British Columbia
Oil & Gas Research and Innovation Society

Farmington Air Quality Monitoring Station Site Report

April 1, 2024 – March 31, 2025

PROJECT CONTACT INFORMATION

BC Oil & Gas Research Innovation Society
Fund Manager
PO Box 9331 Stn Prov Govt
Victoria, BC V8W 9N3
Office: (250) 220-1418
info@bcogris.ca

BC Oil & Gas Commission Contacts
Laurie Welch
Executive Director, Resource Development & Environment
Kelowna, BC
Office: (250) 980-6066
Laurie.Welch@bcogc.ca

Operational and Reporting Contacts
James Strain
Tropospheric Measurement Systems Inc.
7500 Hector Road, Port Alberni, BC V9Y 9E8
Office: 250-723-4027
Mobile: 250-731-4027
jstrain@tmsys.ca

AIR QUALITY REPORT SUMMARY

The following Air Quality Data summarizes the monitoring results from the Farmington Air Quality Monitoring Station (AQMS) near Farmington, BC for the period of April 1, 2024, until March 31, 2025. The Farmington AQMS has been in operation since December 2017. Parameters monitored include continuous monitoring for Ozone (O_3), Nitrogen Oxide (NO), Nitrogen Dioxide (NO_2), Total Oxides of Nitrogen (NO_x), Sulphur Dioxide (SO_2), and Total Reduced Sulphur (TRS). The recorded (RAW) data is available from the BC Air Data Archive under the station name "Farmington Community Hall". All recorded data has been validated by Tropospheric Measurement Systems Inc. (TMS). This report is based entirely on validated data.

Meteorological parameters for wind speed, direction, temperature, and humidity are also recorded at the Farmington AQMS and results are contained in the BC Ambient Air Quality Archive. This report does not include information for the meteorological parameters monitored.

For the Farmington AQMS Deployment, the following were the significant reporting and operational events for the monitoring stations.

Operational times less than 90 percent

- For the April 1st, 2024, to March 31st, 2025, monitoring period there were no operational times less than 90%. Capture percentages by instrument parameter are summarized below. Reported capture percentages for the previous periods (2018-2024) are included.

Parameter	TRS	SO_2	NO	NO_2	NO_x	O_3
Capture (%) (2024-2025)	98.1	98.2	97.3	97.3	97.3	98.2
Capture (%) (2023-2024)	95.4	97.3	99.2	99.2	99.2	97.5
Capture (%) (2022-2023)	94.5	98.8	99.0	99.0	99.0	99.1
Capture (%) (2021-2022)	92.6	93.4	93.6	93.6	93.6	93.6
Capture (%) (2020-2021)	92.9	95.1	95.1	95.1	95.1	95.1
Capture (%) (2019-2020)	92.1	94.1	95.4	95.4	95.4	94.8
Capture (%) (2018-2019)	99.4	89.8	97.7	97.7	97.7	70.6

Concentrations more than Ambient Air Quality Objectives

- For the April 1st, 2024, to March 31st, 2025, there were no exceedances of the British Columbia objectives.
- Parameters measured with no associated objective have objective listed as "n/a"
- Complete list of objectives for British Columbia are available at.
    - https://www2.gov.bc.ca/assets/gov/environment/air-land-water/air/reports-pub/aqotable.pdf

Parameter	TRS (ppb)	SO_2 (ppb)	NO (ppb)	NO_2 (ppb)	NO_x (ppb)	O_3 (ppb)
Max 1-hr (2024-2025)	4.5	14.3	92.5	23.5	100.4	59.2
Max 1-hr (2023-2024)	4.4	7.2	53.7	27.4	65.0	70.4
Max 1-hr (2022-2023)	1.3	6.9	58.7	28.0	81.7	58.6
Max 1-hr (2021-2022)	3.4	9.2	44.5	22.6	54.7	69.2
Max 1-hr (2020-2021)	36.9	16.7	70.4	24.2	68.3	55.6
Max 1-hr (2019-2020)	2.1	13.9	51.3	22.9	59.6	58.1
Max 1-hr (2018-2019)	2.4	44.5	58.3	47.2	91.5	63.9
1-hour Obj	5 (PCO)	70 (CAAQS)	n/a	60 (CAAQS)	n/a	82 (NAAQS)
Max 24-hr (2024-2025)	1.0	1.6	18.7	12.7	23.0	45.4
Max 24-hr (2023-2024)	0.6	1.6	13.1	18.4	31.5	43.5
Max 24-hr (2022-2023)	1.1	1.6	12.6	15.1	25.6	42.7
Max 24-hr (2021-2022)	3.1	1.8	8.3	13.2	18.6	43.8
Max 24-hr (2020-2021)	2.5	3.8	4.2	13.0	17.3	46.4
Max 24-hr (2019-2020)	1.9	1.5	10.5	11.0	14.5	47.8
Max 24-hr (2018-2019)	2.1	4.5	15.0	17.8	31.4	51.8
24-hour Obj	2 (PCO)	n/a	n/a	n/a	n/a	n/a
Max 8-hr (2024-2025)						56.8
Max 8-hr (2023-2024)						62.5
Max 8-hr (2022-2023)						55.2
Max 8-hr (2021-2022)						63.5
Max 8-hr (2020-2021)						52.1
Max 8-hr (2019-2020)						53.7
Max 8-hr (2018-2019)						60.4
8-hour Obj	n/a	n/a	n/a	n/a	n/a	62 (CAAQS)

Monitoring Notes

- Site calibrations and station maintenance occurred on June 10th, 2024, September 28th, 2024, November 22nd, 2024, and March 18th, 2025.
- BC Ministry of Environment Site Audits occurred on July 18th, 2024, and November 20rd, 2024. Audit results are available *http://a100.gov.bc.ca/pub/acat/public/viewReport.do?reportId=43336*
    - TRS analyzers failed audit on Nov 20th, 2024.
        - Follow service on Nov 22nd, 2024, found the instrument operating within specification.
- During the March 2025 site visit, the analyzer rack in the station was redone to accommodate the installation of a gas dilution calibrator, zero air system and hydrocarbon analyzer. Calibrator and zero air are installed, Hydrocarbon analyzer will be installed in Q2 2025.

Validation Notes

- Validation is performed using both BC MOE and USEPA validation criteria. Validation is performed on 5-minute average values for each parameter and then used to calculate 1-hour, 24-hour and 8-hour rolling average periods.
- Internal instrument performance checks occur on 25-hour cycles. These checks include challenging the instrument against zero gas and a verified elevated target concentration. These performance checks are reviewed as part of regular data oversight to assure they are within specification for instrument operation.

Table of Contents

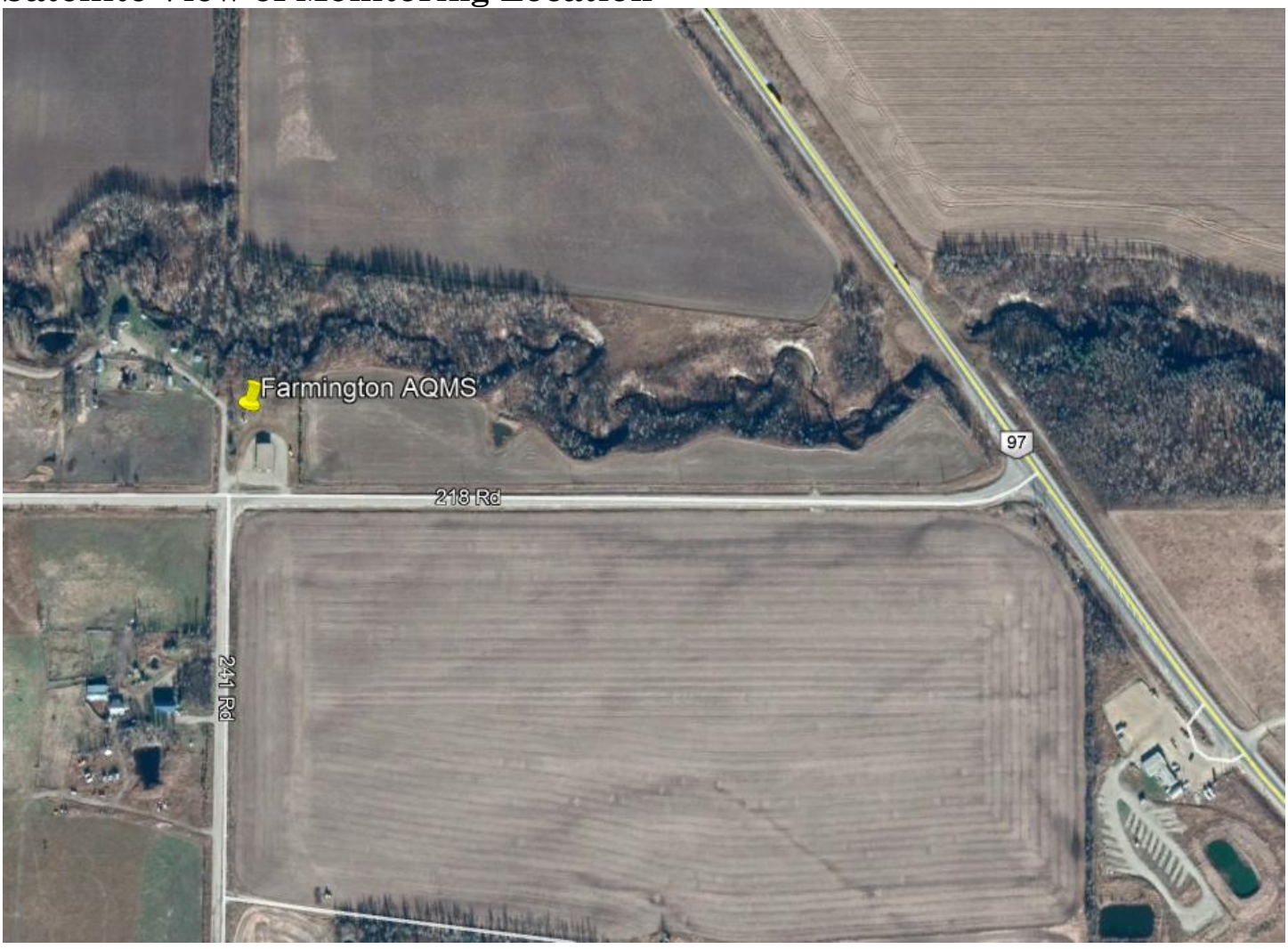
MONITORING SITE LOCATION

The monitoring site location is near the Farmington Community Hall located near Farmington, BC.

The site elevation is approximately 698m, the location is approximately.

55.913292°, -120.531641°

Satellite View of Monitoring Location



Site View Images

Panoramic

South View

South-East View

East View

North-East View

North View

North-West View

West View

South-West View

MONITORING DATA SUMMARIES

1-Hour Data Summary

Parameter	TRS	SO2	NO	NO2	NOx	O3
Avg (ppb)	0.0	0.2	0.8	2.4	3.2	27.1
Min (ppb)	0.0	0.0	0.0	0.0	0.0	0.0
Max (ppb)	4.5	14.3	92.5	23.5	100.4	59.2
Number #	8592	8606	8521	8523	8522	8603
Capture (%)	98.1	98.2	97.3	97.3	97.3	98.2
Std Dev.	0.0	0.4	2.7	2.8	4.5	11.6
T_{Min}	7-13-2024 22:00	8-1-2024 12:00	5-11-2024 15:00	1-26-2025 02:00	3-23-2025 13:00	6-4-2024 02:00
T_{Max}	9-22-2024 21:00	9-2-2024 09:00	6-10-2024 03:00	1-2-2025 21:00	6-10-2024 03:00	7-20-2024 16:00

24-Hour Data Summary

Parameter	TRS	SO2	NO	NO2	NOx	O3
Avg (ppb)	0.0	0.2	0.8	2.4	3.2	27.1
Min (ppb)	0.0	0.0	0.1	0.0	0.3	6.9
Max (ppb)	1.0	1.6	18.7	12.7	23.0	45.4
Number #	356	358	349	349	349	357
Capture (%)	97.5	98.1	95.6	95.6	95.6	97.8
Std Dev.	0.0	0.3	1.3	1.9	2.7	7.7
T_{Min}	2024-06-18	2024-06-24	2024-05-12	2025-01-26	2025-01-26	2024-12-21
T_{Max}	2024-07-19	2024-05-11	2024-06-10	2024-12-21	2024-06-10	2025-02-23

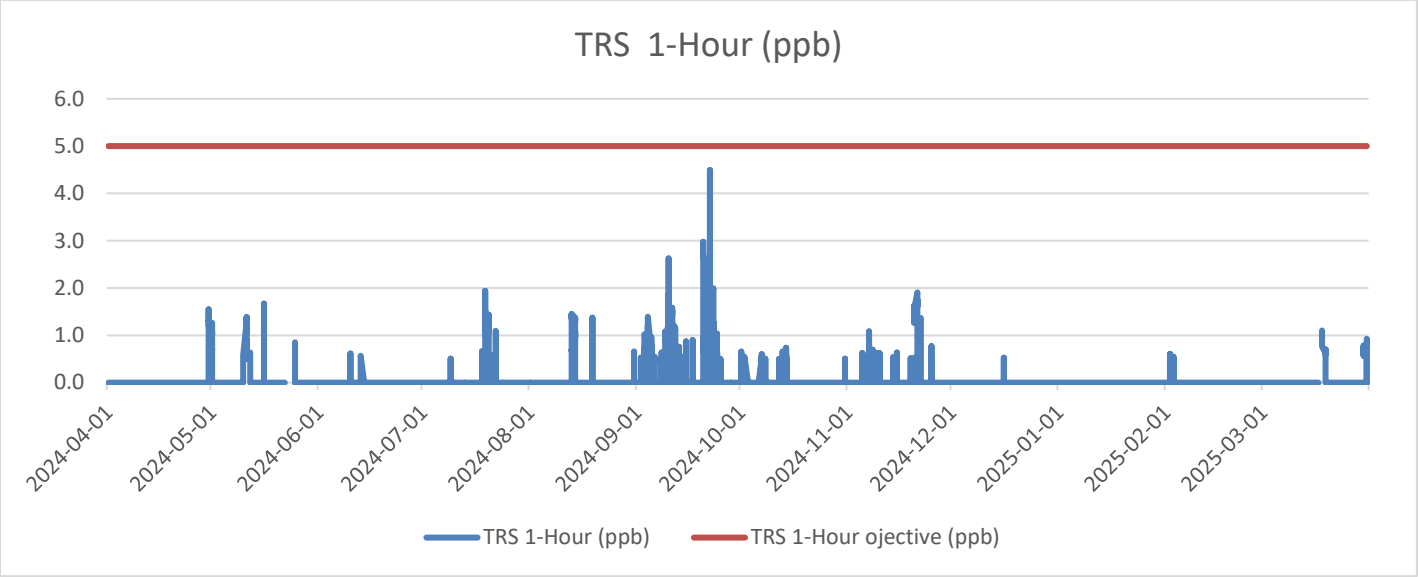
8-Hour Rolling Data Summary

Parameter	O3
Avg (ppb)	27.1
Min (ppb)	0.0
Max (ppb)	56.8
Number #	8547
Capture (%)	97.6
Std Dev.	10.4
T_{Min}	9-11-2024 05:00
T_{Max}	8-9-2024 18:00

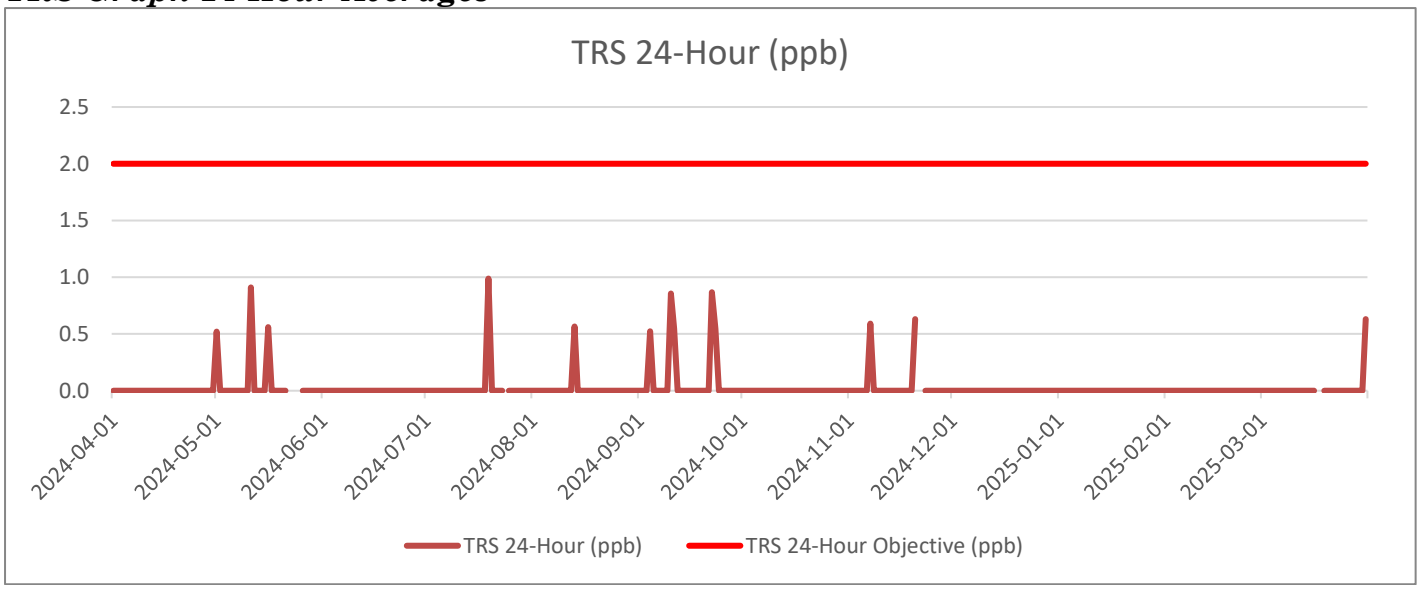
PARAMETER TREND GRAPHS

Total Reduced Sulphur (TRS)

TRS Graph 1-Hour Averages

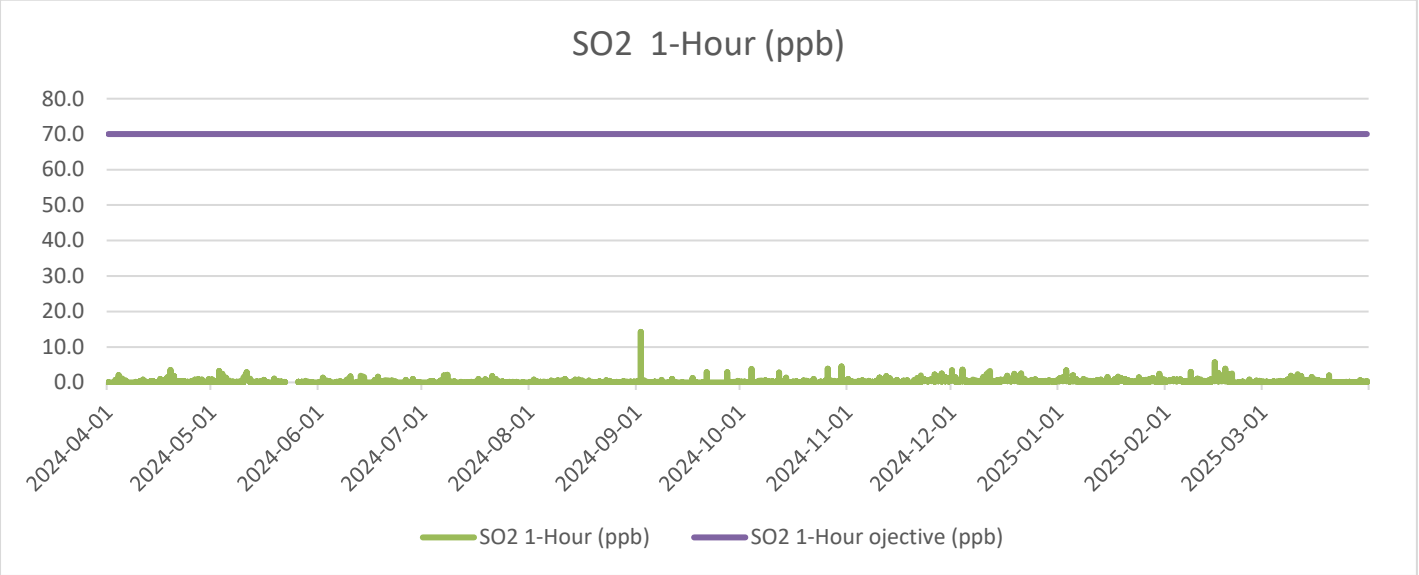


TRS Graph 24-Hour Averages

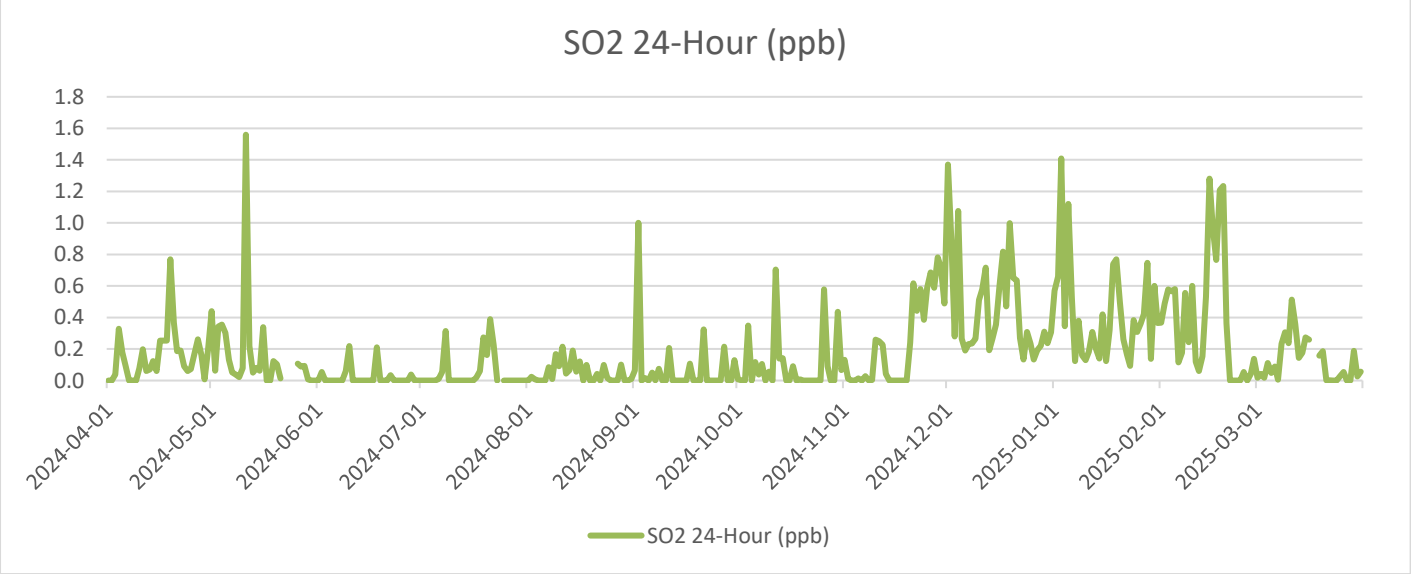


Sulphur Dioxide (SO_2)

SO_2 Graph 1-Hour Averages

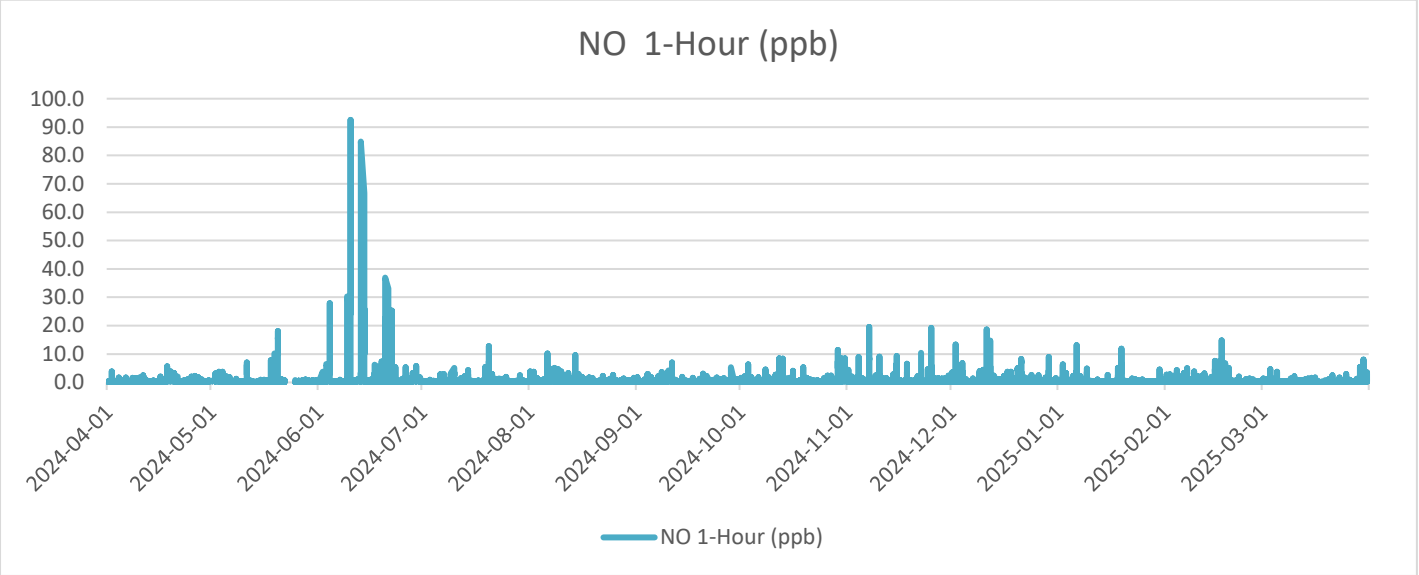


SO_2 Graph 24-Hour Averages

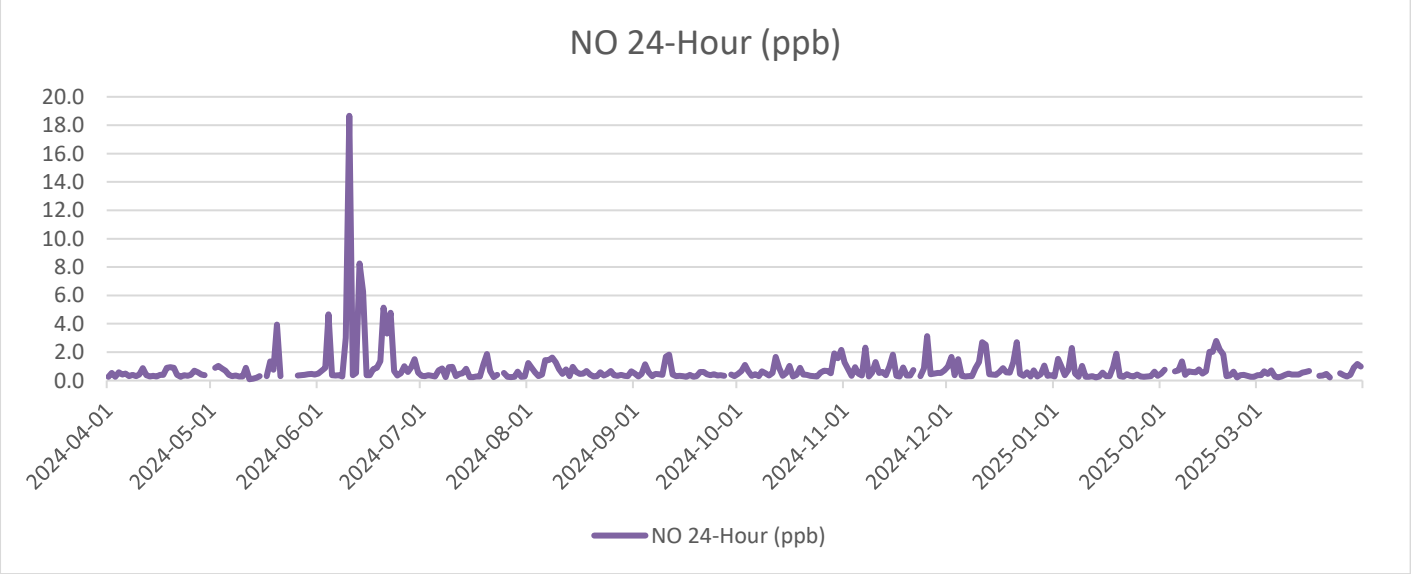


Nitrogen Oxide (NO)

NO Graph 1-Hour Averages

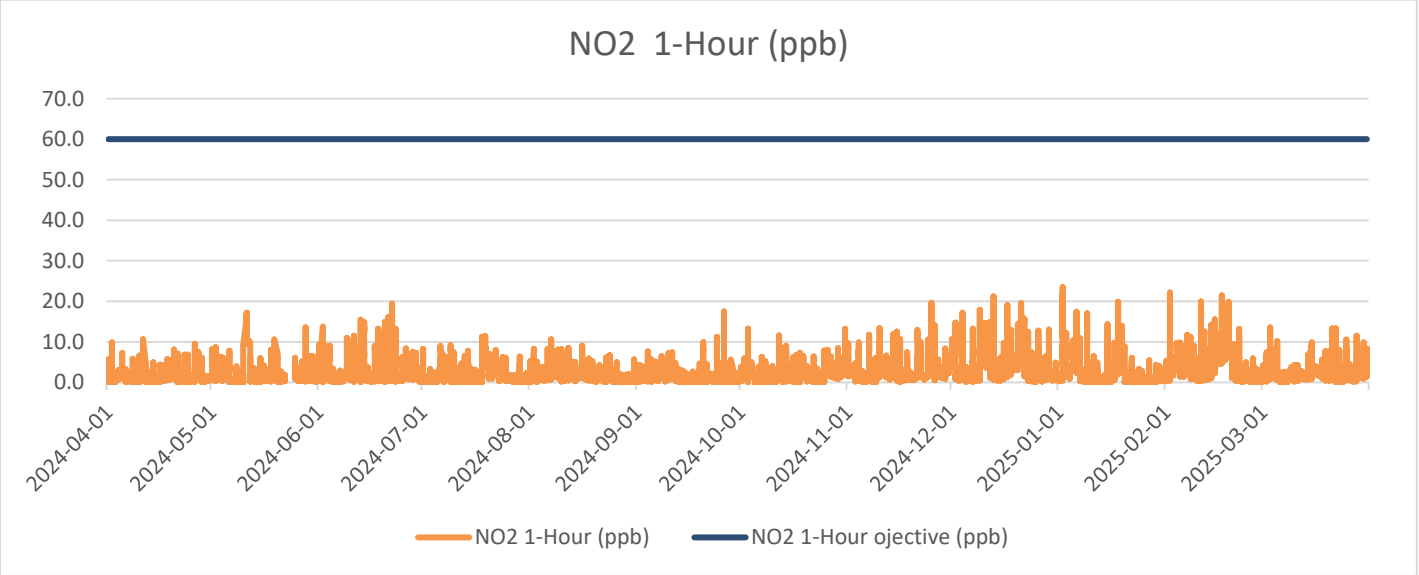


NO Graph 24-Hour Averages

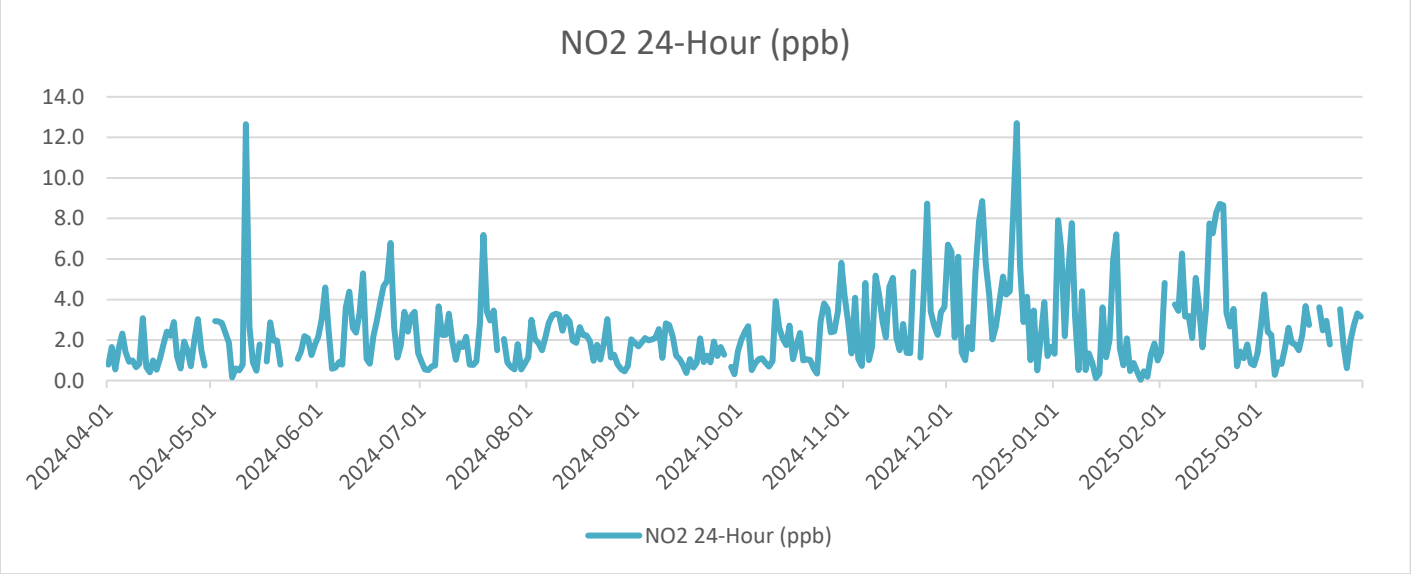


Nitrogen Dioxide (NO_2)

NO_2 Graph 1-Hour Averages

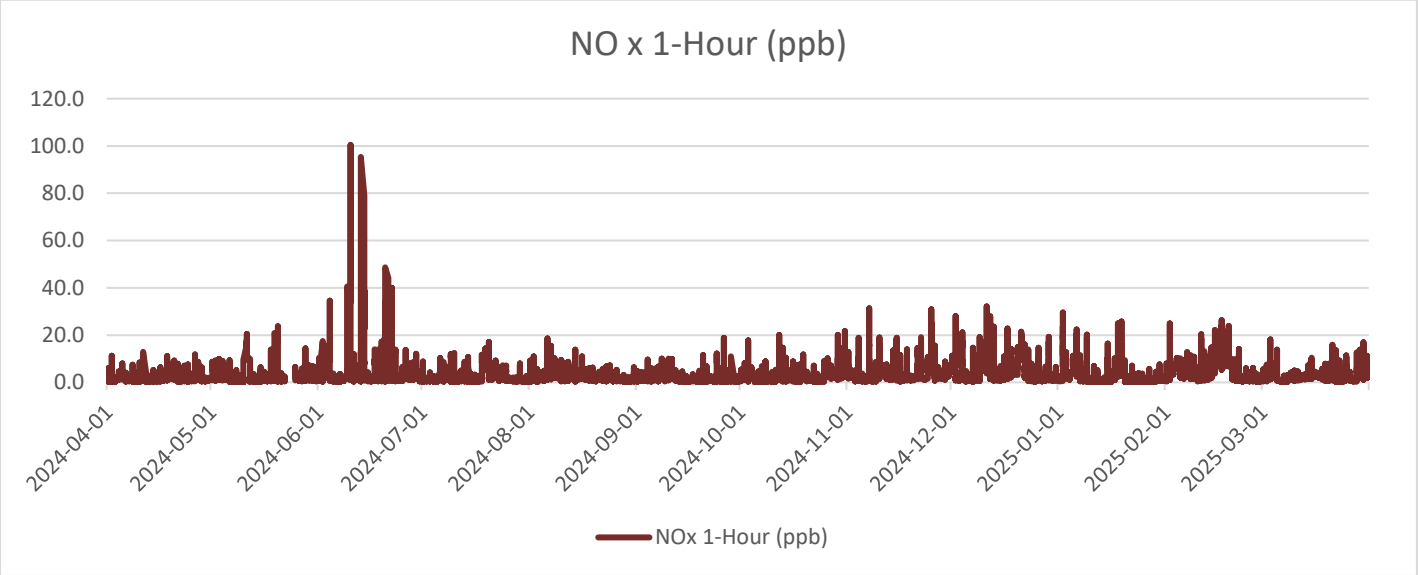


NO_2 Graph 24-Hour Averages

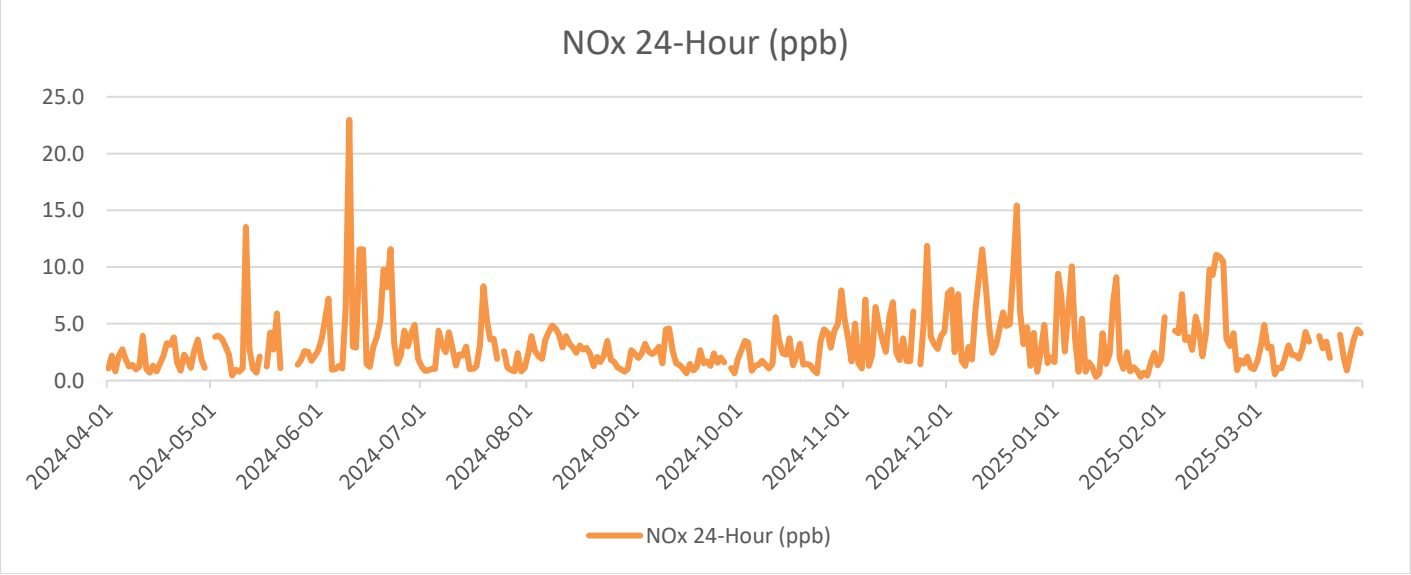


Oxides of Nitrogen (NO_x)

NO_x Graph 1-Hour Averages

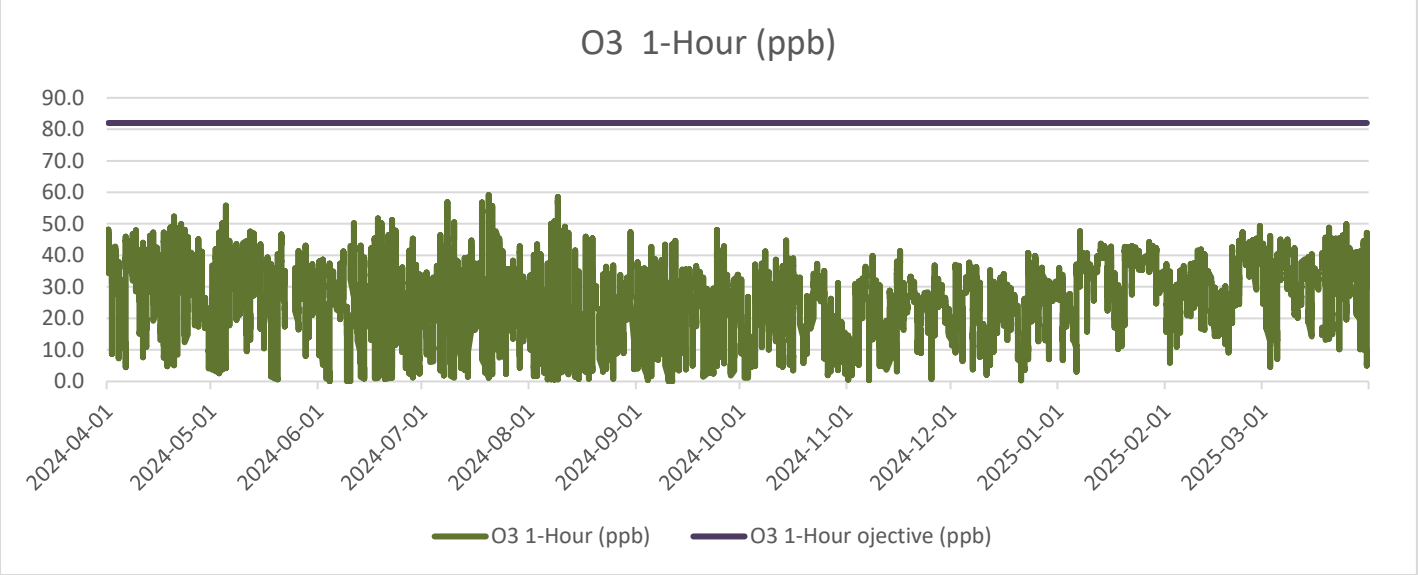


NO_x Graph 24-Hour Averages

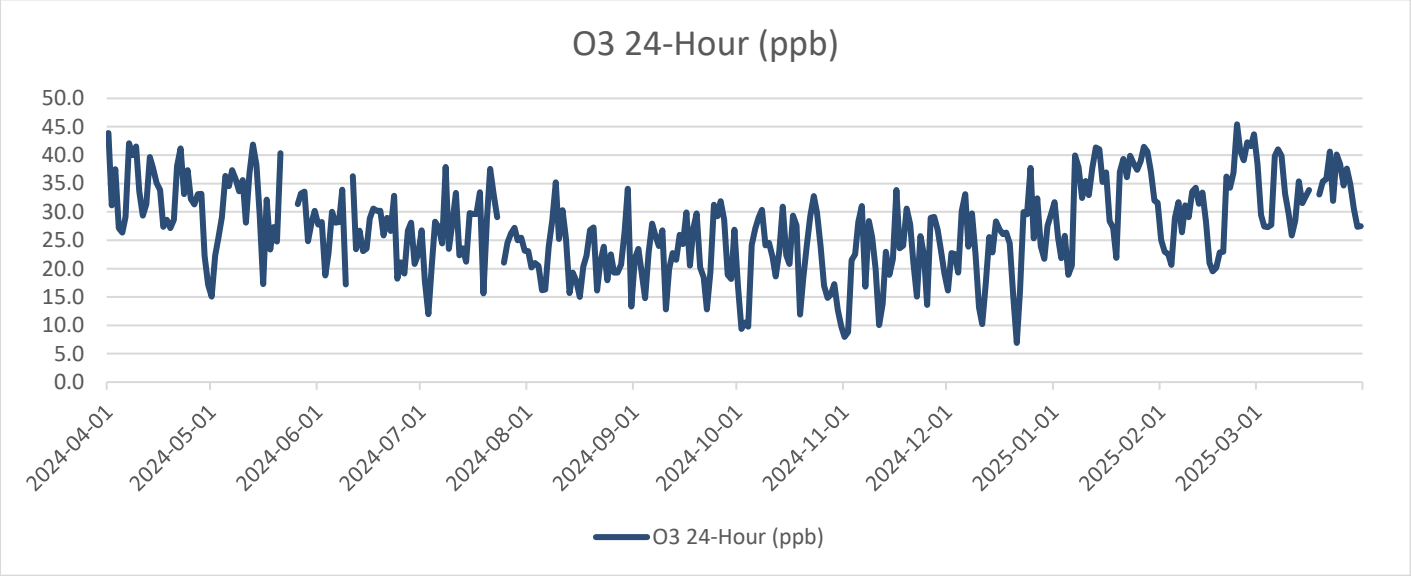


Ozone (O_3)

O_3 Graph 1-Hour Averages



O_3 Graph 24-Hour Averages



O_3 Graph 8-Hour Rolling Averages