Number of Files: 1

*** End of Report ***

**ELECTRONIC TRANSFER SYSTEM
AIRDATA
SUBMISSION REPORT**

January 31, 2025
11:32:54 AM
Request # 4764549

Submitted by: EN6138
Submission Date: Jan 31, 2025 11:31:48 AM

File Type
Ambient Data

File Name
AMB-WBEA-202412-V00.xml

Total Number of Files: 1

*** End of Report ***



End of Report